



ROHDE & SCHWARZ

Test and Measurement
Division

Service Manual

SMY01

9 kHz to 1040 MHz
1062.5502.11

SMY02

9 kHz - 2080 MHz
1062.5502.12

SMY43

9 kHz to 2080 MHz
1062.5502.43

Volume 1
Service manual consists of 2 volumes

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Safety Instructions

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Safety Instructions

This unit has been designed and tested according to the standards outlined overleaf and has left the manufacturer's premises in a state fully complying with the safety standards.

In order to maintain this state and to ensure safe operation, observe the following instructions, symbols and precautions.

- 1) When the unit is to be permanently cabled, first connect protective ground conductor before making any other connections.
- 2) Built-in units should only be operated when properly fitted into the system.
- 3) For permanently cabled units without built-in fuses, automatic switches or similar protective facilities, the AC supply line shall be fitted with fuses rated to the units.
- 4) Before switching on the unit ensure that the operating voltage set at the unit matches the line voltage.
If a different operating voltage is to be set, use a fuse with appropriate rating.
- 5) Units of protection class I with disconnectible AC supply cable and plug may only be operated from a power socket with protective ground contact.
The protective ground connection should not be made ineffective by an extension cable.
Any breaking of the protective ground conductor within or outside of the unit or loosening of the protective ground connection may cause the unit to become electrically hazardous.
The protective ground conductor shall not be interrupted intentionally.
- 6) Before opening the unit, isolate it from the AC supply.
Adjustment and replacement of parts as well as maintenance and repair should be carried out only by specialists approved by R & S.
Observe safety regulations and rules for the prevention of accidents.
Use only original parts for replacing parts relevant to safety (e.g. power on/off switches, power transformers or fuses).
- 7) Also observe the additional safety instructions specified in this manual.

Explanation of Symbols Used



- Read operating manual, observe the safety symbols used



- Caution, shock hazard



- Protective ground connection



- Unit ground



- Equipotential (floating ground)



- Ground

Patent Information

This product contains technology licensed by Marconi Instruments LTD. under US patents 4609881 and 4870384 and under corresponding patents in Germany and elsewhere.

**Supplement
to Service Manual
SIGNAL GENERATOR
SMY43
1062.7805.43**

For model SMY43 the following limit values are valid for diagnostic points or module tests:

1. 1062.5502 Chapter 6.3.1.2
Table:
Diagnostic point 15 (Sp.fct.115): max. .5V, max. 21.5V
2. 1062.6409 Chapter 7.4.4
VCO control voltage continuously rising from about 1V to about 20V in frequency range
780.000 001 to 1040MHz
3. 1062.6409 Chapter 7.4.4
Table:
VCO2 RF900MHz, 780MHz min. 1V, 1040MHz max. 21V
4. 1062.6409 Chapter 7.4.5.4
Table:
780MHz 1V to 2V
1040MHz 18.5V to 21V
5. 1062.5502 Chapter 7.4.13.1
Diagnostic point 15: min. .5V, max. 21.5V

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Cross-reference list
Parts list
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6.1 List of Modules and Function Description

| | Module German/ | English | Abbreviation | Part No |
|----------|-------------------|--------------------|----------------------|-----------|
| A1 | Tastatur/Anzeige | Keyboard/Display | FRONT | 1062.6809 |
| A2 | Rechner | Controller | CPU | 1062.6309 |
| A4 | Synthese | Synthesis | YSYN | 1062.6409 |
| A5 | Ausgangsteil 1GHz | Output Unit 1GHz | OPUY01 | 1062.6209 |
| | Ausgangsteil 2GHz | Output Unit 2GHz | OPUY02 | 1062.7005 |
| A6 | Eichleitung | Attenuator 1GHz | ATT01 | 0826.5065 |
| | Eichleitung | Attenuator 2GHz | ATT02 | 0801.1108 |
| A7 | Netzteil | Power Supply | POW | 1062.5690 |
| Options: | | | | |
| A8 | SMY-B1 | Referenzoszillator | Reference Oscillator | ROSC |
| | | | | 1039.1027 |
| A12 | SMY-B40 | Pulsmodulator und | Pulse Modulator and | PMOD |
| | | High Output Power | High Output Power | 1062.9008 |

The following text refers to the functional circuit diagram 1062.5502.01FS and circuit diagram 1062.5502.01S.

The SMY 01/02 synthesizes the basic octave from 520 to 1040 MHz, which all other frequencies are derived from by division, mixing or by doubling as is the case with SMY02.

A single-loop-synthesizer generates the basic octave without synthesis error using a fractional divider with a resolution of 1 Hz. The frequency extension by division, mixing and doubling is followed by level conditioning and the mechanical attenuator.

6.1.1 Synthesis

The output oscillators are synchronized in a PLL to the reference frequency 2 MHz by means of a fractional divider. Two RF dividers with the factors two and four extend the frequency range up to 65 MHz.

The frequency range below 65 MHz is generated by down-conversion using a 640-MHz oscillator.

The circuit contains a 10-MHz TCXO as standard reference. A reference PLL allows for synchronizing to an external reference frequency. The spectral purity close to the carrier can be improved by synchronizing to an optional OCXO.

The frequency modulation for low frequencies is effected via the division factor and thus via the PLL. In the case of high modulation frequencies, the oscillators are directly modulated. A flat frequency response is obtained if the two modulation paths have the same sensitivity and delay.

The phase modulation is obtained by differentiating the modulation signal.

6.1.2 Output Unit

The signal of the synthesis in the frequency range from 65 to 1040 MHz is passed via an amplitude modulator and an amplitude control element to a switchable filter bank. A changeover switch selects either the direct signal path via the output amplifiers to the level detector and to the output socket or a second path, which generates the frequency range from 9 kHz to 65 MHz by down-conversion with the 640-MHz LO signal. For frequencies below 10 MHz, a second RF detector at the RF signal path of the mixer is activated for level control. The SMY02 provides a third path, which generates the output frequency range above 1040 MHz by doubling.

6.1.3 Controller

A processor takes control of the overall instrument. The program memory consists of EPROMs and a battery-backed RAM. The diagnostic voltages are measured by an A/D converter which is integrated in the CPU. Series-connected operational amplifiers allow for switching over the amplification between $V=1$ and $V=16$. In addition, the controller module accommodates the AF synthesizer 1 - 500 kHz which has been realized as DDS component. The external LOW-HIGH monitoring logic and the channel switchover for the AM are also integrated.

6.1.4 Keyboard and Display

This module contains the keyboard and the keyboard matrix. LEDs indicate the input parameter selected and signal the output of error messages. A spinwheel allows for continuous variation of a selected parameter. Two LCD displays are provided for display of frequency, level and the modulation and AF-frequency settings.

6.1.5 Attenuator

The mechanical attenuator extends the adjustable level range by 130 dB in the case of SMY01 and 135 dB for SMY02. An overvoltage protection for dc and ac voltages, which protects the output against externally applied voltages, has been integrated. It consists of a detector, a limiter and a mechanical isolating switch, which is directly actuated by the attenuator control. This isolating switch adopts the open position with switching off the instrument.

6.1.6 Reference Oscillator (Option)

The optional oven-controlled crystal oscillator may be used as reference to improve the long-term stability and the residual FM close to the carrier. A 12-bit D/A converter on the synthesis allows for adjusting the module to 10 MHz. An identification circuit on the module enables the controller to identify with switch-on, which position the corresponding switches on the synthesis assume and whether the integrated TCXO is used as reference for synchronization.

If an external reference is used for synchronization, the TCXO on the synthesis is operated, such that the residual FM can not be improved by the oven-controlled crystal oscillator.

6.1.7 Pulse Modulator and High Output Power (Option)

This option increases the output level of the SMY up to 19 dBm (25dBm overrange). The pulse modulator switches the RF signal faster than 20 ns. It is controlled via an external TTL signal from the rear panel. When fitting or removing this option, the modules output unit, attenuator and motherboard are modified. Fitting or removing the option is only possible at the factory or at authorized service centers.

6.2 Test Instruments and Utilities

1. Controller acc. to industrial standard PC/XT/AT with IEC-625/IEEE488 interface for remote control and connecting cable for IEC/IEEE bus. Rohde&Schwarz Basic and the corresponding IEC/IEEE-bus drivers must be installed.
2. Program floppy disk containing service programm 'SMYSERVI.BAS'.
3. RF power meter, 5 kHz to 1.04(2.08) GHz, e.g., R&S NRVS(1020.1809.02) with power sensor NRV-Z51(875.9004.02).

6.3 Troubleshooting

6.3.1 Utilities Installed

Internal measuring points are provided on the modules YSYN and OPUY01/02 for self-monitoring and service purposes. The most important of them trigger an internal alarm when limits are exceeded, all points can be measured on the controller module via multiplexers and a A/D converter.

The control voltages and output levels are internally measurable on the modules. In addition, test points are provided for adjustment purposes and at locations which are important for the signal flow, where external measurement would be difficult.

6.3.1.1 Self-Monitoring, Error Message

If the control voltage within a control loop exceeds the permissible range, an alarm is triggered on the controller and indicated on the display. It may be due to missing calibrations, maloperation, violation of the specified setting parameters (e.g., level) or internal faults.

Elimination of errors should be carried out according to the below-mentioned order, since the errors could be sequential errors of the upper errors.

If the controller receives an alarm message, the status LED blinks. In case of range violation of the specification (e.g., level 19 dBm or > 19 dBm with option SMY-B40) the LED normally lights up. When the status key is actuated, the error or overrange can be further specified by an error code in the right display.

Status codes of errors and overrange/underrange settings:

| Status code | Meaning |
|--------------------------------------|---|
| 0 | no error |
| Function errors | |
| 1 | 10-MHz reference loop out of synchronization |
| 2 | 640 MHz loop out of synchronization |
| 3 | Main-oscillator loop out of synchronization |
| 4 | Level control does not work |
| 5 | External overvoltage at RF output |
| 6 | ROM-data error |
| 7 | RAM-data error of the stored settings |
| 8 | RAM-data error of VCO correction values |
| 9 | RAM-data error of FM correction values |
| 10 | RAM-data error of LEVEL PRESET correction values |
| 11 | EEPROM-data error of RF-level correction values |
| 12 | EEPROM data error of REF-OSC correction values |
| 15 | Calibration not possible |
| Faulty entries | |
| 50 | Syntax error |
| 51 | Entered value out of permissible range |
| 52 | Unit not permitted for selected parameter |
| 53 | Header not permitted (IEC/IEEE bus) |
| 54 | AF synthesizer can not be switched off with internal modulation switched on |
| 55 | FM deviation too large for selected RF |
| 56 | Variation not enabled, if the corresponding parameter is not switched on (IEC/IEEE-bus) |
| 57 | Calibration of FM-DC center frequency only with FM DC |
| Overrange/Underrange settings | |
| 70 | AM not specified with the level set |
| 71 | AM not specified for AF > 50 kHz |
| 72 | RF < 9 kHz |
| 73 | AM EXT signal out of tolerance |
| 74 | FM/φM EXT signal out of tolerance |
| 75 | φM not specified for AF < 20 Hz or AF > 20 kHz |
| 76 | AF > 500 kHz |
| 77 | Level > 13 dBm or > 19 dBm with option SMY-B40 |
| 78 | OVEN COLD |

Table about possible error causes for status message:

| Type of error | Possible error cause |
|---|--|
| Error message "Err. 1" 10-MHz reference loop out of synchronization | External reference selected, however, frequency not within pulling range or level too small. |
| Error message "Err. 2" 640-MHz loop out of synchronization | 640-MHz LO does not supply any signal |
| Error message "Err. 3" Main-oscillator loop out of synchronization | RF oscillators do not supply any signal Reference signal missing (int. or ext.) Modulation signal with FM ext. > $1V_{SS}$ |
| Error message "Err. 4" Level control does not work correctly | Level overrange AM overrange Overrange with AM EXT DC 'Level-Preset' calibration faulty |
| Error message "Err. 5" External overvoltage at RF output | Applied RF level too high Applied dc voltage too high Open circuit at RF socket with level overrange |

6.3.1.2 Diagnosis

Since the voltage range of the multiplexers is limited to ± 5 V, voltage dividers are required at many diagnostic points. The controller takes this scaling factor into account such that the correct value prior to the voltage divider is displayed.

The test points mentioned below can be selected in order to further localize a possible error. The indicated voltages are recommended values for a properly-working instrument. They are displayed via special functions and can be read by a controller via the IEC/IEEE bus.

The diagnosis provides an amplification switchover $v=16$ for exact determination of low voltages. It is controlled by autoranging which switches over at 200 mV and displays the result with three decimals in 'mV'. The resolution of the diagnosis is 10 mV with amplification $v=1$ and 0.6 mV with amplification $v=16$.

| Diagnosis OPUY 01/02 | | | | | | | |
|----------------------|------------------|-------------|---|--------|---------|---------|----|
| Diag. point | Special function | Test point | Description | IR [V] | min [V] | max [V] | Tf |
| 0 | 101 | Diagnd | Ref 10kOhm with SMY01 | | -.03 | +.03 | 1 |
| | | Udoubler | RF level at doubler with SMY02 | +1 | +5. | 3 | |
| 1 | 102 | Vdet | Detector output FOPU1/2 | | +1 | +5. | 3 |
| 2 | 103 | Vdetmix | Detector in the mixer path | | +1 | +5. | 3 |
| 3 | 104 | Vdetfilt | Detector subsequent to filter | | | | |
| 4 | 105 | Urf_soll | Level control voltage | | +2 | 3. | 3 |
| 5 | 106 | Uregelverst | Voltage subsequent to control amplifier | X | -6. | 0. | 3 |
| 6 | 107 | Umodulator | Control voltage of AM modulator | | -15 | 0. | 3 |
| 7 | 108 | Ustellglied | Control voltage 'Level-Preset' | | -15 | 0. | 3 |

| Diagnosis YSYN | | | | | | | |
|----------------|------------------|------------|-------------------------------------|----|---------|---------|----|
| Diag. point | Special function | Test point | Description | IR | min [V] | max [V] | Tf |
| 9 | 109 | R146 | Reference 10kOhm | | -.05 | +.05 | 1 |
| 10 | 110 | 10Ref | 10-V reference voltage | | 9.9 | 10.1 | 3 |
| 11 | 111 | Pll-VTCXO | Control voltage of VTCXO referemce | X | 3.0 | 4.7 | 3 |
| 12 | 112 | Pll-640 | Control voltage of 640-MHz LO | X | 4.0 | 17.0 | 5 |
| 13 | 113 | Ref-640 | Level 640-MHz VCO on | | .1 | .6 | 1 |
| | | | off | | - | .05 | |
| 14 | 114 | FSYN | Output level FSYN | | .60 | 1.0 | 1 |
| 15 | 115 | Pll-FSYN | Control voltage VCO's FSYN | X | 1.75 | 21.5 | 5 |
| 16 | 116 | FM-Cal | Difference deviation detector, 1kHz | | 0. | .05 | 3 |

The column 'IR' indicates, whether a diagnostic point may trigger an interrupt (cf. list of status codes 6.3.1.1)

6.3.1.3 List of Special Functions

| Special functions | Code | Remote control command |
|---|---------|----------------------------|
| Non-interrupting level setting | 1 | ATTENUATOR:FIXED |
| Normal level setting | 2 | ATTENUATOR:NORMAL |
| Level EMF | 3 | LEVEL:EMF |
| Normal level | 4 | LEVEL |
| AM dual-tone | 5 | AM:DUAL |
| AM normal | 6 | AM |
| FM/φMm dual-tone | 7 | FM:DUAL (e.g., FM) |
| FM/φM normal | 8 | FM (e.g., FM) |
| BLANK on | 9 | BLANK:ON |
| BLANK off | 10 | BLANK:OFF |
| BLANK polarity inverted | 11 | BLANK:INVERTED |
| BLANK polarity normal | 12 | BLANK:NORMAL |
| ALC bandwidth narrow | 13 | SPECIAL 13 |
| ALC bandwidth automatically adapted | 14 | SPECIAL 14 |
| ALC bandwidth broad | 15 | SPECIAL 15 |
| ALC bandwidth automatically adapted | 16 | SPECIAL 16 |
| Set power-on-clear-flag | 17 | |
| Delete power-on-clear-flag | 18 | |
| User request | 19 | |
| Switch ALC off | 21 | ALC:FIXED |
| Switch ALC on | 22 | ALC:NORMAL |
| AM invers | 23 | SPECIAL 23 |
| AM normal | 24 | SPECIAL 24 |
| RF Output Impedanz "OPEN" bei Level | 25 | SPECIAL 25 |
| RF Output Impedanz "50 Ω" bei Level | 26 | SPECIAL 26 |
| Display firmware version | 29 | |
| Display test | 31 | SPECIAL 31 |
| ROM test | 33 | SPECIAL 33 |
| RAM test | 35 | SPECIAL 35 |
| EEPROM test | 37 | SPECIAL 37 |
| All internal calibrations (SPECIAL 41/43/45) | | |
| VCO calibration routine | 41 | SPECIAL 41 |
| FM calibration routine | 43 | SPECIAL 43 |
| LEVEL PRESET calibration routine | 45 | SPECIAL 45 |
| Calibration RF level on | 47 | SPECIAL 47 |
| Terminate calibration of RF level | 48 | SPECIAL 48 |
| Level correction off | 49 | LEVEL:CORRECTION:OFF |
| Level correction on | 50 | LEVEL:CORRECTION:ON |
| Calibration REF-OSC on | 51 | SPECIAL 51 |
| Terminate calibration REF-OSC | 52 | SPECIAL 52 |
| Calibration routine FM-DC center frequency | 55 | SPECIAL 55 |
| Switch off diagnostic test point | 100 | TEST:OFF |
| Switch on diagnostic test point | 101-116 | TEST:POINT 1 (zB. Punkt 1) |

6.3.2 Module Test with Internal Diagnosis

The diagnostic points are selected using the special functions 101 to 116. The spinwheel allows for stepping through the diagnostic points. 'Special 100' switches off the diagnosis.

6.3.2.1 Troubleshooting on Individual Modules

Prior to making the given settings, the instruments should assume a defined state by a 'PRESET'. Diagnostic points which are not mentioned in the following should be within the given tolerances independent of the settings.

6.3.2.1.1 Controller, Display and Diagnosis (CPU)

If the instrument does not react upon switching on the power switch, check whether the 5-V supply voltage is within the tolerance range.

If the instrument does not react upon turning the spinwheel or pressing any key, check whether the instrument is set to remote control (IEC bus) or whether any key has got stuck. If this is the case, proceed as described in the service instructions for the keyboard/display module.

To test the diagnosis, the diagnostic points 109 and 110 can be selected, i.e., two voltages which are constant independent of the operating state. Diagnostic point 109 allows for testing the zero point of the diagnosis via a 1-kOhm reference resistance on the synthesis, a 10-V voltage of a regulator on the same module (diagn. pt. 110) allows for determination of the correct scale.

- *The tests described above assume that the synthesis is fitted. The latter must provide a correctly-working 10-V reference for the second measurement.*

If instrument settings (also stored ones) are not retained upon switching on and off, replace the lithium battery on the controller module.

(cf. operating manual, Section 4.1.3)

6.3.2.1.2 Synthesis (YSYN)

Correct synchronization of the synthesis oscillators in CW mode can be checked via the diagnostic point 15 (special function 115).

- Switch on test point 15 on the SMY.
Step through the frequency range from 520 to 780 MHz. The complete tuning range of the first oscillator is thus swept through.
- _ The VCO control voltage must continuously increase from approx. 2 V to approx. 19 V.
- Step through the frequency range from 780.000 001 to 1040 MHz with the test point switched on. The complete tuning range of the second oscillator is thus swept through.
- _ As above, the VCO control voltage must continuously increase from approx. 2 V to approx. 19 V.

6.3.2.1.3 Output Unit (OPUY01/02)

The correct function of the output unit can be checked most easily by checking the modulator voltage.

- Set the SMY01/02 to 10MHz unmodulated, set the level to 13 dBm (19 dBm with option SMY-B40). Select non-interrupting level setting via special function 1 (Spec 1).
- Use special function 49 to switch off the level correction.
- Terminate the RF-output with 50 Ω .
- The voltages given in the table below must be measured with a tolerance of $\pm 10\%$ of the display ± 60 mV depending on the output frequency and level.

This measurement requires a valid table of 'Level Preset' values to be stored in the controller. The rated values of the detectors and of the command value for level control are indicated in the table for further error localization.

If the values given in the table are not obtained, the signal level subsequent to the filter bank can be measured via the diagnostic point 3 (Spec. 104). Set the maximum level. With SMY02, the level prior to the modulator of the doubler path can be tested as well.

Without option SMY-B40, the values listed below apply:

| Level | Vmodulator | | Vdet | | Vdetmix | Vrf_soll |
|-------|-------------------|--------------|-----------------|-------------|-------------|-------------|
| | Diagn. pt.6 | Diagn. pt.6 | Diagn. pt.1 | Diagn. pt.1 | Diagn. pt.2 | Diagn. pt.4 |
| [dBm] | Spec. 107 | | Spec. 102 | | Spec. 103 | Spec. 105 |
| | f \leq 1040 MHz | f > 1040 MHz | f \geq 10 MHz | | f < 10 MHz | |
| | | | SMY01 | SMY02 | | |
| 13 | 6.3 | 7.5 | 3.3 | 3.0 | 9.97 | -3.0 |
| 7 | 3.9 | 5.4 | 1.65 | 1.5 | 4.98 | -1.5 |
| 0 | " | " | .7 | .64 | 2.13 | -.64 |
| -6 | " | " | .35 | .32 | 1.06 | -.32 |

The detector voltage is a measure for the actual level applied to the output. A correct modulator voltage requires a correct operating point which is determined by the preset level. Faulty calibration thus leads to a modulator voltage which does not correspond to the values given in the table in spite of correct regulation.

With option SMY-B40, the values listed below apply:

| Level | Vmodulator | | Vdet | | Vdetmix | Vrf_soll |
|-------|-------------------|--------------|-----------------|-------------|-------------|-------------|
| | Diagn. pt.6 | Diagn. pt.6 | Diagn. pt.1 | Diagn. pt.1 | Diagn. pt.2 | Diagn. pt.4 |
| [dBm] | Spec. 107 | | Spec. 102 | | Spec. 103 | Spec. 105 |
| | f \leq 1040 MHz | f > 1040 MHz | f \geq 10 MHz | | f < 10 MHz | |
| | | | SMY01 | SMY02 | | |
| 19 | 6.3 | 7.5 | 1.8 | 1.8 | 2.2 | -3.0 |
| 13 | 3.9 | 5.4 | .9 | .9 | 1.1 | -1.5 |
| 6 | " | " | .4 | .4 | .48 | -.64 |
| 0 | " | " | .2 | .2 | .24 | -.32 |

- Use special function 50 to switch on the level correction again.

6.3.2.1.4 AF Generator (CPU)

The output level of the AF generator can be tested easily by means of the external High/Low monitoring logic. The AF generator output must only be connected to the FM ext input on the front of the instrument via a short BNC cable.

- Select external FM modulation (FM ext/AC) on the SMY. Set the AF frequency to 1 kHz.

— The external high/low indication in the right display must indicate neither 'High' nor 'Low'.

If the FM-external monitoring logic is assumed to be faulty, the AM-external monitoring logic can be used also. The test procedure must be carried out correspondingly.

6.3.3 Troubleshooting Acc. to the Type of Error

In the following, the errors are grouped acc. to the type of error. The order the boards which are assumed to be faulty are listed corresponds to the signal flow.

6.3.3.1 Frequency Error

A8 Reference Oscillator ROSC (Option)
A4 Synthesis YSYN
A5 Output Unit OPUY01/02

6.3.3.2 Level Error

A5 Output Unit OPUY01/02
A12 Power Module (option SMY-B40) PMOD
A6 Attenuator ATT01/02

6.3.3.3 AM Error

A5 Output Unit OPUY01/02
A12 Power Module (option SMY-B40) PMOD
A2 AF Generator CPU

6.3.3.4 FM/φM Error

A4 Synthesis YSYN
A2 AF Generator CPU

6.3.3.5 Level of Harmonics too High

A5 Output Unit OPUY01/02
A12 Power Module (option SMY-B40) PMOD

6.3.3.6 Poor Spectral Purity

A4 Synthesis YSYN
A5 Output Unit OPUY01/02
A12 Power Module (option SMY-B40) PMOD

6.4 Testing and Adjustment

6.4.1 Calibration Routines

Valid calibration values for the various functions are required for trouble-free operation of the instrument according to the given specifications.

The calibration data of VCO, FM, and LEVEL-PRESET calibrations are stored in the battery-backed RAM of the controller. The calibration data of level correction and reference oscillator are stored in the EEPROM.

Most of the required calibrations are performed internally and do not require any external utility. They can be called by means of special functions.

6.4.1.1 VCO Calibration

The VCO calibration is called via special function 41 and determines the VCO slope of the RF oscillators on the synthesis module. The PLL gain which varies due to the VCO slope and the different dividing factors in the feedback path is compensated for by means of the calibration values.

- *Without valid VCO calibration, it may occur that the transient response with change of frequency and the FM performance are out of the range specified in the data sheet. This routine must be called subsequent to replacement of the modules YSYN or CPU. The instrument should have reached the final operating temperature.*

_ The VCO calibration is initiated by special function 41 (see operating manual). Subsequent to calibration, the previous instrument setting is restored.

6.4.1.2 FM Calibration

With FM calibration, the scales of the two FM-modulation paths (dividing factor via the PLL control and VCO tuning voltage via the control) are mutually adjusted.

- *The VCO calibration must have been called successfully prior to FM calibration in order to receive valid calibration data. Large temperature variations during operation may require the calibration to be repeated (cf. data sheet SMY FM-DC).*

_ The FM calibration is initiated by special function 43 (see operating manual). Subsequent to calibration, the previous instrument setting is restored.

The calibration data are stored in the RAM after successful calibration, which can be repeated any time.

6.4.1.3 Calibration of FM-DC Center Frequency

Normally, it is not absolutely required to call this calibration since the accuracy of the center frequency is very high even without explicitly calling the calibration. However, if the accuracy is to exceed 0.1% of the FM-deviation, this calibration of the FM-DC center frequency can be called via special function. It is automatically performed with first setting of an FM-DC.

- The calibration of the FM-DC center frequency is initiated by special function 55 (see operating manual). It takes approx. 4 seconds.

6.4.1.4 Level Preset

The instrument-specific level preset is performed to ensure that level control always works in the optimum operating point.

- *The AM characteristics worsen if the calibration table is missing or incorrect. Level control may even oscillate. The calibration should be performed after the instrument has reached its operating temperature.*

This calibration is always required after repair or replacement of the controller, synthesis, output unit or option SMY-B40. The synthesis must work correctly for this calibration.

- The level-preset calibration is initiated by special function 45 (see operating manual). Subsequent to calibration, the previous instrument setting is restored.

The calibration data are stored in the RAM after successful calibration, which can be repeated any time.

6.4.1.5 Output Level Correction

The accuracy of the output level is obtained by a level correction according to a table stored in the controller. This table is produced by means of a test program and a calibrated power meter and passed into the EEPROM of the controller via the IEC/IEEE bus. The complete calibration procedure can also be performed manually.

Manual calibration only requires the power meter specified under 6.2, item 3.

Automatic calibration requires the utilities listed in 6.2, items 1 to 3.

6.4.1.5.1 Manual Calibration of Level Correction

- Connect calibrated power meter to RF socket.
- Call special function 47

The first calibration frequency is displayed. By pressing the RF-key the calibration frequencies can be varied, by pressing the LEVEL-key the correction value. The entered value is written into the calibration table by pressing the ENTER-key. The next calibration frequency is displayed automatically. Proceed as above until reaching the last interpolation value. Call special function 48 to store the obtained values in the EEPROM.

- Call special function 48

To quit the actual calibration procedure without storing the entered table in the EEPROM the OFF-key is to be set. In this case the calibration table is for temporary use only.

6.4.1.5.2 Program-controlled Level Calibration

- Connect calibrated power meter to RF socket.
- Connect controller, SMY and power meter to IEC-bus cable.
- Load Rohde & Schwarz-Basic and IEC-bus driver.
- Load and start the service program 'SMYSERVI.BAS'.
- Call the level-correction calibration in the submenu 'Calibrations'.

_ Calibration runs automatically.

6.4.1.6 Calibration of Reference Oscillator

Adjustment is required to ensure the accuracy of the reference frequency with the reference-oscillator option OCXO fitted. A D/A converter on the synthesis generates a tuning voltage which sets the reference oscillator to the correct frequency. The voltages for each individual OCXO have been determined in the factory. The correct tuning voltage is indicated on the label fitted to the cover of the oscillator. This calibration is performed only one time and must only be repeated with replacement of the controller or the reference-oscillator option as well as with ageing of the option.

If the tolerances of the reference-frequency accuracy are violated due to ageing, proceed as described in the service instructions for the reference oscillator.

If the tuning voltage has been re-determined for a special reference oscillator, the D/A converter data stored in the controller does not correspond with the tuning voltage on the reference crystal. In case of replacement of the controller, therefore take the D/A value stored in the previous controller and enter it to the new controller as described below.

- Call special function 51 (Refcal)

The stored value for the D/A converter is displayed in the right display. It may be 0 to 4095 (default 2048). The value for the D/A converter is derived from the tuning voltage as follows:

$$DA \text{ value} = 4095 * (\text{tuning voltage[V]} / 10V)$$

- Enter the calculated value via the spinwheel or the keypad.
- Terminate calibration by calling special function 52.

6.4.2 Adjustment of the Overall Instrument

If the instrument is set up of modules which have been tested and adjusted according to Section 7, the calibrations described in Section 6.4.1 are required, only.

6.4.3 Adjustments Following Replacement of Modules

| Replacement of board | Required adjustments |
|--|---|
| Controller CPU | All adjustments acc. to 6.4.1 |
| Display/Keyboard FRONT | No adjustment required |
| Synthesis YSYN | VCO calibration acc. to 6.4.1.1 FM calibration acc. to 6.4.1.2 Level-Preset calibration acc. to 6.4.1.4 |
| Output Unit OPUY | Level-Preset calibration acc. to 6.4.1.4 Output-level correction acc. to 6.4.1.5 |
| Attenuator ATT01/02 | Output-level correction acc. to 6.4.1.5 |
| With options installed: | |
| SMY-B40 (Pulse modulator and High Output Power) | Level-Preset calibration acc. to 6.4.1.4 Output-level correction acc. to 6.4.1.5 |
| Reference oscillator ROSC | Calibration of reference frequency acc. to 6.4.1.6 |

6.5 Disassembly and Assembly

WARNING !!!

Prior to disassembly, switch off the instrument and disconnect the power cable

6.5.1 Removal and Installation of the Panelling

- Undo the four screws in the rear-panel feet and remove feet.
- Remove the upper panelling to the rear and to the top
- Turn around the instrument. Remove the lower panelling similar to the upper panelling.

Prior to installation of the panelling, check, whether all modules are correctly connected and screwed to their supports.

- Place the instrument on one edge and install the lower panelling first. Make sure that the packing cords are correctly fitted into the grooves.
- Place the instrument into the horizontal position again and install the upper panelling, correspondingly.
- *Make sure with both panellings that the guide noses on the rear panel lock into the cut-outs of the panellings.*
- Screw on feet again.

6.5.2 Removal and Installation of the Controller

- Remove the panelling (6.5.1).
- Place the instrument on the top.
- Undo the two screws which fix the module to the support frame.
- Carefully lift the module and turn until the three ribbon cables can be disconnected from the sockets on top of the module.

_ The module can be removed.

Installation is carried out correspondingly in the reverse order.

6.5.3 Removal and Installation of the Output Unit

- Remove the panelling (6.4.1).
- Place the instrument on its bottom.
- Disconnect the three RF cables on the front of the module.
- Undo the two screws which fix the module to the support frame.

_ The module can now be removed to the rear and to the top out of the guide cut-out of the support frame.

Installation is carried out correspondingly in the reverse order.

6.5.4 Removal and Installation of the Synthesis

- Remove the panelling (6.4.1).
 - Place the instrument on its bottom.
 - Remove the controller as described in Section 6.4.2.
 - Detach the RF cables on the front of the module.
 - Undo the two screws which fix the module to the support frame.
- The module can now be removed to the rear and to the top out of the guide cut-out of the support frame.

- Remove the panelling (6.4.1).
 - Place the instrument on its bottom.
- Installation is carried out correspondingly in the reverse order.

6.5.5 Removal and Installation of the Keyboard/Display

- Remove the panelling (6.4.1).
- Place the instrument on its top.
- Remove the controller as described in Section 6.5.2
- Undo the four screws on the front of the display.
- Carefully remove the display to the front. Make sure to lead the ribbon cable which connects the module to the controller through the cut-out of the housing frame.

Installation is carried out correspondingly in the reverse order.

6.5.6 Removal and Installation of the Power Supply

- Remove the panelling (6.4.1).
- Place the instrument on its bottom.
- Disconnect the ribbon cable which connects the module to the motherboard.
- If the reference-oscillator option ROSC is fitted, disconnect the connecting cable to the option, too.
- Undo the screws marked on the rear panel of the instrument.
- Carefully remove the power supply to the rear.

Installation is carried out correspondingly in the reverse order.

6.5.7 Removal and Installation of the ROSC Option

- Remove the panelling (6.4.1).
 - Place the instrument on its bottom.
 - Disconnect the SMB connector, which connects the option to the synthesis, on the reference oscillator option.
 - Disconnect the ribbon cable, which connects the option to the power supply, from the power supply.
 - Undo the four screws which fix the module to the instrument frame. They are accessible on the outside of the instrument.
- _ Remove the reference-oscillator option to the top.

6.5.8 Removal and Installation of the Power Module

- Remove the panelling (6.4.1).
- Place the instrument on its bottom.
- Disconnect both MMCX-connectors and both SMA-screw connections.
- Disconnect the ribbon cable.
- Undo the screws which fix the module to the instrument frame.
- Remove the power module to the top.

When installing the power module, the projecting parts on the PCB must be stucked into the corresponding slots of the middle panel of the instrument. Further installation is carried out correspondingly in the reverse order.



ROHDE & SCHWARZ

**Liste mechanischer Teile
Bilder und Erklärung zur Liste
mechanischer Teile**

**List of mechanical parts
Figures and explanation pertai-
ning to list of mechanical parts**

**Liste des pièces mécaniques
Figures et définitions pour liste
des pièces mécaniques**

Liste mechanischer Teile

List of mechanical parts

Der SMY01 ist in *R&S-Kompaktbauweise 90* aufgebaut.

The SMY01 is designed in accordance with the *R&S design 90*.

Gehäusegröße:
3E, 1/1, T350

Cabinet size:
3E, 1/1, T350

Maße über alles:
435 x 147 x 350 (B x H x T)

Overall dimensions:
435 x 147 x 350 (width x height x depth)

Ergänzungen:
19"-Adapter ZZA
Tragegriff, Nachrüstsatz
(falls ein zweiter Tragegriff gewünscht wird)

Accessories:
19"-Adapter ZZA
Carrying handle, retrofit set
(if a second carrying handle is desired)

| Lfd. Nr. | Kennzeichen | Menge | Benennung/Beschreibung | Sachnummer |
|----------|--------------|-------|--|------------|
| No | Unit/Comp.No | Qty | Designation | Stock No. |
| 1 | | 1 | Haube, oben 3E, 1/1, T350 Cover, top | 1062.6050 |
| 2 | | 1 | Haube, unten 3E, 1/1, T350 Cover, bottom | 396.3773 |
| 3 | | 1 | Führungsschiene, rechts Guide rail, right | 396.4757 |
| 4 | | 1 | Führungsschiene, links Guide rail, left | 396.4763 |
| 5 | | 1 | Bedienhinweiskarte 1 User guide card 1 | 1062.5590 |
| 6 | | --- | Bedienhinweiskarte 2 User guide card 2 | ----- |
| 7 | | --- | Bedienhinweiskarte 3 User guide card 3 | ----- |
| 8 | | 2 | Gerätefuß, vorne Instrument foot, front | 396.4534 |
| 9 | | 2 | Aufstellfuß, unten Foot, bottom | 396.4540 |
| 11 | | 2 | Gerätefuß, hinten Instrument foot, rear | 396.4586 |
| 12 | | 8 | Zapfen Pin | 396.4634 |
| 15 | | 2 | Seitenleiste T350 Side strip | 396.3073 |

| Lfd. Nr. | Kennzeichen | Menge | Benennung/Beschreibung | Sachnummer |
|----------|--------------|--------|--|------------|
| No | Unit/Comp.No | Qty | Designation | Stock No. |
| 16 | | 4 | M3 x 6 DIN965 A4 | 081.9378 |
| 17 | | 1 | Rückwandfuß, links 3E Rear-panel foot, left | 396.4334 |
| 18 | | 1 | Rückwandfuß, rechts 3E Rear-panel foot, right | 396.4128 |
| 19 | | 4 | Ansatzschr. M4 K.D 7985 Screw | 396.4492 |
| 21 | | 1 | Tragegriff T350 Carrying handle | 396.3215 |
| 22 | | 2 | Griffbuchse Washer | 396.3367 |
| 23 | | 2 | M4 x 10 DIN965 A4 | 081.9478 |
| 24 | | 2 | Abdeckung, Griffseite Cover, handle side | 396.3350 |
| 25 | | 2 | Abdeckung, Leerseite Cover, blank side | 396.3344 |
| 30 | | 1 | Frontrahmen 3E 1/1 Front frame | 396.2119 |
| 31 | | 4 | Seitenfuß Side foot | 396.4692 |
| 32 | | 2 | Stapelnutabdeckung Cover for groove | 396.4711 |
| 33 | | --- | Frontgriff Front grip | ----- |
| 34 | | 4 | M4 x 8 DIN965 | 396.1087 |
| 35 | | 1 | Rückrahmen 3E 1/1 Rear frame | 396.2254 |
| 36 | | 4 | Rahmenschiene T350 Frame rail | 396.2360 |
| 37 | | 16 | M3 x 8 DIN965 A4 | 081.9384 |
| 40 | | 1,09 M | HF-Dichtschnur O-Prof. 2,7 SI RF seal | 396.0916 |
| 41 | | 3,03 M | WG HF-Dicht. O-Prof. 2,0 SI RF seal | 396.1035 |

Liste mechanischer Teile

List of mechanical parts

Der SMY02 ist in *R&S-Kompaktbauweise 90* aufgebaut.

The SMY02 is designed in accordance with the *R&S design 90*.

Gehäusegröße:
3E, 1/1, T460

Cabinet size:
3E, 1/1, T460

Maße über alles:
435 x 147 x 460 (B x H x T)

Overall dimensions:
435 x 147 x 460 (width x height x depth)

Ergänzungen:
19"-Adapter ZZA
Tragegriff, Nachrüstsatz
(falls ein zweiter Tragegriff gewünscht wird)

Accessories:
19"-Adapter ZZA
Carrying handle, retrofit set
(if a second carrying handle is desired)

| Lfd. Nr. | Kennzeichen | Menge | Benennung/Beschreibung | Sachnummer |
|----------|--------------|-------|--|------------|
| No | Unit/Comp.No | Qty | Designation | Stock No. |
| 1 | | 1 | Haube, oben 3E, 1/1, T460 Cover, top | 1062.6044 |
| 2 | | 1 | Haube, unten 3E, 1/1, T460 Cover, bottom | 396.3780 |
| 3 | | 1 | Führungsschiene, rechts Guide rail, right | 396.4757 |
| 4 | | 1 | Führungsschiene, links Guide rail, left | 396.4763 |
| 5 | | 1 | Bedienhinweiskarte 1 User guide card 1 | 1062.5590 |
| 6 | | --- | Bedienhinweiskarte 2 User guide card 2 | ----- |
| 7 | | --- | Bedienhinweiskarte 3 User guide card 3 | ----- |
| 8 | | 2 | Gerätefuß, vorne Instrument foot, front | 396.4534 |
| 9 | | 2 | Aufstellfuß, unten Foot, bottom | 396.4540 |
| 11 | | 2 | Gerätefuß, hinten Instrument foot, rear | 396.4586 |
| 12 | | 8 | Zapfen Pin | 396.4634 |
| 15 | | 2 | Seitenleiste T460 Side strip | 396.3073 |

| Lfd. Nr. | Kennzeichen | Menge | Benennung/Beschreibung | Sachnummer |
|----------|--------------|--------|--|------------|
| No | Unit/Comp.No | Qty | Designation | Stock No. |
| 16 | | 4 | M3 x 6 DIN965 A4 | 081.9378 |
| 17 | | 1 | Rückwandfuß, links 3E Rear-panel foot, left | 396.4334 |
| 18 | | 1 | Rückwandfuß, rechts 3E Rear-panel foot, right | 396.4128 |
| 19 | | 4 | Ansatzschr. M4 K.D 7985 Screw | 396.4492 |
| 21 | | 1 | Tragegriff T460 Carrying handle | 396.3221 |
| 22 | | 2 | Griffbuchse Washer | 396.3367 |
| 23 | | 2 | M4 x 10 DIN965 A4 | 081.9478 |
| 24 | | 2 | Abdeckung, Griffseite Cover, handle side | 396.3350 |
| 25 | | 2 | Abdeckung, Leerseite Cover, blank side | 396.3344 |
| 30 | | 1 | Frontrahmen 3E 1/1 Front frame | 396.2119 |
| 31 | | 4 | Seitenfuß Side foot | 396.4692 |
| 32 | | 2 | Stapelnutabdeckung Cover for groove | 396.4711 |
| 33 | | --- | Frontgriff Front grip | ----- |
| 34 | | 4 | M4 x 8 DIN965 | 396.1087 |
| 35 | | 1 | Rückrahmen 3E 1/1 Rear frame | 396.2254 |
| 36 | | 4 | Rahmenschiene T460 Frame rail | 396.2377 |
| 37 | | 16 | M3 x 8 DIN965 A4 | 081.9384 |
| 40 | | 1,09 M | HF-Dichtschnur O-Prof. 2,7 SI RF seal | 396.0916 |
| 41 | | 3,51 M | WG HF-Dicht. O-Prof. 2,0 SI RF seal | 396.1035 |



ROHDE & SCHWARZ

SMY02 SIGNAL GENERATOR

Exploded Mechanical View

Manufacturers Cross Index

| MFR. CODE | MANUFACTURER | ADDRESS | CITY, STATE, ZIP CODE |
|-----------|-----------------|----------------------|---------------------------|
| D0894 | ROHDE & SCHWARZ | MUEHLDOERFSTRASSE 15 | 8000 MUENCHEN 80, GERMANY |

| Figure & Index. No. | Stock No. | Qty | Name & Description | CAGE Code | Mfr. Part Number |
|---------------------|--------------|-------|--|-----------|------------------|
| 3-1 | 1062.6044.00 | 1 ea | COVER, TOP | D0894 | 1062.6044.00 |
| 3-2 | 0396.4492.00 | 4 ea | SCREW, MACHINE: M4 X 12, CHEESE HEAD, X10CRNIMOTI 1810 (DIN7985) | D0894 | 0396.4492.00 |
| 3-3 | 0396.4334.00 | 1 ea | REAR-PANEL FOOT, LEFT | D0894 | 0396.4334.00 |
| 3-4 | 0396.4128.00 | 1 ea | REAR-PANEL FOOT, RIGHT | D0894 | 0396.4128.00 |
| 3-5 | 1062.6021.00 | 1 ea | COVER SET, FRONT AND REAR (VAR 12) | D0894 | 1062.6021.00 |
| 3-6 | 0396.3780.00 | 1 ea | COVER, BOTTOM | D0894 | 0396.3780.00 |
| 3-7 | 0396.4586.00 | 2 ea | INSTRUMENT FOOT, REAR | D0894 | 0396.4586.00 |
| 3-8 | 0396.4634.00 | 8 ea | PIN | D0894 | 0396.4634.00 |
| 3-9 | 0396.4757.00 | 1 ea | GUIDE RAIL, RIGHT | D0894 | 0396.4757.00 |
| 3-10 | 0396.4540.00 | 2 ea | FOOT, BOTTOM | D0894 | 0396.4540.00 |
| 3-11 | 0396.4534.00 | 2 ea | INSTRUMENT FOOT, FRONT | D0894 | 0396.4534.00 |
| 3-12 | ----- | ----- | USER GUIDE CARD 3 | D0894 | ----- |
| 3-13 | ----- | ----- | USER GUIDE CARD 2 | D0894 | ----- |
| 3-14 | 1062.5590.00 | 1 ea | USER GUIDE CARD 1 | D0894 | 1062.5590.00 |
| 3-15 | 0396.4763.00 | 1 ea | GUIDE RAIL, LEFT | D0894 | 0396.4763.00 |

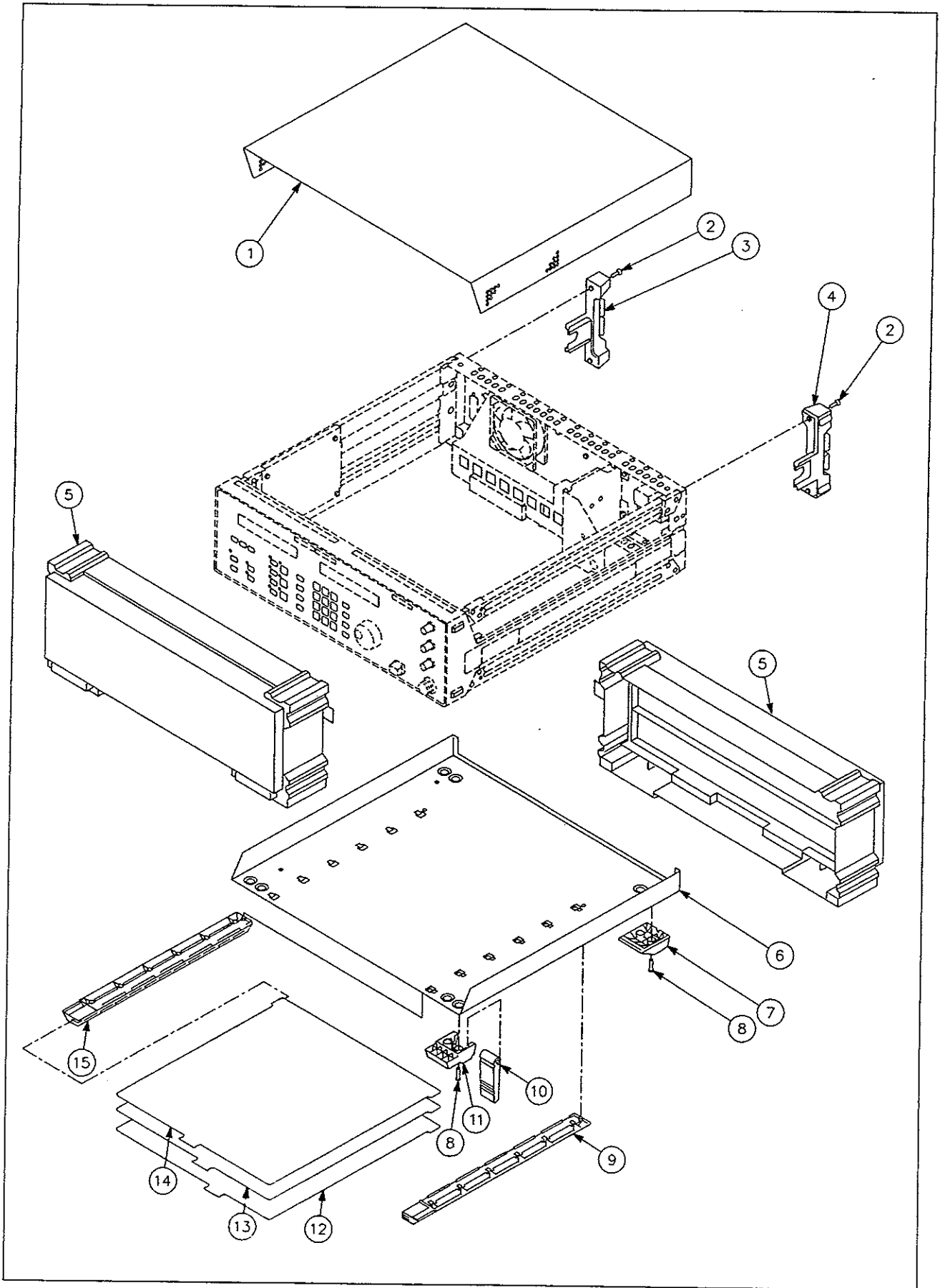


Fig. 6-3 Cabinet and feet

| Figure & Index. No. | Stock No. | Qty | Name & Description | CAGE Code | Mfr. Part Number |
|---------------------|--------------|--------|---|-----------|------------------|
| 4-1 | 0396.8030.00 | 4 ea | SCREW, MACHINE: M3 X 6, FH, SST (DIN965-A4) | D0894 | 0396.8030.00 |
| 4-2 | 0396.0916.00 | 1.09 m | SEALING | D0894 | 0396.0916.00 |
| 4-3 | 0396.3080.00 | 2 ea | SIDE STRIP T460 VAR 12 | D0894 | 0396.3080.00 |
| 4-4 | 0396.8046.00 | 16 ea | SCREW, MACHINE: M3 X 8, FH, SST (DIN965-A4) | D0894 | 0396.8046.00 |
| 4-5 | 0396.2377.00 | 4 ea | FRAME GUIDE VAR 12 | D0894 | 0396.2377.00 |
| 4-6 | 0396.1064.00 | 2 ea | NUT: M4 X RD9, STL | D0894 | 0396.1064.00 |
| 4-7 | 0079.0525.00 | 2 ea | NUT: M3, NYLON, WHITE | D0894 | 0079.0525.00 |
| 4-8 | 0396.2254.00 | 1 ea | REAR FRAME | D0894 | 0396.2254.00 |
| 4-9 | 0396.1035.00 | 3.51 m | SEALING VAR 12 | D0894 | 0396.1035.00 |
| 4-10 | 0081.9084.00 | 11 ea | SCREW, MACHINE: M3 X 10, CHEESE HEAD, SST (DIN7985-A4) | D0894 | 0081.9084.00 |
| 4-11 | 0396.3221.00 | 1 ea | CARRYING HANDLE | D0894 | 0396.3221.00 |
| 4-12 | 0396.3350.00 | 2 ea | COVER, HANDLE SIDE | D0894 | 0396.3350.00 |
| 4-13 | 0081.9478.00 | 2 ea | SCREW, MACHINE: M4 X 10, FH, SST (DIN965-A4) | D0894 | 0081.9478.00 |
| 4-14 | 0396.3367.00 | 2 ea | WASHER, SHOULDER: 24 OD, 5 THK, FLAT SIDE, X10CRN189 (DIN671) | D0894 | 0396.3367.00 |
| 4-15 | 0081.9084.00 | 3 ea | SCREW, MACHINE: M3 X 10, CHEESE HEAD, SST (DIN7985-A4) | D0894 | 0081.9084.00 |
| 4-16 | 0062.1130.00 | 3 ea | FEED-THROUGH, RD4 X RD9, 5 X 5, 6 | D0894 | 0062.1130.00 |
| 4-17 | 0082.4686.00 | 3 ea | WASHER, FLAT: 4.3 ID X 9 OD, 0.8 THK, SST (DIN125-A4) | D0894 | 0082.4686.00 |
| 4-18 | 0031.2805.00 | 3 ea | TUBING RIVET: B4 X 6-MS-E1P, RUBBER, BLACK (DIN7340) | D0894 | 0031.2805.00 |
| 4-19 | 1062.5860.00 | 1 ea | ATTENUATOR HOLDER | D0894 | 1062.5860.00 |
| 4-20 | 0396.4692.00 | 4 ea | SIDE FOOT | D0894 | 0396.4692.00 |
| 4-21 | 0396.2119.00 | 1 ea | FRONT FRAME | D0894 | 0396.2119.00 |
| 4-22 | 0081.9378.00 | 2 ea | SCREW, MACHINE: M3 X 6, FH, SST (DIN965-A4) | D0894 | 0081.9378.00 |
| 4-23 | 0032.5237.00 | 1 ea | SEALING SPRING | D0894 | 0032.5237.00 |
| 4-24 | See EPL | 1 ea | ATTENUATOR SMG/SMH VAR 12 (A6) | D0894 | See EPL |
| 4-25 | 1062.5990.00 | 1 ea | LP HOLDER VAR 12 | D0894 | 1062.5990.00 |
| 4-26 | 1062.5983.00 | 1 ea | LP HOLDER | D0894 | 1062.5983.00 |
| 4-27 | 0396.4711.00 | 2 ea | COVER FOR GROOVE | D0894 | 0396.4711.00 |
| 4-28 | 0396.3344.00 | 2 ea | COVER, BLANK SIDE | D0894 | 0396.3344.00 |

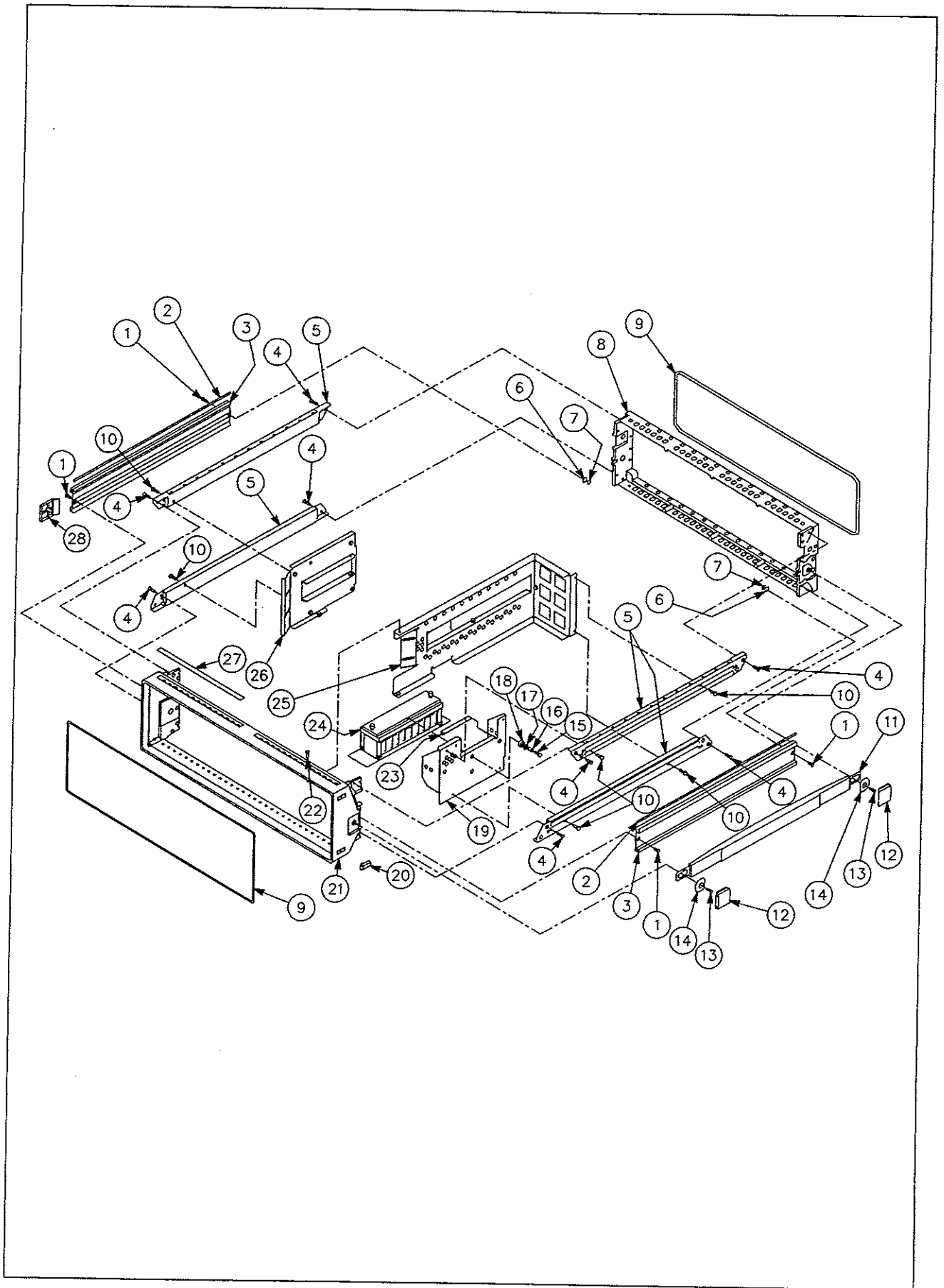


Figure 6-4 Chassis

| Figure & Index. No. | Stock No. | Qty | Name & Description | CAGE Code | Mfr. Part Number |
|---------------------|--------------|---------|---|-----------|------------------|
| 5-1 | 1062.5602.00 | 1 ea | COVER,VARNISH+INSCRIPTION | D0894 | 1062.5602.00 |
| 5-2 | 1062.5631.00 | 1 ea | MOUNTING PLATE | D0894 | 1062.5631.00 |
| 5-3 | See EPL | 1 ea | KEYBOARD/DISPLAY (A1) | D0894 | See EPL |
| 5-4 | 0001.9499.00 | 0.075 m | PLASTIC CHANNEL | D0894 | 0001.9499.00 |
| 5-5 | 1062.5648.00 | 1 ea | SHIELDING | D0894 | 1062.5648.00 |
| 5-6 | See EPL | 1 ea | MOTHERBOARD (A3) | D0894 | See EPL |
| 5-7 | 0088.3146.00 | 4 ea | WASHER, FLAT: 2.7 ID X 6.5 OD, 0.5 THK, NYLON | D0894 | 0088.3146.00 |
| 5-8 | 0071.5705.00 | 4 ea | SCREW, MACHINE: M2.5 X 8, CHEESE HEAD, SST (DIN7985-A2) | D0894 | 0071.5705.00 |
| 5-9 | See EPL | 1 ea | CABLE, ASSY: 34, RIBBON, APPROX 10 CM (W3) | D0894 | See EPL |
| 5-10 | 1062.5890.00 | 1 ea | SWITCH ROD VAR 12 | D0894 | 1062.5890.00 |
| 5-11 | 0099.1410.00 | 1 ea | GROMMET, BLACK, RUBBER | D0894 | 0099.1410.00 |
| 5-12 | 0081.9378.00 | 8 ea | SCREW, MACHINE: M3 X 6, FH, SST (DIN965-A4) | D0894 | 0081.9378.00 |
| 5-13 | See EPL | 1 ea | CABLE , ASSY: 26, RIBBON, APPROX 47 CM (W21) | D0894 | See EPL |
| 5-14 | See EPL | 1 ea | CABLE, ASSY: 16, RIBBON, APPROX 33 CM (W77) | D0894 | See EPL |
| 5-15 | See EPL | 1 ea | CABLE, ASSY: 10, RIBBON, APPROX 20 CM (W20) | D0894 | See EPL |
| 5-16 | 0099.7825.00 | 1 ea | FLAT CABLE HOLDER | D0894 | 0099.7825.00 |
| 5-17 | 0099.9186.00 | 3 ea | BNC-CONNECTOR UG 625CIU | D0894 | 0099.9186.00 |
| 5-18 | 0035.0813.00 | 3 ea | SOLDERING LUG, 18 x 10 | D0894 | 0035.0813.00 |
| 5-19 | See EPL | 1 ea | CABLE, ASSY: SEMIRIGID COAX, APPROX 30 CM (W1) | D0894 | See EPL |
| 5-20 | 0099.4161.00 | 3 ea | INSULATING RING FOR BNC-S | D0894 | 0099.4161.00 |
| 5-21 | 0088.0147.00 | 6 ea | SCREW, MACHINE: M2.5 X 16, FH, SST (DIN965-A4) | D0894 | 0088.0147.00 |
| 5-22 | 0396.0897.00 | 1 ea | SPOUT | D0894 | 0396.0897.00 |
| 5-23 | 0078.3795.00 | 1 ea | SCREW, MACHINE: M1.6 X 3, FH, SST (DIN965-A4) | D0894 | 0078.3795.00 |
| 5-24 | 0078.1192.00 | 1 ea | KNOB: W/SET SCREW, 5/64 ALLEN | D0894 | 0078.1192.00 |
| 5-25 | 1062.6180.00 | 1 ea | LABEL, PART NUMBER VAR 12 | D0894 | 1062.6180.00 |
| 5-26 | 1062.5948.00 | 1 ea | LABEL, MODEL VAR 12 | D0894 | 1062.5948.00 |
| 5-27 | 1062.6167.00 | 1 ea | LABEL, FREQUENCY RANGE VAR 12 | D0894 | 1062.6167.00 |
| 5-28 | 0396.5518.00 | 4 ea | WASHER, COUNTERSUNK: 7.2 OD X 1.8 THK, RD 7.5 CUZN40PB2 | D0894 | 0396.5518.00 |
| 5-29 | 0081.9384.00 | 4 ea | SCREW, MACHINE: M3 X 8, FH, SST (DIN965-A4) | D0894 | 0081.9384.00 |

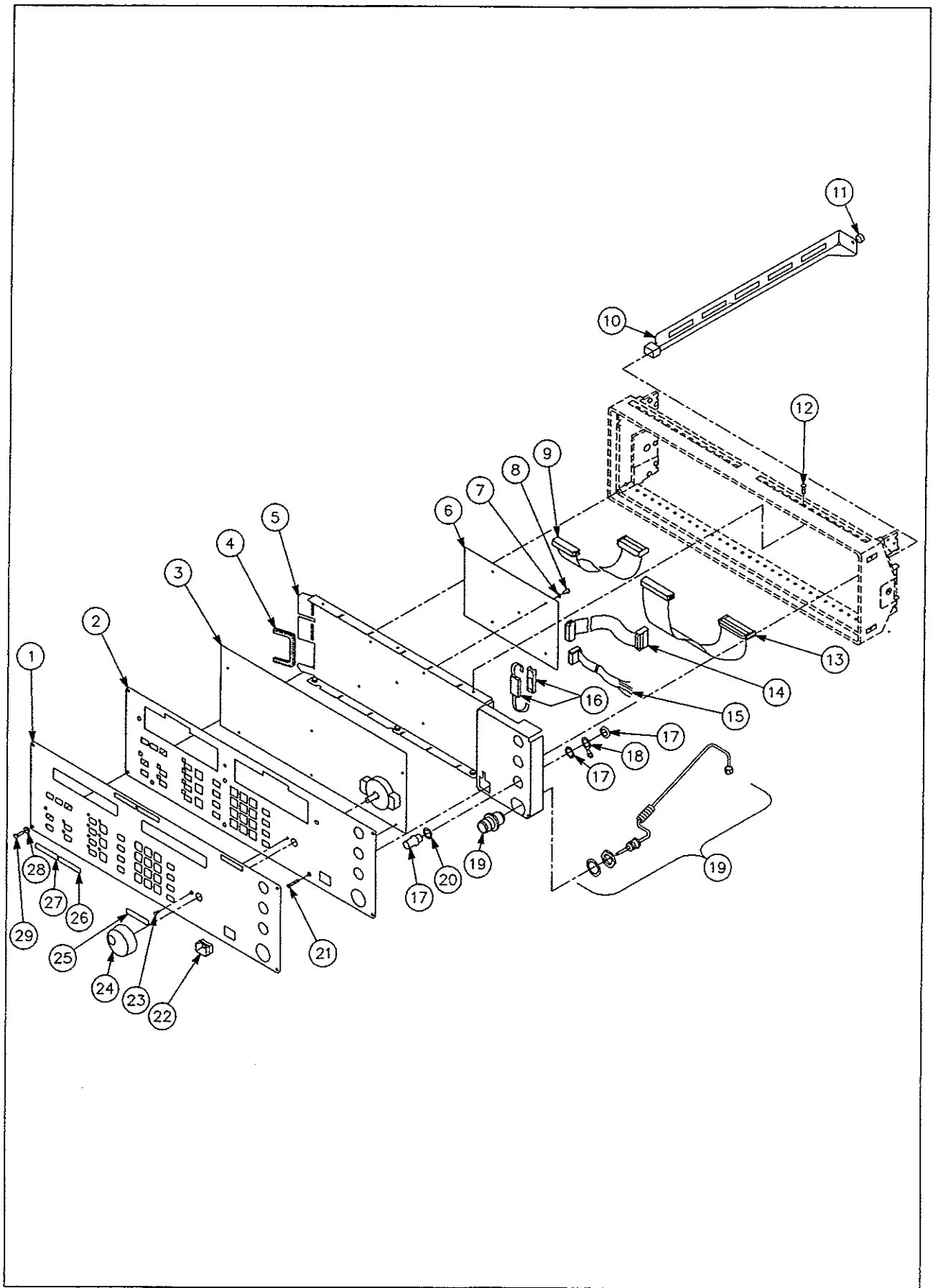


Fig. 6-5 Front panel assembly

| Figure & Index No. | Stock No. | Qty | Name & Description | CAGE Code | Mfr. Part Number |
|--------------------|--------------|-------|---|-----------|------------------|
| 6-1 | 0088.7693.00 | 62 ea | SCREW, MACHINE: M2 X 5, SST (A2) | D0894 | 0088.7693.00 |
| 6-2 | 1062.7057.00 | 1 ea | TOP COVER, OUTPUT UNIT MODULE | D0894 | 1062.7057.00 |
| 6-3 | 0071.6853.00 | 6 ea | SCREW, MACHINE: M3 X 8, CHEESE HEAD, SST (DIN7895-A2, DIN6902-A2, DIN6904-A2) | D0894 | 0071.6853.00 |
| 6-4 | See EPL | 1 ea | OUTPUT UNIT 2.08 GHZ (A5) | D0894 | See EPL |
| 6-5 | 1062.7065.00 | 1 ea | BOTTOM COVER, OUTPUT UNIT MODULE | D0894 | 1062.7065.00 |
| 6-6 | See EPL | 1 ea | CABLE, ASSY: SEMIRIGID, COAX, APPROX 12 CM (W26) | D0894 | See EPL |
| 6-7 | 1062.6473.00 | 1 ea | TOP COVER, SYNTHESIZER MODULE | D0894 | 1062.6473.00 |
| 6-8 | See EPL | 1 ea | SYNTHESIZER (A4) | D0894 | See EPL |
| 6-9 | 1062.6480.00 | 1 ea | BOTTOM COVER, SYNTHESIZER MODULE | D0894 | 1062.6480.00 |
| 6-10 | 1062.6373.00 | 1 ea | TOP COVER, PROCESSOR MODULE | D0894 | 1062.6373.00 |
| 6-11 | See EPL | 1 ea | PROCESSOR (A2) | D0894 | See EPL |
| 6-12 | 1062.6380.00 | 1 ea | BOTTOM COVER, PROCESSOR MODULE | D0894 | 1062.6380.00 |
| 6-13 | 0071.7572.00 | 8 ea | SCREW, MACHINE: M2.5 X 6, FH, SST | D0894 | 0071.7572.00 |
| 6-14 | 0071.5757.00 | 47 ea | SCREW, MACHINE: M2.5 X 10.4, FH, SST | D0894 | 0071.5757.00 |
| 6-15 | See EPL | 1 ea | CABLE, ASSY: FLEXIBLE, COAX, APPROX 4 CM (W25) | D0894 | See EPL |
| 6-16 | See EPL | 1 ea | CABLE, ASSY: FLEXIBLE, COAX, APPROX 4 CM (W24) | D0894 | See EPL |

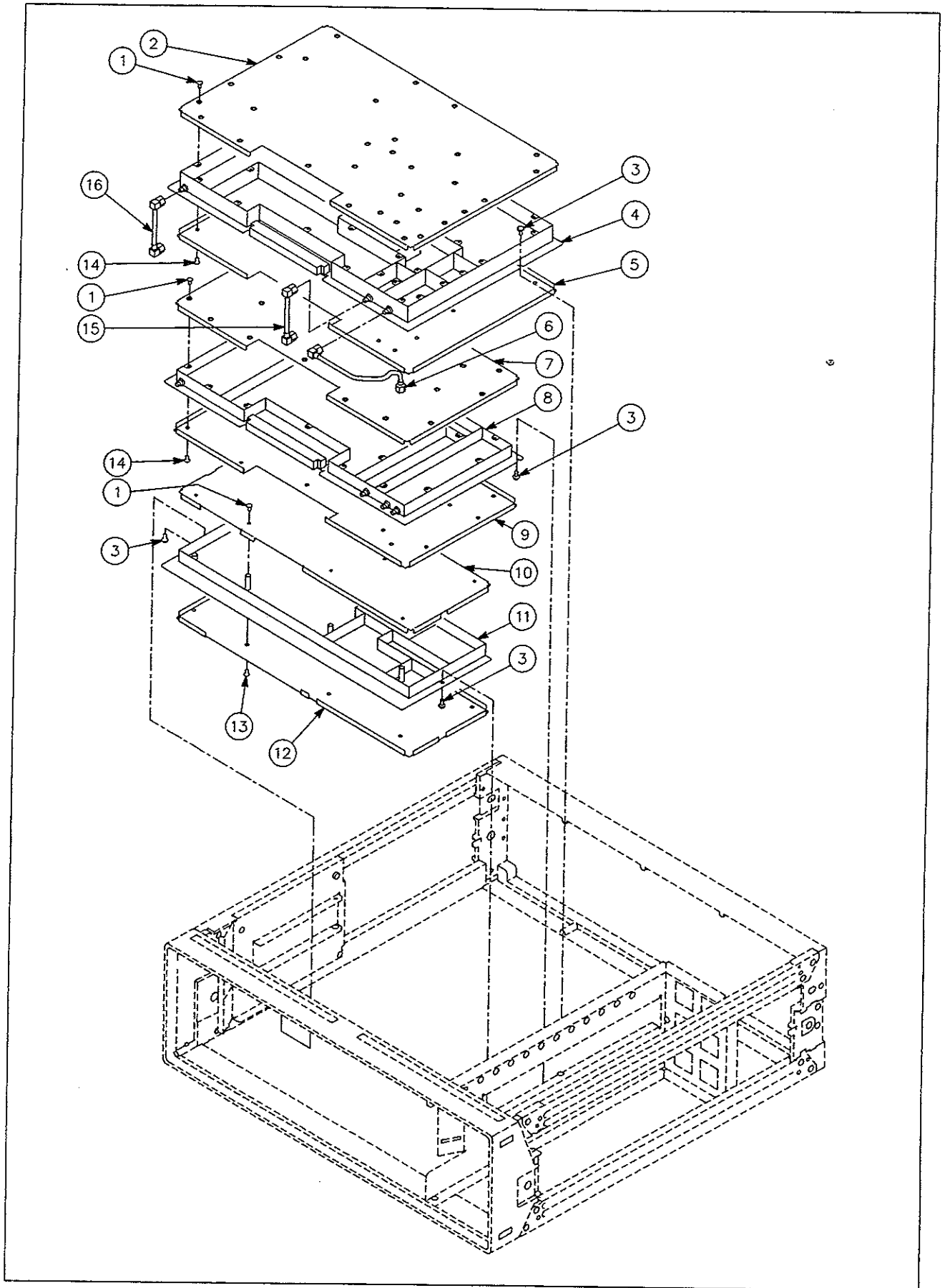


Fig. 6-6 Circuit boards

| Figure & Index No. | Stock No. | Qty | Name & Description | CAGE Code | Mfr. Part Number |
|--------------------|--------------|------|---|-----------|------------------|
| 7-1 | 1062.5831.00 | 1 ea | POWER SUPPLY HOLDER | D0894 | 1062.5831.00 |
| 7-2 | 0554.5528.00 | 1 ea | BOLT, HEX HEAD: M6 X 12 (DIN933) | D0894 | 0554.5528.00 |
| 7-3 | 0031.5210.00 | 1 ea | WASHER, FLAT: 6.1 ID X 18 OD, 1.6 THK, SST (DIN9021-A4) | D0894 | 0031.5210.00 |
| 7-4 | 0005.2524.00 | 1 ea | WASHER, SPRING: 6.1 ID X 11.8 OD, 2.2 THK, SST (DIN128-A2) | D0894 | 0005.2524.00 |
| 7-5 | See EPL | 1 ea | FAN UNIT (E1) | D0894 | See EPL |
| 7-6 | 1062.5725.00 | 1 ea | REAR PANEL | D0894 | 1062.5725.00 |
| 7-7 | 0071.6853.00 | 2 ea | SCREW, MACHINE: M3 X 8, CHEESE HEAD, SST (DIN7895-A2, DIN6902-A2, DIN6904-A2) | D0894 | 0071.6853.00 |
| 7-8 | 0005.0296.00 | 4 ea | WASHER, SPRING: 3.2 ID X 6.0 OD, 0.4 THK, SST (DIN137-A2) | D0894 | 0005.0296.00 |
| 7-9 | 0082.4670.00 | 4 ea | WASHER, FLAT: 3.2 ID X 7.0 OD, 0.5 THK, SST (DIN125-A4) | D0894 | 0082.4670.00 |
| 7-10 | 0081.9084.00 | 4 ea | SCREW, MACHINE: M3 X 10, CHEESE HEAD, SST (DIN7985-A4) | D0894 | 0081.9084.00 |
| 7-11 | 0071.6853.00 | 4 ea | SCREW, MACHINE: M3 X 8, CHEESE HEAD, SST (DIN7895-A2, DIN6902-A2, DIN6904-A2) | D0894 | 0071.6853.00 |
| 7-12 | 1062.5954.00 | 1 ea | SERIAL, NUMBER | D0894 | 1062.5954.00 |
| 7-13 | 1062.5754.00 | 1 ea | COOLING PROFILE | D0894 | 1062.5754.00 |
| 7-14 | 0005.0296.00 | 6 ea | WASHER, SPRING: 3.2 ID X 6.0 OD, 0.4 THK, SST (DIN7895-A2) | D0894 | 0005.0296.00 |
| 7-15 | 0082.4670.00 | 6 ea | WASHER, FLAT: 3.2 ID X 7.0 OD, 0.5 THK, SST (DIN125-A4) | D0894 | 0082.4670.00 |
| 7-16 | 0081.9084.00 | 6 ea | SCREW, MACHINE: M3 X 10, CHEESE HEAD, SST (DIN7985-A4) | D0894 | 0081.9084.00 |
| 7-17 | 0071.6860.00 | 1 ea | SCREW, MACHINE: M4 X 8, CHEESE HEAD, SST (DIN7895-A2) | D0894 | 0071.6860.00 |
| 7-18 | 0081.9384.00 | 2 ea | SCREW, MACHINE: M3 X 8, FH, SST (DIN965-A4) | D0894 | 0081.9384.00 |
| 7-19 | See EPL | 2 ea | FUSE (F1/F2) | D0894 | See EPL |
| 7-20 | 0006.0919.00 | 1 ea | FILTER W/VOLTAGE SELECTION, W/2 FUSE CARTRIDGE HOLDERS | D0894 | 0006.0919.00 |
| 7-21 | 0071.6853.00 | 4 ea | SCREW, MACHINE: M3 X 8, CHEESE HEAD, SST (DIN7895-A2, DIN6902-A2, DIN6904-A2) | D0894 | 0071.6853.00 |
| 7-22 | 0016.2837.00 | 1 ea | WASHER, LOCKING: 4.3 ID X 8.0 OD, 1 THK, SST (DIN6797-A2) | D0894 | 0016.2837.00 |
| 7-23 | 0543.6705.00 | 1 ea | CONNECTOR | D0894 | 0543.6705.00 |
| 7-24 | 0085.0330.00 | 1 ea | NUT, SQUARE: M4 X 9, 2 THK | D0894 | 0085.0330.00 |
| 7-25 | 1062.5790.00 | 1 ea | WIRE SET | D0894 | 1062.5790.00 |
| 7-26 | See EPL | 1 ea | TRANSFORMER (T1) | D0894 | See EPL |
| 7-27 | 0071.6830.00 | 2 ea | SCREW, MACHINE: M2.5 X 5, CHEESE HEAD, SST (DIN7985-A2) | D0894 | 0071.6830.00 |
| 7-28 | 0007.7130.00 | 1 ea | COVER, POWER SWITCH | D0894 | 0007.7130.00 |
| 7-29 | 0007.5143.00 | 1 ea | POWER SWITCH | D0894 | 0007.5143.00 |
| 7-30 | 1062.5848.00 | 1 ea | BRACKET, L-SHAPED | D0894 | 1062.5848.00 |
| 7-31 | 0081.9390.00 | 4 ea | SCREW, MACHINE: M3 X 10, FH, SST (DIN965-A4) | D0894 | 0081.9390.00 |
| 7-32 | 0396.3167.00 | 4 ea | NUT FOR REAR FRAME, TAPPED FOR M3 THREAD | D0894 | 0396.3167.00 |
| 7-33 | 0528.8500.00 | 3 ea | STOPPER | D0894 | 0528.8500.00 |
| 7-34 | See EPL | 1 ea | CABLE, IEC/IEEE CONNECTOR, WITH ATTACHING HARDWARE (W2) | D0894 | See EPL |

| Figure & Index. No. | Stock No. | Qty | Name & Description | CAGE Code | Mfr. Part Number |
|---------------------|--------------|------|---|-----------|------------------|
| 7-35 | 0043.5827.00 | 1 ea | SEALING RUBBER | D0894 | 0043.5827.00 |
| 7-36 | 1062.5819.00 | 1 ea | ANGLE FOR CONNECTOR | D0894 | 1062.5819.00 |
| 7-37 | 0099.9186.00 | 2 ea | BNC-CONNECTOR UG 625CIU | D0894 | 0099.9186.00 |
| 7-38 | 0035.0813.00 | 1 ea | SOLDERING LUG, 18 X 10 | D0894 | 0035.0813.00 |
| 7-39 | See EPL | 1 ea | CABLE, ASSY: FLEXIBLE, COAX, APPROX 53 CM (W27) | D0894 | See EPL |
| 7-40 | See EPL | 1 ea | CABLE, ASSY: 10, RIBBON, APPROX 47 CM (W4) | D0894 | See EPL |
| 7-41 | 0099.9186.00 | 1 ea | BNC-CONNECTOR UG 625CIU | D0894 | 0099.9186.00 |
| 7-42 | 0099.7825.00 | 1 ea | FLAT CABLE HOLDER | D0894 | 0099.7825.00 |
| 7-43 | 0071.6853.00 | 5 ea | SCREW, MACHINE: M3 X 8, CHEESE HEAD, SST (DIN7895-A2, DIN6902-A2, DIN6904-A2) | D0894 | 0071.6853.00 |
| 7-44 | See EPL | 1 ea | POWER SUPPLY (A7) | D0894 | See EPL |
| 4-45 | 0088.0060.00 | 3 ea | SCREW, MACHINE: M2.5 X 12, CHEESE HEAD (DIN7895-A4) | D0894 | 0088.0060.00 |
| 7-46 | 0082.4663.00 | 3 ea | WASHER, FLAT: 2.7 ID X 6.5 OD, 0.5 THK, SST (DIN125-A4) | D0894 | 0082.4663.00 |
| 7-47 | 0005.0280.00 | 3 ea | WASHER, SPRING: 2.8 ID X 5.5 OD, 0.3 THK, SST (DIN137-A2) | D0894 | 0005.0280.00 |
| 7-48 | 1062.5719.00 | 1 ea | SHIELDING | D0894 | 1062.5719.00 |
| 7-49 | 0088.6680.00 | 4 ea | NUT, M3 X 6, PRESSFIT | D0894 | 0088.6680.00 |

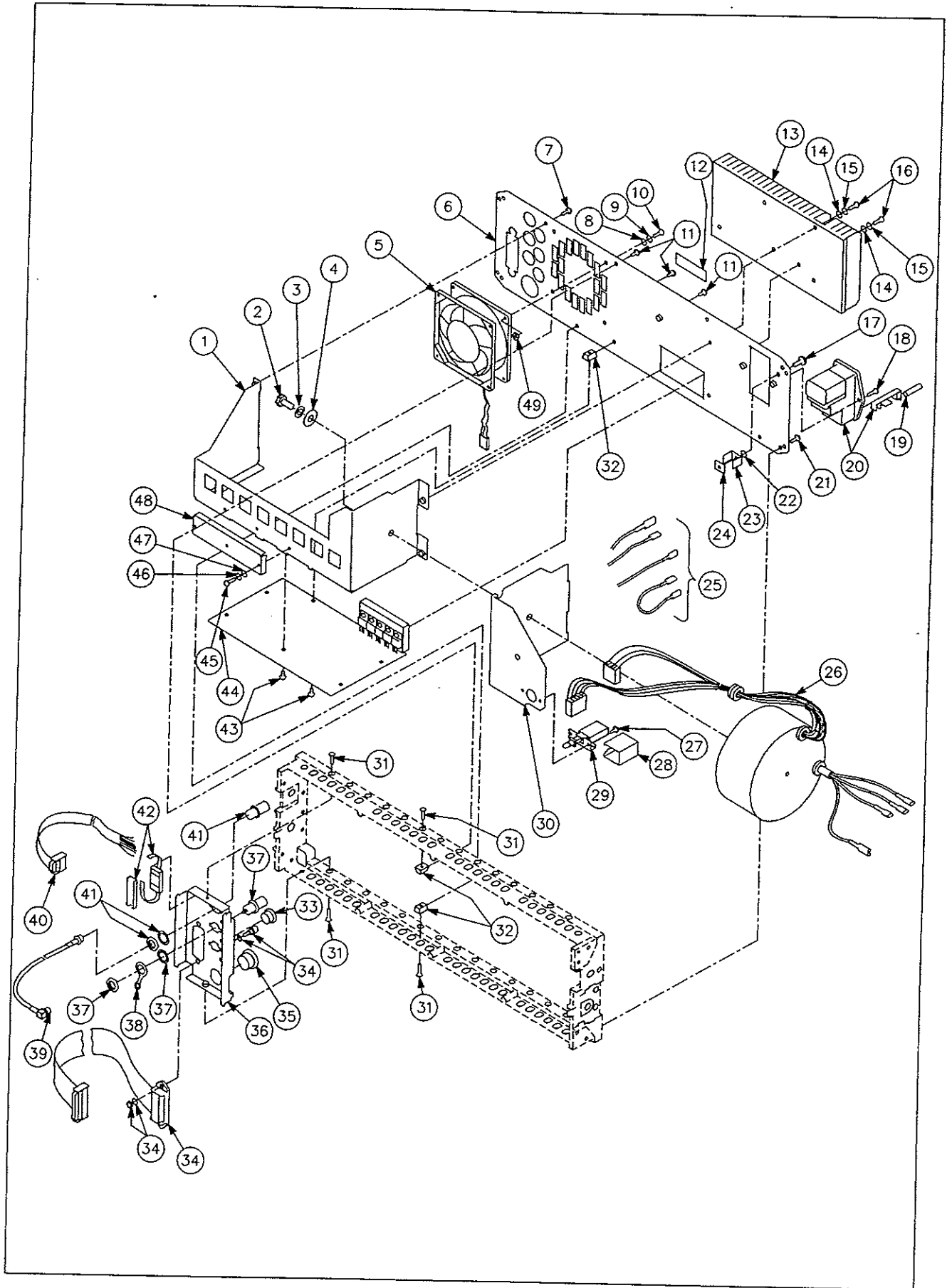


Fig. 6-7 Rear panel assembly

| Figure & Index No. | Stock No. | Qty | Name & Description | CAGE Code | Mfr. Part Number |
|-----------------------------|--------------|------|---------------------------------------|-----------|------------------|
| Standard Accessories | | | | | |
| 8-1 | 0086.4400.00 | 1 ea | POWER CORD | D0894 | 0086.4400.00 |
| 8-2 | 0200.7575.00 | 2 ea | FUSE: T2,5HIEC127-2/V | D0894 | 0200.7575.00 |
| | 1062.5583.18 | | MANUAL, TECH: OPERATING | D0894 | 1062.5583.18 |
| Optional Accessories | | | | | |
| | 1062.5583.28 | | MANUAL, TECH: SERVICE VOLUMES 1 AND 2 | D0894 | 1062.5583.28 |
| | 1062.7805.02 | | SMY-C2, SERVICE KIT FOR SMY | D0894 | 1062.7805.02 |

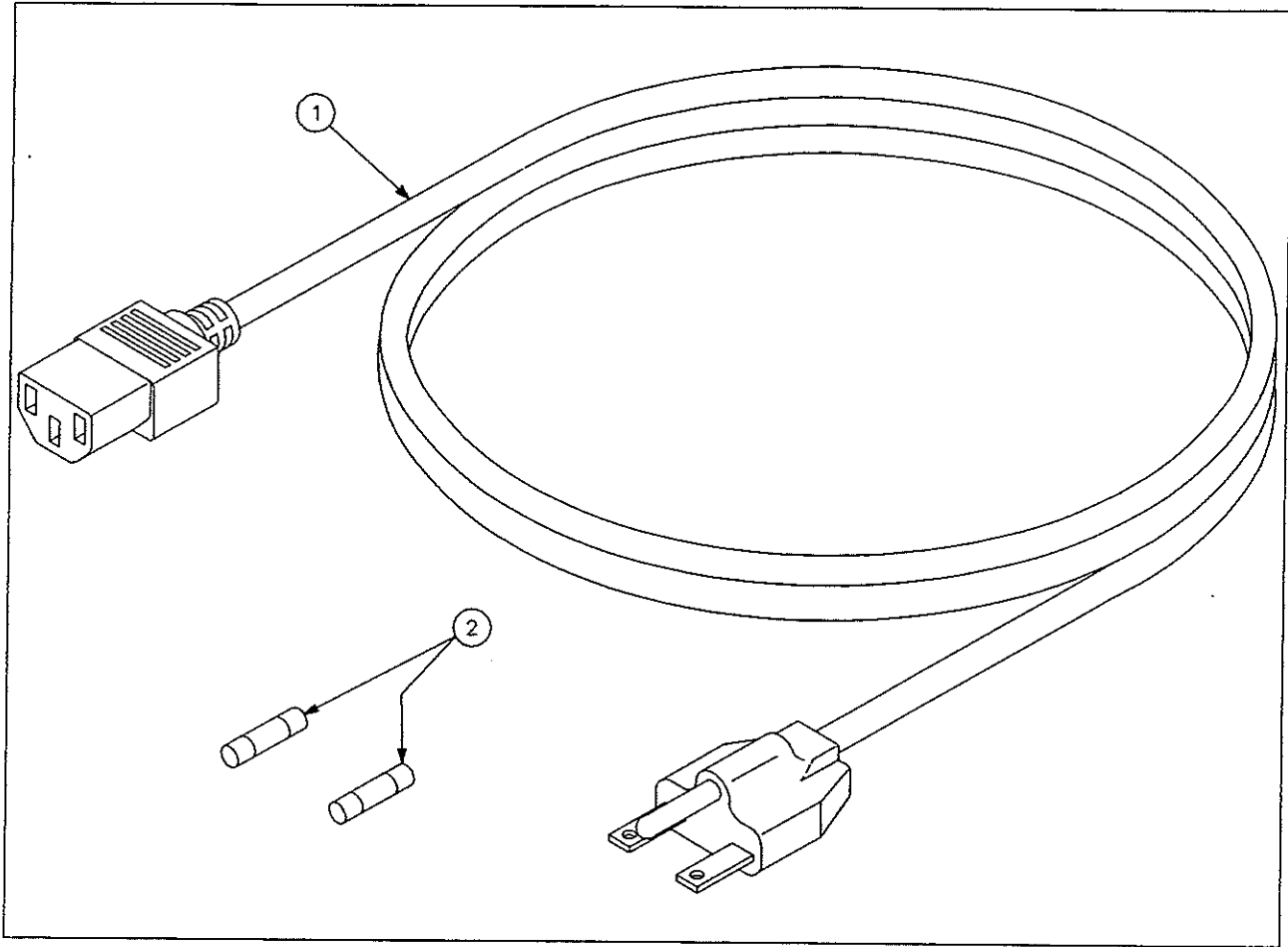


Fig. 6-8 Accessories



ROHDE & SCHWARZ

**Schlüsselliste
für Bauteile-Sachnummern
Code list
for component stock Nos.
Liste
des références des composants**



R&S-Schlüsselliste

R&S key list

Liste des symboles de référence R&S

Die R&S-Schaltteillisten nennen in der Spalte "Benennung/Beschreibung" die technischen Daten der Bauelemente in Kurzform. Die Art des Bauelements (z.B. Schicht-, Draht-Widerstand usw.) beschreiben die 2 Kennbuchstaben vor der "Benennung" (evtl. auch vor der "Sachnummer"), die nachfolgend erklärt werden. In Ersatzteil-Bestellungen an R&S ist stets die Angabe der vollständigen Sachnummer erforderlich.

The R&S Parts Lists give the technical data of the components in short form in the column "Benennung/Beschreibung" (designation). The type of component (e.g. depos.-carbon resistor, wire-wound resistor etc.) is indicated by 2 identification letters before the designation, possibly also before the "Sachnummer" (order number), which are explained below. When ordering spare parts from R&S, the complete order number must always be specified.

La colonne «Désignation/description» des listes de pièces de R&S indique les caractéristiques des éléments sous forme abrégée. Le type d'élément (p.ex. résistance à couche, résistance bobinée etc. ...) est décrit par les deux lettres précédant la désignation (et éventuellement le numéro de référence), dont voici l'explication. Prière d'indiquer le numéro de référence («Sachnummer») complet dans toute commande de pièces de rechange.

| Teilefamilie | Art des Bauelementes | Parts family | Type of component | Familie | Type d'élément |
|--------------|---|--------------|--|----------|---|
| A | Aktive Bauelemente, Halbleiter | A | Active components, semiconductors | A | Composants actifs, semiconducteurs |
| AD | Universaldiode, z.B. Gleichrichter, Sperrdiode | AD | General-purpose diode, e.g. rectifier, high-resistance diode | AD | Diode d'usage général, p.ex. redresseur, diode à haute résistance |
| AE | Spezialdiode, z.B. Tunnel-, Kapazitäts-, Zener-Diode | AE | Diode (special), e.g. tunnel diode, varactor, Zener diode | AE | Diode spéciale, p.ex. diode tunnel, varactor, diode Zener |
| AF | Fotohalbleiter, z.B. Foto-Diode, -Transistor, -Widerstand, Leucht-diode | AF | Photo-semiconductor, e.g. resistor, diode, transistor, LED | AF | Semiconducteur photoélectrique, p.ex. diode, transistor, résistance photoél., DEL |
| AG | Leistungs-Gleichrichter, z.B. Thyristor, Triac, Selengleichrichter | AG | Power rectifier, e.g. thyristor, triac, selenium rectifier | AG | Redresseur de puissance, p.ex. thyristor, triac, redresseur, au sélénium |
| AK | Kleinsignal-Transistor | AK | Small-signal transistor | AK | Transistor faible puissance |
| AL | Leistungs-Transistor | AL | High-power transistor | AL | Transistor grande puissance |
| AM | Spezial-Transistor, z.B. FET, MOSFET | AM | Transistor (special), e.g. FET, MOS-FET | AM | Transistor spécial, p.ex. TEC, MOSTEC |
| AP | Peltier-, Hall-Element | AP | Peltier element, Hall element | AP | Element Peltier, élément Hall |
| AR | Röhre für Empfänger, Verstärker, Gleichrichter | AR | Valve for receiver, amplifier, rectifier | AR | Tube pour récepteur, amplificateur, redresseur |
| AS | Spezialröhre, z.B. Senderöhre, EW-Widerstand, Stabilisator | AS | Valve (special), e.g. for transmitter, baretter, ballast valve | AS | Tube (spécial), p.ex. pour émetteur, résistance fer-hydrogène, ballast |
| AT | Katodenstrahlröhre, z.B. Bildröhre, Ziffern-Anzeigeröhre | AT | Cathode ray tube, e.g. picture tube, digital indicator tube | AT | Tube à rayon cathodique, p.ex. tube à image, tube à affichage numérique |
| AZ | Zubehör für Halbleiter u. Röhren | AZ | Accessories for semiconductors and valves | AZ | Accessoires pour semiconducteurs et tubes |
| B | Bausteine | B | PC boards, chips | B | Cartes imprimées, puces |
| BC | Integr. Schaltkreis (Microcomp.) | BC | Integrated circuit (interface, A/D) | BC | Circuit intégré (microprocesseur) |
| BD | R&S-Dünnschicht- und Dickschicht-schaltung | BD | R&S thinfilm or thickfilm circuit | BD | Circuit R&S à couche mince ou épaisse |
| BG | R&S-spezifische Gate-Arrays | BG | R&S gate arrays | BG | Circuits intégrés prédiffusés R&S |
| BJ | Integrierter Schaltkreis (Interface, A/D-Wandler) | BJ | Integrated circuit (interface, A/D converter) | BJ | Circuit intégré (interface, convertisseur A/N) |
| BL | Log. Schaltkreis z.B. DTL, TTL, HTL, ECL, C-MOS | BL | Logic circuit, e.g. DTL, TTL, HTL, ECL, C-MOS | BL | Circuit logique, p.ex. DTL, TTL, HTL, ECL, C-MOS |
| BM | Hybridbaustein, z.B. Mischer, Tuner, Modulator | BM | Hybrid chip, e.g. mixer, tuner, modulator | BM | Puce hybride, p.ex. mélangeur, tuner, modulateur |
| BO | Analogschaltkreis, z.B. Operationsverstärker | BO | Analog circuit, e.g. operational amplifier | BO | Circuit analogique, p.ex. amplificateur opérationnel |
| BP | Optoelektronischer Baustein, z.B. Anzeigeeinheit, Koppler | BP | Optoelectronic component, e.g. display, coupler | BP | Composant optoélectronique, p.ex. afficheur, coupleur |
| BS | Schalt- und Steuerbaustein, elektronischer Sensor | BS | Switching and control modul, electronic sensor | BS | Modul de commutation et de commande, sonde électronique |
| BV | Stromversorgung, Übersp.-Schutz | BV | Power pack, protective circuit | BV | Alimentation, protection surcharge |
| BZ | Zubehör | BZ | Accessories | BZ | Accessoires |

| Teile- familie | Art des Bauelementes | Parts family | Type of component | Familie | Type d'élément |
|-------------------|---|-----------------|---|----------|---|
| C | Kondensatoren | C | Capacitors | C | Condensateurs |
| CB | Bypass-, Durchf.-Kondensator | CB | Bypass capacitor, feed-through capacitor | CB | Condensateur bypass, condensateur de traversée |
| CC | Keramischer Kondensator | CC | Ceramic capacitor | CC | Condensateur céramique |
| CD | Drehkondensator | CD | Variable capacitor | CD | Condensateur variable |
| CE | Elektrolytkondensator | CE | Electrolytic capacitor | CE | Condensateur électrolytique |
| CG | Glimmerkondensator | CG | Mica capacitor | CG | Condensateur au mica |
| CH | Sperrschichtkondensator | CH | Semiconductor capacitor | CH | Condensateur semiconducteur |
| CK | Kunstfolienkondensator | CK | Synthetic-foil capacitor | CK | Condensateur à feuille synthétique |
| CL | Ker. Hochsp.-Kondensator | CL | HV capacitor (ceramic) | CL | Condensateur HT céramique, |
| CM | Metallpapier-Kondensator | CM | MP capacitor | CM | Condensateur à papier métallisé |
| CN | Kondensatornetzwerk | CN | Capacitor network | CN | Réseau capacitif |
| CP | Papierkondensator | CP | Paper capacitor | CP | Condensateur au papier |
| CS | Störschutzkondensator | CS | Interference-suppression capacitor | CS | Condensateur anti-parasite |
| CT | Trimmkondensator | CT | Trimmer capacitor | CT | Condensateur ajustable |
| CV | Vakuum-Kondensator | CV | Vacuum capacitor | CV | Condensateur à vide |
| D | Drähte, Leitungen | D | Wires, lines | D | Fils, lignes |
| DD | Schalt- und Wickeldraht | DD | Hook-up or winding wire | DD | Fil de câblage, fil de bobinage |
| DF | Flachleitung, Litze | DF | Flat multiple line, stranded wire | DF | Ligne plate, ligne torsadée |
| DG | Abgeschirmte Leitung | DG | Shielded line | DG | Ligne blindé |
| DH | Koaxialkabel | DH | Coaxial line | DH | Ligne coaxiale |
| DJ | Isolierschläuche, Schrumpfschläuche, Wellrohre, Schutzschläuche | DJ | Insulating sheaths, shrink-on sleeves, corrugated tubes, protective tubes | DJ | Gaines isolantes, gaines thermorétractables tubes ondulés, gaines protectrices |
| DL | HF-Litzen | DL | RF stranded wires | DL | Lignes torsadées RF |
| DM | Schalllitzen (mehrdrähtige Leiter) | DM | Multi-conductor wires | DM | Lignes torsadées (multiconducteurs) |
| DN | Antenne | DN | Antenna | DN | Antenne |
| DO | Lichtleiter (optisch) | DO | Optical waveguides | DO | Guides d'onde optiques |
| DP | Leiterplatten (unbestückt) | DP | Printed circuit boards (bare) | DP | Cartes imprimées (non équipées) |
| DQ | Multilayer (unbestückt) | DQ | Multilayer boards (bare) | DQ | Cartes multicouche (non équipées) |
| DS | Anschlußkabel (mehradrig) | DS | Connecting cable, multicore | DS | Câble de connexion (multiconducteur) |
| DU | Substratplatten für Dickschichtschaltungen | DU | Substrate boards for thickfilm circuits | DU | Cartes à substrat pour circuits à couche épaisse |
| DW | Festmantelkabel | DW | Rigid cables | DW | Câbles rigides |
| E | Elektrische Teile | E | Electric parts | E | Organes électriques |
| EB | Blei-, NC-Akku, Batterie | EB | Lead or alkaline accumulator, battery | EB | Accumulateur Pb/NC, batterie |
| ED | Gedruckte Schaltung (bestückte Leiterplatte), nicht steckbar | ED | Printed circuits (assembled), non-pluggable | ED | Circuits imprimés (équipés) non enfichables |
| EE | Gedruckte Schaltung (bestückte Leiterplatte), steckbar | EE | Printed circuits (assembled), pluggable | EE | Circuits imprimés (équipés) enfichables |
| EF | Glühlampe, Leuchte | EF | Incandescent lamp, pilot lamp | EF | Lampe à incandescence, voyant |
| EG | Glimmlampe, Entladungslampe | EG | Glow lamp, discharge lamp | EG | Lampe à luminescence lampe à décharge |
| EK | Kontakt-Streifen, -Feder | EK | Contact clip, contact spring | EK | Lampe de contact, ressort de contact |
| EL | Lautsprecher, Kopfhörer, Mikrofon | EL | Loudspeaker, headphones, microphone | EL | Haut-parleur, casque, microphone |
| EM | Motor, Hubmagnet, Drehfeldsystem | EM | Motor, lifting magnet, synchro system | EM | Moteur, électro-aimant de levage, système synchro |
| EO | Oszillator, z.B. Quarzoszillator | EO | Oscillator, e.g. crystal oscillator | EO | Oscillateur p.ex. oscillateur à quartz |
| EP | Tief-, Band-, Hochpaß, Bandsperre, Diskriminator | EP | Lowpass, bandpass, highpass filter, band-stop filter, discriminator | EP | Filtre passe-bas, passe-bande, passe-haut, suppression de bande, discriminateur |
| EQ | Schwing-, Filter-Quarz | EQ | Oscillator or filter crystal | EQ | Quartz oscillateur, quartz de filtre |
| ER | Resonator, piezoelekt./magnetostruktiv | ER | Resonator, piezoelectric/magnetostrictive | ER | Résonateur piézo-électrique/magneto-strictif |
| ES | Passive SHF-Bauteile | ES | Passive SHF-components | ES | Composant SHF passif |
| ET | Thermostat | ET | Thermostat | ET | Thermostat |
| EV | Lüfter, Gebläse | EV | Ventilator, blower | EV | Ventilateur, soufflerie |



| Teile- familie | Art des Bauelementes | Parts family | Type of component | Familie | Type d'élément |
|-------------------|---|-----------------|---|----------|---|
| F | Fassungen, Steckverbindungen | F | Sockets, connectors | F | Douilles, connecteurs |
| FG | Koax-Umrüstsatz | FG | Coaxial screw-in assembly | FG | Ensemble vissable coaxial |
| FH | Koax-Übergang auf Fremdsystem | FH | Coaxial adapter | FH | Adaptateur coaxial |
| FJ | BNC-Systemteil | FJ | BNC screw-in assembly | FJ | Ensemble vissable BNC |
| FK | Koaxial-UHF-Systemteil | FK | Coaxial UHF screw-in assembly | FK | Ensemble vissable coaxial UHF |
| FM | Mehrfachstecker, Buchsenleiste | FM | Multipoint connector | FM | Connecteur multiple |
| FN | Netz-Steckverbindung | FN | AC-supply connector | FN | Connecteur secteur |
| FO | Runde Mehrfach-Steckverbindung | FO | Round multipoint connector | FO | Connecteur multipoles rond |
| FP | Druckschalt-Steckverbindung | FP | Multipoint connector for PC boards | FP | Connecteur multipoles pour cartes imprimées |
| FR | Fassung für Lampe, Sicherung, usw. | FR | Socket for lamp, fuse, etc. | FR | Douille pour lampe, fusible etc. . . . |
| FT | Schwachstrom-Steckverbindung | FT | LV plug and socket | FT | Connecteur pour faible courant |
| FU | Hochspannungs-Steckverbindung | FU | HV plug and socket | FU | Connecteur pour haute tension |
| FV | Verbinder (z.B. AMP) | FV | Push-on connector | FV | Connecteur à enfichage |
| FZ | Zubehör für koax. Bauelemente | FZ | Accessories for coax. components | FZ | Accessoires pour composants coax. |
| H | Software | H | Software | H | Logiciel |
| HP | Software-Komponenten und Software-Module | HP | Rights to software components and software modules | HP | Droits d'utilisation de composants et modules logiciel |
| HS | Auf Informationsträger geladene Software | HS | Software data media | HS | Logiciel sur support d'information |
| J | Meßinstrumente | J | Indicators | J | Indicateurs |
| JD | Drehspul-Anzeigeeinstrument | JD | Moving-coil meter | JD | Galvanomètre à cadre mobile |
| JE | Dreheisen-Anzeigeeinstrument | JE | Moving-iron meter | JE | Galvanomètre à fer mobile |
| JF | Frequenzmesser | JF | Frequency meter | JF | Fréquence-mètre |
| JG | Drehspulinstrument mit Gleichrichter | JG | Moving-coil meter with rectifier | JG | Galvanomètre à cadre mobile avec redresseur |
| JH | Betriebsstundenzähler | JH | Operating-hours counter | JH | Compteur d'heures de fonctionnement |
| JJ | Impulszähler | JJ | Pulse counter | JJ | Compteur d'impulsions |
| JK | Kleinst-Instrument, z.B. Abstimmanzeiger | JK | Mini-instrument, e.g. tuning indicator | JK | Petit indicateur, p.ex. indicateur d'accord |
| JM | Mechanisches Zählwerk | JM | Mechanical counter | JM | Compteur mécanique |
| JP | Projektions-Instrument (Leuchtziffer) | JP | Digital display | JP | Afficheur numérique |
| JQ | Quotientenmesser (Kreuzspulinstrum.) | JQ | Ratiometer (cross coul) | JQ | Quotientmètre (à cadres croisés) |
| JU | Uhrwerk | JU | Clockwork | JU | Mouvement d'horlogerie |
| JW | Elektrodyn. Anzeigeeinstrument | JW | Electrodynamic meter | JW | Instrument électrodynamique |
| L | Induktivitäten, Magnetik | L | Inductors, magnetic components | L | Composants inductifs et magnétiques |
| LB | Blech- und Schnittbandkern mit Zubehör | LB | Laminated and C-cores with accessories | LB | Noyaux feuilletés et noyaux de type C, avec accessoires |
| LC | Keramische Spule | LC | Ceramic coil | LC | Bobine céramique |
| LD | Netz-, HF-Drossel, Df-Filter | LD | Choke, lead-through filter | LD | Self de choc, filtre de traversée |
| LE | Einzelkreis, Bandfilter | LE | Single tuned circuit, bandpass filter | LE | Circuit accordé, filtre passe-bande |
| LF | Ferrilkern mit Zubehör | LF | Ferrite cores with accessories | LF | Noyaux en ferrite avec accessoires |
| LK | Karbonyleisenkern und elektrischer Kupferkern mit Zubehör | LK | Iron carbonyl slugs and copper slugs with accessories | LK | Noyaux en fer carbonyle et en cuivre, avec accessoires |
| LL | Luftpule | LL | Air-core coils | LL | Bobines à air |
| LM | Magnetband und -platte | LM | Magnetic tapes and disks | LM | Bandes et disques magnétiques |
| LS | Schirmbecher | LS | Screening cans | LS | Boîtiers de blindage |
| LT | Netztransformator | LT | Power transformer | LT | Transformateur secteur |
| LU | NF-Übertrager | LU | AF transformer | LU | Transformateur BF |
| LV | Variometer | LV | Variometer | LV | Variomètre |
| LW | Wickelkörper, allgemein | LW | Coil formers, general | LW | Carcasses de bobine, en général |

| Teilefamilie | Art des Bauelementes | Parts family | Type of component | Familie | Type d'element |
|--------------|--------------------------------------|--------------|--|----------|---|
| R | Widerstände | R | Resistors | R | Résistances |
| RD | Drahtwiderstand | RD | Wire-wound resistor | RD | Résistance bobinée |
| RF | Kohleschicht-Widerstand | RF | Carbon-film resistor | RF | Résistance à couche de carbone |
| RG | Metallglasur-Widerstand | RG | Metal-coated resistor | RG | Résistance à couche métallique |
| RJ | Metalloxyd-Widerstand | RJ | Metal-oxide resistor | RJ | Résistance à oxyde métallique |
| RK | Kaltleiter, Heißleiter, Varistor | RK | PTC, NTC resistors, varistors | RK | Résistances CPT, CNT, varistors |
| RL | Metallfilm-Widerstand | RL | Metal-film resistor | RL | Résistance à film métallique |
| RN | Widerstandsnetzwerk | RN | Resistor network | RN | Réseau de résistance |
| RR | Draht-Potentiometer | RR | Wire-wound potentiometer | RR | Potentiomètre bobiné |
| RS | Schicht-Potentiometer | RS | Carbon-film potentiometer | RS | Potentiomètre à couche |
| RT | Dämpfungsglied, Abschlußwiderstand | RT | Attenuator, termination | RT | Atténuateur, charge |
| RV | Drahtwiderstand mit Abgriff | RV | Wire-wound resistor, tapped | RV | Résistance bobinée à prise |
| RW | Wendelpotentiometer | RW | Helical potentiometer | RW | Potentiomètre hélicoïdal |
| S | Schalter, Relais, Sicherungen | S | Switches, relays, fuses | S | Commutateurs, relais, fusibles |
| SB | Drucktastenschalter | SB | Pushbutton switch | SB | Commutateur à touche |
| SD | Drehschalter | SD | Rotary switch | SD | Commutateur rotatif |
| SF | Kontaktfedersatz | SF | Spring contact assembly | SF | Jeu de ressorts de contact |
| SH | HF-Koaxialschalter, -Relais, -Teiler | SH | Coaxial RF switch, RF relay, RF attenuator | SH | Commutateur RF coaxial, relais RF, atténuateur RF |
| SK | Kipp-, Wipp- und Schiebeschalter | SK | Toggle switch, slide switch | SK | Commutateur à bascule, à glissière |
| SL | Leistungsschalter Netz/HF | SL | AC supply switch, high-power RF switch | SL | Commutateur secteur, de puissance RF |
| SM | Mikroschalter | SM | Microswitch | SM | Microrupteur |
| SN | Elektromagnet, Relais | SN | Electromagnetic relay | SN | Relais électromagnétique |
| SP | Leistungsrelais, Luftschtütz | SP | Power relay, air-type contactor | SP | Relais de puissance, contacteur à air |
| SR | Reedrelais | SR | Reed relay | SR | Relais reed |
| SS | Sicherung, Schutzschalter | SS | Fuse, automatic cut-out | SS | Fusible, coupe-circuit automatique |
| ST | Thermoschalter | ST | Thermal circuit breaker | ST | Disjoncteur thermique |
| SU | Überspannungs-Ableiter | SU | Arrester | SU | Eclateur |
| SW | Wechselrichter, Näherungsschalter | SW | Inverter (DC-AC), proximity switch | SW | Inverseur (DC-AC), commutateur de proximité |
| SZ | Zeitschalter | SZ | Time switch | SZ | Interrupteur horaire |
| V | Verbindungselemente | V | Connecting elements | V | Eléments de raccordement |
| VK | Klemme, Klemmleiste | VK | Clamp, terminal strip | VK | Pince, réglette à bornes |
| VL | Lötöse, Stützpunkt | VL | Soldering lug | VL | Cosse à souder |
| VS | Schraube, Mutter, Scheibe | VS | Screw, nut, washer | VS | Vis, écrou, disque |

Farbcode für Widerstände und Kondensatoren

Anmerkung:

Die Wertangabe der weitgehend miniaturisierten Bauelemente erfolgt überwiegend durch Farbkennzeichnungen, deren Bedeutung der nachfolgenden Tabelle entnommen werden kann

Hinweis:

Im Zuge des technischen Fortschrittes setzt R&S zunehmend Metallschichtwiderstände mit 1% Toleranz anstelle von Kohleschichtwiderständen mit 5% Toleranz ein. Metallschichtwiderstände können sich dabei an Stellen befinden, an denen gemäß Schaltteilliste Kohleschichtwiderstände vorgesehen sind. Etwaige geringfügige Differenzen der Nennwerte zwischen Stromlaufplan, Schaltteilliste und Gerät liegen im zulässigen Toleranzbereich.

Colour code for resistors and capacitors

Note:

The electrical values of the largely miniaturized components are mainly identified by a colour code, the meaning of which can be taken from the table below.

N. B.:

Following the state of the art R&S makes increasing use of metal-film resistors (1% tolerance) instead of carbon-film resistors (5% tolerance). Metal-film resistors may have been employed where carbon-film resistors are specified in the parts list. Any slight differences of nominal values between circuit diagram, parts list and equipment are within tolerance.

Code couleur pour résistances et condensateurs

Remarque:

Les valeurs électriques des composants fort miniaturisés sont indiquées dans la plupart des cas par un code couleur dont voici l'explication.

N. B.:

Suivant le progrès technique R&S utilise de plus en plus des résistances à film métallique (tolérance 1%) au lieu des résistances à couche de carbone (tolérance 5%). Des résistances à film métallique peuvent se trouver en des points où des types à couche de carbone figurent dans la liste des composants. Les différences minimales des valeurs nominales existant éventuellement entre le schéma de circuit, la liste des composants et l'appareil sont dans la marge de tolérance.

| Farbe/Colour/Couleur | A | B | C | D | Anordnungsbeispiele für Examples for / Exemple pour | Definition / Définition * |
|---|---|---|--------|--------|--|--|
| Schwarz/Black/Noir | — | 0 | — | — | Widerstände (R) / Resistors (R) / Résistance (R) | Kennzeichen A (Bauteilfarbe/1. Farbring) = 1. Zahl (Bauteilende/2. Farbring) = 2. Zahl (Punkt/3. Farbring) = 3. Zahl = Zahl der Nullen (Punkt/4. Farbring) = Toleranz des Nennwerts in % (Fehlendes Kennzeichen für D bedeutet ±20%) Das Fehlen eines Kennzeichens bedeutet, daß die Farbe des Bauteilkörpers die Wertangabe darstellt. Marking A (body colour or first coloured ring) = 1st digit (body end or second coloured ring) = 2nd digit (dot or third coloured ring) = number of zeroes (dot or fourth coloured ring) = tolerance on nominal value in % (with no D marking tolerance = 20%) The absence of a marking signifies that the body colour gives the corresponding information. Reperage A (couleur du corps ou 1er anneau) = 1er chiffre (bout du corps ou 2e anneau) = 2e chiffre (point ou 3e anneau) = nombre de zéros (point ou 4e anneau) = tolérance en % de la valeur nominale (L'absence du reperage D signifie ± 20%) L'absence de tout reperage signifie que la couleur du corps du composant représente la valeur correspondante |
| Braun/Brown/Marron | 1 | 1 | 0 | ± 1% | | |
| Rot/Red/Rouge | 2 | 2 | 00 | ± 2% | | |
| Orange/Orange | 3 | 3 | 000 | — | | |
| Gelb/Yellow/Jaune | 4 | 4 | 0000 | — | | |
| Grün/Green/Vert | 5 | 5 | 00000 | ± 0,5% | | |
| Blau/Blue/Bleu | 6 | 6 | 000000 | — | | |
| Violett/Violet | 7 | 7 | — | ± 0,1% | | |
| Grau/Gray/Gris | 8 | 8 | — | — | | |
| Weiß/White/Bianc | 9 | 9 | — | — | | |
| Gold/Dore | — | — | — | ± 5% | | |
| Silber/Silver/Argente | — | — | — | ± 10% | | |
| Ohne Farbe/No colour/ Pas de couleur | — | — | — | ± 20% | | |

1) Toleranzang. hier nicht spezifiziert

1) Tolerance ring, here not specified

1) Anneau de tolérance, ne pas spécifier ici

* Siehe auch DIN 41429 und DIN 40825

* see also IEC publication 62-1952 and 62-1968

* Voir aussi DIN 41429 et DIN 40825



Zusammenstellung der lieferbaren Netzkabel
List of power cables available
Liste des câbles d'alimentation disponibles

| Sach-Nr. Stock No. Référence | Schutzkontaktstecker nach: Earthed-contact connector: Fiche à contact de protection: | Vorzugsweise verwendet in: Preferably used in: Utilisé de préférence en: |
|------------------------------------|---|---|
| DS 006.7013 | BS 1363: 1967' 13A entspr. IEC 83: 1975 Standard B2 BS 1363: 1967' 13A complying with IEC 83: 1975 Standard B2 BS 1363: 1967' 13A suivant CEI 83: 1975 norme B2 | Großbritannien Great Britain Grande-Bretagne |
| DS 006.7020 | Typ 12 nach SEV-Vorschrift 1011.1059, Normblatt S 24 507 Type 12 complying with SEV regulation 1011.1059, standard sheet S 24 507 Type 12 suivant la norme SEV 1011.1059, feuille S 24 507 | Schweiz Switzerland Suisse |
| DS 006.7036 | Typ 498/13 nach USA-Vorschrift UL 498, bzw. IEC 83 Type 498/13 complying with US regulation UL 498 or with IEC 83 Type 498/13 suivant la norme E.U.A. UL 498 ou la norme CEI 83 | USA / Kanada USA / Canada E.U.A. / Canada |
| DS 006.7107 | Typ SAA3 10 A, 250 V, nach AS C112-1964 Ap. Type SAA3 10 A, 250 V, complying with AS C112-1964 Ap. Type SAA3 10 A, 250 V, suivant AS C112-1964 Ap. | Australien Australia Australie |
| DS 025.2365 | DIN 49 441, 10 A, 250 V | Europa (ohne Schweiz) Europe (Switzerland not included) Europe (Suisse non comprise) |

Cross-Reference List of Class Designation Letters

IEC Publication 113-2 (1971) Item Designations, Letter Codes
ANSI Y32.2-1975 (IEEE Std 315-1975), Section 22, Class Designation Letters

Note: The designation letters used in the R&S Manuals correspond to the letter codes of the IEC Standard identified in the first column!


| IEC Publication 113-2 Terminology | Letter Code | | IEC Publication 113-2 Terminology | Letter Code | |
|---|-------------|-----------|--|-------------|--------|
| | IEC | Y32.2 | | IEC | Y32.2 |
| Acoustical indicator | H | LS | Magnetic tape recorder | D | A |
| Adjustable resistor | R | R | Maser | A | A |
| Aerial | W | E | Measuring equipment | P | M |
| Amplifier | A | AR | Microphone | B | MK |
| Amplifier (with tubes) | A | AR | Miscellaneous | E | E |
| Arrester | F | E | Modulator | U | A |
| Assemblies | A | A,U | Monostable element | D | A,U |
| Auxiliary switch | S | S | Motor | M | B |
| Battery | G | BT | Optical indicator | H | DS |
| Bistable element | D | U,A | Oscillator | G | Y,G |
| Brake | Y | MP | Overvoltage discharge device | F | F,E |
| Busbar | W | W | Parabolic aerial | W | E |
| Cable | W | W | Photoelectric cell | B | V |
| Cable balancing network | Z | Z | Pickup | B | PU |
| Capacitor | C | C | Plug | X | P |
| Changer | U | A,B,G,MT | Pneumatic valve | Y | MP |
| Circuit breaker | Q | CB | Potentiometer | R | R |
| Clutch | Y | MP | Power switchgear | Q | CB,S |
| Coder | U | U,A | Protective device | F | F |
| Comander | Z | A | Pushbutton | S | S |
| Connecting stage | S | S | Quartz-oscillator | G | Y |
| Contactors | K | K | Recording device | P | A,M |
| Control switch | S | S | Register | D | A,U,M |
| Converter | U | A,U,MG | Relay | K | K |
| Core, storage | D | E | Resistor | R | R |
| Crystal filter | Z | FL | Resolver | B | B |
| Crystal transducer | B | Y | Rheostat | R | R |
| Current transformer | T | T | Rotating frequency generator | G | G,MG |
| Delay device | D | DL | Rotating generator | G | G |
| Delay line | D | DL | Selector | S | S |
| Demodulator | U | A | Selector switch | S | S |
| Dial contact | S | S | Semiconductor | V | D,CR,Q |
| Diode | V | D | Shunt (resistor) | R | R |
| Dipole | W | E | Signal generator | P | A |
| Disconnecting plug | X | P | Signaling device | H | DS |
| Disconnecting socket | X | X | Socket | X | X |
| Discriminator | U | A | Soldering terminal strip | X | E,TB |
| Disk recorder | D | A | Static frequency changer | U | A |
| Dynamotor | B | MG | Storage device | D | A,U |
| Electrically operated mechanical device | Y | MT | Subassembly | A | A |
| Electronic tube | V | V | Supply | G | A,PS |
| Equalizer | Z | EQ | Supply device | G | A,PS |
| Filter | Z | FL | Synchro | B | B |
| Frequency changer | U | A,B,G | Telegraph translator | U | A |
| Fuse | F | F | Terminal | X | E |
| Gas discharge tube | V | V | Terminal board | X | TB |
| Generator | G | G | Termination | Z | AT |
| Heating device | E | HR | Test jack | X | E,J |
| Hybrid | Z | Z | Testing equipment | P | A |
| Indicating device | P | DS | Thermistor | R | RT |
| Induction coil | L | L | Thermo cell | B | A,TC |
| Inductors | L | L | Thermoelectric sensor | B | A |
| Integrating measuring device | P | M,MT,Z | Thyristor | V | Q |
| Inverter | U | A,U,PS,MG | Transducer (nonelectrical quantity to electrical quantity) | B | A,BT |
| Isolator | Q | AT | Transformer | T | T |
| Jumper wire | W | W | Transmission path | W | W |
| Laser | A | MT,A | Transistor | V | Q |
| Lighting device | E | DS | Tube (electron) | V | V |
| Limit switch | S | S | Voltage transformer (potential) | T | T |
| Limiter | Z | MT,RE | Waveguide | W | W |
| Line trap | L | FL,MP,V | Waveguide directional coupler | W | DC |
| Loudspeaker | B | LS | | | |
| Magnetic amplifier | A | AR | | | |



ROHDE & SCHWARZ

Schaltteillisten
numerisch geordnet
Part lists
in numerical order
Listes des pièces détachées
par numéros de référence


Für diese Unterlage behalten wir uns alle Rechte vor.

| Kannz. Comp. No. | Benennung Designation | Sachnummer Stock No. | Hersteller Manufacturer | Bezeichnung Designation | enthalten in contained in | |
|---|--|----------------------|-------------------------|------------------------------------|---------------------------|----------------|
| | XX VARIANTENERKLÄRUNG IDENTIFICATION OF MODELS VAR 11 = SMY01 1GHZ MOD. MOD 11 = SMY01 1GHZ MOD. VAR 12 = SMY02 1GHZ MOD. MOD 12 = SMY02 1GHZ MOD VAR 41 = SMY41 1GHZ UK MOD 41 = SMY41 1GHZ UK VAR 43 = SMY43 MOD 43 = SMY43 VAR 44 = SMY44 1GHZUPGRAD MOD 44 = SMY44 1GHZUPGRAD VAR 45 = SMY45 2GHZUK MOD 45 = SMY45 2GHZUK XX ZÜGEH. STROML. CIRC. DIAGR. 1062.5502 S | | | | | |
| A1 | ED TASTATUR/ANZEIGE KEYBOARD/DISPLAY HIERZU STROML. 1062.6809S SEE CIRC. DIAGR. 1062.6809S | 1062.6809.02 | | | | |
| A2 | ED PROCESSOR PROCESSOR NUR VAR/ONLY MOD: 11 12 43 HIERZU STROML. 1062.6309S SEE CIRC. DIAGR. 1062.6309S | 1062.6309.02 | | | | |
| A2 | ED PROZESSOR NUR VAR/ONLY MOD: 41 44 45 | 1062.6309.04 | | | | |
| A3 | ED MOTHERBOARD MOTHERBOARD HIERZU STROML. 1062.6009S SEE CIRC. DIAGR. 1062.6009S | 1062.6009.02 | | | | |
| A4 | EE SYNTHESIZER SYNTHESIZER NUR VAR/ONLY MOD: 11 12 HIERZU STROML. 1062.6409S SEE CIRC. DIAGR. 1062.6409S | 1062.6409.02 | | | | |
| A4 | EE SYNTHESIZER NUR VAR/ONLY MOD: 41 44 45 HIERZU STROML. 1062.6409S SEE CIRC. DIAGR. 1062.6409S | 1062.6409.04 | | | | |
| A4 | EE SYNTHESIZER SYNTHESIZER NUR VAR/ONLY MOD: 43 HIERZU STROML. 1062.6409S SEE CIRC. DIAGR. 1062.6409S | 1062.6409.43 | | | | |
| A5 | EE AUSGANGSTEIL 1.046GHZ OUTPUT STAGE 1,0 GHZ NUR VAR/ONLY MOD: 11 HIERZU STROML. 1062.6209S SEE CIRC. DIAGR. 1062.6209S | 1062.6209.02 | | | | |
| A5 | EE AUSGANGSTEIL 1.046GHZ NUR VAR/ONLY MOD: 41 HIERZU STROML. 1062.6209S SEE CIRC. DIAGR. 1062.6209S | 1062.6209.04 | | | | |
| A5 | EE AUSGANGSTEIL 2.08GHZ OUTPUT UNIT 2.08GHZ NUR VAR/ONLY MOD: 12 43 HIERZU STROML. 1062.7005 S SEE CIRC. DIAG. 1062.7005 S | 1062.7005.02 | | | | |
| A5 | EE AUSGANGSTEIL NUR VAR/ONLY MOD: 44 45 HIERZU STROML. 1062.7005S SEE CIRC. DIAG. 1062.7005S | 1062.7005.04 | | | | |
| A6 | ZE EICHLLEITUNG (SMX) ATTENUATOR (SMX) NUR VAR/ONLY MOD: 11 | 0826.5065.02 | | | | |
| A6 | ZE EICHLLEITUNG (SMY) NUR VAR/ONLY MOD: 41 | 0826.5065.04 | | | | |
| A6 | ZE EICHLLEITUNG (SMG/SMH) NUR VAR/ONLY MOD: 12 43 | 0801.1108.02 | | | | |
| A6 | ZE EICHLLEITUNG (SMY) NUR VAR/ONLY MOD: 44 45 | 0801.1108.04 | | | | |
| A7 | ZE NETZTEIL, EINHEIT POWER SUPPLY HIERZU STROML. 1062.5690S | 1062.5690.02 | | | | |
| MENP5 | 413 3PUA | ÄI | Datum Date | Schaltteilliste für Parts list for | Sachnummer Stock No. | Blatt-Nr. Page |
|  | ROHDE & SCHWARZ | 11 | 16.09.97 | GG SMY... SIGNAL GENERAT. | 1062.5502.01 SA | 1+ |


Auch für neue Geräte neuer AEZ

095.0026-0893

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| Kennz. Comp. No. | Benennung Designation | Sachnummer Stock No. | Hersteller Manufacturer | Bezeichnung Designation | enthalten in contained in | |
|---|---|-------------------------|----------------------------|---------------------------------------|------------------------------|-------------------|
| A13 | SEE CIRC. DIAGR. 10625690S ED ALC-BOARD ALC-BOARD NUR VAR/ONLY MOD: 41 44 45 | 1062.9920.02 | | | | |
| W1 | DW KABEL W1 CABLE W1 | 1062.6538.00 | SMY01 | | 1062.6521.00 F | |
| W1 | DW KABEL W1 CABLE W1 | 1062.6596.00 | SMY02 | | 1062.6580.00 | |
| W2 | DY KABEL W2 CABLE W2 | 1062.6644.00 | | | 1062.6621.00 | |
| W4 | DY KABEL W4 CABLE W4 | 1062.6650.00 | | | 1062.6621.00 | |
| W20 | DY KABEL W20 CABLE W20 | 1062.6667.00 | | | 1062.6621.00 | |
| W24 | DV KABEL CABLE | 1062.6544.00 | | | 1062.6509.00 | |
| W25 | DV KABEL CABLE | 1062.6544.00 | | | 1062.6509.00 | |
| W26 | DW KABEL W26 CABLE | 1062.6567.00 | SMY01 | | 1062.6521.00 F | |
| W26 | DW KABEL W26 CABLE W26 | 1062.6609.00 | SMY02 | | 1062.6580.00 | |
| W27 | DV KABEL W27 CABLE W27 | 1062.6573.00 | | | 1062.6509.00 | |
| W131 | DV HF-KABEL-W131 NUR VAR/ONLY MOD: 41 44 45 | 1063.0027.00 | | | | |
| W132 | DV HF-KABEL NUR VAR/ONLY MOD: 41 44 45 | 1063.0033.00 | | | | |
| W133 | DV HF-KABEL W133 NUR VAR/ONLY MOD: 41 44 45 | 1063.0040.00 | | | | |
| X101 | FJ EINBAUBUCHSE SYST.BNC BNC-CONNECTOR UG 625CIU NUR VAR/ONLY MOD: 11 12 43 | FJ 0099.9186.00 | ROSENBERGE | 51K-503-200-N4 | | |
| X102 | FJ EINBAUBUCHSE SYST.BNC BNC-CONNECTOR UG 625CIU | FJ 0099.9186.00 | ROSENBERGE | 51K-503-200-N4 | | |
| X103 | FJ EINBAUBUCHSE SYST.BNC BNC-CONNECTOR UG 625CIU | FJ 0099.9186.00 | ROSENBERGE | 51K-503-200-N4 | | |
| X104 | FJ EINBAUBUCHSE SYST.BNC BNC-CONNECTOR UG 625CIU NUR VAR/ONLY MOD: 11 12 43 | FJ 0099.9186.00 | ROSENBERGE | 51K-503-200-N4 | | |
| X105 | FJ EINBAUBUCHSE SYST.BNC BNC-CONNECTOR UG 625CIU | FJ 0099.9186.00 | ROSENBERGE | 51K-503-200-N4 | | |
| X133 | FJ EINLOETBUCHSE MMCX SMD CONNECTOR NUR VAR/ONLY MOD: 41 44 45 | 1075.4045.00 | SUHNER | 90MMCX-S50-0-51/1190 | | |
| MENP5 | 413 3PUA | Ä1 | Datum Date | Schaltteilliste für Parts list for | Sachnummer Stock No. | Blatt-Nr. Page |
|  | | 11 | 16.09.97 | GG SMY... SIGNAL GENERAT. | 1062.5502.01 SA | 2- |

Für diese Unterlage behalten wir uns alle Rechte vor.

| Kennz. Comp. No. | Benennung Designation | Sachnummer Stock No. | Hersteller Manufacturer | Bezeichnung Designation | enthalten in contained in | |
|--|--|-------------------------|-------------------------------|---------------------------------------|------------------------------|-------------------|
| . | XX VARIANTENERKLAERUNG IDENTIFICATION OF MODELS VAR02=GRUNDAUSFUEHRUNG MODO2=BASIC_MODEL | | | | | |
| W3 | DY KABEL W3 CABLE W3 | 1062.6080.00 | | | 1062.6067.00 | |
| W21 | DY KABEL W21 CABLE W21 | 1062.6096.00 | | | 1062.6067.00 | |
| W77 | DY KABEL W77 CABLE W77 | 1062.6109.00 | | | 1062.6067.00 | |
| X1 | FP BUCHSENLEISTE 32POL. CONNECTOR 32POL. | FP 0008.5676.00 | SIEMENS | V42254-B2201-B611 | | |
| X2 | FP BUCHSENLEISTE 32POL. CONNECTOR 32POL. | FP 0008.5676.00 | SIEMENS | V42254-B2201-B611 | | |
| X4 | FP STECKERLEISTE 10P.GER CONNECTOR 10P | 0846.4593.00 | SIEMENS | V23535-A2200-A102 | | |
| X20 | FP STECKERLEISTE 10P.GER CONNECTOR 10P | 0846.4593.00 | SIEMENS | V23535-A2200-A102 | | |
| X33 | FP STIFTL.WIN 3P.R2,54 ANGLE PIN CONNECTOR | FP 0009.7195.00 | | | | |
| X125 | FJ EINLOETBUCHSE MMCX SMD CONNECTOR | 1075.4045.00 | SUHNER | 90MMCX-S50-0-51/1190 | | |
| X133 | FJ EINLOETBUCHSE MMCX SMD CONNECTOR | 1075.4045.00 | SUHNER | 90MMCX-S50-0-51/1190 | | |
| X231 | NICHT BESTUECKT/NOT FITTED ENTHALTEN IN SMY-B40 ZUB 1062.9920.02 FP STECKERLEISTE 10P.WIN CONNECTOR NICHT BESTUECKT NOT FITTED | FP 0738.5335.00 | SIEMENS | V23535-A2210-A102 | | |
| MENP5 | 413 3PUA | ÄI | Datum Date | Schaltteilliste für Parts list for | Sachnummer Stock No. | Blatt-Nr. Page |
|  ROHDE & SCHWARZ | 01 | 16.09.97 | ED MOTHERBOARD MOTHERBOARD | 1062.6009.01 SA | 1- | |

095.0026-0693

XY-Liste

XY List

Erklärung der Spaltenbezeichnungen:

- Part:** Bauelement-Kennzeichen.
- Side:** Leiterplatten-Seite, auf der sich das Bauelement befindet.
- X/Y:** Koordinaten (Millimeter) des Bauelementes auf der Leiterplatte bezogen auf den Nullpunkt.
- SQR, PG:** Planquadrat und Seite des Schaltbildes für das jeweilige Bauelement.

Explanation of column designations:

- Part:** Identification of instrument part.
- Side:** Side of the PC board on which instrument part is positioned.
- X/Y:** Coordinates (millimeter) of the component on the PC board in reference to zero point.
- SQR, PG:** Square and page of the diagram for the respective instrument part.

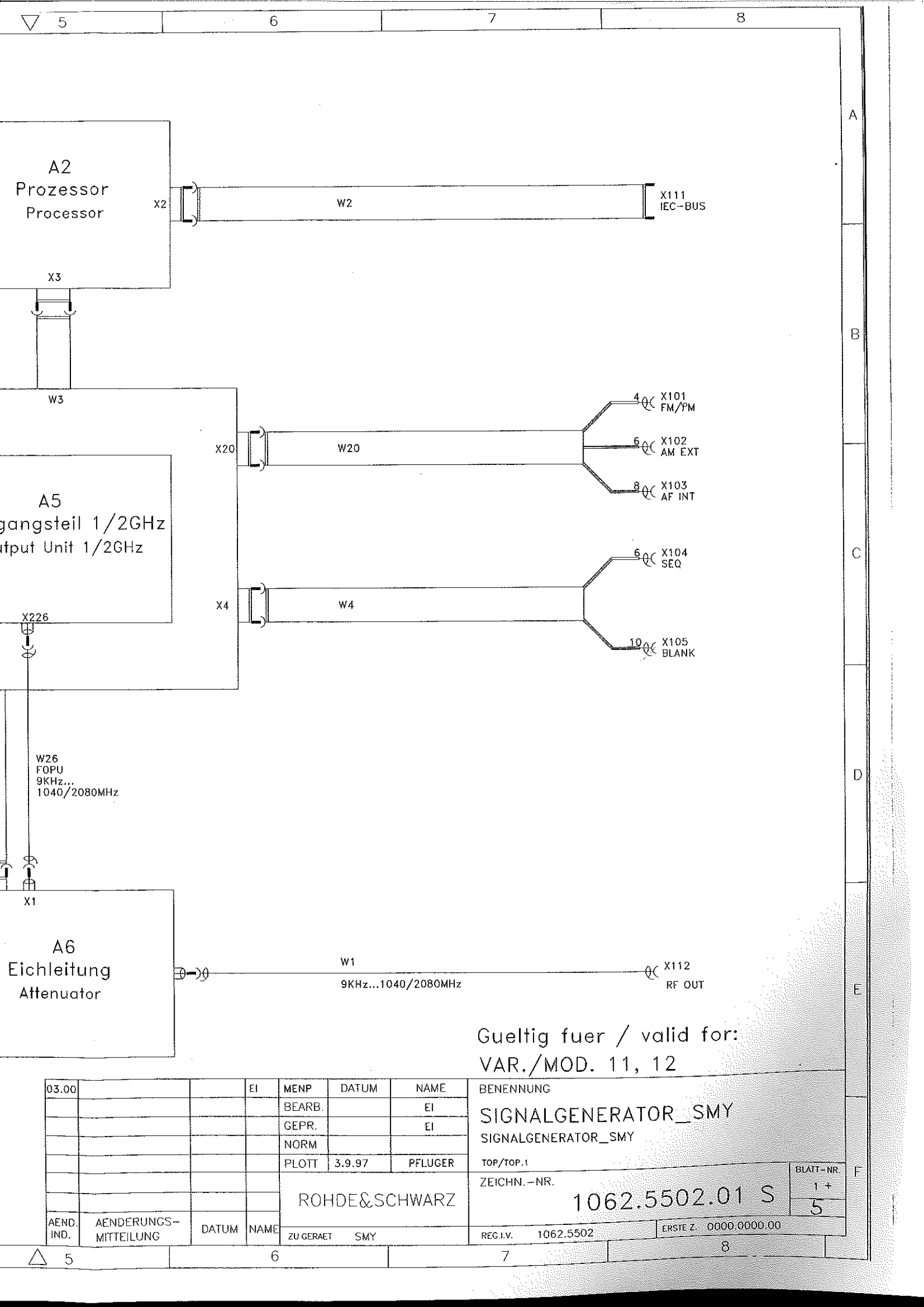
| Nicht-Service-Relevante Bauteile / Non-Service-Relevant Components | | | | | | | | | | | | | | | | | |
|--|------|-----|----|-----|----|------|------|-----|----|-----|----|------|------|----|----|-----|----|
| Part | Side | X | Y | Sqr | Pg | Part | Side | X | Y | Sqr | Pg | Part | Side | X | Y | Sqr | Pg |
| W3 | B | 113 | 10 | 4D | 1 | X2 | B | 38 | 77 | 3A | 1 | X125 | B | 10 | 90 | 1A | 1 |
| W21 | B | 114 | 27 | 7D | 1 | X4 | B | 137 | 13 | 2A | 1 | X133 | B | 44 | 26 | 1B | 1 |
| W77 | B | 17 | 51 | 2D | 1 | X20 | B | 23 | 23 | 1D | 1 | X231 | B | 15 | 13 | 3D | 1 |
| X1 | B | 38 | 41 | 3C | 1 | X33 | B | 41 | 26 | 1C | 1 | | | | | | |

| ROHDE | ÄI | Datum | XY-Liste für | Sach-Nummer | Blatt |
|---------|-------|----------|----------------|-----------------|-------|
| & | | Date | XY-list for | Stock-Nr | Page |
| SCHWARZ | | | ED MOTHERBOARD | | |
| | 03.00 | 02.07.97 | MOTHERBOARD | 1062.6009.01 XY | 1- |



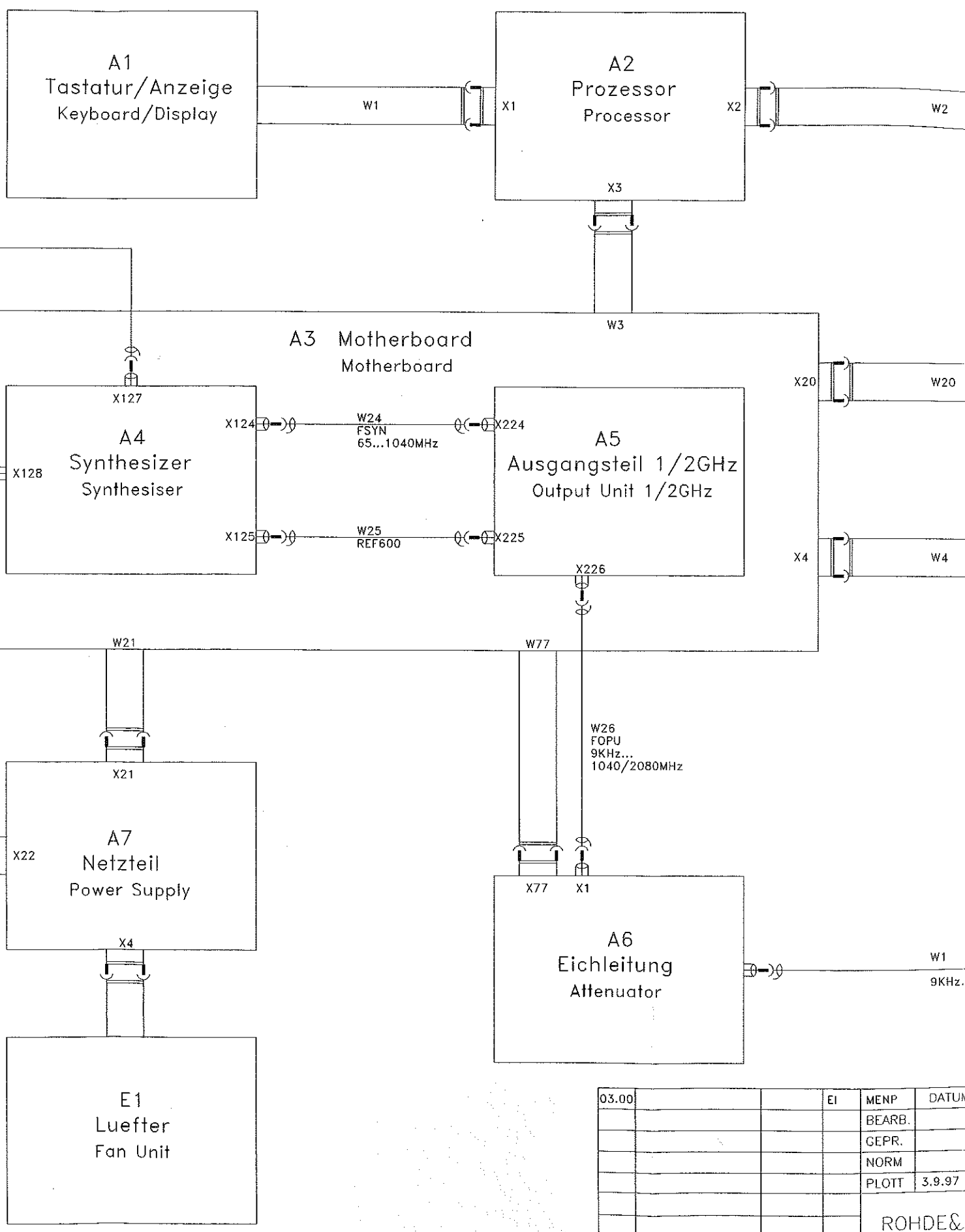
ROHDE & SCHWARZ

Stromläufe
Bestückungspläne
Circuit diagrams
Components plans
Schémas de circuit
Plans des composants



Gueltig fuer / valid for:
VAR./MOD. 11, 12

| | | | | | | | |
|------------|-----------------------|-------|------|---------------|--------|----------|---------------------|
| 03.00 | | | EI | MENP | DATUM | NAME | BENENNUNG |
| | | | | BEARB. | | EI | SIGNALGENERATOR_SMY |
| | | | | GEPR. | | EI | SIGNALGENERATOR_SMY |
| | | | | NORM | | | TOP/TOP.1 |
| | | | | PLOTT | 3.9.97 | PFLUGER | ZEICHN.-NR. |
| | | | | ROHDE&SCHWARZ | | | 1062.5502.01 S |
| AEND. IND. | AENDERUNGS-MITTEILUNG | DATUM | NAME | ZU GERAET | SMY | REG.I.V. | 1062.5502 |
| | | | | | | ERSTE Z. | 0000.0000.00 |
| | | | | | | | BLATT-NR. |
| | | | | | | | 1+ |
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|------------|-----------------------|-------|------|----------|--------|
| 03.00 | | | EI | MENP | DATUM |
| | | | | BEARB. | |
| | | | | GEPR. | |
| | | | | NORM | |
| | | | | PLOTT | 3.9.97 |
| | | | | ROHDE&S | |
| AEND. IND. | AENDERUNGS-MITTEILUNG | DATUM | NAME | ZU GERAE | SMY |

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W1

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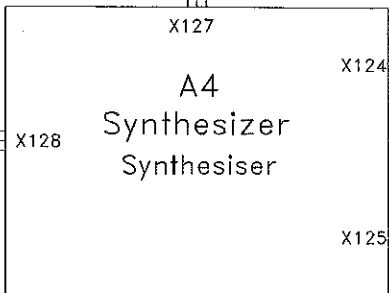
X110
EXT REF

W27

C

A3 Motherboard
Motherboard

X127



X124

W24
FSYN
65...1040MHz

X128

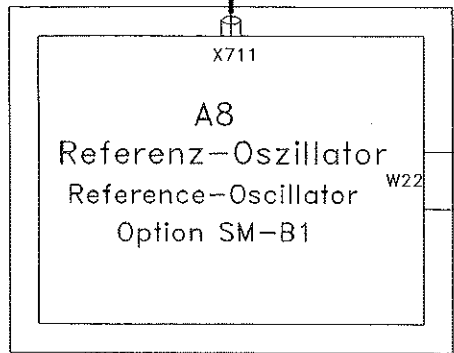
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W25
REF600

D

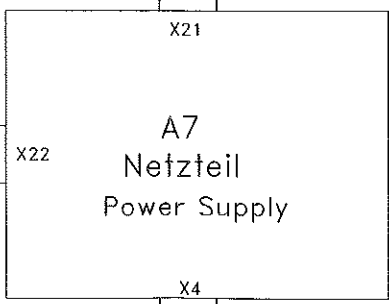
W28

W21



X711

W22



X21

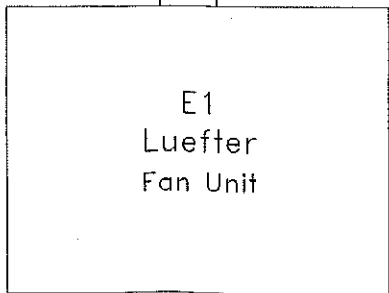
X22

X4

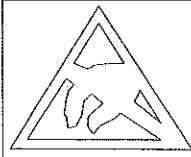
E

Bindende Angaben ueber Varianten,
Trimmwerte, Bauteile und
nicht bestueckte Bouteile siehe SA.

FOR BINDING INFORMATION ON MODELS,
TRIMMING AND COMPONENTS VALUES AND
NONFITTED COMPONENTS SEE PARTS LIST



F



ACHTUNG: EGB !
ELEKTROSTATISCH GEFAEHRDETE
BAUELEMENTE ERFORDERN EINE
BESONDERE HANDHABUNG.
ATTENTION ESD !
ELECTROSTATIC SENSITIVE DEVICES
REQUIRE A SPECIAL HANDLING

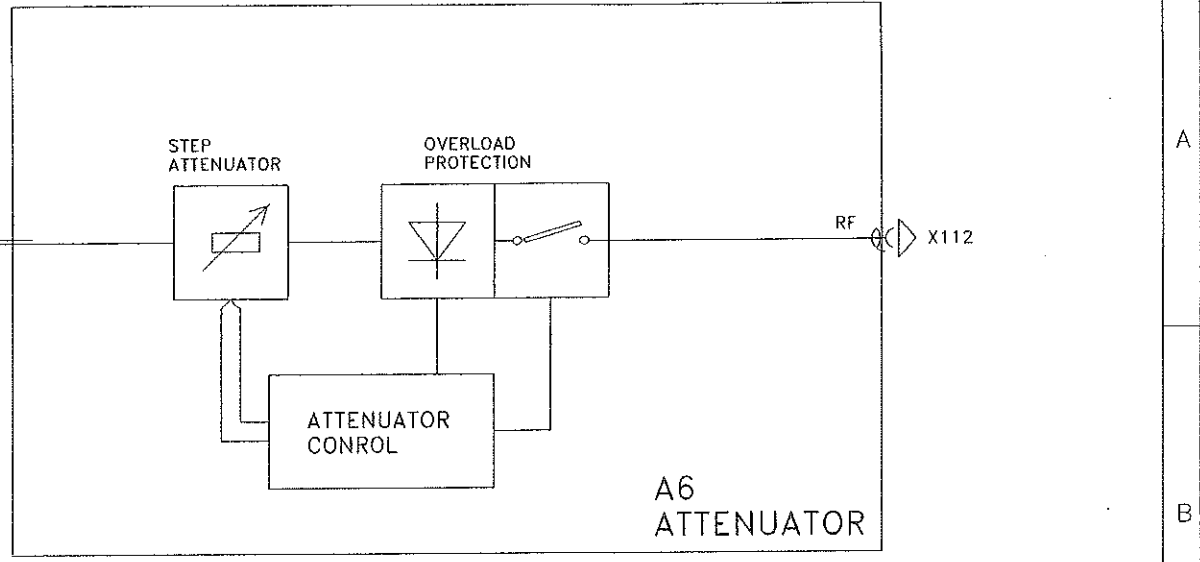
FUER DIESE UNTERLAGE
BEHALTEN WIR UNS ALLE RECHTE VOR

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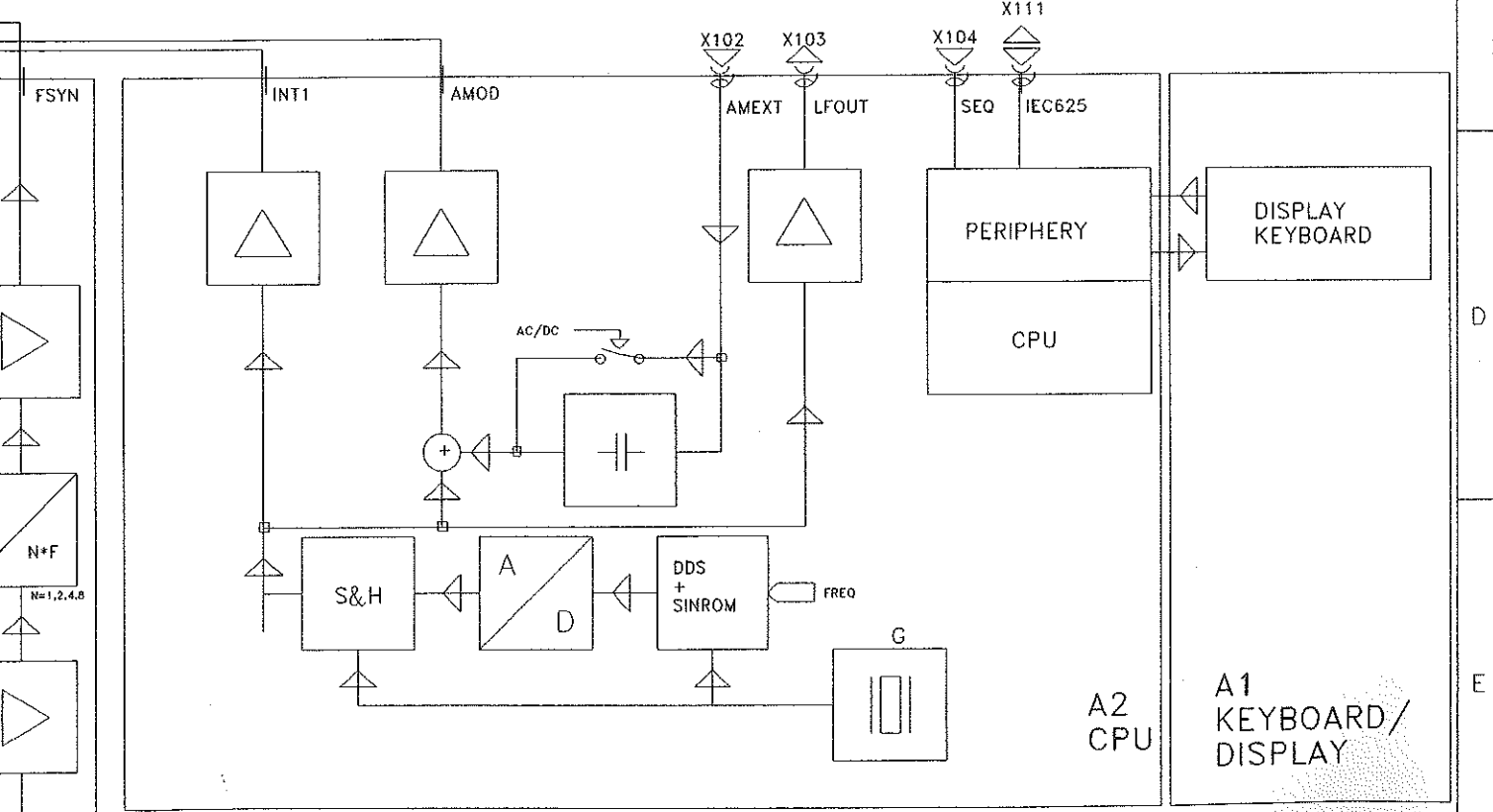
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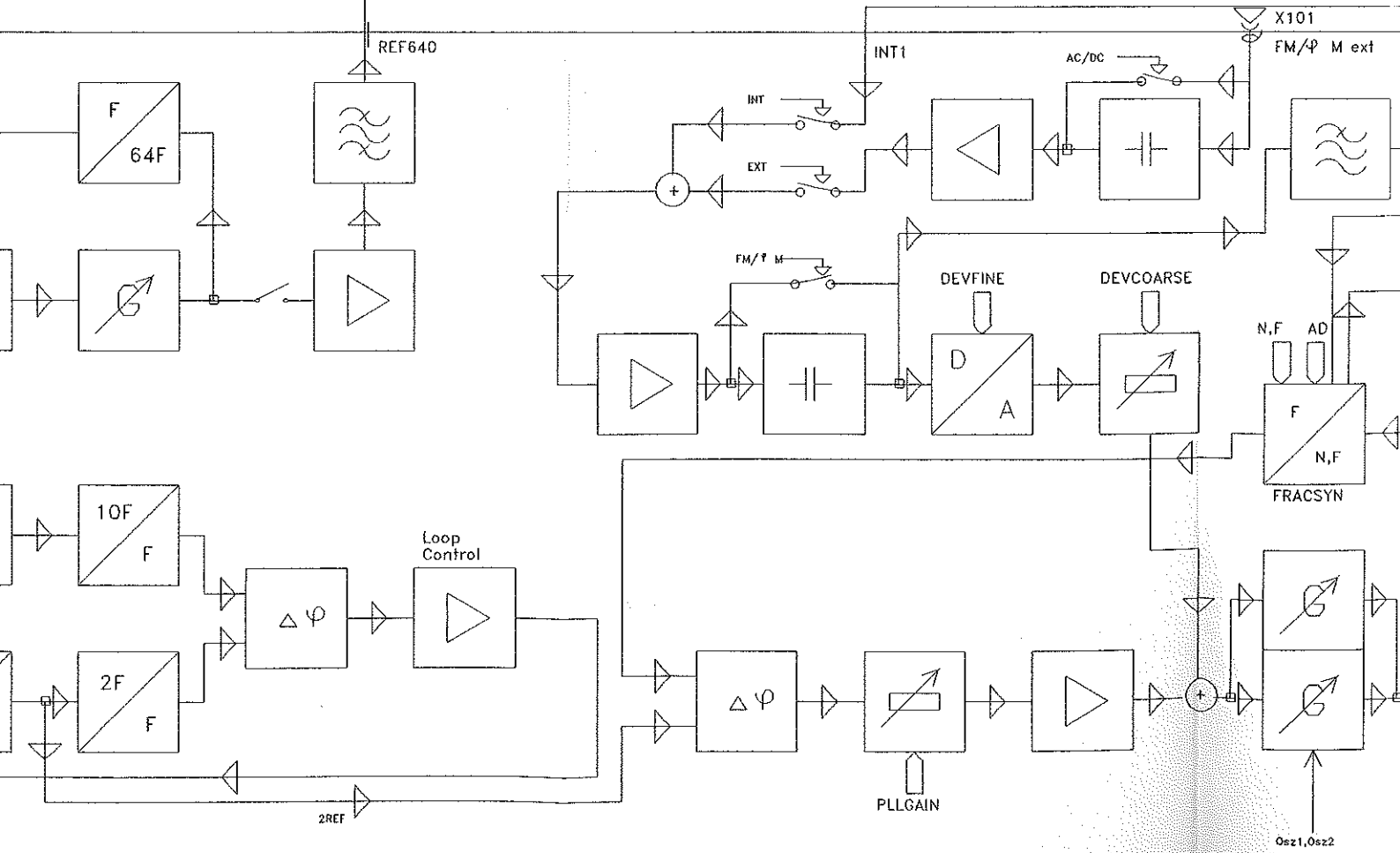
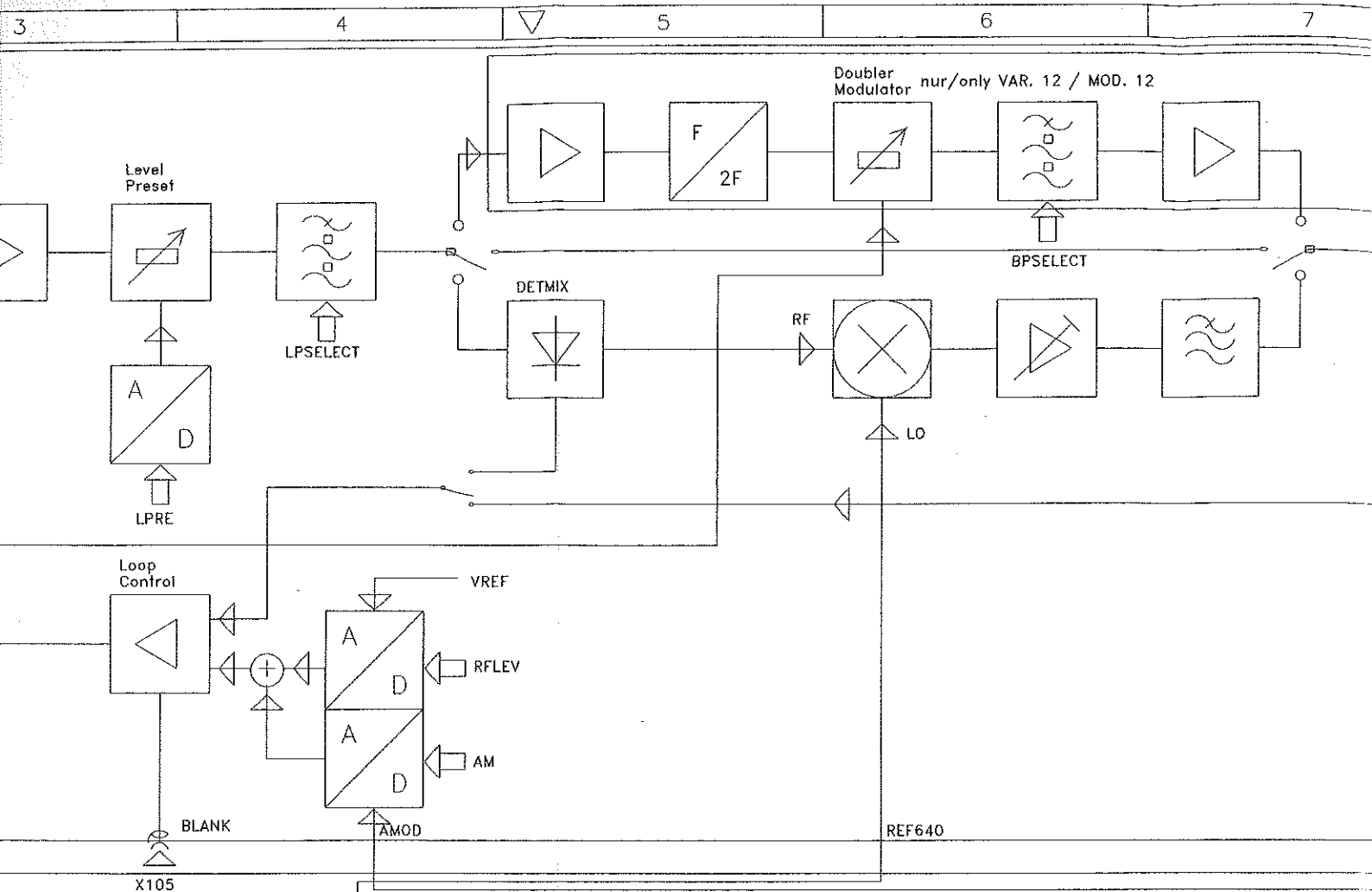
ACHTUNG: EGB !
ELEKTROSTATISCH GEFÄHRDETE
BAUELEMENTE ERFORDERN EINE
BESONDERE HANDHABUNG.
ATTENTION ESD !
ELECTROSTATIC SENSITIVE DEVICES
REQUIRE A SPECIAL HANDLING

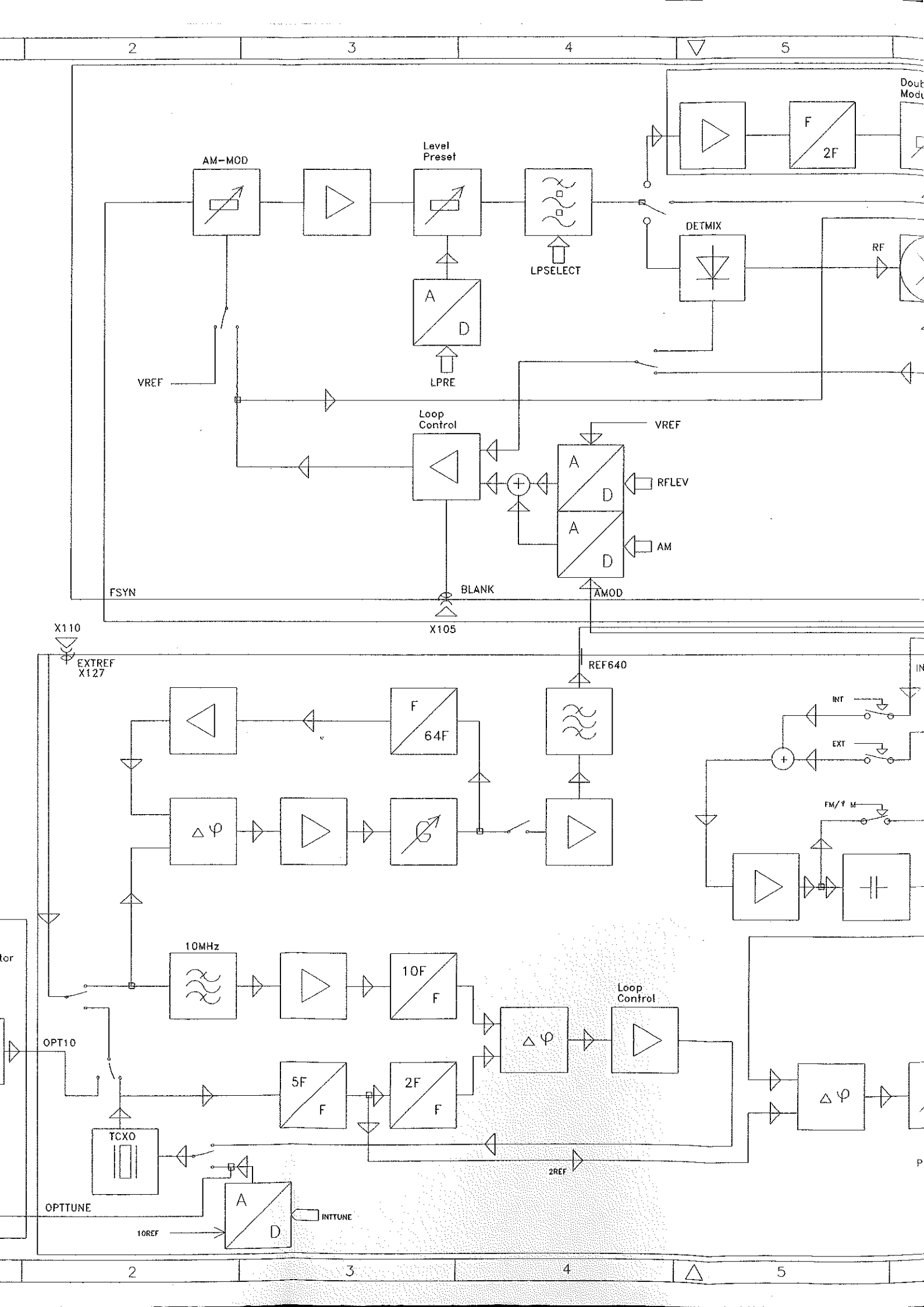
Gültig fuer / valid for:
VAR./MOD. 11, 12

Bindende Angaben ueber Varianten,
Trimmwerte, Bauteile und
nicht bestueckte Bauteile siehe SA.
FOR BINDING INFORMATION ON MODELS,
TRIMMING AND COMPONENTS VALUES AND
NONFITTED COMPONENTS SEE PARTS LIST

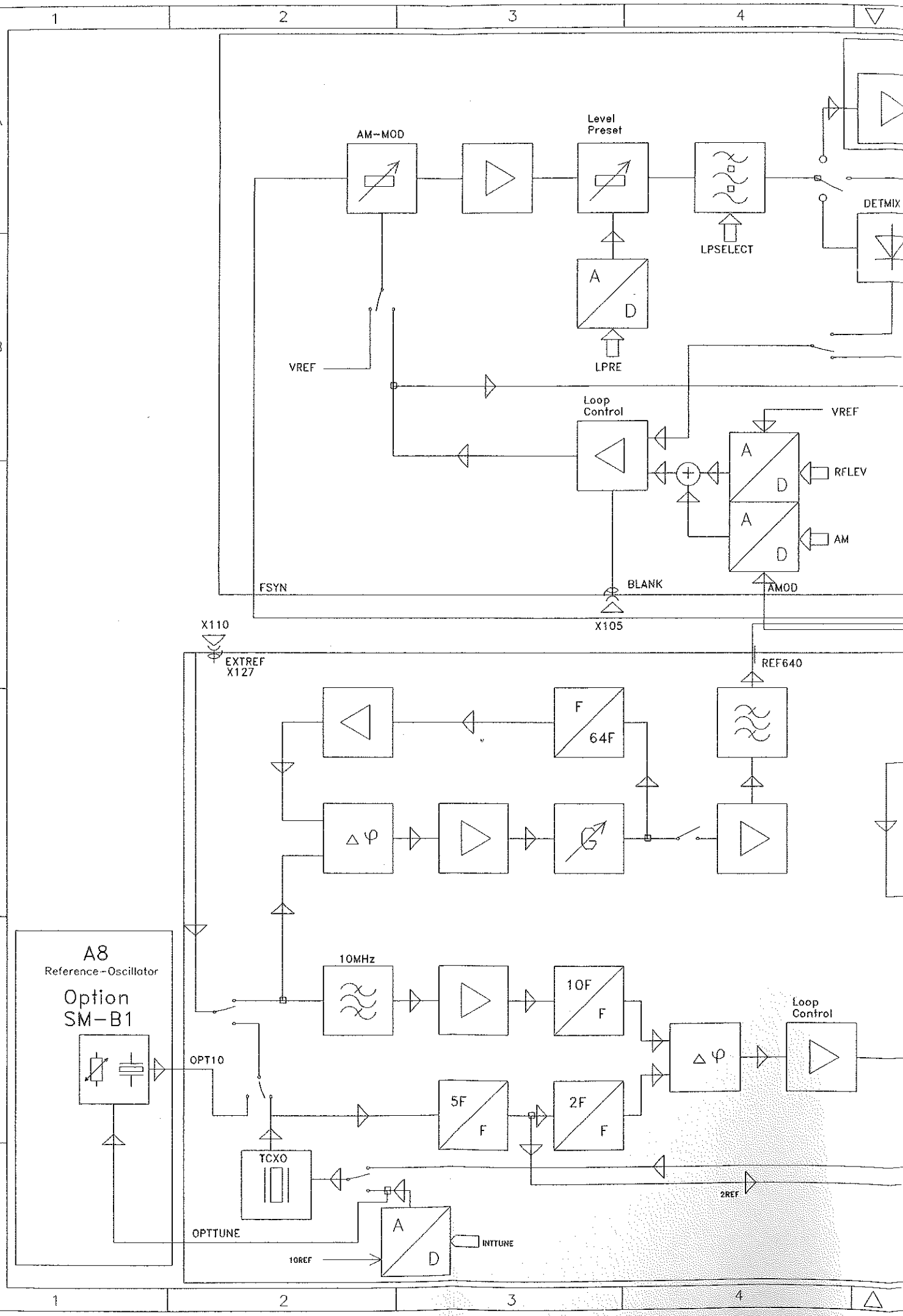


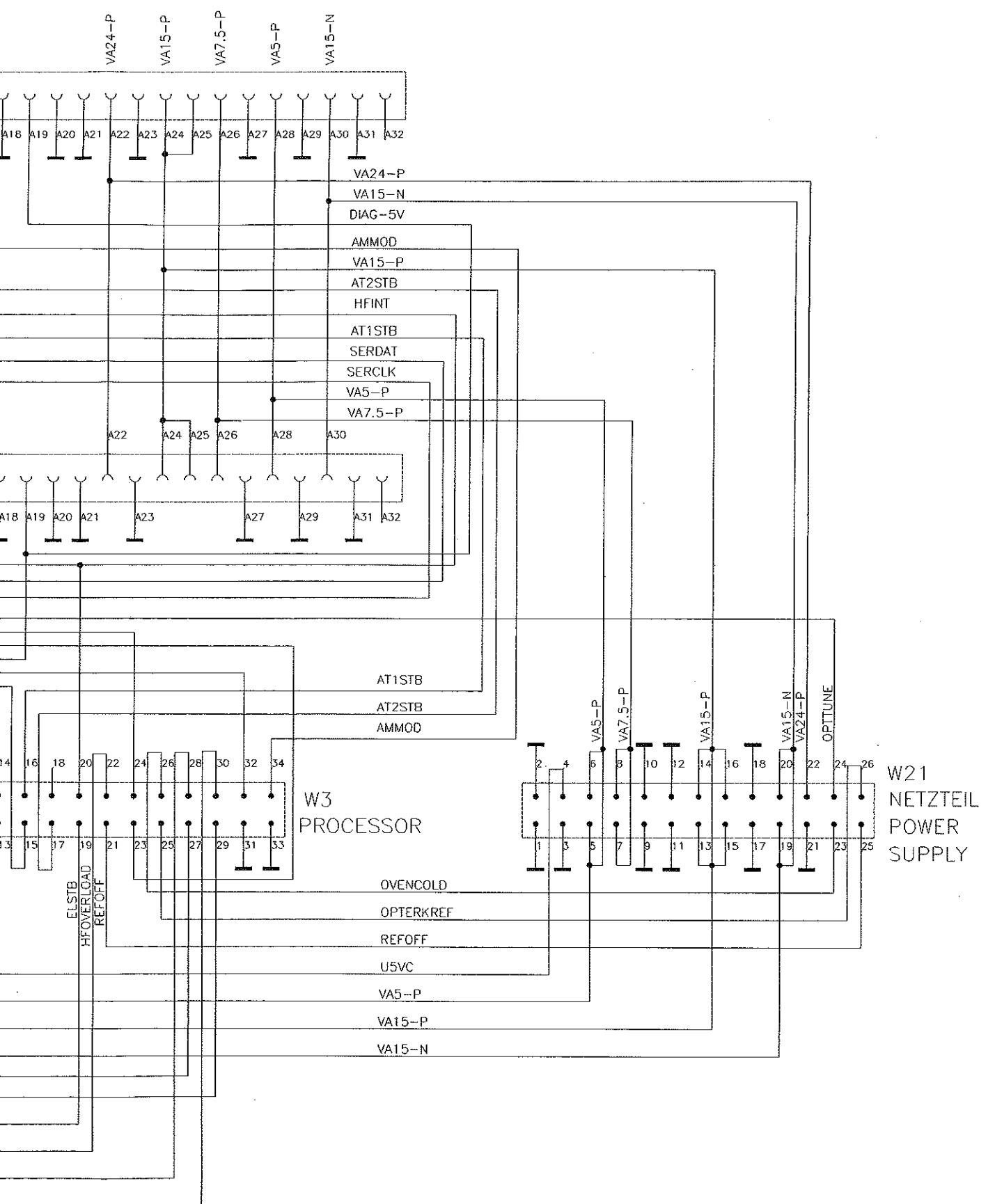
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|------------|-----------------------|-------|------|---------------|--------|----------|---------------------|
| 03.00 | | | EI | MENP | DATUM | NAME | BENENNUNG |
| | | | | BEARB. | | EI | SIGNALGENERATOR_SMY |
| | | | | GEPR. | | EI | SIGNALGENERATOR_SMY |
| | | | | NORM | | | TOP/TOP.2 |
| | | | | PLOTT | 3.9.97 | PFLUGER | ZEICHN.-NR. |
| | | | | ROHDE&SCHWARZ | | | 1062.5502.01 S |
| AEND. IND. | AENDERUNGS-MITTEILUNG | DATUM | NAME | ZU GERAET | SMY | REG.I.V. | 1062.5502 |
| | | | | | | ERSTE Z. | 0000.0000.00 |





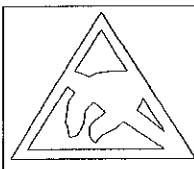
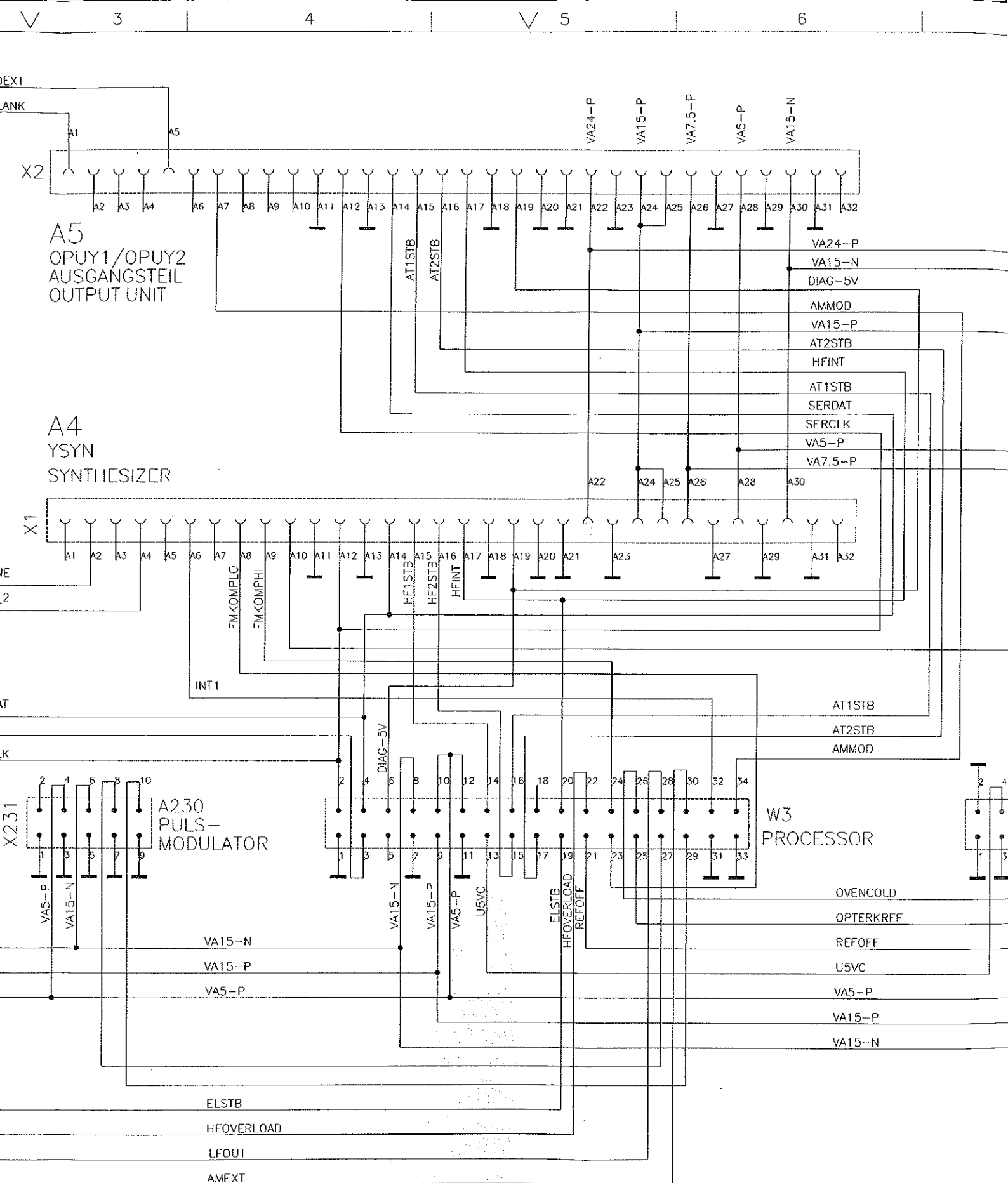
FUER DIESE UNTERLAGE
BEHALTEN WIR UNS ALLE RECHTE VOR





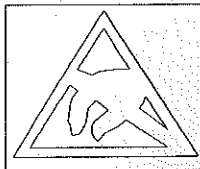
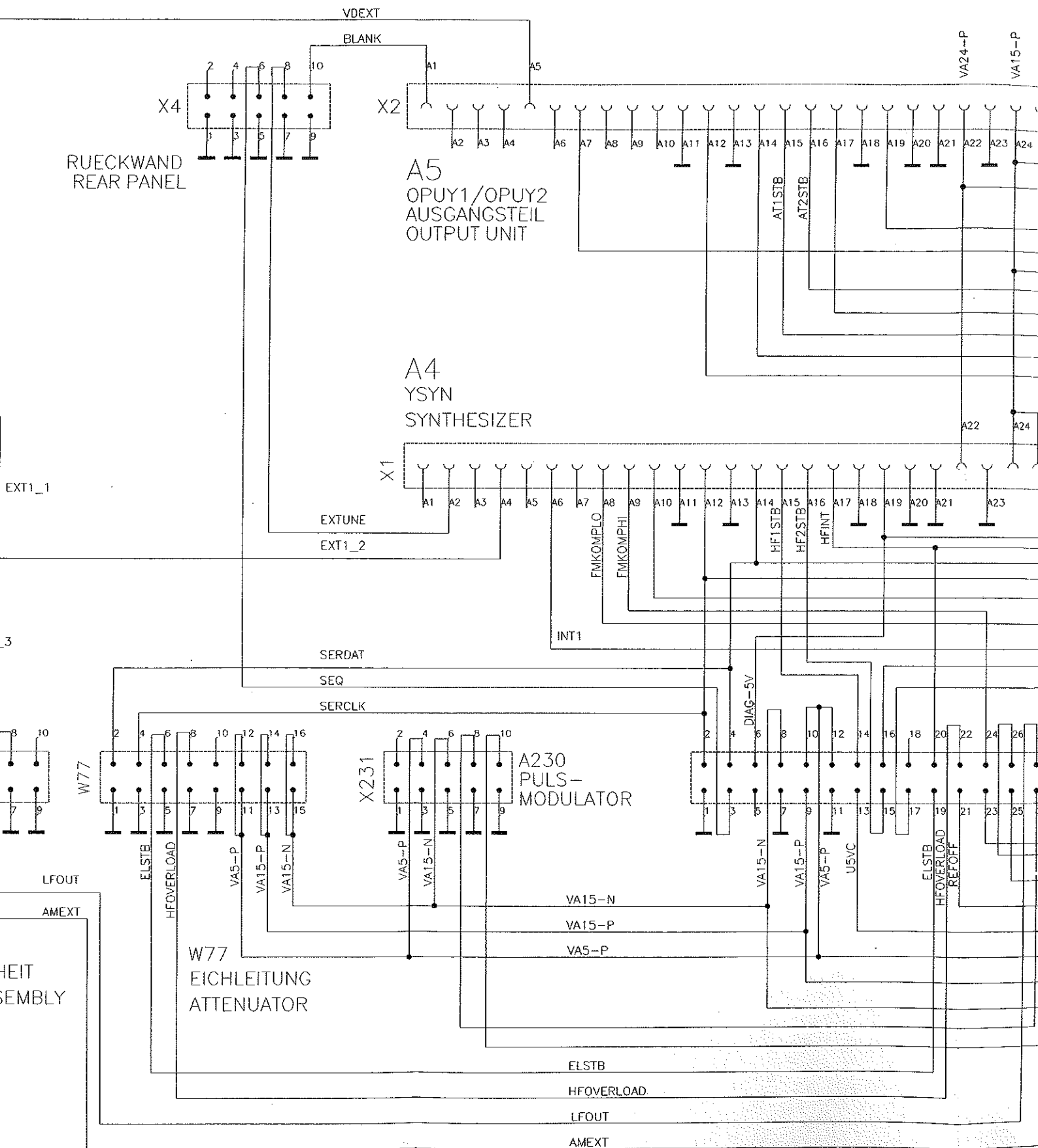
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| 03 | | 08.04.97 | PFL | MENP | DATUM | NAME | BENENNUNG | |
| | | | | BEARB. | | PF | MOTHERBOARD | |
| | | | | GEPR. | | PF | MOTHERBOARD | |
| | | | | NORM | | | | |
| | | | | PLOTT | 18.4.97 | PFLUCER | TOP/TOP.1 | |
| | | | | ROHDE&SCHWARZ | | | ZEICHN.-NR. | BLATT-NR. |
| | | | | | | | 1062.6009.01 S | 1- |
| AEND. IND. | AENDERUNGS-MITTEILUNG | DATUM | NAME | ZU GERAT | SMY | REG.I.V. | 1062.5502 | ERSTE Z. 1062.5502.01 |



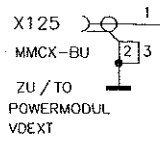
ACHTUNG: ECB !
 ELEKTROSTATISCH GEFÄHRDETE
 BAUELEMENTE ERFORDERN EINE
 BESONDERE HANDHABUNG.
ATTENTION ESD !
 ELECTROSTATIC SENSITIVE DEVICES
 REQUIRE A SPECIAL HANDLING

| | | | | | | |
|----------------------------|---------------------------|----------|------|----------|---------|---------|
| 03 | | 08.04.97 | PFL | MENP | DATUM | NAME |
| | | | | BEARB. | | PF |
| | | | | GEPR. | | PF |
| | | | | NORM | | |
| | | | | PLOTT | 18.4.97 | PFLUGER |
| ROHDE & SCHWARZ | | | | | | |
| AEND. IND. | AENDERUNGS- MITTEILUNG | DATUM | NAME | ZU GERÄT | SMY | |

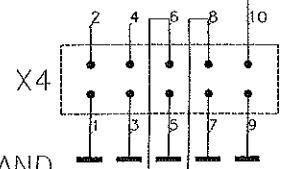


ACHTUNG: EGB
 ELEKTROSTATISCH GEFÄHRDETE
 BAUELEMENTE ERFORDERN EINE
 BESONDERE HANDHABUNG.
 ATTENTION ESD
 ELECTROSTATIC SENSITIVE DEVICES
 REQUIRE A SPECIAL HANDLING.

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| 03 | |
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| AEND. IND. | AENDERUNG MITTEILUNG |



RUECKWAND
REAR PANEL

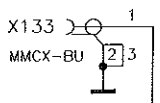


VDEXT
BLANK



A5
OPUY1/OPUY2
AUSGANGSTEIL
OUTPUT UNIT

A4
YSYN
SYNTHESIZER



EXT1_1



EXT1_3

EXTUNE

EXT1_2



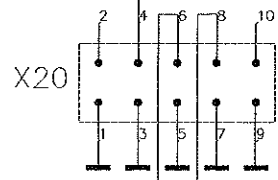
FMKOMPLO
FMKOMPPI
INT1

SERDAT

SEQ

SERCLK

BEHALTEN WIR UNS ALLE RECHTE VOR



X20
FRONTEINHEIT
FRONT ASSEMBLY



W77
EICHLEITUNG
ATTENUATOR



A230
PULS-
MODULATOR

ELSTB
HFOVERLOAD
VA5-P
VA15-P
VA15-N

VA15-N

VA15-P

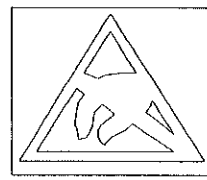
VA5-P

ELSTB

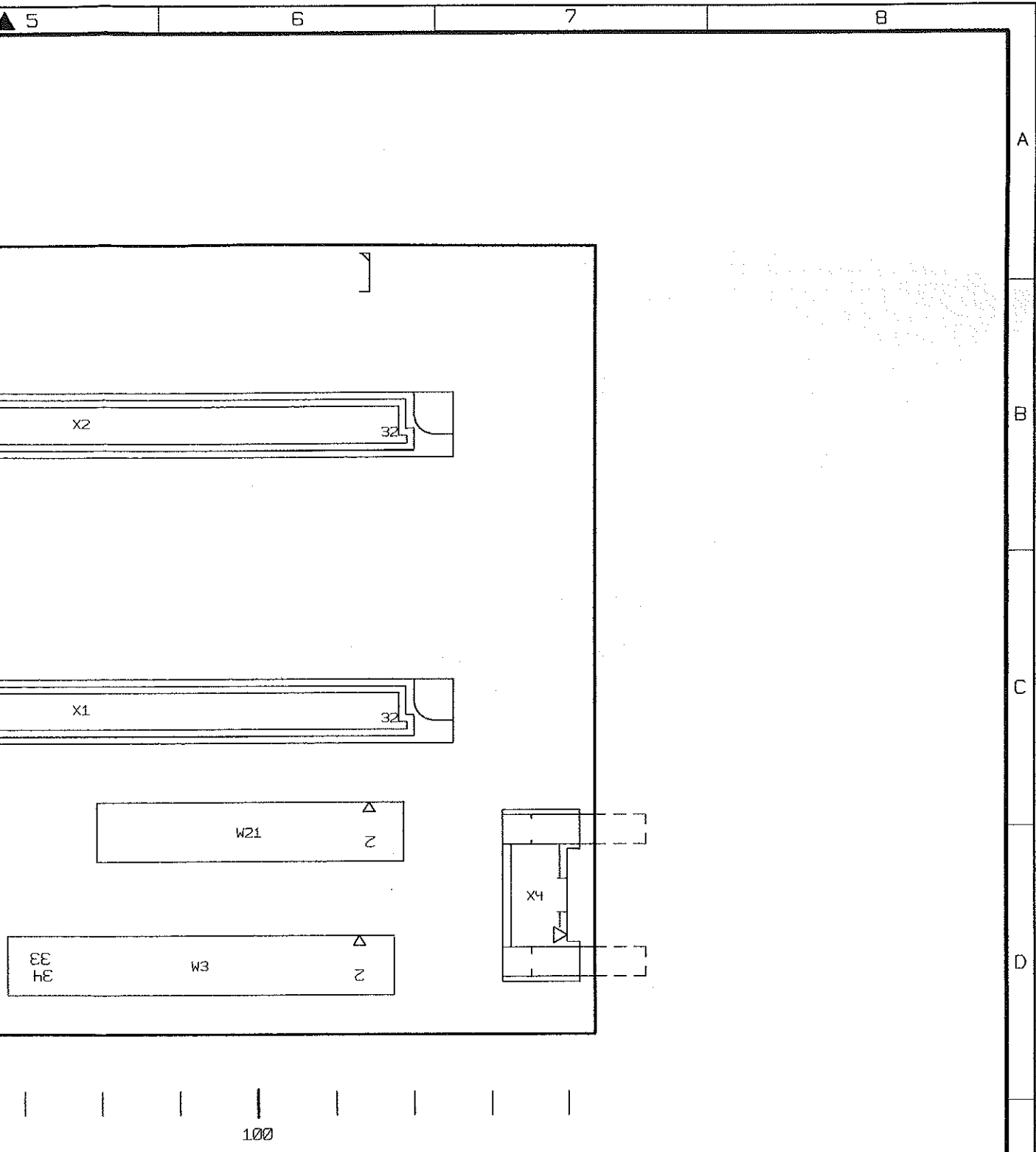
HFOVERLOAD

LFOUT

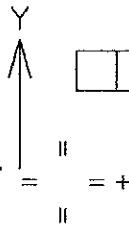
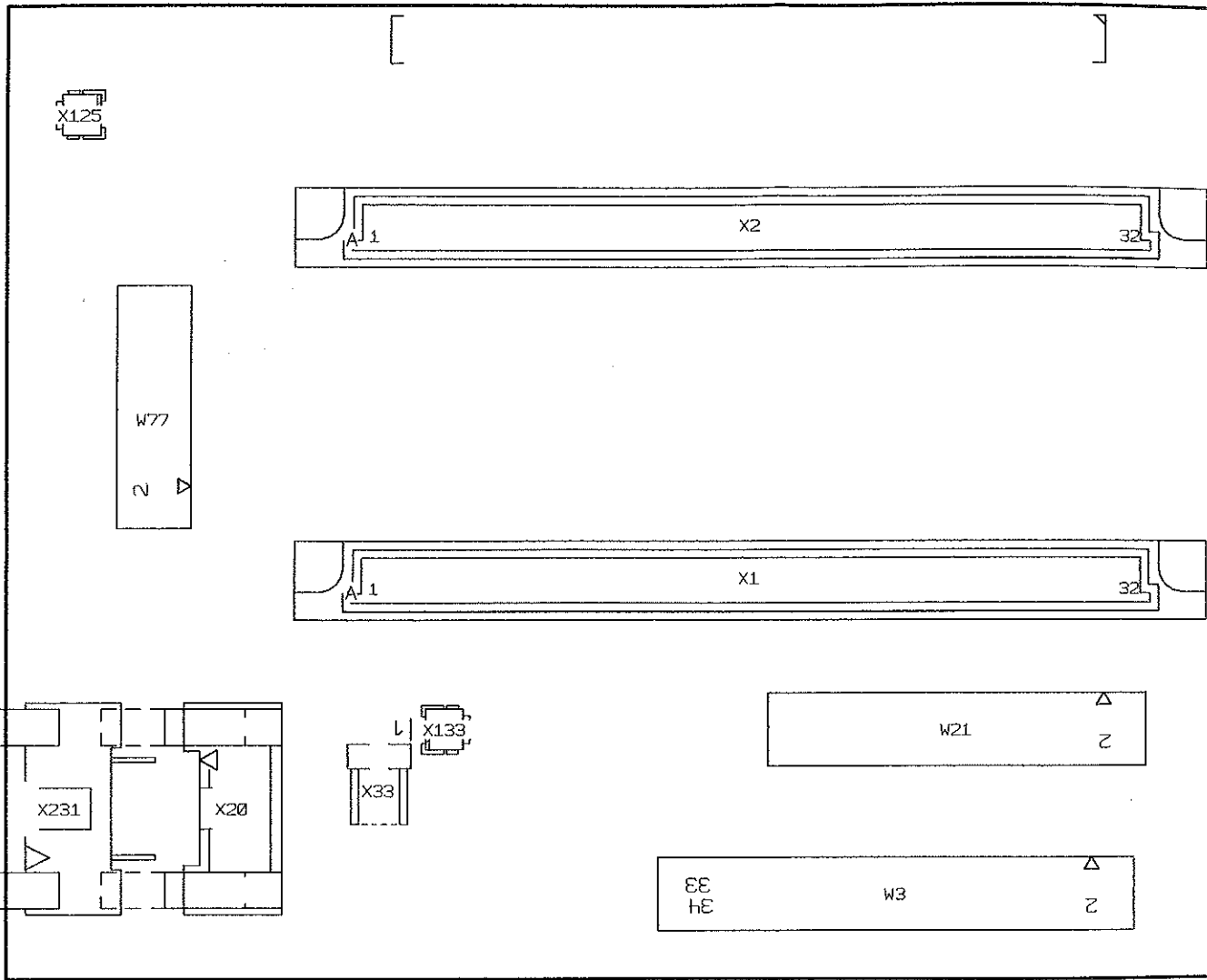
AMEXT



ACHTUNG: EGB !
ELEKTROSTATISCH GEFAEHRDETE
BAUELEMENTE ERFOEDERN EINE
BESONDERE HANDHABUNG
ATTENTION ESD !
ELECTROSTATIC SENSITIVE DEVICES
REQUIRE A SPECIAL HANDLING



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|------------|-----------------------|----------|------|---------------|----------|---------|--------------------|-----------|
| 03 | | 07.05.97 | PFL | MENP | DATUM | NAME | BENENNUNG | |
| | | | | BEARB. | | PF | MOTHERBOARD | |
| | | | | GEPR. | | PF | MOTHERBOARD | |
| | | | | NORM | | | | |
| | | | | PLOTT | 07.05.97 | PFLUGER | | |
| | | | | ROHDE&SCHWARZ | | | ZEICHN.-NR. | BLATT-NR. |
| | | | | | | | 1062,6009,01 D | 1- |
| AEND. IND. | AENDERUNGS-MITTEILUNG | DATUM | NAME | ZU GERÄT SMY | | | REG.I.V. 1062,5502 | V. BL. |
| | | | | | | | ERSTE Z. 1062,5502 | |



ACHTUNG: EGB!
 ELEKTROSTATISCH GEFÄHRDETE
 BAUELEMENTE ERFORDERN EINE
 BESONDERE HANDHABUNG.
ATTENTION ESD!
 ELECTROSTATIC SENSITIVE DEVICES
 REQUIRE A SPECIAL HANDLING

BINDENDE ANGABEN UEBER VARIANTEN,
 TRIMMWERTE, BAUTEILWERTE UND
 NICHT BESTUECKTE BAUTEILE SIEHE SA.

FOR BINDING INFORMATION ON MODELS,
 TRIMMING AND COMPONENTS VALUES AND
 NONFITTED COMPONENTS SEE PARTS LIST.

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| 03 | | 07.05.97 | PFL | MENP | DATUM | |
| | | | | BEARB. | | |
| | | | | GEPR. | | |
| | | | | NORM | | |
| | | | | PLOTT | 07.05.97 | PF |
| AEND. IND. | AENDERUNGS- MITTEILUNG | DATUM | NAME | ROHDE & SCHW | | |
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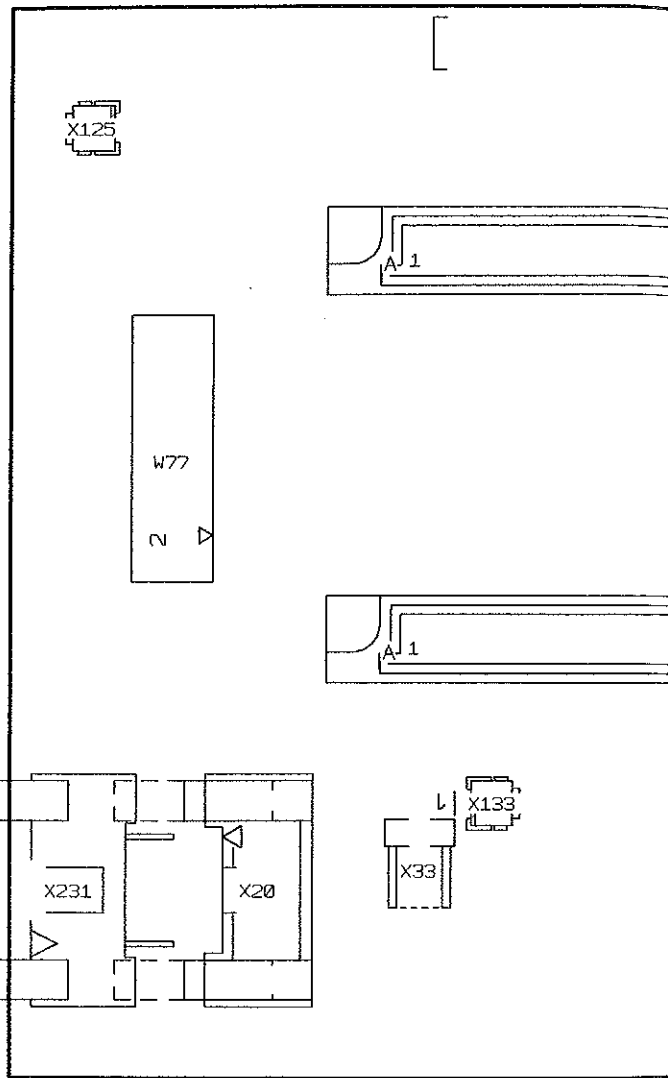
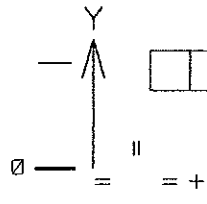
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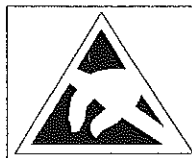
BEHALTEN WIR UNS ALLE RECHTE VOR
FÜR DIESE UNTERLAGE

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DARSTELLUNG SEITE B
VIEW ON SIDE B

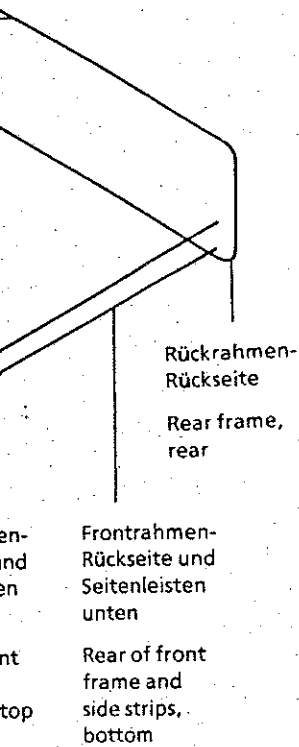


ACHTUNG: EGB!
ELEKTROSTATISCH GEFÄHRDETE
BAUELEMENTE ERFORDERN EINE
BESONDERE HANDHABUNG.
ATTENTION ESD!
ELECTROSTATIC SENSITIVE DEVICES
REQUIRE A SPECIAL HANDLING

BINDENDE ANGABEN LIEBER VARIANTEN,
TRIMMWERTE, BAUTEILWERTE UND
NICHT BESTÜECKTE BAUTEILE SIEHE SA.

FOR BINDING INFORMATION ON MODELS,
TRIMMING AND COMPONENTS VALUES AND
NONFITTED COMPONENTS SEE PARTS LIST.

Insert the braided cord (provided only for instruments requiring a high degree of shielding) into the respective groove.



The braided cords in the front of front frame and rear of rear frame must be fixed by glued joints approx. every 80 mm. Make joints (\varnothing approx. 2 mm) on the bottom of the groove and press braided cord firmly on it.

Use a permanently elastic adhesive, such as Si-rubber 3145 RTV (R&S Part No. WV 088.3152).

Instruments with separate rear panels require the individual components to be adjusted to the same level over the complete instrument width.

Top and bottom cover must be fastened by way of the catches on rear frame.

Note that with high rear panel feet (CMS) the catches are concealed; here tighten the rear feet screws only after the top and bottom cover have been securely fitted into the catches.

Öffnen und Schließen des Gehäuses

Die gute Schirmdämpfung der Kompaktbauweise 90 erfordert häufige Kontaktstellen und hohe Paßgenauigkeit. In Verbindung mit einem leichten Anlagedruck, der mit dem Festziehen der Rückwandfußschrauben erreicht wird, erhält man einen straffen Sitz der Ober- und Unterhaube auf dem Rahmen.

Zum **Öffnen** muß man die Rückwandfußverschraubung lösen und die Füße nach rückwärts abziehen (Schrauben bleiben im Fuß haften). Je nach Bedarf läßt sich nun Ober- bzw. Unterhaube ebenfalls nach rückwärts abnehmen. Sitzen die Hauben sehr fest, erleichtert man das Abziehen durch abwechselndes Hebeln in Pfeilrichtung mit einem Schraubenzieher an beiden Geräteseiten (siehe Bild).

Zum **Schließen** des Gehäuses werden erst die Frontkanten der Hauben in die umlaufende Nut des Frontrahmens und der Seitenleisten eingeführt und dann in die Erhöhungen am Rückrahmen bis Anschlag eingerastet. Das Gerät ist wieder geschlossen, wenn die Rückwandfüße eingeschoben und die Schrauben festgezogen sind.

Opening and closing the cabinet

To obtain the high degree of shielding of design 90, many points of contact and accurate fitting are employed. When exerting a slight pressure by tightening the rear-panel feet, tight fitting of the top and bottom covers is ensured.

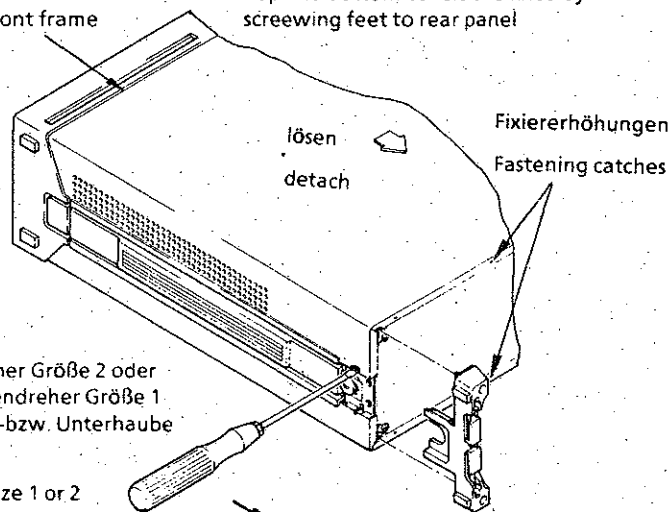
To **open** the cabinet, first undo the rear panel feet screws and withdraw the feet (captive screws). It is now possible to detach top and bottom cover if required. If the fitting of these cover plates is very tight, removal can be facilitated by alternately levering on both sides of the instrument using a screwdriver (see illustration).

To **close** the cabinet, insert the front edges of the covers into the groove of the front frame and the side strips and lock them into the catches on the rear frame into detent position. The cabinet is closed when the rear-panel feet are inserted and the screws tightened.

Nut im Frontrahmen
Groove in front frame

Ober- und Unterhaube werden durch die Rückwandfußverschraubung befestigt.

Top and bottom covers are fixed by screwing feet to rear panel

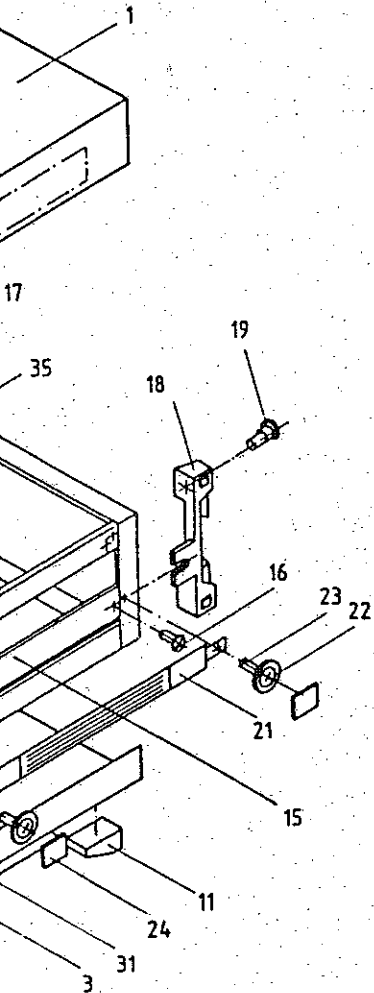


ing

struction

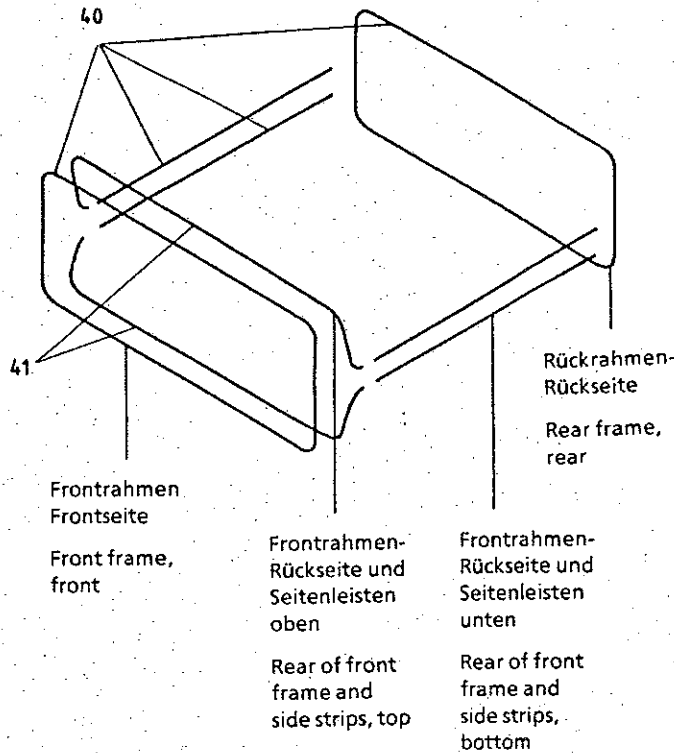
onstruction consists of a self-mounting aluminium-cast frame (front, mounting and rear covers, top and bottom covers (see drawing)).

and panelling:



Dichtschnur (nur bei Geräten mit erhöhtem Schirmdämpfungsbedarf vorhanden) jeweils in die umlaufende Nut einlegen.

Insert the braided cord (provided only for instruments requiring a high degree of shielding) into the respective groove.



Die Dichtschnüre in der Frontrahmen-Frontseite und in der Rückrahmen-Rückseite müssen durch Klebepunkte in Abständen von ca. 80 mm fixiert werden. Dazu Klebepunkte mit ca. $\varnothing 2$ mm im Nutgrund anbringen und Dichtschnur aufdrücken.

The braided cords in the front of front frame and rear of rear frame must be fixed by glued joints approx. every 80 mm. Make joints (\varnothing approx. 2 mm) on the bottom of the groove and press braided cord firmly on it.

Dauerhaft elastischen Kleber wie z.B. Si-Kautschuk 3145 RTV (R&S-Sachnr. WV 088.3152) verwenden.

Use a permanently elastic adhesive, such as Si-rubber 3145 RTV (R&S Part No. WV 088.3152).

Bei Geräten mit geteilten Rückplatten müssen beim Zusammenbau die Einzelelemente über die gesamte Gehäusebreite waagrecht zueinander ausgerichtet werden.

Instruments with separate rear panels require the individual components to be adjusted to the same level over the complete instrument width.

Ober- und Unterhaube müssen mit den Erhöhungen am Rückrahmen fixiert sein.

Top and bottom cover must be fastened by way of the catches on rear frame.

Achtung: bei hohen Rückwandfüßen (CMS) werden die Fixier-Erhöhungen verdeckt, hier Rückwandfüße erst anschrauben, wenn die Ober- u. Unterkante sicher in den Erhöhungen am Rückrahmen fixiert sind.

Note that with high rear panel feet (CMS) the catches are concealed; here tighten the rear feet screws only after the top and bottom cover have been securely fitted into the catches.

Öffnen u. des Gehä

Die gute Sch... Kompaktbauv... häufige Konta... Paßgenauigke... mit einem lei... der mit dem... wandfußschra... erhält man ein... Ober- und Un... Rahmen.

Zum Öffnen... wandfußversch... die Füße nach... (Schrauben... haften). Je na... nun Ober- bzw... falls nach rü... Sitzen die Ha... leichtert man... abwechselnde... richtung mit... zieher an b... (siehe Bild).

Zum Schließ... werden erst d... Hauben in die... Frontrahmens... leisten eingefü... Erhöhungen a... Anschlag eing... wieder gesch... Rückwandfüße... die Schrauben...

Nut i... Groo...

Schlitzschraub... Kreuzschlitzsch... oder 2 in Nut i...

Screwdriver siz... Phillips screwd... in groove in to...

Gehäuse

Aufbau

Der Aufbau besteht aus einer tragenden Aluminium-Druckguß-Rahmenkonstruktion mit gerätespezifischer Front-, Montage- und Rückplatte, die mit einer Ober- und Unterhaube (= Beplankung) ummantelt ist.

Rahmen und Beplankung:

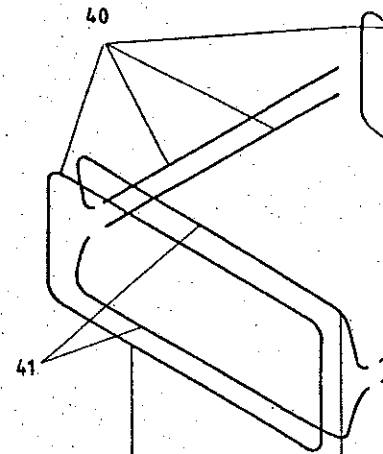
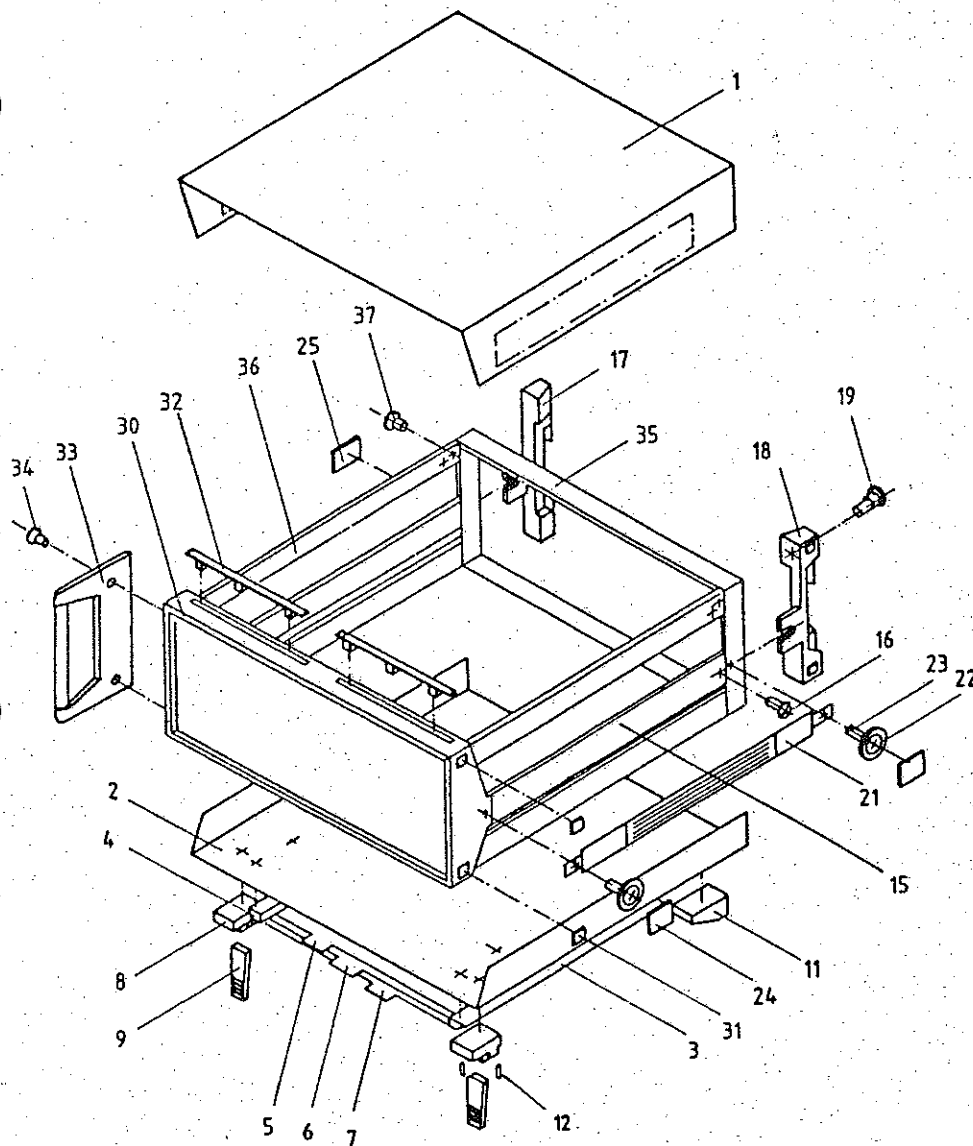
Casing

Construction

The construction consists of a self-supporting aluminium-cast frame with front, mounting and rear panel, top and bottom covers (= panelling).

Frame and panelling:

Dichtschnur (nur bei Geräten mit erhöhtem Schirmdämpfungsbedarf vorhanden) jeweils in die umlaufende Nut einlegen.



Frontrahmen Frontseite

Front frame, front

Frontrahmen Rückseite u. Seitenleiste oben

Rear of front frame and side strips, top

Die Dichtschnüre in der Frontrahmen-Frontseite und in der Rückrahmen-Rückseite müssen durch Klebepunkte in Abständen von ca. 80 mm fixiert werden. Dazu Klebepunkte mit ca. $\varnothing 2$ mm im Nutgrund anbringen und Dichtschnur aufdrücken.

Dauerhaft elastischen Kleber wie z.B. Si-Kautschuk 3145 RTV (R&S-Sachnr. WV 088.3152) verwenden.

Bei Geräten mit geteilten Rückplatten müssen beim Zusammenbau die Einzelelemente über die gesamte Gehäusebreite waagrecht zueinander ausgerichtet werden.

Ober- und Unterhaube müssen mit den Erhöhungen am Rückrahmen fixiert sein.

Achtung: bei hohen Rückwandfüßen (CMS) werden die Fixier-Erhöhungen verdeckt, hier Rückwandfüße erst anschrauben, wenn die Ober- u. Unterkante sicher in den Erhöhungen am Rückrahmen fixiert sind.



ROHDE & SCHWARZ

SERVICEUNTERLAGEN

RECHNER

1062.6309.01

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Stromlauf
Bestückungsplan

7.1 Funktionsbeschreibung

Die Schaltung der Baugruppe Rechner gliedert sich in einen Prozessor- und einen Analogteil.

7.1.2 Prozessorteil

7.1.2.1 CPU mit Peripherie

Der Prozessor ist die Steuereinheit für das gesamte Gerät. Der Kernbaustein ist die CPU N80C196 (D10) mit den Programmspeicher EPROM D206, EEPROM D125 und den batteriegepufferten RAM D210.

Die beiden je 8-Bit Ports P3 und P4 der CPU stellen den Adress-/Datenbus dar. PAL D110 wird als Ausgabeport für den Strobe verwendet. Analoge Spannungen im Bereich 0V...±5V (X3.6) werden dem internen A/D-Wandler der CPU über Port P0.0 zugeführt. Die abgleichbare 5.12V Referenzspannung des D/A-Wandlers wird mit der Spannungsreferenz REF02 (D107) erzeugt.

Am Eingabeport P1 werden die logischen Zustände der Interrupt-Leitungen erkannt. P1.3 dient zum Erkennen der Option Referenzoszillator. Bei Netzspannungseinbrüchen, Netzausfällen sowie bei Ein- bzw. Ausschalten des Gerätes liefert die Reset-Schaltung D100 ein definiertes Reset-Signal für die CPU. Weitere Adreßsignale für RAM, EPROM, EEPROM und IEC-Bus werden mit PAL D110 dekodiert.

7.1.2.2 Tastaturmatrix

Von der Tastaturmatrix der Anzeige-Tastatur-Baugruppe gelangen 8 Spalten- und 5 Zeilenleitungen (COL0...COL7, ROW1...ROW5) auf die Baugruppe. Ist keine Taste gedrückt, so liegen ROW1...ROW5 auf HIGH-Potential. COL0...COL7 werden durch D303 auf LOW gehalten.

Ein Tastendruck verbindet nun eine Zeilen- mit einer Spaltenleitung, wodurch die Zeilenleitung auf LOW gesetzt wird. Der entsprechende Kondensator wird dabei entladen. Über D302 wird verzögert mit D305 wegen Tastenprellens, ein Interrupt (KEYINT) erzeugt. Beim Auslesen des Tastencodes wird D303 hochohmig, so daß alle Spaltenleitungen, welche nicht über die geschlossene Taste verbunden sind, schnell HIGH-Potential annehmen. Der entladene Kondensator stellt nun sicher, daß die entsprechende Spaltenleitung während der Zugriffszeit auf LOW gehalten wird.

7.1.2.3 IEC-Interface

Das IEC-Bus-Interface, bestehend aus dem integrierten IEC-Bus Baustein D250 und den beiden Bausteinen D260, D255 implementiert die nach IEEE-Standard 488-1978 definierte Schnittstelle. Das Handshake bei einem Datentransfer wickelt der Baustein selbstständig ab. Der bei einer Statusänderung generierte Interrupt gelangt an den HAI 0 Pin der CPU.

7.1.3 Analogteil

Der Analogteil der Baugruppe Rechner stellt die für den AM- und FM-Betrieb benötigten Modulationsignale bereit. Er besteht aus einem NF-Synthesizer und dem AM-Modulationszweig.

7.1.3.1 NF-Synthesizer

Mit direkter digitaler Synthese wird die Ausgangsfrequenz des Modulationsgenerators erzeugt.

Das Kernstück des Synthesizers ist der DDS-Baustein D420 der einen 32-Bit-Addierer, zwei 32-Bit-Inkrementenspeicher, Sinus-ROM und eine Schnittstelle für die serielle Datenübertragung enthält. Im Addierer wird ein Inkrement zyklisch mit einer Taktfrequenz von 2.147484 MHz aufaddiert. Der Takt kommt von dem Quarzoszillator B401. Die höhenwertigen 13-Bit der Summe steuern die Adressen des Sinus-ROM. In diesem sind die Amplitudenwerte einer Periode der Sinusschwingung gespeichert.

Die höhenwertigen 12-Bit der Amplitudenwerte einer Sinusschwingung gelangen an einen D/A-Wandler der ein treppenförmiges Signal liefert. Die zwei 6-Bit D-Register (D430 und D440) unterdrücken die verschiedenen Laufzeiten aus dem Sinus-ROM des DDS-Bausteines.

Ein Sample & Hold Schalter unterdrückt die Einschwingvorgänge des D/A-Wandlers. Ein nachgeschaltete 600kHz Tiefpaß sorgt für ausreichende Unterdrückung der Taktfrequenz. Die SinX/X Kompensation ist durch R491 und C490 realisiert.

7.1.3.2 AM-Modulationszweig

Mit dem Analogschalter D500, D510 und D550 wird die Auswahl des AM-Signals zwischen intern und extern getroffen. Der dem Eingang parallel geschaltete Fensterdiskriminator (N544) überwacht die Amplitude des externen Modulationssignals und liefert bei Unter- oder Überschreitung dem Prozessor D10 das AMKOMLO- oder AMKOMHI-Signal.

7.2 Meßgeräte und Hilfsmittel

- Digitalmultimeter (z.B. R&S UDS5)
- DC-Spannungsquelle (z.B. R&S NGT)
- Audio Analyzer (z.B. R&S UPA)
- Frequenzgenerator (z.B. R&S SPN)
- RMS-Voltmeter (z.B. R&S URE3)
- Spektrum-Analyzer (z.B. R&S FSA)
- Oszilloskop
- Frequenzzähler

7.3 Fehlersuche

| | |
|---|---|
| Kein Signal an LFOUT (X3.23) | Taktgenerator an X401 prüfen Signal an P405 prüfen S&H-Schaltung an P409 prüfen Tiefpaßfilter und Verstärker N520 an P530 prüfen |
| AM-INT an AMMOD (X3.34) fehlerhaft | Schalter D510 und D550 sowie Verstärker N530 prüfen |
| AM-EXT an AMMOD (X3.34) fehlerhaft | Schalter D500 und D550 und Verstärker N530 prüfen |

7.4 Prüfen und Abgleich

Alle Meßwerte ohne Toleranzangabe sind als Richtwerte zu verstehen. Spannungen ohne weitere Bezeichnungen bedeuten DC-Spannungen.

7.4.1 Prüfen der Stromversorgung

- Ein Amperemeter in die Versorgungsleitungen der einzelnen Versorgungsspannungen einschleifen.
- _ Die Stromaufnahme der Baugruppe überprüfen. Die Sollwerte zu den jeweiligen Versorgungsspannungen sind unter "Externe Schnittstellen" zu finden.

7.4.2 Einstellen der Power Fail Schwelle

- Die Netzspannung so einstellen, daß an X3.13 (U5VC) 7.1V \pm 0.1V anliegen.
- _ R139 so einstellen, daß an D100.10 gerade ein Wechsel des Logikpegels (H zu L bzw. L zu H) stattfindet.

7.4.3 Einstellen der Referenzspannung

- _ Mit R102 DC-Spannung an Meßpunkt P101 auf +5.12V \pm 1mV einstellen.

7.4.4 Abgleich des AM-EXT Spannungskomparators

- _ Mit dem Pot R550 am Meßpunkt P513 eine Spannung von -1.02V \pm 1mV einstellen.

7.4.5 Pegel INT1 Abgleich

- Einstellung: 1kHz
- Kalibriertes AC-Voltmeter an INT1 (X3.32) anschließen.
- _ Mit R450 Ausgangsamplitude am AC-Voltmeter auf 0.7071Veff abgleichen.

7.4.6 INT1 DC-Offset 0V-Abgleich

- Einstellung: AF 1kHz
- DC-Voltmeter an INT1 (X3.32) anschließen.
- _ Mit R520 DC-Offset auf Minimum abgleichen.

7.4.7 Test der Diagnoseeingänge

- An Meßpunkt P100 ein DC-Voltmeter anschließen.
- Einstellung: SPEC 109
SPEC 40 (GAIN16 D105.5 LOW).
- _ Die gemessene Spannung muß +2.56V \pm 20mV betragen.
- Einstellung: SPEC 39 (GAIN16 D105.5 HIGH).
- _ Die gemessene Spannung muß +2.56V \pm 50mV betragen.

- Einstellung: RF 1GHz
SPEC 40 (GAIN16 D105.5 LOW).
SPEC 115
- _ Die Spannung an X3.6 messen.
- _ Die Spannung an P100 muß +2.56V minus die halbe Spannung an X3.6 $\pm 20\text{mV}$ betragen.

- Einstellung: SPEC 39 (GAIN16 D105.5 HIGH).
- _ Die Spannung an X3.6 messen.
- _ Die Spannung an P100 muß +2.56V minus sechzehn mal die halbe Spannung an X3.6 $\pm 100\text{mV}$ betragen.

7.4.8 Prüfen des Tastatur-Interrupt

- Ein Oszilloskop an P305 anschließen. Eine beliebige Taste drücken.
- _ Am Oszilloskop muß ein LOW-Puls mit ca. 2.5ms Pulsdauer meßbar sein.

7.4.9 Prüfen der RAM-Pufferspannung

- _ Batteriespannung direkt an den Batterieanschlüssen messen.
- Versorgungsspannungen abschalten.
- _ An D210.28 soll die gemessene Batteriespannung (Tol. -10mV) anliegen.

7.4.10 Prüfen der Frequenzgenauigkeit

- Einstellung: AF 100kHz
- Kalibrierten Frequenzzähler an AF INT anschließen.
- _ Frequenz messen. Max. Fehler $\pm 10\text{Hz}$.

7.4.11 Pegelgenauigkeit prüfen

7.4.11.1 Frequenzgang

- Einstellung: AF zwischen 10Hz...500kHz variieren.
 - Kalibriertes AC-Voltmeter an AF INT anschließen.
 - _ Pegel messen und mit der Tabelle vergleichen.
- | | |
|-----------------------|--------|
| Frequenzgang von 10Hz | |
| bis 50kHz | <0.2dB |
| bis 100kHz | <0.3dB |
| bis 500kHz | <0.5dB |

7.4.11.2 Einstellfehler

- Einstellung: AF 1kHz
AM INT EIN
- Kalibriertes AC-Voltmeter an AF INT, INT1 (X3.32) und AMMOD (X3.34) Ausgänge anschließen.

_ Ausgangssignale prüfen.

AF INT 0.7071Veff

INT1 0.7071Veff (X3.32)

AMMOD 0.7071Veff(X3.34) Max. Fehler ±1%

7.4.11.3 INT1 DC-Offset

• DC-Voltmeter an INT1 (X3.32) anschließen.

_ DC-Spannung muß <±5mV sein.

7.4.12 Prüfen der spektralen Reinheit

7.4.12.1 Klirrfaktor prüfen

• Einstellung: AF zwischen 20 Hz und 100 kHz variieren.

• Klirrfaktormesser an AFOUT anschließen.

_ Klirrfaktor bei verschiedenen Frequenzen messen.

Klirrfaktor muß <0.1% sein.

7.4.12.2 Harmonische und Nichtharmonische Störsignale prüfen

• Einstellung: AF zwischen 100kHz und 500kHz variieren.

• Spektrum-Analyzer an AFOUT ($R_i = 1M\Omega$) anschließen.

_ Oberwellen und Nebenwellenabstand muß < -40dBc sein.

7.4.13 Prüfung der Umschaltung des AM-Ausgangs

• Einstellung: AF 10kHz

AM INT ON

• Oszilloskop an AMMOD (X3.34) anschließen.

_ Am Oszilloskop muß ein 10 kHz Sinussignal zu sehen sein.

• Einstellung: AM EXT AC

• Kurzschlußbrücke X501 zwischen X501.1 und X501.2

• NF-Generator an AM EXT anschließen.

• Einstellung NF-Generator: Frequenz 1kHz

Spannung 0.7071Veff

_ AMMOD (X3.34) Signal prüfen. Es soll 0.7071Veff anstehen.

Max. Fehler ±1%

7.4.14 Prüfen des Spannungskomparators für AM-EXT

• Einstellung: AM EXT DC ON

• NF-Generator an AM EXT anschließen.

• Einstellung NF-Generator: Frequenz 1kHz

Spannung 0.7071Veff

_ Die beiden Ausgänge D545.13 und D545.12 müssen LOW sein.

• Pegel auf 0.735Veff erhöhen.

_ Ausgangspegel an D545.13 muß HIGH sein.

• Pegel auf 0.680Veff einstellen.

_ Pegel an D545.12 muß HIGH sein.

7.5

Zerlegung und Zusammenbau

Nach Öffnen des Gerätes und Lösen der Schrauben kann die Baugruppe aus ihrem Steckplatz entnommen werden. Nach dem Lösen der Schrauben der Schirmdeckel ist die Baugruppe an beiden Seiten zugänglich.

Der Einbau der Baugruppe und Zusammenbau des Gerätes erfolgt entsprechend in umgekehrter Reihenfolge.

7.6

Externe Schnittstellen

| Pin | Name | Ein/Ausgang | Herkunft/Ziel | Wertebereich | Signalbeschreibung |
|-------|----------|-------------|----------------|----------------------------|-------------------------|
| X1.1 | VA5-P | Ausgang | A1 FRONT X1.1 | +4.9V...+5.3V max.340mA | +5V Versorgungsspannung |
| X1.2 | SERCLK | Ausgang | A1 FRONT X1.2 | HCMOS-Pegel | Seriell-Clock |
| X1.3 | VA5-P | Ausgang | A1 FRONT X1.3 | +4.9V...+5.3V max.340mA | +5V Versorgungsspannung |
| X1.4 | SERDATA | Ausgang | A1 FRONT X1.4 | HCMOS-Pegel | Seriell-Data |
| X1.6 | DIS1STB# | Ausgang | A1 FRONT X1.6 | HCMOS-Pegel | Display Strobe 1 |
| X1.8 | DIS2STB# | Ausgang | A1 FRONT X1.8 | HCMOS-Pegel | Display Strobe 2 |
| X1.10 | LEDSTB | Ausgang | A1 FRONT X1.10 | HCMOS-Pegel | LED-Strobe |
| X1.11 | COL7 | Eingang | A1 FRONT X1.11 | HCMOS-Pegel | Tasten-Code |
| X1.12 | C/D# | Ausgang | A1 FRONT X1.12 | HCMOS-Pegel | |
| X1.13 | COL6 | Eingang | A1 FRONT X1.13 | HCMOS-Pegel | Tasten-Code |
| X1.14 | DISBUSY | Eingang | A1 FRONT X1.14 | HCMOS-Pegel | Steuerleitung |
| X1.15 | COL5 | Eingang | A1 FRONT X1.15 | HCMOS-Pegel | Tasten-Code |
| X1.16 | RES# | Ausgang | A1 FRONT X1.16 | HCMOS-Pegel | Reset |
| X1.17 | COL4 | Eingang | A1 FRONT X1.17 | HCMOS-Pegel | Tasten-Code |
| X1.18 | ROW5 | Eingang | A1 FRONT X1.18 | HCMOS-Pegel | Tasten-Code |
| X1.19 | COL3 | Eingang | A1 FRONT X1.19 | HCMOS-Pegel | Tasten-Code |
| X1.20 | ROW4 | Eingang | A1 FRONT X1.20 | HCMOS-Pegel | Tasten-Code |
| X1.21 | COL2 | Eingang | A1 FRONT X1.21 | HCMOS-Pegel | Tasten-Code |
| X1.22 | ROW3 | Eingang | A1 FRONT X1.22 | HCMOS-Pegel | Tasten-Code |
| X1.23 | COL1 | Eingang | A1 FRONT X1.23 | HCMOS-Pegel | Tasten-Code |
| X1.24 | ROW2 | Eingang | A1 FRONT X1.24 | HCMOS-Pegel | Tasten-Code |
| X1.25 | COL0 | Eingang | A1 FRONT X1.25 | HCMOS-Pegel | Tasten-Code |
| X1.26 | ROW1 | Eingang | A1 FRONT X1.26 | HCMOS-Pegel | Tasten-Code |
| X2.6 | ATN | Bidir. | IEC-Bus | HCMOS-Pegel | Steuerleitung |
| X2.8 | SRQ | Bidir. | IEC-Bus | HCMOS-Pegel | Steuerleitung |
| X2.10 | IFC | Bidir. | IEC-Bus | HCMOS-Pegel | Steuerleitung |
| X2.12 | NDAC | Bidir. | IEC-Bus | HCMOS-Pegel | Steuerleitung |
| X2.14 | NFRD | Bidir. | IEC-Bus | HCMOS-Pegel | Steuerleitung |
| X2.16 | DAV | Bidir. | IEC-Bus | HCMOS-Pegel | Steuerleitung |
| X2.17 | REN | Bidir. | IEC-Bus | HCMOS-Pegel | Steuerleitung |
| X2.18 | EOI | Bidir. | IEC-Bus | HCMOS-Pegel | Steuerleitung |
| X2.19 | DIO8 | Bidir. | IEC-Bus | HCMOS-Pegel | Data-Bus |
| X2.20 | DIO4 | Bidir. | IEC-Bus | HCMOS-Pegel | Data-Bus |
| X2.21 | DIO7 | Bidir. | IEC-Bus | HCMOS-Pegel | Data-Bus |
| X2.22 | DIO3 | Bidir. | IEC-Bus | HCMOS-Pegel | Data-Bus |
| X2.23 | DIO6 | Bidir. | IEC-Bus | HCMOS-Pegel | Data-Bus |
| X2.24 | DIO2 | Bidir. | IEC-Bus | HCMOS-Pegel | Data-Bus |

| Pin | Name | Ein/Ausgang | Herkunft/Ziel | Wertebereich | Signalbeschreibung |
|-------------|------------|-------------|-------------------|------------------------------|-----------------------------|
| X2.25 | DIO5 | Bidir. | IEC-Bus | HCMOS-Pegel | Data-Bus |
| X2.26 | DIO1 | Bidir. | IEC-Bus | HCMOS-Pegel | Data-Bus |
| X3.2 | SERCLK | Ausgang | A3 MBRD X3.2 | HCMOS-Pegel | Seriell-Clock |
| X3.3 | SEQ | Eingang | A3 MBRD X3.3 | HCMOS-Pegel | Sequenz |
| X3.4 | SERDATA | Ausgang | A3 MBRD X3.4 | HCMOS-Pegel | Seriell-Data |
| X3.5 | frei | | | | |
| X3.6 | DIAG-5V | Eingang | A3 MBRD X3.6 | -5V...+5V | Diagnose/Kalibrierung |
| X3.8 | VA15-N | Eingang | A3 MBRD X3.8 | -15.5V...-14.4V max. 75mA | -15V Versorgungsspannung |
| X3.9 | VA15-P | Eingang | A3 MBRD X3.9 | +14.4V...+15.6V max. 65mA | +15V Versorgungsspannung |
| X3.10 | VA5-P | Eingang | A3 MBRD X3.10 | +4.9V...5.3V max. 340mA | +5V Versorgungsspannung |
| X3.12 | VA5-P | Eingang | A3 Motherb. X3.12 | +4.9V...5.3V max. 340mA | +5V Versorgungsspannung |
| X3.13 | USVC | Eingang | A3 MBRD X3.13 | +7.2V...+7.8V | Überspannung für Reset |
| X3.14 | HF1STB | Ausgang | A3 MBRD X3.14 | HCMOS-Pegel | Strobe 1 Synthesizer |
| X3.15 | HF2STB | Ausgang | A3 MBRD X3.15 | HCMOS-Pegel | Strobe 2 Synthesizer |
| X3.16 | AT1STB | Ausgang | A3 MBRD X3.16 | HCMOS-Pegel | Strobe 1 Ausgangsverstärker |
| X3.17 | AT2STB | Ausgang | A3 MBRD X3.17 | HCMOS-Pegel | Strobe 2 Ausgangsverstärker |
| X3.18 | AT3STB | Ausgang | A3 MBRD X3.18 | HCMOS-Pegel | Strobe 3 Ausgangsverstärker |
| X3.19 | ELSTB | Ausgang | A3 MBRD X3.19 | HCMOS-Pegel | Strobe Eichleitung |
| X3.20 | HFINT | Eingang | A3 MBRD X3.20 | HCMOS-Pegel | Interrupt |
| X3.21 | REFOFF | Ausgang | A3 MBRD X3.21 | HCMOS-Pegel | Option Ein/Aus |
| X3.22 | HFOVERLOAD | Eingang | A3 MBRD X3.22 | HCMOS-Pegel | Overload HF |
| X3.23 | FMKOMLO | Eingang | A3 MBRD X3.23 | HCMOS-Pegel | FM EXT zu klein |
| X3.24 | FMKOMHI | Eingang | A3 MBRD X3.24 | HCMOS-Pegel | FM EXT zu groß |
| X3.25 | OPTERKREF | Eingang | A3 MBRD X3.25 | HCMOS-Pegel | Optionserkennung Ref. Oszi. |
| X3.26 | OVENCOLD | Eingang | A3 MBRD X3.26 | HCMOS-Pegel | Thermostat Option |
| X3.28 | LFOUT | Ausgang | A3 MBRD X3.28 | 1VS | Modulationsgenerator |
| X3.30 | AMEXT | Eingang | A3 MBRD X3.30 | 1VS | Ext. Eingang AM |
| X3.32 | INT1 | Ausgang | A3 MBRD X3.32 | 1VS | Int FM Ausgang |
| X3.34 | AMMOD | Ausgang | A3 MBRD X3.34 | 1VS | AM Mod. Ausgang |
| X1.5/7/9 | | | | GND | |
| X2.1/2/3/4 | | | | GND | |
| 5/7/9/11 | | | | GND | |
| 13/15/ | | | | GND | |
| X3.1/7/11 | | | | GND | |
| 27/29/31/33 | | | | GND | |



ROHDE & SCHWARZ

SERVICE INSTRUCTIONS

Controller

1062.6309.01

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Parts list
List of coordinates
Circuit diagram
Component layout diagram

7.1 Function Description

The circuit of the controller module consists of a processor section and an analog section.

7.1.2 Processor Section

7.1.2.1 CPU with Peripherals

The processor is the control unit for the overall instrument. The CPU N80C196 (D10) in conjunction with the program memories EPROM D206, EEPROM D125 and the battery-backed RAM D210 forms the nucleus.

The two 8-bit ports P3 and P4 of the CPU represent the address/data bus. PAL D110 is used as output port for the strobe. Analog voltages in the range from 0V to $\pm 5V$ (X3.6) are applied to the internal A/D converter of the CPU via the port P0.0. The adjustable 5.12V reference voltage of the D/A converter is generated by means of the voltage reference REF02 (D107). The logic states of the interrupt lines are identified at the input port P1. P1.3 is used to identify the reference oscillator option. The reset circuit D100 provides a defined reset signal for the CPU in case of dips or failures of the ac supply voltage as well as with instrument switch-on or switch-off. PAL D110 decodes further address signals for RAM, EPROM, EEPROM and IEC/IEEE bus.

7.1.2.2 Keyboard Matrix

8 vertical lines and 5 horizontal lines (COL0...COL7, ROW1...ROW5) are passed from the keyboard matrix to the keyboard-display module. If no key is pressed, ROW1...ROW5 are applied to HIGH potential. COL0...COL7 are kept at LOW potential by D303. As soon as a key is pressed, a horizontal line is connected to a vertical and the horizontal line assumes LOW state. The corresponding capacitor is discharged. D302 causes a delay and D305 causes an interrupt (KEYINT) due to debouncing. Reading the key code, D303 becomes high-impedance, such that all vertical lines which are not connected via the closed key assume HIGH potential. The discharged capacitor ensures that the corresponding vertical line is kept LOW during the access time.

7.1.2.3 IEC/IEEE Interface

The IEC/IEEE-bus interface, which consists of the integrated IEC/IEEE-bus component D250 and the two components D260, D255 implements the interface according to the IEEE standard 488-1978. This component independently handles the handshake with data transfer. The interrupt generated with a change of status is passed to the pin HAI 0 of the CPU.

7.1.3 Analog Section

The analog section of the controller module provides the modulation signals required for AM and FM modes. It consists of an AF synthesizer and the AM modulation path.

7.1.3.1 AF Synthesizer

The output frequency of the modulation generator is generated by means of direct digital synthesis.

The DDS component D420 which contains a 32-bit adder, two 32-bit incremental memories, sine ROM and an interface for serial data transmission represents the nucleus of the synthesizer. The adder periodically increments at a clock frequency of 2.147484 MHz. The clock is provided by the crystal oscillator B401. The addresses of the sine ROM are controlled by the 13 high-order bits of the sum. The sine ROM stores the amplitude values of one sine-wave period. The 12 high-order bits of the amplitude values of one sine-wave are passed to a D/A converter which supplies a staircase signal. The two 6-bit D-registers (D430 und D440) suppress the different propagation delays of the sine ROM contained in the DDS component. A sample-&-hold switch suppresses the settling procedures of the D/A converter. A following 600-kHz lowpass provides for sufficient suppression of the clock frequency. The $\sin X/X$ compensation is realized by R491 and C490.

7.1.3.2 AM-Modulation Path

The analog switch D500, D510 and D550 is used to select the internal or external AM signal. The window discriminator (N544) which is connected in parallel to the input monitors the amplitude of the external modulation signal and, in case of undershoots or overshoots, supplies the signals AMKOMLO or AMKOMHI to the processor D10.

7.2 Test Instruments and Utilities

- Digital multimeter (e.g., R&S UDS5)
- DC-voltage source (e.g., R&S NGT)
- Audio analyzer (e.g., R&S UPA)
- Frequency generator (e.g., R&S SPN)
- RMS voltmeter (e.g., R&S URE3)
- Spectrum analyzer (e.g., R&S FSA)
- Oscilloscope
- Frequency counter

7.3 Troubleshooting

| | |
|--|---|
| No signal provided at LFOUT (X3.23) | Check clock generator at X401 |
| | Check signal at P405 |
| | Check S&H circuit at P409 |
| | Check lowpassfilter and amplifier N520 at P530 |
| AM-INT at AMMOD (X3.34) faulty | Check switches D510 and D550 and amplifier N530 |
| AM-EXT at AMMOD (X3.34) faulty | Check switches D500 and D550 and amplifier N530 |

7.4 Testing and Adjustment

All measured values indicated without tolerances are recommended values. Voltages given without any further detail are dc voltages.

7.4.1 Testing the Power Supply

- Connect an ammeter into the supply lines of the individual supply voltages
- Check the power consumption of the module.
The rated values of individual supply voltages can be looked up under "External Interfaces".

7.4.2 Setting the Power-Fail Threshold

- Set the ac supply voltage such that 7.1 V \pm 0.1 V are applied to X3.13 (U5VC).
- Adjust R139 such that the logic level at D100.10 is just changing (from H to L or L to H).

7.4.3 Setting the Reference Voltage

- Set dc voltage at test point P101 to +5.12 V \pm 1 mV using R102.

7.4.4 Adjustment of the AM-EXT Voltage Comparator

- Set the voltage at test point P513 to -1.02V \pm 1mV using R550.

7.4.5 Adjusting Level INT1

- Setting: 1kHz
- Connect calibrated ac voltmeter to INT1 (X3.32).
- Adjust output amplitude at ac voltmeter to 0.7071Vrms using R450.

7.4.6 0V-Adjustment of INT1 DC Offset

- Setting: AF 1kHz
- Connect dc voltmeter to INT1 (X3.32).
- Adjust dc offset to 0V using R520.

7.4.7 Testing the Diagnosis Inputs

- Connect dc voltmeter to test point P100.
- Setting: SPEC 109
SPEC 40 (GAIN16 D105.5 LOW).
- The measured voltage must be +2.56V \pm 20mV.
- Setting: SPEC 39 (GAIN16 D105.5 HIGH).

The measured voltage must be +2.56V \pm 50mV.

- Setting: RF 1GHz
SPEC 40 (GAIN16 D105.5 LOW).
SPEC 115

• Measure the voltage at X3.6.
The voltage at P100 must be +2.56 V minus half the voltage at X3.6 $\pm 20\text{mV}$.

- Setting: SPEC 39 (GAIN16 D105.5 HIGH).

• Measure the voltage at X3.6.
The voltage at P100 must be +2.56V minus sixteen times half the voltage at X3.6 $\pm 100\text{mV}$.

7.4.8 Testing the Keyboard Interrupt

- Connect an oscilloscope to P305. Press any key.

A LOW pulse with a pulse duration of approx. 2.5 ms must be measurable on the oscilloscope.

7.4.9 Testing the RAM Backup Voltage

- Measure the battery voltage directly at the battery terminals.
- Switch off the supply voltages.
- The measured battery voltage (tol. -10mV) is to be applied to D210.28.

7.4.10 Testing the Frequency Accuracy

- Setting: AF 100kHz
- Connect calibrated frequency counter to AF INT.
- Measure frequency. max. error $\pm 10\text{Hz}$.

7.4.11 Testing Level Accuracy

7.4.11.1 Frequency Response

- Setting: Vary AF between 10Hz and 500kHz.
- Connect calibrated ac voltmeter to AF INT.
- Measure level and compare to the table below.
Frequency response of 10Hz

| | |
|--------------|--------|
| up to 50kHz | <0.2dB |
| up to 100kHz | <0.3dB |
| up to 500kHz | <0.5dB |

7.4.11.1 Setting Errors

- Setting: AF 1kHz
AM INT ON
- Connect calibrated ac voltmeter to outputs AF INT, INT1 (X3.32) and AMMOD (X3.34).
- Check output signals.

| | | |
|--------|--------------------|----------------------|
| AF INT | 0.7071Vrms | |
| INT1 | 0.7071Vrms | (X3.32) |
| AMMOD | 0.7071Vrms (X3.34) | max. error $\pm 1\%$ |

7.4.11.3 INT1 DC-Offset

- Connect dc voltmeter to INT1 (X3.32).
- Absolute value of DC voltage must be < 5 mV.

7.4.12 Testing the Spectral Purity

7.4.12.1 Testing Distortion

Setting:

- Vary AF between 20 Hz and 100 kHz.
- Connect distortion meter to AFOUT.

- Measure distortion with various frequencies.
Distortion must be <0.1%.

7.4.12.2 Testing Harmonic and Nonharmonic Spuriae

Setting:

- Vary AF between 100 kHz and 500 kHz.
- Connect spectrum analyzer to AFOUT ($Z_{in} = 1M\Omega$).

Suppression of harmonics and nonharmonics must be < -40 dBc.

7.4.13 Testing the AM Output Switchover

Setting: AF 10kHz
AM INT ON

- Connect oscilloscope to AMMOD (X3.34).
- A 10-kHz sinewave signal must be visible on the oscilloscope.

Setting: AM EXT AC

- Shorting jumper X501 between X501.1 and X501.2
- Connect AF generator to AM EXT.

AF generator setting: frequency 1kHz
voltage 0.7071Vrms

- Test AMMOD (X3.34) signal. The voltage applied should be 0.7071Vrms.
Max. error $\pm 1\%$

7.4.14 Testing the Voltage Comparator for AM-EXT

Setting: AM EXT DC ON

- Connect AF generator to AM EXT.

AF-generator setting: frequency 1kHz
voltage 0.7071Vrms

The two outputs D545.13 and D545.12 must be LOW.

- Increase level to 0.735Vrms.

Output level at D545.13 must be HIGH.

- Adjust level to 0.680Vrms.

Level at D545.12 must be HIGH.

7.5 Disassembly and Assembly

Subsequent to opening the instrument and undoing the screws, the module can be removed from the frame. After undoing the screws of the screening covers, the module is accessible from both sides. Installation of the module and reassembly of the instrument are carried out in the reverse order.

7.6 External Interfaces

| Pin | Name | Input/Output | Origin/Dest. | Specified range | Signal description |
|-------|----------|--------------|----------------|---------------------------|--------------------|
| X1.1 | VA5-P | Output | A1 FRONT X1.1 | +4.9Vto+5.3V max.340mA | +5V supply voltage |
| X1.2 | SERCLK | Output | A1 FRONT X1.2 | HCMOS level | Serial clock |
| X1.3 | VA5-P | Output | A1 FRONT X1.3 | +4.9Vto+5.3V max.340mA | +5V supply voltage |
| X1.4 | SERDATA | Output | A1 FRONT X1.4 | HCMOS level | Serial data |
| X1.6 | DIS1STB# | Output | A1 FRONT X1.6 | HCMOS level | Display strobe 1 |
| X1.8 | DIS2STB# | Output | A1 FRONT X1.8 | HCMOS level | Display strobe 2 |
| X1.10 | LEDSTB | Output | A1 FRONT X1.10 | HCMOS level | LED strobe |
| X1.11 | COL7 | Input | A1 FRONT X1.11 | HCMOS level | Key code |
| X1.12 | C/D# | Output | A1 FRONT X1.12 | HCMOS level | |
| X1.13 | COL6 | Input | A1 FRONT X1.13 | HCMOS level | Key code |
| X1.14 | DISBUSY | Input | A1 FRONT X1.14 | HCMOS level | Control line |
| X1.15 | COL5 | Input | A1 FRONT X1.15 | HCMOS level | Key code |
| X1.16 | RES# | Output | A1 FRONT X1.16 | HCMOS level | Reset |
| X1.17 | COL4 | Input | A1 FRONT X1.17 | HCMOS level | Key code |
| X1.18 | ROW5 | Input | A1 FRONT X1.18 | HCMOS level | Key code |
| X1.19 | COL3 | Input | A1 FRONT X1.19 | HCMOS level | Key code |
| X1.20 | ROW4 | Input | A1 FRONT X1.20 | HCMOS level | Key code |
| X1.21 | COL2 | Input | A1 FRONT X1.21 | HCMOS level | Key code |
| X1.22 | ROW3 | Input | A1 FRONT X1.22 | HCMOS level | Key code |
| X1.23 | COL1 | Input | A1 FRONT X1.23 | HCMOS level | Key code |
| X1.24 | ROW2 | Input | A1 FRONT X1.24 | HCMOS level | Key code |
| X1.25 | COL0 | Input | A1 FRONT X1.25 | HCMOS level | Key code |
| X1.26 | ROW1 | Input | A1 FRONT X1.26 | HCMOS level | Key code |
| X2.6 | ATN | Bidirect. | IEC/IEEE bus | HCMOS level | Control line |
| X2.8 | SRQ | Bidirect. | IEC/IEEE bus | HCMOS level | Control line |
| X2.10 | IFC | Bidirect. | IEC/IEEE bus | HCMOS level | Control line |
| X2.12 | NDAC | Bidirect. | IEC/IEEE bus | HCMOS level | Control line |
| X2.14 | NFRD | Bidirect. | IEC/IEEE bus | HCMOS level | Control line |
| X2.16 | DAV | Bidirect. | IEC/IEEE bus | HCMOS level | Control line |
| X2.17 | REN | Bidirect. | IEC/IEEE bus | HCMOS level | Control line |
| X2.18 | EOI | Bidirect. | IEC/IEEE bus | HCMOS level | Control line |
| X2.19 | DIO8 | Bidirect. | IEC/IEEE bus | HCMOS level | Data bus |
| X2.20 | DIO4 | Bidirect. | IEC/IEEE bus | HCMOS level | Data bus |
| X2.21 | DIO7 | Bidir. | IEC/IEEE bus | HCMOS level | Data bus |
| X2.22 | DIO3 | Bidir. | IEC/IEEE bus | HCMOS level | Data bus |
| X2.23 | DIO6 | Bidir. | IEC/IEEE bus | HCMOS level | Data bus |
| X2.24 | DIO2 | Bidir. | IEC/IEEE bus | HCMOS level | Data bus |
| X2.25 | DIO5 | Bidir. | IEC/IEEE bus | HCMOS level | Data bus |
| X2.26 | DIO1 | Bidir. | IEC/IEEE bus | HCMOS level | Data bus |

| Pin | Name | Input/Output | Origin/Dest. | Specified range | Signal description |
|-------|------------|--------------|-------------------|------------------------------|---------------------------|
| X3.2 | SERCLK | Output | A3 MBRD X3.2 | HCMOS level | Serial clock |
| X3.3 | SEQ | Input | A3 MBRD X3.3 | HCMOS level | Sequence |
| X3.4 | SERDATA | Output | A3 MBRD X3.4 | HCMOS level | Serial data |
| X3.5 | frei | | | | |
| X3.6 | DIAG-5V | Input | A3 MBRD X3.6 | -5V to +5V | Diagnosis/Calibration |
| X3.8 | VA15-N | Input | A3 MBRD X3.8 | -15.5V to -14.4V max.75mA | -15V Supply voltage |
| X3.9 | VA15-P | Input | A3 MBRD X3.9 | +14.4V to +15.6V max.65mA | +15V Supply voltage |
| X3.10 | VA5-P | Input | A3 MBRD X3.10 | +4.9V to 5.3V max.340mA | +5V supply voltage |
| X3.12 | VA5-P | Input | A3 Motherb. X3.12 | +4.9 Vto 5.3V max.340mA | +5V supply voltage |
| X3.13 | U5VC | Input | A3 MBRD X3.13 | +7.2V...+7.8V | Overvoltage for reset |
| X3.14 | HF1STB | Output | A3 MBRD X3.14 | HCMOS level | Strobe 1 synthesizer |
| X3.15 | HF2STB | Output | A3 MBRD X3.15 | HCMOS level | Strobe 2 synthesizer |
| X3.16 | AT1STB | Output | A3 MBRD X3.16 | HCMOS level | Strobe 1 Output amplifier |
| X3.17 | AT2STB | Output | A3 MBRD X3.17 | HCMOS level | Strobe 2 Output amplifier |
| X3.18 | AT3STB | Output | A3 MBRD X3.18 | HCMOS level | Strobe 3 Output amplifier |
| X3.19 | ELSTB | Output | A3 MBRD X3.19 | HCMOS level | Strobe attenuator |
| X3.20 | HFINT | Input | A3 MBRD X3.20 | HCMOS level | Interrupt |
| X3.21 | REFOFF | Output | A3 MBRD X3.21 | HCMOS level | Option on/off |
| X3.22 | HFOVERLOAD | Input | A3 MBRD X3.22 | HCMOS level | Overload RF |
| X3.23 | FMKOMLO | Input | A3 MBRD X3.23 | HCMOS level | FM EXT too small |
| X3.24 | FMKOMHI | Input | A3 MBRD X3.24 | HCMOS level | FM EXT too large |
| X3.25 | OPTERKREF | Input | A3 MBRD X3.25 | HCMOS level | Identif. of ref. oscill. |
| X3.26 | OVENCOLD | Input | A3 MBRD X3.26 | HCMOS level | Thermostat option |
| X3.28 | LFOUT | Output | A3 MBRD X3.28 | 1Vs | Modulation generator |
| X3.30 | AMEXT | Input | A3 MBRD X3.30 | 1Vs | Ext. Input AM |
| X3.32 | INT1 | Output | A3 MBRD X3.32 | 1Vs | Int FM Output |
| X3.34 | AMMOD | Output | A3 MBRD X3.34 | 1Vs | AM Mod. Output |

GND

X1.5/7/9

X2.1/2/3/4/5/7/9/11/13/15


X3.1/7/11/27/29/31/33



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**Schaltteillisten
numerisch geordnet
Part lists
in numerical order
Listes des pièces détachées
par numéros de référence**


Für diese Unterlage behalten
wir uns alle Rechte vor.

| Kennz. Comp. No. | Benennung Designation | Sachnummer Stock No. | Hersteller Manufacturer | Bezeichnung Designation | enthalten in contained in | |
|---|---|-------------------------|----------------------------|---------------------------------------|------------------------------|-------------------|
| | XX VARIANTENERKLAERUNG IDENTIFICATION OF MODELS VAR 02 = GRUNDAUSFUEHRUNG MOD 02 = BASIC MODEL VAR 04 = SMY 41/44/45 MOD 04 = SMY 41/44/45 XX ZUEGH.STROML. CIRC.DIAGR. 1062.6309 S | | | | | |
| B100 | EQ 10,000MHZ CL30PF HC43U QUARTZ CRYSTAL UNIT 10MHZ | EQ 0091.0250.00 | PHILIPS | N. R&S SACHNUMMER | | |
| B401 | ED 2,147484MHZ-QU.OSZ 5V CLOCK OSCILLATOR | 1036.8120.00 | TELEQUARZ | MCO 1500 B | | |
| C10 | CE 220UF+-20%10V RM2,5 ELECTROLYTIC CAPACITOR | CE 0008.7927.00 | PANASONIC | ECA-1AFG221I | | |
| C100 | CC 1NF+-1% 50V NPO 1206 SMD CERAMIC CAPACITOR | CC 0007.7398.00 | PHILIPS_CO | 2222 863 *8102 | | |
| C105 | CC 22PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8396.00 | MURATA | GRM42-6COG 220F 50PT | | |
| C110 | CC 1NF+-1% 50V NPO 1206 SMD CERAMIC CAPACITOR | CC 0007.7398.00 | PHILIPS_CO | 2222 863 *8102 | | |
| C111 | CC 1NF+-1% 50V NPO 1206 SMD CERAMIC CAPACITOR | CC 0007.7398.00 | PHILIPS_CO | 2222 863 *8102 | | |
| C112 | CE 100UF+-20%25V RD8X9,5 ELECTROLYTIC CAPACITOR | 0803.0580.00 | MATSUSHITA | ECE-A1ESS-101 | | |
| C113 | CE 100UF+-20%25V RD8X9,5 ELECTROLYTIC CAPACITOR | 0803.0580.00 | MATSUSHITA | ECE-A1ESS-101 | | |
| C114 | CC 2,2NF+-10%50VX7R 1206 CERAMIC CHIP CAPACITOR | CC 0099.8444.00 | PHILIPS_CO | 2222 581 16618 | | |
| C115 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | | |
| C116 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | | |
| C117 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | | |
| C118 | CC 1NF+-1% 50V NPO 1206 SMD CERAMIC CAPACITOR | CC 0007.7398.00 | PHILIPS_CO | 2222 863 *8102 | | |
| C119 | CC 10NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0099.8521.00 | MURATA | GRM42-6X7R103K 50PT | | |
| C120 | CC 1NF+-1% 50V NPO 1206 SMD CERAMIC CAPACITOR | CC 0007.7398.00 | PHILIPS_CO | 2222 863 *8102 | | |
| C121 | CC 1NF+-1% 50V NPO 1206 SMD CERAMIC CAPACITOR | CC 0007.7398.00 | PHILIPS_CO | 2222 863 *8102 | | |
| C122 | CC 1NF+-1% 50V NPO 1206 SMD CERAMIC CAPACITOR | CC 0007.7398.00 | PHILIPS_CO | 2222 863 *8102 | | |
| C123 | CC 1NF+-1% 50V NPO 1206 SMD CERAMIC CAPACITOR | CC 0007.7398.00 | PHILIPS_CO | 2222 863 *8102 | | |
| C125 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | | |
| C139 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | | |
| C140 | CC 33PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8780.00 | MURATA | GRM42-6COG 330F 50PT | | |
| C141 | CC 33PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8780.00 | MURATA | GRM42-6COG 330F 50PT | | |
| C143 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | | |
| C144 | CE 220UF+-20%10V RM2,5 ELECTROLYTIC CAPACITOR | CE 0008.7927.00 | PANASONIC | ECA-1AFG221I | | |
| C145 | CE 220UF+-20%10V RM2,5 ELECTROLYTIC CAPACITOR | CE 0008.7927.00 | PANASONIC | ECA-1AFG221I | | |
| C146 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | | |
| C150 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | | |
| C170 | CC 100PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8415.00 | MURATA | GRM42-6COG 101F 50PT | | |
| C171 | CC 100PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8415.00 | MURATA | GRM42-6COG 101F 50PT | | |
| C173 | CC 1NF+-1% 50V NPO 1206 SMD CERAMIC CAPACITOR | CC 0007.7398.00 | PHILIPS_CO | 2222 863 *8102 | | |
| C174 | CC 1NF+-1% 50V NPO 1206 SMD CERAMIC CAPACITOR | CC 0007.7398.00 | PHILIPS_CO | 2222 863 *8102 | | |
| C185 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | | |
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|---------------------|---|-------------------------|----------------------------|----------------------------|------------------------------|
| C191 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C200 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C201 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C203 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C204 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C205 | CC 10PF+-0,25 50VNPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8480.00 | MURATA | GRM42-6COG 100 C5OPT | |
| C210 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C211 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C220 | CC 10PF+-0,25 50VNPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8480.00 | MURATA | GRM42-6COG 100 C5OPT | |
| C230 | CC 100PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8415.00 | MURATA | GRM42-6COG 101F 50PT | |
| ..236 | | | | | |
| C301 | CC 1NF+-1% 50V NPO 1206 SMD CERAMIC CAPACITOR | CC 0007.7398.00 | PHILIPS_CO | 2222 863 *8102 | |
| C302 | CC 1NF+-1% 50V NPO 1206 SMD CERAMIC CAPACITOR | CC 0007.7398.00 | PHILIPS_CO | 2222 863 *8102 | |
| C303 | CC 1NF+-1% 50V NPO 1206 SMD CERAMIC CAPACITOR | CC 0007.7398.00 | PHILIPS_CO | 2222 863 *8102 | |
| C304 | CC 1NF+-1% 50V NPO 1206 SMD CERAMIC CAPACITOR | CC 0007.7398.00 | PHILIPS_CO | 2222 863 *8102 | |
| C305 | CC 1NF+-1% 50V NPO 1206 SMD CERAMIC CAPACITOR | CC 0007.7398.00 | PHILIPS_CO | 2222 863 *8102 | |
| C306 | CC 100PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8415.00 | MURATA | GRM42-6COG 101F 50PT | |
| C307 | CC 100PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8415.00 | MURATA | GRM42-6COG 101F 50PT | |
| C308 | CC 100PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8415.00 | MURATA | GRM42-6COG 101F 50PT | |
| C310 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| ..316 | | | | | |
| C320 | CC 390PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8880.00 | PHILIPS_CO | 2238 863 18391 | |
| ..327 | | | | | |
| C330 | CC 10NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0099.8521.00 | MURATA | GRM42-6X7R103K 50PT | |
| ..334 | | | | | |
| C340 | CC 33NF+-10% 50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5172.00 | PHILIPS_CO | 2238 581 16634 | |
| C400 | CC 100PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8415.00 | MURATA | GRM42-6COG 101F 50PT | |
| C402 | CE 220UF+-20%10V RM2,5 ELECTROLYTIC CAPACITOR | CE 0008.7927.00 | PANASONIC | ECA-1AFG221I | |
| C404 | CE 100UF+-20%25V RDX9,5 ELECTROLYTIC CAPACITOR | 0803.0580.00 | MATSUSHITA | ECE-A1ESS-101 | |
| C406 | CE 100UF+-20%25V RDX9,5 ELECTROLYTIC CAPACITOR | 0803.0580.00 | MATSUSHITA | ECE-A1ESS-101 | |
| C409 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C417 | CC 100PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8415.00 | MURATA | GRM42-6COG 101F 50PT | |
| C418 | CC 100PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8415.00 | MURATA | GRM42-6COG 101F 50PT | |
| C419 | CC 100PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8415.00 | MURATA | GRM42-6COG 101F 50PT | |
| C420 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C421 | CC 100PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8415.00 | MURATA | GRM42-6COG 101F 50PT | |
| C430 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C440 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C449 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C450 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C451 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C452 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C453 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |

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|---------------------|--|-------------------------|----------------------------|----------------------------|------------------------------|
| C454 | CC 10PF+-0,25 50VNPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8480.00 | MURATA | GRM42-6COG 100 C50PT | |
| C460 | CC 47PF+-1%50V COG 1206 CERAMIC CHIP CAPACITOR | CC 0099.8496.00 | MURATA | GRM42-6COG 470F 50PT | |
| C461 | CC 47PF+-1%50V COG 1206 CERAMIC CHIP CAPACITOR | CC 0099.8496.00 | MURATA | GRM42-6COG 470F 50PT | |
| C472 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C473 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C474 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C475 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C480 | CK 100PF+-1%63V6,3QUX11KP CAPACITOR | CK 0337.4654.00 | SIEMENS | B33531-A5101-F | |
| C481 | CC 12PF+-1% 50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8744.00 | MURATA | GRM42-6COG 120 F50PT | |
| C485 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C490 | CC 82PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8821.00 | MURATA | GRM42-6COG 820F 50PT | |
| C492 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C493 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C500 | CK 100PF+-1%63V6,3QUX11KP CAPACITOR | CK 0337.4654.00 | SIEMENS | B33531-A5101-F | |
| C501 | CK 330PF+-1%63V6,3X11 KP PLASTC-FOIL CAPACITOR | CK 0283.1647.00 | SIEMENS | B33531-A5331-F | |
| C502 | CK 330PF+-1%63V6,3X11 KP PLASTC-FOIL CAPACITOR | CK 0283.1647.00 | SIEMENS | B33531-A5331-F | |
| C503 | CK 300PF+-1%63V6,3QUX11KP CAPACITOR | CK 0334.4330.00 | SIEMENS | B33531-A5301-F | |
| C504 | CK 120PF+-1%63V 6,3X11 KP FOIL CAPACITOR | CK 0099.3613.00 | SIEMENS | B33531-A5121-F | |
| C505 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C506 | CC 100PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8415.00 | MURATA | GRM42-6COG 101F 50PT | |
| C510 | CC 4,7PF+-0,25 50VNPO1206 CERAMIC CHIP CAPACITOR | CC 0007.8213.00 | MURATA | GRM42-6COG 4R7C 50PT | |
| C530 | CC 100PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8415.00 | MURATA | GRM42-6COG 101F 50PT | |
| C530 | CC 100PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR NUR VAR/ONLY MOD: 02 | CC 0099.8415.00 | MURATA | GRM42-6COG 101F 50PT | |
| C530 | CC 100PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR NUR VAR/ONLY MOD: 04 NICHT BESTUECKT/NOT FITTED | CC 0099.8415.00 | MURATA | GRM42-6COG 101F 50PT | |
| C531 | CC 100PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR NUR VAR/ONLY MOD: 02 | CC 0099.8415.00 | MURATA | GRM42-6COG 101F 50PT | |
| C531 | RG 221 OHM+-1%TK100 1206 RESISTOR CHIP NUR VAR/ONLY MOD: 04 FUER C531" | RG 0007.5614.00 | ROEDERSTEI | DC2 2210HM 1%TK100 | |
| C532 | CC 100PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8415.00 | MURATA | GRM42-6COG 101F 50PT | |
| C533 | CC 100PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8415.00 | MURATA | GRM42-6COG 101F 50PT | |
| C538 | CC 22PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8396.00 | MURATA | GRM42-6COG 220F 50PT | |
| C539 | CC 100PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8415.00 | MURATA | GRM42-6COG 101F 50PT | |
| C540 | CC 100PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8415.00 | MURATA | GRM42-6COG 101F 50PT | |
| C541 | CC 15PF+-1% 50V NPO 1206 CERAMIC CHIP CAPACITOR NUR VAR/ONLY MOD: 02 | CC 0099.8750.00 | MURATA | GRM42-6COG 150F 50PT | |
| C542 | CC 15PF+-1% 50V NPO 1206 CERAMIC CHIP CAPACITOR NUR VAR/ONLY MOD: 04 NICHT BESTUECKT/NOT FITTED | CC 0099.8750.00 | MURATA | GRM42-6COG 150F 50PT | |
| C542 | CE 220UF+-20%10V RM2,5 ELECTROLYTIC CAPACITOR | CE 0008.7927.00 | PANASONIC | ECA-1AFG221I | |
| C543 | CE 220UF+-20%10V RM2,5 ELECTROLYTIC CAPACITOR | CE 0008.7927.00 | PANASONIC | ECA-1AFG221I | |

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|------------------|---|---|-------------------------|--------------------------|---------------------------|
| C555 | CK 1UF+-5%50V7,5X5,5X10,5 CAPACITOR | CK 0099.2998.00 | ERD | MKT 1826-510/054-R | |
| C556 | CK 1UF+-5%50V7,5X5,5X10,5 CAPACITOR | CK 0099.2998.00 | ERD | MKT 1826-510/054-R | |
| C567 | CC 100PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8415.00 | MURATA | GRM42-6COG 101F 50PT | |
| C568 | CC 100PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8415.00 | MURATA | GRM42-6COG 101F 50PT | |
| C575 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C578 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C579 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C580 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| .587 | C588 | CE 100UF+-20%25V RD8X9,5 ELECTROLYTIC CAPACITOR | 0803.0580.00 | MATSUSHITA ECE-A1ESS-101 | |
| C589 | CE 220UF+-20%10V RM2,5 ELECTROLYTIC CAPACITOR | CE 0008.7927.00 | PANASONIC | ECA-1AFG221I | |
| C590 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C591 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C592 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| .598 | C599 | CE 100UF+-20%25V RD8X9,5 ELECTROLYTIC CAPACITOR | 0803.0580.00 | MATSUSHITA ECE-A1ESS-101 | |
| D10 | BC N80C196 16B.MCU+ADC IC MICROCONTROLLER | 0010.6924.00 | INTEL | N80C196KB | |
| D100 | BO MAX691CWE SUPERVISOR IC UP VOLTAGE SUPERVISOR | 1006.4162.00 | MAXIM | MAX691CWE | |
| D105 | BS DG419DY 1XUM ANALOGSCH ANALOG SWITCH | 0746.0322.00 | SILICONIX | DG419DY | |
| D107 | BO REF02CP 5V 20MA VREF VOLTAGE REFERENCE | BO 0394.8732.00 | PMI | REF-02CP | |
| D110 | HS EPROM D110 EPROM D110 | 1062.6321.00 | | | |
| D120 | BL PC74HCT573T 8XD-FF 3S OCTAL D-TYPE FLIPFLOP | BL 0812.8796.00 | PHILIPS_SE | (PC)74HCT573(D/T) | |
| D125 | BC X24C16S14 2KX8 EEPROM SERIAL EEPROM | 1028.8190.00 | XICOR | X24C16S(14) | |
| D135 | BL PC74HCT04T 6XINVERT HEXINVERTER | BL 0007.5372.00 | PHILIPS_SE | (PC)74HCT04(D/T) | |
| D150 | BL PC74HCT574T 8XD-FF 3S OCTAL D-TYPE FLIPFLOP | BL 0007.6727.00 | PHILIPS | (PC)74HCT574(T) | |
| D160 | BL PC74HCT574T 8XD-FF 3S OCTAL D-TYPE FLIPFLOP | BL 0007.6727.00 | PHILIPS | (PC)74HCT574(T) | |
| D206 | HS EPROM D206 EPROM D206 | 1062.6338.00 | | | |
| D210 | BC 84256-12LP 32KX8 SRAM RAM | 0007.6985.00 | NEC | UPD43256BGU-70LL | |
| D230 | BL PC74HCT245T 8XTRANS OCTAL BUS TRANSCEIVER | BL 0007.5414.00 | PHILIPS_SE | (PC)74HCT245(D/T) | |
| D250 | BC NAT7210APD GPIB IF CON GPIB INTERFACE CONTROLLER | 0010.9198.00 | NATIONAL/I | NAT7210APD | |
| D255 | BJ SN75160AN 8XBUS TRANSC BUS TRANSCEIVER | BJ 0345.6517.00 | TEXAS | SN75160BN | |
| D260 | BJ SN75161AN 8XBUS TRANSC BUS TRANSCEIVER | BJ 0345.6523.00 | TEXAS | SN75161BN | |
| D301 | BL PC74HCT147T 10T04 ENC PRIORITY ENCODER | BL 0007.6362.00 | PHILIPS | (PC)74HCT147(T) | |
| D302 | BL PC74HCT30T 8IN NAND NAND GATE | BL 0007.6233.00 | PHILIPS_SE | (PC)74HCT30(D/T) | |
| D303 | BL PC74HCT244T 8XBUFF 3S OCTAL BUFFER | BL 0007.6562.00 | PHILIPS_SE | (PC)74HCT244D(T) | |
| D304 | BL PC74HCT74T 2XD-FLIPFL DUAL D-TYPE FLIP FLOP | BL 0007.6262.00 | PHILIPS_SE | (PC)74HCT74D(T) | |
| D305 | BL PC74HCT123T 2XMONOFLOP DUAL MULTIVIBRATOR | BL 0007.6333.00 | PHILIPS_SE | (PC)74HCT123(D/T) | |
| D311 | BL PC74HCT147T 10T04 ENC PRIORITY ENCODER | BL 0007.6362.00 | PHILIPS | (PC)74HCT147(T) | |
| D323 | BL PC74HCT244T 8XBUFF 3S OCTAL BUFFER | BL 0007.6562.00 | PHILIPS_SE | (PC)74HCT244D(T) | |
| D402 | BL PC74HCT00T 4X2IN.NAND NAND GATE | BL 0007.6156.00 | PHILIPS_SE | (PC)74HCT00D(T) | |

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| Kennz. Comp. No. | Benennung Designation | Sachnummer Stock No. | Hersteller Manufacturer | Bezeichnung Designation | enthalten in contained in |
|------------------|--|----------------------|-------------------------|-------------------------|---------------------------|
| D403 | BL PC74HCT74T 2XD-FLIPFL DUAL D-TYPE FLIP FLOP | BL 0007.6262.00 | PHILIPS_SE | (PC)74HCT74D(T) | |
| D420 | BL HSP45102 33MHZ DDS-OSZ IC NUMERIC CONTR OSCILL. | 1036.8143.00 | HARRIS | HSP45102SC-33 | |
| D430 | BL PC74HCT174T 6XD-FF HEX D-TYPE FLIPFLOP | BL 0007.6456.00 | PHILIPS | (PC)74HCT174(T) | |
| D440 | BL PC74HCT174T 6XD-FF HEX D-TYPE FLIPFLOP | BL 0007.6456.00 | PHILIPS | (PC)74HCT174(T) | |
| D450 | BJ DAC80-CPI-I 1X12B-DAC D/A-CONVERTER | 0300.6330.00 | BURR_BROWN | DAC80CBI-I | |
| D500 | BS DG419DY 1XUM ANALOGSCH ANALOG SWITCH | 0746.0322.00 | SILICONIX | DG419DY | |
| D510 | BS DG419DY 1XUM ANALOGSCH ANALOG SWITCH | 0746.0322.00 | SILICONIX | DG419DY | |
| D545 | BL PC74HCT123T 2XMONOFLOP DUAL MULTIVIBRATOR | BL 0007.6333.00 | PHILIPS_SE | (PC)74HCT123(D/T) | |
| D550 | BS DG411DY 4X ANALOGSCH ANALOG SWITCH | 0920.1723.00 | SILICONIX | DG411DY | |
| D555 | BL PC74HCT4094T 8ST.SHREG SHIFT REGISTER | BL 0007.6885.00 | PHILIPS | (PC)74HCT4094(D) | |
| G100 | EB 3,4V LITHIUM-BATTERIE LI BATTERY | 0565.1687.00 | ACCU_SONNE | SL-750/P/009 1110750 | |
| L10 | LD 25UH 3A 0,0460HM CHOKE | LD 0026.4849.00 | SIEMENS | B82111-B-C24 | |
| L12 | LD 10 UH 10% 3R3 144 MA CHOKE | LD 0026.4184.00 | DALE | IM2 | |
| L13 | LD 10 UH 10% 3R3 144 MA CHOKE | LD 0026.4184.00 | DALE | IM2 | |
| L140 | LD 56,0UH10%5,700HMO,100A CHOKE | LD 0067.3076.00 | DALE | IM2 | |
| L401 | LD 10UH 10% 0,18A 1210 SMD-INDUCTOR | LD 0007.9255.00 | SIEMENS | B82422-A1103-K100 | |
| L403 | LD 10UH 10% 0,18A 1210 SMD-INDUCTOR | LD 0007.9255.00 | SIEMENS | B82422-A1103-K100 | |
| L405 | LD 10UH 10% 0,18A 1210 SMD-INDUCTOR | LD 0007.9255.00 | SIEMENS | B82422-A1103-K100 | |
| L472 | LD 10UH 10% 0,18A 1210 SMD-INDUCTOR | LD 0007.9255.00 | SIEMENS | B82422-A1103-K100 | |
| L473 | LD 10UH 10% 0,18A 1210 SMD-INDUCTOR | LD 0007.9255.00 | SIEMENS | B82422-A1103-K100 | |
| L500 | LD 330 UH10%28,00HMO,045A CHOKE | LD 0067.3160.00 | DALE | IM2 | |
| L501 | LD 470 UH10%42,00HMO,036A CHOKE | LD 0067.3182.00 | DALE | IM2 | |
| L502 | LD 470 UH10%42,00HMO,036A CHOKE | LD 0067.3182.00 | DALE | IM2 | |
| L503 | LD 330 UH10%28,00HMO,045A CHOKE | LD 0067.3160.00 | DALE | IM2 | |
| L590 | LD 10UH 10% 0,18A 1210 SMD-INDUCTOR | LD 0007.9255.00 | SIEMENS | B82422-A1103-K100 | |
| L591 | LD 10UH 10% 0,18A 1210 SMD-INDUCTOR | LD 0007.9255.00 | SIEMENS | B82422-A1103-K100 | |
| L592 | LD 10UH 10% 0,18A 1210 SMD-INDUCTOR | LD 0007.9255.00 | SIEMENS | B82422-A1103-K100 | |
| N100 | BO OPA2604AU 2XFET OPAMP IC DUAL OPAMP | 2045.4943.00 | BURR_BROWN | OPA2604AU | |
| N450 | BO AD744KR FET OPAMP BIFET OPAMP | 0854.1754.00 | ANALOG_DEV | (AD)744KR | |
| N490 | BO CLC430AJE CF OPAMP IC CURRENT FEEDBACK OPAMP | 2032.2524.00 | COMLINEAR | CL(C)430AJE | |
| N510 | BO NE5534D OPAMP OPERATIONAL AMPLIFIER | 0815.7555.00 | SIGNETICS | NE5534(D) | |
| N520 | BO AD744KR FET OPAMP BIFET OPAMP | 0854.1754.00 | ANALOG_DEV | (AD)744KR | |
| N530 | BO TL072ACD 2XFET OPAMP OPERATIONAL AMPLIFIER | 0803.1057.00 | TEXAS | TL 072 ACDR | |
| N540 | BO AD744KR FET OPAMP BIFET OPAMP | 0854.1754.00 | ANALOG_DEV | (AD)744KR | |
| N540 | NUR VAR/ONLY MOD: 02 BO AD811JR VIDEOCF OPAMP IC OPAMP | 2025.2997.00 | ANALOG_DEV | AD811JR | |
| N544 | NUR VAR/ONLY MOD: 04 BO LM2903D 2XLP COMPAR DUAL | 0520.7734.00 | SIGNETICS | LM2903(D) | |

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|------------------|---|----------------------|-------------------------|-------------------------|---------------------------|
| P100 | VL EINPRESSTIFT L=6,8 PIN | VL 0010.7250.00 | AMP | 1-928776-5 | |
| P101 | VL EINPRESSTIFT L=6,8 PIN | VL 0010.7250.00 | AMP | 1-928776-5 | |
| P305 | VL EINPRESSTIFT L=6,8 PIN | VL 0010.7250.00 | AMP | 1-928776-5 | |
| P405 | VL EINPRESSTIFT L=6,8 PIN | VL 0010.7250.00 | AMP | 1-928776-5 | |
| P406 | VL EINPRESSTIFT L=6,8 PIN | VL 0010.7250.00 | AMP | 1-928776-5 | |
| P409 | VL EINPRESSTIFT L=6,8 PIN | VL 0010.7250.00 | AMP | 1-928776-5 | |
| P510 | VL EINPRESSTIFT L=6,8 PIN | VL 0010.7250.00 | AMP | 1-928776-5 | |
| P513 | VL EINPRESSTIFT L=6,8 PIN | VL 0010.7250.00 | AMP | 1-928776-5 | |
| P530 | VL EINPRESSTIFT L=6,8 PIN | VL 0010.7250.00 | AMP | 1-928776-5 | |
| R100 | RG 22,1 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5489.00 | ROEDERSTEI | DC2 22,1OHM 1%TK100 | |
| R101 | RG 22,1KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5872.00 | ROEDERSTEI | DC2 22,1KOHM 1%TK100 | |
| R102 | RS 0,25W10KOHM +-20% SMD POTENTIOMETER | RS 0007.9649.00 | BOURNS | 3314G-1-103 | |
| R105 | RG 20,0KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5866.00 | ROEDERSTEI | DC2 20,0KOHM 1%TK100 | |
| R106 | RG 1,3 KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5708.00 | ROEDERSTEI | DC2 1,3KOHM 1%TK100 | |
| R108 | RG 1,0MOHM+-1%TK100 1206 CHIP RESISTOR | RG 0815.7532.00 | DRALORIC | CRC 1206 | |
| R109 | NUR VAR/ONLY MOD: 02 RL 0,35W20,0KOHM+-0,1%T25 RESISTOR | RL 0084.3641.00 | RESISTA | MK2 | |
| R110 | RL 0,35W20,0KOHM+-0,1%T25 RESISTOR | RL 0084.3641.00 | RESISTA | MK2 | |
| R111 | RG 100 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8884.00 | ROEDERSTEI | DC2 100OHM 1%TK100 | |
| R112 | RG 562 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.9068.00 | ROEDERSTEI | DC2 562OHM 1%TK100 | |
| R113 | RL 0,35W10,0KOHM+-0,1%T25 RESISTOR | RL 0084.3064.00 | DRALORIC | SMA0207/10K-B-E | |
| R114 | RL 0,35W10,0KOHM+-0,1%T25 RESISTOR | RL 0084.3064.00 | DRALORIC | SMA0207/10K-B-E | |
| R115 | RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR | RG 0006.7271.00 | ROEDERSTEI | DC2 1,0KOHM 1%TK100 | |
| R120 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| R130 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| R138 | RG 13,0KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5837.00 | ROEDERSTEI | DC2 13,0KOHM 1%TK100 | |
| R139 | RS 0,25W500 OHM+-20% SMD POTENTIOMETER | RS 0007.9603.00 | BOURNS | 3314G-1-501 | |
| R140 | RG 2,74KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5766.00 | ROEDERSTEI | DC2 2,74KOHM 1%TK100 | |
| R141 | RG 1,82KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5720.00 | ROEDERSTEI | DC2 1,82KOHM 1%TK100 | |
| R142 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| R143 | RG 100 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8884.00 | ROEDERSTEI | DC2 100OHM 1%TK100 | |
| R144 | RG 0-OHM WIDERSTAND-CHIP RESISTOR CHIP 0-OHM | RG 0007.5108.00 | DRALORIC | CR 1206 | |
| R145 | RG 100 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8884.00 | ROEDERSTEI | DC2 100OHM 1%TK100 | |
| R146 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| R147 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| R148 | RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR | RG 0006.7271.00 | ROEDERSTEI | DC2 1,0KOHM 1%TK100 | |
| R149 | RG 0-OHM WIDERSTAND-CHIP RESISTOR CHIP 0-OHM | RG 0007.5108.00 | DRALORIC | CR 1206 | |
| R150 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| R151 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |

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| Kennz. Comp. No. | Benennung Designation | Sachnummer Stock No. | Hersteller Manufacturer | Bezeichnung Designation | enthalten in contained in |
|---------------------|---|-------------------------|----------------------------|----------------------------|------------------------------|
| R152 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| R153 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| R154 | RG 4,75KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5820.00 | ROEDERSTEI | DC2 4,75KOHM 1%TK100 | |
| R156 | RG 4,75KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5820.00 | ROEDERSTEI | DC2 4,75KOHM 1%TK100 | |
| R157 | RG 4,75KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5820.00 | ROEDERSTEI | DC2 4,75KOHM 1%TK100 | |
| R160 | RN 9X 10KOHM+-SIL10 H5 RESISTOR NETWORK | RN 0343.4523.00 | BI_TECHNOL | L 10 1 S 103 M* | |
| R161 | RN 9X 10KOHM+-SIL10 H5 RESISTOR NETWORK | RN 0343.4523.00 | BI_TECHNOL | L 10 1 S 103 M* | |
| R163 | RN 9X 10KOHM+-SIL10 H5 RESISTOR NETWORK | RN 0343.4523.00 | BI_TECHNOL | L 10 1 S 103 M* | |
| R165 | RG 4,75KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5820.00 | ROEDERSTEI | DC2 4,75KOHM 1%TK100 | |
| R166 | RG 4,75KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5820.00 | ROEDERSTEI | DC2 4,75KOHM 1%TK100 | |
| R170 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| R171 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| R172 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| R174 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| ..178 | RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR | RG 0006.7271.00 | ROEDERSTEI | DC2 1,0KOHM 1%TK100 | |
| R179 | RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR | RG 0006.7271.00 | ROEDERSTEI | DC2 1,0KOHM 1%TK100 | |
| R180 | RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR | RG 0006.7271.00 | ROEDERSTEI | DC2 1,0KOHM 1%TK100 | |
| R200 | RG 0-OHM WIDERSTAND-CHIP RESISTOR CHIP 0-OHM | RG 0007.5108.00 | DRALORIC | CR 1206 | |
| R204 | RG 2,21KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5743.00 | ROEDERSTEI | DC2 2,21KOHM 1%TK100 | |
| R205 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| R220 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| R221 | RG 5,62KOHM+-1%TK100 1206 CHIP RESISTOR | RG 0007.0735.00 | ROEDERSTEI | DC2 5,62KOHM 1%TK100 | |
| R250 | RN 9X 10KOHM+-SIL10 H5 RESISTOR NETWORK | RN 0343.4523.00 | BI_TECHNOL | L 10 1 S 103 M* | |
| R251 | RG 6,81KOHM+-1%TK100 1206 CHIP RESISTOR | RG 0007.0758.00 | ROEDERSTEI | DC2 6,81KOHM 1%TK100 | |
| R252 | RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR | RG 0006.7271.00 | ROEDERSTEI | DC2 1,0KOHM 1%TK100 | |
| R301 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| ..309 | RG 4,75KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5820.00 | ROEDERSTEI | DC2 4,75KOHM 1%TK100 | |
| R320 | RG 182 KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5989.00 | ROEDERSTEI | DC2 182KOHM 1%TK100 | |
| R321 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| R322 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| R323 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| R330 | RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR | RG 0006.7271.00 | ROEDERSTEI | DC2 1,0KOHM 1%TK100 | |
| ..338 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| R340 | RG 47,5 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5566.00 | ROEDERSTEI | DC2 47,5OHM 1%TK100 | |
| R400 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| R401 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| R402 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| R403 | RG 47,5 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5566.00 | ROEDERSTEI | DC2 47,5OHM 1%TK100 | |
| R404 | RG 47,5 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5566.00 | ROEDERSTEI | DC2 47,5OHM 1%TK100 | |
| R405 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| R410 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| R411 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |

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|---------------------|---|-------------------------|----------------------------|----------------------------|------------------------------|
| R412 | RG 47,5 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5566.00 | ROEDERSTEI | DC2 47,50HM 1%TK100 | |
| R413 | RG 47,5 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5566.00 | ROEDERSTEI | DC2 47,50HM 1%TK100 | |
| R423 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| R424 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| R427 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| R428 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| R430 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| R450 | RS 0,25W200 OHM+-20% SMD POTENTIOMETER | RS 0007.9590.00 | SIEMENS | S4G-200 OHM | |
| R451 | RG 909 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.7265.00 | ROEDERSTEI | DC2 909OHM 1%TK100 | |
| R460 | RG 221 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5614.00 | ROEDERSTEI | DC2 221OHM 1%TK100 | |
| R461 | RG 221 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5614.00 | ROEDERSTEI | DC2 221OHM 1%TK100 | |
| R462 | RG 2,74KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5766.00 | ROEDERSTEI | DC2 2,74KOHM 1%TK100 | |
| R463 | RG 2,74KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5766.00 | ROEDERSTEI | DC2 2,74KOHM 1%TK100 | |
| R469 | RG 301 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5643.00 | ROEDERSTEI | DC2 301OHM 1%TK100 | |
| R470 | RG 47,5 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5566.00 | ROEDERSTEI | DC2 47,50HM 1%TK100 | |
| R471 | RG 47,5 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5566.00 | ROEDERSTEI | DC2 47,50HM 1%TK100 | |
| R472 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| R473 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| R474 | RG 100 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8884.00 | ROEDERSTEI | DC2 100OHM 1%TK100 | |
| R475 | RG 301 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5643.00 | ROEDERSTEI | DC2 301OHM 1%TK100 | |
| R480 | RG 332 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5650.00 | ROEDERSTEI | DC2 332OHM 1%TK100 | |
| R481 | RG 243 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5620.00 | ROEDERSTEI | DC2 243OHM 1%TK100 | |
| R482 | RG 681 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.9080.00 | ROEDERSTEI | DC2 681OHM 1%TK100 | |
| R485 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| R486 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| R490 | RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR | RG 0006.7271.00 | ROEDERSTEI | DC2 1,0KOHM 1%TK100 | |
| R491 | RG 1,82KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5720.00 | ROEDERSTEI | DC2 1,82KOHM 1%TK100 | |
| R500 | RL 0,35W1,10KOHM+-0,1%T25 RESISTOR | RL 0083.9223.00 | DRALORIC | SMA0207 | |
| R504 | RL 0,35W1,10KOHM+-0,1%T25 RESISTOR | RL 0083.9223.00 | DRALORIC | SMA0207 | |
| R505 | RG 4,75KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5820.00 | ROEDERSTEI | DC2 4,75KOHM 1%TK100 | |
| R505 | NUR VAR/ONLY MOD: 02 RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| R506 | NUR VAR/ONLY MOD: 04 RG 200 KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5995.00 | ROEDERSTEI | DC2 200KOHM 1%TK100 | |
| R515 | RG 4,75KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5820.00 | ROEDERSTEI | DC2 4,75KOHM 1%TK100 | |
| R515 | NUR VAR/ONLY MOD: 02 RG 18,2KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5850.00 | ROEDERSTEI | DC2 18,2KOHM 1%TK100 | |
| R520 | NUR VAR/ONLY MOD: 04 RS 0,25W 2MOHM +-20% SMD POTENTIOMETER | RS 0007.9710.00 | SIEMENS | S4G-2MOHM | |
| R529 | RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR | RG 0006.7271.00 | ROEDERSTEI | DC2 1,0KOHM 1%TK100 | |
| | NUR VAR/ONLY MOD: 02 | | | | |


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|---------------------|---|-------------------------|----------------------------|----------------------------|------------------------------|
| R529 | RG 100 OHM+-1%TK100 1206 CHIP RESISTOR NUR VAR/ONLY MOD: 04 | RG 0006.8884.00 | ROEDERSTEI | DC2 100OHM 1%TK100 | |
| R530 | RG 4,75OHM+-1%TK100 1206 CHIP-RESISTOR NUR VAR/ONLY MOD: 02 | RG 0007.8420.00 | PHILIPS | RC 02 | |
| R530 | RG 0-OHM WIDERSTAND-CHIP RESISTOR CHIP 0-OHM NUR VAR/ONLY MOD: 04 | RG 0007.5108.00 | DRALORIC | CR 1206 | |
| R531 | RG 4,75OHM+-1%TK100 1206 CHIP-RESISTOR NUR VAR/ONLY MOD: 02 | RG 0007.8420.00 | PHILIPS | RC 02 | |
| R531 | RG 0-OHM WIDERSTAND-CHIP RESISTOR CHIP 0-OHM NUR VAR/ONLY MOD: 04 | RG 0007.5108.00 | DRALORIC | CR 1206 | |
| R532 | RG 4,75OHM+-1%TK100 1206 CHIP-RESISTOR | RG 0007.8420.00 | PHILIPS | RC 02 | |
| R533 | RG 4,75OHM+-1%TK100 1206 CHIP-RESISTOR | RG 0007.8420.00 | PHILIPS | RC 02 | |
| R534 | RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR NUR VAR/ONLY MOD: 02 | RG 0006.7271.00 | ROEDERSTEI | DC2 1,0KOHM 1%TK100 | |
| R534 | RG 619 OHM+-1%TK100 1206 CHIP RESISTOR NUR VAR/ONLY MOD: 04 | RG 0006.9074.00 | ROEDERSTEI | DC2 619OHM 1%TK100 | |
| R538 | RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR | RG 0006.7271.00 | ROEDERSTEI | DC2 1,0KOHM 1%TK100 | |
| R540 | RG 110,0KOH+-1%TK100 1206 CHIP RESISTOR | RG 0007.1954.00 | ROEDERSTEI | DC2 110KOHM 1%TK100 | |
| R541 | RG 0-OHM WIDERSTAND-CHIP RESISTOR CHIP 0-OHM | RG 0007.5108.00 | DRALORIC | CR 1206 | |
| R542 | RG 475 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5695.00 | ROEDERSTEI | DC2 475OHM 1%TK100 | |
| R543 | RG 619 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.9074.00 | ROEDERSTEI | DC2 619OHM 1%TK100 | |
| R544 | RG 1,0MOHM+-1%TK100 1206 CHIP RESISTOR NUR VAR/ONLY MOD: 02 | RG 0815.7532.00 | DRALORIC | CRC 1206 | |
| R545 | RG 100,0KOH+-1%TK100 1206 CHIP RESISTOR | RG 0007.1948.00 | ROEDERSTEI | DC2 100KOHM 1%TK100 | |
| R546 | RL 0,60W 10,0 OHM+-1%TK50 RESISTOR NUR VAR/ONLY MOD: 02 | RL 0082.8852.00 | RESISTA | MK2 | |
| R547 | RL 0,35W33,6KOHM+-0,1%T25 RESISTOR NUR VAR/ONLY MOD: 02 | RL 0084.4077.00 | RESISTA | MK2 | |
| R547 | RL 0,35W32,0KOHM+-0,1%T25 RESISTOR NUR VAR/ONLY MOD: 04 | RL 0084.4031.00 | RESISTA | MK2 | |
| R548 | RL 0,35W221 OHM+-0,1%TK25 RESISTOR NUR VAR/ONLY MOD: 04 | RL 0083.7889.00 | RESISTA | MK2 | |
| R548 | RL 0,35W158 OHM+-0,1%TK25 RESISTOR NUR VAR/ONLY MOD: 02 | RL 0083.7608.00 | RESISTA | MK2 | |
| R549 | RL 0,25W3,83KOHM+-0,1%T25 RESISTOR NUR VAR/ONLY MOD: 02 | RL 0084.2268.00 | DRALORIC | SMA/207/3,83K-B-E | |
| R549 | RL 0,35W5,42KOHM+-0,1%T25 RESISTOR NUR VAR/ONLY MOD: 04 | RL 0084.2551.00 | RESISTA | MK2 | |
| R550 | RS 0,25W 5KOHM +-20% SMD POTENTIOMETER | RS 0007.9632.00 | SIEMENS | S4G-5KOHM | |
| R551 | RG 5,62KOHM+-1%TK100 1206 CHIP RESISTOR | RG 0007.0735.00 | ROEDERSTEI | DC2 5,62KOHM 1%TK100 | |
| R552 | RG 5,62KOHM+-1%TK100 1206 CHIP RESISTOR | RG 0007.0735.00 | ROEDERSTEI | DC2 5,62KOHM 1%TK100 | |
| R553 | RG 681 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.9080.00 | ROEDERSTEI | DC2 681OHM 1%TK100 | |
| R555 | RG 2,0 KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5737.00 | ROEDERSTEI | DC2 2,0KOHM 1%TK100 | |
| R556 | RG 2,0 KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5737.00 | ROEDERSTEI | DC2 2,0KOHM 1%TK100 | |
| R557 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| R558 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |


| MENP5 | 413 3PUA | Äl | Datum Date | Sachteiliste für Parts list for | Sachnummer Stock No. | Blatt-Nr. Page |
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| Kennz. Comp. No. | Benennung Designation | Sachnummer Stock No. | Hersteller Manufacturer | Bezeichnung Designation | enthalten in contained in |
|---------------------|--|-------------------------|----------------------------|----------------------------|------------------------------|
| R559 | RG 274 KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.4460.00 | ROEDERSTEI | DC2 274KOHM 1%TK100 | |
| R560 | RG 274 KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.4460.00 | ROEDERSTEI | DC2 274KOHM 1%TK100 | |
| R561 | RG 4,02KOH+-0,1%TK25 1206 SMD-RESISTOR EIA1206 | 0009.7814.00 | MIKRO-TEK- | CMF 1206 | |
| R564 | RG 33,2 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5520.00 | ROEDERSTEI | DC2 33,2OHM 1%TK100 | |
| R566 | RG 4,02KOH+-0,1%TK25 1206 SMD-RESISTOR EIA1206 | 0009.7814.00 | MIKRO-TEK- | CMF 1206 | |
| R567 | RG 4,75OHM+-1%TK100 1206 CHIP-RESISTOR | RG 0007.8420.00 | PHILIPS | RC 02 | |
| R568 | RG 4,75OHM+-1%TK100 1206 CHIP-RESISTOR | RG 0007.8420.00 | PHILIPS | RC 02 | |
| R570 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| R571 | RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR | RG 0006.7271.00 | ROEDERSTEI | DC2 1,0KOHM 1%TK100 | |
| R572 | RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR | RG 0006.7271.00 | ROEDERSTEI | DC2 1,0KOHM 1%TK100 | |
| R575 | RG 4,02KOH+-0,1%TK25 1206 SMD-RESISTOR EIA1206 | 0009.7814.00 | MIKRO-TEK- | CMF 1206 | |
| R576 | RG 4,02KOH+-0,1%TK25 1206 SMD-RESISTOR EIA1206 | 0009.7814.00 | MIKRO-TEK- | CMF 1206 | |
| R577 | RG 4,02KOH+-0,1%TK25 1206 SMD-RESISTOR EIA1206 | 0009.7814.00 | MIKRO-TEK- | CMF 1206 | |
| V110 | AE BZV55/C5V6 0.5W ZDI ZENER DIODE | AE 0006.9845.00 | PHILIPS | BZV55B5V6 | |
| V120 | AD BAV99 70V DUO UDI DIODE | AD 0911.0092.00 | VALVO | BAV99 | |
| V205 | AD BAS32 75V UDI DIODE | AD 0006.7288.00 | PHILIPS | BAS32 (L) | |
| V210 | AK BC850B N 45V 200MA TRANSISTOR | AK 0007.7969.00 | VALVO | BC850B | |
| V220 | AK BC850B N 45V 200MA TRANSISTOR | AK 0007.7969.00 | VALVO | BC850B | |
| V462 | AE BZV55/C12 0,5W ZDI ZENER DIODE | AE 0006.9897.00 | PHILIPS_SE | BZV55B12 | |
| V463 | AE BZV55/C6V8 0,5W ZDI ZENER DIODE | AE 0006.9868.00 | PHILIPS | BZV55/B6V8 | |
| V470 | AK BSR18 P 40V 200MA TRANSISTOR | AK 0007.2073.00 | PHILIPS_SE | BSR18 (BSR18A) | |
| V471 | AE HSMS2800 SCHOTTKY DIODE | AE 0836.8421.00 | HEWLETT_PA | HSMS-2800 | |
| V475 | AK BSR13 N 30V 800MA TRANSISTOR | AK 0007.2209.00 | VALVO | BSR 13 | |
| V476 | AE HSMS2800 SCHOTTKY DIODE | AE 0836.8421.00 | HEWLETT_PA | HSMS-2800 | |
| V480 | AM SD210DE N-E 30V MOSF MOS-FET | 0844.7637.00 | SILICONIX | SD210DE | |
| V540 | AD BAV99 70V DUO UDI DIODE | AD 0911.0092.00 | VALVO | BAV99 | |
| V550 | AE BZV55/C5V6 0.5W ZDI ZENER DIODE | AE 0006.9845.00 | PHILIPS | BZV55B5V6 | |
| V551 | AE BZV55/C4V7 0.5W ZDI ZENER DIODE | AE 0006.9822.00 | PHILIPS | BZV55B4V7 | |
| X1 | FP STECKERLEISTE 26P.GER CONNECTOR 26P. | FP 0820.8610.00 | SIEMENS | V23535-A2200-A262 | |
| X2 | FP STECKERLEISTE 26P.GER CONNECTOR 26P. | FP 0820.8610.00 | SIEMENS | V23535-A2200-A262 | |
| X3 | FP STECKERLEISTE 34P.GER CONNECTOR 34P | FP 0351.3474.00 | SIEMENS | V23535-A2200-A342 | |
| X104 | FP STIFTELEISTE 36P.R2,54 PIN CONNECTOR 2-POLIG/2 PINS | FP 0242.3600.00 | BINDER | 742-11-0179-00-36 | |
| X108 | VL STECKLOETOESE 7,5X1,1 PLUG-IN SOLDERING LUG | VL 0078.2747.00 | - | R&S-ZCHNG.078.2747 | |
| X109 | VL STECKLOETOESE 7,5X1,1 PLUG-IN SOLDERING LUG | VL 0078.2747.00 | - | R&S-ZCHNG.078.2747 | |
| X225 | FP STIFTELEISTE 36P.R2,54 PIN CONNECTOR 2-POLIG/2 PINS | FP 0242.3600.00 | BINDER | 742-11-0179-00-36 | |
| X401 | FP STIFTELEISTE 36P.R2,54 PIN CONNECTOR 2-POLIG/2 PINS | FP 0242.3600.00 | BINDER | 742-11-0179-00-36 | |

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| Kennz. Comp. No. | Benennung Designation | Sachnummer Stock No. | Hersteller Manufacturer | Bezeichnung Designation | enthalten in contained in | |
|--|---|-------------------------|----------------------------|---------------------------------------|------------------------------|-------------------|
| X501 | FP STIFTL. WIN 36P. R2, 54 ANGLE PIN CONNECTOR | FP 0243.3578.00 | BINDER | 742-5-11-0187-00-36 | | |
| MENP5 | 413 3PUA | AI | Datum Date | Schaltteilliste für Parts list for | Sachnummer Stock No. | Blatt-Nr. Page |
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XY-Liste

XY List

Erklärung der Spaltenbezeichnungen:

- Part:** Bauelement-Kennzeichen.
- Side:** Leiterplatten-Seite, auf der sich das Bauelement befindet.
- X/Y:** Koordinaten (Millimeter) des Bauelementes auf der Leiterplatte bezogen auf den Nullpunkt.
- SQR, PG:** Planquadrat und Seite des Schaltbildes für das jeweilige Bauelement.

Explanation of column designations:

- Part:** Identification of instrument part.
- Side:** Side of the PC board on which instrument part is positioned.
- X/Y:** Coordinates (millimeter) of the component on the PC board in reference to zero point.
- SQR, PG:** Square and page of the diagram for the respective instrument part.

14m+

Service-Relevante Bauteile / Service-Relevant Components

| Part | Side | X | Y | Sqr | Pg | Part | Side | X | Y | Sqr | Pg | Part | Side | X | Y | Sqr | Pg |
|------|------|-----|----|-----|----|------|------|-----|-----|-----|----|------|------|-----|-----|-----|----|
| P100 | B | 172 | 51 | 4E | 2 | R102 | B | 184 | 60 | 4E | 2 | X104 | B | 158 | 69 | 5F | 2 |
| P100 | B | 172 | 51 | 3E | 1 | R102 | B | 184 | 60 | 3F | 1 | X104 | B | 158 | 69 | 5F | 1 |
| P101 | B | 175 | 34 | 5F | 2 | R139 | B | 90 | 75 | 3C | 2 | X108 | B | 25 | 92 | 3C | 2 |
| P101 | B | 175 | 34 | 3F | 1 | R139 | B | 90 | 75 | 3C | 1 | X108 | B | 25 | 92 | 3C | 1 |
| P305 | B | 31 | 46 | 8E | 4 | R450 | B | 272 | 73 | 8D | 5 | X109 | B | 25 | 57 | 3B | 2 |
| P405 | B | 266 | 71 | 8E | 5 | R520 | B | 286 | 41 | 7E | 6 | X109 | B | 25 | 57 | 3B | 1 |
| P406 | B | 264 | 71 | 8F | 5 | R550 | B | 248 | 23 | 4B | 6 | X225 | B | 44 | 53 | 8D | 3 |
| P409 | B | 261 | 71 | 11D | 5 | X1 | B | 51 | 8 | 2E | 4 | X401 | B | 199 | 108 | 4E | 5 |
| P510 | B | 298 | 53 | 6E | 6 | X2 | B | 83 | 107 | 11D | 3 | X501 | B | 190 | 10 | 1D | 6 |
| P513 | B | 246 | 28 | 3C | 6 | X3 | B | 114 | 8 | 11B | 2 | | | | | | |
| P530 | B | 287 | 36 | 8E | 6 | X3 | B | 114 | 8 | 2A | 1 | | | | | | |

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Nicht-Service-Relevante Bauteile / Non-Service-Relevant Components

| Part | Side | X | Y | Sqr | Pg | Part | Side | X | Y | Sqr | Pg | Part | Side | X | Y | Sqr | Pg |
|------|------|-----|-----|-----|----|------|------|-----|-----|-----|----|------|------|-----|-----|-----|----|
| B100 | B | 158 | 67 | 5F | 2 | C174 | B | 136 | 19 | 11C | 2 | C327 | A | 86 | 23 | 3C | 4 |
| B100 | B | 158 | 67 | 5F | 1 | C174 | B | 136 | 19 | 11C | 1 | C330 | B | 72 | 20 | 3C | 4 |
| B401 | B | 199 | 88 | 3E | 5 | C185 | A | 182 | 48 | 6A | 2 | C331 | B | 74 | 20 | 3C | 4 |
| C10 | B | 97 | 30 | 2B | 2 | C185 | A | 182 | 48 | 6A | 1 | C332 | B | 77 | 20 | 3C | 4 |
| C10 | B | 97 | 30 | 2B | 1 | C186 | A | 178 | 39 | 6A | 2 | C333 | B | 79 | 20 | 3C | 4 |
| C100 | A | 116 | 19 | 2E | 2 | C186 | A | 178 | 39 | 6A | 1 | C334 | B | 82 | 20 | 3C | 4 |
| C100 | A | 116 | 19 | 2E | 1 | C187 | A | 106 | 31 | 8A | 2 | C340 | B | 14 | 31 | 7E | 4 |
| C110 | A | 110 | 19 | 2D | 2 | C187 | A | 106 | 31 | 8A | 1 | C400 | B | 206 | 70 | 3D | 5 |
| C110 | A | 110 | 19 | 2D | 1 | C188 | A | 138 | 66 | 8A | 2 | C402 | B | 194 | 79 | 2E | 5 |
| C111 | A | 182 | 40 | 2E | 2 | C188 | A | 138 | 66 | 8A | 1 | C404 | B | 202 | 77 | 2D | 5 |
| C111 | A | 182 | 40 | 2E | 1 | C189 | A | 154 | 38 | 7A | 2 | C406 | B | 211 | 76 | 2D | 5 |
| C112 | B | 171 | 27 | 2B | 2 | C189 | A | 154 | 38 | 7A | 1 | C409 | A | 225 | 73 | 4A | 5 |
| C112 | B | 171 | 27 | 2B | 1 | C190 | A | 114 | 57 | 6A | 2 | C417 | B | 212 | 70 | 3C | 5 |
| C113 | B | 180 | 27 | 2A | 2 | C190 | A | 114 | 57 | 6A | 1 | C418 | B | 201 | 46 | 3C | 5 |
| C113 | B | 180 | 27 | 2A | 1 | C191 | A | 114 | 104 | 7A | 2 | C419 | B | 199 | 50 | 3B | 5 |
| C114 | A | 114 | 25 | 3D | 2 | C191 | A | 114 | 104 | 7A | 1 | C420 | B | 204 | 99 | 5A | 5 |
| C114 | A | 114 | 25 | 3D | 1 | C200 | A | 109 | 78 | 2A | 3 | C421 | B | 201 | 40 | 3B | 5 |
| C115 | A | 172 | 46 | 5A | 2 | C201 | A | 87 | 88 | 4A | 3 | C430 | A | 229 | 103 | 6A | 5 |
| C116 | A | 163 | 43 | 5A | 2 | C203 | A | 38 | 68 | 6A | 3 | C440 | A | 230 | 91 | 7A | 5 |
| C117 | A | 172 | 39 | 5A | 2 | C204 | B | 73 | 84 | 6A | 3 | C449 | A | 196 | 92 | 3F | 5 |
| C118 | A | 184 | 43 | 3E | 2 | C205 | A | 93 | 84 | 5D | 3 | C450 | B | 258 | 98 | 7E | 5 |
| C119 | B | 171 | 69 | 4E | 2 | C210 | A | 80 | 77 | 7A | 3 | C451 | B | 263 | 76 | 7D | 5 |
| C120 | A | 140 | 19 | 2C | 2 | C211 | A | 88 | 39 | 8A | 3 | C452 | B | 276 | 82 | 7A | 5 |
| C120 | A | 140 | 19 | 2C | 1 | C220 | A | 54 | 65 | 7E | 3 | C453 | B | 264 | 85 | 8A | 5 |
| C121 | A | 140 | 22 | 3C | 2 | C230 | B | 139 | 36 | 2E | 3 | C454 | B | 264 | 79 | 8E | 5 |
| C121 | A | 140 | 22 | 3C | 1 | C231 | B | 139 | 34 | 2E | 3 | C460 | B | 275 | 79 | 8E | 5 |
| C122 | A | 153 | 19 | 3C | 2 | C232 | B | 140 | 27 | 2E | 3 | C461 | B | 283 | 76 | 8D | 5 |
| C122 | A | 153 | 19 | 3C | 1 | C233 | B | 133 | 36 | 2E | 3 | C472 | A | 293 | 72 | 10C | 5 |
| C123 | A | 153 | 22 | 3C | 2 | C234 | B | 133 | 34 | 2E | 3 | C473 | B | 286 | 90 | 10E | 5 |
| C123 | A | 153 | 22 | 3C | 1 | C235 | A | 105 | 22 | 2D | 3 | C474 | A | 300 | 75 | 9C | 5 |
| C125 | A | 180 | 57 | 4F | 2 | C236 | A | 105 | 25 | 2D | 3 | C475 | B | 280 | 93 | 9E | 5 |
| C139 | A | 123 | 22 | 2C | 2 | C301 | B | 100 | 11 | 3E | 4 | C480 | B | 258 | 88 | 10D | 5 |
| C139 | A | 123 | 22 | 2C | 1 | C302 | B | 98 | 11 | 3E | 4 | C481 | B | 258 | 81 | 10D | 5 |
| C140 | A | 159 | 82 | 5E | 2 | C303 | A | 101 | 20 | 3E | 4 | C485 | B | 297 | 76 | 10D | 5 |
| C140 | A | 159 | 82 | 5E | 1 | C304 | A | 95 | 20 | 3D | 4 | C490 | B | 261 | 101 | 11E | 5 |
| C141 | A | 156 | 79 | 6E | 2 | C305 | A | 95 | 22 | 3D | 4 | C492 | B | 277 | 90 | 8A | 5 |
| C141 | A | 156 | 79 | 6E | 1 | C306 | A | 95 | 25 | 3D | 4 | C493 | B | 266 | 88 | 8A | 5 |
| C143 | B | 93 | 36 | 6F | 2 | C307 | B | 95 | 11 | 3D | 4 | C500 | B | 246 | 55 | 3E | 6 |
| C143 | B | 93 | 36 | 6F | 1 | C308 | B | 67 | 23 | 3D | 4 | C501 | B | 258 | 55 | 4E | 6 |
| C144 | B | 120 | 32 | 6F | 2 | C310 | A | 74 | 27 | 1A | 4 | C502 | B | 271 | 55 | 4E | 6 |
| C144 | B | 120 | 32 | 6F | 1 | C311 | A | 57 | 39 | 2A | 4 | C503 | B | 283 | 55 | 5E | 6 |
| C145 | B | 128 | 32 | 6F | 2 | C312 | A | 44 | 26 | 3A | 4 | C504 | B | 295 | 55 | 5E | 6 |
| C145 | B | 128 | 32 | 6F | 1 | C313 | A | 51 | 48 | 4A | 4 | C505 | A | 282 | 36 | 7E | 6 |
| C146 | A | 161 | 74 | 6F | 2 | C314 | B | 82 | 49 | 5A | 4 | C506 | B | 279 | 33 | 8D | 6 |
| C146 | A | 161 | 74 | 6F | 1 | C315 | A | 23 | 47 | 6A | 4 | C510 | B | 289 | 40 | 7E | 6 |
| C150 | A | 132 | 104 | 9E | 2 | C316 | A | 23 | 37 | 7A | 4 | C530 | A | 297 | 20 | 11E | 6 |
| C150 | A | 132 | 104 | 9E | 1 | C320 | B | 62 | 23 | 3D | 4 | C531 | B | 292 | 8 | 11E | 6 |
| C170 | A | 111 | 11 | 10B | 2 | C321 | A | 62 | 20 | 3D | 4 | C532 | A | 283 | 20 | 11E | 6 |
| C170 | A | 111 | 11 | 10B | 1 | C322 | B | 64 | 23 | 3D | 4 | C533 | B | 275 | 8 | 11E | 6 |
| C171 | A | 120 | 22 | 10B | 2 | C323 | B | 69 | 23 | 3C | 4 | C537 | B | 232 | 34 | 4C | 6 |
| C171 | A | 120 | 22 | 10B | 1 | C324 | A | 69 | 20 | 3C | 4 | C538 | B | 225 | 33 | 4D | 6 |
| C173 | B | 136 | 24 | 11C | 2 | C325 | A | 76 | 23 | 3C | 4 | C539 | B | 204 | 25 | 2C | 6 |
| C173 | B | 136 | 24 | 11C | 1 | C326 | A | 76 | 20 | 3C | 4 | C540 | B | 201 | 19 | 2C | 6 |

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| Part | Side | X | Y | Sqr | Pg | Part | Side | X | Y | Sqr | Pg | Part | Side | X | Y | Sqr | Pg |
|--------|------|-----|-----|-----|----|--------|------|-----|----|-----|----|--------|------|-----|-----|-----|----|
| C541 | B | 300 | 30 | 9E | 6 | D135-A | B | 156 | 37 | 8B | 1 | D440-A | B | 224 | 103 | 5D | 5 |
| C542 | B | 233 | 29 | 4C | 6 | D135-B | | | | 9B | 1 | D440-B | | | | 6A | 5 |
| C543 | B | 241 | 29 | 4C | 6 | D135-C | | | | 8B | 1 | D450 | B | 241 | 102 | 7D | 5 |
| C555 | B | 220 | 46 | 6C | 6 | D135-D | | | | 9B | 1 | D500-A | B | 201 | 33 | 3D | 6 |
| C556 | B | 205 | 36 | 6B | 6 | D135-G | | | | 7A | 1 | D500-B | | | | 7A | 6 |
| C567 | A | 266 | 20 | 11C | 6 | D150-A | B | 112 | 31 | 10E | 2 | D510-A | B | 286 | 27 | 8E | 6 |
| C568 | B | 260 | 11 | 11C | 6 | D150-B | | | | 8A | 2 | D510-B | | | | 7A | 6 |
| C575 | A | 253 | 28 | 3B | 6 | D150-A | B | 112 | 31 | 10E | 1 | D545-A | B | 210 | 46 | 6C | 6 |
| C578 | A | 261 | 24 | 2A | 6 | D150-B | | | | 8A | 1 | D545-B | | | | 6B | 6 |
| C579 | A | 267 | 24 | 2A | 6 | D160-A | B | 127 | 67 | 10D | 2 | D545-C | | | | 4A | 6 |
| C580 | A | 222 | 33 | 1A | 6 | D160-B | | | | 8A | 2 | D550-A | B | 261 | 43 | 7D | 6 |
| C581 | A | 216 | 33 | 1A | 6 | D160-A | B | 127 | 67 | 10D | 1 | D550-B | | | | 8C | 6 |
| C582 | A | 298 | 30 | 3A | 6 | D160-B | | | | 8A | 1 | D550-C | | | | 8D | 6 |
| C583 | A | 291 | 30 | 3A | 6 | D206-A | B | 110 | 78 | 3D | 3 | D550-D | | | | 7C | 6 |
| C584 | A | 291 | 40 | 4A | 6 | D206-B | | | | 2A | 3 | D550-E | | | | 6A | 6 |
| C585 | A | 301 | 44 | 4A | 6 | D210-A | B | 109 | 54 | 5D | 3 | D555-A | B | 243 | 44 | 7C | 6 |
| C586 | A | 213 | 41 | 4A | 6 | D210-B | | | | 4A | 3 | D555-B | | | | 5A | 6 |
| C587 | A | 246 | 41 | 5A | 6 | D230-A | B | 97 | 39 | 6D | 3 | G100 | B | 25 | 92 | 3B | 2 |
| C588 | B | 211 | 53 | 2B | 6 | D230-B | | | | 7A | 3 | G100 | B | 25 | 92 | 3B | 1 |
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| C590 | A | 267 | 44 | 6A | 6 | D250-B | | | | 5A | 3 | L10 | B | 89 | 22 | 2B | 1 |
| C591 | A | 267 | 37 | 6A | 6 | D255-A | B | 69 | 92 | 10D | 3 | L12 | B | 171 | 18 | 2B | 2 |
| C592 | A | 261 | 36 | 6A | 6 | D255-B | | | | 6A | 3 | L12 | B | 171 | 18 | 2B | 1 |
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| C594 | A | 207 | 29 | 7A | 6 | D260-B | | | | 7A | 3 | L13 | B | 176 | 21 | 2A | 1 |
| C595 | A | 203 | 33 | 6A | 6 | D301-A | B | 64 | 39 | 10C | 4 | L140 | B | 130 | 28 | 6F | 2 |
| C596 | A | 286 | 27 | 7A | 6 | D301-B | | | | 2A | 4 | L140 | B | 130 | 28 | 6F | 1 |
| C597 | A | 279 | 30 | 8A | 6 | D302-A | B | 49 | 24 | 5C | 4 | L401 | B | 190 | 80 | 2E | 5 |
| C598 | A | 283 | 30 | 7A | 6 | D302-B | | | | 3A | 4 | L403 | B | 191 | 74 | 2D | 5 |
| C599 | B | 224 | 53 | 2B | 6 | D303-A | B | 41 | 50 | 8D | 4 | L405 | B | 199 | 70 | 2D | 5 |
| D10A | B | 160 | 74 | 6E | 2 | D303-B | | | | 8C | 4 | L472 | B | 293 | 72 | 9C | 5 |
| D10A | B | 160 | 74 | | | D303-C | | | | 4A | 4 | L473 | B | 283 | 93 | 9E | 5 |
| D10A | B | 160 | 74 | 6E | 1 | D304-A | B | 20 | 50 | 7D | 4 | L500 | B | 246 | 52 | 3E | 6 |
| D100 | B | 87 | 89 | 3B | 2 | D304-B | | | | 7D | 4 | L501 | B | 259 | 52 | 4E | 6 |
| D100 | B | 87 | 89 | 3B | 1 | D304-C | | | | 6A | 4 | L502 | B | 272 | 52 | 4E | 6 |
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| D110 | B | 128 | 104 | 8E | 2 | D311-A | B | 81 | 27 | 5E | 4 | L592 | B | 218 | 60 | 2B | 6 |
| D110 | B | 128 | 104 | 8E | 1 | D311-B | | | | 1A | 4 | N100-A | B | 178 | 45 | 2E | 2 |
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| D120-B | | | | 6A | 1 | D402-A | B | 230 | 71 | 3D | 5 | N100-B | | | | 3E | 1 |
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| D125-B | | | | 7A | 1 | D402-E | | | | 4A | 5 | N490-A | B | 269 | 92 | 11D | 5 |
| D135-E | B | 156 | 37 | 9E | 3 | D403-A | B | 217 | 82 | 3D | 5 | N490-B | | | | 8A | 5 |
| D135-F | | | | 8C | 4 | D403-B | | | | 2A | 5 | N510-A | B | 216 | 33 | 3D | 6 |
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| D135-C | | | | 8B | 2 | D430-A | B | 224 | 91 | 5E | 5 | N530-A | B | 267 | 24 | 9C | 6 |
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| ROHDE & SCHWARZ | -I | Datum Date | XY-Liste für XY-list for | Sach-Nummer Stock-Nr | Blatt Page |
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| | | 02 02.11.93 | ED RECHNER PROCESSOR | 1062.6309.01 XY | 3+ |

| Part | Side | X | Y | Sqr | Pg | Part | Side | X | Y | Sqr | Pg | Part | Side | X | Y | Sqr | Pg |
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| N540-B | | | | 2A | 6 | R136 | B | 178 | 66 | 5D | 2 | R161-B | | | | 9C | 2 |
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| R100 | A | 180 | 59 | 4F | 2 | R140 | A | 91 | 74 | 3C | 2 | R161-F | | | | 9D | 2 |
| R100 | A | 180 | 59 | 2F | 1 | R140 | A | 91 | 74 | 3C | 1 | R161-G | | | | 9D | 2 |
| R101 | A | 178 | 64 | 4E | 2 | R141 | A | 97 | 92 | 4C | 2 | R161-H | | | | 9D | 2 |
| R101 | A | 178 | 64 | 2F | 1 | R141 | A | 97 | 92 | 4C | 1 | R161-A | B | 131 | 50 | 9C | 1 |
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| R109 | B | 175 | 49 | 3E | 2 | R145 | B | 161 | 104 | 6C | 2 | R161-H | | | | 9D | 1 |
| R110 | B | 185 | 36 | 3E | 2 | R145 | B | 161 | 104 | 6C | 1 | R163-A | B | 131 | 48 | 10D | 2 |
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| R111 | A | 123 | 19 | 2E | 2 | R146 | B | 177 | 94 | 7C | 1 | R163-C | | | | 10D | 2 |
| R111 | A | 123 | 19 | 3E | 1 | R147 | B | 150 | 107 | 7F | 2 | R163-D | | | | 10D | 2 |
| R112 | A | 114 | 22 | 2D | 2 | R147 | B | 150 | 107 | 7F | 1 | R163-E | | | | 10D | 2 |
| R112 | A | 114 | 22 | 2D | 1 | R148 | A | 163 | 82 | 6F | 2 | R163-F | | | | 10D | 2 |
| R113 | B | 175 | 39 | 3D | 2 | R148 | A | 163 | 82 | 6F | 1 | R163-G | | | | 10D | 2 |
| R113 | B | 175 | 39 | 3E | 1 | R149 | B | 181 | 81 | 6F | 2 | R163-H | | | | 10D | 2 |
| R114 | B | 185 | 51 | 3E | 2 | R149 | B | 181 | 81 | 6F | 1 | R163-A | B | 131 | 48 | 10D | 1 |
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| R115 | B | 168 | 66 | 4E | 2 | R150 | B | 154 | 104 | 8F | 1 | R163-C | | | | 10D | 1 |
| R115 | B | 168 | 66 | 3E | 1 | R151 | A | 151 | 79 | 8F | 2 | R163-D | | | | 10D | 1 |
| R120 | B | 144 | 19 | 4D | 2 | R151 | A | 151 | 79 | 8F | 1 | R163-E | | | | 10D | 1 |
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| R121 | B | 144 | 22 | 4D | 1 | R153 | A | 125 | 102 | 8F | 2 | R163-H | | | | 10D | 1 |
| R122 | B | 149 | 19 | 4D | 2 | R153 | A | 125 | 102 | 8F | 1 | R165 | A | 112 | 36 | 10E | 2 |
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| R123 | B | 149 | 22 | 4D | 1 | R156 | B | 138 | 81 | 9E | 2 | R166 | A | 128 | 62 | 10D | 1 |
| R124 | B | 164 | 104 | 4D | 2 | R156 | B | 138 | 81 | 9E | 1 | R170 | B | 156 | 104 | 5C | 2 |
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| R125 | A | 165 | 94 | 4D | 1 | R160-A | B | 125 | 76 | 9D | 2 | R171 | A | 163 | 94 | 5C | 1 |
| R126 | B | 166 | 104 | 4D | 2 | R160-B | | | | 9D | 2 | R172 | A | 155 | 94 | 5C | 2 |
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| R127 | A | 111 | 25 | 4D | 1 | R160-F | | | | 9D | 2 | R174 | B | 169 | 104 | 5C | 1 |
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| R130 | A | 165 | 82 | 5E | 1 | R160-H | | | | 9D | 2 | R175 | B | 177 | 88 | 7B | 1 |
| R131 | A | 168 | 82 | 5E | 2 | R160-I | | | | 9D | 2 | R176 | B | 177 | 86 | 7B | 2 |
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| R132 | B | 166 | 66 | 5E | 2 | R160-B | | | | 9D | 1 | R177 | B | 133 | 27 | 11C | 2 |
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| ROHDE & SCHWARZ | -I | Datum Date | XY-Liste für XY-list for | Sach-Nummer Stock-Nr | Blatt Page |
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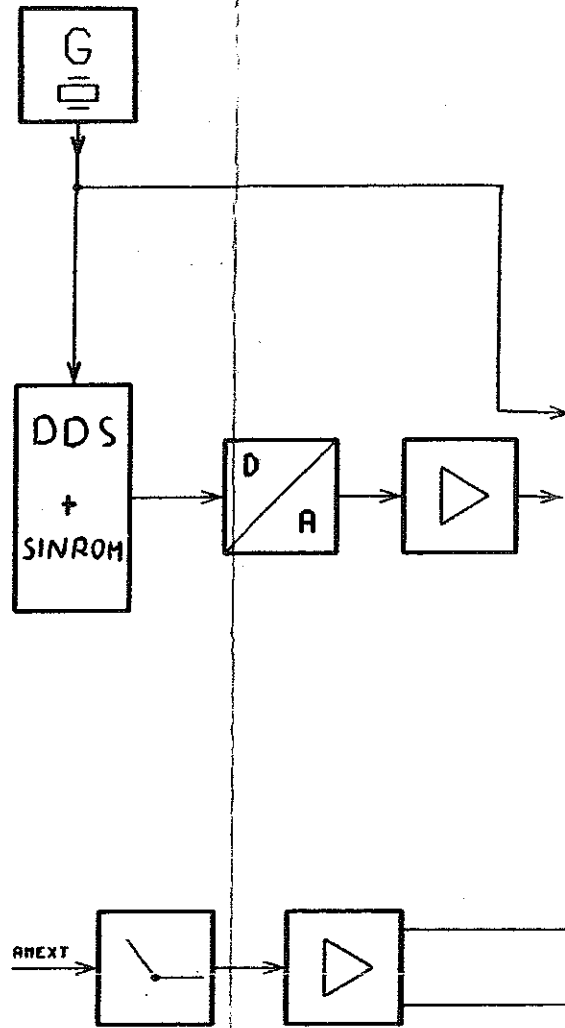
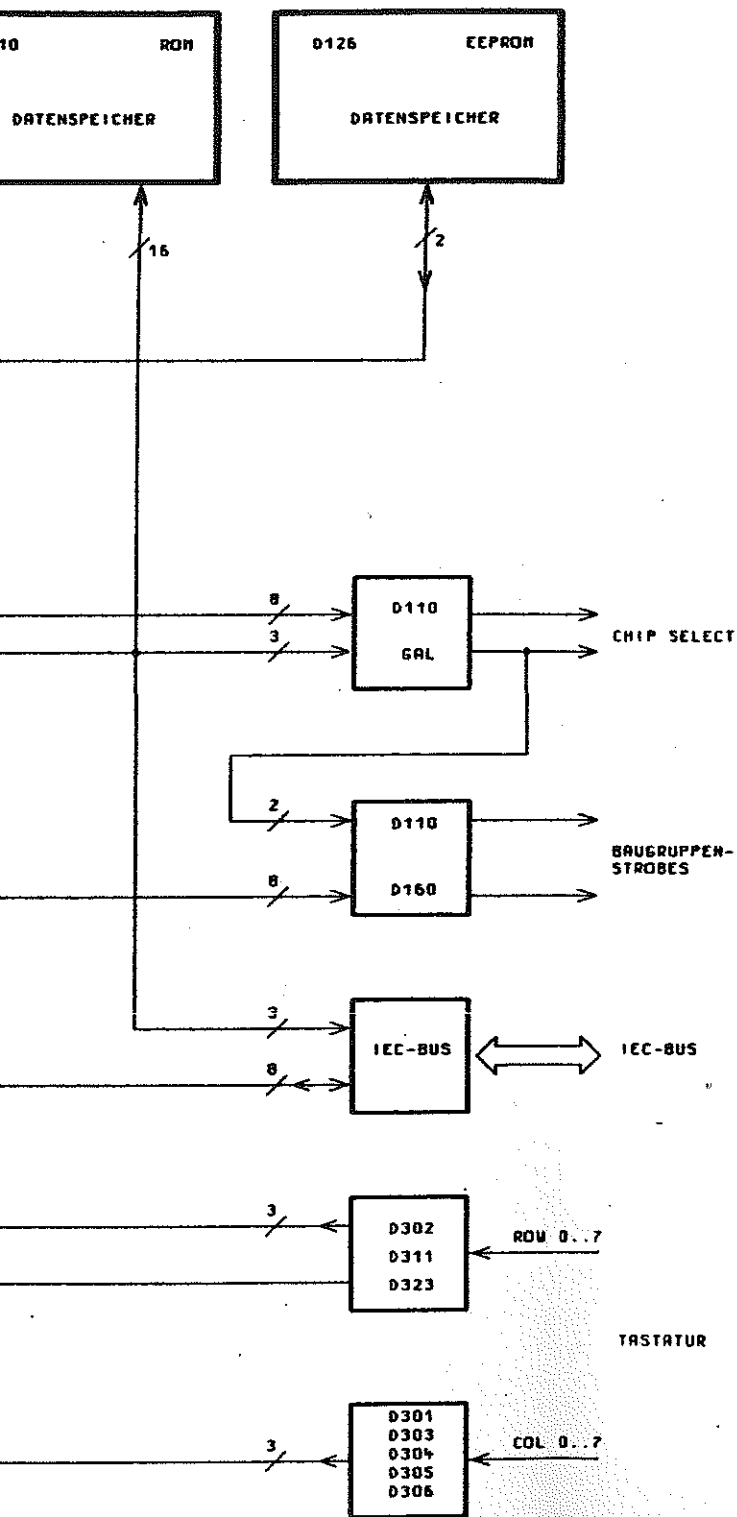
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| R180 | A | 154 | 79 | 6C | 2 | R404 | B | 189 | 45 | 2B | 5 | R543 | A | 190 | 4 | 1C | 6 |
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| R204 | A | 88 | 74 | 5E | 3 | R412 | B | 192 | 57 | 2C | 5 | R547 | B | 236 | 22 | 4C | 6 |
| R205 | A | 91 | 84 | 5E | 3 | R413 | B | 189 | 48 | 2C | 5 | R548 | B | 236 | 25 | 4B | 6 |
| R220 | A | 54 | 63 | 7D | 3 | R423 | B | 220 | 108 | 4D | 5 | R549 | B | 223 | 25 | 4B | 6 |
| R221 | A | 43 | 63 | 7E | 3 | R424 | B | 204 | 90 | 4D | 5 | R551 | A | 212 | 44 | 5C | 6 |
| R250-A | B | 62 | 53 | 7D | 3 | R427 | B | 224 | 108 | 4C | 5 | R552 | B | 223 | 39 | 5B | 6 |
| R250-B | | | | 7D | 3 | R428 | B | 204 | 105 | 4C | 5 | R553 | B | 253 | 28 | 3B | 6 |
| R250-C | | | | 7D | 3 | R430 | B | 227 | 105 | 5D | 5 | R555 | A | 208 | 43 | 5C | 6 |
| R250-D | | | | 7D | 3 | R451 | B | 263 | 74 | 8D | 5 | R556 | B | 223 | 36 | 5B | 6 |
| R250-E | | | | 7D | 3 | R460 | B | 275 | 73 | 8D | 5 | R557 | B | 203 | 44 | 5C | 6 |
| R250-F | | | | 7D | 3 | R461 | B | 283 | 69 | 8D | 5 | R558 | A | 217 | 40 | 5B | 6 |
| R250-G | | | | 7D | 3 | R462 | B | 280 | 69 | 9D | 5 | R559 | A | 208 | 40 | 5B | 6 |
| R250-H | | | | 7D | 3 | R463 | B | 277 | 73 | 9D | 5 | R560 | A | 217 | 43 | 5C | 6 |
| R251 | A | 150 | 41 | 9E | 3 | R469 | B | 280 | 82 | 9E | 5 | R561 | B | 290 | 34 | 8E | 6 |
| R252 | B | 58 | 53 | 8D | 3 | R470 | B | 286 | 87 | 9D | 5 | R564 | A | 271 | 25 | 9C | 6 |
| R301 | A | 81 | 30 | 4E | 4 | R471 | B | 287 | 78 | 9D | 5 | R566 | B | 271 | 20 | 9C | 6 |
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| R303 | B | 36 | 26 | 5E | 4 | R473 | B | 289 | 87 | 9D | 5 | R568 | B | 263 | 9 | 11C | 6 |
| R304 | B | 36 | 31 | 5E | 4 | R474 | B | 291 | 83 | 10D | 5 | R570 | A | 250 | 44 | 7C | 6 |
| R305 | A | 56 | 29 | 5E | 4 | R475 | B | 285 | 75 | 9C | 5 | R571 | B | 271 | 27 | 9C | 6 |
| R306 | A | 56 | 27 | 5E | 4 | R480 | B | 269 | 70 | 10E | 5 | R572 | A | 258 | 24 | 10C | 6 |
| R307 | B | 36 | 23 | 5E | 4 | R481 | B | 258 | 75 | 10E | 5 | R575 | A | 265 | 24 | 10C | 6 |
| R308 | B | 43 | 22 | 5E | 4 | R482 | B | 261 | 81 | 10D | 5 | R576 | B | 258 | 28 | 10C | 6 |
| R309 | A | 56 | 24 | 5E | 4 | R485 | B | 297 | 78 | 10D | 5 | R577 | B | 270 | 40 | 8D | 6 |
| R320 | B | 29 | 37 | 7E | 4 | R486 | B | 300 | 76 | 10D | 5 | V110 | B | 173 | 69 | 4E | 2 |
| R321 | B | 17 | 31 | 7E | 4 | R490 | B | 260 | 95 | 11D | 5 | V110 | B | 173 | 69 | 4E | 1 |
| R322 | B | 29 | 30 | 7E | 4 | R491 | B | 259 | 104 | 11E | 5 | V120 | A | 117 | 28 | 3D | 2 |
| R323 | B | 17 | 42 | 7E | 4 | R500 | B | 238 | 62 | 3E | 6 | V120 | A | 117 | 28 | 3D | 1 |
| R330 | A | 47 | 47 | 9D | 4 | R504 | B | 300 | 52 | 6E | 6 | V205 | A | 85 | 74 | 5E | 3 |
| R331 | A | 47 | 44 | 9D | 4 | R505 | B | 300 | 38 | 7E | 6 | V210 | B | 86 | 77 | 5E | 3 |
| R332 | A | 47 | 42 | 9D | 4 | R506 | B | 279 | 36 | 7E | 6 | V220 | A | 48 | 62 | 7D | 3 |
| R333 | B | 37 | 37 | 9D | 4 | R515 | A | 298 | 41 | 7E | 6 | V462 | B | 280 | 76 | 9D | 5 |
| R334 | B | 37 | 39 | 9D | 4 | R529 | B | 295 | 36 | 9E | 6 | V463 | B | 277 | 79 | 9E | 5 |
| R335 | B | 37 | 42 | 10D | 4 | R530 | B | 297 | 23 | 10E | 6 | V470 | B | 284 | 84 | 9E | 5 |
| R336 | B | 37 | 44 | 10D | 4 | R531 | B | 295 | 11 | 11E | 6 | V471 | B | 278 | 87 | 9D | 5 |
| R337 | B | 37 | 47 | 10D | 4 | R532 | B | 283 | 23 | 10E | 6 | V475 | B | 288 | 70 | 9C | 5 |
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| R401 | A | 230 | 75 | 3E | 5 | R540 | A | 185 | 4 | 2C | 6 | V550 | A | 255 | 24 | 3C | 6 |
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| ROHDE & SCHWARZ | -I | Datum Date | XY-Liste für XY-list for | Sach-Nummer Stock-Nr | Blatt Page |
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| | | 02 02.11.93 | ED RECHNER PROCESSOR | 1062.6309.01 XY | 5- |



ROHDE & SCHWARZ

Stromläufe
Bestückungspläne
Circuit diagrams
Components plans
Schémas de circuit
Plans des composants

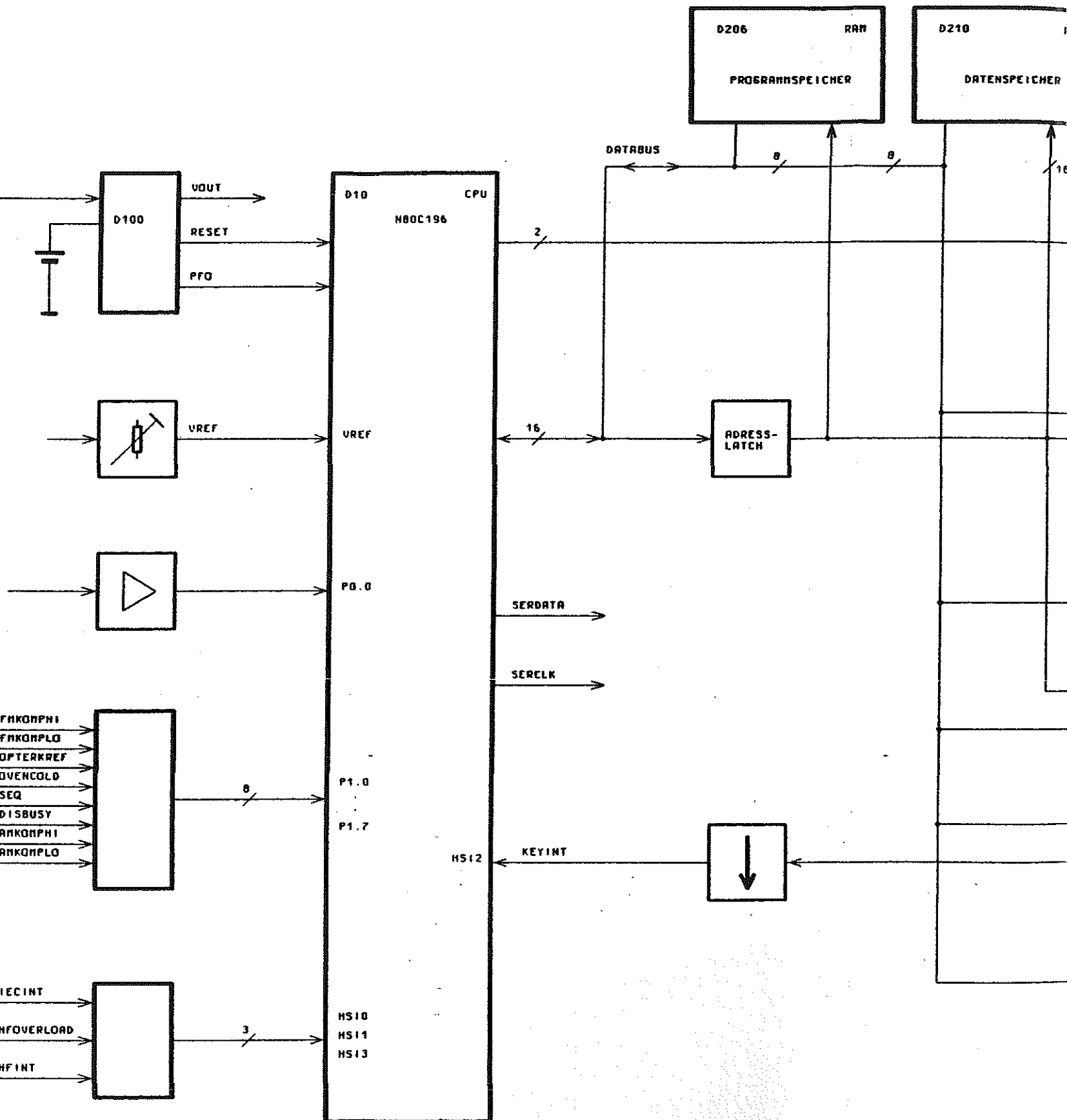


Bindende Angaben über Varianten,
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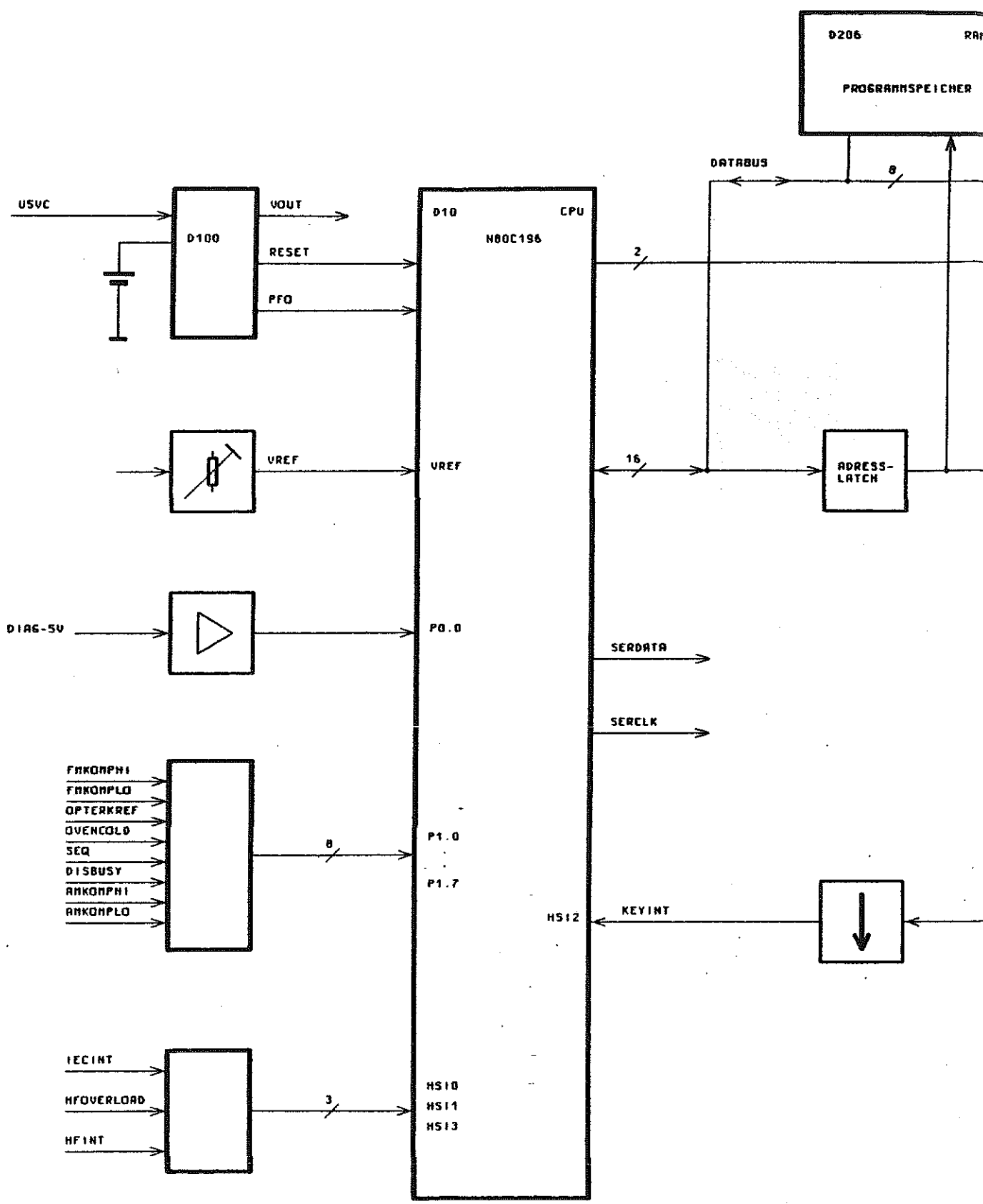
For binding information on models,
trimming and components values and
nonfitted components see parts list.



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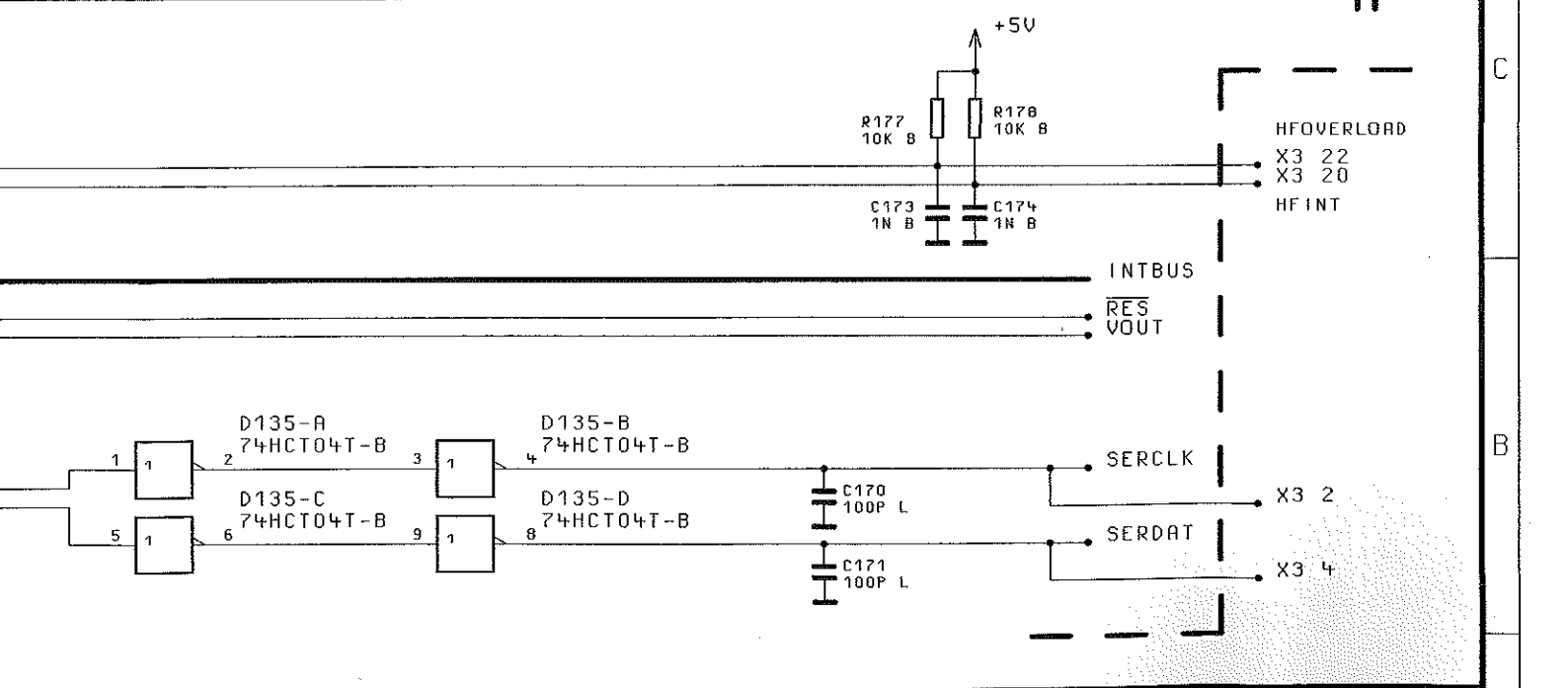
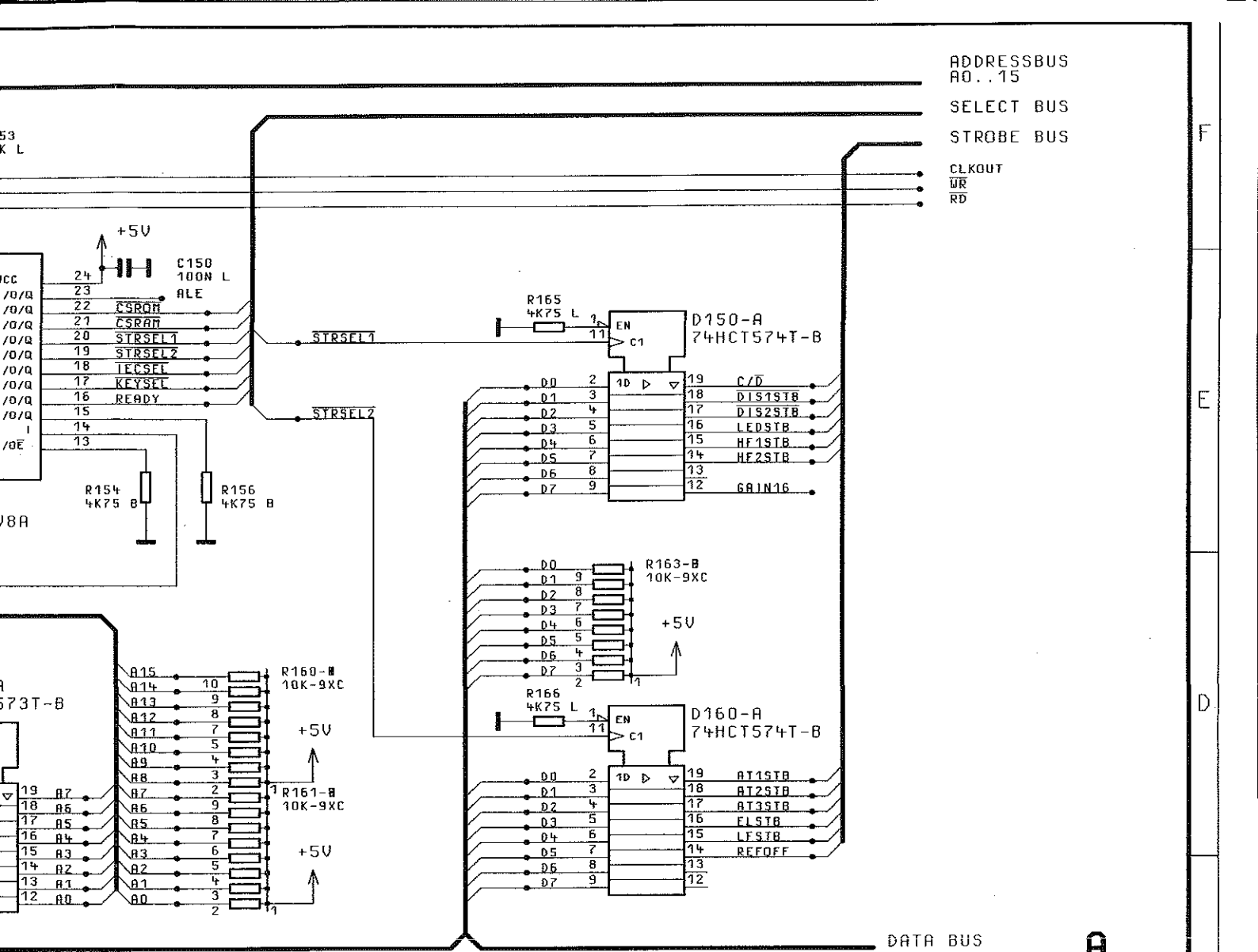


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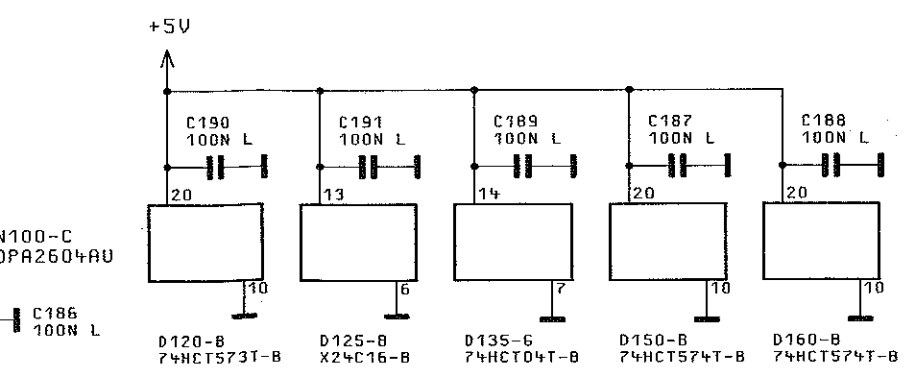
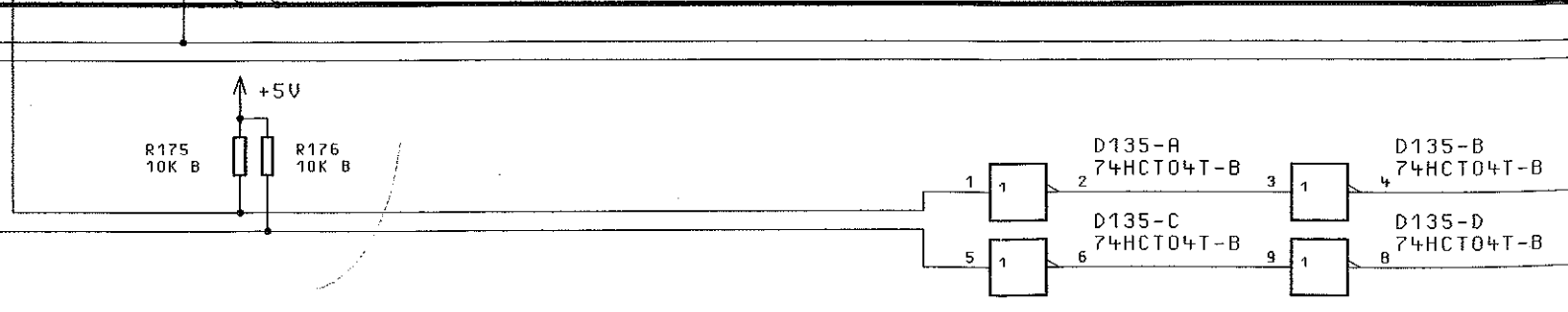
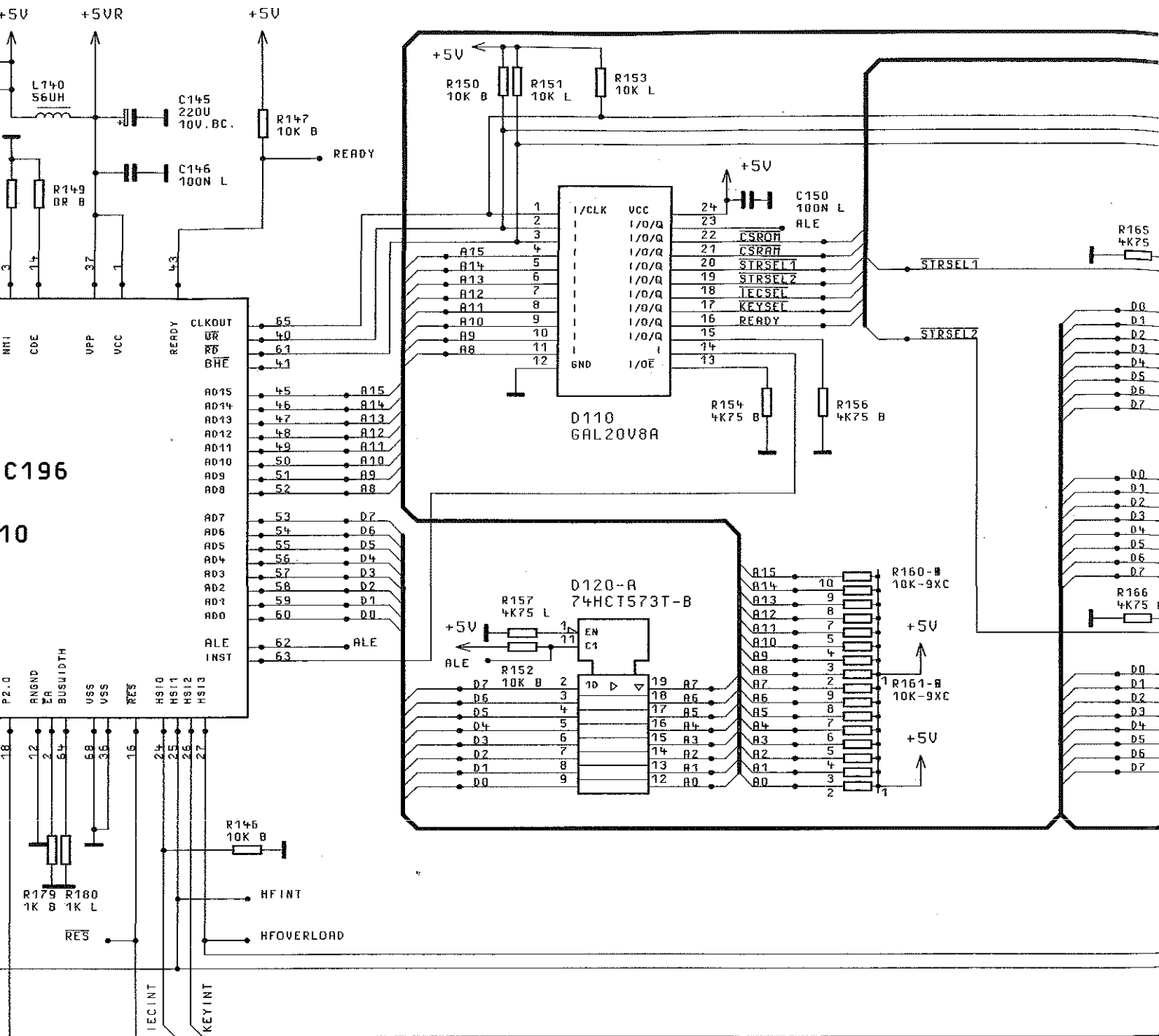


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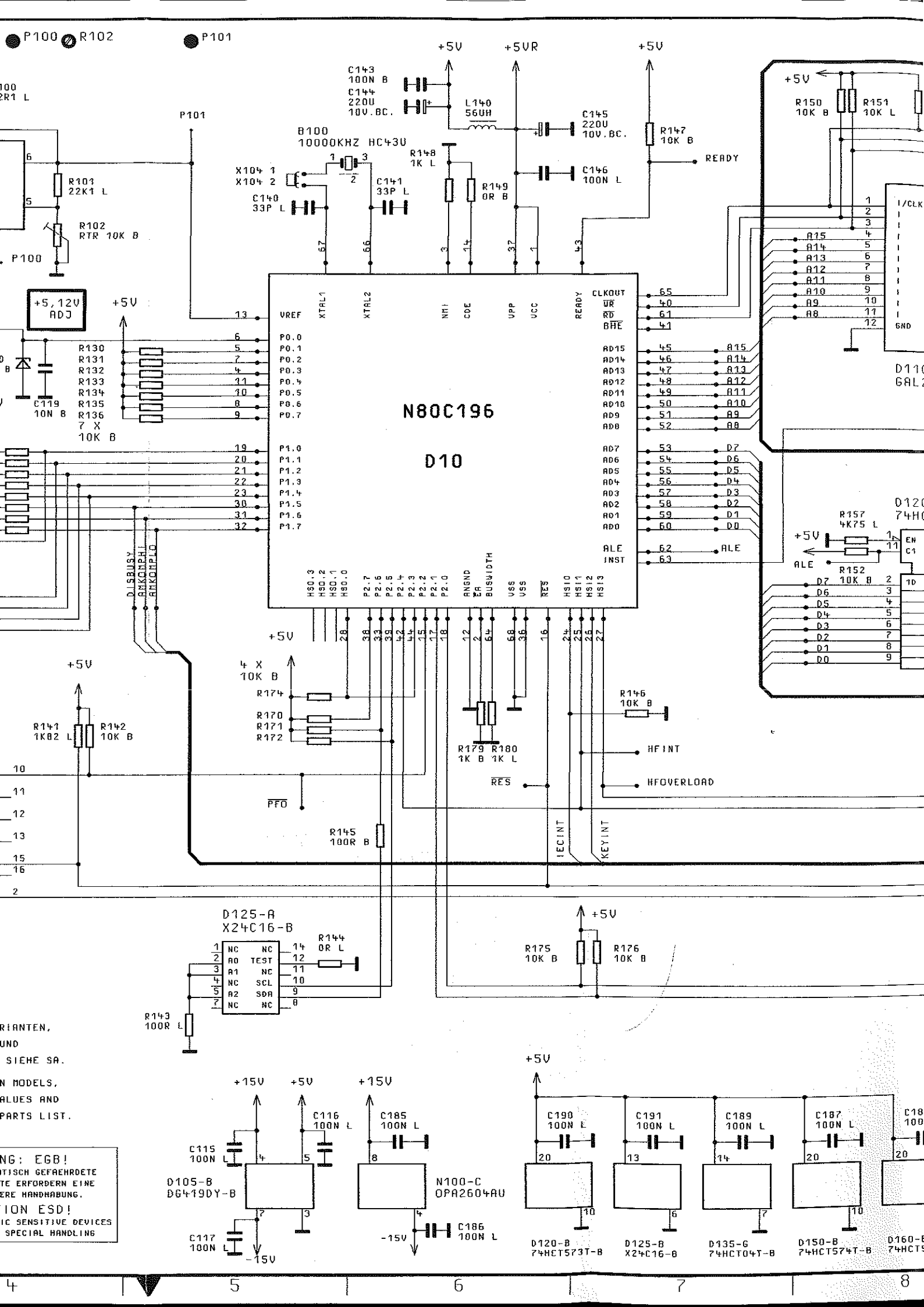
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| | | | PLOTT | 24.02.97 | | |
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| REND. IND. | ÄNDERUNGS- MITTEILUNG | DATUM | NAME | ROHDE&SCHWARZ | | BLATT-NR. 2+ v. 6 BL. |
| | | | ZU GERÄT | SMY | REG.I.V. | 1062.5502 |
| | | | | | ERSTL.Z. | 1062.5502 |



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| | | | | BEARB. | |
| | | | | GEPR. | |
| | | | | NORM | |
| | | | | PLOTT | 24.02.97 |
| 02/04 | 48169 | 12.01.95 | JN | ROHDE&SCH | |
| REND. IND. | BENDERUNGS-MITTEILUNG | DATUM | NAME | | |



P100 R102 P101

+5V +5VR +5V

C143
100N B
C144
220U
10V. BC.

B100
10000KHZ HC43U

L140
56UH

C145
220U
10V. BC.

C141
33P L

C146
100N L

+5V
R150
10K B
R151
10K L

+5, 12V
ADJ

N80C196

D10

1/CLK
1
2
3
4
5
6
7
8
9
10
11
12
GND

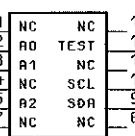
D110
GAL2

D120
74HC

R157
4K75 L

R152
10K B

D125-A
X24C16-B



R144
OR L

R143
100R L

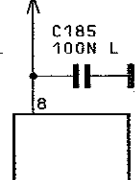
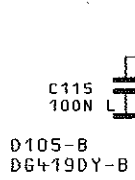
+5V

R175
10K B
R176
10K B

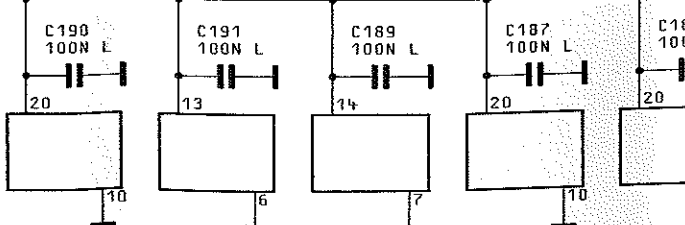
RIANTEN,
UND
SIEHE SA.
N MODELS,
VALUES AND
PARTS LIST.

NG: EGB!
TJTSCH GEFÄHROETE
TE ERFORNERN EINE
ERE HANDABUNG.
ION ESD!
IC SENSITIVE DEVICES
SPECIAL HANDLING

+15V +5V +15V



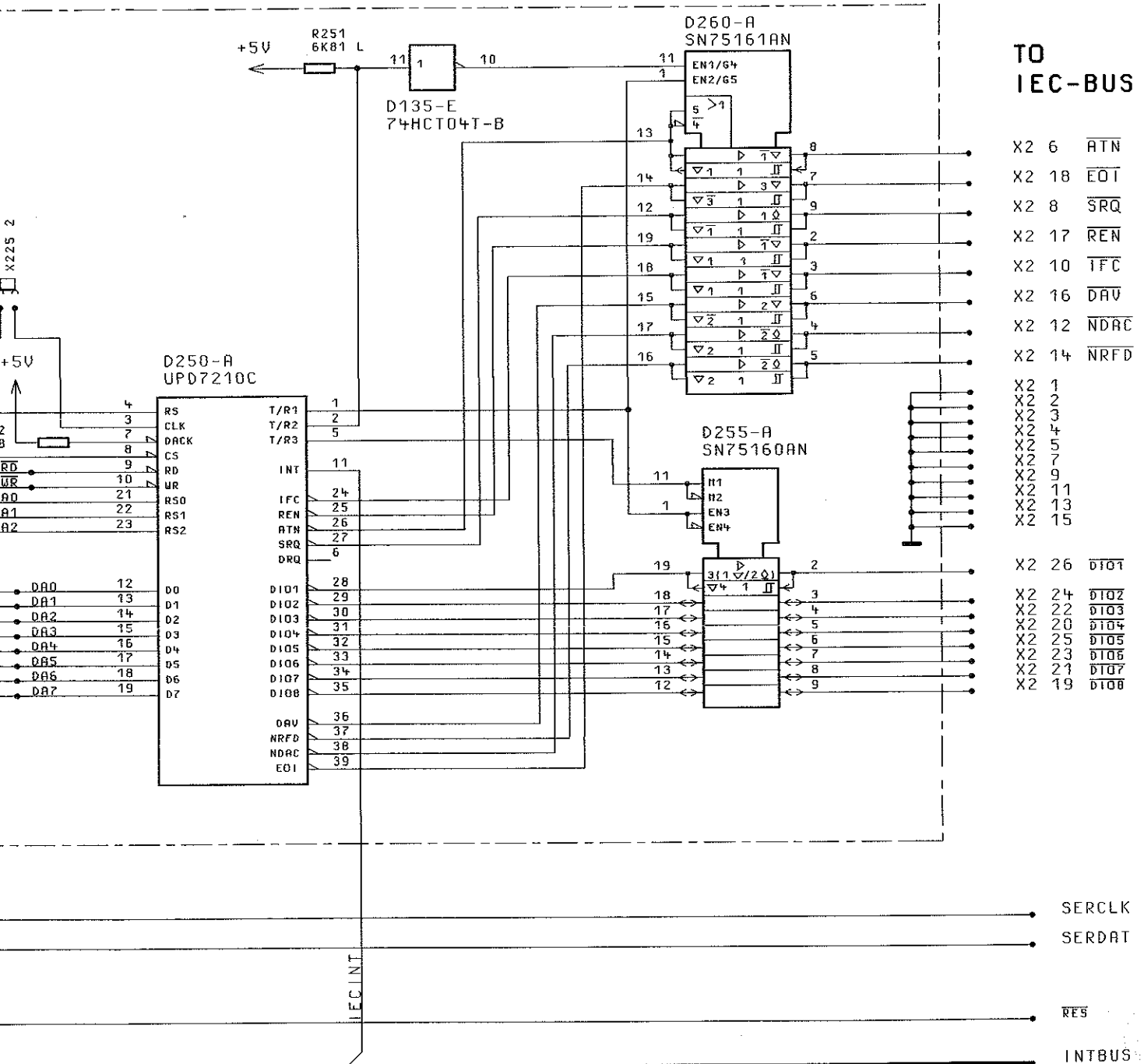
+5V



SELECT BUS

STROBE BUS

DATA BUS

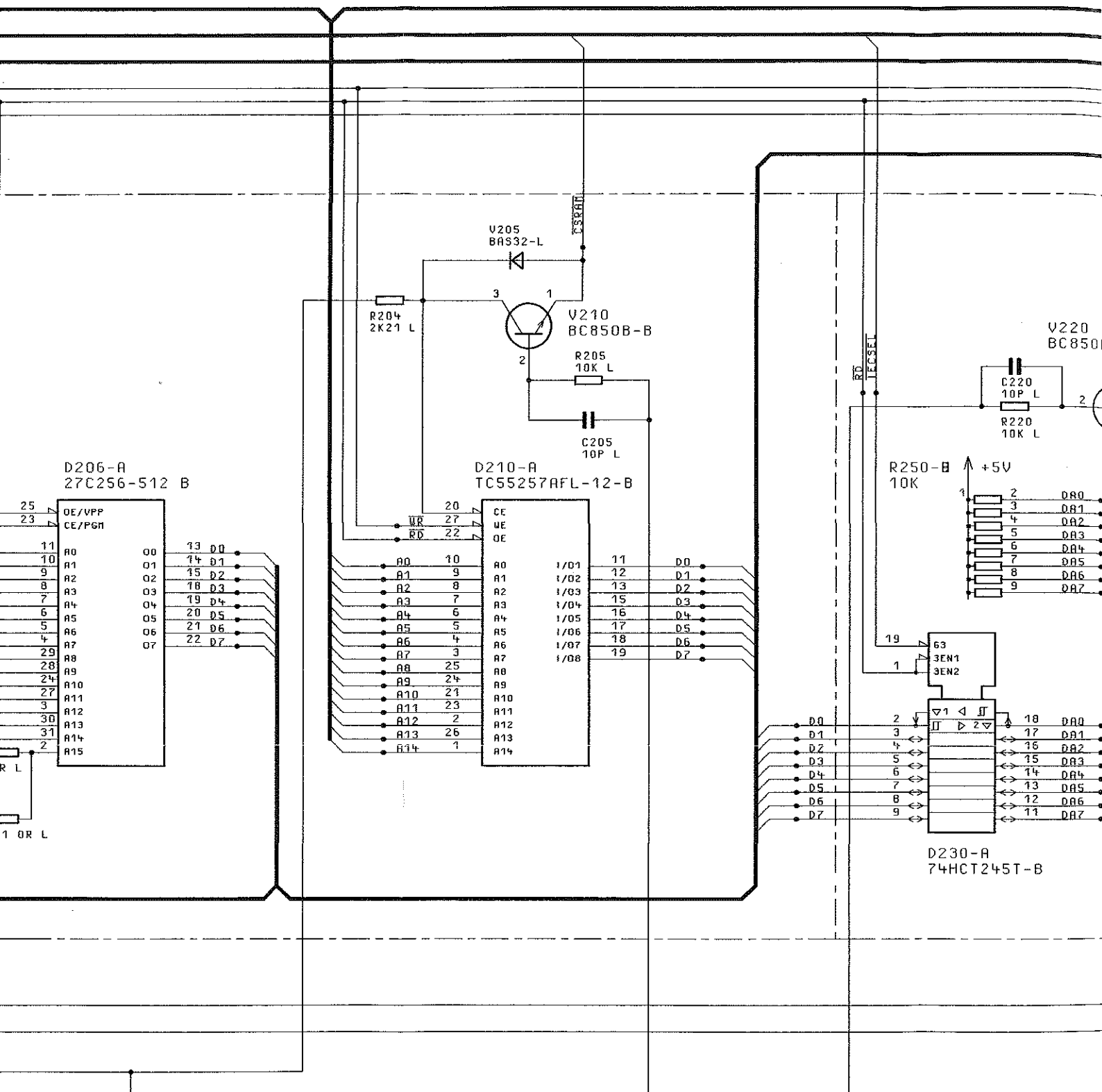


BINDENDE ANGABEN UEBER VARIANTEN,
TRIMMWERTE, BAUTEILWERTE UND
NICHT BESTUECKTE BAUTEILE SIEHE SA.

FOR BINDING INFORMATION ON MODELS,
TRIMMING AND COMPONENTS VALUES AND
NONFITTED COMPONENTS SEE PARTS LIST.

* NICHT BESTUECKEN
NOT FITTED

| | | | | | | | |
|---------------|--------------------------|----------|--------|----------|------|----------------------|-----------|
| 03/01 | 21.02.97 | E I | MENP | TAG | NAME | BENENNUNG | |
| | | | BEARB. | | E I | RECHNER PROCESSOR | |
| | | | GEPR. | | | | |
| | | | NORM | | | | |
| | | | PLOTTE | 24.02.97 | | | |
| 02/04 | 48169 | 12.01.95 | JN | | | ZEICHN.-NR. | BLATT-NR. |
| REND. IND. | ÄNDERUNGS- MITTEILUNG | DATUM | NAME | | | 1062.6309.015 | 3+ |
| | | | | | | REG. I. V. 1062.5502 | 6 |
| | | | | | | ERSTE Z. 1062.5502 | BL. |

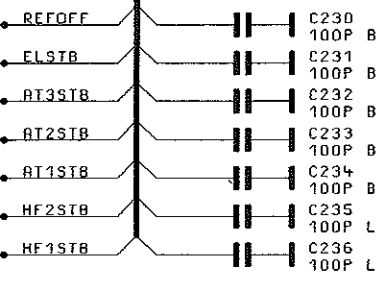


D210-B
TC55257AFL-12-B

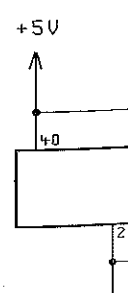
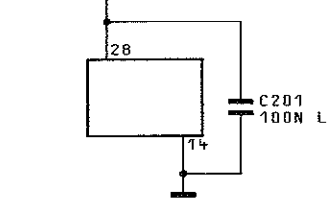
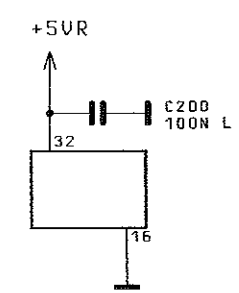
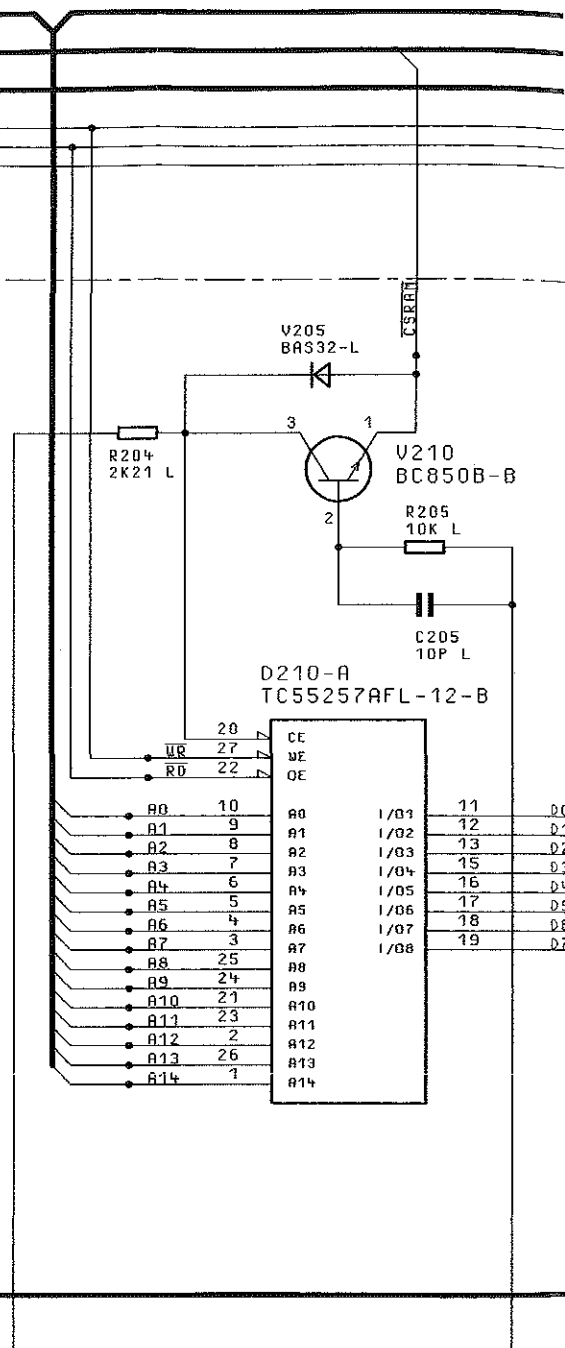
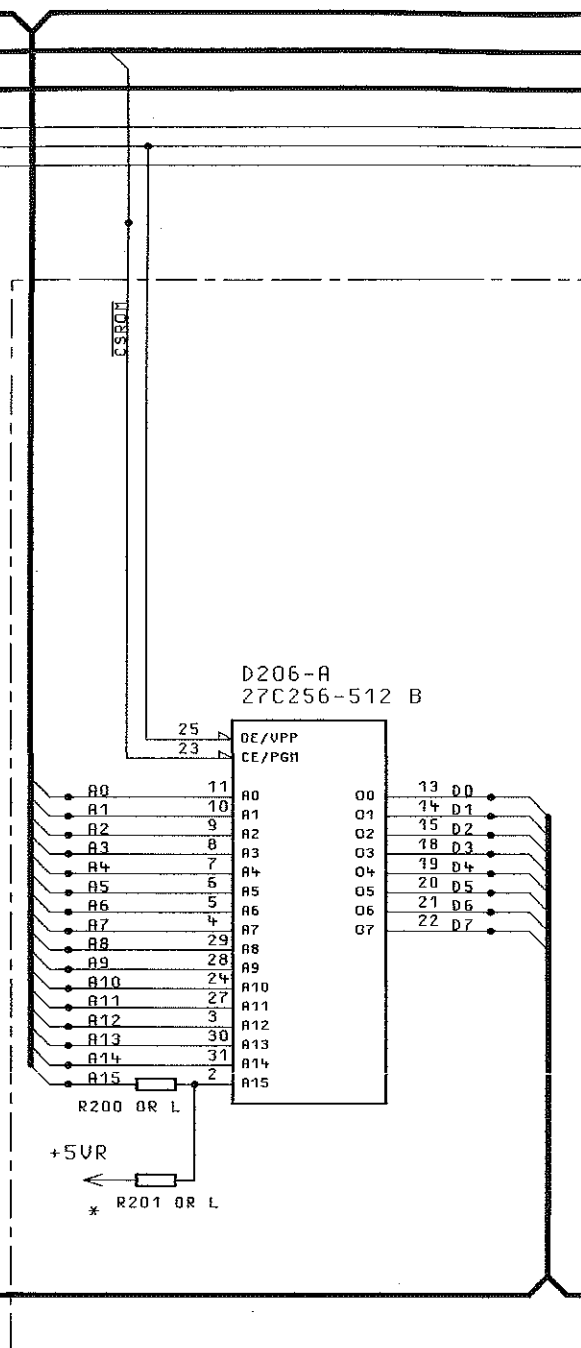
D250-B
UPD7210C

D255-B
SN75160AN

D260-B
SN75161AN

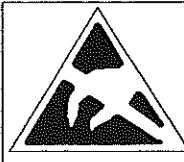
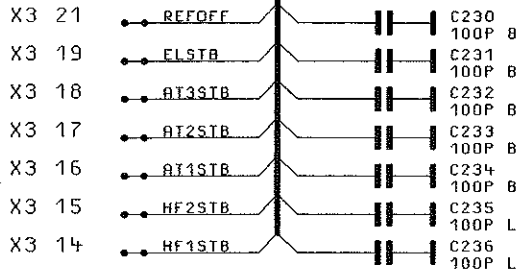


ACHTUNG: EGB!
 ELEKTROSTATISCH GEFÄHRDETE
 BAUELEMENTE ERFORDERN EINE
 BESONDERE HANDHABUNG.
ATTENTION ESD!
 ELECTROSTATIC SENSITIVE DEVICES
 REQUIRE A SPECIAL HANDLING



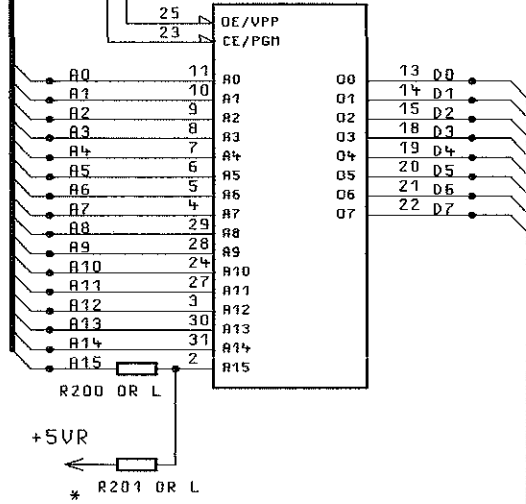
ADDRESS BUS
SELECT BUS
STROBE BUS

WR
RD
CLKOUT

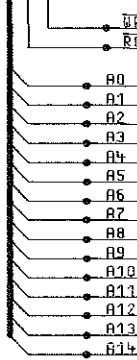


ACHTUNG: EGB!
ELEKTROSTATISCH GEFÄHRDETE
BAUELEMENTE ERFORDERN EINE
BESONDERE HANDHABUNG.
ATTENTION ESD!
ELECTROSTATIC SENSITIVE DEVICES
REQUIRE A SPECIAL HANDLING

D206-A
27C256-512 B



R204
2K21 L

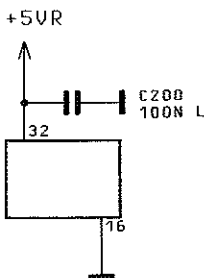


DATA BUS

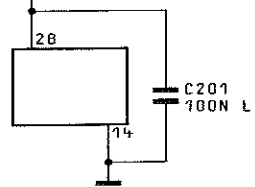
SERCLK
SERDAT

VOUT
RES

INTBUS



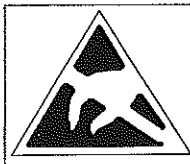
D206-B
27C256-512 B



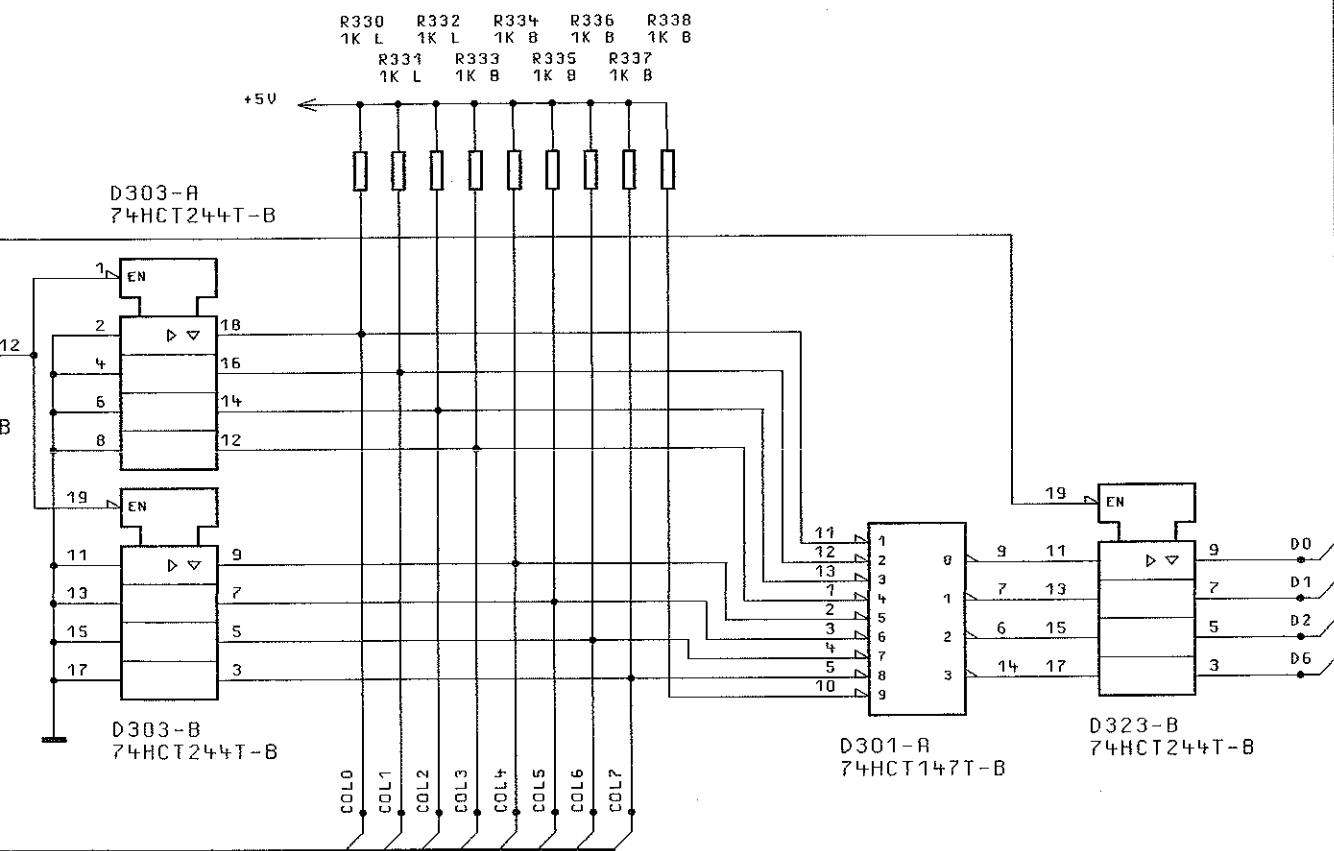
D210-B
TC55257AFL-12-B

FÜR DIESE UNTERLAGE
BEHALTEN WIR UNS ALLE RECHTE VOR

ZEICHN.-N.



ACHTUNG: EGB!
 ELEKTROSTATISCH GEFÄHRDETE
 BAUELEMENTE ERFORDERN EINE
 BESONDERE HANDHABUNG.
ATTENTION ESD!
 ELECTROSTATIC SENSITIVE DEVICES
 REQUIRE A SPECIAL HANDLING



SERCLK
SERDAT

INTBUS

BINDENDE ANGABEN UEBER VARIANTEN,
 TRIMMWERTE, BAUTEILWERTE UND
 NICHT BESTUECKTE BAUTEILE SIEHE SA.

FOR BINDING INFORMATION ON MODELS,
 TRIMMING AND COMPONENTS VALUES AND
 NONFITTED COMPONENTS SEE PARTS LIST.

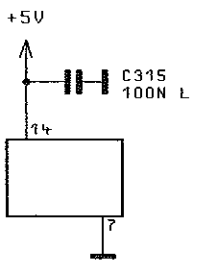
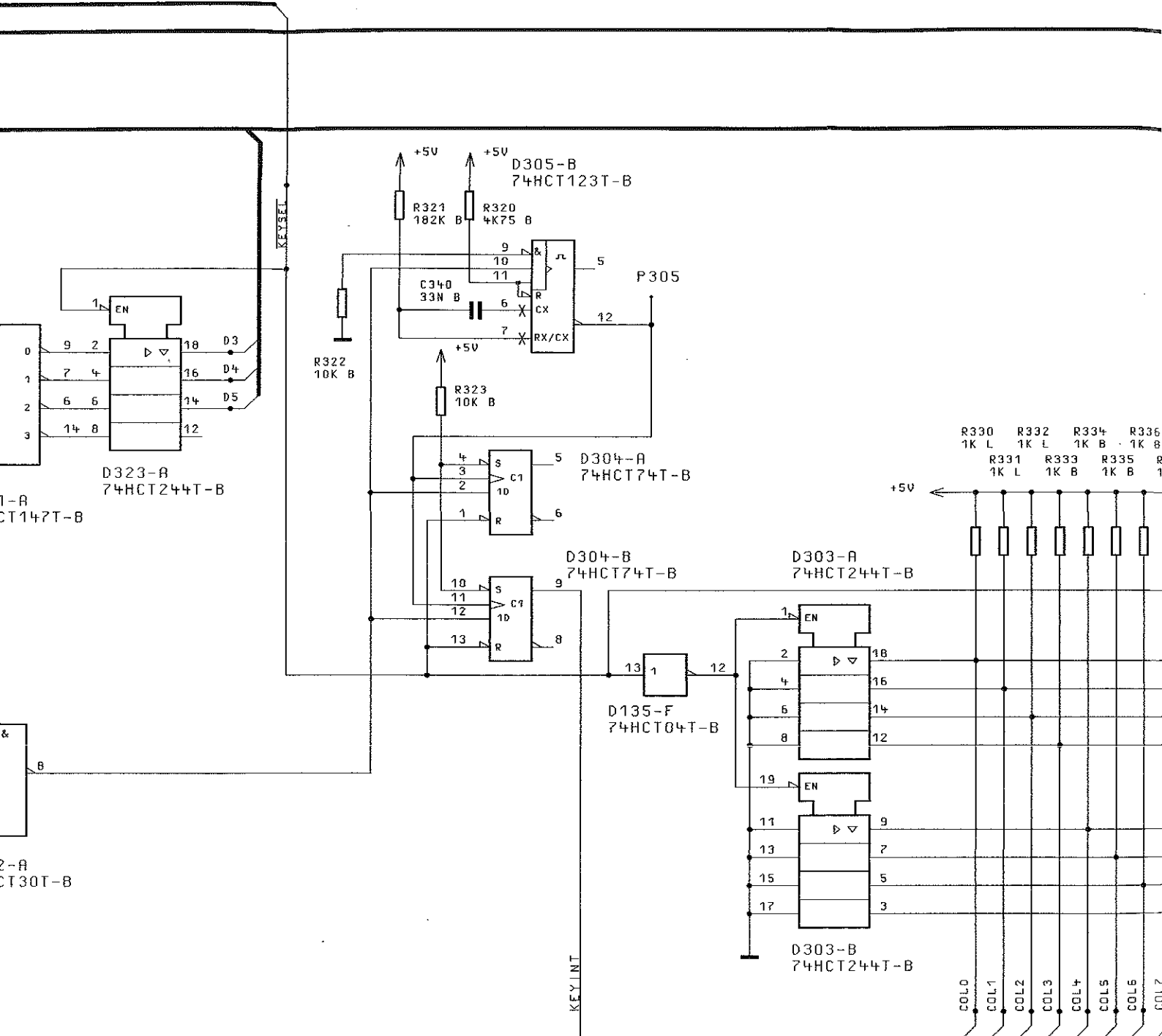
| | | | | | | | | | |
|------------|-----------------------|----------|------|----------------------------|----------|------------|------------------------------|-----------|-----------|
| 03/01 | | 21.02.97 | E I | MENP | TAG | NAME | BENENNUNG | | |
| | | | | BEARB. | | E I | RECHNER PROCESSOR | | |
| | | | | GEPR. | | | | | |
| | | | | NORM | | | | | |
| | | | | PLOTT | 21.02.97 | | | | |
| 02/04 | 48169 | 12.01.95 | JN | ROHDE & SCHWARZ | | | ZEICHN.-NR. | BLATT-NR. | |
| AEND. IND. | AENDERUNGS-MITTEILUNG | DATUM | NAME | | | | 1062.6309.01S | 4+ | |
| | | | | ZU GERÄT | SMY | REG. I. V. | 1062.5502 | ERSTE Z. | 1062.5502 |

9

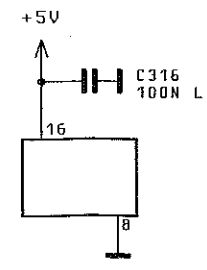
10

11

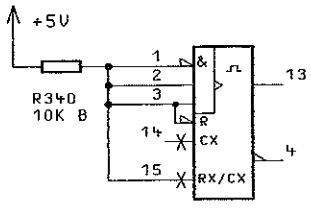
12



D304-C
74HCT74T-B



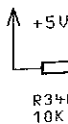
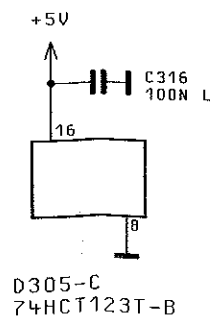
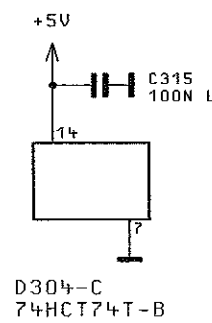
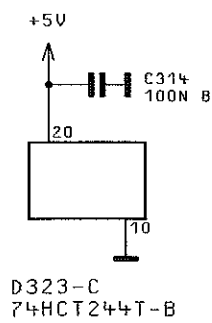
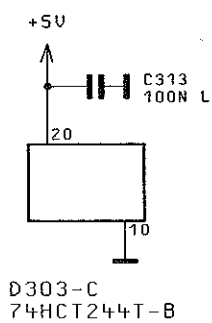
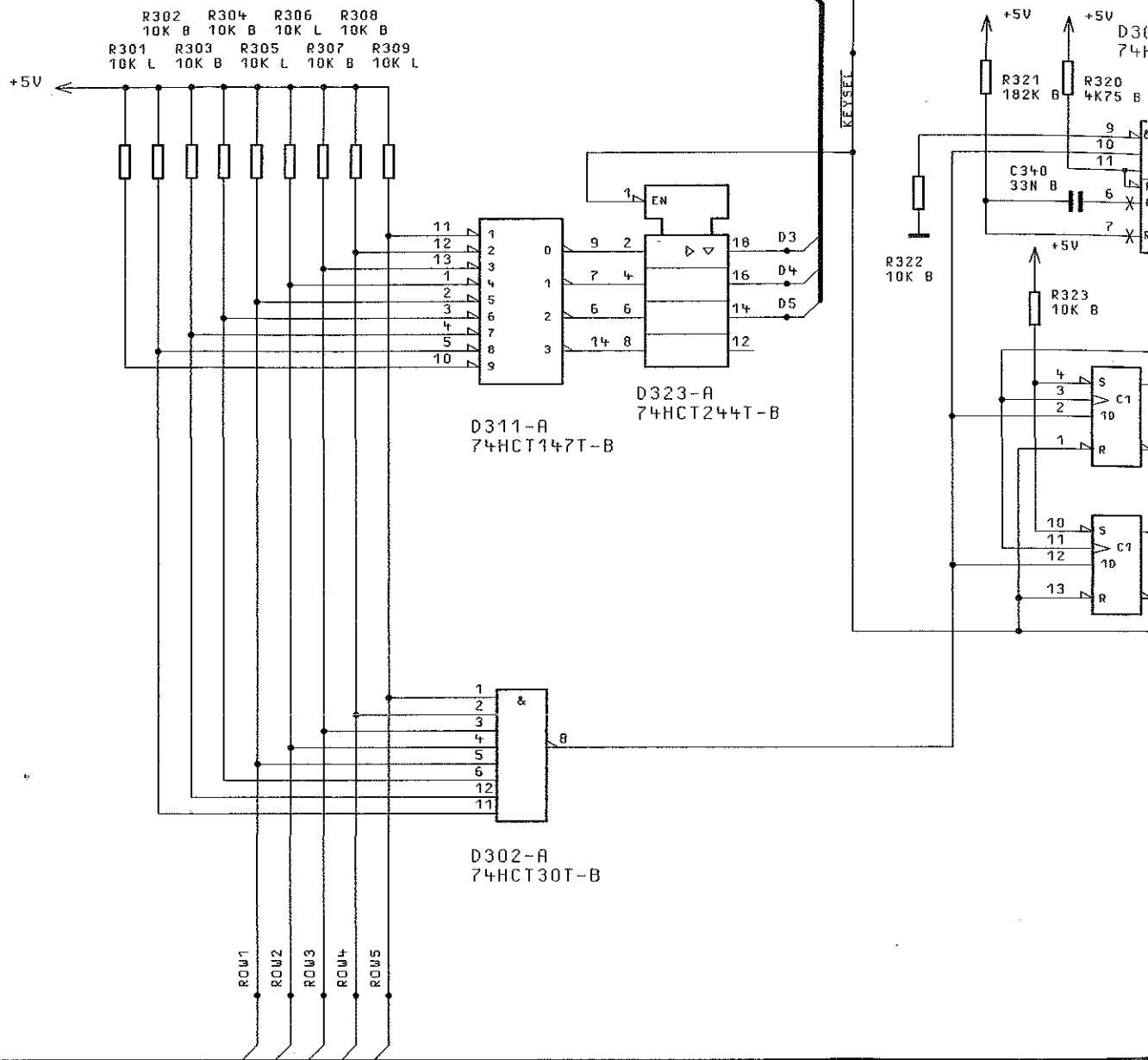
D305-C
74HCT123T-B



D305-R
74HCT123T-B

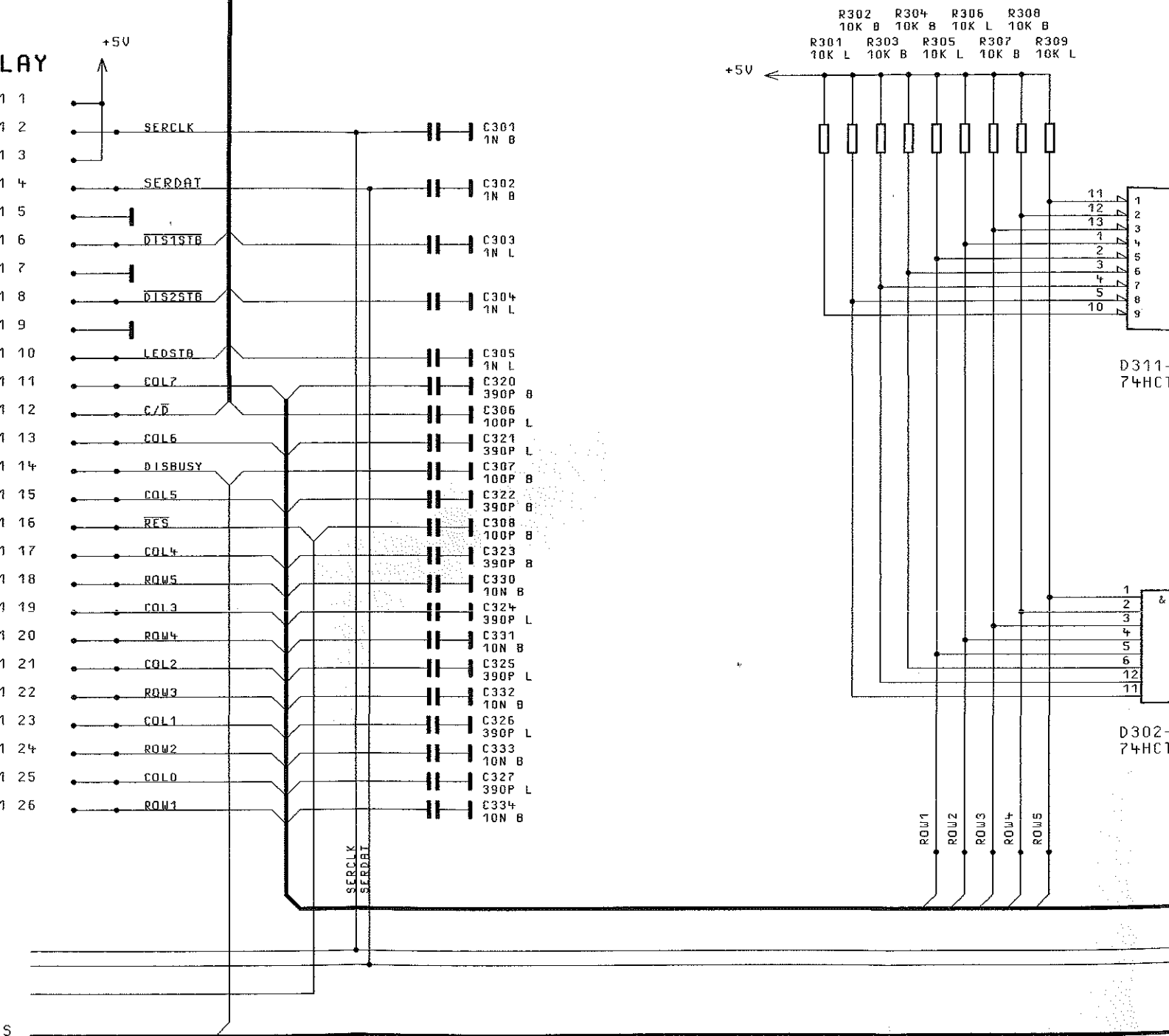
BINDENDE ANGABEN UEBER VARIANTEN,
TRIMMWERTE, BAUTEILWERTE UND
NICHT BESTUECKTE BAUTEILE SIEME SA.

| | | | | |
|---------------|--------------------------|----------|-------|---------------------|
| 03/01 | | 21.02.97 | EI | MENP |
| | | | | BEARB. |
| | | | | GEPR. |
| | | | | NORM |
| | | | | PLOTT |
| D2/04 | 48169 | 12.01.95 | JN | ROH ZU GERÄT |
| REND. IND. | ÄNDERUNGS- MITTEILUNG | DATUM | NAMEN | |

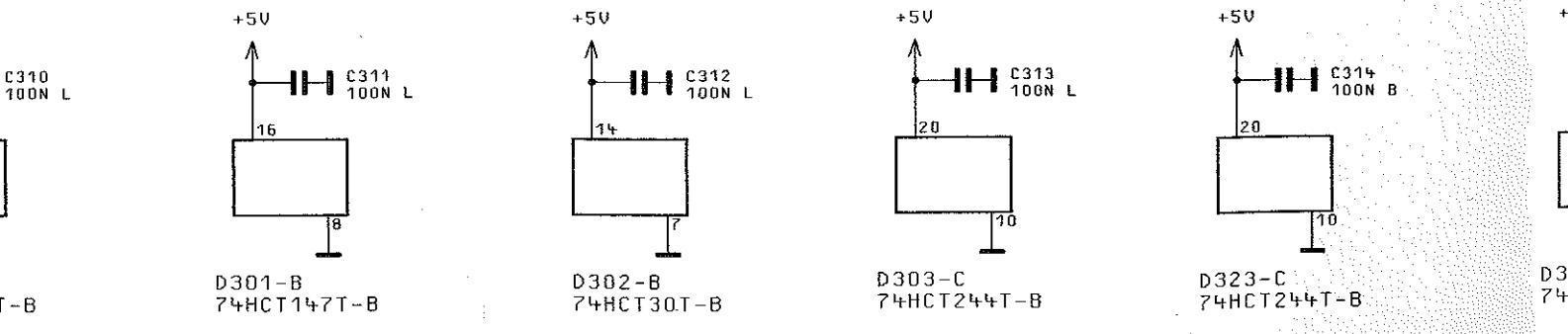


A

LAY



S



2

3

4

5

D3
74

A

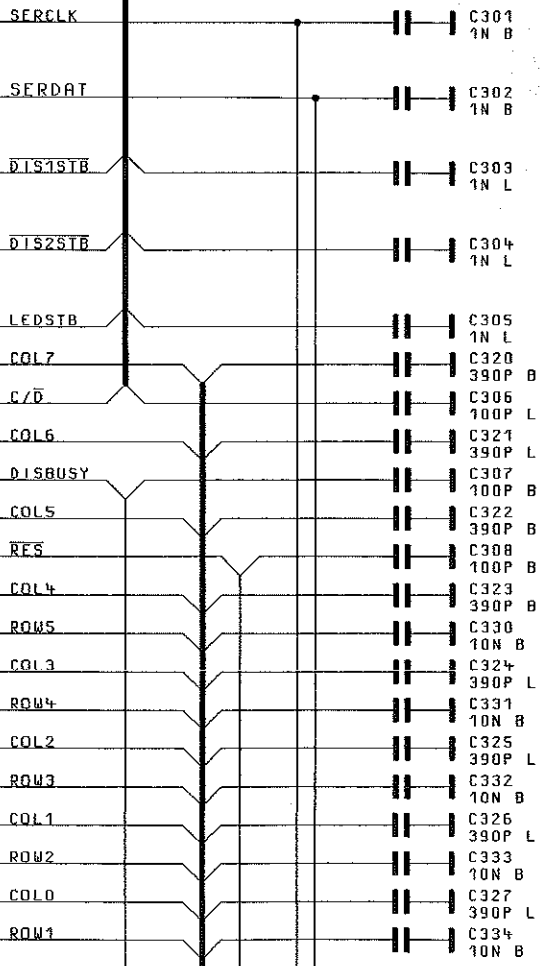
SELECTBUS
STROBEBUS

DATABUS

TO
DISPLAY

- X1 1
- X1 2
- X1 3
- X1 4
- X1 5
- X1 6
- X1 7
- X1 8
- X1 9
- X1 10
- X1 11
- X1 12
- X1 13
- X1 14
- X1 15
- X1 16
- X1 17
- X1 18
- X1 19
- X1 20
- X1 21
- X1 22
- X1 23
- X1 24
- X1 25
- X1 26

+5V



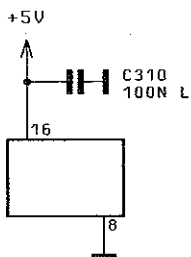
R302 R3
10K B 10
R301 R303
10K L 10K B

+5V

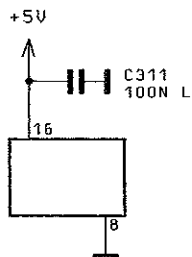
SERCLK
SERDAT

RES

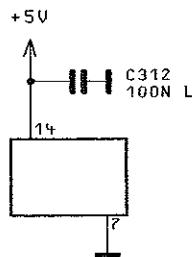
INTBUS



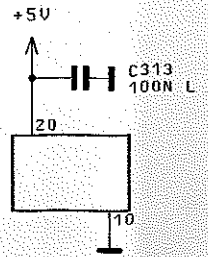
D311-B
74HCT147T-B



D301-B
74HCT147T-B



D302-B
74HCT30T-B



D303-C
74HCT244T-B

1

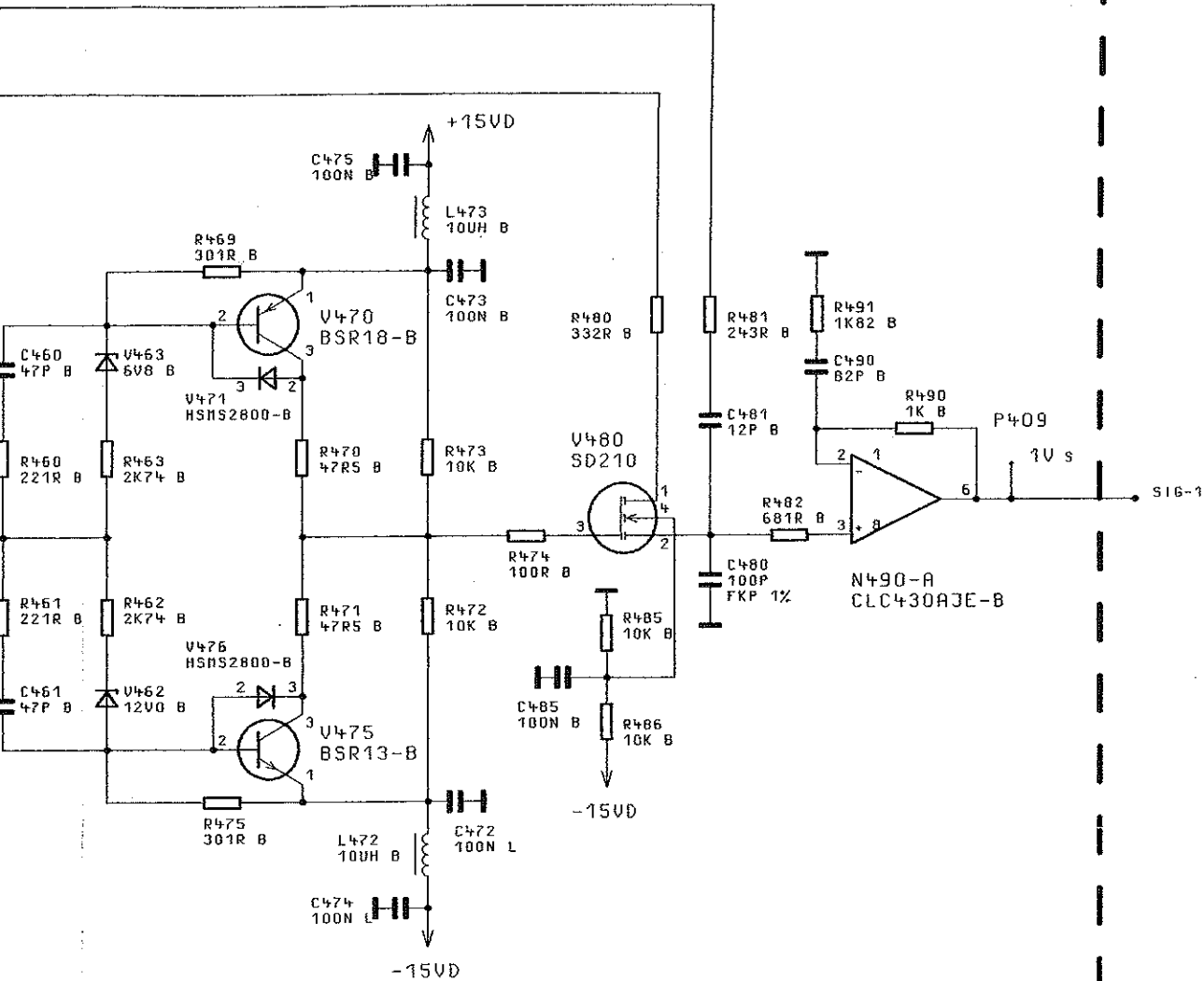
2

3

4

FUER DIESE UNTERLAGE
BEHALTEN WIR UNS ALLE RECHTE VOR

ZEICHN.-NR.






ACHTUNG: EGB!
 ELEKTROSTATISCH GEFÄHRDETE
 BAUELEMENTE ERFORDERN EINE
 BESONDERE HANDHABUNG.
ATTENTION ESD!
 ELECTROSTATIC SENSITIVE DEVICES
 REQUIRE A SPECIAL HANDLING

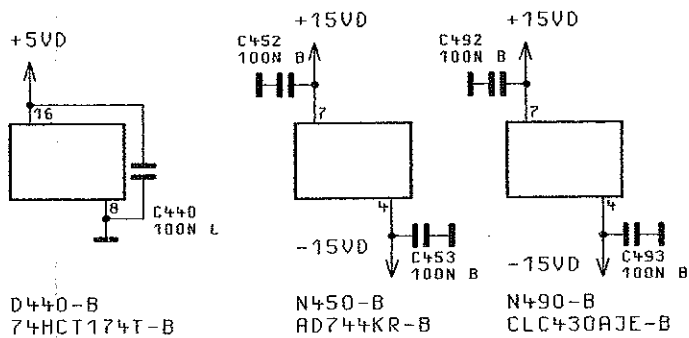
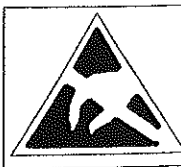
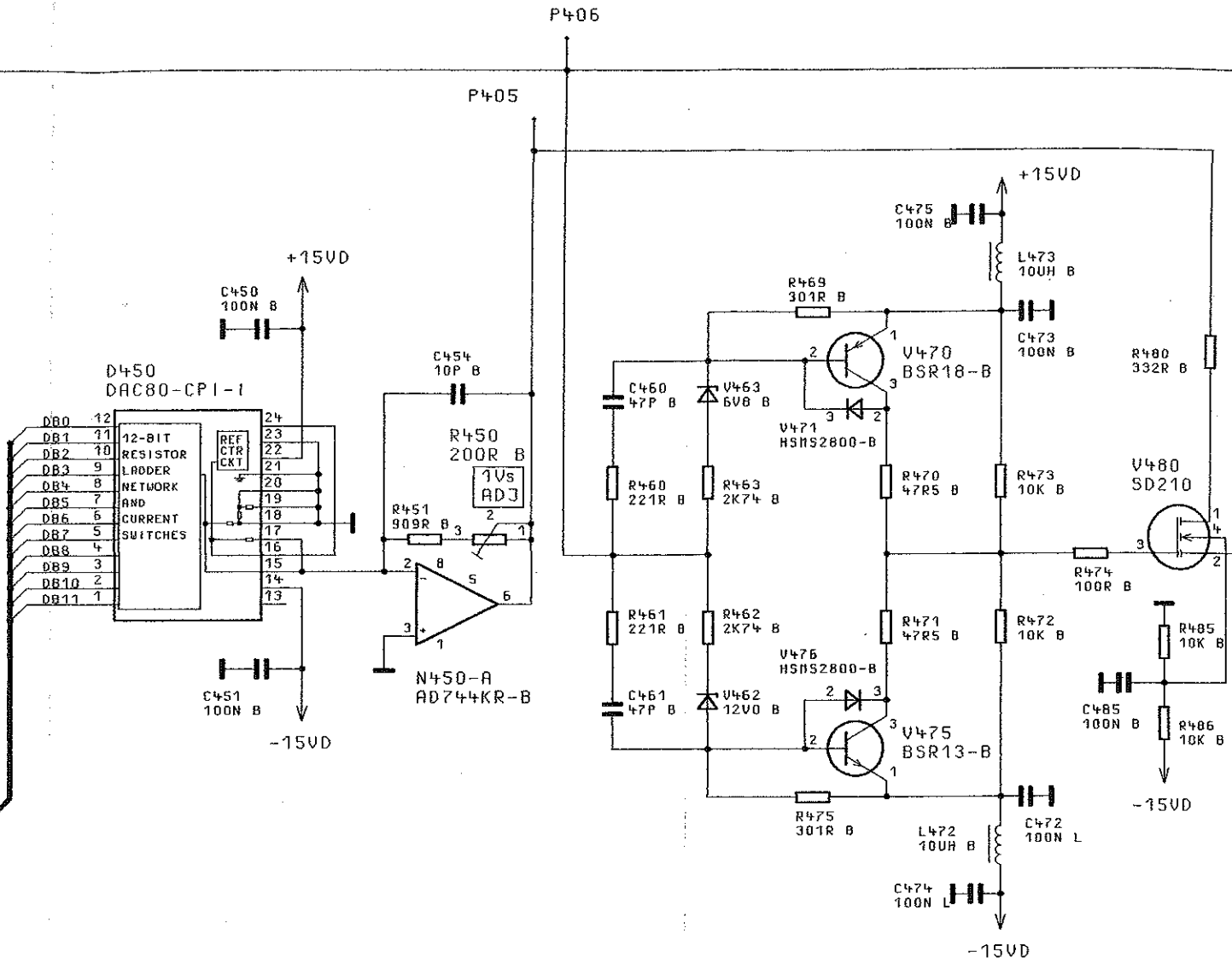
BUS

BINDENDE ANGABEN UEBER VARIANTEN,
 TRIMMWERTE, BAUTEILWERTE UND
 NICHT BESTUECKTE BAUTEILE SIEHE SA.

FOR BINDING INFORMATION ON MODELS,
 TRIMMING AND COMPONENTS VALUES AND
 NONFITTED COMPONENTS SEE PARTS LIST.

| | | | | | | | | | |
|--------------|--------------------------|----------|------|---|----------------------|-----------|---|----------|-----------|
| 03/01 | | 21.02.97 | EI | MENP | TAG | NAME | BEKENNUNG | | |
| | | | | BEARB. | | EI | RECHNER PROCESSOR | | |
| | | | | GEPR. | | | | | |
| | | | | NORM | | | | | |
| | | | | PLOTT | 24.02.97 | | | | |
| 02/04 | 48169 | 12.01.95 | JN |  ROHDE & SCHWARZ | ZEICHN.-NR. | | BLATT-NR. | | |
| ÄND. IND. | ÄNDERUNGS- MITTEILUNG | DATUM | NAME | | 1062.6309.01S | | 5+ v. 6 BL. | | |
| | | | | ZU GERÄT | SMY | REG.-I.V. | 1062.5502 | ERSTE Z. | 1062.5502 |

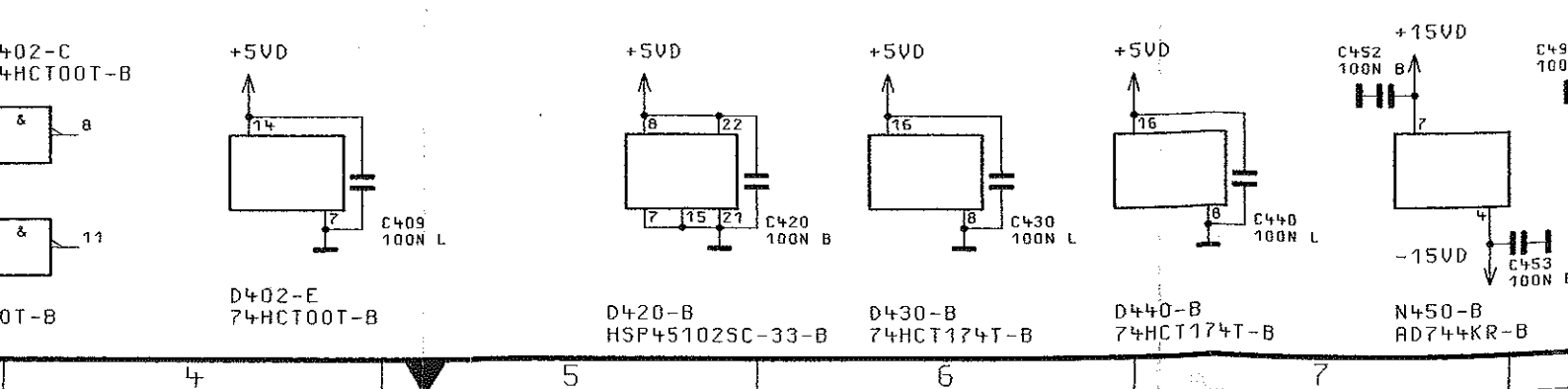
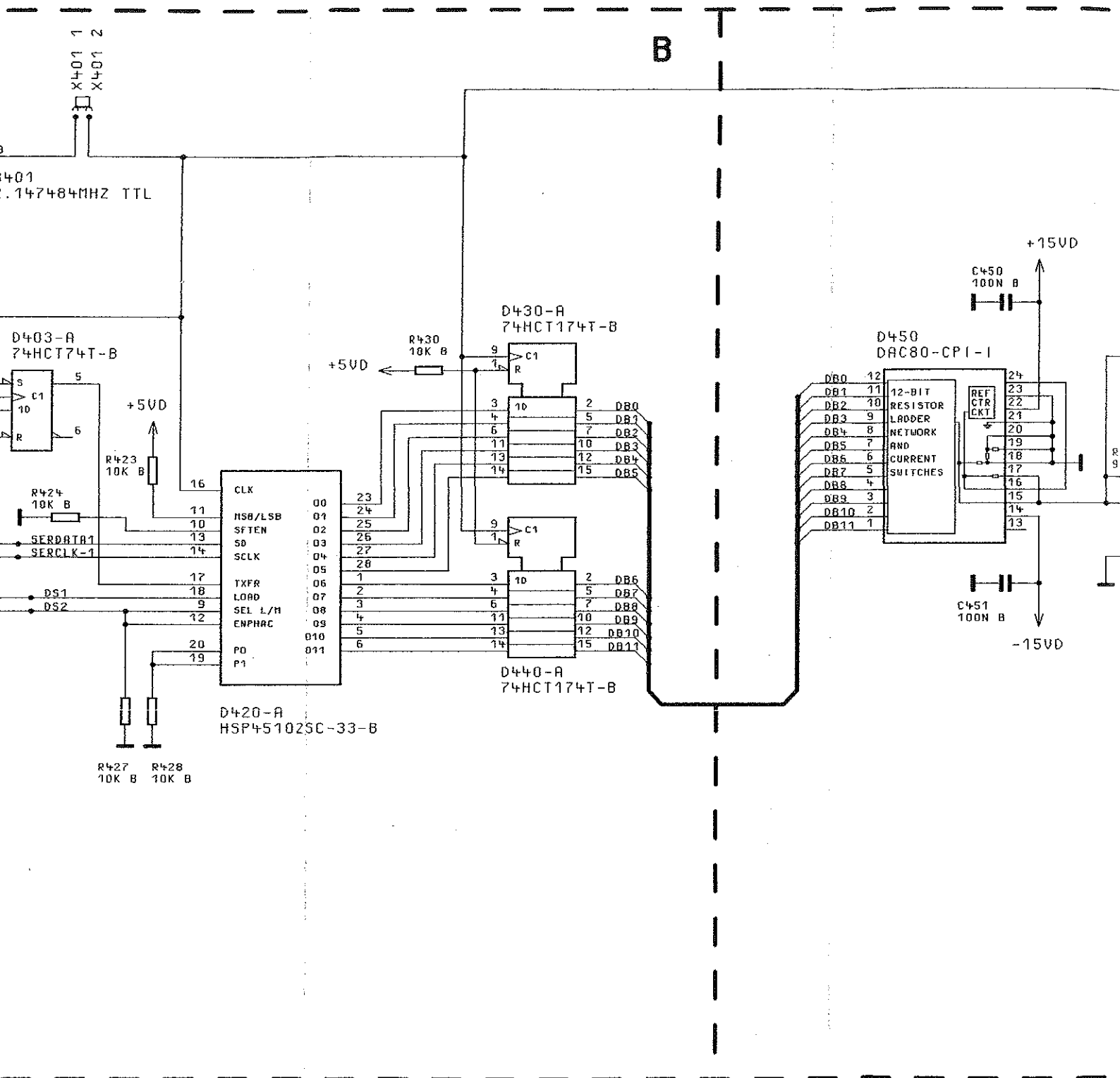
R450 P405
P406

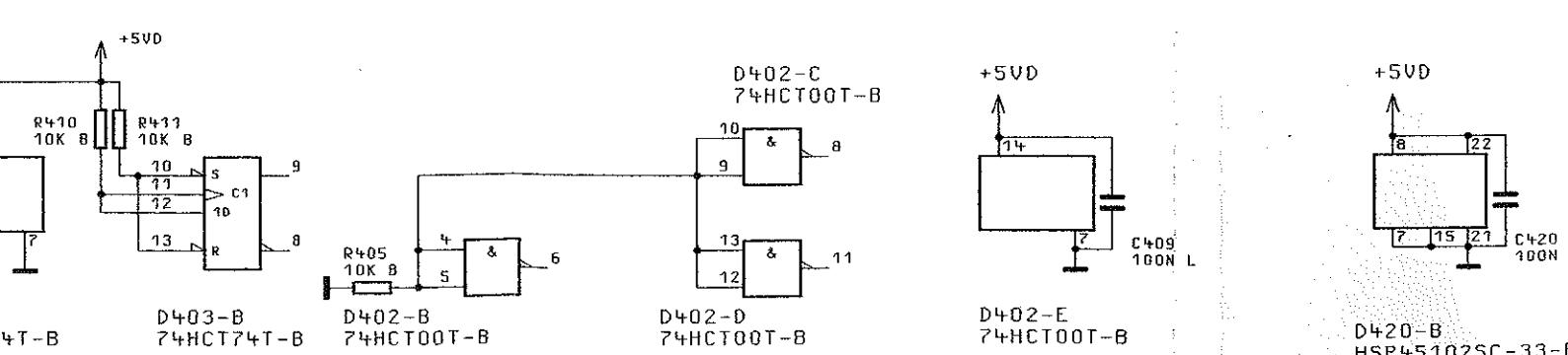
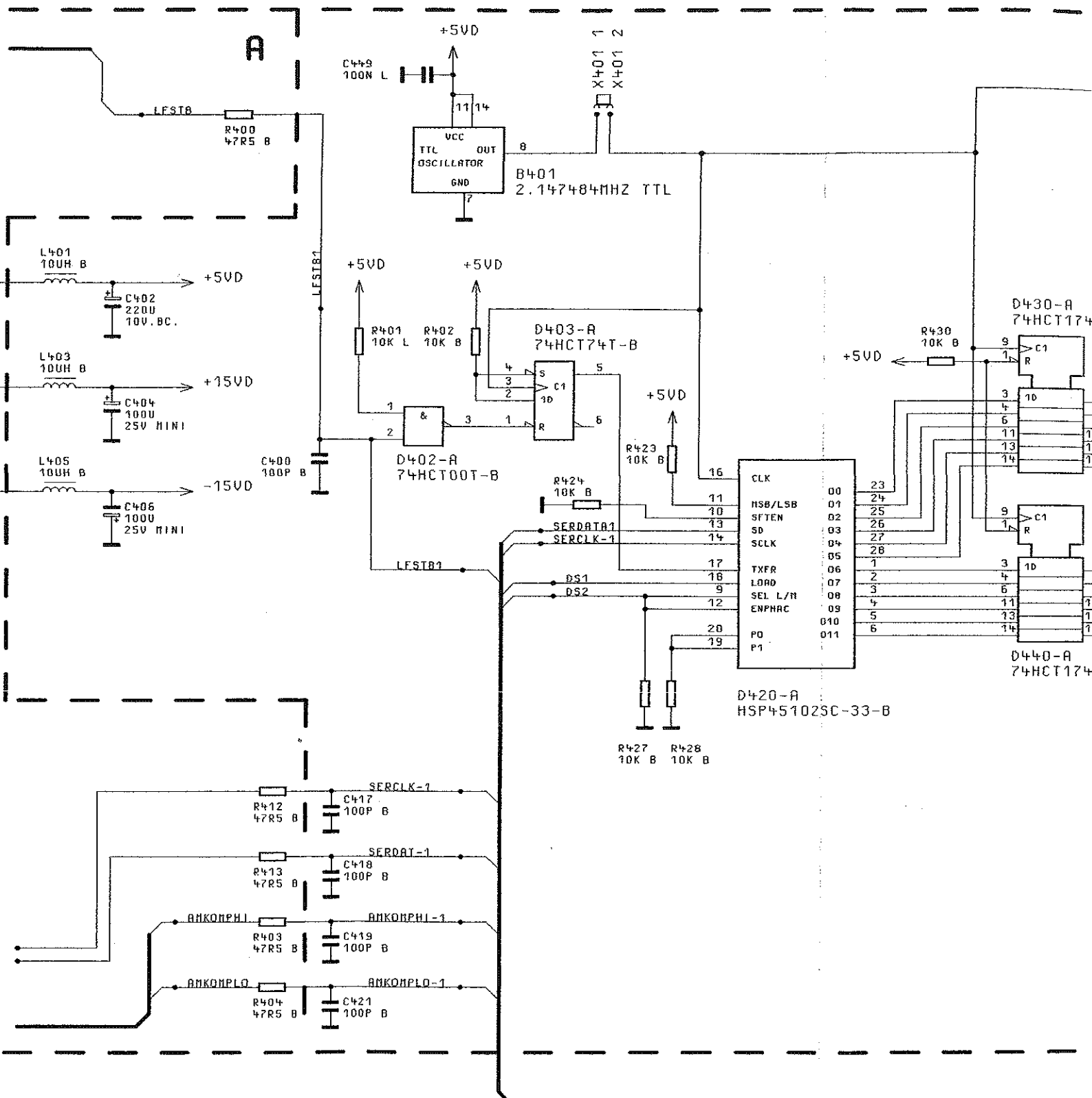


BINDENDE ANGABEN UEBER VARIANTEN,
TRIMMWERTE, BAUTEILWERTE UND
NICHT BESTUECKTE BAUTEILE SIEHE SA.

FOR BINDING INFO
TRIMMING AND COM
NONFITTED COMPON

| | | | | | | |
|--------------|--------------------------|----------|------|--|----------|------|
| 03/01 | | 21.02.97 | EI | MENP | TAG | NAME |
| | | | | BEARB. | | EI |
| | | | | GEPR. | | |
| | | | | NORM | | |
| | | | | PLOTT | 24.02.97 | |
| 02/04 | 48169 | 12.01.95 | JN | | | |
| REND IND: | ÄNDERUNGS- MITTEILUNG | DATUM | NAME | ROHDE&SCHWARZ ZU GERÄT SMY | | |
| | | | | | | |



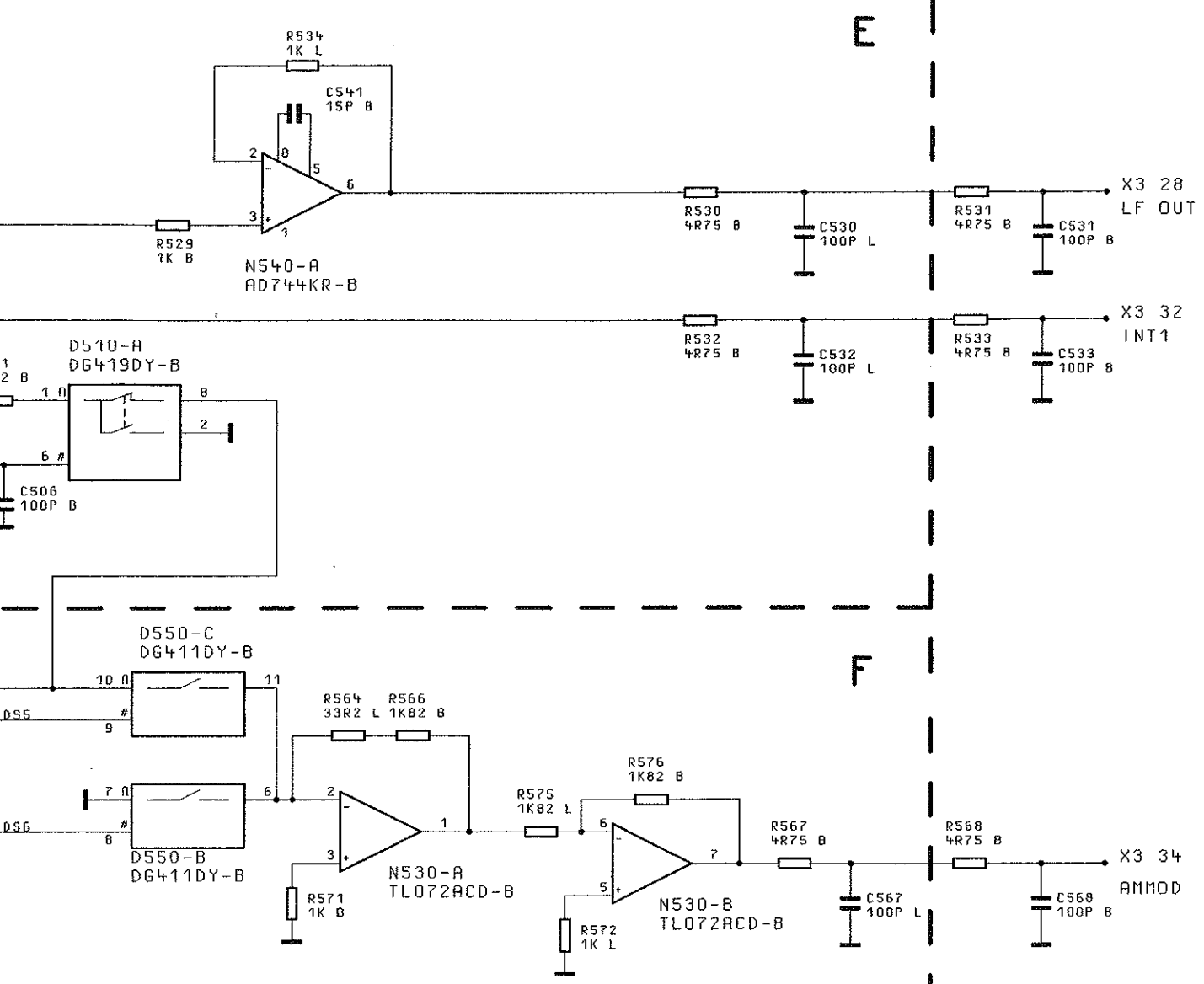


2

3

4

5



**** VAR. 04/MOD. 04**




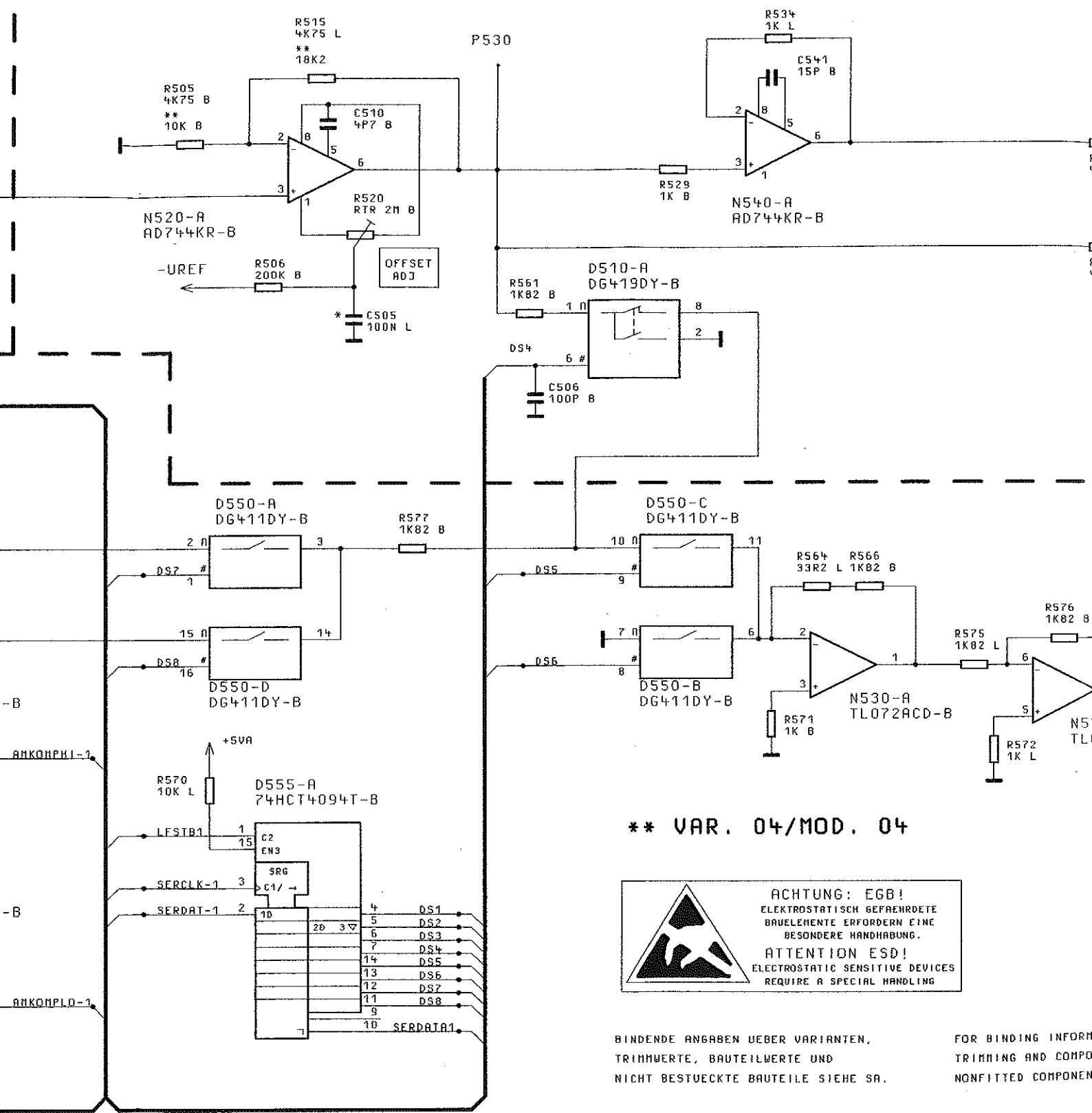
ACHTUNG: EGB!
 ELEKTROSTATISCH GEFÄHRDETE
 BAUELEMENTE ERFORDERN EINE
 BESONDERE HANDHABUNG.
ATTENTION ESD!
 ELECTROSTATIC SENSITIVE DEVICES
 REQUIRE A SPECIAL HANDLING

BINDENDE ANGABEN UEBER VARIANTEN,
 TRIMMWERTE, BAUTEILWERTE UND
 NICHT BESTUECKTE BAUTEILE SIEHE SA.


FOR BINDING INFORMATION ON MODELS,
 TRIMMING AND COMPONENTS VALUES AND
 NONFITTED COMPONENTS SEE PARTS LIST.

*** NICHT BESTUECKT
 NOT FITTED**

| | | | | | | | |
|---------------|--------------------------|----------|------|---|----------|-------------|------------------------------|
| 03/04 | | 21.02.97 | EI | MENP | TAG | NAME | BENENNUNG |
| | | | | BEARB. | | EI | RECHNER PROCESSOR |
| | | | | GEPR. | | | |
| | | | | NORM | | | |
| | | | | PLOTT | 24.02.97 | | |
| 02/04 | 48169 | 12.01.95 | JN |  ROHDE&SCHWARZ | | ZEICHN.-NR. | 1062.6309.015 |
| REND. IND. | ÄNDERUNGS- MITTEILUNG | DATUM | NAME | | | ZU GERÄT | SMY |
| | | | | | | ERSTE Z. | 1062.5502 |



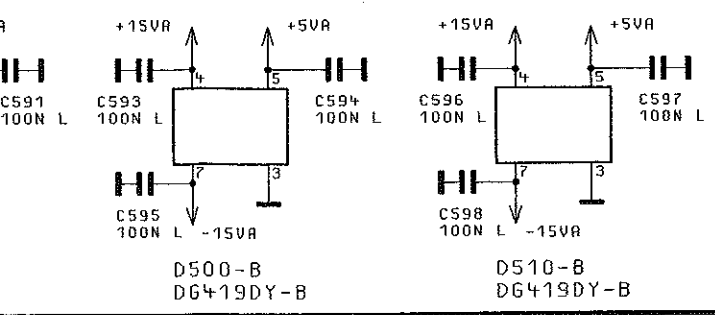
** VAR. 04/MOD. 04




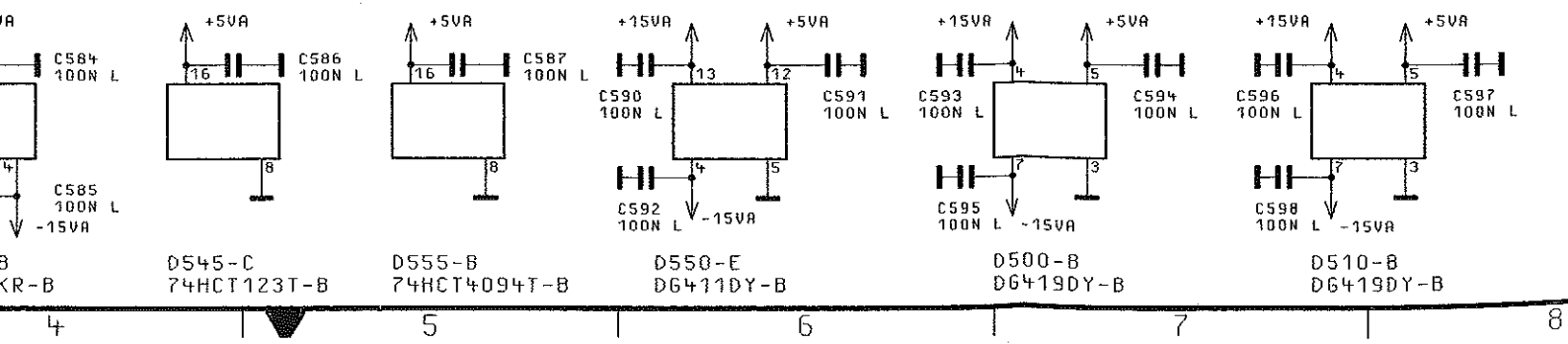
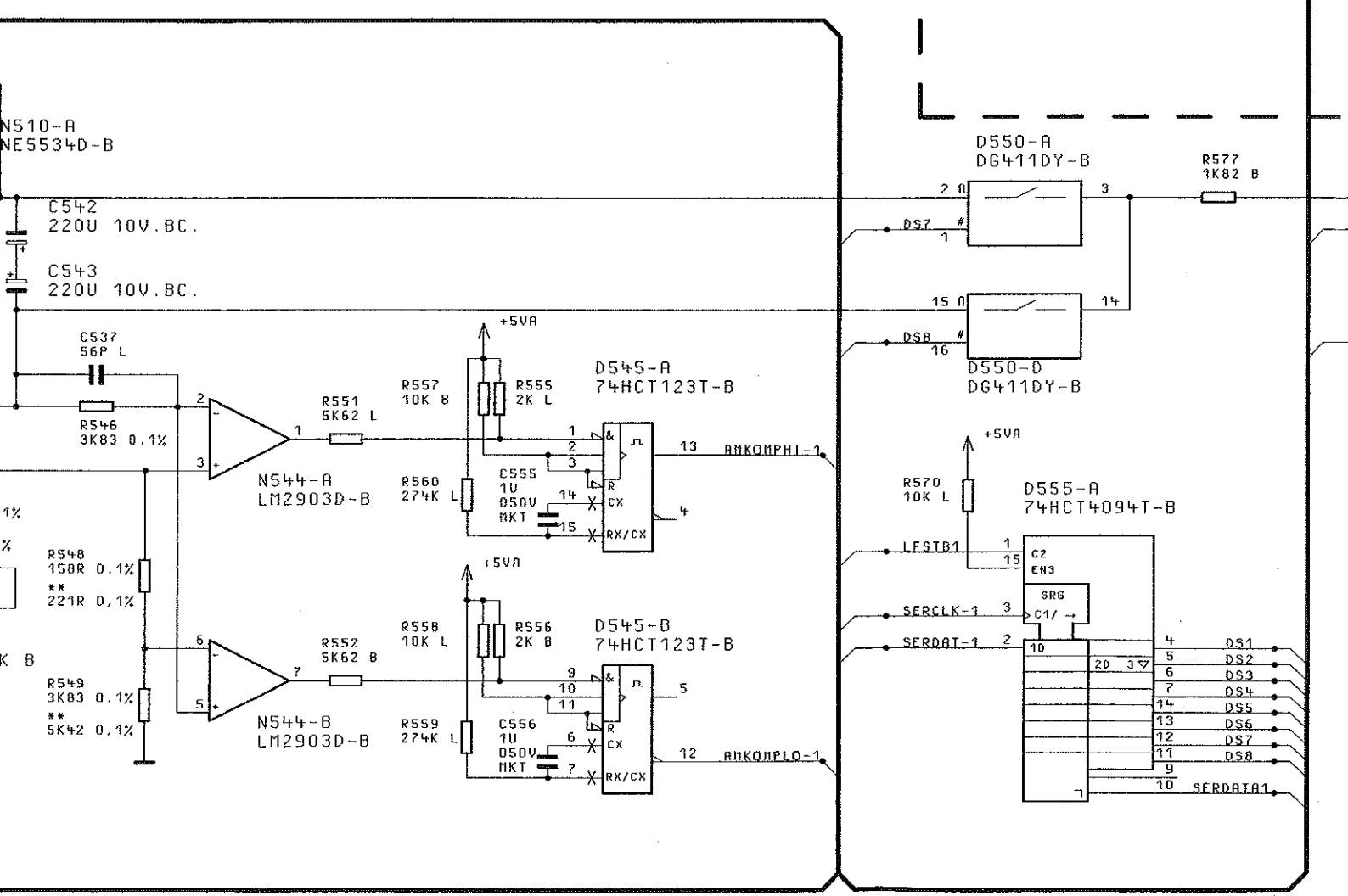
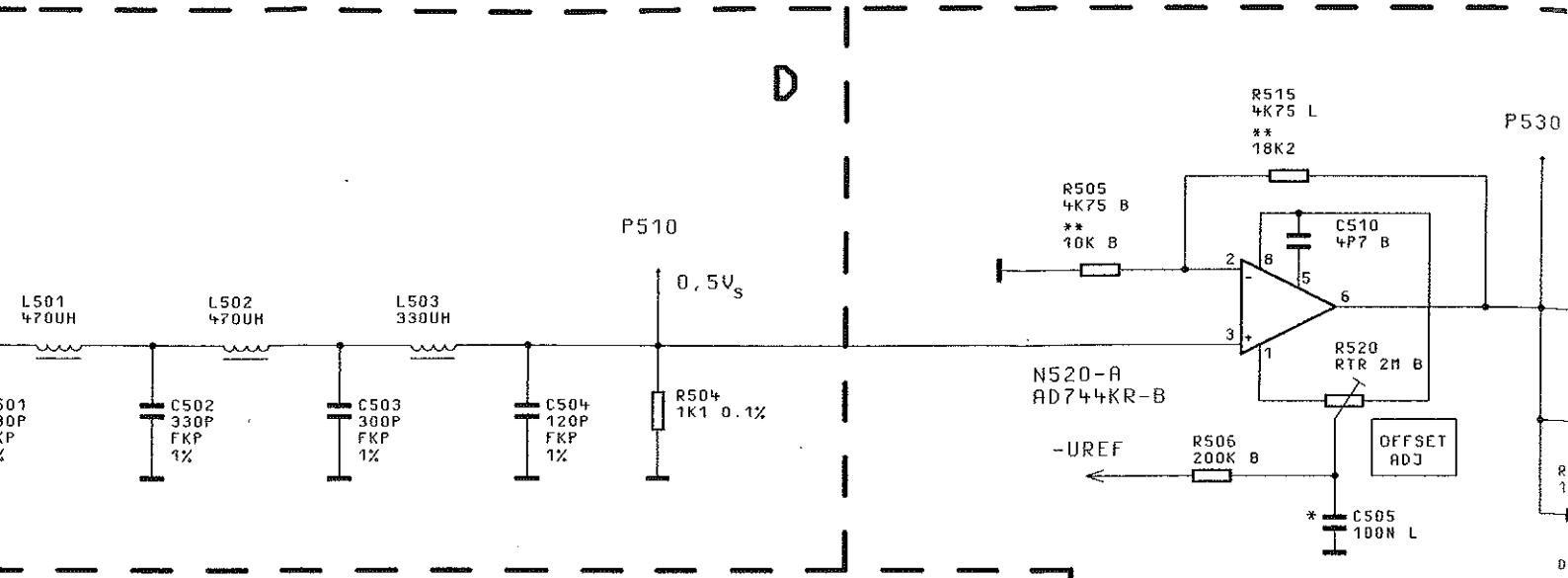
ACHTUNG: EGB!
 ELEKTROSTATISCH GEFÄHREDE
 BAUELEMENTE ERFORDERN EINE
 BESONDERE HANDHABUNG.
ATTENTION ESD!
 ELECTROSTATIC SENSITIVE DEVICES
 REQUIRE A SPECIAL HANDLING

BINDENDE ANGABEN UEBER VARIANTEN,
 TRIMMWERTE, BAUTEILWERTE UND
 NICHT BESTUECKTE BAUTEILE SIEHE SA.

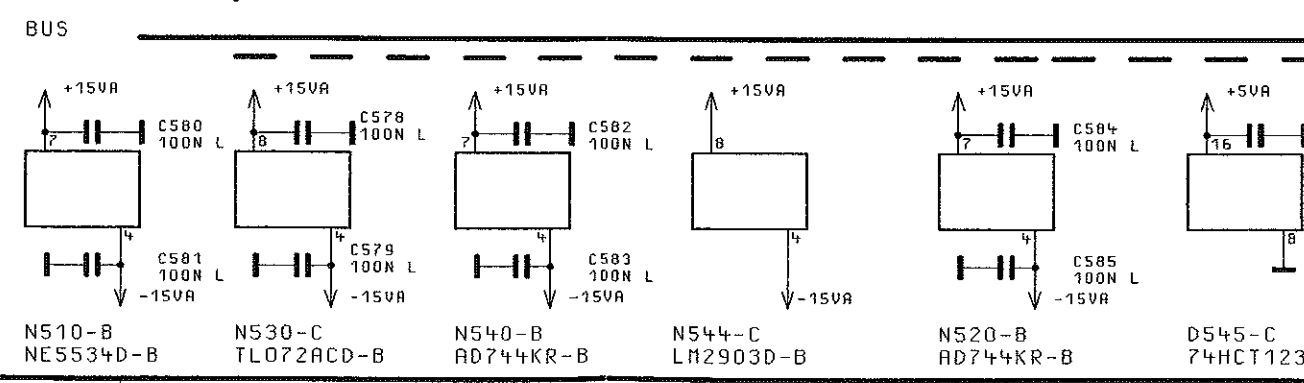
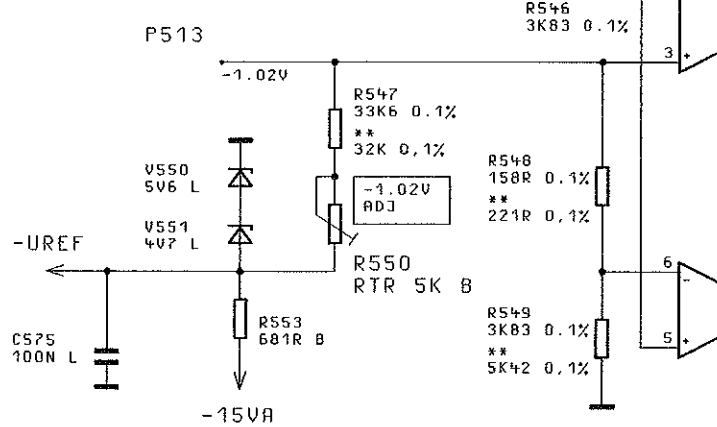
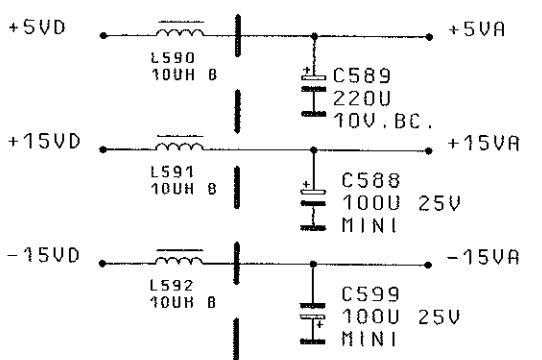
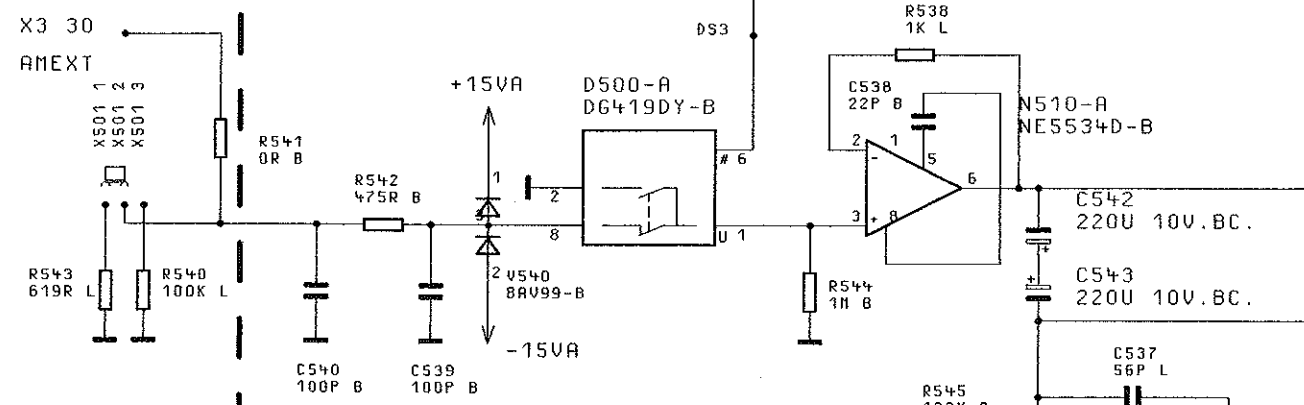
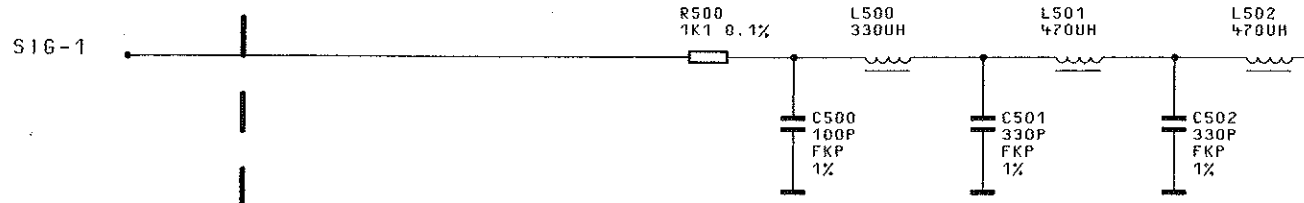
FOR BINDING INFORM
 TRIMMING AND COMP
 NONFITTED COMPONENTS



| | | | | | | |
|------------|----------------------|----------|-------|---|----------|------|
| 03/01 | | 21.02.97 | EI | MENP | TAG | NAME |
| | | | | BEARB. | | EI |
| | | | | GEPR. | | |
| | | | | NORM | | |
| | | | | PLOTT | 24.02.97 | |
| 02/04 | 48169 | 12.01.95 | JN |  ROHDE & SCHWARZ ZU GERÄT SMY | | |
| REND. IND. | ÄNDERUNGS-MITTEILUNG | DATUM | NAMEN | | | |

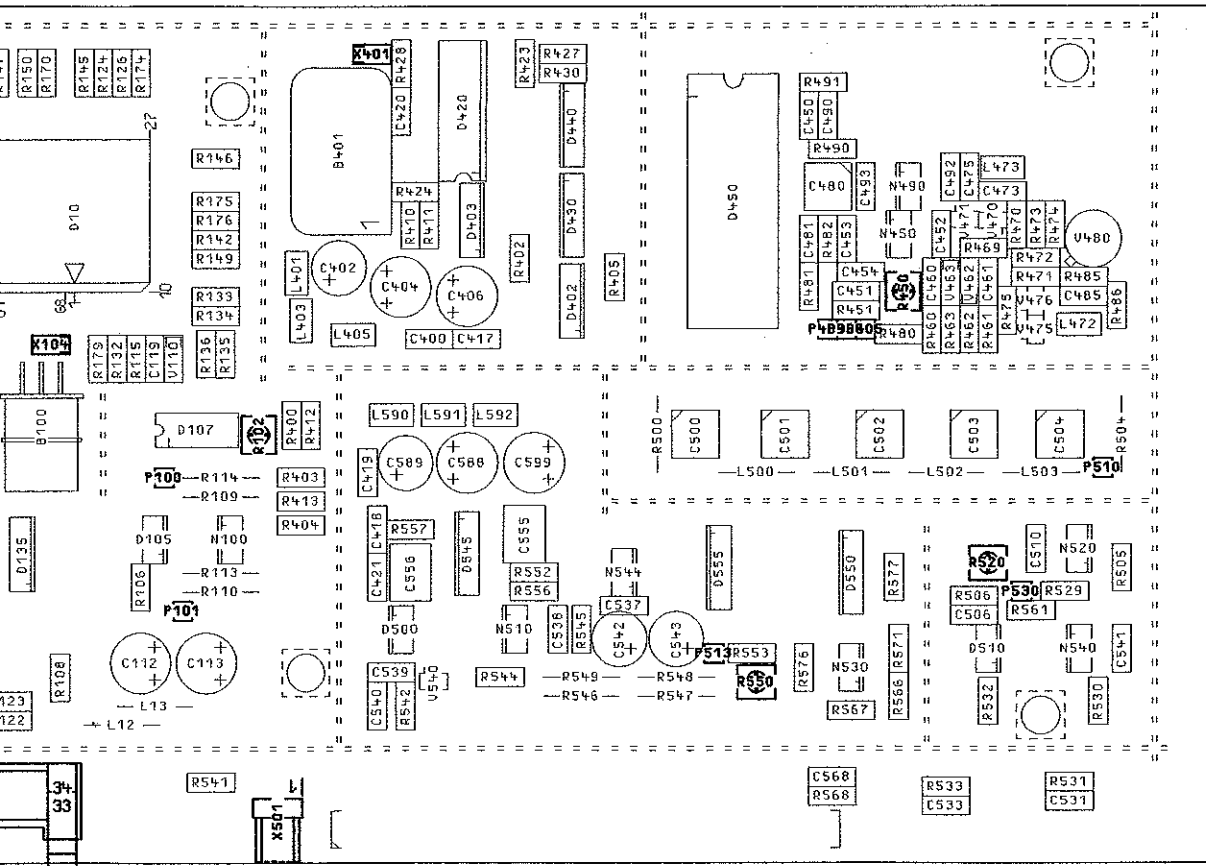


R550 P513



FUER DIESE UNTERLAGE BEHALTEN WIR UNS ALLE RECHTE VOR

ZEICHN.-NR.



| | | | | | | | |
|---------------|---------------------------|----------|--------|----------|------|----------------------|-----------|
| 03/01 | 21.02.97 | E I | MEMP | TAG | NARE | BENENNUNG | |
| | | | BEARB. | | E I | RECHNER PROCESSOR | Z |
| | | | GEPR. | | | | |
| | | | HGRN | | | | |
| | | | PLOTT | 21.02.97 | | | |
| / | 48169 | 29.09.93 | HD | | | ZEICHN.-NR. | BLATT-NR. |
| BEND. IND. | BENDERUNGS- MITTEILUNG | DATUM | NAME | | | 1062.6309.01 | ED |
| | | | | | | 1062.5502 | 1062.5502 |

ROHDE & SCHWARZ

1062.6309.01 ED

1+
v. 3

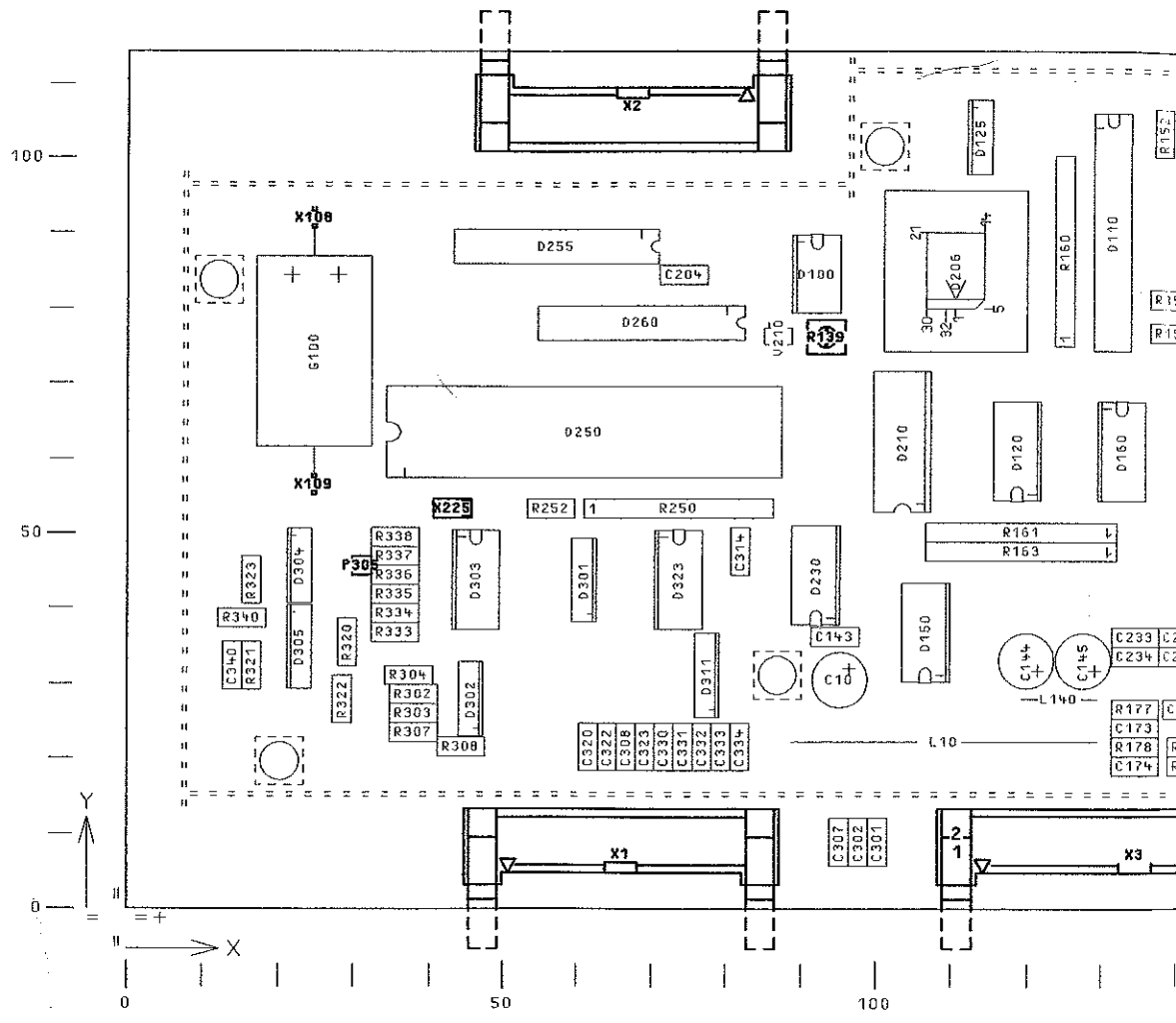
FÜR DIESE ZEICHNUNG BEHALTEN SICH UNS ALLE RECHTE VOR.
 DIESE ZEICHNUNG IST EIN RECHNERDRUCK. ÄNDERUNGEN KÖNNEN MUR DURCH RENDERN DES DATENSATZES ERFOLGEN

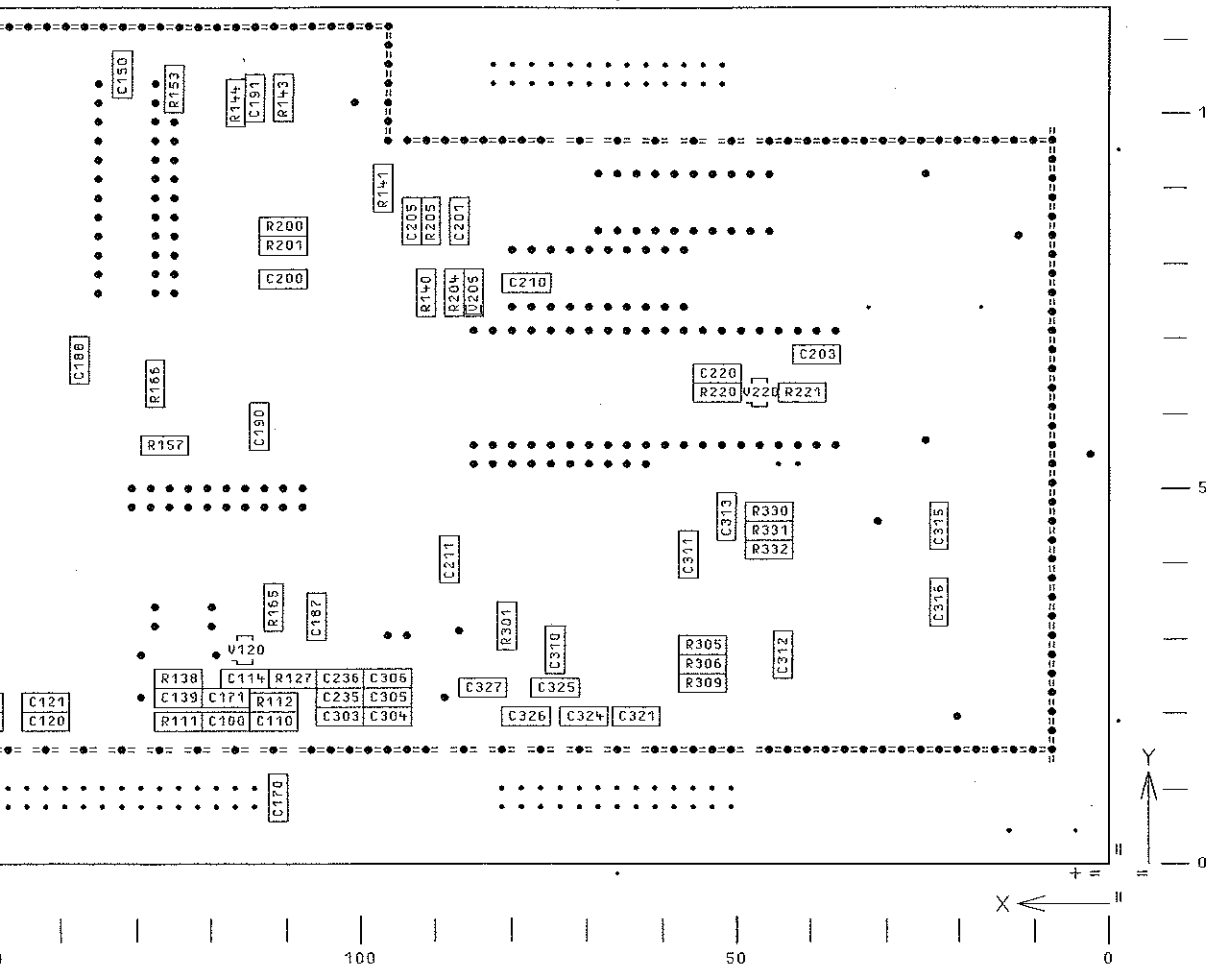
DARSTELLUNG SEITE B
 VIEW ON SIDE B



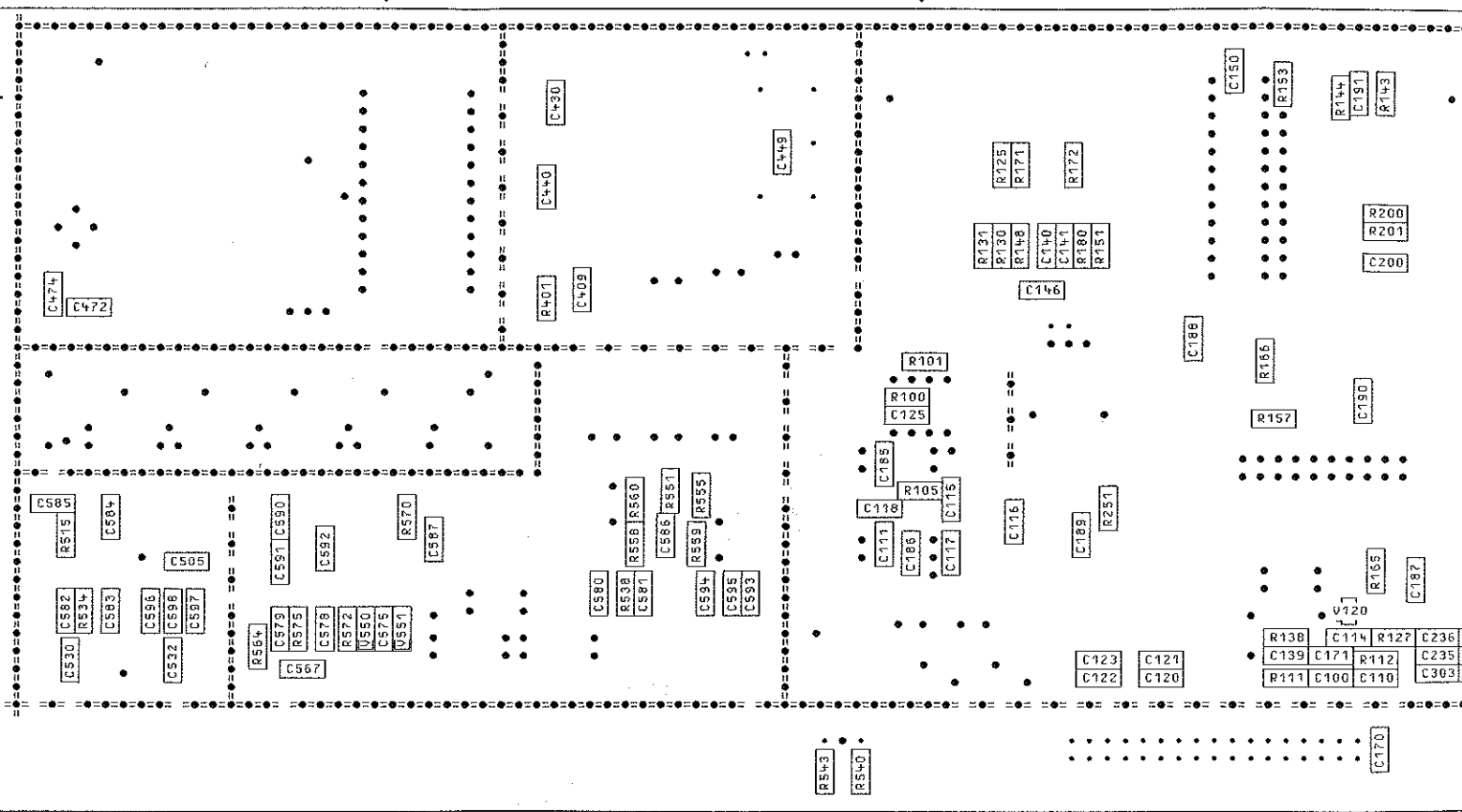
ACHTUNG: ESD!
 ELEKTROSTATISCH GEFÄHRDETE
 BAUELEMENTE ERFORDERN EINE
 BESONDERE HANDHABUNG.
ATTENTION ESD!
 ELECTROSTATIC SENSITIVE DEVICES
 REQUIRE A SPECIAL HANDLING

BINDENDE ANGABEN ÜBER VARIANTEN,
 TRIMMWERTE, BAUTEILWERTE UND
 NICHT BESTÜCKTE BAUTEILE SIEHE SR.
 FOR BINDING INFORMATION ON MODELS,
 TRIMMING AND COMPONENTS VALUES AND
 NONFITTED COMPONENTS SEE PARTS LIST.





| | | | | | | | |
|-------|--------------|----------|--------|--------------------------------|----------|-------------|-------------------------------------|
| 03/01 | 21.02.97 | EI | MEHP | TAG | NAME | BENENNUNG | Z |
| | | | BEARB. | | EI | RECHNER | |
| | | | GEPR. | | | PROCESSOR | |
| | | | NORN | | | | |
| | | | | PLOTT | 21.02.97 | | |
| / | 48169 | 29.09.93 | HO | ROHDE & SCHWARZ | | ZEICHN.-NR. | 1062.6309.01 ED |
| REND. | BEREBERUNGS- | DATUM | NAME | | | REG.-NR. | |
| IND. | MITTEILUNG | | | 20 SECRET | SHY | | BLATT-NR. 2+ V. 3. UL. |



300 250 200 150 100

ITE A



BINDENDE ANGABEN UEBER VARIANTEN, TRIMMWERTE, BAUTEILWERTE UND NICHT BESTUECKTE BAUTEILE SIEHE SA.

FOR BINDING INFORMATION ON MODELS, TRIMMING AND COMPONENTS VALUES AND NONFITTED COMPONENTS SEE PARTS LIST.



ROHDE&SCHWARZ

SERVICEUNTERLAGEN

ANZEIGE-TASTATUR

1062.6809.02

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Schaltteilliste
Koordinatenliste
Stromlauf
Bestückungsplan

7.1 Funktionsbeschreibung

Die Baugruppe besteht aus der Tastaturmatrix, Drehimpulsgeber und dem Anzeigeteil.

7.1.1 Tastaturmatrix

Die Eingabetasten des Gerätes sind an den Kreuzungspunkten einer Matrix angeordnet, deren Zeilen- und Spaltenleitungen mit einer Auswerteschaltung auf der Rechner-Baugruppe verbunden sind. Beim Betätigen einer Taste wird die Zeile, in der die Taste angeordnet ist, mit der ihr zugeordneten Spalte verbunden, wodurch auf der Rechner-Baugruppe ein Interrupt erzeugt wird, der den Rechner veranlasst, einen für diese Tastenstellung charakteristischen Code über den Datenbus einzulesen.

Den Parametertasten, SPEC- und der STATUS-Tasten sind Leuchtdioden zugeordnet, die zur Vereinfachung der Bedienung die zuletzt betätigte Taste anzeigen. Eine weitere LED dient als REMOTE-Anzeige. Die Ansteuerung der Tastatur-LEDs erfolgt über den Schieberegisterbausteine D3 und D4.

7.1.2 Drehimpulsgeber

Mit dem Drehimpulsgeber kann der jeweils aktivierte Parameter kontinuierlich variiert werden.

Der Drehimpulsgeber mit beiden Hallgeneratoren liefert zwei Pulsfolgen die je nach der Drehrichtung eine Phasendifferenz von + oder - 90 Grad haben. Die nachfolgende Schaltung wertet diese Phasendifferenz als Richtungserkennung aus.

Die Impulse steuern einen Schalter der den + oder - Tastendruck simuliert. Die Variationsschrittweite kann für jeden Parameter einzeln eingegeben werden.

7.1.3 Anzeigen

Zur Anzeige der aktuellen Geräteeinstellung besitzt das Gerät zwei LCD-Anzeigen, das Frequenz-Display sowie ein kombiniertes Amplituden-/Modulations-Display. Die Ansteuerung der Segmente der beiden Displays (H10, H20) erfolgt im Multiplexverfahren durch je einen Ansteuerbaustein (D1, D2).

Der Datenverkehr zwischen der Baugruppe Rechner und Anzeige/Tastatur erfolgt seriell. Die LCD-Anzeigen sind, um ihre Ablesbarkeit bei dunklen Umgebungsverhältnissen zu gewährleisten, hinterleuchtet. Der Kontrast der Segmente läßt sich mit R15 abgleichen.

7.2 Meßgeräte und Hilfsmittel

- Digitalmultimeter (z.B. R&S UDS5)
- Oszilloskop

7.3 Fehlersuche

| | |
|--|--|
| Anzeige bleibt dunkel | Betriebsspannungen (siehe Schnittstellen) und Verkabelung überprüfen. |
| Kontrast der Anzeige mangelhaft | Abgleich nach 7.4.4 |
| Keine Reaktion auf Tastendruck | Taste überprüfen. Erfolgt keine Reaktion beim Betätigen von Tasten, so ist zu überprüfen, ob eine Taste festsetzt. |
| Keine Reaktion bei Betätigen des Drehimpulsgebers | Hallgenerator prüfen. Erfolgt keine Reaktion beim Betätigen so ist zu überprüfen, ob eine Taste festsetzt. |

7.4 Prüfen und Abgleich

Alle Meßwerte ohne Toleranzangaben sind als Richtwerte zu verstehen. Spannungen ohne weitere Bezeichnungen bedeuten DC-Spannungen.

7.4.1 Prüfen der Stromversorgung

- Ein Amperemeter in die Versorgungsleitungen der einzelnen Versorgungsspannungen einschleifen.
- _ Die Stromaufnahme der Baugruppe überprüfen. Die Sollwerte zu den jeweiligen Versorgungsspannungen sind unter "Externe Schnittstellen" zu finden.

7.4.2 Prüfen der Tastaturmatrix

- _ Die einzelnen Tasten der Tastenmatrix auf gute Kontaktgabe prüfen. Maximaler Widerstand gemessen an X1: $< 2 \Omega$.
- _ Die Tastaturmatrix ist auf Kurzschluß zu prüfen.

7.4.3 Prüfen des Drehimpulsgebers

- An X1.24 und X1.26 Oszilloskop anschließen.
- Drehimpulsgeber in beide Richtungen drehen.
- _ Am Oszilloskop müssen Impulse zu sehen sein.

7.4.4 Abgleich der LCD-Ansteuerung

- _ R15 so einstellen, daß sich aus frontaler Sicht auf das Display ein guter Kontrast ergibt, ohne daß aus einem Winkel von ca. 30 Grad die nicht angesteuerten Segmente sichtbar werden.

7.4.5 Prüfung der LCD- und LED-Ansteuerung

- Die Spezialfunktion 31 einschalten.
- _ LCD-Segmente und LED auf Funktion überprüfen.

7.5 Zerlegung und Zusammenbau

Nach dem Öffnen des Gerätes und dem Lösen der Schrauben auf der Frontplatte kann die Baugruppe aus dem Rahmen herausgenommen werden. Die Verbindung mit dem Gerät ist weiterhin über Flachbandkabel vorhanden, so daß die Baugruppe für Messungen zugänglich ist. Der Einbau der Baugruppe und Zusammenbau des Gerätes erfolgt entsprechend in umgekehrter Reihenfolge.

7.6 Externe Schnittstelle

| Pin | Name | Ein/Ausgang | Herkunft/Ziel | Wertebereich | Signalbeschreibung |
|-------|----------|-------------|---------------|-------------------------|-------------------------|
| X1.1 | VA5-P | Eingang | A2 CPU X1.1 | +4.9V..5.3V max.0.2A | +5V Versorgungsspannung |
| X1.2 | SERCLK | Eingang | A2 CPU X1.2 | HCMOS-Pegel | Seriell-Clock |
| X1.3 | VA5-P | Eingang | A2 CPU X1.3 | +4.9V..5.3V max.0.2A | +5V Versorgungsspannung |
| X1.4 | SERDATA | Eingang | A2 CPU X1.4 | HCMOS-Pegel | Seriell-Daten |
| X1.6 | DIS1STB | Eingang | A2 CPU X1.6 | HCMOS-Pegel | Display Strobe 1 |
| X1.8 | DIS2STB | Eingang | A2 CPU X1.8 | HCMOS-Pegel | Display Strobe 2 |
| X1.10 | LEDSTB | Eingang | A2 CPU X1.10 | HCMOS-Pegel | LED-Strobe |
| X1.11 | COL7 | Ausgang | A2 CPU X1.11 | HCMOS-Pegel | Tasten-Code |
| X1.12 | C/D# | Eingang | A2 CPU X1.12 | HCMOS-Pegel | Steuersignal |
| X1.13 | COL6 | Ausgang | A2 CPU X1.13 | HCMOS-Pegel | Tasten-Code |
| X1.14 | DISBUSY# | Ausgang | A2 CPU X1.14 | HCMOS-Pegel | Steuersignal |
| X1.15 | COL5 | Ausgang | A2 CPU X1.15 | HCMOS-Pegel | Tasten-Code |
| X1.16 | RES | Eingang | A2 CPU X1.16 | HCMOS-Pegel | Reset |
| X1.17 | COL4 | Ausgang | A2 CPU X1.17 | HCMOS-Pegel | Tasten-Code |
| X1.18 | ROW5 | Ausgang | A2 CPU X1.18 | HCMOS-Pegel | Tasten-Code |
| X1.19 | COL3 | Ausgang | A2 CPU X1.19 | HCMOS-Pegel | Tasten-Code |
| X1.20 | ROW4 | Ausgang | A2 CPU X1.20 | HCMOS-Pegel | Tasten-Code |
| X1.21 | COL2 | Ausgang | A2 CPU X1.21 | HCMOS-Pegel | Tasten-Code |
| X1.22 | ROW3 | Ausgang | A2 CPU X1.22 | HCMOS-Pegel | Tasten-Code |
| X1.23 | COL1 | Ausgang | A2 CPU X1.23 | HCMOS-Pegel | Tasten-Code |
| X1.24 | ROW2 | Ausgang | A2 CPU X1.24 | HCMOS-Pegel | Tasten-Code |
| X1.25 | COL0 | Ausgang | A2 CPU X1.25 | HCMOS-Pegel | Tasten-Code |
| X1.26 | ROW1 | Ausgang | A2 CPU X1.26 | HCMOS-Pegel | Tasten-Code |

GND X1.5\7\9



ROHDE & SCHWARZ

SERVICE INSTRUCTIONS

Display-Keyboard

1062.6809.02

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Parts list
List of coordinates
Circuit diagram
Component layout diagram

7.1 Function Description

The module consists of the keyboard matrix, spinwheel and the display unit.

7.1.1 Keyboard Matrix

The keys of the instrument are assigned to cross-points of a matrix, the vertical and horizontal lines of which are connected to an evaluation logic on the controller board.

When a key is pressed, the vertical line this key is assigned to, is connected to the corresponding vertical line, thus triggering an interrupt on the controller board, which causes the controller to read in the code characteristic for this key arrangement via the data bus.

The parameter keys, SPEC keys and STATUS keys are assigned LEDs which indicate the key which was last pressed thus ensuring high operating ease. Another LED indicates the REMOTE state. The keyboard LEDs are addressed via the shift-register components D3 and D4.

7.1.2 Spinwheel

The spinwheel enables continuous variation of the activated parameter.

In conjunction with two Hall generators, the spinwheel generates two pulse sequences with a phase difference of +90 or -90 degrees. The subsequent circuit determines the direction by evaluating this phase difference.

The pulses control a switch simulating the keystrokes + or -. The variation-step size can be entered individually for each parameter.

7.1.3 Displays

The instrument provides two LCD displays indicating the current instrument setting, the frequency display and an amplitude/modulation display. The segments of the two displays (H10, H20) are addressed by one controller component each (D1, D2) which are multiplexed.

Data are transmitted serially between the controller module and the display/keyboard module. The LCD displays have a bright, illuminated background to ensure easy reading even in dark environments. The contrast of the segments can be adjusted using R15.

7.2 Test Instruments and Utilities

- Digital multimeter (e.g., R&S UDS5)
- Oscilloscope

7.3 Troubleshooting

| | |
|--|--|
| Display remains dark | Check operating voltages (see interfaces) and cabling. |
| Poor contrast of display | Adjust acc. to 7.4.4 |
| No reaction upon keystroke | Check key. If keystrokes do not cause any reaction, check, whether any key has got stuck. |
| No reaction upon actuating the spinwheel | Check Hall generator. If no reaction is caused by actuating the spinwheel, check, whether any key has got stuck. |

7.4 Testing and Adjustment

All measured values indicated without tolerances are recommended values. Voltages given without any further detail are dc voltages.

7.4.1 Testing the Power Supply

- Connect an ammeter into the supply lines of the supply voltages.
- _ Check the power consumption of the module. The rated values of the individual supply voltages can be looked up under "External Interfaces".

7.4.2 Testing the Keyboard Matrix

- _ Check the contacting of the individual keys of the keyboard matrix. Maximum resistance measured at X1: $< 2 \Omega$.
- Check the keyboard matrix with regard to short-circuit.

7.4.3 Testing the Spinwheel

- Connect an oscilloscope to X1.24 and X1.26.
- Turn the spinwheel into both directions.
- _ Pulses must be visible on the oscilloscope.

7.4.4 Adjusting the LCD Control

- _ Adjust R15 such that a good contrast is obtained with frontal view on the display without the non-addressed segments becoming visible from an angle of 30 degrees.

7.4.5 Testing Control of LCDs and LEDs

- Switch on special function 31.
- _ Check function of LCD segments and LEDs.

7.5 Disassembly and Assembly

Subsequent to opening the instrument and undoing the screws on the front panel, the module can be removed from the frame. The module is still connected to the instrument via ribbon cables, thus being accessible for measurements.

Installation of the module and reassembly of the instrument are carried out in the reverse order.

7.6 External Interfaces

| Pin | Name | Input/Output | Origin/Dest- | Specified range | Signal description |
|-------|----------|--------------|--------------|-----------------------|--------------------|
| X1.1 | VA5-P | Input | A2 CPU X1.1 | +4.9.5.3V max.0.2A | +5V supply voltage |
| X1.2 | SERCLK | Input | A2 CPU X1.2 | HCMOS level | Serial clock |
| X1.3 | VA5-P | Input | A2 CPU X1.3 | +4.9.5.3V max.0.2A | +5V supply voltage |
| X1.4 | SERDATA | Input | A2 CPU X1.4 | HCMOS level | Serial data |
| X1.6 | DIS1STB | Input | A2 CPU X1.6 | HCMOS level | Display strobe 1 |
| X1.8 | DIS2STB | Input | A2 CPU X1.8 | HCMOS level | Display strobe 2 |
| X1.10 | LEDSTB | Input | A2 CPU X1.10 | HCMOS level | LED strobe |
| X1.11 | COL7 | Output | A2 CPU X1.11 | HCMOS level | Key code |
| X1.12 | C/D# | Input | A2 CPU X1.12 | HCMOS level | Control signal |
| X1.13 | COL6 | Output | A2 CPU X1.13 | HCMOS level | Key code |
| X1.14 | DISBUSY# | Output | A2 CPU X1.14 | HCMOS level | Control signal |
| X1.15 | COL5 | Output | A2 CPU X1.15 | HCMOS level | Key code |
| X1.16 | RES | Input | A2 CPU X1.16 | HCMOS level | Reset |
| X1.17 | COL4 | Output | A2 CPU X1.17 | HCMOS level | Key code |
| X1.18 | ROW5 | Output | A2 CPU X1.18 | HCMOS level | Key code |
| X1.19 | COL3 | Output | A2 CPU X1.19 | HCMOS level | Key code |
| X1.20 | ROW4 | Output | A2 CPU X1.20 | HCMOS level | Key code |
| X1.21 | COL2 | Output | A2 CPU X1.21 | HCMOS level | Key code |
| X1.22 | ROW3 | Output | A2 CPU X1.22 | HCMOS level | Key code |
| X1.23 | COL1 | Output | A2 CPU X1.23 | HCMOS level | Key code |
| X1.24 | ROW2 | Output | A2 CPU X1.24 | HCMOS level | Key code |
| X1.25 | COL0 | Output | A2 CPU X1.25 | HCMOS level | Key code |
| X1.26 | ROW1 | Output | A2 CPU X1.26 | HCMOS level | Key code |

GND X1.5\7\9

Schaltteillisten
numerisch geordnet
Part lists
in numerical order
Listes des pièces détachées
par numéros de référence

XY-Liste

XY List


Erklärung der Spaltenbezeichnungen:

- Part:** Bauelement-Kennzeichen.
- Side:** Leiterplatten-Seite, auf der sich das Bauelement befindet.
- X/Y:** Koordinaten (Millimeter) des Bauelementes auf der Leiterplatte bezogen auf den Nullpunkt.
- SQR, PG:** Planquadrat und Seite des Schaltbildes für das jeweilige Bauelement.

Explanation of column designations:

- Part:** Identification of instrument part.
- Side:** Side of the PC board on which instrument part is positioned.
- X/Y:** Coordinates (millimeter) of the component on the PC board in reference to zero point.
- SQR, PG:** Square and page of the diagram for the respective instrument part.

Für diese Unterteile behalten wir uns alle Rechte vor.


| Kennz. Comp. No. | Benennung Designation | Sachnummer Stock No. | Hersteller Manufacturer | Bezeichnung Designation | enthalten in contained in | |
|---|--|----------------------|-------------------------|---|---------------------------|----------------|
| B1 | BS UGN3120U HALL-EFF.SW. HALL-EFF.SWITCH | BJ 0336.4750.00 | ALLEGRO | A3144EU | | |
| B2 | BS UGN3120U HALL-EFF.SW. HALL-EFF.SWITCH | BJ 0336.4750.00 | ALLEGRO | A3144EU | | |
| C1 ..4 | CC 1NF+-1% 50V NPO 1206 SMD CERAMIC CAPACITOR | CC 0007.7398.00 | PHILIPS_CO | 2222 863 *8102 | | |
| C5 ..7 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | | |
| C8 | CC 2,2NF+-10%50VX7R 1206 CERAMIC CHIP CAPACITOR | CC 0099.8444.00 | PHILIPS_CO | 2222 581 16618 | | |
| C9 | CE 4,7U F+-10% 10V 3528 TANTALUM SMD-CAPACITOR | CE 0007.7275.00 | SPRAGUE | 293D 475 X9 010 B2T | | |
| C11 ..18 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | | |
| C20 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | | |
| C21 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | | |
| D1 | BJ UPD7225G00 LCD DRIV ALPHANUM.LCD CONTR/DRIVER | BJ 0392.5320.00 | NEC | D7225G (JG) | | |
| D2 | BJ UPD7225G00 LCD DRIV ALPHANUM.LCD CONTR/DRIVER | BJ 0392.5320.00 | NEC | D7225G (JG) | | |
| D3 | BL PC74HC4094T 8ST.BUSREG BUS REGISTER | BL 0804.0977.00 | PHILIPS_SE | (PC)74HC4094(D/T) | | |
| D4 | BL PC74HC4094T 8ST.BUSREG BUS REGISTER | BL 0804.0977.00 | PHILIPS_SE | (PC)74HC4094(D/T) | | |
| D5 | BL PC74HCT86T 4X2IN.EXOR EXOR GATE | BL 0007.6291.00 | PHILIPS_SE | (PC)74HCT86(D/T) | | |
| D6 | BL PC74HCT74T 2XD-FLIPFL DUAL D-TYPE FLIP FLOP | BL 0007.6262.00 | PHILIPS_SE | (PC)74HCT74D(T) | | |
| D7 | BL PC74HCT08T 4X2IN ANDG AND GATE | BL 0007.6179.00 | PHILIPS_SE | (PC)74HCT08(D/T) | | |
| D8 | BL PC74HCT4066T 4XASWITCH ANALOG SWITCH | BL 0007.6862.00 | PHILIPS | (PC)74HCT4066(T) | | |
| H1 ..4 | EF T1 5V 0,06A D.SOCKEL GLOW LAMP | EF 0234.4375.00 | OSHINO | OL-683 | | |
| H10 | BP AN 127 LCD-MODULE | 0826.8587.00 | VARITRONIX | R&S 0826.8587 | | |
| H20 | BP AN 126 LCD-MODULE | 0826.8570.00 | VARITRONIX | R&S 0826.8570 | | |
| JS1 ...3 | SB TASTENKAPPE 6X10,5 HGR CAP 6X10,5 HGR | SB 0396.0122.00 | DEKORSY | R&S.ZCHNG.396.0122 | | |
| JS4 | SB TASTENKAP.6X10,5 BLAU PUSHBUTTON | SB 0396.0174.00 | DEKORSY | R&S.ZCHNG.396.0174 | | |
| JS5 ...10 | SB TASTENKAPPE 6X10,5 HGR CAP 6X10,5 HGR | SB 0396.0122.00 | DEKORSY | R&S.ZCHNG.396.0122 | | |
| JS11 | SB KAPPE GR 10,5X10,5 PUSHBUTTON | SB 0396.0045.00 | DEKORSY | R&S.ZCHNG.396.0045 | | |
| JS12 | SB KAPPE GR 10,5X10,5 PUSHBUTTON | SB 0396.0045.00 | DEKORSY | R&S.ZCHNG.396.0045 | | |
| JS13 | SB KAPPE GR 10,5X10,5 PUSHBUTTON | SB 0396.0045.00 | DEKORSY | R&S.ZCHNG.396.0045 | | |
| JS14 ...17 | SB TASTENKAPPE 6X10,5 HGR CAP 6X10,5 HGR | SB 0396.0122.00 | DEKORSY | R&S.ZCHNG.396.0122 | | |
| JS18 | SB KAPPE HGR. 10,5X10,5"0" CAP "0" | SB 0396.0216.00 | DEKORSY | R&S.ZCHNG.396.0216 | | |
| JS19 | SB KAPPE HGR. 10,5X10,5"1" CAP "1" | SB 0396.0222.00 | DEKORSY | R&S.ZCHNG.396.0222 | | |
| JS20 | SB KAPPE HGR. 10,5X10,5"4" CAP "4" | SB 0396.0251.00 | DEKORSY | R&S.ZCHNG.396.0251 | | |
| JS21 | SB KAPPE HGR. 10,5X10,5"7" PUSHBUTTON | SB 0396.0280.00 | DEKORSY | R&S.ZCHNG.396.0280 | | |
| JS22 | SB KAPPE HGR. 10,5X10,5". " CAP HGR. 10,5X10,5". " | SB 0396.0339.00 | DEKORSY | R&S.ZCHNG.396.0339 | | |
| JS23 | SB KAPPE HGR. 10,5X10,5"2" CAP "2" | SB 0396.0239.00 | DEKORSY | R&S.ZCHNG.396.0239 | | |
| JS24 | SB KAPPE HGR. 10,5X10,5"5" CAP "5" | SB 0396.0268.00 | DEKORSY | R&S.ZCHNG.396.0268 | | |
| JS25 | SB KAPPE HGR. 10,5X10,5"8" PUSHBUTTON | SB 0396.0297.00 | DEKORSY | R&S.ZCHNG.396.0297 | | |
| JS26 | SB KAPPE HGR. 10,5X10,5"- " CAP HGR. 10,5X10,5"- " | SB 0396.0322.00 | DEKORSY | R&S.ZCHNG.396.0322 | | |
| JS27 | SB KAPPE HGR. 10,5X10,5"3" CAP "3" | SB 0396.0245.00 | DEKORSY | ZEICHNUNG 396.0245 | | |
| MENP5 | 413 3PUA | Ät | Datum Date | Schaltteilliste für Parts list for | Sachnummer Stock No. | Blatt-Nr. Page |
|  | ROHDE & SCHWARZ | 06 | 16.09.97 | ED TASTATUR/ANZEIGE KEYBOARD/DISPLAY | 1062.6809.01 SA | 1+ |

095.0026-0693

| Kennz. Comp. No. | Benennung Designation | Sachnummer Stock No. | Hersteller Manufacturer | Bezeichnung Designation | enthalten in contained in |
|---------------------|--|---------------------------------|----------------------------|----------------------------|------------------------------|
| JS28 | SB KAPPE HGR. 10,5X10,5"6" PUSHBUTTON "6" | SB 0396.0274.00 | DEKORSY | R&S.ZCHNG.396.0274 | |
| JS29 | SB KAPPE HGR. 10,5X10,5"9" CAP "9" | SB 0396.0300.00 | DEKORSY | R&S.ZCHNG.396.0300 | |
| JS30 ..33 | SB TASTENKAPPE 6X10,5 HGR CAP 6X10,5 HGR | SB 0396.0122.00 | DEKORSY | R&S.ZCHNG.396.0122 | |
| JS37 | SB TASTENKAPPE 6X10,5 HGR CAP 6X10,5 HGR | SB 0396.0122.00 | DEKORSY | R&S.ZCHNG.396.0122 | |
| L1 | LD 100UH 20% 1A 0,6500HM CHOKE | LD 0155.9446.00 | SIEMENS | B82111-E-C25 | |
| N1 | BO CA3240AE 2XMOSFETOPAMP DUAL MOSFET-INPUT OPAMP | 0302.7040.00 | RCA | CA3240AE | |
| P1 | VL EINPRESSTIFT L=6,8 PIN | VL 0010.7250.00 | AMP | 1-928776-5 | |
| R1 | RG 182 KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5989.00 | ROEDERSTEI | DC2 182KOHM 1%TK100 | |
| R3 | RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR | RG 0006.7271.00 | ROEDERSTEI | DC2 1,0KOHM 1%TK100 | |
| R4 | RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR | RG 0006.7271.00 | ROEDERSTEI | DC2 1,0KOHM 1%TK100 | |
| R5 ..7 | RG 100,0KOH+-1%TK100 1206 CHIP RESISTOR | RG 0007.1948.00 | ROEDERSTEI | DC2 100KOHM 1%TK100 | |
| R8 | RG 182 KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5989.00 | ROEDERSTEI | DC2 182KOHM 1%TK100 | |
| R9 ..11 | RG 100,0KOH+-1%TK100 1206 CHIP RESISTOR | RG 0007.1948.00 | ROEDERSTEI | DC2 100KOHM 1%TK100 | |
| R12 | RG 681 KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.6110.00 | ROEDERSTEI | DC2 681KOHM 1%TK100 | |
| R13 | RG 100,0KOH+-1%TK100 1206 CHIP RESISTOR | RG 0007.1948.00 | ROEDERSTEI | DC2 100KOHM 1%TK100 | |
| R14 | RG 47,5KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5950.00 | ROEDERSTEI | DC2 47,5KOHM 1%TK100 | |
| R15 | RS 0,5W5KOHM+-10%10X10X5 CERMET POTENTIOMETER T | RS 0247.7890.00 | SPECTROL | 63 M ... TO 10 | |
| R16 | RG 5,62KOHM+-1%TK100 1206 CHIP RESISTOR | RG 0007.0735.00 | ROEDERSTEI | DC2 5,62KOHM 1%TK100 | |
| R17 | RG 22,1KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5872.00 | ROEDERSTEI | DC2 22,1KOHM 1%TK100 | |
| R18 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| R20 ..25 | RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR | RG 0006.7271.00 | ROEDERSTEI | DC2 1,0KOHM 1%TK100 | |
| R26 | RG 1,82KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5720.00 | ROEDERSTEI | DC2 1,82KOHM 1%TK100 | |
| R27 ..29 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| R30 ..39 | RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR | RG 0006.7271.00 | ROEDERSTEI | DC2 1,0KOHM 1%TK100 | |
| R40 ..45 | RG 56,2KOHM+-1%TK100 1206 CHIP RESISTOR | RG 0007.1883.00 | ROEDERSTEI | DC2 56,2KOHM 1%TK100 | |
| S1 ..33 | SB TASTER 1XA OHNE KNOPF PUSHBUTTON SWITCH | SB 0238.3850.00 | SIEMENS | V42 263-D32-M2 | |
| S37 | SB TASTER 1XA OHNE KNOPF PUSHBUTTON SWITCH | SB 0238.3850.00 | SIEMENS | V42 263-D32-M2 | |
| V1 | AK BC850B N 45V 200MA TRANSISTOR | AK 0007.7969.00 | VALVO | BC850B | |
| V2 ..11 | AF HLMP1790 LED3 GN569N LED | 0007.5250.00 | QUALITY | HLMP-1790.7418D | |
| X1 X10 | DY KABEL W1 FP STIFTELEISTE 36P.R2,54 PIN CONNECTOR 2-POLIG | 1062.6873.00 FP 0242.3600.00 | BINDER | 742-11-0179-00-36 | |

Für diese Unterlage behalten wir uns alle Rechte vor.

095.0026-0693

| MENPS | 413 3PUA | Äi | Datum Date | Schaltteilliste für Parts list for | Sachnummer Stock No. | Blatt-Nr. Page |
|--|----------|----------|---|---------------------------------------|-------------------------|-------------------|
|  | 06 | 16.09.97 | ED TASTATUR/ANZEIGE KEYBOARD/DISPLAY | 1062.6809.01 SA | 2- | |

| 14m+ | | | | | | | | | | | | | | |
|------|------|-----|-----|--------|------|------|-----|-----|--------|------|------|-----|-----|--------|
| Part | Side | X | Y | Sqr Pg | Part | Side | X | Y | Sqr Pg | Part | Side | X | Y | Sqr Pg |
| B1 | B | 290 | 52 | 1D 3 | H3 | A | 169 | 88 | 11D 2 | R45 | A | 22 | 48 | 2C 2 |
| B2 | B | 284 | 57 | 2D 3 | H4 | A | 294 | 88 | 11D 2 | S1 | B | 19 | 9 | 6F 3 |
| C1 | A | 112 | 74 | 2A 2 | H10 | B | 31 | 81 | 5E 2 | S2 | B | 19 | 24 | 6E 3 |
| C2 | A | 107 | 78 | 2A 2 | H20 | B | 180 | 81 | 8E 2 | S3 | B | 19 | 55 | 6E 3 |
| C3 | A | 214 | 76 | 4A 2 | L1 | B | 33 | 48 | 2B 2 | S4 | B | 50 | 9 | 6E 3 |
| C4 | A | 222 | 78 | 4A 2 | N1-A | B | 150 | 100 | 5B 2 | S5 | B | 50 | 24 | 6D 3 |
| C5 | A | 166 | 105 | 5A 2 | N1-B | | | | 7A 2 | S6 | B | 34 | 55 | 6F 3 |
| C6 | A | 161 | 93 | 5B 2 | N1-C | | | | 8A 2 | S7 | B | 91 | 9 | 6E 3 |
| C7 | A | 299 | 54 | 1D 3 | P1 | B | 155 | 76 | 5B 2 | S8 | B | 91 | 24 | 6E 3 |
| C8 | A | 282 | 64 | 2D 3 | R1 | A | 112 | 88 | 4F 2 | S9 | B | 91 | 39 | 6E 3 |
| C9 | A | 231 | 64 | 5C 3 | R3 | A | 18 | 51 | 2C 2 | S10 | B | 91 | 55 | 6D 3 |
| C11 | A | 14 | 19 | 2B 2 | R4 | A | 18 | 48 | 2C 2 | S11 | B | 109 | 13 | 7F 3 |
| C12 | A | 30 | 48 | 2B 2 | R5 | A | 110 | 74 | 2A 2 | S12 | B | 109 | 34 | 7E 3 |
| C13 | A | 130 | 36 | 2A 3 | R6 | A | 105 | 78 | 2A 2 | S13 | B | 109 | 55 | 7E 3 |
| C14 | A | 130 | 22 | 3A 3 | R7 | A | 102 | 74 | 3A 2 | S14 | B | 138 | 9 | 7E 3 |
| C15 | A | 248 | 65 | 4A 3 | R8 | A | 224 | 84 | 8F 2 | S15 | B | 138 | 24 | 7D 3 |
| C16 | A | 262 | 68 | 4A 3 | R9 | A | 219 | 74 | 4A 2 | S16 | B | 138 | 39 | 7F 3 |
| C17 | A | 243 | 56 | 5A 3 | R10 | A | 217 | 74 | 4A 2 | S17 | B | 138 | 55 | 7E 3 |
| C18 | A | 237 | 54 | 6A 3 | R11 | A | 214 | 78 | 4A 2 | S18 | B | 168 | 13 | 7E 3 |
| C20 | A | 92 | 76 | 1A 2 | R12 | A | 149 | 104 | 5A 2 | S19 | B | 168 | 29 | 7E 3 |
| C21 | A | 207 | 74 | 3A 2 | R13 | A | 153 | 98 | 5A 2 | S20 | B | 168 | 44 | 7D 3 |
| D1-A | A | 105 | 82 | 4F 2 | R14 | A | 165 | 98 | 5B 2 | S21 | B | 168 | 59 | 8F 3 |
| D1-B | | | | 2A 2 | R15 | B | 157 | 93 | 5B 2 | S22 | B | 184 | 13 | 8E 3 |
| D1-C | | | | 2A 2 | R16 | A | 161 | 90 | 5A 2 | S23 | B | 184 | 29 | 8E 3 |
| D2-A | A | 217 | 82 | 7F 2 | R17 | A | 164 | 101 | 6A 2 | S24 | B | 184 | 44 | 8E 3 |
| D2-B | | | | 3A 2 | R18 | A | 158 | 110 | 7A 2 | S25 | B | 184 | 59 | 8D 3 |
| D2-C | | | | 4A 2 | R20 | A | 295 | 51 | 2D 3 | S26 | B | 199 | 13 | 8F 3 |
| D3-A | A | 121 | 36 | 9D 3 | R21 | A | 276 | 68 | 2D 3 | S27 | B | 199 | 29 | 8E 3 |
| D3-B | | | | 2B 3 | R22 | A | 294 | 58 | 2D 3 | S28 | B | 199 | 44 | 8E 3 |
| D4-A | A | 121 | 23 | 9C 3 | R23 | A | 263 | 59 | 2C 3 | S29 | B | 199 | 59 | 8E 3 |
| D4-B | | | | 2B 3 | R24 | A | 246 | 56 | 3D 3 | S30 | B | 222 | 9 | 8D 3 |
| D5-A | A | 272 | 68 | 3D 3 | R25 | A | 260 | 62 | 3E 3 | S31 | B | 222 | 24 | 8F 3 |
| D5-B | | | | 3D 3 | R26 | A | 231 | 57 | 4C 3 | S32 | B | 222 | 39 | 8E 3 |
| D5-C | | | | 3C 3 | R27 | A | 243 | 67 | 7A 3 | S33 | B | 222 | 55 | 8E 3 |
| D5-D | | | | 7A 3 | R28 | A | 259 | 65 | 7A 3 | S37 | B | 50 | 55 | 9E 3 |
| D5-E | | | | 3B 3 | R29 | A | 133 | 33 | 9E 3 | V1 | A | 162 | 104 | 5A 2 |
| D6-A | A | 257 | 63 | 3D 3 | R30 | A | 18 | 41 | 10E 3 | V2 | B | 15 | 39 | 10E 3 |
| D6-B | | | | 3C 3 | R31 | A | 49 | 34 | 10E 3 | V3 | B | 45 | 32 | 10E 3 |
| D6-C | | | | 4B 3 | R32 | A | 55 | 20 | 10E 3 | V4 | B | 45 | 17 | 10E 3 |
| D7-A | A | 234 | 57 | 4C 3 | R33 | A | 90 | 20 | 11E 3 | V5 | B | 86 | 17 | 11E 3 |
| D7-B | | | | 5C 3 | R34 | A | 97 | 34 | 11E 3 | V6 | B | 86 | 32 | 11E 3 |
| D7-C | | | | 7B 3 | R35 | A | 99 | 49 | 11E 3 | V7 | B | 86 | 48 | 11E 3 |
| D7-D | | | | 7A 3 | R36 | A | 90 | 64 | 11E 3 | V8 | B | 86 | 63 | 11E 3 |
| D7-E | | | | 5B 3 | R37 | A | 109 | 24 | 11E 3 | V9 | B | 105 | 22 | 11E 3 |
| D8-A | A | 233 | 44 | 4E 3 | R38 | A | 109 | 45 | 11E 3 | V10 | B | 105 | 43 | 11E 3 |
| D8-B | | | | 4D 3 | R39 | A | 109 | 65 | 11E 3 | V11 | B | 105 | 63 | 11E 3 |
| D8-C | | | | 4D 3 | R40 | A | 20 | 32 | 2D 2 | X1 | B | 5 | 15 | 1F 2 |
| D8-D | | | | 4D 3 | R41 | A | 20 | 35 | 2D 2 | X10 | B | 255 | 52 | 4E 3 |
| D8-E | | | | 6B 3 | R42 | A | 29 | 21 | 2D 2 | X11 | B | 252 | 52 | 4E 3 |
| H1 | A | 16 | 98 | 10D 2 | R43 | A | 29 | 23 | 2D 2 | | | | | |
| H2 | A | 146 | 88 | 10D 2 | R44 | A | 22 | 52 | 2C 2 | | | | | |

| ROHDE & SCHWARZ | -I | Datum Date | XY-Liste für XY-list for | Sach-Nummer Stock-Nr | Blatt Page |
|-----------------------|----|---------------|---|-------------------------|---------------|
| | 02 | 07.07.93 | ED ANZEIGE-TASTATUR DISPLAY-KEYBOARD | 1062.6809.01 XY | 1- |



ROHDE & SCHWARZ

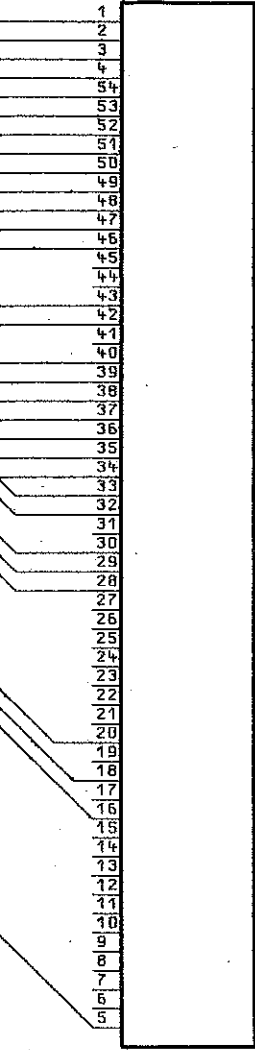
Stromläufe
Bestückungspläne
Circuit diagrams
Components plans
Schémas de circuit
Plans des composants



ACHTUNG: EGB!
 ELEKTROSTATISCH GEFÄHRDETE
 BAUELEMENTE ERFORDERN EINE
 BESONDERE HANDHABUNG.
ATTENTION ESD!
 ELECTROSTATIC SENSITIVE DEVICES
 REQUIRE A SPECIAL HANDLING

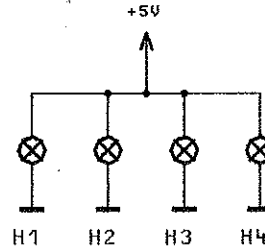
STROMLAUF GILT FUER VAR.01/02

CIRCUIT DIAGRAM IS VALID FOR MOD.01/02




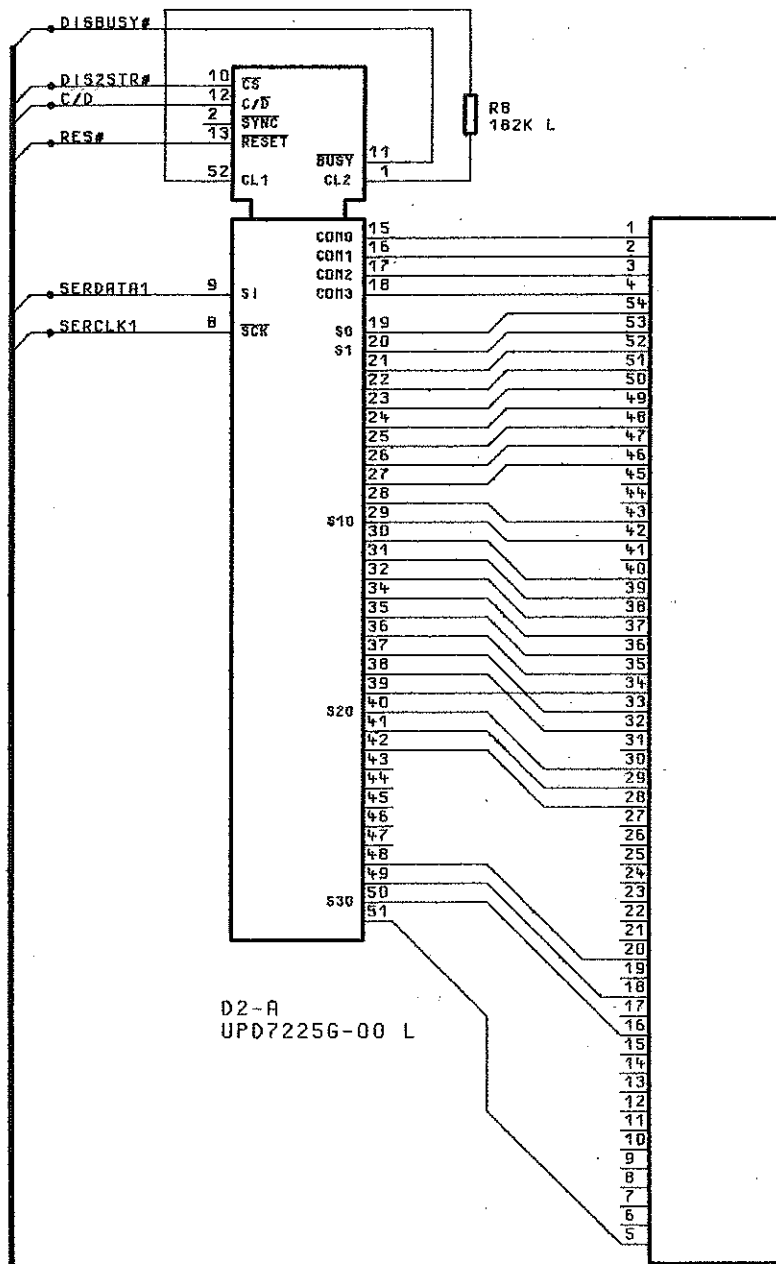
H20

LCD10X 7SEG8



→ S03

| | | | | | | | | | |
|---------------|---------------------------|-------|------|---|----------|-------------|---|-----------|-----------|
| 01/ | | | SP | 1GPK | TAG | NAME | BENENNUNG | | |
| | | | | BEARB. | | SP | ANZEIGE-TASTATUR DISPLAY-KEYBOARD | | |
| | | | | GEPR. | | SP | | | |
| | | | | NORM | | | | | |
| | | | | PLOTT | 08.04.94 | | | | |
| / | | | |  ROHDE&SCHWARZ | | ZEICHN.-NR. | | BLATT-NR. | |
| REND. IND. | RENDERUNGS- MITTEILUNG | DATUM | NAME | ZU GERÄT SMY | | REG.I.V. | 1062.5502 | ERSTE Z. | 1062.5502 |
| | | | | | | | 1062.6809.01S | | 2+ |
| | | | | | | | | | V. BL. |



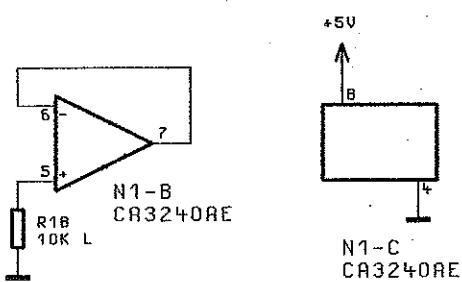
EGM


H20
LCD10X 7SEG M

+5V

R17
22K1 L

C850B-L



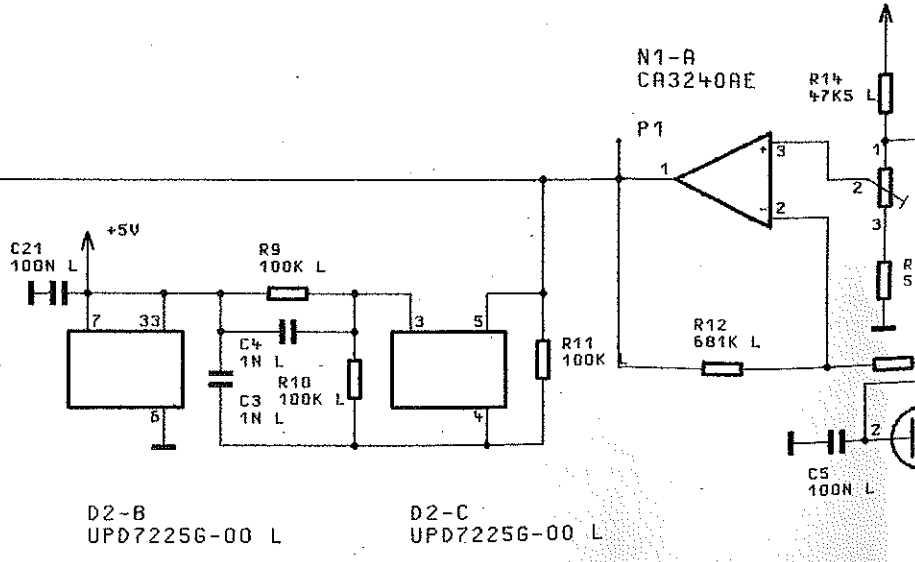
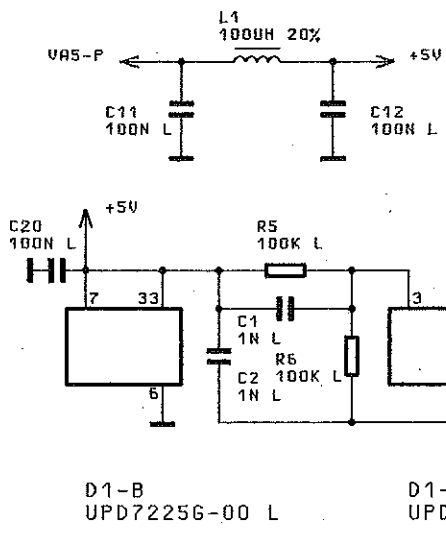
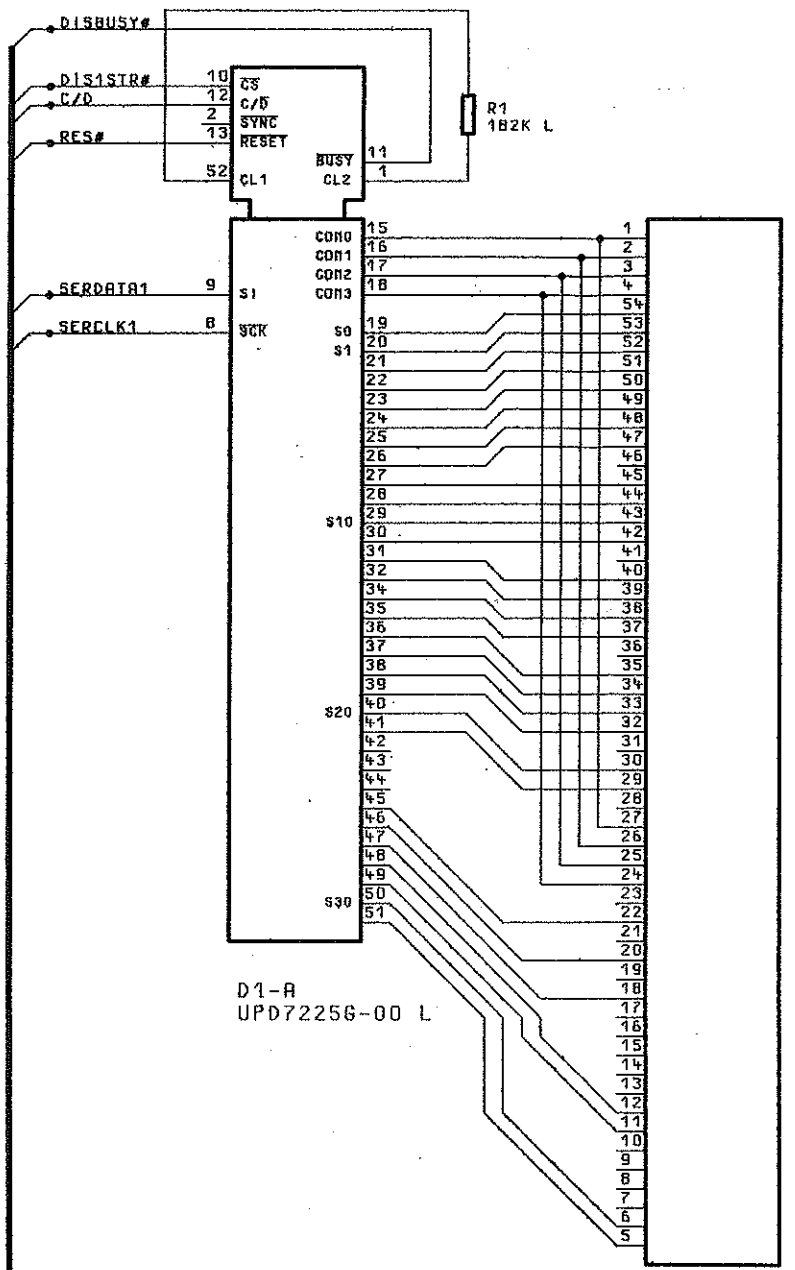
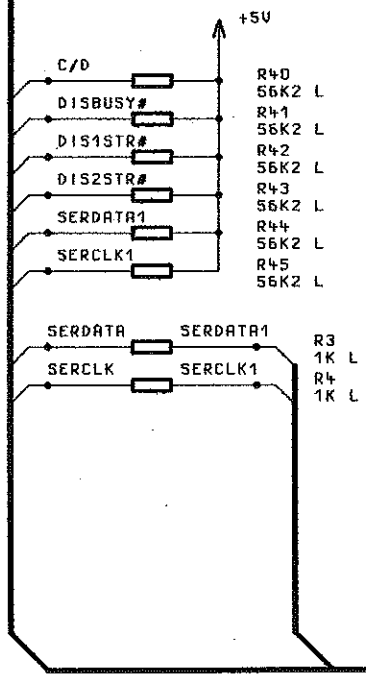
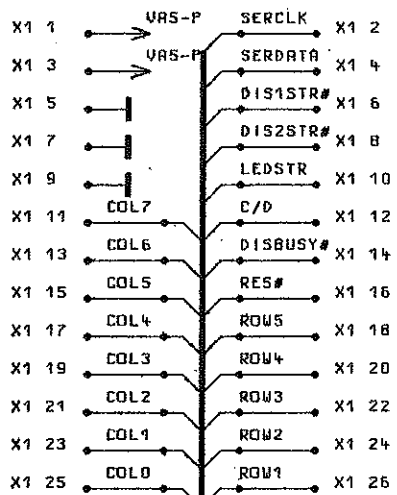
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| D1/ | | | SP | 1GPK | T |
| | | | | BEARB. | |
| | | | | GEPR. | |
| | | | | NDRN | |
| | | | | PLOTT | 08.1 |
| | | | | | |
| | | | | | |
| REND. IND. | RENDERUNGS- MITTEILUNG | DATUM | NAMN |  ZU GERÄT | |

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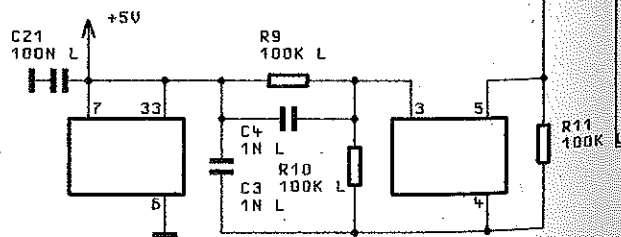
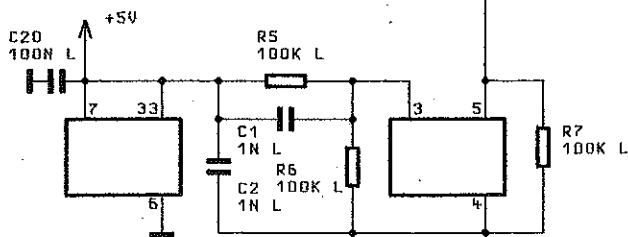
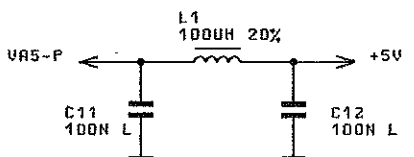
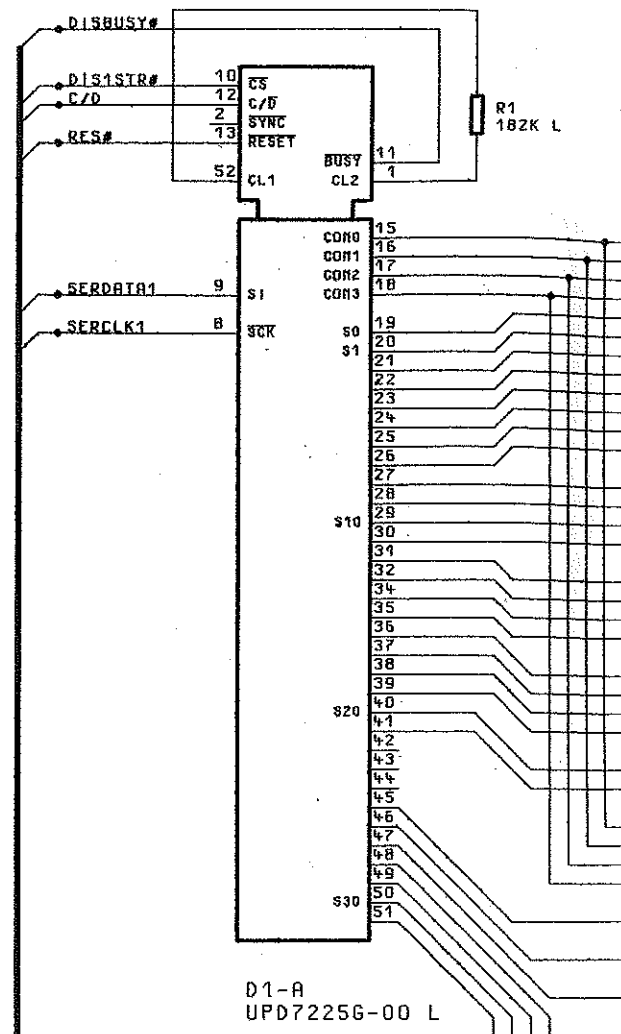
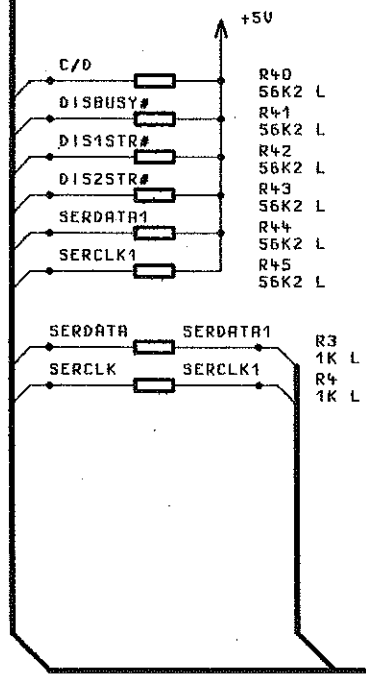
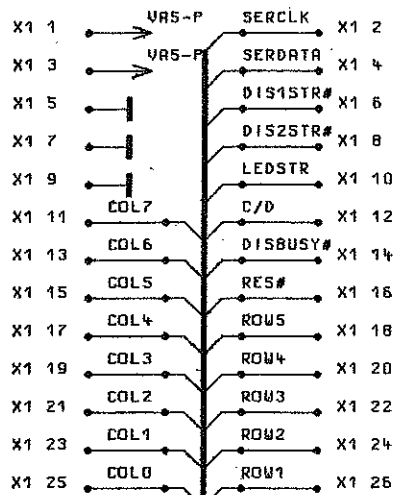
7

8

9



FÜR DIESE UNTERLAGE
BEHALTEN WIR UNS ALLE RECHTE VOR



D1-B
UPD7225G-00 L

D1-C
UPD7225G-00 L

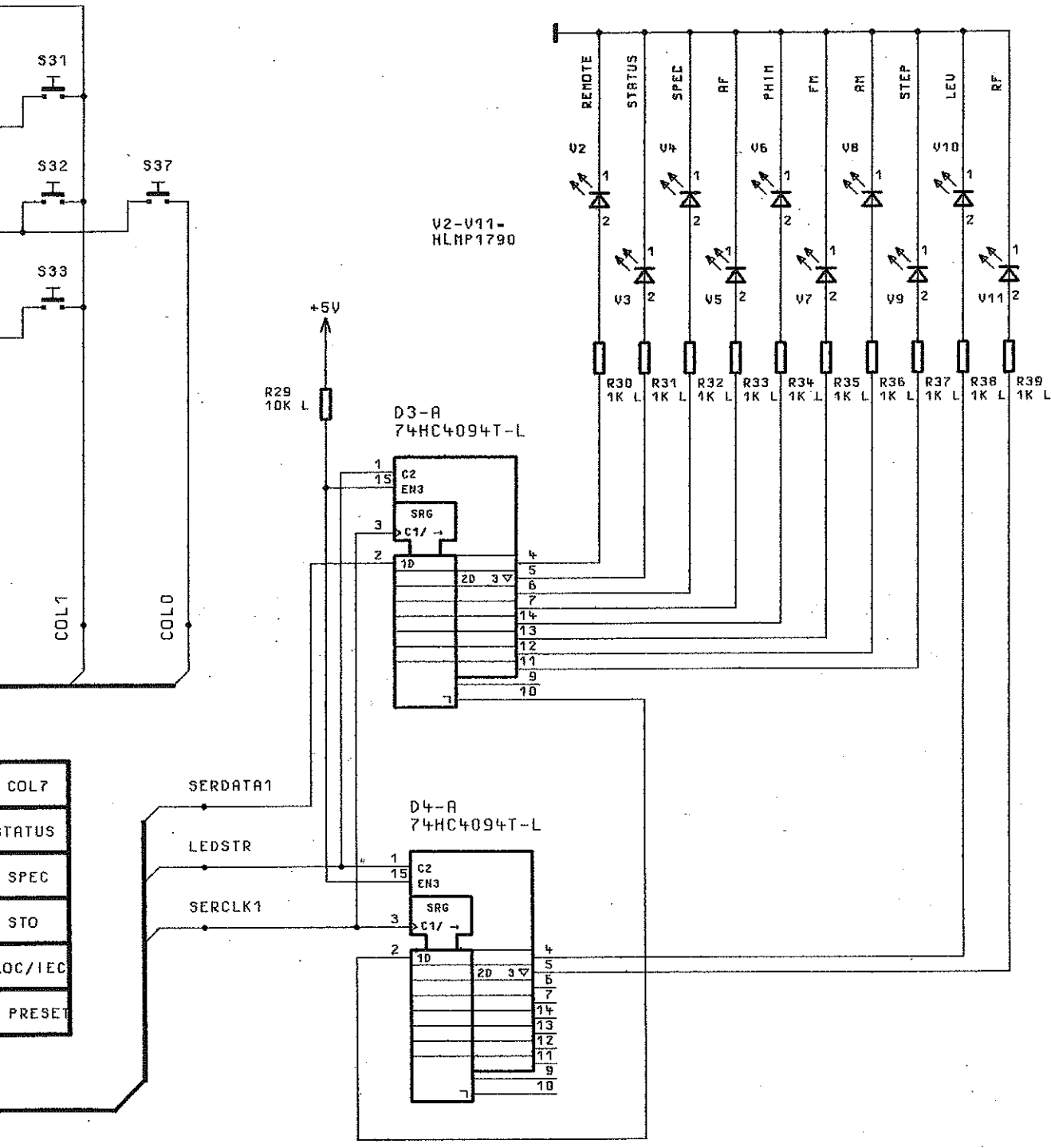
D2-B
UPD7225G-00 L

D2-C
UPD7225G-00 L

ZEICHN.-NR.

F
E
D
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1 2 3 4

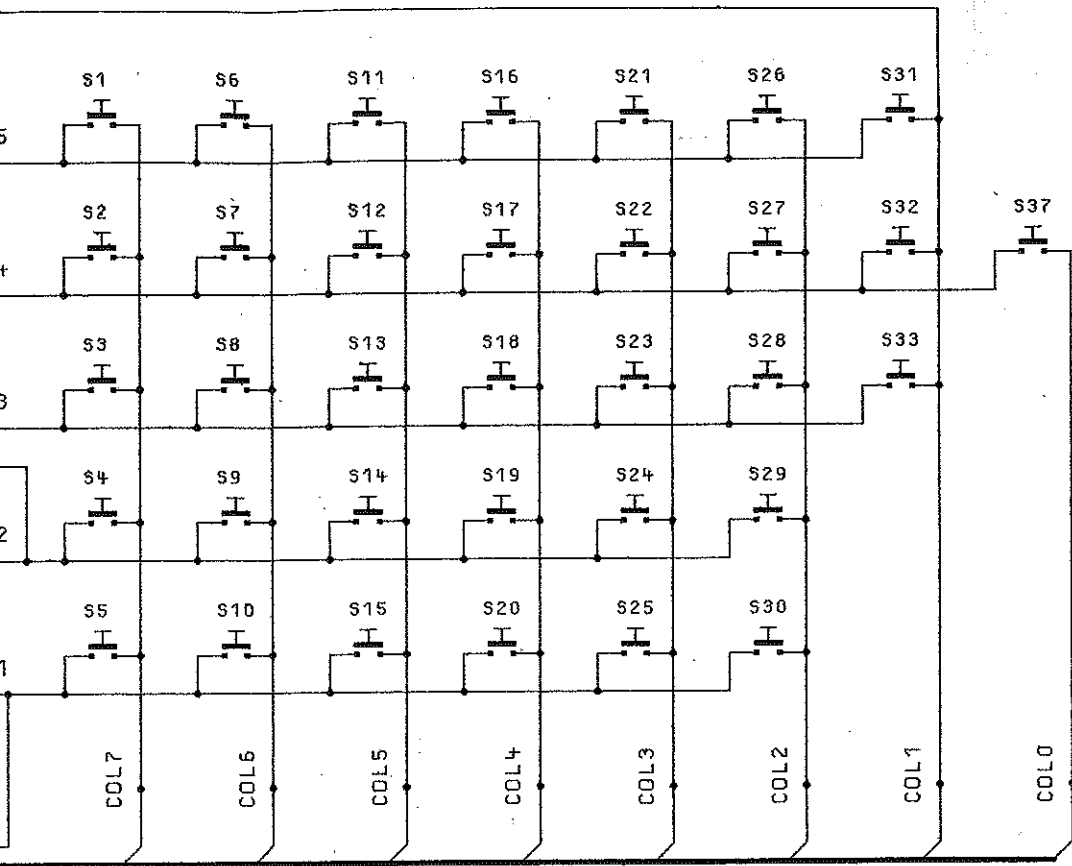


STROMLAUF GILT FUER VAR.02
 CIRCUIT DIAGRAM IS VALID FOR MOD.02

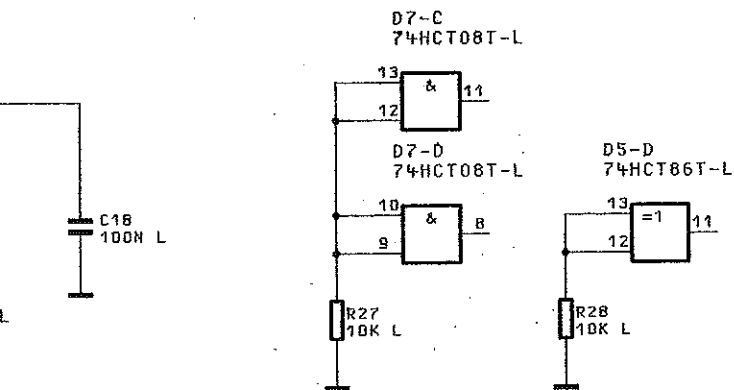
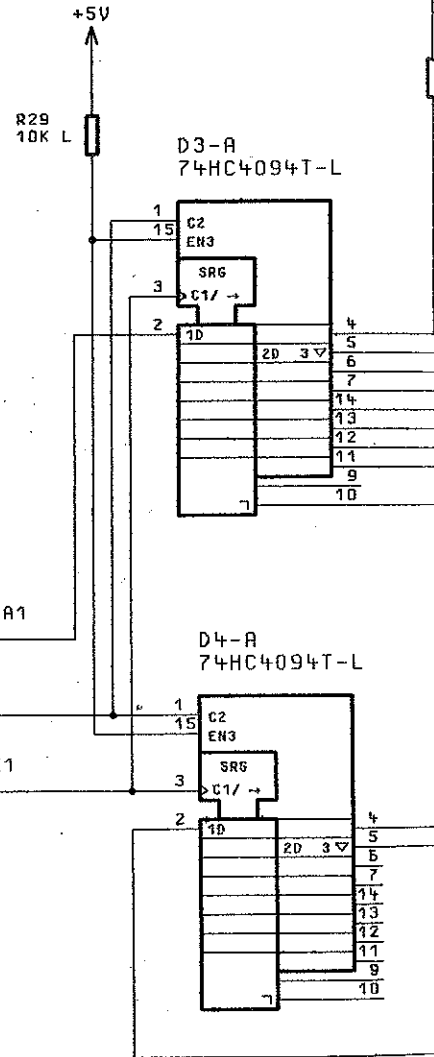


ACHTUNG: EGB!
 ELEKTROSTATISCH GEFÄHRDETE
 BAUELEMENTE ERFORDERN EINE
 BESONDERE HANDHABUNG.
 ATTENTION ESD!
 ELECTROSTATIC SENSITIVE DEVICES
 REQUIRE A SPECIAL HANDLING

| | | | | | | | | | |
|---------------|---------------------------|-------|------|--------------------------------|----------|---------------|--------------------------------------|-----------|-----------|
| 01/ | | | SP | 1GPK | TAG | NAME | BENENNUNG | | |
| | | | | BEARB. | | SP | ANZEIGE-TASTATUR DISPLAY-KEYBOARD | | |
| | | | | GEPR. | | SP | | | |
| | | | | NORM | | | | | |
| | | | | PLOTT | 08.04.94 | | | | |
| | | | | ROHDE & SCHWARZ | | ZEICHN.-NR. | | BLATT-NR. | |
| | | | | | | 1062.6809.015 | | 3- | |
| REND. IND. | RENDERUNGS- MITTEILUNG | DATUM | NAME | ZU GERÄT | SMY | REG. I.V. | 1062.5502 | ERSTE Z. | 1062.5502 |

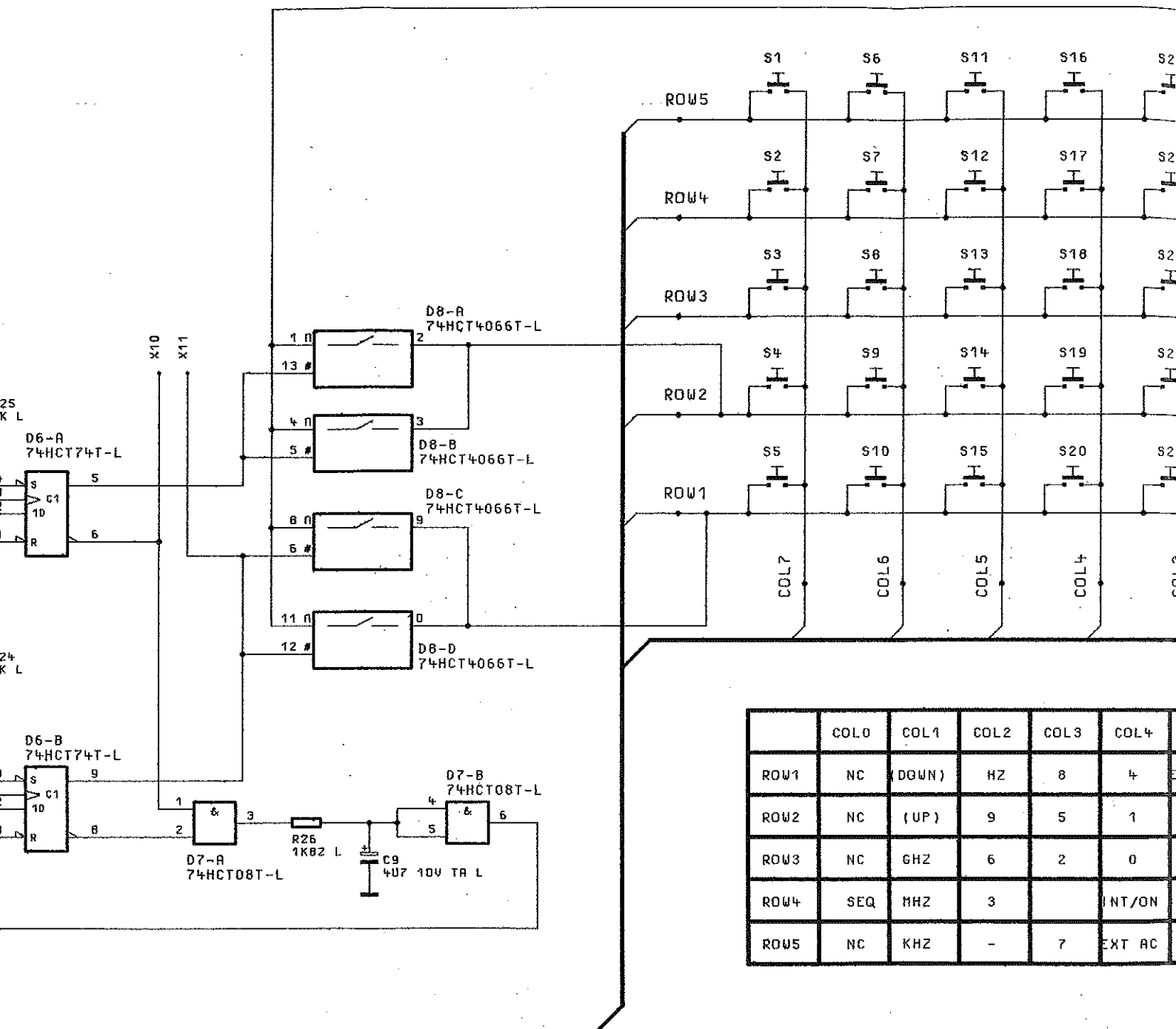


| | COL0 | COL1 | COL2 | COL3 | COL4 | COL5 | COL6 | COL7 |
|------|------|--------|------|------|--------|--------|-------|---------|
| ROW1 | NC | (DOWN) | HZ | 8 | 4 | EXT DC | AM | STATUS |
| ROW2 | NC | (UP) | 9 | 5 | 1 | OFF | FM | SPEC |
| ROW3 | NC | GHZ | 6 | 2 | 0 | RF | PHI M | STO |
| ROW4 | SEQ | MHZ | 3 | | INT/ON | LEV | AF | LOC/IEC |
| ROW5 | NC | KHZ | - | 7 | EXT AC | STEP | RCL | PRESET |

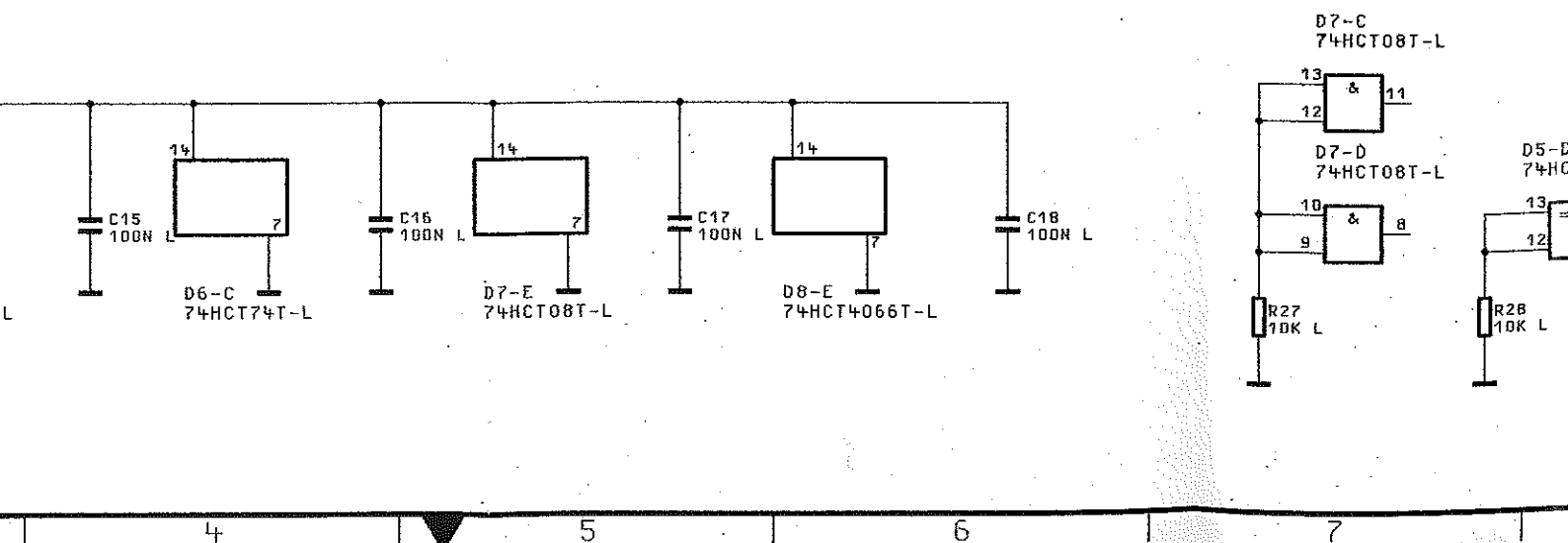


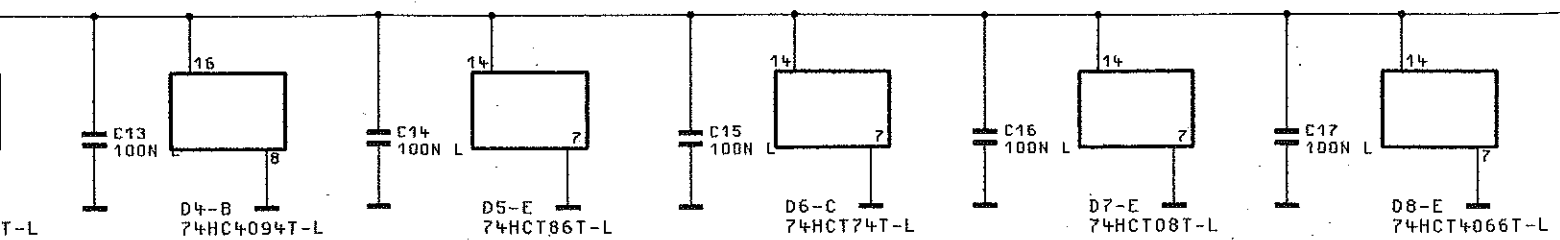
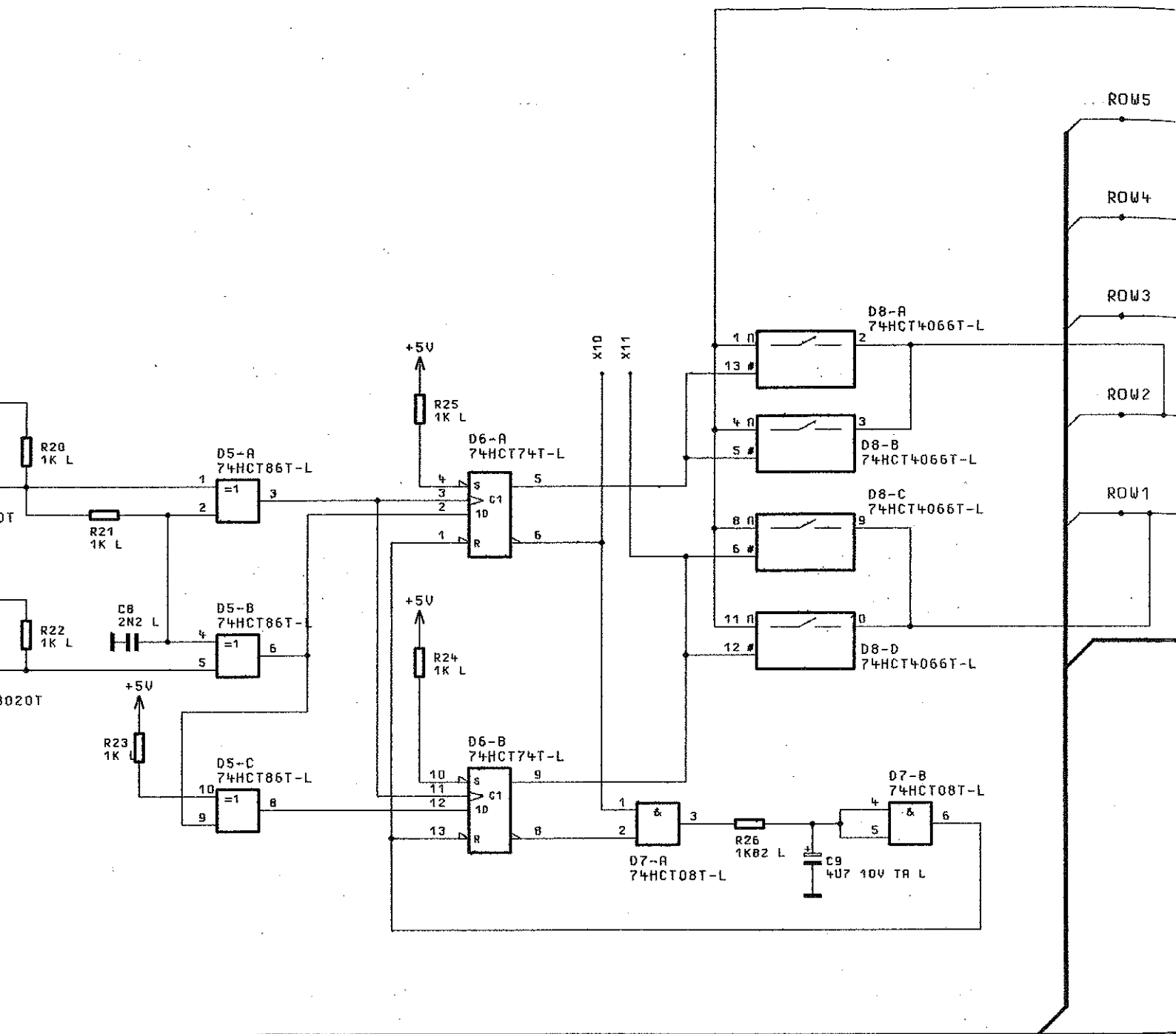
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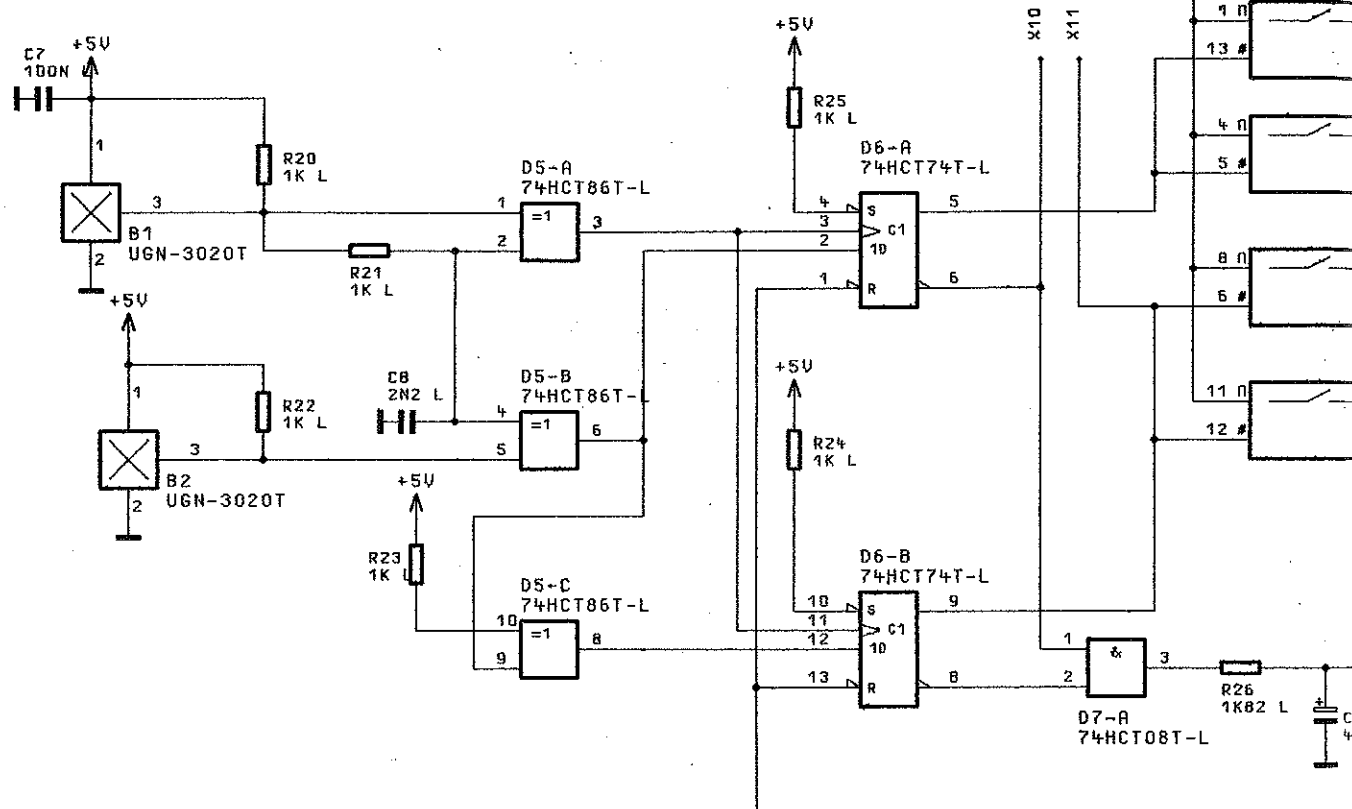


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| ROW2 | NC | (UP) | 9 | 5 | 1 |
| ROW3 | NC | GHZ | 6 | 2 | 0 |
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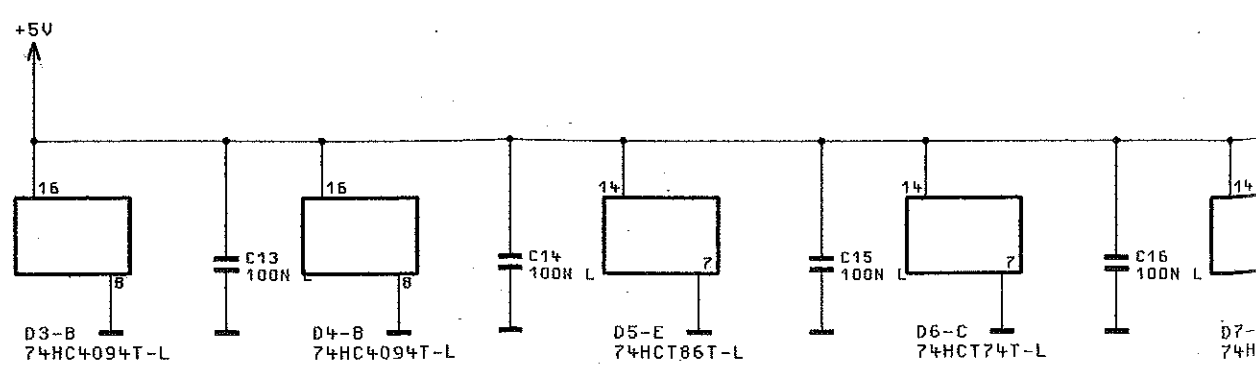




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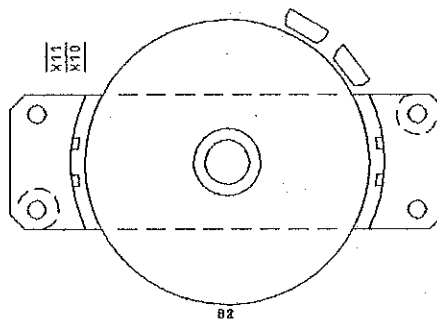
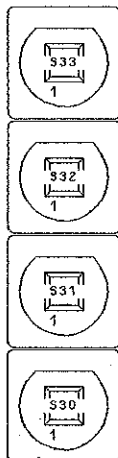
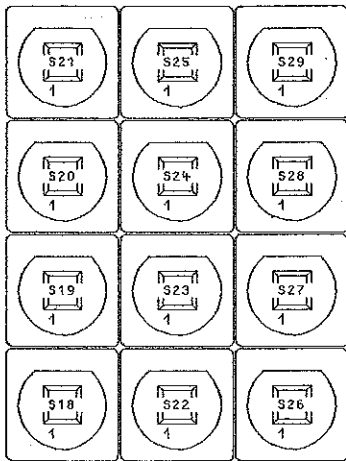


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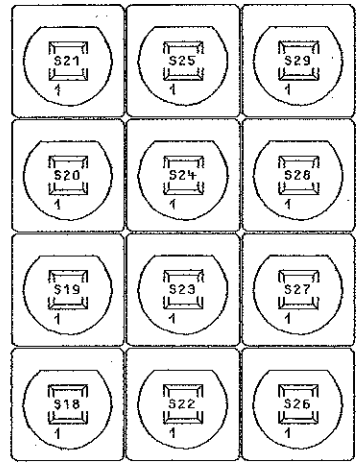
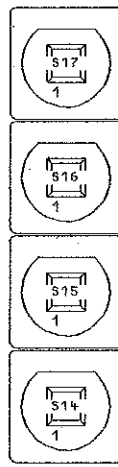
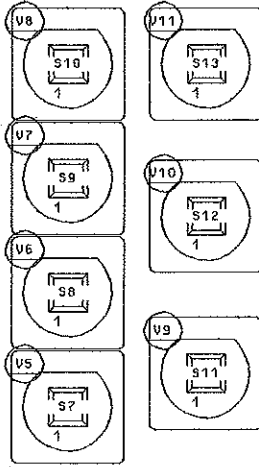
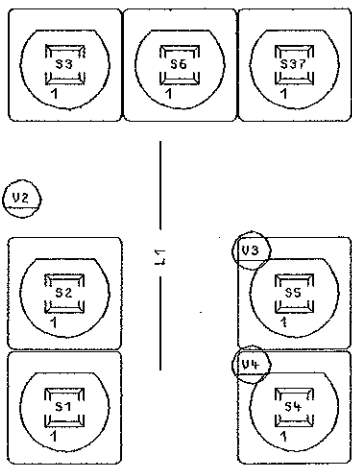
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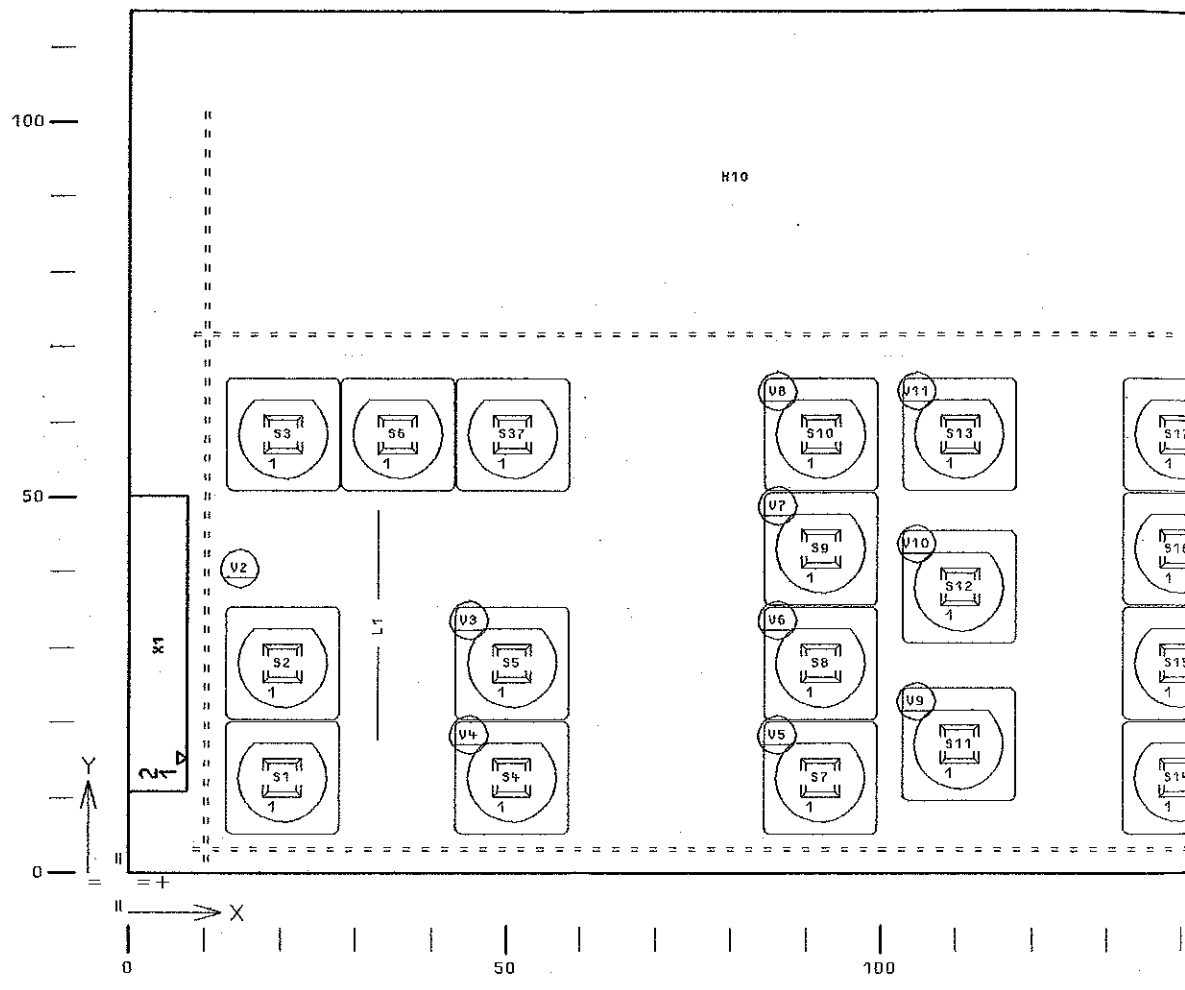
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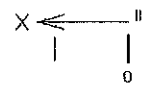
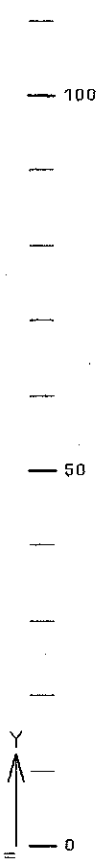
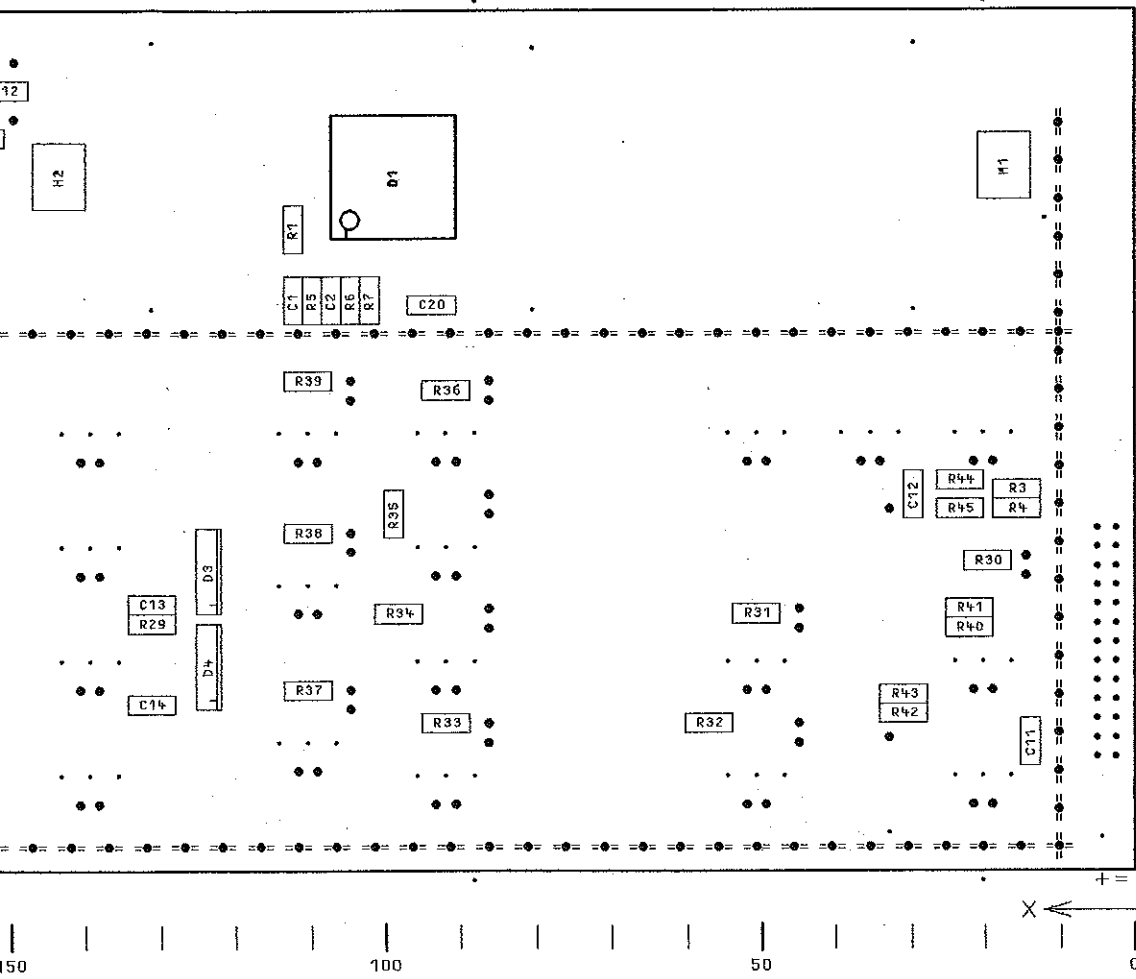


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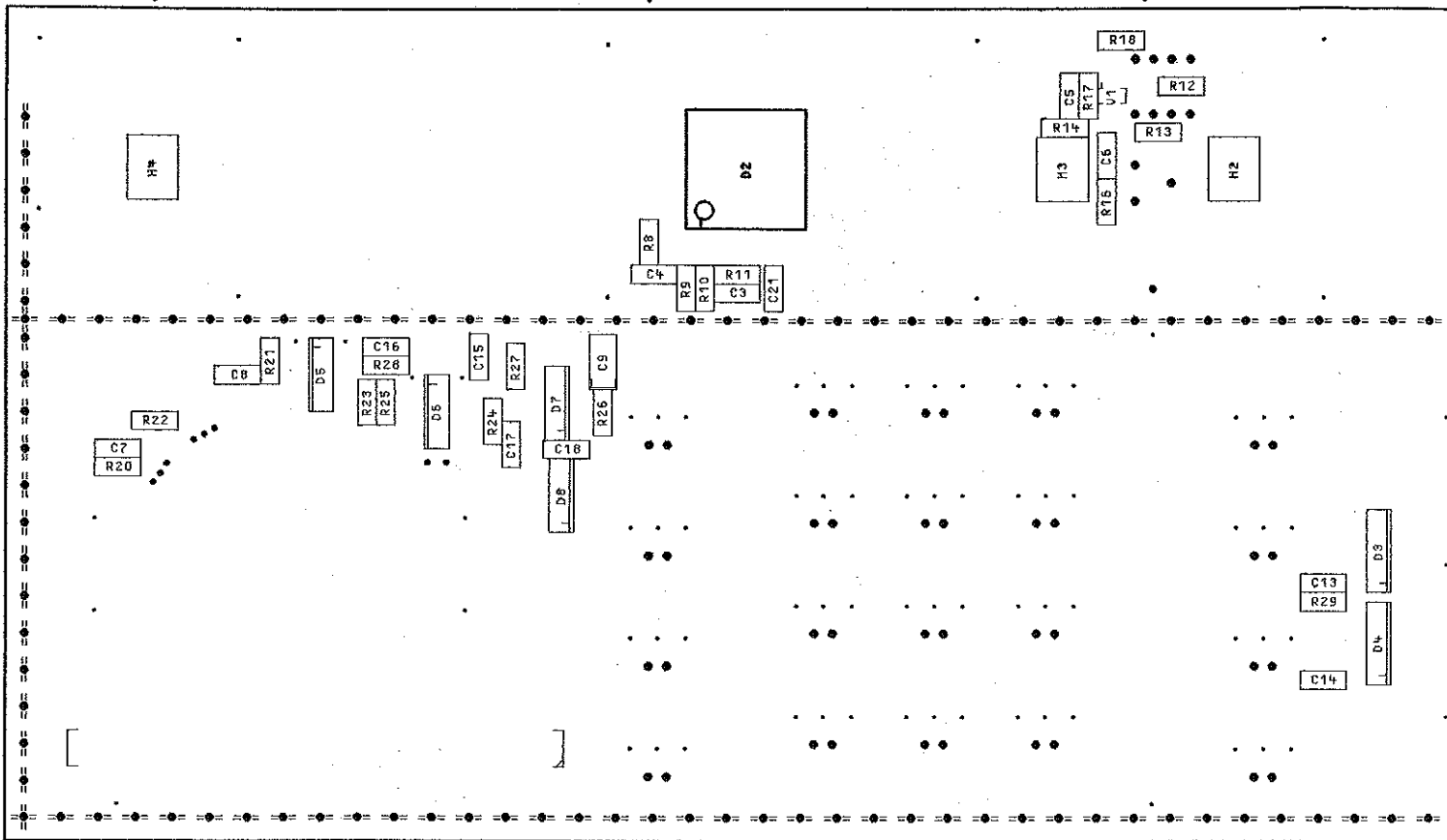
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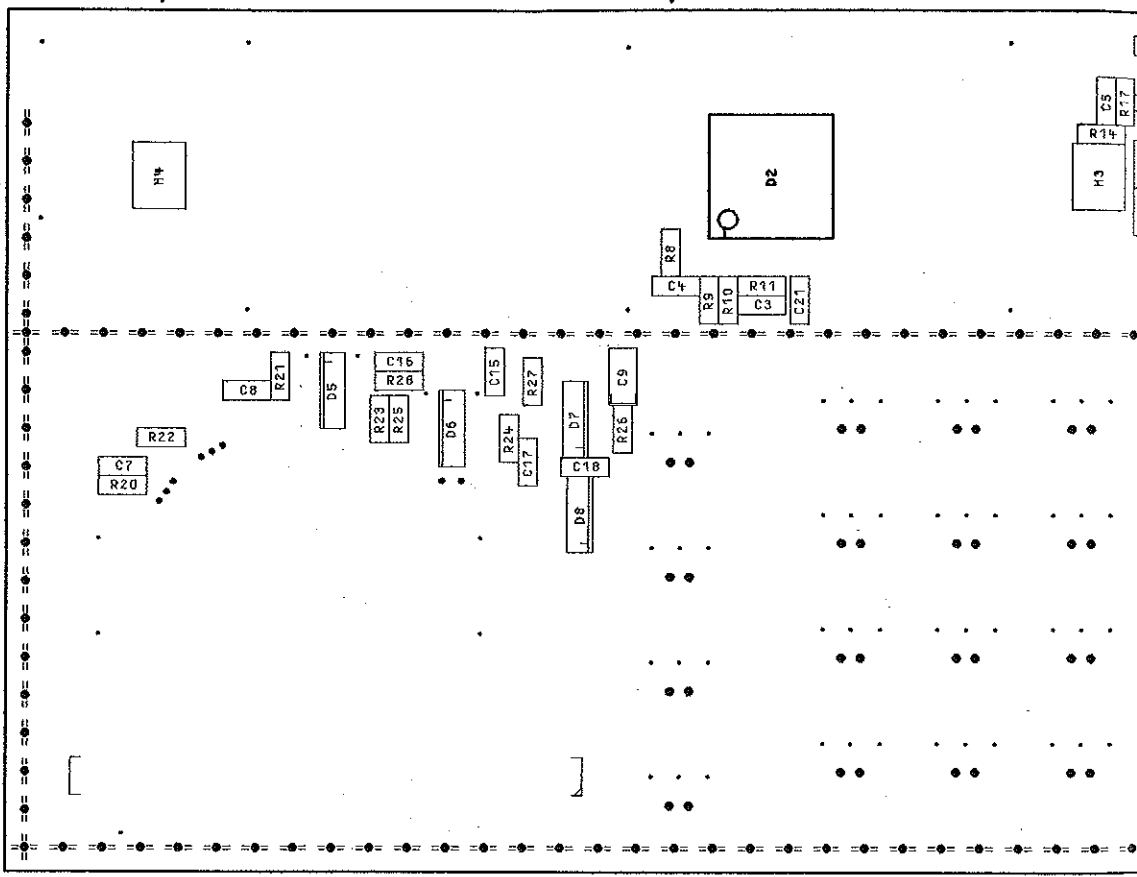
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SERVICEUNTERLAGEN

Baugruppe Synthesizer

1062.6409.01

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7.1 Funktionsbeschreibung

Die Baugruppe YSYN enthält einen FM/ϕM modulierbaren Synthesizer von 65...1040 MHz, den Hubteiler für FM/ϕM sowie die Referenzfrequenzerzeugung, bestehend aus einem 10 MHz VTCXO sowie einem 640 MHz Oszillator als LO für den Mischerbereich der Ausgangsstufe.

7.1.1 Referenzfrequenzen

7.1.1.1 Referenz Intern 10 MHz

Als Standardreferenz wird ein 10 MHz VTCXO (N200) verwendet. Ein Emitterfolger mit Pegelwandler (V205 und V210) verstärkt das Ausgangssignal auf TTL-Pegel (Meßpunkt P201). Gleichzeitig wird hier das Signal der Optionsreferenz (Eingang X128, OPT10) eingespeist. In dieser Betriebsart wird der Standardoszillator mit dem Schalttransistor V200 ausgeschaltet und der Zweig für die Optionsreferenz über die Diode V235 durchgeschaltet. Die Teilerstufe (D205-A) erzeugt die 2 MHz Referenzfrequenz für die PLL der Ausgangsoszillatoren und den Sigma-Delta-Wandler sowie die 1 MHz Vergleichsfrequenz für den Phasendetektor der Referenz-PLL (Meßpunkt P202). Das über D200 ausgekoppelte 10 MHz Signal dient als Referenzfrequenz für die PLL des 640 MHz Oszillators. In dieser Betriebsart steht entweder die Standardreferenz oder, falls bestückt, die Optionsreferenz am Ausgang X127 (EXTREF) zur Verfügung. Die genaue Frequenzeinstellung geschieht mit einem 12-Bit-D/A-Wandler (D220), dem eine 10 Volt Referenzspannung (+10REF) zur Verfügung steht (Abstimmspannung UINT oder OPTTUNE).

7.1.1.2 Referenz Extern 5 oder 10 MHz

In der Betriebsart Referenz Extern können 5 MHz oder 10 MHz mit einer Toleranz von ± 3 ppm an X127 (EXT REF) eingespeist werden. Eine Diodenschaltung (V220) erzeugt dazu ein Oberwellenspektrum, ein Resonanzverstärker (V215) filtert das 10-MHz-Signal aus und der folgende Pegelwandler (V216) verstärkt es auf TTL-Pegel (Meßpunkt P204). Nach Frequenzteilung durch 10 (D205-B) wird es im Phasendetektor D210 mit der heruntergeteilten Frequenz des TCXO's verglichen. Der Standardreferenzoszillator wird hierbei in einer PLL mit einer Bandbreite von 2 Hz auf die externe Referenz synchronisiert. Die Abstimmspannung der PLL kann an P203 (U-PLL-VTCXO) nachgemessen werden. Ist ein optionaler Referenzoszillator (SM-B1) vorhanden, so ist dessen Pegel in der Betriebsart Ext. Referenz abgeschaltet.

Über einen Spannungsfolger (N220-C) wird die Abstimmspannung des Oszillators in beiden Betriebsarten mit dem Fensterkomparator N100 überwacht.

7.1.1.3 640 MHz Oszillator mit PLL

Der 640 MHz Oszillator ist mit einem keramischen Resonator (X300) aufgebaut, der mit einer Kapazitätsdiode (V300) fein abgestimmt wird. Die Transistorstufe V305 entdämpft mit ihrer negativen Impedanz den Schwingkreis. Über einen Trennverstärker (N300) wird das Oszillatorsignal am Emitter ausgekoppelt.

Über einen ohmschen Leistungsteiler verteilt sich das Signal auf den Ausgangsverstärker (V330) sowie den Frequenzteiler (B360), der das Signal für die PLL auf 10 MHz herunterteilt.

Der Ausgangsverstärker mit einem "Dual Gate MESFET" (V330) verstärkt das Oszillatorsignal auf ca 10 dBm (X125, REF640). Ist der Mischerzweig im Ausgangsteil nicht aktiv, so läßt sich über die Schalttransistoren (V340, V345) der Ausgangspegel über das Gate2 des Ausgangsverstärkers um mehr als 40 dB absenken (Steuersignal S-Ref 640).

Das über den Festteiler durch 64 erzeugte Signal wird mit der Transistorstufe V370 auf TTL-Pegel gewandelt (Meßpunkt P354) und wird am Phasendetektor (D255) mit der 10-MHz-Referenzfrequenz verglichen. Die Ausgangsspannung des PI-Reglers (N250) stimmt den Oszillator ab, die Bandbreite der PLL beträgt ca. 300 Hz.

Der Pegel des 640-MHz-Ausgangsverstärkers wird von einem Diagnosegleichrichter (V347) gemessen. Die Regelspannung der PLL wird von einem Fensterkomparator (N105) überwacht.

7.1.2 Synthesizer 65...1040 MHz

7.1.2.1 Oszillatoren 520..1040 MHz

Zwei Oszillatoren mit einem Abstimmbereich von jeweils 260 MHz erzeugen die Frequenz der Grundoktave. Ein Transistor mit einer negativen Impedanz an der Basis (V404 und V434) entdämpft den Serienschwingkreis, der aus einem Porzellankondensator (C402 und C432), einer gedruckten Induktivität und zwei mal zwei parallel geschalteten Kapazitätsdioden (V400-V403 und V430-V433) besteht. Durch die geringen Toleranzen der schwingkreisbestimmenden Elemente ist kein Frequenzabgleich der Oszillatoren notwendig. Eine Stromquelle (V406 und V436), deren Versorgungsspannung über eine Transistorstufe ein- und ausgeschaltet werden kann, stabilisiert den Arbeitspunkt des Oszillators über den Abstimmbereich. Über einen PIN-Schalter (V490 und V492) wird das Ausgangssignal, je nach aktivem Oszillator, zu der Trennstufe N490 geführt. Ein ohmscher Leistungsteiler verzweigt das Oszillatorsignal auf die Ausgangsteiler sowie den Fractional-N-Teiler der PLL.

7.1.2.2 Ausgangsteiler

Die Ausgangsfrequenzen von 65...520 MHz werden durch Frequenzteilung durch zwei, vier und acht realisiert. Es werden ein Teiler durch 2 (D510) und ein Teiler durch 4 (D520) verwendet. Durch Kettenschaltung der beiden Teiler entsteht der Teilerfaktor acht. Die einzelnen Signalpfade werden über PIN-Schalter (S1...S6) geschaltet. Die Teilerbausteine werden über die Versorgungsspannung mit den Transistoren V510 und V520 ein- und ausgeschaltet. Der Ausgangsverstärker N560 erhöht den Pegel auf ca. 8..12 dBm. Dieser Ausgangspegel wird über den Diagnosegleichrichter V555 überwacht.

7.1.2.3 Fractional-N-Teiler und PLL

Die Ausgangsoszillatoren werden in einer PLL mit einem Fractional-Divider auf die Referenzfrequenz von 2 MHz geregelt. Dieser Schaltungsteil ist im Gatearray FRACSYN (D65) integriert.

Die beiden MMIC-Verstärker N600 und N610 entkoppeln die Teilerschaltung von den Oszillatoren. Die beiden Frequenzteiler (D620 und D630) teilen die Oszillatorfrequenz durch 16 und liefern somit Eingangsfrequenzen von 32.5...65 MHz für den FRACSYN, der die eigentliche Fractional-Teilung durchführt (Meßpunkt P600).

Der Baustein FRACSYN berechnet für jede Referenzperiode, aus dem über eine serielle Schnittstelle programmierten Teilungsfaktor sowie dem eingestellten Hub, den neuen Teilungsfaktor. Dessen Ausgangstakt CKO von 2 MHz wird mit dem Synchronisierflipflop D655 auf den Eingangstakt des FRACSYN synchronisiert. Das synchronisierte 2 MHz Signal gelangt von hier zum Phasendetektor D700. Die aus dem Phasenvergleich mit der 2 MHz Referenzfrequenz (2REF) gewonnenen UP/DOWN-Ausgangssignale des Phasendetektors werden in dem Differenzverstärker N710 addiert (Meßpunkt P700). Die Verstärkung des folgenden PI-Reglers (N720) läßt sich zur Kompensation der Verstärkungsänderungen in der PLL, hervorgerufen durch den unterschiedlichen Teilungsfaktor sowie die unterschiedliche VCO-Steilheit, mit einem Analogmultiplexer (D720) in 8 Stufen einstellen. Eine Transistorendstufe (V750 und V755) mit Diodenumschaltung der PLL-Bandbreite (V765...768) beschleunigt den Einschwingvorgang der Regelschleife bei Frequenzwechsel. Die Ausgangsspannung des PI-Reglers (A-PI-SYN) wird von einem Fensterkomparator überwacht (N110). Die Abstimmspannung der Oszillatoren kann über eine Diagnosestelle gemessen werden.

7.1.3 FM/ϕM Modulation

7.1.3.1 Funktionsprinzip

Durch die Verwendung eines Bruchteilers mit einem digitalen Modulationseingang läßt sich eine relativ einfache und dennoch präzise FM AC/DC und ϕM-Schaltung realisieren.

Dabei wird die Modulation über zwei Pfade mit unterschiedlichen Frequenzgängen übertragen. In dem ersten Pfad wird bei FM nach A/D-Wandlung mit einem Sigma-Delta-Wandler direkt der Teilungsfaktor und damit die momentane Mittenfrequenz moduliert. Dieser Teil hat die Tiefpaßfunktion für die Nutzübertragung einer PLL, gleichzeitig ist hier die PLL ein Tiefpaß für das Quantisierungsgeräusch des A/D-Wandlers. In dem zweiten Pfad wird direkt der Oszillator moduliert, dieser Teil hat die Hochpaßfunktion für die Störübertragung einer PLL. Bei gleicher Empfindlichkeit und Laufzeit in beiden Zweigen ergibt sich ein ebener Frequenzgang mit konstanter Gruppenlaufzeit.

ϕM wird durch Differenzieren der Modulationsspannung erzeugt. Die Grenzfrequenz des Differenzierers liegt bei 40 kHz. Eine DC-Modulation ist somit bei ϕM nicht möglich. Die Übertragungsfunktionen sind die gleichen wie bei FM.

7.1.3.2 FM/ϕM-Hubteiler

Zur Einspeisung der Modulationssignale stehen die zwei Eingänge INT1 und EXT1 zur Verfügung. Der externe Modulationseingang verfügt über einen hochohmigen Eingangsverstärker (N800) mit umschaltbarer AC/DC-Kopplung (D820). Die Eingangsimpedanz kann über die Steckbrücke X80 gewählt werden. Sie beträgt 100 kΩ oder 600 Ω. Über den Schalter D800 wird das gewünschte Modulationssignal ausgewählt. Dabei ist eine Einton- (Extern oder Intern) sowie Zweitonmodulation (Extern und Intern) möglich. Die Verstärker N845 und N850 verstärken das Eingangssignal von $1V_S$ auf $6V_S$. Über den Verstärker N850 wird dazwischen das Signal für den Sigma-Delta-Wandler abgezweigt. Der hier fließende Strom ist immer konstant. Im Steuerzweig für die Modulation über die Oszillatoren wird zur Feineinstellung des Hubes ein multiplizierender 12 Bit D/A-Wandler (D840) verwendet. Der folgende Operationsverstärker führt eine Impedanzwandlung durch.

Zur Grobeinstellung des Hubes am Oszillator wird eine Eichleitung in Kettenleiterstruktur mit 12 dB Schritten verwendet (dividiert 1...4096). Die Abgriffe werden von dem Analogmultiplexer D960 geschaltet. Bei ausgeschalteter Modulation wird über einen FET (N960) der Oszillatoreingang auf Masse gelegt um so das Widerstandsrauschen zu minimieren.

Die Hubwertigkeit für die Modulation des Teilungsfaktors über den Sigma-Delta-Wandler wird grob intern im FRACSYN und fein über die ADWE-Eingänge (Schieberegister D660 und D665) mit 16 Bit Auflösung eingestellt.

Für ϕ M wird in den gemeinsamen Zweig eine Differenzierschaltung (Reedrelais K910) eingeschaltet. Die Übertragungswege sind ansonsten identisch zur FM.

Der Pegel am EXT-Eingang wird von der Fensterkomparatorschaltung mit N860 und D870 überwacht. Bei Abweichung vom Sollpegel von 1...3 % wird je nach Richtung, der Interrupt FMKOMPFI (Eingespeiste Spannung zu groß) oder FMKOMPLO (Eingespeiste Spannung zu klein) ausgelöst.

7.1.3.3 Sigma-Delta-Wandler und FM-DC Regelung

Zur Modulation des Teilungsfaktors wird ein Sigma-Delta-Wandler 3.ter Ordnung (N940, N950, N960, D950 und D965) eingesetzt, der das analoge Modulationssignal in ein digitales Signal umwandelt. Der gleitende Mittelwert des 1 Bit Ausgangssignals entspricht dabei der analogen Eingangsgröße. Das dabei entstehende Quantisierungsgeräusch wird durch die Tiefpaßfunktion der PLL gefiltert. Eine Laufzeitentzerrerschaltung am Eingang des Wandlers sorgt für gleiche Gruppenlaufzeit in beiden Modulationswegen. Da alle Offsetspannungen auch bei AC-Betrieb zu einer Verschiebung der Mittenfrequenz führen, werden diese durch eine Mittelwertregelung kompensiert. Bei FM-DC muß die Regelung geklemmt werden, um die DC-Modulationsspannung nicht auszuregeln. Dieser Schaltungs- teil befindet sich ebenfalls im Gatearray FRACSYN.

7.1.4 Kalibrierroutinen

7.1.4.1 VCO-Kalibrierung

Es wird im 5 MHz Raster eine Tabelle der jeweiligen Abstimmspannung der Oszillatoren angelegt. Aus diesen, über die Diagnose ermittelten Werten, kann die jeweilige Oszillatorsteilheit $k_o(f)$ berechnet werden. Zwischenwerte werden hierbei linear interpoliert. Sie wird benötigt um die notwendige PLL-GAIN zu ermitteln, mit der die Verstärkungsschwankungen in der Regelschleife kompensiert werden. Die ermittelten Steilheitswerte werden ebenfalls als Startwerte zur Berechnung der Hubsteilheit für die FM-Kalibrierung benötigt.

7.1.4.2 FM-Kalibrierung

Für die Kalibriertabelle der Hubsteilheit mißt ein Diagnosedetektor (N780, V781, C782) bei einer Modulationsfrequenz von 1 kHz den Differenzhub in der Regelschleife. In einer Abgleichroutine werden die Stellglieder des FM/PHIM-Hubteilers so lange verändert, bis der gemessene Differenzhub minimal wird. Aus den so ermittelten Einstellwerten wird die Modulationssteilheit des Oszillators bei der jeweiligen Frequenz berechnet. Diese Tabelle wird ebenfalls im 5 MHz Raster aufgenommen.

7.2 Meßgeräte und Hilfsmittel

- HF-Spektrumanalysator (FSA)
- HF-Signalgenerator (SMGU, SME)
- Funktionsgenerator $f \geq 2$ MHz, (AFGU, AFS)
- Oszilloskop $f > 250$ MHz
- AC/DC-Voltmeter (URE3)
- Modulationsanalysator mit Klirrfaktormesser (FMA, FMB)

7.3 Fehlersuche

Zur Fehlerdiagnose eignet sich ebenso das im Servicekit SMY-Z1 enthaltene Prüfprogramm, das umfangreiche Diagnosemöglichkeiten bietet.

7.3.1 Synchronisierfehler

Die Fehlermeldungen Error 1 bis Error 3 sind eine Veroderung der Fehlerüberwachungen der Phasenregelschleifen für den 10 MHz TCXO, den 640 MHz Oszillator sowie der PLL der Ausgangsoszillatoren. Ist ein Fehler an der 10 MHz PLL vorhanden, so kann dies auch zu einem Ausrasten der anderen Regelschleifen führen. Über den entsprechenden Diagnosepunkt kann jeweils nachgeprüft werden, welche der drei Phasenregelschleifen außer Toleranz sind.

Fehlermeldung "Error 1"
10-MHz-Referenzloop außer Synchronisation

Prüfen ob in der Betriebsart ext. Referenz die richtige Frequenz mit ausreichendem Pegel eingespeist wird

Überprüfen der externen Referenz nach 7.4.2.2

Überprüfen des Fensterkomparators N100

Fehlermeldung "Error 2"
640-MHz-Loop außer Synchronisation

Überprüfen ob 10 MHz Referenzfrequenz am Phasendetektor D255.11 anliegt

Überprüfen des 640 MHz Oszillators und der PLL nach 7.4.3.1

Überprüfen des Fensterkomparators N105

Fehlermeldung "Error 3"
Hauptoszillator-Loop außer Synchronisation

Ausgangsoszillatoren nach 7.4.4 überprüfen

Nachmessen ob 2 MHz Referenzsignal am Phasendetektor D700.3 anliegt. PLL der Ausgangsoszillatoren nach 7.4.5 überprüfen

Überprüfen des Fensterkomparators N110

7.3.2

Fehler bei CW-Betrieb

Kein Ausgangspegel oder Ausgangspegel zu gering an X124

Ausgangssoszillatoren nach 7.4.4 überprüfen

Ausgangsteiler mit Teilern nach 7.4.6 überprüfen

Nachprüfen der Arbeitspunkte bzw. der HF-Pegel der sich im Pfad befindenden Verstärker (Tabelle 7.4.13.3)

**Störhub zu groß
(keine Nebenwellen)**

Kalibrierroutine VCO mit **SPEC 41** durchführen

Oszillatoren nach 7.4.4 überprüfen, ebenso deren Arbeitspunkte nach Tabelle 7.4.13.3

Störhub der Oszillatoren messen, die eingespeiste DC-Spannung muß ausreichend brumm- und rauschfrei sein

PLL der Ausgangssoszillatoren nach 7.4.5.1-7.4.5.3 überprüfen, Versorgungsspannungen von FRACSYN und Phasendetektor nachprüfen (7.4.1)

Nebenwellen > -70 dBc für Ablagefrequenzen > 5 kHz zum Träger

Kalibrierroutine VCO mit **SPEC 41** durchführen

Phasenoffset des Phasendetektors überprüfen, DC-Spannung an C701 sollte 1.65 V betragen

Versorgungsspannung FRACSYN und Phasendetektor überprüfen (7.4.1)

7.3.3

Fehler bei FM-/ ϕ M-Modulation

**Hubfehler bei FM oder ϕ M;
Stereoübersprechen außer Toleranz
Starke Modulationsverzerrungen bei Maximalhub**

Kalibrierroutine FM mit **SPEC 43** durchführen

Prüfen des Hubteilers nach 7.4.7

Überprüfung der Hubeinstellung nach 7.4.9

FM-Klirrfaktor zu groß

Kalibrierroutine FM mit **SPEC 43** durchführen

Prüfen des Hubteilers nach 7.4.7, Klirrfaktor des Modulationssignals an X84 überprüfen

Überprüfen der FM-Kalibration nach 7.4.10.3

| | |
|--|--|
| Keine oder falsche FM-Modulation bei Modulationsfrequenzen kleiner 1 kHz | Sigma-Delta-Wandler nach 7.4.9 überprüfen Abgleich FM-Hub nach 7.4.10.2 durchführen |
| Keine oder falsche FM-Modulation bei Modulationsfrequenzen größer 1 kHz | Kalibrierroutine FM mit SPEC 43 durchführen Hubteiler nach 7.4.7 überprüfen |
| FM-Frequenzgang zu groß | Hubteiler nach 7.4.7 überprüfen Frequenzgang auch nach dem Grobteiler an D960.3 nachmessen (eingestellter FM-Hub > 3 MHz, RF > 520 MHz) |
| Mittenfrequenzfehler bei FM-DC Modulation, bzw. FM-DC-Mittenfrequenzkalibrierung (Specialfunktion 55) wird nicht richtig ausgeführt) | Sigma-Delta-Wandler und FM-DC Regelung nach 7.4.9 überprüfen |
| Keine oder falsche ϕ M-Modulation | Überprüfen ob eine äquivalente eingestellte FM-Modulation richtig ist, ansonsten Fehler beim PM-Differenzierer (Hochpass mit C913 und R848, wird überprüft in 7.4.7) (äquivalente FM = eingestellte PM * eingespeiste NF-Frequenz) |

7.3.4 Kalibrierungen

| | |
|---|---|
| Fehlermeldung "Error 15" Kalibrierung VCO fehlerhaft | Ausgangssoszillatoren nach 7.4.4 überprüfen PLL der Ausgangssoszillatoren nach 7.4.5 überprüfen Einschwingverhalten der Synthese nach 7.4.11 überprüfen |
| Fehlermeldung "Error 15" Kalibrierung FM fehlerhaft | Überprüfen des FM-Diagnosedetektors nach 7.4.10.1, der Offset des Diagnosedetektors (Testpunkt 15 über Diagnose messen, keine NF-Frequenz einspeisen) muß kleiner 50 mV sein Überprüfen des Hubteilers nach 7.4.7 Sigma-Delta-Wandler nach 7.4.9 überprüfen Laufzeitverzerrung am Eingang Sigma-Delta-Wandler prüfen |

7.4 Prüfen und Abgleich

Alle Meßwerte ohne Toleranzangaben sind als Richtwerte zu verstehen. Spannungsangaben ohne weitere Bezeichnung bedeuten DC-Spannungen.

Wird die Baugruppe mit geöffnetem Deckel betrieben, so müssen die zwei Oszillatorkammern mit Prüfdeckeln auf der Bauteil- und Lötseite geschlossen werden.

Vor allen Prüfungen ist mit **PRESET** der SMY in einen definierten Anfangszustand zu bringen.

7.4.1 Datenübertragung und Stromversorgung

(Hierzu Stromlaufblatt 9)

Gemäß Gerätestandard wird die Baugruppe über eine serielle Schnittstelle angesteuert. Die Datenübertragung erfolgt hierbei auf zwei verschiedenen Subadressen. Die Datenübernahme erfolgt mit den beiden Baugruppenstrobes HF1STB und HF2STB. Die Einstellungen und die zugehörigen Daten sind im Kapitel 'Digitale Schnittstellen' zu finden.

Die Stromaufnahme kann überprüft werden, indem anstelle der Spulen L1 bis L5 ein Amperemeter eingeschleift wird. Die Sollwerte sind im Kapitel 'Externe Schnittstellen' zu finden.

Die wichtigsten Referenz- bzw. Versorgungsspannungen werden mit dem DC-Voltmeter nachgemessen.

| Meßpunkt | Art der Spannung | Spannung [V] |
|----------|-------------------------------|---------------|
| P20 | 10 V Referenz | +9.9...+10.1 |
| P21 | Versorgungssp. 5 V analog | +5.1 ... +5.4 |
| D700_14 | Versorgungssp. Phasendetektor | 4.6...5.0 V |
| D65_84 | Versorgungssp. FRACSYN | 5.1...5.5 V |

7.4.2 Referenzfrequenzerzeugung

7.4.2.1 Referenz Intern

(Hierzu Stromlaufblatt 2)

Für verschiedene D/A-Wandler Werte wird die Abstimmspannung für die interne Referenz über die Diagnose abgelesen (Funktion D/A-Wandler). Auf dem Oszilloskop muß ein 10 MHz HCMOS Signal sichtbar sein (Funktion Pegelwandler). Mit dem Spektrumanalysator kann der Ausgangspegel EXTREF gemessen werden.

- Oszilloskop mit Tastkopf an P201 anschliessen
- Spektrumanalysator an EXTREF (Geräterückwand) anschliessen
- Einstellungen: **SPEC 111**
 RF INT/ON

Die D/A-Wandler-Werte über die Specialfunktion 51 nach Tabelle einstellen und die Diagnosespannung überprüfen. Die eingegebenen Kalibrierwerte werden durch das Drücken der ENTER-Taste übernommen.

| SPEC 51 | Diagnosespannung am Testpunkt 11 |
|---------|----------------------------------|
| 0 | ± 150 mV |
| 4095 | 4.7...5.3 V |
| 2048 | 2.3...2.7 V |

- _ Signal an P201 prüfen: 10 MHz, HCMOS
- _ Ausgangssignal am Spektrumanalysator messen: 10 MHz, 7.5 ± 2 dBm

7.4.2.2 Referenz Extern

(Hierzu Stromlaufblatt 2)

Es wird zuerst der Eingang der Externen Referenz mit der Vervielfacherschaltung getestet.

- Signalgenerator 5 MHz an EXTREF (Geräterückwand) anschließen.
- Oszilloskop mit Tastkopf an P204 anschließen.
- Einstellungen: **RF EXT AC**

- _ Signal an P204 prüfen: 10 MHz, HCMOS-Pegel für Eingangspegel von -13...13 dBm am Eingang EXTREF.

Nun erfolgt die Prüfung der PLL und des Ziehbereiches des VTCXO's. Hierbei wird die Regelspannung über die Diagnose überprüft.

- Einstellungen: **SPEC 111**
- Frequenz des Signalgenerators nach Tabelle einspeisen, Pegel: 7 dBm.

- _ Diagnosespannung nach Tabelle prüfen.

| Frequenz an EXTREF | Diagnosespannung Testpunkt 11 |
|--------------------|-------------------------------|
| 10 MHz | 2.5 ± 0.5 V |
| 9.999970 MHz | > 0.5 V |
| 10.000030 MHz | < 4.5 V |

7.4.3 640 MHz Referenz

7.4.3.1 Oszillator 640 MHz und PLL

(Hierzu Stromlaufblatt 2 und 3)

Es wird die Funktion sowie der Abstimmbereich des Oszillators geprüft.

- Brücke X20 ziehen und Netzgerät (0...20 V) an X20.2 und X20.3 (Masse) anschließen.
- Spektrumanalysator mit Einstellung CF 640 MHz, SPAN 50 MHz und REF LEVEL 10 dBm an X125 anschließen.

- Einstellungen: **RF 50 MHz**

- _ Abstimmspannung von 0...20 V variieren, der Oszillator muß im gesamten Abstimmbereich bei 640 ± 20 MHz ohne Aussetzer, Nebenlinien oder Rauschüberhöhungen schwingen.
- _ Abstimmspannung zwischen 2 und 18 V umschalten, die Frequenzänderung des Oszillators muß > 15 MHz und < 25 MHz sein.
- _ Die Abstimmspannung für 640 MHz muß > 4V und < 16V sein.

- Netzgerät wieder entfernen und Brücke X20 auf 1-2 stecken.

Bei geschlossener PLL wird nun die Abstimmspannung über die Diagnose gemessen.

- Einstellungen: **SPEC 112**

_ Diagnosespannung am Testpunkt 12: 10 ± 6 V

7.4.3.2 Ausgangsverstärker 640 MHz

(Hierzu Stromlaufblatt 3)

Der Ausgangspegel wird bei ein- und ausgeschaltetem Signal überprüft.

- Spektrumanalysator mit Einstellung CF 640 MHz, SPAN 50 MHz, REF LEVEL 15 dBm an X125 anschließen.

- Einstellungen: **RF 50 MHz**
SPEC 113

_ Pegel 640 MHz am Spektrumanalysator messen: 10 ± 2 dBm.

_ Diagnosespannung am Testpunkt 13: 100...400 mV.

Die Frequenz des SMY wird nun so eingestellt, daß der LO-Verstärker abgeschaltet wird.

- Einstellungen: **RF 100 MHz**

_ Pegel 640 MHz am Spektrumanalysator messen: < -30 dBm.

7.4.4 Ausgangsoszillatoren

(Hierzu Stromlaufblatt 4, 5 und 7)

Es muß unbedingt der bauteilseitige und der lötseitige Trimmdeckel auf den Oszillatorkammern geschraubt sein.

Es wird die Funktion der beiden Ausgangsoszillatoren sowie deren Abstimmbereich überprüft. Die Diagnosespannung für den Ausgangspegel wird ebenfalls überprüft.

- Spektrumanalysator mit Einstellung CF 780 MHz, SPAN 800 MHz, REF LEVEL 15 dBm an X124 anschließen.
- Brücke X75 entfernen und Netzgerät an X75.2 und X75.3 (Masse) anschließen.

_ Die Abstimmspannung wird für beide Oszillatoren von 0...22 V variiert, der Oszillator muß im gesamten Abstimmbereich ohne Aussetzer, Nebenlinien und Rauschüberhöhungen schwingen. Bei der unteren und oberen Frequenzgrenze beider Oszillatoren muß die Abstimmspannung im angegebenen Toleranzfenster (siehe Tabelle) liegen. Der Ausgangspegel an X124 muß zwischen 7 und 14 dBm liegen.

| Einstellung | Oszillator | min. Freq. | Abstimmsp. | max. Freq. | Abstimmsp. |
|-------------|------------|------------|------------|------------|---------------|
| RF 600 MHz | : | 520 MHz | 1.75...4 V | 780 MHz | 16.5...19.5 V |
| RF 900 MHz | : | 780 MHz | 1.75...4 V | 1040 MHz | 16.5...19.5 V |

Bei einer Ausgangsfrequenz von ca. 1040 MHz wird noch die Diagnose getestet.

Einstellungen: **SPEC 114**

_ Diagnosespannung am Testpunkt 14: 80...400 mV

- Netzgerät entfernen und Brücke X75 wieder auf 1-2 stecken.

7.4.5 PLL der Ausgangsoszillatoren

Um mögliche Fehler in einer Phasenregelschleife zu erkennen ist es sinnvoll diese aufzutrennen und die Fehlersuche an der geöffneten PLL durchzuführen. Hierzu bleibt die Steckbrücke X75 während den Prüfungen 7.4.5.1 - 7.4.5.3 entfernt.

Um besser die eingestellte Ausgangsfrequenz verfolgen zu können, sollte man einen Spektrumsanalysator an X124 anschliessen.

7.4.5.1 Überprüfung der Teiler in der PLL

(Hierzu Stromlaufblatt 6)

Es wird zunächst die Teilerkette im Rückwärtszweig der PLL geprüft.

- Brücke X75 entfernen und Netzgerät an X75.2 und X75.3 (Masse) anschließen.
- Spannung am Netzteil auf ca. 16 V einstellen (Oszillator 2 schwingt auf ca. 1000 MHz)
- Oszilloskop mit Tastkopf an P600 anschließen.

• Einstellungen: **RF 1000 MHz**

_ Signal an P600 prüfen: ca. 62.5 MHz, TTL-Pegel

- Oszilloskop mit Tastkopf an P610 anschließen.

_ Signal an P610 prüfen: ca. 2 MHz, HCMOS-Pegel

7.4.5.2 Überprüfung des Phasendetektors

(Hierzu Stromlaufblatt 7)

Bei der Überprüfung des Phasendetektors wird zunächst sichergestellt, daß die Referenzfrequenz (Signal 2REF), auf die synchronisiert wird, richtig anliegt.

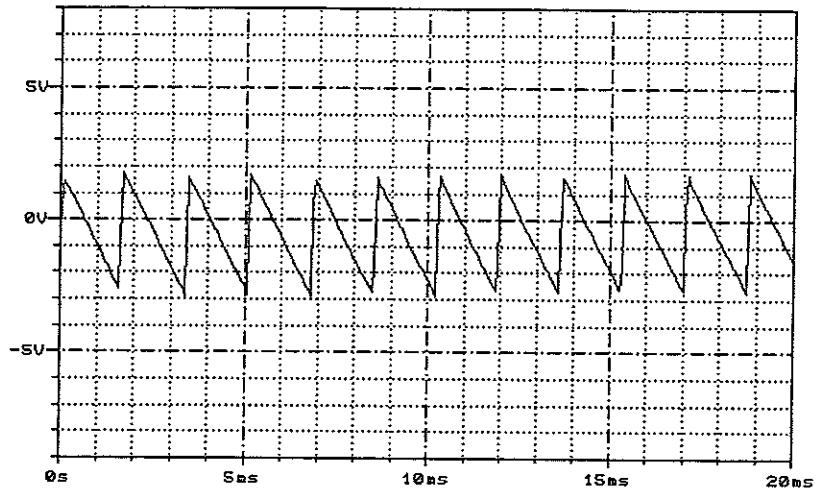
• Einstellungen: **RF 1000 MHz**

_ Signal an D700.3 mit Tastkopf an Oszilloskop überprüfen: 2 MHz, HCMOS-Pegel

- Oszilloskop mit Tastkopf nun an P700 anschließen.
- Spannung am Netzteil an X75 etwas reduzieren, sodaß die Ausgangsfrequenz des Oszillator2 kleiner als 1000 MHz ist.

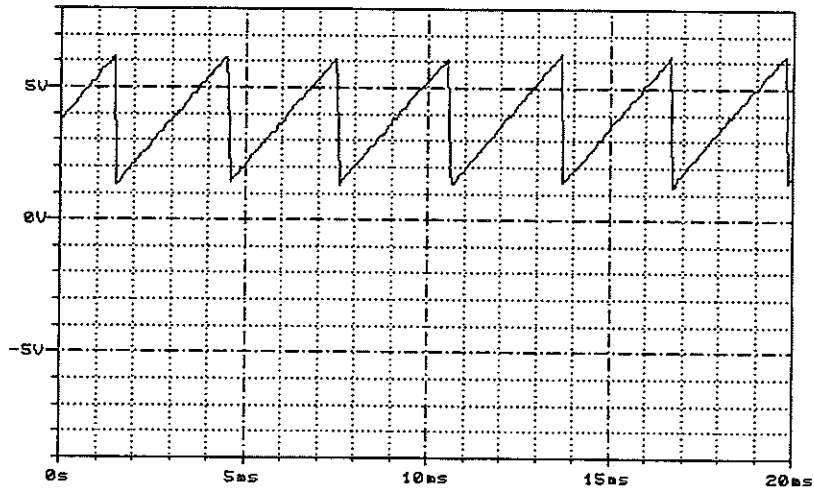
_ Abfallende Sägezahnspannung an P700 mit der Differenzfrequenz der beiden Eingangssignale, DC-Spannung an P700 ist negativ (ca. - 0.8 V)

Abbildung 1



- Spannung am Netzteil an X75 nun langsam erhöhen, sodaß die Ausgangsfrequenz des Oszillator2 größer als 1000 MHz wird. Hierbei wird die Spannung an P700 beobachtet.
- Ansteigende Sägezahnspannung an P700 mit der Differenzfrequenz der beiden Eingangssignale, DC-Spannung an P700 ist positiv (ca. 4 V)

Abbildung 2



7.4.5.3 Überprüfung des Regelfilters

(Hierzu Stromlaufblatt 7)

Eine exakte Überprüfung des integralen Regelverstärkers bei einer geöffneten Regelschleife ist nicht möglich. Es wird daher nur auf grobe Funktionalität überprüft.

- Oszilloskop mit Tastkopf an P720 anschließen.
- Einstellungen: **RF 1000 MHz**

Die Vorgehensweise bei der Funktionalitätsüberprüfung des Regelverstärkers ist identisch zur Überprüfung des Phasendetektors. Hierzu wird die eingespeiste DC-Spannung an X75 zunächst reduziert, sodaß der Oszillator unter 1000 MHz schwingt. In den integralen Regler fließt nun ein negativer Eingangsstrom, der dessen Ausgangsspannung auf ca. 21..24 V an P720 anwachsen läßt. Wird die Spannung an X75 erhöht, sodaß der Oszillator nun über 1000 MHz schwingt fließt in den integralen Regler ein positiver Eingangsstrom, sodaß dessen Ausgangsspannung auf ca. 0 V absinkt. Ist die eingestellte Differenzfrequenz sehr gering, kann der DC-Spannung an P720 noch eine AC-Spannung mit der entsprechenden Differenzfrequenz überlagert sein.

Es empfiehlt sich auch die Spannung nach dem folgenden Tiefpassfilter zu überprüfen (Spannung an X75.1). Sie muß identisch zur Spannung an P720 sein.

- Netzgerät entfernen und Brücke X75 wieder auf 1-2 stecken.

7.4.5.4 Überprüfen der geschlossenen PLL

(Hierzu Stromlaufblatt 4, 6 und 7)

Nach Stecken der Brücke X75 ist die PLL nun geschlossen.

- Einstellungen: **RF FREQUENCY (nach Tabelle)**
SPEC 115
- Spektrumanalysator mit Einstellung CF=**FREQUENCY**, Span 100 kHz, Rev.lev. 15 dBm an X124 anschliessen.

Das Ausgangssignal wird bei den verschiedenen RF-Einstellungen überprüft. Es dürfen keine Seitenlinien oder Rauschüberhöhungen auf dem Spektrumanalysator sichtbar sein.

| FREQUENCY | Diagnosespannung Testpunkt 15 |
|------------------|--------------------------------------|
| 520 MHz | 1.75...4 V |
| 779.999999 MHz | 16.5...19.5 V |
| 780 MHz | 1.75...4 V |
| 1040 MHz | 16.5...19.5 V |

7.4.6 Ausgangsstufe mit Teilern

(Hierzu Stromlaufblatt 5)

Es werden die Ausgangsteiler durch 2, 4 und 8 überprüft. Die Diagnosespannung und der Ausgangspegel werden ebenfalls gemessen. Für diese Prüfung wird vorausgesetzt, daß die PLL und die Ausgangsoszillatoren einwandfrei arbeiten und sich somit alle Frequenzen der Grundoktave von 520...1040 MHz einstellen lassen.

- Einstellungen: **RF FREQUENCY (nach Tabelle)**
SPEC 114

- _ Überprüfen der eingestellten Frequenz sowie des Ausgangspegels am Spektrumanalysator nach Tabelle.
- _ Spannung am Testpunkt 14 für alle RF-Frequenzen: 80...600 mV

| FREQUENCY | Teiler | Pegel an X124 |
|-----------|--------|---------------|
| 1040 MHz | 1 | 7...14 dBm |
| 780 MHz | 1 | 7...14 dBm |
| 779 MHz | 1 | 7...14 dBm |
| 520 MHz | 1 | 7...14 dBm |
| 500 MHz | 2 | 7...14 dBm |
| 250 MHz | 4 | 7...14 dBm |
| 125 MHz | 8 | 7...14 dBm |

7.4.7 Prüfen des Hubteilers

(Hierzu Stromlaufblatt 8)

Es werden die Modulationsmatrix für beide Kanäle, die AC/DC-Umschaltung für den externen Eingang, der Differenzierer für PHIM sowie der Feinhubteiler geprüft.

- Steckbrücke X84 entfernen.
- Modulationssignal an der Eingangsbuchse EXT an der Fronteinheit nach Tabelle einspeisen, mit AC/DC-Voltmeter an Meßpunkten nach Tabelle die Sollspannungen nachmessen.
- Einstellungen: **RF 1000 MHz**

| Einstellung | Signal an EXT | Signal an F840 | Signal an X84.1 |
|----------------------------|---------------|----------------|-----------------------------------|
| FM EXT DC 10 MHz | 1 V | - 3.32 ± 0.1 V | - 6...- 1.5 V (Referenzwert) |
| AF 1 kHz, FM INT 10 MHz | - | 3.32 ± 0.1 Vs | - 6...- 1.5 Vs (=Referenzwert) |
| FM EXT AC 10 MHz | 2 MHz, 1 Vs | 3.32 ± 0.2 Vs | Referenzwert ± 3 dB DC < 40 mV |
| PHIM EXT 175 rad | 20 kHz, 1 Vs | 3.32 ± 0.1 Vs | Referenzwert - 10 dB (± 1 dB) |

Es erfolgt nun die Überprüfung der Feinhubteiler

- Einstellungen: **RF 1000 MHz**
AF 1 kHz
FM INT 0 Hz
FM STEP 100 Hz

- _ Den FM-Hub mit dem Drehknopf am Frontmodul von 0 Hz bis 2.5 kHz in 100 Hz Stufen variieren. Die NF-Spannung an X84.1 muß von 0 V bis ca. 3.2 V_S in gleichen Schritten (ca. 0.13 V) ansteigen.

7.4.8 EXT-Überwachung

(Hierzu Stromlaufblatt 8)

- NF-Generator, 1 kHz, Pegel nach Tabelle, an EXT anschliessen.
- _ Die Funktion der Pegelüberwachung nach Tabelle prüfen.

- Einstellungen: **FM EXT AC 100 kHz**

| Eingangsspannung an EXT | Anzeige |
|-----------------------------|----------|
| $1 \pm 0.005 \text{ Vs}$ | - |
| $1.03 \pm 0.005 \text{ Vs}$ | EXT-HIGH |
| $0.97 \pm 0.005 \text{ Vs}$ | EXT-LOW |

7.4.9 Sigma-Delta-Wandler mit FM-DC-Regelung

(Hierzu Stromlaufblatt 8)

Es wird die Funktion des Sigma-Delta-Wandlers sowie der FM-DC-Regelung in den Betriebsarten FM-AC und FM-DC geprüft.

- Einstellungen: **RF 1000 MHz**
- DC-Spannungsquelle (0...1V) an den Modulationseingang EXT anschließen.
- _ Die angegebenen DC-Spannungen mit einem DC-Voltmeter nach Tabelle prüfen.

| Einstellung | DC-Spannung an EXT | DC-Spannung an D950.9 | DC-Spannung an D65.75 |
|------------------|--------------------|--------------------------|--------------------------|
| FM EXT AC 10 MHz | 0 V | $2.6 \pm 0.2 \text{ V}$ | $2.6 \pm 0.2 \text{ V}$ |
| FM EXT DC 10 MHz | 0 V | $2.6 \pm 0.25 \text{ V}$ | $2.6 \pm 0.25 \text{ V}$ |
| FM EXT DC 10 MHz | 1 V | $3.8 \pm 0.2 \text{ V}$ | $2.6 \pm 0.25 \text{ V}$ |

7.4.10 FM-Hubeinstellung

7.4.10.1 Überprüfung FM-Diagnosedetektor

(Hierzu Stromlaufblatt 7 und 8)

Bei der Durchführung der FM-Kalibration wird mit einem FM-Diagnosedetektor der Differenzhub in der Regelschleife gemessen. Zur Prüfung des Detektors wird nun ein definierter Frequenzhub eingestellt, und eine Aussteuerungsmessung mit dem Detektor vorgenommen.

- Einstellungen: **RF 1000 MHz**
FM EXT AC 50 kHz
SPEC 116
- NF-Generator, $1 \text{ V}_S \pm 5 \text{ mV}$, 1 kHz, an den Eingang EXT anschliessen.
- Steckbrücke X84 entfernen.
- _ Diagnosespannung an Testpunkt 16: $1.6 \pm 0.4 \text{ V}$.
- Eingespeiste NF-Frequenz auf 500 Hz, danach auf 1.5 kHz einstellen.
- _ Diagnosespannung an Testpunkt 16: $< 0.5 \text{ V}$.
- Steckbrücke X84.1/2 wieder bestücken.

7.4.10.2 Abgleich FM-Hub

(Hierzu Stromlaufblatt 8)

Es wird der Maßstab des FM-Hubes über den Regelungszweig (Steuerung des Teilungsverhältnisses am FRACSYN) abgeglichen.

- Einstellungen: **RF 1000 MHz**
 FM EXT AC 500 kHz
- NF-Generator, $1 V_s \pm 5 \text{ mV}$, 50 Hz, an den Eingang EXT anschliessen.
- Modulationsanalysator mit Einstellung HP 10 Hz, TP 3 kHz, Detektor RMS*², an X124 anschliessen.

_ Mit R930 auf $500 \pm 1 \text{ kHz}$ FM-Hub abgleichen.

_ Mit **SPEC 43** FM-Kalibration durchführen.

7.4.10.3 Überprüfung der FM-Kalibrierung

(Hierzu Stromlaufblatt 7)

Mit dem Diagnosedetektor wird der Differenzhub bei FM-Modulation in der PLL nach erfolgter Kalibrierung durchgeführt (siehe 7.4.10.2). Die Überprüfung erfolgt in der Grundoktave von 520 bis 1040 MHz in 5 MHz Schritten.

- Einstellungen: **RF 520 MHz**
 FM INT 500 kHz
 AF 1 kHz
 SPEC 116
 RF STEP 5 MHz

_ Die Frequenz von 520 MHz bis 1040 MHz mit dem Drehknopf erhöhen. Die Diagnosespannung am Testpunkt 16 muß bei jeder Frequenz im Bereich $0 \pm 50 \text{ mV}$ sein.

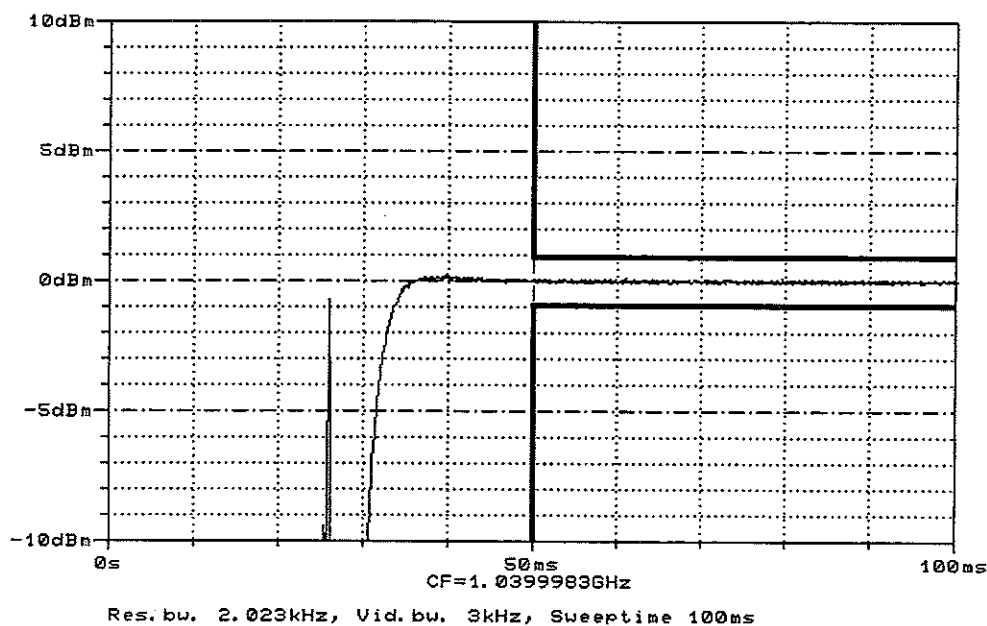
7.4.11 Einschwingverhalten der Synthese

Es wird das Einschwingverhalten der PI-Reglerspannung bei einem Frequenzsprung zwischen 520 und 1040 MHz gemessen.

- Einstellungen: **RF 520 MHz**
 FM OFF
 RF EXT AC
- Buchse EXTREF des Spektrumanalysators mit Buchse EXTREF an der Rückwanne des SMY verbinden.
- Tastkopf an Baugruppenstrobe HF2STB an X1A.16 anschliessen und mit dem Eingang EXT SWEEP TRG an der Rückwanne des Spektrumanalysators verbinden.
- Spektrumanalysator mit Einstellung CF 1040 MHz, SPAN 0 Hz, REF LEVEL 10 dBm, LOG RANGE 20 dB, SWEEP 100 ms, RES BW 2.023 kHz, TRIGGER EXTERNAL, SLOPE NEGATIV, TRIGGER LEVEL 238 mV an X124 anschliessen.

- Um das Einschwingverhalten der Synthese richtig zu messen muß eine Flankendemodulation vorgenommen werden. Die RF-Frequenz der Synthesebaugruppe wird zur Vorbereitung auf 1040 MHz eingestellt. Dann wird im FREE RUN Betrieb des Analysators die Center-Frequenz des Spektrumanalysators in 100 Hz Schritten von 1040 MHz ausgehend verkleinert, bis der gemessene Wert auf 0 dBm liegt. Nach Umstellen der Synthese auf RF 520 MHz und des Analysators auf Trigger External erfolgt nun der Frequenzsprung auf 1040 MHz. Die Einstellung am Spektrumanalysator entspricht einem Skalierungsfaktor von ca. 120 Hz/dB.
- 50 ms nach erfolgtem Baugruppenstrobe (Triggersignal) darf sich die Spannung nur noch um maximal ± 100 Hz (ca. 0.85 dB) ändern. Es ergibt sich typisch ein Spannungsverlauf wie in Abbildung 3.

Abbildung 3



7.4.12 Endprüfungen Synthese

Das Durchführen der folgenden Endprüfungen sollte erfolgen, wenn zuvor Messungen oder eine Fehlerbehebung an der Baugruppe stattgefunden hat. Es müssen nun der löt- und bauteilseitige Deckel aufgeschraubt sein. Die Baugruppe befindet sich noch auf dem Prüfadapter.

7.4.12.1 Störhub Synthesizer

- Modulationsanalysator an X 124 anschliessen. Störhub mit Bewertungsfiler 20 Hz...23 kHz und CCITT bei folgenden Frequenzen (in MHz) prüfen:
520, 580, 640, 710, 779, 780, 840, 900, 970, 1040 MHz
- Störhub < 16 Hz_{rms} (20 Hz...23 kHz)
Störhub < 8 Hz_{rms} (CCITT)

7.4.12.2 Störhub 640 MHz Oszillator

- Modulationsanalysator an X125 anschließen. Störhub mit Bewertungsfilter 20 Hz...23 kHz und CCITT prüfen.
- Einstellungen: **RF 50 MHz**
 FM OFF
- _ Störhub < 4 Hz_{rms} (20 Hz...23 kHz)
 Störhub < 2 Hz_{rms} (CCITT)

7.4.12.3 Nebenwellen Synthesizer

- Spektrumanalysator mit Einstellung CF=FREQUENCY, SPAN 50 kHz, RES BW 300 Hz, VIDEO BW 30 Hz, REF LEVEL 15 dBm an X124 anschließen. Den Nebenwellenabstand bei den folgenden Frequenzen (in MHz) messen:
520.02, 544.02, 544.08, 640.005, 960.026666, 992.02, 1024.08 MHz
- _ Der Nebenwellenabstand ≥ 5 kHz neben dem Träger muß ≥ 70 dBc sein.

7.4.12.4 FM-DC Mittenfrequenzkalibrierung

- Einstellungen: **RF 1000 MHz**
 FM EXT DC 10 MHz
- Netzgerät (± 1 V) an Buchse FM/ ϕ M EXT anschließen (die eingestellte DC-Spannung muß hinreichend rausch- und brummfrei sein!).
- Modulationsanalysator mit Frequenzzähler an X124 anschließen.
- _ Spannung am Netzgerät auf 0 mV oder Eingangsbuchse FM/ ϕ M EXT kurzschließen.
- _ FM-DC Nulling Intern mit **SPEC 55** durchführen. Der Frequenzfehler muß < 10 kHz sein. Die Spannung von -1...+1 V variieren und dabei den Störhub messen, er muß < 1 kHz_{rms} (Bewertungsbandbreite 300 Hz...23 kHz) sein. Die Ausgangsfrequenz variiert von 990...1010 MHz.

7.4.13 Tabellen und Schnittstellen

7.4.13.1 Liste der Diagnosemeßpunkte

Zur Überwachung der wichtigen Regelspannungen und Pegel wird ein Diagnosemultiplexer (74HC4051) eingesetzt.
Zur Kompensation von Offsetspannungen kann das Potential der Baugruppenmasse gemessen werden (Diagnosepunkt 9).

| | Diagnosepunkt | Meßpunkt | Min. V | MAX. V | Teilungsfaktor |
|----|---------------|---|--------------|--------|----------------|
| 9 | R146 | Referenz, 10 K Ω | -50 m | 50 m | 1 |
| 10 | D-+10REF | 10 V, Referenzspannung | 9.9 | 10.1 | 3 |
| 11 | D-PLL-VTCXO | Regelspannung VTCXO 10 MHz | 0.3 | 4.7 | 3 |
| 12 | D-PLL-640 | Regelspannung VCO 640 MHz | 4 | 17 | 5 |
| 13 | D-REF640 | Ausgangspegel LO, 640 MHz Pegel abgeschaltet | 0.1 <0.05 | 0.6 | 1 |
| 14 | D-FSYN | Ausgangspegel FSYN 65...1040 MHz | 0.6 | 1 | 0.08 |
| 15 | D-PLL-FSYN | Regelspannung VCO's FSYN | 1.75 | 21.5 | 5 |
| 6 | D-FM-KAL | Aussteuerung am PD, 1 kHz | 0 | 50 m | 3 |

7.4.13.2 Digitale Schnittstelle

Gemäß Gerätestandard verfügt die Baugruppe YSYN über eine serielle Schnittstelle. Mit Strobel werden die Daten für die HC4094-Latches bzw. die seriellen D/A - Wandler übernommen. Mit Strobe2 erfolgt die Übernahme der Daten am FRACSYN.

Polarität Clock: aktive Taktflanke L-->H
 Polarität Strobel: aktive Taktflanke L-->H
 Polarität Strobe2: aktive Taktflanke H-->L

Datenübertragung mit Strobel (HF1STB):
 Hubeinstellung für FM und PHIM, RF abhängige Hubkorrektur, Wahl der RF-Ausgangsteiler, Diagnose, Betriebsarten.
 Die Daten auf Strobel für die seriellen D/A-Wandler sind von aussen nicht zugänglich und werden daher nicht aufgeführt.

Datenübertragung mit Strobe2 (HF2STB):
 Frequenzinformation, Informationen für den Wobbelbetrieb und den Offsetaddierer.
 Die Daten auf Strobe 2 sind für den Baustein FRACSYN bestimmt. Sie sind von aussen nicht zugänglich und werden daher nicht aufgeführt.

| Latch | Pin | Bezeichnung | Funktion | | |
|-------|------------|--------------------|------------------------------|----------|---------|
| D585 | 11 | T2 | Ausgangsteiler 4 | 0=Ein | 1=Aus |
| | 12 | T1 | Ausgangsteiler 2 | 0=Ein | 1=Aus |
| | 13 | S6 | Ausgang Teilerpfad 4,8 | 0=Aus | 1=Ein |
| | 14 | S5 | Eingang Teilerpfad 4 | 0=Aus | 1=Ein |
| | 7 | S4 | Pfad Kettenschaltung | 0=Aus | 1=Ein |
| | 6 | S3 | Ausgang Teilerpfad 2 | 0=Aus | 1=Ein |
| | 5 | S2 | Eingang Teilerpfad 2,8 | 0=Aus | 1=Ein |
| | 4 | S1 | keine Teilung | 0=Aus | 1=Ein |
| D855 | 11 | OSZ2 | Oszillator 750...1040 MHz | 0=Aus | 1=Ein |
| | 12 | OSZ1 | Oszillator 520...750 MHz | 0=Aus | 1=Ein |
| | 13 | EXTAC/DC | AC-DC-Umschaltung bei FM-EXT | 0=FMAC | 1=FMDC |
| | 14 | FMINT | Modulationsquelle INT | 0=Aus | 1=Ein |
| | 7 | FMEXT | Modulationsquelle EXT | 0=Aus | 1=Ein |
| | 6 | DEVCOARSE2 | | | MSB |
| | 5 | DEVCOARSE1 | Hubteiler Grob | | |
| 4 | DEVCOARSE0 | in 12 dB Schritten | | LSB | |
| D670 | 11 | PLL-GAIN2 | Einstellung (0...7) | | MSB |
| | 12 | PLL-GAIN1 | Open-Loop-Gain | | |
| | 13 | PLL-GAIN0 | für HF-Regelschleife | | LSB |
| | 14 | FM/φM | Differenzierer bei PM | 0=FM | 1=φM |
| | 7 | FMDIAOFF | Abschalten des FM-Detektors | 0=Ein | 1=Aus |
| | 6 | RESET-FRAC | Masterreset FRACSYN | | 1=aktiv |
| | 5 | S_FM_DIA | Reset Gleichrichter 1 kHz | 0=Messen | 1=Entl. |
| | 4 | S_DSIG | Sigma-Delta-Wandler | 0=Aus | 1=Ein |

| | Latch | Pin | Bezeichnung | Funktion | |
|------|-------|----------|---|------------|------------------------|
| D665 | 11 | AD15 | Einstellung Hubwertigkeit am A/D-Eingang FRACSYN Darstellung im Zweier- komplement | | MSB |
| | 12 | AD14 | | | |
| | 13 | AD13 | | | |
| | 14 | AD12 | | | |
| | 7 | AD11 | | | |
| | 6 | AD10 | | | |
| | 5 | AD9 | | | |
| | 4 | AD8 | | | |
| D660 | 11 | AD7 | | | |
| | 12 | AD6 | | | |
| | 13 | AD5 | | | |
| | 14 | AD4 | | | |
| | 7 | AD3 | | | |
| | 6 | AD2 | | | |
| | 5 | AD1 | | | |
| | 4 | AD0 | LSB | | |
| D110 | 11 | MODOFF | Modulation Ein/Aus | 0=Ein | 1=Aus (CW) |
| | 12 | S-REF640 | 640 MHz Ausgangsstufe | 0=Aus | 1=Ein |
| | 13 | OPTREF | Umschaltung Standard/ Options-Referenz | 0=Standard | 1=Option |
| | 14 | INT/EXT | Umschaltung Interne/ Externe Referenz | 0=Extern | 1=Intern bzw.Option |
| | 7 | DIAGENA | Diagnose Ein/Aus | 0=Aus | 1=Ein |
| | 6 | DMUX2 | Diagnosemultiplexer 0...7 | | MSB |
| | 5 | DMUX1 | | | |
| | 4 | DMUX0 | | LSB | |

7.4.13.3 Arbeitspunkte und Pegel von HF-Verstärkern

Eine qualitative Prüfung der HF-Wege ist nur mit einem HF-Tastkopf am Spektrumanalysator möglich. Dabei muß vor allem auf eine kurze niederohmige Masseverbindung geachtet werden. Der Vorwiderstand des HF-Tastkopfes sollte mindestens 1 k Ω betragen.

Die angegebenen Werte für die DC-Arbeitspunkte sowie für die HF-Pegel sind als typische Werte zu verstehen.

| Verstärker | Arbeitspunkt | HF-Pegel, Frequenz | Bemerkung |
|------------|------------------------------|----------------------------------|--|
| V205 | Pin2 Pin1 | 2.5 V 1.8 V | RF EXT AC 6 dBm, 10 MHz |
| V210 | Pin2 Pin3 | 0.7 V 2.1 V | HCT, 10 MHz RF EXT AC |
| V215 | Pin2 Pin3 | 0.7 V 2.6 V | RF EXT AC 12 dBm, 10 MHz |
| V216 | Pin2 Pin3 | 3.1 V | HCT, 10 MHz 10 MHz, 0 dBm an EXTREF RF EXT AC 10 MHz, 0 dBm an EXTREF |
| V305 | Pin3 Pin2,4 | - 7.3 V - 7.7 V | 8 dBm, 640 MHz |
| N300 | Pin1 Pin3 | 4.6 V | - 3 dBm, 640 MHz 7 dBm, 640 MHz |
| V330 | Pin1 Pin2 Pin3 Pin4 | 2 V 7.1 V 1.75 V 0.55 V | RF 50 MHz 14 dBm, 640 MHz X125 mit 50 Ω abschliessen 5.5 dBm, 640 MHz |
| V370 | Pin2 Pin3 | 0.6 V 2.2 V | HCT, 10 MHz |
| V404 | Pin3 Pin2,4 | -5.8 V -6.1 V | RF 520 MHz 11 dBm, 520 MHz |
| V434 | Pin3 Pin2,4 | -5.8 V -6.1 V | RF 780 MHz 7 dBm, 780 MHz 9.5 dBm, 780 MHz |
| N490 | Pin1 Pin3 | 4.6 V | - 5 dBm, 1000 MHz 3 dBm, 1000 MHz RF 1000 MHz |
| N500 | Pin1 Pin3 | 4.7 V | - 2 dBm, 1000 MHz 2 dBm, 1000 MHz RF 1000 MHz |
| N510 | Pin1 Pin3 | 4.4 V | - 6 dBm, 500 MHz 2 dBm, 500 MHz RF 500 MHz X124 mit 50 Ω abschliessen |
| N520 | Pin1 Pin3 | 4.6 V | - 7 dBm, 250 MHz 4 dBm, 250 MHz RF 250 MHz X124 mit 50 Ω abschliessen |
| N560 | Pin1 Pin3 | 4.8 V | 2 dBm, 1000 MHz 9 dBm, 1000 MHz RF 1000 MHz X124 mit 50 Ω abschliessen |
| N600 | Pin1 Pin3 | 4.6 V | - 7 dBm, 1000 MHz 2 dBm, 1000 MHz RF 1000 MHz |
| N610 | Pin1 Pin3 | 4.7 V | - 7.5 dBm, 1000 MHz 0 dBm, 1000 MHz RF 1000 MHz |
| V600 | Pin2 Pin3 | 0.75 V 0.95 V | RF 1000 MHz 10 dBm, 62.5 MHz |

7.5

Zerlegung und Zusammenbau

Um die Baugruppe YSYN ausbauen zu können, ist nur die Unterseite des Gerätes zu öffnen. Zunächst wird die Rechnerbaugruppe ausgebaut. Dazu werden die beiden seitlichen Schrauben geöffnet und das Kabel für den IEC-Bus, das zur Rückwanne führt, entfernt. Die Rechnerbaugruppe kann nun herausgenommen werden, die Kabel zur Tastatur/Anzeige sowie zum Motherboard bleiben angesteckt. Nach dem Lösen der beiden seitlichen Schrauben der Synthesebaugruppe können die drei, bzw. vier (bei vorhandenem Optionsquarz) HF-Verbindungen an der Baugruppe abgezogen bzw. aufgeschraubt werden. Die Baugruppe YSYN wird nun seitlich nach hinten aus ihrem Steckplatz entnommen.

Über das sich im Servicekit befindende Flachbandkabel kann die Synthesebaugruppe nun wieder mit dem Motherboard verbunden werden. Die Buchsen X127 und X128 werden ebenfalls über die sich im Servicekit befindlichen koaxialen Kabel mit den entsprechenden Anschlüssen EXTREF sowie, falls vorhanden, mit dem Optionsoszillator verbunden.

Die Schirmdeckel sind auf herkömmliche Weise verschraubt. Beim Betrieb mit geöffnetem Schirmdeckel ist darauf zu achten, daß die Resonatorhöhlen E und F auf beiden Seiten mit geeigneten Prüfdeckeln verschlossen werden.

7.6

Externe Schnittstellen

Die Angaben für den Stromverbrauch der jeweiligen Versorgungsspannung bezieht sich auf den Zustand der Baugruppe nach einem **PRESET**.

| Pin | Name | Ein/Ausgang | Herkunft/Ziel | Wertebereich | Signalbeschreibung |
|--------|----------|-------------|-----------------|---------------------------------|--|
| X1A.4 | EXT1 | Eingang | Fronteinheit | 1V _s | Modulationsspannung |
| X1A.6 | INT1 | Eingang | Rechner X3.32 | 1V _s | Modulationsspannung |
| X1A.8 | FMKOMPLO | Ausgang | Rechner X3.23 | HCMOS-Pegel | Pegelüberwachung EXT |
| X1A.9 | FMKOMPFI | Ausgang | Rechner X3.24 | HCMOS-Pegel | Pegelüberwachung EXT |
| X1A.10 | OPTUNE | Ausgang | Netzteil X21.24 | 0...10V | Abstimmspannung für optionale Referenz (SM-B1) |
| X1A.12 | SERCLK | Eingang | Rechner X3.2 | HCMOS-Pegel | Clock für Datenübertragung |
| X1A.14 | SERDAT | Eingang | Rechner X3.4 | HCMOS-Pegel | Serielle Daten |
| X1A.15 | HF1STB | Eingang | Rechner X3.14 | HCMOS-Pegel | Strobe1 |
| X1A.16 | HF2STB | Eingang | Rechner X3.15 | HCMOS-Pegel | Strobe2 |
| X1A.17 | HFINT | Ausgang | Rechner X3.20 | TTL-Pegel | Interrupt Regelschleifen |
| X1A.19 | DIAG-5V | Ausgang | Rechner X3.6 | 0...5V | Diagnose |
| X1A.22 | VA24-P | Eingang | Netzteil X21.22 | 23.0...25.0 V 12 ± 5 mA | Versorgungsspannung analog |
| X1A.24 | VA15-P | Eingang | Netzteil X21.13 | 14.4...15.6 V 110 ± 25 mA | Versorgungsspannung analog |
| X1A.25 | VA15-P | Eingang | Netzteil X21.13 | 14.4...15.6 V 110 ± 25 mA | Versorgungsspannung analog |
| X1A.26 | VA7.5-P | Eingang | Netzteil X21.8 | 7.2...7.8 V 650 ± 100 mA | Versorgungsspannung analog |
| X1A.28 | VA-5P | Eingang | Netzteil X21.5 | 4.9...5.3 V 35 ± 10 mA | Versorgungsspannung digital |
| X1A.30 | VA15-N | Eingang | Netzteil X21.19 | -15.6...-14.4 V -195 ± 35 mA | Versorgungsspannung analog |
| X128 | OPT10 | Eingang | Referenzosz. | 7.5 ± 1.5 dBm | 10 MHz ± 5 ppm |
| X127 | EXTREF | bidir. | Rückwand | 5/10 MHz ± 3ppm -13...13 dBm | Eingang Referenz |
| X124 | FSYN | Ausgang | Ausgangsteil | 10MHz, 6...10 dBm 7...14 dBm | Ausgang Referenz Synthese Freq 65..1040 MHz |
| X125 | REF640 | Ausgang | Ausgangsteil | 8...12 dBm | Referenz 640 MHz |



ROHDE & SCHWARZ

SERVICE INSTRUCTIONS

Synthesizer

1062.6409.01

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Parts list
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Component location plan

In instruments without fitted option SMY-B40, this module has the variant VAR 02.

In instruments with fitted option SMY-B40, this module has the variant VAR 04.

7.1 Function Description

Module YSYN contains a synthesizer which can be FM/ ϕ M-modulated from 65 to 1040 MHz, the deviation divider for FM/ ϕ M as well as the reference frequency generation consisting of a 10 MHz VTCXO as well as a 640 MHz oscillator as LO for the mixer range of the output stage.

7.1.1 Reference Frequencies

7.1.1.1 Internal Reference 10 MHz

A 10-MHz VTCXO (N200) is used as a standard reference. An emitter follower including level converter (V205 and V210) amplifies the output signal to TTL level (test point P201). At the same time, the signal of the option reference is fed here (input X128, OPT10). In this operating mode, the standard oscillator is switched off using switching transistor V200 and the path for the option reference bypassed via diode V235. The divider stage (D205-A) generates the 2-MHz reference frequency for the PLL of the output oscillators and the Sigma-Delta converter as well as the 1MHz reference frequency for the phase detector of the reference PLL (test point P202). The 10-MHz signal which has been coupled out via D200 serves as a reference frequency for the PLL of the 640-MHz oscillator.

In this operating mode, either the standard reference or, if fitted, the option reference is applied at output X127 (EXTREF). Exact frequency setting is effected using a 12-Bit D/A-converter (D220) which is provided by a 10-Volt reference voltage (+10REF) (tuning voltage UINT or OPTTUNE).

7.1.1.2 External Reference 5 or 10 MHz

In the External Reference operating mode, 5 or 10 MHz can be fed with a tolerance of ± 3 ppm at X127 (EXT REF). A diode circuit (V220) generates a harmonics spectrum, a resonance amplifier (V215) filters out the 10-MHz signal and the following level converter (V216) amplifies it to TTL level (test point P204). After dividing the frequency by 10 (D205-B), the signal is compared to the down-divided frequency of the TCXO in phase detector D210. The standard reference oscillator is synchronized with the external reference in a PLL with a bandwidth of 2 Hz. The tuning voltage of the PLL can be remeasured at P203 (U-PLL-VTCXO). If there is an optional reference oscillator (SM-B1), its level is cut off in the External Reference operating mode. The tuning voltage of the oscillator is monitored in both operating modes using the window comparator N100 via a buffer (N220-C).

7.1.1.3 640-MHz Oscillator including PLL

The 640-MHz oscillator is designed using a ceramic resonator (X300) which is fine-tuned by means of a tuning diode (V300). Transistor stage V305 uses its negative impedance to amplify the resonant circuit. The oscillator signal is coupled out at the emitter via a buffer amplifier (N300). Via an resistive power divider, the signal is splitted up to the output amplifier (V330) as well as the frequency divider (B360) which divides the signal for the PLL to the 10 MHz-reference frequency.

The output amplifier with a "Dual Gate MESFET" (V330) amplifies the oscillator signal to approx. 10 dBm (X125, REF640). If the mixer path in the output section is not active, the output level can be reduced by more than 40 dB via gate2 of the output amplifier by means of the switching transistors (V340, V345) (control signal S-Ref 640).

The signal generated via the fixed divider by 64 is converted to TTL level (test point 354) using transistor stage V370 and is compared with the 10-MHz reference frequency at the phase detector (D255). The output voltage of the PI-controller (N250) tunes the oscillator, the bandwidth of the PLL is approx. 300 Hz.

The level of the 640-MHz output amplifier is measured by a diagnostic rectifier (V347). The control voltage of the PLL is monitored by a window comparator (N105).

7.1.2 Synthesizer 65 to 1040 MHz

7.1.2.1 Oscillators 520 to 1040 MHz

Two oscillators with a tuning range of 260 MHz each generate the frequency of the basic octave. A transistor with a negative impedance at its basis (V404 and V434) amplifies the series resonant circuit consisting of a porcelain capacitor (C402 and C432), a printed inductor and two times two tuning diode connected in parallel (V400-V403 and V430-V433). Due to the small tolerances of the elements determining the resonant circuit, a frequency adjustment of the oscillators is not necessary. A power source (V406 and V436) whose supply voltage can be switched on and off via a transistor stage stabilizes the operating point of the oscillator via the tuning range. Depending on the active oscillator, the output signal is supplied to the buffer stage N490 via a PIN switch (V490 and V492). An resistiv power divider branches the oscillator signal to the output dividers as well as to the fractional-N-divider of the PLL.

7.1.2.2 Output Dividers

The output frequencies of 65 to 520 MHz are implemented by means of frequency division by two, four and eight. A divider by 2 (D510) and a divider by 4 (D520) are used. By forming an iterative network of the two dividers, division factor eight is achieved. The individual signal paths are switched via PIN switches (S1 to S6). The divider components are switched on and off via the supply voltage using transistors V510 and V520. Output amplifier N560 increases the level to approx. 8 to 12 dBm. This output level is monitored via the diagnostic rectifier V555.

7.1.2.3 Fractional-N-Divider and PLL

The output oscillators are locked to a reference frequency of 2 MHz in a PLL with a fractional divider. This component of the circuit is integrated in gate-array FRACSYN (D65). The two MMIC amplifiers N600 and N610 decouple the divider circuit from the oscillators. The two frequency dividers (D620 and D630) divide the oscillator frequency by 16 and thus provide input frequencies of 32.5 to 65 MHz for the FRACSYN executing the actual fractional division (test point P600). Component FRACSYN calculates the new division factor for every reference period from the division factor programmed via a serial interface as well as the deviation set. Its output clock CKO of 2 MHz is synchronized with the input clock of the FRACSYN using synchronization flip-flop D655. The synchronized 2-MHz signal is supplied to phase detector D700 from there.

The UP/DOWN output signals of the phase detector obtained from comparing the phase with the 2-MHz reference frequency (2REF) are added in differential amplifier N710 (test point P700). The gain of the following PI-controller (N720) can be set in 8 stages using an analog multiplexer (D720) to compensate for gain variations in the PLL caused by the different division factor as well as the different VCO slope. A transistor output stage (V750 and V755) with diode switchover of the PLL bandwidth (V765 to 768) accelerates the settling process of the PLL in the case of a frequency change.

The output voltage of the PI-controller (A-PI-SYN) is monitored by a window comparator (N110). The tuning voltage of the oscillators can be measured via a diagnostic point.

7.1.3 FM/ϕM Modulation

7.1.3.1 Function Principle

The use of a fractional divider with a digital modulation input permits implementing a relatively simple and yet precise FM AC/DC and ϕM circuit.

The modulation is transmitted via two paths with different frequency responses. In the first path, the division factor and thus the instantaneous center frequency is directly modulated in the case of FM after the A/D conversion using a Sigma-Delta converter. This part has the lowpass function for the wanted transmission of a PLL, at the same time the PLL is a lowpass filter for the quantization noise of the A/D converter here. In the second path, the oscillator is modulated directly, this part has the highpass function for the unwanted transmission of a PLL. With equal sensitivity and delay in both paths, the frequency response is flat with a constant group delay.

ϕM is generated by differentiating the modulation voltage. The cut-off frequency of the differentiator is approx. 40 kHz. A DC-modulation is thus not possible with ϕM. The transmission functions are the same as with FM.

7.1.3.2 FM/ϕM-Deviation Divider

The two inputs INT1 and EXT1 are available for feeding the modulation signals. The external modulation input has a high-impedance input amplifier (N800) with switchable AC/DC coupling (D820). The input impedance can be selected via jumper X80. It is 100 kΩ or 600 Ω.

The desired modulation signal is selected via switch D800. A single-tone modulation (external or internal) and two-tone modulation (external and internal) is possible. Amplifiers N845 and N850 amplify the input signal from $1V_s$ to $6V_s$. The signal for the Sigma-Delta converter is tapped in between via amplifier N850. The current flowing here is always constant. A multiplying 12-bit D/A converter (D840) is used to fine-adjust the deviation in the control path for the modulation via the oscillators. The following operational amplifier performs an impedance conversion. For the coarse adjustment of the deviation at the oscillator, an attenuator forming an iterative network with steps of 12 dB is used (divides by 1 to 4096). The taps are switched by analog multiplexer D960. With modulation switched off, the oscillator input is connected to ground via a FET (N960) in order to minimize thermal noise.

The deviation values for the modulation of the division factor via the Sigma-Delta converter is coarsely adjusted internally in the FRACSYN and finely adjusted via the ADWE inputs (shift registers D660 and D665) with a resolution of 16 bits.

For ϕM , a differentiating circuit is inserted into the common branch (reed relay K910). Otherwise, the transmission paths are identical to FM.

The level at the EXT input is monitored by the window comparator circuit using N860 and D870. In the case of a deviation from the rated level of 1 to 3 %, interrupt FMKOMPFI (voltage fed is too high) or FMKOMPLO (voltage fed is too low) is triggered depending on the direction.

7.1.3.3 Sigma-Delta Converter and FM-DC Control

A Sigma-Delta converter of 3rd order (N940, N950, N960, D950 and D965) converting the analog modulation signal into a digital signal is used to modulate the division factor. The variable average of the 1-bit output signal corresponds to the analog input quantity. The quantization noise caused is filtered by the lowpass function of the PLL. A delay equalizing circuit at the input of the converter ensures an equal group delay in both modulation paths.

As all offset voltages lead to a shift of the center frequency also with AC operation, they are compensated by an average control. In the case of FM-DC, the control is to be clamped in order not to level out the DC modulation voltage. This component of the circuit is also located in gate array FRACSYN.

7.1.4 Calibration Routines

7.1.4.1 VCO Calibration

In steps of 5 MHz, a table of the respective tuning voltages of the oscillators is created. The respective oscillator slope $k_o(f)$ can be calculated from these values determined via diagnosis with a linear interpolation of the intermediate values. It is required in order to determine the necessary PLL-GAIN which is used to compensate the gain fluctuations in the closed loop. The slope values determined are also required as starting values to calculate the rate of rise of deviation for FM calibration.

7.1.4.2 FM-Calibration

For the calibration table of the rate of rise of deviation, a diagnostic detector (N780, V781, C782) measures the differential deviation in the closed loop at a modulation frequency of 1 kHz. In an adjustment routine, the control elements of the FM/φM deviation divider are varied until the differential deviation measured is minimal. The modulation slope of the oscillator at the respective frequency is calculated from the setting values thus achieved. This table is also created in steps of 5 MHz.

7.2 Test Instruments and Utilities

- RF-spectrum analyzer (FSA)
- RF-signal generator (SMGU, SME)
- Function generator $f \geq 2$ MHz, (AFGU, AFS)
- Oscilloscope $f > 250$ MHz
- AC/DC voltmeter (URE3)
- Modulation analyzer with distortion meter (FMA, FMB)

7.3 Troubleshooting

For fault diagnosis, the test program included in service kit SMY-Z1, which offers extensive possibilities of diagnosis, is suitable as well.

7.3.1 Synchronization Errors

Error messages Error 1 to Error 3 are an OR-operation of the error controls of the phase locked loops for the 10-MHz TCXO, the 640-MHz oscillator as well as the PLL of the output oscillators. If there is an error at the 10-MHz PLL, this can also cause the other closed loops to be locked out. The relevant diagnostic point can be used to check which of the three phase locked loops is out of tolerance.

**Error message "Error 1"
10-MHz reference loop out of
synchronization**

Check whether the correct frequency with a sufficient level is fed in the external reference operating mode.

Check the external reference according to 7.4.2.2

Check window comparator N100

**Error message "Error 2"
640-MHz loop out of
synchronization**

Check whether 10-MHz reference frequency is applied to phase detector D255.11.

Check the 640-MHz oscillator and the PLL according to 7.4.3.1

Check window comparator N105

**Error message "Error 3"
Main oscillator loop out of
synchronization**

Check output oscillators according
to 7.4.4

Measure whether 2-MHz reference
signal is applied to phase
detector D700.3. Check PLL of the
output oscillators according to
7.4.5

Check window comparator N110

7.3.2 Error with CW-Operation

**No output level or output
level too small at X124**

Check output oscillators according
to 7.4.4

Check output divider using
dividers according to 7.4.6

Check the operating points or the
RF levels of the amplifiers in the
path (table 7.4.13.3)

**Residual FM too high (no
spuriae)**

Execute calibration routine VCO
using **SPEC 41**

Check oscillators according to
7.4.4, also their operating points
according to table 7.4.13.3
Measure residual FM of the
oscillators, the DC voltage fed
must be sufficiently free of hum
and noise

Check PLL of the output
oscillators according to 7.4.5.1-
7.4.5.3, check supply voltages of
FRACSYN and phase detector (7.4.1)

**Spuriae > -70 dBc for offset
frequencies > 5 kHz to carrier**

Execute calibration routine VCO
using **SPEC 41**

Check phase offset of the phase
detector, DC-voltage at C701
should be 1.65 V

Check supply voltage FRACSYN and
phase detector (7.4.1)

7.3.3

Error with FM-/ ϕ M-Modulation

| | |
|--|--|
| Deviation error with FM or ϕM; Stereo crosstalk out of tolerance | Execute calibration routine FM using SPEC 43 |
| Substantial modulation distortions with maximal deviation | Check the deviation divider according to 7.4.7 Check deviation setting according to 7.4.9 |
| FM-distortion factor too high | Execute calibration routine FM using SPEC 43 Check deviation divider according to 7.4.7, check distortion factor of the modulation signal at X84 Check FM calibration according to 7.4.10.3 |
| No or false FM-modulation with modulation frequencies of less than 1 kHz | Check Sigma-Delta converter according to 7.4.9 Perform adjustment of FM deviation according to 7.4.10.2 |
| No or false FM-modulation with modulation frequencies of more than 1 kHz | Execute calibration routine FM using SPEC 43 Check deviation divider acc. to 7.4.7 |
| FM-frequency response too large | Check deviation divider acc. to 7.4.7 Measure frequency response also after coarse divider at D960.3 (FM deviation set > 3 MHz, RF > 520 MHz) |
| Center frequency error with FM-DC modulation, or FM-DC center frequency calibration (special function 55 not performed correctly) | Check Sigma-Delta converter and FM-DC control according to 7.4.9 |
| No or false ϕM-modulation | Check whether an FM modulation set equivalently is correct, otherwise error with PM differentiator (highpass filter with C913 and R848, is checked in 7.4.7) (equivalent FM = PM set * AF frequency fed) |

7.3.4 Calibrations

**Error message "Error 15"
Calibration VCO faulty**

Check output oscillators according to 7.4.4

Check PLL of the output oscillators according to 7.4.5

Check transient response of the synthesis according to 7.4.11

**Error message "Error 15"
Calibration FM faulty**

Check the FM diagnostic detector acc. to 7.4.10.1, the offset of the diagnostic detector (measure test point 15 via diagnosis, do not feed an AF frequency) must be less than 50 mV.

Check the deviation divider according to 7.4.7

Check Sigma-Delta converter according to 7.4.9

Check delay equalization at the Sigma-Delta converter input

7.4 Testing and Adjustment

All measured values without tolerances stated are to be understood as guide values. Voltage values without further designation are DC voltages.

If the module is operated with the cover opened, the two oscillator chambers must be closed on the component and solder side by means of test covers.

The SMY has to be brought to a defined initial status by means of PRESET prior to all tests.

7.4.1 Data Transmission and Power Supply

(Cf. circuit diagram sheet 9)

According to the device standard, the module is controlled via a serial interface. Data transmission is effected on two different subaddresses. The data are accepted by the two module strobes HF1STB and HF2STB. The settings and the pertaining data are to be found in Section 'Digital Interfaces'.

Current consumption can be checked by looping in an amperemeter instead of coils L1 to L5. The rated values can be found in Section 'External Interfaces'.

The most important reference or supply voltages are remeasured using the DC voltmeter.

| Test point | Type of voltage | Voltage [V] |
|------------|-----------------------------|---------------|
| P20 | 10-V reference | +9.9 to +10.1 |
| P21 | Supply volt. 5 V analog | +5.1 to +5.4 |
| D700_14 | Supply volt. phase detector | 4.6 to 5.0 V |
| D65_84 | Supply volt. FRACSYN | 5.1 to 5.5 V |

7.4.2 Reference Frequency Generation

7.4.2.1 Internal Reference

(Cf. circuit diagram sheet 2)

The tuning voltage for the internal reference is read via the diagnosis for different D/A converter values (function D/A converter). A 10-MHz HCMOS signal must be visible on the oscilloscope (function level converter). Output level EXTREF can be measured using the spectrum analyzer.

- Connect oscilloscope with probe to P201
- Connect spectrum analyzer to EXTREF (rear of the instrument)

- Settings: **SPEC 111**
 RF INT/ON

_ Set the D/A converter values according to the table via special function 51 and check diagnostic voltage. The calibration values entered are accepted on pressing the ENTER key.

| SPEC 51 | Diagnostic voltage at test point 11 |
|----------------|--|
| 0 | ± 150 mV |
| 4095 | 4.7 to 5.3 V |
| 2048 | 2.3 to 2.7 V |

_ Check signal at P201: 10 MHz, HCMOS

_ Measure output signal at spectrum analyzer: 10 MHz, 7.5 ± 2 dBm

7.4.2.2 External Reference

(Cf. circuit diagram sheet 2)

First the input of the external reference is tested using the multiplier connection.

- Connect signal generator 5 MHz to EXTREF (rear of the instr.).
- Connect oscilloscope with probe to P204.

- Settings: **RF EXT AC**

_ Check signal at P204: 10 MHz, HCMOS level for input levels from -13 to 13 dBm at input EXTREF.

Now the PLL and the pulling range of the VTCXO are checked. The control voltage is checked via the diagnosis.

- Settings: **SPEC 111**
- Feed frequency of the signal generator according to the table, level: 7 dBm.

_ Check diagnostic voltage according to the table.

| Frequency at EXTREF | Diagnostic voltage test point 11 |
|----------------------------|---|
| 10 MHz | 2.5 ± 0.5 V |
| 9.999970 MHz | > 0.5 V |
| 10.000030 MHz | < 4.5 V |

7.4.3 640-MHz Reference

7.4.3.1 Oscillator 640 MHz and PLL

(Cf. circuit diagram sheet 2 and 3)

The function and the tuning range of the oscillator are checked.

- Withdraw jumper X20 and connect power supply unit (0 to 20 V) to X20.2 and X20.3 (ground).
- Connect spectrum analyzer to X125 with setting CF 640 MHz, SPAN 50 MHz and REF LEVEL 10 dBm.

• Settings: **RF 50 MHz**

- _ Vary tuning voltage from 0 to 20 V, the oscillator must oscillate without failures, secondary lines or high noise in the entire tuning range at 640 ± 20 MHz.
- _ Switchover tuning voltage between 2 and 18 V, the frequency change of the oscillator must be > 15 MHz and < 25 MHz.
- _ The tuning voltage for 640 MHz must be $> 4V$ and $< 16V$.

- Remove power supply unit again and plug jumper X20 onto 1-2.

Tuning voltage is now measured via diagnosis with the PLL closed.

• Settings: **SPEC 112**

- _ Diagnostic voltage at test point 12: 10 ± 6 V

7.4.3.2 Output Amplifier 640 MHz

(Cf. circuit diagram sheet 3)

The output level is checked with the signal switched on or off.

- Connect spectrum analyzer with setting CF 640 MHz, SPAN 50 MHz, REF LEVEL 15 dBm to X125.

• Settings: **RF 50 MHz**
 SPEC 113

- Measure level 640 MHz at spectrum analyzer: 10 ± 2 dBm.
- _ Diagnostic voltage at test point 13: 100 to 400 mV.

The frequency of the SMY is set such that the LO amplifier is switched off.

• Settings: **RF 100 MHz**

- Measure level 640 MHz at the spectrum analyzer: < -30 dBm.

7.4.4 Output Oscillators

(Cf. circuit diagram sheets 4, 5 and 7)

The trim cover on the component and the solder side must absolutely be screwed onto the oscillator chambers.

The function of the two output oscillators and their tuning range are checked. The diagnostic voltage for the output level is checked as well.

- Connect spectrum analyzer with setting CF 780 MHz, SPAN 800 MHz, REF LEVEL 15 dBm to X124.
- Remove jumper X75 and connect power supply unit to X75.2 and X75.3 (ground).

_ The tuning voltage is varied for both oscillators between 0 and 22 V, the oscillator must oscillate in the entire tuning range without failures, secondary lines and high noise. At the lower and upper frequency limits of both oscillators, the tuning voltage must be in the tolerance window stated (cf. table). The output level at X124 must be between 7 and 14 dBm.

| Setting | Oscillator | Min. freq. | Tun. volt. | Max. freq. | Tun. volt. |
|------------|------------|------------|-------------|------------|----------------|
| RF 600 MHz | 1 | 520 MHz | 1.75 to 4 V | 780 MHz | 16.5 to 19.5 V |
| RF 900 MHz | 2 | 780 MHz | 1.75 to 4 V | 1040 MHz | 16.5 to 19.5 V |

With an output frequency of approx. 1040 MHz, diagnosis is tested as well.

Settings: **SPEC 114**

_ Diagnostic voltage at test point 14: 80 to 400 mV

- Remove power supply unit and plug jumper X75 on 1-2 again.

7.4.5 PLL of the Output Oscillators

In order to detect possible errors in a phase locked loop, it is useful to open it and to perform troubleshooting at the opened PLL. Jumper X75 remains removed during tests 7.4.5.1 - 7.4.5.3. To facilitate tracking of the output frequency set, a spectrum analyzer should be connected to X124.

7.4.5.1 Checking the Dividers in the PLL

(Cf. circuit diagram sheet 6)

The divider chain in the feedback of the PLL is checked first.

- Remove jumper X75 and connect power supply unit to X75.2 and X75.3 (ground).
- Set voltage at the power supply unit to approx. 16 V (oscillator 2 oscillates to approx. 1000 MHz)
- Connect oscilloscope including probe to P600.

• Settings: **RF 1000 MHz**

_ Check signal at P600: approx. 62.5 MHz, TTL level

- Connect oscilloscope including probe to P610.

_ Check signal at P610: approx. 2 MHz, HCMOS level

7.4.5.2 Checking the Phase Detector

(Cf. circuit diagram sheet 7)

When the phase detector is checked, first make sure that the reference frequency (signal 2REF) which is synchronized to is applied correctly.

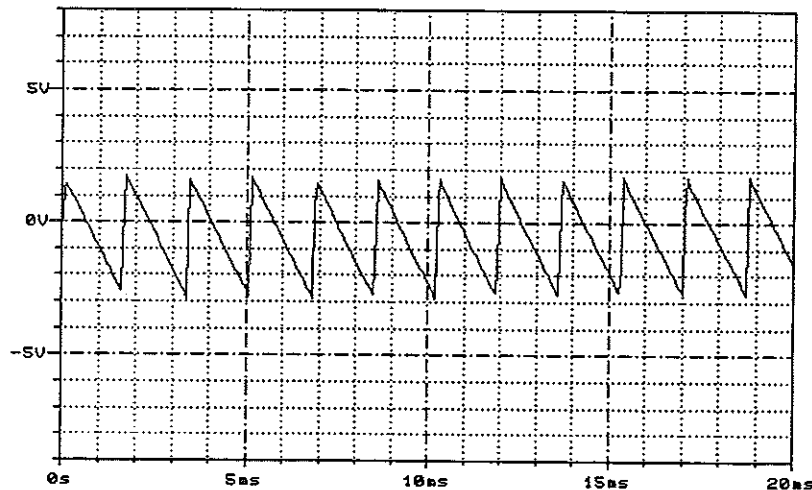
- Settings: **RF 1000 MHz**

_ Check signal at D700.3 using probe at oscilloscope: 2 MHz, HCMOS level

- Now connect oscilloscope including probe to P700.
- Slightly reduce voltage at the power supply unit at X75 such that the output frequency of oscillator2 is less than 1000 MHz.

_ Falling saw-tooth voltage at P700 with the differential frequency of the two input signals, DC voltage at P700 is negative (approx. - 0.8 V)

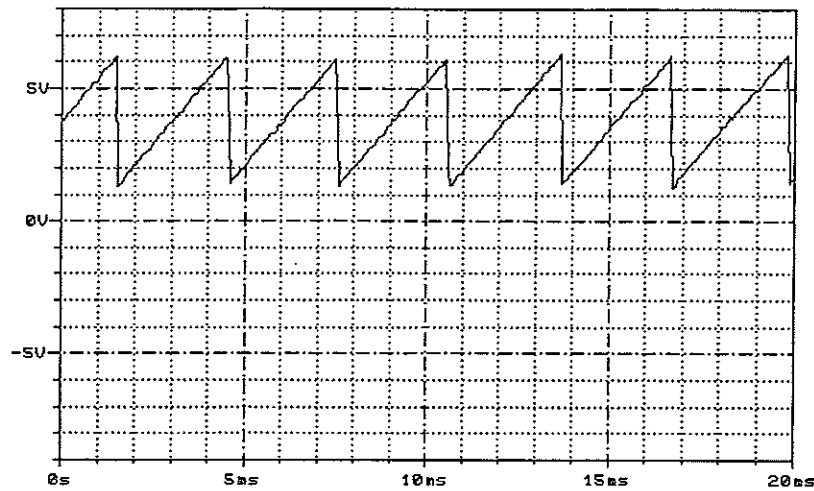
Fig. 1



- Now slowly increase the voltage at power supply unit at X75 such that the output frequency of oscillator2 becomes more than 1000 MHz. The voltage at P700 is observed.

_ Rising saw-tooth voltage at P700 with the differential frequency of the two input signals, DC voltage at P700 is positive (approx. 4 V)

Fig. 2



7.4.5.3 Checking the Loop Integrator

(Cf. circuit diagram sheet 7)

An exact test of the integral loop integrator with an opened loop is not possible. Thus only coarse functionality is checked.

- Connect oscilloscope including probe to P720.
- Settings: **RF 1000 MHz**

The procedure in the functionality test of the loop amplifier is identical to the test of the phase detector. The fed DC voltage at X75 is first reduced such that the oscillator oscillates below 1000 MHz. Now a negative input current flows into the integral controller, which increases its output voltage to approx. 21 to 24 V at P720. If the voltage at X75 is increased such that the oscillator now oscillates above 1000 MHz, a positive input current flows into the integral controller such that its output voltage decreases to approx. 0 V. If the differential frequency set is very low, an AC voltage with the corresponding differential frequency can be superimposed on the DC voltage at P720. It is also recommended to check the voltage after the subsequent lowpass filter (voltage at X75.1). It must be identical to the voltage at P720.

- Remove power supply unit and plug jumper X75 on 1-2 again.

7.4.5.4 Checking the Closed PLL

(Cf. circuit diagram sheet 4, 6 and 7)

After plugging jumper X75, the PLL is closed.

- Settings: **RF FREQUENCY (acc. to table)**
SPEC 115
- Connect spectrum analyzer with setting CF=**FREQUENCY**, Span 100 kHz, Rev.lev. 15 dBm to X124.

_ The output signal is checked with the different RF settings. No secondary lines or high noise must be visible on the spectrum analyzer.

| FREQUENCY | Diagnostic voltage test point 15 |
|----------------|----------------------------------|
| 520 MHz | 1.75 to 4 V |
| 779.999999 MHz | 16.5 to 19.5 V |
| 780 MHz | 1.75 to 4 V |
| 1040 MHz | 16.5 to 19.5 V |

7.4.6 Output Stage with Dividers

(Cf. circuit diagram sheet 5)

Output dividers by 2, 4 and 8 are checked. The diagnostic voltage and the output level are checked as well. For this test it is necessary that the PLL and the output oscillators work perfectly and thus all frequencies of the ground octave from 520 to 1040 MHz can be set.

- Settings: **RF FREQUENCY (acc. to table)**
SPEC 114

_ Check the frequency set as well as the output level at the spectrum analyzer according to the table.

_ Voltage at test point 14 for all RF frequencies: 80 to 600 mV

| FREQUENCY | Divider | Level at X124 |
|-----------|---------|---------------|
| 1040 MHz | 1 | 7 to 14 dBm |
| 780 MHz | 1 | 7 to 14 dBm |
| 779 MHz | 1 | 7 to 14 dBm |
| 520 MHz | 1 | 7 to 14 dBm |
| 500 MHz | 2 | 7 to 14 dBm |
| 250 MHz | 4 | 7 to 14 dBm |
| 125 MHz | 8 | 7 to 14 dBm |

7.4.7 Testing the Deviation Divider

(Cf. circuit diagram sheet 8)

The modulation matrix for both channels, the AC/DC switchover for the external input, the differentiator for ϕM as well as the fine deviation divider are checked.

- Remove jumper X84.
- Feed modulation signal at input socket EXT at the front unit according to the table, remeasure the rated voltages at test points according to the table using AC/DC voltmeter.

- Settings: **RF 1000 MHz**

| Setting | Signal at EXT | Signal at P840 | Signal at X84.1 |
|----------------------------|---------------|----------------|---|
| FM EXT DC 10 MHz | 1 V | - 3.32 ± 0.1 V | - 6 to - 1.5 V (Reference value) |
| AF 1 kHz, FM INT 10 MHz | - | 3.32 ± 0.1 Vs | - 6 to - 1.5 Vs (=Reference value) |
| FM EXT AC 10 MHz | 2 MHz, 1 Vs | 3.32 ± 0.2 Vs | DC < 40 mV Ref. value ± 3 dB |
| ΦM EXT 175 rad | 20 kHz, 1 Vs | 3.32 ± 0.1 Vs | DC < 40 mV Ref. value - 10 dB (± 1 dB) |

Now the fine deviation dividers are checked

- Settings: **RF 1000 MHz**
 AF 1 kHz
 FM INT 0 Hz
 FM STEP 100 Hz

_ Vary the FM deviation at the front module from 0 Hz to 2.5 kHz in steps of 100 Hz using the rotary knob. The AF voltage at X84.1 must rise from 0 V to approx. 3.2 V_S in equal steps (approx. 0.13 V).

7.4.8 EXT Monitoring

(Cf. circuit diagram sheet 8)

- Connect AF generator, 1 kHz, level according to the table, to EXT.
- _ Check the function of level monitoring according to the table.

- Settings: **FM EXT AC 100 kHz**

| Input voltage at EXT | Display |
|----------------------|----------|
| 1 ± 0.005 Vs | - |
| 1.03 ± 0.005 Vs | EXT-HIGH |
| 0.97 ± 0.005 Vs | EXT-LOW |

7.4.9 Sigma-Delta Converter Including FM-DC Control

(Cf. circuit diagram sheet 8)

The function of the Sigma-Delta converter as well as the FM-DC control in operating modes FM-AC and FM-DC is checked.

- Settings: **RF 1000 MHz**
- Connect DC voltage source (0 to 1V) to modulation input EXT.

Check the DC voltages stated using a DC voltmeter according to the table.

| Setting | DC-volt. at EXT | DC-volt. at D950.9 | DC-volt. at D65.75 |
|------------------|-----------------|--------------------|--------------------|
| FM EXT AC 10 MHz | 0 V | 2.6 ± 0.2 V | 2.6 ± 0.2 V |
| FM EXT DC 10 MHz | 0 V | 2.6 ± 0.25 V | 2.6 ± 0.25 V |
| FM EXT DC 10 MHz | 1 V | 3.8 ± 0.2 V | 2.6 ± 0.25 V |

7.4.10 FM-Deviation Setting

7.4.10.1 Checking the FM-Diagnostic Detector

(Cf. circuit diagram sheet 7 and 8)

When FM calibration is carried out, the differential deviation in the locked loop is measured using an FM diagnostic detector. To check the detector, a defined frequency deviation is set and the accuracy measured using the detector.

- Settings: **RF 1000 MHz**
 FM EXT AC 50 kHz
 SPEC 116

- Connect AF generator, 1 V_S ± 5 mV, 1 kHz, to input EXT.
- Remove jumper X84.

_ Diagnostic voltage at test point 16: 1.6 ± 0.4 V.

- Set AF frequency fed to 500 Hz, then to 1.5 kHz.

_ Diagnostic voltage at test point 16: < 0.5 V.

- Fit jumper X84.1/2 again.

7.4.10.2 Adjustment of FM-deviation

(Cf. circuit diagram sheet 8)

The scale of the FM-deviation is adjusted via the control branch (control of the division ratio at FRACSYN).

- Settings: **RF 1000 MHz**
 FM EXT AC 500 kHz

- Connect AF generator, 1 V_S ± 5 mV, 50 Hz, to input EXT.
- Connect modulation analyzer with setting HP 10 Hz, TP 3 kHz, detector RMS*², to X124.

_ Use R930 to adjust to an FM-deviation of 500 ± 1 kHz.

_ Perform FM-calibration using **SPEC 43**.

7.4.10.3 Checking FM-Calibration

(Cf. circuit diagram sheet 7)

After calibration, differential deviation is measured with FM modulation in the PLL using the diagnostic detector (cf. 7.4.10.2). Checking is performed in the ground octave from 520 to 1040 MHz in steps of 5 MHz.

- Settings: **RF 520 MHz**
 FM INT 500 kHz
 AF 1 kHz
 SPEC 116
 RF STEP 5 MHz

_ Increase the frequency from 520 MHz to 1040 MHz using the rotary knob. The diagnostic voltage at test point 16 must be in the range 0 ± 50 mV with every frequency.

7.4.11 Transient Response of Synthesis

The transient response of the PI controller voltage with a sudden frequency change between 520 and 1040 MHz is measured.

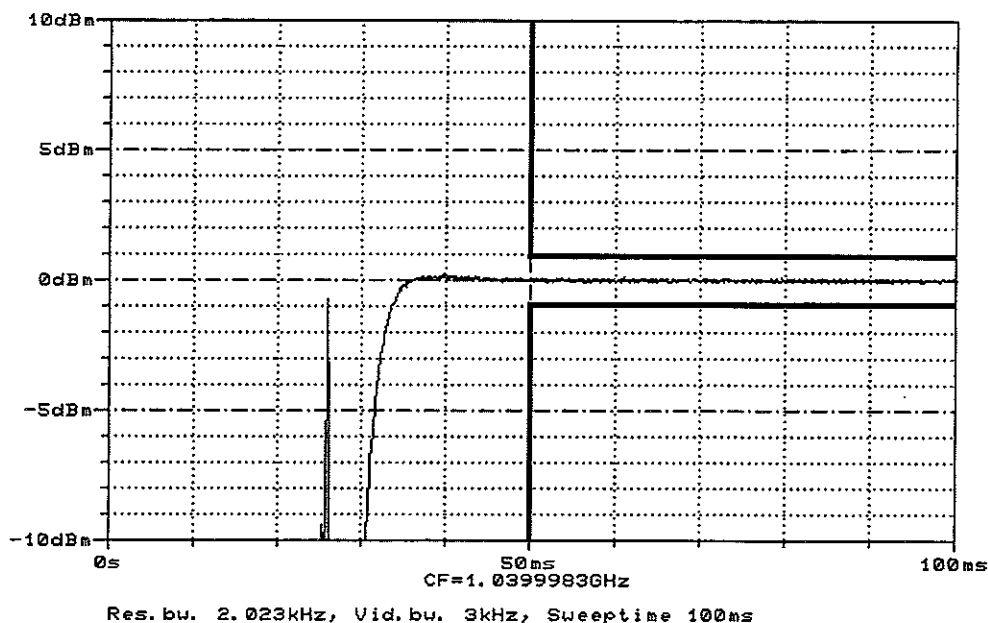
- Settings: **RF 520 MHz**
 FM OFF
 RF EXT AC

- Connect socket EXTREF of the spectrum analyzer with socket EXTREF at the rear panel of the SMY.
- Connect probe at module strobe HF2STB to X1A.16 and connect with input EXT SWEEP TRG at the rear panel of the spectrum analyzer.
- Connect spectrum analyzer with setting CF 1040 MHz, SPAN 0 Hz, REF LEVEL 10 dBm, LOG RANGE 20 dB, SWEEP 100 ms, RES BW 2.023 kHz, TRIGGER EXTERNAL, SLOPE NEGATIV, TRIGGER LEVEL 238 mV to X124.

- Edge demodulation is necessary to measure the transient response of the synthesis correctly.
The RF frequency of the synthesis module is set to 1040 MHz for preparation. Then the center frequency of the spectrum analyzer is reduced in steps of 100 Hz starting from 1040 MHz in the FREE RUN mode of the analyzer until the value measured is 0 dBm. After switching the synthesis to RF 520 MHz and the analyzer to Trigger External, the frequency changes to 1040 MHz. The setting at the spectrum analyzer corresponds to a scale factor of approx. 120 Hz/dB.

- _ 50 ms after the module strobe has been performed (trigger signal), voltage may only vary by maximally ± 100 Hz (approx. 0.85 dB). A voltage characteristic as shown in Fig. 3 is typically obtained.

Fig. 3



7.4.12 Final Tests of Synthesis

The following final tests should be performed if measurements or a fault recovery have been executed at the module before. The cover on the solder and the component side have to be screwed on now. The module is still located on the test adapter.

7.4.12.1 Residual FM of Synthesizer

- Connect modulation analyzer to X124. Check residual FM using weighting filter 20 Hz to 23 kHz and CCITT at the following frequencies (in MHz):
520, 580, 640, 710, 779, 780, 840, 900, 970, 1040 MHz
- _ Residual FM < 16 Hz_{rms} (20 Hz to 23 kHz)
- _ Residual FM < 8 Hz_{rms} (CCITT)

7.4.12.2 Residual FM 640-MHz Oscillator

- Connect modulation analyzer to X125. Check residual FM using weighting filter 20 Hz to 23 kHz and CCITT.
- Settings: **RF 50 MHz**
 FM OFF
- _ Residual FM < 4 Hz_{rms} (20 Hz to 23 kHz)
- _ Residual FM < 2 Hz_{rms} (CCITT)

7.4.12.3 Spurious of Synthesizer

- Connect spectrum analyzer with setting CF=FREQUENCY, SPAN 50 kHz, RES BW 300 Hz, VIDEO BW 30 Hz, REF LEVEL 15 dBm to X124. Measure suppression of spurious at the following frequencies (in MHz): 520.02, 544.02, 544.08, 640.005, 960.026666, 992.02, 1024.08 MHz
- _ Suppression of spurious ≥ 5 kHz before or after the carrier must be ≥ 70 dBc.

7.4.12.4 FM-DC Center Frequency Calibration

- Settings: RF 1000 MHz
FM EXT DC 10 MHz
- Connect power supply unit (± 1 V) to socket FM/ ϕ M EXT (the DC voltage set must be sufficiently free of noise and hum!).
- Connect modulation analyzer including frequency counter to X124.
- _ Set voltage at the power supply unit to 0 mV or short-circuit input socket FM/ ϕ M EXT.
- _ Perform FM-DC Nulling Internal using SPEC 55. The frequency error must be < 10 kHz. Vary the voltage from -1 to +1 V and measure residual FM, it must be < 1 kHz_{rms} (weighting bandwidth 300 Hz to 23 kHz). The output frequency varies from 990 to 1010 MHz.

7.4.13 Tables and Interfaces

7.4.13.1 List of Diagnostic Test Points

A diagnostic multiplexer (74HC4051) is used to monitor the important control voltages and levels. The potential of the module ground can be measured to compensate for offset voltages (diagnostic point 9).

| | Diagnostic point | Test point | Min. V | Max. V | Division factor |
|----|------------------|--|--------------|--------|-----------------|
| 9 | R146 | Reference, 10 KW | -50 m | 50 m | 1 |
| 10 | D-+10REF | 10 V, reference volt. | 9.9 | 10.1 | 3 |
| 11 | D-PLL-VTCXO | Control volt. VTCXO 10 MHz | 0.3 | 4.7 | 3 |
| 12 | D-PLL-640 | Control volt. VCO 640 MHz | 4 | 17 | 5 |
| 13 | D-REF640 | Output level LO, 640 MHz Level switched off | 0.1 <0.05 | 0.6 | 1 |
| 14 | D-FSYN | Output level FSYN 65 to 1040 MHz | 0.08 | 0.6 | 1 |
| 15 | D-PLL-FSYN | Control voltage VCO's FSYN | 1.75 | 21.5 | 5 |
| 6 | D-FM-KAL | Accuracy at PD, 1 kHz | 0 | 50 m | 3 |

7.4.13.2 Digital Interface

Module YSYN has a serial interface according to instrument standard. The data for the HC4094 latches and/or the serial D/A converter are accepted by means of Strobel. Strobe2 is used to effect transfer of the data at FRACSYN.

Polarity clock: active clock edge L-->H
Polarity strobel: active clock edge L-->H
Polarity strobe2: active clock edge H-->L

Data transmission using strobe1 (HF1STB):
 Deviation setting for FM and Φ M, RF-dependent deviation correction, selection of the RF output dividers, diagnosis, operating modes.

The data on strobe1 for the serial D/A converter cannot be accessed from outside and are thus not listed.

Data transmission using strobe2 (HF2STB):
 Frequency information, information for wobble operation and the offset adder.

The data on strobe 2 are determined for component FRACSYN. They cannot be accessed from outside and are hence not listed.

| Latch | Pin | Designation | Function | | |
|-------|------------|--------------|---|-----------|-------------|
| D585 | 11 | T2 | Output divider 4 | 0=On | 1=Off |
| | 12 | T1 | Output divider 2 | 0=On | 1=Off |
| | 13 | S6 | Output division path 4,8 | 0=Off | 1=On |
| | 14 | S5 | Input division path 4 | 0=Off | 1=On |
| | 7 | S4 | Path iterative network | 0=Off | 1=On |
| | 6 | S3 | Output division path 2 | 0=Off | 1=On |
| | 5 | S2 | Input division path 2,8 | 0=Off | 1=On |
| | 4 | S1 | No division | 0=Off | 1=On |
| D855 | 11 | OSZ2 | Oscillator 750 to 1040 MHz | 0=Off | 1=On |
| | 12 | OSZ1 | Oscillator 520 to 750 MHz | 0=Off | 1=On |
| | 13 | EXTAC/DC | AC-DC switchover with FM-EXT | 0=FMAC | 1=FMDC |
| | 14 | FMINT | Modulation source INT | 0=Off | 1=On |
| | 7 | FMEXT | Modulation source EXT | 0=Off | 1=On |
| | 6 | DEVCOARSE2 | Deviation divider coarse in steps of 12 dB | | MSB |
| | 5 | DEVCOARSE1 | | | |
| 4 | DEVCOARSE0 | | | LSB | |
| D670 | 11 | PLL-GAIN2 | Setting (0 to 7) | | MSB |
| | 12 | PLL-GAIN1 | Open-loop gain | | |
| | 13 | PLL-GAIN0 | for RF-locked loop | | LSB |
| | 14 | FM/ Φ M | Differentiator with PM | 0=FM | 1= Φ M |
| | 7 | FMDIAOFF | Switching off the FM detector | 0=On | 1=Off |
| | 6 | RESET-FRAC | Master reset FRACSYN | | 1=Active |
| | 5 | S_FM_DIA | Reset rectifier 1 kHz | 0=Measure | 1=Disch. |
| | 4 | S_DSIG | Sigma-Delta converter | 0=Off | 1=On |

| | Latch | Pin | Designation | Function | |
|------|-------|------|---|----------|-----|
| D665 | 11 | AD15 | Setting deviation value at A/D input FRACSYN | | MSB |
| | 12 | AD14 | | | |
| | 13 | AD13 | | | |
| | 14 | AD12 | | | |
| | 7 | AD11 | | | |
| | 6 | AD10 | | | |
| | 5 | AD9 | | | |
| | 4 | AD8 | | | |
| D660 | 11 | AD7 | Display in dual complement | | |
| | 12 | AD6 | | | |
| | 13 | AD5 | | | |
| | 14 | AD4 | | | |
| | 7 | AD3 | | | |
| | 6 | AD2 | | | |
| | 5 | AD1 | | | |
| | 4 | AD0 | | | LSB |

| | | | | | |
|------|-------|----------|--|---------------|------------|
| D110 | 11 | MODOFF | Modulation ON/OFF | 0=On | 1=Off (CW) |
| | 12 | S-REF640 | 640-MHz output stage | 0=Off | 1=On |
| | 13 | OPTREF | Switchover standard/ option reference | 0=Standard | 1=Option |
| | 14 | INT/EXT | Switchover internal/ external reference | 0=Ext. 1=Int. | or Option |
| | 7 | DIAGENA | Diagnosis On/Off | 0=Off | 1=On |
| | 6 | DMUX2 | Diagnostic multiplexer 0 to 7 | | MSB |
| | 5 | DMUX1 | | | |
| 4 | DMUX0 | | | LSB | |

7.4.13.3 Operating Points and Levels of RF Amplifiers

A test of the RF paths with regard to quality is only possible using an RF probe at the spectrum analyzer. A short low-impedance ground connection is especially important. The series resistor of the RF probe should be at least 1 k Ω .

The values stated for the DC operating points as well as for the RF level are to be understood as typical values.

| Amplifier | Operating point | RF level, frequency | Remark |
|-----------|------------------------------|----------------------------------|--|
| V205 | Pin2 Pin1 | 2.5 V 1.8 V | RF EXT AC 6 dBm, 10 MHz |
| V210 | Pin2 Pin3 | 0.7 V 2.1 V | HCT, 10 MHz RF EXT AC |
| V215 | Pin2 Pin3 | 0.7 V 2.6 V | RF EXT AC 12 dBm, 10 MHz |
| V216 | Pin2 Pin3 | 3.1 V | HCT, 10 MHz 10 MHz, 0 dBm at EXTREF RF EXT AC 10 MHz, 0 dBm at EXTREF |
| V305 | Pin3 Pin2,4 | - 7.3 V - 7.7 V | 8 dBm, 640 MHz |
| N300 | Pin1 Pin3 | - 3 dBm, 640 MHz 4.6 V | 7 dBm, 640 MHz |
| V330 | Pin1 Pin2 Pin3 Pin4 | 2 V 7.1 V 1.75 V 0.55 V | RF 50 MHz 14 dBm, 640 MHz 5.5 dBm, 640 MHz Terminate X125 using 50- Ω resistor |
| V370 | Pin2 Pin3 | 0.6 V 2.2 V | HCT, 10 MHz |
| V404 | Pin3 Pin2,4 | -5.8 V -6.1 V | RF 520 MHz 11 dBm, 520 MHz |
| V434 | Pin3 Pin2,4 | -5.8 V -6.1 V | RF 780 MHz 7 dBm, 780 MHz 9.5 dBm, 780 MHz |
| N490 | Pin1 Pin3 | - 5 dBm, 1000 MHz 4.6 V | RF 1000 MHz 3 dBm, 1000 MHz |
| N500 | Pin1 Pin3 | - 2 dBm, 1000 MHz 4.7 V | RF 1000 MHz 2 dBm, 1000 MHz |
| N510 | Pin1 Pin3 | - 6 dBm, 500 MHz 4.4 V | RF 500 MHz 2 dBm, 500 MHz Terminate X124 using 50- Ω resistor |
| N520 | Pin1 Pin3 | - 7 dBm, 250 MHz 4.6 V | RF 250 MHz 4 dBm, 250 MHz Terminate X124 using 50- Ω resistor |
| N560 | Pin1 Pin3 | 2 dBm, 1000 MHz 4.8 V | RF 1000 MHz 9 dBm, 1000 MHz Terminate X124 using 50- Ω resistor |
| N600 | Pin1 Pin3 | - 7 dBm, 1000 MHz 4.6 V | RF 1000 MHz 2 dBm, 1000 MHz |
| N610 | Pin1 Pin3 | - 7.5 dBm, 1000 MHz 4.7 V | RF 1000 MHz 0 dBm, 1000 MHz |
| V600 | Pin2 Pin3 | 0.75 V 0.95 V | RF 1000 MHz 10 dBm, 62.5 MHz |

7.5 Disassembly and Assembly

In order to be able to remove the YSYN module, only the bottom of the instrument needs to be opened. First the computer module is removed. Open the two lateral screws and withdraw the cable for the IEC-bus leading to the rear panel. The processor can now be withdrawn, the cables for keyboard/display as well as to the motherboard remain plugged in.

After undoing the two lateral screws of the synthesis module, the three or four (if optional quartz existing) RF connections at the module can be withdrawn or unscrewed. The YSYN module is now taken out of its slot sideways to the rear.

The synthesis module can now be connected with the motherboard again via the ribbon cable in the service kit. Sockets X127 and X128 are also connected to the corresponding connections EXTREF and, if existing, with the optional oscillator via the coaxial cables in the service kit.

The screening covers are screwed in the usual manner. In the case of operation with the screening cover opened, please ensure that the resonator chambers E and F are closed using suitable test covers on both sides.

7.6 External Interfaces

The data for the current consumption of the respective supply voltage refers to the state of the module after a **PRESET**.

| Pin | Name | Input/Output | Origin/Dest. | Value range | Signal description |
|--------|----------|--------------|-------------------|-----------------------------------|--|
| X1A.4 | EXT1 | Input | Front unit | 1V _s | Modulation voltage |
| X1A.6 | INT1 | Input | Processor X3.32 | 1V _s | Modulation voltage |
| X1A.8 | FMKOMPLO | Output | Processor X3.23 | HCMOS level | Level monitoring EXT |
| X1A.9 | FMKOMPFI | Output | Processor X3.24 | HCMOS level | Level monitoring EXT |
| X1A.10 | OPTUNE | Output | Power supply unit | X21.24 | 0 to 10V Tuning voltage for optional reference (SM-B1) |
| X1A.12 | SERCLK | Input | Processor X3.2 | HCMOS level | Clock for data transmission |
| X1A.14 | SERDAT | Input | Processor X3.4 | HCMOS level | Serial data |
| X1A.15 | HF1STB | Input | Processor X3.14 | HCMOS level | Strobel |
| X1A.16 | HF2STB | Input | Processor X3.15 | HCMOS level | Strobe2 |
| X1A.17 | HFINT | Output | Processor X3.20 | TTL level | Interrupt PLLs |
| X1A.19 | DIAG-5V | Output | Processor X3.6 | 0 to 5V | Diagnosis |
| X1A.22 | VA24-P | Input | Power X21.22 | 23.0 to 25.0 V 12 ± 5 mA | Supply voltage analog |
| X1A.24 | VA15-P | Input | Power X21.13 | 14.4 to 15.6 V 110 ± 25 mA | Supply voltage analog |
| X1A.25 | VA15-P | Input | Power X21.13 | 14.4 to 15.6 V 110 ± 25 mA | Supply voltage analog |
| X1A.26 | VA7.5-P | Input | Power X21.8 | 7.2 to 7.8 V 650 ± 100 mA | Supply voltage analog |
| X1A.28 | VA-5P | Input | Power X21.5 | 4.9 to 5.3 V 35 ± 10 mA | Supply voltage digital |
| X1A.30 | VA15-N | Input | Power X21.19 | -15.6 to 14.4 V -195 ± 35 mA | Supply voltage analog |
| X128 | OPT10 | Input | Reference osc. | 7.5 ± 1.5 dBm | 10 MHz ± 5 ppm |
| X127 | EXTREF | Bidir. | Rear panel | 5/10 MHz ± 3ppm -13 to 13 dBm | Input reference |
| X124 | FSYN | Output | Output section | 10MHz, 6 to 10 dBm 7 to 14 dBm | Output reference Synthesis freq 65 to 1040 MHz |
| X125 | REF640 | Output | Output section | 8 to 12 dBm | Reference 640 MHz |




ROHDE & SCHWARZ

**Schalteillisten
numerisch geordnet**

**Part lists
in numerical order**

**Listes des pièces détachées
par numéros de référence**

Für diese Unterlegte behalten wir uns alle Rechte vor.


| Kennz. Comp. No. | Benennung Designation | Sachnummer Stock No. | Hersteller Manufacturer | Bezeichnung Designation | enthalten In contained in | |
|---|--|----------------------|-------------------------|-------------------------------------|---------------------------|----------------|
| | XX VARIANTENERKLAERUNG IDENTIFICATION OF MODELS VAR02=GRUNDAUSFUEHRUNG MOD02=BASIC MODEL VAR 04 = SMY41/44/45 MOD 04 = SMY41/44/45 VAR 43 = FUER IS-98 TEST MOD 43 = FOR IS-98 TEST | | | | | |
| B360 | BL PMB2312 1:129MAX PRESC IC PRESCALER | 2024.1397.00 | SIEMENS | PMB2312T | | |
| C1 | CE 220UF+-20%10V RM2,5 ELECTROLYTIC CAPACITOR | CE 0008.7927.00 | PANASONIC | ECA-1AFG221I | | |
| C2 | CE 47UF+-20%50V RM2,5 ELECTROLYTIC CAPACITOR | CE 0008.7479.00 | PANASONIC | ECA-1HFG470I | | |
| C3 | CE 100UF+-20%25V RM2.5 ELECTROLYTIC CAPACITOR | CE 0008.7891.00 | PANASONIC | ECA-1EFG101I | | |
| C20 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | | |
| C21 | CE 1UF +-10% 25V EIA3528 TANTALUM SMD-CAPACITOR | CE 0007.7217.00 | SPRAGUE | 293D 105 X9 025 B2T | | |
| C25 | CC 330PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8873.00 | PHILIPS_CO | 2238 863 18331 | | |
| C26 | CE 10UF+-20%35V 7343 SMD-TANTALUM CAPACITOR | 1078.3291.00 | SIEMENS | B45197-A6106-M40* | | |
| C27 | CE 10UF+-20%35V 7343 SMD-TANTALUM CAPACITOR | 1078.3291.00 | SIEMENS | B45197-A6106-M40* | | |
| C30 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | | |
| C100 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | | |
| C110 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | | |
| C120 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | | |
| C200 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | | |
| C202 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | | |
| C204 | CC 10NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0099.8521.00 | MURATA | GRM42-6X7R103K 50PT | | |
| C205 | CC 1NF+-1% 50V NPO 1206 SMD CERAMIC CAPACITOR | CC 0007.7398.00 | PHILIPS_CO | 2222 863 *8102 | | |
| C206 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | | |
| C208 | CC 10NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0099.8521.00 | MURATA | GRM42-6X7R103K 50PT | | |
| C210 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | | |
| C214 | CC 56PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8809.00 | MURATA | GRM42-6COG 560F 50PT | | |
| C217 | CC 470PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8515.00 | PHILIPS_CO | 2238 863 18471 | | |
| C217 | CC 470PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR NUR VAR/ONLY MOD: 02 43 | CC 0099.8515.00 | PHILIPS_CO | 2238 863 18471 | | |
| C218 | CC 680PF+-1% 50V NPO 1206 CERAMIC CHIP CAPACITOR NUR VAR/ONLY MOD: 02 43 | CC 0007.7375.00 | PHILIPS_CO | 2222 863 18681 | | |
| C218 | CC 680PF+-1% 50V NPO 1206 CERAMIC CHIP CAPACITOR NUR VAR/ONLY MOD: 04 | CC 0007.7375.00 | PHILIPS_CO | 2222 863 18681 | | |
| C219 | CC 470PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR NUR VAR/ONLY MOD: 02 43 | CC 0099.8515.00 | PHILIPS_CO | 2238 863 18471 | | |
| C219 | CC 470PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR NUR VAR/ONLY MOD: 04 | CC 0099.8515.00 | PHILIPS_CO | 2238 863 18471 | | |
| C220 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | | |
| C221 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | | |
| MENP5 | 413 3PUA | Ät | Datum Date | Schaltteilleiste für Parts list for | Sachnummer Stock No. | Blatt-Nr. Page |
|  | ROHDE & SCHWARZ | 31 | 16.09.97 | EE SYNTHESIZER SYNTHESIZER | 1062.6409.01 SA | 1+ |

095.0028-0893

| Kennz. Comp. No. | Benennung Designation | Sachnummer Stock No. | Hersteller Manufacturer | Bezeichnung Designation | enthalten in contained in |
|------------------|---|----------------------|-------------------------|-------------------------|---------------------------|
| C222 | CC 100PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8415.00 | MURATA | GRM42-6COG 101F 50PT | |
| C224 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C225 | CC 220PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8850.00 | PHILIPS_CO | 2238 863 18221 | |
| C227 | CC 1NF+-1% 50V NPO 1206 SMD CERAMIC CAPACITOR TRIMMWERT 820PF - 1.2NF | CC 0007.7398.00 | PHILIPS_CO | 2222 863 *8102 | |
| C228 | CC 100PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8415.00 | MURATA | GRM42-6COG 101F 50PT | |
| C230 | CC 100PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8415.00 | MURATA | GRM42-6COG 101F 50PT | |
| C232 | CC 1NF+-1% 50V NPO 1206 SMD CERAMIC CAPACITOR NUR VAR/ONLY MOD: 02 43 | CC 0007.7398.00 | PHILIPS_CO | 2222 863 *8102 | |
| C232 | RG 0-OHM WIDERSTAND-CHIP RESISTOR CHIP 0-OHM NUR VAR/ONLY MOD: 04 | RG 0007.5108.00 | DRALORIC | CR 1206 | |
| C234 | CC 330PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8873.00 | PHILIPS_CO | 2238 863 18331 | |
| C235 | CC 330PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8873.00 | PHILIPS_CO | 2238 863 18331 | |
| C236 | CC 15PF+-1% 50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8750.00 | MURATA | GRM42-6COG 150F 50PT | |
| C237 | CC 1,0NF+-10%50V HDK 0603 SMD-CERAMIC-CAPACITOR NUR VAR/ONLY MOD: 04 | CC 0009.4938.00 | MURATA | GRM39X7R***K50C500PT | |
| C240 | CC 1NF+-1% 50V NPO 1206 SMD CERAMIC CAPACITOR | CC 0007.7398.00 | PHILIPS_CO | 2222 863 *8102 | |
| C245 | CC 220NF+-10%50V X7R 1210 CERAMIC CAPACITOR CHIP | CC 0520.6850.00 | AVX | 1210 5C 224KA 11A | |
| C250 | CC 22PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8396.00 | MURATA | GRM42-6COG 220F 50PT | |
| C252 | CC 1,5NF+-1% 50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0007.7417.00 | PHILIPS_CO | 2222 863 18152 | |
| C254 | CC 1,5NF+-1% 50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0007.7417.00 | PHILIPS_CO | 2222 863 18152 | |
| C255 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C256 | CK 470NF+-5% 25V PPS 2824 SMD-FILM-CAPACITOR | 0010.6853.00 | PHILIPS_CO | 2222 394 29474 | |
| C258 | CC 47NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5195.00 | PHILIPS_CO | 2238 581 15645 | |
| C260 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C261 | CE 1UF +-10% 10V 1206 TANTALUM-SMD-CAPACITOR | CE 0007.7252.00 | SPRAGUE | 293D 105 X9 010 D2T | |
| C286 | CC 100PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8415.00 | MURATA | GRM42-6COG 101F 50PT | |
| C300 | CC 100PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8415.00 | MURATA | GRM42-6COG 101F 50PT | |
| C302 | CC 3,3PF+-0,25 50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0007.8194.00 | MURATA | GRM42-6COG 3R3 C50PT | |
| C304 | CC 1,8PF0,25PF NPO 0805 CHIP CAPACITOR | CC 0099.6806.00 | PHILIPS_CO | 2222 861 12188 | |
| C306 | CC 6,8PF0,5PF NPO 0805 CAPACITOR | CC 0093.2167.00 | PHILIPS_CO | 2222 861 15688 | |
| C308 | CC 7,8PF0,25PF NPO 0805 CERAMIC CHIP CAPACITOR | CC 0099.8296.00 | PHILIPS_CO | 2222 861 14788 | |
| C310 | CC 100PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8415.00 | MURATA | GRM42-6COG 101F 50PT | |
| C312 | CE 2,2UF +-10% 25V 6032 TANTALUM SMD-CAPACITOR | CE 0007.7223.00 | KEMET | T491 C225 K 025 AS | |
| C314 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C316 | CC 100PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8415.00 | MURATA | GRM42-6COG 101F 50PT | |
| C320 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C324 | CC 100PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8415.00 | MURATA | GRM42-6COG 101F 50PT | |
| C331 | CC 100PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8415.00 | MURATA | GRM42-6COG 101F 50PT | |
| C335 | CC 100PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8415.00 | MURATA | GRM42-6COG 101F 50PT | |
| C336 | CC 220PF+-10% X7R 0805 CERAMIC CHIP CAPACITOR | CC 0099.8367.00 | MURATA | GRM40 X7R221K50PT | |

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| MENP5 | 413 3PUA | ÄI | Datum Date | Schaltteilliste für Parts list for | Sachnummer Stock No. | Blatt-Nr. Page |
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| Kennz. Comp. No. | Benennung Designation | Sachnummer Stock No. | Hersteller Manufacturer | Bezeichnung Designation | enthalten in contained in |
|------------------|--|----------------------|-------------------------|-------------------------|---------------------------|
| C338 | CC 100PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8415.00 | MURATA | GRM42-6COG 101F 50PT | |
| C342 | CC 100PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8415.00 | MURATA | GRM42-6COG 101F 50PT | |
| C344 | CC 2,2PF+-0,25 50VNPO1206 CERAMIC CHIP CAPACITOR | CC 0007.8171.00 | MURATA | GRM42-6COG 2R2 C50PT | |
| C345 | CC 100PF+-10% NPO 0805 CAPACITOR | CC 0082.2948.00 | MURATA | GRM40 COG 101 K50PT | |
| C346 | CC 1NF+-1% 50V NPO 1206 SMD CERAMIC CAPACITOR | CC 0007.7398.00 | PHILIPS_CO | 2222 863 *8102 | |
| C347 | CC 1PF+-0,25 50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8667.00 | PHILIPS_CO | 2238 863 15108 | |
| C348 | CC 1NF+-1% 50V NPO 1206 SMD CERAMIC CAPACITOR | CC 0007.7398.00 | PHILIPS_CO | 2222 863 *8102 | |
| C349 | CC 100PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8415.00 | MURATA | GRM42-6COG 101F 50PT | |
| C360 | CC 1NF+-1% 50V NPO 1206 SMD CERAMIC CAPACITOR | CC 0007.7398.00 | PHILIPS_CO | 2222 863 *8102 | |
| C361 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C370 | CC 1NF+-1% 50V NPO 1206 SMD CERAMIC CAPACITOR | CC 0007.7398.00 | PHILIPS_CO | 2222 863 *8102 | |
| C373 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C400 | CC 10PF+-0,25 50VNPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8480.00 | MURATA | GRM42-6COG 100 C50PT | |
| C402 | CC 47PF+-5% 500V PELL CAPACITOR | CC 0467.9761.00 | TEKELEC | 501 CHB 470 JWL | |
| C404 | CC 10PF+-0,25 50VNPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8480.00 | MURATA | GRM42-6COG 100 C50PT | |
| C406 | CC 4,1PFO,25PF NPO 0805 CAPACITOR | CC 0093.5637.00 | VITRAMON | VJ0805A...FA | |
| C408 | CC 6,8PFO,5PF NPO 0805 CAPACITOR | CC 0093.2167.00 | PHILIPS_CO | 2222 861 15688 | |
| C410 | CC 6PF+-0,25PF NPO 0805 CERAMIC CHIP CAPACITOR | CC 0099.8280.00 | MURATA | GRM40 COG 6R0 C50PT | |
| C412 | CC 12PF+-5%100V NPO 0805 CERAMIC CAPACITOR | CC 0022.3948.00 | PHILIPS_CO | 2222 861 15129 | |
| C414 | CC 100PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8415.00 | MURATA | GRM42-6COG 101F 50PT | |
| C416 | CC 100PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8415.00 | MURATA | GRM42-6COG 101F 50PT | |
| C418 | CC 10PF+-0,25 50VNPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8480.00 | MURATA | GRM42-6COG 100 C50PT | |
| C425 | CC 100PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8415.00 | MURATA | GRM42-6COG 101F 50PT | |
| C430 | CC 10PF+-0,25 50VNPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8480.00 | MURATA | GRM42-6COG 100 C50PT | |
| C432 | CC 8,2+-0,1PF 500V PELL CAPACITOR | CC 0552.1648.00 | TEKELEC | 501 CHB 8R2 BW(V)LE | |
| C432 | NUR VAR/ONLY MOD: 02 CC 4,7PF+-0,1PF500V PELL CAPACITOR | CC 0580.9540.00 | ATC | ATC100B 4R7 BW500XR | |
| C434 | NUR VAR/ONLY MOD: 43 CC 10PF+-0,25 50VNPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8480.00 | MURATA | GRM42-6COG 100 C50PT | |
| C436 | CC 2,9PFO,25PF NPO 0805 CAPACITOR | CC 0093.5589.00 | VITRAMON | VJ0805A...XA | |
| C438 | CC 4,3PFO,25PF NPO 0805 CAPACITOR | CC 0093.5643.00 | MURATA | GRM40COG4R3C50PT | |
| C440 | CC 3,3PFO,25PF NPO 0805 CERAMIC CHIP CAPACITOR | CC 0099.8273.00 | PHILIPS_CO | 2222 861 12338 | |
| C442 | CC 7,8PFO,25PF NPO 0805 CERAMIC CHIP CAPACITOR | CC 0099.8296.00 | PHILIPS_CO | 2222 861 14788 | |
| C444 | CC 100PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8415.00 | MURATA | GRM42-6COG 101F 50PT | |
| C446 | CC 100PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8415.00 | MURATA | GRM42-6COG 101F 50PT | |
| C448 | CC 10PF+-0,25 50VNPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8480.00 | MURATA | GRM42-6COG 100 C50PT | |
| C455 | CC 100PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8415.00 | MURATA | GRM42-6COG 101F 50PT | |
| C490 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C491 | CE 10UF+-20%35V 7343 SMD-TANTALUM CAPACITOR | 1078.3291.00 | SIEMENS | B45197-A6106-M40* | |
| C492 | CC 100PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8415.00 | MURATA | GRM42-6COG 101F 50PT | |

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Schaltteilliste für Parts list for

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SYNTHESIZER

Sachnummer Stock No.

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| C493 | CC 100PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8415.00 | MURATA | GRM42-6COG 101F 50PT | |
| C494 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C500 | CC 22PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8396.00 | MURATA | GRM42-6COG 220F 50PT | |
| C501 | CC 100PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8415.00 | MURATA | GRM42-6COG 101F 50PT | |
| C502 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C505 .507 | CC 1NF+-1% 50V NPO 1206 SMD CERAMIC CAPACITOR | CC 0007.7398.00 | PHILIPS_CO | 2222 863 *8102 | |
| C510 | CC 100PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8415.00 | MURATA | GRM42-6COG 101F 50PT | |
| C511 .514 | CC 1NF+-1% 50V NPO 1206 SMD CERAMIC CAPACITOR | CC 0007.7398.00 | PHILIPS_CO | 2222 863 *8102 | |
| C515 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C516 | CC 100PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8415.00 | MURATA | GRM42-6COG 101F 50PT | |
| C517 | CC 100PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8415.00 | MURATA | GRM42-6COG 101F 50PT | |
| C520 | CC 100PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8415.00 | MURATA | GRM42-6COG 101F 50PT | |
| C521 .524 | CC 1NF+-1% 50V NPO 1206 SMD CERAMIC CAPACITOR | CC 0007.7398.00 | PHILIPS_CO | 2222 863 *8102 | |
| C525 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C526 | CC 100PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8415.00 | MURATA | GRM42-6COG 101F 50PT | |
| C527 | CC 100PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8415.00 | MURATA | GRM42-6COG 101F 50PT | |
| C530 | CC 1NF+-1% 50V NPO 1206 SMD CERAMIC CAPACITOR | CC 0007.7398.00 | PHILIPS_CO | 2222 863 *8102 | |
| C532 | CC 100PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8415.00 | MURATA | GRM42-6COG 101F 50PT | |
| C550 | CC 330PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8873.00 | PHILIPS_CO | 2238 863 18331 | |
| C551 | CC 330PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8873.00 | PHILIPS_CO | 2238 863 18331 | |
| C552 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C553 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C555 | CC 1PF+-0,25 50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8667.00 | PHILIPS_CO | 2238 863 15108 | |
| C556 | CC 1NF+-1% 50V NPO 1206 SMD CERAMIC CAPACITOR | CC 0007.7398.00 | PHILIPS_CO | 2222 863 *8102 | |
| C557 | CC 100PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8415.00 | MURATA | GRM42-6COG 101F 50PT | |
| C570 | CC 1NF+-1% 50V NPO 1206 SMD CERAMIC CAPACITOR | CC 0007.7398.00 | PHILIPS_CO | 2222 863 *8102 | |
| C571 | CC 1NF+-1% 50V NPO 1206 SMD CERAMIC CAPACITOR | CC 0007.7398.00 | PHILIPS_CO | 2222 863 *8102 | |
| C580 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C600 | CC 10PF+-0,25 50VNPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8480.00 | MURATA | GRM42-6COG 100 C5OPT | |
| C601 | CC 10PF+-0,25 50VNPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8480.00 | MURATA | GRM42-6COG 100 C5OPT | |
| C602 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C604 | CC 4,7PF+-0,25 50VNPO1206 CERAMIC CHIP CAPACITOR | CC 0007.8213.00 | MURATA | GRM42-6COG 4R7C 50PT | |
| C605 | CC 10PF+-0,25 50VNPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8480.00 | MURATA | GRM42-6COG 100 C5OPT | |
| C610 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C615 | CC 10PF+-0,25 50VNPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8480.00 | MURATA | GRM42-6COG 100 C5OPT | |
| C616 | CC 100PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8415.00 | MURATA | GRM42-6COG 101F 50PT | |
| C620 | CC 100PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8415.00 | MURATA | GRM42-6COG 101F 50PT | |
| C621 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C625 | CC 100PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8415.00 | MURATA | GRM42-6COG 101F 50PT | |


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| Kennz. Comp. No. | Benennung Designation | Sachnummer Stock No. | Hersteller Manufacturer | Bezeichnung Designation | enthalten in contained in |
|------------------|--|----------------------|-------------------------|-------------------------|---------------------------|
| C630 | CC 100PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8415.00 | MURATA | GRM42-6COG 101F 50PT | |
| C631 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C633 | CC 100PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8415.00 | MURATA | GRM42-6COG 101F 50PT | |
| C640 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C645 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C650 | CE 22UF +-10% 10V 7343 TANTALUM SMD-CAPACITOR | CE 0007.7298.00 | KEMET | T491 D 226 K 010 AS | |
| C655 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C661 | CC 220PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8850.00 | PHILIPS_CO | 2238 863 18221 | |
| C662 | CC 100PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8415.00 | MURATA | GRM42-6COG 101F 50PT | |
| C690 | CC 220NF+-10%50V X7R 1210 CERAMIC CAPACITOR CHIP | CC 0520.6850.00 | AVX | 1210 5C 224KA 11A | |
| ..693 | | | | | |
| C698 | CE 22UF +-10% 10V 7343 TANTALUM SMD-CAPACITOR | CE 0007.7298.00 | KEMET | T491 D 226 K 010 AS | |
| C701 | CC 10NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0099.8521.00 | MURATA | GRM42-6X7R103K 50PT | |
| C702 | CC 10NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0099.8521.00 | MURATA | GRM42-6X7R103K 50PT | |
| C705 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C710 | CC 22PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8396.00 | MURATA | GRM42-6COG 220F 50PT | |
| C712 | CE 4,7U F+-10% 10V 3528 TANTALUM SMD-CAPACITOR | CE 0007.7275.00 | SPRAGUE | 293D 475 X9 010 B2T | |
| C719 | CE 1UF +-10% 25V EIA3528 TANTALUM SMD-CAPACITOR | CE 0007.7217.00 | SPRAGUE | 293D 105 X9 025 B2T | |
| C720 | CC 1NF+-1% 50V NPO 1206 SMD CERAMIC CAPACITOR | CC 0007.7398.00 | PHILIPS_CO | 2222 863 *8102 | |
| C721 | CK 470NF+-5% 25V PPS 2824 SMD-FILM-CAPACITOR | 0010.6853.00 | PHILIPS_CO | 2222 394 29474 | |
| C722 | CC 22PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8396.00 | MURATA | GRM42-6COG 220F 50PT | |
| C731 | CK 220NF+-5% 25V PPS 2220 SMD-FILM-CAPACITOR | 0009.7872.00 | PHILIPS_CO | 2222 393 29224 | |
| C750 | CE 47UF+-20%50V RM2,5 ELECTROLYTIC CAPACITOR | CE 0008.7479.00 | PANASONIC | ECA-1HFG470I | |
| C753 | CC 100PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8415.00 | MURATA | GRM42-6COG 101F 50PT | |
| C760 | CC 8,2NF+-10%50V X7R 1206 CERAMIC CHIP KONDENSATOR | CC 0007.3257.00 | PHILIPS_CO | 2238 581 16626 | |
| C764 | CK 1,5UF+-5% 50V RD5,5H12 CAPACITOR | CK 0008.1141.00 | ROE | MKT1826-515/054 | |
| C765 | CK 1,5UF+-5% 50V RD5,5H12 CAPACITOR | CK 0008.1141.00 | ROE | MKT1826-515/054 | |
| C779 | CK 100NF+-5% 25V PPS 2220 SMD-FILM | 1066.2037.00 | PHILIPS_CO | 2222 393 29104 | |
| C780 | CC 1,8NF+-1% 50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0007.7423.00 | PHILIPS_CO | 2222 863 18182 | |
| C781 | CC 1,8NF+-1% 50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0007.7423.00 | PHILIPS_CO | 2222 863 18182 | |
| C782 | CE 4,7UF +-10% 25V 7343 TANTALUM SMD-CAPACITOR | CE 0007.7230.00 | SPRAGUE | 293D475X9035D2T | |
| C784 | CC 100PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8415.00 | MURATA | GRM42-6COG 101F 50PT | |
| C786 | CC 10NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0099.8521.00 | MURATA | GRM42-6X7R103K 50PT | |
| C787 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C788 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C789 | CE 47UF +-10% 10V 7343 TANTALUM SMD-CAPACITOR | CE 0007.7300.00 | SPRAGUE | 293D X9 010 D2T | |
| ..791 | | | | | |
| C792 | CE 10UF+-20%35V 7343 SMD-TANTALUM CAPACITOR | 1078.3291.00 | SIEMENS | B45197-A6106-M40* | |
| C793 | CE 10UF+-20%35V 7343 SMD-TANTALUM CAPACITOR | 1078.3291.00 | SIEMENS | B45197-A6106-M40* | |
| C800 | CC 5,6PF+-0,25 50V NPO1206 CERAMIC CHIP CAPACITOR | CC 0007.8220.00 | MURATA | GRM42-6COG 5R6 C50PT | |
| C830 | CK 330NF+-5% 25V PPS 2824 SMD-FILM-CAPACITOR | 0010.6660.00 | PHILIPS_CO | 2222 394 29334 | |


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|---------------------|--|-------------------------|----------------------------|----------------------------|------------------------------|
| C840 | CC 4,7PF+-0,25 50VNP01206 CERAMIC CHIP CAPACITOR | CC 0007.8213.00 | MURATA | GRM42-6COG 4R7C 50PT | |
| C841 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C842 | CC 15PF+-1% 50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8750.00 | MURATA | GRM42-6COG 150F 50PT | |
| C843 | CC 3,3PF+-0,25 50VNP01206 CERAMIC CHIP CAPACITOR | CC 0007.8194.00 | MURATA | GRM42-6COG 3R3 C50PT | |
| C844 | CC 3,3PF+-0,25 50VNP01206 CERAMIC CHIP CAPACITOR | CC 0007.8194.00 | MURATA | GRM42-6COG 3R3 C50PT | |
| C845 | CC 5,6PF+-0,25 50VNP01206 CERAMIC CHIP CAPACITOR NICHT BESTUECKT NOT FITTED | CC 0007.8220.00 | MURATA | GRM42-6COG 5R6 C50PT | |
| C846 | CC 100PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8415.00 | MURATA | GRM42-6COG 101F 50PT | |
| C850 | CC 22PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8396.00 | MURATA | GRM42-6COG 220F 50PT | |
| C860 | CE 220UF+-20%10V RM2,5 ELECTROLYTIC CAPACITOR | CE 0008.7927.00 | PANASONIC | ECA-1AFG221I | |
| C861 | CE 220UF+-20%10V RM2,5 ELECTROLYTIC CAPACITOR | CE 0008.7927.00 | PANASONIC | ECA-1AFG221I | |
| C862 | CC 1,2NF+-1% 50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0007.7400.00 | PHILIPS_CO | 2222 863 18122 | |
| C865 | CE 2,2UF +-10% 25V 6032 TANTALUM SMD-CAPACITOR | CE 0007.7223.00 | KEMET | T491 C225 K 025 AS | |
| C866 | CE 2,2UF +-10% 25V 6032 TANTALUM SMD-CAPACITOR | CE 0007.7223.00 | KEMET | T491 C225 K 025 AS | |
| C870 | CC 1UF+-10% 50V X7R 2220 CERAMIC CAPACITOR | CC 0520.6873.00 | AVX | 2220 5C 105 KAT00F | |
| C871 | CC 1UF+-10% 50V X7R 2220 CERAMIC CAPACITOR | CC 0520.6873.00 | AVX | 2220 5C 105 KAT00F | |
| C884 | CE 47UF +-10% 10V 7343 TANTALUM SMD-CAPACITOR | CE 0007.7300.00 | SPRAGUE | 293D X9 010 D2T | |
| C885 | CE 47UF +-10% 10V 7343 TANTALUM SMD-CAPACITOR | CE 0007.7300.00 | SPRAGUE | 293D X9 010 D2T | |
| C890 | CE 100UF+-20%25V RM2.5 ELECTOLYTIC CAPACITOR | CE 0008.7891.00 | PANASONIC | ECA-1EFG101I | |
| C911 | CC 150PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR NICHT BESTUECKT NOT FITTED | CC 0099.8509.00 | PHILIPS_CO | 2238 863 18151 | |
| C913 | CC 3,9NF+-1% 50V NPO 1206 SMD-CERAMIC CAPACITOR | 0010.2987.00 | MURATA | GRM42-6COG392F50PT | |
| C940 | CC 470PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR NUR VAR/ONLY MOD: 02 | CC 0099.8515.00 | PHILIPS_CO | 2238 863 18471 | |
| C941 | CC 820PF+-1% 50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0007.7381.00 | PHILIPS_CO | 2222 863 18821 | |
| C942 | CC 820PF+-1% 50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0007.7381.00 | PHILIPS_CO | 2222 863 18821 | |
| C942 | CC 5,6PF+-0,25 50VNP01206 CERAMIC CHIP CAPACITOR | CC 0007.8220.00 | MURATA | GRM42-6COG 5R6 C50PT | |
| C949 | CC 82PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8821.00 | MURATA | GRM42-6COG 820F 50PT | |
| C950 | CC 1,2NF+-1% 50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0007.7400.00 | PHILIPS_CO | 2222 863 18122 | |
| C951 | CC 270PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8867.00 | PHILIPS_CO | 2222 863 18271 | |
| C953 | CC 820PF+-1% 50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0007.7381.00 | PHILIPS_CO | 2222 863 18821 | |
| C954 | CE 47UF +-10% 10V 7343 TANTALUM SMD-CAPACITOR | CE 0007.7300.00 | SPRAGUE | 293D X9 010 D2T | |
| C959 | CC 68PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8815.00 | MURATA | GRM42-6COG 680F 50PT | |
| C960 | CC 8,2PF+-0,25 50VNP01206 CERAMIC CHIP CAPACITOR NICHT BESTUECKT NOT FITTED | CC 0007.8242.00 | MURATA | GRM42-6COG 8R2 C50PT | |
| C962 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C980 | CE 47UF +-10% 10V 7343 TANTALUM SMD-CAPACITOR | CE 0007.7300.00 | SPRAGUE | 293D X9 010 D2T | |
| C989 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C990 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |

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| MENP5 | 413 3PUA | ÄI | Datum Date | Schaltteilliste für Parts list for | Sachnummer Stock No. | Blatt-Nr. Page |
|  | 31 | 16.09.97 | EE SYNTHESIZER SYNTHESIZER | 1062.6409.01 SA | 6+ | |

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| Kennz. Comp. No. | Benennung Designation | Sachnummer Stock No. | Hersteller Manufacturer | Bezeichnung Designation | enthalten in contained in |
|---------------------|--|-------------------------|----------------------------|----------------------------|------------------------------|
| C995 | CE 2,2UF +-10% 25V 6032 TANTALUM SMD-CAPACITOR | CE 0007.7223.00 | KEMET | T491 C225 K 025 AS | |
| D20 | BD REF01CS 10V 20MA VREF VOLTAGE REFERENCE | 1002.5129.00 | PMI | REF01C(S) | |
| D65 | BG L5A8611 FRACSYN2 ASIC IC GATEARRAY | 1043.9493.00 | LSI_LOGIC | R&S.S.NR. | |
| D110 | BL PC74HC4094T 8ST.BUSREG BUS REGISTER | BL 0804.0977.00 | PHILIPS_SE | (PC)74HC4094(D/T) | |
| D115 | BL PC74HC4051T 8CH.AN.MUX 8CHANNEL ANAL.MULTIPLEXER | BL 0007.3592.00 | PHILIPS_SE | (PC)74HC4051(D/T) | |
| D125 | BL PC74HC132T 4XSCHMITT T QUAD 2-INP NAND SCHMITT | BL 0520.7811.00 | PHILIPS_SE | (PC)74HC132(D/T) | |
| D200 | BL 74AC005C 4X2IN NAND QUAD NAND GATTER | BL 0820.3477.00 | NSC | 74AC00(SC) | |
| D205 | BL PC74HC390T 2XDEC.CNT DUAL DECADE COUNTER | BL 0007.5043.00 | PHILIPS_SE | (PC)74HC390(D/T) | |
| D210 | BL PC74HC74T 2XD-FF DUAL D-TYPE FLIPFLOP | BL 0007.3505.00 | PHILIPS_SE | (PC)74HC74(D/T) | |
| D215 | BS DG419DY 1XUM ANALOGSCH ANALOG SWITCH | 0746.0322.00 | SILICONIX | DG419DY | |
| D220 | BJ DAC8143 1X12B-DAC 12B SERIAL D/A-CONVERTER | 1012.9510.00 | PMI | DAC8143FS | |
| D255 | BL 74AC74SC 2XD-FLIPFL DUAL D-TYPE FLIPF | BL 0820.3602.00 | NSC | 74AC74(SC) | |
| D510 | BL UPB581C 2:1 PRESC IC PRESCALERDIVIDER | 0840.6113.00 | NEC | (UP)B581C | |
| D520 | BL UPB582C 4:1 PRESC IC PRESCALER | 0820.3390.00 | NEC | (UP)B582C | |
| D585 | BL PC74HC4094T 8ST.BUSREG BUS REGISTER | BL 0804.0977.00 | PHILIPS_SE | (PC)74HC4094(D/T) | |
| D620 | BL MC12093D 2/4/8 PRESC IC PROGR PRESCALER | 1062.6438.00 | MOTOROLA | 12093(D) | |
| D630 | BL MC12093D 2/4/8 PRESC IC PROGR PRESCALER | 1062.6438.00 | MOTOROLA | 12093(D) | |
| D640 | BL 74FOOD 4X2IN NAND GATE QUAD 2INPUT NAND GATE | BL 0007.3628.00 | PHILIPS_SE | (N)74FOO(D) | |
| D655 | BL 74ACT74SC 2XRSFLIPFLOP IC DUAL D-FLIPFLOP | BL 0008.0680.00 | HARRIS | (CD74)ACT74(M) | |
| D660 | BL PC74HC4094T 8ST.BUSREG BUS REGISTER | BL 0804.0977.00 | PHILIPS_SE | (PC)74HC4094(D/T) | |
| D665 | BL PC74HC4094T 8ST.BUSREG BUS REGISTER | BL 0804.0977.00 | PHILIPS_SE | (PC)74HC4094(D/T) | |
| D670 | BL PC74HC4094T 8ST.BUSREG BUS REGISTER | BL 0804.0977.00 | PHILIPS_SE | (PC)74HC4094(D/T) | |
| D700 | BL 74AC74SC 2XD-FLIPFL DUAL D-TYPE FLIPF | BL 0820.3602.00 | NSC | 74AC74(SC) | |
| D710 | BS DG419DY 1XUM ANALOGSCH ANALOG SWITCH | 0746.0322.00 | SILICONIX | DG419DY | |
| D720 | BL PC74HC4051T 8CH.AN.MUX 8CHANNEL ANAL.MULTIPLEXER | BL 0007.3592.00 | PHILIPS_SE | (PC)74HC4051(D/T) | |
| D800 | BS DG413DY 2A2R ANALOGSCH QUAD ANALOG CMOS SWITCH | 1004.7058.00 | SILICONIX | DG413DY | |
| D820 | BS DG419DY 1XUM ANALOGSCH ANALOG SWITCH | 0746.0322.00 | SILICONIX | DG419DY | |
| D840 | BJ DAC8143 1X12B-DAC 12B SERIAL D/A-CONVERTER | 1012.9510.00 | PMI | DAC8143FS | |
| D855 | BL PC74HC4094T 8ST.BUSREG BUS REGISTER | BL 0804.0977.00 | PHILIPS_SE | (PC)74HC4094(D/T) | |
| D870 | BL PC74HCT123T 2XMONOFLOP DUAL MULTIVIBRATOR | BL 0007.6333.00 | PHILIPS_SE | (PC)74HCT123(D/T) | |
| D950 | BL 74AC74SC 2XD-FLIPFL DUAL D-TYPE FLIPF | BL 0820.3602.00 | NSC | 74AC74(SC) | |
| D960 | BL PC74HC4051T 8CH.AN.MUX 8CHANNEL ANAL.MULTIPLEXER | BL 0007.3592.00 | PHILIPS_SE | (PC)74HC4051(D/T) | |
| D965 | BS SD5400CY 4X ANALOGSCH QUAD ANALOG SWITCH | 0351.0000.00 | SILICONIX | SD5400CY | |
| K240 | SR 5V 500 OHM 1X1 SIL RELAY 5V SIL | 1012.9604.00 | HAMLIN | HE3621A0500 | |
| K910 | SR 5V 500 OHM 1X1 SIL RELAY 5V SIL | 1012.9604.00 | HAMLIN | HE3621A0500 | |
| L1 | LD 10UH 10% 0,18A 1210 SMD-INDUCTOR | LD 0007.9255.00 | SIEMENS | B82422-A1103-K100 | |
| L2 | LD 10UH 10% 0,18A 1210 SMD-INDUCTOR | LD 0007.9255.00 | SIEMENS | B82422-A1103-K100 | |

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| Kennz. Comp. No. | Benennung Designation | Sachnummer Stock No. | Hersteller Manufacturer | Bezeichnung Designation | enthalten in contained in |
|---------------------|---|-------------------------|----------------------------|----------------------------|------------------------------|
| L3 | LD 10UH BEI 0,81A 0,660HM CHOKE | LD 0026.4126.00 | DALE | IM 6 | |
| L4 | LD 10UH BEI 0,81A 0,660HM CHOKE | LD 0026.4126.00 | DALE | IM 6 | |
| L5 | LD 3,3UH BEI 1,63A0,160HM CHOKE | LD 0026.4061.00 | DALE | IM 6 | |
| L6 | LD 10UH 10% 0,18A 1210 SMD-INDUCTOR NUR VAR/ONLY MOD: 02 43 | LD 0007.9255.00 | SIEMENS | B82422-A1103-K100 | |
| L6 | LD 1,20UH10%,180HMO,620A CHOKE NUR VAR/ONLY MOD: 04 | LD 0067.2870.00 | DALE | IM2 | |
| L8 | LD 10UH 10% 0,18A 1210 SMD-INDUCTOR | LD 0007.9255.00 | SIEMENS | B82422-A1103-K100 | |
| L9 | LD 10UH 10% 0,18A 1210 SMD-INDUCTOR | LD 0007.9255.00 | SIEMENS | B82422-A1103-K100 | |
| L12 | LD 10UH 10% 0,18A 1210 SMD-INDUCTOR | LD 0007.9255.00 | SIEMENS | B82422-A1103-K100 | |
| ..15 | LD 10UH 10% 0,18A 1210 SMD-INDUCTOR | LD 0007.9255.00 | SIEMENS | B82422-A1103-K100 | |
| L18 | LD 10UH 10% 0,18A 1210 SMD-INDUCTOR | LD 0007.9255.00 | SIEMENS | B82422-A1103-K100 | |
| L19 | LD 10UH 10% 0,18A 1210 SMD-INDUCTOR | LD 0007.9255.00 | SIEMENS | B82422-A1103-K100 | |
| L20 | LD 10UH 10% 0,18A 1210 SMD-INDUCTOR | LD 0007.9255.00 | SIEMENS | B82422-A1103-K100 | |
| L22 | LD 10UH 10% 0,18A 1210 SMD-INDUCTOR | LD 0007.9255.00 | SIEMENS | B82422-A1103-K100 | |
| L23 | LD 10UH 10% 0,18A 1210 SMD-INDUCTOR | LD 0007.9255.00 | SIEMENS | B82422-A1103-K100 | |
| L28 | LD 10UH 10% 0,18A 1210 SMD-INDUCTOR | LD 0007.9255.00 | SIEMENS | B82422-A1103-K100 | |
| L29 | LD 1UH 10% 0,38A 1210 SMD-INDUCTOR | LD 6006.0130.00 | SIEMENS | B82422-A1102-K100 | |
| L33 | LD 1UH 10% 0,38A 1210 SMD-INDUCTOR | LD 6006.0130.00 | SIEMENS | B82422-A1102-K100 | |
| L35 | LD 10UH 10% 0,18A 1210 SMD-INDUCTOR | LD 0007.9255.00 | SIEMENS | B82422-A1103-K100 | |
| L200 | LD 560NH 10% 0,15A 1210 CHOKE | 4032.4388.00 | SIEMENS | B82422-A3561-K100 | |
| L202 | LD 1UH 10% 0,38A 1210 SMD-INDUCTOR NUR VAR/ONLY MOD: 02 43 | LD 6006.0130.00 | SIEMENS | B82422-A1102-K100 | |
| L202 | RG 0-OHM WIDERSTAND-CHIP RESISTOR CHIP 0-OHM NUR VAR/ONLY MOD: 04 | RG 0007.5108.00 | DRALORIC | CR 1206 | |
| L204 | LD 1UH 10% 0,38A 1210 SMD-INDUCTOR NUR VAR/ONLY MOD: 02 43 | LD 6006.0130.00 | SIEMENS | B82422-A1102-K100 | |
| L204 | RG 0-OHM WIDERSTAND-CHIP RESISTOR CHIP 0-OHM NUR VAR/ONLY MOD: 04 | RG 0007.5108.00 | DRALORIC | CR 1206 | |
| L227 | LD 1,5UH 5% DR2 0,56A CHOKE | 0067.3247.00 | DELEVAN | 1025-24 | |
| L300 | LD 220NH10%,4AOR5 1206 SMD-COIL 1206 | 1062.6515.00 | STETTNER | 5503 004 21 | |
| L302 | LD 470NH10%OR5 0,1A1206 SMD-MULTILAYER INDUCTOR | 0007.9226.00 | TOKO | MLF 3216 D R47 KL | |
| L306 | LD 220NH 10% 0,28A 1210 SMD-INDUCTOR | LD 0520.7911.00 | SIEMENS | B82422-A3221-K100 | |
| L346 | LD 32 NH SMD-ABGL.Q5,1H5 SMD-VHF-COIL | 0008.9436.00 | COMPONEX | E 558 CN-10 0020 | |
| L400 | LD 220NH10%,4AOR5 1206 SMD-COIL 1206 | 1062.6515.00 | STETTNER | 5503 004 21 | |
| L402 | LD 220NH10%,4AOR5 1206 SMD-COIL 1206 | 1062.6515.00 | STETTNER | 5503 004 21 | |
| L404 | LD 220NH10%,4AOR5 1206 SMD-COIL 1206 | 1062.6515.00 | STETTNER | 5503 004 21 | |
| L406 | LD 220NH10%,4AOR5 1206 SMD-COIL 1206 | 1062.6515.00 | STETTNER | 5503 004 21 | |
| L430 | LD 220NH10%,4AOR5 1206 SMD-COIL 1206 | 1062.6515.00 | STETTNER | 5503 004 21 | |
| L432 | LD 220NH10%,4AOR5 1206 SMD-COIL 1206 | 1062.6515.00 | STETTNER | 5503 004 21 | |
| L434 | LD 220NH10%,4AOR5 1206 SMD-COIL 1206 | 1062.6515.00 | STETTNER | 5503 004 21 | |
| L436 | LD 220NH10%,4AOR5 1206 SMD-COIL 1206 | 1062.6515.00 | STETTNER | 5503 004 21 | |
| L492 | LD 1UH 10% 0,38A 1210 SMD-INDUCTOR | LD 6006.0130.00 | SIEMENS | B82422-A1102-K100 | |

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| MENP5 | 413 3PUA | Ät | Datum Date | Schaltlisten für Parts list for | Sachnummer Stock No. | Blatt-Nr. Page |
|  | ROHDE & SCHWARZ | 31 | 16.09.97 | EE SYNTHESIZER SYNTHESIZER | 1062.6409.01 SA | 8+ |

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| Kennz. Comp. No. | Benennung Designation | Sachnummer Stock No. | Hersteller Manufacturer | Bezeichnung Designation | enthalten in contained in | | |
|---|--|----------------------|-------------------------|------------------------------------|---------------------------|------------------------|----------------|
| L494 | LD 1UH 10% SMD-INDUCTOR | 0,38A 1210 | LD 6006.0130.00 | SIEMENS | B82422-A1102-K100 | | |
| L500 | LD 1UH 10% SMD-INDUCTOR | 0,38A 1210 | LD 6006.0130.00 | SIEMENS | B82422-A1102-K100 | | |
| L502 | LD 1UH 10% SMD-INDUCTOR | 0,38A 1210 | LD 6006.0130.00 | SIEMENS | B82422-A1102-K100 | | |
| L505 | LD 1UH 10% SMD-INDUCTOR | 0,38A 1210 | LD 6006.0130.00 | SIEMENS | B82422-A1102-K100 | | |
| L506 | LD 1UH 10% SMD-INDUCTOR | 0,38A 1210 | LD 6006.0130.00 | SIEMENS | B82422-A1102-K100 | | |
| L507 | LD 1UH 10% SMD-INDUCTOR | 0,38A 1210 | LD 6006.0130.00 | SIEMENS | B82422-A1102-K100 | | |
| L515 | LD 1UH 10% SMD-INDUCTOR | 0,38A 1210 | LD 6006.0130.00 | SIEMENS | B82422-A1102-K100 | | |
| L516 | LD 1UH 10% SMD-INDUCTOR | 0,38A 1210 | LD 6006.0130.00 | SIEMENS | B82422-A1102-K100 | | |
| L525 | LD 1UH 10% SMD-INDUCTOR | 0,38A 1210 | LD 6006.0130.00 | SIEMENS | B82422-A1102-K100 | | |
| L530 | LD 1UH 10% SMD-INDUCTOR | 0,38A 1210 | LD 6006.0130.00 | SIEMENS | B82422-A1102-K100 | | |
| L550 | LD 1UH 10% SMD-INDUCTOR | 0,38A 1210 | LD 6006.0130.00 | SIEMENS | B82422-A1102-K100 | | |
| L551 | LD 1UH 10% SMD-INDUCTOR | 0,38A 1210 | LD 6006.0130.00 | SIEMENS | B82422-A1102-K100 | | |
| L570 | LD 1UH 10% SMD-INDUCTOR | 0,38A 1210 | LD 6006.0130.00 | SIEMENS | B82422-A1102-K100 | | |
| L571 | LD 1UH 10% SMD-INDUCTOR | 0,38A 1210 | LD 6006.0130.00 | SIEMENS | B82422-A1102-K100 | | |
| L600 | LD 1UH 10% SMD-INDUCTOR | 0,38A 1210 | LD 6006.0130.00 | SIEMENS | B82422-A1102-K100 | | |
| L610 | LD 1UH 10% SMD-INDUCTOR | 0,38A 1210 | LD 6006.0130.00 | SIEMENS | B82422-A1102-K100 | | |
| L621 | LD 1UH 10% SMD-INDUCTOR | 0,38A 1210 | LD 6006.0130.00 | SIEMENS | B82422-A1102-K100 | | |
| L631 | LD 1UH 10% SMD-INDUCTOR | 0,38A 1210 | LD 6006.0130.00 | SIEMENS | B82422-A1102-K100 | | |
| L645 | LD 10UH 10% SMD-INDUCTOR | 0,18A 1210 | LD 0007.9255.00 | SIEMENS | B82422-A1103-K100 | | |
| L655 | LD 10UH 10% SMD-INDUCTOR | 0,18A 1210 | LD 0007.9255.00 | SIEMENS | B82422-A1103-K100 | | |
| L695 | LD 12NH 10% SMD-INDUCTOR | 0,70A 1210 | 1002.4900.00 | SIEMENS | B82422-A3120-K100 | | |
| L800 | LD 33ONH 10% SMD-INDUCTOR | 0,20A 1210 | LD 0520.7534.00 | SIEMENS | B82422-A3331-K100 | | |
| L801 | LD 33ONH 10% SMD-INDUCTOR | 0,20A 1210 | LD 0520.7534.00 | SIEMENS | B82422-A3331-K100 | | |
| N20 | BO MC1458D 2X OPAMP OPERATION AMPLIFIER | | 0007.3763.00 | SIGNETICS | MC1458(D) | | |
| N100 | BO LM2903D 2XLP COMPAR DUAL | | 0520.7734.00 | SIGNETICS | LM2903(D) | | |
| N105 | BO LM2903D 2XLP COMPAR DUAL | | 0520.7734.00 | SIGNETICS | LM2903(D) | | |
| N110 | BO LM2903D 2XLP COMPAR DUAL | | 0520.7734.00 | SIGNETICS | LM2903(D) | | |
| N200 | EO 10.000000MHZ QUA-OSZ5V CRYSTAL OSZILLATOR VTCXO NUR VAR/ONLY MOD: 02 43 | | 1036.4331.00 | PHILIPS_CD | 9922 515 00037 | | |
| N200 | EO 10MHZ-QU.OSZ.OCXO 5V CRYSTAL OSZILLATOR OCXO NUR VAR/ONLY MOD: 04 | | 1062.6680.00 | MILLIREN | 210-0618 | | |
| N220 | BO TLO74ACD 4XFET OPAMP OPERATIONAL AMPLIFIER | | 0007.7823.00 | TEXAS | TLO74A(CD) | | |
| N250 | BO NE5534D OPAMP OPERATIONAL AMPLIFIER | | 0815.7555.00 | SIGNETICS | NE5534(D) | | |
| N300 | BM MSA0386 DC-2.4G MMIC BROAD-BAND AMPLIFIER | | 0848.4461.00 | HEWLETT_PA | HPMA-0386 | | |
| N490 | BM MSA0386 DC-2.4G MMIC BROAD-BAND AMPLIFIER | | 0848.4461.00 | HEWLETT_PA | HPMA-0386 | | |
| N500 | BM MAR6-SM DC-2.0G MMIC MICROWAVE MONOLITIC CIRC | | 6024.3666.00 | MINI-CIRCU | MAR-6-SM | | |
| N510 | BM MSA0386 DC-2.4G MMIC BROAD-BAND AMPLIFIER | | 0848.4461.00 | HEWLETT_PA | HPMA-0386 | | |
| N520 | BM MSA0386 DC-2.4G MMIC BROAD-BAND AMPLIFIER | | 0848.4461.00 | HEWLETT_PA | HPMA-0386 | | |
| N560 | BM MSA0486 DC-3.2G MMIC BROADBAND AMPLIFIER | | 0846.4293.00 | AVANTEK | MSA-0486 | | |
| MENP5 | 413 3PUA | ÄI | Datum Date | Schaltteilliste für Parts list for | | Sachnummer Stock No. | Blatt-Nr. Page |
|  | ROHDE & SCHWARZ | 31 | 16.09.97 | EE SYNTHESIZER SYNTHESIZER | | 1062.6409.01 SA | 9+ |

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| Kennz. Comp. No. | Benennung Designation | Sachnummer Stock No. | Hersteller Manufacturer | Bezeichnung Designation | enthalten in contained in |
|---------------------|---|-------------------------|----------------------------|----------------------------|------------------------------|
| N600 | BM MSA0386 DC-2.4G MMIC BROAD-BAND AMPLIFIER | 0848.4461.00 | HEWLETT_PA | HPMA-0386 | |
| N610 | BM MSA0386 DC-2.4G MMIC BROAD-BAND AMPLIFIER | 0848.4461.00 | HEWLETT_PA | HPMA-0386 | |
| N705 | BO REF02CS VREF IC VOLTAGE REFERENCE | 0009.6882.00 | ANALOG_DEV | REF02CS | |
| N710 | BO NE5534D OPAMP OPERATIONAL AMPLIFIER | 0815.7555.00 | SIGNETICS | NE5534(D) | |
| N720 | BO NE5534D OPAMP OPERATIONAL AMPLIFIER | 0815.7555.00 | SIGNETICS | NE5534(D) | |
| N780 | BO TLO72ACD 2XFET OPAMP OPERATIONAL AMPLIFIER | 0803.1057.00 | TEXAS | TL 072 ACDR | |
| N800 | BO AD744KR FET OPAMP BIFET OPAMP | 0854.1754.00 | ANALOG_DEV | (AD)744KR | |
| N840 | BO AD843KN FET OPAMP IC OPAMP | 1039.1285.00 | ANALOG_DEV | AD843KN | |
| N842 | BO AD829JR 1XLOLN OPAMP IC OPAMP | 1036.4254.00 | ANALOG_DEV | AD829JR | |
| N845 | BO AD744KR FET OPAMP BIFET OPAMP | 0854.1754.00 | ANALOG_DEV | (AD)744KR | |
| N850 | BO NE5534D OPAMP OPERATIONAL AMPLIFIER | 0815.7555.00 | SIGNETICS | NE5534(D) | |
| N860 | BO LM119J 2X COMPAR COMPARATOR | 0007.5337.00 | LINEAR_TEC | LM119J (AJ) | |
| N940 | BO AD744KR FET OPAMP BIFET OPAMP | 0854.1754.00 | ANALOG_DEV | (AD)744KR | |
| N950 | BO TLO74ACD 4XFET OPAMP OPERATIONAL AMPLIFIER | 0007.7823.00 | TEXAS | TLO74A(CD) | |
| N960 | BO LM211D COMPAR COMPARATOR | 0007.7869.00 | SIGNETICS | LM211(D) | |
| P20 | VL EINPRESSTIFT L=6,8 PIN | VL 0010.7250.00 | AMP | 1-928776-5 | |
| P21 | VL EINPRESSTIFT L=6,8 PIN | VL 0010.7250.00 | AMP | 1-928776-5 | |
| P201 ..204 | VL EINPRESSTIFT L=6,8 PIN | VL 0010.7250.00 | AMP | 1-928776-5 | |
| P354 | VL EINPRESSTIFT L=6,8 PIN | VL 0010.7250.00 | AMP | 1-928776-5 | |
| P600 | VL EINPRESSTIFT L=6,8 PIN | VL 0010.7250.00 | AMP | 1-928776-5 | |
| P610 | VL EINPRESSTIFT L=6,8 PIN | VL 0010.7250.00 | AMP | 1-928776-5 | |
| P700 | VL EINPRESSTIFT L=6,8 PIN | VL 0010.7250.00 | AMP | 1-928776-5 | |
| P720 | VL EINPRESSTIFT L=6,8 PIN | VL 0010.7250.00 | AMP | 1-928776-5 | |
| P840 | VL EINPRESSTIFT L=6,8 PIN | VL 0010.7250.00 | AMP | 1-928776-5 | |
| R5 | RD 2.4 W 1,5 OHM +-1% WIRE WOUND RESISTOR | RD 0067.9274.00 | TEPRO | TS-2B | |
| R20 | RS 0,25W10KOHM +-20% SMD POTENTIOMETER NICHT BESTUECKT NOT FITTED | RS 0007.9649.00 | BOURNS | 3314G-1-103 | |
| R21 | RG 22,1 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5489.00 | ROEDERSTEI | DC2 22,10HM 1%TK100 | |
| R22 | RG 39,2KOHM+-1%TK100 1206 RESISTOR CHIP NICHT BESTUECKT NOT FITTED | RG 0007.5937.00 | ROEDERSTEI | DC2 39,2KOHM 1%TK100 | |
| R23 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| R24 | RG 20,0KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5866.00 | ROEDERSTEI | DC2 20,0KOHM 1%TK100 | |
| R25 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| R26 | RG 9,09KOH+-0,1%TK25 1206 SMD-RESISTOR EIA1206 | 0009.8904.00 | MIKRO-TEK- | CMF 1206 | |
| R27 | RG 10,0KOH+-0,1%TK25 1206 SMD-RESISTOR | 0009.7666.00 | MIKRO-TEK- | CMF 1206 | |
| R28 | RG 100 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8884.00 | ROEDERSTEI | DC2 100OHM 1%TK100 | |
| R29 | RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR | RG 0006.7271.00 | ROEDERSTEI | DC2 1,0KOHM 1%TK100 | |
| R30 | RG 47,5 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5566.00 | ROEDERSTEI | DC2 47,5OHM 1%TK100 | |

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|  | ROHDE & SCHWARZ | 31 | 16.09.97 | EE SYNTHESIZER SYNTHESIZER | 1062.6409.01 SA | 10+ |

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| Kennz. Comp. No. | Benennung Designation | Sachnummer Stock No. | Hersteller Manufacturer | Bezeichnung Designation | enthalten in contained in |
|---------------------|--|-------------------------|----------------------------|----------------------------|------------------------------|
| R31 | RG 10,0 OHM+-1%TK100 1206 CHIP -RESISTOR | RG 0006.8649.00 | DRALORIC | CR(B) 1206... | |
| R100 | RG 22,1 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5489.00 | ROEDERSTEI | DC2 22,1OHM 1%TK100 | |
| R110 | RG 47,5 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5566.00 | ROEDERSTEI | DC2 47,5OHM 1%TK100 | |
| R111 | RG 100 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8884.00 | ROEDERSTEI | DC2 100OHM 1%TK100 | |
| R112 | RG 47,5 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5566.00 | ROEDERSTEI | DC2 47,5OHM 1%TK100 | |
| R113 | RG 100 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8884.00 | ROEDERSTEI | DC2 100OHM 1%TK100 | |
| R114 | RG 47,5 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5566.00 | ROEDERSTEI | DC2 47,5OHM 1%TK100 | |
| R115 | RG 475 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5695.00 | ROEDERSTEI | DC2 475OHM 1%TK100 | |
| R116 | RG 47,5 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5566.00 | ROEDERSTEI | DC2 47,5OHM 1%TK100 | |
| R117 | RG 475 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5695.00 | ROEDERSTEI | DC2 475OHM 1%TK100 | |
| R118 | RG 475 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5695.00 | ROEDERSTEI | DC2 475OHM 1%TK100 | |
| R119 | RG 47,5 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5566.00 | ROEDERSTEI | DC2 47,5OHM 1%TK100 | |
| R120 | RG 10,0 OHM+-1%TK100 1206 CHIP -RESISTOR | RG 0006.8649.00 | DRALORIC | CR(B) 1206... | |
| R125 | RG 4,75KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5820.00 | ROEDERSTEI | DC2 4,75KOHM 1%TK100 | |
| R142 | RG 4,75KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5820.00 | ROEDERSTEI | DC2 4,75KOHM 1%TK100 | |
| R144 | RG 15,0KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5843.00 | ROEDERSTEI | DC2 15,0KOHM 1%TK100 | |
| R145 | RG 4,75KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5820.00 | ROEDERSTEI | DC2 4,75KOHM 1%TK100 | |
| R146 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| R150 | RG 12,1KOHM+-1%TK100 1206 CHIP RESISTOR | RG 0007.0841.00 | ROEDERSTEI | DC2 12,1KOHM 1%TK100 | |
| R152 | RG 1,5 KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5714.00 | ROEDERSTEI | DC2 1,5KOHM 1%TK100 | |
| R154 | RG 0-OHM WIDERSTAND-CHIP RESISTOR CHIP 0-OHM | RG 0007.5108.00 | DRALORIC | CR 1206 | |
| R156 | RG 11,0KOHM+-1%TK100 1206 CHIP RESISTOR | RG 0007.0806.00 | ROEDERSTEI | DC2 11,0KOHM 1%TK100 | |
| R158 | RG 3,57KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5795.00 | ROEDERSTEI | DC2 3,57KOHM 1%TK100 | |
| R160 | RG 392 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5672.00 | ROEDERSTEI | DC2 392OHM 1%TK100 | |
| R162 | RG 100,0KOH+-1%TK100 1206 CHIP RESISTOR | RG 0007.1948.00 | ROEDERSTEI | DC2 100KOHM 1%TK100 | |
| R164 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| R166 | RG 27,4KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5895.00 | ROEDERSTEI | DC2 27,4KOHM 1%TK100 | |
| R167 | RG 681 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.9080.00 | ROEDERSTEI | DC2 681OHM 1%TK100 | |
| R170 | RG 4,75KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5820.00 | ROEDERSTEI | DC2 4,75KOHM 1%TK100 | |
| R172 | RG 4,75KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5820.00 | ROEDERSTEI | DC2 4,75KOHM 1%TK100 | |
| R174 | RG 4,75KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5820.00 | ROEDERSTEI | DC2 4,75KOHM 1%TK100 | |
| R178 | RG 47,5KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5950.00 | ROEDERSTEI | DC2 47,5KOHM 1%TK100 | |
| R180 | RG 47,5 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5566.00 | ROEDERSTEI | DC2 47,5OHM 1%TK100 | |
| R181 | RG 475 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5695.00 | ROEDERSTEI | DC2 475OHM 1%TK100 | |
| R201 | RG 10,0 OHM+-1%TK100 1206 CHIP -RESISTOR | RG 0006.8649.00 | DRALORIC | CR(B) 1206... | |
| R202 | RG 100 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8884.00 | ROEDERSTEI | DC2 100OHM 1%TK100 | |
| R204 | RG 4,75KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5820.00 | ROEDERSTEI | DC2 4,75KOHM 1%TK100 | |
| R204 | NUR VAR/ONLY MOD: 02 43 RG 332 OHM+-1%TK100 1206 RESISTOR CHIP NUR VAR/ONLY MOD: 04 | RG 0007.5650.00 | ROEDERSTEI | DC2 332OHM 1%TK100 | |

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|---------------------|---|-------------------------|----------------------------|----------------------------|------------------------------|
| R206 | RG 3,92KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5808.00 | RESISTA | DC2 3,92KOHM 1%TK100 | |
| R207 | RG 4,75KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5820.00 | ROEDERSTEI | DC2 4,75KOHM 1%TK100 | |
| R208 | RG 10,0 OHM+-1%TK100 1206 CHIP -RESISTOR | RG 0006.8649.00 | DRALORIC | CR(B) 1206... | |
| R209 | RG 10,0 OHM+-1%TK100 1206 CHIP -RESISTOR | RG 0006.8649.00 | DRALORIC | CR(B) 1206... | |
| R210 | RG 221 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5614.00 | ROEDERSTEI | DC2 221OHM 1%TK100 | |
| R212 | RG 475 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5695.00 | ROEDERSTEI | DC2 475OHM 1%TK100 | |
| R213 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| R214 | RG 274 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5637.00 | ROEDERSTEI | DC2 274OHM 1%TK100 | |
| R215 | RG 221 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5614.00 | ROEDERSTEI | DC2 221OHM 1%TK100 | |
| R216 | RG 4,75KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5820.00 | ROEDERSTEI | DC2 4,75KOHM 1%TK100 | |
| R218 | RG 2,21KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5743.00 | ROEDERSTEI | DC2 2,21KOHM 1%TK100 | |
| R219 | RG 475 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5695.00 | ROEDERSTEI | DC2 475OHM 1%TK100 | |
| R220 | RG 100 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8884.00 | ROEDERSTEI | DC2 100OHM 1%TK100 | |
| R221 | RG 4,75KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5820.00 | ROEDERSTEI | DC2 4,75KOHM 1%TK100 | |
| R222 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| R223 | RG 274 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5637.00 | ROEDERSTEI | DC2 274OHM 1%TK100 | |
| R224 | RG 68,1 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8849.00 | ROEDERSTEI | DC2 68,1OHM 1%TK100 | |
| R225 | RG 274 OHM+-1%TK100 1206 RESISTOR CHIP NUR VAR/ONLY MOD: 02 43 | RG 0007.5637.00 | ROEDERSTEI | DC2 274OHM 1%TK100 | |
| R225 | RG 274 OHM+-1%TK100 1206 RESISTOR CHIP NUR VAR/ONLY MOD: 04 NICHT BESTUECKT/NOT FITTED | RG 0007.5637.00 | ROEDERSTEI | DC2 274OHM 1%TK100 | |
| R226 | RG 274 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5637.00 | ROEDERSTEI | DC2 274OHM 1%TK100 | |
| R227 | RG 100 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8884.00 | ROEDERSTEI | DC2 100OHM 1%TK100 | |
| R228 | RG 221 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5614.00 | ROEDERSTEI | DC2 221OHM 1%TK100 | |
| R229 | RG 18,2KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5850.00 | ROEDERSTEI | DC2 18,2KOHM 1%TK100 | |
| R230 | RG 20,0KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5866.00 | ROEDERSTEI | DC2 20,0KOHM 1%TK100 | |
| R232 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| R234 | RG 2,21KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5743.00 | ROEDERSTEI | DC2 2,21KOHM 1%TK100 | |
| R236 | RG 150 OHM+-1%TK100 1206 RESISTOR CHIP NUR VAR/ONLY MOD: 02 | RG 0007.5589.00 | ROEDERSTEI | DC2 150OHM 1%TK100 | |
| R236 | RG 150R +-1% TK200 0603 SMD-RESISTOR EIA0603 NUR VAR/ONLY MOD: 04 | 0009.6947.00 | ROEDERSTEI | D11 0603OH | |
| R238 | RG 22,1KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5872.00 | ROEDERSTEI | DC2 22,1KOHM 1%TK100 | |
| R239 | RG 10,0 OHM+-1%TK100 1206 CHIP -RESISTOR | RG 0006.8649.00 | DRALORIC | CR(B) 1206... | |
| R240 | RG 274 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5637.00 | ROEDERSTEI | DC2 274OHM 1%TK100 | |
| R241 | RG 4,75KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5820.00 | ROEDERSTEI | DC2 4,75KOHM 1%TK100 | |
| R242 | RG 4,75KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5820.00 | ROEDERSTEI | DC2 4,75KOHM 1%TK100 | |
| R243 | RG 332 KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.6033.00 | ROEDERSTEI | DC2 332KOHM 1%TK100 | |
| R245 | RG 8,2MOHM+-5%TK200 1206 CHIP RESISTOR | 0008.0645.00 | ROEDERSTEI | | |
| R246 | RG 8,2MOHM+-5%TK200 1206 CHIP RESISTOR | 0008.0645.00 | ROEDERSTEI | | |
| R247 | RG 221 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5614.00 | ROEDERSTEI | DC2 221OHM 1%TK100 | |


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| Kennz. Comp. No. | Benennung Designation | Sachnummer Stock No. | Hersteller Manufacturer | Bezeichnung Designation | enthalten in contained in |
|------------------|--|----------------------|-------------------------|-------------------------|---------------------------|
| R248 | RG 332 KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.6033.00 | ROEDERSTEI | DC2 332KOHM 1%TK100 | |
| R251 | RG 4,75KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5820.00 | ROEDERSTEI | DC2 4,75KOHM 1%TK100 | |
| R253 | RG 4,75KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5820.00 | ROEDERSTEI | DC2 4,75KOHM 1%TK100 | |
| R255 | RG 4,75KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5820.00 | ROEDERSTEI | DC2 4,75KOHM 1%TK100 | |
| R258 | RG 6,80KOH+-0,1%TK25 1206 SMD-RESISTOR EIA1206 | 0009.8891.00 | MIKRO-TEK- | CMF 1206 | |
| R260 | RG 3,32KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5789.00 | ROEDERSTEI | DC2 3,32KOHM 1%TK100 | |
| R264 | RG 6,80KOH+-0,1%TK25 1206 SMD-RESISTOR EIA1206 | 0009.8891.00 | MIKRO-TEK- | CMF 1206 | |
| R266 | RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR | RG 0006.7271.00 | ROEDERSTEI | DC2 1,0KOHM 1%TK100 | |
| R267 | RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR | RG 0006.7271.00 | ROEDERSTEI | DC2 1,0KOHM 1%TK100 | |
| R269 | RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR | RG 0006.7271.00 | ROEDERSTEI | DC2 1,0KOHM 1%TK100 | |
| R270 | RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR | RG 0006.7271.00 | ROEDERSTEI | DC2 1,0KOHM 1%TK100 | |
| R276 | RG 4,75KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5820.00 | ROEDERSTEI | DC2 4,75KOHM 1%TK100 | |
| R277 | RG 4,75KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5820.00 | ROEDERSTEI | DC2 4,75KOHM 1%TK100 | |
| R278 | RG 221 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5614.00 | ROEDERSTEI | DC2 221OHM 1%TK100 | |
| R280 | RG 6,81KOHM+-1%TK100 1206 CHIP RESISTOR | RG 0007.0758.00 | ROEDERSTEI | DC2 6,81KOHM 1%TK100 | |
| R281 | RG 8,25KOHM+-1%TK100 1206 CHIP RESISTOR | RG 0007.0770.00 | ROEDERSTEI | DC2 8,25KOHM 1%TK100 | |
| R282 | RG 6,81KOHM+-1%TK100 1206 CHIP RESISTOR | RG 0007.0758.00 | ROEDERSTEI | DC2 6,81KOHM 1%TK100 | |
| R283 | RG 8,25KOHM+-1%TK100 1206 CHIP RESISTOR | RG 0007.0770.00 | ROEDERSTEI | DC2 8,25KOHM 1%TK100 | |
| R284 | RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR | RG 0006.7271.00 | ROEDERSTEI | DC2 1,0KOHM 1%TK100 | |
| R285 | RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR | RG 0006.7271.00 | ROEDERSTEI | DC2 1,0KOHM 1%TK100 | |
| R286 | RG 7,5KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0764.00 | ROEDERSTEI | DC2 7,50KOHM 1%TK100 | |
| R287 | RG 30,1KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5908.00 | ROEDERSTEI | DC2 30,1KOHM 1%TK100 | |
| R288 | RG 100,0KOH+-1%TK100 1206 CHIP RESISTOR | RG 0007.1948.00 | ROEDERSTEI | DC2 100KOHM 1%TK100 | |
| R289 | RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR | RG 0006.7271.00 | ROEDERSTEI | DC2 1,0KOHM 1%TK100 | |
| R290 | RG 10,0 OHM+-1%TK100 1206 CHIP -RESISTOR | RG 0006.8649.00 | DRALORIC | CR(B) 1206... | |
| R291 | RG 22,1 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5489.00 | ROEDERSTEI | DC2 22,1OHM 1%TK100 | |
| R302 | RG 0,05W 56R +-1% 0805 RESISTOR | RG 0007.8971.00 | HONEST JAP | MR 08 M 56R 1% 0805 | |
| R304 | RG 1,82KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5720.00 | ROEDERSTEI | DC2 1,82KOHM 1%TK100 | |
| R306 | RG 1,82KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5720.00 | ROEDERSTEI | DC2 1,82KOHM 1%TK100 | |
| R308 | RG 1,82KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5720.00 | ROEDERSTEI | DC2 1,82KOHM 1%TK100 | |
| R310 | RG 200 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5608.00 | ROEDERSTEI | DC2 200OHM 1%TK100 | |
| R312 | RG 4,75KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5820.00 | ROEDERSTEI | DC2 4,75KOHM 1%TK100 | |
| R314 | RG 221 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5614.00 | ROEDERSTEI | DC2 221OHM 1%TK100 | |
| R316 | RG 68,1 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8849.00 | ROEDERSTEI | DC2 68,1OHM 1%TK100 | |
| R324 | RG 182 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5595.00 | ROEDERSTEI | DC2 182OHM 1%TK100 | |
| R326 | RG 24,3 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5495.00 | ROEDERSTEI | DC2 24,3OHM 1%TK100 | |
| R328 | RG 150 OHM+-1%TK100 1206 RESISTOR CHIP NICHT BESTUECKT NOT FITTED | RG 0007.5589.00 | ROEDERSTEI | DC2 150OHM 1%TK100 | |
| R330 | RG 0-OHM WIDERSTAND-CHIP RESISTOR CHIP 0-OHM | RG 0007.5108.00 | DRALORIC | CR 1206 | |

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| Kennz. Comp. No. | Benennung Designation | Sachnummer Stock No. | Hersteller Manufacturer | Bezeichnung Designation | enthalten in contained in |
|------------------|---|----------------------|-------------------------|-------------------------|---------------------------|
| R331 | RG 100 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8884.00 | ROEDERSTEI | DC2 100OHM 1%TK100 | |
| R332 | RG 47,5 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5566.00 | ROEDERSTEI | DC2 47,5OHM 1%TK100 | |
| R335 | RG 68,1 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8849.00 | ROEDERSTEI | DC2 68,1OHM 1%TK100 | |
| R336 | RG 182 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5595.00 | ROEDERSTEI | DC2 182OHM 1%TK100 | |
| R337 | RG 2,21KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5743.00 | ROEDERSTEI | DC2 2,21KOHM 1%TK100 | |
| R338 | RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR | RG 0006.7271.00 | ROEDERSTEI | DC2 1,0KOHM 1%TK100 | |
| R339 | RG 12,1KOHM+-1%TK100 1206 CHIP RESISTOR | RG 0007.0841.00 | ROEDERSTEI | DC2 12,1KOHM 1%TK100 | |
| R340 | RG 100,0KOH+-1%TK100 1206 CHIP RESISTOR | RG 0007.1948.00 | ROEDERSTEI | DC2 100KOHM 1%TK100 | |
| R341 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| R342 | RG 47,5KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5950.00 | ROEDERSTEI | DC2 47,5KOHM 1%TK100 | |
| R343 | RG 3,01KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5772.00 | ROEDERSTEI | DC2 3,01KOHM 1%TK100 | |
| R344 | RG 3,92KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5808.00 | RESISTA | DC2 3,92KOHM 1%TK100 | |
| R345 | RG 12,1KOHM+-1%TK100 1206 CHIP RESISTOR | RG 0007.0841.00 | ROEDERSTEI | DC2 12,1KOHM 1%TK100 | |
| R346 | RG 10,0 OHM+-1%TK100 1206 CHIP -RESISTOR | RG 0006.8649.00 | DRALORIC | CR(B) 1206... | |
| R347 | RG 100,0KOH+-1%TK100 1206 CHIP RESISTOR | RG 0007.1948.00 | ROEDERSTEI | DC2 100KOHM 1%TK100 | |
| R348 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| R361 | RG 22,1 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5489.00 | ROEDERSTEI | DC2 22,1OHM 1%TK100 | |
| R370 | RG 100 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8884.00 | ROEDERSTEI | DC2 100OHM 1%TK100 | |
| R371 | RG 4,75KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5820.00 | ROEDERSTEI | DC2 4,75KOHM 1%TK100 | |
| R372 | RG 221 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5614.00 | ROEDERSTEI | DC2 221OHM 1%TK100 | |
| R373 | RG 10,0 OHM+-1%TK100 1206 CHIP -RESISTOR | RG 0006.8649.00 | DRALORIC | CR(B) 1206... | |
| R375 | RG 2,0 KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5737.00 | ROEDERSTEI | DC2 2,0KOHM 1%TK100 | |
| R400 | RG 3,32OHM+-1%TK100 1206 CHIP-RESISTOR | RG 0007.8388.00 | PHILIPS | RC 02 | |
| R402 | RG 3,32OHM+-1%TK100 1206 CHIP-RESISTOR | RG 0007.8388.00 | PHILIPS | RC 02 | |
| R404 | RG 3,32OHM+-1%TK100 1206 CHIP-RESISTOR | RG 0007.8388.00 | PHILIPS | RC 02 | |
| R406 | RG 3,32OHM+-1%TK100 1206 CHIP-RESISTOR | RG 0007.8388.00 | PHILIPS | RC 02 | |
| R408 | RG 3,32OHM+-1%TK100 1206 CHIP-RESISTOR | RG 0007.8388.00 | PHILIPS | RC 02 | |
| R410 | RG 0,05W 22R +-1% 0805 RESISTOR | RG 0007.8920.00 | HONEST JAP | MR 08 M 22R 1% 0805 | |
| R412 | RG 1,82KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5720.00 | ROEDERSTEI | DC2 1,82KOHM 1%TK100 | |
| R414 | RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR | RG 0006.7271.00 | ROEDERSTEI | DC2 1,0KOHM 1%TK100 | |
| R416 | RG 1,21KOHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.9968.00 | ROEDERSTEI | DC2 1,21KOHM 1%TK100 | |
| R418 | RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR | RG 0006.7271.00 | ROEDERSTEI | DC2 1,0KOHM 1%TK100 | |
| R420 | RG 82,5 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8861.00 | ROEDERSTEI | DC2 82,5OHM 1%TK100 | |
| R422 | RG 301 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5643.00 | ROEDERSTEI | DC2 301OHM 1%TK100 | |
| R424 | RG 1,21KOHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.9968.00 | ROEDERSTEI | DC2 1,21KOHM 1%TK100 | |
| R425 | RG 1,5 KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5714.00 | ROEDERSTEI | DC2 1,5KOHM 1%TK100 | |
| R426 | RG 4,75KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5820.00 | ROEDERSTEI | DC2 4,75KOHM 1%TK100 | |
| R427 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| R430 | RG 3,32OHM+-1%TK100 1206 CHIP-RESISTOR | RG 0007.8388.00 | PHILIPS | RC 02 | |


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| MENP5 | 413 3PUA | Är | Datum Date | Schaltteilleiste für Parts list for | Sachnummer Stock No. | Blatt-Nr. Page |
|  | 31 | 16.09.97 | EE SYNTHESIZER SYNTHESIZER | 1062.6409.01 SA | 14+ | |

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| Kannz. Comp. No. | Benennung Designation | Sachnummer Stock No. | Hersteller Manufacturer | Bezeichnung Designation | enthalten in contained in |
|---------------------|--|-------------------------|----------------------------|----------------------------|------------------------------|
| R431 | RG 10R +-1% TK200 0603 SMD-RESISTOR EIA0603 NUR VAR/ONLY MOD: 02 | RG 0009.5328.00 | DRALORIC | CR 0603 | |
| R432 | RG 3,320HM+-1%TK100 1206 CHIP-RESISTOR | RG 0007.8388.00 | PHILIPS | RC 02 | |
| R434 | RG 3,320HM+-1%TK100 1206 CHIP-RESISTOR | RG 0007.8388.00 | PHILIPS | RC 02 | |
| R436 | RG 3,320HM+-1%TK100 1206 CHIP-RESISTOR | RG 0007.8388.00 | PHILIPS | RC 02 | |
| R438 | RG 3,320HM+-1%TK100 1206 CHIP-RESISTOR | RG 0007.8388.00 | PHILIPS | RC 02 | |
| R440 | RG 0,05W 27R +-1% 0805 RESISTOR | RG 0007.8936.00 | HONEST JAP | MR 08 M 27R 1% 0805 | |
| R442 | RG 1,82KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5720.00 | ROEDERSTEI | DC2 1,82KOHM 1%TK100 | |
| R444 | RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR | RG 0006.7271.00 | ROEDERSTEI | DC2 1,0KOHM 1%TK100 | |
| R446 | RG 1,21KOHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.9968.00 | ROEDERSTEI | DC2 1,21KOHM 1%TK100 | |
| R448 | RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR | RG 0006.7271.00 | ROEDERSTEI | DC2 1,0KOHM 1%TK100 | |
| R450 | RG 82,5 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8861.00 | ROEDERSTEI | DC2 82,5OHM 1%TK100 | |
| R452 | RG 243 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5620.00 | ROEDERSTEI | DC2 243OHM 1%TK100 | |
| R454 | RG 1,21KOHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.9968.00 | ROEDERSTEI | DC2 1,21KOHM 1%TK100 | |
| R455 | RG 1,5 KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5714.00 | ROEDERSTEI | DC2 1,5KOHM 1%TK100 | |
| R456 | RG 4,75KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5820.00 | ROEDERSTEI | DC2 4,75KOHM 1%TK100 | |
| R457 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| R483 | RG 100 OHM+-1%TK100 1206 CHIP RESISTOR NICHT BESTUECKT NOT FITTED | RG 0006.8884.00 | ROEDERSTEI | DC2 100OHM 1%TK100 | |
| R490 | RG 2,21KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5743.00 | ROEDERSTEI | DC2 2,21KOHM 1%TK100 | |
| R491 | RG 68,1 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8849.00 | ROEDERSTEI | DC2 68,1OHM 1%TK100 | |
| R495 | RG 82,5 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8861.00 | ROEDERSTEI | DC2 82,5OHM 1%TK100 | |
| R496 | RG 121 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8903.00 | ROEDERSTEI | DC2 121OHM 1%TK100 | |
| R497 | RG 68,1 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8849.00 | ROEDERSTEI | DC2 68,1OHM 1%TK100 | |
| R499 | RG 68,1 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8849.00 | ROEDERSTEI | DC2 68,1OHM 1%TK100 | |
| R500 | RG 150 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5589.00 | ROEDERSTEI | DC2 150OHM 1%TK100 | |
| R502 | RG 150 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5589.00 | ROEDERSTEI | DC2 150OHM 1%TK100 | |
| R505 | RG 182 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5595.00 | ROEDERSTEI | DC2 182OHM 1%TK100 | |
| R506 | RG 392 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5672.00 | ROEDERSTEI | DC2 392OHM 1%TK100 | |
| R507 | RG 392 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5672.00 | ROEDERSTEI | DC2 392OHM 1%TK100 | |
| R510 | RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR | RG 0006.7271.00 | ROEDERSTEI | DC2 1,0KOHM 1%TK100 | |
| R511 | RG 56,2 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8826.00 | ROEDERSTEI | DC2 56,2OHM 1%TK100 | |
| R515 | RG 121 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8903.00 | ROEDERSTEI | DC2 121OHM 1%TK100 | |
| R520 | RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR | RG 0006.7271.00 | ROEDERSTEI | DC2 1,0KOHM 1%TK100 | |
| R521 | RG 56,2 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8826.00 | ROEDERSTEI | DC2 56,2OHM 1%TK100 | |
| R525 | RG 332 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5650.00 | ROEDERSTEI | DC2 332OHM 1%TK100 | |
| R526 | RG 15,0 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5450.00 | ROEDERSTEI | DC2 15,0OHM 1%TK100 | |
| R527 | RG 332 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5650.00 | ROEDERSTEI | DC2 332OHM 1%TK100 | |
| R528 | RG 68,1 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8849.00 | ROEDERSTEI | DC2 68,1OHM 1%TK100 | |


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| Kennz. Comp. No. | Benennung Designation | Sachnummer Stock No. | Hersteller Manufacturer | Bezeichnung Designation | enthalten in contained in |
|---------------------|---|-------------------------|----------------------------|----------------------------|------------------------------|
| R530 | RG 332 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5650.00 | ROEDERSTEI | DC2 332OHM 1%TK100 | |
| R531 | RG 27,4KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5895.00 | ROEDERSTEI | DC2 27,4KOHM 1%TK100 | |
| R550 | RG 150 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5589.00 | ROEDERSTEI | DC2 150OHM 1%TK100 | |
| R552 | RG 47,5 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5566.00 | ROEDERSTEI | DC2 47,5OHM 1%TK100 | |
| R555 | RG 100 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8884.00 | ROEDERSTEI | DC2 100OHM 1%TK100 | |
| R556 | RG 100,0KOH+-1%TK100 1206 CHIP RESISTOR | RG 0007.1948.00 | ROEDERSTEI | DC2 100KOHM 1%TK100 | |
| R557 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| R570 | RG 392 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5672.00 | ROEDERSTEI | DC2 392OHM 1%TK100 | |
| R571 | RG 392 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5672.00 | ROEDERSTEI | DC2 392OHM 1%TK100 | |
| R579 | RG 22,1 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5489.00 | ROEDERSTEI | DC2 22,1OHM 1%TK100 | |
| R581 | RG 4,75KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5820.00 | ROEDERSTEI | DC2 4,75KOHM 1%TK100 | |
| R600 | RG 10R +-1% TK50 0805 RESISTOR | RG 0007.8888.00 | HONEST_JAP | RN 73 C(E)2X..F (1%) | |
| R603 | RG 68,1 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8849.00 | ROEDERSTEI | DC2 68,1OHM 1%TK100 | |
| R605 | RG 100 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8884.00 | ROEDERSTEI | DC2 100OHM 1%TK100 | |
| R606 | RG 100 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8884.00 | ROEDERSTEI | DC2 100OHM 1%TK100 | |
| R607 | RG 82,5 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8861.00 | ROEDERSTEI | DC2 82,5OHM 1%TK100 | |
| R610 | RG 68,1 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8849.00 | ROEDERSTEI | DC2 68,1OHM 1%TK100 | |
| R611 | RG 4,75KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5820.00 | ROEDERSTEI | DC2 4,75KOHM 1%TK100 | |
| R615 | RG 82,5 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8861.00 | ROEDERSTEI | DC2 82,5OHM 1%TK100 | |
| R616 | RG 82,5 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8861.00 | ROEDERSTEI | DC2 82,5OHM 1%TK100 | |
| R617 | RG 82,5 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8861.00 | ROEDERSTEI | DC2 82,5OHM 1%TK100 | |
| R620 | RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR | RG 0006.7271.00 | ROEDERSTEI | DC2 1,0KOHM 1%TK100 | |
| R621 | RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR | RG 0006.7271.00 | ROEDERSTEI | DC2 1,0KOHM 1%TK100 | |
| R630 | RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR | RG 0006.7271.00 | ROEDERSTEI | DC2 1,0KOHM 1%TK100 | |
| R631 | RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR | RG 0006.7271.00 | ROEDERSTEI | DC2 1,0KOHM 1%TK100 | |
| R633 | RG 100 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8884.00 | ROEDERSTEI | DC2 100OHM 1%TK100 | |
| R635 | RG 33,2 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5520.00 | ROEDERSTEI | DC2 33,2OHM 1%TK100 | |
| R636 | RG 221 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5614.00 | ROEDERSTEI | DC2 221OHM 1%TK100 | |
| R637 | RG 221 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5614.00 | ROEDERSTEI | DC2 221OHM 1%TK100 | |
| R638 | RG 4,75KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5820.00 | ROEDERSTEI | DC2 4,75KOHM 1%TK100 | |
| R639 | RG 4,75KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5820.00 | ROEDERSTEI | DC2 4,75KOHM 1%TK100 | |
| R640 | RG 10,0 OHM+-1%TK100 1206 CHIP -RESISTOR | RG 0006.8649.00 | DRALORIC | CR(B) 1206... | |
| R643 | RG 1,5 KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5714.00 | ROEDERSTEI | DC2 1,5KOHM 1%TK100 | |
| R644 | RG 562 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.9068.00 | ROEDERSTEI | DC2 562OHM 1%TK100 | |
| R645 | RG 33,2 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5520.00 | ROEDERSTEI | DC2 33,2OHM 1%TK100 | |
| R647 | RG 4,75KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5820.00 | ROEDERSTEI | DC2 4,75KOHM 1%TK100 | |
| R650 | RG 4,75KOHM+-1%TK100 1206 RESISTOR CHIP NICHT BESTUECKT NOT FITTED | RG 0007.5820.00 | ROEDERSTEI | DC2 4,75KOHM 1%TK100 | |
| R651 | RG 4,75KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5820.00 | ROEDERSTEI | DC2 4,75KOHM 1%TK100 | |

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| MENPS | 413 3PUA | Ät | Datum Date | Schaltteilliste für Parts list for | Sachnummer Stock No. | Blatt-Nr. Page |
|  OHDE & SCHWARZ | | 31 | 16.09.97 | EE SYNTHESIZER SYNTHESIZER | 1062.6409.01 SA | 16+ |


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| Kennz. Comp. No. | Benennung Designation | | Sachnummer Stock No. | Hersteller Manufacturer | Bezeichnung Designation | enthalten in contained in | |
|--|---|----------|----------------------|-------------------------------|---------------------------------------|---------------------------|-------------------|
| R652 | NICHT BESTUECKT NOT FITTED RG 4,75KOHM+-1%TK100 1206 RESISTOR CHIP | | RG 0007.5820.00 | ROEDERSTEI | DC2 4,75KOHM 1%TK100 | | |
| R653 | NICHT BESTUECKT NOT FITTED RG 4,75KOHM+-1%TK100 1206 RESISTOR CHIP | | RG 0007.5820.00 | ROEDERSTEI | DC2 4,75KOHM 1%TK100 | | |
| R654 | NICHT BESTUECKT NOT FITTED RG 4,75KOHM+-1%TK100 1206 RESISTOR CHIP | | RG 0007.5820.00 | ROEDERSTEI | DC2 4,75KOHM 1%TK100 | | |
| R655 | RG 33,2 OHM+-1%TK100 1206 RESISTOR CHIP | | RG 0007.5520.00 | ROEDERSTEI | DC2 33,2OHM 1%TK100 | | |
| R656 | RG 4,75KOHM+-1%TK100 1206 RESISTOR CHIP | | RG 0007.5820.00 | ROEDERSTEI | DC2 4,75KOHM 1%TK100 | | |
| R658 | RG 221 OHM+-1%TK100 1206 RESISTOR CHIP | | RG 0007.5614.00 | ROEDERSTEI | DC2 221OHM 1%TK100 | | |
| R659 | RG 4,75KOHM+-1%TK100 1206 RESISTOR CHIP | | RG 0007.5820.00 | ROEDERSTEI | DC2 4,75KOHM 1%TK100 | | |
| R660 | RG 4,75KOHM+-1%TK100 1206 RESISTOR CHIP | | RG 0007.5820.00 | ROEDERSTEI | DC2 4,75KOHM 1%TK100 | | |
| R661 | RG 4,75KOHM+-1%TK100 1206 RESISTOR CHIP | | RG 0007.5820.00 | ROEDERSTEI | DC2 4,75KOHM 1%TK100 | | |
| R662 | NICHT BESTUECKT NOT FITTED RG 475 OHM+-1%TK100 1206 RESISTOR CHIP | | RG 0007.5695.00 | ROEDERSTEI | DC2 475OHM 1%TK100 | | |
| R663 ..666 | RG 4,75KOHM+-1%TK100 1206 RESISTOR CHIP | | RG 0007.5820.00 | ROEDERSTEI | DC2 4,75KOHM 1%TK100 | | |
| R667 | RG 4,75KOHM+-1%TK100 1206 RESISTOR CHIP | | RG 0007.5820.00 | ROEDERSTEI | DC2 4,75KOHM 1%TK100 | | |
| R668 | NICHT BESTUECKT NOT FITTED RG 4,75KOHM+-1%TK100 1206 RESISTOR CHIP | | RG 0007.5820.00 | ROEDERSTEI | DC2 4,75KOHM 1%TK100 | | |
| R669 | NICHT BESTUECKT NOT FITTED RG 4,75KOHM+-1%TK100 1206 RESISTOR CHIP | | RG 0007.5820.00 | ROEDERSTEI | DC2 4,75KOHM 1%TK100 | | |
| R670 | NICHT BESTUECKT NOT FITTED RG 4,75KOHM+-1%TK100 1206 RESISTOR CHIP | | RG 0007.5820.00 | ROEDERSTEI | DC2 4,75KOHM 1%TK100 | | |
| R671 | NICHT BESTUECKT NOT FITTED RG 4,75KOHM+-1%TK100 1206 RESISTOR CHIP | | RG 0007.5820.00 | ROEDERSTEI | DC2 4,75KOHM 1%TK100 | | |
| R672 | NICHT BESTUECKT NOT FITTED RG 4,75KOHM+-1%TK100 1206 RESISTOR CHIP | | RG 0007.5820.00 | ROEDERSTEI | DC2 4,75KOHM 1%TK100 | | |
| R673 | NICHT BESTUECKT NOT FITTED RG 4,75KOHM+-1%TK100 1206 RESISTOR CHIP | | RG 0007.5820.00 | ROEDERSTEI | DC2 4,75KOHM 1%TK100 | | |
| R674 | NICHT BESTUECKT NOT FITTED RG 4,75KOHM+-1%TK100 1206 RESISTOR CHIP | | RG 0007.5820.00 | ROEDERSTEI | DC2 4,75KOHM 1%TK100 | | |
| R675 | NICHT BESTUECKT NOT FITTED RG 4,75KOHM+-1%TK100 1206 RESISTOR CHIP | | RG 0007.5820.00 | ROEDERSTEI | DC2 4,75KOHM 1%TK100 | | |
| R676 | NICHT BESTUECKT NOT FITTED RG 4,75KOHM+-1%TK100 1206 RESISTOR CHIP | | RG 0007.5820.00 | ROEDERSTEI | DC2 4,75KOHM 1%TK100 | | |
| R677 | NICHT BESTUECKT NOT FITTED RG 4,75KOHM+-1%TK100 1206 RESISTOR CHIP | | RG 0007.5820.00 | ROEDERSTEI | DC2 4,75KOHM 1%TK100 | | |
| R678 | NICHT BESTUECKT NOT FITTED RG 4,75KOHM+-1%TK100 1206 RESISTOR CHIP | | RG 0007.5820.00 | ROEDERSTEI | DC2 4,75KOHM 1%TK100 | | |
| MENP5 | | 413 3PUA | A1 | Datum Date | Schaltteilliste für Parts list for | Sachnummer Stock No. | Blatt-Nr. Page |
|  ROHDE & SCHWARZ | | 31 | 16.09.97 | EE SYNTHESIZER SYNTHESIZER | 1062.6409.01 SA | 17+ | |

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| Kennz. Comp. No. | Benennung Designation | Sachnummer Stock No. | Hersteller Manufacturer | Bezeichnung Designation | enthalten in contained in |
|---------------------|---|-------------------------|----------------------------|----------------------------|------------------------------|
| R679 | NOT FITTED RG 4,75KOHM+-1%TK100 1206 RESISTOR CHIP NICHT BESTUECKT NOT FITTED | RG 0007.5820.00 | ROEDERSTEI | DC2 4,75KOHM 1%TK100 | |
| R680 | RG 4,75KOHM+-1%TK100 1206 RESISTOR CHIP NICHT BESTUECKT NOT FITTED | RG 0007.5820.00 | ROEDERSTEI | DC2 4,75KOHM 1%TK100 | |
| R681 | RG 4,75KOHM+-1%TK100 1206 RESISTOR CHIP NICHT BESTUECKT NOT FITTED | RG 0007.5820.00 | ROEDERSTEI | DC2 4,75KOHM 1%TK100 | |
| R686 ..688 | RG 4,75KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5820.00 | ROEDERSTEI | DC2 4,75KOHM 1%TK100 | |
| R690 ..693 | RG 1,0 OHM+-1%TK100 1206 CHIP-RESISTOR | RG 0007.8265.00 | PHILIPS_CO | RC O2 | |
| R695 | RG 130 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5572.00 | RESISTA | DC2 130OHM 1%TK100 | |
| R696 | RG 10,0 OHM+-1%TK100 1206 CHIP -RESISTOR | RG 0006.8649.00 | DRALORIC | CR(B) 1206... | |
| R697 | RG 0-OHM WIDERSTAND-CHIP RESISTOR CHIP 0-OHM | RG 0007.5108.00 | DRALORIC | CR 1206 | |
| R698 | RG 2,21KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5743.00 | ROEDERSTEI | DC2 2,21KOHM 1%TK100 | |
| R700 | RG 4,75KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5820.00 | ROEDERSTEI | DC2 4,75KOHM 1%TK100 | |
| R701 | RG 4,75KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5820.00 | ROEDERSTEI | DC2 4,75KOHM 1%TK100 | |
| R702 | RG 221 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5614.00 | ROEDERSTEI | DC2 221OHM 1%TK100 | |
| R703 | RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR | RG 0006.7271.00 | ROEDERSTEI | DC2 1,0KOHM 1%TK100 | |
| R704 | RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR | RG 0006.7271.00 | ROEDERSTEI | DC2 1,0KOHM 1%TK100 | |
| R705 | RG 274 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5637.00 | ROEDERSTEI | DC2 274OHM 1%TK100 | |
| R706 | RG 2,0 KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5737.00 | ROEDERSTEI | DC2 2,0KOHM 1%TK100 | |
| R707 | RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR | RG 0006.7271.00 | ROEDERSTEI | DC2 1,0KOHM 1%TK100 | |
| R708 | RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR | RG 0006.7271.00 | ROEDERSTEI | DC2 1,0KOHM 1%TK100 | |
| R709 | RG 10,0 OHM+-1%TK100 1206 CHIP -RESISTOR | RG 0006.8649.00 | DRALORIC | CR(B) 1206... | |
| R710 | RG 2,0 KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5737.00 | ROEDERSTEI | DC2 2,0KOHM 1%TK100 | |
| R712 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| R713 | RG 8,25KOHM+-1%TK100 1206 CHIP RESISTOR | RG 0007.0770.00 | ROEDERSTEI | DC2 8,25KOHM 1%TK100 | |
| R719 | RG 47,5 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5566.00 | ROEDERSTEI | DC2 47,5OHM 1%TK100 | |
| R720 | RG 4,75KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5820.00 | ROEDERSTEI | DC2 4,75KOHM 1%TK100 | |
| R721 | RG 121,0KOH+-1%TK100 1206 CHIP RESISTOR | RG 0007.1960.00 | RESISTA | DC2 121KOHM 1% TK100 | |
| R722 | RG 27,4KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5895.00 | ROEDERSTEI | DC2 27,4KOHM 1%TK100 | |
| R723 | RG 15,0KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5843.00 | ROEDERSTEI | DC2 15,0KOHM 1%TK100 | |
| R724 | RG 9,09KOHM+-1%TK100 1206 CHIP RESISTOR | RG 0007.0787.00 | ROEDERSTEI | DC2 9,09KOHM 1%TK100 | |
| R725 | RG 6,19KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0741.00 | ROEDERSTEI | DC2 6,19KOHM 1%TK100 | |
| R726 | RG 4,75KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5820.00 | ROEDERSTEI | DC2 4,75KOHM 1%TK100 | |
| R727 | RG 3,57KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5795.00 | ROEDERSTEI | DC2 3,57KOHM 1%TK100 | |
| R728 | RG 2,74KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5766.00 | ROEDERSTEI | DC2 2,74KOHM 1%TK100 | |
| R729 | RG 6,81KOHM+-1%TK100 1206 CHIP RESISTOR | RG 0007.0758.00 | ROEDERSTEI | DC2 6,81KOHM 1%TK100 | |
| R730 | RG 2,74KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5766.00 | ROEDERSTEI | DC2 2,74KOHM 1%TK100 | |
| R733 | RG 100,0KOH+-1%TK100 1206 CHIP RESISTOR | RG 0007.1948.00 | ROEDERSTEI | DC2 100KOHM 1%TK100 | |

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| MENP5 | 413 3PUA | ÄI | Datum Date | Schaltteilliste für Parts list for | Sachnummer Stock No. | Blatt-Nr. Page |
|  | | 31 | 16.09.97 | EE SYNTHESIZER SYNTHESIZER | 1062.6409.01 SA | 18+ |

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| Kennz. Comp. No. | Benennung Designation | Sachnummer Stock No. | Hersteller Manufacturer | Bezeichnung Designation | enthalten in contained in |
|---------------------|---|-------------------------|----------------------------|----------------------------|------------------------------|
| R750 | RG 33,2 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5520.00 | ROEDERSTEI | DC2 33,2OHM 1%TK100 | |
| R751 | RG 22,1 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5489.00 | ROEDERSTEI | DC2 22,1OHM 1%TK100 | |
| R752 | RG 30,1 KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5908.00 | ROEDERSTEI | DC2 30,1KOHM 1%TK100 | |
| R753 | RG 7,5 KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0764.00 | ROEDERSTEI | DC2 7,5KOHM 1%TK100 | |
| R762 | RG 5,11 KOHM+-1%TK100 1206 CHIP RESISTOR | RG 0007.0729.00 | ROEDERSTEI | DC2 5,11KOHM 1%TK100 | |
| R763 | RG 4,32 KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5814.00 | RESISTA | DC2 4,32KOHM 1%TK100 | |
| R764 | RG 332 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5650.00 | ROEDERSTEI | DC2 332OHM 1%TK100 | |
| R777 | RG 15,0 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5450.00 | ROEDERSTEI | DC2 15,0OHM 1%TK100 | |
| R780 | RG 15,0 KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5843.00 | ROEDERSTEI | DC2 15,0KOHM 1%TK100 | |
| R781 | RG 13,0 KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5837.00 | ROEDERSTEI | DC2 13,0KOHM 1%TK100 | |
| R782 | RG 1,0 MOHM+-1%TK100 1206 CHIP RESISTOR | RG 0815.7532.00 | DRALORIC | CRC 1206 | |
| R783 | RG 20,0 KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5866.00 | ROEDERSTEI | DC2 20,0KOHM 1%TK100 | |
| R784 | RG 10,0 KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| R785 | RG 221 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5614.00 | ROEDERSTEI | DC2 221OHM 1%TK100 | |
| R786 | RG 22,1 KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5872.00 | ROEDERSTEI | DC2 22,1KOHM 1%TK100 | |
| R787 | RG 15,0 KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5843.00 | ROEDERSTEI | DC2 15,0KOHM 1%TK100 | |
| R792 | RG 10,0 OHM+-1%TK100 1206 CHIP -RESISTOR | RG 0006.8649.00 | DRALORIC | CR(B) 1206... | |
| R793 | RG 10,0 OHM+-1%TK100 1206 CHIP -RESISTOR | RG 0006.8649.00 | DRALORIC | CR(B) 1206... | |
| R800 | RG 100 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8884.00 | ROEDERSTEI | DC2 100OHM 1%TK100 | |
| R802 | RG 1,0 KO +-0,1%TK25 1206 SMD-RESISTOR | 0009.7595.00 | PHILIPS_CO | MPC 01 | |
| R803 | RG 110,0 KOHM+-1%TK100 1206 CHIP RESISTOR | RG 0007.1954.00 | ROEDERSTEI | DC2 110KOHM 1%TK100 | |
| R804 | RG 619 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.9074.00 | ROEDERSTEI | DC2 619OHM 1%TK100 | |
| R812 | RG 988 OHM+-0,1%TK25 1206 RESISTOR | 0010.1951.00 | MIKRO-TEK- | CMF 1206 | |
| R813 | RG 1,0 MOHM+-1%TK100 1206 CHIP RESISTOR | RG 0815.7532.00 | DRALORIC | CRC 1206 | |
| R820 | RG 15,0 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5450.00 | ROEDERSTEI | DC2 15,0OHM 1%TK100 | |
| R834 | RG 4,75 OHM+-1%TK100 1206 CHIP-RESISTOR | RG 0007.8420.00 | PHILIPS | RC 02 | |
| R840 | RG 4,75 KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5820.00 | ROEDERSTEI | DC2 4,75KOHM 1%TK100 | |
| R843 | RG 3,32 KOH+-0,1%TK25 1206 SMD-RESISTOR EIA1206 NUR VAR/ONLY MOD: 02 43 | 0009.7772.00 | MIKRO-TEK- | CMF 1206 | |
| R843 | RL 0,35W2,34 KOHM+-0,1%TK25 RESISTOR NUR VAR/ONLY MOD: 04 | RL 0083.9852.00 | DRALORIC | SMA0207/2,34K-B-E | |
| R844 | RG 681 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.9080.00 | ROEDERSTEI | DC2 681OHM 1%TK100 | |
| R845 | RG 825 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.7259.00 | ROEDERSTEI | DC2 825OHM 1%TK100 | |
| R846 | RG 2,21 KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5743.00 | ROEDERSTEI | DC2 2,21KOHM 1%TK100 | |
| R847 | RG 10,0 OHM+-1%TK100 1206 CHIP -RESISTOR | RG 0006.8649.00 | DRALORIC | CR(B) 1206... | |
| R848 | RG 1,0 KO +-0,1%TK25 1206 SMD-RESISTOR | 0009.7595.00 | PHILIPS_CO | MPC 01 | |
| R849 | RG 1,82 KOH+-0,1%TK25 1206 SMD-RESISTOR | 0009.8010.00 | MIKRO-TEK- | CMF 1206 | |
| R850 | RG 75,0 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8855.00 | ROEDERSTEI | DC2 75,0OHM | |
| R851 | RG 3,32 KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5789.00 | ROEDERSTEI | DC2 3,32KOHM 1%TK100 | |
| R853 | RG 27,4 KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5895.00 | ROEDERSTEI | DC2 27,4KOHM 1%TK100 | |

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ROHDE & SCHWARZ

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Är Datum Date

16.09.97

Schaltteilliste für Parts list for

EE SYNTHESIZER
SYNTHESIZER


Sachnummer Stock No.

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| Kennz. Comp. No. | Benennung Designation | Sachnummer Stock No. | Hersteller Manufacturer | Bezeichnung Designation | enthalten in contained in |
|---------------------|--|-------------------------|----------------------------|----------------------------|------------------------------|
| R857 | RG 4,75KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5820.00 | ROEDERSTEI | DC2 4,75KOHM 1%TK100 | |
| R860 | RG 200 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5608.00 | ROEDERSTEI | DC2 200OHM 1%TK100 | |
| R861 | RG 29,1KOH+-0,1%TK25 1206 RESISTOR | 0010.4109.00 | MIKRO-TEK- | CMF 1206 | |
| R861 | NUR VAR/ONLY MOD: 02 43 RL 0,35W28,0KOHM+-0,1%T25 RESISTOR | RL 0084.3929.00 | RESISTA | MK2 | |
| R862 | NUR VAR/ONLY MOD: 04 RG 118 OHM+-0,1%TK25 1206 RESISTOR | 0010.3977.00 | MIKRO-TEK- | CMF 1206 | |
| R862 | NUR VAR/ONLY MOD: 02 43 RL 0,35W169 OHM+-0,1%TK25 RESISTOR | RL 0083.7666.00 | RESISTA | MK2 | |
| R863 | NUR VAR/ONLY MOD: 04 RG 2,94KOH+-0,1%TK25 1206 RESISTOR | 0010.4038.00 | MIKRO-TEK- | CMF 1206 | |
| R863 | NUR VAR/ONLY MOD: 02 43 RL 0,35W4,17KOHM+-0,1%T25 RESISTOR | RL 0084.2339.00 | RESISTA | MK2 | |
| R864 | NUR VAR/ONLY MOD: 04 RG 2,74KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5766.00 | ROEDERSTEI | DC2 2,74KOHM 1%TK100 | |
| R865 | RG 10,0 OHM+-1%TK100 1206 CHIP -RESISTOR | RG 0006.8649.00 | DRALORIC | CR(B) 1206... | |
| R866 | RG 10,0 OHM+-1%TK100 1206 CHIP -RESISTOR | RG 0006.8649.00 | DRALORIC | CR(B) 1206... | |
| R870 | RG 4,75KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5820.00 | ROEDERSTEI | DC2 4,75KOHM 1%TK100 | |
| R871 | RG 274 KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.4460.00 | ROEDERSTEI | DC2 274KOHM 1%TK100 | |
| R872 | RG 4,75KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5820.00 | ROEDERSTEI | DC2 4,75KOHM 1%TK100 | |
| R873 | RG 274 KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.4460.00 | ROEDERSTEI | DC2 274KOHM 1%TK100 | |
| R874 | RG 475 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5695.00 | ROEDERSTEI | DC2 475OHM 1%TK100 | |
| R875 | RG 475 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5695.00 | ROEDERSTEI | DC2 475OHM 1%TK100 | |
| R880 | RG 47,5 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5566.00 | ROEDERSTEI | DC2 47,5OHM 1%TK100 | |
| R881 | RG 475 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5695.00 | ROEDERSTEI | DC2 475OHM 1%TK100 | |
| R882 | RG 47,5 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5566.00 | ROEDERSTEI | DC2 47,5OHM 1%TK100 | |
| R883 | RG 475 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5695.00 | ROEDERSTEI | DC2 475OHM 1%TK100 | |
| R884 | RG 10,0 OHM+-1%TK100 1206 CHIP -RESISTOR | RG 0006.8649.00 | DRALORIC | CR(B) 1206... | |
| R885 | RG 47,5 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5566.00 | ROEDERSTEI | DC2 47,5OHM 1%TK100 | |
| R930 | RS 0,25W 1KOHM +-20% SMD RG POTENTIOMETER | RS 0007.9610.00 | BOURNS | 3314G-1-102 | |
| R931 | RG 9,09KOHM+-1%TK100 1206 CHIP RESISTOR | RG 0007.0787.00 | ROEDERSTEI | DC2 9,09KOHM 1%TK100 | |
| R932 | RG 7,5KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0764.00 | ROEDERSTEI | DC2 7,50KOHM 1%TK100 | |
| R933 | RG 7,5KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0764.00 | ROEDERSTEI | DC2 7,50KOHM 1%TK100 | |
| R938 | RG 51,1KOHM+-1%TK100 1206 CHIP RESISTOR | RG 0007.1877.00 | ROEDERSTEI | DC2 51,1KOHM 1%TK100 | |
| R939 | RK SMD-HEISSL.22K 1206 SMD-NTC-RESISTOR | 0008.9220.00 | SIEMENS | B57621-C223-J | |
| R940 | RG 1,21KOHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.9968.00 | ROEDERSTEI | DC2 1,21KOHM 1%TK100 | |
| R943 | RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR | RG 0006.7271.00 | ROEDERSTEI | DC2 1,0KOHM 1%TK100 | |
| R949 | RG 4,75KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5820.00 | ROEDERSTEI | DC2 4,75KOHM 1%TK100 | |
| R950 | RG 2,74KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5766.00 | ROEDERSTEI | DC2 2,74KOHM 1%TK100 | |
| R951 | RG 1,21KOHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.9968.00 | ROEDERSTEI | DC2 1,21KOHM 1%TK100 | |
| R952 | RG 5,11KOHM+-1%TK100 1206 CHIP RESISTOR | RG 0007.0729.00 | ROEDERSTEI | DC2 5,11KOHM 1%TK100 | |
| R953 | RG 5,62KOHM+-1%TK100 1206 CHIP RESISTOR | RG 0007.0735.00 | ROEDERSTEI | DC2 5,62KOHM 1%TK100 | |

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|  | ROHDE & SCHWARZ | 31 | 16.09.97 | EE SYNTHESIZER SYNTHESIZER | 1062.6409.01 SA | 20+ |

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| Kennz. Comp. No. | Benennung Designation | Sachnummer Stock No. | Hersteller Manufacturer | Bezeichnung Designation | enthalten in contained in |
|------------------|---|----------------------|-------------------------|-------------------------|---------------------------|
| R954 | RG 9,09KOHM+-1%TK100 1206 CHIP RESISTOR | RG 0007.0787.00 | ROEDERSTEI | DC2 9,09KOHM 1%TK100 | |
| R955 | RG 39,2KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5937.00 | ROEDERSTEI | DC2 39,2KOHM 1%TK100 | |
| R956 | RG 475 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5695.00 | ROEDERSTEI | DC2 475OHM 1%TK100 | |
| R957 | RG 4,75KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5820.00 | ROEDERSTEI | DC2 4,75KOHM 1%TK100 | |
| R958 | RG 4,75KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5820.00 | ROEDERSTEI | DC2 4,75KOHM 1%TK100 | |
| R960 | RG 379 OHM+-0,1%TK25 1206 RESISTOR | 0010.4009.00 | MIKRO-TEK- | CMF 1206 | |
| R961 | RG 154 OHM+-0,1%TK25 1206 RESISTOR | 0010.3983.00 | MIKRO-TEK- | CMF 1206 | |
| R962 | RG 1,82KOHM+-1%TK100 1206 RESISTOR CHIP NICHT BESTUECKT NOT FITTED | RG 0007.5720.00 | ROEDERSTEI | DC2 1,82KOHM 1%TK100 | |
| R963 | RG 234 OHM+-0,1%TK25 1206 RESISTOR | 0010.3990.00 | MIKRO-TEK- | CMF 1206 | |
| ..968 | RG 1040HM+-0,1%TK25 1206 | 0009.8910.00 | PHILIPS_CO | MPC 01 | |
| ..973 | SMD-RESISTOR EIA1206 | | | | |
| R974 | RG 156 OHM+-0,1%TK25 1206 SMD-RESISTOR EIA1206 | 0009.8779.00 | MIKRO-TEK- | CMF 1206 | |
| R975 | RG 156 OHM+-0,1%TK25 1206 SMD-RESISTOR EIA1206 | 0009.8779.00 | MIKRO-TEK- | CMF 1206 | |
| R980 | RG 47,5 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5566.00 | ROEDERSTEI | DC2 47,5OHM 1%TK100 | |
| R986 | RG 10,0 OHM+-1%TK100 1206 CHIP -RESISTOR | RG 0006.8649.00 | DRALORIC | CR(B) 1206... | |
| R987 | RG 4,75OHM+-1%TK100 1206 CHIP-RESISTOR | RG 0007.8420.00 | PHILIPS | RC 02 | |
| R990 | RG 4,75KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5820.00 | ROEDERSTEI | DC2 4,75KOHM 1%TK100 | |
| R991 | RG 15,0KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5843.00 | ROEDERSTEI | DC2 15,0KOHM 1%TK100 | |
| R993 | RG 22,1 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5489.00 | ROEDERSTEI | DC2 22,1OHM 1%TK100 | |
| R994 | RG 2,21KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5743.00 | ROEDERSTEI | DC2 2,21KOHM 1%TK100 | |
| R995 | RG 3,32KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5789.00 | ROEDERSTEI | DC2 3,32KOHM 1%TK100 | |
| R996 | RG 4,75KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5820.00 | ROEDERSTEI | DC2 4,75KOHM 1%TK100 | |
| V20 | AK BCP68-16 N 20V TRANS TRANSISTOR BCP68 | 0008.2019.00 | PHILIPS | BCP68-25 | |
| V110 | AD BAS32 75V UDI DIODE | AD 0006.7288.00 | PHILIPS | BAS32 (L) | |
| V120 | AE BZV55/C5V1 0.5W ZDI ZENER DIODE | AE 0006.9839.00 | PHILIPS_SE | BZV55B5V1 (GEG) | |
| V200 | AK BC860B P 45V 200MA TRANSISTOR | AK 0007.7975.00 | MOTOROLA | BC860B | |
| V200 | NUR VAR/ONLY MOD: 02 43 AK BCX17 P 45V 500MA TRANSISTOR | AK 0007.2080.00 | PHILIPS | BCX17 | |
| V205 | NUR VAR/ONLY MOD: 04 AK BFS19 N 20V 30MA TRANSISTOR | 0350.9985.00 | PHILIPS | BFS19 | |
| V210 | AK BSV52 N 12V 100MA TRANSISTOR | AK 0007.3434.00 | PHILIPS | BSV52 | |
| V212 | AE HSMS2800 SCHOTTKY DIODE | AE 0836.8421.00 | HEWLETT_PA | HSMS-2800 | |
| V215 | AK BFS19 N 20V 30MA TRANSISTOR | 0350.9985.00 | PHILIPS | BFS19 | |
| V216 | AK BSV52 N 12V 100MA TRANSISTOR | AK 0007.3434.00 | PHILIPS | BSV52 | |
| V220 | AE HSMS2800 SCHOTTKY DIODE | AE 0836.8421.00 | HEWLETT_PA | HSMS-2800 | |
| V235 | AE BAT18 BER.SCH.DI.VHF DIODE | 0820.3260.00 | VALVO | BAT18 | |
| V240 | AD BAS32 75V UDI DIODE | AD 0006.7288.00 | PHILIPS | BAS32 (L) | |
| V245 | AE BZV55/C5V6 0.5W ZDI ZENER DIODE | AE 0006.9845.00 | PHILIPS | BZV55B5V6 | |
| V247 | AD BAV70 70V DUD UDI DUAL DIODE COMMON CATHODE | 0007.9278.00 | PHILIPS | BAV70 | |

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16.09.97

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SYNTHESIZER

1062.6409.01 SA


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| Kennz. Comp. No. | Benennung Designation | Sachnummer Stock No. | Hersteller Manufacturer | Bezeichnung Designation | enthalten in contained in |
|---------------------|--|-------------------------|----------------------------|----------------------------|------------------------------|
| V255 | AD BAV70 70V DUO UDI DUAL DIODE COMMON CATHODE | 0007.9278.00 | PHILIPS | BAV70 | |
| V260 | AE BZV55/10V 0,5W ZDI ZENER DIODE | AE 0006.9880.00 | PHILIPS_SE | BZV55C10 | |
| V265 | AE HSMS2800 SCHOTTKY DIODE | AE 0836.8421.00 | HEWLETT_PA | HSMS-2800 | |
| V300 | AE BB535 18,7/2,1P CDI TUNING DIODE | 1039.3107.00 | SIEMENS | BB535/Q62702-B651 | |
| V305 | AK NE85639 N 12V 100MA TRANSISTOR | 1027.4161.00 | NEC | 2SC4093 T1 | |
| V310 | AK BC860B P 45V 200MA TRANSISTOR | AK 0007.7975.00 | MOTOROLA | BC860B | |
| V330 | AM CF739 10V DG MESF DUAL-GATE GAAS MESFET | 4017.0604.00 | SIEMENS | CF739 E7845 | |
| V340 | AK BC860B P 45V 200MA TRANSISTOR | AK 0007.7975.00 | MOTOROLA | BC860B | |
| V345 | AK BC850B N 45V 200MA TRANSISTOR | AK 0007.7969.00 | VALVO | BC850B | |
| V347 | AE HSMS2810 SCHOTTKY DIODE | 0520.7340.00 | HEWLETT_PA | HSMS2810 | |
| V370 | AK BSV52 N 12V 100MA TRANSISTOR | AK 0007.3434.00 | PHILIPS | BSV52 | |
| V400 | AE BB535 18,7/2,1P CDI TUNING DIODE | 1039.3107.00 | SIEMENS | BB535/Q62702-B651 | |
| V403 | AK BFG540X N 15V 120MA TRANSISTOR | 1062.6496.00 | PHILIPS | BFG540/X | |
| V404 | AK BFG540X N 15V 120MA TRANSISTOR | 1062.6496.00 | PHILIPS | BFG540/X | |
| V406 | AK BCX19 N 45V 500MA TRANSISTOR | 6014.2567.00 | PHILIPS_SE | BCX19 | |
| V408 | AK BC850B N 45V 200MA TRANSISTOR | AK 0007.7969.00 | VALVO | BC850B | |
| V410 | AK BC860B P 45V 200MA TRANSISTOR | AK 0007.7975.00 | MOTOROLA | BC860B | |
| V428 | AE BB535 18,7/2,1P CDI TUNING DIODE | 1039.3107.00 | SIEMENS | BB535/Q62702-B651 | |
| V429 | NUR VAR/ONLY MOD: 43 AE BB535 18,7/2,1P CDI TUNING DIODE | 1039.3107.00 | SIEMENS | BB535/Q62702-B651 | |
| V430 | NUR VAR/ONLY MOD: 43 AE BB535 18,7/2,1P CDI TUNING DIODE | 1039.3107.00 | SIEMENS | BB535/Q62702-B651 | |
| V431 | AE BB535 18,7/2,1P CDI TUNING DIODE | 1039.3107.00 | SIEMENS | BB535/Q62702-B651 | |
| V432 | AE BB535 18,7/2,1P CDI TUNING DIODE | 1039.3107.00 | SIEMENS | BB535/Q62702-B651 | |
| V433 | AE BB535 18,7/2,1P CDI TUNING DIODE | 1039.3107.00 | SIEMENS | BB535/Q62702-B651 | |
| V434 | NUR VAR/ONLY MOD: 02 AK BFG540X N 15V 120MA TRANSISTOR | 1062.6496.00 | PHILIPS | BFG540/X | |
| V436 | AK BCX19 N 45V 500MA TRANSISTOR | 6014.2567.00 | PHILIPS_SE | BCX19 | |
| V438 | AK BC850B N 45V 200MA TRANSISTOR | AK 0007.7969.00 | VALVO | BC850B | |
| V440 | AK BC860B P 45V 200MA TRANSISTOR | AK 0007.7975.00 | MOTOROLA | BC860B | |
| V480 | AK BC860B P 45V 200MA TRANSISTOR | AK 0007.7975.00 | MOTOROLA | BC860B | |
| V490 | AE BAR64 PIN PIN DIODE | 1039.3059.00 | SIEMENS | BAR64 (Q62702A1041) | |
| V492 | AE BAR64 PIN PIN DIODE | 1039.3059.00 | SIEMENS | BAR64 (Q62702A1041) | |
| V500 | AE BAR64 PIN PIN DIODE | 1039.3059.00 | SIEMENS | BAR64 (Q62702A1041) | |
| V502 | AE BAR64 PIN PIN DIODE | 1039.3059.00 | SIEMENS | BAR64 (Q62702A1041) | |
| V510 | AK BC860B P 45V 200MA TRANSISTOR | AK 0007.7975.00 | MOTOROLA | BC860B | |
| V520 | AK BC860B P 45V 200MA TRANSISTOR | AK 0007.7975.00 | MOTOROLA | BC860B | |
| V532 | AE BAR64 PIN PIN DIODE | 1039.3059.00 | SIEMENS | BAR64 (Q62702A1041) | |
| V550 | AE BAR64 PIN PIN DIODE | 1039.3059.00 | SIEMENS | BAR64 (Q62702A1041) | |
| V551 | AE BAR64 PIN PIN DIODE | 1039.3059.00 | SIEMENS | BAR64 (Q62702A1041) | |
| V553 | AE BAR64 PIN PIN DIODE | 1039.3059.00 | SIEMENS | BAR64 (Q62702A1041) | |
| V555 | AE HSMS2810 SCHOTTKY DIODE | 0520.7340.00 | HEWLETT_PA | HSMS2810 | |
| V600 | AK BFQ81 N 16V 30MA TRANSISTOR | 0920.1717.00 | SIEMENS | Q62702-F1049 | |

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| Kannz. Comp. No. | Benennung Designation | Sachnummer Stock No. | Hersteller Manufacturer | Bezeichnung Designation | enthalten in contained in |
|------------------|---|----------------------|-------------------------|-------------------------|---------------------------|
| V695 | AK BCP68-16 N 20V TRANS TRANSISTOR BCP68 | 0008.2019.00 | PHILIPS | BCP68-25 | |
| V696 | AE 1N827 6,2V REFDI REFERENCE DIODE | AE 0418.0029.00 | COMPENSATE | 1N827(A) | |
| V700 | AD BAV70 70V DUO UDI DUAL DIODE COMMON CATHODE | 0007.9278.00 | PHILIPS | BAV70 | |
| V719 | AE BZV55/C4V7 0.5W ZDI ZENER DIODE | AE 0006.9822.00 | PHILIPS | BZV55B4V7 | |
| V750 | AK BCX19 N 45V 500MA TRANSISTOR | 6014.2567.00 | PHILIPS_SE | BCX19 | |
| V755 | AK BCX17 P 45V 500MA TRANSISTOR | AK 0007.2080.00 | PHILIPS | BCX17 | |
| V757 | AD BAS32 75V UDI DIODE | AD 0006.7288.00 | PHILIPS | BAS32 (L) | |
| V765 ..768 | AD BAV99 70V DUO UDI DIODE | AD 0911.0092.00 | VALVO | BAV99 | |
| V780 | AM BSS123 N-E 100V MOSF FET | 0815.7961.00 | SIEMENS | BSS 123 E-6327 | |
| V781 | AD BAS32 75V UDI DIODE | AD 0006.7288.00 | PHILIPS | BAS32 (L) | |
| V787 | AE BZV55/C5V1 0.5W ZDI ZENER DIODE | AE 0006.9839.00 | PHILIPS_SE | BZV55B5V1 (GEG) | |
| V800 | AD BAV99 70V DUO UDI DIODE | AD 0911.0092.00 | VALVO | BAV99 | |
| V902 | AD BAS32 75V UDI DIODE | AD 0006.7288.00 | PHILIPS | BAS32 (L) | |
| V946 | AD BAV99 70V DUO UDI DIODE | AD 0911.0092.00 | VALVO | BAV99 | |
| V947 | AD BAV99 70V DUO UDI DIODE | AD 0911.0092.00 | VALVO | BAV99 | |
| V951 | AD BAV99 70V DUO UDI DIODE | AD 0911.0092.00 | VALVO | BAV99 | |
| V952 | AD BAV99 70V DUO UDI DIODE | AD 0911.0092.00 | VALVO | BAV99 | |
| V955 | AK BC860B P 45V 200MA TRANSISTOR | AK 0007.7975.00 | MOTOROLA | BC860B | |
| V960 | AM SST108 N-D 25V JFET JFET TRANSISTOR | 6007.3949.00 | SILICONIX | SST108 | |
| V961 | AE BZV55/C5V1 0.5W ZDI ZENER DIODE | AE 0006.9839.00 | PHILIPS_SE | BZV55B5V1 (GEG) | |
| X1 | FP STECKERLEISTE 32POL. CONNECTOR 32P. | FP 0008.5718.00 | SIEMENS | V42254-B1200-B611 | |
| X20 | FP STIFTLISTE 36P.R2,54 PIN CONNECTOR 3-POLIG | FP 0242.3600.00 | BINDER | 742-11-0179-00-36 | |
| X75 | FP STIFTLISTE 36P.R2,54 PIN CONNECTOR 3-POLIG | FP 0242.3600.00 | BINDER | 742-11-0179-00-36 | |
| X80 | FP STIFTLISTE 36P.R2,54 PIN CONNECTOR 3-POLIG | FP 0242.3600.00 | BINDER | 742-11-0179-00-36 | |
| X84 | FP STIFTLISTE 36P.R2,54 PIN CONNECTOR 3-POLIG | FP 0242.3600.00 | BINDER | 742-11-0179-00-36 | |
| X124 | FJ EINBAUWINKELST. SMC ANGLE CONNECTOR | FJ 0249.9684.00 | ROSENBERGE | 39S-205-400-D3 | |
| X125 | FJ EINBAUWINKELST. SMC ANGLE CONNECTOR | FJ 0249.9684.00 | ROSENBERGE | 39S-205-400-D3 | |
| X127 | FJ EINBAUSTECKER F.GS SMB ANGLE CONNECTOR | FJ 0602.8804.00 | IMS | 81.1524.201 | |
| X128 | FJ EINBAUSTECKER F.GS SMB ANGLE CONNECTOR | FJ 0602.8804.00 | IMS | 81.1524.201 | |
| X300 | ER KERAMIK RESONATOR 700M RESONATOR | 1062.6421.00 | SIEMENS | B69610-G7006-A612 | |
| Z1 ..14 | LD SMD-T-FILTER 3,3NF SMD-FILTER | 1039.1362.00 | MURATA | NFM61R20T332T1 | |
| Z102 | LD SMD-T-FILTER 100PF SMD-FILTER | 1039.1356.00 | MURATA | NFM61ROOT101T1 | |
| Z104 | LD SMD-T-FILTER 100PF SMD-FILTER | 1039.1356.00 | MURATA | NFM61ROOT101T1 | |
| Z106 | LD SMD-T-FILTER 100PF SMD-FILTER | 1039.1356.00 | MURATA | NFM61ROOT101T1 | |
| Z108 | LD SMD-T-FILTER 100PF SMD-FILTER | 1039.1356.00 | MURATA | NFM61ROOT101T1 | |
| Z110 | LD SMD-T-FILTER 100PF SMD-FILTER | 1039.1356.00 | MURATA | NFM61ROOT101T1 | |

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SYNTHESIZER

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| Kanz. Comp. No. | Benennung Designation | Sachnummer Stock No. | Hersteller Manufacturer | Bezeichnung Designation | enthalten in contained in | |
|--|---|-------------------------|-------------------------------|---------------------------------------|------------------------------|-------------------|
| Z180 | LD SMD-T-FILTER 100PF SMD-FILTER | 1039.1356.00 | MURATA | NFM61ROOT101T1 | | |
| Z202 | LD SMD-T-FILTER 3,3NF SMD-FILTER | 1039.1362.00 | MURATA | NFM61R20T332T1 | | |
| Z800 | LD SMD-T-FILTER 33PF SMD-T-FILTER 33PF | 1062.6744.00 | MURATA | NFM61ROOT330 | | |
| Z801 | LD SMD-T-FILTER 33PF SMD-T-FILTER 33PF | 1062.6744.00 | MURATA | NFM61ROOT330 | | |
| Z880 | LD SMD-T-FILTER 100PF SMD-FILTER | 1039.1356.00 | MURATA | NFM61ROOT101T1 | | |
| Z882 | LD SMD-T-FILTER 100PF SMD-FILTER | 1039.1356.00 | MURATA | NFM61ROOT101T1 | | |
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XY-Liste

XY List

Erklärung der Spaltenbezeichnungen:

- Part:** Bauelement-Kennzeichen.
- Side:** Leiterplatten-Seite, auf der sich das Bauelement befindet.
- X/Y:** Koordinaten (Millimeter) des Bauelementes auf der Leiterplatte bezogen auf den Nullpunkt.
- SQR, PG:** Planquadrat und Seite des Schaltbildes für das jeweilige Bauelement.

Explanation of column designations:

- Part:** Identification of instrument part.
- Side:** Side of the PC board on which instrument part is positioned.
- X/Y:** Coordinates (millimeter) of the component on the PC board in reference to zero point.
- SQR, PG:** Square and page of the diagram for the respective instrument part.

| Service-Relevante Bauteile / Service-Relevant Components | | | | | | | | | | | | | | | | | |
|--|------|-----|----|-----|----|------|------|-----|-----|-----|----|------|------|-----|-----|-----|----|
| Part | Side | X | Y | Sqr | Pg | Part | Side | X | Y | Sqr | Pg | Part | Side | X | Y | Sqr | Pg |
| L346 | B | 250 | 20 | 8E | 3 | P600 | B | 161 | 107 | 7E | 6 | X20 | B | 270 | 123 | 12D | 2 |
| P20 | B | 78 | 20 | 4B | 9 | P610 | B | 229 | 119 | 11E | 6 | X75 | B | 71 | 137 | 10D | 7 |
| P21 | B | 88 | 30 | 6B | 9 | P700 | B | 199 | 138 | 5D | 7 | X80 | B | 168 | 45 | 2E | 8 |
| P201 | B | 285 | 44 | 4E | 2 | P720 | B | 144 | 139 | 7D | 7 | X84 | B | 78 | 71 | 9E | 8 |
| P202 | B | 291 | 64 | 7E | 2 | P840 | B | 164 | 69 | 5F | 8 | X124 | B | 19 | 15 | 11C | 5 |
| P203 | B | 282 | 88 | 10E | 2 | R930 | B | 119 | 89 | 8C | 8 | X125 | B | 258 | 15 | 11E | 3 |
| P204 | B | 274 | 72 | 8C | 2 | X1A | B | 189 | 11 | 1E | 8 | X127 | B | 283 | 15 | 1D | 2 |
| P354 | B | 262 | 46 | 10C | 3 | X1D | B | 189 | 11 | | | X128 | B | 296 | 15 | 1D | 2 |

| Nicht-Service-Relevante Bauteile / Non-Service-Relevant Components | | | | | | | | | | | | | | | | | |
|--|------|-----|----|-----|----|------|------|-----|-----|-----|----|------|------|-----|-----|-----|----|
| Part | Side | X | Y | Sqr | Pg | Part | Side | X | Y | Sqr | Pg | Part | Side | X | Y | Sqr | Pg |
| B360 | B | 253 | 50 | 7B | 3 | C230 | A | 297 | 96 | 10E | 2 | C361 | A | 257 | 51 | 8C | 3 |
| C1 | B | 112 | 24 | 2D | 9 | C232 | B | 273 | 16 | 2D | 2 | C370 | B | 252 | 44 | 8B | 3 |
| C2 | B | 157 | 23 | 2C | 9 | C234 | B | 296 | 21 | 2D | 2 | C373 | A | 262 | 36 | 9C | 3 |
| C3 | B | 145 | 24 | 2C | 9 | C235 | B | 296 | 27 | 2D | 2 | C400 | A | 34 | 138 | 1E | 4 |
| C4 | B | 102 | 22 | 2B | 9 | C236 | B | 299 | 81 | 3C | 2 | C402 | B | 21 | 141 | 1E | 4 |
| C5 | B | 145 | 17 | 2B | 9 | C240 | A | 276 | 17 | 5C | 2 | C404 | A | 13 | 114 | 2E | 4 |
| C20 | A | 69 | 22 | 3B | 9 | C245 | B | 286 | 80 | 8E | 2 | C406 | B | 23 | 112 | 2E | 4 |
| C21 | A | 80 | 17 | 4B | 9 | C250 | A | 276 | 127 | 11C | 2 | C408 | B | 24 | 115 | 2E | 4 |
| C25 | A | 88 | 16 | 5B | 9 | C252 | B | 286 | 137 | 11D | 2 | C410 | B | 19 | 105 | 3D | 4 |
| C26 | A | 80 | 27 | 6B | 9 | C254 | A | 291 | 123 | 11C | 2 | C412 | B | 23 | 104 | 3D | 4 |
| C27 | A | 80 | 31 | 6B | 9 | C255 | A | 293 | 133 | 10B | 2 | C414 | B | 23 | 95 | 3D | 4 |
| C30 | A | 100 | 45 | 4E | 9 | C256 | B | 273 | 140 | 11D | 2 | C416 | A | 34 | 100 | 3C | 4 |
| C31 | A | 152 | 43 | 4E | 9 | C258 | A | 270 | 125 | 12D | 2 | C418 | A | 12 | 125 | 2D | 4 |
| C32 | B | 246 | 71 | 6E | 9 | C260 | A | 279 | 127 | 11B | 2 | C425 | A | 18 | 86 | 3C | 4 |
| C33 | A | 150 | 87 | 6D | 9 | C261 | A | 283 | 137 | 11B | 2 | C430 | A | 40 | 133 | 5E | 4 |
| C34 | A | 72 | 89 | 6C | 9 | C286 | B | 282 | 120 | 11C | 2 | C432 | B | 49 | 136 | 5E | 4 |
| C35 | A | 122 | 50 | 3D | 9 | C300 | B | 253 | 118 | 2E | 3 | C434 | A | 40 | 113 | 6E | 4 |
| C36 | A | 272 | 86 | 7E | 9 | C302 | B | 259 | 110 | 2E | 3 | C436 | B | 49 | 112 | 6E | 4 |
| C100 | A | 195 | 69 | 4A | 9 | C304 | B | 255 | 105 | 2E | 3 | C438 | B | 49 | 115 | 6E | 4 |
| C110 | B | 200 | 59 | 10B | 9 | C306 | B | 250 | 98 | 3D | 3 | C440 | B | 44 | 105 | 7D | 4 |
| C120 | A | 195 | 54 | 3A | 9 | C308 | B | 254 | 97 | 3D | 3 | C442 | B | 48 | 104 | 7D | 4 |
| C200 | A | 280 | 41 | 5A | 2 | C310 | A | 262 | 91 | 3D | 3 | C444 | B | 48 | 95 | 7D | 4 |
| C202 | A | 284 | 57 | 2E | 2 | C312 | A | 245 | 90 | 3C | 3 | C446 | A | 57 | 100 | 7C | 4 |
| C204 | A | 295 | 49 | 2E | 2 | C314 | A | 259 | 89 | 3C | 3 | C448 | A | 61 | 125 | 5D | 4 |
| C205 | A | 297 | 20 | 2E | 2 | C316 | B | 254 | 88 | 4D | 3 | C455 | A | 44 | 88 | 7C | 4 |
| C206 | A | 300 | 36 | 3E | 2 | C320 | A | 258 | 74 | 4E | 3 | C490 | A | 58 | 77 | 4B | 4 |
| C208 | B | 294 | 42 | 3E | 2 | C324 | B | 254 | 75 | 5D | 3 | C491 | A | 47 | 79 | 4B | 4 |
| C210 | A | 294 | 69 | 6A | 2 | C331 | B | 254 | 56 | 5D | 3 | C492 | B | 37 | 95 | 9D | 4 |
| C214 | A | 276 | 72 | 6E | 2 | C335 | B | 246 | 51 | 7D | 3 | C493 | B | 37 | 82 | 9D | 4 |
| C217 | B | 275 | 31 | 5D | 2 | C336 | B | 246 | 27 | 8D | 3 | C494 | A | 27 | 81 | 9E | 4 |
| C218 | B | 275 | 28 | 6D | 2 | C338 | A | 243 | 32 | 7E | 3 | C500 | B | 37 | 75 | 1D | 5 |
| C219 | B | 288 | 19 | 6D | 2 | C342 | A | 259 | 27 | 9E | 3 | C501 | B | 37 | 62 | 2D | 5 |
| C220 | A | 293 | 89 | 7A | 2 | C344 | B | 258 | 24 | 9E | 3 | C502 | A | 28 | 66 | 2D | 5 |
| C221 | A | 297 | 89 | 7A | 2 | C345 | B | 250 | 32 | 7F | 3 | C505 | A | 55 | 67 | 1F | 5 |
| C222 | A | 271 | 35 | 6C | 2 | C346 | B | 247 | 20 | 8E | 3 | C506 | A | 12 | 58 | 2F | 5 |
| C224 | A | 269 | 74 | 7C | 2 | C347 | B | 252 | 15 | 9D | 3 | C507 | A | 31 | 46 | 2B | 5 |
| C225 | A | 271 | 42 | 7C | 2 | C348 | A | 247 | 13 | 10D | 3 | C510 | B | 29 | 55 | 3E | 5 |
| C227 | A | 271 | 51 | 7C | 2 | C349 | A | 247 | 17 | 10D | 3 | C511 | A | 18 | 48 | 3E | 5 |
| C228 | A | 272 | 54 | 7C | 2 | C360 | B | 259 | 53 | 7B | 3 | C512 | A | 18 | 55 | 3E | 5 |

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| Part | Side | X | Y | Sqr | Pg | Part | Side | X | Y | Sqr | Pg | Part | Side | X | Y | Sqr | Pg |
|------|------|-----|-----|-----|----|------|------|-----|-----|-----|----|--------|------|-----|-----|-----|----|
| C513 | A | 19 | 42 | 4E | 5 | C719 | A | 168 | 138 | 7B | 7 | C953 | A | 104 | 93 | 10D | 8 |
| C514 | B | 18 | 42 | 4E | 5 | C720 | B | 167 | 132 | 7D | 7 | C954 | A | 87 | 86 | 8C | 8 |
| C515 | A | 12 | 35 | 4E | 5 | C721 | B | 156 | 131 | 7D | 7 | C959 | A | 136 | 89 | 12C | 8 |
| C516 | B | 18 | 29 | 5E | 5 | C722 | A | 160 | 135 | 7D | 7 | C960 | B | 76 | 67 | 10E | 8 |
| C517 | B | 25 | 25 | 5E | 5 | C731 | B | 149 | 136 | 7C | 7 | C962 | A | 93 | 47 | 5D | 8 |
| C520 | B | 37 | 51 | 4C | 5 | C750 | B | 142 | 132 | 8D | 7 | C980 | A | 140 | 104 | 12B | 8 |
| C521 | A | 46 | 48 | 4C | 5 | C753 | A | 91 | 138 | 8D | 7 | C989 | A | 106 | 93 | 11B | 8 |
| C522 | A | 40 | 48 | 4C | 5 | C760 | B | 106 | 136 | 9D | 7 | C990 | A | 88 | 90 | 11B | 8 |
| C523 | A | 56 | 51 | 4C | 5 | C764 | B | 82 | 132 | 9C | 7 | C995 | A | 91 | 58 | 8F | 8 |
| C524 | B | 53 | 48 | 4C | 5 | C765 | B | 86 | 135 | 9C | 7 | D20 | B | 75 | 26 | 3B | 9 |
| C525 | A | 61 | 35 | 5D | 5 | C779 | B | 82 | 139 | 10D | 7 | D65A | B | 197 | 86 | 8E | 6 |
| C526 | B | 49 | 35 | 5C | 5 | C780 | A | 130 | 131 | 8B | 7 | D110-A | B | 224 | 60 | 8D | 9 |
| C527 | B | 46 | 31 | 6C | 5 | C781 | A | 133 | 138 | 8B | 7 | D110-B | | | | 4A | 9 |
| C530 | A | 31 | 43 | 5D | 5 | C782 | A | 116 | 130 | 10C | 7 | D115-A | B | 220 | 55 | 8E | 9 |
| C532 | B | 25 | 35 | 5D | 5 | C784 | A | 101 | 132 | 11B | 7 | D115-B | | | | 5A | 9 |
| C550 | B | 42 | 22 | 9C | 5 | C786 | A | 107 | 138 | 10B | 7 | D125-A | B | 210 | 62 | 3D | 9 |
| C551 | B | 27 | 18 | 10C | 5 | C787 | A | 184 | 135 | 5B | 7 | D125-B | | | | 8E | 9 |
| C552 | A | 20 | 20 | 10D | 5 | C788 | A | 244 | 136 | 3B | 7 | D125-C | | | | 10B | 9 |
| C553 | A | 12 | 23 | 10D | 5 | C789 | A | 252 | 140 | 3B | 7 | D125-D | | | | 10B | 9 |
| C555 | B | 24 | 12 | 10C | 5 | C790 | A | 252 | 135 | 3B | 7 | D125-E | | | | 5A | 9 |
| C556 | A | 41 | 11 | 10C | 5 | C791 | A | 252 | 130 | 3B | 7 | D200-A | B | 283 | 39 | 6D | 2 |
| C557 | A | 52 | 11 | 11C | 5 | C792 | A | 201 | 132 | 6B | 7 | D200-B | | | | 5E | 2 |
| C570 | A | 34 | 39 | 8D | 5 | C793 | A | 220 | 138 | 5B | 7 | D200-C | | | | 5D | 2 |
| C571 | A | 61 | 30 | 8D | 5 | C800 | A | 175 | 59 | 3F | 8 | D200-D | | | | 6E | 2 |
| C580 | A | 55 | 13 | 11B | 5 | C830 | B | 182 | 48 | 2E | 8 | D200-E | | | | 5A | 2 |
| C600 | B | 70 | 94 | 2E | 6 | C840 | B | 109 | 72 | 8E | 8 | D205-A | B | 283 | 67 | 5E | 2 |
| C601 | B | 73 | 108 | 2E | 6 | C841 | A | 116 | 69 | 7F | 8 | D205-B | | | | 8C | 2 |
| C602 | A | 68 | 109 | 2E | 6 | C842 | A | 127 | 64 | 6F | 8 | D205-C | | | | 5A | 2 |
| C604 | B | 146 | 111 | 6E | 6 | C843 | A | 177 | 70 | 5F | 8 | D210-A | B | 297 | 67 | 7E | 2 |
| C605 | B | 79 | 114 | 3E | 6 | C844 | A | 128 | 73 | 6F | 8 | D210-B | | | | 7D | 2 |
| C610 | A | 91 | 122 | 3E | 6 | C845 | A | 167 | 68 | 5F | 8 | D210-C | | | | 6A | 2 |
| C615 | B | 97 | 114 | 4E | 6 | C846 | B | 124 | 62 | 6E | 8 | D215-A | B | 279 | 87 | 9E | 2 |
| C616 | B | 110 | 114 | 4E | 6 | C850 | A | 126 | 59 | 6E | 8 | D215-B | | | | 6A | 2 |
| C620 | A | 124 | 111 | 4E | 6 | C860 | B | 233 | 40 | 3C | 8 | D220 | B | 288 | 105 | 2C | 2 |
| C621 | A | 119 | 114 | 4B | 6 | C861 | B | 231 | 32 | 3C | 8 | D255-A | B | 291 | 135 | 10D | 2 |
| C625 | B | 118 | 108 | 5E | 6 | C862 | A | 233 | 30 | 4C | 8 | D255-B | | | | 10C | 2 |
| C630 | A | 141 | 111 | 5E | 6 | C865 | A | 230 | 36 | 5B | 8 | D255-C | | | | 10B | 2 |
| C631 | A | 135 | 114 | 4B | 6 | C866 | A | 210 | 33 | 5A | 8 | D510 | B | 23 | 52 | 3E | 5 |
| C633 | B | 132 | 108 | 6E | 6 | C870 | A | 218 | 17 | 5C | 8 | D520 | B | 43 | 53 | 4C | 5 |
| C640 | A | 151 | 118 | 6E | 6 | C871 | A | 225 | 20 | 5B | 8 | D585-A | A | 46 | 18 | 11F | 5 |
| C645 | A | 166 | 114 | 3B | 6 | C884 | A | 216 | 28 | 5B | 8 | D585-B | | | | 11B | 5 |
| C650 | A | 166 | 103 | 10F | 6 | C885 | A | 224 | 15 | 5B | 8 | D620-A | B | 116 | 114 | 4E | 6 |
| C655 | A | 225 | 114 | 5B | 6 | C890 | B | 95 | 62 | 4B | 8 | D620-B | | | | 4B | 6 |
| C661 | A | 181 | 86 | 10B | 6 | C891 | B | 93 | 70 | 5A | 8 | D630-A | B | 132 | 114 | 5E | 6 |
| C662 | A | 173 | 103 | 7E | 6 | C892 | B | 171 | 60 | 3B | 8 | D630-B | | | | 4B | 6 |
| C690 | A | 195 | 88 | 9F | 6 | C893 | B | 168 | 53 | 3A | 8 | D640-A | B | 170 | 108 | 7E | 6 |
| C691 | A | 185 | 99 | 9F | 6 | C911 | A | 150 | 60 | 5F | 8 | D640-B | | | | 1B | 6 |
| C692 | A | 197 | 112 | 9F | 6 | C913 | B | 150 | 62 | 5F | 8 | D640-C | | | | 5B | 6 |
| C693 | A | 209 | 99 | 9F | 6 | C940 | B | 85 | 96 | 8D | 8 | D640-D | | | | 7B | 6 |
| C698 | A | 167 | 87 | 6C | 6 | C941 | A | 91 | 100 | 9C | 8 | D640-E | | | | 3B | 6 |
| C701 | B | 232 | 131 | 4D | 7 | C942 | A | 97 | 99 | 9C | 8 | D655-A | B | 223 | 116 | 11E | 6 |
| C702 | A | 232 | 138 | 4C | 7 | C949 | B | 81 | 83 | 9D | 8 | D655-B | | | | 6B | 6 |
| C705 | B | 259 | 129 | 2B | 7 | C950 | B | 86 | 83 | 8D | 8 | D655-C | | | | 5B | 6 |
| C710 | A | 204 | 133 | 5D | 7 | C951 | B | 88 | 101 | 8C | 8 | D660-A | B | 232 | 85 | 2C | 6 |
| C712 | A | 212 | 130 | 4D | 7 | C952 | A | 105 | 100 | 9C | 8 | D660-B | | | | 2B | 6 |

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| | | 04 05.04.95 | EE SYNTHESIZER SYNTHESIZER | 1062.6409.01 XY | 2+ |

| Part | Side | X | Y | Sqr | Pg | Part | Side | X | Y | Sqr | Pg | Part | Side | X | Y | Sqr | Pg |
|--------|------|-----|-----|-----|----|--------|------|-----|-----|-----|----|--------|------|-----|-----|-----|----|
| D665-A | B | 232 | 97 | 3C | 6 | L29 | B | 252 | 132 | 6D | 9 | N220-A | B | 297 | 83 | 3C | 2 |
| D665-B | | | | 2B | 6 | L33 | A | 154 | 87 | 6D | 9 | N220-B | | | | 4C | 2 |
| D670-A | B | 152 | 90 | 4C | 6 | L35 | B | 121 | 46 | 3D | 9 | N220-C | | | | 9E | 2 |
| D670-B | | | | 3B | 6 | L200 | B | 277 | 54 | 6E | 2 | N220-D | | | | 8E | 2 |
| D700-A | B | 246 | 139 | 3D | 7 | L202 | B | 278 | 28 | 6D | 2 | N220-E | | | | 7A | 2 |
| D700-B | | | | 3C | 7 | L204 | B | 286 | 29 | 6D | 2 | N250-A | B | 283 | 127 | 11D | 2 |
| D700-C | | | | 3B | 7 | L227 | B | 269 | 51 | 7C | 2 | N250-B | | | | 11B | 2 |
| D710-A | A | 91 | 131 | 9C | 7 | L300 | B | 259 | 115 | 2E | 3 | N300 | B | 254 | 82 | 4D | 3 |
| D710-B | | | | 6B | 7 | L302 | B | 259 | 102 | 3D | 3 | N490 | B | 37 | 89 | 9D | 4 |
| D720-A | B | 180 | 139 | 6E | 7 | L306 | B | 260 | 74 | 4E | 3 | N500 | B | 37 | 69 | 2D | 5 |
| D720-B | | | | 5B | 7 | L400 | B | 28 | 138 | 1E | 4 | N510 | B | 18 | 36 | 4E | 5 |
| D800-A | B | 156 | 66 | 4E | 8 | L402 | B | 18 | 112 | 2E | 4 | N520 | B | 52 | 42 | 5C | 5 |
| D800-B | | | | 4E | 8 | L404 | B | 21 | 121 | 2E | 4 | N560 | B | 39 | 18 | 9C | 5 |
| D800-C | | | | 4D | 8 | L406 | B | 28 | 109 | 3D | 4 | N600 | B | 73 | 97 | 2E | 6 |
| D800-D | | | | 4E | 8 | L430 | B | 42 | 133 | 5E | 4 | N610 | B | 85 | 114 | 3E | 6 |
| D800-E | | | | 2B | 8 | L432 | B | 43 | 112 | 6E | 4 | N705 | B | 255 | 131 | 2B | 7 |
| D820-A | B | 181 | 52 | 3E | 8 | L434 | B | 52 | 121 | 6D | 4 | N710-A | B | 212 | 133 | 5D | 7 |
| D820-B | | | | 2B | 8 | L436 | B | 53 | 109 | 7D | 4 | N710-B | | | | 5B | 7 |
| D840 | B | 103 | 70 | 7E | 8 | L492 | B | 37 | 99 | 8D | 4 | N720-A | B | 166 | 135 | 7D | 7 |
| D855-A | B | 107 | 55 | 2C | 8 | L494 | B | 31 | 82 | 9D | 4 | N720-B | | | | 7B | 7 |
| D855-B | | | | 2B | 8 | L500 | B | 43 | 59 | 2D | 5 | N780-A | A | 125 | 137 | 8B | 7 |
| D870-A | B | 225 | 14 | 5C | 8 | L502 | B | 31 | 62 | 2D | 5 | N780-B | | | | 9B | 7 |
| D870-B | | | | 5C | 8 | L505 | B | 52 | 57 | 2F | 5 | N780-C | | | | 6B | 7 |
| D870-C | | | | 5A | 8 | L506 | B | 26 | 58 | 2E | 5 | N800-A | B | 181 | 58 | 3F | 8 |
| D950-A | B | 131 | 99 | 11D | 8 | L507 | B | 33 | 51 | 2C | 5 | N800-B | | | | 3B | 8 |
| D950-B | | | | 11D | 8 | L515 | B | 12 | 29 | 4E | 5 | N840-A | B | 89 | 64 | 8E | 8 |
| D950-C | | | | 12B | 8 | L516 | B | 15 | 21 | 5E | 5 | N840-B | | | | 4B | 8 |
| D960-A | B | 90 | 53 | 9F | 8 | L525 | B | 56 | 34 | 5C | 5 | N842-A | B | 131 | 65 | 6F | 8 |
| D960-B | | | | 5D | 8 | L530 | B | 28 | 31 | 5D | 5 | N842-B | | | | 4B | 8 |
| D965-A | B | 128 | 88 | 9C | 8 | L550 | B | 45 | 21 | 9C | 5 | N845-A | B | 178 | 67 | 5E | 8 |
| D965-B | | | | 9B | 8 | L551 | B | 30 | 22 | 10C | 5 | N845-B | | | | 3B | 8 |
| D965-C | | | | 9B | 8 | L570 | B | 32 | 26 | 8D | 5 | N850-A | B | 131 | 55 | 6E | 8 |
| D965-D | | | | 9C | 8 | L571 | B | 52 | 27 | 8C | 5 | N850-B | | | | 4B | 8 |
| K240-A | B | 273 | 23 | 6D | 2 | L600 | B | 69 | 105 | 2E | 6 | N860-A | B | 219 | 42 | 4C | 8 |
| K240-B | | | | 5B | 2 | L610 | B | 93 | 118 | 3E | 6 | N860-B | | | | 4C | 8 |
| K910-A | B | 150 | 58 | 5F | 8 | L621 | A | 114 | 117 | 4B | 6 | N860-C | | | | 5A | 8 |
| K910-B | | | | 6D | 8 | L631 | A | 131 | 117 | 4B | 6 | N940-A | B | 91 | 99 | 9C | 8 |
| L1 | B | 116 | 20 | 2D | 9 | L645 | A | 163 | 114 | 3B | 6 | N940-B | | | | 11B | 8 |
| L2 | B | 155 | 18 | 2C | 9 | L655 | A | 222 | 110 | 5B | 6 | N950-A | B | 104 | 99 | 9C | 8 |
| L3 | B | 142 | 20 | 2C | 9 | L695 | A | 166 | 98 | 6D | 6 | N950-B | | | | 10C | 8 |
| L4 | B | 101 | 15 | 2C | 9 | L800 | A | 165 | 43 | 2E | 8 | N950-C | | | | 8C | 8 |
| L5 | B | 142 | 15 | 2B | 9 | L801 | A | 161 | 43 | 2E | 8 | N950-D | | | | 8B | 8 |
| L6 | A | 273 | 89 | 6E | 9 | N20-A | B | 81 | 20 | 4B | 9 | N950-E | | | | 11B | 8 |
| L8 | A | 270 | 102 | 6E | 9 | N20-B | | | | 5B | 9 | N960-A | B | 114 | 103 | 10D | 8 |
| L9 | B | 246 | 79 | 6E | 9 | N20-C | | | | 3A | 9 | N960-B | | | | 11B | 8 |
| L12 | A | 91 | 86 | 6D | 9 | N100-A | B | 210 | 51 | 10E | 9 | R5 | B | 137 | 25 | 2B | 9 |
| L13 | A | 218 | 131 | 6D | 9 | N100-B | | | | 10E | 9 | R20 | B | 75 | 16 | 4B | 9 |
| L14 | A | 107 | 46 | 4E | 9 | N100-C | | | | 3A | 9 | R21 | A | 79 | 22 | 3B | 9 |
| L15 | A | 248 | 71 | 6E | 9 | N105-A | B | 198 | 51 | 10D | 9 | R22 | A | 74 | 15 | 4B | 9 |
| L18 | B | 71 | 88 | 6D | 9 | N105-B | | | | 10C | 9 | R23 | A | 74 | 17 | 4B | 9 |
| L19 | A | 145 | 43 | 4E | 9 | N105-C | | | | 3A | 9 | R24 | A | 83 | 22 | 5B | 9 |
| L20 | A | 299 | 79 | 6E | 9 | N110-A | B | 192 | 69 | 9C | 9 | R25 | A | 83 | 29 | 5B | 9 |
| L22 | A | 110 | 86 | 6D | 9 | N110-B | | | | 9B | 9 | R26 | B | 79 | 12 | 5B | 9 |
| L23 | A | 190 | 137 | 6D | 9 | N110-C | | | | 4A | 9 | R27 | B | 88 | 12 | 5B | 9 |
| L28 | A | 180 | 135 | 6D | 9 | N200 | B | 297 | 52 | 2E | 2 | R28 | A | 86 | 22 | 6B | 9 |

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| | | 04 05.04.95 | EE SYNTHESIZER SYNTHESIZER | 1062.6409.01 XY | 3+ |

| Part | Side | X | Y | Sqr | Pg | Part | Side | X | Y | Sqr | Pg | Part | Side | X | Y | Sqr | Pg |
|------|------|-----|-----|-----|----|------|------|-----|-----|-----|----|------|------|-----|-----|-----|----|
| R29 | A | 89 | 22 | 6B | 9 | R224 | A | 276 | 39 | 5D | 2 | R326 | B | 254 | 69 | 5D | 3 |
| R30 | A | 270 | 129 | 6F | 9 | R225 | B | 271 | 34 | 5D | 2 | R328 | B | 260 | 65 | 5D | 3 |
| R31 | B | 144 | 128 | 6D | 9 | R226 | A | 282 | 38 | 6E | 2 | R330 | B | 251 | 61 | 5D | 3 |
| R100 | A | 199 | 72 | 4A | 9 | R227 | B | 272 | 44 | 7E | 2 | R331 | B | 254 | 63 | 5D | 3 |
| R110 | B | 187 | 24 | 2E | 9 | R228 | A | 280 | 54 | 7D | 2 | R332 | B | 260 | 59 | 5D | 3 |
| R111 | B | 187 | 39 | 3E | 9 | R229 | A | 273 | 34 | 6C | 2 | R335 | B | 247 | 54 | 7D | 3 |
| R112 | B | 192 | 24 | 2E | 9 | R230 | A | 290 | 94 | 10E | 2 | R336 | B | 247 | 24 | 8D | 3 |
| R113 | B | 192 | 39 | 3E | 9 | R232 | A | 300 | 98 | 10E | 2 | R337 | B | 244 | 30 | 8D | 3 |
| R114 | B | 177 | 24 | 2E | 9 | R234 | A | 298 | 23 | 1E | 2 | R338 | A | 243 | 34 | 7D | 3 |
| R115 | B | 177 | 39 | 3E | 9 | R236 | A | 271 | 24 | 6C | 2 | R339 | A | 245 | 26 | 8E | 3 |
| R116 | B | 171 | 24 | 2D | 9 | R238 | A | 275 | 44 | 7C | 2 | R340 | A | 250 | 21 | 8E | 3 |
| R117 | B | 171 | 39 | 3D | 9 | R239 | A | 274 | 81 | 7D | 2 | R341 | A | 253 | 21 | 8E | 3 |
| R118 | A | 196 | 24 | 2F | 9 | R240 | A | 270 | 58 | 7C | 2 | R342 | A | 262 | 28 | 8E | 3 |
| R119 | B | 197 | 39 | 3F | 9 | R241 | A | 299 | 65 | 7E | 2 | R343 | A | 252 | 25 | 8E | 3 |
| R120 | A | 192 | 48 | 3A | 9 | R242 | A | 297 | 66 | 7E | 2 | R344 | A | 257 | 27 | 8F | 3 |
| R125 | A | 207 | 63 | 3D | 9 | R243 | B | 298 | 78 | 8E | 2 | R345 | A | 252 | 32 | 7F | 3 |
| R142 | A | 219 | 62 | 8D | 9 | R244 | B | 283 | 80 | 8D | 2 | R346 | B | 253 | 27 | 8D | 3 |
| R144 | A | 210 | 48 | 5A | 9 | R245 | B | 293 | 81 | 8E | 2 | R347 | B | 247 | 16 | 9D | 3 |
| R145 | A | 207 | 65 | 8E | 9 | R246 | A | 290 | 89 | 8E | 2 | R348 | A | 250 | 13 | 10D | 3 |
| R146 | A | 226 | 52 | 9E | 9 | R247 | B | 288 | 68 | 8E | 2 | R361 | A | 253 | 53 | 8C | 3 |
| R150 | A | 207 | 51 | 10F | 9 | R248 | B | 280 | 83 | 8D | 2 | R370 | B | 259 | 44 | 9B | 3 |
| R152 | A | 210 | 53 | 10E | 9 | R251 | A | 271 | 111 | 2C | 2 | R371 | B | 262 | 41 | 9C | 3 |
| R154 | A | 204 | 53 | 10E | 9 | R253 | A | 274 | 105 | 2C | 2 | R372 | B | 255 | 37 | 9C | 3 |
| R156 | A | 197 | 51 | 10D | 9 | R255 | A | 281 | 108 | 2B | 2 | R373 | A | 256 | 40 | 9C | 3 |
| R158 | A | 198 | 57 | 10D | 9 | R258 | B | 292 | 97 | 3C | 2 | R375 | B | 252 | 41 | 8B | 3 |
| R160 | A | 192 | 54 | 10C | 9 | R260 | B | 298 | 99 | 4B | 2 | R400 | A | 31 | 132 | 1E | 4 |
| R162 | A | 198 | 66 | 9B | 9 | R264 | B | 285 | 97 | 4C | 2 | R402 | A | 19 | 110 | 2E | 4 |
| R164 | A | 192 | 69 | 9C | 9 | R266 | B | 275 | 94 | 5C | 2 | R404 | B | 12 | 112 | 2E | 4 |
| R166 | A | 190 | 66 | 9B | 9 | R267 | B | 269 | 94 | 5C | 2 | R406 | B | 15 | 122 | 2D | 4 |
| R167 | A | 193 | 62 | 9B | 9 | R269 | B | 278 | 97 | 5B | 2 | R408 | A | 13 | 128 | 2D | 4 |
| R170 | A | 188 | 56 | 11D | 9 | R270 | B | 198 | 23 | 5B | 2 | R410 | B | 21 | 108 | 3E | 4 |
| R172 | A | 187 | 62 | 10C | 9 | R276 | A | 297 | 137 | 10D | 2 | R412 | B | 16 | 105 | 3D | 4 |
| R174 | A | 204 | 66 | 10B | 9 | R277 | A | 291 | 134 | 10D | 2 | R414 | A | 19 | 99 | 3D | 4 |
| R178 | B | 207 | 59 | 10B | 9 | R278 | B | 294 | 118 | 10D | 2 | R416 | A | 16 | 95 | 2D | 4 |
| R180 | B | 182 | 42 | 11C | 9 | R280 | B | 287 | 130 | 10D | 2 | R418 | A | 26 | 97 | 3D | 4 |
| R181 | B | 182 | 27 | 11C | 9 | R281 | B | 284 | 135 | 11D | 2 | R420 | A | 34 | 106 | 3D | 4 |
| R201 | A | 283 | 44 | 5B | 2 | R282 | A | 294 | 126 | 10C | 2 | R422 | B | 23 | 101 | 3D | 4 |
| R202 | A | 295 | 42 | 3E | 2 | R283 | B | 287 | 123 | 11C | 2 | R424 | B | 29 | 96 | 3D | 4 |
| R204 | A | 300 | 29 | 1E | 2 | R284 | B | 278 | 135 | 11D | 2 | R425 | A | 20 | 86 | 3C | 4 |
| R206 | B | 292 | 36 | 3E | 2 | R285 | B | 273 | 130 | 11D | 2 | R426 | A | 28 | 90 | 3C | 4 |
| R207 | B | 297 | 33 | 3E | 2 | R286 | B | 282 | 117 | 11C | 2 | R427 | A | 31 | 92 | 4C | 4 |
| R208 | A | 290 | 36 | 3E | 2 | R287 | B | 276 | 120 | 12C | 2 | R430 | A | 40 | 131 | 5E | 4 |
| R209 | A | 294 | 62 | 6B | 2 | R288 | A | 281 | 123 | 11D | 2 | R431 | B | 48 | 121 | 6E | 4 |
| R210 | B | 297 | 40 | 3D | 2 | R289 | A | 284 | 123 | 11C | 2 | R432 | A | 37 | 113 | 6E | 4 |
| R212 | B | 288 | 41 | 3E | 2 | R290 | A | 294 | 140 | 10B | 2 | R434 | B | 38 | 112 | 6E | 4 |
| R213 | B | 290 | 34 | 4E | 2 | R291 | A | 281 | 133 | 11B | 2 | R436 | B | 57 | 124 | 6D | 4 |
| R214 | A | 292 | 33 | 4E | 2 | R302 | B | 253 | 101 | 3D | 3 | R438 | A | 59 | 129 | 6D | 4 |
| R215 | B | 280 | 78 | 5D | 2 | R304 | B | 247 | 98 | 3D | 3 | R440 | B | 47 | 108 | 7E | 4 |
| R216 | A | 285 | 35 | 4F | 2 | R306 | B | 244 | 92 | 2D | 3 | R442 | B | 41 | 105 | 7D | 4 |
| R218 | B | 297 | 29 | 2D | 2 | R308 | A | 250 | 94 | 3D | 3 | R444 | A | 44 | 99 | 7D | 4 |
| R219 | B | 292 | 30 | 2D | 2 | R310 | B | 262 | 98 | 3D | 3 | R446 | A | 41 | 94 | 6D | 4 |
| R220 | A | 275 | 59 | 7C | 2 | R312 | A | 252 | 86 | 3C | 3 | R448 | A | 50 | 99 | 7D | 4 |
| R221 | A | 285 | 64 | 5E | 2 | R314 | B | 254 | 94 | 3D | 3 | R450 | A | 59 | 106 | 7D | 4 |
| R222 | A | 274 | 66 | 7C | 2 | R316 | A | 258 | 67 | 4E | 3 | R452 | B | 48 | 102 | 7D | 4 |
| R223 | A | 276 | 78 | 8C | 2 | R324 | B | 260 | 70 | 5D | 3 | R454 | B | 44 | 92 | 7D | 4 |

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| | | 04 05.04.95 | EE SYNTHESIZER SYNTHESIZER | 1062.6409.01 XY | 4+ |

| Part | Side | X | Y | Sqr | Pg | Part | Side | X | Y | Sqr | Pg | Part | Side | X | Y | Sqr | Pg |
|------|------|-----|-----|-----|----|------|------|-----|-----|-----|----|------|------|-----|-----|-----|----|
| R455 | A | 44 | 90 | 7C | 4 | R637 | B | 223 | 119 | 11E | 6 | R705 | B | 252 | 129 | 2B | 7 |
| R456 | A | 55 | 90 | 7C | 4 | R638 | A | 217 | 117 | 11E | 6 | R706 | B | 205 | 130 | 5D | 7 |
| R457 | A | 55 | 92 | 8C | 4 | R639 | A | 219 | 114 | 11E | 6 | R707 | A | 237 | 135 | 3C | 7 |
| R483 | B | 34 | 78 | 10D | 4 | R640 | A | 145 | 118 | 6F | 6 | R708 | B | 223 | 137 | 4C | 7 |
| R490 | A | 57 | 75 | 4B | 4 | R643 | B | 149 | 110 | 6E | 6 | R709 | B | 258 | 140 | 2B | 7 |
| R491 | A | 21 | 81 | 9E | 4 | R644 | B | 151 | 117 | 6E | 6 | R710 | B | 216 | 137 | 5C | 7 |
| R495 | B | 48 | 75 | 11D | 4 | R645 | B | 155 | 107 | 6E | 6 | R712 | A | 209 | 140 | 4E | 7 |
| R496 | B | 39 | 75 | 10D | 4 | R647 | A | 168 | 107 | 7E | 6 | R713 | A | 208 | 133 | 4D | 7 |
| R497 | B | 42 | 79 | 10D | 4 | R650 | A | 189 | 88 | 8F | 6 | R719 | A | 164 | 132 | 7B | 7 |
| R499 | B | 31 | 75 | 11D | 4 | R651 | A | 189 | 91 | 8F | 6 | R720 | A | 180 | 141 | 5E | 7 |
| R500 | B | 43 | 65 | 2D | 5 | R652 | A | 189 | 93 | 8F | 6 | R721 | B | 191 | 135 | 6E | 7 |
| R502 | A | 22 | 62 | 2E | 5 | R653 | A | 188 | 96 | 8F | 6 | R722 | B | 191 | 137 | 6E | 7 |
| R505 | B | 52 | 67 | 1F | 5 | R654 | A | 200 | 121 | 7D | 6 | R723 | B | 191 | 140 | 6D | 7 |
| R506 | B | 19 | 58 | 2E | 5 | R655 | B | 177 | 99 | 8E | 6 | R724 | B | 191 | 132 | 6D | 7 |
| R507 | B | 27 | 50 | 2C | 5 | R656 | A | 170 | 112 | 1B | 6 | R725 | B | 175 | 140 | 6D | 7 |
| R510 | A | 33 | 50 | 3E | 5 | R658 | A | 187 | 84 | 10B | 6 | R726 | B | 175 | 129 | 6D | 7 |
| R511 | A | 16 | 42 | 4E | 5 | R659 | A | 165 | 118 | 5B | 6 | R727 | B | 175 | 138 | 6D | 7 |
| R515 | A | 15 | 26 | 4F | 5 | R660 | A | 205 | 96 | 7E | 6 | R728 | B | 175 | 131 | 6D | 7 |
| R520 | A | 45 | 63 | 4D | 5 | R661 | A | 205 | 93 | 7E | 6 | R729 | B | 175 | 134 | 6D | 7 |
| R521 | A | 57 | 53 | 4C | 5 | R662 | A | 175 | 103 | 7E | 6 | R730 | B | 167 | 130 | 7D | 7 |
| R525 | B | 40 | 35 | 6C | 5 | R663 | A | 160 | 114 | 7B | 6 | R733 | A | 159 | 128 | 7D | 7 |
| R526 | B | 43 | 31 | 6C | 5 | R664 | A | 202 | 107 | 7D | 6 | R750 | B | 135 | 135 | 8D | 7 |
| R527 | B | 40 | 31 | 6C | 5 | R665 | A | 204 | 107 | 7D | 6 | R751 | B | 129 | 135 | 8D | 7 |
| R528 | A | 59 | 41 | 5D | 5 | R666 | A | 207 | 107 | 7D | 6 | R752 | A | 99 | 140 | 8D | 7 |
| R530 | B | 31 | 42 | 5D | 5 | R667 | A | 188 | 105 | 7D | 6 | R753 | A | 89 | 138 | 8D | 7 |
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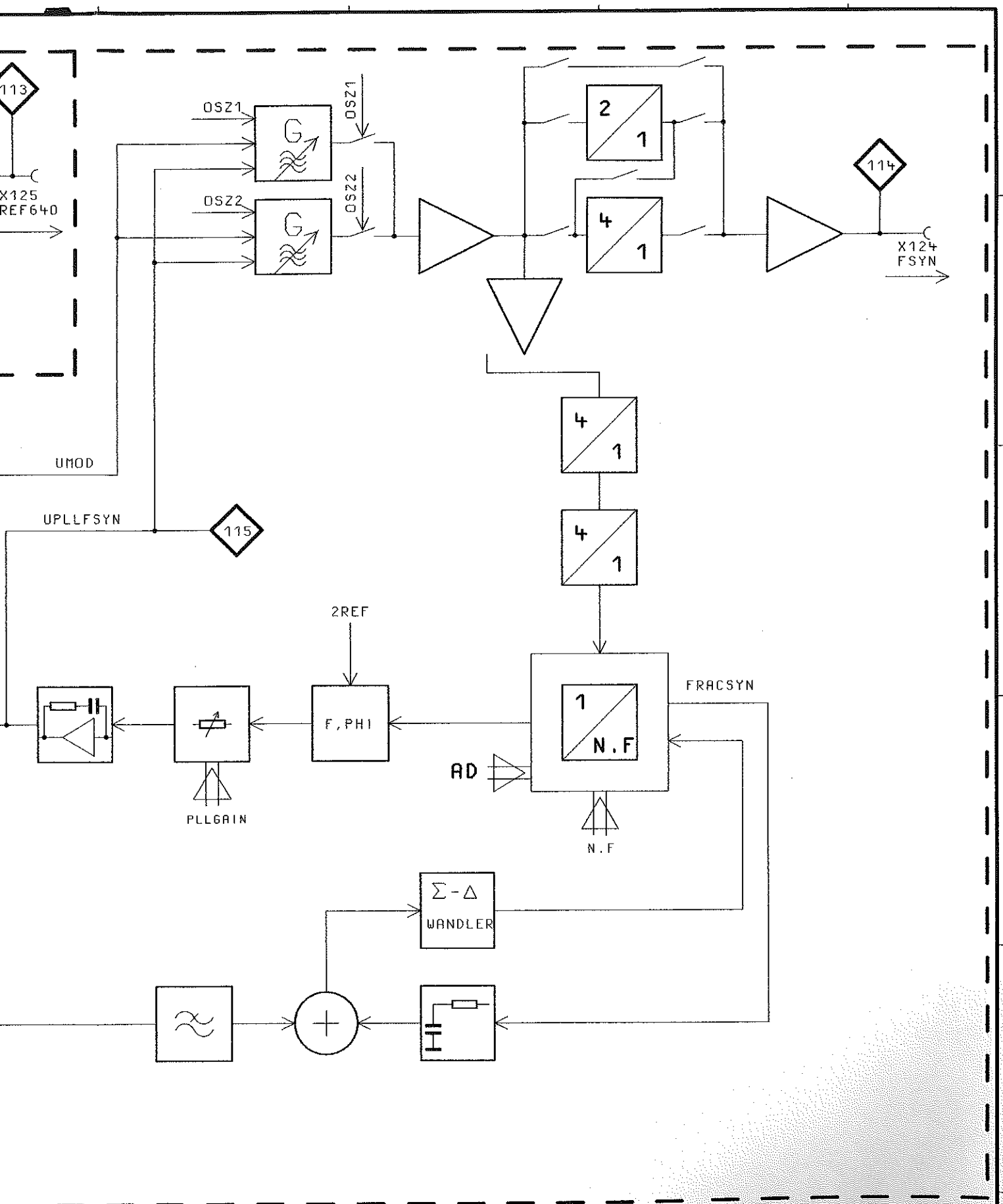
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| ROHDE & SCHWARZ | ÄI | Datum Date | XY-Liste für XY-list for | Sach-Nummer Stock-Nr | Blatt Page |
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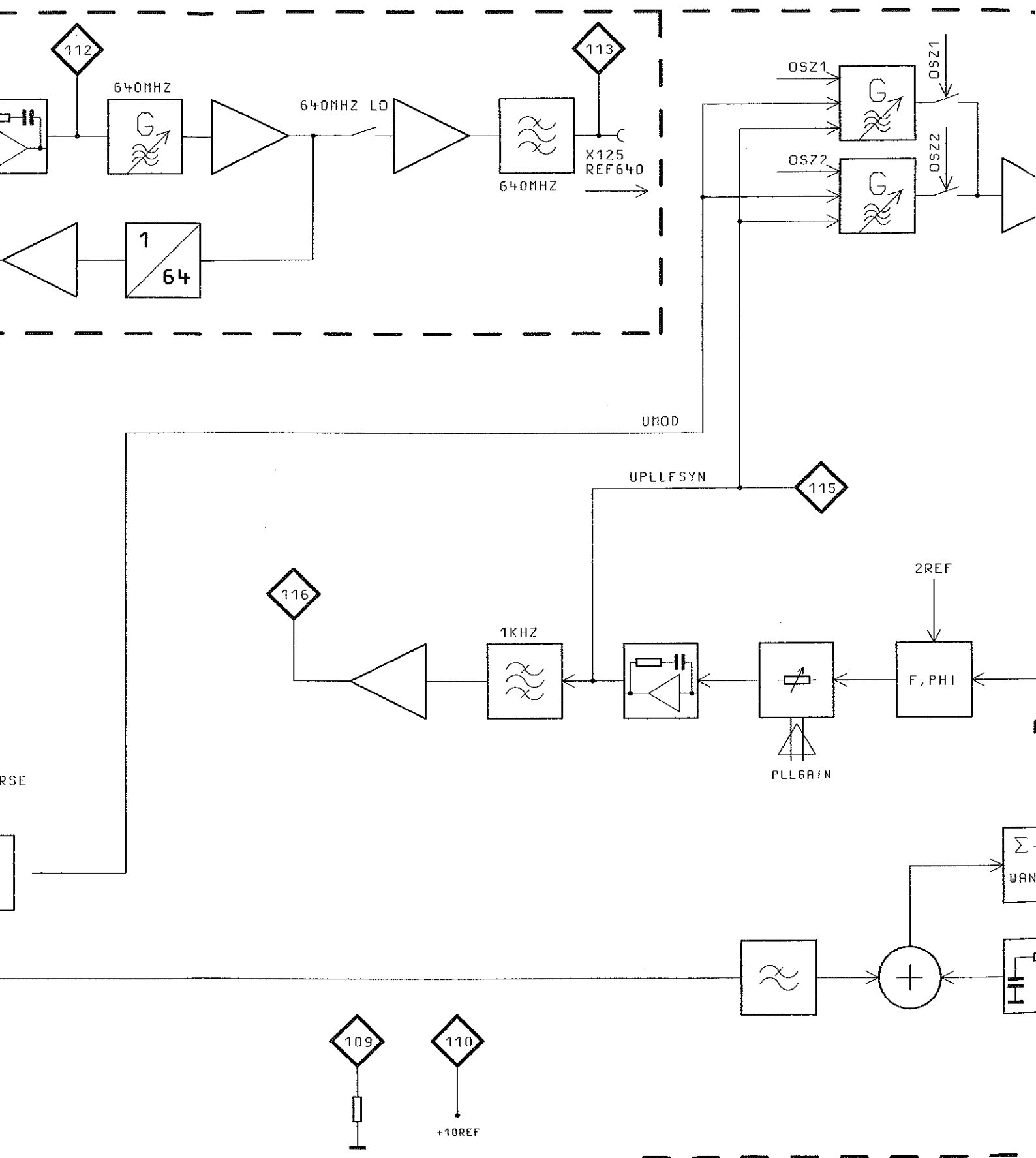
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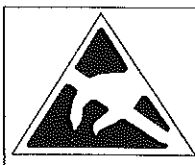
Stromläufe
Bestückungspläne
Circuit diagrams
Components plans
Schémas de circuit
Plans des composants



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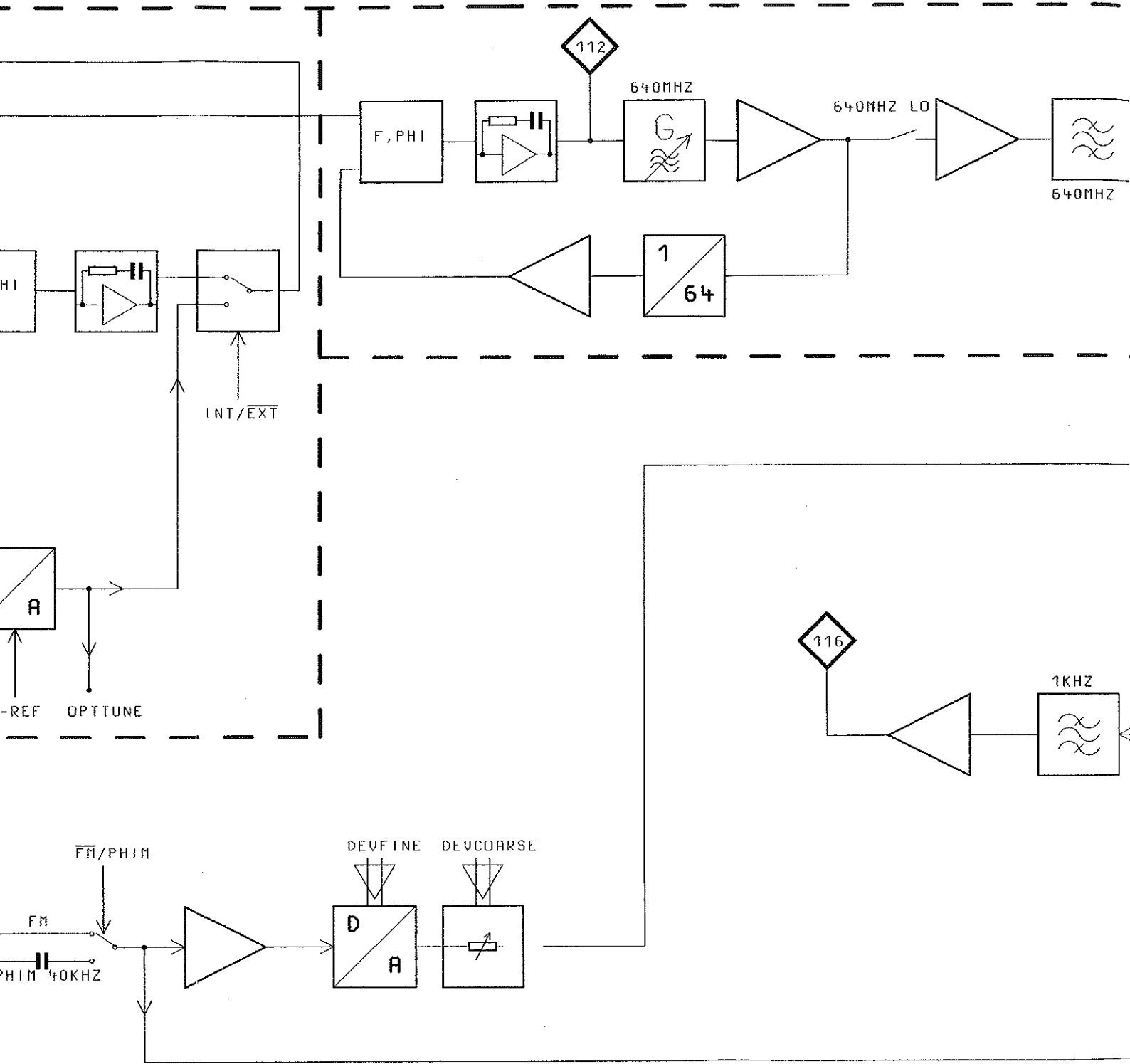
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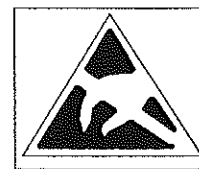
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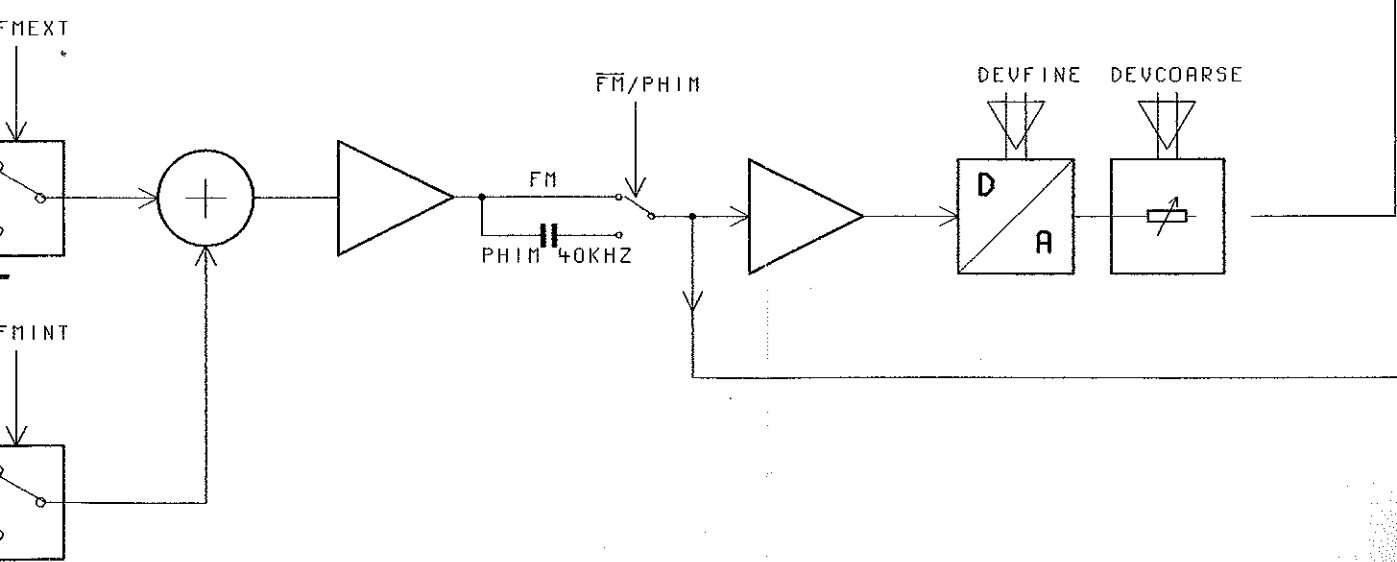
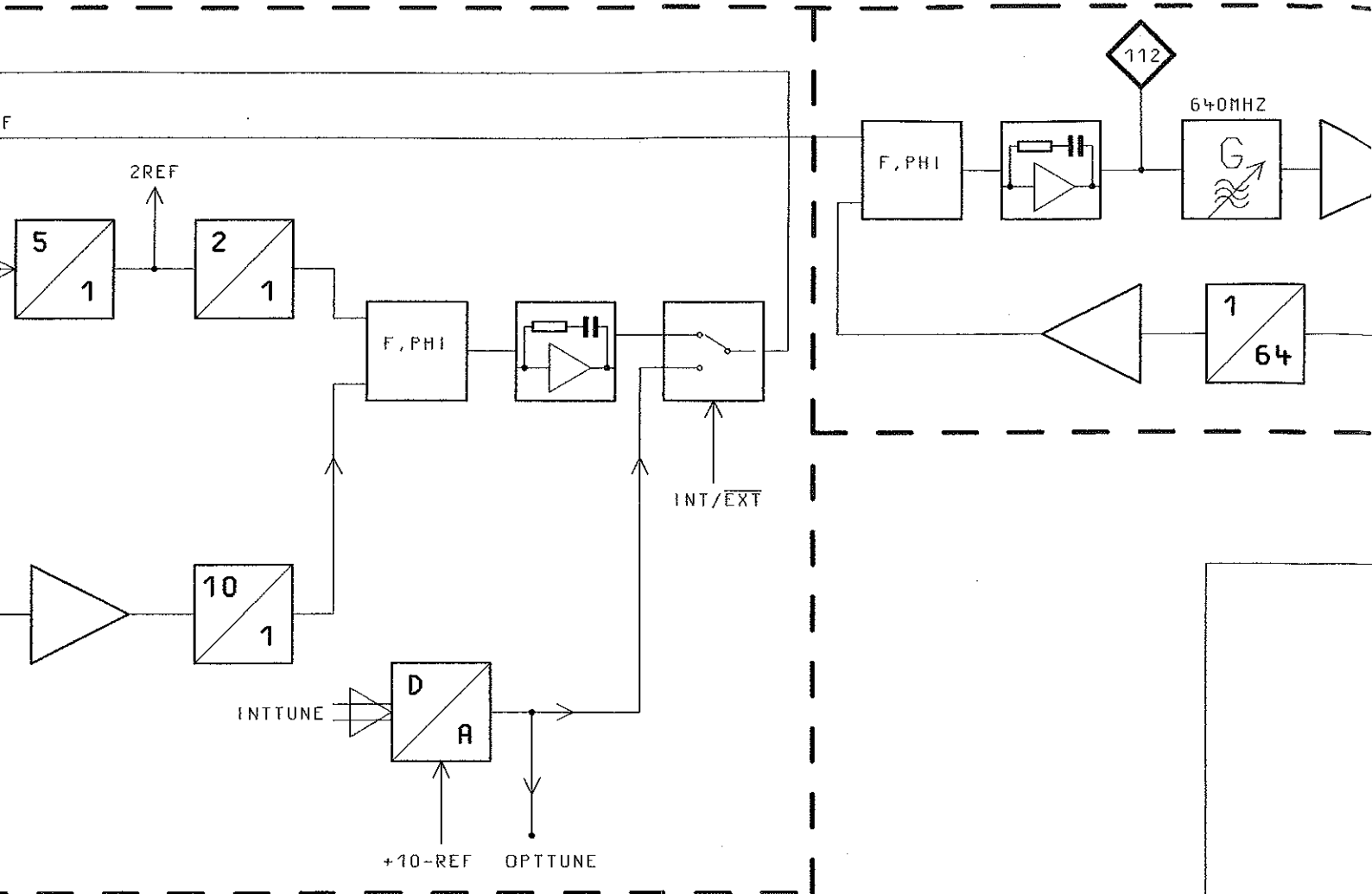
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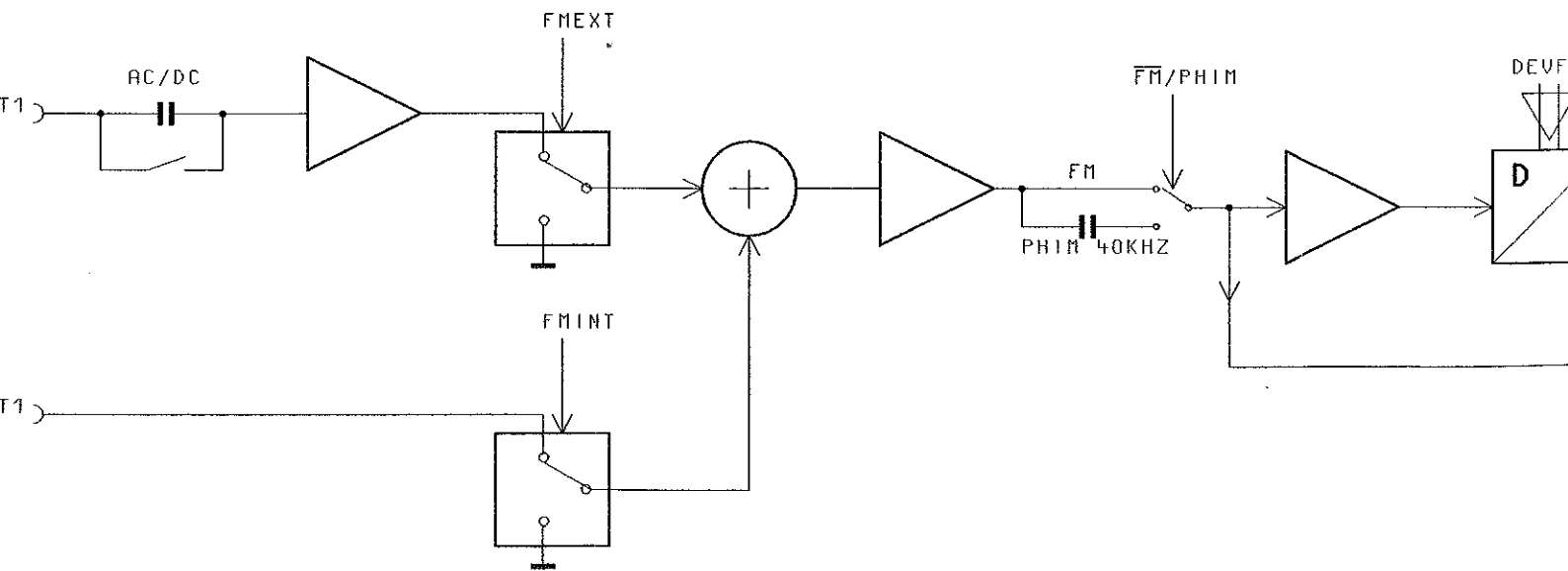
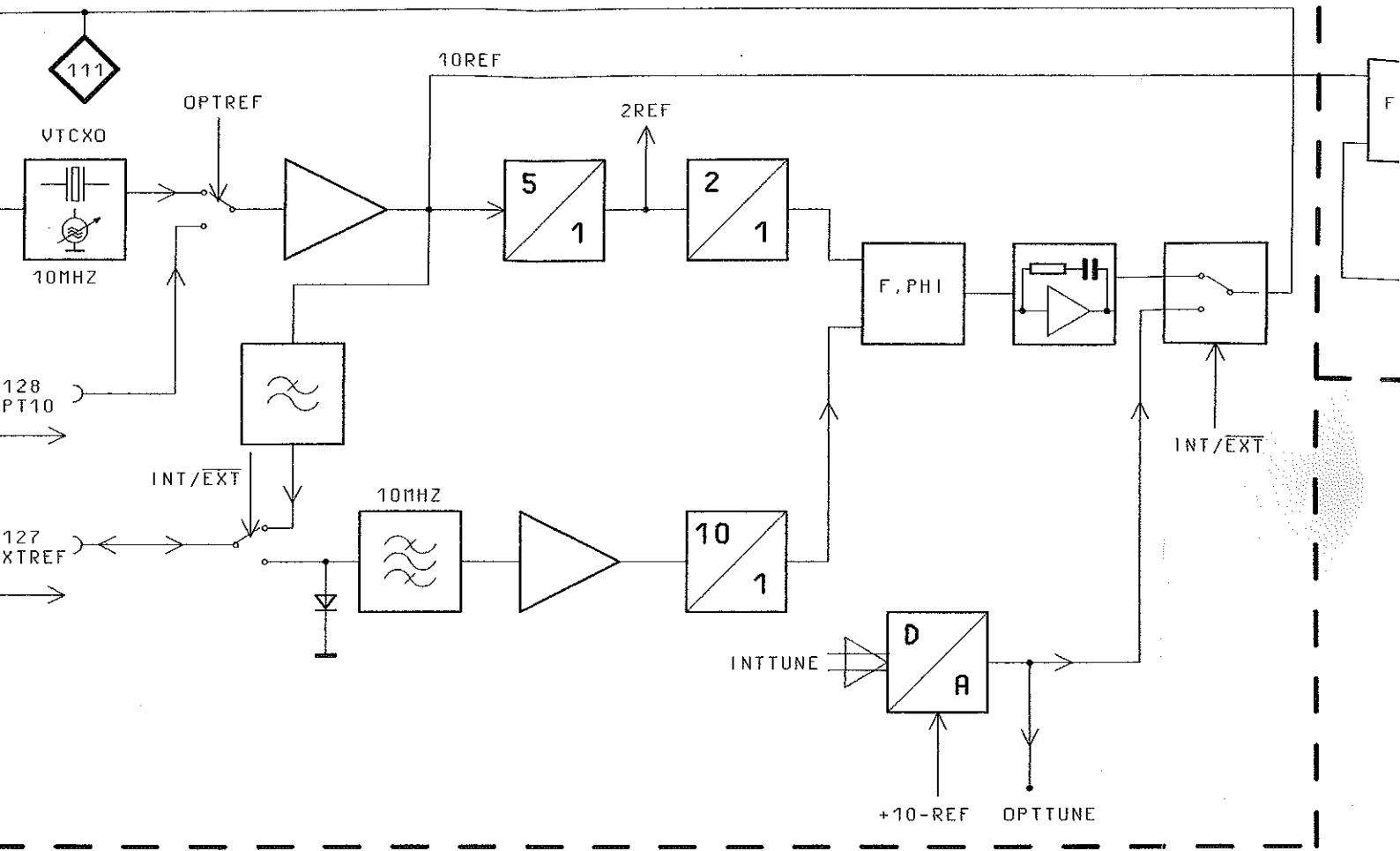
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 TRIMMING AND COMPONENTS VALUES AND
 NONFITTED COMPONENTS SEE PARTS LIST.



ACHTUNG: EGB!
 ELEKTROSTATISCH GEFAEHRDETE
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 ELECTROSTATIC SENSITIVE DEVICES
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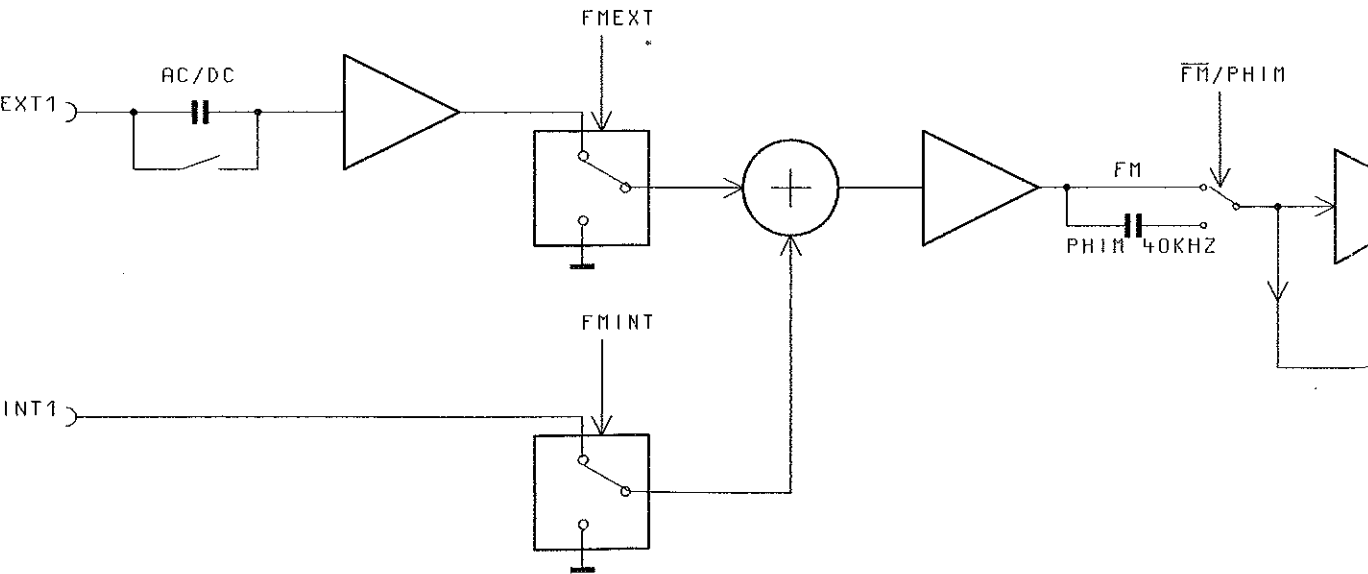
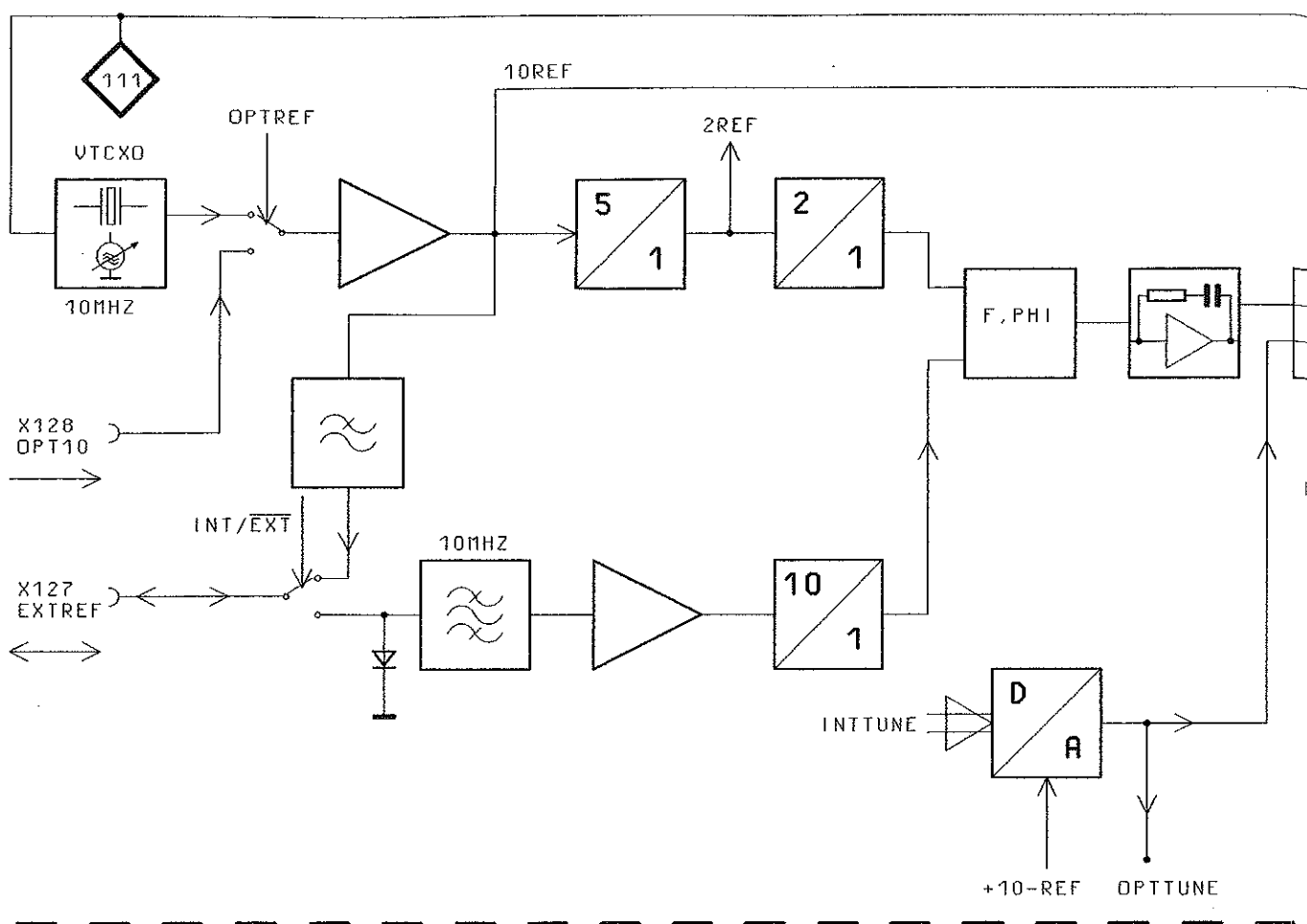
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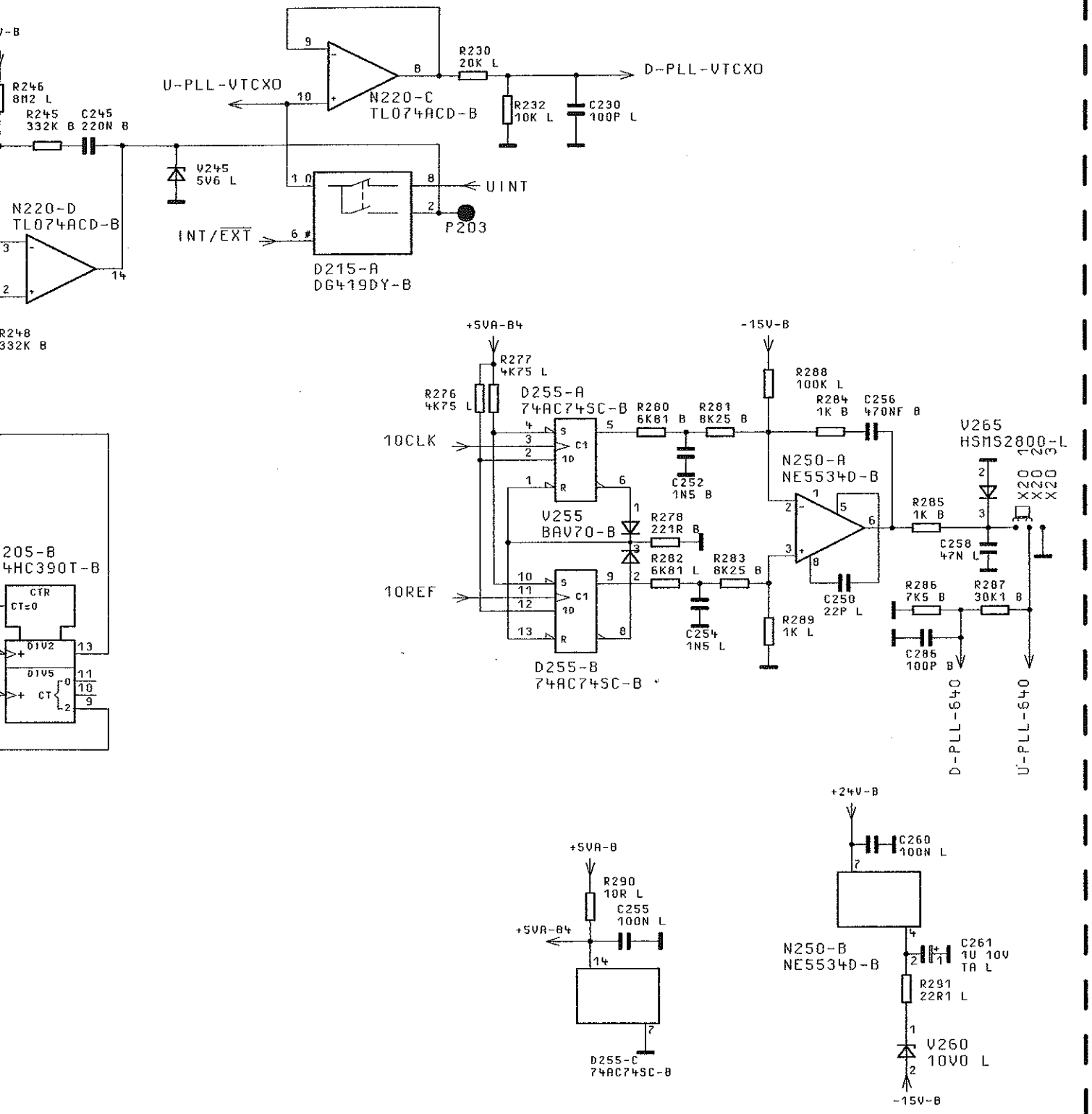
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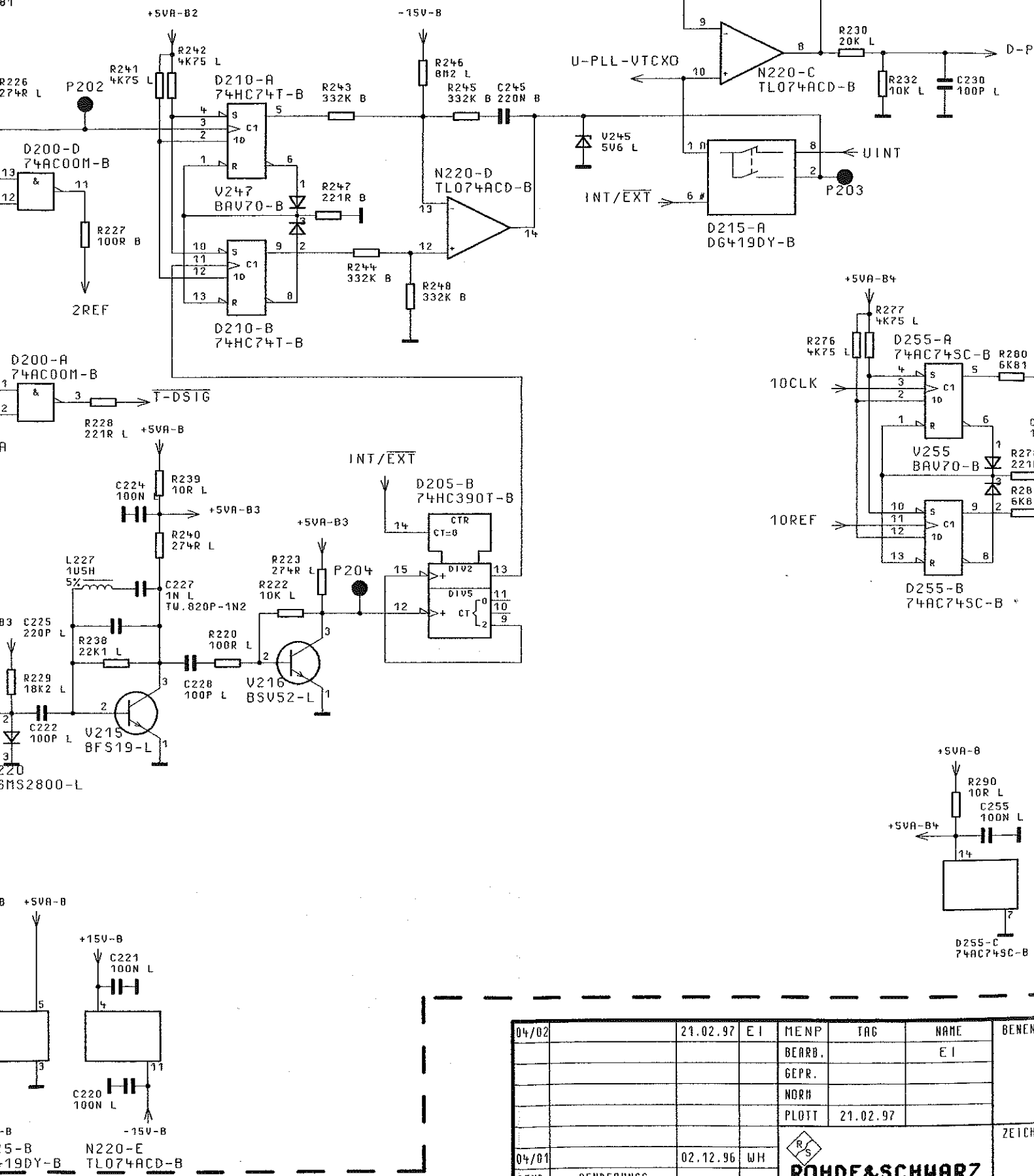


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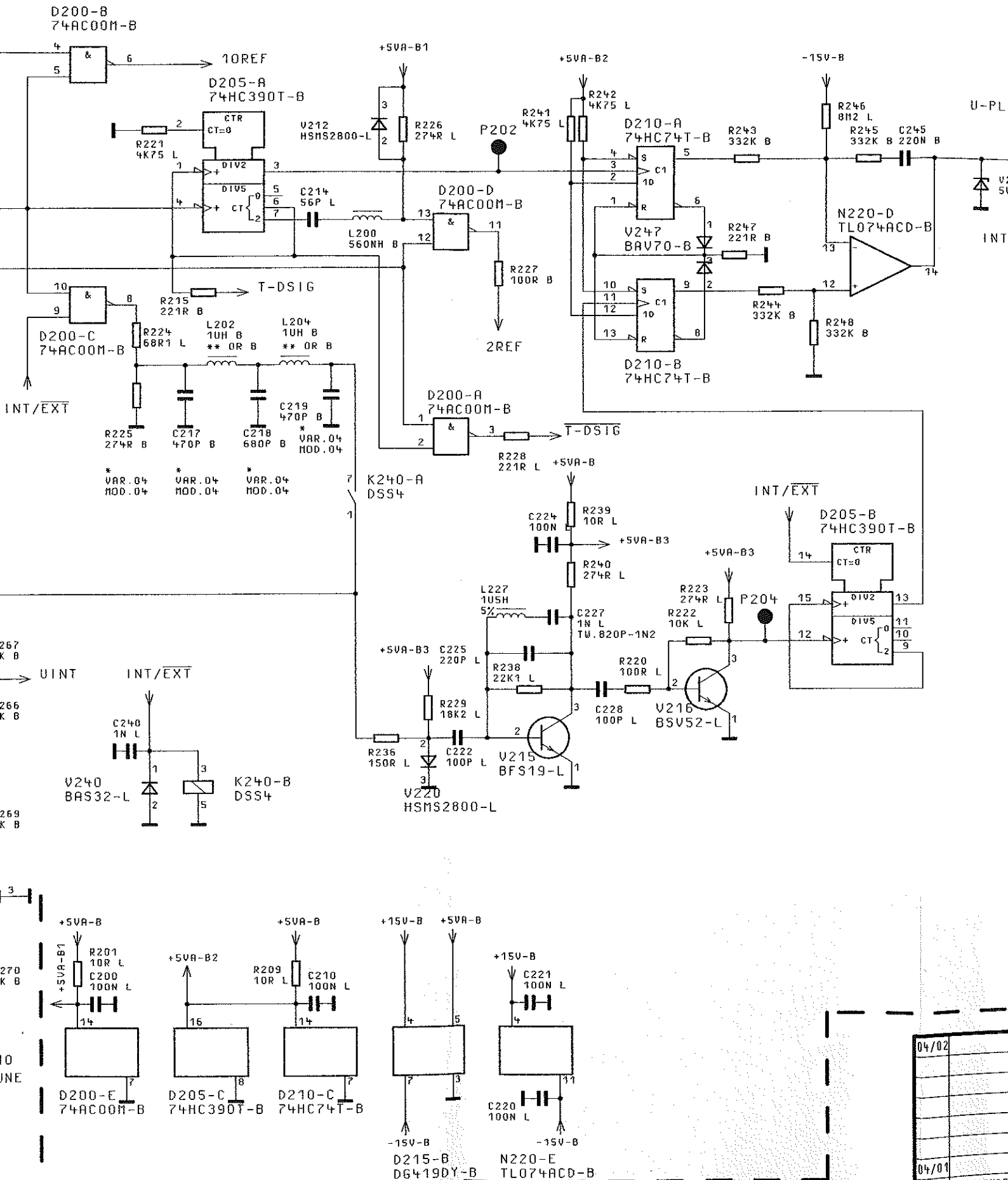


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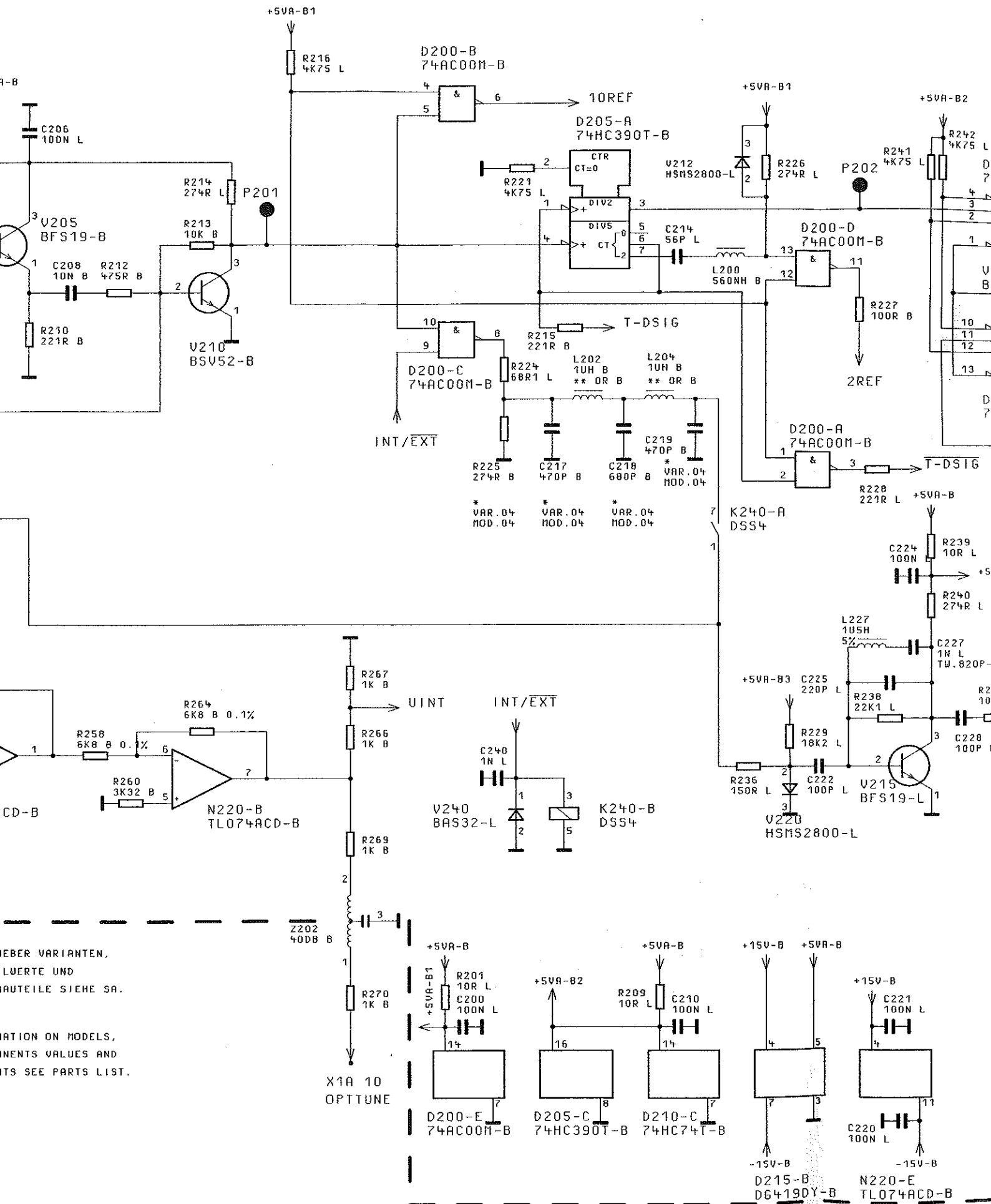
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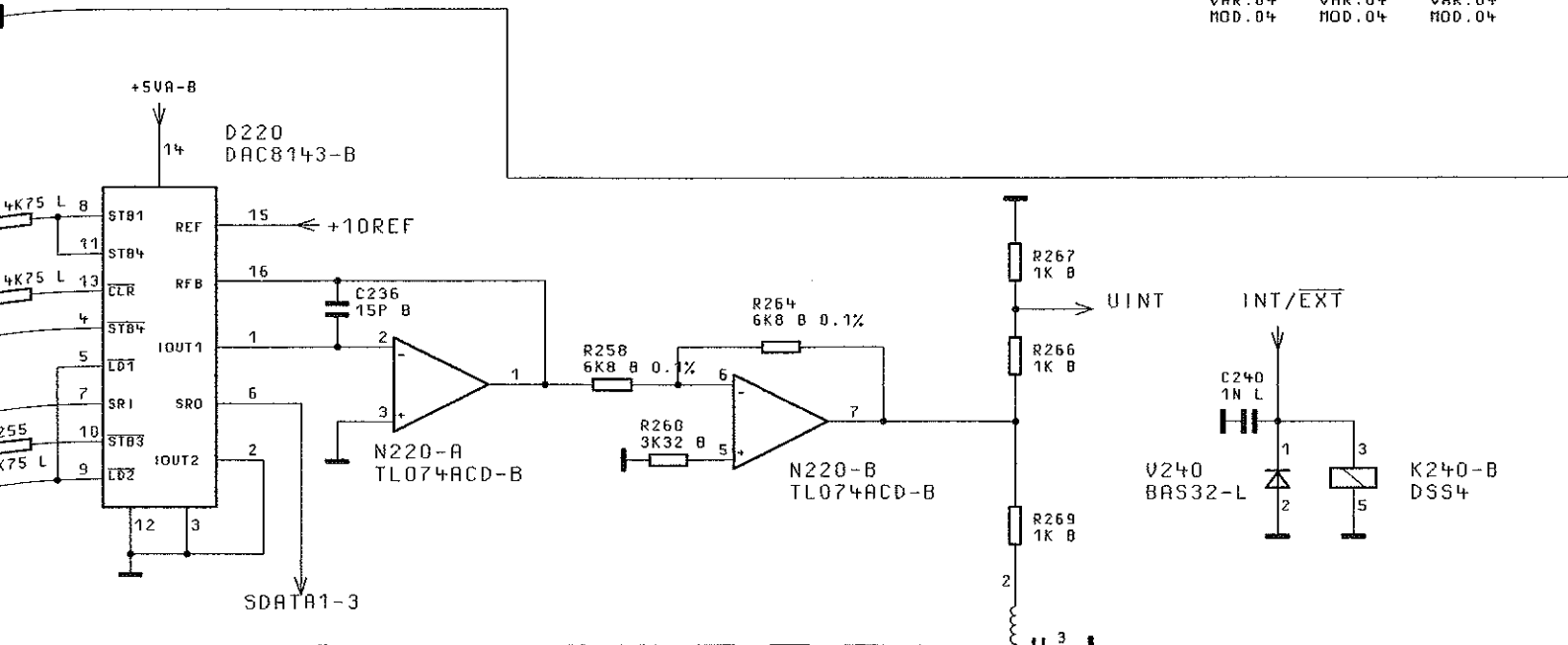
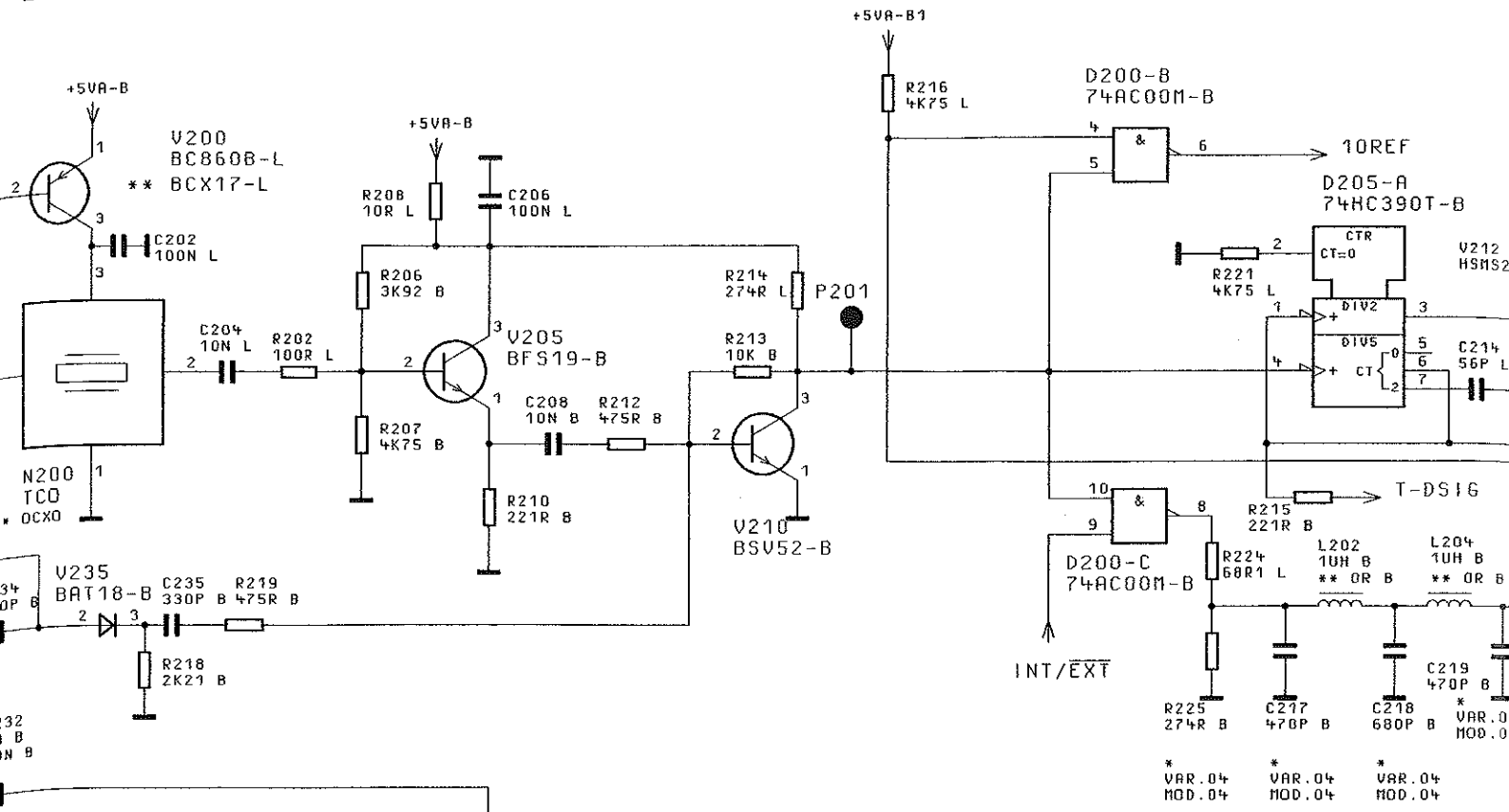
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| REND. | RENDE |
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IEBER VARIANTEN,
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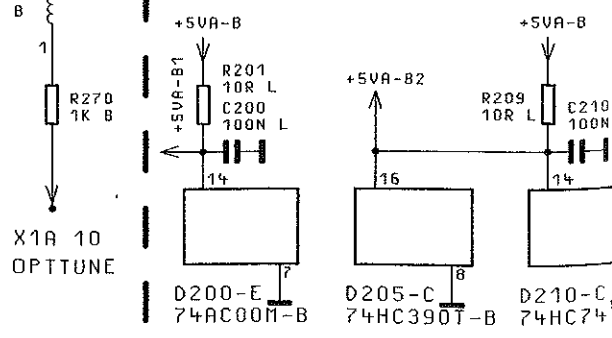
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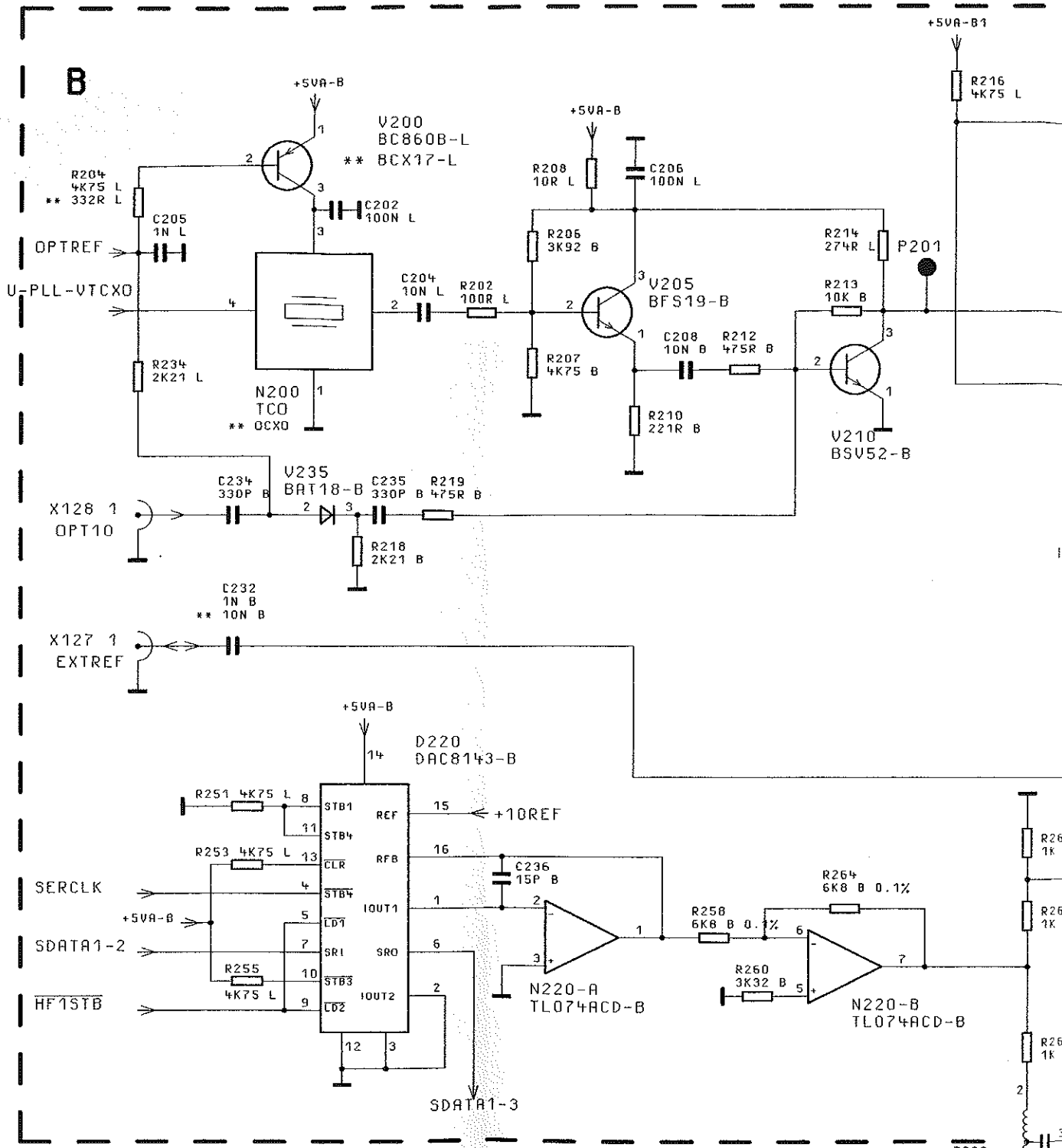
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 STATISCH BEFAHRDETE
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 A SPECIAL HANDLING

BINDENDE ANGABEN UEBER VARIANTEN,
 TRIMMWERTE, BAUTEILWERTE UND
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FOR BINDING INFORMATION ON MODELS,
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*** NICHT BESTUECKT**
NOT FITTED

**** VAR./MOD. 04**

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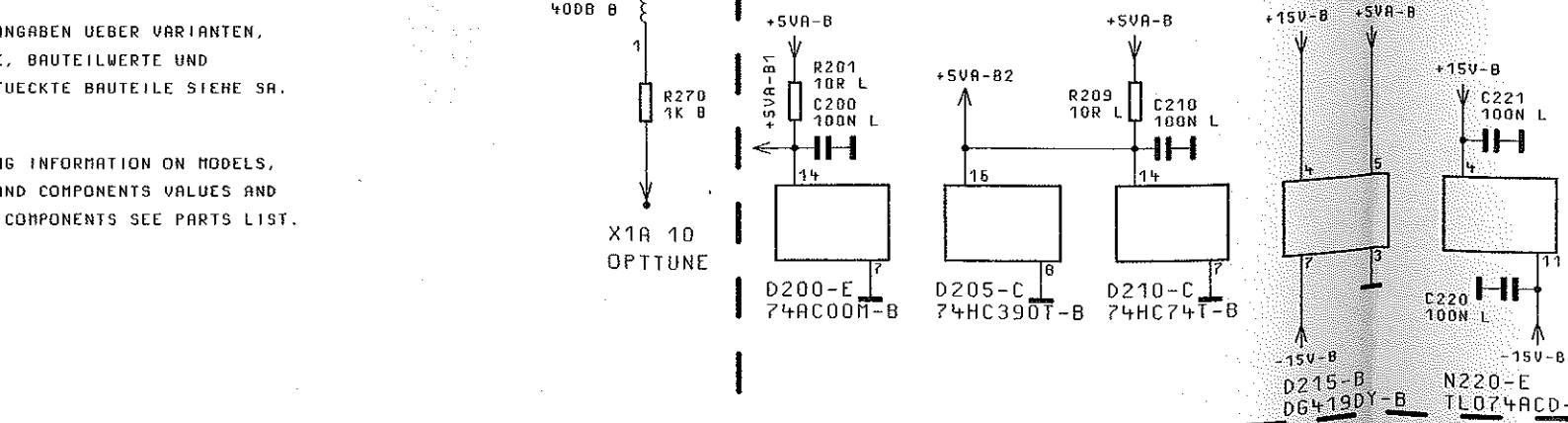
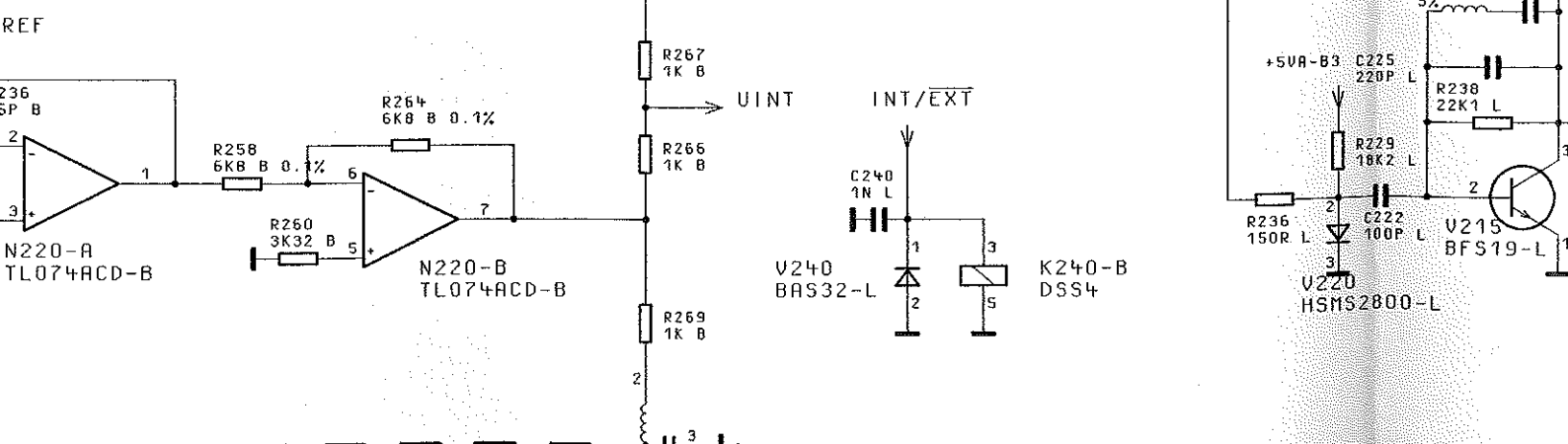
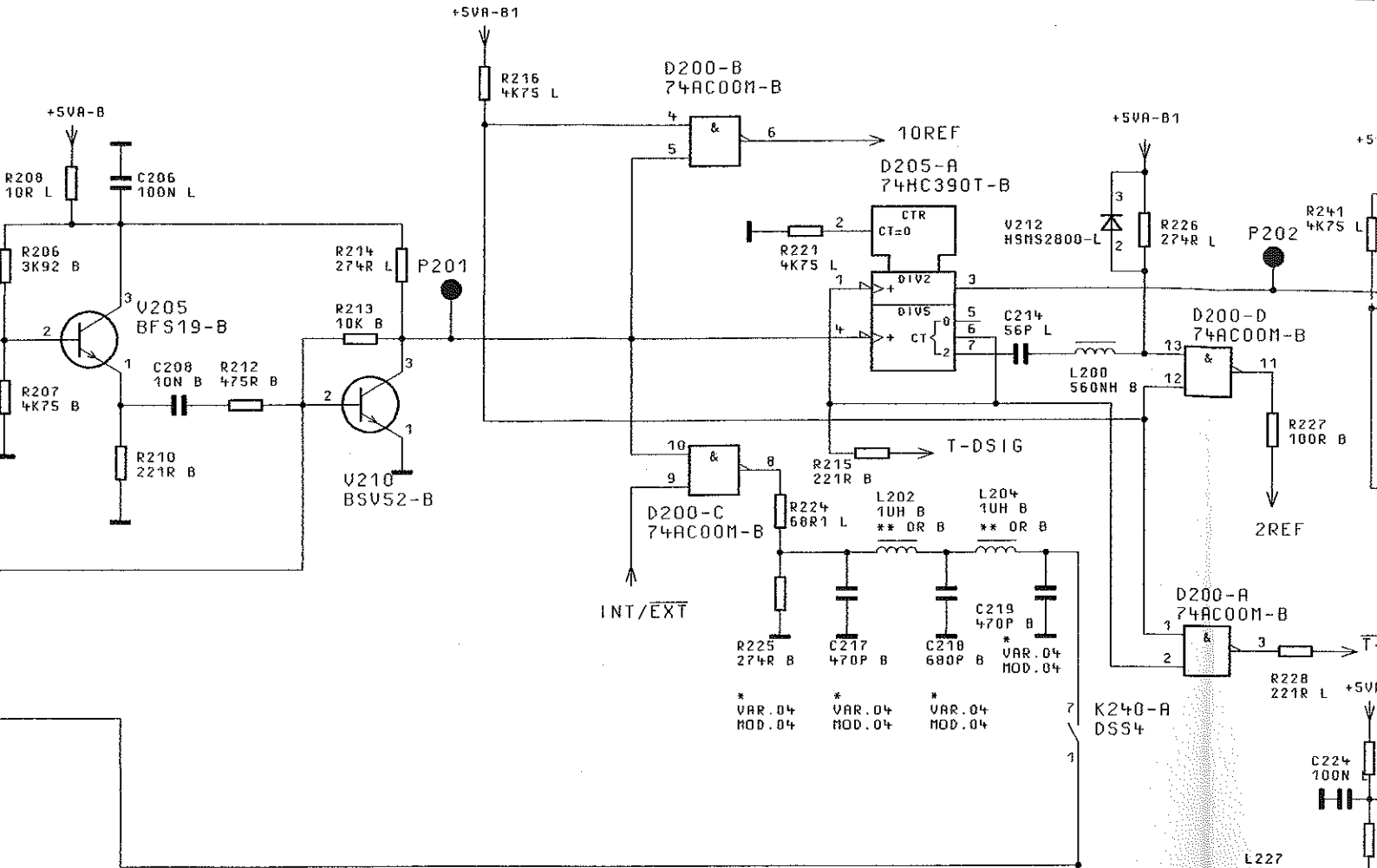
FOR BINDING INFORMATION ON MODELS,
TRIMMING AND COMPONENTS VALUES AND
NONFITTED COMPONENTS SEE PARTS LIST.



ACHTUNG: EGB!
ELEKTROSTATISCH GEFÄHRDETE
BAUELEMENTE ERFORDERN EINE
BESONDERE HANDHABUNG.
ATTENTION ESD!
ELECTROSTATIC SENSITIVE DEVICES
REQUIRE A SPECIAL HANDLING

FUER DIESE UNTERLAGE
BEHALTEN WIR UNS ALLE RECHTE VOR

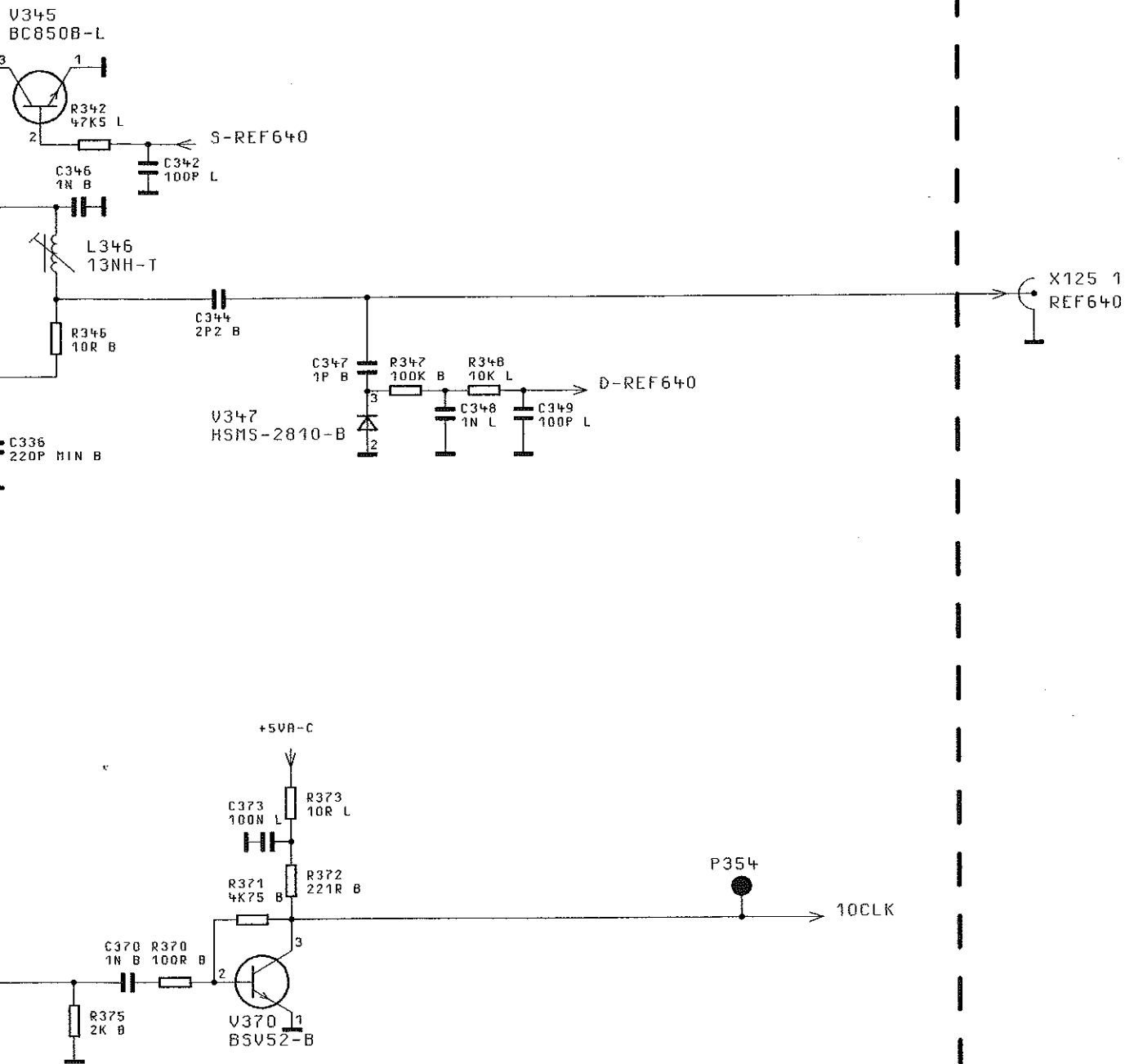
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ANGABEN UEBER VARIANTEN,
 BAUTEILWERTE UND
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FOR INFORMATION ON MODELS,
 AND COMPONENTS VALUES AND
 COMPONENTS SEE PARTS LIST.

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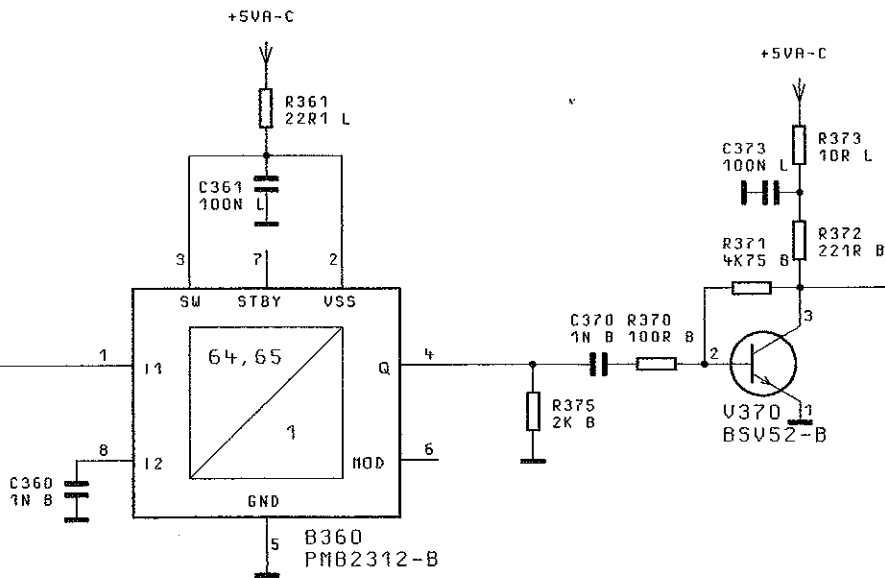
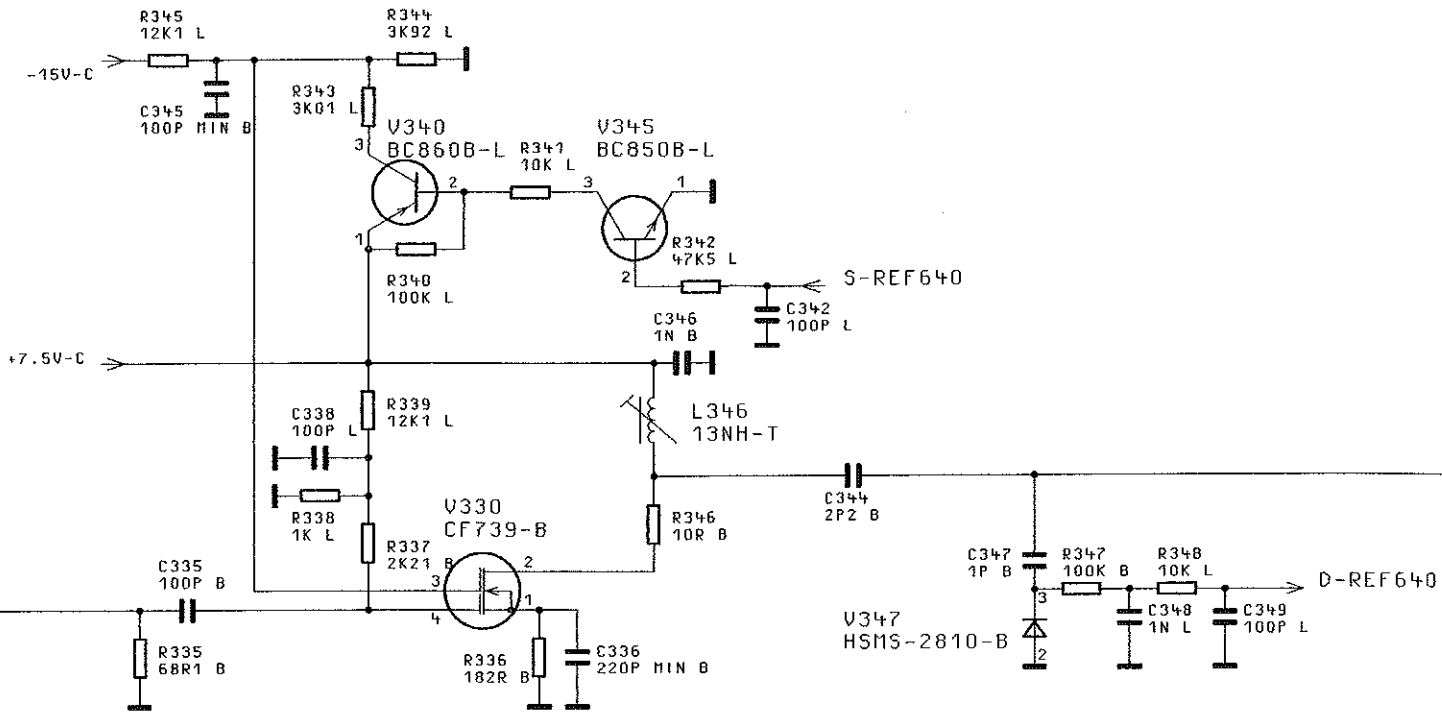
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| 04/02 | 21.02.97 | E I | MENP | TAG | NAME | BENENNUNG | | |
| | | | BEARB. | | E I | SYNTHESIZER | | |
| | | | GEPR. | | | SYNTHESIZER | | |
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| 04/01 | 02.12.96 | WH | ROHDE & SCHWARZ | | | ZEICHN.-NR. | BLATT-NR. | |
| REND. IND. | ÄNDERUNGS-MITTEILUNG | DATUM | | | | NAME | 1062.6409.015 | 3+ |
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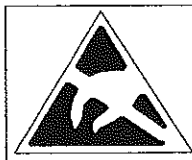
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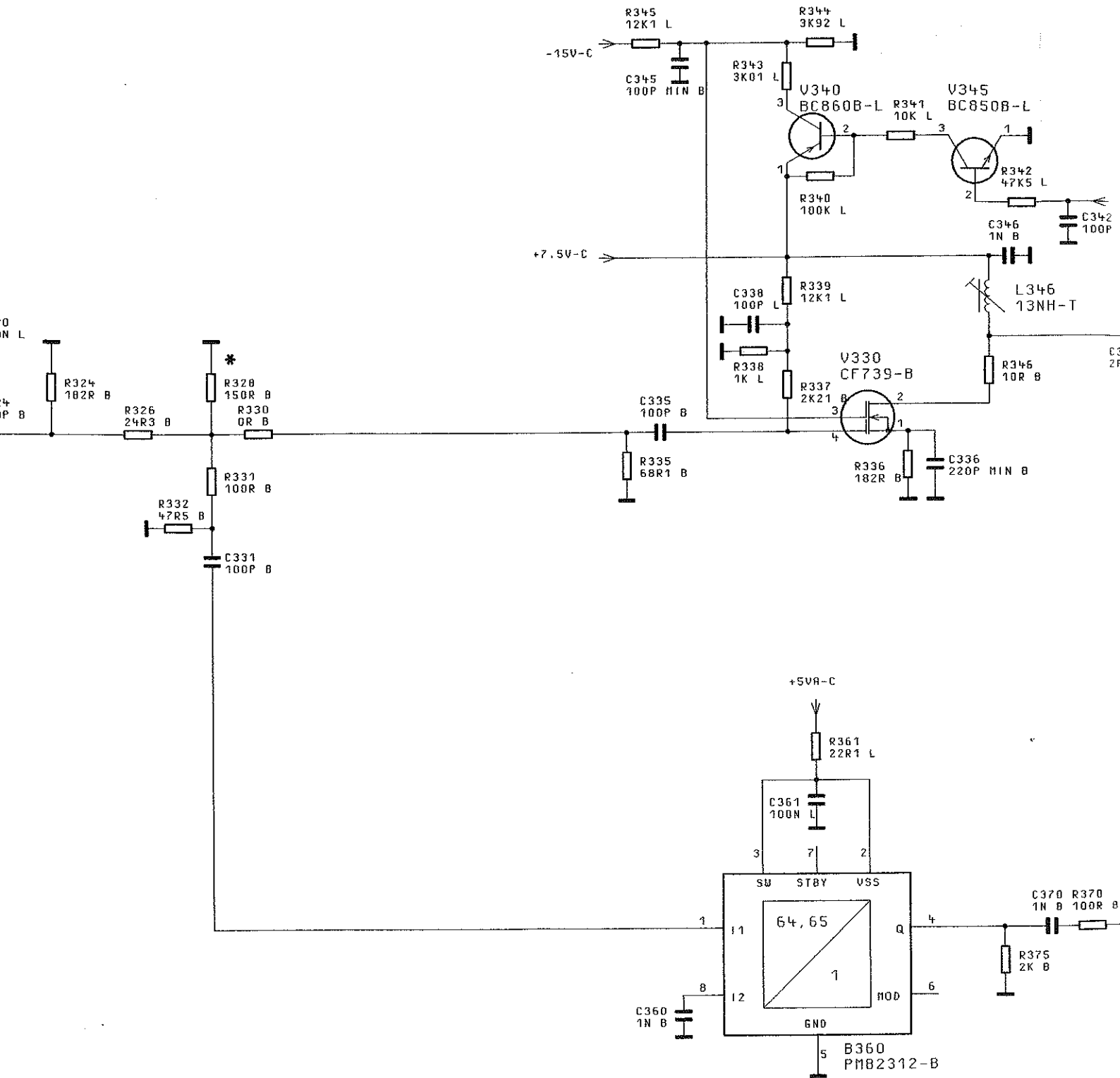
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ANDER VARIANTEN,
WERTE UND
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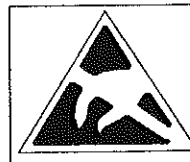
ACHTUNG: EGB!
ELEKTROSTATISCH GEFÄHRDETE
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BESONDERE HANDHABUNG.
ATTENTION ESD!
ELECTROSTATIC SENSITIVE DEVICES
REQUIRE A SPECIAL HANDLING

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| 04/02 | 21.02.97 | E I | MENP | TAG | NAME |
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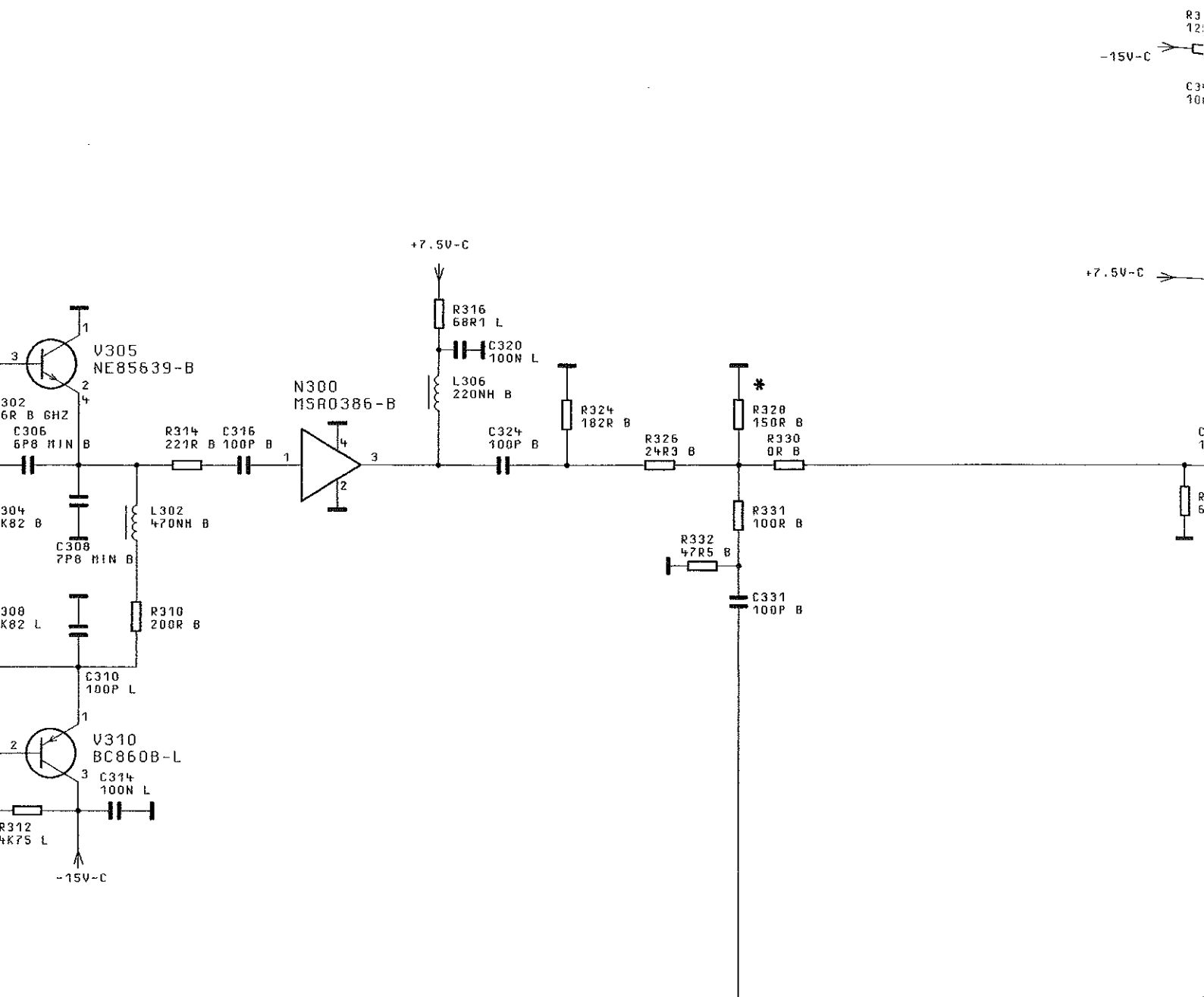
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BINDENDE ANGABEN UEBER VARIANTEN,
TRIMMWERTE, BAUTEILWERTE UND
NICHT BESTUECKTE BAUTEILE SIEHE SA.
FOR BINDING INFORMATION ON MODELS,
TRIMMING AND COMPONENTS VALUES AND
NONFITTED COMPONENTS SEE PARTS LIST.



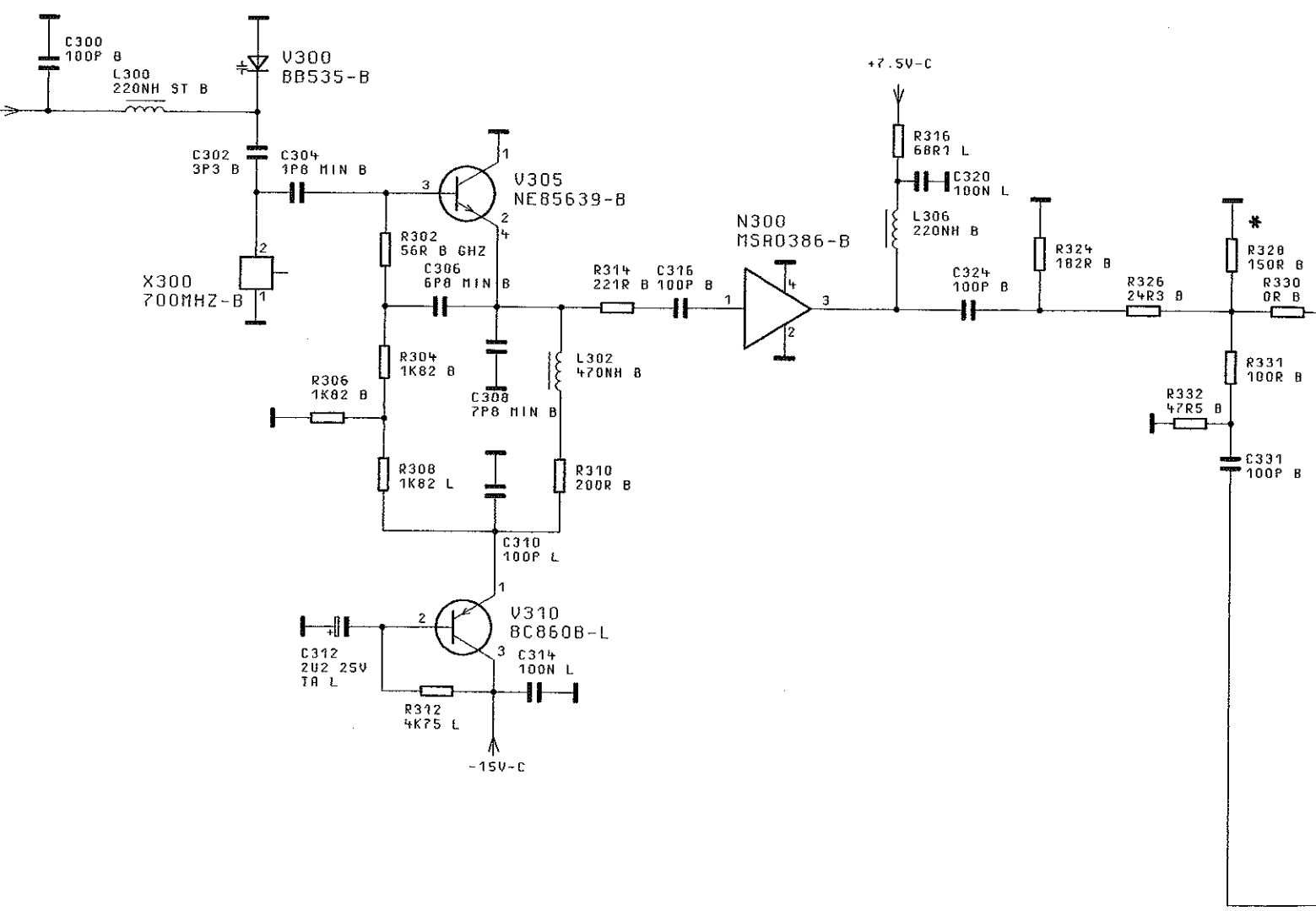
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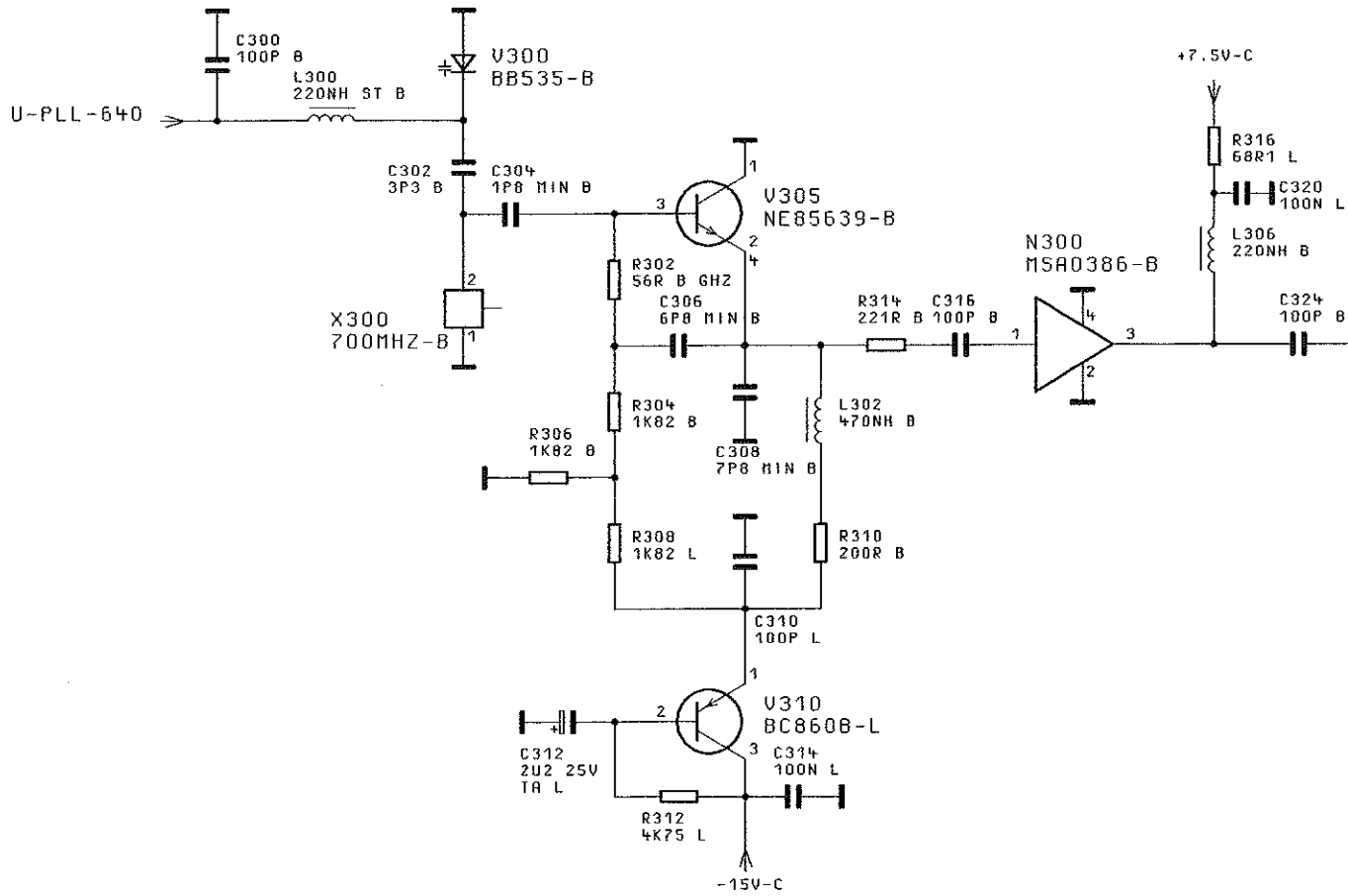
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BINDENDE ANGABEN UEBER VARIANTEN,
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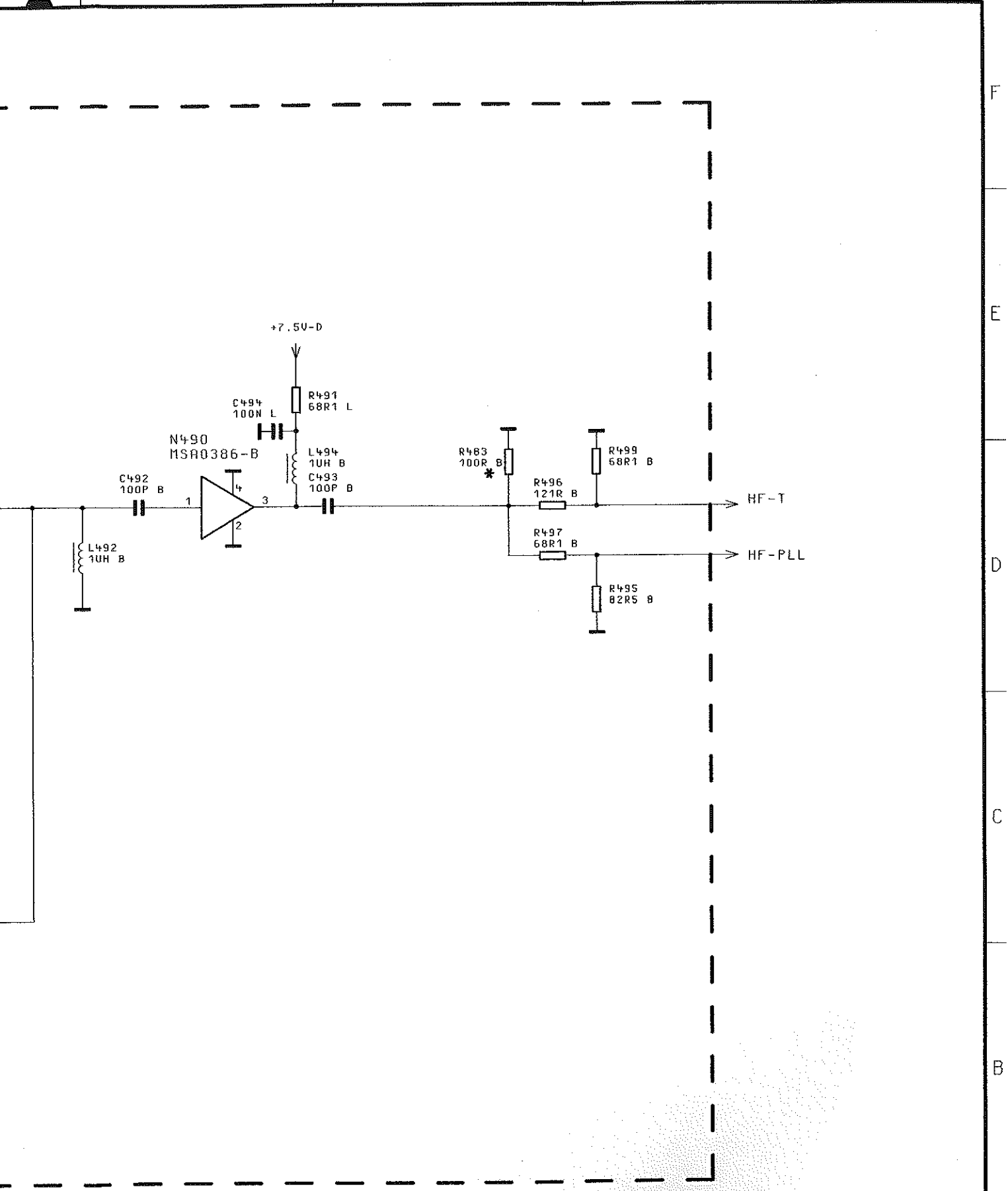
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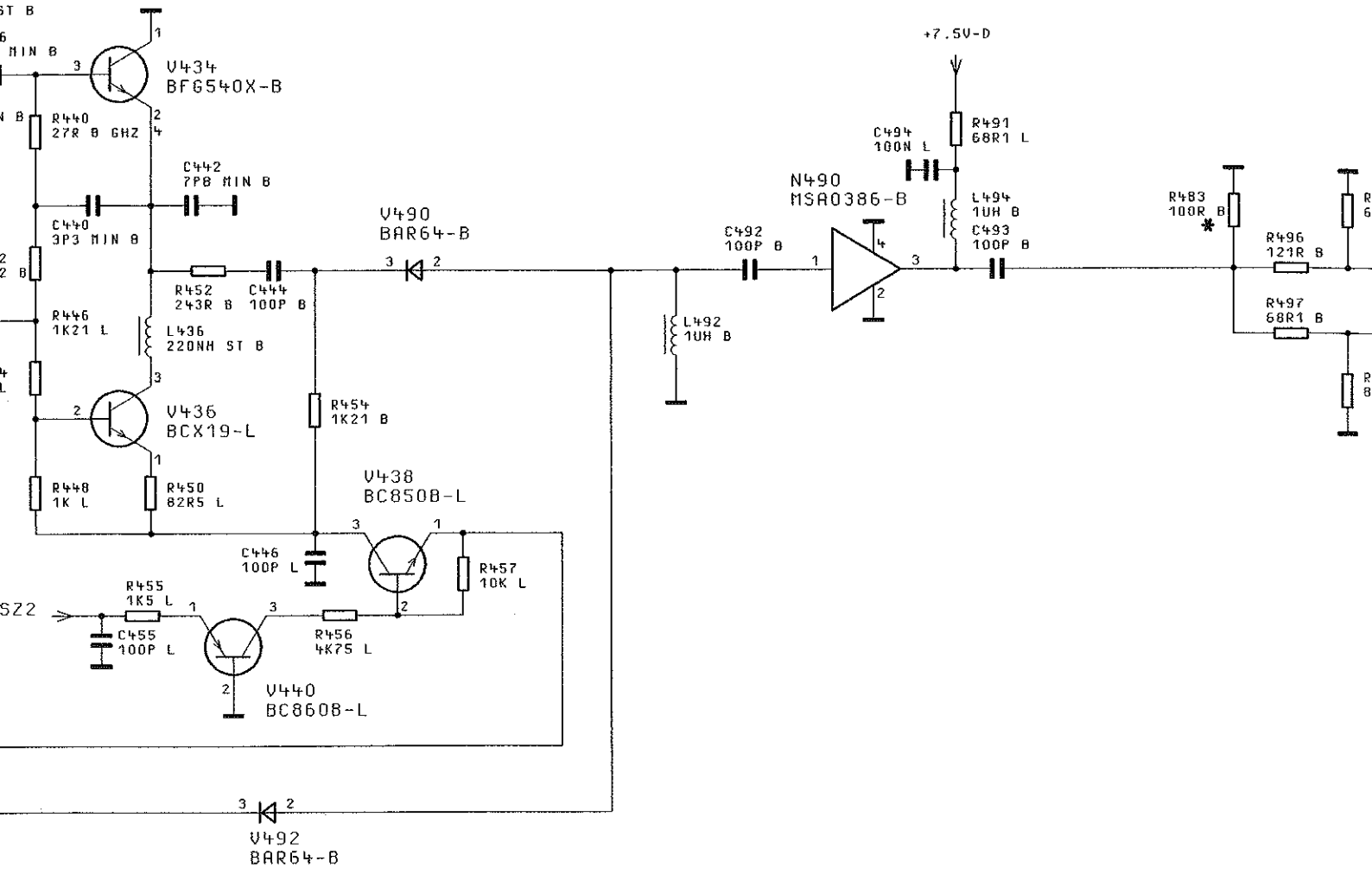
FUER DIESE UNTERLAGE
BEHALTEN WIR UNS ALLE RECHTE VOR

ZEICHN.-NR. 1062.6409.01 S

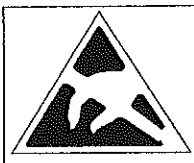
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| 04/02 | | 21.02.97 | E I | MENP | TAG | NAME | BENENNUNG | | |
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| REND. IND. | RENDERUNGS- MITTEILUNG | DATUM | NAME |  ROHDE & SCHWARZ | | 1062.6409.01S | 4+ | | |
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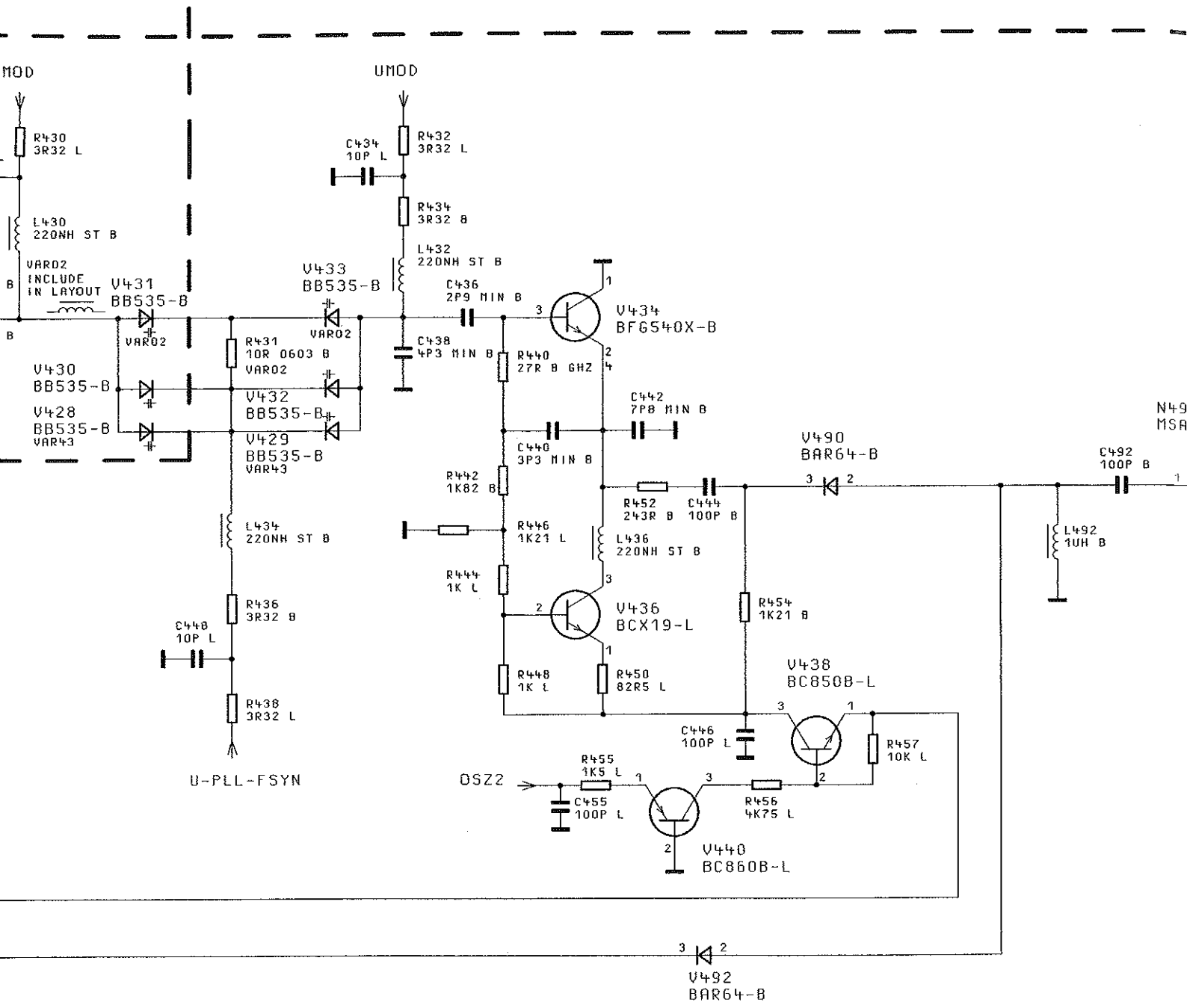


*** NICHT BESTUECKT**
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ELEKTROSTATISCH GEFÄHRDETE
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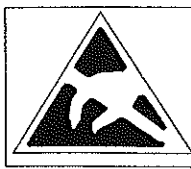
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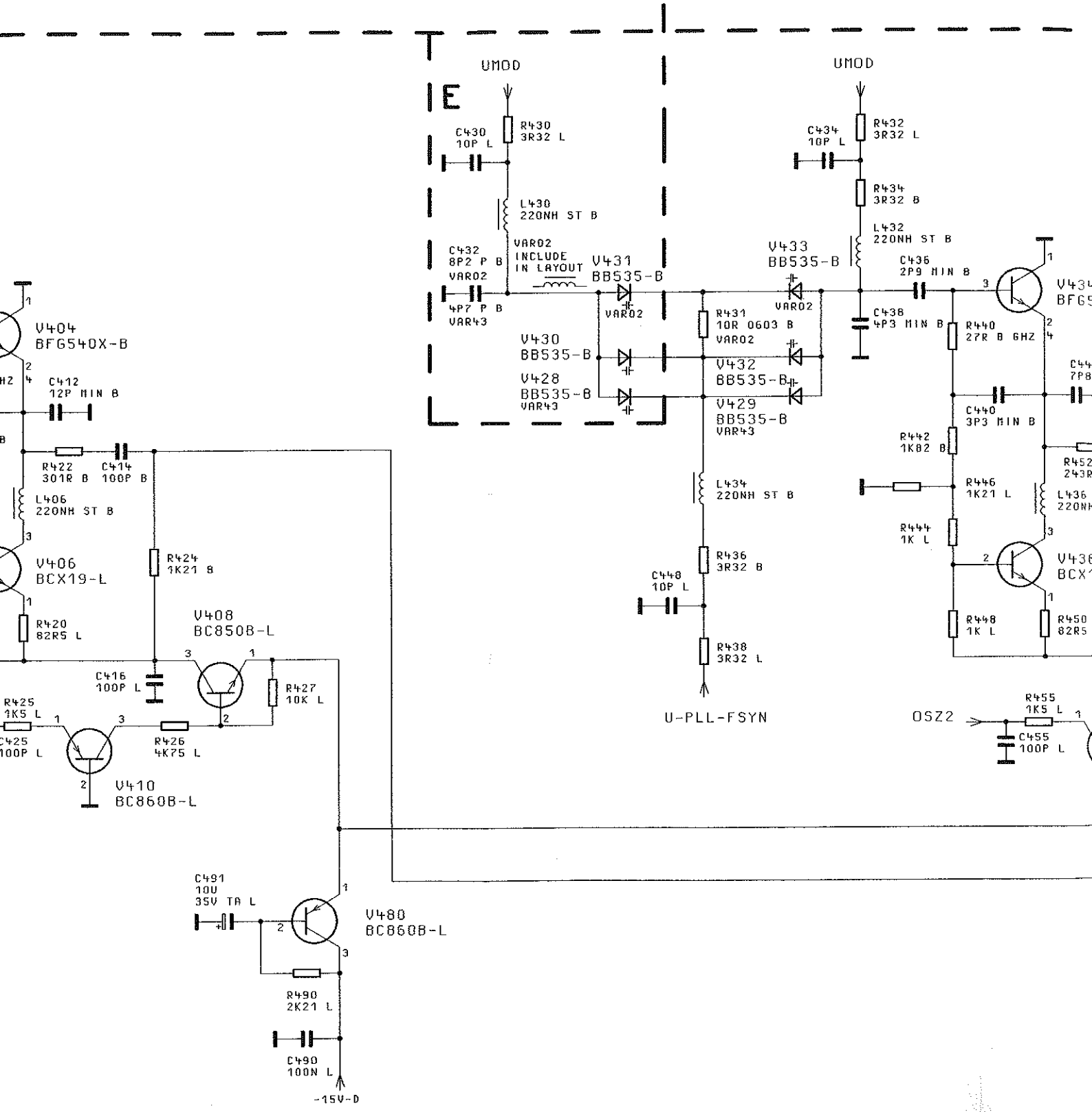
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BINDENDE ANGABEN UEBER VARIANTEN,
TRIMMWERTE, BAUTEILWERTE UND
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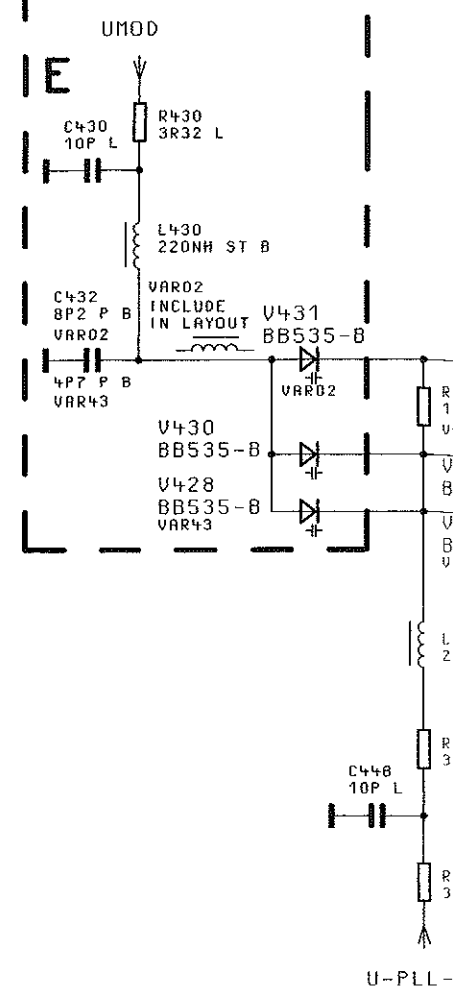
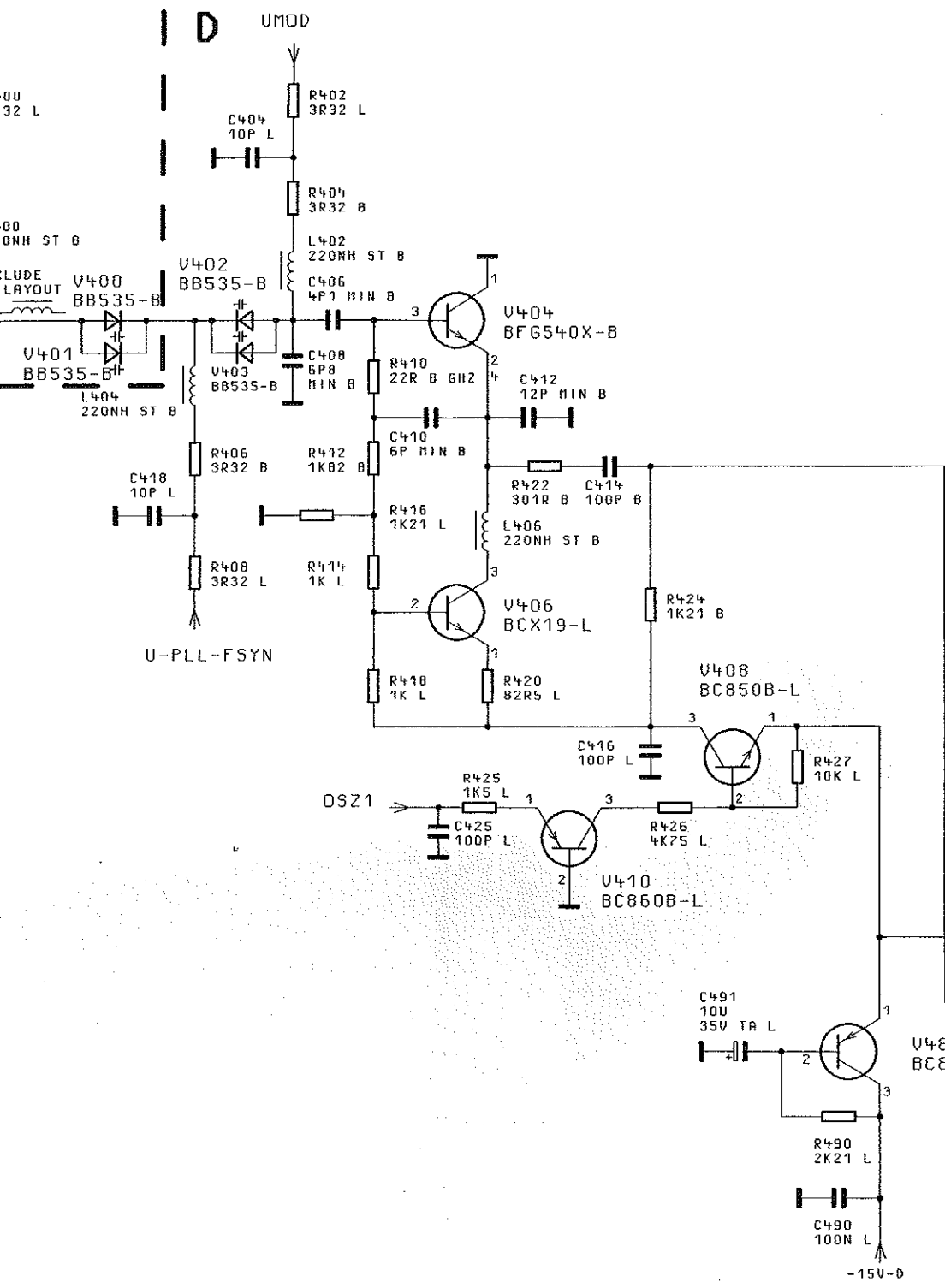
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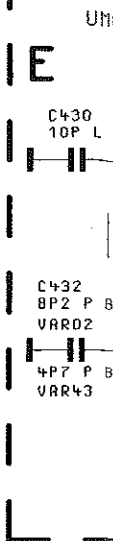
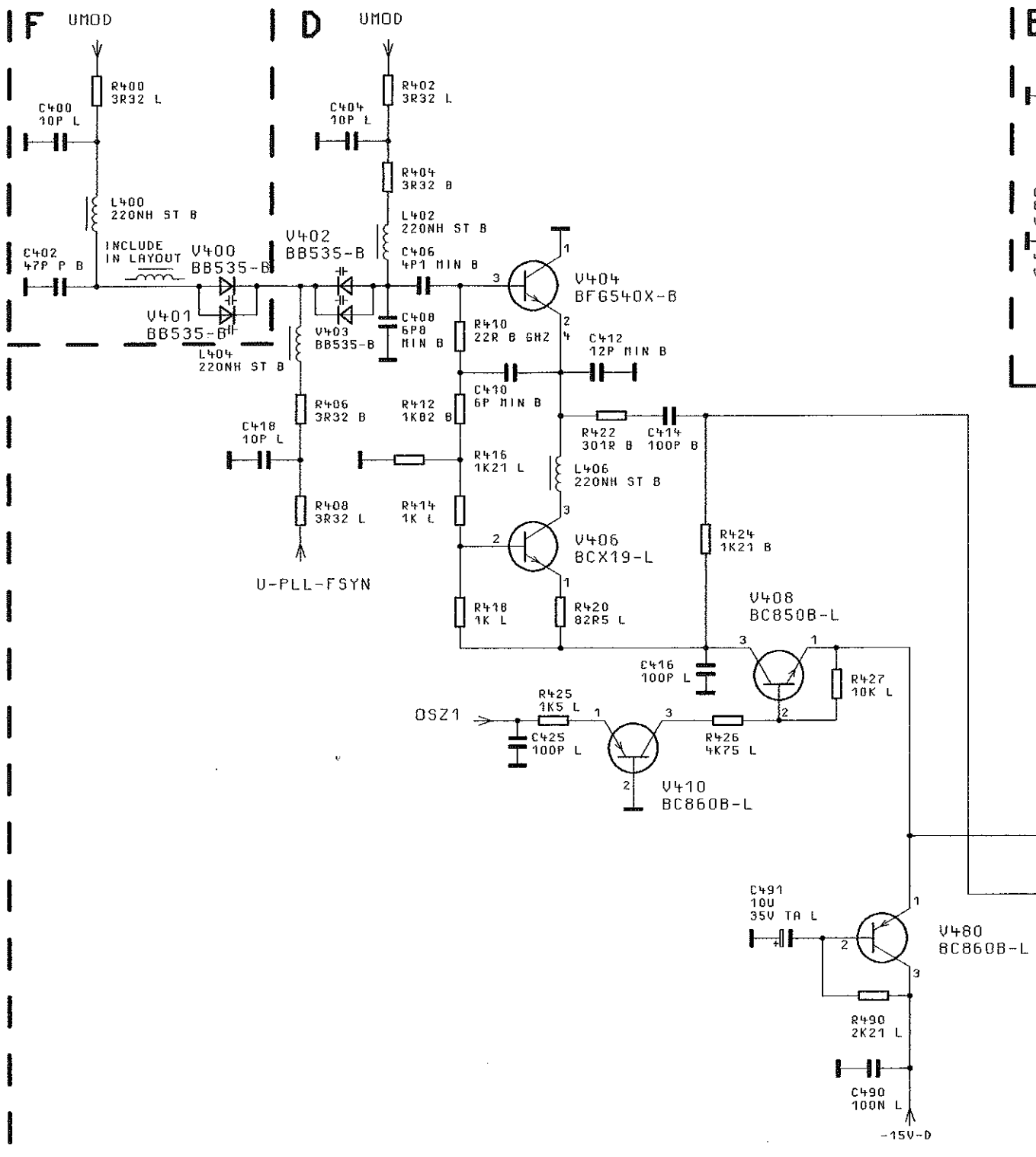
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TRIMMWERTE, BAUTEILWERTE UND
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FOR BINDING INFORMATION ON MODELS,
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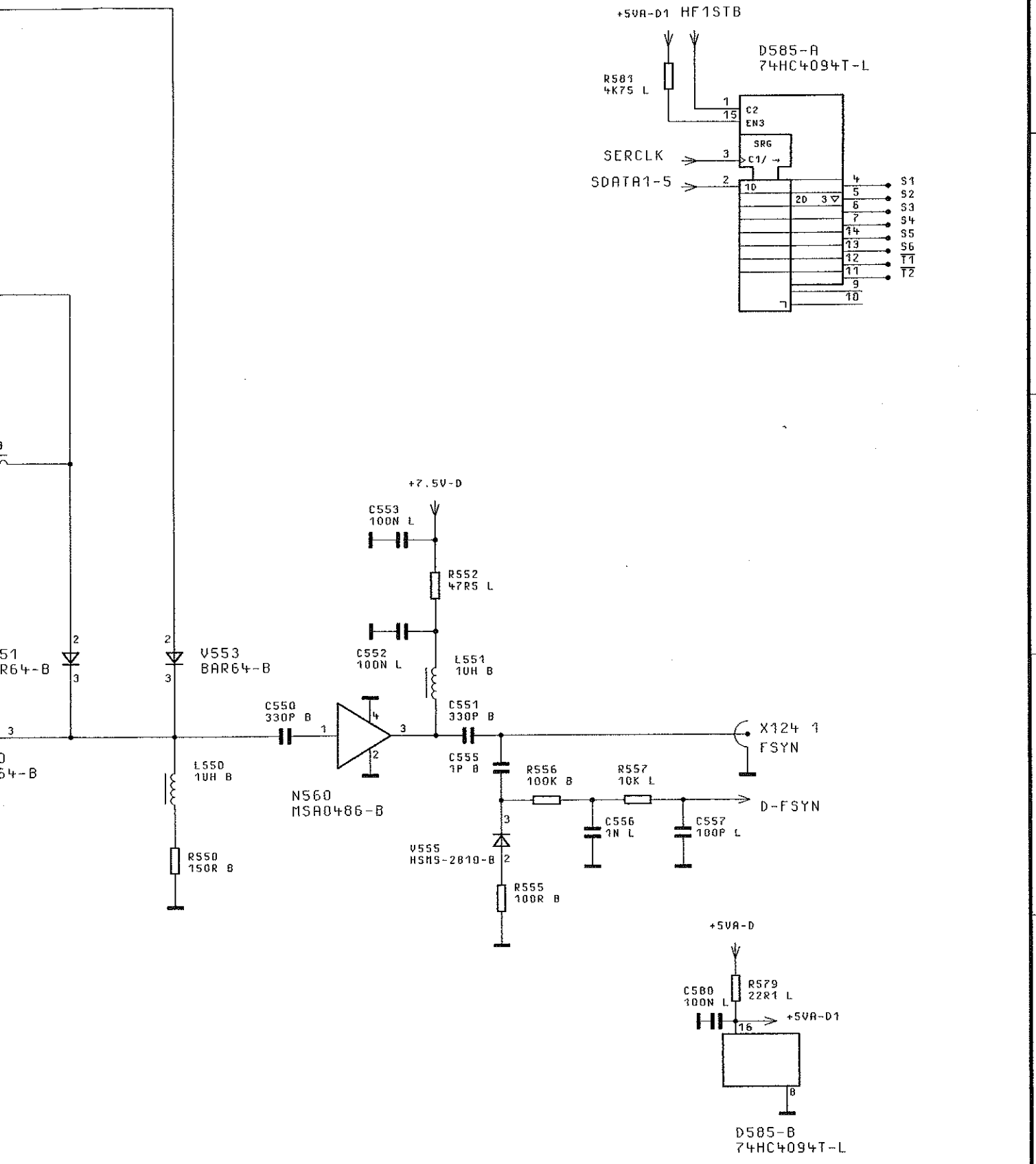





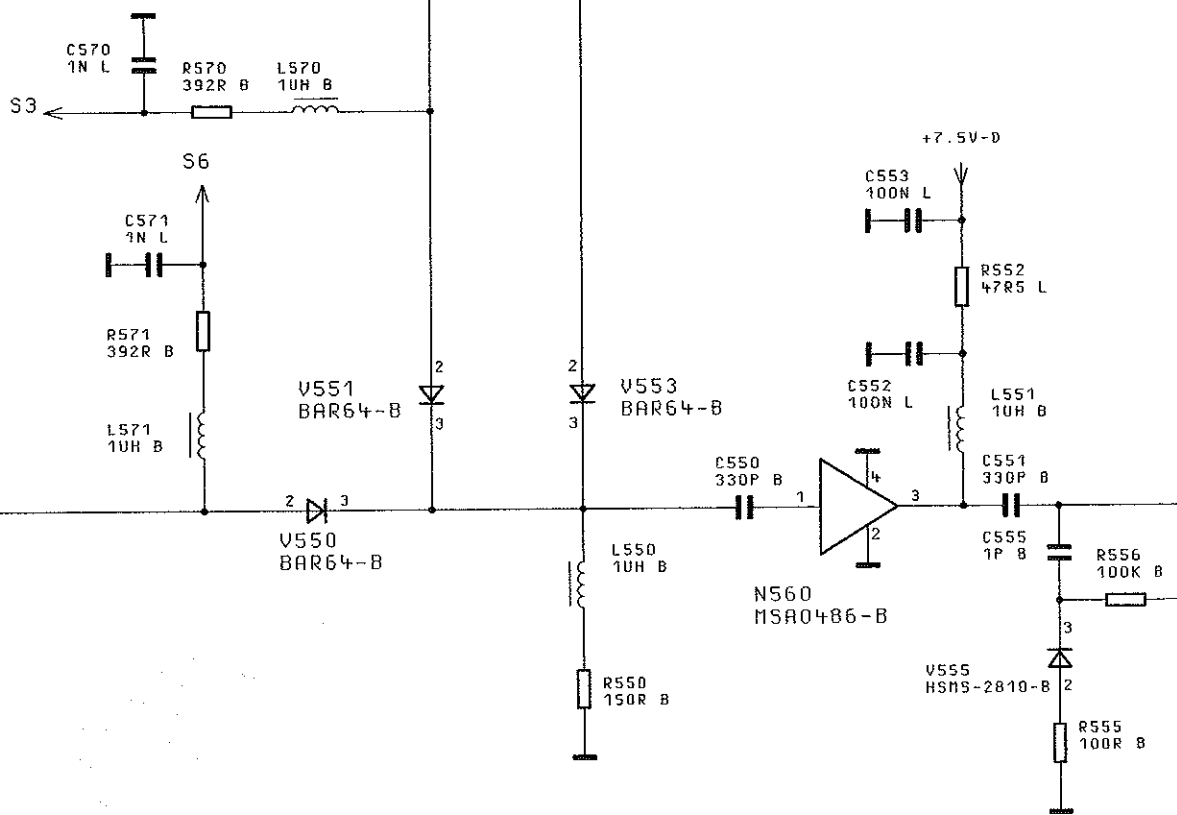
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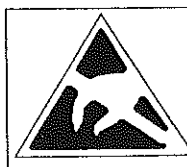




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| 04/02 | 21.02.97 | E I | MENP | TAG | NAME | BENENNUNG | |
| | | | BEARB. | | E I | SYNTHESIZER SYNTHESIZER | |
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| REND. IND. | ÄNDERUNGS- MITTEILUNG | DATUM | | | | NAME | 1062.6409.015 |
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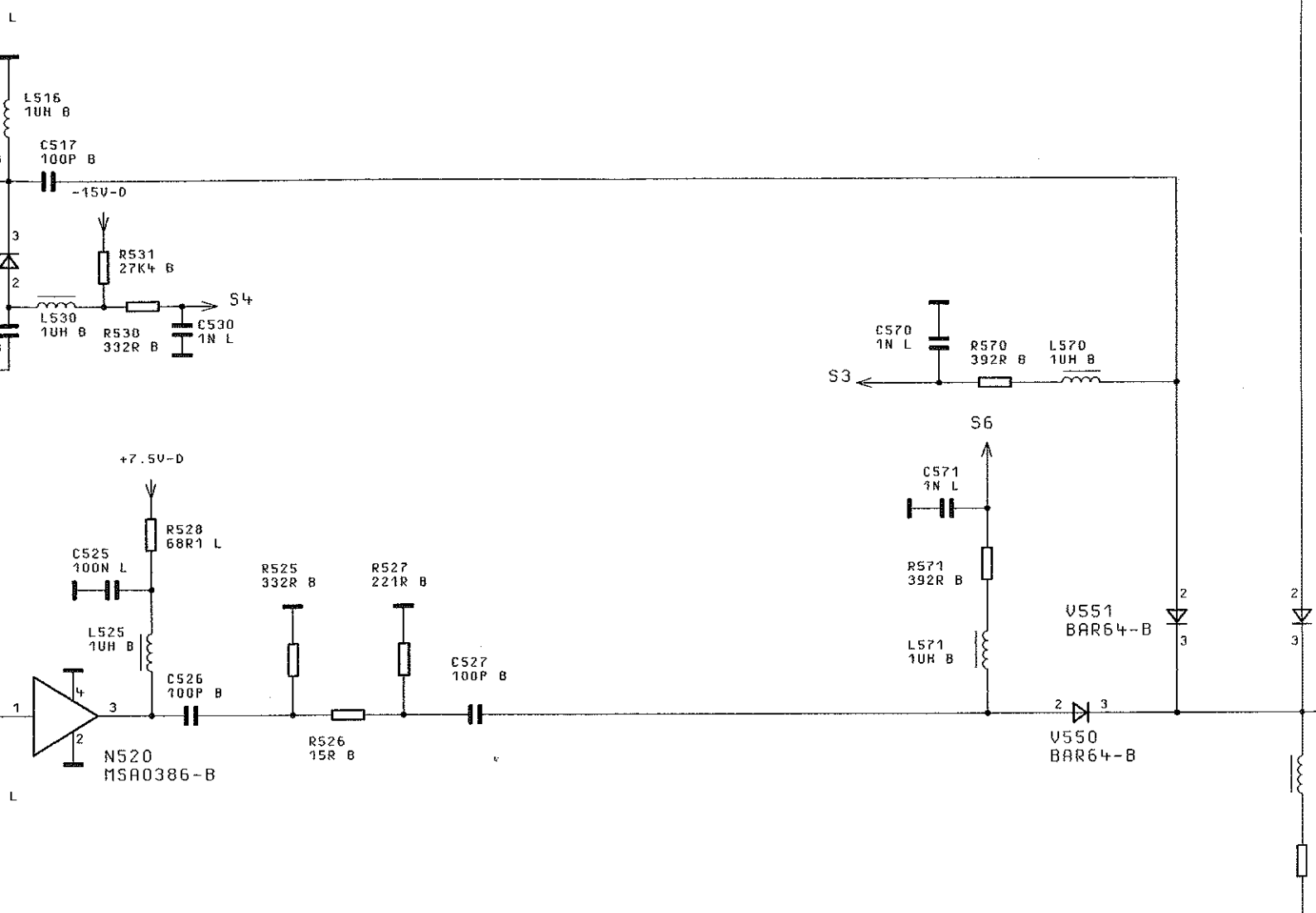
* NICHT BESTUECKT
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ACHTUNG: EGB!
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ELECTROSTATIC SENSITIVE DEVICES
REQUIRE A SPECIAL HANDLING

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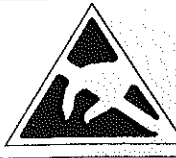
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BINDENDE ANGABEN UEBER VARIANTEN,
TRIMMWERTE, BAUTEILWERTE UND
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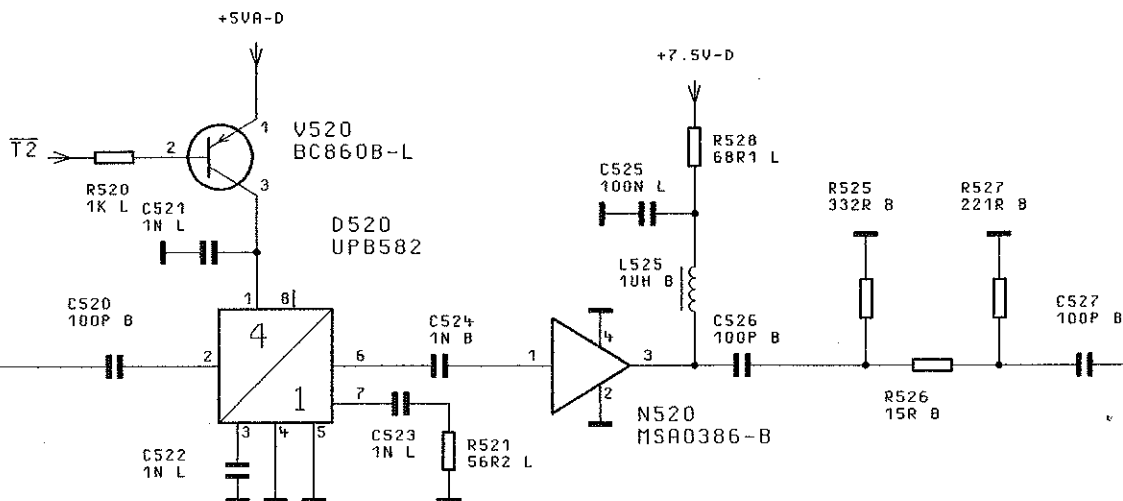
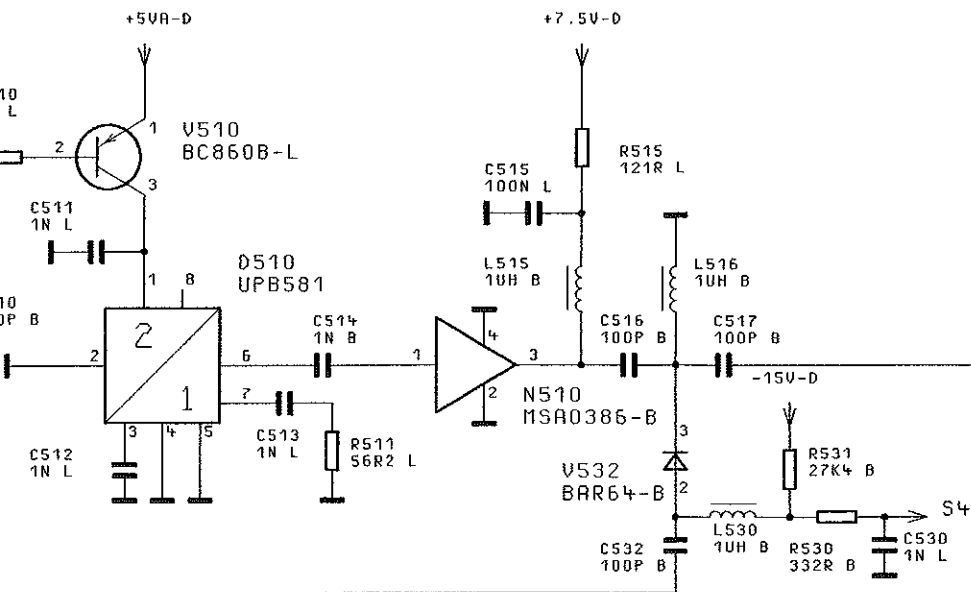
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ACHTUNG: EGB!
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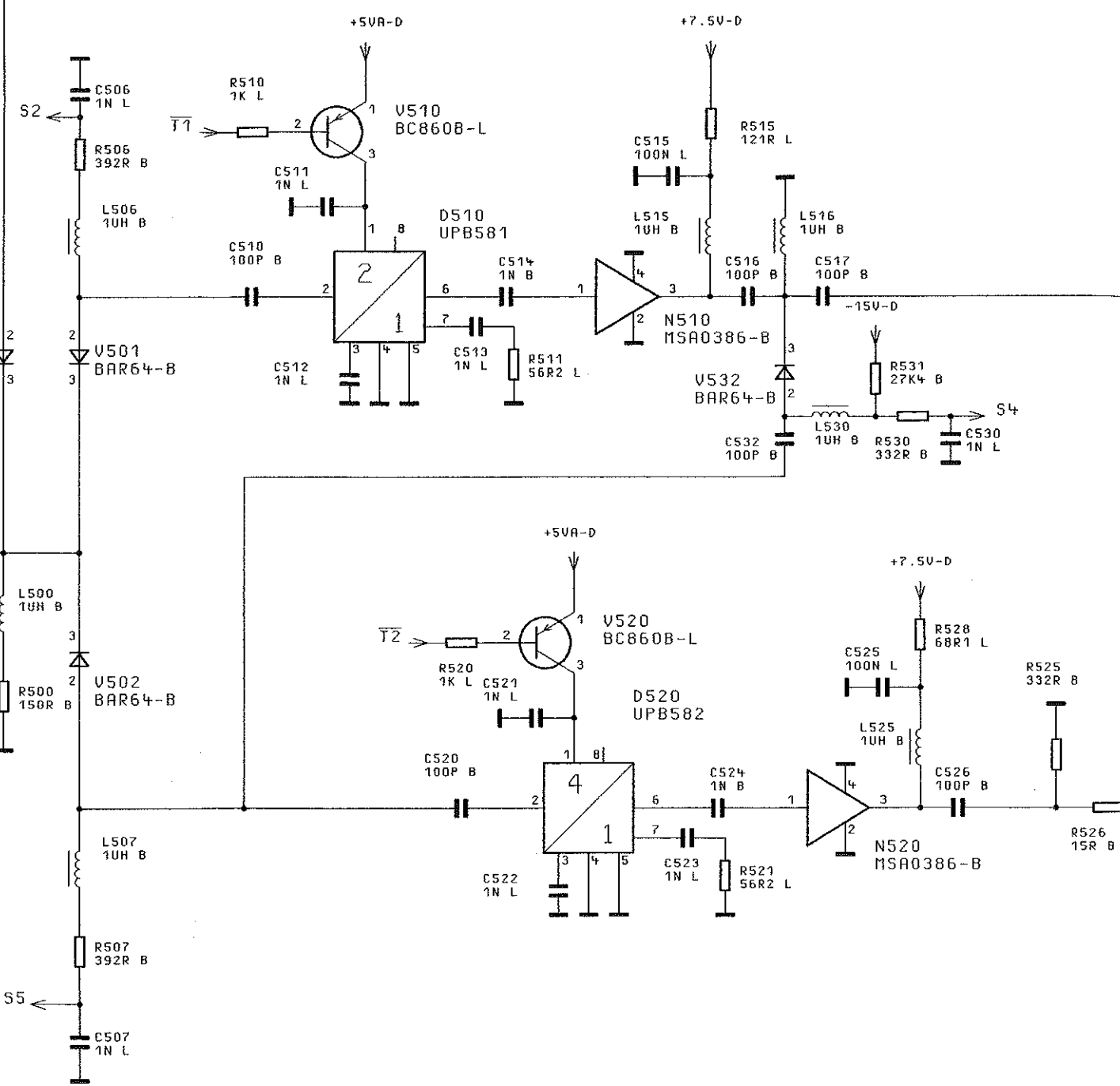
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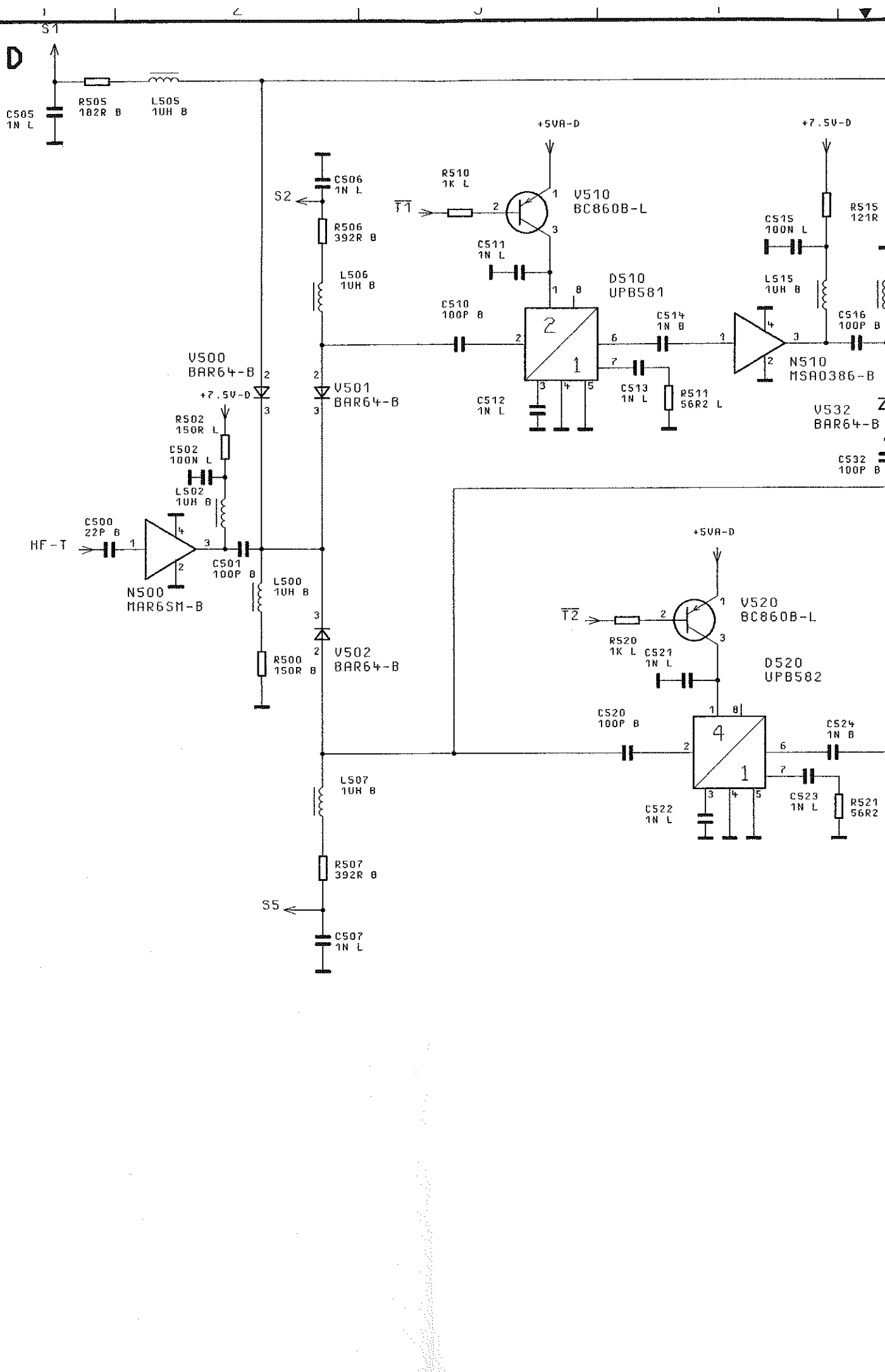
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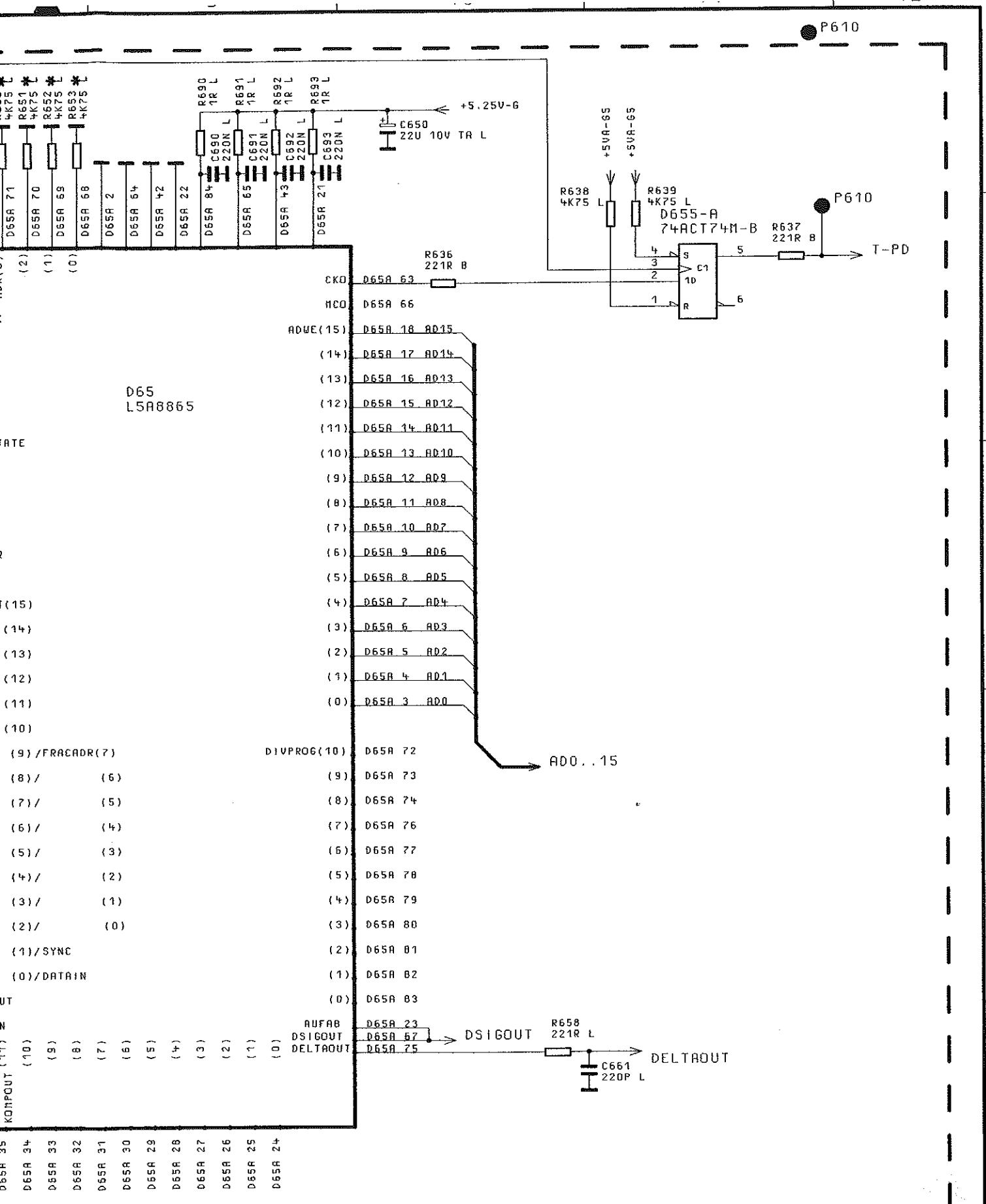


FUER DIESE UNTERLAGE
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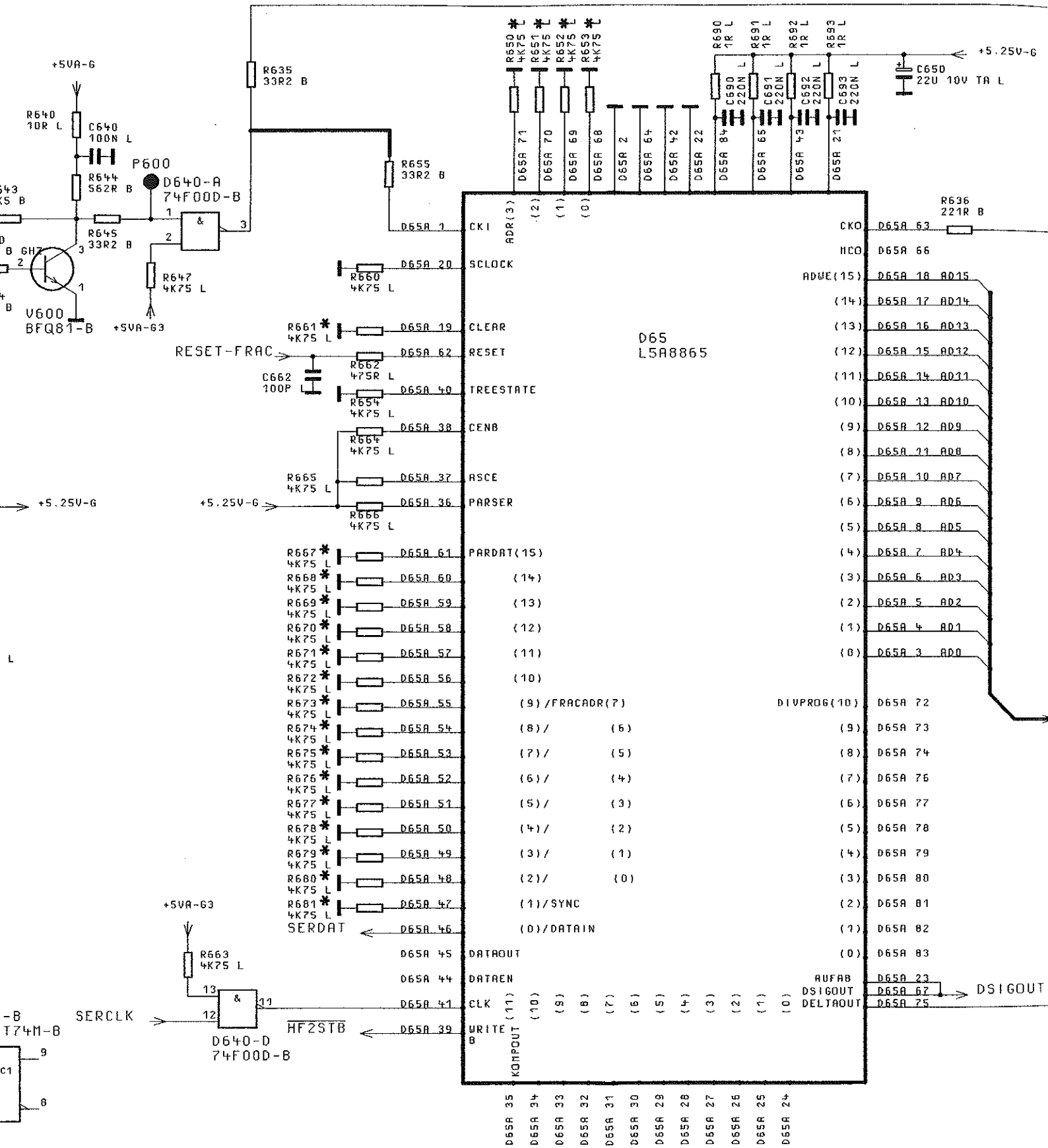
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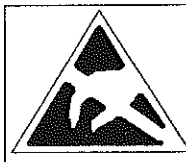
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| 04/02 | 21.02.97 | E I | MENP | TAG | NAME | BENENNUNG |
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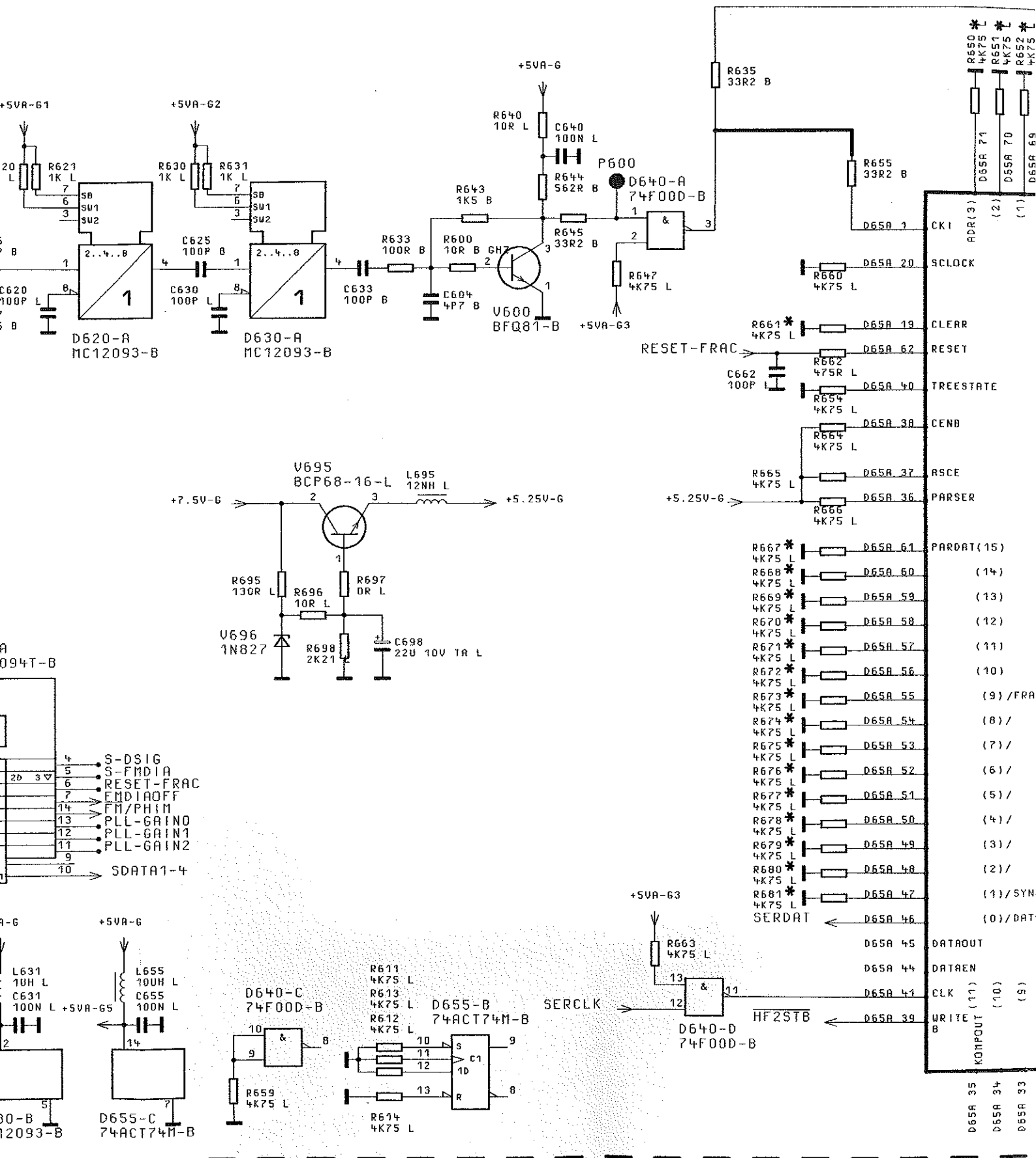
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ACHTUNG: EGB!
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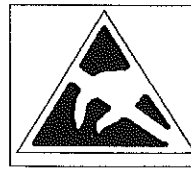
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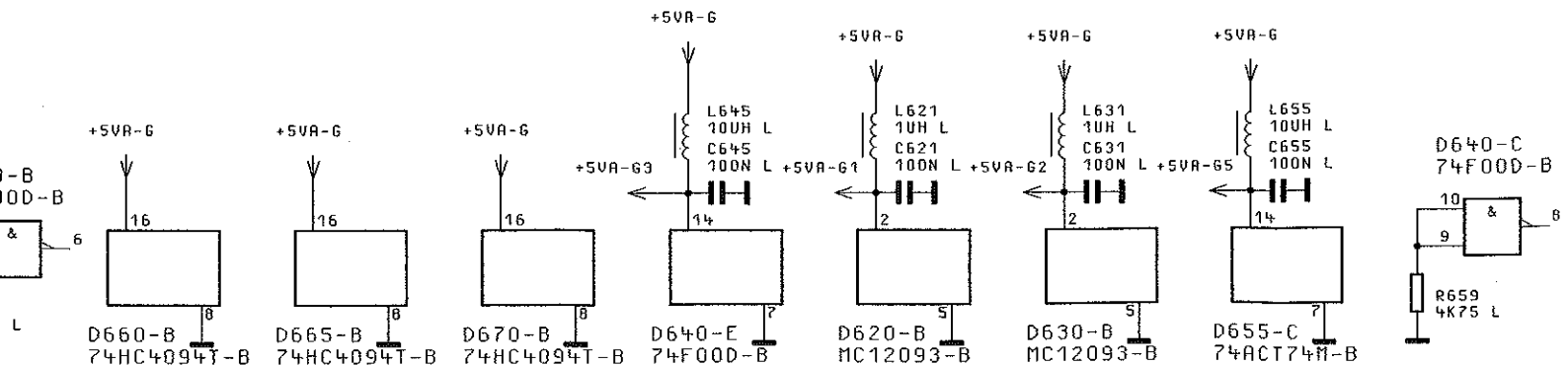
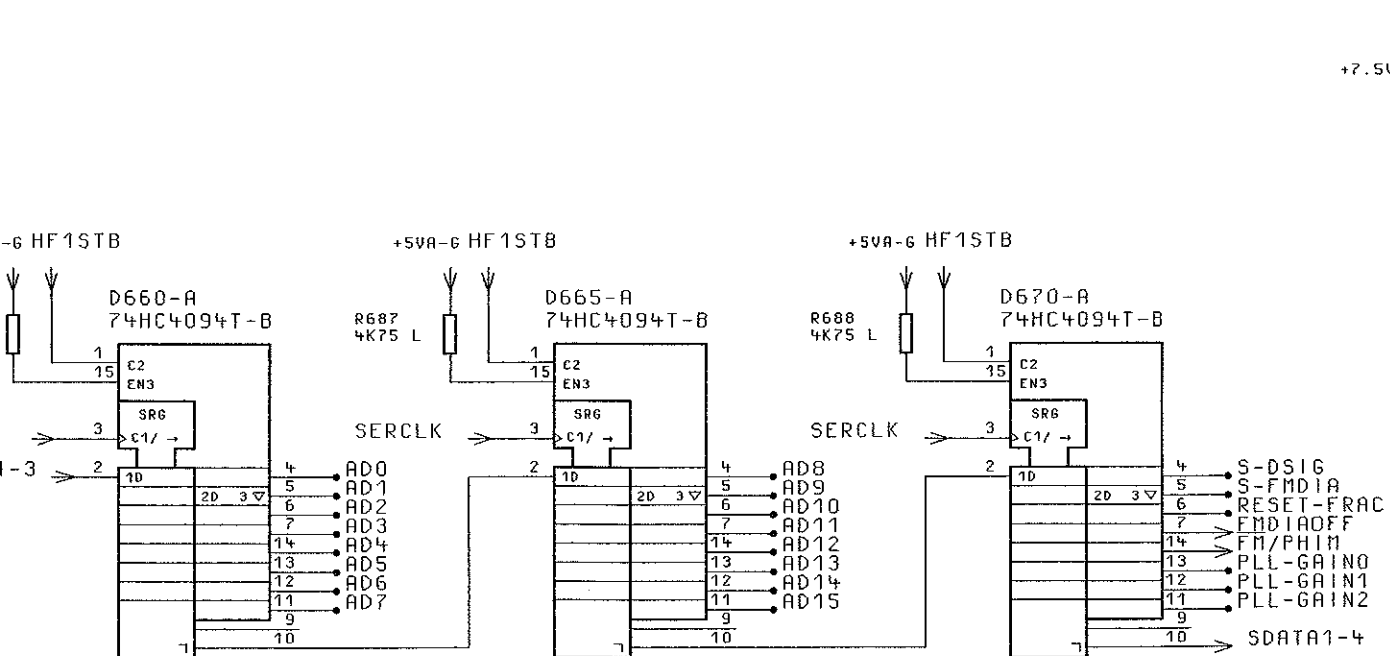
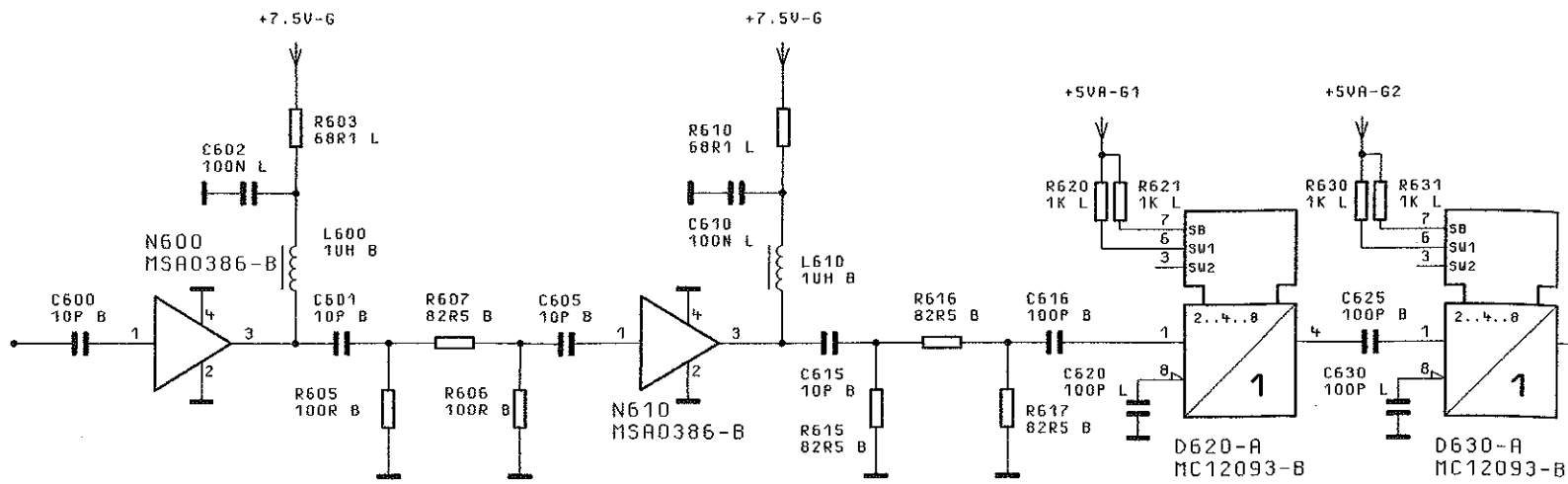
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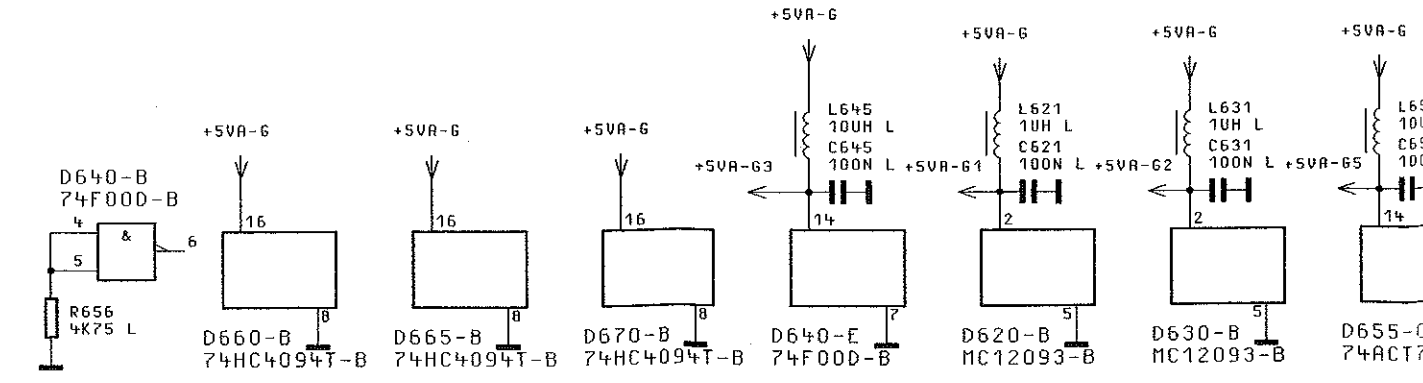
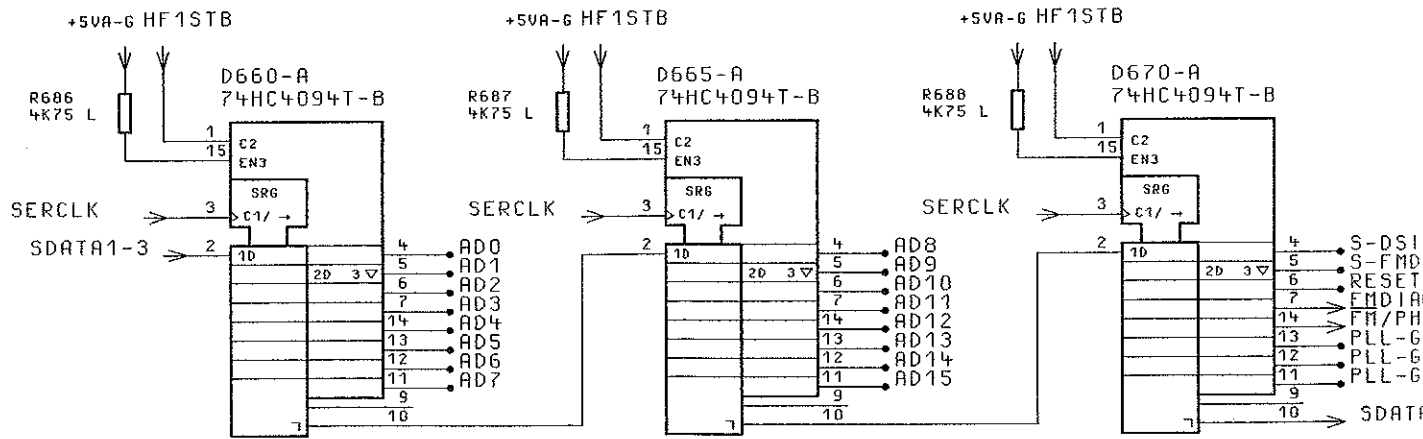
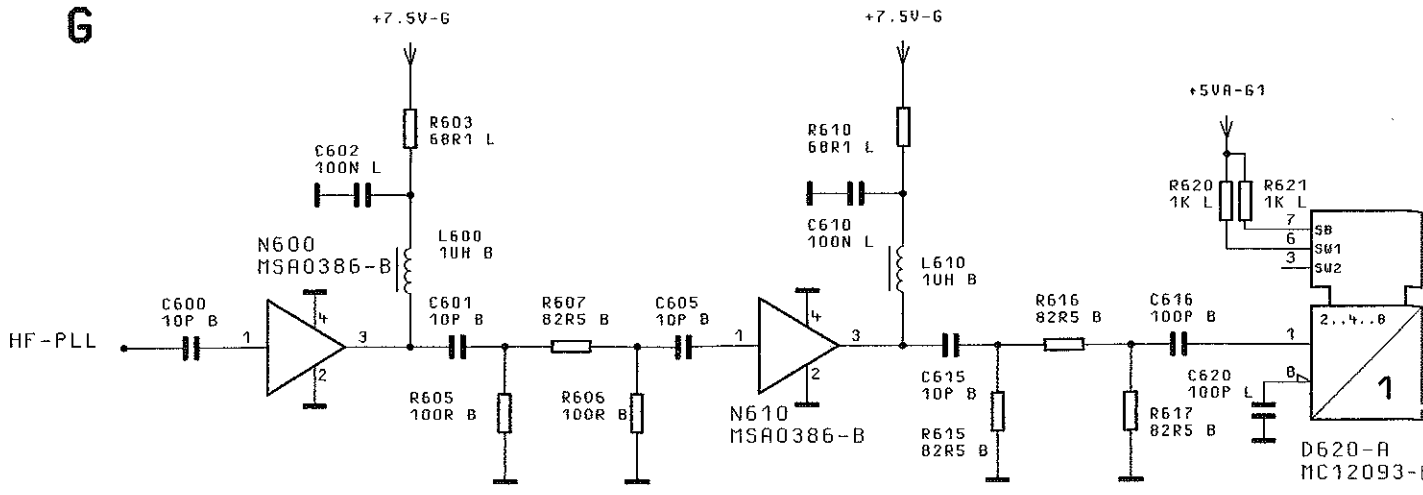
BINDENDE ANGABEN UEBER VARIANTEN, TRIMMWERTE, BAUTEILWERTE UND NICHT BESTUECKTE BAUTEILE SIEHE SA.
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 ELECTROSTATIC SENSITIVE DEVICES REQUIRE A SPECIAL HANDLING



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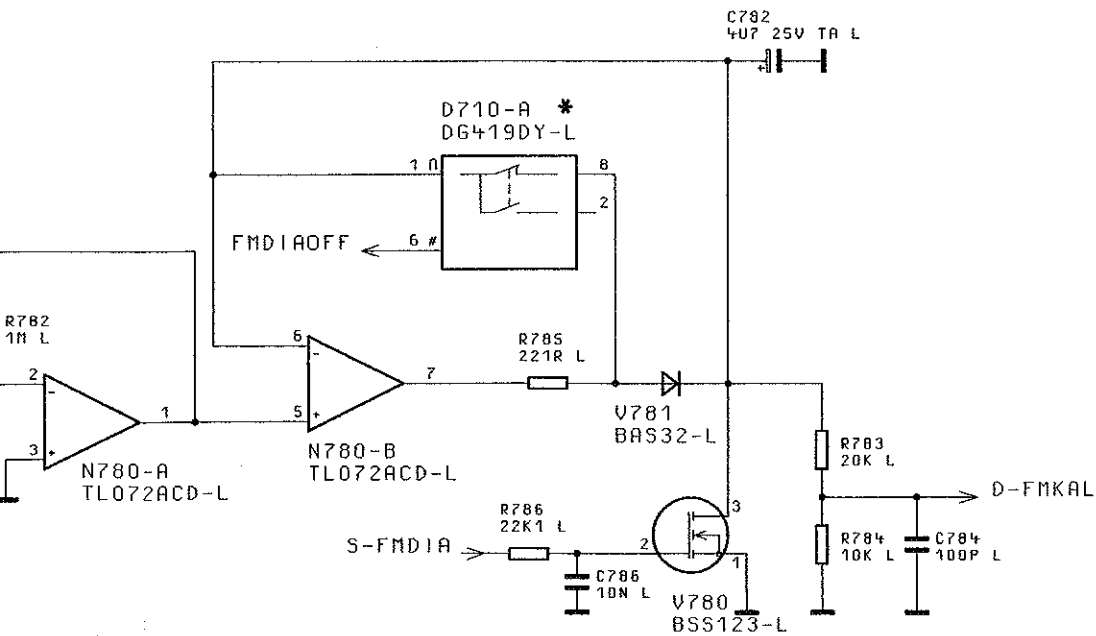
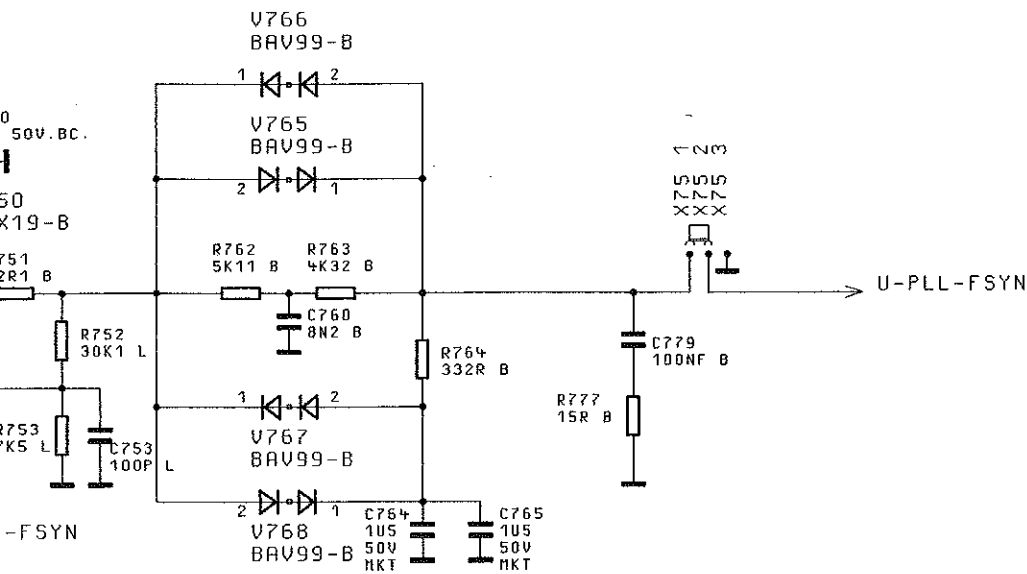
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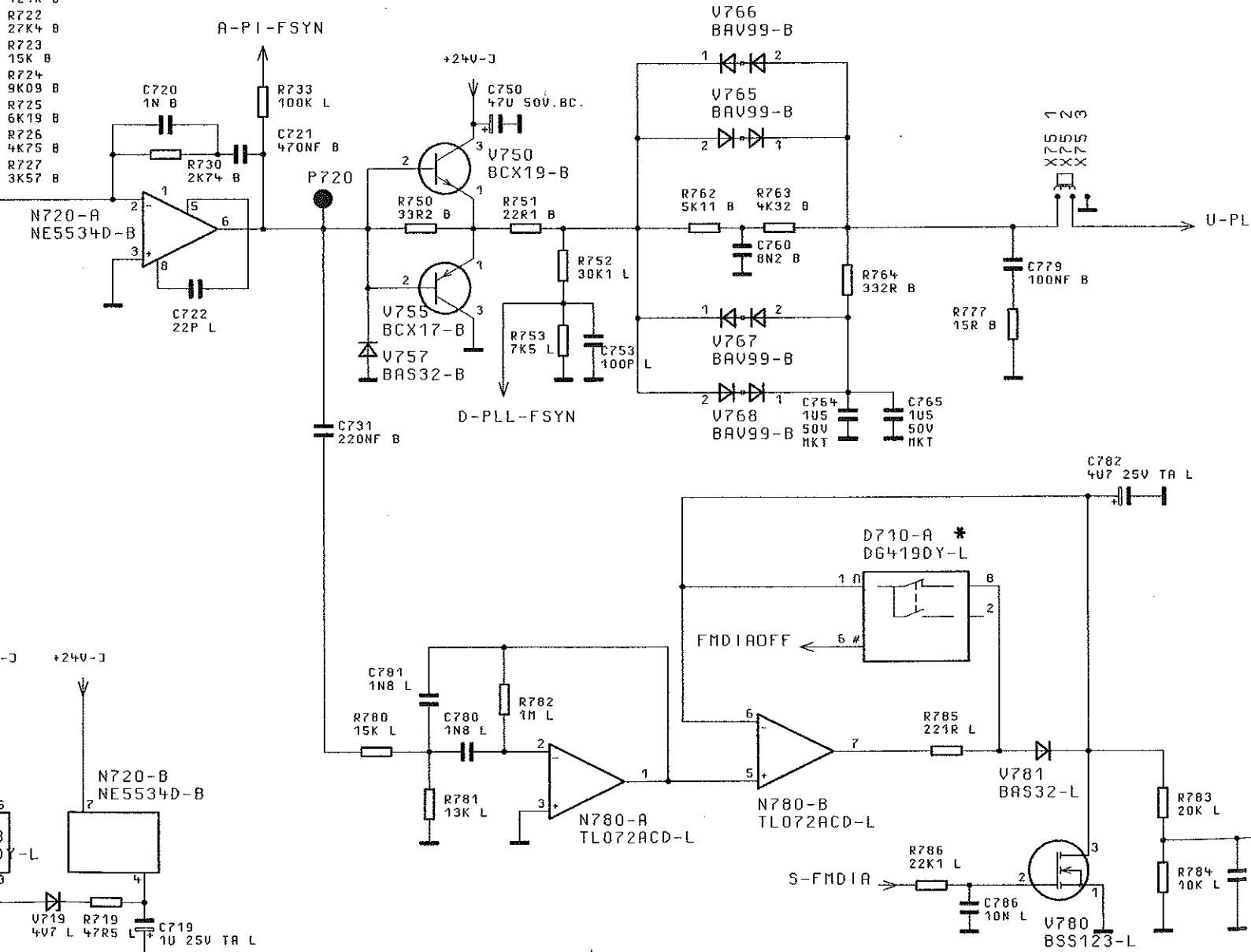
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- R721 121K B
- R722 27K4 B
- R723 15K B
- R724 9K09 B
- R725 6K19 B
- R726 4K75 B
- R727 3K57 B




Bindende Angaben über Varianten, Trimmwerte, Bauteilwerte und nicht bestückte Bauteile siehe SA

For binding information on models, trimming and components values and nonfitted components see parts list.

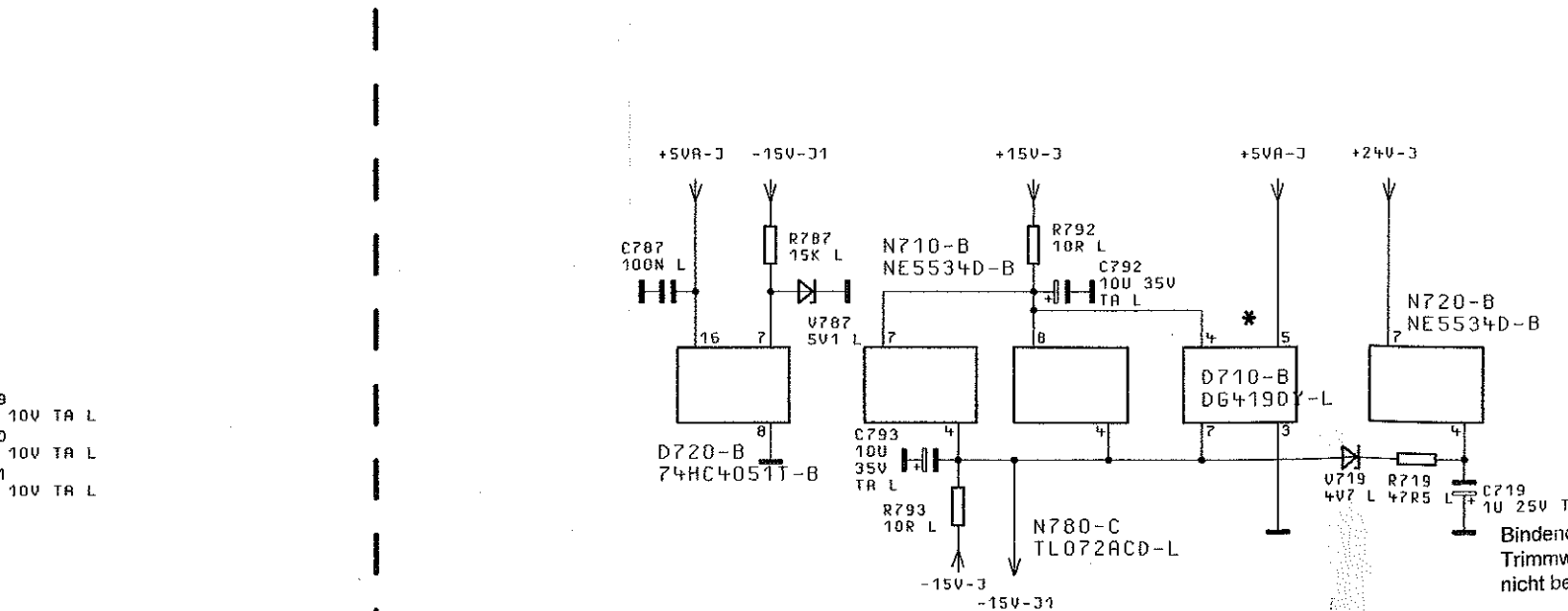
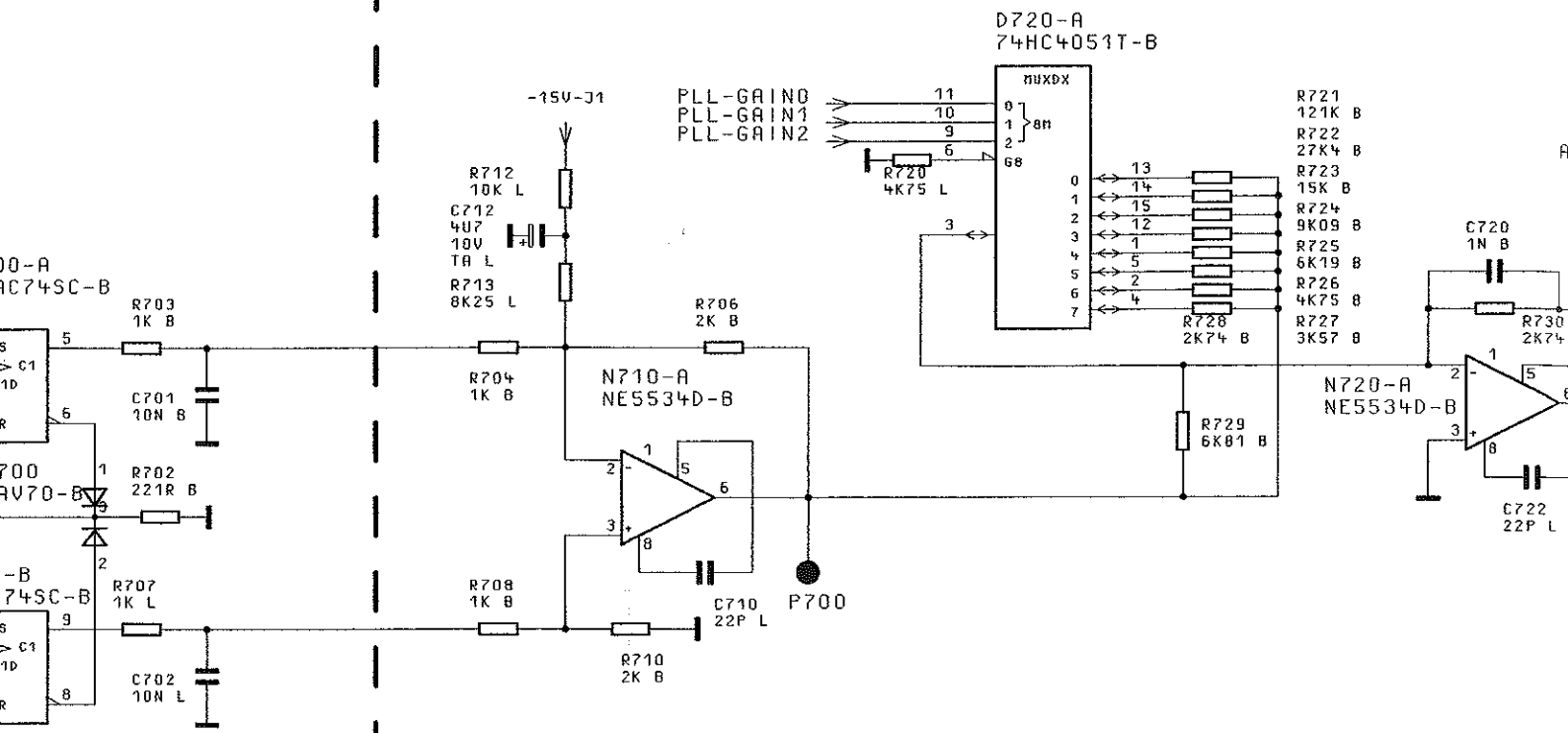


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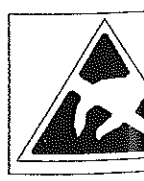
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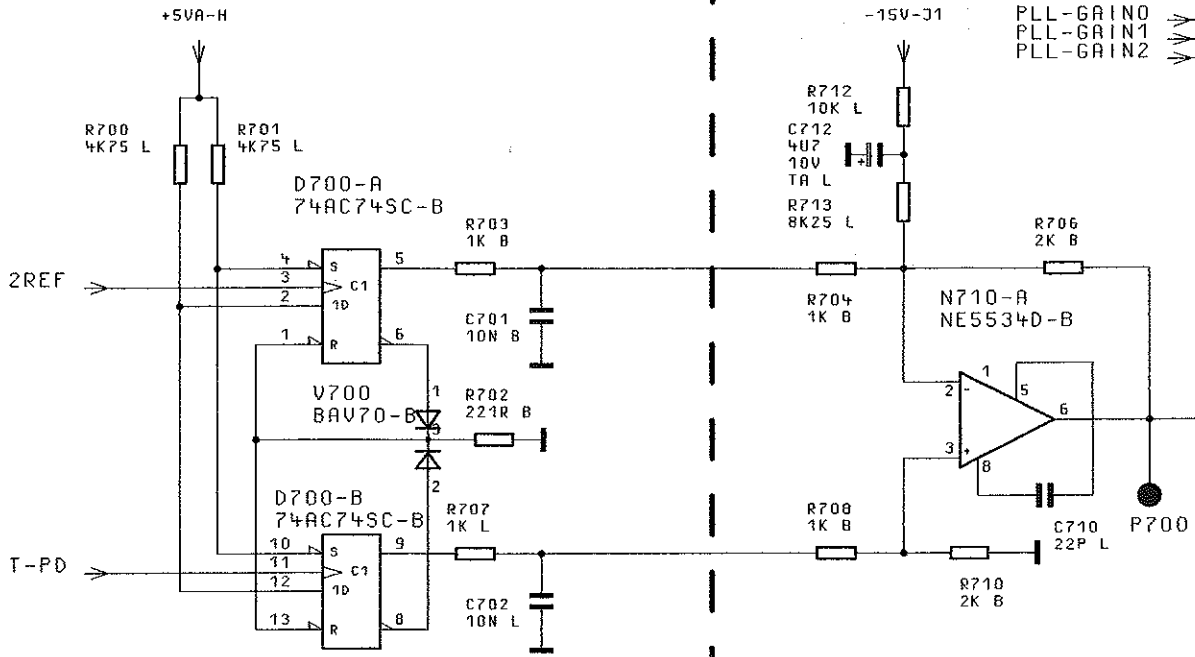
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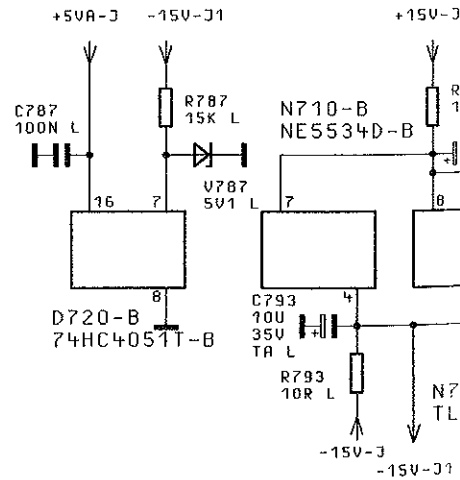
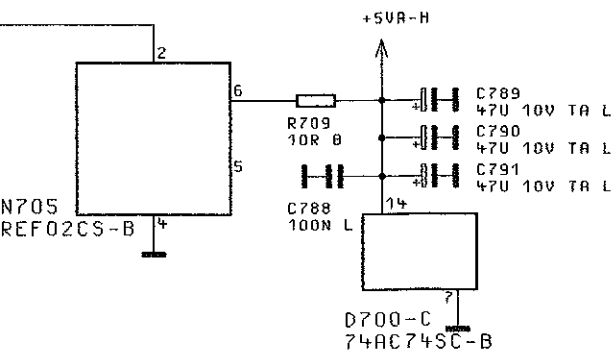
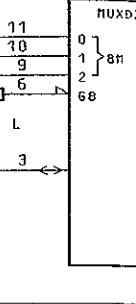
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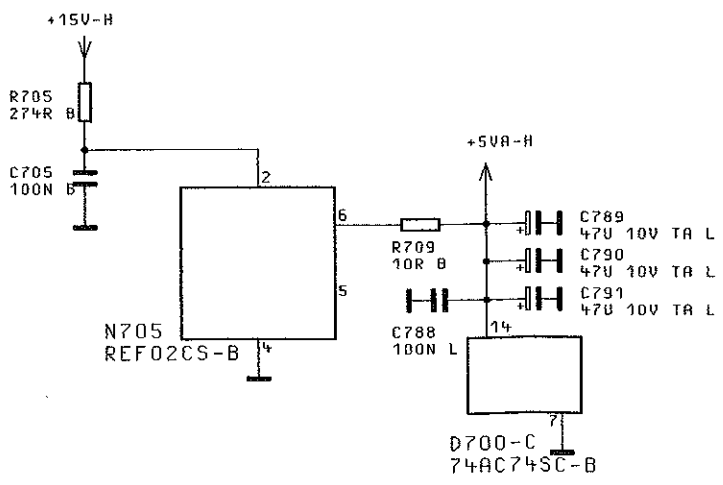
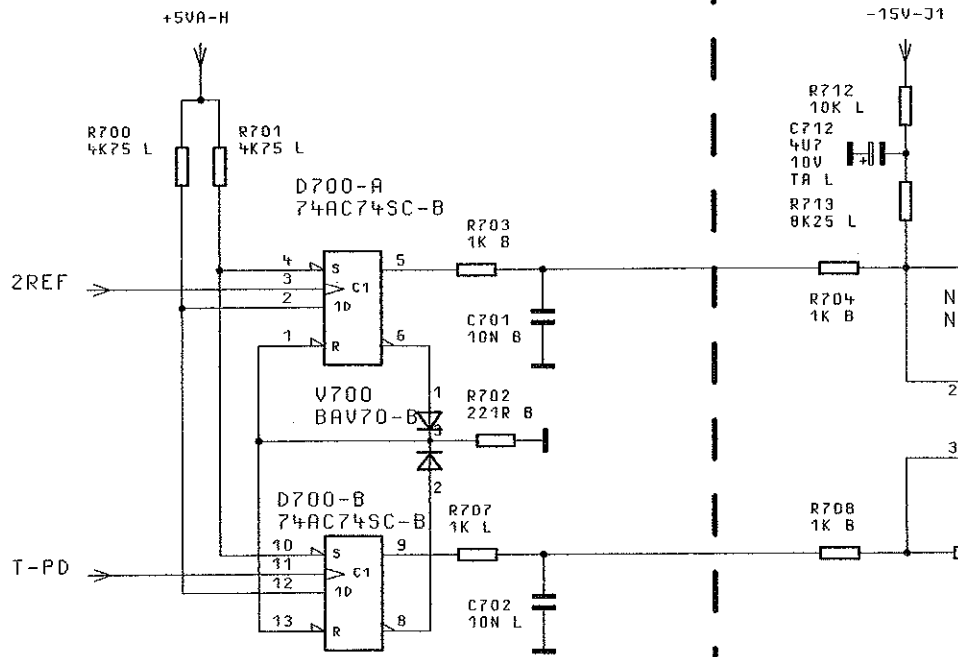
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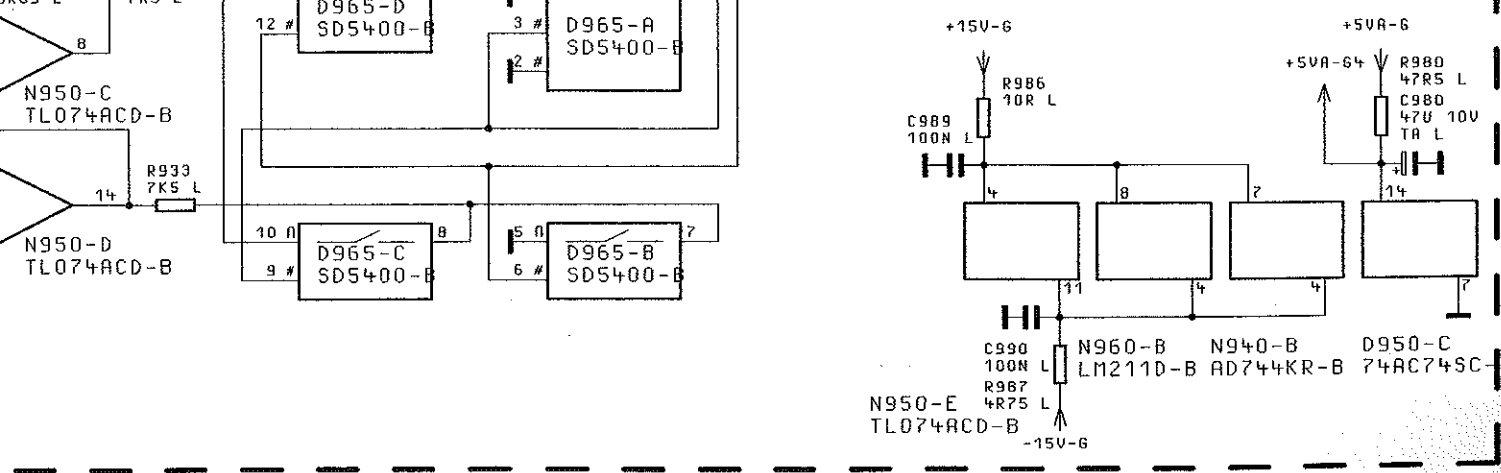
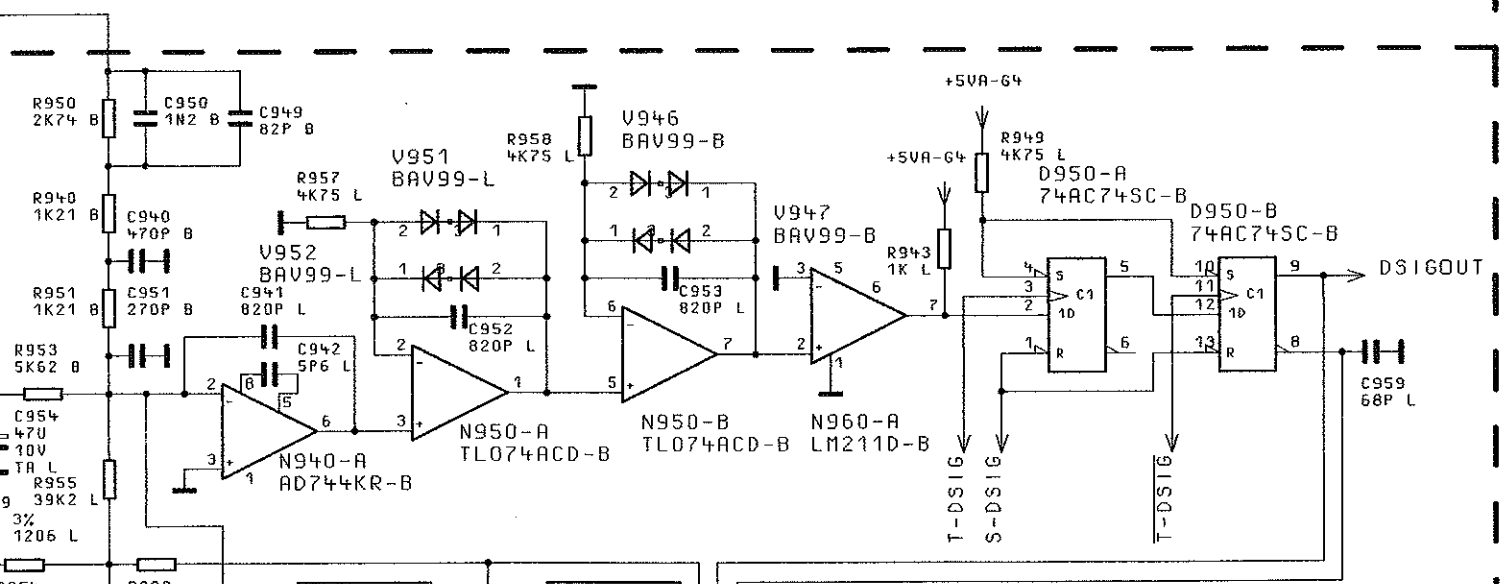
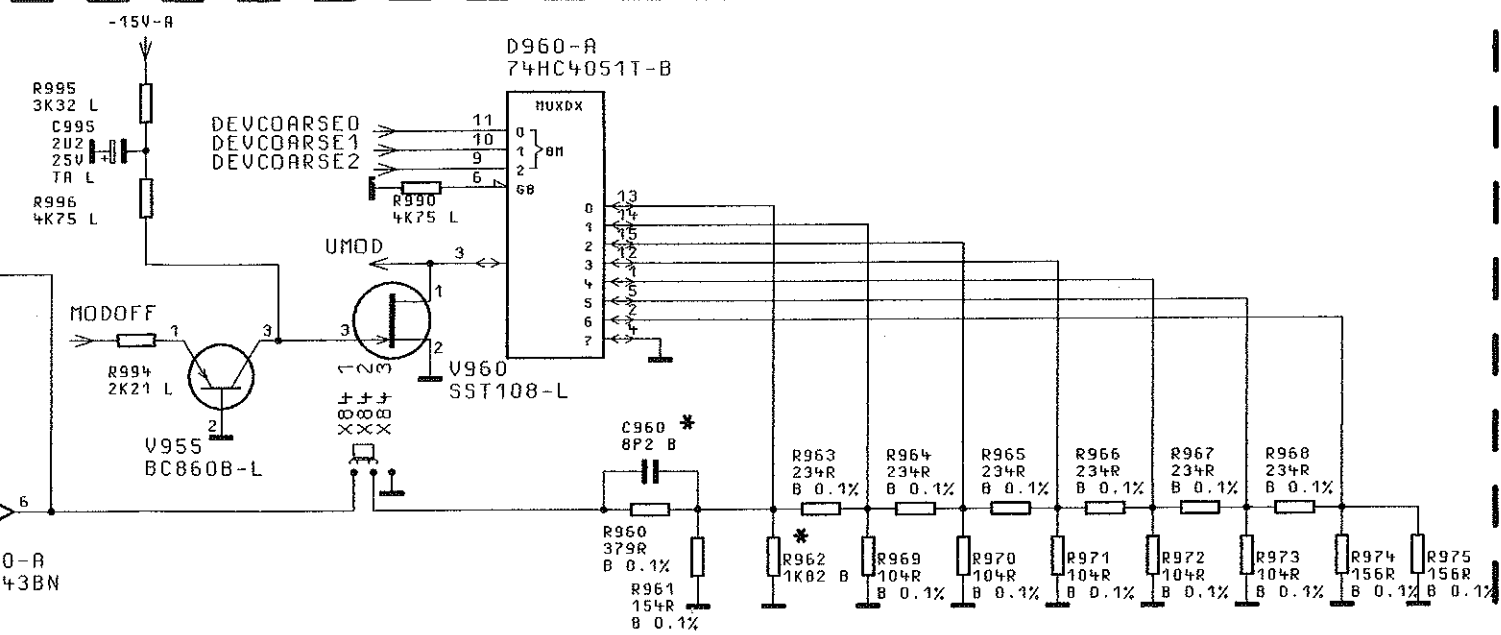
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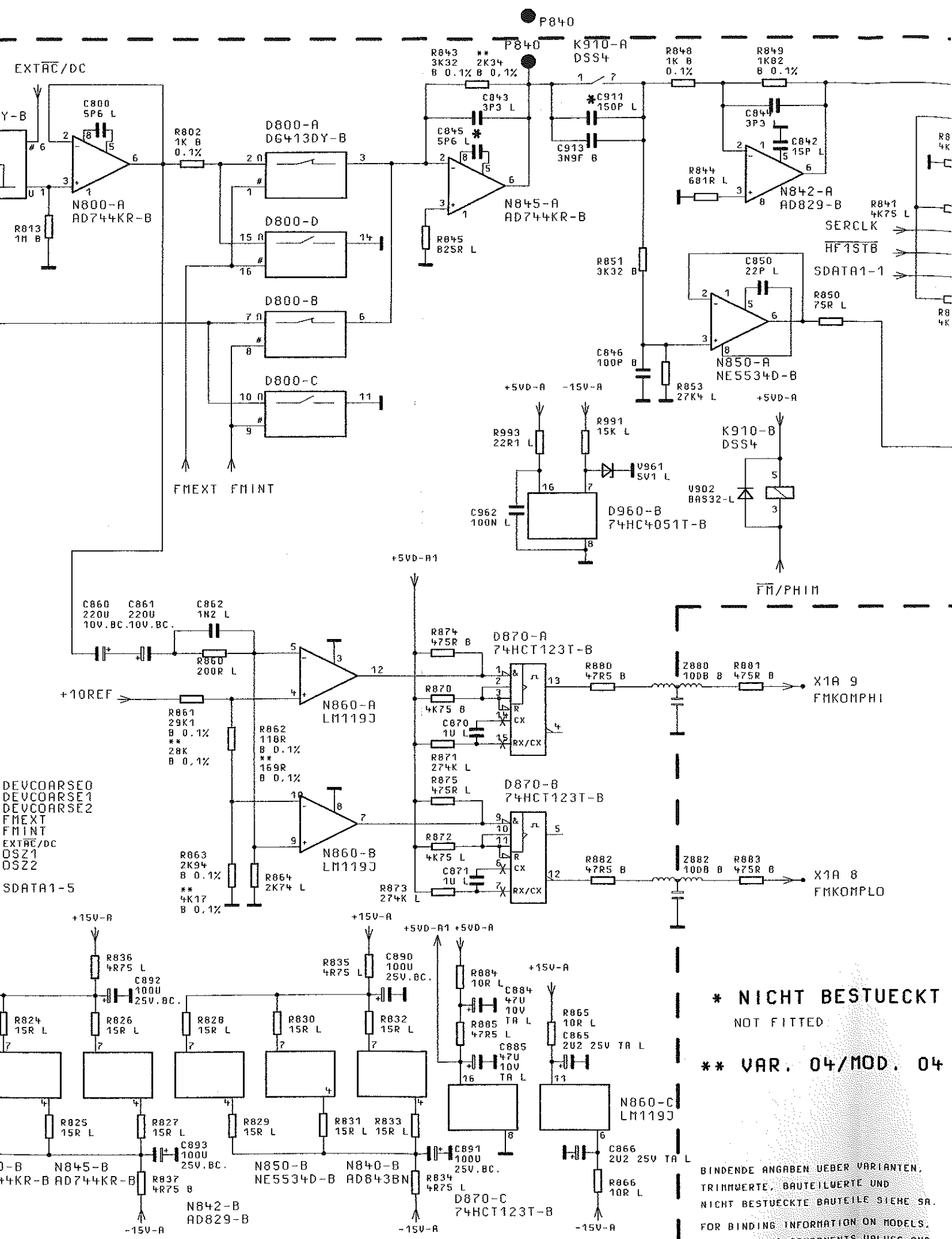
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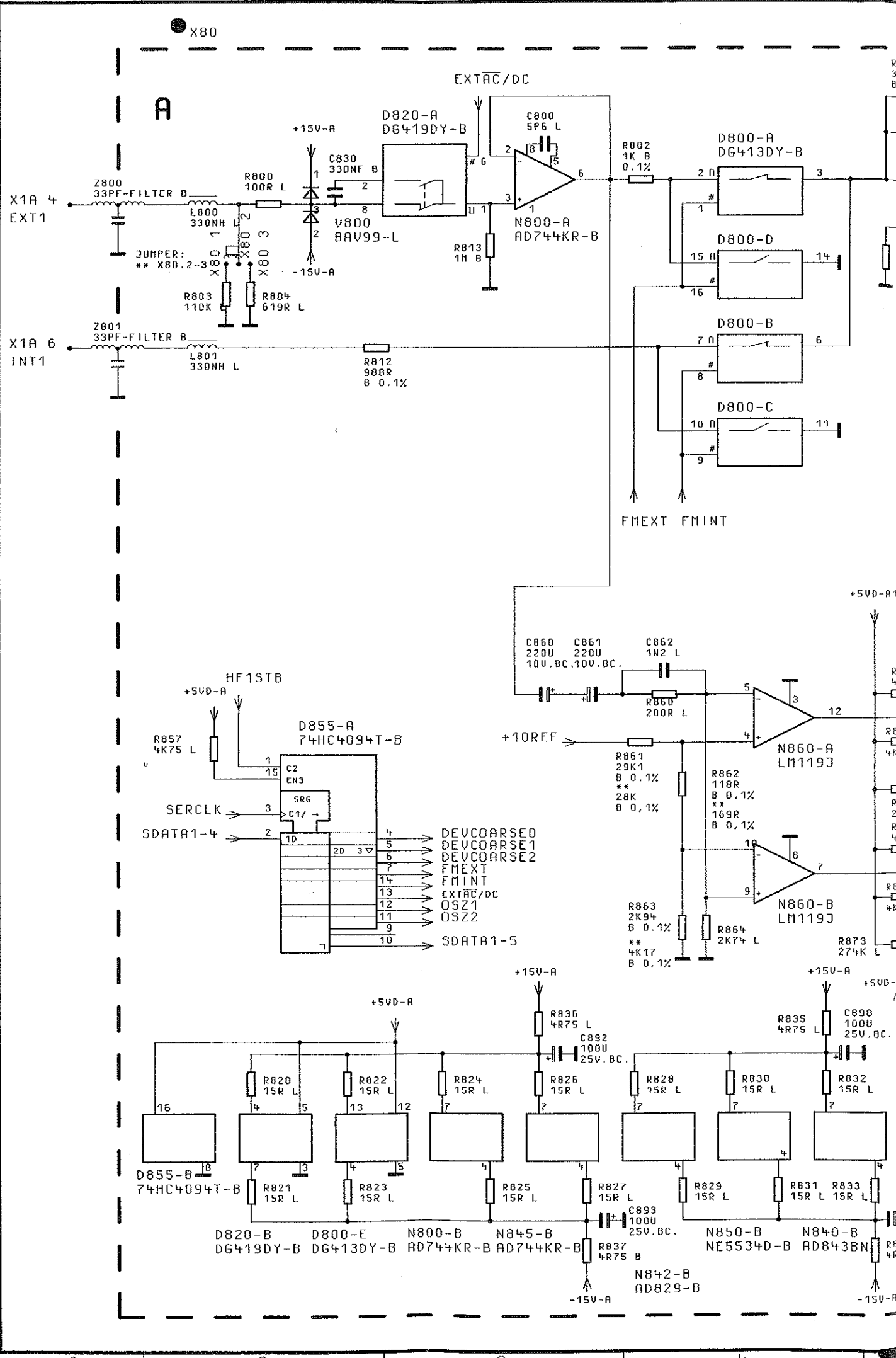
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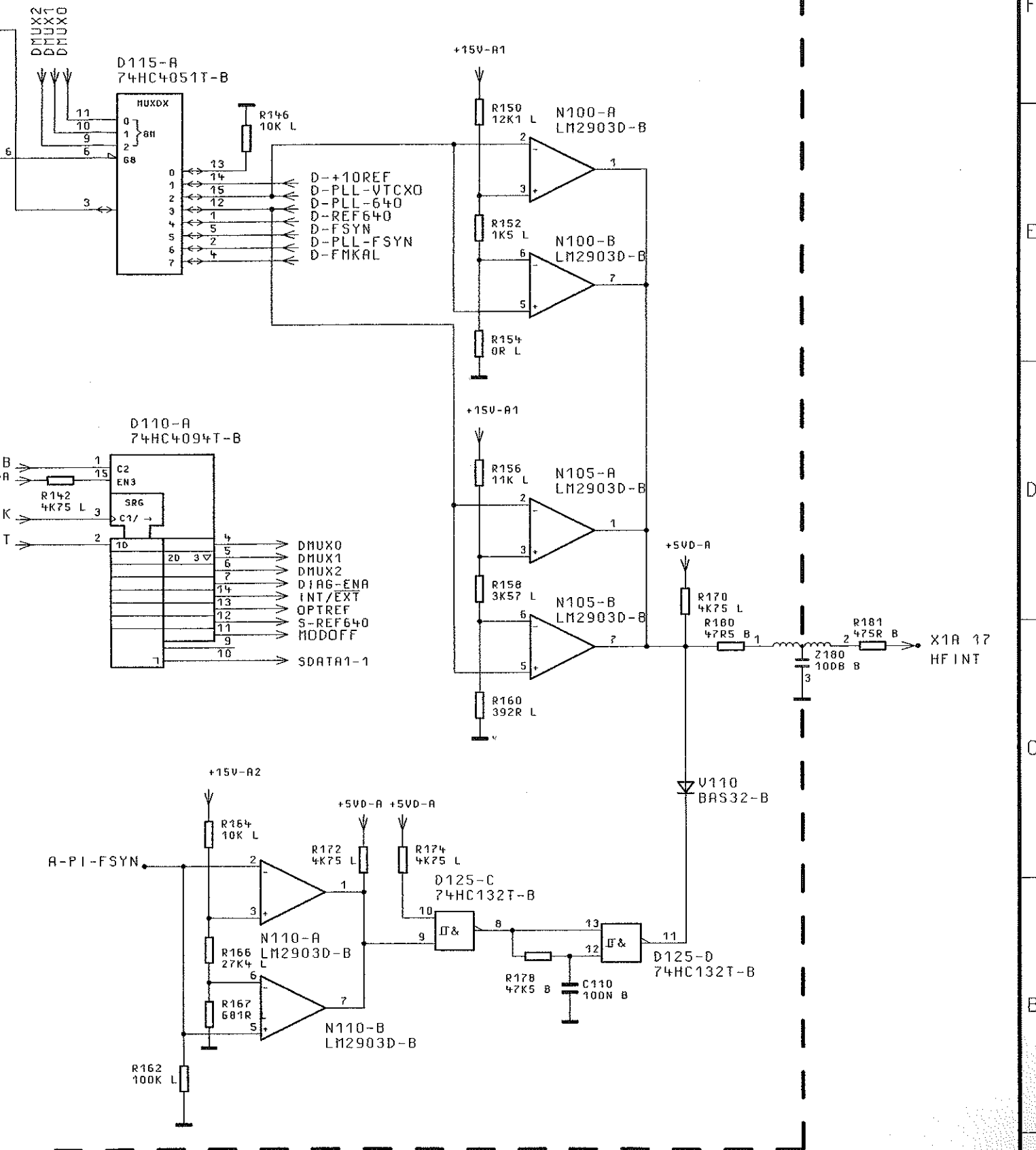
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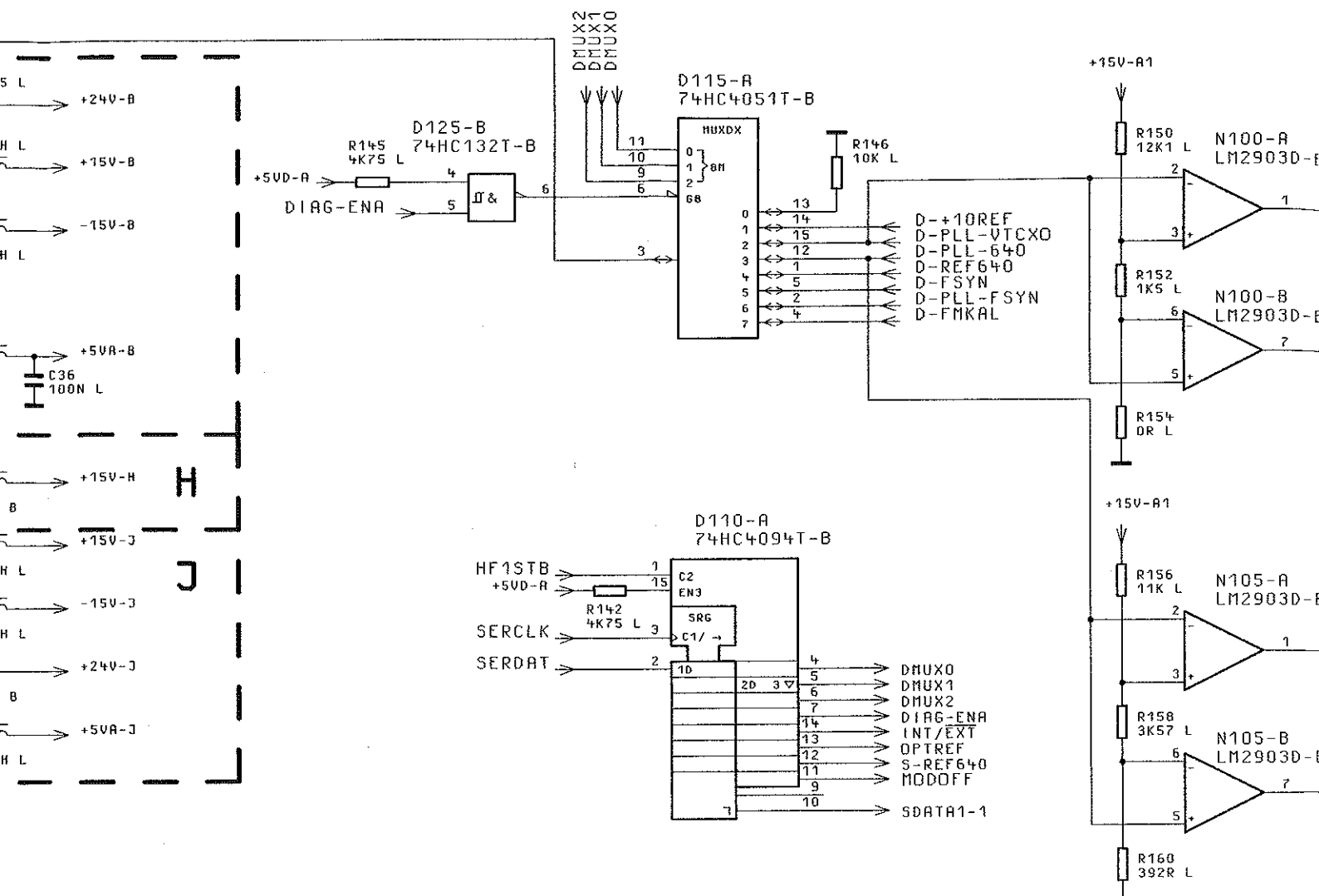
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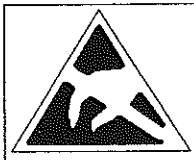


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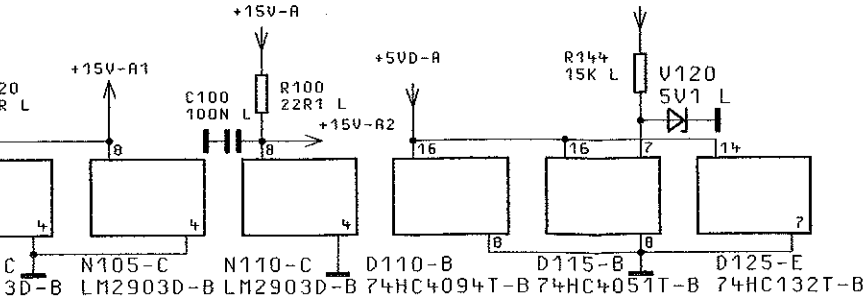
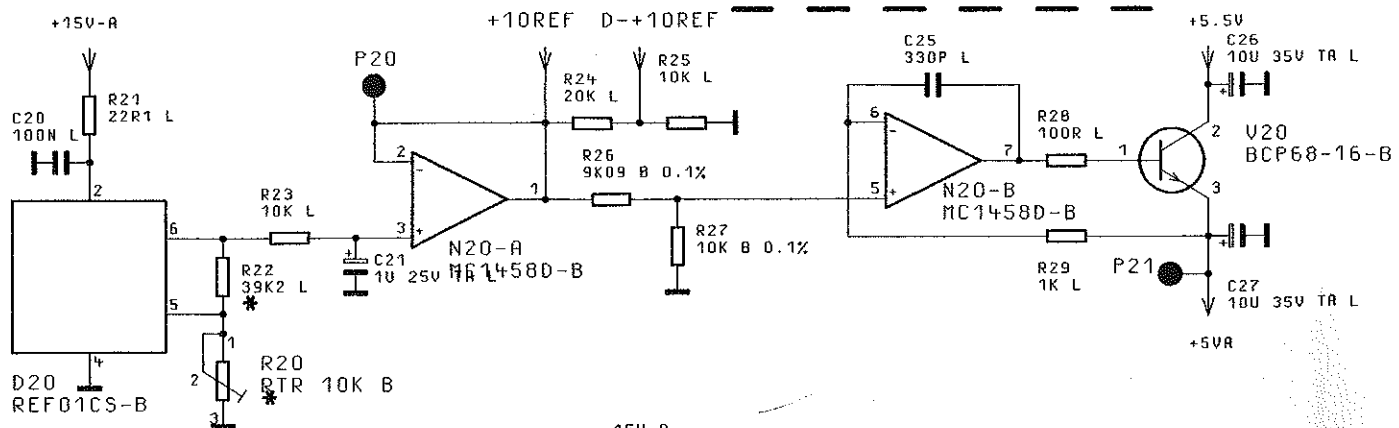
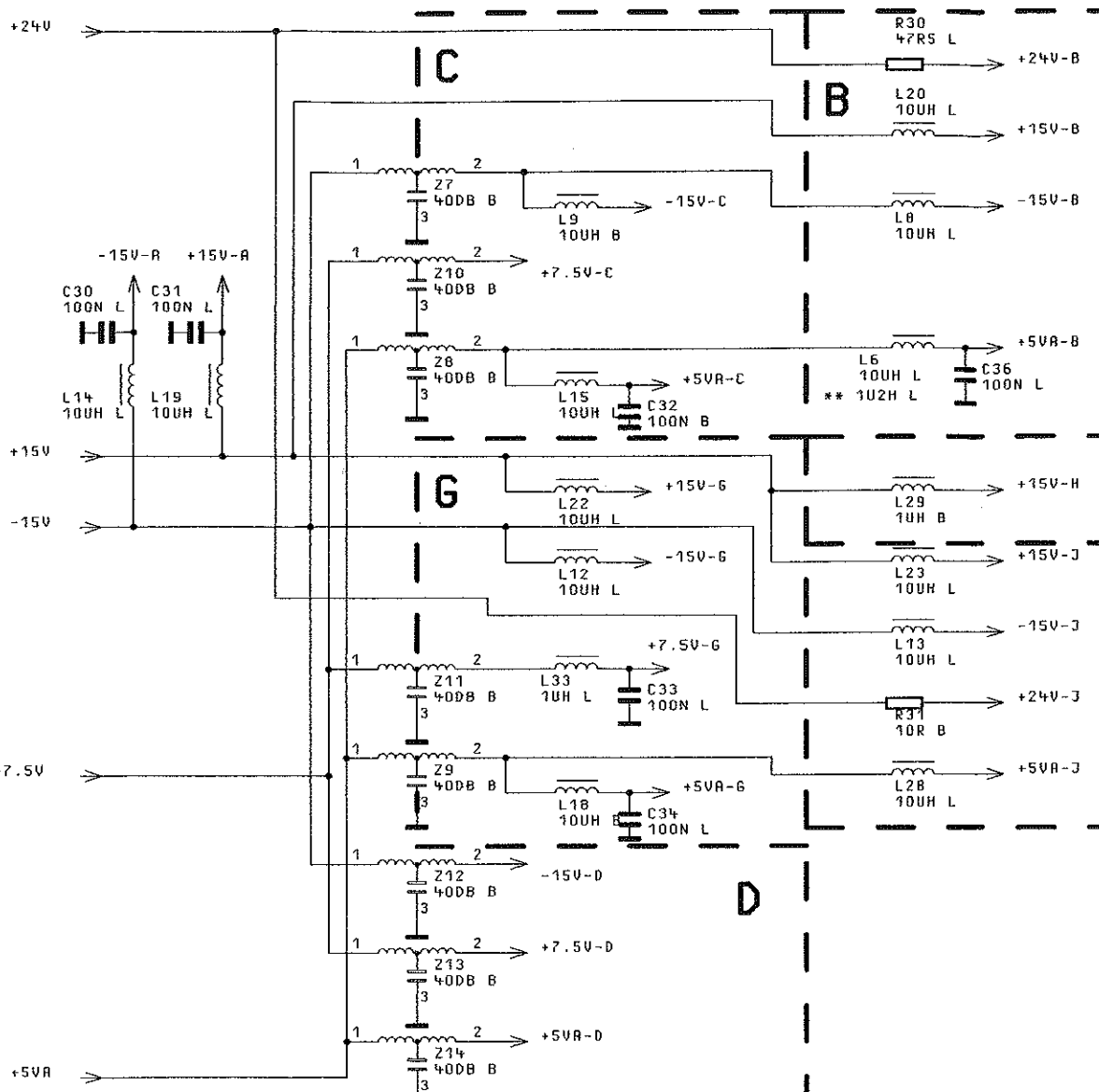
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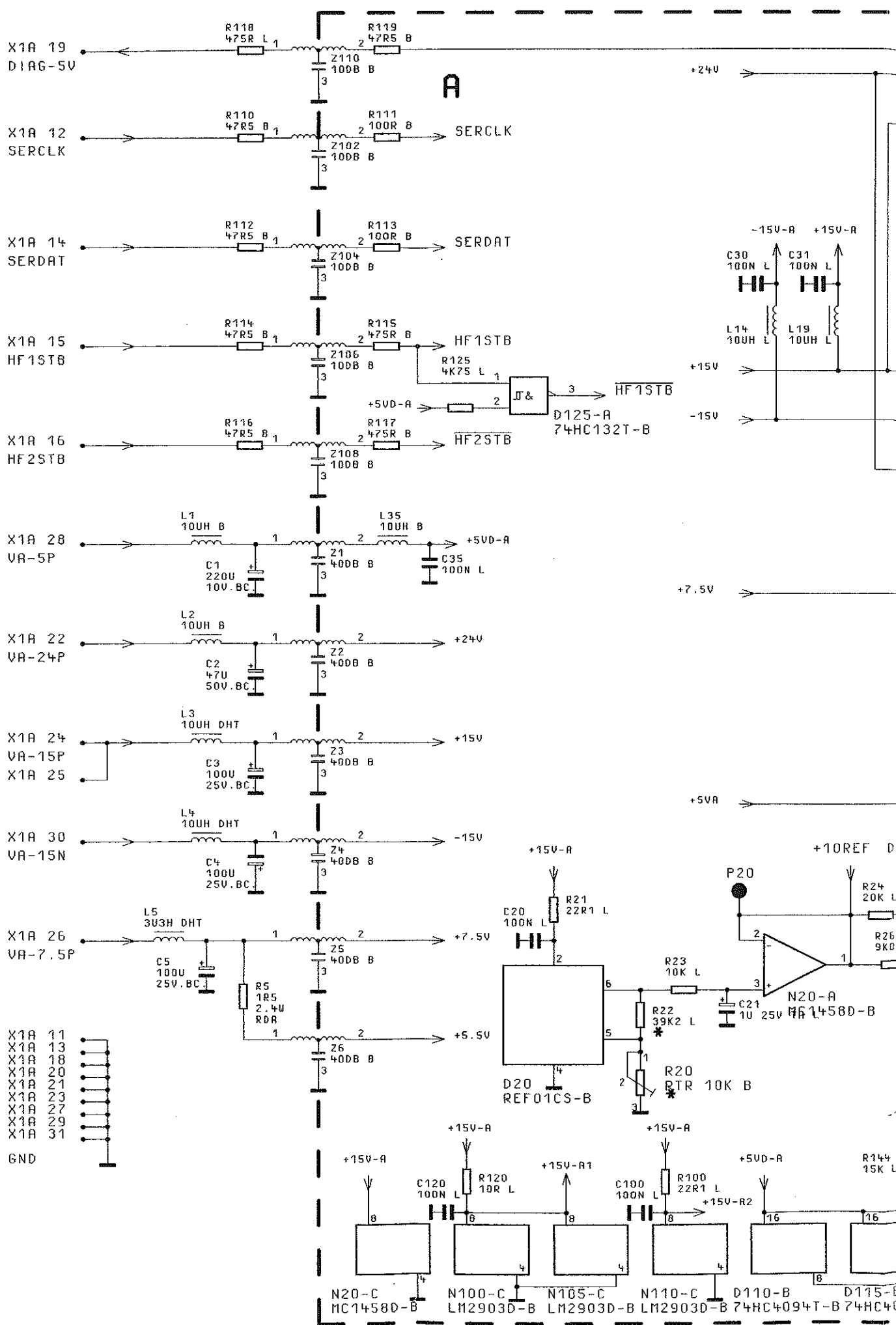
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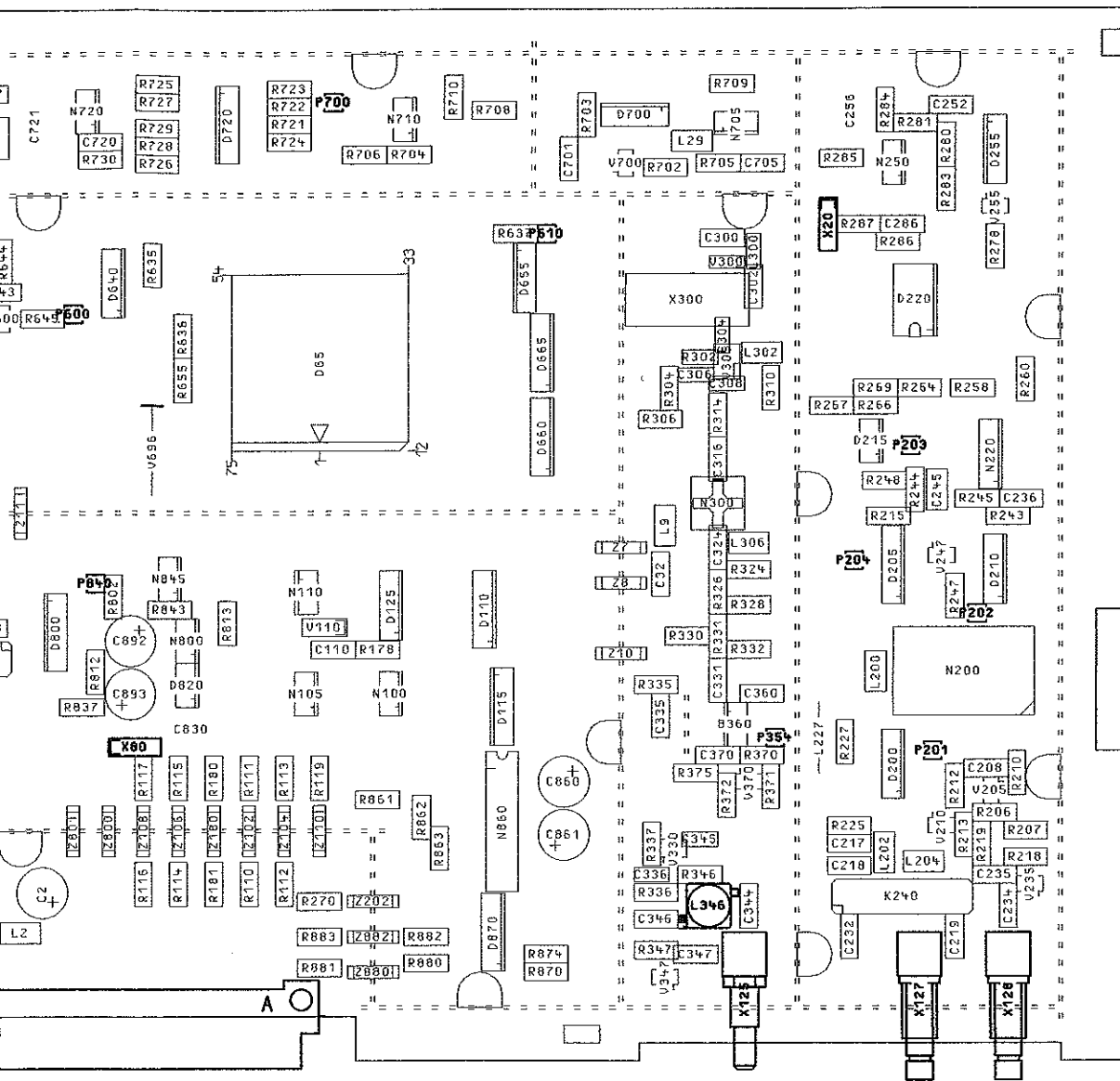
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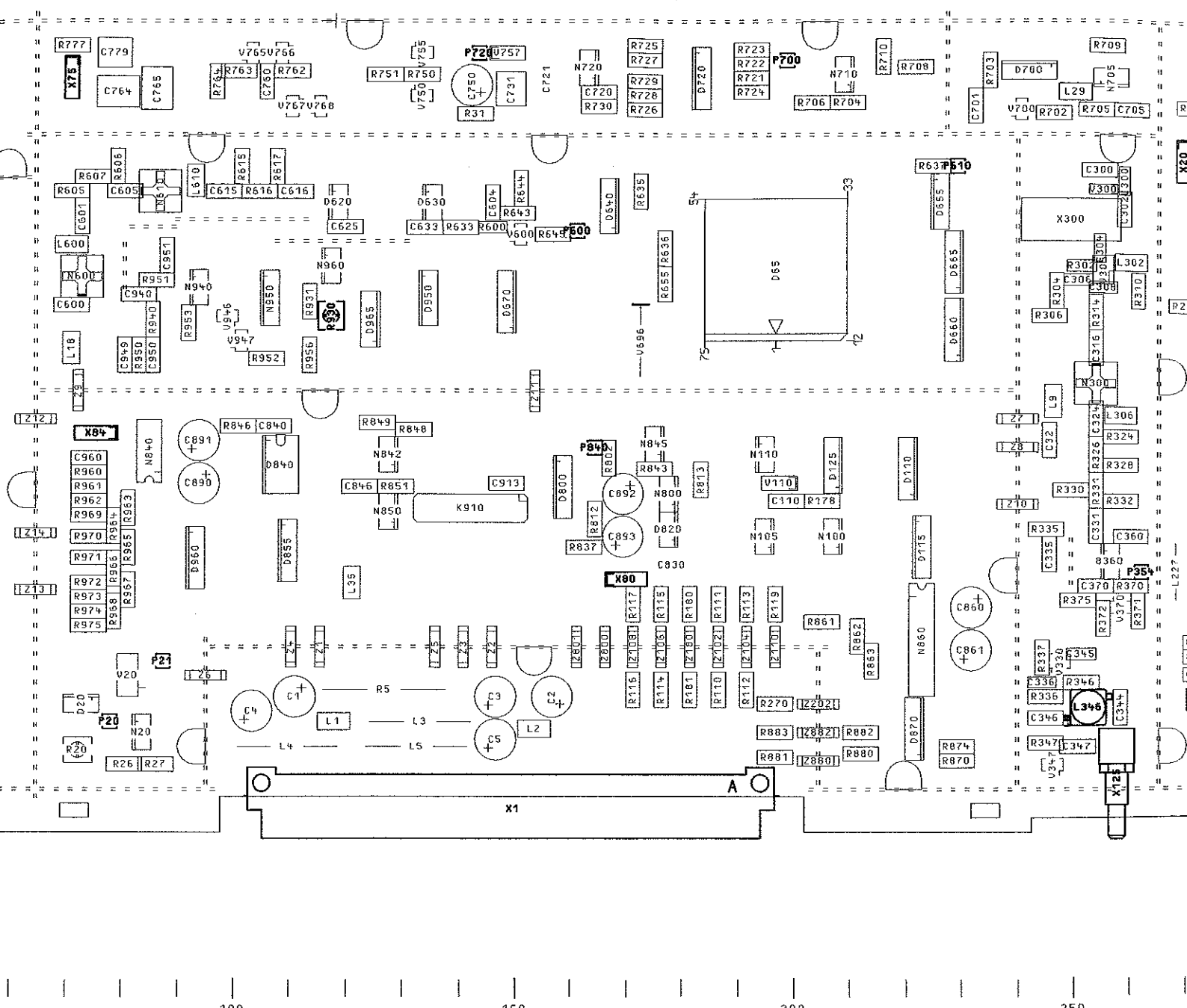
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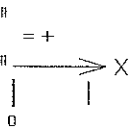
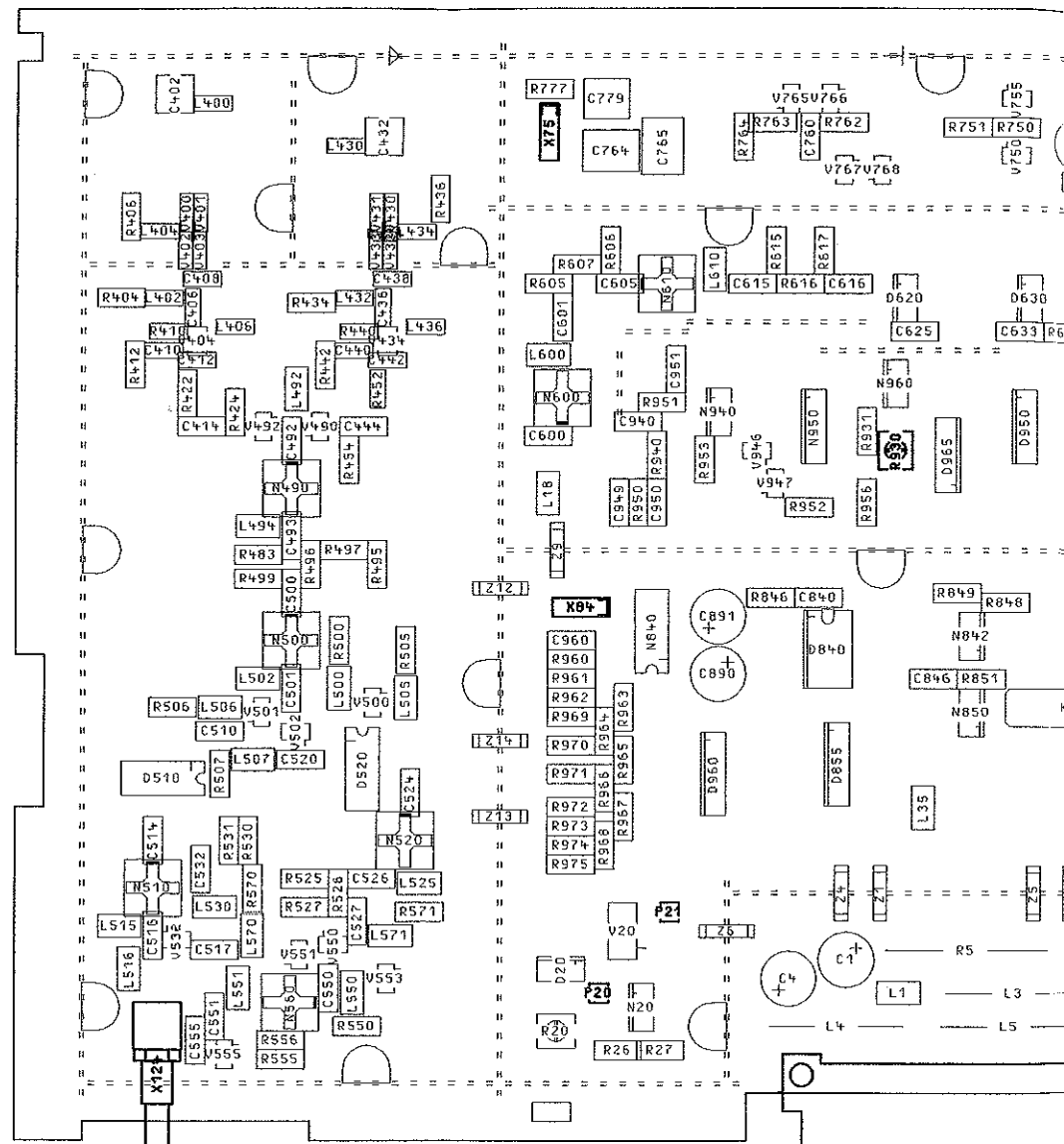
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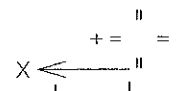
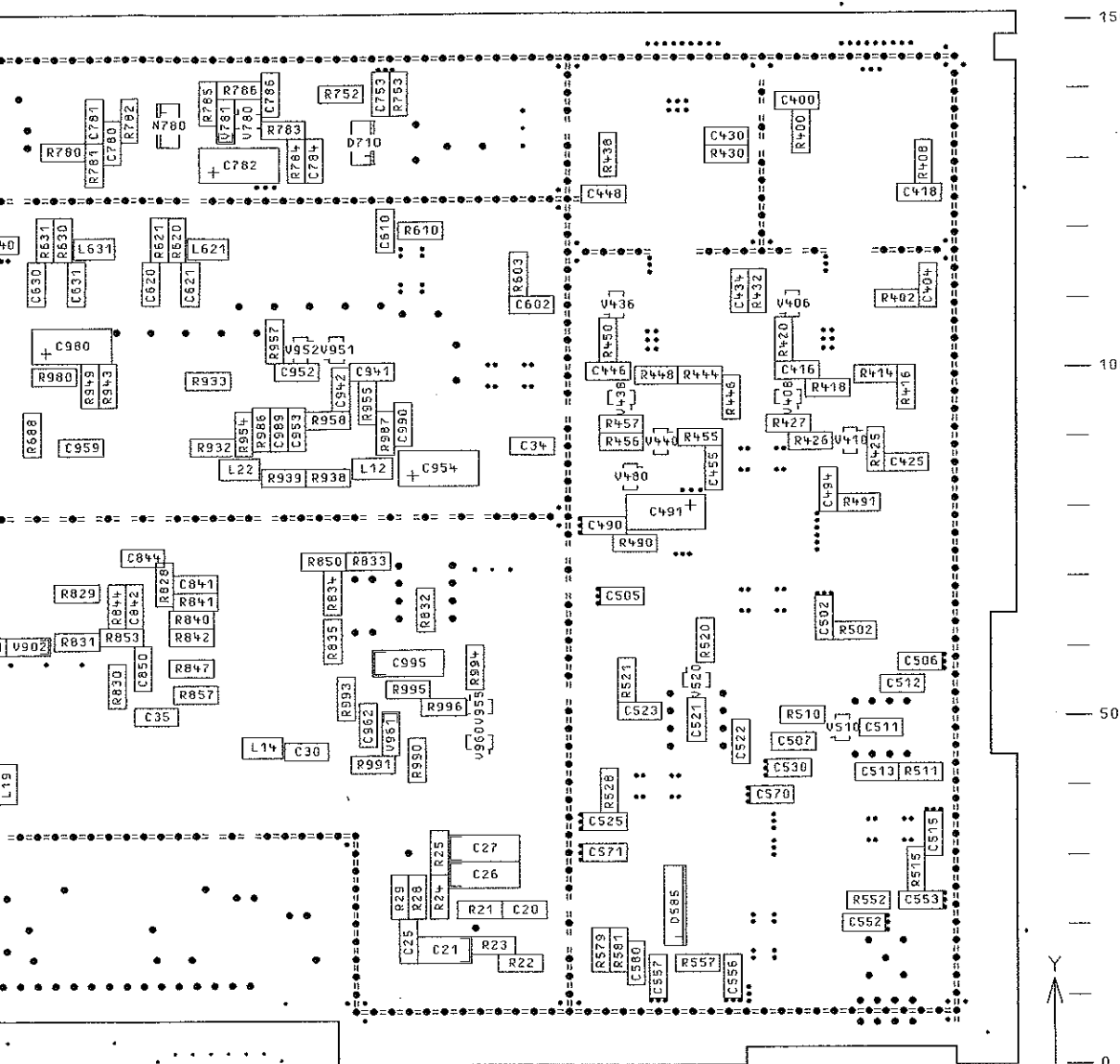
DARSTELLUNG SEITE B
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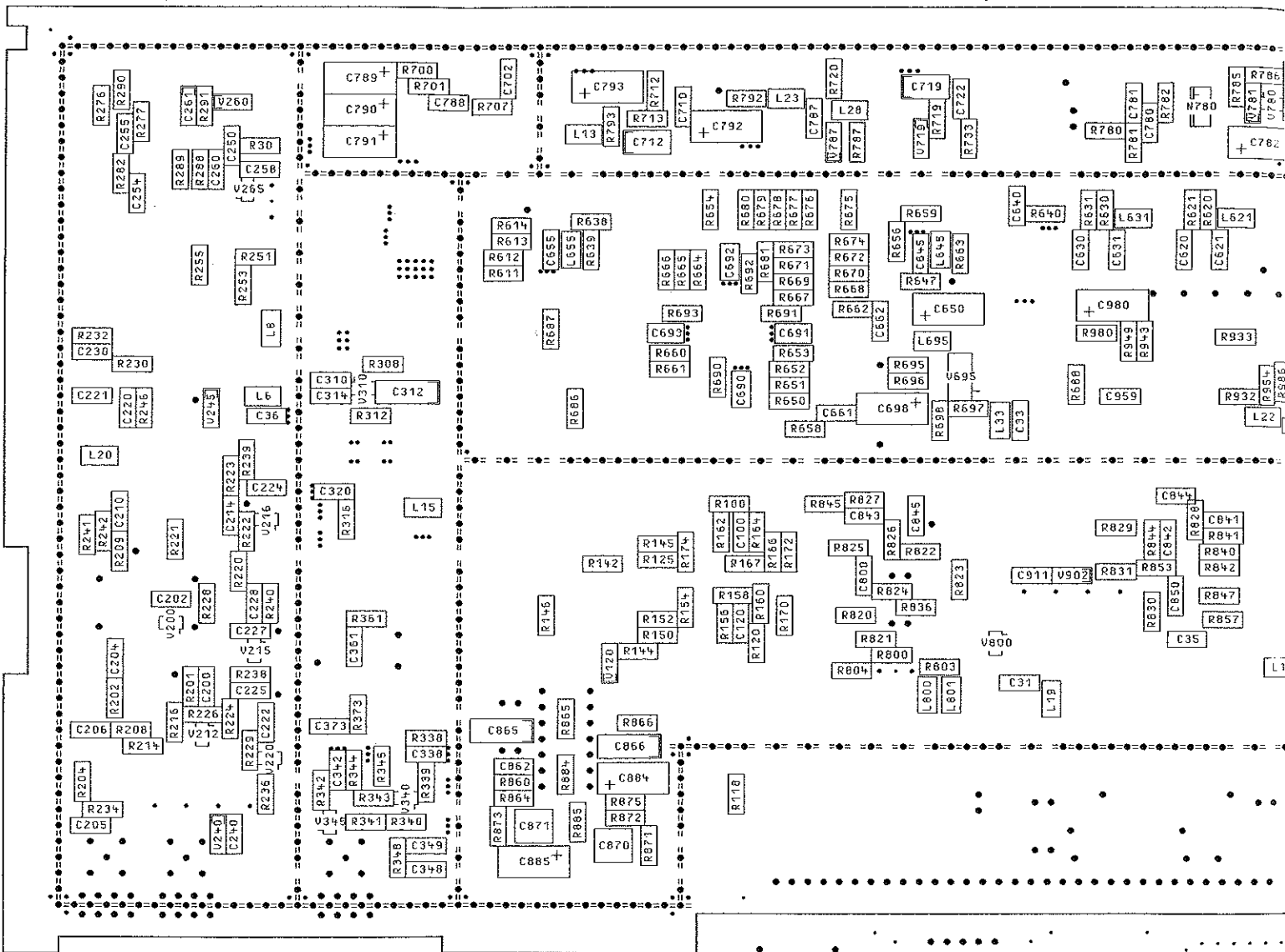
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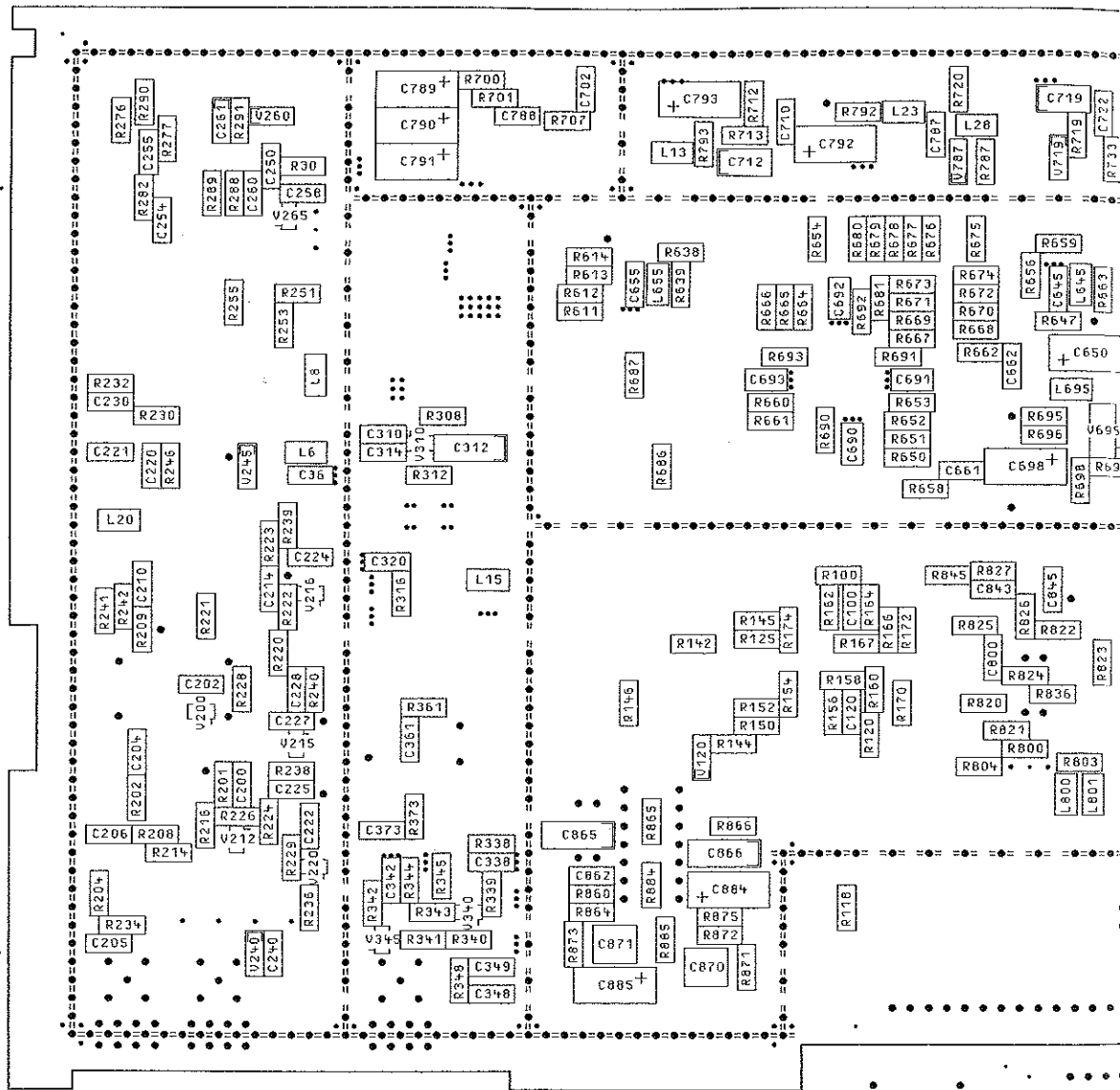
DARSTELLUNG SEITE A
 VIEW ON SIDE A



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 BAUELEMENTE ERFORDERN EINE
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 TRIMMING AND COMPONENTS VALUES AND
 NONFITTED COMPONENTS SEE PARTS LIST.





ROHDE & SCHWARZ

SERVICEUNTERLAGEN

Ausgangsteil 1.04 GHz

1062.6209.01

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Schaltteilliste
Koordinatenliste
Stromlauf
Bestückungsplan

Bei Geräten ohne Option SMY-B40 hat die Baugruppe die Variante VAR02.

Bei Geräten mit Option SMY-B40 hat die Baugruppe die Variante VAR03.

7.1 Funktionsbeschreibung

Das Ausgangsteil 1.04 GHz erhält über den Eingang FSYN von der Baugruppe Synthese das RF-Signal (6 dBm ... 12 dBm) im Frequenzbereich $65 \text{ MHz} \leq f_{\text{SYN}} \leq 1040 \text{ MHz}$. Dieses RF-Signal wird über einen Amplitudenmodulator und ein Amplitudenstellglied auf schaltbare Tiefpaßfilter gegeben. Im Signalzweig wird durch Umschalter der Ausgangsfrequenzbereich $5 \text{ kHz} \leq f_{\text{RF}} \leq 65 \text{ MHz}$ durch Abmischen mit einem 640 MHz-LO realisiert.

Die Baugruppe enthält folgende Funktionseinheiten:

- Einen AM-Modulator zur Pegelregelung und Amplitudenmodulation,
- einen AM-Modulator zur Pegelvoreinstellung (LEVEL PRESET),
- schaltbare Tiefpässe zur Unterdrückung von Harmonischen,
- einen Mischer mit LO-, RF- und ZF-Filtern,
- einen Pegeldetektor im RF-Zweig vor dem Mischer,
- einen Ausgangsverstärker,
- einen Pegeldetektor am Ausgang FOPU,
- einen Signalzweig zur Einstellung des RF-Pegelsollwertes und des Amplitudenmodulationsgrades,
- die RF-Pegelregelung,
- eine serielle Schnittstelle und
- eine Schaltung zur Diagnoseauswahl.

Im weiteren Text enthaltene Pegelangaben gelten für einen Geräteausgangspegel von +13 dBm (+19 dBm mit Option SMY-B40).

7.1.1 RF-Signalverarbeitung

Dem Eingang X224 FSYN ist ein Dämpfungsglied zur Temperaturkompensation nachgeschaltet. Anschließend folgt der AM MODULATOR.

Er ist das Stellglied der Pegelregelung im Bereich $f_{\text{RF}} \leq 1.04 \text{ GHz}$. Das RF-Signal wird durch RF AMPLIFIER 1 und RF AMPLIFIER 2 verstärkt und auf den PIN-Modulator LEVEL PRESET gegeben. Dieser Modulator wird durch gespeicherte Kalibrierdaten mittels D/A-Wandler so eingestellt, daß das Stellglied der Pegelregelung in einem optimalen Arbeitspunkt betrieben werden kann (vergl. Bedienhandbuch "Kalibrierung LEVEL PRESET").

Das RF-Signal wird durch den RF AMPLIFIER 3 verstärkt und auf schaltbare Tiefpässe HARMONIC FILTERS gegeben. Diese werden abhängig von der Eingangsfrequenz an X224 FSYN durch den Rechner eingeschaltet. Die Tiefpässe TP0 bis TP3 sind wie die Tiefpässe TP4 bis TP8 in Kette geschaltet. Filter in der Kette mit höherer Grenzfrequenz als der Grenzfrequenz des gewählten Tiefpasses bleiben eingeschaltet.

Im "Normalbetrieb" wird das RF-Signal über den PIN-Schalter SWITCHD (OFF) und den GaAs-Umschalter SWITCHB (OFF) auf den Ausgangsverstärker gegeben. Im "Mischerbetrieb" wird das RF-Signal über PIN-Schalter SWITCHD (ON) und den RF AMPLIFIER 4 auf den Detektor vor dem Mischer geschaltet.

7.1.2 Mischer mit LO-, RF- und ZF-Filtern

Das RF-Signal vom Detektor vor dem Mischer wird über den RF-Tiefpaß und ein Dämpfungsglied zur Pegelanpassung auf den RF-Eingang des Mixers geschaltet (Pegel ca. -5 ... -10 dBm). Das Signal von REF640 gelangt über einen Tiefpaß auf den LO-Eingang des Mixers. Über den ZF-Verstärker und den ZF-Tiefpaß wird das ZF-Signal auf den RF-Schalter SWITCHB (ON) vor dem Ausgangsverstärker geschaltet ($5 \text{ kHz} \leq f_{ZF} < 65 \text{ MHz}$, Pegel ca. 0 dBm).

7.1.3 Ausgangsverstärker

Der dreistufige lineare Breitbandverstärker verstärkt das Eingangssignal um ca. 19 dB. Die Kollektorströme der Stufen werden geregelt.

7.1.4 AM-Signalzweig und RF-Pegel-Sollwert

Das Signal der Leitung AMMOD wird auf den D/A-Wandler zur Modulationsgradeinstellung gegeben und gelangt auf den D/A-Wandler RFLEV zur RF-Pegeleinstellung.

7.1.5 RF-Pegelregelung

Bei Geräten ohne Option SMY-B40 wird der Pegeldetektor am Ausgang X226 FOPU bei Gerätefrequenzen $f_{RF} \geq 10 \text{ MHz}$ verwendet. Der RF-Pegel an der Diode beträgt ca. +19 dBm. Die Linearisierungsschaltung ermöglicht einen Dynamikbereich von ca. 30 dB bei guter Linearität (wichtig für geringen AM-Klirrfaktor).

Bei Geräten mit Option SMY-B40 wird für die Pegelregelung bei Gerätefrequenzen $\geq 10 \text{ MHz}$ der Detektor auf der Option SMY-B40 verwendet. Dessen Ausgangsspannung gelangt über das Kabel W125 zum Motherboard und von dort auf den Eingang X2.A5 DETEXT dieser Baugruppe.

Der Pegeldetektor im RF-Zweig vor dem Mischer wird bei Gerätefrequenzen $f_{RF} < 10 \text{ MHz}$ anstelle des Detektors am Ausgang X226 FOPU verwendet. Der RF-Pegel an der Diode beträgt ca. +15 dBm.

Die Pegelregelung erfolgt durch den PI-Regler N235. Der Führungswert wird vom D/A-Wandler RFLEV geliefert und mit dem Istwert von einem der drei Detektoren (VDET, DETEXT oder VDETMIX) je nach Frequenzbereich verglichen. Die Ausgangsspannung des PI-Reglers regelt den AM-Modulator nach.

Die 3dB-Bandbreite der Regelschleife kann durch AMSLOW von ca. 300 kHz auf ca. 50 kHz reduziert werden (siehe Spezialfunktion 13).

Das Aktivieren von KLEMM-N durch den Prozessor steuert den AM-Modulator auf maximale Dämpfung, dies wird z.B. bei Frequenzwechseln zur Vermeidung von Pegelspikes verwendet.

7.1.6 serielle Schnittstelle

Die ankommenden Daten werden in die Schieberegister und die D/A-Wandler LEVEL PRESET, RFLEV und AM getaktet.

7.1.7 Schaltung zur Diagnoseauswahl

Über den Diagnosemultiplexer kann eine von 8 Gleichspannungen auf die Diagnoseleitung gelegt werden. Der Spannungswert kann im Gerätedisplay angezeigt werden.

| Spezialfunktion | Soll-Spannungsbereich | Hinweis |
|-----------------|-----------------------|--|
| 101 | 0.00 V \pm 10 mV | Referenz 10 kOhm nach Masse |
| 102 | 0.00 V ... 6 V | Detektorspannung Ausgang FOPU |
| 103 | 0.00 V ... 6 V | Detektorspannung Mischer |
| 104 | 0.01 V ... 3 V | RF-Pegel nach Filterbank |
| 105 | -6.00 V ... 0 V | Führungswert der Pegelregelung |
| 106 | -1.00 V ... 10 V | Ausgangsspannung des Regelverstärkers |
| 107 | -1.00 V ... 10 V | Steuerspannung des AM-Modulators |
| 108 | 0.50 V ... 13 V | Steuerspannung des Stellgliedes LEVEL PRESET |

7.2 Meßgeräte und Hilfsmittel

- Spektrumanalysator (z.B. FSBS)
- Oszilloskop (z.B. BOL)
- Gleichspannungsmeßgerät (Multimeter, z.B. UDL33)
- Netzwerkanalysator (z.B. ZVR)
- RF-Pegelmesser (z.B. NRVD mit Meßkopf NRV-Z51)
- 10dB-N-Dämpfungsglied (z.B. DNF)

7.3 Fehlersuche

Vor dem Öffnen des Gerätes ist es zweckmäßig, zuerst einmal die Kalibrieroutine LEVEL PRESET zu starten und an Hand der Diagnosespannungen mögliche Fehlerquellen zu lokalisieren.

7.3.1 Fehler nur im Bereich $f_{RF} < 10$ MHz

falscher RF-Pegel an X226

Der Detektor im Mischbereich liefert eine falsche Spannung oder der PI-Regler wird nicht richtig angesteuert.
Spannung VDETMIX mit Spezialfunktion 103 prüfen.

schlechter AM-Klirrfaktor

Linearisierungsschaltung des Detektors prüfen.

7.3.2 Fehler nur im Bereich $f_{RF} < 65$ MHz

- falscher RF-Pegel an X226** Eingang REF640, ZF-Verstärker, RF-Verstärker 4 und die Ansteuerung SBDON-P und SBDON-N der Umschalter prüfen.
- Oberwellen zu groß** Prüfe ZF-Verstärker, ZF-Tiefpaß und RF-Schalter SWITCHB.
- Nebenwellen zu groß** Der Mischer ist defekt oder er wird mit zu hohem RF-Pegel angesteuert (Sollpegel am Mischer-RF-Eingang < -5 dBm). Prüfe ZF-Verstärker, ZF-Tiefpaß, RF-Schalter SWITCHB und den RF-Tiefpaß.

7.3.3 Fehler im Bereich $5 \text{ kHz} \leq f_{RF} \leq 1040$ MHz

- kein RF-Pegel an X226** Die Steuerspannung des AM-Modulators muß jetzt > 12 V sein, sonst arbeitet die Pegelregelung nicht richtig oder der Führungswert vom RFLEV-D/A-Wandler ist falsch. Pegel nach Filterbank prüfen (Spezialfunktion 104). Mit Spektrumanalysator mit RF-Tastkopf mit DC-Trennung die RF-Kette kontrollieren (die Sollverstärkung einzelner Verstärkerstufen beträgt ca. 7 dB)
- Oberwellen zu groß** Prüfe Filterbank und folgende RF-Verstärker-Kette, prüfe Arbeitspunkte des Endverstärkers.
- Stör-Phasenmodulation bei AM zu groß** Prüfe die Ansteuerspannung des AM-Modulators. Kalibrierung LEVEL PRESET am Gerät durchführen.
- AM-Klirrfaktor zu groß** Prüfen und Abgleich von Detektor und Linearisierungsschaltung, Kontrolle der AMSLOW-Ansteuerung.

7.3.4 Spektrale Reinheit, $\Delta f < 10$ MHz vom Träger

Seitenlinien in ca. 1 MHz
Abstand vom Träger

Pegel-Regelschleife schwingt;
Prüfe Detektor und
Linearisierungsschaltung.
Kalibrierung LEVEL PRESET
durchführen.

7.4 Prüfen und Abgleich

Vorbemerkung: Neben den Koppelkondensatoren bzw. -widerständen der RF-Kette befinden sich Massedurchkontaktierungen. An einer solchen Stelle kann ein Koaxialkabel eingelötet und über einen Koppelkondensator oder eine externe DC-Trennung ein Meßgerät (z.B. Netzwerk- oder Spektrumanalysator) angeschlossen werden. Hierzu wird das Koaxialkabel durch das Loch gesteckt, der Außenleiter des Koaxialkabels an der Durchkontaktierung und der Innenleiter am gewünschten Anschlußfleck des Kondensators angelötet.

7.4.1 Prüfen der Datenübertragung

Die Prüfung wird bei den in der Tabelle angegebenen Einstellungen am Gerät durchgeführt.

— Prüfen der Spannungen an D120:

"1" = +5 V, "0" = 0 V

| RF-Frequenz | D120/14 | D120/6 Hinweis |
|-------------|---------|----------------|
| RF 1MHz | 0 1 | DETMIXON |
| RF 10MHz | 1 0 | DETON |

7.4.2 Prüfen der Ausgangsspannung des Regelverstärkers

Um den Amplitudenmodulator optimal betreiben zu können ist die LEVEL PRESET-Kalibrierung erforderlich. Dieser optimale Arbeitspunkt ist unabhängig von der RF-Frequenz. Die Ausgangsspannung des Regelverstärkers soll bei einem Ausgangspegel von 13dBm (+19 dBm mit Option SMY-B40) 6.3V betragen. Bei elektronischer Pegelabsenkung auf 7dBm (+13 dBm mit Option SMY-B40) soll diese Spannung auf 3.9V absinken und bei weiterer elektronischer Pegelabsenkung bis zu -6dBm (0 dBm mit Option SMY-B40) konstant auf 3.9V bleiben.

- Den Geräteausgang RF 50Ω mit 50Ω abschließen.
 - LEVEL 13 dBm (+19 dBm mit Option SMY-B40) einstellen und
 - Spezialfunktion 1 (unterbrechungsfreie PegelEinstellung) einschalten.
- Über die Spezialfunktion 106 kann die Ausgangsspannung des Regelverstärkers gemessen werden.

7.4.3 Prüfen der LEVEL PRESET-Steuerspannung

- Den Geräteausgang RF 50Ω mit 50Ω abschließen.
 - LEVEL 13 dBm (+19 dBm mit Option SMY-B40) einstellen
 - Spezialfunktion 1 (unterbrechungsfreie PegelEinstellung) einschalten.
- Über die Spezialfunktion 108 kann die LEVEL PRESET-Spannung gemessen werden.
Die Spannung ist abhängig von der RF-Frequenz und vom RF-Pegel.
Der Rechner sendet die berechneten Werte in den LEVEL PRESET-D/A-Wandler.

Typische Spannungswerte sind in folgender Tabelle dargestellt:

| RF-Frequenz | SMY01 ohne Option SMY-B40 | | | | SMY01 mit Option SMY-B40 | | | |
|-------------|---------------------------|------|------|-------|--------------------------|-------|------|------|
| | 13dBm | 7dBm | 0dBm | -6dBm | 19dBm | 13dBm | 6dBm | 0dBm |
| 25MHz | 1.2V | 1.2V | 0.8V | 0.6V | 1.2V | 1.2V | 0.8V | 0.6V |
| 100MHz | 1.7V | 1.7V | 1.2V | 0.8V | 1.7V | 1.7V | 1.2V | 0.8V |
| 300MHz | 1.2V | 1.2V | 0.9V | 0.6V | 1.2V | 1.2V | 0.9V | 0.6V |
| 500MHz | 1.3V | 1.3V | 0.9V | 0.6V | 1.3V | 1.3V | 0.9V | 0.6V |
| 750MHz | 2.0V | 2.0V | 1.4V | 1.0V | 2.0V | 2.0V | 1.4V | 1.0V |
| 800MHz | 1.5V | 1.5V | 1.0V | 0.8V | 1.5V | 1.5V | 1.0V | 0.8V |
| 1040MHz | 2.0V | 2.0V | 1.4V | 1.0V | 2.0V | 2.0V | 1.4V | 1.0V |

7.4.4 Prüfen der Arbeitspunkte der Verstärkerstufen

| Prüfpunkt | Sollspannung | Bemerkung |
|----------------|--------------|--------------------|
| N360/3 | 5.50 ± 1.1V | RF AMPLIFIER 2 |
| N410/3 | 5.50 ± 1.1V | RF AMPLIFIER 3 |
| V602 Kollektor | 8.90 ± 0.3V | RF AMPLIFIER 4 |
| V612 Kollektor | 5.90 ± 0.3V | IF AMPLIFIER |
| V802 Kollektor | 9.60 ± 0.3V | OUTPUT AMPLIFIER 1 |
| V817 Kollektor | 8.70 ± 0.3V | OUTPUT AMPLIFIER 2 |
| V822 Kollektor | 8.80 ± 0.3V | OUTPUT AMPLIFIER 3 |

7.4.5 Prüfen der Ansteuerung der Filterbank

– Prüfen von LPSELECT-0 ... LPSELECT-3 und der Schaltleitungen TP0 ... TP8.

| RF-Frequenz | LPSELECT- | | | | Hinweis |
|-------------|-----------|--------|--------|---|---------------------------|
| | 2 | 1 | 0 | 0 | |
| D111/8 | D111/11 | D111/6 | D111/3 | | |
| 780.00 MHz | 0 | 0 | 0 | 1 | Tiefpaß 1 |
| 520.00 MHz | 0 | 0 | 1 | 0 | Tiefpaß 2 |
| 390.00 MHz | 0 | 0 | 1 | 1 | Tiefpaß 3 |
| 260.00 MHz | 0 | 1 | 0 | 0 | Tiefpaß 4 |
| 195.00 MHz | 0 | 1 | 0 | 1 | Tiefpaß 5 |
| 130.00 MHz | 0 | 1 | 1 | 0 | Tiefpaß 6 |
| 97.50 MHz | 0 | 1 | 1 | 1 | Tiefpaß 7 |
| 65.00 MHz | 1 | 0 | 0 | 0 | Tiefpaß 8 |
| 64.00 MHz | 0 | 0 | 1 | 0 | Tiefpaß 2, Mischerbereich |

7.4.6 Prüfen des RF-Pegels nach der Filterbank

- Den Geräteausgang RF 50Ω mit 50Ω abschließen.
- Einstellung: RF LEVEL 13 dBm (+19 dBm mit Option SMY-B40)
- _ Über die Spezialfunktion 104 kann die gleichgerichtete RF-Spannung gemessen werden.

Typische Spannungswerte sind in folgender Tabelle dargestellt:

| RF-Frequenz | Diagnosespannung | |
|-------------|------------------|--|
| 10 MHz | 0.2V | |
| 100 MHz | 0.7V | |
| 200 MHz | 1.1V | |
| 300 MHz | 1.0V | |
| 400 MHz | 1.3V | |
| 500 MHz | 1.4V | |
| 600 MHz | 1.4V | |
| 700 MHz | 1.0V | |
| 800 MHz | 1.4V | |
| 900 MHz | 0.6V | |
| 1000 MHz | 1.5V | |
| 1040 MHz | 2.5V | |

7.4.7 Abgleich der ZF-Verstärkung

- Spektrumanalysator an Geräteausgang RF 50Ω anschließen
- Einstellung: RF 10 MHz
LEVEL 13 dBm (+19 dBm mit Option SMY-B40)
- _ RF-Signal messen, RF-Pegel merken
- _ RF-Frequenz um 1 Hz erniedrigen
- _ Mit Pot R645 den RF-Pegel auf den gleichen Wert einstellen
- _ Nach dem Abgleich sollte die Kalibrierroutine LEVEL PRESET aufgerufen werden.

7.4.8 Abgleich der ZF-Detektor-Linearität

- Einstellung: RF 9.9 MHz
LEVEL 0.1 dBm (6.1 dBm mit Option SMY-B40)
- _ Ausgangspegel am RF-Ausgang des Gerätes messen und merken (= Referenzpegel)
- Einstellung: Spezialfunktion 1 einschalten
(unterbrechungsfreie PegelEinstellung)
LEVEL -19.9 dBm (-13.9 dBm mit Option SMY-B40)
- _ Mit POT R619 so abgleichen, daß der gemessene Pegel 20 dB unter dem zuvor gemessenen Referenzpegel liegt. Abgleich einmal wiederholen, da sich der Referenzwert mit R619 geringfügig ändert; die Genauigkeit der 20dB-Absenkung soll nach dem Abgleich ± 0.1 dB erreichen.

7.4.9 Abgleich der Detektor-Linearität am Ausgang FOPU

- Dieser Abgleich darf nur dann durchgeführt werden, wenn **keine** Option SMY-B40 eingebaut ist!

- Einstellung: RF 100 MHz
 LEVEL 13 dBm

_ Ausgangspegel am RF-Ausgang des Gerätes messen und merken (= Referenzpegel)

- Einstellung: Spezialfunktion 1 einschalten
 (unterbrechungsfreie Pegeleinstellung)
 LEVEL -7 dBm

_ Mit POT R851 so abgleichen, daß der gemessene Pegel 20 dB unter dem zuvor gemessenen Referenzpegel liegt. Abgleich einmal wiederholen, da sich der Referenzwert mit R851 ändert; die Genauigkeit der 20dB-Absenkung soll nach dem Abgleich ± 0.1 dB erreichen.

7.4.10 Abgleich des AM-Modulationsgrades

- Einstellung: PRESET
 LEVEL 7 dBm (+13 dBm mit Option SMY-B40)
 AM EXT DC 100%
 Spezialfunktion 105 einschalten
 (Führungswert der Pegelregelung)

- Eine Gleichspannung $U = -1.000$ V an AM EXT anlegen.

_ Mit POT R280 auf 0 V abgleichen.

7.5 Zerlegung und Zusammenbau

Oberem Gerätedeckel entfernen. Die Baugruppe ist links und rechts an der Auflage festgeschraubt. Nach dem Entfernen dieser Schrauben und dem Lösen der Koax-Verbindungen an X224, X225 und X226 kann die Baugruppe aus ihrem Steckplatz entnommen werden.

7.6 Endprüfung

7.6.1 Prüfen des maximalen Ausgangspegels

- Einstellung: LEVEL 19 dBm (25 dBm mit Option SMY-B40)
- _ An X226 FOPU einen Leistungsmesser anschließen, dabei muß ggf. ein geeignetes RF-Dämpfungsglied vorgeschaltet werden, um den Meßkopf nicht zu überlasten.
- _ RF-Frequenz von 5kHz bis 1040 MHz variieren.
Der RF-Pegel muß > 15dBm (20 dBm mit Option SMY-B40) bleiben.

Typische Pegelwerte sind in folgender Tabelle dargestellt:

| | SMY01 ohne Option SMY-B40 | SMY01 mit Option SMY-B40 |
|-------------|---------------------------|--------------------------|
| RF-Frequenz | Ausgangspegel | Ausgangspegel |
| 10 MHz | 16 dBm | 21 dBm |
| 100 MHz | 19 dBm | 24 dBm |
| 200 MHz | 19 dBm | 26 dBm |
| 250 MHz | 19 dBm | 25 dBm |
| 400 MHz | 20 dBm | 24 dBm |
| 500 MHz | 18 dBm | 25 dBm |
| 600 MHz | 18 dBm | 26 dBm |
| 750 MHz | 17 dBm | 26 dBm |
| 800 MHz | 19 dBm | 26 dBm |
| 1000 MHz | 18 dBm | 26 dBm |

7.6.2 Prüfen des Oberwellenabstandes

- Gerät ohne Option SMY-B40:
- Einstellung: LEVEL 10 dBm
- _ An X226 FOPU einen Spektrumanalysator anschließen.
- _ Der Pegel der Harmonischen muß < -30 dBc sein.

- Gerät mit Option SMY-B40:
- Einstellung: LEVEL 16 dBm
 Spezial 21 (ALC aus)

Da für die Messung die Verbindung von FOPU zum Powermodul aufgetrennt wird, muß die Pegelregelung auf den Sample-and-Hold-Betrieb geschaltet werden. Vor jeder Änderung der Geräteeinstellung muß diese Verbindung wieder geschlossen werden!

- _ Meßfrequenz einstellen.
- _ An X226 FOPU einen Spektrumanalysator anschließen.
- _ Der Pegel der Harmonischen muß <-25 dBc sein.

Typische Meßwerte sind in folgender Tabelle dargestellt:

| RF-Frequenz | SMY01 ohne Option SMY-B40 | | SMY01 mit Option SMY-B40 | |
|-------------|---------------------------|-------------------|--------------------------|-------------------|
| | 2*f _{RF} | 3*f _{RF} | 2*f _{RF} | 3*f _{RF} |
| 1 MHz | -50 dBc | -40 dBc | -45 dBc | -50 dBc |
| 10 MHz | -50 dBc | -45 dBc | -50 dBc | -50 dBc |
| 100 MHz | -50 dBc | -40 dBc | -50 dBc | -50 dBc |
| 200 MHz | -45 dBc | -45 dBc | -50 dBc | -50 dBc |
| 350 MHz | -50 dBc | -40 dBc | -50 dBc | -50 dBc |
| 650 MHz | -50 dBc | -40 dBc | -45 dBc | -50 dBc |
| 900 MHz | -35 dBc | -45 dBc | -40 dBc | -50 dBc |
| 1040 MHz | -45 dBc | -45 dBc | -40 dBc | -50 dBc |

7.6.3 Prüfen des Nebenwellenabstandes

- Einstellung: RF 63 MHz
LEVEL 13 dBm (+19 dBm mit Option SMY-B40)

- _ An X226 FOPU einen Spektrumanalysator anschließen.
- _ Nebenwellen bei folgenden Frequenzen prüfen:
703 MHz, 640 MHz, 136 MHz, 73 MHz, 10 MHz
Der Pegel der Nebenwellen muß < -70 dBc sein (typ. < -100 dBc).

7.7 Externe Schnittstellen

| Pin | Name | Ein/Ausgang | Herkunft/Ziel | Wertebereich | Signalbeschreibung |
|--------|---------|-------------|-----------------|--------------------|-----------------------------|
| X2A.01 | BLANK | Eingang | Rückwanne | HCMOS-Pegel | RF-Pegelaustastung |
| X2A.05 | DETEXT | Eingang | Pmod | 0 ... 10 V | Detektorspg. Option SMY-B40 |
| X2A.07 | AMMOD | Eingang | CPU X3.3 | 4-1 V bis 1 V | AM-Signal |
| X2A.12 | SERCLK | Eingang | CPU X3.2 | HCMOS-Pegel | Clock |
| X2A.14 | SERDAT | Eingang | CPU X3.4 | HCMOS-Pegel | serielle Daten |
| X2A.15 | AT1STB | Eingang | CPU X3.16 | HCMOS-Pegel | Strobe 1 |
| X2A.17 | HFINT | Ausgang | CPU X3.20 | HCMOS-Pegel | Interrupt Pegelregelung |
| X2A.19 | DIAG-5V | Ausgang | CPU X3.6 | -5 V..5 V | Diagnose |
| X2A.22 | VA24-P | Eingang | Netzteil X21.22 | 23.4 V..24.6 V | Versorgungsspannung analog |
| X2A.24 | VA15-P | Eingang | Netzteil X21.13 | 14.80 V..15.75 V | Versorgungsspannung analog |
| X2A.25 | | | | | |
| X2A.28 | VA-5P | Eingang | Netzteil X21.5 | 5.10 V..5.25 V | Versorgungsspannung analog |
| X2A.30 | VA15-N | Eingang | Netzteil X21.20 | -15.75 V..-14.85 V | Versorgungsspannung analog |
| X224 | FSYN | Eingang | YSYN X124 | 6 - 12 dBm | 65 - 1040 MHz |
| X225 | REF640 | Eingang | YSYN X125 | 9 - 12 dBm | 640 MHz |
| X226 | FOPU | Ausgang | Eichleitung X1 | -6...20 dBm | 5 kHz - 1.04 GHz |



ROHDE & SCHWARZ

SERVICE INSTRUCTIONS

Output Module 1.04 GHz

1062.6209.01

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Parts list
List of coordinates
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Component layout diagram

In instruments without fitted option SMY-B40, this module has the variant VAR 02.

In instruments with fitted option SMY-B40, this module has the variant VAR 03.

7.1 Function Description

The Output Module 1.04 GHz is provided with the RF signal (6 dBm to 12 dBm) in the frequency range $65 \text{ MHz} \leq f_{\text{SYN}} \leq 1040 \text{ MHz}$ by the synthesis module via the input FSYN. This RF signal is passed via an amplitude modulator and an amplitude control element to switchable harmonic filters. The output frequency range of $5 \text{ kHz} \leq f_{\text{RF}} \leq 65 \text{ MHz}$ is realized in the signal path via changeover switches by means of downconversion with a 640 MHz LO.

The module consists of the subsequent function units:

- an AM modulator for level control and amplitude modulation,
- an AM modulator for level presetting (LEVEL PRESET),
- switchable harmonic filters,
- a mixer with LO, RF and IF filters,
- a level detector in the RF path preceding the mixer,
- an output amplifier,
- a level detector at the output FOPU,
- a signal path for processing the nominal value of the RF level and the amplitude-modulation depth,
- the RF level control,
- a serial interface and
- a circuit for diagnostics selection.

Further information on levels apply for an instrument output level of +13 dBm (+ 19 dBm with option SMY-B40).

7.1.1 RF Signal Processing

The input X224 FSYN is followed by an attenuator for temperature compensation. The attenuator is followed by the AM MODULATOR.

It is used as control element for level control in the range $f_{\text{RF}} \leq 1.04 \text{ GHz}$.

The RF signal is amplified by RF AMPLIFIER 1 and RF AMPLIFIER 2 and passed to the PIN modulator LEVEL PRESET. This modulator is set by means of stored calibration data via the D/A converter such that the control element for level control can be operated in an optimum operating point. (cf. operating manual "Calibrating LEVEL PRESET").

The RF signal is amplified by the RF AMPLIFIER 3 and routed to switchable HARMONIC FILTERS. These filters are switched on by the controller depending on the input frequency at X224 FSYN. Similar to the lowpass filters TP4 to TP8, the lowpass filters TP0 to TP3 are cascaded. Filters in the signal path which have a higher cutoff frequency than the cutoff frequency of the lowpass selected remain switched on.

In "normal operation", the RF signal passes via the PIN switch SWITCHD (OFF) and the GaAs changeover switch SWITCHB (OFF) to the output amplifier. In "mixer operation" the RF signal is passed via the PIN switch SWITCHD (ON) and the RF AMPLIFIER 4 to the detector preceding the mixer.

7.1.2 Mixer with LO, RF and IF Filters

The RF signal supplied by the detector preceding the mixer is switched via the RF lowpass and an attenuator to the RF input of the mixer for level adjustment (level approx. -5 to -10 dBm). The signal of REF 640 passes via a lowpass to the LO input of the mixer. The IF signal reaches the RF switch SWITCHB (ON) preceding the output amplifier via the IF amplifier and the IF lowpass ($5 \text{ kHz} \leq f_{ZF} < 65 \text{ MHz}$, level approx. 0 dBm).

7.1.3 Output Amplifier

The three-stage linear broadband amplifier amplifies the input signal by approx. 19 dB. The collector currents of the stages are controlled.

7.1.4 AM Signal Path and Nominal Value of RF Level

The signal of the AMMOD line is passed to the D/A converter for setting of the modulation depth and then passes to the D/A converter RFLEV for RF-level adjustment.

7.1.5 RF Level Control

For instruments without option SMY-B40, the level detector at the output X226 FOPU is used at instrument frequencies $f_{RF} \geq 10 \text{ MHz}$. The RF level at the diode is approx. +19 dBm. The linearization circuit allows for a dynamic range of approx. 30 dB with good linearity (important for low AM distortion).

For instruments with option SMY-B40, the detector of the option SMY-B40 is used for level control at instrument frequencies $\geq 10 \text{ MHz}$. Its output voltage is applied to the motherboard via cable W125 and then fed into the input X2.A5 DETEXT of this module.

The level detector in the RF path preceding the mixer is used with instrument frequencies $f_{RF} < 10 \text{ MHz}$ instead of the detector at the output X226 FOPU. The RF level at the diode is approx. +15 dBm.

The level is controlled via the PI regulator N235. The reference value is supplied by D/A converter RFLEV and compared to the actual value of one of the three detectors (VDET, DETEXT or VDETMIX) depending on the frequency range. The output voltage of the PI regulator adjusts the AM modulator.

The 3-dB bandwidth of the control loop can be reduced by AMSLOW from approx. 300 kHz to approx. 50 kHz. (see special function 13).

The processor activates KLEMM-N to set the AM modulator to maximum attenuation, which is used, e.g., for frequency changes in order to avoid level spikes.

7.1.6 Serial Interface

The incoming data are clocked into the shift registers and the D/A converters LEVEL PRESET, RFLEV and AM.

7.1.7 Circuit for Diagnostics Selection

One of eight dc voltages can be applied to the diagnostic line via the diagnostic multiplexer. The voltage can be displayed on the instrument display.

| Special function | Nominal voltage range | Remark |
|------------------|-----------------------|--|
| 101 | 0.00 V ±10 mV | 10-kOhm reference to ground |
| 102 | 0.00 V ... 6 V | Detector voltage output FOPU |
| 103 | 0.00 V ... 6 V | Detector voltage mixer |
| 104 | 0.01 V ... 3 V | RF level at harmonic filter output |
| 105 | -6.00 V ... 0 V | Reference value of level control |
| 106 | -1.00 V ... 10 V | Output voltage of the control amplifier |
| 107 | -1.00 V ... 10 V | Control voltage of the AM modulator |
| 108 | 0.50 V ... 13 V | Control voltage of the control element LEVEL PRESET |

7.2 Test Instruments and Utilities

- Spectrum analyzer (e.g., FSBS)
- Oscilloscope (e.g., BOL)
- DC power meter (multimeter, e.g., UDL33)
- Network analyzer (e.g., ZVR)
- RF power meter (e.g., NRVD with sensor NRV-Z51)
- 10-dB-N-attenuator pad (e. g. DNF)

7.3 Troubleshooting

Before opening the instrument, it is useful to first start the calibration routine LEVEL PRESET and localize possible error sources using the diagnostic voltages.

7.3.1 Errors Occurring Only in the Range $f_{RF} < 10$ MHz

Incorrect RF level at X226 Either the detector in the mixed range supplies an incorrect voltage or the PI regulator is not controlled correctly.
Check voltage VDETMIX using special function 103.

Bad AM distortion Check the linearization circuit of the detector.

7.3.2 Errors Occurring Only in the Range $f_{RF} < 65$ MHz

- Incorrect RF level at X226** Check input REF640, IF amplifier, RF amplifier 4 and control of SBDON-P and SBDON-N of the changeover switches.
- Harmonics too high** Check IF amplifier, RF lowpass and RF switch SWITCHB.
- Spurious signals too high** The mixer is either faulty or its input RF level is too high (nominal level at the mixer RF input < -5 dBm). Check IF amplifier, IF lowpass, RF switch SWITCHB and the RF lowpass.

7.3.3 Errors Occurring in Range $5 \text{ kHz} \leq f_{RF} \leq 1040$ MHz

- No RF level at X226** The control voltage of the AM modulator must be > 12 V, otherwise, the level control does not work correctly or the reference value of RFLEV D/A converter is incorrect. Check level at harmonic filter output (special function 104). Check the RF signal path using a spectrum analyzer with RF probe providing dc isolation (the gain of the amplifier stages is approx. 7 dB)
- Harmonics too high** Check harmonic filters and subsequent RF amplifiers, check operating points of the output amplifier.
- Incidental phase modulation with AM too high** Check the control voltage of the AM modulator. Perform LEVEL PRESET calibration .
- AM distortion too high** Adjust and check detector and linearization circuit, check AMSLOW control.

7.3.4 Spectral Purity, $\Delta f < 10$ MHz from the Carrier

- Spurious signals at approx. 1 MHz from carrier** ALC control loop oscillates; check detector and linearization circuit. Perform LEVEL PRESET calibration.

7.4 Testing and Adjustment

Hints: *Ground via-holes have been fitted next to the coupling capacitors and resistors of the RF signal path. A coaxial cable can be soldered in at such a location and a test instrument can be connected via a coupling capacitor or an external dc isolation (e.g., a network or spectrum analyzer). Therefore, the coaxial cable is routed through the hole, the external conductor is soldered at the via-hole and the inner conductor at the desired location.*

7.4.1 Testing Data Transmission

The test is performed with the instrument settings listed in the table.

- Check the voltages at D120:
"1" = +5 V, "0" = 0 V

| RF frequency | D120/14 | D120/6 | Remark |
|--------------|---------|--------|----------|
| RF 1MHz | 0 | 1 | DETMIXON |
| RF 10MHz | 1 | 0 | DETON |

7.4.2 Testing the Output Voltage of the Control Amplifier

The LEVEL PRESET calibration is required for optimum operation of the amplitude modulator. This optimum operating point is independent of the RF frequency. The nominal output voltage of the control amplifier is 6.3 V for an output level of 13 dBm (+19 dBm with option SMY-B40). When the level is decreased electronically to 7dBm (+13 dBm with option SMY-B40), this voltage should drop to 3.9V and should remain constant even with further electronic reduction of the level down to -6 dBm (0 dBm with option SMY-B40).

- Terminate the instrument output RF 50Ω with 50Ω.
 - Set LEVEL to 13 dBm (+19 dBm with option SMY-B40) and
 - switch on special function 1 (non-interrupting level setting)
- The output voltage of the control amplifier can be measured using special function 106.

7.4.3 Testing the LEVEL PRESET Control Voltage

- Terminate the instrument output RF 50Ω with 50Ω.
 - Set LEVEL to 13 dBm. (+19 dBm with option SMY-B40)
 - Switch on special function 1 (non-interrupting level setting)
- The LEVEL PRESET voltage can be measured using special function 108.
- The voltage depends on the RF frequency and the RF level. The controller transmits the calculated values to the LEVEL PRESET D/A converter.

Typical voltages are given in the table below:

| RF- frequency | SMY01 without option SMY-B40 | | | | SMY01 with option SMY-B40 | | | |
|------------------|------------------------------|-------|-------|--------|---------------------------|--------|-------|-------|
| | 13 dBm | 7 dBm | 0 dBm | -6 dBm | 19 dBm | 13 dBm | 6 dBm | 0 dBm |
| 25 MHz | 1.2 V | 1.2 V | 0.8 V | 0.6 V | 1.2 V | 1.2 V | 0.8 V | 0.6 V |
| 100 MHz | 1.7 V | 1.7 V | 1.2 V | 0.8 V | 1.7 V | 1.7 V | 1.2 V | 0.8 V |
| 300 MHz | 1.2 V | 1.2 V | 0.9 V | 0.6 V | 1.2 V | 1.2 V | 0.9 V | 0.6 V |
| 500 MHz | 1.3 V | 1.3 V | 0.9 V | 0.6 V | 1.3 V | 1.3 V | 0.9 V | 0.6 V |
| 750 MHz | 2.0 V | 2.0 V | 1.4 V | 1.0 V | 2.0 V | 2.0 V | 1.4 V | 1.0 V |
| 800 MHz | 1.5 V | 1.5 V | 1.0 V | 0.8 V | 1.5 V | 1.5 V | 1.0 V | 0.8 V |
| 1040 MHz | 2.0 V | 2.0 V | 1.4 V | 1.0 V | 2.0 V | 2.0 V | 1.4 V | 1.0 V |

7.4.4 Testing the Operating Points of Amplifier Stages

| Test point | Nominal voltage | Remark |
|----------------|-----------------|--------------------|
| N360/3 | 5.50 ± 1.1V | RF AMPLIFIER 2 |
| N410/3 | 5.50 ± 1.1V | RF AMPLIFIER 3 |
| V602 Collector | 8.90 ± 0.3V | RF AMPLIFIER 4 |
| V612 Collector | 5.90 ± 0.3V | IF AMPLIFIER |
| V802 Collector | 9.60 ± 0.3V | OUTPUT AMPLIFIER 1 |
| V817 Collector | 8.70 ± 0.3V | OUTPUT AMPLIFIER 2 |
| V822 Collector | 8.80 ± 0.3V | OUTPUT AMPLIFIER 3 |

7.4.5 Testing the Harmonic Filters Control

_ Testing LPSELECT-0 ... LPSELECT-3 and the lines TP0 to TP8.

| RF frequency 3 D111/8 | LPSELECT- | | | | Remark |
|-----------------------------|--------------|-------------|-------------|---|------------------------|
| | 2 D111/11 | 1 D111/6 | 0 D111/3 | | |
| 780.00 MHz | 0 | 0 | 0 | 1 | Lowpass 1 |
| 520.00 MHz | 0 | 0 | 1 | 0 | Lowpass 2 |
| 390.00 MHz | 0 | 0 | 1 | 1 | Lowpass 3 |
| 260.00 MHz | 0 | 1 | 0 | 0 | Lowpass 4 |
| 195.00 MHz | 0 | 1 | 0 | 1 | Lowpass 5 |
| 130.00 MHz | 0 | 1 | 1 | 0 | Lowpass 6 |
| 97.50 MHz | 0 | 1 | 1 | 1 | Lowpass 7 |
| 65.00 MHz | 1 | 0 | 0 | 0 | Lowpass 8 |
| 64.00 MHz | 0 | 0 | 1 | 0 | Lowpass 2, Mixer range |

7.4.6 Testing the RF Level at the Harmonic Filters Output

- Terminate the instrument output RF 50Ω with 50Ω.
 - Setting: RF LEVEL 13 dBm (+19 dBm with option SMY-B40)
- _ The rectified RF voltage can be measured using special function 104.

Typical voltages are given in the table below:

| RF frequency | Diagnostic voltage |
|--------------|--------------------|
| 10 MHz | 0.2V |
| 100 MHz | 0.7V |
| 200 MHz | 1.1V |
| 300 MHz | 1.0V |
| 400 MHz | 1.3V |
| 500 MHz | 1.4V |
| 600 MHz | 1.4V |
| 700 MHz | 1.0V |
| 800 MHz | 1.4V |
| 900 MHz | 0.6V |
| 1000 MHz | 1.5V |
| 1040 MHz | 2.5V |

7.4.7 IF Gain Adjustment

- Connect a spectrum analyzer to the instrument output RF 50Ω.
- Setting: RF 10 MHz
LEVEL 13 dBm (+19 dBm with option SMY-B40)
- Measure RF signal, note RF level
- Decrease RF frequency by 1 Hz
- Adjust the RF level to the same value using the potentiometer R645
- Subsequent to adjustment, call the calibration routine LEVEL PRESET.

7.4.8 IF Detector Linearity Adjustment

- Setting: RF 9.9 MHz
LEVEL 0.1 dBm (6.1 dBm with option SMY-B40)
- Measure and note the output level at the RF output (= reference level)
- Setting: Switch on special function 1
(non-interrupting level setting)
LEVEL -19.9 dBm (-13.9 dBm with option SMY-B40)
- Adjust R619 that the measured level is 20 dB below the previously measured reference level. Repeat adjustment once, since the reference value slightly changes with use of R619; after the adjustment, the accuracy of the 20 dB reduction shall reach ± 0.1 dB.

7.4.9 Detector Linearity Adjustment at the Output FOPU

This adjustment must be carried out only if option SMY-B40 is **not** fitted!

- Setting: RF 100 MHz
 LEVEL 13 dBm

- Measure and note the output level at the RF output of the instrument (= reference level)

- Setting: Switch on special function 1
 (non-interrupting level setting)
 LEVEL -7 dBm

- Adjust R851 that the measured level is 20 dB below the previously measured reference level. Repeat adjustment once, since the reference value changes with use of R851; the accuracy of the 20 dB reduction shall reach ± 0.1 dB.

7.4.10 AM Depth Adjustment

- Setting: PRESET
 LEVEL 7 dBm (+13 dBm with option SMY-B40)
 AM EXT DC 100%
 Switch on special function 105
 (reference value of level control)

- Apply a dc voltage $V = -1.000$ V to AM EXT.

- Adjust to 0 V using R280.

7.5 Disassembly and Assembly

- Remove upper instrument cover.
The module is fixed to the support at the left and right sides. It can be taken out of its slot subsequent to undoing these screws and disconnecting the coaxial connections at X224, X225 and X226.

7.6 Final Test

7.6.1 Maximum Output Level Check

- Setting: LEVEL 19 dBm (25 dBm with option SMY-B40)
- Connect a power meter to X226 FOPU. This may require an adequate RF attenuator pad to be installed so that the power sensor is not overdriven.
- Vary the RF frequency from 5kHz to 1040 MHz. The RF level must remain > 15 dBm (> 20 dBm with option SMY-B40).

Typical levels are given in the table below:

| | SMY01 without option SMY-B40 | SMY01 with option SMY-B40 |
|--------------|------------------------------|---------------------------|
| RF-frequency | output level | output level |
| 10 MHz | 16 dBm | 21 dBm |
| 100 MHz | 19 dBm | 24 dBm |
| 200 MHz | 19 dBm | 26 dBm |
| 250 MHz | 19 dBm | 25 dBm |
| 400 MHz | 20 dBm | 24 dBm |
| 500 MHz | 18 dBm | 25 dBm |
| 600 MHz | 18 dBm | 26 dBm |
| 750 MHz | 17 dBm | 26 dBm |
| 800 MHz | 19 dBm | 26 dBm |
| 1000 MHz | 18 dBm | 26 dBm |

7.6.2 Harmonics Suppression Check

Instrument without option SMY-B40

- Setting: LEVEL 10 dBm
- Connect a spectrum analyzer to X226 FOPU.
- The level of the harmonics must be < -30 dBc.

Instrument with option SMY-B40

- Setting: LEVEL 16 dBm
Special 21 (ALC off)

As the connection from FOPU to the power module is undone for the measurement, the level control must be switched to sample-and-hold operation. This connection must be reestablished before any of the instrument settings are changed!

- Set measurement frequency:
- Connect spectrum analyzer at X226 FOPU. The level of the harmonic must be < -25 dBc.

Typical values are given in the table below:

| RF-frequency | SMY01 without option SMY-B40 | | SMY01 with option SMY-B40 | |
|--------------|------------------------------|-------------------|---------------------------|-------------------|
| | 2*f _{RF} | 3*f _{RF} | 2*f _{RF} | 3*f _{RF} |
| 1 MHz | -50 dBc | -40 dBc | -45 dBc | -50 dBc |
| 10 MHz | -50 dBc | -45 dBc | -50 dBc | -50 dBc |
| 100 MHz | -50 dBc | -40 dBc | -50 dBc | -50 dBc |
| 200 MHz | -45 dBc | -45 dBc | -50 dBc | -50 dBc |
| 350 MHz | -50 dBc | -40 dBc | -50 dBc | -50 dBc |
| 650 MHz | -50 dBc | -40 dBc | -45 dBc | -50 dBc |
| 900 MHz | -35 dBc | -45 dBc | -40 dBc | -50 dBc |
| 1040 MHz | -45 dBc | -45 dBc | -40 dBc | -50 dBc |

7.6.3 Nonharmonics Suppression Check

- Setting: RF 63 MHz
LEVEL 13 dBm (+19 dBm with option SMY-B40)
- Connect a spectrum analyzer to X226 FOPU.
- Check spurious responses with the subsequent frequencies 703 MHz, 640 MHz, 136 MHz, 73 MHz, 10 MHz
The level of the spurious signals must be < -70 dBc (typ. < -100 dBc).

7.7 External Interfaces

| Pin | Name | Input/Output | Origin/Dest. | Specified range | Signal description |
|--------|---------|--------------|---------------|-----------------|----------------------------------|
| X2A.01 | BLANK | Input | Rear panel | HCMOS level | RF level blanking |
| X2A.05 | DETEXT | Input | Pmod | 0 to 10 V | detector voltage, option SME-B40 |
| X2A.07 | AMMOD | Input | CPU X3.34 | -1V to 1V | AM signal |
| X2A.12 | SERCLK | Input | CPU X3.2 | HCMOS level | Clock |
| X2A.14 | SERDAT | Input | CPU X3.4 | HCMOS level | Serial data |
| X2A.15 | AT1STB | Input | CPU X3.16 | HCMOS level | Strobe 1 |
| X2A.17 | HFINT | Output | CPU X3.20 | HCMOS level | Interrupt level control |
| X2A.19 | DIAG-5V | Output | CPU X3.6 | -5 to 5V | Diagnostics |
| X2A.22 | VA24-P | Input | Power X21.22 | 23.4 to 24.6V | Analog supply voltage |
| X2A.24 | VA15-P | Input | Power X21.13 | 14.80 to 15.75V | Analog supply voltage |
| X2A.25 | | | | | |
| X2A.28 | VA-5P | Input | Power X21.5 | 5.10 to 5.25V | Analog supply voltage |
| X2A.30 | VA15-N | Input | Power X21.20 | -15.75to-14.85V | Analog supply voltage |
| X224 | FSYN | Input | YSYN X124 | 6 - 12 dBm | 65 - 1040 MHz |
| X225 | REF640 | Input | YSYN X125 | 9 - 12 dBm | 640 MHz |
| X226 | FOPU | Output | Attenuator X1 | -6 to 20 dBm | 5 kHz - 1.04 GHz |




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**Schaltteillisten
numerisch geordnet
Part lists
in numerical order
Listes des pièces détachées
par numéros de référence**

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| Kennz. Comp. No. | Benennung Designation | Sachnummer Stock No. | Hersteller Manufacturer | Bezeichnung Designation | enthalten in contained in |
|------------------|---|----------------------|-------------------------|-------------------------|---------------------------|
| . | XX VARIANTENERKLAERUNG IDENTIFICATION OF MODELS VAR 02 = GRUNDAUSFUEHRUNG MOD 02 = BASIC_MODEL VAR 03 = SMY11+SMY-B40 UMGERUESTET AUS VAR02 MOD 03 = SMY11+SMY-B40 CONVERTED O.MOD02 VAR 04 = SMY41 MOD 04 = SMY41 VAR 06 = MIT OPT. SMY-B40 UMGERUESTET AUS VAR 04 MOD 06 = WITH OPT. SMY-B40 CONVERTED O.MOD04 | | | | |
| C12 | CC 47NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5195.00 | PHILIPS_CO | 2238 581 15645 | |
| C13 | CC 1NF+-1% 50V NPO 1206 SMD CERAMIC CAPACITOR NICHT BESTUECKT NOT FITTED | CC 0007.7398.00 | PHILIPS_CO | 2222 863 *8102 | |
| C14 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| ..17 C20 | CE 220UF+-20%10V RM2,5 ELECTROLYTIC CAPACITOR | CE 0008.7927.00 | PANASONIC | ECA-1AFG2211 | |
| C21 | CE 10UF+-20%35V RD5,5XH6 ELECTROLYTIC CAPACITOR | 0803.0667.00 | NAT_PANASO | ECE-A1VKS-100 | |
| C22 | CE 10UF+-20%35V RD5,5XH6 ELECTROLYTIC CAPACITOR | 0803.0667.00 | NAT_PANASO | ECE-A1VKS-100 | |
| C132 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C133 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C149 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| ..154 C156 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C157 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C160 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| ..162 C170 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C209 | CC 22PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8396.00 | MURATA | GRM42-6COG 220F 50PT | |
| C219 | CC 15PF+-1% 50V NPO 1206 CERAMIC CHIP CAPACITOR NUR VAR/ONLY MOD: 02 | CC 0099.8750.00 | MURATA | GRM42-6COG 150F 50PT | |
| C219 | CC 15PF+-1% 50V NPO 1206 CERAMIC CHIP CAPACITOR NUR VAR/ONLY MOD: 04 | CC 0099.8750.00 | MURATA | GRM42-6COG 150F 50PT | |
| C219 | CC 33PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR NUR VAR/ONLY MOD: 03 06 | CC 0099.8780.00 | MURATA | GRM42-6COG 330F 50PT | |
| C220 | CC 68PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8815.00 | MURATA | GRM42-6COG 680F 50PT | |
| C221 | CC 8,2PF+-0,25 50VNPO1206 CERAMIC CHIP CAPACITOR NICHT BESTUECKT NOT FITTED | CC 0007.8242.00 | MURATA | GRM42-6COG 8R2 C50PT | |
| C223 | CC 2,7PF+-0,25 50VNPO1206 CERAMIC CHIP CAPACITOR NUR VAR/ONLY MOD: 02 | CC 0007.8188.00 | MURATA | GRM42-6COG 2R7 C50PT | |
| C223 | CC 2,7PF+-0,25 50VNPO1206 CERAMIC CHIP CAPACITOR NUR VAR/ONLY MOD: 04 | CC 0007.8188.00 | MURATA | GRM42-6COG 2R7 C50PT | |
| C223 | CC 2,7PF+-0,25 50VNPO1206 CERAMIC CHIP CAPACITOR NUR VAR/ONLY MOD: 03 06 NICHT BESTUECKT/NOT FITTED | CC 0007.8188.00 | MURATA | GRM42-6COG 2R7 C50PT | |
| C240 | CC 22PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8396.00 | MURATA | GRM42-6COG 220F 50PT | |
| C242 | CC 100PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8415.00 | MURATA | GRM42-6COG 101F 50PT | |
| C244 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |


| | | | | | | |
|---|----------|----------|--------------------------|------------------------------------|----------------------|----------------|
| MENP5 | 413 3PUA | Äl | Datum Date | Schaltteilliste für Parts list for | Sachnummer Stock No. | Blatt-Nr. Page |
|  | 14 | 16.09.97 | EE AUSGANGSTEIL 1.04 GHZ | 1062.6209.01 SA | 1+ | |

095.0026-0693

| Kennz. Comp. No. | Benennung Designation | Sechnummer Stock No. | Hersteller Manufacturer | Bezeichnung Designation | enthalten in contained in |
|---------------------|---|-------------------------|----------------------------|----------------------------|------------------------------|
| C245 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CD | 2238 581 15649 | |
| C250 ..264 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CD | 2238 581 15649 | |
| C275 | CC 8,2PF+-0,25 50VNP01206 CERAMIC CHIP CAPACITOR | CC 0007.8242.00 | MURATA | GRM42-6COG 8R2 C50PT | |
| C280 | CC 22PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8396.00 | MURATA | GRM42-6COG 220F 50PT | |
| C300 | CC 10PF+-0,25 50VNP0 1206 CERAMIC CHIP CAPACITOR | CC 0099.8480.00 | MURATA | GRM42-6COG 100 C50PT | |
| C302 | CC 82PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8821.00 | MURATA | GRM42-6COG 820F 50PT | |
| C303 | CC 82PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8821.00 | MURATA | GRM42-6COG 820F 50PT | |
| C313 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CD | 2238 581 15649 | |
| C315 | CC 1NF+-1% 50V NPO 1206 SMD CERAMIC CAPACITOR | CC 0007.7398.00 | PHILIPS_CD | 2222 863 *8102 | |
| C316 | CC 1NF+-1% 50V NPO 1206 SMD CERAMIC CAPACITOR | CC 0007.7398.00 | PHILIPS_CD | 2222 863 *8102 | |
| C318 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CD | 2238 581 15649 | |
| C319 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CD | 2238 581 15649 | |
| C325 | CC 100PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8415.00 | MURATA | GRM42-6COG 101F 50PT | |
| C327 | CC 1NF+-1% 50V NPO 1206 SMD CERAMIC CAPACITOR | CC 0007.7398.00 | PHILIPS_CD | 2222 863 *8102 | |
| C328 | CC 1NF+-1% 50V NPO 1206 SMD CERAMIC CAPACITOR | CC 0007.7398.00 | PHILIPS_CD | 2222 863 *8102 | |
| C329 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CD | 2238 581 15649 | |
| C330 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CD | 2238 581 15649 | |
| C340 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CD | 2238 581 15649 | |
| C356 | CC 82PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8821.00 | MURATA | GRM42-6COG 820F 50PT | |
| C357 | CC 82PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8821.00 | MURATA | GRM42-6COG 820F 50PT | |
| C359 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CD | 2238 581 15649 | |
| C360 | CC 220PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8850.00 | PHILIPS_CD | 2238 863 18221 | |
| C361 | CC 220PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8850.00 | PHILIPS_CD | 2238 863 18221 | |
| C362 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CD | 2238 581 15649 | |
| C400 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CD | 2238 581 15649 | |
| C401 | CC 1NF+-1% 50V NPO 1206 SMD CERAMIC CAPACITOR | CC 0007.7398.00 | PHILIPS_CD | 2222 863 *8102 | |
| C402 | CC 1NF+-1% 50V NPO 1206 SMD CERAMIC CAPACITOR | CC 0007.7398.00 | PHILIPS_CD | 2222 863 *8102 | |
| C404 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CD | 2238 581 15649 | |
| C405 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CD | 2238 581 15649 | |
| C410 | CC 1NF+-1% 50V NPO 1206 SMD CERAMIC CAPACITOR | CC 0007.7398.00 | PHILIPS_CD | 2222 863 *8102 | |
| C412 | CC 220PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8850.00 | PHILIPS_CD | 2238 863 18221 | |
| C417 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CD | 2238 581 15649 | |
| C440 ..442 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CD | 2238 581 15649 | |
| C500 | CC 1NF+-1% 50V NPO 1206 SMD CERAMIC CAPACITOR | CC 0007.7398.00 | PHILIPS_CD | 2222 863 *8102 | |
| C501 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CD | 2238 581 15649 | |
| C504 | CC 1NF+-1% 50V NPO 1206 SMD CERAMIC CAPACITOR | CC 0007.7398.00 | PHILIPS_CD | 2222 863 *8102 | |
| C505 | CC 2,7PF+-0,25 50VNP01206 CERAMIC CHIP CAPACITOR | CC 0007.8188.00 | MURATA | GRM42-6COG 2R7 C50PT | |
| C506 | CC 2,2PF+-0,25 50VNP01206 CERAMIC CHIP CAPACITOR | CC 0007.8171.00 | MURATA | GRM42-6COG 2R2 C50PT | |
| C507 | CC 2,2PF+-0,25 50VNP01206 CERAMIC CHIP CAPACITOR | CC 0007.8171.00 | MURATA | GRM42-6COG 2R2 C50PT | |

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| MENP5 | 413 3PUA | ÄI | Datum Date | Schaltteilliste für Parts list for | Sachnummer Stock No. | Blatt-Nr. Page |
|  | 14 | 16.09.97 | EE AUSGANGSTEIL 1.04 GHZ | 1002.6209.01 SA | 2+ | |

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| Kennz. Comp. No. | Benennung Designation | Sachnummer Stock No. | Hersteller Manufacturer | Bezeichnung Designation | enthalten in contained in |
|------------------|---|----------------------|-------------------------|-------------------------|---------------------------|
| C509 | CC 1NF+-1% 50V NPO 1206 SMD CERAMIC CAPACITOR | CC 0007.7398.00 | PHILIPS_CO | 2222 863 *8102 | |
| C510 | CC 3,3PF+-0,25 50V NPO1206 CERAMIC CHIP CAPACITOR | CC 0007.8194.00 | MURATA | GRM42-6COG 3R3 C50PT | |
| C511 | CC 2,7PF+-0,25 50V NPO1206 CERAMIC CHIP CAPACITOR | CC 0007.8188.00 | MURATA | GRM42-6COG 2R7 C50PT | |
| C512 | CC 2,7PF+-0,25 50V NPO1206 CERAMIC CHIP CAPACITOR | CC 0007.8188.00 | MURATA | GRM42-6COG 2R7 C50PT | |
| C514 | CC 1NF+-1% 50V NPO 1206 SMD CERAMIC CAPACITOR | CC 0007.7398.00 | PHILIPS_CO | 2222 863 *8102 | |
| C515 | CC 4,7PF+-0,25 50V NPO1206 CERAMIC CHIP CAPACITOR | CC 0007.8213.00 | MURATA | GRM42-6COG 4R7C 50PT | |
| C516 | CC 3,9PF+-0,25 50V NPO1206 CERAMIC CHIP CAPACITOR | CC 0007.8207.00 | MURATA | GRM42-6COG 3R9 C50PT | |
| C517 | CC 3,9PF+-0,25 50V NPO1206 CERAMIC CHIP CAPACITOR | CC 0007.8207.00 | MURATA | GRM42-6COG 3R9 C50PT | |
| C518 | CC 1NF+-1% 50V NPO 1206 SMD CERAMIC CAPACITOR | CC 0007.7398.00 | PHILIPS_CO | 2222 863 *8102 | |
| C519 | CC 1,5PF+-0,25 50V NPO1206 CERAMIC CHIP CAPACITOR | CC 0007.8159.00 | MURATA | GRM42-6COG 1R5 C50PT | |
| C520 | CC 1,2PF+-0,25 50V NPO1206 CERAMIC CHIP CAPACITOR | CC 0007.8142.00 | MURATA | GRM42-6COG 1R2 C50PT | |
| C521 | CC 1,2PF+-0,25 50V NPO1206 CERAMIC CHIP CAPACITOR | CC 0007.8142.00 | MURATA | GRM42-6COG 1R2 C50PT | |
| C526 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C527 | CC 1NF+-1% 50V NPO 1206 SMD CERAMIC CAPACITOR | CC 0007.7398.00 | PHILIPS_CO | 2222 863 *8102 | |
| C530 | CC 1NF+-1% 50V NPO 1206 SMD CERAMIC CAPACITOR | CC 0007.7398.00 | PHILIPS_CO | 2222 863 *8102 | |
| C531 | CC 1NF+-1% 50V NPO 1206 SMD CERAMIC CAPACITOR | CC 0007.7398.00 | PHILIPS_CO | 2222 863 *8102 | |
| C532 | CC 10PF+-0,25 50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8480.00 | MURATA | GRM42-6COG 100 C50PT | |
| C533 | CC 8,2PF+-0,25 50V NPO1206 CERAMIC CHIP CAPACITOR | CC 0007.8242.00 | MURATA | GRM42-6COG 8R2 C50PT | |
| C534 | CC 8,2PF+-0,25 50V NPO1206 CERAMIC CHIP CAPACITOR | CC 0007.8242.00 | MURATA | GRM42-6COG 8R2 C50PT | |
| C536 | CC 1NF+-1% 50V NPO 1206 SMD CERAMIC CAPACITOR | CC 0007.7398.00 | PHILIPS_CO | 2222 863 *8102 | |
| C537 | CC 18PF+-1% 50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8767.00 | MURATA | GRM42-6COG 180F 50PT | |
| C538 | CC 12PF+-1% 50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8744.00 | MURATA | GRM42-6COG 120 F50PT | |
| C539 | CC 12PF+-1% 50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8744.00 | MURATA | GRM42-6COG 120 F50PT | |
| C540 | CC 1NF+-1% 50V NPO 1206 SMD CERAMIC CAPACITOR | CC 0007.7398.00 | PHILIPS_CO | 2222 863 *8102 | |
| C545 | CC 27PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8409.00 | MURATA | GRM42-6COG 270F 50PT | |
| C546 | CC 18PF+-1% 50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8767.00 | MURATA | GRM42-6COG 180F 50PT | |
| C547 | CC 18PF+-1% 50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8767.00 | MURATA | GRM42-6COG 180F 50PT | |
| C553 | CC 1NF+-1% 50V NPO 1206 SMD CERAMIC CAPACITOR | CC 0007.7398.00 | PHILIPS_CO | 2222 863 *8102 | |
| C560 | CC 33PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8780.00 | MURATA | GRM42-6COG 330F 50PT | |
| C562 | CC 27PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8409.00 | MURATA | GRM42-6COG 270F 50PT | |
| C564 | CC 22PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8396.00 | MURATA | GRM42-6COG 220F 50PT | |
| C568 | CC 5,6PF+-0,25 50V NPO1206 CERAMIC CHIP CAPACITOR | CC 0007.8220.00 | MURATA | GRM42-6COG 5R6 C50PT | |
| C569 | CC 1NF+-1% 50V NPO 1206 SMD CERAMIC CAPACITOR | CC 0007.7398.00 | PHILIPS_CO | 2222 863 *8102 | |
| C570 | CC 10PF+-0,25 50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8480.00 | MURATA | GRM42-6COG 100 C50PT | |
| C573 | CC 12PF+-1% 50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8744.00 | MURATA | GRM42-6COG 120 F50PT | |
| C575 | CC 12PF+-1% 50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8744.00 | MURATA | GRM42-6COG 120 F50PT | |
| C580 | CC 12PF+-1% 50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8744.00 | MURATA | GRM42-6COG 120 F50PT | |
| C582 | CC 10PF+-0,25 50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8480.00 | MURATA | GRM42-6COG 100 C50PT | |
| C584 | CC 5,6PF+-0,25 50V NPO1206 CERAMIC CHIP CAPACITOR | CC 0007.8220.00 | MURATA | GRM42-6COG 5R6 C50PT | |

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| Kennz. Comp. No. | Benennung Designation | Sachnummer Stock No. | Hersteller Manufacturer | Bezeichnung Designation | enthalten in contained in |
|---------------------|--|-------------------------|----------------------------|----------------------------|------------------------------|
| C585 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C600 | CC 18PF+-1% 50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8767.00 | MURATA | GRM42-6COG 180F 50PT | |
| C601 | CC 27NF+-10%50VX7R 1206 CERAMIC CHIP CAPACITOR | CC 0099.8473.00 | PHILIPS_CO | 2238 581 16633 | |
| C602 | CC 100PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8415.00 | MURATA | GRM42-6COG 101F 50PT | |
| C603 | CC 18PF+-1% 50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8767.00 | MURATA | GRM42-6COG 180F 50PT | |
| C604 | CC 10PF+-0,25 50VNPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8480.00 | MURATA | GRM42-6COG 100 C50PT | |
| C605 | CC 4,7PF+-0,25 50VNPO1206 CERAMIC CHIP CAPACITOR | CC 0007.8213.00 | MURATA | GRM42-6COG 4R7C 50PT | |
| C606 | CC 3,9PF+-0,25 50VNPO1206 CERAMIC CHIP CAPACITOR | CC 0007.8207.00 | MURATA | GRM42-6COG 3R9 C50PT | |
| C607 | CC 3,3PF+-0,25 50VNPO1206 CERAMIC CHIP CAPACITOR | CC 0007.8194.00 | MURATA | GRM42-6COG 3R3 C50PT | |
| C608 | CC 220PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8850.00 | PHILIPS_CO | 2238 863 18221 | |
| C609 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C610 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C611 | CC 10PF+-0,25 50VNPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8480.00 | MURATA | GRM42-6COG 100 C50PT | |
| C617 | CC 3,9PF+-0,25 50VNPO1206 CERAMIC CHIP CAPACITOR | CC 0007.8207.00 | MURATA | GRM42-6COG 3R9 C50PT | |
| C618 | CC 6,8PF+-0,25 50VNPO1206 CERAMIC CHIP CAPACITOR | CC 0007.8236.00 | MURATA | GRM42-6COG 6R8 C50PT | |
| C619 | CC 6,8PF+-0,25 50VNPO1206 CERAMIC CHIP CAPACITOR | CC 0007.8236.00 | MURATA | GRM42-6COG 6R8 C50PT | |
| C620 | CC 3,9PF+-0,25 50VNPO1206 CERAMIC CHIP CAPACITOR | CC 0007.8207.00 | MURATA | GRM42-6COG 3R9 C50PT | |
| C625 | CC 10PF+-0,25 50VNPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8480.00 | MURATA | GRM42-6COG 100 C50PT | |
| C627 | CC 18PF+-1% 50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8767.00 | MURATA | GRM42-6COG 180F 50PT | |
| C628 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C629 | CE 47UF +-10% 10V 7343 TANTALUM SMD-CAPACITOR | CE 0007.7300.00 | SPRAGUE | 293D X9 010 D2T | |
| C631 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR NICHT BESTUECKT NOT FITTED | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C632 | CC 47PF+-1%50V COG 1206 CERAMIC CHIP CAPACITOR | CC 0099.8496.00 | MURATA | GRM42-6COG 470F 50PT | |
| C633 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C634 | CE 10UF +-10% 25V 7343 TANTALUM SMD-CAPACITOR | CE 0007.7246.00 | SPRAGUE | 293D 106 X9 025 D2T | |
| C635 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C636 | CE 10UF +-10% 25V 7343 TANTALUM SMD-CAPACITOR | CE 0007.7246.00 | SPRAGUE | 293D 106 X9 025 D2T | |
| C637 | CE 10UF +-10% 25V 7343 TANTALUM SMD-CAPACITOR | CE 0007.7246.00 | SPRAGUE | 293D 106 X9 025 D2T | |
| C638 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C639 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C640 | CC 4,7PF+-0,25 50VNPO1206 CERAMIC CHIP CAPACITOR NICHT BESTUECKT NOT FITTED | CC 0007.8213.00 | MURATA | GRM42-6COG 4R7C 50PT | |
| C641 | CC 47PF+-1%50V COG 1206 CERAMIC CHIP CAPACITOR | CC 0099.8496.00 | MURATA | GRM42-6COG 470F 50PT | |
| C642 | CC 68PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8815.00 | MURATA | GRM42-6COG 680F 50PT | |
| C643 | CC 68PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8815.00 | MURATA | GRM42-6COG 680F 50PT | |
| C644 | CC 4,7PF+-0,25 50VNPO1206 CERAMIC CHIP CAPACITOR NICHT BESTUECKT NOT FITTED | CC 0007.8213.00 | MURATA | GRM42-6COG 4R7C 50PT | |
| C645 | CC 47PF+-1%50V COG 1206 CERAMIC CHIP CAPACITOR | CC 0099.8496.00 | MURATA | GRM42-6COG 470F 50PT | |

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| MENP5 | 413 3PUA | ÄI | Datum Date | Schaltteilleiste für Parts list for | Sachnummer Stock No. | Blatt-Nr. Page |
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| Kennz. Comp. No. | Benennung Designation | Sachnummer Stock No. | Hersteller Manufacturer | Bezeichnung Designation | enthalten in contained in |
|---------------------|---|-------------------------|----------------------------|----------------------------|------------------------------|
| C646 | CC 8,2PF+-0,25 50VNPO1206 CERAMIC CHIP CAPACITOR | CC 0007.8242.00 | MURATA | GRM42-6COG 8R2 C50PT | |
| C647 | CC 12PF+-1% 50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8744.00 | MURATA | GRM42-6COG 120 F50PT | |
| C650 ..653 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C654 | CC 10NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0099.8521.00 | MURATA | GRM42-6X7R103K 50PT | |
| C656 | CC 1NF+-1% 50V NPO 1206 SMD CERAMIC CAPACITOR | CC 0007.7398.00 | PHILIPS_CO | 2222 863 *8102 | |
| C660 ..663 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C664 | CC 12PF+-1% 50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8744.00 | MURATA | GRM42-6COG 120 F50PT | |
| C668 | CC 10PF+-0,25 50VNPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8480.00 | MURATA | GRM42-6COG 100 C50PT | |
| C670 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C671 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C700 | CC 1PF+-0,25 50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8667.00 | PHILIPS_CO | 2238 863 15108 | |
| C701 | CC 1NF+-1% 50V NPO 1206 SMD CERAMIC CAPACITOR | CC 0007.7398.00 | PHILIPS_CO | 2222 863 *8102 | |
| C702 | CC 1NF+-1% 50V NPO 1206 SMD CERAMIC CAPACITOR | CC 0007.7398.00 | PHILIPS_CO | 2222 863 *8102 | |
| C705 | CC 56PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8809.00 | MURATA | GRM42-6COG 560F 50PT | |
| C707 | CC 220PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8850.00 | PHILIPS_CO | 2238 863 18221 | |
| C708 | CC 82PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8821.00 | MURATA | GRM42-6COG 820F 50PT | |
| C709 | CC 82PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8821.00 | MURATA | GRM42-6COG 820F 50PT | |
| C710 | CC 1NF+-1% 50V NPO 1206 SMD CERAMIC CAPACITOR | CC 0007.7398.00 | PHILIPS_CO | 2222 863 *8102 | |
| C714 | CC 2,7PF+-0,25 50VNPO1206 CERAMIC CHIP CAPACITOR | CC 0007.8188.00 | MURATA | GRM42-6COG 2R7 C50PT | |
| C715 | CC 220PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8850.00 | PHILIPS_CO | 2238 863 18221 | |
| C720 | CC 1NF+-1% 50V NPO 1206 SMD CERAMIC CAPACITOR | CC 0007.7398.00 | PHILIPS_CO | 2222 863 *8102 | |
| C721 | CC 82PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8821.00 | MURATA | GRM42-6COG 820F 50PT | |
| C723 | CC 82PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8821.00 | MURATA | GRM42-6COG 820F 50PT | |
| C724 | CC 220PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8850.00 | PHILIPS_CO | 2238 863 18221 | |
| C727 | CC 1NF+-1% 50V NPO 1206 SMD CERAMIC CAPACITOR | CC 0007.7398.00 | PHILIPS_CO | 2222 863 *8102 | |
| C732 | CC 220PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8850.00 | PHILIPS_CO | 2238 863 18221 | |
| C734 | CC 82PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8821.00 | MURATA | GRM42-6COG 820F 50PT | |
| C735 | CC 1NF+-1% 50V NPO 1206 SMD CERAMIC CAPACITOR | CC 0007.7398.00 | PHILIPS_CO | 2222 863 *8102 | |
| C736 | CC 82PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8821.00 | MURATA | GRM42-6COG 820F 50PT | |
| C738 | CC 47PF+-1%50V COG 1206 CERAMIC CHIP CAPACITOR | CC 0099.8496.00 | MURATA | GRM42-6COG 470F 50PT | |
| C740 | CC 220PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8850.00 | PHILIPS_CO | 2238 863 18221 | |
| C743 | CC 220PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8850.00 | PHILIPS_CO | 2238 863 18221 | |
| C747 | CC 100PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8415.00 | MURATA | GRM42-6COG 101F 50PT | |
| C748 | CC 100PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8415.00 | MURATA | GRM42-6COG 101F 50PT | |
| C750 | CC 1NF+-1% 50V NPO 1206 SMD CERAMIC CAPACITOR | CC 0007.7398.00 | PHILIPS_CO | 2222 863 *8102 | |
| C751 | CC 1NF+-1% 50V NPO 1206 SMD CERAMIC CAPACITOR | CC 0007.7398.00 | PHILIPS_CO | 2222 863 *8102 | |
| C762 | CC 1NF+-1% 50V NPO 1206 SMD CERAMIC CAPACITOR | CC 0007.7398.00 | PHILIPS_CO | 2222 863 *8102 | |
| C800 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C801 | CE 1UF +-10% 25V EIA3528 TANTALUM SMD-CAPACITOR | CE 0007.7217.00 | SPRAGUE | 293D 105 X9 025 B2T | |

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| Kennz. Comp. No. | Benennung Designation | Sachnummer Stock No. | Hersteller Manufacturer | Bezeichnung Designation | enthalten in contained in |
|---------------------|---|-------------------------|----------------------------|----------------------------|------------------------------|
| C802 | CC 1PF+-0,25 50V NPO 1206 CERAMIC CHIP CAPACITOR NICHT BESTUECKT NOT FITTED | CC 0099.8667.00 | PHILIPS_CO | 2238 863 15108 | |
| C805 | CC 2,7PF+-0,25 50V NPO1206 CERAMIC CHIP CAPACITOR NICHT BESTUECKT NOT FITTED | CC 0007.8188.00 | MURATA | GRM42-6COG 2R7 C5OPT | |
| C806 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C807 | CC 3,9PF+-0,25 50V NPO1206 CERAMIC CHIP CAPACITOR | CC 0007.8207.00 | MURATA | GRM42-6COG 3R9 C5OPT | |
| C809 | CE 10UF +-10% 25V 7343 TANTALUM SMD-CAPACITOR | CE 0007.7246.00 | SPRAGUE | 293D 106 X9 025 D2T | |
| C811 | CE 100UF+-20%25V RDX9,5 ELECTROLYTIC CAPACITOR | 0803.0580.00 | MATSUSHITA | ECE-A1ESS-101 | |
| C812 | CC 1PF+-0,25 50V NPO 1206 CERAMIC CHIP CAPACITOR NICHT BESTUECKT NOT FITTED | CC 0099.8667.00 | PHILIPS_CO | 2238 863 15108 | |
| C814 | CC 15PF+-1% 50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8750.00 | MURATA | GRM42-6COG 150F 50PT | |
| C816 | CC 1PF+-0,25 50V NPO 1206 CERAMIC CHIP CAPACITOR NICHT BESTUECKT NOT FITTED | CC 0099.8667.00 | PHILIPS_CO | 2238 863 15108 | |
| C817 | CC 6,8PF+-0,25 50V NPO1206 CERAMIC CHIP CAPACITOR NICHT BESTUECKT NOT FITTED | CC 0007.8236.00 | MURATA | GRM42-6COG 6R8 C5OPT | |
| C818 | CC 3,9PF+-0,25 50V NPO1206 CERAMIC CHIP CAPACITOR | CC 0007.8207.00 | MURATA | GRM42-6COG 3R9 C5OPT | |
| C819 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C820 | CE 10UF +-10% 25V 7343 TANTALUM SMD-CAPACITOR | CE 0007.7246.00 | SPRAGUE | 293D 106 X9 025 D2T | |
| C821 | CE 100UF+-20%25V RDX9,5 ELECTROLYTIC CAPACITOR | 0803.0580.00 | MATSUSHITA | ECE-A1ESS-101 | |
| C822 | CE 1UF +-10% 25V EIA3528 TANTALUM SMD-CAPACITOR | CE 0007.7217.00 | SPRAGUE | 293D 105 X9 025 B2T | |
| C824 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C828 | CE 1UF +-10% 25V EIA3528 TANTALUM SMD-CAPACITOR | CE 0007.7217.00 | SPRAGUE | 293D 105 X9 025 B2T | |
| C829 | CC 1PF+-0,25 50V NPO 1206 CERAMIC CHIP CAPACITOR NICHT BESTUECKT NOT FITTED | CC 0099.8667.00 | PHILIPS_CO | 2238 863 15108 | |
| C830 | CC 3,9PF+-0,25 50V NPO1206 CERAMIC CHIP CAPACITOR NICHT BESTUECKT NOT FITTED | CC 0007.8207.00 | MURATA | GRM42-6COG 3R9 C5OPT | |
| C831 | CC 3,9PF+-0,25 50V NPO1206 CERAMIC CHIP CAPACITOR | CC 0007.8207.00 | MURATA | GRM42-6COG 3R9 C5OPT | |
| C832 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C833 | CE 10UF +-10% 25V 7343 TANTALUM SMD-CAPACITOR | CE 0007.7246.00 | SPRAGUE | 293D 106 X9 025 D2T | |
| C834 | CE 100UF+-20%25V RDX9,5 ELECTROLYTIC CAPACITOR | 0803.0580.00 | MATSUSHITA | ECE-A1ESS-101 | |
| C836 | CE 1UF +-10% 25V EIA3528 TANTALUM SMD-CAPACITOR | CE 0007.7217.00 | SPRAGUE | 293D 105 X9 025 B2T | |
| C839 | CE 1UF +-10% 25V EIA3528 TANTALUM SMD-CAPACITOR | CE 0007.7217.00 | SPRAGUE | 293D 105 X9 025 B2T | |
| C840 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C844 | CC 100PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8415.00 | MURATA | GRM42-6COG 101F 50PT | |
| C846 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR NICHT BESTUECKT NOT FITTED | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C847 | CC 47PF+-1%50V COG 1206 CERAMIC CHIP CAPACITOR | CC 0099.8496.00 | MURATA | GRM42-6COG 470F 50PT | |
| C848 | CC 10PF 0,25PF NPO 0805 CERAMIC CHIP CAPACITOR | CC 0099.8321.00 | MURATA | GRM40 COG100C 50 PT | |
| C849 | CC 1PF+-0,25 50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8667.00 | PHILIPS_CO | 2238 863 15108 | |

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| Kennz. Comp. No. | Benennung Designation | Sachnummer Stock No. | Hersteller Manufacturer | Bezeichnung Designation | enthalten in contained in |
|------------------|---|----------------------|-------------------------|-------------------------|---------------------------|
| C850 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| .852 | | | | | |
| C853 | CC 1NF+-1% 50V NPO 1206 SMD CERAMIC CAPACITOR | CC 0007.7398.00 | PHILIPS_CO | 2222 863 *8102 | |
| C854 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C855 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C860 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C870 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C871 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C880 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C881 | CE 1UF +-10% 25V EIA3528 TANTALUM SMD-CAPACITOR | CE 0007.7217.00 | SPRAGUE | 293D 105 X9 025 B2T | |
| C883 | CE 1UF +-10% 25V EIA3528 TANTALUM SMD-CAPACITOR | CE 0007.7217.00 | SPRAGUE | 293D 105 X9 025 B2T | |
| C885 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C886 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C887 | CC 22PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8396.00 | MURATA | GRM42-6COG 220F 50PT | |
| C889 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| D10 | BL PC74HCT4051T 8CH.A.MUX ANALOG MULTIPLEXER | BL 0007.6827.00 | PHILIPS | (PC)74HCT4051(T) | |
| D100 | BL PC74HCT132T 4X2IN SCHM NAND SCHMITT TRIGGER | BL 0007.6340.00 | PHILIPS | (PC)74HCT132(D/T) | |
| D102 | BL PC74HC4094T 8ST.BUSREG BUS REGISTER | BL 0804.0977.00 | PHILIPS_SE | (PC)74HC4094(D/T) | |
| D105 | BL PC74HC08T 4X2IN.ANDG QUAD 2INPUT AND GATE | BL 0007.3486.00 | PHILIPS_SE | (PC)74HC08(D/T) | |
| D110 | BL PC74HC4094T 8ST.BUSREG BUS REGISTER | BL 0804.0977.00 | PHILIPS_SE | (PC)74HC4094(D/T) | |
| D111 | BL PC74HC08T 4X2IN.ANDG QUAD 2INPUT AND GATE | BL 0007.3486.00 | PHILIPS_SE | (PC)74HC08(D/T) | |
| D115 | BL PC74HC86T 4X2IN EXOR QUAD 2INPUT EXOR GATE | BL 0007.3511.00 | PHILIPS_SE | (PC)74HC86(D/T) | |
| D120 | BL PC74HC4094T 8ST.BUSREG BUS REGISTER | BL 0804.0977.00 | PHILIPS_SE | (PC)74HC4094(D/T) | |
| D140 | BJ DAC8143 1X12B-DAC 12B SERIAL D/A-CONVERTER | 1012.9510.00 | PMI | DAC8143FS | |
| D141 | BS DG413DY 2A2R ANALOGSCH QUAD ANALOG CMOS.SWITCH | 1004.7058.00 | SILICONIX | DG413DY | |
| D145 | BJ DAC8143 1X12B-DAC 12B SERIAL D/A-CONVERTER | 1012.9510.00 | PMI | DAC8143FS | |
| D150 | BJ DAC8143 1X12B-DAC 12B SERIAL D/A-CONVERTER | 1012.9510.00 | PMI | DAC8143FS | |
| D200 | BS DG413DY 2A2R ANALOGSCH QUAD ANALOG CMOS.SWITCH | 1004.7058.00 | SILICONIX | DG413DY | |
| D210 | BS DG413DY 2A2R ANALOGSCH QUAD ANALOG CMOS.SWITCH | 1004.7058.00 | SILICONIX | DG413DY | |
| D220 | BS DG413DY 2A2R ANALOGSCH QUAD ANALOG CMOS.SWITCH | 1004.7058.00 | SILICONIX | DG413DY | |
| D430 | BL PC74HCT42T BCD/D. DEC DECODER | BL 0007.6240.00 | PHILIPS | (PC)74HCT42(T) | |
| D431 | BL PC74HCT04T 6XINVERT HEXINVERTER | BL 0007.5372.00 | PHILIPS_SE | (PC)74HCT04(D/T) | |
| D432 | BL PC74HCT04T 6XINVERT HEXINVERTER | BL 0007.5372.00 | PHILIPS_SE | (PC)74HCT04(D/T) | |
| D760 | BM SW-239 GAAS SPDTSWITCH GAAS RF-SWITCH | 0853.5579.00 | ANZAC | SW239 | |
| L20 | LD 10 UH 10% 3R3 144 MA CHOKE | LD 0026.4184.00 | DALE | IM2 | |
| L21 | LD 470NH 10% 0,15A 1210 SMD-INDUCTOR | LD 0007.9926.00 | SIEMENS | B82422-A3471-K100 | |
| L22 | LD 470NH 10% 0,15A 1210 SMD-INDUCTOR | LD 0007.9926.00 | SIEMENS | B82422-A3471-K100 | |
| L300 | LD 220NH 10% 0,28A 1210 SMD-INDUCTOR | LD 0520.7911.00 | SIEMENS | B82422-A3221-K100 | |
| L301 | LD 22NH 10% 0,60A 1210 SMD-INDUCTOR | 1002.4897.00 | SIEMENS | B82422-A3220-K100 | |

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| Kennz. Comp. No. | Benennung Designation | Sachnummer Stock No. | Hersteller Manufacturer | Bezeichnung Designation | enthalten in contained in |
|---------------------|---|-------------------------|----------------------------|----------------------------|------------------------------|
| L305 | LD 1,00UH10%1,000HMO,390A CHOKE | LD 0067.2863.00 | DALE | IM2 | |
| L325 | LD 1,00UH10%1,000HMO,390A CHOKE | LD 0067.2863.00 | DALE | IM2 | |
| L340 | LD 1,00UH10%1,000HMO,390A CHOKE | LD 0067.2863.00 | DALE | IM2 | |
| L351 | LD 1,00UH10%1,000HMO,390A CHOKE | LD 0067.2863.00 | DALE | IM2 | |
| L353 | NICHT BESTUECKT NOT FITTED LD 1,00UH10%1,000HMO,390A CHOKE | LD 0067.2863.00 | DALE | IM2 | |
| L355 | NICHT BESTUECKT NOT FITTED LD 22NH 10% 0,28A 1210 SMD-INDUCTOR | LD 0520.7911.00 | SIEMENS | B82422-A3221-K100 | |
| L360 | LD 1,00UH10%1,000HMO,390A CHOKE | LD 0067.2863.00 | DALE | IM2 | |
| L361 | LD 1,00UH10%1,000HMO,390A CHOKE | LD 0067.2863.00 | DALE | IM2 | |
| L400 | LD 0,82UH10%0,850HMO,420A CHOKE | LD 0067.2857.00 | DALE | IM2 | |
| L410 | LD 0,68UH10%0,600HMO,500A CHOKE | LD 0067.2840.00 | DALE | IM2 | |
| L416 | LD 1,00UH10%1,000HMO,390A CHOKE | LD 0067.2863.00 | DALE | IM2 | |
| L417 | LD 1,00UH10%1,000HMO,390A CHOKE | LD 0067.2863.00 | DALE | IM2 | |
| L431 | LD 1UH 10% 0,38A 1210 SMD-INDUCTOR | LD 6006.0130.00 | SIEMENS | B82422-A1102-K100 | |
| L432 | LD 1UH 10% 0,38A 1210 SMD-INDUCTOR | LD 6006.0130.00 | SIEMENS | B82422-A1102-K100 | |
| L500 | LD 1,20UH10%0,180HMO,620A CHOKE | LD 0067.2870.00 | DALE | IM2 | |
| L505 | LD 100NH 10% 0,080HM 1,4A CHOKE | LD 0067.2740.00 | DALE | IM2 | |
| L510 | LD 0,33UH10%0,220HMO,830A CHOKE | LD 0067.2805.00 | DALE | IM2 | |
| L517 | LD 0,15UH10%0,100HM1,230A CHOKE | LD 0067.2763.00 | DALE | IM2 | |
| L520 | LD 0,82UH10%0,850HMO,420A CHOKE | LD 0067.2857.00 | DALE | IM2 | |
| L530 | LD 3,30UH10%0,850HMO,285A CHOKE | LD 0067.2928.00 | DALE | IM2 | |
| L532 | LD 22NH 10% 0,60A 1210 SMD-INDUCTOR | 1002.4897.00 | SIEMENS | B82422-A3220-K100 | |
| ..534 | | | | | |
| L536 | LD 3,30UH10%0,850HMO,285A CHOKE | LD 0067.2928.00 | DALE | IM2 | |
| L537 | LD 22NH 10% 0,60A 1210 SMD-INDUCTOR | 1002.4897.00 | SIEMENS | B82422-A3220-K100 | |
| L538 | LD 47NH 10% 0,51A 1210 SMD-INDUCTOR | 0008.5976.00 | SIEMENS | B82422-A3470-K100 | |
| L539 | LD 47NH 10% 0,51A 1210 SMD-INDUCTOR | 0008.5976.00 | SIEMENS | B82422-A3470-K100 | |
| L540 | LD 22NH 10% 0,60A 1210 SMD-INDUCTOR | 1002.4897.00 | SIEMENS | B82422-A3220-K100 | |
| ..542 | | | | | |
| L543 | LD 3,30UH10%0,850HMO,285A CHOKE | LD 0067.2928.00 | DALE | IM2 | |
| L544 | LD 22NH 10% 0,60A 1210 SMD-INDUCTOR | 1002.4897.00 | SIEMENS | B82422-A3220-K100 | |
| L545 | LD 47NH 10% 0,51A 1210 SMD-INDUCTOR | 0008.5976.00 | SIEMENS | B82422-A3470-K100 | |
| ..547 | | | | | |
| L548 | LD 22NH 10% 0,60A 1210 SMD-INDUCTOR | 1002.4897.00 | SIEMENS | B82422-A3220-K100 | |
| ..551 | | | | | |
| L553 | LD 3,30UH10%0,850HMO,285A CHOKE | LD 0067.2928.00 | DALE | IM2 | |
| L559 | LD 22NH 10% 0,60A 1210 SMD-INDUCTOR | 1002.4897.00 | SIEMENS | B82422-A3220-K100 | |
| L560 | LD 47NH 10% 0,51A 1210 SMD-INDUCTOR | 0008.5976.00 | SIEMENS | B82422-A3470-K100 | |
| L561 | LD 22NH 10% 0,60A 1210 SMD-INDUCTOR | 1002.4897.00 | SIEMENS | B82422-A3220-K100 | |
| L562 | LD 100NH 10% 0,44A 1210 SMD-INDUCTOR | LD 0007.9249.00 | SIEMENS | B82422-A3101-K100 | |
| L563 | LD 47NH 10% 0,51A 1210 SMD-INDUCTOR | 0008.5976.00 | SIEMENS | B82422-A3470-K100 | |
| L564 | LD 100NH 10% 0,44A 1210 SMD-INDUCTOR | LD 0007.9249.00 | SIEMENS | B82422-A3101-K100 | |

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| Kennz. Comp. No. | Benennung Designation | Sachnummer Stock No. | Hersteller Manufacturer | Bezeichnung Designation | enthalten in contained in |
|---------------------|--|-------------------------|----------------------------|----------------------------|------------------------------|
| L565 | LD 47NH 10% 0,51A 1210 SMD-INDUCTOR | 0008.5976.00 | SIEMENS | B82422-A3470-K100 | |
| L566 | LD 47NH 10% 0,51A 1210 SMD-INDUCTOR | 0008.5976.00 | SIEMENS | B82422-A3470-K100 | |
| L568 | LD 3,30UH10%,850HMO,285A CHOKE | LD 0067.2928.00 | DALE | IM2 | |
| L570 .572 | LD 22NH 10% 0,60A 1210 SMD-INDUCTOR | 1002.4897.00 | SIEMENS | B82422-A3220-K100 | |
| L580 | LD 22NH 10% 0,60A 1210 SMD-INDUCTOR | 1002.4897.00 | SIEMENS | B82422-A3220-K100 | |
| L583 | LD 22NH 10% 0,60A 1210 SMD-INDUCTOR | 1002.4897.00 | SIEMENS | B82422-A3220-K100 | |
| L584 | LD 22NH 10% 0,60A 1210 SMD-INDUCTOR | 1002.4897.00 | SIEMENS | B82422-A3220-K100 | |
| L585 | LD 1UH 10% 0,38A 1210 SMD-INDUCTOR | LD 6006.0130.00 | SIEMENS | B82422-A1102-K100 | |
| L600 .602 | LD 1,00UH10%,000HMO,390A CHOKE | LD 0067.2863.00 | DALE | IM2 | |
| L604 | LD 1UH 10% 0,38A 1210 SMD-INDUCTOR | LD 6006.0130.00 | SIEMENS | B82422-A1102-K100 | |
| L608 | LD 12NH 10% 0,70A 1210 SMD-INDUCTOR | 1002.4900.00 | SIEMENS | B82422-A3120-K100 | |
| L610 | LD 12NH 10% 0,70A 1210 SMD-INDUCTOR | 1002.4900.00 | SIEMENS | B82422-A3120-K100 | |
| L630 | LD 47NH 10% 0,51A 1210 SMD-INDUCTOR | 0008.5976.00 | SIEMENS | B82422-A3470-K100 | |
| L632 | LD 22NH 10% 0,60A 1210 SMD-INDUCTOR | 1002.4897.00 | SIEMENS | B82422-A3220-K100 | |
| L633 | LD 22NH 10% 0,60A 1210 SMD-INDUCTOR | 1002.4897.00 | SIEMENS | B82422-A3220-K100 | |
| L642 | LD 1,00UH10%,000HMO,390A CHOKE | LD 0067.2863.00 | DALE | IM2 | |
| L643 | LD 0,27UH10%,160HMO,975A CHOKE | LD 0067.2792.00 | DALE | IM2 | |
| L645 | LD 0,15UH10%,100HM1,230A CHOKE | LD 0067.2763.00 | DALE | IM2 | |
| L647 | LD 0,18UH10%,120HM1,120A CHOKE | LD 0067.2770.00 | DALE | IM2 | |
| L649 | LD 0,15UH10%,100HM1,230A CHOKE | LD 0067.2763.00 | DALE | IM2 | |
| L650 | LD 22NH 10% 0,60A 1210 SMD-INDUCTOR | 1002.4897.00 | SIEMENS | B82422-A3220-K100 | |
| L651 | LD 22NH 10% 0,60A 1210 SMD-INDUCTOR | 1002.4897.00 | SIEMENS | B82422-A3220-K100 | |
| L660 .663 | LD 1UH 10% 0,38A 1210 SMD-INDUCTOR | LD 6006.0130.00 | SIEMENS | B82422-A1102-K100 | |
| L668 | LD 1UH 10% 0,38A 1210 SMD-INDUCTOR | LD 6006.0130.00 | SIEMENS | B82422-A1102-K100 | |
| L670 | LD 1UH 10% 0,38A 1210 SMD-INDUCTOR | LD 6006.0130.00 | SIEMENS | B82422-A1102-K100 | |
| L671 | LD 1UH 10% 0,38A 1210 SMD-INDUCTOR | LD 6006.0130.00 | SIEMENS | B82422-A1102-K100 | |
| L705 | LD 220NH 10% 0,28A 1210 SMD-INDUCTOR | LD 0520.7911.00 | SIEMENS | B82422-A3221-K100 | |
| L706 | LD 220NH 10% 0,28A 1210 SMD-INDUCTOR | LD 0520.7911.00 | SIEMENS | B82422-A3221-K100 | |
| L709 | LD 4,7UH 10% 0,15A 1210 SMD-INDUCTOR | LD 0008.1687.00 | SIEMENS | B82422-A1472-K100 | |
| L714 | LD 100NH 10% 0,44A 1210 SMD-INDUCTOR | LD 0007.9249.00 | SIEMENS | B82422-A3101-K100 | |
| L720 | LD 4,7UH 10% 0,15A 1210 SMD-INDUCTOR | LD 0008.1687.00 | SIEMENS | B82422-A1472-K100 | |
| L727 | LD 1UH 10% 0,38A 1210 SMD-INDUCTOR | LD 6006.0130.00 | SIEMENS | B82422-A1102-K100 | |
| L730 | LD 100NH 10% 0,44A 1210 SMD-INDUCTOR | LD 0007.9249.00 | SIEMENS | B82422-A3101-K100 | |
| L732 | LD 4,7UH 10% 0,15A 1210 SMD-INDUCTOR | LD 0008.1687.00 | SIEMENS | B82422-A1472-K100 | |
| L738 | LD 100NH 10% 0,44A 1210 SMD-INDUCTOR | LD 0007.9249.00 | SIEMENS | B82422-A3101-K100 | |
| L739 | LD 100NH 10% 0,44A 1210 SMD-INDUCTOR | LD 0007.9249.00 | SIEMENS | B82422-A3101-K100 | |
| L800 | LD 12NH 10% 0,70A 1210 SMD-INDUCTOR | 1002.4900.00 | SIEMENS | B82422-A3120-K100 | |
| L801 | NICHT BESTUECKT NOT FITTED LD 1,20UH10%,180HMO,620A CHOKE | LD 0067.2870.00 | DALE | IM2 | |

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|---------------------|---|-------------------------|----------------------------|----------------------------|------------------------------|
| L816 | LD 12NH 10% 0,70A 1210 SMD-INDUCTOR | 1002.4900.00 | SIEMENS | B82422-A3120-K100 | |
| L819 | LD 220NH 10% 0,28A 1210 SMD-INDUCTOR | LD 0520.7911.00 | SIEMENS | B82422-A3221-K100 | |
| L828 | LD 12NH 10% 0,70A 1210 SMD-INDUCTOR NICHT BESTUECKT NOT FITTED | 1002.4900.00 | SIEMENS | B82422-A3120-K100 | |
| L830 | LD 220NH 10% 0,28A 1210 SMD-INDUCTOR | LD 0520.7911.00 | SIEMENS | B82422-A3221-K100 | |
| L840 | LD 1UH 10% 0,38A 1210 SMD-INDUCTOR | LD 6006.0130.00 | SIEMENS | B82422-A1102-K100 | |
| L841 | LD 1UH 10% 0,38A 1210 SMD-INDUCTOR | LD 6006.0130.00 | SIEMENS | B82422-A1102-K100 | |
| L843 | LD 47NH 10% 0,51A 1210 SMD-INDUCTOR NICHT BESTUECKT NOT FITTED | 0008.5976.00 | SIEMENS | B82422-A3470-K100 | |
| L845 | LD 100UH 10% 0,06A 1210 SMD-INDUCTOR | LD 0007.9261.00 | SIEMENS | B82422-A1104-K100 | |
| L880 | LD 1,20UH10%, 180HMO, 620A CHOKE | LD 0067.2870.00 | DALE | IM2 | |
| L885 | LD 1UH 10% 0,38A 1210 SMD-INDUCTOR | LD 6006.0130.00 | SIEMENS | B82422-A1102-K100 | |
| N20 | BO TLO74ACD 4XFET OPAMP OPERATIONAL AMPLIFIER | 0007.7823.00 | TEXAS | TLO74A(CD) | |
| N130 | BO NE5532D 2XLN OPAMP OPERATIONAL AMPLIFIER | 0007.7798.00 | SIGNETICS | NE5532D | |
| N223 | BO TLO72ACD 2XFET OPAMP OPERATIONAL AMPLIFIER | 0803.1057.00 | TEXAS | TL 072 ACDR | |
| N228 | BO TLO72ACD 2XFET OPAMP OPERATIONAL AMPLIFIER | 0803.1057.00 | TEXAS | TL 072 ACDR | |
| N235 | BO NE5534D OPAMP OPERATIONAL AMPLIFIER | 0815.7555.00 | SIGNETICS | NE5534(D) | |
| N275 | BO TLO72ACD 2XFET OPAMP OPERATIONAL AMPLIFIER | 0803.1057.00 | TEXAS | TL 072 ACDR | |
| N276 | BO TLO72ACD 2XFET OPAMP OPERATIONAL AMPLIFIER | 0803.1057.00 | TEXAS | TL 072 ACDR | |
| N300 | BM MSA0486 DC-3.2G MMIC BROADBAND AMPLIFIER NICHT BESTUECKT NOT FITTED | 0846.4293.00 | AVANTEK | MSA-0486 | |
| N360 | BM MSA1105 05-1.3G MMIC IC MICROWAVE MONOLITH AMP | 1051.4051.00 | AVANTEK | MSA-1105-TR1 | |
| N410 | BM MSA1105 05-1.3G MMIC IC MICROWAVE MONOLITH AMP | 1051.4051.00 | AVANTEK | MSA-1105-TR1 | |
| N600 | BO TLO74ACD 4XFET OPAMP OPERATIONAL AMPLIFIER | 0007.7823.00 | TEXAS | TLO74A(CD) | |
| N610 | BO AD744KR FET OPAMP BIFET OPAMP | 0854.1754.00 | ANALOG_DEV | (AD)744KR | |
| N840 | BO TLO74ACD 4XFET OPAMP OPERATIONAL AMPLIFIER | 0007.7823.00 | TEXAS | TLO74A(CD) | |
| N845 | BO AD744KR FET OPAMP BIFET OPAMP | 0854.1754.00 | ANALOG_DEV | (AD)744KR | |
| P300 | VL EINPRESSSTIFT L=6,8 PIN | VL 0010.7250.00 | AMP | 1-928776-5 | |
| P305 | VL EINPRESSSTIFT L=6,8 PIN | VL 0010.7250.00 | AMP | 1-928776-5 | |
| P306 | VL EINPRESSSTIFT L=6,8 PIN | VL 0010.7250.00 | AMP | 1-928776-5 | |
| P352 | VL EINPRESSSTIFT L=6,8 PIN | VL 0010.7250.00 | AMP | 1-928776-5 | |
| P353 | VL EINPRESSSTIFT L=6,8 PIN | VL 0010.7250.00 | AMP | 1-928776-5 | |
| P375 | VL EINPRESSSTIFT L=6,8 PIN | VL 0010.7250.00 | AMP | 1-928776-5 | |
| P380 | VL EINPRESSSTIFT L=6,8 PIN | VL 0010.7250.00 | AMP | 1-928776-5 | |
| P385 | VL EINPRESSSTIFT L=6,8 PIN | VL 0010.7250.00 | AMP | 1-928776-5 | |
| P600 | VL EINPRESSSTIFT L=6,8 PIN | VL 0010.7250.00 | AMP | 1-928776-5 | |
| P601 | VL EINPRESSSTIFT L=6,8 PIN | VL 0010.7250.00 | AMP | 1-928776-5 | |
| P620 | VL EINPRESSSTIFT L=6,8 PIN | VL 0010.7250.00 | AMP | 1-928776-5 | |

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| P621 | VL EINPRESSTIFT L=6,8 PIN | VL 0010.7250.00 | AMP | 1-928776-5 | |
| P628 | VL EINPRESSTIFT L=6,8 PIN | VL 0010.7250.00 | AMP | 1-928776-5 | |
| P866 | VL EINPRESSTIFT L=6,8 PIN | VL 0010.7250.00 | AMP | 1-928776-5 | |
| R9 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| R10 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| R11 | RG 182 KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5989.00 | ROEDERSTEI | DC2 182KOHM 1%TK100 | |
| R12 | RG 121,0KOH+-1%TK100 1206 CHIP RESISTOR | RG 0007.1960.00 | RESISTA | DC2 121KOHM 1% TK100 | |
| R13 | RG 121,0KOH+-1%TK100 1206 CHIP RESISTOR | RG 0007.1960.00 | RESISTA | DC2 121KOHM 1% TK100 | |
| R14 | RG 56,2KOHM+-1%TK100 1206 CHIP RESISTOR | RG 0007.1883.00 | ROEDERSTEI | DC2 56,2KOHM 1%TK100 | |
| R15 | RG 27,4KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5895.00 | ROEDERSTEI | DC2 27,4KOHM 1%TK100 | |
| R16 | RG 1,0MOHM+-1%TK100 1206 CHIP RESISTOR | RG 0815.7532.00 | DRALORIC | CRC 1206 | |
| R17 | RG 100 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8884.00 | ROEDERSTEI | DC2 100OHM 1%TK100 | |
| R18 | RG 100 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8884.00 | ROEDERSTEI | DC2 100OHM 1%TK100 | |
| R20 | RG 47,5 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5566.00 | ROEDERSTEI | DC2 47,5OHM 1%TK100 | |
| R21 | RG 100 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8884.00 | ROEDERSTEI | DC2 100OHM 1%TK100 | |
| R22 | RG 47,5 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5566.00 | ROEDERSTEI | DC2 47,5OHM 1%TK100 | |
| ..25 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| R26 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| R27 | RG 47,5 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5566.00 | ROEDERSTEI | DC2 47,5OHM 1%TK100 | |
| ..32 | RG 100 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8884.00 | ROEDERSTEI | DC2 100OHM 1%TK100 | |
| R33 | RG 100 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8884.00 | ROEDERSTEI | DC2 100OHM 1%TK100 | |
| R34 | RG 100 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8884.00 | ROEDERSTEI | DC2 100OHM 1%TK100 | |
| R35 | RG 2,0 KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5737.00 | ROEDERSTEI | DC2 2,0KOHM 1%TK100 | |
| R36 | RG 100,0KOH+-1%TK100 1206 CHIP RESISTOR | RG 0007.1948.00 | ROEDERSTEI | DC2 100KOHM 1%TK100 | |
| R38 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| R41 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| ..48 | RG 20,0KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5866.00 | ROEDERSTEI | DC2 20,0KOHM 1%TK100 | |
| R50 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| R116 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| R119 | RG 825 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.7259.00 | ROEDERSTEI | DC2 825OHM 1%TK100 | |
| R120 | RG 100,0KOH+-1%TK100 1206 CHIP RESISTOR | RG 0007.1948.00 | ROEDERSTEI | DC2 100KOHM 1%TK100 | |
| ..122 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| R123 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| R124 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| R130 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| ..132 | RG 0-OHM WIDERSTAND-CHIP RESISTOR CHIP 0-OHM | RG 0007.5108.00 | DRALORIC | CR 1206 | |
| R133 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| R149 | RG 100,0KOH+-1%TK100 1206 CHIP RESISTOR | RG 0007.1948.00 | ROEDERSTEI | DC2 100KOHM 1%TK100 | |
| R160 | RG 100,0KOH+-1%TK100 1206 CHIP RESISTOR | RG 0007.1948.00 | ROEDERSTEI | DC2 100KOHM 1%TK100 | |
| R161 | RG 100,0KOH+-1%TK100 1206 CHIP RESISTOR | RG 0007.1948.00 | ROEDERSTEI | DC2 100KOHM 1%TK100 | |
| R162 | RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR | RG 0006.7271.00 | ROEDERSTEI | DC2 1,0KOHM 1%TK100 | |
| R163 | RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR | RG 0006.7271.00 | ROEDERSTEI | DC2 1,0KOHM 1%TK100 | |
| R165 | RG 100,0KOH+-1%TK100 1206 CHIP RESISTOR | RG 0007.1948.00 | ROEDERSTEI | DC2 100KOHM 1%TK100 | |

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|------------------|--|----------------------|-------------------------|-------------------------|----------------------------|
| R166 | RG 100,0KOHM+-1%TK100 1206 CHIP RESISTOR | RG 0007.1948.00 | ROEDERSTEI | DC2 100KOHM 1%TK100 | |
| R167 | RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR | RG 0006.7271.00 | ROEDERSTEI | DC2 1,0KOHM 1%TK100 | |
| R168 | RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR | RG 0006.7271.00 | ROEDERSTEI | DC2 1,0KOHM 1%TK100 | |
| R170 | RG 100,0KOHM+-1%TK100 1206 CHIP RESISTOR | RG 0007.1948.00 | ROEDERSTEI | DC2 100KOHM 1%TK100 | |
| R171 | RG 100,0KOHM+-1%TK100 1206 CHIP RESISTOR | RG 0007.1948.00 | ROEDERSTEI | DC2 100KOHM 1%TK100 | |
| R172 | RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR | RG 0006.7271.00 | ROEDERSTEI | DC2 1,0KOHM 1%TK100 | |
| R173 | RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR | RG 0006.7271.00 | ROEDERSTEI | DC2 1,0KOHM 1%TK100 | |
| R208 | RG 9,09KOHM+-1%TK100 1206 CHIP RESISTOR | RG 0007.0787.00 | ROEDERSTEI | DC2 9,09KOHM 1%TK100 | |
| R209 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR NICHT BESTUECKT NOT FITTED | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| R211 | RG 3,01KOHM+-1%TK100 1206 RESISTOR CHIP NUR VAR/ONLY MOD: 02 | RG 0007.5772.00 | ROEDERSTEI | DC2 3,01KOHM 1%TK100 | |
| R211 | RG 3,01KOHM+-1%TK100 1206 RESISTOR CHIP NUR VAR/ONLY MOD: 04 | RG 0007.5772.00 | ROEDERSTEI | DC2 3,01KOHM 1%TK100 | |
| R211 | RG 2,21KOHM+-1%TK100 1206 RESISTOR CHIP NUR VAR/ONLY MOD: 03 06 | RG 0007.5743.00 | ROEDERSTEI | DC2 2,21KOHM 1%TK100 | |
| R212 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| R213 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| R214 | RG 3,32KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5789.00 | ROEDERSTEI | DC2 3,32KOHM 1%TK100 | |
| R215 | RG 20,0KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5866.00 | ROEDERSTEI | DC2 20,0KOHM 1%TK100 | |
| R216 | RG 20,0KOHM+-1%TK100 1206 RESISTOR CHIP NICHT BESTUECKT NOT FITTED | RG 0007.5866.00 | ROEDERSTEI | DC2 20,0KOHM 1%TK100 | |
| R218 | RG 4,32KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5814.00 | RESISTA | DC2 4,32KOHM 1%TK100 | |
| R219 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR NICHT BESTUECKT NOT FITTED | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| R221 | RG 182 KOHM+-1%TK100 1206 RESISTOR CHIP NICHT BESTUECKT NOT FITTED | RG 0007.5989.00 | ROEDERSTEI | DC2 182KOHM 1%TK100 | |
| R222 | RG 0-OHM WIDERSTAND-CHIP RESISTOR CHIP 0-OHM | RG 0007.5108.00 | DRALORIC | CR 1206 | |
| R223 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| R240 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| R241 | RG 20,0KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5866.00 | ROEDERSTEI | DC2 20,0KOHM 1%TK100 | |
| R259 | RG 221 KOHM+-1%TK100 1206 RESISTOR CHIP NUR VAR/ONLY MOD: 02 | RG 0007.6004.00 | ROEDERSTEI | DC2 221KOHM 1%TK100 | |
| R259 | RG 221 KOHM+-1%TK100 1206 RESISTOR CHIP NUR VAR/ONLY MOD: 04 | RG 0007.6004.00 | ROEDERSTEI | DC2 221KOHM 1%TK100 | |
| R259 | RG 56,2KOHM+-1%TK100 1206 CHIP RESISTOR NUR VAR/ONLY MOD: 03 06 | RG 0007.1883.00 | ROEDERSTEI | DC2 56,2KOHM 1%TK100 | |
| R271 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| R272 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| R275 | RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR | RG 0006.7271.00 | ROEDERSTEI | DC2 1,0KOHM 1%TK100 | |
| R276 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| R278 | RG 47,5KOHM+-1%TK100 1206 RESISTOR CHIP NUR VAR/ONLY MOD: 02 | RG 0007.5950.00 | ROEDERSTEI | DC2 47,5KOHM 1%TK100 | |

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| R278 | RG 30,1KOHM+-1%TK100 1206 RESISTOR CHIP NUR VAR/ONLY MOD: 04 | RG 0007.5908.00 | ROEDERSTEI | DC2 30,1KOHM 1%TK100 | |
| R278 | RG 30,1KOHM+-1%TK100 1206 RESISTOR CHIP NUR VAR/ONLY MOD: 03 06 | RG 0007.5908.00 | ROEDERSTEI | DC2 30,1KOHM 1%TK100 | |
| R280 | RS 0,25W 5KOHM +-20% SMD POTENTIOMETER | RS 0007.9632.00 | SIEMENS | S4G-5KOHM | |
| R283 .285 | RG 20,0KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5866.00 | ROEDERSTEI | DC2 20,0KOHM 1%TK100 | |
| R286 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| R299 | RG 33,2KOHM+-1%TK100 1206 RESISTOR CHIP NUR VAR/ONLY MOD: 02 | RG 0007.5914.00 | ROEDERSTEI | DC2 33,2KOHM 1%TK100 | |
| R299 | RG 33,2KOHM+-1%TK100 1206 RESISTOR CHIP NUR VAR/ONLY MOD: 04 | RG 0007.5914.00 | ROEDERSTEI | DC2 33,2KOHM 1%TK100 | |
| R299 | RG 15,0KOHM+-1%TK100 1206 RESISTOR CHIP NUR VAR/ONLY MOD: 03 06 | RG 0007.5843.00 | ROEDERSTEI | DC2 15,0KOHM 1%TK100 | |
| R300 | RG 0,05W 27R +-1% 0805 RESISTOR | RG 0007.8936.00 | HONEST JAP | MR 08 M 27R 1% 0805 | |
| R301 .308 | RK SMD-HEISSL.220R 0805 SMD-NTC-RESISTOR | 1039.1310.00 | SIEMENS | B57620-C221-K62 | |
| R310 | RG 68,1 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8849.00 | ROEDERSTEI | DC2 68,1OHM 1%TK100 | |
| R312 | RG 12,1 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8661.00 | ROEDERSTEI | DC2 12,1OHM 1%TK100 | |
| R313 | RG 56,2 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8826.00 | ROEDERSTEI | DC2 56,2OHM 1%TK100 | |
| R314 | RG 511 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.9051.00 | ROEDERSTEI | DC2 511OHM 1%TK100 | |
| R315 | RL 0,60W 1,33KOHM+-1%TK50 RESISTOR | RL 0083.0684.00 | RESISTA | MK2 | |
| R316 | RG 39,2 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5543.00 | ROEDERSTEI | DC2 39,2OHM 1%TK100 | |
| R317 | RL 0,60W 1,33KOHM+-1%TK50 RESISTOR | RL 0083.0684.00 | RESISTA | MK2 | |
| R318 | RL 0,60W 1,33KOHM+-1%TK50 RESISTOR | RL 0083.0684.00 | RESISTA | MK2 | |
| R319 | RG 562 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.9068.00 | ROEDERSTEI | DC2 562OHM 1%TK100 | |
| R320 | RG 15,0 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5450.00 | ROEDERSTEI | DC2 15,0OHM 1%TK100 | |
| R321 | RG 15,0 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5450.00 | ROEDERSTEI | DC2 15,0OHM 1%TK100 | |
| R325 | RG 2,0 KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5737.00 | ROEDERSTEI | DC2 2,0KOHM 1%TK100 | |
| R327 | RG 562 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.9068.00 | ROEDERSTEI | DC2 562OHM 1%TK100 | |
| R328 | RG 56,2 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8826.00 | ROEDERSTEI | DC2 56,2OHM 1%TK100 | |
| R329 | RL 0,60W 1,33KOHM+-1%TK50 RESISTOR | RL 0083.0684.00 | RESISTA | MK2 | |
| R330 | RG 15,0 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5450.00 | ROEDERSTEI | DC2 15,0OHM 1%TK100 | |
| R332 | RL 0,60W 1,33KOHM+-1%TK50 RESISTOR | RL 0083.0684.00 | RESISTA | MK2 | |
| R333 | RG 15,0 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5450.00 | ROEDERSTEI | DC2 15,0OHM 1%TK100 | |
| R340 | RG 511 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.9051.00 | ROEDERSTEI | DC2 511OHM 1%TK100 | |
| R341 | RL 0,60W 1,33KOHM+-1%TK50 RESISTOR | RL 0083.0684.00 | RESISTA | MK2 | |
| R342 | RG 39,2 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5543.00 | ROEDERSTEI | DC2 39,2OHM 1%TK100 | |
| R355 | RG 0-OHM WIDERSTAND-CHIP RESISTOR CHIP 0-OHM | RG 0007.5108.00 | DRALORIC | CR 1206 | |
| R356 | RL 0,60W 100 OHM+-1%TK50 RESISTOR | RL 0082.6543.00 | RESISTA | MK2 | |
| R357 | RL 0,60W 100 OHM+-1%TK50 RESISTOR | RL 0082.6543.00 | RESISTA | MK2 | |
| R358 | RG 0-OHM WIDERSTAND-CHIP RESISTOR CHIP 0-OHM NICHT BESTUECKT NOT FITTED | RG 0007.5108.00 | DRALORIC | CR 1206 | |

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|---------------------|---|-------------------------|----------------------------|----------------------------|------------------------------|
| R360 | RL 0,60W 100 OHM+-1%TK50 RESISTOR | RL 0082.6543.00 | RESISTA | MK2 | |
| R361 | RL 0,60W 100 OHM+-1%TK50 RESISTOR | RL 0082.6543.00 | RESISTA | MK2 | |
| R400 | RG 511 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.9051.00 | ROEDERSTEI | DC2 511OHM 1%TK100 | |
| R401 | RL 0,60W 1,33KOHM+-1%TK50 RESISTOR | RL 0083.0684.00 | RESISTA | MK2 | |
| R402 | RG 39,2 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5543.00 | ROEDERSTEI | DC2 39,2OHM 1%TK100 | |
| R404 | RG 56,2 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8826.00 | ROEDERSTEI | DC2 56,2OHM 1%TK100 | |
| R405 | RG 562 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.9068.00 | ROEDERSTEI | DC2 562OHM 1%TK100 | |
| R406 | RG 15,0 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5450.00 | ROEDERSTEI | DC2 15,0OHM 1%TK100 | |
| R407 | RG 15,0 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5450.00 | ROEDERSTEI | DC2 15,0OHM 1%TK100 | |
| R408 | RL 0,60W 1,33KOHM+-1%TK50 RESISTOR | RL 0083.0684.00 | RESISTA | MK2 | |
| R409 | RL 0,60W 1,33KOHM+-1%TK50 RESISTOR | RL 0083.0684.00 | RESISTA | MK2 | |
| R410 | RG 39,2KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5937.00 | ROEDERSTEI | DC2 39,2KOHM 1%TK100 | |
| R411 | RG 1,5 KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5714.00 | ROEDERSTEI | DC2 1,5KOHM 1%TK100 | |
| R412 | RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR | RG 0006.7271.00 | ROEDERSTEI | DC2 1,0KOHM 1%TK100 | |
| R416 | RL 0,60W 100 OHM+-1%TK50 RESISTOR | RL 0082.6543.00 | RESISTA | MK2 | |
| R417 | RL 0,60W 100 OHM+-1%TK50 RESISTOR | RL 0082.6543.00 | RESISTA | MK2 | |
| R431 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| ..438 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| R440 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| R442 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| R443 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| R450 | RG 100 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8884.00 | ROEDERSTEI | DC2 100OHM 1%TK100 | |
| R451 | RG 150 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5589.00 | ROEDERSTEI | DC2 150OHM 1%TK100 | |
| R452 | RG 182 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5595.00 | ROEDERSTEI | DC2 182OHM 1%TK100 | |
| R453 | RG 150 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5589.00 | ROEDERSTEI | DC2 150OHM 1%TK100 | |
| R454 | RG 100 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8884.00 | ROEDERSTEI | DC2 100OHM 1%TK100 | |
| R455 | RG 56,2 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8826.00 | ROEDERSTEI | DC2 56,2OHM 1%TK100 | |
| R500 | RG 2,0 KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5737.00 | ROEDERSTEI | DC2 2,0KOHM 1%TK100 | |
| ..502 | RG 392 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5672.00 | ROEDERSTEI | DC2 392OHM 1%TK100 | |
| R503 | RG 392 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5672.00 | ROEDERSTEI | DC2 392OHM 1%TK100 | |
| R520 | RG 1,21KOHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.9968.00 | ROEDERSTEI | DC2 1,21KOHM 1%TK100 | |
| ..522 | RG 392 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5672.00 | ROEDERSTEI | DC2 392OHM 1%TK100 | |
| R530 | RG 392 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5672.00 | ROEDERSTEI | DC2 392OHM 1%TK100 | |
| R600 | RG 221 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5614.00 | ROEDERSTEI | DC2 221OHM 1%TK100 | |
| R601 | RL 0,60W 274 OHM+-1%TK50 RESISTOR | RL 0083.0178.00 | RESISTA | MK2 | |
| R602 | RG 27,4 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5508.00 | ROEDERSTEI | DC2 27,4OHM 1%TK100 | |
| R603 | RG 33,2 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5520.00 | ROEDERSTEI | DC2 33,2OHM 1%TK100 | |
| R604 | RG 68,1 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8849.00 | ROEDERSTEI | DC2 68,1OHM 1%TK100 | |
| R605 | RG 15,0 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5450.00 | ROEDERSTEI | DC2 15,0OHM 1%TK100 | |
| R606 | RG 2,74KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5766.00 | ROEDERSTEI | DC2 2,74KOHM 1%TK100 | |
| R607 | RG 825 KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.6133.00 | ROEDERSTEI | DC2 825KOHM 1%TK100 | |
| R608 | RG 100 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8884.00 | ROEDERSTEI | DC2 100OHM 1%TK100 | |


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| Kennz. Comp. No. | Benennung Designation | Sachnummer Stock No. | Hersteller Manufacturer | Bezeichnung Designation | enthalten in contained in |
|---------------------|--|-------------------------|----------------------------|----------------------------|------------------------------|
| R609 | RG 1,5 KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5714.00 | ROEDERSTEI | DC2 1,5KOHM 1%TK100 | |
| R611 | RG 392 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5672.00 | ROEDERSTEI | DC2 392OHM 1%TK100 | |
| R612 | RG 475 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5695.00 | ROEDERSTEI | DC2 475OHM 1%TK100 | |
| R613 | RG 3,01KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5772.00 | ROEDERSTEI | DC2 3,01KOHM 1%TK100 | |
| R614 | RG 2,74KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5766.00 | ROEDERSTEI | DC2 2,74KOHM 1%TK100 | |
| R615 | RG 1,2MOHM+-5%TK200 1206 CHIP RESISTOR NICHT BESTUECKT NOT FITTED | 0007.9949.00 | ROEDERSTEI | D 25 | |
| R616 | RG 3,01KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5772.00 | ROEDERSTEI | DC2 3,01KOHM 1%TK100 | |
| R617 | RG 1,2MOHM+-5%TK200 1206 CHIP RESISTOR NICHT BESTUECKT NOT FITTED | 0007.9949.00 | ROEDERSTEI | D 25 | |
| R618 | RG 100,0KOH+-1%TK100 1206 CHIP RESISTOR | RG 0007.1948.00 | ROEDERSTEI | DC2 100KOHM 1%TK100 | |
| R619 | RS 0,25W 5KOHM +-20% SMD POTENTIOMETER | RS 0007.9632.00 | SIEMENS | S4G-5KOHM | |
| R620 | RG 100,0KOH+-1%TK100 1206 CHIP RESISTOR | RG 0007.1948.00 | ROEDERSTEI | DC2 100KOHM 1%TK100 | |
| R621 | RG 475 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5695.00 | ROEDERSTEI | DC2 475OHM 1%TK100 | |
| R622 | RG 100 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8884.00 | ROEDERSTEI | DC2 100OHM 1%TK100 | |
| R623 | RK SMD-HEISSL.22OR 0805 SMD-NTC-RESISTOR NICHT BESTUECKT NOT FITTED | 1039.1310.00 | SIEMENS | B57620-C221-K62 | |
| R624 | RK SMD-HEISSL.22OR 0805 SMD-NTC-RESISTOR | 1039.1310.00 | SIEMENS | B57620-C221-K62 | |
| R625 | RG 18,2 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5466.00 | ROEDERSTEI | DC2 18,2OHM 1%TK100 | |
| R626 | RG 100 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8884.00 | ROEDERSTEI | DC2 100OHM 1%TK100 | |
| R627 | RG 56,2 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8826.00 | ROEDERSTEI | DC2 56,2OHM 1%TK100 | |
| R628 | RG 100 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8884.00 | ROEDERSTEI | DC2 100OHM 1%TK100 | |
| R629 | RG 100 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8884.00 | ROEDERSTEI | DC2 100OHM 1%TK100 | |
| R630 | RG 825 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.7259.00 | ROEDERSTEI | DC2 825OHM 1%TK100 | |
| R631 | RG 825 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.7259.00 | ROEDERSTEI | DC2 825OHM 1%TK100 | |
| R632 | RG 0-OHM WIDERSTAND-CHIP RESISTOR CHIP 0-OHM | RG 0007.5108.00 | DRALORIC | CR 1206 | |
| R634 | RG 5,62OHM+-1%TK100 1206 CHIP-RESISTOR | RG 0007.8442.00 | PHILIPS | RC 02 | |
| R635 | RG 22,1KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5872.00 | ROEDERSTEI | DC2 22,1KOHM 1%TK100 | |
| R636 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| R637 | RG 1,5 KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5714.00 | ROEDERSTEI | DC2 1,5KOHM 1%TK100 | |
| R638 | RG 392 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5672.00 | ROEDERSTEI | DC2 392OHM 1%TK100 | |
| R639 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| R640 | RG 0-OHM WIDERSTAND-CHIP RESISTOR CHIP 0-OHM | RG 0007.5108.00 | DRALORIC | CR 1206 | |
| R641 | RG 15,0 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5450.00 | ROEDERSTEI | DC2 15,0OHM 1%TK100 | |
| R642 | RG 51,1 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8810.00 | RESISTA | DC2 51,1OHM 1%TK100 | |
| R644 | RG 475 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5695.00 | ROEDERSTEI | DC2 475OHM 1%TK100 | |
| R645 | RS 0,25W200 OHM+-20% SMD POTENTIOMETER | RS 0007.9590.00 | SIEMENS | S4G-200 OHM | |
| R646 | RL 0,60W 182 OHM+-1%TK50 RESISTOR | RL 0083.0010.00 | RESISTA | MK2 | |
| R647 | RL 0,60W 121 OHM+-1%TK50 RESISTOR | RL 0082.9859.00 | RESISTA | MK2 | |

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| Kannz. Comp. No. | Benennung Designation | Sachnummer Stock No. | Hersteller Manufacturer | Bezeichnung Designation | enthalten in contained in |
|------------------|---|----------------------|-------------------------|-------------------------|---------------------------|
| R648 | RG 100 OHM+-1%TK100 CHIP RESISTOR | 1206 RG 0006.8884.00 | ROEDERSTEI | DC2 100OHM 1%TK100 | |
| R649 | RG 2,740HM+-1%TK100 CHIP-RESISTOR | 1206 RG 0007.8365.00 | PHILIPS | RC 02 | |
| R650 | RG 1,0MOHM+-1%TK100 CHIP RESISTOR | 1206 RG 0815.7532.00 | DRALORIC | CRC 1206 | |
| R651 | RG 681 KOHM+-1%TK100 RESISTOR CHIP | 1206 RG 0007.6110.00 | ROEDERSTEI | DC2 681KOHM 1%TK100 | |
| R652 | RG 68,1 OHM+-1%TK100 CHIP RESISTOR | 1206 RG 0006.8849.00 | ROEDERSTEI | DC2 68,1OHM 1%TK100 | |
| R653 | RG 56,2 OHM+-1%TK100 CHIP RESISTOR | 1206 RG 0006.8826.00 | ROEDERSTEI | DC2 56,2OHM 1%TK100 | |
| R654 | RG 56,2 OHM+-1%TK100 CHIP RESISTOR | 1206 RG 0006.8826.00 | ROEDERSTEI | DC2 56,2OHM 1%TK100 | |
| R655 | RG 2,210HM+-1%TK100 CHIP-RESISTOR | 1206 RG 0007.8342.00 | PHILIPS | RC 02 | |
| R657 | RG 10,0KOHM+-1%TK100 RG CHIP RESISTOR | 1206 RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| R658 | RG 10,0KOHM+-1%TK100 RG CHIP RESISTOR | 1206 RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| R700 | RG 82,5 OHM+-1%TK100 CHIP RESISTOR | 1206 RG 0006.8861.00 | ROEDERSTEI | DC2 82,5OHM 1%TK100 | |
| R701 | RG 1,0 KO +-1%TK100 CHIP RESISTOR | 1206 RG 0006.7271.00 | ROEDERSTEI | DC2 1,0KOHM 1%TK100 | |
| R702 | RG 475 KOHM+-1%TK100 RESISTOR CHIP | 1206 RG 0007.6079.00 | ROEDERSTEI | DC2 475KOHM 1%TK100 | |
| R704 | RG 1,0 KO +-1%TK100 CHIP RESISTOR | 1206 RG 0006.7271.00 | ROEDERSTEI | DC2 1,0KOHM 1%TK100 | |
| R705 | RG 1,0MOHM+-1%TK100 CHIP RESISTOR | 1206 RG 0815.7532.00 | DRALORIC | CRC 1206 | |
| R706 | RG 1,21KOHM+-1%TK100 CHIP RESISTOR | 1206 RG 0006.9968.00 | ROEDERSTEI | DC2 1,21KOHM 1%TK100 | |
| R707 | RG 1,21KOHM+-1%TK100 CHIP RESISTOR | 1206 RG 0006.9968.00 | ROEDERSTEI | DC2 1,21KOHM 1%TK100 | |
| R709 | RG 100 OHM+-1%TK100 CHIP RESISTOR | 1206 RG 0006.8884.00 | ROEDERSTEI | DC2 100OHM 1%TK100 | |
| R710 | RG 121 OHM+-1%TK100 CHIP RESISTOR | 1206 RG 0006.8903.00 | ROEDERSTEI | DC2 121OHM 1%TK100 | |
| R720 | RG 100 OHM+-1%TK100 CHIP RESISTOR | 1206 RG 0006.8884.00 | ROEDERSTEI | DC2 100OHM 1%TK100 | |
| R721 | RG 121 OHM+-1%TK100 CHIP RESISTOR | 1206 RG 0006.8903.00 | ROEDERSTEI | DC2 121OHM 1%TK100 | |
| R723 | RG 1,21KOHM+-1%TK100 CHIP RESISTOR | 1206 RG 0006.9968.00 | ROEDERSTEI | DC2 1,21KOHM 1%TK100 | |
| R724 | RG 1,21KOHM+-1%TK100 CHIP RESISTOR | 1206 RG 0006.9968.00 | ROEDERSTEI | DC2 1,21KOHM 1%TK100 | |
| R730 | RG 332 OHM+-1%TK100 RESISTOR CHIP | 1206 RG 0007.5650.00 | ROEDERSTEI | DC2 332OHM 1%TK100 | |
| R731 | RG 1,21KOHM+-1%TK100 CHIP RESISTOR | 1206 RG 0006.9968.00 | ROEDERSTEI | DC2 1,21KOHM 1%TK100 | |
| R732 | RG 1,21KOHM+-1%TK100 CHIP RESISTOR | 1206 RG 0006.9968.00 | ROEDERSTEI | DC2 1,21KOHM 1%TK100 | |
| R734 | RG 121 OHM+-1%TK100 CHIP RESISTOR | 1206 RG 0006.8903.00 | ROEDERSTEI | DC2 121OHM 1%TK100 | |
| R735 | RG 100 OHM+-1%TK100 CHIP RESISTOR | 1206 RG 0006.8884.00 | ROEDERSTEI | DC2 100OHM 1%TK100 | |
| R745 | RG 10,0KOHM+-1%TK100 RG CHIP RESISTOR | 1206 RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| R747 | RG 8,25KOHM+-1%TK100 CHIP RESISTOR | 1206 RG 0007.0770.00 | ROEDERSTEI | DC2 8,25KOHM 1%TK100 | |
| R748 | RG 8,25KOHM+-1%TK100 CHIP RESISTOR | 1206 RG 0007.0770.00 | ROEDERSTEI | DC2 8,25KOHM 1%TK100 | |
| R750 | RG 332 OHM+-1%TK100 RESISTOR CHIP | 1206 RG 0007.5650.00 | ROEDERSTEI | DC2 332OHM 1%TK100 | |
| R751 | RG 332 OHM+-1%TK100 RESISTOR CHIP | 1206 RG 0007.5650.00 | ROEDERSTEI | DC2 332OHM 1%TK100 | |
| R753 | RG 475 OHM+-1%TK100 RESISTOR CHIP | 1206 RG 0007.5695.00 | ROEDERSTEI | DC2 475OHM 1%TK100 | |
| R754 | RG 475 OHM+-1%TK100 RESISTOR CHIP | 1206 RG 0007.5695.00 | ROEDERSTEI | DC2 475OHM 1%TK100 | |
| R760 | RG 10,0KOHM+-1%TK100 RG CHIP RESISTOR | 1206 RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| R761 | RG 0-OHM WIDERSTAND-CHIP RESISTOR CHIP 0-OHM | 1206 RG 0007.5108.00 | DRALORIC | CR 1206 | |
| R762 | RG 47,5 OHM+-1%TK100 RESISTOR CHIP | 1206 RG 0007.5566.00 | ROEDERSTEI | DC2 47,5OHM 1%TK100 | |
| R801 | RG 0-OHM WIDERSTAND-CHIP RESISTOR CHIP 0-OHM | 1206 RG 0007.5108.00 | DRALORIC | CR 1206 | |

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| Kennz. Comp. No. | Benennung Designation | Sachnummer Stock No. | Hersteller Manufacturer | Bezeichnung Designation | enthalten in contained in |
|---------------------|--|-------------------------|----------------------------|----------------------------|------------------------------|
| R802 | RG 47,5 OHM+-1%TK100 1206 RESISTOR CHIP NICHT BESTUECKT NOT FITTED | RG 0007.5566.00 | ROEDERSTEI | DC2 47,5OHM 1%TK100 | |
| R803 | RG 3,32KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5789.00 | ROEDERSTEI | DC2 3,32KOHM 1%TK100 | |
| R804 | RG 22,1 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5489.00 | ROEDERSTEI | DC2 22,1OHM 1%TK100 | |
| R806 | RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR | RG 0006.7271.00 | ROEDERSTEI | DC2 1,0KOHM 1%TK100 | |
| R807 | RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR | RG 0006.7271.00 | ROEDERSTEI | DC2 1,0KOHM 1%TK100 | |
| R808 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| R809 | RG 562 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.9068.00 | ROEDERSTEI | DC2 562OHM 1%TK100 | |
| R811 | RG 8,25OHM+-1%TK100 1206 CHIP-RESISTOR | RG 0007.8488.00 | PHILIPS | RC 02 | |
| R812 . .815 | RG 12,1 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8661.00 | ROEDERSTEI | DC2 12,1OHM 1%TK100 | |
| R816 | RG 27,4 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5508.00 | ROEDERSTEI | DC2 27,4OHM 1%TK100 | |
| R817 | RG 47,5 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5566.00 | ROEDERSTEI | DC2 47,5OHM 1%TK100 | |
| R819 | RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR | RG 0006.7271.00 | ROEDERSTEI | DC2 1,0KOHM 1%TK100 | |
| R820 | RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR | RG 0006.7271.00 | ROEDERSTEI | DC2 1,0KOHM 1%TK100 | |
| R821 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| R822 | RG 562 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.9068.00 | ROEDERSTEI | DC2 562OHM 1%TK100 | |
| R823 | RG 6,81OHM+-1%TK100 1206 CHIP-RESISTOR | RG 0007.8465.00 | PHILIPS | RC 02 | |
| R824 . .827 | RG 8,25OHM+-1%TK100 1206 CHIP-RESISTOR | RG 0007.8488.00 | PHILIPS | RC 02 | |
| R828 | RG 150 OHM+-1%TK100 1206 RESISTOR CHIP NICHT BESTUECKT NOT FITTED | RG 0007.5589.00 | ROEDERSTEI | DC2 150OHM 1%TK100 | |
| R829 | RG 182 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5595.00 | ROEDERSTEI | DC2 182OHM 1%TK100 | |
| R830 | RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR | RG 0006.7271.00 | ROEDERSTEI | DC2 1,0KOHM 1%TK100 | |
| R831 | RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR | RG 0006.7271.00 | ROEDERSTEI | DC2 1,0KOHM 1%TK100 | |
| R832 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| R833 | RG 681 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.9080.00 | ROEDERSTEI | DC2 681OHM 1%TK100 | |
| R834 . .838 | RG 6,81OHM+-1%TK100 1206 CHIP-RESISTOR | RG 0007.8465.00 | PHILIPS | RC 02 | |
| R839 | RL 0,40W 270 OHM2% UNGEW. RESISTOR | RL 0092.6000.00 | RESISTA | MK1 270OHM 2% UNGEW. | |
| R841 | RG 100 OHM+-1%TK100 1206 CHIP RESISTOR NUR VAR/ONLY MOD: 02 | RG 0006.8884.00 | ROEDERSTEI | DC2 100OHM 1%TK100 | |
| R841 | RG 100 OHM+-1%TK100 1206 CHIP RESISTOR NUR VAR/ONLY MOD: 04 | RG 0006.8884.00 | ROEDERSTEI | DC2 100OHM 1%TK100 | |
| R841 | RG 100 OHM+-1%TK100 1206 CHIP RESISTOR NUR VAR/ONLY MOD: 03 06 NICHT BESTUECKT/NOT FITTED | RG 0006.8884.00 | ROEDERSTEI | DC2 100OHM 1%TK100 | |
| R842 | RG 100 OHM+-1%TK100 1206 CHIP RESISTOR NUR VAR/ONLY MOD: 02 | RG 0006.8884.00 | ROEDERSTEI | DC2 100OHM 1%TK100 | |
| R842 | RG 100 OHM+-1%TK100 1206 CHIP RESISTOR NUR VAR/ONLY MOD: 04 | RG 0006.8884.00 | ROEDERSTEI | DC2 100OHM 1%TK100 | |
| R842 | RG 0-OHM WIDERSTAND-CHIP RESISTOR CHIP 0-OHM NUR VAR/ONLY MOD: 03 06 | RG 0007.5108.00 | DRALORIC | CR 1206 | |
| R843 | RG 182 OHM+-1%TK100 1206 RESISTOR CHIP NICHT BESTUECKT NOT FITTED | RG 0007.5595.00 | ROEDERSTEI | DC2 182OHM 1%TK100 | |

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|---------------------|---|-------------------------|----------------------------|----------------------------|------------------------------|
| R844 | RG 3,92KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5808.00 | RESISTA | DC2 3,92KOHM 1%TK100 | |
| R845 | RG 3,92KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5808.00 | RESISTA | DC2 3,92KOHM 1%TK100 | |
| R846 | RG 100 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8884.00 | ROEDERSTEI | DC2 100OHM 1%TK100 | |
| R847 | RG 2,210HM+-1%TK100 1206 CHIP-RESISTOR | RG 0007.8342.00 | PHILIPS | RC 02 | |
| R848 | RG 681 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.9080.00 | ROEDERSTEI | DC2 681OHM 1%TK100 | |
| R849 | RG 0-OHM WIDERSTAND-CHIP RESISTOR CHIP 0-OHM | RG 0007.5108.00 | DRALORIC | CR 1206 | |
| R850 | RG 100,0KOH+-1%TK100 1206 CHIP RESISTOR | RG 0007.1948.00 | ROEDERSTEI | DC2 100KOHM 1%TK100 | |
| R851 | RS 0,25W 2KOHM +-20% SMD POTENTIOMETER | RS 0007.9626.00 | SIEMENS | S4G-2KOHM | |
| R852 | RG 100,0KOH+-1%TK100 1206 CHIP RESISTOR | RG 0007.1948.00 | ROEDERSTEI | DC2 100KOHM 1%TK100 | |
| R853 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| R854 | RG 1,0MOHM+-1%TK100 1206 CHIP RESISTOR NICHT BESTUECKT NOT FITTED | RG 0815.7532.00 | DRALORIC | CRC 1206 | |
| R855 | RG 3,92KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5808.00 | RESISTA | DC2 3,92KOHM 1%TK100 | |
| R856 | RG 3,32KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5789.00 | ROEDERSTEI | DC2 3,32KOHM 1%TK100 | |
| R857 | RG 3,92KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5808.00 | RESISTA | DC2 3,92KOHM 1%TK100 | |
| R858 | RG 56,2 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8826.00 | ROEDERSTEI | DC2 56,2OHM 1%TK100 | |
| R859 | RG 56,2 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8826.00 | ROEDERSTEI | DC2 56,2OHM 1%TK100 | |
| R860 | RG 1,0MOHM+-1%TK100 1206 CHIP RESISTOR | RG 0815.7532.00 | DRALORIC | CRC 1206 | |
| R861 | RG 475 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5695.00 | ROEDERSTEI | DC2 475OHM 1%TK100 | |
| R862 | RG 8,25OHM+-1%TK100 1206 CHIP-RESISTOR | RG 0007.8488.00 | PHILIPS | RC 02 | |
| R863 | RG 392 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5672.00 | ROEDERSTEI | DC2 392OHM 1%TK100 | |
| R864 | RG 6,81OHM+-1%TK100 1206 CHIP-RESISTOR | RG 0007.8465.00 | PHILIPS | RC 02 | |
| R865 | RG 6,81OHM+-1%TK100 1206 CHIP-RESISTOR | RG 0007.8465.00 | PHILIPS | RC 02 | |
| R866 | RG 681 KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.6110.00 | ROEDERSTEI | DC2 681KOHM 1%TK100 | |
| R867 | RG 3,92KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5808.00 | RESISTA | DC2 3,92KOHM 1%TK100 | |
| R868 | RG 121 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8903.00 | ROEDERSTEI | DC2 121OHM 1%TK100 | |
| R869 | RG 825 KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.6133.00 | ROEDERSTEI | DC2 825KOHM 1%TK100 | |
| R870 | RG 22,1KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5872.00 | ROEDERSTEI | DC2 22,1KOHM 1%TK100 | |
| R871 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| R874 | RG 1,5 KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5714.00 | ROEDERSTEI | DC2 1,5KOHM 1%TK100 | |
| R875 | RG 392 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5672.00 | ROEDERSTEI | DC2 392OHM 1%TK100 | |
| R876 | RG 82,5 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8861.00 | ROEDERSTEI | DC2 82,5OHM 1%TK100 | |
| R882 | RG 82,5 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8861.00 | ROEDERSTEI | DC2 82,5OHM 1%TK100 | |
| R883 | RG 68,1 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8849.00 | ROEDERSTEI | DC2 68,1OHM 1%TK100 | |
| R884 | RL 0,40W 180 OHM2% UNGEW. RESISTOR | RL 0092.5985.00 | RESISTA | MK1 180OHM 2% UNGEW. | |
| R889 | RG 47,5 OHM+-1%TK100 1206 RESISTOR CHIP NICHT BESTUECKT NOT FITTED | RG 0007.5566.00 | ROEDERSTEI | DC2 47,5OHM 1%TK100 | |
| R899 | RG 1,0MOHM+-1%TK100 1206 CHIP RESISTOR NICHT BESTUECKT NOT FITTED | RG 0815.7532.00 | DRALORIC | CRC 1206 | |

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| Kennz. Comp. No. | Benennung Designation | Sachnummer Stock No. | Hersteller Manufacturer | Bezeichnung Designation | enthalten in contained in |
|------------------|--|----------------------|-------------------------|-------------------------|---------------------------|
| U600 | BM LRMS-2 MIXER 1GHZ HYBRID MIXER | 1062.6273.00 | MINI-CIRCU | LRMS-2 | |
| V11 | AD BAS32 75V UDI DIODE | AD 0006.7288.00 | PHILIPS | BAS32 (L) | |
| V12 | AD BAS32 75V UDI DIODE | AD 0006.7288.00 | PHILIPS | BAS32 (L) | |
| V13 | AK BCX70H N 45V 200MA TRANSISTOR | AK 0007.3105.00 | VALVO | BCX 70 H | |
| V14 | AD BAS32 75V UDI DIODE NICHT BESTUECKT NOT FITTED | AD 0006.7288.00 | PHILIPS | BAS32 (L) | |
| V15 | AD BAS32 75V UDI DIODE NICHT BESTUECKT NOT FITTED | AD 0006.7288.00 | PHILIPS | BAS32 (L) | |
| V25 | AD BAS32 75V UDI DIODE | AD 0006.7288.00 | PHILIPS | BAS32 (L) | |
| V26 | AD BAS32 75V UDI DIODE | AD 0006.7288.00 | PHILIPS | BAS32 (L) | |
| V35 | AE BZV55/C5V1 0.5W ZDI ZENER DIODE | AE 0006.9839.00 | PHILIPS_SE | BZV55B5V1 (GEG) | |
| V110 | AE 1N827 6,2V REF DI REFERENCE DIODE | AE 0418.0029.00 | COMPENSATE | 1N827(A) | |
| V130 | AD BAV99 70V DUO UDI DIODE | AD 0911.0092.00 | VALVO | BAV99 | |
| V310 | AE BAR61 3X(PI) 100V PIN PIN DIODE ARRAY (ATTENU.) | 4001.5082.00 | SIEMENS | BAR61(Q62702A120) | |
| V315 | AE BAR61 3X(PI) 100V PIN PIN DIODE ARRAY (ATTENU.) | 4001.5082.00 | SIEMENS | BAR61(Q62702A120) | |
| V318 | AD BAV99 70V DUO UDI DIODE | AD 0911.0092.00 | VALVO | BAV99 | |
| V319 | AD BAV99 70V DUO UDI DIODE | AD 0911.0092.00 | VALVO | BAV99 | |
| V330 | AD BAV99 70V DUO UDI DIODE | AD 0911.0092.00 | VALVO | BAV99 | |
| V333 | AD BAV99 70V DUO UDI DIODE | AD 0911.0092.00 | VALVO | BAV99 | |
| V335 ..337 | AD BAV99 70V DUO UDI DIODE | AD 0911.0092.00 | VALVO | BAV99 | |
| V400 | AE BAR61 3X(PI) 100V PIN PIN DIODE ARRAY (ATTENU.) | 4001.5082.00 | SIEMENS | BAR61(Q62702A120) | |
| V404 | AD BAV99 70V DUO UDI DIODE | AD 0911.0092.00 | VALVO | BAV99 | |
| V405 | AD BAV99 70V DUO UDI DIODE | AD 0911.0092.00 | VALVO | BAV99 | |
| V411 | AD BAS32 75V UDI DIODE | AD 0006.7288.00 | PHILIPS | BAS32 (L) | |
| V431 ..438 | AK BCX70H N 45V 200MA TRANSISTOR | AK 0007.3105.00 | VALVO | BCX 70 H | |
| V500 | AE BAR64-04 CA DOPPEL PIN DUAL PIN DIODE | 1039.1327.00 | SIEMENS | BAR6404 (Q62702-A101) | |
| V511 | AE BAR64-04 CA DOPPEL PIN DUAL PIN DIODE | 1039.1327.00 | SIEMENS | BAR6404 (Q62702-A101) | |
| V512 | AE BAR64-04 CA DOPPEL PIN DUAL PIN DIODE | 1039.1327.00 | SIEMENS | BAR6404 (Q62702-A101) | |
| V514 ..516 | AE BAR64-04 CA DOPPEL PIN DUAL PIN DIODE | 1039.1327.00 | SIEMENS | BAR6404 (Q62702-A101) | |
| V520 | AE BAR64-04 CA DOPPEL PIN DUAL PIN DIODE | 1039.1327.00 | SIEMENS | BAR6404 (Q62702-A101) | |
| V523 | AE BAR64-04 CA DOPPEL PIN DUAL PIN DIODE | 1039.1327.00 | SIEMENS | BAR6404 (Q62702-A101) | |
| V530 | AE BAR64-04 CA DOPPEL PIN DUAL PIN DIODE | 1039.1327.00 | SIEMENS | BAR6404 (Q62702-A101) | |
| V532 | AE BAR64-04 CA DOPPEL PIN DUAL PIN DIODE | 1039.1327.00 | SIEMENS | BAR6404 (Q62702-A101) | |
| V535 | AE BAR64-04 CA DOPPEL PIN DUAL PIN DIODE | 1039.1327.00 | SIEMENS | BAR6404 (Q62702-A101) | |
| V536 | AE BAR64-04 CA DOPPEL PIN DUAL PIN DIODE | 1039.1327.00 | SIEMENS | BAR6404 (Q62702-A101) | |
| V539 | AE BAR64-04 CA DOPPEL PIN DUAL PIN DIODE | 1039.1327.00 | SIEMENS | BAR6404 (Q62702-A101) | |
| V540 | AE BAR64-04 CA DOPPEL PIN DUAL PIN DIODE | 1039.1327.00 | SIEMENS | BAR6404 (Q62702-A101) | |
| V543 | AE BAR64-04 CA DOPPEL PIN DUAL PIN DIODE | 1039.1327.00 | SIEMENS | BAR6404 (Q62702-A101) | |

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| Kennz. Comp. No. | Benennung Designation | Sachnummer Stock No. | Hersteller Manufacturer | Bezeichnung Designation | enthalten in contained in |
|---------------------|---|-------------------------|----------------------------|----------------------------|------------------------------|
| V544 | AE BAR64-04 CA DOPPEL PIN DUAL PIN DIODE | 1039.1327.00 | SIEMENS | BAR6404 (Q62702-A101) | |
| V548 | AE BAR64-04 CA DOPPEL PIN DUAL PIN DIODE | 1039.1327.00 | SIEMENS | BAR6404 (Q62702-A101) | |
| V600 | AE BZX55/B6V2 0,5W ZDI ZENER DIODE | AE 0012.2161.00 | PHILIPS | BZX79B6V2 | |
| V602 | AK BFQ34T N 18V 150MA TRANSISTOR | 0801.8283.00 | PHILIPS | BFQ34T | |
| V604 | AE HSMS2825 1+1 SCHOTTKY SCHOTTKY DIODE PAIR | 1010.6214.00 | HEWLETT_PA | HSMS2825 L31 | |
| V606 | AE HSMS2825 1+1 SCHOTTKY SCHOTTKY DIODE PAIR | 1010.6214.00 | HEWLETT_PA | HSMS2825 L31 | |
| V608 | AD BAS32 75V UDI DIODE | AD 0006.7288.00 | PHILIPS | BAS32 (L) | |
| V610 | AE BZV55/C5V1 0.5W ZDI ZENER DIODE | AE 0006.9839.00 | PHILIPS_SE | BZV55B5V1 (GEG) | |
| V612 | AK BFQ34T N 18V 150MA TRANSISTOR | 0801.8283.00 | PHILIPS | BFQ34T | |
| V635 | AD BAS32 75V UDI DIODE | AD 0006.7288.00 | PHILIPS | BAS32 (L) | |
| V636 | AE 1N827 6,2V REFDI REFERENCE DIODE | AE 0418.0029.00 | COMPENSATE | 1N827(A) | |
| V650 | AD BAS32 75V UDI DIODE | AD 0006.7288.00 | PHILIPS | BAS32 (L) | |
| V700 | AE HSMS2825 1+1 SCHOTTKY SCHOTTKY DIODE PAIR | 1010.6214.00 | HEWLETT_PA | HSMS2825 L31 | |
| V705 | AE BAR64-04 CA DOPPEL PIN DUAL PIN DIODE | 1039.1327.00 | SIEMENS | BAR6404 (Q62702-A101) | |
| V707 | AE BAR64-04 CA DOPPEL PIN DUAL PIN DIODE | 1039.1327.00 | SIEMENS | BAR6404 (Q62702-A101) | |
| V720 | AE BAR64-04 CA DOPPEL PIN DUAL PIN DIODE | 1039.1327.00 | SIEMENS | BAR6404 (Q62702-A101) | |
| V725 | AE BAR64-04 CA DOPPEL PIN DUAL PIN DIODE | 1039.1327.00 | SIEMENS | BAR6404 (Q62702-A101) | |
| V730 | AE BAR64-04 CA DOPPEL PIN DUAL PIN DIODE | 1039.1327.00 | SIEMENS | BAR6404 (Q62702-A101) | |
| V735 | AE BAR64-04 CA DOPPEL PIN DUAL PIN DIODE | 1039.1327.00 | SIEMENS | BAR6404 (Q62702-A101) | |
| V745 | AE BZV55/C6V2 0,5W ZDI ZENER DIODE | AE 0006.9851.00 | PHILIPS | BZV55B6V2 | |
| V746 | AE BZV55/C6V2 0,5W ZDI ZENER DIODE | AE 0006.9851.00 | PHILIPS | BZV55B6V2 | |
| V747 | AD BAS32 75V UDI DIODE | AD 0006.7288.00 | PHILIPS | BAS32 (L) | |
| V748 | AD BAS32 75V UDI DIODE | AD 0006.7288.00 | PHILIPS | BAS32 (L) | |
| V800 | AD BAS32 75V UDI DIODE | AD 0006.7288.00 | PHILIPS | BAS32 (L) | |
| V801 | AK BCX71J P 45V 200MA TRANSISTOR | AK 0007.2096.00 | VALVO | BCX71J GEGURTET | |
| V802 | AK BFQ34T N 18V 150MA TRANSISTOR | 0801.8283.00 | PHILIPS | BFQ34T | |
| V815 | AD BAS32 75V UDI DIODE | AD 0006.7288.00 | PHILIPS | BAS32 (L) | |
| V816 | AK BCX71J P 45V 200MA TRANSISTOR | AK 0007.2096.00 | VALVO | BCX71J GEGURTET | |
| V817 | AK BFQ34T N 18V 150MA TRANSISTOR | 0801.8283.00 | PHILIPS | BFQ34T | |
| V830 | AD BAS32 75V UDI DIODE | AD 0006.7288.00 | PHILIPS | BAS32 (L) | |
| V831 | AK BCX71J P 45V 200MA TRANSISTOR | AK 0007.2096.00 | VALVO | BCX71J GEGURTET | |
| V832 | AK BFQ34T N 18V 150MA TRANSISTOR | 0801.8283.00 | PHILIPS | BFQ34T | |
| V844 | AE HSMS2825 1+1 SCHOTTKY SCHOTTKY DIODE PAIR | 1010.6214.00 | HEWLETT_PA | HSMS2825 L31 | |
| V850 | AE HSMS2825 1+1 SCHOTTKY SCHOTTKY DIODE PAIR | 1010.6214.00 | HEWLETT_PA | HSMS2825 L31 | |
| V851 | AD BAS32 75V UDI DIODE | AD 0006.7288.00 | PHILIPS | BAS32 (L) | |
| V857 | AD BAS32 75V UDI DIODE | AD 0006.7288.00 | PHILIPS | BAS32 (L) | |
| V870 | AD BAS32 75V UDI DIODE | AD 0006.7288.00 | PHILIPS | BAS32 (L) | |
| V871 | AE 1N827 6,2V REFDI REFERENCE DIODE | AE 0418.0029.00 | COMPENSATE | 1N827(A) | |


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| Kennz. Comp. No. | Benennung Designation | Sachnummer Stock No. | Hersteller Manufacturer | Bezeichnung Designation | enthalten in contained in |
|---------------------|---|-------------------------|----------------------------|----------------------------|------------------------------|
| X2 | FP STECKERLEISTE 32POL. CONNECTOR 32P. | FP 0008.5718.00 | SIEMENS | V42254-B1200-B611 | |
| X205 | FP STIFTLISTE 4P.R2,54 PIN CONNECTOR | FP 0009.6147.00 | | | |
| X224 . .226 | FJ EINBAUWINKELST. SMC ANGLE CONNECTOR | FJ 0249.9684.00 | ROSENBERGE | 39S-205-400-D3 | |
| Z1 | LD SMD-T-FILTER 3,3NF SMD-FILTER | 1039.1362.00 | MURATA | NFM61R20T332T1 | |
| Z2 | LD SMD PI-FILTER 10GHZ SURFACE-MOUNT-FILTER NICHT BESTUECKT NOT FITTED | LD 0008.5901.00 | OXLEY | SLT/P/22000/SM3 | |
| Z3 | LD SMD-T-FILTER 3,3NF SMD-FILTER | 1039.1362.00 | MURATA | NFM61R20T332T1 | |
| Z4 | LD SMD-T-FILTER 3,3NF SMD-FILTER | 1039.1362.00 | MURATA | NFM61R20T332T1 | |
| Z5 . .9 | LD SMD-T-FILTER 100PF SMD-FILTER | 1039.1356.00 | MURATA | NFM61ROOT101T1 | |
| Z10 | LD SMD-T-FILTER 3,3NF SMD-FILTER | 1039.1362.00 | MURATA | NFM61R20T332T1 | |
| Z11 | LD SMD-T-FILTER 100PF SMD-FILTER | 1039.1356.00 | MURATA | NFM61ROOT101T1 | |
| Z20 | LD SMD PI-FILTER 10GHZ SURFACE-MOUNT-FILTER | LD 0008.5901.00 | OXLEY | SLT/P/22000/SM3 | |

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XY-Liste

XY List

Erklärung der Spaltenbezeichnungen:

- Part:** Bauelement-Kennzeichen.
- Side:** Leiterplatten-Seite, auf der sich das Bauelement befindet.
- X/Y:** Koordinaten (Millimeter) des Bauelementes auf der Leiterplatte bezogen auf den Nullpunkt.
- SQR, PG:** Planquadrat und Seite des Schaltbildes für das jeweilige Bauelement.

Explanation of column designations:

- Part:** Identification of instrument part.
- Side:** Side of the PC board on which instrument part is positioned.
- X/Y:** Coordinates (millimeter) of the component on the PC board in reference to zero point.
- SQR, PG:** Square and page of the diagram for the respective instrument part.

| Service-Relevante Bauteile / Service-Relevant Components | | | | | | | | | | | | | | | | | |
|--|------|-----|----|-----|----|------|------|-----|----|-----|----|------|------|-----|----|-----|----|
| Part | Side | X | Y | Sqr | Pg | Part | Side | X | Y | Sqr | Pg | Part | Side | X | Y | Sqr | Pg |
| P300 | B | 88 | 36 | 6C | 3 | P600 | B | 186 | 62 | 3C | 7 | R645 | B | 252 | 80 | 9D | 7 |
| P305 | B | 67 | 39 | 10C | 3 | P601 | B | 199 | 76 | 3C | 7 | X2A | B | 189 | 11 | 2C | 2 |
| P306 | B | 57 | 21 | 10D | 3 | P620 | B | 222 | 72 | 4B | 7 | X2B | B | 189 | 11 | | |
| P352 | B | 59 | 21 | 11D | 3 | P621 | B | 223 | 70 | 4A | 7 | X205 | B | 69 | 40 | 10B | 3 |
| P353 | B | 53 | 20 | 12E | 3 | P628 | B | 177 | 64 | 4C | 7 | X224 | B | 17 | 15 | 1D | 4 |
| P375 | B | 153 | 37 | 2D | 3 | P866 | B | 293 | 16 | 8B | 9 | X225 | B | 258 | 15 | 5B | 7 |
| P380 | B | 114 | 41 | 4C | 3 | R280 | B | 123 | 42 | 3C | 3 | X226 | B | 283 | 15 | 11D | 9 |
| P385 | B | 104 | 53 | 5C | 3 | R619 | B | 198 | 79 | 2C | 7 | | | | | | |

| Nicht-Service-Relevante Bauteile / Non-Service-Relevant Components | | | | | | | | | | | | | | | | | |
|--|------|-----|-----|-----|----|------|------|-----|----|-----|----|------|------|-----|-----|-----|----|
| Part | Side | X | Y | Sqr | Pg | Part | Side | X | Y | Sqr | Pg | Part | Side | X | Y | Sqr | Pg |
| 303 | B | 18 | 53 | 9D | 4 | C22 | B | 116 | 32 | 3E | 2 | C275 | B | 173 | 42 | 1D | 3 |
| 309 | B | 30 | 71 | 10D | 4 | C132 | B | 229 | 36 | 9B | 10 | C280 | B | 105 | 46 | 3C | 3 |
| 310 | B | 22 | 71 | 11D | 4 | C133 | B | 235 | 38 | 8B | 10 | C300 | B | 39 | 20 | 3D | 4 |
| 413 | B | 50 | 69 | 5D | 5 | C149 | A | 215 | 43 | 3A | 10 | C302 | B | 24 | 27 | 4D | 4 |
| 414 | B | 40 | 70 | 5D | 5 | C150 | A | 179 | 43 | 1A | 10 | C303 | B | 34 | 23 | 4D | 4 |
| 506 | B | 81 | 83 | 3E | 6 | C151 | A | 164 | 51 | 2A | 10 | C313 | B | 45 | 29 | 5C | 4 |
| 507 | B | 92 | 102 | 3D | 6 | C152 | A | 83 | 58 | 3A | 10 | C315 | B | 18 | 24 | 5D | 4 |
| 509 | B | 92 | 83 | 4D | 6 | C153 | B | 123 | 60 | 6A | 10 | C316 | B | 22 | 34 | 6D | 4 |
| 514 | B | 96 | 95 | 5D | 6 | C154 | A | 130 | 56 | 6A | 10 | C318 | A | 12 | 37 | 5C | 4 |
| 515 | B | 111 | 95 | 5D | 6 | C156 | A | 203 | 43 | 4A | 10 | C319 | A | 15 | 41 | 6C | 4 |
| 516 | B | 112 | 88 | 5D | 6 | C157 | A | 152 | 50 | 5A | 10 | C325 | B | 30 | 38 | 6D | 4 |
| 518 | B | 123 | 89 | 6D | 6 | C160 | A | 130 | 42 | 6E | 10 | C327 | B | 17 | 48 | 6D | 4 |
| 519 | B | 125 | 87 | 6D | 6 | C161 | A | 97 | 46 | 9E | 10 | C328 | B | 19 | 41 | 7D | 4 |
| 520 | B | 135 | 95 | 7D | 6 | C162 | A | 76 | 22 | 10E | 10 | C329 | A | 39 | 41 | 7C | 4 |
| 522 | B | 137 | 75 | 7E | 6 | C170 | A | 192 | 43 | 4A | 10 | C330 | A | 43 | 38 | 7C | 4 |
| 528 | B | 148 | 82 | 8D | 6 | C209 | A | 86 | 43 | 6C | 3 | C340 | B | 45 | 50 | 8C | 4 |
| 529 | B | 148 | 91 | 8D | 6 | C219 | B | 85 | 43 | 8C | 3 | C356 | B | 31 | 46 | 8D | 4 |
| 542 | B | 46 | 98 | 2B | 6 | C220 | A | 54 | 39 | 9E | 3 | C357 | B | 31 | 53 | 9D | 4 |
| 543 | B | 20 | 111 | 2B | 6 | C221 | B | 57 | 34 | 9D | 3 | C359 | A | 41 | 60 | 10E | 4 |
| 544 | B | 23 | 116 | 3B | 6 | C223 | B | 79 | 46 | 8C | 3 | C360 | B | 31 | 67 | 10D | 4 |
| 545 | B | 37 | 111 | 4B | 6 | C240 | B | 57 | 12 | 10E | 3 | C361 | B | 23 | 83 | 12D | 4 |
| 548 | B | 76 | 132 | 6B | 6 | C242 | B | 66 | 16 | 11F | 3 | C362 | A | 48 | 86 | 12E | 4 |
| 550 | B | 144 | 137 | 8B | 6 | C244 | A | 77 | 39 | 4A | 3 | C400 | A | 48 | 84 | 2C | 5 |
| 600 | B | 178 | 70 | 2E | 7 | C245 | A | 72 | 49 | 4A | 3 | C401 | B | 42 | 81 | 3D | 5 |
| 607 | B | 215 | 83 | 4D | 7 | C250 | A | 58 | 62 | 2A | 3 | C402 | B | 30 | 78 | 4D | 5 |
| 608 | B | 208 | 86 | 5D | 7 | C251 | A | 64 | 62 | 2A | 3 | C404 | A | 34 | 88 | 3C | 5 |
| 612 | B | 218 | 62 | 3D | 7 | C252 | A | 55 | 57 | 2A | 3 | C405 | A | 35 | 91 | 4C | 5 |
| 660 | B | 218 | 62 | 3D | 7 | C253 | A | 59 | 51 | 2A | 3 | C410 | A | 42 | 76 | 5E | 5 |
| 661 | B | 218 | 62 | 4D | 7 | C254 | A | 63 | 51 | 3A | 3 | C412 | B | 37 | 72 | 5D | 5 |
| 705 | B | 150 | 122 | 2C | 8 | C255 | A | 55 | 47 | 3A | 3 | C417 | A | 70 | 70 | 7E | 5 |
| 851 | B | 283 | 20 | 11D | 9 | C256 | A | 163 | 43 | 5A | 3 | C440 | A | 126 | 123 | 9B | 5 |
| C12 | B | 210 | 51 | 8C | 2 | C257 | A | 57 | 18 | 6A | 3 | C441 | A | 133 | 138 | 9B | 5 |
| C13 | B | 197 | 30 | 3E | 2 | C258 | A | 53 | 15 | 5A | 3 | C442 | A | 114 | 109 | 10B | 5 |
| C14 | A | 230 | 43 | 5A | 2 | C259 | A | 161 | 33 | 5A | 3 | C445 | B | 63 | 86 | 1C | 6 |
| C15 | A | 237 | 45 | 5A | 2 | C260 | A | 109 | 51 | 6A | 3 | C500 | B | 64 | 77 | 2E | 6 |
| C16 | A | 234 | 22 | 6A | 2 | C261 | A | 59 | 28 | 3A | 3 | C501 | A | 83 | 83 | 2F | 6 |
| C17 | A | 239 | 14 | 6A | 2 | C262 | A | 64 | 31 | 3A | 3 | C502 | B | 70 | 88 | 2D | 6 |
| C20 | B | 109 | 16 | 2D | 2 | C263 | A | 55 | 25 | 4A | 3 | C504 | B | 78 | 86 | 3D | 6 |
| C21 | B | 122 | 32 | 3E | 2 | C264 | A | 107 | 44 | 6A | 3 | C505 | B | 79 | 94 | 3E | 6 |



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|-----------------------|----|---------------|--|-------------------------|---------------|
| | 04 | 11.07.96 | EE AUSGANGSTEIL_1.046GHZ OUTPUT_UNIT_1.046GHZ | 1062.6209.01 XY | 1+ |

| Part | Side | X | Y | Sqr | Pg | Part | Side | X | Y | Sqr | Pg | Part | Side | X | Y | Sqr | Pg |
|------|------|-----|-----|-----|----|------|------|-----|-----|-----|----|------|------|-----|-----|-----|----|
| C506 | B | 91 | 97 | 3E | 6 | C605 | B | 217 | 67 | 4E | 7 | C715 | B | 170 | 98 | 5C | 8 |
| C507 | B | 91 | 88 | 4E | 6 | C606 | B | 220 | 76 | 4E | 7 | C720 | A | 179 | 137 | 4D | 8 |
| C509 | A | 97 | 86 | 4F | 6 | C607 | B | 218 | 86 | 5E | 7 | C721 | B | 177 | 131 | 4D | 8 |
| C510 | B | 97 | 90 | 5E | 6 | C608 | B | 229 | 83 | 5E | 7 | C723 | A | 184 | 130 | 4D | 8 |
| C511 | B | 112 | 99 | 5E | 6 | C609 | A | 181 | 86 | 2E | 7 | C724 | B | 184 | 129 | 4E | 8 |
| C512 | B | 110 | 85 | 5E | 6 | C610 | A | 202 | 77 | 2C | 7 | C727 | A | 169 | 104 | 5E | 8 |
| C513 | B | 104 | 74 | 5E | 6 | C611 | A | 168 | 64 | 4C | 7 | C732 | B | 184 | 99 | 6D | 8 |
| C514 | A | 117 | 83 | 6F | 6 | C617 | B | 264 | 27 | 5C | 7 | C734 | B | 177 | 100 | 7C | 8 |
| C515 | B | 121 | 85 | 6E | 6 | C618 | B | 256 | 30 | 5C | 7 | C735 | A | 180 | 102 | 6C | 8 |
| C516 | B | 122 | 99 | 6E | 6 | C619 | B | 264 | 37 | 6C | 7 | C736 | A | 177 | 93 | 7C | 8 |
| C517 | B | 133 | 90 | 7E | 6 | C620 | B | 255 | 40 | 6C | 7 | C738 | B | 191 | 103 | 7D | 8 |
| C518 | A | 135 | 87 | 7F | 6 | C625 | B | 250 | 69 | 7D | 7 | C740 | B | 192 | 113 | 8D | 8 |
| C519 | B | 146 | 77 | 8E | 6 | C627 | B | 260 | 74 | 7D | 7 | C743 | B | 213 | 138 | 9D | 8 |
| C520 | B | 146 | 86 | 8E | 6 | C628 | B | 269 | 76 | 8D | 7 | C747 | A | 230 | 133 | 10D | 8 |
| C521 | B | 146 | 94 | 8E | 6 | C629 | B | 265 | 82 | 8D | 7 | C748 | A | 234 | 128 | 10D | 8 |
| C522 | B | 140 | 77 | 8E | 6 | C631 | B | 183 | 76 | 2D | 7 | C750 | A | 217 | 133 | 10E | 8 |
| C523 | B | 140 | 86 | 8E | 6 | C632 | B | 189 | 79 | 3D | 7 | C751 | A | 219 | 126 | 10E | 8 |
| C524 | B | 141 | 94 | 8E | 6 | C633 | B | 260 | 88 | 9D | 7 | C762 | A | 183 | 121 | 7E | 8 |
| C525 | B | 147 | 102 | 9E | 6 | C634 | B | 254 | 87 | 8D | 7 | C800 | A | 255 | 124 | 2F | 9 |
| C526 | A | 140 | 113 | 9F | 6 | C635 | B | 236 | 95 | 10D | 7 | C801 | B | 274 | 135 | 2D | 9 |
| C527 | B | 150 | 111 | 11E | 6 | C636 | B | 238 | 98 | 10D | 7 | C802 | B | 286 | 129 | 3D | 9 |
| C530 | A | 59 | 93 | 2C | 6 | C637 | B | 245 | 83 | 9E | 7 | C805 | B | 281 | 132 | 3D | 9 |
| C531 | B | 72 | 96 | 2C | 6 | C638 | A | 223 | 85 | 3A | 7 | C806 | B | 271 | 127 | 3E | 9 |
| C532 | B | 52 | 97 | 2B | 6 | C639 | A | 219 | 77 | 3B | 7 | C807 | B | 283 | 132 | 3D | 9 |
| C533 | B | 19 | 104 | 2B | 6 | C640 | B | 220 | 92 | 10E | 7 | C809 | A | 255 | 114 | 3E | 9 |
| C534 | B | 43 | 104 | 3B | 6 | C641 | B | 223 | 95 | 10D | 7 | C811 | B | 262 | 120 | 4E | 9 |
| C536 | A | 78 | 109 | 3C | 6 | C642 | B | 207 | 95 | 10D | 7 | C812 | B | 276 | 87 | 6D | 9 |
| C537 | B | 54 | 115 | 4B | 6 | C643 | B | 204 | 110 | 11D | 7 | C814 | B | 277 | 113 | 5C | 9 |
| C538 | B | 38 | 118 | 4B | 6 | C644 | B | 213 | 113 | 11E | 7 | C816 | B | 280 | 104 | 5D | 9 |
| C539 | B | 56 | 123 | 5B | 6 | C645 | B | 219 | 113 | 11D | 7 | C817 | B | 286 | 101 | 5D | 9 |
| C540 | A | 86 | 120 | 5C | 6 | C646 | B | 227 | 109 | 11D | 7 | C818 | B | 283 | 101 | 5D | 9 |
| C545 | B | 65 | 132 | 6B | 6 | C647 | B | 207 | 114 | 11E | 7 | C819 | B | 280 | 97 | 5E | 9 |
| C546 | B | 37 | 131 | 6B | 6 | C650 | A | 183 | 69 | 7A | 7 | C820 | A | 261 | 132 | 5E | 9 |
| C547 | B | 59 | 137 | 7B | 6 | C651 | A | 187 | 64 | 7A | 7 | C821 | B | 266 | 138 | 6E | 9 |
| C553 | A | 89 | 131 | 7C | 6 | C652 | A | 216 | 64 | 6A | 7 | C822 | B | 283 | 108 | 4D | 9 |
| C560 | B | 113 | 140 | 8B | 6 | C653 | A | 220 | 67 | 6A | 7 | C824 | A | 299 | 85 | 6E | 9 |
| C562 | B | 128 | 133 | 9B | 6 | C654 | B | 242 | 97 | 9D | 7 | C828 | B | 283 | 72 | 6D | 9 |
| C564 | B | 116 | 130 | 9B | 6 | C656 | A | 213 | 65 | 2B | 7 | C829 | B | 280 | 69 | 8D | 9 |
| C568 | B | 92 | 112 | 10B | 6 | C660 | A | 157 | 91 | 4F | 7 | C830 | B | 286 | 66 | 8D | 9 |
| C569 | A | 90 | 114 | 10C | 6 | C661 | A | 171 | 86 | 4F | 7 | C831 | B | 283 | 66 | 8D | 9 |
| C570 | B | 102 | 110 | 10B | 6 | C662 | A | 157 | 80 | 4E | 7 | C832 | B | 280 | 61 | 8E | 9 |
| C571 | B | 102 | 119 | 10C | 6 | C663 | A | 178 | 75 | 4E | 7 | C833 | A | 288 | 130 | 8E | 9 |
| C573 | B | 111 | 110 | 11B | 6 | C664 | B | 210 | 95 | 10E | 7 | C834 | B | 294 | 137 | 9E | 9 |
| C575 | B | 119 | 110 | 11B | 6 | C668 | A | 153 | 72 | 5F | 7 | C836 | B | 291 | 41 | 9D | 9 |
| C580 | B | 126 | 106 | 11C | 6 | C670 | A | 269 | 111 | 7F | 7 | C839 | B | 289 | 59 | 8D | 9 |
| C582 | B | 135 | 106 | 11D | 6 | C671 | A | 264 | 97 | 7F | 7 | C840 | A | 154 | 102 | 2B | 9 |
| C583 | B | 135 | 119 | 12D | 6 | C700 | B | 151 | 119 | 2D | 8 | C841 | A | 158 | 108 | 3B | 9 |
| C584 | B | 144 | 113 | 12D | 6 | C701 | A | 148 | 129 | 2D | 8 | C842 | A | 153 | 121 | 2A | 9 |
| C585 | A | 103 | 71 | 2A | 6 | C702 | A | 148 | 122 | 2E | 8 | C843 | A | 154 | 128 | 3A | 9 |
| C599 | B | 140 | 106 | 9D | 6 | C705 | B | 166 | 137 | 3C | 8 | C844 | B | 284 | 26 | 10D | 9 |
| C600 | B | 170 | 86 | 1D | 7 | C707 | B | 170 | 124 | 4C | 8 | C846 | B | 280 | 29 | 7C | 9 |
| C601 | B | 175 | 79 | 1D | 7 | C708 | B | 166 | 115 | 4C | 8 | C847 | B | 279 | 39 | 7C | 9 |
| C602 | B | 180 | 69 | 2E | 7 | C709 | A | 166 | 120 | 4C | 8 | C848 | B | 284 | 38 | 8C | 9 |
| C603 | B | 167 | 73 | 2D | 7 | C710 | A | 168 | 114 | 4C | 8 | C849 | B | 276 | 51 | 9D | 9 |
| C604 | B | 194 | 74 | 3D | 7 | C714 | B | 169 | 109 | 4C | 8 | C850 | A | 285 | 83 | 6A | 9 |

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|-----------------------|----|---------------|--|-------------------------|---------------|
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| | 04 | 11.07.96 | EE AUSGANGSTEIL_1.046GHZ OUTPUT_UNIT_1.046GHZ | 1062.6209.01 XY | 2+ |

| Part | Side | X | Y | Sqr | Pg | Part | Side | X | Y | Sqr | Pg | Part | Side | X | Y | Sqr | Pg |
|--------|------|-----|-----|-----|----|--------|------|-----|-----|-----|----|------|------|-----|-----|-----|----|
| C851 | A | 296 | 74 | 7A | 9 | D200-A | B | 57 | 55 | 5F | 3 | L510 | B | 114 | 86 | 6F | 6 |
| C852 | A | 280 | 75 | 6B | 9 | D200-B | | | | 5E | 3 | L517 | B | 137 | 91 | 7F | 6 |
| C853 | A | 291 | 68 | 6C | 9 | D200-C | | | | 5E | 3 | L520 | B | 147 | 119 | 9E | 6 |
| C854 | A | 292 | 34 | 8A | 9 | D200-D | | | | 5E | 3 | L530 | B | 56 | 93 | 2C | 6 |
| C855 | A | 280 | 38 | 8A | 9 | D200-E | | | | 1A | 3 | L532 | B | 55 | 98 | 2B | 6 |
| C858 | B | 253 | 133 | 2D | 9 | D210-A | B | 57 | 42 | 7E | 3 | L533 | B | 20 | 101 | 2B | 6 |
| C860 | A | 297 | 47 | 9E | 9 | D210-B | | | | 7E | 3 | L534 | B | 40 | 103 | 3B | 6 |
| C870 | A | 296 | 79 | 11B | 9 | D210-C | | | | 7D | 3 | L536 | B | 81 | 109 | 3C | 6 |
| C871 | A | 300 | 66 | 11C | 9 | D210-D | | | | 7E | 3 | L537 | B | 57 | 115 | 4B | 6 |
| C880 | A | 279 | 140 | 8F | 9 | D210-E | | | | 2A | 3 | L538 | B | 45 | 116 | 4B | 6 |
| C881 | B | 289 | 95 | 6D | 9 | D220-A | B | 57 | 23 | 10C | 3 | L539 | B | 52 | 122 | 5B | 6 |
| C883 | B | 289 | 125 | 3D | 9 | D220-B | | | | 7D | 3 | L540 | B | 35 | 118 | 4B | 6 |
| C885 | A | 152 | 131 | 2B | 9 | D220-C | | | | 7D | 3 | L541 | B | 61 | 119 | 5B | 6 |
| C886 | A | 155 | 138 | 3B | 9 | D220-D | | | | 10C | 3 | L542 | B | 64 | 123 | 5B | 6 |
| C887 | B | 289 | 113 | 4D | 9 | D220-E | | | | 3A | 3 | L543 | B | 89 | 119 | 5C | 6 |
| C889 | A | 294 | 114 | 4E | 9 | D430-A | A | 120 | 111 | 9D | 5 | L544 | B | 44 | 134 | 7B | 6 |
| D10-A | B | 230 | 18 | 7E | 2 | D430-B | | | | 8B | 5 | L545 | B | 72 | 129 | 6B | 6 |
| D10-B | | | | 6A | 2 | D431-A | A | 109 | 111 | 10B | 5 | L546 | B | 45 | 129 | 6B | 6 |
| D100-A | B | 213 | 41 | 8C | 2 | D431-B | | | | 10E | 5 | L547 | B | 55 | 134 | 7B | 6 |
| D100-B | | | | 9C | 2 | D431-C | | | | 10E | 5 | L548 | B | 52 | 129 | 6B | 6 |
| D100-C | | | | 10C | 2 | D431-D | | | | 10D | 5 | L549 | B | 82 | 130 | 7B | 6 |
| D100-D | | | | 6D | 10 | D431-E | | | | 10D | 5 | L550 | B | 26 | 129 | 6B | 6 |
| D100-E | | | | 3A | 10 | D431-F | | | | 10D | 5 | L551 | B | 33 | 137 | 7B | 6 |
| D102-A | B | 177 | 41 | 2E | 10 | D431-G | | | | 10B | 5 | L553 | B | 89 | 135 | 7C | 6 |
| D102-B | | | | 1A | 10 | D432-A | A | 130 | 128 | 10C | 5 | L559 | B | 97 | 135 | 8B | 6 |
| D105-A | B | 190 | 41 | 3C | 10 | D432-B | | | | 10C | 5 | L560 | B | 105 | 138 | 8B | 6 |
| D105-B | | | | 3C | 10 | D432-C | | | | 10C | 5 | L561 | B | 118 | 137 | 9B | 6 |
| D105-C | | | | 8C | 10 | D432-D | | | | 11B | 5 | L562 | B | 124 | 137 | 9B | 6 |
| D105-D | | | | 7A | 10 | D432-E | | | | 11B | 5 | L563 | B | 141 | 133 | 9B | 6 |
| D105-E | | | | 3A | 10 | D432-F | | | | 10B | 5 | L564 | B | 121 | 130 | 9B | 6 |
| D110-A | B | 161 | 54 | 4E | 10 | D432-G | | | | 9B | 5 | L565 | B | 102 | 128 | 9B | 6 |
| D110-B | | | | 2A | 10 | D760 | B | 236 | 132 | 10D | 8 | L566 | B | 141 | 128 | 9B | 6 |
| D111-A | A | 146 | 52 | 6C | 10 | L20 | B | 124 | 15 | 2D | 2 | L568 | B | 87 | 114 | 10C | 6 |
| D111-B | | | | 6C | 10 | L21 | A | 105 | 16 | 2D | 2 | L570 | B | 99 | 110 | 10B | 6 |
| D111-C | | | | 6C | 10 | L22 | B | 96 | 28 | 3D | 2 | L571 | B | 108 | 117 | 11B | 6 |
| D111-D | | | | 6B | 10 | L300 | B | 27 | 23 | 4D | 4 | L572 | B | 117 | 119 | 11B | 6 |
| D111-E | | | | 4A | 10 | L301 | B | 45 | 23 | 3D | 4 | L580 | B | 124 | 119 | 11C | 6 |
| D115-A | B | 201 | 41 | 4C | 10 | L305 | B | 39 | 32 | 5D | 4 | L583 | B | 133 | 117 | 11C | 6 |
| D115-B | | | | 7C | 10 | L325 | B | 17 | 39 | 6D | 4 | L584 | B | 141 | 110 | 11D | 6 |
| D115-C | | | | 3E | 10 | L340 | B | 39 | 44 | 8D | 4 | L585 | A | 99 | 74 | 2A | 6 |
| D115-D | | | | 7A | 10 | L350 | B | 23 | 67 | 10D | 4 | L600 | B | 175 | 86 | 2F | 7 |
| D115-E | | | | 4A | 10 | L351 | B | 23 | 67 | 10D | 4 | L601 | B | 180 | 82 | 2E | 7 |
| D120-A | B | 79 | 55 | 7E | 10 | L353 | B | 41 | 53 | 10E | 4 | L602 | B | 171 | 67 | 2D | 7 |
| D120-B | | | | 2A | 10 | L355 | B | 34 | 50 | 9D | 4 | L604 | A | 171 | 64 | 4C | 7 |
| D140-A | B | 137 | 39 | 6E | 10 | L360 | B | 19 | 89 | 11D | 4 | L608 | B | 218 | 73 | 4E | 7 |
| D140-B | | | | 2B | 3 | L361 | B | 55 | 86 | 11E | 4 | L610 | B | 220 | 82 | 5E | 7 |
| D141-A | B | 144 | 44 | 5E | 3 | L380 | B | 20 | 89 | 12D | 4 | L630 | B | 257 | 69 | 7D | 7 |
| D141-B | | | | 1C | 3 | L400 | B | 30 | 83 | 2D | 5 | L632 | B | 266 | 69 | 8D | 7 |
| D141-C | | | | 1B | 3 | L410 | B | 46 | 76 | 4D | 5 | L633 | B | 243 | 70 | 7D | 7 |
| D141-D | | | | 5D | 3 | L416 | B | 72 | 73 | 6D | 5 | L642 | B | 268 | 100 | 9E | 7 |
| D141-E | | | | 4A | 3 | L417 | B | 62 | 70 | 6E | 5 | L643 | B | 239 | 77 | 9E | 7 |
| D145-A | B | 94 | 39 | 8E | 10 | L431 | A | 97 | 89 | 11E | 5 | L645 | B | 213 | 98 | 10D | 7 |
| D145-B | | | | 5B | 3 | L432 | A | 118 | 90 | 11E | 5 | L647 | B | 204 | 107 | 11D | 7 |
| D150-A | B | 74 | 15 | 10E | 10 | L500 | B | 81 | 77 | 2E | 6 | L649 | B | 218 | 107 | 11D | 7 |
| D150-B | | | | 9E | 3 | L505 | B | 94 | 89 | 4F | 6 | L650 | B | 224 | 110 | 11D | 7 |

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| | 04 | 11.07.96 | EE AUSGANGSTEIL_1.046GHZ OUTPUT_UNIT_1.046GHZ | 1062.6209.01 XY | 3+ |

| Part | Side | X | Y | Sqr | Pg | Part | Side | X | Y | Sqr | Pg | Part | Side | X | Y | Sqr | Pg |
|--------|------|-----|-----|-----|----|--------|------|-----|----|-----|----|------|------|-----|----|-----|----|
| L651 | B | 233 | 108 | 12D | 7 | N600-A | A | 210 | 70 | 2C | 7 | R55 | B | 222 | 17 | 9E | 2 |
| L660 | A | 157 | 88 | 3F | 7 | N600-B | | | | 2A | 7 | R56 | B | 222 | 19 | 9E | 2 |
| L661 | A | 171 | 83 | 4F | 7 | N600-C | | | | 3B | 7 | R116 | B | 202 | 50 | 3F | 10 |
| L662 | A | 157 | 83 | 3E | 7 | N600-D | | | | 3A | 7 | R119 | B | 242 | 47 | 8B | 10 |
| L663 | A | 175 | 75 | 4E | 7 | N600-E | | | | 6A | 7 | R120 | B | 177 | 50 | 2F | 10 |
| L668 | A | 157 | 75 | 5F | 7 | N610-A | A | 193 | 70 | 3C | 7 | R121 | B | 170 | 51 | 4E | 10 |
| L670 | A | 265 | 112 | 7F | 7 | N610-B | | | | 5A | 7 | R122 | B | 73 | 61 | 7E | 10 |
| L671 | A | 264 | 93 | 7F | 7 | N840-A | A | 286 | 73 | 6B | 9 | R123 | A | 204 | 54 | 7A | 10 |
| L705 | B | 166 | 134 | 3C | 8 | N840-B | | | | 10B | 9 | R124 | A | 197 | 54 | 7A | 10 |
| L706 | B | 179 | 138 | 3C | 8 | N840-C | | | | 11B | 9 | R130 | B | 123 | 57 | 10D | 10 |
| L709 | B | 166 | 121 | 4C | 8 | N840-D | | | | 11C | 9 | R131 | B | 229 | 38 | 9B | 10 |
| L714 | B | 169 | 101 | 5C | 8 | N840-E | | | | 6A | 9 | R132 | B | 235 | 36 | 9B | 10 |
| L720 | B | 181 | 128 | 4D | 8 | N845-A | A | 283 | 33 | 7B | 9 | R133 | B | 239 | 47 | 8B | 10 |
| L727 | A | 170 | 107 | 5E | 8 | N845-B | | | | 7A | 9 | R149 | B | 210 | 38 | 7C | 10 |
| L730 | B | 183 | 112 | 5D | 8 | R9 | A | 229 | 55 | 7D | 2 | R160 | B | 118 | 45 | 5E | 10 |
| L732 | B | 181 | 97 | 7C | 8 | R10 | B | 225 | 49 | 7C | 2 | R161 | A | 133 | 47 | 5E | 10 |
| L738 | B | 192 | 100 | 7D | 8 | R11 | A | 233 | 51 | 7D | 2 | R162 | B | 118 | 48 | 5E | 10 |
| L739 | B | 192 | 110 | 8D | 8 | R12 | B | 223 | 49 | 7C | 2 | R163 | B | 144 | 48 | 5E | 10 |
| L800 | B | 286 | 132 | 2D | 9 | R13 | B | 220 | 53 | 8C | 2 | R165 | B | 97 | 57 | 8E | 10 |
| L801 | B | 251 | 124 | 2F | 9 | R14 | B | 210 | 53 | 8B | 2 | R166 | B | 102 | 57 | 8E | 10 |
| L816 | B | 280 | 101 | 5D | 9 | R15 | B | 223 | 46 | 7C | 2 | R167 | B | 99 | 57 | 8E | 10 |
| L819 | B | 287 | 76 | 6E | 9 | R16 | A | 220 | 33 | 10C | 2 | R168 | B | 105 | 34 | 8E | 10 |
| L828 | B | 280 | 65 | 7D | 9 | R17 | B | 201 | 32 | 3F | 2 | R170 | B | 67 | 20 | 9E | 10 |
| L830 | B | 294 | 44 | 9E | 9 | R18 | A | 186 | 16 | 2F | 2 | R171 | B | 86 | 23 | 9E | 10 |
| L840 | A | 158 | 105 | 3B | 9 | R20 | B | 143 | 17 | 2D | 2 | R172 | B | 85 | 30 | 9E | 10 |
| L841 | A | 157 | 124 | 3A | 9 | R21 | B | 144 | 31 | 3D | 2 | R173 | B | 86 | 19 | 9E | 10 |
| L843 | B | 294 | 27 | 10D | 9 | R22 | B | 182 | 16 | 2C | 2 | R208 | B | 72 | 53 | 6E | 3 |
| L845 | B | 277 | 17 | 9B | 9 | R23 | B | 182 | 29 | 3C | 2 | R209 | B | 54 | 30 | 8D | 3 |
| L880 | B | 282 | 140 | 8F | 9 | R24 | B | 198 | 17 | 2C | 2 | R211 | B | 70 | 53 | 6E | 3 |
| L885 | A | 156 | 135 | 3B | 9 | R25 | B | 204 | 27 | 3C | 2 | R212 | B | 85 | 41 | 7C | 3 |
| N20-A | B | 228 | 41 | 9B | 10 | R26 | B | 204 | 30 | 3C | 2 | R213 | B | 68 | 47 | 8D | 3 |
| N20-B | | | | 10B | 10 | R27 | B | 164 | 17 | 2C | 2 | R214 | B | 74 | 31 | 8E | 3 |
| N20-C | | | | 7D | 2 | R28 | B | 178 | 34 | 3C | 2 | R215 | A | 60 | 37 | 9E | 3 |
| N20-D | | | | 7C | 2 | R29 | B | 156 | 17 | 2B | 2 | R216 | B | 60 | 37 | 8E | 3 |
| N20-E | | | | 5A | 2 | R30 | B | 176 | 34 | 3B | 2 | R218 | B | 71 | 28 | 9D | 3 |
| N130-A | B | 137 | 52 | 10D | 10 | R31 | B | 172 | 17 | 2B | 2 | R219 | B | 69 | 28 | 10C | 3 |
| N130-B | | | | 10C | 10 | R32 | B | 181 | 34 | 3B | 2 | R221 | B | 63 | 34 | 9D | 3 |
| N130-C | | | | 6A | 10 | R33 | B | 150 | 17 | 2A | 2 | R222 | B | 189 | 34 | 1D | 3 |
| N223-A | B | 88 | 39 | 6C | 3 | R34 | B | 144 | 29 | 3A | 2 | R223 | B | 140 | 40 | 6D | 3 |
| N223-B | | | | 7B | 3 | R35 | A | 241 | 21 | 7A | 2 | R240 | B | 55 | 12 | 11E | 3 |
| N223-C | | | | 7A | 3 | R36 | A | 179 | 16 | 2C | 2 | R241 | B | 66 | 13 | 11E | 3 |
| N228-A | B | 60 | 11 | 10E | 3 | R38 | A | 222 | 46 | 10C | 2 | R259 | B | 81 | 46 | 8C | 3 |
| N228-B | | | | 11E | 3 | R41 | B | 234 | 29 | 8E | 2 | R271 | A | 164 | 36 | 2D | 3 |
| N228-C | | | | 5A | 3 | R42 | B | 231 | 29 | 8E | 2 | R272 | B | 157 | 39 | 3D | 3 |
| N235-A | B | 76 | 46 | 8C | 3 | R43 | B | 229 | 29 | 8E | 2 | R275 | B | 170 | 39 | 1C | 3 |
| N235-B | | | | 4A | 3 | R44 | B | 236 | 29 | 8E | 2 | R276 | B | 173 | 33 | 2D | 3 |
| N275-A | B | 167 | 36 | 2D | 3 | R45 | B | 229 | 14 | 8E | 2 | R278 | B | 170 | 36 | 2D | 3 |
| N275-B | | | | 2D | 3 | R46 | B | 236 | 14 | 8E | 2 | R283 | B | 114 | 43 | 4B | 3 |
| N275-C | | | | 5A | 3 | R47 | B | 231 | 14 | 8E | 2 | R284 | B | 118 | 53 | 4C | 3 |
| N276-A | B | 108 | 42 | 3C | 3 | R48 | B | 234 | 14 | 8E | 2 | R285 | B | 112 | 53 | 4C | 3 |
| N276-B | | | | 4B | 3 | R50 | B | 239 | 32 | 9E | 2 | R286 | A | 91 | 49 | 7B | 3 |
| N276-C | | | | 6A | 3 | R51 | B | 222 | 27 | 9E | 2 | R299 | A | 60 | 39 | 9E | 3 |
| N300 | B | 17 | 55 | 9D | 4 | R52 | B | 222 | 24 | 9E | 2 | R300 | B | 42 | 17 | 2D | 4 |
| N360 | B | 17 | 73 | 11D | 4 | R53 | B | 222 | 14 | 9E | 2 | R301 | B | 39 | 17 | 2D | 4 |
| N410 | B | 54 | 72 | 6D | 5 | R54 | B | 222 | 22 | 9E | 2 | R302 | B | 37 | 17 | 2D | 4 |

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|-----------------------|----|---------------|--|-------------------------|---------------|
| | 04 | 11.07.96 | EE AUSGANGSTEIL_1.046GHZ OUTPUT_UNIT_1.046GHZ | 1062.6209.01 XY | 4+ |

| Part | Side | X | Y | Sqr | Pg | Part | Side | X | Y | Sqr | Pg | Part | Side | X | Y | Sqr | Pg |
|------|------|-----|-----|-----|----|------|------|-----|-----|-----|----|------|------|-----|-----|-----|----|
| R303 | B | 34 | 17 | 2D | 4 | R440 | A | 144 | 130 | 10B | 5 | R641 | B | 269 | 69 | 8D | 7 |
| R304 | B | 32 | 17 | 2D | 4 | R442 | A | 133 | 108 | 11D | 5 | R642 | B | 243 | 67 | 7D | 7 |
| R305 | B | 29 | 17 | 2D | 4 | R443 | A | 67 | 113 | 11C | 5 | R644 | B | 264 | 88 | 8D | 7 |
| R306 | B | 27 | 17 | 3D | 4 | R450 | A | 140 | 95 | 11D | 5 | R646 | B | 249 | 79 | 9D | 7 |
| R307 | B | 24 | 17 | 3D | 4 | R451 | A | 60 | 102 | 11D | 5 | R647 | B | 241 | 81 | 9E | 7 |
| R308 | B | 22 | 17 | 3D | 4 | R452 | A | 88 | 109 | 11D | 5 | R648 | A | 241 | 88 | 9E | 7 |
| R310 | B | 42 | 23 | 3D | 4 | R453 | A | 95 | 119 | 11D | 5 | R649 | B | 247 | 98 | 9D | 7 |
| R312 | B | 37 | 20 | 3D | 4 | R454 | A | 95 | 135 | 11C | 5 | R650 | A | 190 | 81 | 2C | 7 |
| R313 | A | 18 | 28 | 5C | 4 | R455 | A | 81 | 114 | 11C | 5 | R651 | A | 187 | 79 | 2C | 7 |
| R314 | B | 41 | 32 | 5D | 4 | R500 | A | 80 | 83 | 2F | 6 | R652 | B | 184 | 78 | 2C | 7 |
| R315 | B | 46 | 36 | 4C | 4 | R501 | A | 77 | 83 | 2F | 6 | R653 | A | 206 | 82 | 1C | 7 |
| R316 | B | 45 | 27 | 5C | 4 | R502 | A | 75 | 83 | 2F | 6 | R654 | A | 202 | 79 | 1B | 7 |
| R317 | B | 12 | 44 | 5C | 4 | R503 | B | 75 | 83 | 3E | 6 | R655 | B | 245 | 101 | 9D | 7 |
| R318 | B | 15 | 44 | 6C | 4 | R520 | A | 145 | 113 | 9F | 6 | R657 | A | 221 | 80 | 3B | 7 |
| R319 | A | 21 | 34 | 6C | 4 | R521 | A | 143 | 113 | 9F | 6 | R658 | A | 223 | 75 | 3B | 7 |
| R320 | A | 15 | 30 | 5C | 4 | R522 | A | 148 | 113 | 9F | 6 | R700 | B | 154 | 111 | 2D | 8 |
| R321 | A | 20 | 37 | 6C | 4 | R530 | B | 69 | 93 | 2C | 6 | R701 | B | 154 | 121 | 2D | 8 |
| R325 | B | 34 | 41 | 6E | 4 | R600 | B | 164 | 79 | 2D | 7 | R702 | B | 153 | 124 | 3D | 8 |
| R327 | A | 21 | 48 | 7D | 4 | R601 | B | 178 | 82 | 2E | 7 | R704 | A | 150 | 126 | 2D | 8 |
| R328 | A | 23 | 41 | 7D | 4 | R602 | A | 184 | 79 | 2E | 7 | R705 | A | 141 | 121 | 2E | 8 |
| R329 | B | 46 | 41 | 6C | 4 | R603 | A | 181 | 75 | 2E | 7 | R706 | B | 169 | 128 | 4C | 8 |
| R330 | A | 21 | 50 | 7C | 4 | R604 | B | 189 | 72 | 2D | 7 | R707 | B | 169 | 118 | 4C | 8 |
| R332 | B | 46 | 38 | 7C | 4 | R605 | B | 164 | 73 | 2D | 7 | R709 | A | 166 | 114 | 3C | 8 |
| R333 | A | 26 | 44 | 7C | 4 | R606 | A | 213 | 67 | 2B | 7 | R710 | A | 168 | 120 | 4C | 8 |
| R340 | B | 41 | 44 | 8C | 4 | R607 | A | 193 | 83 | 3D | 7 | R720 | A | 179 | 139 | 3D | 8 |
| R341 | B | 43 | 53 | 8C | 4 | R608 | B | 192 | 74 | 2D | 7 | R721 | A | 178 | 130 | 4D | 8 |
| R342 | B | 44 | 47 | 8C | 4 | R609 | B | 187 | 82 | 2D | 7 | R723 | B | 183 | 132 | 4E | 8 |
| R355 | B | 17 | 56 | 9D | 4 | R611 | A | 180 | 64 | 4C | 7 | R724 | B | 183 | 123 | 4E | 8 |
| R356 | B | 38 | 59 | 10E | 4 | R612 | A | 178 | 67 | 4C | 7 | R730 | B | 177 | 112 | 5C | 8 |
| R357 | B | 36 | 57 | 10E | 4 | R613 | A | 197 | 66 | 3C | 7 | R731 | B | 183 | 102 | 6D | 8 |
| R358 | B | 17 | 74 | 11D | 4 | R614 | A | 194 | 78 | 3C | 7 | R732 | B | 183 | 93 | 7D | 8 |
| R360 | B | 42 | 89 | 11E | 4 | R615 | A | 197 | 77 | 3C | 7 | R734 | A | 177 | 97 | 6C | 8 |
| R361 | B | 55 | 89 | 11E | 4 | R616 | A | 203 | 69 | 2B | 7 | R735 | A | 182 | 105 | 6C | 8 |
| R400 | B | 45 | 81 | 2D | 5 | R617 | A | 213 | 62 | 2C | 7 | R745 | B | 213 | 140 | 9C | 8 |
| R401 | B | 55 | 84 | 2C | 5 | R618 | A | 194 | 86 | 2C | 7 | R747 | A | 227 | 133 | 10D | 8 |
| R402 | B | 48 | 79 | 2C | 5 | R620 | A | 196 | 81 | 2B | 7 | R748 | A | 234 | 125 | 10D | 8 |
| R404 | A | 37 | 84 | 4D | 5 | R621 | B | 231 | 80 | 5E | 7 | R750 | A | 220 | 129 | 10E | 8 |
| R405 | A | 28 | 82 | 4D | 5 | R622 | B | 186 | 69 | 3E | 7 | R751 | A | 222 | 123 | 10E | 8 |
| R406 | A | 33 | 81 | 4C | 5 | R623 | B | 231 | 77 | 6E | 7 | R753 | A | 210 | 134 | 10E | 8 |
| R407 | A | 29 | 91 | 4C | 5 | R624 | B | 231 | 74 | 6E | 7 | R754 | A | 215 | 123 | 10E | 8 |
| R408 | B | 42 | 86 | 3C | 5 | R625 | B | 231 | 72 | 6E | 7 | R760 | B | 228 | 121 | 10C | 8 |
| R409 | B | 32 | 91 | 4C | 5 | R626 | B | 228 | 69 | 6D | 7 | R761 | B | 236 | 109 | 10C | 8 |
| R410 | A | 42 | 74 | 4E | 5 | R627 | B | 230 | 66 | 6D | 7 | R762 | A | 182 | 113 | 7E | 8 |
| R411 | A | 44 | 69 | 4E | 5 | R628 | B | 230 | 64 | 6D | 7 | R801 | B | 241 | 134 | 2D | 9 |
| R412 | A | 37 | 68 | 4E | 5 | R629 | B | 186 | 67 | 3E | 7 | R802 | B | 296 | 129 | 2D | 9 |
| R416 | B | 85 | 73 | 6E | 5 | R630 | B | 264 | 24 | 5C | 7 | R803 | A | 288 | 60 | 5C | 9 |
| R417 | B | 75 | 70 | 6E | 5 | R631 | B | 264 | 15 | 5B | 7 | R804 | B | 278 | 132 | 3D | 9 |
| R431 | A | 99 | 101 | 10E | 5 | R632 | B | 241 | 64 | 6D | 7 | R806 | B | 281 | 124 | 3D | 9 |
| R432 | A | 129 | 113 | 10E | 5 | R634 | B | 264 | 21 | 5C | 7 | R807 | A | 268 | 125 | 3E | 9 |
| R433 | A | 131 | 102 | 10D | 5 | R635 | A | 206 | 72 | 2A | 7 | R808 | A | 258 | 118 | 3E | 9 |
| R434 | A | 71 | 105 | 10D | 5 | R636 | A | 206 | 74 | 2B | 7 | R809 | A | 248 | 121 | 3E | 9 |
| R435 | A | 103 | 112 | 10D | 5 | R637 | A | 213 | 85 | 3B | 7 | R811 | A | 258 | 121 | 4F | 9 |
| R436 | A | 112 | 122 | 10C | 5 | R638 | A | 213 | 83 | 3A | 7 | R812 | B | 298 | 114 | 4E | 9 |
| R437 | A | 108 | 135 | 10C | 5 | R639 | A | 217 | 83 | 3A | 7 | R813 | B | 297 | 107 | 4E | 9 |
| R438 | A | 71 | 119 | 10C | 5 | R640 | B | 258 | 46 | 6C | 7 | R814 | B | 294 | 107 | 4E | 9 |

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|-----------------------|----|---------------|--|-------------------------|---------------|
| | 04 | 11.07.96 | EE AUSGANGSTEIL_1.046GHZ OUTPUT_UNIT_1.046GHZ | 1062.6209.01 XY | 5+ |

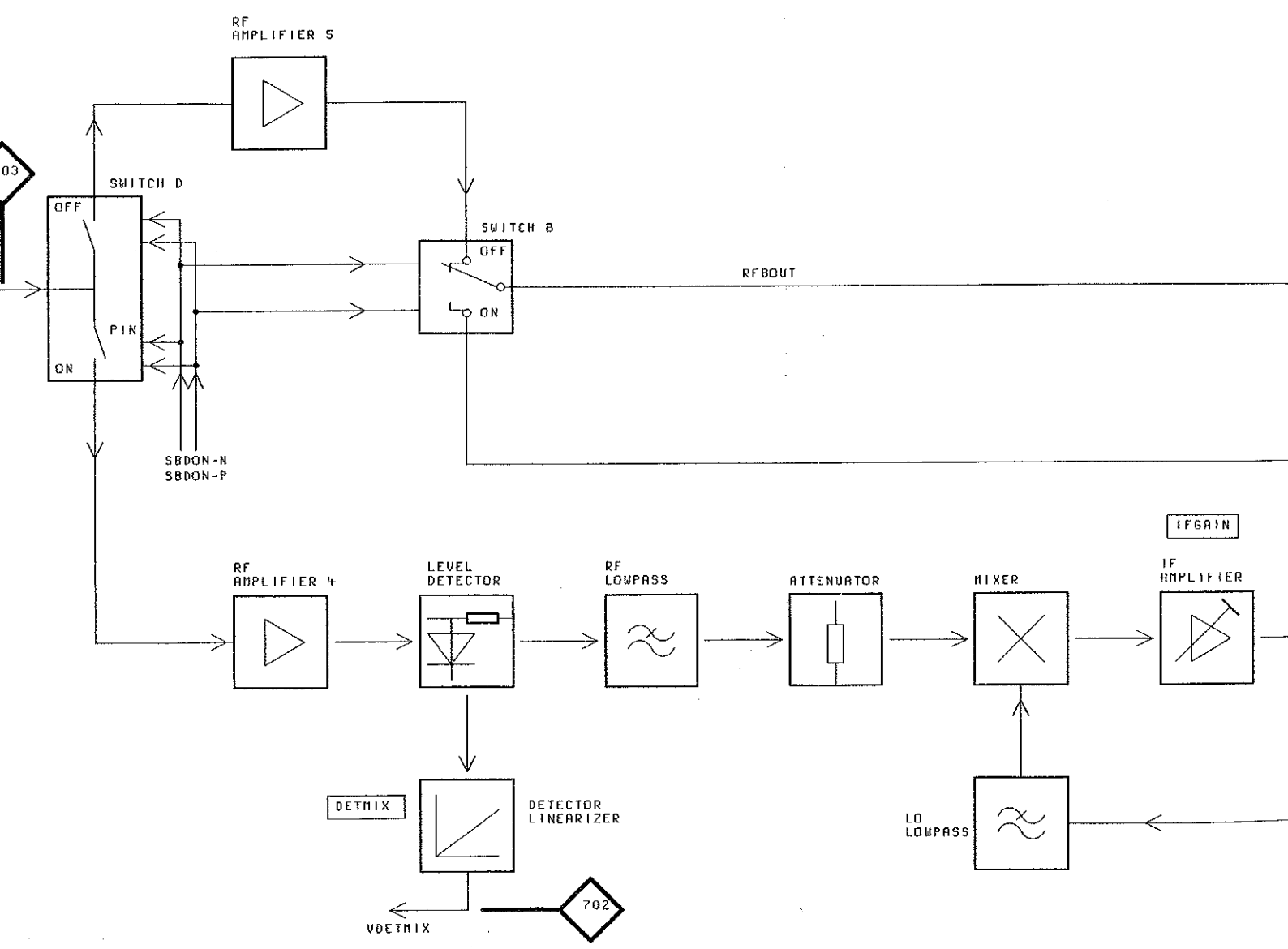
| Part | Side | X | Y | Sqr | Pg | Part | Side | X | Y | Sqr | Pg | Part | Side | X | Y | Sqr | Pg |
|------|------|-----|-----|-----|----|------|------|-----|-----|-----|----|--------|------|-----|-----|-----|----|
| R815 | B | 290 | 109 | 4E | 9 | R872 | A | 300 | 71 | 11B | 9 | V540 | B | 78 | 124 | 5B | 6 |
| R816 | B | 277 | 110 | 5D | 9 | R873 | A | 296 | 76 | 11B | 9 | V543 | B | 82 | 125 | 7B | 6 |
| R817 | B | 288 | 101 | 5D | 9 | R874 | A | 296 | 69 | 11C | 9 | V544 | B | 96 | 127 | 7B | 6 |
| R819 | B | 281 | 94 | 5D | 9 | R875 | A | 300 | 64 | 10C | 9 | V548 | B | 96 | 123 | 10B | 6 |
| R820 | A | 278 | 100 | 5E | 9 | R876 | A | 276 | 71 | 10B | 9 | V600 | B | 175 | 82 | 2E | 7 |
| R821 | A | 262 | 136 | 5E | 9 | R882 | B | 289 | 116 | 4E | 9 | V602 | B | 170 | 71 | 2D | 7 |
| R822 | A | 252 | 138 | 5E | 9 | R883 | B | 288 | 118 | 4E | 9 | V604-A | B | 187 | 72 | 2D | 7 |
| R823 | A | 262 | 138 | 6F | 9 | R884 | B | 287 | 92 | 6E | 9 | V604-B | | | | 2D | 7 |
| R824 | B | 300 | 72 | 7E | 9 | R889 | B | 280 | 83 | 6D | 9 | V606-A | A | 203 | 64 | 3C | 7 |
| R825 | B | 300 | 66 | 7E | 9 | R899 | A | 280 | 27 | 7B | 9 | V606-B | | | | 2B | 7 |
| R826 | B | 298 | 66 | 7E | 9 | U600 | B | 258 | 56 | 6D | 7 | V608 | A | 199 | 62 | 3C | 7 |
| R827 | B | 296 | 72 | 7E | 9 | V11 | B | 225 | 46 | 7C | 2 | V610 | B | 260 | 85 | 8D | 7 |
| R828 | B | 276 | 75 | 7D | 9 | V12 | B | 216 | 51 | 8C | 2 | V612 | B | 242 | 95 | 9D | 7 |
| R829 | B | 288 | 66 | 8D | 9 | V13 | A | 223 | 38 | 10C | 2 | V635 | A | 213 | 80 | 3A | 7 |
| R830 | B | 281 | 58 | 8D | 9 | V14 | B | 194 | 30 | 3F | 2 | V636 | B | 202 | 85 | 3A | 7 |
| R831 | A | 278 | 64 | 8E | 9 | V15 | B | 191 | 34 | 3E | 2 | V650 | A | 206 | 65 | 2B | 7 |
| R832 | A | 290 | 134 | 8E | 9 | V25 | B | 215 | 27 | 3C | 2 | V700-A | B | 157 | 117 | 2D | 8 |
| R833 | A | 280 | 137 | 8E | 9 | V26 | B | 211 | 30 | 3C | 2 | V700-B | | | | 2D | 8 |
| R834 | B | 300 | 38 | 9E | 9 | V35 | A | 241 | 11 | 6A | 2 | V705 | B | 169 | 134 | 4C | 8 |
| R835 | B | 300 | 31 | 9E | 9 | V110 | B | 228 | 51 | 8B | 10 | V707 | B | 169 | 104 | 5C | 8 |
| R836 | B | 297 | 29 | 9E | 9 | V130 | B | 117 | 59 | 10C | 10 | V720 | B | 182 | 137 | 4D | 8 |
| R837 | B | 296 | 31 | 9E | 9 | V310 | B | 21 | 30 | 5D | 4 | V725 | B | 183 | 116 | 5E | 8 |
| R838 | B | 296 | 38 | 9E | 9 | V315 | B | 21 | 44 | 7D | 4 | V730 | B | 181 | 109 | 6D | 8 |
| R839 | B | 287 | 50 | 9E | 9 | V318 | A | 17 | 23 | 5C | 4 | V735 | B | 190 | 96 | 7D | 8 |
| R841 | B | 284 | 23 | 10D | 9 | V319 | A | 26 | 32 | 6C | 4 | V745 | A | 225 | 133 | 10D | 8 |
| R842 | B | 284 | 21 | 10D | 9 | V330 | A | 17 | 51 | 7C | 4 | V746 | A | 228 | 126 | 10D | 8 |
| R843 | B | 295 | 23 | 10D | 9 | V333 | A | 20 | 44 | 7C | 4 | V747 | A | 222 | 133 | 10D | 8 |
| R844 | B | 278 | 26 | 9C | 9 | V335 | B | 81 | 35 | 8C | 3 | V748 | A | 222 | 121 | 10D | 8 |
| R845 | B | 281 | 23 | 8B | 9 | V336 | B | 77 | 36 | 8C | 3 | V800 | A | 251 | 118 | 3E | 9 |
| R846 | B | 286 | 42 | 8C | 9 | V337 | B | 73 | 36 | 9C | 3 | V801 | A | 254 | 109 | 3E | 9 |
| R847 | A | 300 | 41 | 9E | 9 | V400 | B | 33 | 80 | 4D | 5 | V802 | B | 283 | 116 | 3D | 9 |
| R848 | B | 281 | 39 | 8C | 9 | V404 | A | 23 | 77 | 4C | 5 | V815 | A | 256 | 136 | 5E | 9 |
| R849 | B | 280 | 47 | 9D | 9 | V405 | A | 22 | 91 | 4C | 5 | V816 | A | 258 | 127 | 5E | 9 |
| R850 | A | 295 | 103 | 5B | 9 | V411 | A | 40 | 66 | 4E | 5 | V817 | B | 283 | 85 | 6D | 9 |
| R851 | B | 293 | 85 | 5B | 9 | V431 | A | 102 | 95 | 11E | 5 | V830 | A | 284 | 134 | 8E | 9 |
| R852 | A | 295 | 81 | 5B | 9 | V432 | A | 124 | 95 | 11E | 5 | V831 | A | 288 | 125 | 8E | 9 |
| R853 | B | 291 | 23 | 10D | 9 | V433 | A | 132 | 96 | 11D | 5 | V832 | B | 283 | 50 | 8D | 9 |
| R854 | A | 287 | 65 | 5B | 9 | V434 | A | 65 | 103 | 11D | 5 | V844-A | B | 284 | 31 | 9C | 9 |
| R855 | A | 287 | 63 | 6B | 9 | V435 | A | 96 | 109 | 11D | 5 | V844-B | | | | 7C | 9 |
| R856 | A | 277 | 27 | 7B | 9 | V436 | A | 106 | 118 | 11C | 5 | V850-A | A | 285 | 45 | 7B | 9 |
| R857 | A | 288 | 41 | 7B | 9 | V437 | A | 101 | 134 | 11C | 5 | V850-B | | | | 6B | 9 |
| R858 | A | 297 | 99 | 5B | 9 | V438 | A | 75 | 115 | 11C | 5 | V851 | A | 286 | 70 | 6C | 9 |
| R859 | A | 292 | 103 | 5B | 9 | V500 | B | 71 | 84 | 2E | 6 | V857 | A | 288 | 30 | 7B | 9 |
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| R861 | A | 295 | 41 | 8B | 9 | V512 | B | 103 | 77 | 5E | 6 | V871 | B | 279 | 72 | 10B | 9 |
| R862 | B | 290 | 70 | 7E | 9 | V514 | B | 109 | 75 | 6E | 6 | Z1 | B | 118 | 20 | 2E | 2 |
| R863 | A | 295 | 44 | 8B | 9 | V515 | B | 123 | 77 | 6E | 6 | Z2 | B | 131 | 17 | 2D | 2 |
| R864 | B | 299 | 85 | 6E | 9 | V516 | B | 131 | 75 | 7E | 6 | Z3 | B | 100 | 20 | 2D | 2 |
| R865 | A | 290 | 137 | 9F | 9 | V520 | B | 144 | 101 | 9E | 6 | Z4 | B | 141 | 20 | 2D | 2 |
| R866 | A | 276 | 42 | 6C | 9 | V523 | B | 143 | 107 | 9D | 6 | Z5 | B | 184 | 20 | 2C | 2 |
| R867 | B | 277 | 29 | 7C | 9 | V530 | B | 67 | 87 | 1C | 6 | Z6 | B | 199 | 20 | 2C | 2 |
| R868 | B | 286 | 35 | 8C | 9 | V532 | B | 63 | 98 | 1B | 6 | Z7 | B | 169 | 20 | 2C | 2 |
| R869 | A | 282 | 45 | 8C | 9 | V535 | B | 63 | 105 | 3B | 6 | Z8 | B | 164 | 20 | 2B | 2 |
| R870 | A | 277 | 77 | 9B | 9 | V536 | B | 70 | 113 | 3B | 6 | Z9 | B | 174 | 20 | 2B | 2 |
| R871 | A | 278 | 80 | 10B | 9 | V539 | B | 72 | 121 | 5B | 6 | Z10 | B | 146 | 20 | 2A | 2 |

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| | 04 | 11.07.96 | EE AUSGANGSTEIL_1.046GHZ OUTPUT_UNIT_1.046GHZ | 1062.6209.01 XY | 6+ |

| Part | Side | X | Y | Sqr | Pg | Part | Side | X | Y | Sqr | Pg | Part | Side | X | Y | Sqr | Pg |
|------|------|-----|----|-----|----|------|------|-----|----|-----|----|------|------|---|---|-----|----|
| Z11 | B | 194 | 20 | 2F | 2 | Z20 | B | 126 | 17 | 2E | 2 | | | | | | |

| ROHDE & SCHWARZ | -I | Datum Date | XY-Liste für XY-list for | Sach-Nummer Stock-Nr | Blatt Page |
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| | 04 | 11.07.96 | EE AUSGANGSTEIL_1.046GHZ OUTPUT_UNIT_1.046GHZ | 1062.6209.01 XY | 7- |

Stromläufe
Bestückungspläne
Circuit diagrams
Components plans
Schémas de circuit
Plans des composants

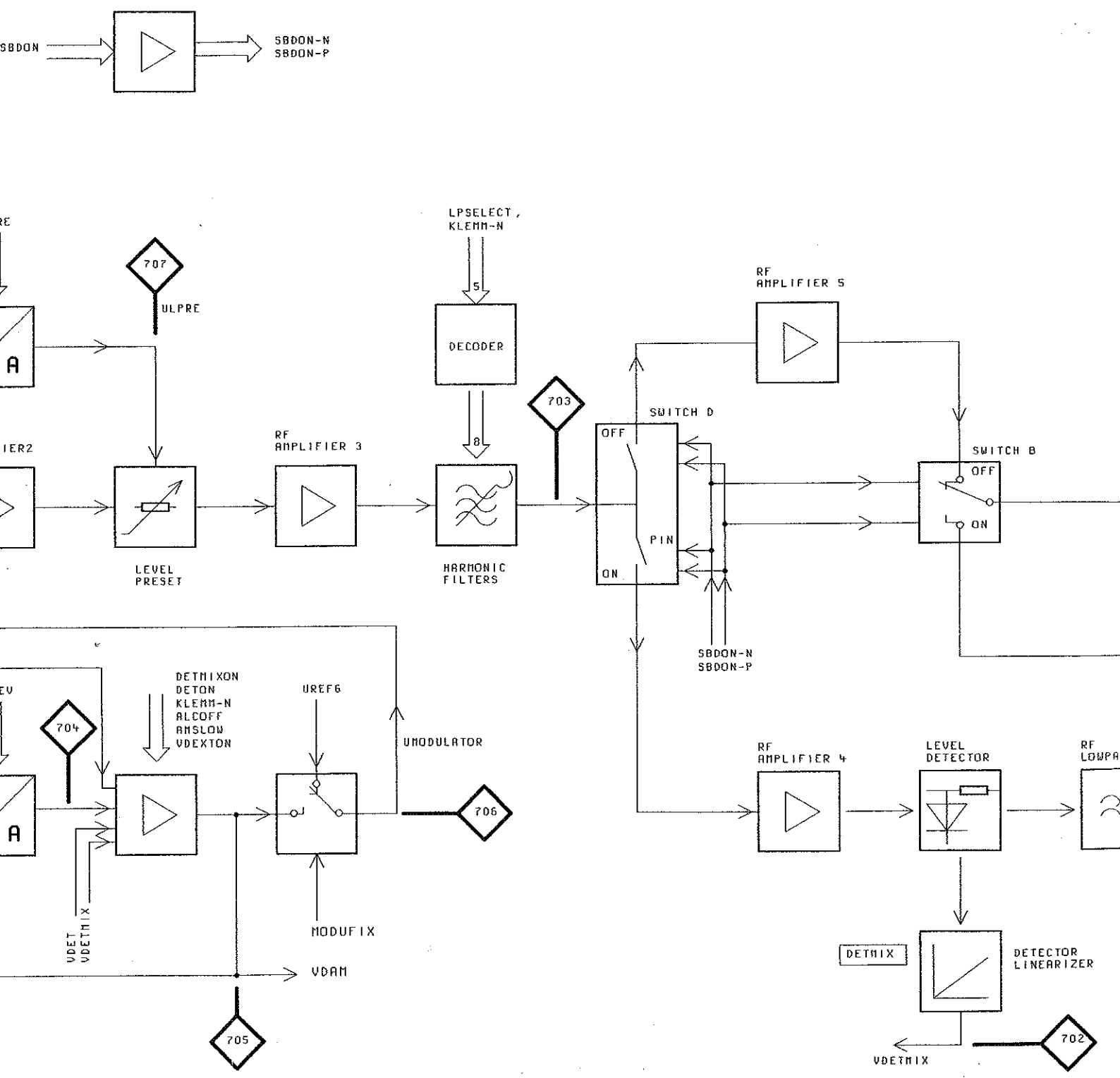


VARIANTEN,
UND
SIEHE SA.
ON MODELS,
VALUES AND
PARTS LIST.



ACHTUNG: EGB!
ELEKTROSTATISCH GEFÄHRDETE
BAUELEMENTE ERFORDERN EINE
BESONDERE HANDHABUNG.
ATTENTION ESD!
ELECTROSTATIC SENSITIVE DEVICES
REQUIRE A SPECIAL HANDLING

| | | | | | |
|---------------|--------------------------|----------|------|---------------------|----------|
| 04/01 | | 10.03.97 | EI | MENP | TAG |
| | | | | BEARB. | |
| | | | | GEPR. | |
| | | | | NORM | |
| | | | | PLOTT | 10.03.97 |
| 04/ | | 11.07.96 | DR | | |
| REND. IND. | ÄNDERUNGS- MITTEILUNG | DATUM | NAME | ZU GERÄT... SMY | |

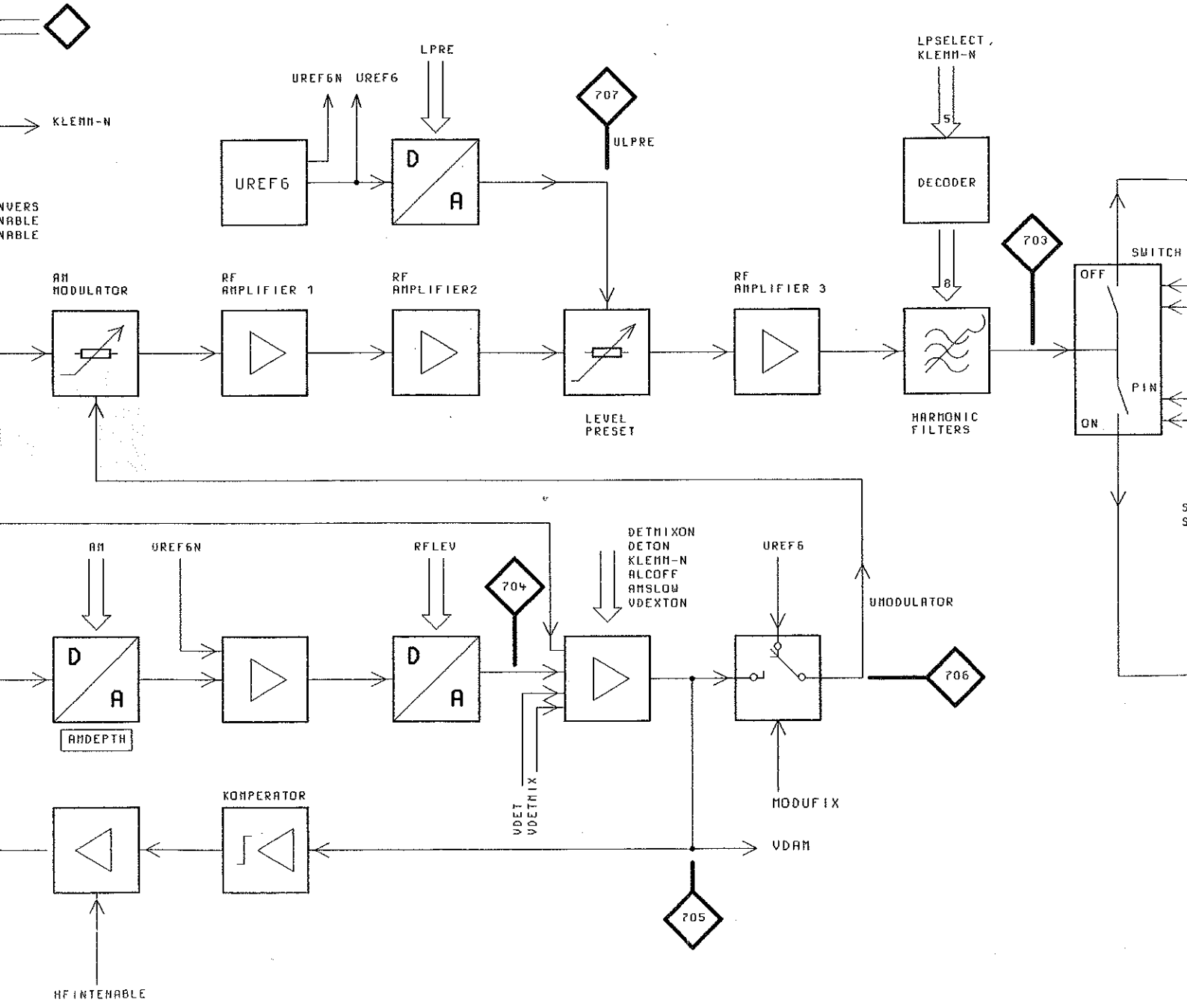
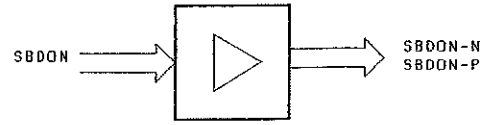


BINDENDE ANGABEN UEBER VARIANTEN,
 TRIMMWERTE, BAUTEILWERTE UND
 NICHT BESTUECKTE BAUTEILE SIEHE SA.
 FOR BINDING INFORMATION ON MODELS,
 TRIMMING AND COMPONENTS VALUES AND
 NONFITTED COMPONENTS SEE PARTS LIST.



ACHTUNG: EGB!
 ELEKTROSTATISCH GEFÄHRDETE
 BAUELEMENTE ERFORDERN EINE
 BESONDERE HANDHABUNG.
ATTENTION ESD!
 ELECTROSTATIC SENSITIVE DEVICES
 REQUIRE A SPECIAL HANDLING

LPRE
 RFLEV
 ANSLOW
 ALCOFF
 RFLEVENABLE
 DETON
 VDEXTON
 DETHIXON
 MODUFIX
 SACON
 AM
 BP30N
 BP20N
 BP10N
 SB00N
 LPSELECT
 BLANKENABLE
 BLANKINVERS
 HFINTENABLE
 AMINVERS
 DIAGON
 DIAG



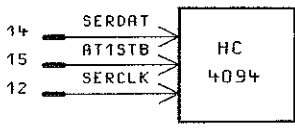
BINDENDE ANGABEN UEBER VARIANTEN,
 TRIMMWERTE, BAUTEILWERTE, UND
 NICHT BESTUECKTE BAUTEILE SIEHE SA.
 FOR BINDING INFORMATION ON MODELS,
 TRIMMING AND COMPONENTS VALUES AND
 NONFITTED COMPONENTS SEE PARTS LIST.

X2
11, 13, 16,
20, 21, 23,
27, 29, 31

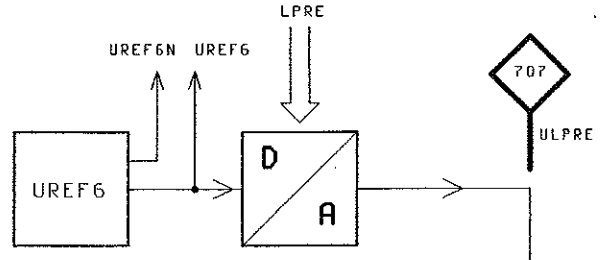
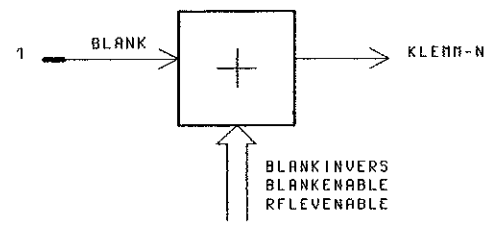
24, 25 → +15V

28 → +5V

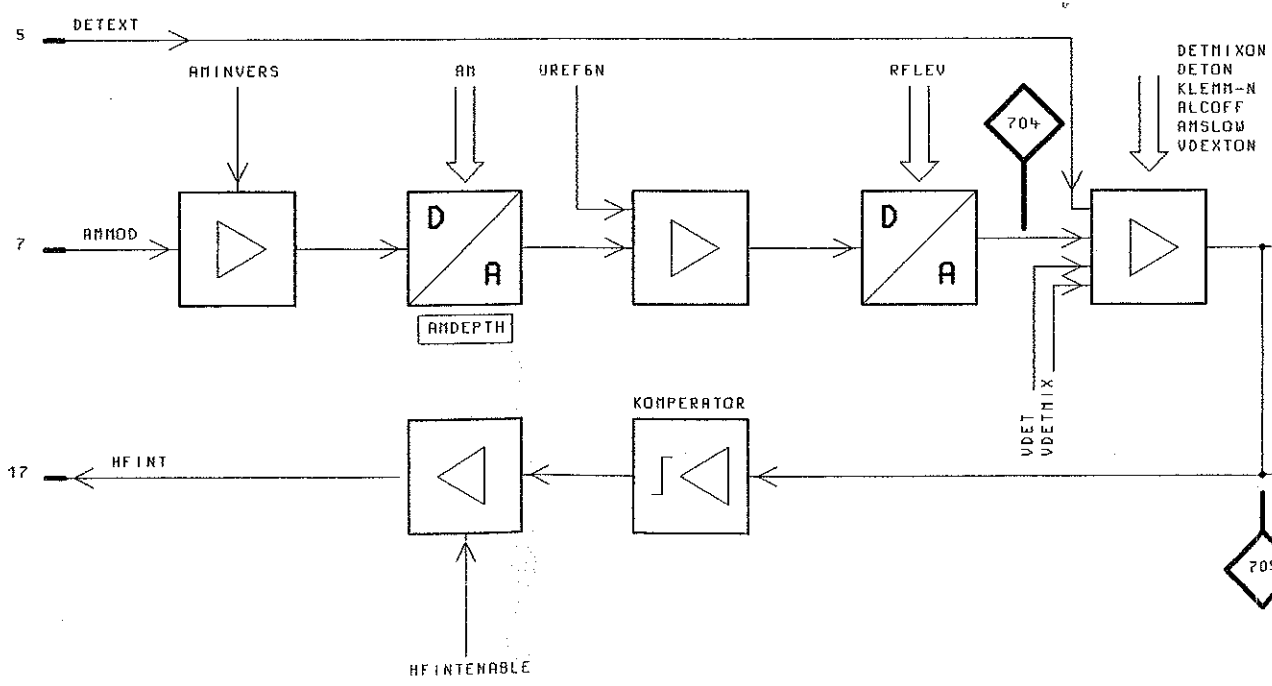
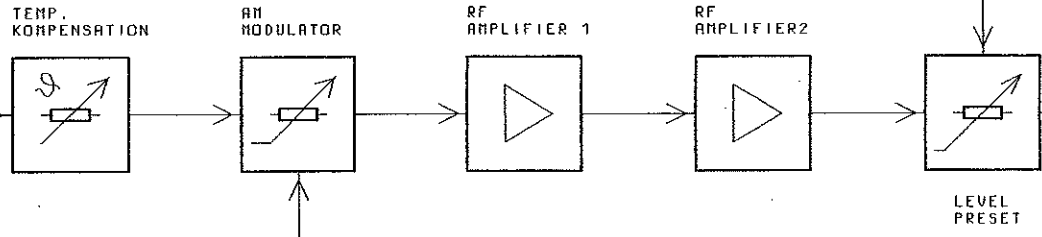
30 → -15V



LPRE
RFLEV
ANSLOW
ALCOFF
RFLEVENABLE
DETON
VDEXTON
DETHIXON
HODUFX
SACON
AM
BP30N
BP20N
BP10N
SB00N
LPSELECT
BLANKENABLE
BLANKINVERS
HFINTENABLE
AMINVERS
DIAGON
DIAG



X224
FSYN
65...1040MHZ
6...120BN

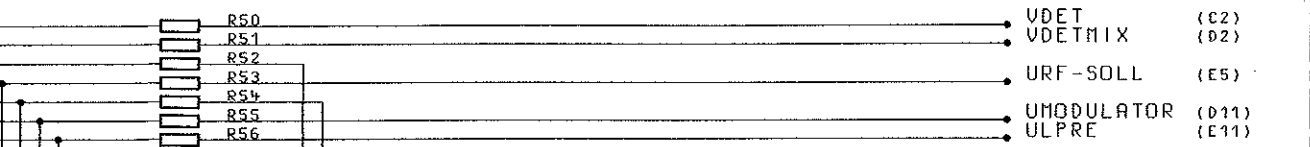


FUER DIESE UNTERLAGE
BEHALTEN WIR UNS ALLE RECHTE VOR

ZEICHN.-NR.

(SHEET 3)

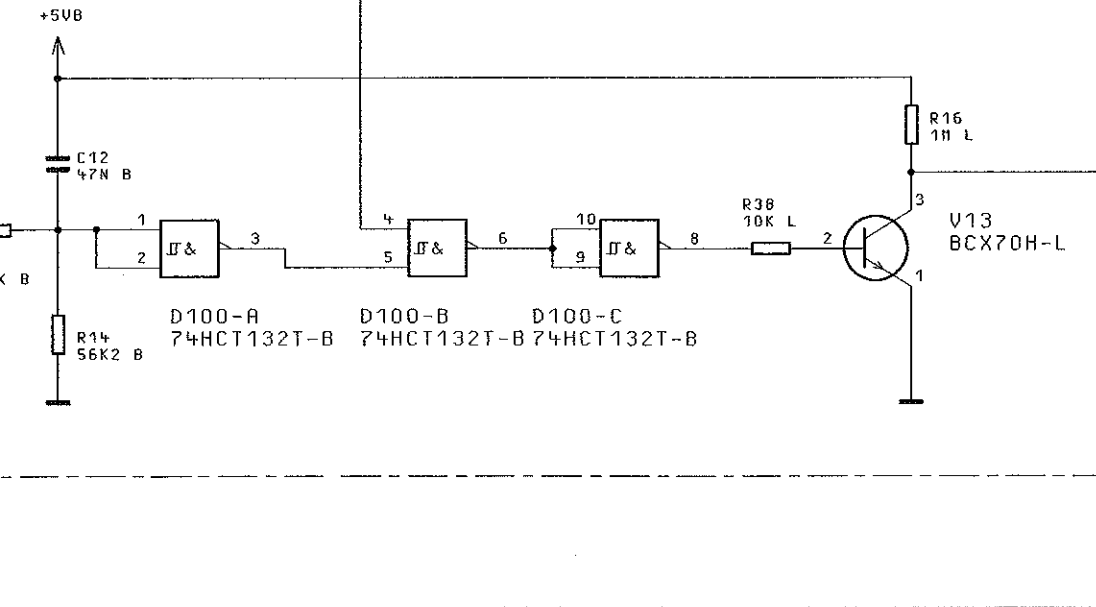
8*20K B



8 X 10K B

8 X 10K B

HF-INT-ENABLE
TO SHEET 10



STUECKT BINDENDE ANGABEN UEBER VARIANTEN,
TRIMMWERTE, BAUTEILWERTE UND
NICHT BESTUECKTE BAUTEILE SIEHE SA.

FOR BINDING INFORMATION ON MODELS,
TRIMMING AND COMPONENTS VALUES AND
NONFITTED COMPONENTS SEE PARTS LIST.

| | | | | | | | | | |
|---------------|--------------------------|----------|------|----------|----------|-----------|---|-----------|-----------|
| 04/01 | | 10.03.97 | EI | MENP | TAG | NAME | BENENNUNG | | |
| | | | | BEARB. | | EI | AUSGANGSTEIL 1.046GHZ OUTPUT UNIT 1.046GHZ | | |
| | | | | GEPR. | | | | | |
| | | | | NORM | | | | | |
| | | | | PLOTT | 10.03.97 | | | | |
| 04/ | | 11.07.96 | DR | | | | ZEICHN.-NR. | BLATT-NR. | |
| REND. IND. | ÄNDERUNGS- MITTEILUNG | DATUM | NAME | | | | 1062.6209.01S | 2+ | |
| | | | | ZU GERÄT | SMY | REG.-F.V. | 1062.5502 | ERSTE Z. | 1062.5502 |

9

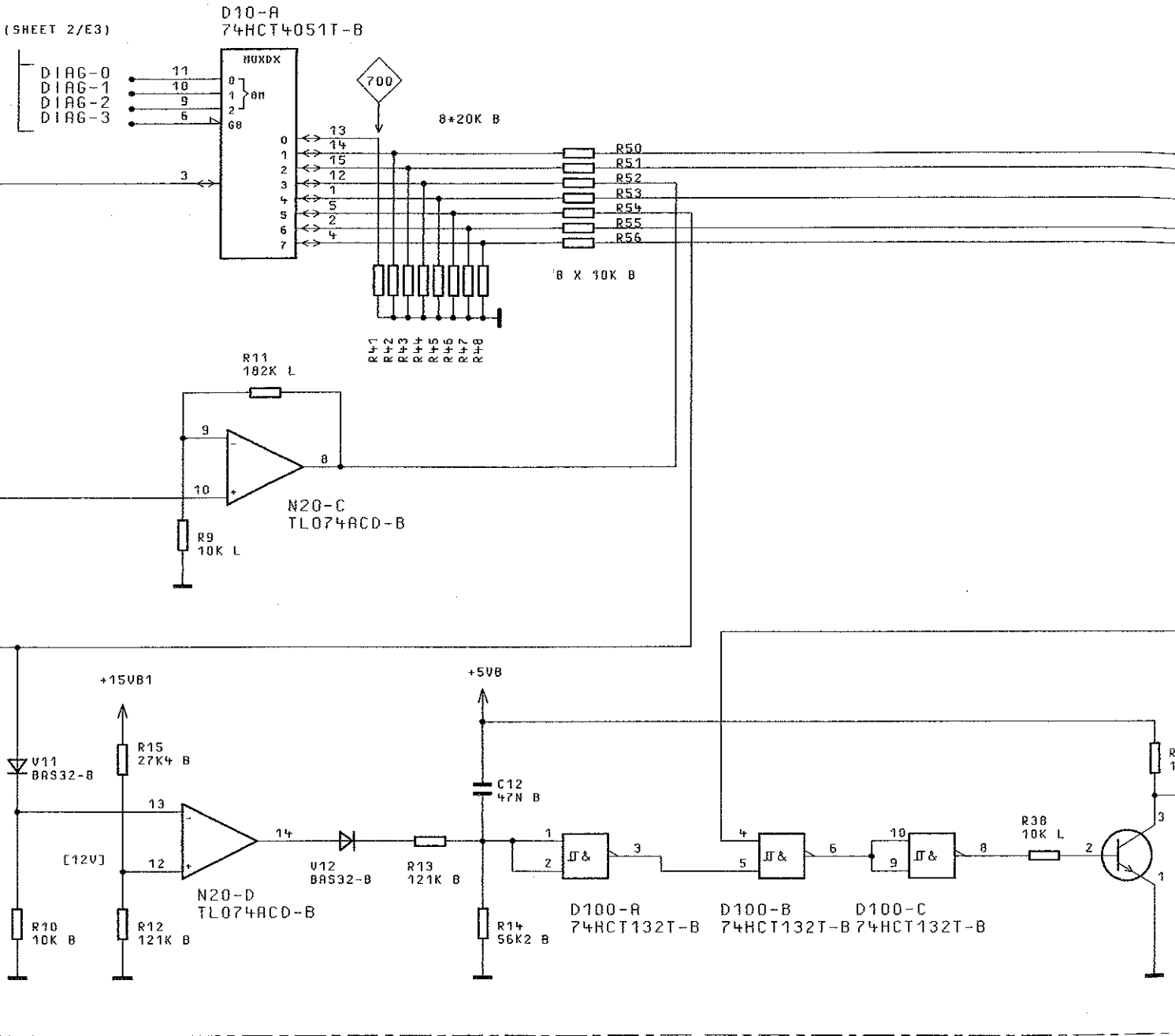
10

11

12

DIAGNOSE

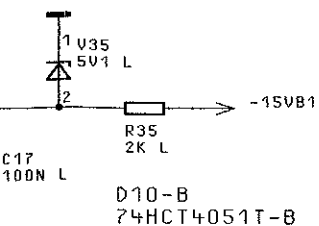
(SHEET 2/E3)

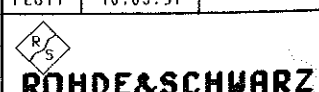


N.F. - NOT FITTED / NICHT BESTUECKT

BINDENDE ANGABEN UEBER VARIANTEN, TRIMMWERTE, BAUTEILWERTE UND NICHT BESTUECKTE BAUTEILE SIEHE SA.

FOR BINDING INFORMATION ON TRIMMING AND COMPONENTS VALUE NONFITTED COMPONENTS SEE P.



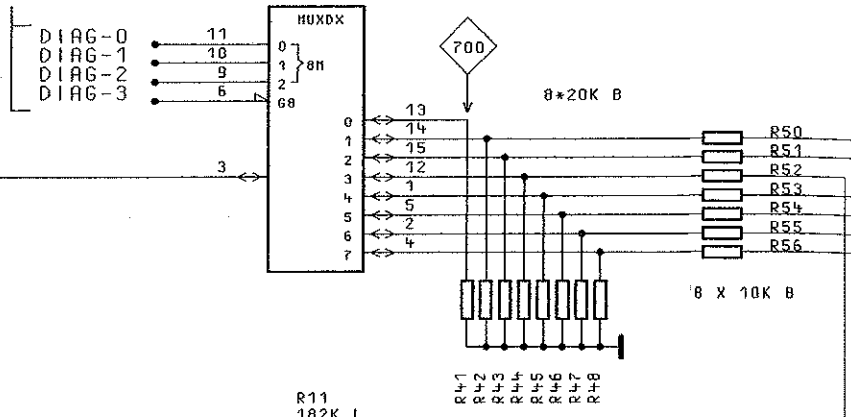
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|-----------|----------------------|----------|------|---|----------|------|----------|
| 04/01 | | 10.03.97 | E I | MENP | TAG | NARE | BENEN |
| | | | | BEARB. | | E I | |
| | | | | GEPR. | | | |
| | | | | NORM | | | |
| | | | | PLOTT | 10.03.97 | | |
| 04/ | | 11.07.96 | DR |  | | | ZEICH |
| ÄND. IND. | ÄNDERUNGS-MITTEILUNG | DATUM | NAME | | | | ZU GERÄT |

ACHTUNG: EGB!
 ELEKTROSTATISCH GEFÄHRDETE
 BAUELEMENTE ERFORDERN EINE
 BESONDERE HANDHABUNG.
ATTENTION ESD!
 ELECTROSTATIC SENSITIVE DEVICES
 REQUIRE A SPECIAL HANDLING

DIAGNOSE

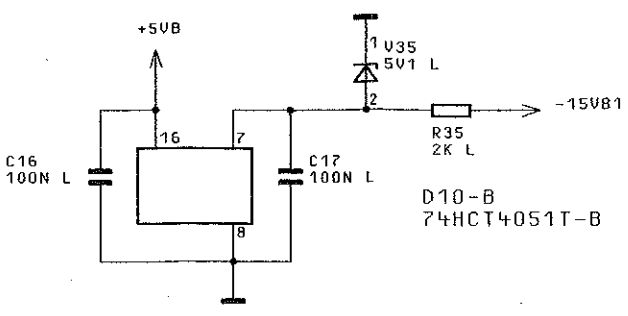
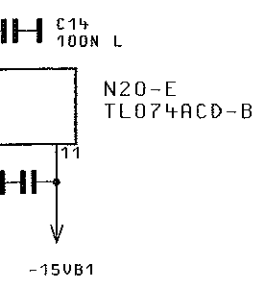
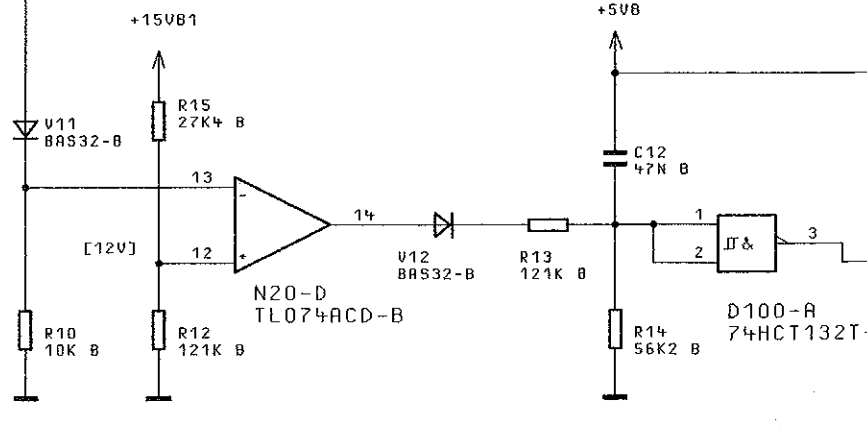
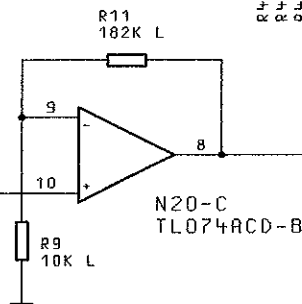
(SHEET 2/E3)

D10-A
74HCT4051T-B



DET FILT

UREGELVERST



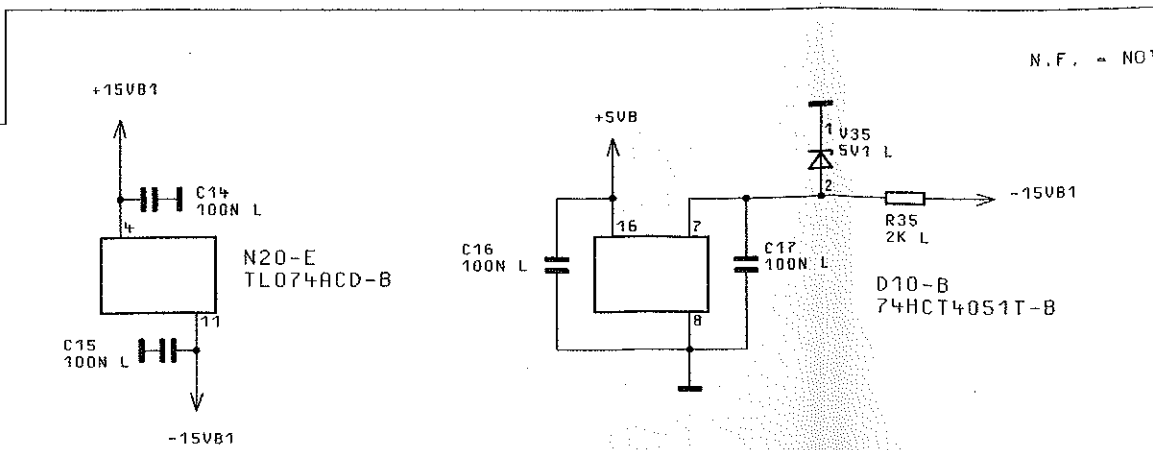
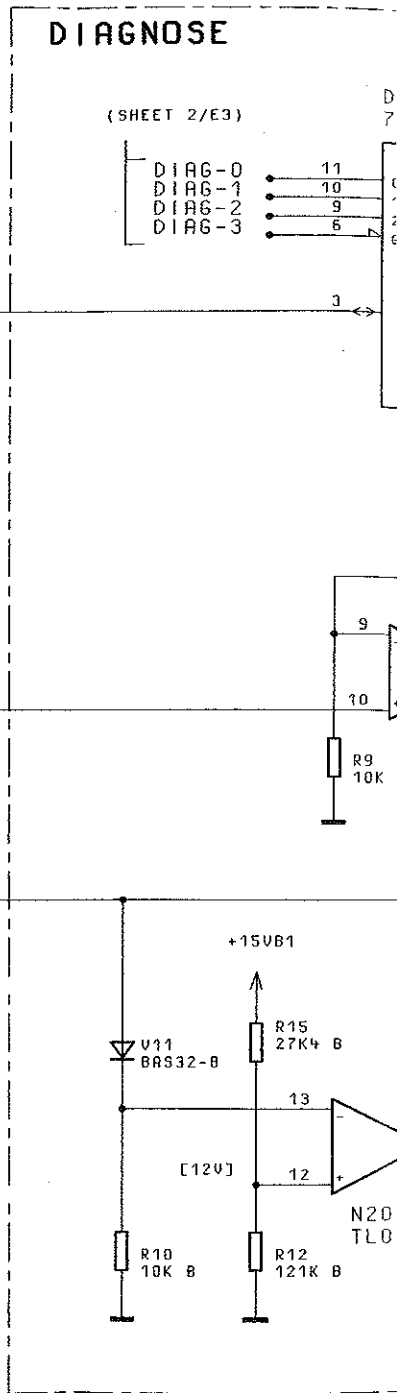
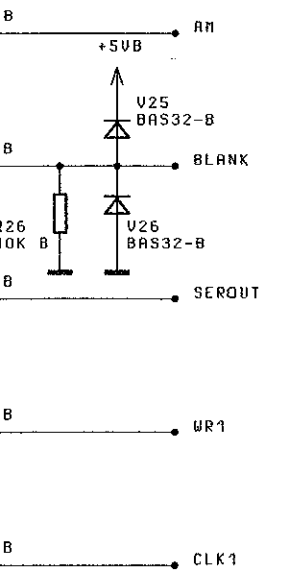
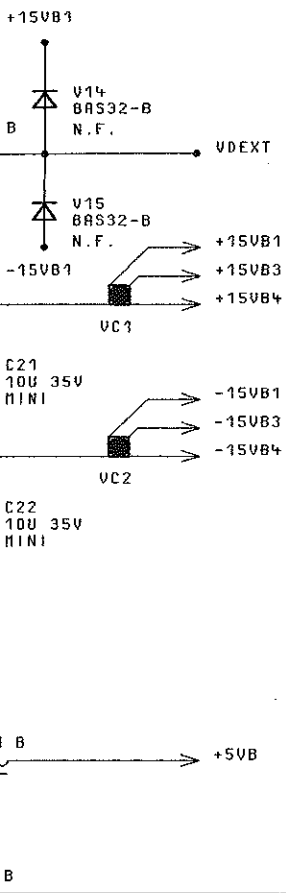
N.F. - NOT FITTED / NICHT BESTUECKT


BINDENDE ANGABEN
TRIMMWERTE, BAUTEILE
NICHT BESTUECKTE

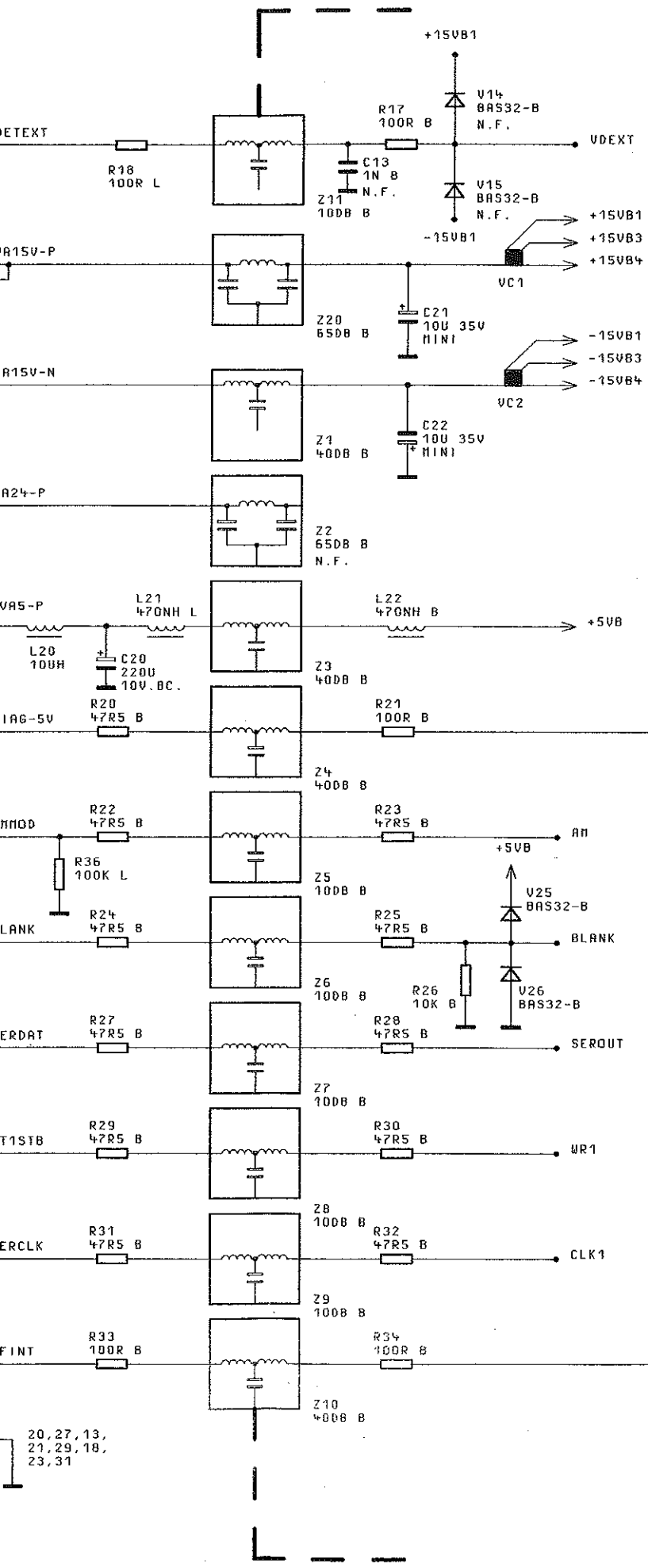
| | |
|-------|----------|
| 04/01 | |
| 04/ | |
| REND. | RENDERUN |
| IND. | MITTELL |



ACHTUNG: EGB!
 ELEKTROSTATISCH GEFÄHRDETE
 BAUELEMENTE ERFORDERN EINE
 BESONDERE HANDHABUNG.
ATTENTION ESD!
 ELECTROSTATIC SENSITIVE DEVICES
 REQUIRE A SPECIAL HANDLING

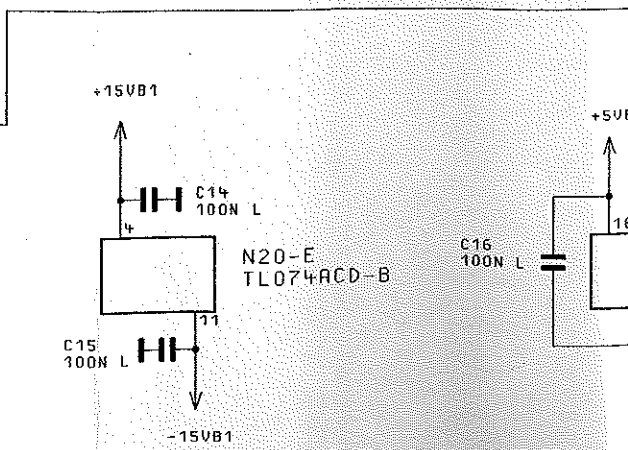



ACHTUNG: EGB!
 ELEKTROSTATISCH GEFÄHRDETE
 BAUELEMENTE ERFORDERN EINE
 BESONDERE HANDHABUNG.
ATTENTION ESD!
 ELECTROSTATIC SENSITIVE DEVICES
 REQUIRE A SPECIAL HANDLING



DETF

UREGELU

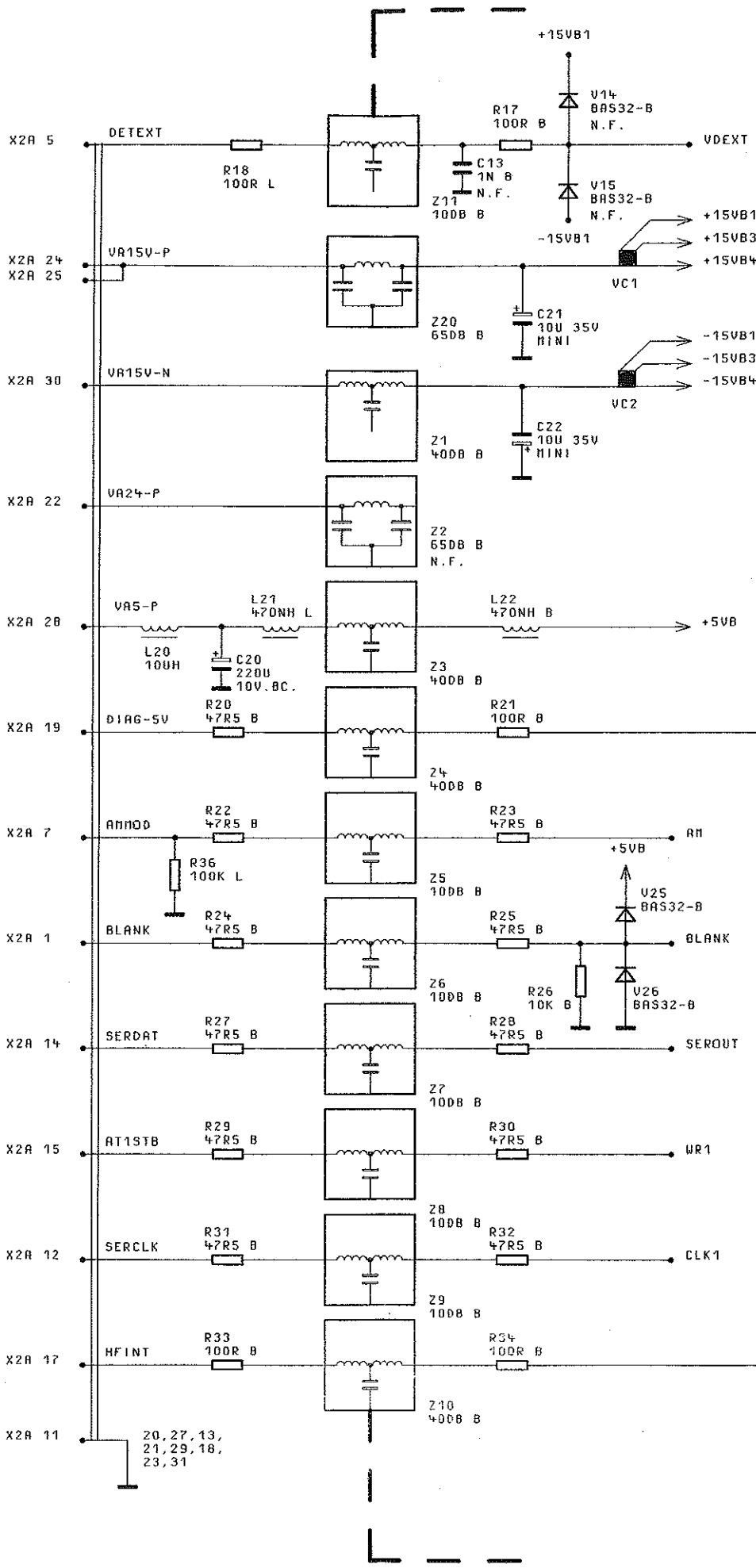


20, 27, 13,
 21, 29, 18,
 23, 31

FÜR DIESE UNTERLAGE
BEHALTEN WIR UNS ALLE RECHTE VOR

ICHN - NR

F
E
D
C
B
A



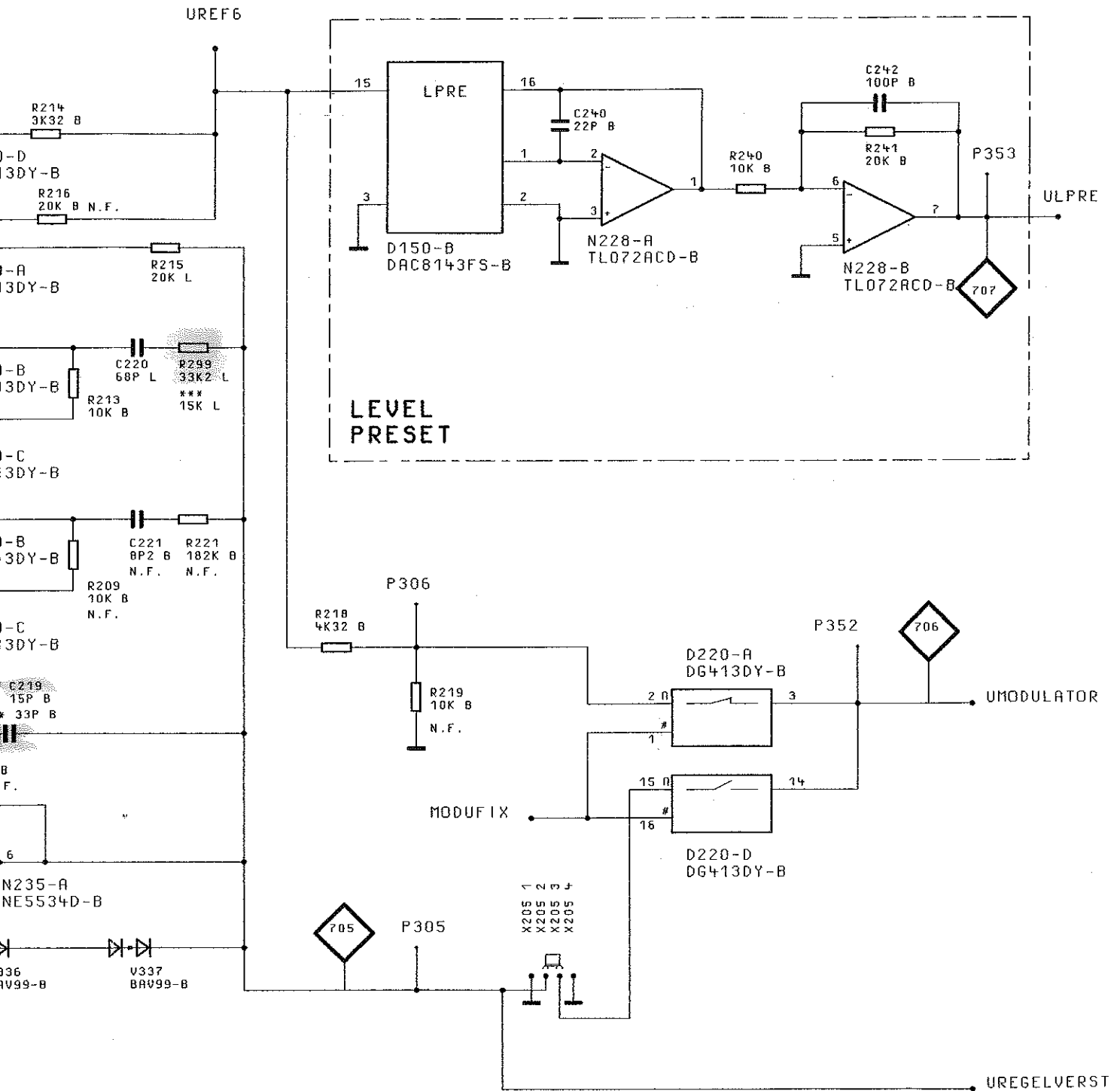
C15
100N L

1 2 3 4

P306
P305

P352

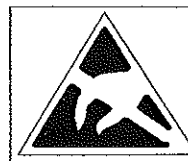
P353



N.F. - NOT FITTED / NICHT BESTUECKT

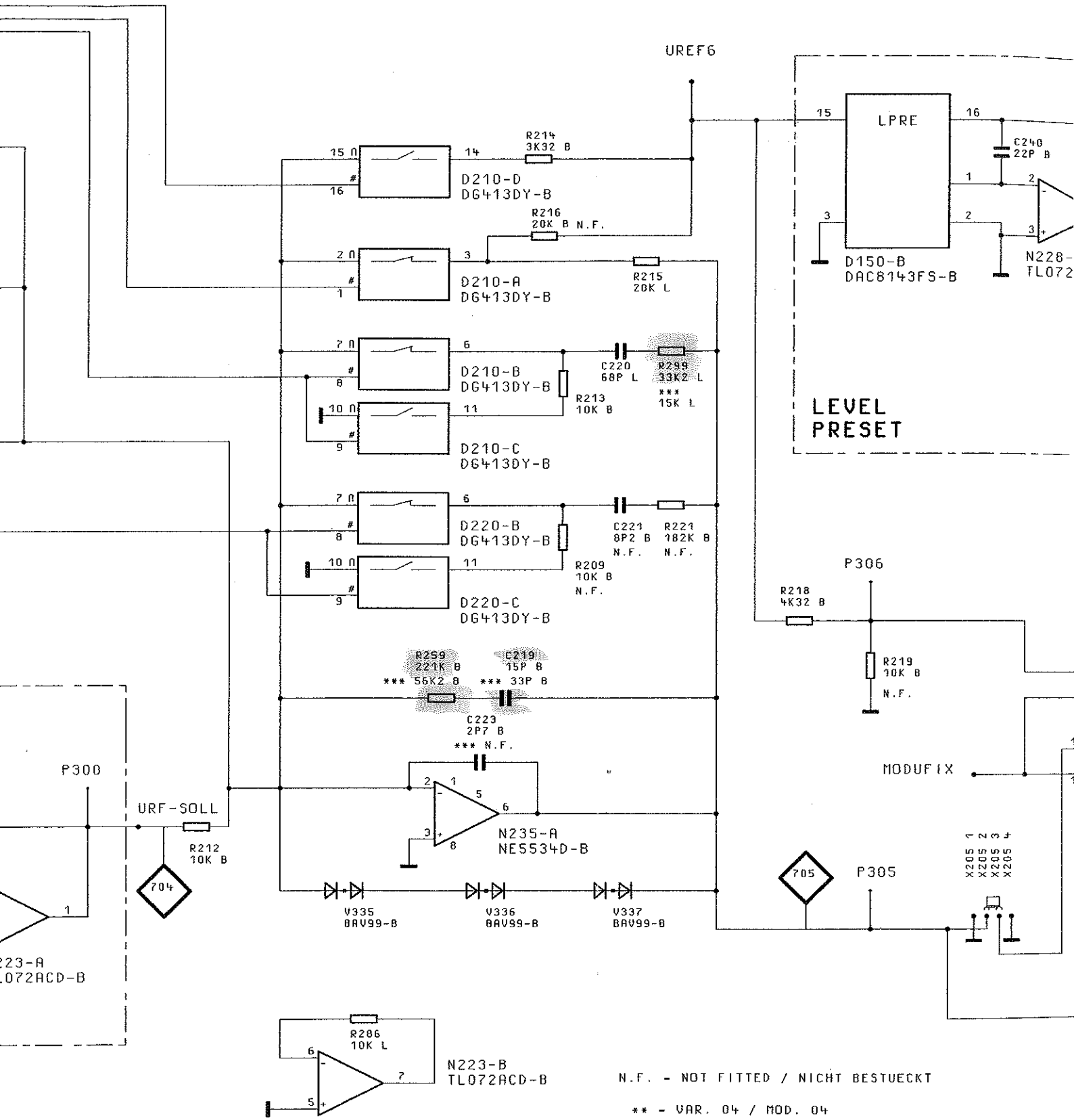
** - VAR. 04 / MOD. 04

*** - VAR. 06 / MOD. 06
(MIT/WITH OPTION SMY-B40)



ACHTUNG: EGB!
ELEKTROSTATISCH GEFÄHRDETE
BAUELEMENTE ERFORDERN EINE
BESONDERE HANDHABUNG.
ATTENTION ESD!
ELECTROSTATIC SENSITIVE DEVICES
REQUIRE A SPECIAL HANDLING

| | | | | | | |
|---------------|---------------------------|-------|----------|--------------------------|----------------------|---|
| 04/01 | 10.03.97 | EI | MENP | TAG | NAME | BENENNUNG |
| | | | BEARB. | | EI | AUSGANGSTEIL 1.046GHZ OUTPUT UNIT 1.046GHZ |
| | | | GEPR. | | | |
| | | | WORM | | | |
| | | | PLOTT | 10.03.97 | | |
| 04/ | 11.07.96 | DR | | | ZEICHN.-NR. | BLATT-NR. |
| REND. IND. | RENDERUNGS- MITTEILUNG | DATUM | NAME | ROHDE&SCHWARZ | 1062.6209.015 | 3+ |
| | | | ZU GERÄT | SMY | REG. I. V. | ERSTE Z. |
| | | | | | 1062.5502 | 1062.5502 |



LEVEL
PRESET

MODULFIX

N.F. - NOT FITTED / NICHT BESTUECKT

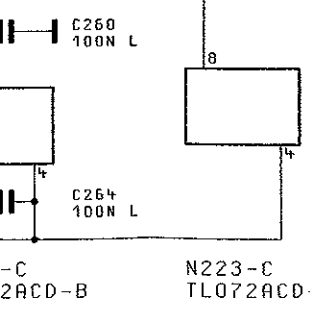
** - VAR. 04 / MOD. 04

*** - VAR. 06 / MOD. 06
(MIT/WITH OPTION SMY-B40)

BINDENDE ANGABEN UEBER VARIANTEN,
TRIMMWERTE, BAUTEILWERTE UND
NICHT BESTUECKTE BAUTEILE SIEHE SA.

FOR BINDING INFORMATION ON MODELS,
TRIMMING AND COMPONENTS VALUES AND
NONFITTED COMPONENTS SEE PARTS LIST.

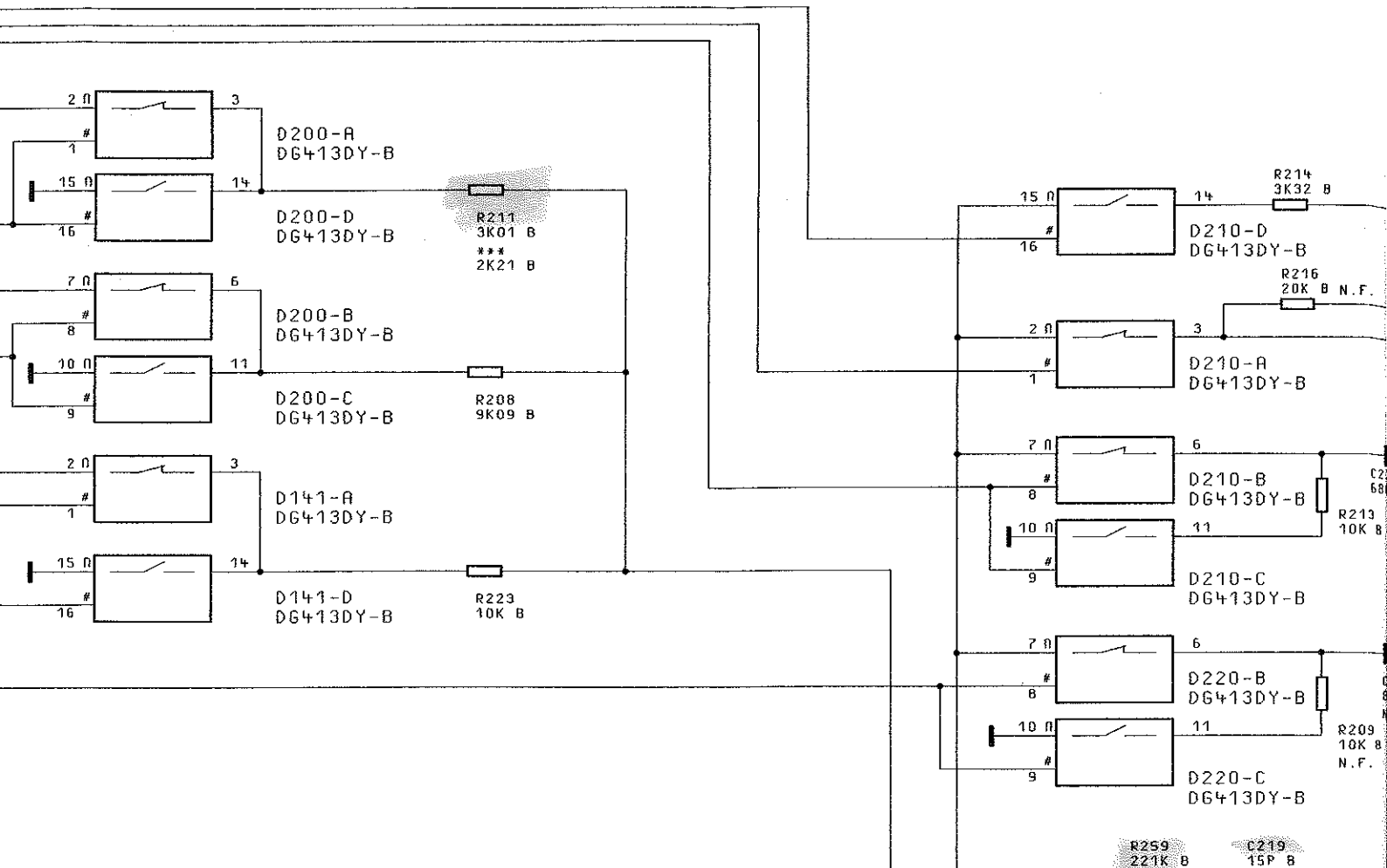
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|---------------|---------------------------|-------|--------|----------|------|
| 04/01 | 10.03.97 | E I | MENP | TAG | NAME |
| | | | BEARB. | | E I |
| | | | GEPR. | | |
| | | | NORM | | |
| | | | PLOTT | 10.03.97 | |
| 04/ | 11.07.96 | DR | | | |
| REND. IND. | RENDERUNGS- MITTEILUNG | DATUM | NAME | | |
| | | | | ZU GERAE | SMY |



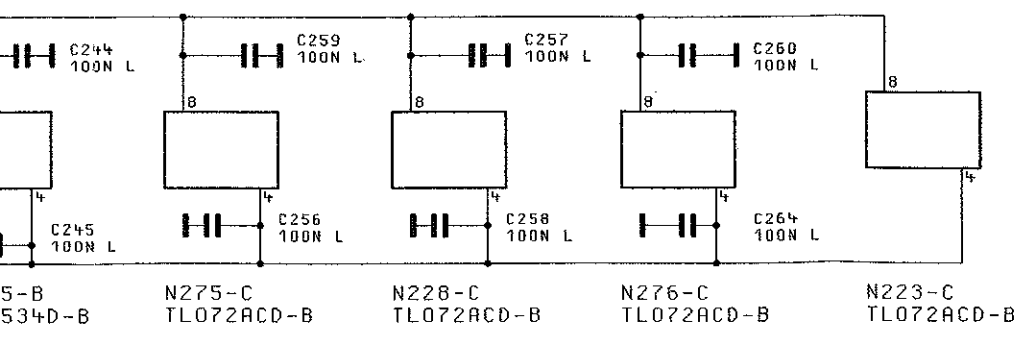
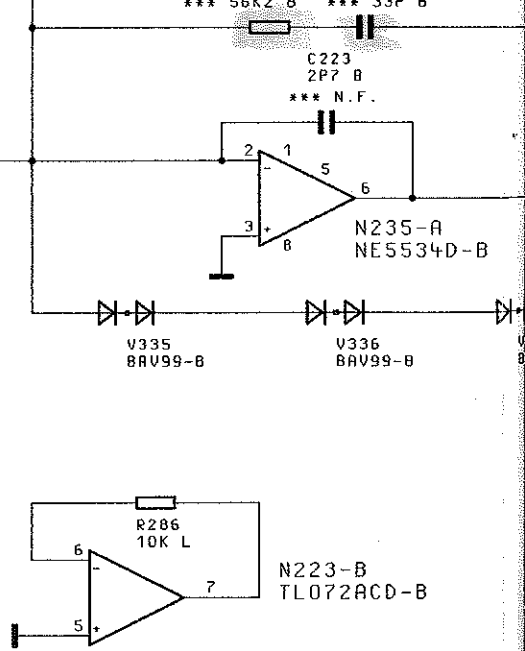
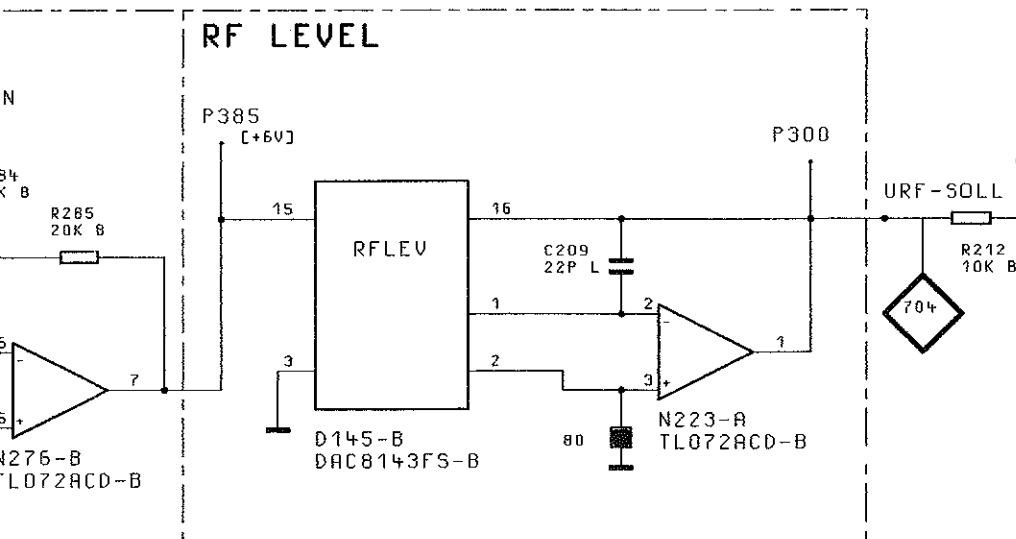
P385

P285

P300



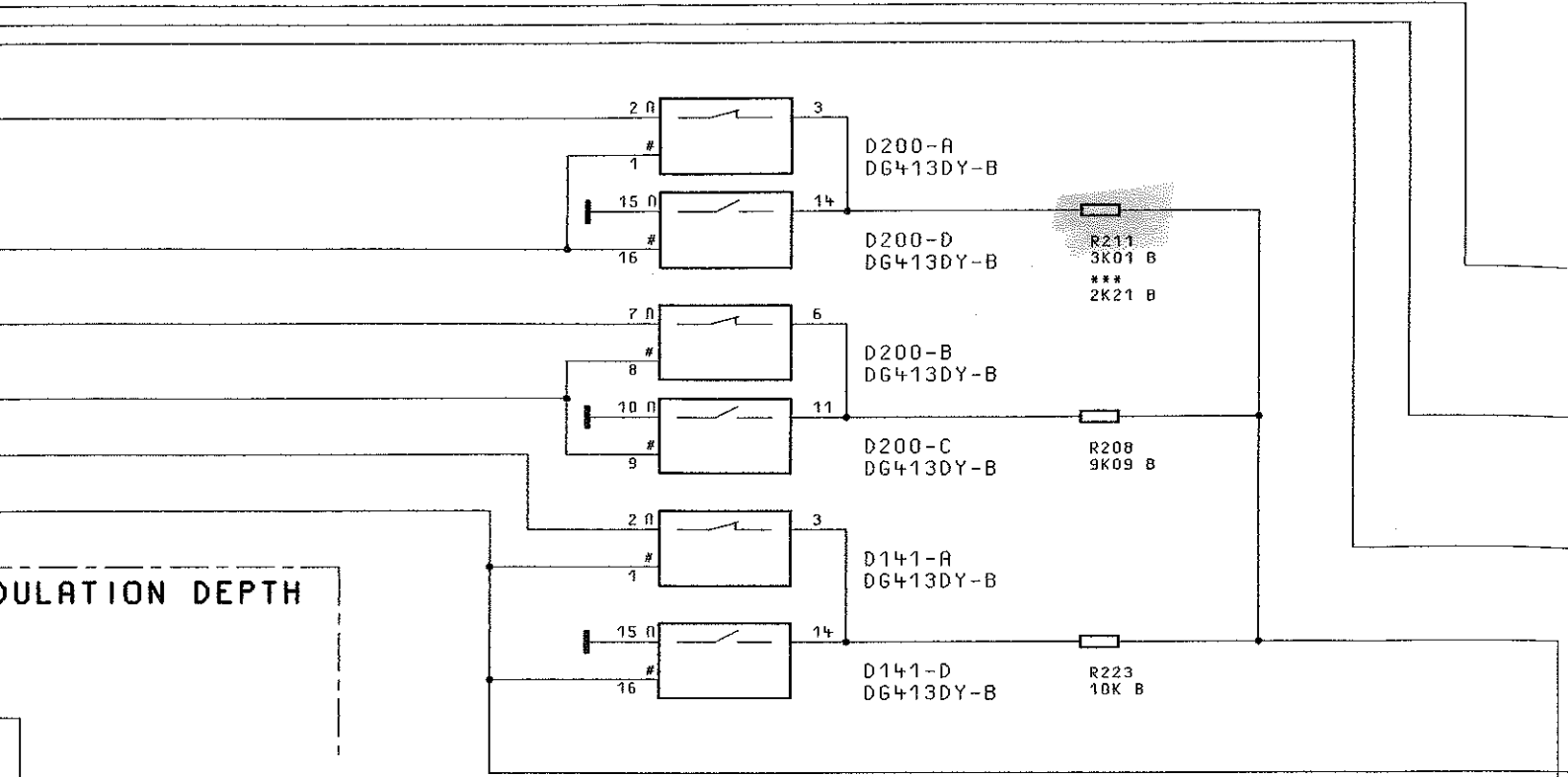
RF LEVEL



BINDENDE ANGABEN UEBER VARIANTEN,
TRIMMWERTE, BAUTEILWERTE UND
NICHT BESTUECKTE BAUTEILE SIEHE SA.

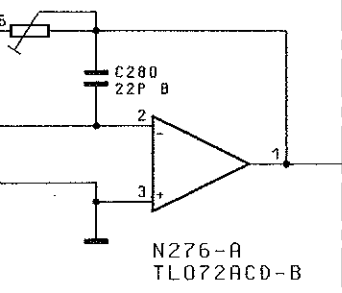
FOR BINDING INFORMATION ON MODELS,
TRIMMING AND COMPONENTS VALUES AND
NONFITTED COMPONENTS SEE PARTS LIST.

04/04
04/
RE-NO-
IND

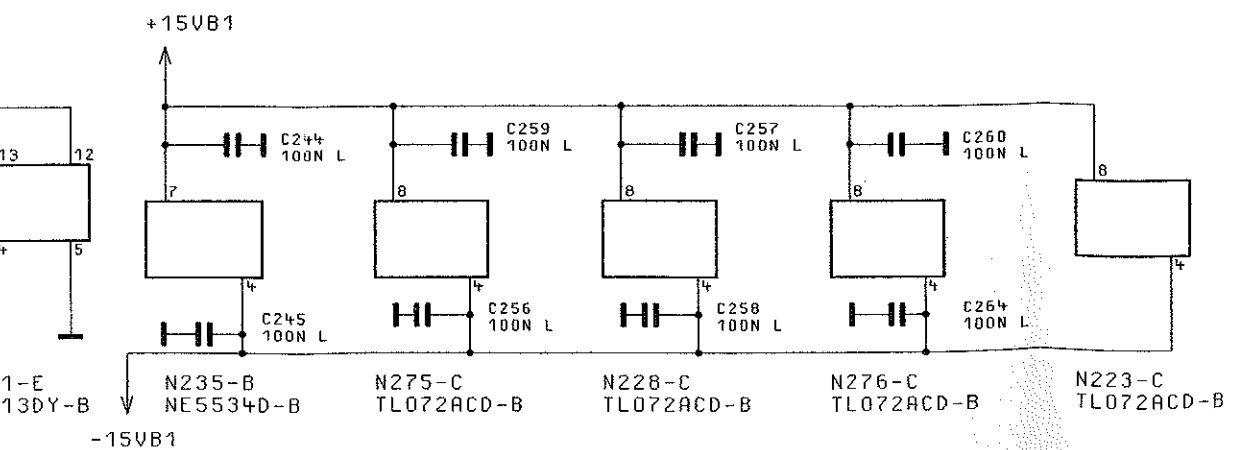
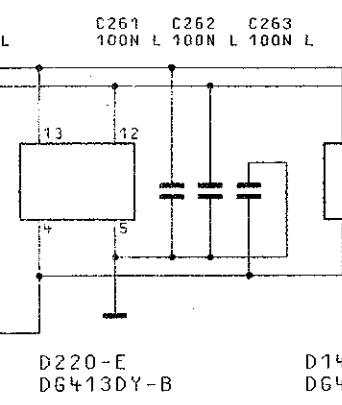
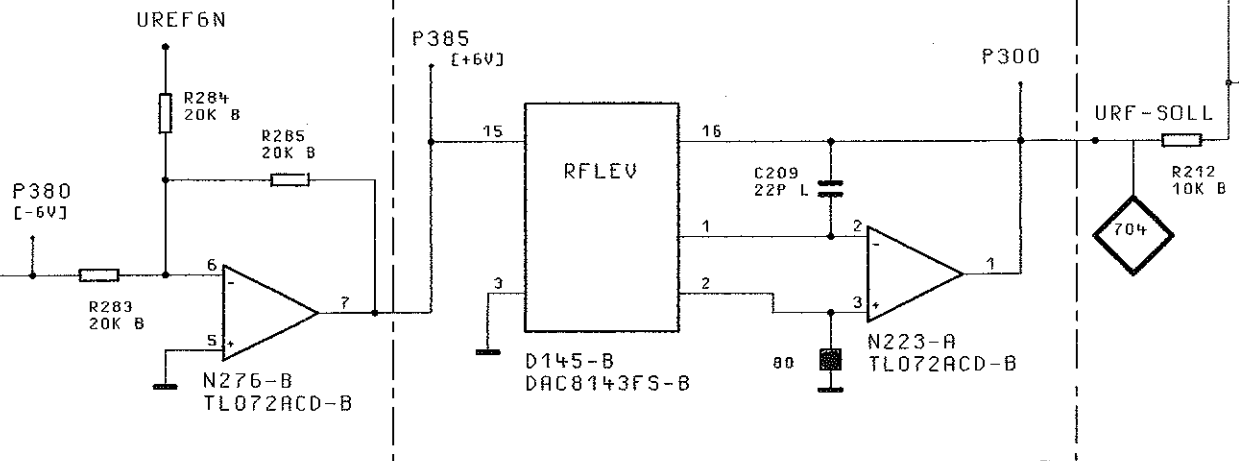


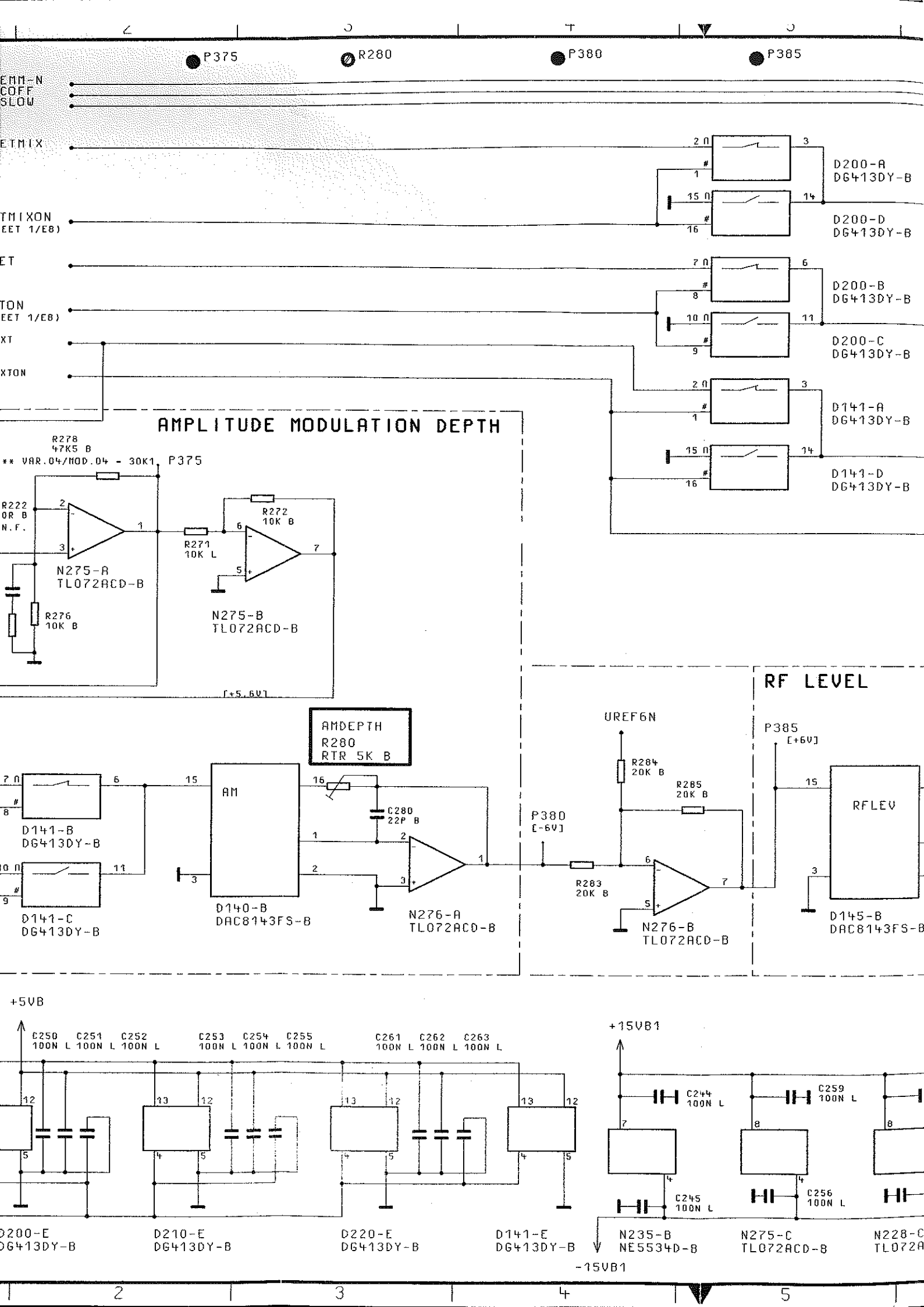
MODULATION DEPTH

AMDEPTH
R280
RTR 5K B



RF LEVEL





FÜR DIESE UNTERLAGE
BEHALTEN WIR UNS ALLE RECHTE VOR

KLEMM-N
ALCOFF
AMSLow

P375

R280

P380

VDETMIX

DETMIXON
(SHEET 1/E8)

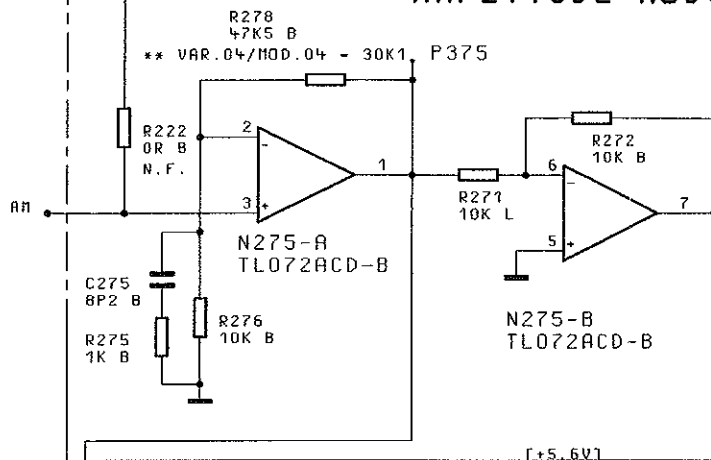
VDET

DETON
(SHEET 1/E8)

VDEXT

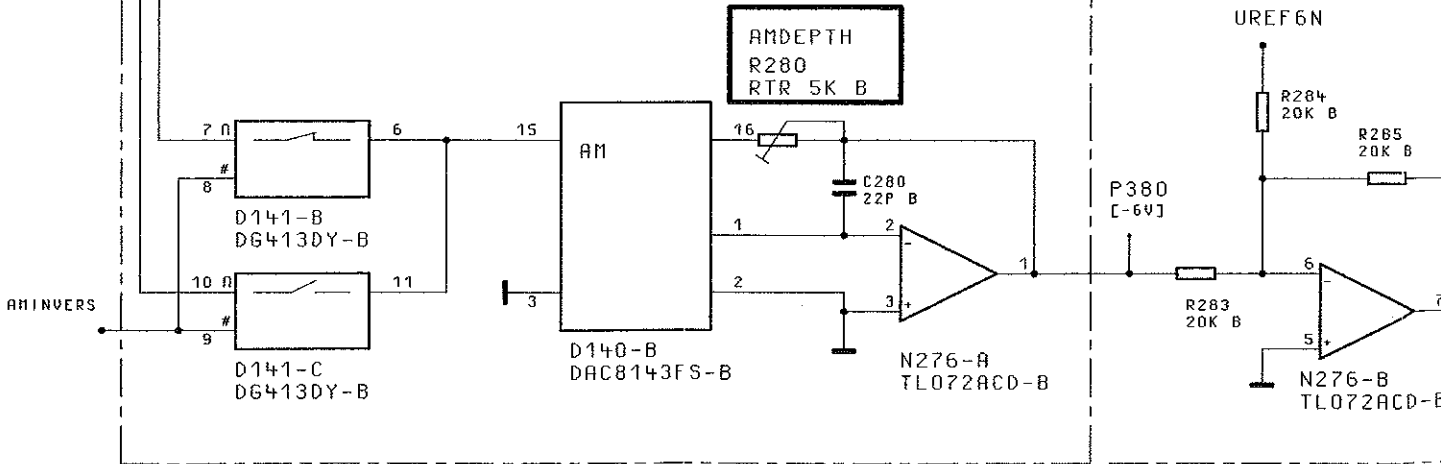
VDEXTON

AMPLITUDE MODULATION DEPTH



[+5.6V]

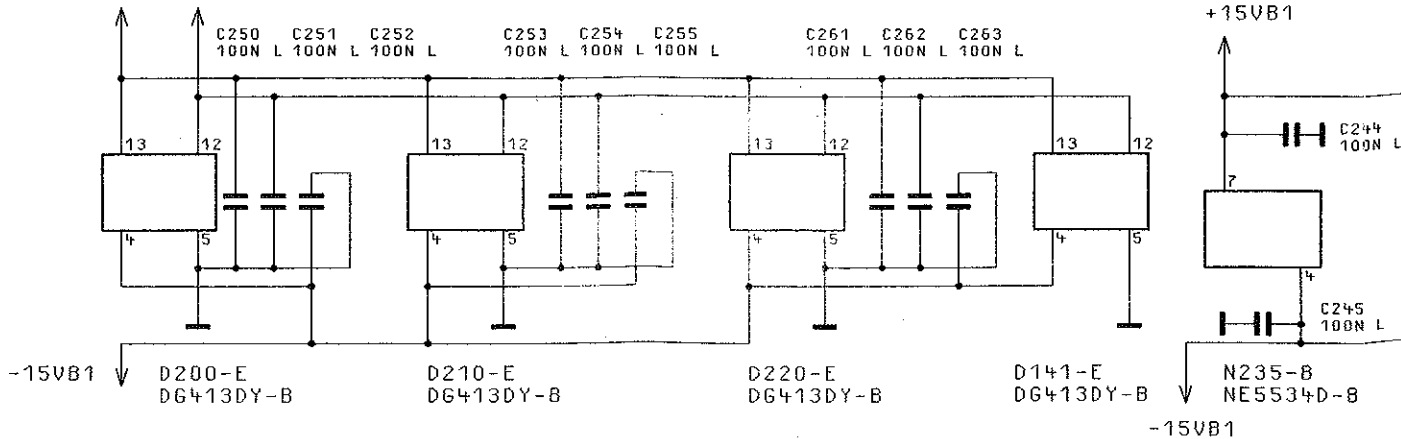
AMDEPTH
R280
RTR 5K B



UREF6N

P380
[-6V]

+15VB1 +5VB



+15VB1

-15VB1

-15VB1

1

2

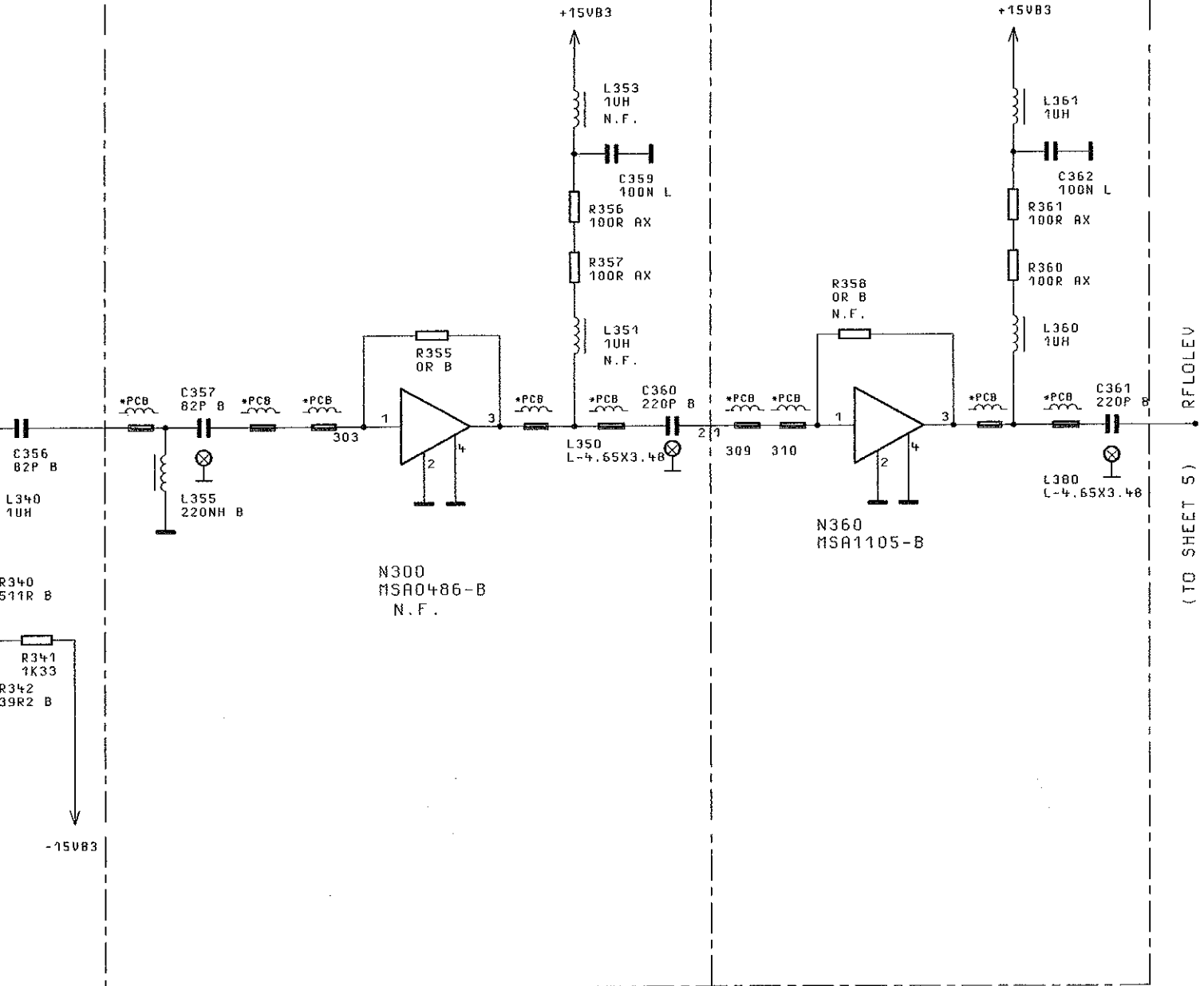
3

4




RF AMPLIFIER 1

RF AMPLIFIER 2



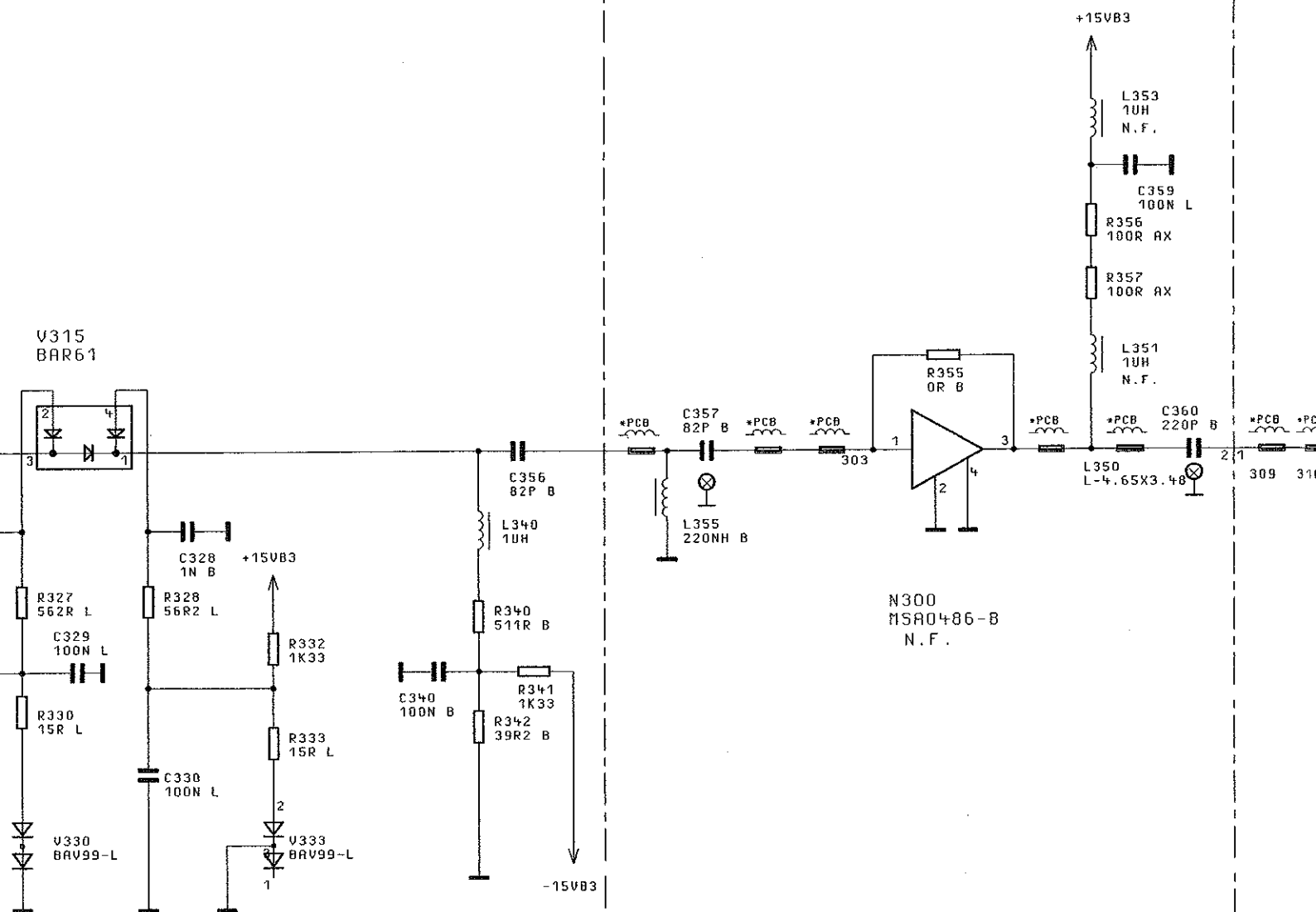
BINDENDE ANGABEN UEBER VARIANTEN,
TRIMMWERTE, BAUTEILWERTE UND
NICHT BESTUECKTE BAUTEILE SIEHE SA.

FOR BINDING INFORMATION ON MODELS,
TRIMMING AND COMPONENTS VALUES AND
NONFITTED COMPONENTS SEE PARTS LIST.

| | | | | | | | |
|---------------|---------------------------|----------|------|---|----------|------------|---|
| 04/01 | | 10.03.97 | E1 | MENP | TAG | NAME | BENENNUNG |
| | | | | BEARB. | | E1 | AUSGANGSTEIL 1.046GHZ OUTPUT UNIT 1.046GHZ |
| | | | | GEPR. | | | |
| | | | | NORM | | | |
| | | | | PLOTT | 10.03.97 | | |
| 04/ | | 11.07.96 | DR |  ROHDE & SCHWARZ | | | ZEICHN.-NR. |
| REND. IND. | RENDERUNGS- MITTEILUNG | DATUM | NAME | | | | 1062.6209.015 |
| | | | | ZU GERÄT | SMY | REG. I. V. | 1062.5502 |
| | | | | | | ERSTE Z. | 1062.5502 |

RF AMPLIFIER 1

RF




N.F. = NOT FITTED / NICHT BESTUECKT

BINDENDE ANGABEN UEBER VARIANTEN, TRIMMWERTE, BAUTEILWERTE UND NICHT BESTUECKTE BAUTEILE SIEHE SA.

FOR BINDING INFORMATION ON TRIMMING AND COMPONENTS VAL NONFITTED COMPONENTS SEE PA

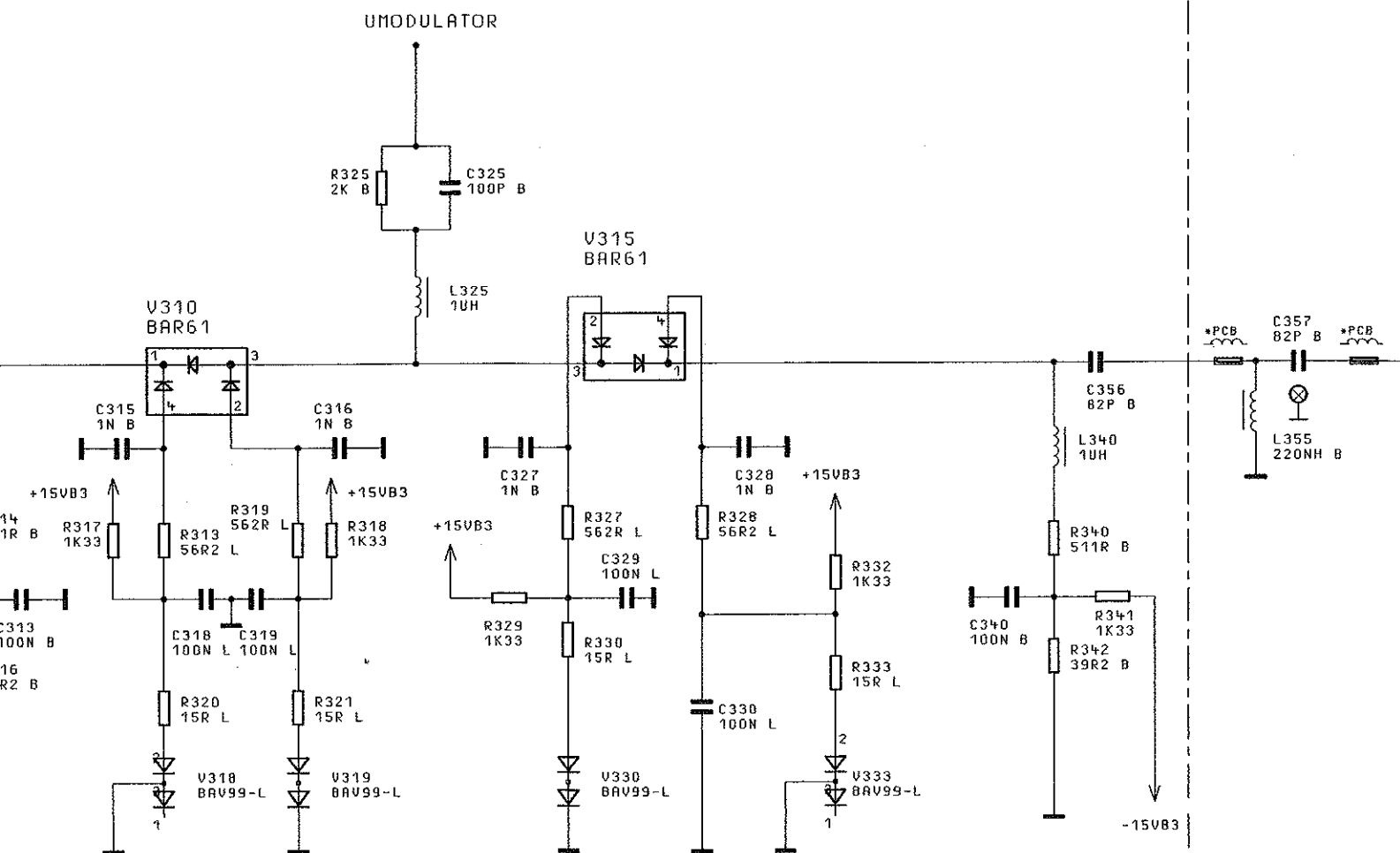


ACHTUNG: EGB!
ELEKTROSTATISCH GEFAHRDETE BAUELEMENTE ERFORDERN EINE BESONDERE HANDHABUNG.
ATTENTION ESD!
ELECTROSTATIC SENSITIVE DEVICES REQUIRE A SPECIAL HANDLING

| | | | | | | | |
|------------|-----------------------|----------|------|---|----------|------------|-------------|
| 04/07 | | 10.03.97 | EI | MENP | TAB | NAME | BENENNUNG |
| | | | | BEARB. | | EI | AUSGABE |
| | | | | GEPR. | | | |
| | | | | NORM | | | |
| | | | | PLOTT | 10.03.97 | | |
| 04/ | | 11.07.96 | DR |  ROHDE&SCHWARZ | | | ZEICHN.-NR. |
| REND. IND. | RENDERUNGS-MITTEILUNG | DATUM | NAME | | | REG. I. V. | |
| | | | | ZU GERÄT SMY | | | |

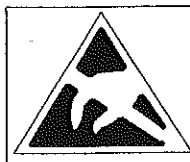
ATOR

RF AMPLIF



N.F. - NOT FITTED / NICHT BESTUECKT

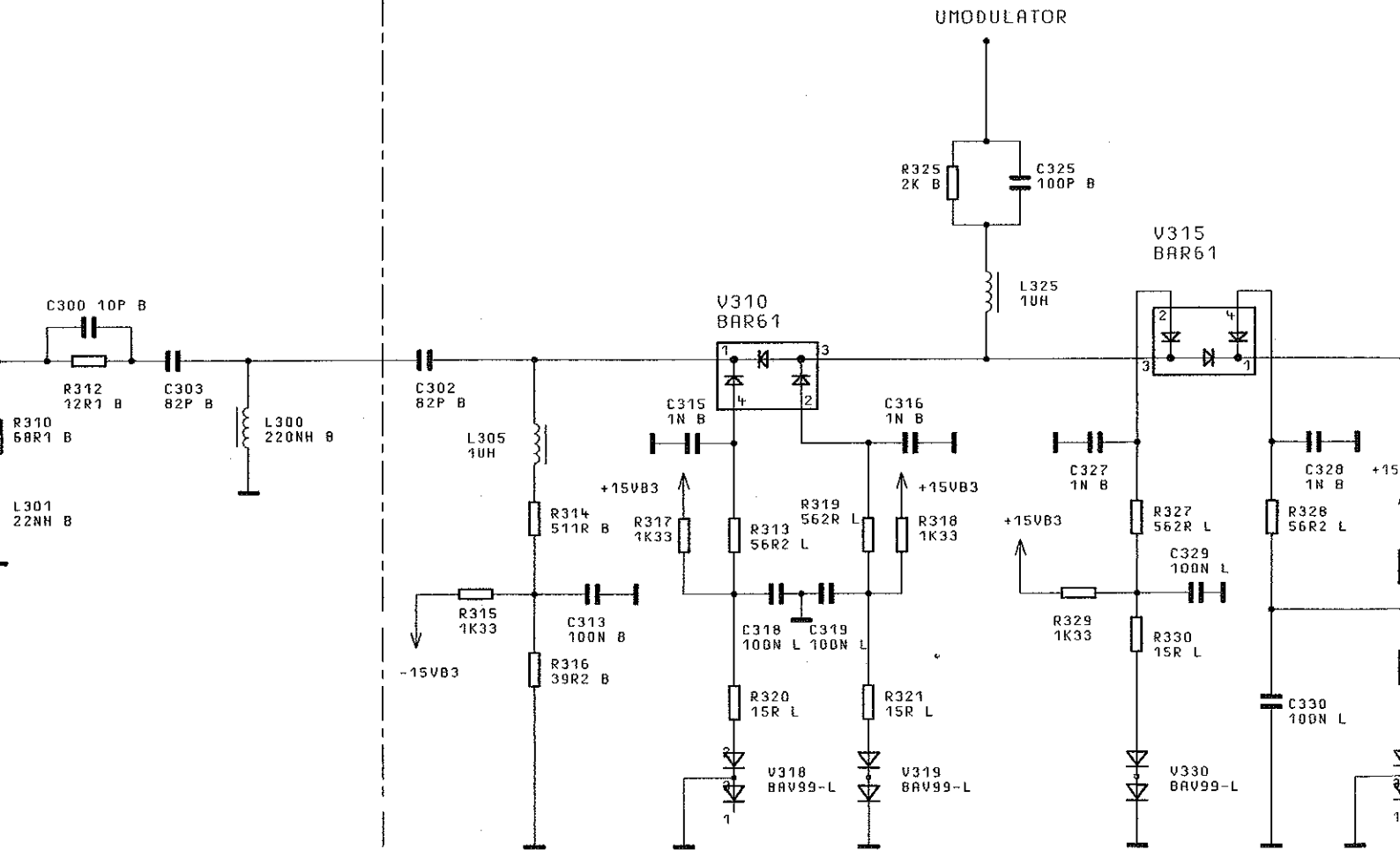
BINDENDE ANGABEN UEBER TRIMMWERTE, BAUTEILNUMMERN UND NICHT BESTUECKTE BAUTEILE



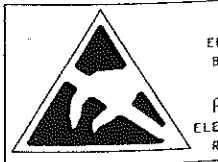
ACHTUNG: EGB!
 ELEKTROSTATISCH GEFAHRDETE
 BAUELEMENTE. ERFORDERN EINE
 BESONDERE HANDHABUNG.
ATTENTION ESD!
 ELECTROSTATIC SENSITIVE DEVICES
 REQUIRE A SPECIAL HANDLING

| | |
|-------|-------------|
| 04/04 | |
| | |
| | |
| | |
| | |
| 04/ | |
| REND. | RENDERUNGS- |
| IND. | MITTEILUNG |

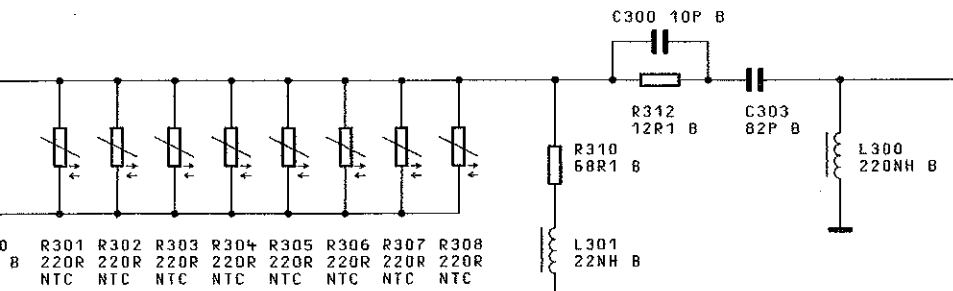
AM MODULATOR



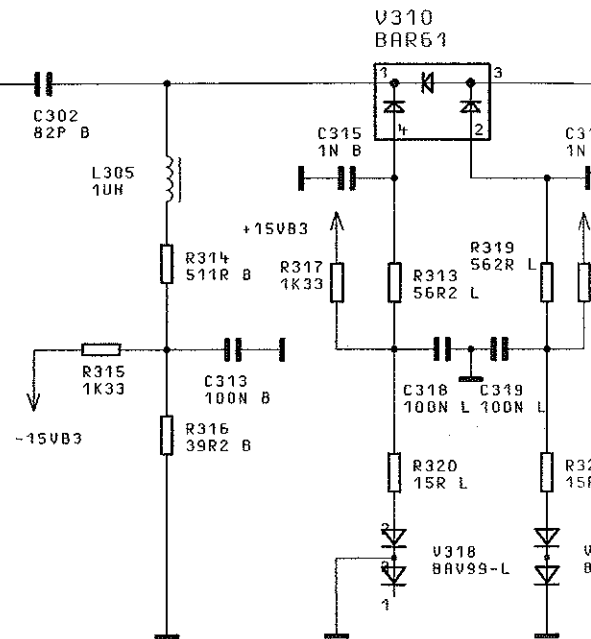
N.F. = NOT FIT



MP.-KOMPENSATION



AM MODULATOR



TEMP.-KOMPENSATION

AM M

X224 1

FSYN
6...1208M
65...1040MHZ

| | | | | | | | | |
|-------|------|------|------|------|------|------|------|------|
| R300 | R301 | R302 | R303 | R304 | R305 | R306 | R307 | R308 |
| 27R B | 220R | 220R | 220R | 220R | 220R | 220R | 220R | 220R |
| 6HZ | NTC | NTC | NTC | NTC | NTC | NTC | NTC | NTC |

C300 10P B

R312
12R1 B

C303
82P B

L300
220NH B

C302
82P B

L301
10H

R310
68R1 B

L301
22NH B

R315
1K33

-15VB3

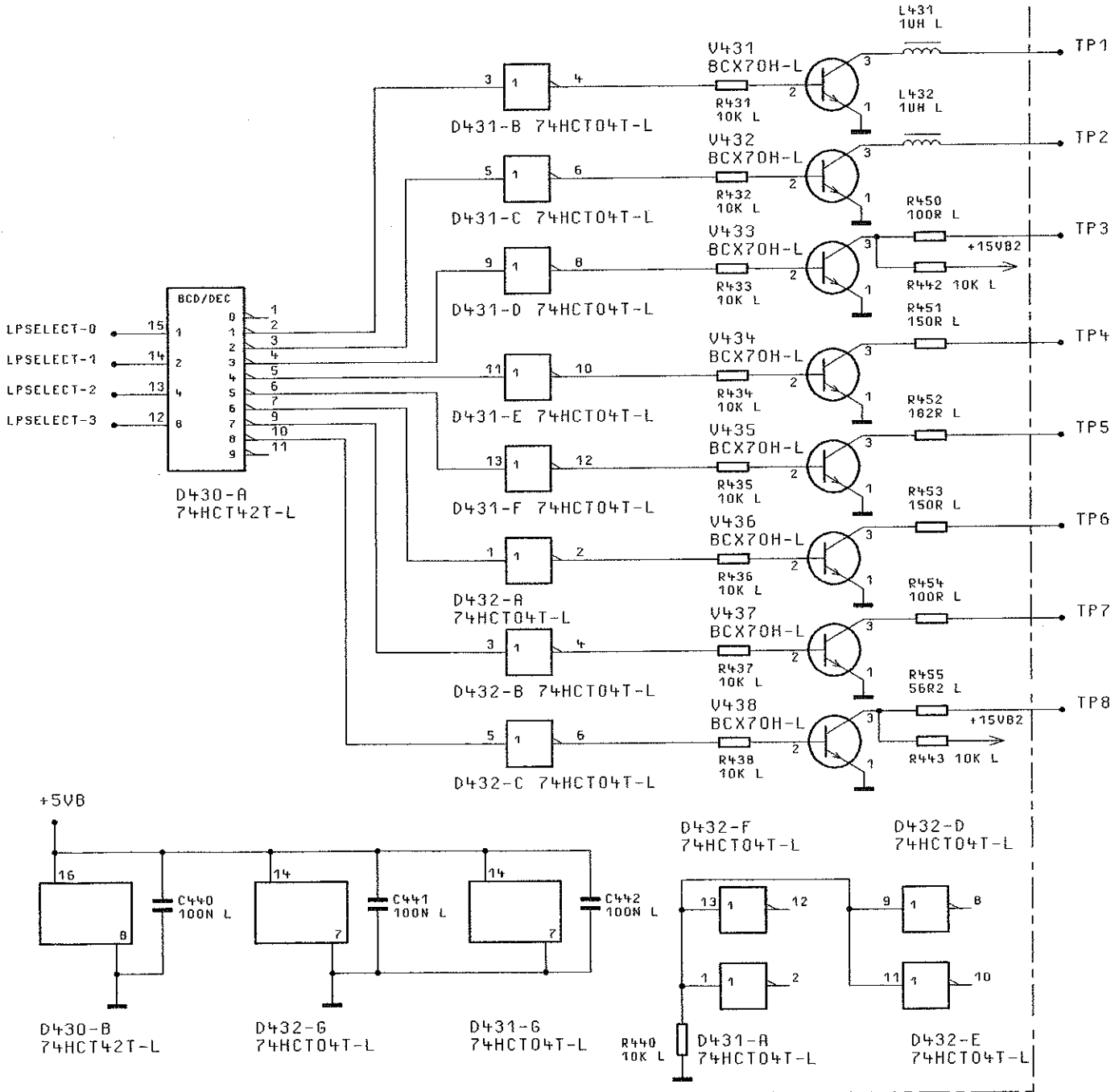
FUER DIESE UNTERLAGE
BEHALTEN WIR UNS ALLE RECHTE VOR

ZEICHN.-NR.



1 2 3 4

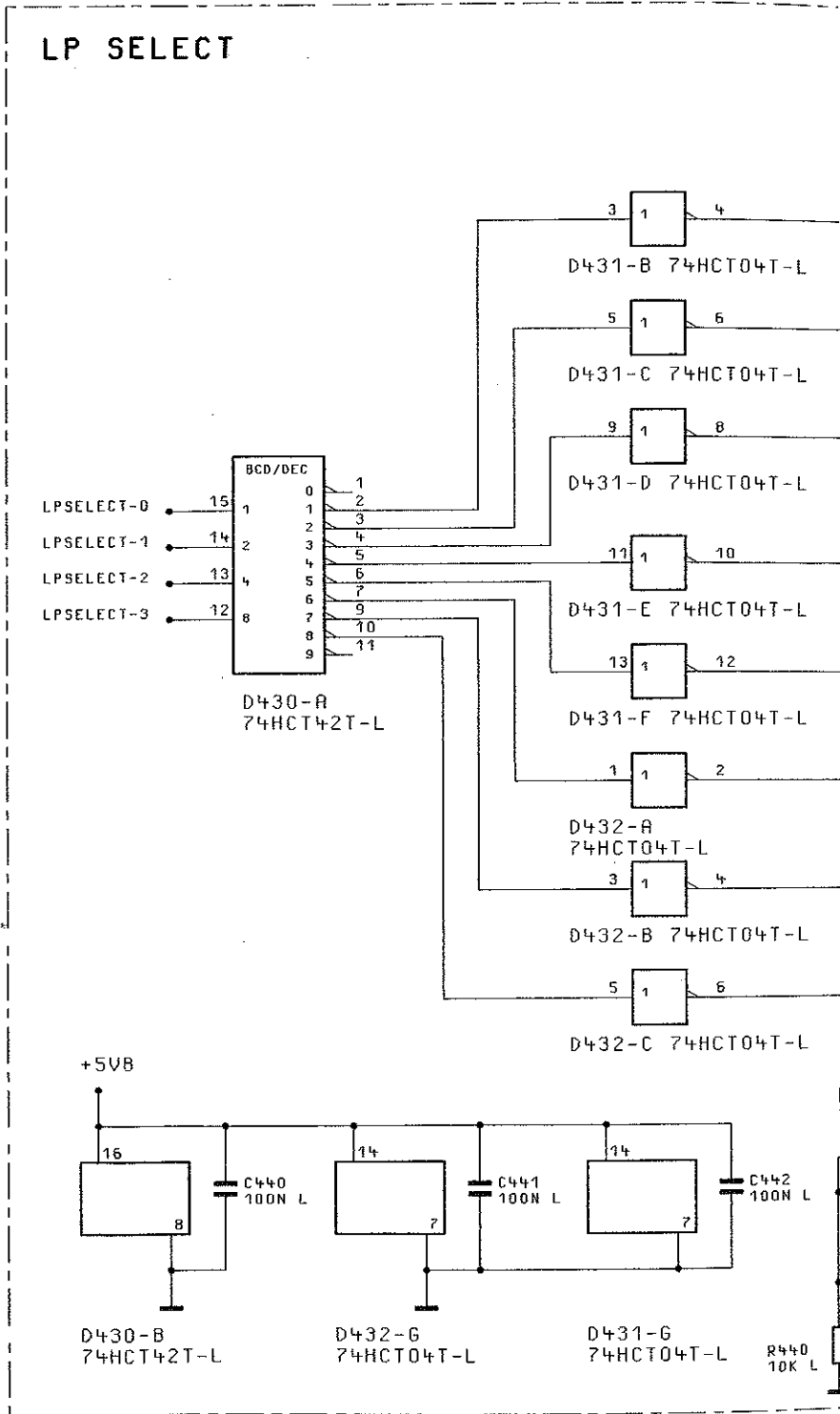
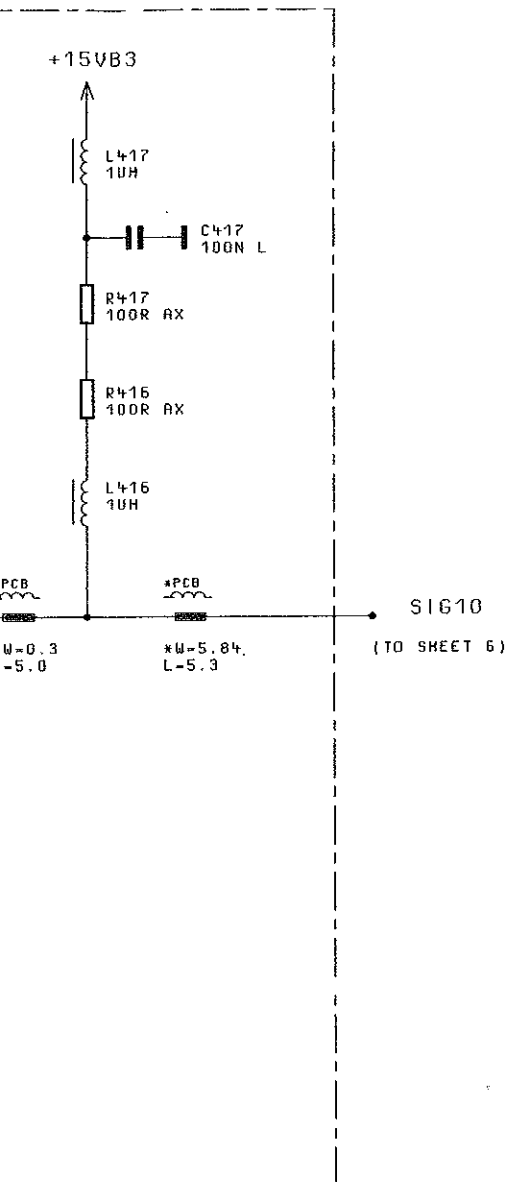
LP SELECT



BINDENDE ANGABEN UEBER VARIANTEN,
TRIMMWERTE, BAUTEILWERTE UND
NICHT BESTUECKTE BAUTEILE SIEHE SA.

FOR BINDING INFORMATION ON MODELS,
TRIMMING AND COMPONENTS VALUES AND
NONFITTED COMPONENTS SEE PARTS LIST.

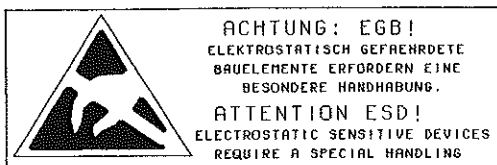
| | | | | | | |
|--------------|---------------------------|-------|----------|-----------------|------------|---|
| 04/01 | 10.03.97 | E I | MENP | TAG | NAME | BENENNUNG |
| | | | BEARB. | | E I | AUSGANGSTEIL 1.046GHZ OUTPUT UNIT 1.046GHZ |
| | | | GEPR. | | | |
| | | | NORM | | | |
| | | | PLOTT | 10.03.97 | | |
| 04/ | 11.07.96 | DR | | | | ZEICHN.-NR. |
| REND IND. | RENDERUNGS- MITTEILUNG | DATUM | NAME | ROHDE & SCHWARZ | | 1062.6209.015 |
| | | | ZU GERÄT | SMY | REG. I. V. | 1062.5502 |
| | | | | | ERSTE Z. | 1062.5502 |



BINDENDE ANGABEN UEBER VARIANTEN,
TRIMMWERTE, BAUTEILWERTE UND
NICHT BESTUECKTE BAUTEILE SIEHE SA.

FOR BINDING INFORMAT
TRIMMING AND COMPONENTS
NONFITTED COMPONENTS

N.F. = NOT FITTED / NICHT BESTUECKT



| | | | | | | |
|---------------|--------------------------|----------|------|----------------------------|----------|------|
| 04/01 | | 10.03.97 | EI | MENP | TAG | NARE |
| | | | | BEARB. | | EI |
| | | | | GEPR. | | |
| | | | | NORM | | |
| | | | | PLOTT | 10.03.97 | |
| 04/ | | 11.07.96 | DR | ROHDE & SCHWARZ | | |
| REND. IND. | ÄNDERUNGS- MITTEILUNG | DATUM | NARE | | | |
| | | | | ZU GERÄT | SMY | |

B3 RF AMPLIFIER 3

PRE

R411
1K5 L

C410
1N L

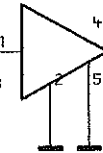
L410
680NH

*PCB C412
220P B

15VB3

414 *PCB *PCB
*W=3.135 *W=0.3
L=12.4 L=4.7

N410
MSA1105-B



+15VB3

L417
10H

C417
100N L

R417
100R AX

R416
100R AX

L416
10H

*PCB
*W=0.3
L=5.0

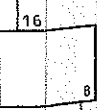
*PCB
*W=5.84
L=5.3

SIG10
(TO SHEET 6)

LP SELECT

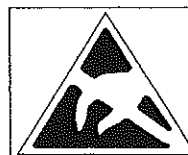
- LPSELECT-0
- LPSELECT-1
- LPSELECT-2
- LPSELECT-3

+5VB



D430-B
74HCT42T

N.F. = NOT FITTED / NICHT BESTUECKT



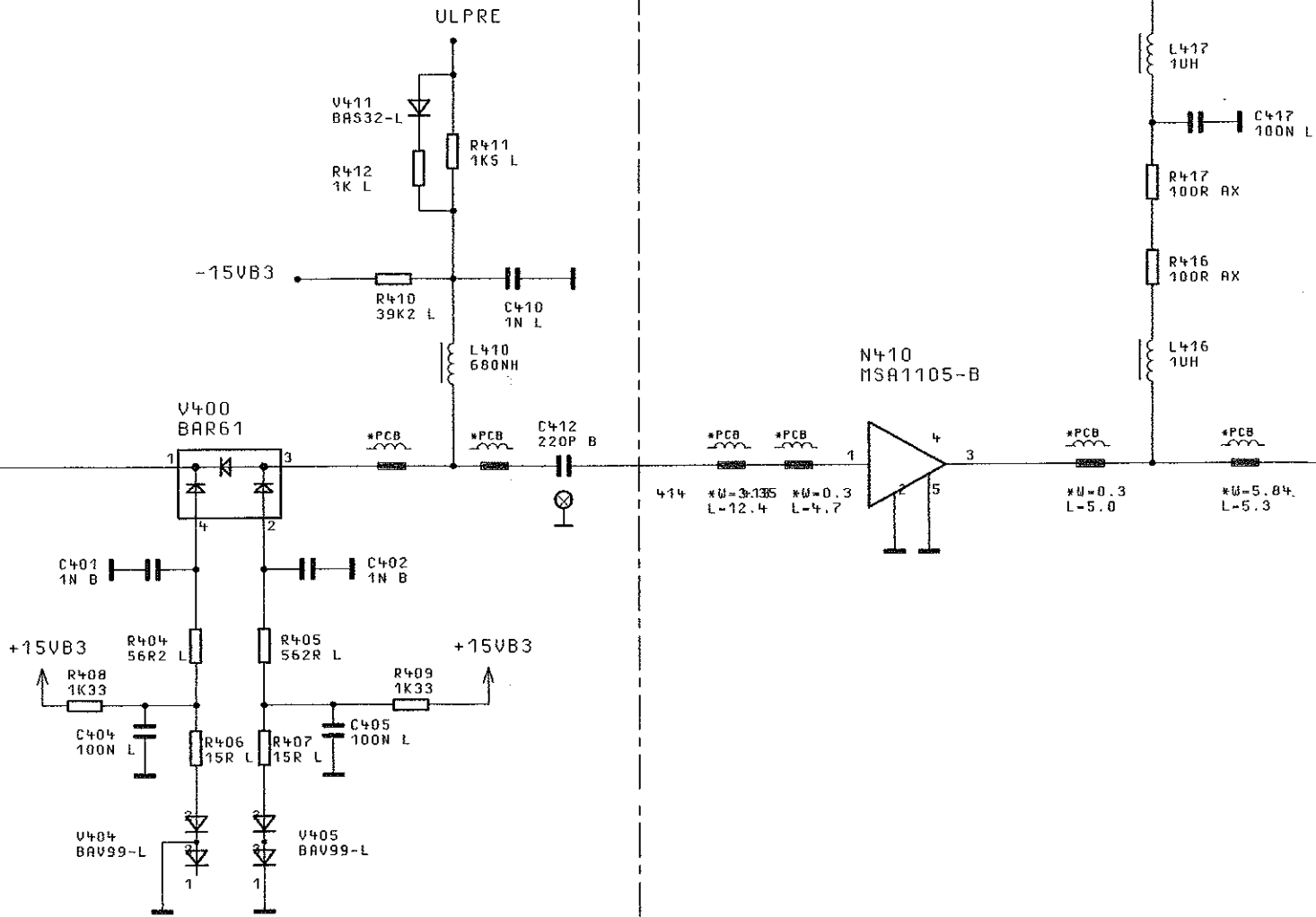
ACHTUNG: EGB!
ELEKTROSTATISCH GEFÄHRDETE
BAUELEMENTE ERFORDERN EINE
BESONDERE HANDHABUNG.
ATTENTION ESD!
ELECTROSTATIC SENSITIVE DEVICES
REQUIRE A SPECIAL HANDLING

BINDEND
TRIMMERT
NICHT BES

04/01

04/
BEND.
IND.

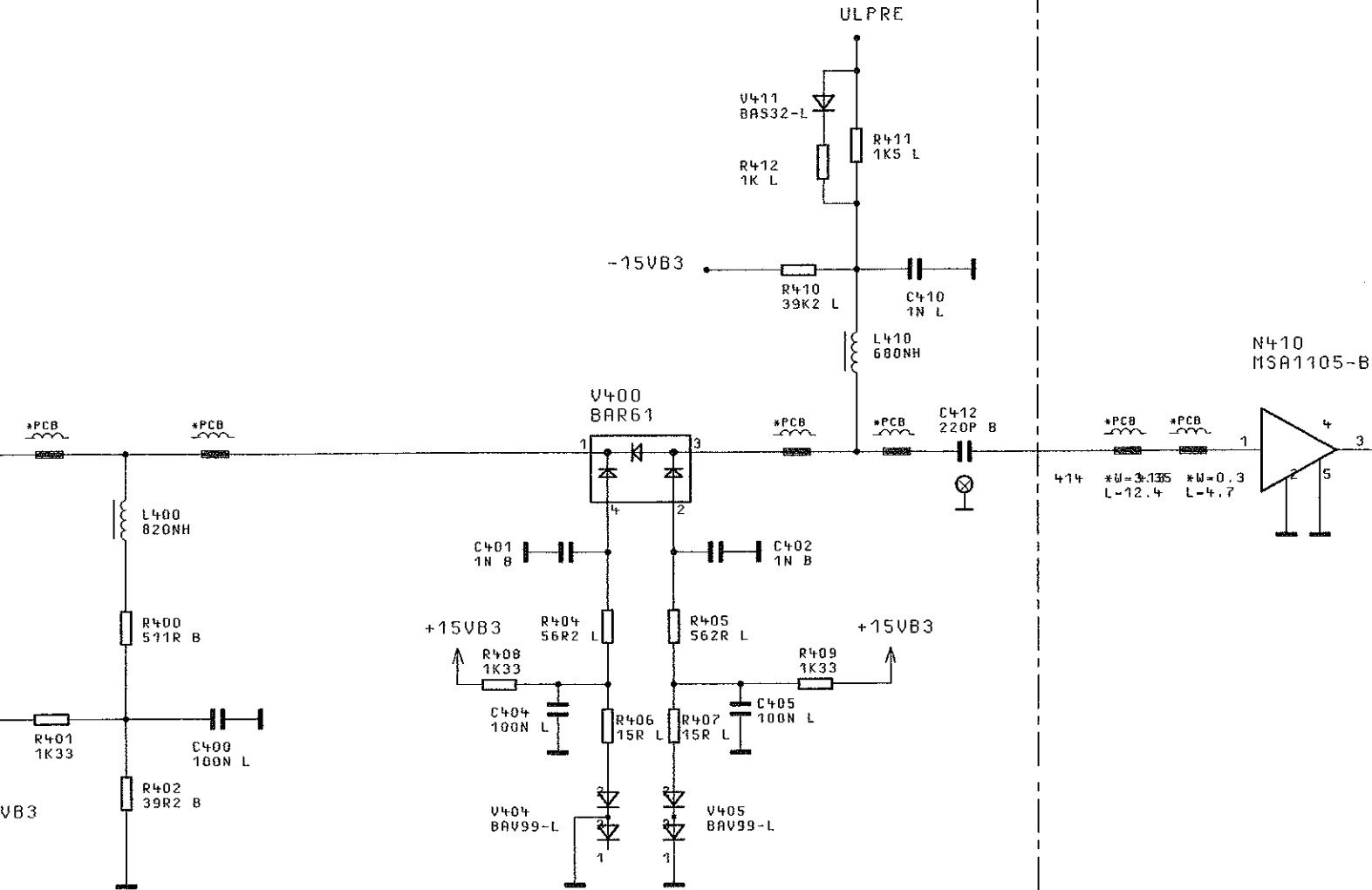
B3 RF AMPLIFIER 3



PRESET

B3

RF AMPLIFIER 3



1

2

3

4

F

E

D

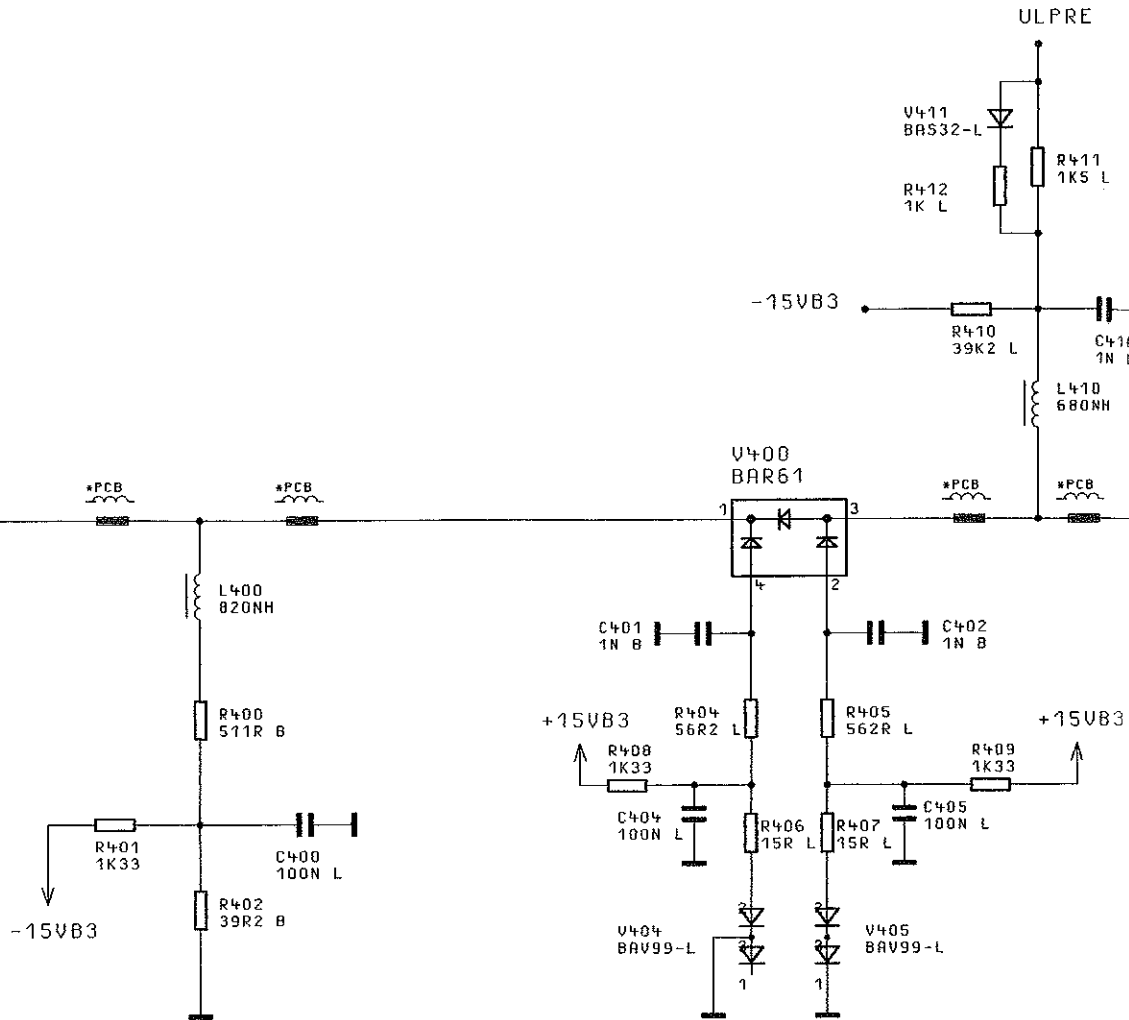
C

B

A

LEVEL PRESET

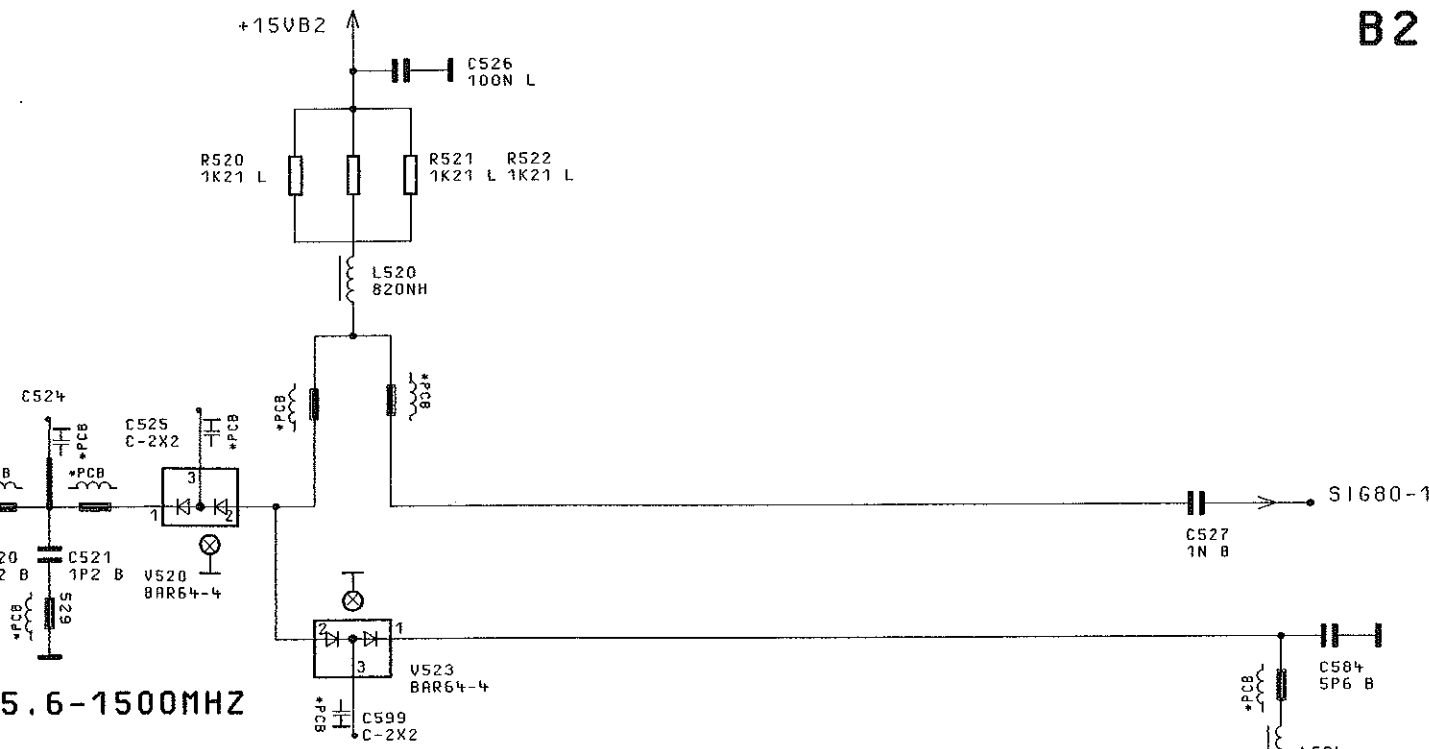
RFLOLEV
(FROM SHEET 4)



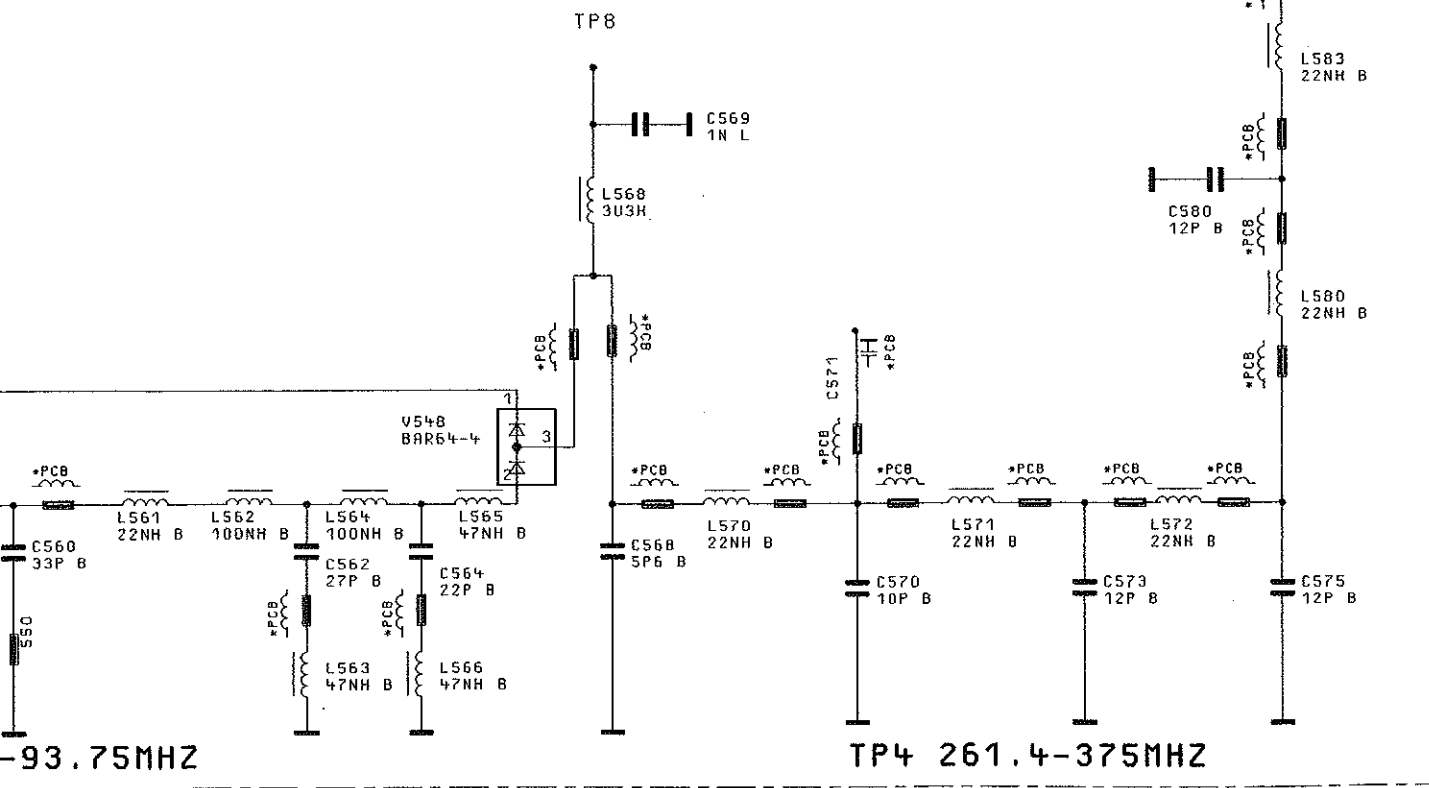
FUER DIESE UNTERLAGE
BEHALTEN MIR UNS ALLE RECHTE VOR



B2



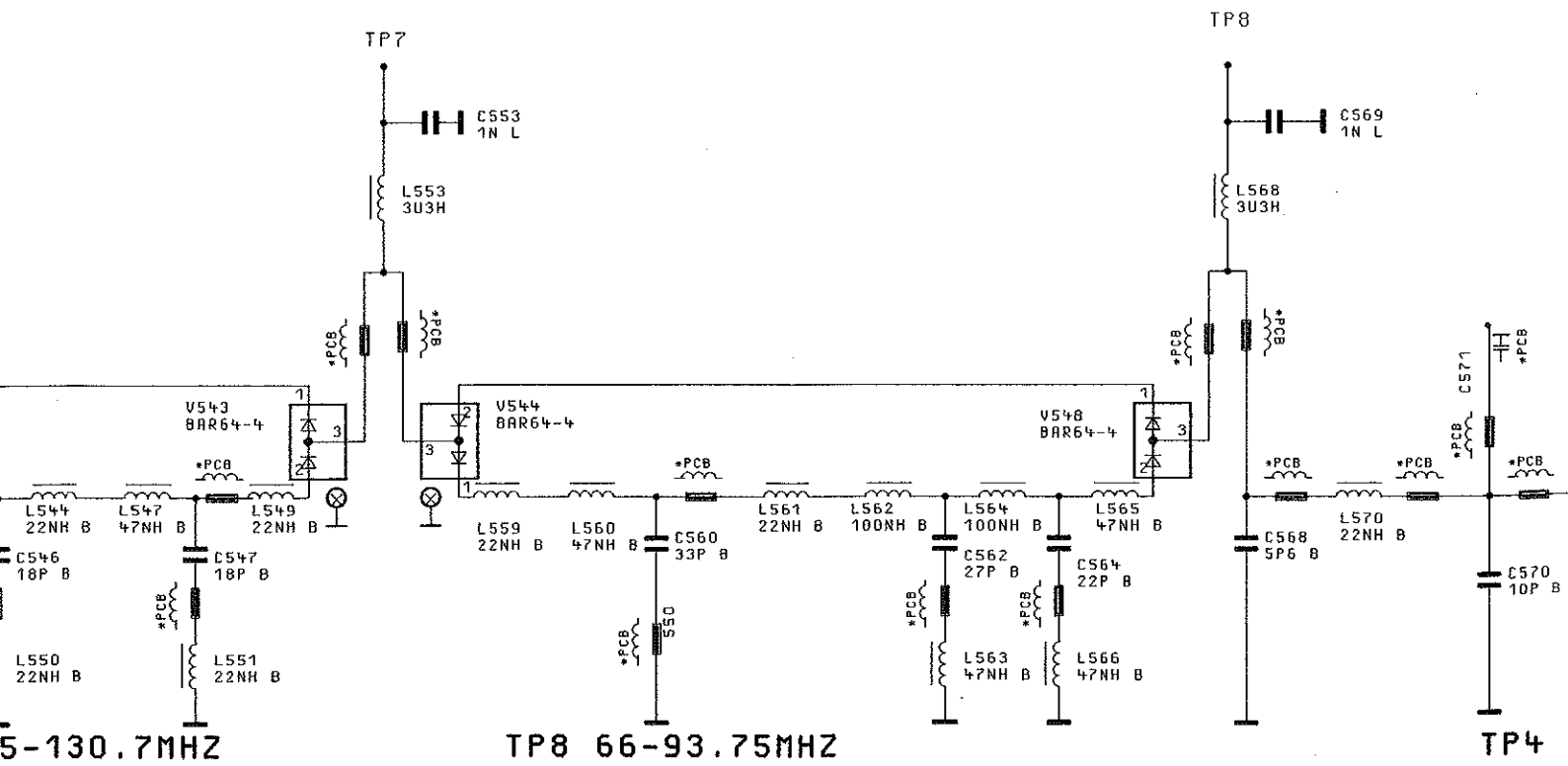
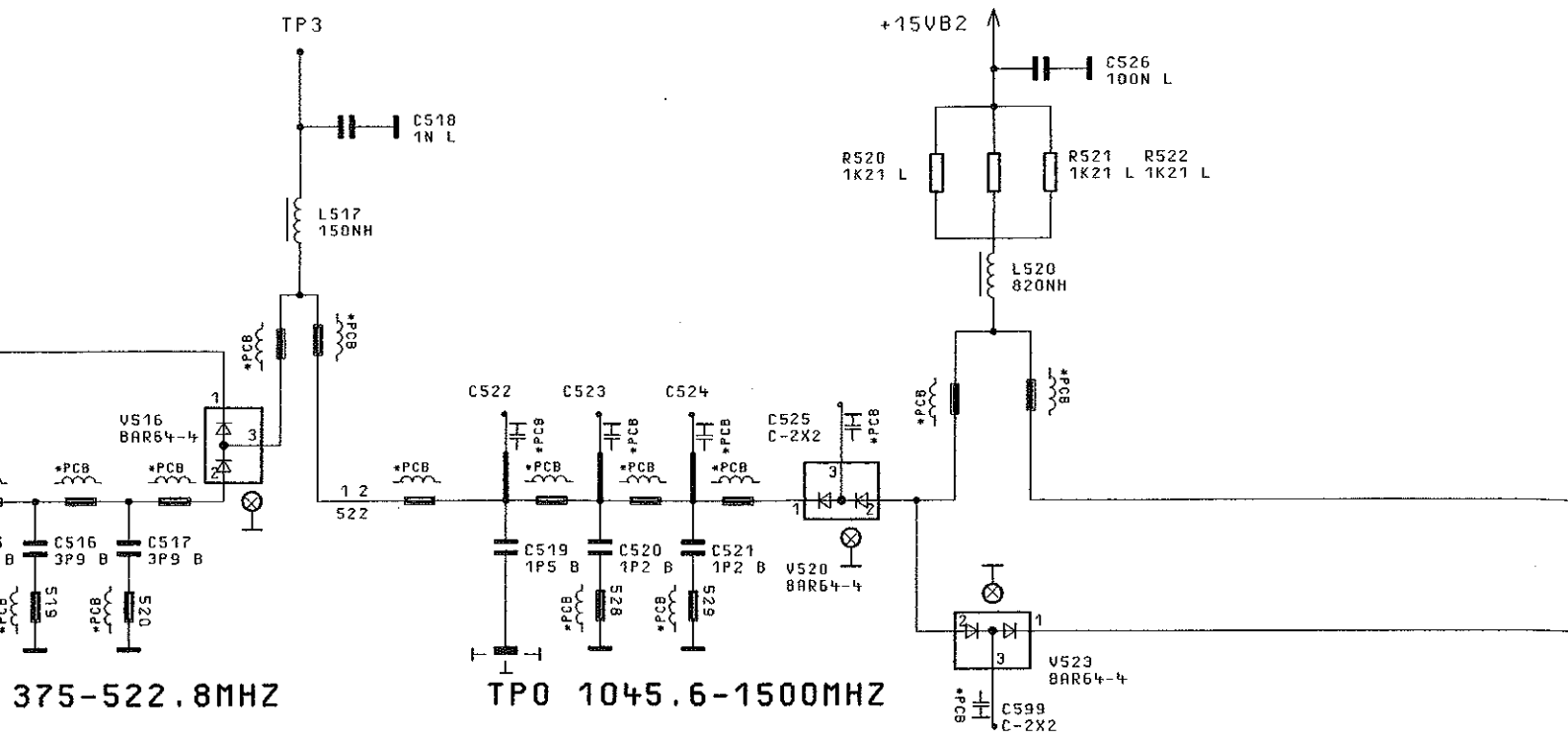
5.6-1500MHZ



93.75MHZ

TP4 261.4-375MHZ

| | | | | | | |
|------------|-----------------------|-------|--------------------------|----------|-----------|---|
| 04/01 | 10.03.97 | E1 | MENP | TAG | NAME | BENENNUNG |
| | | | BEARB. | | E1 | AUSGANGSTEIL 1.046GHZ OUTPUT UNIT 1.046GHZ |
| | | | GEPR. | | | |
| | | | NORM | | | |
| | | | PLOTT | 10.03.97 | | |
| 04/ | 11.07.96 | DR | ROHDE&SCHWARZ | | | ZEICHN.-NR. |
| REND. IND. | RENDERUNGS-MITTEILUNG | DATUM | | | | NAME |
| | | | ZU GERÄT | SMY | REG. I.V. | 1062.5502 |
| | | | | | ERSTE Z. | 1062.5502 |



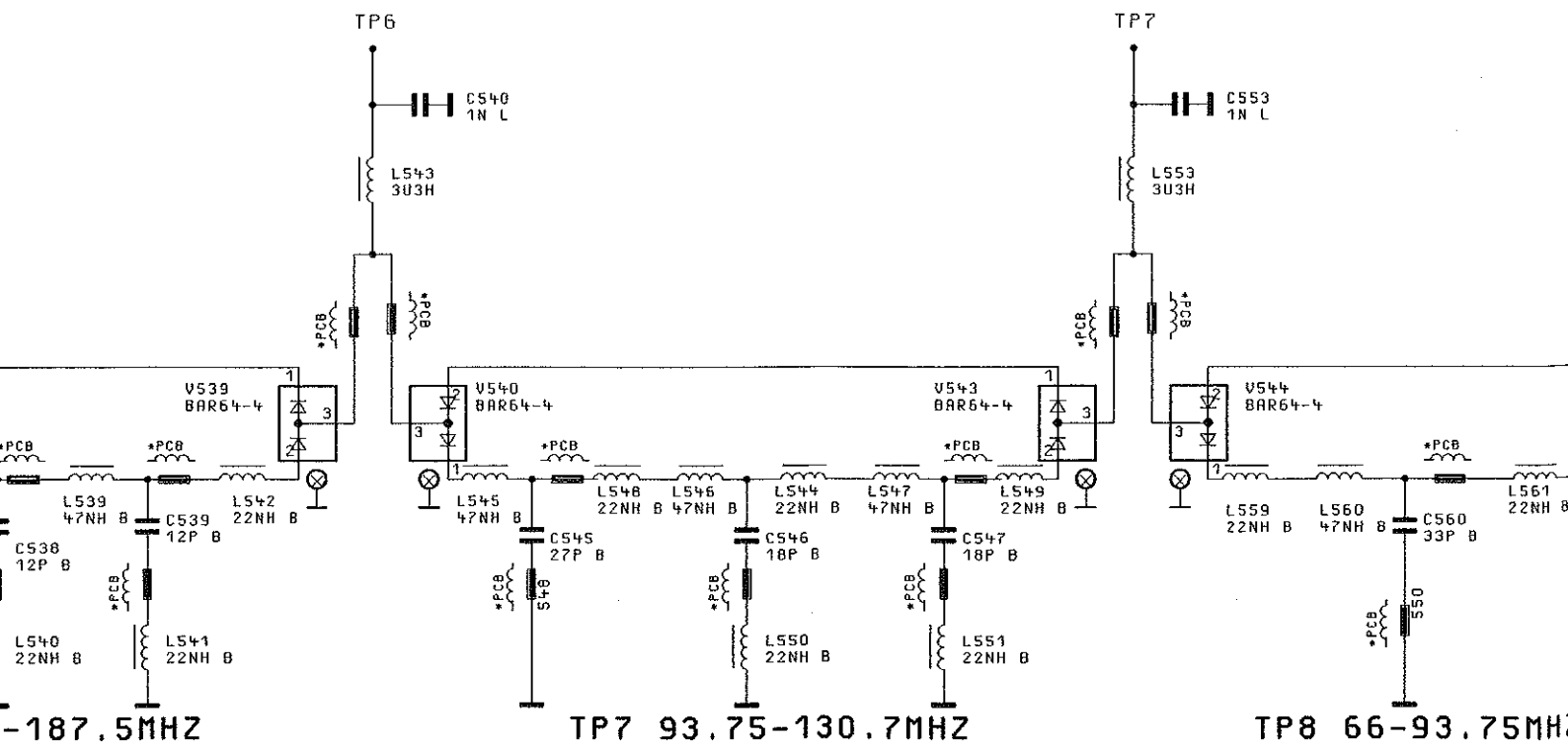
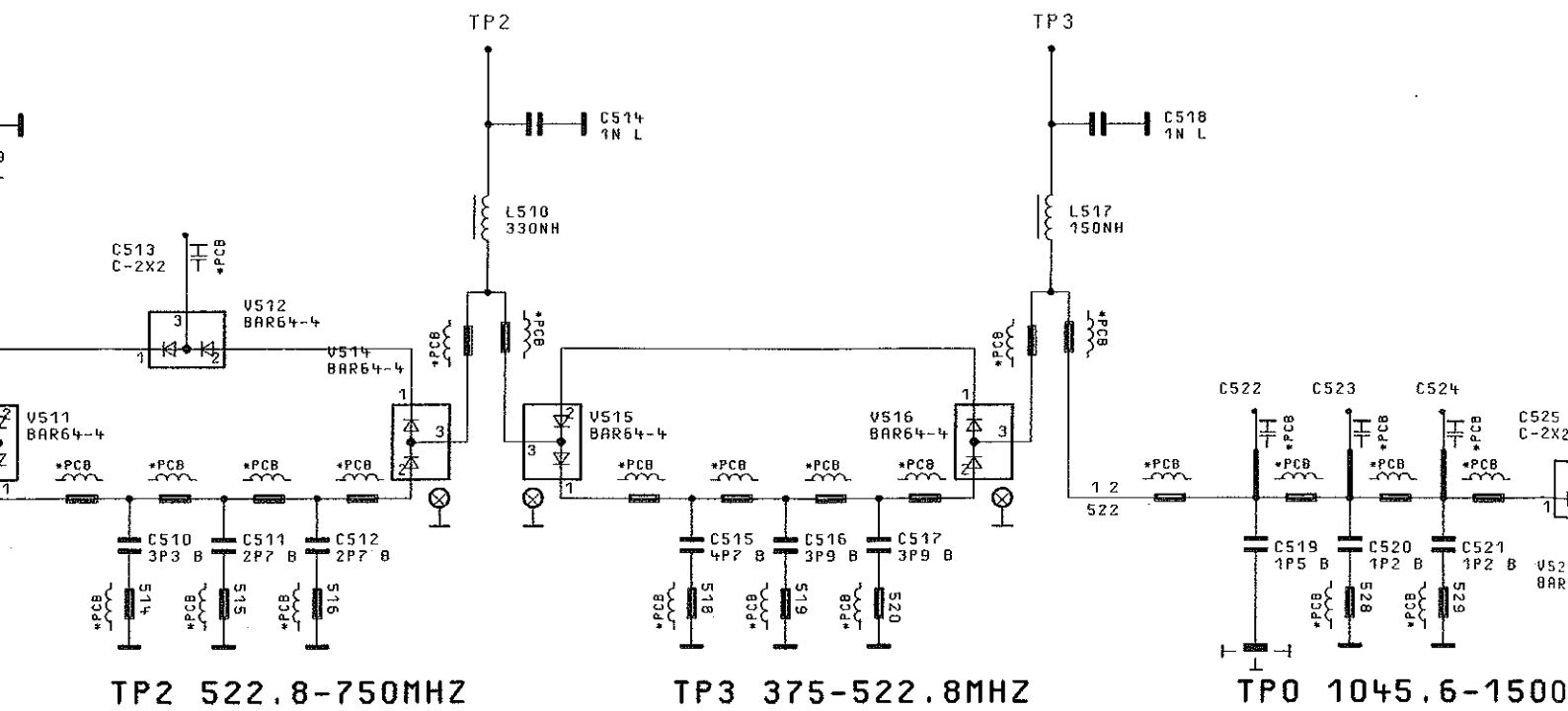
BESTUECKT

BINDENDE ANGABEN UEBER VARIANTEN,
TRIMMWERTE, BAUTEILWERTE UND
NICHT BESTUECKTE BAUTEILE SIEHE SA.

EGB!
GEFAHREDETE
HANDHABUNG.
ESD!
SENSITIVE DEVICES
SPECIAL HANDLING

FOR BINDING INFORMATION ON MODELS,
TRIMMING AND COMPONENTS VALUES AND
NONFITTED COMPONENTS SEE PARTS LIST.

| | | | | | | |
|------------|----------------------|-------|--------|--------------------------------|------|------------|
| 04/01 | 10.03.97 | E I | MENP | TAG | NAME | BENENNUNG |
| | | | BEARB. | | E I | |
| | | | GEPR. | | | |
| | | | NORM | | | |
| | | | PLOTT | 10.03.97 | | |
| 04/ | 11.07.96 | DR | | | | ZEICHNUNG |
| REND. IND. | ÄNDERUNGS-MITTEILUNG | DATUM | NAME | ROHDE & SCHWARZ | | REG. I. V. |
| | | | | | | ZU GERÄT |



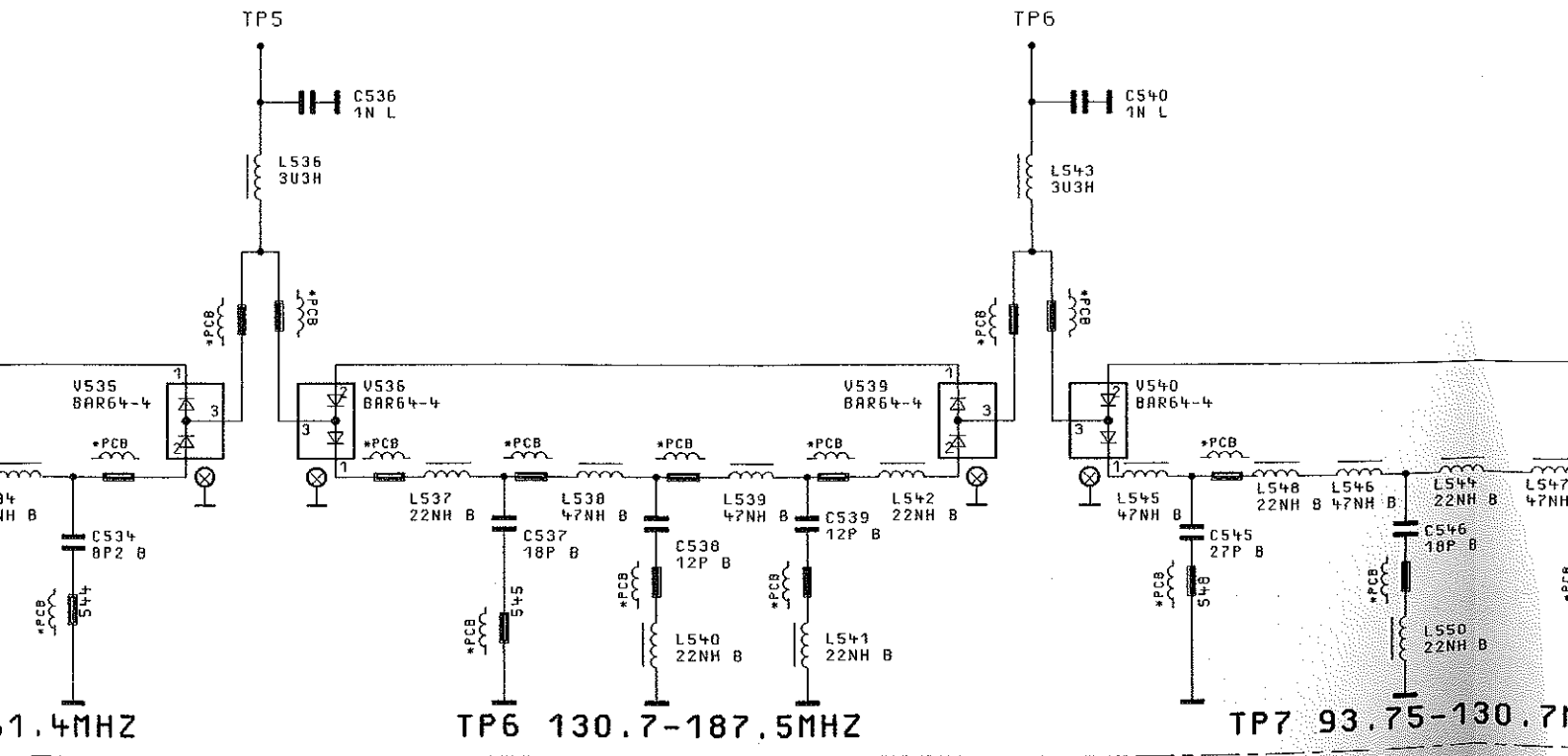
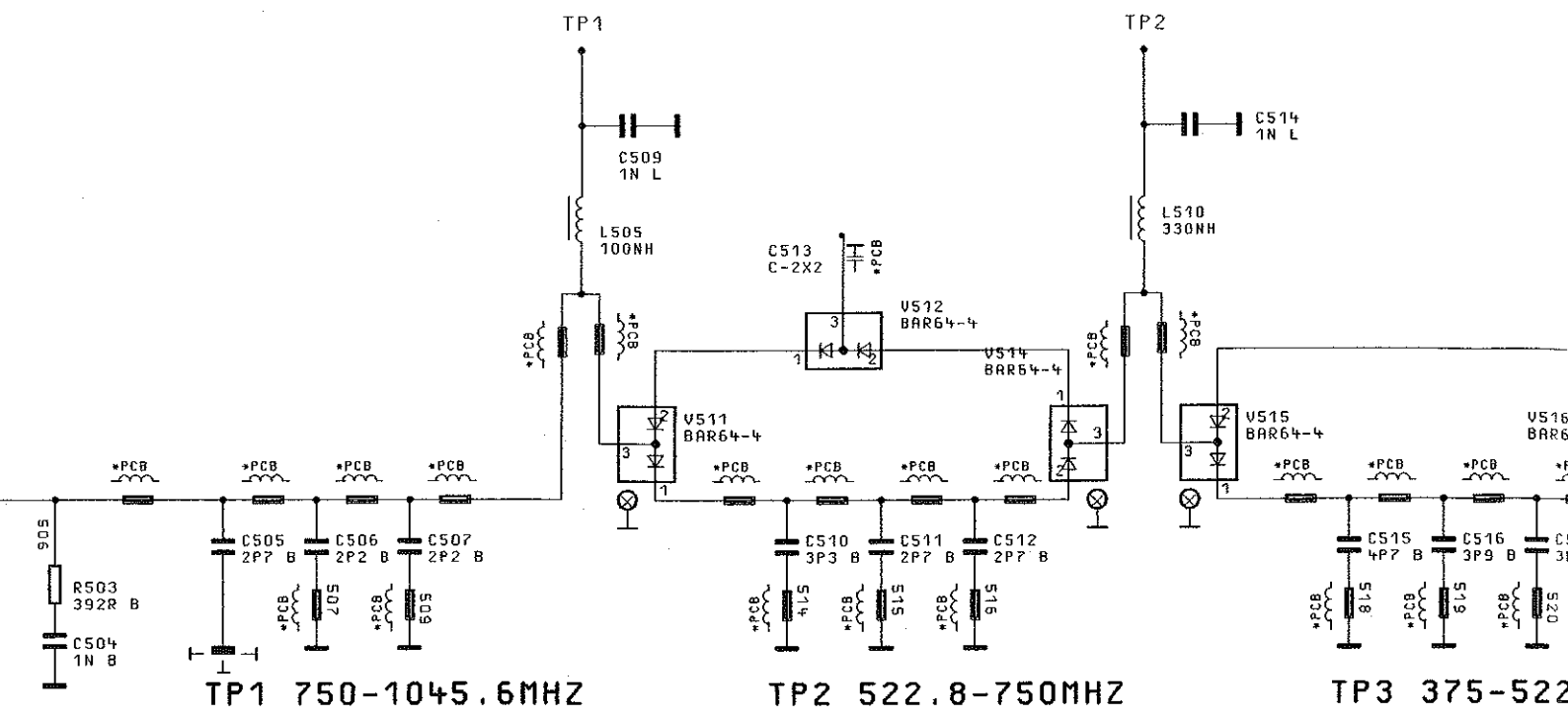
N.F. - NOT FITTED / NICHT BESTUECKT



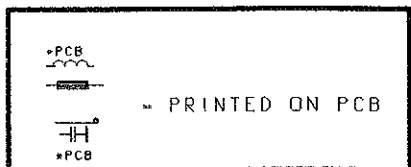
ACHTUNG: EGB!
 ELEKTROSTATISCH GEFÄHRDETE
 BAUELEMENTE ERFORDERN EINE
 BESONDERE HANDHABUNG.
ATTENTION ESD!
 ELECTROSTATIC SENSITIVE DEVICES
 REQUIRE A SPECIAL HANDLING

BINDENDE ANGABEN UEBER VARIANTEN,
 TRIMMWERTE, BAUTEILWERTE UND
 NICHT BESTUECKTE BAUTEILE SIEHE SA.

FOR BINDING INFORMATION ON MODELS,
 TRIMMING AND COMPONENTS VALUES AND
 NONFITTED COMPONENTS SEE PARTS LIST.



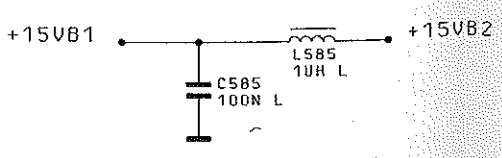
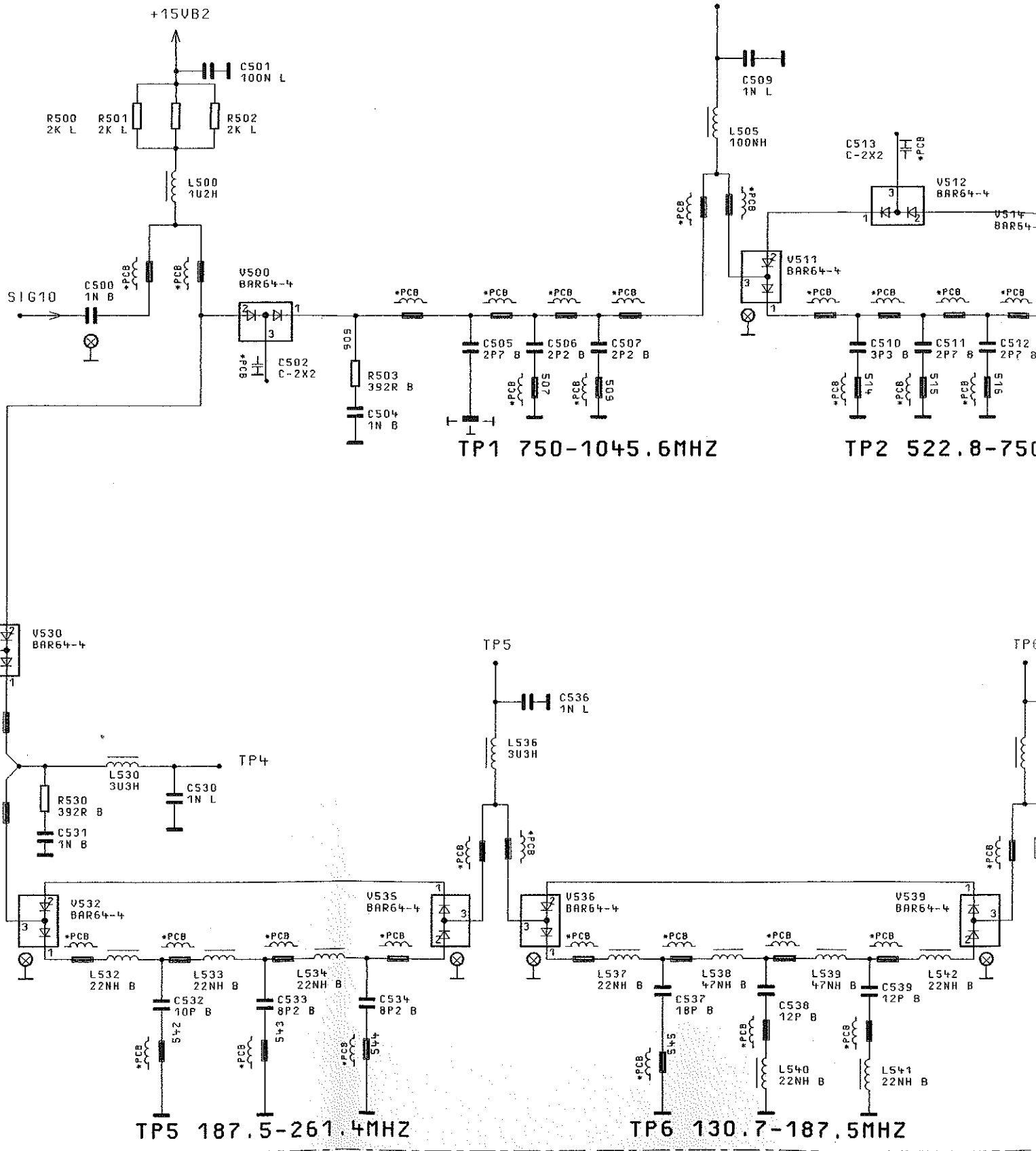
15V82



N.F. = NOT FITTED / NICHT BESTUECKT

ACHTUNG: ESD!
ELEKTROSTATISCH GEFÄHRDETE
BAUELEMENTE ERFORDERN EINE
BESONDERE HANDHABUNG.
ATTENTION ESD!
ELECTROSTATIC SENSITIVE DEVICES
REQUIRE A SPECIAL HANDLING

HARMONIC FILTERS

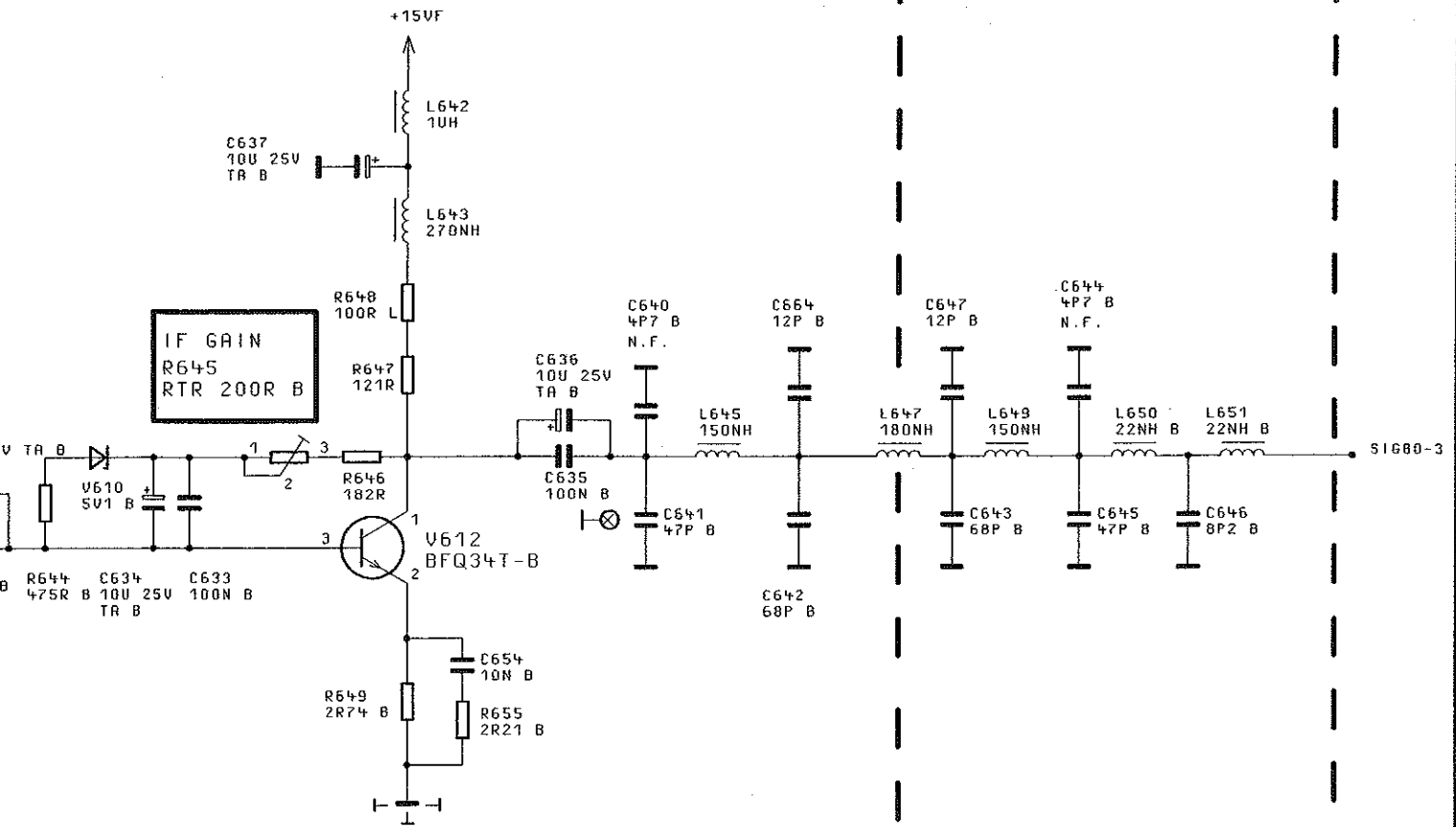


*PCB
 - PRINTED ON PCB
 *PCB

R645
IF GAIN

AMPLIFIER

IF-LOWPASS
65MHZ



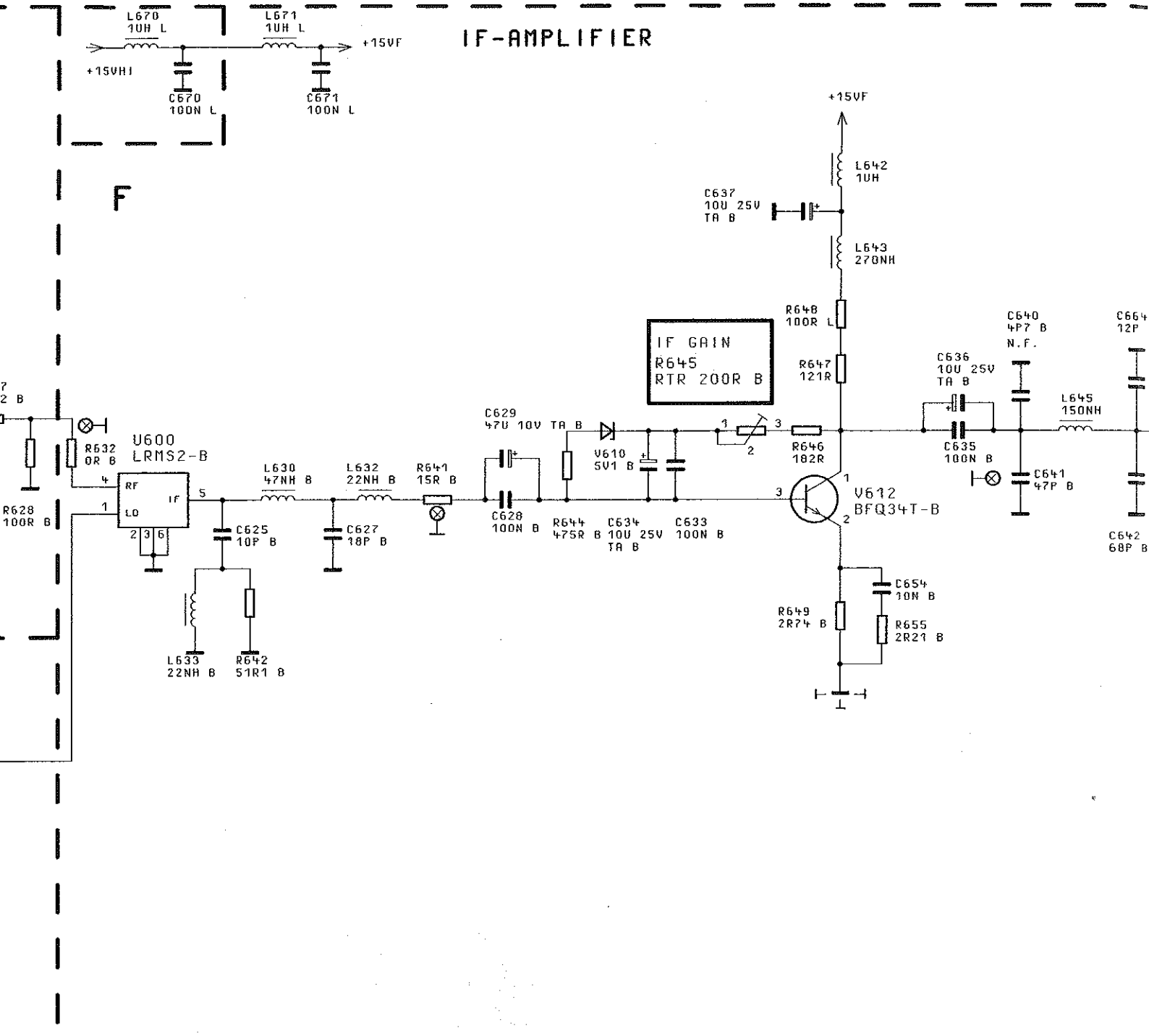
N.F. - NOT FITTED / NICHT BESTUECKT

SINDENDE ANGABEN UEBER VARIANTEN,
TRIMMWERTE, BAUTEILWERTE UND
NICHT BESTUECKTE BAUTEILE SIEHE SA.

FOR BINDING INFORMATION ON MODELS,
TRIMMING AND COMPONENTS VALUES AND
NONFITTED COMPONENTS SEE PARTS LIST.

| | | | | | | | | | |
|---------------|---------------------------|----------|------|--------------------------------|----------|-----------|---|-----------|-----------|
| 04/01 | | 10.03.97 | EI | MENP | TAG | NAME | BENENNUNG | | |
| | | | | BEARB. | | EI | AUSGANGSTEIL 1.046GHZ OUTPUT UNIT 1.046GHZ | | |
| | | | | GEPR. | | | | | |
| | | | | NORM | | | | | |
| | | | | PLOTT | 10.03.97 | | | | |
| 04/ | | 11.07.96 | DR | ROHDE & SCHWARZ | | | ZEICHN.-NR. | BLATT-NR. | |
| REND. IND. | RENDERUNGS- MITTEILUNG | DATUM | NAME | | | | 1062.6209.015 | 7+ | |
| | | | | ZU GERAE7 | SMY | REG.-I.V. | 1062.5502 | ERSTE Z. | 1062.5502 |

⊙ R645
IF GAIN

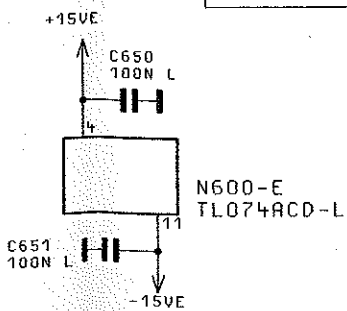


ACHTUNG: EGB!
ELEKTROSTATISCH GEFÄHRDETE
BAUELEMENTE ERFORDERN EINE
BESONDERE HANDHABUNG.
ATTENTION ESD!
ELECTROSTATIC SENSITIVE DEVICES
REQUIRE A SPECIAL HANDLING

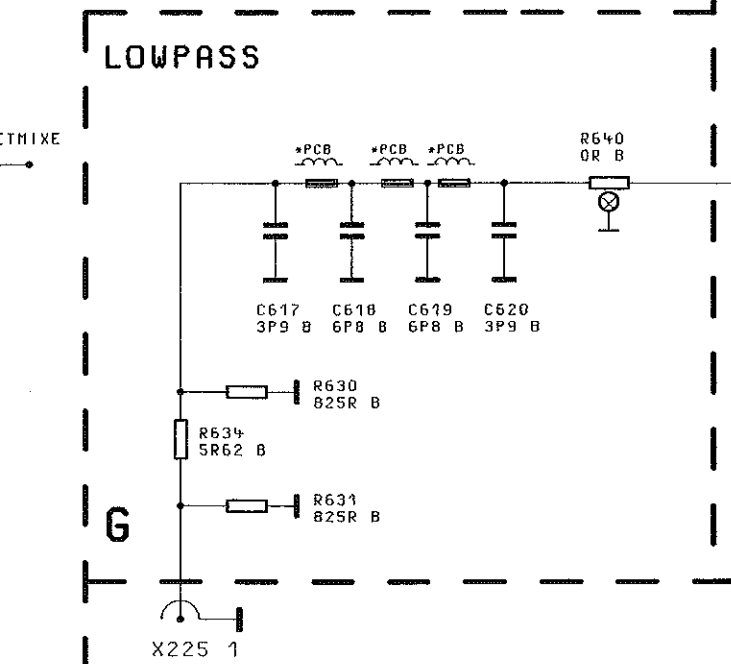
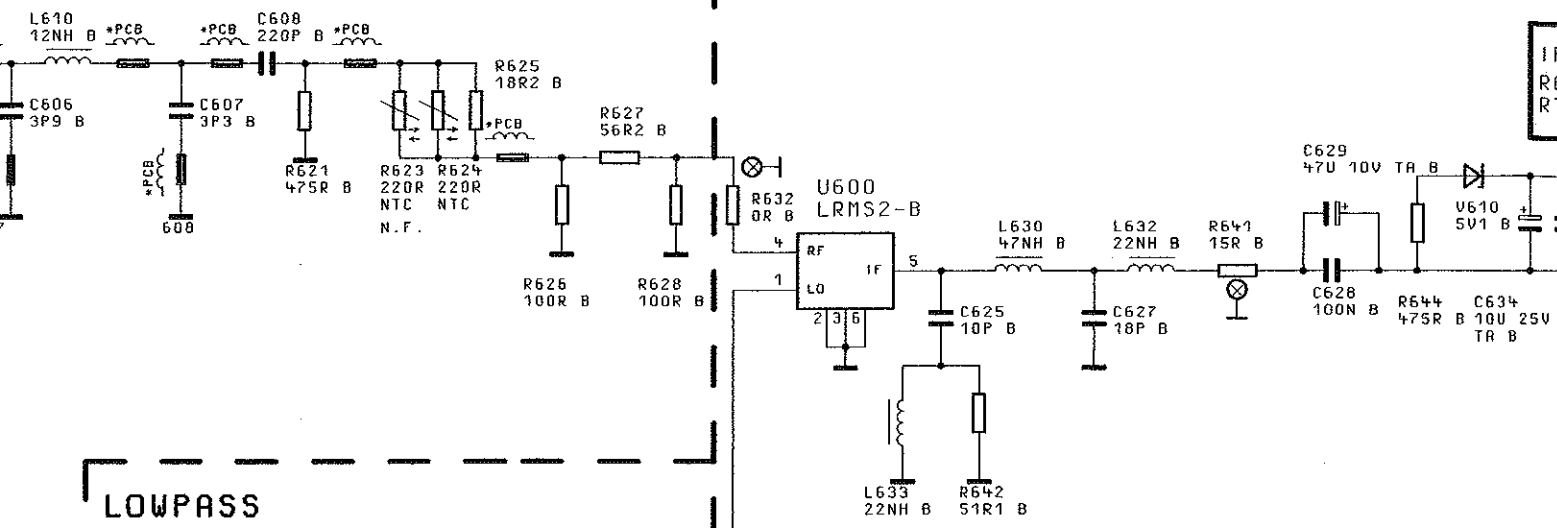
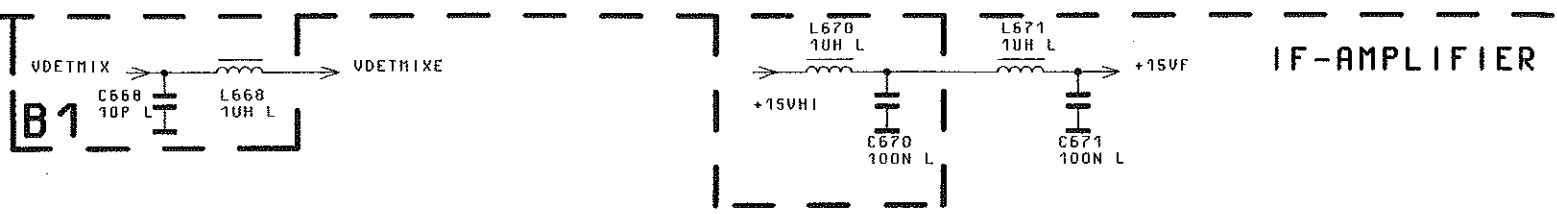
N.F. - NOT FITTED / NICHT BESTUECKT

BINDENDE ANGABEN UEBER VARIANTEN,
TRIMMWERTE, BAUTEILWERTE UND
NICHT BESTUECKTE BAUTEILE SIEHE SA.

FOR BINDING IN
TRIMMING AND CO
NONFITTED COMP



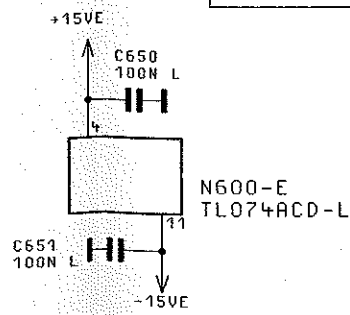
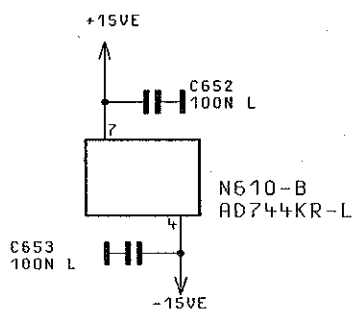
| | | | | | | |
|---------------|--------------------------|----------|------|---|----------|------|
| 04/01 | | 10.03.97 | E I | MENP | TAG | NAME |
| | | | | BEARB. | | E I |
| | | | | GEPR. | | |
| | | | | NDRH | | |
| | | | | PLOTT | 10.03.97 | |
| 04/ | | 11.07.96 | DR | | | |
| REND. IND. | ÄNDERUNGS- MITTEILUNG | DATUM | NAME | ROHDE & SCHWARZ ZU GERRET SMY | | |
| | | | | | | |



REF640
640MHZ
9...12DBM

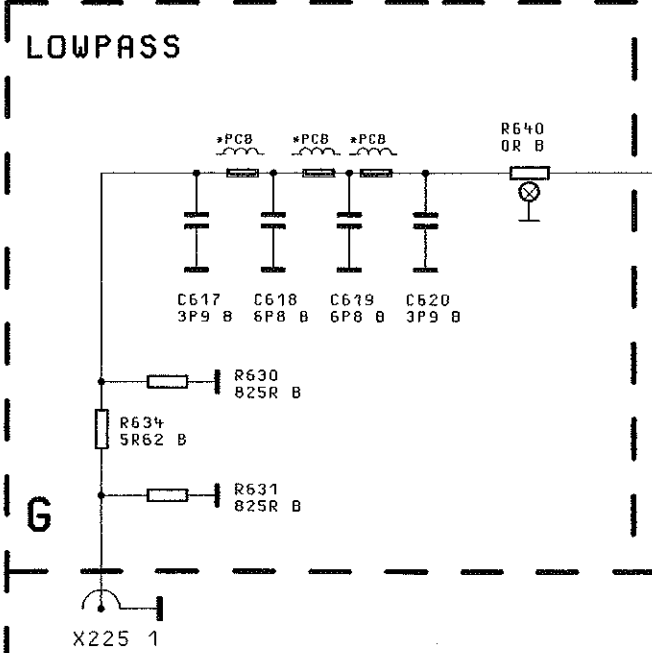
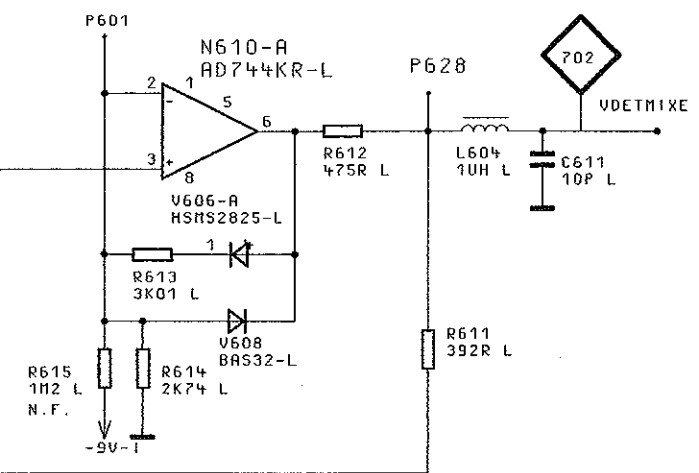
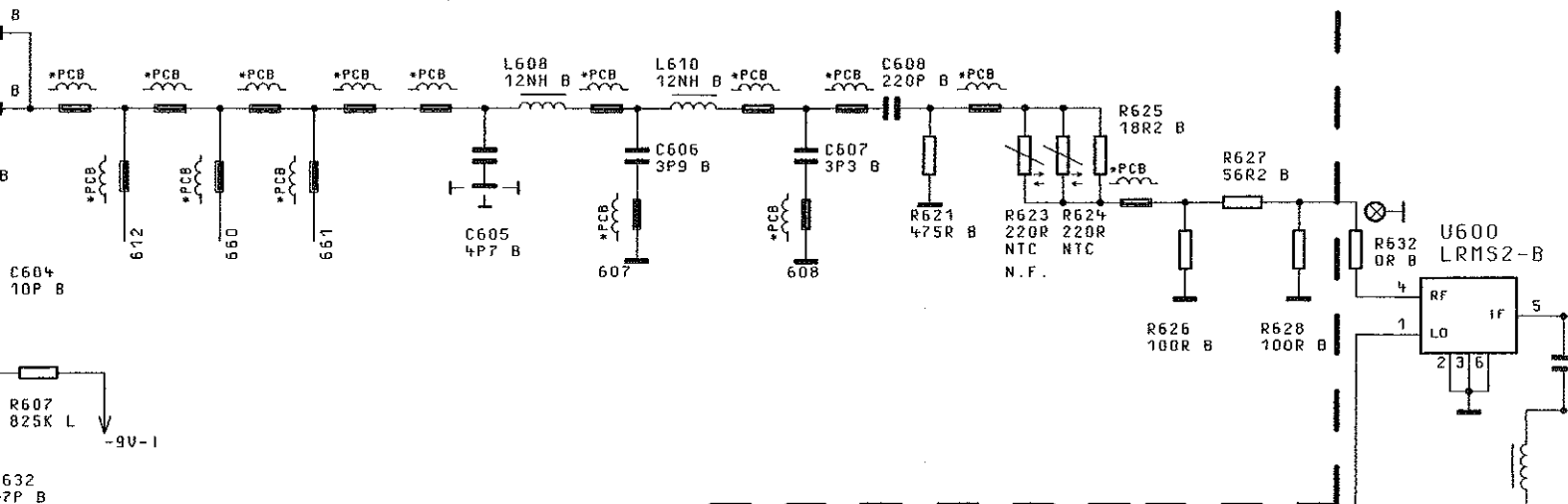
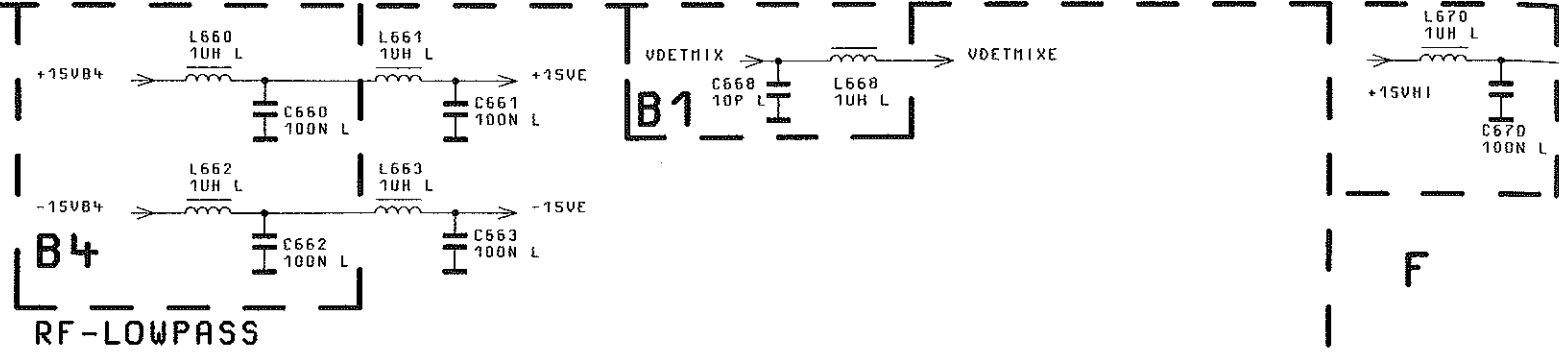


ACHTUNG: EGB!
ELEKTROSTATISCH GEFÄHRDETE
BAUELEMENTE ERFORDERN EINE
BESONDERE HANDHABUNG.
ATTENTION ESD!
ELECTROSTATIC SENSITIVE DEVICES
REQUIRE A SPECIAL HANDLING

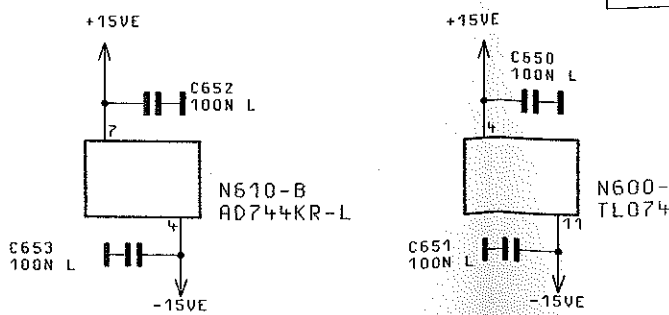
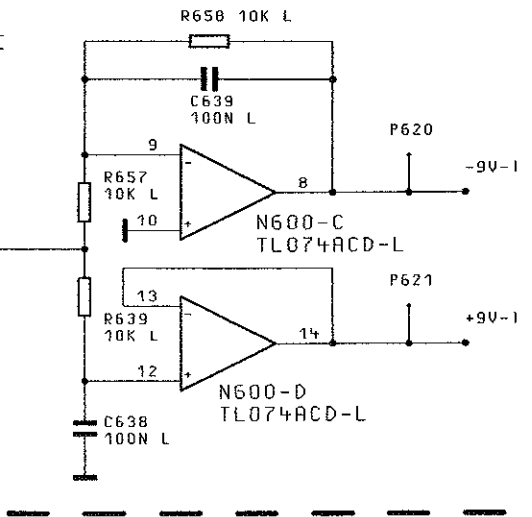


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|-------|--|
| 04/01 | |
| 04/ | |
| REND. | |
| IND. | |

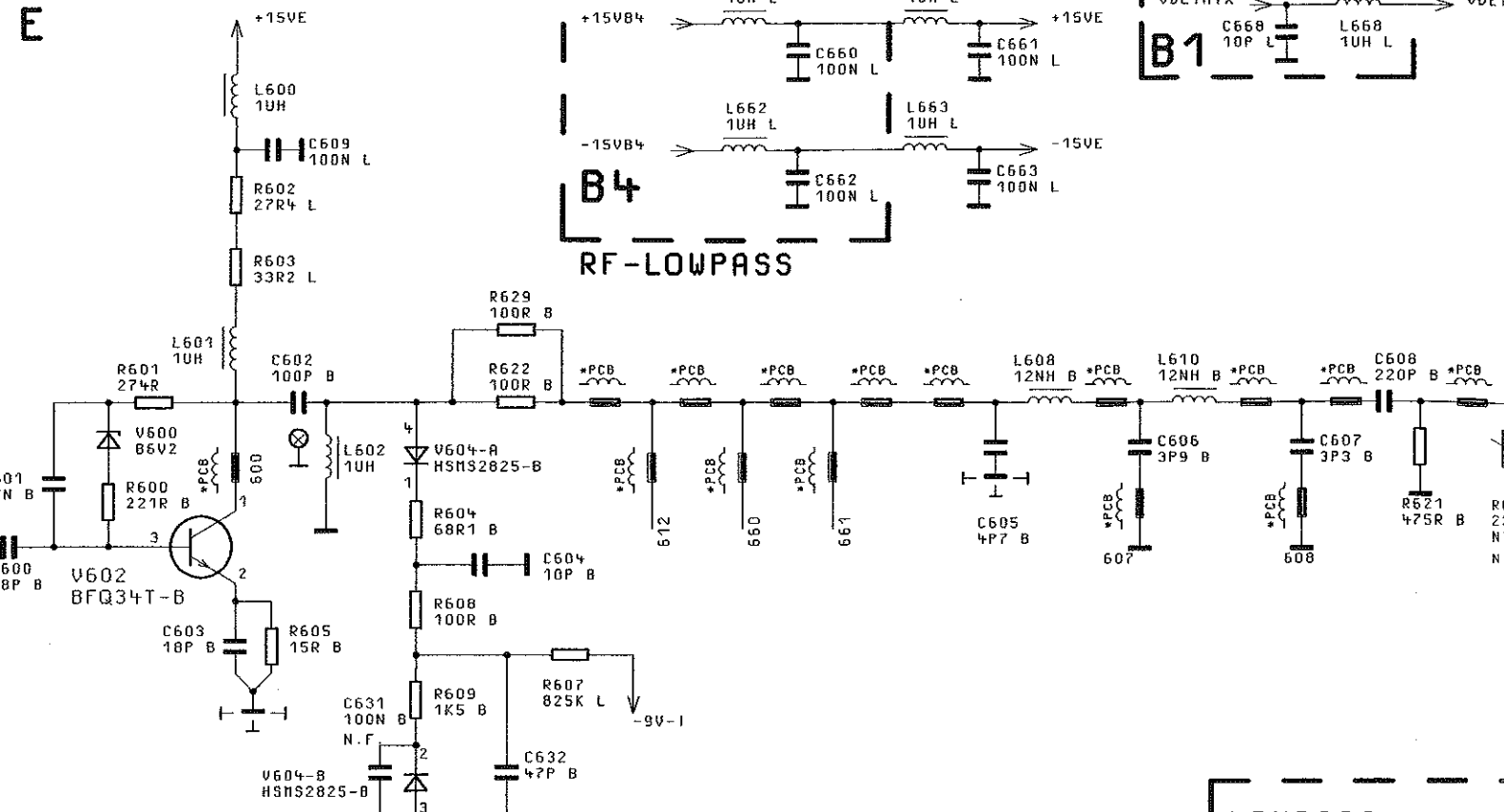
P601 P628
P620 P621



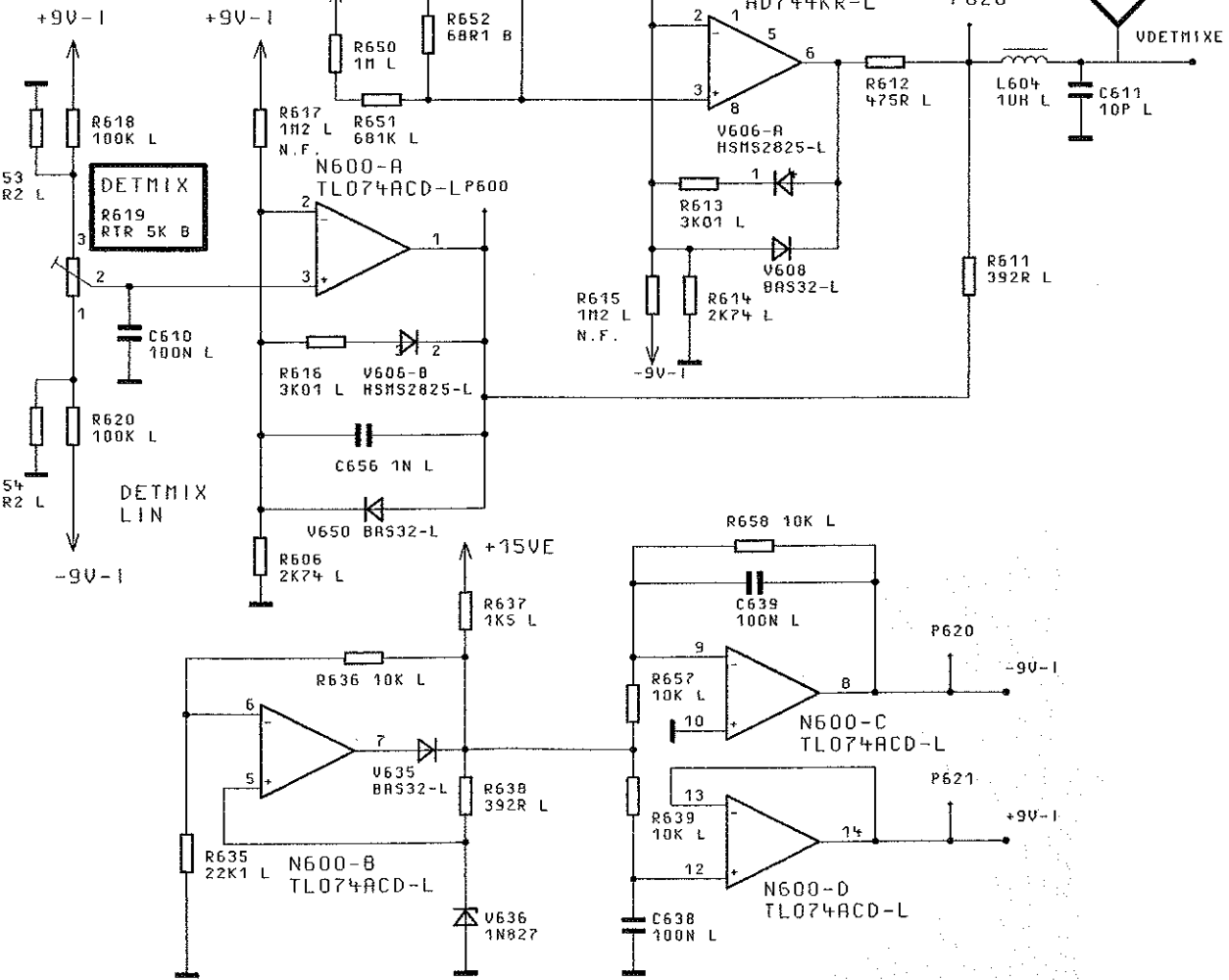
REF640
640MHZ
9...12DBM



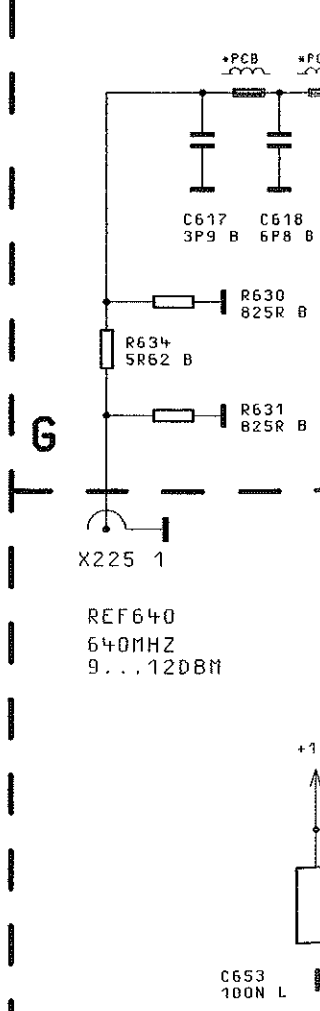
RF-AMPLIFIER 4
E



DETECTOR LINEARIZER



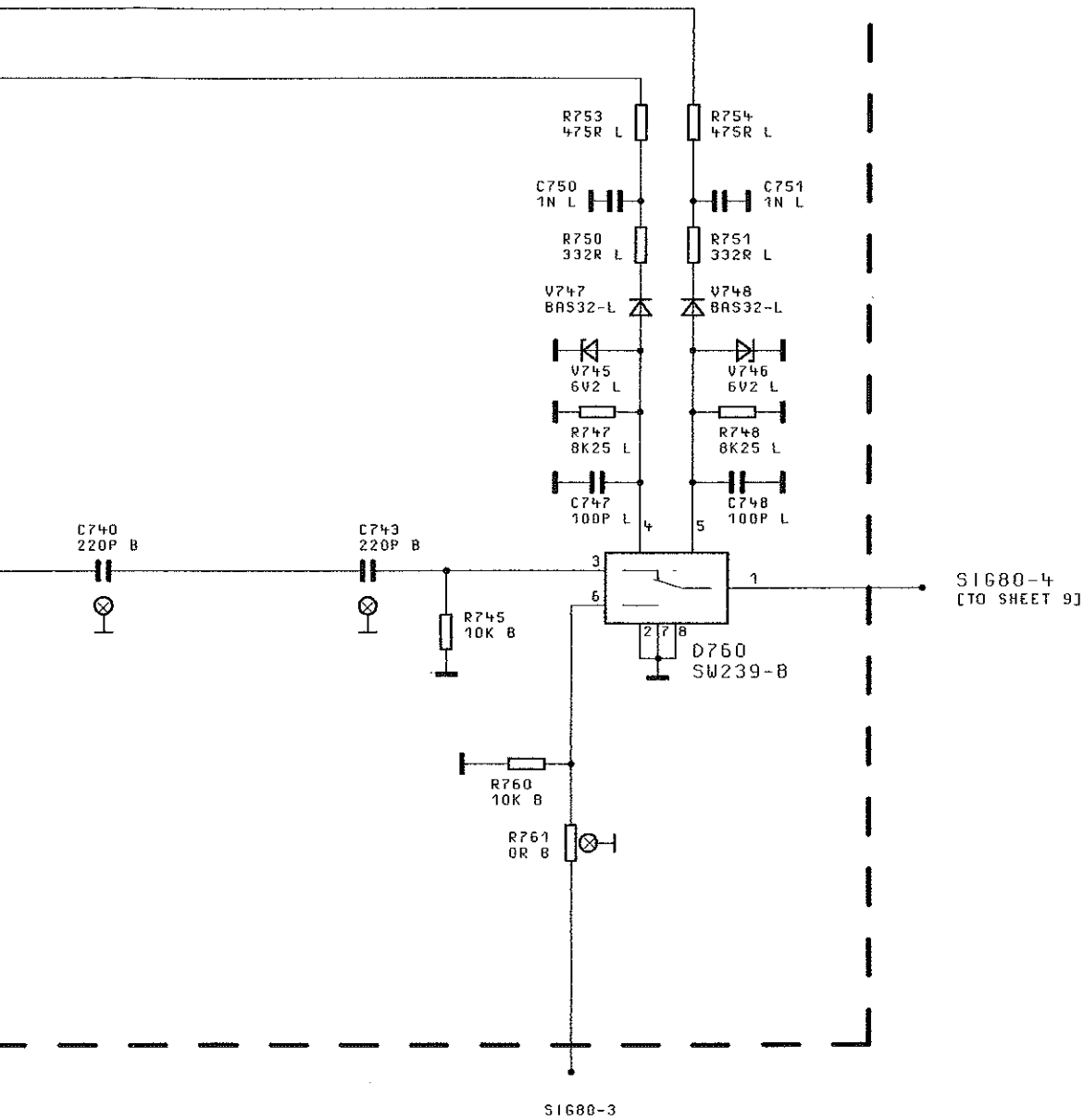
LOWPASS



REF640
640MHZ
9...1208N


SWITCH B

H



BINDENDE ANGABEN UEBER VARIANTEN,
TRIMMWERTE, BAUTEILWERTE UND
NICHT BESTUECKTE BAUTEILE SIEHE SA.

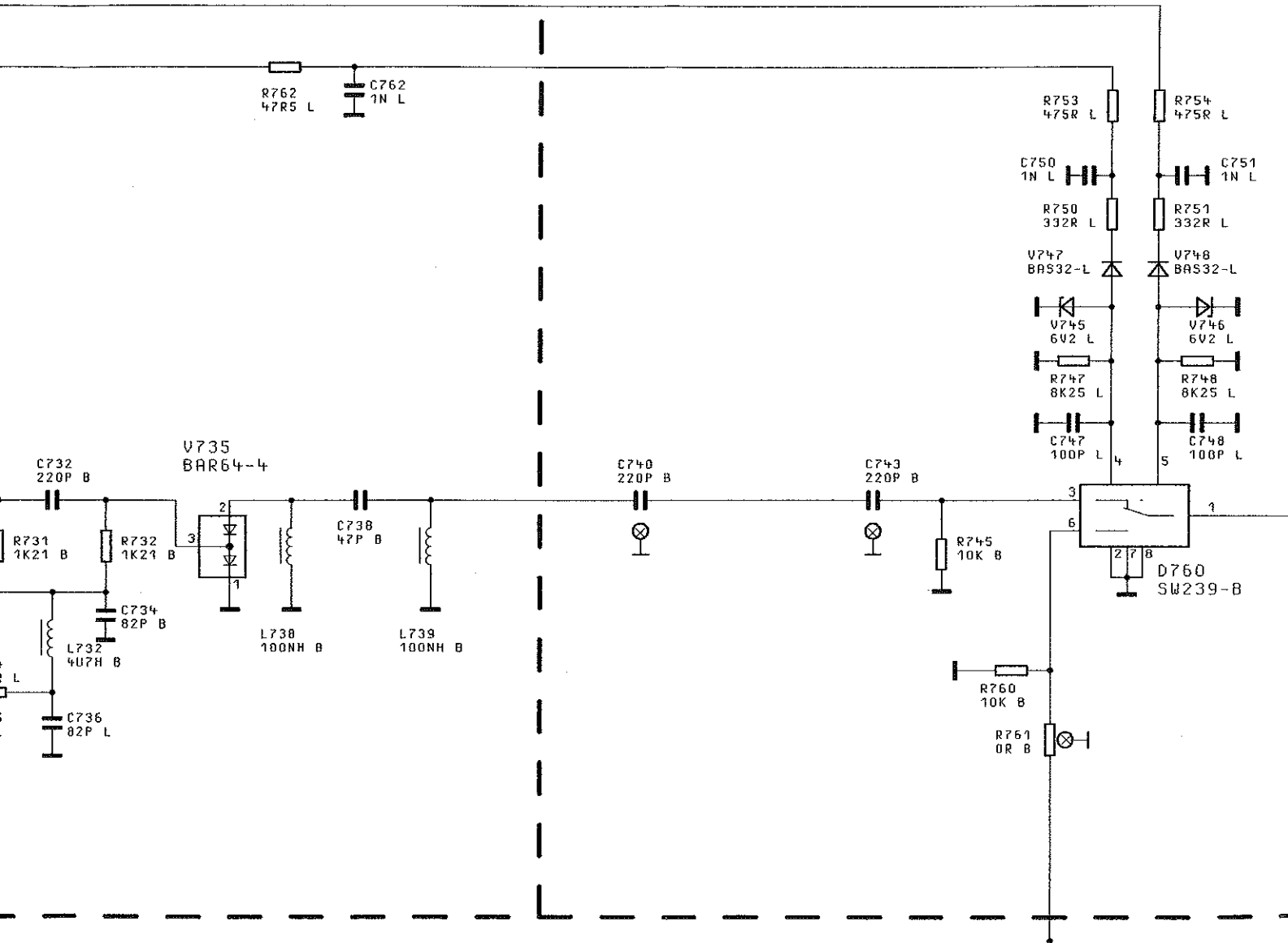
FOR BINDING INFORMATION ON MODELS,
TRIMMING AND COMPONENTS VALUES AND
NONFITTED COMPONENTS SEE PARTS LIST.

| | | | | | | |
|---------------|----------|------|---|-------------|----------|---|
| 04/01 | 10.03.97 | EI | MENP | TAG | NAME | BENENNUNG AUSGANGSTEIL 1.0466GHZ OUTPUT UNIT 1.0466GHZ |
| | | | BEARB. | | EI | |
| | | | GEPR. | | | |
| | | | NORM | | | |
| | | | PLOTT | 14.03.97 | | |
| 04/ | 11.07.96 | DR |  ROHDE & SCHWARZ | ZEICHN.-NR. | | 1062.6209.015 |
| REND. IND. | DATUM | NAME | | ZU GERÄT | SMY | |
| | | | | | ERSTE Z. | 1062.5502 |

BLATT-NR.
8+
V. 14 DL.

SWITCH B

H




51680-3


N.F. - NOT FITTED / NICHT BESTUECKT

BINDENDE ANGABEN UEBER VARIANTEN,
TRIMMWERTE, BAUTEILWERTE UND
NICHT BESTUECKTE BAUTEILE SIEHE SA.

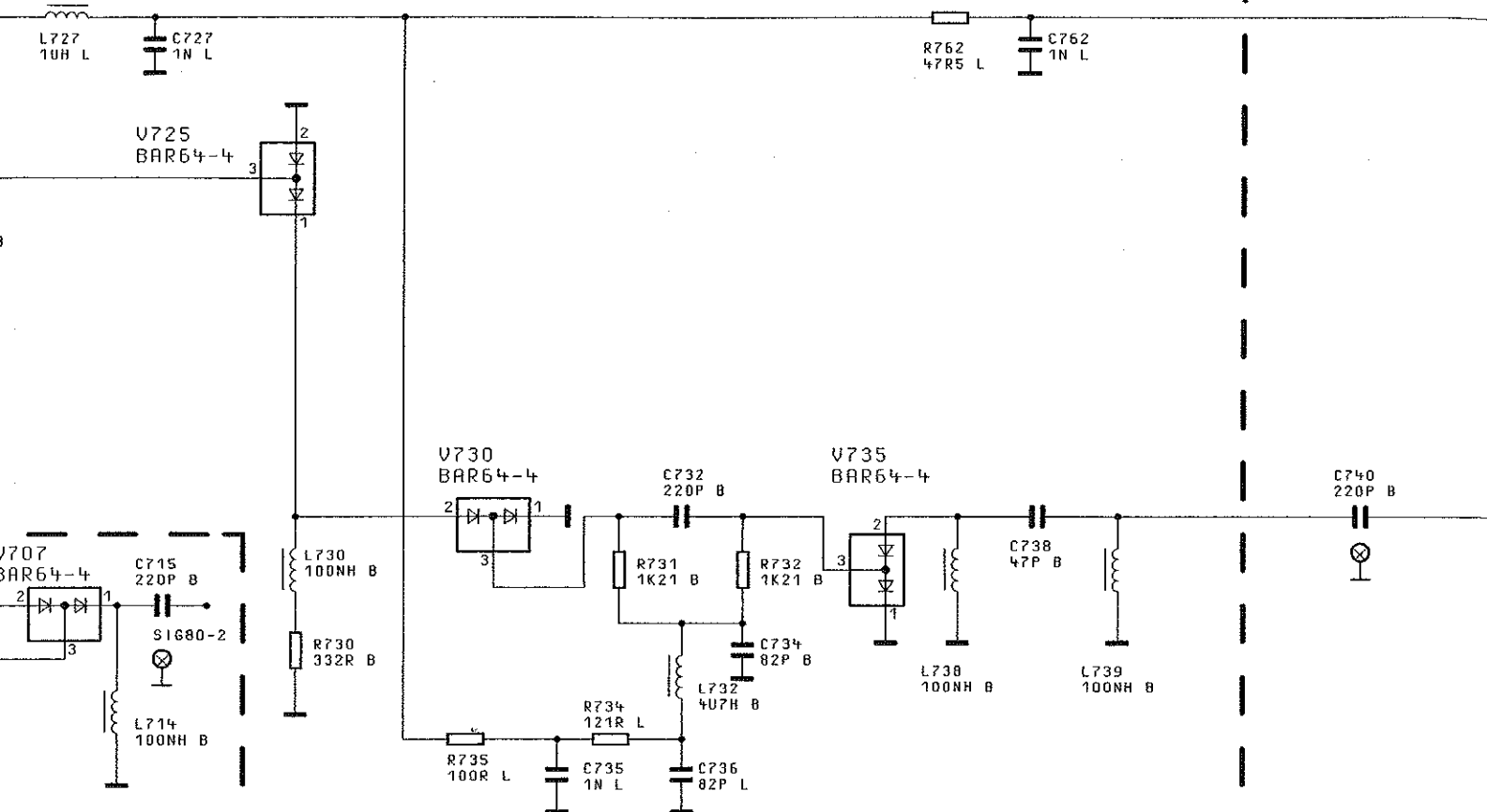
FOR BINDING INFORMATION
TRIMMING AND COMPONENTS
NONFITTED COMPONENTS SEE



ACHTUNG: EGB!
ELEKTROSTATISCH GEFAHRDETE
BAUELEMENTE ERFORDERN EINE
BESONDERE HANDHABUNG.
ATTENTION ESD!
ELECTROSTATIC SENSITIVE DEVICES
REQUIRE A SPECIAL HANDLING

| | | | | | | |
|---------------|----------|------|---|----------|----------|-------|
| 04/01 | 10.03.97 | E I | MENP | TAG | NAME | BENEN |
| | | | BEARB. | | E I | |
| | | | GEPR. | | | |
| | | | NDRH | | | |
| | | | PLOTT | 14.03.97 | | |
| 04/ | 11.07.96 | DR |  ROHDE & SCHWARZ | | ZEICHN | |
| REND. IND. | DATUM | NAME | | | ZU GERÄT | SMY |

SWITCH B



N.F. - NOT FITTED / NICHT BESTUECKT

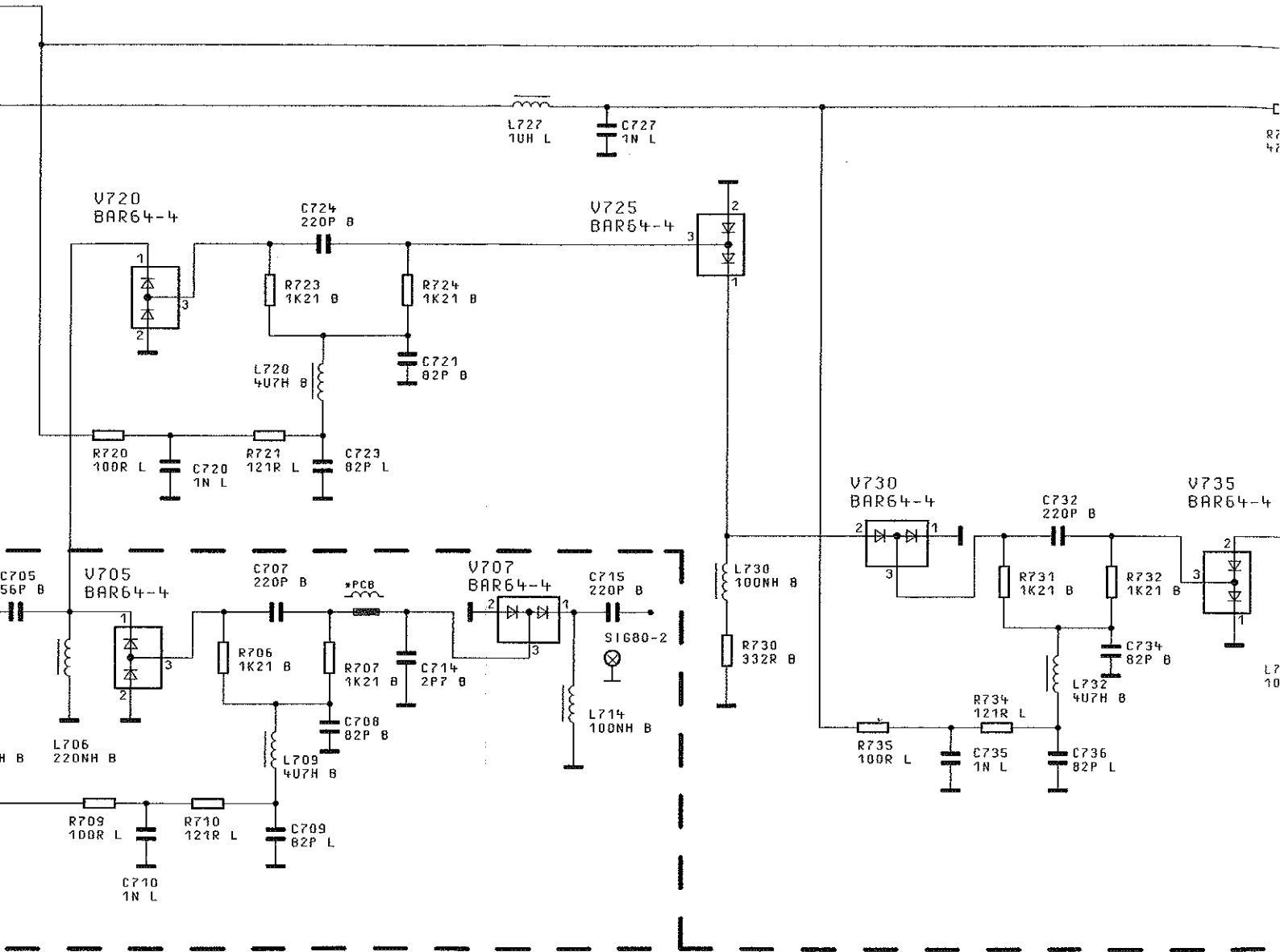
BINDENDE ANGABEN
TRIMMWERTE,
NICHT BESTUECKT



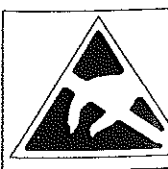
ACHTUNG: EGB!
ELEKTROSTATISCH GEFÄHRDETE
BAUELEMENTE ERFORDERN EINE
BESONDERE HANDHABUNG.
ATTENTION ESD!
ELECTROSTATIC SENSITIVE DEVICES
REQUIRE A SPECIAL HANDLING

| | |
|-------|-------|
| 04/01 | |
| | |
| | |
| | |
| 04/ | |
| REND. | RENDE |
| IND. | ITTE |

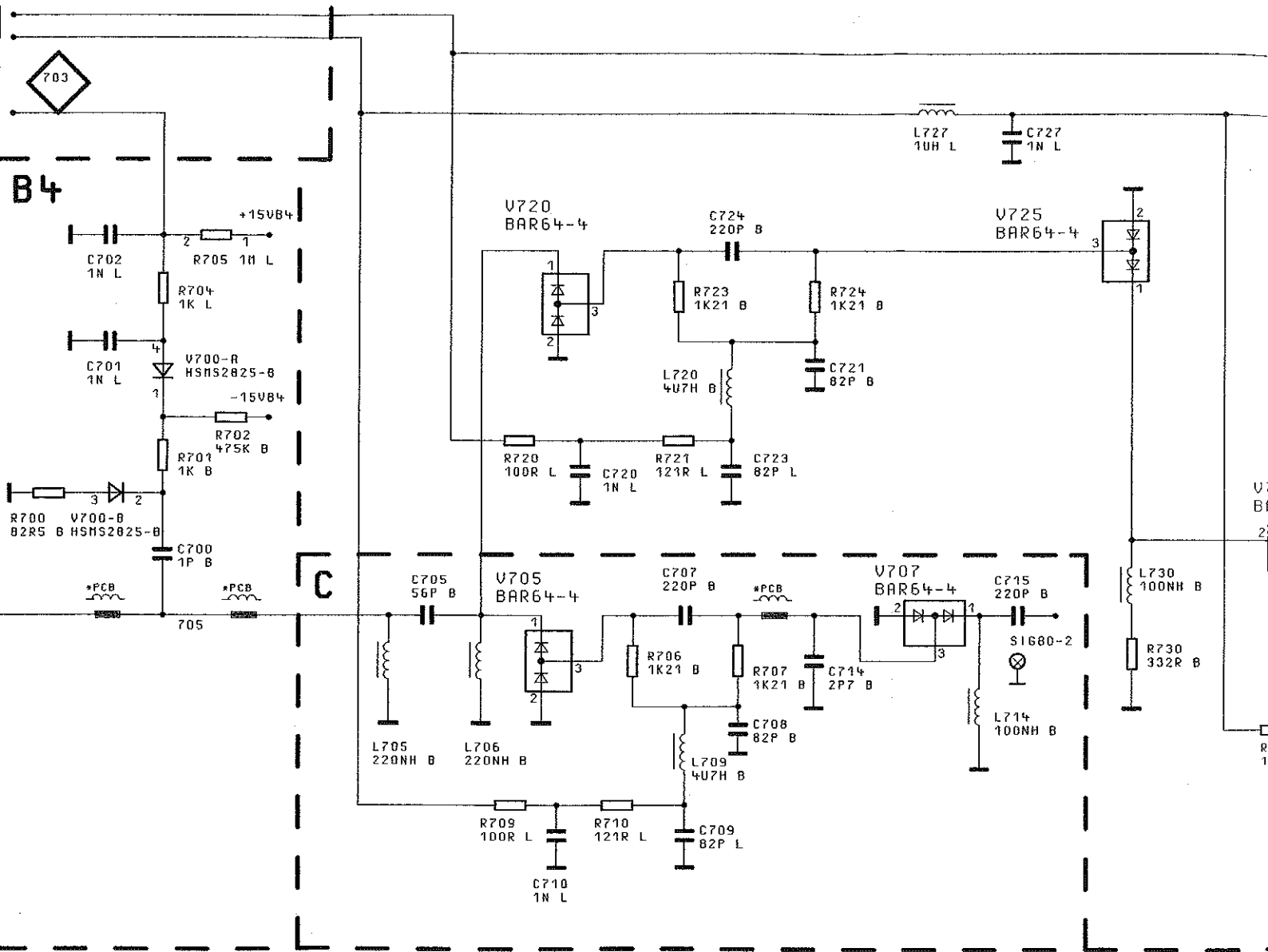
SWITCH D



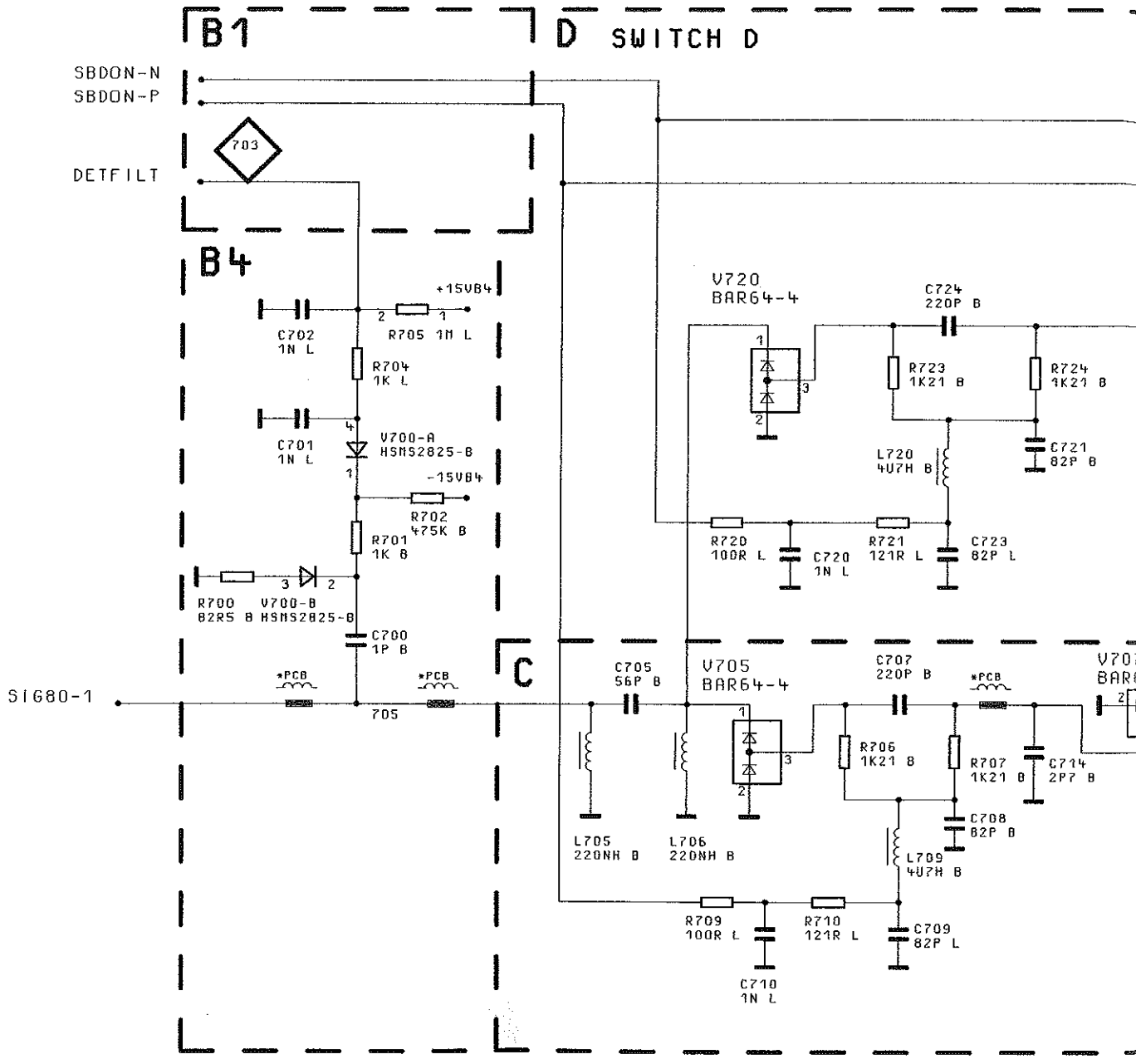
N.F. - NOT



B1 D SWITCH D

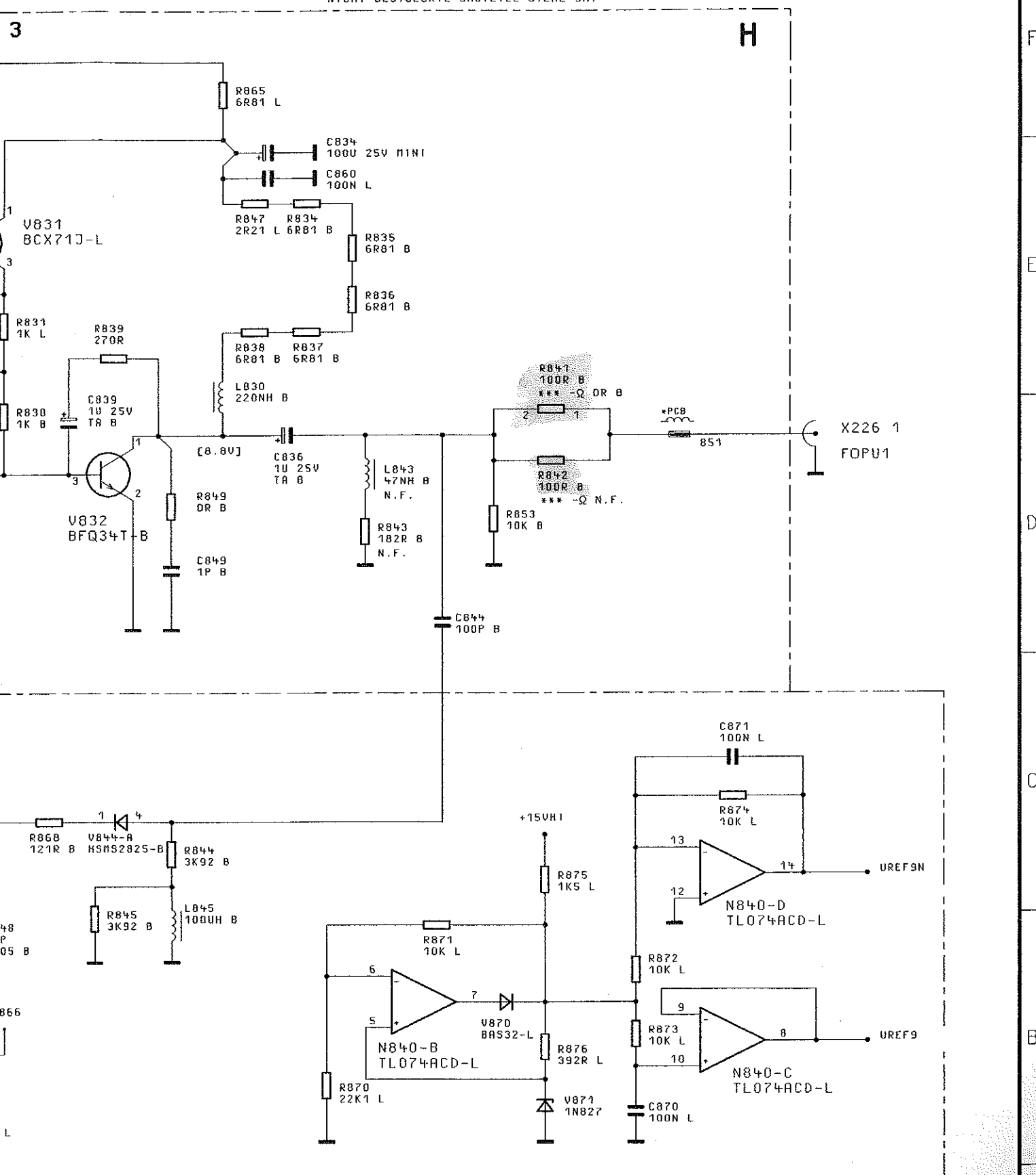



FÜR DIESE UNTERLAGE
BEHALTEN WIR UNS ALLE RECHTE VOR



BINDENDE ANGABEN UEBER VARIANTEN,
TRIMMWERTE, BAUTEILWERTE UND
NICHT BESTUECKTE BAUTEILE SIEHE SA.

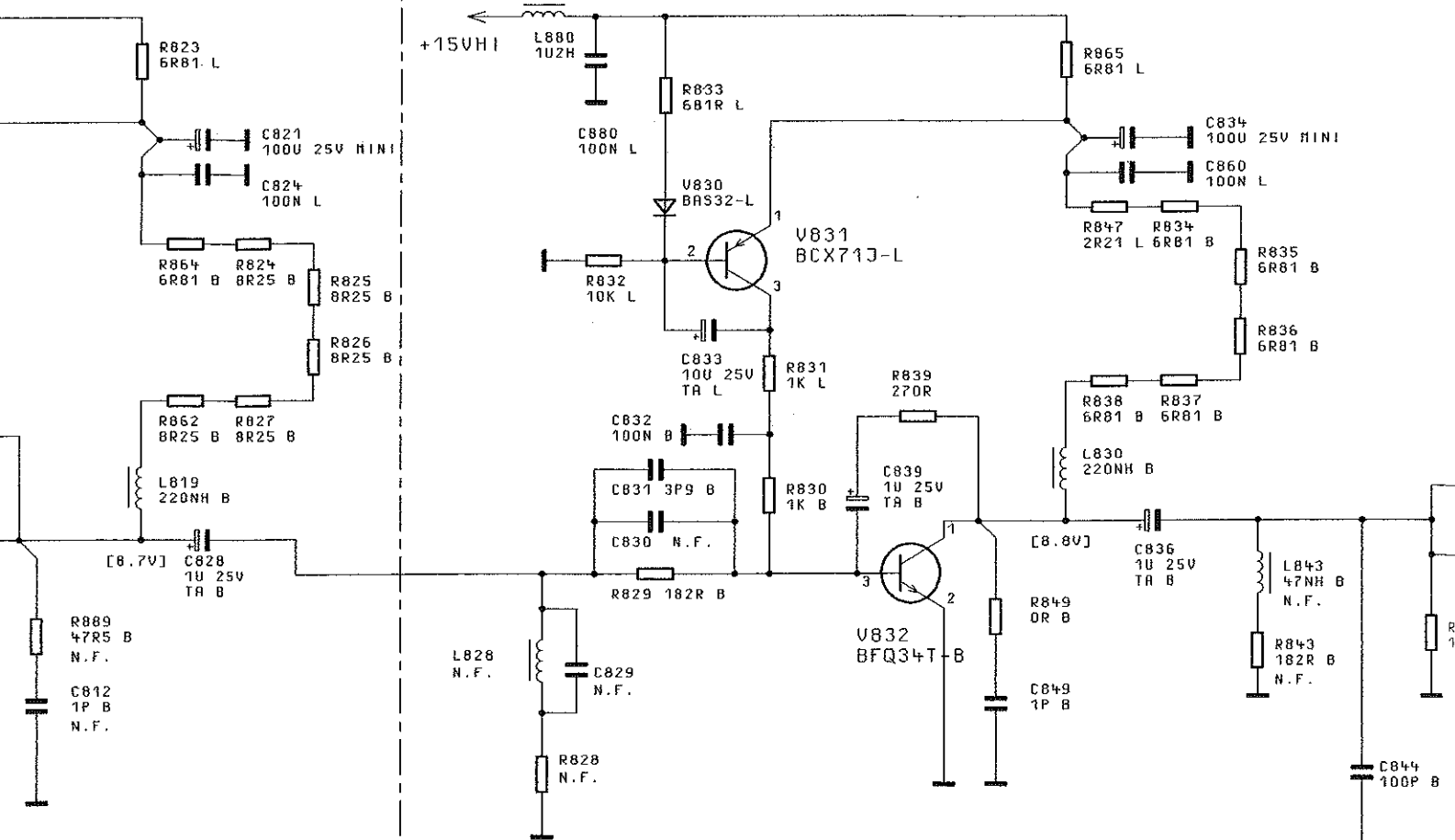
FOR BINDING INFORMATION ON MODELS,
TRIMMING AND COMPONENTS VALUES AND
NONFITTED COMPONENTS SEE PARTS LIST.



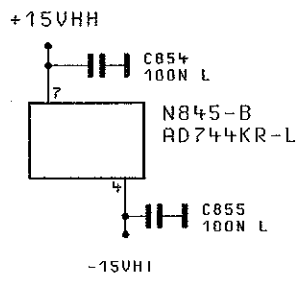
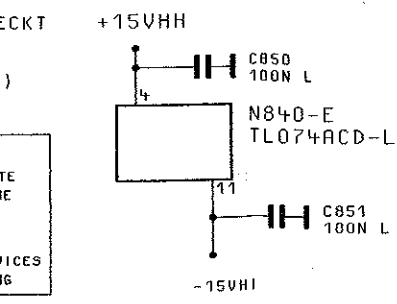
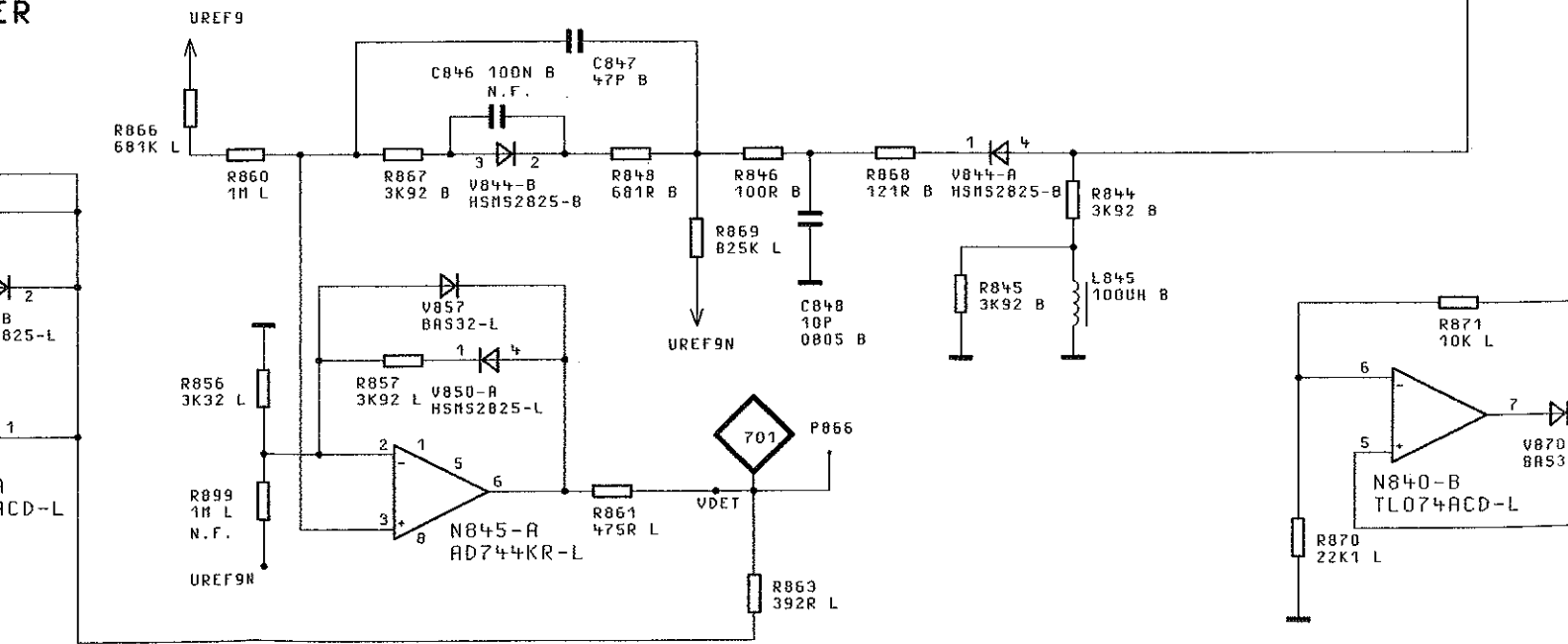
| 04/01 | 10.03.97 | E I | MENP | TAG | NAME | BENENNUNG | |
|---------------|---------------------------|-------|---|----------|-------------|--|------------|
| | | | BEARB. | | E I | AUSGANGSTEIL 1.0466GHZ OUTPUT UNIT 1.0466GHZ | |
| | | | GEPR. | | | | |
| | | | NORM | | | | |
| | | | PLOTT | 10.03.97 | | | |
| 04/ | 11.07.96 | DR |  | | ZEICHN.-NR. | 1062.6209.015 | |
| REND. IND. | RENDERUNGS- MITTEILUNG | DATUM | | | NAME | | REG. I. V. |
| | | | ZU GERÄT | SMY | | | |

BLATT-NR.
9+
v/v BL.

OUTPUT AMPLIFIER 3

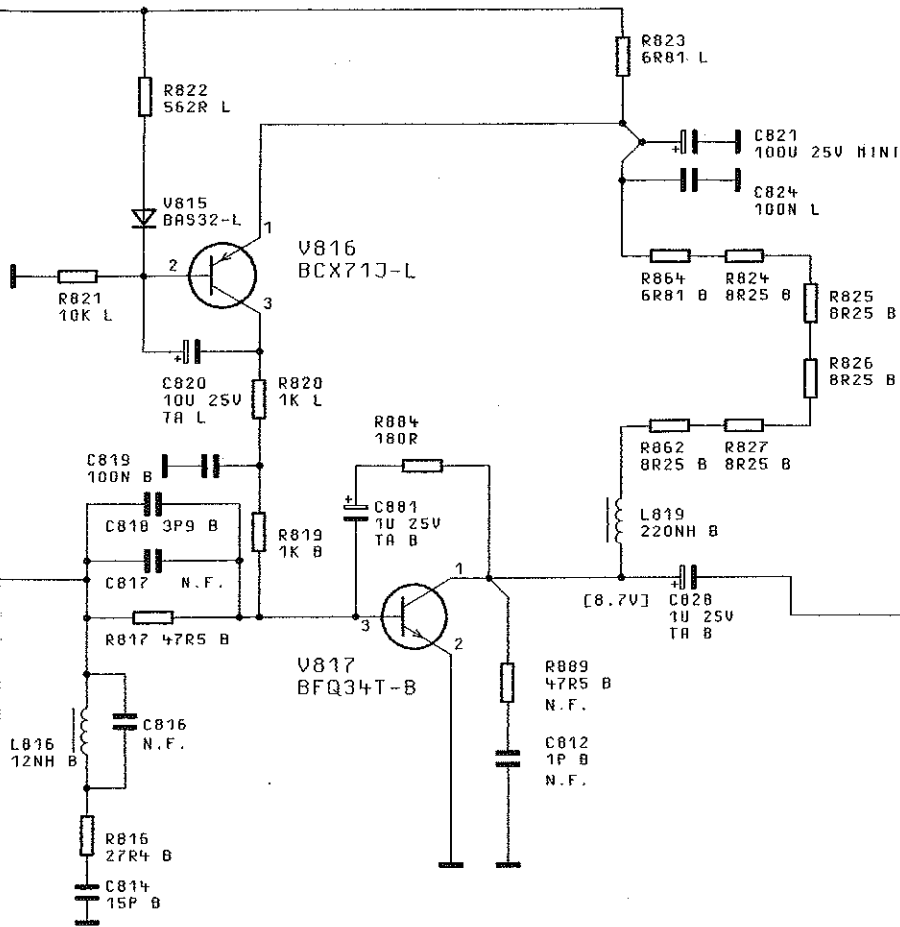


ER

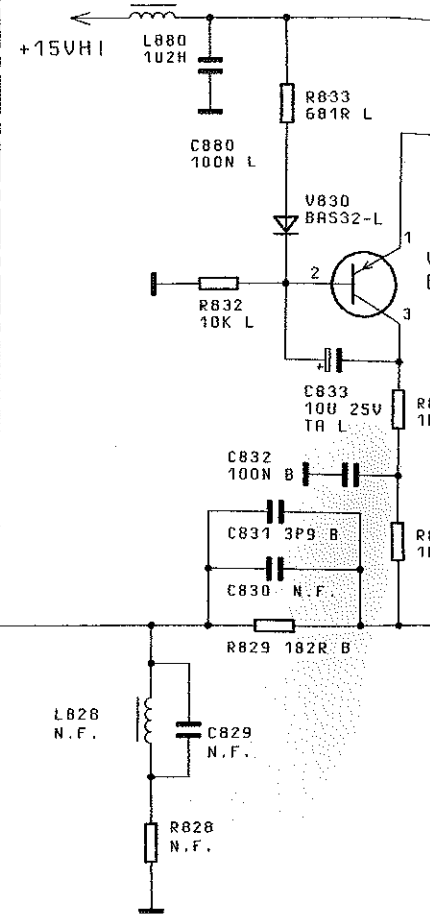


| | | | | | |
|-------|------------|------|----------|----------|--|
| 04/01 | 10.03.97 | E1 | MENP | TAG | |
| | | | BEARB. | | |
| | | | GEPR. | | |
| | | | NORM | | |
| | | | PLOTT | 10.03.97 | |
| 04/ | 11.07.96 | DR | | | |
| REND. | DATUM | NAME | | | |
| IND. | MITTEILUNG | | | | |
| | | | ZU GERÄT | SMY | |

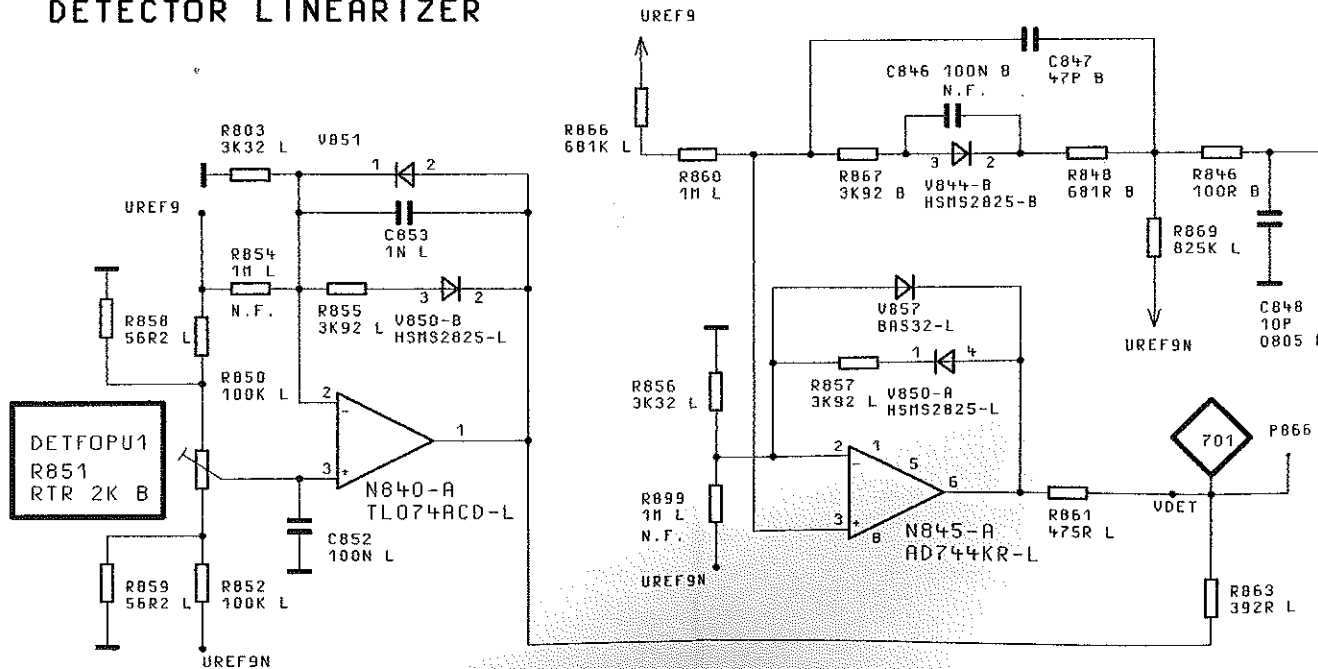
OUTPUT AMPLIFIER 2



OUTPUT AMPLIFIER 3

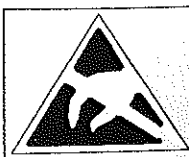


DETECTOR LINEARIZER



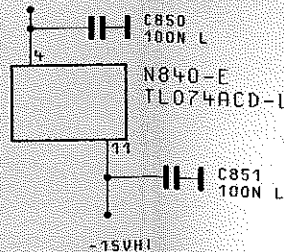
N.F. - NOT FITTED / NICHT BESTUECKT

*** = VAR.06/MOD.06
(MIT/WITH OPTION SMY-B40)

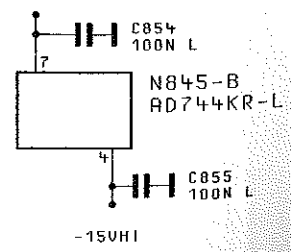


ACHTUNG: ESD!
ELEKTROSTATISCH GEFÄHRDETE
BAUELEMENTE ERFORDERN EINE
BESONDERE HANDHABUNG.
ATTENTION ESD!
ELECTROSTATIC SENSITIVE DEVICES
REQUIRE A SPECIAL HANDLING

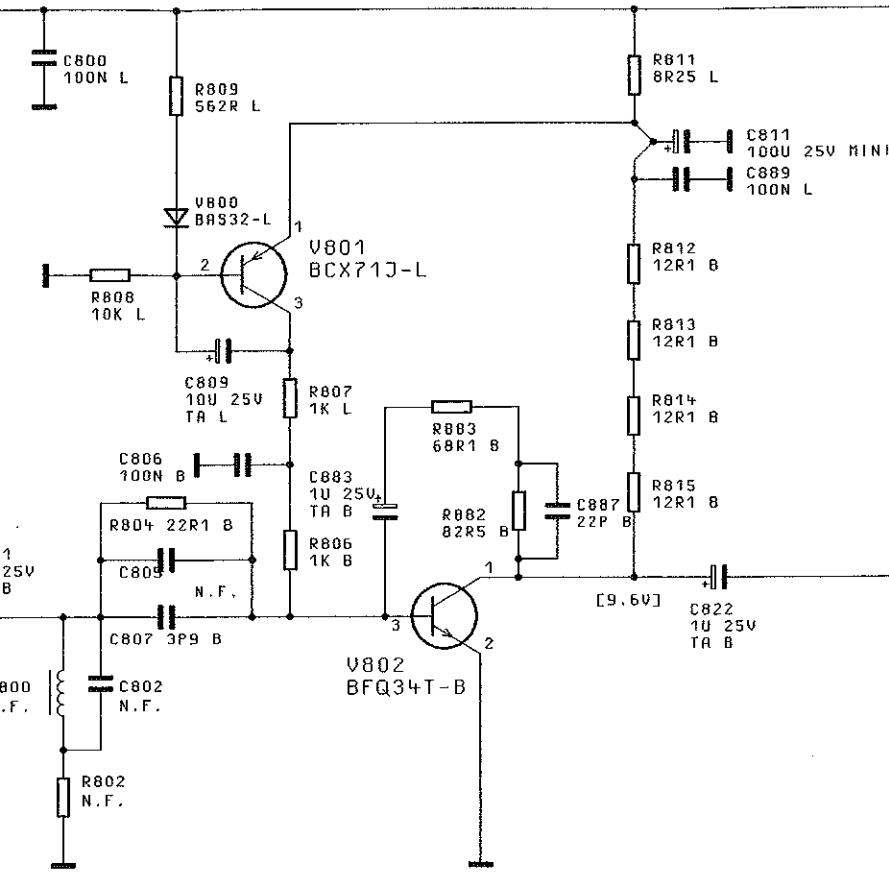
+15VHH



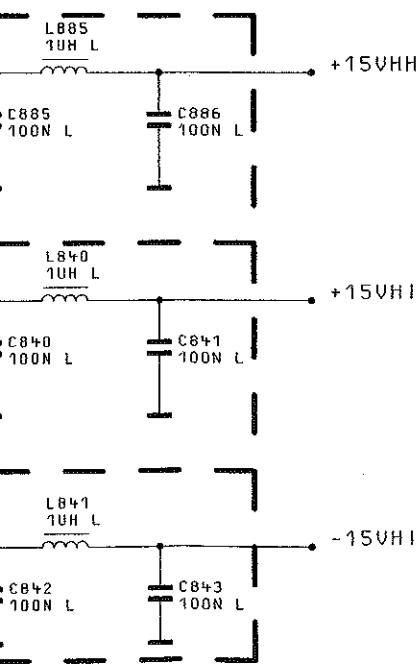
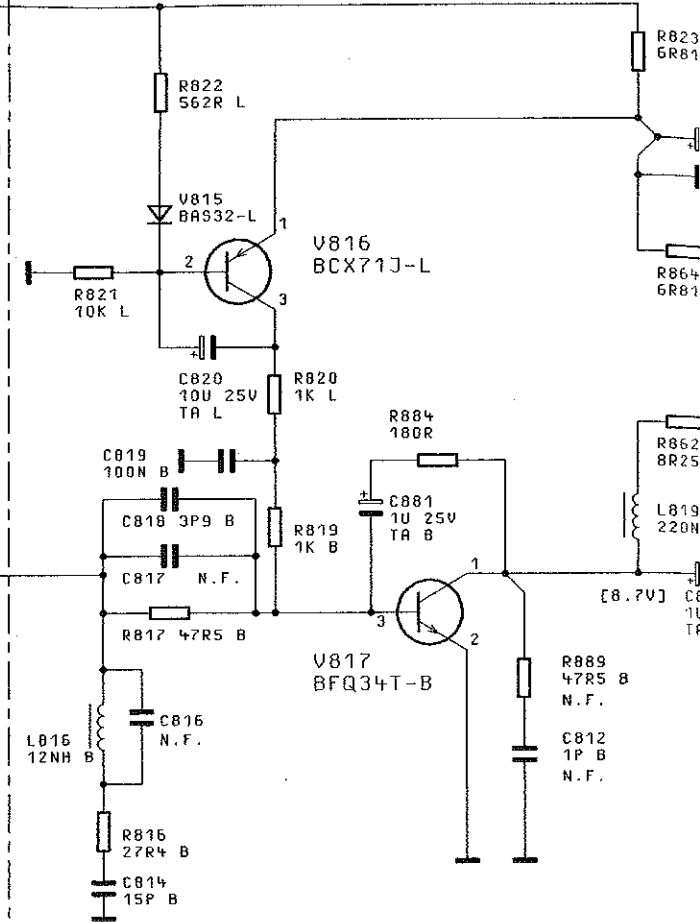
+15VHH



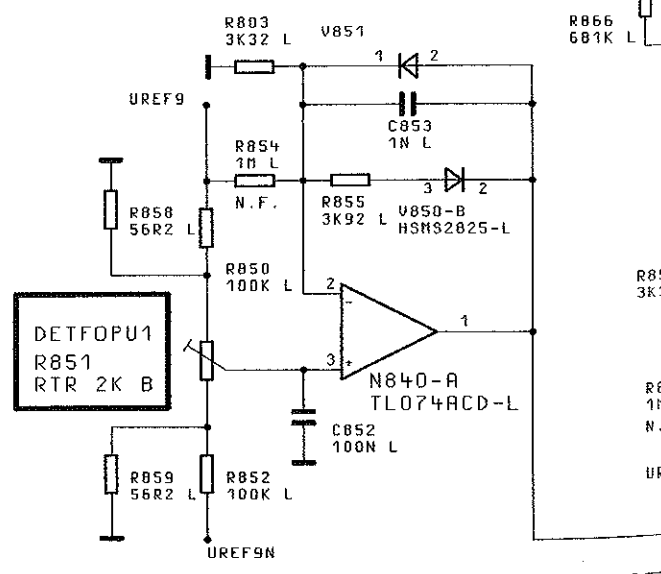
AMPLIFIER 1



OUTPUT AMPLIFIER 2



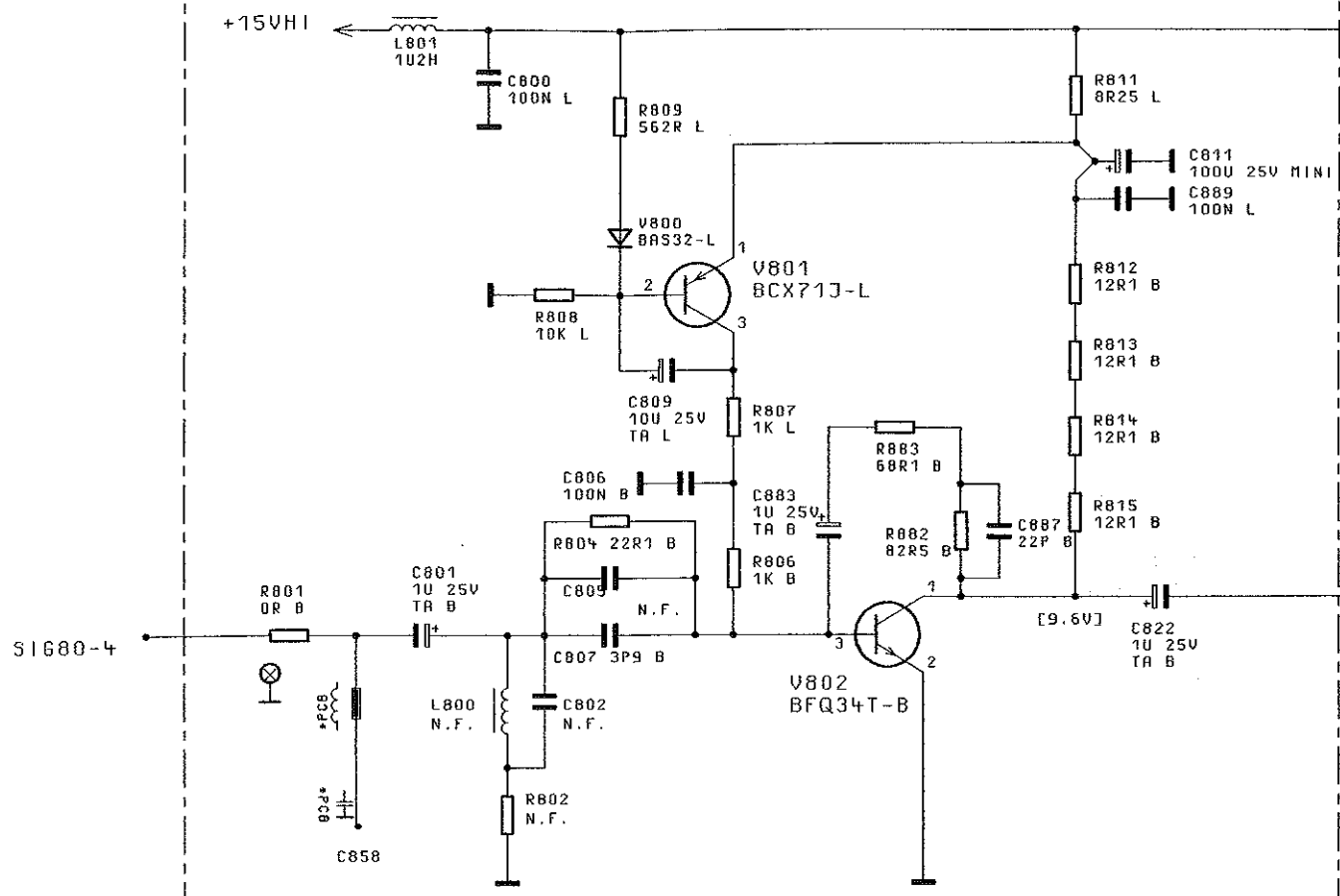
DETECTOR LINEARIZER



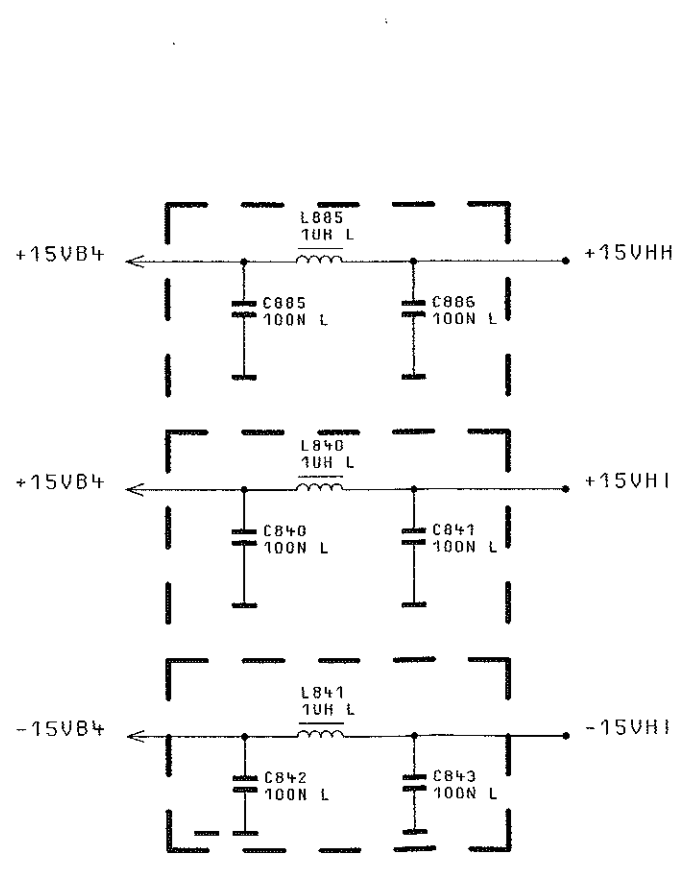
N.F. - NOT FITTED / NICHT BESTUECKT +15VHH
 *** = VAR.06/MOD.06
 (MIT/WITH OPTION SHY-B40)

ACHTUNG: EGB!
 ELEKTROSTATISCH GEFÄHRDETE
 BAUELEMENTE ERFORDERN EINE
 BESONDERE HANDHABUNG.
ATTENTION ESD!
 ELECTROSTATIC SENSITIVE DEVICES
 REQUIRE A SPECIAL HANDLING

OUTPUT AMPLIFIER 1



B1

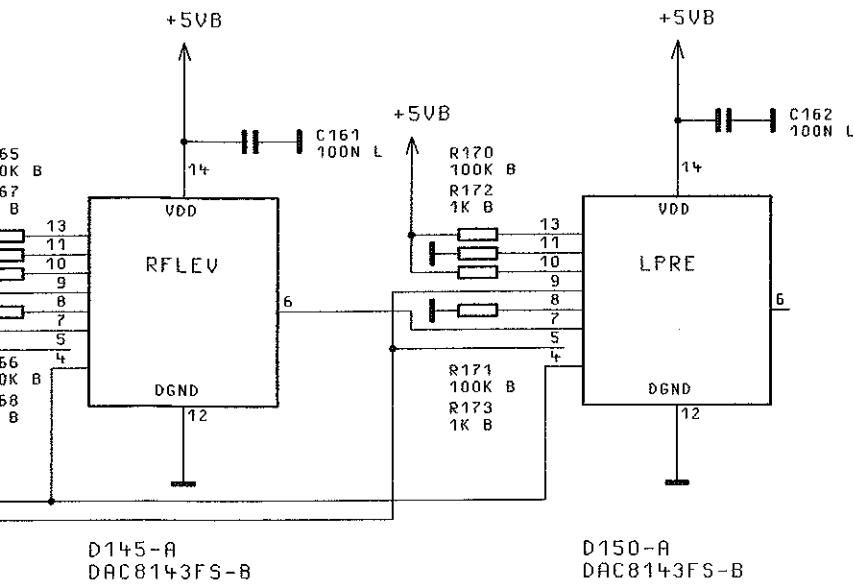


FUER DIESE UNTERLAGE
BEHALTEN WIR UNS ALLE RECHTE VOR

ZEICHN.-NR.

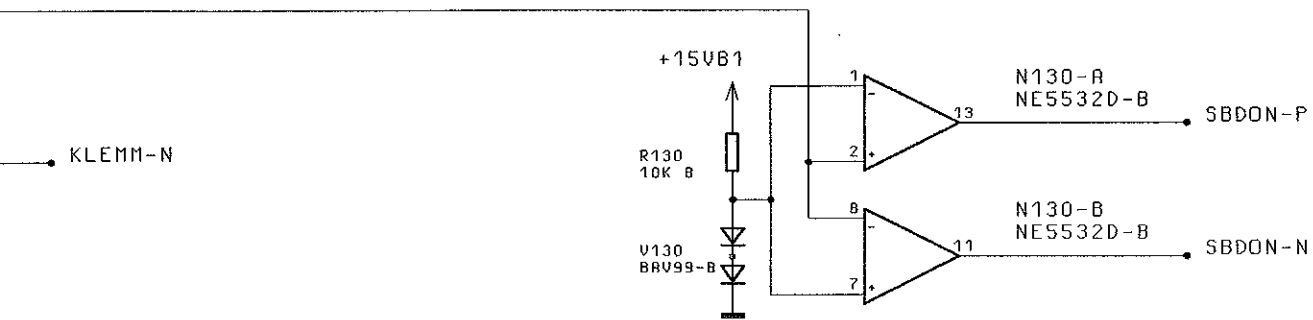
BYTE 4+5

BYTE 6+7

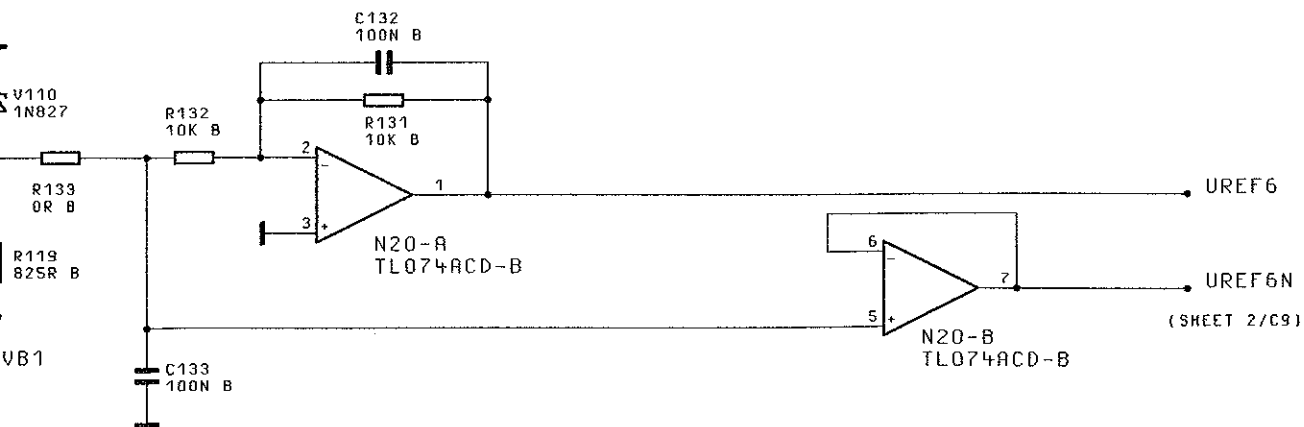


D145-A
DAC8143FS-B

D150-A
DAC8143FS-B



KLEMM-N



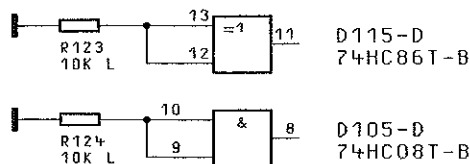
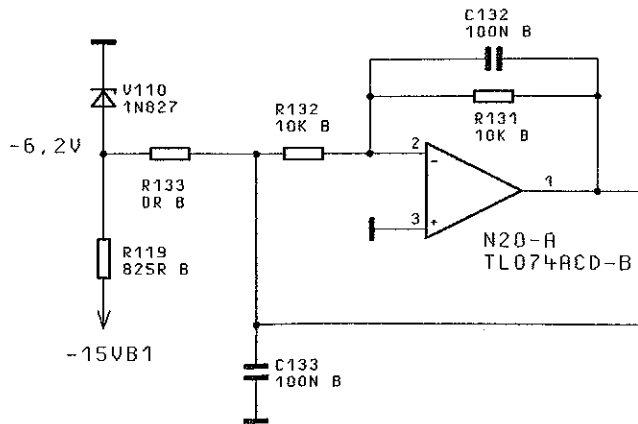
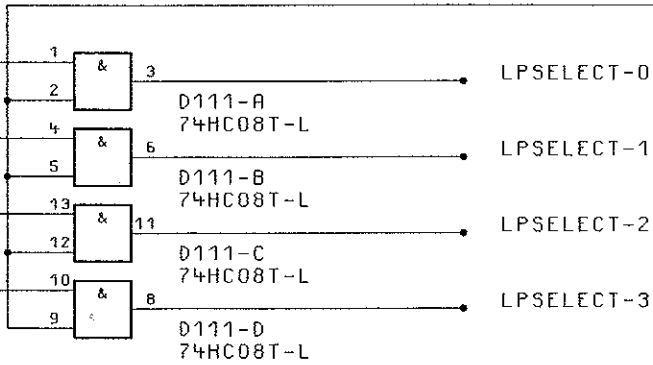
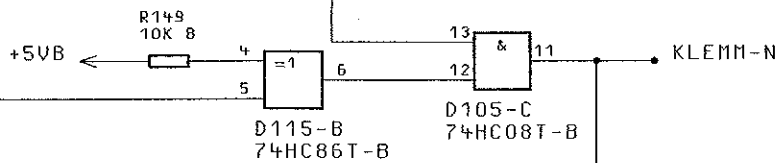
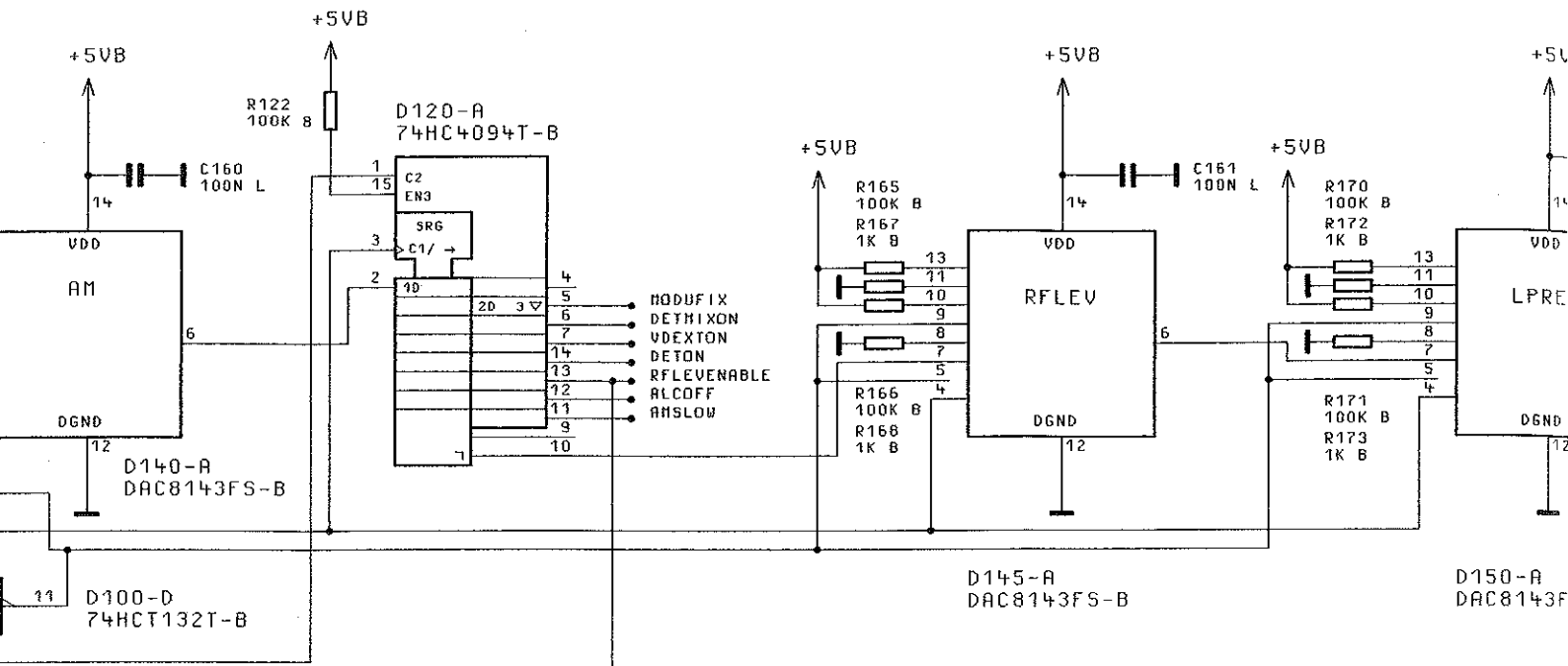
| | | | | | | | |
|---------------|--------------------------|-------|---------------|----------|-------------|-----------------------|--------------------|
| 04/01 | 10.03.97 | EI | MENP | TAG | NAME | BENENNUNG | |
| | | | BEARB. | | EI | AUSGANGSTEIL 1.046GHZ | |
| | | | GEPR. | | | OUTPUT UNIT 1.046GHZ | |
| | | | NORM | | | | |
| | | | PLOTT | 10.03.97 | | | |
| 04/ | 11.07.96 | DR | | | ZEICHN.-NR. | | BLATT-NR. |
| REND. IND. | ÄNDERUNGS- MITTEILUNG | DATUM | | | NAMEN | 1062.6209.019 | |
| | | | ROHDE&SCHWARZ | | | | v. 14/01 |
| | | | ZU GERÄT | SMY | RES. I.V. | 1062.5502 | ERSTE Z. 1062.5502 |

BYTE 2+3

BYTE 3+4

BYTE 4+5

BYTE

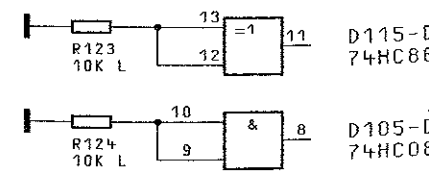
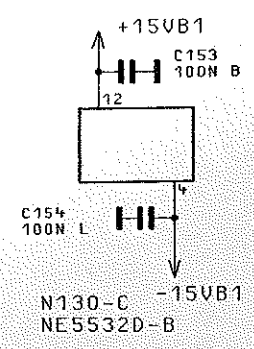
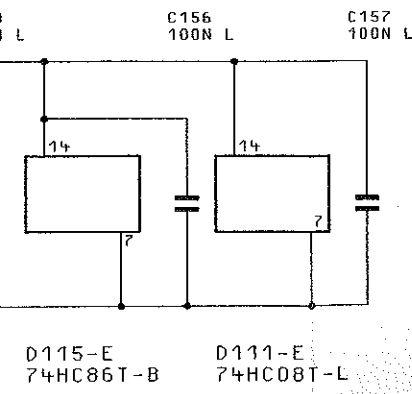
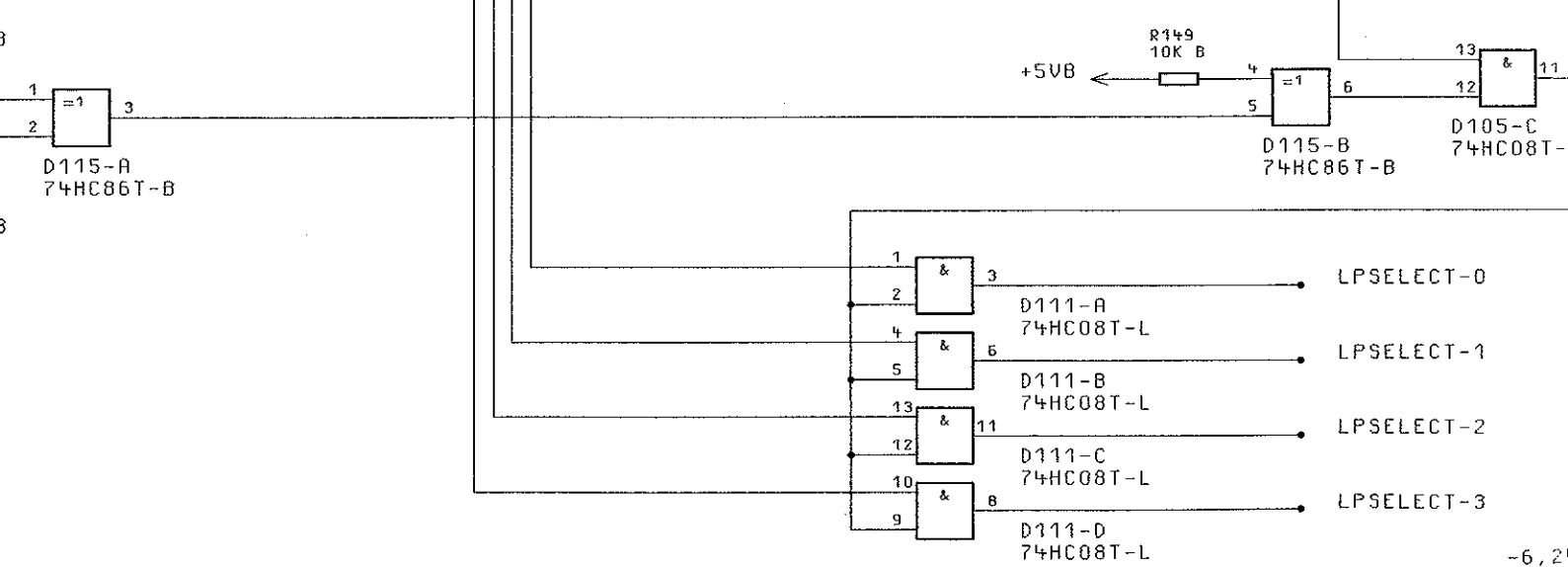
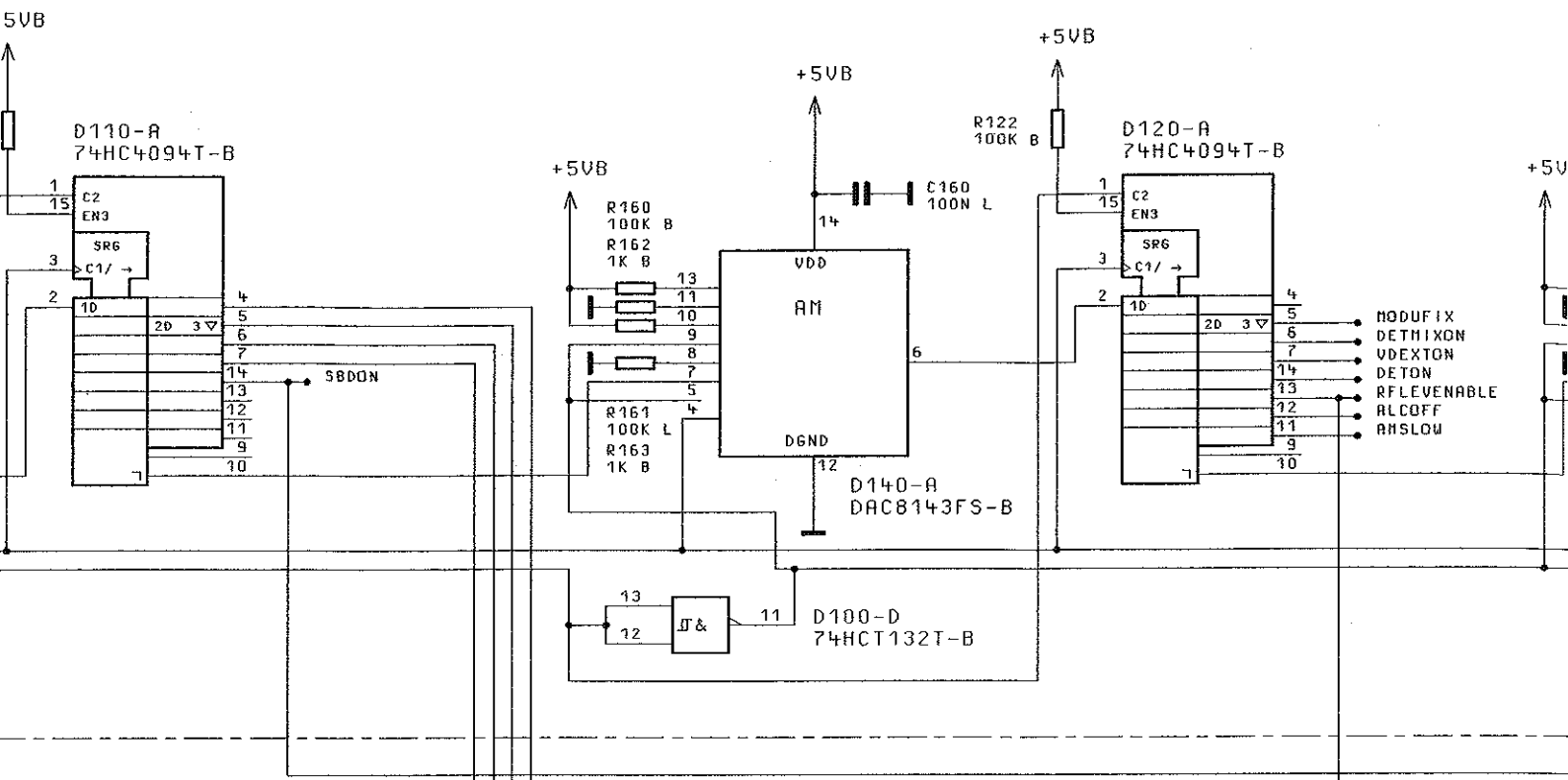


| | | | | |
|---------------|---------------------------|-------|--------------|----------|
| 04/01 | 10.03.97 | E I | MENP | TAG |
| | | | BEARB. | |
| | | | GEPR. | |
| | | | NORM | |
| | | | PLOTT | 10.03.97 |
| 04/ | 11.07.96 | DR | | |
| REND. IND. | RENDERUNGS- MITTEILUNG | DATUM | NAME | |
| | | | | |
| | | | ZU GERÄT SMY | |

BYTE 1

BYTE 2+3

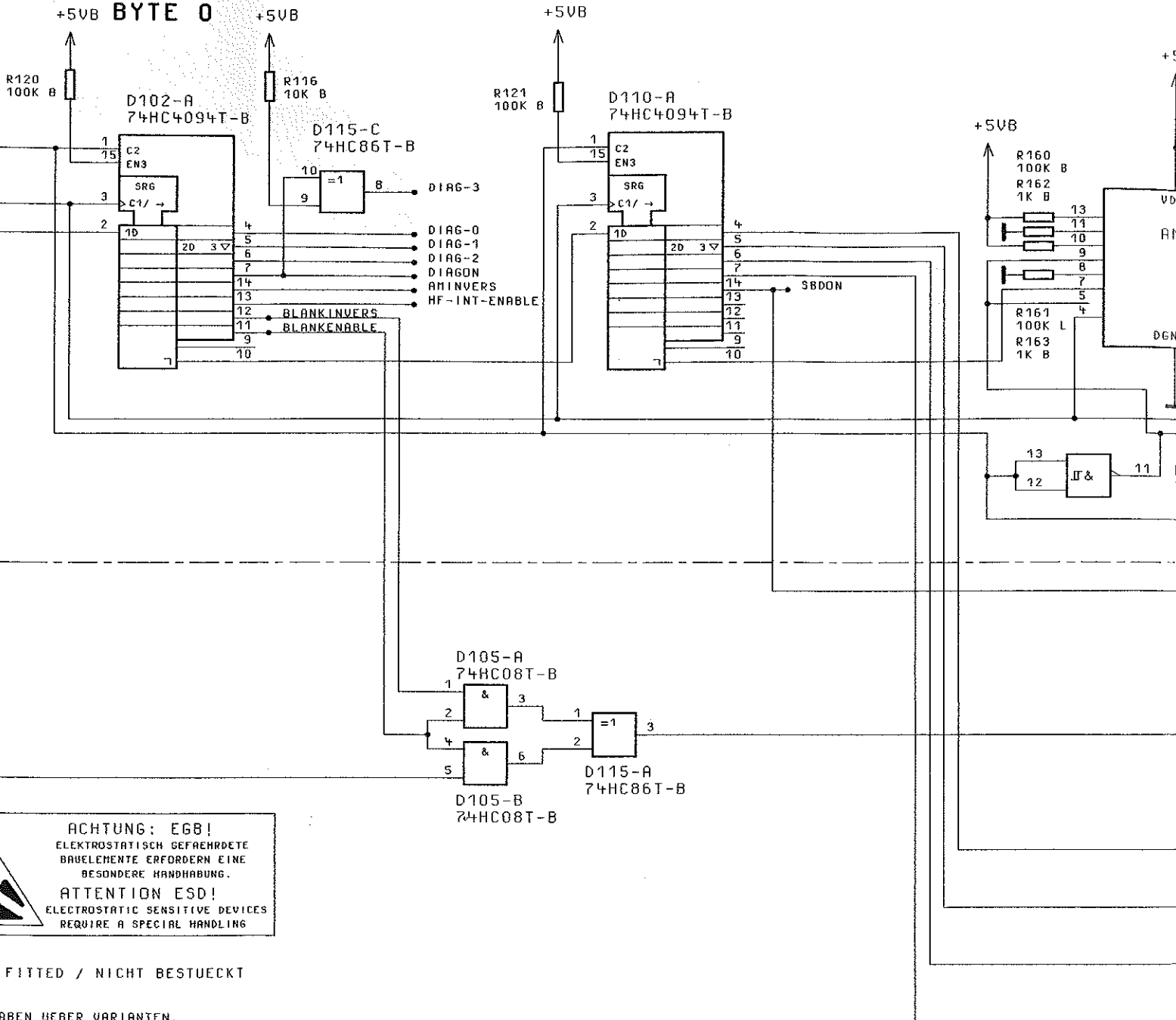
BYTE 3+4



**SUBADDRESS 0
BYTE 0**

BYTE 1

BYTE

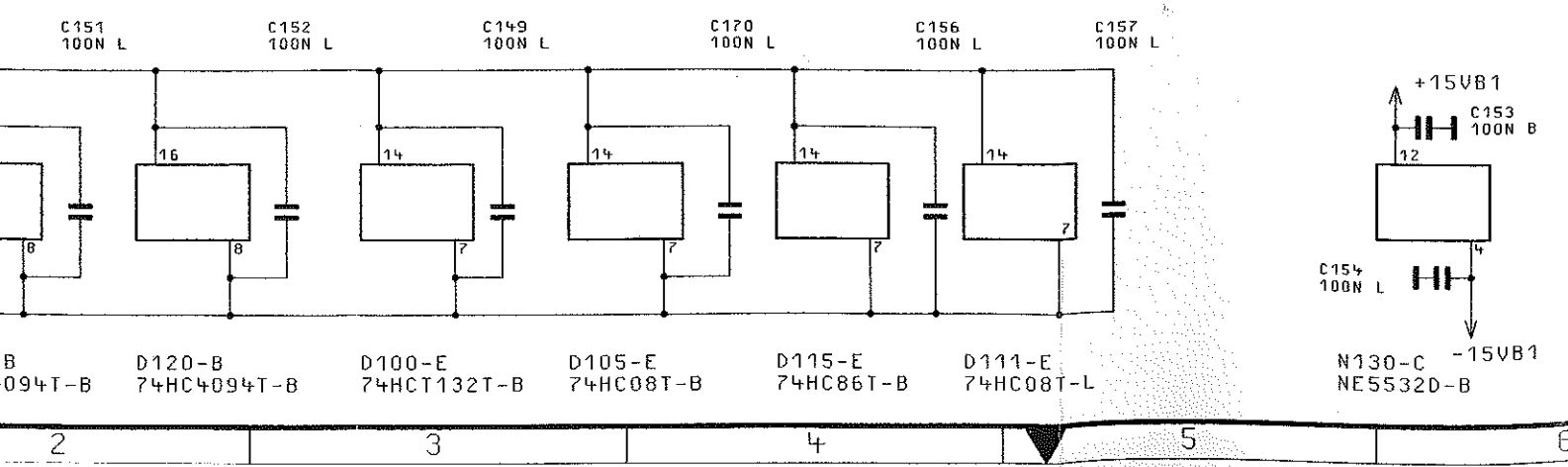


ACHTUNG: EGB!
ELEKTROSTATISCH GEFÄHRDETE
BAUELEMENTE ERFORDERN EINE
BESONDERE HANDHABUNG.
ATTENTION ESD!
ELECTROSTATIC SENSITIVE DEVICES
REQUIRE A SPECIAL HANDLING

NOT FITTED / NICHT BESTUECKT

ANGABEN ÜBER VARIANTEN,
C, BAUTEILWERTE UND
BESTUECKTE BAUTEILE SIEHE SA.

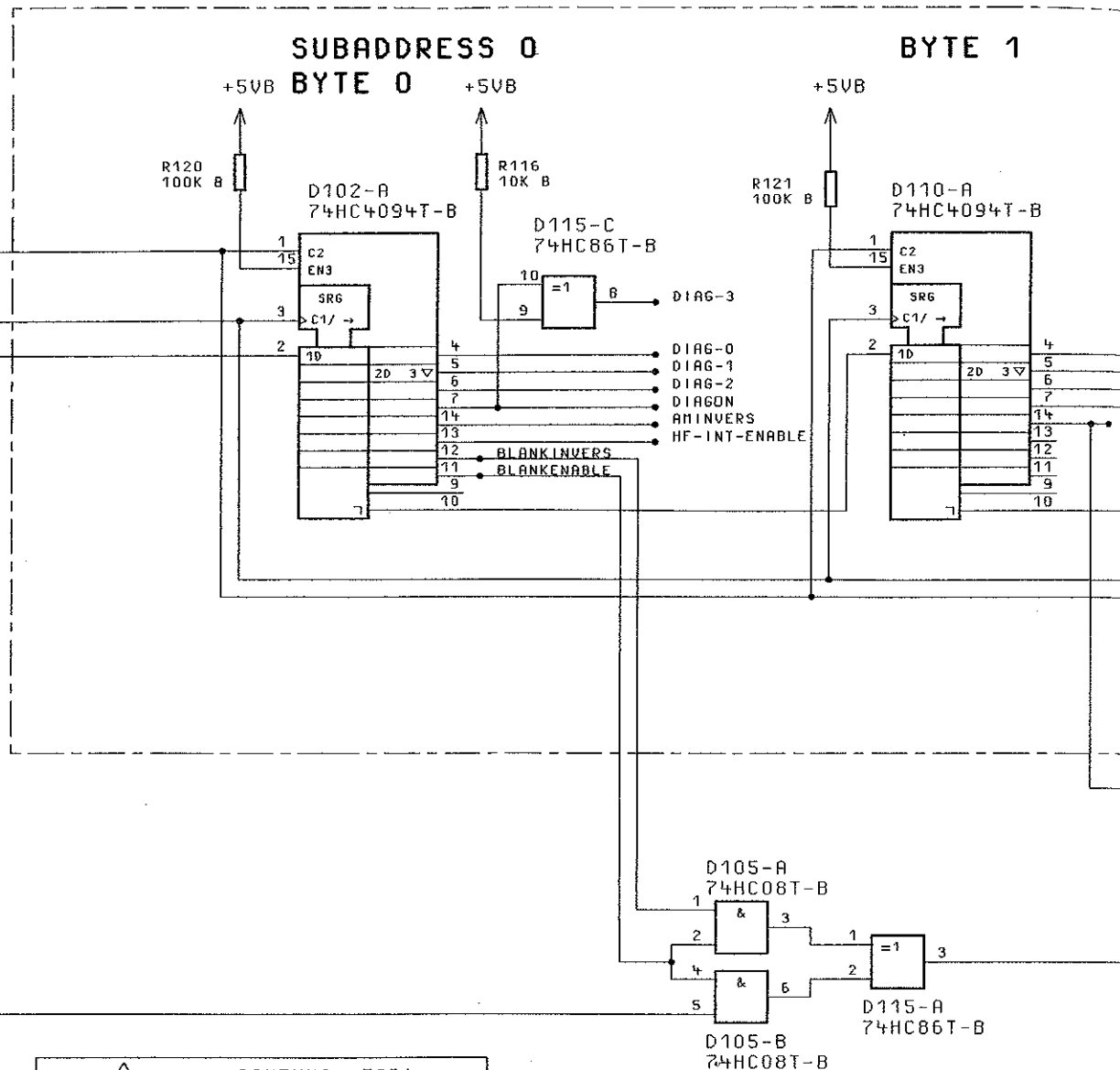
FOR MORE INFORMATION ON MODELS,
PARTS AND COMPONENTS VALUES AND
SPECIFICATIONS SEE PARTS LIST.




FUER DIESE UNTERLAGE
 BEHALTEN WIR UNS ALLE RECHTE VOR

ZEICHEN-NR.

F
E
D
C
B
A



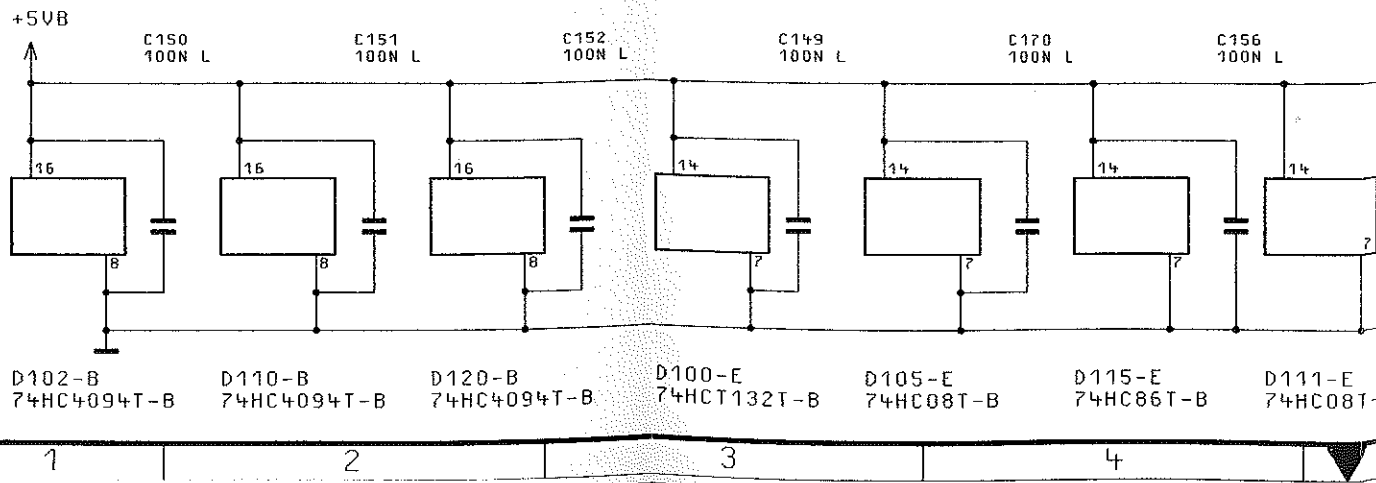


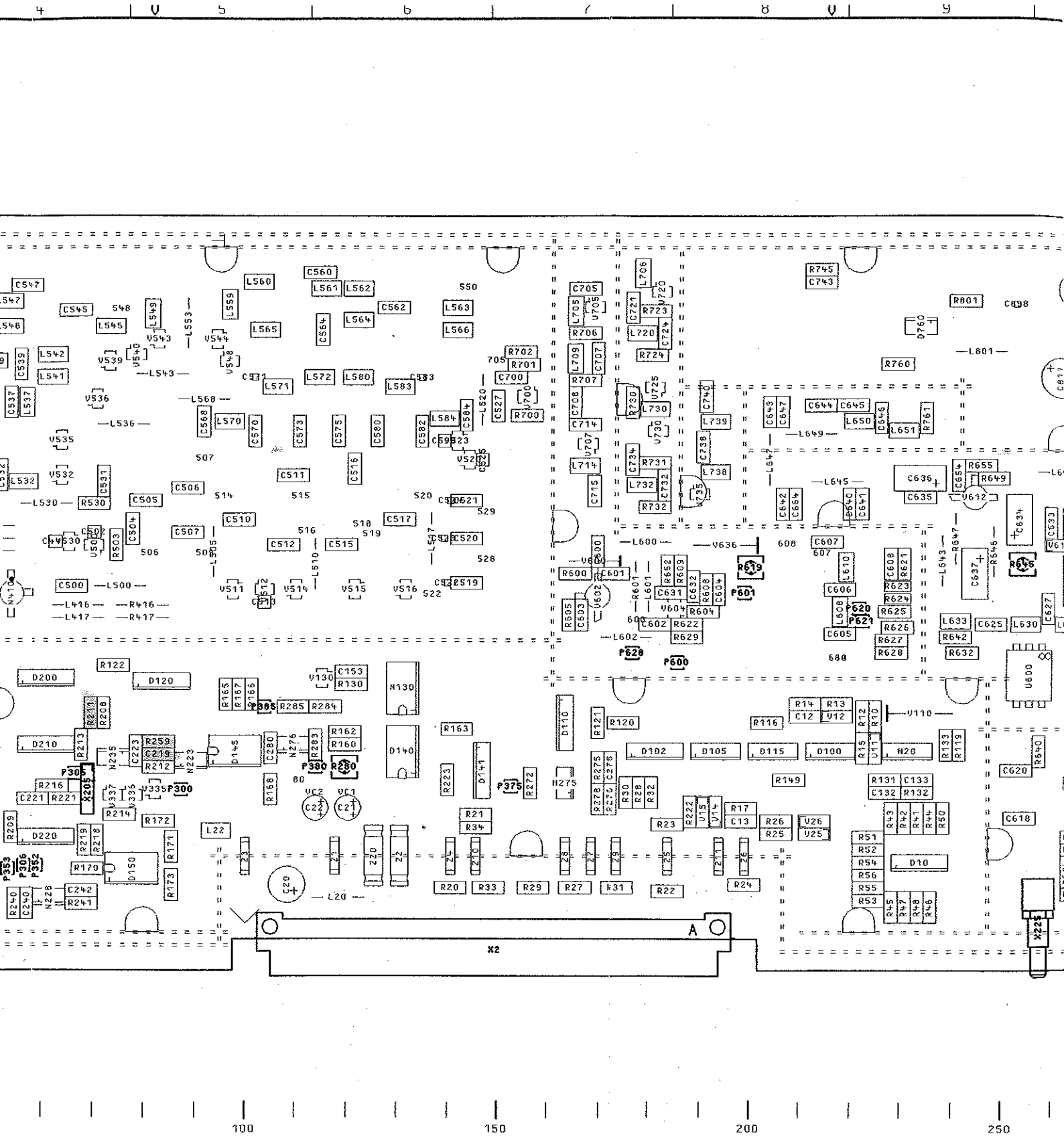
ACHTUNG: EGB!
 ELEKTROSTATISCH GEFÄHRDETE
 BAUELEMENTE ERFORDERN EINE
 BESONDERE HANDHABUNG.
ATTENTION ESD!
 ELECTROSTATIC SENSITIVE DEVICES
 REQUIRE A SPECIAL HANDLING

N.F. = NOT FITTED / NICHT BESTUECKT

BINDENDE ANGABEN UEBER VARIANTEN,
 TRIMMWERTE, BAUTEILWERTE UND
 NICHT BESTUECKTE BAUTEILE SIEHE SA.

FOR BINDING INFORMATION ON MODELS,
 TRIMMING AND COMPONENTS VALUES AND
 NONFITTED COMPONENTS SEE PARTS LIST.



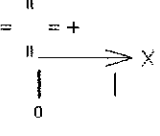
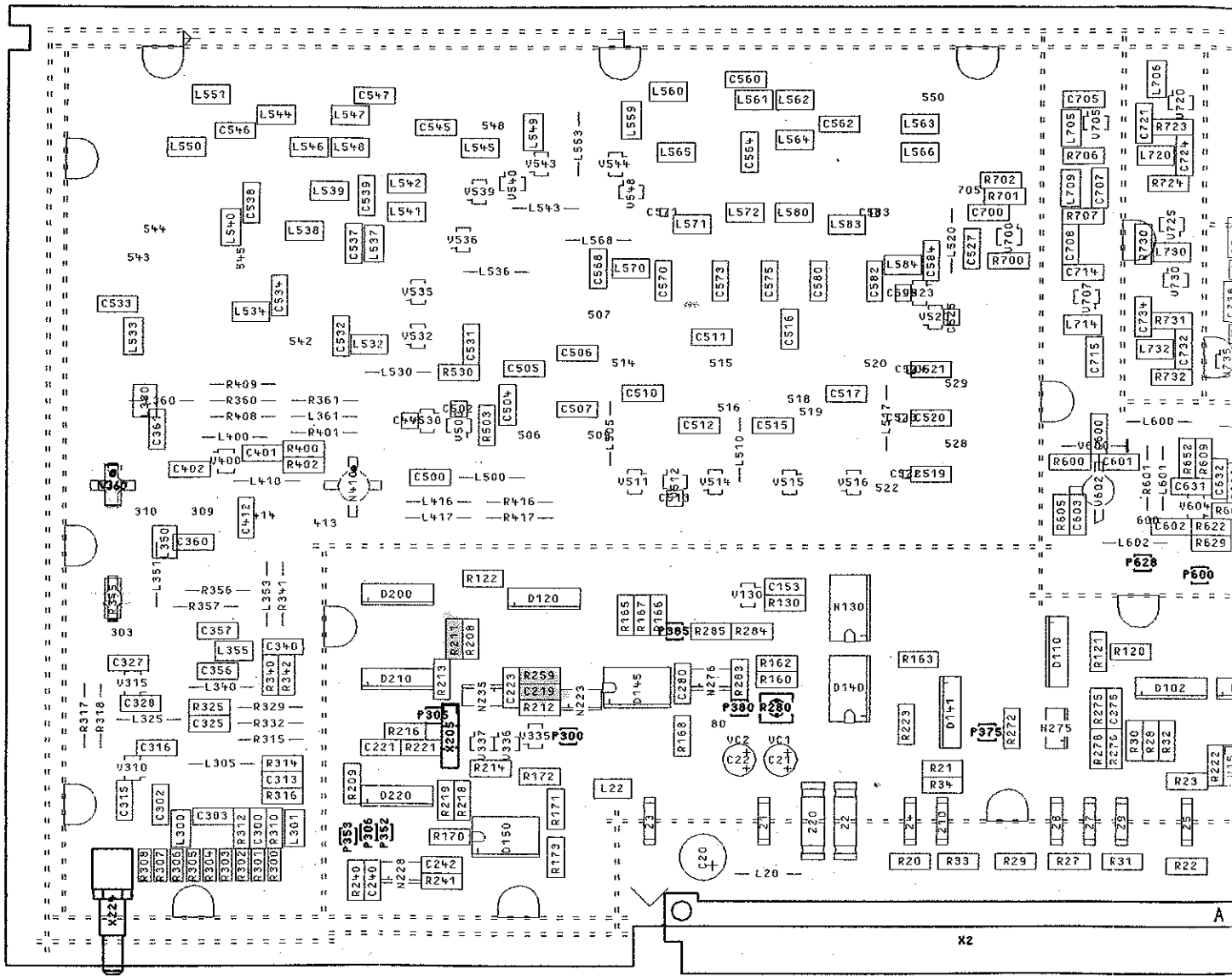


BILDENDE ANGABEN UEBER VARIANTEN,
 TRIMMWERTE, BAUTEILWERTE UND
 NICHT BESTUECKTE BAUTEILE SIEHE SR.

FOR BINDING INFORMATION ON MODELS,
 TRIMMING AND COMPONENTS VALUES AND
 NONFITTED COMPONENTS SEE PARTS LIST.

| REV. | RENDERUNGS- MITTEILUNG | DATUM | NAMEN | ZUR GEORDE |
|---------------|---------------------------|----------|-------|--|
| 03/ | | 11.07.96 | DR | 16PK BEARB. GEPR. NORM PLOT1 |
| 02/ | | 08.10.93 | DR | |
| REND. INB. | | | | |

150
100
50
0



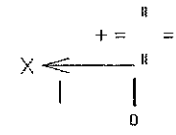
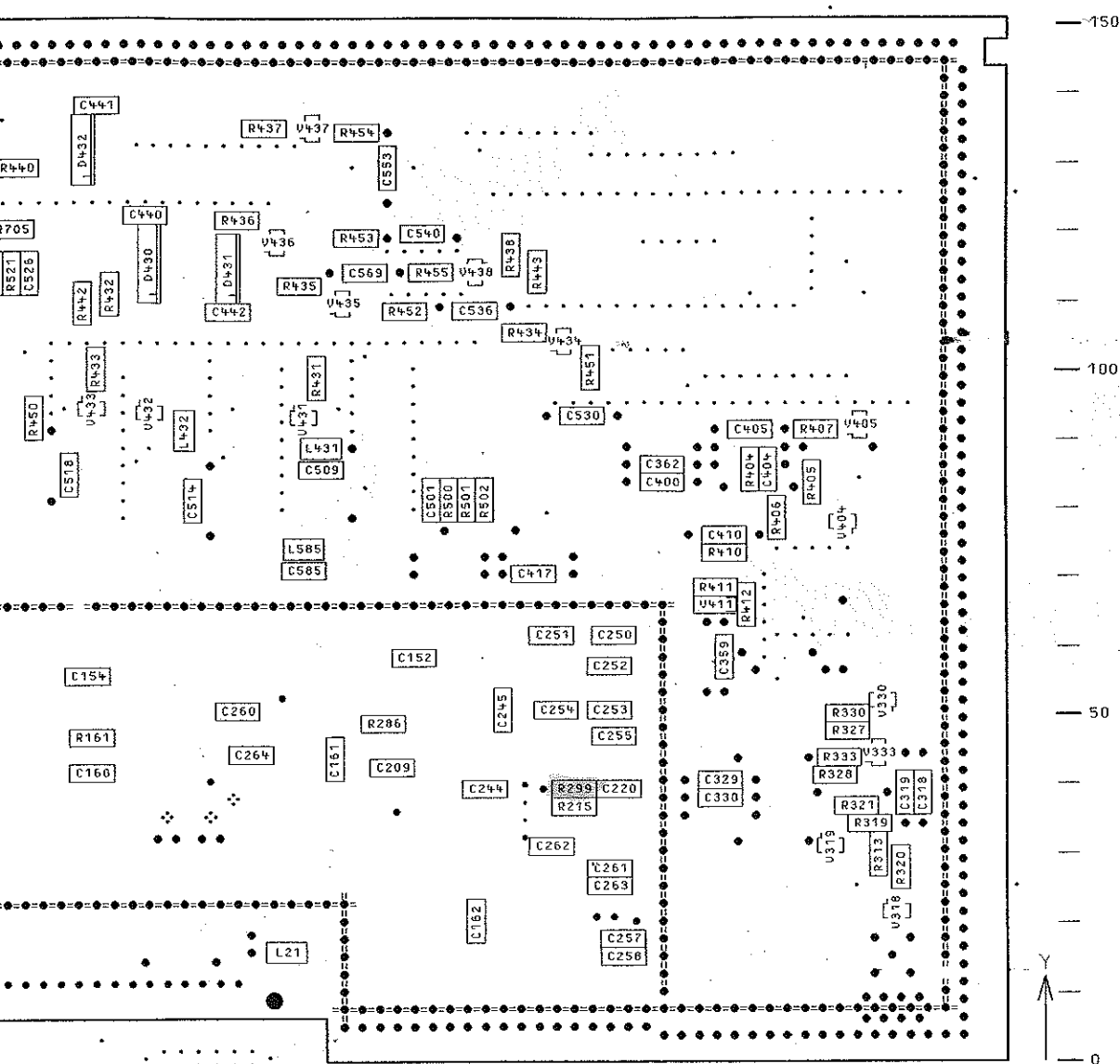
SEITE B
B



ACHTUNG: EGB!
ELEKTROSTATISCH GEFÄHRDETE
BAUELEMENTE ERFORDERN EINE
BESONDERE HANDHABUNG.
ATTENTION ESD!
ELECTROSTATIC SENSITIVE DEVICES
REQUIRE A SPECIAL HANDLING

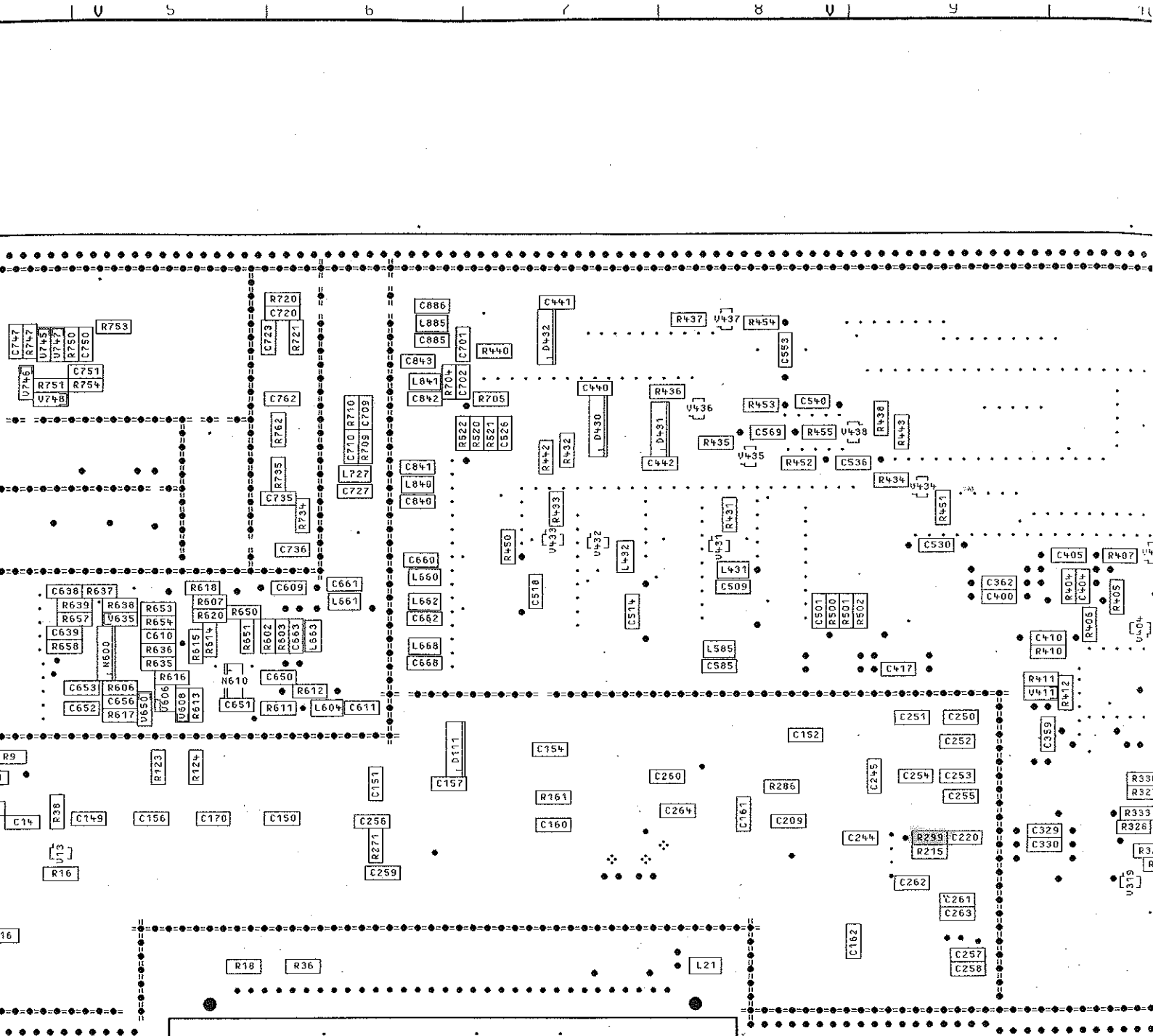
BINDENDE ANGABEN UEBER VARIANTEN,
TRIMMWERTE, BAUTEILWERTE UND
NICHT BESTUECKTE BAUTEILE SIEHE SA

FOR BINDING INFORMATION ON MODELS,
TRIMMING AND COMPONENTS VALUES AND
NON-FITTED COMPONENTS SEE PARTS LIST



| | | | | | | | | |
|------|------------|----------|------|------------|----------|--------------|-------------|--------------------|
| 03/ | | 11.07.96 | DR | 1GPK | TAG | NAME | BENENNUNG | |
| | | | | BERPB. | | DR | | |
| | | | | GEPP. | | | | |
| | | | | NDPH | | | | |
| | | | | PLDIT | 11.07.96 | | | |
| 02/ | | 08.10.93 | DR | | | | ZEICHN.-NP. | |
| REND | RENDPUNGS- | DATUM | NABE | | | 1062.6209.01 | | EE |
| 1RB | NITTEILUNG | | | | | 2+ | | |
| | | | | ZU BEPRET. | STY | RES. 1 V | 1062.5502 | EPSTE 2. 1062.5502 |

H
G
F
E
D
C
B
A



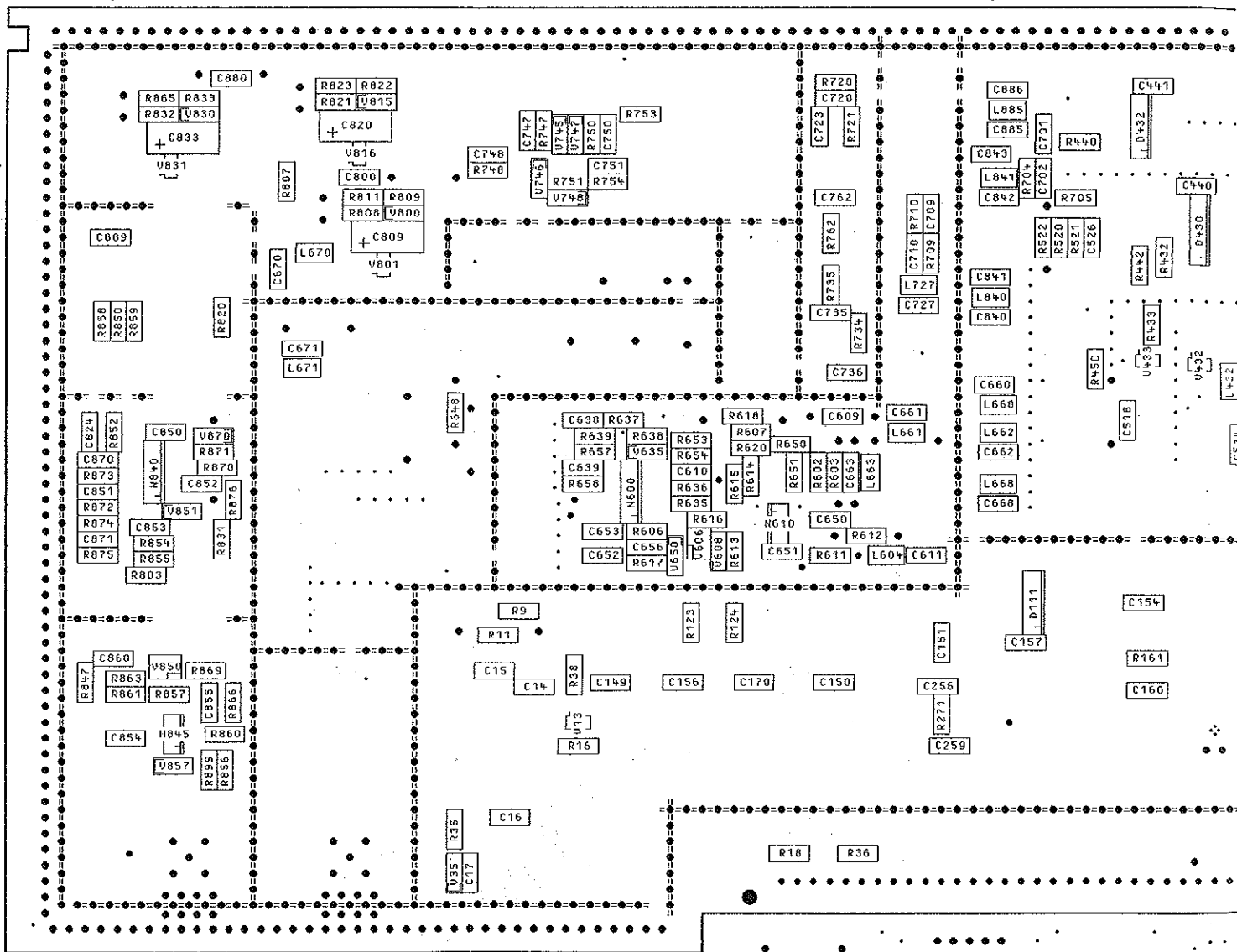
200 150 100 50

ANGABEN ÜBER VARIANTEN,
 TEILE, BRÜTEILWERTE UND
 STÜCKLISTE BRÜTEILE SIEHE SA.

ING INFORMATION ON MODELS,
 AND COMPONENTS VALUES AND
 D COMPONENTS SEE PARTS LIST.

| | | | | | |
|--------------|---------------------------|----------|-----|--------|----------|
| 03/ | | 11.07.96 | DR | 16PK | 1AG |
| | | | | ACAPB: | |
| | | | | GEPP: | |
| | | | | NORA: | |
| | | | | PLOTT: | 11.07.96 |
| 02/ | | 08.10.93 | DR | | |
| REND IND. | RECHENPUNG- MITTEILUNG | DATUM | NAM | | |





300

250

200

150

ELLUNG SEITE A
ON SIDE A



ACHTUNG: EGB!
ELEKTROSTATISCH GEFÄHRDENE
BAUKLEINTEILE Erfordern eine
BESONDERE HANDHABUNG.
ATTENTION ESD!
ELECTROSTATIC SENSITIVE DEVICES
REQUIRE A SPECIAL HANDLING

BINDENDE ANGABEN ÜBER VARIANTEN,
TRIMMWERTE, BAUTEILWERTE UND
NICHT BESTÜCKTE BAUTEILE SIEHE SA.

FOR BINDING INFORMATION ON MODELS,
TRIMMING AND COMPONENTS VALUES AND
NONFITTED COMPONENTS SEE PARTS LIST.

| Signal-Name | Page-No.: | Zones |
|-----------------|------------------------|---|
| +15VB1 | 02: | 3F 06: 1A |
| +15VB2 | 06: | 3A |
| +15VB4 | 08: | 2E |
| +15VHH | 09: | 3B 6A 7A |
| +15VHI | 09: | 3B 10C |
| +5VB | 05: | 8C |
| +9V-I | 07: | 4A |
| -15VB1 | 02: | 3E |
| -15VB3 | 05: | 4E |
| -15VB4 | 08: | 2D |
| -15VHI | 09: | 3A 6A 8A |
| -9V-I | 07: | 4B |
| ALCOFF | 03: | 1F 10: 7E |
| AM | 02: | 4C 03: 1D |
| AMINVERS | 03: | 1B 10: 3E |
| AMSLOW | 03: | 1F 10: 7E |
| BLANK | 02: | 4C 10: 1C |
| BLANKENABLE | 10: | 3E |
| BLANKINVERS | 10: | 3E |
| CLK1 | 02: | 4B 10: 1E |
| DEFILT | 02: | 6D 08: 1E |
| DETMIXON | 03: | 1E 10: 7E |
| DETON | 03: | 1E |
| Druck 11.07.96 | Abt.1GPK | Name DR Dat.11.07.96 Ae.Mi. Aei. 04 |
| ROHDE & SCHWARZ | Benennung | AUSGANGSTEIL_1.046GHZ OUTPUT_UNIT_1.046GHZ 11+ |
| Typ. SMY | Reg in Verz. 1062.5502 | V Sachnummer 1062.6209 S |

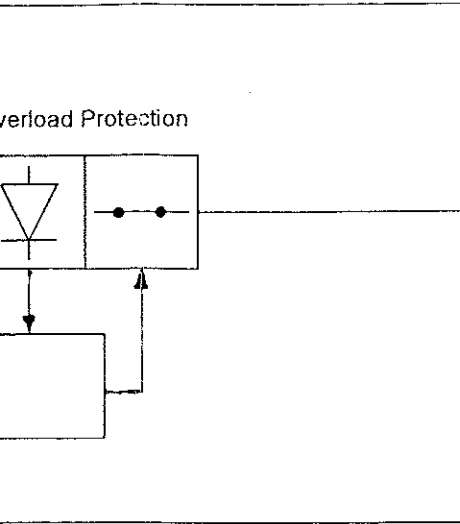


| Signal-Name | Page-No.: | Zones | | | |
|-----------------|--------------|---|--------------|------------|-------------|
| DETON | 10: | 7E | | | |
| DIAG-0 | 02: | 7E 10: 3E | | | |
| DIAG-1 | 02: | 7E 10: 3E | | | |
| DIAG-2 | 02: | 7E 10: 3E | | | |
| DIAG-3 | 02: | 7E 10: 3E | | | |
| DIAGON | 10: | 3E | | | |
| HF-INT-ENABLE | 02: | 11C 10: 3E | | | |
| KLEMM-N | 03: | 1F 10: 8C | | | |
| LPSELECT-0 | 05: | 8D 10: 7C | | | |
| LPSELECT-1 | 05: | 8D 10: 7C | | | |
| LPSELECT-2 | 05: | 8D 10: 7B | | | |
| LPSELECT-3 | 05: | 8D 10: 7B | | | |
| MODUFIX | 03: | 10C 10: 7E | | | |
| RFLEVENABLE | 10: | 7E | | | |
| RFLOLEV | 04: | 12D 05: 1D | | | |
| SBDON | 10: | 5E | | | |
| SBDON-N | 08: | 1E 10: 11C | | | |
| SBDON-P | 08: | 1E 10: 11D | | | |
| SEROUT | 02: | 4C 10: 1E | | | |
| SIG10 | 05: | 7D | | | |
| Druck 11.07.96 | Abt.1GPK | Name DR | Dat.11.07.96 | Ae.Mi. | Aei. 04 |
| ROHDE & SCHWARZ | Benennung | AUSGANGSTEIL_1.046GHZ OUTPUT_UNIT_1.046GHZ | | 12+ | |
| Typ. SMY | Reg in Verz. | 1062.5502 | V | Sachnummer | 1062.6209 S |

| Signal-Name | Page-No. : Zones |
|-----------------|---|
| SIG10 | 06: 1E |
| SIG80-1 | 06: 12E 08: 1C |
| SIG80-2 | 07: 1D 08: 5C |
| SIG80-3 | 07: 12D 08: 10B |
| SIG80-4 | 08: 11D 09: 1D |
| TP1 | 05: 12E 06: 4F |
| TP2 | 05: 12E 06: 6F |
| TP3 | 05: 12D 06: 7F |
| TP4 | 05: 12D 06: 2C |
| TP5 | 05: 12D 06: 3C |
| TP6 | 05: 12D 06: 5C |
| TP7 | 05: 12C 06: 7C |
| TP8 | 05: 12C 06: 10C |
| ULPRE | 02: 11E 03: 12E 05: 4E |
| UMODULATOR | 02: 11E 03: 12C 04: 6E |
| UREF6 | 03: 9F 10: 11B |
| UREF6N | 03: 4C 10: 11B |
| UREF9 | 09: 5C 12B |
| Druck 11.07.96 | Abt.1GPK Name DR Dat.11.07.96 Ae.Mi. Aei. 04 |
| ROHDE & SCHWARZ | Benennung AUSGANGSTEIL_1.046GHZ OUTPUT_UNIT_1.046GHZ 13+ |
| Typ. SMY | Reg in Verz. 1062.5502 V Sachnummer 1062.6209 S |

| Signal-Name | Page-No.: Zones |
|-------------|-----------------------------|
| UREF9N | 09: 5A 6B 12C |
| UREGELVERST | 02: 6C 03: 12B |
| URF-SOLL | 02: 11E 03: 7C |
| VDET | 02: 11E 03: 1E 09: 8B |
| VDETMIX | 02: 11E 03: 1F |
| VDETMIXE | 07: 4C |
| VDEXT | 02: 4F 03: 1E |
| VDEXTON | 03: 1E 10: 7E |
| WR1 | 02: 4B 10: 1E |


| | | | | | |
|-----------------|--------------|---|--------------|------------|-------------|
| Druck 11.07.96 | Abt.1GPK | Name DR | Dat.11.07.96 | Ae.Mi. | Aei. 04 |
| ROHDE & SCHWARZ | Benennung | AUSGANGSTEIL_1.046GHZ OUTPUT_UNIT_1.046GHZ | | 14- | |
| Typ. SMY | Reg in Verz. | 1062.5502 | V | Sachnummer | 1062.6209 S |



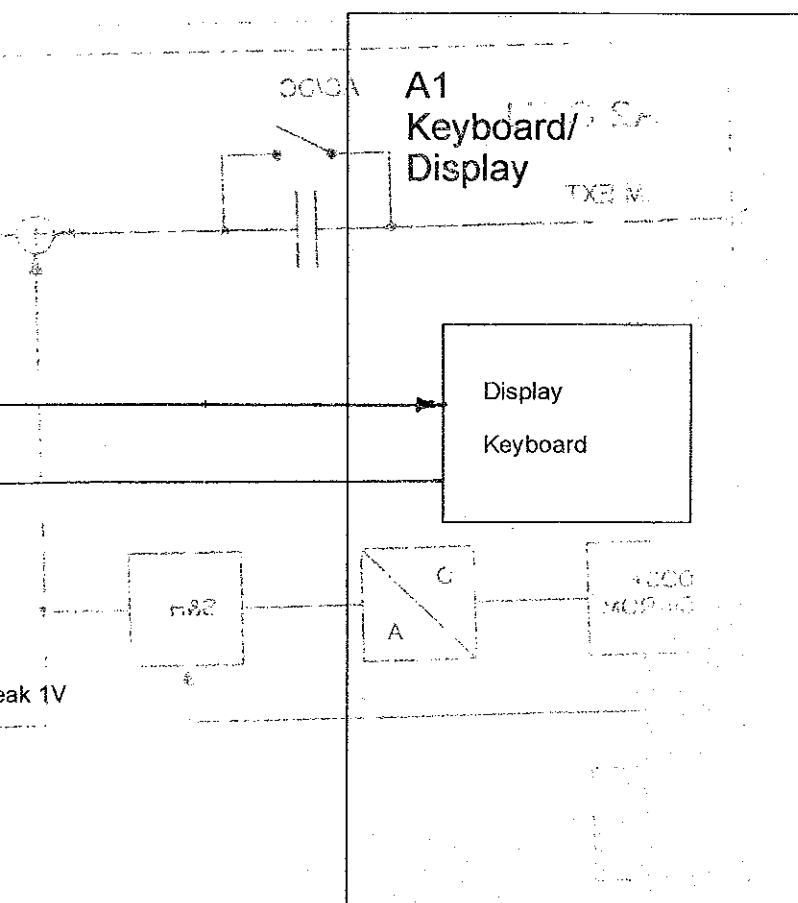
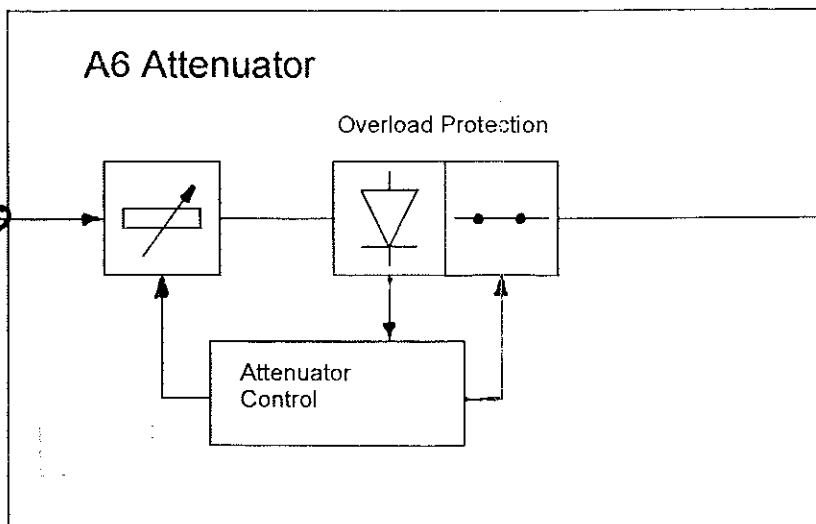
W1


X2

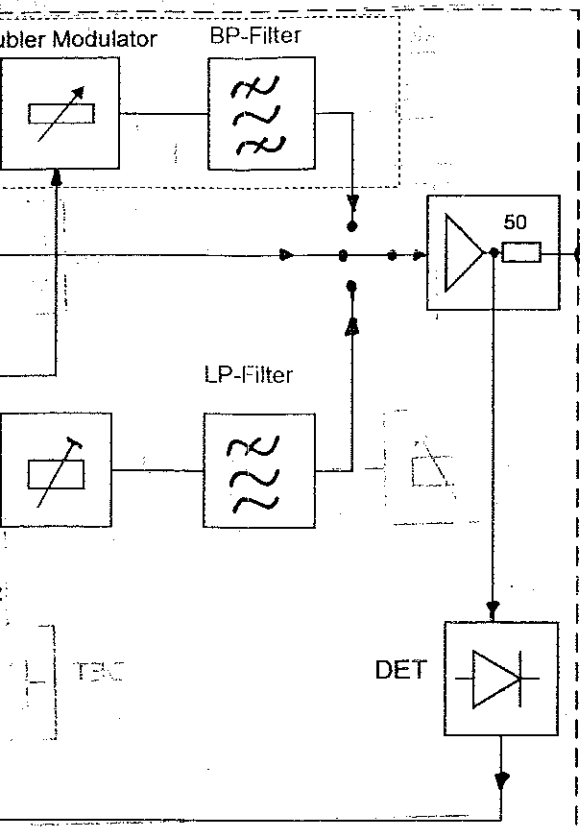
C

| | | | | | |
|--|----------|------|---------------------|----------|-----------|
| 1 GPK | TAG | NAME | BENENNUNG | | |
| BEARB. | | JN | SIGNALGENERATOR_SMY | | |
| GEPR. | | JN | SIGNALGENERATOR_SMY | | |
| NORM | | | top | | |
| PLOTT | 27.09.94 | | ZEICHN.-NR. | | |
|  ROHDE & SCHWARZ | | | 1062.5502.00 FS. | | BLATT-NR. |
| | | | | | 1 |
| ZU GERÄT SMY | | | REG.I.V. 1062.5502 | ERSTE Z. | v. 1 Bl. |

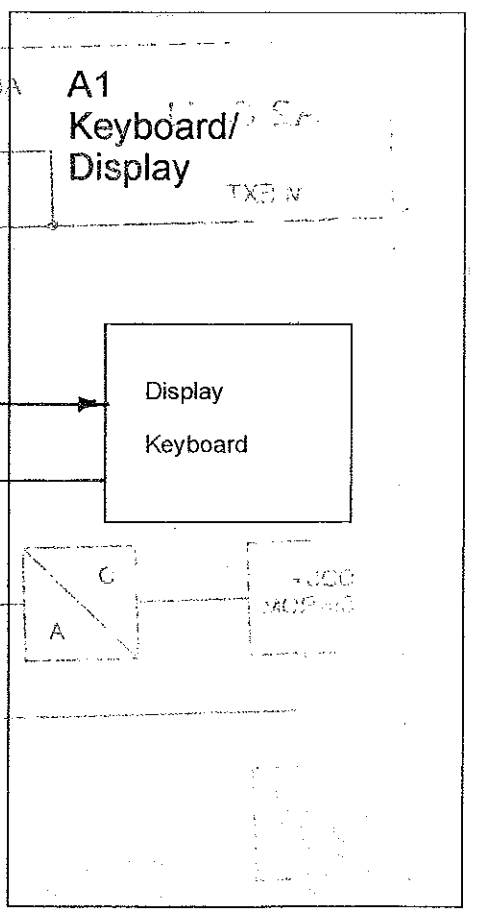
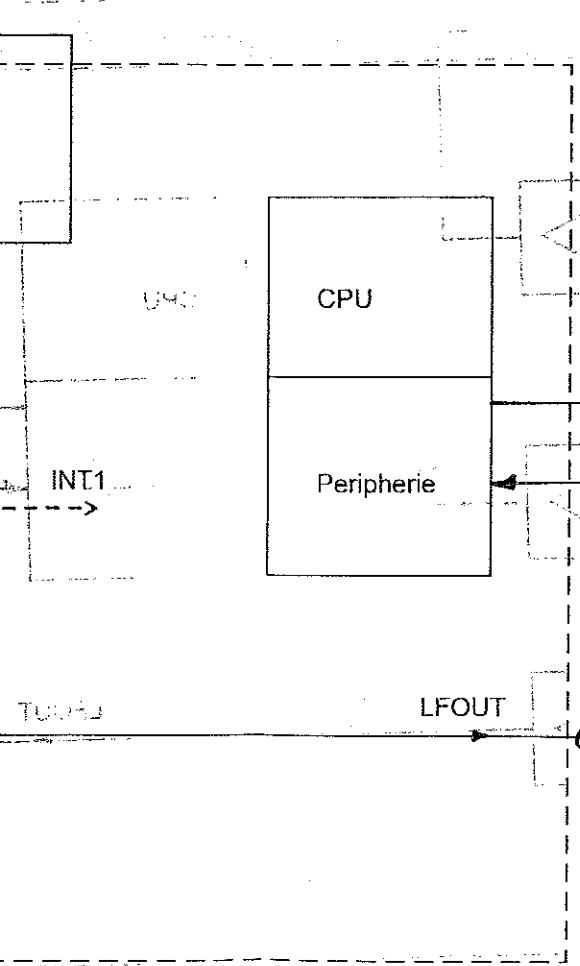
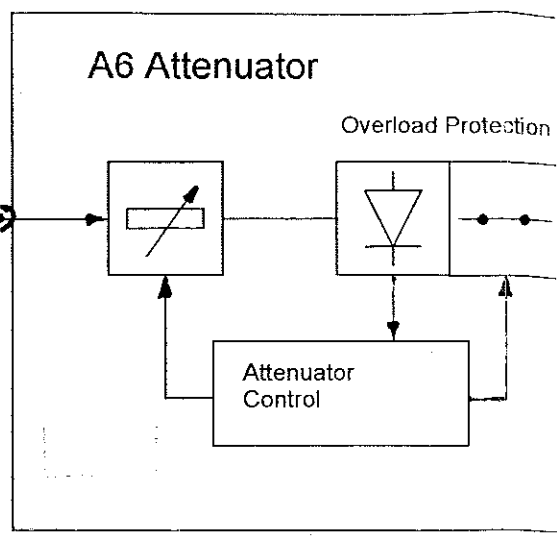
V26
 kHz to 2080MHz
 3 to 20dBm

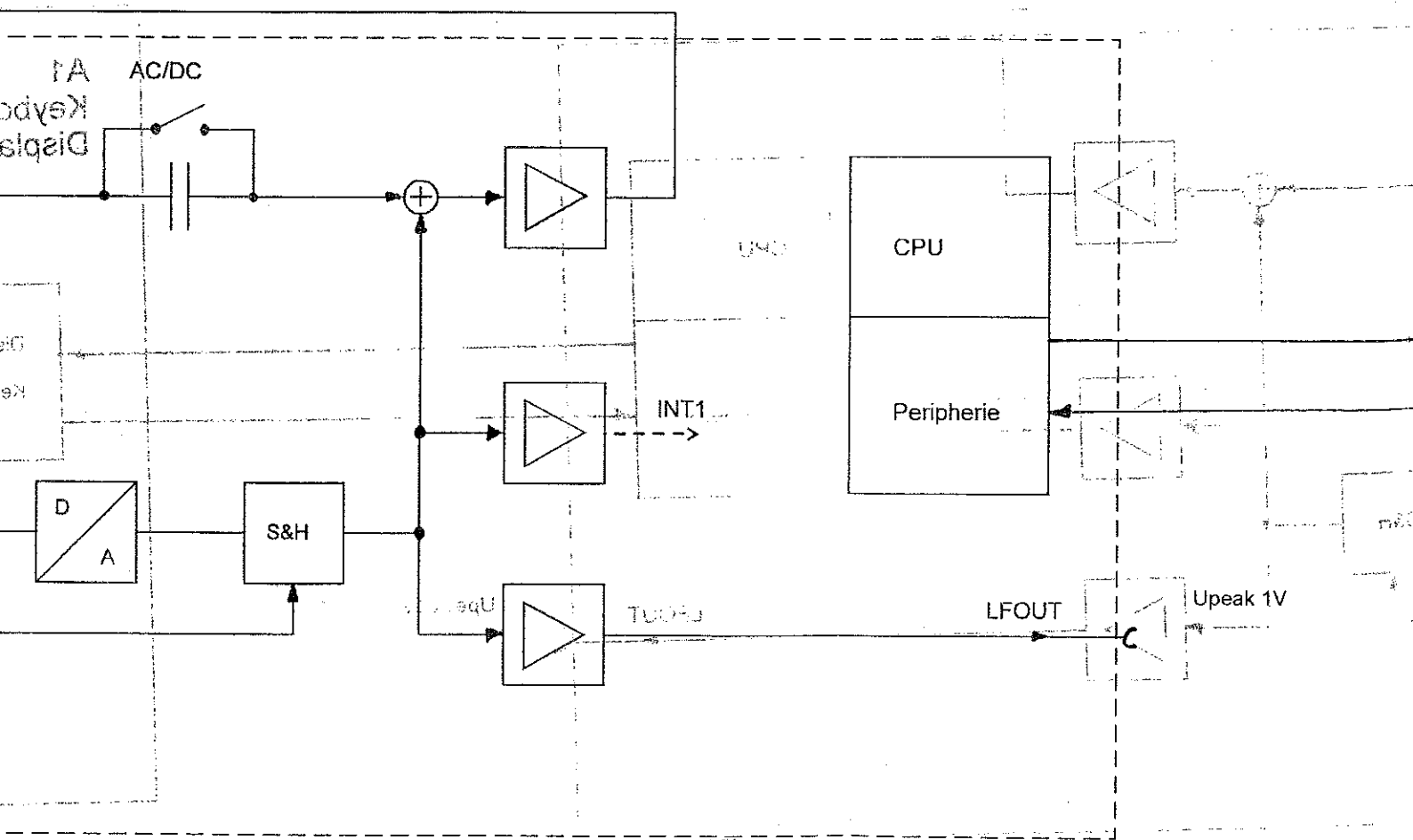
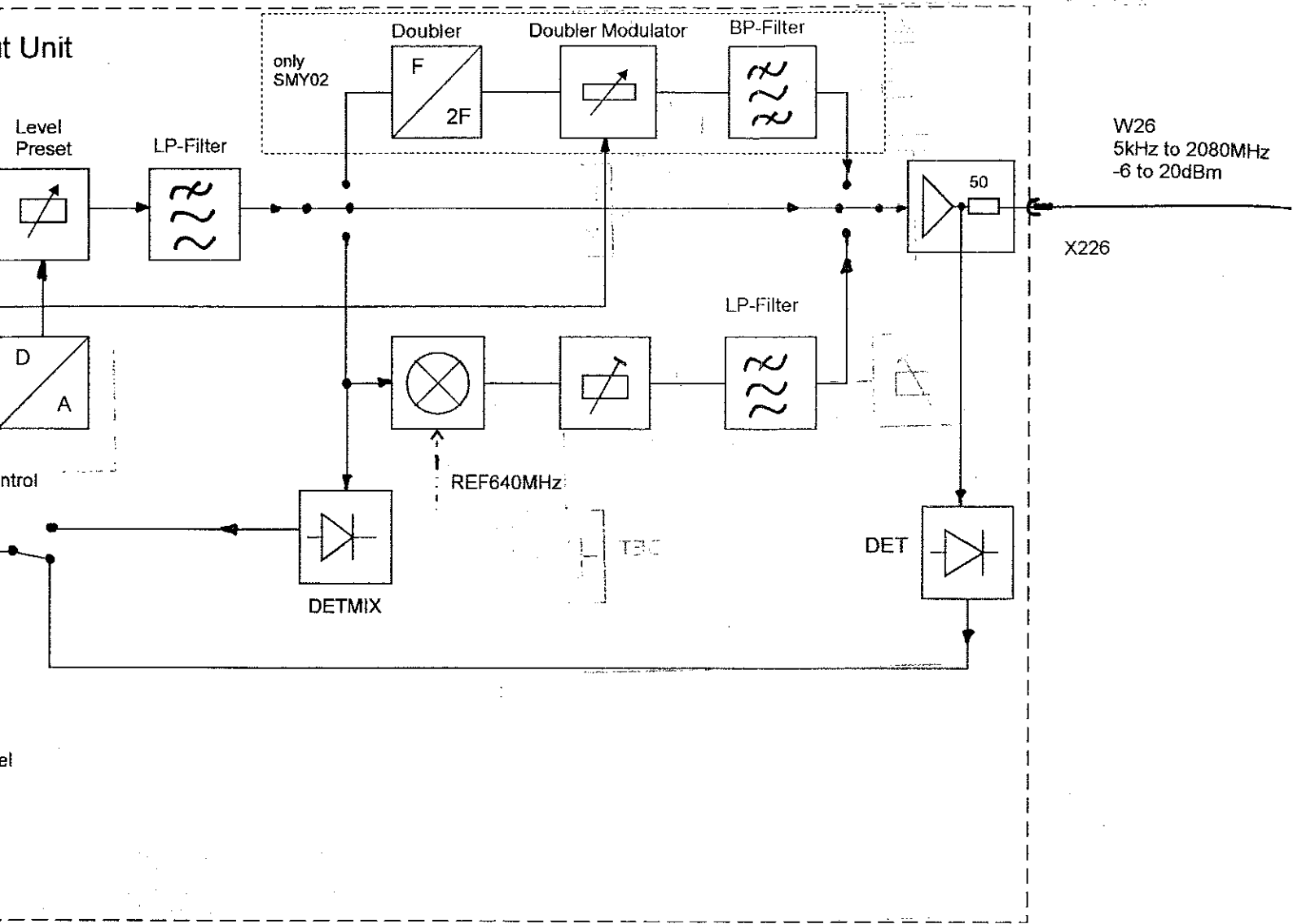


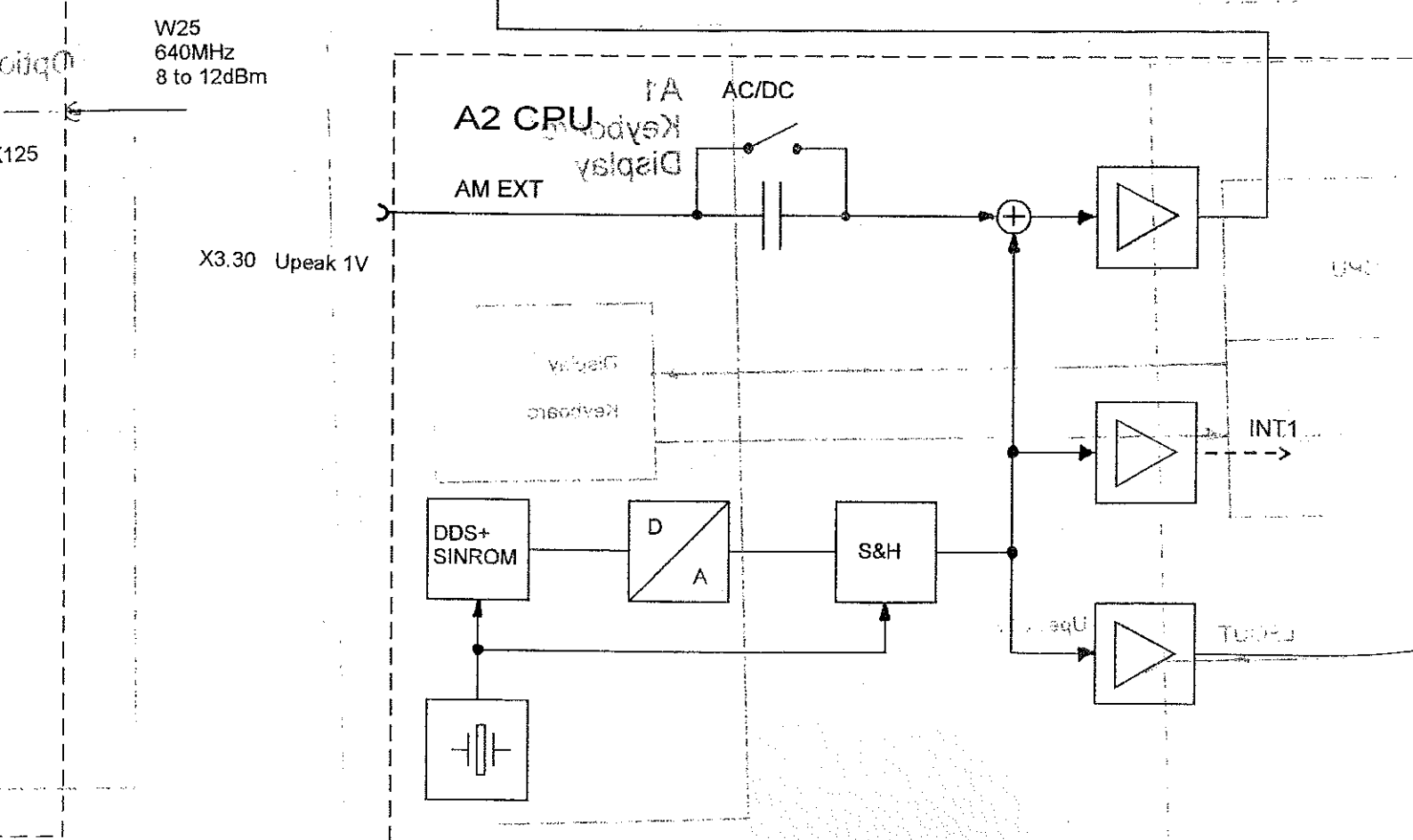
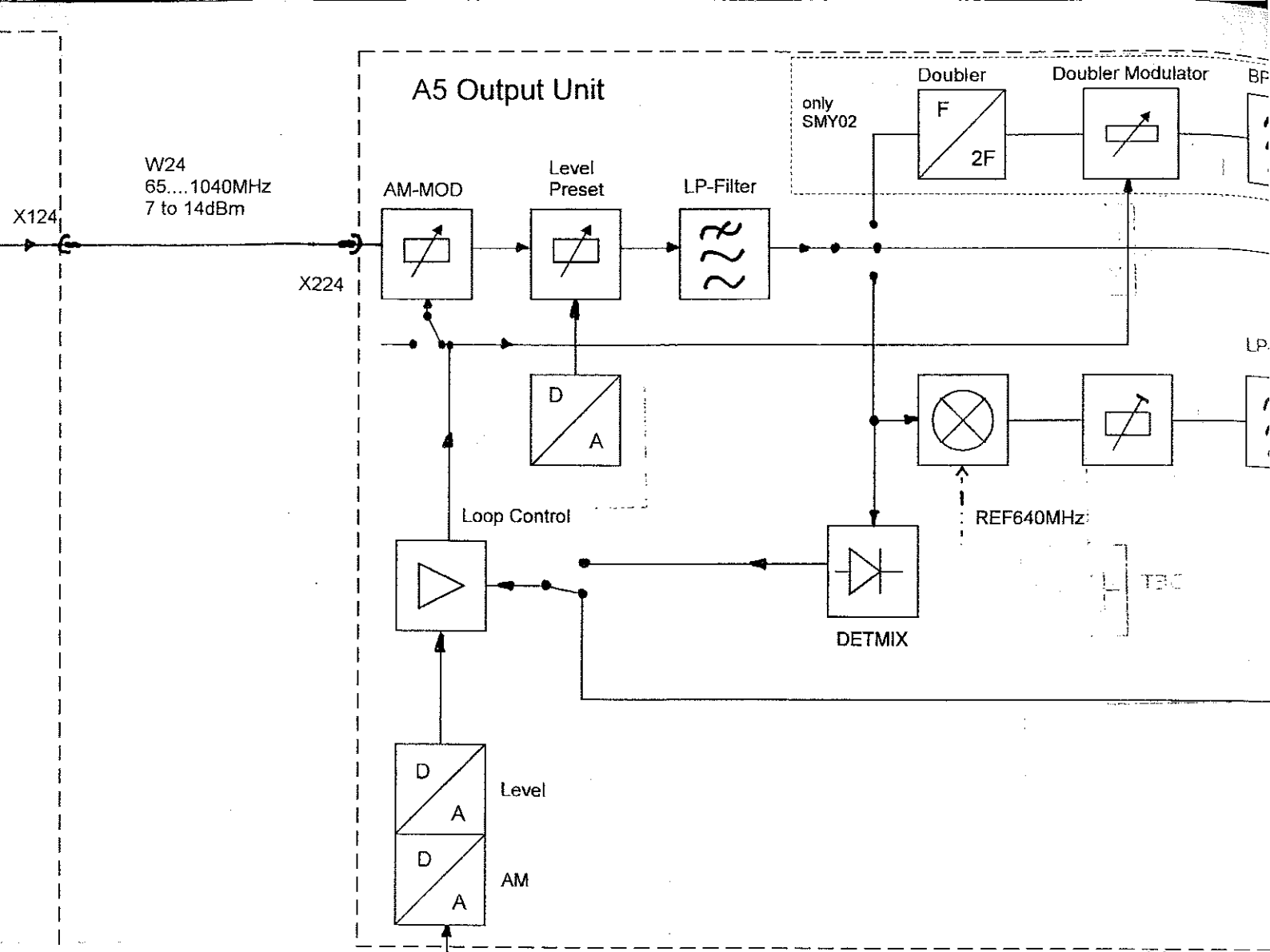
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|---|----------|------|--------|
| BEARB. | | JN | SIC |
| GEPR. | | JN | SIG |
| NORM | | | top |
| PLOTT | 27.09.94 | | ZEICH |
|  ROHDE & SCHWARZ | | | |
| ZU BENET SMY | | | REG.I. |

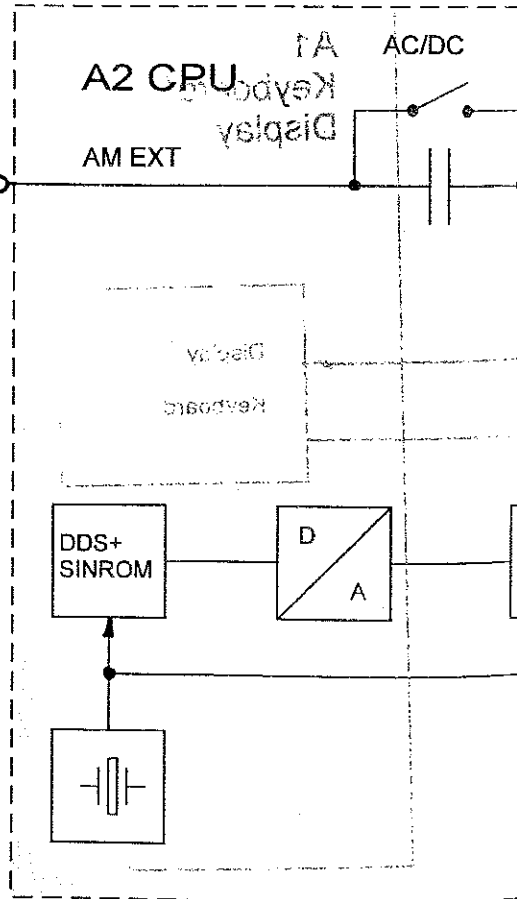
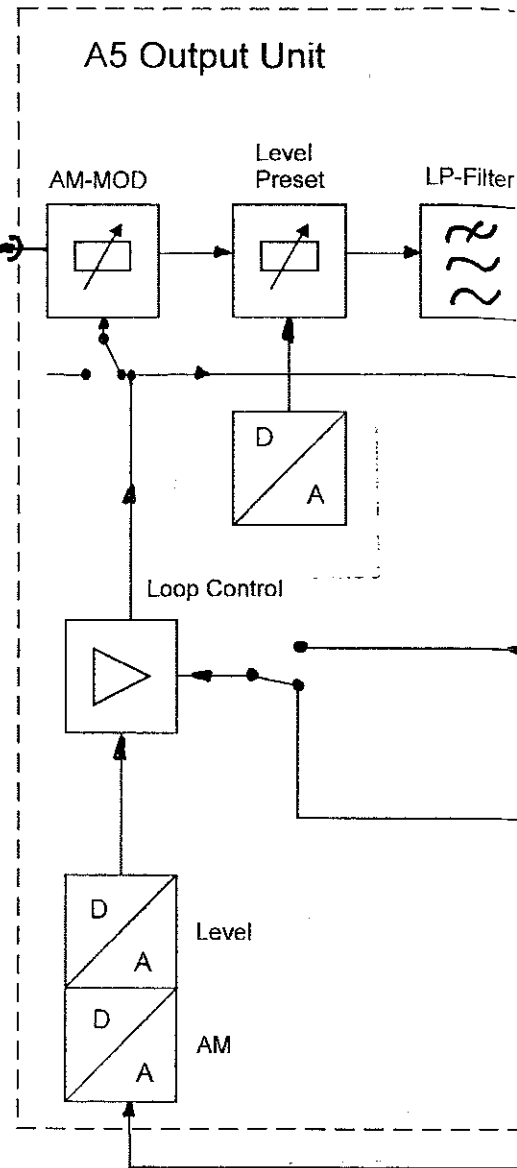
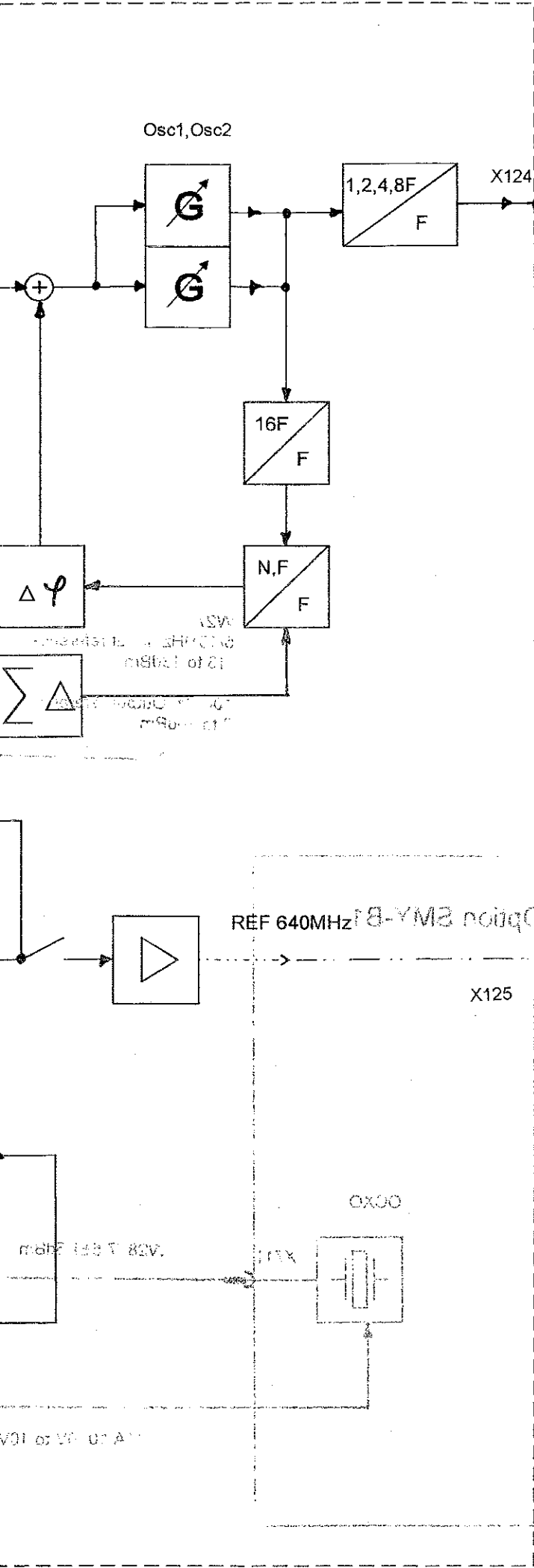


W26
 5kHz to 2080MHz
 -6 to 20dBm
 X1
 X226









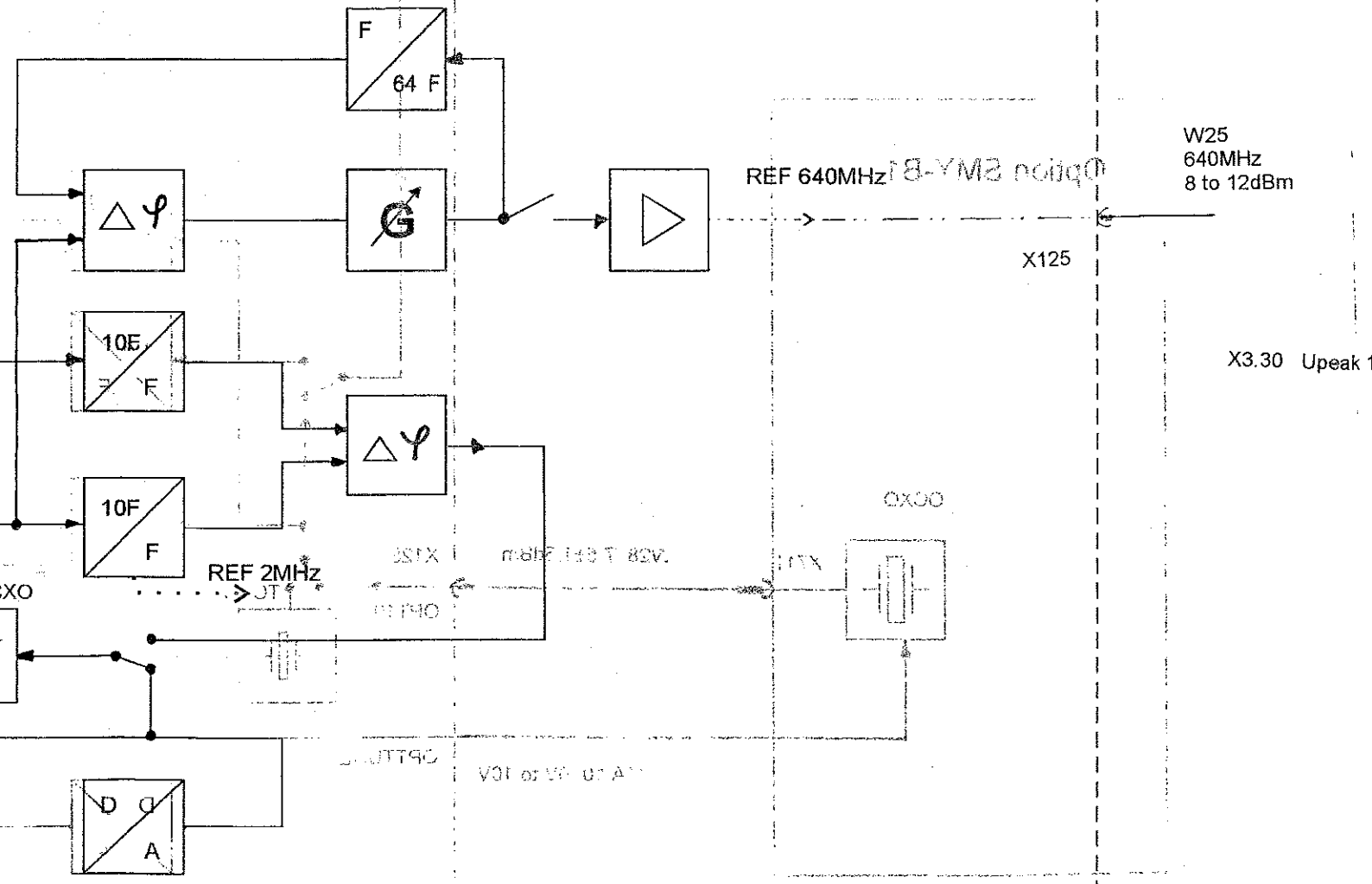
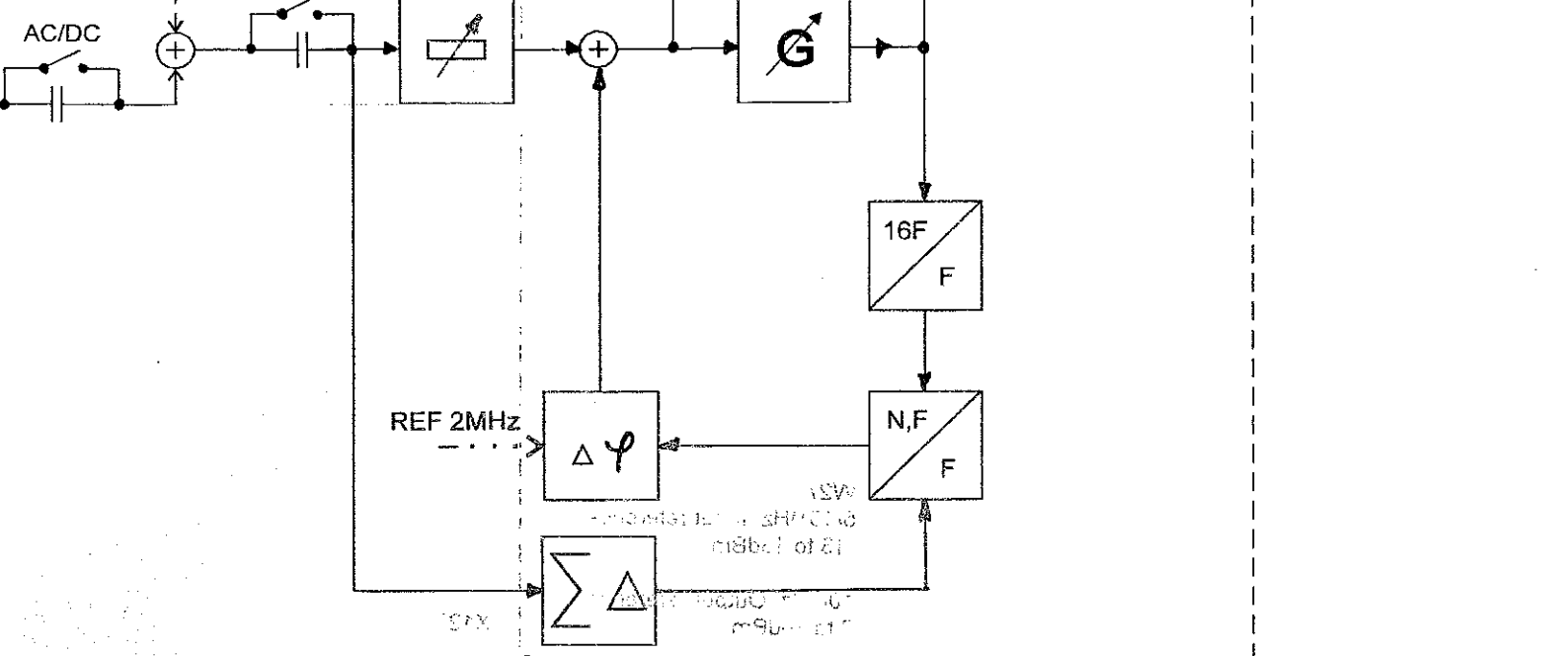
sis

100V 1A

T

Osc1, Osc2

W24
65...1040MHz
7 to 14dBm



W25
640MHz
8 to 12dBm

X125

X3.30 Upeak

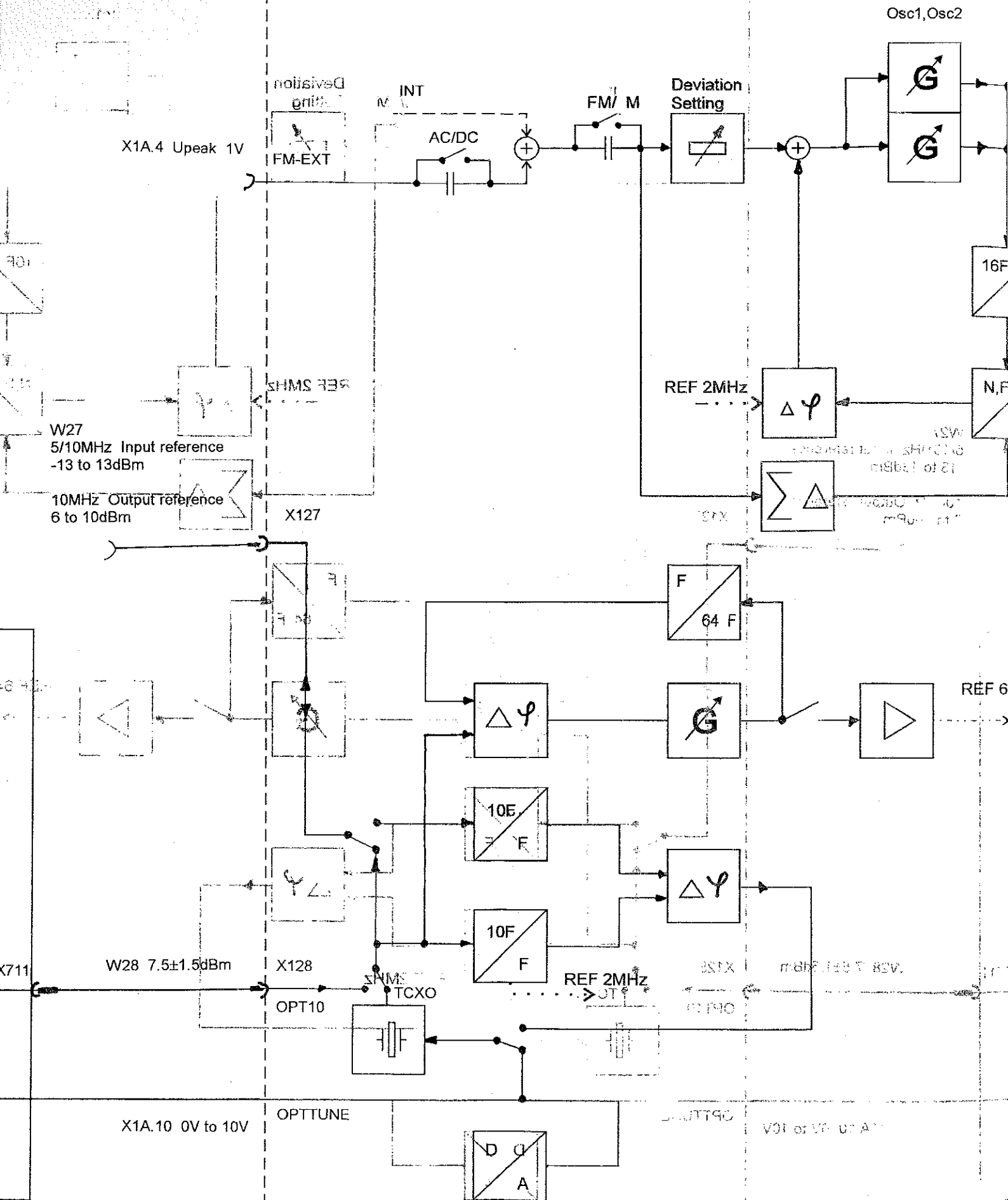
OX30

OPTIC

V01 or V02 or A11

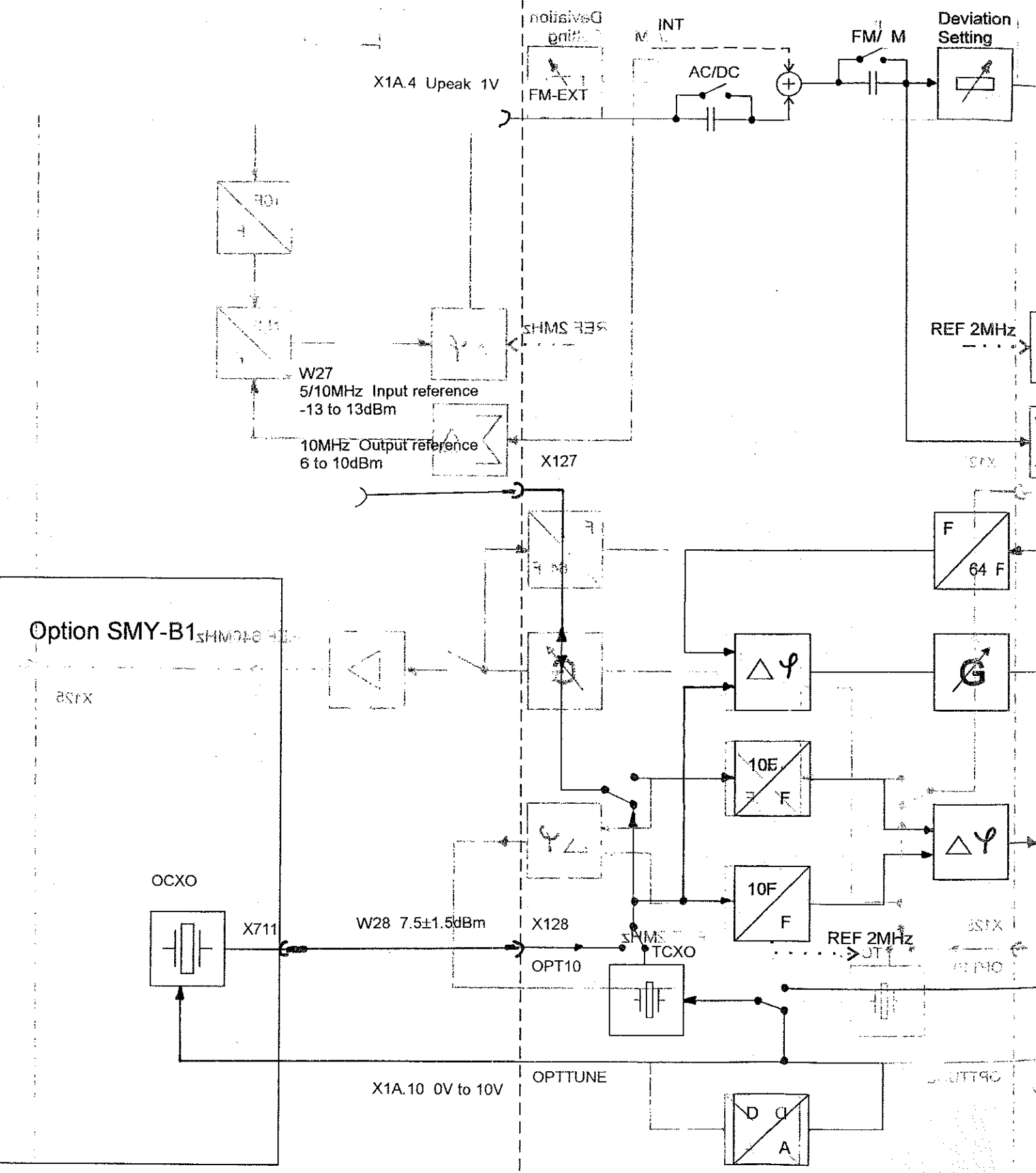
A4 Synthesis

Block Diagram

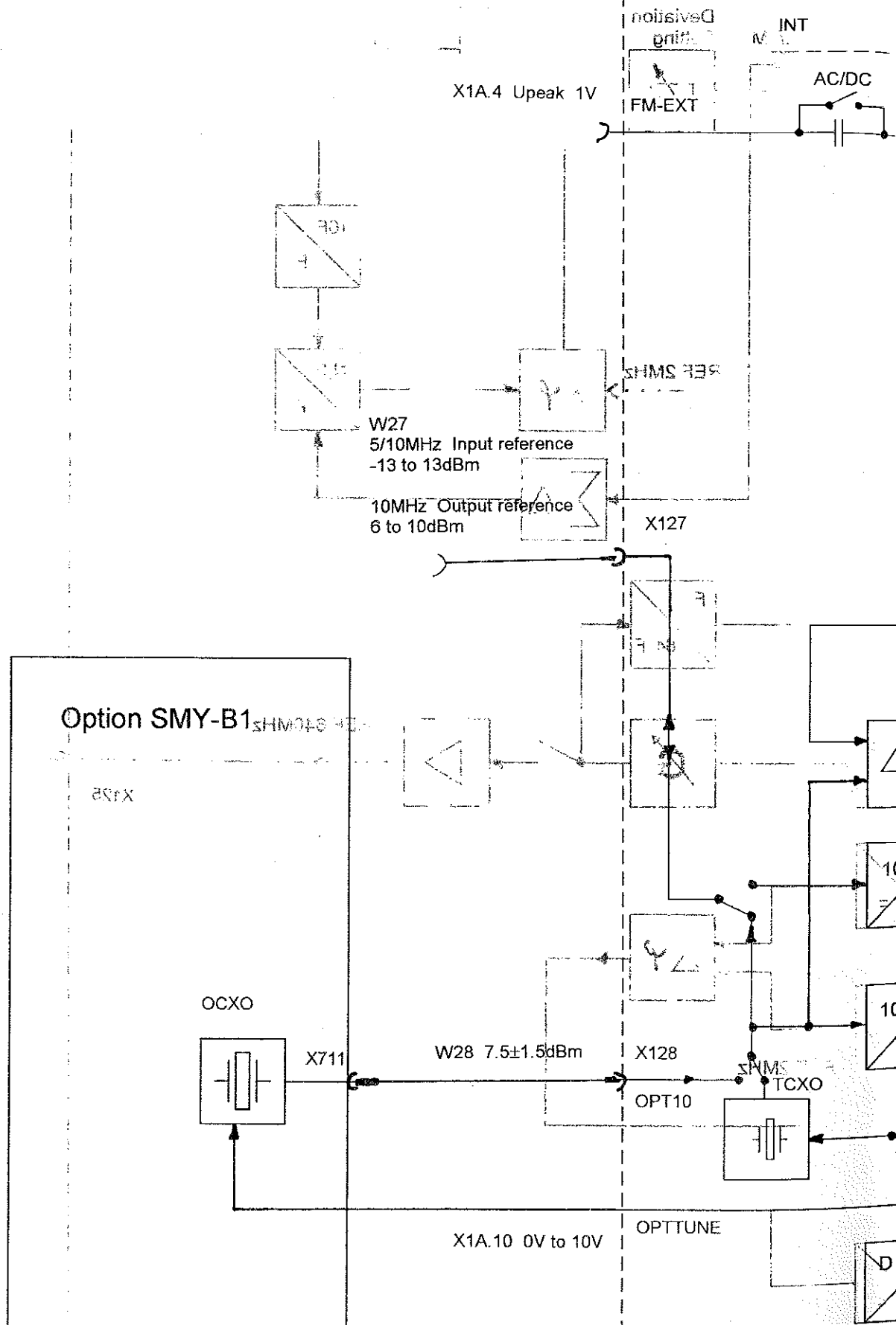


A4 Synthesis

Block Diagram



A4 Synthesis





ROHDE & SCHWARZ

Geschäftsbereich
Meßtechnik

Servicehandbuch

Signal Generator AM / FM / PHIM

SMY01

9 kHz - 1040 MHz
1062.5502.11

SMY02

9 kHz - 2080 MHz
1062.5502.12

SMY43

9 kHz - 2080 MHz
1062.5502.43

ENGLISH SERVICE MANUAL FOLLOWS FIRST COLOURED DEVIDER

*Band 2
Servicehandbuch besteht aus 2 Bänden*

Printed in the Federal
Republic of Germany

Inhaltsübersicht

Band 1

Sicherheitshinweise Beiblatt

- 6 Serviceanleitung des Gesamtgerätes
- 7 Serviceanleitung der Baugruppen

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|--------------------------------|----------|
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| A1 Anzeige-Tastatur..... | 2 |
| A4 Synthesizer | 3 |
| A5 Ausgangsteil 1.04 GHz | 4 |

Band 2

Sicherheitshinweise

| Baugruppe | Register |
|--------------------------------|----------|
| A5 Ausgangsteil 2.08 GHz | 1 |
| A6 Eichleitung 1 GHz | 2 |
| A6 Eichleitung 2 GHz | 3 |
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| A12 Power Modul | 6 |



ROHDE & SCHWARZ

Test and Measurement
Division

Service Manual

SMY01

9 kHz to 1040 MHz
1062.5502.11

SMY02

9 kHz - 2080 MHz
1062.5502.12

SMY43

9 kHz to 2080 MHz
1062.5502.43

Volume 1
Service manual consists of 2 volumes

Printed in the Federal
Republic of Germany

Contents

Volume 1

Safety Instructions Supplement

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Safety Instructions

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|-------------------------------|----------------|
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Safety Instructions

This unit has been designed and tested according to the standards outlined overleaf and has left the manufacturer's premises in a state fully complying with the safety standards.

In order to maintain this state and to ensure safe operation, observe the following instructions, symbols and precautions.

- 1) When the unit is to be permanently cabled, first connect protective ground conductor before making any other connections.
- 2) Built-in units should only be operated when properly fitted into the system.
- 3) For permanently cabled units without built-in fuses, automatic switches or similar protective facilities, the AC supply line shall be fitted with fuses rated to the units.
- 4) Before switching on the unit ensure that the operating voltage set at the unit matches the line voltage.
If a different operating voltage is to be set, use a fuse with appropriate rating.
- 5) Units of protection class I with disconnectible AC supply cable and plug may only be operated from a power socket with protective ground contact.
The protective ground connection should not be made ineffective by an extension cable.
Any breaking of the protective ground conductor within or outside of the unit or loosening of the protective ground connection may cause the unit to become electrically hazardous.
The protective ground conductor shall not be interrupted intentionally.
- 6) Before opening the unit, isolate it from the AC supply.
Adjustment and replacement of parts as well as maintenance and repair should be carried out only by specialists approved by R & S.
Observe safety regulations and rules for the prevention of accidents.
Use only original parts for replacing parts relevant to safety (e.g. power on/off switches, power transformers or fuses).
- 7) Also observe the additional safety instructions specified in this manual.

Explanation of Symbols Used



- Read operating manual, observe the safety symbols used



- Caution, shock hazard



- Protective ground connection



- Unit ground



- Equipotential (floating ground)



- Ground

Patent Information

This product contains technology licensed by Marconi Instruments LTD. under US patents 4609881 and 4870384 and under corresponding patents in Germany and elsewhere.



ROHDE & SCHWARZ

SERVICEUNTERLAGEN

Ausgangsteil 2.08 GHz

1062.7005.01

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Schalteilliste
Koordinatenliste
Stromlauf
Bestückungsplan

Bei Geräten ohne Option SMY-B40 hat die Baugruppe die Variante VAR02.

Bei Geräten mit Option SMY-B40 hat die Baugruppe die Variante VAR03.

7.1 Funktionsbeschreibung

Das Ausgangsteil 2.08 GHz erhält über den Eingang FSYN von der Baugruppe Synthese das RF-Signal (6 dBm ... 12 dBm) im Frequenzbereich $65 \text{ MHz} \leq f_{\text{SYN}} \leq 1040 \text{ MHz}$. Dieses RF-Signal wird über einen Amplitudenmodulator und ein Amplitudenstellglied auf schaltbare Tiefpaßfilter gegeben. Im Signalzweig wird durch die Umschalter SWITCHB und SWITCHD der Ausgangsfrequenzbereich $5 \text{ kHz} \leq f_{\text{RF}} < 65 \text{ MHz}$ durch Abmischen mit einem 640 MHz-LO erzeugt. Über die Umschalter SWITCHA und SWITCHC kann der Verdopplerpfad eingeschaltet werden, um den Ausgangsfrequenzbereich $1040 \text{ MHz} < f_{\text{RF}} \leq 2080 \text{ MHz}$ zu realisieren.

Die Baugruppe enthält folgende Funktionseinheiten:

- Einen AM-Modulator zur Pegelregelung und Amplitudenmodulation im Frequenzbereich $5 \text{ kHz} \leq f_{\text{RF}} \leq 1040 \text{ MHz}$,
- einen AM-Modulator zur Pegelvoreinstellung (LEVEL PRESET),
- schaltbare Tiefpässe zur Unterdrückung von Harmonischen,
- einen Mischer mit LO-, RF- und ZF-Filtern,
- einen Pegeldetektor im RF-Zweig vor dem Mischer,
- einen Frequenzverdoppler,
- Einen AM-Modulator zur Pegelregelung und Amplitudenmodulation im Frequenzbereich $1040 \text{ MHz} < f_{\text{RF}} \leq 2080 \text{ MHz}$,
- schaltbare Bandpässe zur Unterdrückung von Subharmonischen,
- einen Ausgangsverstärker,
- einen Pegeldetektor am Ausgang FOPU,
- einen Signalzweig zur Einstellung des RF-Pegelsollwertes und des Amplitudenmodulationsgrades,
- die RF-Pegelregelung,
- eine serielle Schnittstelle und
- eine Schaltung zur Diagnoseauswahl.

Im weiteren Text enthaltene Pegelangaben gelten für einen Geräteausgangspegel von +13 dBm (+19 dBm mit Option SMY-B40).

7.1.1 RF-Signalverarbeitung

Dem Eingang X224 FSYN ist ein Dämpfungsglied zur Temperaturkompensation nachgeschaltet. Anschließend folgt der AM MODULATOR.

Er ist das Stellglied der Pegelregelung im Bereich $f_{\text{RF}} \leq 1.04 \text{ GHz}$. Das RF-Signal wird durch RF AMPLIFIER 1 und RF AMPLIFIER 2 verstärkt und auf den PIN-Modulator LEVEL PRESET gegeben. Dieser Modulator wird durch gespeicherte Kalibrierdaten mittels D/A-Wandler so eingestellt, daß das Stellglied der Pegelregelung in einem optimalen Arbeitspunkt betrieben werden kann (vergl. Bedienhandbuch "Kalibrierung LEVEL PRESET").

Das RF-Signal wird durch den RF AMPLIFIER 3 verstärkt und auf schaltbare Tiefpässe HARMONIC FILTERS gegeben. Diese werden abhängig von der Eingangsfrequenz an X224 FSYN durch den Rechner eingeschaltet. Die Tiefpässe TP0 bis TP3 sind wie die Tiefpässe TP4 bis TP8 in Kette geschaltet. Filter in der Kette mit höherer Grenzfrequenz als der Grenzfrequenz des gewählten Tiefpasses bleiben eingeschaltet.

Im "Normalbetrieb" wird das RF-Signal über den PIN-Schalter SWITCHD (OFF) und den GaAs-Umschalter SWITCHB (OFF) auf den Ausgangsverstärker gegeben.

Im "Mischerbetrieb" wird das RF-Signal über PIN-Schalter SWITCHD (ON) und den RF AMPLIFIER 4 auf den Detektor vor dem Mischer geschaltet.

Im "Verdopplerbetrieb" wird das RF-Signal über den GaAs-Schalter SWITCHA (ON) auf den Verdoppler geschaltet. Dessen Ausgangssignal gelangt über den DOUBLER MODULATOR auf schaltbare Bandpässe und über den GaAs-Schalter SWITCHC (ON) zum Ausgangsverstärker.

7.1.2 Mischer mit LO-, RF- und ZF-Filtern

Das RF-Signal vom Detektor vor dem Mischer wird über den RF-Tiefpaß und ein Dämpfungsglied zur Pegelanpassung auf den RF-Eingang des Mixers geschaltet (Pegel ca. -5 ... -10 dBm). Das Signal von REF640 gelangt über einen Tiefpaß auf den LO-Eingang des Mixers. Über den ZF-Verstärker und den ZF-Tiefpaß wird das ZF-Signal auf den RF-Schalter SWITCHB (ON) vor dem Ausgangsverstärker geschaltet ($5 \text{ kHz} \leq f_{ZF} < 65 \text{ MHz}$, Pegel ca. 0 dBm).

7.1.3 Ausgangsverstärker

Der dreistufige lineare Breitbandverstärker verstärkt das Eingangssignal um ca. 19 dB. Die Arbeitspunkte der Stufen RF AMPLIFIER 12 und RF AMPLIFIER 13 werden geregelt.

7.1.4 AM-Signalzweig und RF-Pegel-Sollwert

Das Signal der Leitung AMMOD wird auf den D/A-Wandler zur Modulationsgradeinstellung gegeben und gelangt auf den D/A-Wandler RFLEV zur RF-Pegeleinstellung.

7.1.5 RF-Pegelregelung

Bei Geräten ohne Option SMY-B40 wird der Pegeldetektor am Ausgang X226 FOPU bei Gerätefrequenzen $f_{RF} \geq 10 \text{ MHz}$ verwendet. Der RF-Pegel an der Diode beträgt ca. +19 dBm.

Die Linearisierungsschaltung ermöglicht einen Dynamikbereich von ca. 30 dB bei guter Linearität (wichtig für geringen AM-Klirrfaktor).

Bei Geräten mit Option SMY-B40 wird für die Pegelregelung bei Gerätefrequenzen $\geq 10 \text{ MHz}$ der Detektor auf der Option SMY-B40 verwendet. Dessen Ausgangsspannung gelangt über das Kabel W125 zum Motherboard und von dort auf den Eingang X2.A5 DETEXT dieser Baugruppe.

Der Pegeldetektor im RF-Zweig vor dem Mischer wird bei Gerätefrequenzen $f_{RF} < 10$ MHz anstelle des Detektors am Ausgang X226 FOPU verwendet. Der RF-Pegel an der Diode beträgt ca. +15 dBm.

Die Pegelregelung erfolgt durch den PI-Regler N235. Der Führungswert wird vom D/A-Wandler RFLEV geliefert und mit dem Istwert von einem der drei Detektoren (VDET, DETEXT oder VDETMIX) je nach Frequenzbereich verglichen. Die Ausgangsspannung des PI-Reglers regelt das Stellglied nach:

Im Bereich $f_{RF} \leq 1040$ MHz ist der AM MODULATOR in Betrieb. Im Bereich $f_{RF} > 1040$ MHz ist der DOUBLER MODULATOR in Betrieb; zusätzlich wird durch das Steuersignal MODUFIX vom Rechner die Steuerspannung des AM MODULATORS auf einen festen Wert (ca. 14 V) geschaltet, um so minimale Dämpfung zu erreichen.

Die 3dB-Bandbreite der Regelschleife kann durch AMSLOW von ca. 300 kHz auf ca. 50 kHz reduziert werden (siehe Spezialfunktion 13).

Das Aktivieren von KLEMM-N durch den Prozessor steuert den AM-Modulator auf maximale Dämpfung, dies wird z.B. bei Frequenzwechseln zur Vermeidung von Pegelspikes verwendet.

7.1.6 Serielle Schnittstelle

Die ankommenden Daten werden in die Schieberegister und die D/A-Wandler LEVEL PRESET, RFLEV und AM getaktet.

7.1.7 Schaltung zur Diagnoseauswahl

Über den Diagnosemultiplexer kann eine von 8 Gleichspannungen auf die Diagnoseleitung gelegt werden. Der Spannungswert kann im Gerätedisplay angezeigt werden.

| Spezialfunktion | Soll-Spannungsbereich | Hinweis |
|-----------------|-----------------------|---|
| 101 | 0.00 V ... 5 V | RF-Pegel vor Doubler Modulator |
| 102 | 0.00 V ... 6 V | Detektorspannung Ausgang FOPU |
| 103 | 0.00 V ... 6 V | Detektorspannung Mischer |
| 104 | 0.01 V ... 3 V | RF-Pegel nach Filterbank |
| 105 | -6.00 V ... 0 V | Führungswert der Pegelregelung |
| 106 | -1.00 V ... 10 V | Ausgangsspannung des Regelverstärkers |
| 107 | -1.00 V ... 10 V | Steuerspannung des AM-Modulators |
| 108 | 0.50 V ... 13 V | Steuerspannung des Stellgliedes LEVEL PRESET |

7.2 Meßgeräte und Hilfsmittel

- Spektrumanalysator (z.B. FSBS)
- Oszilloskop (z.B. BOL)
- Gleichspannungsmessgerät (Multimeter, z.B. UDL33)
- Netzwerkanalysator (z.B. ZVR)
- RF-Pegelmessgerät (z.B. NRVD mit Meßkopf NRV-Z51)
- 10dB-N-Dämpfungsglied (z.B. DNF)

7.3 Fehlersuche

Vor dem Öffnen des Gerätes ist es zweckmäßig, zuerst einmal die Kalibrierroutine LEVEL PRESET zu starten und an Hand der Diagnosespannungen mögliche Fehlerquellen zu lokalisieren.

7.3.1 Fehler nur im Bereich $f_{RF} < 10$ MHz

- falscher RF-Pegel an X226** Der Detektor im Mischbereich liefert eine falsche Spannung oder der PI-Regler wird nicht richtig angesteuert.
Spannung VDETMIX mit Spezialfunktion 103 prüfen.
- schlechter AM-Klirrfaktor** Prüfe die Linearisierungsschaltung des Detektors.

7.3.2 Fehler nur im Bereich $f_{RF} < 65$ MHz

- falscher RF-Pegel an X226** Eingang REF640, ZF-Verstärker, RF-Verstärker 4 und die Ansteuerung SBDON-P und SBDON-N der Umschalter prüfen.
- Oberwellen zu groß** Prüfe ZF-Verstärker, ZF-Tiefpaß und RF-Schalter SWITCHB.
- Nebenwellen zu groß** Der Mischer ist defekt oder er wird mit zu hohem RF-Pegel angesteuert (Sollpegel am Mischer-RF-Eingang < -5 dBm). Prüfe ZF-Verstärker, ZF-Tiefpaß, RF-Schalter SWITCHB und den RF-Tiefpaß.

7.3.3 Fehler im Bereich $5 \text{ kHz} \leq f_{RF} \leq 1040$ MHz

- kein RF-Pegel an X226** Die Steuerspannung des AM-Modulators muß jetzt > 12 V sein, sonst arbeitet die Pegelregelung nicht richtig oder der Führungswert vom RFLEV-D/A-Wandler ist falsch. Pegel nach Filterbank prüfen (Spezialfunktion 104). Mit Spektrumanalysator mit RF-Tastkopf mit DC-Trennung die RF-Kette kontrollieren (die Sollverstärkung einzelner Verstärkerstufen beträgt ca. 7 dB)

Oberwellen zu groß

Prüfe Filterbank und folgende RF-Verstärker-Kette, prüfe Arbeitspunkte des Endverstärkers.

Stör-Phasenmodulation bei AM zu groß

Prüfe die Ansteuerspannung des AM-Modulators .
Kalibrierung LEVEL PRESET am Gerät durchführen.

AM-Klirrfaktor zu groß

Prüfen und Abgleich von Detektor und Linearisierungsschaltung, Kontrolle der AMSLOW-Ansteuerung.

AM-Klirrfaktor zu groß

Prüfen und Abgleich von Detektor und Linearisierungsschaltung, Kontrolle der

AMSLOW- AMSLOW-Ansteuerung.

7.3.4 Fehler im Bereich $1040 \text{ MHz} < f_{\text{RF}} \leq 2080 \text{ MHz}$

kein RF-Pegel an X226

Die Steuerspannung des AM-Modulators muß jetzt $> 12 \text{ V}$ sein, sonst arbeitet die Pegelregelung nicht richtig oder der Führungswert vom RFLEV-D/A-Wandler ist falsch. Pegel nach Filterbank prüfen (Spezialfunktion 104), Pegel vor Douber Modulator prüfen (Spezialfunktion 101). Umschalter SwitchA und SwitchC vor und nach den Bandpässen prüfen. Mit Spektrumanalysator mit RF-Tastkopf mit DC-Trennung die RF-Kette kontrollieren (die Sollverstärkung einzelner Verstärkerstufen beträgt ca. 7 dB)

Oberwellen zu groß

Prüfe Filterbank und folgende RF-Verstärker-Kette, prüfe schaltbare Bandpässe und die Umschalter SWITCHA und SWITCHC, prüfe Arbeitspunkt des Doubler Modulators, prüfe Arbeitspunkte des Endverstärkers.

Subharmonische zu groß

Prüfe schaltbare Bandpässe und die Umschalter SWITCHA und SWITCHC, prüfe Arbeitspunkt des Doubler Modulators, prüfe LEVEL PRESET-Spannung, Kalibrierung von LEVEL PRESET (Spezialfunktion 45) durchführen.

Stör-Phasenmodulation bei AM zu groß

Prüfe die Ansteuerspannung des AM-Modulators und die Ansteuerspannung des Doubler Modulators. Kalibrierung LEVEL PRESET am Gerät durchführen.

AM-Klirrfaktor zu groß

Prüfen und Abgleich von Detektor und Linearisierungsschaltung, Kontrolle der AMSLOW-Ansteuerung.

7.3.5 Spektrale Reinheit, $\Delta f < 10$ MHz vom Träger

Seitenlinien in ca. 1 MHz Abstand vom Träger

Pegel-Regelschleife schwingt; Prüfe Detektor und Linearisierungsschaltung. Kalibrierung LEVEL PRESET durchführen.

7.4 Prüfen und Abgleich

Vorbemerkung: Neben den Koppelkondensatoren bzw. -widerständen der RF-Kette befinden sich Massedurchkontaktierungen. An einer solchen Stelle kann ein Koaxialkabel eingelötet und über einen Koppelkondensator oder eine externe DC-Trennung ein Meßgerät (z.B. Netzwerk- oder Spektrumanalysator) angeschlossen werden. Hierzu wird das Koaxialkabel durch das Loch gesteckt, der Außenleiter des Koaxialkabels an der Durchkontaktierung und der Innenleiter am gewünschten Anschlußfleck des Kondensators angelötet.

7.4.1 Prüfen der Datenübertragung

Die Prüfung wird bei den in der Tabelle angegebenen Einstellungen am Gerät durchgeführt.

- _ Prüfen der Spannungen an D120:
"1" = +5 V, "0" = 0 V

| RF-Frequenz | D120/14 | | D120/6 Hinweis |
|-------------|---------|---|----------------|
| RF 1MHz | 0 | 1 | DETMIXON |
| RF 10MHz | 1 | 0 | DETON |

7.4.2 Prüfen der Ausgangsspannung des Regelverstärkers

Um die Amplitudenmodulatoren optimal betreiben zu können ist die LEVEL PRESET-Kalibrierung erforderlich. Dieser optimale Arbeitspunkt ist abhängig vom Bereich der RF-Frequenz.

Im Frequenzbereich $f_{RF} \leq 1040$ MHz gilt:

Die Ausgangsspannung des Regelverstärkers soll bei einem Ausgangspegel von 13dBm (19 dBm mit Option SMY-B40) 6.3V betragen. Bei elektronischer Pegelabsenkung auf 7dBm (13 dBm mit Option SMY-B40) soll diese Spannung auf 3.9V absinken und bei weiterer elektronischer Pegelabsenkung bis zu -6dBm (0 dBm mit Option SMY-B40) konstant auf 3.9V bleiben.

Im Frequenzbereich $f_{RF} > 1040$ MHz gilt:

Die Ausgangsspannung des Regelverstärkers soll bei einem Ausgangspegel von 13dBm (19 dBm mit Option SMY-B40) 7.5V betragen. Bei elektronischer Pegelabsenkung auf 7dBm (13 dBm mit Option SMY-B40) soll diese Spannung auf 5.4V absinken und bei weiterer elektronischer Pegelabsenkung bis zu -6dBm (0 dBm mit Option SMY-B40) konstant auf 5.4V bleiben.

- Den Geräteausgang RF 50Ω mit 50Ω abschließen.
 - LEVEL 13 dBm (19 dBm mit Option SMY-B40) einstellen und
 - Spezialfunktion 1 (unterbrechungsfreie Pegeleinstellung) einschalten.
- _ Über die Spezialfunktion 106 kann die Ausgangsspannung des Regelverstärkers gemessen werden.

7.4.3 Prüfen der LEVEL PRESET-Steuerspannung

- Den Geräteausgang RF 50Ω mit 50Ω abschließen.
 - LEVEL 13 dBm (19 dBm mit Option SMY-B40) einstellen
 - Spezialfunktion 1 (unterbrechungsfreie Pegeleinstellung) einschalten.
- _ Über die Spezialfunktion 108 kann die LEVEL PRESET-Spannung gemessen werden.
Die Spannung ist abhängig von der RF-Frequenz und vom RF-Pegel. Der Rechner sendet die berechneten Werte in den LEVEL PRESET-D/A-Wandler.

Typische Spannungswerte sind in folgender Tabelle dargestellt:

| RF-Frequenz | SMY02 ohne Option SMY-B40 | | | | SMY02 mit Option SMY-B40 | | | |
|-------------|---------------------------|-------|-------|--------|--------------------------|--------|-------|-------|
| | 13 dBm | 7 dBm | 0 dBm | -6 dBm | 19 dBm | 13 dBm | 6 dBm | 0 dBm |
| 25 MHz | 1.4 V | 1.4 V | 1.0 V | 0.8 V | 1.4 V | 1.4 V | 1.0 V | 0.8 V |
| 100 MHz | 1.6 V | 1.6 V | 1.2 V | 0.8 V | 1.6 V | 1.6 V | 1.2 V | 0.8 V |
| 300 MHz | 1.4 V | 1.4 V | 1.0 V | 0.8 V | 1.4 V | 1.4 V | 1.0 V | 0.8 V |
| 500 MHz | 1.3 V | 1.3 V | 1.0 V | 0.8 V | 1.3 V | 1.3 V | 1.0 V | 0.8 V |
| 750 MHz | 2.0 V | 2.0 V | 1.4 V | 1.0 V | 2.0 V | 2.0 V | 1.4 V | 1.0 V |
| 800 MHz | 1.6 V | 1.6 V | 1.2 V | 1.0 V | 1.6 V | 1.6 V | 1.2 V | 1.0 V |
| 1040 MHz | 2.2 V | 2.2 V | 1.5 V | 1.2 V | 2.2 V | 2.2 V | 1.5 V | 1.2 V |
| 1041 MHz | 1.0 V | 1.0 V | 0.9 V | 0.8 V | 1.0 V | 1.0 V | 0.9 V | 0.8 V |
| 1200 MHz | 1.2 V | 1.2 V | 1.0 V | 0.9 V | 1.2 V | 1.2 V | 1.0 V | 0.9 V |
| 1400 MHz | 1.3 V | 1.3 V | 1.1 V | 1.0 V | 1.3 V | 1.3 V | 1.1 V | 1.0 V |
| 1600 MHz | 1.4 V | 1.4 V | 1.1 V | 1.0 V | 1.4 V | 1.4 V | 1.1 V | 1.0 V |
| 1800 MHz | 1.8 V | 1.8 V | 1.5 V | 1.4 V | 1.8 V | 1.8 V | 1.5 V | 1.4 V |
| 2000 MHz | 2.1 V | 2.1 V | 1.6 V | 1.5 V | 2.1 V | 2.1 V | 1.6 V | 1.5 V |
| 2080 MHz | 2.4 V | 2.4 V | 1.8 V | 1.6 V | 2.4 V | 2.4 V | 1.8 V | 1.6 V |

7.4.4 Prüfen der Arbeitspunkte der Verstärkerstufen

| Prüfpunkt | Sollspannung | Bemerkung |
|----------------|--------------|-----------------|
| N360/3 | 5.50 ± 1.1 V | RF AMPLIFIER 2 |
| N410/3 | 5.50 ± 1.1 V | RF AMPLIFIER 3 |
| V602 Kollektor | 8.90 ± 0.3 V | RF AMPLIFIER 4 |
| V612 Kollektor | 5.90 ± 0.3 V | IF AMPLIFIER |
| V671 Kollektor | 5.50 ± 1.1 V | RF AMPLIFIER 7 |
| V874 Kollektor | 5.20 ± 1.1 V | RF AMPLIFIER 8 |
| V769 Kollektor | 5.20 ± 1.1 V | RF AMPLIFIER 9 |
| V801 Kollektor | 5.20 ± 1.1 V | RF AMPLIFIER 11 |
| V817 Kollektor | 15.9 ± 0.3 V | RF AMPLIFIER 12 |
| V832 Kollektor | 15.9 ± 0.3 V | RF AMPLIFIER 13 |

7.4.5 Prüfen der Ansteuerung der Filterbank

– Prüfen von LPSELECT-0 ... LPSELECT-3 und der Schaltleitungen TP0 ... TP8.

| RF-Frequenz | LPSELECT- | | | | Hinweis |
|-------------|-----------|--------|--------|---|------------------------------|
| | 2 | 1 | 0 | | |
| 3 D111/8 | D111/11 | D111/6 | D111/3 | | |
| 1560.00 MHz | 0 | 0 | 0 | 1 | Tiefpaß 1, Verdopplerbereich |
| 1040.01 MHz | 0 | 0 | 1 | 0 | Tiefpaß 2, Verdopplerbereich |
| 780.00 MHz | 0 | 0 | 0 | 1 | Tiefpaß 1 |
| 520.00 MHz | 0 | 0 | 1 | 0 | Tiefpaß 2 |
| 390.00 MHz | 0 | 0 | 1 | 1 | Tiefpaß 3 |
| 260.00 MHz | 0 | 1 | 0 | 0 | Tiefpaß 4 |
| 195.00 MHz | 0 | 1 | 0 | 1 | Tiefpaß 5 |
| 130.00 MHz | 0 | 1 | 1 | 0 | Tiefpaß 6 |
| 97.50 MHz | 0 | 1 | 1 | 1 | Tiefpaß 7 |
| 65.00 MHz | 1 | 0 | 0 | 0 | Tiefpaß 8 |
| 64.00 MHz | 0 | 0 | 1 | 0 | Tiefpaß 2, Mischerbereich |

Bei Geräteausgangsfrequenzen $65 \text{ MHz} \leq f_{\text{RF}} \leq 1040 \text{ MHz}$ wird von der Baugruppe Synthese die Ausgangsfrequenz geliefert.

Bei Geräteausgangsfrequenzen $f_{\text{RF}} > 1040 \text{ MHz}$ wird von der Baugruppe Synthese die halbe Ausgangsfrequenz geliefert ($520 \text{ MHz} < f_{\text{SYN}} \leq 1040 \text{ MHz}$).

7.4.6 Prüfen des RF-Pegels nach der Filterbank

- Den Geräteausgang RF 50Ω mit 50Ω abschließen.
- Einstellung: RF LEVEL 13 dBm (19 dBm mit Option SMY-B40)
- _ Über die Spezialfunktion 104 kann die gleichgerichtete RF-Spannung gemessen werden.

Typische Spannungswerte sind in folgender Tabelle dargestellt:

| RF-Frequenz | Diagnosespannung |
|-------------|------------------|
| 10 MHz | 0.8 V |
| 100 MHz | 0.6 V |
| 200 MHz | 0.9 V |
| 400 MHz | 1.1 V |
| 600 MHz | 1.2 V |
| 800 MHz | 0.8 V |
| 1000 MHz | 1.1 V |
| 1040 MHz | 0.9 V |
| 1041 MHz | 1.5 V |
| 1200 MHz | 1.1 V |
| 1400 MHz | 1.0 V |
| 1600 MHz | 1.0 V |
| 1800 MHz | 1.0 V |
| 2000 MHz | 1.8 V |
| 2080 MHz | 1.9 V |

7.4.7 Prüfen der Ansteuerung der Bandpaßschalter

_ Prüfen von BP1ON, BP2ON und BP3ON.

| RF-Frequenz | BP1ON | BP2ON | BP3ON | Hinweis |
|-------------|--------|---------|-------|-------------------------|
| D112/3 | D112/6 | D112/11 | | |
| 1040.00 MHz | 0 | 0 | 0 | Bandpässe ausgeschaltet |
| 1040.01 MHz | 1 | 0 | 0 | Bandpass 1 ein |
| 1310.40 MHz | 0 | 1 | 0 | Bandpass 2 ein |
| 1651.10 MHz | 0 | 0 | 1 | Bandpass 3 ein |

7.4.8 Abgleich der ZF-Verstärkung

- Spektrumanalysator an Geräteausgang RF 50Ω anschließen
- Einstellung: RF 10 MHz
 LEVEL 13 dBm (19 dBm mit Option SMY-B40)
- _ RF-Signal messen, RF-Pegel merken
- _ RF-Frequenz um 1 Hz erniedrigen
- _ Mit Pot R645 den RF-Pegel auf den gleichen Wert einstellen
- _ Nach dem Abgleich sollte die Kalibrierroutine LEVEL PRESET aufgerufen werden.

7.4.9 Abgleich der ZF-Detektor-Linearität

- Einstellung: RF 9.9 MHz
 LEVEL 5.1 dBm (11.1 dBm mit Option SMY-B40)
- _ Ausgangspegel am RF-Ausgang des Gerätes messen und merken (= Referenzpegel)
- Einstellung: Spezialfunktion 1 einschalten
 (unterbrechungsfreie Pegeleinstellung)
 LEVEL -14.9 dBm (-8.9 dBm mit Option SMY-B40)
- _ Mit POT R619 so abgleichen, daß der gemessene Pegel 20 dB unter dem zuvor gemessenen Referenzpegel liegt. Abgleich einmal wiederholen, da sich der Referenzwert mit R619 geringfügig ändert; die Genauigkeit der 20dB-Absenkung soll nach dem Abgleich ± 0.1 dB erreichen.

7.4.10 Abgleich der Detektor-Linearität am Ausgang FOPU

- Dieser Abgleich darf nur dann durchgeführt werden, wenn **keine** Option SMY-B40 eingebaut ist!
- Einstellung: RF 100 MHz
 LEVEL 13 dBm
- _ Ausgangspegel am RF-Ausgang des Gerätes messen und merken (= Referenzpegel)
- Einstellung: Spezialfunktion 1 einschalten
 (unterbrechungsfreie Pegeleinstellung)
 LEVEL -7 dBm
- _ Mit POT R851 so abgleichen, daß der gemessene Pegel 20 dB unter dem zuvor gemessenen Referenzpegel liegt. Abgleich einmal wiederholen, da sich der Referenzwert mit R851 ändert; die Genauigkeit der 20dB-Absenkung soll nach dem Abgleich ± 0.1 dB erreichen.

7.4.11 Abgleich des AM-Modulationsgrades

- Einstellung: PRESET
LEVEL 7 dBm (+13 dBm mit Option SMY-B40)
AM EXT DC 100%
Spezialfunktion 105 einschalten
(Führungswert der Pegelregelung)
- Eine Gleichspannung $U = -1.000 \text{ V}$ an AM EXT anlegen.
_ Mit POT R280 auf 0 V abgleichen.

7.5 Zerlegung und Zusammenbau

Oberen Gerätedeckel entfernen. Die Baugruppe ist links und rechts an der Auflage festgeschraubt. Nach dem Entfernen dieser Schrauben und dem Lösen der Koax-Verbindungen an X224, X225 und X226 kann die Baugruppe aus ihrem Steckplatz entnommen werden.

7.6 Endprüfung

7.6.1 Prüfen des maximalen Ausgangspegels

- Einstellung: LEVEL 19 dBm (25 dBm mit Option SMY-B40)
- An X226 FOPU einen Leistungsmesser anschließen, dabei muß ggf. ein geeignetes RF-Dämpfungsglied vorgeschaltet werden, um den Meßkopf nicht zu überlasten.
- RF-Frequenz von 5kHz bis 2080 MHz variieren.
Der RF-Pegel muß $> 15\text{dBm}$ (20 dBm mit Option SMY-B40) bleiben.

Typische Pegelwerte sind in folgender Tabelle dargestellt:

| | SMY02 ohne Option SMY-B40 | SMY02 mit Option SMY-B40 |
|-------------|---------------------------|--------------------------|
| RF-Frequenz | Ausgangspegel | Ausgangspegel |
| 10 MHz | 19 dBm | 21 dBm |
| 200 MHz | 19 dBm | 25 dBm |
| 400 MHz | 19 dBm | 24 dBm |
| 600 MHz | 20 dBm | 25 dBm |
| 800 MHz | 18 dBm | 26 dBm |
| 1000 MHz | 17 dBm | 25 dBm |
| 1200 MHz | 19 dBm | 24 dBm |
| 1400 MHz | 18 dBm | 24 dBm |
| 1600 MHz | 17 dBm | 24 dBm |
| 1800 MHz | 16 dBm | 23 dBm |
| 2000 MHz | 16 dBm | 24 dBm |
| 2080 MHz | 16 dBm | 24 dBm |

7.6.2 Prüfen des Oberwellenabstandes

- Gerät ohne Option SMY-B40:
- Einstellung: LEVEL 10 dBm

_ An X226 FOPU einen Spektrumanalysator anschließen.
 _ Der Pegel der Harmonischen muß < -30 dBc sein.

- Gerät mit Option SMY-B40:
- Einstellung: LEVEL 16 dBm
 Spezial 21 (ALC aus)

Da für die Messung die Verbindung von FOPU zum Powermodul aufgetrennt wird, muß die Pegelregelung auf den Sample-and-Hold-Betrieb geschaltet werden. Vor jeder Änderung der Geräteeinstellung muß diese Verbindung wieder geschlossen werden!

_ Meßfrequenz einstellen.
 _ An X226 FOPU einen Spektrumanalysator anschließen.
 _ Der Pegel der Harmonischen muß <-25 dBc sein.

Typische Meßwerte sind in folgender Tabelle dargestellt:

| RF-Frequenz | SMY02 ohne Option SMY-B40 | | SMY02 mit Option SMY-B40 | |
|-------------|---------------------------|---------|--------------------------|---------|
| | 2*frf | 3*frf | 2*frf | 3*frf |
| 1 MHz | -45 dBc | -40 dBc | -45 dBc | -48 dBc |
| 10 MHz | -50 dBc | -45 dBc | -48 dBc | -48 dBc |
| 200 MHz | -50 dBc | -45 dBc | -40 dBc | -50 dBc |
| 400 MHz | -45 dBc | -40 dBc | -35 dBc | -45 dBc |
| 600 MHz | -35 dBc | -40 dBc | -35 dBc | -50 dBc |
| 800 MHz | -35 dBc | -40 dBc | -35 dBc | -50 dBc |
| 1000 MHz | -35 dBc | -50 dBc | -32 dBc | -50 dBc |
| 1200 MHz | -35 dBc | -50 dBc | -32 dBc | -50 dBc |
| 1400 MHz | -40 dBc | -45 dBc | -32 dBc | -50 dBc |
| 1600 MHz | -45 dBc | -45 dBc | -32 dBc | -50 dBc |
| 1800 MHz | -45 dBc | -45 dBc | -32 dBc | -50 dBc |
| 2000 MHz | -35 dBc | -50 dBc | -35 dBc | -50 dBc |
| 2080 MHz | -45 dBc | -50 dBc | -45 dBc | -50 dBc |

7.6.3 Prüfen des Nebenwellenabstandes

- Gerät ohne Option SMY-B40:
- Einstellung: RF 63 MHz
 LEVEL 13 dBm

_ An X226 FOPU einen Spektrumanalysator anschließen.
 _ Nebenwellen bei folgenden Frequenzen prüfen:
 703 MHz, 640 MHz, 136 MHz, 73 MHz, 10 MHz
 Der Pegel der Nebenwellen muß < -70 dBc sein (typ. < -100 dBc).

- Gerät mit Option SMY-B40:
- Einstellung: LEVEL 19 dBm
 Spezial 21 (ALC aus)

Da für die Messung die Verbindung von FOPU zum Powermodul aufgetrennt wird, muß die Pegelregelung auf den Sample-and-Hold-Betrieb geschaltet werden. Vor jeder Änderung der Geräteeinstellung muß diese Verbindung wieder geschlossen werden!

_ Nebenwellen bei folgenden Frequenzen prüfen:
703 MHz, 640 MHz, 136 MHz, 73 MHz, 10 MHz

_ RF-Frequenz einstellen.
_ An X226 FOPU einen Spektrumanalysator anschließen.
Der Pegel der Nebenwellen muß < -70 dBc sein (typ. < -100 dBc).

7.6.4 Prüfen des Subharmonischenabstandes

- Gerät ohne Option SMY-B40:
- Einstellung: LEVEL 13 dBm
- _ An X226 FOPU einen Spektrumanalysator anschließen.
RF-Frequenz am SMY einstellen und bei f_{SUB1} und f_{SUB2} (siehe Tabelle) den Pegel der Subharmonischen messen. Er muß < -40 dBc sein.

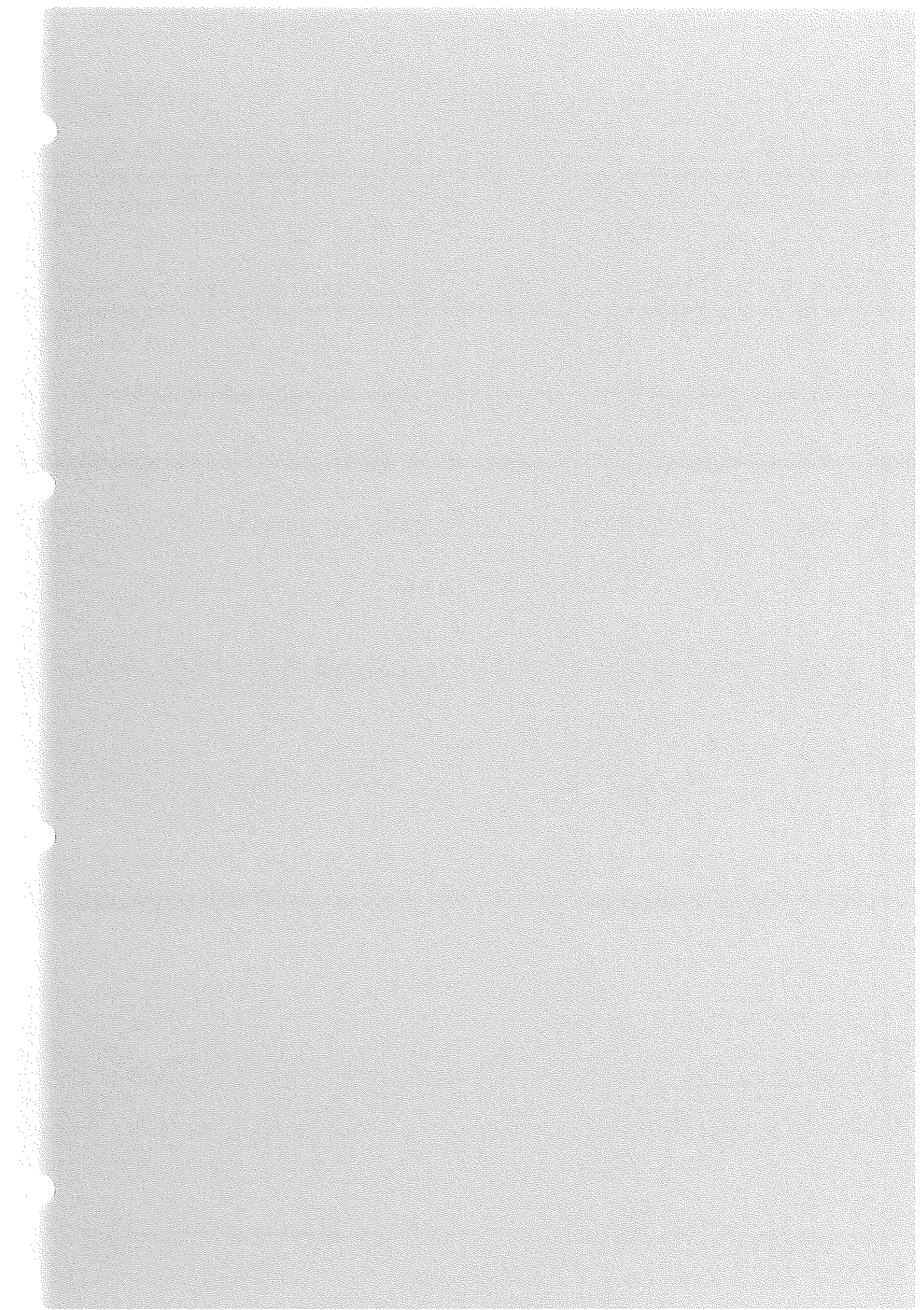
- Gerät mit Option SMY-B40:
- Einstellung: LEVEL 19 dBm
 Spezial 21 (ALC aus)

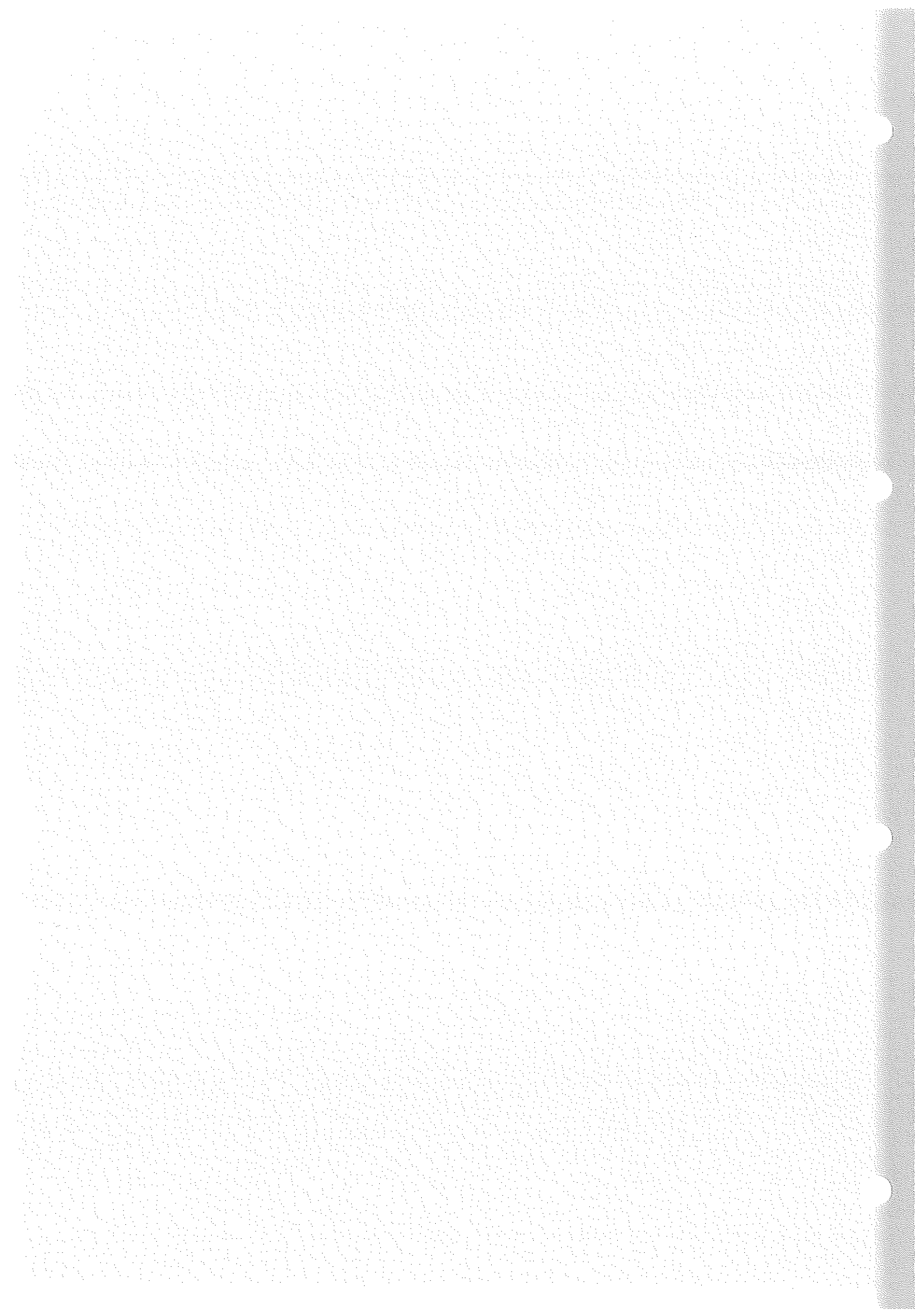
Da für die Messung die Verbindung von FOPU zum Powermodul aufgetrennt wird, muß die Pegelregelung auf den Sample-and-Hold-Betrieb geschaltet werden. Vor jeder Änderung der Geräteeinstellung muß diese Verbindung wieder geschlossen werden!

_ RF-Frequenz einstellen.
_ An X226 FOPU einen Spektrumanalysator anschließen.
Bei f_{SUB1} und f_{SUB2} (siehe Tabelle) den Pegel der Subharmonischen messen. Er muß < -40 dBc sein.

| RF-Frequenz | fsub1 | fsub2 |
|-------------|--------------|--------------|
| 1040.01 MHz | 520.005 MHz | 1560.015 MHz |
| 1310.39 MHz | 655.195 MHz | 1965.585 MHz |
| 1310.40 MHz | 655.200 MHz | 1965.600 MHz |
| 1559.99 MHz | 779.995 MHz | 2339.985 MHz |
| 1560.00 MHz | 780.000 MHz | 2340.000 MHz |
| 1651.09 MHz | 825.545 MHz | 2476.635 MHz |
| 1651.10 MHz | 825.550 MHz | 2476.650 MHz |
| 2080.00 MHz | 1040.000 MHz | 3120.000 MHz |

| Pin | Name | Ein/Ausgang | Herkunft/Ziel | Wertebereich | Signalbeschreibung |
|--------|---------|-------------|-----------------|-------------------|-----------------------------|
| X2A.01 | BLANK | Eingang | Rückwanne | HCMOS-Pegel | RF-Pegelaustastung |
| X2A.05 | DETEXT | Eingang | Pmod | 0 ... 10 V | Detektorspg. Option SMY-B40 |
| X2A.07 | AMMOD | Eingang | CPU X3.34 | -1 V bis 1 V | AM-Signal |
| X2A.12 | SERCLK | Eingang | CPU X3.2 | HCMOS-Pegel | Clock |
| X2A.14 | SERDAT | Eingang | CPU X3.4 | HCMOS-Pegel | serielle Daten |
| X2A.15 | AT1STB | Eingang | CPU X3.16 | HCMOS-Pegel | Strobe 1 |
| X2A.17 | HFINT | Ausgang | CPU X3.20 | HCMOS-Pegel | Interrupt Pegelregelung |
| X2A.19 | DIAG-5V | Ausgang | CPU X3.6 | -5 V...5 V | Diagnose |
| X2A.22 | VA24-P | Eingang | Netzteil X21.22 | 23.4 V...24.6 V | Versorgungsspannung analog |
| X2A.24 | VA15-P | Eingang | Netzteil X21.13 | 14.80 V...15.75 V | Versorgungsspannung analog |
| X2A.25 | | | | | |
| X2A.28 | VA-5P | Eingang | Netzteil X21.5 | 5.10V..5.25V | Versorgungsspannung analog |
| X2A.30 | VA15-N | Eingang | Netzteil X21.20 | -15.75V..-14.85V | Versorgungsspannung analog |
| X224 | FSYN | Eingang | YSYN X124 | 6 - 12 dBm | 65 - 1040 MHz |
| X225 | REF640 | Eingang | YSYN X125 | 9 - 12 dBm | 640 MHz |
| X226 | FOPU | Ausgang | Eichleitung X2 | -6...20 dBm | 5 kHz - 2.08 GHz |







ROHDE & SCHWARZ

SERVICE INSTRUCTIONS

Output Module 2.08 GHz

1062.7005.01

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Parts list
List of coordinates
Circuit diagram
Component layout diagram

In instruments without fitted option SMY-B40, this module has the variant VAR 02.

In instruments with fitted option SMY-B40, this module has the variant VAR 03.

7.1 Function Description

The Output Module 2.08 GHz is provided with the RF signal (6 dBm to 12 dBm) in the frequency range $65 \text{ MHz} \leq f_{\text{SYN}} \leq 1040 \text{ MHz}$ by the synthesis module via the input FSYN. This RF signal is passed via an amplitude modulator and an amplitude control element to switchable harmonic filters. The output frequency range of $5 \text{ kHz} \leq f_{\text{RF}} < 65 \text{ MHz}$ is realized in the signal path via the changeover switches SWITCHB and SWITCHD by means of downconversion with a 640 MHz LO.

The doubler path can be switched on via the changeover switches SWITCHA and SWITCHC to realize the output frequency range $1040 \text{ MHz} < f_{\text{RF}} \leq 2080 \text{ MHz}$.

The module consists of the following function units:

- an AM modulator for level control and amplitude modulation in the frequency range $5 \text{ kHz} \leq f_{\text{RF}} \leq 1040 \text{ MHz}$,
- an AM modulator for level presetting (LEVEL PRESET),
- switchable harmonic filters,
- a mixer with LO, RF and IF filters,
- a level detector in the RF path preceding the mixer,
- a frequency doubler,
- an AM modulator for level control and amplitude modulation in the frequency range $1040 \text{ MHz} < f_{\text{RF}} \leq 2080 \text{ MHz}$,
- switchable bandpasses for suppression of subharmonics,
- an output amplifier,
- a level detector at the output FOPU,
- a signal path for setting the nominal value of the RF level and the amplitude-modulation depth,
- the RF-level control,
- a serial interface and
- a circuit for diagnostics selection.

Further information on levels apply for an instrument output level of +13 dBm (+19 dBm with option SMY-B40).

7.1.1 RF Signal Processing

The input X224 FSYN is followed by an attenuator for temperature compensation. The attenuator is followed by the AM MODULATOR.

It is used as control element for level control in the range $f_{\text{RF}} \leq 1.04 \text{ GHz}$.

The RF signal is amplified by RF AMPLIFIER 1 and RF AMPLIFIER 2 and passed to the PIN modulator LEVEL PRESET. This modulator is set by means of stored calibration data via the D/A converter such that the control element for level control can be openominal in an optimum operating point (cf. operating manual "Calibrating LEVEL PRESET").

The RF signal is amplified by the RF AMPLIFIER 3 and routed to switchable HARMONIC FILTERS. These filters are switched on by the controller depending on the input frequency at X224 FSYN. Similar to the lowpasses TP4 to TP8, the lowpasses TP0 and TP3 are cascaded. Filters which have a higher cutoff frequency than the cutoff frequency of the lowpass selected remain switched on. In "normal operation", the RF signal passes via the PIN switch SWITCHD (OFF) and the GaAs changeover switch SWITCHB (OFF) to the output amplifier.

In "mixer operation", the RF signal is passed via the PIN switch SWITCHD (ON) and the RF AMPLIFIER 4 to the detector preceding the mixer.

In "doubler operation", the RF signal is switched via the GaAs switch SWITCHA (ON) to the doubler. The output signal of the latter is passed via the DOUBLER MODULATOR to switchable bandpass filters and via the GaAs switch SWITCHC (ON) to the output amplifier.

7.1.2 Mixer with LO, RF and IF Filters

The RF signal supplied by the detector preceding the mixer is switched via the RF lowpass and an attenuator to the RF input of the mixer for level adjustment (level approx. -5 to -10 dBm). The signal of REF640 passes via a lowpass to the LO input of the mixer. The IF signal reaches the RF switch SWITCHB (ON) preceding the output amplifier via the IF amplifier and the IF lowpass ($5 \text{ kHz} \leq f_{ZF} < 65 \text{ MHz}$, level approx. 0 dBm).

7.1.3 Output Amplifier

The three-stage linear broadband amplifier amplifies the input signal by approx. 19 dB. The operating points of the stages RF AMPLIFIER 12 and RF AMPLIFIER 13 are controlled.

7.1.4 AM Signal Path a. Nominal Value of RF Level

The signal of the AMMOD line is passed to the D/A converter for setting of the modulation depth and is then applied to the D/A converter RFLEV for setting of the RF level.

7.1.5 RF Level Control

For instruments without option SMY-B40, the level detector at the output X226 FOPU is used with instrument frequencies $f_{RF} \geq 10 \text{ MHz}$. The RF level at the diode is approx. +19 dBm. The linearization circuit allows for a dynamic range of approx. 30 dB with good linearity (important for low distortion).

For instruments with option SMY-B40, the detector on the option SMY-B40 is used for level control at instrument frequencies $\geq 10 \text{ MHz}$. Its output voltage is applied to the motherboard via the cable W125 and then fed into the input X2.A5 DETEXT of this module.

The level detector in the RF path preceding the mixer is used with instrument frequencies $f_{RF} < 10$ MHz instead of the detector at the output X226 FOPU. The RF level at the diode is approx. +15 dBm.

The level is controlled via the PI regulator N335. The reference value is supplied by the D/A converter RFLEV and compared to the actual value of one of the three detectors (VDET, DETEXT or VDETMIX) according to the frequency range. The output voltage of the PI regulator adjusts the control element:

the AM MODULATOR operates in the range $f_{RF} \leq 1040$ MHz;
the DOUBLER MODULATOR operates in the range $f_{RF} > 1040$ MHz;
additionally, the control voltage of the AM MODULATOR is fixed to approx. 14 V by the control signal MODUFIX, in order to obtain minimum attenuation.

The 3-dB bandwidth of the control loop can be reduced by AMSLOW from approx. 300 kHz to approx. 50 kHz (see special function 13).

Activating of KLEMM-N by the processor sets the AM modulator to maximum attenuation, which is used, e.g., for frequency changes in order to avoid level spikes.

7.1.6 Serial Interface

The incoming data are clocked into the shift registers and the D/A converters LEVEL PRESET, RFLEV and AM.

7.1.7 Circuit for Diagnostics Selection

One of eight dc voltages can be applied to the diagnostic line via the diagnostic multiplexer. The voltage can be displayed on the instrument.

| Special function | Nominal voltage range | Remark |
|------------------|-----------------------|---|
| 101 | 0.00 V to 5 V | RF level before passing Doubler Modulator |
| 102 | 0.00 V to 6 V | Detector voltage output FOPU |
| 103 | 0.00 V to 6 V | Detector voltage mixer |
| 104 | 0.01 V to 3 V | RF level after passing the filter bank |
| 105 | -6.00 V to 0 V | Reference value of level control |
| 106 | -1.00 V to 10 V | Output voltage of control amplifier |
| 107 | -1.00 V to 10 V | Control voltage of the AM modulator |
| 108 | 0.50 V to 13 V | Control voltage of the LEVEL PRESET element |

7.2 Test Instrument and Utilities

- Spectrum analyzer (e.g., FSBS)
- Oscilloscope (e.g., BOL)
- DC voltmeter (multimeter, e.g., UDL33)
- Network analyzer (e.g., ZVR)
- RF power meter (e.g. NRVD with sensor NRV-Z51)
- 10-dB N-attenuator pad (e.g. DNF)

7.3 Troubleshooting

Prior to opening the instrument, it is useful to first start the calibration routine LEVEL PRESET and localize possible error sources using the diagnostic voltages.

7.3.1 Errors Occurring Only in the Range $f_{RF} < 10$ MHz

- incorrect level at X226** Either the detector in the mixed range supplies an incorrect voltage or the PI regulator is not controlled correctly.
Check voltage VDETMIX using special function 103.
- bad AM distortion** Check the linearization circuit of the detector.

7.3.2 Errors Occurring Only in the Range $f_{RF} < 65$ MHz

- Incorrect RF level at X226** Check input REF640, IF amplifier, RF amplifier 4 and control of SBDON-P and SBDON-N of the changeover switches.
- Harmonics too high** Check IF amplifier, IF lowpass and RF switch SWITCHB.
- Spurious signals too high** The mixer is either faulty or its input level is too high (nominal level at the mixer RF input < -5 dBm). Check IF amplifier, IF lowpass and RF switch SWITCHB and the RF lowpass.

7.3.3 Errors in the Range $5 \text{ kHz} \leq f_{RF} \leq 1040$ MHz

- No RF level at X226** The control voltage of the AM modulator must be > 12 V, otherwise, the level control does not work correctly or the reference value of RFLEV D/A converter is incorrect. Check level at the output of harmonic filters (special function 104). Check the RF signal path using a spectrum analyzer with RF probe providing dc isolation (the gain of the amplifier stages is approx. 7 dB)
- Harmonics too high** Check harmonic filters and subsequent RF amplifiers, check operating points of the output amplifier.

Incidental phase modulation with AM too high Check the control voltage of the AM modulator. Perform LEVEL PRESET calibration.

AM distortion too high Test and adjust detector and linearization circuit, check AMSLOW control.

7.3.4 Errors in the Range $1040 \text{ MHz} \leq f_{\text{RF}} \leq 2080 \text{ MHz}$

No RF level at X226 The control voltage of the AM modulator must be $> 12 \text{ V}$, otherwise, the level control does not work correctly or the reference value of RFLEV D/A converter is incorrect. Check level at the output of harmonic filters (special function 104) and level preceding the Doubler Modulator (special function 101). Check changeover switches SwitchA and SwitchC prior and subsequent to the bandpass filters. Check the RF signal path using a spectrum analyzer with RF probe providing dc isolation (the gain of the amplifier stages is approx. 7 dB)

Harmonics too high Check harmonic filters and subsequent RF amplifiers, check switchable bandpass filters and the changeover switches SWITCHA and SWITCHC, check operating point of the DOUBLER MODULATOR and those of the output amplifier.

Subharmonics too high Check switchable bandpass filters and the changeover switches SWITCHA and SWITCHC, check operating point of the DOUBLER MODULATOR, check LEVEL PRESET voltage, perform LEVEL PRESET calibration (special function 45).

Incidental phase modulation with AM too high Check the control voltage of the AM modulator. Perform LEVEL PRESET calibration.

AM distortion too high Test and adjust detector and linearization circuit, check AMSLOW control.

7.3.5 Spectral Purity, $\Delta f < 10$ MHz from the Carrier

Spurious signals at approx. 1 MHz from carrier ALC loop oscillates; check detector and linearization circuit. Perform LEVEL PRESET calibration.

7.4 Testing and Adjustment

Hints: Ground via-holes have been fitted next to the coupling capacitors or resistors. A coaxial cable can be soldered in at such a location and a test instrument (e.g., a network or spectrum analyzer) can be connected via a coupling capacitor or an external dc isolation. Therefore, the coaxial cable is routed through the hole, the external conductor is soldered at the via-hole and the inner conductor at the desired location.

7.4.1 Testing Data Transmission

The test is performed with the instrument settings listed in the table.

- Test the voltages at D120:
 "1" = +5 V, "0" = 0 V

| RF frequency | D120/14 | D120/6 | Remark |
|--------------|---------|--------|----------|
| RF 1MHz | 0 | 1 | DETMIXON |
| RF 10MHz | 1 | 0 | DETON |

7.4.2 Testing the Output Voltage of the Control Amplifier

The LEVEL PRESET calibration is required for optimum operation of the amplitude modulator. This optimum operating point depends on the RF-frequency range.

The following applies for the frequency range $f_{RF} \leq 1040$ MHz: the nominal output voltage of the control amplifier is 6.3 V for an output level of 13 dBm (19 dBm with option SMY-B40). When the level is reduced electronically to 7 dBm (13 dBm with option SMY-B40), this voltage shall drop to 3.9 V and remain constant at 3.9 V with further electronic reduction down to -6 dBm (0 dBm with option SMY-B40).

The following applies for the frequency range $f_{RF} > 1040$ MHz: the nominal output voltage of the control amplifier is 7.5 V for an output level of 13 dBm (19 dBm with option SMY-B40). When the level is reduced electronically to 7 dBm (13 dBm with option SMY-B40), this voltage shall drop to 5.4V and remain constant at 5.4 V with further electronic reduction down to -6 dBm (0 dBm with option SMY-B40).

- Terminate the instrument output RF 50Ω with 50Ω .
 - Set LEVEL to 13 dBm (19 dBm with option SMY-B40) and
 - switch on special function 1 (non-interrupting level setting))
- The output voltage of the control amplifier can be measured using special function 106.

7.4.3 Testing the LEVEL PRESET Control Voltage

- Terminate the instrument output RF 50Ω with 50Ω.
 - Set LEVEL to 13 dBm (19 dBm with option SMY-B40).
 - Switch on special function 1 (non-interrupting level setting)
- The LEVEL PRESET voltage can be measured using special function 108. The voltage depends on the RF frequency and the RF level. The controller transmits the calculated values to the LEVEL PRESET D/A converter.

Typical voltages are given in the table below:

| RF-Frequenz | SMY02 without option SMY-B40 | | | | SMY02 with option SMY-B40 | | | |
|-------------|------------------------------|-------|-------|--------|---------------------------|--------|-------|-------|
| | 13 dBm | 7 dBm | 0 dBm | -6 dBm | 19 dBm | 13 dBm | 6 dBm | 0 dBm |
| 25 MHz | 1.4 V | 1.4 V | 1.0 V | 0.8 V | 1.4 V | 1.4 V | 1.0 V | 0.8 V |
| 100 MHz | 1.6 V | 1.6 V | 1.2 V | 0.8 V | 1.6 V | 1.6 V | 1.2 V | 0.8 V |
| 300 MHz | 1.4 V | 1.4 V | 1.0 V | 0.8 V | 1.4 V | 1.4 V | 1.0 V | 0.8 V |
| 500 MHz | 1.3 V | 1.3 V | 1.0 V | 0.8 V | 1.3 V | 1.3 V | 1.0 V | 0.8 V |
| 750 MHz | 2.0 V | 2.0 V | 1.4 V | 1.0 V | 2.0 V | 2.0 V | 1.4 V | 1.0 V |
| 800 MHz | 1.6 V | 1.6 V | 1.2 V | 1.0 V | 1.6 V | 1.6 V | 1.2 V | 1.0 V |
| 1040 MHz | 2.2 V | 2.2 V | 1.5 V | 1.2 V | 2.2 V | 2.2 V | 1.5 V | 1.2 V |
| 1041 MHz | 1.0 V | 1.0 V | 0.9 V | 0.8 V | 1.0 V | 1.0 V | 0.9 V | 0.8 V |
| 1200 MHz | 1.2 V | 1.2 V | 1.0 V | 0.9 V | 1.2 V | 1.2 V | 1.0 V | 0.9 V |
| 1400 MHz | 1.3 V | 1.3 V | 1.1 V | 1.0 V | 1.3 V | 1.3 V | 1.1 V | 1.0 V |
| 1600 MHz | 1.4 V | 1.4 V | 1.1 V | 1.0 V | 1.4 V | 1.4 V | 1.1 V | 1.0 V |
| 1800 MHz | 1.8 V | 1.8 V | 1.5 V | 1.4 V | 1.8 V | 1.8 V | 1.5 V | 1.4 V |
| 2000 MHz | 2.1 V | 2.1 V | 1.6 V | 1.5 V | 2.1 V | 2.1 V | 1.6 V | 1.5 V |
| 2080 MHz | 2.4 V | 2.4 V | 1.8 V | 1.6 V | 2.4 V | 2.4 V | 1.8 V | 1.6 V |

7.4.4 Testing the Operating Points of Amplifier Stages

| Test point | Nominal voltage | Remark |
|----------------|-----------------|-----------------|
| N360/3 | 5.50 ± 1.1 V | RF AMPLIFIER 2 |
| N410/3 | 5.50 ± 1.1 V | RF AMPLIFIER 3 |
| V602 Collector | 8.90 ± 0.3 V | RF AMPLIFIER 4 |
| V612 Collector | 5.90 ± 0.3 V | IF AMPLIFIER |
| V671 Collector | 5.50 ± 1.1 V | RF AMPLIFIER 7 |
| V874 Collector | 5.20 ± 1.1 V | RF AMPLIFIER 8 |
| V769 Collector | 5.20 ± 1.1 V | RF AMPLIFIER 9 |
| V801 Collector | 5.20 ± 1.1 V | RF AMPLIFIER 11 |
| V817 Collector | 15.9 ± 0.3 V | RF AMPLIFIER 12 |
| V832 Collector | 15.9 ± 0.3 V | RF AMPLIFIER 13 |

7.4.5 Testing the Harmonic Filter Control

_ Testing LPSELECT-0 ... LPSELECT-3 and the lines TP0 to TP8.

| RF frequency | LPSELECT- | | | | Remark |
|--------------|-----------|--------|--------|---|--------------------------|
| | 3 | 2 | 1 | 0 | |
| D111/8 | D111/11 | D111/6 | D111/3 | | |
| 1560.00 MHz | 0 | 0 | 0 | 1 | Lowpass 1, Doubler range |
| 1040.01 MHz | 0 | 0 | 1 | 0 | Lowpass 2, Doubler range |
| 780.00 MHz | 0 | 0 | 0 | 1 | Lowpass 1 |
| 520.00 MHz | 0 | 0 | 1 | 0 | Lowpass 2 |
| 390.00 MHz | 0 | 0 | 1 | 1 | Lowpass 3 |
| 260.00 MHz | 0 | 1 | 0 | 0 | Lowpass 4 |
| 195.00 MHz | 0 | 1 | 0 | 1 | Lowpass 5 |
| 130.00 MHz | 0 | 1 | 1 | 0 | Lowpass 6 |
| 97.50 MHz | 0 | 1 | 1 | 1 | Lowpass 7 |
| 65.00 MHz | 1 | 0 | 0 | 0 | Lowpass 8 |
| 64.00 MHz | 0 | 0 | 1 | 0 | Lowpass 2, Mixer range |

For output frequencies $65 \text{ MHz} \leq f_{\text{RF}} \leq 1040 \text{ MHz}$ on the instrument, the output frequency is supplied by the synthesis module.

For output frequencies $f_{\text{RF}} > 1040 \text{ MHz}$ on the instrument, the synthesis module provides the half output frequency ($520 \text{ MHz} < f_{\text{SYN}} \leq 1040 \text{ MHz}$).

7.4.6 Testing the RF Level at the Harmonic Filter Output

- Terminate the instrument output RF 50Ω with 50Ω .
 - Setting: RF LEVEL 13 dBm (19 dBm with option SMY-B40).
- _ The rectified RF voltage can be measured using special function 104.

Typical voltages are given in the table below:

| RF frequency | Diagnostic voltage | |
|--------------|--------------------|--|
| 10 MHz | 0.8 V | |
| 100 MHz | 0.6 V | |
| 200 MHz | 0.9 V | |
| 400 MHz | 1.1 V | |
| 600 MHz | 1.2 V | |
| 800 MHz | 0.8 V | |
| 1000 MHz | 1.1 V | |
| 1040 MHz | 0.9 V | |
| 1041 MHz | 1.5 V | |
| 1200 MHz | 1.1 V | |
| 1400 MHz | 1.0 V | |
| 1600 MHz | 1.0 V | |
| 1800 MHz | 1.0 V | |
| 2000 MHz | 1.8 V | |
| 2080 MHz | 1.9 V | |

7.4.7 Testing Control of the Bandpass Filter Switches

_ Testing BP1ON, BP2ON and BP3ON.

| RF frequency D112/3 | BP1ON D112/6 | BP2ON D112/11 | BP3ON | Remark |
|------------------------|-----------------|------------------|-------|-------------------------------|
| 1040.00 MHz | 0 | 0 | 0 | Bandpass filters switched off |
| 1040.01 MHz | 1 | 0 | 0 | Bandpass 1 on |
| 1310.40 MHz | 0 | 1 | 0 | Bandpass 2 on |
| 1651.10 MHz | 0 | 0 | 1 | Bandpass 3 on |

7.4.8 IF Amplification Adjustment

- Connect a spectrum analyzer to the instrument output RF 50Ω.
- Setting: RF 10 MHz
LEVEL 13 dBm (19 dBm with option SMY-B40)
- Measure RF signal, note RF level
- Decrease RF frequency by 1 Hz
- Adjust the RF level to the same value using the potentiometer R645
- Subsequent to adjustment, call the calibration routine LEVEL PRESET.

7.4.9 IF Detector Linearity Adjustment

- Setting: RF 9.9 MHz
LEVEL +5.1 dBm (11.1 dBm with option SMY-B40)
- Measure and note the output level at the RF output (= ref level)
- Setting: Switch on special function 1
(non-interrupting level setting)
LEVEL -14.9 dBm (-8.9 dBm with option SMY-B40)
- Adjust R619 that the measured level is 20 dB below the previously measured reference level. Repeat adjustment once, since the reference value slightly changes with use of R619; after the adjustment, the accuracy of the 20-dB reduction shall reach ± 0.1 dB.

7.4.10 Detector Linearity Adjustment at the Output FOPU

Note: This adjustment must be carried out if option SMY-B40 is **not** fitted!

- Setting: RF 100 MHz
LEVEL 13 dBm
- Measure and note the output level at the RF output of the instrument (= reference level)

- Setting: Switch on special function 1 (non-interrupting level setting))
 LEVEL -7 dBm
- Adjust R851 that the measured level is 20 dB below the previously measured reference level. Repeat adjustment once, since the reference value changes with use of R851; the accuracy of the 20-dB reduction shall reach ± 0.1 dB.

7.4.11 AM Depth Adjustment

- Setting: PRESET
 LEVEL 7 dBm (+13 dBm with option SMY-B40)
 AM EXT DC 100%
 Switch on special function 105
 (reference value of level control)
- Apply a dc voltage $V = -1.000$ V to AM EXT.
- Adjust to 0 V using POT R280.

7.5 Disassembly and Assembly

Remove upper instrument cover. The module is fixed to the support at the left and right sides. Subsequent to undoing these screws and disconnecting the coaxial connections at X224, X225 and X226, it can be taken out of its slot.

7.6

Final Test

7.6.1 Maximum Output Level Check

- Setting: LEVEL 19 dBm (25 dBm with option SMY-B40)
- Connect a power meter to X226 FOPU.
To prevent the sensor from being overdriven, it might be necessary to insert before a suitable RF-attenuator pad.
- Vary the RF frequency from 5kHz to 2080 MHz.
The RF level must remain > 15 dBm (20 dBm with option SMY-B40).

Typical levels are given in the table below:

| | SMY02 without option SMY-B40 | SMY02 with option SMY-B40 |
|--------------|------------------------------|---------------------------|
| RF-frequency | output level | output level |
| 10 MHz | 19 dBm | 21 dBm |
| 200 MHz | 19 dBm | 25 dBm |
| 400 MHz | 19 dBm | 24 dBm |
| 600 MHz | 20 dBm | 25 dBm |
| 800 MHz | 18 dBm | 26 dBm |
| 1000 MHz | 17 dBm | 25 dBm |
| 1200 MHz | 19 dBm | 24 dBm |
| 1400 MHz | 18 dBm | 24 dBm |
| 1600 MHz | 17 dBm | 24 dBm |
| 1800 MHz | 16 dBm | 23 dBm |
| 2000 MHz | 16 dBm | 24 dBm |
| 2080 MHz | 16 dBm | 24 dBm |

7.6.2 Harmonics Suppression Check

Instrument without option SMY-B40:

- Setting: LEVEL 10 dBm
- Connect a spectrum analyzer to X226 FOPU.
_ The level of the harmonics must be < -30 dBc.

Instrument with option SMY-B40:

- Setting: LEVEL 16 dBm
Special 21 (ALC off)

As the connection from FOPU to the power module is undone for the measurement, the level control must be switched to sample-and-hold operation. This connection must be reestablished before any of the instrument settings are changed.

- Set measurement frequency
- Connect spectrum analyzer to XD226 FOPU
The level of the harmonics must be <-25 dBc.

Typical values are given in the table below:

| RF-frequency | SMY02 without option SMY-B40 | | SMY02 with option SMY-B40 | |
|--------------|------------------------------|---------|---------------------------|---------|
| | 2*FRF | 3*FRF | 2*FRF | 3*FRF |
| 1 MHz | -45 dBc | -40 dBc | -45 dBc | -48 dBc |
| 10 MHz | -50 dBc | -45 dBc | -48 dBc | -48 dBc |
| 200 MHz | -50 dBc | -45 dBc | -40 dBc | -50 dBc |
| 400 MHz | -45 dBc | -40 dBc | -35 dBc | -45 dBc |
| 600 MHz | -35 dBc | -40 dBc | -35 dBc | -50 dBc |
| 800 MHz | -35 dBc | -40 dBc | -35 dBc | -50 dBc |
| 1000 MHz | -35 dBc | -50 dBc | -32 dBc | -50 dBc |
| 1200 MHz | -35 dBc | -50 dBc | -32 dBc | -50 dBc |
| 1400 MHz | -40 dBc | -45 dBc | -32 dBc | -50 dBc |
| 1600 MHz | -45 dBc | -45 dBc | -32 dBc | -50 dBc |
| 1800 MHz | -45 dBc | -45 dBc | -32 dBc | -50 dBc |
| 2000 MHz | -35 dBc | -50 dBc | -35 dBc | -50 dBc |
| 2080 MHz | -45 dBc | -50 dBc | -45 dBc | -50 dBc |

7.6.3 Nonharmonics Suppression Check

Instrument without option SMY-B40:

- Setting: RF 63 MHz
 LEVEL 13 dBm
 - Connect a spectrum analyzer to X226 FOPU.
 - Test spurious responses with the subsequent frequencies:
703 MHz, 640 MHz, 136 MHz, 73 MHz, 10 MHz
- The level of the spurious signals must be < -70 dBc (typ. < -100 dBc).

Instrument with option SMY-B40:

- Setting: LEVEL 19 dBm
 Special 21 (ALC off)

As the connection from FOPU to the power module is undone for the measurement, the level control must be switched to sample-and-hold operation. This connection must be reestablished before any of the instrument settings are changed.

- Test spurious signals for the following frequencies:
703 MHz, 640 MHz, 136 MHz, 73 MHz, 10 MHz
- Set RF-frequency
- Connect spectrum analyzer to X226 FOPU
The level of the spurious signals must be < -70 dBc (typ. < -100 dBc).

7.6.4 Subharmonics Suppression Check

Instrument without option SMY-B40:
 Setting: LEVEL 13 dBm

- Connect a spectrum analyzer to X226 FOPU.
- Set RF frequency on the SMY and measure the level of the subharmonics with f_{SUB1} and f_{SUB2} (see table below). The level must be < -40 dBc.

Instrument with option SMY-B40:

- Setting: LEVEL 19 dBm
 Special 21 (ALC off)

As the connection from FOPU to the power module is undone for the measurement, the level control must be switched to sample-and-hold operation. This connection must be reestablished before any of the instrument settings are changed.

- Set RF frequency
- Connect a spectrum analyzer to X226 FOPU.
- Measure the level of the subharmonics with f_{SUB1} and f_{SUB2} (see table below). The level must be < -40 dBc.

| RF frequency | fsub1 | fsub2 | |
|--------------|--------------|--------------|--|
| 1040.01 MHz | 520.005 MHz | 1560.015 MHz | |
| 1310.39 MHz | 655.195 MHz | 1965.585 MHz | |
| 1310.40 MHz | 655.200 MHz | 1965.600 MHz | |
| 1559.99 MHz | 779.995 MHz | 2339.985 MHz | |
| 1560.00 MHz | 780.000 MHz | 2340.000 MHz | |
| 1651.09 MHz | 825.545 MHz | 2476.635 MHz | |
| 1651.10 MHz | 825.550 MHz | 2476.650 MHz | |
| 2080.00 MHz | 1040.000 MHz | 3120.000 MHz | |

7.7


External Interfaces

| Pin | Name | Input/Output | Origin/Dest. | Specified range | Signal description |
|--------|---------|--------------|---------------|--------------------|------------------------------------|
| X2A.01 | BLANK | Input | Rear panel | HCMOS level | RF-level blanking |
| X2A.05 | DETEXT | Input | PMOD | 0 to 10 V | Detector voltage option SMY-B40 |
| X2A.07 | AMMOD | Input | CPU X3.34 | -1 V to 1 V | AM signal |
| X2A.12 | SERCLK | Input | CPU X3.2 | HCMOS level | Clock |
| X2A.14 | SERDAT | Input | CPU X3.4 | HCMOS level | Serial data |
| X2A.15 | AT1STB | Input | CPU X3.16 | HCMOS level | Strobe 1 |
| X2A.17 | HFINT | Output | CPU X3.20 | HCMOS level | Interrupt level control |
| X2A.19 | DIAG-5V | Output | CPU X3.6 | -5V to 5V | Diagnostics |
| X2A.22 | VA24-P | Input | Power X21.22 | 23.4V to 24.6V | Analog supply voltage |
| X2A.24 | VA15-P | Input | Power X21.13 | 14.80V to 15.75V | Analog supply voltage |
| X2A.25 | | | | | |
| X2A.28 | VA-5P | Input | Power X21.5 | 5.10V to 5.25V | Analog supply voltage |
| X2A.30 | VA15-N | Input | Power X21.20 | -15.75V to -14.85V | Analog supply voltage |
| X224 | FSYN | Input | YSYN X124 | 6 - 12dBm | 65 - 1040 MHz |
| X225 | REF640 | Input | YSYN X125 | 9 - 12 dBm | 640 MHz |
| X226 | FOPU | Output | Attenuator X2 | -6 to 20 dBm | 5 kHz - 2.08 GHz |

**Schalteillisten
numerisch geordnet**

**Part lists
in numerical order**


**Listes des pièces détachées
par numéros de référence**

| Kennz. Comp. No. | Benennung Designation | Sachnummer Stock No. | Hersteller Manufacturer | Bezeichnung Designation | enthalten in contained in | |
|---|---|-------------------------|----------------------------|--|------------------------------|-------------------|
| | XX VARIANTENERKLAERUNG IDENTIFICATION OF MODELS VAR 02 = GRUNDAUSFUEHRUNG MOD 02 = BASIC_MODEL VAR 03 = SMY12+SMY-B40 UMGERUESTET AUS VAR 02 MOD 03 = SMY12+SMY-B40 CONVERTED O. MOD 02 VAR 04 = SMY44/45 MOD 04 = SMY44/45 VAR 06 = SMY4X MIT OPT. SMY-B40 UMGERUESTET AUS VAR 04 MOD 06 = SMY4X WITH OPT. SMY-B40 CONVERTED O.MODO4 | | | | | |
| C12 | CC 47NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5195.00 | PHILIPS_CO | 2238 581 15645 | | |
| C13 | CC 1NF+-1% 50V NPO 1206 SMD CERAMIC CAPACITOR NICHT BESTUECKT/NOT FITTED | CC 0007.7398.00 | PHILIPS_CO | 2222 863 *8102 | | |
| C14 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | | |
| ..17 | CERAMIC CHIP CAPACITOR | | | | | |
| C20 | CE 220UF+-20%10V RM2,5 ELECTROLYTIC CAPACITOR | CE 0008.7927.00 | PANASONIC | ECA-1AFG221I | | |
| C21 | CE 10UF+-20%35V RD5,5XH6 ELECTROLYTIC CAPACITOR | 0803.0667.00 | NAT_PANASO | ECE-A1VKS-100 | | |
| C22 | CE 10UF+-20%35V RD5,5XH6 ELECTROLYTIC CAPACITOR | 0803.0667.00 | NAT_PANASO | ECE-A1VKS-100 | | |
| C132 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | | |
| C133 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | | |
| C149 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | | |
| ..154 | CERAMIC CHIP CAPACITOR | | | | | |
| C156 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | | |
| C157 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | | |
| C158 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | | |
| ..162 | CERAMIC CHIP CAPACITOR | | | | | |
| C170 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | | |
| C207 | CE 10UF +-10% 25V 7343 TANTALUM SMD-CAPACITOR | CE 0007.7246.00 | SPRAGUE | 293D 106 X9 025 D2T | | |
| C208 | CC 2,7PF+-0,25 50VNPO1206 CERAMIC CHIP CAPACITOR NUR VAR/ONLY MOD: 02 04 | CC 0007.8188.00 | MURATA | GRM42-6COG 2R7 C50PT | | |
| C208 | CC 2,7PF+-0,25 50VNPO1206 CERAMIC CHIP CAPACITOR NUR VAR/ONLY MOD: 03 06 NICHT BESTUECKT/NOT FITTED | CC 0007.8188.00 | MURATA | GRM42-6COG 2R7 C50PT | | |
| C209 | CC 22PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8396.00 | MURATA | GRM42-6COG 220F 50PT | | |
| C219 | CC 22PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR NUR VAR/ONLY MOD: 02 04 | CC 0099.8396.00 | MURATA | GRM42-6COG 220F 50PT | | |
| C219 | CC 33PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR NUR VAR/ONLY MOD: 03 06 | CC 0099.8780.00 | MURATA | GRM42-6COG 330F 50PT | | |
| C220 | CC 270PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8867.00 | PHILIPS_CO | 2222 863 18271 | | |
| C221 | CC 8,2PF+-0,25 50VNPO1206 CERAMIC CHIP CAPACITOR NICHT BESTUECKT NOT FITTED | CC 0007.8242.00 | MURATA | GRM42-6COG 8R2 C50PT | | |
| C240 | CC 22PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8396.00 | MURATA | GRM42-6COG 220F 50PT | | |
| C242 | CC 100PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8415.00 | MURATA | GRM42-6COG 101F 50PT | | |
| C244 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | | |
| C245 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | | |
| MENP5 | 413 3PUA | Är | Datum Date | Schalttailliste für Parts list for | Sachnummer Stock No. | Blatt-Nr. Page |
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| Kennz. Comp. No. | Benennung Designation | Sachnummer Stock No. | Hersteller Manufacturer | Bezeichnung Designation | enthalten in contained in |
|---------------------|--|-------------------------|----------------------------|----------------------------|------------------------------|
| C250 ..264 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C275 | CC 8,2PF+-0,25 50VNPO1206 CERAMIC CHIP CAPACITOR | CC 0007.8242.00 | MURATA | GRM42-6COG 8R2 C5OPT | |
| C280 | CC 22PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8396.00 | MURATA | GRM42-6COG 22OF 50PT | |
| C300 | CC 10PF+-0,25 50VNPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8480.00 | MURATA | GRM42-6COG 100 C5OPT | |
| C302 | CC 82PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8821.00 | MURATA | GRM42-6COG 82OF 50PT | |
| C303 | CC 82PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8821.00 | MURATA | GRM42-6COG 82OF 50PT | |
| C313 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C315 | CC 1NF+-1% 50V NPO 1206 SMD CERAMIC CAPACITOR | CC 0007.7398.00 | PHILIPS_CO | 2222 863 *8102 | |
| C316 | CC 1NF+-1% 50V NPO 1206 SMD CERAMIC CAPACITOR | CC 0007.7398.00 | PHILIPS_CO | 2222 863 *8102 | |
| C318 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C319 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C325 | CC 100PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8415.00 | MURATA | GRM42-6COG 101F 50PT | |
| C327 | CC 1NF+-1% 50V NPO 1206 SMD CERAMIC CAPACITOR | CC 0007.7398.00 | PHILIPS_CO | 2222 863 *8102 | |
| C328 | CC 1NF+-1% 50V NPO 1206 SMD CERAMIC CAPACITOR | CC 0007.7398.00 | PHILIPS_CO | 2222 863 *8102 | |
| C329 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C330 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C340 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C356 | CC 82PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8821.00 | MURATA | GRM42-6COG 82OF 50PT | |
| C357 | CC 82PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8821.00 | MURATA | GRM42-6COG 82OF 50PT | |
| C359 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR NICHT BESTUECKT NOT FITTED | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C360 | CC 220PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8850.00 | PHILIPS_CO | 2238 863 18221 | |
| C361 | CC 220PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8850.00 | PHILIPS_CO | 2238 863 18221 | |
| C362 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C400 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C401 | CC 1NF+-1% 50V NPO 1206 SMD CERAMIC CAPACITOR | CC 0007.7398.00 | PHILIPS_CO | 2222 863 *8102 | |
| C402 | CC 1NF+-1% 50V NPO 1206 SMD CERAMIC CAPACITOR | CC 0007.7398.00 | PHILIPS_CO | 2222 863 *8102 | |
| C404 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C405 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C410 | CC 1NF+-1% 50V NPO 1206 SMD CERAMIC CAPACITOR | CC 0007.7398.00 | PHILIPS_CO | 2222 863 *8102 | |
| C412 | CC 220PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8850.00 | PHILIPS_CO | 2238 863 18221 | |
| C417 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C440 ..442 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C445 | XX ENTHALTEN IN INCLUDED IN IN LEITERPLATTE | | | | |
| C500 | CC 1NF+-1% 50V NPO 1206 SMD CERAMIC CAPACITOR | CC 0007.7398.00 | PHILIPS_CO | 2222 863 *8102 | |
| C501 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C502 | XX ENTHALTEN IN INCLUDED IN IN LEITERPLATTE | | | | |
| C504 | CC 1NF+-1% 50V NPO 1206 SMD CERAMIC CAPACITOR | CC 0007.7398.00 | PHILIPS_CO | 2222 863 *8102 | |

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| Kannz. Comp. No. | Benennung Designation | Sachnummer Stock No. | Hersteller Manufacturer | Bezeichnung Designation | enthalten in contained in |
|------------------|--|----------------------|-------------------------|-------------------------|---------------------------|
| C505 | CC 3,3PF+-0,25 50VNP01206 CERAMIC CHIP CAPACITOR | CC 0007.8194.00 | MURATA | GRM42-6COG 3R3 C50PT | |
| C506 | CC 2,7PF+-0,25 50VNP01206 CERAMIC CHIP CAPACITOR | CC 0007.8188.00 | MURATA | GRM42-6COG 2R7 C50PT | |
| C507 | CC 2,7PF+-0,25 50VNP01206 CERAMIC CHIP CAPACITOR | CC 0007.8188.00 | MURATA | GRM42-6COG 2R7 C50PT | |
| C509 | CC 1NF+-1% 50V NPO 1206 SMD CERAMIC CAPACITOR | CC 0007.7398.00 | PHILIPS_CO | 2222 863 *8102 | |
| C510 | CC 3,9PF+-0,25 50VNP01206 CERAMIC CHIP CAPACITOR | CC 0007.8207.00 | MURATA | GRM42-6COG 3R9 C50PT | |
| C511 | CC 3,3PF+-0,25 50VNP01206 CERAMIC CHIP CAPACITOR | CC 0007.8194.00 | MURATA | GRM42-6COG 3R3 C50PT | |
| C512 | CC 3,3PF+-0,25 50VNP01206 CERAMIC CHIP CAPACITOR | CC 0007.8194.00 | MURATA | GRM42-6COG 3R3 C50PT | |
| C513 | XX ENTHALTEN IN INCLUDED IN IN LEITERPLATTE | | | | |
| C514 | CC 1NF+-1% 50V NPO 1206 SMD CERAMIC CAPACITOR | CC 0007.7398.00 | PHILIPS_CO | 2222 863 *8102 | |
| C515 | CC 5,6PF+-0,25 50VNP01206 CERAMIC CHIP CAPACITOR | CC 0007.8220.00 | MURATA | GRM42-6COG 5R6 C50PT | |
| C516 | CC 4,7PF+-0,25 50VNP01206 CERAMIC CHIP CAPACITOR | CC 0007.8213.00 | MURATA | GRM42-6COG 4R7C 50PT | |
| C517 | CC 4,7PF+-0,25 50VNP01206 CERAMIC CHIP CAPACITOR | CC 0007.8213.00 | MURATA | GRM42-6COG 4R7C 50PT | |
| C518 | CC 1NF+-1% 50V NPO 1206 SMD CERAMIC CAPACITOR | CC 0007.7398.00 | PHILIPS_CO | 2222 863 *8102 | |
| C519 | CC 1,8PF+-0,25 50VNP01206 CERAMIC CHIP CAPACITOR | CC 0007.8165.00 | MURATA | GRM42-6COG 1R8 C50PT | |
| C520 | CC 1,5PF+-0,25 50VNP01206 CERAMIC CHIP CAPACITOR | CC 0007.8159.00 | MURATA | GRM42-6COG 1R5 C50PT | |
| C521 | CC 1,5PF+-0,25 50VNP01206 CERAMIC CHIP CAPACITOR | CC 0007.8159.00 | MURATA | GRM42-6COG 1R5 C50PT | |
| C522 | XX ENTHALTEN IN INCLUDED IN IN LEITERPLATTE | | | | |
| C523 | XX ENTHALTEN IN INCLUDED IN IN LEITERPLATTE | | | | |
| C524 | XX ENTHALTEN IN INCLUDED IN IN LEITERPLATTE | | | | |
| C525 | XX ENTHALTEN IN INCLUDED IN IN LEITERPLATTE | | | | |
| C526 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C527 | CC 1NF+-1% 50V NPO 1206 SMD CERAMIC CAPACITOR | CC 0007.7398.00 | PHILIPS_CO | 2222 863 *8102 | |
| C530 | CC 1NF+-1% 50V NPO 1206 SMD CERAMIC CAPACITOR | CC 0007.7398.00 | PHILIPS_CO | 2222 863 *8102 | |
| C531 | CC 1NF+-1% 50V NPO 1206 SMD CERAMIC CAPACITOR | CC 0007.7398.00 | PHILIPS_CO | 2222 863 *8102 | |
| C532 | CC 12PF+-1% 50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8744.00 | MURATA | GRM42-6COG 120 F50PT | |
| C533 | CC 10PF+-0,25 50VNP0 1206 CERAMIC CHIP CAPACITOR | CC 0099.8480.00 | MURATA | GRM42-6COG 100 C50PT | |
| C534 | CC 10PF+-0,25 50VNP0 1206 CERAMIC CHIP CAPACITOR | CC 0099.8480.00 | MURATA | GRM42-6COG 100 C50PT | |
| C536 | CC 1NF+-1% 50V NPO 1206 SMD CERAMIC CAPACITOR | CC 0007.7398.00 | PHILIPS_CO | 2222 863 *8102 | |
| C537 | CC 18PF+-1% 50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8767.00 | MURATA | GRM42-6COG 180F 50PT | |
| C538 | CC 12PF+-1% 50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8744.00 | MURATA | GRM42-6COG 120 F50PT | |
| C539 | CC 12PF+-1% 50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8744.00 | MURATA | GRM42-6COG 120 F50PT | |
| C540 | CC 1NF+-1% 50V NPO 1206 SMD CERAMIC CAPACITOR | CC 0007.7398.00 | PHILIPS_CO | 2222 863 *8102 | |
| C545 | CC 27PF+-1%50V NPD 1206 CERAMIC CHIP CAPACITOR | CC 0099.8409.00 | MURATA | GRM42-6COG 270F 50PT | |
| C546 | CC 18PF+-1% 50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8767.00 | MURATA | GRM42-6COG 180F 50PT | |
| C547 | CC 18PF+-1% 50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8767.00 | MURATA | GRM42-6COG 180F 50PT | |
| C553 | CC 1NF+-1% 50V NPO 1206 SMD CERAMIC CAPACITOR | CC 0007.7398.00 | PHILIPS_CO | 2222 863 *8102 | |

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|------------------|---|----------------------|-------------------------|-------------------------|---------------------------|
| C560 | CC 33PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8780.00 | MURATA | GRM42-6COG 330F 50PT | |
| C562 | CC 27PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8409.00 | MURATA | GRM42-6COG 270F 50PT | |
| C564 | CC 22PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8396.00 | MURATA | GRM42-6COG 220F 50PT | |
| C568 | CC 5,6PF+-0,25 50V NPO1206 CERAMIC CHIP CAPACITOR | CC 0007.8220.00 | MURATA | GRM42-6COG 5R6 C50PT | |
| C569 | CC 1NF+-1% 50V NPO 1206 SMD CERAMIC CAPACITOR | CC 0007.7398.00 | PHILIPS_CO | 2222 863 *8102 | |
| C570 | CC 12PF+-1% 50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8744.00 | MURATA | GRM42-6COG 120 F50PT | |
| C571 | XX ENTHALTEN IN INCLUDED IN | | | | |
| C573 | IN LEITERPLATTE CC 15PF+-1% 50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8750.00 | MURATA | GRM42-6COG 150F 50PT | |
| C575 | CC 15PF+-1% 50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8750.00 | MURATA | GRM42-6COG 150F 50PT | |
| C580 | CC 15PF+-1% 50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8750.00 | MURATA | GRM42-6COG 150F 50PT | |
| C582 | CC 12PF+-1% 50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8744.00 | MURATA | GRM42-6COG 120 F50PT | |
| C583 | XX ENTHALTEN IN INCLUDED IN | | | | |
| C584 | IN LEITERPLATTE CC 5,6PF+-0,25 50V NPO1206 CERAMIC CHIP CAPACITOR | CC 0007.8220.00 | MURATA | GRM42-6COG 5R6 C50PT | |
| C585 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C599 | XX ENTHALTEN IN INCLUDED IN | | | | |
| C600 | IN LEITERPLATTE CC 18PF+-1% 50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8767.00 | MURATA | GRM42-6COG 180F 50PT | |
| C601 | CC 27NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0099.8473.00 | PHILIPS_CO | 2238 581 16633 | |
| C602 | CC 100PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8415.00 | MURATA | GRM42-6COG 101F 50PT | |
| C603 | CC 18PF+-1% 50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8767.00 | MURATA | GRM42-6COG 180F 50PT | |
| C604 | CC 10PF+-0,25 50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8480.00 | MURATA | GRM42-6COG 100 C50PT | |
| C605 | CC 4,7PF+-0,25 50V NPO1206 CERAMIC CHIP CAPACITOR | CC 0007.8213.00 | MURATA | GRM42-6COG 4R7C 50PT | |
| C606 | CC 3,9PF+-0,25 50V NPO1206 CERAMIC CHIP CAPACITOR | CC 0007.8207.00 | MURATA | GRM42-6COG 3R9 C50PT | |
| C607 | CC 3,9PF+-0,25 50V NPO1206 CERAMIC CHIP CAPACITOR | CC 0007.8207.00 | MURATA | GRM42-6COG 3R9 C50PT | |
| C608 | CC 220PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8850.00 | PHILIPS_CO | 2238 863 18221 | |
| C609 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C610 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C611 | CC 10PF+-0,25 50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8480.00 | MURATA | GRM42-6COG 100 C50PT | |
| C612 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C613 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C614 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C615 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C616 | CC 2,2PF+-0,25 50V NPO1206 CERAMIC CHIP CAPACITOR | CC 0007.8171.00 | MURATA | GRM42-6COG 2R2 C50PT | |
| C617 | CC 4,7PF+-0,25 50V NPO1206 CERAMIC CHIP CAPACITOR | CC 0007.8213.00 | MURATA | GRM42-6COG 4R7C 50PT | |
| C618 | CC 8,2PF+-0,25 50V NPO1206 CERAMIC CHIP CAPACITOR | CC 0007.8242.00 | MURATA | GRM42-6COG 8R2 C50PT | |
| C619 | CC 8,2PF+-0,25 50V NPO1206 CERAMIC CHIP CAPACITOR | CC 0007.8242.00 | MURATA | GRM42-6COG 8R2 C50PT | |
| C620 | CC 4,7PF+-0,25 50V NPO1206 CERAMIC CHIP CAPACITOR | CC 0007.8213.00 | MURATA | GRM42-6COG 4R7C 50PT | |
| C621 | CC 1,5PF+-0,25 50V NPO1206 CERAMIC CHIP CAPACITOR | CC 0007.8159.00 | MURATA | GRM42-6COG 1R5 C50PT | |

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| Kennz. Comp. No. | Benennung Designation | Sachnummer Stock No. | Hersteller Manufacturer | Bezeichnung Designation | enthalten in contained in |
|------------------|---|----------------------|-------------------------|-------------------------|---------------------------|
| C623 | CC 220PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8850.00 | PHILIPS_CO | 2238 863 18221 | |
| C625 | CC 10PF+-0,25 50VNPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8480.00 | MURATA | GRM42-6COG 100 C5OPT | |
| C627 | CC 18PF+-1% 50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8767.00 | MURATA | GRM42-6COG 180F 50PT | |
| C628 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C629 | CE 47UF +-10% 10V 7343 TANTALUM SMD-CAPACITOR | CE 0007.7300.00 | SPRAGUE | 293D X9 010 D2T | |
| C631 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C632 | CC 47PF+-1%50V COG 1206 CERAMIC CHIP CAPACITOR | CC 0099.8496.00 | MURATA | GRM42-6COG 470F 50PT | |
| C633 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C634 | CE 10UF +-10% 25V 7343 TANTALUM SMD-CAPACITOR | CE 0007.7246.00 | SPRAGUE | 293D 106 X9 025 D2T | |
| C635 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C636 | CE 10UF +-10% 25V 7343 TANTALUM SMD-CAPACITOR | CE 0007.7246.00 | SPRAGUE | 293D 106 X9 025 D2T | |
| C637 | CE 10UF +-10% 25V 7343 TANTALUM SMD-CAPACITOR | CE 0007.7246.00 | SPRAGUE | 293D 106 X9 025 D2T | |
| C638 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C639 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C640 | CC 4,7PF+-0,25 50VNPO1206 CERAMIC CHIP CAPACITOR NICHT BESTUECKT NOT FITTED | CC 0007.8213.00 | MURATA | GRM42-6COG 4R7C 50PT | |
| C641 | CC 47PF+-1%50V COG 1206 CERAMIC CHIP CAPACITOR | CC 0099.8496.00 | MURATA | GRM42-6COG 470F 50PT | |
| C642 | CC 68PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8815.00 | MURATA | GRM42-6COG 680F 50PT | |
| C643 | CC 68PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8815.00 | MURATA | GRM42-6COG 680F 50PT | |
| C644 | CC 4,7PF+-0,25 50VNPO1206 CERAMIC CHIP CAPACITOR NICHT BESTUECKT NOT FITTED | CC 0007.8213.00 | MURATA | GRM42-6COG 4R7C 50PT | |
| C645 | CC 47PF+-1%50V COG 1206 CERAMIC CHIP CAPACITOR | CC 0099.8496.00 | MURATA | GRM42-6COG 470F 50PT | |
| C646 | CC 8,2PF+-0,25 50VNPO1206 CERAMIC CHIP CAPACITOR | CC 0007.8242.00 | MURATA | GRM42-6COG 8R2 C5OPT | |
| C647 | CC 12PF+-1% 50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8744.00 | MURATA | GRM42-6COG 120 F50PT | |
| C650 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C651 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C652 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C653 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C654 | CC 10NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0099.8521.00 | MURATA | GRM42-6X7R103K 50PT | |
| C656 | CC 1NF+-1% 50V NPO 1206 SMD CERAMIC CAPACITOR | CC 0007.7398.00 | PHILIPS_CO | 2222 863 *8102 | |
| C660 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| ..663 | CC 12PF+-1% 50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8744.00 | MURATA | GRM42-6COG 120 F50PT | |
| C664 | CC 12PF+-1% 50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8744.00 | MURATA | GRM42-6COG 120 F50PT | |
| C668 | CC 10PF+-0,25 50VNPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8480.00 | MURATA | GRM42-6COG 100 C5OPT | |
| C669 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR NICHT BESTUECKT NOT FITTED | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C670 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C671 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C672 | CC 220PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8850.00 | PHILIPS_CO | 2238 863 18221 | |
| C673 | CC 220PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8850.00 | PHILIPS_CO | 2238 863 18221 | |

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Datum Date

Schaltteilliste für Parts list for

Sachnummer Stock No.

Blatt-Nr. Page



ROHDE & SCHWARZ

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16.09.97

EE AUSGANGSTEIL 2.08GHZ

OUTPUT UNIT 2.08GHZ


1062.7005.01 SA

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095.0026-0693

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| Kennz. Comp. No. | Benennung Designation | Sachnummer Stock No. | Hersteller Manufacturer | Bezeichnung Designation | enthalten in contained in |
|------------------|---|----------------------|-------------------------|-------------------------|---------------------------|
| C674 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C675 | CC 220PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8850.00 | PHILIPS_CO | 2238 863 18221 | |
| C676 | CC 220PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8850.00 | PHILIPS_CO | 2238 863 18221 | |
| C677 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C678 | CC 220PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8850.00 | PHILIPS_CO | 2238 863 18221 | |
| C679 | CC 1PF+-0,25 50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8667.00 | PHILIPS_CO | 2238 863 15108 | |
| C680 | CC 1NF+-1% 50V NPO 1206 SMD CERAMIC CAPACITOR | CC 0007.7398.00 | PHILIPS_CO | 2222 863 *8102 | |
| C681 | CC 1NF+-1% 50V NPO 1206 SMD CERAMIC CAPACITOR | CC 0007.7398.00 | PHILIPS_CO | 2222 863 *8102 | |
| C682 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C700 | CC 1PF+-0,25 50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8667.00 | PHILIPS_CO | 2238 863 15108 | |
| C701 | CC 1NF+-1% 50V NPO 1206 SMD CERAMIC CAPACITOR | CC 0007.7398.00 | PHILIPS_CO | 2222 863 *8102 | |
| C702 | CC 1NF+-1% 50V NPO 1206 SMD CERAMIC CAPACITOR | CC 0007.7398.00 | PHILIPS_CO | 2222 863 *8102 | |
| C705 | CC 56PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8809.00 | MURATA | GRM42-6COG 560F 50PT | |
| C707 | CC 220PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8850.00 | PHILIPS_CO | 2238 863 18221 | |
| C708 | CC 82PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8821.00 | MURATA | GRM42-6COG 820F 50PT | |
| C709 | CC 82PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8821.00 | MURATA | GRM42-6COG 820F 50PT | |
| C710 | CC 1NF+-1% 50V NPO 1206 SMD CERAMIC CAPACITOR | CC 0007.7398.00 | PHILIPS_CO | 2222 863 *8102 | |
| C714 | CC 3,9PF+-0,25 50VNPO1206 CERAMIC CHIP CAPACITOR | CC 0007.8207.00 | MURATA | GRM42-6COG 3R9 C50PT | |
| C715 | CC 220PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8850.00 | PHILIPS_CO | 2238 863 18221 | |
| C720 | CC 1NF+-1% 50V NPO 1206 SMD CERAMIC CAPACITOR | CC 0007.7398.00 | PHILIPS_CO | 2222 863 *8102 | |
| C721 | CC 82PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8821.00 | MURATA | GRM42-6COG 820F 50PT | |
| C723 | CC 82PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8821.00 | MURATA | GRM42-6COG 820F 50PT | |
| C724 | CC 220PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8850.00 | PHILIPS_CO | 2238 863 18221 | |
| C725 | CC 1NF+-1% 50V NPO 1206 SMD CERAMIC CAPACITOR | CC 0007.7398.00 | PHILIPS_CO | 2222 863 *8102 | |
| .727 | | | | | |
| C728 | CC 100PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8415.00 | MURATA | GRM42-6COG 101F 50PT | |
| C729 | CC 100PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8415.00 | MURATA | GRM42-6COG 101F 50PT | |
| C732 | CC 220PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8850.00 | PHILIPS_CO | 2238 863 18221 | |
| C734 | CC 82PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8821.00 | MURATA | GRM42-6COG 820F 50PT | |
| C735 | CC 1NF+-1% 50V NPO 1206 SMD CERAMIC CAPACITOR | CC 0007.7398.00 | PHILIPS_CO | 2222 863 *8102 | |
| C736 | CC 82PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8821.00 | MURATA | GRM42-6COG 820F 50PT | |
| C738 | CC 47PF+-1%50V COG 1206 CERAMIC CHIP CAPACITOR | CC 0099.8496.00 | MURATA | GRM42-6COG 470F 50PT | |
| C740 | CC 220PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8850.00 | PHILIPS_CO | 2238 863 18221 | |
| C741 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C742 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR NICHT BESTUECKT NOT FITTED | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C743 | CC 220PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8850.00 | PHILIPS_CO | 2238 863 18221 | |
| C744 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR NICHT BESTUECKT NOT FITTED | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C745 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |


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|---|----------|----------|--|------------------------------------|----------------------|----------------|
| MENP5 | 413 3PUA | Äi | Datum Date | Schaltteilliste für Parts list for | Sachnummer Stock No. | Blatt-Nr. Page |
|  | 28 | 16.09.97 | EE AUSGANGSTEIL 2.08GHZ OUTPUT UNIT 2.08GHZ | 1062.7005.01 SA | 6+ | |

095.0026-0693

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| Kennz. Comp. No. | Benennung Designation | Sachnummer Stock No. | Hersteller Manufacturer | Bezeichnung Designation | enthalten in contained in |
|---------------------|--|-------------------------|----------------------------|----------------------------|------------------------------|
| C747 | CC 100PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8415.00 | MURATA | GRM42-6COG 101F 50PT | |
| C748 | CC 100PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8415.00 | MURATA | GRM42-6COG 101F 50PT | |
| C750 | CC 1NF+-1% 50V NPO 1206 SMD CERAMIC CAPACITOR | CC 0007.7398.00 | PHILIPS_CO | 2222 863 *8102 | |
| C751 | CC 1NF+-1% 50V NPO 1206 SMD CERAMIC CAPACITOR | CC 0007.7398.00 | PHILIPS_CO | 2222 863 *8102 | |
| C753 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| ..757 | CC 1NF+-1% 50V NPO 1206 SMD CERAMIC CAPACITOR | CC 0007.7398.00 | PHILIPS_CO | 2222 863 *8102 | |
| C762 | CC 220PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8850.00 | PHILIPS_CO | 2238 863 18221 | |
| C765 | CC 220PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8850.00 | PHILIPS_CO | 2238 863 18221 | |
| C766 | CC 56PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8809.00 | MURATA | GRM42-6COG 560F 50PT | |
| C767 | CC 1NF+-1% 50V NPO 1206 SMD CERAMIC CAPACITOR | CC 0007.7398.00 | PHILIPS_CO | 2222 863 *8102 | |
| C768 | CC 1NF+-1% 50V NPO 1206 SMD CERAMIC CAPACITOR | CC 0007.7398.00 | PHILIPS_CO | 2222 863 *8102 | |
| C769 | CC 220PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8850.00 | PHILIPS_CO | 2238 863 18221 | |
| C770 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| ..772 | CC 220PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8850.00 | PHILIPS_CO | 2238 863 18221 | |
| C773 | CC 220PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8850.00 | PHILIPS_CO | 2238 863 18221 | |
| C774 | CC 220PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8850.00 | PHILIPS_CO | 2238 863 18221 | |
| C775 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C776 | CC 33PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8780.00 | MURATA | GRM42-6COG 330F 50PT | |
| ..781 | CC 100PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8415.00 | MURATA | GRM42-6COG 101F 50PT | |
| C783 | CC 1,2PF+-0,25 50VNPO1206 CERAMIC CHIP CAPACITOR | CC 0007.8142.00 | MURATA | GRM42-6COG 1R2 C5OPT | |
| ..794 | CC 1,5PF+-0,25 50VNPO1206 CERAMIC CHIP CAPACITOR | CC 0007.8159.00 | MURATA | GRM42-6COG 1R5 C5OPT | |
| C795 | CC 1,2PF+-0,25 50VNPO1206 CERAMIC CHIP CAPACITOR | CC 0007.8142.00 | MURATA | GRM42-6COG 1R2 C5OPT | |
| C796 | CC 1,5PF+-0,25 50VNPO1206 CERAMIC CHIP CAPACITOR | CC 0007.8159.00 | MURATA | GRM42-6COG 1R5 C5OPT | |
| C797 | CC 1,2PF+-0,25 50VNPO1206 CERAMIC CHIP CAPACITOR | CC 0007.8142.00 | MURATA | GRM42-6COG 1R2 C5OPT | |
| C798 | CC 220PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8850.00 | PHILIPS_CO | 2238 863 18221 | |
| C799 | CC 220PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8850.00 | PHILIPS_CO | 2238 863 18221 | |
| C800 | CE 1UF +-10% 25V EIA3528 TANTALUM SMD-CAPACITOR | CE 0007.7217.00 | SPRAGUE | 293D 105 X9 025 B2T | |
| C801 | CC 100PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8415.00 | MURATA | GRM42-6COG 101F 50PT | |
| C802 | CC 100PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8415.00 | MURATA | GRM42-6COG 101F 50PT | |
| C803 | CC 1NF+-1% 50V NPO 1206 SMD CERAMIC CAPACITOR | CC 0007.7398.00 | PHILIPS_CO | 2222 863 *8102 | |
| C804 | CC 1NF+-1% 50V NPO 1206 SMD CERAMIC CAPACITOR | CC 0007.7398.00 | PHILIPS_CO | 2222 863 *8102 | |
| C805 | CE 1UF +-10% 25V EIA3528 TANTALUM SMD-CAPACITOR | CE 0007.7217.00 | SPRAGUE | 293D 105 X9 025 B2T | |
| C806 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C808 | CE 1UF +-10% 25V EIA3528 TANTALUM SMD-CAPACITOR | CE 0007.7217.00 | SPRAGUE | 293D 105 X9 025 B2T | |
| C810 | CC 1PF+-0,25 50V NPO 1206 CERAMIC CHIP CAPACITOR NICHT BESTUECKT NOT FITTED | CC 0099.8667.00 | PHILIPS_CO | 2238 863 15108 | |
| C812 | CC 1PF+-0,25 50V NPO 1206 CERAMIC CHIP CAPACITOR NICHT BESTUECKT NOT FITTED | CC 0099.8667.00 | PHILIPS_CO | 2238 863 15108 | |
| C816 | CC 10PF+-0,25 50VNPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8480.00 | MURATA | GRM42-6COG 100 C5OPT | |
| C817 | CC 3,9PF+-0,25 50VNPO1206 CERAMIC CHIP CAPACITOR | CC 0007.8207.00 | MURATA | GRM42-6COG 3R9 C5OPT | |
| C818 | CC 3,3PF+-0,25 50VNPO1206 CERAMIC CHIP CAPACITOR | CC 0007.8194.00 | MURATA | GRM42-6COG 3R3 C5OPT | |
| C819 | CC 100PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8415.00 | MURATA | GRM42-6COG 101F 50PT | |
| C820 | CE 1UF +-10% 25V EIA3528 TANTALUM SMD-CAPACITOR | CE 0007.7217.00 | SPRAGUE | 293D 105 X9 025 B2T | |

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|---|----------|----------|--|---------------------------------------|-------------------------|-------------------|
| MENP5 | 413 3PUA | Al | Datum Date | Schaltteilliste für Parts list for | Sachnummer Stock No. | Blatt-Nr. Page |
|  | 28 | 16.09.97 | EE AUSGANGSTEIL 2.08GHZ OUTPUT UNIT 2.08GHZ | 1062.7005.01 SA | 7+ | |

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| Kannz. Comp. No. | Benennung Designation | Sachnummer Stock No. | Hersteller Manufacturer | Bezeichnung Designation | enthalten in contained in |
|------------------|---|----------------------|-------------------------|-------------------------|---------------------------|
| | NICHT BESTUECKT NOT FITTED | | | | |
| C821 | CE 100UF+-20%25V RDBX9,5 ELECTROLYTIC CAPACITOR | 0803.0580.00 | MATSUSHITA | ECE-A1ESS-101 | |
| C828 | CE 1UF +-10% 25V EIA3528 TANTALUM SMD-CAPACITOR | CE 0007.7217.00 | SPRAGUE | 293D 105 X9 025 B2T | |
| C830 | CC 1PF+-0,25 50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8667.00 | PHILIPS_CO | 2238 863 15108 | |
| | NICHT BESTUECKT NOT FITTED | | | | |
| C831 | CC 3,3PF+-0,25 50VNPO1206 CERAMIC CHIP CAPACITOR | CC 0007.8194.00 | MURATA | GRM42-6COG 3R3 C50PT | |
| C832 | CC 100PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8415.00 | MURATA | GRM42-6COG 101F 50PT | |
| C833 | CE 1UF +-10% 25V EIA3528 TANTALUM SMD-CAPACITOR | CE 0007.7217.00 | SPRAGUE | 293D 105 X9 025 B2T | |
| | NICHT BESTUECKT NOT FITTED | | | | |
| C834 | CE 100UF+-20%25V RDBX9,5 ELECTROLYTIC CAPACITOR | 0803.0580.00 | MATSUSHITA | ECE-A1ESS-101 | |
| C835 | CC 1,0PF0,1PF50V NPO 0603 SMD-CERAMIC-CAPACITOR | 0009.8304.00 | AVX | 0603 5A *** BAT00J | |
| | BESTEHT AUS 001.4339 2X3MM | | | | |
| C836 | CE 1UF +-10% 25V EIA3528 TANTALUM SMD-CAPACITOR | CE 0007.7217.00 | SPRAGUE | 293D 105 X9 025 B2T | |
| C839 | CE 1UF +-10% 25V EIA3528 TANTALUM SMD-CAPACITOR | CE 0007.7217.00 | SPRAGUE | 293D 105 X9 025 B2T | |
| C840 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| ..843 | CC 100PF+-1% 50VNPO 0603 SMD-CERAMIC-CAPACITOR | CC 0009.4680.00 | MURATA | GRM39COG***F50PT | |
| C844 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C846 | CC 47PF+-1%50V COG 1206 CERAMIC CHIP CAPACITOR | CC 0099.8496.00 | MURATA | GRM42-6COG 470F 50PT | |
| C847 | CC 10PF+-0,1 50V NPO 0603 SMD-CERAMIC-CAPACITOR | CC 0009.4567.00 | AVX | 0603 5A *** BAT00J | |
| C848 | CC 1PF+-0,25 50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8667.00 | PHILIPS_CO | 2238 863 15108 | |
| C849 | NICHT BESTUECKT NOT FITTED | | | | |
| C850 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| ..852 | CC 1NF+-1% 50V NPO 1206 SMD CERAMIC CAPACITOR | CC 0007.7398.00 | PHILIPS_CO | 2222 863 *8102 | |
| C853 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C854 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C855 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C870 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C871 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C880 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C881 | CE 1UF +-10% 25V EIA3528 TANTALUM SMD-CAPACITOR | CE 0007.7217.00 | SPRAGUE | 293D 105 X9 025 B2T | |
| C882 | CC 1NF+-1% 50V NPO 1206 SMD CERAMIC CAPACITOR | CC 0007.7398.00 | PHILIPS_CO | 2222 863 *8102 | |
| C883 | CC 1NF+-1% 50V NPO 1206 SMD CERAMIC CAPACITOR | CC 0007.7398.00 | PHILIPS_CO | 2222 863 *8102 | |
| C884 | CC 1NF+-1% 50V NPO 1206 SMD CERAMIC CAPACITOR | CC 0007.7398.00 | PHILIPS_CO | 2222 863 *8102 | |
| C885 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| ..890 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C892 | CC 1NF+-1% 50V NPO 1206 SMD CERAMIC CAPACITOR | CC 0007.7398.00 | PHILIPS_CO | 2222 863 *8102 | |
| C893 | CC 100PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8415.00 | MURATA | GRM42-6COG 101F 50PT | |
| C894 | CC 100PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8415.00 | MURATA | GRM42-6COG 101F 50PT | |
| D10 | BL PC74HCT4051T 8CH.A.MUX ANALOG MULTIPLEXER | BL 0007.6827.00 | PHILIPS | (PC)74HCT4051(T) | |
| D100 | BL PC74HCT132T 4X2IN SCHM NAND SCHMITT TRIGGER | BL 0007.6340.00 | PHILIPS | (PC)74HCT132(D/T) | |
| D102 | BL PC74HC4094T 8ST.BUSREG BUS REGISTER | BL 0804.0977.00 | PHILIPS_SE | (PC)74HC4094(D/T) | |

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Schaltteilliste für
Parts list for
EE AUSGANGSTEIL 2.08GHZ
OUTPUT UNIT 2.08GHZ

Sachnummer
Stock No.
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| Kennz. Comp. No. | Benennung Designation | Sachnummer Stock No. | Hersteller Manufacturer | Bezeichnung Designation | enthalten in contained in |
|---------------------|---|-------------------------|----------------------------|----------------------------|------------------------------|
| D105 | BL PC74HC08T 4X2IN.ANDG QUAD 2INPUT AND GATE | BL 0007.3486.00 | PHILIPS_SE | (PC)74HC08(D/T) | |
| D110 | BL PC74HC4094T 8ST.BUSREG BUS REGISTER | BL 0804.0977.00 | PHILIPS_SE | (PC)74HC4094(D/T) | |
| D111 | BL PC74HC08T 4X2IN.ANDG QUAD 2INPUT AND GATE | BL 0007.3486.00 | PHILIPS_SE | (PC)74HC08(D/T) | |
| D112 | BL PC74HC08T 4X2IN.ANDG QUAD 2INPUT AND GATE | BL 0007.3486.00 | PHILIPS_SE | (PC)74HC08(D/T) | |
| D115 | BL PC74HC86T 4X2IN EXOR QUAD 2INPUT EXOOR GATE | BL 0007.3511.00 | PHILIPS_SE | (PC)74HC86(D/T) | |
| D120 | BL PC74HC4094T 8ST.BUSREG BUS REGISTER | BL 0804.0977.00 | PHILIPS_SE | (PC)74HC4094(D/T) | |
| D140 | BJ DAC8143 1X12B-DAC 12B SERIAL D/A-CONVERTER | 1012.9510.00 | PMI | DAC8143FS | |
| D141 | BS DG413DY 2A2R ANALOGSCH QUAD ANALOG CMOS.SWITCH | 1004.7058.00 | SILICONIX | DG413DY | |
| D145 | BJ DAC8143 1X12B-DAC 12B SERIAL D/A-CONVERTER | 1012.9510.00 | PMI | DAC8143FS | |
| D150 | BJ DAC8143 1X12B-DAC 12B SERIAL D/A-CONVERTER | 1012.9510.00 | PMI | DAC8143FS | |
| D200 | BS DG413DY 2A2R ANALOGSCH QUAD ANALOG CMOS.SWITCH | 1004.7058.00 | SILICONIX | DG413DY | |
| D210 | BS DG413DY 2A2R ANALOGSCH QUAD ANALOG CMOS.SWITCH | 1004.7058.00 | SILICONIX | DG413DY | |
| D220 | BS DG413DY 2A2R ANALOGSCH QUAD ANALOG CMOS.SWITCH | 1004.7058.00 | SILICONIX | DG413DY | |
| D430 | BL PC74HCT42T BCD/D. DEC DECODER | BL 0007.6240.00 | PHILIPS | (PC)74HCT42(T) | |
| D431 | BL PC74HCT04T 6XINVERT HEXINVERTER | BL 0007.5372.00 | PHILIPS_SE | (PC)74HCT04(D/T) | |
| D432 | BL PC74HCT04T 6XINVERT HEXINVERTER | BL 0007.5372.00 | PHILIPS_SE | (PC)74HCT04(D/T) | |
| D759 | BM SW-239 GAAS SPDTSWITCH GAAS RF-SWITCH | 0853.5579.00 | ANZAC | SW239 | |
| D760 | BM SW-239 GAAS SPDTSWITCH GAAS RF-SWITCH | 0853.5579.00 | ANZAC | SW239 | |
| D800 | BM SW-239 GAAS SPDTSWITCH GAAS RF-SWITCH | 0853.5579.00 | ANZAC | SW239 | |
| L20 | LD 10 UH 10% 3R3 144 MA CHOKE | LD 0026.4184.00 | DALE | IM2 | |
| L21 | LD 470NH 10% 0,15A 1210 SMD-INDUCTOR | LD 0007.9926.00 | SIEMENS | B82422-A3471-K100 | |
| L22 | LD 470NH 10% 0,15A 1210 SMD-INDUCTOR | LD 0007.9926.00 | SIEMENS | B82422-A3471-K100 | |
| L300 | LD 220NH 10% 0,28A 1210 SMD-INDUCTOR | LD 0520.7911.00 | SIEMENS | B82422-A3221-K100 | |
| L301 | LD 22NH 10% 0,60A 1210 SMD-INDUCTOR | 1002.4897.00 | SIEMENS | B82422-A3220-K100 | |
| L305 | LD 1,00UH10%1,00DHMO,390A CHOKE | LD 0067.2863.00 | DALE | IM2 | |
| L325 | LD 1,00UH10%1,00DHMO,390A CHOKE | LD 0067.2863.00 | DALE | IM2 | |
| L340 | LD 1,00UH10%1,00DHMO,390A CHOKE | LD 0067.2863.00 | DALE | IM2 | |
| L350 | XX ENTHALTEN IN INCLUDED IN IN LEITERPLATTE | | | | |
| L351 | LD 1,00UH10%1,00DHMO,390A CHOKE NICHT BESTUECKT NOT FITTED | LD 0067.2863.00 | DALE | IM2 | |
| L353 | LD 1,00UH10%1,00DHMO,390A CHOKE NICHT BESTUECKT NOT FITTED | LD 0067.2863.00 | DALE | IM2 | |
| L355 | LD 220NH 10% 0,28A 1210 SMD-INDUCTOR | LD 0520.7911.00 | SIEMENS | B82422-A3221-K100 | |
| L360 | LD 1,00UH10%1,00DHMO,390A CHOKE | LD 0067.2863.00 | DALE | IM2 | |
| L361 | LD 1,00UH10%1,00DHMO,390A CHOKE | LD 0067.2863.00 | DALE | IM2 | |
| L380 | XX ENTHALTEN IN INCLUDED IN IN LEITERPLATTE | | | | |
| L400 | LD 0,82UH10%0,85DHMO,420A CHOKE | LD 0067.2857.00 | DALE | IM2 | |

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ROHDE & SCHWARZ

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EE AUSGANGSTEIL 2.08GHZ
OUTPUT UNIT 2.08GHZ

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| Kennz. Comp. No. | Benennung Designation | Sachnummer Stock No. | Hersteller Manufacturer | Bezeichnung Designation | enthalten in contained in |
|---------------------|---|-------------------------|----------------------------|----------------------------|------------------------------|
| L410 | LD 0,68UH10%,600HMO,500A CHOKE | LD 0067.2840.00 | DALE | IM2 | |
| L416 | LD 1,00UH10%1,000HMO,390A CHOKE | LD 0067.2863.00 | DALE | IM2 | |
| L417 | LD 1,00UH10%1,000HMO,390A CHOKE | LD 0067.2863.00 | DALE | IM2 | |
| L431 | LD 1UH 10% 0,38A 1210 SMD-INDUCTOR | LD 6006.0130.00 | SIEMENS | B82422-A1102-K100 | |
| L432 | LD 1UH 10% 0,38A 1210 SMD-INDUCTOR | LD 6006.0130.00 | SIEMENS | B82422-A1102-K100 | |
| L500 | LD 1,20UH10%,180HMO,620A CHOKE | LD 0067.2870.00 | DALE | IM2 | |
| L505 | LD 100NH 10% 0,080HM 1,4A CHOKE | LD 0067.2740.00 | DALE | IM2 | |
| L510 | LD 0,33UH10%,220HMO,830A CHOKE | LD 0067.2805.00 | DALE | IM2 | |
| L517 | LD 0,15UH10%,100HM1,230A CHOKE | LD 0067.2763.00 | DALE | IM2 | |
| L520 | LD 0,82UH10%,850HMO,420A CHOKE | LD 0067.2857.00 | DALE | IM2 | |
| L530 | LD 3,30UH10%,850HMO,285A CHOKE | LD 0067.2928.00 | DALE | IM2 | |
| L532 | LD 22NH 10% 0,60A 1210 SMD-INDUCTOR | 1002.4897.00 | SIEMENS | B82422-A3220-K100 | |
| ..534 | | | | | |
| L536 | LD 3,30UH10%,850HMO,285A CHOKE | LD 0067.2928.00 | DALE | IM2 | |
| L537 | LD 22NH 10% 0,60A 1210 SMD-INDUCTOR | 1002.4897.00 | SIEMENS | B82422-A3220-K100 | |
| L538 | LD 47NH 10% 0,51A 1210 SMD-INDUCTOR | 0008.5976.00 | SIEMENS | B82422-A3470-K100 | |
| L539 | LD 47NH 10% 0,51A 1210 SMD-INDUCTOR | 0008.5976.00 | SIEMENS | B82422-A3470-K100 | |
| L540 | LD 22NH 10% 0,60A 1210 SMD-INDUCTOR | 1002.4897.00 | SIEMENS | B82422-A3220-K100 | |
| ..542 | | | | | |
| L543 | LD 3,30UH10%,850HMO,285A CHOKE | LD 0067.2928.00 | DALE | IM2 | |
| L544 | LD 22NH 10% 0,60A 1210 SMD-INDUCTOR | 1002.4897.00 | SIEMENS | B82422-A3220-K100 | |
| L545 | LD 47NH 10% 0,51A 1210 SMD-INDUCTOR | 0008.5976.00 | SIEMENS | B82422-A3470-K100 | |
| ..547 | | | | | |
| L548 | LD 22NH 10% 0,60A 1210 SMD-INDUCTOR | 1002.4897.00 | SIEMENS | B82422-A3220-K100 | |
| L549 | LD 22NH 10% 0,60A 1210 SMD-INDUCTOR | 1002.4897.00 | SIEMENS | B82422-A3220-K100 | |
| ..551 | | | | | |
| L553 | LD 3,30UH10%,850HMO,285A CHOKE | LD 0067.2928.00 | DALE | IM2 | |
| L559 | LD 22NH 10% 0,60A 1210 SMD-INDUCTOR | 1002.4897.00 | SIEMENS | B82422-A3220-K100 | |
| L560 | LD 47NH 10% 0,51A 1210 SMD-INDUCTOR | 0008.5976.00 | SIEMENS | B82422-A3470-K100 | |
| L561 | LD 22NH 10% 0,60A 1210 SMD-INDUCTOR | 1002.4897.00 | SIEMENS | B82422-A3220-K100 | |
| L562 | LD 100NH 10% 0,44A 1210 SMD-INDUCTOR | LD 0007.9249.00 | SIEMENS | B82422-A3101-K100 | |
| L563 | LD 47NH 10% 0,51A 1210 SMD-INDUCTOR | 0008.5976.00 | SIEMENS | B82422-A3470-K100 | |
| L564 | LD 100NH 10% 0,44A 1210 SMD-INDUCTOR | LD 0007.9249.00 | SIEMENS | B82422-A3101-K100 | |
| L565 | LD 47NH 10% 0,51A 1210 SMD-INDUCTOR | 0008.5976.00 | SIEMENS | B82422-A3470-K100 | |
| L566 | LD 47NH 10% 0,51A 1210 SMD-INDUCTOR | 0008.5976.00 | SIEMENS | B82422-A3470-K100 | |
| L568 | LD 3,30UH10%,850HMO,285A CHOKE | LD 0067.2928.00 | DALE | IM2 | |
| L570 | LD 22NH 10% 0,60A 1210 SMD-INDUCTOR | 1002.4897.00 | SIEMENS | B82422-A3220-K100 | |
| ..572 | | | | | |
| L580 | LD 22NH 10% 0,60A 1210 SMD-INDUCTOR | 1002.4897.00 | SIEMENS | B82422-A3220-K100 | |
| L583 | LD 22NH 10% 0,60A 1210 SMD-INDUCTOR | 1002.4897.00 | SIEMENS | B82422-A3220-K100 | |
| L584 | LD 22NH 10% 0,60A 1210 SMD-INDUCTOR | 1002.4897.00 | SIEMENS | B82422-A3220-K100 | |
| L585 | LD 1UH 10% 0,38A 1210 SMD-INDUCTOR | LD 6006.0130.00 | SIEMENS | B82422-A1102-K100 | |
| L600 | LD 1,00UH10%1,000HMO,390A CHOKE | LD 0067.2863.00 | DALE | IM2 | |
| ..602 | | | | | |
| L604 | LD 1UH 10% 0,38A 1210 SMD-INDUCTOR | LD 6006.0130.00 | SIEMENS | B82422-A1102-K100 | |

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| MENP5 | 413 3PUA | ÄI | Datum Date | Schaltteilliste für Parts list for | Sachnummer Stock No. | Blatt-Nr. Page |
|  | ROHDE & SCHWARZ | 28 | 16.09.97 | EE AUSGANGSTEIL 2.08GHZ OUTPUT UNIT 2.08GHZ | 1062.7005.01 SA | 10+ |

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| Kannz. Comp. No. | Benennung Designation | Sachnummer Stock No. | Hersteller Manufacturer | Bezeichnung Designation | enthalten in contained in |
|---------------------|---|-------------------------|----------------------------|----------------------------|------------------------------|
| L608 | LD 12NH 10% 0,70A 1210 SMD-INDUCTOR | 1002.4900.00 | SIEMENS | B82422-A3120-K100 | |
| L610 | LD 12NH 10% 0,70A 1210 SMD-INDUCTOR | 1002.4900.00 | SIEMENS | B82422-A3120-K100 | |
| L612 | LD 1UH 10% 0,38A 1210 SMD-INDUCTOR | LD 6006.0130.00 | SIEMENS | B82422-A1102-K100 | |
| L613 | LD 1UH 10% 0,38A 1210 SMD-INDUCTOR | LD 6006.0130.00 | SIEMENS | B82422-A1102-K100 | |
| L630 | LD 47NH 10% 0,51A 1210 SMD-INDUCTOR | 0008.5976.00 | SIEMENS | B82422-A3470-K100 | |
| L632 | LD 22NH 10% 0,60A 1210 SMD-INDUCTOR | 1002.4897.00 | SIEMENS | B82422-A3220-K100 | |
| L633 | LD 22NH 10% 0,60A 1210 SMD-INDUCTOR | 1002.4897.00 | SIEMENS | B82422-A3220-K100 | |
| L642 | LD 1,00UH10%1,000HMO,390A CHOKE | LD 0067.2863.00 | DALE | IM2 | |
| L643 | LD 0,27UH10%0,160HMO,975A CHOKE | LD 0067.2792.00 | DALE | IM2 | |
| L645 | LD 0,15UH10%0,100HM1,230A CHOKE | LD 0067.2763.00 | DALE | IM2 | |
| L647 | LD 0,18UH10%0,120HM1,120A CHOKE | LD 0067.2770.00 | DALE | IM2 | |
| L649 | LD 0,15UH10%0,100HM1,230A CHOKE | LD 0067.2763.00 | DALE | IM2 | |
| L650 | LD 22NH 10% 0,60A 1210 SMD-INDUCTOR | 1002.4897.00 | SIEMENS | B82422-A3220-K100 | |
| L651 | LD 22NH 10% 0,60A 1210 SMD-INDUCTOR | 1002.4897.00 | SIEMENS | B82422-A3220-K100 | |
| L660 | LD 1UH 10% 0,38A 1210 SMD-INDUCTOR | LD 6006.0130.00 | SIEMENS | B82422-A1102-K100 | |
| L668 | LD 1UH 10% 0,38A 1210 SMD-INDUCTOR | LD 6006.0130.00 | SIEMENS | B82422-A1102-K100 | |
| L669 | LD 1,00UH10%1,000HMO,390A CHOKE | LD 0067.2863.00 | DALE | IM2 | |
| L670 | LD 1UH 10% 0,38A 1210 SMD-INDUCTOR | LD 6006.0130.00 | SIEMENS | B82422-A1102-K100 | |
| L671 | LD 1UH 10% 0,38A 1210 SMD-INDUCTOR | LD 6006.0130.00 | SIEMENS | B82422-A1102-K100 | |
| L672 | LD 1,00UH10%1,000HMO,390A CHOKE NICHT BESTUECKT NOT FITTED | LD 0067.2863.00 | DALE | IM2 | |
| L673 | LD 1,00UH10%1,000HMO,390A CHOKE NICHT BESTUECKT NOT FITTED | LD 0067.2863.00 | DALE | IM2 | |
| L674 | LD 0,82UH10%0,850HMO,420A CHOKE | LD 0067.2857.00 | DALE | IM2 | |
| L675 | LD 1,00UH10%1,000HMO,390A CHOKE | LD 0067.2863.00 | DALE | IM2 | |
| L705 | LD 220NH 10% 0,28A 1210 SMD-INDUCTOR | LD 0520.7911.00 | SIEMENS | B82422-A3221-K100 | |
| L706 | LD 220NH 10% 0,28A 1210 SMD-INDUCTOR | LD 0520.7911.00 | SIEMENS | B82422-A3221-K100 | |
| L709 | LD 4,7UH 10% 0,15A 1210 SMD-INDUCTOR | LD 0008.1687.00 | SIEMENS | B82422-A1472-K100 | |
| L714 | LD 100NH 10% 0,44A 1210 SMD-INDUCTOR | LD 0007.9249.00 | SIEMENS | B82422-A3101-K100 | |
| L720 | LD 4,7UH 10% 0,15A 1210 SMD-INDUCTOR | LD 0008.1687.00 | SIEMENS | B82422-A1472-K100 | |
| L727 | LD 1UH 10% 0,38A 1210 SMD-INDUCTOR | LD 6006.0130.00 | SIEMENS | B82422-A1102-K100 | |
| L730 | LD 100NH 10% 0,44A 1210 SMD-INDUCTOR | LD 0007.9249.00 | SIEMENS | B82422-A3101-K100 | |
| L732 | LD 4,7UH 10% 0,15A 1210 SMD-INDUCTOR | LD 0008.1687.00 | SIEMENS | B82422-A1472-K100 | |
| L738 | LD 100NH 10% 0,44A 1210 SMD-INDUCTOR | LD 0007.9249.00 | SIEMENS | B82422-A3101-K100 | |
| L739 | LD 100NH 10% 0,44A 1210 SMD-INDUCTOR | LD 0007.9249.00 | SIEMENS | B82422-A3101-K100 | |
| L740 | LD 0,82UH10%0,850HMO,420A CHOKE NICHT BESTUECKT NOT FITTED | LD 0067.2857.00 | DALE | IM2 | |
| L742 | LD 1,00UH10%1,000HMO,390A CHOKE NICHT BESTUECKT | LD 0067.2863.00 | DALE | IM2 | |

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|---|----------------------------|----|---------------|--|-------------------------|-------------------|
| MENP5 | 413 3PUA | ÄI | Datum Date | Schaltteilliste für Parts list for | Sachnummer Stock No. | Blatt-Nr. Page |
|  | ROHDE & SCHWARZ | 28 | 16.09.97 | EE AUSGANGSTEIL 2.08GHZ OUTPUT UNIT 2.08GHZ | 1062.7005.01 SA | 11+ |

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| Kennz. Comp. No. | Benennung Designation | Sachnummer Stock No. | Hersteller Manufacturer | Bezeichnung Designation | enthalten in contained in |
|---------------------|---|-------------------------|----------------------------|----------------------------|------------------------------|
| L748 | NOT FITTED XX ENTHALTEN IN INCLUDED IN IN LEITERPLATTE | | | | |
| L754 | LD 1UH 10% 0,38A 1210 | LD 6006.0130.00 | SIEMENS | B82422-A1102-K100 | |
| L756 | SMD-INDUCTOR | | | | |
| L765 | LD 1,00UH10%1,000HMO,390A | LD 0067.2863.00 | DALE | IM2 | |
| L768 | CHOKE | | | | |
| L770 | LD 1,00UH10%1,000HMO,390A | LD 0067.2863.00 | DALE | IM2 | |
| | CHOKE | | | | |
| | NICHT BESTUECKT | | | | |
| L771 | NOT FITTED LD 1,00UH10%1,000HMO,390A | LD 0067.2863.00 | DALE | IM2 | |
| | CHOKE | | | | |
| | NICHT BESTUECKT | | | | |
| L800 | NOT FITTED LD 0,82UH10%0,850HMO,420A | LD 0067.2857.00 | DALE | IM2 | |
| | CHOKE | | | | |
| L801 | LD 1,00UH10%1,000HMO,390A | LD 0067.2863.00 | DALE | IM2 | |
| | CHOKE | | | | |
| L816 | LD 12NH 10% 0,70A 1210 | 1002.4900.00 | SIEMENS | B82422-A3120-K100 | |
| | SMD-INDUCTOR | | | | |
| L817 | LD 3,9MH 0,2A 200HM | 1020.5256.00 | SIEMENS | B82500-C-A2 | |
| | INTERFERENCE CHOKE | | | | |
| | IN LEITERPLATTE | | | | |
| L818 | LD SMD-DR.Z=850 OHM 100MH | 1085.1661.00 | PHILIPS | WBS2.5-5/4.8/10-4B1 | |
| | CHOKE | | | | |
| L819 | LD 2,2UH 10% 0,27A 1210 | LD 0520.7870.00 | SIEMENS | B82422-A1222-K100 | |
| | SMD-INDUCTOR | | | | |
| L829 | LD SMD-DR.Z=850 OHM 100MH | 1085.1661.00 | PHILIPS | WBS2.5-5/4.8/10-4B1 | |
| | CHOKE | | | | |
| L830 | LD 2,2UH 10% 0,27A 1210 | LD 0520.7870.00 | SIEMENS | B82422-A1222-K100 | |
| | SMD-INDUCTOR | | | | |
| L831 | LD 3,9MH 0,2A 200HM | 1020.5256.00 | SIEMENS | B82500-C-A2 | |
| | INTERFERENCE CHOKE | | | | |
| | IN LEITERPLATTE | | | | |
| L840 | LD 1UH 10% 0,38A 1210 | LD 6006.0130.00 | SIEMENS | B82422-A1102-K100 | |
| | SMD-INDUCTOR | | | | |
| L841 | LD 1UH 10% 0,38A 1210 | LD 6006.0130.00 | SIEMENS | B82422-A1102-K100 | |
| | SMD-INDUCTOR | | | | |
| L845 | LD 100UH 10% 0,06A 1210 | LD 0007.9261.00 | SIEMENS | B82422-A1104-K100 | |
| | SMD-INDUCTOR | | | | |
| L880 | LD 1,20UH10%0,180HMO,620A | LD 0067.2870.00 | DALE | IM2 | |
| | CHOKE | | | | |
| L885 | LD 1UH 10% 0,38A 1210 | LD 6006.0130.00 | SIEMENS | B82422-A1102-K100 | |
| | SMD-INDUCTOR | | | | |
| N20 | BO TLO74ACD 4XFET OPAMP | 0007.7823.00 | TEXAS | TLO74A(CD) | |
| | OPERATIONAL AMPLIFIER | | | | |
| N130 | BO NE5532D 2XLN OPAMP | 0007.7798.00 | SIGNETICS | NE5532D | |
| | OPERATIONAL AMPLIFIER | | | | |
| N131 | BO NE5532D 2XLN OPAMP | 0007.7798.00 | SIGNETICS | NE5532D | |
| | OPERATIONAL AMPLIFIER | | | | |
| N223 | BO TLO72ACD 2XFET OPAMP | 0803.1057.00 | TEXAS | TL 072 ACDR | |
| | OPERATIONAL AMPLIFIER | | | | |
| N228 | BO TLO72ACD 2XFET OPAMP | 0803.1057.00 | TEXAS | TL 072 ACDR | |
| | OPERATIONAL AMPLIFIER | | | | |
| N235 | BO NE5534D OPAMP | 0815.7555.00 | SIGNETICS | NE5534(D) | |
| | OPERATIONAL AMPLIFIER | | | | |
| N275 | BO TLO72ACD 2XFET OPAMP | 0803.1057.00 | TEXAS | TL 072 ACDR | |
| | OPERATIONAL AMPLIFIER | | | | |
| N276 | BO TLO72ACD 2XFET OPAMP | 0803.1057.00 | TEXAS | TL 072 ACDR | |
| | OPERATIONAL AMPLIFIER | | | | |
| N300 | BM MSA0486 DC-3.2G MMIC | 0846.4293.00 | AVANTEK | MSA-0486 | |
| | BROADBAND AMPLIFIER | | | | |
| | NICHT BESTUECKT | | | | |
| | NOT FITTED | | | | |
| N360 | BM MSA1105 05-1.3G MMIC | 1051.4051.00 | AVANTEK | MSA-1105-TR1 | |
| | IC MICROWAVE MONOLITH AMP | | | | |
| N600 | BO TLO74ACD 4XFET OPAMP | 0007.7823.00 | TEXAS | TLO74A(CD) | |
| | OPERATIONAL AMPLIFIER | | | | |
| N610 | BO AD744KR FET OPAMP | 0854.1754.00 | ANALOG_DEV (AD)744KR | | |
| | BIFET OPAMP | | | | |
| N740 | BM MSA0486 DC-3.2G MMIC | 0846.4293.00 | AVANTEK | MSA-0486 | |
| | BROADBAND AMPLIFIER | | | | |
| | NICHT BESTUECKT | | | | |
| | NOT FITTED | | | | |

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 **ROHDE & SCHWARZ**

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16.09.97

EE AUSGANGSTEIL 2.08GHZ


OUTPUT UNIT 2.08GHZ

1062.7005.01 SA

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095.0028-0893


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| Kennz. Comp. No. | Benennung Designation | Sachnummer Stock No. | Hersteller Manufacturer | Bezeichnung Designation | enthalten in contained in | |
|---|--|-------------------------|----------------------------|--|------------------------------|-------------------|
| N776 ..778 | BO NE5532D 2XLN OPAMP OPERATIONAL AMPLIFIER | 0007.7798.00 | SIGNETICS | NE5532D | | |
| N840 | BO TLO74ACD 4XFET OPAMP OPERATIONAL AMPLIFIER | 0007.7823.00 | TEXAS | TLO74A(CD) | | |
| N845 | BO AD744KR FET OPAMP BIFET OPAMP | 0854.1754.00 | ANALOG_DEV | (AD)744KR | | |
| P300 | VL EINPRESSTIFT L=6,8 PIN | VL 0010.7250.00 | AMP | 1-928776-5 | | |
| P305 | VL EINPRESSTIFT L=6,8 PIN | VL 0010.7250.00 | AMP | 1-928776-5 | | |
| P352 | VL EINPRESSTIFT L=6,8 PIN | VL 0010.7250.00 | AMP | 1-928776-5 | | |
| P353 | VL EINPRESSTIFT L=6,8 PIN | VL 0010.7250.00 | AMP | 1-928776-5 | | |
| P375 | VL EINPRESSTIFT L=6,8 PIN | VL 0010.7250.00 | AMP | 1-928776-5 | | |
| P380 | VL EINPRESSTIFT L=6,8 PIN | VL 0010.7250.00 | AMP | 1-928776-5 | | |
| P385 | VL EINPRESSTIFT L=6,8 PIN | VL 0010.7250.00 | AMP | 1-928776-5 | | |
| P600 | VL EINPRESSTIFT L=6,8 PIN | VL 0010.7250.00 | AMP | 1-928776-5 | | |
| P601 | VL EINPRESSTIFT L=6,8 PIN | VL 0010.7250.00 | AMP | 1-928776-5 | | |
| P620 | VL EINPRESSTIFT L=6,8 PIN | VL 0010.7250.00 | AMP | 1-928776-5 | | |
| P621 | VL EINPRESSTIFT L=6,8 PIN | VL 0010.7250.00 | AMP | 1-928776-5 | | |
| P628 | VL EINPRESSTIFT L=6,8 PIN | VL 0010.7250.00 | AMP | 1-928776-5 | | |
| P848 | VL EINPRESSTIFT L=6,8 PIN | VL 0010.7250.00 | AMP | 1-928776-5 | | |
| P866 | VL EINPRESSTIFT L=6,8 PIN | VL 0010.7250.00 | AMP | 1-928776-5 | | |
| R1 | RG 100 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8884.00 | ROEDERSTEI | DC2 100OHM 1%TK100 | | |
| R9 | RG 10,OKOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,OKOHM 1%TK100 | | |
| R10 | RG 10,OKOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,OKOHM 1%TK100 | | |
| R11 | RG 182 KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5989.00 | ROEDERSTEI | DC2 182KOHM 1%TK100 | | |
| R12 | RG 121,OKOH+-1%TK100 1206 CHIP RESISTOR | RG 0007.1960.00 | RESISTA | DC2 121KOHM 1% TK100 | | |
| R13 | RG 121,OKOH+-1%TK100 1206 CHIP RESISTOR | RG 0007.1960.00 | RESISTA | DC2 121KOHM 1% TK100 | | |
| R14 | RG 56,2KOHM+-1%TK100 1206 CHIP RESISTOR | RG 0007.1883.00 | ROEDERSTEI | DC2 56,2KOHM 1%TK100 | | |
| R15 | RG 27,4KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5895.00 | ROEDERSTEI | DC2 27,4KOHM 1%TK100 | | |
| R16 | RG 1,0MOHM+-1%TK100 1206 CHIP RESISTOR | RG 0815.7532.00 | DRALORIC | CRC 1206 | | |
| R17 | RG 100 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8884.00 | ROEDERSTEI | DC2 100OHM 1%TK100 | | |
| R20 | RG 47,5 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5566.00 | ROEDERSTEI | DC2 47,5OHM 1%TK100 | | |
| R21 | RG 100 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8884.00 | ROEDERSTEI | DC2 100OHM 1%TK100 | | |
| R22 | RG 47,5 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5566.00 | ROEDERSTEI | DC2 47,5OHM 1%TK100 | | |
| ..25 | RG 10,OKOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,OKOHM 1%TK100 | | |
| R26 | RG 47,5 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5566.00 | ROEDERSTEI | DC2 47,5OHM 1%TK100 | | |
| R27 | RG 10,OKOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,OKOHM 1%TK100 | | |
| ..32 | RG 47,5 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5566.00 | ROEDERSTEI | DC2 47,5OHM 1%TK100 | | |
| R33 | RG 100 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8884.00 | ROEDERSTEI | DC2 100OHM 1%TK100 | | |
| R34 | RG 100 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8884.00 | ROEDERSTEI | DC2 100OHM 1%TK100 | | |
| R35 | RG 2,0 KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5737.00 | ROEDERSTEI | DC2 2,OKOHM 1%TK100 | | |
| R36 | RG 1,0MOHM+-1%TK100 1206 CHIP RESISTOR | RG 0815.7532.00 | DRALORIC | CRC 1206 | | |
| R38 | RG 10,OKOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,OKOHM 1%TK100 | | |
| R41 | RG 10,OKOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,OKOHM 1%TK100 | | |
| ..48 | | | | | | |
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|  | ROHDE & SCHWARZ | 28 | 16.09.97 | EE AUSGANGSTEIL 2.08GHZ OUTPUT UNIT 2.08GHZ | 1062.7005.01 SA | 13+ |

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| Kennz. Comp. No. | Benennung Designation | Sachnummer Stock No. | Hersteller Manufacturer | Bezeichnung Designation | enthalten in contained in |
|------------------|--|----------------------|-------------------------|-------------------------|---------------------------|
| R49 ..56 | RG 20,0KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5866.00 | ROEDERSTEI | DC2 20,0KOHM 1%TK100 | |
| R116 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| R117 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| R119 | RG 825 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.7259.00 | ROEDERSTEI | DC2 825OHM 1%TK100 | |
| R120 ..122 | RG 100,0KOH+-1%TK100 1206 CHIP RESISTOR | RG 0007.1948.00 | ROEDERSTEI | DC2 100KOHM 1%TK100 | |
| R123 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| R124 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| R130 ..132 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| R133 | RG 0-OHM WIDERSTAND-CHIP RESISTOR CHIP 0-OHM | RG 0007.5108.00 | DRALORIC | CR 1206 | |
| R134 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| R149 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| R160 | RG 100,0KOH+-1%TK100 1206 CHIP RESISTOR | RG 0007.1948.00 | ROEDERSTEI | DC2 100KOHM 1%TK100 | |
| R161 | RG 100,0KOH+-1%TK100 1206 CHIP RESISTOR | RG 0007.1948.00 | ROEDERSTEI | DC2 100KOHM 1%TK100 | |
| R162 | RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR | RG 0006.7271.00 | ROEDERSTEI | DC2 1,0KOHM 1%TK100 | |
| R163 | RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR | RG 0006.7271.00 | ROEDERSTEI | DC2 1,0KOHM 1%TK100 | |
| R165 | RG 100,0KOH+-1%TK100 1206 CHIP RESISTOR | RG 0007.1948.00 | ROEDERSTEI | DC2 100KOHM 1%TK100 | |
| R166 | RG 100,0KOH+-1%TK100 1206 CHIP RESISTOR | RG 0007.1948.00 | ROEDERSTEI | DC2 100KOHM 1%TK100 | |
| R167 | RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR | RG 0006.7271.00 | ROEDERSTEI | DC2 1,0KOHM 1%TK100 | |
| R168 | RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR | RG 0006.7271.00 | ROEDERSTEI | DC2 1,0KOHM 1%TK100 | |
| R170 | RG 100,0KOH+-1%TK100 1206 CHIP RESISTOR | RG 0007.1948.00 | ROEDERSTEI | DC2 100KOHM 1%TK100 | |
| R171 | RG 100,0KOH+-1%TK100 1206 CHIP RESISTOR | RG 0007.1948.00 | ROEDERSTEI | DC2 100KOHM 1%TK100 | |
| R172 | RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR | RG 0006.7271.00 | ROEDERSTEI | DC2 1,0KOHM 1%TK100 | |
| R173 | RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR | RG 0006.7271.00 | ROEDERSTEI | DC2 1,0KOHM 1%TK100 | |
| R206 | RG 0-OHM WIDERSTAND-CHIP RESISTOR CHIP 0-OHM NICHT BESTUECKT NOT FITTED | RG 0007.5108.00 | DRALORIC | CR 1206 | |
| R207 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| R208 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| R209 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR NICHT BESTUECKT NOT FITTED | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| R211 | RG 3,01KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5772.00 | ROEDERSTEI | DC2 3,01KOHM 1%TK100 | |
| R211 | NUR VAR/ONLY MOD: 02 04 RG 2,21KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5743.00 | ROEDERSTEI | DC2 2,21KOHM 1%TK100 | |
| R212 | NUR VAR/ONLY MOD: 03 06 RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| R213 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| R214 | RG 3,32KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5789.00 | ROEDERSTEI | DC2 3,32KOHM 1%TK100 | |
| R215 | RG 20,0KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5866.00 | ROEDERSTEI | DC2 20,0KOHM 1%TK100 | |
| R216 | RG 20,0KOHM+-1%TK100 1206 RESISTOR CHIP NICHT BESTUECKT NOT FITTED | RG 0007.5866.00 | ROEDERSTEI | DC2 20,0KOHM 1%TK100 | |
| R218 | RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR | RG 0006.7271.00 | ROEDERSTEI | DC2 1,0KOHM 1%TK100 | |

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| Kennz. Comp. No. | Benennung Designation | Sachnummer Stock No. | Hersteller Manufacturer | Bezeichnung Designation | enthalten in contained in |
|---------------------|---|-------------------------|----------------------------|----------------------------|------------------------------|
| R220 | RG 100 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8884.00 | ROEDERSTEI | DC2 100OHM 1%TK100 | |
| R221 | RG 182 KOHM+-1%TK100 1206 RESISTOR CHIP NICHT BESTUECKT NOT FITTED | RG 0007.5989.00 | ROEDERSTEI | DC2 182KOHM 1%TK100 | |
| R240 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| R241 | RG 20,0KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5866.00 | ROEDERSTEI | DC2 20,0KOHM 1%TK100 | |
| R259 | RG 221 KOHM+-1%TK100 1206 RESISTOR CHIP NUR VAR/ONLY MOD: 02 04 | RG 0007.6004.00 | ROEDERSTEI | DC2 221KOHM 1%TK100 | |
| R259 | RG 56,2KOHM+-1%TK100 1206 CHIP RESISTOR NUR VAR/ONLY MOD: 03 06 | RG 0007.1883.00 | ROEDERSTEI | DC2 56,2KOHM 1%TK100 | |
| R271 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| R272 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| R275 | RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR | RG 0006.7271.00 | ROEDERSTEI | DC2 1,0KOHM 1%TK100 | |
| R276 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| R278 | RG 47,5KOHM+-1%TK100 1206 RESISTOR CHIP NUR VAR/ONLY MOD: 02 | RG 0007.5950.00 | ROEDERSTEI | DC2 47,5KOHM 1%TK100 | |
| R278 | RG 30,1KOHM+-1%TK100 1206 RESISTOR CHIP NUR VAR/ONLY MOD: 03 04 06 | RG 0007.5908.00 | ROEDERSTEI | DC2 30,1KOHM 1%TK100 | |
| R280 | RS 0,25W 5KOHM +-20% SMD POTENTIOMETER | RS 0007.9632.00 | SIEMENS | S4G-5KOHM | |
| R283 ..285 | RG 20,0KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5866.00 | ROEDERSTEI | DC2 20,0KOHM 1%TK100 | |
| R286 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| R299 | RG 33,2KOHM+-1%TK100 1206 RESISTOR CHIP NUR VAR/ONLY MOD: 02 04 | RG 0007.5914.00 | ROEDERSTEI | DC2 33,2KOHM 1%TK100 | |
| R299 | RG 15,0KOHM+-1%TK100 1206 RESISTOR CHIP NUR VAR/ONLY MOD: 03 06 | RG 0007.5843.00 | ROEDERSTEI | DC2 15,0KOHM 1%TK100 | |
| R300 | RG 0,05W 22R +-1% 0805 RESISTOR | RG 0007.8920.00 | HONEST JAP | MR 08 M 22R 1% 0805 | |
| R301 ..308 | RK SMD-HEISSL.220R 0805 SMD-NTC-RESISTOR | 1039.1310.00 | SIEMENS | B57620-C221-K62 | |
| R310 | RG 68,1 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8849.00 | ROEDERSTEI | DC2 68,1OHM 1%TK100 | |
| R312 | RG 12,1 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8661.00 | ROEDERSTEI | DC2 12,1OHM 1%TK100 | |
| R313 | RG 56,2 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8826.00 | ROEDERSTEI | DC2 56,2OHM 1%TK100 | |
| R314 | RG 511 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.9051.00 | ROEDERSTEI | DC2 511OHM 1%TK100 | |
| R315 | RL 0,60W 1,33KOHM+-1%TK50 RESISTOR | RL 0083.0684.00 | RESISTA | MK2 | |
| R316 | RG 39,2 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5543.00 | ROEDERSTEI | DC2 39,2OHM 1%TK100 | |
| R317 | RL 0,60W 1,33KOHM+-1%TK50 RESISTOR | RL 0083.0684.00 | RESISTA | MK2 | |
| R318 | RL 0,60W 1,33KOHM+-1%TK50 RESISTOR | RL 0083.0684.00 | RESISTA | MK2 | |
| R319 | RG 562 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.9068.00 | ROEDERSTEI | DC2 562OHM 1%TK100 | |
| R320 | RG 15,0 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5450.00 | ROEDERSTEI | DC2 15,0OHM 1%TK100 | |
| R321 | RG 15,0 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5450.00 | ROEDERSTEI | DC2 15,0OHM 1%TK100 | |
| R325 | RG 2,0 KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5737.00 | ROEDERSTEI | DC2 2,0KOHM 1%TK100 | |
| R327 | RG 562 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.9068.00 | ROEDERSTEI | DC2 562OHM 1%TK100 | |
| R328 | RG 56,2 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8826.00 | ROEDERSTEI | DC2 56,2OHM 1%TK100 | |
| R329 | RL 0,60W 1,33KOHM+-1%TK50 RESISTOR | RL 0083.0684.00 | RESISTA | MK2 | |
| R330 | RG 15,0 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5450.00 | ROEDERSTEI | DC2 15,0OHM 1%TK100 | |

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ROHDE & SCHWARZ

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16.09.97

EE AUSGANGSTEIL 2.08GHZ
OUTPUT UNIT 2.08GHZ

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| Kennz. Comp. No. | Benennung Designation | Sachnummer Stock No. | Hersteller Manufacturer | Bezeichnung Designation | enthalten in contained in |
|---------------------|---|-------------------------|----------------------------|----------------------------|------------------------------|
| R332 | RL 0,60W 1,33KOHM+-1%TK50 RESISTOR | RL 0083.0684.00 | RESISTA | MK2 | |
| R333 | RG 15,0 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5450.00 | ROEDERSTEI | DC2 15,0OHM 1%TK100 | |
| R340 | RG 511 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.9051.00 | ROEDERSTEI | DC2 511OHM 1%TK100 | |
| R341 | RL 0,60W 1,33KOHM+-1%TK50 RESISTOR | RL 0083.0684.00 | RESISTA | MK2 | |
| R342 | RG 39,2 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5543.00 | ROEDERSTEI | DC2 39,2OHM 1%TK100 | |
| R355 | RG 0-OHM WIDERSTAND-CHIP RESISTOR CHIP 0-OHM | RG 0007.5108.00 | DRALORIC | CR 1206 | |
| R356 | RL 0,60W 100 OHM+-1%TK50 RESISTOR NICHT BESTUECKT NOT FITTED | RL 0082.6543.00 | RESISTA | MK2 | |
| R357 | RL 0,60W 100 OHM+-1%TK50 RESISTOR NICHT BESTUECKT NOT FITTED | RL 0082.6543.00 | RESISTA | MK2 | |
| R360 | RL 0,60W 100 OHM+-1%TK50 RESISTOR | RL 0082.6543.00 | RESISTA | MK2 | |
| R361 | RL 0,60W 100 OHM+-1%TK50 RESISTOR | RL 0082.6543.00 | RESISTA | MK2 | |
| R400 | RG 511 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.9051.00 | ROEDERSTEI | DC2 511OHM 1%TK100 | |
| R401 | RL 0,60W 1,33KOHM+-1%TK50 RESISTOR | RL 0083.0684.00 | RESISTA | MK2 | |
| R402 | RG 39,2 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5543.00 | ROEDERSTEI | DC2 39,2OHM 1%TK100 | |
| R404 | RG 56,2 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8826.00 | ROEDERSTEI | DC2 56,2OHM 1%TK100 | |
| R405 | RG 562 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.9068.00 | ROEDERSTEI | DC2 562OHM 1%TK100 | |
| R406 | RG 15,0 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5450.00 | ROEDERSTEI | DC2 15,0OHM 1%TK100 | |
| R407 | RG 15,0 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5450.00 | ROEDERSTEI | DC2 15,0OHM 1%TK100 | |
| R408 | RL 0,60W 1,33KOHM+-1%TK50 RESISTOR | RL 0083.0684.00 | RESISTA | MK2 | |
| R409 | RL 0,60W 1,33KOHM+-1%TK50 RESISTOR | RL 0083.0684.00 | RESISTA | MK2 | |
| R410 | RG 39,2KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5937.00 | ROEDERSTEI | DC2 39,2KOHM 1%TK100 | |
| R411 | RG 1,5 KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5714.00 | ROEDERSTEI | DC2 1,5KOHM 1%TK100 | |
| R412 | RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR | RG 0006.7271.00 | ROEDERSTEI | DC2 1,0KOHM 1%TK100 | |
| R416 | RL 0,60W 100 OHM+-1%TK50 RESISTOR | RL 0082.6543.00 | RESISTA | MK2 | |
| R417 | RL 0,60W 100 OHM+-1%TK50 RESISTOR | RL 0082.6543.00 | RESISTA | MK2 | |
| R431 | RG 10,0KOHM+-1%TK100 1206 ..438 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| R440 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| R442 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| R443 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| R450 | RG 100 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8884.00 | ROEDERSTEI | DC2 100OHM 1%TK100 | |
| R451 | RG 150 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5589.00 | ROEDERSTEI | DC2 150OHM 1%TK100 | |
| R452 | RG 182 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5595.00 | ROEDERSTEI | DC2 182OHM 1%TK100 | |
| R453 | RG 150 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5589.00 | ROEDERSTEI | DC2 150OHM 1%TK100 | |
| R454 | RG 100 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8884.00 | ROEDERSTEI | DC2 100OHM 1%TK100 | |
| R455 | RG 56,2 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8826.00 | ROEDERSTEI | DC2 56,2OHM 1%TK100 | |
| R500 | RG 2,0 KOHM+-1%TK100 1206 ..502 RESISTOR CHIP | RG 0007.5737.00 | ROEDERSTEI | DC2 2,0KOHM 1%TK100 | |
| R503 | RG 392 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5672.00 | ROEDERSTEI | DC2 392OHM 1%TK100 | |
| R520 | RG 1,21KOHM+-1%TK100 1206 ..522 CHIP RESISTOR | RG 0006.9968.00 | ROEDERSTEI | DC2 1,21KOHM 1%TK100 | |

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|--|----------|----------|--|---------------------------------------|-------------------------|-------------------|
| MENP5 | 413 3PUA | Ät | Datum Date | Schaltteilliste für Parts list for | Sachnummer Stock No. | Blatt-Nr. Page |
|  | 28 | 16.09.97 | EE AUSGANGSTEIL 2.08GHZ OUTPUT UNIT 2.08GHZ | 1062.7005.01 SA | 16+ | |

095.0026-0693

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| Kennz. Comp. No. | Benennung Designation | Sachnummer Stock No. | Hersteller Manufacturer | Bezeichnung Designation | enthalten in contained in |
|------------------|---|----------------------|-------------------------|-------------------------|---------------------------|
| R530 | RG 392 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5672.00 | ROEDERSTEI | DC2 392OHM 1%TK100 | |
| R600 | RG 221 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5614.00 | ROEDERSTEI | DC2 221OHM 1%TK100 | |
| R601 | RL 0,60W 274 OHM+-1%TK50 RESISTOR | RL 0083.0178.00 | RESISTA | MK2 | |
| R602 | RG 27,4 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5508.00 | ROEDERSTEI | DC2 27,4OHM 1%TK100 | |
| R603 | RG 33,2 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5520.00 | ROEDERSTEI | DC2 33,2OHM 1%TK100 | |
| R604 | RG 68,1 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8849.00 | ROEDERSTEI | DC2 68,1OHM 1%TK100 | |
| R605 | RG 15,0 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5450.00 | ROEDERSTEI | DC2 15,0OHM 1%TK100 | |
| R607 | RG 825 KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.6133.00 | ROEDERSTEI | DC2 825KOHM 1%TK100 | |
| R608 | RG 100 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8884.00 | ROEDERSTEI | DC2 100OHM 1%TK100 | |
| R609 | RG 1,5 KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5714.00 | ROEDERSTEI | DC2 1,5KOHM 1%TK100 | |
| R611 | RG 392 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5672.00 | ROEDERSTEI | DC2 392OHM 1%TK100 | |
| R612 | RG 475 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5695.00 | ROEDERSTEI | DC2 475OHM 1%TK100 | |
| R613 | RG 3,57KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5795.00 | ROEDERSTEI | DC2 3,57KOHM 1%TK100 | |
| R614 | RG 2,74KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5766.00 | ROEDERSTEI | DC2 2,74KOHM 1%TK100 | |
| R615 | RG 1,2MOHM+-5%TK200 1206 CHIP RESISTOR NICHT BESTUECKT NOT FITTED | 0007.9949.00 | ROEDERSTEI | D 25 | |
| R616 | RG 3,57KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5795.00 | ROEDERSTEI | DC2 3,57KOHM 1%TK100 | |
| R618 | RG 100,0KOH+-1%TK100 1206 CHIP RESISTOR | RG 0007.1948.00 | ROEDERSTEI | DC2 100KOHM 1%TK100 | |
| R619 | RS 0,25W 5KOHM +-20% SMD POTENTIOMETER | RS 0007.9632.00 | SIEMENS | S4G-5KOHM | |
| R620 | RG 100,0KOH+-1%TK100 1206 CHIP RESISTOR | RG 0007.1948.00 | ROEDERSTEI | DC2 100KOHM 1%TK100 | |
| R621 | RG 475 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5695.00 | ROEDERSTEI | DC2 475OHM 1%TK100 | |
| R622 | RG 100 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8884.00 | ROEDERSTEI | DC2 100OHM 1%TK100 | |
| R623 | RK SMD-HEISSEL.220R 0805 SMD-NTC-RESISTOR NICHT BESTUECKT NOT FITTED | 1039.1310.00 | SIEMENS | B57620-C221-K62 | |
| R624 | RK SMD-HEISSEL.220R 0805 SMD-NTC-RESISTOR | 1039.1310.00 | SIEMENS | B57620-C221-K62 | |
| R625 | RG 27,4 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5508.00 | ROEDERSTEI | DC2 27,4OHM 1%TK100 | |
| R626 | RG 100 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8884.00 | ROEDERSTEI | DC2 100OHM 1%TK100 | |
| R627 | RG 56,2 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8826.00 | ROEDERSTEI | DC2 56,2OHM 1%TK100 | |
| R628 | RG 100 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8884.00 | ROEDERSTEI | DC2 100OHM 1%TK100 | |
| R629 | RG 100 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8884.00 | ROEDERSTEI | DC2 100OHM 1%TK100 | |
| R630 | RG 825 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.7259.00 | ROEDERSTEI | DC2 825OHM 1%TK100 | |
| R631 | RG 825 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.7259.00 | ROEDERSTEI | DC2 825OHM 1%TK100 | |
| R632 | RG 0-OHM WIDERSTAND-CHIP RESISTOR CHIP 0-OHM | RG 0007.5108.00 | DRALORIC | CR 1206 | |
| R633 | RG 2,74KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5766.00 | ROEDERSTEI | DC2 2,74KOHM 1%TK100 | |
| R634 | RG 5,62OHM+-1%TK100 1206 CHIP-RESISTOR | RG 0007.8442.00 | PHILIPS | RC 02 | |
| R635 | RG 22,1KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5872.00 | ROEDERSTEI | DC2 22,1KOHM 1%TK100 | |
| R636 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| R637 | RG 1,5 KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5714.00 | ROEDERSTEI | DC2 1,5KOHM 1%TK100 | |
| R638 | RG 392 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5672.00 | ROEDERSTEI | DC2 392OHM 1%TK100 | |

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ROHDE & SCHWARZ

28

16.09.97

EE AUSGANGSTEIL 2.08GHZ
OUTPUT UNIT 2.08GHZ


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| Kannz. Comp. No. | Benennung Designation | Sachnummer Stock No. | Hersteller Manufacturer | Bezeichnung Designation | enthalten in contained in |
|------------------|--|----------------------|-------------------------|-------------------------|---------------------------|
| R639 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| R640 | RG 0-OHM WIDERSTAND-CHIP RESISTOR CHIP 0-OHM | RG 0007.5108.00 | DRALORIC | CR 1206 | |
| R641 | RG 0-OHM WIDERSTAND-CHIP RESISTOR CHIP 0-OHM | RG 0007.5108.00 | DRALORIC | CR 1206 | |
| R642 | RG 51,1 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8810.00 | RESISTA | DC2 51,10HM 1%TK100 | |
| R644 | RG 475 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5695.00 | ROEDERSTEI | DC2 475OHM 1%TK100 | |
| R645 | RS 0,25W200 OHM+-20% SMD POTENTIOMETER | RS 0007.9590.00 | SIEMENS | S4G-200 OHM | |
| R646 | RL 0,60W 182 OHM+-1%TK50 RESISTOR | RL 0083.0010.00 | RESISTA | MK2 | |
| R647 | RL 0,60W 121 OHM+-1%TK50 RESISTOR | RL 0082.9859.00 | RESISTA | MK2 | |
| R648 | RG 100 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8884.00 | ROEDERSTEI | DC2 100OHM 1%TK100 | |
| R649 | RG 2,74OHM+-1%TK100 1206 CHIP-RESISTOR | RG 0007.8365.00 | PHILIPS | RC 02 | |
| R650 | RL 0,60W 1,33KOHM+-1%TK50 RESISTOR | RL 0083.0684.00 | RESISTA | MK2 | |
| R651 | RG 1,0MOHM+-1%TK100 1206 CHIP RESISTOR | RG 0815.7532.00 | DRALORIC | CRC 1206 | |
| R652 | RG 68,1 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8849.00 | ROEDERSTEI | DC2 68,10HM 1%TK100 | |
| R653 | RG 56,2 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8826.00 | ROEDERSTEI | DC2 56,20HM 1%TK100 | |
| R654 | RG 56,2 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8826.00 | ROEDERSTEI | DC2 56,20HM 1%TK100 | |
| R655 | RG 2,21OHM+-1%TK100 1206 CHIP-RESISTOR | RG 0007.8342.00 | PHILIPS | RC 02 | |
| R656 | RL 0,60W 1,33KOHM+-1%TK50 RESISTOR | RL 0083.0684.00 | RESISTA | MK2 | |
| R657 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| R658 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| R659 | RG 511 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.9051.00 | ROEDERSTEI | DC2 511OHM 1%TK100 | |
| R660 | RG 681 KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.6110.00 | ROEDERSTEI | DC2 681KOHM 1%TK100 | |
| R661 | RG 0-OHM WIDERSTAND-CHIP RESISTOR CHIP 0-OHM | RG 0007.5108.00 | DRALORIC | CR 1206 | |
| R662 | RG 0-OHM WIDERSTAND-CHIP RESISTOR CHIP 0-OHM | RG 0007.5108.00 | DRALORIC | CR 1206 | |
| R663 | RG 0-OHM WIDERSTAND-CHIP RESISTOR CHIP 0-OHM NICHT BESTUECKT NOT FITTED | RG 0007.5108.00 | DRALORIC | CR 1206 | |
| R670 | RL 0,60W 100 OHM+-1%TK50 RESISTOR NICHT BESTUECKT NOT FITTED | RL 0082.6543.00 | RESISTA | MK2 | |
| R671 | RL 0,60W 100 OHM+-1%TK50 RESISTOR NICHT BESTUECKT NOT FITTED | RL 0082.6543.00 | RESISTA | MK2 | |
| R672 | RL 0,60W 100 OHM+-1%TK50 RESISTOR | RL 0082.6543.00 | RESISTA | MK2 | |
| R673 | RL 0,60W 100 OHM+-1%TK50 RESISTOR | RL 0082.6543.00 | RESISTA | MK2 | |
| R674 | RG 825 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.7259.00 | ROEDERSTEI | DC2 825OHM 1%TK100 | |
| R675 | RG 825 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.7259.00 | ROEDERSTEI | DC2 825OHM 1%TK100 | |
| R676 | RG 5,62OHM+-1%TK100 1206 CHIP-RESISTOR | RG 0007.8442.00 | PHILIPS | RC 02 | |
| R677 | RG 825 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.7259.00 | ROEDERSTEI | DC2 825OHM 1%TK100 | |
| R678 | RG 825 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.7259.00 | ROEDERSTEI | DC2 825OHM 1%TK100 | |
| R679 | RG 5,62OHM+-1%TK100 1206 CHIP-RESISTOR | RG 0007.8442.00 | PHILIPS | RC 02 | |
| R680 | RL 0,60W 100 OHM+-1%TK50 RESISTOR | RL 0082.6543.00 | RESISTA | MK2 | |
| R681 | RL 0,60W 100 OHM+-1%TK50 RESISTOR | RL 0082.6543.00 | RESISTA | MK2 | |

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| MENP5 | 413 3PUA | Äl | Datum Date | Schaltteillista für Parts list for | Sachnummer Stock No. | Blatt-Nr. Page |
|  | 28 | 16.09.97 | EE AUSGANGSTEIL 2.08GHZ OUTPUT UNIT 2.08GHZ | 1062.7005.01 SA | 18+ | |

095.0026-0893

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| Kennz. Comp. No. | Benennung Designation | Sachnummer Stock No. | Hersteller Manufacturer | Bezeichnung Designation | enthalten in contained in |
|---------------------|---|-------------------------|----------------------------|----------------------------|------------------------------|
| R682 | RG 82,5 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8861.00 | ROEDERSTEI | DC2 82,5OHM 1%TK100 | |
| R683 | RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR | RG 0006.7271.00 | ROEDERSTEI | DC2 1,0KOHM 1%TK100 | |
| R684 | RG 475 KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.6079.00 | ROEDERSTEI | DC2 475KOHM 1%TK100 | |
| R685 | RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR | RG 0006.7271.00 | ROEDERSTEI | DC2 1,0KOHM 1%TK100 | |
| R686 | RG 1,0MOHM+-1%TK100 1206 CHIP RESISTOR | RG 0815.7532.00 | DRALORIC | CRC 1206 | |
| R687 | RG 511 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.9051.00 | ROEDERSTEI | DC2 511OHM 1%TK100 | |
| R688 | RL 0,60W 1,33KOHM+-1%TK50 RESISTOR | RL 0083.0684.00 | RESISTA | MK2 | |
| R689 | RG 39,2 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5543.00 | ROEDERSTEI | DC2 39,2OHM 1%TK100 | |
| R690 | RL 0,60W 1,33KOHM+-1%TK50 RESISTOR | RL 0083.0684.00 | RESISTA | MK2 | |
| R691 | RL 0,60W 1,33KOHM+-1%TK50 RESISTOR | RL 0083.0684.00 | RESISTA | MK2 | |
| R692 | RG 56,2 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8826.00 | ROEDERSTEI | DC2 56,2OHM 1%TK100 | |
| R693 | RG 56,2 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8826.00 | ROEDERSTEI | DC2 56,2OHM 1%TK100 | |
| R694 | RG 15,0 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5450.00 | ROEDERSTEI | DC2 15,0OHM 1%TK100 | |
| .697 R698 | RG 562 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.9068.00 | ROEDERSTEI | DC2 562OHM 1%TK100 | |
| R699 | RG 56,2 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8826.00 | ROEDERSTEI | DC2 56,2OHM 1%TK100 | |
| R700 | RG 82,5 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8861.00 | ROEDERSTEI | DC2 82,5OHM 1%TK100 | |
| R701 | RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR | RG 0006.7271.00 | ROEDERSTEI | DC2 1,0KOHM 1%TK100 | |
| R702 | RG 475 KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.6079.00 | ROEDERSTEI | DC2 475KOHM 1%TK100 | |
| R703 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| R704 | RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR | RG 0006.7271.00 | ROEDERSTEI | DC2 1,0KOHM 1%TK100 | |
| R705 | RG 1,0MOHM+-1%TK100 1206 CHIP RESISTOR | RG 0815.7532.00 | DRALORIC | CRC 1206 | |
| R706 | RG 1,21KOHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.9968.00 | ROEDERSTEI | DC2 1,21KOHM 1%TK100 | |
| R707 | RG 1,21KOHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.9968.00 | ROEDERSTEI | DC2 1,21KOHM 1%TK100 | |
| R708 | RG 0-OHM WIDERSTAND-CHIP RESISTOR CHIP 0-OHM | RG 0007.5108.00 | DRALORIC | CR 1206 | |
| R709 | RG 100 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8884.00 | ROEDERSTEI | DC2 100OHM 1%TK100 | |
| R710 | RG 121 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8903.00 | ROEDERSTEI | DC2 121OHM 1%TK100 | |
| R720 | RG 100 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8884.00 | ROEDERSTEI | DC2 100OHM 1%TK100 | |
| R721 | RG 121 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8903.00 | ROEDERSTEI | DC2 121OHM 1%TK100 | |
| R723 | RG 1,21KOHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.9968.00 | ROEDERSTEI | DC2 1,21KOHM 1%TK100 | |
| R724 | RG 1,21KOHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.9968.00 | ROEDERSTEI | DC2 1,21KOHM 1%TK100 | |
| R725 | RG 475 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5695.00 | ROEDERSTEI | DC2 475OHM 1%TK100 | |
| R726 | RG 475 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5695.00 | ROEDERSTEI | DC2 475OHM 1%TK100 | |
| R727 | RG 332 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5650.00 | ROEDERSTEI | DC2 332OHM 1%TK100 | |
| R728 | RG 332 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5650.00 | ROEDERSTEI | DC2 332OHM 1%TK100 | |
| R730 | RG 332 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5650.00 | ROEDERSTEI | DC2 332OHM 1%TK100 | |
| R731 | RG 1,21KOHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.9968.00 | ROEDERSTEI | DC2 1,21KOHM 1%TK100 | |
| R732 | RG 1,21KOHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.9968.00 | ROEDERSTEI | DC2 1,21KOHM 1%TK100 | |
| R733 | RG 39,2 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5543.00 | ROEDERSTEI | DC2 39,2OHM 1%TK100 | |
| R734 | RG 121 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8903.00 | ROEDERSTEI | DC2 121OHM 1%TK100 | |

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 **ROHDE & SCHWARZ**

MENP5 413 3PUA
Äi Datum
Date 28 16.09.97

Schaltteilliste für
Parts list for
EE AUSGANGSTEIL 2.08GHZ
OUTPUT UNIT 2.08GHZ


Sachnummer
Stock No. **1062.7005.01 SA**

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| Kennz. Comp. No. | Benennung Designation | Sachnummer Stock No. | Hersteller Manufacturer | Bezeichnung Designation | enthalten in contained in |
|------------------|---|----------------------|-------------------------|-------------------------|---------------------------|
| R735 | RG 100 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8884.00 | ROEDERSTEI | DC2 100OHM 1%TK100 | |
| R736 | RG 8,25KOHM+-1%TK100 1206 CHIP RESISTOR | RG 0007.0770.00 | ROEDERSTEI | DC2 8,25KOHM 1%TK100 | |
| R737 | RG 8,25KOHM+-1%TK100 1206 CHIP RESISTOR | RG 0007.0770.00 | ROEDERSTEI | DC2 8,25KOHM 1%TK100 | |
| R738 | RG 2,0 KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5737.00 | ROEDERSTEI | DC2 2,0KOHM 1%TK100 | |
| R739 | RL 0,60W 1,33KOHM+-1%TK50 RESISTOR | RL 0083.0684.00 | RESISTA | MK2 | |
| R740 | RG 0-OHM WIDERSTAND-CHIP RESISTOR CHIP 0-OHM | RG 0007.5108.00 | DRALORIC | CR 1206 | |
| R741 | RG 68,1 OHM+-1%TK100 1206 CHIP RESISTOR NICHT BESTUECKT NOT FITTED | RG 0006.8849.00 | ROEDERSTEI | DC2 68,1OHM 1%TK100 | |
| R742 | RG 68,1 OHM+-1%TK100 1206 CHIP RESISTOR NICHT BESTUECKT NOT FITTED | RG 0006.8849.00 | ROEDERSTEI | DC2 68,1OHM 1%TK100 | |
| R743 | RG 68,1 OHM+-1%TK100 1206 CHIP RESISTOR NICHT BESTUECKT NOT FITTED | RG 0006.8849.00 | ROEDERSTEI | DC2 68,1OHM 1%TK100 | |
| R745 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| R747 | RG 8,25KOHM+-1%TK100 1206 CHIP RESISTOR | RG 0007.0770.00 | ROEDERSTEI | DC2 8,25KOHM 1%TK100 | |
| R748 | RG 8,25KOHM+-1%TK100 1206 CHIP RESISTOR | RG 0007.0770.00 | ROEDERSTEI | DC2 8,25KOHM 1%TK100 | |
| R750 | RG 332 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5650.00 | ROEDERSTEI | DC2 332OHM 1%TK100 | |
| R751 | RG 332 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5650.00 | ROEDERSTEI | DC2 332OHM 1%TK100 | |
| R753 | RG 475 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5695.00 | ROEDERSTEI | DC2 475OHM 1%TK100 | |
| R754 | RG 475 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5695.00 | ROEDERSTEI | DC2 475OHM 1%TK100 | |
| R755 | RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR | RG 0006.7271.00 | ROEDERSTEI | DC2 1,0KOHM 1%TK100 | |
| R760 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| R761 | RG 0-OHM WIDERSTAND-CHIP RESISTOR CHIP 0-OHM | RG 0007.5108.00 | DRALORIC | CR 1206 | |
| R762 | RG 47,5 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5566.00 | ROEDERSTEI | DC2 47,5OHM 1%TK100 | |
| R765 | RG 3,92KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5808.00 | RESISTA | DC2 3,92KOHM 1%TK100 | |
| R766 | RG 562 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.9068.00 | ROEDERSTEI | DC2 562OHM 1%TK100 | |
| R767 | RG 15,0 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5450.00 | ROEDERSTEI | DC2 15,0OHM 1%TK100 | |
| R768 | RL 0,60W 1,33KOHM+-1%TK50 RESISTOR | RL 0083.0684.00 | RESISTA | MK2 | |
| R769 | RG 56,2 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8826.00 | ROEDERSTEI | DC2 56,2OHM 1%TK100 | |
| R770 | RL 0,60W 1,33KOHM+-1%TK50 RESISTOR | RL 0083.0684.00 | RESISTA | MK2 | |
| R771 | RG 15,0 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5450.00 | ROEDERSTEI | DC2 15,0OHM 1%TK100 | |
| R772 | RG 511 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.9051.00 | ROEDERSTEI | DC2 511OHM 1%TK100 | |
| R773 | RG 39,2 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5543.00 | ROEDERSTEI | DC2 39,2OHM 1%TK100 | |
| R774 | RL 0,60W 1,33KOHM+-1%TK50 RESISTOR | RL 0083.0684.00 | RESISTA | MK2 | |
| R776 | RL 0,60W 100 OHM+-1%TK50 RESISTOR | RL 0082.6543.00 | RESISTA | MK2 | |
| R777 | RL 0,60W 100 OHM+-1%TK50 RESISTOR | RL 0082.6543.00 | RESISTA | MK2 | |
| R779 | RG 332 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5650.00 | ROEDERSTEI | DC2 332OHM 1%TK100 | |
| R780 | RG 332 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5650.00 | ROEDERSTEI | DC2 332OHM 1%TK100 | |
| R781 | RG 150 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5589.00 | ROEDERSTEI | DC2 150OHM 1%TK100 | |
| R782 | RG 150 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5589.00 | ROEDERSTEI | DC2 150OHM 1%TK100 | |

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| Kennz. Comp. No. | Benennung Designation | Sachnummer Stock No. | Hersteller Manufacturer | Bezeichnung Designation | enthalten in contained in |
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| R783 | RG 47,5 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5566.00 | ROEDERSTEI | DC2 47,5OHM 1%TK100 | |
| R784 | RG 47,5 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5566.00 | ROEDERSTEI | DC2 47,5OHM 1%TK100 | |
| R785 .790 | RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR | RG 0006.7271.00 | ROEDERSTEI | DC2 1,0KOHM 1%TK100 | |
| R791 | RL 0,60W 100 OHM+-1%TK50 RESISTOR NICHT BESTUECKT NOT FITTED | RL 0082.6543.00 | RESISTA | MK2 | |
| R792 | RL 0,60W 100 OHM+-1%TK50 RESISTOR NICHT BESTUECKT NOT FITTED | RL 0082.6543.00 | RESISTA | MK2 | |
| R793 | RG 82,5KOHM+-1%TK100 1206 CHIP RESISTOR | RG 0007.1925.00 | ROEDERSTEI | DC2 82,5KOHM 1%TK100 | |
| R794 | RG 12,1KOHM+-1%TK100 1206 CHIP RESISTOR | RG 0007.0841.00 | ROEDERSTEI | DC2 12,1KOHM 1%TK100 | |
| R800 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| R801 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| R802 | RG 8,25KOHM+-1%TK100 1206 CHIP RESISTOR | RG 0007.0770.00 | ROEDERSTEI | DC2 8,25KOHM 1%TK100 | |
| R803 | RG 8,25KOHM+-1%TK100 1206 CHIP RESISTOR | RG 0007.0770.00 | ROEDERSTEI | DC2 8,25KOHM 1%TK100 | |
| R804 | RG 332 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5650.00 | ROEDERSTEI | DC2 332OHM 1%TK100 | |
| R805 | RG 332 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5650.00 | ROEDERSTEI | DC2 332OHM 1%TK100 | |
| R806 | RG 475 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5695.00 | ROEDERSTEI | DC2 475OHM 1%TK100 | |
| R807 | RG 475 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5695.00 | ROEDERSTEI | DC2 475OHM 1%TK100 | |
| R808 | RG 121 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8903.00 | ROEDERSTEI | DC2 121OHM 1%TK100 | |
| R809 | RG 150 OHM+-1%TK100 1206 RESISTOR CHIP NICHT BESTUECKT NOT FITTED | RG 0007.5589.00 | ROEDERSTEI | DC2 150OHM 1%TK100 | |
| R810 .812 | RG 68,1 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8849.00 | ROEDERSTEI | DC2 68,1OHM 1%TK100 | |
| R813 | RG 0-OHM WIDERSTAND-CHIP RESISTOR CHIP 0-OHM | RG 0007.5108.00 | DRALORIC | CR 1206 | |
| R815 | RG 0-OHM WIDERSTAND-CHIP RESISTOR CHIP 0-OHM | RG 0007.5108.00 | DRALORIC | CR 1206 | |
| R816 | RG 33,2 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5520.00 | ROEDERSTEI | DC2 33,2OHM 1%TK100 | |
| R817 | RG 150 OHM+-1%TK100 1206 RESISTOR CHIP NICHT BESTUECKT NOT FITTED | RG 0007.5589.00 | ROEDERSTEI | DC2 150OHM 1%TK100 | |
| R818 | RG 22,1 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5489.00 | ROEDERSTEI | DC2 22,1OHM 1%TK100 | |
| R819 | RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR | RG 0006.7271.00 | ROEDERSTEI | DC2 1,0KOHM 1%TK100 | |
| R820 | RG 10,0 OHM+-1%TK100 1206 CHIP -RESISTOR | RG 0006.8649.00 | DRALORIC | CR(B) 1206... | |
| R821 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| R822 | RG 3,16KOHM+-1%TK100 1206 CHIP RESISTOR | 0007.0670.00 | RESISTA | DC 2 | |
| R823 | RG 121 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8903.00 | ROEDERSTEI | DC2 121OHM 1%TK100 | |
| R824 | RG 2,21KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5743.00 | ROEDERSTEI | DC2 2,21KOHM 1%TK100 | |
| R825 | RG 221 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5614.00 | ROEDERSTEI | DC2 221OHM 1%TK100 | |
| R826 | RG 18,2 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5466.00 | ROEDERSTEI | DC2 18,2OHM 1%TK100 | |
| R827 | RG 47,5KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5950.00 | ROEDERSTEI | DC2 47,5KOHM 1%TK100 | |
| R828 | RG 0-OHM WIDERSTAND-CHIP RESISTOR CHIP 0-OHM | RG 0007.5108.00 | DRALORIC | CR 1206 | |
| R829 | RG 562 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.9068.00 | ROEDERSTEI | DC2 562OHM 1%TK100 | |
| R830 | RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR | RG 0006.7271.00 | ROEDERSTEI | DC2 1,0KOHM 1%TK100 | |

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| Kennz. Comp. No. | Benennung Designation | Sachnummer Stock No. | Hersteller Manufacturer | Bezeichnung Designation | enthalten in contained in |
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| R831 | RG 10,0 OHM+-1%TK100 1206 CHIP -RESISTOR | RG 0006.8649.00 | DRALORIC | CR(B) 1206... | |
| R832 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | |
| R834 | RG 3,16KOHM+-1%TK100 1206 CHIP RESISTOR | 0007.0670.00 | RESISTA | DC 2 | |
| R835 | RG 47,5KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5950.00 | ROEDERSTEI | DC2 47,5KOHM 1%TK100 | |
| R836 | RG 2,21KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5743.00 | ROEDERSTEI | DC2 2,21KOHM 1%TK100 | |
| R837 | RG 18,2 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5466.00 | ROEDERSTEI | DC2 18,2OHM 1%TK100 | |
| R838 | RG 18,2 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5466.00 | ROEDERSTEI | DC2 18,2OHM 1%TK100 | |
| R839 | RL 0,40W 820 OHM2% UNGEW. RESISTOR | RL 0092.6069.00 | RESISTA | MK1 820OHM 2% UNG. | |
| R841 | RG 0,05W 100R +-1% 0805 RESISTOR | RG 0007.9003.00 | HONEST JAP | MR 08 M 100R 1% 0805 | |
| R841 | NUR VAR/ONLY MOD: 02 04 RG 0-OHM WIDERSTAND-CHIP RESISTOR CHIP 0-OHM | RG 0007.5108.00 | DRALORIC | CR 1206 | |
| R842 | NUR VAR/ONLY MOD: 03 06 RG 0,05W 100R +-1% 0805 RESISTOR | RG 0007.9003.00 | HONEST JAP | MR 08 M 100R 1% 0805 | |
| R842 | NUR VAR/ONLY MOD: 02 04 RG 0,05W 100R +-1% 0805 RESISTOR | RG 0007.9003.00 | HONEST JAP | MR 08 M 100R 1% 0805 | |
| R843 | NUR VAR/ONLY MOD: 03 06 RG 10K +-1% TK200 0603 SMD-RESISTOR EIA0603 | RG 0009.5357.00 | DRALORIC | CR 0603 10K 1% TK200 | |
| R844 | RG 3,92KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5808.00 | RESISTA | DC2 3,92KOHM 1%TK100 | |
| R845 | RG 3,92KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5808.00 | RESISTA | DC2 3,92KOHM 1%TK100 | |
| R846 | RG 100 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8884.00 | ROEDERSTEI | DC2 100OHM 1%TK100 | |
| R847 | RG 121 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8903.00 | ROEDERSTEI | DC2 121OHM 1%TK100 | |
| R848 | RG 1,21KOHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.9968.00 | ROEDERSTEI | DC2 1,21KOHM 1%TK100 | |
| R849 | RG 47,5 OHM+-1%TK100 1206 RESISTOR CHIP NICHT BESTUECKT NOT FITTED | RG 0007.5566.00 | ROEDERSTEI | DC2 47,5OHM 1%TK100 | |
| R850 | RG 100,0KOH+-1%TK100 1206 CHIP RESISTOR | RG 0007.1948.00 | ROEDERSTEI | DC2 100KOHM 1%TK100 | |
| R851 | RS 0,25W 2KOHM +-20% SMD POTENTIOMETER | RS 0007.9626.00 | SIEMENS | S4G-2KOHM | |
| R852 | RG 100,0KOH+-1%TK100 1206 CHIP RESISTOR | RG 0007.1948.00 | ROEDERSTEI | DC2 100KOHM 1%TK100 | |
| R853 | RG 39,2 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5543.00 | ROEDERSTEI | DC2 39,2OHM 1%TK100 | |
| R854 | RG 1,0MOHM+-1%TK100 1206 CHIP RESISTOR NICHT BESTUECKT NOT FITTED | RG 0815.7532.00 | DRALORIC | CRC 1206 | |
| R855 | RG 4,32KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5814.00 | RESISTA | DC2 4,32KOHM 1%TK100 | |
| R856 | RG 3,32KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5789.00 | ROEDERSTEI | DC2 3,32KOHM 1%TK100 | |
| R857 | RG 4,32KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5814.00 | RESISTA | DC2 4,32KOHM 1%TK100 | |
| R858 | RG 56,2 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8826.00 | ROEDERSTEI | DC2 56,2OHM 1%TK100 | |
| R859 | RG 56,2 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8826.00 | ROEDERSTEI | DC2 56,2OHM 1%TK100 | |
| R860 | RG 0-OHM WIDERSTAND-CHIP RESISTOR CHIP 0-OHM | RG 0007.5108.00 | DRALORIC | CR 1206 | |
| R861 | RG 475 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5695.00 | ROEDERSTEI | DC2 475OHM 1%TK100 | |
| R862 | RG 3,32KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5789.00 | ROEDERSTEI | DC2 3,32KOHM 1%TK100 | |
| R863 | RG 392 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5672.00 | ROEDERSTEI | DC2 392OHM 1%TK100 | |
| R866 | RG 1,0MOHM+-1%TK100 1206 CHIP RESISTOR | RG 0815.7532.00 | DRALORIC | CRC 1206 | |

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| Kennz. Comp. No. | Benennung Designation | Sachnummer Stock No. | Hersteller Manufacturer | Bezeichnung Designation | enthalten in contained in | |
|---|---|----------------------|--|------------------------------------|---------------------------|----------------|
| R867 | RG 3,92KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5808.00 | RESISTA | DC2 3,92KOHM 1%TK100 | | |
| R868 | RG 681 KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.6110.00 | ROEDERSTEI | DC2 681KOHM 1%TK100 | | |
| R869 | RG 825 KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.6133.00 | ROEDERSTEI | DC2 825KOHM 1%TK100 | | |
| R870 | RG 22,1KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5872.00 | ROEDERSTEI | DC2 22,1KOHM 1%TK100 | | |
| R871 | RG 10,0KOHM+-1%TK100 1206 RG CHIP RESISTOR | RG 0007.0793.00 | ROEDERSTEI | DC2 10,0KOHM 1%TK100 | | |
| .874 R875 | RG 1,5 KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5714.00 | ROEDERSTEI | DC2 1,5KOHM 1%TK100 | | |
| R876 | RG 392 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5672.00 | ROEDERSTEI | DC2 392OHM 1%TK100 | | |
| R880 | RL 0,40W 470 OHM2% UNGEW. RESISTOR | RL 0092.6030.00 | RESISTA | MK1 470OHM 2% UNGEW. | | |
| R882 | RG 18,2 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5466.00 | ROEDERSTEI | DC2 18,2OHM 1%TK100 | | |
| R887 | RG 221 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5614.00 | ROEDERSTEI | DC2 221OHM 1%TK100 | | |
| R889 | RG 47,5 OHM+-1%TK100 1206 RESISTOR CHIP NICHT BESTUECKT NOT FITTED | RG 0007.5566.00 | ROEDERSTEI | DC2 47,5OHM 1%TK100 | | |
| R898 | RG 100R +-1% TK200 0603 SMD-RESISTOR EIA0603 | RG 0009.5334.00 | DRALORIC | CR 0603 100R 1%TK200 | | |
| R899 | RG 1,0MOHM+-1%TK100 1206 CHIP RESISTOR NICHT BESTUECKT NOT FITTED | RG 0815.7532.00 | DRALORIC | CRC 1206 | | |
| U600 | BM LRMS-2 MIXER 1GHZ HYBRID MIXER | 1062.6273.00 | MINI-CIRCU | LRMS-2 | | |
| U666 | BM AK3000-1 DOPPLER FREQUENCY DOPPLER | 1039.1256.00 | MINI-CIRCU | AK-3000-1 | | |
| V11 | AD BAS32 75V UDI DIODE | AD 0006.7288.00 | PHILIPS | BAS32 (L) | | |
| V12 | AD BAS32 75V UDI DIODE | AD 0006.7288.00 | PHILIPS | BAS32 (L) | | |
| V13 | AK BCX70H N 45V 200MA TRANSISTOR | AK 0007.3105.00 | VALVO | BCX 70 H | | |
| V14 | AD BAS32 75V UDI DIODE NICHT BESTUECKT/NOT FITTED | AD 0006.7288.00 | PHILIPS | BAS32 (L) | | |
| V15 | AD BAS32 75V UDI DIODE NICHT BESTUECKT/NOT FITTED | AD 0006.7288.00 | PHILIPS | BAS32 (L) | | |
| V25 | AD BAS32 75V UDI DIODE | AD 0006.7288.00 | PHILIPS | BAS32 (L) | | |
| V26 | AD BAS32 75V UDI DIODE | AD 0006.7288.00 | PHILIPS | BAS32 (L) | | |
| V35 | AE BZV55/C5V1 0.5W ZDI ZENER DIODE | AE 0006.9839.00 | PHILIPS_SE | BZV55B5V1 (GEG) | | |
| V110 | AE 1N827 6,2V REF DI REFERENCE DIODE | AE 0418.0029.00 | COMPENSATE | 1N827(A) | | |
| V130 | AD BAV99 70V DUO UDI DIODE | AD 0911.0092.00 | VALVO | BAV99 | | |
| V134 | AD BAV99 70V DUO UDI DIODE | AD 0911.0092.00 | VALVO | BAV99 | | |
| V200 | AK BCX70H N 45V 200MA TRANSISTOR | AK 0007.3105.00 | VALVO | BCX 70 H | | |
| V310 | AE BAR61 3X(PI) 100V PIN PIN DIODE ARRAY (ATTENU.) | 4001.5082.00 | SIEMENS | BAR61(Q62702A120) | | |
| V315 | AE BAR61 3X(PI) 100V PIN PIN DIODE ARRAY (ATTENU.) | 4001.5082.00 | SIEMENS | BAR61(Q62702A120) | | |
| V318 | AD BAV99 70V DUO UDI DIODE | AD 0911.0092.00 | VALVO | BAV99 | | |
| V319 | AD BAV99 70V DUO UDI DIODE | AD 0911.0092.00 | VALVO | BAV99 | | |
| V330 | AD BAV99 70V DUO UDI DIODE | AD 0911.0092.00 | VALVO | BAV99 | | |
| V333 | AD BAV99 70V DUO UDI DIODE | AD 0911.0092.00 | VALVO | BAV99 | | |
| V335 .337 | AD BAV99 70V DUO UDI DIODE | AD 0911.0092.00 | VALVO | BAV99 | | |
| V400 | AE BAR61 3X(PI) 100V PIN PIN DIODE ARRAY (ATTENU.) | 4001.5082.00 | SIEMENS | BAR61(Q62702A120) | | |
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|---------------------|---|-------------------------|----------------------------|----------------------------|------------------------------|
| V404 | AD BAV99 70V DUO UDI DIODE | AD 0911.0092.00 | VALVO | BAV99 | |
| V405 | AD BAV99 70V DUO UDI DIODE | AD 0911.0092.00 | VALVO | BAV99 | |
| V410 | BM MSA1105 05-1.3G MMIC IC MICROWAVE MONOLITH AMP | 1051.4051.00 | AVANTEK | MSA-1105-TR1 | |
| V411 | AD BAS32 75V UDI DIODE | AD 0006.7288.00 | PHILIPS | BAS32 (L) | |
| V431 | AK BCX70H N 45V 200MA TRANSISTOR | AK 0007.3105.00 | VALVO | BCX 70 H | |
| V500 | AE BAR64-04 CA DOPPEL PIN DUAL PIN DIODE | 1039.1327.00 | SIEMENS | BAR6404 (Q62702-A101 | |
| V511 | AE BAR64-04 CA DOPPEL PIN DUAL PIN DIODE | 1039.1327.00 | SIEMENS | BAR6404 (Q62702-A101 | |
| V512 | AE BAR64-04 CA DOPPEL PIN DUAL PIN DIODE | 1039.1327.00 | SIEMENS | BAR6404 (Q62702-A101 | |
| V514 | AE BAR64-04 CA DOPPEL PIN DUAL PIN DIODE | 1039.1327.00 | SIEMENS | BAR6404 (Q62702-A101 | |
| V520 | AE BAR64-04 CA DOPPEL PIN DUAL PIN DIODE | 1039.1327.00 | SIEMENS | BAR6404 (Q62702-A101 | |
| V523 | AE BAR64-04 CA DOPPEL PIN DUAL PIN DIODE | 1039.1327.00 | SIEMENS | BAR6404 (Q62702-A101 | |
| V530 | AE BAR64-04 CA DOPPEL PIN DUAL PIN DIODE | 1039.1327.00 | SIEMENS | BAR6404 (Q62702-A101 | |
| V532 | AE BAR64-04 CA DOPPEL PIN DUAL PIN DIODE | 1039.1327.00 | SIEMENS | BAR6404 (Q62702-A101 | |
| V535 | AE BAR64-04 CA DOPPEL PIN DUAL PIN DIODE | 1039.1327.00 | SIEMENS | BAR6404 (Q62702-A101 | |
| V536 | AE BAR64-04 CA DOPPEL PIN DUAL PIN DIODE | 1039.1327.00 | SIEMENS | BAR6404 (Q62702-A101 | |
| V539 | AE BAR64-04 CA DOPPEL PIN DUAL PIN DIODE | 1039.1327.00 | SIEMENS | BAR6404 (Q62702-A101 | |
| V540 | AE BAR64-04 CA DOPPEL PIN DUAL PIN DIODE | 1039.1327.00 | SIEMENS | BAR6404 (Q62702-A101 | |
| V543 | AE BAR64-04 CA DOPPEL PIN DUAL PIN DIODE | 1039.1327.00 | SIEMENS | BAR6404 (Q62702-A101 | |
| V544 | AE BAR64-04 CA DOPPEL PIN DUAL PIN DIODE | 1039.1327.00 | SIEMENS | BAR6404 (Q62702-A101 | |
| V548 | AE BAR64-04 CA DOPPEL PIN DUAL PIN DIODE | 1039.1327.00 | SIEMENS | BAR6404 (Q62702-A101 | |
| V600 | AE BZX55/B6V2 0,5W ZDI ZENER DIODE | AE 0012.2161.00 | PHILIPS | BZX79B6V2 | |
| V602 | AK BFQ34T N 18V 150MA TRANSISTOR | 0801.8283.00 | PHILIPS | BFQ34T | |
| V604 | AE HSMS2825 1+1 SCHOTTKY SCHOTTKY DIODE PAIR | 1010.6214.00 | HEWLETT_PA | HSMS2825 L31 | |
| V606 | AE HSMS2825 1+1 SCHOTTKY SCHOTTKY DIODE PAIR | 1010.6214.00 | HEWLETT_PA | HSMS2825 L31 | |
| V608 | AD BAS32 75V UDI DIODE | AD 0006.7288.00 | PHILIPS | BAS32 (L) | |
| V610 | AE BZV55/C5V1 0.5W ZDI ZENER DIODE | AE 0006.9839.00 | PHILIPS_SE | BZV55B5V1 (GEG) | |
| V612 | AK BFQ34T N 18V 150MA TRANSISTOR | 0801.8283.00 | PHILIPS | BFQ34T | |
| V635 | AD BAS32 75V UDI DIODE | AD 0006.7288.00 | PHILIPS | BAS32 (L) | |
| V636 | AE 1N827 6,2V REF DI REFERENCE DIODE | AE 0418.0029.00 | COMPENSATE | 1N827(A) | |
| V656 | AD BAS32 75V UDI DIODE | AD 0006.7288.00 | PHILIPS | BAS32 (L) | |
| V670 | BM MSA0486 DC-3.2G MMIC BROADBAND AMPLIFIER NICHT BESTUECKT NOT FITTED | 0846.4293.00 | AVANTEK | MSA-0486 | |
| V671 | BM MSA1105 05-1.3G MMIC IC MICROWAVE MONOLITH AMP | 1051.4051.00 | AVANTEK | MSA-1105-TR1 | |
| V680 | AD BAV99 70V DUO UDI DIODE | AD 0911.0092.00 | VALVO | BAV99 | |
| V700 | AE HSMS2825 1+1 SCHOTTKY SCHOTTKY DIODE PAIR | 1010.6214.00 | HEWLETT_PA | HSMS2825 L31 | |
| V705 | AE BAR64-04 CA DOPPEL PIN DUAL PIN DIODE | 1039.1327.00 | SIEMENS | BAR6404 (Q62702-A101 | |
| V707 | AE BAR64-04 CA DOPPEL PIN DUAL PIN DIODE | 1039.1327.00 | SIEMENS | BAR6404 (Q62702-A101 | |
| V715 | AD BAS32 75V UDI DIODE | AD 0006.7288.00 | PHILIPS | BAS32 (L) | |
| V716 | AD BAS32 75V UDI DIODE | AD 0006.7288.00 | PHILIPS | BAS32 (L) | |

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095.0028-0693

| MENP5 | 413 3PUA | ÄI | Datum Date | Schaltteilliste für Parts list for | Sachnummer Stock No. | Blatt-Nr. Page |
|--|----------|----------|--|---------------------------------------|-------------------------|-------------------|
|  | 28 | 16.09.97 | EE AUSGANGSTEIL 2.08GHZ OUTPUT UNIT 2.08GHZ | 1062.7005.01 SA | 24+ | |

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| Kennz. Comp. No. | Benennung Designation | Sachnummer Stock No. | Hersteller Manufacturer | Bezeichnung Designation | enthalten in contained in |
|---------------------|---|-------------------------|----------------------------|----------------------------|------------------------------|
| V717 | AE BZV55/C6V2 0,5W ZDI ZENER DIODE | AE 0006.9851.00 | PHILIPS | BZV55B6V2 | |
| V718 | AE BZV55/C6V2 0,5W ZDI ZENER DIODE | AE 0006.9851.00 | PHILIPS | BZV55B6V2 | |
| V720 | AE BAR64-04 CA DOPPEL PIN DUAL PIN DIODE | 1039.1327.00 | SIEMENS | BAR6404 (Q62702-A101) | |
| V725 | AE BAR64-04 CA DOPPEL PIN DUAL PIN DIODE | 1039.1327.00 | SIEMENS | BAR6404 (Q62702-A101) | |
| V730 | AE BAR64-04 CA DOPPEL PIN DUAL PIN DIODE | 1039.1327.00 | SIEMENS | BAR6404 (Q62702-A101) | |
| V735 | AE BAR64-04 CA DOPPEL PIN DUAL PIN DIODE | 1039.1327.00 | SIEMENS | BAR6404 (Q62702-A101) | |
| V745 | AE BZV55/C6V2 0,5W ZDI ZENER DIODE | AE 0006.9851.00 | PHILIPS | BZV55B6V2 | |
| V746 | AE BZV55/C6V2 0,5W ZDI ZENER DIODE | AE 0006.9851.00 | PHILIPS | BZV55B6V2 | |
| V747 | AD BAS32 75V UDI DIODE | AD 0006.7288.00 | PHILIPS | BAS32 (L) | |
| V748 | AD BAS32 75V UDI DIODE | AD 0006.7288.00 | PHILIPS | BAS32 (L) | |
| V750 ..753 | AD BAS32 75V UDI DIODE | AD 0006.7288.00 | PHILIPS | BAS32 (L) | |
| V765 | AD BAV99 70V DUO UDI DIODE | AD 0911.0092.00 | VALVO | BAV99 | |
| V766 | AD BAV99 70V DUO UDI DIODE | AD 0911.0092.00 | VALVO | BAV99 | |
| V768 | AE BAR61 3X(PI) 100V PIN PIN DIODE ARRAY (ATTENU.) | 4001.5082.00 | SIEMENS | BAR61(Q62702A120) | |
| V769 | BM MSAO486 DC-3.2G MMIC BROADBAND AMPLIFIER | 0846.4293.00 | AVANTEK | MSA-0486 | |
| V770 ..775 | AE BAR64-04 CA DOPPEL PIN DUAL PIN DIODE | 1039.1327.00 | SIEMENS | BAR6404 (Q62702-A101) | |
| V780 | BM MSAO486 DC-3.2G MMIC BROADBAND AMPLIFIER NICHT BESTUECKT NOT FITTED | 0846.4293.00 | AVANTEK | MSA-0486 | |
| V782 ..787 | AE BAR64-04 CA DOPPEL PIN DUAL PIN DIODE | 1039.1327.00 | SIEMENS | BAR6404 (Q62702-A101) | |
| V801 | BM MSAO486 DC-3.2G MMIC BROADBAND AMPLIFIER | 0846.4293.00 | AVANTEK | MSA-0486 | |
| V802 | AE BZV55/C6V2 0,5W ZDI ZENER DIODE | AE 0006.9851.00 | PHILIPS | BZV55B6V2 | |
| V803 | AE BZV55/C6V2 0,5W ZDI ZENER DIODE | AE 0006.9851.00 | PHILIPS | BZV55B6V2 | |
| V804 | AD BAS32 75V UDI DIODE | AD 0006.7288.00 | PHILIPS | BAS32 (L) | |
| V805 | AD BAS32 75V UDI DIODE | AD 0006.7288.00 | PHILIPS | BAS32 (L) | |
| V814 | AD BAS32 75V UDI DIODE | AD 0006.7288.00 | PHILIPS | BAS32 (L) | |
| V815 | AD BAS32 75V UDI DIODE | AD 0006.7288.00 | PHILIPS | BAS32 (L) | |
| V816 | AK BCX71J P 45V 200MA TRANSISTOR | AK 0007.2096.00 | VALVO | BCX71J GEGURTET | |
| V817 | AK AT-64020 TRANSISTOR TRANSISTOR | 1039.1404.00 | AVANTEK | AT-64020 | |
| V827 | AD BAS32 75V UDI DIODE | AD 0006.7288.00 | PHILIPS | BAS32 (L) | |
| V828 | AK BCP68-16 N 20V TRANS TRANSISTOR BCP68 | 0008.2019.00 | PHILIPS | BCP68-25 | |
| V829 | AK BCX71J P 45V 200MA TRANSISTOR | AK 0007.2096.00 | VALVO | BCX71J GEGURTET | |
| V830 | AD BAS32 75V UDI DIODE | AD 0006.7288.00 | PHILIPS | BAS32 (L) | |
| V831 | AK BCX71J P 45V 200MA TRANSISTOR | AK 0007.2096.00 | VALVO | BCX71J GEGURTET | |
| V832 | AK AT-64020 TRANSISTOR TRANSISTOR | 1039.1404.00 | AVANTEK | AT-64020 | |
| V833 | AK BCX71J P 45V 200MA TRANSISTOR | AK 0007.2096.00 | VALVO | BCX71J GEGURTET | |
| V834 | AK BCP68-16 N 20V TRANS TRANSISTOR BCP68 | 0008.2019.00 | PHILIPS | BCP68-25 | |
| V844 | AE BAT62 1+1 40V SCHOTTKY DIODE PAIR | 1051.4045.00 | SIEMENS | BAT62 (62) | |
| V850 | AE HSMS2825 1+1 SCHOTTKY SCHOTTKY DIODE PAIR | 1010.6214.00 | HEWLETT_PA | HSMS2825 L31 | |
| V853 | AD BAS32 75V UDI DIODE | AD 0006.7288.00 | PHILIPS | BAS32 (L) | |

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ROHDE & SCHWARZ

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Äl Datum
Date 16.09.97

Schaltteilliste für
Parts list for
EE AUSGANGSTEIL 2.08GHZ
OUTPUT UNIT 2.08GHZ


Sachnummer
Stock No. **1062.7005.01 SA**

Blatt-Nr.
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| Kennz. Comp. No. | Benennung Designation | Sachnummer Stock No. | Hersteller Manufacturer | Bezeichnung Designation | enthalten in contained in |
|---------------------|---|-------------------------|----------------------------|----------------------------|------------------------------|
| V857 | AD BAS32 75V UDI DIODE | AD 0006.7288.00 | PHILIPS | BAS32 (L) | |
| V870 | AD BAS32 75V UDI DIODE | AD 0006.7288.00 | PHILIPS | BAS32 (L) | |
| V871 | AE 1N827 6,2V REF DI REFERENCE DIODE | AE 0418.0029.00 | COMPENSATE | 1N827(A) | |
| V874 | BM MSA0486 DC-3.2G MMIC BROADBAND AMPLIFIER | 0846.4293.00 | AVANTEK | MSA-0486 | |
| V875 | AE HSMS2825 1+1 SCHOTTKY SCHOTTKY DIODE PAIR | 1010.6214.00 | HEWLETT_PA | HSMS2825 L31 | |
| V876 | AE BAR61 3X(PI) 100V PIN PIN DIODE ARRAY (ATTENU.) | 4001.5082.00 | SIEMENS | BAR61(Q62702A120) | |
| V877 | AE BAR61 3X(PI) 100V PIN PIN DIODE ARRAY (ATTENU.) | 4001.5082.00 | SIEMENS | BAR61(Q62702A120) | |
| W1 | DW KABEL W1 | 1062.7086.00 | | | |
| X2 | FP STECKERLEISTE 32POL. CONNECTOR 32P. | FP 0008.5718.00 | SIEMENS | V42254-B1200-B611 | |
| X205 | FP STIFTLISTE 4P.R2,54 PIN CONNECTOR | FP 0009.6147.00 | | | |
| X224 ..226 | FJ EINBAUWINKELST. SMC ANGLE CONNECTOR | FJ 0249.9684.00 | ROSENBERGE | 39S-205-400-D3 | |
| Z1 | LD SMD-T-FILTER 3,3NF SMD-FILTER | 1039.1362.00 | MURATA | NFM61R20T332T1 | |
| Z2 | LD SMD PI-FILTER 10GHZ SURFACE-MOUNT-FILTER | LD 0008.5901.00 | OXLEY | SLT/P/22000/SM3 | |
| Z3 | LD SMD-T-FILTER 3,3NF SMD-FILTER | 1039.1362.00 | MURATA | NFM61R20T332T1 | |
| Z4 | LD SMD-T-FILTER 3,3NF SMD-FILTER | 1039.1362.00 | MURATA | NFM61R20T332T1 | |
| Z5 ..9 | LD SMD-T-FILTER 100PF SMD-FILTER | 1039.1356.00 | MURATA | NFM61ROOT101T1 | |
| Z10 | LD SMD-T-FILTER 3,3NF SMD-FILTER | 1039.1362.00 | MURATA | NFM61R20T332T1 | |
| Z11 | LD SMD-T-FILTER 100PF SMD-FILTER | 1039.1356.00 | MURATA | NFM61ROOT101T1 | |
| Z20 | LD SMD PI-FILTER 10GHZ SURFACE-MOUNT-FILTER | LD 0008.5901.00 | OXLEY | SLT/P/22000/SM3 | |
| Z700 | XX ENTHALTEN IN INCLUDED IN | | | | |
| Z710 | IN LEITERPLATTE INCLUDED IN | | | | |
| Z720 | XX ENTHALTEN IN INCLUDED IN | | | | |
| | IN LEITERPLATTE | | | | |

| | | | | | | |
|---|----------|----------|--|---------------------------------------|-------------------------|-------------------|
| MENP5 | 413 3PUA | Äi | Datum Date | Schalttailliste für Parts list for | Sachnummer Stock No. | Blatt-Nr. Page |
|  | 28 | 16.09.97 | EE AUSGANGSTEIL 2.08GHZ OUTPUT UNIT 2.08GHZ | 1062.7005.01 SA | 26- | |

095.0026-0693

XY-Liste

XY List

Erklärung der Spaltenbezeichnungen:

- Part:** Bauelement-Kennzeichen.
- Side:** Leiterplatten-Seite, auf der sich das Bauelement befindet.
- X/Y:** Koordinaten (Millimeter) des Bauelementes auf der Leiterplatte bezogen auf den Nullpunkt.
- SQR, PG:** Planquadrat und Seite des Schaltbildes für das jeweilige Bauelement.

Explanation of column designations:

- Part:** Identification of instrument part.
- Side:** Side of the PC board on which instrument part is positioned.
- X/Y:** Coordinates (millimeter) of the component on the PC board in reference to zero point.
- SQR, PG:** Square and page of the diagram for the respective instrument part.

Nicht-Service-Relevante Bauteile / Non-Service-Relevant Components

| Part | Side | X | Y | Sqr | Pg | Part | Side | X | Y | Sqr | Pg | Part | Side | X | Y | Sqr | Pg |
|------|------|-----|-----|-----|----|------|------|-----|-----|-----|----|------|------|-----|-----|-----|----|
| 303 | B | 18 | 53 | 9D | 4 | C22 | B | 114 | 32 | 3E | 2 | C327 | B | 17 | 48 | 6D | 4 |
| 309 | B | 30 | 71 | 10D | 4 | C132 | B | 225 | 35 | 9B | 10 | C328 | B | 19 | 41 | 7D | 4 |
| 310 | B | 22 | 71 | 11D | 4 | C133 | B | 232 | 38 | 8B | 10 | C329 | A | 39 | 41 | 7C | 4 |
| 413 | B | 50 | 69 | 5D | 5 | C149 | A | 210 | 43 | 3A | 10 | C330 | A | 43 | 38 | 7C | 4 |
| 414 | B | 40 | 70 | 5D | 5 | C150 | A | 177 | 44 | 1A | 10 | C340 | B | 45 | 50 | 8C | 4 |
| 506 | B | 81 | 83 | 3E | 6 | C151 | A | 168 | 53 | 2A | 10 | C356 | B | 31 | 46 | 8D | 4 |
| 507 | B | 92 | 102 | 3D | 6 | C152 | A | 87 | 57 | 3A | 10 | C357 | B | 31 | 53 | 9D | 4 |
| 509 | B | 92 | 83 | 4D | 6 | C153 | B | 128 | 54 | 6A | 10 | C359 | A | 41 | 60 | 10E | 4 |
| 514 | B | 96 | 95 | 5D | 6 | C154 | A | 135 | 53 | 6A | 10 | C360 | B | 31 | 67 | 10D | 4 |
| 515 | B | 111 | 95 | 5D | 6 | C156 | A | 200 | 43 | 4A | 10 | C361 | B | 23 | 83 | 12D | 4 |
| 516 | B | 112 | 88 | 5D | 6 | C157 | A | 158 | 53 | 5A | 10 | C362 | A | 48 | 86 | 11E | 4 |
| 518 | B | 123 | 89 | 6D | 6 | C158 | A | 257 | 173 | 6A | 10 | C400 | A | 48 | 84 | 2C | 5 |
| 519 | B | 125 | 87 | 6D | 6 | C159 | A | 241 | 177 | 6A | 10 | C401 | B | 42 | 81 | 3D | 5 |
| 520 | B | 135 | 95 | 7D | 6 | C160 | A | 135 | 42 | 6E | 10 | C402 | B | 30 | 78 | 4D | 5 |
| 522 | B | 137 | 75 | 7E | 6 | C161 | A | 99 | 44 | 9E | 10 | C404 | A | 34 | 88 | 3C | 5 |
| 528 | B | 148 | 82 | 8D | 6 | C162 | A | 76 | 22 | 10E | 10 | C405 | A | 35 | 91 | 4C | 5 |
| 529 | B | 148 | 91 | 8D | 6 | C170 | A | 188 | 43 | 4A | 10 | C410 | A | 42 | 76 | 5E | 5 |
| 542 | B | 46 | 98 | 2B | 6 | C207 | B | 90 | 18 | 10D | 3 | C412 | B | 37 | 72 | 5D | 5 |
| 543 | B | 20 | 111 | 2B | 6 | C208 | B | 82 | 46 | 8C | 3 | C417 | A | 70 | 70 | 7E | 5 |
| 544 | B | 23 | 116 | 3B | 6 | C209 | A | 95 | 44 | 6C | 3 | C440 | A | 126 | 123 | 9B | 5 |
| 545 | B | 37 | 111 | 4B | 6 | C219 | B | 82 | 43 | 8C | 3 | C441 | A | 133 | 138 | 9B | 5 |
| 548 | B | 76 | 132 | 6B | 6 | C220 | A | 54 | 39 | 9E | 3 | C442 | A | 114 | 109 | 10B | 5 |
| 550 | B | 145 | 137 | 8B | 6 | C221 | B | 64 | 21 | 9D | 3 | C445 | B | 63 | 86 | 1C | 6 |
| 600 | B | 178 | 70 | 2E | 7 | C240 | B | 57 | 12 | 10E | 3 | C500 | B | 64 | 77 | 2E | 6 |
| 602 | B | 63 | 178 | 8D | 11 | C242 | B | 66 | 16 | 11F | 3 | C501 | A | 83 | 83 | 2F | 6 |
| 607 | B | 215 | 83 | 4D | 7 | C244 | A | 78 | 40 | 4A | 3 | C502 | B | 70 | 88 | 2D | 6 |
| 608 | B | 208 | 86 | 5D | 7 | C245 | A | 72 | 49 | 4A | 3 | C504 | B | 78 | 86 | 3D | 6 |
| 612 | B | 218 | 62 | 3D | 7 | C250 | A | 58 | 62 | 2A | 3 | C505 | B | 79 | 94 | 3E | 6 |
| 650 | B | 122 | 151 | 2D | 11 | C251 | A | 64 | 62 | 2A | 3 | C506 | B | 91 | 97 | 3E | 6 |
| 651 | B | 91 | 151 | 3D | 11 | C252 | A | 55 | 57 | 2A | 3 | C507 | B | 91 | 88 | 4E | 6 |
| 660 | B | 218 | 62 | 3D | 7 | C253 | A | 59 | 51 | 2A | 3 | C509 | A | 97 | 86 | 4F | 6 |
| 661 | B | 218 | 62 | 4D | 7 | C254 | A | 63 | 51 | 3A | 3 | C510 | B | 97 | 90 | 5E | 6 |
| 705 | B | 150 | 122 | 2C | 8 | C255 | A | 55 | 47 | 3A | 3 | C511 | B | 112 | 99 | 5E | 6 |
| 706 | B | 154 | 175 | 5D | 12 | C256 | A | 164 | 39 | 5A | 3 | C512 | B | 110 | 85 | 5E | 6 |
| 707 | B | 161 | 145 | 5D | 12 | C257 | A | 57 | 18 | 6A | 3 | C513 | B | 104 | 74 | 5E | 6 |
| 708 | B | 232 | 189 | 9D | 12 | C258 | A | 53 | 15 | 5A | 3 | C514 | A | 117 | 83 | 6F | 6 |
| 740 | B | 192 | 129 | 8D | 8 | C259 | A | 163 | 34 | 5A | 3 | C515 | B | 121 | 85 | 6E | 6 |
| 766 | B | 171 | 147 | 5D | 12 | C260 | A | 111 | 44 | 6A | 3 | C516 | B | 122 | 99 | 6E | 6 |
| 777 | B | 226 | 185 | 9D | 12 | C261 | A | 59 | 30 | 3A | 3 | C517 | B | 133 | 90 | 7E | 6 |
| 778 | B | 231 | 187 | 9E | 12 | C262 | A | 64 | 31 | 3A | 3 | C518 | A | 135 | 87 | 7F | 6 |
| 840 | B | 277 | 53 | 10D | 9 | C263 | A | 55 | 25 | 4A | 3 | C519 | B | 146 | 77 | 8E | 6 |
| 847 | B | 280 | 83 | 8D | 9 | C264 | A | 115 | 44 | 6A | 3 | C520 | B | 146 | 86 | 8E | 6 |
| 851 | B | 288 | 15 | 11D | 9 | C275 | B | 163 | 41 | 1D | 3 | C521 | B | 146 | 94 | 8E | 6 |
| 853 | B | 279 | 79 | 8D | 9 | C280 | B | 135 | 37 | 3C | 3 | C522 | B | 140 | 77 | 8E | 6 |
| 857 | B | 279 | 57 | 10D | 9 | C300 | B | 39 | 20 | 3D | 4 | C523 | B | 140 | 86 | 8E | 6 |
| C12 | B | 208 | 33 | 8C | 2 | C302 | B | 24 | 27 | 4D | 4 | C524 | B | 141 | 94 | 8E | 6 |
| C13 | B | 113 | 29 | 3F | 2 | C303 | B | 34 | 23 | 4D | 4 | C525 | B | 147 | 102 | 9E | 6 |
| C14 | A | 227 | 44 | 5A | 2 | C313 | B | 45 | 29 | 5C | 4 | C526 | A | 140 | 113 | 9F | 6 |
| C15 | A | 235 | 45 | 5A | 2 | C315 | B | 18 | 24 | 5D | 4 | C527 | B | 150 | 111 | 11E | 6 |
| C16 | A | 227 | 21 | 6A | 2 | C316 | B | 22 | 34 | 6D | 4 | C530 | A | 59 | 93 | 2C | 6 |
| C17 | A | 239 | 14 | 6A | 2 | C318 | A | 12 | 37 | 5C | 4 | C531 | B | 72 | 96 | 2C | 6 |
| C20 | B | 107 | 16 | 2D | 2 | C319 | A | 15 | 41 | 6C | 4 | C532 | B | 52 | 97 | 2B | 6 |
| C21 | B | 126 | 32 | 3E | 2 | C325 | B | 30 | 38 | 6D | 4 | C533 | B | 19 | 104 | 2B | 6 |

| | | | | | |
|-----------------------|----|---------------|--|-------------------------|---------------|
| ROHDE & SCHWARZ | -I | Datum Date | XY-Liste für XY-list for | Sach-Nummer Stock-Nr | Blatt Page |
| | 03 | 17.06.96 | EE AUSGANGSTEIL_2.08GHZ OUTPUT_UNIT_2.08GHZ | 1062.7005.01 XY | 1+ |

| Part | Side | X | Y | Sqr | Pg | Part | Side | X | Y | Sqr | Pg | Part | Side | X | Y | Sqr | Pg |
|------|------|-----|-----|-----|----|------|------|-----|-----|-----|----|------|------|-----|-----|-----|----|
| C534 | B | 43 | 104 | 3B | 6 | C634 | B | 254 | 87 | 8D | 7 | C726 | A | 241 | 135 | 10E | 8 |
| C536 | A | 78 | 109 | 3C | 6 | C635 | B | 236 | 95 | 10D | 7 | C727 | A | 169 | 104 | 5E | 8 |
| C537 | B | 54 | 115 | 4B | 6 | C636 | B | 238 | 98 | 10D | 7 | C728 | A | 220 | 120 | 10D | 8 |
| C538 | B | 38 | 118 | 4B | 6 | C637 | B | 245 | 83 | 9E | 7 | C729 | A | 220 | 135 | 10D | 8 |
| C539 | B | 56 | 123 | 5B | 6 | C638 | A | 223 | 85 | 3A | 7 | C732 | B | 184 | 99 | 6D | 8 |
| C540 | A | 86 | 120 | 5C | 6 | C639 | A | 219 | 77 | 3B | 7 | C734 | B | 177 | 100 | 7C | 8 |
| C545 | B | 65 | 132 | 6B | 6 | C640 | B | 220 | 92 | 10E | 7 | C735 | A | 180 | 102 | 6C | 8 |
| C546 | B | 37 | 131 | 6B | 6 | C641 | B | 223 | 95 | 10D | 7 | C736 | A | 177 | 93 | 7C | 8 |
| C547 | B | 59 | 137 | 7B | 6 | C642 | B | 207 | 95 | 10D | 7 | C738 | B | 191 | 103 | 7D | 8 |
| C553 | A | 89 | 131 | 7C | 6 | C643 | B | 204 | 110 | 11D | 7 | C740 | B | 192 | 113 | 8D | 8 |
| C560 | B | 113 | 139 | 8B | 6 | C644 | B | 213 | 113 | 11E | 7 | C741 | B | 154 | 186 | 3A | 12 |
| C562 | B | 128 | 133 | 9B | 6 | C645 | B | 219 | 113 | 11D | 7 | C742 | A | 204 | 121 | 9E | 8 |
| C564 | B | 116 | 130 | 9B | 6 | C646 | B | 227 | 109 | 11D | 7 | C743 | B | 210 | 128 | 9D | 8 |
| C568 | B | 92 | 112 | 10B | 6 | C647 | B | 207 | 114 | 11E | 7 | C744 | A | 272 | 187 | 11E | 12 |
| C569 | A | 90 | 114 | 10C | 6 | C650 | A | 183 | 69 | 7A | 7 | C745 | B | 148 | 188 | 3A | 12 |
| C570 | B | 102 | 110 | 10B | 6 | C651 | A | 187 | 64 | 7A | 7 | C747 | A | 225 | 131 | 11D | 8 |
| C571 | B | 102 | 119 | 10C | 6 | C652 | A | 215 | 67 | 6A | 7 | C748 | A | 228 | 127 | 11D | 8 |
| C573 | B | 111 | 110 | 11B | 6 | C653 | A | 218 | 67 | 6A | 7 | C750 | A | 211 | 133 | 11E | 8 |
| C575 | B | 119 | 110 | 11B | 6 | C654 | B | 242 | 97 | 9D | 7 | C751 | A | 198 | 124 | 11E | 8 |
| C580 | B | 126 | 106 | 11C | 6 | C656 | A | 209 | 67 | 2B | 7 | C753 | A | 203 | 135 | 11D | 8 |
| C582 | B | 135 | 106 | 11D | 6 | C660 | A | 157 | 91 | 4F | 7 | C754 | A | 154 | 147 | 2B | 12 |
| C583 | B | 135 | 119 | 12D | 6 | C661 | A | 171 | 86 | 4F | 7 | C755 | A | 157 | 153 | 2B | 12 |
| C584 | B | 144 | 113 | 12D | 6 | C662 | A | 157 | 80 | 4E | 7 | C756 | A | 149 | 147 | 2B | 12 |
| C585 | A | 103 | 71 | 2A | 6 | C663 | A | 178 | 75 | 4E | 7 | C757 | A | 146 | 154 | 2B | 12 |
| C599 | B | 140 | 106 | 9D | 6 | C664 | B | 210 | 95 | 10D | 7 | C762 | A | 183 | 121 | 7E | 8 |
| C600 | B | 170 | 86 | 1D | 7 | C668 | A | 153 | 72 | 5F | 7 | C765 | B | 90 | 175 | 2D | 12 |
| C601 | B | 175 | 79 | 1D | 7 | C669 | A | 121 | 164 | 3E | 11 | C766 | B | 103 | 185 | 2E | 12 |
| C602 | B | 180 | 69 | 2E | 7 | C670 | A | 269 | 109 | 7F | 7 | C767 | B | 100 | 177 | 2D | 12 |
| C603 | B | 167 | 73 | 2D | 7 | C671 | A | 264 | 97 | 7F | 7 | C768 | B | 101 | 171 | 2D | 12 |
| C604 | B | 194 | 74 | 3D | 7 | C672 | B | 129 | 151 | 2D | 11 | C769 | B | 109 | 175 | 3D | 12 |
| C605 | B | 217 | 67 | 4E | 7 | C673 | B | 98 | 151 | 3D | 11 | C770 | A | 104 | 180 | 2D | 12 |
| C606 | B | 220 | 76 | 4E | 7 | C674 | A | 86 | 162 | 4E | 11 | C771 | A | 114 | 171 | 2C | 12 |
| C607 | B | 218 | 86 | 5E | 7 | C675 | B | 56 | 151 | 4D | 11 | C772 | B | 119 | 185 | 3D | 12 |
| C608 | B | 229 | 83 | 5E | 7 | C676 | B | 29 | 172 | 6D | 11 | C773 | B | 265 | 183 | 11E | 12 |
| C609 | A | 181 | 86 | 2E | 7 | C677 | A | 49 | 177 | 7E | 11 | C774 | B | 142 | 175 | 5D | 12 |
| C610 | A | 202 | 77 | 2C | 7 | C678 | B | 53 | 181 | 7D | 11 | C775 | A | 131 | 183 | 4E | 12 |
| C611 | A | 168 | 64 | 4C | 7 | C679 | B | 60 | 181 | 8D | 11 | C776 | A | 187 | 146 | 6C | 12 |
| C612 | A | 128 | 156 | 2B | 11 | C680 | A | 55 | 190 | 8E | 11 | C777 | A | 184 | 154 | 6C | 12 |
| C613 | A | 133 | 162 | 2B | 11 | C681 | A | 46 | 190 | 8E | 11 | C778 | A | 172 | 166 | 6C | 12 |
| C614 | A | 105 | 149 | 2A | 11 | C682 | B | 78 | 185 | 9C | 11 | C779 | A | 234 | 166 | 6B | 12 |
| C615 | A | 105 | 157 | 2A | 11 | C700 | B | 151 | 119 | 2D | 8 | C780 | A | 207 | 182 | 6B | 12 |
| C616 | B | 91 | 147 | 3D | 11 | C701 | A | 148 | 129 | 2D | 8 | C781 | A | 209 | 184 | 6A | 12 |
| C617 | B | 264 | 27 | 5C | 7 | C702 | A | 148 | 122 | 2E | 8 | C783 | B | 194 | 149 | 6E | 12 |
| C618 | B | 256 | 30 | 5C | 7 | C705 | B | 166 | 137 | 3C | 8 | C784 | B | 194 | 154 | 7D | 12 |
| C619 | B | 264 | 37 | 6C | 7 | C707 | B | 170 | 124 | 4C | 8 | C785 | B | 166 | 170 | 7C | 12 |
| C620 | B | 255 | 40 | 6C | 7 | C708 | B | 166 | 115 | 4C | 8 | C786 | B | 205 | 189 | 8C | 12 |
| C621 | B | 58 | 147 | 4D | 11 | C709 | A | 166 | 120 | 4C | 8 | C787 | B | 203 | 179 | 8D | 12 |
| C623 | B | 116 | 151 | 2D | 11 | C710 | A | 168 | 114 | 4C | 8 | C788 | B | 232 | 166 | 8E | 12 |
| C625 | B | 250 | 69 | 7D | 7 | C714 | B | 169 | 109 | 4C | 8 | C789 | B | 222 | 146 | 7E | 12 |
| C627 | B | 260 | 74 | 7D | 7 | C715 | B | 170 | 98 | 5C | 8 | C790 | B | 197 | 160 | 7D | 12 |
| C628 | B | 269 | 76 | 8D | 7 | C720 | A | 180 | 137 | 4D | 8 | C791 | B | 174 | 174 | 7D | 12 |
| C629 | B | 265 | 82 | 8D | 7 | C721 | B | 177 | 129 | 4D | 8 | C792 | B | 184 | 186 | 7D | 12 |
| C631 | B | 183 | 76 | 2D | 7 | C723 | A | 184 | 130 | 4D | 8 | C793 | B | 210 | 172 | 7D | 12 |
| C632 | B | 189 | 79 | 3D | 7 | C724 | B | 184 | 128 | 4E | 8 | C794 | B | 237 | 157 | 7E | 12 |
| C633 | B | 260 | 88 | 9D | 7 | C725 | A | 238 | 121 | 10E | 8 | C795 | B | 235 | 185 | 9D | 12 |

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| | 03 | 17.06.96 | EE AUSGANGSTEIL_2.08GHZ OUTPUT_UNIT_2.08GHZ | 1062.7005.01 XY | 2+ |

| Part | Side | X | Y | Sqr | Pg | Part | Side | X | Y | Sqr | Pg | Part | Side | X | Y | Sqr | Pg |
|------|------|-----|-----|-----|----|--------|------|-----|-----|-----|----|--------|------|-----|-----|-----|----|
| C796 | B | 243 | 187 | 9D | 12 | C890 | A | 96 | 177 | 11C | 11 | D210-C | | | | 7D | 3 |
| C797 | B | 246 | 187 | 10D | 12 | C892 | A | 105 | 187 | 11C | 11 | D210-D | | | | 7E | 3 |
| C798 | B | 252 | 185 | 10D | 12 | C893 | B | 86 | 171 | 11C | 11 | D210-E | | | | 2A | 3 |
| C799 | B | 265 | 164 | 11D | 12 | C894 | A | 76 | 185 | 10D | 11 | D220-A | B | 57 | 23 | 10C | 3 |
| C800 | B | 267 | 140 | 2D | 9 | D10-A | B | 230 | 18 | 7E | 2 | D220-B | | | | 7D | 3 |
| C801 | A | 272 | 149 | 3E | 9 | D10-B | | | | 6A | 2 | D220-C | | | | 7D | 3 |
| C802 | A | 265 | 148 | 3E | 9 | D100-A | B | 208 | 39 | 8C | 2 | D220-D | | | | 10C | 3 |
| C803 | A | 269 | 166 | 2E | 9 | D100-B | | | | 9C | 2 | D220-E | | | | 3A | 3 |
| C804 | A | 262 | 164 | 3E | 9 | D100-C | | | | 10C | 2 | D430-A | A | 120 | 111 | 9D | 5 |
| C805 | B | 275 | 159 | 3D | 9 | D100-D | | | | 6D | 10 | D430-B | | | | 8B | 5 |
| C806 | A | 279 | 136 | 5E | 9 | D100-E | | | | 3A | 10 | D431-A | A | 109 | 111 | 10B | 5 |
| C808 | B | 284 | 137 | 5D | 9 | D102-A | B | 175 | 39 | 2E | 10 | D431-B | | | | 10E | 5 |
| C810 | B | 279 | 92 | 8D | 9 | D102-B | | | | 1A | 10 | D431-C | | | | 10E | 5 |
| C812 | B | 280 | 86 | 8D | 9 | D105-A | B | 187 | 39 | 3C | 10 | D431-D | | | | 10D | 5 |
| C816 | B | 274 | 116 | 6C | 9 | D105-B | | | | 3C | 10 | D431-E | | | | 10D | 5 |
| C817 | B | 281 | 117 | 6D | 9 | D105-C | | | | 8C | 10 | D431-F | | | | 10D | 5 |
| C818 | B | 284 | 107 | 7D | 9 | D105-D | | | | 7A | 10 | D431-G | | | | 10B | 5 |
| C819 | B | 277 | 107 | 7E | 9 | D105-E | | | | 3A | 10 | D432-A | A | 130 | 128 | 10C | 5 |
| C820 | A | 293 | 175 | 7E | 9 | D110-A | B | 161 | 53 | 4E | 10 | D432-B | | | | 10C | 5 |
| C821 | B | 286 | 183 | 8E | 9 | D110-B | | | | 2A | 10 | D432-C | | | | 10C | 5 |
| C828 | B | 284 | 85 | 8D | 9 | D111-A | A | 148 | 44 | 6C | 10 | D432-D | | | | 11B | 5 |
| C830 | B | 276 | 51 | 10D | 9 | D111-B | | | | 6C | 10 | D432-E | | | | 11B | 5 |
| C831 | B | 283 | 72 | 9D | 9 | D111-C | | | | 6C | 10 | D432-F | | | | 10B | 5 |
| C832 | B | 280 | 69 | 9E | 9 | D111-D | | | | 6B | 10 | D432-G | | | | 9B | 5 |
| C833 | A | 260 | 116 | 9E | 9 | D111-E | | | | 4A | 10 | D759 | B | 217 | 128 | 10D | 8 |
| C834 | B | 252 | 116 | 10E | 9 | D112-A | A | 148 | 55 | 6B | 10 | D760 | B | 235 | 130 | 11D | 8 |
| C836 | B | 292 | 44 | 10D | 9 | D112-B | | | | 6B | 10 | D800 | B | 270 | 156 | 2D | 9 |
| C839 | B | 284 | 57 | 10E | 9 | D112-C | | | | 6B | 10 | L20 | B | 124 | 15 | 2D | 2 |
| C840 | A | 154 | 102 | 2B | 9 | D112-D | | | | 7A | 10 | L21 | A | 103 | 16 | 2D | 2 |
| C841 | A | 157 | 108 | 3B | 9 | D112-E | | | | 5A | 10 | L22 | B | 98 | 29 | 3D | 2 |
| C842 | A | 153 | 121 | 2A | 9 | D115-A | B | 197 | 39 | 4C | 10 | L300 | B | 27 | 23 | 4D | 4 |
| C843 | A | 154 | 128 | 3A | 9 | D115-B | | | | 7C | 10 | L301 | B | 45 | 23 | 3D | 4 |
| C844 | B | 287 | 21 | 11D | 9 | D115-C | | | | 3E | 10 | L305 | B | 39 | 32 | 5D | 4 |
| C846 | B | 283 | 30 | 7C | 9 | D115-D | | | | 7A | 10 | L325 | B | 17 | 39 | 6D | 4 |
| C847 | B | 282 | 39 | 8C | 9 | D115-E | | | | 4A | 10 | L340 | B | 39 | 44 | 8D | 4 |
| C848 | B | 284 | 22 | 8C | 9 | D120-A | B | 86 | 53 | 7E | 10 | L350 | B | 23 | 67 | 10D | 4 |
| C849 | B | 282 | 50 | 10D | 9 | D120-B | | | | 2A | 10 | L351 | B | 23 | 67 | 10D | 4 |
| C850 | A | 286 | 91 | 6A | 9 | D140-A | B | 142 | 39 | 6E | 10 | L353 | B | 41 | 53 | 10E | 4 |
| C851 | A | 296 | 81 | 7A | 9 | D140-B | | | | 2B | 3 | L355 | B | 34 | 50 | 9D | 4 |
| C852 | A | 278 | 82 | 6B | 9 | D141-A | B | 146 | 42 | 4E | 3 | L360 | B | 19 | 89 | 11D | 4 |
| C853 | A | 291 | 75 | 6C | 9 | D141-B | | | | 1C | 3 | L361 | B | 55 | 86 | 11E | 4 |
| C854 | A | 292 | 34 | 8A | 9 | D141-C | | | | 1B | 3 | L380 | B | 20 | 89 | 11D | 4 |
| C855 | A | 279 | 38 | 8A | 9 | D141-D | | | | 4D | 3 | L400 | B | 30 | 83 | 2D | 5 |
| C870 | A | 296 | 86 | 11B | 9 | D141-E | | | | 4A | 3 | L410 | B | 46 | 76 | 4D | 5 |
| C871 | A | 300 | 74 | 11C | 9 | D145-A | B | 95 | 37 | 8E | 10 | L416 | B | 72 | 73 | 6D | 5 |
| C880 | A | 253 | 109 | 6F | 9 | D145-B | | | | 5B | 3 | L417 | B | 62 | 70 | 6E | 5 |
| C881 | B | 286 | 92 | 8E | 9 | D150-A | B | 74 | 15 | 10E | 10 | L431 | A | 97 | 89 | 11E | 5 |
| C882 | B | 83 | 181 | 10C | 11 | D150-B | | | | 9E | 3 | L432 | A | 118 | 90 | 11E | 5 |
| C883 | B | 77 | 181 | 9C | 11 | D200-A | B | 57 | 55 | 4F | 3 | L500 | B | 81 | 77 | 2E | 6 |
| C884 | B | 72 | 172 | 10C | 11 | D200-B | | | | 4E | 3 | L505 | B | 94 | 89 | 4F | 6 |
| C885 | A | 152 | 131 | 2B | 9 | D200-C | | | | 4E | 3 | L510 | B | 114 | 86 | 6F | 6 |
| C886 | A | 155 | 138 | 3B | 9 | D200-D | | | | 4E | 3 | L517 | B | 137 | 91 | 7F | 6 |
| C887 | A | 72 | 182 | 9C | 11 | D200-E | | | | 1A | 3 | L520 | B | 147 | 119 | 9E | 6 |
| C888 | A | 56 | 172 | 10C | 11 | D210-A | B | 57 | 42 | 7E | 3 | L530 | B | 56 | 93 | 2C | 6 |
| C889 | A | 85 | 181 | 10C | 11 | D210-B | | | | 7E | 3 | L532 | B | 55 | 98 | 2B | 6 |

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| | 03 | 17.06.96 | EE AUSGANGSTEIL_2.08GHZ OUTPUT_UNIT_2.08GHZ | 1062.7005.01 XY | 3+ |

| Part | Side | X | Y | Sqr | Pg | Part | Side | X | Y | Sqr | Pg | Part | Side | X | Y | Sqr | Pg |
|------|------|-----|-----|-----|----|-------|------|-----|-----|-----|----|--------|------|-----|-----|-----|----|
| L533 | B | 20 | 101 | 2B | 6 | L662 | A | 157 | 83 | 3F | 7 | N130-A | B | 142 | 52 | 10D | 10 |
| L534 | B | 40 | 103 | 3B | 6 | L663 | A | 175 | 75 | 4F | 7 | N130-B | | | | 10C | 10 |
| L536 | B | 81 | 109 | 3C | 6 | L668 | A | 157 | 75 | 5F | 7 | N130-C | | | | 6A | 10 |
| L537 | B | 57 | 115 | 4B | 6 | L669 | B | 49 | 171 | 7D | 11 | N131-A | A | 244 | 168 | 10C | 10 |
| L538 | B | 45 | 116 | 4B | 6 | L670 | A | 267 | 112 | 7F | 7 | N131-B | | | | 10C | 10 |
| L539 | B | 52 | 122 | 5B | 6 | L671 | A | 264 | 93 | 7F | 7 | N131-C | | | | 6A | 10 |
| L540 | B | 35 | 118 | 4B | 6 | L672 | B | 102 | 161 | 3D | 11 | N223-A | B | 88 | 38 | 6C | 3 |
| L541 | B | 61 | 119 | 5B | 6 | L673 | B | 134 | 164 | 3E | 11 | N223-B | | | | 7B | 3 |
| L542 | B | 64 | 123 | 5B | 6 | L674 | B | 58 | 163 | 4D | 11 | N223-C | | | | 7A | 3 |
| L543 | B | 89 | 119 | 5C | 6 | L675 | B | 106 | 164 | 4E | 11 | N228-A | B | 60 | 12 | 10E | 3 |
| L544 | B | 44 | 134 | 7B | 6 | L676 | B | 62 | 175 | 7E | 11 | N228-B | | | | 11E | 3 |
| L545 | B | 72 | 129 | 6B | 6 | L677 | B | 86 | 175 | 11D | 11 | N228-C | | | | 5A | 3 |
| L546 | B | 45 | 129 | 6B | 6 | L678 | B | 72 | 175 | 9C | 11 | N235-A | B | 76 | 46 | 8C | 3 |
| L547 | B | 55 | 134 | 7B | 6 | L679 | B | 80 | 182 | 10D | 11 | N235-B | | | | 4A | 3 |
| L548 | B | 52 | 129 | 6B | 6 | L705 | B | 166 | 134 | 3C | 8 | N275-A | B | 167 | 34 | 2D | 3 |
| L549 | B | 82 | 130 | 7B | 6 | L706 | B | 178 | 135 | 3C | 8 | N275-B | | | | 2D | 3 |
| L550 | B | 26 | 129 | 6B | 6 | L709 | B | 166 | 121 | 4C | 8 | N275-C | | | | 5A | 3 |
| L551 | B | 33 | 137 | 7B | 6 | L714 | B | 169 | 101 | 5C | 8 | N276-A | B | 111 | 41 | 3C | 3 |
| L553 | B | 89 | 135 | 7C | 6 | L720 | B | 181 | 126 | 4D | 8 | N276-B | | | | 4B | 3 |
| L559 | B | 97 | 135 | 8B | 6 | L727 | A | 170 | 107 | 5E | 8 | N276-C | | | | 6A | 3 |
| L560 | B | 105 | 138 | 8B | 6 | L730 | B | 183 | 112 | 5D | 8 | N300 | B | 17 | 55 | 9D | 4 |
| L561 | B | 118 | 136 | 9B | 6 | L732 | B | 181 | 97 | 7C | 8 | N360 | B | 17 | 72 | 11D | 4 |
| L562 | B | 124 | 136 | 9B | 6 | L738 | B | 192 | 100 | 7D | 8 | N600-A | A | 210 | 70 | 2C | 7 |
| L563 | B | 141 | 133 | 9B | 6 | L739 | B | 192 | 110 | 8D | 8 | N600-B | | | | 2B | 7 |
| L564 | B | 121 | 130 | 9B | 6 | L740 | B | 205 | 138 | 9D | 8 | N600-C | | | | 3B | 7 |
| L565 | B | 102 | 128 | 9B | 6 | L742 | B | 211 | 121 | 9E | 8 | N600-D | | | | 3A | 7 |
| L566 | B | 141 | 128 | 9B | 6 | L748 | B | 205 | 128 | 9D | 8 | N600-E | | | | 6A | 7 |
| L568 | B | 87 | 114 | 10C | 6 | L754 | A | 234 | 127 | 11D | 8 | N610-A | A | 193 | 70 | 3C | 7 |
| L570 | B | 99 | 110 | 10B | 6 | L755 | A | 157 | 150 | 2B | 12 | N610-B | | | | 5A | 7 |
| L571 | B | 108 | 117 | 11B | 6 | L756 | A | 145 | 150 | 2B | 12 | N740 | B | 194 | 134 | 8D | 8 |
| L572 | B | 117 | 119 | 11B | 6 | L765 | B | 98 | 185 | 2E | 12 | N776-A | A | 146 | 168 | 6C | 12 |
| L580 | B | 124 | 119 | 11C | 6 | L766 | B | 107 | 175 | 3D | 12 | N776-B | | | | 6B | 12 |
| L583 | B | 133 | 117 | 11C | 6 | L767 | B | 137 | 185 | 4E | 12 | N776-C | | | | 4A | 12 |
| L584 | B | 141 | 110 | 11D | 6 | L768 | B | 141 | 188 | 4E | 12 | N777-A | A | 146 | 156 | 6C | 12 |
| L585 | A | 99 | 74 | 2A | 6 | L770 | B | 259 | 189 | 11E | 12 | N777-B | | | | 6B | 12 |
| L600 | B | 174 | 86 | 2F | 7 | L771 | B | 276 | 169 | 11E | 12 | N777-C | | | | 3A | 12 |
| L601 | B | 180 | 82 | 2E | 7 | L800 | B | 294 | 142 | 5E | 9 | N778-A | A | 146 | 179 | 6C | 12 |
| L602 | B | 171 | 67 | 2D | 7 | L801 | B | 276 | 130 | 5F | 9 | N778-B | | | | 6B | 12 |
| L604 | A | 171 | 64 | 4C | 7 | L816 | B | 284 | 110 | 6D | 9 | N778-C | | | | 3A | 12 |
| L608 | B | 218 | 73 | 4E | 7 | L817 | B | 293 | 187 | 8E | 9 | N840-A | A | 286 | 81 | 6B | 9 |
| L610 | B | 220 | 82 | 5E | 7 | L818 | B | 295 | 73 | 8E | 9 | N840-B | | | | 10B | 9 |
| L612 | A | 129 | 162 | 2B | 11 | L819 | B | 291 | 86 | 8E | 9 | N840-C | | | | 11B | 9 |
| L613 | A | 106 | 155 | 2A | 11 | L829 | B | 299 | 34 | 10E | 9 | N840-D | | | | 11C | 9 |
| L630 | B | 257 | 69 | 7D | 7 | L830 | B | 297 | 47 | 10E | 9 | N840-E | | | | 6A | 9 |
| L632 | B | 266 | 69 | 8D | 7 | L831 | B | 242 | 124 | 10E | 9 | N845-A | A | 283 | 33 | 7B | 9 |
| L633 | B | 243 | 70 | 7D | 7 | L840 | A | 158 | 105 | 3B | 9 | N845-B | | | | 7A | 9 |
| L642 | B | 268 | 99 | 9E | 7 | L841 | A | 157 | 124 | 3A | 9 | P300 | B | 86 | 36 | 6C | 3 |
| L643 | B | 239 | 77 | 9E | 7 | L845 | B | 277 | 17 | 9B | 9 | P305 | B | 67 | 39 | 10C | 3 |
| L645 | B | 213 | 98 | 10D | 7 | L880 | B | 257 | 109 | 6F | 9 | P352 | B | 59 | 21 | 11D | 3 |
| L647 | B | 204 | 107 | 11D | 7 | L885 | A | 156 | 135 | 3B | 9 | P353 | B | 62 | 21 | 12E | 3 |
| L649 | B | 218 | 107 | 11D | 7 | N20-A | B | 225 | 41 | 9B | 10 | P375 | B | 155 | 34 | 2D | 3 |
| L650 | B | 224 | 110 | 11D | 7 | N20-B | | | | 10B | 10 | P380 | B | 119 | 41 | 4C | 3 |
| L651 | B | 233 | 108 | 12D | 7 | N20-C | | | | 7D | 2 | P385 | B | 109 | 50 | 5C | 3 |
| L660 | A | 157 | 88 | 3F | 7 | N20-D | | | | 7C | 2 | P600 | B | 186 | 62 | 3C | 7 |
| L661 | A | 171 | 83 | 4F | 7 | N20-E | | | | 5A | 2 | P601 | B | 187 | 85 | 3C | 7 |

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| Part | Side | X | Y | Sqr | Pg | Part | Side | X | Y | Sqr | Pg | Part | Side | X | Y | Sqr | Pg |
|------|------|-----|----|-----|----|------|------|-----|-----|-----|----|------|------|-----|-----|-----|----|
| P620 | B | 222 | 72 | 4B | 7 | R123 | A | 197 | 45 | 7A | 10 | R308 | B | 22 | 17 | 3D | 4 |
| P621 | B | 223 | 70 | 4A | 7 | R124 | A | 194 | 45 | 7A | 10 | R310 | B | 42 | 23 | 3D | 4 |
| P628 | B | 177 | 64 | 4C | 7 | R130 | B | 128 | 57 | 10D | 10 | R312 | B | 37 | 20 | 3D | 4 |
| P848 | B | 277 | 32 | 7C | 9 | R131 | B | 225 | 37 | 9B | 10 | R313 | A | 18 | 28 | 5C | 4 |
| P866 | B | 297 | 23 | 8B | 9 | R132 | B | 232 | 36 | 9B | 10 | R314 | B | 41 | 32 | 5D | 4 |
| R1 | A | 119 | 17 | 2F | 2 | R133 | B | 236 | 47 | 8B | 10 | R315 | B | 46 | 36 | 4C | 4 |
| R9 | A | 226 | 55 | 7D | 2 | R134 | B | 250 | 173 | 10C | 10 | R316 | B | 45 | 27 | 5C | 4 |
| R10 | B | 219 | 50 | 7C | 2 | R149 | B | 200 | 36 | 7C | 10 | R317 | B | 12 | 44 | 5C | 4 |
| R11 | A | 229 | 51 | 7D | 2 | R160 | B | 125 | 44 | 5E | 10 | R318 | B | 15 | 44 | 6C | 4 |
| R12 | B | 222 | 46 | 7C | 2 | R161 | A | 139 | 47 | 5E | 10 | R319 | A | 21 | 34 | 6C | 4 |
| R13 | B | 212 | 51 | 8C | 2 | R162 | B | 125 | 47 | 5E | 10 | R320 | A | 15 | 30 | 5C | 4 |
| R14 | B | 212 | 53 | 8B | 2 | R163 | B | 146 | 53 | 5E | 10 | R321 | A | 20 | 37 | 6C | 4 |
| R15 | B | 222 | 50 | 7C | 2 | R165 | B | 99 | 56 | 8E | 10 | R325 | B | 34 | 41 | 6E | 4 |
| R16 | A | 210 | 40 | 11C | 2 | R166 | B | 104 | 56 | 8E | 10 | R327 | A | 21 | 48 | 7D | 4 |
| R17 | B | 110 | 30 | 3F | 2 | R167 | B | 102 | 56 | 8E | 10 | R328 | A | 23 | 41 | 7D | 4 |
| R20 | B | 143 | 17 | 2D | 2 | R168 | B | 106 | 41 | 8E | 10 | R329 | B | 46 | 41 | 6C | 4 |
| R21 | B | 142 | 29 | 3D | 2 | R170 | B | 88 | 23 | 9E | 10 | R330 | A | 21 | 50 | 7C | 4 |
| R22 | B | 181 | 17 | 2D | 2 | R171 | B | 85 | 23 | 9E | 10 | R332 | B | 46 | 38 | 7C | 4 |
| R23 | B | 188 | 29 | 3D | 2 | R172 | B | 85 | 30 | 9E | 10 | R333 | A | 26 | 44 | 7C | 4 |
| R24 | B | 193 | 17 | 2C | 2 | R173 | B | 86 | 19 | 9E | 10 | R340 | B | 41 | 44 | 8C | 4 |
| R25 | B | 199 | 27 | 3C | 2 | R206 | B | 171 | 41 | 1D | 3 | R341 | B | 43 | 53 | 8C | 4 |
| R26 | B | 209 | 27 | 3C | 2 | R207 | B | 82 | 53 | 5D | 3 | R342 | B | 44 | 47 | 8C | 4 |
| R27 | B | 164 | 17 | 2C | 2 | R208 | B | 72 | 53 | 5E | 3 | R355 | B | 17 | 56 | 9D | 4 |
| R28 | B | 176 | 33 | 3C | 2 | R209 | B | 54 | 30 | 8D | 3 | R356 | B | 38 | 59 | 10E | 4 |
| R29 | B | 156 | 17 | 2B | 2 | R211 | B | 70 | 53 | 5E | 3 | R357 | B | 36 | 57 | 10E | 4 |
| R30 | B | 166 | 29 | 3B | 2 | R212 | B | 82 | 51 | 7C | 3 | R360 | B | 42 | 89 | 11E | 4 |
| R31 | B | 172 | 17 | 2B | 2 | R213 | B | 68 | 47 | 8D | 3 | R361 | B | 55 | 89 | 11E | 4 |
| R32 | B | 178 | 33 | 3B | 2 | R214 | B | 74 | 31 | 8E | 3 | R400 | B | 45 | 81 | 2D | 5 |
| R33 | B | 150 | 17 | 2B | 2 | R215 | A | 60 | 37 | 9E | 3 | R401 | B | 55 | 84 | 2C | 5 |
| R34 | B | 156 | 30 | 3B | 2 | R216 | B | 60 | 37 | 8E | 3 | R402 | B | 48 | 79 | 2C | 5 |
| R35 | A | 241 | 21 | 7A | 2 | R218 | B | 71 | 21 | 10D | 3 | R404 | A | 37 | 84 | 4D | 5 |
| R36 | A | 181 | 17 | 2C | 2 | R220 | B | 64 | 34 | 11B | 3 | R405 | A | 28 | 82 | 4D | 5 |
| R38 | A | 218 | 43 | 10C | 2 | R221 | B | 67 | 33 | 9D | 3 | R406 | A | 33 | 81 | 4C | 5 |
| R41 | B | 234 | 29 | 8E | 2 | R240 | B | 55 | 12 | 11E | 3 | R407 | A | 29 | 91 | 4C | 5 |
| R42 | B | 231 | 29 | 8E | 2 | R241 | B | 66 | 13 | 11E | 3 | R408 | B | 42 | 86 | 3C | 5 |
| R43 | B | 229 | 29 | 8E | 2 | R259 | B | 79 | 48 | 8C | 3 | R409 | B | 32 | 91 | 4C | 5 |
| R44 | B | 236 | 29 | 8E | 2 | R271 | A | 168 | 37 | 2D | 3 | R410 | A | 42 | 74 | 4E | 5 |
| R45 | B | 229 | 14 | 8E | 2 | R272 | A | 161 | 36 | 3D | 3 | R411 | A | 44 | 69 | 4E | 5 |
| R46 | B | 236 | 14 | 8E | 2 | R275 | B | 156 | 41 | 1C | 3 | R412 | A | 37 | 68 | 4E | 5 |
| R47 | B | 231 | 14 | 8E | 2 | R276 | B | 173 | 33 | 2D | 3 | R416 | B | 85 | 73 | 6E | 5 |
| R48 | B | 234 | 14 | 8E | 2 | R278 | B | 171 | 36 | 2D | 3 | R417 | B | 75 | 70 | 6E | 5 |
| R49 | B | 221 | 30 | 9E | 2 | R280 | B | 129 | 42 | 3C | 3 | R431 | A | 99 | 101 | 10E | 5 |
| R50 | B | 239 | 32 | 9E | 2 | R283 | B | 119 | 43 | 4B | 3 | R432 | A | 129 | 113 | 10E | 5 |
| R51 | B | 221 | 28 | 9E | 2 | R284 | B | 121 | 50 | 4C | 3 | R433 | A | 131 | 102 | 10D | 5 |
| R52 | B | 221 | 25 | 9E | 2 | R285 | B | 115 | 50 | 4C | 3 | R434 | A | 71 | 105 | 10D | 5 |
| R53 | B | 221 | 15 | 9E | 2 | R286 | A | 91 | 44 | 7B | 3 | R435 | A | 103 | 112 | 10D | 5 |
| R54 | B | 221 | 23 | 9E | 2 | R299 | A | 60 | 39 | 9E | 3 | R436 | A | 112 | 122 | 10C | 5 |
| R55 | B | 221 | 18 | 9E | 2 | R300 | B | 42 | 17 | 2D | 4 | R437 | A | 108 | 135 | 10C | 5 |
| R56 | B | 221 | 20 | 9E | 2 | R301 | B | 39 | 17 | 2D | 4 | R438 | A | 71 | 119 | 10C | 5 |
| R116 | B | 197 | 49 | 3F | 10 | R302 | B | 37 | 17 | 2D | 4 | R440 | A | 144 | 130 | 10B | 5 |
| R117 | A | 157 | 63 | 7A | 10 | R303 | B | 34 | 17 | 2D | 4 | R442 | A | 133 | 108 | 11D | 5 |
| R119 | B | 238 | 47 | 8B | 10 | R304 | B | 32 | 17 | 2D | 4 | R443 | A | 67 | 113 | 11C | 5 |
| R120 | B | 180 | 48 | 2F | 10 | R305 | B | 29 | 17 | 2D | 4 | R450 | A | 140 | 95 | 11D | 5 |
| R121 | A | 168 | 51 | 4E | 10 | R306 | B | 27 | 17 | 3D | 4 | R451 | A | 60 | 102 | 11D | 5 |
| R122 | B | 82 | 60 | 7E | 10 | R307 | B | 24 | 17 | 3D | 4 | R452 | A | 88 | 109 | 11D | 5 |

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| Part | Side | X | Y | Sqr | Pg | Part | Side | X | Y | Sqr | Pg | Part | Side | X | Y | Sqr | Pg |
|------|------|-----|-----|-----|----|------|------|-----|-----|-----|----|------|------|-----|-----|-----|----|
| R453 | A | 95 | 119 | 11D | 5 | R648 | A | 241 | 88 | 9E | 7 | R709 | A | 166 | 114 | 3C | 8 |
| R454 | A | 95 | 135 | 11C | 5 | R649 | B | 247 | 98 | 9D | 7 | R710 | A | 168 | 120 | 4C | 8 |
| R455 | A | 81 | 114 | 11C | 5 | R650 | B | 89 | 190 | 10C | 11 | R720 | A | 183 | 139 | 3D | 8 |
| R500 | A | 80 | 83 | 2F | 6 | R651 | A | 187 | 81 | 2C | 7 | R721 | A | 178 | 130 | 4D | 8 |
| R501 | A | 77 | 83 | 2F | 6 | R652 | B | 184 | 78 | 2C | 7 | R723 | B | 183 | 130 | 4E | 8 |
| R502 | A | 75 | 83 | 2F | 6 | R653 | A | 206 | 82 | 1C | 7 | R724 | B | 181 | 123 | 4E | 8 |
| R503 | B | 75 | 83 | 3E | 6 | R654 | A | 202 | 79 | 1B | 7 | R725 | A | 248 | 126 | 10E | 8 |
| R520 | A | 145 | 113 | 9F | 6 | R655 | B | 245 | 101 | 9D | 7 | R726 | A | 243 | 138 | 10E | 8 |
| R521 | A | 143 | 113 | 9F | 6 | R656 | B | 91 | 190 | 11C | 11 | R727 | A | 237 | 124 | 10E | 8 |
| R522 | A | 148 | 113 | 9F | 6 | R657 | A | 221 | 80 | 3B | 7 | R728 | A | 238 | 135 | 10E | 8 |
| R530 | B | 69 | 93 | 2C | 6 | R658 | A | 223 | 75 | 3B | 7 | R730 | B | 177 | 112 | 5C | 8 |
| R600 | B | 164 | 79 | 2D | 7 | R659 | B | 95 | 184 | 11C | 11 | R731 | B | 183 | 102 | 6D | 8 |
| R601 | B | 178 | 82 | 2E | 7 | R660 | A | 190 | 77 | 2C | 7 | R732 | B | 183 | 93 | 7D | 8 |
| R602 | A | 184 | 79 | 2E | 7 | R661 | B | 34 | 161 | 5D | 11 | R733 | A | 101 | 190 | 11C | 11 |
| R603 | A | 181 | 75 | 2E | 7 | R662 | B | 39 | 157 | 5D | 11 | R734 | A | 177 | 97 | 6C | 8 |
| R604 | B | 189 | 72 | 2D | 7 | R663 | B | 19 | 152 | 5D | 11 | R735 | A | 182 | 105 | 6C | 8 |
| R605 | B | 164 | 73 | 2D | 7 | R670 | B | 115 | 161 | 3D | 11 | R736 | A | 222 | 120 | 10D | 8 |
| R607 | A | 193 | 83 | 3D | 7 | R671 | B | 119 | 164 | 3E | 11 | R737 | A | 223 | 135 | 10D | 8 |
| R608 | B | 192 | 74 | 2D | 7 | R672 | B | 71 | 164 | 4D | 11 | R738 | A | 76 | 187 | 10E | 11 |
| R609 | B | 187 | 82 | 2D | 7 | R673 | B | 84 | 164 | 4E | 11 | R739 | B | 98 | 188 | 12C | 11 |
| R611 | A | 180 | 64 | 4C | 7 | R674 | B | 50 | 150 | 4D | 11 | R740 | B | 194 | 134 | 8D | 8 |
| R612 | A | 178 | 67 | 3C | 7 | R675 | B | 41 | 147 | 5C | 11 | R741 | A | 194 | 134 | 9D | 8 |
| R613 | A | 197 | 66 | 3C | 7 | R676 | B | 47 | 151 | 5D | 11 | R742 | A | 191 | 135 | 9D | 8 |
| R614 | A | 194 | 77 | 3C | 7 | R677 | B | 17 | 155 | 6C | 11 | R743 | A | 191 | 129 | 9E | 8 |
| R615 | A | 197 | 77 | 3C | 7 | R678 | B | 17 | 164 | 6C | 11 | R745 | B | 210 | 124 | 9C | 8 |
| R616 | A | 202 | 69 | 2B | 7 | R679 | B | 21 | 158 | 6D | 11 | R747 | A | 217 | 130 | 11D | 8 |
| R618 | A | 194 | 86 | 2C | 7 | R680 | B | 36 | 171 | 7D | 11 | R748 | A | 216 | 124 | 11D | 8 |
| R619 | B | 198 | 79 | 2C | 7 | R681 | B | 46 | 174 | 7E | 11 | R750 | A | 208 | 130 | 11E | 8 |
| R620 | A | 196 | 81 | 2B | 7 | R682 | B | 49 | 185 | 7D | 11 | R751 | A | 201 | 123 | 11E | 8 |
| R621 | B | 231 | 80 | 5E | 7 | R683 | B | 63 | 187 | 8D | 11 | R753 | A | 201 | 133 | 11E | 8 |
| R622 | B | 186 | 69 | 3E | 7 | R684 | B | 65 | 187 | 8D | 11 | R754 | A | 196 | 120 | 11E | 8 |
| R623 | B | 231 | 77 | 6E | 7 | R685 | A | 48 | 190 | 8E | 11 | R755 | A | 203 | 126 | 11E | 8 |
| R624 | B | 231 | 74 | 6E | 7 | R686 | A | 42 | 187 | 8E | 11 | R760 | B | 228 | 121 | 11C | 8 |
| R625 | B | 231 | 72 | 6E | 7 | R687 | B | 75 | 182 | 9C | 11 | R761 | B | 236 | 109 | 11C | 8 |
| R626 | B | 228 | 69 | 6D | 7 | R688 | B | 83 | 190 | 8C | 11 | R762 | A | 182 | 113 | 7E | 8 |
| R627 | B | 230 | 66 | 6D | 7 | R689 | A | 79 | 190 | 9C | 11 | R765 | B | 100 | 185 | 2E | 12 |
| R628 | B | 230 | 64 | 6D | 7 | R690 | B | 70 | 189 | 9C | 11 | R766 | A | 100 | 177 | 2D | 12 |
| R629 | B | 186 | 67 | 3E | 7 | R691 | B | 53 | 172 | 10C | 11 | R767 | A | 113 | 181 | 2C | 12 |
| R630 | B | 264 | 24 | 5C | 7 | R692 | A | 75 | 177 | 9C | 11 | R768 | B | 119 | 182 | 2D | 12 |
| R631 | B | 264 | 15 | 5B | 7 | R693 | A | 69 | 172 | 10C | 11 | R769 | A | 104 | 171 | 2D | 12 |
| R632 | B | 241 | 64 | 6D | 7 | R694 | A | 70 | 182 | 9C | 11 | R770 | B | 119 | 180 | 3D | 12 |
| R633 | A | 212 | 63 | 2C | 7 | R695 | A | 58 | 175 | 10C | 11 | R771 | A | 111 | 174 | 3C | 12 |
| R634 | B | 264 | 21 | 5C | 7 | R696 | A | 89 | 183 | 10C | 11 | R772 | B | 109 | 185 | 3D | 12 |
| R635 | A | 206 | 72 | 2A | 7 | R697 | A | 91 | 183 | 11C | 11 | R773 | A | 118 | 185 | 3C | 12 |
| R636 | A | 206 | 74 | 2B | 7 | R698 | A | 83 | 178 | 10C | 11 | R774 | B | 121 | 188 | 3C | 12 |
| R637 | A | 213 | 85 | 3B | 7 | R699 | A | 89 | 173 | 11C | 11 | R776 | B | 124 | 182 | 4E | 12 |
| R638 | A | 213 | 83 | 3A | 7 | R700 | B | 154 | 111 | 2D | 8 | R777 | B | 135 | 185 | 4E | 12 |
| R639 | A | 217 | 83 | 3A | 7 | R701 | B | 154 | 121 | 2D | 8 | R779 | A | 187 | 149 | 6C | 12 |
| R640 | B | 258 | 46 | 6C | 7 | R702 | B | 153 | 124 | 3D | 8 | R780 | A | 232 | 166 | 6B | 12 |
| R641 | B | 269 | 69 | 8D | 7 | R703 | B | 225 | 138 | 10C | 8 | R781 | A | 191 | 156 | 6C | 12 |
| R642 | B | 243 | 67 | 7D | 7 | R704 | A | 150 | 126 | 2D | 8 | R782 | A | 207 | 179 | 6B | 12 |
| R644 | B | 264 | 88 | 8D | 7 | R705 | A | 142 | 122 | 3E | 8 | R783 | A | 172 | 168 | 6C | 12 |
| R645 | B | 252 | 80 | 9D | 7 | R706 | B | 169 | 128 | 4C | 8 | R784 | A | 205 | 187 | 6B | 12 |
| R646 | B | 249 | 79 | 9D | 7 | R707 | B | 169 | 118 | 4C | 8 | R785 | B | 197 | 148 | 6E | 12 |
| R647 | B | 241 | 81 | 9E | 7 | R708 | B | 215 | 138 | 10C | 8 | R786 | B | 197 | 154 | 6D | 12 |

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| Part | Side | X | Y | Sqr | Pg | Part | Side | X | Y | Sqr | Pg | Part | Side | X | Y | Sqr | Pg |
|------|------|-----|-----|-----|----|------|------|-----|-----|-----|----|--------|------|-----|-----|-----|----|
| R787 | B | 168 | 170 | 7C | 12 | R850 | A | 288 | 110 | 5B | 9 | V404 | A | 23 | 77 | 4C | 5 |
| R788 | B | 203 | 190 | 8C | 12 | R851 | B | 293 | 93 | 5B | 9 | V405 | A | 22 | 91 | 4C | 5 |
| R789 | B | 206 | 179 | 8D | 12 | R852 | A | 295 | 89 | 5B | 9 | V410 | B | 54 | 72 | 6D | 5 |
| R790 | B | 234 | 164 | 8E | 12 | R853 | B | 285 | 75 | 8D | 9 | V411 | A | 40 | 66 | 4E | 5 |
| R791 | B | 276 | 182 | 11E | 12 | R854 | A | 287 | 72 | 5B | 9 | V431 | A | 102 | 95 | 11E | 5 |
| R792 | B | 273 | 189 | 11E | 12 | R855 | A | 287 | 70 | 6B | 9 | V432 | A | 124 | 95 | 11E | 5 |
| R793 | A | 140 | 182 | 5D | 12 | R856 | A | 277 | 26 | 7B | 9 | V433 | A | 132 | 96 | 11D | 5 |
| R794 | A | 142 | 182 | 5A | 12 | R857 | A | 288 | 41 | 7B | 9 | V434 | A | 65 | 103 | 11D | 5 |
| R800 | B | 271 | 147 | 2D | 9 | R858 | A | 291 | 112 | 5B | 9 | V435 | A | 96 | 109 | 11D | 5 |
| R801 | B | 263 | 158 | 3D | 9 | R859 | A | 288 | 107 | 5B | 9 | V436 | A | 106 | 118 | 11C | 5 |
| R802 | A | 275 | 149 | 2E | 9 | R860 | B | 283 | 75 | 8D | 9 | V437 | A | 101 | 134 | 11C | 5 |
| R803 | A | 262 | 148 | 3E | 9 | R861 | A | 295 | 43 | 8B | 9 | V438 | A | 75 | 115 | 11C | 5 |
| R804 | A | 276 | 161 | 3E | 9 | R862 | A | 283 | 79 | 5C | 9 | V500 | B | 71 | 84 | 2E | 6 |
| R805 | A | 265 | 158 | 3E | 9 | R863 | A | 295 | 46 | 8B | 9 | V511 | B | 99 | 77 | 4E | 6 |
| R806 | A | 271 | 169 | 3F | 9 | R866 | A | 277 | 47 | 6C | 9 | V512 | B | 103 | 77 | 5E | 6 |
| R807 | A | 261 | 166 | 3F | 9 | R867 | B | 283 | 32 | 7C | 9 | V514 | B | 109 | 75 | 6E | 6 |
| R808 | B | 286 | 107 | 7D | 9 | R868 | A | 277 | 35 | 7C | 9 | V515 | B | 123 | 77 | 6E | 6 |
| R809 | B | 294 | 130 | 5D | 9 | R869 | A | 282 | 41 | 8C | 9 | V516 | B | 131 | 75 | 7E | 6 |
| R810 | A | 297 | 138 | 5E | 9 | R870 | A | 278 | 87 | 9B | 9 | V520 | B | 144 | 101 | 9E | 6 |
| R811 | A | 290 | 138 | 5E | 9 | R871 | A | 278 | 90 | 10B | 9 | V523 | B | 143 | 107 | 9D | 6 |
| R812 | A | 282 | 138 | 5E | 9 | R872 | A | 300 | 79 | 11B | 9 | V530 | B | 67 | 87 | 1C | 6 |
| R813 | B | 288 | 130 | 5D | 9 | R873 | A | 296 | 84 | 11B | 9 | V532 | B | 63 | 98 | 1B | 6 |
| R815 | B | 291 | 127 | 5D | 9 | R874 | A | 296 | 76 | 11C | 9 | V535 | B | 63 | 105 | 3B | 6 |
| R816 | B | 274 | 110 | 6D | 9 | R875 | A | 300 | 71 | 10C | 9 | V536 | B | 70 | 113 | 3B | 6 |
| R817 | B | 294 | 120 | 6D | 9 | R876 | A | 281 | 84 | 10B | 9 | V539 | B | 72 | 121 | 5B | 6 |
| R818 | B | 284 | 117 | 6D | 9 | R880 | B | 288 | 92 | 7E | 9 | V540 | B | 78 | 124 | 5B | 6 |
| R819 | B | 282 | 101 | 7D | 9 | R882 | A | 293 | 160 | 7F | 9 | V543 | B | 82 | 125 | 7B | 6 |
| R820 | A | 278 | 107 | 7E | 9 | R887 | A | 264 | 136 | 10E | 9 | V544 | B | 96 | 127 | 7B | 6 |
| R821 | A | 297 | 178 | 6E | 9 | R889 | B | 276 | 83 | 8D | 9 | V548 | B | 96 | 123 | 10E | 6 |
| R822 | A | 295 | 164 | 7E | 9 | R898 | B | 286 | 24 | 9C | 9 | V600 | B | 175 | 82 | 2E | 7 |
| R823 | A | 281 | 164 | 7F | 9 | R899 | A | 280 | 27 | 7B | 9 | V602 | B | 170 | 71 | 2D | 7 |
| R824 | A | 278 | 169 | 7F | 9 | U600 | B | 258 | 56 | 6D | 7 | V604-A | B | 187 | 72 | 2D | 7 |
| R825 | A | 281 | 167 | 8E | 9 | U666 | B | 34 | 154 | 5D | 11 | V604-B | | | | 2D | 7 |
| R826 | A | 290 | 160 | 7F | 9 | V11 | B | 219 | 46 | 7C | 2 | V606-A | A | 203 | 64 | 3C | 7 |
| R827 | A | 278 | 172 | 7F | 9 | V12 | B | 217 | 53 | 8C | 2 | V606-B | | | | 2B | 7 |
| R828 | B | 288 | 120 | 6D | 9 | V13 | A | 215 | 36 | 10C | 2 | V608 | A | 199 | 62 | 3C | 7 |
| R829 | B | 285 | 72 | 9D | 9 | V14 | B | 107 | 30 | 3F | 2 | V610 | B | 260 | 85 | 8D | 7 |
| R830 | B | 281 | 66 | 9D | 9 | V15 | B | 105 | 34 | 3F | 2 | V612 | B | 242 | 95 | 9D | 7 |
| R831 | A | 278 | 72 | 9E | 9 | V25 | B | 209 | 29 | 3C | 2 | V635 | A | 213 | 80 | 3A | 7 |
| R832 | A | 266 | 120 | 9E | 9 | V26 | B | 203 | 29 | 3C | 2 | V636 | B | 202 | 85 | 3A | 7 |
| R834 | A | 262 | 123 | 9E | 9 | V35 | A | 241 | 11 | 6A | 2 | V656 | A | 206 | 64 | 2B | 7 |
| R835 | A | 267 | 135 | 9F | 9 | V110 | B | 225 | 51 | 8B | 10 | V670 | B | 117 | 151 | 2D | 11 |
| R836 | A | 268 | 132 | 9F | 9 | V130 | B | 120 | 56 | 10C | 10 | V671 | B | 79 | 151 | 3D | 11 |
| R837 | A | 255 | 129 | 9F | 9 | V134 | B | 248 | 169 | 10B | 10 | V680 | A | 65 | 187 | 9B | 11 |
| R838 | A | 252 | 126 | 9F | 9 | V200 | A | 68 | 24 | 10D | 3 | V681 | A | 53 | 178 | 10B | 11 |
| R839 | B | 286 | 65 | 9D | 9 | V310 | B | 21 | 30 | 5D | 4 | V682 | A | 85 | 187 | 10B | 11 |
| R841 | B | 291 | 16 | 11D | 9 | V315 | B | 21 | 44 | 7D | 4 | V683 | A | 96 | 187 | 11B | 11 |
| R842 | B | 289 | 16 | 11D | 9 | V318 | A | 17 | 23 | 5C | 4 | V700-A | B | 157 | 117 | 2D | 8 |
| R843 | B | 295 | 19 | 11D | 9 | V319 | A | 26 | 32 | 6C | 4 | V700-B | | | | 2D | 8 |
| R844 | B | 281 | 20 | 9C | 9 | V330 | A | 17 | 51 | 7C | 4 | V705 | B | 169 | 134 | 4C | 8 |
| R845 | B | 281 | 23 | 8B | 9 | V333 | A | 20 | 44 | 7C | 4 | V707 | B | 169 | 104 | 5C | 8 |
| R846 | B | 280 | 30 | 8C | 9 | V335 | B | 80 | 39 | 8C | 3 | V715 | A | 231 | 124 | 10D | 8 |
| R847 | A | 267 | 126 | 9F | 9 | V336 | B | 79 | 35 | 8C | 3 | V716 | A | 232 | 135 | 10D | 8 |
| R848 | B | 286 | 36 | 8C | 9 | V337 | B | 76 | 37 | 9C | 3 | V717 | A | 225 | 120 | 10D | 8 |
| R849 | B | 276 | 57 | 10D | 9 | V400 | B | 33 | 80 | 4D | 5 | V718 | A | 225 | 139 | 10D | 8 |

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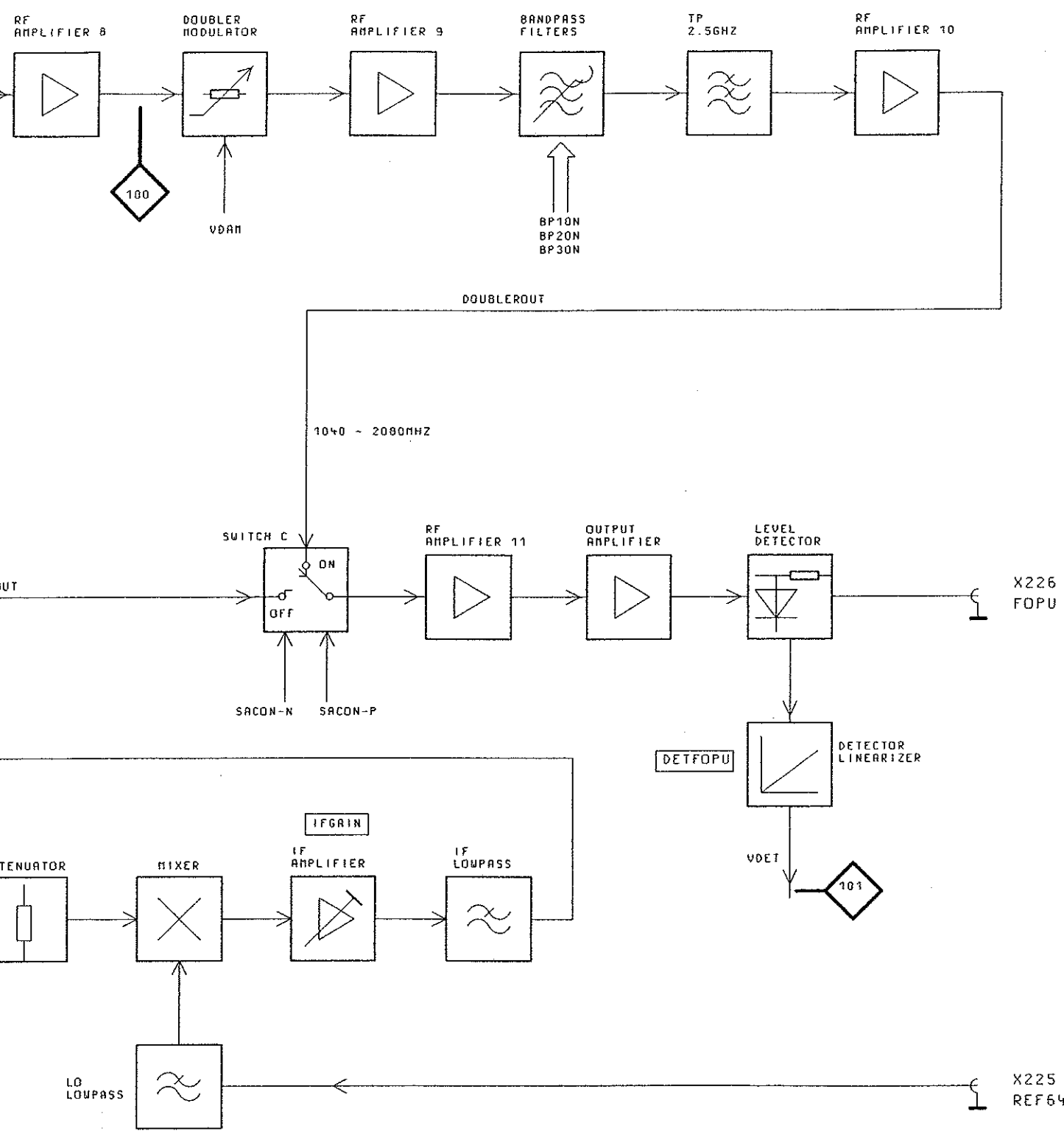
| Part | Side | X | Y | Sqr | Pg | Part | Side | X | Y | Sqr | Pg | Part | Side | X | Y | Sqr | Pg |
|------|------|-----|-----|-----|----|--------|------|-----|-----|-----|----|--------|------|-----|-----|-----|----|
| V720 | B | 182 | 136 | 4D | 8 | V787 | B | 222 | 186 | 8D | 12 | V875-B | | | | 8E | 11 |
| V725 | B | 183 | 116 | 5E | 8 | V801 | B | 284 | 157 | 4D | 9 | V876 | B | 84 | 175 | 11D | 11 |
| V730 | B | 181 | 109 | 6D | 8 | V802 | A | 277 | 149 | 2E | 9 | V877 | B | 75 | 175 | 9D | 11 |
| V735 | B | 190 | 96 | 7D | 8 | V803 | A | 262 | 156 | 3E | 9 | VC1 | B | 126 | 36 | 4E | 2 |
| V745 | A | 215 | 134 | 11D | 8 | V804 | A | 275 | 159 | 3E | 9 | VC2 | B | 116 | 35 | 4E | 2 |
| V746 | A | 213 | 120 | 12D | 8 | V805 | A | 265 | 156 | 3E | 9 | W1A | B | 210 | 135 | 10B | 8 |
| V747 | A | 210 | 128 | 11E | 8 | V814 | A | 284 | 160 | 7F | 9 | W1B | B | 210 | 135 | 1D | 11 |
| V748 | A | 207 | 123 | 11E | 8 | V815 | A | 298 | 169 | 7E | 9 | X2A | B | 189 | 11 | 2C | 2 |
| V750 | A | 193 | 124 | 11E | 8 | V816 | A | 289 | 174 | 7E | 9 | X2B | B | 189 | 11 | | |
| V751 | A | 196 | 126 | 11E | 8 | V817 | B | 284 | 101 | 7D | 9 | X205 | B | 70 | 40 | 10B | 3 |
| V752 | A | 200 | 130 | 11E | 8 | V827 | A | 261 | 126 | 9F | 9 | X224 | B | 17 | 15 | 1D | 4 |
| V753 | A | 191 | 124 | 11E | 8 | V828 | A | 287 | 167 | 8F | 9 | X225 | B | 258 | 15 | 5B | 7 |
| V765 | A | 113 | 184 | 2C | 12 | V829 | A | 285 | 169 | 7F | 9 | X226 | B | 283 | 15 | 12D | 9 |
| V766 | A | 119 | 173 | 3C | 12 | V830 | A | 264 | 116 | 9E | 9 | Z1 | B | 118 | 20 | 2E | 2 |
| V768 | B | 103 | 173 | 2D | 12 | V831 | A | 256 | 116 | 9E | 9 | Z2 | B | 131 | 17 | 2E | 2 |
| V769 | B | 123 | 175 | 4D | 12 | V832 | B | 283 | 65 | 9D | 9 | Z3 | B | 100 | 20 | 2D | 2 |
| V770 | B | 183 | 148 | 6E | 12 | V833 | A | 259 | 135 | 9F | 9 | Z4 | B | 141 | 20 | 2D | 2 |
| V771 | B | 183 | 157 | 6D | 12 | V834 | A | 257 | 138 | 10F | 9 | Z5 | B | 187 | 20 | 2D | 2 |
| V772 | B | 172 | 163 | 6D | 12 | V844-A | B | 286 | 26 | 8C | 9 | Z6 | B | 194 | 20 | 2C | 2 |
| V773 | B | 237 | 177 | 8E | 12 | V844-B | | | | 7C | 9 | Z7 | B | 169 | 20 | 2C | 2 |
| V774 | B | 214 | 179 | 8D | 12 | V850-A | A | 285 | 45 | 7B | 9 | Z8 | B | 164 | 20 | 2B | 2 |
| V775 | B | 214 | 186 | 8D | 12 | V850-B | | | | 6B | 9 | Z9 | B | 174 | 20 | 2B | 2 |
| V780 | B | 265 | 183 | 11D | 12 | V853 | A | 291 | 77 | 6C | 9 | Z10 | B | 146 | 20 | 2B | 2 |
| V782 | B | 174 | 148 | 6E | 12 | V857 | A | 288 | 30 | 7B | 9 | Z11 | B | 113 | 20 | 2F | 2 |
| V783 | B | 175 | 150 | 6D | 12 | V870 | A | 277 | 92 | 10B | 9 | Z20 | B | 126 | 17 | 2E | 2 |
| V784 | B | 172 | 151 | 6D | 12 | V871 | B | 271 | 112 | 10B | 9 | Z700 | B | 222 | 149 | 7E | 12 |
| V785 | B | 224 | 183 | 8E | 12 | V874 | B | 35 | 181 | 6D | 11 | Z710 | B | 197 | 164 | 7D | 12 |
| V786 | B | 222 | 184 | 8D | 12 | V875-A | B | 58 | 186 | 8D | 11 | Z720 | B | 174 | 178 | 7D | 12 |


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|-----------------------|----|---------------|--|-------------------------|---------------|
| | 03 | 17.06.96 | EE AUSGANGSTEIL_2.08GHZ OUTPUT_UNIT_2.08GHZ | 1062.7005.01 XY | 8- |

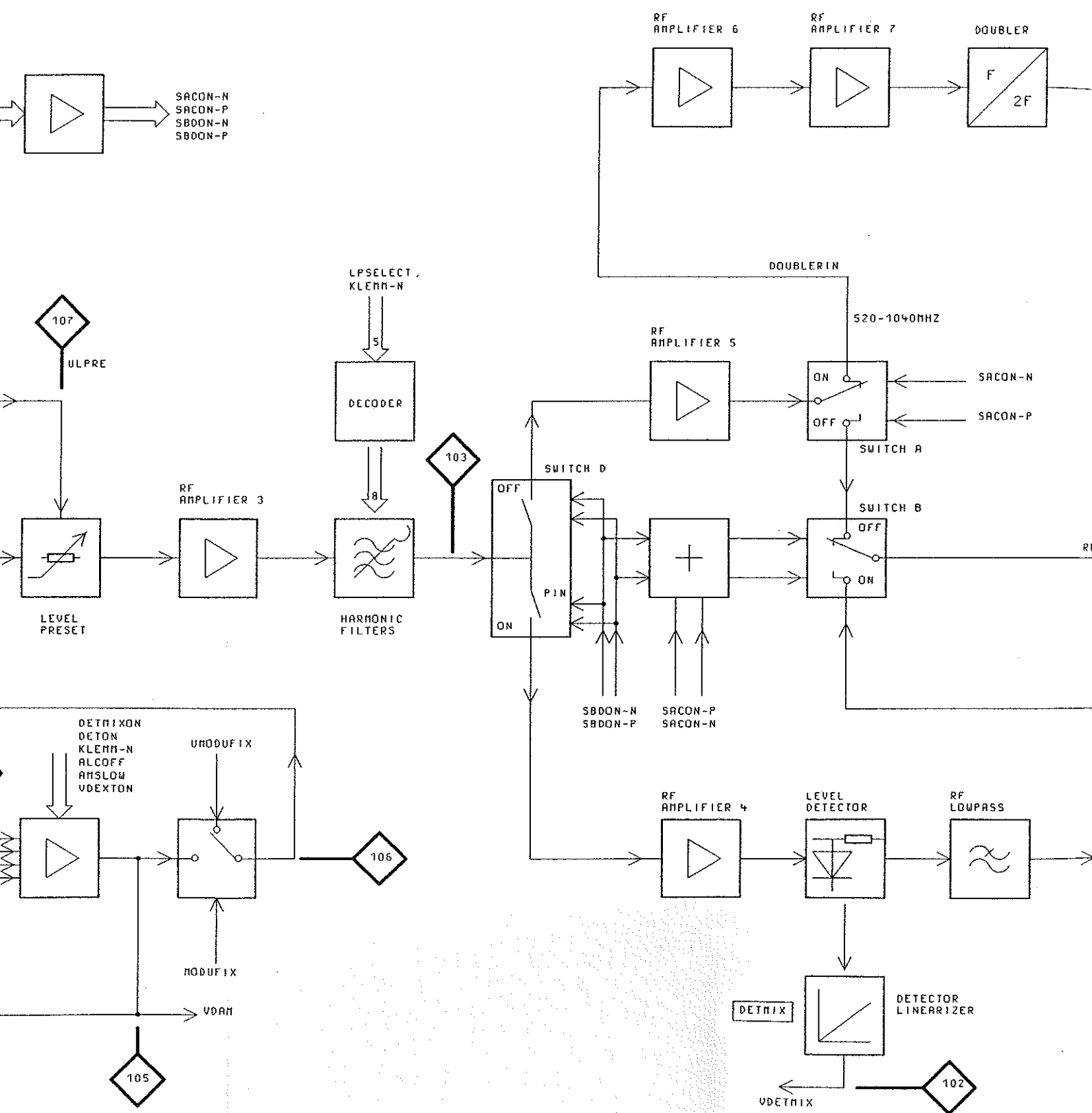


ROHDE & SCHWARZ

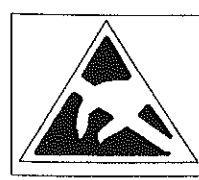
Stromläufe
Bestückungspläne
Circuit diagrams
Components plans
Schémas de circuit
Plans des composants



| | | | | | | | | | |
|------------|----------------------|----------|------|---|---------------|------------|---|----------|-----------|
| 04/02 | | 03.03.97 | E I | MENP | TAG | NAME | BENENNUNG | | |
| | | | | BEARB. | | E I | AUSGANGSTEIL 2.08GHZ OUTPUT UNIT 2.08GHZ | | |
| | | | | GEPR. | | | | | |
| | | | | NORM | | | | | |
| | | | | PLOTT | 03.03.97 | | | | |
| 04/01 | | 16.12.96 | E I |  ROHDE & SCHWARZ | ZEICHN.-NR. | | BLATT-NR. | | |
| REND. IND. | ÄNDERUNGS-MITTEILUNG | DATUM | NAME | | 1062.7005.01S | | 1+ | | |
| | | | | ZU GERÄT | SMY | REG. I. V. | 1062.5502 | ERSTE Z. | 1062.5502 |

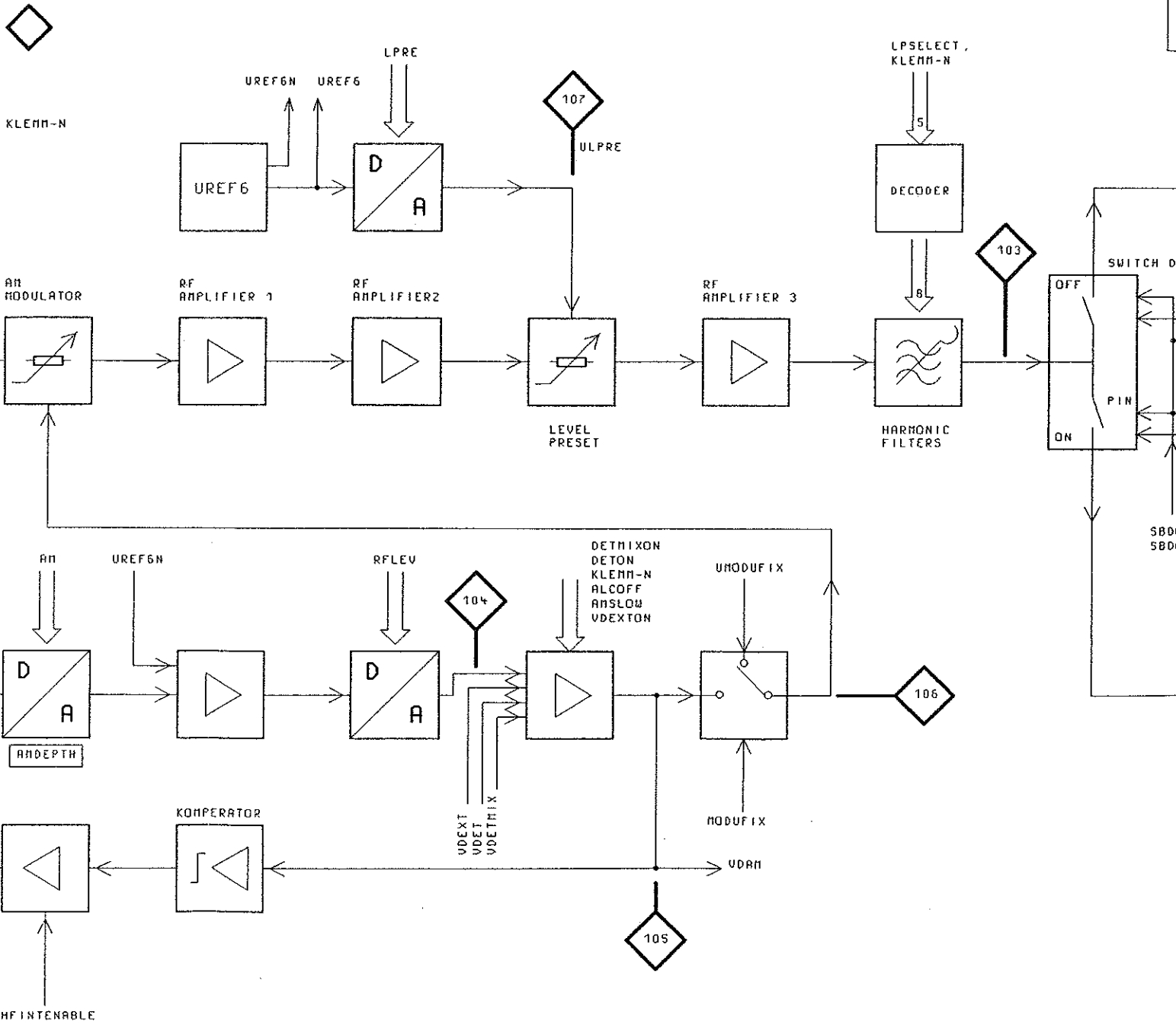
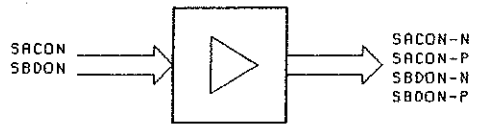


BINDENDE ANGABEN UEBER VARIANTEN,
 TRIMMWERTE, BAUTEILWERTE UND
 NICHT BESTUECKTE BAUTEILE SIEHE SA.
 FOR BINDING INFORMATION ON MODELS,
 TRIMMING AND COMPONENTS VALUES AND
 NONFITTED COMPONENTS SEE PARTS LIST.



ACHTUNG: ESB!
 ELEKTROSTATISCH GEFAEHRDETE
 BAUELEMENTE ERFORDERN EINE
 BESONDERE HANDHABUNG.
 ATTENTION ESD!
 ELECTROSTATIC SENSITIVE DEVICES
 REQUIRE A SPECIAL HANDLING

AMINVERS
 HFINTENABE
 BLANKINVERS
 BLANKENABE
 AM
 LPRE
 RFLEV
 LPSELECT
 SB00N
 SACON
 BP10N
 BP20N
 BP30N
 MODUFIX
 DETNIXON
 VDEXTON
 DETON
 RFLEVENABE
 ALCOFF
 ANSLOW



BINDENDE ANGABEN UEBER VARI
 TRIMMWERTE, BAUTEILWERTE UN
 NICHT BESTUECKTE BAUTEILE S
 FOR BINDING INFORMATION ON
 TRIMMING AND COMPONENTS VAL
 NONFITTED COMPONENTS SEE PA

X2

11, 13, 18,
20, 21, 23,
27, 29, 31

GND

22 → UA24-P → +24V
24, 25 → UA15-P → +15V
28 → UA5-P → +5V
30 → UA15-N → -15V

AMINVERS
HFINTENABLE
BLANKINVERS
BLANKENABLE
AM
LPRE
RFLEV
RFLEVEV
LPSELECT
SB00N
SACON
BP10N
BP20N
BP30N
MODU FIX
DETRIXON
VDEXTON
DETON
RFLEVENABLE
ALCOFF
ANSLOW

14 → SERDAT
15 → AT1STB
12 → SERCLK



DIAG
DIAGON

19 → DIAG-SV

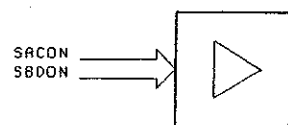


1 → BLANK



BLANKINVERS
BLANKENABLE
RFLEVENABLE

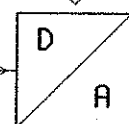
KLEMM-N



SACON-N
SACON-P
SB00N-N
SB00N-P

UREF6N UREF6

LPRE



ULPRE

TEMP. KOMPENSATION

AM MODULATOR

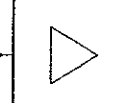
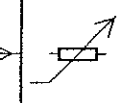
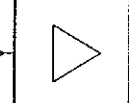
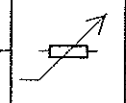
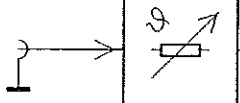
RF AMPLIFIER 1

RF AMPLIFIER 2

LEVEL PRESET

RF AMPLIFIER

X224
FSYN



5 → VDEXT

AMINVERS

AM

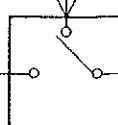
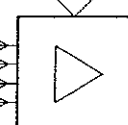
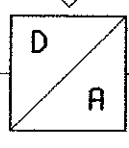
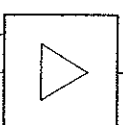
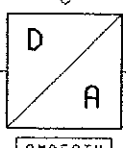
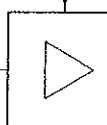
UREF6N

RFLEV

DETRIXON
DETON
KLEMM-N
ALCOFF
ANSLOW
VDEXTON

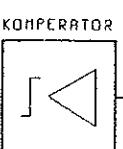
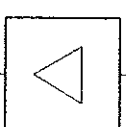
MODU FIX

7 → AMMOD



B

17 → HFINT



UDAM

HFINTENABLE

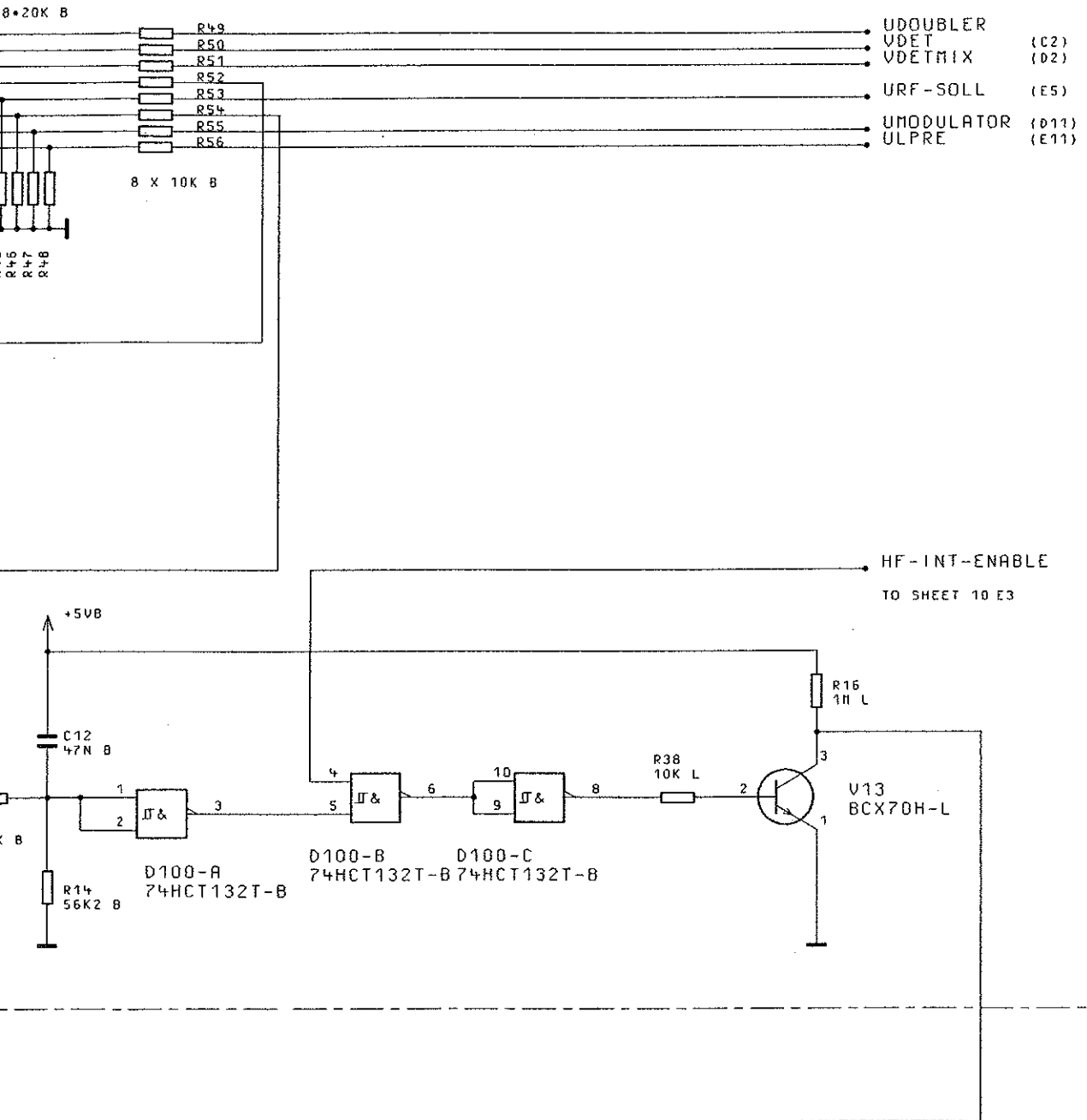
BEHALTEN DIR UNS ALLE RECHTE VOR

1

2


3

4



BECKT BINDENDE ANGABEN UEBER VARIANTEN, TRIMMWERTE, BAUTEILWERTE UND NICHT BESTUECKTE BAUTEILE SIEHE SA.

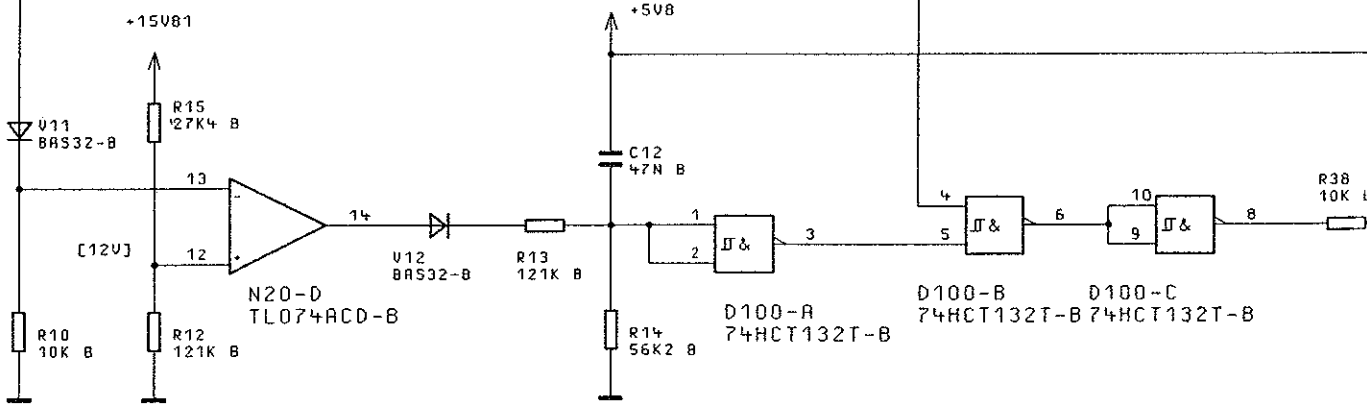
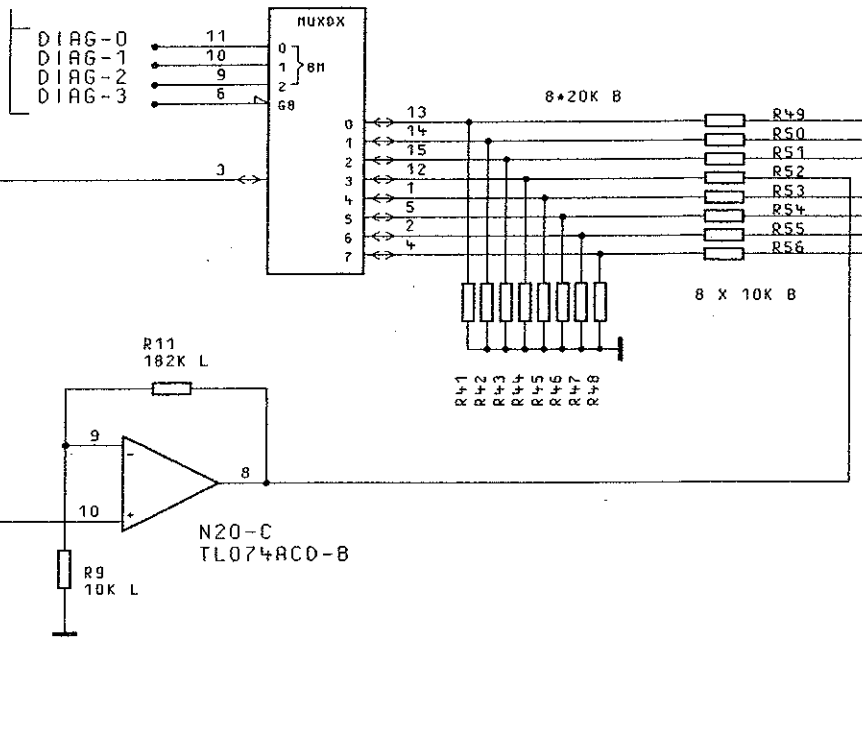
FOR BINDING INFORMATION ON MODELS, TRIMMING AND COMPONENTS VALUES AND NONFITTED COMPONENTS SEE PARTS LIST.

| | | | | | | | | |
|------------|-----------------------|----------|------|---|----------|-------------|----------------------|--------------------|
| 04/02 | | 03.03.97 | E I | MENP | TAG | NAME | BENENNUNG | |
| | | | | BEARB. | | E I | AUSGANGSTEIL 2.08GHZ | |
| | | | | GEPR. | | | OUTPUT UNIT 2.08GHZ | |
| | | | | NORM | | | | |
| | | | | PLOTT | 03.03.97 | | | |
| 04/01 | | 16.12.96 | E I | | | ZEICHN.-NR. | 1062.7005.019 | BLATT-NR. 2+ |
| REND. IND. | RENDERUNGS-HITTEILUNG | DATUM | NAME |  ROHDE & SCHWARZ | | REG. I. V. | 1062.5502 | ERSTE Z. 1062.5502 |
| | | | | ZU GERÄT | SMY | | | |

DIAGNOSE

SHEET 10/E3

D10-A
74HCT4051T-B

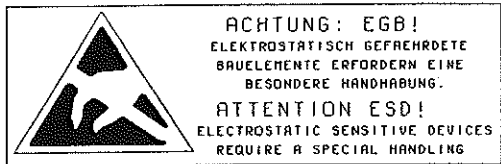
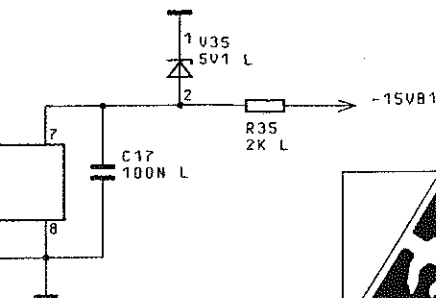


74051T-B

N.F. - NOT FITTED / NICHT BESTUECKT

BINDENDE ANGABEN UEBER VARIANTEN,
TRIMMWERTE, BAUTEILWERTE UND
NICHT BESTUECKTE BAUTEILE SIEHE SA.

FOR BINDING INFO
TRIMMING AND COM
NONFITTED COMPON



| | | | | | | |
|---------------|---------------------------|----------|------|--|----------|-----|
| 04/02 | | 03.03.97 | E I | MENP | TAG | NAM |
| | | | | BEARB. | | E |
| | | | | GEPR. | | |
| | | | | NDRH | | |
| | | | | PLOTT | 03.03.97 | |
| 04/01 | | 16.12.96 | E I | | | |
| REND. IND. | RENDERUNGS- MITTEILUNG | DATUM | NAME | ROHDE & SCHWARZ ZU GERÄT SMY | | |
| | | | | | | |

EXT

5V81
5V83
5V84

5V81
5V83
5V84

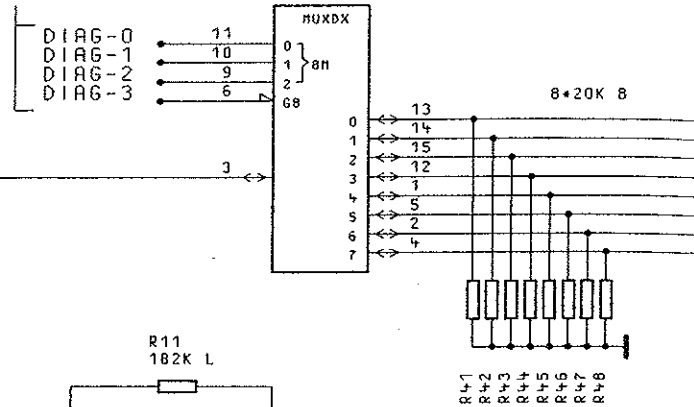
VH

VB

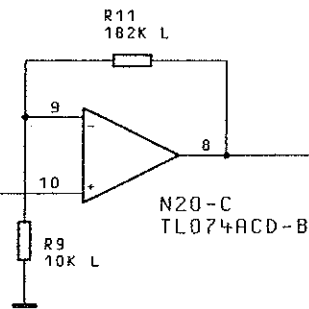
DIAGNOSE

SHEET 10/E3

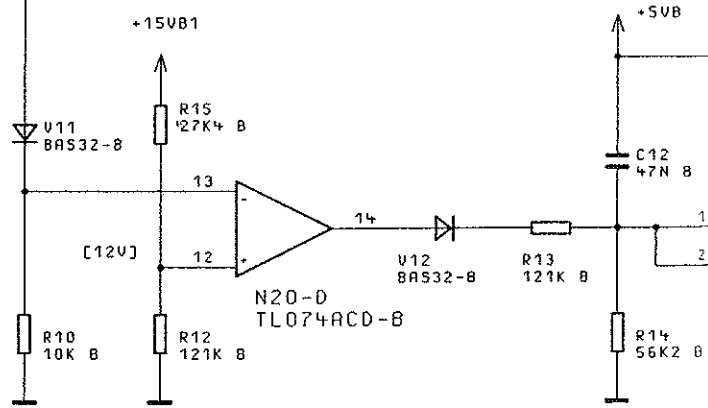
D10-A
74HCT4051T-B



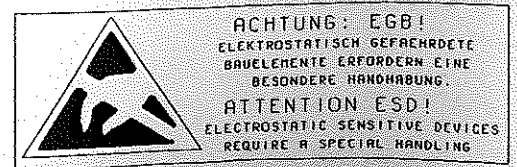
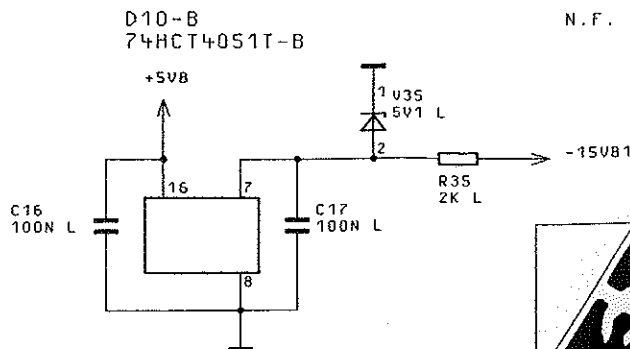
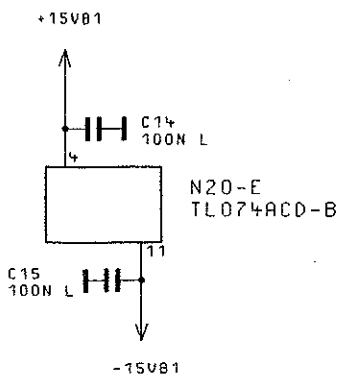
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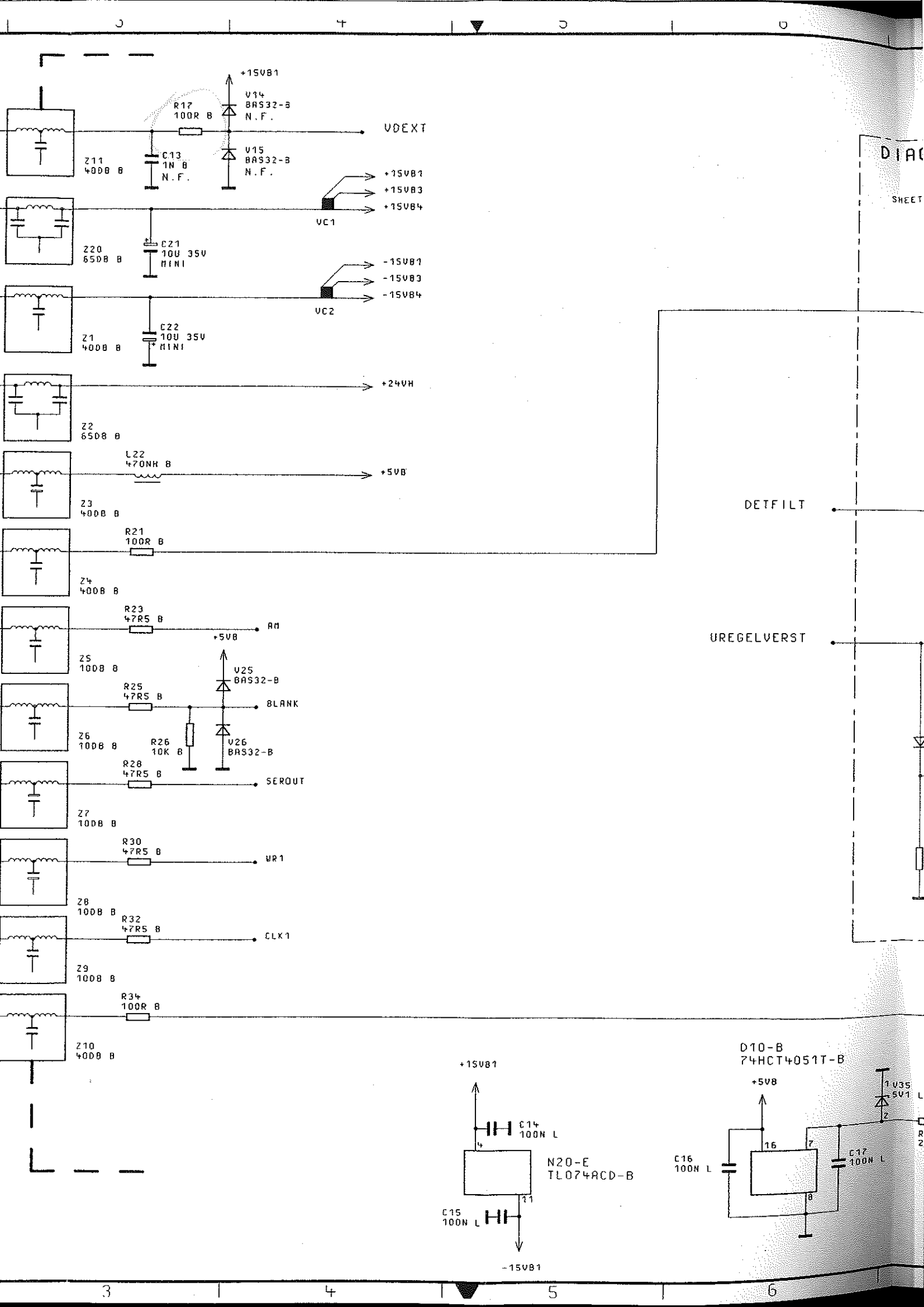


UREGELVERST

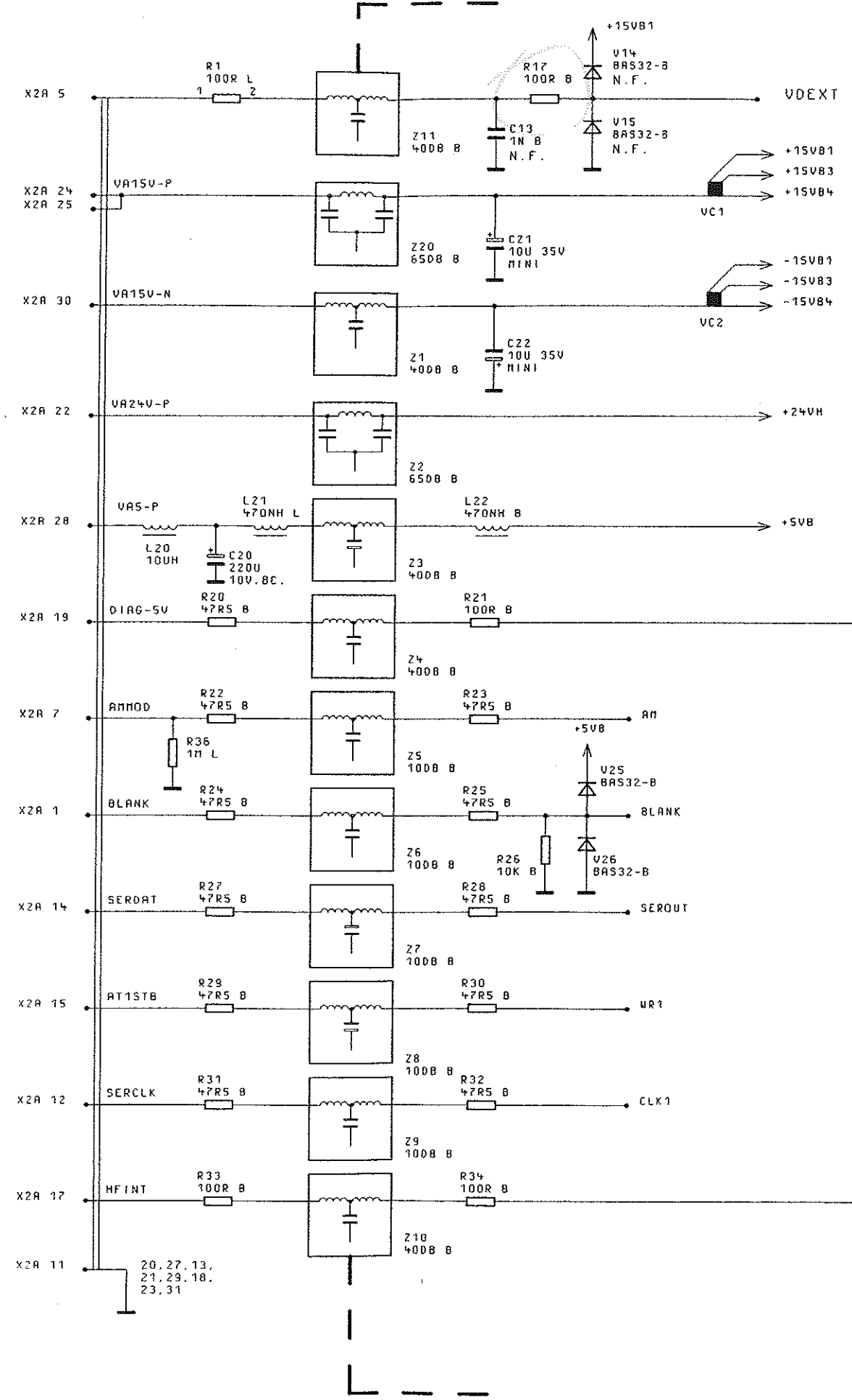


N.F. = NOT FITTED / NICHT BESTUECKT





BEHALTEN MIR UNS ALLE RECHTE VOR
FUER DIESE UNTERLAGE

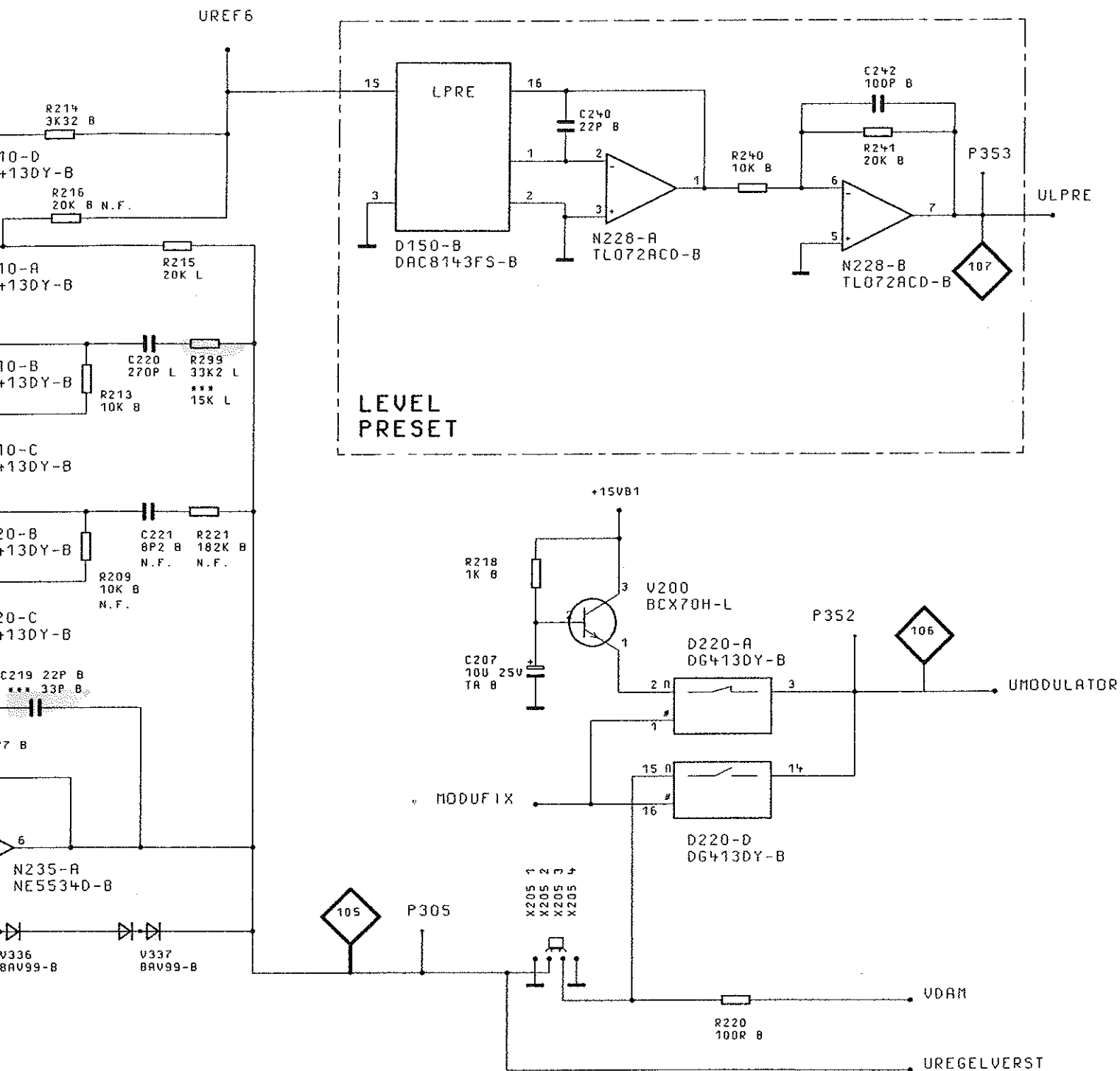


C15
100N L

P306
P305

P352

P353



N.F. - NOT FITTED / NICHT BESTUECKT

-B
2ACD-B

** - VAR. 04 / MOD. 04

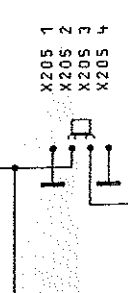
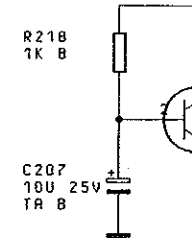
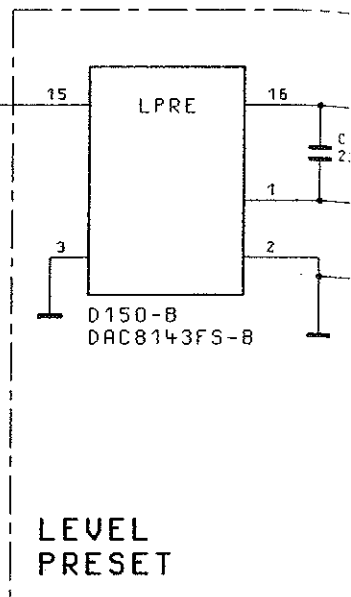
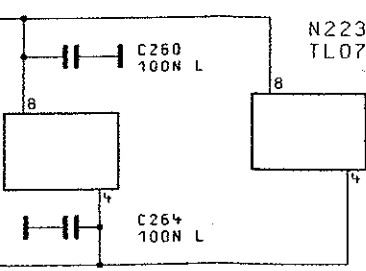
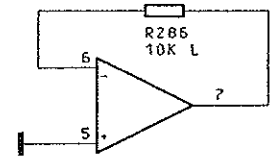
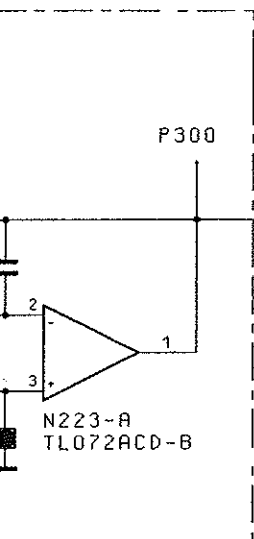
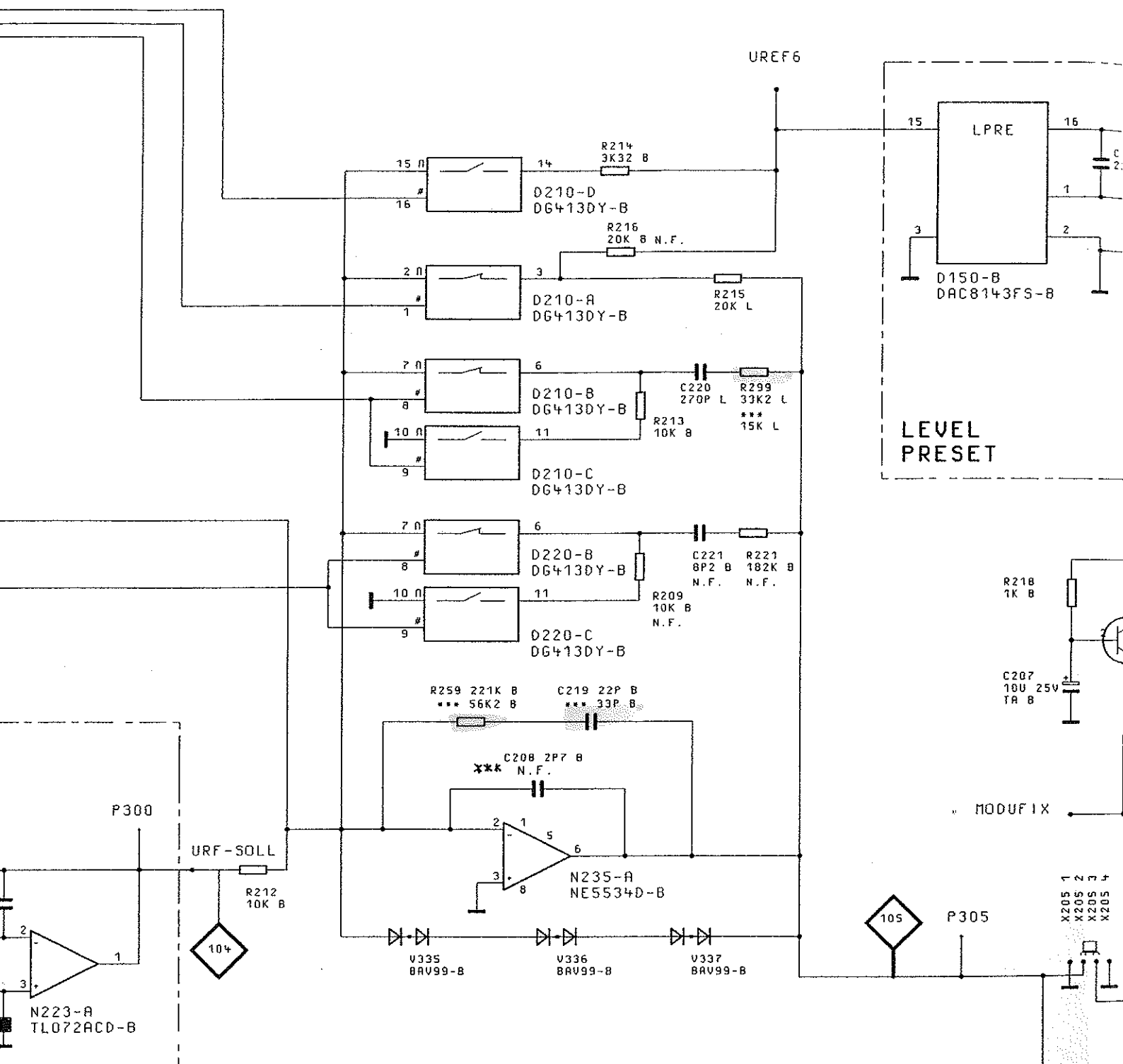
*** - MIT/WITH OPTION SHY-B40

BINDENDE ANGABEN UEBER VARIANTEN,
TRIMMWERTE, BAUTEILWERTE UND
NICHT BESTUECKTE BAUTEILE SIEHE SA.

FOR BINDING INFORMATION ON MODELS,
TRIMMING AND COMPONENTS VALUES AND
NONFITTED COMPONENTS SEE PARTS LIST.

| | | | | | | | |
|---------------|--------------------------|-------|--------|------------------------------|------|---|-----------------|
| 04/02 | 03.03.97 | E I | MENP | TAG | NAME | BENENNUNG | |
| | | | BEARB. | | E I | AUSGANGSTEIL 2.08GHZ OUTPUT UNIT 2.08GHZ | |
| | | | GEPR. | | | | |
| | | | NORM | | | | |
| | | | PLOTT | 03.03.97 | | | |
| 04/01 | 16.12.96 | E I | | | | ZEICHN.-NR. | BLATT-NR. 3+ |
| REND. IND. | ÄNDERUNGS- MITTEILUNG | DATUM | NAME | ROHDE&SCHWARZ | | 1062.7005.01S | |
| | | | | | | ZU GERÄT | SHY |
| | | | | | | ERSTE Z. | 1062.5502 |

BEI
ÄNDERUNGEN
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ÄNDERUNGEN
SIND
ÄNDERUNGEN
SIND



N.F. - NOT FITTED / NICHT BESTUECKT
 ** - VAR. 04 / MOD. 04
 *** - MIT/WITH OPTION SMY-B40

BINDENDE ANGABEN UEBER VARIANTEN,
 TRIMMWERTE, BAUTEILWERTE UND
 NICHT BESTUECKTE BAUTEILE SIEHE SA.

FOR BINDING
 TRIMMING AND
 NONFITTED CO

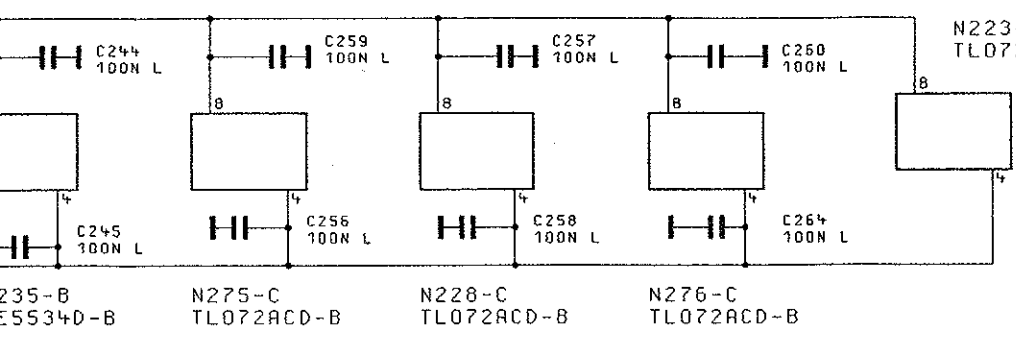
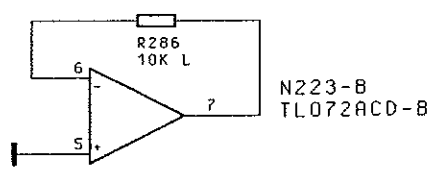
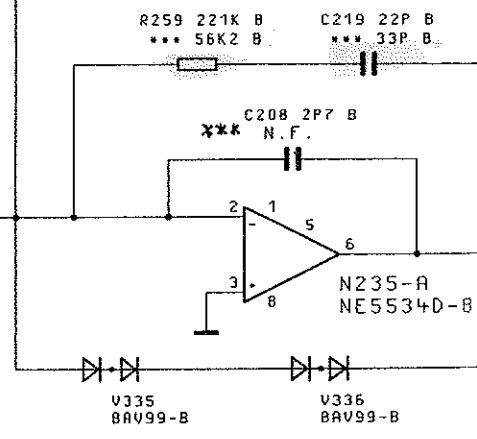
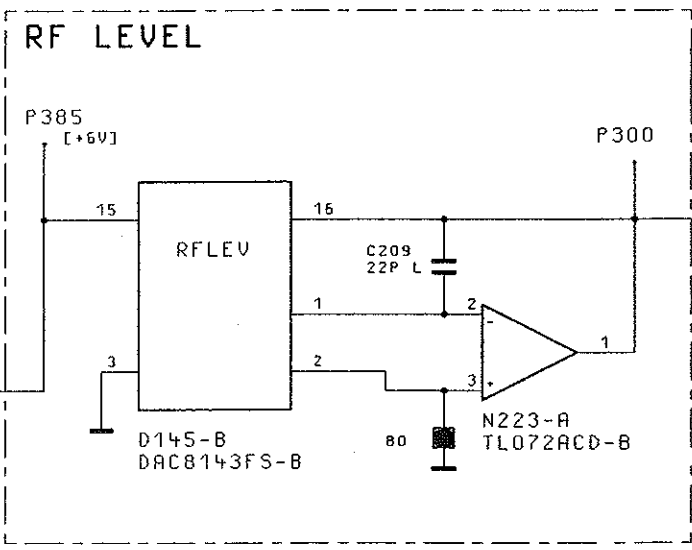
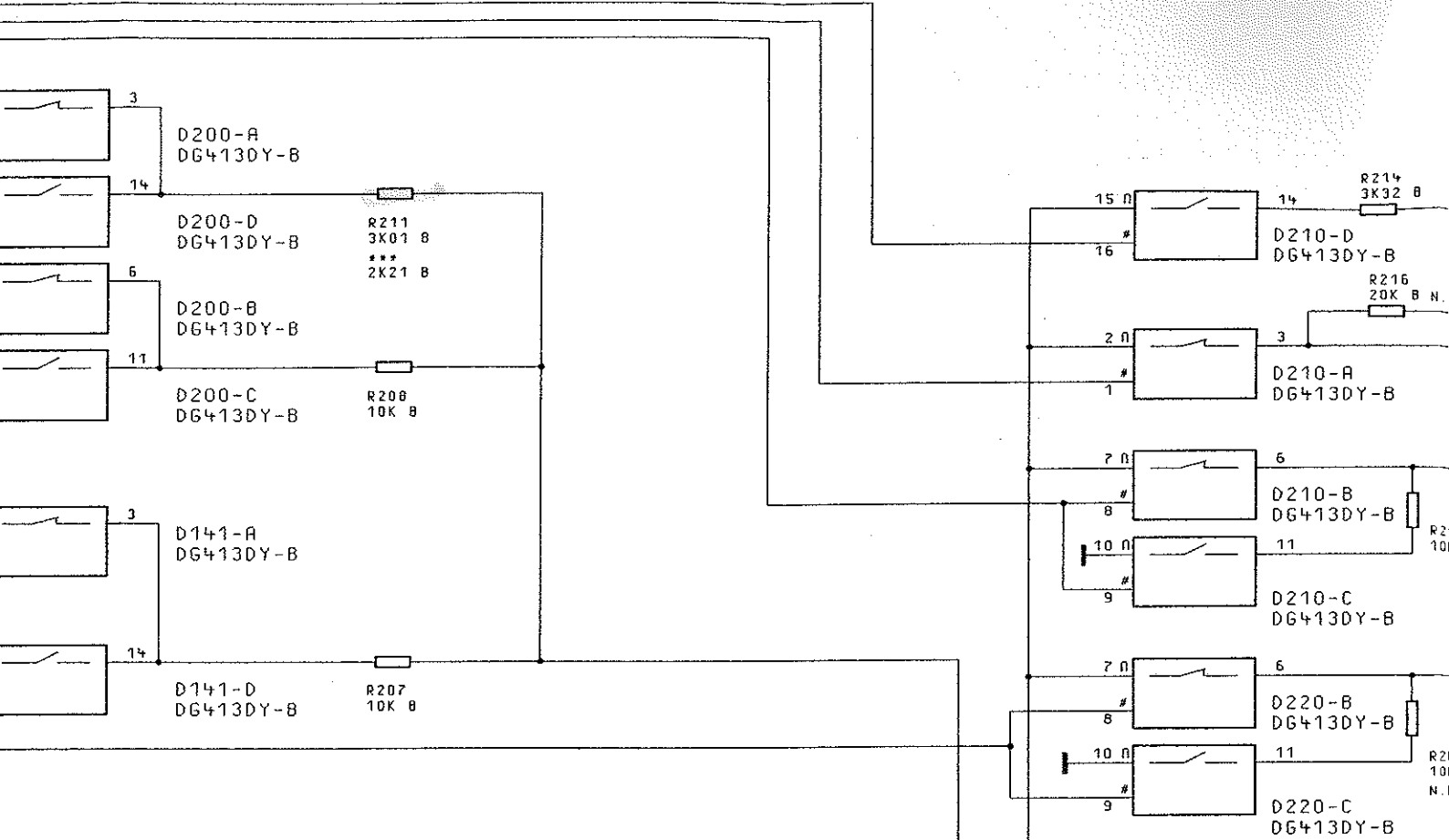


| | | | | | | |
|---------------|---------------------------|----------|------|----------|----------|--|
| 04/02 | | 03.03.97 | E I | MENP | TAG | |
| | | | | BEARB. | | |
| | | | | GEPR. | | |
| | | | | NORM | | |
| | | | | PLOTT | 03.03.97 | |
| 04/01 | | 16.12.96 | E I | | | |
| REND. IND. | RENDERUNGS- MITTEILUNG | DATUM | NAME | | | |
| | | | | ZU GERÄT | SMY | |

P385

P285

P300



ACHTUNG: EGB!
ELEKTROSTATISCH GEFÄHRDETE
BAUELEMENTE ERFORDERN EINE
BESONDERE HANDhabUNG.
ATTENTION ESD!
ELECTROSTATIC SENSITIVE DEVICES
REQUIRE A SPECIAL HANDLING

5

6

7

8

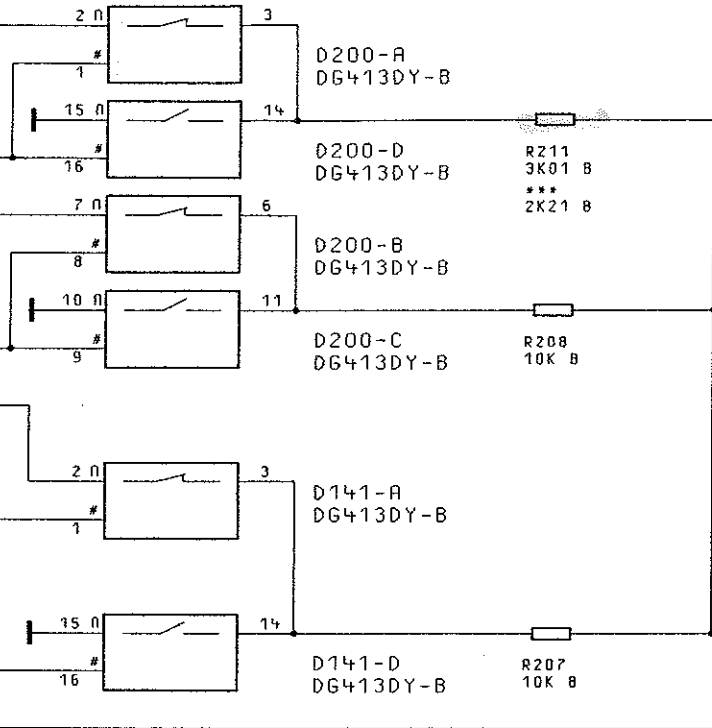
R280

P380

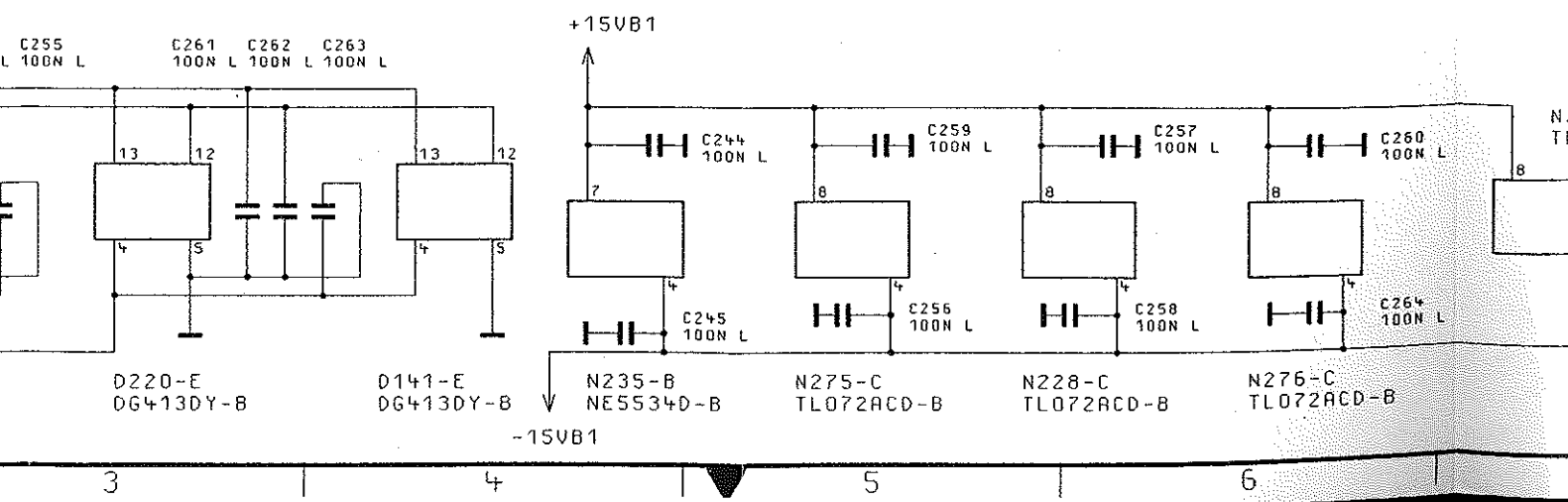
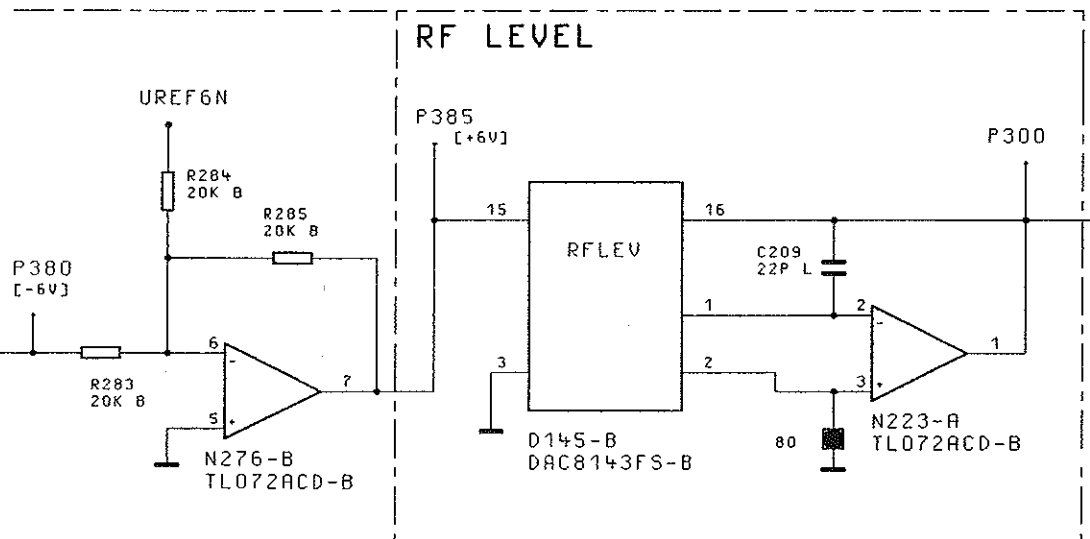
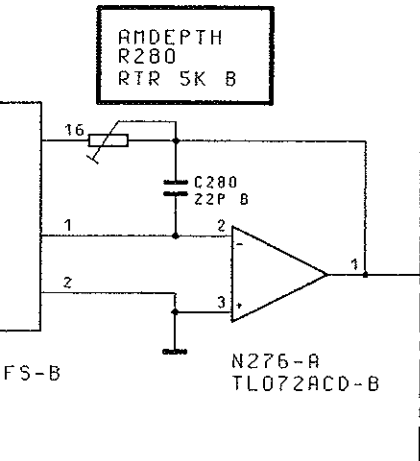
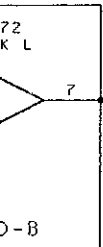
P385

P285

P300



MODULATION DEPTH

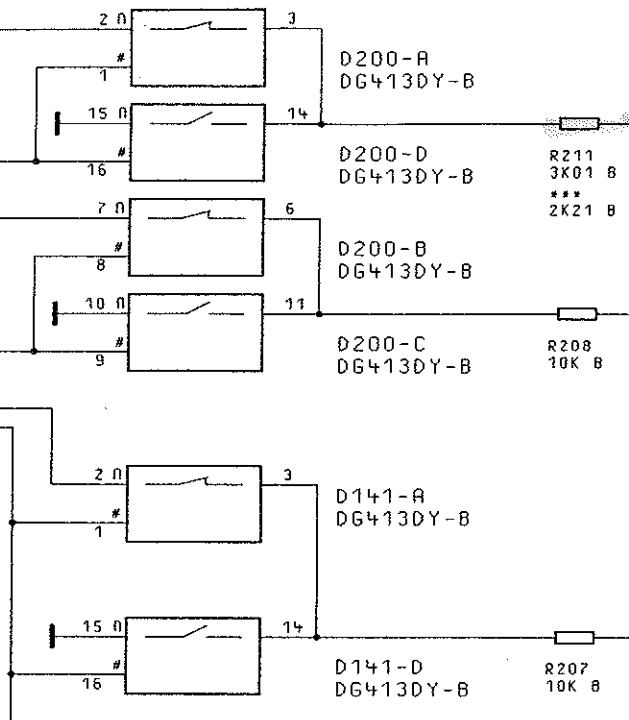


P375

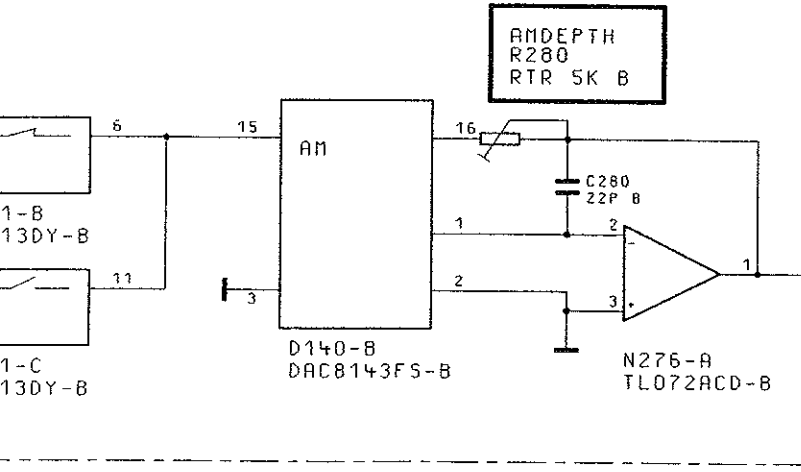
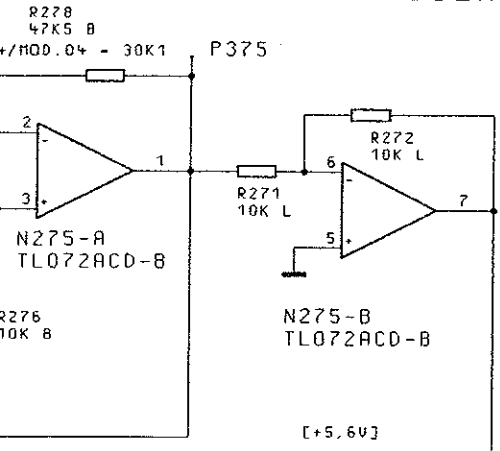
R280

P380

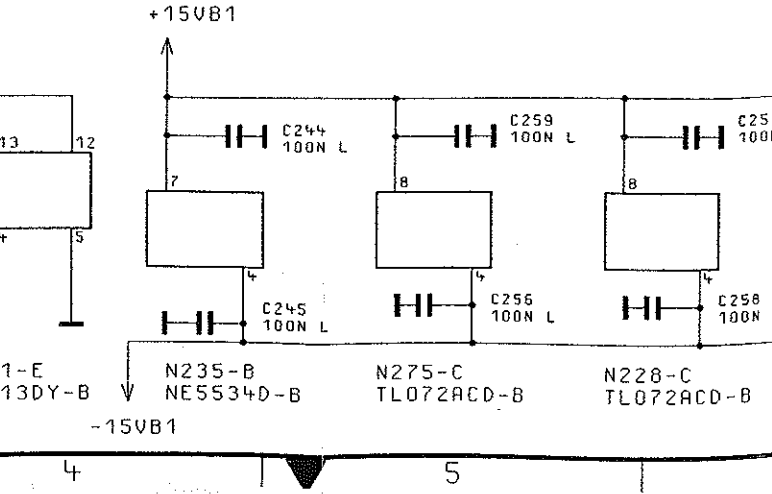
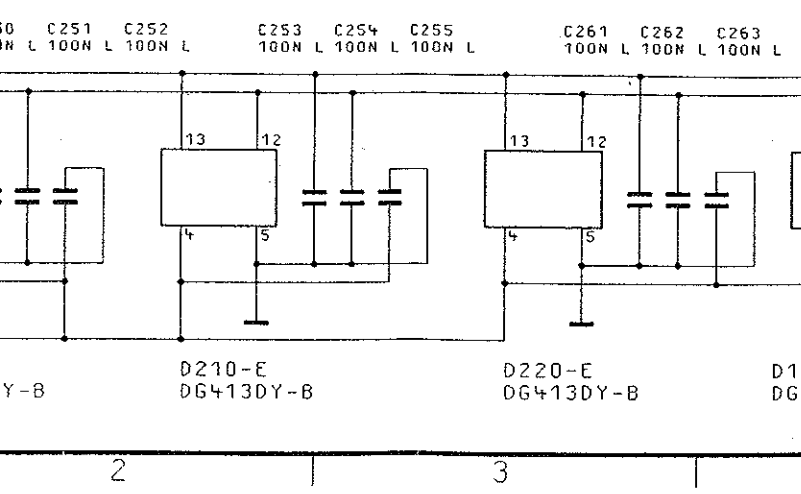
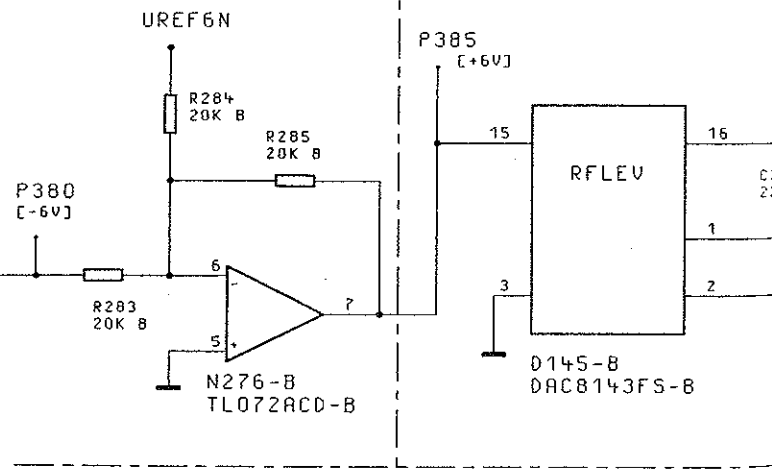
P385



AMPLITUDE MODULATION DEPTH



RF LEVEL



P375

R280

P380

KLEMM-N
ALCOFF
AMSLOW

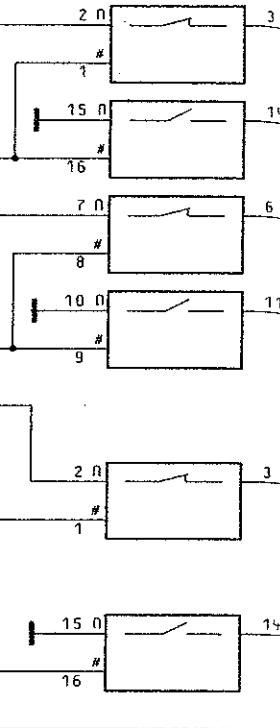
VDETMIX

DETMIXON
(SHEET 1/E8)

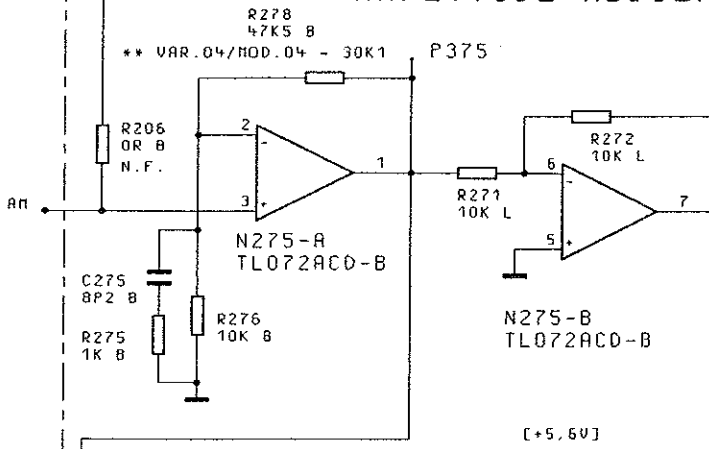
VDET

DETON
(SHEET 1/E8)

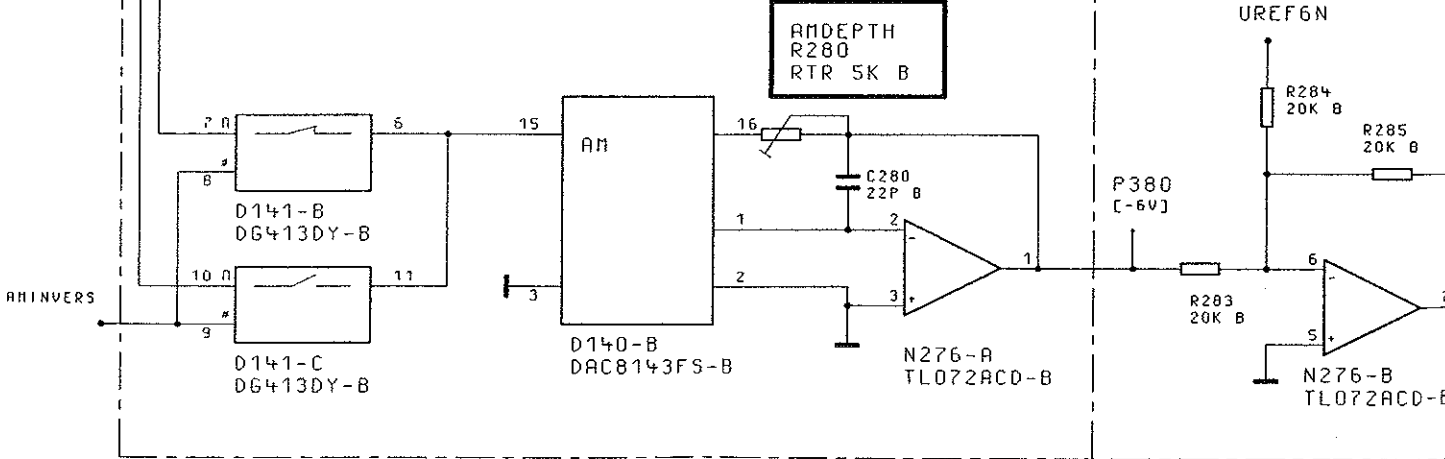
VDEXT
VDEXTON



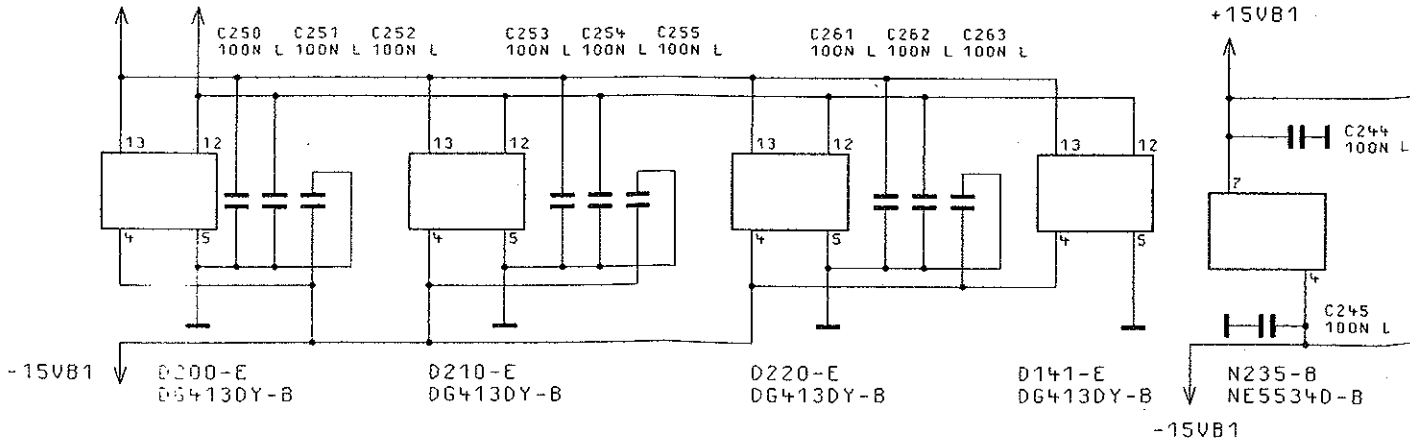
AMPLITUDE MODULATION DEPTH



AMDEPTH
R280
RTR 5K B



+15VB1 +5VB

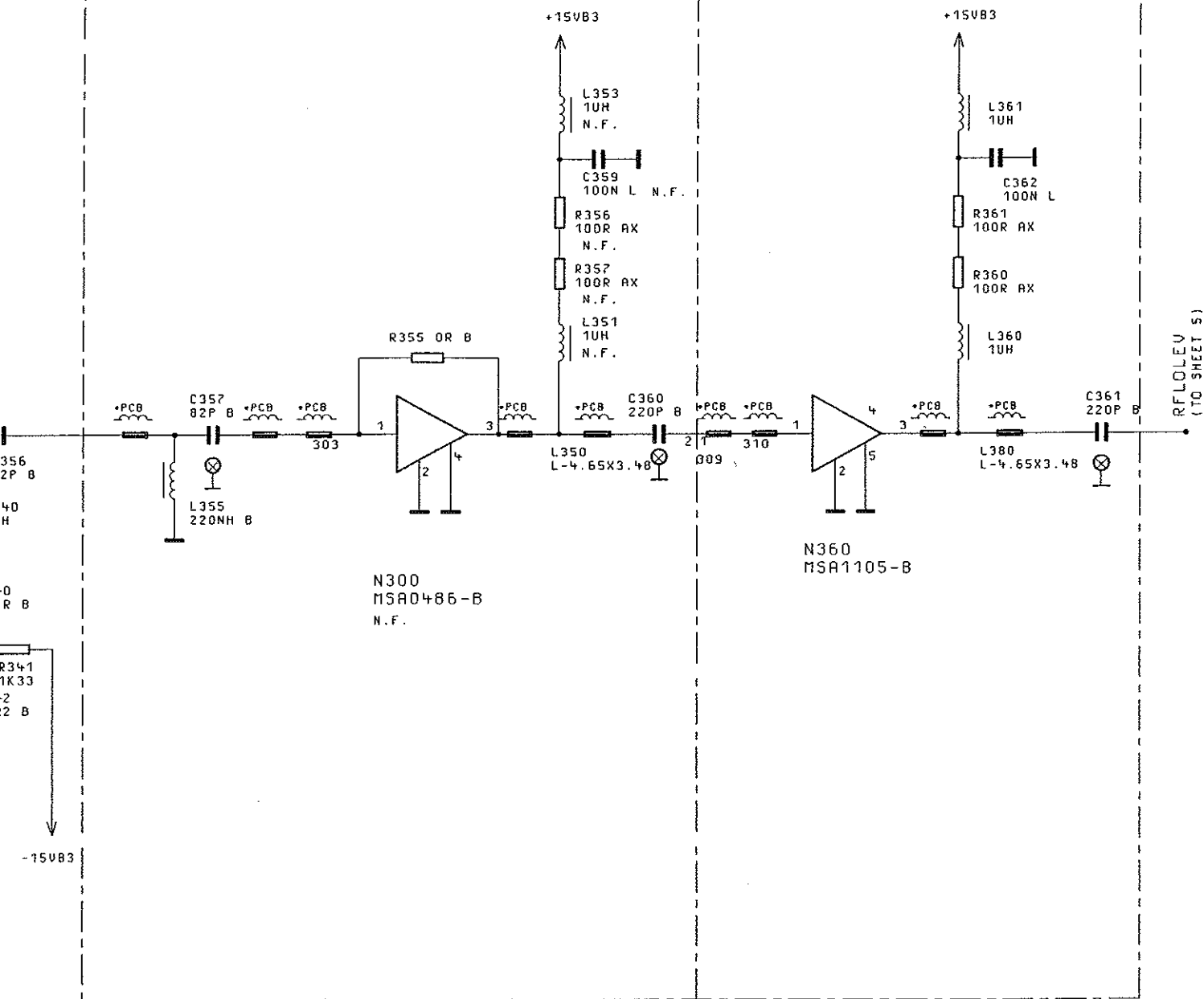


FUER DIESE UNTERLAGE
BEHALTEN WIR UNS ALLE RECHTE VOR

ZEICHN.-NR.

RF AMPLIFIER 1

RF AMPLIFIER 2



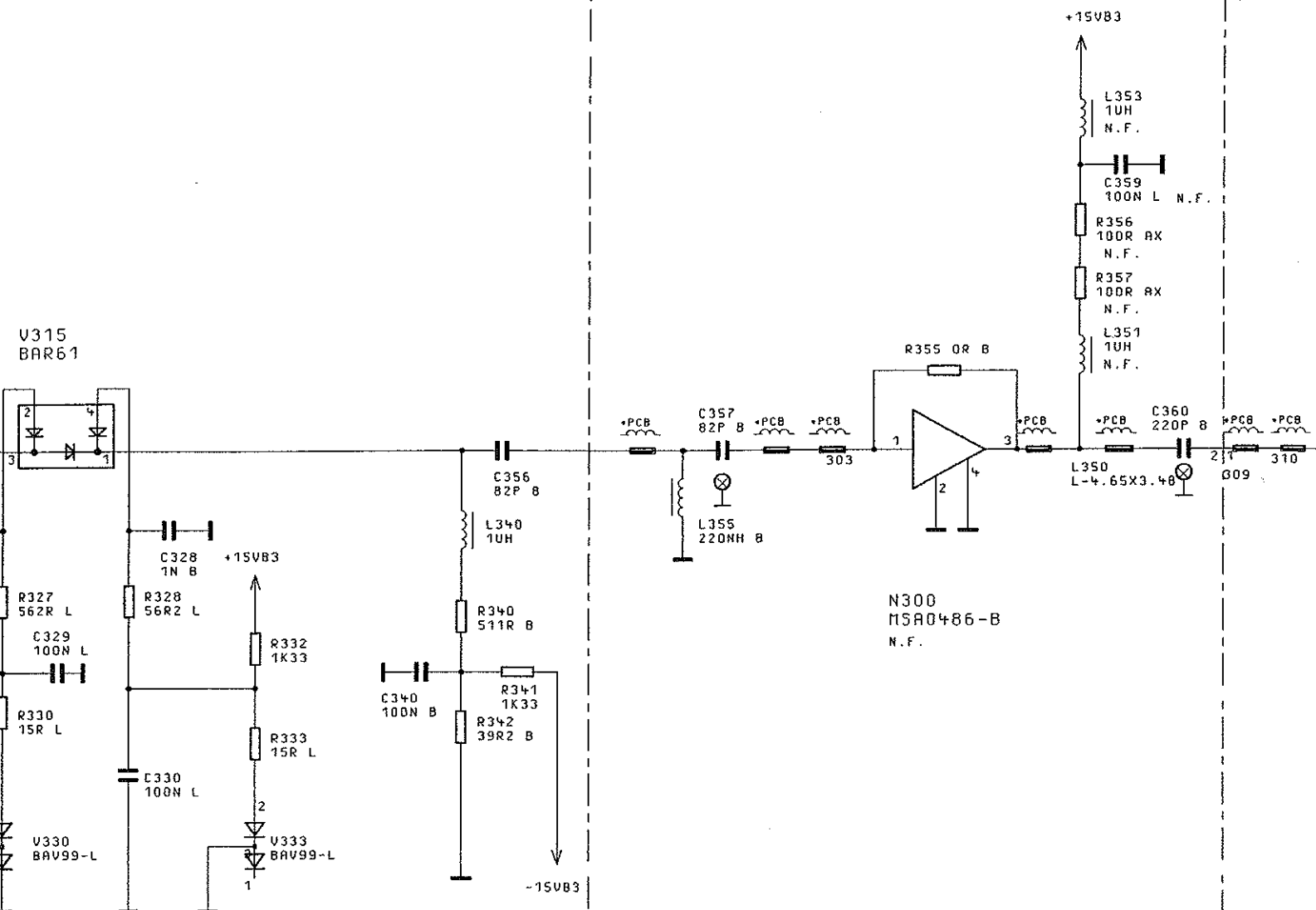
BINDENDE ANGABEN UEBER VARIANTEN,
TRIMMWERTE, BAUTEILWERTE UND
NICHT BESTUECKTE BAUTEILE SIEHE SA.

FOR BINDING INFORMATION ON MODELS,
TRIMMING AND COMPONENTS VALUES AND
NONFITTED COMPONENTS SEE PARTS LIST.

| | | | | | | | | |
|---------------|---------------------------|----------|----------|--------------------------|------------|-----------|---|-----------|
| 04/02 | | 03.03.97 | E I | MENP | TAG | NARE | BENENNUNG | |
| | | | | BEARB. | | E I | AUSGANGSTEIL 2.08GHZ OUTPUT UNIT 2.08GHZ | |
| | | | | GEPR. | | | | |
| | | | | NORM | | | | |
| | | | | PLOTT | 03.03.97 | | | |
| 04/01 | | 16.12.96 | E I | ROHDE&SCHWARZ | | | ZEICHN.-NR. | BLATT-NR. |
| REND. IND. | RENDERUNGS- MITTEILUNG | DATUM | NARE | | | | 1062.7005.015 | 4+ |
| | | | ZU GERAT | SMY | REG. I. V. | 1062.5502 | ERSTE Z. | 1062.5502 |

RF AMPLIFIER 1

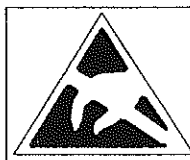
RF 1



N.F. - NOT FITTED / NICHT BESTUECKT

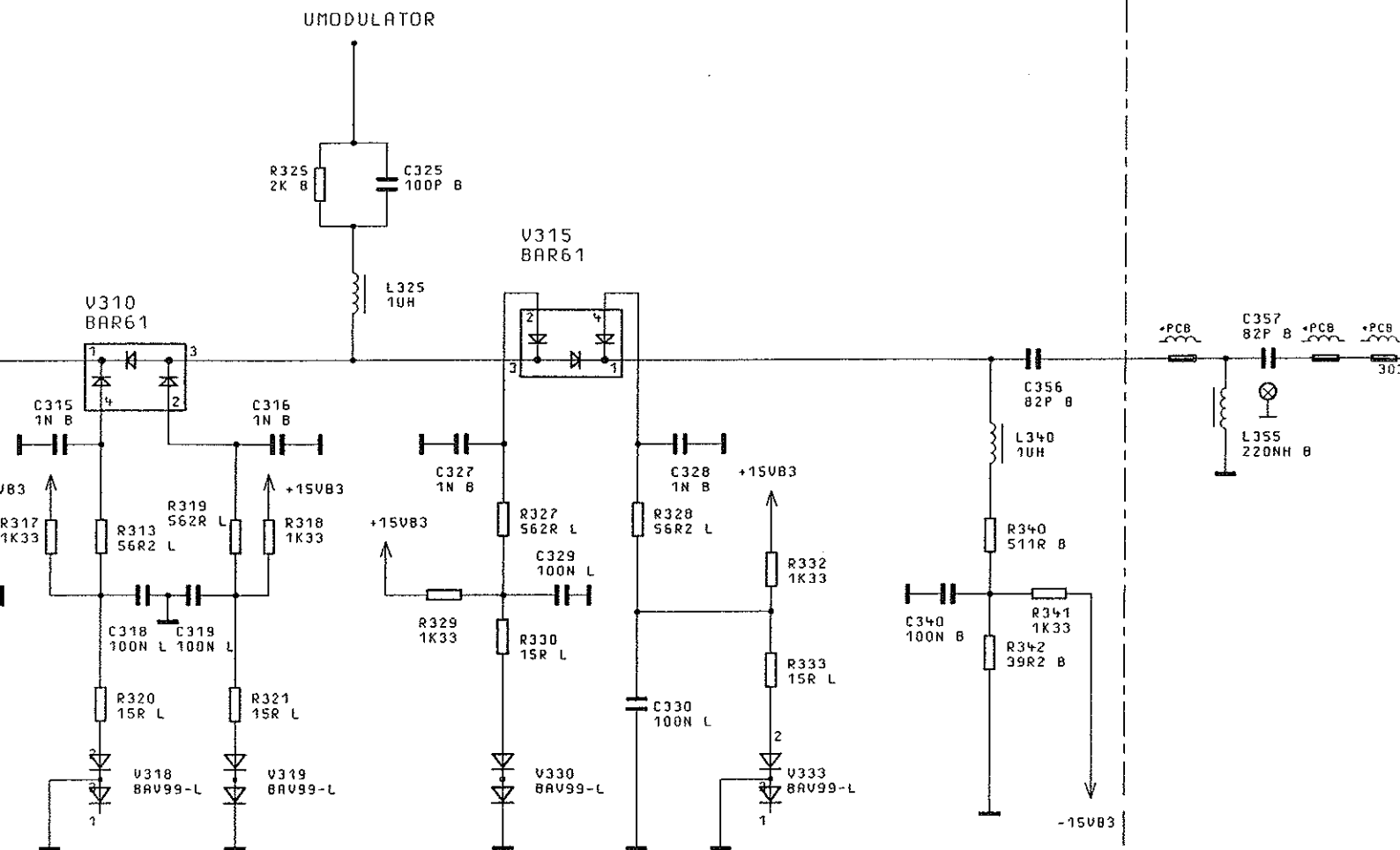
BINDENDE ANGABEN UEBER VARIANTEN,
TRIMMWERTE, BAUTEILWERTE UND
NICHT BESTUECKTE BAUTEILE SIEHE SA.

FOR BINDING INFORMATION ON MODELS,
TRIMMING AND COMPONENTS VALUES AND
NONFITTED COMPONENTS SEE PARTS LIST



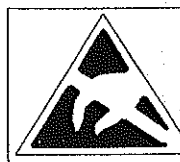
ACHTUNG: EGB!
ELEKTROSTATISCH GEFAHRDETE
BAUELEMENTE ERFORDERN EINE
BESONDERE HANDHABUNG.
ATTENTION ESD!
ELECTROSTATIC SENSITIVE DEVICES
REQUIRE A SPECIAL HANDLING

| 04/02 | 03.03.97 | E I | MENP | TAG | NAME | BENENNUNG |
|---------------|--------------------------|-------|--------|--------------------------|------|---------------|
| | | | BEARB. | | E I | AUS OUTPUT |
| | | | GEPR. | | | |
| | | | NORM | | | |
| | | | PLOTT | 03.03.97 | | |
| 04/01 | 16.12.96 | E I | | | | ZEICHN.-NR. |
| REND. IND. | ÄNDERUNGS- MITTEILUNG | DATUM | NAME | ROHDE&SCHWARZ | | REG. I. V. 1 |
| | | | | ZU GERÄT | SMY | |



N.F. - NOT FITTED / NICHT BESTUECKT

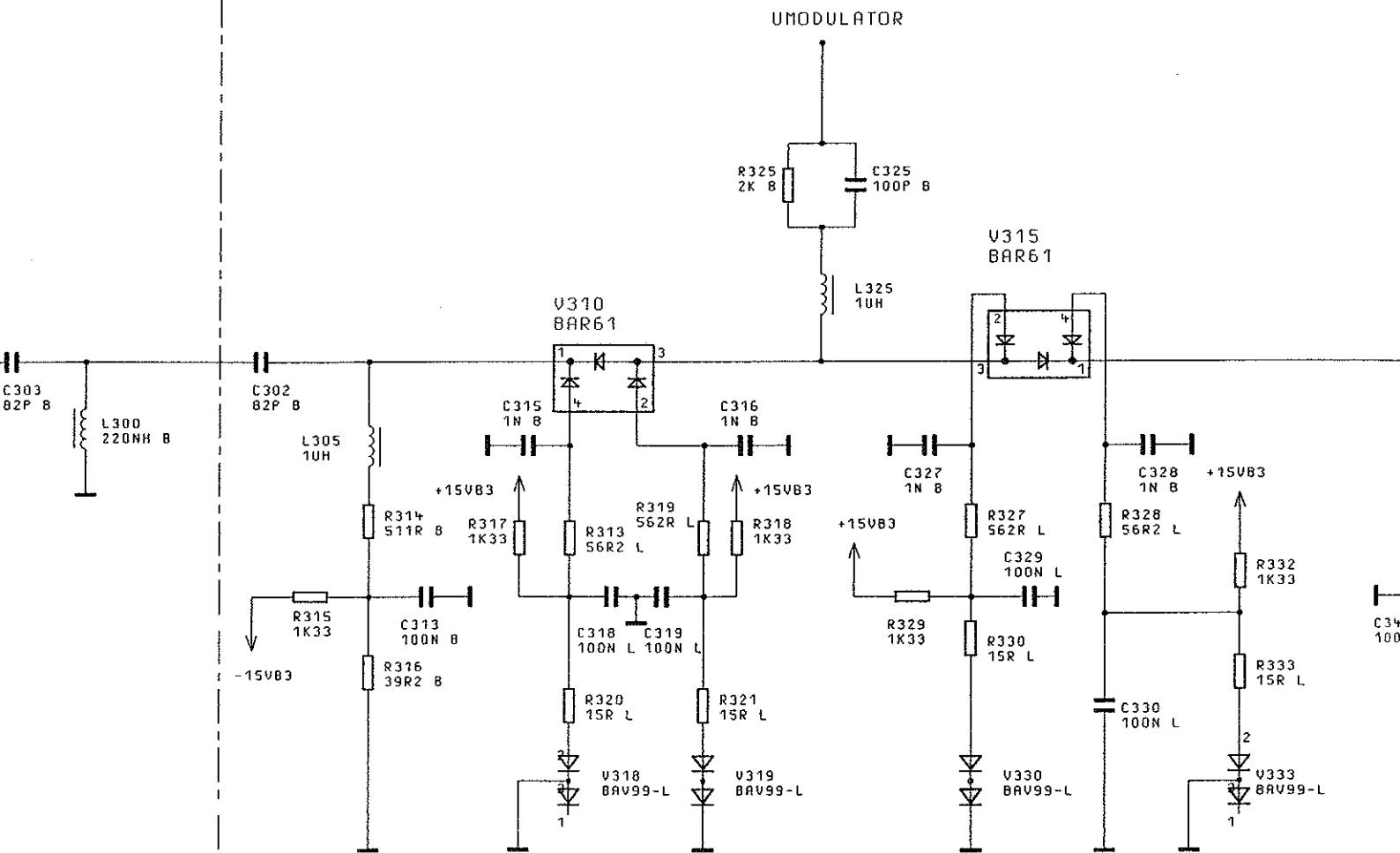
BINDENDE ANGABEN UEBER VARIABILE TRIMMWERTE, BAUTEILWERTE UND NICHT BESTUECKTE BAUTEILE SIND



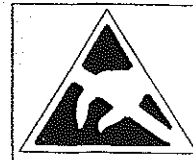
ACHTUNG: ESD!
 ELEKTROSTATISCH GEFAHRDETE
 BAUELEMENTE ERFORDERN EINE
 BESONDERE HANDHABUNG.
ATTENTION ESD!
 ELECTROSTATIC SENSITIVE DEVICES
 REQUIRE A SPECIAL HANDLING

| | | |
|-------|---------------------------|-------|
| 04/02 | | 03.03 |
| | | |
| | | |
| | | |
| | | |
| 04/01 | | 16.12 |
| REND. | RENDERUNGS- MITTEILUNG | DATU |

AM MODULATOR



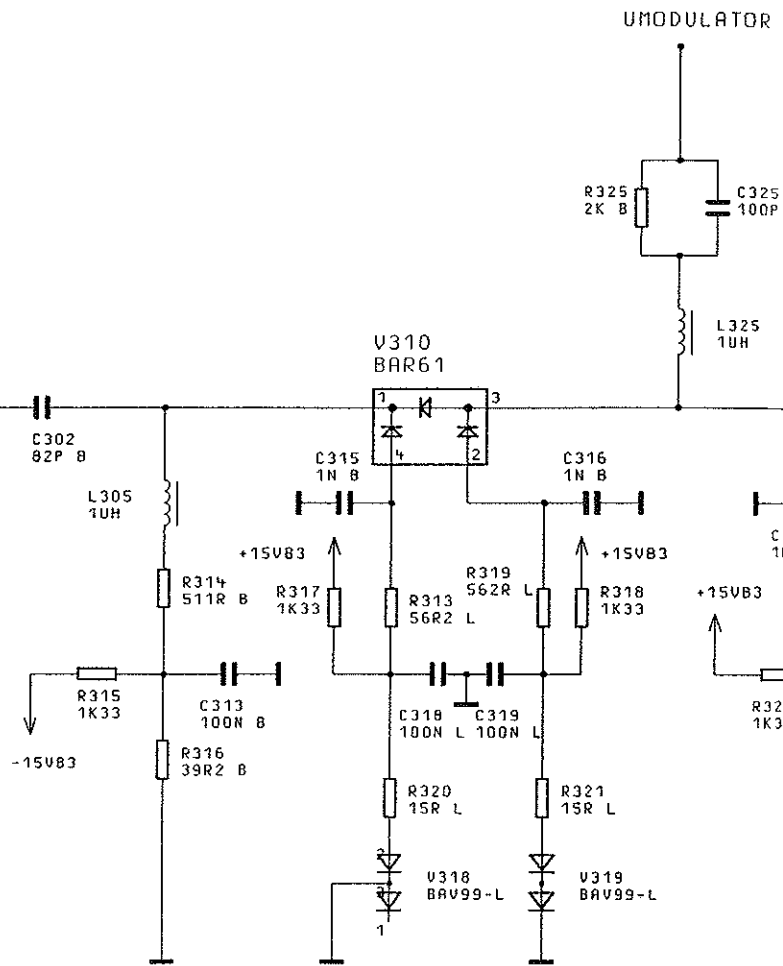
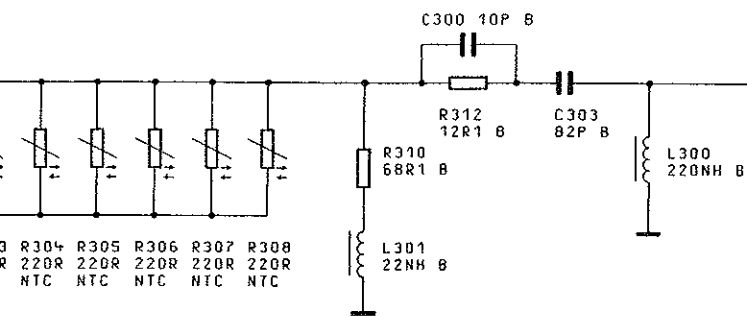
N.F. - NOT FITTED / NICHT BEST



ACHTUNG: EGB
ELEKTROSTATISCH GEFÄHR
BAUELEMENTE ERFORDERN
BESONDERE HANDHABUNG
ATTENTION ESD
ELECTROSTATIC SENSITIVE
REQUIRE A SPECIAL HANDLING

SENSATION

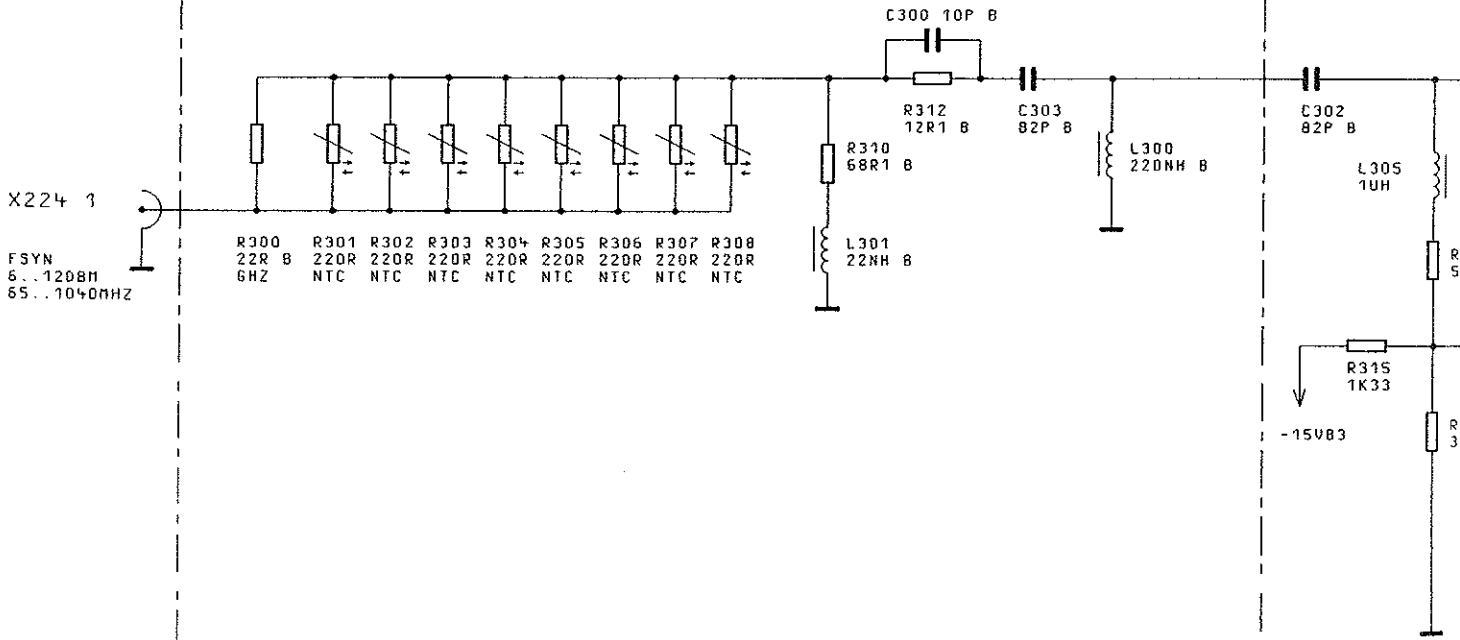
AM MODULATOR



UMODULATOR

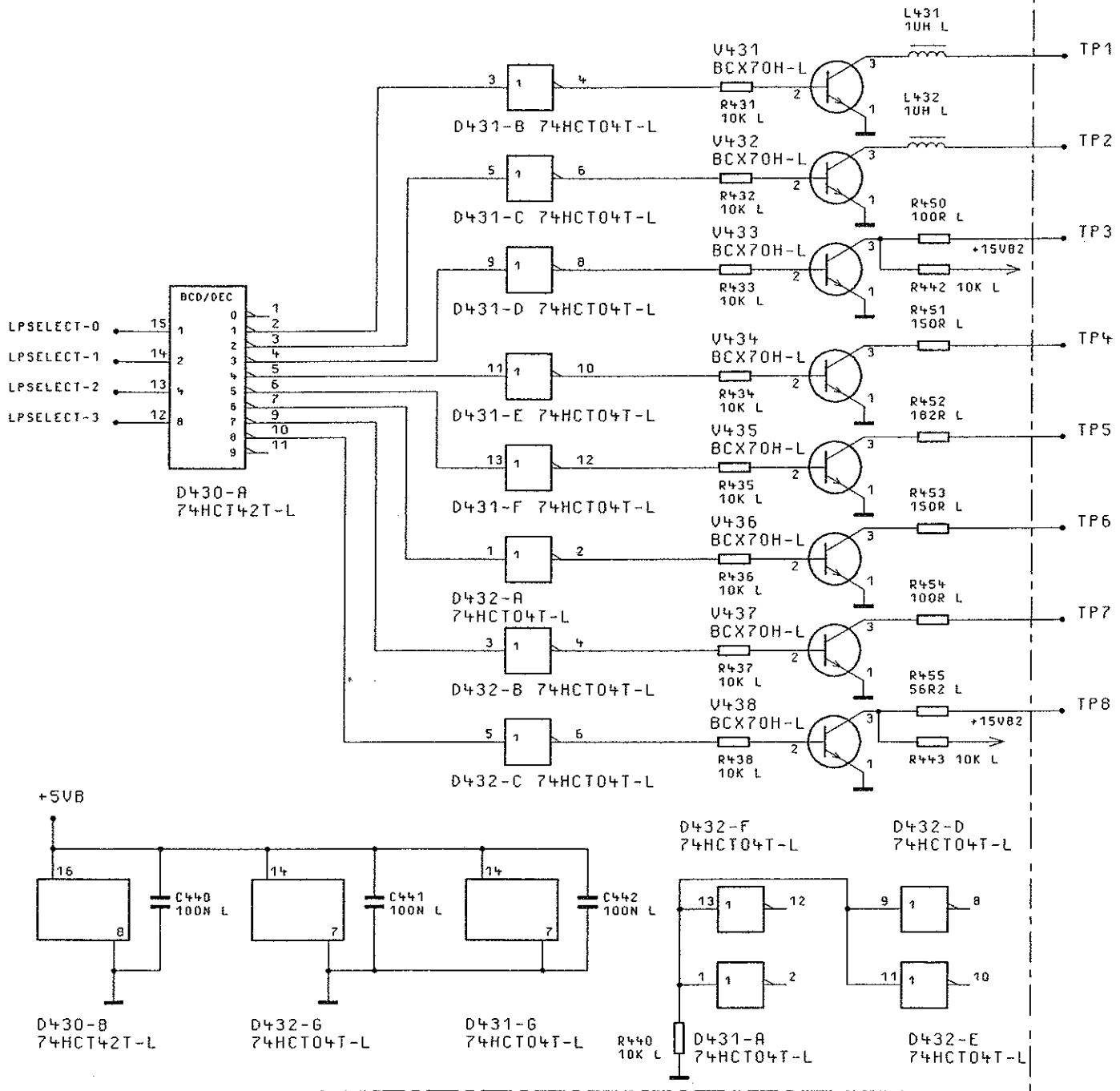
TEMP.-KOMPENSATION

AM MODU




BEHALTEN WIR UNS ALLE RECHTE VOR
FÜR DIESE ÜBERLAGE

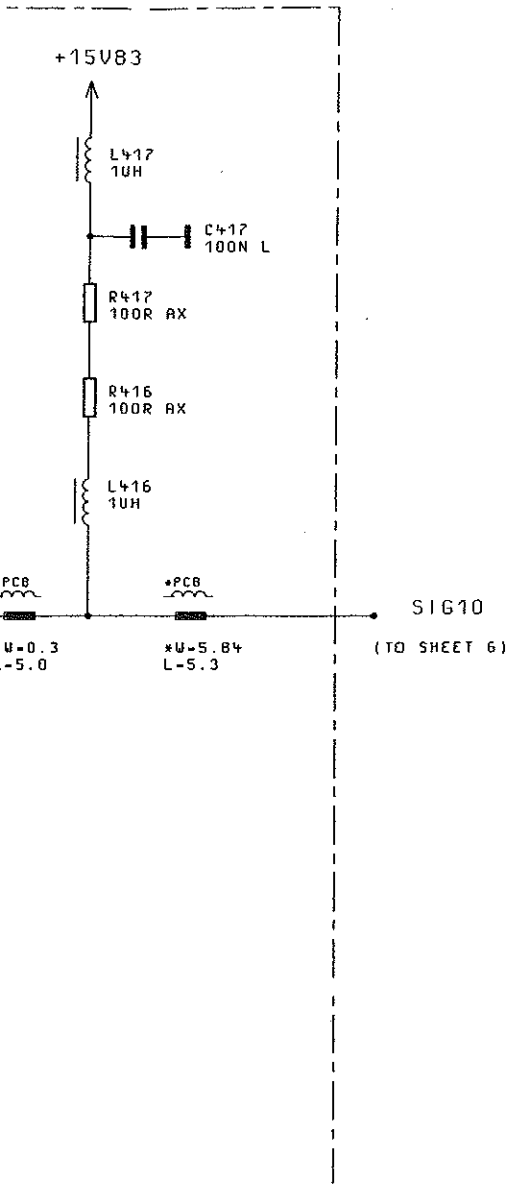
LP SELECT



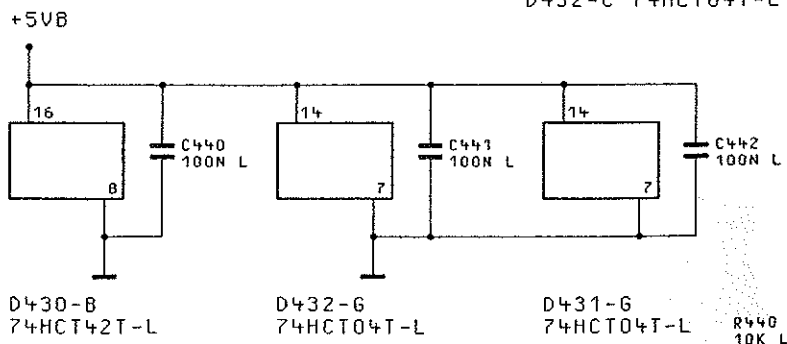
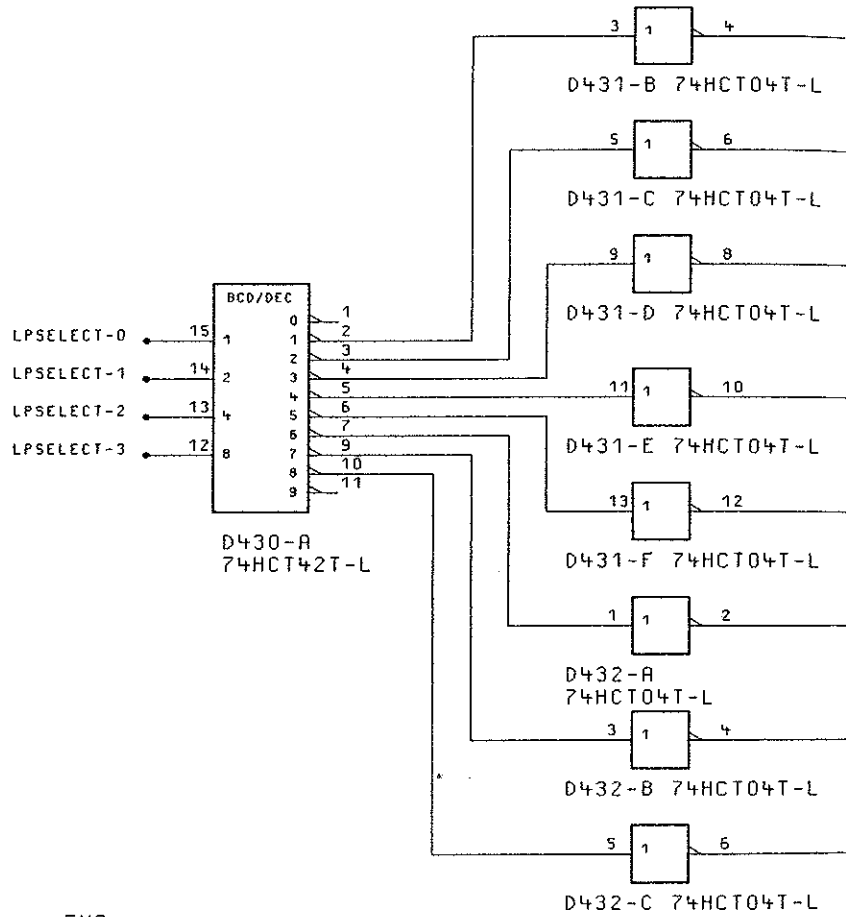
BINDEnde ANgABEN UEBER VARIANTEN,
TRIMMWERTE, BAUTEILWERTE UND
NICHT BESTUECKTE BAUTEILE SIEHE SA.

FOR BINDING INFORMATION ON MODELS,
TRIMMING AND COMPONENTS VALUES AND
NONFITTED COMPONENTS SEE PARTS LIST.

| | | | | | | | |
|--------------|--------------------------|------|--|----------|-------------|----------------------|-----------------|
| D4/02 | 03.03.97 | E I | MENP | TAG | NAME | BENENNUNG | |
| | | | BEARB. | | E I | AUSGANGSTEIL 2.08GHZ | |
| | | | GEPR. | | | OUTPUT UNIT 2.08GHZ | |
| | | | NORM | | | | |
| | | | PLOTT | 03.03.97 | | | |
| D4/01 | 16.12.96 | E I |  ROHDE & SCHWARZ | | ZEICHN.-NR. | 1062.7005.01S | BLATT-NR. 5+ |
| ÄND. IND. | ÄNDERUNGS- MITTEILUNG | DATE | | | NAME | REG.-I.V. | 1062.5502 |
| | 9 | | | 10 | | 11 | 12 |



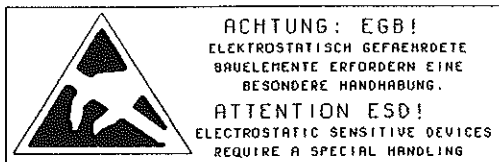
LP SELECT



BINDENDE ANGABEN UEBER VARIANTEN,
TRIMMWERTE, BAUTEILWERTE UND
NICHT BESTUECKTE BAUTEILE SIEHE SA.

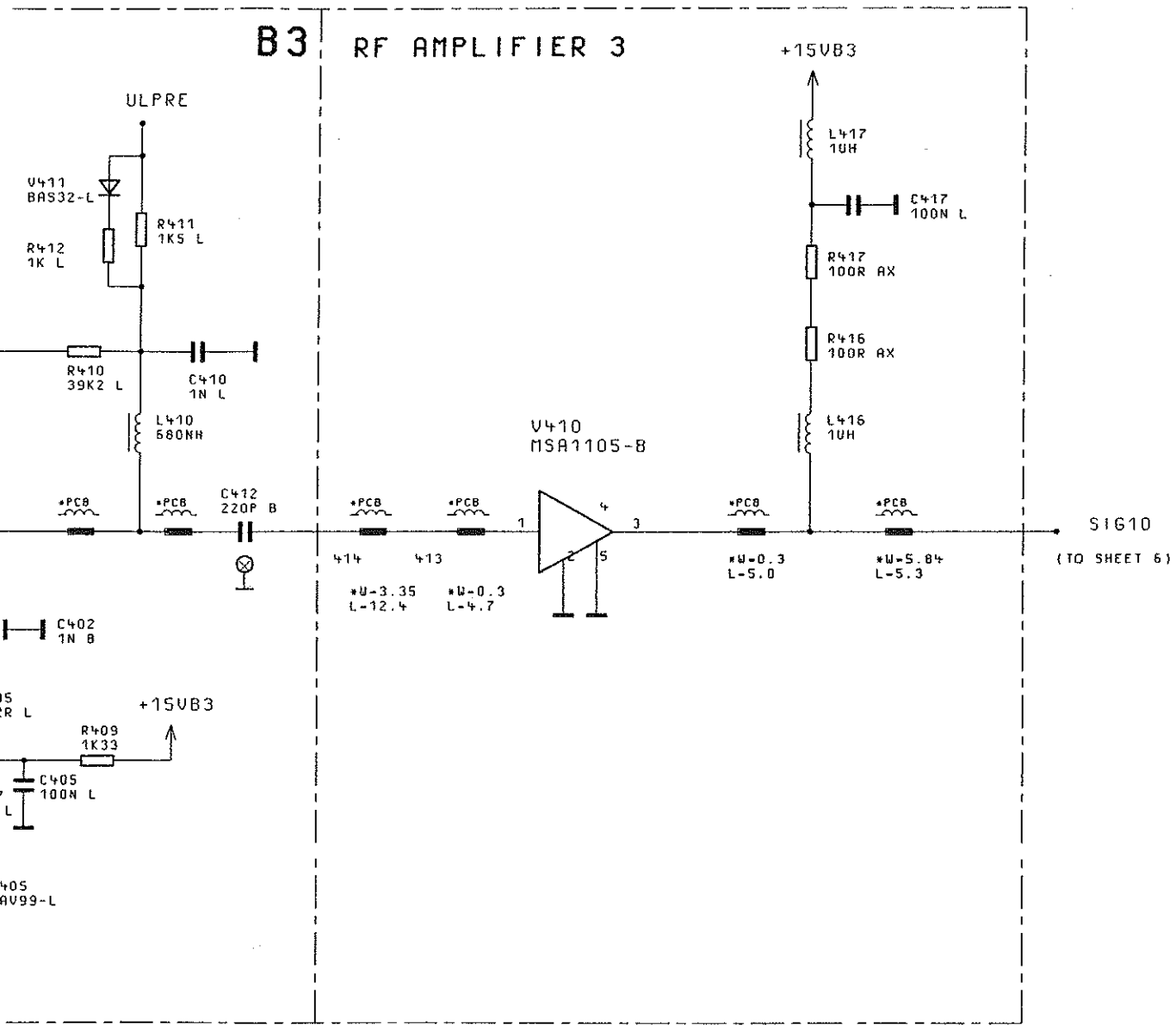
FOR BINDING INFORMATION
TRIMMING AND COMPONENT
NONFITTED COMPONENTS SEE SA.

N.F. - NOT FITTED / NICHT BESTUECKT




| 04/02 | | 03.03.97 | E I | MENP | TAG | NAME |
|--------------|--------------------------|----------|------|--|----------|------|
| | | | | BEARB. | | E I |
| | | | | GEPR. | | |
| | | | | NORM | | |
| | | | | PLOTT | 03.03.97 | |
| 04/01 | | 16.12.96 | E I | | | |
| ÄND. IND. | ÄNDERUNGS- MITTEILUNG | DATUM | NAME | ROHDE & SCHWARZ ZU GERÄT SMY | | |
| | | | | | | |

B3 RF AMPLIFIER 3

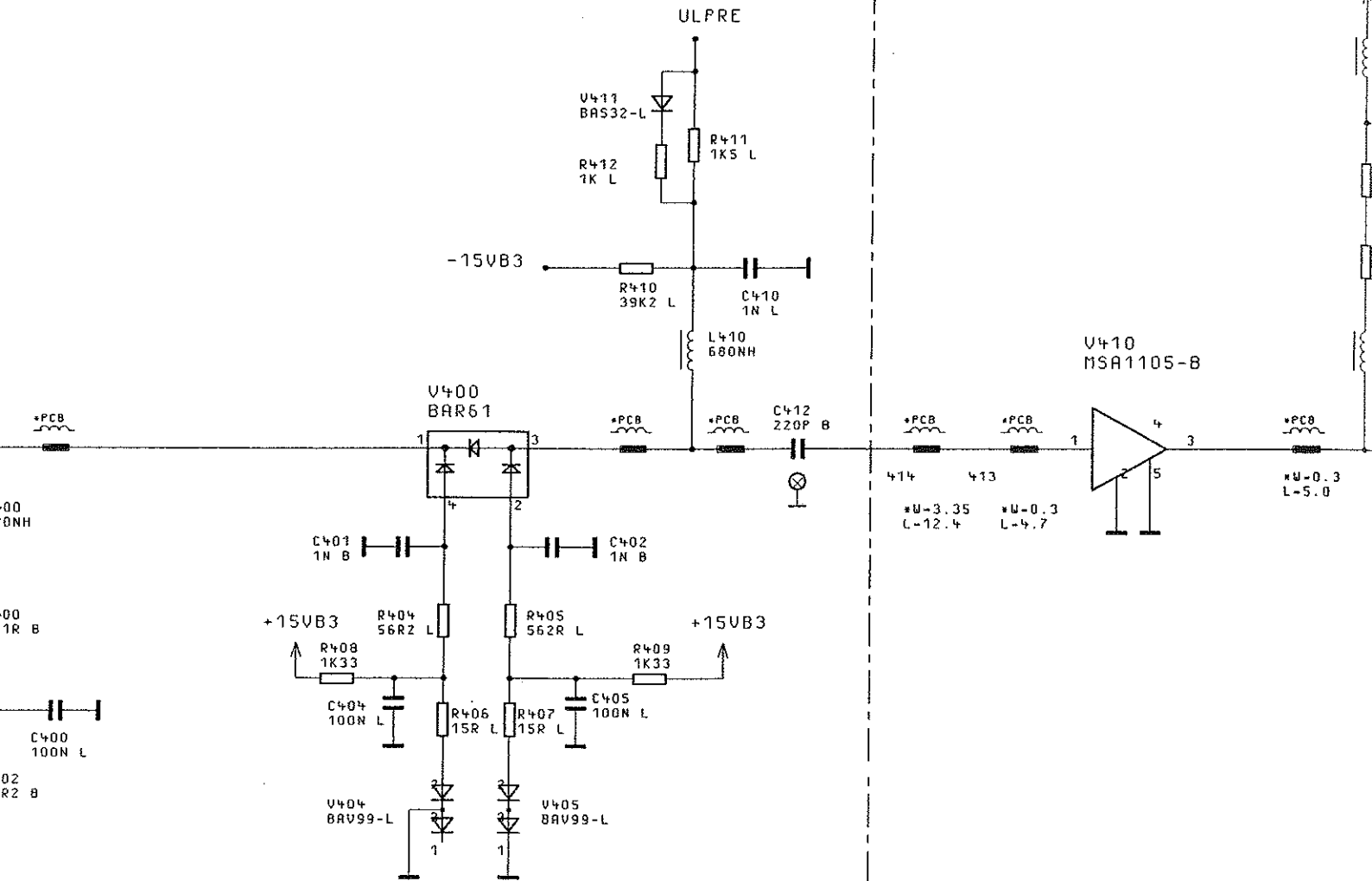


N.F. - NOT FITTED / NICHT BESTUECKT

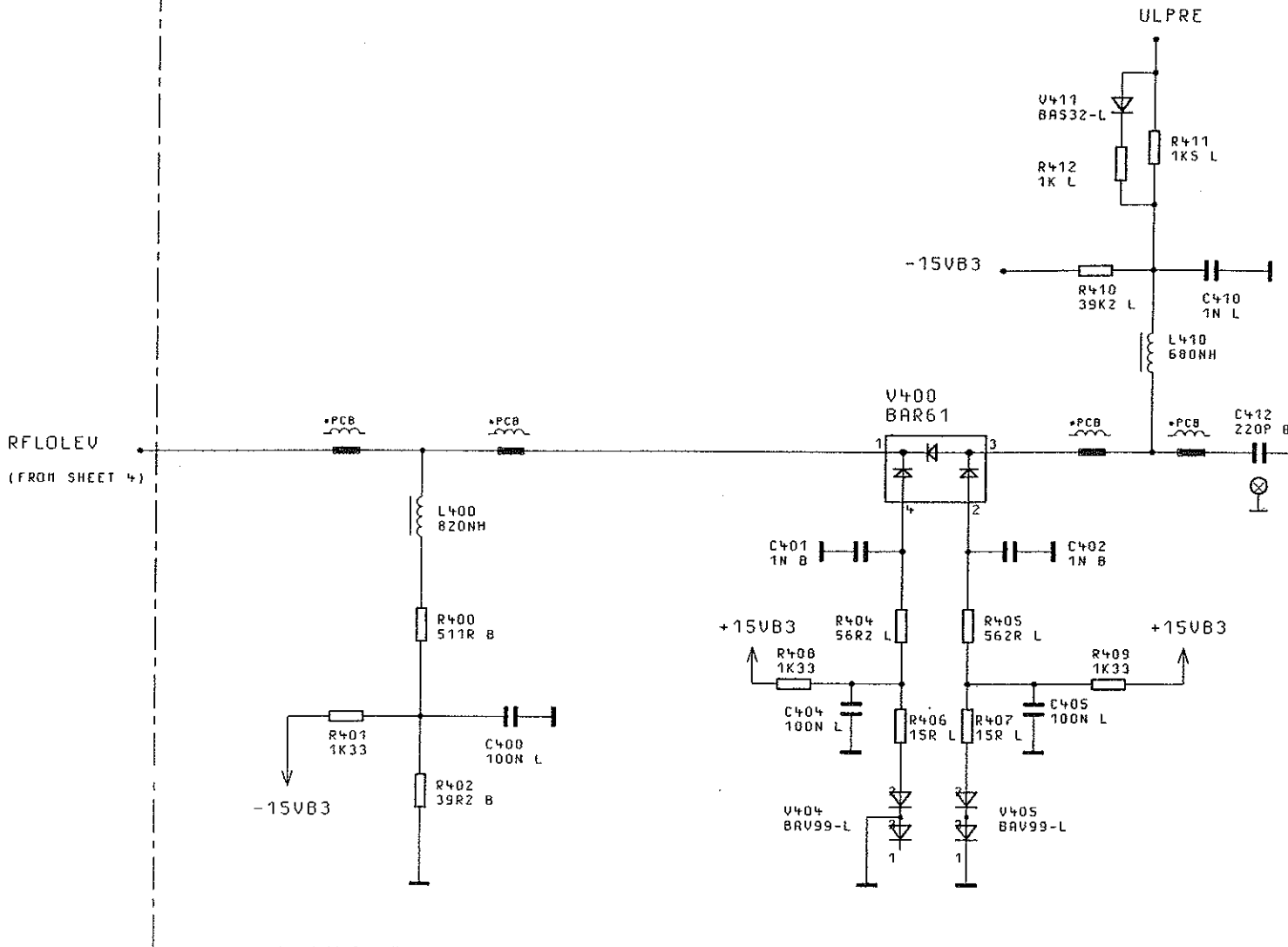


ACHTUNG: EGB!
 ELEKTROSTATISCH GEFÄHRDETE
 BAUELEMENTE ERFORDBEN EINE
 BESONDERE HANDHABUNG.
ATTENTION ESD!
 ELECTROSTATIC SENSITIVE DEVICES
 REQUIRE A SPECIAL HANDLING

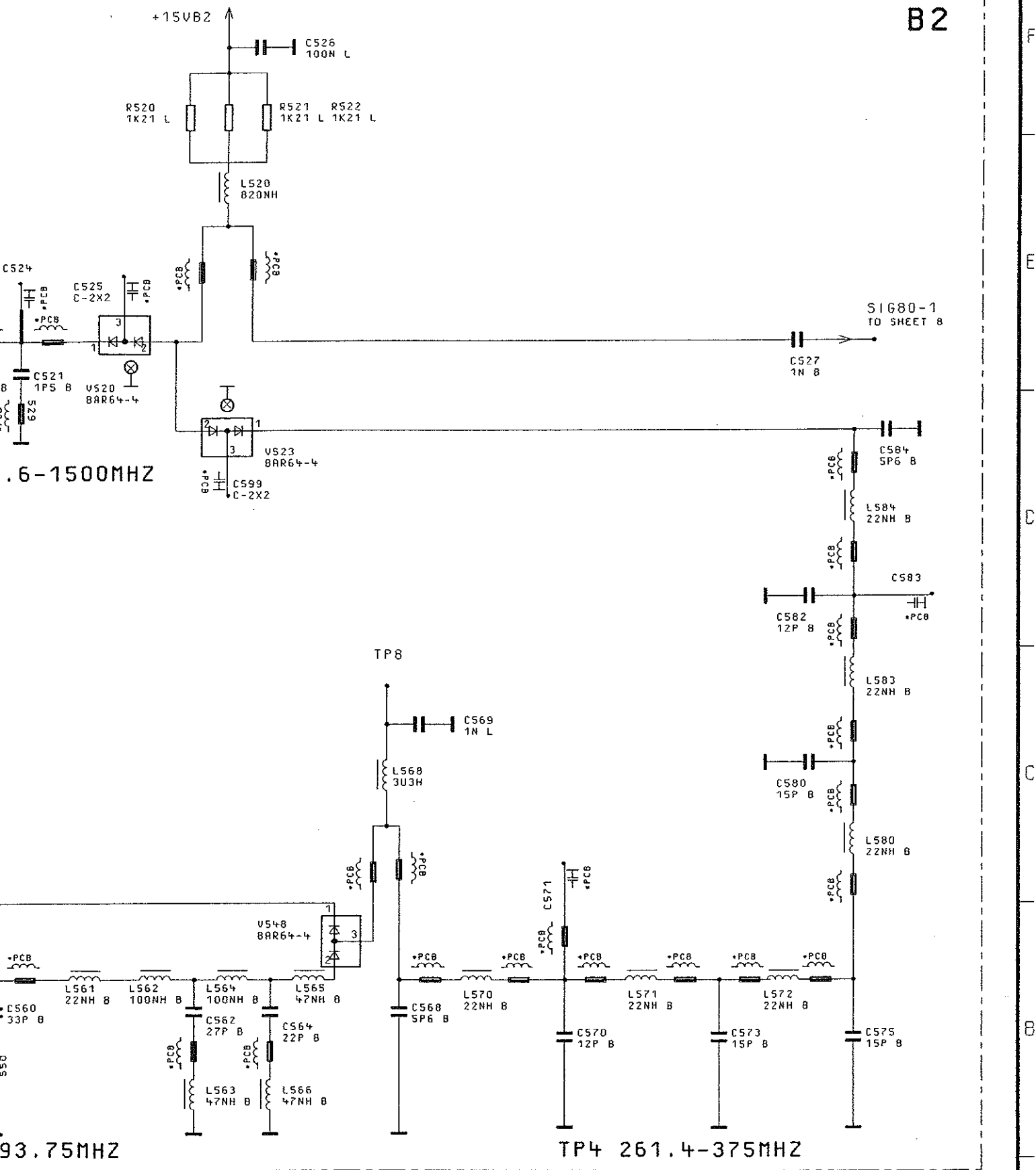
B3 RF AMPLIFIER 3




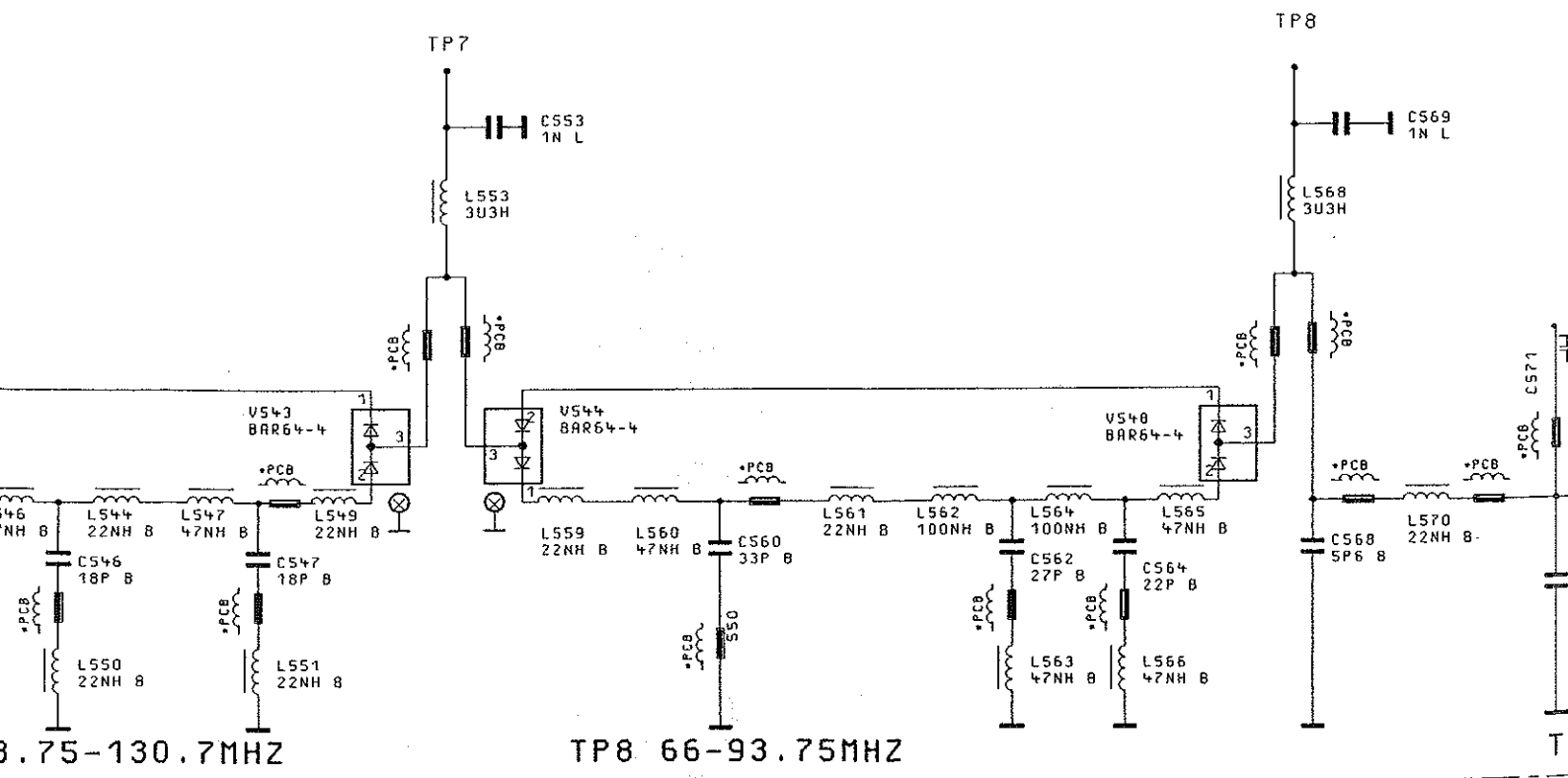
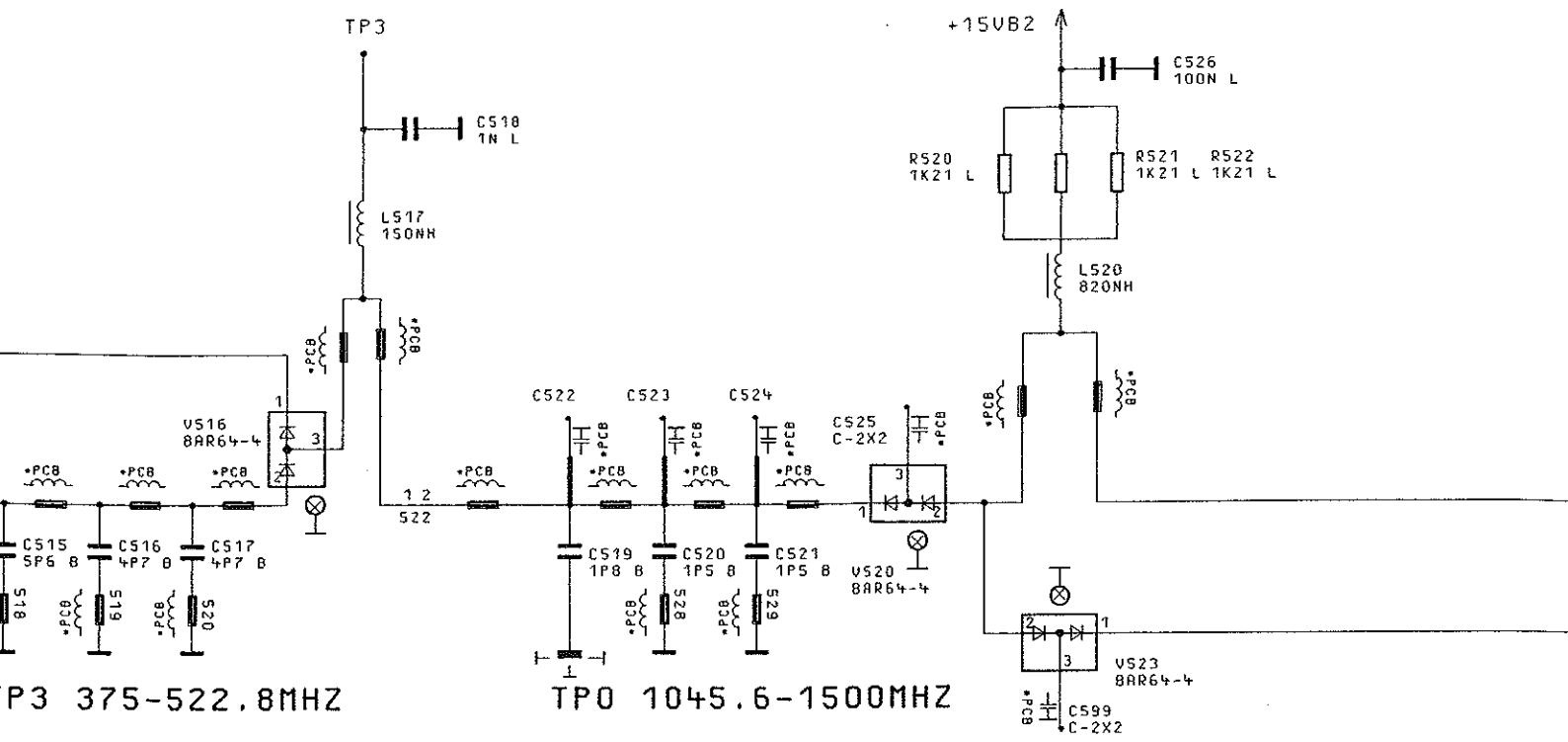
LEVEL PRESET



BEHALTEN WIR UNS ALLE RECHTE VOR



| | | | | | | | |
|------------|----------------------|----------|------|---|----------|------------|---|
| 04/02 | | 03.03.97 | E I | MENP | TAG | NAME | BENENNUNG |
| | | | | BEARB. | | E I | AUSGANGSTEIL 2.086HZ OUTPUT UNIT 2.086HZ |
| | | | | GEPR. | | | |
| | | | | NORM | | | |
| | | | | PLOTT | 03.03.97 | | |
| 04/01 | | 16.12.96 | E I |  ROHDE & SCHWARZ | | | ZEICHN.-NR. |
| REND. IND. | RENDERUNGSMITTEILUNG | DATUM | NAME | | | | 1062.7005.019 |
| | | | | ZU GERÄT | SMY | REG. I. V. | 1062.5502 |
| | | | | | | ERSTE Z. | 1062.5502 |



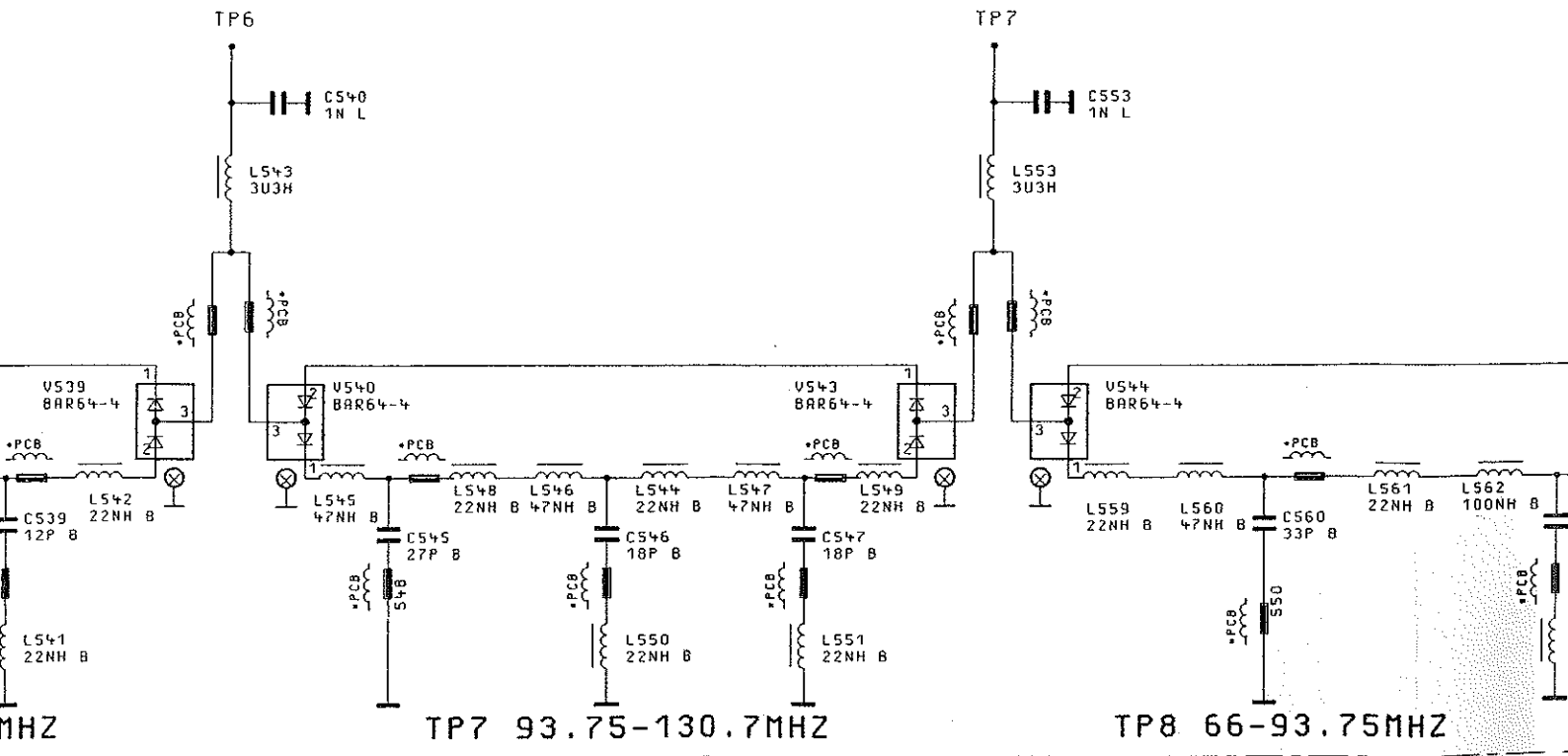
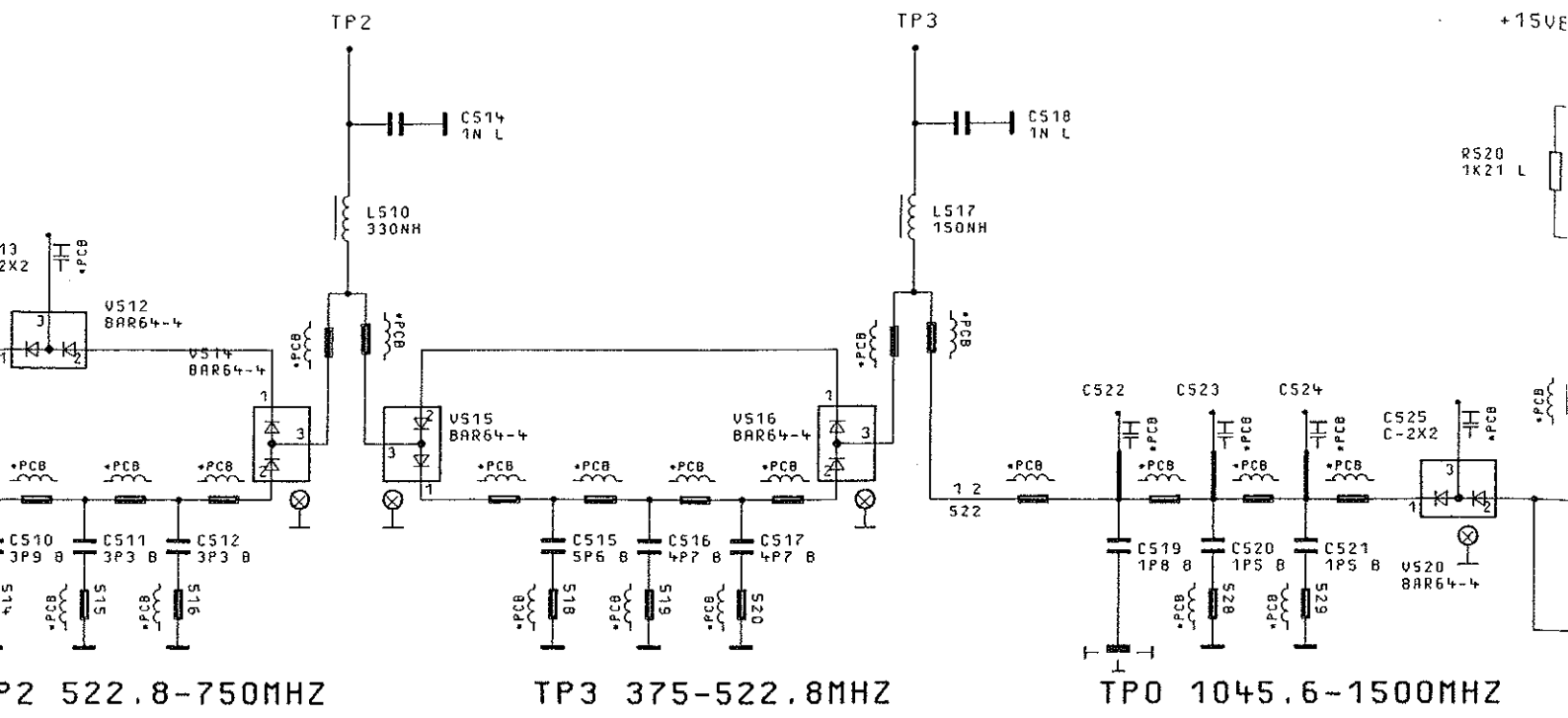
NICHT BESTUECKT

BINDENDE ANGABEN UEBER VARIANTEN,
TP WERTE, BAUTEILWERTE UND
NICHT BESTUECKTE BAUTEILE SIEHE SA.

FOR BINDING INFORMATION ON MODELS,
TRIMMING AND COMPONENTS VALUES AND
NONFITTED COMPONENTS SEE PARTS LIST.

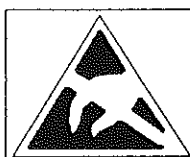
WICHTUNG: EGB!
STATISCH GEFAHRDETE
ELEMENTE ERFORDERN EINE
SONDERE HANDHABUNG.
ATTENTION ESD!
STATIC SENSITIVE DEVICES
REQUIRE A SPECIAL HANDLING

| | | | | | | |
|---------------|---------------------------|----------|------|-----------|----------|------|
| 04/02 | | 03.03.97 | E I | MENP | TAG | NAME |
| | | | | BEARB. | | E I |
| | | | | GEPR. | | |
| | | | | NORM | | |
| | | | | PLOTT | 03.03.97 | |
| 04/01 | | 16.12.96 | E I | | | |
| REND. IND. | RENDERUNGS- MITTEILUNG | DATUM | NAME | | | |
| | | | | ZU SERNET | SMY | |



N.F. - NOT FITTED / NICHT BESTUECKT

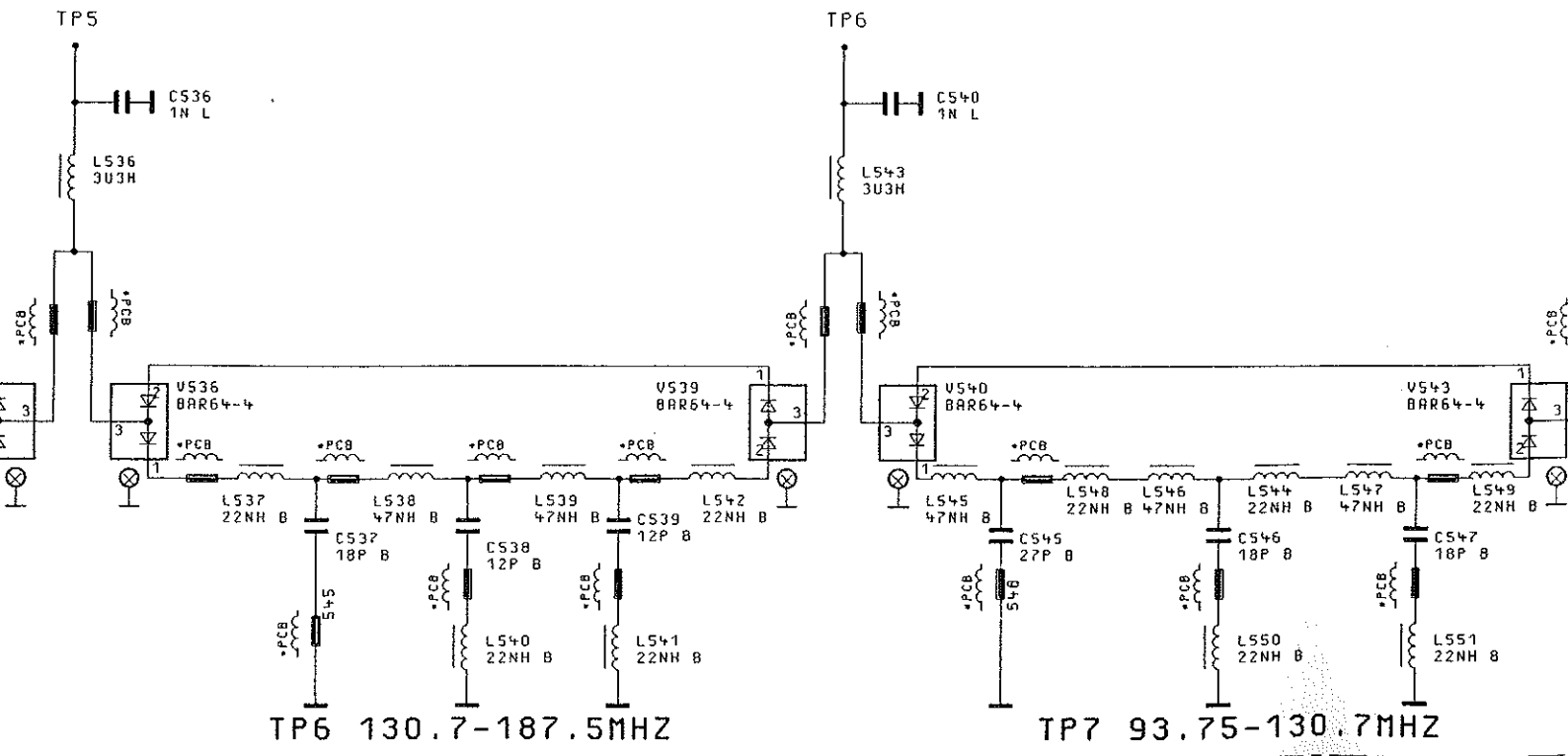
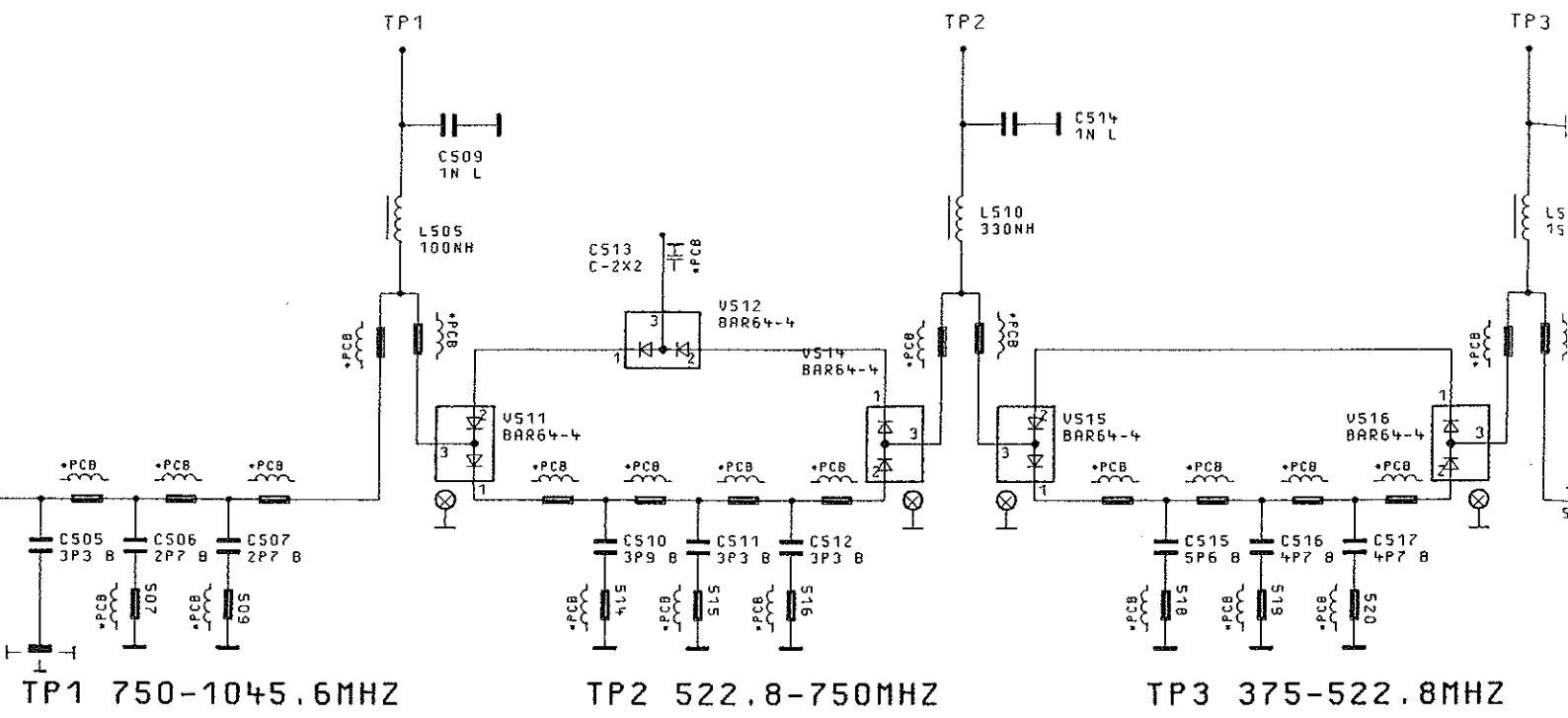
BINDENDE ANGABEN UEBER VARIANTEN,
TRIMMWERTE, BAUTEILWERTE UND
NICHT BESTUECKTE BAUTEILE SIEHE SA.



ACHTUNG: EGB!
ELEKTROSTATISCH GEFÄHRDETE
BAUELEMENTE ERFORDERN EINE
BESONDERE HANDHABUNG.
ATTENTION ESD!
ELECTROSTATIC SENSITIVE DEVICES
REQUIRE A SPECIAL HANDLING

FOR BINDING INFORMATION ON MODELS,
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NONFITTED COMPONENTS SEE PARTS LIST.

| | |
|-------|------------|
| 04/02 | |
| | |
| | |
| 04/01 | |
| REND. | ÄNDERUNG |
| IND. | NITTEILUNG |



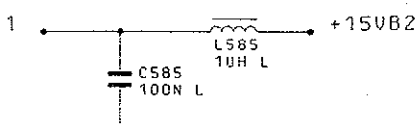
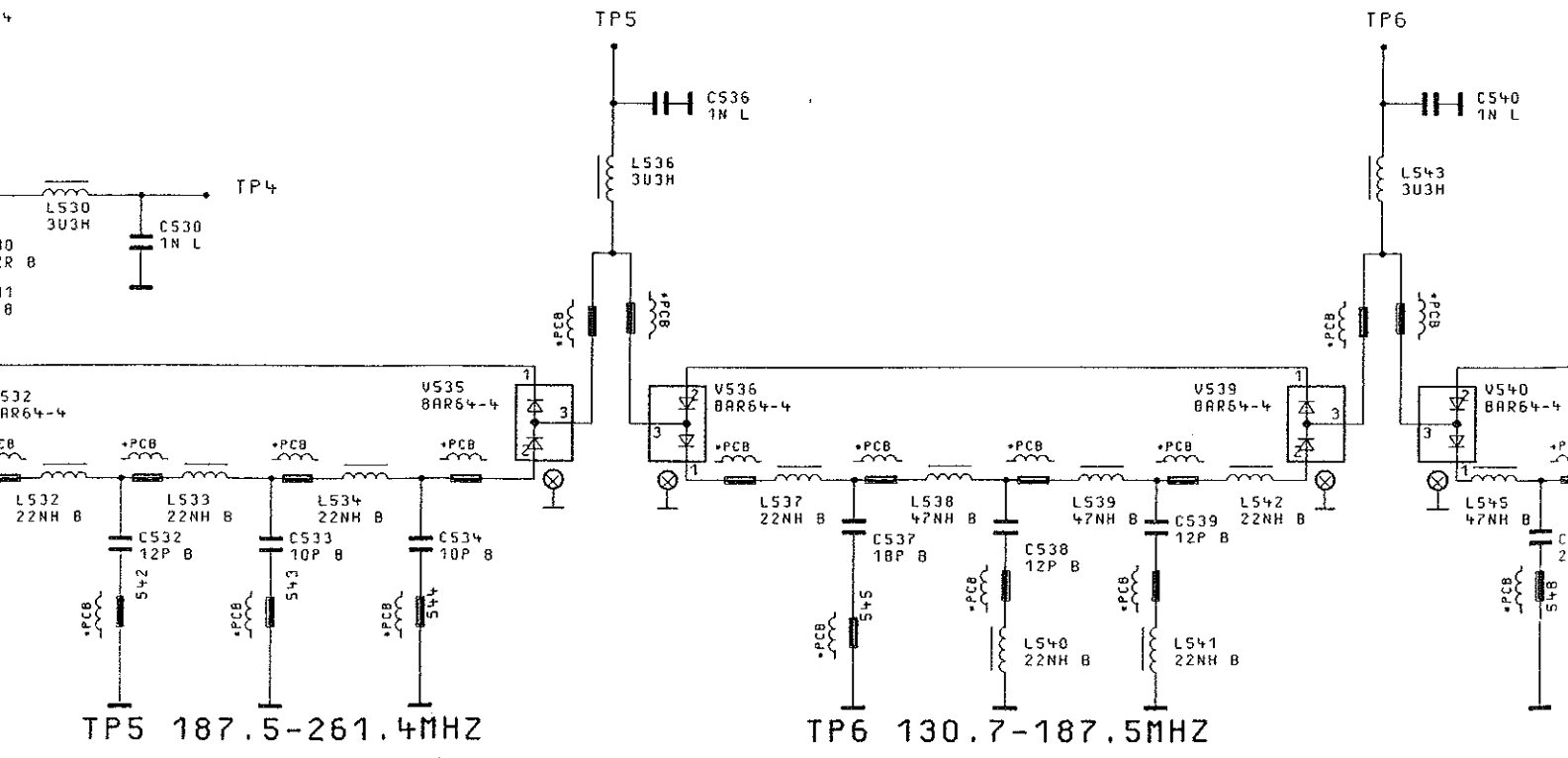
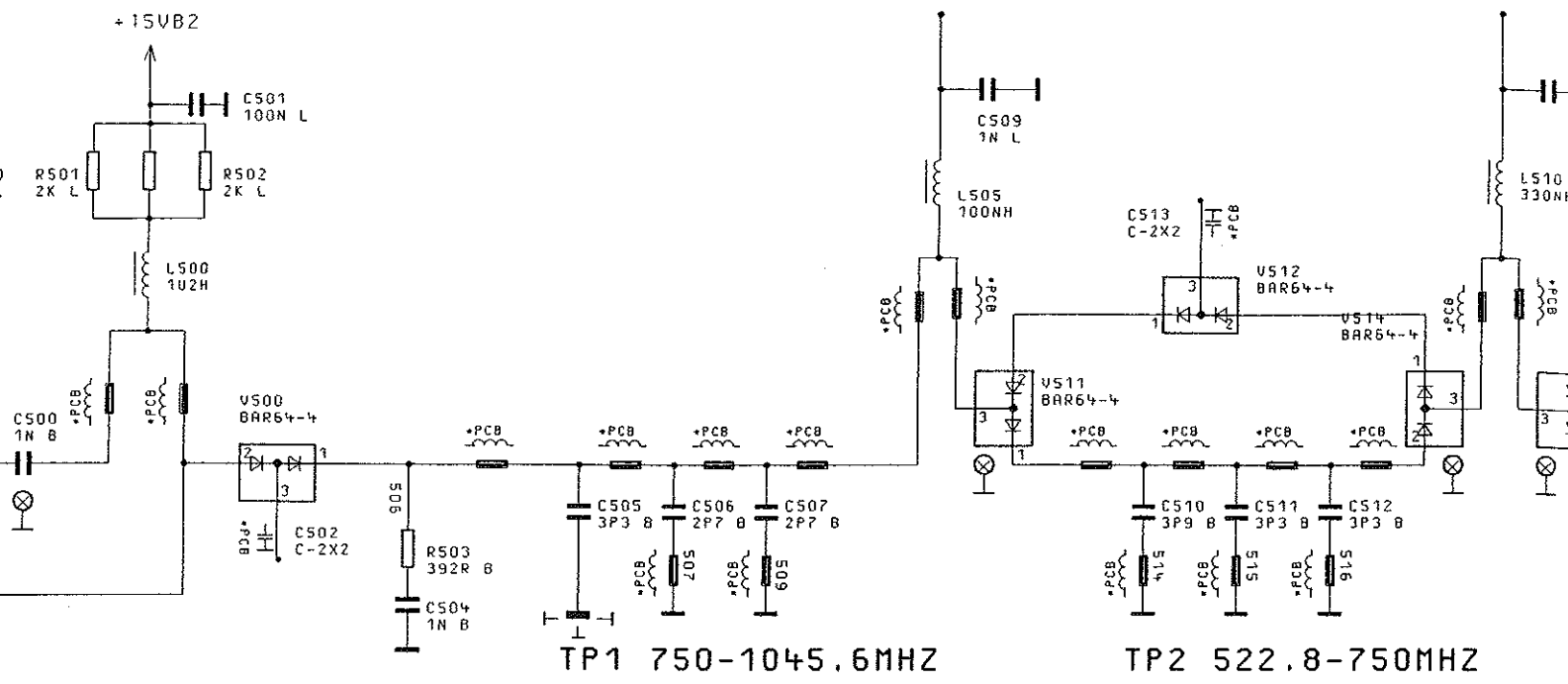
N.F. = NOT FITTED / NICHT BESTUECKT



ACHTUNG: EGB!
ELEKTROSTATISCH GEFÄHRDETE BAUELEMENTE ERFORDERN EINE BESONDERE HANDHABUNG.
ATTENTION ESD!
ELECTROSTATIC SENSITIVE DEVICES REQUIRE A SPECIAL HANDLING

BINDEN
TRIMM
NICHT
FOR BI
TRIMM
NON FIT

C FILTERS



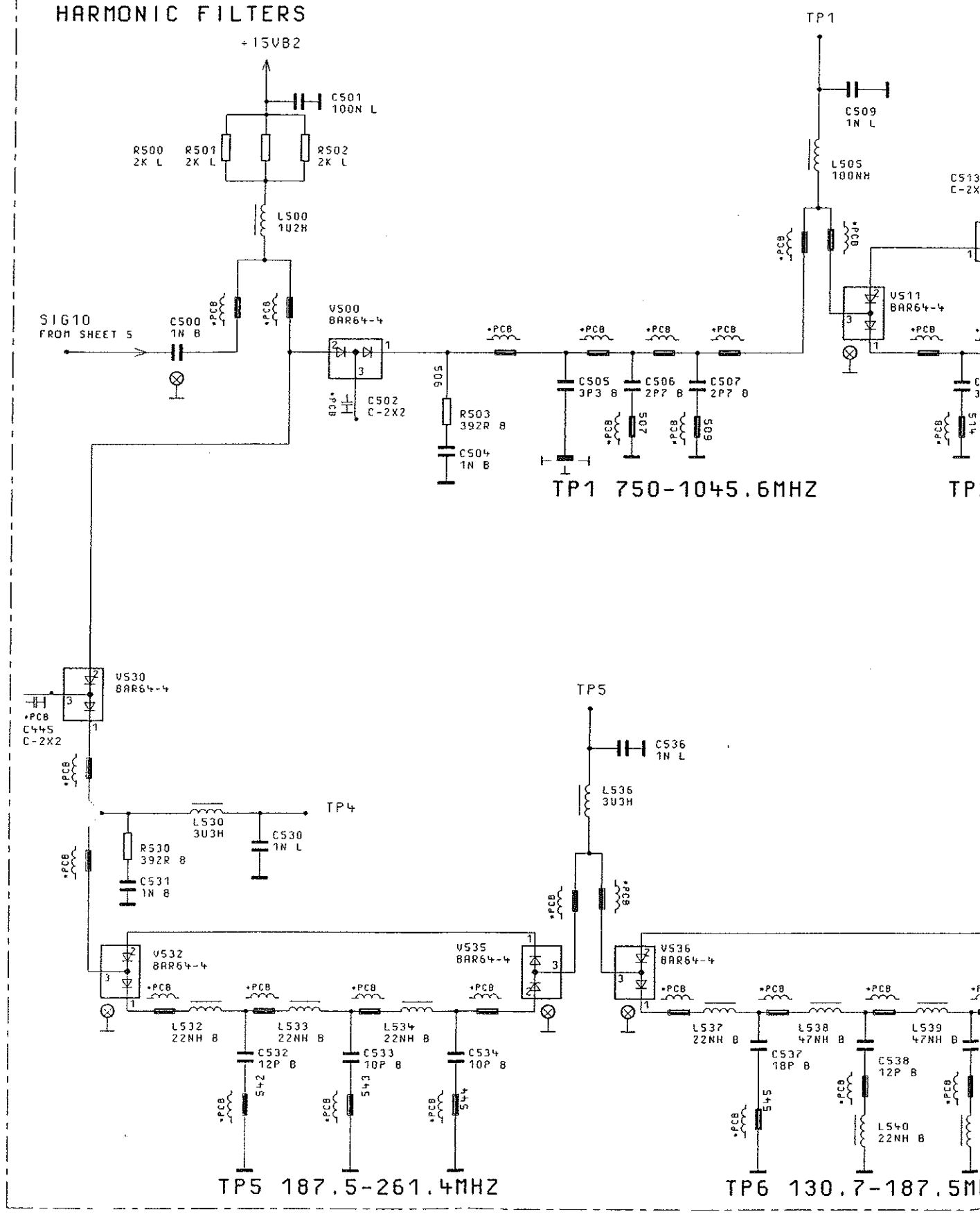
 *PCB
 *PCB
 *PCB

- PRINTED ON PCB

N.F. - NO



HARMONIC FILTERS



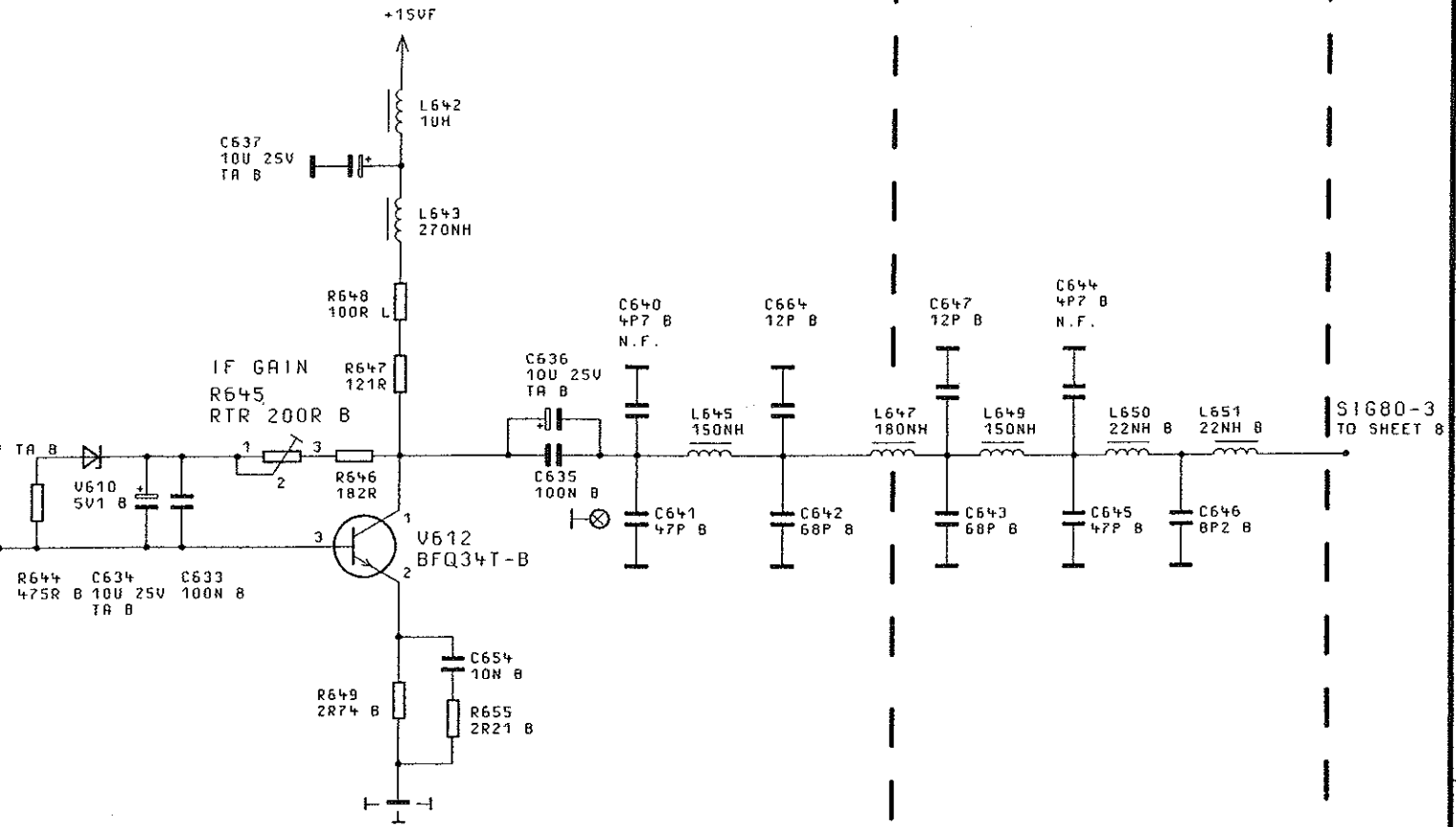
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|--|------------------|
| | - PRINTED ON PCB |
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| | |

BEHALTEN IIR UNS ALLE RECHTE VOR

R645

PLIFIER


IF-LOWPASS
65MHZ

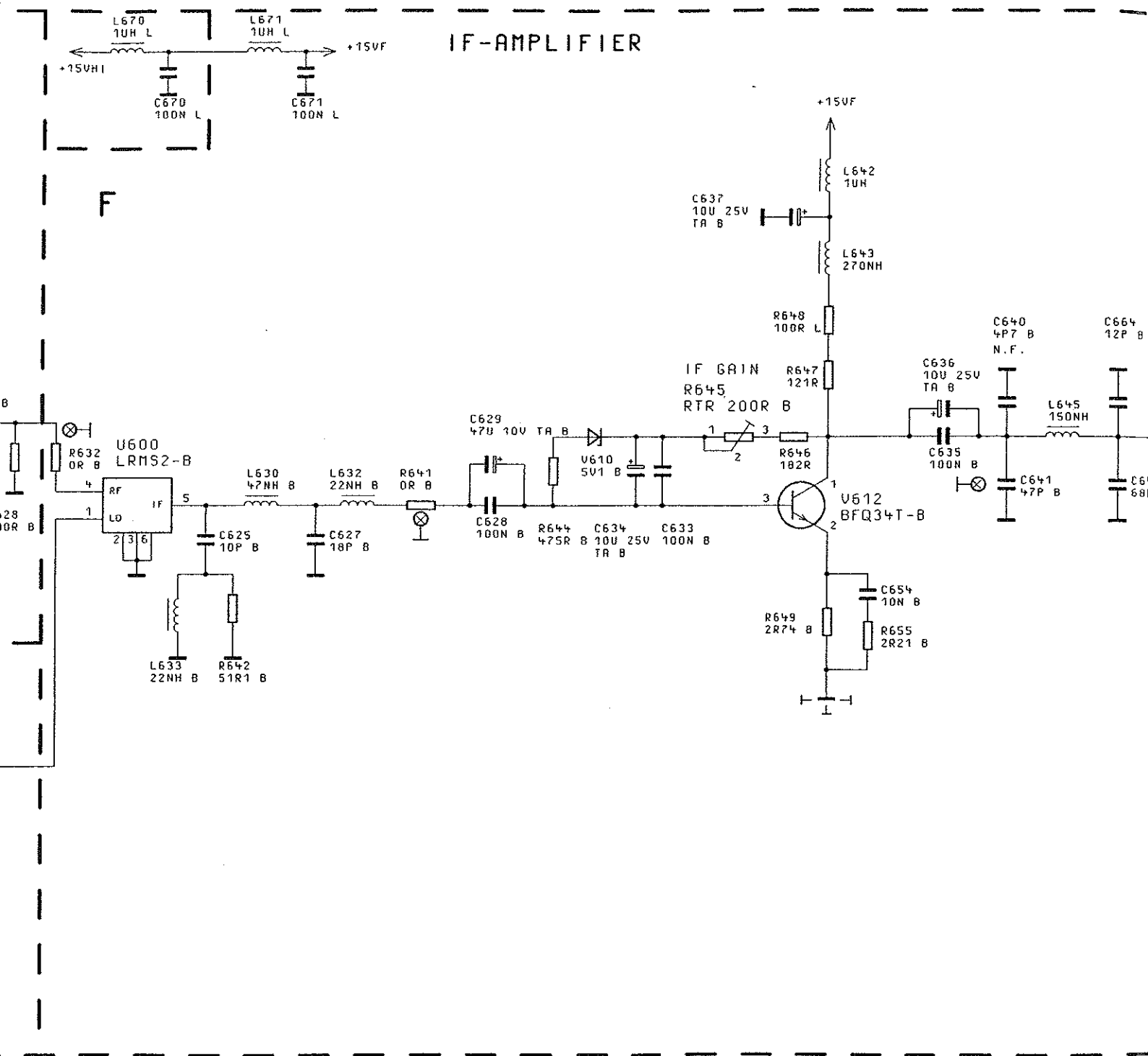



N.F. - NOT FITTED / NICHT BESTUECKT

BINDENDE ANGABEN UEBER VARIANTEN,
TRIMMWERTE, BAUTEILWERTE UND
NICHT BESTUECKTE BAUTEILE SIEHE SA.

FOR BINDING INFORMATION ON MODELS,
TRIMMING AND COMPONENTS VALUES AND
NONFITTED COMPONENTS SEE PARTS LIST.

| | | | | | | | |
|------------|-----------------------|-------|---|----------|-------------|----------------------|-----------|
| 04/02 | 03.03.97 | E I | MENP | TAG | NAME | BENENNUNG | |
| | | | BEARB. | | E I | AUSGANGSTEIL 2.08GHZ | |
| | | | GEPR. | | | OUTPUT UNIT 2.08GHZ | |
| | | | NORM | | | | |
| | | | PLOTT | 03.03.97 | | | |
| 04/01 | 16.12.96 | E I |  ROHDE & SCHWARZ | | ZEICHN.-NR. | | BLATT-NR. |
| REND. IND. | RENDERUNGS-MITTEILUNG | DATUM | | | NAME | 1062.7005.01S | |
| | | | ZU GERÄT | SMY | REG.-I.V. | 1062.5502 | ERSTE Z. |
| | | | | | | | 1062.5502 |





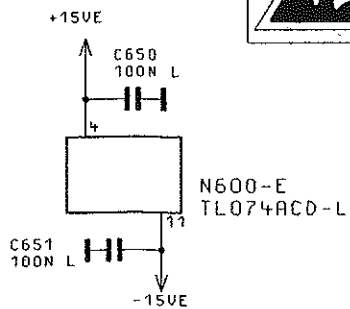
ACHTUNG: EGB!
ELEKTROSTATISCH GEFÄHRDETE
BAUELEMENTE ERFORDERN EINE
BESONDERE HANDHABUNG.


ATTENTION ESD!
ELECTROSTATIC SENSITIVE DEVICES
REQUIRE A SPECIAL HANDLING

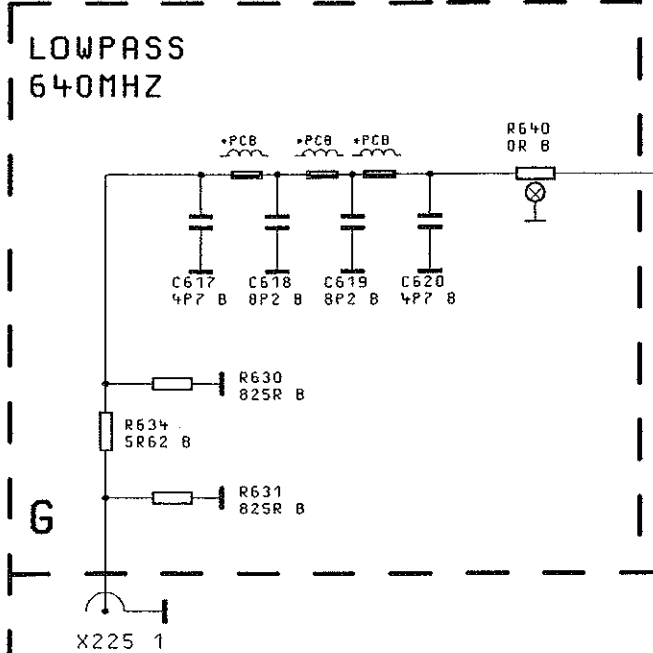
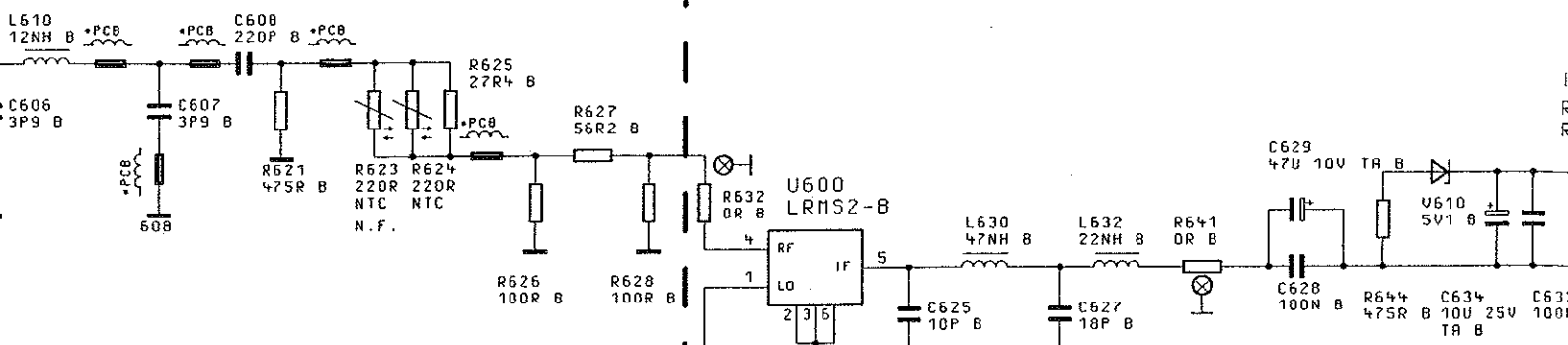
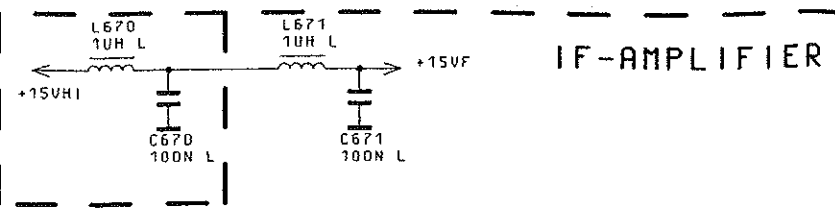
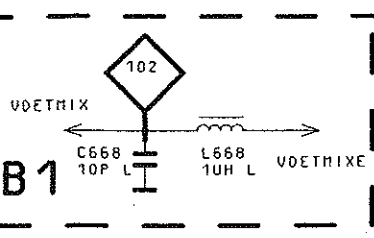
N.F. - NOT FITTED / NICHT BESTUECKT

BINDENDE ANGABEN UEBER VARIANTEN,
TRIMMWERTE, BAUTEILWERTE UND
NICHT BESTUECKTE BAUTEILE SIEHE SA.

FOR BINDING INFORMATION
TRIMMING AND COMPONENTS
NONFITTED COMPONENTS SEE



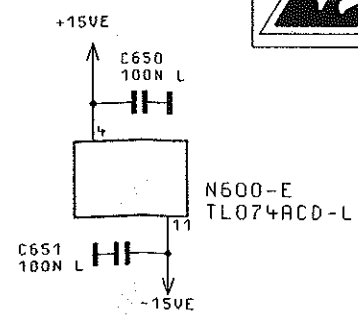
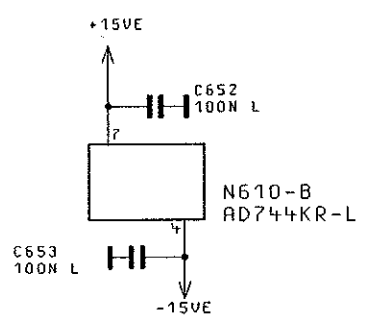
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|---------------|--------------------------|----------|------|---|----------|------|
| 04/02 | | 03.03.97 | E I | MENP | TAG | NAME |
| | | | | BEARB. | | E I |
| | | | | GEPR. | | |
| | | | | NORM | | |
| | | | | PLOTT | 03.03.97 | |
| 04/01 | | 16.12.96 | E I | | | |
| REND. IND. | ÄNDERUNGS- MITTEILUNG | DATUM | NARE |  ROHDE & SCHWARZ ZU BERREI SMY | | |
| | | | | | | |



X225 1
REF640
640MHZ
9...12DBM

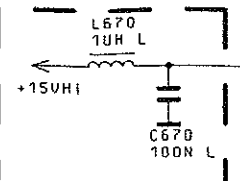
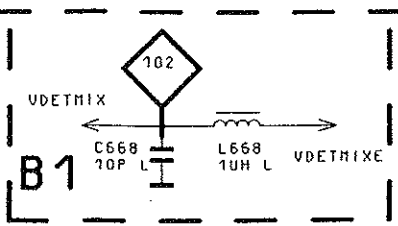
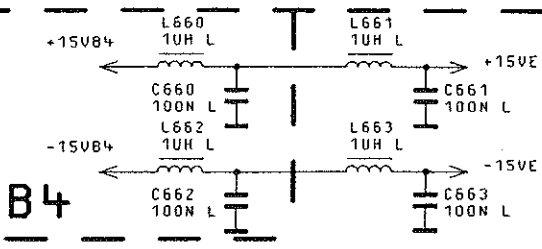
ACHTUNG: EGB!
ELEKTROSTATISCH GEFÄHRDETE
BAUELEMENTE ERFORDERN EINE
BESONDERE HANDHABUNG.
ATTENTION ESD!
ELECTROSTATIC SENSITIVE DEVICES
REQUIRE A SPECIAL HANDLING

N.F. - NO
BINDENDE A
TRIMMWERTE
NICHT BESTE

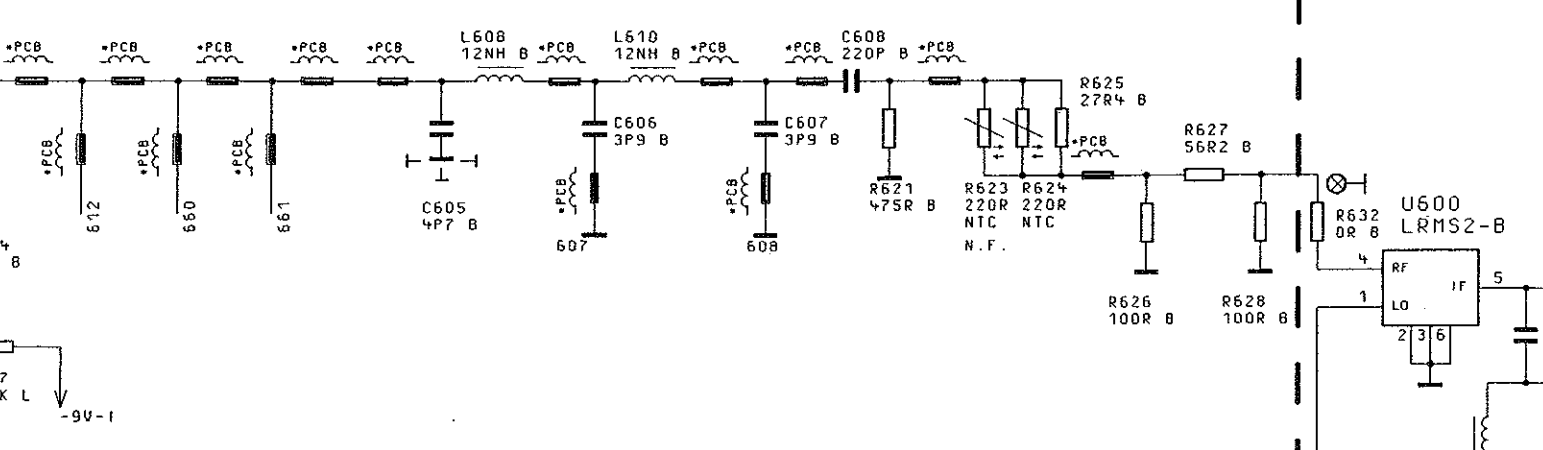


| | |
|-------|--|
| 04/02 | |
| | |
| | |
| 04/01 | |
| REND. | |
| IND. | |

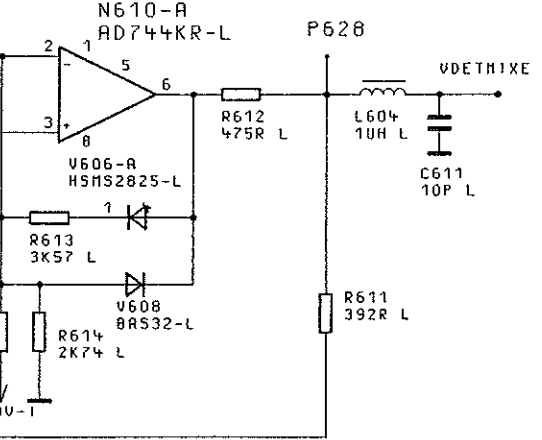
P628
P620 P621



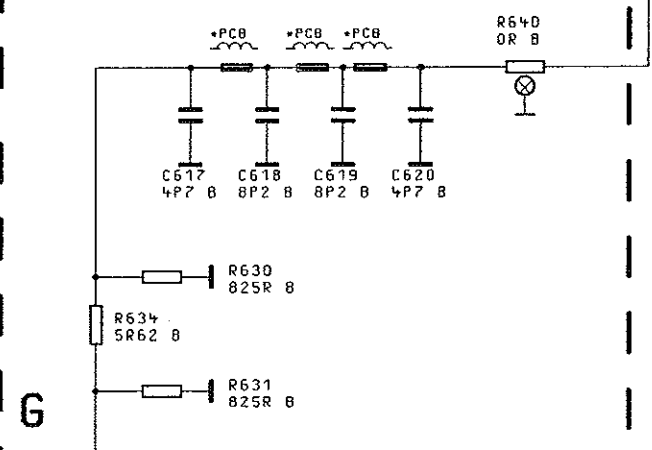
RF-LOWPASS



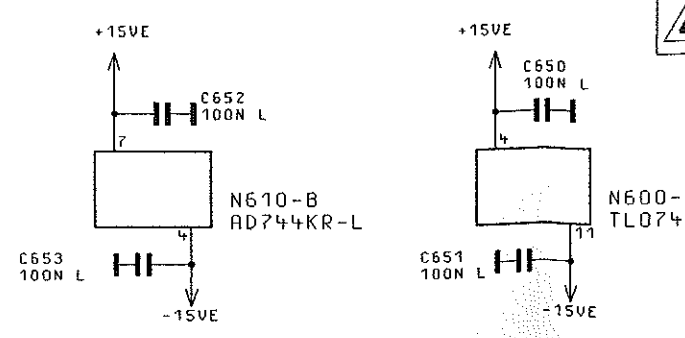
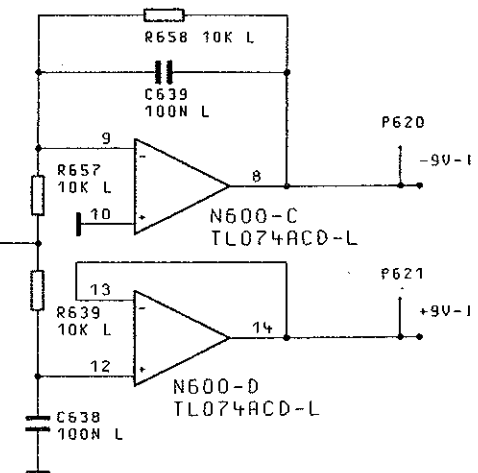
DETECTOR LINEARIZER



LOWPASS
640MHZ



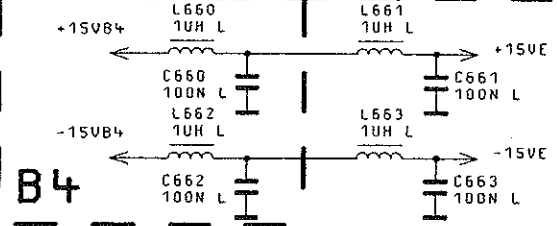
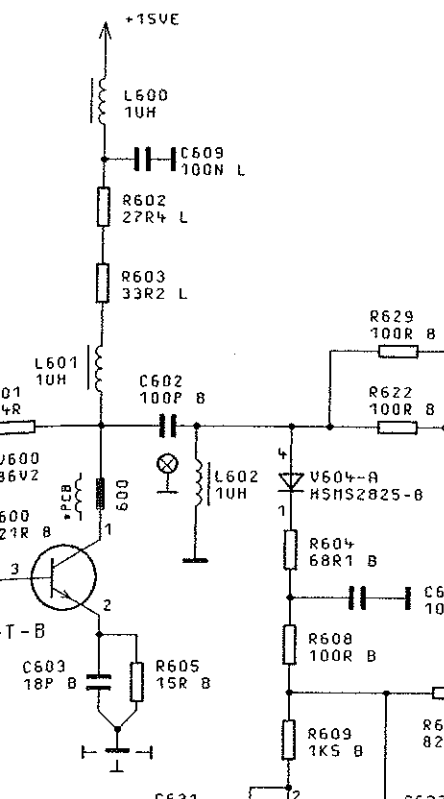
X225 1
REF640
640MHZ
9...12DBM



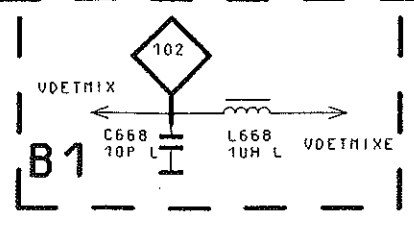
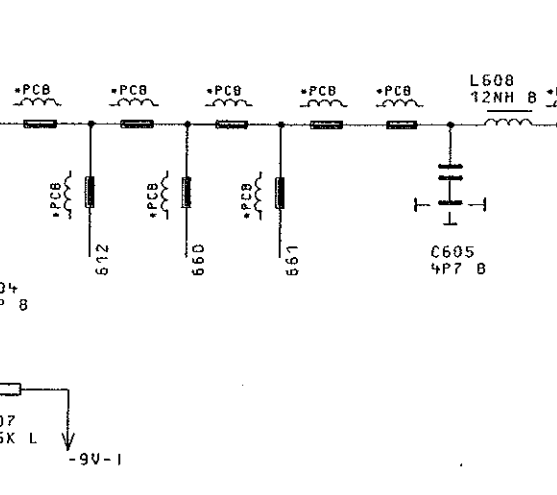
P600
P601

P628
P620 P621

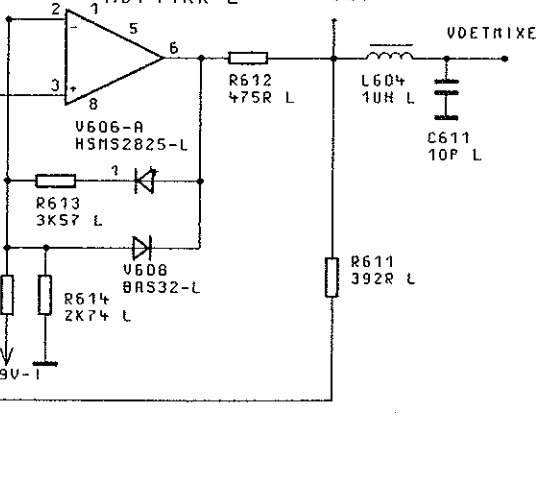
AMPLIFIER 4



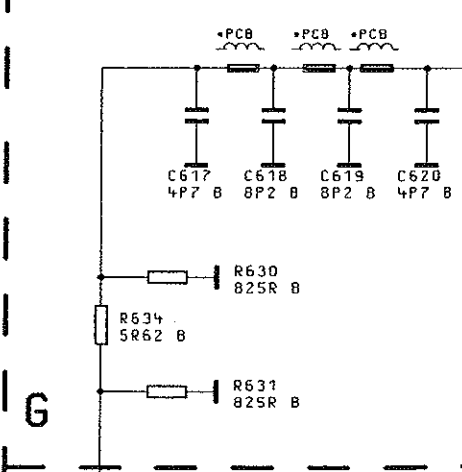
RF-LOWPASS



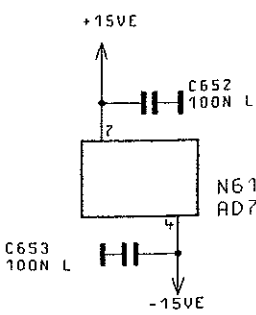
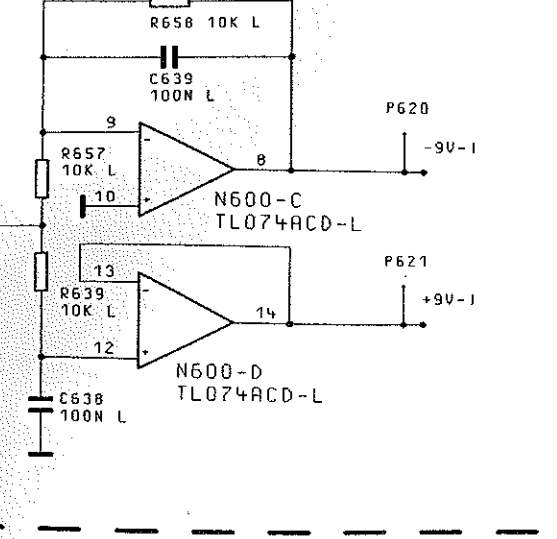
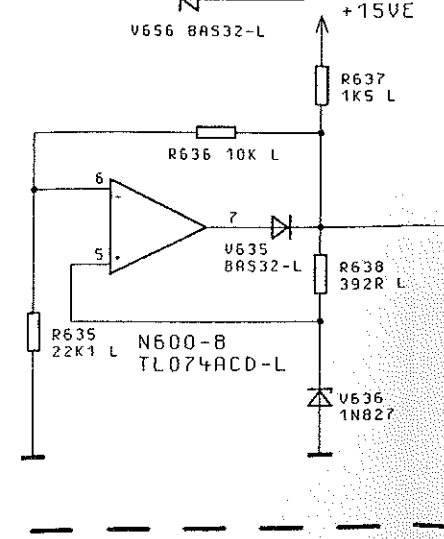
DETECTOR LINEARIZER



LOWPASS 640MHZ



X225 1
REF640
640MHZ
9...12DBM



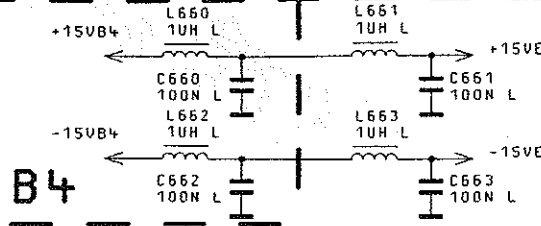
R619

P600
P601

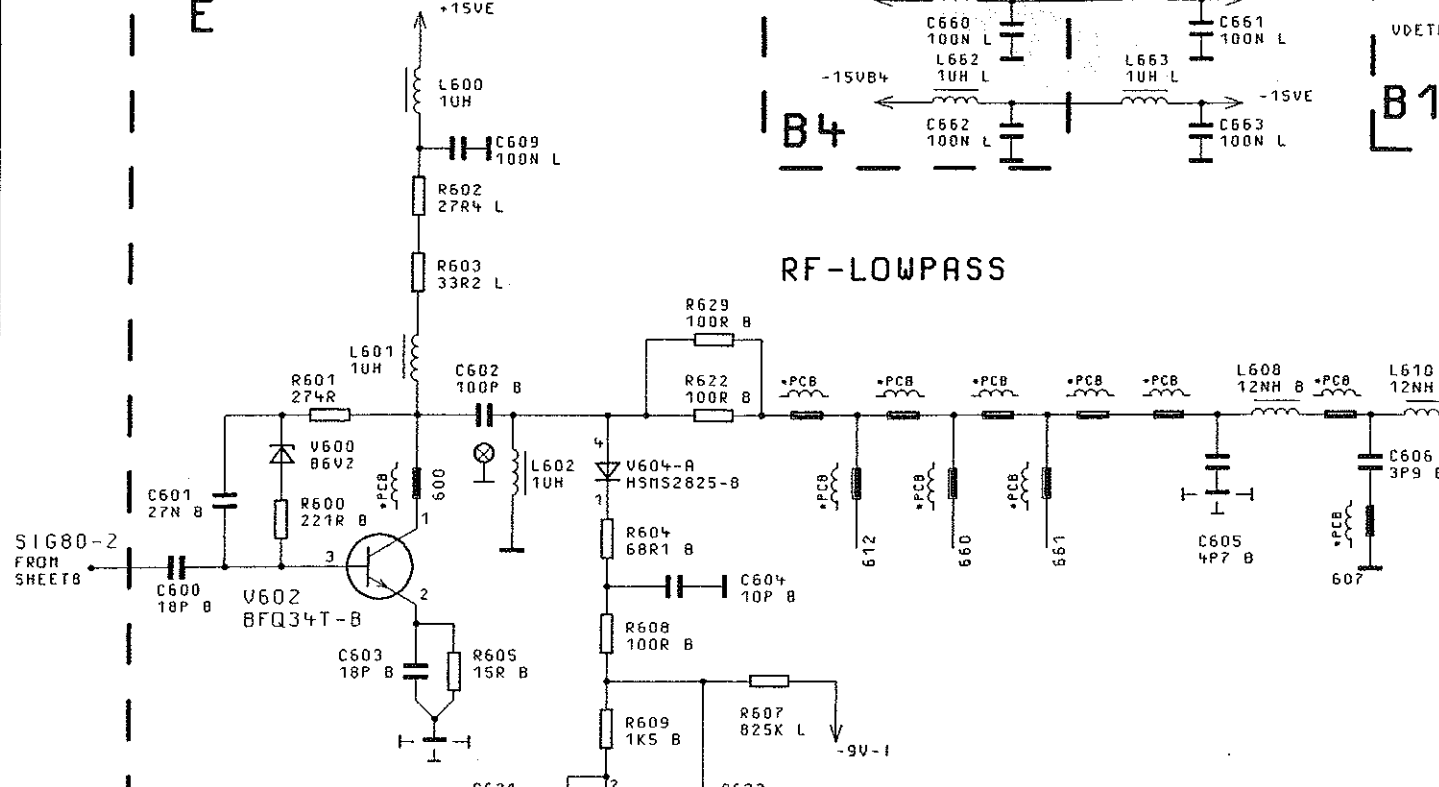
P528
P620 P621

RF-AMPLIFIER 4

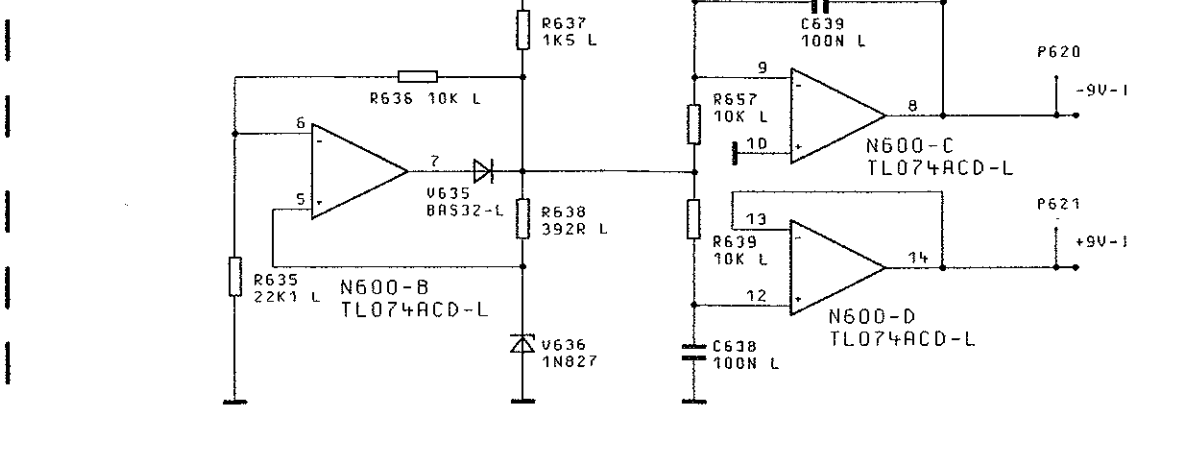
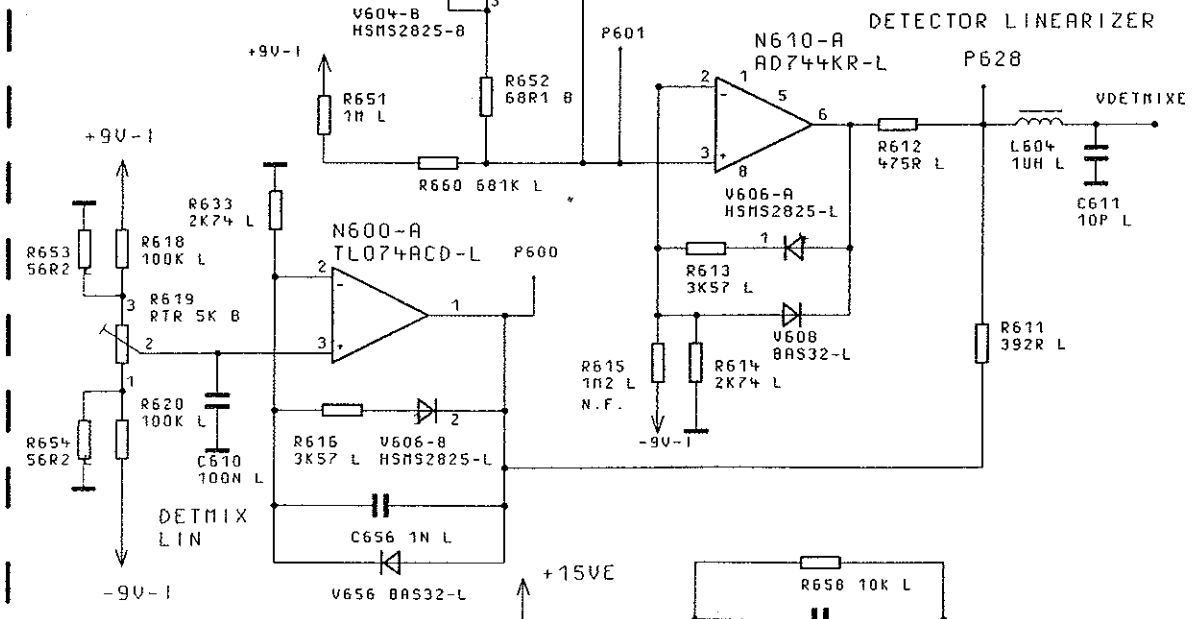
E



RF-LOWPASS



DETECTOR LINEARIZER



BEHALTEN WIR UNS ALLE RECHTE VOR

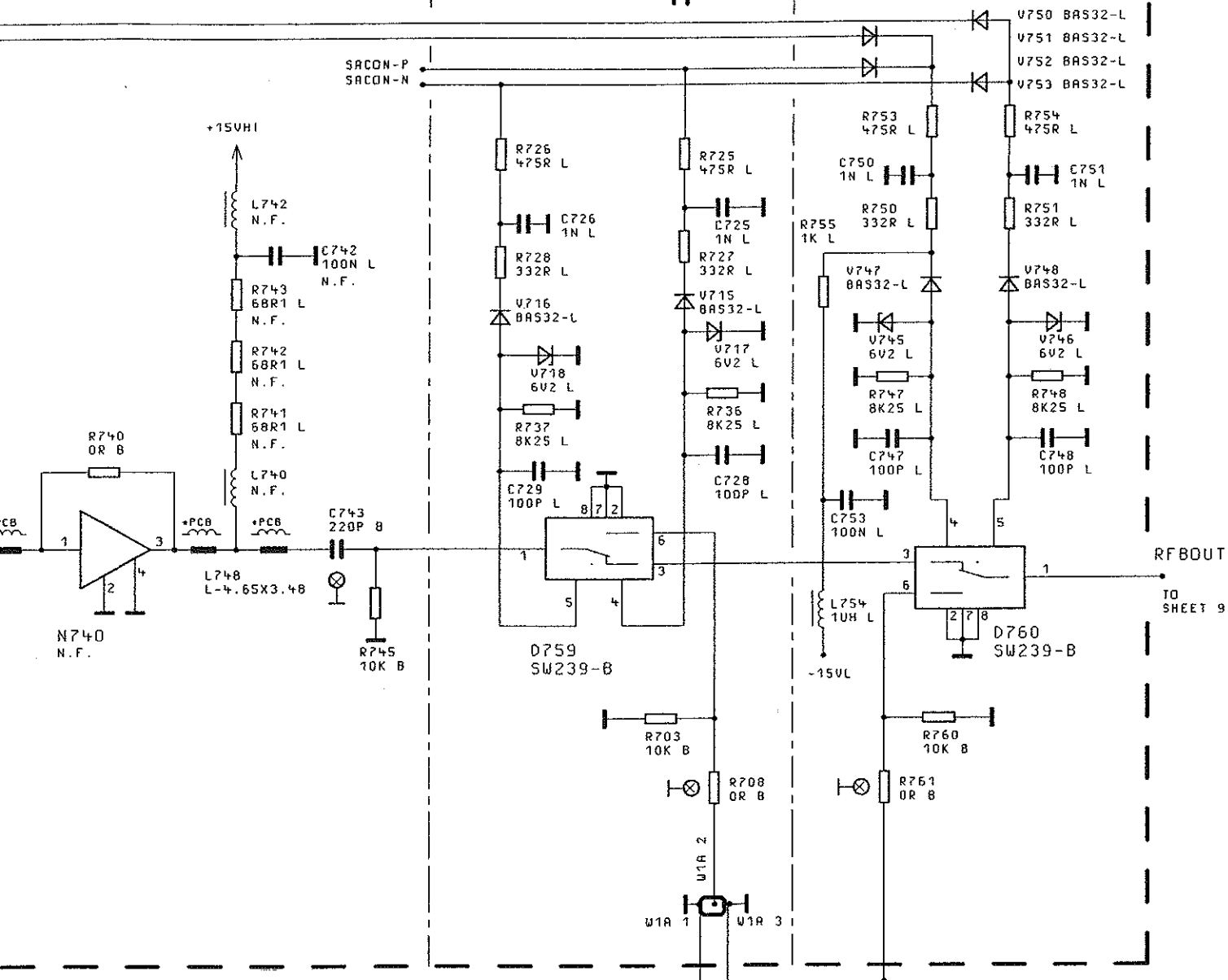
ZEICHN.-NR.

PLIFIER 5

SWITCH A

H

SWITCH B



DOUBLER IN
SHEET 11

SIG80-3
FROM IF LOWPASS
SHEET 7

BINDENDE ANGABEN UEBER VARIANTEN,
TRIMMWERTE, BAUTEILWERTE UND
NICHT BESTUECKTE BAUTEILE SIEHE SA.

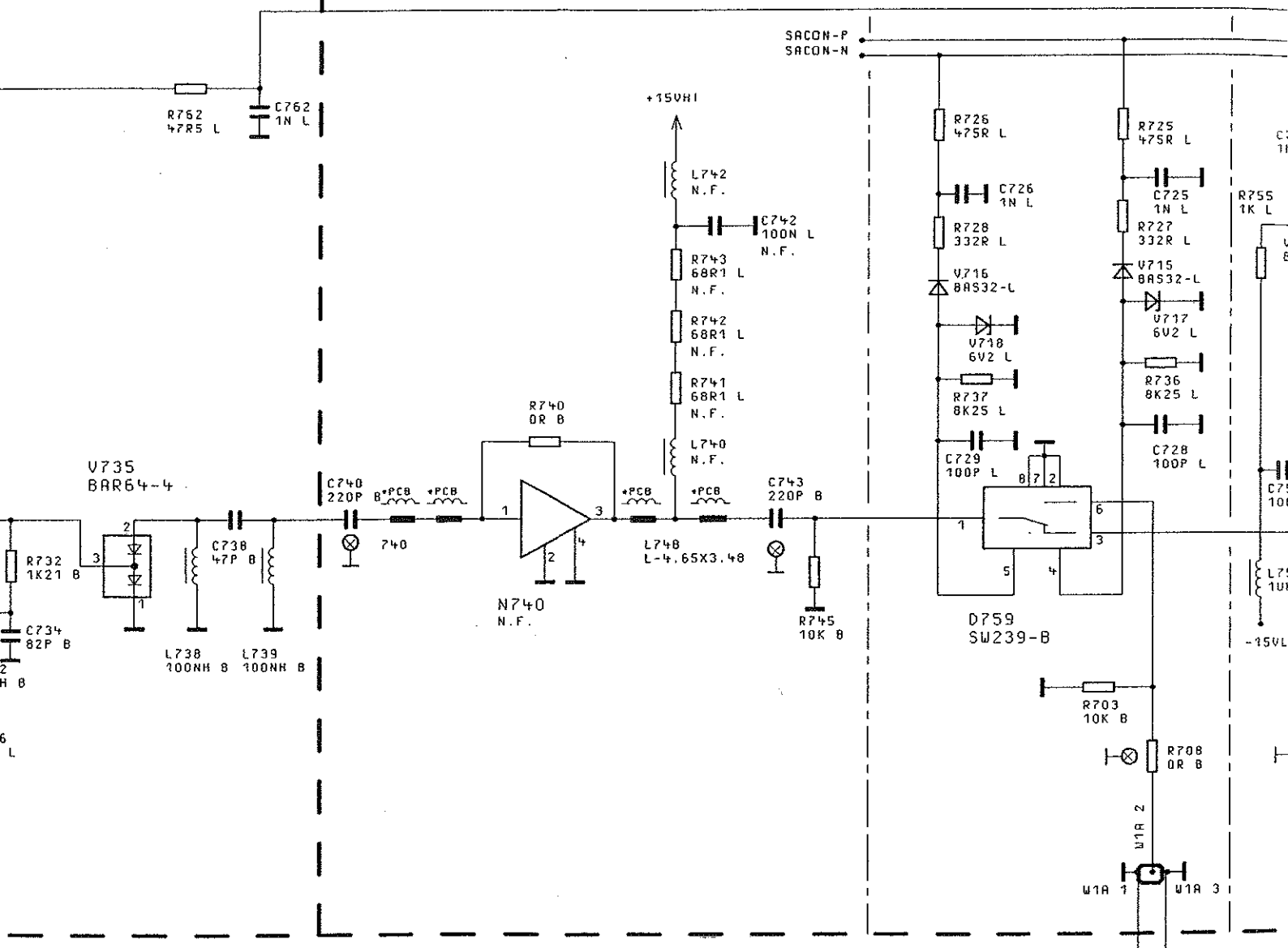
FOR BINDING INFORMATION ON MODELS,
TRIMMING AND COMPONENTS VALUES AND
NONFITTED COMPONENTS SEE PARTS LIST.

| | | | | | | | | | |
|------------|-----------------------|----------|------|----------------------------|----------|-----------|---|-----------|-----------|
| 04/02 | | 03.03.97 | E I | MENP | TAG | NAME | BENENNUNG | | |
| | | | | BEARB. | | E I | AUSGANGSTEIL 2.086GHZ OUTPUT UNIT 2.086GHZ | | |
| | | | | GEPR. | | | | | |
| | | | | NORM | | | | | |
| | | | | PLOTT | 03.03.97 | | | | |
| 04/01 | | 16.12.96 | E I | ROHDE & SCHWARZ | | | ZEICHN.-NR. | BLATT-NR. | |
| AEND. IND. | AENDERUNGS-MITTEILUNG | DATUM | NAMN | | | | 1062.7005.01S | 8+ | |
| | | | | ZU GERÄT | SMY | REG.-I.V. | 1062.5502 | ERSTE Z. | 1062.5502 |

RF AMPLIFIER 5

SWITCH A

H

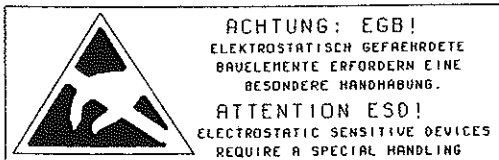


DOUBLERIN
SHEET 11

N.F. - NOT FITTED / NICHT BESTUECKT

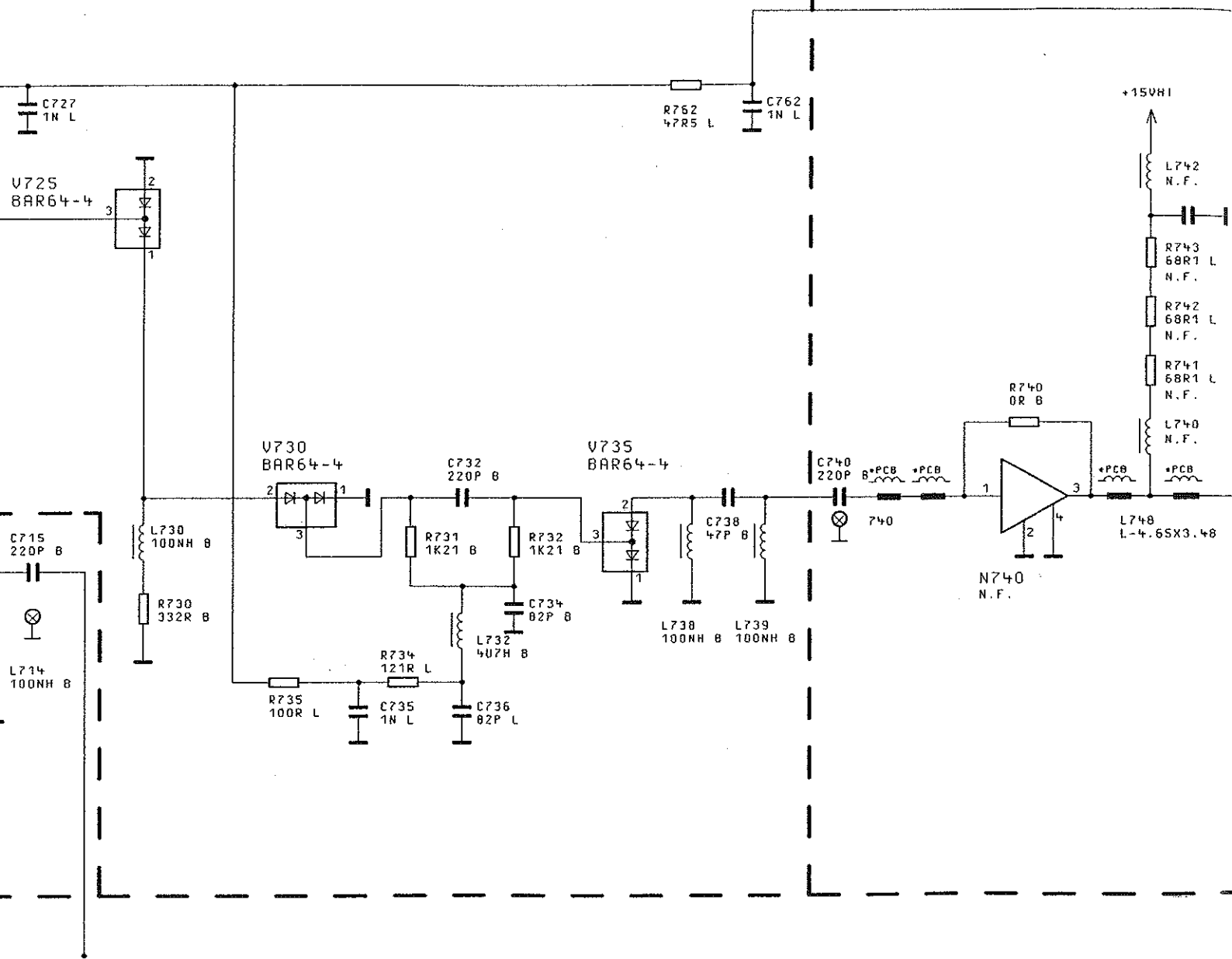
BINDENDE ANGABEN UEBER VARIANTEN,
TRIMMWERTE, BAUTEILWERTE UND
NICHT BESTUECKTE BAUTEILE SIEHE SA.

FOR BINDING INFORMATION ON MODELS,
TRIMMING AND COMPONENTS VALUES AND
NONFITTED COMPONENTS SEE PARTS LIST.



| | | | | | | | |
|--------------|--------------------------|----------|-------|--------|----------|-----------|---------------------|
| 04/02 | | 03.03.97 | E I | MENP | TAG | NAME | BEMERKUNG |
| | | | | BEARB. | | E I | AUSGANG OUTPUT U |
| | | | | GEPR. | | | |
| | | | | NORM | | | |
| | | | | PLOTT | 03.03.97 | | |
| 04/01 | | 16.12.96 | E I | | | | ZEICHN.-NR. |
| ÄND. IND. | ÄNDERUNGS- MITTEILUNG | DATUM | NAMEN | | | | 10 |
| | | | | | | ZU SERRET | SMY |

RF AMPLIFIER 5




SIG80-2

TO RF/AMPLIFIER 4
SHEET 7

N.F. - NOT FITTED / NICHT BESTUECKT

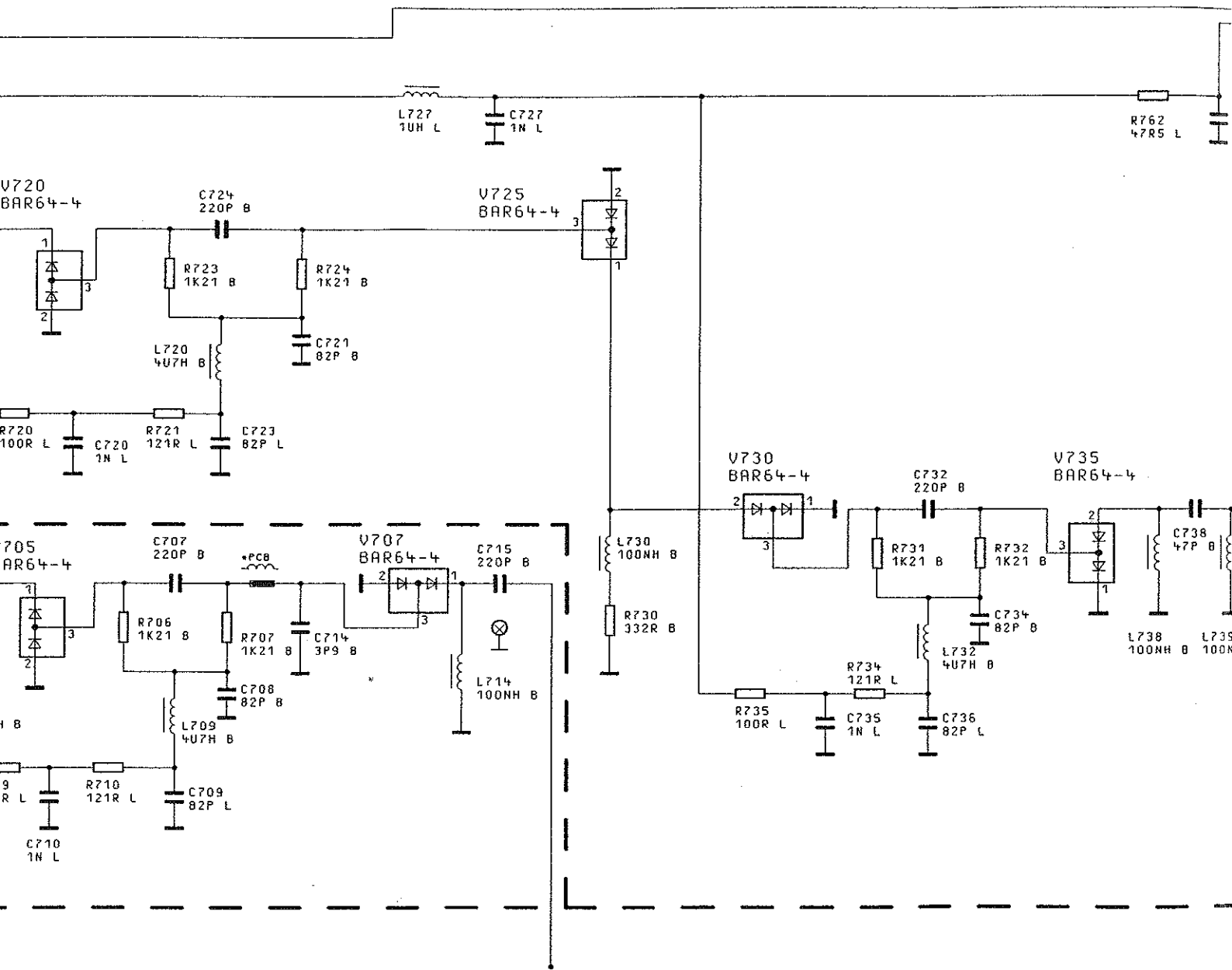
BINDENDE ANGABEN UEBER VA
TRIMMWERTE, BAUTEILWERTE
NICHT BESTUECKTE BAUTEILE



ACHTUNG: EGB!
ELEKTROSTATISCH GEFÄHRDETE
BAUELEMENTE ERFORDERN EINE
BESONDERE HANDABUNG.
ATTENTION ESD!
ELECTROSTATIC SENSITIVE DEVICES
REQUIRE A SPECIAL HANDLING

| | | |
|---------------|--------------------------|----|
| 04/02 | | 03 |
| | | |
| | | |
| | | |
| 04/01 | | 16 |
| REND. IND. | ÄNDERUNGS- MITTEILUNG | |

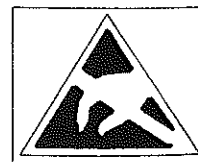
CH D



SIG80-2

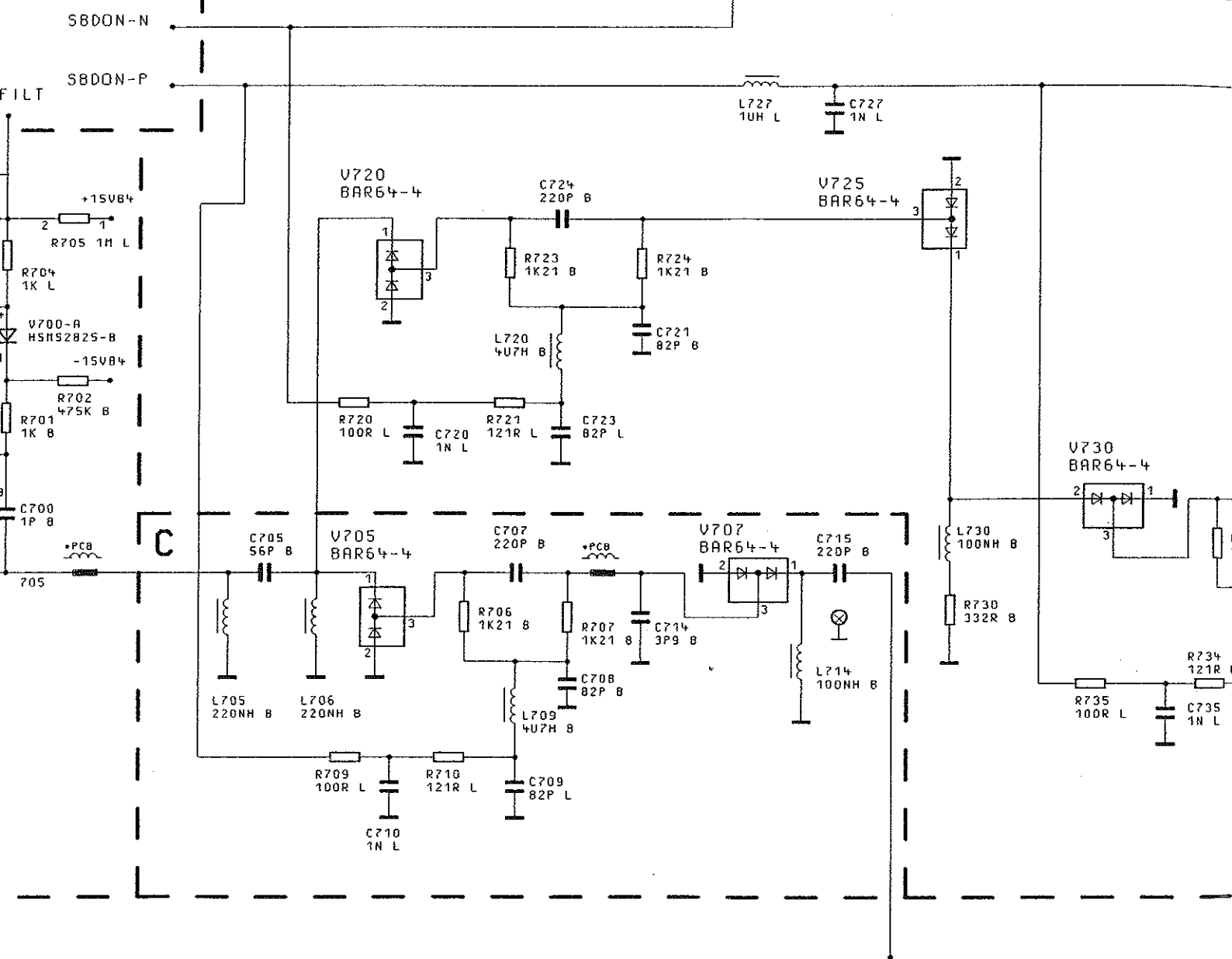
TO RF/AMPLIFIER 4
SHEET 7

N.F. - NOT FITTED /



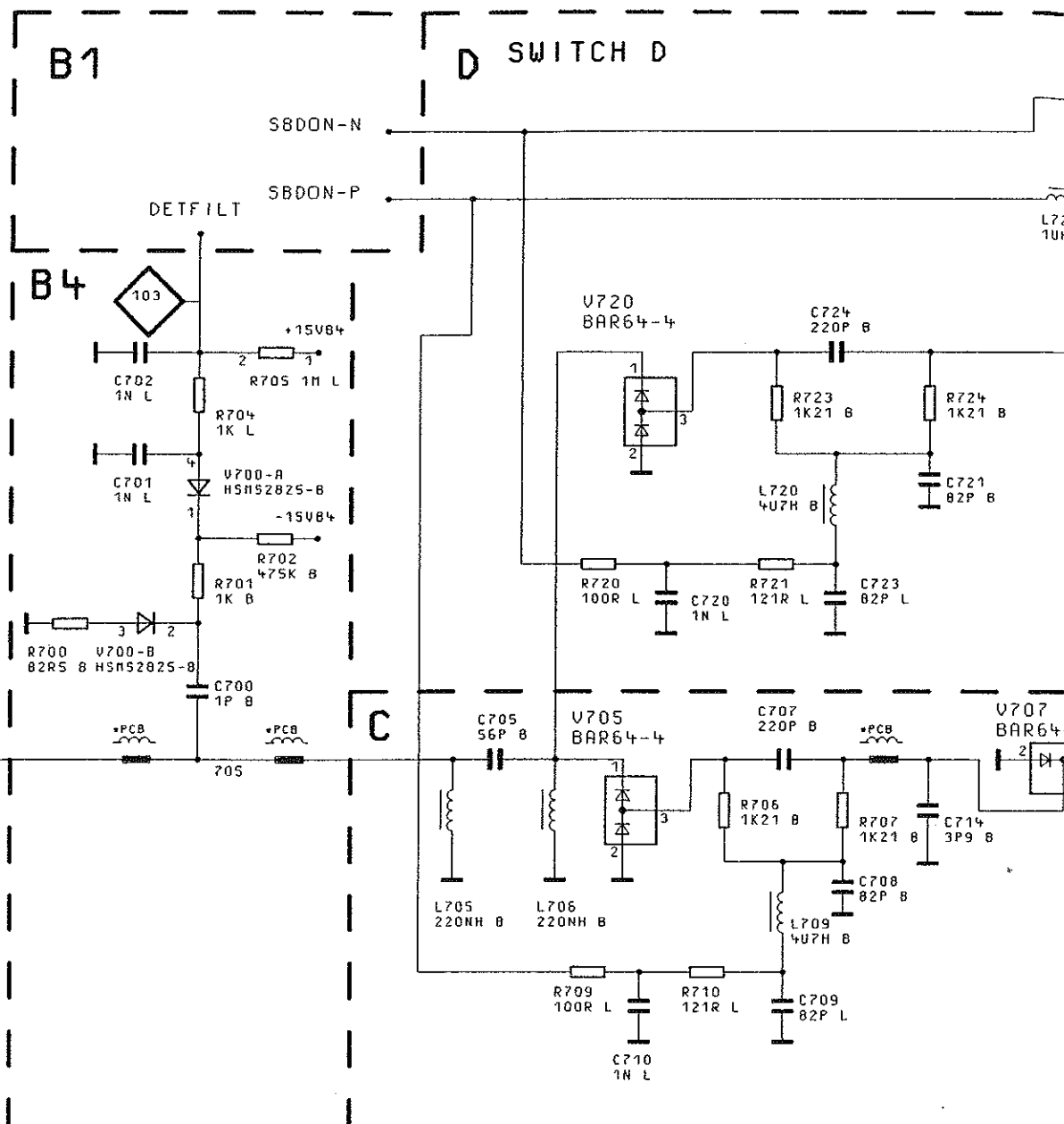
ACHTUNG
ELEKTROSTatische
Gefahr
BEWAHRUNG
BESONDERS
ATTENTION
ELECTROSTATIQUE
REQUIRE

D SWITCH D

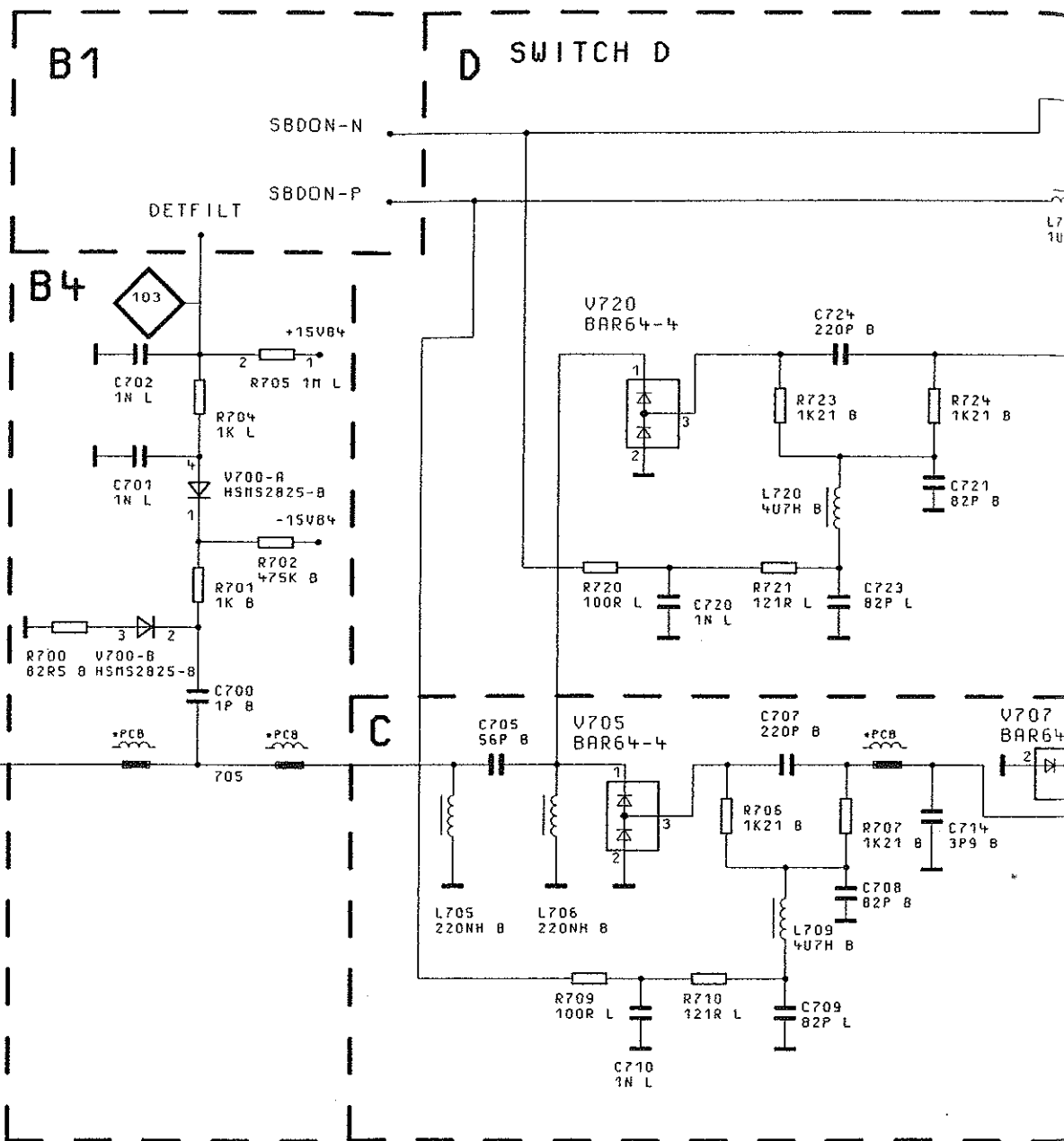


S1680-2
TO RF/AMPLIFIER 4
SHEET 7

BEHALTEN WIR UNS ALLE RECHTE VOR



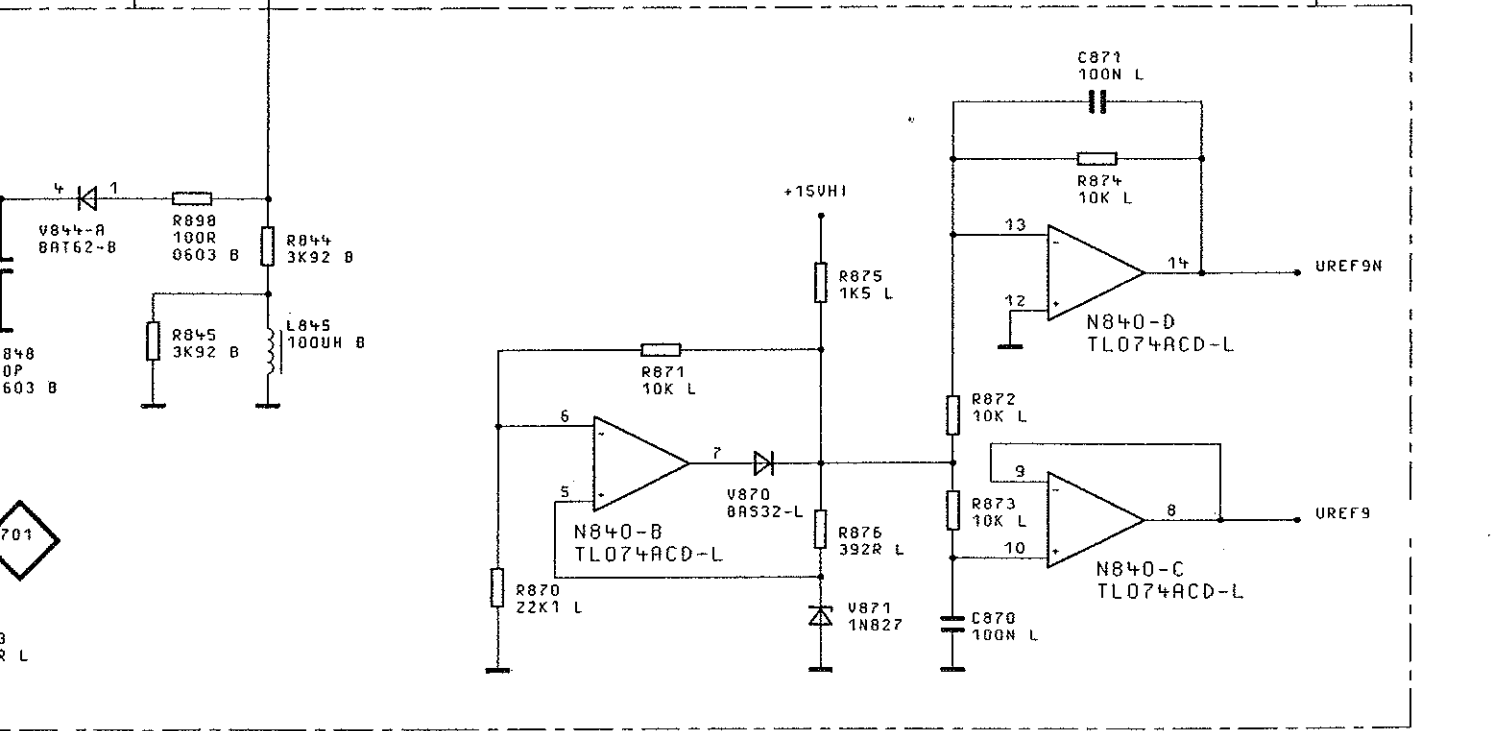
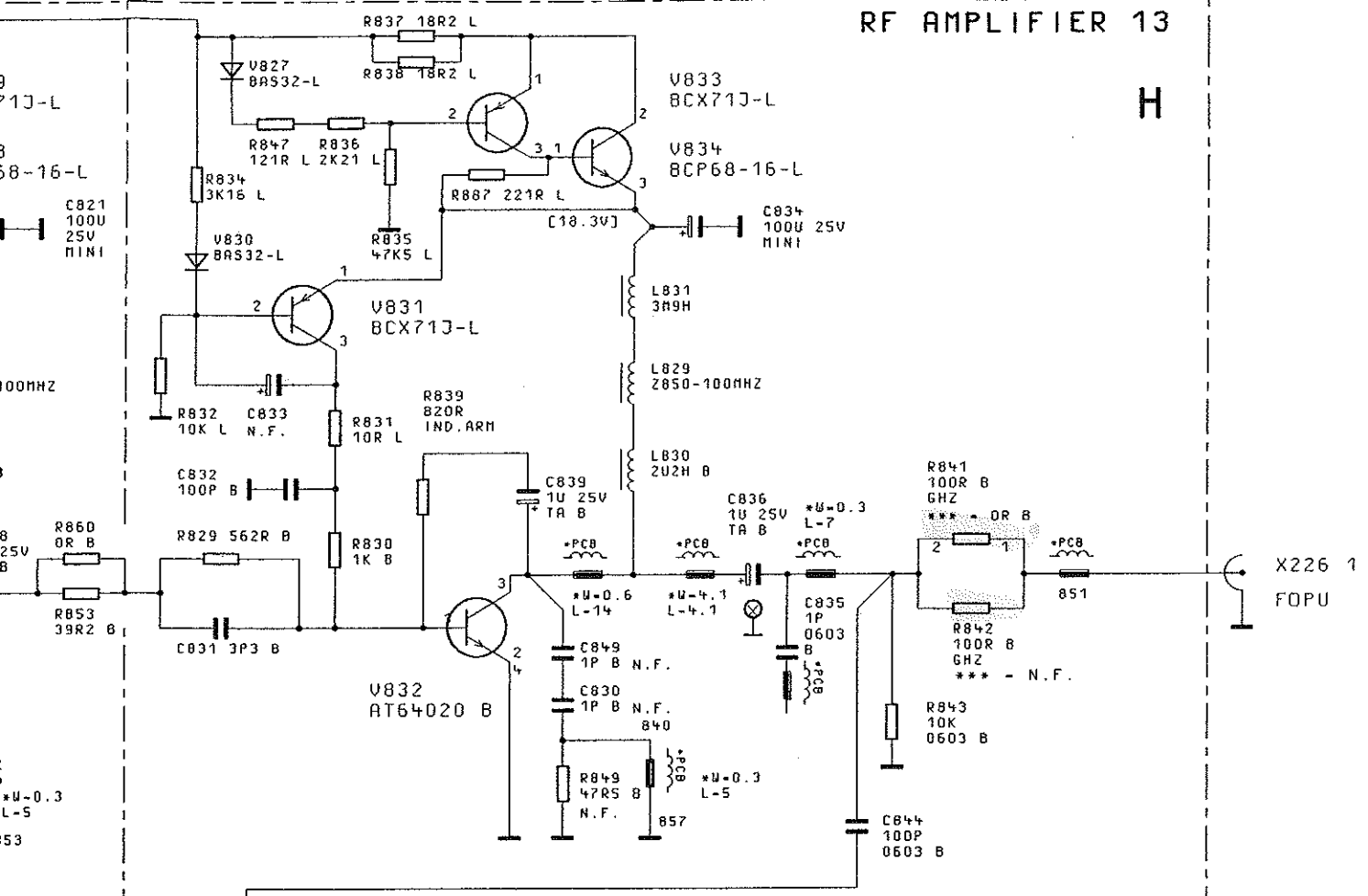
BEHALTEN MIR UNS ALLE RECHTE VOR
FUER DIESE UNTERLAGE




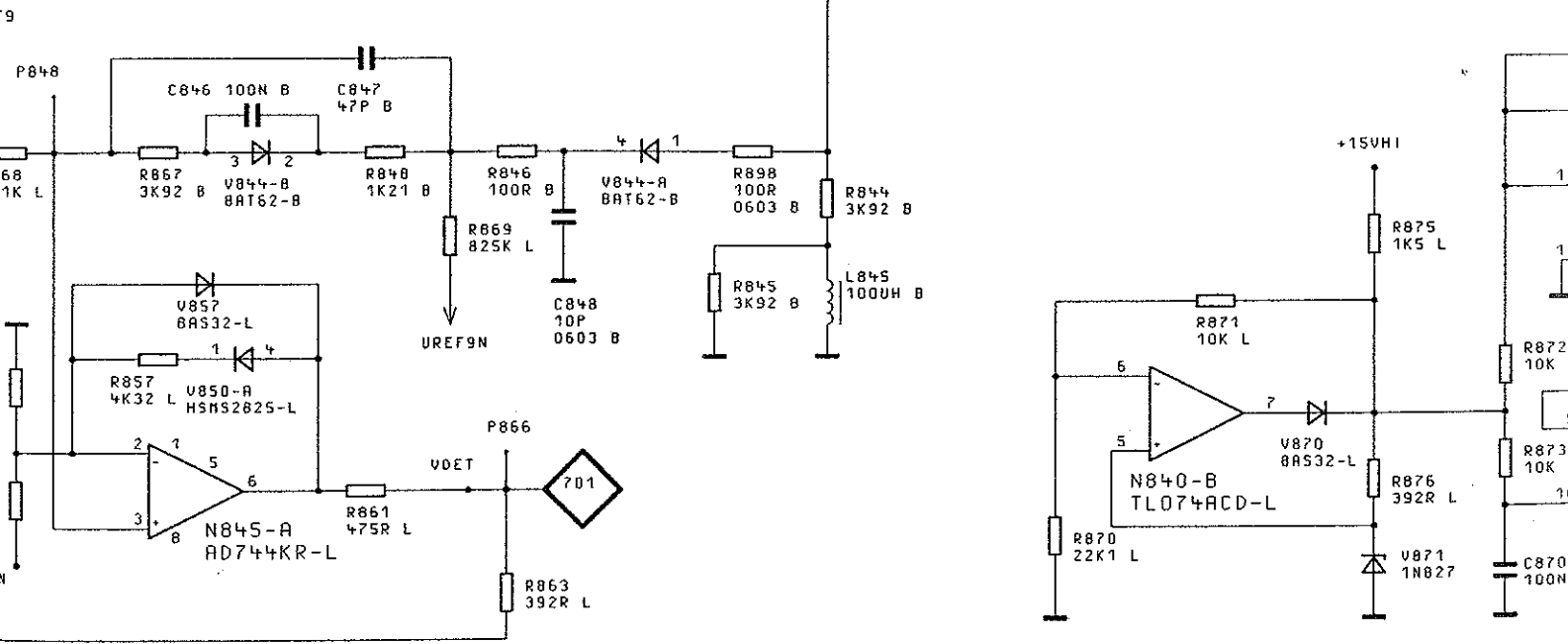
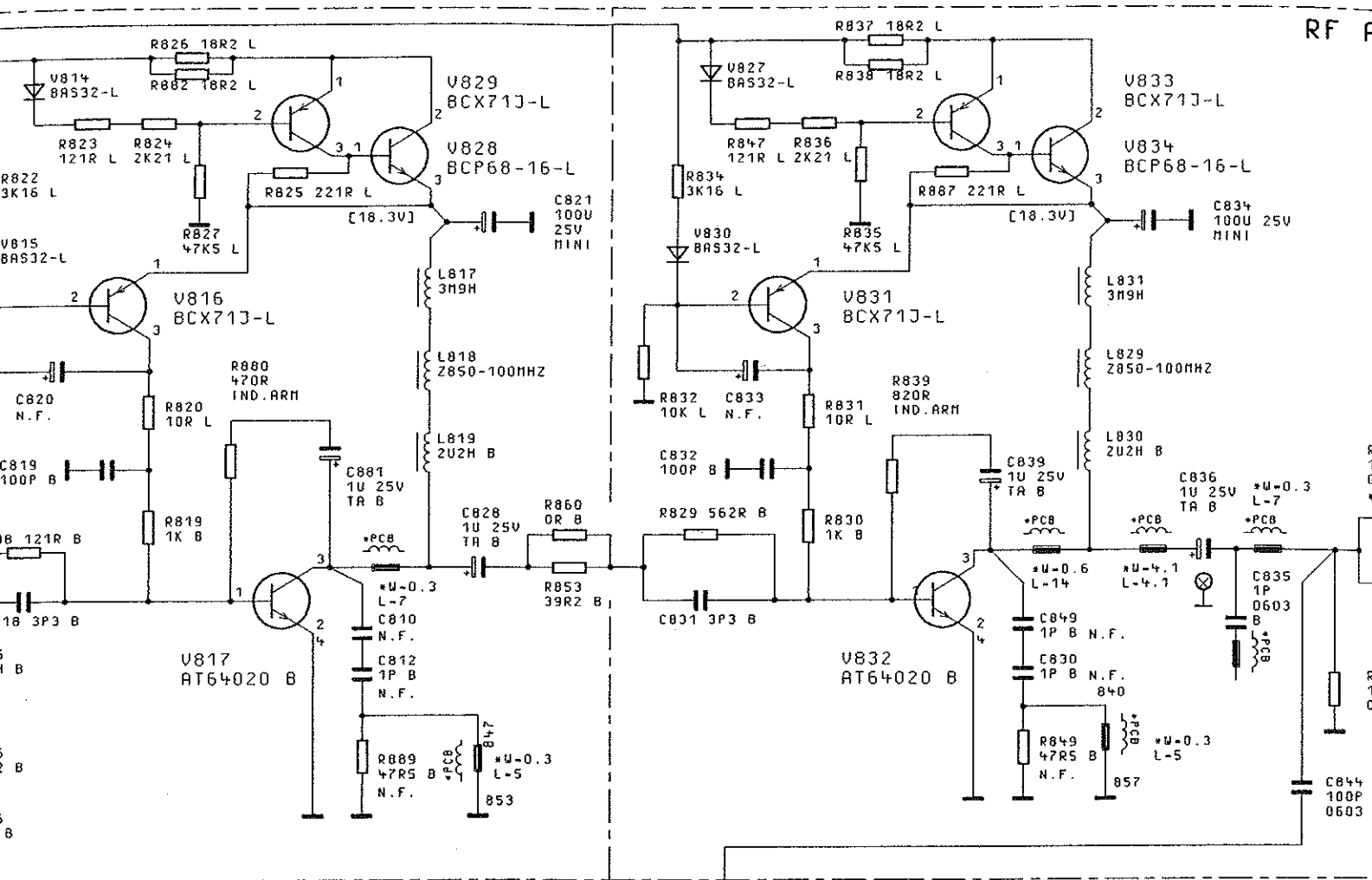
BINDENDE ANGABEN UEBER VARIANTEN,
TRIMMWERTE, BAUTEILWERTE UND
NICHT BESTUECKTE BAUTEILE SIEHE SA.

FOR BINDING INFORMATION ON MODELS,
TRIMMING AND COMPONENTS VALUES AND
NONFITTED COMPONENTS SEE PARTS LIST.

RF AMPLIFIER 13

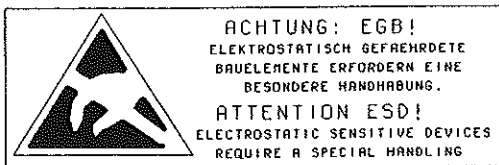


| | | | | | | | |
|---------------|--------------------------|-------|---|------------|-------------|---|-----------|
| 04/02 | 03.03.97 | E I | MENP | TAG | NAME | BENENNUNG | |
| | | | BEARB. | | E I | AUSGANGSTEIL 2.086GHZ OUTPUT UNIT 2.086GHZ | |
| | | | GEPR. | | | | |
| | | | NORM | | | | |
| | | | PLOTT | 03.03.97 | | | |
| 04/01 | 16.12.96 | E I |  | | ZEICHN.-NR. | BLATT-NR. | |
| REND. IND. | ÄNDERUNGS- MITTEILUNG | DATUM | NAME | ZU SEHRET | SMY | 1062.7005.015 | 9+ |
| | | | | REG. I. V. | 1062.5502 | ERSTE Z. | 1062.5502 |



N.F. - NOT FITTED / NICHT BESTUECKT

*** - WITH/MIT OPTION SHY-B40



| 04/02 | 03.03.97 | E I | MENP | TAG | NAME | BENENNUNG |
|---------------|---------------------------|-------|--------|----------|------|-------------|
| | | | BEARB. | | E I | |
| | | | GEPR. | | | |
| | | | NORM | | | |
| | | | PLOTT | 03.03.97 | | |
| 04/01 | 16.12.96 | E I | | | | |
| REND. IND. | RENDERUNGS- MITTEILUNG | DATUM | NAME | | | ZEICHN.-NR. |
| | | | | | | ZU GERÄT |

AUSG
OUTPUT

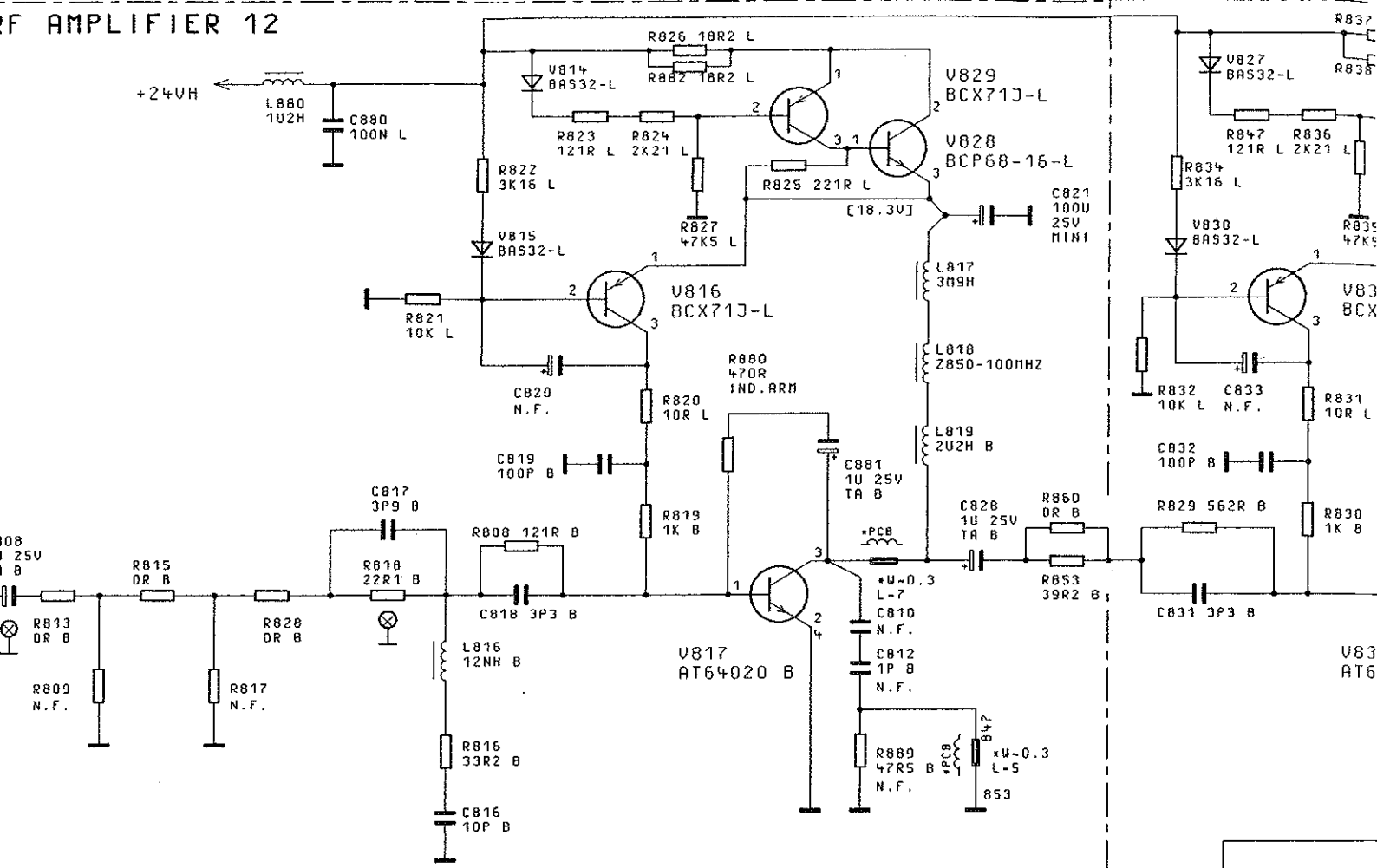
ZEICHN.-NR.

ROHDE & SCHWARZ

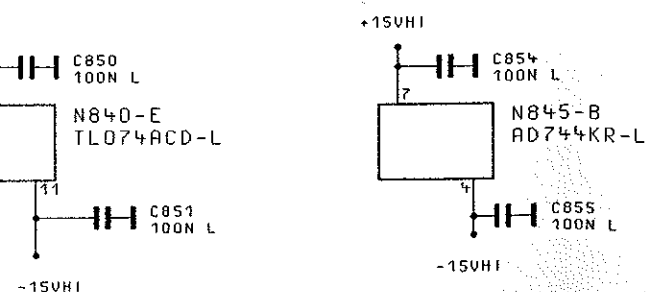
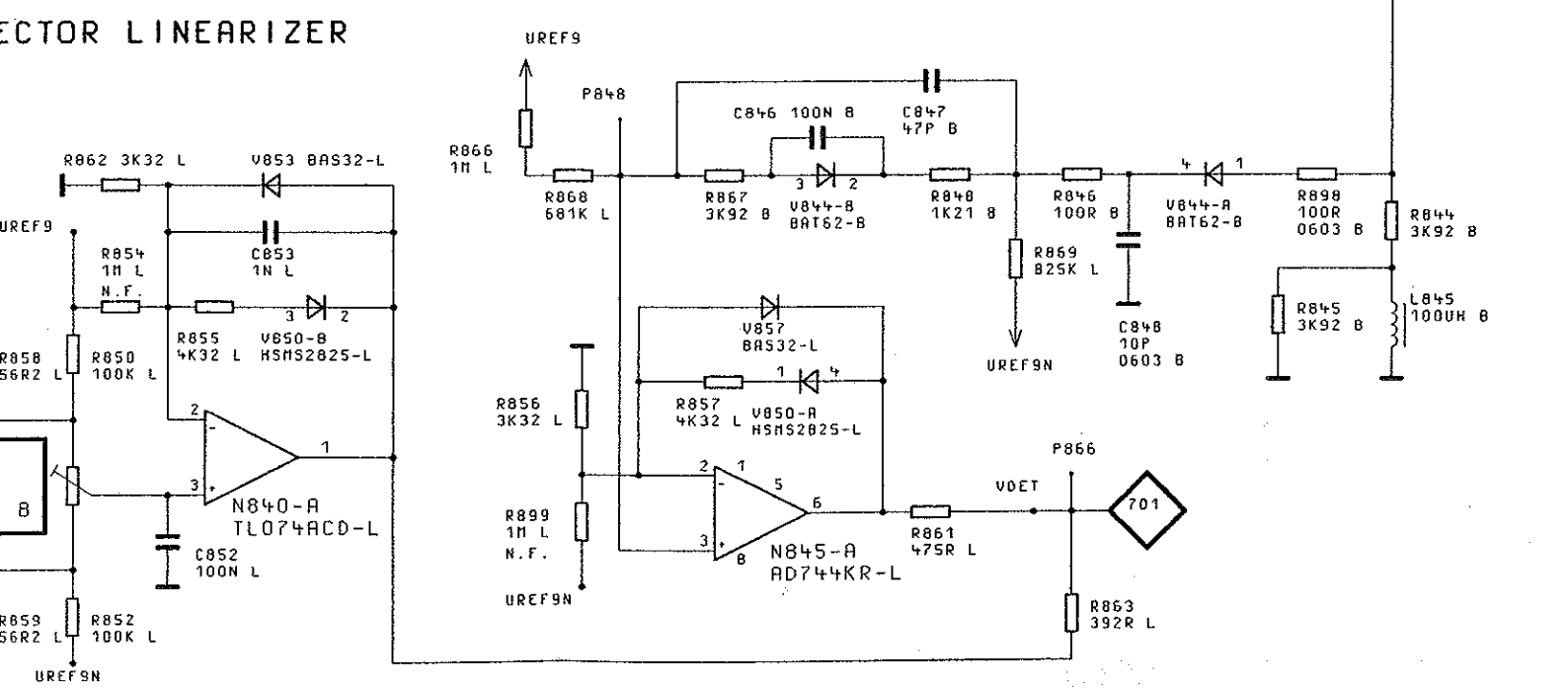
ZU GERÄT SMY

REG. I. V. 106

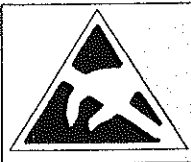
AMPLIFIER 12



RECTOR LINEARIZER



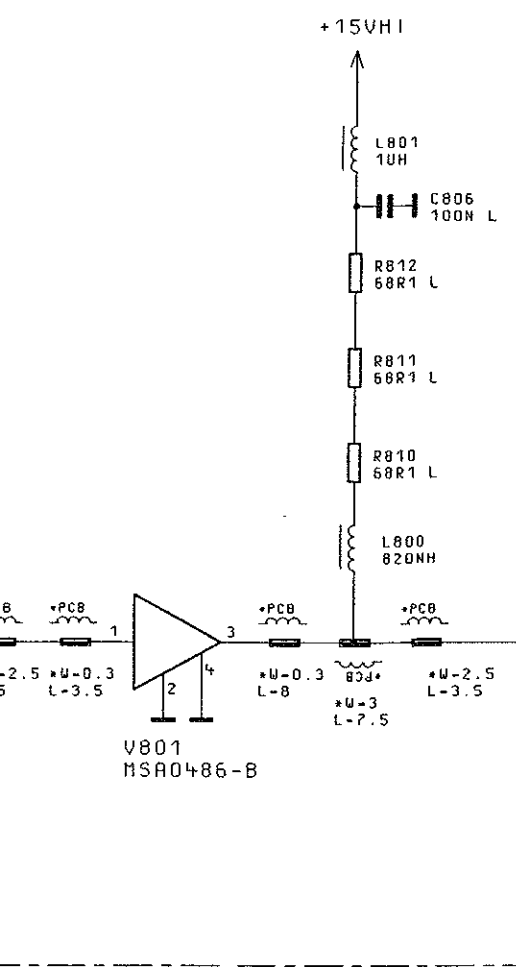
N.F. - NOT FITTED / NICHT BESTUECKT
 *** - WITH/MIT OPTION SMY-B40



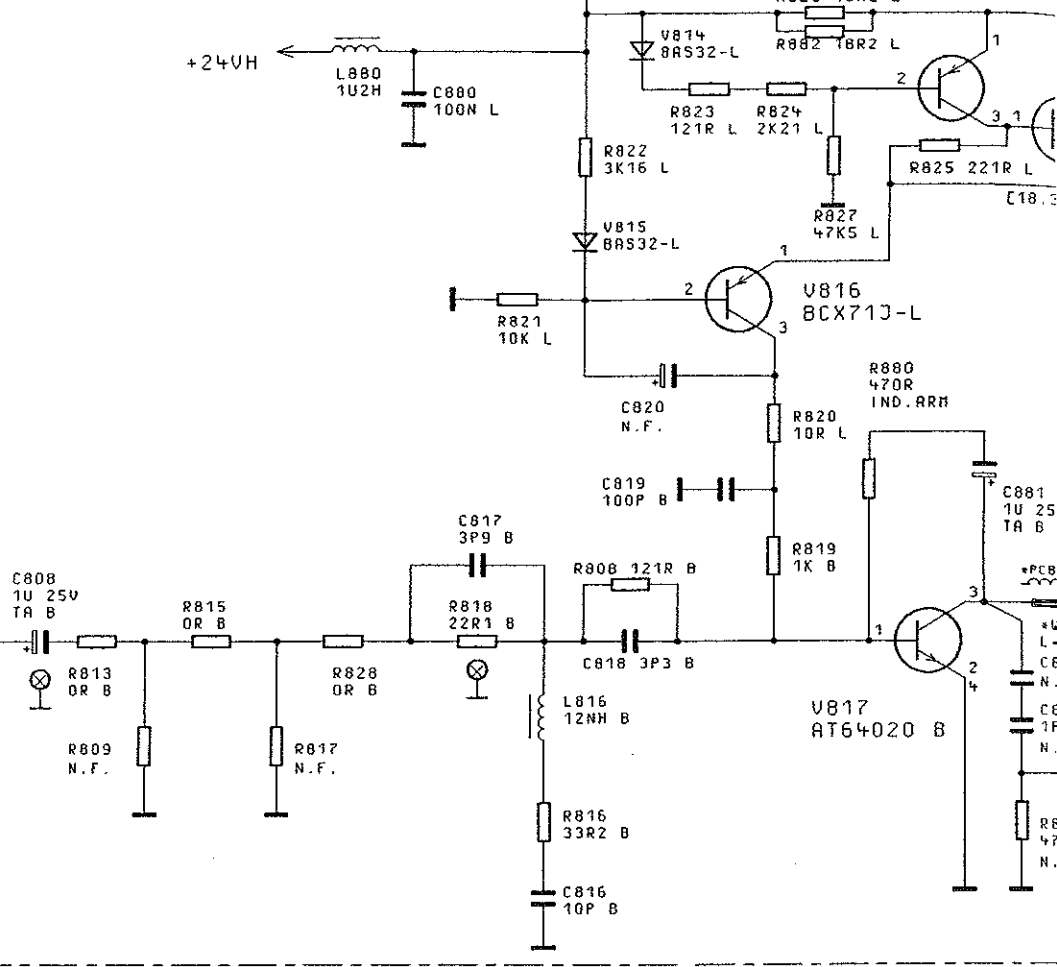
ACHTUNG: EGB!
 ELEKTROSTATISCH GEFÄHREDETE
 BAUELEMENTE ERFORDERN EINE
 BESONDERE HANDHABUNG.
ATTENTION ESD!
 ELECTROSTATIC SENSITIVE DEVICES
 REQUIRE A SPECIAL HANDLING

| | | |
|---------------|---------------------------|---------|
| 04/02 | | 03.03.9 |
| 04/01 | | 16.12.9 |
| REND. IND. | BEREICHUNG- MITTEILUNG | DATUM |

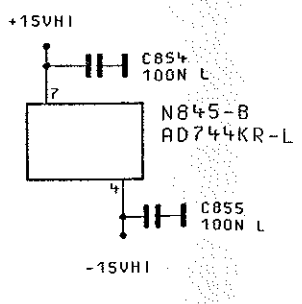
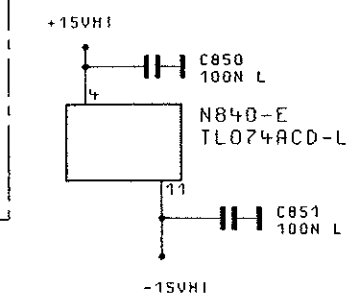
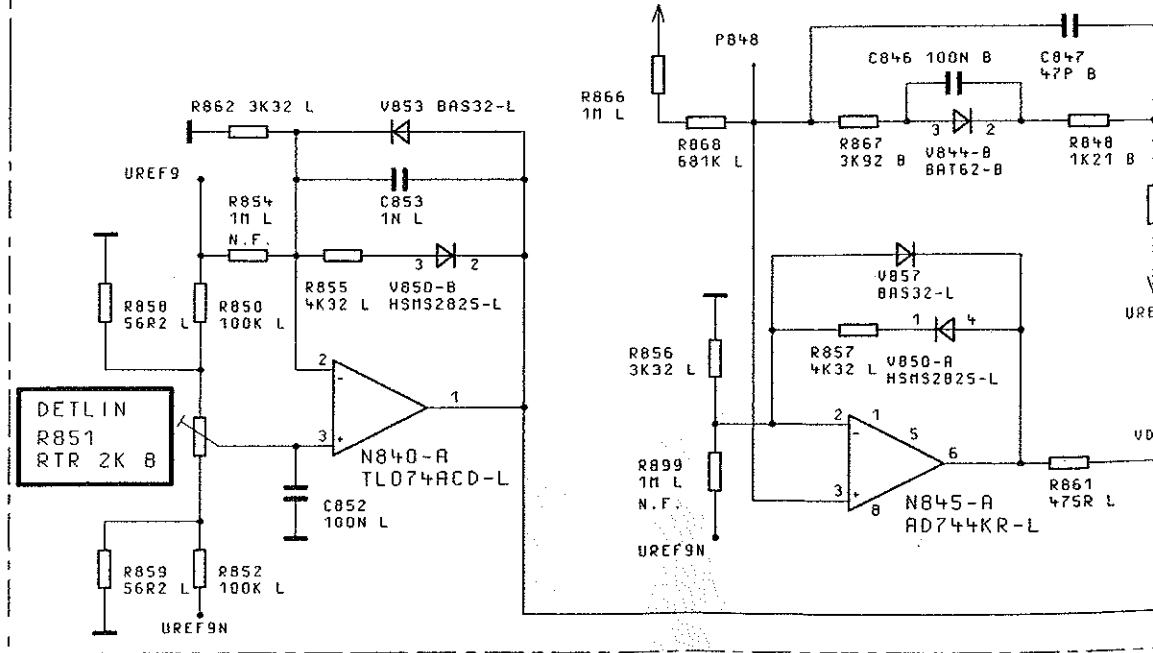
AMPLIFIER 11




RF AMPLIFIER 12



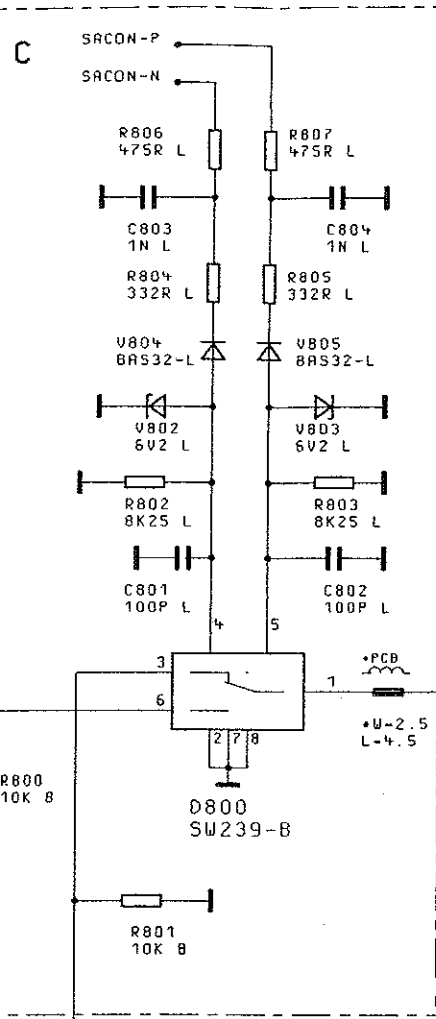
DETECTOR LINEARIZER



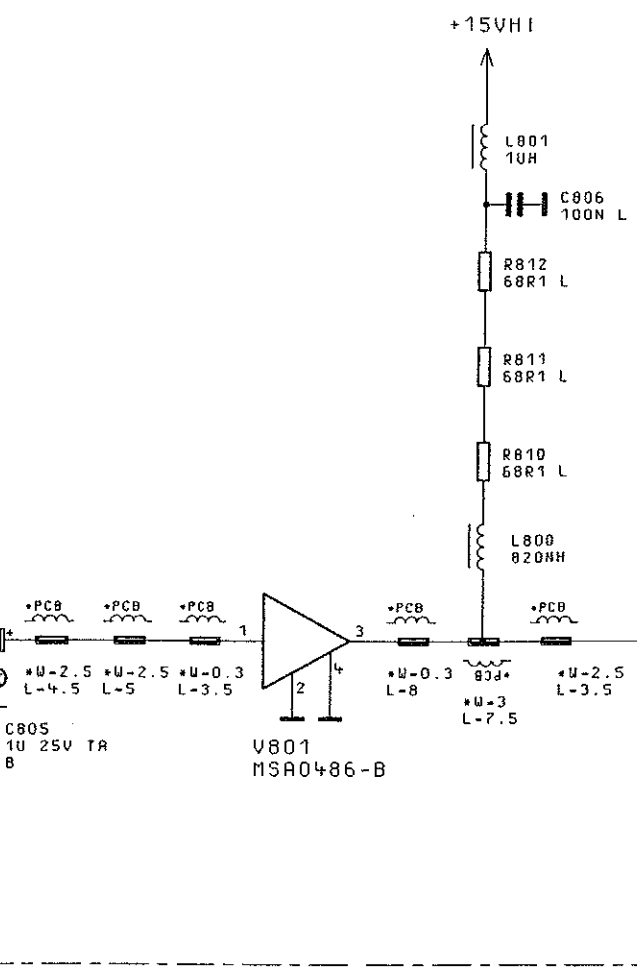
N.F. - NOT FITTED / NICHT
 *** - WITH/ MIT OPTION SHTY-



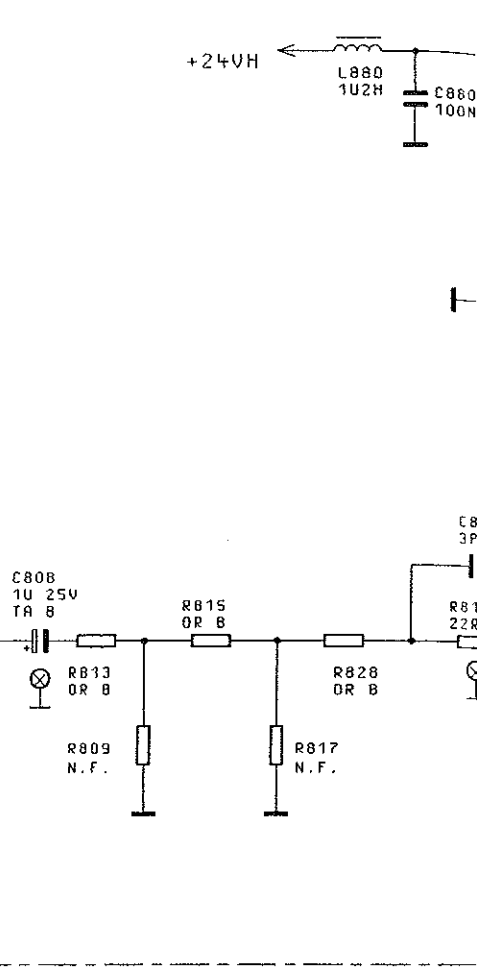
ACHTUNG:
 ELEKTROSTATISCH
 BAUELEMENTE ERD
 BESONDERE HA
ATTENTION:
 ELECTROSTATIC SEN
 REQUIRE A SPECI



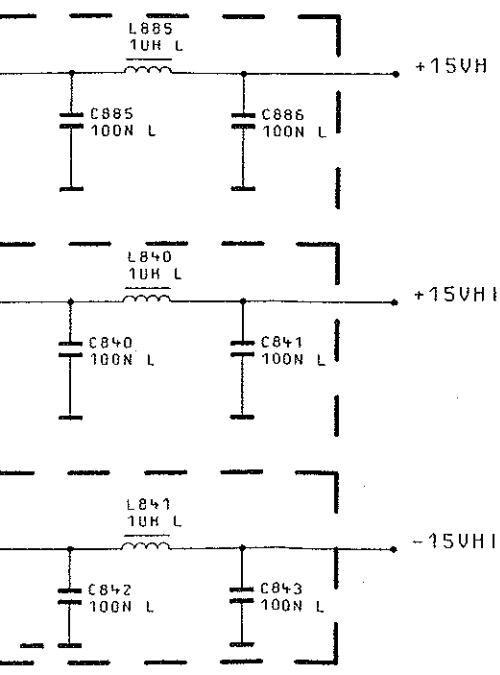
RF AMPLIFIER 11



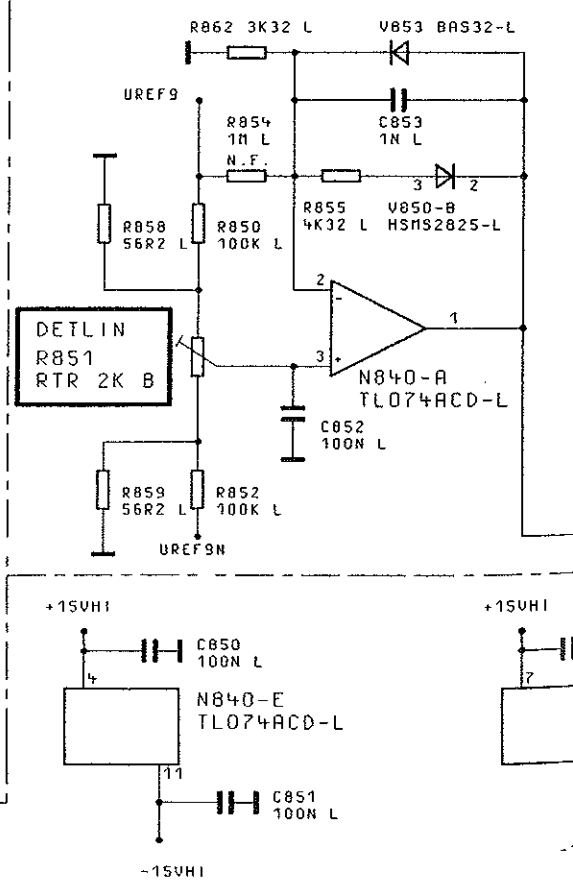
RF AMPLIFIER 12



DOUBLEROUT FROM SHEET 12

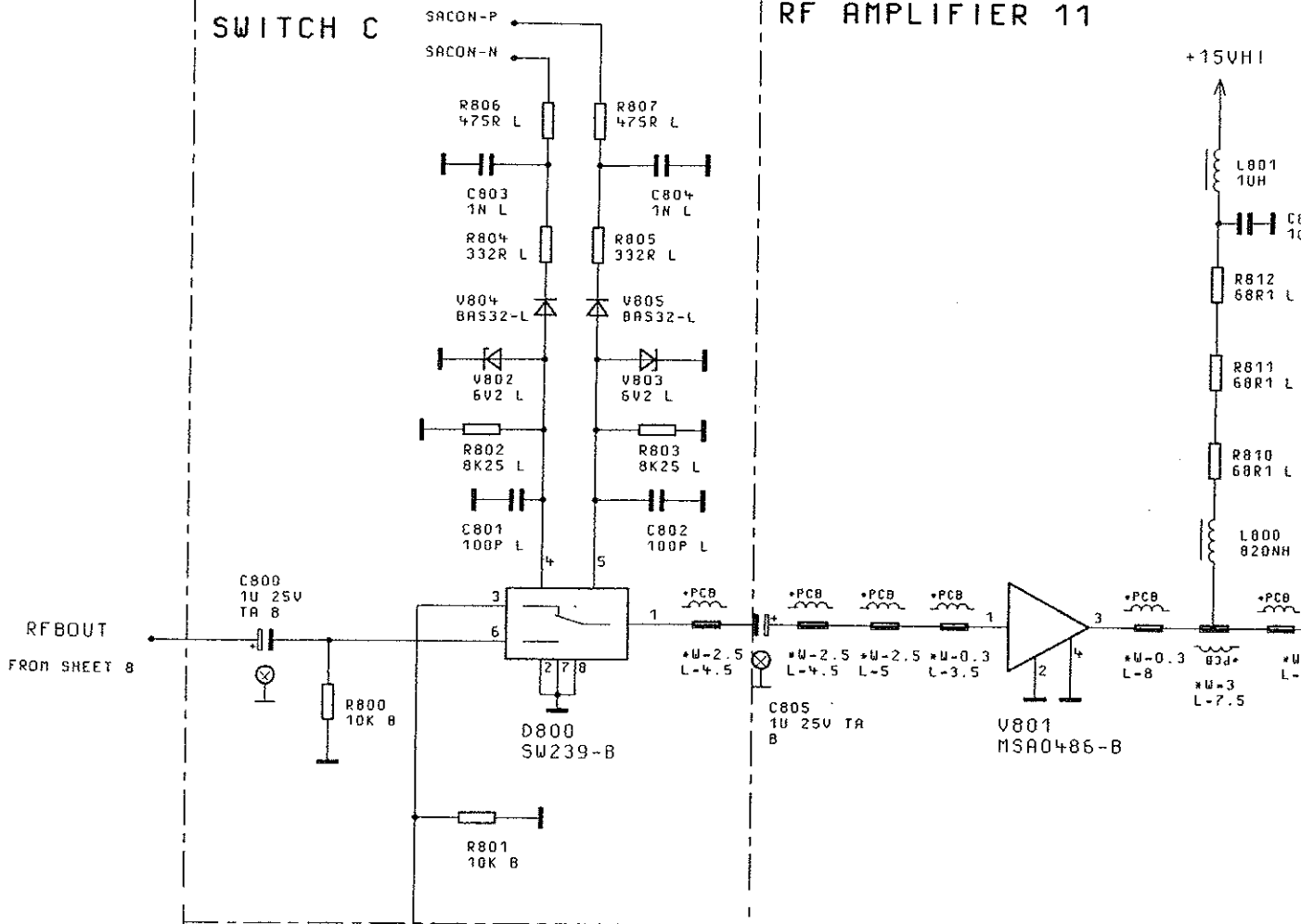


DETECTOR LINEARIZER



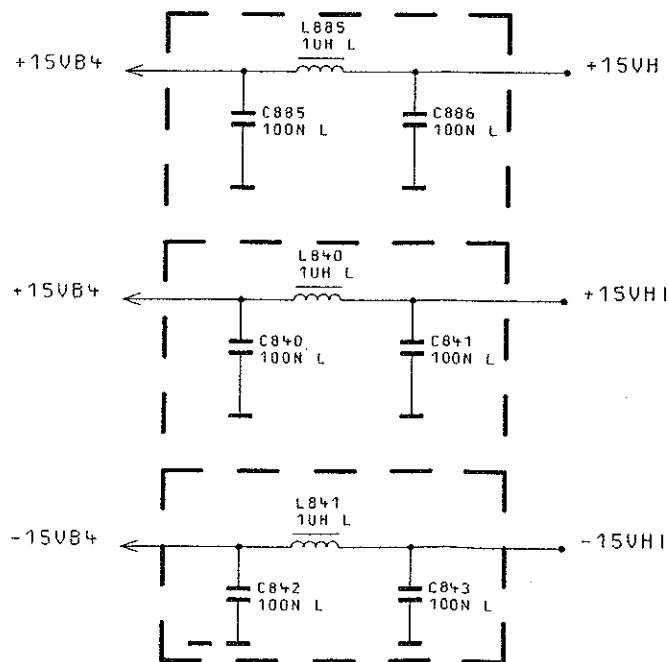
SWITCH C

RF AMPLIFIER 11



B1

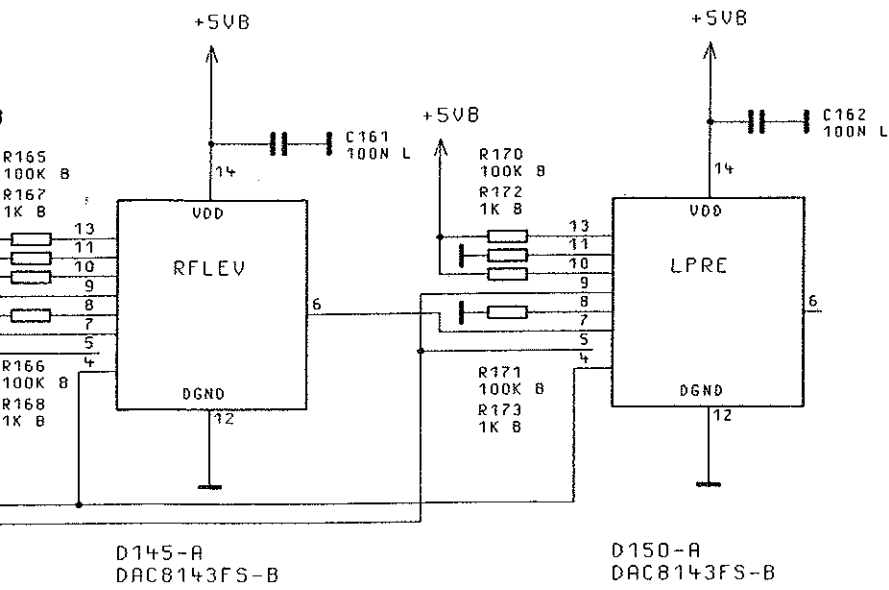
DOUBLEROUT
FROM SHEET 12



BLAHLIEN VJR UNS ALLE RECHTE VOR

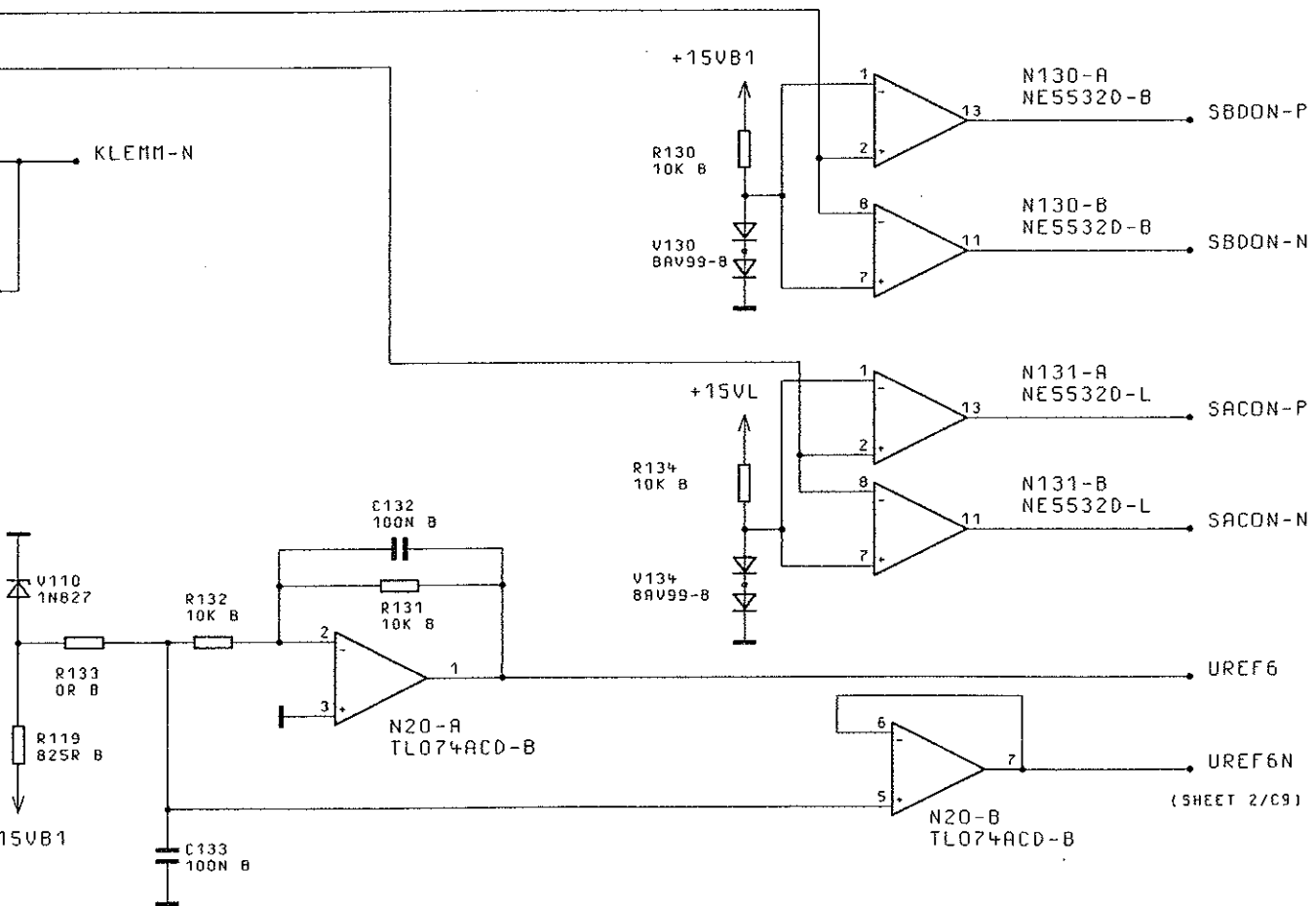
BYTE 4+5

BYTE 6+7



D145-A
DAC8143FS-B

D150-A
DAC8143FS-B



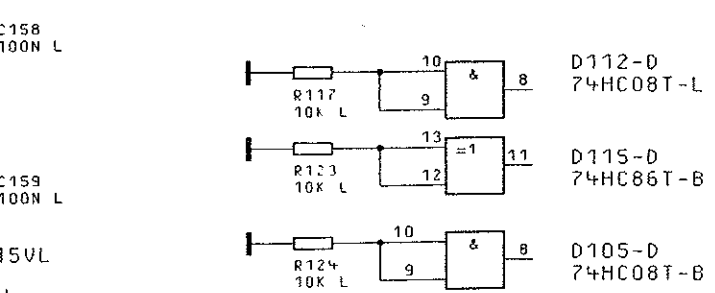
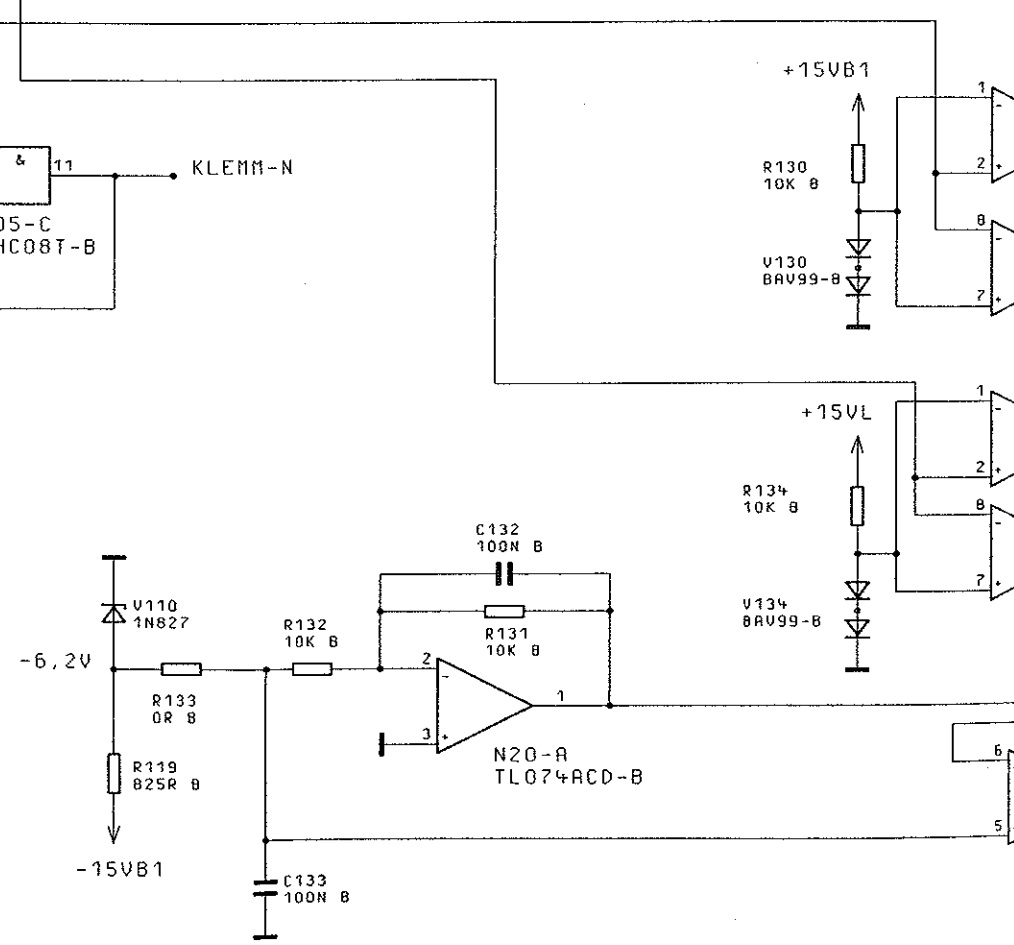
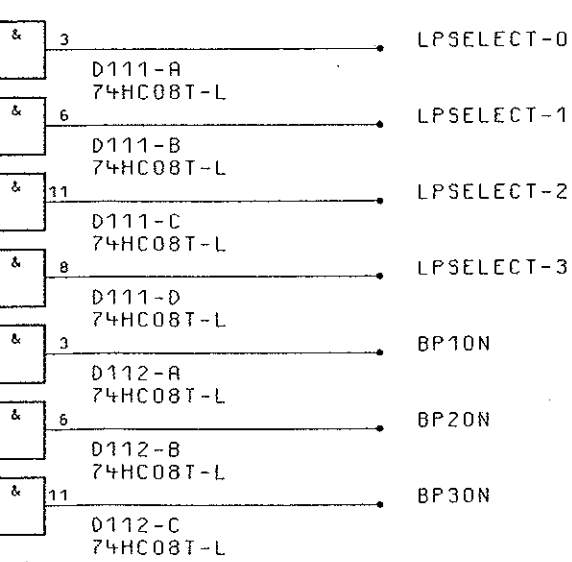
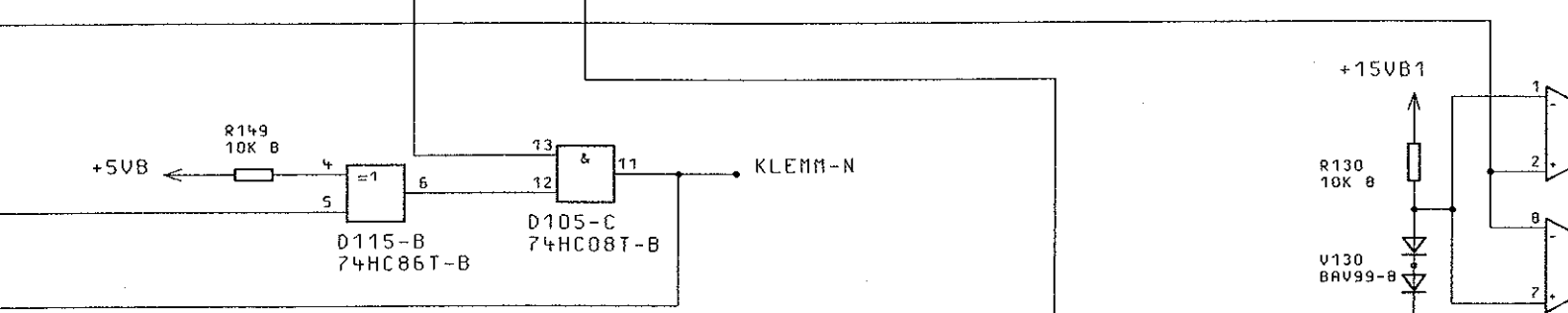
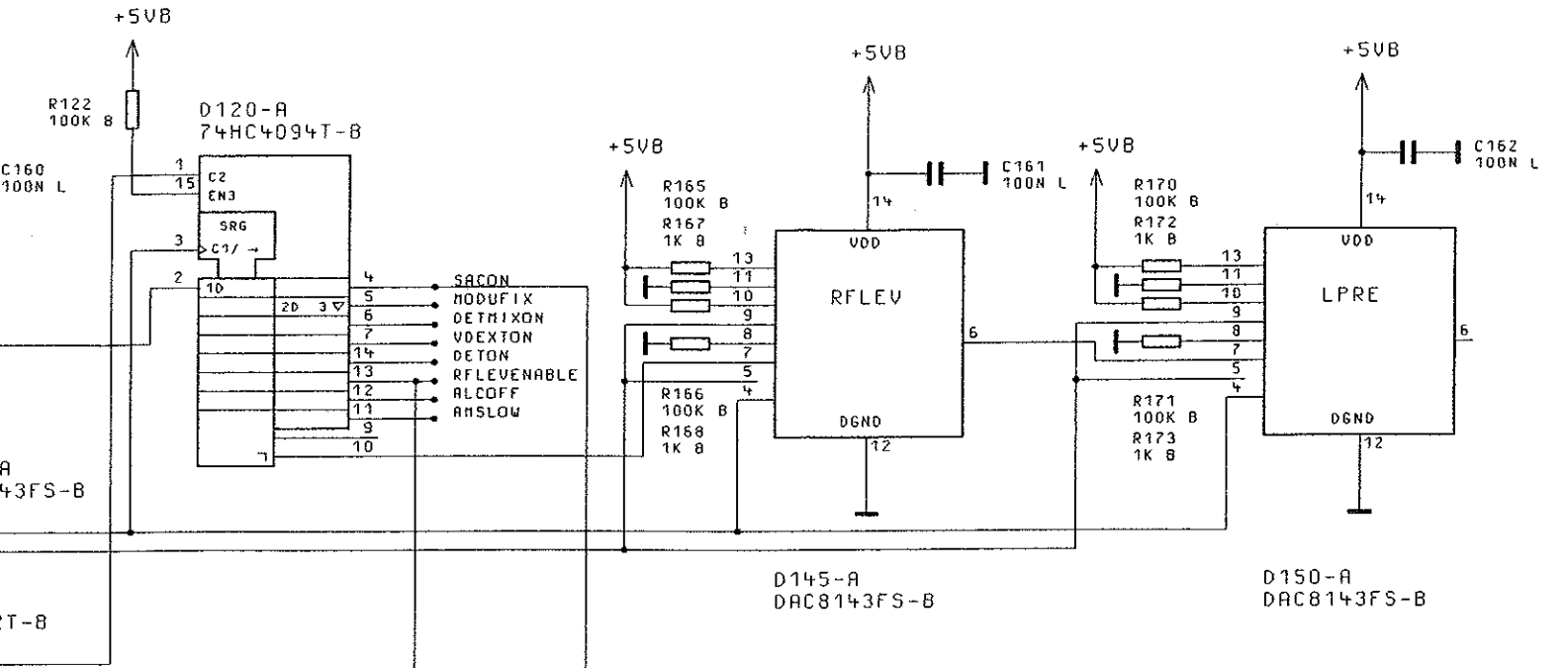
(SHEET 2/C9)

| | | | | | | | | | |
|------------|-----------------------|----------|------|------------------------------|----------|---------------|---|-----------|-----------|
| 04/02 | | 03.03.97 | EI | MENP | TAG | NAME | BENENNUNG | | |
| | | | | BEARB. | | EI | AUSGANGSTEIL 2.08GHZ OUTPUT UNIT 2.08GHZ | | |
| | | | | GEPR. | | | | | |
| | | | | NORM | | | | | |
| | | | | PLOTT | 03.03.97 | | | | |
| 04/01 | | 16.12.96 | EI | ROHDE&SCHWARZ | | ZEICHN.-NR. | | BLATT-NR. | |
| REND. IND. | RENDERUNGS-HITTEILUNG | DATUM | NARE | | | 1062.7005.01S | | 10+ | |
| | | | | ZU GERÄT | SMY | REG. I. V. | 1062.5502 | ERST. Z. | 1062.5502 |

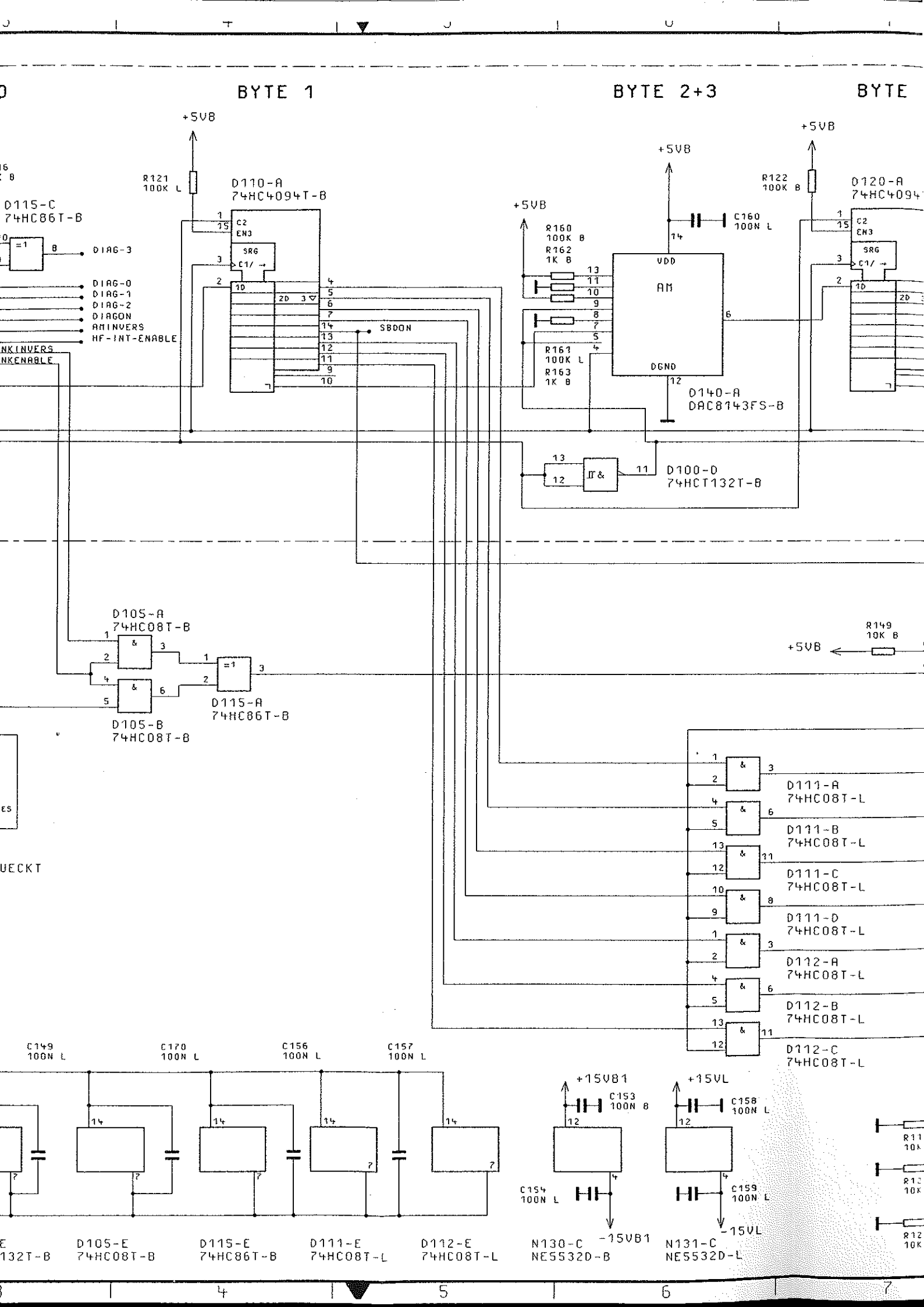
BYTE 3+4

BYTE 4+5

BYTE 6+7



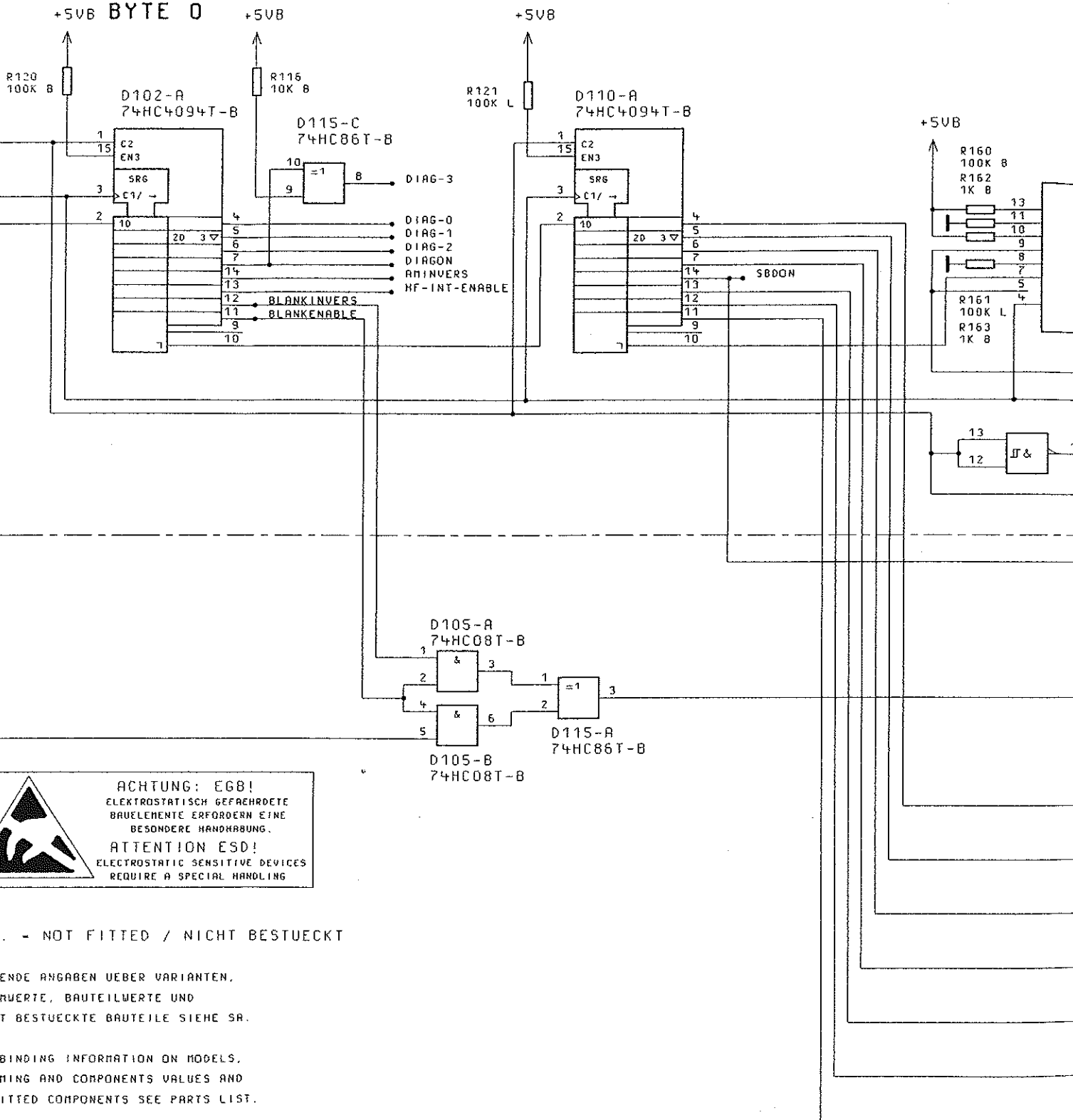
| | | | | | | |
|------------|----------------------|-------|--------|----------|------|----------|
| 04/02 | 03.03.97 | E I | MENP | TAG | NAME | BEN |
| | | | BEARB. | | E I | |
| | | | GEPR. | | | |
| | | | NORM | | | |
| | | | PLOTT | 03.03.97 | | |
| 04/01 | 16.12.96 | E I | | | | ZEL |
| REND. IND. | ÄNDERUNGS-MITTEILUNG | DATUM | NAME | | | REG. |
| | | | | | | ZU GERÄT |



SUBADDRESS 0
BYTE 0

BYTE 1

BY

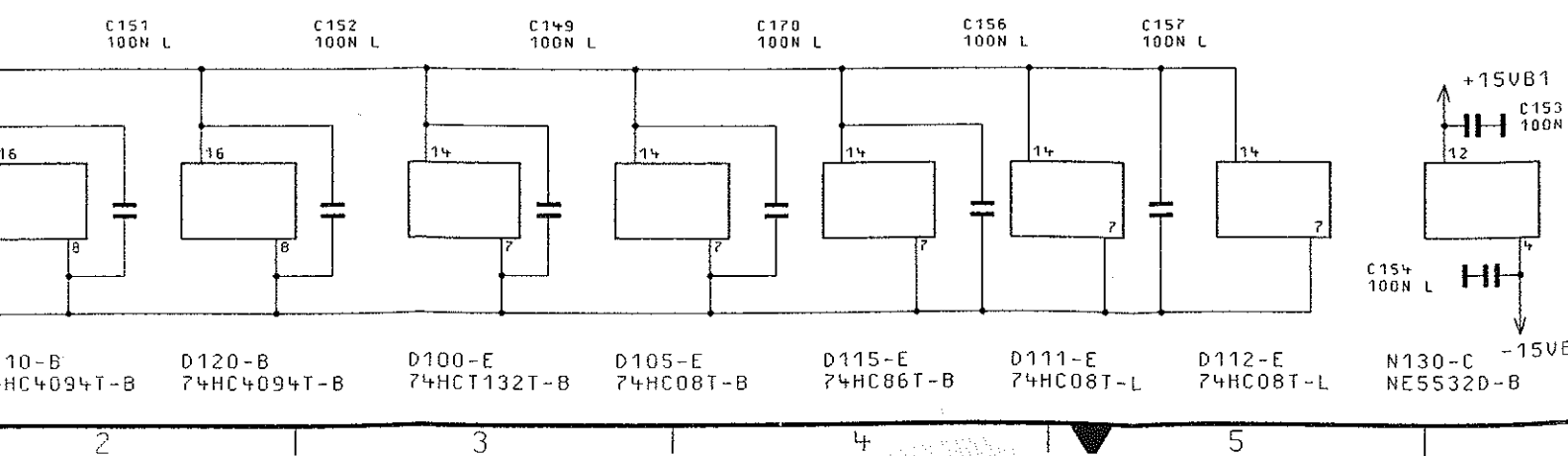


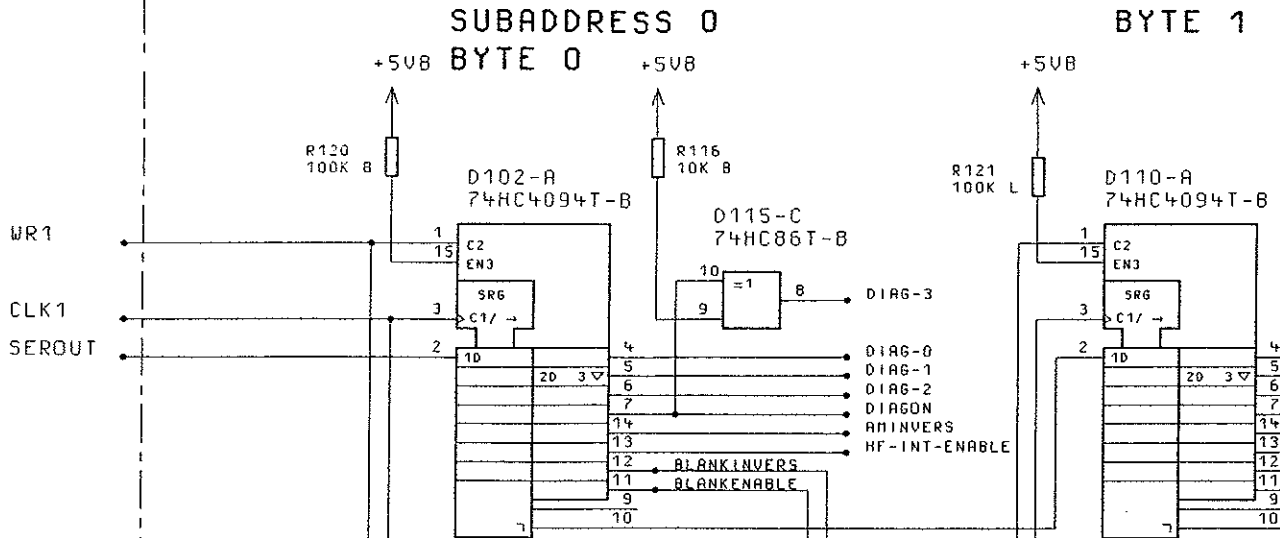
ACHTUNG: EGB!
ELEKTROSTATISCH GEFÄHRDETE
BAUELEMENTE ERFORDERN EINE
BESONDERE HANDHABUNG.
ATTENTION ESD!
ELECTROSTATIC SENSITIVE DEVICES
REQUIRE A SPECIAL HANDLING

N.F. - NOT FITTED / NICHT BESTUECKT

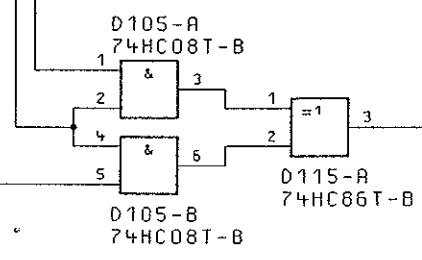
BINDENDE ANGABEN UEBER VARIANTEN,
TRIMMWERTE, BAUTEILWERTE UND
NICHT BESTUECKTE BAUTEILE SIEHE SR.

FOR BINDING INFORMATION ON MODELS,
TRIMMING AND COMPONENTS VALUES AND
NONFITTED COMPONENTS SEE PARTS LIST.





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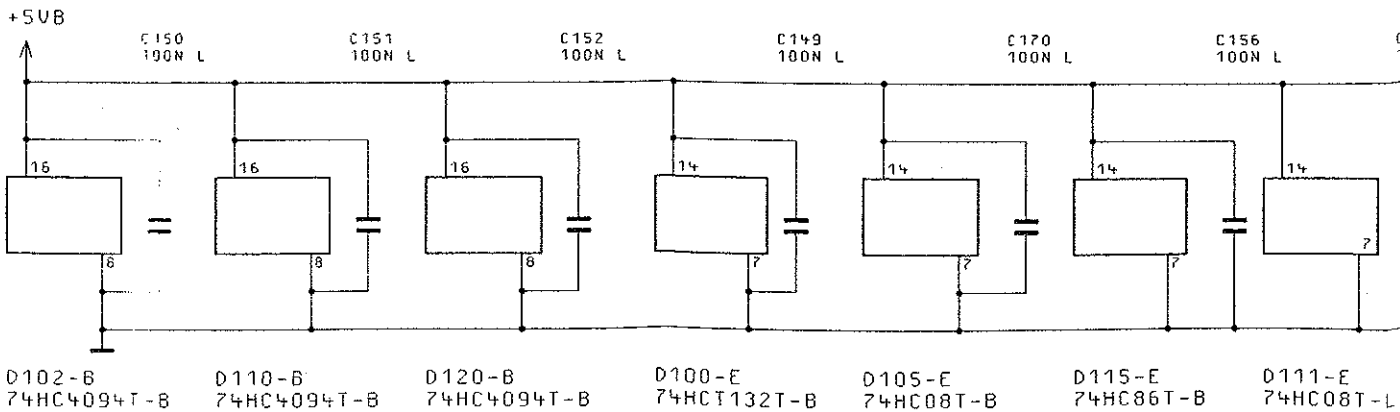


ACHTUNG: EGB!
 ELEKTROSTATISCH GEFÄHREDETE
 BAUELEMENTE ERFORDERN EINE
 BESONDERE HANDHABUNG.
ATTENTION ESD!
 ELECTROSTATIC SENSITIVE DEVICES
 REQUIRE A SPECIAL HANDLING

N.F. - NOT FITTED / NICHT BESTUECKT

BINDENDE ANGABEN UEBER VARIANTEN,
 TRIMMWERTE, BAUTEILWERTE UND
 NICHT BESTUECKTE BAUTEILE SIEHE SA.

FOR BINDING INFORMATION ON MODELS,
 TRIMMING AND COMPONENTS VALUES AND
 NONFITTED COMPONENTS SEE PARTS LIST.



D102-B 74HC4094T-B D110-B 74HC4094T-B D120-B 74HC4094T-B D100-E 74HC1132T-B D105-E 74HC08T-B D115-E 74HC86T-B D111-E 74HC08T-L

1

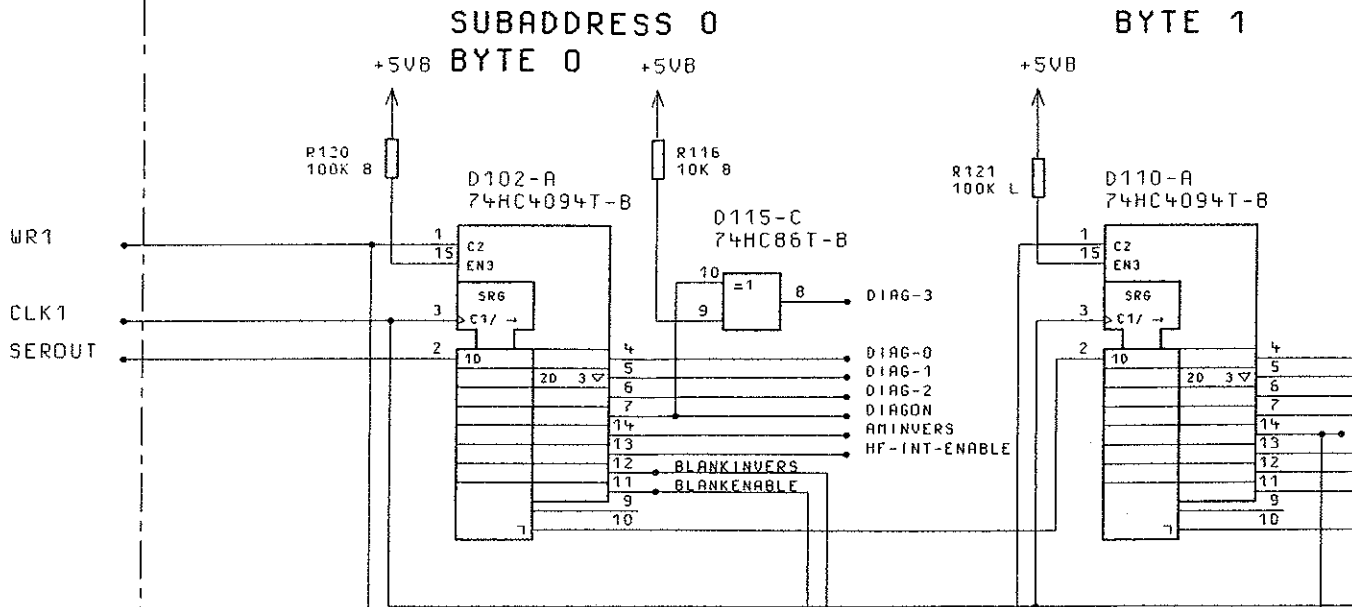
2

3

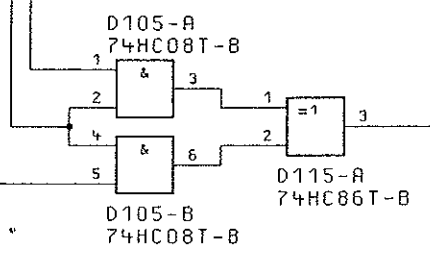
4

FUER DIESE UNTERLAGE
 BEHALTEN WIR UNS ALLE RECHTE VOR

ZEICHN.-NR.



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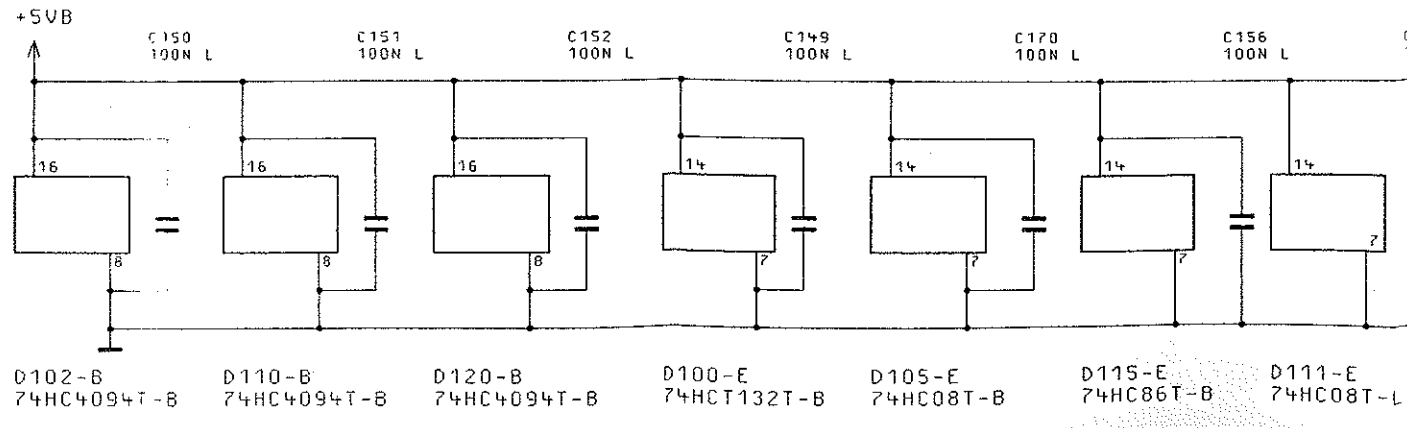


 **ACHTUNG: EGB!**
 ELEKTROSTATISCH GEFÄHRDETE
 BAUELEMENTE ERFORDERN EINE
 BESONDERE HANDHABUNG.
ATTENTION ESD!
 ELECTROSTATIC SENSITIVE DEVICES
 REQUIRE A SPECIAL HANDLING

N.F. - NOT FITTED / NICHT BESTUECKT

BINDENDE ANGABEN UEBER VARIANTEN,
 TRIMMWERTE, BAUTEILWERTE UND
 NICHT BESTUECKTE BAUTEILE SIEHE SA.

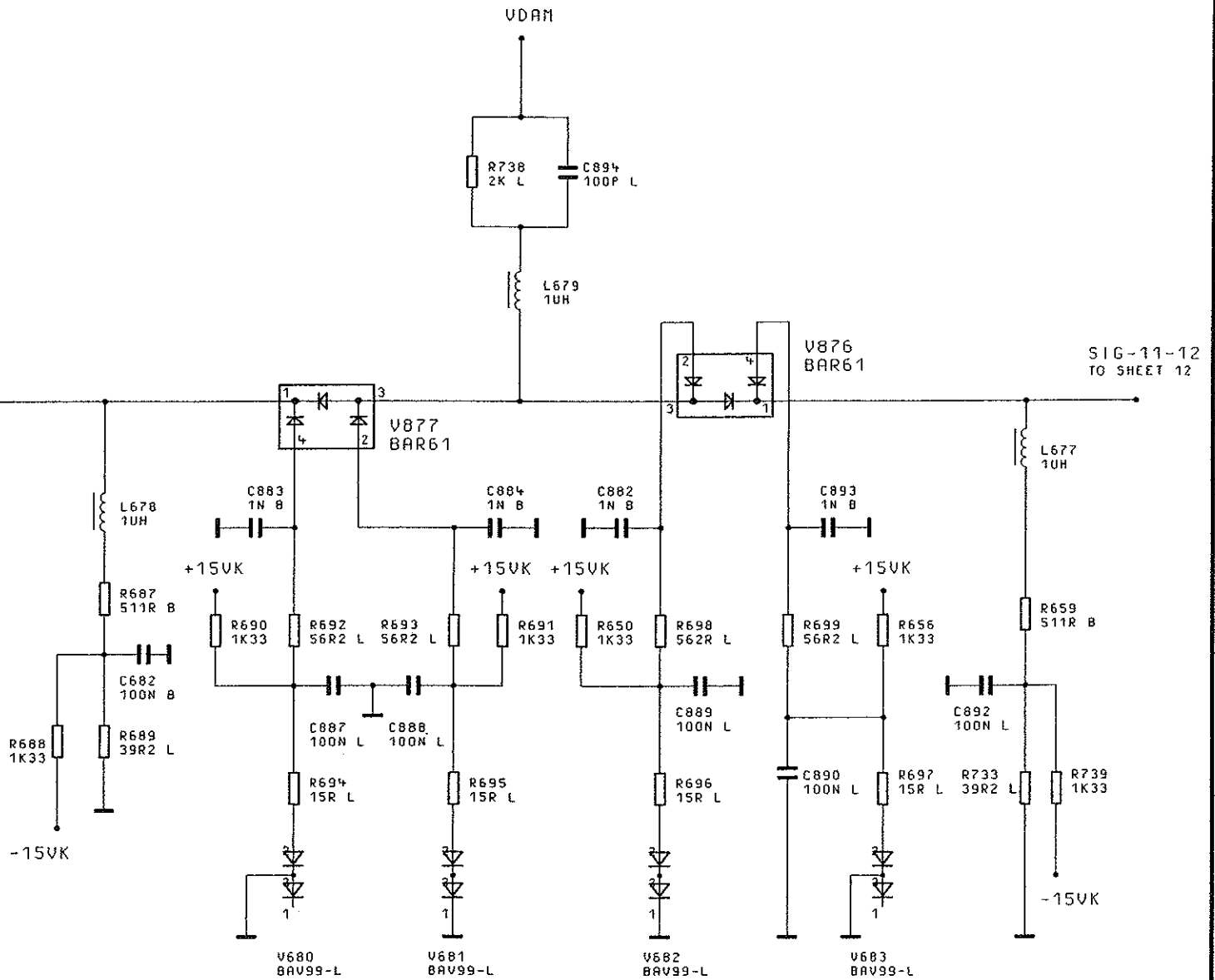
FOR BINDING INFORMATION ON MODELS,
 TRIMMING AND COMPONENTS VALUES AND
 NONFITTED COMPONENTS SEE PARTS LIST.



FUER DIESE UNTERLAGE
 BEHALTEN WIR UNS ALLE RECHTE VOR


ZEICHN.-NR.

AM-MODULATOR



BINDENDE ANGABEN UEBER VARIANTEN,
TRIMMWERTE, BAUTEILWERTE UND
NICHT BESTUECKTE BAUTEILE SIEHE SA.

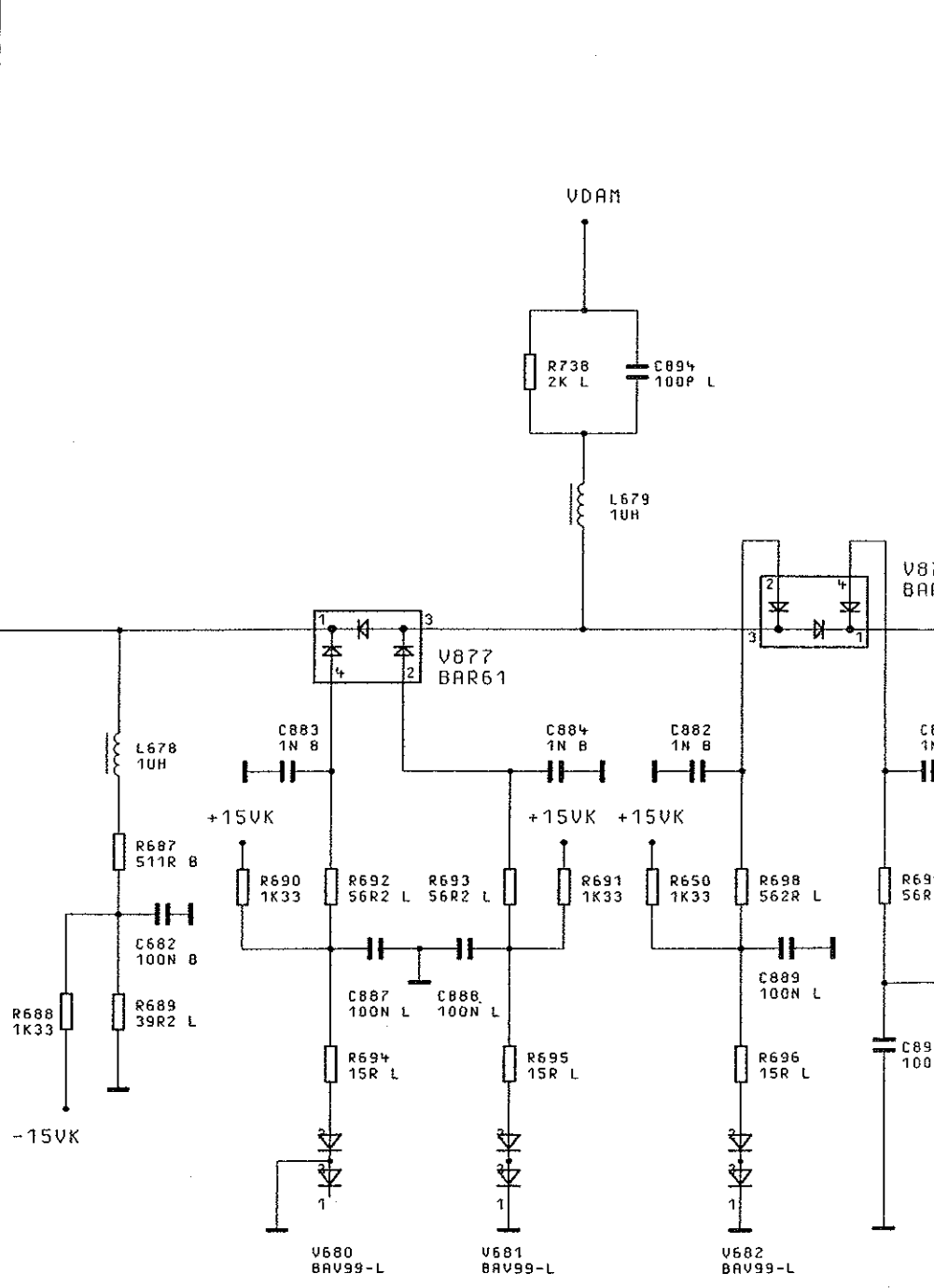
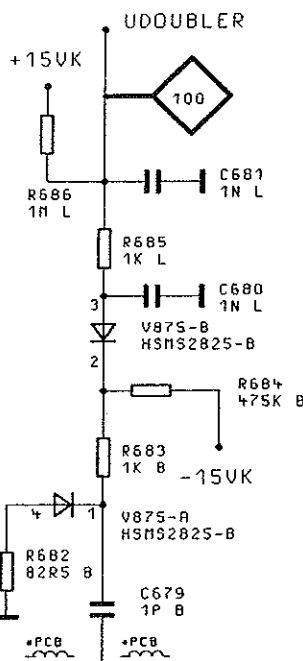
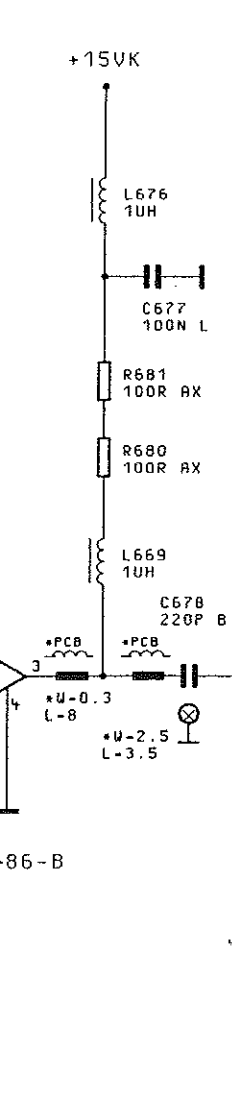
FOR BINDING INFORMATION ON MODELS,
TRIMMING AND COMPONENTS VALUES AND
NONFITTED COMPONENTS SEE PARTS LIST.

| | | | | | | |
|---------------|--------------------------|-------|---|----------|-----------|---|
| 04/02 | 03.03.97 | E I | MENP | TAG | NAME | BENENNUNG |
| | | | BEARB. | | E I | AUSGANGSTEIL 2.08GHZ OUTPUT UNIT 2.08GHZ |
| | | | GEPR. | | | |
| | | | NORM | | | |
| | | | PLOTT | 03.03.97 | | |
| 04/01 | 16.12.96 | E I |  ROHDE&SCHWARZ | | | ZEICHN.-NR. |
| AEND. IND. | AENDERUNG- MITTEILUNG | DATUM | | | | NAME |
| | | | ZU GERÄT | SMY | REG.-I.V. | 1062.5502 |
| | | | | | ERSTE Z. | 1062.5502 |

R 8

UDOUBLER

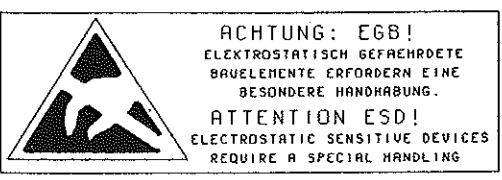
AM-MODULATOR



N.F. - NOT FITTED / NICHT BESTUECKT

BINDENDE ANGABEN UEBER VARIANTEN, TRIMMWERTE, BAUTEILWERTE UND NICHT BESTUECKTE BAUTEILE SIEHE SA.

FOR BINDING INFORMATION ON MODELS, TRIMMING AND COMPONENTS VALUES AND NONFITTED COMPONENTS SEE PARTS LIST.



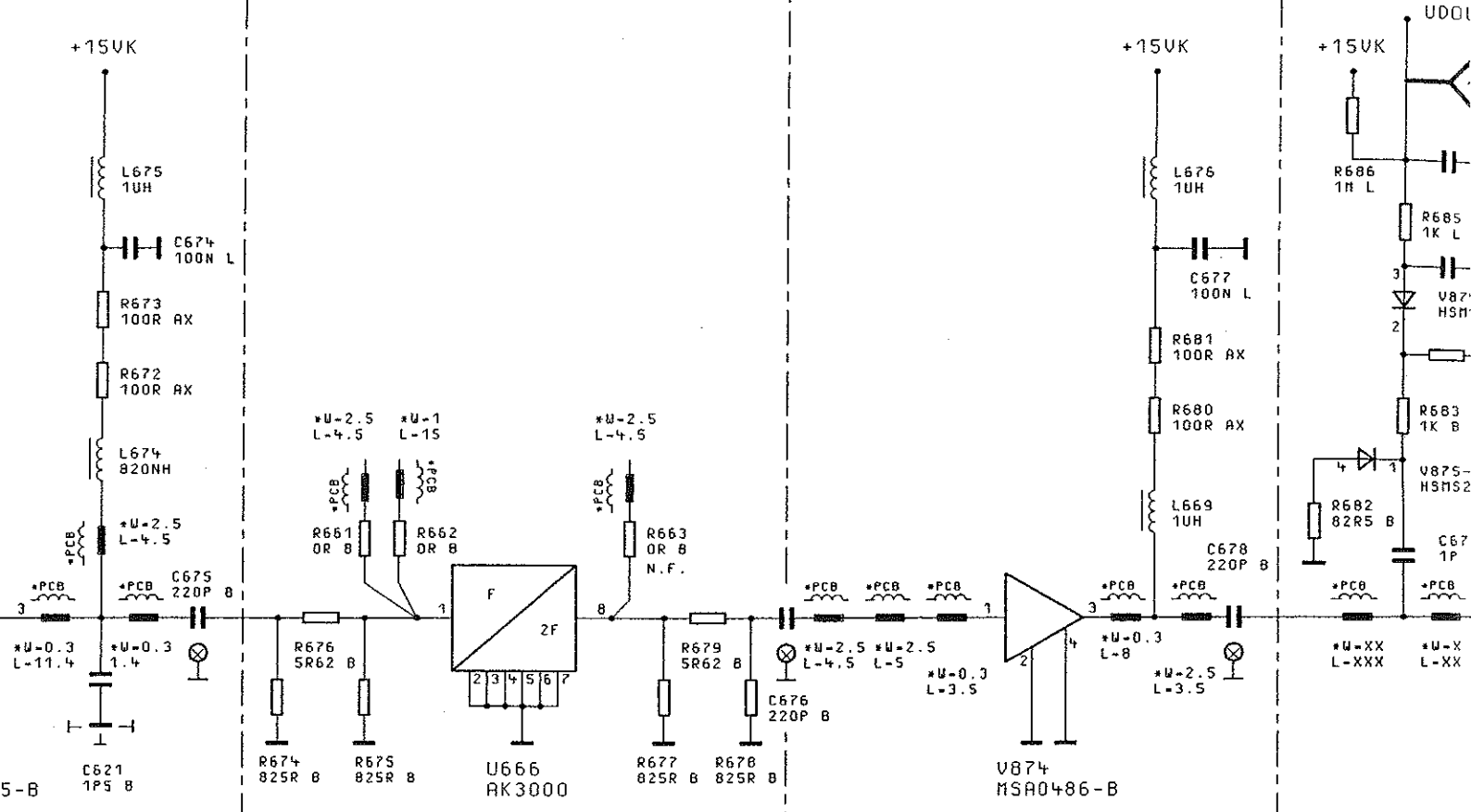
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|-------|-------------|----------|------|--------------------------------|----------|----------|-------------|
| 04/02 | | 03.03.97 | E I | MENP | TRG | NAME | BENENNUNG |
| | | | | BEARB. | | E I | AUSGANG |
| | | | | GEPR. | | | OUTPUT UN |
| | | | | NORN | | | |
| | | | | PLOTT | 03.03.97 | | |
| 04/02 | | 16.12.96 | E I | | | | ZEICHN.-NR. |
| REND. | RENDERUNGS- | DATUM | NAME | ROHDE & SCHWARZ | | | 10 |
| IND. | MITTEILUNG | | | | | ZU GERÄT | SMY |

ER 7

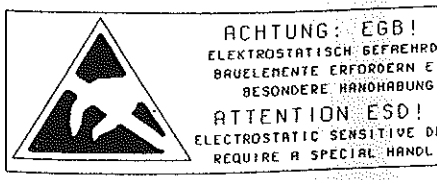
DOUBLER

RF AMPLIFIER 8

UDOUBLE



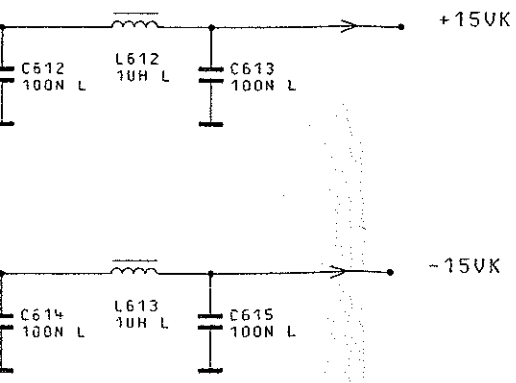
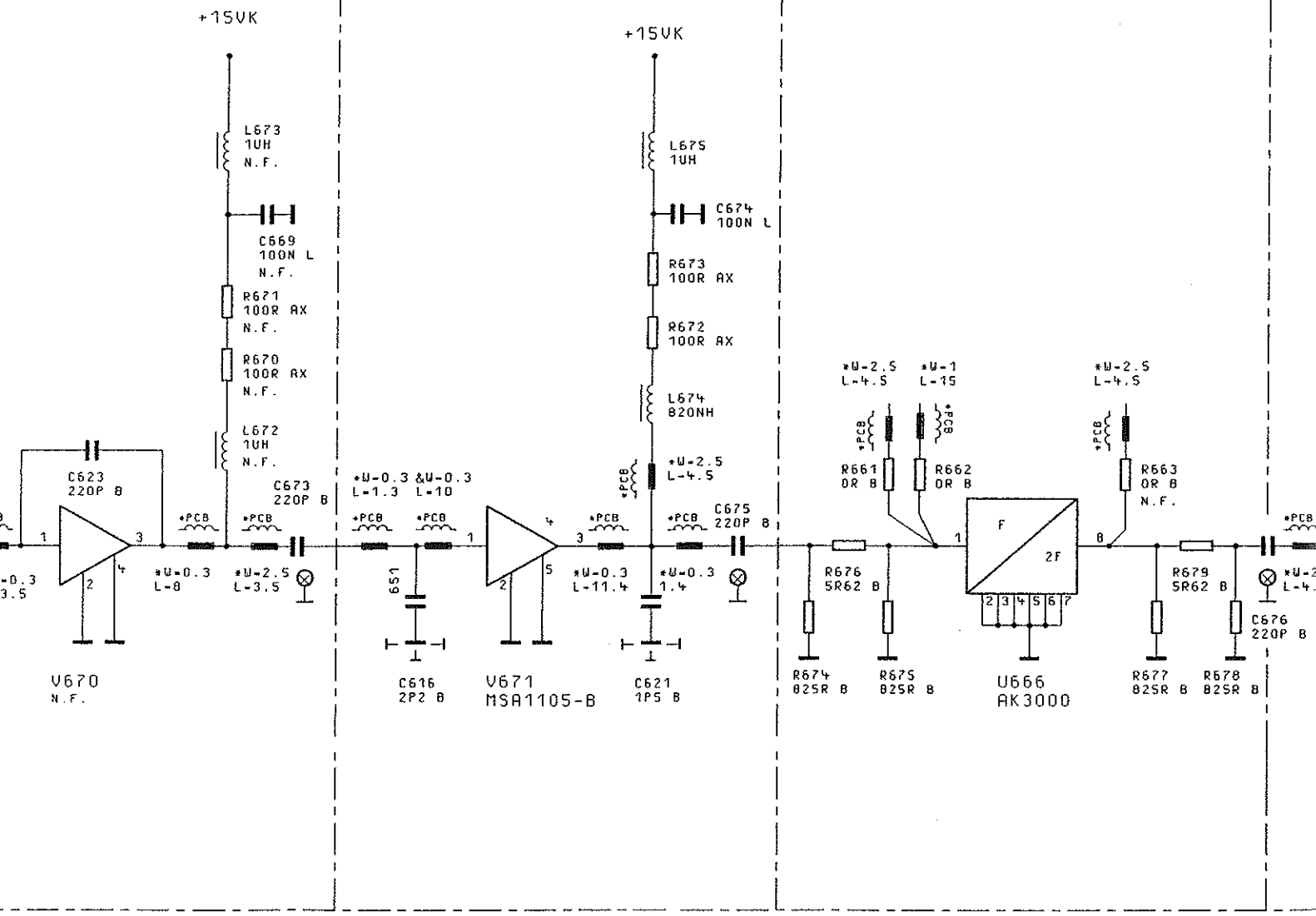
N.F. - NOT FITTED / NICHT BEST



AMPLIFIER 6

RF AMPLIFIER 7

DOUBLER

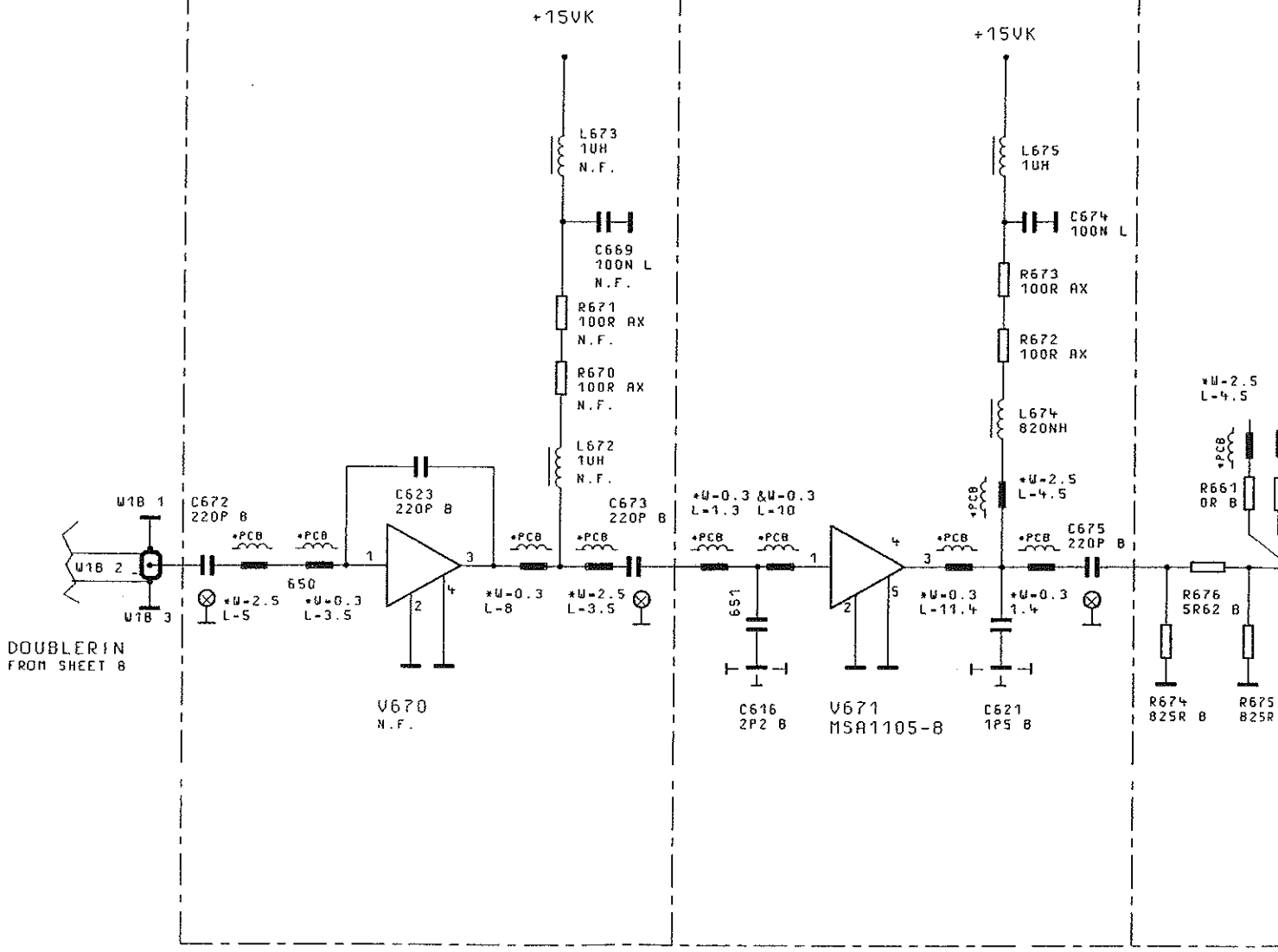


BEHALTEN WIR UNS ALLE RECHTE VOR

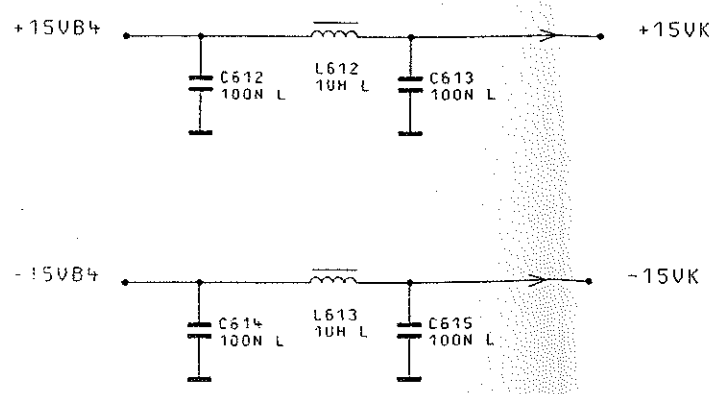
RF AMPLIFIER 6

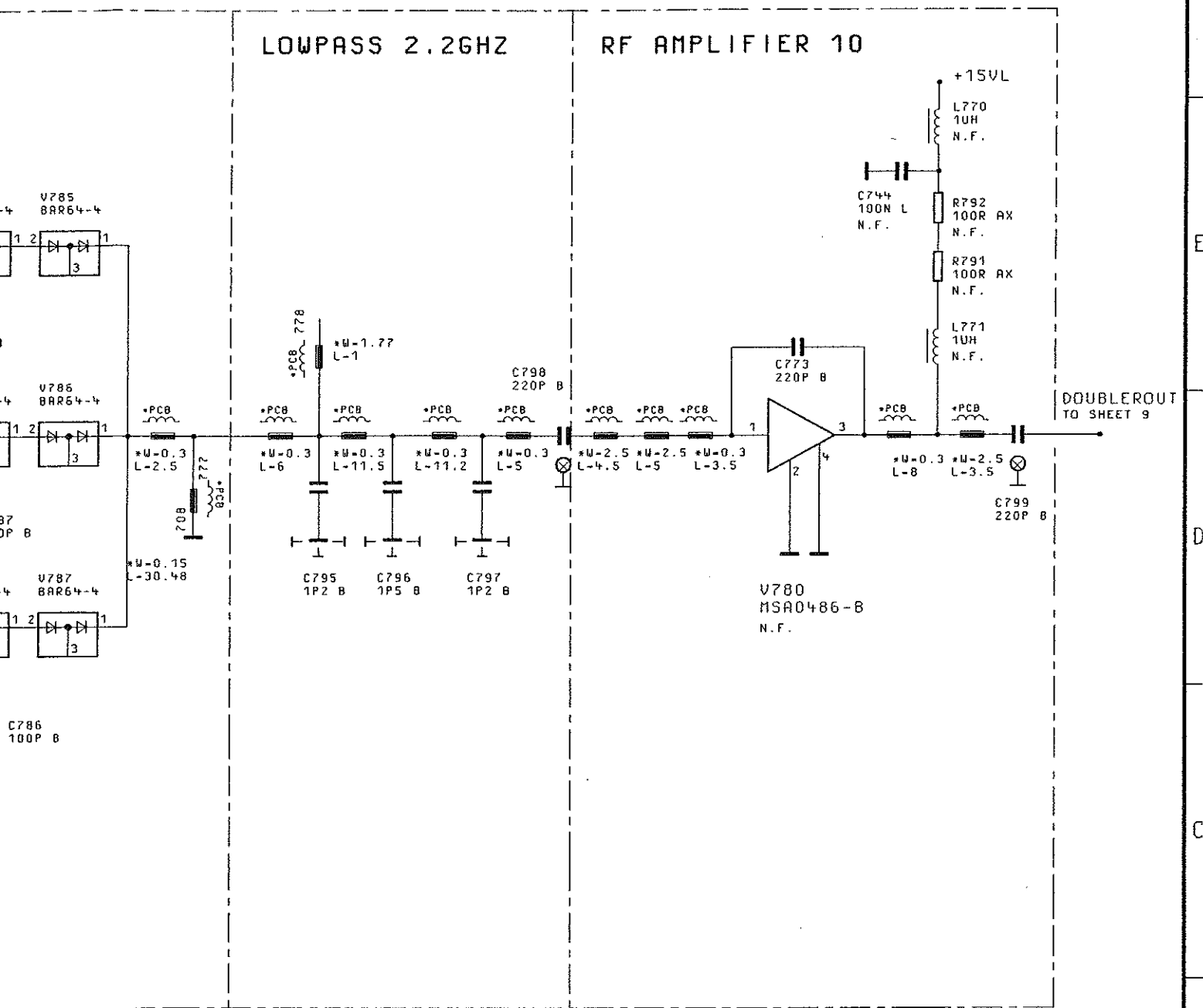
RF AMPLIFIER 7

DOUBLE



DOUBLERIN FROM SHEET 8






N.F. - NOT FITTED / NICHT BESTUECKT

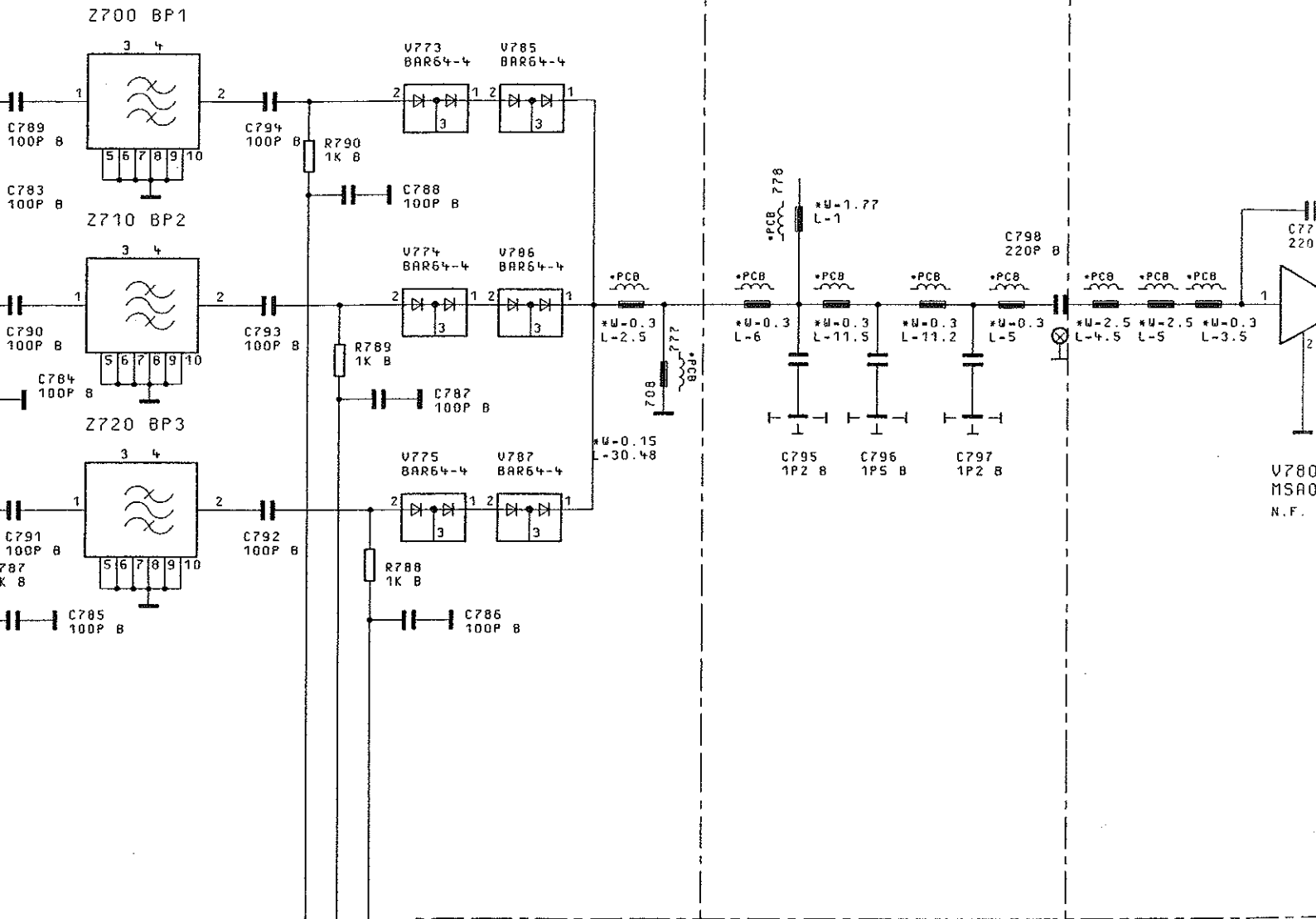
BINDENDE ANGABEN UEBER VARIANTEN,
TRIMMWERTE, BAUTEILWERTE UND
NICHT BESTUECKTE BAUTEILE SIEHE SA.

FOR BINDING INFORMATION ON MODELS,
TRIMMING AND COMPONENTS VALUES AND
NONFITTED COMPONENTS SEE PARTS LIST.

| | | | | | | | |
|------------|-----------------------|----------|----------|---|------------|----------------------|---|
| 04/02 | | 03.03.97 | E I | MENP | TAG | NAME | BEZEICHNUNG |
| | | | | BEARB. | | E I | AUSGANGSTEIL 2.08GHZ OUTPUT UNIT 2.08GHZ |
| | | | | GEPR. | | | |
| | | | | NDRN | | | |
| | | | | PLOTT | 03.03.97 | | |
| 04/01 | | 16.12.96 | E I |  | | ZEICHN.-NR. | BLATT-NR. |
| REND. IND. | RENDERUNGS-MITTEILUNG | DATUM | NAME | ROHDE&SCHWARZ | | 1062.7005.01S | 12+ |
| | | | ZU GERÄT | SMY | REG. I. V. | 1062.550Z | ERSTE Z. |
| | | | | | | 1062.550Z | |

LOWPASS 2.2GHZ

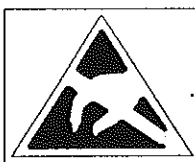
RF AMPLIFIER



N.F. = NOT FITTED / NICHT BESTUECKT

BINDENDE ANGABEN UEBER VARIANTEN,
TRIMMWERTE, BAUTEILWERTE UND
NICHT BESTUECKTE BAUTEILE SIEHE SA.

FOR BINDING INFORMATION ON MODELS,
TRIMMING AND COMPONENTS VALUES AND
NONFITTED COMPONENTS SEE PARTS LIST

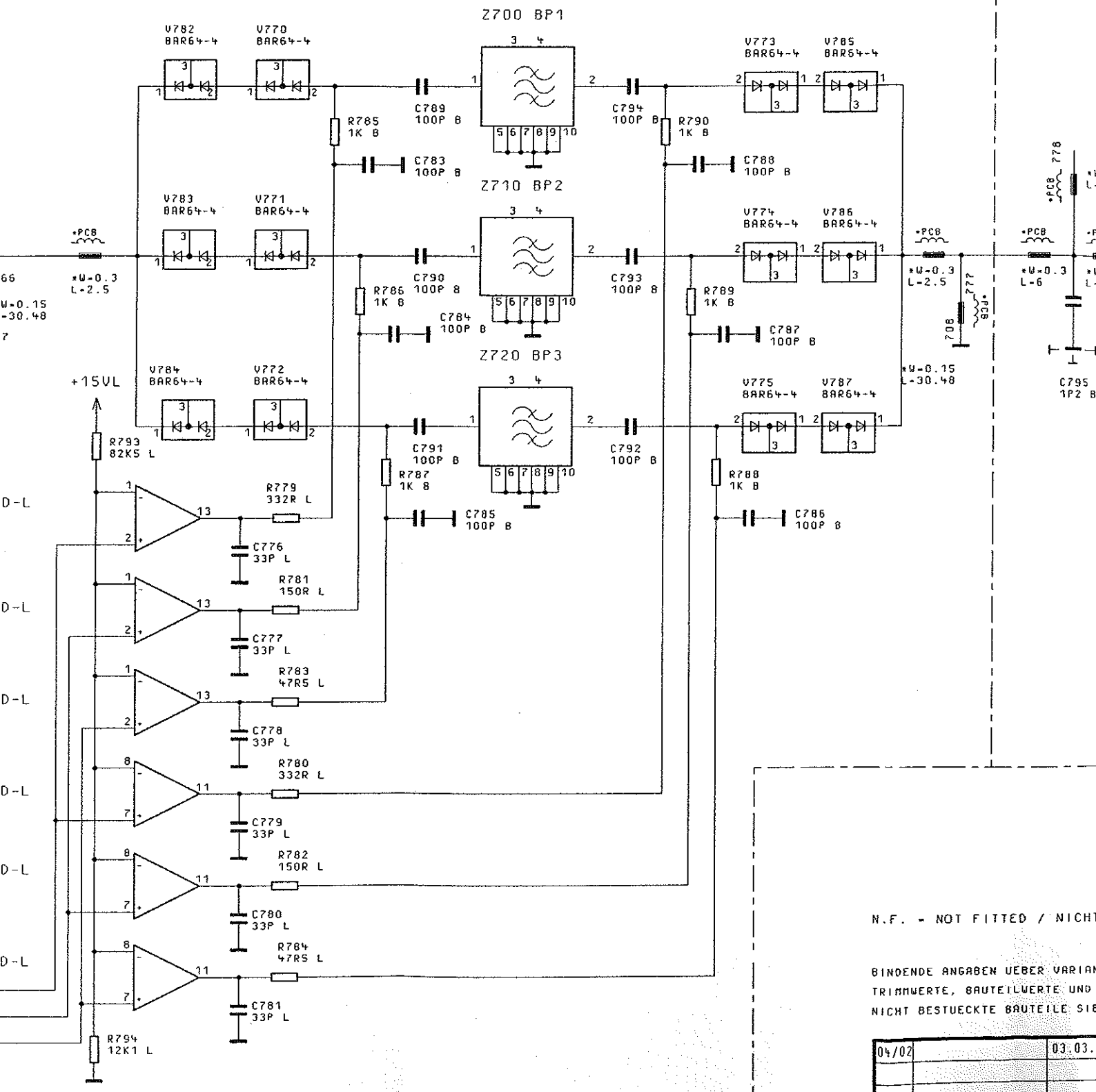


ACHTUNG: ESB!
ELEKTROSTATISCH GEFAHRDETE
BAUELEMENTE ERFORDERN EINE
BESONDERE HANDHABUNG.
ATTENTION ESD!
ELECTROSTATIC SENSITIVE DEVICES
REQUIRE A SPECIAL HANDLING

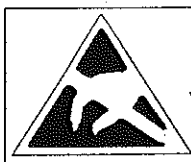
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|-----------|----------------------|----------|------|--------------------------|----------|----------|--------------------------|
| 04/02 | | 03.03.97 | E I | MENP | TAG | NAME | BENENNUNG |
| | | | | BEARB. | | E I | AUSGABE OUTPUT |
| | | | | GEPR. | | | |
| | | | | NORM | | | |
| | | | | PLOTT | 03.03.97 | | |
| 04/01 | | 16.12.96 | E I | | | | ZEICHN.-NR. |
| ÄND. IND. | ÄNDERUNGS-MITTEILUNG | DATUM | NAME | ROHDE&SCHWARZ | | | |
| | | | | | | ZU GERÄT | SMY |

TCHED BANDPASS FILTERS

LOWPA



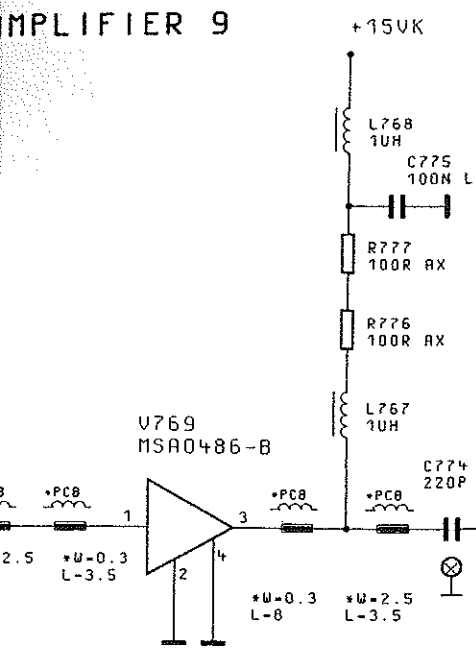
N.F. - NOT FITTED / NICHT
 BINDENDE ANGABEN UEBER VARIAN
 TRIMMWERTE, BAUTEILWERTE UND
 NICHT BESTUECKTE BAUTEILE SIE



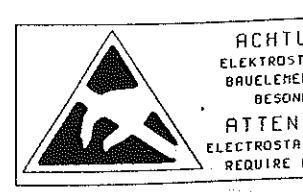
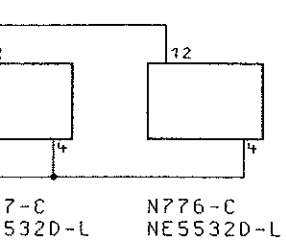
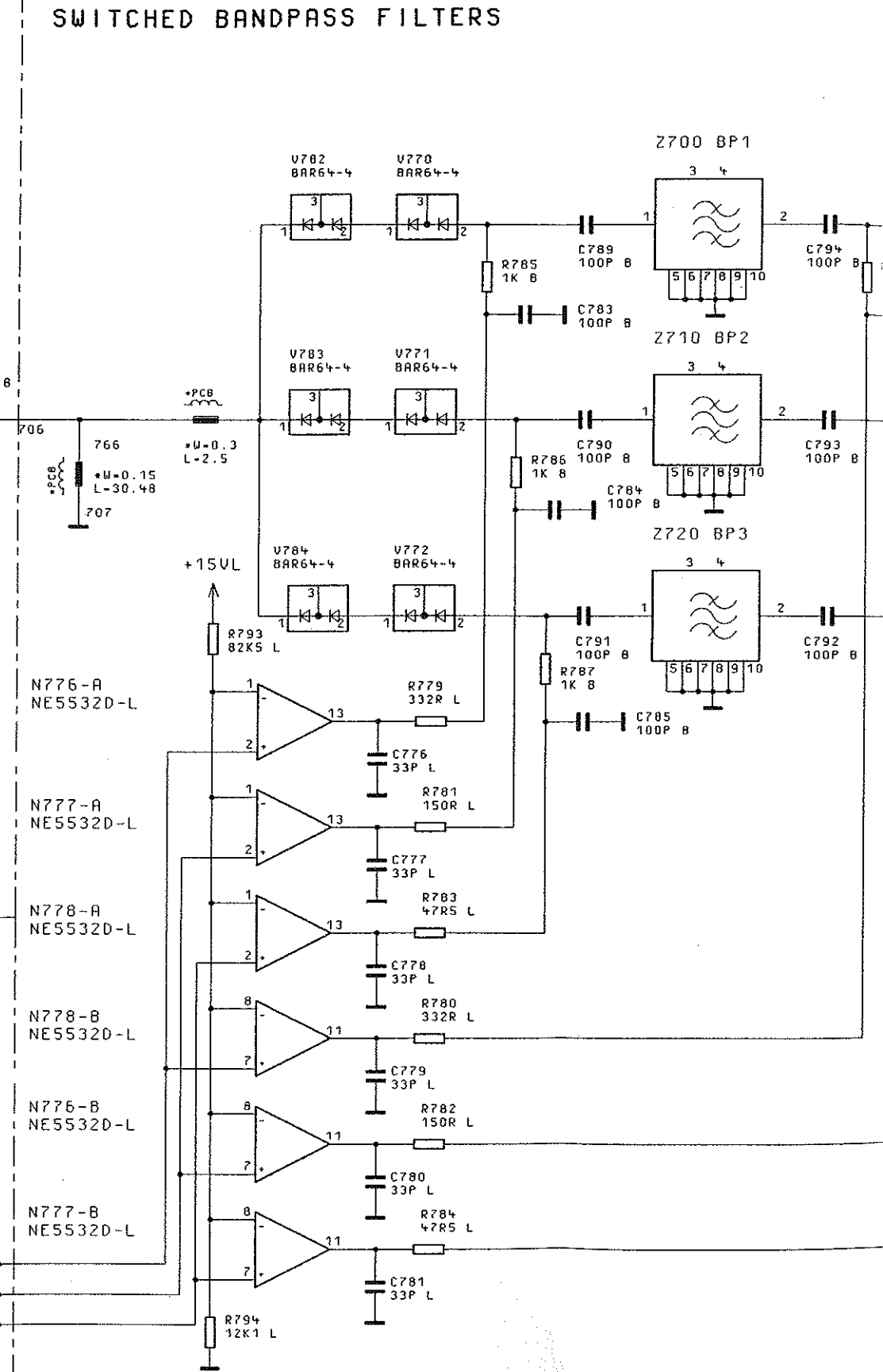
ACHTUNG: EGB!
 ELEKTROSTATISCH GEFÄHRDETE
 BAUELEMENTE ERFORDERN EINE
 BESONDERE HANDHABUNG.
ATTENTION: ESD!
 ELECTROSTATIC SENSITIVE DEVICES
 REQUIRE A SPECIAL HANDLING

| | |
|---------------|-----------------------------------|
| 04/02 | 03.03. |
| 04/01 | 16.12. |
| REND. IND. | ÄNDERUNGS- MITTEILUNG DATUM |

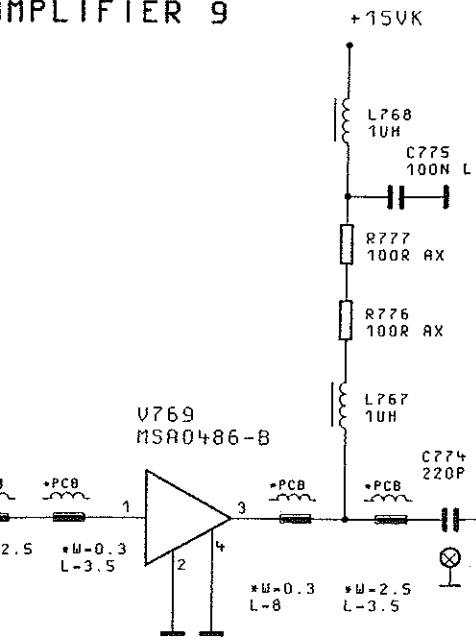
AMPLIFIER 9



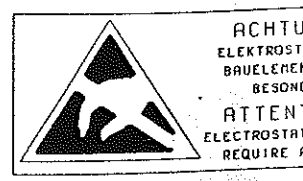
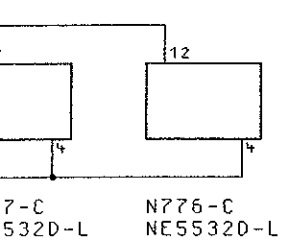
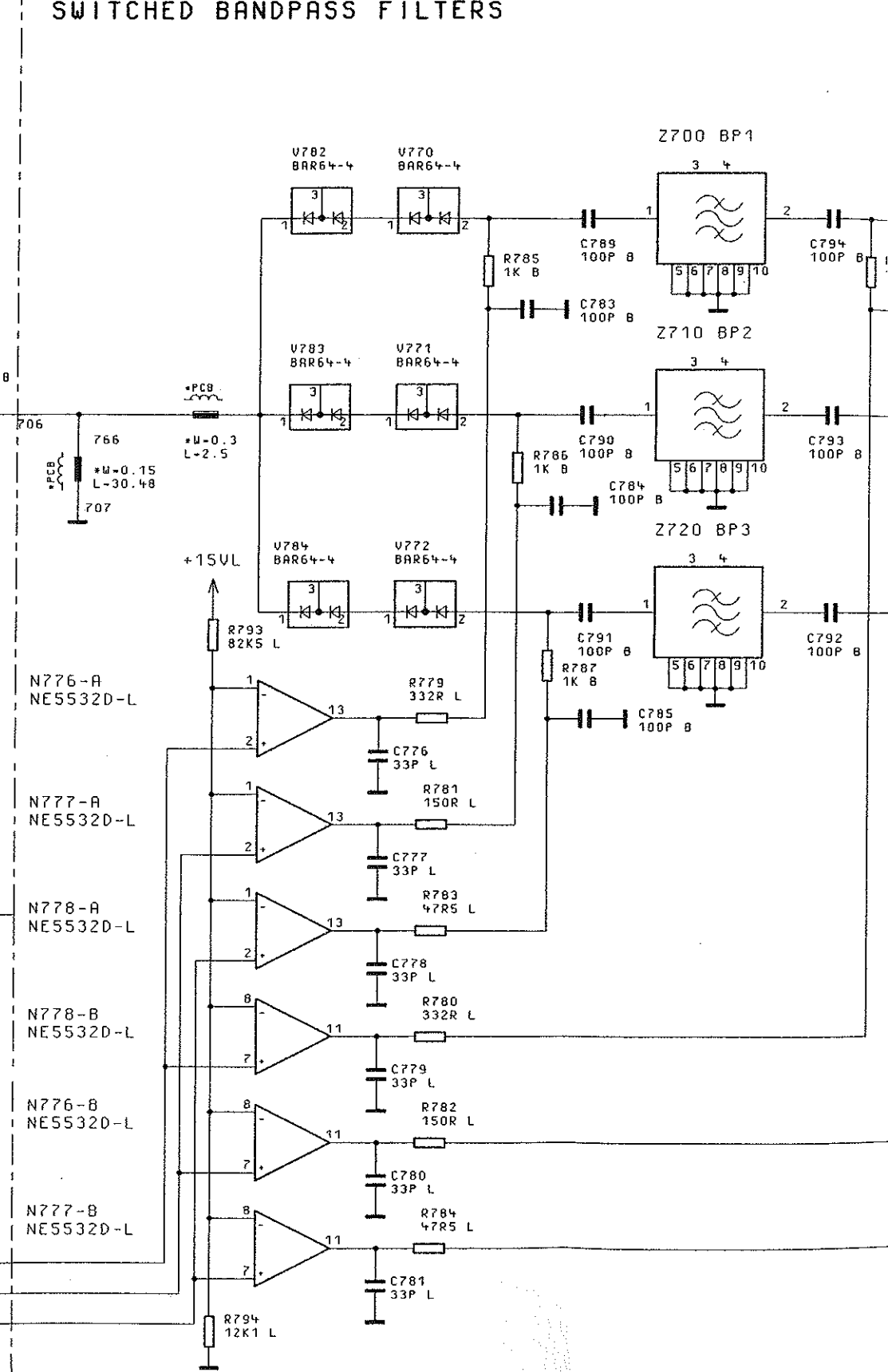
SWITCHED BANDPASS FILTERS



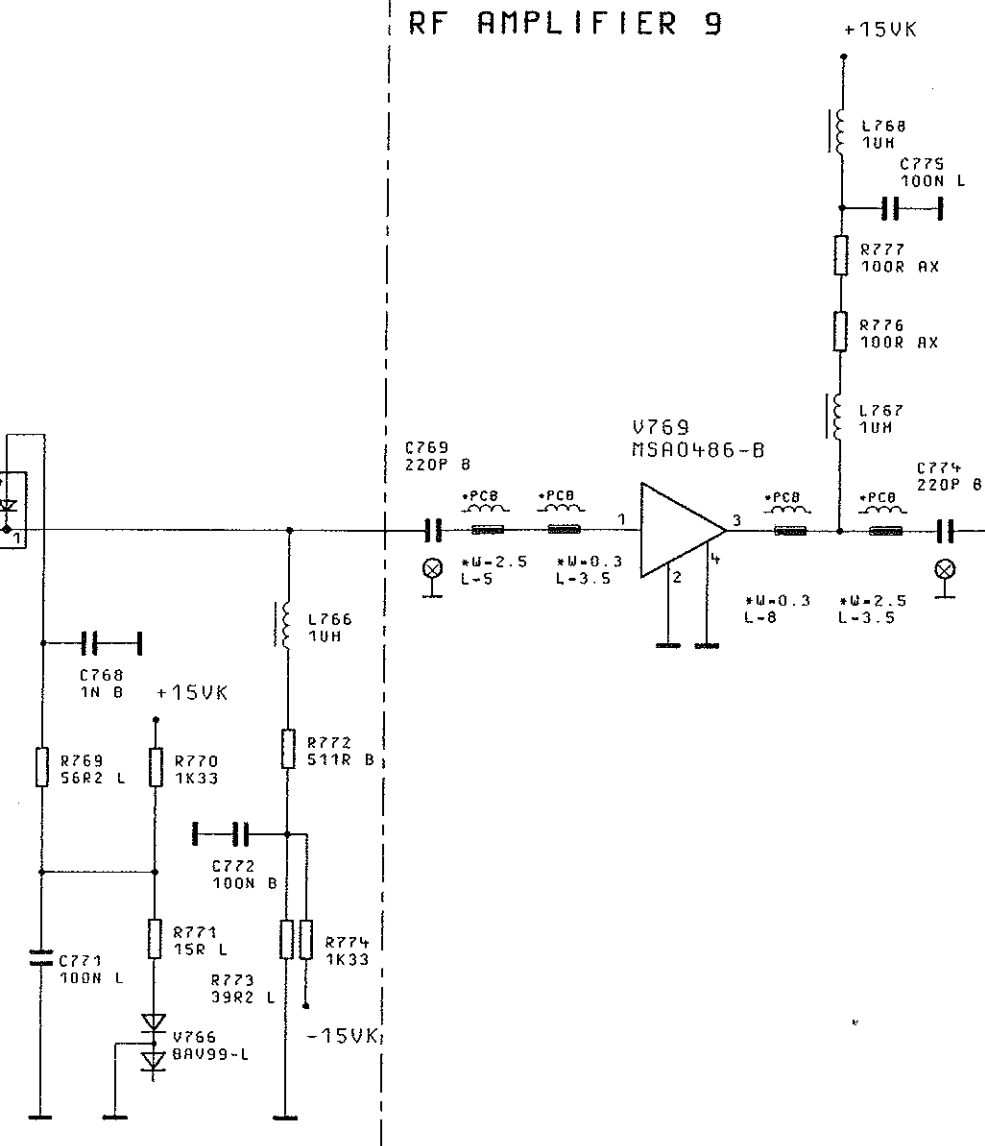
AMPLIFIER 9



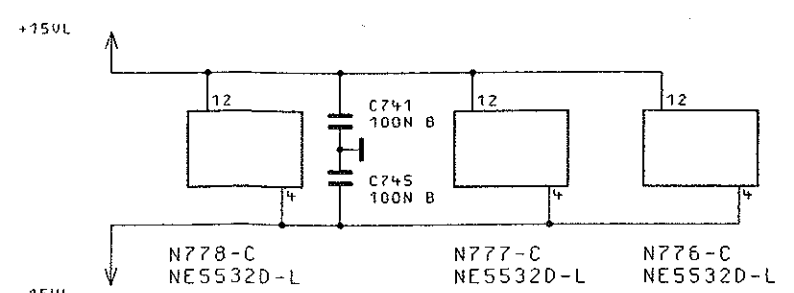
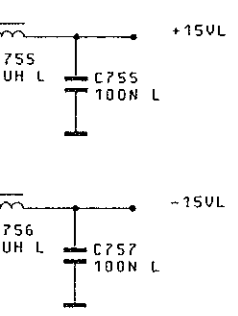
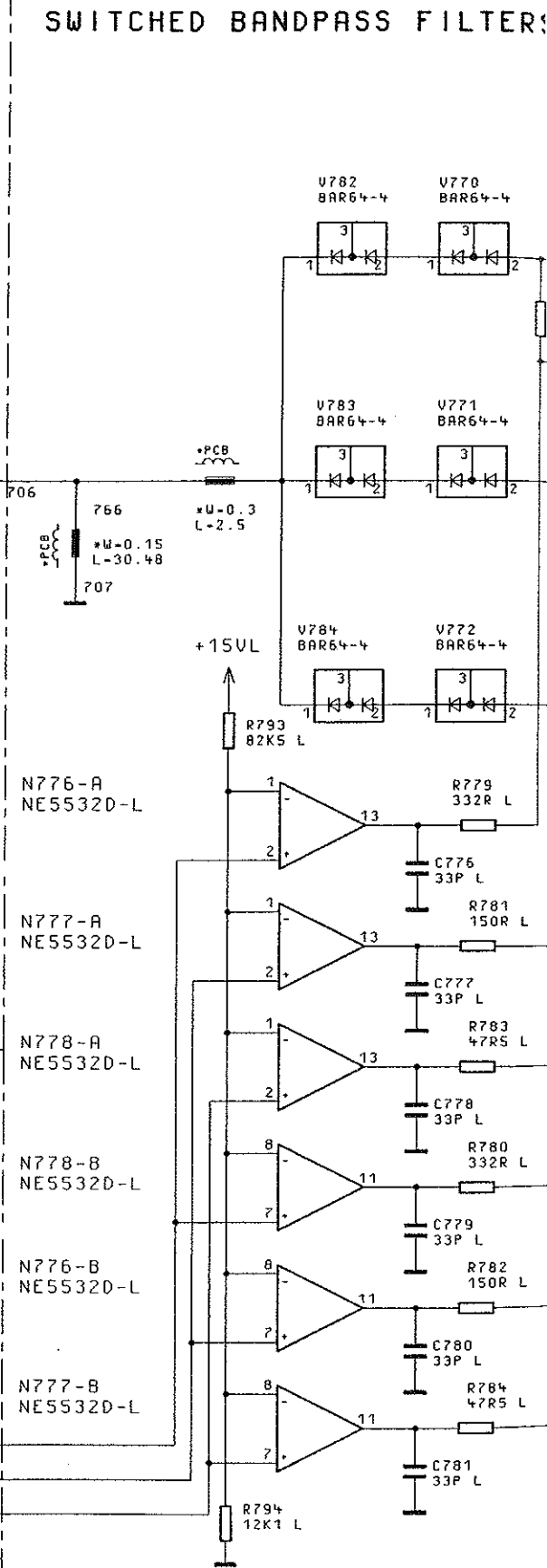
SWITCHED BANDPASS FILTERS



RF AMPLIFIER 9

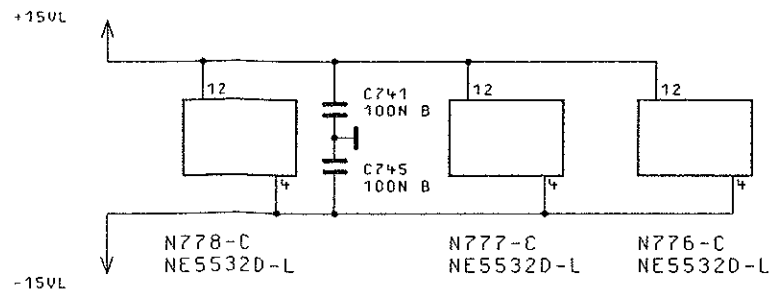
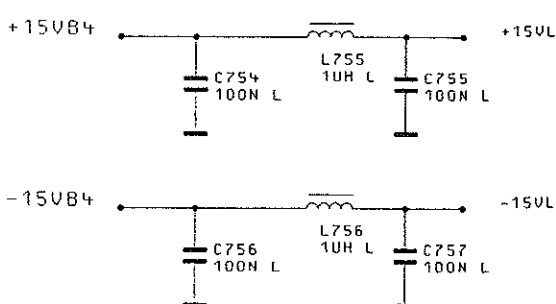
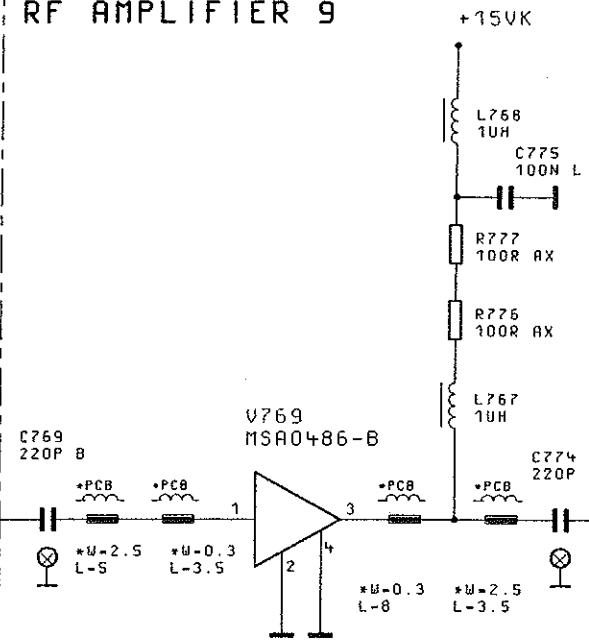
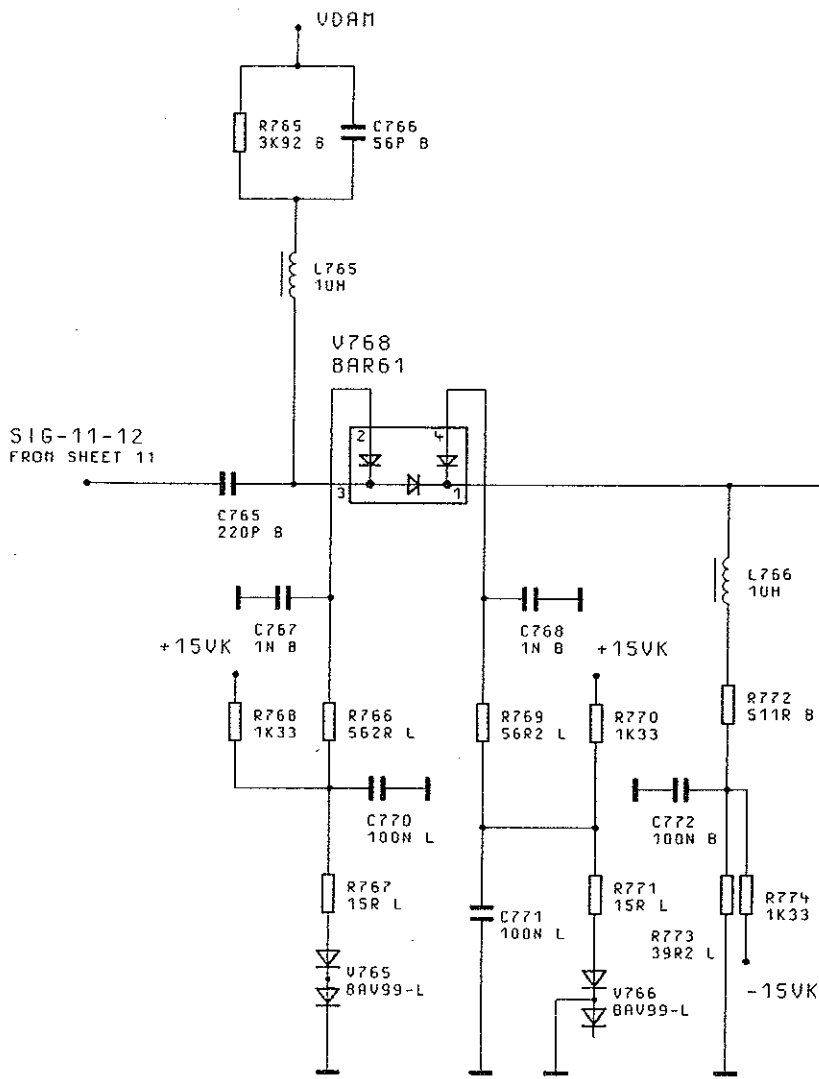


SWITCHED BANDPASS FILTERS



AM MODULATOR

RF AMPLIFIER 9



- BP10N
- BP20N
- BP30N

BEHALTEN DIR UNS ALLE RECHTE VOR

SIG-11-12
FROM SHEET 11

| Signal-Name | Page-No.: | Zones | | | |
|-----------------|--------------|---|---------------|------------|-------------|
| +15VB1 | 02: | 4F 5B 7C 03: 1B 4B 10D 06: 1A 10: 6A 10D | | | |
| +15VB2 | 05: | 11C 11D 06: 2F 3A 9F | | | |
| +15VB3 | 02: | 4F 04: 5D 6C 6D 7D 10E 11E 05: 3C 4C 6E | | | |
| +15VB4 | 02: | 4E 07: 3F 08: 2E 09: 2B 11: 1B 12: 1B | | | |
| +15VE | 07: | 2F 3B 4F 5A 6A | | | |
| +15VF | 07: | 7F 9F | | | |
| +15VH | 09: | 3B | | | |
| +15VHI | 07: | 6F 08: 9E 09: 3B 4F 6A 7A 10C | | | |
| +15VK | 11: | 3B 3E 4E 7E 9C 10C 11C 12: 1D 3D 4F | | | |
| +15VL | 10: | 6A 10C 12: 2A 3B 5D 11F | | | |
| +24VH | 02: | 4E 09: 5F | | | |
| +5VB | 02: | 3C 4D 6A 8C 03: 1B 05: 8C 10: 1B 2F 3F 4F 5E 6F 7C 7F 8E 9E 9F 10F | | | |
| +9V-I | 07: | 1C 2C 4A | | | |
| -15VB1 | 02: | 4E 5A 7A 03: 1A 4A 10: 6A 8B | | | |
| -15VB3 | 02: | 4E 04: 4C 8C 05: 2C 4E | | | |
| -15VB4 | 02: | 4E | | | |
| Druck 18.06.96 | Abt. 1GPK | Name DR | Dat. 18.06.96 | Ae. Mi. | Aei. 04 |
| ROHDE & SCHWARZ | Benennung | AUSGANGSTEIL_2.08GHZ OUTPUT_UNIT_2.08GHZ | | 13+ | |
| Typ. SMY | Reg in Verz. | 1062.5502 | V | Sachnummer | 1062.7005 S |

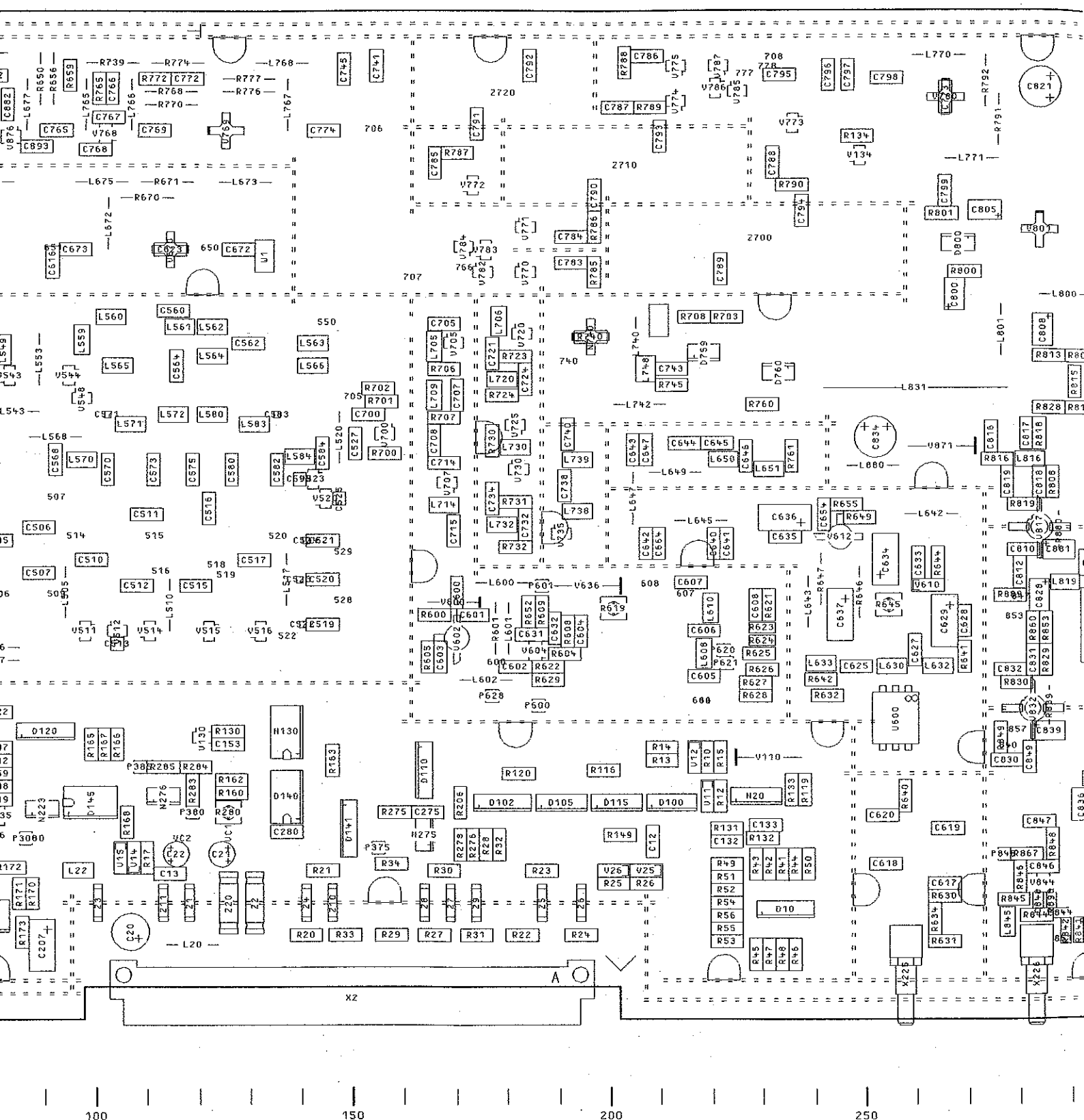
| Signal-Name | Page-No.: | Zones | | | |
|-----------------|--------------|---|--------------|------------|-------------|
| -15VB4 | 07: | 3F 08: 2D 09: 2A 11: 1A 12: 1B | | | |
| -15VE | 07: | 4F 6A 7A | | | |
| -15VHI | 09: | 3A 6A 8A | | | |
| -15VK | 11: | 3A 8B 8D 12B 12: 3C | | | |
| -15VL | 08: | 11C 10: 6A 12: 2A 3B | | | |
| -9V-I | 07: | 1B 3B 3D 4B | | | |
| ALCOFF | 03: | 1F 10: 7E | | | |
| AM | 02: | 4D 03: 1D | | | |
| AMINVERS | 03: | 1B 10: 3E | | | |
| AMSLOW | 03: | 1F 10: 7E | | | |
| BLANK | 02: | 4C 10: 1C | | | |
| BLANKENABLE | 10: | 3E | | | |
| BLANKINVERS | 10: | 3E | | | |
| BP10N | 10: | 7B 12: 4B | | | |
| BP20N | 10: | 7B 12: 4A | | | |
| BP30N | 10: | 7B 12: 4A | | | |
| CLK1 | 02: | 4B 10: 1E | | | |
| DEFILT | 02: | 6D 08: 2E | | | |
| DETMIXON | 03: | 1E | | | |
| Druck 18.06.96 | Abt.1GPK | Name DR | Dat.18.06.96 | Ae.Mi. | Aei. 04 |
| ROHDE & SCHWARZ | Benennung | AUSGANGSTEIL_2.08GHZ OUTPUT_UNIT_2.08GHZ | | 14+ | |
| Typ. SMY | Reg in Verz. | 1062.5502 | V | Sachnummer | 1062.7005 S |

| Signal-Name | Page-No. : Zones |
|-----------------|---|
| DETMIXON | 10: 7E |
| DETON | 03: 1E 10: 7E |
| DIAG-0 | 02: 7E 10: 3E |
| DIAG-1 | 02: 7E 10: 3E |
| DIAG-2 | 02: 7E 10: 3E |
| DIAG-3 | 02: 7E 10: 3E |
| DIAGON | 10: 3E |
| DOUBLEROUT | 09: 2C 12: 12D |
| HF-INT-ENABLE | 02: 11C 10: 3E |
| KLEMM-N | 03: 1F 10: 8C |
| LPSELECT-0 | 05: 8D 10: 7C |
| LPSELECT-1 | 05: 8D 10: 7C |
| LPSELECT-2 | 05: 8D 10: 7B |
| LPSELECT-3 | 05: 8D 10: 7B |
| MODUFIX | 03: 10C 10: 7E |
| RFBOUT | 08: 12D 09: 1D |
| RFLEVENABLE | 10: 7E |
| RFLOLEV | 04: 12D 05: 1D |
| SACON | 10: 7E |
| SACON-N | 08: 9E |
| Druck 18.06.96 | Abt.1GPK Name DR Dat.18.06.96 Ae.Mi. Aei. 04 |
| ROHDE & SCHWARZ | Benennung AUSGANGSTEIL_2.08GHZ OUTPUT_UNIT_2.08GHZ 15+ |
| Typ. SMY | Reg in Verz. 1062.5502 V Sachnummer 1062.7005 S |

| Signal-Name | Page-No.: | Zones | | | |
|---------------------------------------|-----------------------------|---|--------------|------------|-------------|
| SACON-N | 09: 2F 10: 11B | | | | |
| SACON-P | 08: 9E 09: 2F 10: 11C | | | | |
| SBDON | 10: 5E | | | | |
| SBDON-N | 08: 2E 10: 11C | | | | |
| SBDON-P | 08: 2E 10: 11D | | | | |
| SEROUT | 02: 4C 10: 1E | | | | |
| SIG-11-12 | 11: 12D 12: 1D | | | | |
| SIG10 | 05: 7D 06: 1E | | | | |
| SIG80-1 | 06: 11E 08: 1C | | | | |
| SIG80-2 | 07: 1D 08: 5B | | | | |
| SIG80-3 | 07: 12D 08: 11B | | | | |
| TP1 | 05: 12E 06: 4F | | | | |
| TP2 | 05: 12E 06: 6F | | | | |
| TP3 | 05: 12D 06: 7F | | | | |
| TP4 | 05: 12D 06: 2C | | | | |
| TP5 | 05: 12D 06: 3C | | | | |
| TP6 | 05: 12D 06: 5C | | | | |
| TP7 | 05: 12C 06: 7C | | | | |
| +-----+-----+-----+-----+-----+-----+ | | | | | |
| Druck 18.06.96 | Abt.1GPK | Name DR | Dat.18.06.96 | Ae.Mi. | Aei. 04 |
| +-----+-----+-----+-----+-----+-----+ | | | | | |
| ROHDE & SCHWARZ | Benennung | AUSGANGSTEIL_2.08GHZ OUTPUT_UNIT_2.08GHZ | | 16+ | |
| +-----+-----+-----+-----+-----+-----+ | | | | | |
| Typ. SMY | Reg in Verz. | 1062.5502 | V | Sachnummer | 1062.7005 S |
| +-----+-----+-----+-----+-----+-----+ | | | | | |

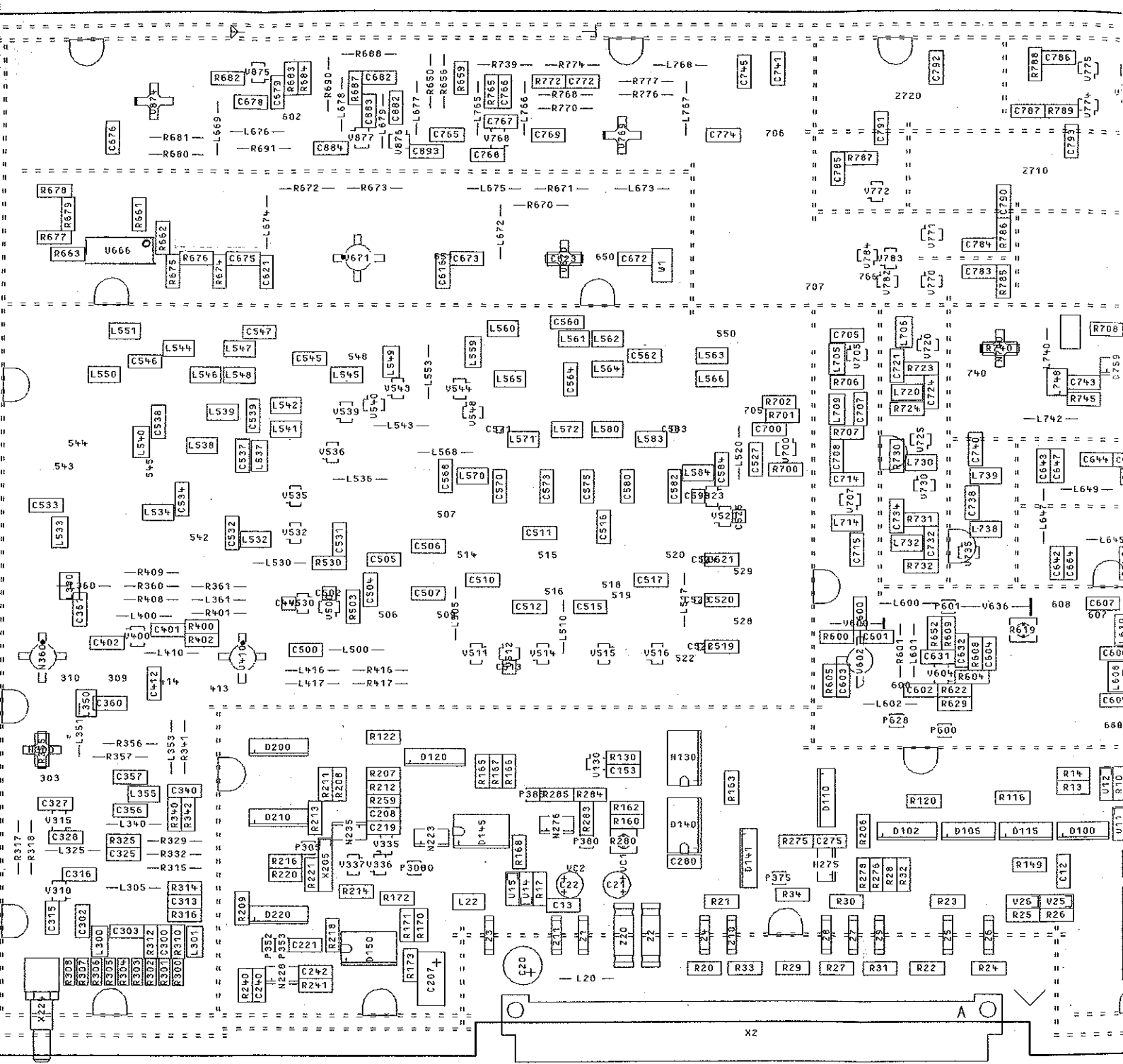
| Signal-Name | Page-No. : Zones |
|-------------|------------------------------|
| TP8 | 05: 12C 06: 10C |
| UDOUBLER | 02: 11E 11: 8E |
| ULPRE | 02: 11E 03: 12E 05: 4E |
| UMODULATOR | 02: 11E 03: 12C 04: 6E |
| UREF6 | 03: 9F 10: 11B |
| UREF6N | 03: 4C 10: 11B |
| UREF9 | 09: 5C 6C 12B |
| UREF9N | 09: 5A 6B 8B 12C |
| UREGELVERST | 02: 6C 03: 11B |
| URF-SOLL | 02: 11E 03: 7C |
| VDAM | 03: 11B 11: 10E 12: 2F |
| VDET | 02: 11E 03: 1E 09: 8B |
| VDETMIX | 02: 11E 03: 1F 07: 5F |
| VDETMIXE | 07: 4C 5F |
| VDEXT | 02: 4F 03: 1E |
| VDEXTON | 03: 1E 10: 7E |
| WR1 | 02: 4B 10: 1E |

| | | | | | |
|-----------------|--------------|---|--------------|------------|-------------|
| Druck 18.06.96 | Abt.1GPK | Name DR | Dat.18.06.96 | Ae.Mi. | Aei. 04 |
| ROHDE & SCHWARZ | Benennung | AUSGANGSTEIL_2.08GHZ OUTPUT_UNIT_2.08GHZ | | 17- | |
| Typ. SMY | Reg in Verz. | 1062.5502 | V | Sachnummer | 1062.7005 S |



PARTEILISTEN, UND
SIEHE SA.
ON MODELS.
VALUES AND
PARTS LIST.

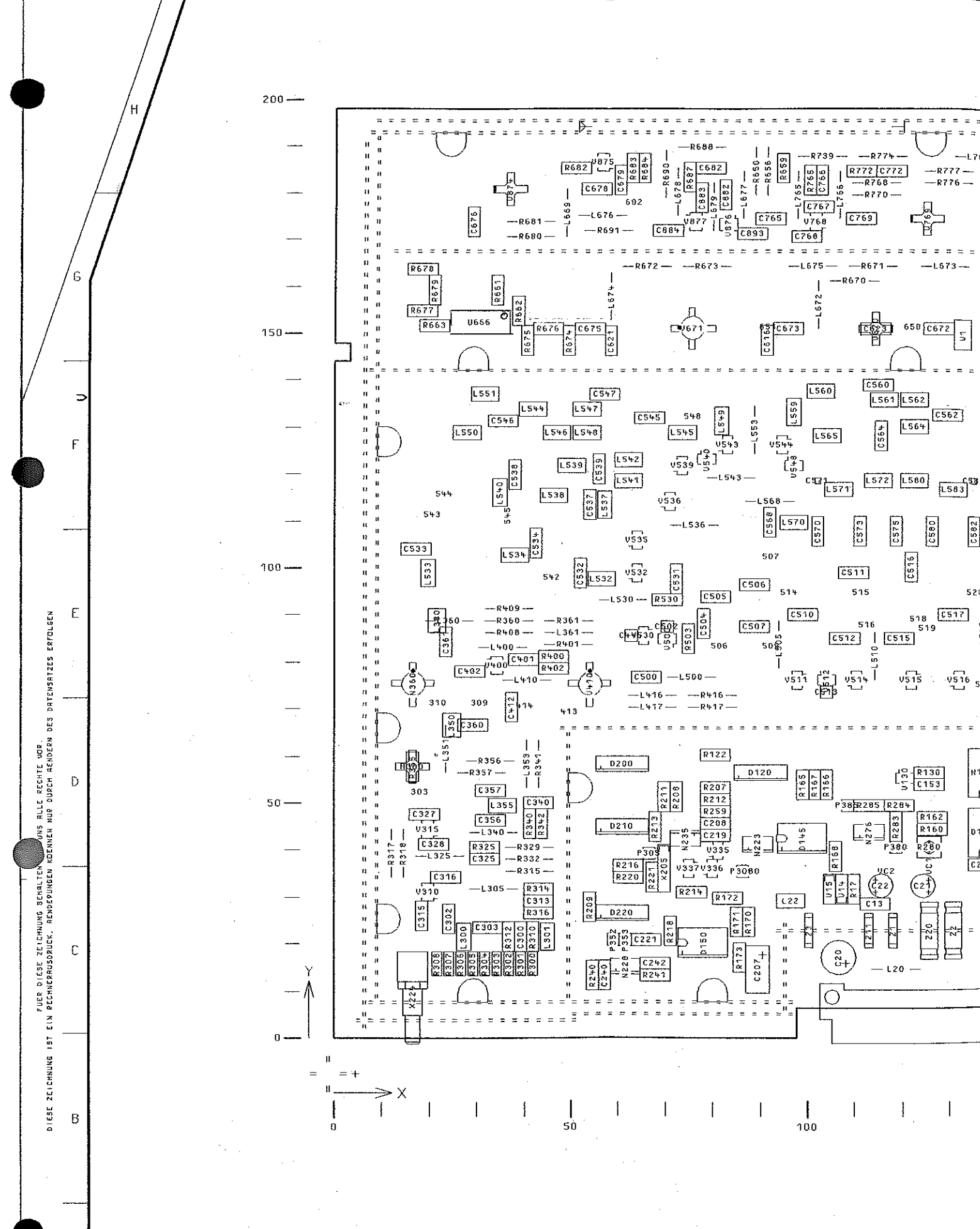
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|------|---------------------------|----------|------|----------------------------|----------|------|----|
| 83/ | | 17.06.96 | DR | 16PK | TAG | NARE | BE |
| | | | | BEPP. | | DR | |
| | | | | NOPR | | | |
| | | | | PE011 | 17.06.96 | | |
| | | | | | | | |
| REND | RENDEPONES- RITTEILUNG | DATUM | NARE | ROHDE & SCHWARZ | | | |
| | | | | 28 GERRET | SNY | | |



ACHTUNG: ESD!
 ELEKTROSTATISCH GEFÄHRDETE
 BAUELEMENTE ERFORDERN EINE
 BESONDERE HANDHABUNG.
ATTENTION ESD!
 ELECTROSTATIC SENSITIVE DEVICES
 REQUIRE A SPECIAL HANDLING

BINDENDE ANGABEN ÜBER VARIANTEN,
 TRAHNERTE, BAUTEILWERTE UND
 NICHT BESTÜCKTE BAUTEILE SIEHE SA.
 FOR BINDING INFORMATION ON MODELS,
 TRIMMING AND COMPONENTS VALUES AND
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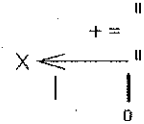
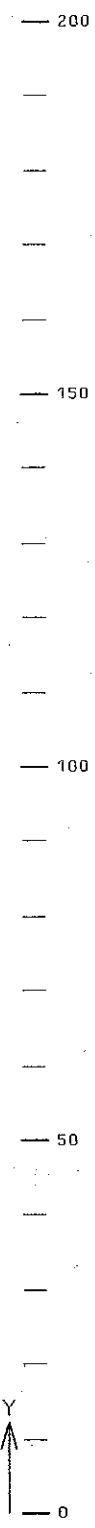
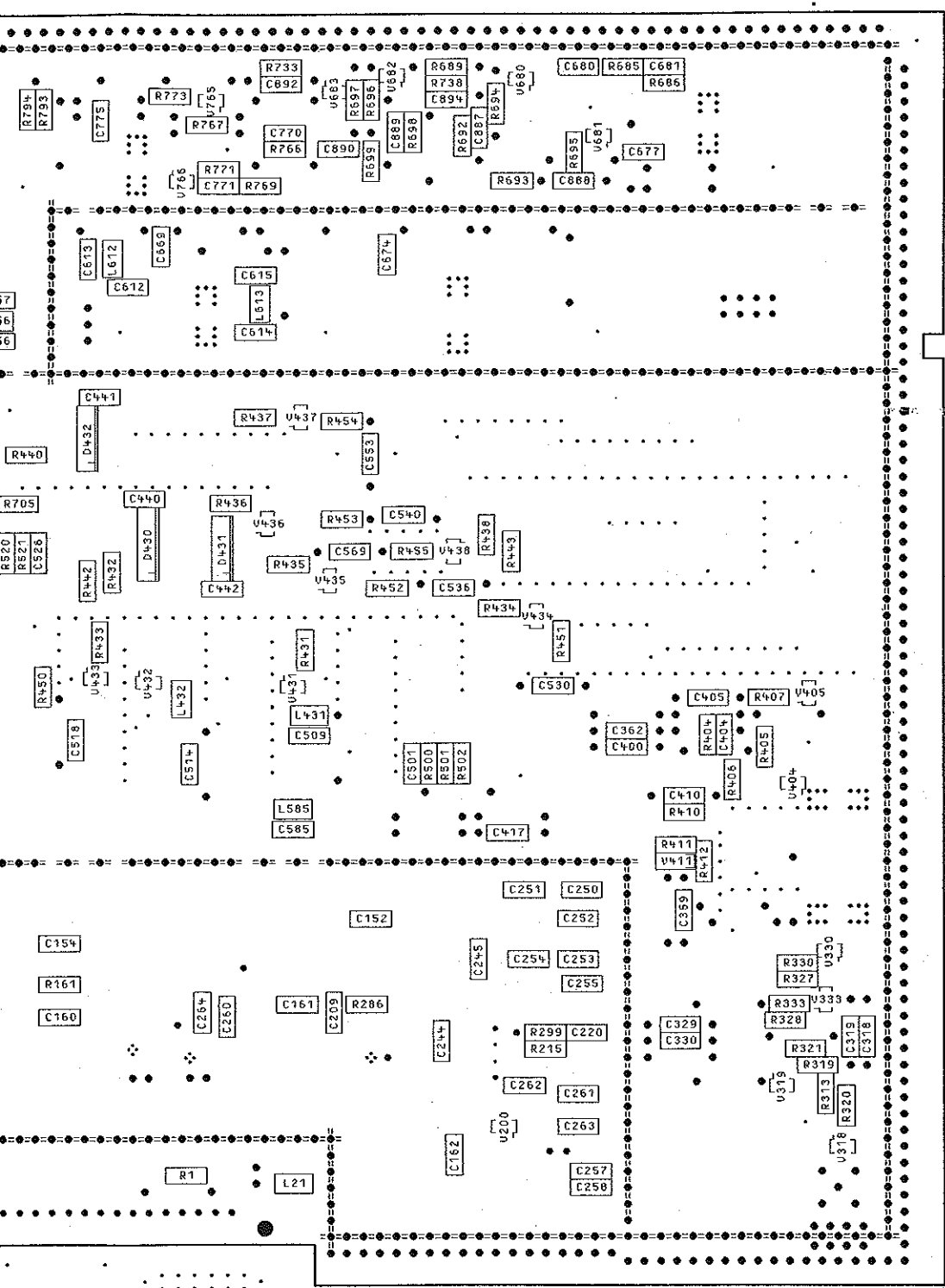
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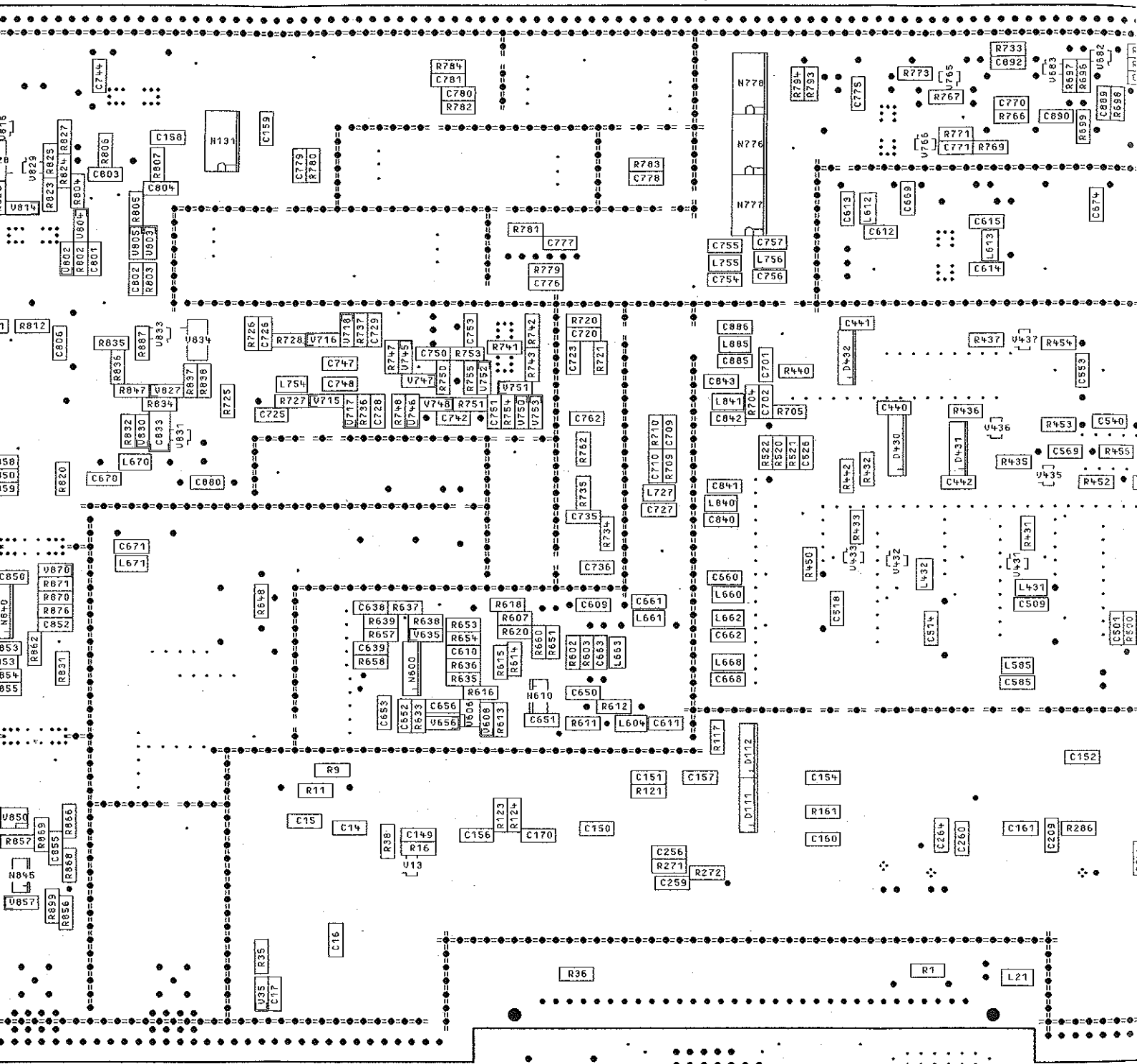
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| 03/ | | 17.06.96 | DR | 1GPK | TRG | NAME | BENENNUNG | |
| | | | | BEARB. | | DR | AUSGANGSTEIL 2.086GHZ | Z |
| | | | | GEPR. | | | OUTPUT UNIT 2.086GHZ | |
| | | | | NDRP | | | | |
| | | | | PLOTT | 17.06.96 | | | |
| | | | | | | ZEICHN.-NR. | | BLATT-NR. |
| | | | | | | 1062.7005.01 | EE | 24 |
| HERD. | HERDENUNGS- | DATUR | NARE | ZU GERÄT | SHY | PEC. I. U. | 1062.5502 | ERSTE Z. |
| | MITTEILUNG | | | | | | 1062.5502 | 3 BL. |



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ROHDE & SCHWARZ

SERVICEUNTERLAGEN

Eichleitung 1 GHz

0826.5065.01

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Schaltteilliste
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Stromlauf
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ACHTUNG!!!

Die Baugruppe darf nicht geöffnet werden, da sonst der Garantieanspruch erlischt und ein Neuabgleich durchgeführt werden muß.

Für SMY ohne Option SMY-B40 ist für diese Baugruppe die Variante 02 erforderlich.

Für SMY mit Option SMY-B40 ist für diese Baugruppe die Variante 04 erforderlich.

7.1 Funktionsbeschreibung

(Siehe hierzu Stromlauf und Blockschaltbild 0826.5065.01S)

7.1.1 Eichleitung mit integriertem Überspannungsschutz

Die Eichleitung ist zwischen das Ausgangsteil (bzw. der Baugruppe Powermodul bei Geräten mit Option SMY-B40) und den Geräteausgang geschaltet. Mit ihr kann das Signal um 130dB in 10dB-Stufen abgesenkt werden. Kleinere Pegelsprünge werden mit Hilfe der elektronischen Pegelregelung eingestellt. Die Eichleitung des SMY01 enthält fünf Dämpfungsglieder mit den Werten 10, 2*20 und 2*40dB, ein Überspannungsschutzsubstrat und ein 50 Ohm Abschlußwiderstand. Die Dämpfungsglieder können durch jeweils eine Kontaktgruppe, die aus drei Einzelkontakten besteht, eingeschaltet oder überbrückt werden. Jede dieser Kontaktgruppen wird von einer Wippe betätigt, die von einer Magnetspule angetrieben und durch einen Permanentmagneten in der Endlage gehalten wird.

Hinter den Dämpfungsgliedern sitzt auf der Eichleitungsgrundplatte in Richtung Geräteausgang das Überspannungsschutzsubstrat und anschließend der RF-OFF-Schalter. Das Überspannungsschutzsubstrat erkennt hohe DC-Spannungen und HF-Pegel, welche an die Ausgangsbuchse X1 angelegt werden und betätigt den RF-OFF-Schalter. Der RF-OFF-Schalter kann aber auch vom Rechner über die Software bedient werden.

7.1.2 Ansteuerung der Eichleitung

Die Dämpfungseinstellung erfolgt durch serielle Datenübertragung (siehe 7.3.1). Die Ansteuerbits werden über die Datenleitungen (X77.B1 SERDAT) mit dem Clock (X77.B2 SERCLK) in das Schieberegister (D5) auf der Eichleitungsansteuerdruckschaltung geschoben. Mit dem Strobe (X77.B3 ELSTB) werden die Ausgänge des Schieberegisters gesetzt und die gewünschte Dämpfung eingestellt. Die Ansteuerung der Magnetspulen der Kontaktgruppen erfolgt über die Leistungsgatter D1 bis D4.

Beim SMY01 wird eine zu hohe HF-Spannung an der Ausgangsbuchse durch eine Spitzenwertgleichrichtdiode erkannt. Eine zu hohe DC-Spannung wird durch einen Widerstand detektiert. Im Überspannungsfall sprechen die Komperatoren N10 a,b an und setzen das Flip-Flop D6, welches über eine Verstärkerstufe V30 und das Gatter D4 direkt den RF-Schalter betätigt.

Dem Rechner wird der Überlastfall über die Interruptleitung (X77.B4) mitgeteilt. Dieser Interrupt wird dann rückgesetzt, wenn der RF-OFF-Schalter zusätzlich vom Rechner über Software betätigt wird. Der RF-OFF-Schalter kann von Hand über die Tastenfolge 'LEVEL ON' wieder geschlossen werden.

7.2 Meßgeräte und Hilfsmittel

1. Ohmmeter (Meßbereich bis 2M Ω)
2. Leistungsmeßsender (z.B. SMGL)
3. Gleichspannungsnetzgerät für $\pm 15V$
4. Speicheroszilloskop

7.3 Fehlersuche

7.3.1 Ansteuercode

Läßt sich am Gerät ein gewünschter Ausgangspegel nicht einstellen, so muß am Schieberegisterausgang D5 der ordnungsgemäße Ansteuercode der einzelnen Dämpfungsglieder überprüft werden (siehe Tabelle 7.3.1).

Tabelle 7.3.1 für ATT01 im SMY01 (CW-Betrieb):

Ansteuercode am Schieberegister D5 (74HC 4094)

| Pegeleinstellung | | Pin5 | 6 | 4 | 7 | 14 | 11,9 |
|------------------|----------|------|------|------|------|------|--------|
| mit | ohne | Q2 | Q3 | Q1 | Q4 | Q5 | Q8, Q9 |
| Option SMY-B40 | | 40dB | 20dB | 10dB | 20dB | 40dB | RF-OFF |
| 19 dBm | 13 dBm | 1 | 1 | 1 | 1 | 1 | 0 |
| 6 dBm | 0 dBm | 1 | 1 | 0 | 1 | 1 | 0 |
| -4 dBm | -10 dBm | 1 | 1 | 1 | 0 | 1 | 0 |
| -24 dBm | -30 dBm | 1 | 1 | 1 | 1 | 0 | 0 |
| -64 dBm | -70 dBm | 0 | 1 | 1 | 1 | 1 | 0 |
| -84 dBm | -90 dBm | 0 | 1 | 1 | 0 | 0 | 0 |
| -104 dBm | -110 dBm | 0 | 0 | 1 | 0 | 0 | 0 |
| -114 dBm | -120 dBm | 0 | 0 | 0 | 0 | 0 | 0 |

'1' = 5V, '0' = 0V

7.3.2 Ansteuerpuls der Dämpfungsglieder

Entspricht der Puls an den Magnetspulen D1 bis D4 nicht der in Bild 7.3.2 gezeichneten Form, so liegt ein auftretender Dämpfungsfehler an der Ansteuerdruckschaltung und nicht an den Dämpfungsgliedern mit den zugehörigen Kontaktgruppen vor.

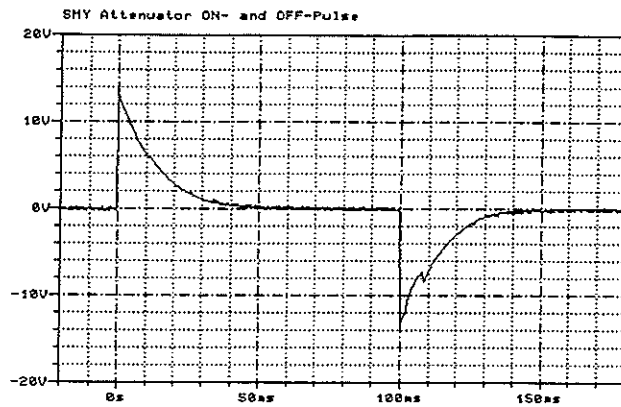


Bild 7.3.2

7.4 Prüfen und Abgleich

7.4.1 Prüfen der Dämpfungsglieder und der Ansteuerdruckschaltung

Hierzu ist zu verfahren wie in Kapitel 5.2.6 der Wartungsunterlage im Betriebshandbuch beschrieben ist.

7.4.2 Prüfen des Überspannungsschutzes

7.4.2.1 Statische Prüfung

- Stecker X41 von der Eichleitungsansteuerdruckschaltung abziehen.
- Einen Ausgangspegel von -117dBm einstellen.

Mit einem Ohmmeter kann nun die Diode des Überspannungsschutzes in Sperr- und Durchlaßrichtung gemessen werden.

- Die Messung erfolgt zwischen Masse und dem Durchführungsfilter Z11.

Mit einem Ohmmeter kann auch der DC-Spannungsmeßwiderstand gemessen werden.

- Die Messung erfolgt zwischen dem RF-Ausgang und dem Durchführungsfilter Z12. Der Sollwert beträgt $6 \pm 1\text{k}\Omega$.

7.4.2.2 Prüfung und Abgleich bei Gleichspannung (nur VAR04)

- Mit Pot R14 die Spannung an N10/2 auf $1.4 \text{ V} \pm 10 \text{ mV}$ einstellen.
 - An die RF-Ausgangsbuchse X1 des Geräts eine DC-Spannung aus einer Gleichspannungsquelle anlegen.
- _ Der RF-OFF-Schalter muß bei Spannungen an der RF-Buchse von $\pm(7.5 \text{ V} \dots 8.5 \text{ V})$ ansprechen.

Ein Rücksetzen des RF-OFF-Schalters erfolgt mit der Tastenkombination 'LEVEL ON'.

7.4.2.3 Prüfung bei Wechselspannung (nur VAR04)

- Einen Ausgangspegel von -117 dBm einstellen.
 - Einen Leistungsmeßsender mit dem RF-Ausgang des SMY verbinden und eine RF von 100 MHz einstellen.
- _ Der RF-OFF-Schalter muß bei $30 \dots 33 \text{ dBm}$ ansprechen.

Ein Rücksetzen des RF-OFF-Schalters erfolgt mit der Tastenkombination 'LEVEL ON'.

7.4.2.4 Prüfung und Abgleich bei Wechselspannung (nur VAR02)

- Einen Ausgangspegel von -117 dBm einstellen.
 - Einen Leistungsmeßsender mit dem RF-Ausgang des SMY verbinden und eine RF von 1000 MHz einstellen.
- _ Der RF-OFF-Schalter muß bei $0.3 \dots 0.7 \text{ W}$ ansprechen, ein Abgleich kann mit dem Potentiometer R14 erfolgen.

Ein Rücksetzen des RF-OFF-Schalters erfolgt mit der Tastenkombination 'LEVEL ON'.

7.4.2.5 Prüfung bei Gleichspannung (nur VAR02)

- An die RF-Ausgangsbuchse X1 des Geräts eine DC-Spannung aus einer Gleichspannungsquelle anlegen.
- _ Der RF-OFF-Schalter muß bei Spannungen $\pm(5 \dots 7 \text{ V})$ ansprechen.

Ein Rücksetzen des RF-OFF-Schalters erfolgt mit der Tastenkombination 'LEVEL ON'.

7.4.3 Schnittstellen

| Pin | Name | Ein/Ausgang | Herkunft/Ziel | Wertebereich | Signalbeschreibung |
|--------|------------|-------------|----------------|----------------------------|--------------------|
| X77.A1 | GND | | | | |
| X77.B1 | SERDAT | Eingang | Rechner X3.4 | TTL-HCT | Serielle Daten |
| X77.A2 | GND | | | | |
| X77.B2 | SERCLK | Eingang | Rechner X3.2 | TTL-HCT | Clocksignal |
| X77.A3 | GND | | | | |
| X77.B3 | ELSTB | Eingang | Rechner X3.19 | TTL-HCT | Strobesignal |
| X77.A4 | GND | | | | |
| X77.B4 | HFOVERLOAD | Ausgang | Rechner X3.22 | TTL-HCT | Overload Interrupt |
| X77.A5 | GND | | | | |
| X77.B5 | frei | | | | |
| X77.A6 | VA5-P | Eingang | Netzteil X21.5 | +4.5 .. +5.3V 42 ±8mA | Versorgung +5.1V |
| X77.B6 | " | " | " | " | " |
| X77.A7 | VA15-P | " | " X21.13 | +14.9 .. +15.6V 20 ±4mA | Versorgung +15V |
| X77.B7 | " | " | " | " | " |
| X77.A8 | VA15-N | " | " X21.19 | -15.5 .. -14.4V 3 ±.5V | Versorgung -15V |
| X77.B8 | " | " | " | " | " |
| X1 | | Eingang | Ausgangsteil | | |
| X2 | | Ausgang | RF-Buchse | | |



ROHDE & SCHWARZ

SERVICE INSTRUCTIONS

Attenuator 1GHz

0826.5065.01

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Parts list
List of coordinates
Circuit diagram
Components layout diagram

CAUTION!!!

Do not open the module, since otherwise the warranty expires and re-adjustment is required.

For instruments without option SMY-B40, this module with VAR02 is necessary.

For instruments with option SMY-B40, this module with VAR04 is necessary.

7.1 Function Description

(Cf. circuit diagram and block diagram 0826.5065.01S)

7.1.1 Attenuator with Overvoltage Protection

The attenuator is connected between the output module (the power module for instruments with option SMY-B40, respectively) and the instrument output. It is used to attenuate the signal by 130 dB in steps of 10 dB. Smaller level jumps are set via the electronic level control. The attenuator of the SMY01 consists of five attenuator pads of 10, 2*20 and 2*40 dB, an overvoltage-protection substrate and a 50-Ohm terminator. The attenuator pads can be switched on or bypassed by means of one contact group each, which consists of three individual contacts. Each of these contact groups is actuated by a rocker, which is driven by a magnetic coil and kept in end position by a permanent magnet.

The overvoltage-protection substrate and the RF-OFF switch are accommodated on the attenuator motherboard subsequent to the attenuator pads. The overvoltage-protection substrate detects high dc voltages and RF levels which are applied to the output socket X1 and actuates the RF-OFF switch. The RF-OFF switch may also be software-controlled via the controller.

7.1.2 Control of the Attenuator

The attenuation is set via serial data transmission (cf. 7.3.1). The control bits are clocked into the shift register (D5) on the attenuator control p.c.b. via the data lines (X77.B1 SERDAT) using the clock X77.B2 SERCLK. The strobe (X77.B3 ELSTB) sets the outputs of the shift registers and the desired attenuation. The magnetic coils of the contact groups are controlled via the power gates D1 to D4.

A peak-responding rectifier diode fitted to the SMY01 detects an unpermissibly high RF voltage at the output socket. An unpermissibly high dc voltage is detected by a resistor.

In case of overvoltage, the comparators N10 a,b respond and set the flip-flop D6, which directly actuates the RF switch via an amplifier stage V30 and the gate D4.

The information on overload is passed to the controller via the interrupt line (X77.B4). This interrupt is reset if the RF-OFF switch is additionally software-controlled. The RF-OFF switch can be reset manually via the key sequence 'LEVEL ON'.

7.2 Test Instruments and Utilities

1. Ohmmeter (Measuring range up to 2 MOhms)
2. Power generator (e.g., SMGL)
3. DC power supply for $\pm 15V$
4. Storage oscilloscope

7.3 Troubleshooting

7.3.1 Control Code

If a desired output level can not be set on the instrument, check at the shift register D5 whether the control code of the individual attenuator pads is correct (see table 7.3.1).

Table 7.3.1 for ATT01 in SMY01 (CW mode):

Control code at shift register D5 (74HC 4094)

| Level setting | | Pin5 | 6 | 4 | 7 | 14 | 11,9 |
|----------------|----------|-------|-------|-------|-------|-------|--------|
| with | without | Q2 | Q3 | Q1 | Q4 | Q5 | Q8,Q9 |
| option SMY-B40 | | 40 dB | 20 dB | 10 dB | 20 dB | 40 dB | RF-OFF |
| 19 dBm | 13 dBm | 1 | 1 | 1 | 1 | 1 | 0 |
| 6 dBm | 0 dBm | 1 | 1 | 0 | 1 | 1 | 0 |
| -4 dBm | -10 dBm | 1 | 1 | 1 | 0 | 1 | 0 |
| -24 dBm | -30 dBm | 1 | 1 | 1 | 1 | 0 | 0 |
| -64 dBm | -70 dBm | 0 | 1 | 1 | 1 | 1 | 0 |
| -84 dBm | -90 dBm | 0 | 1 | 1 | 0 | 0 | 0 |
| -104 dBm | -110 dBm | 0 | 0 | 1 | 0 | 0 | 0 |
| -114 dBm | -120 dBm | 0 | 0 | 0 | 0 | 0 | 0 |

'1' = 5V, '0' = 0V

7.3.2 Control Pulse of the Attenuator Pads

If the pulse at the magnetic coils D1 to D4 does not correspond to the form illustrated in fig. 7.3.2, an error occurred on the control p.c.b., the attenuator pads with the associate contact groups are, however, o.k.

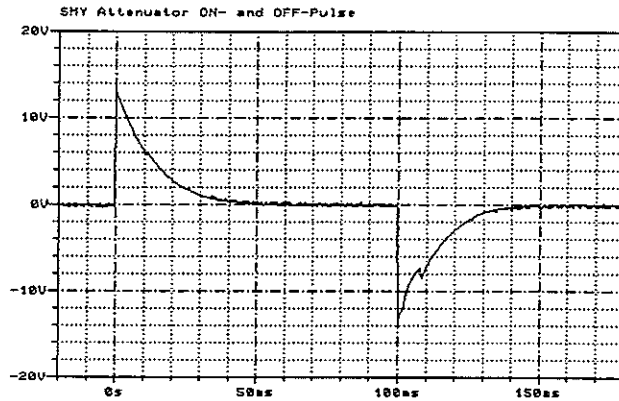


Fig. 7.3.2

7.4 Testing and Adjustment

7.4.1 Testing the Attenuator Pads and the Control P.C.B.

Proceed as described in Section 5.2.6 of the maintenance instructions given in the operating manual.

7.4.2 Testing the Overvoltage Protection

7.4.2.1 Static Test

- Withdraw connector X41 from the attenuator p.c.b.
- Set output level to -117dBm.

The overvoltage-protection diode can be measured in forward and reverse direction using an ohmmeter.

- The measurement can be performed between ground and the lead-through filter Z11.

The shunt of the dc voltage can also be measured using an ohmmeter.

- The measurement is performed between the RF output and the lead-through filter Z12. The rated value is $6 \pm 1\text{k}\Omega$.

7.4.2.2 Testing with DC Power Supply (VAR04 only)

- Use pot R14 to set the voltage at N10/2 to $1.4 \text{ V} \pm 10 \text{ mV}$.
- Apply a dc voltage from a dc power supply to the RF output socket X1 of the instrument.

_ The RF-OFF switch must respond for voltages between $\pm (7.5 \text{ V to } 8.5 \text{ V})$ at the RF-socket.

The RF-OFF switch is reset using the key combination 'LEVEL ON'.

7.4.2.3 Testing with AC Supply (VAR04 only)

- Set output level to -117 dBm .
- Connect a signal generator to the RF output of the SMY and set an RF of 100 MHz .

_ The RF-OFF switch must respond for $30 \dots 33 \text{ dBm}$.

The RF-OFF switch is reset using the key combination 'LEVEL ON'.

7.4.2.4 Testing and Adjustment with AC (VAR02 only)

- Set output level to -117 dBm .
- Connect a signal generator to the RF output of the SMY and set an RF of 1000 MHz .
- Supplying with $0.3 \dots 0.7 \text{ W}$, the RF-OFF switch must respond. It can be adjusted using the potentiometer R14.

_ The RF-OFF switch is reset using the key combination 'LEVEL ON'.

7.4.2.5 Testing with DC Voltage Supply (VAR02 only)

- Apply a dc voltage from a dc power supply to the RF output socket X1 of the instrument.

_ The RF-OFF switch must respond with voltages $\pm(5 \dots 7 \text{ V})$.


The RF-OFF switch is reset using the key combination 'LEVEL ON'.

7.4.3 Interfaces

| Pin | Name | Input/Output | Origin/Dest. | Specified range | Signal description |
|--------|------------|--------------|------------------|----------------------------|--------------------|
| X77.A1 | GND | | | | |
| X77.B1 | SERDAT | Input | Controller X3.4 | TTL-HCT | Serial data |
| X77.A2 | GND | | | | |
| X77.B2 | SERCLK | Input | Controller X3.2 | TTL-HCT | Clock signal |
| X77.A3 | GND | | | | |
| X77.B3 | ELSTB | Input | Controller X3.19 | TTL-HCT | Strobe signal |
| X77.A4 | GND | | | | |
| X77.B4 | HFOVERLOAD | Output | Controller X3.22 | TTL-HCT | Overload interrupt |
| X77.A5 | GND | | | | |
| X77.B5 | not used | | | | |
| X77.A6 | VA5-P | Input | P. supply X21.5 | +4.5 to +5.3V 42 ±8mA | +5.1V supply |
| X77.B6 | " | " | " | " | " |
| X77.A7 | VA15-P | " | " X21.13 | +14.9 to +15.6V 20 ±4mA | +15V supply |
| X77.B7 | " | " | " | " | " |
| X77.A8 | VA15-N | " | " X21.19 | -15.5 to -14.4V 3 ±.5V | -15V supply |
| X77.B8 | " | " | " | " | " |
| X1 | | Input | Output module | | |
| X2 | | Output | RF socket | | |


Schalteillisten
Stromläufe
Bestückungspläne
Part lists
Circuit diagrams
Components plans
Listes des pièces détachées
Schémas de Circuit
Plans des composants

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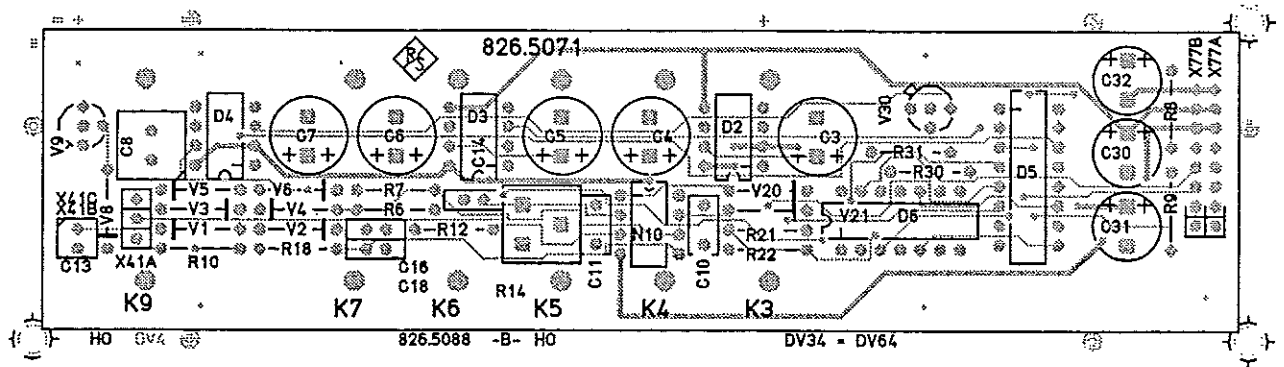
| Kennz. Comp. No. | Benennung Designation | Sachnummer Stock No. | Hersteller Manufacturer | Bezeichnung Designation | enthalten in contained in | |
|---|---|-------------------------|----------------------------|---------------------------------------|------------------------------|-------------------|
| | XX VARIANTENERKLAERUNG IDENTIFICATION OF MODELS VAR 02 = GRUNDAUSFUEHRUNG MOD 02 = BASIC MODEL ERSETZT/REPLACE VAR 00/MOD 00 VAR 04 = SMY11/41+B40 MOD 04 = SMY11/41+B40 | | | | | |
| A71 | ED ANSTEUERUNG.EICHLTG. ATTENAUATOR CONTROL NUR VAR/ONLY MOD: 02 ZUEGH.STROML./CIRC.DIAGR. 826.5065S | 0826.5071.02 | | | | |
| A71 | ED ANSTEUERUNG EICHLTG. NUR VAR/ONLY MOD: 04 ZUEGH.STROML./CIRC.IAGR. 826.5065S | 0826.5071.04 | | | | |
| C3 ..7 | CE 220UF+-20%35V RM5 ELECTROLYTIC CAPACITOR | CE 0008.7904.00 | PANASONIC | ECA-1VFG221BQ | 0826.5071.01 | |
| C8 | CE 100UF+-20%35V RM5 ELECTROLYTIC CAPACITOR | 0008.7510.00 | PHILIPS_CO | 2222 116 90042 | 0826.5071.01 | |
| C10 | CK 100NF+-5%63VRD2,5H7MKT CAPACITOR | CK 0099.2930.00 | ROEDERSTEI | MKT 1826-410-06-4W | 0826.5071.01 | |
| C11 | CK 100NF+-5%63VRD2,5H7MKT CAPACITOR | CK 0099.2930.00 | ROEDERSTEI | MKT 1826-410-06-4W | 0826.5071.01 | |
| C13 | CE 1,5UF+-20%25V 5X 4X 7 ELECTROLYTIC CAPACITOR | CE 0087.9334.00 | KEMET | T340 A155M025 AS | 0826.5071.01 | |
| C14 | CC 10NF-20+50%7X8R4000 CAPACITOR | CC 0087.7525.00 | VALVO | 2222 640 51103 | 0826.5071.01 | |
| C16 | CC 10NF-20+50%7X8R4000 CAPACITOR | CC 0087.7525.00 | VALVO | 2222 640 51103 | 0826.5071.01 | |
| C18 | CC 10NF-20+50%7X8R4000 CAPACITOR | CC 0087.7525.00 | VALVO | 2222 640 51103 | 0826.5071.01 | |
| C30 | CE 47UF+-20%63V RM5 ELECTROLYTIC CAPACITOR | 0008.7440.00 | PHILIPS_CO | 2222 116 90112 | 0826.5071.01 | |
| C31 | CE 47UF+-20%63V RM5 ELECTROLYTIC CAPACITOR | 0008.7440.00 | PHILIPS_CO | 2222 116 90112 | 0826.5071.01 | |
| C32 | CE 47UF+-20%63V RM5 ELECTROLYTIC CAPACITOR | 0008.7440.00 | PHILIPS_CO | 2222 116 90112 | 0826.5071.01 | |
| C100 | CC 150NF+-10% 50V8K1200LR CAPACITOR | 0092.0919.00 | KEMET | C 062 T 154 K5X5CR | | |
| D2 | BJ SN75361AP 2XTTL/MOS-LC LEVEL CONVERTER | BJ 0294.8490.00 | NSC | DS75361N | 0826.5071.01 | |
| D3 | BJ SN75361AP 2XTTL/MOS-LC LEVEL CONVERTER | BJ 0294.8490.00 | NSC | DS75361N | 0826.5071.01 | |
| D4 | BJ SN75361AP 2XTTL/MOS-LC LEVEL CONVERTER | BJ 0294.8490.00 | NSC | DS75361N | 0826.5071.01 | |
| D5 | BL PC74HC4094P 8ST.SH.REG 8ST.SHIFT A.STORE REGIST. | 0099.9711.00 | PHILIPS_SE | (PC)74HC4094N(P) | 0826.5071.01 | |
| D6 | BL CD4013BE 2XD- FLIPFL FLIPFLOP | 0086.7021.00 | RCA | CD4013BE | 0826.5071.01 | |
| K1 ..6 | LD ELEKTROMAGNET (EICHL.) ELECTROMAGNET | 0294.8425.00 | | | 0294.8877.00 | |
| N10 | BO LF412CN 2XFET OPAMP OPERATIONAL AMPLIFIER | 0356.0521.00 | NSC | LF412CN | 0826.5071.01 | |
| R6 | RL 0,60W 4,75KOHM+-1%TK50 RESISTOR | RL 0083.1097.00 | RESISTA | MK2 | 0826.5071.01 | |
| R7 | RL 0,60W 121KOHM+-1%TK50 RESISTOR | RL 0083.2070.00 | RESISTA | MK2 | 0826.5071.01 | |
| R8 | RL 0,60W 1KOHM+-1%TK50 RESISTOR | RL 0082.2160.00 | RESISTA | MK2 | 0826.5071.01 | |
| R9 | RL 0,60W 1KOHM+-1%TK50 RESISTOR | RL 0082.2160.00 | RESISTA | MK2 | 0826.5071.01 | |
| R10 | RL 0,60W 1KOHM+-1%TK50 RESISTOR | RL 0082.2160.00 | RESISTA | MK2 | 0826.5071.01 | |
| R12 | RL 0,60W 8,25KOHM+-1%TK50 RESISTOR | RL 0083.1239.00 | RESISTA | MK2 | 0826.5071.01 | |
| R14 | RS 0,5W1KOHM+-10%10X10X5 CERMET POTENTIOMETER T | RS 0087.7560.00 | BOURNS | 3386F-1-102 | 0826.5071.01 | |
| R18 | RL 0,60W 10,0KOHM+-1%TK50 RESISTOR | RL 0083.1297.00 | RESISTA | MK2 | 0826.5071.01 | |
| MENP5 | 413 3PUA | Äi | Datum Date | Schaltteilliste für Parts list for | Sachnummer Stock No. | Blatt-Nr. Page |
|  | ROHDE & SCHWARZ | 21 | 16.09.97 | ZE EICHLITUNG (SMX) | 0826.5065.01 SA | 1+ |

095.0028-0893

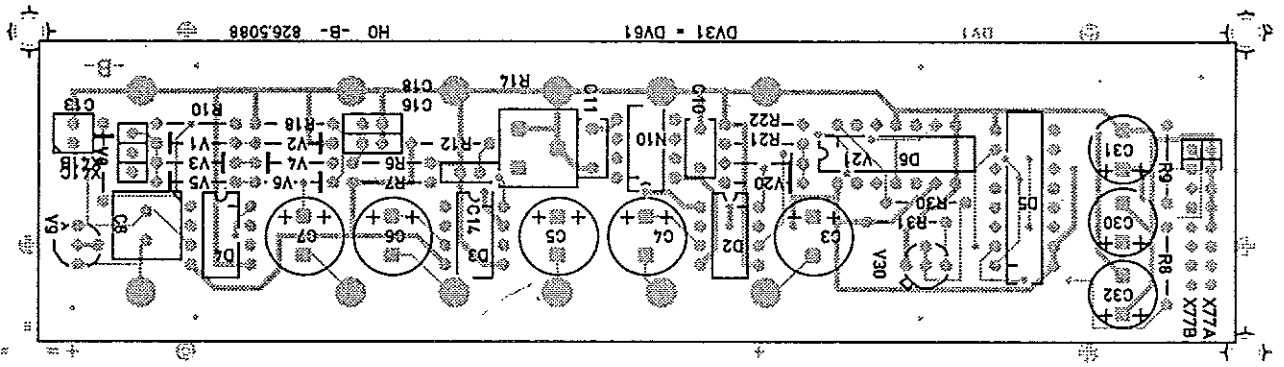
Für diese Unterragge benötigen wir uns alle Rechte vor.

| Kennz. Comp. No. | Benennung Designation | Sachnummer Stock No. | Hersteller Manufacturer | Bezeichnung Designation | enthaltene in contained in | |
|--|--|----------------------|-------------------------|------------------------------------|----------------------------|----------------|
| R21 | RL 0,60W 10,0KOHM+-1%TK50 RESISTOR | RL 0083.1297.00 | RESISTA | MK2 | 0826.5071.01 | |
| R22 | RL 0,60W 4,75KOHM+-1%TK50 RESISTOR | RL 0083.1097.00 | RESISTA | MK2 | 0826.5071.01 | |
| R30 | RL 0,60W 12,1KOHM+-1%TK50 RESISTOR | RL 0083.1351.00 | RESISTA | MK2 | 0826.5071.01 | |
| R31 | RL 0,60W 4,75KOHM+-1%TK50 RESISTOR | RL 0083.1097.00 | RESISTA | MK2 | 0826.5071.01 | |
| V1 | AE BZX55/B10 0,5W ZDI ZENER DIODE | AE 0289.4302.00 | VALVO | BZX79B10 | 0826.5071.01 | |
| V2 | AE BZX55/B10 0,5W ZDI ZENER DIODE | AE 0289.4302.00 | VALVO | BZX79B10 | 0826.5071.01 | |
| V3 | AE BZX79/B5V6 0,5W ZDI ZENER DIODE | AE 0012.5254.00 | VALVO | BZX79B5V6 | 0826.5071.01 | |
| V3 | NUR VAR/ONLY MOD: 02 AE BZX79/B6V8 0,5W ZDI ZENER DIODE | AE 0586.9906.00 | PHILIPS | BZX79B6V8 | 0826.5071.01 | |
| V4 | NUR VAR/ONLY MOD: 04 AD 1N4448 75V UDI DIODE | AD 0012.0700.00 | PHILIPS_SE | 1N4448 " | 0826.5071.01 | |
| V5 | AE BZX79/B5V6 0,5W ZDI ZENER DIODE | AE 0012.5254.00 | VALVO | BZX79B5V6 | 0826.5071.01 | |
| V5 | NUR VAR/ONLY MOD: 02 AE BZX79/B6V8 0,5W ZDI ZENER DIODE | AE 0586.9906.00 | PHILIPS | BZX79B6V8 | 0826.5071.01 | |
| V6 | NUR VAR/ONLY MOD: 04 AD 1N4448 75V UDI DIODE | AD 0012.0700.00 | PHILIPS_SE | 1N4448 " | 0826.5071.01 | |
| V8 | AD 1N4448 75V UDI DIODE | AD 0012.0700.00 | PHILIPS_SE | 1N4448 " | 0826.5071.01 | |
| V9 | AK BCY79IX P 45V 200MA TRANSISTOR | AK 0010.3777.00 | VALVO | BCY79IX | 0826.5071.01 | |
| V20 | AD 1N4448 75V UDI DIODE | AD 0012.0700.00 | PHILIPS_SE | 1N4448 " | 0826.5071.01 | |
| V21 | AD 1N4448 75V UDI DIODE | AD 0012.0700.00 | PHILIPS_SE | 1N4448 " | 0826.5071.01 | |
| V30 | AK BCY59IX N 45V 200MA TRANSISTOR | AK 0010.5163.00 | VALVO | BCY59IX | 0826.5071.01 | |
| W41 | DX KABEL W41 CABLE W41 | 0826.8370.00 | | | | |
| X1 | FJ EINBAUBUCHSE SYST.SMA SOCKET | FJ 0294.8154.00 | SUHNER | 22SMA-50-0-26/111NH | 0294.8983.00 | |
| X2 | FJ EINBAUBUCHSE SYST.SMA SOCKET | FJ 0294.8154.00 | SUHNER | 22SMA-50-0-26/111NH | 0294.8983.00 | |
| X41 | FP STIFTL.WIN 36P.R2,54 ANGLE PIN CONNECTOR | FP 0087.9105.00 | BINDER | 742-5-11-0191-00-36 | 0826.5071.01 | |
| X100 | 3-POLIG/3 PINS FP BUCHSE VERTIKAL P.V.1P SOCKET | FP 0278.5577.00 | DUPONT CON | 75377-001GEGURTET | 0826.5071.01 | |
| X77A | FP STIFTL.EISTE 36P.R2,54 PIN CONNECTOR | FP 0242.3600.00 | BINDER | 742-11-0179-00-36 | 0826.5071.01 | |
| X77B | 8-POLIG/8 PINS FP STIFTL.EISTE 36P.R2,54 PIN CONNECTOR | FP 0242.3600.00 | BINDER | 742-11-0179-00-36 | 0826.5071.01 | |
| Z1 | DT DAEMPFUNGSGLIED40DB/50 ATTENUATOR 40DB/50 | 0912.5269.00 | | | 0294.8983.00 | |
| Z2 | DT DAEMPFUNGSGLIED20DB/50 ATTENUATOR 20DB/50 | 0912.5252.00 | | | 0294.8983.00 | |
| Z3 | DT DAEMPFUNGSGLIED10DB/50 ATTENUATOR 10DB/50 | 0912.5246.00 | | | 0294.8983.00 | |
| Z4 | DT DAEMPFUNGSGLIED20DB/50 ATTENUATOR 20DB/50 | 0912.5252.00 | | | 0294.8983.00 | |
| Z5 | DT DAEMPFUNGSGLIED40DB/50 ATTENUATOR 40DB/50 | 0912.5269.00 | | | 0294.8983.00 | |
| Z6 | DT ANSCHLUSSLEITUNG/50 CONNECTION LINE | 0915.0800.00 | | | 0294.8983.00 | |
| Z7 | BD UEBERSpannungSSCHUTZ-X OVERVOLTAGE-PROTECTION | 0915.4205.00 | | | 0294.8983.00 | |
| Z11 | LD PI-FILTER FILTER | 1008.5850.00 | | | 0294.8983.00 | |
| Z12 | LD PI-FILTER FILTER | 1008.5850.00 | | | 0294.8983.00 | |
| MENP5 | 413 3PDA | AI | Datum Date | Schaltteilliste für Parts list for | Sachnummer Stock No. | Blatt-Nr. Page |
|  | 21 | 16.09.97 | ZE EICHL EITUNG (SMX) | 0826.5065.01 SA | 2- | |

Ansicht und Leitungsführung Bauteilseite
View of tracks on component side



Ansicht und Leitungsführung Lötseite
View of tracks on solder side

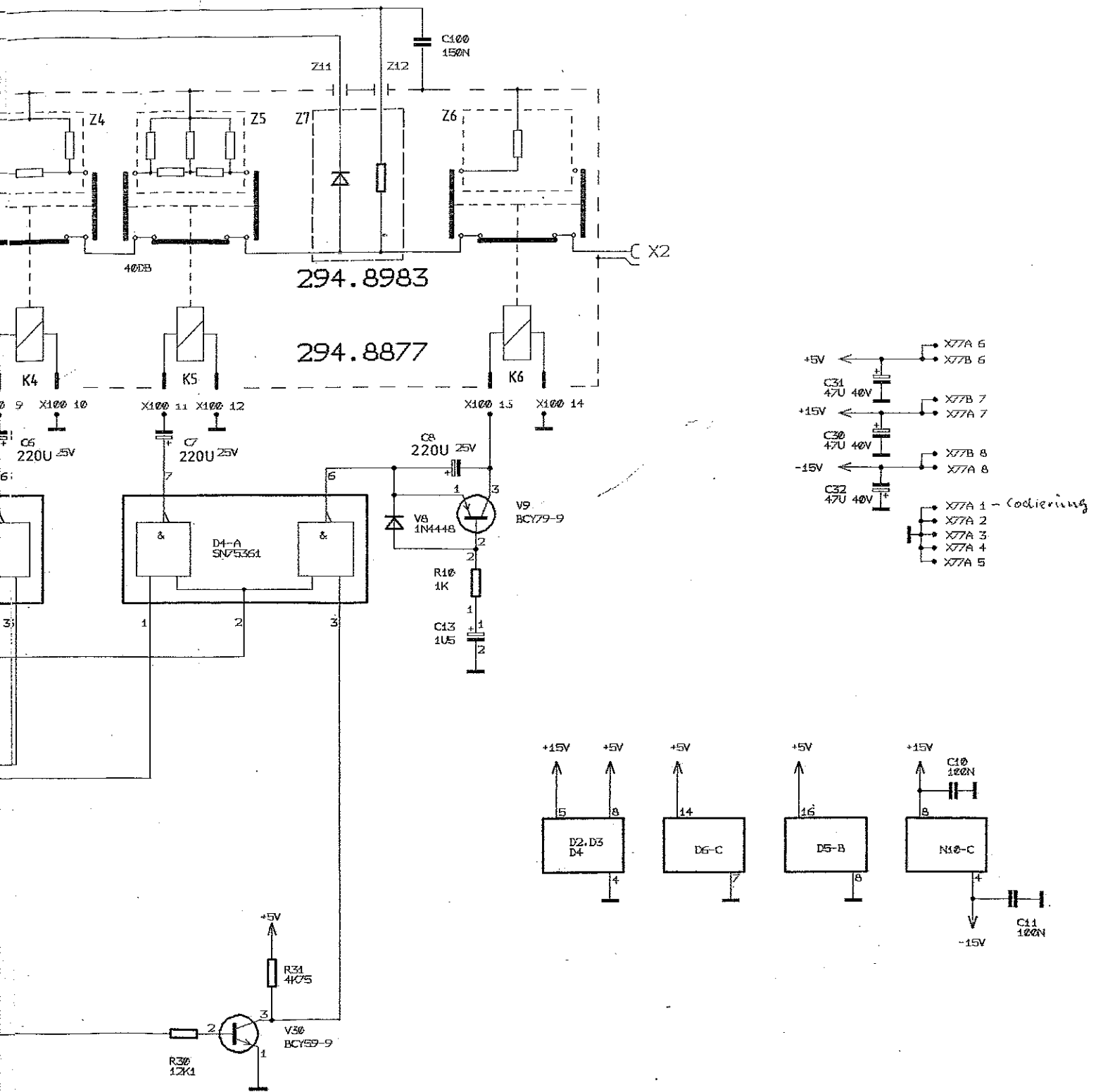


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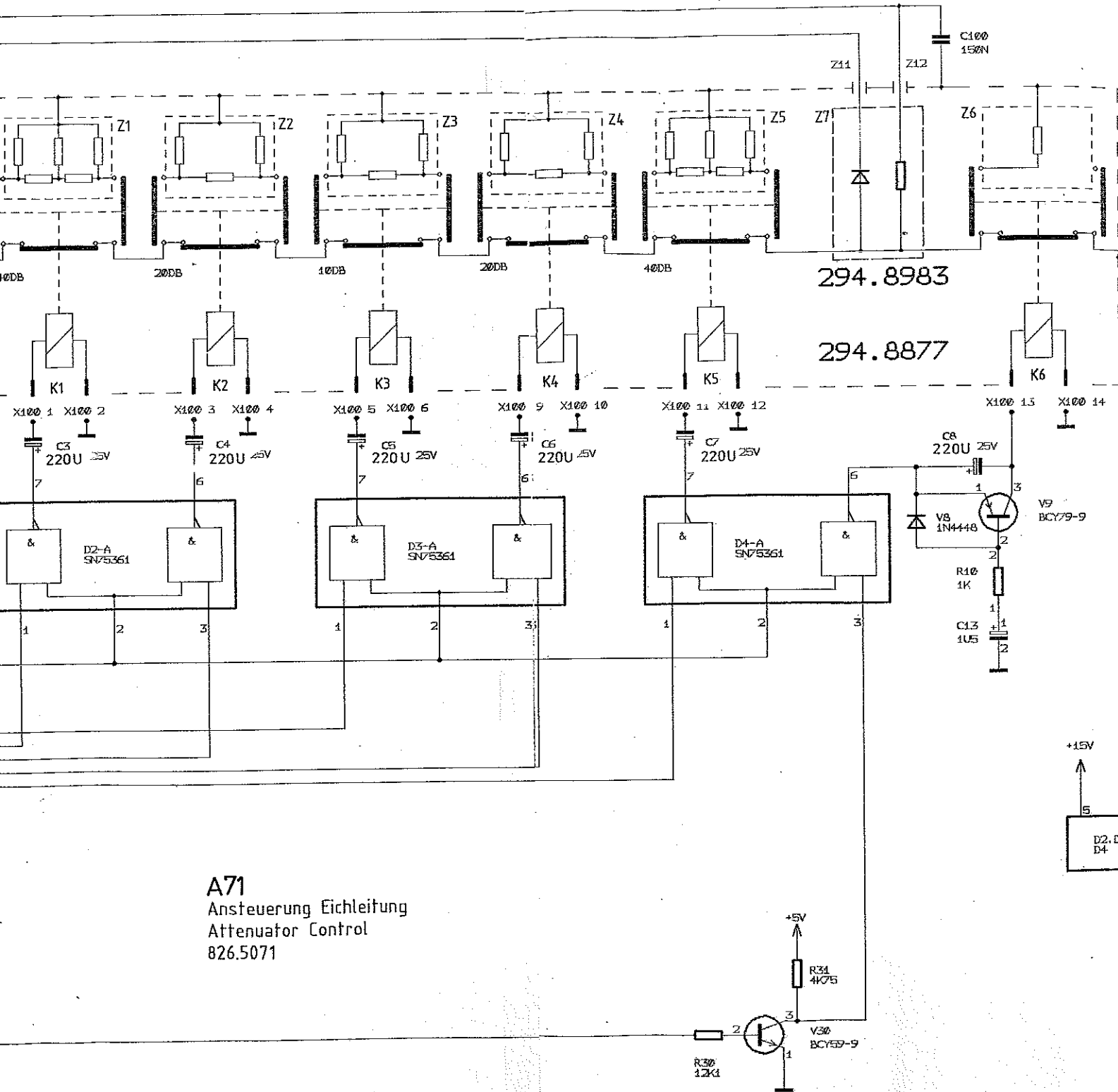
ACHTUNG: EGB!
Elektrostatich gefährdete Bauelemente erfordern eine besondere Handhabung.
ATTENTION ESD!
Electrostatic sensitive devices require a special handling.

| | | | | | | | | |
|------------|----------------------|-----|--------------------------------|-------|------|-------------------------|-------------|---------------|
| B | 10.85 | HOF | Maße ohne Toleranzangabe | | | Maßstab 1 : 1 | | |
| | | | | | | Halbzeug, Werkstoff | | |
| | | | 1KSA | Tag | Name | Benennung | | |
| | | | Bearb. | 10.85 | HOF | Ansteuerung/Eichleitung | | Z |
| | | | Gepr | | | | | |
| | | | Norm | | | | | |
| | | | ROHDE & SCHWARZ | | | Zeichn -Nr | 826.5071.01 | Blatt-Nr |
| And. Zust. | Anderungs-Mitteilung | Tag | | | | Name | | zu Gerät SM X |
| | | | | | | | | v Bl |

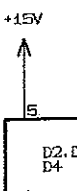


STROMLAUF GILT FUER VAR. 02
 CIRCUITDIAGRAM IS VALID FOR MOD. 02

| | | | | | | | | |
|-------------|-----------|-------|------|--------------------------------|----------|------------|-----------------------|-----------------------|
| B | | | LS | IKSA | Tag | Name | Benennung | |
| C | 32955 | 6.86 | LS | Bearb. | 29-10-85 | LS | EICHLITUNG SMX | |
| D | 35538 | 9.86 | LS | Gepr. | | | | ATTENUATOR SMX |
| | | | | Nam | | | | |
| | | | | Plott | | 3CDA | | |
| | | | | ROHDE & SCHWARZ | | | Zeichn.-Nr. | Blatt-Nr. |
| | | | | | | | 826.5065 S | 1 |
| Aend. Zust. | Aenderung | Datum | Name | zu Gerät | SMX | Reg. t. V. | 826.4517 V | V. 1 |



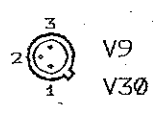
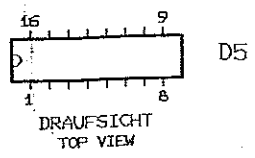
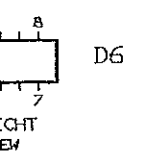
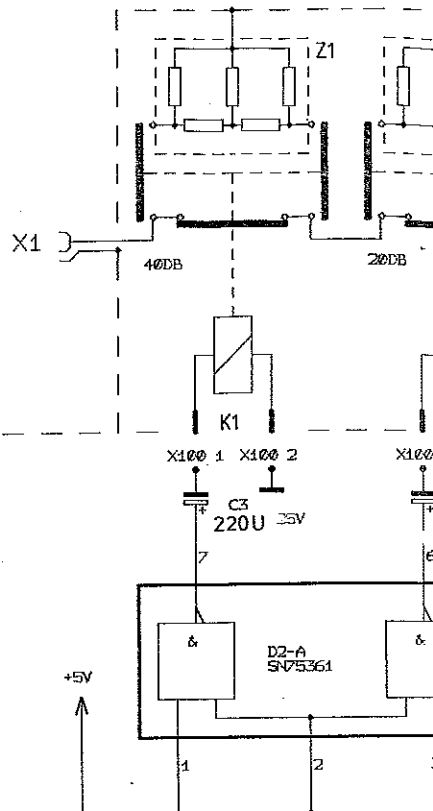
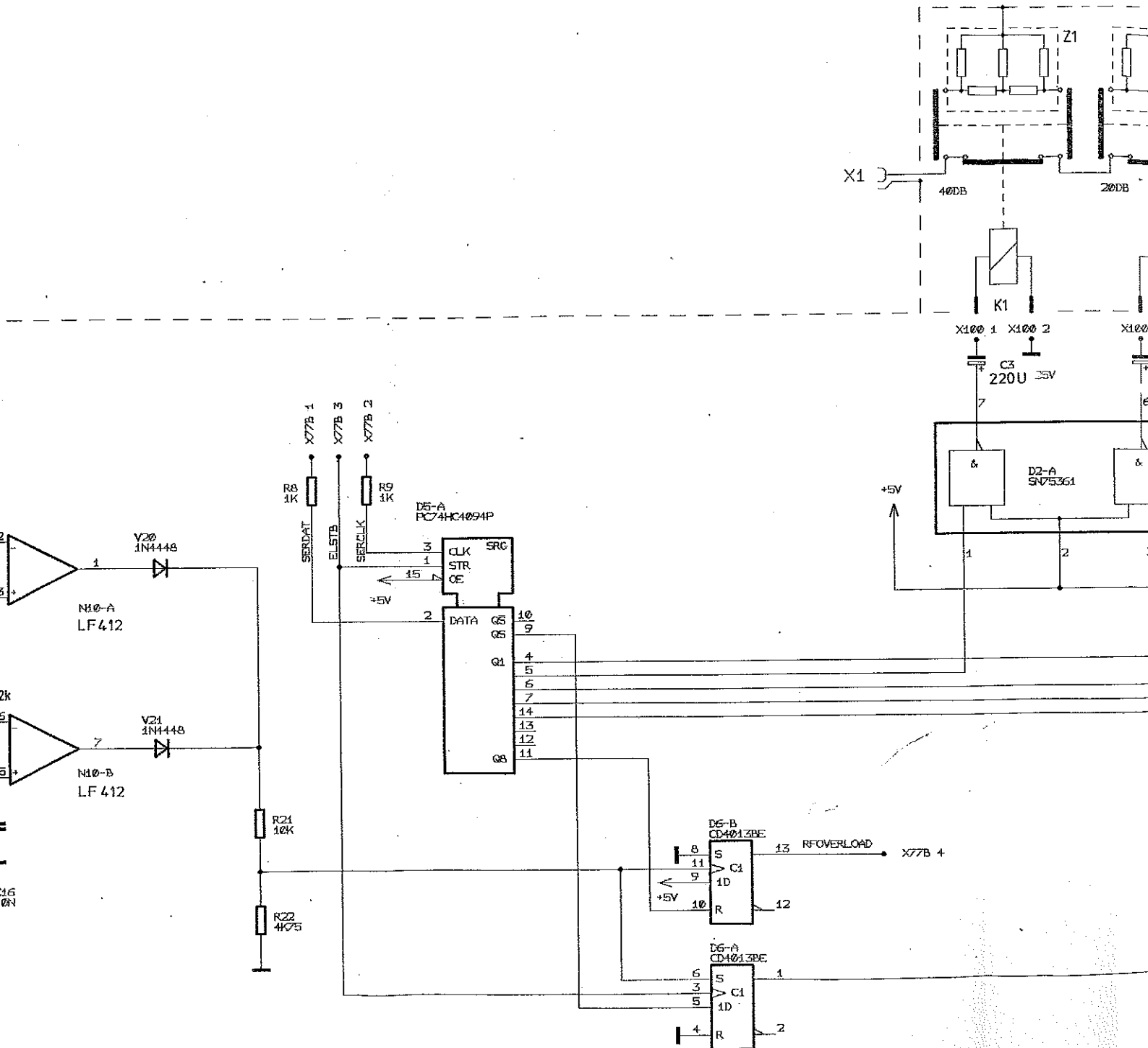
A71
 Ansteuerung Eichleitung
 Attenuator Control
 826.5071



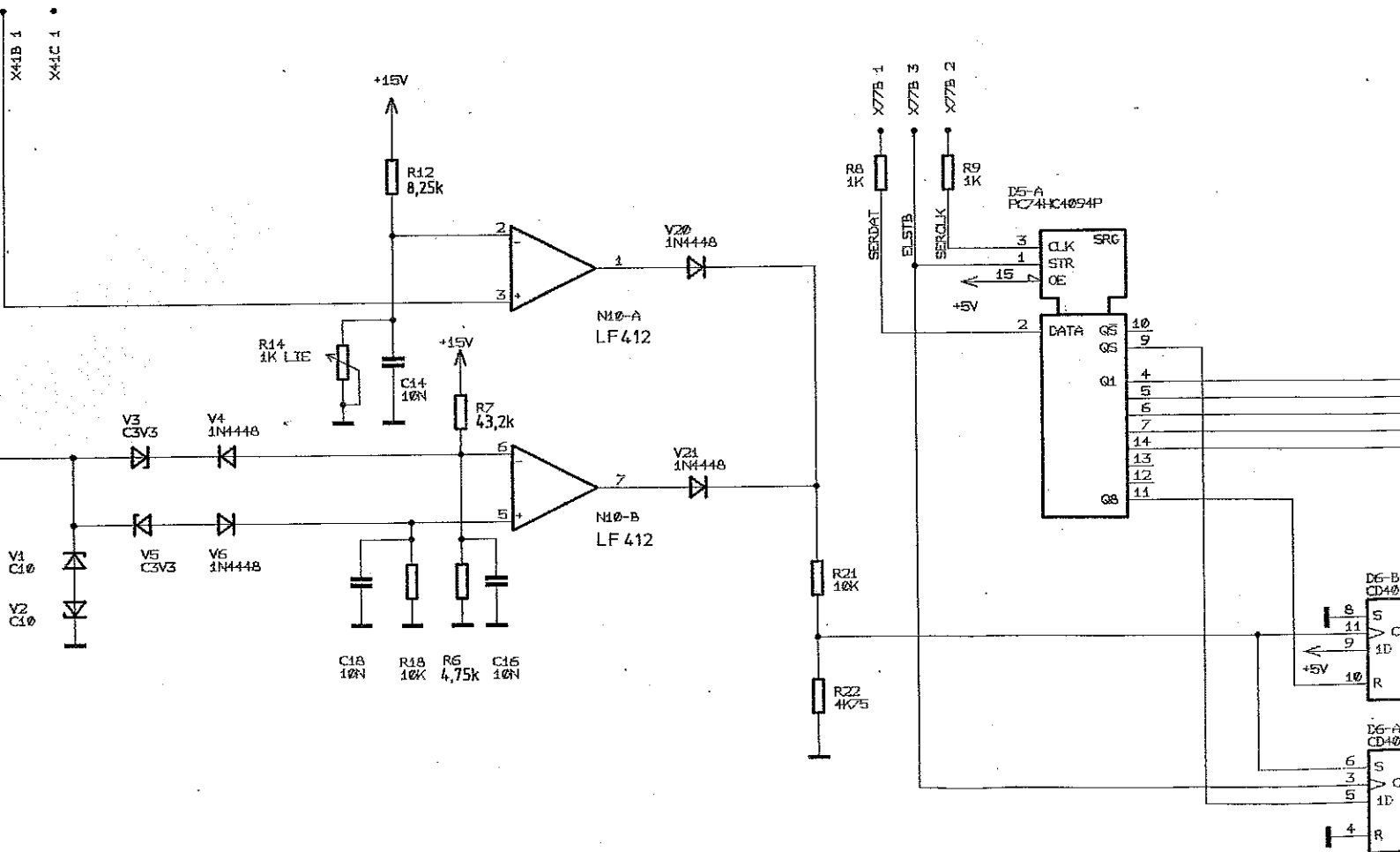
STR
 CIRCU

| B | C | D | LS | 1KSA | Tag | Name |
|-------------|-----------|-------|------|----------|----------|------|
| | 32955 | 6.86 | LS | Bearb. | 29-10-85 | LS |
| | 35538 | 9.86 | LS | Gepr. | | |
| | | | | Norm | | |
| | | | | Platt | | 3CDA |
| | | | | | | |
| Aend. Zust. | Aenderung | Datum | Name | zu Gerat | SMX | |

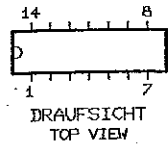
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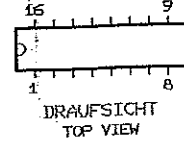
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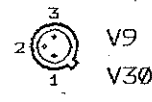
N10 D2
D3
D4



D6



D5



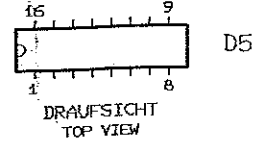
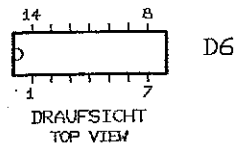
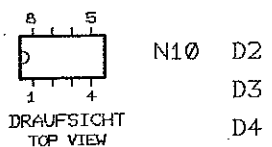
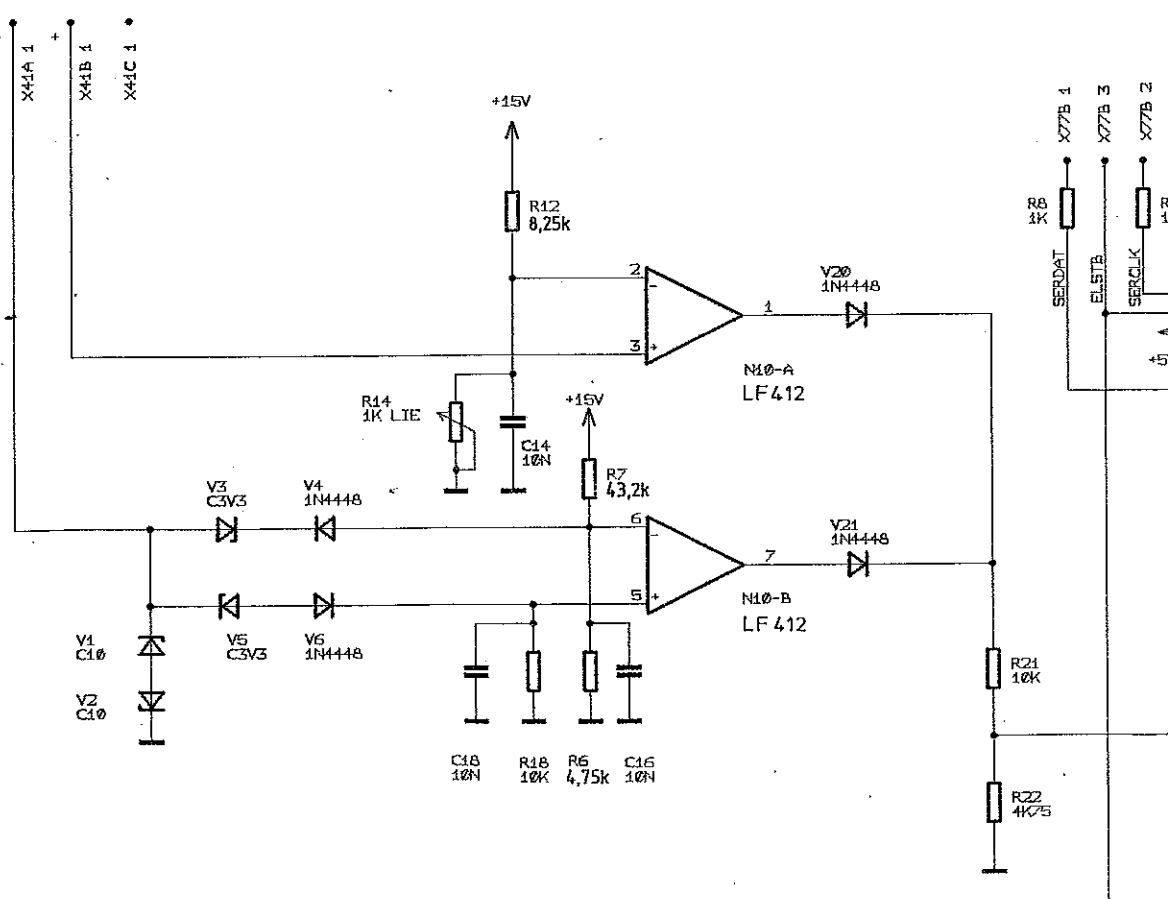
V9
V30

FÜR DIESE ZEICHNUNG BEZUG NEHMEN WIR UNS FÜR ALLE NEUERLE VON
 DIESE ZEICHNUNG IST EINGETRAGEN AENDERN KÖNNEN NUR DURCH AENDERN DES DATENSATZES ERFOLGEN

1 2 3 4

RT V5

W41



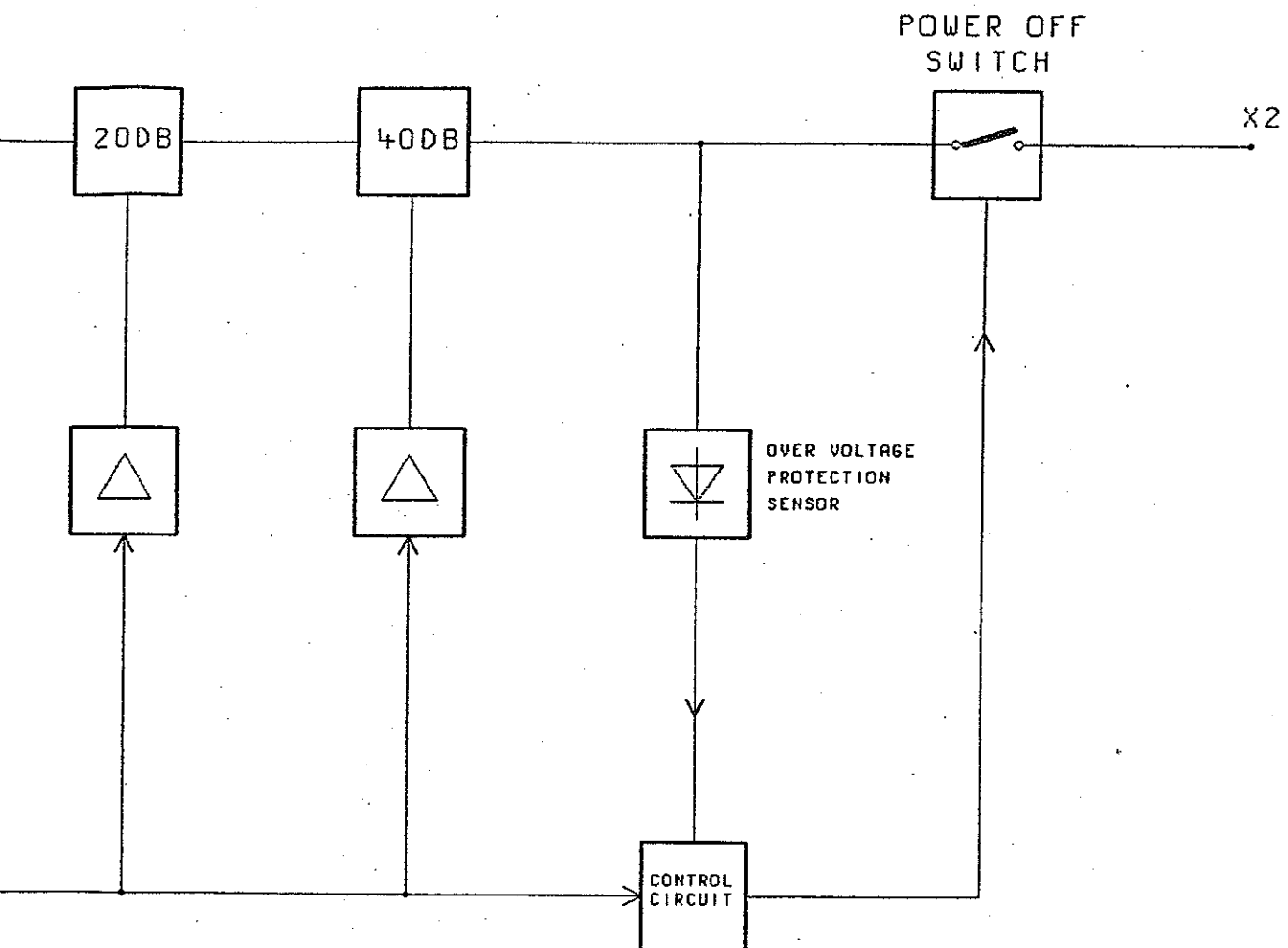
A

B

C


D

E

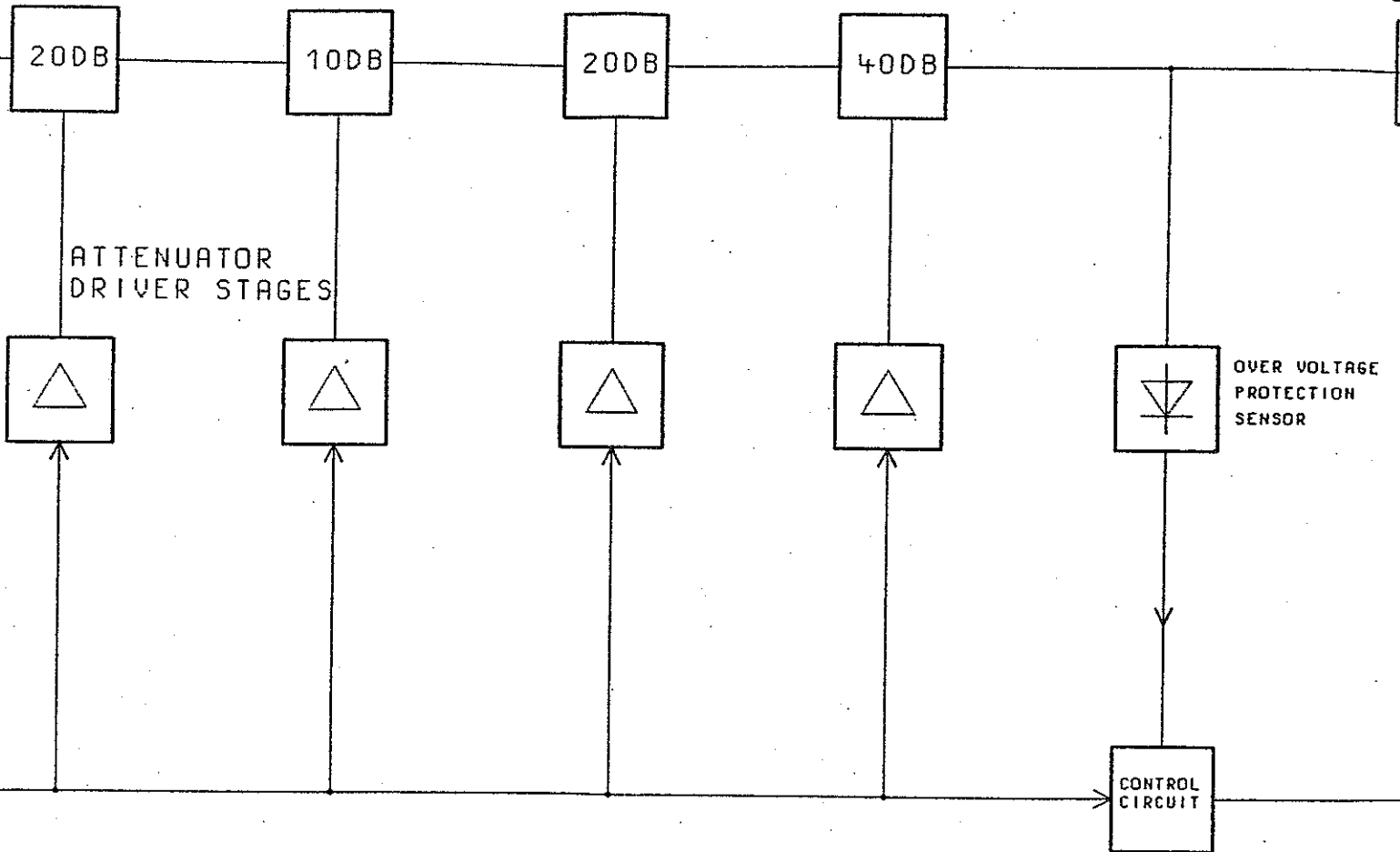


Bindende Angaben über Varianten, Trimmwerte, Bauteilwerte und nicht bestückte Bauteile siehe SA

For binding information on models, trimming and components values and nonfitted components see parts list.

| | | | | | | | | | |
|---------------|----------------------------|----------|------|---|-------|---------------------|--|------------------------------------|-----------------------------------|
| DB/ | 48746 | 11.04.95 | HM | MENP | TRG | NARE | BENENKUNG ZE EICHLITUNG ATTENUATOR | ZEICHN.-NR. 826.5065.015 | BLATT-NR. 1+ v. 2 H. |
| 09 | | 03.97 | EI | BEARB. | | HM | | | |
| | | | | GEPR. | 03.97 | EI | | | |
| | | | | NORM | | | | | |
| | | | | PLOTT | | | | | |
| REND. IND. | BERECHNUNGS- MITTEILUNG | DATUM | NAME |  ROHDE & SCHWARZ ZU GEHÖRT SINX | | PEG. I. V. 826.4517 | | EPSTE Z. | |

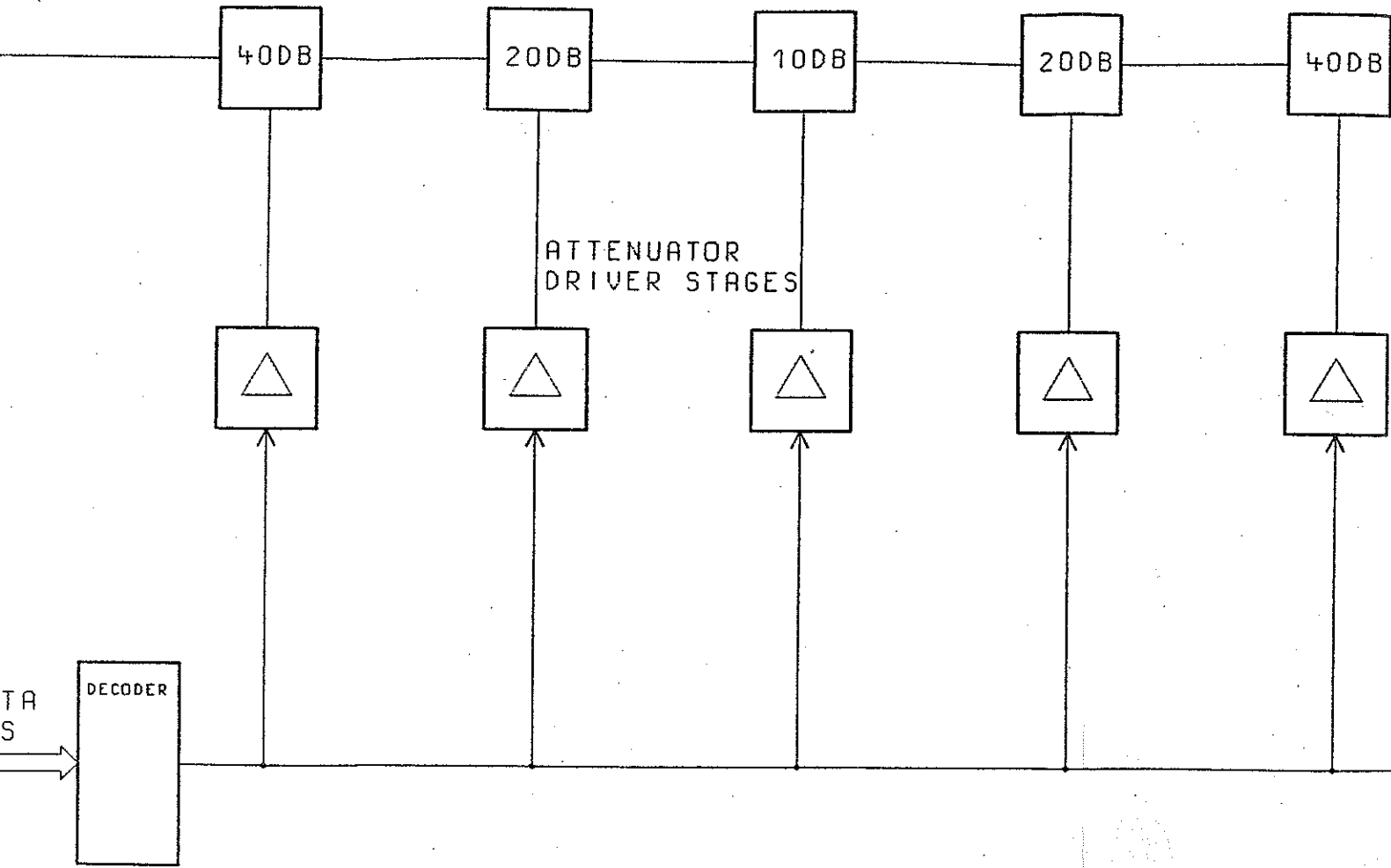
ATTENUATORS




ACHTUNG: EGB!
ELEKTROSTATISCH GEFÄHRDETE
BAUELEMENTE ERFORDERN EINE
BESONDERE HANDHABUNG.
ATTENTION ESD!
ELECTROSTATIC SENSITIVE DEVICES
REQUIRE A SPECIAL HANDLING

| | | | | | | | |
|---------------|---------------------------|----------|------|--------------------------------|-------|------|------------------------|
| DB/ | 48746 | 11.04.95 | HM | MENP | TAG | NRRE | BENENNUNG |
| 09 | | 03.97 | EI | BEARB. | | HM | ZEICHN.-NR. ATTENUA |
| | | | | GEPR. | 03.97 | EI | |
| | | | | NORM | | | |
| | | | | PLOTT | | | |
| REND. IND. | RENDERUNGS- MITTEILUNG | DATUM | NRRE | ROHDE & SCHWARZ | | | 8 |
| | | | | | | | |

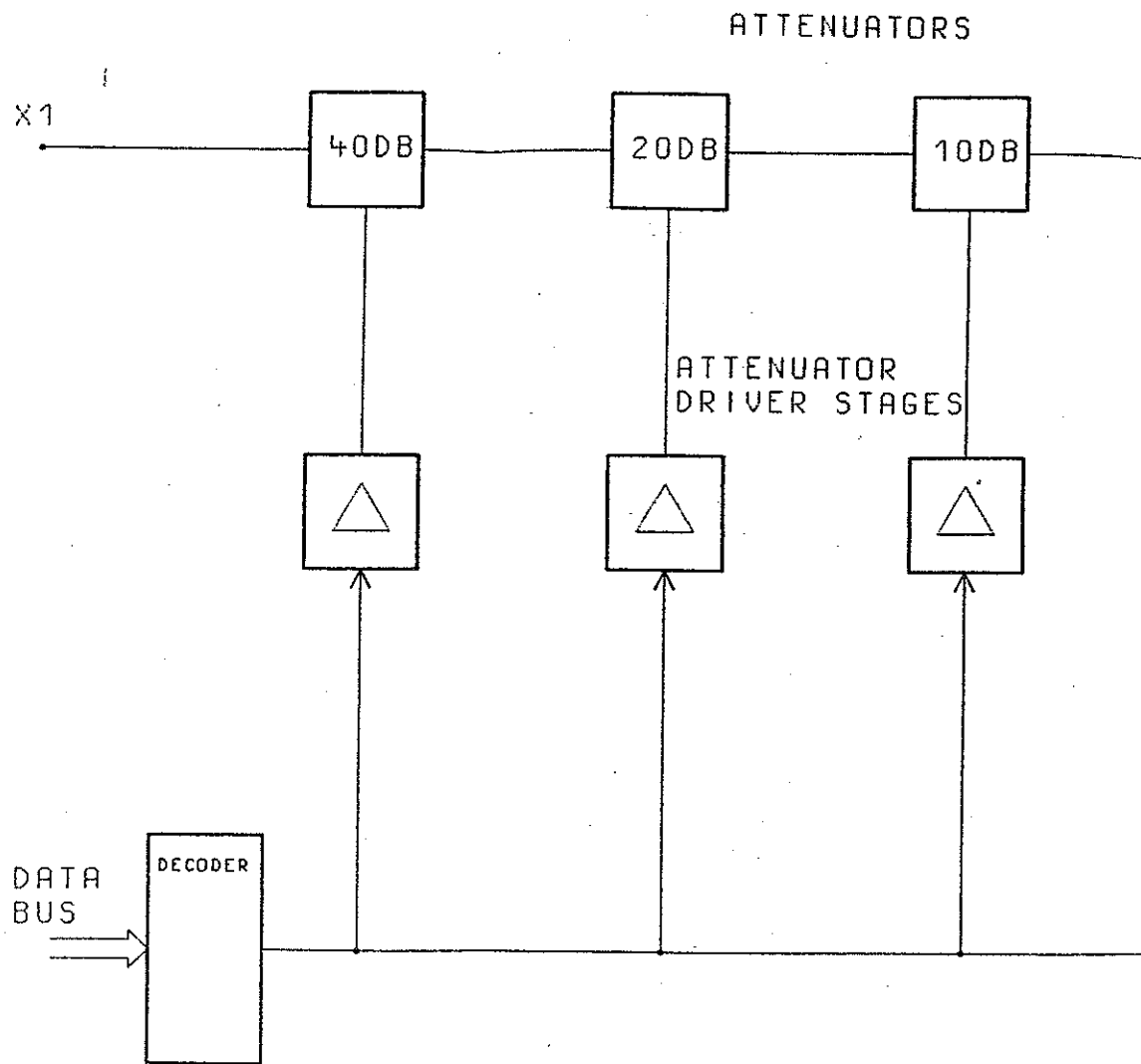
ATTENUATORS




 ACHTUNG: EGB!
 ELEKTROSTATISCH GEFAHRDETE
 BAUELEMENTE ERFORDERN EINE
 BESONDERE HANDHABUNG.
 ATTENTION ESD!
 ELECTROSTATIC SENSITIVE DEVICES
 REQUIRE A SPECIAL HANDLING

| | | | |
|---------------|--------------------------|----------|-------|
| 08/ | 48746 | 11.04.95 | HM |
| 09 | | 03.97 | EI |
| | | | |
| | | | |
| | | | |
| | | | |
| RENO. IND. | ÄNDERUNGS- MITTEILUNG | DATUM | NAMEN |

FÜR DIESE UNTERLAGE
NUR FÜR UNS ALLE RECHTE VOR



**ACHTUNG: EGB!**
ELEKTROSTATISCH GEFÄHRDET
BAUELEMENTE ERFORDERN EINE
BESONDERE HANDHABUNG.
ATTENTION ESD!
ELECTROSTATIC SENSITIVE DEVS
REQUIRE A SPECIAL HANDLING



ROHDE & SCHWARZ

SERVICEUNTERLAGEN

Eichleitung 2 GHz

0801.1108.01

Inhaltsverzeichnis

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Schaltteilliste
Koordinatenliste
Stromlauf
Bestückungsplan

ACHTUNG!!!

Die Baugruppe darf nicht geöffnet werden, da sonst der Garantieanspruch erlischt und ein Neuabgleich durchgeführt werden muß.

Für SMY ohne Option SMY-B40 ist für diese Baugruppe die Variante 02 erforderlich.

Für SMY mit Option SMY-B40 ist für diese Baugruppe die Variante 04 erforderlich.

7.1 Funktionsbeschreibung

(Siehe hierzu Stromlauf und Blockschaltbild 0801.1108.01S)

7.1.1 Eichleitung mit integriertem Überspannungsschutz

Die Eichleitung ist zwischen das Ausgangsteil (bzw. der Baugruppe Powermodul bei Geräten mit Option SMY-B40) und den Geräteausgang geschaltet. Mit ihr kann das Signal um 135dB in 5dB-Stufen abgesenkt werden. Kleinere Pegelsprünge werden mit Hilfe der elektronischen Pegelregelung eingestellt. Die Eichleitung enthält sechs Dämpfungsglieder mit den Werten 5, 10, 2*20 und 2*40dB, ein Überspannungsschutzsubstrat und ein 50 Ohm Abschlußwiderstand. Die Dämpfungsglieder können durch jeweils eine Kontaktgruppe, die aus drei Einzelkontakten besteht, eingeschaltet oder überbrückt werden. Jede dieser Kontaktgruppen wird von einer Wippe betätigt, die von einer Magnetspule angetrieben und durch einen Permanentmagneten in der Endlage gehalten wird.

Hinter den Dämpfungsgliedern sitzt auf der Eichleitungsgrundplatte in Richtung Geräteausgang das Überspannungsschutzsubstrat und anschließend der RF-OFF-Schalter. Das Überspannungsschutzsubstrat erkennt hohe DC-Spannungen und HF-Pegel, welche an die Ausgangsbuchse X1 angelegt werden und betätigt den RF-OFF-Schalter. Der RF-OFF-Schalter kann aber auch vom Rechner über die Software bedient werden.

7.1.2 Ansteuerung der Eichleitung

Die Dämpfungseinstellung erfolgt durch serielle Datenübertragung (siehe 7.3.1). Die Ansteuerbits werden über die Datenleitungen (X77.B1 SERDAT) mit dem Clock (X77.B2 SERCLK) in das Schieberegister (D5) auf der Eichleitungsansteuerdruckschaltung geschoben. Mit dem Strobe (X77.B3 ELSTB) werden die Ausgänge des Schieberegisters gesetzt und die gewünschte Dämpfung eingestellt. Die Ansteuerung der Magnetspulen der Kontaktgruppen erfolgt über die Leistungsgatter D1 bis D4.

Hohe HF- und DC-Spannungen an der Ausgangsbuchse werden durch Spitzenwertgleichrichtdioden erkannt. Wird eine Überspannung erkannt, sprechen die Komperatoren N10 a,b an und setzen das Flip-Flop D6, das über V8 und D4 direkt den RF-OFF-Schalter betätigt.

Während der Ansprechzeit des RF-OFF-Schalters schließen die Pindioden auf dem Überspannungsschutzsubstrat die Überspannung kurz. Durch die beiden Monoflops V33 und V34 wird den Pindioden im Überlastfall ein hoher DC-Strom eingeprägt, wodurch diese niederohmig werden. Dem Rechner wird der Überlastfall über die Interruptleitung (X77.B4) mitgeteilt. Dieser Interrupt wird dann rückgesetzt, wenn der RF-OFF-Schalter zusätzlich vom Rechner über Software betätigt wird. Der RF-OFF-Schalter kann von Hand über die Tastenfolge 'LEVEL ON' wieder geschlossen werden.

7.2 Meßgeräte und Hilfsmittel

1. Ohmmeter (Meßbereich bis 2M Ω)
2. Leistungsmeßsender (z.B. SMGL)
3. Gleichspannungsnetzgerät für $\pm 15V$
4. Speicheroszilloskop

7.3 Fehlersuche

7.3.1 Ansteuercode

Läßt sich am Gerät ein gewünschter Ausgangspegel nicht einstellen, so kann am Schieberegisterausgang D5 der ordnungsgemäße Ansteuercode der einzelnen Dämpfungsglieder überprüft werden (siehe Tabelle 7.3.1).

Tabelle 7.3.1 für 02 im CW-Betrieb

Ansteuercode am Schieberegister D5 (74HC 4094)

| | | | | | | | | |
|--|--|--|--|--|--|--|--|--|
| | | | | | | | | |
|--|--|--|--|--|--|--|--|--|

'1' = 5V, '0' = 0V

| Pegeleinstellung | | Pin4 | 5 | 6 | 7 | 14 | 13 | 11,9 |
|-----------------------|----------|-------|-------|------|-------|-------|-------|--------|
| mit | ohne | Q0 | Q1 | Q2 | Q3 | Q4 | Q5 | Q7, Q8 |
| Option SMY-B40 | | 40 dB | 20 dB | 5 dB | 10 dB | 20 dB | 40 dB | RF-OFF |
| 19 dBm | 13 dBm | 1 | 1 | 1 | 1 | 1 | 1 | 0 |
| 14 dBm | 8 dBm | 1 | 1 | 0 | 1 | 1 | 1 | 0 |
| 9 dBm | 3 dBm | 1 | 1 | 1 | 1 | 0 | 1 | 0 |
| -1 dBm | -7 dBm | 1 | 1 | 1 | 0 | 1 | 1 | 0 |
| -21 dBm | -27 dBm | 1 | 1 | 1 | 1 | 1 | 0 | 0 |
| -61 dBm | -67 dBm | 0 | 1 | 1 | 1 | 1 | 0 | 0 |
| -101 dBm | -107 dBm | 0 | 0 | 1 | 0 | 1 | 0 | 0 |
| -114 dBm | -122 dBm | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

'1' = 5V, '0' = 0V

7.3.2 Ansteuerpuls der Dämpfungsglieder

Entspricht der Puls an den Magnetspulen D1 bis D4 nicht der in Bild 7.3.2 gezeichneten Form, so liegt ein auftretender Dämpfungsfehler an der Ansteuerdruckschaltung und nicht an den Dämpfungsgliedern mit den zugehörigen Kontaktgruppen vor.

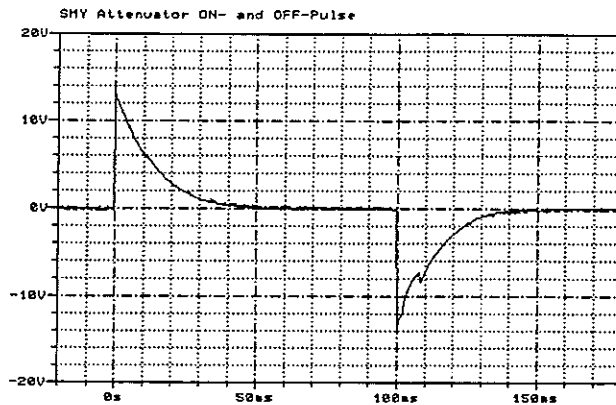


Bild 7.3.2

7.4 Prüfen und Abgleich

7.4.1 Prüfen der Dämpfungsglieder und der Ansteuerdruckschaltung

Hierzu ist zu verfahren wie in Kapitel 5.2.6 der Wartungsunterlage im Betriebshandbuch beschrieben ist.

7.4.2 Prüfen des Überspannungsschutzes

7.4.2.1 Statische Prüfung

- Stecker X41 von der Eichleitungsansteuerdruckschaltung abziehen.
- Einen Ausgangspegel von -122 dBm einstellen.

Mit einem Ohmmeter können nun die Dioden des Überspannungsschutzes in Sperr- und Durchlaßrichtung gemessen werden. In Sperrrichtung muß der Widerstand sehr groß sein.

- Die Messung erfolgt zwischen der Ausgangsbuchse X1 und dem Durchführungsfiler Z9 für die erste Diode, am Durchführungsfiler Z10 für die zweite.

7.4.2.2 Prüfung bei Wechselspannung (nur VAR04)

- Einen Ausgangspegel von -122 dBm einstellen.
 - Einen Leistungsmeßsender mit dem RF-Ausgang des SMY verbinden und eine RF von 25 MHz einstellen.
- _ Der RF-OFF-Schalter muß bei 30 ... 33 dBm ansprechen

7.4.2.3 Prüfung bei Gleichspannung (nur VAR04)

- An die RF-Ausgangsbuchse X1 des Geräts eine DC-Spannung aus einer Gleichspannungsquelle anlegen.
- _ Der RF-OFF-Schalter muß bei Spannungen an der N-Buchse von $\pm(7.5 \text{ V} \dots 8.5 \text{ V})$ ansprechen.

Ein Rücksetzen des RF-OFF-Schalters erfolgt mit der Tastenkombination 'LEVEL ON'.

7.4.2.4 Prüfung und Abgleich bei Wechselspannung (nur VAR02)

- Einen Ausgangspegel von -122 dBm einstellen.
 - Einen Leistungsmeßsender mit dem RF-Ausgang des SMY verbinden und eine RF von 25 MHz einstellen.
- _ Der RF-OFF-Schalter muß bei 27.5 dBm $\pm 1.5 \text{ dB}$ ansprechen, ein Abgleich kann mit dem Potentiometer R30 erfolgen.

7.4.2.5 Prüfung bei Gleichspannung (nur VAR02)

- An die RF-Ausgangsbuchse X1 des Geräts eine DC-Spannung aus einer Gleichspannungsquelle anlegen.
- _ Der RF-OFF-Schalter muß bei Spannungen von $\pm(5 \dots 7 \text{ V})$ ansprechen.

Ein Rücksetzen des RF-OFF-Schalters erfolgt mit der Tastenkombination 'LEVEL ON'.



ROHDE & SCHWARZ

SERVICE INSTRUCTIONS

Attenuator 2 GHz

801.1108.01

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Parts list
List of coordinates
Circuit diagram
Components layout diagram

CAUTION!!!

Do not open the module, since otherwise the warranty expires and re-adjustment is required.

For instruments without option SMY-B40, this module with VAR02 is necessary.

For instruments with option SMY-B40, this module with VAR04 is necessary.

7.1 Function Description

(Cf. circuit diagram and block diagram 0801.1108.01S)

7.1.1 Attenuator with Overvoltage Protection

The attenuator is connected between the output module (the power module for instruments with option SMY-B40, respectively) and the instrument output. It is used to attenuate the signal by 135 dB in steps of 5 dB. Smaller level jumps are set via the electronic level control. The attenuator consists of six attenuator pads of 5, 10, 2*20 and 2*40 dB, an overvoltage-protection substrate and a 50-Ohm terminator. The attenuator pads can be switched on or bypassed by means of one contact group each, which consists of three individual contacts. Each of these contact groups is actuated by a rocker, which is driven by a magnetic coil and kept in end position by a permanent magnet.

The overvoltage-protection substrate and the RF-OFF switch are accommodated on the attenuator motherboard subsequent to the attenuator pads. The overvoltage-protection substrate detects high dc voltages and RF levels which are applied to the output socket X1 and actuates the RF-OFF switch. The RF-OFF switch may also be software-controlled via the controller.

7.1.2 Control of the Attenuator

The attenuation is set via serial data transmission (cf. 7.3.1). The control bits are clocked into the shift register (D5) on the attenuator control pcb via the data lines (X77.B1 SERDAT) using the clock X77.B2 SERCLK. The strobe (X77.B3 ELSTB) sets the outputs of the shift registers and the desired attenuation. The magnetic coils of the contact groups are controlled via the power gates D1 to D4.

Peak-responding rectifier diodes detect high RF and dc voltages at the output socket. If an overvoltage has been detected, the comparators N10 a,b respond and set the flip-flop D6, which directly actuates the RF-OFF switch via V8 and D4. During the response time of the RF-OFF switch, the pin diodes on the overvoltage-protection substrate short-circuit the overvoltage. In case of overvoltage, the pin diodes are impressed by a high dc current by means of the two monoflops V33 and V34, the pin diodes thus becoming low-impedance. The information on overload is passed to the controller via the interrupt line (X77.B4). This interrupt is reset if the RF-OFF switch is additionally software-controlled. The RF-OFF switch can be reset manually via the key sequence 'LEVEL ON'.

7.2 Test Instruments and Utilities

1. Ohmmeter (Measuring range up to 2 MOhms)
2. Power generator (e.g., SMGL)
3. DC power supply for ± 15 V
4. Storage oscilloscope

7.3 Troubleshooting

7.3.1 Control Code

If a desired output level can not be set on the instrument, check at the shift register D5 whether the control code of the individual attenuator pads is correct (see table 7.3.1).

Table 7.3.1 for SMY02 (CW mode):

Control code at shift register D5 (74HC 4094)

| Level setting | | Pin4 | 5 | 6 | 7 | 14 | 13 | 11,9 |
|---------------|----------|-------|-------|------|-------|-------|-------|--------|
| with | without | Q0 | Q1 | Q2 | Q3 | Q4 | Q5 | Q7, Q8 |
| option | SMY-B40 | 40 dB | 20 dB | 5 dB | 10 dB | 20 dB | 40 dB | RF-OFF |
| 19 dBm | 13 dBm | 1 | 1 | 1 | 1 | 1 | 1 | 0 |
| 14 dBm | 8 dBm | 1 | 1 | 0 | 1 | 1 | 1 | 0 |
| 9 dBm | 3 dBm | 1 | 1 | 1 | 1 | 0 | 1 | 0 |
| -1 dBm | -7 dBm | 1 | 1 | 1 | 0 | 1 | 1 | 0 |
| -21 dBm | -27 dBm | 1 | 1 | 1 | 1 | 1 | 0 | 0 |
| -61 dBm | -67 dBm | 0 | 1 | 1 | 1 | 1 | 0 | 0 |
| -101 dBm | -107 dBm | 0 | 0 | 1 | 0 | 1 | 0 | 0 |
| -114 dBm | -122 dBm | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

'1' = 5V, '0' = 0V

7.3.2 Control Pulse of the Attenuator Pads

If the pulse at the magnetic coils D1 to D4 does not correspond to the form illustrated in fig. 7.3.2, an error occurred on the control p.c.b., the attenuator pads with the associate contact groups are, however, o.k.

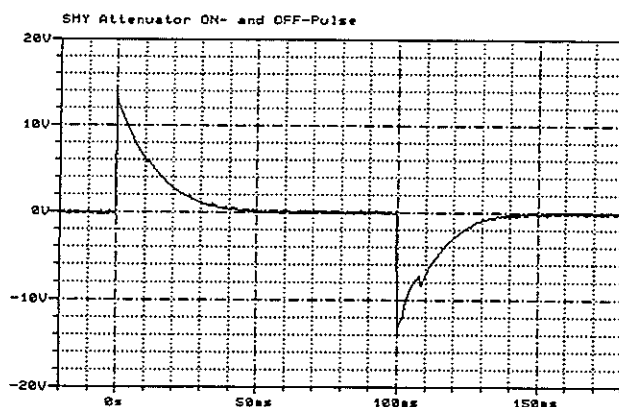


Fig. 7.3.2

7.4 Testing and Adjustment

7.4.1 Testing the Attenuator Pads and the Control P.C.B.

Proceed as described in Section 5.2.6 of the maintenance instructions given in the operating manual.

7.4.2 Testing the Overvoltage Protection

7.4.2.1 Static Test

- Withdraw connector X41 from the attenuator p.c.b.
- Set output level to -122dBm.

The overvoltage-protection diodes can be measured in forward and reverse direction using an ohmmeter. The impedance must be very high when the diodes are reverse-biased.

- The measurement is performed between the output socket X1 and the lead-through filter Z9 for the first diode, lead-through filter Z10 for the second diode.

7.4.2.2 Testing with AC Supply (VAR04 only)

- Set output level to -122 dBm.
- Connect a signal generator to the RF output of the SMY and set an RF of 25 MHz.

— The RF-OFF switch must respond with 30 ... 33 dBm.

7.4.2.3 Testing with DC Voltage Supply (VAR04 only)

- Apply a dc voltage from a dc power supply to the RF output socket X1 of the instrument.

_ The RF-OFF switch must respond for voltages between \pm (7.5 to 8.5 V) at the N socket.

The RF-OFF switch is reset using the key combination 'LEVEL ON'.

7.4.2.4 Testing and Adjustment with AC Supply (VAR02 only)

- Set output level to -122 dBm.
- Connect a signal generator to the RF output of the SMY and set an RF of 25 MHz.

_ The RF-OFF switch must respond with 27.5 dBm \pm 1.5dB, it can be adjusted using the potentiometer R30.

7.4.2.5 Testing with DC Voltage Supply (VAR02 only)

- Apply a dc voltage from a dc power supply to the RF output socket X1 of the instrument.

_ The RF-OFF switch must respond with voltages \pm (5 ... 7 V).

The RF-OFF switch is reset using the key combination 'LEVEL ON'.

7.4.3 Interfaces


| Pin | Name | Input/Output | Origin/Dest. | Specified range | Signal description |
|--------|------------|--------------|------------------|----------------------------------|--------------------|
| X77.A1 | GND | | | | |
| X77.B1 | SERDAT | Input | Controller X3.4 | TTL-HCT | Serial data |
| X77.A2 | GND | | | | |
| X77.B2 | SERCLK | Input | Controller X3.2 | TTL-HCT | Clock signal |
| X77.A3 | GND | | | | |
| X77.B3 | ELSTB | Input | Controller X3.19 | TTL-HCT | Strobe signal |
| X77.A4 | GND | | | | |
| X77.B4 | HFOVERLOAD | Output | Controller X3.22 | TTL-HCT | Overload interrupt |
| X77.A5 | GND | | | | |
| X77.B5 | not used | | | | |
| X77.A6 | VA5-P | Input | Power supply X21 | 5+4.5 to +5.3 V 42 \pm 8mA | +5.1 V supply |
| X77.B6 | " | " | " | " | " |
| X77.A7 | VA15-P | " | " X21.13 | +14.9 to +15.6V 20 \pm 4mA | +15 V supply |
| X77.B7 | " | " | " | " | " |
| X77.A8 | VA15-N | " | " X21.19 | -15.5 to -14.4 V 3 \pm .5 V | -15 V supply |
| X77.B8 | " | " | " | " | " |
| X1 | | Input | Output module | | |
| X2 | | Output | RF socket | | |



ROHDE & SCHWARZ


Schaltteillisten
Stromläufe
Bestückungspläne
Part lists
Circuit diagrams
Components plans
Listes des pièces détachées
Schémas de Circuit
Plans des composants

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| Kennz. Comp. No. | Benennung Designation | Sachnummer Stock No. | Hersteller Manufacturer | Bezeichnung Designation | enthalten in contained in | |
|---|---|-------------------------|----------------------------|---------------------------------------|------------------------------|-------------------|
| | XX VARIANTENERKLAERUNG IDENTIFICATION OF MODELS VAR 02 = GRUNDAUSFUEHRUNG MOD 02 = BASIC MODEL ERSETZT/REPLACE VAR 00/MOD 00 VAR 04 = SMY12/44/45+B40 MOD 04 = SMY12/44/45+B40 | | | | | |
| A90 | ED ANSTEUERUNG EICHLITG. ATTENUATOR CONTROL NUR VAR/ONLY MOD: 02 ZUGEH.STROML./CIRC.DIAGR. 801.1108 S | 0801.1120.02 | | | | |
| A90 | ED ANSTEUERUNG EICHLITG. NUR VAR/ONLY MOD: 04 ZUGEH.STROML./CIRC.DIAGR. 801.1108S GS UNGEPRUEFT.AK "C" | 0801.1120.04 | | | | |
| C1 ..7 | CE 220UF+-20%35V RM5 ELECTROLYTIC CAPACITOR | CE 0008.7904.00 | PANASONIC | ECA-1VFG221BQ | 0801.1120.01 | |
| C8 | CE 100UF+-20%35V RM5 ELECTROLYTIC CAPACITOR | 0008.7510.00 | PHILIPS_CO | 2222 116 90042 | 0801.1120.01 | |
| C9 | CE 47UF+-20%63V RM5 ELECTROLYTIC CAPACITOR | 0008.7440.00 | PHILIPS_CO | 2222 116 90112 | 0801.1120.01 | |
| C10 | CK 100NF+-5%63VRD2,5H7MKT CAPACITOR | CK 0099.2930.00 | ROEDERSTEI | MKT 1826-410-06-4W | 0801.1120.01 | |
| C11 | CE 1,5UF+-20%25V 5X 4X 7 ELECTROLYTIC CAPACITOR | CE 0087.9334.00 | KEMET | T340 A155M025 AS | 0801.1120.01 | |
| C15 | CC 10NF-20+50%7X8R4000 CAPACITOR | CC 0087.7525.00 | VALVO | 2222 640 51103 | 0801.1120.01 | |
| C17 | CC 10NF-20+50%7X8R4000 CAPACITOR | CC 0087.7525.00 | VALVO | 2222 640 51103 | 0801.1120.01 | |
| C18 | CK 100NF+-5%63VRD2,5H7MKT CAPACITOR | CK 0099.2930.00 | ROEDERSTEI | MKT 1826-410-06-4W | 0801.1120.01 | |
| C19 | CC 3,3NF+-10%6X7R2000 CAPACITOR | CC 0087.7083.00 | PHILIPS_CO | 2222 630 5(1)1332 | 0801.1120.01 | |
| C20 | CK 33NF+-5%63V RD2,5H7MKT CAPACITOR | CK 0099.2900.00 | ROEDERSTEI | MKT 1826-333/014 | 0801.1120.01 | |
| C20 | CK 3,3NF +-1% 63V RM5 KP POLYPROPYLENE CAPACITOR NUR VAR/ONLY MOD: 02 | CK 0007.7623.00 | ROEDERSTEI | KP1830-233 06 1 3 W | 0801.1120.01 | |
| C30 | CE 47UF+-20%63V RM5 ELECTROLYTIC CAPACITOR | 0008.7440.00 | PHILIPS_CO | 2222 116 90112 | 0801.1120.01 | |
| C31 | CE 47UF+-20%63V RM5 ELECTROLYTIC CAPACITOR | 0008.7440.00 | PHILIPS_CO | 2222 116 90112 | 0801.1120.01 | |
| C35 | CC 680NF+-10% 50V8K1200VI CAPACITOR | 0082.7785.00 | UNION_CARB | CKR 06 BX 684K | 0801.1120.01 | |
| C36 | CC 680NF+-10% 50V8K1200VI CAPACITOR | 0082.7785.00 | UNION_CARB | CKR 06 BX 684K | 0801.1120.01 | |
| D1 | BJ SN75361AP 2XTTL/MOS-LC LEVEL CONVERTER | BJ 0294.8490.00 | NSC | DS75361N | 0801.1120.01 | |
| D2 ..4 | BJ SN75361AP 2XTTL/MOS-LC LEVEL CONVERTER | BJ 0294.8490.00 | NSC | DS75361N | 0801.1120.01 | |
| D5 | BL PC74HC4094P 8ST.SH.REG 8ST.SHIFT A.STDRE REGIST. | 0099.9711.00 | PHILIPS_SE | (PC)74HC4094N(P) | 0801.1120.01 | |
| D6 | BL CD4013BE 2XD- FLIPFL FLIPFLOP | 0086.7021.00 | RCA | CD4013BE | 0801.1120.01 | |
| K1 ..6 | LD ELEKTROMAGNET (EICHL.) ELECTROMAGNET | 0294.8425.00 | | | 0294.8925.00 | |
| K9 | LD ELEKTROMAGNET (EICHL.) ELECTROMAGNET | 0294.8425.00 | | | 0294.8925.00 | |
| N10 | BO LF412CN 2XFET OPAMP OPERATIONAL AMPLIFIER | 0356.0521.00 | NSC | LF412CN | 0801.1120.01 | |
| N20 | BS TL604CP 2X ANALOGSCH ANALOG SWITCH | BJ 0300.6199.00 | TEXAS | TL604CP | 0801.1120.01 | |
| R5 | RL 0,60W 1KOHM+-1%TK50 RESISTOR | RL 0082.2160.00 | RESISTA | MK2 | 0801.1120.01 | |
| R6 | RL 0,60W 1KOHM+-1%TK50 RESISTOR | RL 0082.2160.00 | RESISTA | MK2 | 0801.1120.01 | |
| R7 | RL 0,40W 1,00KOHM+-1%TK50 RESISTOR | RL 0092.1444.00 | RESISTA | MK1 1K00 1% TK50 | 0801.1120.01 | |
| MENP5 | 413 3PUA | Äl | Datum Date | Schaltteilliste für Parts list for | Sachnummer Stock No. | Blatt-Nr. Page |
|  | ROHDE & SCHWARZ | 13 | 16.09.97 | ZE EICHLITUNG (SMG/SMH) | 0801.1108.01 SA | 1+ |

095.0026-0693

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|--|---|----------------------|------------------------------------|-------------------------|---------------------------|----------------|
| R8 | RL 0,60W 12,1KOHM+-1%TK50 RESISTOR | RL 0083.1351.00 | RESISTA | MK2 | 0801.1120.01 | |
| R9 | RL 0,60W 4,75KOHM+-1%TK50 RESISTOR | RL 0083.1097.00 | RESISTA | MK2 | 0801.1120.01 | |
| R10 | RL 0,60W 10,0KOHM+-1%TK50 RESISTOR | RL 0083.1297.00 | RESISTA | MK2 | 0801.1120.01 | |
| R11 | RL 0,60W 24,3KOHM+-1%TK50 RESISTOR | RL 0083.1574.00 | RESISTA | MK2 | 0801.1120.01 | |
| R11 | NUR VAR/ONLY MOD: 02 RL 0,60W 66,5KOHM+-1%TK50 RESISTOR | RL 0083.1874.00 | RESISTA | MK2 | 0801.1120.01 | |
| R12 | NUR VAR/ONLY MOD: 04 RL 0,60W 4,75KOHM+-1%TK50 RESISTOR | RL 0083.1097.00 | RESISTA | MK2 | 0801.1120.01 | |
| R13 | RL 0,60W 11,5KOHM+-1%TK50 RESISTOR | RL 0083.1339.00 | RESISTA | MK2 | 0801.1120.01 | |
| R14 | RL 0,60W 100KOHM+-1%TK50 RESISTOR | RL 0082.1764.00 | RESISTA | MK2 | 0801.1120.01 | |
| R16 | RL 0,60W 6,81KOHM+-1%TK50 RESISTOR | RL 0082.2560.00 | RESISTA | MK2 | 0801.1120.01 | |
| R16 | NUR VAR/ONLY MOD: 02 RL 0,60W 20,0KOHM+-1%TK50 RESISTOR | RL 0083.1522.00 | RESISTA | MK2 | 0801.1120.01 | |
| R17 | NUR VAR/ONLY MOD: 04 RL 0,60W 24,3KOHM+-1%TK50 RESISTOR | RL 0083.1574.00 | RESISTA | MK2 | 0801.1120.01 | |
| R17 | NUR VAR/ONLY MOD: 02 RL 0,60W 66,5KOHM+-1%TK50 RESISTOR | RL 0083.1874.00 | RESISTA | MK2 | 0801.1120.01 | |
| R18 | NUR VAR/ONLY MOD: 04 RL 0,60W 11,5KOHM+-1%TK50 RESISTOR | RL 0083.1339.00 | RESISTA | MK2 | 0801.1120.01 | |
| R19 | RL 0,60W 100KOHM+-1%TK50 RESISTOR | RL 0082.1764.00 | RESISTA | MK2 | 0801.1120.01 | |
| R20 | RL 0,60W 681 KOHM+-1%TK50 RESISTOR | RL 0083.2735.00 | RESISTA | MK2 | 0801.1120.01 | |
| R21 | RL 0,60W 332 KOHM+-1%TK50 RESISTOR | RL 0083.2441.00 | RESISTA | MK2 | 0801.1120.01 | |
| R22 | RL 0,40W 10,0KOHM+-1%TK50 RESISTOR | RL 0092.1567.00 | RESISTA | MK1 10KO 1% TK50 | 0801.1120.01 | |
| R25 | RL 0,40W 10,0KOHM+-1%TK50 RESISTOR | RL 0092.1567.00 | RESISTA | MK1 10KO 1% TK50 | 0801.1120.01 | |
| R26 | RL 0,60W 1KOHM+-1%TK50 RESISTOR | RL 0082.2160.00 | RESISTA | MK2 | 0801.1120.01 | |
| R26 | NUR VAR/ONLY MOD: 02 RL 0-OHM-WIDERST. 0204 0-OHM RESISTOR | RL 0069.0000.00 | DRALORIC | OMA 0204 | 0801.1120.01 | |
| R30 | NUR VAR/ONLY MOD: 04 RS 0,5W10KOHM+-10%10X10X5 CERMET POTENTIOMETER T | RS 0247.7903.00 | SPECTROL | 63 M ... TO 10 | 0801.1120.01 | |
| R30 | NUR VAR/ONLY MOD: 02 RS 0,5W1KOHM+-10%10X10X5 CERMET POTENTIOMETER T | RS 0087.7560.00 | BOURNS | 3386F-1-102 | 0801.1120.01 | |
| R31 | NUR VAR/ONLY MOD: 04 RL 0,60W 332 OHM+-1%TK50 RESISTOR | RL 0083.0255.00 | RESISTA | MK2 | 0801.1120.01 | |
| R32 | RL 0,60W 332 OHM+-1%TK50 RESISTOR | RL 0083.0255.00 | RESISTA | MK2 | 0801.1120.01 | |
| R33 | RL 0,60W 82,5KOHM+-1%TK50 RESISTOR | RL 0082.2302.00 | RESISTA | MK2 | 0801.1120.01 | |
| R34 | RL 0,60W 82,5KOHM+-1%TK50 RESISTOR | RL 0082.2302.00 | RESISTA | MK2 | 0801.1120.01 | |
| R35 | RL 0,40W 20,0KOHM+-1%TK50 RESISTOR | 0092.0402.00 | RESISTA | MK1 | 0801.1120.01 | |
| R36 | RL 0,60W 22,1KOHM+-1%TK50 RESISTOR | RL 0083.1545.00 | RESISTA | MK2 | 0801.1120.01 | |
| V6 | AD 1N4448 75V UDI DIODE | AD 0012.0700.00 | PHILIPS_SE | 1N4448 " | 0801.1120.01 | |
| V7 | AK BCY79IX P 45V 200MA TRANSISTOR | AK 0010.3777.00 | VALVO | BCY79IX | 0801.1120.01 | |
| V8 | AK BC173C N 25V 100MA TRANSISTOR | 0010.4444.00 | ITT-SEMICO | BC549C | 0801.1120.01 | |
| V10 | AD 1N4448 75V UDI DIODE | AD 0012.0700.00 | PHILIPS_SE | 1N4448 " | 0801.1120.01 | |
| V12 | AD 1N4448 75V UDI DIODE | AD 0012.0700.00 | PHILIPS_SE | 1N4448 " | 0801.1120.01 | |
| MENP5 | 413 3PUA | Ät Datum Date | Schaltteilliste für Parts list for | | Sachnummer Stock No. | Blatt-Nr. Page |
|  | | 13 16.09.97 | ZE EICHLITUNG (SMG/SMH) | | 0801.1108.01 SA | 2+ |

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| Kennz. Comp. No. | Benennung Designation | Sachnummer Stock No. | Hersteller Manufacturer | Bezeichnung Designation | enthalten in contained in |
|---------------------|--|-------------------------|----------------------------|----------------------------|------------------------------|
| V20 | AE BZX55/B8V2 0,5W ZDI ZENER DIODE | AE 0012.2178.00 | VALVO | BZX79B8V2 | 0801.1120.01 |
| V21 | AD 1N4448 75V UDI DIODE | AD 0012.0700.00 | PHILIPS_SE | 1N4448 " | 0801.1120.01 |
| V22 | AD 1N4448 75V UDI DIODE | AD 0012.0700.00 | PHILIPS_SE | 1N4448 " | 0801.1120.01 |
| V23 | AE BZX85/C8V2 1,3W ZDI ZENER DIODE | AE 0092.8526.00 | THOMSON | BZX85C8V2 | 0801.1120.01 |
| V24 | AE BAV45 35V PICOAMPDI LOW LEAKAGE DIODE | AE 0252.5386.00 | VALVO | BAV45 | 0801.1120.01 |
| V25 | AE BZX55/B8V2 0,5W ZDI ZENER DIODE | AE 0012.2178.00 | VALVO | BZX79B8V2 | 0801.1120.01 |
| V26 | AE BZX85/C8V2 1,3W ZDI ZENER DIODE | AE 0092.8526.00 | THOMSON | BZX85C8V2 | 0801.1120.01 |
| V27 | AD 1N4448 75V UDI DIODE | AD 0012.0700.00 | PHILIPS_SE | 1N4448 " | 0801.1120.01 |
| V28 | AD 1N4448 75V UDI DIODE | AD 0012.0700.00 | PHILIPS_SE | 1N4448 " | 0801.1120.01 |
| V30 | NUR VAR/ONLY MOD: 02 AD 1N4448 75V UDI DIODE | AD 0012.0700.00 | PHILIPS_SE | 1N4448 " | 0801.1120.01 |
| V31 | NUR VAR/ONLY MOD: 04 AD 1N4448 75V UDI DIODE | AD 0012.0700.00 | PHILIPS_SE | 1N4448 " | 0801.1120.01 |
| V32 | AD 1N4448 75V UDI DIODE | AD 0012.0700.00 | PHILIPS_SE | 1N4448 " | 0801.1120.01 |
| V33 | AK BC337-40 N 45V 800MA TRANSISTOR | 0303.9524.00 | ITT | BC337-40 | 0801.1120.01 |
| V34 | AK BC327-40 P 45V 800MA TRANSISTOR | 0303.9518.00 | PHILIPS_SE | BC327-40 | 0801.1120.01 |
| W12 | DX KABEL W12 CABLE W12 | 0801.7629.00 | | | |
| X1 | FJ EINBAUBUCHSE SYST.SMA SOCKET | FJ 0294.8154.00 | SUHNER | 22SMA-50-0-26/111NH | 0294.8725.00 |
| X2 | FJ EINBAUBUCHSE SYST.SMA SOCKET | FJ 0294.8154.00 | SUHNER | 22SMA-50-0-26/111NH | 0294.8725.00 |
| X41 | FP STIFTL.WIN 36P.R2,54 ANGLE PIN CONNECTOR 3-POLIG/3 PINS | FP 0243.3578.00 | BINDER | 742-5-11-0187-00-36 | 0801.1120.01 |
| X77A | FP STIFTL.EISTE 36P.R2,54 PIN CONNECTOR 8-POLIG/8 PINS | FP 0242.3600.00 | BINDER | 742-11-0179-00-36 | 0801.1120.01 |
| X77B | FP STIFTL.EISTE 36P.R2,54 PIN CONNECTOR 8-POLIG/8 PINS | FP 0242.3600.00 | BINDER | 742-11-0179-00-36 | 0801.1120.01 |
| Z1 | DT DAEMPFUNGSGLIED40DB/50 ATTENUATOR 40DB/50 | 0912.5269.00 | | | 0294.8725.00 |
| Z2 | DT DAEMPFUNGSGLIED20DB/50 ATTENUATOR 20DB/50 | 0912.5252.00 | | | 0294.8725.00 |
| Z3 | DT DAEMPFUNGSGLIED 5DB/50 ATTENUATION 5DB/50 | 0912.5281.00 | | | 0294.8725.00 |
| Z4 | DT DAEMPFUNGSGLIED20DB/50 ATTENUATOR 20DB/50 | 0912.5252.00 | | | 0294.8725.00 |
| Z5 | DT DAEMPFUNGSGLIED10DB/50 ATTENUATOR 10DB/50 | 0912.5246.00 | | | 0294.8725.00 |
| Z6 | DT DAEMPFUNGSGLIED40DB/50 ATTENUATOR 40DB/50 | 0912.5269.00 | | | 0294.8725.00 |
| Z7 | DT ANSCHLUSSLEITUNG/50 CONNECTION LINE | 0915.0800.00 | | | 0294.8725.00 |
| Z8 | BD UEBERSPANNUNGSSCHUTZ. OVERVOLTAGE PROTECTION | 0800.9570.00 | | | 0294.8725.00 |
| Z9 | LD PI-FILTER FILTER | 1008.5850.00 | | | 0294.8725.00 |
| Z10 | LD PI-FILTER FILTER | 1008.5850.00 | | | 0294.8725.00 |

MENP5

413 3PUA

Äl

Datum
Date

Schaltteilliste für
Parts list for

Sachnummer
Stock No.

Blatt-Nr.
Page



ROHDE & SCHWARZ

13

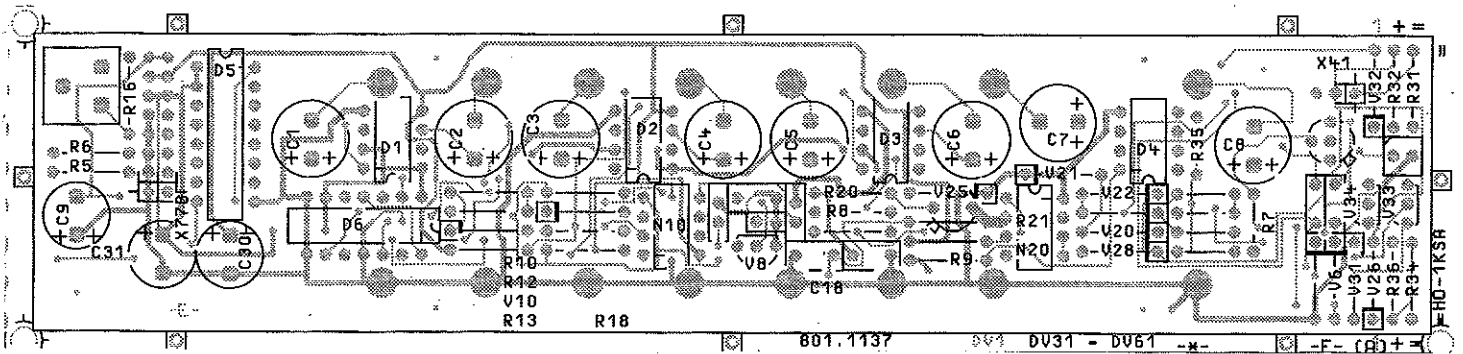
16.09.97

ZE EICHLITUNG (SMG/SMH)

0801.1108.01 SA

3-

Ansicht und Leitungsfuehrung Loetseite
View of tracks on solder side

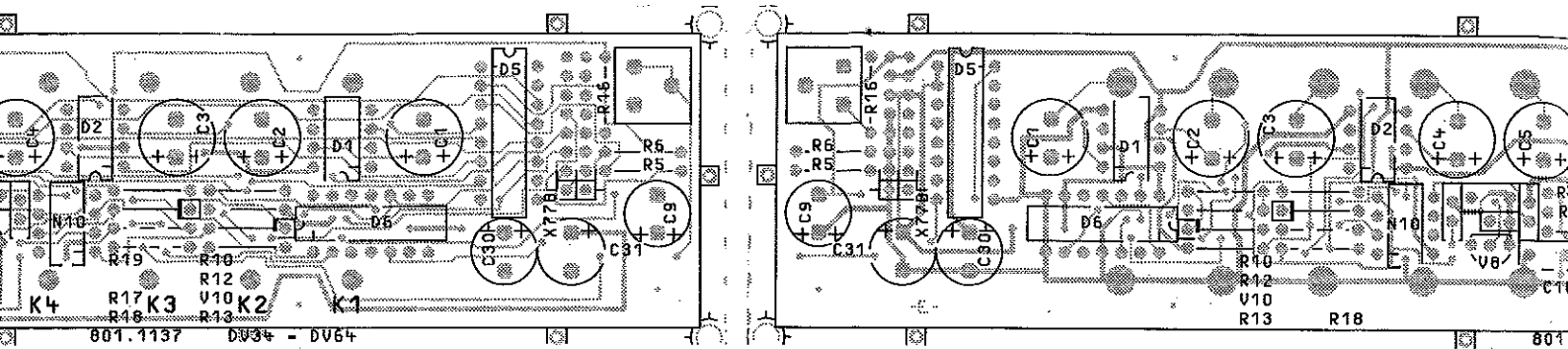


Bindende Angaben über Varianten,
Trimmwerte, Bauteilwerte und
nicht bestückte Bauteile siehe SA

For binding Information on models,
trimming and components values and
nonfitted components see parts list.

| | | | | | | | | | |
|---------------|--------------------------|-------|------|--------------------------------|------------------|---------------------|----------------------------|-----------------|------------|
| K 14 | 41828 | 5.89 | HO | Maße ohne Toleranzangabe | Maßstab 1 : 1 | Halbzeug, Werkstoff | Benennung | Z | |
| | | 03.97 | EI | | | | | | |
| | | | | MENP | Tag | Name | ED Ansteuerung Eichleitung | Blatt-Nr. 2- | |
| | | | | Bearb. | 05.89 | HO | | | |
| | | | | Gepr. | 03.97 | EI | | | |
| | | | | Norm | | | | | |
| | | | | ROHDE & SCHWARZ | | Zeichn.-Nr. | 801.1120.01 | D | v. Bl. |
| Änd. Zust. | Änderungs- Mitteilung | Tag | Name | | | zu Gerät | SMG | reg. i. V. | 801.0001 V |


Ansicht und Leitungsfuehrung Loetseite
View of tracks on solder side



(Hierzu HVC 250)

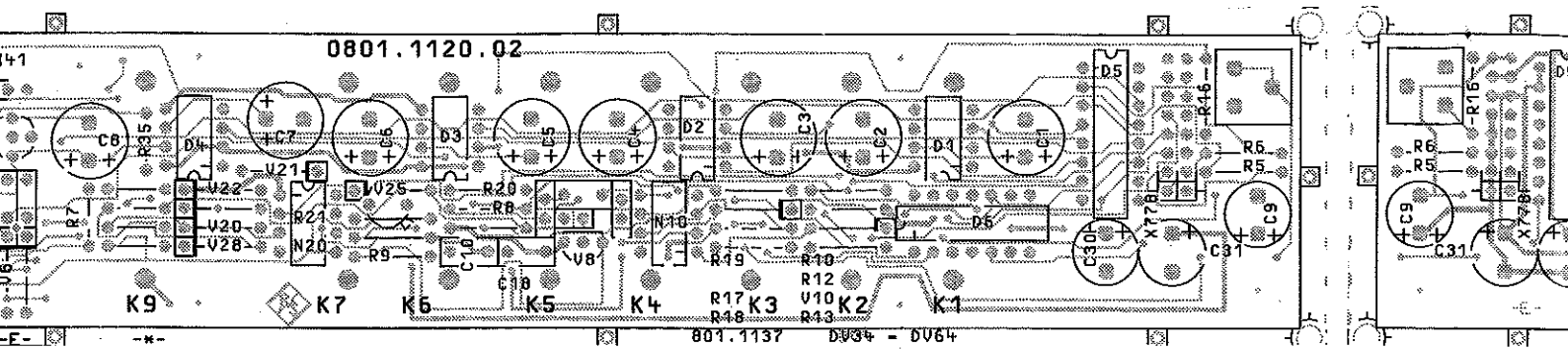


ACHTUNG: EGB!
Elektrostatisch gefährdete
Bauelemente erfordern eine
besondere Handhabung.
ATTENTION ESD!
Electrostatic sensitive
devices require a special
handling.

| | | | | | |
|---------------|--------------------------|-------|------|--|-------|
| K | 41828 | 5.89 | H0 | Maße ohne Toleranzangabe | |
| 14 | _____ | 03.97 | EI | | |
| | | | | | |
| | | | | MENP | Tag |
| | | | | Bearb. | 05.89 |
| | | | | Gepr. | 03.97 |
| | | | | Norm | EI |
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| | | | | | |
| | | | | | |
| Änd. Zust. | Änderungs- Mitteilung | Tag | Name |  ROHDE & SCHWARZ zu Gerät SMG | |
| | | | | | |

ht und Leitungsfuehrung Bauteilseite
of tracks on component side

Ansicht und
View of tra



(hierzu HVC 250)



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Bauelemente erfordern eine
besondere Handhabung.
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devices require a special
handling.

| | |
|---------------|-----------------|
| K | 41828 |
| 14 | |
| | |
| | |
| | |
| | |
| | |
| | |
| Änd. Zust. | Änder Mittel |

A

B

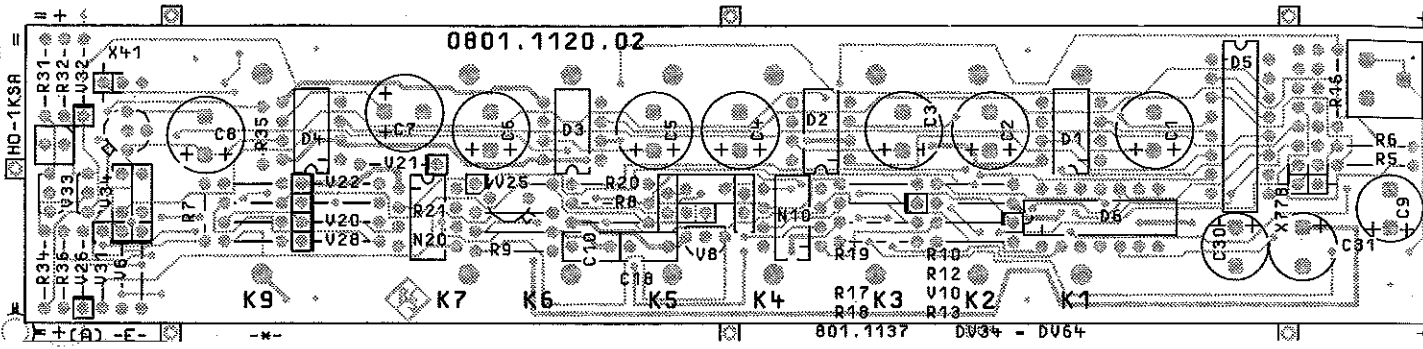
C

D

E

F

Ansicht und Leitungsfuehrung Bauteilseite
View of tracks on component side



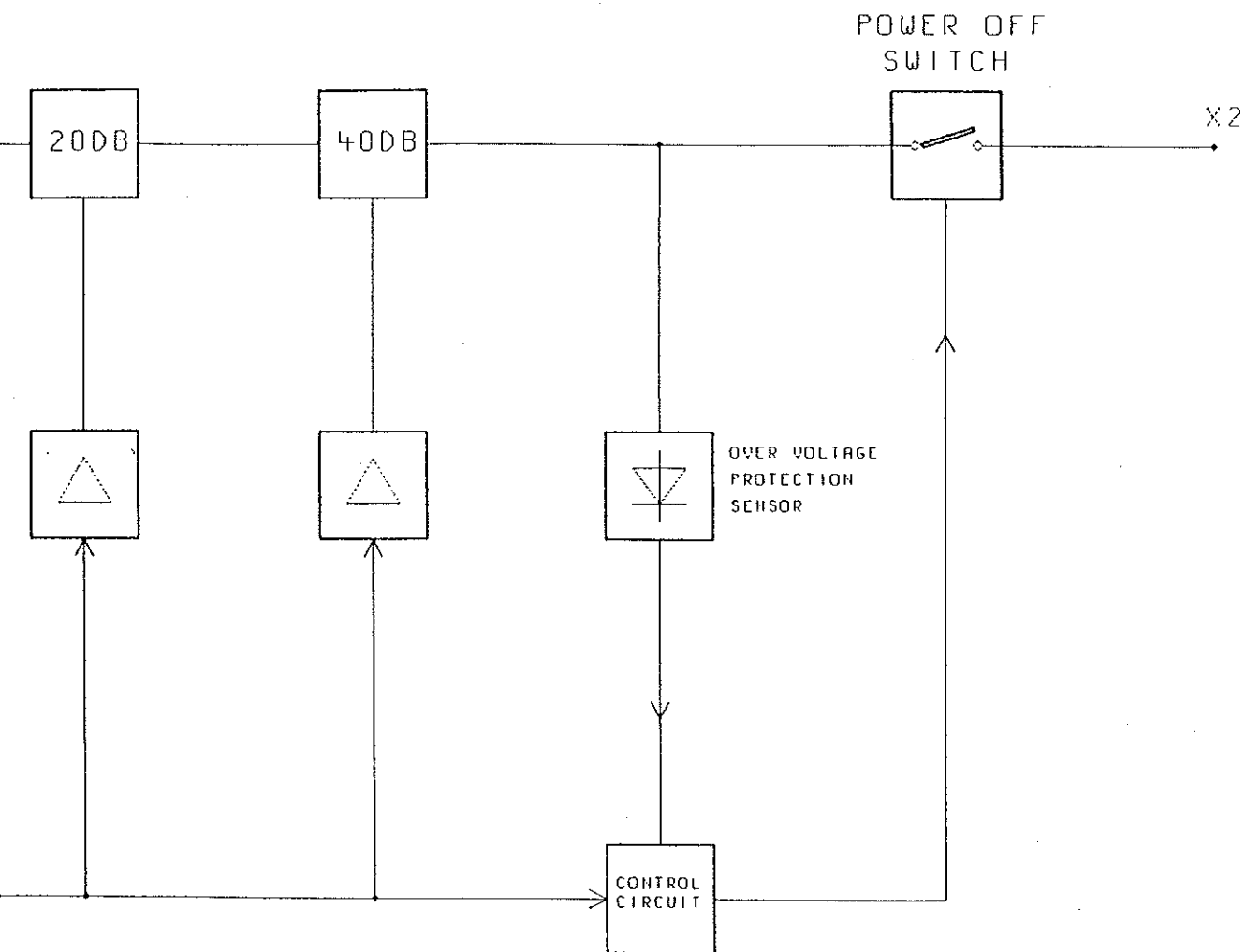
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D-Pr...
Methode

(hierzu HVC 250)



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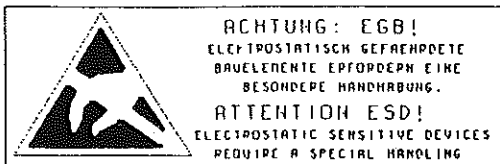
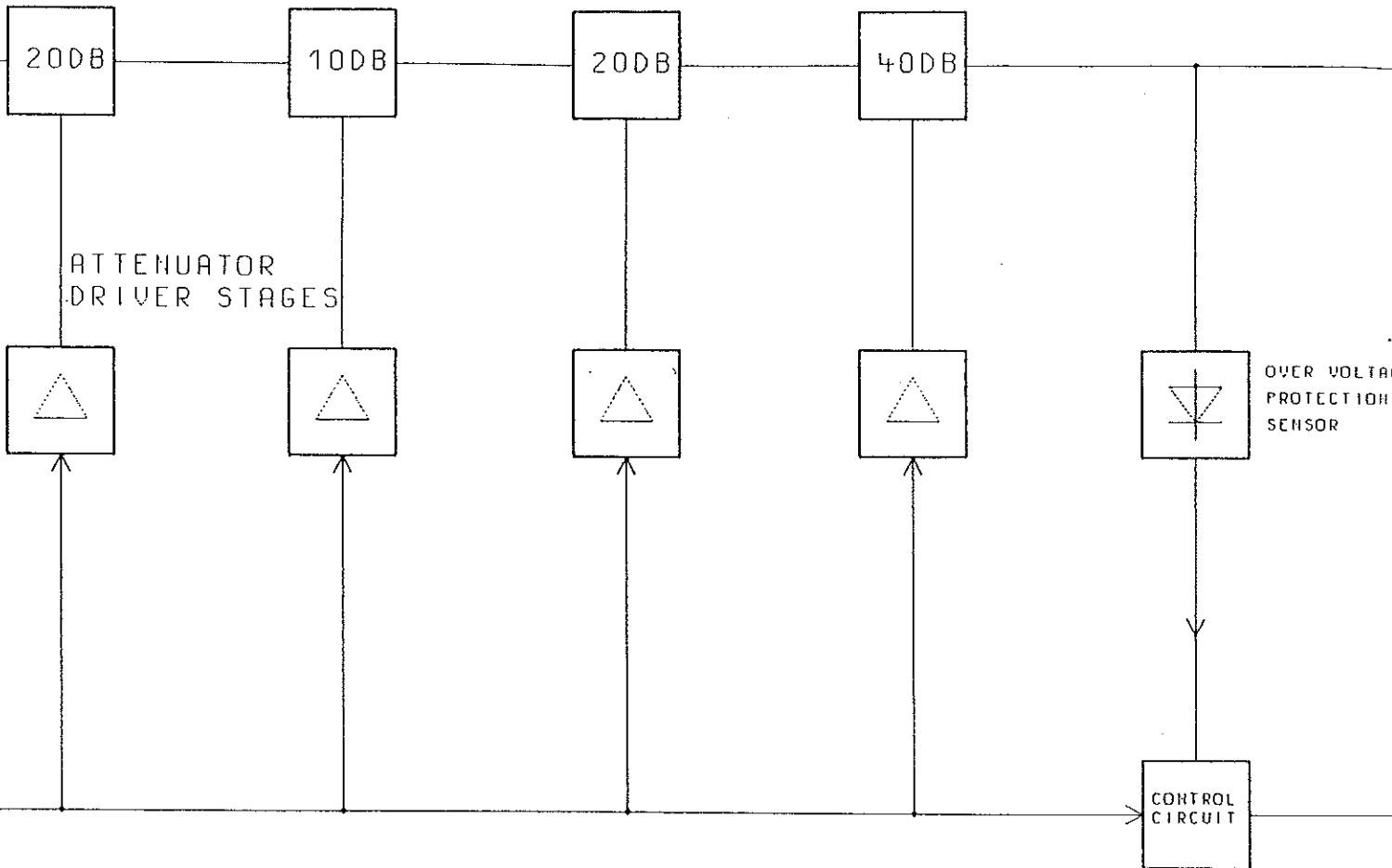


Bindende Angaben über Varianten, Trimmwerte, Bauteilwerte und nicht bestückte Bauteile siehe SA

For binding information on models, trimming and components values and nonfitted components see parts list.

| | | | | | | | | |
|------------|----------------------|----------|------|--------------------------------|-------|----------|--------------------------------|-----------|
| OS/ | 46470 | 11.04.95 | HM | MENP | TAG | NARE | BENENNUNG | |
| 06 | | 03.97 | EI | BERPB. | 03.97 | EI | ZE EICHLLEITUNG ATTENUATORS | |
| | | | | GEPP. | | | | |
| | | | | NORN | | | | |
| | | | | PLOTT | | | | |
| | | | | ROHDE & SCHWARZ | | | ZEICHN.-NR. | BLATT-NR. |
| REND. IND. | RENDPUNGS-NITTEILUNG | DATA | NARE | | | | 801.1108.015 | 1+ |
| | | | | ZU GERACHT | SMG | RES. I V | 801.0001 | ERSTE Z |

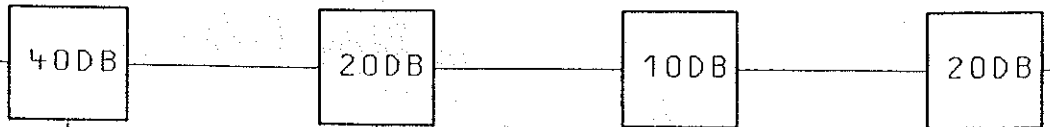
ATTENUATORS



| | | | | | | | |
|---------------|---------------------------|----------|------|--------------------------------|-------|-----------------------------------|---------------|
| 05/ | 46470 | 11.04.95 | HM | MENP | TAG | NAME | BENENNUNG |
| 06 | | 03.97 | BI | BERAB. | 03.97 | EI | ZE E I ATT |
| | | | | GEPP. | | | |
| | | | | NOPN | | | |
| | | | | PLOTT | | | |
| / | | | | | | | ZEICHN.-N. |
| REND. IND. | RECHENUNGS- MITTEILUNG | DATUM | NAME | ROHDE & SCHWARZ | | ZU GERÄT SMG PEG. 1. V. | |
| | | | | | | | |

ATTENUATORS

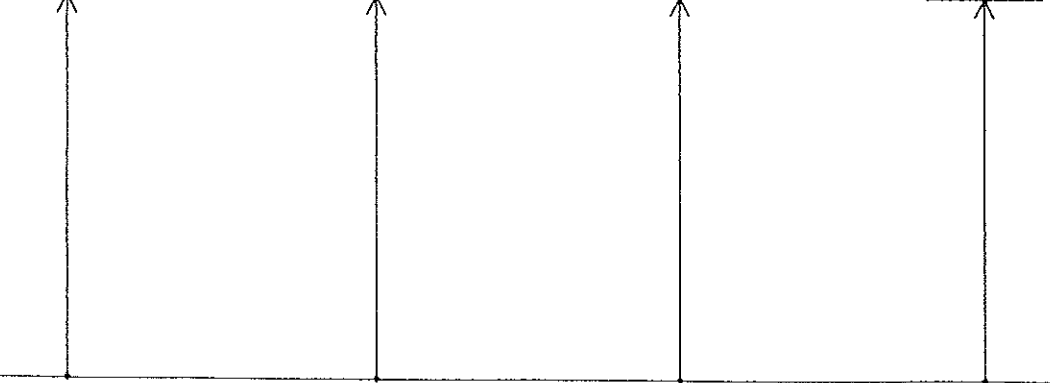
X1



ATTENUATOR
DRIVER STAGES



DATA
BUS

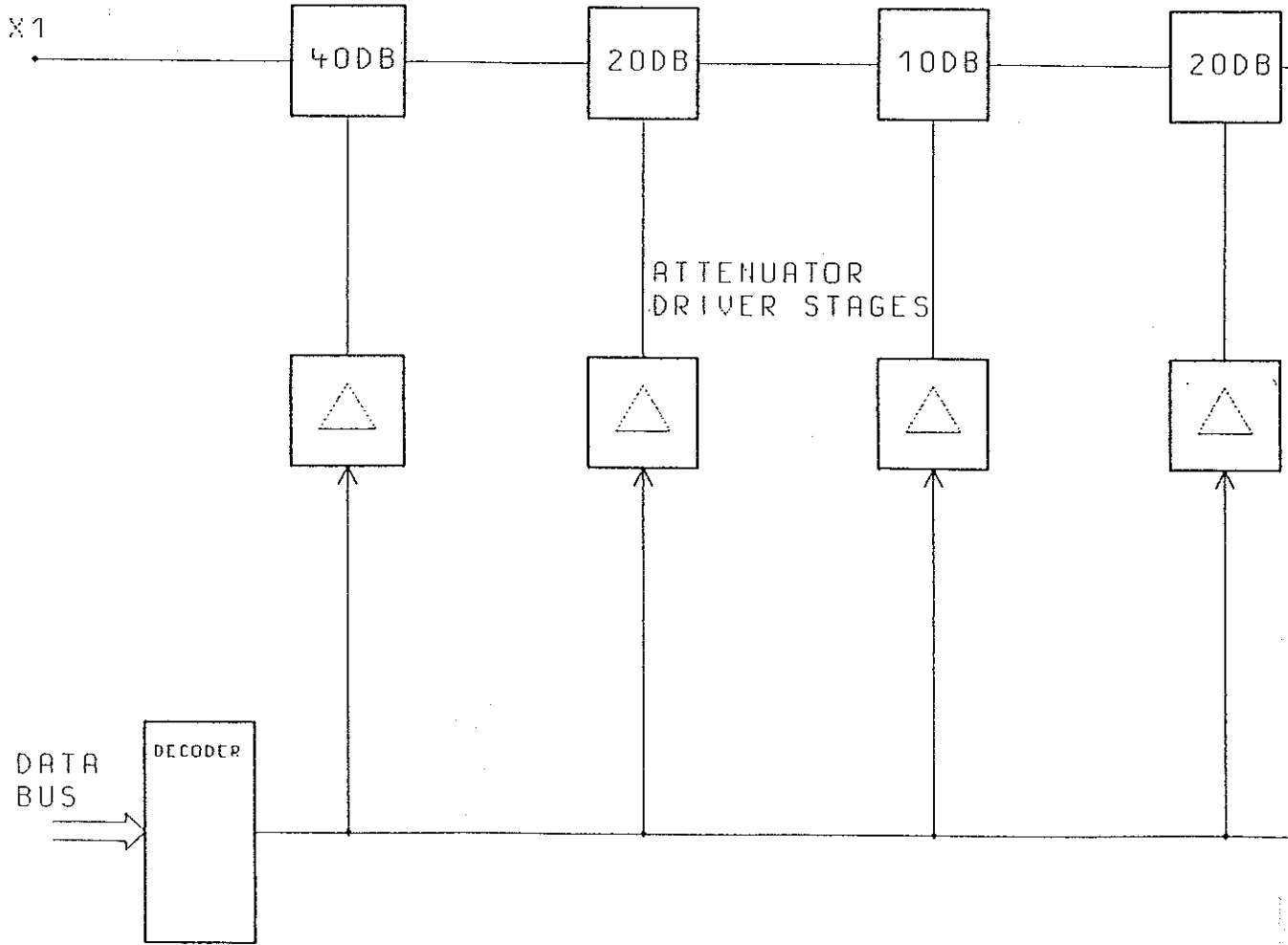





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 ELEKTROSTATISCH GEFÄHRDETE
 BAUELEMENTE ERFORDERN EINE
 BESONDERE HANDHABUNG.
ATTENTION ESD!
 ELECTROSTATIC SENSITIVE DEVICES
 REQUIRE A SPECIAL HANDLING.

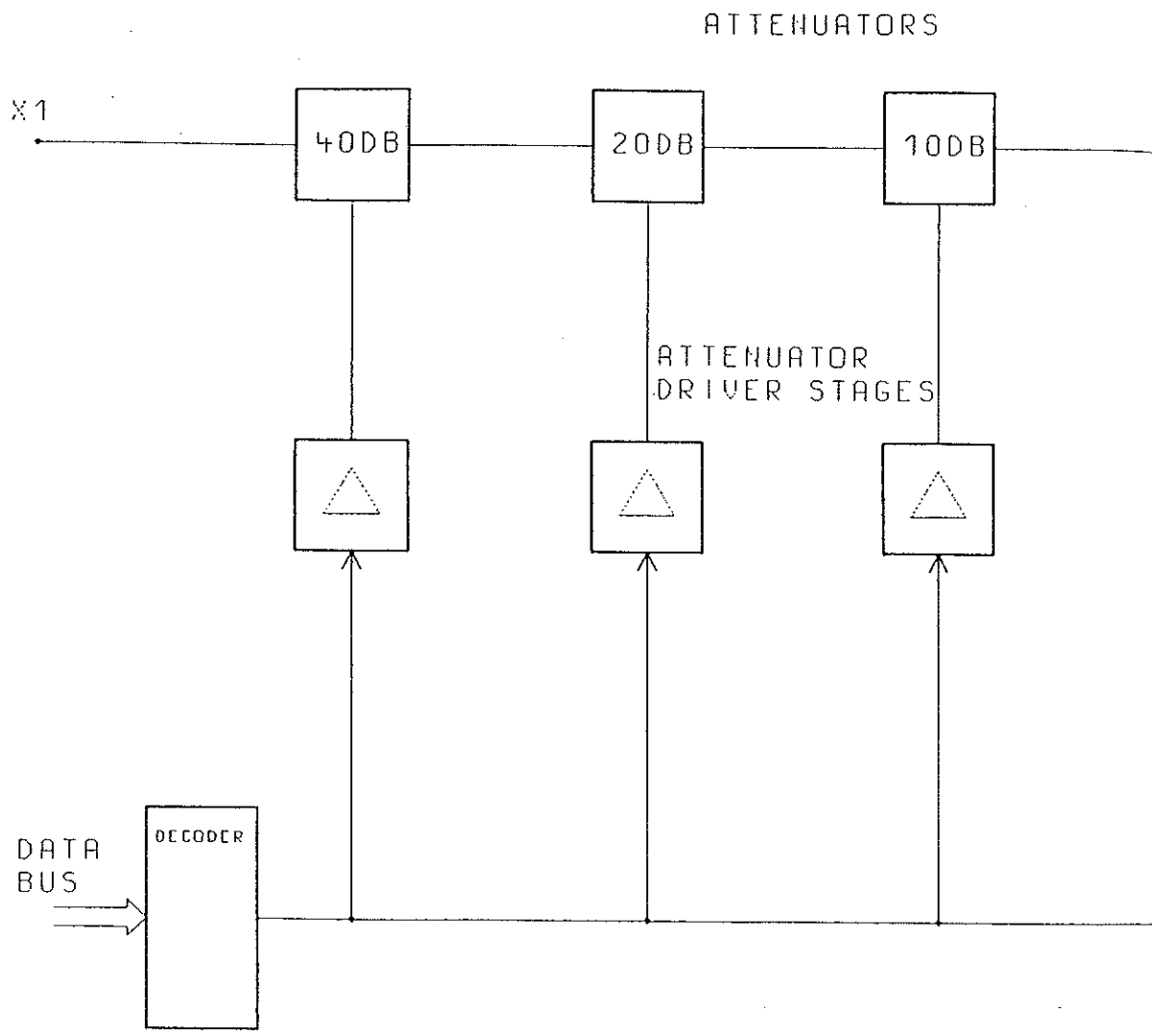
| | |
|-------|--------------------|
| DS/ | 46470 |
| 06 | |
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| | |
| / | |
| RENO. | RENDUNGSMITTEILUNG |
| IND. | |

ATTENUATORS





ACHTUNG: EGB!
 ELEKTROSTATISCH GEFÄHRDETE
 BAUELEMENTE ERFORDERN EINE
 BESONDERE HANDHABUNG.
ATTENTION ESD!
 ELECTROSTATIC SENSITIVE DEVICES
 REQUIRE A SPECIAL HANDLING

| | |
|--------------|--------------------------|
| 05/ | 46470 |
| 06 | |
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| | |
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| | |
| | |
| RENO IND. | RENDPUNGS- MITTEILUNG |

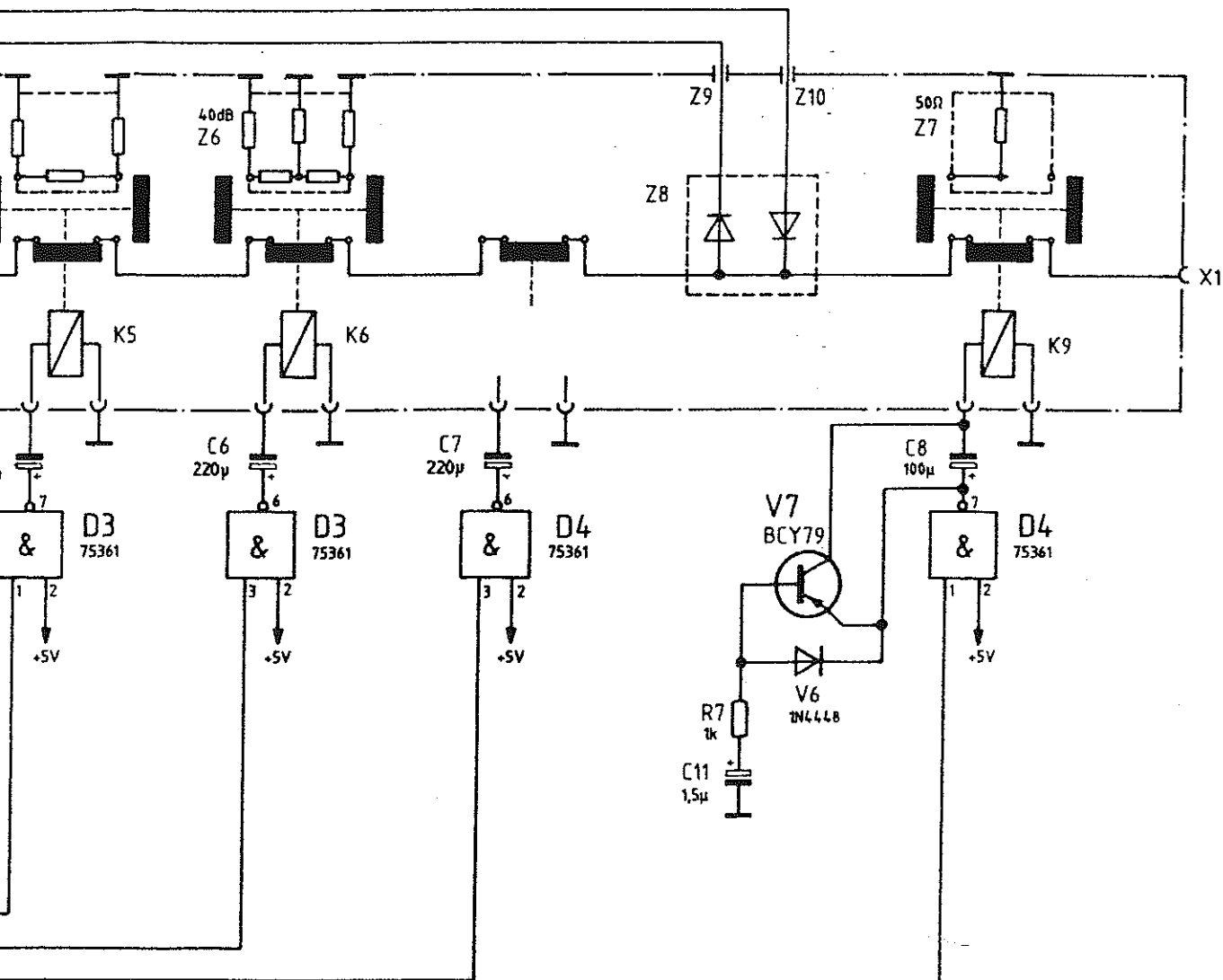


SEHLEN SIE UNS ALLE FEHLENDEN SEITEN MIT.

F
E
D
C
B
1 2 3 4 5



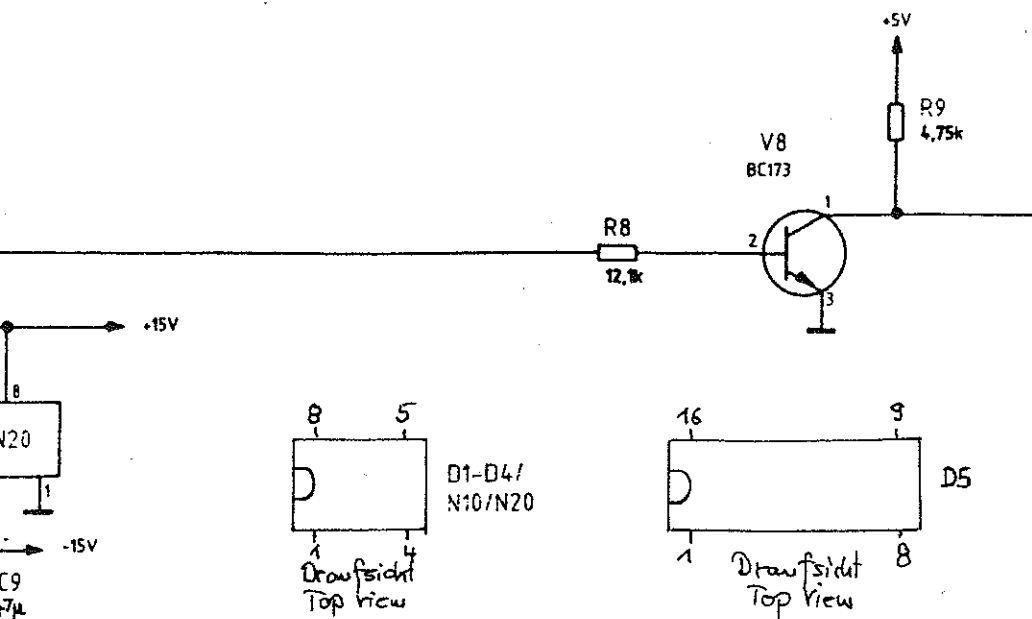
ACHTUNG: EGB!
 ELEKTROSTATISCH GEFÄHRDETE
 BAUELEMENTE ERFORDERN EINE
 BESONDERE HANDHABUNG.
ATTENTION ESD!
 ELECTROSTATIC SENSITIVE DEVICES
 REQUIRE A SPECIAL HANDLING



* = VAR./MOD. D4



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Bauelemente erfordern eine
besondere Handhabung
ATTENTION ESD!
Electrostatic sensitive
devices require a special
handling

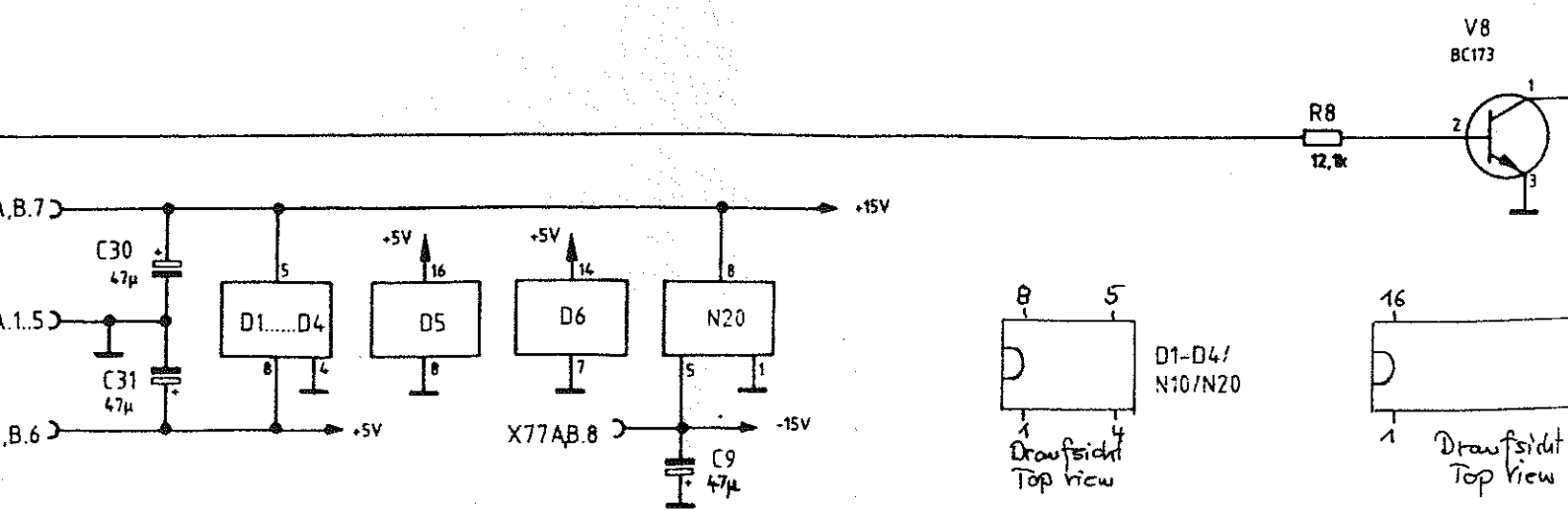
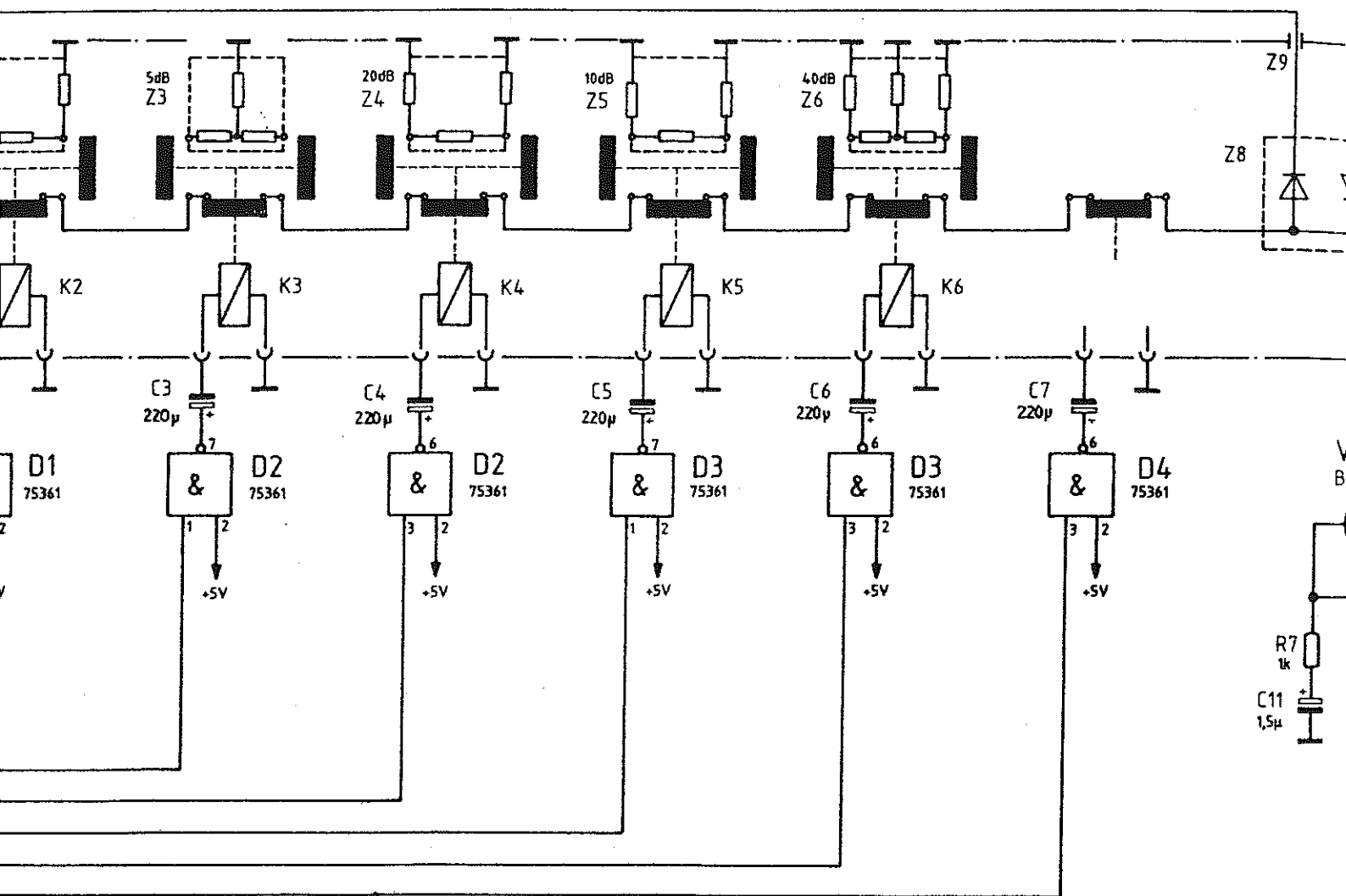


Bottom view

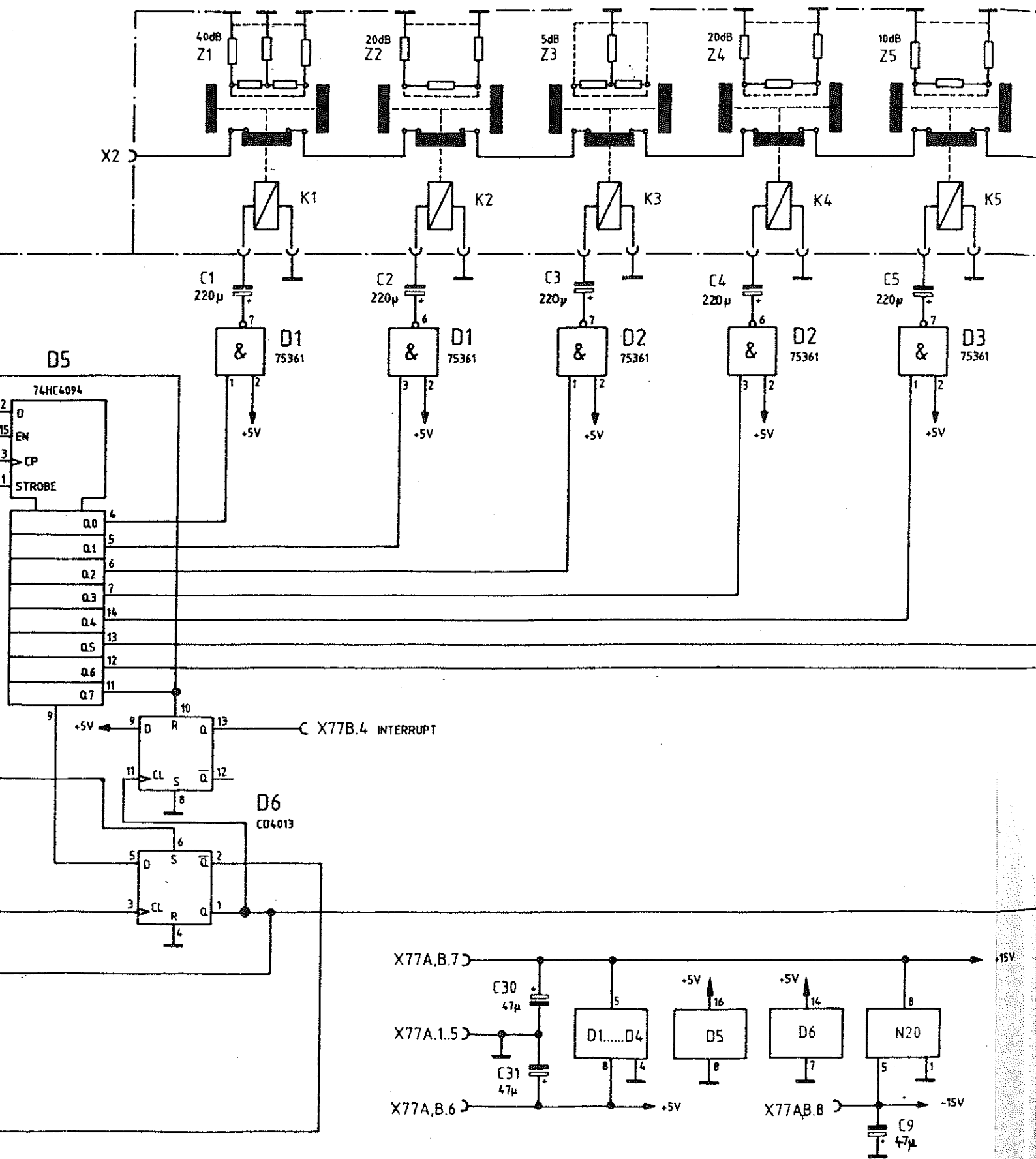


E B C
V8/V33/
V34

| | | | | |
|------|-----------------------------|---|-------------------------------|---------------|
| NOTE | Bezeichnung: ZE Eichleitung | Z | Zeichnungs-Nr.: 801.1108.01 s | Blatt-Nr.: 3- |
| CO | Attenuator | | | |
| EI | | | | |
| | zu Best.: SMG | | 801.0901 V | 801.0001 |

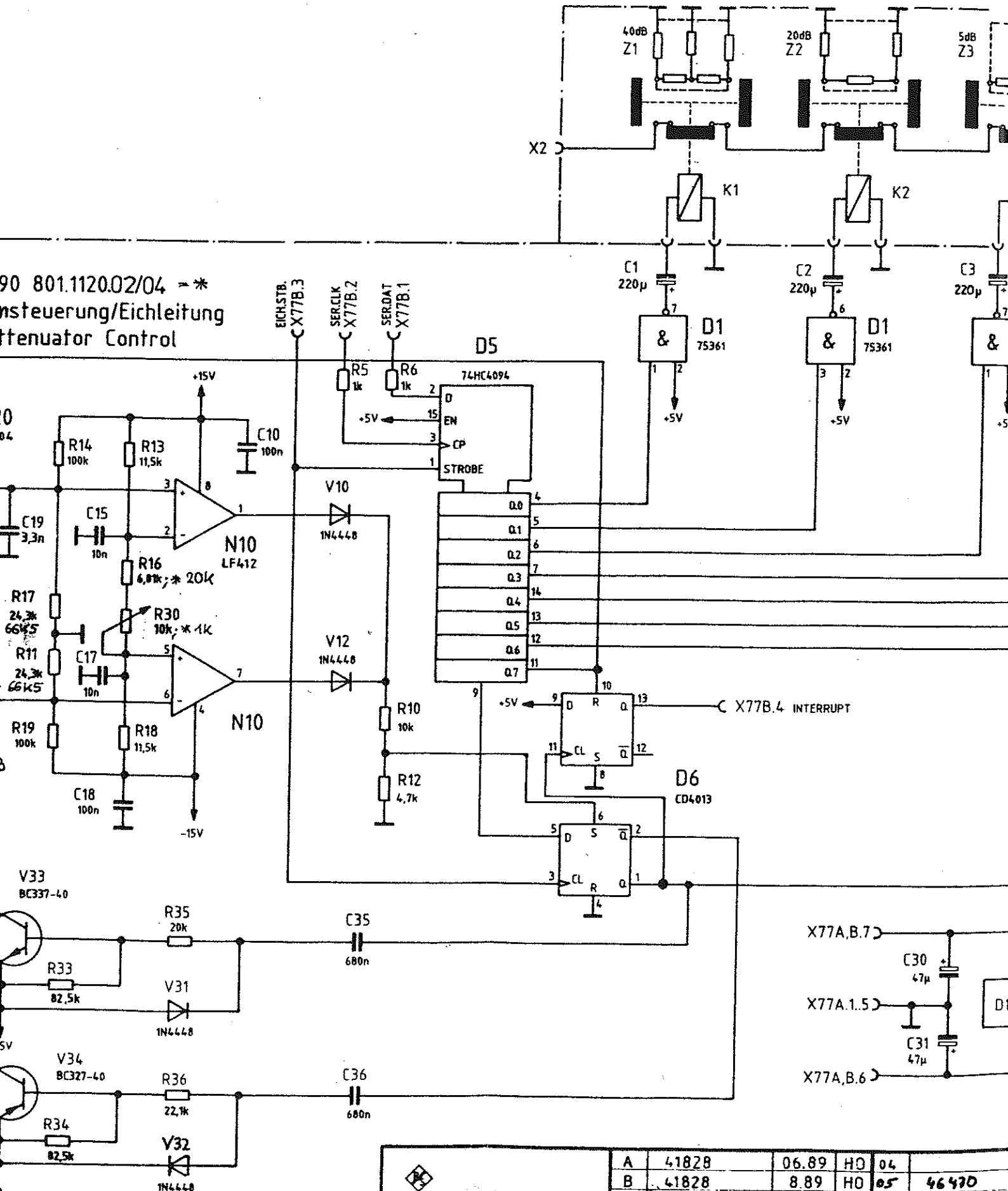


| | | | | | | | | | | | |
|------|----|-------|-------|------|-------|-------|------|-------------|---------------|-----|--|
| HO | 04 | | 03.92 | HM | MENP | Top | Name | Generierung | ZE Eicheitung | | |
| HO | 05 | 46470 | 04.95 | MT | Bearb | 10.85 | CO | | Attenuator | Z | |
| LS | 06 | | 03.97 | ET | Gepr | 03.97 | EI | | | | |
| Name | | | Datum | Name | Norm | | | | zu Gepr | SMG | |



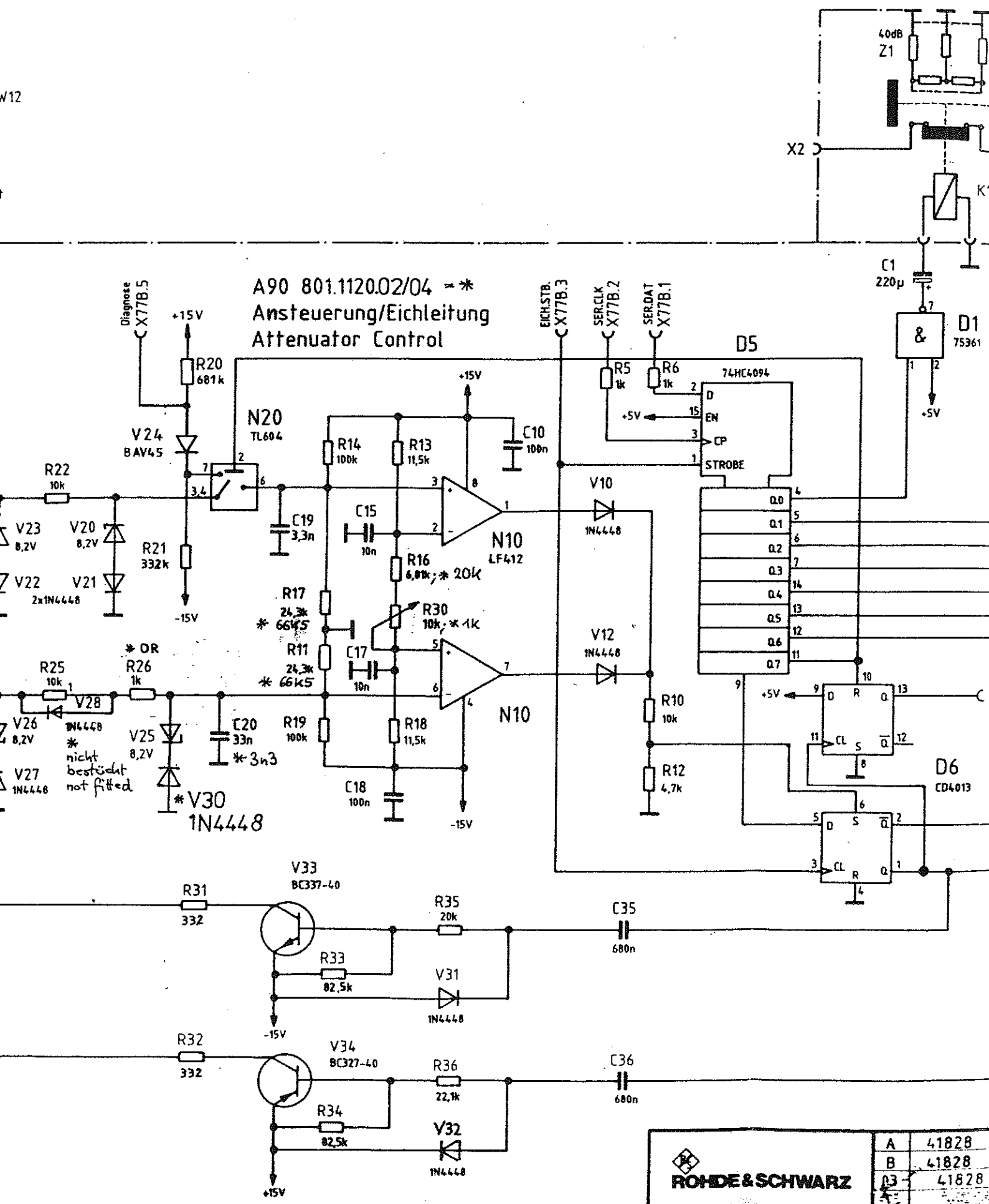
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|----|-------|-------|------|-----|-------|-------|------|-------|-------|------|-------------|
| A | 41828 | 06.89 | HO | 04 | | 03.92 | HM | MENP | Tap | Name | Bezeichnung |
| B | 41828 | 8.89 | HO | 05 | 46470 | 04.95 | HM | Beord | 10.85 | CO | |
| C3 | 41828 | 12.89 | LS | 06 | | 03.97 | ET | Gear | 03.97 | EI | |
| | | Datum | Name | Art | Art | Datum | Name | Norm | | | |

90 801.1120.02/04 = *
 nsteuerung/Eichleitung
 ttenuator Control



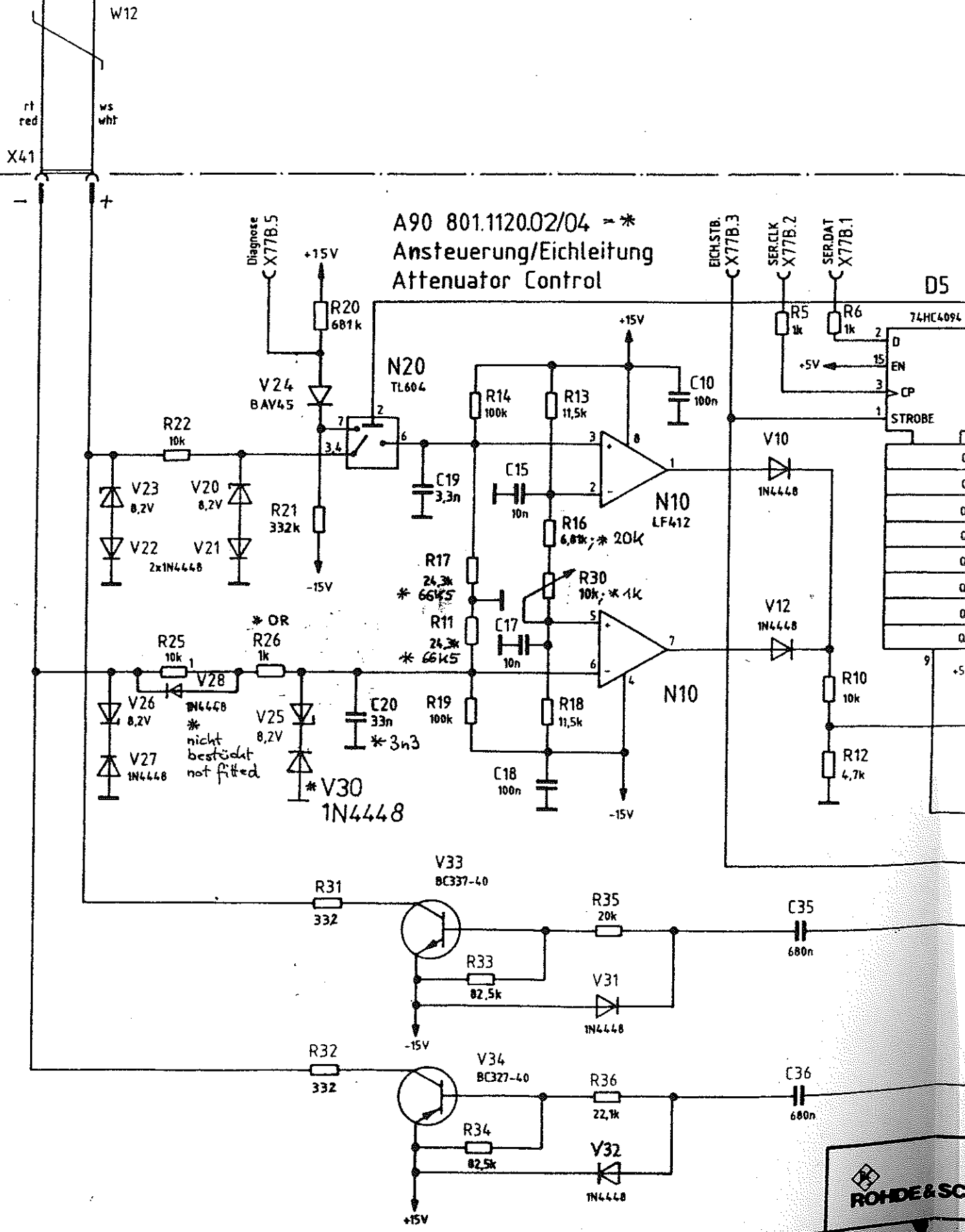
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|--|----|-------|-------|-------|------|-------|
| | A | 41828 | 06.89 | HO | 04 | |
| | B | 41828 | 8.89 | HO | 05 | 46470 |
| | 03 | 41828 | 12.89 | LS | 06 | |
| | 05 | | | Datum | Name | |

W12



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Zeichn.-Nr. 801.1114 S





ROHDE&SCHWARZ

SERVICEUNTERLAGEN

NETZTEIL

1062.5690.02

Inhaltsverzeichnis

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Schaltteilliste
Koordinatenliste
Stromlauf
Bestückungsplan

7.1 Funktionsbeschreibung

Das Netzteil versorgt die Baugruppen des Gerätes mit fünf geregelten Gleichspannungen von -15V, +24V, +15V, +7.5V sowie +5.1V. Zusätzlich wird der Lüfter des Gerätes aus der Oberspannung des +7.5V Regelteils versorgt.

Der Netztrafo wird primärseitig über ein Netzfilter und einen Spannungswähler gespeist.

Es stehen vier Primärspannungen zur Auswahl: 100V, 120V, 220V und 230V.

Der Netztrafo ist primärseitig durch eine Schmelzsicherung gegen Kurzschluß sowie über eine in die Trafoeinheit vergossene Thermo-sicherung gegen thermische Überlastung geschützt.

Auf der Sekundärseite weist der Netztrafo vier Wicklungen auf, die die Brückengleichrichterschaltungen speisen.

Die an den vier Ladekondensatoren der Gleichrichterschaltungen anstehenden Oberspannungen werden vier integrierten Spannungsregler-schaltungen zugeführt. Der +5.1V Spannungsregler wird von der Ausgangsspannung des +7.5V Reglers gespeist.

Die Ausgangsspannungen der Spannungsregler sind entweder intern oder durch äußere Beschaltung festgelegt.

7.2 Meßgeräte und Hilfsmittel

- Digitalmultimeter (z.B. R&S UDS5)
- Stelltrafo 90V...265V, 50Hz
- Oszilloskop
- Elektronische Last

7.3 Fehlersuche**Ausfall aller Spannungen**

Spannungswähler auf korrekte Einstellung, Netzsicherung und ggf. Thermoschalter überprüfen.

Ausfall einer Spannung

Das Netzteil entlasten und entsprechenden Reglerbaustein überprüfen (ggf. ist auch die Last zu überprüfen).

7.4 Allgemeine Daten

Die angeführten Werte der Oberspannungen und Brummspannungen der Gleichrichterschaltungen sollen als zusätzliche Angaben die Fehlersuche erleichtern. Sie sind nicht Bestandteil der Baugruppenprüfung. Die Werte gelten bei einer Netzspannung von 230V \pm 1V und 50Hz Netzfrequenz.

7.4.1 Oberspannung unbelastet

| Spannungen an Ladeelko gemessen | | | | |
|---------------------------------|--------------|--------------|--------------|--------------|
| +5.1V | +7.5V | +15.0V | +24.0V | -15.0V |
| +7.5 ±0.3V | +13.2V ±1.0V | +24.8V ±1.0V | +38.8V ±1.0V | -24.9V ±1.0V |

7.4.2 Oberspannung belastet

| Spannungen an Ladeelko gemessen | | | | |
|---------------------------------|---------------|---------------|---------------|---------------|
| +5.1V (1.0A) | +7.5V (0.95A) | +15.0V (1.5A) | +24.0V (0.3A) | -15.0V (0.5A) |
| +7.5 ±0.3V | +10.9V ±1.0V | +20.7V ±1.0V | +32.2V ±1.0V | -21.3V ±1.0V |

7.4.3 Brummspannung

| Spannungen an Ladeelko gemessen | | | |
|---------------------------------|--------------|-------------|--------------|
| +7.5V | +15.0V | +24.0V | -15.0V |
| max. 500mVss | max. 400mVss | max. 50mVss | max. 300mVss |

7.5 Prüfen und Abgleich

Alle Meßwerte ohne Toleranzangaben sind als Richtwerte zu verstehen. Spannungen ohne weitere Bezeichnungen bedeuten DC-Spannungen.

7.5.1 Prüfen des Regelverhaltens und der Störspannung

- Spannungswähler auf 230V einstellen

– Die Netzspannung von 230V auf 207V ändern und max. Änderung und Störspannung nach der Tabelle überprüfen.

| Meßpunkt | Bezugspunkt | Spannung | Toleranz | Max. Änderung | Störsp. Ueff |
|----------|-------------|----------|----------|---------------|--------------|
| X22.1 | GND | +5.1V | ±4% | 20mV | <3mV |
| X22.4 | GND | +7.5V | ±4% | 50mV | <3mV |
| X22.2 | GND | +15.0V | ±4% | 50mV | <3mV |
| X22.22 | GND | +24.0V | ±4% | 70mV | <3mV |
| X22.6 | GND | -15.0V | ±4% | 50mV | <3mV |

7.5.2 Kurzschlußverhalten

- Netzteil unbelastet (Kabel zum Motherboard und Option ROSC abziehen)
- Upr. = 230V ±1V
- Frequenz 50Hz

- _ Ausgangsspannungen nacheinander kurzschließen und Kurzschlußstrom bestimmen.
- _ Funktion der Regler durch Messung der Ausgangsspannungen (siehe 7.4.1) prüfen.

| Ua (V) | Pin (X3) | Bezug | Kurzschlußstrom |
|--------|-----------------|-------|-----------------|
| +5.1V | X21.5\6\7 | GND | <4.5A |
| +7.5V | X21.8 | GND | <4.5A |
| +15.0V | X21.13\14\15\16 | GND | <4.0A |
| +24.0V | X21.22 | GND | <2.5A |
| -15.0V | X21.19\20 | GND | <2.5A |

GND X21.1\2\3
 X21.9\10\11\12
 X21.17\18
 X21.21

7.6 Zerlegung und Zusammenbau

Nach dem Öffnen des Gerätes und der gekennzeichneten Schrauben auf der Rückwanne sowie dem Lösen des Kabels W21, kann die Baugruppe aus dem Rahmen herausgenommen werden. Der Einbau der Baugruppe und Zusammenbau des Gerätes erfolgt entsprechend in umgekehrter Reihenfolge.

7.7 Externe Schnittstelle

| Pin | Name | Ein/Ausgang | Herkunft/Ziel | Wertebereich | Signalbeschreibung |
|--------|----------|-------------|----------------|-----------------|-------------------------------|
| X4.1 | LÜFTPLU | Ausgang | Lüfter | 9V...13V | Plusspannung |
| X4.2 | LÜFTMIN | Ausgang | Lüfter | | Masse |
| X4.3 | CODE | | | | |
| X4.4 | TEMPREG | Ausgang | Lüfter | 100kΩ NTC | Temperaturregelung |
| X21.4 | U5VC | Ausgang | A3 MBRD X21.4 | +7.2V...+7.8V | +5V Überspannung für Reset |
| X21.5 | VA5-P | Ausgang | A3 MBRD 21.5 | +4.9V...+5.3V | +5.1V Versorgungsspannung |
| X21.6 | VA5-P | Ausgang | A3 MBRD X21.6 | +4.9V...+5.3V | +5.1V Versorgungsspannung |
| X21.7 | VA5-P | Ausgang | A3 MBRD X21.7 | +4.9V...+5.3V | +5.1V Versorgungsspannung |
| X21.8 | VA7.5-P | Ausgang | A3 MBRD X21.8 | +7.2V...+7.8V | +7.5V Versorgungsspannung |
| X21.13 | VA15-P | Ausgang | A3 MBRD X21.13 | +14.4V...+15.6V | +15V Versorgungsspannung |
| X21.14 | VA15-P | Ausgang | A3 MBRD X21.14 | +14.4V...+15.6V | +15V Versorgungsspannung |
| X21.15 | VA15-P | Ausgang | A3 MBRD X21.15 | +14.4V...+15.6V | +15V Versorgungsspannung |
| X21.16 | VA15-P | Ausgang | A3 MBRD X21.16 | +14.4V...+15.6V | +15V Versorgungsspannung |
| X21.19 | VA15-N | Ausgang | A3 MBRD X21.19 | -15.6V...-14.4V | -15V Versorgungsspannung |
| X21.20 | VA15-N | Ausgang | A3 MBRD X21.20 | -15.6V...-14.4V | -15V Versorgungsspannung |
| X21.22 | VA24-P | Ausgang | A3 MBRD X21.22 | +23.0V...+25.0V | +24V Versorgungsspannung |
| X21.23 | OVENCOLD | Ausgang | A3 MBRD X21.23 | HCMOS-Pegel | Ofen kalt (Opt Ref. Oszill.) |
| X21.24 | OPTTUNE | Eingang | A3 MBRD X21.24 | 0V...10V | Abstimmspannung (Opt Ref Osz) |
| X21.25 | REFOFF | Eingang | A3 MBRD X21.25 | HCMOS-Pegel | ON/OFF (Option Ref. Oszill.) |

| Pin | Name | Ein/Ausgang | Herkunft/Ziel | Wertebereich | Signalbeschreibung |
|--------|-----------|-------------|----------------|-----------------|---------------------------------|
| X21.26 | OPTERKREF | Ausgang | A3 MBRD X21.26 | HCMOS-Pegel | Optionerkennung Ref. Oszillator |
| X22.1 | VA5-P | Ausgang | A8 ROSC X22.1 | +4.9V...+5.3V | +5V Versorgungsspannung |
| X22.2 | VA15-N | Ausgang | A8 ROSC X22.2 | -15.6V...-14.4V | -15V Versorgungsspannung |
| X22.3 | frei | | | | |
| X22.4 | REFOFF | Ausgang | A8 ROSC X22.4 | HCMOS-Pegel | Ref. Oszillator ON/OFF (Option) |
| X22.5 | OPTERKREF | Eingang | A7 POWS X21.26 | HCMOS-Pegel | Optionerkennung |
| X22.6 | VA15-N | Ausgang | A8 ROSC X22.6 | -15.6V...-14.4V | -15V Versorgungsspannung |
| X22.7 | frei | | | | |
| X22.9 | frei | | | | |
| X22.11 | frei | | | | |
| X22.12 | frei | | | | |
| X22.13 | OVENCOLD | Eingang | A7 POWS X21.23 | HCMOS-Pegel | Ofen kalt (Option) |
| X22.16 | OPTTUNE | Ausgang | A8 ROSC X22.16 | 0V...10V | Abstimmspannung (Option) |

GND X21.1\2\3\9\10\11\12\17\18\21
X22.8\10\14\15



ROHDE & SCHWARZ

SERVICE INSTRUCTIONS

Power Supply

1062.5690.02

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Parts list
List of coordinates
Circuit diagram
Component layout diagram

7.1 Function Description

The power supply provides five regulated dc voltages of -15V, +24V, +15V, +7.5V and +5.1V. The voltage for the blower is derived from the high-end voltage of the +7.5 regulator.

The power transformer is primary fed via an ac filter and a voltage selector.

Four primary voltages can be selected: 100V, 120V, 220V and 230V.

The power transformer is provided with a fuse to protect it against short-circuits. A thermal release encapsulated in the transformer section protects it against thermal overload.

On the secondary side, the transformer provides four windings which feed the bridge rectifier circuits.

The high-end voltages available at the four charging capacitors of the rectifier circuits are applied to four integrated voltage-regulating circuits. The voltage for the +5.1V voltage regulator is derived from the output voltage of the +7.5V regulator.

The output voltages of the voltage regulators are either fixed internally or by external circuitry.

7.2 Test Instruments and Utilities

- Digital multimeter (e.g., R&S UDS5)
- Variable-ratio transformer 90V to 265V, 50Hz
- Oscilloscope
- Electronic load

7.3 Troubleshooting

| | |
|------------------------------------|---|
| Failure of all voltages | Check, whether voltage selector has been set correctly, check fuse and thermal protection, if necessary. |
| Failure of a single voltage | Disconnect the power supply from the load and check the regulating component of interest (check load, if required). |

7.4 General Data

The data of the high-end and hum voltages of the rectifier circuits are given in addition to make troubleshooting easier. They are not tested with the board test. The values given apply for an ac voltage of 230V \pm 1V and an ac supply frequency of 50Hz.

7.4.1 High-end Voltage without Load

| Voltages measured at charging capacitor | | | | |
|---|--------------|--------------|--------------|--------------|
| +5.1V | +7.5V | +15.0V | +24.0V | -15.0V |
| +7.5 ±0.3V | +13.2V ±1.0V | +24.8V ±1.0V | +38.8V ±1.0V | -24.9V ±1.0V |

7.4.2 High-end Voltage under Load

| Voltages measured at charging capacitor | | | | |
|---|---------------|---------------|---------------|---------------|
| +5.1V (1.0A) | +7.5V (0.95A) | +15.0V (1.5A) | +24.0V (0.3A) | -15.0V (0.5A) |
| +7.5 ±0.3V | +10.9V ±1.0V | +20.7V ±1.0V | +32.2V ±1.0V | -21.3V ±1.0V |

7.4.3 Hum Voltage

| Voltages measured at charging capacitor | | | |
|---|--------------|-------------|--------------|
| +7.5V | +15.0V | +24.0V | -15.0V |
| max. 500mVpp | max. 400mVpp | max. 50mVpp | max. 300mVpp |

7.5 Testing and Adjustment

All measured values indicated without tolerances are recommended values. Voltages given without any further detail are dc voltages.

7.5.1 Testing Regulating Performance and Noise Voltage

- Set voltage selector to 230 V.

_ Vary the ac supply voltage from 230 V to 207 V and check max. deviation and noise voltage according to the table below.

| Test point | Ref. point | Voltage | Tolerance | Max.deviation | Noise voltage Vrms |
|------------|------------|---------|-----------|---------------|-----------------------|
| X22.1 | GND | +5.1V | ±4% | 20mV | <3mV |
| X22.4 | GND | +7.5V | ±4% | 50mV | <3mV |
| X22.2 | GND | +15.0V | ±4% | 50mV | <3mV |
| X22.22 | GND | +24.0V | ±4% | 70mV | <3mV |
| X22.6 | GND | -15.0V | ±4% | 50mV | <3mV |

7.5.2 Short-Circuit Test

- Power supply without load (withdraw cables to motherboard and ROSC option)
 - Vpr. = 230V ±1V
 - Frequency 50Hz
- Successively short-circuit output voltages and determine the short-circuit current.
- Check, if the regulators work correctly by measuring the output voltages (cf. 7.4.1).

| Va (V) | Pin (X3) | Reference | Short-circuit current |
|--------|-----------------|-----------|-----------------------|
| +5.1V | X21.5\6\7 | GND | <4.5A |
| +7.5V | X21.8 | GND | <4.5A |
| +15.0V | X21.13\14\15\16 | GND | <4.0A |
| +24.0V | X21.22 | GND | <2.5A |
| -15.0V | X21.19\20 | GND | <2.5A |

GND X21.1\2\3
 X21.9\10\11\12
 X21.17\18
 X21.21

7.6 Disassembly and Assembly

Subsequent to opening the instrument, undoing the screws marked on the backpanel and disconnecting the cable W21, the module can be removed from the frame.

Installation of the module and reassembly of the instrument are carried out in the reverse order.

7.7 External Interface

| Pin | Name | Input/Output | Origin/Dest. | Specified range | Signal description |
|--------|----------|--------------|----------------|------------------|-------------------------------|
| X4.1 | LÜFTPLU | Output | Blower | 9V to 13V | Positive voltage |
| X4.2 | LÜFTMIN | Output | Blower | | Ground |
| X4.3 | CODE | | | | |
| X4.4 | TEMPREG | Output | Blower | 100kΩ NTC | Temperature control |
| X21.4 | U5VC | Output | A3 MBRD X21.4 | +7.2V to +7.8V | +5V Overvoltage for reset |
| X21.5 | VA5-P | Output | A3 MBRD 21.5 | +4.9V to +5.3V | +5.1V jSupply Voltage |
| X21.6 | VA5-P | Output | A3 MBRD X21.6 | +4.9V to +5.3V | +5.1V Supply Voltage |
| X21.7 | VA5-P | Output | A3 MBRD X21.7 | +4.9V to +5.3V | +5.1V Supply Voltage |
| X21.8 | VA7.5-P | Output | A3 MBRD X21.8 | +7.2V to +7.8V | +7.5V Supply Voltage |
| X21.13 | VA15-P | Output | A3 MBRD X21.13 | +14.4V to +15.6V | +15V Supply Voltage |
| X21.14 | VA15-P | Output | A3 MBRD X21.14 | +14.4V to +15.6V | +15V Supply Voltage |
| X21.15 | VA15-P | Output | A3 MBRD X21.15 | +14.4V to +15.6V | +15V Supply Voltage |
| X21.16 | VA15-P | Output | A3 MBRD X21.16 | +14.4V to +15.6V | +15V Supply Voltage |
| X21.19 | VA15-N | Output | A3 MBRD X21.19 | -15.6V to -14.4V | -15V Supply Voltage |
| X21.20 | VA15-N | Output | A3 MBRD X21.20 | -15.6V to -14.4V | -15V Supply Voltage |
| X21.22 | VA24-P | Output | A3 MBRD X21.22 | +23.0V to +25.0V | +24V Supply Voltage |
| X21.23 | OVENCOLD | Output | A3 MBRD X21.23 | HCMOS level | Oven cold (ref osc option) |
| X21.24 | OPTTUNE | Input | A3 MBRD X21.24 | 0V to 10V | Tuning volt. (ref osc option) |
| X21.25 | REFOFF | Input | A3 MBRD X21.25 | HCMOS level | ON/OFF (ref osc option) |

| Pin | Name | Input/Output | Origin/Dest. | Specified range | Signal description |
|--------|-----------|--------------|----------------|------------------|--|
| X21.26 | OPTERKREF | Output | A3 MBRD X21.26 | HCMOS level | Identification of ref. oscillator option |
| X22.1 | VA5-P | Output | A8 ROSC X22.1 | +4.9V to +5.3V | +5V Supply Voltage |
| X22.2 | VA15-N | Output | A8 ROSC X22.2 | -15.6V to -14.4V | -15V Supply Voltage |
| X22.3 | not used | | | | |
| X22.4 | REFOFF | Output | A8 ROSC X22.4 | HCMOS level | Ref. osc. option ON/OFF |
| X22.5 | OPTERKREF | Input | A7 POWS X21.26 | HCMOS level | Identification of option |
| X22.6 | VA15-N | Output | A8 ROSC X22.6 | -15.6V to -14.4V | -15V Supply Voltage |
| X22.7 | not used | | | | |
| X22.9 | not used | | | | |
| X22.11 | not used | | | | |
| X22.12 | not used | | | | |
| X22.13 | OVENCOLD | Input | A7 POWS X21.23 | HCMOS level | Oven cold (option) |
| X22.16 | OPTTUNE | Output | A8 ROSC X22.16 | 0V to 10V | Tuning voltage (option) |

GND X21.1\2\3\9\10\11\12\17\18\21
X22.8\10\14\15



ROHDE & SCHWARZ

Schaltteillisten
numerisch geordnet


Part lists
in numerical order

Listes des pièces détachées
par numéros de référence

| | | | | |
|----|--------------|--------------------------|---|----|
| F3 | 0020.7600.00 | SS SCHMELZS.T4 IEC127-2V | 1 | ST |
| F4 | 0009.0584.00 | SS SCHMELT3.15IEC127-2I3 | 1 | ST |
| F5 | 0009.5434.00 | SS SCHMELZS.T1 IEC127-2V | 1 | ST |
| F6 | 1062.5702.00 | SS SCHMELZS. 2.5AT | 1 | ST |

Sicherungen im
SMY Netzteil

Für diese Unterlage behalten
wir uns alle Rechte vor.

| Kennz. Comp. No. | Benennung Designation | Sachnummer Stock No. | Hersteller Manufacturer | Bezeichnung Designation | enthalten in contained in | |
|---|---|-------------------------|----------------------------|---------------------------------------|------------------------------|-------------------|
| | XX VARIANTENERKLAERUNG IDENTIFICATION OF MODELS VAR 02 = GRUNDAUSFUEHRUNG MOD 02 = BASIC MODEL | | | | | |
| A71 | ED NETZTEIL POWER SUPPLY HIERZU STROML. 1062.5690S SEE CIRC.DIAGR.1062.5690S | 1062.5902.02 | | | | |
| C1 | CE 22000UF-10+50%16V36X45 ELECTROLYTIC CAPACITOR | 0291.6209.00 | PHILIPS_CO | 2222 051 55223 | 1062.5902.01 | |
| C2 | CE 10UF +-10% 10V 6032 TANTALUM SMD-CAPACITOR | CE 0007.7281.00 | KEMET | T491 C 106 K 010 AS | 1062.5902.01 | |
| C3 | CE 10UF +-10% 10V 6032 TANTALUM SMD-CAPACITOR | CE 0007.7281.00 | KEMET | T491 C 106 K 010 AS | 1062.5902.01 | |
| C4 | CE 220UF+-20%10V RM2,5 ELECTROLYTIC CAPACITOR | CE 0008.7927.00 | PANASONIC | ECA-1AFG221I | 1062.5902.01 | |
| C5 | CE 220UF+-20%10V RM2,5 ELECTROLYTIC CAPACITOR | CE 0008.7927.00 | PANASONIC | ECA-1AFG221I | 1062.5902.01 | |
| C8 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | 1062.5902.01 | |
| C20 | CE 22MF+-20%25V35X55 ELECTROLYTIC CAPACITOR | 0814.5642.00 | VALVO | 2222 051 56223 | 1062.5902.01 | |
| C21 | CE 10UF +-10% 25V 7343 TANTALUM SMD-CAPACITOR | CE 0007.7246.00 | SPRAGUE | 293D 106 X9 025 D2T | 1062.5902.01 | |
| C22 | CE 100UF+-20%25V RM2.5 ELECTROLYTIC CAPACITOR | CE 0008.7891.00 | PANASONIC | ECA-1EFG101I | 1062.5902.01 | |
| C28 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | 1062.5902.01 | |
| C30 | CE 2,2MF+-20%50V RD30X25 ELECTROLYTIC CAPACITOR | 0815.8197.00 | NAT_PANASO | ECES1HU222J | 1062.5902.01 | |
| C31 | CE 100UF+-20%63V RM5 ELECTROLYTIC CAPACITOR | CE 0008.7879.00 | PANASONIC | ECA 1 JFG 101 BQ | 1062.5902.01 | |
| C38 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | 1062.5902.01 | |
| C40 | CE 15MF+-20%25V RD35X30 ELECTROLYTIC CAPACITOR | 0815.8145.00 | PANASONIC | ECOS1EA153EA | 1062.5902.01 | |
| C42 | CE 100UF+-20%25V RM2.5 ELECTROLYTIC CAPACITOR | CE 0008.7891.00 | PANASONIC | ECA-1EFG101I | 1062.5902.01 | |
| C43 | CE 10UF +-10% 25V 7343 TANTALUM SMD-CAPACITOR | CE 0007.7246.00 | SPRAGUE | 293D 106 X9 025 D2T | 1062.5902.01 | |
| C48 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | 1062.5902.01 | |
| E1 | DX FAN UNIT FAN UNIT | 1062.6715.00 | | | | |
| F1 | SS SCHMELZ.T2,5HIEC127-2V FUZE | SS 0020.7575.00 | WICKMANN | T2.5 H NR.19181 | | |
| F2 | SS SCHMELZ.T2,5HIEC127-2V FUZE FUER/FOR 100/120V 220/230V | SS 0020.7575.00 | WICKMANN | T2.5 H NR.19181 | | |
| F3 F.6 | SS SCHMELZS.T4 IEC127-2/V FUZE | SS 0020.7600.00 | WICKMANN | T4 H NR.19181 | 1062.5902.01 | |
| F7 | ST TEMP.SICH. 150GRD 2,5A TEMPERATURFUZE 150GRD | ST 0007.7200.00 | WICKMANN | X25 | 1062.5977.00 | |
| N1 | BO LT1085CT +ADJ REGL IC VOLTAGE REGULATOR | 2031.7680.00 | LINEAR_TEC | LT1085CT | 1062.5902.01 | |
| N2 | BO LT1085CT +ADJ REGL IC VOLTAGE REGULATOR | 2031.7680.00 | LINEAR_TEC | LT1085CT | 1062.5902.01 | |
| N20 | BO LT1085CT +ADJ REGL IC VOLTAGE REGULATOR | 2031.7680.00 | LINEAR_TEC | LT1085CT | 1062.5902.01 | |
| N30 | BO UA7824UC+24V1A0 VREGL VOLTAGE REGULATOR | BO 0336.4621.00 | NSC | LM7824CT | 1062.5902.01 | |
| N40 | BO LM317T +ADJ1A5 VREGL VOLTAGE REGULATOR | BO 0339.4080.00 | NSC | LM-317T | 1062.5902.01 | |
| R1 | RL 0,35W100 OHM+-0,1%TK25 RESISTOR | RL 0083.7220.00 | DRALORIC | SMA0207 | 1062.5902.01 | |
| R2 | RL 0,35W499 OHM+-0,1%TK25 RESISTOR | RL 0083.8562.00 | RESISTA | MK2 | 1062.5902.01 | |
| R4 | RL 0,35W121 OHM+-0,1%TK25 RESISTOR | RL 0083.7389.00 | | | 1062.5902.01 | |
| R5 | RL 0,35W374 OHM+-0,1%TK25 RESISTOR | RL 0083.8327.00 | RESISTA | MK2 | 1062.5902.01 | |
| MENP5 | 413 3PUA | Äl | Datum Date | Schaltteilliste für Parts list for | Sachnummer Stock No. | Blatt-Nr. Page |
|  | ROHDE & SCHWARZ | 01 | 16.09.97 | ZE NETZTEIL, EINHEIT POWER SUPPLY | 1062.5690.01 SA | 1+ |

095.0026-0693

| Kennz. Comp. No. | Benennung Designation | Sachnummer Stock No. | Hersteller Manufacturer | Bezeichnung Designation | enthalten in contained in |
|---------------------|---|-------------------------|----------------------------|----------------------------|------------------------------|
| R8 | RG 10,0 OHM+-1%TK100 1206 CHIP -RESISTOR | RG 0006.8649.00 | DRALORIC | CR(B) 1206... | 1062.5902.01 |
| R20 | RL 0,35W100 OHM+-0,1%TK25 RESISTOR | RL 0083.7220.00 | DRALORIC | SMA0207 | 1062.5902.01 |
| R21 | RL 0,35W1,10KOHM+-0,1%T25 RESISTOR | RL 0083.9223.00 | DRALORIC | SMA0207 | 1062.5902.01 |
| R28 | RG 10,0 OHM+-1%TK100 1206 CHIP -RESISTOR | RG 0006.8649.00 | DRALORIC | CR(B) 1206... | 1062.5902.01 |
| R38 | RG 10,0 OHM+-1%TK100 1206 CHIP -RESISTOR | RG 0006.8649.00 | DRALORIC | CR(B) 1206... | 1062.5902.01 |
| R40 | RL 0,35W100 OHM+-0,1%TK25 RESISTOR | RL 0083.7220.00 | DRALORIC | SMA0207 | 1062.5902.01 |
| R41 | RL 0,35W1,10KOHM+-0,1%T25 RESISTOR | RL 0083.9223.00 | DRALORIC | SMA0207 | 1062.5902.01 |
| R48 | RG 10,0 OHM+-1%TK100 1206 CHIP -RESISTOR | RG 0006.8649.00 | DRALORIC | CR(B) 1206... | 1062.5902.01 |
| R90 | RK HEISSL.100KOHM10% 0,5W THERMISTOR | 0520.5983.00 | SIEMENS | B57164-K104-K | 1062.5902.01 |
| S1 | SB NETZSCHALTER 2XU 0.KN. POWER SWITCH | SB 0007.5143.00 | ITT-SEL | NE18 2U E E | |
| T1 | LT RINGKERNTRAFD SMY TRANSFORMER | 1062.5977.00 | | | |
| V1 | AG B80C5000/3300 BRGL RECTIFIER | AG 0084.5109.00 | TELEFUNKEN | B80C5000/3300SI | 1062.5902.01 |
| V20 | AG B80C5000/3300 BRGL RECTIFIER | AG 0084.5109.00 | TELEFUNKEN | B80C5000/3300SI | 1062.5902.01 |
| V30 | AG B250C1500 BRGL RECTIFIER | AG 0208.2340.00 | GEN_INSTRU | B380C1500 | 1062.5902.01 |
| V40 | AG B80C5000/3300 BRGL RECTIFIER | AG 0084.5109.00 | TELEFUNKEN | B80C5000/3300SI | 1062.5902.01 |
| V41 | AG 1N4007 GL1000V 1A0 RECTIFIER | AG 0013.0310.00 | ITT-SEMICO | 1N4007 | 1062.5902.01 |
| X2 | FP STECKERLEISTE 5P.GER CONNECTOR 5P | FP 1026.3132.00 | J_S_T_DEUT | B5P-VH-B | 1062.5902.01 |
| X3 | FP STECKERLEISTE 4P.GER CONNECTOR | FP 1026.3055.00 | J_S_T_DEUT | B4P-VH-B | 1062.5902.01 |
| X4 | FP STIFTLLEISTE 36P.R2,54 PIN CONNECTOR 4-POLIG | FP 0242.3600.00 | BINDER | 742-11-0179-00-36 | 1062.5902.01 |
| X21 | FP STECKERLEISTE 26P.GER CONNECTOR 26P. | FP 0820.8610.00 | SIEMENS | V23535-A2200-A262 | 1062.5902.01 |
| X22 | FP STECKERLEISTE 16P.GER CONNECTOR | FP 4007.2304.00 | SIEMENS | V23535-A2200-A162 | 1062.5902.01 |
| Z1 | FN EURO-ST.M.NETZFILTER4A FILTER W.VOLTAGESLECTION | FN 0006.0919.00 | CORCOM | F-7364D | |

In dieser Unterlegungszeichnung
 wir uns alle Rechte vor.

095.002B-0693

| | | | | | | |
|--|----------|----|---------------|---------------------------------------|-------------------------|-------------------|
| MENP5 | 413 3PUA | Äi | Datum Date | Schaltteilliste für Parts list for | Sachnummer Stock No. | Blatt-Nr. Page |
|  | | 01 | 16.09.97 | ZE NETZTEIL, EINHEIT POWER SUPPLY | 1062.5690.01 SA | 2- |



XY-Liste

XY List

Erklärung der Spaltenbezeichnungen:

- Part:** Bauelement-Kennzeichen.
- Side:** Leiterplatten-Seite, auf der sich das Bauelement befindet.
- XY:** Koordinaten (Millimeter) des Bauelementes auf der Leiterplatte bezogen auf den Nullpunkt.
- SQR, PG:** Planquadrat und Seite des Schaltbildes für das jeweilige Bauelement.

Explanation of column designations:

- Part:** Identification of instrument part.
- Side:** Side of the PC board on which instrument part is positioned.
- XY:** Coordinates (millimeter) of the component on the PC board in reference to zero point.
- SQR, PG:** Square and page of the diagram for the respective instrument part.

| Service-Relevante Bauteile / Service-Relevant Components | | | | | | | | | | | | | | | | | |
|--|------|-----|----|-----|----|------|------|-----|----|-----|----|------|------|-----|----|-----|----|
| Part | Side | X | Y | Sqr | Pg | Part | Side | X | Y | Sqr | Pg | Part | Side | X | Y | Sqr | Pg |
| F3 | B | 22 | 32 | 2F | 2 | F6 | B | 37 | 50 | 2C | 2 | X4 | B | 10 | 67 | 2B | 2 |
| F4 | B | 22 | 18 | 2E | 2 | X2 | B | 13 | 37 | 2F | 2 | X21 | B | 132 | 5 | 7E | 2 |
| F5 | B | 22 | 58 | 2D | 2 | X3 | B | 35 | 70 | 2C | 2 | X22 | B | 99 | 5 | 6B | 2 |
| Nicht-Service-Relevante Bauteile / Non-Service-Relevant Components | | | | | | | | | | | | | | | | | |
| Part | Side | X | Y | Sqr | Pg | Part | Side | X | Y | Sqr | Pg | Part | Side | X | Y | Sqr | Pg |
| C1 | B | 95 | 26 | 3E | 2 | C43 | A | 139 | 58 | 4B | 2 | R8 | A | 72 | 4 | 2F | 2 |
| C2 | A | 161 | 58 | 4E | 2 | C48 | A | 6 | 46 | 2C | 2 | R20 | B | 125 | 60 | 4E | 2 |
| C3 | A | 150 | 58 | 5E | 2 | GND1 | B | 132 | 21 | 6E | 2 | R21 | B | 117 | 60 | 4D | 2 |
| C4 | B | 161 | 86 | 4F | 2 | GND2 | B | 139 | 39 | 6D | 2 | R28 | A | 27 | 4 | 2E | 2 |
| C5 | B | 153 | 86 | 5F | 2 | GND3 | B | 127 | 7 | 6C | 2 | R38 | A | 43 | 65 | 2D | 2 |
| C8 | A | 65 | 4 | 2F | 2 | GND4 | B | 152 | 22 | 6C | 2 | R40 | B | 143 | 60 | 4C | 2 |
| C20 | B | 95 | 70 | 3D | 2 | N1 | B | 162 | 94 | 3F | 2 | R41 | B | 135 | 60 | 4C | 2 |
| C21 | A | 121 | 58 | 4D | 2 | N2 | B | 150 | 94 | 4F | 2 | R48 | A | 6 | 39 | 2C | 2 |
| C22 | B | 121 | 86 | 4D | 2 | N20 | B | 116 | 94 | 3E | 2 | R90 | B | 114 | 58 | 2B | 2 |
| C28 | A | 21 | 4 | 2D | 2 | N30 | B | 128 | 94 | 3D | 2 | V1 | B | 81 | 8 | 2F | 2 |
| C30 | B | 59 | 85 | 3C | 2 | N40 | B | 139 | 94 | 3C | 2 | V20 | B | 36 | 8 | 2E | 2 |
| C31 | B | 135 | 79 | 4C | 2 | R1 | B | 164 | 60 | 4F | 2 | V30 | B | 44 | 73 | 2D | 2 |
| C38 | A | 46 | 67 | 2C | 2 | R2 | B | 158 | 60 | 4E | 2 | V40 | B | 3 | 30 | 2C | 2 |
| C40 | B | 54 | 33 | 3C | 2 | R4 | B | 154 | 60 | 5F | 2 | V41 | B | 148 | 40 | 5C | 2 |
| C42 | B | 142 | 86 | 4C | 2 | R5 | B | 147 | 60 | 5E | 2 | VCC1 | B | 155 | 26 | 6B | 2 |

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|-----------------------|----|---------------|---|-------------------------|---------------|
| ROHDE & SCHWARZ | ÄI | Datum Date | XY-Liste für XY-list for | Sach-Nummer Stock-Nr | Blatt Page |
| | 03 | 23.08.94 | ED NETZTEILEINHEIT POWER_SUPPLY_UNIT | 1062.5902.01 XY | 1- |



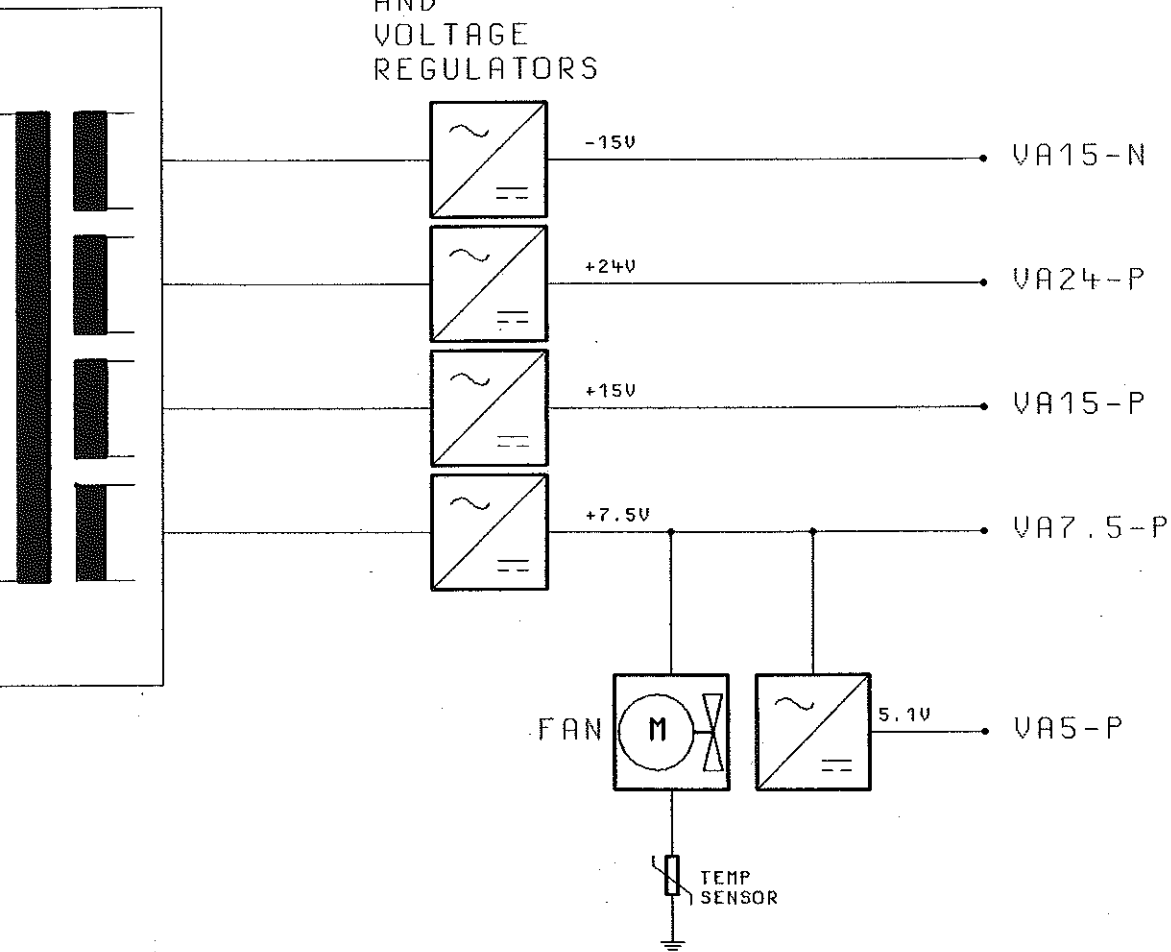


ROHDE & SCHWARZ

Stromläufe
Bestückungspläne
Circuit diagrams
Components plans
Schémas de circuit
Plans des composants

T1
TRAFO

RECTIFIERS
AND
VOLTAGE
REGULATORS

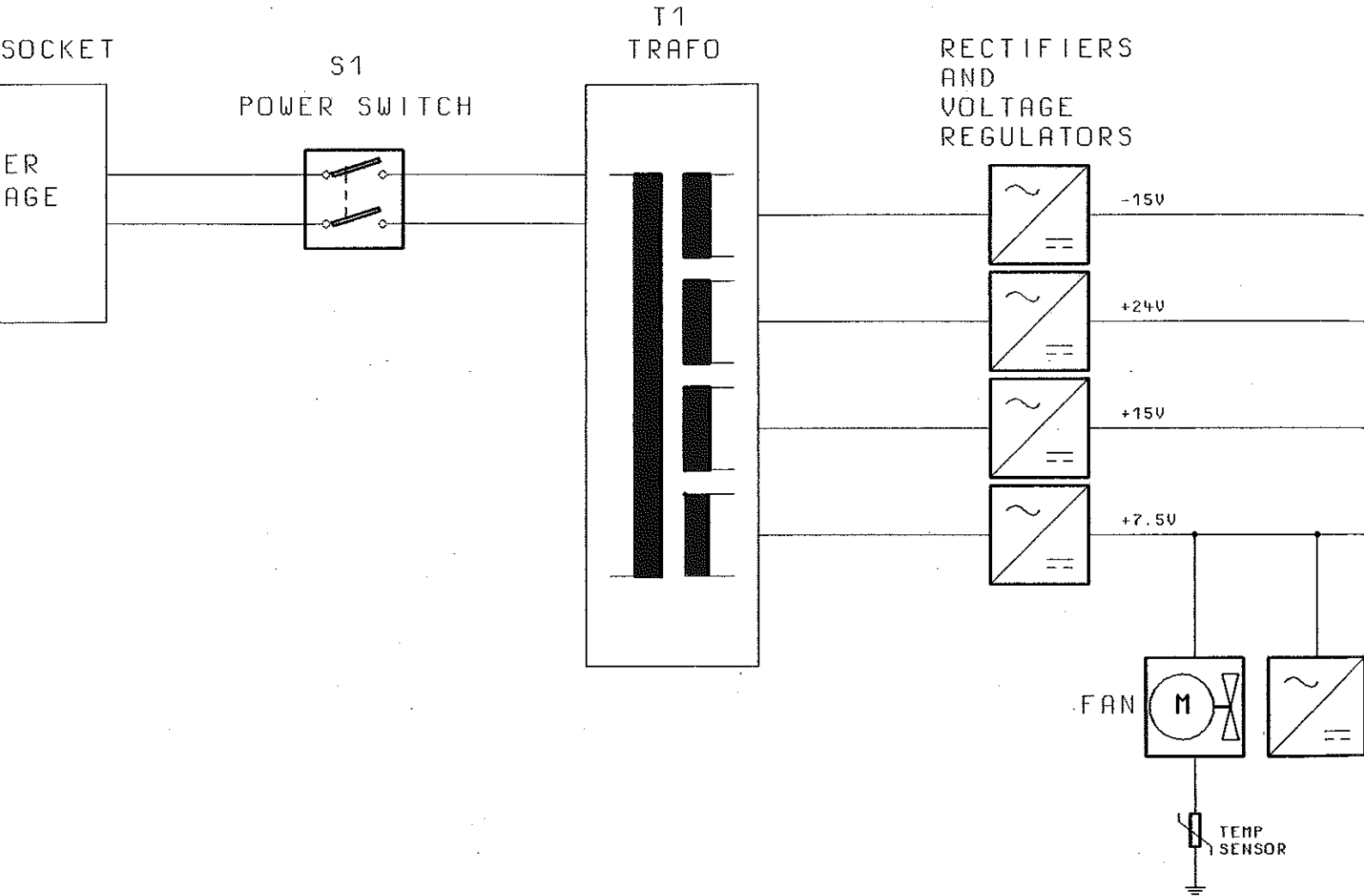


STROMLAUF GILT FUER VAR.02
CIRCUIT DIAGRAM IS VALID FOR MOD.02

| | | | | | | | | |
|---------------|--------------------------|----------|------|--------------------------------|----------|------------|--------------------------------------|----------------------|
| 03/ | 49165 | 11.04.95 | HM | 1GPK | TAG | NAME | BENENNUNG | |
| | | | | BEARB. | | HM | NETZTEILEINHEIT POWER SUPPLY UNIT | |
| | | | | GEPR. | | | | |
| | | | | NORN | | | | |
| | | | | PLOTT | 11.04.95 | | | |
| | | | | ROHDE & SCHWARZ | | | ZEICHN.-NR. | BLATT-NR. |
| | | | | | | | | 1062.5690.015 |
| REND. IND. | ÄNDERUNGS- MITTEILUNG | DATUM | NAME | ZU GERÄT | SMY | REG. I. V. | 1062.5502 | ERSTE Z. |

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STROMLAUF GILT FUER V
CIRCUIT DIAGRAM IS VALID FOR MOD

ACHTUNG: EGB!
ELEKTROSTATISCH GEFÄHRDETE
BAUELEMENTE ERFORDERN EINE
BESONDERE HANDHABUNG.
ATTENTION ESD!
ELECTROSTATIC SENSITIVE DEVICES
REQUIRE A SPECIAL HANDLING

| | | | | | | | |
|---------------|--------------------------|----------|------|----------------------------|----------|----------|-----|
| 03/ | 49165 | 11.04.95 | HM | 1GPK | TAG | NAME | BE |
| | | | | BEARB. | | HM | |
| | | | | GEPR. | | | |
| | | | | NORM | | | |
| | | | | PLOTT | 11.04.95 | | |
| / | | | | | | | ZE |
| REND. IND. | ÄNDERUNGS- MITTEILUNG | DATUM | NAME | ROHDE & SCHWARZ | | | RE |
| | | | | | | ZU GERÄT | SMY |

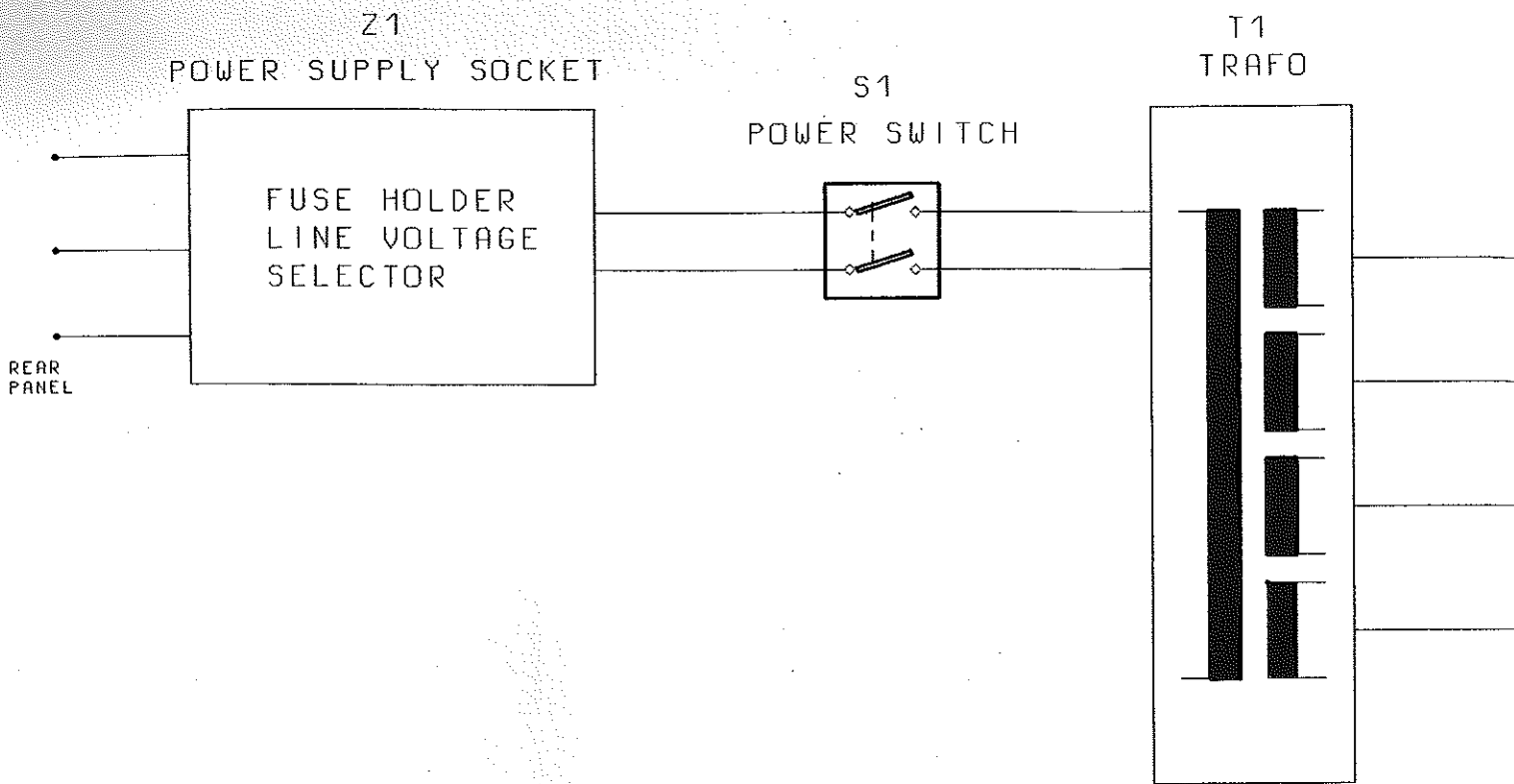
3


4

5

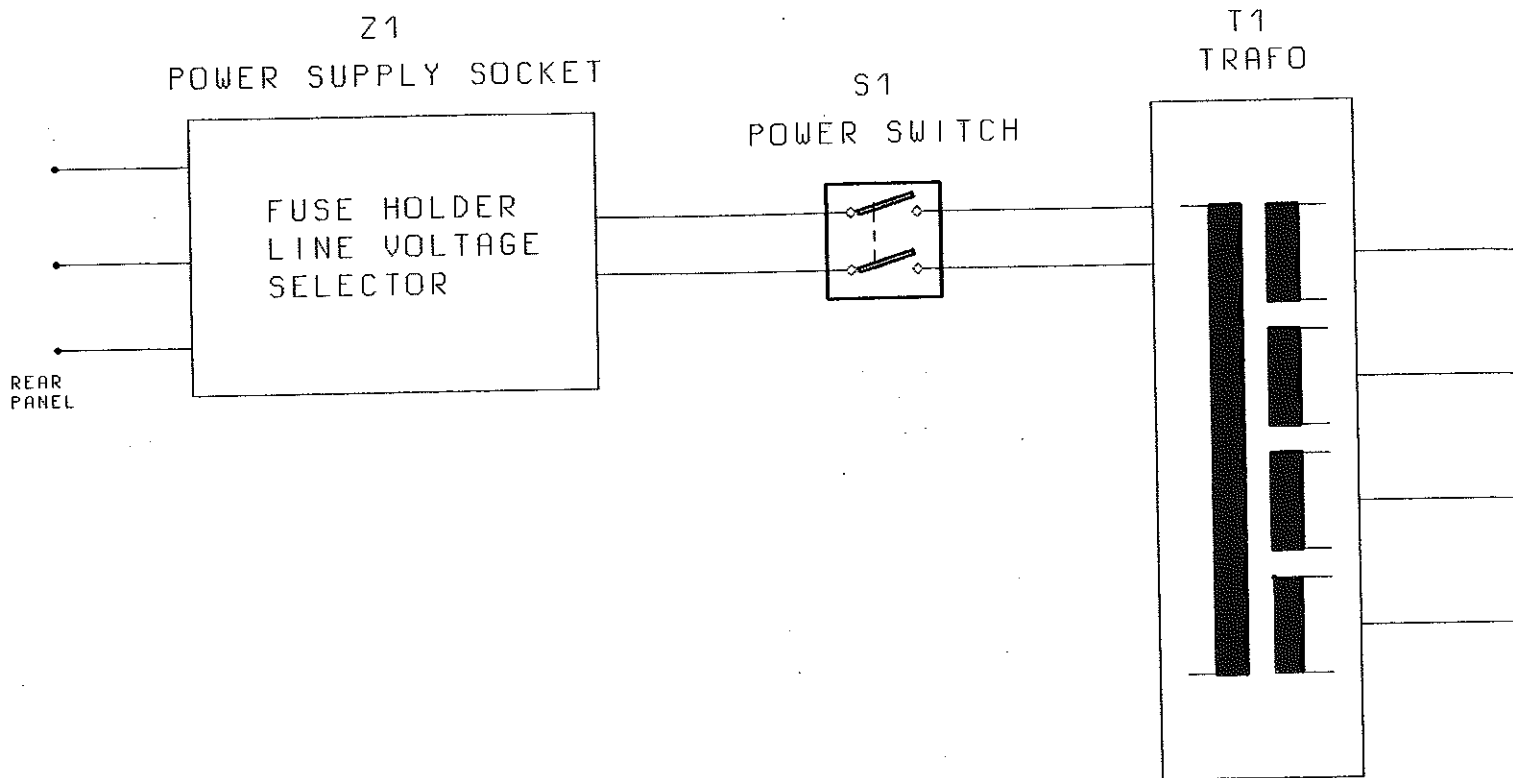
6

7




ACHTUNG: EGB!
 ELEKTROSTATISCH GEFÄHRDETE
 BAUELEMENTE ERFORDERN EINE
 BESONDERE HANDHABUNG.
ATTENTION ESD!
 ELECTROSTATIC SENSITIVE DEVICES
 REQUIRE A SPECIAL HANDLING.

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| 03/ | 49165 |
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| REND. IND. | RENDERUNGS- MITTEILUNG |




ACHTUNG: EGB!
 ELEKTROSTATISCH GEFÄHRDETE
 BAUELEMENTE ERFORDERN EINE
 BESONDERE HANDHABUNG.
ATTENTION ESD!
 ELECTROSTATIC SENSITIVE DEVICES
 REQUIRE A SPECIAL HANDLING

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| 03/ | 49165 |
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| | |
| REND. IND. | RENDERUNGS MITTEILUNG |

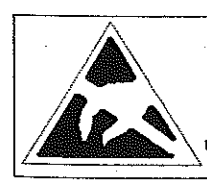
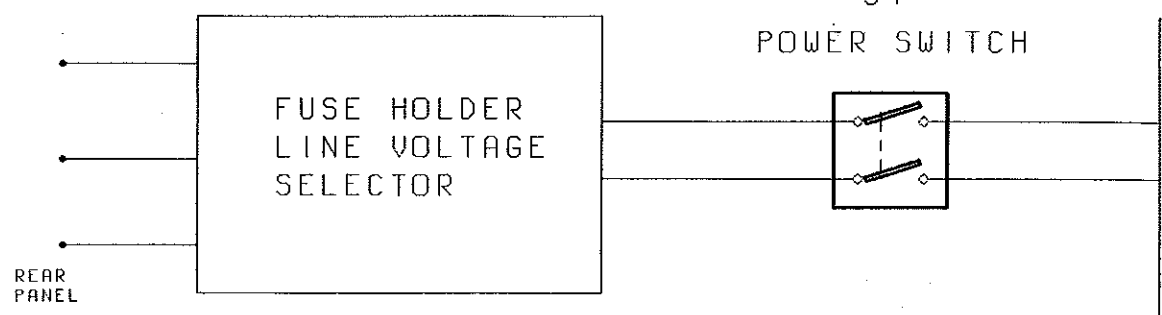
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FÜR DIESE UNTERLAGE
BEHALTEN WIR UNS ALLE RECHTE VOR

ZEICHN.-NR.

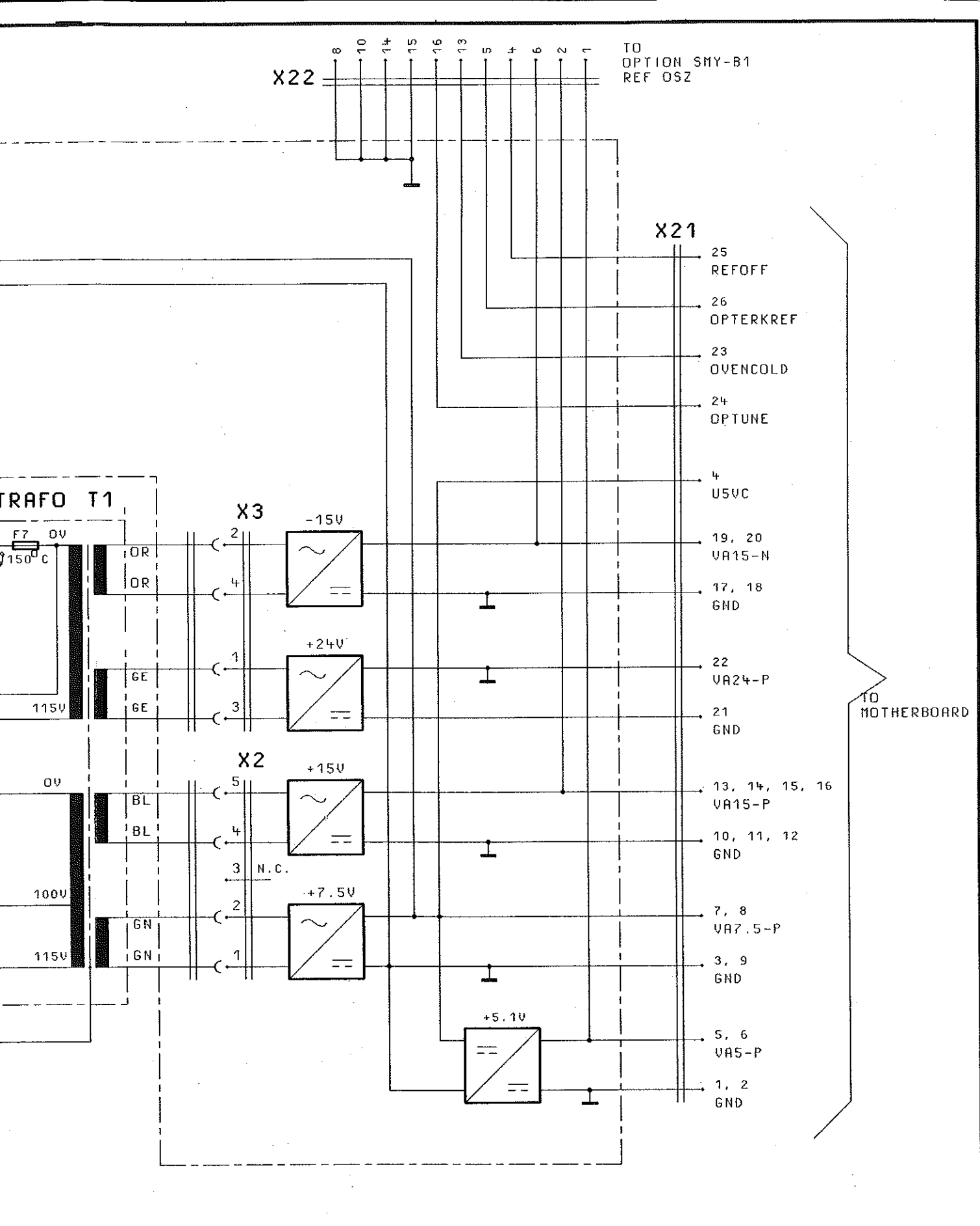
Z1
POWER SUPPLY SOCKET

S1
POWER SWITCH



ACHTUNG: EGB!
ELEKTROSTATISCH GEFÄHRLICHE
BAUELEMENTE ERFORDERN EIN
BESONDERE HANDHABUNG.
ATTENTION ESD!
ELECTROSTATIC SENSITIVE DE
REQUIRE A SPECIAL HANDL

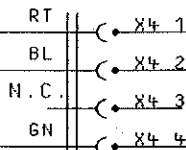
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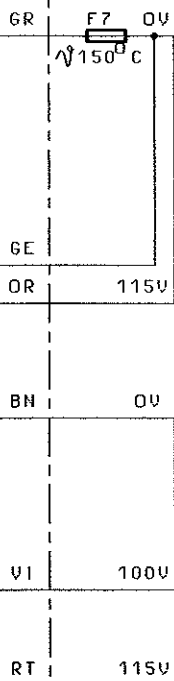
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|------------|----------------------|-------|------|--------------------------------|----------|------------|--------------------------------------|----------------------|
| 031 | 49165 | 04.95 | HM | 3CD | TAG | NAME | BENENNUNG | |
| | | | | BEARB. | | ROD | NETZTEILEINHEIT POWER SUPPLY UNIT | |
| | | | | GEPR. | | | | |
| | | | | NORM | | | | |
| | | | | PLOTT | 11.04.95 | | | |
| | | | | ROHDE & SCHWARZ | | | ZEICHN.-NR. | BLATT-NR. |
| | | | | | | | | 1062.5690.015 |
| REND. IND. | ÄNDERUNGS-MITTEILUNG | DATUM | NAME | ZU GERÄT | SMY | REG. I. V. | 1062.5502 | ERSTE Z. |



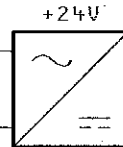
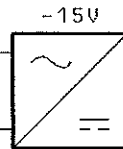
BOARD
A71
1062.5902



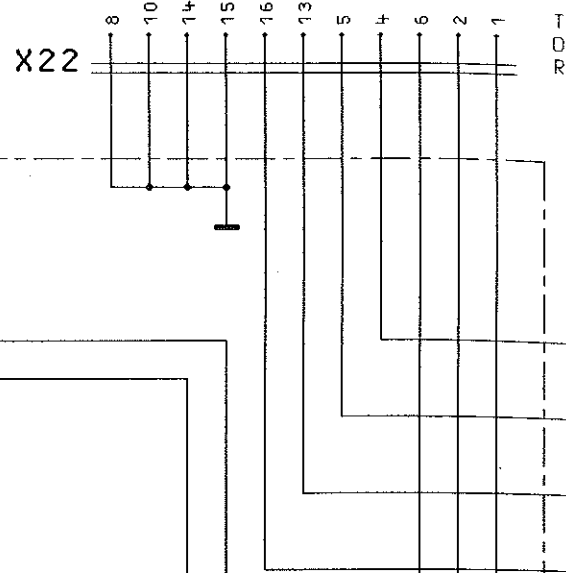
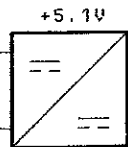
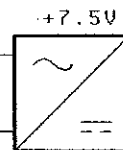
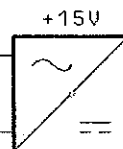
TRAFU T1



X3



X2



STROMLAUF GILT FUER VAR.02
CIRCUIT DIAGRAM IS VALID FOR MOD.02

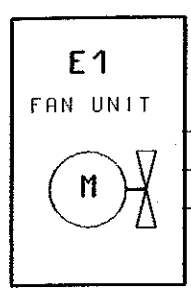


ACHTUNG: EGB!
ELEKTROSTATISCH GEFÄHRDETE
BAUELEMENTE ERFORDERN EINE
BESONDERE HANDHABUNG.
ATTENTION ESD!
ELECTROSTATIC SENSITIVE DEVICES
REQUIRE A SPECIAL HANDLING

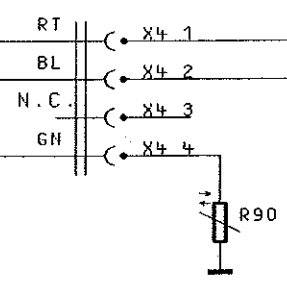
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|------------|-----------------------|--------|------|--------|----------|----------|-------------|
| 031 | 49165 | 04.95 | HM | 3CD | TAG | NAME | BENENNUNG |
| | | | | BEARB. | | ROD | NET. POWER |
| | | | | GEPR. | | | |
| | | | | NDRH | | | |
| | | | | PLOTT | 11.04.95 | | ZEICHN.-NR. |
| | | | | | | | |
| REND. IND. | ÄNDERUNGS- MITTEILUNG | DATUM. | NAME | | | ZU GERÄT | SMY |

X22

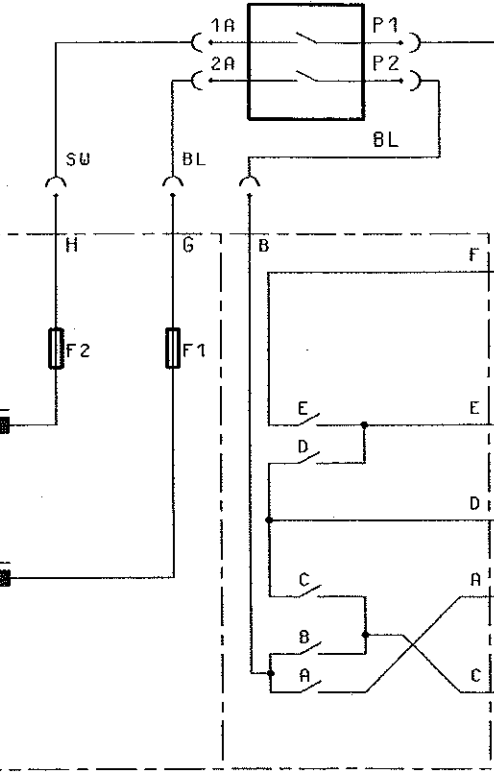
| | | | |
|-------|---------|------|------|
| 0V | 120V | 220V | 230V |
| CE | BCE | AB | BD |
| 2.5 H | T 2.5 H | | |
| 2.5 H | T 2.5 H | | |



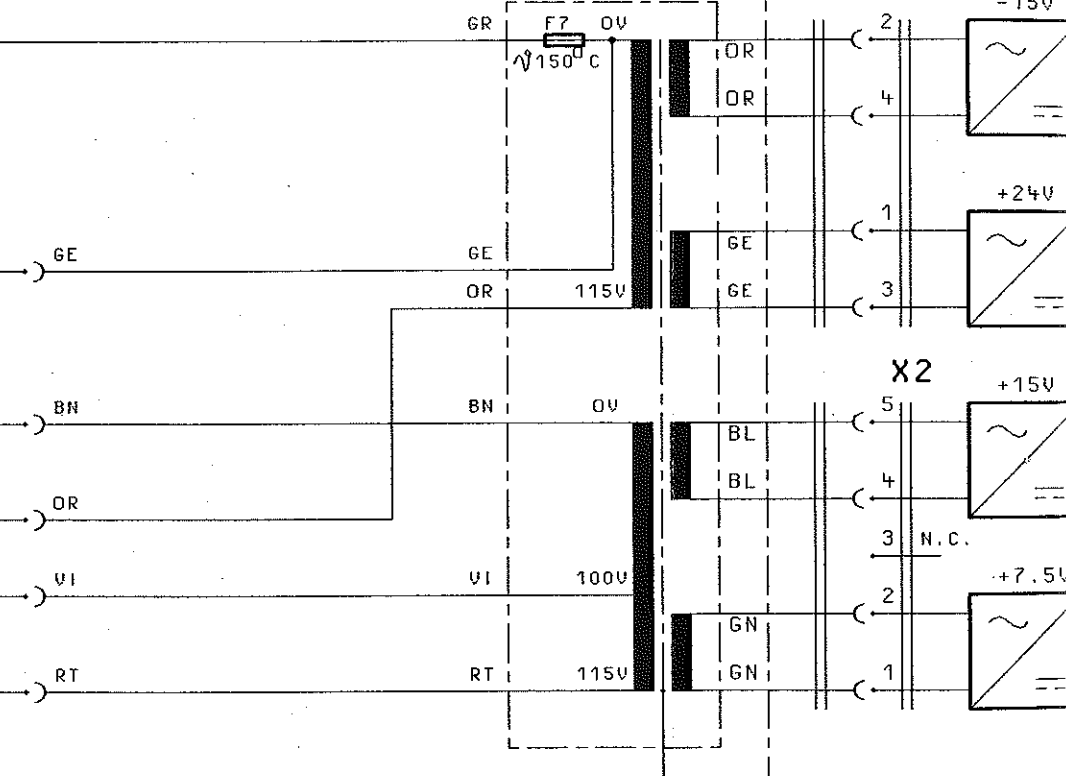
BOARD
A71
1062.5902



S1



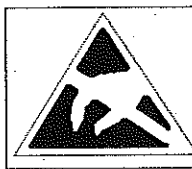
TRAFO T1



X3

X2

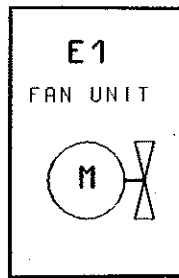
STROMLAUF GILT FUER VAR.02
CIRCUIT DIAGRAM IS VALID FOR MOD.02



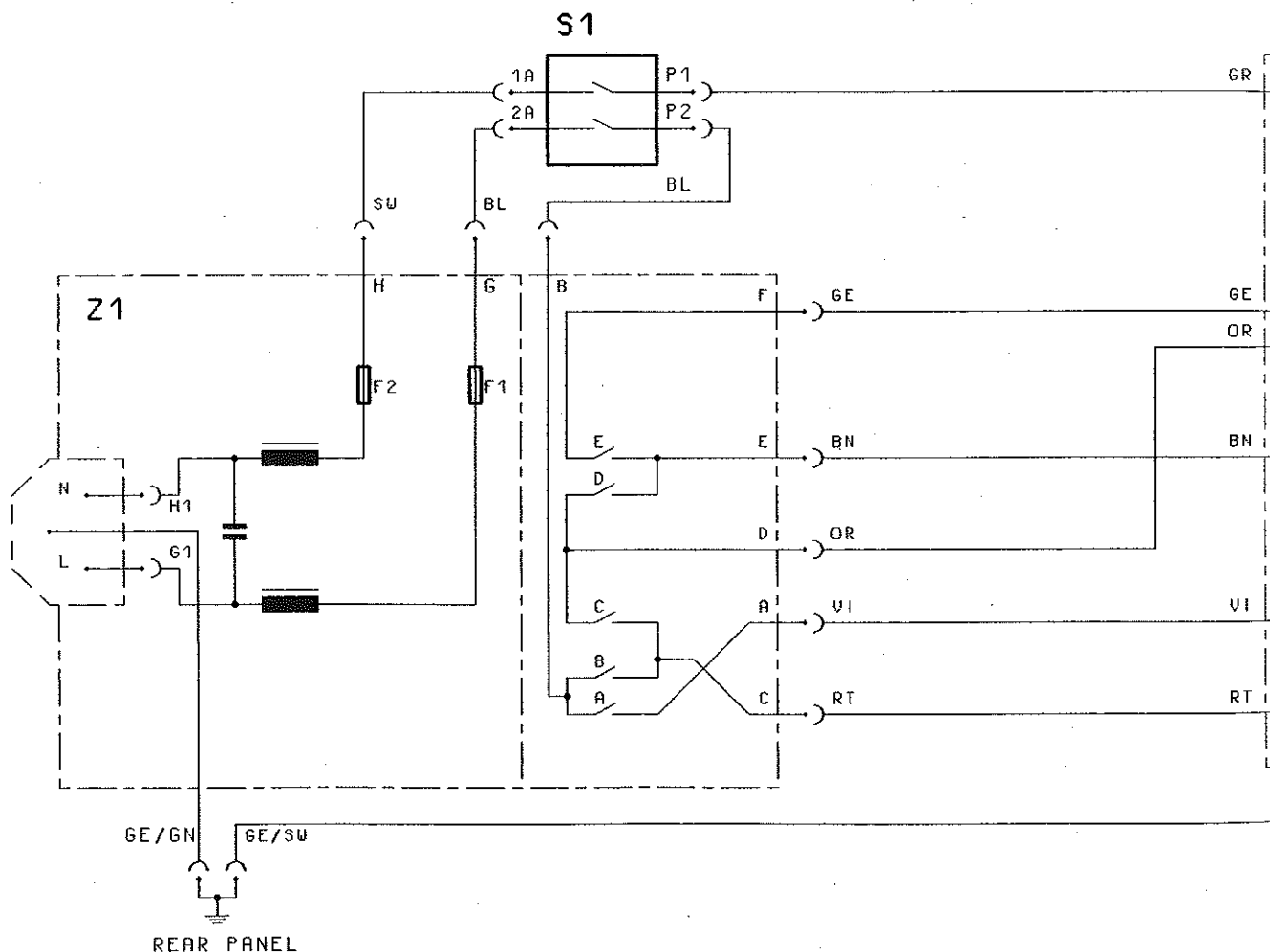
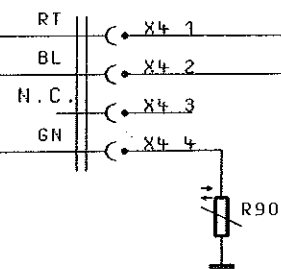
ACHTUNG: EGB!
ELEKTROSTATISCH GEFÄHRDETE
BAUELEMENTE ERFORDERN EINE
BESONDERE HANDHABUNG.
ATTENTION: ESD!
ELECTROSTATIC SENSITIVE DEVICES
REQUIRE A SPECIAL HANDLING

| | | | | |
|-------|-------------|-------|-----|-----|
| 031 | 49165 | 04.95 | HM | 3C |
| | | | | BER |
| | | | | GEP |
| | | | | NOR |
| | | | | PLD |
| | | | | R |
| REND. | RENDERUNGS- | DATUM | NAM | R |
| IND. | NITTEILUNG. | | | ZU |

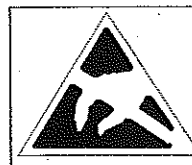
| SPANNUNG VOLTAGE | 100V | 120V | 220V | 230V |
|--|--------|---------|---------|------|
| SCHALTER GESCHLOSSEN SWITCH CLOSED | ACE | BCE | AB | BD |
| F1 | IEC127 | T 2.5 H | T 2.5 H | |
| F2 | IEC127 | T 2.5 H | T 2.5 H | |



BOARD
A71
1062.5902



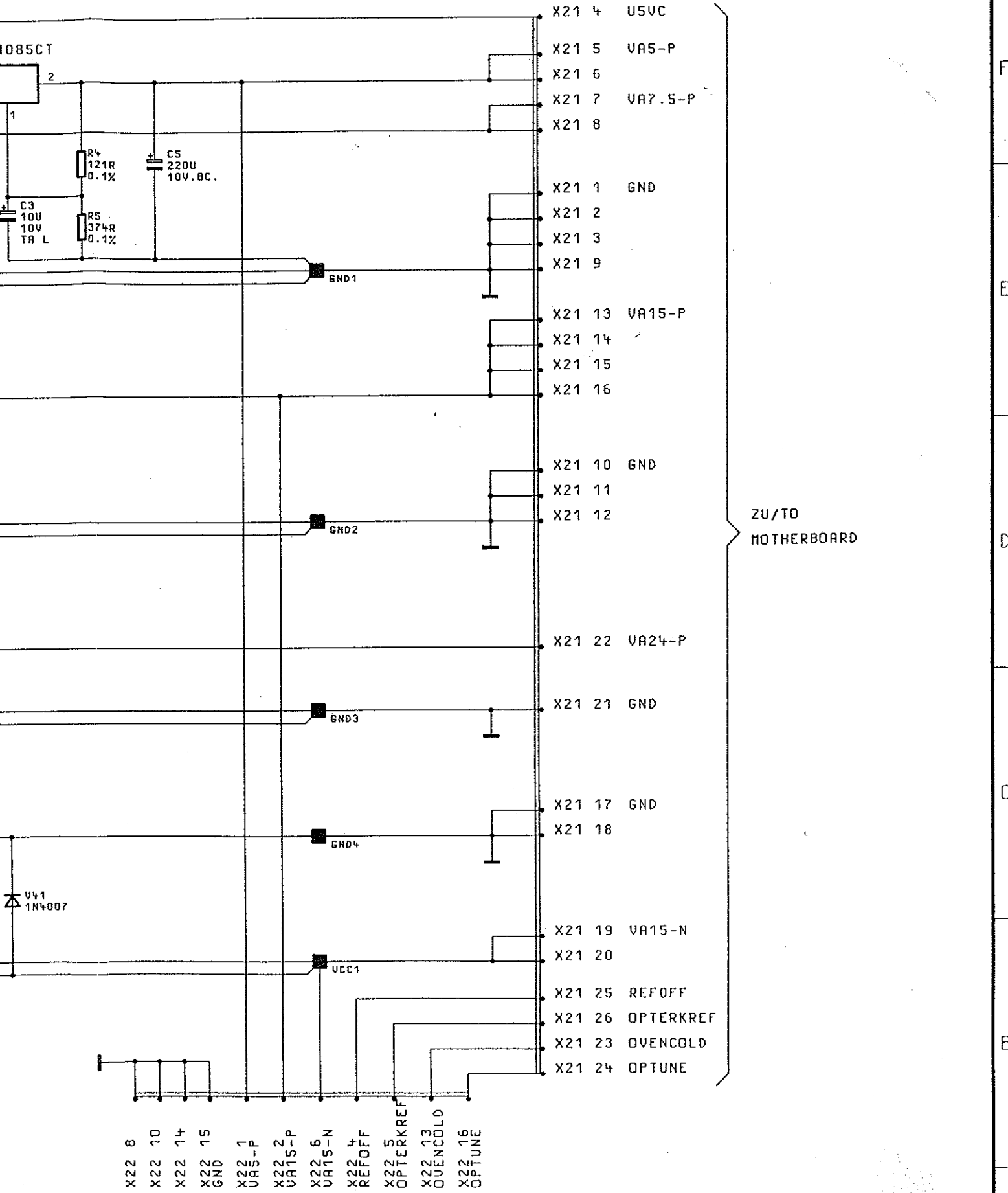
STROMLAUF GILT FUER VA
CIRCUIT DIAGRAM IS VALID FOR MOD.




ACHTUNG: EGB!
ELEKTROSTATISCH GEFÄHRD
BAUELEMENTE ERFORDBRN E
BESONDERE HANDABUNG.
ATTENTION ESD!
ELECTROSTATIC SENSITIVE DE
REQUIRE A SPECIAL HANDL

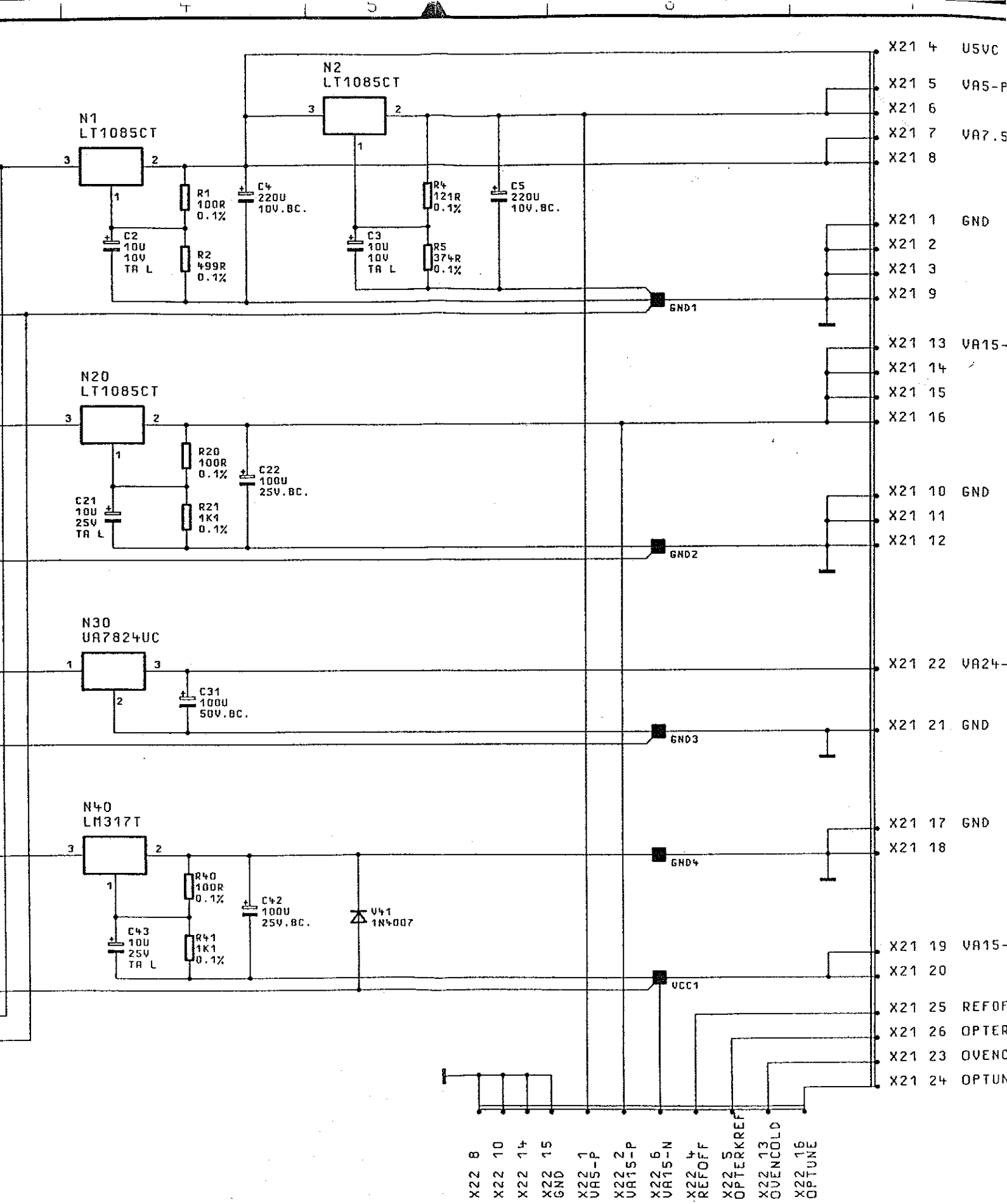
FUER DIESE UNTERLAGE
BEHALTEN WIR UNS ALLE RECHTE VOR

ZEICHN.-NR. 1062.5690.01 S



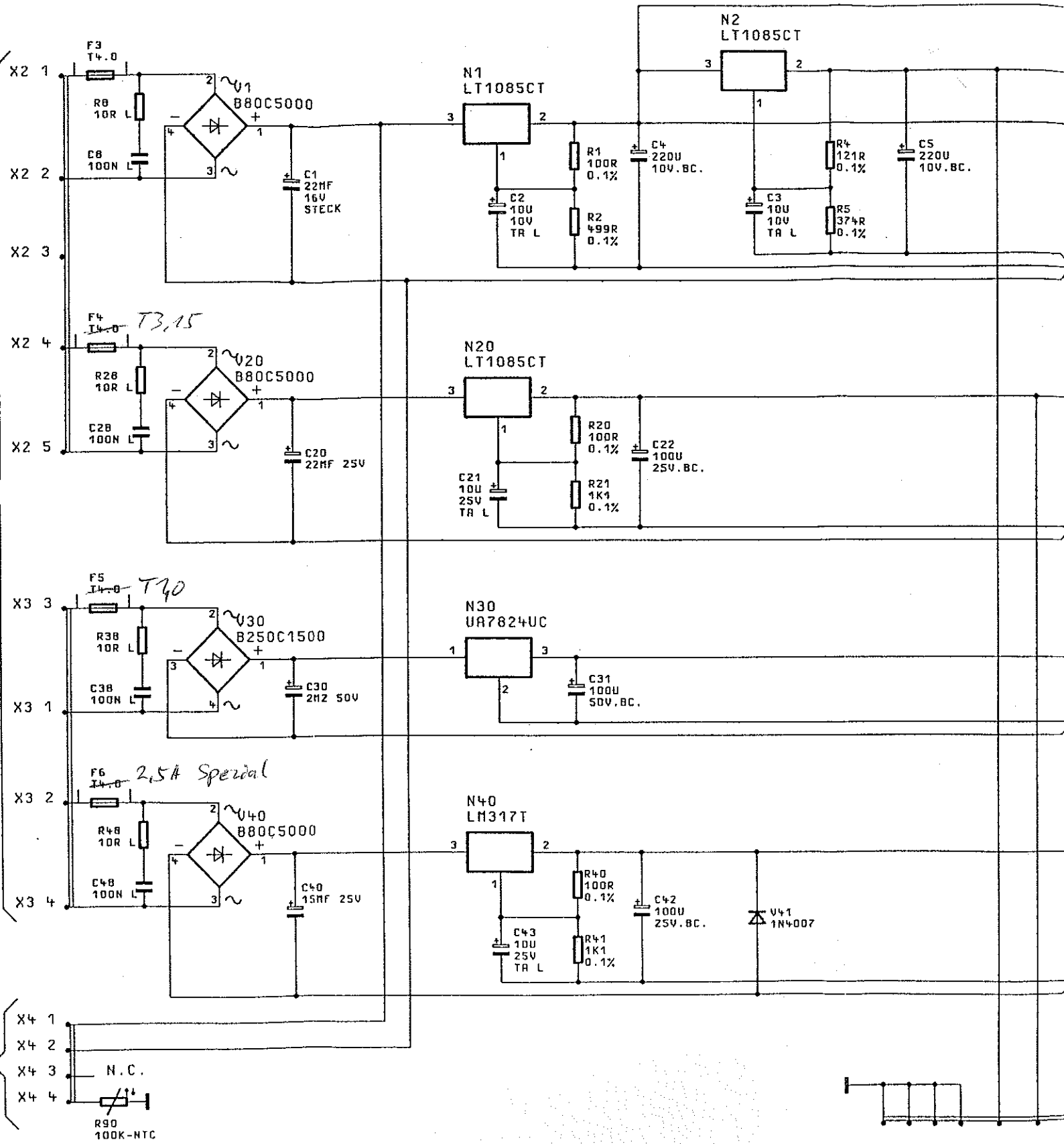
ZU/TO
MOTHERBOARD

| | | | | | | | | |
|---------------|---------------------------|----------|----------|--|------------|-----------|--------------------------------------|-----------|
| 01/02 | 48169 07 | 14.09.93 | BU | 1GPK | TAG | NAME | BENENKUNG | |
| | | | | BEARB. | | BU | NETZTEILEINHEIT POWER SUPPLY UNIT | |
| | | | | GEPR. | | BU | | |
| | | | | NORM | | | | |
| | | | | PLOTT | 07.04.94 | | | |
| 01/01 | | | BU |  ROHDE & SCHWARZ | | | ZEICHN.-NR. | BLATT-NR. |
| RENO. IND. | BEWERBUNGS- MITTEILUNG | DATUM | NAME | | | | 1062.5690.015 | 2+ |
| | | | ZU GERÄT | SMY | REC. I. V. | 1062.5502 | ERSTE Z. | BL. |



ACHTUNG: EGB!
 ELEKTROSTATISCH GEFÄHRDETE
 BAUELEMENTE ERFORDERN EINE
 BESONDERE HANDHABUNG.
ATTENTION ESD!
 ELECTROSTATIC SENSITIVE DEVICES
 REQUIRE A SPECIAL HANDLING

| | | | | | | | |
|---------------|---------------------------|----------|------|----------------------------|----------|------|------------------|
| 01/02 | 48169 07 | 14.09.93 | BU | 1GPK | TAG | NAME | BENENNUNG |
| | | | | BEARB. | | BU | NETZT POWER S |
| | | | | GEPR. | | BU | |
| | | | | NORM | | | |
| | | | | PLOTT | 07.04.94 | | |
| 01/01 | | | BU | ROHDE & SCHWARZ | | | ZEICHN.-NR. |
| REND. IND. | RENDERUNGS- MITTEILUNG | DATUM | NAME | | | | ZU GERÄT |



X22 8
X22 10
X22 14
X22 15
GND
X22 1
X22 2-P
X22 2-P

ROMLAUF GILT FUER VAR.02
 CUIT DIAGRAM IS VALID FOR MOD.02



ACHTUNG: EGB!
 ELEKTROSTATISCH GEFÄHRDETE
 BAUELEMENTE ERFORDERN EINE
 BESONDERE HANDHABUNG.
ATTENTION ESD!
 ELECTROSTATIC SENSITIVE DEVICES
 REQUIRE A SPECIAL HANDLING

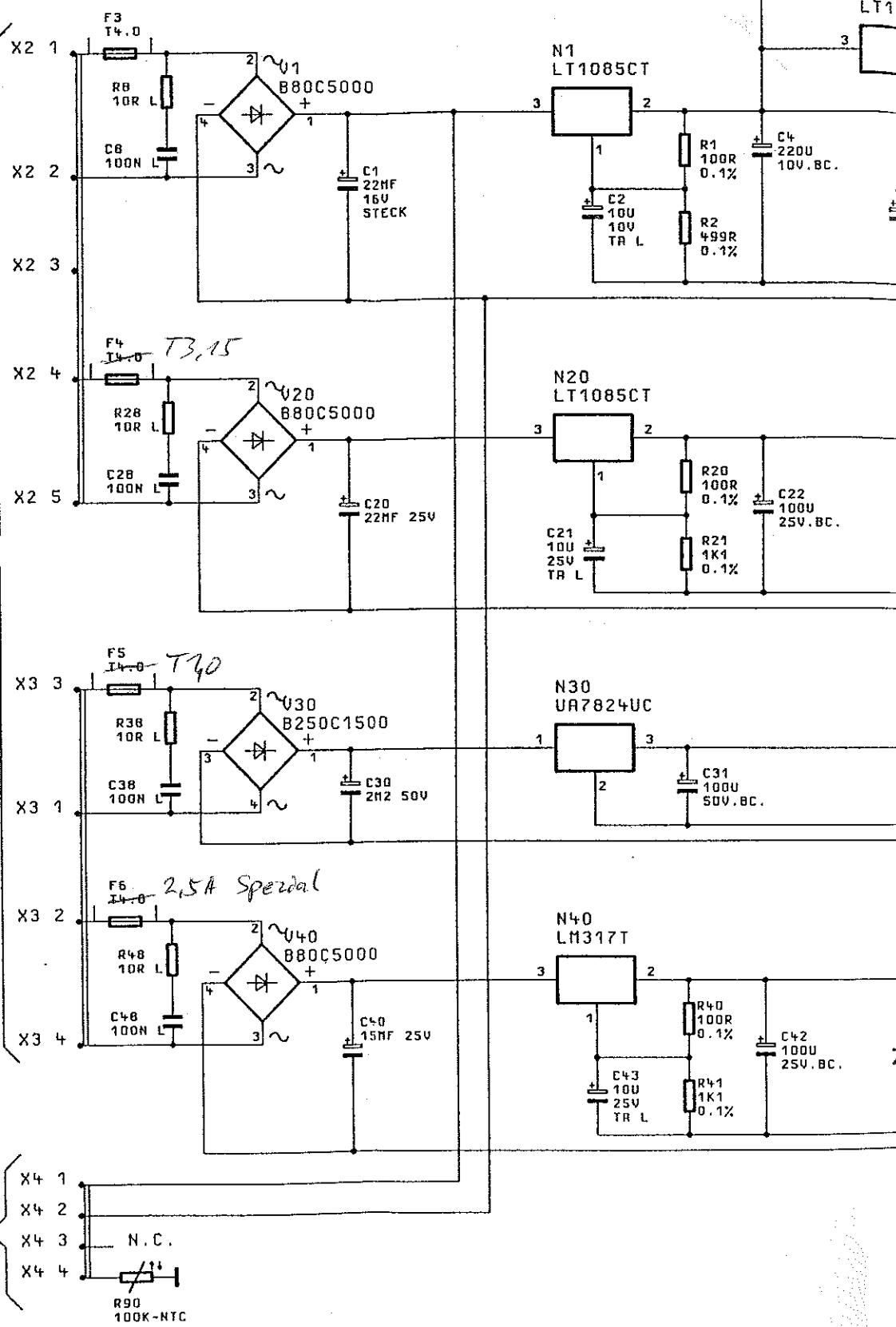
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| | | |
| 01/01 | | |
| REND. IND. | RENDERUNGS- MITTEILUNG | DATUM |

FUER DIESE UNTERLAGE
BEHALTEN WIR UNS ALLE RECHTE VOR

ZEICHN.-NR. 2.5902.01 S

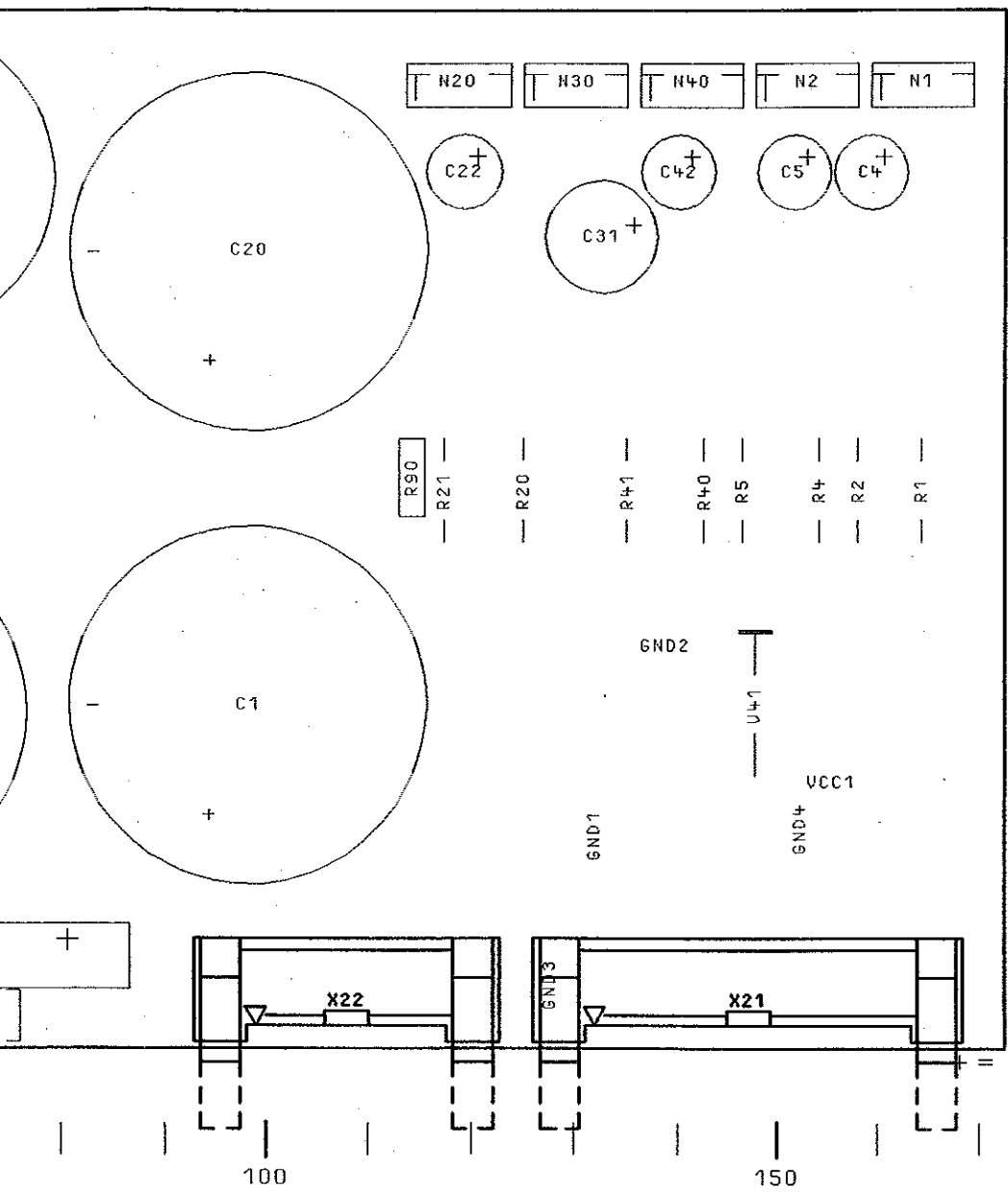
ZU/TO
T1

ZU/TO
FAN

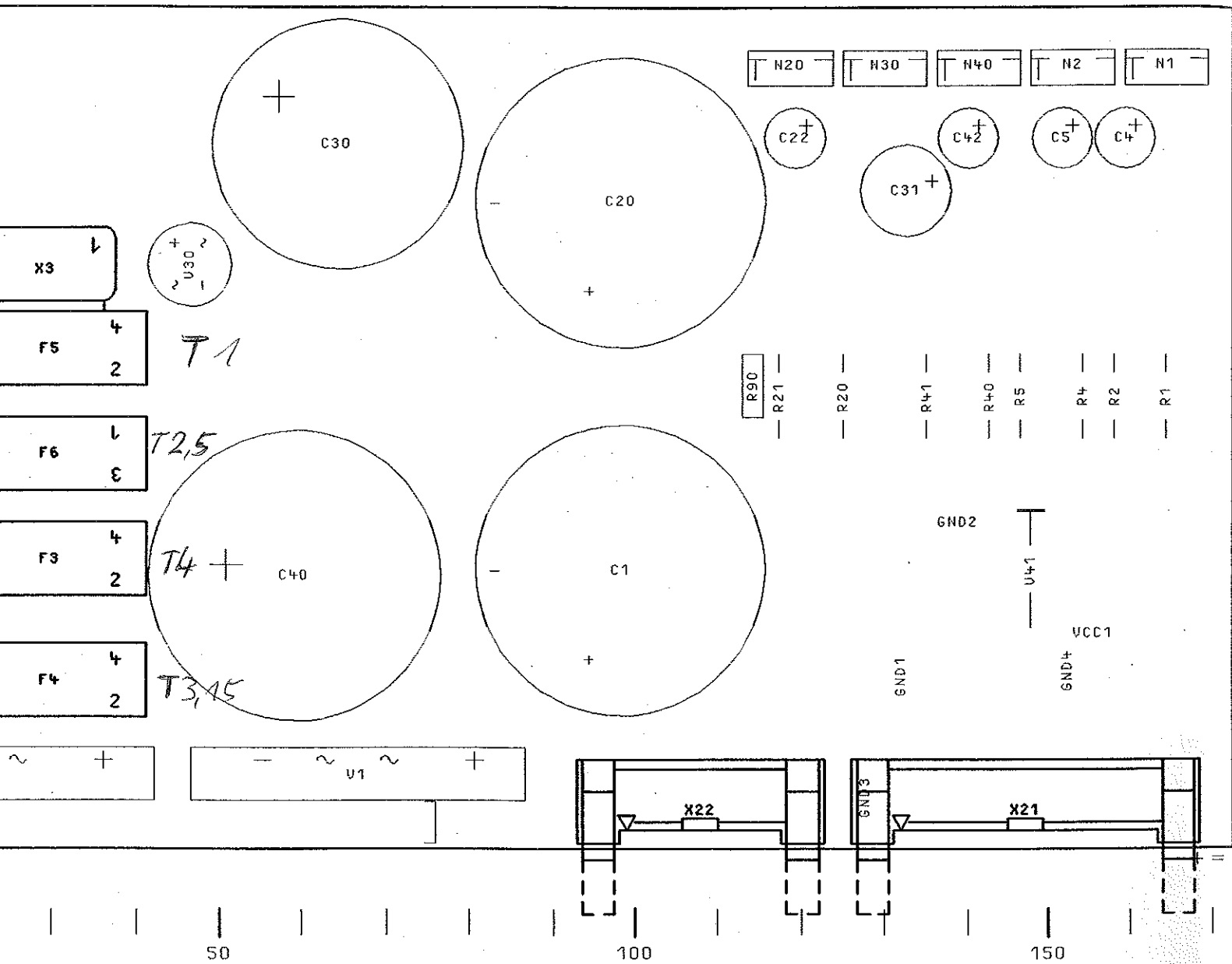


STROMLAUF GILT FUER VAR.02
CIRCUIT DIAGRAM IS VALID FOR MOD.02

ACHTUNG: EGB!
ELEKTROSTATISCH GEFÄHRDETE
BAUELEMENTE ERFOROERN EINE
BESONDERE HANDHABUNG.
ATTENTION ESD!
ELECTROSTATIC SENSITIVE DEVICES
REQUIRE A SPECIAL HANDLING



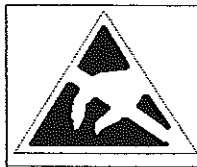
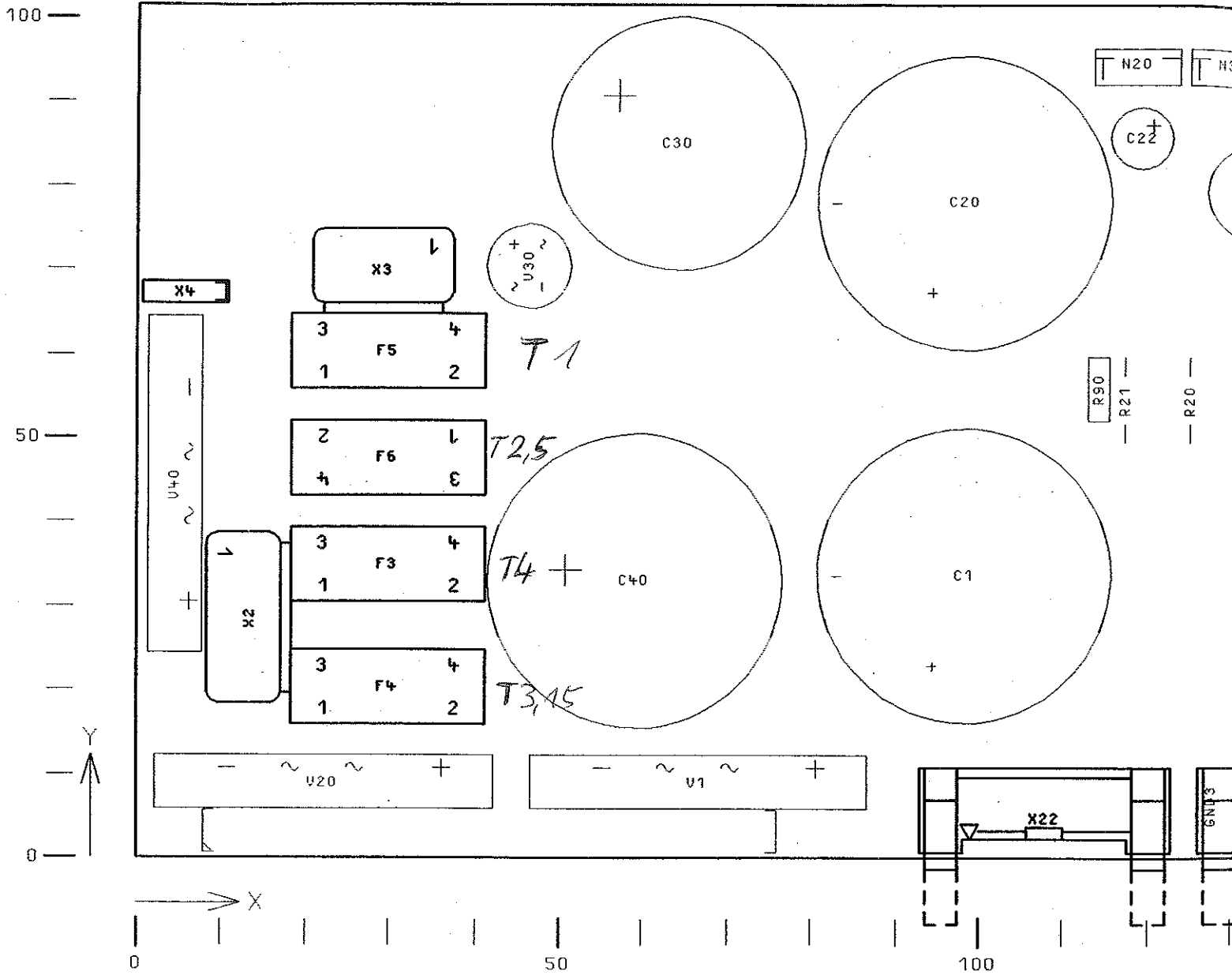
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|------------|-----------------------|----------|------|----------------------------|----------|------------|---|-----------|
| 03/ | 48169 | 23.08.94 | BU | 1GPK | TAG | NARE | BENENNUNG | |
| | | | | BEARB. | | BU | NETZTEILEINHEIT POWER SUPPLY UNIT | |
| | | | | GEPR. | | | | |
| | | | | NORR | | | | |
| | | | | PLOTT | 24.08.94 | | | |
| | | | | ROHDE & SCHWARZ | | | ZEICHN.-NR. | BLATT-NR. |
| REND. IND. | RENDERUNGS-NITTEILUNG | DATUM | NARE | | | | 1062.5902.01 | ED |
| | | | | ZU GERÄT | SMY | PEG. I. V. | 1062.5502 | ERSTE Z. |



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| | | | | ZU GERÄT | SMY | PEG. I. V. | 1062 |



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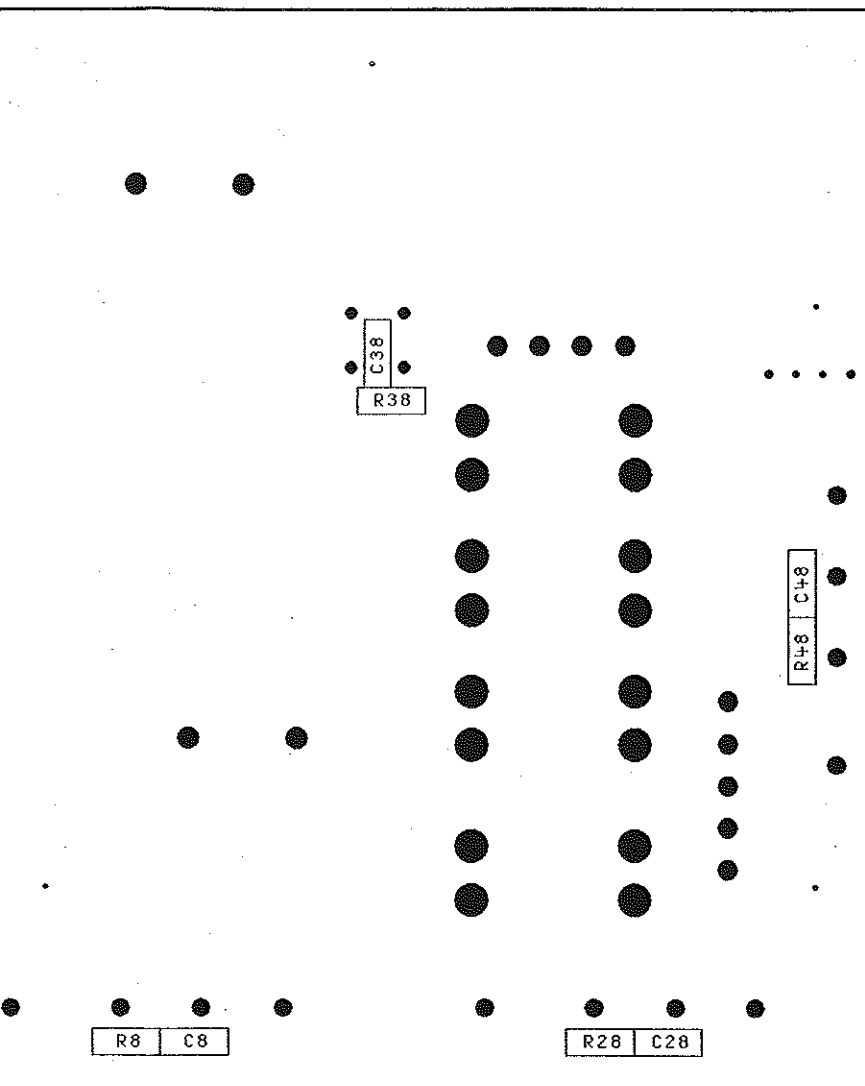
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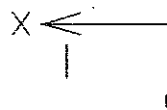
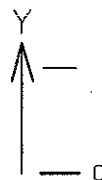
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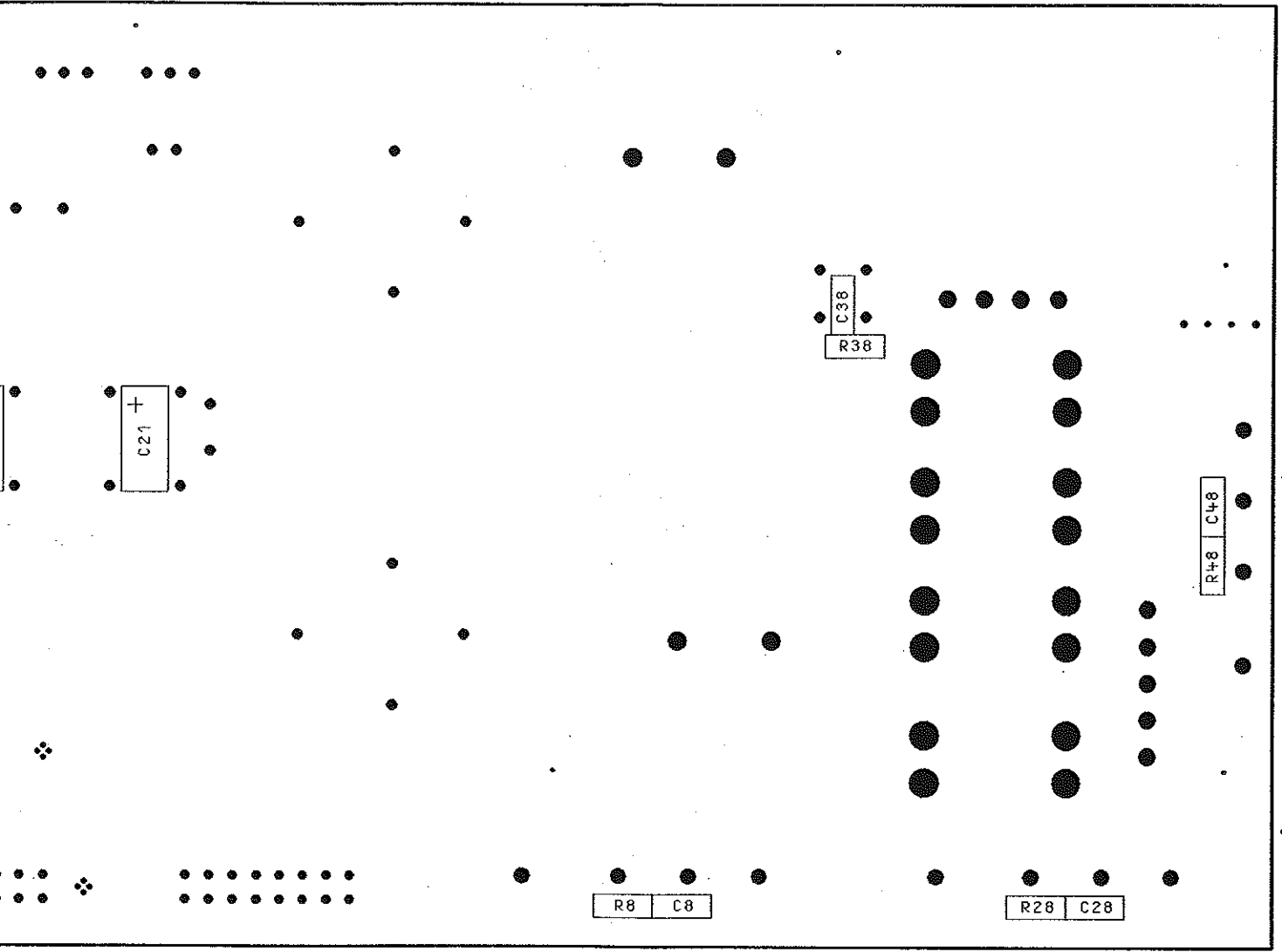


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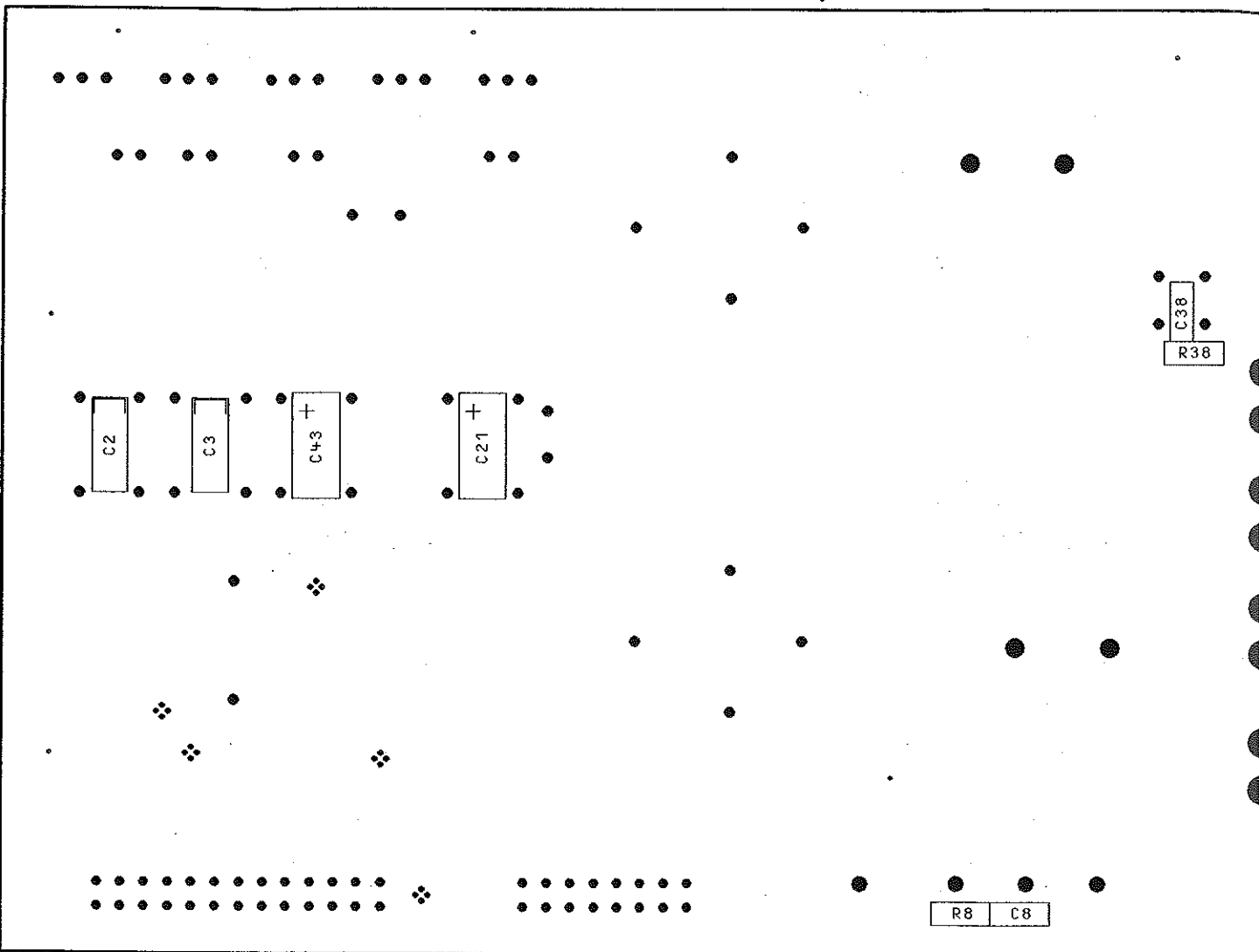
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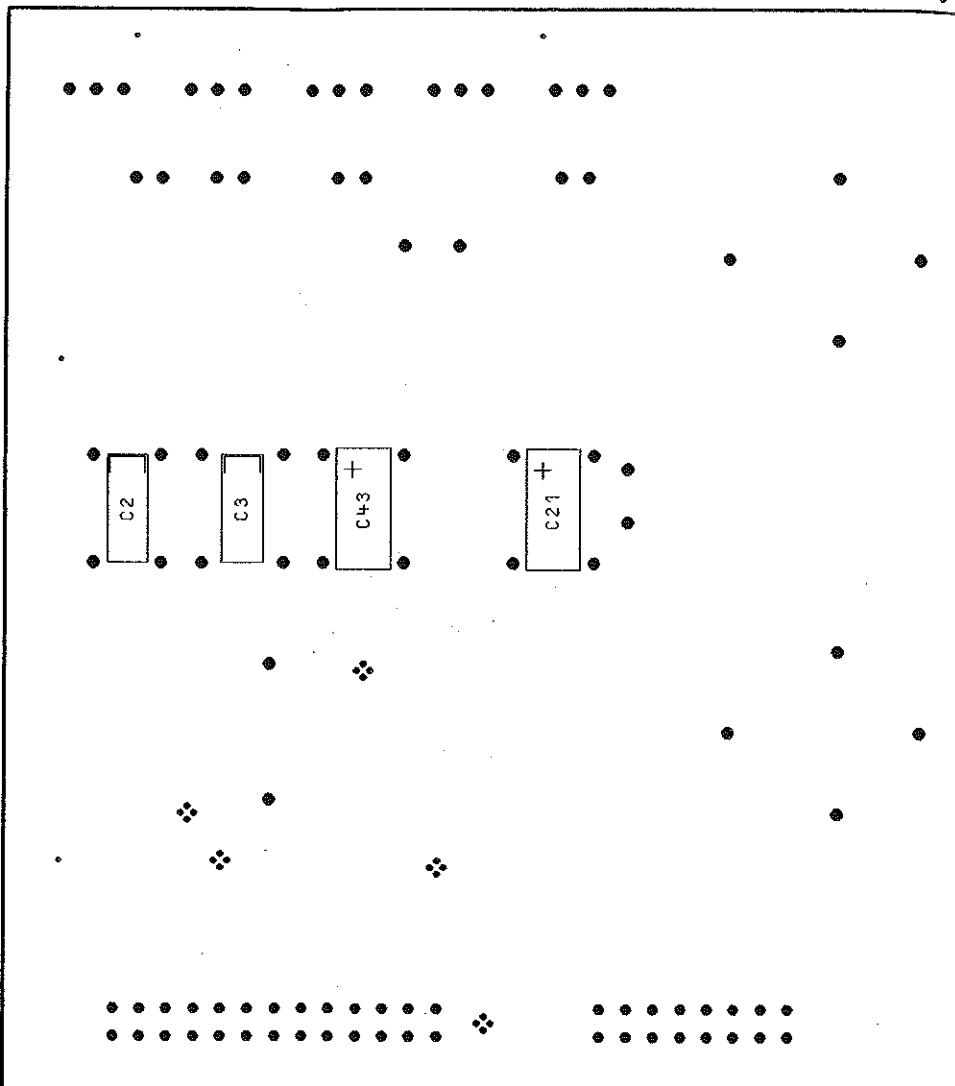
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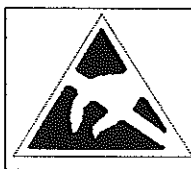
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SERVICEUNTERLAGEN

Referenzoszillator (Option)

1039.1027.02

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Schaltteilliste
Koordinatenliste
Stromlauf
Bestückungsplan

7. Prüfen und Instandsetzung

7.1 Funktionsbeschreibung

Die Option Referenzoszillator OCXO ersetzt die interne 10MHz-Zeitbasis durch einen thermostatgeregelten hochwertigen Quarzoszillator, wodurch sich die Gerätedaten bezüglich Genauigkeit der Referenzfrequenz und Alterung wesentlich verbessern.

Die Baugruppe enthält neben dem eigentlichen Oszillator noch Bausteine zur Erzeugung der Versorgungsspannung von 12V aus der 15V Netzteilspannung, einen abschaltbaren Auskoppelverstärker und bei der Variante 04 noch eine Schaltung zur Erzeugung des 'OVEN-COLD'- Interrupts.

Der Rechner erkennt nach dem Einschalten selbstständig, ob die Option ROSC bestückt ist. Die Zeitbasis auf der Synthese wird daraufhin abgeschaltet.

Es existieren zwei verschiedene Varianten Optionsquarze. Die Variantenummer ist auf der Druckschaltung der Baugruppe ersichtlich. Die Variante 02 läßt eine elektrische Abstimmung der Sollfrequenz zu, während die Variante 04 einen mechanischen Abgleich mit einem Trimmer erfordert.

7.2 Meßgeräte und Hilfsmittel

1. DC-Voltmeter zB. UDS5, URE
2. HF-Spektrumanalysator bis 100MHz zB. FSA
3. Kalibrierter Frequenzzähler 10MHz (wie in FSA enthalten)
4. Oszilloskop mit ca. 100MHz Bandbreite

7.3 Fehlersuche

| | |
|----------------|--|
| Frequenzfehler | Abstimmspannung bis zum Oszillator verfolgen. Abweichungen durch Alterung neu kalibrieren |
| Pegelfehler | Steuersignal REFOFF verfolgen Auskoppelstufe prüfen Ausgangspegel des Oszillators prüfen |

7.4 Prüfen und Abgleich

7.4.1 Stromaufnahme

- Gerät kalt mit Netzschalter einschalten.
- ▶ Die Stromaufnahme auf +15V soll während der Aufheizphase ca. 270mA nicht überschreiten und nach ca. vier Minuten auf maximal 135mA sinken.
Die Stromaufnahme auf +5V beträgt maximal 2mA, auf -15V 7mA.

7.4.2 Prüfen des Oszillators und des 10MHz-Verstärkers

- SMY einschalten.
- ▶ Das Steuerbit REFOFF muß auf 'low' liegen. Der DC-Arbeitspunkt der Auskoppelstufe soll bei $5 \pm 2V$ liegen.
- Mit hochohmigem Tastkopf und Oszilloskop am Ausgang des Oszillators messen.
- ▶ Der Oszillator muß TTL-Pegel liefern.
- Spektrumanalysator an der Ausgangsbuchse X711 der Option anschließen.
- ▶ Das 10MHz-Signal muß eine Amplitude von $7.5dBm \pm 1.5dB$ aufweisen.
- Am Display auf externe Referenz schalten (RF EXT/AC).
- ▶ Das Steuerbit REFOFF muß auf 'high' gehen, der Ausgangspegel des Referenzsignals an X711 auf unter $-50dBm$ sinken.

7.4.3 Prüfen der Interrupterzeugung (OVEN COLD)

Solange der Thermostat des Quarzoszillators die Solltemperatur nicht erreicht hat, liegt der Ausgang OVENCOLD (X22.13) auf 'high'. Dies wird vom Rechner erkannt und führt zu der Meldung 'OVEN COLD' am Display.

7.4.3.1 Variante 02

- Brücke 40 auf X40.1/2 und Brücke 50 auf X50.1/2 stecken.
- ▶ Ein warmgelaufener Oszillator (ca. 5min) darf keinen OVEN COLD Interrupt liefern (= 'high') und damit auch keine Meldung am Display.
Ein warmgelaufener Oszillator muß nach 30 Sekunden abschalten wieder einen Interrupt anzeigen (= 'low').

7.4.3.2 Variante 04

- Steckbrücke X40 ziehen und an X40.2 eine Gleichspannung von 0 bis 12V einspeisen.
- ▶ Bei einer Gleichspannung von unter $5.6 \pm 1V$ und über $6.4 \pm 1V$ muß eine OVEN-COLD-Meldung erfolgen, dazwischen darf kein Interrupt gemeldet werden.

- Spannungsmesser an X40.3 anschließen.
- ▶ Nach etwa 5min Betriebsdauer muß die Spannung an X40.3 mit 6.0 ±.2V gemessen werden.

7.4.4 Abgleich des Oszillators

- Kalibrierten Frequenzzähler an X711 anschließen und die Ausgangsfrequenz messen.

7.4.4.1 Variante 02

- Am Gerät mit Spezialfunktion ⁵¹~~48~~ die Kalibrierung des Referenzoszillators aufrufen, den Wert 2048 eingeben und mit 'Enter' abschließen.
- ▶ Nach zwei Stunden Betrieb mit dem Drehrad die Frequenz auf 10MHz einstellen.
Die Spannung an X22.16 muß dabei zwischen 2 und 4V liegen. Das entspricht einem Eingabewert von etwa 820 bis 1640.

7.4.4.2 Variante 04

- Den Oszillator mindestens zwei Stunden einlaufen lassen
- Ist die Frequenzabweichung nach dieser Zeit größer $5 \cdot 10^{-8}$, so muß die Sollfrequenz neu abgeglichen werden.
- ▶ Der Abgleich auf 10MHz erfolgt mit einem Trimmer seitlich am Oszillatorgehäuse.

7.5 Zerlegung und Zusammenbau

- Beplankung des Geräts abnehmen (siehe Serviceanleitung Gesamtgerät 6.5).
- Flachbandkabel von der Buchse am Netzteil lösen.
- HF-Kabel von der Buchse X711 auf der Baugruppe abziehen.

Die Baugruppe ist mit vier Schrauben seitlich am Rahmen des Geräts fixiert. Diese sind von der Außenseite zugänglich.

- Halterungsschrauben lösen und die Baugruppe nach oben herausnehmen.

Der Einbau erfolgt sinngemäß in umgekehrter Reihenfolge.

7.6

Externe Schnittstellen

| Pin | Name | Ein/Ausgang | Herkunft/Ziel | Wertbereich | Signalbeschreibung |
|--------|-----------|-------------|-----------------|----------------|-------------------------------------|
| X22.1 | VA5-P | Eingang | Netzteil X22.1 | +4.9 .. +5.3V | I _{max} =2mA, Versorgung |
| X22.2 | VA15-P | " | " X22.2 | +14.4 . +15.6V | I _{max} =250mA, Versorgung |
| X22.3 | frei | | | | |
| X22.4 | REFOFF | Eingang | Rechner X3.21 | TTL-HCT | Referenz ausschalten |
| X22.5 | OPTERKREF | Ausgang | Rechner X3.25 | TTL-HCT | Erkennung RO5C |
| X22.6 | VA15-H | Eingang | Netzteil X22.6 | -15.6 . -14.4V | I _{max} =7mA, Versorgung |
| X22.7 | frei | | | | |
| X22.8 | GND | | | | |
| X22.9 | frei | | | | |
| X22.10 | GND | | | | |
| X22.11 | frei | | | | |
| X22.12 | frei | | | | |
| X22.13 | OVENCOLD | Ausgang | Rechner X3.26 | TTL-HCT | Interrupt OVEN COLD |
| X22.14 | GND | | | | |
| X22.15 | GND | | | | |
| X22.16 | OPTUNE | Eingang | Synthese X1A.10 | 0 ... 10V | Abstimmspannung |
| X711 | REF | Ausgang | Synthese X128 | 7.5dBm | Referenzsignal |



ROHDE & SCHWARZ

SERVICE INSTRUCTIONS

Reference Oscillator (Option)

1039.1027.02

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Parts list
List of coordinates
Circuit diagram
Component layout diagram

7. Testing and Repair

7.1 Function Description

The reference-oscillator option OCXO replaces the internal 10-MHz time base by a thermostat-controlled top-quality crystal oscillator thus considerably improving the instrument data on the accuracy of the reference frequency and ageing.

Apart from the oscillator, the module contains components for generation of the 12-V supply voltage from the 15 V of the power supply, a decoupling amplifier which can be switched off, and the model 04 additionally provides a circuit for generation of the 'OVEN COLD' interrupt.

Upon switch-on, the controller checks whether the ROSC option is fitted. If it is, the time base on the synthesis is switched off.

Two different models of crystal are provided. The number of the model can be looked up on the PCB. Model 02 allows for electrical tuning of the rated frequency, whereas model 04 requires mechanical trimming.

7.2 Test Instruments and Utilities

1. DC voltmeter, e.g., UDS5, URE
2. RF spectrum analyzer up to 100 MHz, e.g., FSA
3. Calibrated 10-MHz frequency counter (contained in FSA)
4. Oscilloscope with approx. 100-MHz bandwidth

7.3 Troubleshooting

| | |
|-----------------|---|
| Frequency error | Trace tuning voltage to the oscillator Re-calibrate deviations due to ageing |
| Level error | Trace control signal REFOFF Check decoupling stage Check output level of the oscillator |

7.4 Testing and Adjustment

7.4.1 Power Consumption

- Cold-start the instrument using the power switch.
- ▶ The power consumption to +15V during the warm-up phase should not exceed approx. 270mA and should drop to max. 135 mA after approx. four minutes.
The power consumption up to +5V is max. 2 mA, to -15V it is 7mA.

7.4.2 Testing the Oscillator and the 10-MHz Amplifier

- Switch on SMY.
- ▶ The control bit REFOFF must assume 'low' state. The dc operating point of the decoupling stage should be at $5 \pm 2V$.
- Measure at the oscillator output using a high-impedance probe and an oscilloscope.
- ▶ The oscillator must supply TTL level.
- Connect spectrum analyzer to the output socket X711 of the option.
- ▶ The 10-MHz signal must have an amplitude of $7.5dBm \pm 1.5dB$.
- Switch to external reference (RF EXT/AC) on the display.
- ▶ The control bit REFOFF must assume 'high' state, the output level of the reference signal at X711 must drop below -50dBm.

7.4.3 Testing the Generation of Interrupts (OVEN COLD)

As long as the thermostat of the crystal oscillator has not yet reached the rated temperature, the OVENCOLD output (X22.13) assumes 'high' state. The processor initiates output of the message 'OVEN COLD' on the display.

7.4.3.1 Model 02

- Plug on jumper 40 to X40.1/2 and jumper 50 to X50.1/2.
- ▶ After warming up (approx. 5 min.), an oscillator must not initiate an OVEN COLD interrupt (= 'high') and any message on the display.
30 seconds after switch off, it must indicate an interrupt again (= 'low').

7.4.3.2 Model 04

- Unplug jumper X40 and apply a dc voltage between 0 and 12 V to X40.2.
- ▶ An OVEN-COLD message is output, if the dc voltage is below $5.6 \pm .1V$ or above $6.4 \pm .1V$, it must not be output, if the voltage is in between.

- Connect voltmeter to X40.3.
- ▶ After 5 min. of operation, the voltage measured at X40.3 must be $6.0 \pm 0.2V$.

7.4.4 Adjustment of the Oscillator

- Connect calibrated frequency counter to X711 and measure the output frequency.

7.4.4.1 Model 02

- Call calibration of the reference oscillator on the instrument via special function ⁴⁸~~48~~, enter the value 2048 and terminate with 'Enter'.
57
- ▶ After two hours of operation, set the frequency to 10 MHz using the spinwheel.
The voltage at X22.16 must be between 2 and 4V, which corresponds to an input value of approx. 820 to 1640.

7.4.4.2 Model 04

- The oscillator requires a warm-up period of at least two hours.

If the frequency deviation exceeds $5 \cdot 10^{-8}$ after this period, the rated frequency must be re-adjusted.

- ▶ The oscillator is adjusted to 10 MHz using a trimmer at the side of the oscillator housing.

7.5 Disassembly and Assembly

- Remove instrument panelling (see service instructions for the overall instrument, Section 6.5).
- Disconnect ribbon cable from the socket on the power supply.
- Disconnect RF cable from the socket X711 on the module.

The module is fixed to the lateral frame of the instrument using four screws which are accessible from outside.

- Unscrew support screws and remove the module to the top.

The module is installed correspondingly in the reverse order.

7.6

External Interfaces

| Pin | Name | Input/Output | Origin/Destination | Specified range | Signal description |
|--------|-----------|--------------|--------------------|-----------------|---------------------------------|
| X22.1 | VA5-P | Input | Power supply X22.1 | +4.9 to +5.3V | I _{max} =2mA, supply |
| X22.2 | VA15-P | " | " X22.2 | +14.4 to +15.6V | I _{max} =250mA, supply |
| X22.3 | not used | | | | |
| X22.4 | REFOFF | Input | Controller X3.21 | TTL-HCT | Switch off reference |
| X22.5 | OPTERKREF | Output | Controller X3.25 | TTL-HCT | Identification of ROSC |
| X22.6 | VA15-N | Input | Power supply X22.6 | -15.6 to -14.4V | I _{max} =7mA, supply |
| X22.7 | not used | | | | |
| X22.8 | GND | | | | |
| X22.9 | not used | | | | |
| X22.10 | GND | | | | |
| X22.11 | not used | | | | |
| X22.12 | not used | | | | |
| X22.13 | OVENCOLD | Output | Controller X3.26 | TTL-HCT | Interrupt OVEN COLD |
| X22.14 | GND | | | | |
| X22.15 | GND | | | | |
| X22.16 | OPTUNE | Input | Synthesis X1A.10 | 0 to 10V | Tuning voltage |
| X711 | REF | Output | Synthesis X12B | 7.5dBm | Reference signal |



ROHDE & SCHWARZ

Schaltteillisten
numerisch geordnet

Part lists
in numerical order

Listes des pièces détachées
par numéros de référence

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| Kennz. Comp. No. | Benennung Designation | Sachnummer Stock No. | Hersteller Manufacturer | Bezeichnung Designation | enthalten in contained in |
|------------------|--|----------------------|-------------------------|-------------------------|---------------------------|
| B40 | ED 10MHZ-QU.OSZ.OCXO 12V 10MHZ CRYSTAL OSCILLATOR NUR VAR/ONLY MOD: 04 | 0803.8980.00 | QUARZKERAM | 2100T-S151 (H) | |
| B50 | ED 10MHZ-QU.OSZ.OCXO CRYSTAL OSCILLATOR NUR VAR/ONLY MOD: 02 | 1039.1410.00 | KVG | OCXO-S15 | |
| C1 | CE 100UF+-20%25V RM2.5 ELECTROLYTIC CAPACITOR | CE 0008.7891.00 | PANASONIC | ECA-1EFG101I | |
| C2 | CE 220UF+-20%10V RM2,5 ELECTROLYTIC CAPACITOR | CE 0008.7927.00 | PANASONIC | ECA-1AFG221I | |
| C3 | CE 1UF +-10% 25V EIA3528 TANTALUM SMD-CAPACITOR | CE 0007.7217.00 | SPRAGUE | 293D 105 X9 025 B2T | |
| C4 | CE 100UF+-20%25V RM2.5 ELECTROLYTIC CAPACITOR | CE 0008.7891.00 | PANASONIC | ECA-1EFG101I | |
| C11 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C40 | CE 100UF+-20%25V RM2.5 ELECTROLYTIC CAPACITOR | CE 0008.7891.00 | PANASONIC | ECA-1EFG101I | |
| C50 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR NUR VAR/ONLY MOD: 04 | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C66 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C70 | CC 220PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8850.00 | PHILIPS_CO | 2238 863 18221 | |
| C71 | CC 1NF+-1% 50V NPO 1206 SMD CERAMIC CAPACITOR | CC 0007.7398.00 | PHILIPS_CO | 2222 863 *8102 | |
| C72 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| C73 | CC 39PF+-1%50V NPO 1206 CERAMIC CHIP CAPACITOR | CC 0099.8796.00 | MURATA | GRM42-6COG 390F 50PT | |
| C76 | CC 180PF+-1%50V NPO 1206 CHIP CAPACITOR | CC 0099.8844.00 | PHILIPS_CO | 2238 863 18181 | |
| C79 | CC 100NF+-10%50V X7R 1206 CERAMIC CHIP CAPACITOR | CC 0007.5237.00 | PHILIPS_CO | 2238 581 15649 | |
| L1 | LD 15UH 10% 1R2 0,46A CHOKE | LD 0026.4149.00 | DALE | IM 6 | |
| L2 | LD 22UH 10% 0,14A 1210 SMD-INDUCTOR | LD 0520.7886.00 | SIEMENS | B82422-A1223-K100 | |
| L40 | LD 3,30UH10%,850HMO,285A CHOKE | LD 0067.2928.00 | DALE | IM2 | |
| L70 | LD 100UH 10% 0,06A 1210 SMD-INDUCTOR | LD 0007.9261.00 | SIEMENS | B82422-A1104-K100 | |
| L71 | LD 4,7UH 10% 0,15A 1210 SMD-INDUCTOR | LD 0008.1687.00 | SIEMENS | B82422-A1472-K100 | |
| L72 | LD 2,2UH 10% 0,27A 1210 SMD-INDUCTOR | LD 0520.7870.00 | SIEMENS | B82422-A1222-K100 | |
| N1 | BO LM7812CT+12V1AO VREGL VOLTAGE REGULATOR | BO 0344.9641.00 | NSC | LM340T12 | |
| N50 | BO TLO72ACD 2XFET OPAMP OPERATIONAL AMPLIFIER NUR VAR/ONLY MOD: 04 | 0803.1057.00 | TEXAS | TL 072 ACDR | |
| N60 | BO LM2903D 2XLP COMPAR DUAL NUR VAR/ONLY MOD: 04 | 0520.7734.00 | SIGNETICS | LM2903(D) | |
| R1 | RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR | RG 0006.7271.00 | ROEDERSTEI | DC2 1,0KOHM 1%TK100 | |
| R19 | RG 475 KOHM+-1%TK100 1206 RESISTOR CHIP NUR VAR/ONLY MOD: 04 | RG 0007.6079.00 | ROEDERSTEI | DC2 475KOHM 1%TK100 | |
| R21 | RG 4,75KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5820.00 | ROEDERSTEI | DC2 4,75KOHM 1%TK100 | |
| R29 | RG 475 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5695.00 | ROEDERSTEI | DC2 475OHM 1%TK100 | |
| R40 | RG 0-OHM WIDERSTAND-CHIP RESISTOR CHIP 0-OHM NUR VAR/ONLY MOD: 02 | RG 0007.5108.00 | DRALORIC | CR 1206 | |
| R45 | RG 0-OHM WIDERSTAND-CHIP RESISTOR CHIP 0-OHM NUR VAR/ONLY MOD: 04 | RG 0007.5108.00 | DRALORIC | CR 1206 | |
| R50 | RG 4,75KOHM+-1%TK100 1206 RESISTOR CHIP NUR VAR/ONLY MOD: 04 | RG 0007.5820.00 | ROEDERSTEI | DC2 4,75KOHM 1%TK100 | |

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Datum
Date

Schaltteilliste für
Parts list for

Sachnummer
Stock No.

Blatt-Nr.
Page



ROHDE & SCHWARZ

08

16.09.97

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REFERENCE.-OSC.-OCXO

1039.1027.01 SA


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| Kennz. Comp. No. | Benennung Designation | Sachnummer Stock No. | Hersteller Manufacturer | Bezeichnung Designation | enthalten in contained in |
|---------------------|---|-------------------------|----------------------------|----------------------------|------------------------------|
| R51 | RG 4,75KOHM+-1%TK100 1206 RESISTOR CHIP NUR VAR/ONLY MOD: 04 | RG 0007.5820.00 | ROEDERSTEI | DC2 4,75KOHM 1%TK100 | |
| R53 | RG 0-OHM WIDERSTAND-CHIP RESISTOR CHIP 0-OHM NUR VAR/ONLY MOD: 02 | RG 0007.5108.00 | DRALORIC | CR 1206 | |
| R54 | RG 0-OHM WIDERSTAND-CHIP RESISTOR CHIP 0-OHM NUR VAR/ONLY MOD: 04 | RG 0007.5108.00 | DRALORIC | CR 1206 | |
| R56 | RG 15,0KOHM+-1%TK100 1206 RESISTOR CHIP NUR VAR/ONLY MOD: 04 | RG 0007.5843.00 | ROEDERSTEI | DC2 15,0KOHM 1%TK100 | |
| R57 | RG 2,21KOHM+-1%TK100 1206 RESISTOR CHIP NUR VAR/ONLY MOD: 04 | RG 0007.5743.00 | ROEDERSTEI | DC2 2,21KOHM 1%TK100 | |
| R58 | RG 15,0KOHM+-1%TK100 1206 RESISTOR CHIP NUR VAR/ONLY MOD: 04 | RG 0007.5843.00 | ROEDERSTEI | DC2 15,0KOHM 1%TK100 | |
| R59 | RG 4,75KOHM+-1%TK100 1206 RESISTOR CHIP NUR VAR/ONLY MOD: 04 | RG 0007.5820.00 | ROEDERSTEI | DC2 4,75KOHM 1%TK100 | |
| R70 | RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR | RG 0006.7271.00 | ROEDERSTEI | DC2 1,0KOHM 1%TK100 | |
| R71 | RG 4,75KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5820.00 | ROEDERSTEI | DC2 4,75KOHM 1%TK100 | |
| R72 | RG 15,0KOHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5843.00 | ROEDERSTEI | DC2 15,0KOHM 1%TK100 | |
| R73 | RG 150 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5589.00 | ROEDERSTEI | DC2 150OHM 1%TK100 | |
| R75 | RG 562 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.9068.00 | ROEDERSTEI | DC2 562OHM 1%TK100 | |
| R79 | RG 1,0 KO +-1%TK100 1206 CHIP RESISTOR | RG 0006.7271.00 | ROEDERSTEI | DC2 1,0KOHM 1%TK100 | |
| V70 | AK BFS17 N 30V 50MA TRANSISTOR | AK 0010.6460.00 | VALVO | BFS17 | |
| V71 | AK BFS17 N 30V 50MA TRANSISTOR | AK 0010.6460.00 | VALVO | BFS17 | |
| W710 | DY KABEL A7/X22 | 1062.7557.00 | | | |
| X711 | FJ EINBAUSTECKER F.GS SMB PLUG | FJ 0063.5168.00 | ROSENBERGE | 59S106-400-D3 | |

Für diese Unterlage behalten wir uns alle Rechte vor.

095.0028-0693

| | | | | | | |
|--|----------|----|---------------|---|-------------------------|-------------------|
| 1GPK | 413 3PUA | Äl | Datum Date | Schalttaelliste für Parts list for | Sachnummer Stock No. | Blatt-Nr. Page |
|  | | 08 | 16.09.97 | ED REFERENZOSZ. -DCXO REFERENCE. -OSC. -DCXO | 1039.1027.01 SA | 2- |

XY-Liste

XY List

Erklärung der Spaltenbezeichnungen:

- Part:** Bauelement-Kennzeichen.
- Side:** Leiterplatten-Seite, auf der sich das Bauelement befindet.
- XY:** Koordinaten (Millimeter) des Bauelementes auf der Leiterplatte bezogen auf den Nullpunkt.
- SQR, PG:** Planquadrat und Seite des Schaltbildes für das jeweilige Bauelement.

Explanation of column designations:

- Part:** Identification of instrument part.
- Side:** Side of the PC board on which instrument part is positioned.
- XY:** Coordinates (millimeter) of the component on the PC board in reference to zero point.
- SQR, PG:** Square and page of the diagram for the respective instrument part.

Service-Relevante Bauteile / Service-Relevant Components

| Part | Side | X | Y | Sqr | Pg | Part | Side | X | Y | Sqr | Pg | Part | Side | X | Y | Sqr | Pg |
|------|------|----|----|-----|----|-------|------|----|----|-----|----|-------|------|----|----|-----|----|
| B40 | B | 56 | 47 | 7F | 1 | N1 | B | 20 | 43 | 4E | 1 | N60-C | | | | 4B | 1 |
| B50 | B | 84 | 50 | 7E | 1 | N50-A | A | 25 | 27 | 5B | 1 | V70 | A | 78 | 26 | 9D | 1 |
| C1 | B | 21 | 22 | 3E | 1 | N50-B | | | | 8C | 1 | V71 | A | 73 | 31 | 9E | 1 |
| C2 | B | 18 | 30 | 3E | 1 | N50-C | | | | 4B | 1 | W710 | B | 7 | 25 | 2E | 1 |
| C3 | A | 23 | 34 | 3F | 1 | N60-A | A | 19 | 46 | 9B | 1 | X711 | B | 65 | 58 | 11E | 1 |
| C4 | B | 25 | 37 | 4E | 1 | N60-B | | | | 9B | 1 | | | | | | |

Nicht-Service-Relevante Bauteile / Non-Service-Relevant Components

| Part | Side | X | Y | Sqr | Pg | Part | Side | X | Y | Sqr | Pg | Part | Side | X | Y | Sqr | Pg |
|------|------|----|----|-----|----|------|------|----|----|-----|----|------|------|----|----|-----|----|
| C11 | A | 40 | 37 | 6F | 1 | L40 | B | 42 | 56 | 5E | 1 | R53 | A | 18 | 12 | 11C | 1 |
| C40 | B | 55 | 58 | 6E | 1 | L70 | A | 53 | 41 | 9F | 1 | R54 | A | 11 | 48 | 11C | 1 |
| C50 | A | 33 | 41 | 9C | 1 | L71 | A | 78 | 43 | 10E | 1 | R56 | A | 29 | 46 | 9C | 1 |
| C66 | A | 25 | 21 | 7C | 1 | L72 | A | 74 | 55 | 10E | 1 | R57 | A | 33 | 49 | 9B | 1 |
| C70 | A | 70 | 27 | 9E | 1 | R1 | A | 11 | 30 | 2E | 1 | R58 | A | 29 | 52 | 9B | 1 |
| C71 | A | 69 | 39 | 10E | 1 | R19 | A | 77 | 17 | 7E | 1 | R59 | A | 11 | 46 | 10C | 1 |
| C72 | A | 60 | 42 | 9E | 1 | R21 | A | 29 | 39 | 5F | 1 | R70 | A | 62 | 22 | 8E | 1 |
| C73 | A | 72 | 39 | 10E | 1 | R29 | A | 11 | 34 | 2F | 1 | R71 | A | 73 | 15 | 8D | 1 |
| C76 | A | 74 | 58 | 10E | 1 | R40 | A | 63 | 8 | 7D | 1 | R72 | A | 77 | 36 | 9E | 1 |
| C79 | A | 41 | 17 | 6D | 1 | R45 | A | 63 | 17 | 7D | 1 | R73 | A | 73 | 27 | 9D | 1 |
| L1 | B | 22 | 16 | 2E | 1 | R50 | A | 31 | 34 | 8C | 1 | R75 | A | 63 | 41 | 9E | 1 |
| L2 | A | 15 | 24 | 2E | 1 | R51 | A | 28 | 23 | 8B | 1 | R79 | A | 11 | 20 | 5D | 1 |

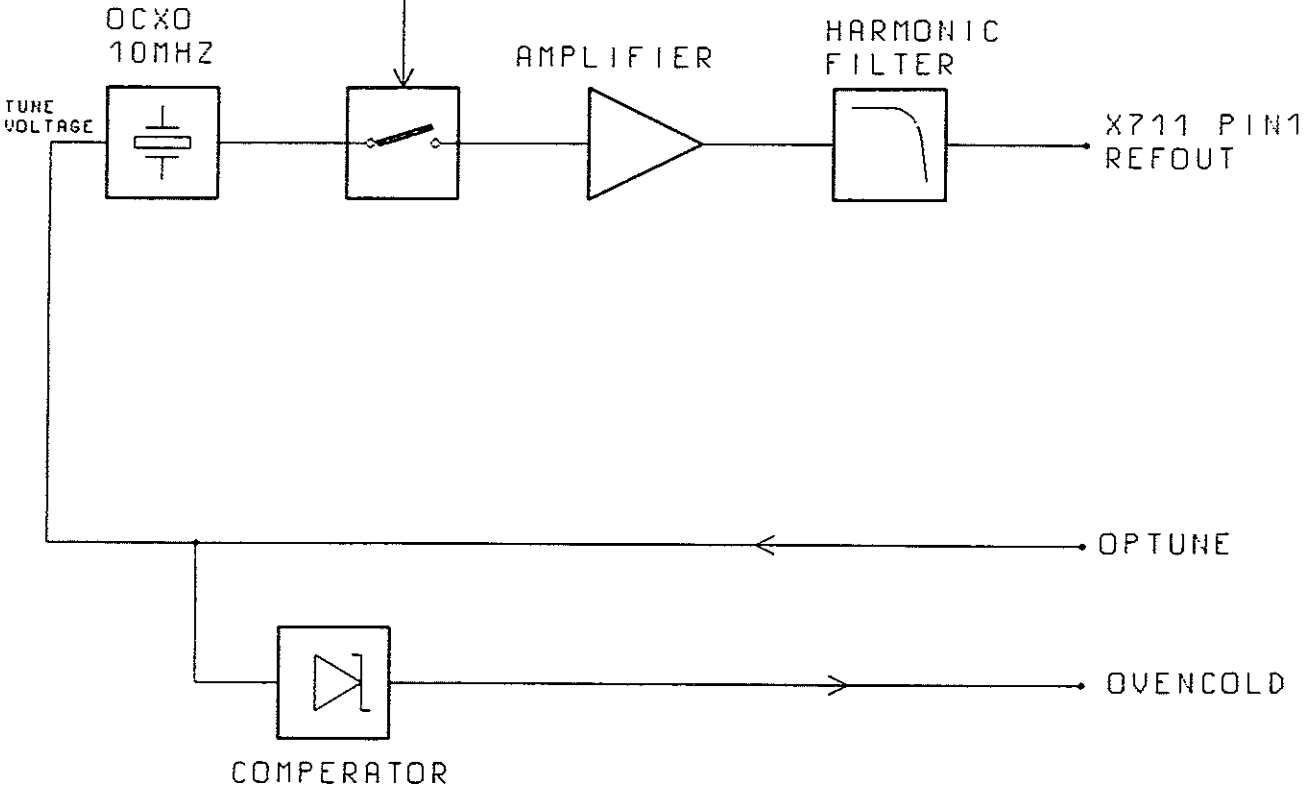
| | | | | | |
|-----------------------|----|---------------|--|-------------------------|---------------|
| ROHDE & SCHWARZ | -I | Datum Date | XY-Liste für XY-list for | Sach-Nummer Stock-Nr | Blatt Page |
| | 03 | 21.11.94 | ED REFERENZOSZ.-OCXO REFERENCE.-OSC.-OCXO | 1039.1027.01 XY | 1- |

Stromläufe
Bestückungspläne
Circuit diagrams
Components plans
Schémas de circuit
Plans des composants

1 | 2 | 3 | 4

F | F

E | REF OFF



D | D

FÜR DIESE UNTERLAGE BEHALTEN WIR UNS ALLE RECHTE VOR

C | OPTUNE | OVENCOLD

B | B

ACHTUNG: EGB!
 ELEKTROSTATISCH GEFÄHRDETE
 BAUELEMENTE ERFORDERN EINE
 BESONDERE HANDHABUNG.
ATTENTION ESD!
 ELECTROSTATIC SENSITIVE DEVICES
 REQUIRE A SPECIAL HANDLING

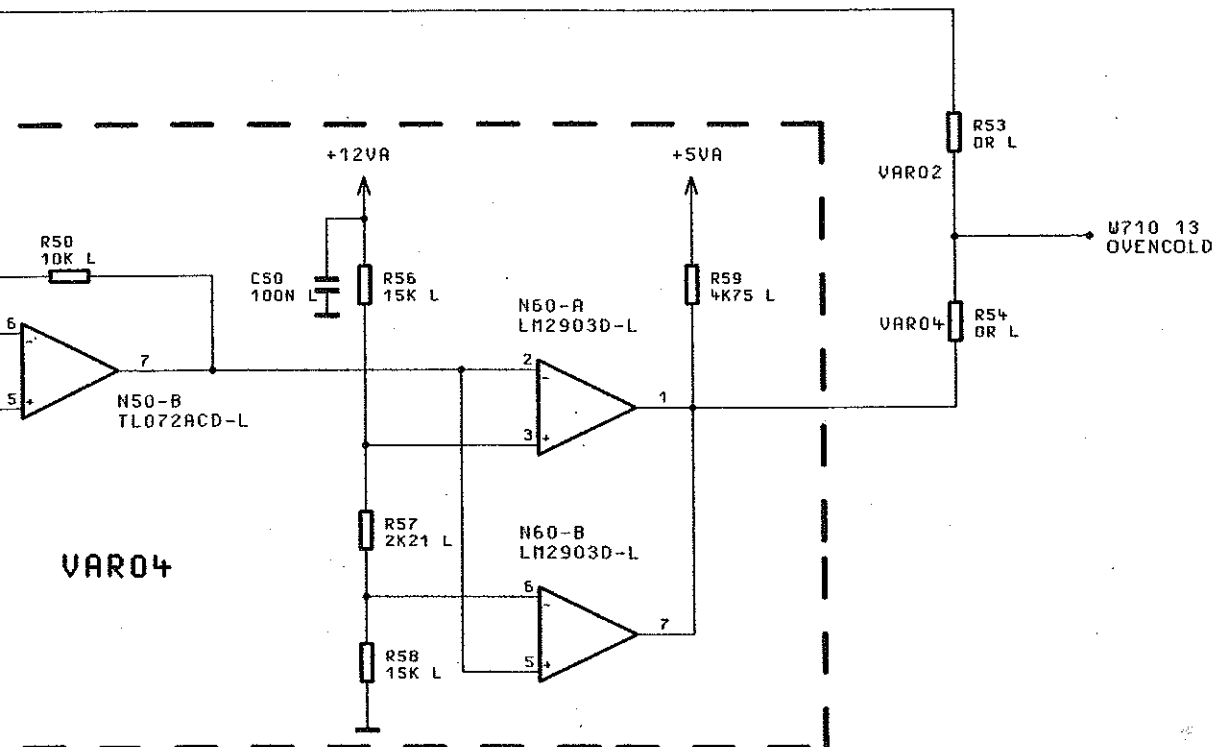
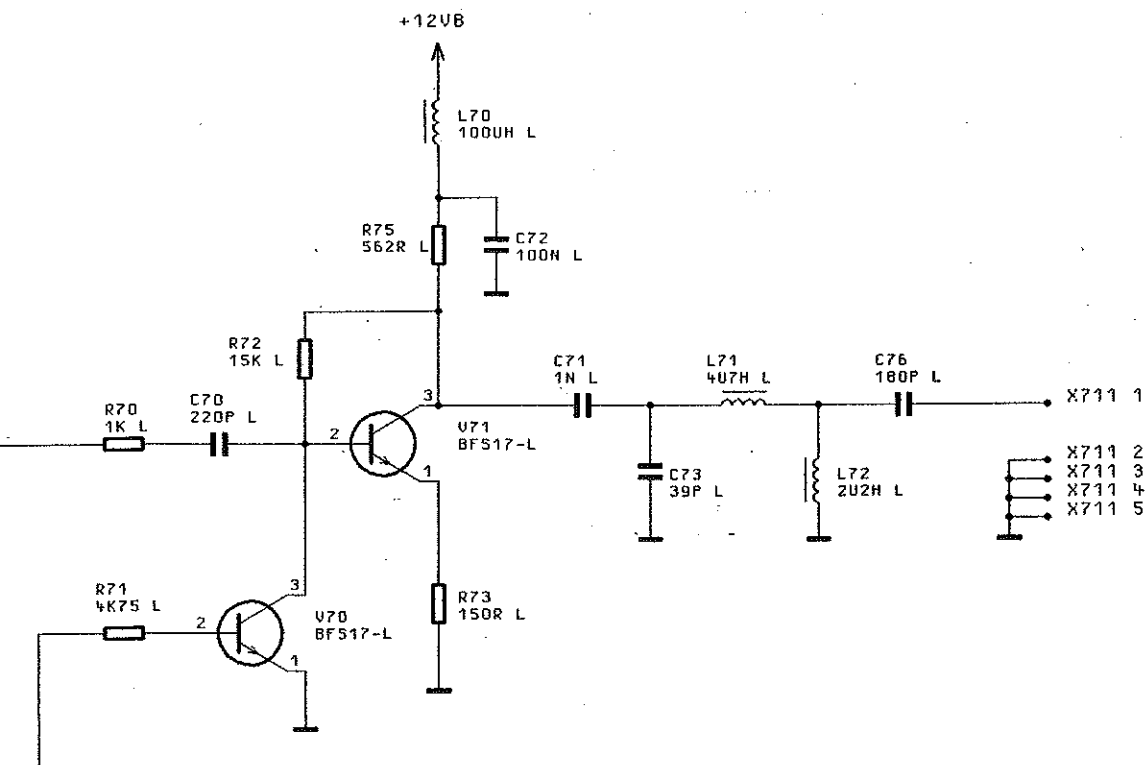
STROMLAUF GILT FÜR VAR.02
 CIRCUIT DIAGRAM IS VALID FOR MOD.02

| | | | | | | | | |
|---------------|---------------------------|----------|------|--------------------------|----------|---------------|--|-----------|
| 02/ | 49167 02 | 11.04.95 | HM | 1GPK | TAG | NAME | BENENNUNG REFERENZOSZ.-OCXO REFERENCE.-OSC.-OCXO | |
| | | | | BEARB. | | HM | | |
| | | | | GEPR. | | | | |
| | | | | MDRN | | | | |
| | | | | PLOTT | 11.04.95 | | | |
| | | | | ROHDE&SCHWARZ | | ZEICHN.-NR. | | BLATT-NR. |
| | | | | | | 1039.1027.015 | | 14 |
| REND. IND. | RENDERUNGS- MITTEILUNG | DATUM | NAME | ZU GERÄT SMY-B1 | | PEG. I.V. | 1039.0995 | EPSTE Z. |
| | | | | | | | | |

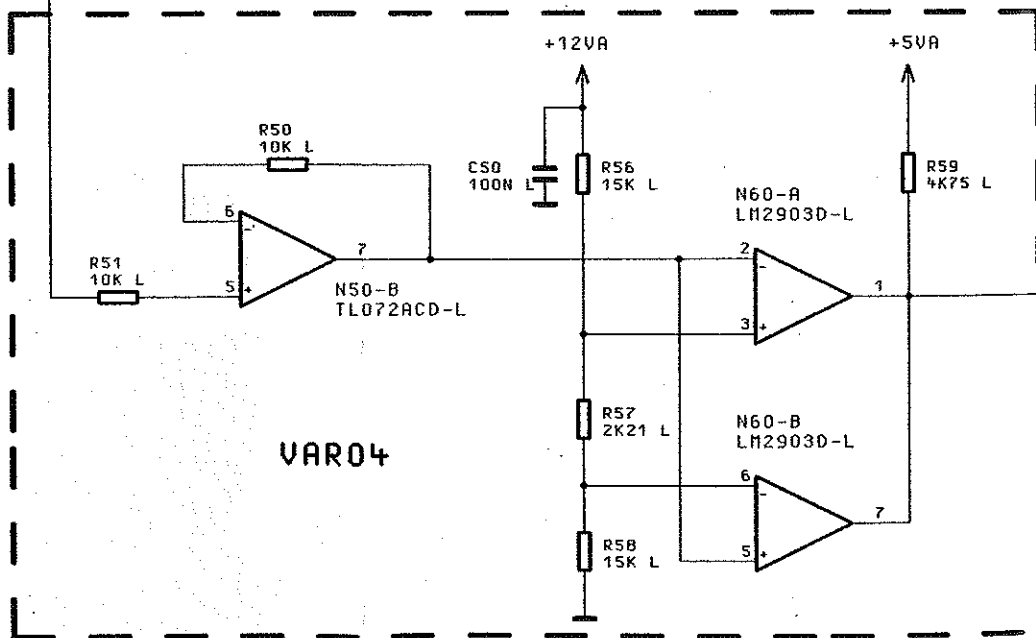
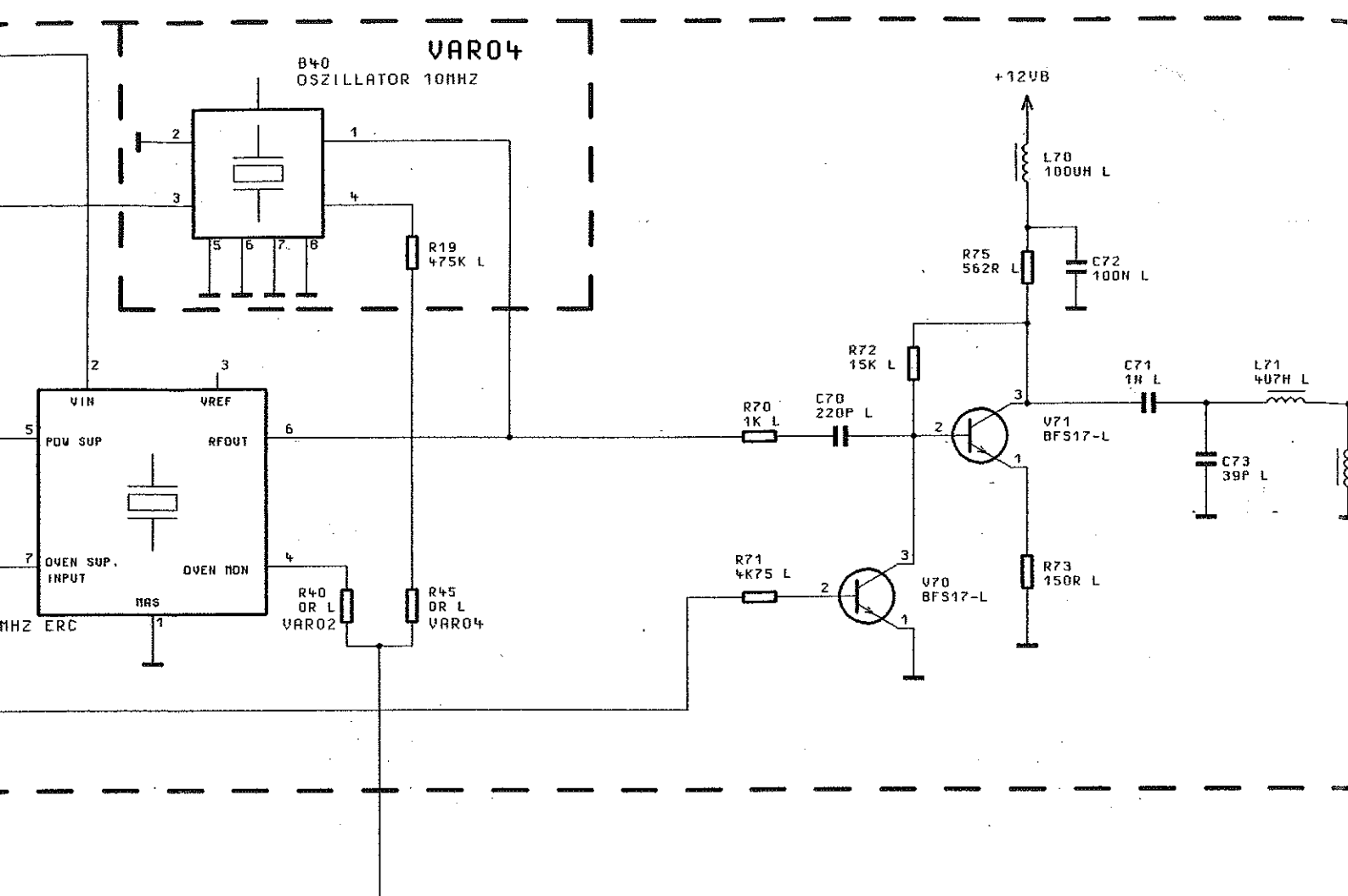
A | A

ZEICHN.-NR.


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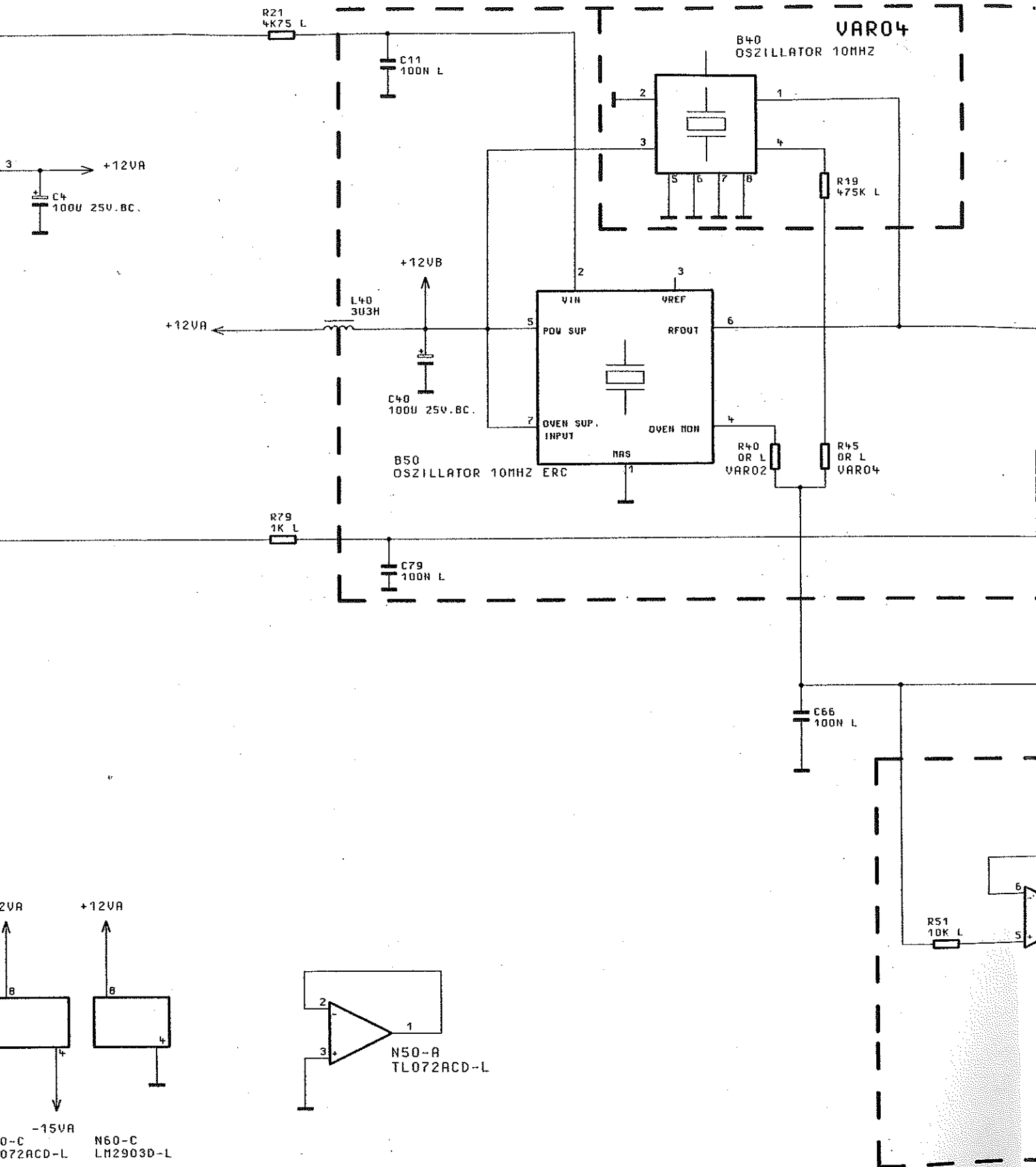



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|---------------|---------------------------|----------|------|----------------------------|----------|------------|--|-----------|
| 02/ | 49167 02 | 11.04.95 | HM | 16PK | TAG | NAME | BENENNUNG | |
| | | | | BEARB. | | HM | REFERENZOSZ. -OCXO REFERENCE. -OSC. -OCXO | |
| | | | | GEPR. | | | | |
| | | | | NORM. | | | | |
| | | | | PLOTT | 11.04.95 | | | |
| | | | | ROHDE & SCHWARZ | | | ZEICHN.-NR. | BLATT-NR. |
| | | | | | | | 1039.1027.015 | 2+ |
| REND. IND. | RENDERUNGS- MITTEILUNG | DATUM | NAME | ZU GERÄT | SMY-B1 | REG. I. V. | 1039.0995 | ERSTE Z. |

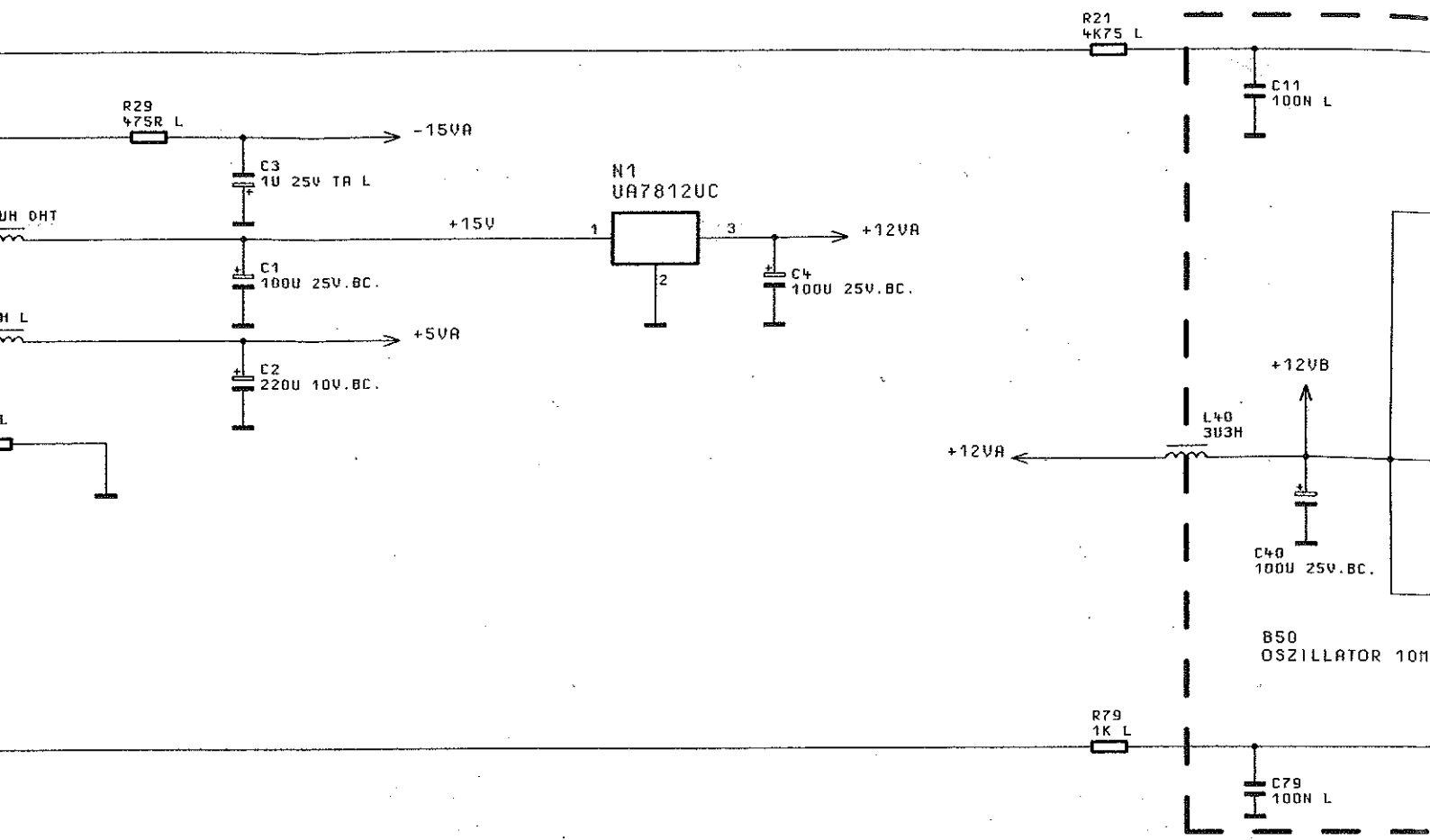


ACHTUNG: EGB!
 ELEKTROSTATISCH GEFÄHRDETE
 BAUELEMENTE ERFORDBN EINE
 BESONDERE HANDHABUNG.
ATTENTION ESD!
 ELECTROSTATIC SENSITIVE DEVICES
 REQUIRE A SPECIAL HANDLING

| | | | | | | |
|---------------|---------------------------|----------|------|--|----------|------|
| BZ/ | 49167 02 | 11.04.95 | HM | 1GPK | TAG | NAME |
| | | | | BEARB. | | HM |
| | | | | GEPR. | | |
| | | | | NORN. | | |
| | | | | PLOTT | 11.04.95 | |
| | | | | | | |
| REND. IND. | RENDERUNGS- MITTEILUNG | DATUM | NAME |  ROHDE&SCHWARZ ZU GERÄT SMY-B1 | | |

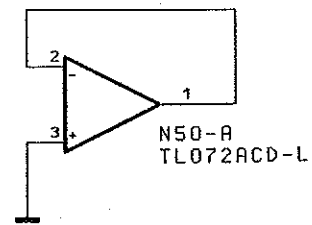
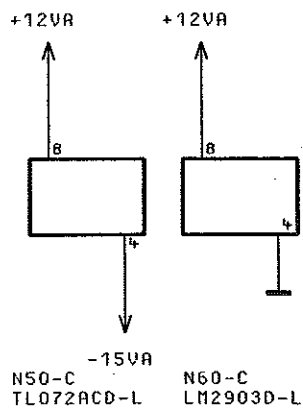


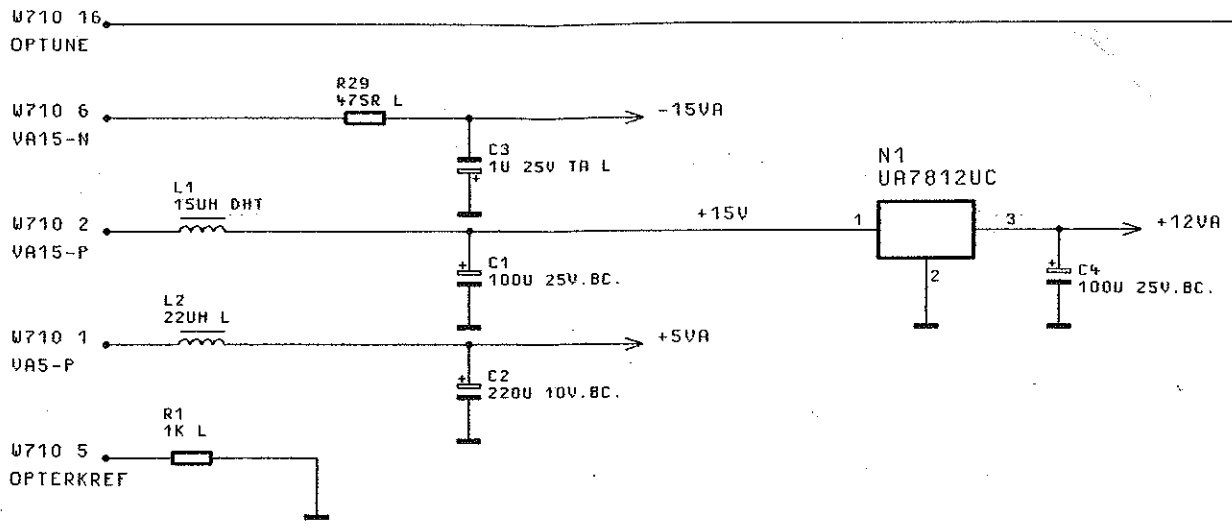

ACHTUNG: EGB!
 ELEKTROSTATISCH GEFÄHRDETE
 BAUELEMENTE ERFORDERN EINE
 BESONDERE HANDHABUNG.
ATTENTION ESD!
 ELECTROSTATIC SENSITIVE DEVICES
 REQUIRE A SPECIAL HANDLING



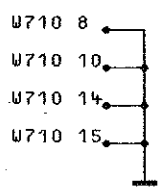
UF GILT FUER VAR.02,04

GRAM IS VALID FOR MOD.02,04



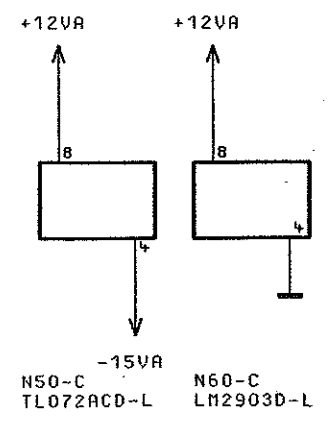


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STROMLAUF GILT FUER VAR.02,04

CIRCUIT DIAGRAM IS VALID FOR MOD.02,04



BEHALTEN MIR UNS ALLE RECHTE VOR

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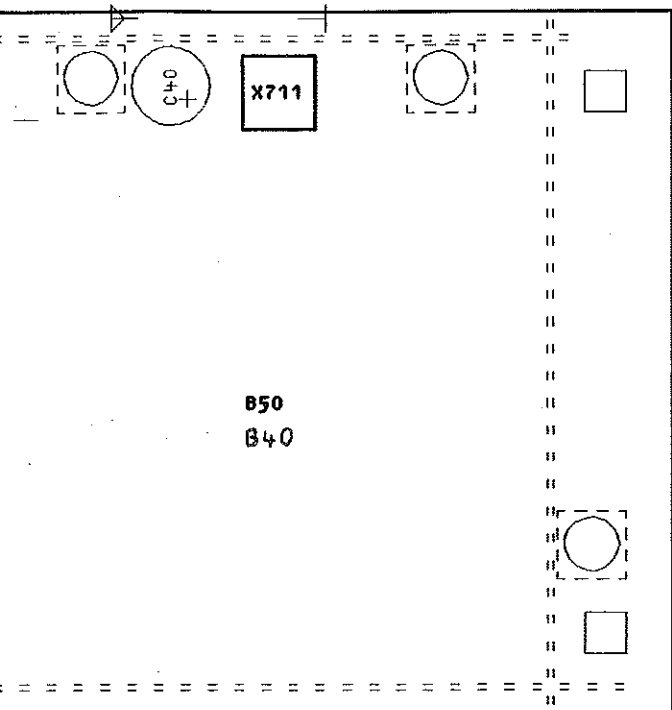
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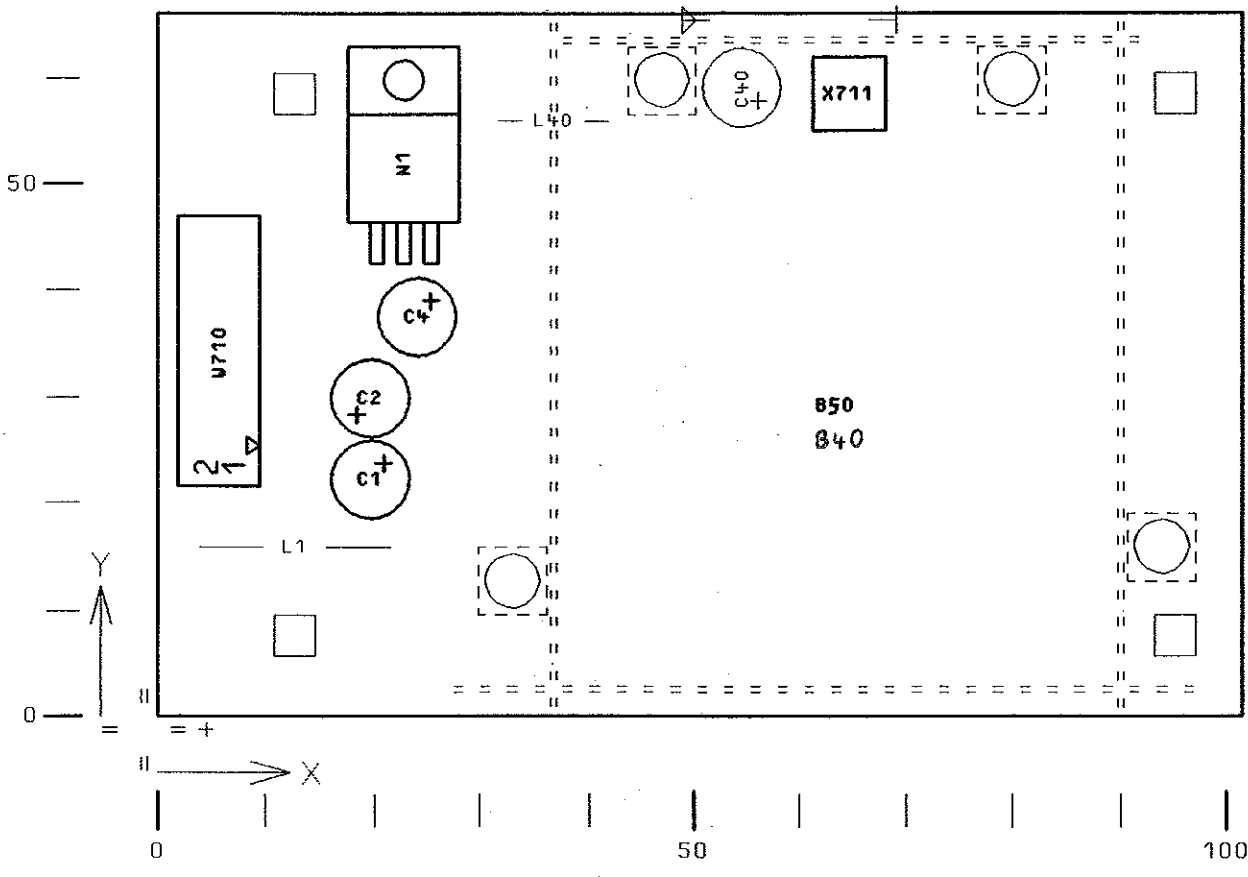
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|---------------|---------------------------|----------|------|--------------------------------|----------|----------|------------------------|----------|-----------|
| 02/ | 49169 01 | 21.11.94 | HO | 16PK | TAG | NAME | BENENNUNG | | Z |
| | | | | BEARB. | | HO | REFERENZOSZ. -OCXO | | |
| | | | | GEPR. | | | REFERENCE. -OSC. -OCXO | | |
| | | | | NORM | | | | | |
| | | | | PLOTT | 21.11.94 | | | | |
| | | | | ROHDE & SCHWARZ | | | ZEICHN.-NR. | | BLATT-NR. |
| | | | | | | | 1039.1027.01 | | ED |
| REND. IND. | RENDERUNGS- MITTEILUNG | DATUM | NAME | ZU GERÄT | SMY-B1 | REG.I.V. | 1039.0995 | ERSTE Z. | V. BL. |

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: EGB!
 CH GEFÄHRDETE
 ERFORDERN EINE
 HANDHABUNG.
 ON ESD!
 SENSITIVE DEVICES
 ECIAL HANDLING

BINDENDE ANGABEN UEBER VARIANTEN,
 TRIMMWERTE, BAUTEILWERTE UND
 NICHT BESTUECKTE BAUTEILE SIEHE SA.
 FOR BINDING INFORMATION ON MODELS,
 TRIMMING AND COMPONENTS VALUES AND
 NONFITTED COMPONENTS SEE PARTS LIST.

| | | | | | | | |
|-------|-------------|----------|------|----------|----------|------|-------------|
| 02/ | 49169 01 | 21.11.94 | HO | 1GPK | TAG | NAME | BENENNUNG |
| | | | | BEARB. | | HO | REF. |
| | | | | GEPR. | | | REFER |
| | | | | NORN | | | |
| | | | | PLOTT | 21.11.94 | | |
| / | | | | | | | ZEICHN.-NR. |
| REND. | RENDERUNGS- | DATUM | NAME | | | | REG. I.V. |
| IND. | NITTEILUNG | | | ZU GERÄT | SMY-B1 | | |

FÜR DIESE ZEICHNUNG BEHALTEN WIR UNS ALLE RECHTE VOR.
 DIESE ZEICHNUNG IST EIN RECHNERAUSDRUCK, ÄNDERUNGEN KÖNNEN NUR DURCH ÄNDERUNG DES DATENSATZES ERFOLGEN.

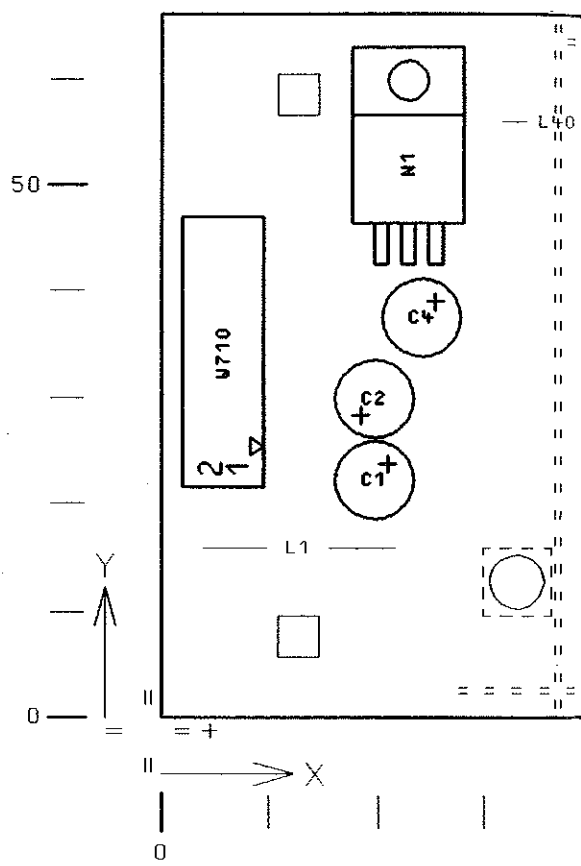
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DARSTELLUNG SEITE B
VIEW ON SIDE B

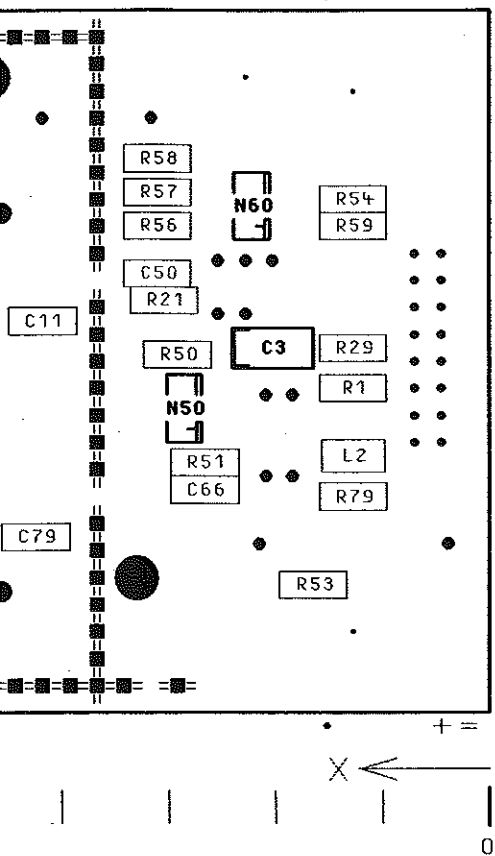


ACHTUNG: ESB!
 ELEKTROSTATISCH GEFÄHRDETE
 BAUELEMENTE ERFORDERN EINE
 BESONDERE HANDHABUNG.
ATTENTION ESD!
 ELECTROSTATIC SENSITIVE DEVICES
 REQUIRE A SPECIAL HANDLING

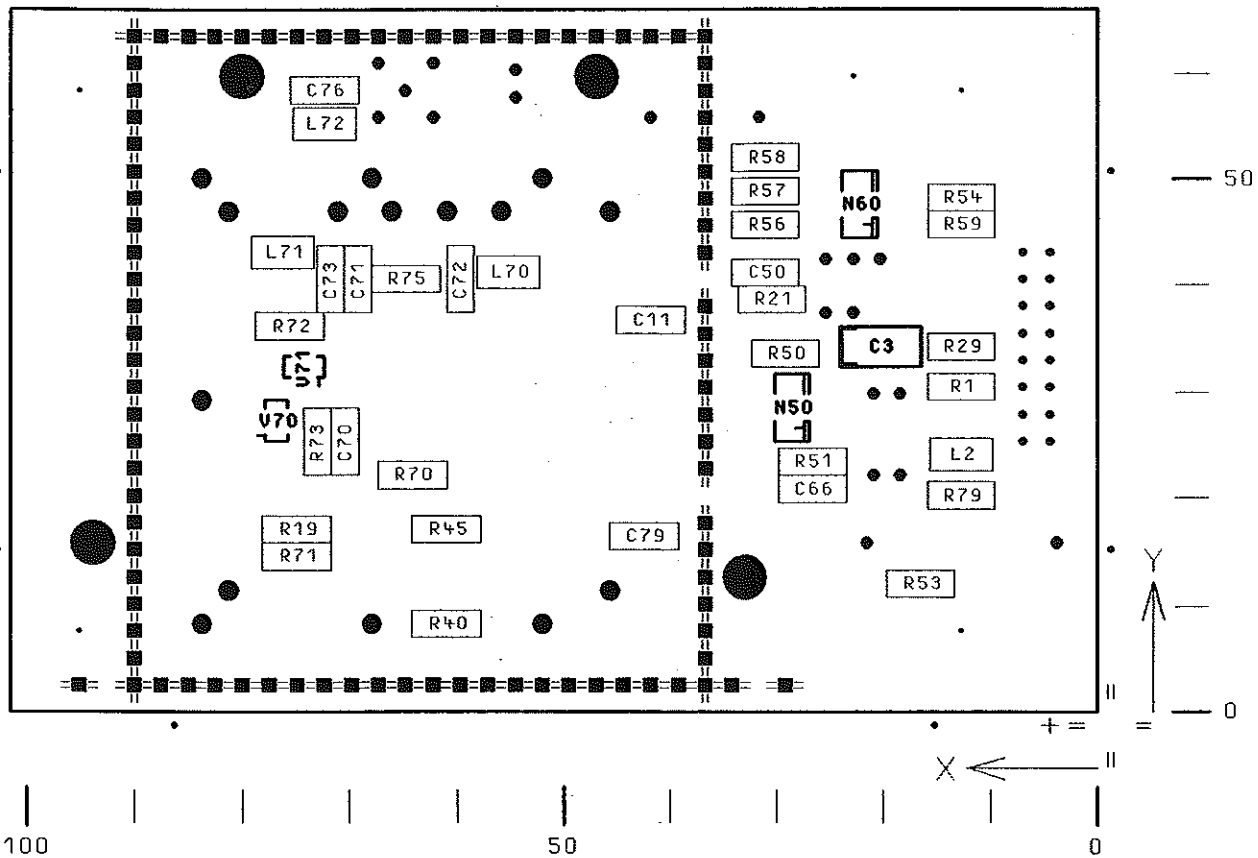
BINDENDE ANGABEN ÜBER VARIANTEN,
 TRIMMWERTE, BAUTEILWERTE UND
 NICHT BESTÜCKTE BAUTEILE SIEHE
 FOR BINDING INFORMATION ON MODEL
 TRIMMING AND COMPONENTS VALUES AND
 NONFITTED COMPONENTS SEE PARTS L



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|------------|-----------------------|----------|------|--------------------------------|----------|------------|------------------------|----------|-----------|
| 02/ | 49169 01 | 21.11.94 | HO | 1 GPK | TRG | NAME | BENENNUNG | | Z |
| | | | | BEARB. | | HO | REFERENZOSZ. -OCXO | | |
| | | | | GEPR. | | | REFERENCE. -OSC. -OCXO | | |
| | | | | NORM | | | | | |
| | | | | PLOTT | 21.11.94 | | | | |
| / | | | | ROHDE & SCHWARZ | | | ZEICHN.-NR. | | BLATT-NR. |
| REND. IND. | RENDERUNGS-NITTEILUNG | DATUM | NAME | | | | 1039.1027.01 | | ED |
| | | | | ZU GERÄT | SMY-B1 | REG. I. V. | 1039.0995 | ERSTE Z. | |

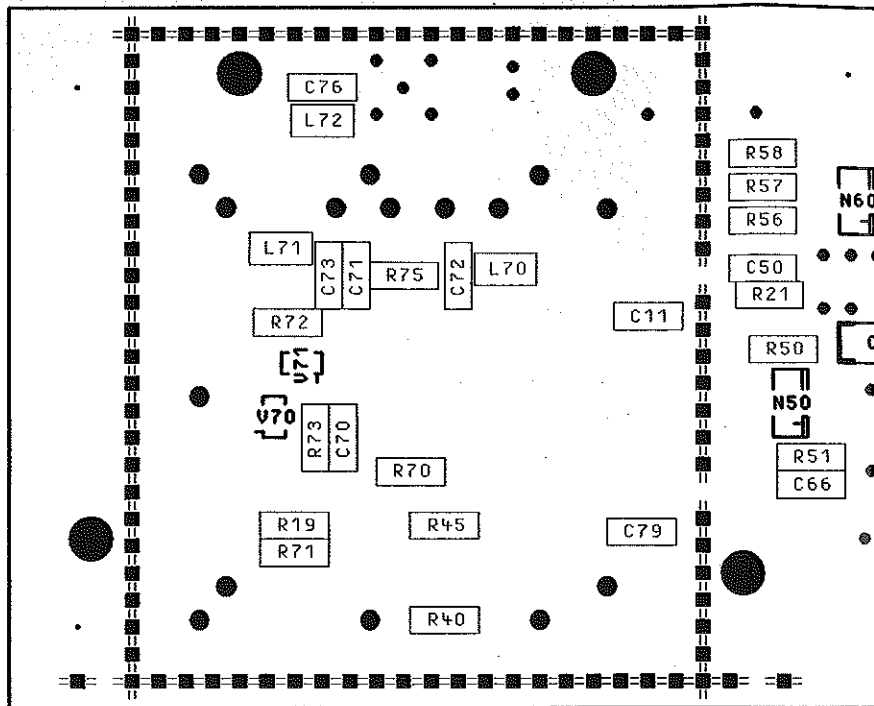


ACHTUNG: EGB!
 ELEKTROSTATISCH GEFÄHRDETE
 BAUELEMENTE ERFORDERN EINE
 BESONDERE HANDHABUNG.
ATTENTION ESD!
 ELECTROSTATIC SENSITIVE DEVICES
 REQUIRE A SPECIAL HANDLING

BINDENDE ANGABEN UEBER VARIANTEN,
 TRIMMWERTE, BAUTEILWERTE UND
 NICHT BESTUECKTE BAUTEILE SIEHE SA.

FOR BINDING INFORMATION ON MODELS,
 TRIMMING AND COMPONENTS VALUES AND
 NONFITTED COMPONENTS SEE PARTS LIST.

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|---------------|---------------------------|----------|------|---|----------|------|----|----|
| 02/ | +9169 01 | 21.11.94 | HO | 16PK | TAG | NAME | BE | |
| | | | | BEARB. | | HO | | |
| | | | | GEPR. | | | | |
| | | | | NORM | | | | |
| | | | | PLOTT | 21.11.94 | | | |
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STELLUNG SEITE A
W ON SIDE A



ACHTUNG: ESB!
ELEKTROSTATISCH GEFÄHRDETE
BAUELEMENTE ERFORDERN EINE
BESONDERE HANDHABUNG.
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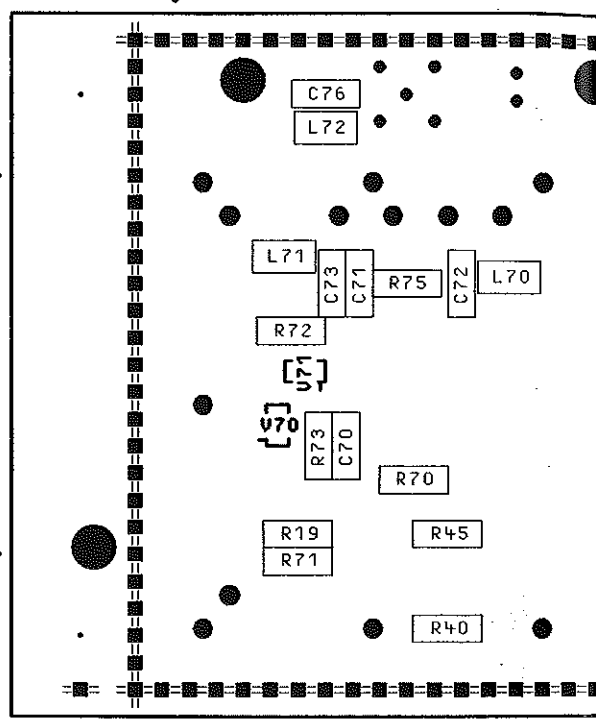
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ACHTUNG: ESD!
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SERVICEUNTERLAGEN

Powermodul

1062.7240.01

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7.1 Funktionsbeschreibung

Das RF-Signal vom Ausgangsteil OPUY1 bzw. OPUY2 am Eingang FOPU wird mit einem Signalteiler (R91, R92) geteilt und in identischen Zweigen verstärkt. Jeder Zweig beinhaltet einen Pulsmodulator gefolgt von einem RF-Verstärker. Ein Verstärkerausgang geht über den Ausgang FPOW zur Eichleitung, der andere zum Detektor (V13). Die RF-Spannung wird dort gleichgerichtet. Die Richtspannung wird linearisiert (N6) und geht über den Ausgang VDETPOW zum Motherboard und von dort zum Ausgangsteil OPUY1 bzw. OPUY2 als Istwert für die Amplitudenregelung im Frequenzbereich $f > 10$ MHz.

Nur der Pulsmodulator zum RF-Verstärker 1 wird angesteuert, der andere bleibt immer im ON-Zustand. Die Ansteuerung erfolgt über den Eingang PULSE. Leerlauf oder High-Pegel am Eingang ergeben RF ON, Low ergibt RF OFF. Diese Polarität kann durch Stecken der Brücke P1-P2 invertiert werden. Die Verstärker N1 und N2 setzen das TTL-Signal auf die Steuerpegel 0 V/-8 V für die GaAs-Schalter D2 und D3 um.

Die RF-Verstärker werden aus Konstantstromquellen V4 und V5 gespeist, die Drainspannungen werden über die Verstärker N3 und N4 geregelt. Die Verstärkerstufen V11 und V12 haben eine Verstärkung von ca. 10 dB. Die Pulsmodulatoren vor den Verstärkerstufen haben eine Dämpfung von ca. 2 dB bei 2 GHz. Der Signalteiler (R91, R92) hat eine Durchgangsdämpfung von 6 dB.

7.2 Meßgeräte und Hilfsmittel

- Spektrumanalysator (z.B. FSBS)
- Oszilloskop (z.B. BOL)
- Gleichspannungsmessgerät (Multimeter, z.B. UDL33)
- RF-Pegelmesser (z.B. NRVD mit Meßkopf Z51)
- 10 dB-Dämpfungsglied mit N-Anschlüssen (z.B. DNF)
- Durchführungsabschluß 50 Ohm (z.B. RAD)

7.3 Fehlersuche

Vor dem Öffnen des Gerätes ist es zweckmäßig, zuerst einmal die LEVEL PRESET-Kalibrierung durchzuführen und an Hand der Diagnosespannungen mögliche Fehlerquellen zu lokalisieren. Mit der Spezialfunktion 102 (Detektorspannung Ausgang FOPU) kann die RF-Quelle für das Powermodul kontrolliert werden: bei einem RF-Pegel von -30 dBm und RF-Frequenzen > 10 MHz liegen typische Spannungswerte im Bereich 0.7 ... 1.3 V.

7.3.1 Fehler nur im Bereich $f_{RF} < 10 \text{ MHz}$

| | |
|-------------------------------------|--|
| falscher RF-Pegel an X4 FPOW | Prüfe Signalteiler R91/R92, Pulsmodulator D2/D3 und RF-Amplifier 1 bei $f = 100 \text{ kHz}$ mit Oszilloscope. |
| schlechter AM-Klirrfaktor | Prüfe die Stromquelle V4 und die Drainspannungsregelung N3. |

7.3.2 Fehler nur im Bereich $f_{RF} > 10 \text{ MHz}$

| | |
|-------------------------------------|--|
| falscher RF-Pegel an X4 FPOW | Die Pulsmodulatoren D2/D3 und D4/D5 oder die RF-Verstärker 1 und 2 haben unterschiedliche Verstärkung, oder die RF-Spannung am Ausgang von RF Amplifier 2 wird nicht richtig gleichgerichtet. Prüfe Detektor und Linearisierungsschaltung. |
| AM-Klirrfaktor zu groß | Prüfen und Abgleich von Detektor und Linearisierungsschaltung. |

7.3.3 Fehler im Bereich $9 \text{ kHz} < f_{RF} \leq 2080 \text{ MHz}$

| | |
|--|---|
| kein RF-Pegel an X4 FPOW | Die Steuerspannung des AM-Modulators (Spezialfunktion 107) muß jetzt $> 12 \text{ V}$ sein, sonst arbeitet die Pegelregelung nicht richtig oder der Führungswert vom RFLEV-D/A-Wandler ist falsch (der Fehler läge dann im Ausgangsteil OPUY1 oder OPUY2). Prüfe Signalteiler R91/R92, Pulsmodulator D2/D3 und RF-Amplifier 1 bei $f = 100 \text{ kHz}$ mit Oszilloscope. |
| Oberwellen zu groß | Prüfe die Stromquelle V4 und die Drainspannungsregelung N3. |
| AM-Klirrfaktor zu groß | Prüfen und Abgleich von Detektor und Linearisierungsschaltung. |
| Pulsmodulation mit falscher Polarität | Brücke auf P1-P2 darf nicht gesteckt sein, EXOR-Funktion von D1 prüfen |
| Pulsmodulation nicht möglich oder falsche Anstiegs- bzw. Abfallzeiten | Steuersignale in der Signalkette D1, N1 und N2 bis D2 und D3 prüfen |
| zu geringes Ein/Aus-Verhältnis bei Pulsmodulation | D2 und D3 prüfen, RC-Tiefpässe der Ansteuerleitungen kontrollieren |

7.4 Prüfen und Abgleich

7.4.1 Prüfen der Stromaufnahme

- Einstellung: PRESET

Die Ströme können entweder am Stecker X1 oder durch den Spannungsabfall an Meßwiderständen nachgemessen werden. Bei mehreren Meßwiderständen sind die Teilströme zu addieren.

| Anschluss | Spannung | Stromaufnahme | Widerstand (2 Ohm) |
|-----------------|----------|---------------|---------------------|
| X1.11 und X1.12 | +5 V | 35 .. 45 mA | R66 |
| X1.13 und X1.14 | +15 V | 340 .. 360 mA | R67 und R68 |
| X1.15 und X1.16 | -15 V | 45 .. 55 mA | R69, R70 und R72 |

7.4.2 Prüfen der Arbeitspunkte der Verstärkerstufen

| Prüfpunkt | Sollspannung | Bemerkung |
|---------------------|--------------|----------------|
| V11 Drain | 6.60 ± 0.5V | RF AMPLIFIER 1 |
| V11 Gate | -1.0 ± 0.5V | RF AMPLIFIER 1 |
| V4 Kollektor | 7.25 ± 0.2V | Stromquelle |
| U15VA1 - V4 Emitter | 1.21 ± 0.02V | I = 150 mA |
| V12 Drain | 6.60 ± 0.5V | RF AMPLIFIER 1 |
| V12 Gate | -1.0 ± 0.5V | RF AMPLIFIER 1 |
| V5 Kollektor | 7.25 ± 0.2V | Stromquelle |
| U15VA2 - V5 Emitter | 1.21 ± 0.02V | I = 150 mA |

7.4.3 Prüfen der Ansteuerung des Pulsmodulators

Die Spannungswerte nach folgender Tabelle kontrollieren: High = 5 V, Low = 0 V.

| P1-P2 | PULSE | D1/10 | D1/8 | D1/3 | D1/6 | N1/6 | N2/6 | D2/5 | D3/5 | D2/4 | D3/4 |
|----------------|-------|-------|------|------|------|--------|--------|--------|--------|--------|--------|
| nicht gesteckt | High | High | Low | Low | High | 0 V | -7.9 V | 0 V | 0 V | -7.9 V | -7.9 V |
| gesteckt | Low | High | Low | Low | High | 0 V | -7.9 V | 0 V | 0 V | -7.9 V | -7.9 V |
| nicht gesteckt | Low | Low | High | High | Low | -7.9 V | 0 V | -7.9 V | -7.9 V | 0 V | 0 V |
| gesteckt | High | Low | High | High | Low | -7.9 V | 0 V | -7.9 V | -7.9 V | 0 V | 0 V |

Brücke P1-P2 entfernen.

7.4.4 Prüfen der Detektorspannung am Ausgang VDETPOW

- Einstellung: RF 100 MHz
Spezialfunktion 49 einschalten (Pegelkorrektur aus)

_ Gleichspannung an VDETPOW nach folgender Tabelle kontrollieren:

| | | | | | |
|-----------------|-----|------|------|------|------|
| RF-Pegel in dBm | -30 | 11.1 | 13 | 16 | 19 |
| Spannung in V | 2.0 | 1.27 | 1.58 | 2.23 | 3.14 |

Spezialfunktion 50 einschalten (Pegelkorrektur ein)

7.4.5 Abgleich der Detektor-Linearität am Ausgang FPOW

- Einstellung: RF 100 MHz
LEVEL 11.1 dBm

_ Ausgangspegel am RF-Ausgang des Gerätes messen und merken (= Referenzpegel)

- Einstellung: Spezialfunktion 1 einschalten
(unterbrechungsfreie Pegeleinstellung)
LEVEL -8.9 dBm

_ Mit POT R36 so abgleichen, daß der gemessene Pegel 20 dB unter dem zuvor gemessenen Referenzpegel liegt. Abgleich einmal wiederholen, da sich der Referenzwert mit R36 ändert; die Genauigkeit der 20dB-Absenkung soll nach dem Abgleich ± 0.1 dB erreichen.

7.5 Zerlegung und Zusammenbau

Oberer Gerätedeckel entfernen. Die Baugruppe ist mit einer Schraube am Rahmen befestigt und an der Querwand gesteckt. Nach dem Entfernen der Schraube und dem Lösen der Koax-Verbindungen an X2, X3, X4 und X5 sowie des Steckers X1 kann die Baugruppe entnommen werden.

7.6 Endprüfung

7.6.1 Prüfen des maximalen Ausgangspegels

- Einstellung: LEVEL 25 dBm
- _ An X226 FOPU einen Leistungsmesser anschließen, dabei auf die max. zulässige RF-Leistung achten! Ggf. muß ein geeignetes Dämpfungsglied vorgeschaltet werden..
- _ RF-Frequenz von 9 kHz bis 2080 MHz variieren.
- Der RF-Pegel muß > 20 dBm bleiben.

7.6.2 Prüfen des Oberwellenabstandes

- Einstellung: LEVEL 16 dBm
- _ An die Geräte-RF-Buchse einen Spektrumanalysator anschließen.
- _ Der Pegel der Harmonischen muß < -25 dBc sein.

7.6.3 Prüfen der Pegel-Dynamik der Pulsmodulation

- Einstellung: LEVEL 19 dBm
- _ An die Geräte-RF-Buchse einen Spektrumanalysator anschließen.
- _ An die PULSE-Buchse 0 V anlegen.
- _ Der RF-Pegel muß bei 70 MHz < -51 dBm sein.
- _ Der RF-Pegel darf im Frequenzbereich 70 MHz < f < 520 MHz linear bis auf < -46 dBm ansteigen.
- _ Der RF-Pegel muß im Frequenzbereich 520 MHz < f < 800 MHz < -46 dBm bleiben.
- _ Der RF-Pegel darf im Frequenzbereich 800 MHz < f < 2080 MHz linear bis auf < -16 dBm ansteigen.

Der typische RF OFF-Pegel liegt 10 dB unter den angegebenen Werten.

7.6.4 Prüfen der Schaltzeiten der Pulsmodulation

- Einstellung: LEVEL 19 dBm
 RF 50 MHz

An die Geräte-RF-Buchse ein Oszilloskop mit 50 Ohm Eingangswiderstand anschließen.

- _ An die PULSE-Buchse ein TTL-Signal mit $f = 1$ MHz anlegen.
- _ Die Anstiegs- und Abfallzeit (10/90%) der Einhüllenden des RF-Signals muß < 20 ns sein.
- _ Die Verzögerungszeit der Einhüllenden gegenüber dem Steuersignal am PULSE Eingang (50%) muß < 200 ns sein.

7.6.5 Prüfen der Pegelgenauigkeit

- Einstellung: LEVEL 0 dBm
 RF 9 kHz ... 2080 MHz

- _ An die Geräte-RF-Buchse einen Leistungsmesser anschließen.
- _ Der RF-Pegel muß $0 \text{ dBm} \pm 1 \text{ dB}$ betragen. Typisch sind Abweichungen $< \pm 0.1 \text{ dB}$ nach der Kalibrierung des Ausgangspegels (siehe dazu Band 1 Kapitel 6.4).

7.7 Externe Schnittstellen

| Pin | Name | Ein/Ausgang | Herkunft/Ziel | Wertebereich | Signalbeschreibung |
|-------|-----------|-------------|-----------------|-------------------|----------------------------|
| X1.01 | GND | | | | |
| X1.02 | SERDAT | Eingang | CPU | HCMOS-Pegel | wird nicht verwendet |
| X1.03 | GND | | | | |
| X1.04 | SERCLK | Eingang | CPU | HCMOS-Pegel | wird nicht verwendet |
| X1.05 | GND | | | | |
| X1.06 | ELSTB | Eingang | CPU | HCMOS-Pegel | wird nicht verwendet |
| X1.07 | GND | | | | |
| X1.08 | OVERLOAD | Ausgang | CPU | HCMOS-Pegel | wird nicht verwendet |
| X1.09 | GND | | | | |
| X1.10 | PULSE-INV | Eingang | | | wird nicht verwendet |
| X1.11 | VA-5P | Eingang | Netzteil X21.5 | 5.10V..5.25V | Versorgungsspannung analog |
| X1.12 | VA-5P | Eingang | Netzteil X21.5 | 5.10V..5.25V | Versorgungsspannung analog |
| X1.13 | VA15-P | Eingang | Netzteil X21.13 | 14.80 V...15.75 V | Versorgungsspannung analog |
| X1.14 | VA15-P | Eingang | Netzteil X21.13 | 14.80 V...15.75 V | Versorgungsspannung analog |
| X1.15 | VA15-N | Eingang | Netzteil X21.19 | -15.75V...-14.85V | Versorgungsspannung analog |
| X1.16 | VA15-N | Eingang | Netzteil X21.19 | -15.75V...-14.85V | Versorgungsspannung analog |
| X2 | FOPU | Eingang | OPUY1/2 | 11 ... 19 dBm | 9 kHz ... 2080 MHz |
| X3 | PULSE | Eingang | Rückwand | HCMOS-Pegel | DC ... 1 MHz |
| X4 | FPOW | Ausgang | Eichleitung X2 | 11 ... 19 dBm | 9 kHz ... 2080 MHz |
| X5 | VDETPOW | Ausgang | OPUY1/2 | 0 ... 5 V | DC ... 100 kHz |



ROHDE & SCHWARZ

SERVICE INSTRUCTIONS

Power Module

1062.7240.01

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Parts list
List of coordinates
Circuit diagram
Component layout diagram

7.1 Function Description

The RF signal from the output module OPUY1 or OPUY2 is provided at the input FOPU, divided by means of a signal divider (R91, R92) and amplified in identical paths. Each path contains a pulse modulator which is followed by an RF amplifier. One amplifier output passes via the FPOW output to the attenuator, the other one to the detector (V13). The RF voltage is rectified, there. The directional voltage is linearized (N6) and routed via the VDETPOW output to the motherboard and then to the output unit OPUY1 or OPUY2 as actual value for amplitude control in the frequency range $f > 10$ MHz.

Only the pulse modulator followed by the RF amplifier 1 is controlled, the other one assumes always the On state. Control is effected via the PULSE input. Level (EMF) or HIGH level at the input lead to RF ON, Low means RF OFF. This polarity may be inverted by plugging on the jumper P1-P2. The amplifiers N1 and N2 convert the TTL signal to the control level 0 V/-8 V for the GaAs switches D2 and D3.

The RF amplifiers are fed from constant-current sources V4 and V5, the drain voltages are regulated via the amplifiers N3 and N4. The amplifier stages V11 and V12 provide a gain of approx. 10 dB. The pulse modulators preceding the amplifier stages have an attenuation of approx. 2 dB with 2 GHz. The signal divider (R91, R92) has a transmission loss of 6 dB.

7.2 Test Instruments and Utilities

- Spectrum analyzer (e.g., FSBS)
- Oscilloscope (e.g., BOL)
- DC voltmeter (multimeter, e.g., UDL33)
- RF level meter (e.g., NRVD with sensor Z51)
- 10-dB attenuator with N connectors (e.g., DNF)
- 50- Ω termination (e.g., RAD)

7.3 Troubleshooting

Before opening the instrument, it is useful to first perform the LEVEL PRESET calibration and localize possible error sources using the diagnostic voltages. The special function 102 (detector voltage FOPU output) allows for checking the RF source for the Power Module: with a RF level of -30 dBm and RF frequencies > 10 MHz the typical voltage values are in the range from 0.7 to 1.3 V.

7.3.1 Errors Occurring Only in the Range $f_{RF} < 10$ MHz

incorrect RF level at X4 FPOW Check signal divider R91/R92, pulse modulator D2/D3 and RF amplifier 1 with $f = 100$ kHz using an oscilloscope.

bad AM distortion Check current source V4 and the drain-voltage control N3.

7.3.2 Errors Occurring Only in the Range $f_{RF} > 10$ MHz

incorrect RF level at X4 FPOW The gain of pulse modulators D2/D3 and D4/D5 or of the RF amplifiers 1 and 2 is not equal or the RF voltage at the output of RF amplifier 2 is not rectified correctly. Check detector and linearization circuit.

AM distortion too high Test and adjust detector and linearization circuit.

7.3.3 Errors in the Range 9 kHz $< f_{RF} \leq 2080$ MHz

no level at X4 FPOW The control voltage of the AM modulator (special function 107) must be > 12 V, otherwise, the level control does not work correctly or the reference value of RFLEV D/A converter is incorrect (the error is then located in the output units OPUY1 or OPUY2).
Check signal divider R91/R92, pulse modulator D2/D3 and RF amplifier 1 with $f = 100$ kHz using an oscilloscope.

harmonics too high Check the current source V4 and the drain-voltage control N3.

AM distortion too high Test and adjust detector and linearization circuit.

pulse modulation with incorrect polarity Jumper P1-P2 must not be plugged, check EXOR function of D1

pulse modulation not possible or incorrect rise and/or fall times Check control signals in the signal chain D1, N1 and N2 to D2 and D3

on/off-ratio with pulse modulation too low Check D2 and D3 and RC lowpasses of the control lines

7.4 Testing and Adjustment

7.4.1 Testing the Power Consumption

- Setting: PRESET

The currents can either be measured at the connector X1 or by means of the voltage drop at measurement resistors. If several measurement resistors are provided, the individual currents have to be added.

| Connector | Voltage | Power consumption | Resistor (2 Ω) |
|-----------------|---------|-------------------|------------------|
| X1.11 and X1.12 | +5 V | 35 to 45 mA | R66 |
| X1.13 and X1.14 | +15 V | 340 to 360 mA | R67 and R68 |
| X1.15 and X1.16 | -15 V | 45 to 55 mA | R69, R70 and R72 |

7.4.2 Testing the Operating Points of the Amplifier Stages

| Test point | Rated voltage | Remark |
|---------------------|---------------|----------------|
| V11 Drain | 6.60 ± 0.5V | RF AMPLIFIER 1 |
| V11 Gate | -1.0 ± 0.5V | RF AMPLIFIER 1 |
| V4 Collector | 7.25 ± 0.2V | current source |
| U15VA1 - V4 Emitter | 1.21 ± 0.02V | I = 150 mA |
| V12 Drain | 6.60 ± 0.5V | RF AMPLIFIER 1 |
| V12 Gate | -1.0 ± 0.5V | RF AMPLIFIER 1 |
| V5 Collector | 7.25 ± 0.2V | current source |
| U15VA2 - V5 Emitter | 1.21 ± 0.02V | I = 150 mA |

7.4.3 Testing the Pulse-modulator Control

Check the voltages according to the table below: High = 5 V,
Low = 0 V.

| P1-P2 | PULSE | D1/10 | D1/8 | D1/3 | D1/6 | N1/6 | N2/6 | D2/5 | D3/5 | D2/4 | D3/4 |
|---------------|-------|-------|------|------|------|--------|--------|--------|--------|--------|--------|
| not connected | High | High | Low | Low | High | 0 V | -7.9 V | 0 V | 0 V | -7.9 V | -7.9 V |
| connected | Low | High | Low | Low | High | 0 V | -7.9 V | 0 V | 0 V | -7.9 V | -7.9 V |
| not connected | Low | Low | High | High | Low | -7.9 V | 0 V | -7.9 V | -7.9 V | 0 V | 0 V |
| connected | High | Low | High | High | Low | -7.9 V | 0 V | -7.9 V | -7.9 V | 0 V | 0 V |

Remove jumper P1-P2.

7.4.4 Testing the Detector Voltage at the Output VDETPOW

- Setting: RF 100 MHz
Switch on special function 49 (level correction inactive)

_ Check dc voltage at VDETPOW according to the following table:

| | | | | | |
|-----------------|-----|------|------|------|------|
| RF level in dBm | -30 | 11.1 | 13 | 16 | 19 |
| Voltage in V | 2.0 | 1.27 | 1.58 | 2.23 | 3.14 |

Switch on special function 50 (level correction active)

7.4.5 Adjusting the Detector Linearity at the Output FPOW

- Setting: RF 100 MHz
LEVEL 11.1 dBm

_ Measure and note output level at the RF output of the instrument (= reference level)

- Setting: Switch on special function 1 (non-interrupting level setting)
LEVEL -8.9 dBm

_ Use POT R36 such that the measured level is 20 dB below the previously measured reference level. Repeat adjustment once, since the reference value changes by using R36; the accuracy of the 20-dB attenuation must be ± 0.1 dB.

7.5 Disassembly and Assembly

Remove top cover. The module is screwed to the frame and plugged in the transverse panel. The module can be removed after removing the screw and disconnecting the coaxial connections at X2, X3, X4, X5 and the connector X1.

7.6 Final Test

7.6.1 Maximum Output Level Check

- Setting: LEVEL 25 dBm
- _ Connect a power meter to X226 FOPU, make sure not to exceed the maximum RF power permitted! If necessary, an appropriate attenuator pad must be series-connected.
- _ Vary the RF frequency from 9 kHz to 2080 MHz.
The RF level must remain > 20 dBm.

7.6.2 Harmonics Suppression Check

- Setting: LEVEL 16 dBm
- _ Connect a spectrum analyzer to the RF connector of the instrument.
- _ The level of the harmonics must be < -25 dBc.

7.6.3 Checking the Dynamic Range of Pulse Modulation

- Setting: LEVEL 19 dBm
- _ Connect a spectrum analyzer to the RF connector of the instrument.
- _ Apply 0 V to the PULSE connector.
- _ The RF level must be < -51 dBm with 70 MHz.
- _ The RF level may increase linearly up to < -46 dBm in the frequency range $70 \text{ MHz} < f < 520 \text{ MHz}$.
- _ The RF level must remain < -46 dBm in the frequency range $520 \text{ MHz} < f < 800 \text{ MHz}$.
- _ The RF level may increase linearly up to < -16 dBm in the frequency range $800 \text{ MHz} < f < 2080 \text{ MHz}$.

The typical RF-OFF level is 10 dB below the given values.

7.6.4 Checking Switching Times of Pulse Modulation

- Setting: LEVEL 19 dBm
 RF 50 MHz

Connect an oscilloscope with an input impedance of 50 Ω to the RF connector of the instrument.

- _ Apply a TTL signal with $f = 1$ MHz to PULSE.
- _ The rise and fall time (10/90%) of the RF-signal envelope must be < 20 ns.
- _ The delay of the envelope compared to the control signal at the PULSE input (50%) must be < 200 ns.

7.6.5 Level Accuracy Check

- Setting: LEVEL 0 dBm
 RF 9 kHz to 2080 MHz


- _ Connect a power meter to the RF connector of the instrument.
- _ The RF level must be $0 \text{ dBm} \pm 1 \text{ dB}$. Typical deviations after calibration of the output level are $< \pm 0.1 \text{ dB}$ (cf. To Vol. 1, Section 6.4).

7.7 External Interfaces

| Pin | Name | Input/Output | Origin/Destination | Range | Signal description |
|-------|-----------|--------------|---------------------|----------------------|-----------------------|
| X1.01 | GND | | | | |
| X1.02 | SERDAT | Input | CPU | HCMOS level | not used |
| X1.03 | GND | | | | |
| X1.04 | SERCLK | Input | CPU | HCMOS level | not used |
| X1.05 | GND | | | | |
| X1.06 | ELSTB | Input | CPU | HCMOS level | not used |
| X1.07 | GND | | | | |
| X1.08 | OVERLOAD | Output | CPU | HCMOS level | not used |
| X1.09 | GND | | | | |
| X1.10 | PULSE-INV | Input | | | |
| X1.11 | VA-5P | Input | Power supply X21.5 | 5.10 V to 5.25 V | not used |
| X1.12 | VA-5P | Input | Power supply X21.5 | 5.10 V to 5.25 V | Analog supply voltage |
| X1.13 | VA15-P | Input | Power supply X21.13 | 14.80 V to 15.75 V | Analog supply voltage |
| X1.14 | VA15-P | Input | Power supply X21.13 | 14.80 V to 15.75 V | Analog supply voltage |
| X1.15 | VA15-N | Input | Power supply X21.19 | -15.75 V to -14.85 V | Analog supply voltage |
| X1.16 | VA15-N | Input | Power supply X21.19 | -15.75 V to -14.85 V | Analog supply voltage |
| X2 | FOPU | Input | OPUY1/2 | 11 to 19 dBm | 9 kHz to 2080 MHz |
| X3 | PULSE | Input | Rear panel | HCMOS level | DC to 1 MHz |
| X4 | FPOW | Output | Attenuator X2 | 11 to 19 dBm | 9 kHz to 2080 MHz |
| X5 | VDETPOW | Output | OPUY1/2 | 0 to 5 V | DC to 100 kHz |

**Schaltteillisten
numerisch geordnet
Part lists
in numerical order
Listes des pièces détachées
par numéros de référence**


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| Kanz. Comp. No. | Benennung Designation | Sachnummer Stock No. | Hersteller Manufacturer | Bezeichnung Designation | enthalten in contained in | |
|---|---|-------------------------|----------------------------|---------------------------------------|------------------------------|-------------------|
| . | XX VARIANTENERKLAERUNG IDENTIFICATION OF MODELS VAR02=GRUNDAUSFUEHRUNG MOD02=BASIC_MODEL | | | | | |
| C1 | CC 33NF+-10% 25V HDK 0603 ERAMIC CHIP CAPACITOR | 1051.4697.00 | AVX | CM105X7R333K25AT | | |
| ..9 | | | | | | |
| C10 | CC 39PF+-1% 50VNPO 0603 SMD-CERAMIC-CAPACITOR | 0009.9730.00 | VITRAMON | VJ0603A *** FXAT | | |
| ..13 | | | | | | |
| C14 | CC 33NF+-10% 25V HDK 0603 ERAMIC CHIP CAPACITOR | 1051.4697.00 | AVX | CM105X7R333K25AT | | |
| ..29 | | | | | | |
| C30 | CE 10UF+-20%35V RUND SMD SMD-ELECTROLYTIC CAPACIT. | CE 0009.5605.00 | PANASONIC | EEV HB 1V 100P | | |
| C31 | CE 10UF+-20%35V RUND SMD SMD-ELECTROLYTIC CAPACIT. | CE 0009.5605.00 | PANASONIC | EEV HB 1V 100P | | |
| C32 | CE 10UF +-10% 25V 7343 TANTALUM SMD-CAPACITOR NICHT BESTUECKT | CE 0007.7246.00 | SPRAGUE | 293D 106 X9 025 D2T | | |
| C33 | CE 10UF +-10% 25V 7343 TANTALUM SMD-CAPACITOR NICHT BESTUECKT | CE 0007.7246.00 | SPRAGUE | 293D 106 X9 025 D2T | | |
| C34 | CC 10PF+-0,1 50V NPO 0603 SMD-CERAMIC-CAPACITOR | CC 0009.4567.00 | AVX | 0603 5A *** BAT00J | | |
| C35 | CE 10UF +-10% 10V 6032 TANTALUM SMD-CAPACITOR NICHT BESTUECKT | CE 0007.7281.00 | KEMET | T491 C 106 K 010 AS | | |
| C36 | CE 10UF+-20%35V RUND SMD SMD-ELECTROLYTIC CAPACIT. | CE 0009.5605.00 | PANASONIC | EEV HB 1V 100P | | |
| C37 | CC 15PF+-1% 50VNPO 0603 SMD-CERAMIC-CAPACITOR | 0009.8227.00 | VITRAMON | VJ0603A *** BXAT | | |
| C38 | CC 15PF+-1% 50VNPO 0603 SMD-CERAMIC-CAPACITOR | 0009.8227.00 | VITRAMON | VJ0603A *** BXAT | | |
| C39 | CC 33NF+-10% 25V HDK 0603 ERAMIC CHIP CAPACITOR | 1051.4697.00 | AVX | CM105X7R333K25AT | | |
| C40 | CC 47PF+-1% 50VNPO 0603 SMD-CERAMIC-CAPACITOR | CC 0009.4644.00 | VITRAMON | VJ0603A *** FXAT | | |
| C41 | CE 1UF +-10% 10V 1206 TANTALUM-SMD-CAPACITOR | CE 0007.7252.00 | SPRAGUE | 293D 105 X9 010 D2T | | |
| C42 | CE 1UF +-10% 25V EIA3528 TANTALUM SMD-CAPACITOR | CE 0007.7217.00 | SPRAGUE | 293D 105 X9 025 B2T | | |
| ..44 | | | | | | |
| C45 | CE 1UF +-10% 10V 1206 TANTALUM-SMD-CAPACITOR | CE 0007.7252.00 | SPRAGUE | 293D 105 X9 010 D2T | | |
| C46 | CE 1UF +-10% 25V EIA3528 TANTALUM SMD-CAPACITOR | CE 0007.7217.00 | SPRAGUE | 293D 105 X9 025 B2T | | |
| C47 | CC 0,7PF+-0,05PF 0603 SMD-CERAMIC CAPACITOR | 0010.7150.00 | AWX | 0603 5J OR7 AAW TR | | |
| C48 | CC 0,7PF+-0,05PF 0603 SMD-CERAMIC CAPACITOR | 0010.7150.00 | AWX | 0603 5J OR7 AAW TR | | |
| C49 | CC 1,0NF+-10%50V HDK 0603 SMD-CERAMIC-CAPACITOR | CC 0009.4938.00 | MURATA | GRM39X7R***K50C500PT | | |
| C50 | CC 15PF+-1% 50VNPO 0603 SMD-CERAMIC-CAPACITOR | 0009.8227.00 | VITRAMON | VJ0603A *** BXAT | | |
| C51 | CC 100PF+-1% 50VNPO 0603 SMD-CERAMIC-CAPACITOR | CC 0009.4680.00 | MURATA | GRM39COG***F50PT | | |
| C52 | CC 33NF+-10% 25V HDK 0603 ERAMIC CHIP CAPACITOR | 1051.4697.00 | AVX | CM105X7R333K25AT | | |
| C53 | CC 15PF+-1% 50VNPO 0603 SMD-CERAMIC-CAPACITOR | 0009.8227.00 | VITRAMON | VJ0603A *** BXAT | | |
| C54 | CC 33NF+-10% 25V HDK 0603 ERAMIC CHIP CAPACITOR | 1051.4697.00 | AVX | CM105X7R333K25AT | | |
| C55 | CC 100PF+-1% 50VNPO 0603 SMD-CERAMIC-CAPACITOR | CC 0009.4680.00 | MURATA | GRM39COG***F50PT | | |
| C56 | CC 100PF+-1% 50VNPO 0603 SMD-CERAMIC-CAPACITOR | CC 0009.4680.00 | MURATA | GRM39COG***F50PT | | |
| C57 | CC 33NF+-10% 25V HDK 0603 ERAMIC CHIP CAPACITOR | 1051.4697.00 | AVX | CM105X7R333K25AT | | |
| C58 | CC 100PF+-1% 50VNPO 0603 SMD-CERAMIC-CAPACITOR | CC 0009.4680.00 | MURATA | GRM39COG***F50PT | | |
| C59 | CC 100PF+-1% 50VNPO 0603 SMD-CERAMIC-CAPACITOR | CC 0009.4680.00 | MURATA | GRM39COG***F50PT | | |
| C60 | CE 10UF+-20%35V RUND SMD SMD-ELECTROLYTIC CAPACIT. | CE 0009.5605.00 | PANASONIC | EEV HB 1V 100P | | |
| C61 | CE 10UF+-20%35V RUND SMD SMD-ELECTROLYTIC CAPACIT. | CE 0009.5605.00 | PANASONIC | EEV HB 1V 100P | | |
| C62 | CC 0,7PF+-0,05PF 0603 SMD-CERAMIC CAPACITOR NICHT BESTUECKT | 0010.7150.00 | AWX | 0603 5J OR7 AAW TR | | |
| MENP5 | 413 3PUA | Äl | Datum Date | Schaltteilliste für Parts list for | Sachnummer Stock No. | Blatt-Nr. Page |
|  | ROHDE & SCHWARZ | 05 | 16.09.97 | ED POWERMODUL | 1062.7240.01 SA | 1+ |

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| Kennz. Comp. No. | Benennung Designation | Sachnummer Stock No. | Hersteller Manufacturer | Bezeichnung Designation | enthalten in contained in |
|------------------|---|----------------------|-------------------------|-------------------------|---------------------------|
| C63 | CC 0,7PF+-0,05PF 0603 SMD-CERAMIC CAPACITOR NICHT BESTUECKT | 0010.7150.00 | AWX | 0603 5J OR7 AAW TR | |
| C64 | CC 0,7PF+-0,05PF 0603 SMD-CERAMIC CAPACITOR NICHT BESTUECKT | 0010.7150.00 | AWX | 0603 5J OR7 AAW TR | |
| C65 | CC 0,7PF+-0,05PF 0603 SMD-CERAMIC CAPACITOR NICHT BESTUECKT | 0010.7150.00 | AWX | 0603 5J OR7 AAW TR | |
| C66 | CC 220PF+-1% 50VNPO 0603 SMD-CERAMIC-CAPACITOR | CC 0009.4721.00 | MURATA | GRM39COG***F5OPT | |
| D1 | BL 74ACT86SC 4X 2IN-EXOR QUAD 2-INPUT EXOR GATE | BL 2005.4307.00 | HARRIS | (CD74)ACT86(M) | |
| D2 ..5 | BM SW-239 GAAS SPDTSWITCH GAAS RF-SWITCH | 0853.5579.00 | ANZAC | SW239 | |
| L1 | LD 2,2UH 10% 0,27A 1210 SMD-INDUCTOR | LD 0520.7870.00 | SIEMENS | B82422-A1222-K100 | |
| L2 | LD 2,2UH 10% 0,27A 1210 SMD-INDUCTOR | LD 0520.7870.00 | SIEMENS | B82422-A1222-K100 | |
| L3 | LD 47 NH+-10% 0,3A 0805 SMD-MULTILAYER INDUCTOR | LD 0009.6824.00 | TOKO | LL2012-F47NK | |
| L4 | LD 47 NH+-10% 0,3A 0805 SMD-MULTILAYER INDUCTOR | LD 0009.6824.00 | TOKO | LL2012-F47NK | |
| L5 | LD 1UH 10% 0,38A 1210 SMD-INDUCTOR | LD 6006.0130.00 | SIEMENS | B82422-A1102-K100 | |
| L6 | LD 1UH 10% 0,38A 1210 SMD-INDUCTOR | LD 6006.0130.00 | SIEMENS | B82422-A1102-K100 | |
| L7 | LD 100UH 10% 0,06A 1210 SMD-INDUCTOR | LD 0007.9261.00 | SIEMENS | B82422-A1104-K100 | |
| L8 | LD 22 NH+-10% 0,3A 0603 SMD-MULTILAYER INDUCTOR | LD 0009.6730.00 | TOKO | LL1608-F...K | |
| L9 | LD 22 NH+-10% 0,3A 0603 SMD-MULTILAYER INDUCTOR | LD 0009.6730.00 | TOKO | LL1608-F...K | |
| L10 ..21 | XX ENTHALTEN IN INCLUDED IN | | | | |
| L26 | LD 1000UH*-20%0,3A SMD INDUCTOR | 0048.4041.00 | COILCRAFT | D03316P-105 | |
| L28 | LD 1000UH*-20%0,3A SMD INDUCTOR | 0048.4041.00 | COILCRAFT | D03316P-105 | |
| L29 ..31 | LD SP-DROSSEL 68UH 0,68A CHOKE | 1081.1821.00 | SUMIDA | CDR74-680 | |
| N1 | BO CLC430AJE CF OPAMP IC CURRENT FEEDBACK OPAMP | 2032.2524.00 | COMLINEAR | CL(C)430AJE | |
| N2 | BO CLC430AJE CF OPAMP IC CURRENT FEEDBACK OPAMP | 2032.2524.00 | COMLINEAR | CL(C)430AJE | |
| N3 | BO TLO72ACD 2XFET OPAMP OPERATIONAL AMPLIFIER | 0803.1057.00 | TEXAS | TL 072 ACDR | |
| N4 | BO TLO72ACD 2XFET OPAMP OPERATIONAL AMPLIFIER | 0803.1057.00 | TEXAS | TL 072 ACDR | |
| N5 | BO TLO74ACD 4XFET OPAMP OPERATIONAL AMPLIFIER | 0007.7823.00 | TEXAS | TLO74A(CD) | |
| N6 | BO AD744KR FET OPAMP BIFET OPAMP | 0854.1754.00 | ANALOG_DEV | (AD)744KR | |
| P1 ..7 | VL EINPRESSSTIFT L=6,8 PIN | VL 0010.7250.00 | AMP | 1-928776-5 | |
| P9 | VL EINPRESSSTIFT L=6,8 PIN | VL 0010.7250.00 | AMP | 1-928776-5 | |
| P10 | VL EINPRESSSTIFT L=6,8 PIN | VL 0010.7250.00 | AMP | 1-928776-5 | |
| R1 | RG 27,4 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5508.00 | ROEDERSTEI | DC2 27,4OHM 1%TK100 | |
| R2 ..4 | RG 100R +-1% TK200 0603 SMD-RESISTOR EIA0603 | RG 0009.5334.00 | DRALORIC | CR 0603 100R 1%TK200 | |
| R5 | RG 82,5 OHM+-1%TK200 0603 SMD-RESISTOR EIA0603 | 0009.9052.00 | ROEDERSTEI | D11 0603OH | |
| R6 | RG 7K5 +-1% TK200 0603 SMD-RESISTOR EIA0603 | 0010.8440.00 | | | |
| R7 | RG 7K5 +-1% TK200 0603 SMD-RESISTOR EIA0603 | 0010.8440.00 | | | |
| R8 | RG 18R2 +-1% TK200 0603 SMD-RESISTOR EIA0603 | 0010.8385.00 | | | |
| R9 | RG 18R2 +-1% TK200 0603 SMD-RESISTOR EIA0603 | 0010.8385.00 | | | |

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| Kennz. Comp. No. | Benennung Designation | Sachnummer Stock No. | Hersteller Manufacturer | Bezeichnung Designation | enthalten in contained in |
|---------------------|--|-------------------------|----------------------------|----------------------------|------------------------------|
| R10 ..19 | RG 10K +-1% TK200 0603 SMD-RESISTOR EIA0603 | RG 0009.5357.00 | DRALORIC | CR 0603 10K 1% TK200 | |
| R20 | RG 15K +-1% TK200 0603 SMD-RESISTOR EIA0603 | 0009.7043.00 | DRALORIC | CR 0603 15K 1% TK200 | |
| R21 | RG 392R+-1% TK200 0603 SMD-RESISTOR EIA0603 | 0010.9300.00 | | | |
| R22 | RG 392R+-1% TK200 0603 SMD-RESISTOR EIA0603 | 0010.9300.00 | | | |
| R23 ..28 | RG 10K +-1% TK200 0603 SMD-RESISTOR EIA0603 | RG 0009.5357.00 | DRALORIC | CR 0603 10K 1% TK200 | |
| R29 | RG 15K +-1% TK200 0603 SMD-RESISTOR EIA0603 | 0009.7043.00 | DRALORIC | CR 0603 15K 1% TK200 | |
| R30 | RG 68,1 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8849.00 | ROEDERSTEI | DC2 68,10HM 1%TK100 | |
| R31 | RG 68,1 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8849.00 | ROEDERSTEI | DC2 68,10HM 1%TK100 | |
| R32 ..35 | RG 10K +-1% TK200 0603 SMD-RESISTOR EIA0603 | RG 0009.5357.00 | DRALORIC | CR 0603 10K 1% TK200 | |
| R36 | RS 0,25W 2KOHM +-20% SMD POTENTIOMETER | RS 0007.9626.00 | SIEMENS | S4G-2KOHM | |
| R37 | RG 3K3 +-1% TK200 0603 SMD-RESISTOR EIA0603 | 0009.7014.00 | ROEDERSTEI | D11 0603OH | |
| R38 | RG 3K3 +-1% TK200 0603 SMD-RESISTOR EIA0603 | 0009.7014.00 | ROEDERSTEI | D11 0603OH | |
| R39 | RG 56,2 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8826.00 | ROEDERSTEI | DC2 56,20HM 1%TK100 | |
| R40 | RG 56,2 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8826.00 | ROEDERSTEI | DC2 56,20HM 1%TK100 | |
| R41 | RG 27,4 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5508.00 | ROEDERSTEI | DC2 27,40HM 1%TK100 | |
| R42 | RG 39K2 +-1% TK200 0603 SMD-REGISTER | 0010.9823.00 | | | |
| R43 | RG 1K0 +-1% TK200 0603 SMD-RESISTOR EIA0603 | RG 0009.5340.00 | DRALORIC | CR 0603 1K 1% TK200 | |
| R44 | RG 1K0 +-1% TK200 0603 SMD-RESISTOR EIA0603 | RG 0009.5340.00 | DRALORIC | CR 0603 1K 1% TK200 | |
| R45 | RG 470R +-1% TK200 0603 SMD-RESISTOR EIA0603 | 0009.6976.00 | ROEDERSTEI | D11 0603OH | |
| R46 | RG 1K5 +-1% TK200 0603 SMD-RESISTOR EIA0603 | 0009.6999.00 | ROEDERSTEI | D11 0603OH | |
| R47 | RG 330R +-1% TK200 0603 SMD-RESISTOR EIA0603 | 0009.6960.00 | DRALORIC | CR 06030 | |
| R48 | RG 270R +-1% TK200 0603 SMD-RESISTOR EIA0603 | 0010.9581.00 | | | |
| R49 | RG 330R +-1% TK200 0603 SMD-RESISTOR EIA0603 | 0009.6960.00 | DRALORIC | CR 06030 | |
| R50 | RG 270R +-1% TK200 0603 SMD-RESISTOR EIA0603 | 0010.9581.00 | | | |
| R51 | RG 110 OHM+-1%TK200 0603 SMD-RESISTOR EIA0603 | 0009.9481.00 | ROEDERSTEI | D11 0603OH | |
| R52 | RG 110 OHM+-1%TK200 0603 SMD-RESISTOR EIA0603 | 0009.9481.00 | ROEDERSTEI | D11 0603OH | |
| R53 | RG 392R+-1% TK200 0603 SMD-RESISTOR EIA0603 | 0010.9300.00 | | | |
| R54 | RG 470R +-1% TK200 0603 SMD-RESISTOR EIA0603 | 0009.6976.00 | ROEDERSTEI | D11 0603OH | |
| R55 | RG 1K21 +-1% TK200 0603 SMD-REGISTER | 0010.9817.00 | | | |
| R56 | RG 10R +-1% TK200 0603 SMD-RESISTOR EIA0603 | RG 0009.5328.00 | DRALORIC | CR 0603 | |
| R57 | RG 10R +-1% TK200 0603 SMD-RESISTOR EIA0603 | RG 0009.5328.00 | DRALORIC | CR 0603 | |
| R58 ..63 | RG 24,3 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5495.00 | ROEDERSTEI | DC2 24,30HM 1%TK100 | |
| R64 | RG 0-OHM WIDERSTAND-CHIP RESISTOR CHIP 0-OHM NICHT BESTUECKT | RG 0007.5108.00 | DRALORIC | CR 1206 | |
| R65 | RG 0-OHM WIDERSTAND-CHIP RESISTOR CHIP 0-OHM NICHT BESTUECKT | RG 0007.5108.00 | DRALORIC | CR 1206 | |
| R66 | RG 0-OHM WIDERSTAND-CHIP RESISTOR CHIP 0-OHM | RG 0007.5108.00 | DRALORIC | CR 1206 | |
| R67 | RG 2,0 OHM+-1%TK100 1206 CHIP-RESISTOR | RG 0007.8336.00 | PHILIPS | RC 02 | |
| R68 | RG 2,0 OHM+-1%TK100 1206 CHIP-RESISTOR | RG 0007.8336.00 | PHILIPS | RC 02 | |
| R69 | RG 0-OHM WIDERSTAND-CHIP RESISTOR CHIP 0-OHM | RG 0007.5108.00 | DRALORIC | CR 1206 | |

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| Kennz. Comp. No. | Benennung Designation | Sachnummer Stock No. | Hersteller Manufacturer | Bezeichnung Designation | enthalten in contained in |
|------------------|---|----------------------|-------------------------|-------------------------|---------------------------|
| R70 | RG 0-OHM WIDERSTAND-CHIP RESISTOR CHIP 0-OHM | RG 0007.5108.00 | DRALORIC | CR 1206 | |
| R71 | RG 1K0 +-1% TK200 0603 SMD-RESISTOR EIA0603 | RG 0009.5340.00 | DRALORIC | CR 0603 1K 1% TK200 | |
| R72 | RG 0-OHM WIDERSTAND-CHIP RESISTOR CHIP 0-OHM | RG 0007.5108.00 | DRALORIC | CR 1206 | |
| R73 | RG 10K +-1% TK200 0603 SMD-RESISTOR EIA0603 NICHT BESTUECKT | RG 0009.5357.00 | DRALORIC | CR 0603 10K 1% TK200 | |
| R74 | RG 1M0 +-1% TK200 0603 SMD-RESISTOR EIA0603 | RG 0009.5370.00 | DRALORIC | CR 0603 1M 1% TK200 | |
| R76 | RG 560R +-1% TK200 0603 SMD-RESISTOR EIA0603 | 0009.9630.00 | DRALORIC | CR 0603 |0 |
| R77 | RG 560R +-1% TK200 0603 SMD-RESISTOR EIA0603 | 0009.9630.00 | DRALORIC | CR 0603 |0 |
| R78 | RG 680K +-1% TK200 0603 SMD-RESISTOR EIA0603 | 0009.7137.00 | ROEDERSTEI | D11 0603 |0H |
| R79 | RG 680K +-1% TK200 0603 SMD-RESISTOR EIA0603 | 0009.7137.00 | ROEDERSTEI | D11 0603 |0H |
| R80 | RG 39R2 +-1% TK200 0603 SMD-RESISTOR EIA0603 | 0010.9400.00 | | | |
| R81 | RG 39R2 +-1% TK200 0603 SMD-RESISTOR EIA0603 | 0010.9400.00 | | | |
| R82 | RG 560R +-1% TK200 0603 SMD-RESISTOR EIA0603 | 0009.9630.00 | DRALORIC | CR 0603 |0 |
| R83 | RG 560R +-1% TK200 0603 SMD-RESISTOR EIA0603 | 0009.9630.00 | DRALORIC | CR 0603 |0 |
| R84 | RG 4R75 +-1% TK200 0603 SMD-RESISTOR EIA0603 | 0010.8379.00 | | | |
| R85 | RG 1K0 +-1% TK200 0603 SMD-RESISTOR EIA0603 | RG 0009.5340.00 | DRALORIC | CR 0603 1K 1% TK200 | |
| R86 | RG 4R75 +-1% TK200 0603 SMD-RESISTOR EIA0603 | 0010.8379.00 | | | |
| R87 | RG 1K0 +-1% TK200 0603 SMD-RESISTOR EIA0603 | RG 0009.5340.00 | DRALORIC | CR 0603 1K 1% TK200 | |
| R88 | RG 22K +-1% TK200 0603 SMD-RESISTOR EIA0603 | 0009.7050.00 | ROEDERSTEI | D11 0603 |0H |
| R89 | RG 2K0 +-1% TK200 0603 SMD RESISTOR | 1097.6328.00 | | | |
| R90 | RG 2K0 +-1% TK200 0603 SMD RESISTOR | 1097.6328.00 | | | |
| R91 | RG 51,0 OHM+-1%TK200 0603 SMD-RESISTOR EIA0603 | 0009.9030.00 | ROEDERSTEI | D11 0603 |0H |
| R94 | RG 150R +-1% TK200 0603 SMD-RESISTOR EIA0603 | 0009.6947.00 | ROEDERSTEI | D11 0603 |0H |
| R95 | RG 150R +-1% TK200 0603 SMD-RESISTOR EIA0603 | 0009.6947.00 | ROEDERSTEI | D11 0603 |0H |
| R98 | RG 51,0 OHM+-1%TK200 0603 SMD-RESISTOR EIA0603 | 0009.9030.00 | ROEDERSTEI | D11 0603 |0H |
| R99 | RG 51,0 OHM+-1%TK200 0603 SMD-RESISTOR EIA0603 | 0009.9030.00 | ROEDERSTEI | D11 0603 |0H |
| R104 | RG 47R +-1% TK200 0603 SMD-RESISTOR EIA0603 | 0009.6924.00 | ROEDERSTEI | D11 0603 |0H |
| R105 | RG 47R +-1% TK200 0603 SMD-RESISTOR EIA0603 | 0009.6924.00 | ROEDERSTEI | D11 0603 |0H |
| R106 | RG 3K92 +-1% TK200 0603 SMD-RESISTOR EIA0603 | 0010.8427.00 | | | |
| R108 | RG 3K92 +-1% TK200 0603 SMD-RESISTOR EIA0603 | 0010.8427.00 | | | |
| R109 | RG 100K +-1% TK200 0603 SMD RESISTOR | RG 0009.5363.00 | DRALORIC | CR 0603 100K 1%TK200 | |
| R112 | RG 357R +-1% TK200 0603 SMD RESISTOR | 1097.6405.00 | | | |
| R113 | RG 357R +-1% TK200 0603 SMD RESISTOR | 1097.6405.00 | | | |
| R114 | RG 357R +-1% TK200 0603 SMD RESISTOR | 1097.6405.00 | | | |
| R115 | RG 3K92 +-1% TK200 0603 SMD-RESISTOR EIA0603 | 0010.8427.00 | | | |
| R116 | RG 3K92 +-1% TK200 0603 SMD-RESISTOR EIA0603 | 0010.8427.00 | | | |
| R117 | RG 56R +-1% TK200 0603 SMD-RESISTOR EIA0603 | 0009.9646.00 | ROEDERSTEI | D11 0603 |0H |
| R118 | RG 56R +-1% TK200 0603 SMD-RESISTOR EIA0603 | 0009.9646.00 | ROEDERSTEI | D11 0603 |0H |
| R119 | RG 562 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.9068.00 | ROEDERSTEI | DC2 562OHM 1%TK100 | |
| R120 | RG 562 OHM+-1%TK100 1206 CHIP RESISTOR NICHT BESTUECKT" | RG 0006.9068.00 | ROEDERSTEI | DC2 562OHM 1%TK100 | |
| R121 | RG 121 OHM+-1%TK100 1206 CHIP RESISTOR | RG 0006.8903.00 | ROEDERSTEI | DC2 121OHM 1%TK100 | |
| R122 | RG 121 OHM+-1%TK100 1206 CHIP RESISTOR NICHT BESTUECKT" | RG 0006.8903.00 | ROEDERSTEI | DC2 121OHM 1%TK100 | |
| R123 | RG 39R2 +-1% TK200 0603 SMD-RESISTOR EIA0603 | 0010.9400.00 | | | |

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| MENP5 | 413 3PUA | Ät | Datum Date | Schaltteilliste für Parts list for | Sachnummer Stock No. | Blatt-Nr. Page |
|  | 05 | 16.09.97 | ED POWERMODUL | 1062.7240.01 SA | 4+ | |

095.0026-0693


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| Kennz. Comp. No. | Benennung Designation | Sachnummer Stock No. | Hersteller Manufacturer | Bezeichnung Designation | enthalten in contained in |
|------------------|--|----------------------|-------------------------|-------------------------|---------------------------|
| R124 | RG 0-OHM WIDERSTAND 0603 O-OHM RESISTOR EIA0603 | 0009.9369.00 | PHILIPS_CO | RC21 0 OHM | |
| R125 | RG 0-OHM WIDERSTAND 0603 O-OHM RESISTOR EIA0603 NICHT BESTUECKT | 0009.9369.00 | PHILIPS_CO | RC21 0 OHM | |
| R126 | RG 150K +-1% TK200 0603 SMD-RESISTOR EIA0603 | 0009.7095.00 | ROEDERSTEI | D11 0603OH | |
| R127 | RG 39K2 +-1% TK200 0603 SMD-REGISTER | 0010.9823.00 | | | |
| R128 ..133 | RG 39,2 OHM+-1%TK100 1206 RESISTOR CHIP | RG 0007.5543.00 | ROEDERSTEI | DC2 39,2OHM 1%TK100 | |
| R134 ..143 | RG 1MO +-1% TK200 0603 SMD-RESISTOR EIA0603 | RG 0009.5370.00 | DRALORIC | CR 0603 1M 1% TK200 | |
| R144 | RG 39R2 +-1% TK200 0603 SMD-RESISTOR EIA0603 | 0010.9400.00 | | | |
| R150 | RL 0,60W 8,25KOHM+-1%TK50 RESISTOR | RL 0083.1239.00 | RESISTA | MK2 | |
| V1 | AE BZV55/C4V7 0.5W ZDI ZENER DIODE | AE 0006.9822.00 | PHILIPS | BZV55B4V7 | |
| V2 | AE BZV55/C4V7 0.5W ZDI ZENER DIODE | AE 0006.9822.00 | PHILIPS | BZV55B4V7 | |
| V3 | AE 1N827 6,2V REF DI REFERENCE DIODE | AE 0418.0029.00 | COMPENSATE | 1N827(A) | |
| V4 | AK BSP31 P 60V 1A TRAN TRANSISTOR | 1085.1755.00 | PHILIPS_SE | BSP31 | |
| V5 | AK BSP31 P 60V 1A TRAN TRANSISTOR | 1085.1755.00 | PHILIPS_SE | BSP31 | |
| V6 ..8 | AD BAS32 75V UDI DIODE | AD 0006.7288.00 | PHILIPS | BAS32 (L) | |
| V9 | AD BAV99 70V DUO UDI DIODE | AD 0911.0092.00 | VALVO | BAV99 | |
| V10 | AD BAV99 70V DUO UDI DIODE | AD 0911.0092.00 | VALVO | BAV99 | |
| V11 | AM SHF0186 SELEC.9V GAASF TRANSISTOR GAASFET | 1062.9308.00 | | | |
| V12 | AM SHF0186 SELEC.9V GAASF TRANSISTOR GAASFET | 1062.9308.00 | | | |
| V13 | AE BAT62 1+1 40V SCHOTTKY DIODE PAIR | 1051.4045.00 | SIEMENS | BAT62 (62) | |
| V14 | AD BAV99 70V DUO UDI DIODE | AD 0911.0092.00 | VALVO | BAV99 | |
| V15 | AE HSMS2810 SCHOTTKY DIODE | 0520.7340.00 | HEWLETT_PA | HSMS2810 | |
| V16 | AE HSMS2810 SCHOTTKY DIODE NICHT BESTUECKT | 0520.7340.00 | HEWLETT_PA | HSMS2810 | |
| V17 | AE HSMS2810 SCHOTTKY DIODE | 0520.7340.00 | HEWLETT_PA | HSMS2810 | |
| V18 | AE HSMS2810 SCHOTTKY DIODE NICHT BESTUECKT | 0520.7340.00 | HEWLETT_PA | HSMS2810 | |
| V19 | AE HSMS2810 SCHOTTKY DIODE | 0520.7340.00 | HEWLETT_PA | HSMS2810 | |
| V20 | AE HSMS2810 SCHOTTKY DIODE | 0520.7340.00 | HEWLETT_PA | HSMS2810 | |
| V21 | AE BZV55/C8V2 0,5W ZDI ZENER DIODE | AE 0006.9874.00 | PHILIPS | BZV55B8V2 | |
| V22 | AE BZV55/C8V2 0,5W ZDI ZENER DIODE | AE 0006.9874.00 | PHILIPS | BZV55B8V2 | |
| V23 | AE HSMS2825 1+1 SCHOTTKY SCHOTTKY DIODE PAIR | 1010.6214.00 | HEWLETT_PA | HSMS2825 L31 | |
| V24 | AE HSMS2825 1+1 SCHOTTKY SCHOTTKY DIODE PAIR | 1010.6214.00 | HEWLETT_PA | HSMS2825 L31 | |
| V25 | AD BAV99 70V DUO UDI DIODE | AD 0911.0092.00 | VALVO | BAV99 | |
| V26 | AE BZV55/C5V6 0.5W ZDI ZENER DIODE NICHT BESTUECKT" NOT FITTED" | AE 0006.9845.00 | PHILIPS | BZV55B5V6 | |
| V27 | AD BAS32 75V UDI DIODE NICHT BESTUECKT" NOT FITTED" | AD 0006.7288.00 | PHILIPS | BAS32 (L) | |
| X1 | FP STECKERLEISTE 16P.WIN CONNECTOR | FP 0738.5341.00 | SIEMENS | V23535-A2210-162 | |

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| MENP5 | 413 3PUA | Äl | Datum Date | Schaltteilliste für Parts list for | Sachnummer Stock No. | Blatt-Nr. Page |
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| Kanz. Comp. No. | Benennung Designation | Sachnummer Stock No. | Hersteller Manufacturer | Bezeichnung Designation | enthalten in contained in |
|--------------------|---|-------------------------|----------------------------|----------------------------|------------------------------|
| X2 | FJ EINLOETBUCHSE SMA CONNECTOR | 1085.1726.00 | SUHNER | 82SMA-S-50-0-45/111 | |
| X3 | FJ EINLOETBUCHSE MMCX CONNECTOR | 1085.1532.00 | SUHNER | 82MMCXS50-0-2/111KE | |
| X4 | FJ EINLOETBUCHSE SMA CONNECTOR | 1085.1726.00 | SUHNER | 82SMA-S-50-0-45/111 | |
| X5 | FJ EINLOETBUCHSE MMCX CONNECTOR | 1085.1532.00 | SUHNER | 82MMCXS50-0-2/111KE | |
| X6 | FJ EINLOETBUCHSE MMCX SMD CONNECTOR NICHT BESTUECKT | 1085.2045.00 | IMS | 1863.09.2620.001(003 | |
| Z1 ..6 | LD SMD-T-FILTER 3,3NF SMD-FILTER | 1039.1362.00 | MURATA | NFM61R20T332T1 | |

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| MENP5 | 413 3PUA | Äi | Datum Date | Schaltteilliste für Parts list for | Sachnummer Stock No. | Blatt-Nr. Page |
|  | ROHDE & SCHWARZ | 05 | 16.09.97 | ED POWERMODUL | 1062.7240.01 SA | 6- |

XY-Liste

XY List

Erklärung der Spaltenbezeichnungen:

- Part:** Bauelement-Kennzeichen.
- Side: ...-** Leiterplatten-Seite, auf der sich das Bauelement befindet.
- X/Y:** Koordinaten (Millimeter) des Bauelementes auf der Leiterplatte bezogen auf den Nullpunkt.
- SQR, PG:** Planquadrat und Seite des Schaltbildes für das jeweilige Bauelement.

Explanation of column designations:

- Part:** Identification of instrument part.
- Side:** Side of the PC board on which instrument part is positioned.
- X/Y:** Coordinates (millimeter) of the component on the PC board in reference to zero point.
- SQR, PG:** Square and page of the diagram for the respective instrument part.

| Service-Relevante Bauteile / Service-Relevant Components | | | | | | | | | | | | | | | | | | |
|--|------|-----|----|-----|----|------|------|---|---|-----|----|------|------|---|---|-----|----|--|
| Part | Side | X | Y | Sqr | Pg | Part | Side | X | Y | Sqr | Pg | Part | Side | X | Y | Sqr | Pg | |
| R36 | B | 104 | 61 | 2D | 4 | | | | | | | | | | | | | |

| Nicht-Service-Relevante Bauteile / Non-Service-Relevant Components | | | | | | | | | | | | | | | | | |
|--|------|-----|----|-----|----|------|------|-----|----|-----|----|------|------|-----|----|-----|----|
| Part | Side | X | Y | Sqr | Pg | Part | Side | X | Y | Sqr | Pg | Part | Side | X | Y | Sqr | Pg |
| C1 | B | 61 | 12 | 4D | 2 | C47 | B | 64 | 15 | 4E | 2 | L30 | B | 14 | 61 | 1C | 1 |
| C2 | B | 61 | 32 | 4D | 3 | C48 | B | 64 | 29 | 4E | 3 | L31 | B | 14 | 50 | 1D | 1 |
| C3 | A | 11 | 10 | 6D | 1 | C49 | B | 108 | 51 | 3D | 4 | N1 | A | 23 | 20 | 6B | 1 |
| C4 | A | 23 | 11 | 6D | 1 | C50 | B | 80 | 15 | 6D | 2 | N1 | A | 23 | 20 | 7D | 1 |
| C5 | A | 18 | 22 | 6D | 1 | C51 | A | 85 | 47 | 8A | 2 | N2 | A | 14 | 20 | 6C | 1 |
| C6 | A | 22 | 22 | 7D | 1 | C52 | A | 79 | 59 | 7A | 2 | N2 | A | 14 | 20 | 6D | 1 |
| C7 | A | 81 | 57 | 7B | 2 | C53 | B | 80 | 30 | 6D | 3 | N3 | A | 83 | 58 | 4E | 2 |
| C8 | A | 87 | 61 | 4F | 2 | C54 | A | 53 | 59 | 7B | 3 | N3 | A | 83 | 58 | 7B | 2 |
| C9 | A | 90 | 54 | 4E | 2 | C55 | A | 59 | 48 | 8B | 3 | N3 | A | 83 | 58 | 8B | 2 |
| C10 | A | 47 | 11 | 4D | 2 | C56 | B | 94 | 34 | 5B | 4 | N4 | A | 58 | 58 | 4E | 3 |
| C11 | A | 47 | 13 | 3D | 2 | C57 | B | 100 | 41 | 3B | 4 | N4 | A | 58 | 58 | 7B | 3 |
| C12 | A | 38 | 11 | 2D | 2 | C58 | B | 71 | 14 | 5E | 2 | N4 | A | 58 | 58 | 8B | 3 |
| C13 | A | 38 | 17 | 2D | 2 | C59 | B | 71 | 29 | 5E | 3 | N5 | B | 102 | 50 | 2D | 4 |
| C14 | A | 55 | 57 | 7C | 3 | C60 | B | 65 | 45 | 4A | 2 | N5 | B | 102 | 50 | 3E | 4 |
| C15 | A | 62 | 61 | 4F | 3 | C61 | B | 65 | 51 | 4A | 3 | N5 | B | 102 | 50 | 5D | 4 |
| C16 | A | 65 | 54 | 4E | 3 | D1 | A | 31 | 26 | 4C | 1 | N5 | B | 102 | 50 | 7C | 4 |
| C17 | A | 38 | 34 | 2D | 3 | D1 | A | 31 | 26 | 5D | 1 | N5 | B | 102 | 50 | 7D | 4 |
| C18 | A | 38 | 28 | 2D | 3 | D1 | A | 31 | 26 | 6B | 1 | N6 | B | 104 | 43 | 2C | 4 |
| C19 | A | 47 | 30 | 3D | 3 | D1 | A | 31 | 26 | 6C | 1 | N6 | B | 104 | 43 | 4E | 4 |
| C20 | A | 47 | 28 | 4D | 3 | D1 | A | 31 | 26 | 8D | 1 | P1 | B | 31 | 53 | 2D | 1 |
| C21 | B | 95 | 55 | 6D | 4 | D2 | B | 35 | 11 | 1D | 2 | P2 | B | 29 | 53 | 2D | 1 |
| C22 | B | 95 | 53 | 7C | 4 | D3 | B | 52 | 15 | 4D | 2 | P3 | B | 97 | 60 | 7D | 4 |
| C23 | B | 71 | 64 | 2E | 4 | D4 | B | 52 | 32 | 4E | 3 | P4 | B | 91 | 51 | 7C | 4 |
| C24 | B | 71 | 55 | 2F | 4 | D5 | B | 35 | 28 | 2E | 3 | P5 | B | 111 | 58 | 3C | 4 |
| C25 | A | 103 | 54 | 3E | 4 | L1 | B | 87 | 8 | 6C | 2 | P6 | B | 100 | 45 | 2C | 4 |
| C26 | A | 97 | 54 | 3F | 4 | L2 | B | 87 | 36 | 6C | 3 | P7 | B | 100 | 48 | 2C | 4 |
| C27 | A | 109 | 43 | 4E | 4 | L3 | B | 81 | 11 | 6C | 2 | P9 | B | 91 | 48 | 7C | 4 |
| C28 | A | 104 | 41 | 4F | 4 | L4 | B | 81 | 33 | 6D | 3 | P10 | B | 97 | 63 | 7D | 4 |
| C29 | B | 105 | 52 | 2E | 4 | L5 | B | 66 | 61 | 2E | 4 | R1 | B | 103 | 34 | 5A | 4 |
| C30 | B | 30 | 56 | 2D | 1 | L6 | B | 66 | 58 | 2F | 4 | R2 | A | 79 | 51 | 5B | 2 |
| C31 | B | 30 | 49 | 2D | 1 | L7 | B | 93 | 41 | 5B | 4 | R3 | A | 53 | 51 | 5B | 3 |
| C32 | A | 68 | 51 | 5A | 2 | L8 | B | 81 | 8 | 6C | 2 | R4 | B | 97 | 46 | 3B | 4 |
| C33 | A | 43 | 51 | 5A | 3 | L9 | B | 81 | 37 | 6C | 3 | R5 | B | 96 | 38 | 4B | 4 |
| C34 | B | 96 | 44 | 4B | 4 | L10 | B | 64 | 15 | 4D | 2 | R6 | A | 49 | 36 | 3C | 3 |
| C35 | A | 16 | 32 | 3B | 1 | L11 | B | 78 | 12 | 5D | 2 | R7 | A | 47 | 35 | 3D | 3 |
| C36 | B | 23 | 47 | 2C | 1 | L12 | B | 89 | 14 | 6D | 2 | R8 | B | 80 | 16 | 6D | 2 |
| C37 | A | 29 | 24 | 6B | 1 | L13 | B | 79 | 15 | 6D | 2 | R9 | B | 80 | 28 | 6D | 3 |
| C38 | A | 26 | 24 | 5C | 1 | L14 | B | 93 | 9 | 6B | 2 | R10 | B | 20 | 30 | 4B | 1 |
| C39 | A | 35 | 22 | 5D | 1 | L15 | B | 63 | 29 | 4E | 3 | R11 | A | 21 | 30 | 4C | 1 |
| C40 | B | 101 | 41 | 3B | 4 | L16 | B | 81 | 29 | 6D | 3 | R12 | A | 31 | 22 | 6B | 1 |
| C41 | B | 74 | 11 | 5D | 2 | L17 | B | 92 | 35 | 6C | 3 | R13 | A | 24 | 24 | 6C | 1 |
| C42 | B | 89 | 15 | 7D | 2 | L19 | B | 78 | 32 | 5D | 3 | R14 | A | 26 | 35 | 8D | 1 |
| C43 | B | 56 | 15 | 4D | 2 | L20 | B | 89 | 29 | 6D | 3 | R15 | A | 33 | 24 | 7D | 1 |
| C44 | B | 56 | 29 | 4E | 3 | L26 | B | 81 | 58 | 6B | 2 | R16 | A | 81 | 63 | 7B | 2 |
| C45 | B | 74 | 33 | 5D | 3 | L28 | B | 55 | 57 | 6B | 3 | R17 | A | 81 | 65 | 7B | 2 |
| C46 | B | 89 | 29 | 7D | 3 | L29 | B | 24 | 68 | 1C | 1 | R18 | A | 85 | 50 | 8B | 2 |

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| ROHDE & SCHWARZ | ãI | Datum Date | XY-Liste für XY-list for | Sach-Nummer Stock-Nr | Blatt Page |
| | 02 | 21.04.97 | ED POWERMODUL | 1062.7240.01 XY | 1+ |



| Part | Side | X | Y | Sqr | Pg | Part | Side | X | Y | Sqr | Pg | Part | Side | X | Y | Sqr | Pg |
|------|------|-----|----|-----|----|------|------|-----|----|-----|----|------|------|-----|----|-----|----|
| R19 | A | 88 | 50 | 8B | 2 | R68 | B | 43 | 55 | 3D | 1 | R118 | B | 101 | 65 | 2D | 4 |
| R20 | A | 77 | 57 | 7B | 2 | R69 | B | 43 | 49 | 3D | 1 | R119 | B | 18 | 31 | 3B | 1 |
| R21 | B | 111 | 45 | 3C | 4 | R70 | B | 43 | 46 | 3D | 1 | R120 | B | 15 | 31 | 3B | 1 |
| R22 | B | 108 | 49 | 3D | 4 | R71 | B | 41 | 53 | 3D | 1 | R121 | A | 9 | 29 | 3B | 1 |
| R23 | B | 62 | 14 | 4D | 2 | R72 | B | 43 | 44 | 3D | 1 | R122 | A | 9 | 32 | 3B | 1 |
| R24 | B | 62 | 31 | 4D | 3 | R73 | B | 33 | 53 | 1D | 1 | R123 | A | 30 | 14 | 3B | 1 |
| R25 | A | 58 | 64 | 7B | 3 | R74 | A | 81 | 59 | 7B | 2 | R124 | B | 107 | 37 | 6A | 4 |
| R26 | A | 58 | 62 | 7B | 3 | R75 | A | 55 | 59 | 7B | 3 | R125 | B | 105 | 36 | 6A | 4 |
| R27 | A | 59 | 50 | 8B | 3 | R76 | B | 102 | 47 | 2B | 4 | V1 | A | 57 | 10 | 4D | 2 |
| R28 | A | 63 | 50 | 8B | 3 | R77 | B | 21 | 31 | 4C | 1 | V2 | A | 57 | 35 | 4D | 3 |
| R29 | A | 51 | 57 | 7B | 3 | R78 | B | 102 | 45 | 2B | 4 | V3 | B | 98 | 66 | 6D | 4 |
| R30 | A | 11 | 23 | 6E | 1 | R79 | B | 96 | 48 | 3B | 4 | V4 | A | 73 | 58 | 5B | 2 |
| R31 | A | 13 | 23 | 6E | 1 | R80 | A | 80 | 63 | 6B | 2 | V5 | A | 48 | 58 | 5B | 3 |
| R32 | B | 106 | 59 | 5D | 4 | R81 | A | 54 | 64 | 6B | 3 | V6 | B | 103 | 60 | 5D | 4 |
| R33 | B | 95 | 58 | 6D | 4 | R82 | A | 21 | 17 | 7B | 1 | V7 | B | 105 | 55 | 3D | 4 |
| R34 | B | 94 | 57 | 6D | 4 | R83 | A | 11 | 17 | 7C | 1 | V8 | B | 108 | 47 | 2B | 4 |
| R35 | B | 95 | 51 | 7C | 4 | R85 | A | 81 | 51 | 5B | 2 | V9 | A | 78 | 49 | 5B | 2 |
| R37 | B | 106 | 51 | 2D | 4 | R87 | A | 55 | 51 | 5B | 3 | V10 | A | 53 | 49 | 5B | 3 |
| R38 | B | 106 | 45 | 2C | 4 | R88 | B | 105 | 57 | 5D | 4 | V11 | B | 74 | 15 | 5D | 2 |
| R39 | B | 95 | 30 | 5A | 4 | R89 | A | 38 | 37 | 5B | 1 | V12 | B | 74 | 29 | 5E | 3 |
| R40 | B | 95 | 32 | 5A | 4 | R90 | A | 28 | 36 | 5C | 1 | V13 | B | 96 | 40 | 3B | 4 |
| R41 | B | 101 | 33 | 5A | 4 | R91 | B | 26 | 15 | 3A | 1 | V13 | B | 96 | 40 | 4B | 4 |
| R42 | A | 79 | 57 | 6A | 4 | R92 | B | 26 | 18 | 3A | 1 | V15 | A | 40 | 24 | 5B | 1 |
| R43 | A | 81 | 67 | 6B | 2 | R93 | B | 37 | 18 | 2E | 2 | V16 | A | 38 | 22 | 5B | 1 |
| R44 | A | 54 | 62 | 6B | 3 | R94 | B | 49 | 8 | 3E | 2 | V17 | A | 32 | 10 | 7B | 1 |
| R45 | B | 112 | 53 | 3C | 4 | R95 | A | 45 | 9 | 3C | 2 | V18 | A | 15 | 37 | 5C | 1 |
| R46 | B | 95 | 60 | 6C | 4 | R96 | A | 45 | 15 | 3C | 2 | V19 | A | 23 | 35 | 5C | 1 |
| R47 | B | 78 | 12 | 5D | 2 | R97 | A | 34 | 11 | 2C | 2 | V20 | A | 18 | 10 | 7C | 1 |
| R48 | B | 86 | 11 | 5C | 2 | R98 | A | 34 | 17 | 2C | 2 | V21 | A | 27 | 7 | 7B | 1 |
| R49 | B | 78 | 32 | 5D | 3 | R99 | A | 34 | 34 | 2D | 3 | V22 | A | 14 | 7 | 7C | 1 |
| R50 | B | 86 | 34 | 5C | 3 | R100 | A | 34 | 28 | 2D | 3 | V23 | B | 25 | 29 | 4B | 1 |
| R51 | A | 79 | 43 | 5A | 2 | R101 | A | 45 | 32 | 3D | 3 | V23 | B | 25 | 29 | 4C | 1 |
| R52 | A | 53 | 43 | 5A | 3 | R102 | A | 45 | 26 | 3D | 3 | V24 | B | 113 | 48 | 3C | 4 |
| R53 | B | 108 | 58 | 6D | 4 | R103 | B | 49 | 25 | 3E | 3 | V24 | B | 113 | 48 | 3D | 4 |
| R54 | B | 110 | 56 | 3D | 4 | R104 | B | 37 | 35 | 2E | 3 | X1 | B | 9 | 48 | 1E | 1 |
| R55 | B | 100 | 38 | 3B | 4 | R105 | B | 110 | 37 | 6A | 4 | X2 | B | 9 | 22 | 3A | 1 |
| R56 | B | 71 | 15 | 5D | 2 | R106 | B | 101 | 42 | 2B | 4 | X3 | B | 6 | 35 | 3C | 1 |
| R57 | B | 71 | 31 | 5E | 3 | R107 | B | 94 | 38 | 5B | 4 | X4 | B | 112 | 15 | 7D | 2 |
| R58 | A | 68 | 43 | 6A | 2 | R108 | B | 90 | 42 | 4B | 4 | X5 | B | 115 | 55 | 4D | 4 |
| R59 | A | 70 | 43 | 6A | 2 | R109 | A | 63 | 9 | 4D | 2 | X6 | B | 107 | 31 | 7A | 4 |
| R60 | A | 73 | 43 | 6A | 2 | R110 | A | 64 | 36 | 4D | 3 | Z1 | B | 20 | 43 | 2C | 1 |
| R61 | A | 42 | 43 | 6A | 3 | R111 | B | 102 | 62 | 2E | 4 | Z2 | B | 34 | 55 | 2C | 1 |
| R62 | A | 45 | 43 | 6A | 3 | R112 | B | 100 | 67 | 2D | 4 | Z3 | B | 34 | 45 | 2D | 1 |
| R63 | A | 47 | 43 | 6A | 3 | R113 | A | 20 | 24 | 6B | 1 | Z4 | B | 34 | 50 | 2D | 1 |
| R64 | A | 19 | 45 | 1E | 1 | R114 | A | 15 | 24 | 6C | 1 | Z5 | B | 25 | 43 | 2E | 1 |
| R65 | A | 31 | 57 | 1E | 1 | R115 | B | 105 | 49 | 2D | 4 | Z6 | B | 34 | 60 | 2E | 1 |
| R66 | B | 17 | 36 | 3C | 1 | R116 | B | 107 | 45 | 2C | 4 | | | | | | |
| R67 | B | 43 | 58 | 3C | 1 | R117 | B | 101 | 64 | 2E | 4 | | | | | | |

| ROHDE & SCHWARZ | áI | Datum Date | XY-Liste f#r XY-list for | Sach-Nummer Stock-Nr | Blatt Page |
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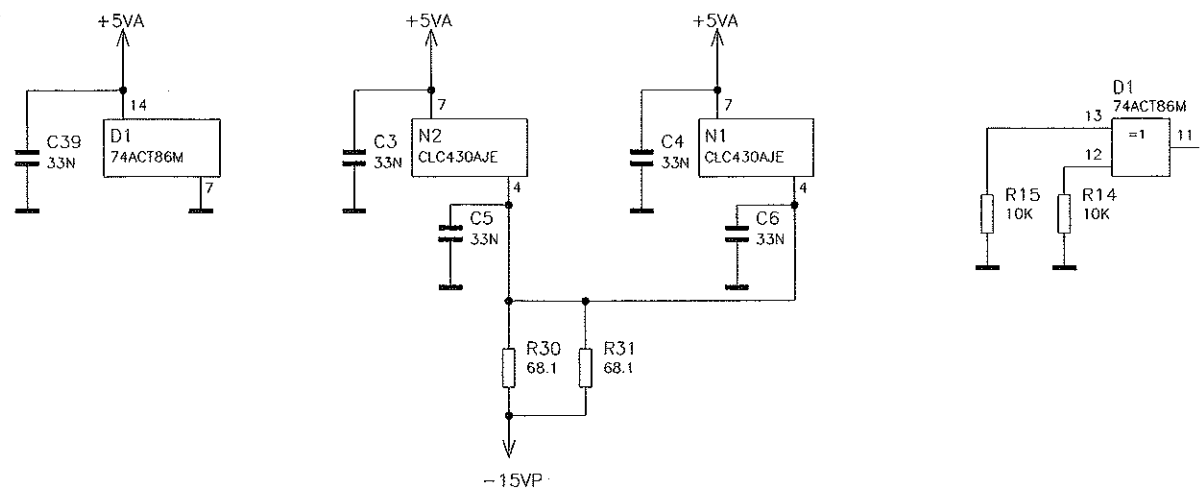
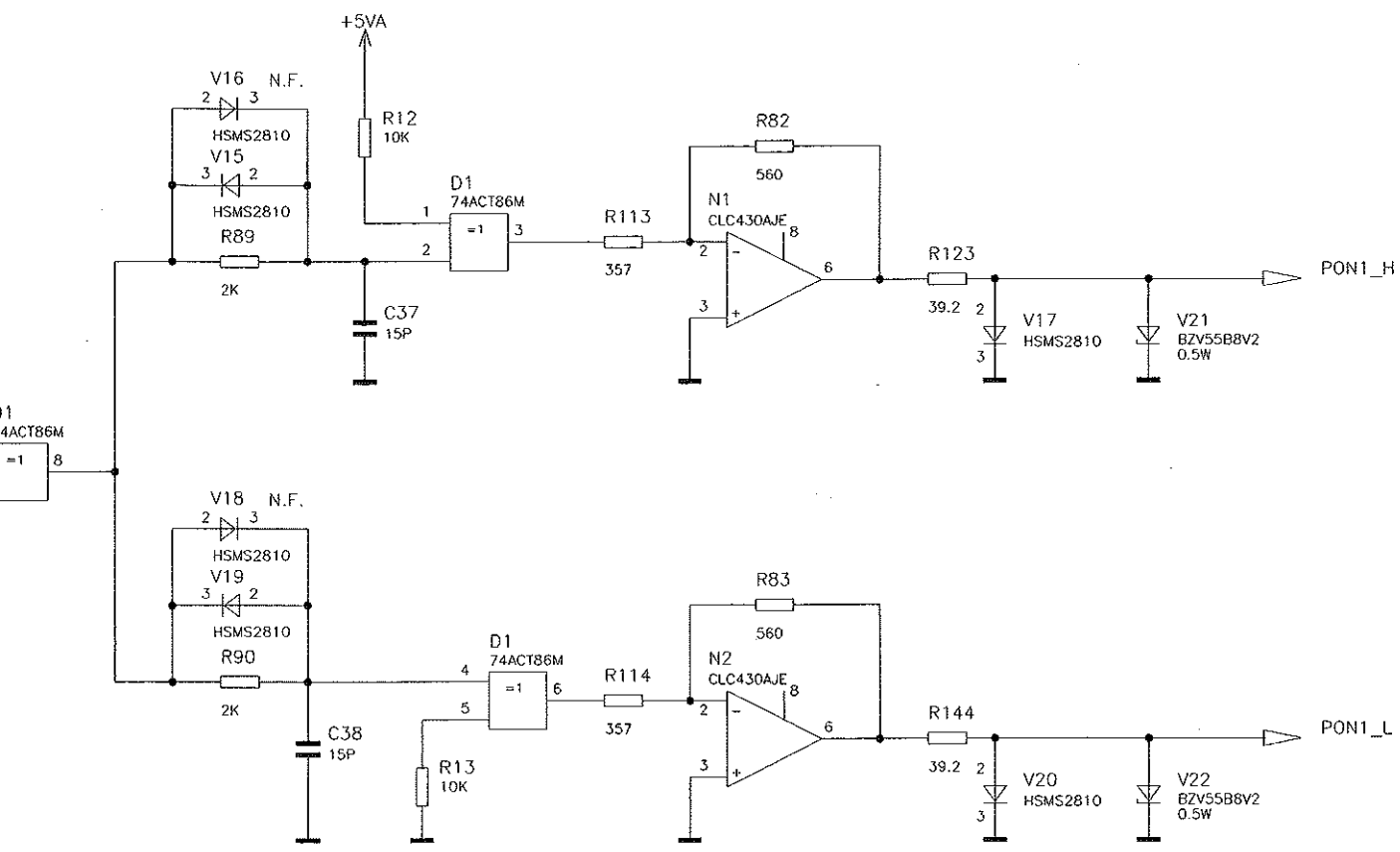




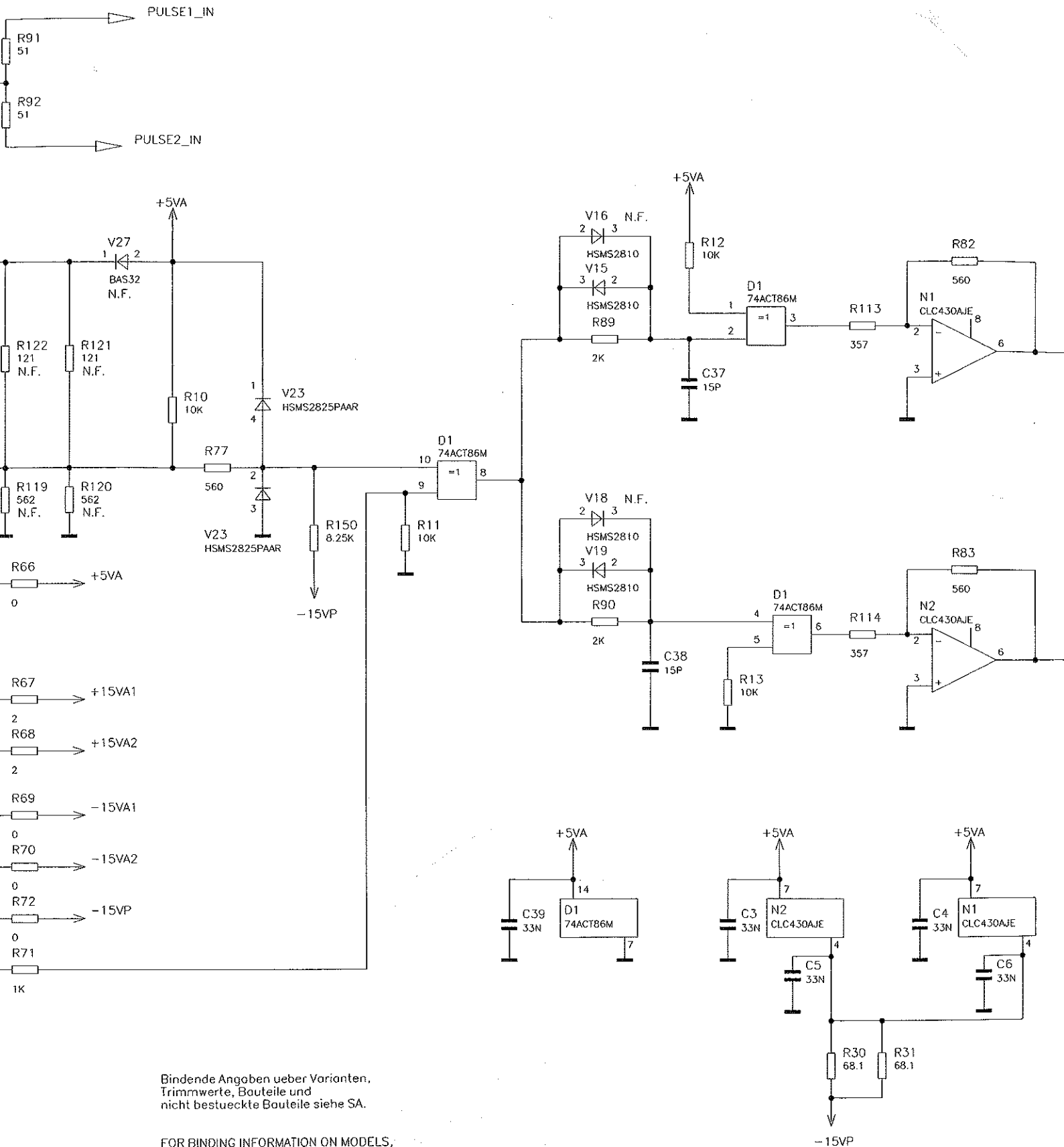
ROHDE & SCHWARZ

Stromläufe
Bestückungspläne
Circuit diagrams
Components plans
Schémas de circuit
Plans des composants

A
B
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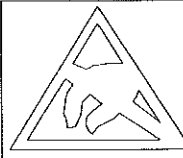


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| 02.03 | | | EI | MENP | DATUM | NAME | BENENNUNG | | |
| | | | | BEARB. | | EI | POWERMODUL | | |
| | | | | GEPR. | | EI | | | |
| | | | | NORM | | | | | |
| | | | | PLOTT | 23.9.97 | IMMERZ | TOP/TOP.1 | | |
| ROHDE&SCHWARZ | | | | | | | ZEICHN.-NR. | BLATT-NR. | |
| | | | | | | | 1062.7240.01 S | 1 + | |
| AEND. IND. | AENDERUNGS-MITTEILUNG | DATUM | NAME | ZU GERAET | SMY44 | REG.I.V. | 1062.5502 | ERSTE Z. | 0000.0000.00 |



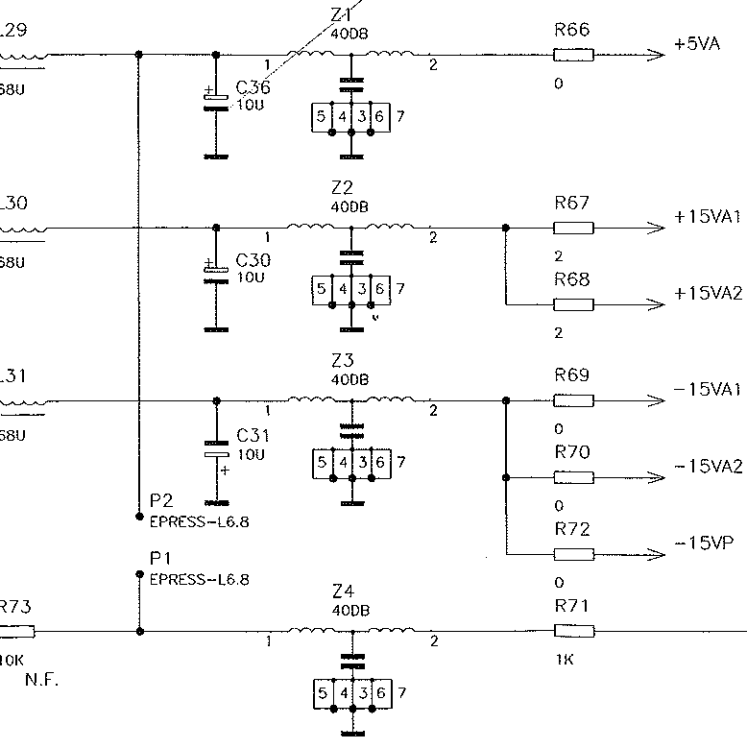
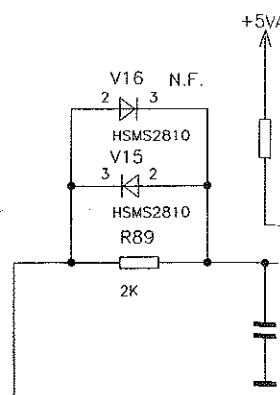
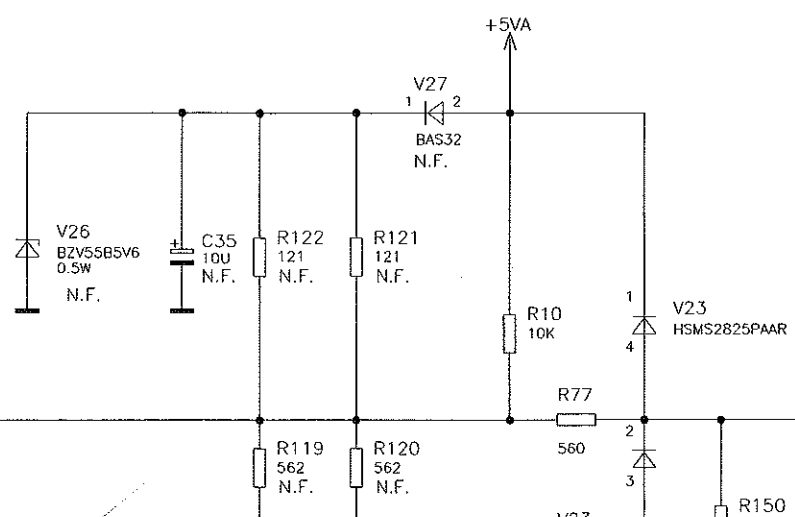
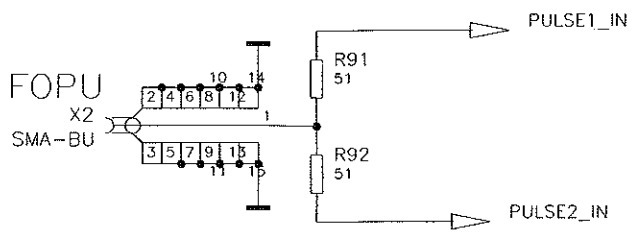
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FOR BINDING INFORMATION ON MODELS, TRIMMING AND COMPONENTS VALUES AND NONFITTED COMPONENTS SEE PARTS LIST

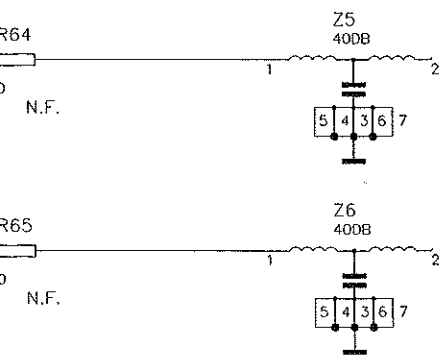
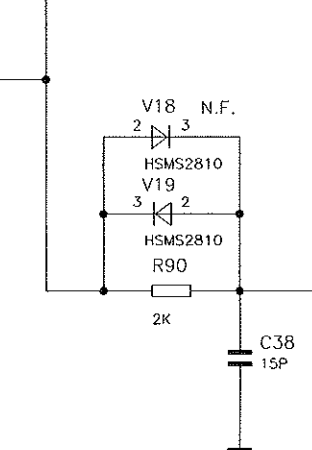


ACHTUNG: EGB !
ELEKTROSTATISCH GEFAEHRDETE
BAUELEMENTE ERFORDERN EINE
BESONDERE HANDHABUNG.
ATTENTION ESD !
ELECTROSTATIC SENSITIVE DEVICES
REQUIRE A SPECIAL HANDLING

| | | | | | | | |
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| 02.03 | | | EI | MENP | DATUM | NAME | BENENNUNG |
| | | | | BEARB. | | EI | POWER |
| | | | | GEPR. | | EI | |
| | | | | NORM | | | TOP/TOP. |
| | | | | PLOTT | 23.9.97 | IMMERZ | ZEICHNUNG |
| ROHDE & SCHWARZ | | | | | | | |
| AEND. IND. | AENDERUNGS-MITTEILUNG | DATUM | NAME | ZU GERAEET | SMY44 | | REG.I.V. |



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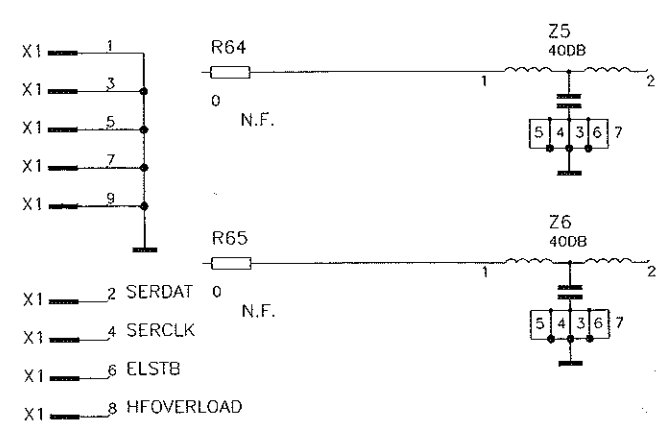
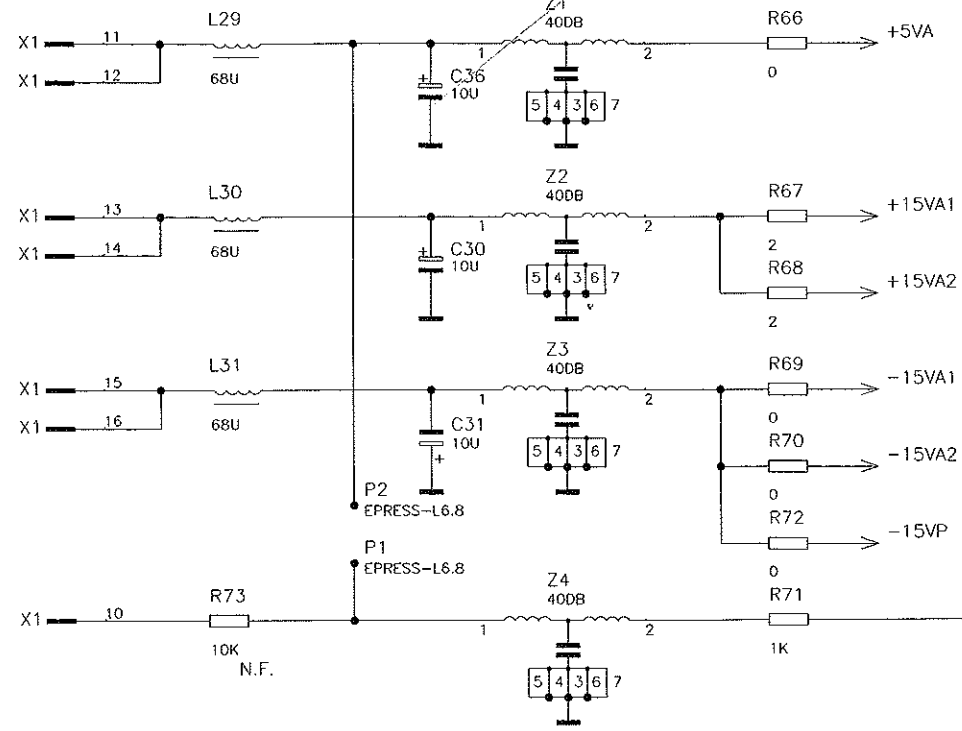
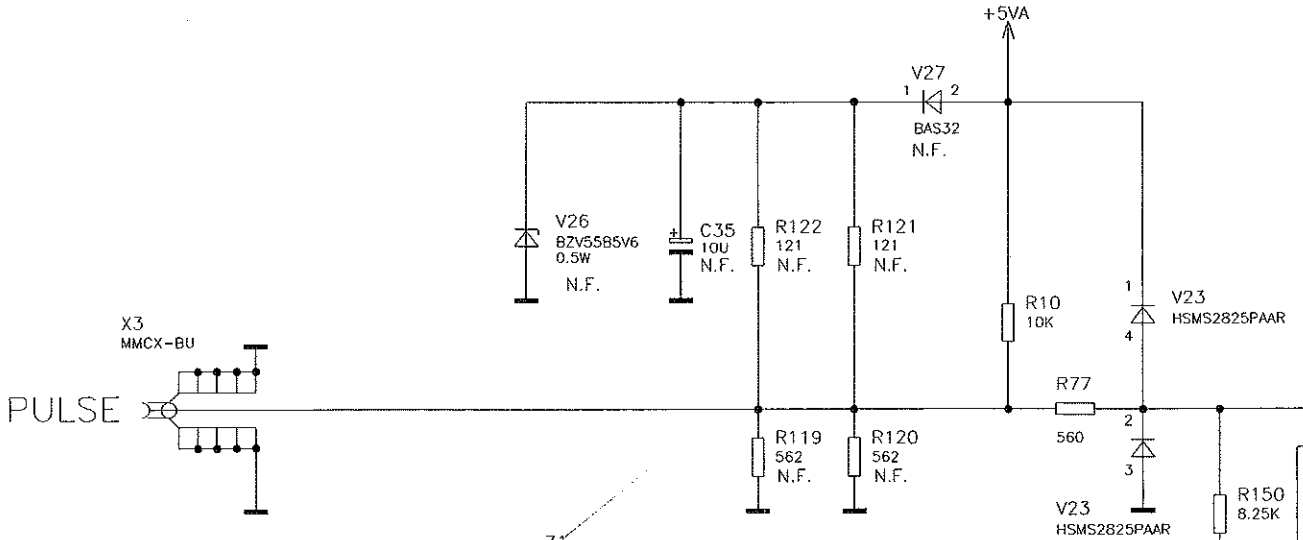
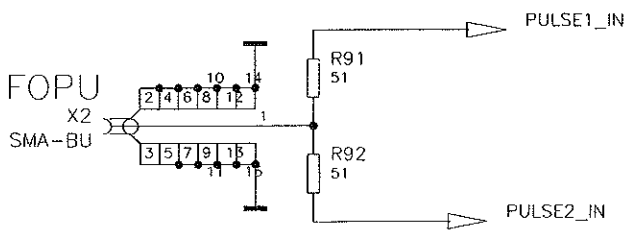


Bindende Angaben ueber Varianten,
Trimmwerte, Bauteile und
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FOR BINDING INFORMATION ON MODELS,
TRIMMING AND COMPONENTS VALUES AND
NONFITTED COMPONENTS SEE PARTS LIST

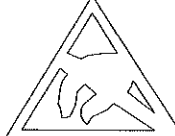
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ELEKTROSTATISCH GEFAEHRDETE
BAUELEMENTE ERFORDERN EINE
BESONDERE HANDHABUNG.
ATTENTION ESD !
ELECTROSTATIC SENSITIVE DEVICES
REQUIRE A SPECIAL HANDLING

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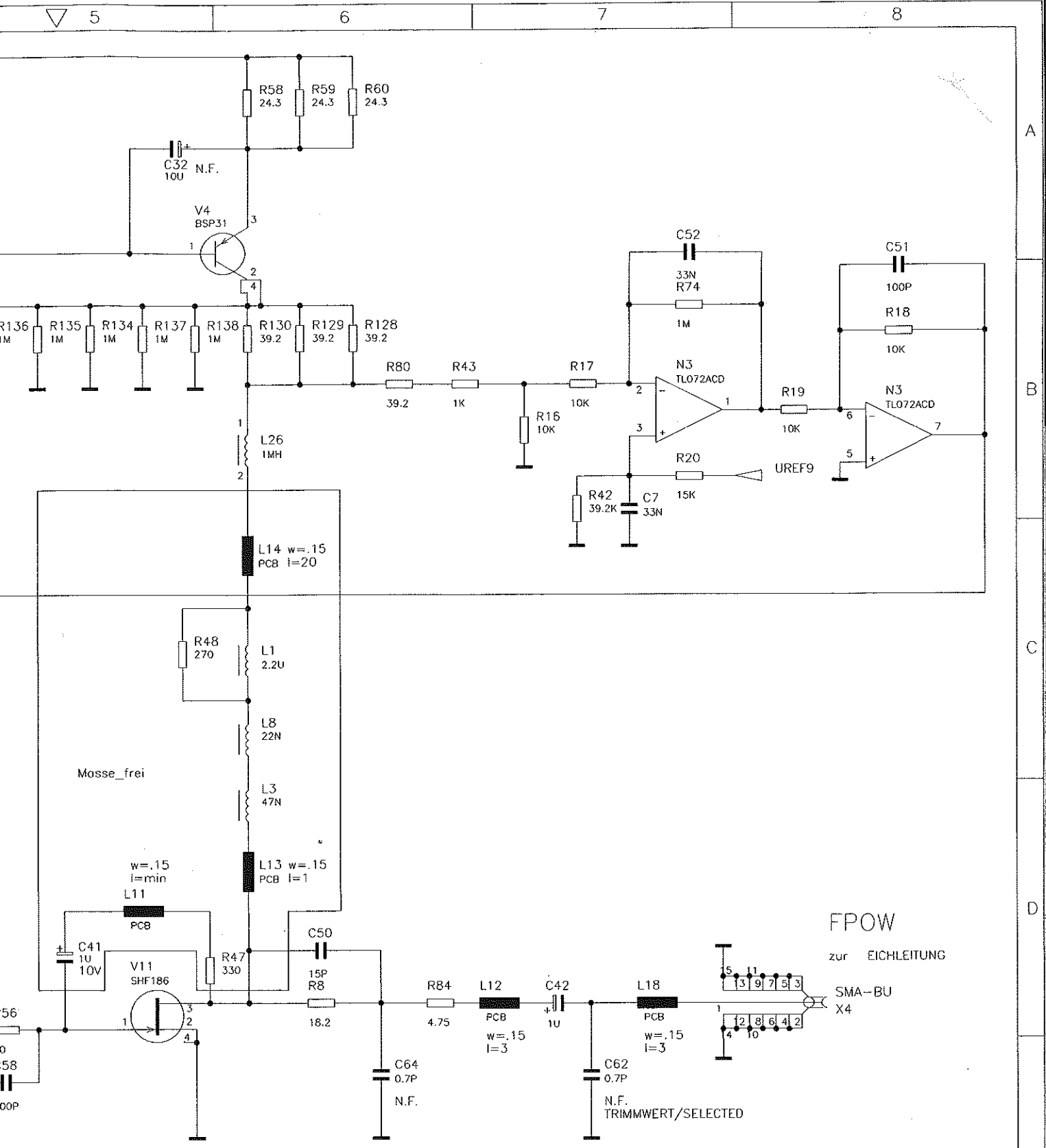
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FOR BINDING INFORMATION ON MODELS, TRIMMING AND COMPONENTS VALUES AND NONFITTED COMPONENTS SEE PARTS LIST



ACHTUNG: EGB !
ELEKTROSTATISCH GEFAEHRDETE
BAUELEMENTE ERFORDERN EINE
BESONDERE HANDHABUNG.
ATTENTION ESD !
ELECTROSTATIC SENSITIVE DEVICES
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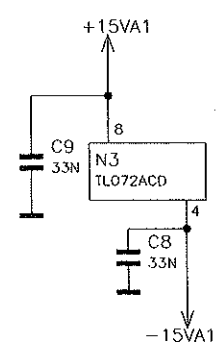
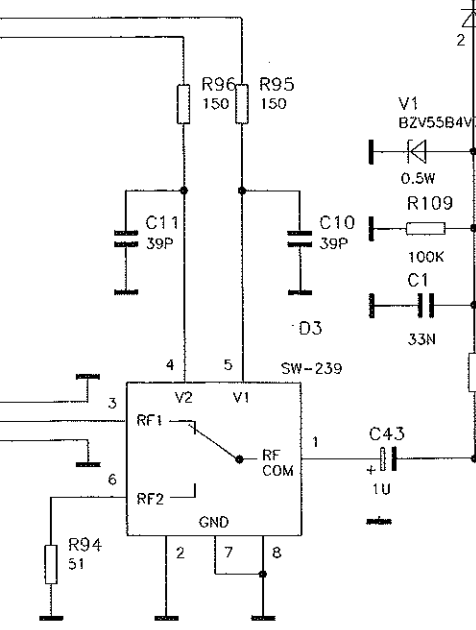
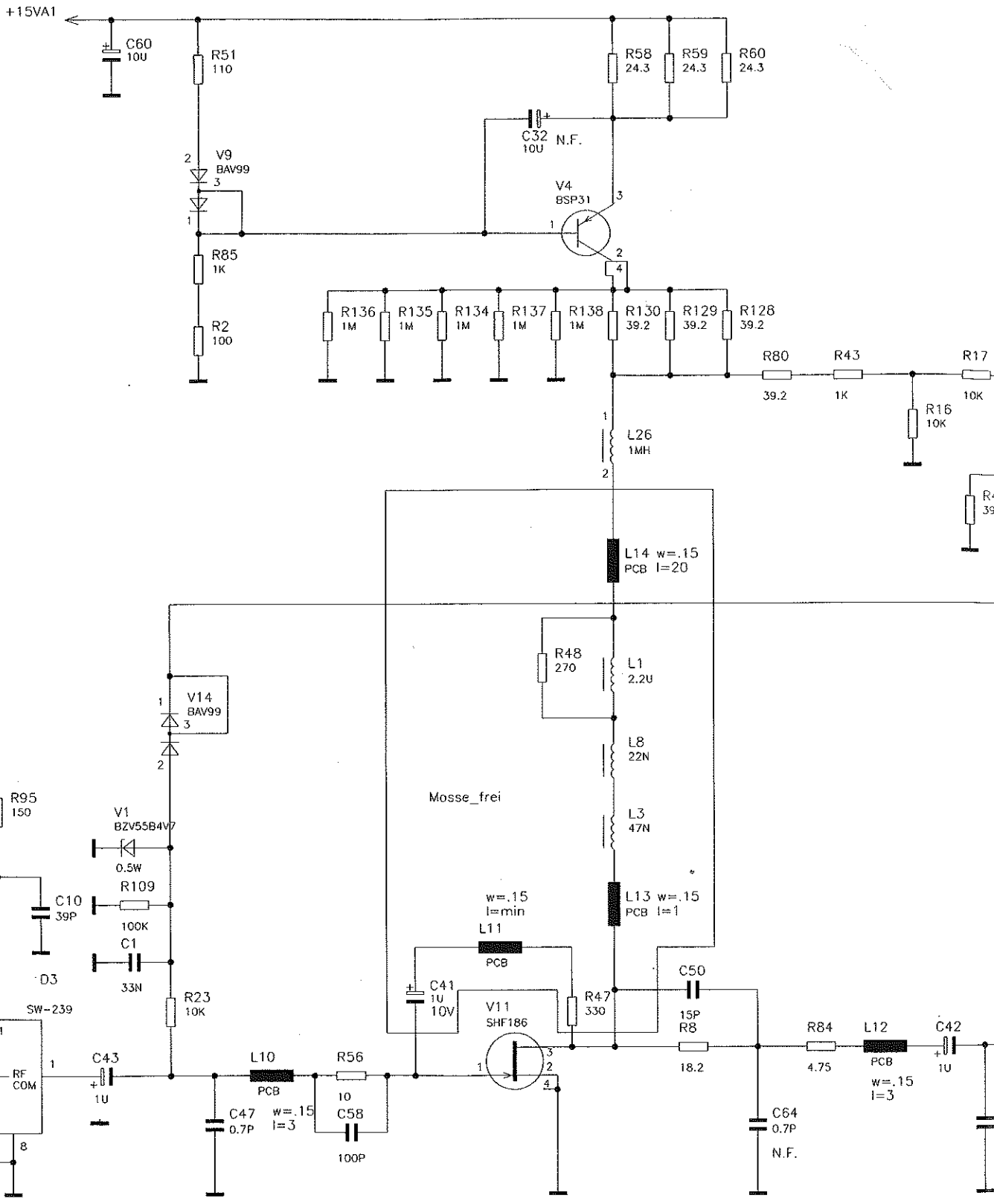
BEHALTEN WIR UNS ALLE RECHTE VOR
FUER DIESE UNTERLAGE



RF-AMPLIFIER1

| | | | | | | | |
|------------|-----------------------|-------|---------------|----------|--------|----------------|--------------|
| 02.03 | | EI | MENP | DATUM | NAME | BENENNUNG | |
| | | | BEARB. | | EI | POWERMODUL | |
| | | | GEPR. | | EI | | |
| | | | NORM | | | TOP/TOP.2 | |
| | | | PLOTT | 23.9.97 | IMMERZ | ZEICHN.-NR. | |
| | | | ROHDE&SCHWARZ | | | 1062.7240.01 S | |
| AEND. IND. | AENDERUNGS-MITTEILUNG | DATUM | NAME | ZU GERÄT | SMY44 | REG.I.V. | 1062.5502 |
| | | | | | | ERSTE Z. | 0000.0000.00 |

BLATT-NR.
2 +



RF-AMPLIFIER 1

| | | | | | | | |
|------------|-----------------------|-------|------|-----------------|---------|--------|------|
| 02.03 | | | EI | MENP | DATUM | NAME | BEF. |
| | | | | BEARB. | | EI | PA |
| | | | | GEPR. | | EI | |
| | | | | NORM | | | |
| | | | | PLOTT | 23.9.97 | IMMERZ | TOP |
| | | | | | | | ZEI |
| | | | | ROHDE & SCHWARZ | | | |
| AEND. IND. | AENDERUNGS-MITTEILUNG | DATUM | NAME | ZU GERÄT | SMY44 | | REG. |

ACHTUNG: EGB !
 ELEKTROSTATISCH GEFÄHRDETE
 BAUELEMENTE ERFORDERN EINE
 BESONDERE HANDHABUNG.
ATTENTION ESD !
 ELECTROSTATIC SENSITIVE DEVICES
 REQUIRE A SPECIAL HANDLING

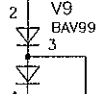
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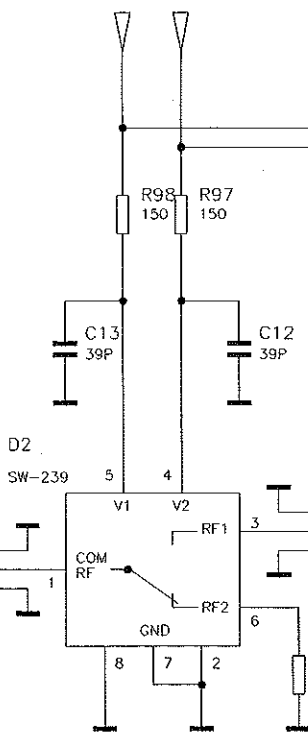
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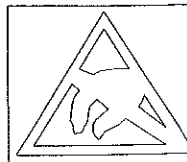
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FÜR DIESE DRUCKSACHE

PON1_H PON1_L

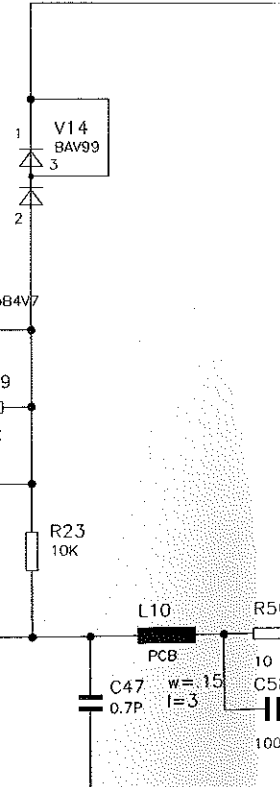


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Pulsmodulator



ACHTUNG: EGB !
ELEKTROSTATISCH GEFÄHRDETE
BAUELEMENTE ERFORDERN EINE
BESONDERE HANDHABUNG.
ATTENTION ESD !
ELECTROSTATIC SENSITIVE DEVICES
REQUIRE A SPECIAL HANDLING



+15VA1

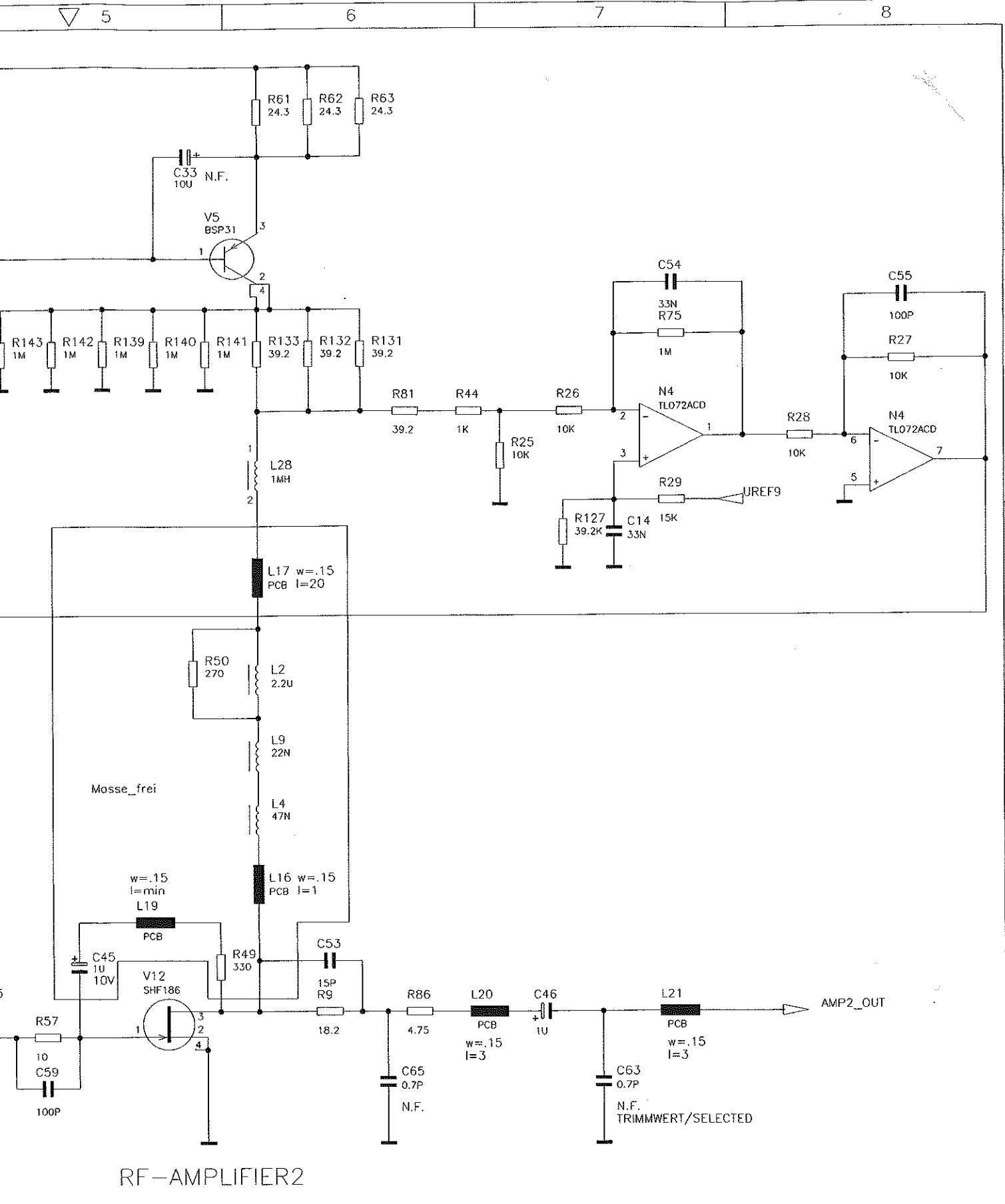
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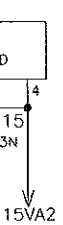
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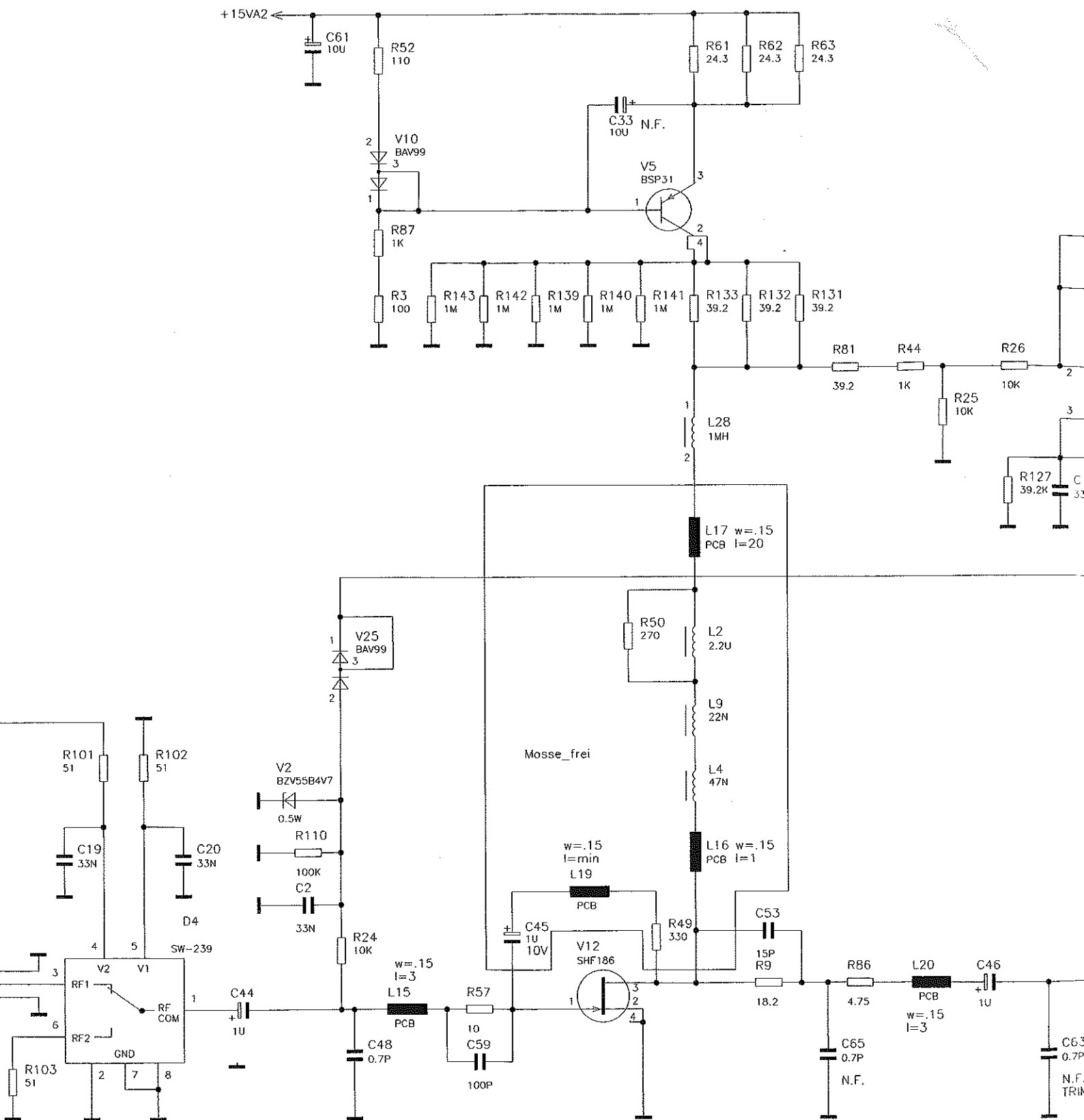
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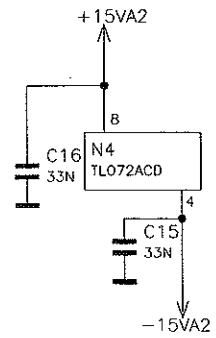
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| 02.03 | | | EI | MENP | DATUM | NAME | BENENNUNG | | |
| | | | | BEARB. | | EI | POWERMODUL | | |
| | | | | GEPR. | | EI | | | |
| | | | | NORM | | | | | |
| | | | | PLOTT | 23.9.97 | IMMERZ | | | |
| ROHDE&SCHWARZ | | | | | | | TOP/TOP.3 | | |
| | | | | | | | ZEICHN.-NR. | BLATT-NR. | |
| | | | | | | | 1062.7240.01 S | 3 + | |
| AEND. IND. | AENDERUNGS-MITTEILUNG | DATUM | NAME | ZU GERAET | SMY44 | REG.I.V. | 1062.5502 | ERSTZ. | 0000.0000.00 |





RF-AMPLIFIER2

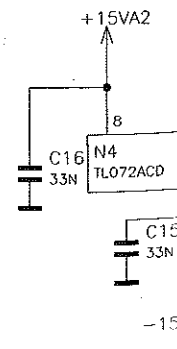
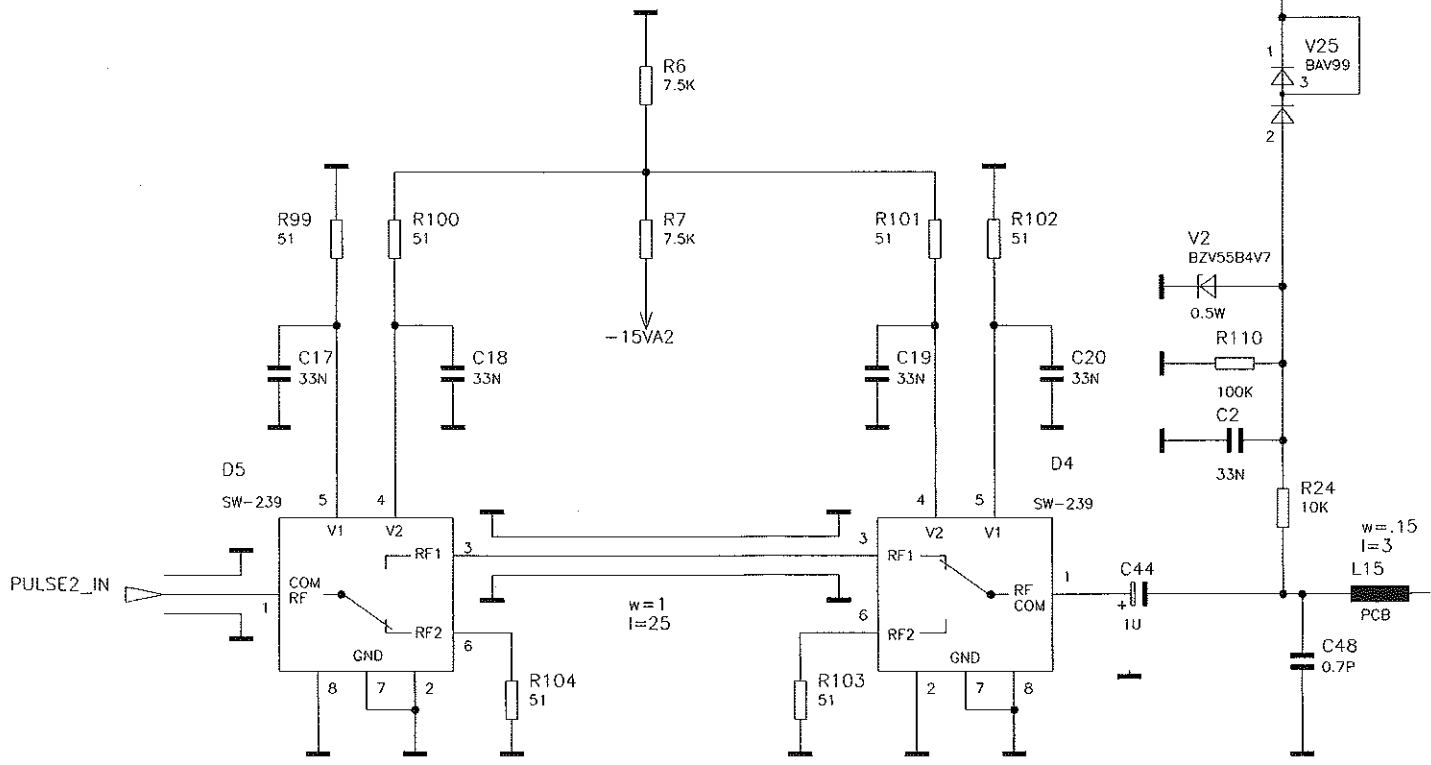
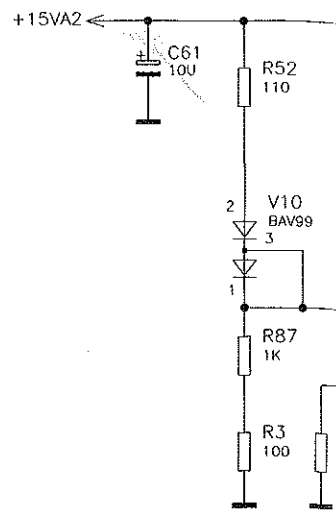
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| 02.03 | | | EI | MENP | DATUM | NAME | BENENN |
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| | | | | GEPR. | | EI | |
| | | | | NORM | | | TOP/TOP.3 |
| | | | | PLOTT | 23.9.97 | IMMERZ | ZEICHN. |
| | | | | ROHDE&SCHWARZ | | | |
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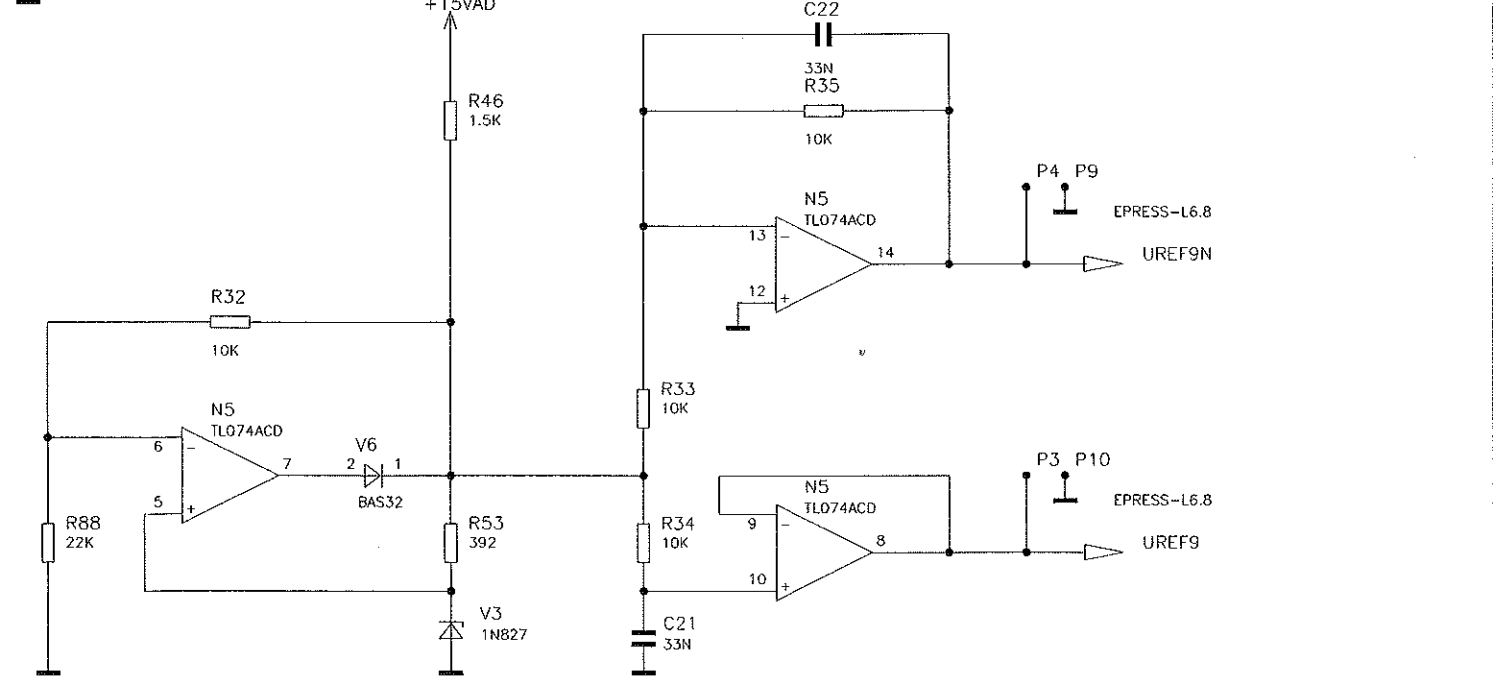
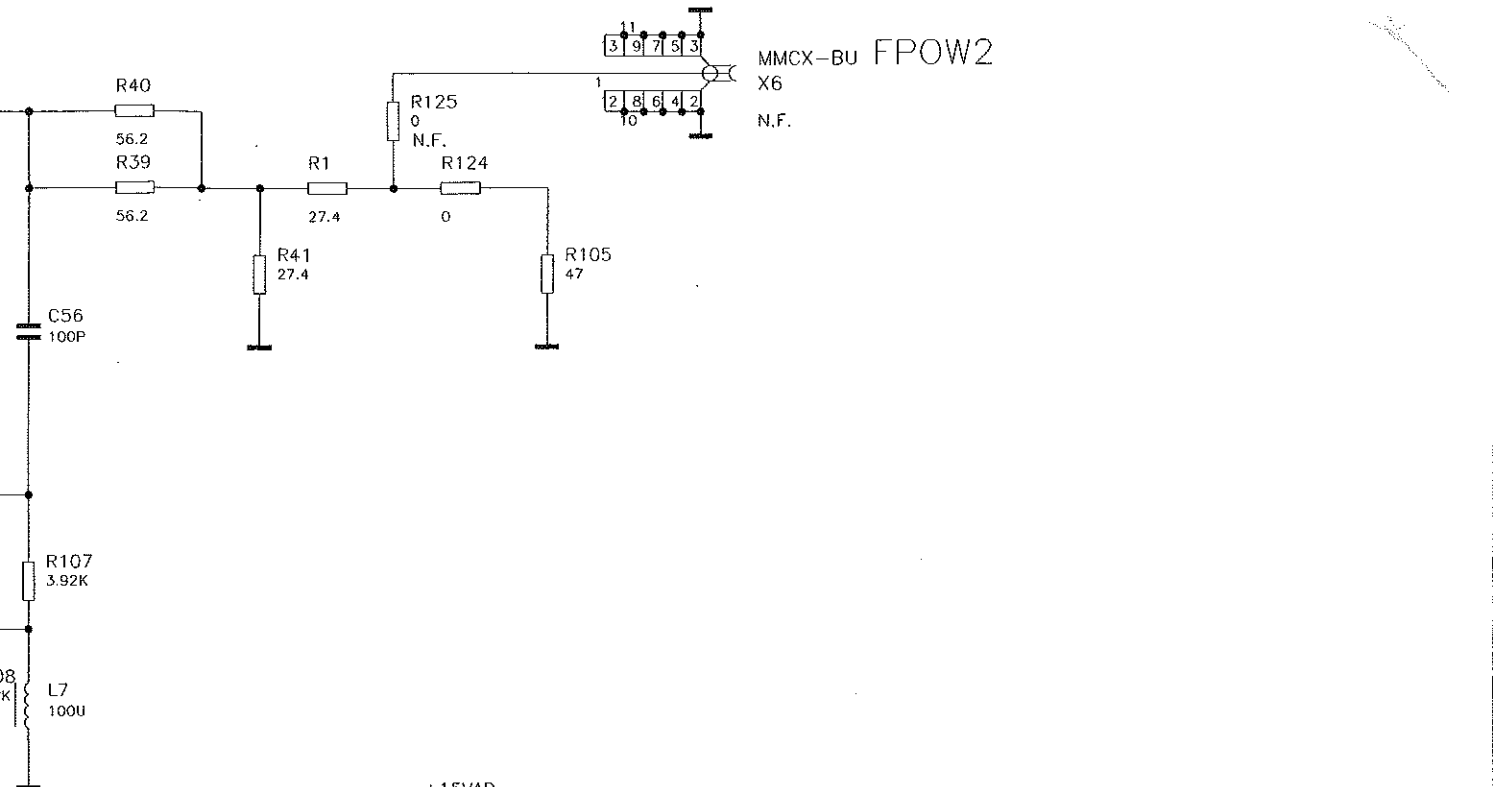
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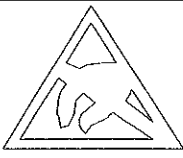
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BEHALTEN WIR UNS ALLE RECHTE VOR



Pulsmodulator_Referenz

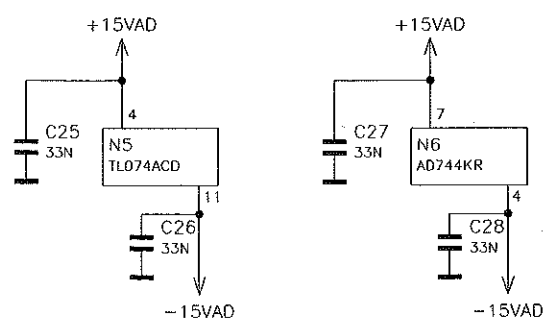
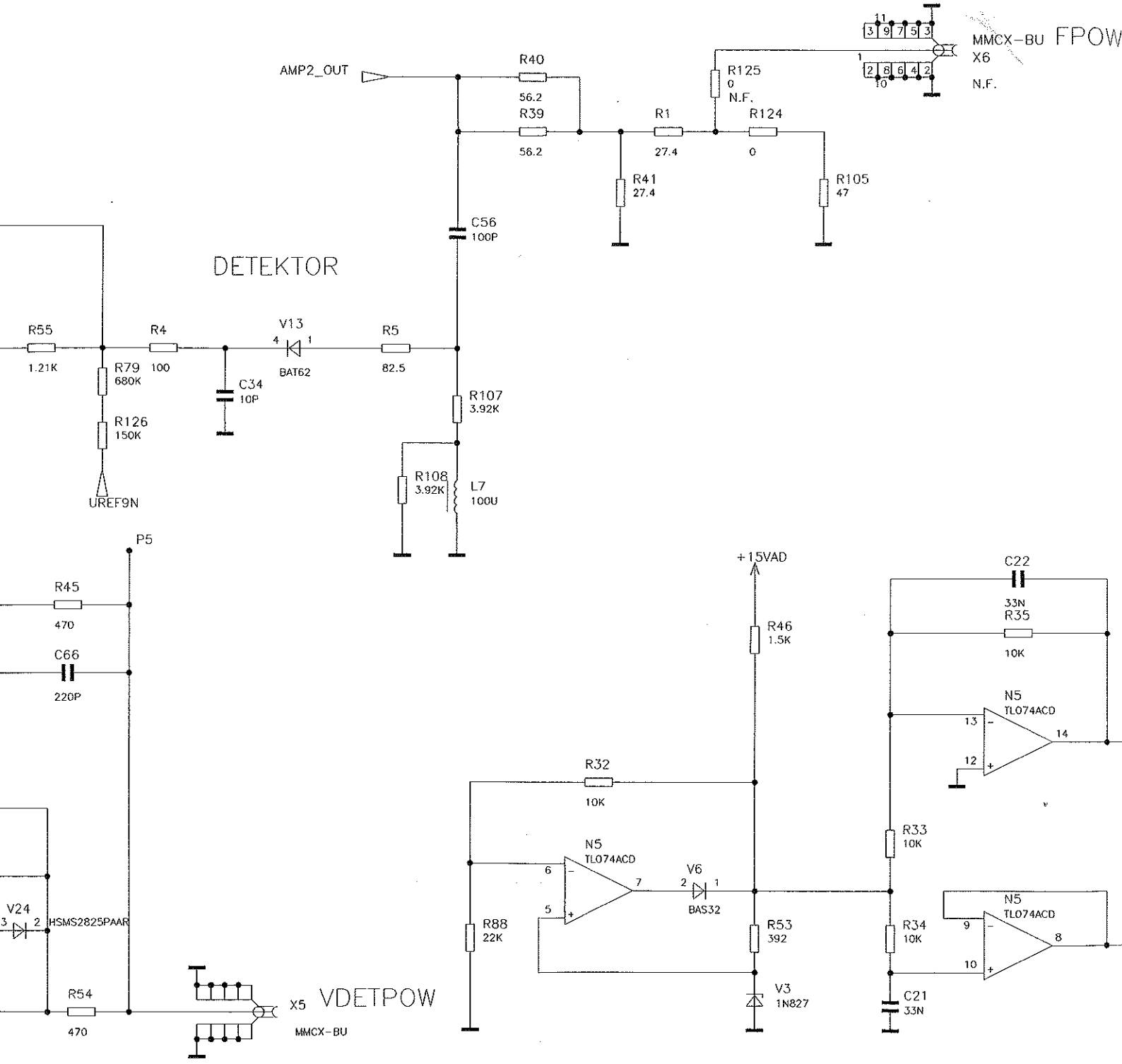
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 ELEKTROSTATISCH GEFAEHRDETE
 BAUELEMENTE ERFORDERN EINE
 BESONDERE HANDHABUNG.
ATTENTION ESD !
 ELECTROSTATIC SENSITIVE DEVICES
 REQUIRE A SPECIAL HANDLING





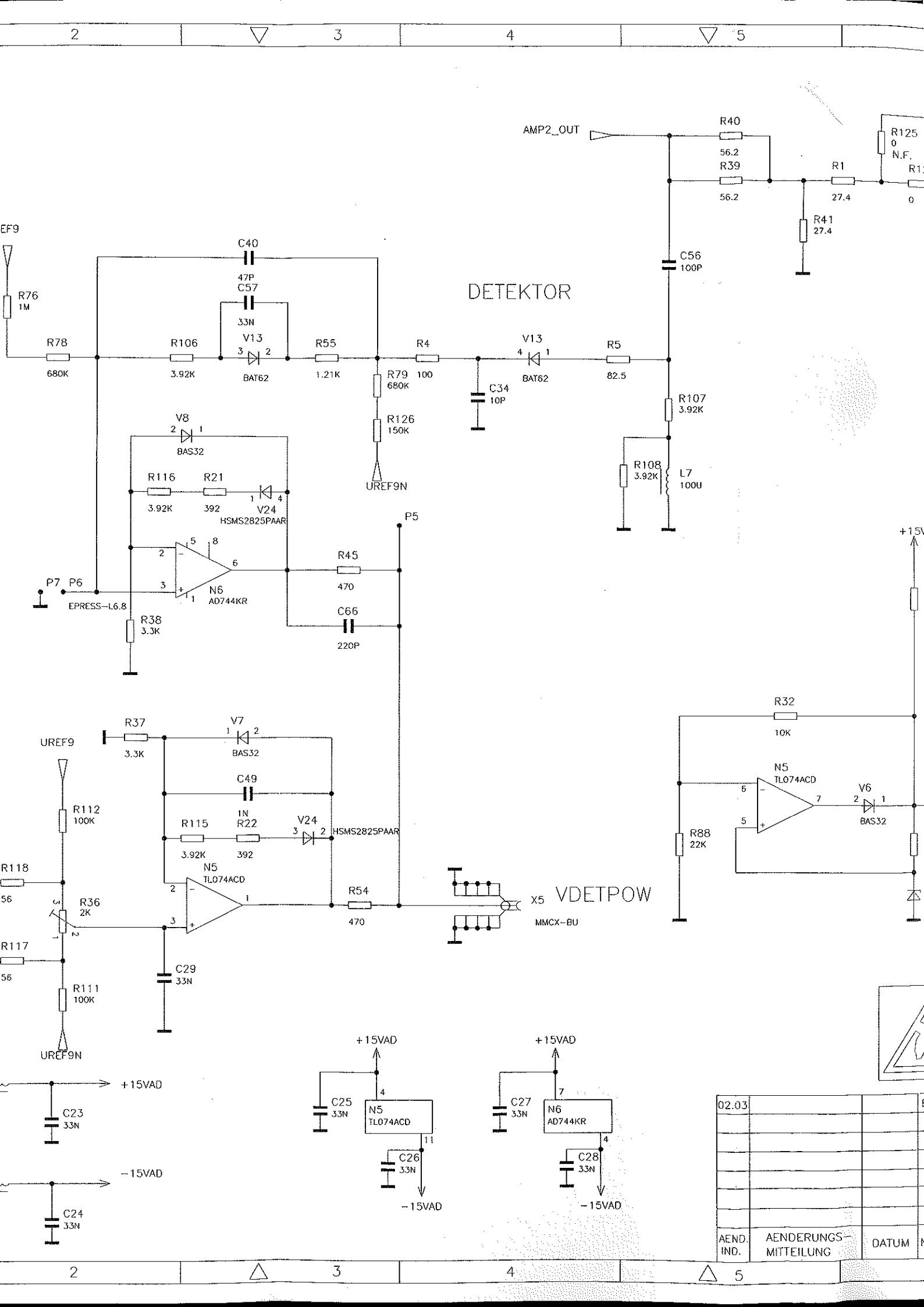
ACHTUNG: EGB !
 ELEKTROSTATISCH GEFÄHRDETE
 BAUELEMENTE ERFORDERN EINE
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|------------|-----------------------|-------|------|---------------|---------|----------|----------------|
| 02.03 | | | EI | MENP | DATUM | NAME | BENENNUNG |
| | | | | BEARB. | | EI | POWERMODUL |
| | | | | GEPR. | | EI | |
| | | | | NORM | | | |
| | | | | PLOTT | 23.9.97 | IMMERZ | |
| | | | | ROHDE&SCHWARZ | | | TOP/TOP.4 |
| | | | | | | | ZEICHN.-NR. |
| | | | | | | | 1062.7240.01 S |
| | | | | | | | BLATT-NR. |
| | | | | | | | 4 - |
| AEND. IND. | AENDERUNGS-MITTEILUNG | DATUM | NAME | ZU GERAET | SMY44 | REG.I.V. | 1062.5502 |
| | | | | | | ERSTE Z. | 0000.0000.00 |



ACHTUNG: EGB !
 ELEKTROSTATISCH GEFÄHRDETE
 BAUELEMENTE ERFORDERN EINE
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 ELECTROSTATIC SENSITIVE DEVICES
 REQUIRE A SPECIAL HANDLING

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| 02.03 | | | EI | MENP | DATUM | NAME | BENENNUNG |
| | | | | BEARB. | | EI | POWER |
| | | | | GEPR. | | EI | |
| | | | | NORM | | | |
| | | | | PLOTT | 23.9.97 | IMMERZ | TOP/TOP.4 |
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| | | | | ROHDE&SCHWARZ | | | |
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DETEKTOR

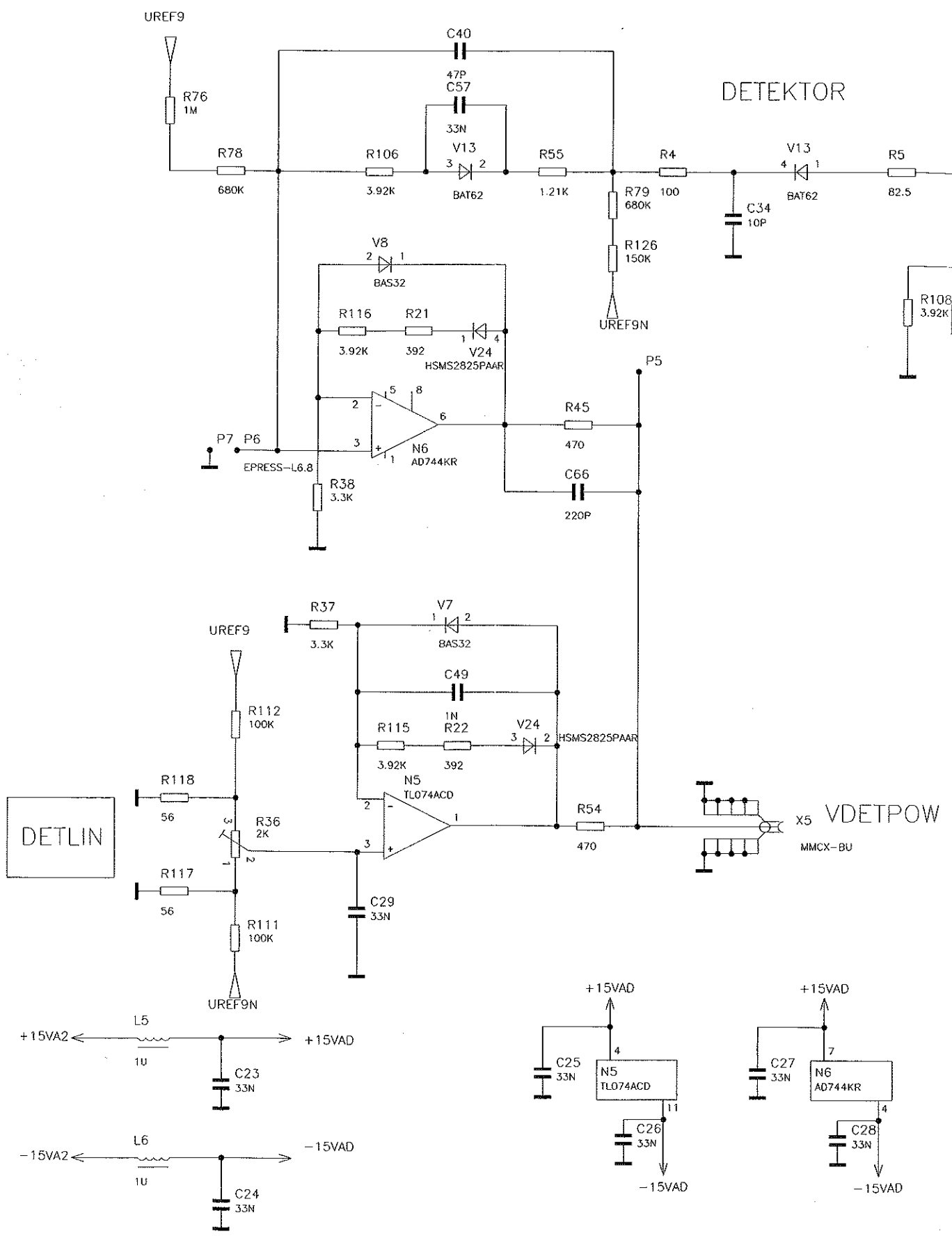
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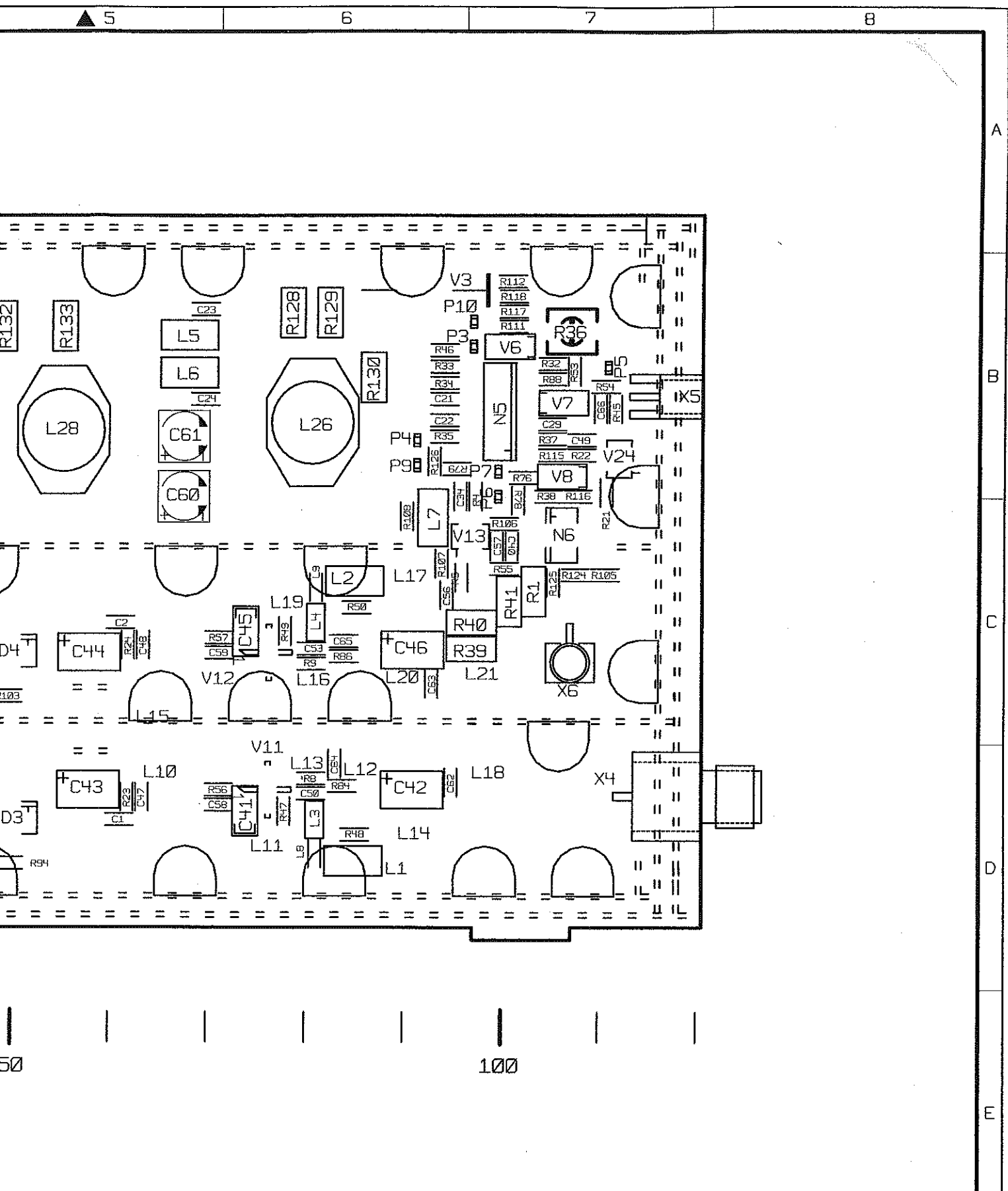
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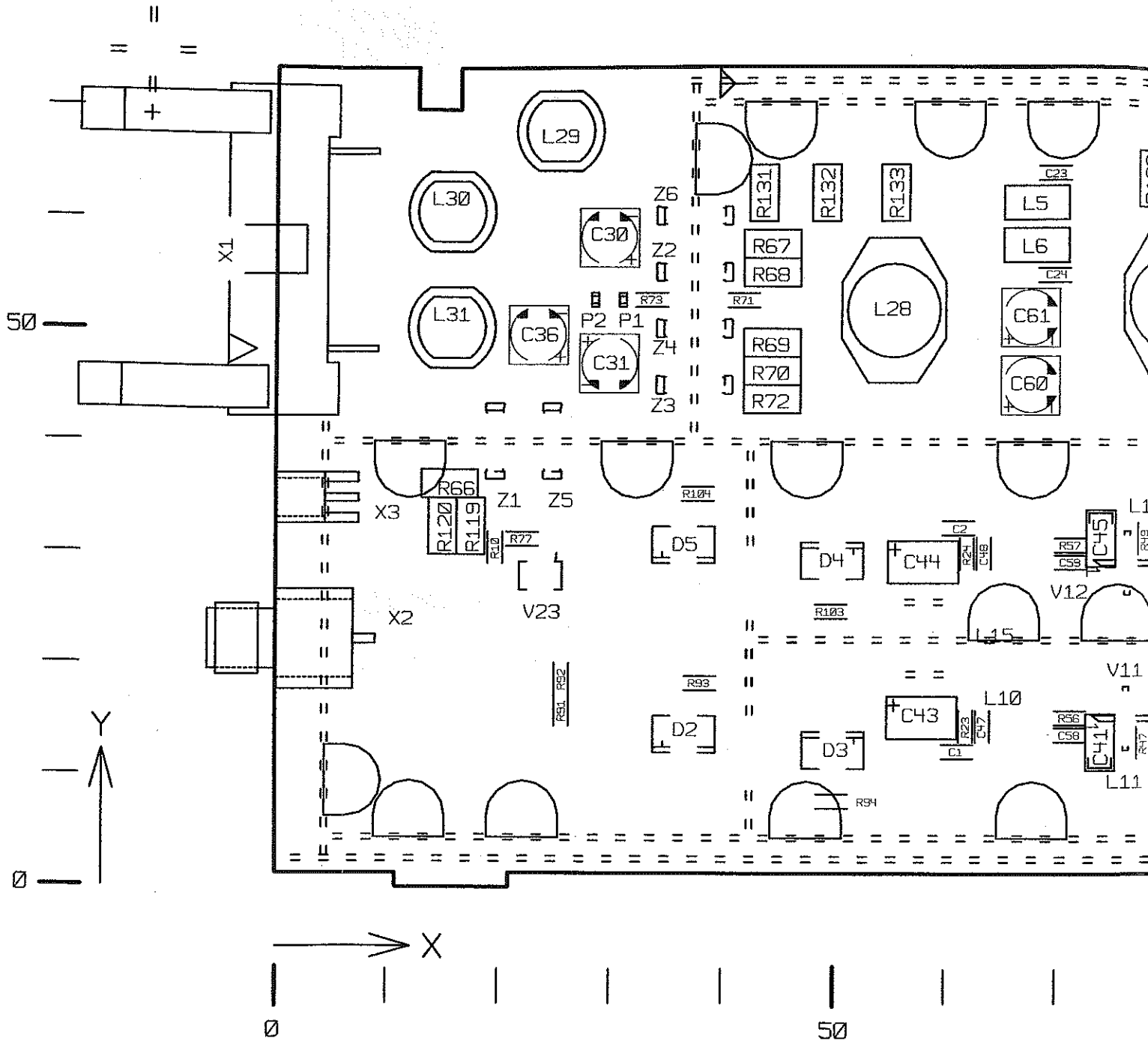
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FUER DIESE UNTERLAGE
BEHALTEN WIR UNS ALLE RECHTE VOR

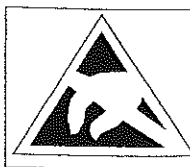




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| 02 | | 14.03.97 | HO | 1GPK | DATUM | NAME | BENENNUNG | |
| | | | | BEARB. | | HO | POWERMODUL | |
| | | | | GEPR. | | HO | | |
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| 01 | | 19.11.96 | HO | ROHDE&SCHWARZ | | | ZEICHN.-NR. | |
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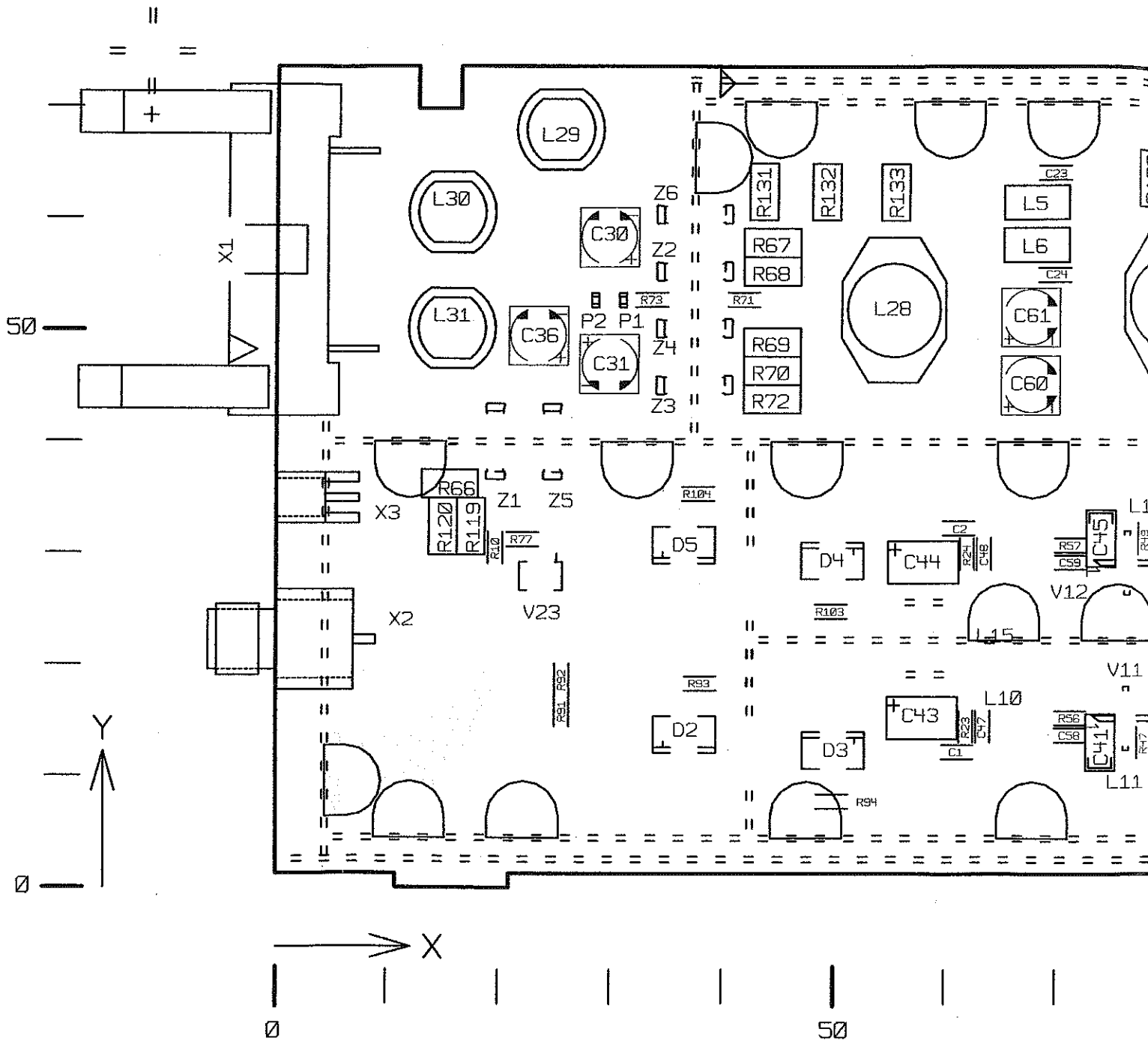


ACHTUNG: EGBI
ELEKTROSTATISCH GEFÄHRDETE
BAUELEMENTE ERFORDERN EINE
BESONDERE HANDHABUNG.
ATTENTION ESD!
ELECTROSTATIC SENSITIVE DEVICES
REQUIRE A SPECIAL HANDLING

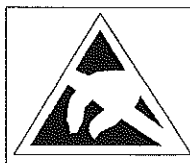
BINDENDE ANGABEN UEBER VARIANTEN,
TRIMMWERTE, BAUTEILWERTE UND
NICHT BESTUECKTE BAUTEILE SIEHE SA.

FOR BINDING INFORMATION ON MODELS,
TRIMMING AND COMPONENTS VALUES AND
NONFITTED COMPONENTS SEE PARTS LIST.

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| 02 | | 14.03. |
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| AEND. IND. | AENDERUNGS- MITTEILUNG | DATUM |



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ACHTUNG: EGB!
 ELEKTROSTATISCH GEFÄHRDETE
 BAUELEMENTE ERFORDERN EINE
 BESONDERE HANDHABUNG.
ATTENTION ESD!
 ELECTROSTATIC SENSITIVE DEVICES
 REQUIRE A SPECIAL HANDLING

BINDENDE ANGABEN UEBER VARIANTEN,
 TRIMMWERTE, BAUTEILWERTE UND
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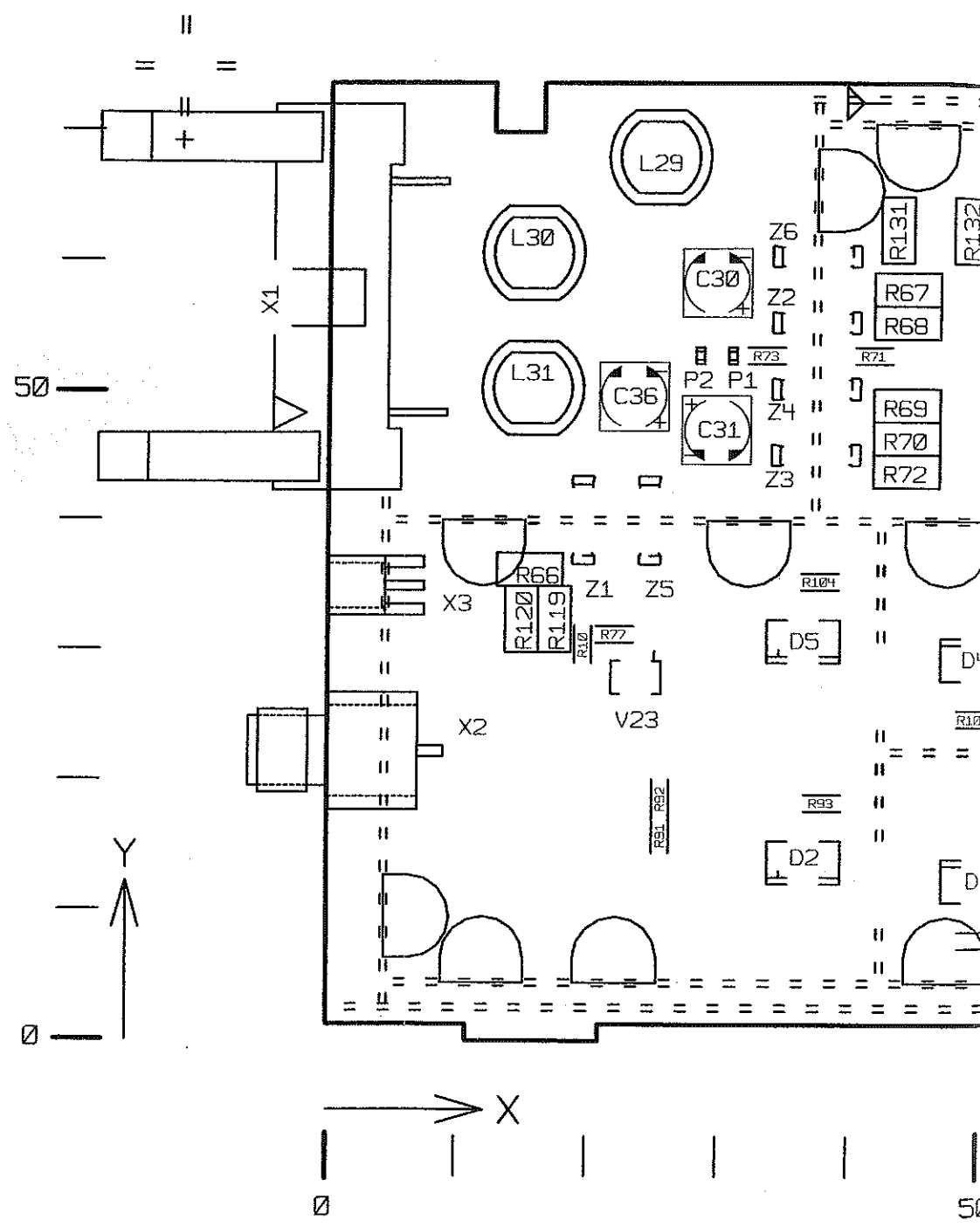
FOR BINDING INFORMATION ON MODELS,
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| AEND. IND. | AENDERUNGS- MITTEILUNG | DATUM |

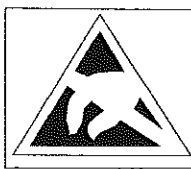
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FÜR DIESE UNTERLAGE
BEHALTEN WIR UNS ALLE RECHTE VOR



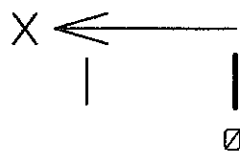
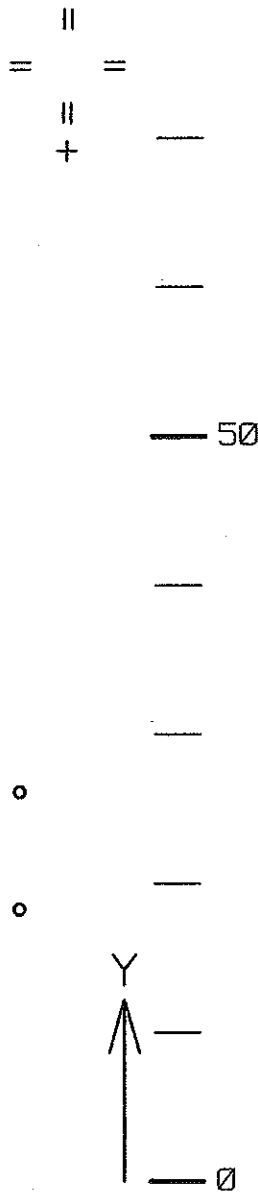
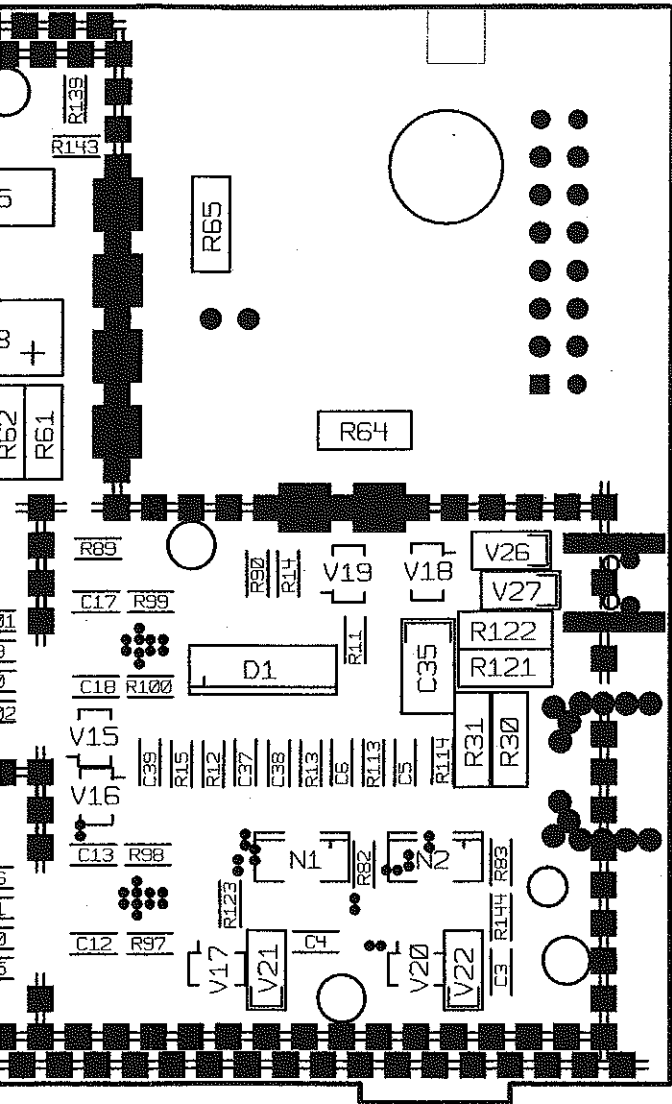
DARSTELLUNG SEITE B
VIEW ON SIDE B



ACHTUNG: EGB!
 ELEKTROSTATISCH GEFÄHRDETE
 BAUELEMENTE ERFORDERN EINE
 BESONDERE HANDLUNG.
ATTENTION ESD!
 ELECTROSTATIC SENSITIVE DEVICES
 REQUIRE A SPECIAL HANDLING

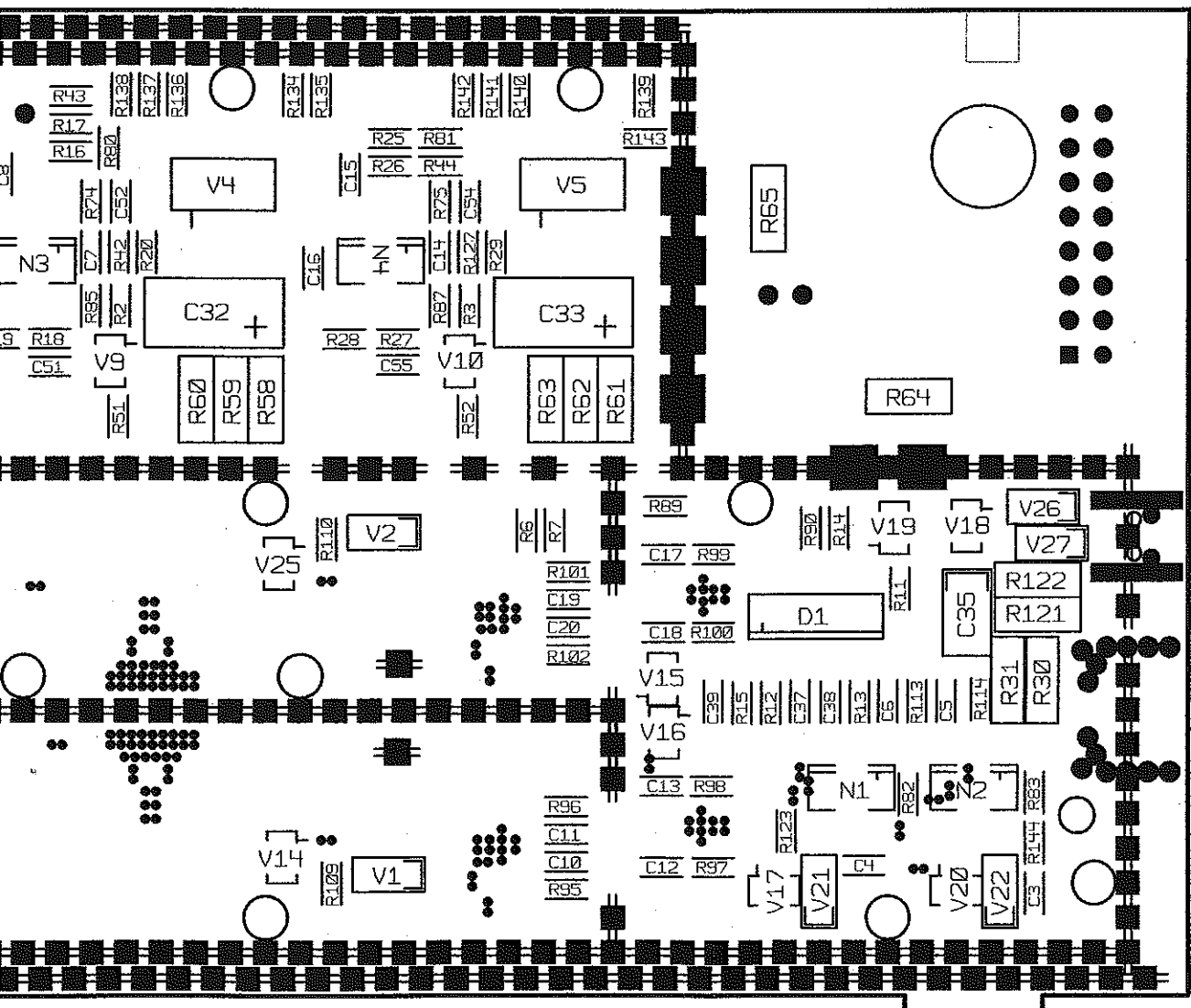
BINDENDE ANGABEN UEBER VARIANTEN,
 TRIMMWERTE, BAUTEILWERTE UND
 NICHT BESTUECKTE BAUTEILE SIEHE SA.
 FOR BINDING INFORMATION ON MODELS,
 TRIMMING AND COMPONENTS VALUES AND
 NONFITTED COMPONENTS SEE PARTS LIST.

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|-----------|----------------------|----------|------|--------------------|----------|----------|----------------|-----------|
| 02 | | 14.03.97 | HO | 1GPK | DATUM | NAME | BENENNUNG | |
| | | | | BEARB. | | HO | POWERMODUL | |
| | | | | GEPR. | | HO | | |
| | | | | NORM | | | | |
| | | | | PLOTT | 21.04.97 | HOFBERGE | | |
| 01 | | 19.11.96 | HO | ROHDE&SCHWARZ | | | ZEICHN.-NR. | BLATT-NR. |
| ÄND. IND. | ÄNDERUNGS-MITTEILUNG | DATUM | NAME | ZU GERÄET SMY44 | | | 1062.7240.01 D | 2- |
| | | | | REG.I.V. 1062.5502 | | | ERSTE Z. | V. BL. |



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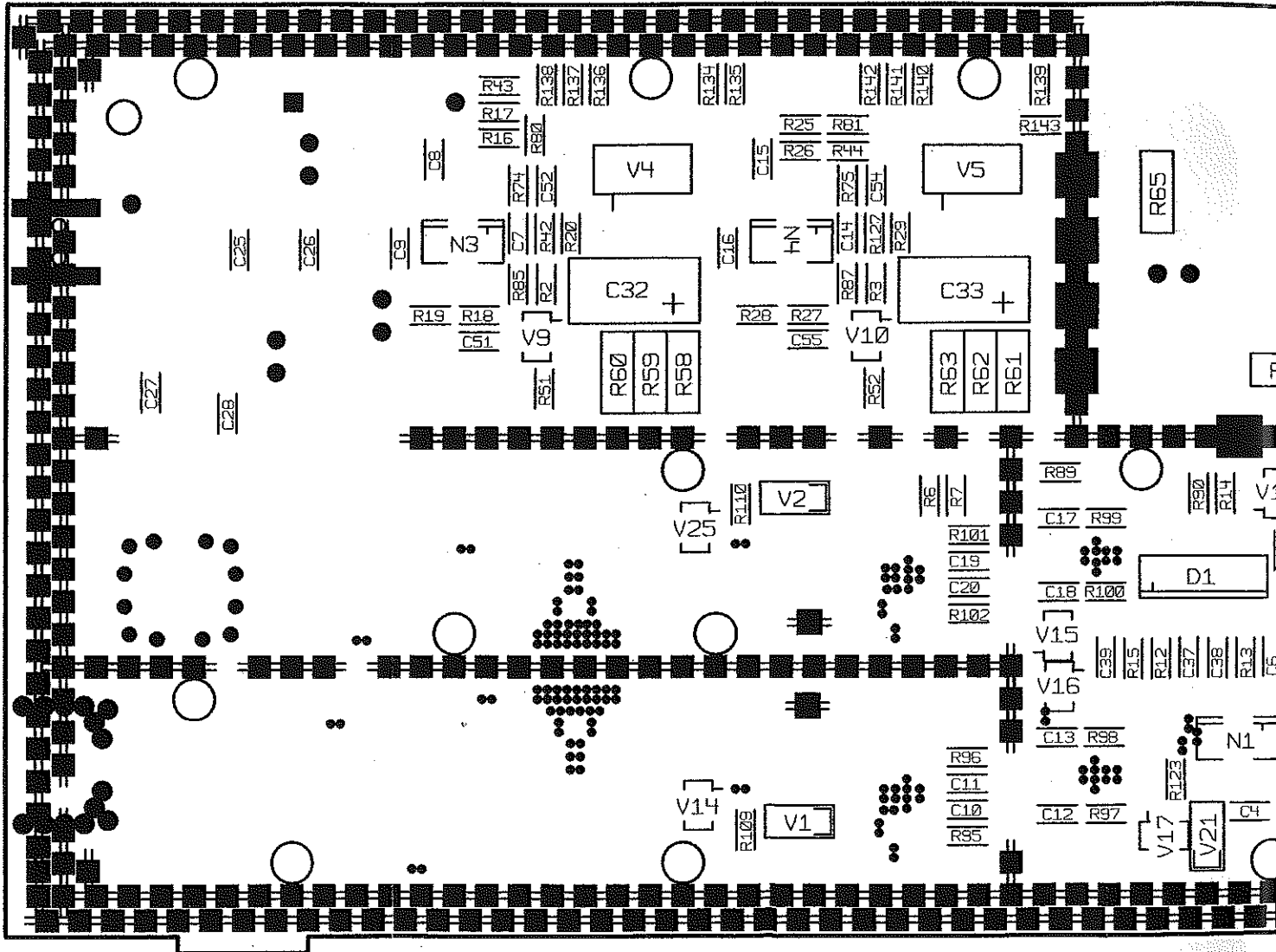
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BINDENDE ANGABEN UEBER VARIANTEN,
TRIMMWERTE, BAUTEILWERTE UND
NICHT BESTUECKTE BAUTEILE SIEHE SA.

FOR BINDING INFORMATION ON MODELS,
TRIMMING AND COMPONENTS VALUES AND
NONFITTED COMPONENTS SEE PARTS LIST.

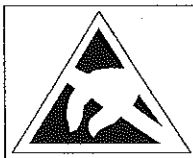
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|---------------|---------------------------|----------|------|-----------------|----------|----------|--------------------------------|
| 02 | | 14.03.97 | HO | 1GPK | DATUM | NAME | BENENNUNG POWERMODUL |
| | | | | BEARB. | | HO | |
| | | | | GEPR. | | HO | |
| | | | | NORM | | | |
| | | | | PLOTT | 21.04.97 | HOFBERGE | ZEICHN.-NR. 1062.7 |
| 01 | | 19.11.96 | HO | ROHDE&SCHWARZ | | | |
| AEND. IND. | AENDERUNGS- MITTEILUNG | DATUM | NAME | ZU GERAET SMY44 | | | REG.I.V. 1062.5502 |



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SEITE A



ACHTUNG: EGB!
 ELEKTROSTATISCH GEFÄHRDETE
 BAUELEMENTE ERFORDERN EINE
 BESONDERE HANDHABUNG.
ATTENTION ESD!
 ELECTROSTATIC SENSITIVE DEVICES
 REQUIRE A SPECIAL HANDLING

BINDENDE ANGABEN LIEBER VARIANTEN,
 TRIMMWERTE, BAUTEILWERTE UND
 NICHT BESTÜCKTE BAUTEILE SIEHE SA.

FOR BINDING INFORMATION ON MODELS,
 TRIMMING AND COMPONENTS VALUES AND
 NONFITTED COMPONENTS SEE PARTS LIST.

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| AEND. IND. | AENDERUNGS- MITTEILUNG | DATUM |

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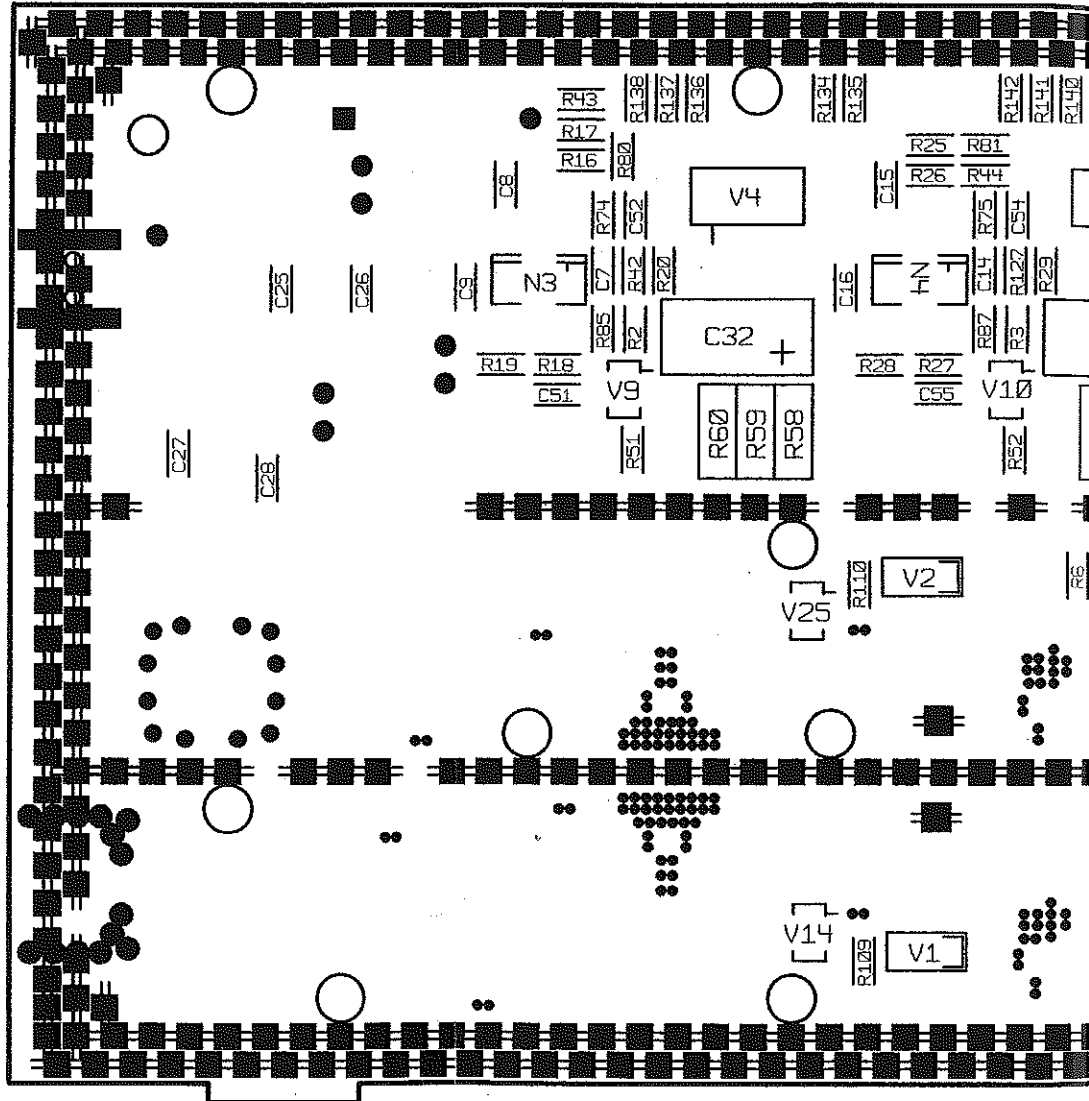
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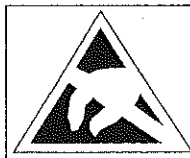
BEHALTEN WIR UNS ALLE RECHTE VOR
FUER DIESE UNTERLAGE



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DARSTELLUNG SEITE A
VIEW ON SIDE A



ACHTUNG: EGBI
ELEKTROSTATISCH GEFÄHRDETE
BAUELEMENTE ERFORDERN EINE
BESONDERE HANDHABUNG.
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