



ROHDE & SCHWARZ

Service manual

**SIGNAL GENERATOR
SMPD**

376.8011.52

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VOLUME II

Manual consists of 3 volumes

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2. Preparation for Use and Operating Instructions
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5 Service Instructions for PC Boards Y1 to Y10

| Y | Designation | Ident No. | PC-Board | Lead | Parts Designation | Register |
|----|-----------------------------|-----------------|----------------------|----------|--|----------|
| 1 | SMPD Processor | 356.1405 .04 | 356.1405 .04 | | | 1 |
| 2 | FM Stage | 300.7014 | 300.5057 | 300.5070 | | 2 |
| 3 | AF Generator and Attenuator | 300.3819 | 300.5092 | 300.5592 | | 3 |
| 4 | Interpolation Synth. I | 300.2812 | 300.5111 | 300.5134 | | 4 |
| 5 | Interpolation Synth. II | 300.7714 | 300.5234 300.6030 | 300.5257 | Interpolation Synth. II Buffer Attenuator | 5 |
| 6 | Interpolation Synth. III | 300.4415 | 300.5192 | 300.5211 | | 6 |
| 7 | SMPC Buffer | 300.3219 | 300.6018 300.5157 | 300.5170 | Buffer Control Buffer Oscillator | 7 |
| 8 | Output Oscillator I | 300.3719 | 300.5270 | 300.5292 | | 8 |
| 9 | Output Oscillator II | 300.4315 | 300.5311 | 300.5334 | | 9 |
| 10 | Oscillator Control | 355.9619 | 355.9625 | 355.9648 | | 10 |

Notes on Service Instructions for SMPD Subassemblies

For spare-part acquisition and stock-keeping, it is important to note that most of the subassemblies are taken unmodified from the Signal Generator SMPC. The designation SMPC in the following text should be read as SMPD.

The subassemblies Y1, Y15, Y19, Y25 and Y30 have been modified.

New additions are the subassemblies Y100 to Y105, the Pulse Modulator Option SMPD-B1 and Overload Protection Option SMPD-B2.

Supplement to Table of Contents, Volume III.

| Y | Name | Order No. | PCB No. | Section |
|-----|---------------------------------------|-----------|----------|---------|
| 100 | Controller | 376.9418 | 376.9418 | 10 |
| 101 | Diode switch I | 914.9303 | -- | 10 |
| 102 | Diode switch II | 914.9403 | -- | 10 |
| 103 | Broadband amplifier | 376.9199 | 376.9218 | 10 |
| 104 | Filter | 914.9503 | -- | 10 |
| 105 | Frequency doubler | 376.9501 | 376.9518 | 10 |
| | Pulse Modulator Option SMPD-B1 | 377.0914 | 377.0922 | 10 |
| | Overload Protection Option SMPD-B2 | 377.1110 | -- | 10 |

4.1 Circuit Description

(See SMPD block diagram, 376.8011 FS)

4.1.1 Synthesizer Principle

The frequency range of the SMPD is 0.005 to 2720 MHz. Output signals in the frequency range from 680 to 1360 MHz are directly generated by three oscillators in Y8. The frequencies from 21.25 to 680 MHz are derived by frequency division in Y9 and those from 0.005 to 21.25 MHz by frequency conversion in Y15. The mixing frequency is fixed at 135 MHz and produced in Y5. The frequency range 1360 to 2720 MHz is derived by frequency doubling of the signals of the output oscillator in Y105.

The output oscillators (Y8) are synchronized on Y11 to the 34th and 68th harmonic of a 20-MHz reference generated in Y5. The reference is sufficiently variable such that continuous coverage from the lowest harmonic used to the next higher one is ensured. It is this reference frequency which comprises the entire fine resolution of the synthesizer.

A digital synthesizer in Y4 generates a frequency between 200 to 300 kHz with a 28-bit resolution (approx. 1 mHz). This frequency is converted in two stages to between 12.2 to 12.3 MHz. In Y6 is an oscillator (195 to 202 MHz) which is synchronized by a PLL with a programmable divider producing frequency steps of 100 kHz. The gaps between these steps are compensated for by the 12.2 to 12.3 MHz from Y4, which are mixed in the PLL. A conversion with 45 MHz yields an output frequency from 240 to 247 MHz for Y6 with a resolution of approx. 1 mHz. The mixing frequency of 45 MHz is produced during unmodulated operation by division of the 135 MHz fixed frequency from Y5. During FM operation, it is added to the modulated output signal from Y2.

Y7 contains a tracking oscillator, which can be modulated. During unmodulated operation, or FM operation with little deviation, the oscillator (Y7) is synchronized to the output frequency of Y6 via a narrow-band control loop. By synchronous modulation of the output frequency of Y6 and the tracking oscillator, the full bandwidth of the modulation can be transferred despite the narrow band of the control loop. This enables the good noise characteristics of the tracking oscillator to be maintained. During large deviations, when the noise characteristics are no longer an advantage, the tracking oscillator is switched off and the signal from Y6 simply amplified.

In Y5 the output frequency from Y7 is reduced to the range 20 to 20.6 MHz by a very low-noise frequency divider and then fed to Y11 where harmonic synchronization occurs. Y10 contains a micro-processor which, via a D/A converter and control lines, selects an oscillator in Y8, and presets and monitors it during operation. All synthesizer steps are synchronized to the 10-MHz crystal oscillator Y40.

4.1.2 Level Processing and AM

The nominal envelope of the output signal is generated by a fixed frequency of 10 MHz with an analog multiplier as a reference modulator. This reference signal is rectified in Y15 where, before the 50- Ω series output resistor, the output signal is also rectified providing a reference for the true output level.

The nominal and true output levels are fed to a control amplifier in Y12 which controls the electronic RF adjuster. It is the EMF of the SMPD that is controlled and not the output voltage so that, even with high output levels, a low reflection coefficient is achieved.

Y13 and Y14 contain staggered, half-octave harmonic filters. The filtered signal is fed into a power amplifier (Y20) which provides the output signal up to +13 dBm in the frequency range from 21.25 to 1360 MHz.

Output stage III (Y15) provides for level processing of the range (0.005 to 21.25 MHz) by means of a power amplifier following the mixer as well as a third rectifier for controlling the input signal of the mixer for this range.

For the frequency range above 1360 MHz the signal level is increased by a further power amplifier following the frequency doubler Y105.

The mechanical attenuator Y30 is stepped in 2-dB units. The in-between values and the values below -127 dBm are electronically set.

4.1.3 Frequency Modulation

The subassembly Y2 feeds a modulated fixed frequency of 45 MHz to Y6. During FM AC operation, the centre frequency is synchronized with the 10-MHz reference frequency by a very narrow-band phase control loop. On switching to FM DC operation, a digital memory stores the control voltage which keeps the FM oscillator operating synchronously.

4.1.4 Modulation Generator

Y3 contains a digital synthesizer as a modulation generator. The synthesizer's output signal without modulation is also available on the rear panel.

4.1.5 Control

All setting data is input to the microprocessor Y1 from either the front panel Y19 or the IEC bus. The microprocessor calculates the data for the respective subassembly and transfers it via the SMPD's internal data bus.

4.2 Mechanical Construction

The SMPD consists of a chassis and the front and rear panels. The subassemblies Y1 to Y15 are plugged into the chassis. The base of the chassis is a motherboard via which all insensitive connections, such as power-supply and data lines, are made. Sensitive connections are made by flexible cable on the upper side of the subassemblies. In the front part of the chassis, the subassemblies Y20 (output amplifier) and Y30 (RF attenuator) are mounted. The front panel Y19, containing all operation controls and indicators, is screwed onto the front of the chassis. The rear panel Y25 supports the power supply and reference crystal oscillator subassemblies.

The subassemblies of the doubler section, Y105 (frequency doubler), Y104 (filter), Y103 (broadband amplifier), Y101 and Y102 (diode switch I and II) and Y100 (controller) are fitted on a board situated below the motherboard which also accommodates the option "pulse modulator".

Service Kit XPC-Z1 (337.9810.02) contains all the items necessary to make subassemblies Y1 to Y15 accessible for servicing and test EPROMS for signature analysis and tests on digital subassemblies.

4.3 Checking and Adjusting

The following adjustments deal with the complete unit:

| Adjustment | Adjuster | Subassembly | Paragraph |
|-------------------------------------|-----------|-------------|----------------|
| Divider amplitude | R231 | Y5 | 4.3.1 |
| Operating point of phase control | R34 | Y10 | 4.3.2 |
| Reference modulator zero adjustment | R5 | Y12 | 4.3.3 |
| RF modulator zero adjustment | R54 | Y12 | 4.3.4 |
| Rectifier offset | R13 | Y15 | 4.3.5 |
| Level (> 21.25 MHz) | R8 | Y12 | 4.3.6 |
| Level (< 21.25 MHz) | R56 | Y15 | 4.3.7 |
| FM deviation adjustment | R31 R5 | Y2 Y7 | 4.3.9 4.3.9 |

Necessary adjustments when changing subassemblies:

| When changing subassembly ... | Adjust ... acc. to | Paragraph |
|-------------------------------|--|-----------------------------|
| Y2 FM stage | FM Deviation Adjustment | 4.3.9 |
| Y5 INT II | Divider Amplitude | 4.3.1 |
| Y7 SMPC buffer | FM Deviation Adjustment (only 2nd section, R5) Buffer Divider Divider Amplitude | 4.3.9 Y5, 5.2.4 4.3.1 |
| Y10 Oscillator control | Phase Control Working Point | 4.3.2 |
| Y11 Phase control | Divider Amplitude Phase Control Working Point | 4.3.1 4.3.2 |
| Y12 AM + ALC | RF Modulator Zero Adjustment Rectifier Offset Level (>21.25 MHz) | 4.3.4 4.3.5 4.3.6 |
| Y15 AT III | See Y12 Level (<21.25 MHz) | 4.3.4 to 4.3.6 4.3.7 |

4.3.1 Divider Amplitude R231 (Y5)

Connect RF analyzer to RF output socket 15. Set SMPD to 1360-MHz carrier frequency, 0-dBm output level, 0.1-kHz FM deviation and external FM. Short circuit FM input socket 31. Display output-signal spectrum on analyzer with 30 kHz resolution and 5 MHz span.

By switching modulation on and off, check on display that noise level of SMPD during FM operation is adequately measurable. If necessary, overdrive analyzer by 10 dB.

With FM switched on, minimize noise level 600 kHz from carrier frequency with R231 in Y5. After failure of synchronization or adjustment for minimum noise, adjust working point of phase control (see 4.3.2). Check noise level and if altered, retune R231. After each change of R231, carry out 4.3.2. Convert noise level measurement to 1 Hz bandwidth. Difference between carrier and noise levels must be > 124 dB.

4.3.2 Phase Control Working Point R34 (Y10)

Set SMPD to sweep between 680 and 699.9 MHz in 1300-kHz steps. Disconnect cable K15 on Y11. Attach oscilloscope to MP43. Adjust voltage at MP43 with R34 to a mid-value of 7 ±1 V. Reconnect cable K15.

4.3.3 Reference Modulator Zero Adjustment R5 (Y12)

Set SMPD to 22 MHz and 13 dBm. Measure level (10 MHz) at ST163 (with probe). Key in RCL 90 on SMPD front panel. Adjust R5 for minimum level at ST163. Note level difference. Minimum value: 35 dB.

4.3.4 RF Modulator Zero Adjustment R54 (Y12)

Set SMPD to 22 MHz and 13 dBm. Measure level at output 15. Key in RCL 90 on SMPD front panel, with R54 set the same level difference as obtained in 4.3.3.

4.3.5 Rectifier Offset R13 (Y15)

Set SMPD to 21 MHz and 13 dBm. Measure level at output 15. Key in RCL 90 on SMPD front panel, with R13 set same level difference as obtained in 4.3.3.

4.3.6 Level (> 21.25 MHz) R8 (Y12)

Set SMPD to 500 MHz and 10 dBm. Connect calibrated power meter to output socket 15. Adjust R8 for 10.0 dB ± 0.05 .

4.3.7 Level (< 21.25 MHz) R56 (Y15)

Measure level at output socket 15 with SMPD set to 22 MHz, note level. Reset SMPD to 21 MHz and adjust R56 for same value (± 0.05 dB).

4.3.8 Reference Frequency Calibration

Connect calibrated frequency counter to output 14 (rear panel). Adjust for 10.000,000 MHz with trimmer 45 (rear panel). If, as a consequence of ageing, it is no longer possible to trim to nominal frequency, the crystal oscillator must be readjusted (see Y25 paragraph 5.2).

4.3.9 FM Deviation Adjustment

Connect RF analyzer to RF output socket 15. Set SMPD to 100-MHz carrier frequency, 0-dBm RF level, 100-kHz FM deviation and 41.58-kHz modulation frequency. Display output signal on analyzer set to 250-kHz span and 3-kHz resolution. Minimize residual carrier with R31 on Y2 (< -50 dBc).

Set SMPD to 690-MHz carrier frequency, 40-kHz deviation and 0.2-kHz modulation frequency. Connect oscilloscope or AF voltmeter ($R_i > 1\text{ M}\Omega$) to MP14 on Y7. Test point is accessible from outside SMPD. Minimize AC voltage on MP14 with R5 in Y7.

4.4 Troubleshooting

4.4.1 Self-test

During normal operation, the self-checking program checks for faults approximately every 20 seconds and enters them in the frequency display. Each keyed input erases the fault character, which is, however, redisplayed after approximately 20 seconds. If RCL 00 (erase all special functions) is keyed, a self-check is immediately triggered. When a fault is eliminated, the corresponding character is extinguished at once. Only the fault character 5 is erased with a few seconds delay.

The fault characters have the following meanings:

- - - 1 Y7 SMPC buffer cannot synchronize.
- - - 2 Y5 135-MHz oscillator cannot synchronize.
- - - 3 Y6 195 to 202-MHz oscillator cannot synchronize.
- - - 4 Y12 control voltage for AM modulator and ALC exceeds nominal limits.
- - - 5 Y10 fault in oscillator control.
- - - 6 Y2 FM oscillator cannot synchronize.

Several fault characters can appear simultaneously as a result of a fault in one subassembly. Troubleshooting should follow the fault character sequence 2, 6, 3, 1, 5 and 4.

4.4.2 Troubleshooting Charts

The following flow charts ought to facilitate troubleshooting down to single subassembly level. See chapter 5 for diagnosis of faults in the individual subassemblies. It is to be assumed that all supply voltages have been checked and are present at their correct levels (Table 4-1).

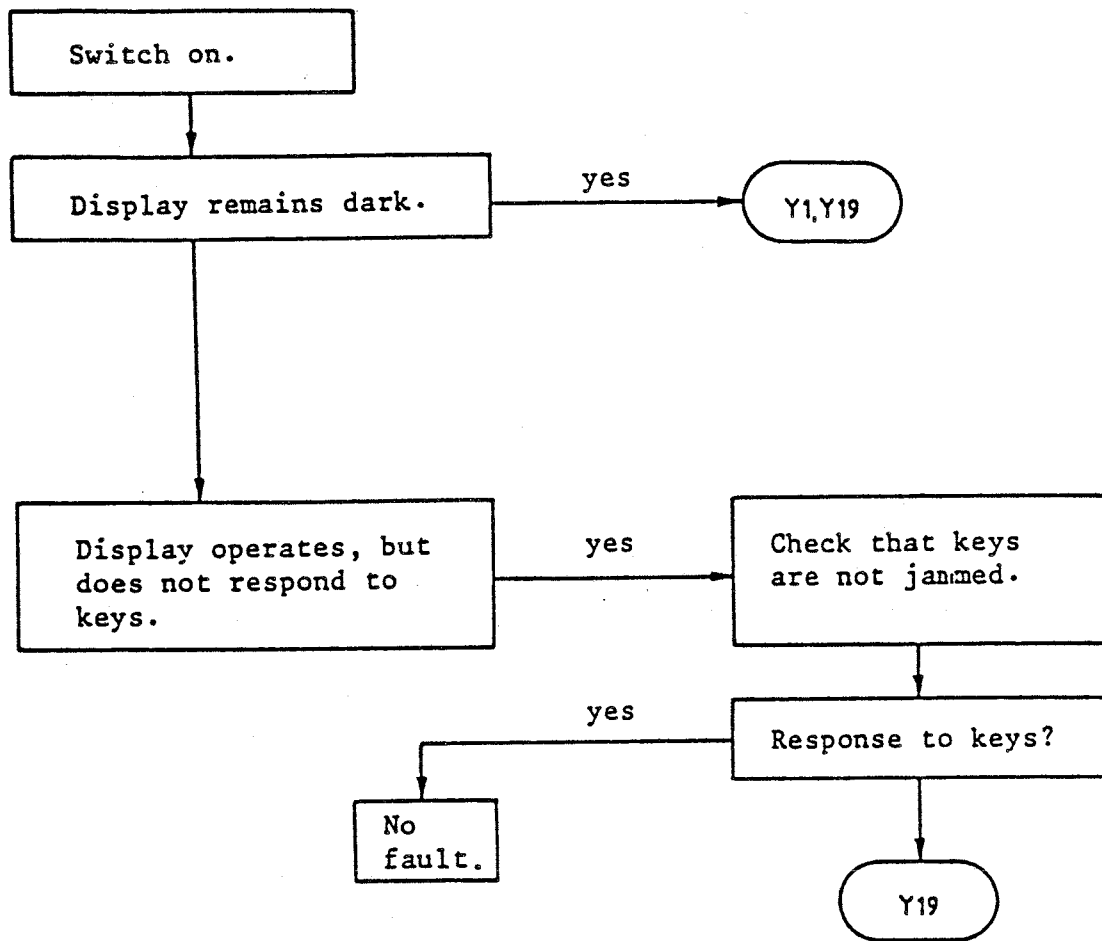
Table 4-1.

| Motherboard BU100, contact | Voltage (V) | Controller (Y100) BU 500, contact | Voltage/V |
|-------------------------------|-------------|--------------------------------------|------------|
| 6 | -14 ±0.2 | 1.2 | +22.9 ±0.1 |
| 8 | -7 ±0.1 | 3 | -12 ±0.2 |
| 10 | +5.15 ±0.05 | 5.6 | +12 ±0.1 |
| 12 | +14.0 ±0.1 | 7 | +5 ±0.2 |
| 14 | +20.0 ±0.1 | 8 * | +12 ±0.1 |

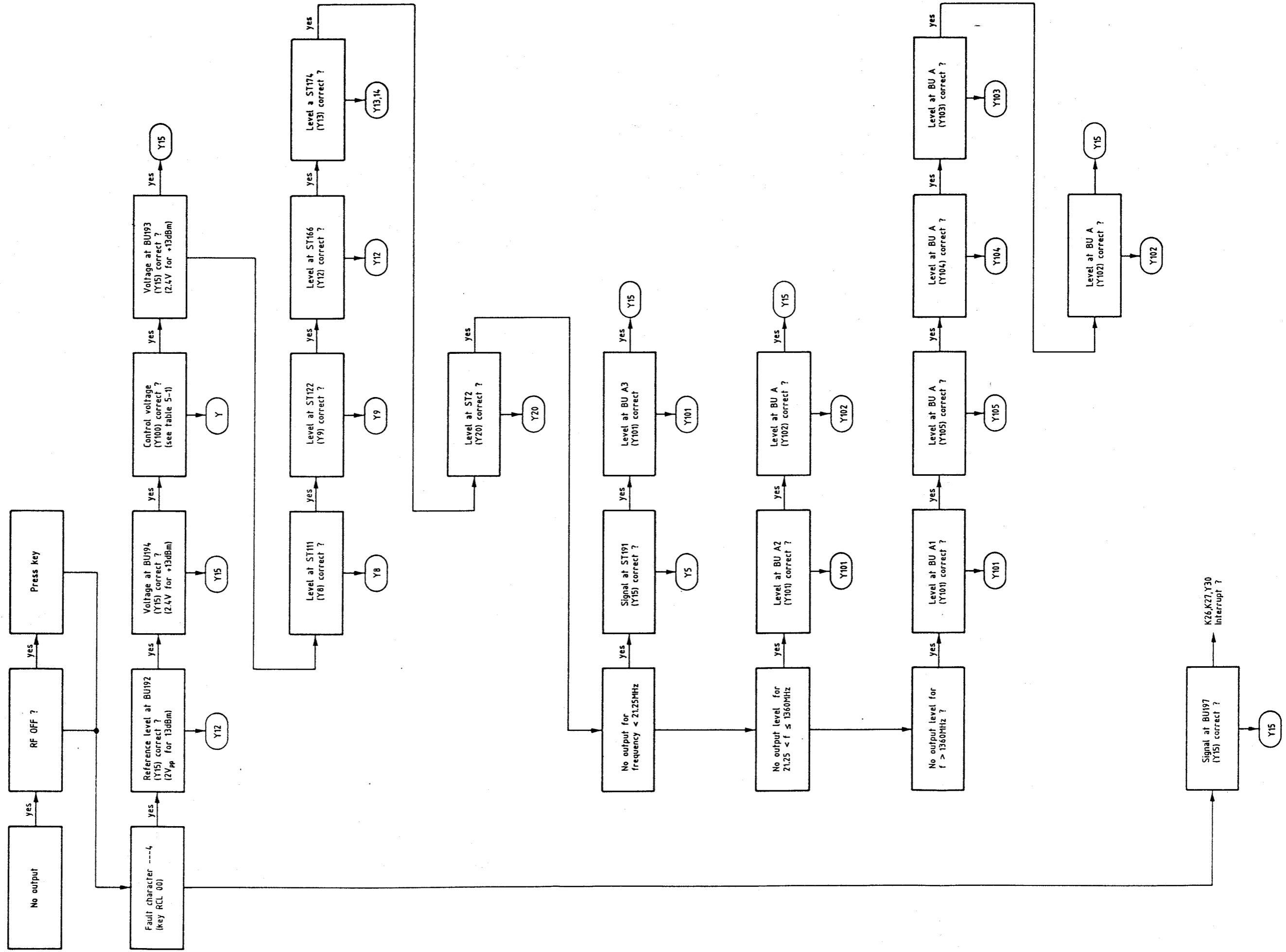
* For measurements on BU 500/8 connect BU 500/4 to BU 500/7.

The levels for the interfaces between the subassemblies are given in the description of the subassemblies in chapter 5.

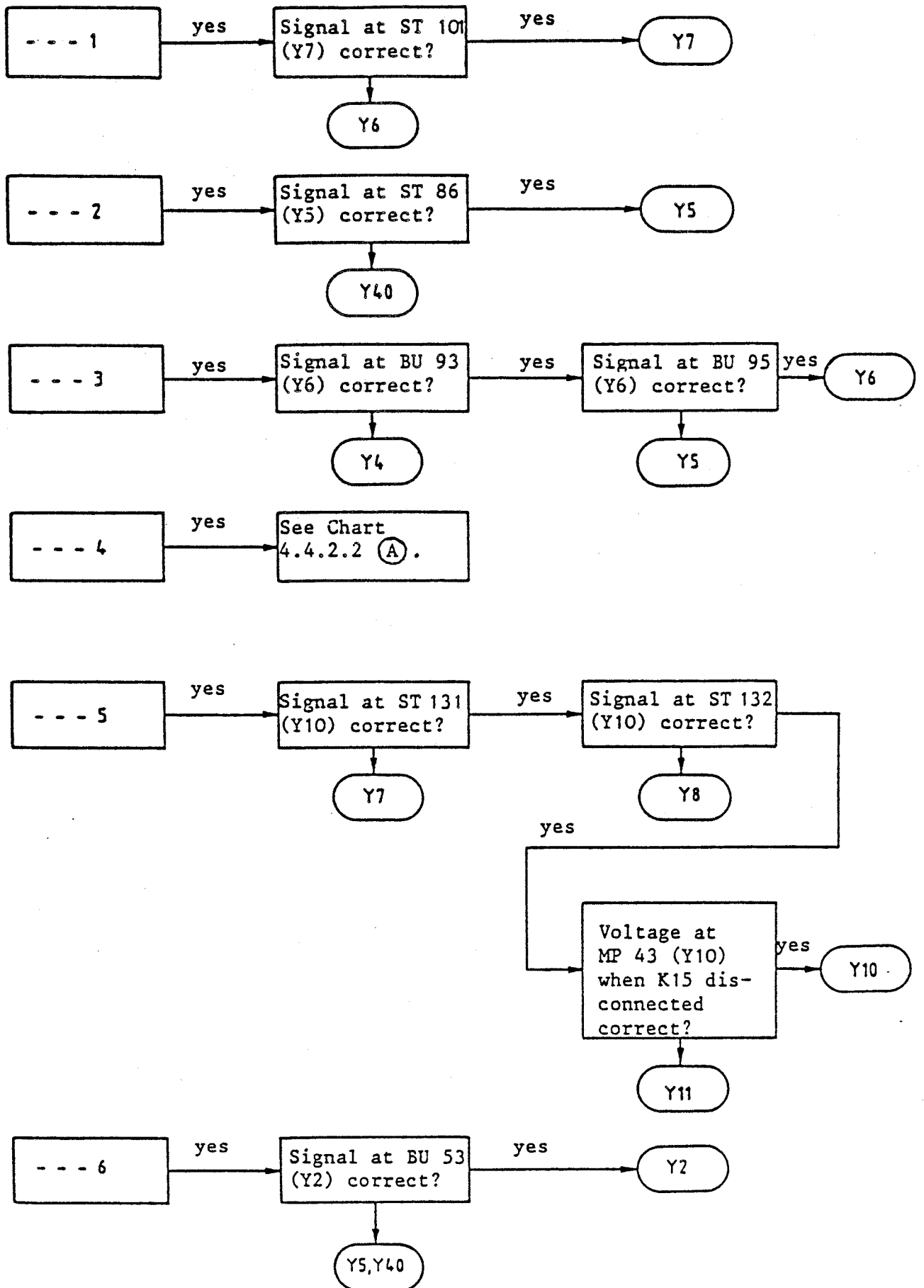
4.4.2.1 Switch-on Condition



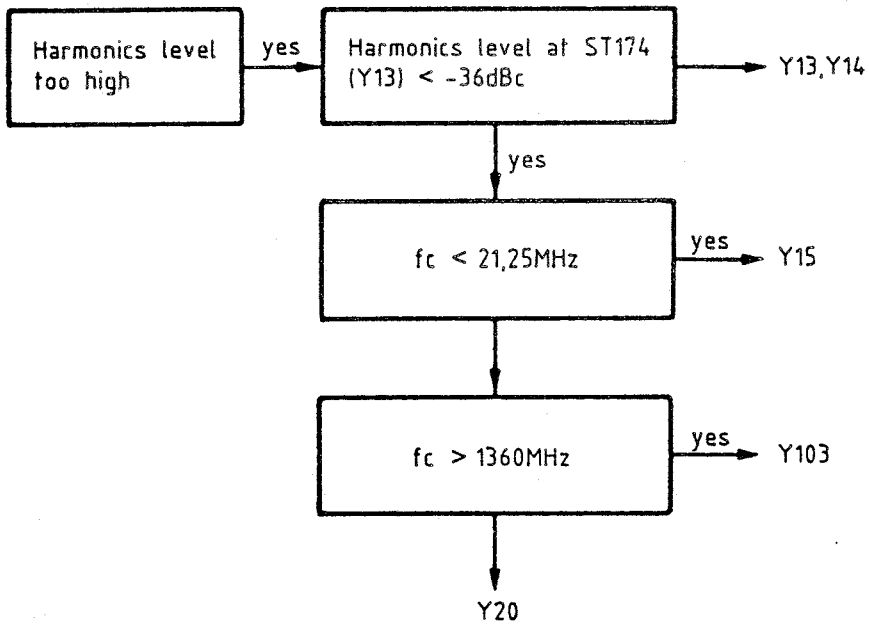
4.4.2.2 Level Fault



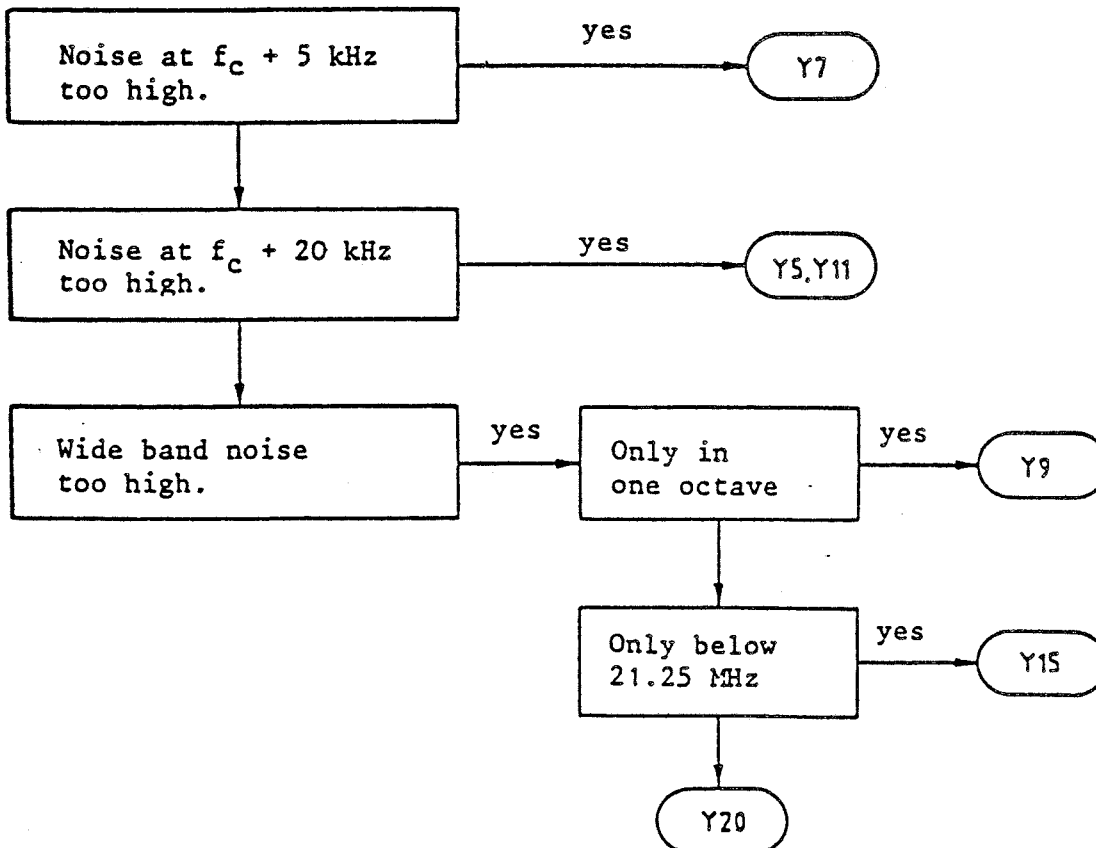
4.4.2.3 Frequency Fault, Fault Character



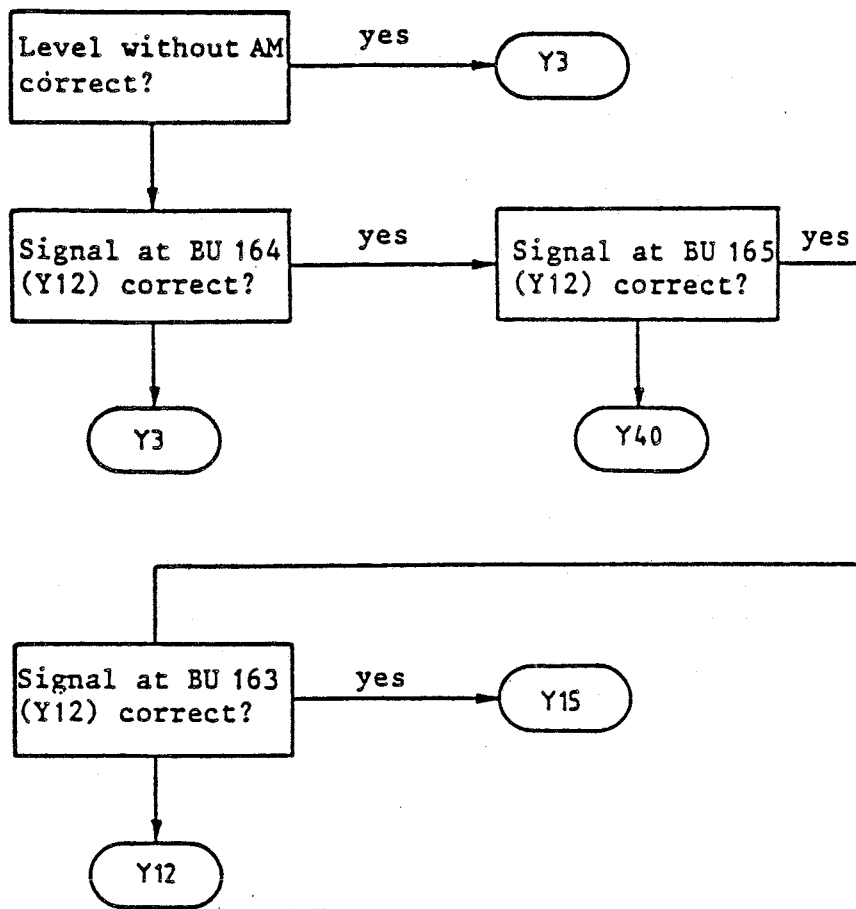
4.4.2.4 Harmonics Level too High



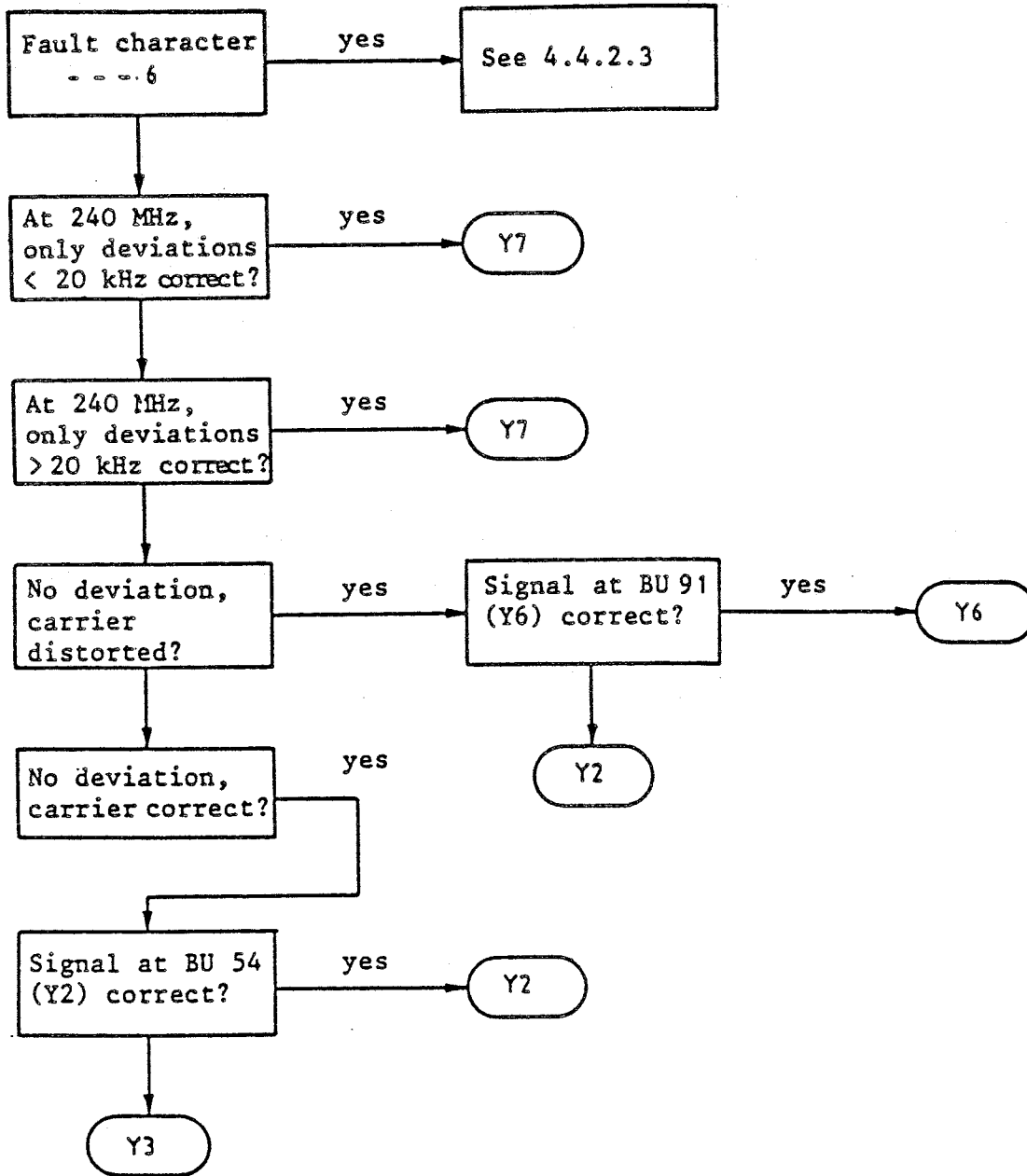
4.4.2.5 Noise Level too High



4.4.2.6 No or Distorted AM



4.4.2.7 No or Distorted FM



**4.4.2.8 Test of Preselection in Y10 (Oscillator Control)
if Output Frequency is Incorrect (Error Message 5)**

On SMPD suppress selftest with RCL 09 and disconnect K11. Set the following frequencies and check the tuning voltage from Y10 on connector ST133.

| | | | | |
|-----------------------|------|------|-------|-------|
| f/MHz | 685 | 760 | 835 | 905 |
| V _{ST133} /V | 2.52 | 7.26 | 11.40 | 15.07 |
| f/MHz | 915 | 990 | 1065 | 1140 |
| V _{ST133} /V | 2.44 | 7.27 | 11.41 | 15.26 |
| f/MHz | 1150 | 1225 | 1295 | 1360 |
| V _{ST133} /V | 2.61 | 7.61 | 11.44 | 14.61 |

Check frequency at equipment output. A deviation of >10 MHz to the set frequency requires retuning the oscillators in Y8 (AO I).

Adjust nominal value at 685 MHz with C 1, at 905 MHz with R47,
at 915 MHz with C12, at 1140 MHz with R48,
at 1150 MHz with C23, at 1360 MHz with R49.

After trimming the upper limit frequencies, check the lower limit frequencies and with deviations of >300 kHz repeat the adjustment.

**4.4.2.9 Test of Increment Latches B9, B13, B17, B21 in Y4
(INT I) without Service EPROM if the Frequency
Variation with Fine Resolution is Unsteady**

The latches often fail when the subassembly is pulled out or inserted with the power on.

If the frequency at BU73 does not change steadily from 12.2 to 12.3 MHz on tuning the SMPD from 240 to 240.1 MHz, the increment latches should be tested with an oscilloscope:

Set a period sweep from 240 to 240.5 MHz in 11.111 kHz steps. All the outputs of the latches change between L and H at different repetition rates whereas B21 4Q remains permanently H.

4.4.2.10 Synchronization Fault in Y6 (INT III)
for Incorrect Output Frequency (Error Message 3)

The most important testpoint is MP 50 (divider input). The level at this testpoint should not drop below -4 dBm over the whole tuning range of the oscillator (0.5 to 18 V at MP 7.1). Check using a high-impedance measuring head. If the above value is not complied with, adjustments 5.2.2 and 5.2.3 are to be checked.

4.4.2.11 Synchronization Fault in Y7 (SMPC buffer) for
Deviation or Carrier Frequency Variations with
FM Selected (Error Message 1)

The fault can originate from the deviation-dependent switch on and off of the buffer oscillator. This can be tested by switching the special functions RCL 98 and RCL 99 in rapid succession. If the unit is out-of-sync for more than 2 ms, the switchover will have to be checked.

When distortion is present only at low modulation frequencies and small values of deviation (test 240 MHz, 0.2 kHz AF, 19 kHz deviation), the supporting modulation is not correctly set (adjust according to 2nd paragraph of 4.3.9).

4.4.2.12 SMPD Performance Check

a) Observe sweep from 1 MHz to 1360 MHz in 3333 kHz steps on RF analyzer. Transients should show only as shortly-lived interfering lines. Frequency jumps and sidebands indicate that the unit is not functioning properly.

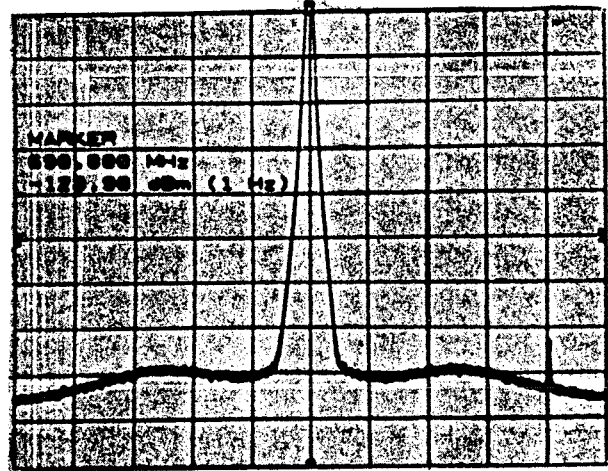
b) Spectrum:

Set on SMPD: 680 MHz, 10 dBm, 0.01 kHz AF, 0.01 kHz FM, AM off. Observe spectrum on RF analyzer. Rated curves and settings, see photos. Select special function RCL 98.

The noise level may increase by 6 dB max. Repeat test at 690 MHz and 699.9 MHz. If the level increase is greater than 6 dB, carry out adjustments of Y5 as under 5.2.4 and 4.3.1.

Settings on RF analyzer:

| | |
|----------------------|-----------|
| Reference level | 0 dBm, |
| | 10 dB/div |
| Center frequency | 680 MHz |
| Span | 5 MHz |
| Resolution bandwidth | 30 kHz |
| Video bandwidth | 1 kHz |
| Sweep time | 300 ms |
| Video average | 5 |
| Sample detector | |



4.4.3 Signature Analysis

The digital circuits are designed for signature analysis. Descriptions of the tests and the signatures are given in the service instructions (chapter 5) for subassemblies Y1 to Y10. The test EPROMS required for this purpose are included in the Service Kit XPC-Z1.

4.5 Required Measuring Instruments and Auxiliary Equipment

| Ref. No. | Instrument | Performance rating | R&S type design. and ord. numb. | See section |
|----------|---|---|--|--|
| 1 | Frequency counter | Range: 0.05 to 1360 MHz resolution: 0.1 Hz | | Y6, Y7, 4.3 Y10, Y5, Y8, Y40 |
| 2 | RF analyzer | Range: 0.1 to 1500 MHz of crystal stability dynamic range: 90 dB | | Y2, Y6, 4.3 Y4, Y5, Y8, Y9 |
| 3 | Power meter | Range: 0.05 to 1360 MHz power: up to 20 mW Z = 50 Ω, error <0.1 dB resolution: <0.02 dB | | Y6, 4.3 Y8, Y12 |
| 4 | Precision attenuator | Range: >500 MHz attenuation: 0 to 120 dB Z = 50 Ω | DPVP 214.8017.. | Y9, Y30 |
| 5 | Test receiver with frequency controller | Range: 500 MHz inherent noise: <-10 dBμV | ESU 2 252.0010.. EZK 255.0010.. | Y30 |
| 6 | RF analyzer | Range: up to 5.5 GHz dynamic range: >40 dB | | Y15, Y20 Y101, Y102 Y103, Y104 Y105 |
| 7 | Signal generator | Range: up to 2720 MHz low noise | SMPD 376.8011.52 | Y7, Y11, Y12, Y10, Y15, Y20, Y30, Y9 Y101-Y105 |
| 8 | Switchable low-pass filter | 1/2-octave filter sections: 30 MHz to 1360 MHz | | Y9 |
| 9 | Amplifier | Range: 20 to 1360 MHz Z = 50 Ω amplification: 20 dB freq. response <±1 dB noise figure: <8 dB | | Y9 |
| 10 | Process controller | IEC-625-1 interface | PPC 343.3510.. PUC 344.8900.. | Y1 |

| Ref. No. | Instrument | Performance rating | R&S type design. and ord. numb. | See section |
|----------|-----------------------|---|--|-----------------------|
| 11 | Modulation analyzer | Range: up to 1360 MHz AM, FM, Φ M error: <1% | FAM 334.2015.53 FAM-B2 334.4918.02 FAM-B8 334.5714.02 | Y2, Y7 |
| 12 | AF generator | Range: up to 125 kHz freq. response: <0.01 dB | SPN 336.3019.02 | Y2, Y3 |
| 13 | AF voltmeter | Range: up to 125 kHz freq. response: <0.01 dB | URE 342.1214.02 | Y2, Y3 |
| 14 | Distortion meter | Range: up to 100 kHz resolution: <0.05% | | Y2, Y3, Y7 |
| 15 | AF counter | Range: up to 100 kHz error: <1 x 10 ⁻⁷ | | Y3 |
| 16 | AF psophometer | Range: 15 Hz to 20 kHz rms detector | UPGS 248.0019.03 | Y25 |
| 17 | AF analyzer | Range: 10 Hz to 1.5 MHz dynamic range: 80 dB | | Y3 |
| 18 | Signature analyzer | | | Y1, Y10, Y19 |
| 19 | Sweep tester | Range: 0.1 to 1000 MHz dynamic range: 75 dB | SWOB5 333.0019.52 | Y6, Y11, Y13, Y14 |
| 20 | Sampling oscilloscope | Range: up to 1.5 GHz | | Y11 |
| 21 | Vector analyzer | Range: 0.3 to 2000 MHz | ZPV 291.4012.92 ZPV-E3 301.7018.02 | Y12, Y13, Y15, Y20 |
| 22 | 1/3-octave filter | Midband frequency: 100 Hz | PBT 235.3014.02 | Y25 |
| 23 | Service Kit XPC-Z1 | | 337.9810.02 | Chapter 4+5 |
| 24 | Attenuator | Z = 50 Ω attenuation: 10 dB | DNF 272.4210.50 | Y9 |
| 25 | Attenuator | Z = 50 Ω attenuation: 6 dB | DNF 272.4110.50 | Y9 |
| 26 | Climatic test chamber | Range: 25 to 55°C | | Y40 |



ROHDE & SCHWARZ
MÜNCHEN

Schalteillisten
Stromläufe
Bestückungspläne
Parts lists
Circuit diagrams
Components plans

| Kennbuchst. | Art des Bauelementes | Identif.-letter | Type of component | Symbole | Type d'élément |
|-------------|--|-----------------|--|----------|---|
| 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 | Hochsp.-Steckverbindung | FU | HV plug and socket | FU | Connecteur pour haute tension |
| FV | Verbinder (z.B. AMP) | FV | Push-on connector | FV | Connecteur à enfichage |
| J | Meßinstrumente | J | Indicators | J | Indicateurs |
| JD | Drehspul-Anzeiginstrument | JD | Moving-coil meter | JD | Galvanomètre à cadre mobile |
| JE | Dreheisen-Anzeiginstrument | JE | Moving-iron meter | JE | Galvanomètre à fer mobile |
| JF | Frequenzmesser | JF | Frequency meter | JF | Fréquencemètre |
| JG | Drehspulinstrument mit Gleichrichter | JG | Moving-coil meter with rectifier | JG | Galvanomètre à cadre mobile avec redresseur |
| JH | Betriebstundenzähler | 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 (Kreuzspulinstrument) | JQ | Ratiometer (cross coil) | JQ | Quotientmètre (à cadres croisés) |
| JS | Spiegelgalvanometer | JS | Reflecting galvanometer | JS | Galvanomètre à miroir |
| JU | Uhrwerk | JU | Clockwork | JU | Mouvement d'horlogerie |
| JW | Elektrodyn. Anzeiginstrument | JW | Electrodynamic meter | JW | Instrument électrodynamique |
| L | Induktivitäten, Magnetik | L | Inductors, magnetic components | L | Composants inductifs et magnétiques |
| 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 |
| LP | Permanentmagnet | LP | Permanent magnet | LP | Aimant permanent |
| LT | Netztransformator | LT | Power transformer | LT | Transformateur secteur |
| LU | NF-Übertrager | LU | AF transformer | LU | Transformateur BF |
| LV | Variometer | LV | Variometer | LV | Variomètre |
| 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 |
| RL | Metallfilm-Widerstand | RL | Metal-film resistor | RL | Résistance à film métallique |
| RM | Widerstandsdraht | RM | Resistance wire | RM | Fil de résistance |
| 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 |

| Kennbuchst. | Art des Bauelementes | Identif.-letter | Type of component | Symbole | Type d'élément |
|-------------|--------------------------------------|-----------------|--|----------|---|
| 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, Luftschütz | 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 | Éléments 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 / Colour code for resistors and capacitors / Code couleur pour résistances et condensateurs

Anmerkung:

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

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.

Remarque:

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

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.

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.

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 minimes 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) Kondensat. (C) Resistors (R) Capacitors (C) Résistance (R) Condensateur (C) | Kennzeichen A (Bauteilfarbe/1. Farbring) = 1. Zahl; Marking A (body colour or first coloured ring) = 1st digit; Repérage A (couleur du corps ou 1er anneau) = 1er chiffre: Kennzeichen B (Bauteilende/2. Farbring) = 2. Zahl; Marking B (body end or second coloured ring) = 2nd digit; Repérage B (bout du corps ou 2e anneau) = 2e chiffre: Kennzeichen C (Punkt/3. Farbring) = 3. Zahl = Zahl der Nullen; Marking C (dot or third coloured ring) = number of zeroes; Repérage C (point ou 3e anneau) = nombre de zéros; Kennzeichen D (Punkt/4. Farbring) = Toleranz des Nennwerts in % Marking D (Fehlendes Kennzeichen für D bedeutet +20%) Repérage D (dot or fourth coloured ring) + tolerance on nominal value in % (with no D marking: tolerance ± 20%) (point ou 4e anneau) = tolérance en % de la valeur nominale. (L'absence du repérage D signifie ± 20%) |
| Braun/Brown/Marron | 1 | 1 | 0 | ± 1% | | |
| Rot/Red/Rouge | 2 | 2 | 00 | ± 2% | | Das Fehlen eines Kennzeichens bedeutet, daß die Farbe des Bauteilkörpers die Wertangabe darstellt. The absence of a marking signifies that the body colour gives the corresponding information. L'absence de tout repérage signifie que la couleur du corps du composant représente la valeur correspondante. |
| Orange/Orangé | 3 | 3 | 000 | | | |
| Gelb/Yellow/Jaune | 4 | 4 | 0000 | | | *Siehe auch DIN 41 429 und DIN 40 825 see also IEC publication 62-1952 and 62-1968 Voir aussi DIN 41 429 et DIN 40 825. |
| 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/Blanc | 9 | 9 | - | | | |
| Gold/Doré | - | - | - | ± 5% | | |
| Silber/Silver/Argenté | - | - | - | ± 10% | | |
| Ohne Farbe/No colour/ Pas de couleur | - | - | - | ± 20% | | |

1) Toleranzring, hier nicht spezifiziert.
 1) Tolerance ring, here not specified.
 1) Anneau de tolérance, ne pas spécifié ici.



R&S-Schlüsselliste

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.

R&S key list

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.

Liste des symboles de référence R&S

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.

| Kennbuchst. | Art des Bauelementes | Identif.-letter | Type of component | Symbole | 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 | Fotoelement, z.B. Foto-Diode, -Transistor, -Widerstand, Leuchtdiode | AF | Light-sensitive component, e.g. resistor, diode, transistor; LED | AF | Composant photoélectrique, p.ex. diode, transistor, résistance photoél., D.E.L. |
| 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 | Low-power 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 |
| AW | Spannungs- oder temperaturabhängiger Widerstand | AW | Voltage- or temperature-dependent resistor | AW | Varistance ou thermistance |
| 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-Dünnschichtschaltung | BD | R&S thinfilm circuit | BD | Circuit à couche mince R&S |
| BG | Gerätebaugruppe | BG | Subassembly | BG | Sous-ensemble |
| BJ | Integr. Schaltkreis (Interface, A/D-Wandler) | BJ | Integrated circuit (interface, A/D converter) | BJ | Circuit intégré (interface, convertisseur A/N) |
| BK | Kernspeicher, Magnetspeicher | BK | Core memory, magnetic memory | BK | Mémoire à tores, mémoire magnétique |
| 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 | Optobaustein, z.B. Anzeigeeinheit, Koppler | BP | Optoelement, e.g. display, coupler | BP | Élément optique, 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 |



| Kenn- buchst. | Art des Bauelementes | Identif.- letter | Type of compbnent | Sym- bole | 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 |
| DN | Antenne | DN | Antenna | DN | Antenne |
| DS | Anschlußkabel (mehradrig) | DS | Connecting cable, multicore | DS | Câble de connexion (multiconducteur) |
| 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 |
| 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 | FK | Contact clip, contact spring | EK | Lame de contact, ressort de contact |
| EL | Lautspr., 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, piezoelektr./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 |
| F | Fassungen, Steckverbindungen | F | Sockets, connectors | F | Douilles, connecteurs |
| FA | Dezifix/Prezifix A | FA | R&S coaxial connector Dezifix/Precifix A | FA | Dezifix, Prezifix A |
| FB | Dezifix B | FB | R&S coaxial connector Dezifix B | FB | Dezifix B |
| FC | Dezifix C | FC | R&S coaxial connector Dezifix C | FC | Dezifix C |
| FD | Dezifix D | FD | R&S coaxial connector Dezifix D | FD | Dezifix D |
| FE | Dezifix E/J | FE | R&S coaxial connector Dezifix E/J | FE | Dezifix E/J |
| FF | Dezifix F | FF | R&S coaxial connector Dezifix F | FF | Dezifix F |



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 | GB Great Britain Grande- Bretagne |
| DS 006.7020 | Typ 12 nach SEV-Vorschrift 1011.1059, Normblatt S24507 Type 12 complying with SEV re- gulation 1011.1059, standard sheet S24507 Type 12 suivant la norme SEV 1011.1059, feuille S24507 | 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 49441, 10 A, 250 V | Europa (ohne Schweiz) Europe (Switzerland not included) Europe (Suisse non comprise) |

**ROHDE & SCHWARZ**

| | |
|----|---------------|
| ÄI | Datum Date |
| 11 | 1086 |

| |
|---------------------------------------|
| Schaltteilliste für Parts list for |
| SMPD SIGNAL-GENERATOR |
| SMPD SIGNAL GENERATOR |

| |
|-------------------------|
| Sachnummer Stock No. |
| 376.8011.01 SA |

| |
|---------------|
| Blatt Page |
| 1 |

| Kennzeichen Component No. | Benennung/Beschreibung Designation | Sachnummer Stock No. | enthalten in contained in |
|------------------------------|--|-------------------------|------------------------------|
| BU40 | FM BUCHSENLEISTE 50POL 50-SOCKET INSERT | 300.6953 | 300.5670 |
| BU41 | AMPHENOL 225-22521-410 117 FM BUCHSENLEISTE 50POL 50-SOCKET INSERT | 300.6953 | 300.5670 |
| BU50 | AMPHENOL 225-22521-410 117 FM BUCHSENLEISTE 44POL. 44-SOCKET INSERT | 300.6947 | 300.5670 |
| BU60 | AMPHENOL 225-22221-410 117 FM BUCHSENLEISTE 44POL. 44-SOCKET INSERT | 300.6947 | 300.5670 |
| BU70 | AMPHENOL 225-22221-410 117 FM BUCHSENLEISTE 44POL. 44-SOCKET INSERT | 300.6947 | 300.5670 |
| BU80 | AMPHENOL 225-22221-410 117 FM BUCHSENLEISTE 44POL. 44-SOCKET INSERT | 300.6947 | 300.5670 |
| BU90 | AMPHENOL 225-22221-410 117 FM BUCHSENLEISTE 44POL. 44-SOCKET INSERT | 300.6947 | 300.5670 |
| BU100 | AMPHENOL 225-22221-410 117 FM BUCHSENLEISTE 44POL. 44-SOCKET INSERT | 300.6947 | 300.5670 |
| BU110 | AMPHENOL 225-22221-410 117 FM BUCHSENLEISTE 44POL. 44-SOCKET INSERT | 300.6947 | 300.5670 |
| BU120 | AMPHENOL 225-22221-410 117 FM BUCHSENLEISTE 44POL. 44-SOCKET INSERT | 300.6947 | 300.5670 |
| BU130 | AMPHENOL 225-22221-410 117 FM BUCHSENLEISTE 44POL. 44-SOCKET INSERT | 300.6947 | 300.5670 |
| BU140 | AMPHENOL 225-22221-410 117 FM BUCHSENLEISTE 44POL. 44-SOCKET INSERT | 300.6947 | 300.5670 |
| BU160 | AMPHENOL 225-22221-410 117 FM BUCHSENLEISTE 44POL. 44-SOCKET INSERT | 300.6947 | 300.5670 |
| BU170 | AMPHENOL 225-22221-410 117 FM BUCHSENLEISTE 44POL. 44-SOCKET INSERT | 300.6947 | 300.5670 |
| BU180 | AMPHENOL 225-22221-410 117 FM BUCHSENLEISTE 44POL. 44-SOCKET INSERT | 300.6947 | 300.5670 |
| BU190 | AMPHENOL 225-22221-410 117 FM BUCHSENLEISTE 44POL. 44-SOCKET INSERT | 300.6947 | 300.5670 |
| BU270 | FR JC-FASSUNG 16 POLIG 16-PIN IC-SOCKET | FR 249.6091 | 300.5670 |
| BU271 | PRECICONT US016T FR IC-FASSUNG 16POL.ABGEW IC SOCKET AUGAT 516-AG7D | FR 565.1312 | 300.5670 |

376.8011.01 SA BL 1+

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| | |
|----|---------------|
| AI | Datum Date |
| 11 | 1086 |

| |
|---------------------------------------|
| Schaltteilliste für Parts list for |
| SMPD SIGNAL-GENERATOR |
| SMPD SIGNAL GENERATOR |

| |
|-------------------------|
| Sachnummer Stock No. |
| 376.8011.01 SA |

| |
|---------------|
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| 2 |

| Kennzeichen Component No. | Benennung/Beschreibung Designation | Sachnummer Stock No. | enthalten in contained in |
|------------------------------|---------------------------------------|-------------------------|------------------------------|
| BU501 | DX BUCHSENEINHEIT CONNECTOR UNIT | 376.9618 | 376.9118.01 |
| C501 | CC 10NF-20+50%7X8R4000 CAPACITOR | CC 087.7525 | 376.9118.01 |
| | VALVO 2222 63051 64051103 | | |
| C502 | CC 10NF-20+50%7X8R4000 CAPACITOR | CC 087.7525 | 376.9118.01 |
| | VALVO 2222 63051 64051103 | | |
| C503 | CC 10NF-20+50%7X8R4000 CAPACITOR | CC 087.7525 | 376.9118.01 |
| | VALVO 2222 63051 64051103 | | |
| K4 | DX HF-KABEL RF CABLE | 376.9682 | |
| K8 | DX HF-KABEL RF-CABLE | 300.9317 | |
| K9 | DX HF-KABEL RF-CABLE | 300.9323 | |
| K11 | DX HF-KABEL RF-CABLE | 300.8440 | |
| K12 | DX HF-KABEL RF-CABLE | 356.0473 | |
| K13 | DX HF-KABEL RF-CABLE | 300.8179 | |
| K14 | DX HF-KABEL RF-CABLE | 300.8185 | |
| K15 | DX HF-KABEL RF-CABLE | 300.8191 | |
| K16 | DX HF-KABEL RF-CABLE | 300.8204 | |
| K17 | DX HF-KABEL RF-CABLE | 300.8210 | |
| K18 | DX HF-KABEL RF-CABLE | 300.8227 | |
| K19 | DX HF-KABEL RF-CABLE | 300.8233 | |
| K20 | DX HF-KABEL RF-CABLE | 300.8240 | |
| K21 | DX HF-KABEL RF-CABLE | 300.8256 | |
| K23 | DX HF-KABEL RF-CABLE | 300.8279 | |
| K24 | DX HF-KABEL RF-CABLE | 300.8285 | |
| K26 | DX HF-KABEL RF-CABLE | 300.8304 | |
| K31 | DX HF-KABEL RF-CABLE | 300.8704 | |
| K300 | DX FLACHBANDKABEL RIBBON CABLE | 300.8010 | 300.5670 |
| K502 | DX KABEL CABLE | 376.9624 | |
| K510 | FJ KUPPLUNG ST/ST SMA RADIALL | FJ 513.1728 | 376.9118.01 |

376.8011.01 SA BL 2+

**ROHDE & SCHWARZ**ÄI Datum
Date
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| Kennzeichen Component No. | Benennung/Beschreibung Designation | Sachnummer Stock No. | enthalten in contained in |
|------------------------------|--|-------------------------|------------------------------|
| K511 | DX HF-KABEL | 376.9901 | 376.9118.01 |
| K512 | DX HF-KABEL RF CABLE | 376.9924 | 376.9118.01 |
| K513 | DX HF-KABEL RF CABLE | 376.9930 | 376.9118.01 |
| K514 | DX HF-KABEL RF CABLE | 377.0014 | |
| K515 | DX HF-KABEL RF CABLE | 377.0037 | |
| K516 | FJ KUPPLUNG ST/ST SMA RADIALL | FJ 513.1728 | 376.9118.01 |
| K517 | DX HF-KABEL RF CABLE | 377.0043 | |
| ST20 | FP INDIREKT. STECKERL. 36P. PIN CONNECTOR | FP 242.3600 | 300.5670 |
| ST31 | BERG 75160-102-36 FJ EINBAUWINKELST. SYS. SMB PLUG | FJ 063.5180 | 300.5670 |
| ST32 | SUHNER FJ EINBAUWINKELST. SYS. SMB PLUG | FJ 063.5180 | 300.5670 |
| ST33 | SUHNER FJ EINBAUWINKELST. SYS. SMB PLUG | FJ 063.5180 | 300.5670 |
| ST34 | SUHNER FJ EINBAUSTECKER SYST. SMB PLUG | FJ 063.5168 | 300.5670 |
| ST35 | ROSENBERGE 59S 101-400D2 FJ EINBAUSTECKER SYST. SMB PLUG | FJ 063.5168 | 300.5670 |
| ST51 | ROSENBERGE 59S 101-400D2 FJ EINBAUSTECKER SYST. SMB PLUG | FJ 063.5168 | 300.5670 |
| ST52 | ROSENBERGE 59S 101-400D2 FJ EINBAUSTECKER SYST. SMB PLUG | FJ 063.5168 | 300.5670 |
| ST53 | ROSENBERGE 59S 101-400D2 FJ EINBAUSTECKER SYST. SMB PLUG | FJ 063.5168 | 300.5670 |
| ST54 | ROSENBERGE 59S 101-400D2 FJ EINBAUSTECKER SYST. SMB PLUG | FJ 063.5168 | 300.5670 |
| ST61 | ROSENBERGE 59S 101-400D2 FJ EINBAUSTECKER SYST. SMB PLUG | FJ 063.5168 | 300.5670 |
| BIS/TO ST66 | ROSENBERGE 59S 101-400D2 | | |
| ST72 | FJ EINBAUSTECKER SYST. SMB PLUG | FJ 063.5168 | 300.5670 |
| ST73 | ROSENBERGE 59S 101-400D2 FJ EINBAUSTECKER SYST. SMB PLUG | FJ 063.5168 | 300.5670 |
| | ROSENBERGE 59S 101-400D2 | | |

376.8011.01 SA BL 3+

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AI Datum
Date
11 1086

Schaltteilliste für
Parts list for
SMPD SIGNAL-GENERATOR
SMPD SIGNAL GENERATOR

Sachnummer
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376.8011.01 SA

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| Kennzeichen Component No. | Benennung/Beschreibung Designation | Sachnummer Stock No. | enthalten in contained in |
|------------------------------|---|-------------------------|------------------------------|
| ST81 | FJ EINBAUSTECKER SYST.SMB PLUG ROSENBERGE 59S 101-400D2 | FJ 063.5168 | 300.5670 |
| ST91 | FJ EINBAUSTECKER SYST.SMB PLUG ROSENBERGE 59S 101-400D2 | FJ 063.5168 | 300.5670 |
| ST93 | FJ EINBAUSTECKER SYST.SMB PLUG ROSENBERGE 59S 101-400D2 | FJ 063.5168 | 300.5670 |
| ST95 | FJ EINBAUSTECKER SYST.SMB PLUG ROSENBERGE 59S 101-400D2 | FJ 063.5168 | 300.5670 |
| ST101 | FJ EINBAUSTECKER SYST.SMB PLUG ROSENBERGE 59S 101-400D2 | FJ 063.5168 | 300.5670 |
| ST161 | FJ EINBAUSTECKER SYST.SMB PLUG ROSENBERGE 59S 101-400D2 | FJ 063.5168 | 300.5670 |
| BIS/TO ST165 ST192 | FJ EINBAUSTECKER SYST.SMB PLUG ROSENBERGE 59S 101-400D2 | FJ 063.5168 | 300.5670 |
| BIS/TO ST194 ST401 | FV FLACHSTECKER GR.6,3 FLAT-CABLE PLUG VOGT 3866A/MS-SN8 | FV 530.5457 | 300.5670 |
| ST402 | FV FLACHSTECKER GR.6,3 FLAT-CABLE PLUG VOGT 3866A/MS-SN8 | FV 530.5457 | 300.5670 |
| ST403 | FP INDIREKT.STECKERL.36P. PIN CONNECTOR BERG 75160-102-36 | FP 242.3600 | 300.5670 |
| ST350A | FP INDIREKT.STECKERL.36P. PIN CONNECTOR BERG 75160-102-36 | FP 242.3600 | 300.5670 |
| ST350B | FP INDIREKT.STECKERL.36P. PIN CONNECTOR BERG 75160-102-36 | FP 242.3600 | 300.5670 |
| ST400A | FP INDIREKT.STECKERL.36P. PIN CONNECTOR BERG 75160-102-36 | FP 242.3600 | 300.5670 |
| ST400B | FP INDIREKT.STECKERL.36P. PIN CONNECTOR BERG 75160-102-36 | FP 242.3600 | 300.5670 |
| Y1 | ED RECHNER COMPUTER | 356.1405.04 | |
| Y2 | ZE FM-STUFE FM STAGE | 300.7014 | |
| Y3 | ZE NF-GEN U. NF-EICHL. EIT. AF GENERATOR + ATTENUATOR | 300.3819 | |
| Y4 | ZE INTERPOL.-SYNTHESIZ. I INTERPOL.-SYNTHESIZER I | 300.2812 | |

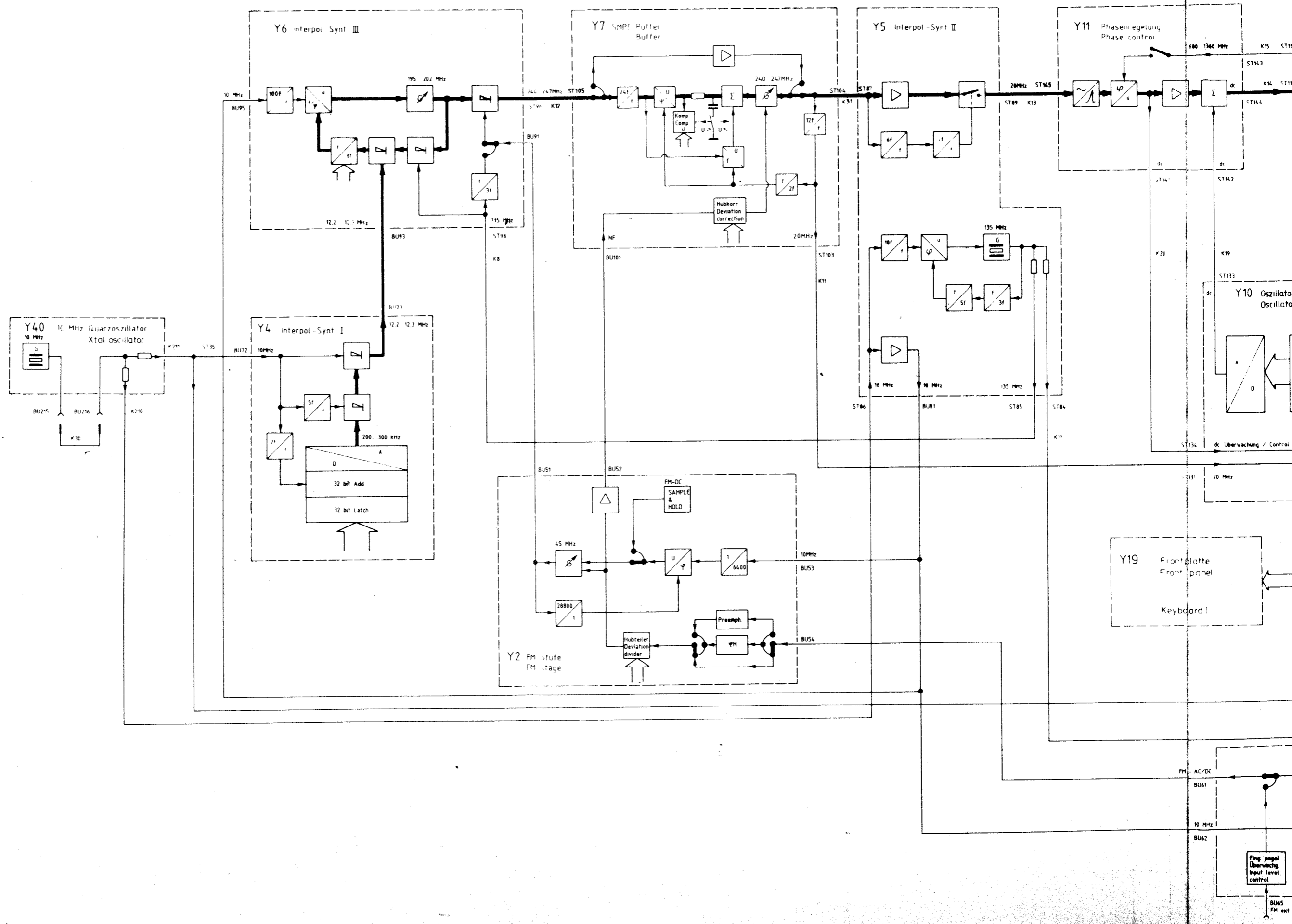
**ROHDE & SCHWARZ**ÄI Datum
Date
11 1086Schaltteilliste für
Parts list for
SMPD SIGNAL-GENERATOR
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| Kennzeichen Component No. | Benennung/Beschreibung Designation | Sachnummer Stock No. | enthalten in contained in |
|------------------------------|--|-------------------------|------------------------------|
| Y5 | ZE INTERPOL.-SYNTHESIZER INTERPO.-SYNTHESIZER II | 300.7714 | |
| Y6 | ZE INTERPOL.-SYNTHESIZ. INTERPOL.-SYNTHESIZER III | 300.4415 | |
| Y7 | ZE SMPC-PUFFER SMPC-BUFFER | 300.3219 | |
| Y8 | ZE AUSGANGSOZILLATOR I OUTPUT OSCILLATOR I | 300.3719 | |
| Y9 | ZE AUSGANGSOZILLATOR II OUTPUT OSCILLATOR II | 300.4315 | |
| Y10 | ZE OSZILLATORSTEUERUNG OSCILLATOR-CONTROL | 355.9619 | |
| Y11 | ZE PHASENREGELUNG | 356.0980.02 | |
| Y12 | ZE AM-MODULATOR + ALC AM MODULATOR | 300.7414.02 | |
| Y13 | ZM AUSGANGSTEIL I OUTPUT STAGE I | 300.2612 | |
| Y14 | ZE AUSGANGSTEIL II OUTPUT STAGE II | 300.3560 | |
| Y15 | AUSGANGSTEIL III OUTPUTSTAGE III | 376.9318.02 | |
| Y19 | FRONTPLATTE FRONT PANEL | 376.8211.02 | |
| Y20 | ZE AUSGANGSVERSTAERKER OUTPUT AMPLIFIER | 300.1816.04 | |
| Y25 | RUECKEINHEIT REAR PANEL | 376.8511.02 | |
| Y30 | ZE HF-EICHLITUNG ATTENUATION SET | 377.0214 | |
| Y100 | ED ANSTEUERUNG DRIVE STAGE | 376.9418.02 | 376.9118.01 |
| Y101 | YDS-120 DIODENSCH.1 AUS 3 YDS-120 DIODE SWITCH | 914.9303.02 | 376.9118.01 |
| Y102 | BD PIN-DIODEN-UMSCHALTER | 914.9403 | 376.9118.01 |
| Y103 | ZE BREITBANDVERSTAERKER | 376.9199.02 | 376.9118.01 |
| Y104 | BD FILTERMODUL SMPD | 914.9503 | 376.9118.01 |
| Y105 | VERDOPPLER DOUBLER | 376.9501.02 | 376.9118.01 |

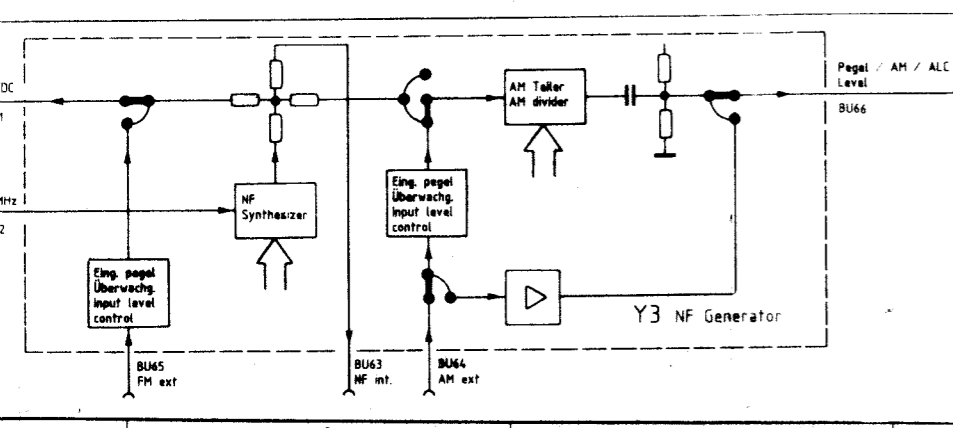
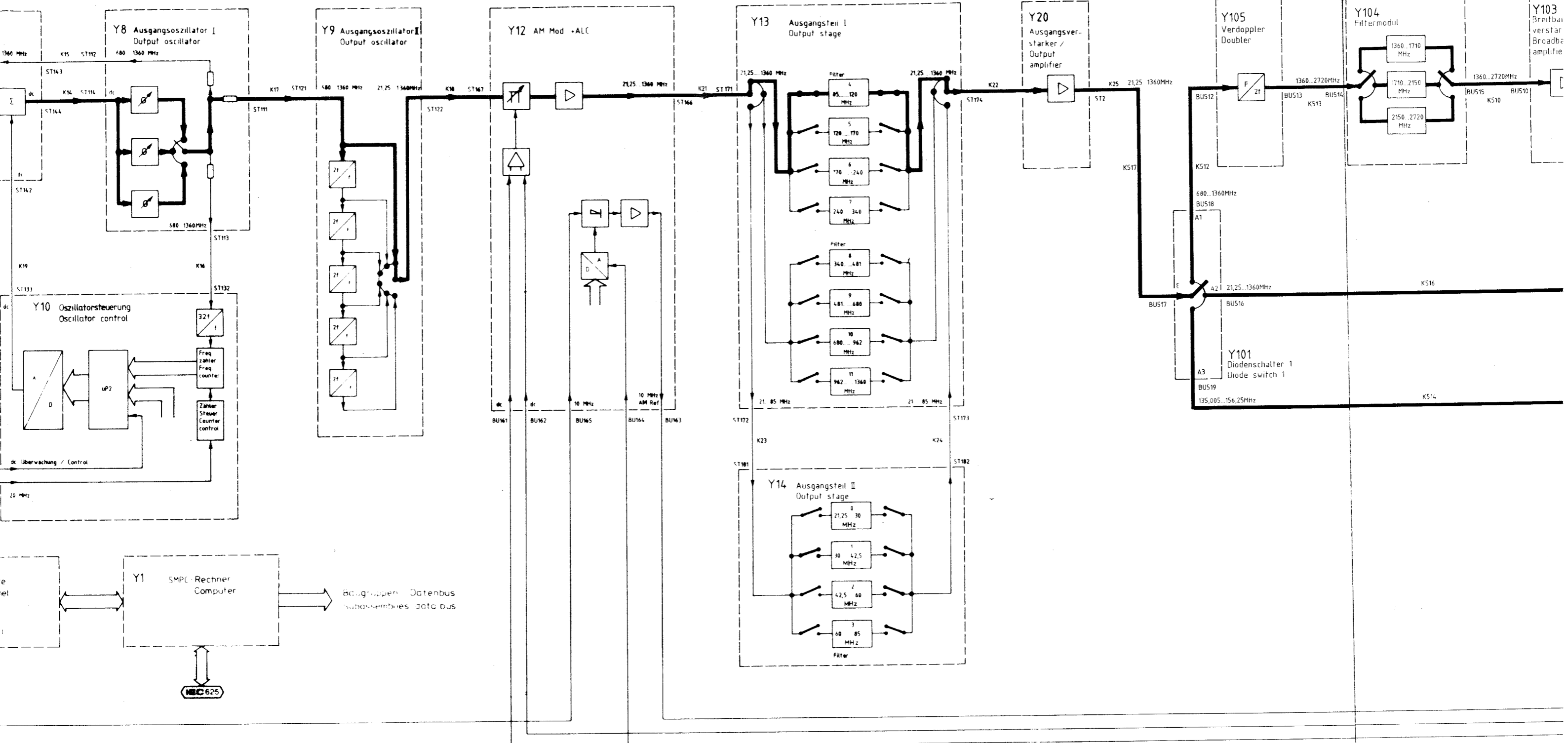
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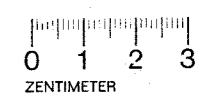
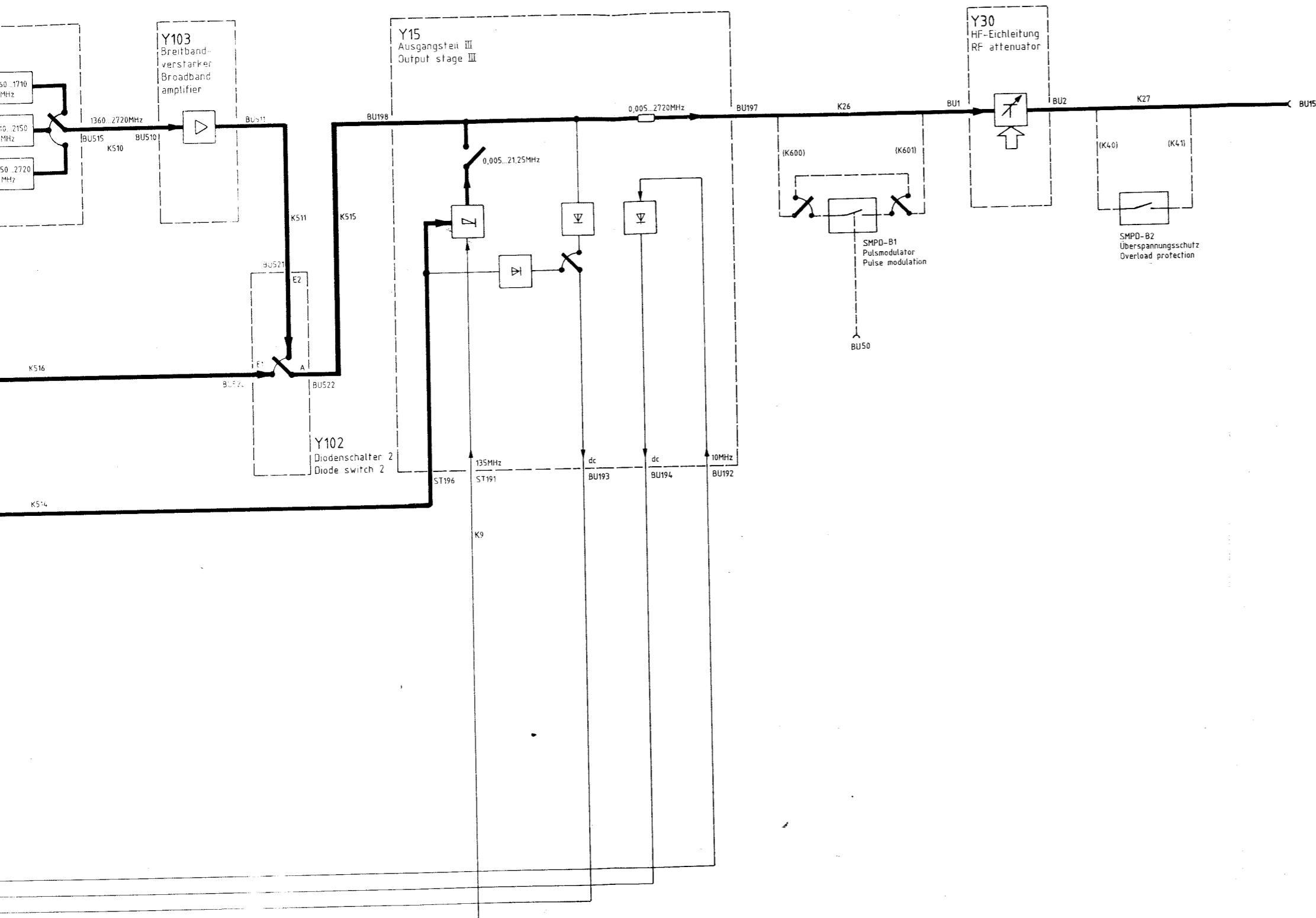
376.8011.01 SA BL 5-

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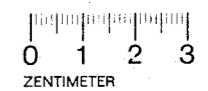
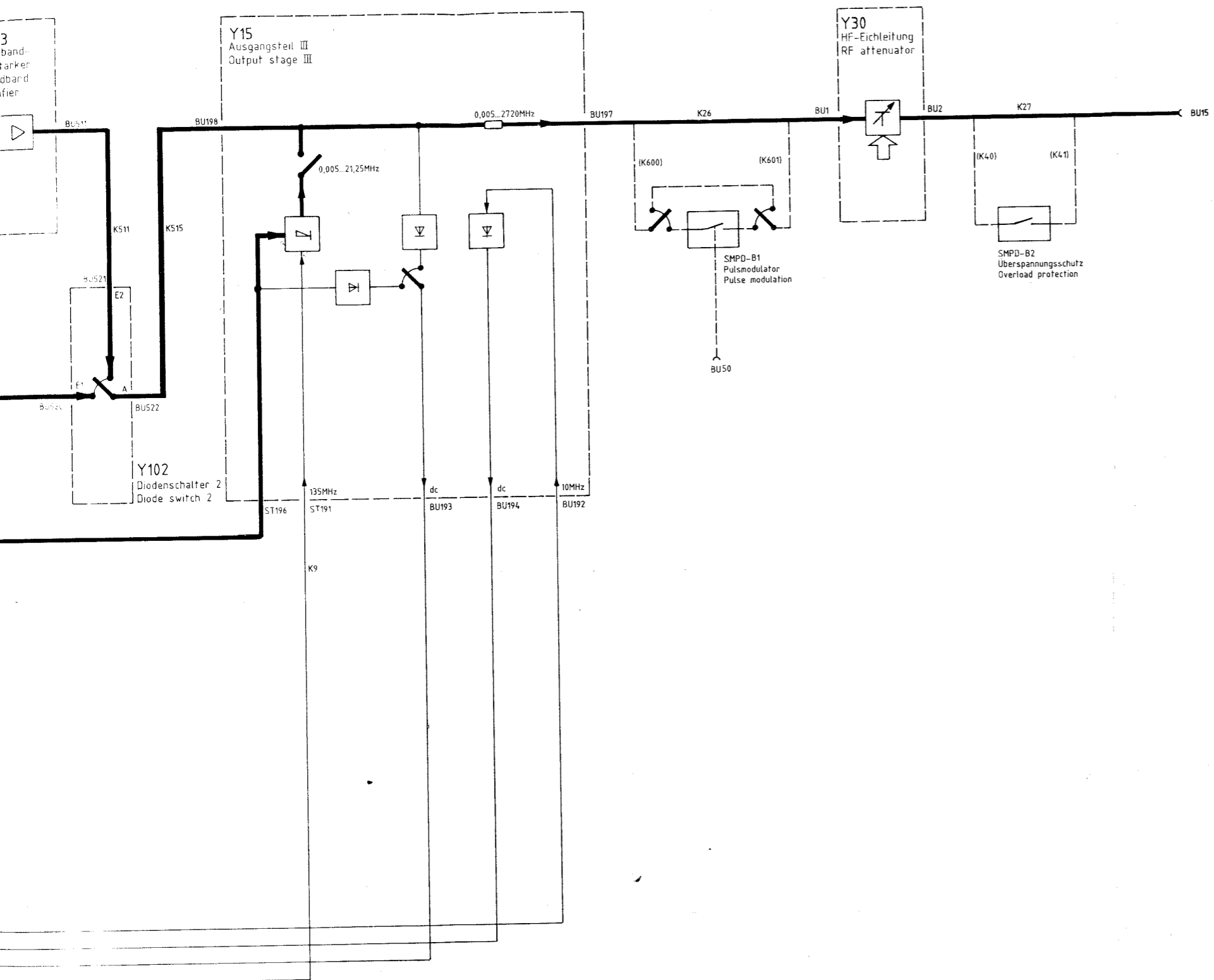


Zeichn.-Nr.

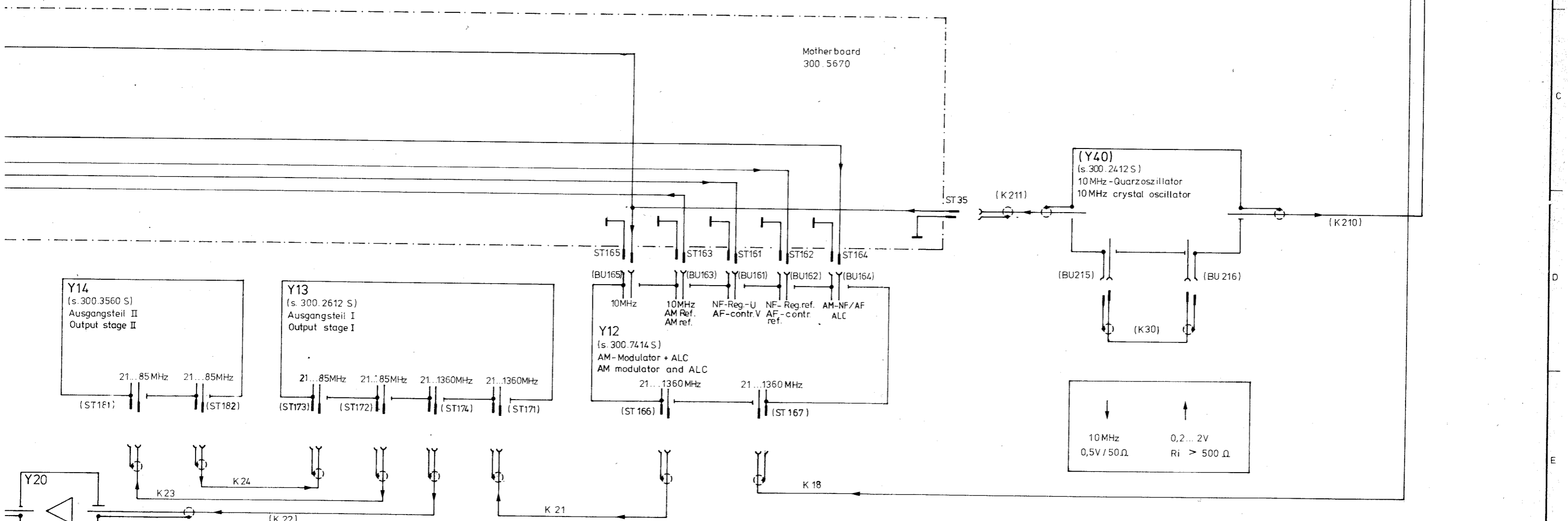
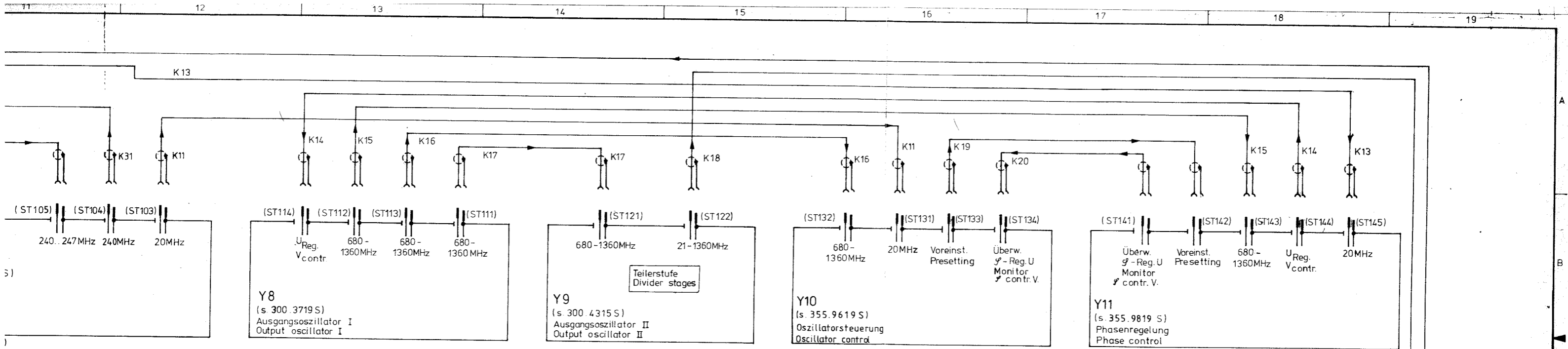




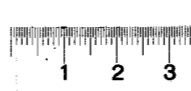
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| | | A | 31459 | 6.84 | IB | | | 1KGA | Tag | Name | Bemerkung | Meßsender SMPD Signal generator SMPD | Z | Zeichn.-Nr. 376.8 |
| | | | | | | | | Bearb | 4.84 | CO | | | | |
| | | zu Gerät: | SMPD | | | | | | | | | reg. i. V. | 376.8011 V | |



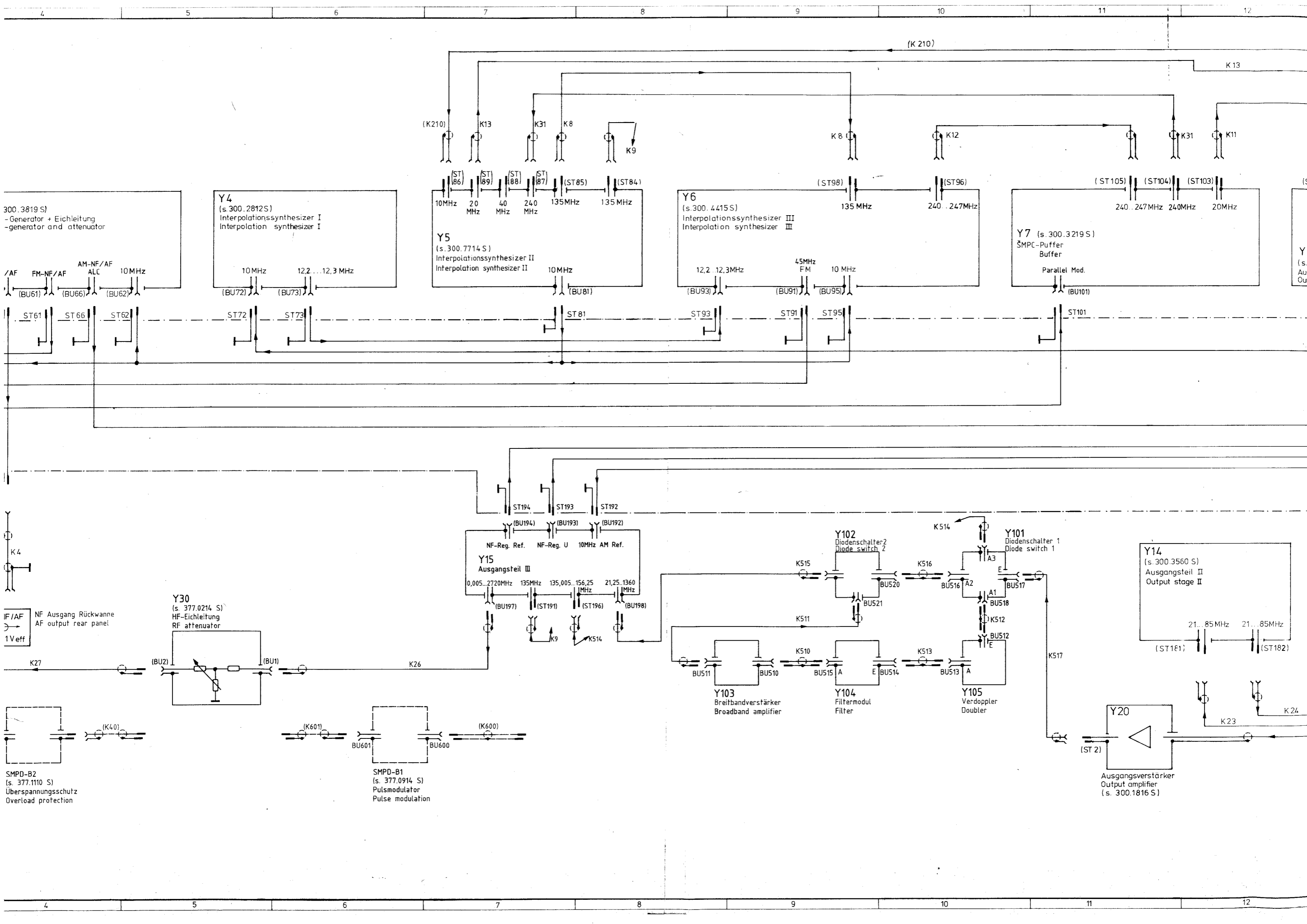
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|--|------------|-----------------|-------|------|------------|-----------------|-------|------|------|------|-----------|---|---------------------------------|---------------------|
| | A | 31459 | 6.84 | IB | | | | 1KGA | Tag | Name | Benennung | Meßsender SMPD Signal generator SMPD | Z Zeichn.-Nr. 376.8011 FS | Blatt-Nr. v. Bl. |
| | And. Zust. | And.-Mitteilung | Datum | Name | And. Zust. | And.-Mitteilung | Datum | Name | Norm | | | | | |



Bl. 1 HF-Verbindungen / RF connection
 Bl. 2 Steuerleitungen / Control lines
 Stromlauf gilt für VAR 32, 52
 Circuit diagramm is valid for model 32, 52



| | | | | | | | |
|---|-------|---------------------|------------|-------------------|-------|-----------------|---|
| ROHDE & SCHWARZ MÜNCHEN | | Halbzeug, Werkstoff | | Untolerierte Maße | | Zeichn. Nr. | |
| | | Maßstab | | 376.8011 V | | 376.8011 S Bl.1 | |
| 1KGA | Datum | Name | And. zuef. | And. Mißg. Nr. | Datum | Name | |
| gezeichnet | 4.84 | GU | A | 31459 | 5.84 | CO | |
| bearbeitet | 4.84 | CO | B | 31459 | 6.84 | IB | |
| geprüft | | | C | 32900 | 6.85 | GS | |
| Meißender SMPD Signal generator SMPD | | | | | | | Z |



300.3819 S)
- Generator + Eichleitung
- generator and attenuator

Y4
(s. 300.2812 S)
Interpolationssynthesizer I
Interpolation synthesizer I

Y5
(s. 300.7714 S)
Interpolationssynthesizer II
Interpolation synthesizer II

Y6
(s. 300.4415 S)
Interpolationssynthesizer III
Interpolation synthesizer III

Y7 (s. 300.3219 S)
SMPD-Puffer
Buffer
Parallel Mod.

Y15
Ausgangsteil III
NF-Reg. Ref. NF-Reg. U 10MHz AM Ref.

Y30
(s. 377.0214 S)
HF-Eichleitung
RF attenuator

Y103
Breitbandverstärker
Broadband amplifier

Y104
Filtermodul
Filter

Y105
Verdoppler
Doublers

Y14
(s. 300.3560 S)
Ausgangsteil II
Output stage II

Y20
Ausgangsverstärker
Output amplifier
(s. 300.1816 S)

SMPD-B2
(s. 377.1110 S)
Überspannungsschutz
Overload protection

SMPD-B1
(s. 377.0914 S)
Pulsmodulator
Pulse modulation

IF/AF
NF Ausgang Rückwanne
AF output rear panel
1Veff

AF FM-NF/AF AM-NF/AF ALC 10MHz

10MHz 12.2...12.3 MHz

10MHz 20 MHz 40 MHz 240 MHz 135MHz 135 MHz

12.2...12.3MHz 45MHz FM 10 MHz

135 MHz 240...247MHz

240...247MHz 240MHz 20MHz

0,005...2720MHz 135MHz 135,005...156,25 MHz 21,25...1360 MHz

(BU2) (BU1)

K26

BU511 BU510 BU515 A E BU514 BU513 A

BU516 A2 BU517 E BU518 A1 BU512 E

(ST 2)

K23 K24

(K 210)

K 13

(K210)

K13

K31

K8

K9

K8

K12

K31

K11

(ST 86)

(ST 89)

(ST 88)

(ST 87)

(ST 85)

(ST 84)

(ST 98)

(ST 96)

(ST 105)

(ST 104)

(ST 103)

ST61

ST66

ST62

ST72

ST73

ST 81

ST 93

ST 91

ST 95

ST 101

ST 194

ST 193

ST 192

(BU194)

(BU193)

(BU192)

(BU197)

(ST 191)

(ST 196)

(BU198)

K515

K516

K514

K511

K510

K513

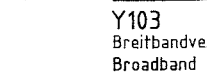
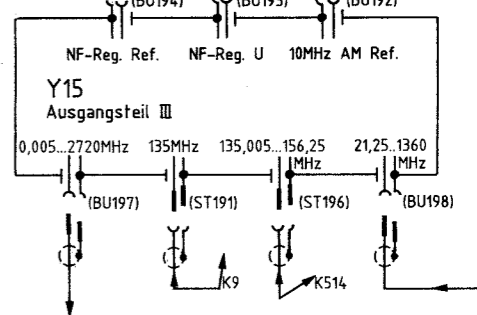
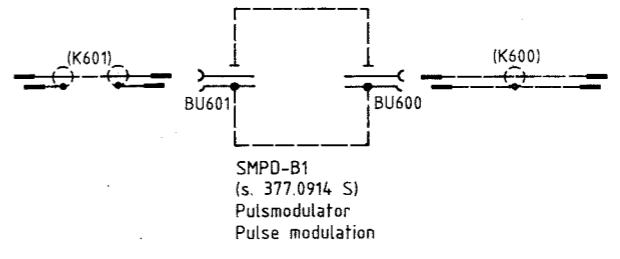
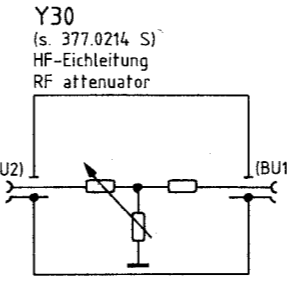
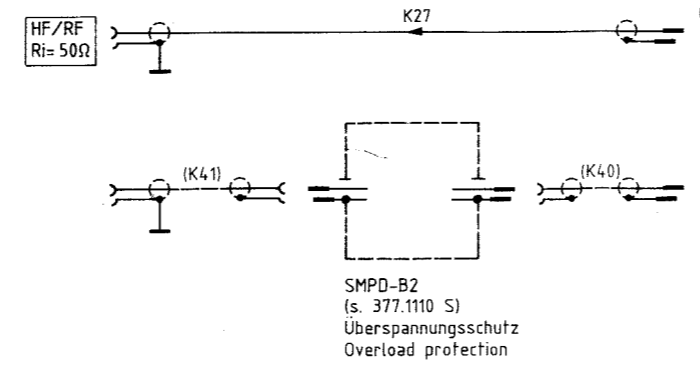
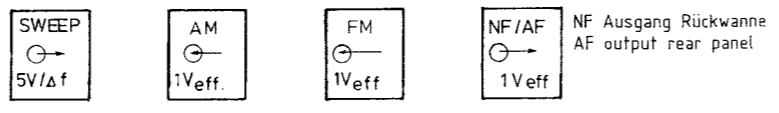
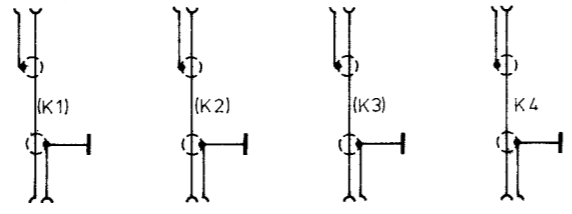
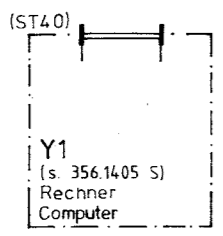
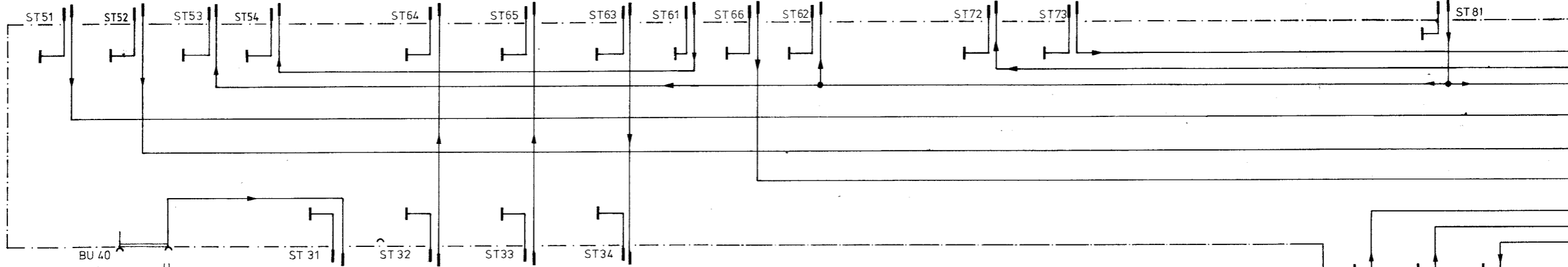
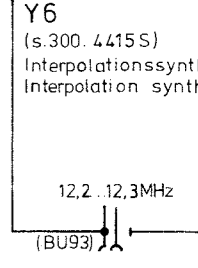
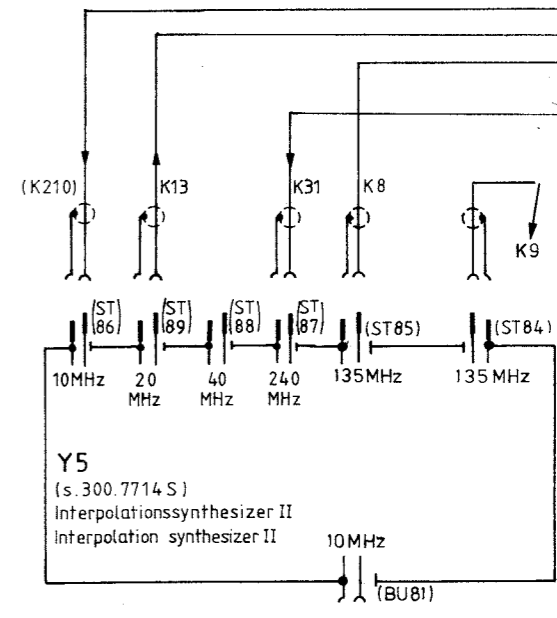
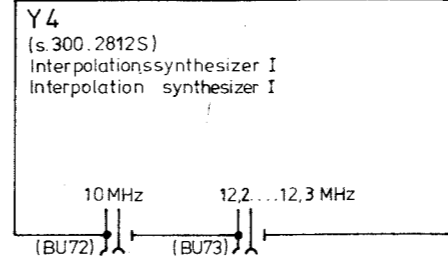
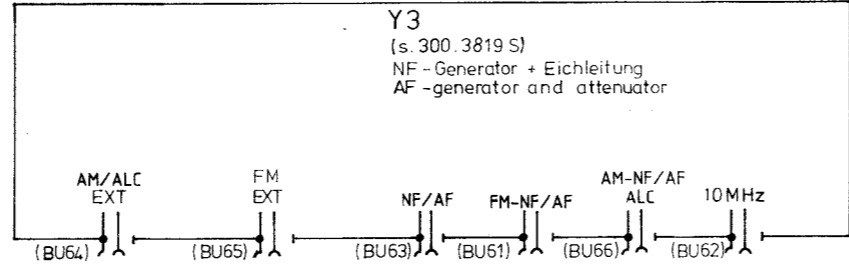
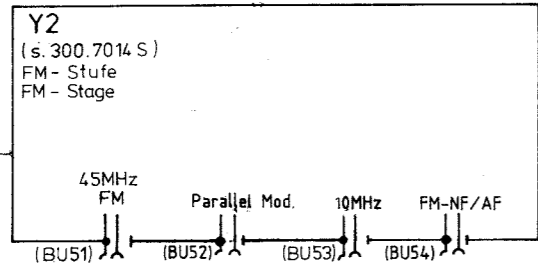
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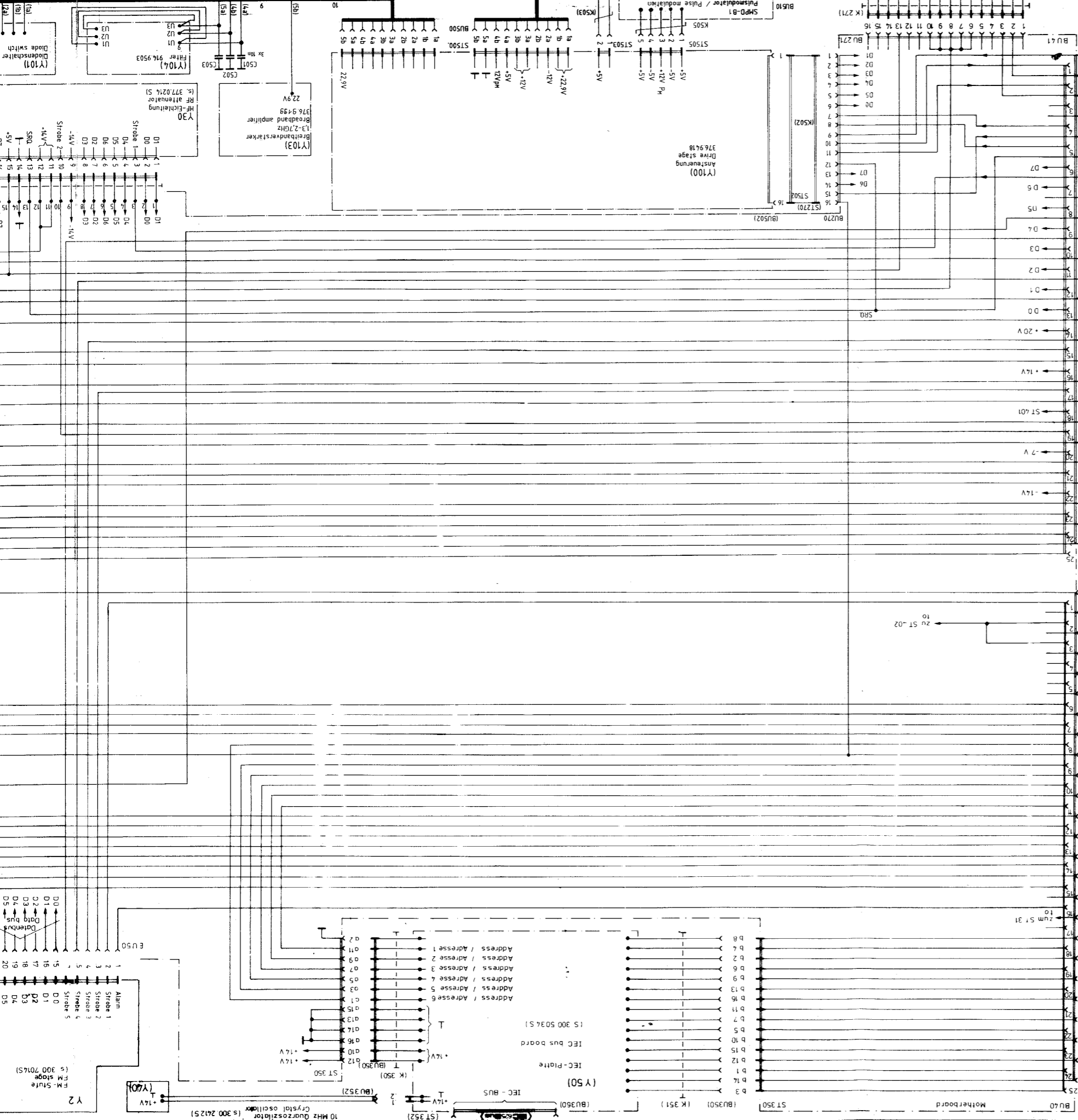
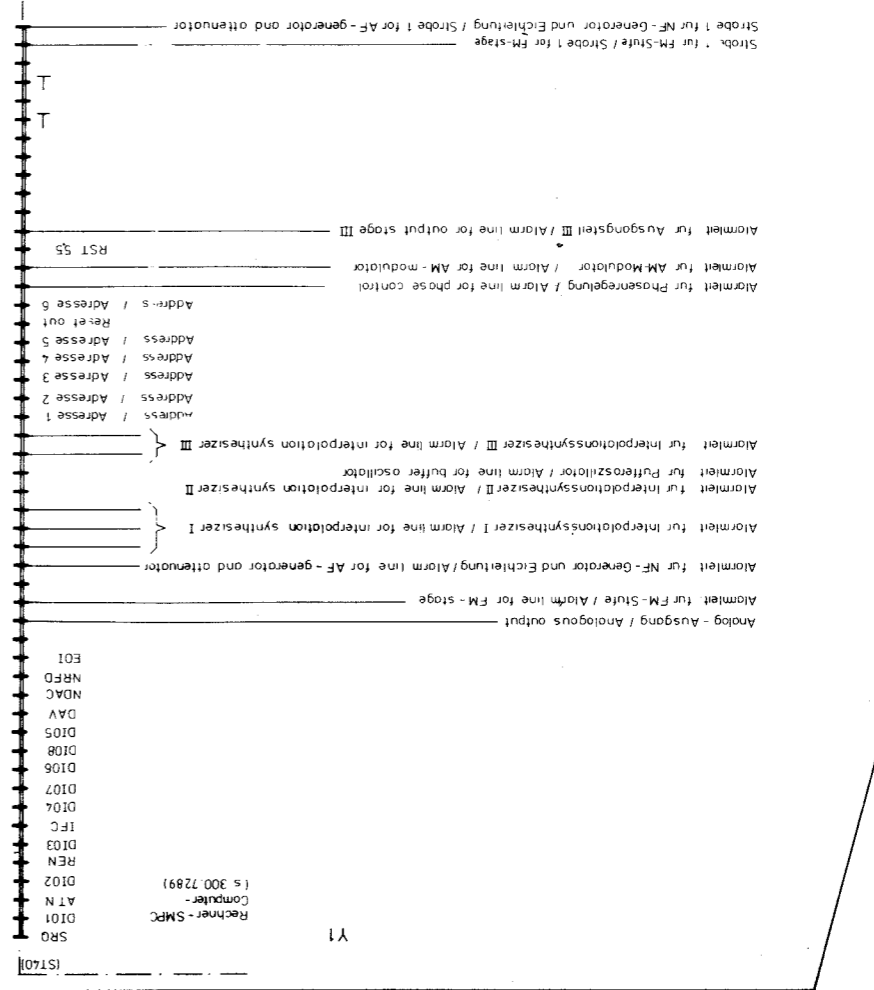
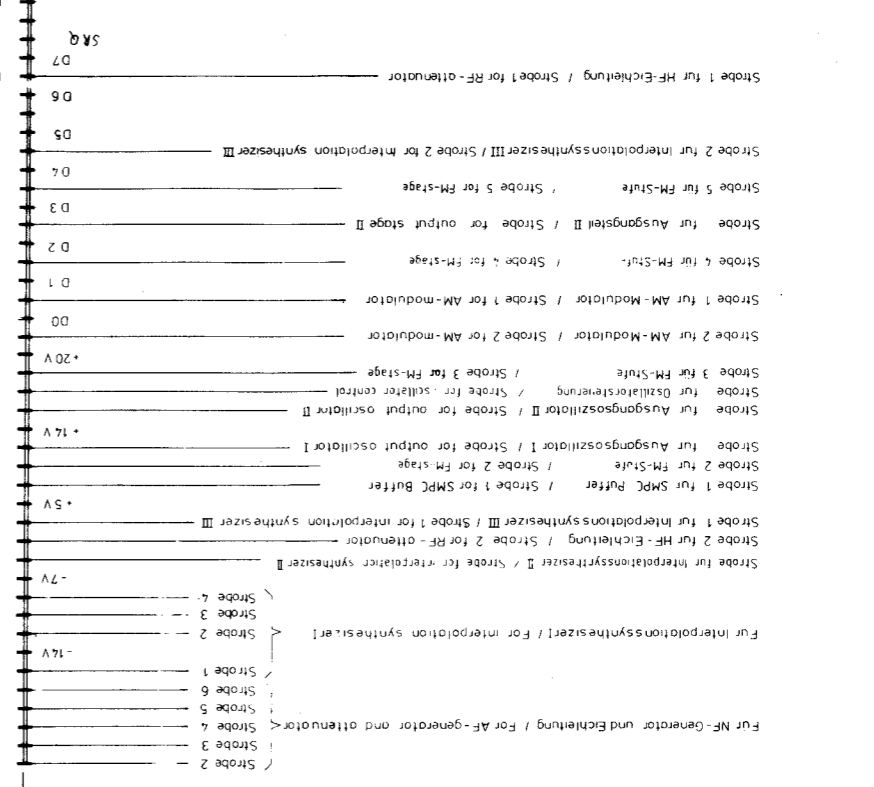
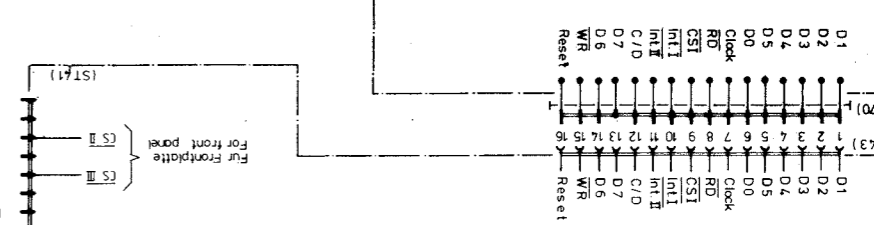
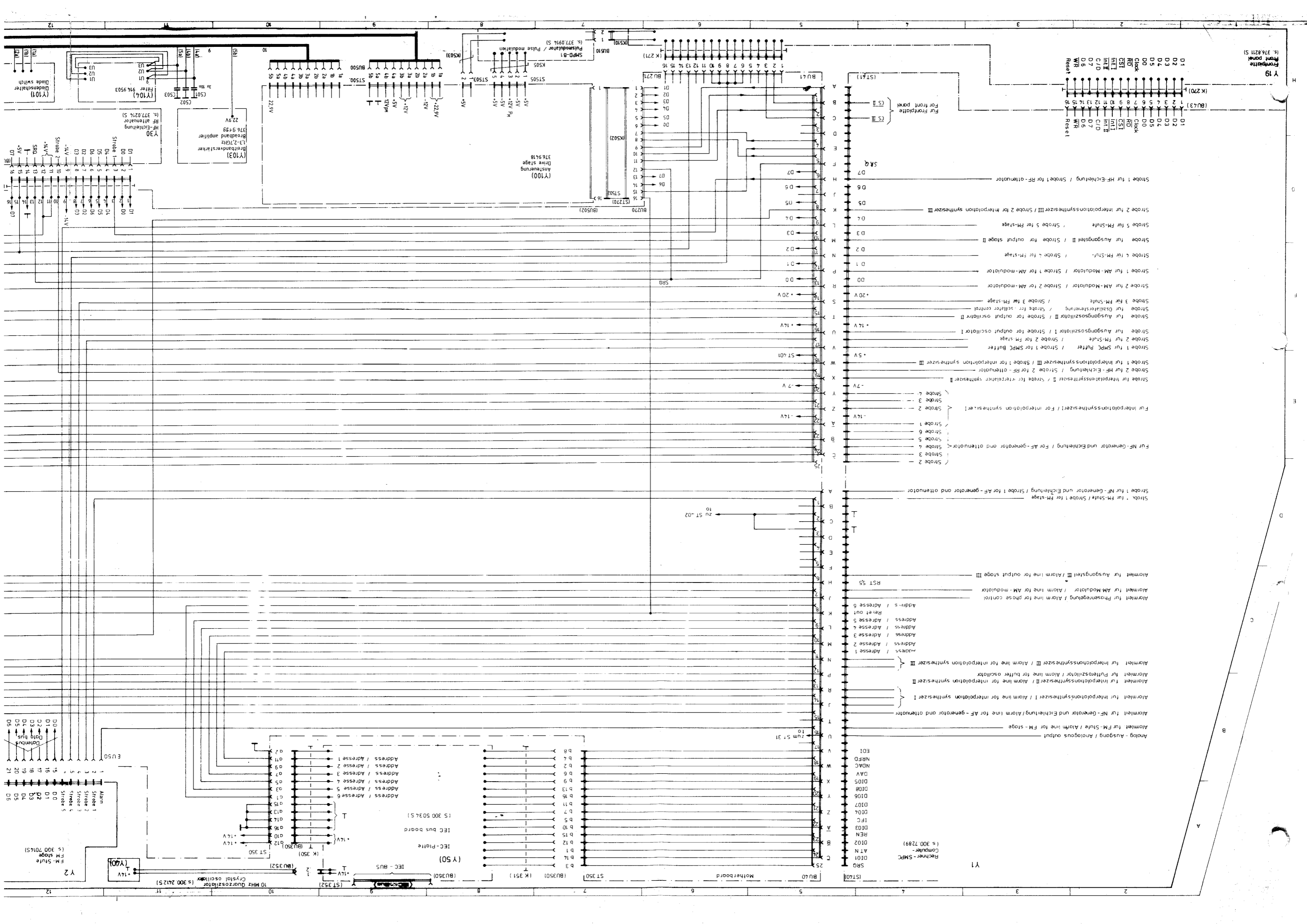
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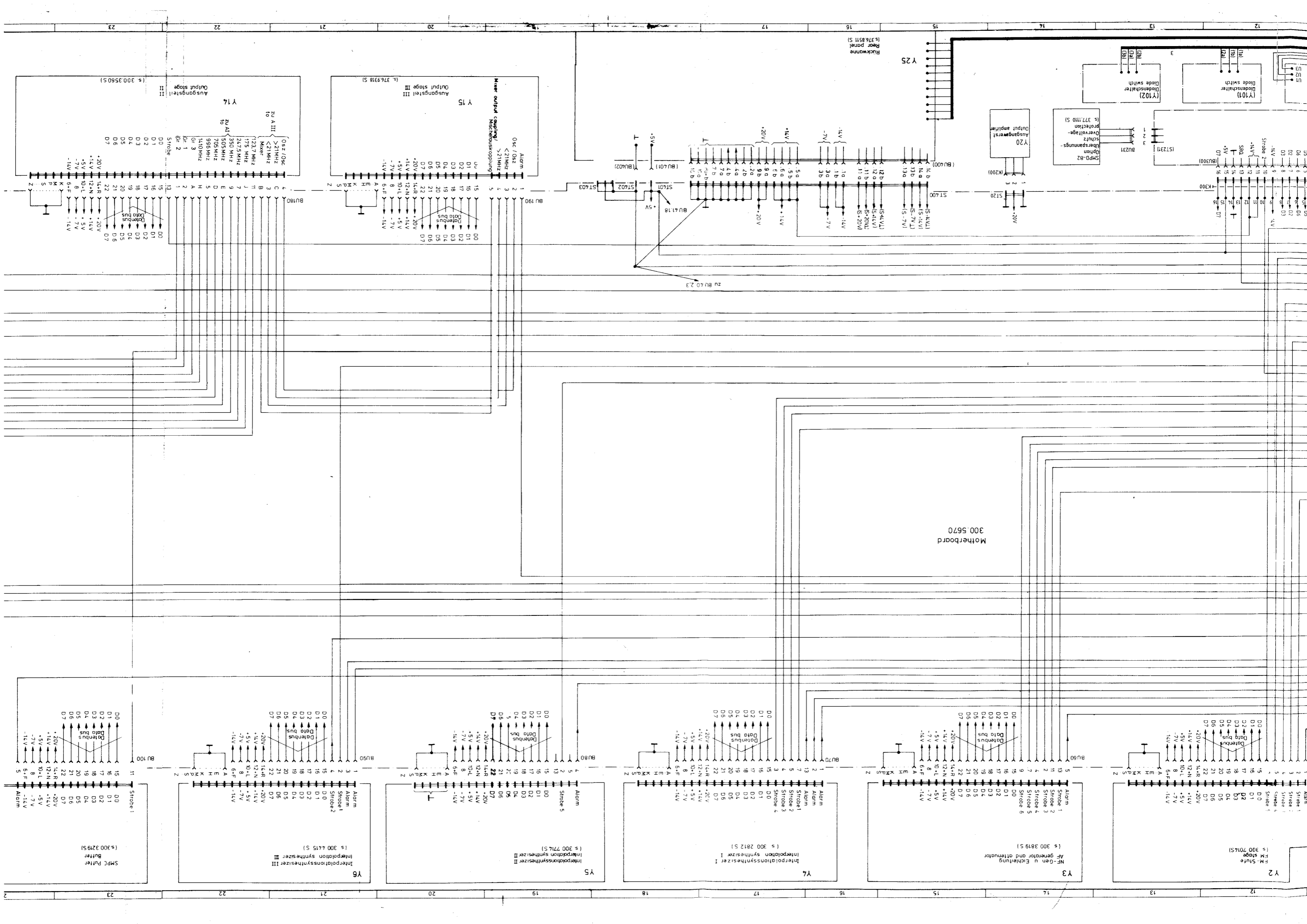
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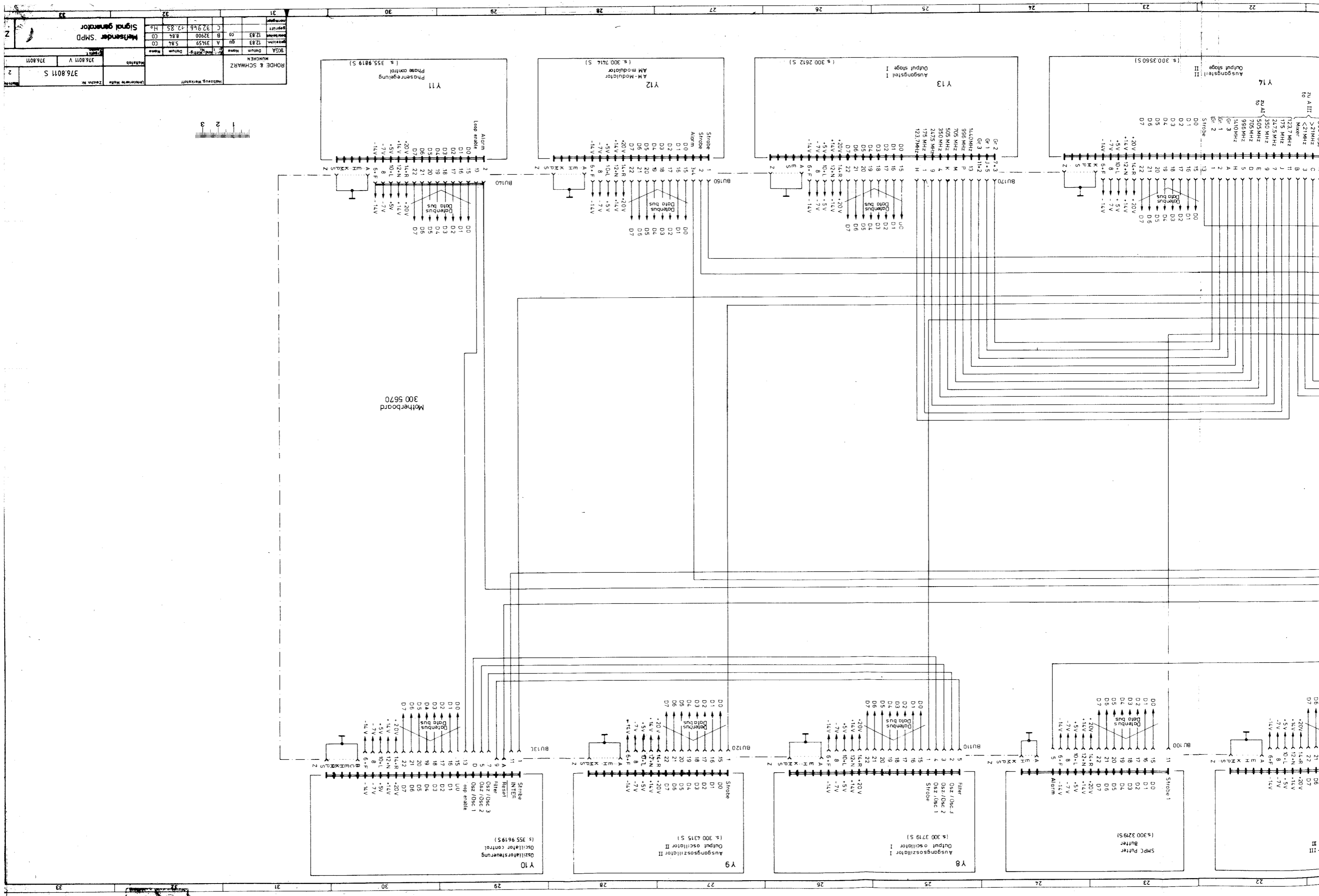
(K601)

(K600)

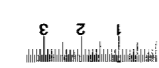






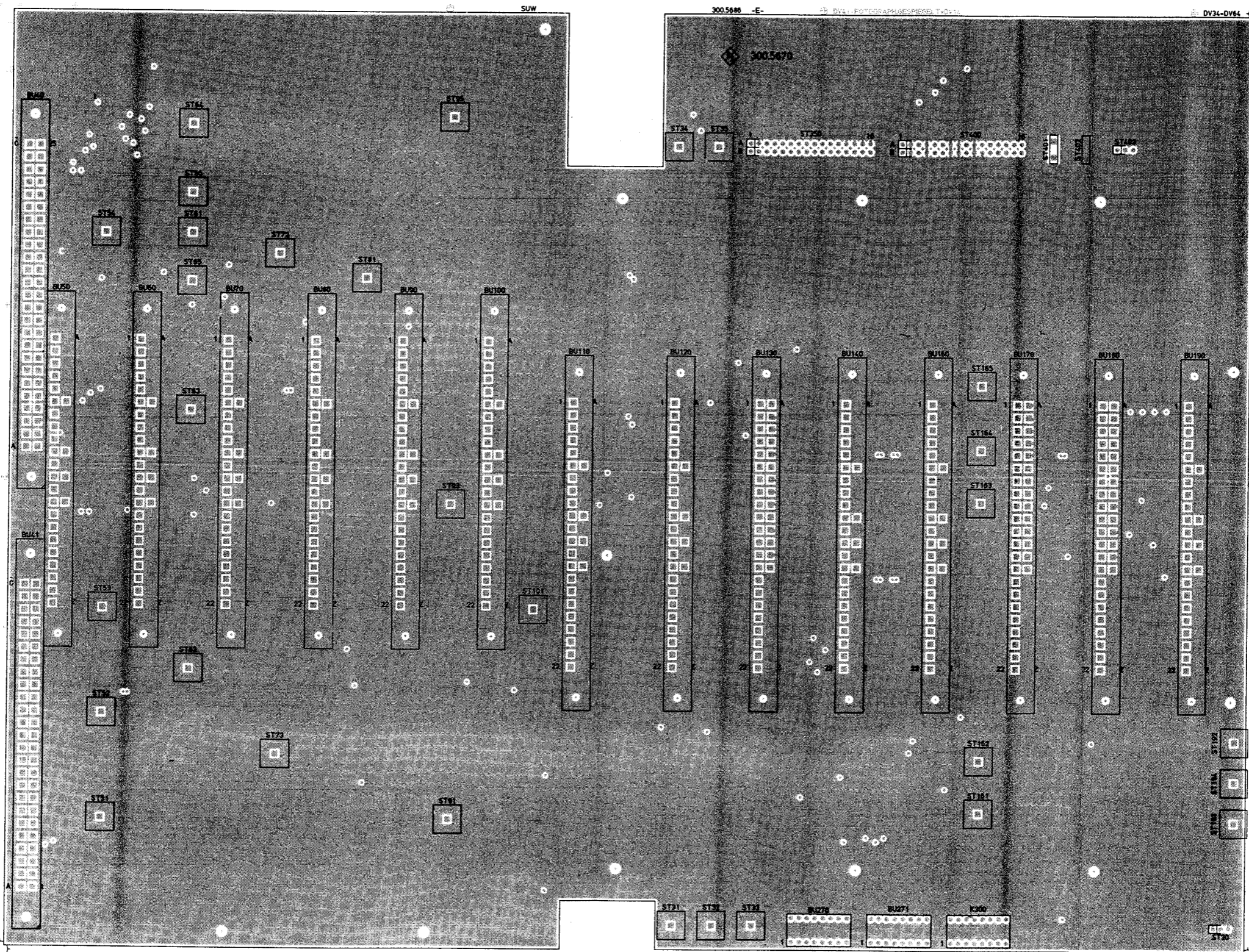


| | | | | | | | |
|-----------------|--|------------|--|----------|--|----------|--|
| KIGA | | Name | | Datum | | Menge | |
| ROHDE & SCHWARZ | | MÜNCHEN | | | | | |
| Liefer-Nr. | | Menge | | Menge | | Menge | |
| 376.8011 S | | 376.8011 V | | 376.8011 | | 376.8011 | |
| 376.8011 S | | 376.8011 V | | 376.8011 | | 376.8011 | |
| 376.8011 S | | 376.8011 V | | 376.8011 | | 376.8011 | |
| 376.8011 S | | 376.8011 V | | 376.8011 | | 376.8011 | |
| 376.8011 S | | 376.8011 V | | 376.8011 | | 376.8011 | |
| 376.8011 S | | 376.8011 V | | 376.8011 | | 376.8011 | |
| 376.8011 S | | 376.8011 V | | 376.8011 | | 376.8011 | |
| 376.8011 S | | 376.8011 V | | 376.8011 | | 376.8011 | |



Motherboard
300 5670

Ansicht und Leitungsführung Bauteilseite
View of tracks on component side



DV 41

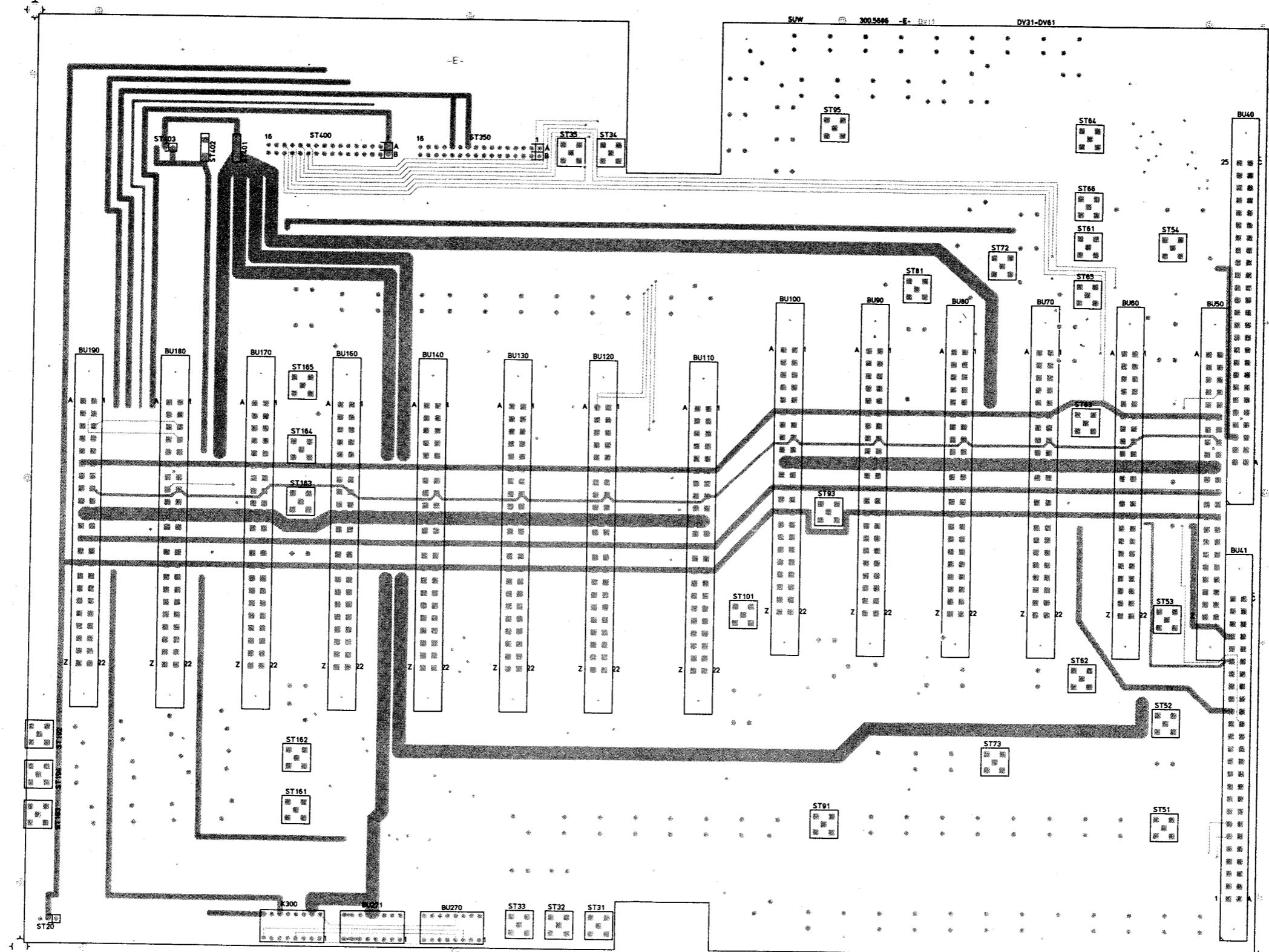
VARIANTENERKLÄRUNG / VERSION
VAR 02 - GRUNDAUSFÜHRUNG / BASIC MODEL

1 2 3

ACHTUNG EGB:
Elektrostatisch gefährdete
Bauelemente erfordern eine
besondere Handhabung
ATTENTION ESD:
Electrostatic sensitive
devices require a special
handling

| | | | | |
|-------------------------|-------|----|---------------------------------|--|
| F 32942 | 03.86 | LS | Materialebene Toleranzangabe | Material 1 : 1 Halbzeug, Werkstoff |
| 1KGA | 03.86 | LS | Name LS | Benennung Motherboard |
| | | | Part No. 300.5670.01 ED | Blatt Nr. 2 |
| Art zu Gerät SMPC | | | 300 1000 V | 300 1468 |

Ansicht und Leitungsführung Lötseite
View of tracks on solder side



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ISO-Projektion
Methode E

1 2 3

VARIANTENERKLÄRUNG / VERSION
VAR02 - GRUNDAUSFÜHRUNG / BASIC MODEL

DV 11



ACHTUNG EGB!
Elektrostatisch gefährdete
Bauelemente erfordern eine
besondere Handhabung
ATTENTION ESD!
Electrostatic sensitive
devices require a special
handling

| | | | | | | | | | |
|---------|--|-------|--|-------|--|--------------------------|--|---------------------|--|
| F 32942 | | 03.86 | | LS | | Maße ohne Toleranzangabe | | Maßstab 1 : 1 | |
| | | | | | | | | Halbzeug, Werkstoff | |
| | | 1KGA | | Tag | | Name | | Benennung | |
| | | Bearb | | 03.86 | | LS | | Motherboard | |
| | | Gepr | | | | | | | |
| | | Norm | | | | | | Z | |
| | | | | | | | | Zeichn.-Nr | |
| | | | | | | | | 300.5670.01 | |
| | | | | | | | | ED | |
| | | | | | | | | Blatt-Nr | |
| | | | | | | | | 7 | |
| | | | | | | | | v. Bl. | |
| | | | | | | | | ROHDE & SCHWARZ | |
| | | | | | | | | zu Gerät | |
| | | | | | | | | SMPC | |
| | | | | | | | | reg. V | |
| | | | | | | | | 300.1000 V | |
| | | | | | | | | erste Z | |
| | | | | | | | | 300.1468 | |



ROHDE & SCHWARZ

SERVICE INSTRUCTIONS

SMPC Processor

356.1405 (Y1)

Printed in West Germany

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Parts list
Circuit diagram
Components location plans

5.1 Circuit Description

(See circuit diagram 356.1405 S and Fig. 5-1)

Y1 is the central controller of the unit. It consists of the following functional groups:

- CPU and program memory
- data memory and input ports
- address decoding
- data bus
- D/A converter
- IEC bus
- signature analysis

5.1.1 CPU and Program Memory

An 8085 A (B1) microprocessor is used as CPU. It contains an oscillator for generating the clock frequency. The frequency of the oscillator is determined by a 6-MHz crystal, giving rise to the machine clock period of 333 ns. The microprocessor is provided with interrupt logic for four different interrupts. The only static interrupt request inputs used are RST 5.5 (for the keyboard and IEC bus), RST 6.5 (for the tuning sequencer) and RST 7.5 (for the microcomputer in Oscillator Control Y10).

The SMPC Processor has a program memory of 28 kbytes in five 4-kbyte EPROMs 2732 (B10 to B14) and one 8-kbyte EPROM Type 2764 (B15).

5.1.2 Data Memory and Input Ports

A 1-kbyte RAM (B8 and B9) is used as a variable memory. It is backed-up by two nickel-cadmium batteries which enable the data to be stored in the memory for about six weeks after the unit has been switched off. To prevent the microprocessor from writing into the RAM at switch-off and switch-on, a protection circuit (B23) ensures that the RAM is inhibited whenever the microprocessor is in an undefined state.

The IEC-bus addresses are read by B38 and the alarm signals from the subassemblies by B36 and B37.

5.1.3 Address Decoding

The microprocessor B1 uses a multiplexed data and address bus ADO to AD7. The control signal ALE (address latch enable) separates the addresses from the data and stores them in address latch B18.

The memory select signals (\overline{CE}) for the EPROMs are obtained from address bits A₁₂ to A₁₄ by the decoder B5 (when A₁₅ L). The decoder B6 controls the strobe output to the subassemblies (B39 to B42), for access to the RAMs (B8 and B9), to the front panel, to the subassemblies' data bus (input and output) and to the IEC bus (B50).

To speed up the processing time, memory mapped I/O has been chosen. All chips are addressed by memory address instructions. Instead of the accumulator being the only transfer register in the CPU, it is possible to transfer data with any chosen internal register. Practically all memory address instructions may also be used for I/O.

Table 5-1

| Address (HEX) | Assignment |
|---------------|--|
| 0 - FFF | 1st EPROM 2732 (B10) |
| 1000 - 1FFF | 2nd EPROM 2732 (B11) |
| 2000 - 2FFF | 3rd EPROM 2732 (B12) |
| 3000 - 3FFF | 4th EPROM 2732 (B13) |
| 4000 - 4FFF | 5th EPROM 2732 (B14) |
| 5000 - 6FFF | 6th EPROM 2764 (B15) |
| 9000 | Strobe 1 to FM Stage |
| 9001 | Strobe 1 to AF Generator |
| 9002 | Strobe 2 to AF Generator |
| 9003 | Strobe 3 to AF Generator |
| 9004 | Strobe 4 to AF Generator |
| 9005 | Strobe 5 to AF Generator |
| 9006 | Strobe 6 to AF Generator |
| 9007 | Strobe 1 to Interpolation Synthesizer I |
| 9008 | Strobe 2 to Interpolation Synthesizer I |
| 9009 | Strobe 3 to Interpolation Synthesizer I |
| 900A | Strobe 4 to Interpolation Synthesizer I |
| 900B | Strobe to Interpolation Synthesizer II |
| 900C | Strobe to RF-off latch |
| 900D | Strobe 1 to Interpolation Synthesizer III |
| 900E | Strobe 2 to Interpolation Synthesizer III |
| 900F | Strobe to SMPC Buffer |
| 9010 | Strobe 2 to FM Stage |
| 9011 | Strobe to Oscillator Control |
| 9012 | Strobe to Output Oscillator I |
| 9013 | Strobe to Output Oscillator II |
| 9014 | Strobe 3 to FM Stage |
| 9015 | Strobe 1 to Amplitude Modulator + ALC |
| 9016 | Strobe 2 to Amplitude Modulator + ALC |
| 9017 | Strobe to Output Stage II |
| 9018 | Strobe 4 to FM Stage |
| 9019 | Strobe 5 to FM Stage |
| 901A | Strobe to mechanical attenuator |
| 901B | Address 1 of D/A converter (bit 1 to bit 8) |
| 901C | Address 2 of D/A converter (bit 9 to bit 12) |
| 901D | Address of subassemblies data-bus output |
| A000 - A3FF | Battery backed-up RAMs (B8, B9) |
| B000 | Address 1 of front panel |
| B001 | Command 1 of front panel |
| C000 | Address 2 of front panel |
| CO01 | Command 2 of front panel |
| D000 | Address 3 of front panel |
| DO01 | Command 3 of front panel |
| E000 | Address of IEC-bus address input |
| E001 | Address 1 to read in alarm signals |
| E002 | Address 2 to read in alarm signals |
| E003 | Address of subassemblies data-bus input |
| F000 | Address of IEC-bus chip (B50) |

5.1.4 Data Busses

The SMPC Processor can transfer data via three data busses. It gains access to these by tri-state drivers. The internal data bus is controlled by B34, the front-panel data bus by B44 and the subassemblies data bus by B3 (data-bus output) and B35 (data-bus input).

5.1.4.1 Internal Data Bus

The internal data bus connects the CPU to the memories, the IEC-bus chip, the D/A converters and, via the interfaces, to the other busses. It is always active.

5.1.4.2 Front-panel Data Bus

The front-panel data bus is connected to the front panel by a ribbon cable. It is only active when data is actually transferred. Interferences from the ribbon cable are thus avoided.

5.1.4.3 Subassemblies Data Bus

The subassemblies data bus provides multiplexed data transfer for the subassemblies Y2 to Y15 and Y30. Each subassembly stores the data present on the bus when it receives its strobe.

5.1.5 IEC Bus

The IEC bus allows the implementation of the following interface functions according to DIN IEC-625:

T6 Basic Talker, Serial Poll, Unaddress if MLA
L4 Basic Listener, Unaddress if MTA
SR1 Service Request Function Complete capability
RL1 Remote Local Function Complete capability
DC1 Device Clear Function Complete capability

The IEC-bus interface chip B50 (8291) performs the IEC-bus functions directly, using hardware. The information of the listener address A1 to A5 and the RTL (Return to Local) and SR (Service Request) signals are written into the chip by the internal data bus. The chip contains all the registers that are required.

5.1.6 Signature Analysis

The SMPC Processor can be tested by means of signature analysis. For this purpose, the test adapter ST1 is provided. The analysis is switched on by means of switch S1. The addresses, program memories and peripherals are tested by the analysis. For testing the addresses and program memory, the data bus to the memory is interrupted by B33 (74 LS 245). Whenever an instruction is called up, 00H is applied by B4 via the data bus to the microprocessor. This means the microprocessor is not to execute an instruction and only the program counter is incremented. Thus the microprocessor periodically scans the entire address range. After the separation of data bus by B33, the memory data are periodically output. The SMPC Processor can now be checked by means of the signature analyzer.

5.2 Checking

5.2.1 Adjustment of the Analog Output

Set sweep e.g.

| | |
|--------------|---------|
| upper limit: | 200 MHz |
| lower limit: | 100 MHz |
| step size: | 5 kHz |

The voltage deviation measured at the analog output ST40.U is to be 5 ± 0.1 V between the upper and lower limit frequencies of the sweep.

5.2.2 Checking the Interface Functions

Connect a controller to the SMPC. Enter all setting instructions listed in section 2.4.2 and check for the proper execution of the instructions on the front panel display.

5.3 Troubleshooting

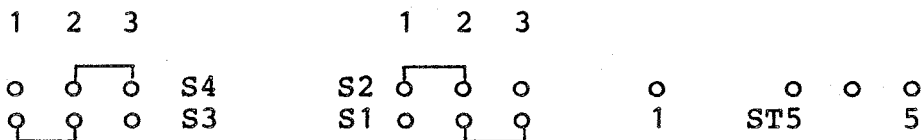
Test equipment required:

Signature analyzer
Test EPROM from R&S
Order No. 337.9904
(included in the Service Kit XPC-Z1)

The check comprises three different signature analyses that are carried out in the following order:

1. Address analysis
2. Program memory analysis
3. Test program analysis

Links S1 and S2 (below B4) serve for carrying out the different analyses. (S1 and S2 are shown in normal position).



5.3.1 Address Analysis

Setup on Y1:

- Set link S1 to contacts 1-2.
- Set link S2 to contacts 3-2.
- Plug the START, STOP, CLOCK and GND lines of the signature analyzer onto the four adjacent test pins 5, 4, 3, 1 of ST5.
- Setting on the signature analyzer:
START EDGE: ↑, STOP EDGE: ↓, CLOCK EDGE: ↓
- Switch on the SMPC

Now all address lines can be checked by means of the signature analyzer. All relevant signatures are given in Table 5-2. If all address lines supply the correct signatures, the program memory analysis can be carried out.

Table 5-2

| Chip | | Signature |
|------------|-----------------------|-----------|
| B1 | PIN | |
| | 12 (AD ₀) | H335 |
| | 13 (AD ₁) | C113 |
| | 14 (AD ₂) | 7050 |
| | 15 (AD ₃) | 0772 |
| | 16 (AD ₄) | C4C3 |
| | 17 (AD ₅) | AA08 |
| | 18 (AD ₆) | 7211 |
| | 19 (AD ₇) | A3C1 |
| | 21 (A ₈) | 7707 |
| | 22 (A ₉) | 577A |
| | 23 (A ₁₀) | HH86 |
| | 24 (A ₁₁) | 89F1 |
| | 25 (A ₁₂) | AC99 |
| | 26 (A ₁₃) | PCF3 |
| | 27 (A ₁₄) | 1180 |
| Chip | | Signature |
| B10 to B15 | PIN | |
| | 8 (A ₀) | H335 |
| | 7 (A ₁) | C113 |
| | 6 (A ₂) | 7050 |
| | 5 (A ₃) | 0772 |
| | 4 (A ₄) | C4C3 |
| | 3 (A ₅) | AA08 |
| | 2 (A ₆) | 7211 |
| | 1 (A ₇) | A3C1 |
| | 23 (A ₈) | 7707 |
| | 22 (A ₉) | 577A |
| | 19 (A ₁₀) | HH86 |
| | 21 (A ₁₁) | 89F1 |
| Chip | | Signature |
| B15 | | |
| | 10 (A ₀) | H335 |
| | 9 (A ₁) | C113 |
| | 8 (A ₂) | 7050 |
| | 7 (A ₃) | 0772 |
| | 6 (A ₄) | C4C3 |
| | 5 (A ₅) | AA08 |
| | 4 (A ₆) | 7211 |
| | 3 (A ₇) | A3C1 |
| | 25 (A ₈) | 7707 |
| | 24 (A ₉) | 577A |
| | 21 (A ₁₀) | HH86 |
| | 23 (A ₁₁) | 89F1 |
| | 2 (A ₁₂) | AC99 |

For units with an EPROM of Type 2732 for B15 the same signatures as for B10 to B14 apply.

5.3.2 Program Memory Analysis

Setup on Y1:

- Same as for address analysis but set link S2 to contacts 1-2 (S1 remains on contacts 1-2).
- Setting on the signature analyzer:
START EDGE:↑, STOP EDGE:↑, CLOCK EDGE:↑.
- Furthermore, remove RAMS (B8 and B9).

After the SMPC has been switched on, the signatures are checked on the internal data bus. The signatures are dependent on the software version (see appendix: Table 5-3). If the address lines and program memories are ok, start the test program to check all the remaining chips.

5.3.3 Test Program Analysis

Setup on Y1:

- Replace the unplugged chips B8 and B9.
- Unplug B10 and insert service EPROM in its place.
- Set link S1 to contacts 3-2 (S2 remains on contacts 1-2).
- Setting on the signature analyzer:
START EDGE:↑, STOP EDGE:↑, CLOCK EDGE:↑.
- Connect the START and STOP lines to B50 pin 8, the GND line is left at the test pin ST1. Connect the CLOCK line to B81 pin 6.

5.3.3.1 RAM Test

After switching on, the microprocessor tests both RAMS B8 and B9.

The display indicates:



If B8 and B9 are ok, further checking with the test EPROM is possible. The display will now indicate the selected IEC-bus address. If one or both of the RAMS are faulty, any subsequent keyed instruction will not be carried out (in any case, the IEC-bus address will not be indicated). This means that the RAMS must be exchanged.

5.3.3.2 Reading-in the IEC-bus Address

On each occasion that RCL is keyed, the IEC-bus address is again read-in and redisplayed.

5.3.3.3 Checking the Signatures on Y1

- Press key RF MHz.

The relevant signatures are given in Table 5-4.

Table 5-4

| Chip | | | | Signature |
|------|-----|-----|-----|-----------|
| B1 | PIN | B34 | PIN | |
| | 12 | | 11 | 87C5 |
| | 13 | | 12 | A7HH |
| | 14 | | 13 | 59F3 |
| | 15 | | 14 | 2UA8 |
| | 16 | | 15 | 06HC |
| | 17 | | 16 | 1441 |
| | 18 | | 17 | 26C8 |
| | 19 | | 18 | CC9H |
| | 24 | | | 0000 |
| | 25 | | | 72U5 |
| | 26 | | | 71CC |
| | 27 | | | 3563 |

| B2 | PIN | B3 | PIN | Signature |
|----|-----|----|-----|-----------|
| | 2 | | 18 | |
| | 5 | | 16 | 807F |
| | 6 | | 14 | 7P08 |
| | 9 | | 12 | OH2F |
| | 12 | | 9 | 2C90 |
| | 15 | | 7 | 4CP4 |
| | 16 | | 5 | 6538 |
| | 19 | | 3 | H36A |

| B20 | PIN | Signature |
|-----|-----|-----------|
| | 2 | |
| | 5 | 403P |
| | 6 | 3U04 |
| | 9 | 0696 |
| | 12 | 15F8 |
| | 15 | 25U2 |
| | 16 | 329F |
| | 19 | 69C5 |

| Chip | | Signature |
|------|------|-----------|
| B18 | PIN | |
| | 2 | 4496 |
| | 5 | 6P06 |
| | 6 | 852C |
| | 9 | 34PU |
| | 12 | 34H2 |
| | 15 | A653 |
| | 16 | 0000 |
| 19 | 0000 | |

| | | |
|----|-----|------|
| B6 | PIN | |
| | 10 | 5U5A |
| | 11 | 6A39 |
| | 12 | 7U3C |
| | 13 | OP80 |
| | 14 | 44H8 |

| | | |
|-----|-----|------|
| B44 | PIN | |
| | 2 | 5200 |
| | 3 | 38FO |
| | 4 | UH26 |
| | 5 | 53H2 |
| | 6 | 2H15 |
| | 7 | C2H1 |
| | 8 | 6C2H |
| | 9 | 2U3U |

| | | |
|-----|-----|------|
| B82 | PIN | |
| | 11 | 4A58 |

| | | |
|-----|------|------|
| B32 | PIN | |
| | 2 | 5294 |
| | 10 | 5294 |
| | 11 | 44H8 |
| 12 | 6U55 | |

| Chip | | Signature |
|------|-----|-----------|
| B39 | PIN | |
| | 10 | F383 |
| | 11 | P33U |
| | 12 | UFAC |
| | 13 | AHAA |
| | 14 | 6A8C |
| | 15 | 8PA7 |

| | | |
|-----|-----|------|
| B40 | PIN | |
| | 7 | OC3A |
| | 9 | C89U |
| | 10 | FF3H |
| | 11 | 5878 |
| | 12 | HOH7 |
| | 13 | F536 |
| | 14 | 7919 |
| | 15 | UFUU |

| | | |
|-----|-----|------|
| B41 | PIN | |
| | 7 | 4023 |
| | 9 | HCC7 |
| | 10 | A92U |
| | 11 | UA2C |
| | 12 | 9AC6 |
| | 13 | 8915 |
| | 14 | UH62 |
| | 15 | 739P |

| | | |
|-----|-----|------|
| B42 | PIN | |
| | 7 | AF02 |
| | 9 | 5U98 |
| | 10 | 2FHP |
| | 11 | 4413 |
| | 12 | 5HCO |
| | 13 | 69H2 |
| | 14 | P582 |
| | 15 | 6U9A |

5.3.3.4 Checking the Signature Paths to the Subassemblies

The signatures of the subassembly data bus (B35, Table 5-5) apply for all subassemblies connected and can be traced to the respective input latches.

Table 5-5

| <u>Data bus</u> | <u>Signature</u> |
|-----------------|------------------|
| D0 | P4AA |
| D1 | 807F |
| D2 | 7P08 |
| D3 | 0H2F |
| D4 | 2C90 |
| D5 | 4CP4 |
| D6 | 6538 |
| D7 | H36A |

The signatures of the strobe lines and of the front-panel data bus can be traced to the subassembly by means of Table 5-6.

Table 5-6

| Chip on Y1 | Pin | Subassembly | Strobe/bit | Chip | Pin | Signature |
|------------|-----|---------------------|-------------------|----------|------|-----------|
| B42 | 15 | Y2 FM | 1 | B20 | 11 | 6U9A |
| B40 | 15 | | 2 | B21 | 11 | UFUU |
| | 11 | | 3 | B22 | 11 | 5878 |
| B42 | 14 | Y3 AF | 1 | B 4 | 11 | P582 |
| | 13 | | 2 | B 5 | 11 | 69H2 |
| | 12 | | 3 | B53 | 2 | 5HC0 |
| | 11 | | 4 | B51 | 11 | 4413 |
| | 10 | | 5 | B50 | 11 | 2FHP |
| | 9 | 6 | B 6 | 11 | 5U98 | |
| B42 | 7 | Y4 INT I | 1 | B21 | 11 | AF02 |
| B41 | 15 | | 2 | B17 | 11 | 739P |
| | 14 | | 3 | B13 | 11 | UH62 |
| | 13 | | 4 | B 9 | 11 | 8915 |
| B41 | 10 | Y6 INT III | 1 | B501 | 9 | A92U |
| | 9 | | 2 | B502 | 9 | HCC7 |
| B41 | 7 | Y7 Buffer | 1 | B 2 | 9 | 4023 |
| B40 | 12 | Y9 OO II | 1 | B20 | 11 | H0H7 |
| B32 | 12 | Y10 OO III | 1 | B45 | 11 | 6U55 |
| B40 | 10 | Y12 AM | 1 | B 2 | 11 | FF3H |
| | 9 | | 2 | B 1 | 9 | C89U |
| B40 | 7 | Y14 OS II | 1 | B 1 | 9 | 0C3A |
| B39 | 13 | Y30 ATT | 1 | B 1 | 11 | AHAA |
| B41 | 11 | | 2 | B 5 | 3 | UA2C |
| B44 | 2 | Y19 Front panel | D0 | B1/20/50 | 12 | 5200 |
| | 3 | | D1 | | 13 | 38F0 |
| | 4 | | D2 | | 14 | UH26 |
| | 5 | | D3 | | 15 | 53H2 |
| | 6 | | D4 | | 16 | 2H15 |
| | 7 | | D5 | | 17 | C2H1 |
| | 8 | | D6 | | 18 | 6C2H |
| | 9 | | D7 | | 19 | 2U3U |
| B39 | 1 | | C/D | | 21 | 449C |
| B 6 | 12 | | \overline{CS} I | | B 1 | 22 |
| | 11 | \overline{CS} II | B20 | 22 | 6A39 | |
| | 10 | \overline{CS} III | B50 | 22 | 5U5A | |

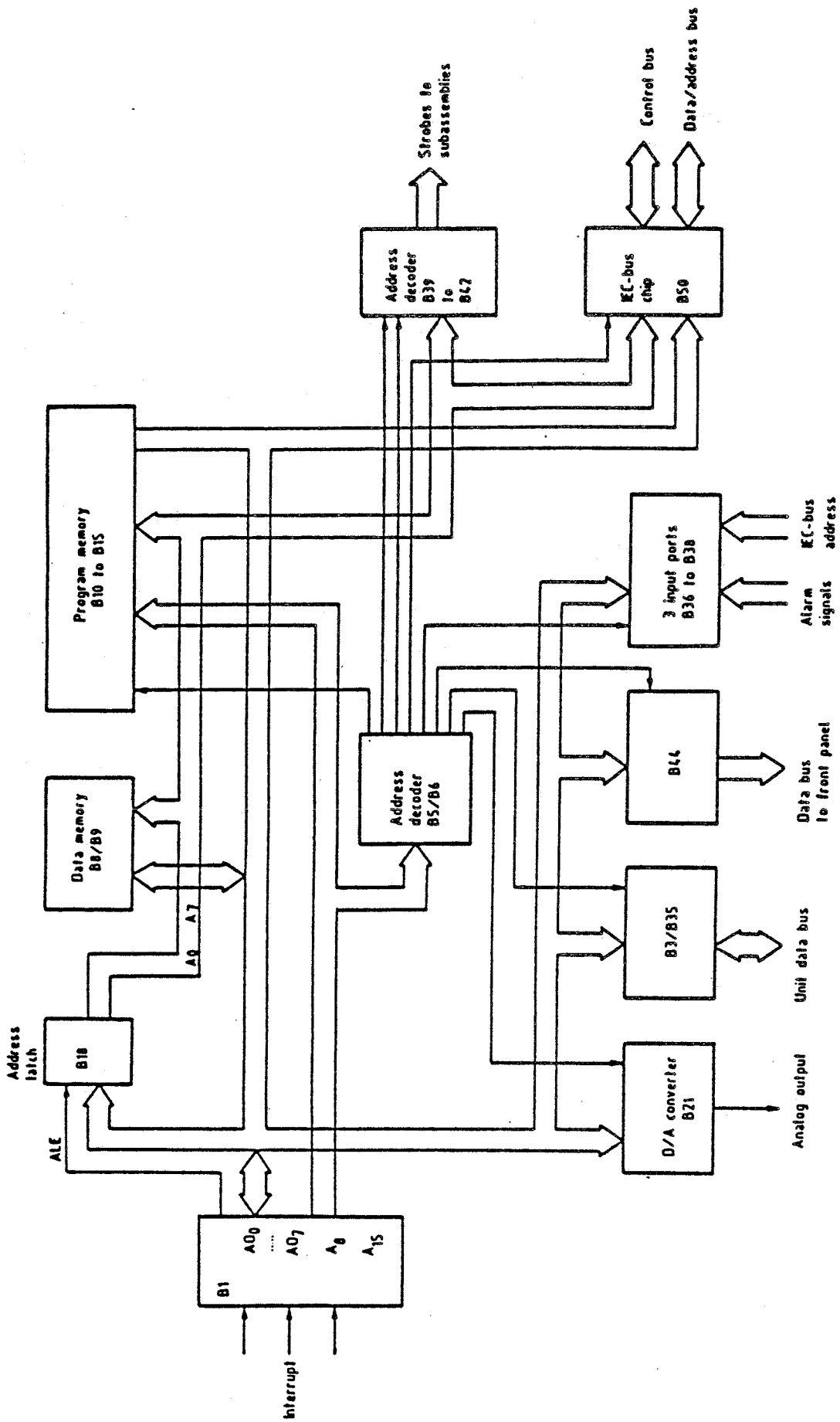


Fig. 5-1 Block diagram of Processor Y1

Tabelle 5-3
 Table 5-3

| B34 | PIN | Bus | EPROM Satz EPROM Set | | |
|-----|-----|-----|-------------------------|-------------|----------|
| | | | 300.9830-2- | 300.9830-3- | 356.1311 |
| | 9 | D0 | CFC6 | 94A1 | 1184 |
| | 8 | D1 | 6C89 | 14HF | 3FAP |
| | 7 | D2 | 66A2 | C2H2 | 60H6 |
| | 6 | D3 | 9HH0 | 2A30 | 35FP |
| | 5 | D4 | UP6P | PH45 | AHF6 |
| | 4 | D5 | C7C8 | 48CH | 9086 |
| | 3 | D6 | 6441 | A727 | P4C4 |
| | 2 | D7 | F9FC | F296 | 2UAH |

| B34 | PIN | Bus | EPROM Satz EPROM Set | |
|-----|-----|-----|-------------------------|----------|
| | | | 356.1311-1- | 356.1434 |
| | 9 | D0 | HPUC | 36H3 |
| | 8 | D1 | 4380 | F5U0 |
| | 7 | D2 | 92H0 | 60P7 |
| | 6 | D3 | H5UF | 2C80 |
| | 5 | D4 | H7H6 | UP21 |
| | 4 | D5 | 978P | UAH4 |
| | 3 | D6 | 62A6 | 57HF |
| | 2 | D7 | 165C | P6HF |



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MÜNCHEN

Schaltheillisten
Stromläufe
Bestückungspläne
Parts lists
Circuit diagrams
Components plans

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 Schaltteilliste für
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| Kennzeichen Component No. | Benennung/Beschreibung Designation | Sachnummer Stock No. | enthalten in contained in |
|------------------------------|--|-------------------------|------------------------------|
| B1 | BC P8085A 8B.CPU CPU | BC 335.8930 | |
| B2 | INTEL P8085A BL SN74LS273N 8BIT-D-REG. 8BIT-D-REGISTER | BL 214.8998 | |
| B3 | TEXAS SN74LS273N BL SN74LS244N 8XBUS-TREIB IC 8XEUS DRIVER | BL 092.8984 | |
| B4 | TEXAS SN74LS244N BL SN74LS244N 8XBUS-TREIB IC 8XEUS DRIVER | BL 092.8984 | |
| B5 | TEXAS SN74LS244N BL SN74LS138N DEMUX 1:8 DEMULTIPLEXER 1:8 | BL 510.1379 | |
| B6 | TEXAS SN74LS138N BL SN74LS138N DEMUX 1:8 DEMULTIPLEXER 1:8 | BL 510.1379 | |
| B7 | TEXAS SN74LS138N BL SN74LS74AN 2/D-FLIPFL. IC FLIP-FLOP SN74LS74N | BL 266.7934 | |
| B8 | TEXAS SN74LS74N BC TC5514P 1KX4B. RAM RAM | BC 344.1411 | |
| B9 | TOSHIBA TC5514P BC TC5514P 1KX4B. RAM RAM | BC 344.1411 | |
| B18 | TOSHIBA TC5514P BL SN74LS373N 8BIT-D-REG. BL SN74LS373N 8BIT-D-REG. | BL 336.7543 | |
| B19 | TEXAS SN74LS373N BL SN74LS175N 4/D-FLIPFLO IC FLIP FLOP SN74LS175N | BL 291.5048 | |
| B20 | TEXAS SN74LS175N BL SN74LS273N 8BIT-D-REG. 8BIT-D-REGISTER | BL 214.8998 | |
| B21 | TEXAS SN74LS273N BJ AD7531KD 12B.D/A-CONV D/A-CONVERTER | BJ 300.9369 | |
| B22 | ANALOG-DEV AD7531KD BO CA3240AE BIMOS DUAL OP IC OPERATION AMPLIFIER | BO 302.7040 | |
| B23 | RCA CA3240AE BO TCA965 FENSTER-DISKRIM IC DISCRIMINATOR TCA965 | BO 279.2213 | |
| B31 | SIEMENS TCA965 BL SN74LS04N 6/INVERTER HEXINVERTER | BL 266.2010 | |
| B32 | TEXAS SN74LS04N BL SN74LS04N 6/INVERTER HEXINVERTER | BL 266.2010 | |
| B33 | TEXAS SN74LS04N BL SN74LS245N 8XBUS-TRSCV IC 8XEUS TRSCV SN74LS245N | BL 300.8833 | |
| | | | |

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| Kennzeichen Component No. | Benennung/Beschreibung Designation | Sachnummer Stock No. | enthalten in contained in |
|------------------------------|--|-------------------------|------------------------------|
| B34 | BL SN74LS245N 8XBUS-TRSCV IC 8XBUS TRSCV SN74LS245N TEXAS SN74LS245N | BL 300.8833 | |
| B35 | BL SN74LS244N 8XBUS-TREIB IC 8XBUS DRIVER TEXAS SN74LS244N | BL 092.8984 | |
| B36 | EL SN74LS367N 6/TREIBER IC DRIVER SN74LS367N TEXAS SN74LS367AN | BL 510.1362 | |
| B37 | BL SN74LS244N 8XBUS-TREIB IC 8XBUS DRIVER TEXAS SN74LS244N | BL 092.8984 | |
| B38 | BL SN74LS367N 6/TREIBER IC DRIVER SN74LS367N TEXAS SN74LS367AN | BL 510.1362 | |
| B39 | BL SN74LS138N DEMUX 1:8 DEMULTIPLEXER 1:8 TEXAS SN74LS138N | BL 510.1379 | |
| B40 | BL SN74LS138N DEMUX 1:8 DEMULTIPLEXER 1:8 TEXAS SN74LS138N | BL 510.1379 | |
| B41 | BL SN74LS138N DEMUX 1:8 DEMULTIPLEXER 1:8 TEXAS SN74LS138N | BL 510.1379 | |
| B42 | BL SN74LS138N DEMUX 1:8 DEMULTIPLEXER 1:8 TEXAS SN74LS138N | BL 510.1379 | |
| B43 | BL SN74LS138N DEMUX 1:8 DEMULTIPLEXER 1:8 TEXAS SN74LS138N | BL 510.1379 | |
| B44 | BL SN74LS245N 8XBUS-TRSCV IC 8XBUS TRSCV SN74LS245N TEXAS SN74LS245N | BL 300.8833 | |
| B50 | BC P8291A IEC BUS INTERF IEC BUS INTERFACE INTEL P2891A | BC 099.4978 | |
| B51 | BJ MC3448AP 4XBUS-TRANSC BUS-TRANSCEIVER MOTOROLA MC3448AP | BJ 300.6247 | |
| B52 | BJ MC3448AP 4XBUS-TRANSC BUS-TRANSCEIVER MOTOROLA MC3448AP | BJ 300.6247 | |
| B53 | BJ MC3448AP 4XBUS-TRANSC BUS-TRANSCEIVER MOTOROLA MC3448AP | BJ 300.6247 | |
| B54 | BJ MC3448AP 4XBUS-TRANSC BUS-TRANSCEIVER MOTOROLA MC3448AP | BJ 300.6247 | |
| B81 | BL SN74LS32N 4/2INP.OR IC OR GATE SN74LS32N TEXAS SN74LS32N | BL 266.4687 | |
| B82 | EL SN74LS08N 4/2INP.AND IC AND GATE SN74LS08N TEXAS SN74LS08N | BL 266.4664 | |
| B83 | BL SN74LS32N 4/2INP.OR IC OR GATE SN74LS32N TEXAS SN74LS32N | BL 266.4687 | |



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| Kennzeichen Component No. | Benennung/Beschreibung Designation | Sachnummer Stock No. | enthalten in contained in |
|------------------------------|--|-------------------------|------------------------------|
| B84 | BL SN74LS26N 4/2INP.NAND IC SN74LS26N 4/2INP.NAND TEXAS SN74LS26N | BL 280.7567 | |
| BA1 | EB 1,2U 20MAH NI-CA AKKU BATTERY VARTA BEST.NR.53002101000 | 300.9430 | |
| BA2 | EB 1,2U 20MAH NI-CA AKKU BATTERY VARTA BEST.NR.53002101000 | 300.9430 | |
| BU43 | FR JC-FASSUNG 16 POLIG 16-PIN IC-SOCKET PRECICONT US016T | FR 249.6091 | |
| B10/02 | BC 2732 PROGR.B10 ENTHALTEN IN PROM-SATZ INCLUDED IN SET OF PROM 356.1434 | 356.1440 | |
| B10/04 | BC 2764 PROGR.B10 ENTHALTEN IN PROM-SATZ INCLUDED IN SET OF PROM 377.0114 | 377.0120 | |
| B10/54 | BC 2732 PROGR.B10 ENTHALTEN IN PROM-SATZ INCLUDED IN SET OF PROM 356.1534 | 356.1540 | |
| B11/02 | BC 2732 PROGR.B11 ENTHALTEN IN PROM-SATZ INCLUDED IN SET OF PROM 356.1434 | 356.1457 | |
| B11/04 | BC 2764 PROGR.B11 ENTHALTEN IN PROM-SATZ INCLUDED IN SET OF PROM 377.0114 | 377.0137 | |
| B11/54 | BC 2732 PROGR.B11 ENTHALTEN IN PROM-SATZ INCLUDED IN SET OF PROM 356.1534 | 356.1557 | |
| B12/02 | BC 2732 PROGR.B12 ENTHALTEN IN PROM-SATZ INCLUDED IN SET OF PROM 356.1434 | 356.1463 | |
| B12/04 | BC 2764 PROGR.B12 ENTHALTEN IN PROM-SATZ INCLUDED IN SET OF PROM 377.0114 | 377.0143 | |
| B12/54 | BC 2732 PROGR.B12 ENTHALTEN IN PROM-SATZ INCLUDED IN SET OF PROM 356.1534 | 356.1563 | |
| B13/02 | BC 2732 PROGR.B13 ENTHALTEN IN PROM-SATZ INCLUDED IN SET OF PROM 356.1434 | 356.1470 | |
| B13/04 | BC 2764 PROGR.B13 ENTHALTEN IN PROM-SATZ INCLUDED IN SET OF PROM | 377.0150 | |

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| Kennzeichen Component No. | Benennung/Beschreibung Designation | Sachnummer Stock No. | enthalten in contained in |
|------------------------------|--|-------------------------|------------------------------|
| B13/54 | 377.0114 EC 2732 PROGR.B13 ENTHALTEN IN PROM-SATZ INCLUDED IN SET OF PROM 356.1534 | 356.1570 | |
| B14/02 | EC 2732 PROGR.B14 ENTHALTEN IN PROM-SATZ INCLUDED IN SET OF PROM 356.1434 | 356.1486 | |
| B14/04 | BC 2764 PROGR.B14 ENTHALTEN IN PROM-SATZ INCLUDED IN SET OF PROM 344.0114 | 377.0166 | |
| B14/54 | BC 2732 PROGR.B14 ENTHALTEN IN PROM-SATZ INCLUDED IN SET OF PROM 356.1534 | 356.1586 | |
| B15/02 | BC 2764 PROGR.B15 ENTHALTEN IN PROM-SATZ INCLUDED IN SET OF PROM 356.1434 | 356.1492 | |
| B15/04 | BC 2764 PROGR.B15 ENTHALTEN IN PROM-SATZ INCLUDED IN SET OF PROM 377.0114 | 377.0172 | |
| B15/54 | BC 2764 PROGR.B15 ENTHALTEN IN PROM-SATZ INCLUDED IN SET OF PROM 356.1534 | 356.1592 | |
| C1 | CC 10NF-20+50%7X8R6000 CAPACITOR | CC 087.7525 | |
| C2 | VALVO 2222 63051 64051103 CE 1,0UF+-20%35V 5X 4X 7 ELECTROLYTIC CAPACITOR | CE 022.8185 | |
| C3 | ERO-TANTAL TA-ELKOETR1-1/35 CC 10NF-20+50%7X8R6000 CAPACITOR | CC 087.7525 | |
| C4 | VALVO 2222 63051 64051103 CC 10NF-20+50%7X8R6000 CAPACITOR | CC 087.7525 | |
| C5 | VALVO 2222 63051 64051103 CC 10NF-20+50%7X8R6000 CAPACITOR | CC 087.7525 | |
| C6 | VALVO 2222 63051 64051103 CC 6,8PF+-0,25PF4X5P100 CAPACITOR | CC 087.6270 | |
| C7 | VALVO 2222 678 03688 CC 220PF+-10%63V3X5D2000 CAPACITOR | CC 099.5616 | |
| C10 | VALVO 2222 63051 221 CE 100UF-10+50%40V 10X20 ELECTROLYTIC CAPACITOR | CE 092.6175 | |
| C11 | ROEDERST EBS 100/40 10X20 CE 4,7UF+-20%10V 5X 4X 7 ELECTROLYTIC CAPACITOR ERO-TANTAL TA-ELKOETR1,4,7/10 | CE 022.8056 | |

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| Kennzeichen Component No. | Benennung/Beschreibung Designation | Sachnummer Stock No. | enthalten in contained in |
|------------------------------|---|-------------------------|------------------------------|
| C12 | CE 10 UF+-20%16V 7X 4X 8 ELECTROLYTIC CAPACITOR | CE 022.8085 | |
| C15 | ERO-TANTAL TA-ELKOETR2-10/15 CE 100UF-20+50%16V 8,5X20 ELECTROLYTIC CAPACITOR | CE 022.7737 | |
| C16 | ROEDERST ELKOEBS100/16 CE 100UF-20+50%16V 8,5X20 ELECTROLYTIC CAPACITOR | CE 022.7737 | |
| C17 | ROEDERST ELKOEBS100/16 CE 100UF-20+50%16V 8,5X20 ELECTROLYTIC CAPACITOR | CE 022.7737 | |
| C20 | ROEDERST ELKOEBS100/16 CC 3,3NF+-10%6X7R2000 CAPACITOR | CC 087.7083 | |
| C21 | VALVO 2222 63051 332 CC 1,2NF+-10%4X5R2000 CAPACITOR | CC 087.7031 | |
| C22 | VALVO 2222 63051 122 CC 1,2NF+-10%4X5R2000 CAPACITOR | CC 087.7031 | |
| C25 | VALVO 2222 63051 122 CC 100NF+-10%50V5K1200VIE CAPACITOR | CC 084.5350 | |
| | AEROVOX CKR05BX104KL | | |
| BIS/TO C34 | | | |
| GL1 | AD 1N4448 75V 0,15A UDI DIODE | AD 012.0700 | |
| | VALVO 1N4448 | | |
| GL2 | AD 1N4448 75V 0,15A UDI DIODE | AD 012.0700 | |
| | VALVO 1N4448 | | |
| GL3 | AD 1N4448 75V 0,15A UDI DIODE | AD 012.0700 | |
| | VALVO 1N4448 | | |
| GL4 | AE BZX55/B5V1 0,5W Z-DI ZENER DIODE | AE 262.5837 | |
| | VALVO BZX55/B5V1 | | |
| GL5 | AF HLMP1503 LED 6N RD3 LED | AF 252.5570 | |
| | HEWLETT-P. HLMP1503 | | |
| GL6 | AE 5082-2800 SCHOTTKYDI DIODE | AE 012.9066 | |
| | HEWLETT-P. 5082-2800 | | |
| GL7 | AE 5082-2800 SCHOTTKYDI DIODE | AE 012.9066 | |
| | HEWLETT-P. 5082-2800 | | |
| MP1 | VL WIRE-WRAP PIN BERG NR. 75 403-001 | VL 088.4507 | |
| Q1 | EQ 6,000 MHZ CL30PF HC43U CRYSTAL 6,000MHZ | EQ 302.7186 | |
| R1 | RL 0,35W 475 OHM+-1%TK50 RESISTOR | RL 083.0390 | |
| | DRALORIC SMA0207/4750HM-F-D | | |

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| Kennzeichen Component No. | Benennung/Beschreibung Designation | Sachnummer Stock No. | enthalten in contained in |
|------------------------------|---|-------------------------|------------------------------|
| R2 | RL 0,35W9,88KOHM+-0,1%T25 RESISTOR | RL 084.3058 | |
| R3 | DRALORIC 0207 9,88KOHM 0,1% RL 0,35W24,6KOHM+-0,1%T25 RESISTOR | RL 084.3812 | |
| R4 | DRALORIC 0207 24,6KOHM 0,1% RL 0,35W 3,32KOHM+-1%TK50 RESISTOR | RL 083.0990 | |
| R5 | DRALORIC SMA0207/3,32K-F-D RL 0,35W 3,32KOHM+-1%TK50 RESISTOR | RL 083.0990 | |
| R6 | DRALORIC SMA0207/3,32K-F-D RL 0,35W 4,75KOHM+-1%TK50 RESISTOR | RL 083.1097 | |
| R7 | DRALORIC SMA0207/4,75K-F-D RL 0,35W 1KOHM+-1%TK50 RESISTOR | RL 082.2160 | |
| R8 | DRALORIC SMA0207/1K-F-C RL 0,35W 3,32KOHM+-1%TK50 RESISTOR | RL 083.0990 | |
| R9 | DRALORIC SMA0207/3,32K-F-D RL 0,35W 4,75KOHM+-1%TK50 RESISTOR | RL 083.1097 | |
| R10 | DRALORIC SMA0207/4,75K-F-D RL 0,35W 2,21KOHM+-1%TK50 RESISTOR | RL 082.2477 | |
| R11 | DRALORIC SMA 0207/2,21K-F-C RL 0,35W 1MOHM+-1%TK50 RESISTOR | RL 082.7862 | |
| R12 | DRALORIC SMA0207/1M-F-D RL 0,35W 10,0KOHM+-1%TK50 RESISTOR | RL 083.1297 | |
| R13 | DRALORIC SMA0207/10K-F-D RL 0,35W 24,3KOHM+-1%TK50 RESISTOR | RL 083.1574 | |
| R14 | DRALORIC SMA/207/24,3K-F-C RL 0,35W 3,01KOHM+-1%TK50 RESISTOR | RL 083.0961 | |
| R15 | DRALORIC SMA0207/3,01K-F-D RL 0,35W 24,3KOHM+-1%TK50 RESISTOR | RL 083.1574 | |
| R16 | DRALORIC SMA/207/24,3K-F-C RL 0,35W 1,74KOHM+-1%TK50 RESISTOR | RL 083.0784 | |
| R17 | DRALORIC SMA0207/1,74K-F-D RL 0,35W 562 OHM+-1%TK50 RESISTOR | RL 083.0461 | |
| R18 | DRALORIC SMA0207/562OHM-F-D RL 0,35W 11,0KOHM+-1%TK50 RESISTOR | RL 083.1322 | |
| R19 | DRALORIC SMA0207/11K-F-D RL 0,35W 11,0KOHM+-1%TK50 RESISTOR | RL 083.1322 | |
| R20 | DRALORIC SMA0207/11K-F-D RL 0,35W 221 OHM+-1%TK50 RESISTOR DRALORIC SMA0207/221OHM-F-D | RL 083.0084 | |

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| Kennzeichen Component No. | Benennung/Beschreibung Designation | Sachnummer Stock No. | enthalten in contained in |
|------------------------------|---|-------------------------|------------------------------|
| R21 | RL 0,25W 47,5KOHM+-1%TK50 RESISTOR DRALORIC SMA/207/47,5K-F-C | RL 083.1800 | |
| R22 | RL 0,35W 392 OHM+-1%TK50 RESISTOR DRALORIC SMA0207/392K-F-C | RL 082.2183 | |
| R23 | RL 0,35W 22,1KOHM+-1%TK50 RESISTOR DRALORIC SMA/207/22,1K-F-C | RL 083.1545 | |
| R24 | RL 0,35W 475 OHM+-1%TK50 RESISTOR DRALORIC SMA0207/475OHM-F-D | RL 083.0390 | |
| R26 | RL 0,35W 1KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/1K-F-C | RL 082.2160 | |
| R27 | RL 0,35W 4,75KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/4,75K-F-D | RL 083.1097 | |
| R28 | RL 0,35W 1KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/1K-F-C | RL 082.2160 | |
| R29 | RL 0,35W 100 OHM+-1%TK50 DEPOS.-CARBON RESISTOR DRALORIC SMA0207/100/HM-F-D | RL 082.6543 | |
| R30 | RL 0,35W 274 OHM+-1%TK50 RESISTOR DRALORIC SMA0207/274OHM-F-D | RL 083.0178 | |
| R70 | RL 0,35W 3,32KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/3,32K-F-D | RL 083.0990 | |
| BIS/TO R75 | | | |
| R80 | RL 0,35W 10,0KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/10K-F-D | RL 083.1297 | |
| BIS/TO R87 | | | |
| S1 | FP INDIREKT. STECKERL. 36P. PIN CONNECTOR BERG 75160-102-36 | FP 242.3600 | |
| BIS/TO S4 | | | |
| ST1 | 4X3-POLIG/4X3 PINS VL WIRE-WRAP PIN BERG NR. 75 403-001 | VL 088.4507 | |
| ST40 | ENTHALTEN IN/INCLUDED IN LEITERPLATTE/PCB | | |
| ST41 | ENTHALTEN IN/INCLUDED IN LEITERPLATTE/PCB | | |
| ST44A | FP INDIREKT. STECKERL. 36P. PIN CONNECTOR BERG 75160-102-36 | FP 242.3600 | |
| ST44B | 10-POLIG/10 PINS FP INDIREKT. STECKERL. 36P. PIN CONNECTOR BERG 75160-102-36 | FP 242.3600 | |

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Schaltteilliste für
Parts list for
ED RECHNER
COMPUTER

Sachnummer
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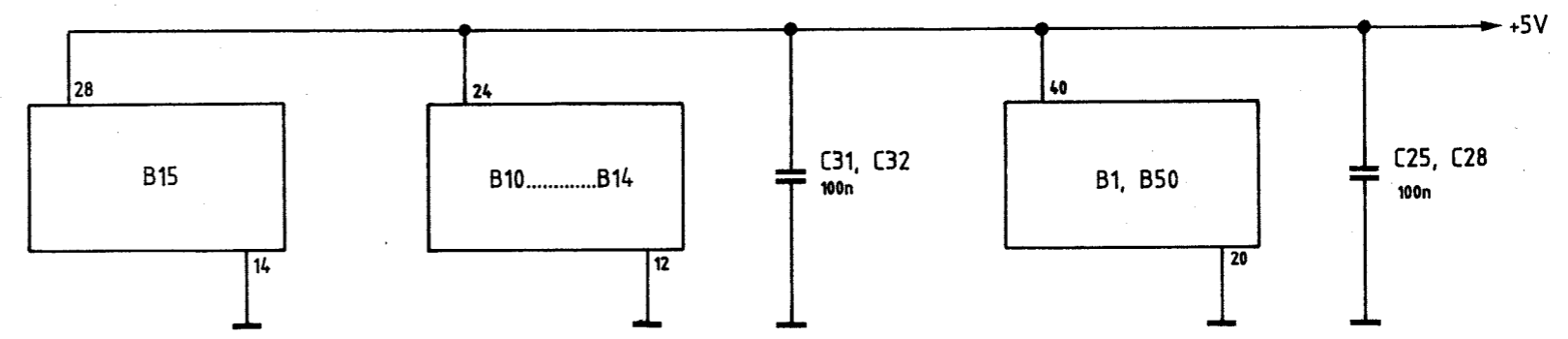
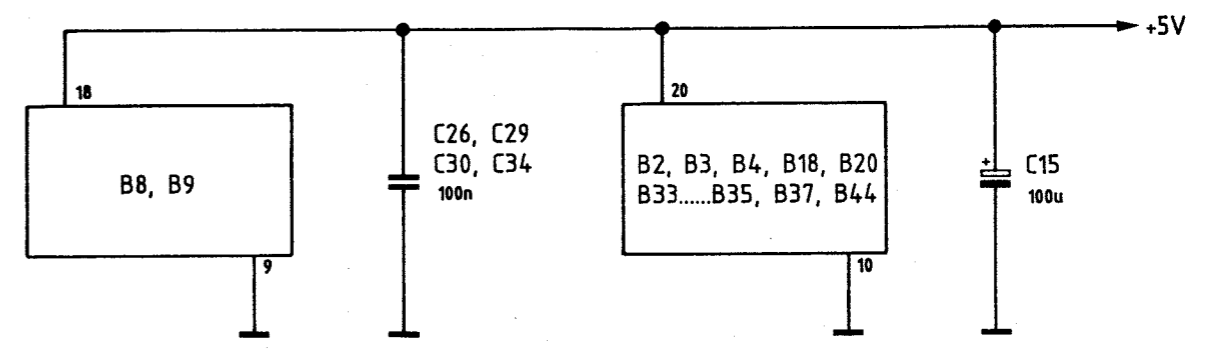
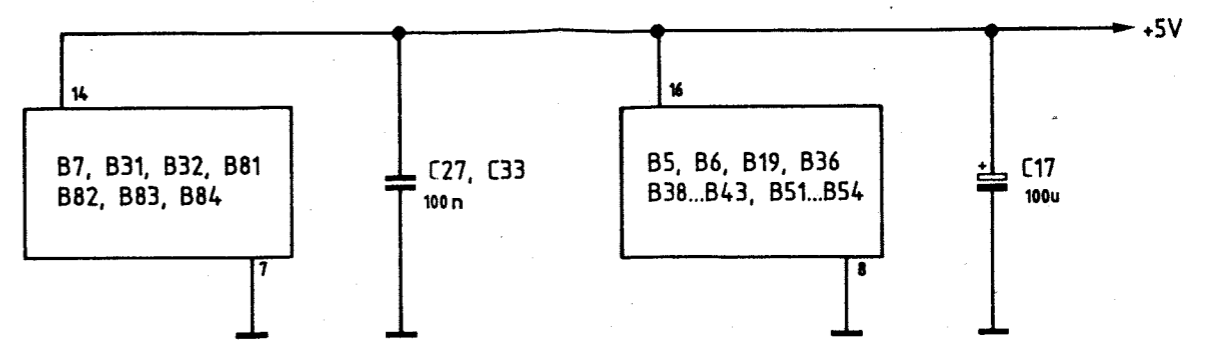
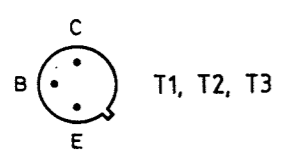
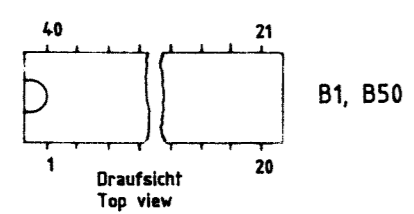
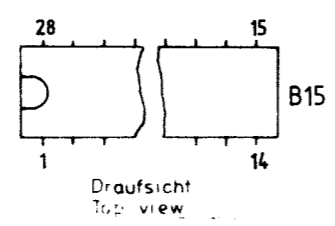
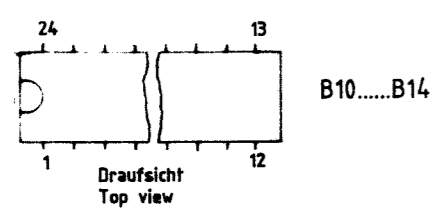
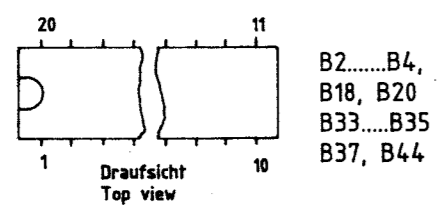
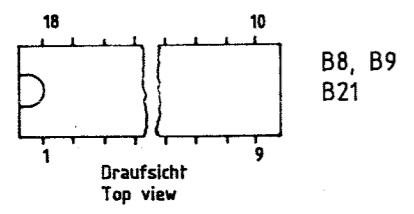
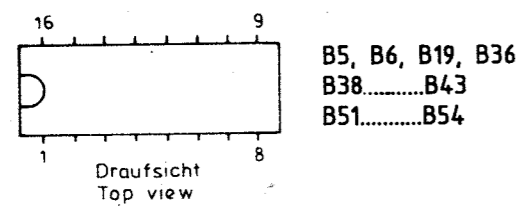
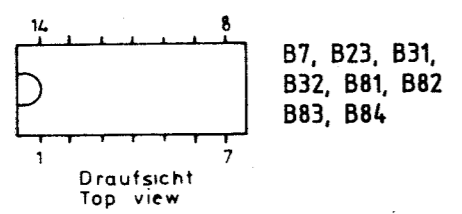
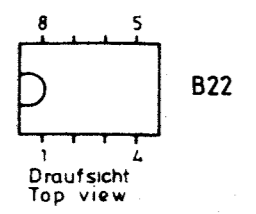
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| Kennzeichen Component No. | Benennung/Beschreibung Designation | Sachnummer Stock No. | enthalten in contained in |
|------------------------------|---|-------------------------|------------------------------|
| S1A | 10-POLIG/10 PINS FP KURZSCHL.BUCHSE OFFEN SHORTING PLUG BERG 76264-101 | FP 342.1895 | |
| S2A | FP KURZSCHL.BUCHSE OFFEN SHORTING PLUG BERG 76264-101 | FP 342.1895 | |
| S3A | FP KURZSCHL.BUCHSE OFFEN SHORTING PLUG BERG 76264-101 | FP 342.1895 | |
| S4A | FP KURZSCHL.BUCHSE OFFEN SHORTING PLUG BERG 76264-101 | FP 342.1895 | |
| T1 | AK BCY79IX PNP 45V 200MA TRANSISTOR SIEMENS BCY79IX | AK 010.3777 | |
| T2 | AK BCY79IX PNP 45V 200MA TRANSISTOR SIEMENS BCY79IX | AK 010.3777 | |
| T3 | AK 2N2222A NPN 40V 800MA TRANSISTOR VALVO 2N2222A | AK 010.5405 | |

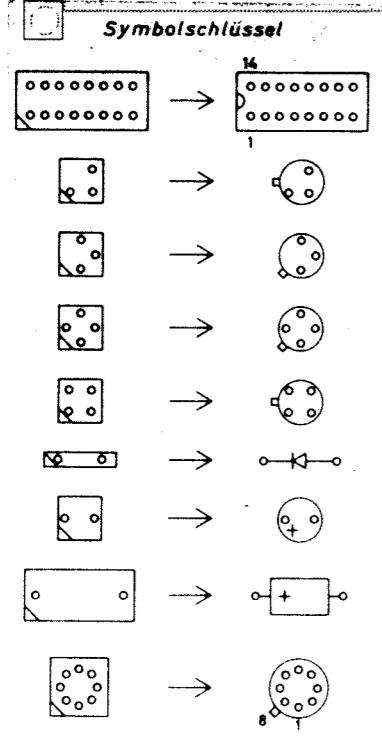
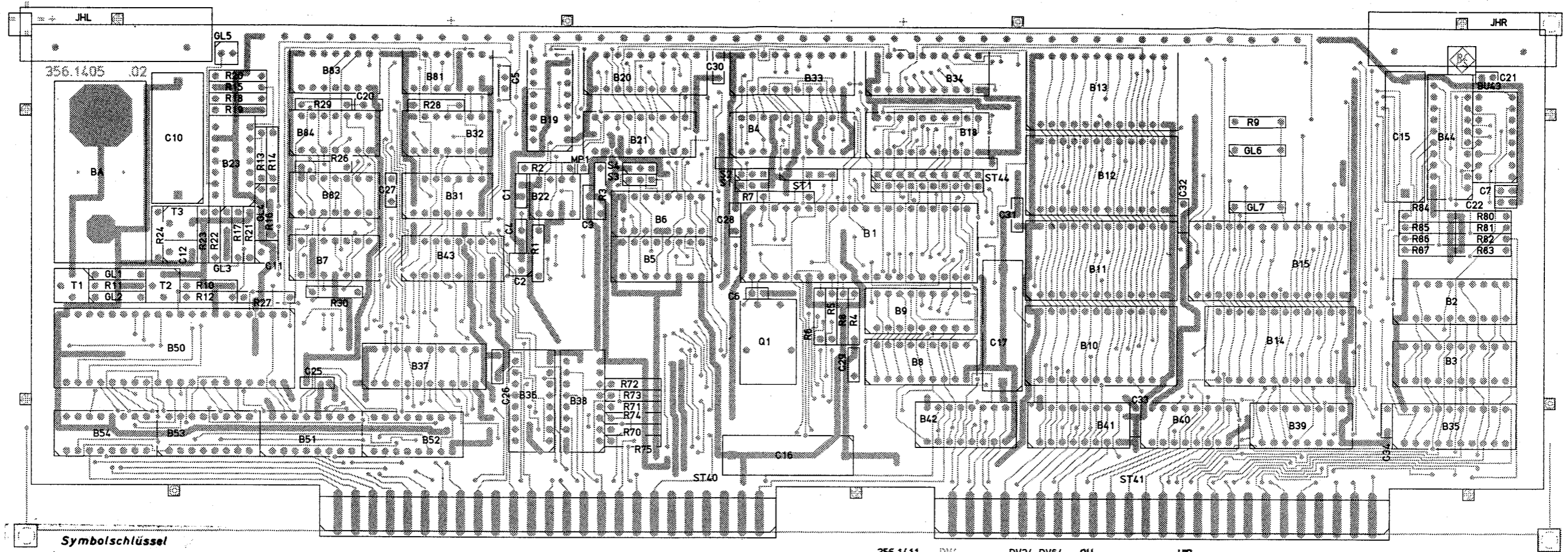
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Stromlauf gilt für VAR 02, 03, 04, 54
Circuit diagram is valid for model 02, 03, 04, 54

| | | | | | | | | |
|-----------|----------------------|-------|------|---------------|--------------------------|----------|--------------------|-------------------------|
| A | | 31341 | 5.84 | ib | Maße ohne Toleranzangabe | | Maßstab | |
| | | | | | | | Habzeug, Werkstoff | |
| | | | | | 1KGA | Tag | Name | Benennung |
| | | | | | Bearb | 12.83 | Ls | Rechner SMPC / Computer |
| | | | | | Gepr | | | |
| | | | | | Norm | | | |
| | | | | | | | Zechn.-Nr. | |
| | | | | | | | 356.1405 S | |
| And. Zust | Anderungs-Mitteilung | Tag | Name | zu Gerät SMPC | | reg. V | 355.9519 V | erste Z |
| | | | | | | 300.1000 | | v. 2 Bl |

Ansicht und Leitungsführung Bauteilseite
View of tracks on component side

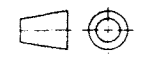


Achtung! MOS - Bauteile
Caution. MOS components

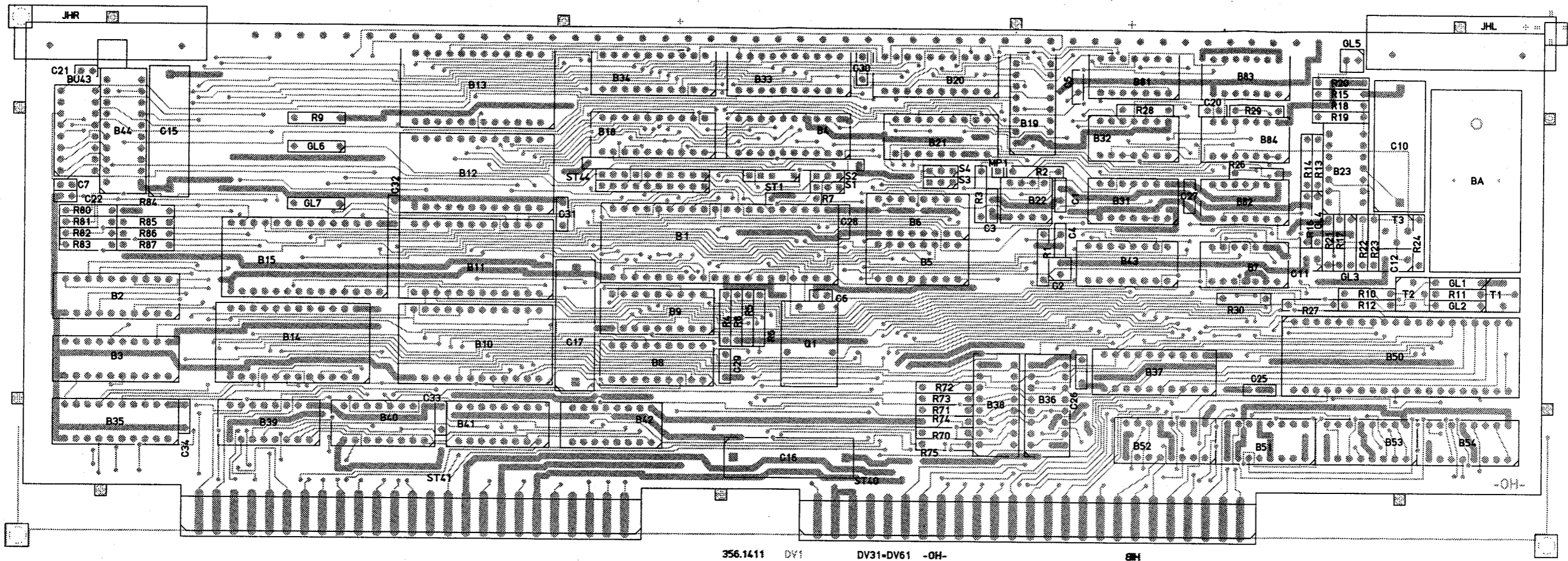
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|----------|----------------------|----------------------------|------|---------------------|-----------|
| | | Maße ohne Toleranzangabe | | Maßstab 1 : 1 | |
| | | | | Halbzeug, Werkstoff | |
| | | 1KGA | Tag | Name | Benennung |
| | | Bearb. | 1.84 | GS | Rechner |
| | | Gepr. | | | Z |
| | | Norm | | | |
| | | ROHDE & SCHWARZ | | Zeichn.-Nr. | Blatt-Nr. |
| | | | | 356.1405 | 01 |
| And Zust | Anderungs-Mitteilung | Tag | Name | reg. i. V. | erste Z. |
| | | | | 355.9519V | 300.1000 |
| | | zu Gerät SMPC | | v. | Bl. |

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ISO-Projektion
Methode E

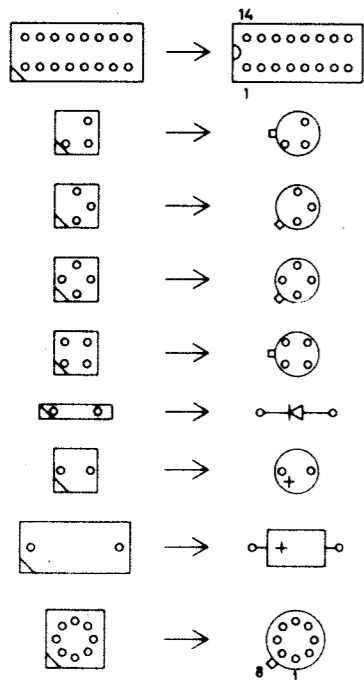


Ansicht und Leitungsführung Lötseite
View of tracks on solder side



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Symbolschlüssel



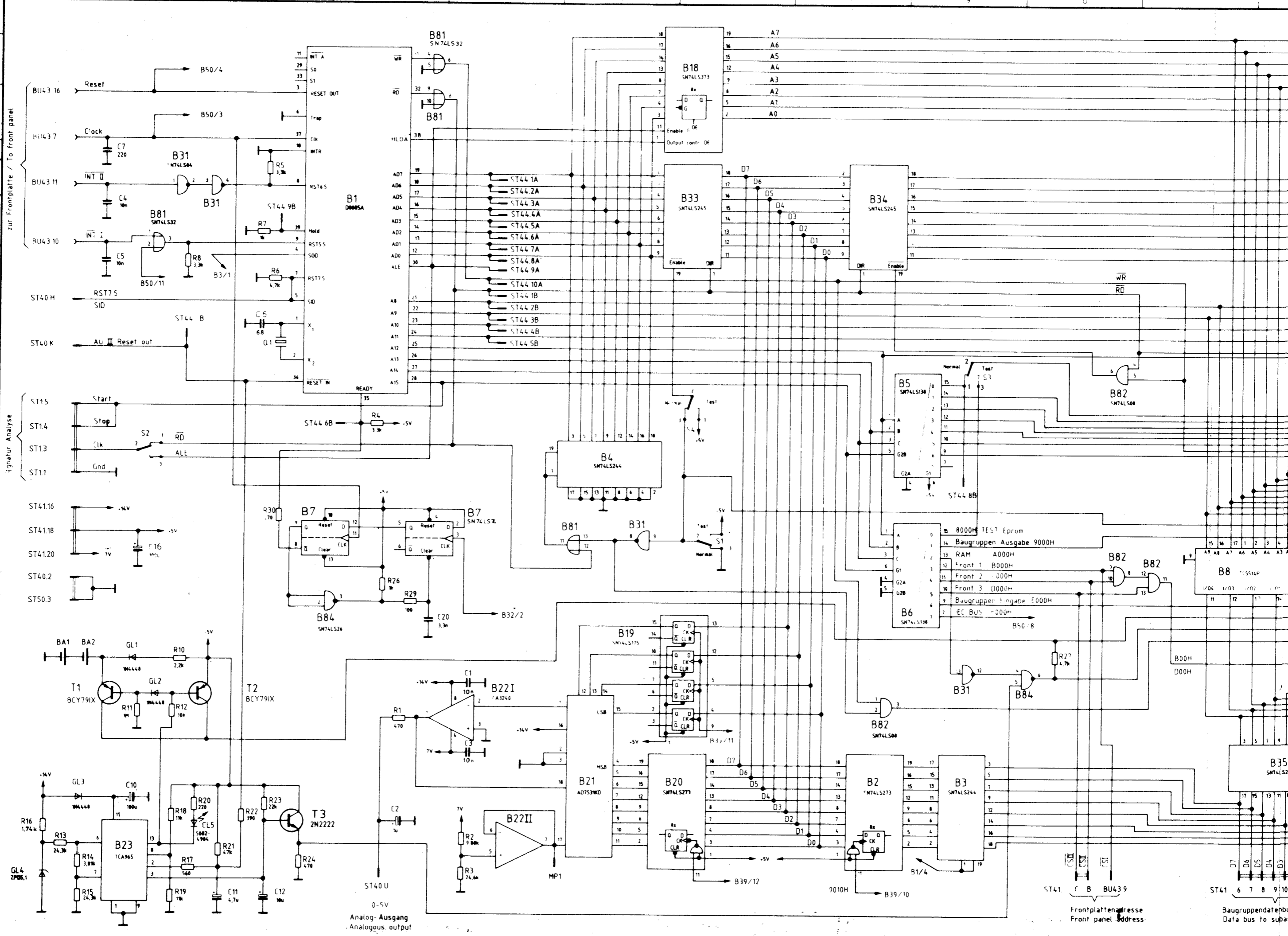
Achtung! MOS-Bauteile
Caution. MOS components

| | | | | | | | |
|------------|----------------------|-----|------|--------------------------|------|---------------------|-----------------------------|
| | | | | Maße ohne Toleranzangabe | | Maßstab 1 : 1 | |
| | | | | | | Halbzeug, Werkstoff | |
| | | | | 1KGA | Tag | Name | Benennung Rechner |
| | | | | Bearb. | 1.84 | GS | |
| | | | | Gepr. | | | |
| | | | | Norm | | | |
| | | | | | | Zeichn.-Nr. | |
| | | | | | | 356.1405 01 | |
| And. Zust. | Anderungs-Mitteilung | Tag | Name | zu Gerät SMPC | | reg. V | Blatt-Nr. 3 |
| | | | | 355.9519V | | erste Z 300.1000 | |

| | | | |
|-----------------|--------|------|----|
| Zeichn.-Nr. | 3105 S | Blz. | |
| IKGA | 12.83 | Gu. | LS |
| gezeichnet | 12.83 | LS | |
| bearbeitet | | | |
| geprüft | | | |
| normgepr. | | | |
| And. Mitgl. Nr. | 31341 | A | |
| And. Zust. | | | |
| Datum | 5.84 | ib | |
| Name | | | |

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zur Frontplatte / To front panel

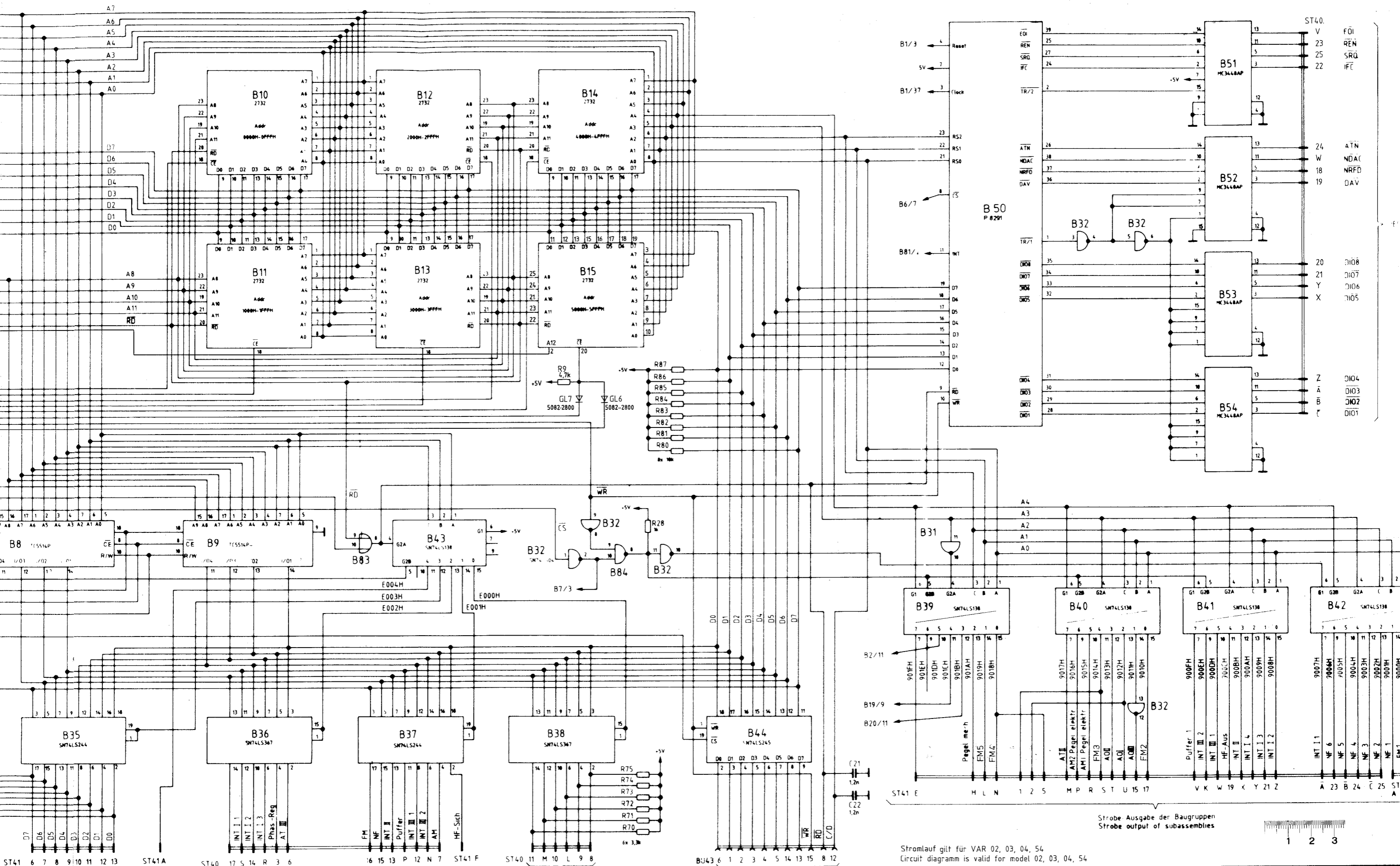
Signalur Analyse

0-5V Analog-Ausgang Analogous output

Frontplattendresse Front panel address

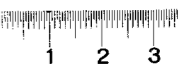
Baugruppendatenbu Data bus to subas

| | |
|----|--------------------------|
| 15 | 8000H TEST Eprom |
| 14 | Baugruppen Ausgabe 9000H |
| 13 | RAM A000H |
| 12 | Front 1 B000H |
| 11 | Front 2 000H |
| 10 | Front 3 000H |
| 9 | Baugruppen Eingabe E000H |
| 8 | EC BUS -000H |



Stromlauf gilt für VAR 02, 03, 04, 54
 Circuit diagram is valid for model 02, 03, 04, 54

Strobe Ausgabe der Baugruppen
 Strobe output of subassemblies



| | | | | | |
|------|--------|--------------------------------|---------|-------------|------------|
| | | Rechner SMPC / Computer | | Zeichn.-Nr. | |
| SMPC | reg. V | 355.9519 V | erste Z | 300 1000 | 356.1405 S |

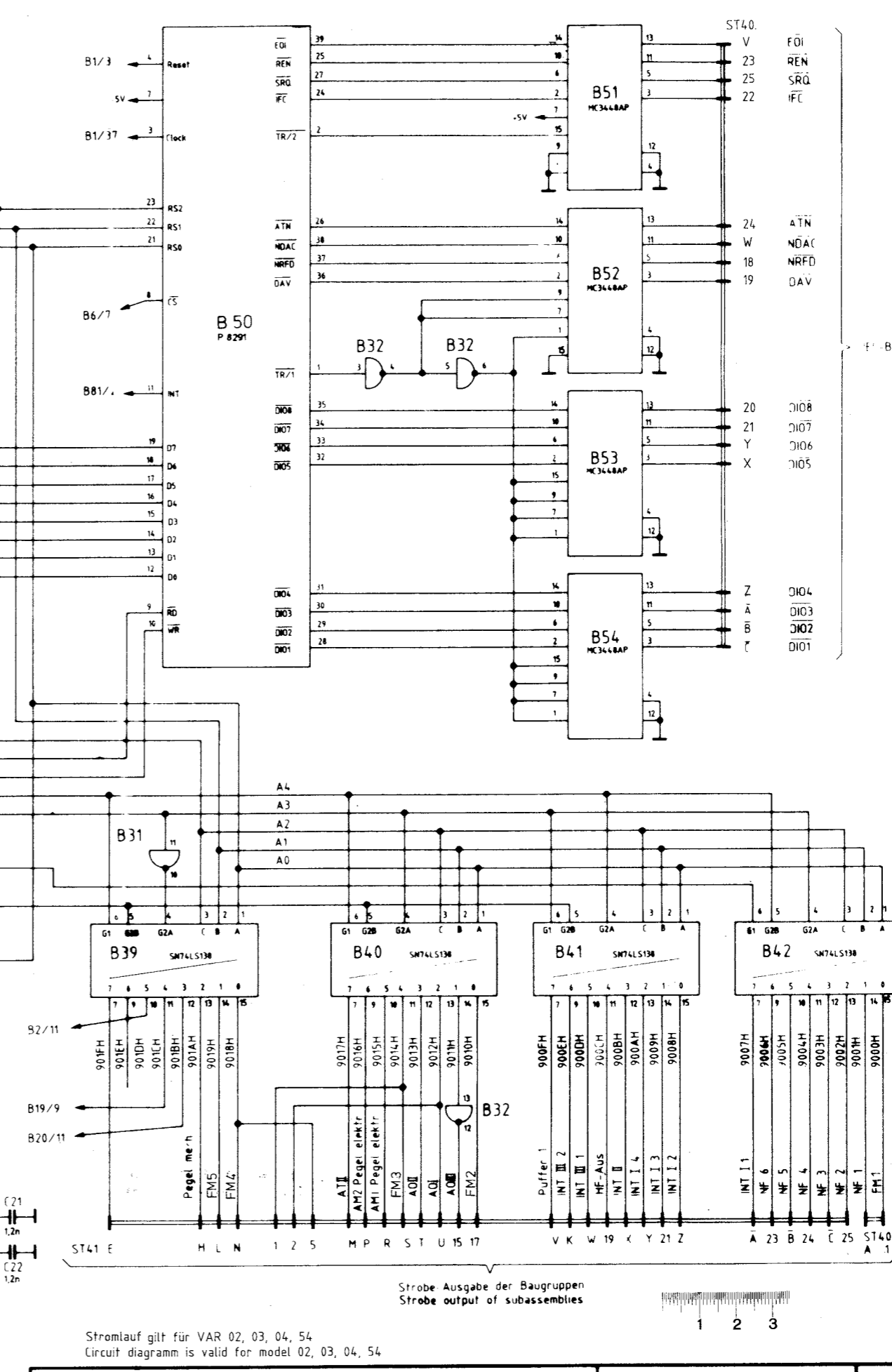
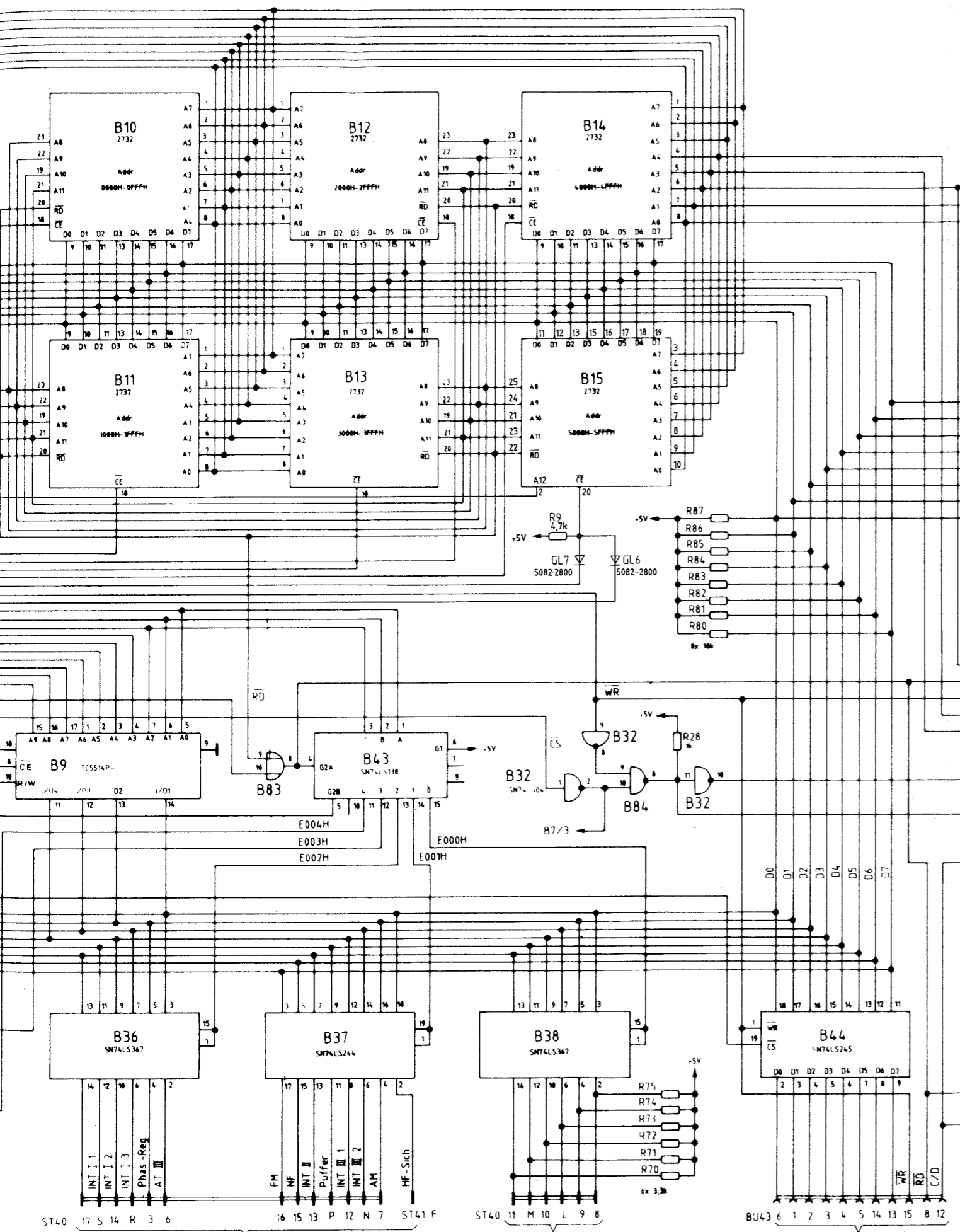
Baugruppendatenbus Eingabe
 Data bus to subassemblies

Alarmleitungen
 Alarm lines

zur Frontplatte
 To front panel

IEC-BUS-Addr

Bl



Alarmierungen
Alarm lines

IEC-BUS-Addr

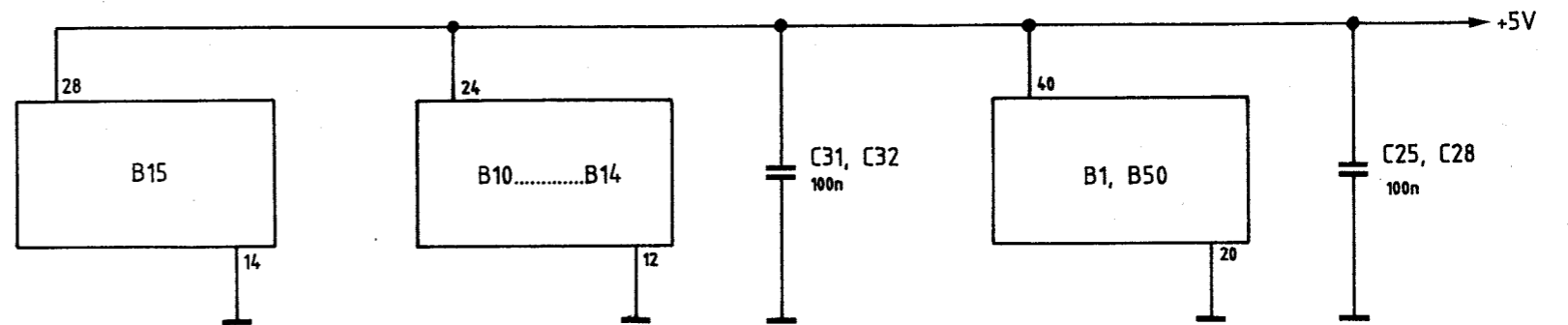
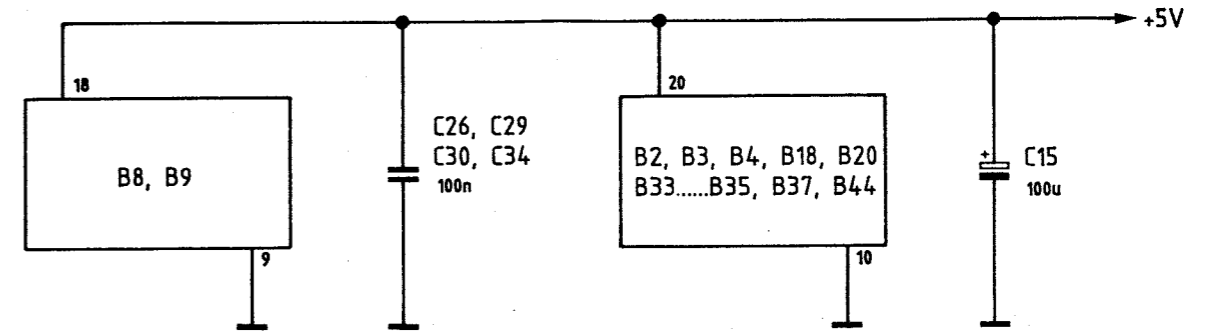
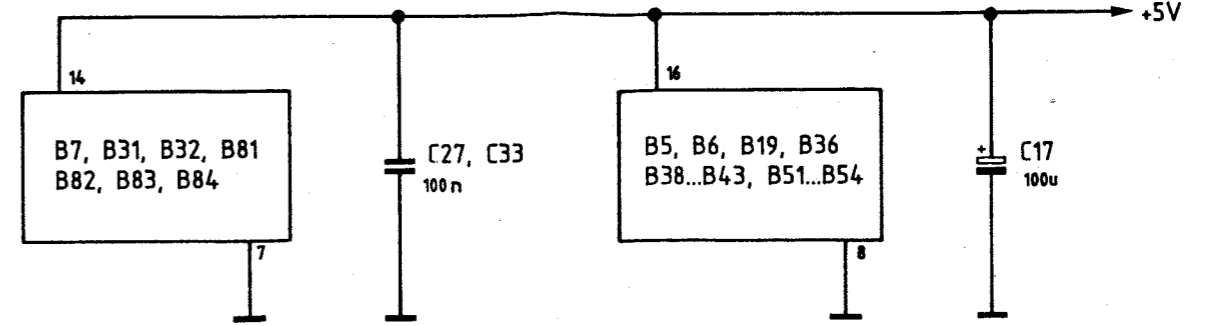
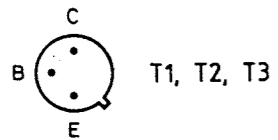
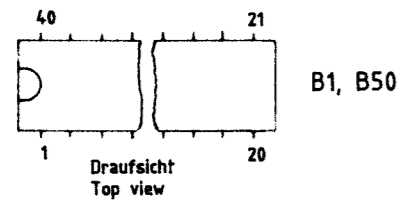
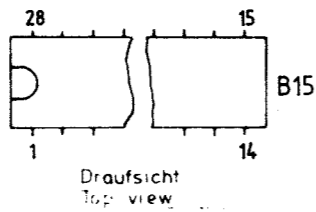
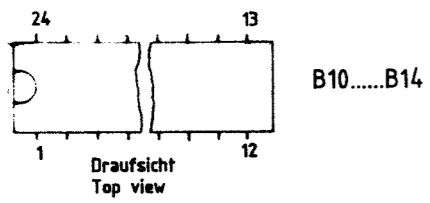
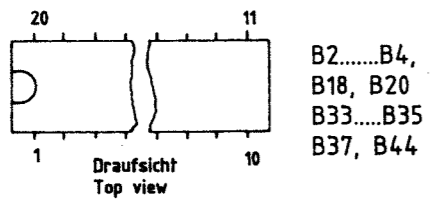
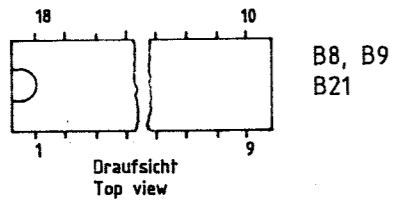
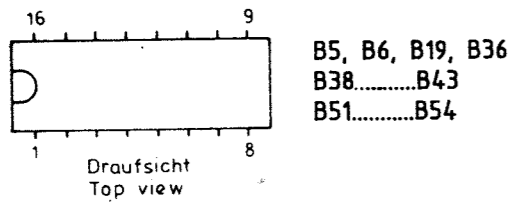
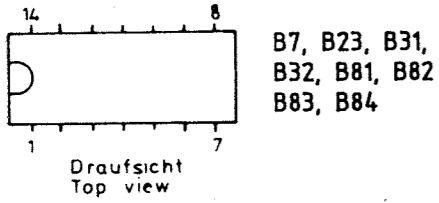
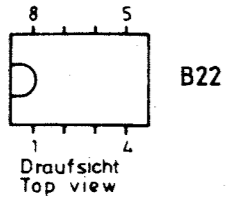
zur Frontplatte
To front panel

Stromlauf gilt für VAR 02, 03, 04, 54
Circuit diagram is valid for model 02, 03, 04, 54

Strobe Ausgabe der Baugruppen
Strobe output of subassemblies

| | | | | | | |
|---|--------|------------|--------------------------------|----------|----------------------|--|
| Stromlauf zu Rechner SMPC / Computer | | | Zeichn-Nr 356.1405 S | | Blatt-Nr 2 | |
| SMPC | reg. V | 355.9519 V | erste Z | 300 1000 | v. Bl. | |

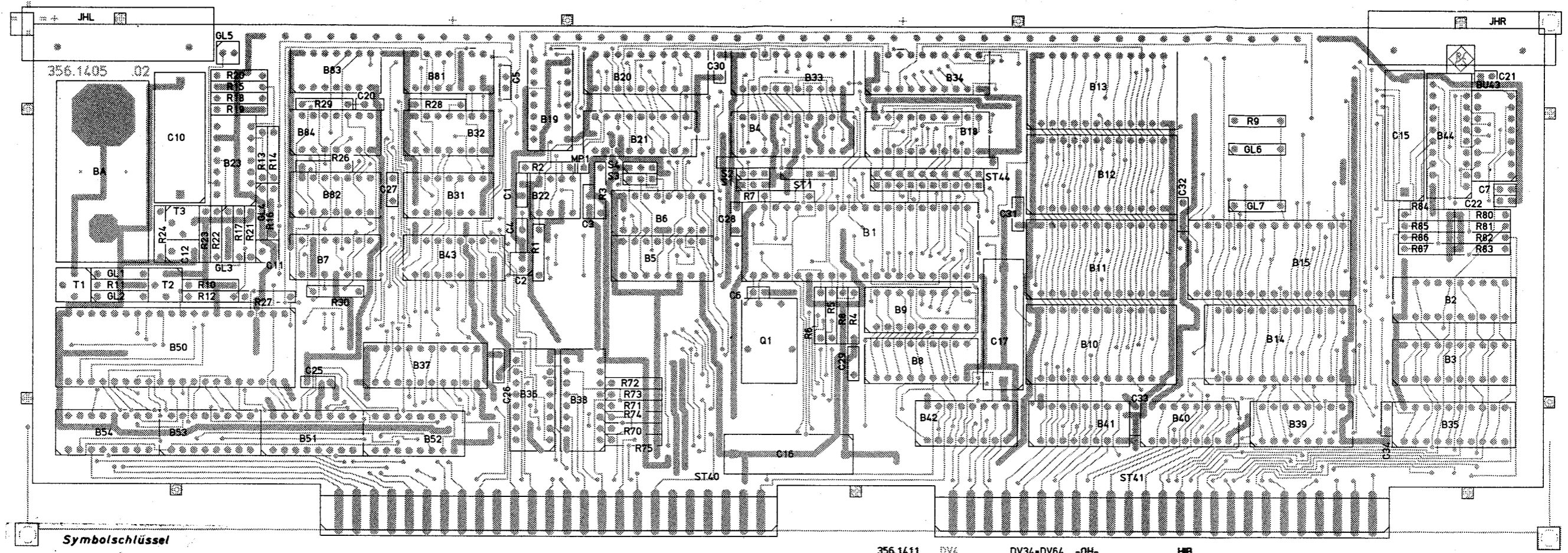
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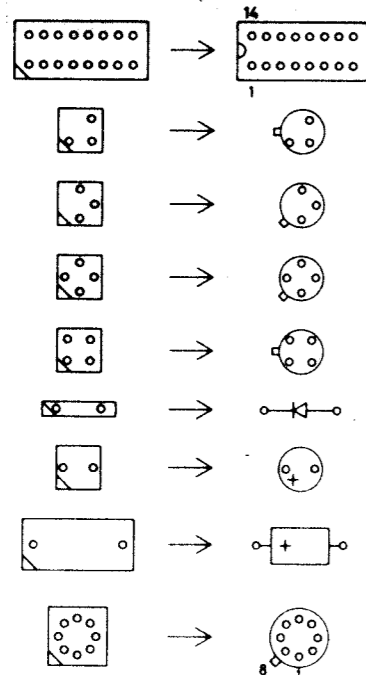
Stromlauf gilt für VAR 02, 03, 04, 54
Circuit diagram is valid for model 02, 03, 04, 54

| | | | | | | | | |
|------------|----------------------|-------|------|---------------|--------------------------|---------|---------------------|-------------------------|
| A | | 31341 | 5.84 | ib | Maße ohne Toleranzangabe | | Maßstab | |
| | | | | | | | Halbzeug, Werkstoff | |
| | | | | | 1KGA | Tag | Name | Benennung |
| | | | | | Bearb | 12.83 | Ls | Rechner SMPC / Computer |
| | | | | | Gepr. | | | |
| | | | | | Norm | | | |
| | | | | | | | Zeichn.-Nr. | |
| | | | | | | | 356.1405 S | |
| And. Zust. | Anderungs-Mitteilung | Tag | Name | zu Gerät SMPC | | reg i V | 355.9519 V | erste Z |
| | | | | | | | 300.1000 | v. 2 Bl. |

Ansicht und Leitungsführung Bauteilseite
View of tracks on component side



Symbolschlüssel

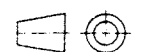


Achtung! MOS - Bauteile
Caution. MOS components

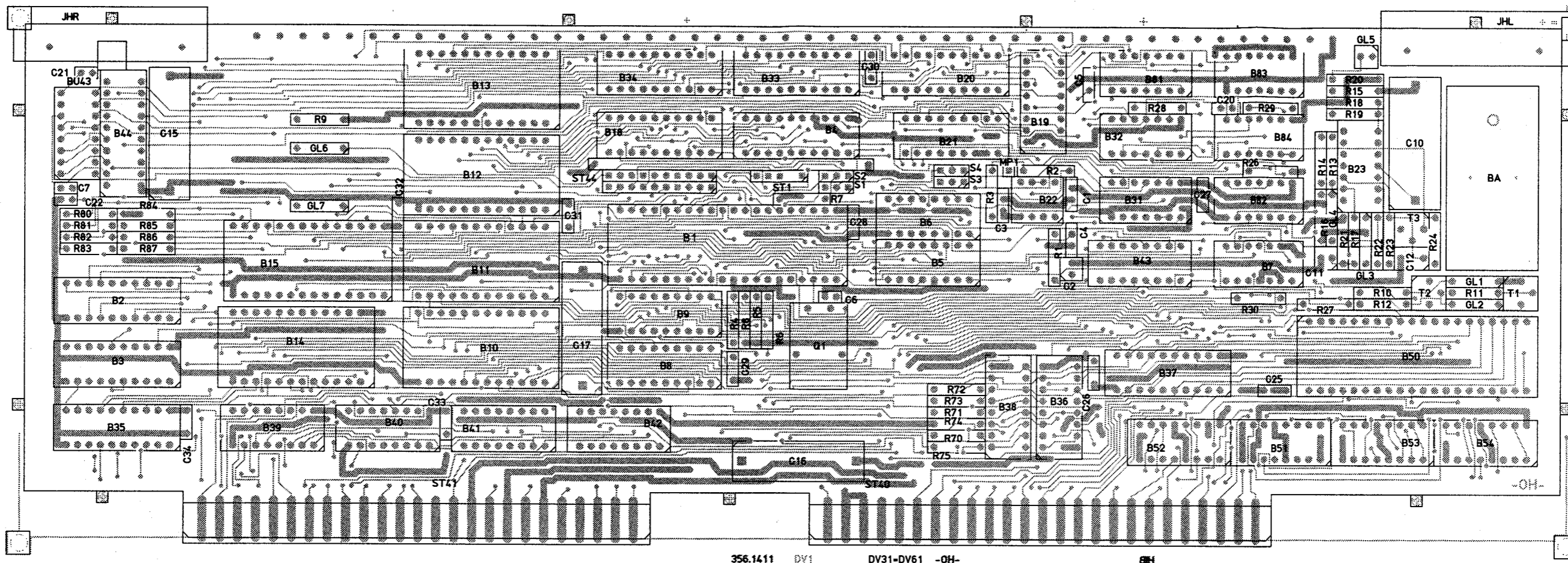
| | | | |
|--------------------------|----------------------|---------------------|-----------|
| Maße ohne Toleranzangabe | | Maßstab 1 : 1 | |
| | | Halbzeug. Werkstoff | |
| 1KGA | Tag | Name | Benennung |
| Bearb. | 1.84 | GS | Rechner |
| Gepr. | | | |
| Norm | | | |
| | | Zeichn.-Nr. | Blatt-Nr. |
| | | 356.1405 | 2 |
| | | 01 | v BI |
| And. Zust. | Anderungs-Mitteilung | Tag | Name |
| | | | |
| zu Gerät SMPC | | reg. i. V. | erste Z. |
| | | 355.9519V | 300.1000 |

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ISO-Projektion Methode E



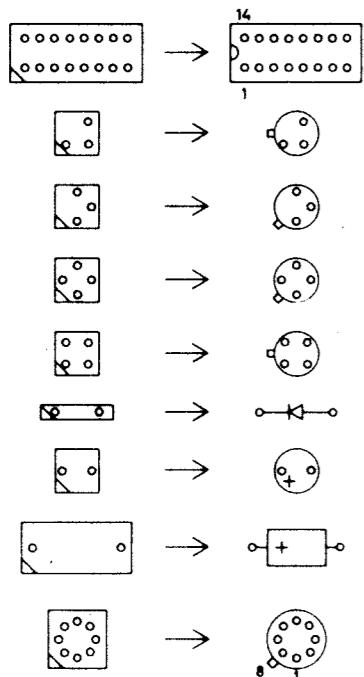
Ansicht und Leitungsführung Lötseite
View of tracks on solder side



356.1411 DV1 DV31-DV61 -0H- GH

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Symbolschlüssel



Achtung! MOS-Bauteile
Caution. MOS components

| | | | | |
|--------------------------|----------------------|------|---------------------|-----------|
| Maße ohne Toleranzangabe | | | Maßstab 1 : 1 | |
| | | | Halbzeug, Werkstoff | |
| 1KGA | Tag | Name | Benennung | |
| Bearb. | 1.84 | GS | Rechner | |
| Gepr. | | | | |
| Norm | | | | |
| | | | Zeichn.-Nr. | Blatt-Nr. |
| | | | 356.1405 | 01 |
| And. Zust. | Anderungs-Mitteilung | Tag | reg. V | v. Bl. |
| | | | 355.9519V | BI |
| | | | erste Z | 300.1000 |

ISO-Projektion
Methode E



ROHDE & SCHWARZ

SERVICE INSTRUCTIONS FOR

FM Stage

300.7014 (Y2)

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Parts list

Circuit diagram

Components location plans

5.1 Circuit Description

(See circuit diagram 300.7014 S and Fig. 5-1)

The FM Stage generates a frequency-modulated 45-MHz signal which is mixed in Y6 (INT III) during FM operation. The subassembly consists of an attenuator for the FM deviation, a phase-controlled 45-MHz oscillator and a control-voltage memory used during FM DC operation.

5.1.1 FM Deviation Setting

During FM AC operation, the $1-V_{rms}$ input signal is fed to the FET switch B2 via a high-pass filter. The filter is short circuited by a relay during FM DC operation. When ΦM or FM with preemphasis (50 and 75 μs) are selected, the corresponding preemphasis is provided by B3 and B4, and when FM is selected, the signal is fed directly to B6 which amplifies the level to $3 V_{rms}$. A multiplying D/A converter B7 with a 10-bit resolution provides the fine adjustment for the deviation. The coarse adjustment is achieved by the switchable fixed dividers 1/1, 2/1, 4/1 and 1/1, 8/1, 64/1. The very high input impedance amplifier B10 decouples the two dividers.

The following amplifier B12 together with R31 sets the FM deviation. In addition, a DC voltage of 6.5 V is added to the modulation signal as bias for the modulation diode.

The modulation signal is coupled out via B13 for modulating the Buffer (Y7).

5.1.2 Oscillator with Control Loop

The active component in the 45-MHz Colpitts oscillator is the high-current FET T9. A varicap diode GL20 provides the FM modulation, its coupling and bias voltage are set by C124 and R105. Frequency tuning is achieved with a second varicap diode GL21. The oscillator's centre frequency is adjusted with C110. The signal is fed to the output socket BU51 via a buffer stage T10, a further amplifier T11 and a low-pass filter. R45 is used to set the output level to (0 ± 1.0) dBm.

The signal from the oscillator, after level conversion by T12 and T13, is divided by 288 in B30 I, B31 and B32 I, and the 10-MHz reference frequency is divided by 64 in B30 II and B32 II. The phase comparison of both divided frequencies occurs in B37. In order to achieve a short response time for the control loop, the loop bandwidth is switchable (0.5 to 30 Hz). The reference frequency, via B34, B35 and B36, is switched between 1.563 and 156.25 kHz as well as the time constant of the control amplifier by B38. The switching process is controlled by the retriggerable monostable B43 II ($\tau = \text{approx. } 120 \text{ ms}$) and the NAND gate B47.

The control voltage is fed to the varicap diode GL21 via the switch B40 which is monitored by the window comparator B41.

5.1.3 Control-voltage Memory for FM DC

In order to minimize the frequency error when switching from FM AC to FM DC operation, the control voltage at the time of switch-over is stored. To this end, a 12-bit D/A converter is driven by a counter.

A 12-bit counter B45, set to zero by a start signal from B43 I, controls the D/A converter B46. The clock for the counter is derived from the reference frequency. The output voltage from the D/A converter is fed, after amplification by B50, to comparator B49 where it is compared with the control voltage. If the output voltage from B50 II is greater than the control voltage, the comparator switches and stops the counter. By adjusting the comparator's off-set with R92 to $-1/2$ LSB, the maximum difference between the two voltages is $\pm 1/2$ LSB of the D/A converter. The tuning voltage is switched from control to memory by B40.

5.2 Checking and Adjusting

5.2.1 Checking and Adjusting the Modulation Distortion and the Deviation

Preparation

- * distortion meter (AF generator) to BU54, modulation frequency of 1 kHz,
- * modulation analyzer to BU51,
- * distortion meter (analyzer input) to AF output of modulation analyzer,
- * oscilloscope to X-Y operation: X-channel to AF signal, Y-channel to distortion meter (output for distorted signal without fundamental).

Checks

Set SMPC to a carrier frequency of 680 MHz and a deviation of 1420 kHz. The deviation at output BU51 is to be (500 ± 15) kHz and modulation distortion K 54 dB down, typically 60 dB. Reduce SMPC's deviation setting to 790 kHz. The deviation at BU51 is now to be (280 ± 8) kHz with a modulation distortion of 60 dB down, typically 66 dB.

Adjustments

Set SMPC to a carrier frequency of 680 MHz and a deviation of 1420 kHz. Minimize the modulation distortion by alternately adjusting R105 and C124. At the same time, hold the deviation constant at (500 ± 50) kHz with R31. Finally, align the deviation of the complete unit according to 4.3.9.

5.2.2 Checking the Frequency Response

Preparation

- connect a voltmeter to MP4,
- connect an AF generator, level set to 1 V_{rms}, to the FM input socket 31.

Set SMPC to carrier frequency of 100 MHz, external FM and a deviation of 20 kHz or 2.5 rad. Measure the relative level D when switched to Φ M and FM with and without preemphasis.

Nominal Levels

FM without preemphasis

| f _{mod} (kHz) | D _{max} (dB) |
|------------------------|-----------------------|
| 0.04 to 53 | 0.02 |
| 53 to 125 | 0.1 |

FM with preemphasis

Reference level is the level at 0.1 kHz, the tolerance is 0.2 dB.

| f _{mod} (kHz) | D (dB) with 50 μ s | D (dB) with 75 μ s |
|------------------------|------------------------|------------------------|
| 0.5 | 0.1 | 0.2 |
| 1 | 0.4 | 0.9 |
| 2 | 1.4 | 2.8 |
| 5 | 5.4 | 8.2 |
| 10 | 11.2 | 13.7 |
| 15 | 13.7 | 16.1 |

Phase modulation

Reference level is the level at 8 kHz, the tolerance is ± 0.2 dB.

| f _{mod} (kHz) | D (dB) |
|------------------------|--------|
| 0.25 | -30 |
| 0.5 | -24 |
| 1 | -18 |
| 2 | -12 |
| 4 | -6 |

5.2.3 Adjusting the Control Voltage

Preparation

- connect an oscilloscope via a probe to MP11.

Set SMPC to 680 MHz and FM/PM off. Adjust the control voltage at MP11 to (6 ± 0.5) kHz with C110.

5.2.4 Setting the Output Level

Preparation

- connect a spectrum analyzer to BU51.

Switch on SMPC and, without modulation, adjust R45 for a level of (0 ± 1) dBm.

5.2.5 Adjusting the Comparator Offset

- connect BR14 and BR15 in positions 2-3,
- connect an oscilloscope to MP12, measurement range 20 mV/div.

Switch on SMPC and adjust R92 to the position where the voltage at MP12 jumps by approximately 10 mV. Reconnect BR14 and BR15 to positions 1-2.

5.3 Troubleshooting

The operation of the AF deviation is checked by the following measurements:

$$f_{\text{SMPC}} = 680 \text{ MHz}, f_{\text{mod}} = 1 \text{ kHz}$$

| Deviation (kHz) | Divider | $V_{\text{MP2}}/V_{\text{rms}}$ | $V_{\text{MP3}}/V_{\text{rms}}$ |
|-----------------|---------|---------------------------------|---------------------------------|
| 1600 - 800 | 1/1 | 3 - 1.5 | 3 - 1.5 |
| 800 - 400 | 2/1 | 3 - 1.5 | 1.5 - 0.75 |
| 400 - 200 | 4/1 | 3 - 1.5 | 0.75 - 0.375 |
| 200 - 100 | 8/1 | 3 - 1.5 | 0.375 - 0.188 |
| 100 - 50 | 16/1 | 3 - 1.5 | 188 - 94 mV |
| 50 - 25 | 32/1 | 3 - 1.5 | 94 - 47 mV |
| 25 - 12.5 | 64/1 | 3 - 1.5 | 47 - 23.5 mV |
| 12.5 - 6.25 | 128/1 | 3 - 1.5 | 23.5 - 11.75 mV |
| 6.25 - 0.01 | 256/1 | 3 - 0.048 | 11.75 - 0.019 mV |

5.3.1 Interface

Digital Interface

| Data bus ST50 | D7 | D6 | D5 | D4 | D3 | D2 | D1 | D0 | Strobe ST60 | |
|---------------|---|-------------------------|-----|----------|---------------------------|--------------------------------|-----|----------------------|-------------|---|
| 1 | .22 | .21 | .20 | .19 | .18 | .17 | .16 | .15 | 1 | |
| 0 | bit 7 ← Deviation fine adjustment H → bit 0 | | | | | | | | .2 | |
| 1 | 1/64 2nd divider | | 1/8 | 1/1 | 1/4 | 1/2 | 1/1 | bit 9 to bit 8 | | 2 |
| 0 | off | | | | 1st divider off | | | | .3 | |
| 1 | off f_{mod} | off with Y7 moded | on | DC FM | 75 μs pree. | FM+pree. type of modulation | | ϕM FM | 3 | |
| 0 | on | on | off | AC | 50 μs | | | off | .4 | |

ST 50.1 alarm output (to microprocessor Y1) 0 = alarm.

Data is transferred from the data bus during an L to H transition of the strobe.

Deviations up to 564.7 kHz can be set. For deviations h from 282.35 to 564.7 kHz, the data word H is given by:

$$H = \frac{h \text{ (kHz)}}{564.7} \times 1023.$$

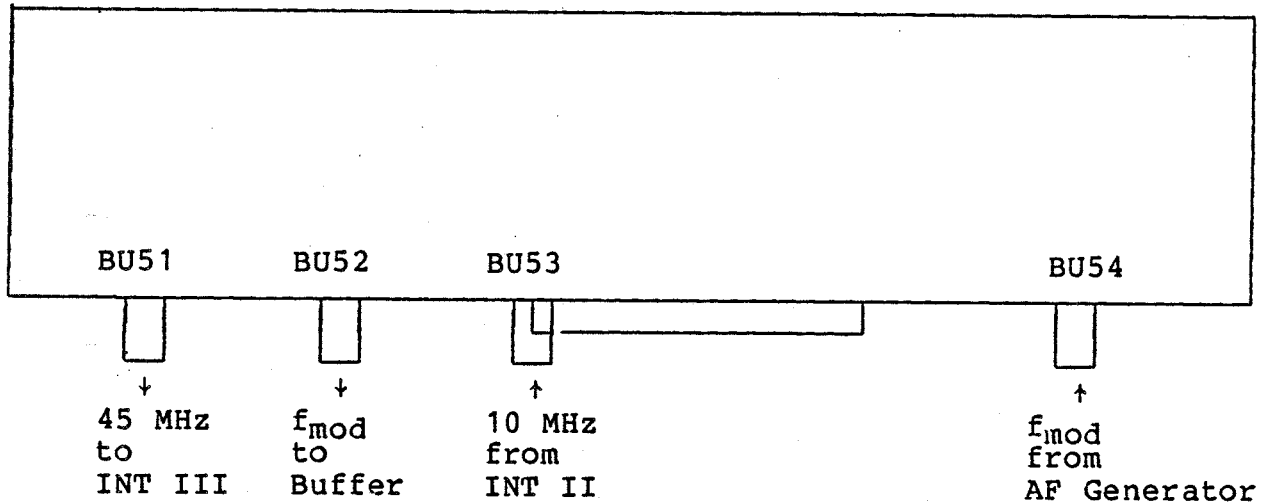
For smaller deviations, sufficient dividers must be switched into circuit so that the undivided deviation lies in this range. The dataword H for the undivided deviation is calculated as above and the required division factors switched in. The factors of both dividers are then multiplied. H is transferred in binary code.

Example: $4.3 \text{ kHz} \times 128 = 550.4 \text{ kHz}$

$$H = \frac{550.4}{564.7} \times 1023 = 997$$

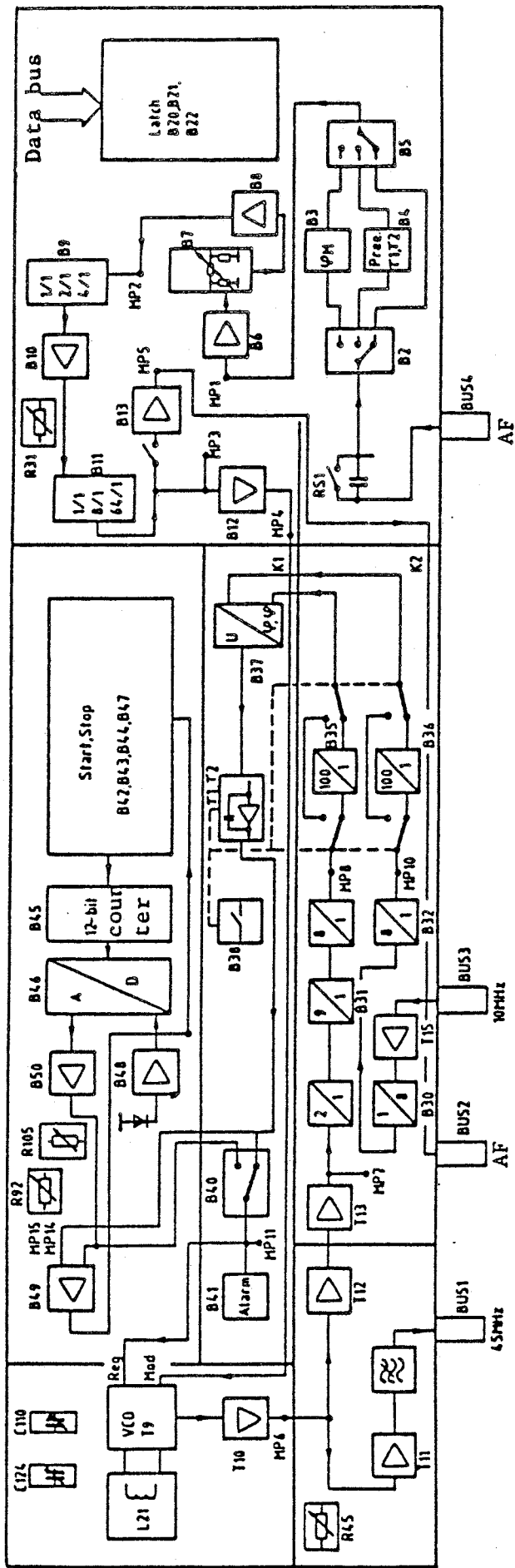
1st divider 1/2, 2nd divider 1/64

Analog Interface



| BU | 51 | 52 | 53 | 54 |
|--------------|-----------------------|------------------------------------|--------------------------------|-----------------------------|
| f | 45 MHz | 10 Hz to 125 MHz | 10 MHz | 10 Hz to 125 kHz |
| Level | $2 \pm 1 \text{ dBm}$ | up to $1.81 \text{ V}_{\text{pp}}$ | $3.5 \text{ V}_{\text{pp}}$ | 1 V_{rms} |
| R_i | 50Ω | 0Ω | $1 \text{ k}\Omega$ approx. | 47 to $470 \text{ k}\Omega$ |
| Coupling | AC | DC | AC | AC/DC |
| Signal shape | sine | sine | square | sine |

Fig. 5-1 Block diagram





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Schalteillisten
Stromläufe
Bestückungspläne
Parts lists
Circuit diagrams
Components plans



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Datum Date 0186

Schaltteilliste für Parts list for ZE FM-STUFE FM STAGE

Sachnummer Stock No. 300.7014.00 SA

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| Kennzeichen Component No. | Benennung/Beschreibung Designation | Sachnummer Stock No. | enthalten in contained in |
|---------------------------|---|----------------------|---------------------------|
| B2 | BJ LF13331N 4X ANALOGSCH ANALOG SWITCH NSC LF13331N | BJ 356.0515 | 300.5057 |
| B3 | BO LF353N 2XFET OPAMP OPERATIONAL AMPLIFIER NSC LF353N | BO 342.2291 | 300.5057 |
| B4 | BO NE5532AFE 2XL.N.OPAMP OPERATIONAL AMPLIFIER VALVO NE5532AFE | BO 356.0450 | 300.5057 |
| B5 | BJ LF13331N 4X ANALOGSCH ANALOG SWITCH NSC LF13331N | BJ 356.0515 | 300.5057 |
| B6 | BO LF156J BIFET OPAMP OPERATIONAL AMPLIFIER MOTOROLA LF 156 J | BO 645.7251 | 300.5057 |
| B7 | BJ AD7533CD 10B.D/A-CONV D/A-CONVERTER ANALOG-DEV AD7533CD | BJ 300.8740 | 300.5057 |
| B8 | BO LF156J BIFET OPAMP OPERATIONAL AMPLIFIER MOTOROLA LF 156 J | BO 645.7251 | 300.5057 |
| B9 | BJ LF13331N 4X ANALOGSCH ANALOG SWITCH NSC LF13331N | BJ 356.0515 | 300.5057 |
| B10 | BO SE5534AFE LOW N.OPAMP OPERATIONAL AMPLIFIER SIGNETICS SE5534AFE | BO 301.3335 | 300.5057 |
| B11 | BJ LF13331N 4X ANALOGSCH ANALOG SWITCH NSC LF13331N | BJ 356.0515 | 300.5057 |
| B12 | BO NE5532AFE 2XL.N.OPAMP OPERATIONAL AMPLIFIER VALVO NE5532AFE | BO 356.0450 | 300.5057 |
| B13 | BO NE5532AFE 2XL.N.OPAMP OPERATIONAL AMPLIFIER VALVO NE5532AFE | BO 356.0450 | 300.5057 |
| B20 | BL SN74LS273N 8BIT-D-REG. 8BIT-D-REGISTER TEXAS SN74LS273N | BL 214.8998 | 300.5057 |
| B21 | BL SN74LS273N 8BIT-D-REG. 8BIT-D-REGISTER TEXAS SN74LS273N | BL 214.8998 | 300.5057 |
| B22 | BL SN74LS273N 8BIT-D-REG. 8BIT-D-REGISTER TEXAS SN74LS273N | BL 214.8998 | 300.5057 |
| B30 | BL SN74S197N 4BIT-COUNTER IC 4BIT-COUNTER SN74S197N TEXAS SN74S197N | BL 334.3570 | 300.5057 |
| B31 | BL SN54S169J 4BIT-COUNTER IC COUNTER SN54S169J TEXAS SN54S169J | BL 302.6638 | 300.5057 |
| B32 | BL SN74LS393N 2XBIN.ZAEHL IC 2XBIN.COUNT.SN74LS393N TEXAS SN74LS393N | BL 300.6982 | 300.5057 |

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| Kennzeichen Component No. | Benennung/Beschreibung Designation | Sachnummer Stock No. | enthalten in contained in |
|------------------------------|--|-------------------------|------------------------------|
| B34 | BL SN74LS02N 4/2INP.NOR IC NOR GATE SN74LS02N TEXAS SN74LS020N | BL 266.4658 | 300.5057 |
| B35 | BL SN74LS390N 2XDEC.COUNT IC DECADE COUNTER SN74LS3 TEXAS SN74LS390N | BL 300.6760 | 300.5057 |
| B36 | BL SN74LS390N 2XDEC.COUNT IC DECADE COUNTER SN74LS3 TEXAS SN74LS390N | BL 300.6760 | 300.5057 |
| B37 | BL 11C44DC PHASE/FREQ.DET PHASE FREQU.DETECTOR FAIRCHILD 11C44PC | BL 300.9481 | 300.5057 |
| B38 | BJ DG201BK 4X ANALOGSCH ANALOG SWITCH SILICONIX DG201BK | BJ 550.1840 | 300.5057 |
| B39 | BO LF156J BIFET OPAMP OPERATIONAL AMPLIFIER MOTOROLA LF 156 J | BO 645.7251 | 300.5057 |
| B40 | BJ DG300CJ 2X ANALOGSCH ANALOG SWITCH SILICONIX DG300CJ | BJ 300.6118 | 300.5057 |
| B41 | BO LM193H 2X COMPAR COMPARATOR NSC LM193H | BO 262.6427 | 300.5057 |
| B42 | BL SN74LS10N 3/3INP.NAND IC NAND GATE SN74LS01N TEXAS SN74LS10N | BL 266.4670 | 300.5057 |
| B43 | BL SN74LS123N 2/MONOFLOP IC MONOFLOP SN74LS85N TEXAS SN74LS123N | BL 235.8468 | 300.5057 |
| B44 | BL SN74LS74AN 2/D-FLIPFL. IC FLIP-FLOP SN74LS74N TEXAS SN74LS74N | BL 266.7934 | 300.5057 |
| B45 | BL CD4040BF 12B. COUNTER COUNTER RCA CD4040BF | BL 495.0642 | 300.5057 |
| B46 | BJ AD7541KN 12B.D/A-CONV D/A-CONVERTER MPS MP-7621/7541KN | BJ 356.0467 | 300.5057 |
| B47 | BL SN74LS00N 4/2INP.NAND IC NAND GATE SN74LS00N TEXAS SN74LS00N | BL 266.4641 | 300.5057 |
| B48 | BO NE5532AFE 2XL.N.OPAMP OPERATIONAL AMPLIFIER VALVO NE5532AFE | BO 356.0450 | 300.5057 |
| B49 | BO CMP01EZ PREC COMPAR COMPARATOR PMI CMP-01EZ | BO 356.0444 | 300.5057 |
| B50 | BO LF412CN 2XFET OPAMP OPERATIONAL AMPLIFIER NSC LF412CN | BO 356.0521 | 300.5057 |
| BR14 | FP KURZSCHLUSSBUCHSE SHORTING PLUG PK 452-70302 | FP 491.7042 | 300.5057 |
| BR15 | FP KURZSCHLUSSBUCHSE SHORTING PLUG PK 452-70302 | FP 491.7042 | 300.5057 |

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| Kennzeichen Component No. | Benennung/Beschreibung Designation | Sachnummer Stock No. | enthalten in contained in |
|------------------------------|---|-------------------------|------------------------------|
| BU1 | FP BUCHSE VERTIKAL P.V.1P SOCKET BERG 75377-001 | FP 278.5577 | 300.5057 |
| BIS/TO BU7 BU10 | FP BUCHSE VERTIKAL P.V.1P SOCKET BERG 75377-001 | FP 278.5577 | 300.5057 |
| BIS/TO BU17 BU51 | FJ EINBAUBUCHSE SYST.SMS FIXED SOCKET RADIALL R.299 012 | 300.6876 | |
| BU52 | FJ EINBAUBUCHSE SYST.SMS FIXED SOCKET RADIALL R.299 012 | 300.6876 | |
| BU53 | FJ EINBAUBUCHSE SYST.SMS FIXED SOCKET RADIALL R.299 012 | 300.6876 | |
| BU54 | FJ EINBAUBUCHSE SYST.SMS FIXED SOCKET RADIALL R.299 012 | 300.6876 | |
| C1 | CK 1UF+-10%50V5RM MKT CAPACITOR WIMA MKS2/50/1UF/10% | CK 099.2998 | 300.5057 |
| C2 | CC 100NF+-10%50V5K1200VIE CAPACITOR UNION CARB CK05BX104K | CC 084.5350 | 300.5057 |
| C3 | CC 100NF+-10%50V5K1200VIE CAPACITOR UNION CARB CK05BX104K | CC 084.5350 | 300.5057 |
| C4 | CE 47UF -10+100%40V 11X13 ELECTROLYTIC CAPACITOR SIEMENS B41316-B7476-Z | 022.7589 | 300.5057 |
| C5 | CE 47UF -10+100%40V 11X13 ELECTROLYTIC CAPACITOR SIEMENS B41316-B7476-Z | 022.7589 | 300.5057 |
| C6 | CC 10NF-20+50%7X8R6000 CAPACITOR VALVO 2222 63051 64051103 | CC 087.7525 | 300.5057 |
| C7 | CK 1UF+-10%50V5RM MKT CAPACITOR WIMA MKS2/50/1UF/10% | CK 099.2998 | 300.5057 |
| C9 | CC 10NF-20+50%7X8R6000 CAPACITOR VALVO 2222 63051 64051103 | CC 087.7525 | 300.5057 |
| C10 | CK 4,7NF+-1%63V6,3X11 KP PLASTIC-FOIL CAPACITOR SIEMENS B33531-A5472-F | CK 283.1701 | 300.5057 |
| C11 | CC 100NF+-10%50V5K1200VIE CAPACITOR UNION CARB CK05BX104K | CC 084.5350 | 300.5057 |
| C12 | CC 100NF+-10%50V5K1200VIE CAPACITOR UNION CARB CK05BX104K | CC 084.5350 | 300.5057 |

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| Kennzeichen Component No. | Benennung/Beschreibung Designation | Sachnummer Stock No. | enthalten in contained in |
|------------------------------|---|-------------------------|------------------------------|
| C15 | CK 1UF+-10%50V5RM MKT CAPACITOR WIMA MKS2/50/1UF/10% | CK 099.2998 | 300.5057 |
| C16 | CE 47UF -10+100%40V 11X13 ELECTROLYTIC CAPACITOR SIEMENS B41316-B7476-Z | 022.7589 | 300.5057 |
| C17 | CE 47UF -10+100%40V 11X13 ELECTROLYTIC CAPACITOR SIEMENS B41316-B7476-Z | 022.7589 | 300.5057 |
| C18 | CC 10NF-20+50%7X8R6000 CAPACITOR VALVO 2222 63051 64051103 | CC 087.7525 | 300.5057 |
| C19 | CK 1,8NF+-1%63V6,3X11 KP PLASTIC-FOIL CAPACITOR SIEMENS B33531-A5182-F | CK 283.1699 | 300.5057 |
| C20 | CK 11NF+-1% 63V 7,5QUAD CAPACITOR SIEMENS B33531-A5113-F | CK 099.1679 | 300.5057 |
| C21 | CK 22NF+-1%63V8X8X11 KP CAPACITOR SIEMENS B33531-A5223-F | CK 213.4553 | 300.5057 |
| C22 | CC 10NF-20+50%7X8R6000 CAPACITOR VALVO 2222 63051 64051103 | CC 087.7525 | 300.5057 |
| C23 | CC 10NF-20+50%7X8R6000 CAPACITOR VALVO 2222 63051 64051103 | CC 087.7525 | 300.5057 |
| C26 | CC 4,7NF+-10%6X9R2000 CAPACITOR VALVO 2222 63051 472 | CC 087.7102 | 300.5057 |
| C27 | CC 1NF+-10%63V K2000 CERAMIC CAPACITOR VALVO 2222 63051 102 | CC 022.0784 | 300.5057 |
| C28 | CC 1NF+-10%63V K2000 CERAMIC CAPACITOR VALVO 2222 63051 102 | CC 022.0784 | 300.5057 |
| C29 | CC 4,7NF+-10%6X9R2000 CAPACITOR VALVO 2222 63051 472 | CC 087.7102 | 300.5057 |
| C30 | CC 4,7NF+-10%6X9R2000 CAPACITOR VALVO 2222 63051 472 | CC 087.7102 | 300.5057 |
| C31 | CC 4,7NF+-10%6X9R2000 CAPACITOR VALVO 2222 63051 472 | CC 087.7102 | 300.5057 |
| C32 | CC 1NF+-10%63V K2000 CERAMIC CAPACITOR VALVO 2222 63051 102 | CC 022.0784 | 300.5057 |
| C33 | CC 8,2PF+-0,25PF3X4NPO CAPACITOR VALVO 2222 678 09828 | CC 087.6412 | 300.5057 |
| C34 | CC 47PF+-2%5X6NPO CAPACITOR VALVO 2222 678 10479 | CC 087.6506 | 300.5057 |
| C35 | CC 4,7NF+-10%6X9R2000 CAPACITOR VALVO 2222 63051 472 | CC 087.7102 | 300.5057 |

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| Kennzeichen Component No. | Benennung/Beschreibung Designation | Sachnummer Stock No. | enthalten in contained in |
|------------------------------|---|-------------------------|------------------------------|
| C36 | CE 47UF -10+100%40V 11X13 ELECTROLYTIC CAPACITOR SIEMENS B41316-B7476-Z | 022.7589 | 300.5057 |
| C37 | CE 47UF -10+100%40V 11X13 ELECTROLYTIC CAPACITOR SIEMENS B41316-B7476-Z | 022.7589 | 300.5057 |
| C38 | CC 100NF+-10%50V5K1200VIE CAPACITOR UNION CARB CK05BX104K | CC 084.5350 | 300.5057 |
| C39 | CC 100NF+-10%50V5K1200VIE CAPACITOR UNION CARB CK05BX104K | CC 084.5350 | 300.5057 |
| C40 | CC 4,7NF+-10%6X9R2000 CAPACITOR VALVO 2222 63051 472 | CC 087.7102 | 300.5057 |
| C41 | CC 4,7NF+-10%6X9R2000 CAPACITOR VALVO 2222 63051 472 | CC 087.7102 | 300.5057 |
| C42 | CC 22PF+-2%4X5NPO CAPACITOR VALVO 2222 678 10229 | CC 087.6464 | 300.5057 |
| C43 | CC 4,7NF+-10%6X9R2000 CAPACITOR VALVO 2222 63051 472 | CC 087.7102 | 300.5057 |
| C44 | CC 4,7NF+-10%6X9R2000 CAPACITOR VALVO 2222 63051 472 | CC 087.7102 | 300.5057 |
| C45 | CC 4,7NF+-10%6X9R2000 CAPACITOR VALVO 2222 63051 472 | CC 087.7102 | 300.5057 |
| C46 | CC 10NF-20+50%7X8R6000 CAPACITOR VALVO 2222 63051 64051103 | CC 087.7525 | 300.5057 |
| C47 | CC 10NF-20+50%7X8R6000 CAPACITOR VALVO 2222 63051 64051103 | CC 087.7525 | 300.5057 |
| C48 | CC 10NF-20+50%7X8R6000 CAPACITOR VALVO 2222 63051 64051103 | CC 087.7525 | 300.5057 |
| C49 | CC 10NF-20+50%7X8R6000 CAPACITOR VALVO 2222 63051 64051103 | CC 087.7525 | 300.5057 |
| C50 | CC 10NF-20+50%7X8R6000 CAPACITOR VALVO 2222 63051 64051103 | CC 087.7525 | 300.5057 |
| C51 | CC 10NF-20+50%7X8R6000 CAPACITOR VALVO 2222 63051 64051103 | CC 087.7525 | 300.5057 |
| C52 | CC 100NF+-10%50V5K1200VIE CAPACITOR UNION CARB CK05BX104K | CC 084.5350 | 300.5057 |
| C54 | CC 10NF-20+50%7X8R6000 CAPACITOR VALVO 2222 63051 64051103 | CC 087.7525 | 300.5057 |
| C55 | CC 10NF-20+50%7X8R6000 CAPACITOR VALVO 2222 63051 64051103 | CC 087.7525 | 300.5057 |

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 Schalteilliste für
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| Kennzeichen Component No. | Benennung/Beschreibung Designation | Sachnummer Stock No. | enthalten in contained in |
|------------------------------|--|-------------------------|------------------------------|
| C56 | CE 47UF -10+100%40V 11X13 ELECTROLYTIC CAPACITOR SIEMENS B41316-B7476-Z | 022.7589 | 300.5057 |
| C57 | CC 1,5NF+-10%4X5R2000 CAPACITOR VALVO 2222 63051 152 | CC 087.7048 | 300.5057 |
| C58 | CC 680PF+-10%4X5R2000 CAPACITOR VALVO 2222 63051 681 | CC 087.7019 | 300.5057 |
| C59 | CC 15PF+-2%3X4NPO CAPACITOR VALVO 2222 678 10159 | CC 087.6441 | 300.5057 |
| C60 | CC 1NF+-10%63V K2000 CERAMIC CAPACITOR VALVO 2222 63051 102 | CC 022.0784 | 300.5057 |
| C61 | CC 4,7NF+-10%6X9R2000 CAPACITOR VALVO 2222 63051 472 | CC 087.7102 | 300.5057 |
| C62 | CC 4,7NF+-10%6X9R2000 CAPACITOR VALVO 2222 63051 472 | CC 087.7102 | 300.5057 |
| C63 | CC 10NF-20+50%7X8R6000 CAPACITOR VALVO 2222 63051 64051103 | CC 087.7525 | 300.5057 |
| C64 | CC 10NF-20+50%7X8R6000 CAPACITOR VALVO 2222 63051 64051103 | CC 087.7525 | 300.5057 |
| C65 | CK 1UF+-10%50V5RM MKT CAPACITOR WIMA MKS2/50/1UF/10% | CK 099.2998 | 300.5057 |
| C66 | CE 22 UF+-20% 6V 7X 4X 8 ELECTROLYTIC CAPACITOR ERO-TANTAL TA-ELKO,ETR2-22/6 | CE 022.8033 | 300.5057 |
| C67 | CC 100NF+-10%50V5K1200VIE CAPACITOR UNION CARB CK05BX104K | CC 084.5350 | 300.5057 |
| C68 | CC 100NF+-10%50V5K1200VIE CAPACITOR UNION CARB CK05BX104K | CC 084.5350 | 300.5057 |
| C69 | CK 1UF+-10%50V5RM MKT. CAPACITOR WIMA MKS2/50/1UF/10% | CK 099.2998 | 300.5057 |
| C70 | CK 33NF+-5%63V5RM MKT CAPACITOR WIMA MKS2/63/0,033UF/5% | CK 099.2900 | 300.5057 |
| C71 | CK 470NF+-5%63V5RM MKT CAPACITOR WIMA MKS2/63/0,47UF/5% | CK 099.2975 | 300.5057 |
| C72 | CC 10NF-20+50%7X8R6000 CAPACITOR VALVO 2222 63051 64051103 | CC 087.7525 | 300.5057 |
| C73 | CC 10NF-20+50%7X8R6000 CAPACITOR VALVO 2222 63051 64051103 | CC 087.7525 | 300.5057 |
| C74 | CC 10NF-20+50%7X8R6000 CAPACITOR VALVO 2222 63051 64051103 | CC 087.7525 | 300.5057 |



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| Kennzeichen Component No. | Benennung/Beschreibung Designation | Sachnummer Stock No. | enthalten in contained in |
|------------------------------|---|-------------------------|------------------------------|
| C75 | CE 47UF -10+100%40V 11X13 ELECTROLYTIC CAPACITOR SIEMENS B41316-B7476-Z | 022.7589 | 300.5057 |
| C76 | CC 1NF+-10%63V K2000 CERAMIC CAPACITOR VALVO 2222 63051 102 | CC 022.0784 | 300.5057 |
| C77 | CK 1UF+-10%50V5RM MKT CAPACITOR WIMA MKS2/50/1UF/10% | CK 099.2998 | 300.5057 |
| C78 | CE 47UF -10+100%40V 11X13 ELECTROLYTIC CAPACITOR SIEMENS B41316-B7476-Z | 022.7589 | 300.5057 |
| C79 | CC 82PF+-2%6X7NPO CAPACITOR VALVO 2222 678 10829 | CC 087.6535 | 300.5057 |
| C82 | CC 10NF-20+50%7X8R6000 CAPACITOR VALVO 2222 63051 64051103 | CC 087.7525 | 300.5057 |
| C84 | CC 1NF+-10%63V K2000 CERAMIC CAPACITOR VALVO 2222 63051 102 | CC 022.0784 | 300.5057 |
| C85 | CK 1UF+-10%50V5RM MKT CAPACITOR WIMA MKS2/50/1UF/10% | CK 099.2998 | 300.5057 |
| C86 | CK 1UF+-10%50V5RM MKT CAPACITOR WIMA MKS2/50/1UF/10% | CK 099.2998 | 300.5057 |
| C87 | CC 150PF+-2%5X6N750 CAPACITOR VALVO 2222 678 58151 | CC 087.6929 | 300.5057 |
| C88 | CC 150PF+-2%5X6N750 CAPACITOR VALVO 2222 678 58151 | CC 087.6929 | 300.5057 |
| C89 | CC 1NF+-10%63V K2000 CERAMIC CAPACITOR VALVO 2222 63051 102 | CC 022.0784 | 300.5057 |
| C90 | CC 150PF+-2%5X6N750 CAPACITOR VALVO 2222 678 58151 | CC 087.6929 | 300.5057 |
| C91 | CC 10NF-20+50%7X8R6000 CAPACITOR VALVO 2222 63051 64051103 | CC 087.7525 | 300.5057 |
| C92 | CE 47UF -10+100%40V 11X13 ELECTROLYTIC CAPACITOR SIEMENS B41316-B7476-Z | 022.7589 | 300.5057 |
| C93 | CC 100NF+-10%50V5K1200VIE CAPACITOR UNION CARB CK05BX104K | CC 084.5350 | 300.5057 |
| C94 | CC 10NF-20+50%7X8R6000 CAPACITOR VALVO 2222 63051 64051103 | CC 087.7525 | 300.5057 |
| C96 | CC 100NF+-10%50V5K1200VIE CAPACITOR UNION CARB CK05BX104K | CC 084.5350 | 300.5057 |
| C97 | CC 100NF+-10%50V5K1200VIE CAPACITOR UNION CARB CK05BX104K | CC 084.5350 | 300.5057 |

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|------------------------------|--|-------------------------|------------------------------|
| C100 | CC 10NF-20+50%7X8R6000 CAPACITOR VALVO 2222 63051 64051103 | CC 087.7525 | 300.5057 |
| C101 | CC 100NF+-10%50V5K1200VIE CAPACITOR UNION CARB CK05BX104K | CC 084.5350 | 300.5057 |
| C103 | CC 10NF-20+50%7X8R6000 CAPACITOR VALVO 2222 63051 64051103 | CC 087.7525 | 300.5057 |
| C110 | CT 9PF 250V LUFTTR.KONZ. AIR TRIMMER TEKELEC AT 5276 | 564.6885 | 300.5057 |
| C111 | CC 27 PF 2% NPO/IA 3 ROHR CERAMIC CAPACITOR DRALORIC NPO/IA27/2RD3X12LC | 022.2341 | 300.5057 |
| C112 | CC 10NF-20+50%7X8R6000 CAPACITOR VALVO 2222 63051 64051103 | CC 087.7525 | 300.5057 |
| C113 | CC 18 PF+-2% NPO/IA3ROHR CERAMIC CAPACITOR DRALORIC NPO/IA18/2RD3X10LC | 022.2329 | 300.5057 |
| C114 | CC 3,3PF+-0,25PF5NPO CAPACITOR STETTNER SDPL5;3,3PF/0,25NPO | 450.6912 | 300.5057 |
| C115 | CC 10NF-20+50%7X8R6000 CAPACITOR VALVO 2222 63051 64051103 | CC 087.7525 | 300.5057 |
| C116 | CK 1UF+-10%50V5RM MKT CAPACITOR WIMA MKS2/50/1UF/10% | CK 099.2998 | 300.5057 |
| C117 | CC 150PF+-2%5X6N750 CAPACITOR VALVO 2222 678 58151 | CC 087.6929 | 300.5057 |
| C118 | CC 100PF 1% N470/IA 3ROHR CERAMIC CAPACITOR DRALORIC N47/IA100/1RD3X16LC | 022.3090 | 300.5057 |
| C119 | CC 68PF 1% N470/IA 3ROHR CERAMIC CAPACITOR DRALORIC N470/IA68/1RD3X12LC | 022.3077 | 300.5057 |
| C121 | CE 47UF -10+100%40V 11X13 ELECTROLYTIC CAPACITOR SIEMENS B41316-B7476-Z | 022.7589 | 300.5057 |
| C122 | CC 4,7NF+-10%6X9R2000 CAPACITOR VALVO 2222 63051 472 | CC 087.7102 | 300.5057 |
| C123 | CC 4,7PF+-0,25PF3X4NPO CAPACITOR VALVO 2222 678 09478 | CC 087.6387 | 300.5057 |
| C124 | CT 13PF TAUCHTR.RD7X12 AIR-TYPE TRIMMER | CT 092.4266 | 300.5057 |
| D1 | LD 35DB/200M-10GHZ PI-FIL CHOKE ERIE 1214-038 | LD 300.6818 | 300.5070 |
| BIS/T0 | | | |

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Component No.

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Designation

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enthalten in
contained in

D7
D10

LD 350B/200M-10GHZ PI-FIL
CHOKE
ERIE 1214-038

LD 300.6818

300.5070

BIS/TO
D17

GL7

AE 5082-2800 SCHOTTKYDI
DIODE

AE 012.9066

300.5057

HEWLETT-P. 5082-2800

GL8

AE 5082-2800 SCHOTTKYDI
DIODE

AE 012.9066

300.5057

HEWLETT-P. 5082-2800

GL9

AD 1N4448 75V 0,15A UDI
DIODE

AD 012.0700

300.5057

VALVO 1N4448

GL10

AE 1N827 6,2V REF. DI
REFERENCE DIODE

AE 418.0029

300.5057

CDI 1N827

GL11

AD 1N4448 75V 0,15A UDI
DIODE

AD 012.0700

300.5057

VALVO 1N4448

GL12

AD 1N4448 75V 0,15A UDI
DIODE

AD 012.0700

300.5057

VALVO 1N4448

GL13

AD 1N4448 75V 0,15A UDI
DIODE

AD 012.0700

300.5057

VALVO 1N4448

GL14

AD 1N4448 75V 0,15A UDI
DIODE

AD 012.0700

300.5057

VALVO 1N4448

GL20

AE BB312 SELEKT.
TUNING DIODE

356.0715

300.5057

GL21

AE BB405B 11/ 2PF CDI
TUNING DIODE

AE 596.6839

300.5057

VALVO 6B405B

K1

DX KABEL
CABLE

356.0596

300.5057

K2

DX KABEL
CABLE

356.0609

300.5057

L2

LD 10,0UH10%3,300HMO,144A
CHOKE

LD 026.4184

300.5057

DELEVAN DROSSEL1025-44

L10

LD 0,82UH10%0,850HMO,420A
CHOKE

LD 067.2857

300.5057

DELEVAN DROSSEL1025-18

L11

LD 0,22UH10%0,140HM1,045A
CHOKE

LD 067.2786

300.5057

DELEVAN DROSSEL1025-04

L12

LD 10,0UH10%3,300HMO,144A
CHOKE

LD 026.4184

300.5057

DELEVAN DROSSEL1025-44

L20

LD 10,0UH10%3,300HMO,144A
CHOKE

LD 026.4184

300.5057

DELEVAN DROSSEL1025-44

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| L21 | LK 0,7UH SPULE COIL | 356.0509 | 300.5057 |
| L22 | LD 10,0UH10%3,300HMO,144A CHOKE DELEVAN DROSSEL1025-44 | LD 026.4184 | 300.5057 |
| L24 | LD 33,0UH10%3,400HMO,130A CHOKE DELEVAN DROSSEL 1025-56 | LD 067.3047 | 300.5057 |
| L25 | LD 0,56UH10%0,500HMO,550A CHOKE DELEVAN DROSSEL1025-14 | LD 067.2834 | 300.5057 |
| L26 | LD 33,0UH10%3,400HMO,130A CHOKE DELEVAN DROSSEL 1025-56 | LD 067.3047 | 300.5057 |
| L27 | LD 10,0UH10%3,300HMO,144A CHOKE DELEVAN DROSSEL1025-44 | LD 026.4184 | 300.5057 |
| MP1 | VL WIRE-WRAP PIN BERG NR. 75 403-001 | VL 088.4507 | 300.5057 |
| BIS/TO | | | |
| MP8 | | | |
| MP10 | VL WIRE-WRAP PIN BERG NR. 75 403-001 | VL 088.4507 | 300.5057 |
| MP11 | VL WIRE-WRAP PIN BERG NR. 75 403-001 | VL 088.4507 | 300.5057 |
| MP12 | VL WIRE-WRAP PIN BERG NR. 75 403-001 | VL 088.4507 | 300.5057 |
| MP14 | FP INDIREKT.STECKERL.36P. PIN CONNECTOR BERG 75160-102-36 | FP 242.3600 | 300.5057 |
| MP15 | FP INDIREKT.STECKERL.36P. PIN CONNECTOR BERG 75160-102-36 | FP 242.3600 | 300.5057 |
| R1 | RL 0,35W 10,0 OHM+-1%TK50 RESISTOR DRALORIC SMA0207/10OHM-F-D | RL 082.8852 | 300.5057 |
| R2 | RL 0,35W 475 KOHM+-1%TK50 RESISTOR DRALORIC SMA/207/475K-F-C | RL 083.2593 | 300.5057 |
| R3 | RL 0,35W 15,0KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/15K-F-D | RL 083.1400 | 300.5057 |
| R4 | RL 0,35W4,22KOHM+-0,1%T25 RESISTOR | RL 084.2345 | 300.5057 |
| R5 | RL 0,35W 3,01KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/3,01K-F-D | RL 083.0961 | 300.5057 |
| R6 | RL 0,35W2,26KOHM+-0,1%T25 RESISTOR | RL 083.9823 | 300.5057 |
| R8 | RL 0,35W562 OHM+-0,1%TK25 RESISTOR DRALORIC SMA/207/562/HM-B-E | RL 083.8662 | 300.5057 |
| R9 | RL 0,35W 1MOHM+-1%TK50 RESISTOR DRALORIC SMA0207/1M-F-D | RL 082.7862 | 300.5057 |

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| Kennzeichen Component No. | Benennung/Beschreibung Designation | Sachnummer Stock No. | enthalten in contained in |
|------------------------------|--|-------------------------|------------------------------|
| R10 | RL 0,35W 1KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/1K-F-C | RL 082.2160 | 300.5057 |
| R11 | RL 0,35W 10,0KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/10K-F-D | RL 083.1297 | 300.5057 |
| R14 | RL 0,35W2KOHM+-0,1%TK25 RESISTOR DRALORIC SMA0207/2,00K-B-E | RL 083.9723 | 300.5057 |
| R15 | RL 0,35W2KOHM+-0,1%TK25 RESISTOR DRALORIC SMA0207/2,00K-B-E | RL 083.9723 | 300.5057 |
| R16 | RL 0,35W2KOHM+-0,1%TK25 RESISTOR DRALORIC SMA0207/2,00K-B-E | RL 083.9723 | 300.5057 |
| R17 | RL 0,35W2KOHM+-0,1%TK25 RESISTOR DRALORIC SMA0207/2,00K-B-E | RL 083.9723 | 300.5057 |
| R18 | RL 0,35W2KOHM+-0,1%TK25 RESISTOR DRALORIC SMA0207/2,00K-B-E | RL 083.9723 | 300.5057 |
| R19 | RL 0,35W100 OHM+-0,1%TK25 RESISTOR DRALORIC SMA0207/100OHM-B-E | RL 083.7220 | 300.5057 |
| R20 | RL 0,35W1,40KOHM+-0,1%T25 RESISTOR DRALORIC SMA0207/1,40K-B-E | RL 083.9423 | 300.5057 |
| R21 | RL 0,35W1,40KOHM+-0,1%T25 RESISTOR DRALORIC SMA0207/1,40K-B-E | RL 083.9423 | 300.5057 |
| R22 | RL 0,35W11,1KOHM+-0,1%T25 RESISTOR DRALORIC SMA0207/11,1K-B-E | RL 084.3158 | 300.5057 |
| R23 | RL 0,35W11,3KOHM+-0,1%T25 RESISTOR DRALORIC SMA0207/11,3K-B-E | RL 084.3164 | 300.5057 |
| R26 | RL 0,35W4,70KOHM+-0,1%T25 RESISTOR DRALORIC SMA0207/4,70K-B-E | RL 084.2439 | 300.5057 |
| R27 | RL 0,35W 5,62KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/5,62K-F-C | RL 082.2190 | 300.5057 |
| R28 | RL 0,35W499 OHM+-0,1%TK25 RESISTOR DRALORIC SMA/207/499OHM-B-E | RL 083.8562 | 300.5057 |
| R29 | RL 0,35W4,70KOHM+-0,1%T25 RESISTOR DRALORIC SMA0207/4,70K-B-E | RL 084.2439 | 300.5057 |
| R30 | RL 0,35W10,5KOHM+-0,1%T25 RESISTOR DRALORIC SMA0207/10,5K-B-E | RL 084.3106 | 300.5057 |
| R31 | RS 0,5W5KOHM+-10%10X10X5 CERMET POTENTIOMETER BOURNS 3386X-1-502 | RS 247.7978 | 300.5057 |
| R32 | RL 0,35W 4,12KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/4,12K-F-D | RL 083.1051 | 300.5057 |

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|------------------------------|--|-------------------------|------------------------------|
| R33 | RL 0,35W3,40KOHM+-0,1%T25 RESISTOR DRALORIC SMA0207/3,40K-B-E | RL 084.2168 | 300.5057 |
| R34 | RL 0,35W 221 OHM+-1%TK50 RESISTOR DRALORIC SMA0207/2210HM-F-D | RL 083.0084 | 300.5057 |
| R35 | RL 0,35W4,99KOHM+-0,1%T25 RESISTOR DRALORIC SMA0207/4,99K-B-E | RL 084.2480 | 300.5057 |
| R36 | RL 0,35W20,5KOHM+-0,1%T25 RESISTOR DRALORIC SMA0207/20,5K-B-E | RL 084.3664 | 300.5057 |
| R37 | RL 0,35W 47,5KOHM+-1%TK50 RESISTOR DRALORIC SMA/207/47,5K-F-C | RL 083.1800 | 300.5057 |
| R38 | RL 0,35W3,24KOHM+-0,1%T25 RESISTOR DRALORIC 0207 3,24KOHM 0,1% | RL 084.2122 | 300.5057 |
| R39 | RL 0,35W1,62KOHM+-0,1%T25 RESISTOR DRALORIC 0207 1,62KOHM 0,1% | RL 083.9546 | 300.5057 |
| R42 | RL 0,35W 100KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/100K-F-C | RL 082.1764 | 300.5057 |
| R43 | RL 0,35W 332 KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/332K-F-C | RL 083.2441 | 300.5057 |
| R44 | RL 0,35W 82,5KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/82,5K-F-C | RL 082.2302 | 300.5057 |
| R45 | RS 0,5W1KOHM+-10%10X10X5 CERMET POTENTIOMETER T BOURNS 3386F-1-102 | RS 087.7560 | 300.5057 |
| R46 | RL 0,35W 82,5KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/82,5K-F-C | RL 082.2302 | 300.5057 |
| R47 | RL 0,35W 221 OHM+-1%TK50 RESISTOR DRALORIC SMA0207/2210HM-F-D | RL 083.0084 | 300.5057 |
| R48 | RL 0,35W 221 OHM+-1%TK50 RESISTOR DRALORIC SMA0207/2210HM-F-D | RL 083.0084 | 300.5057 |
| R49 | RL 0,35W 182 KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/182K-F-C | RL 083.2193 | 300.5057 |
| R50 | RL 0,35W 221 OHM+-1%TK50 RESISTOR DRALORIC SMA0207/2210HM-F-D | RL 083.0084 | 300.5057 |
| R51 | RL 0,35W 121KOHM+-1%TK50 RESISTOR DRALORIC SMA/207/121K-F-C | RL 083.2070 | 300.5057 |
| R52 | RL 0,35W 82,5KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/82,5K-F-C | RL 082.2302 | 300.5057 |
| R53 | RL 0,35W 221 OHM+-1%TK50 RESISTOR DRALORIC SMA0207/2210HM-F-D | RL 083.0084 | 300.5057 |

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| R54 | RL 0,35W 274 OHM+-1%TK50 RESISTOR DRALORIC SMA0207/2740HM-F-D | RL 083.0178 | 300.5057 |
| R55 | RL 0,35W 681 OHM+-1%TK50 RESISTOR DRALORIC SMA0207/6810HM-F-D | RL 083.0490 | 300.5057 |
| R56 | RL 0,35W 33,2 OHM+-1%TK50 RESISTOR DRALORIC SMA0207/33,20HM-F-D | RL 082.9359 | 300.5057 |
| R57 | RL 0,35W 82,5 OHM+-1%TK50 RESISTOR DRALORIC SMA0207/82,50HM-F-D | RL 082.9707 | 300.5057 |
| R58 | RL 0,35W 681 OHM+-1%TK50 RESISTOR DRALORIC SMA0207/6810HM-F-D | RL 083.0490 | 300.5057 |
| R59 | RL 0,35W 130 OHM+-1%TK50 RESISTOR DRALORIC SMA0207/1300HM-F-D | RL 082.9888 | 300.5057 |
| R60 | RL 0,35W 562 OHM+-1%TK50 RESISTOR DRALORIC SMA0207/5620HM-F-D | RL 083.0461 | 300.5057 |
| R61 | RL 0,35W 274 OHM+-1%TK50 RESISTOR DRALORIC SMA0207/2740HM-F-D | RL 083.0178 | 300.5057 |
| R62 | RL 0,35W 33,2 OHM+-1%TK50 RESISTOR DRALORIC SMA0207/33,20HM-F-D | RL 082.9359 | 300.5057 |
| R63 | RL 0,35W 681 OHM+-1%TK50 RESISTOR DRALORIC SMA0207/6810HM-F-D | RL 083.0490 | 300.5057 |
| R64 | RL 0,35W 82,5 OHM+-1%TK50 RESISTOR DRALORIC SMA0207/82,50HM-F-D | RL 082.9707 | 300.5057 |
| R65 | RL 0,35W 604 OHM+-1%TK50 RESISTOR DRALORIC SMA/207/6040HM-F-C | RL 082.2425 | 300.5057 |
| R66 | RL 0,35W 698 OHM+-1%TK50 RESISTOR DRALORIC SMA0207/6980HM-F-D | RL 083.0503 | 300.5057 |
| R67 | RL 0,35W 1KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/1K-F-C | RL 082.2160 | 300.5057 |
| R68 | RL 0,35W 15,0KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/15K-F-D | RL 083.1400 | 300.5057 |
| R70 | RL 0,35W 825 KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/825K-F-C | RL 083.2812 | 300.5057 |
| R71 | RL 0,35W 825 OHM+-1%TK50 RESISTOR DRALORIC SMA 0207/8250HM-F-C | RL 082.2502 | 300.5057 |
| R72 | RL 0,35W 33,2KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/33,2K-F-C | RL 083.1674 | 300.5057 |
| R73 | RL 0,35W 33,2KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/33,2K-F-C | RL 083.1674 | 300.5057 |

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|------------------------------|---|-------------------------|------------------------------|
| R74 | RL 0,35W 825 OHM+-1%TK50 RESISTOR DRALORIC SMA 0207/825OHM-F-C | RL 082.2502 | 300.5057 |
| R75 | RL 0,35W 6,81KOHM+-1%TK50 RESISTOR DRALORIC SMA 0207/6,81K-F-C | RL 082.2560 | 300.5057 |
| R76 | RL 0,35W 332 KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/332K-F-C | RL 083.2441 | 300.5057 |
| R77 | RL 0,35W 8,25KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/8,25K-F-D | RL 083.1239 | 300.5057 |
| R78 | RL 0,35W 1KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/1K-F-C | RL 082.2160 | 300.5057 |
| R79 | RL 0,35W 100 OHM+-1%TK50 DEPOS.-CARBON RESISTOR DRALORIC SMA0207/100/HM-F-D | RL 082.6543 | 300.5057 |
| R80 | RL 0,35W 22,1KOHM+-1%TK50 RESISTOR DRALORIC SMA/207/22,1K-F-C | RL 083.1545 | 300.5057 |
| R81 | RL 0,35W 2,21KOHM+-1%TK50 RESISTOR DRALORIC SMA 0207/2,21K-F-C | RL 082.2477 | 300.5057 |
| R82 | RL 0,35W 33,2KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/33,2K-F-C | RL 083.1674 | 300.5057 |
| R83 | RL 0,35W 1KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/1K-F-C | RL 082.2160 | 300.5057 |
| R84 | RL 0,35W 2,49KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/2,49K-F-D | RL 083.0890 | 300.5057 |
| R85 | RL 0,35W 9,53KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/9,53K-F-C | RL 082.1735 | 300.5057 |
| R86 | RL 0,35W 2,00KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/2,00K-F-D | RL 083.0826 | 300.5057 |
| R91 | RL 0,35W 3,32KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/3,32K-F-D | RL 083.0990 | 300.5057 |
| R92 | RS 0,5W100KOHM+-10%10X10X CERMET POTENTIOMETER T BOURNS 3386F 100KOHM | RS 087.7583 | 300.5057 |
| R93 | RL 0,35W 562 OHM+-1%TK50 RESISTOR DRALORIC SMA0207/562OHM-F-D | RL 083.0461 | 300.5057 |
| R94 | RL 0,35W 562 OHM+-1%TK50 RESISTOR DRALORIC SMA0207/562OHM-F-D | RL 083.0461 | 300.5057 |
| R95 | RL 0,35W 7,50KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/7,5K-F-D | RL 083.1197 | 300.5057 |
| R96 | RL 0,35W 11,5KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/11,5K-F-D | RL 083.1339 | 300.5057 |

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| R97 | RL 0-WIDERSTAND DIN 0204 0-OHM RESISTOR DRALORIC OMA 0204 | RL 069.0000 | 300.5057 |
| R99 | RL 0,35W3,09KOHM+-0,1%T25 RESISTOR DRALORIC 0207 3,09KOHM 0,1% | RL 084.2080 | 300.5057 |
| R100 | RL 0,35W4,99KOHM+-0,1%T25 RESISTOR DRALORIC SMA0207/4,99K-B-E | RL 084.2480 | 300.5057 |
| R101 | RL 0,35W715 OHM+-0,1%TK25 RESISTOR DRALORIC 0207 715 OHM 0,1% | RL 083.8862 | 300.5057 |
| R102 | RL 0,35W10,0KOHM+-0,1%T25 RESISTOR DRALORIC SMA0207/10K-B-E | RL 084.3064 | 300.5057 |
| R103 | RL 0,35W 33,2KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/33,2K-F-C | RL 083.1674 | 300.5057 |
| R104 | RL 0,35W11,5KOHM+-0,1%T25 RESISTOR DRALORIC 0207 11,5KOHM 0,1% | RL 084.3187 | 300.5057 |
| R105 | RS 0,75W10KOHM+-10% CERMET DEPOS.-CARBON POTENTIOMET BOURNS 3006P-1-10 KOHM+-10% | RS 037.7396 | 300.5057 |
| R106 | RL 0,35W 10,0KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/10K-F-D | RL 083.1297 | 300.5057 |
| R107 | RL 0,35W 1,05KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/1,05K-F-D | RL 083.0626 | 300.5057 |
| R108 | RL 0,35W11,0KOHM+-0,1%T25 RESISTOR DRALORIC SMA0207/11K-B-E | RL 084.3141 | 300.5057 |
| R109 | RL 0,35W 10,0KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/10K-F-D | RL 083.1297 | 300.5057 |
| R110 | RL 0,35W 1KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/1K-F-C | RL 082.2160 | 300.5057 |
| R120 | RL 0,35W 2,74KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/2,74K-F-D | RL 083.0926 | 300.5057 |
| R121 | RL 0,35W 243 KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/243K-F-C | RL 083.2312 | 300.5057 |
| R122 | RL 0,35W 2,74KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/2,74K-F-D | RL 083.0926 | 300.5057 |
| R123 | RL 0,35W 2,74KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/2,74K-F-D | RL 083.0926 | 300.5057 |
| R124 | RL 0,35W 681 OHM+-1%TK50 RESISTOR DRALORIC SMA0207/681OHM-F-D | RL 083.0490 | 300.5057 |
| R130 | RL 0,35W 10,0KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/10K-F-D | RL 083.1297 | 300.5057 |

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300.7014.00 SA BL15+



R. SCHWAB & S. SCHWARZ

AZ

Datum
Date

38 0186

Schaltteilliste für
Parts list for
ZE FM-STUFE
FM STAGE

Sachnummer
Stock No.

300.7014.00 SA

Blatt
Page

16

| Kennzeichen Component No. | Benennung/Beschreibung Designation | Sachnummer Stock No. | enthalten in contained in |
|------------------------------|---|-------------------------|------------------------------|
| R131 | RL 0,35W 10,0KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/10K-F-D | RL 083.1297 | 300.5057 |
| R133 | RL 0,35W 5,62KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/5,62K-F-C | RL 082.2190 | 300.5057 |
| R134 | RL 0,35W 332 OHM+-1%TK50 RESISTOR DRALORIC SMA0207/332OHM-F-D | RL 083.0255 | 300.5057 |
| R135 | RL 0,35W 332 OHM+-1%TK50 RESISTOR DRALORIC SMA0207/332OHM-F-D | RL 083.0255 | 300.5057 |
| R136 | RL 0,35W 121 OHM+-1%TK50 RESISTOR DRALORIC SMA0207/121OHM-F-D | RL 082.9859 | 300.5057 |
| R137 | RL 0,35W 475 OHM+-1%TK50 RESISTOR DRALORIC SMA0207/475OHM-F-D | RL 083.0390 | 300.5057 |
| R140 | RL 0,35W 1KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/1K-F-C | RL 082.2160 | 300.5057 |
| R141 | RL 0,35W 15,0KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/15K-F-D | RL 083.1400 | 300.5057 |
| R142 | RL 0,35W 1KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/1K-F-C | RL 082.2160 | 300.5057 |
| R143 | RL 0,35W 15,0KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/15K-F-D | RL 083.1400 | 300.5057 |
| RS1 | SR 5V 1XA DIL M. DIODE U.S RELAY SIEMENS V23100-V4005-A011 | SR 282.4994 | 300.5057 |
| ST1 | FP EINZELKONTAKTSTIFT SINGLE-CONTACT PIN ULMIC R&S.ZCHNG.300.8804 | 300.8804 | 300.5070 |
| BIS/TO ST7 ST10 | FP EINZELKONTAKTSTIFT SINGLE-CONTACT PIN ULMIC R&S.ZCHNG.300.8804 | 300.8804 | 300.5070 |
| BIS/TO ST17 ST50 | ENTHALTEN IN/INCLUDED IN LEITERPLATTE/PCB | | 300.5070 |
| T1 | AK BCY59IX NPN 45V 200MA TRANSISTOR SIEMENS BCY59IX | AK 010.5163 | 300.5057 |
| T3 | AK BCY59IX NPN 45V 200MA TRANSISTOR SIEMENS BCY59IX | AK 010.5163 | 300.5057 |
| T9 | AM U310 NKAN 25V FET FET SILICONIX U310 | AM 454.6217 | 300.5057 |

300.7014.00 SA BL16+

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**RONDE & SCHWARZ**

ÄZ

Datum
Date

38

0186

Schaltteilliste für
Parts list for
ZE FM-STUFE
FM STAGESachnummer
Stock No.

300.7014.00 SA

Blatt
Page

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Kennzeichen
Component No.Benennung/Beschreibung
DesignationSachnummer
Stock No.enthalten in
contained in

T10

AM U310 NKAN 25V FET
FET

AM 454.6217

300.5057

T11

SILICONIX U310
AM 3N204 N-DUAL-G.MOSF
MOS-FET
RCA 3N204

AM 204.1910

300.5057

T12

AM 3N204 N-DUAL-G.MOSF
MOS-FET
RCA 3N204

AM 204.1910

300.5057

T13

AK BSX29 PNP 12V 200MA
TRANSISTOR
SGS BSX29

AK 010.3031

300.5057

T15

AK BSX29 PNP 12V 200MA
TRANSISTOR
SGS BSX29

AK 010.3031

300.5057

T17

AK BCY59IX NPN 45V 200MA
TRANSISTOR
SIEMENS BCY59IX

AK 010.5163

300.5057

T20

AK BCY59IX NPN 45V 200MA
TRANSISTOR
SIEMENS BCY59IX

AK 010.5163

300.5057

T21

AK BCY59IX NPN 45V 200MA
TRANSISTOR
SIEMENS BCY59IX

AK 010.5163

300.5057

T22

AK BCY59IX NPN 45V 200MA
TRANSISTOR
SIEMENS BCY59IX

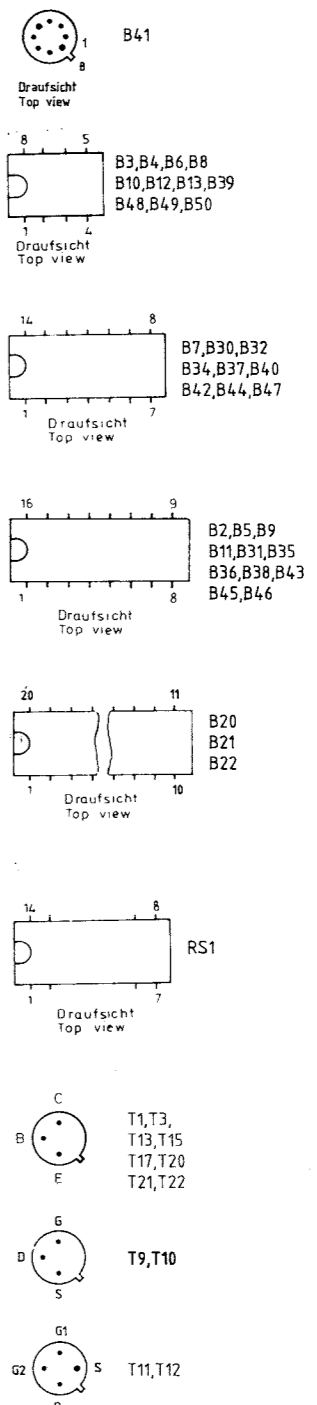
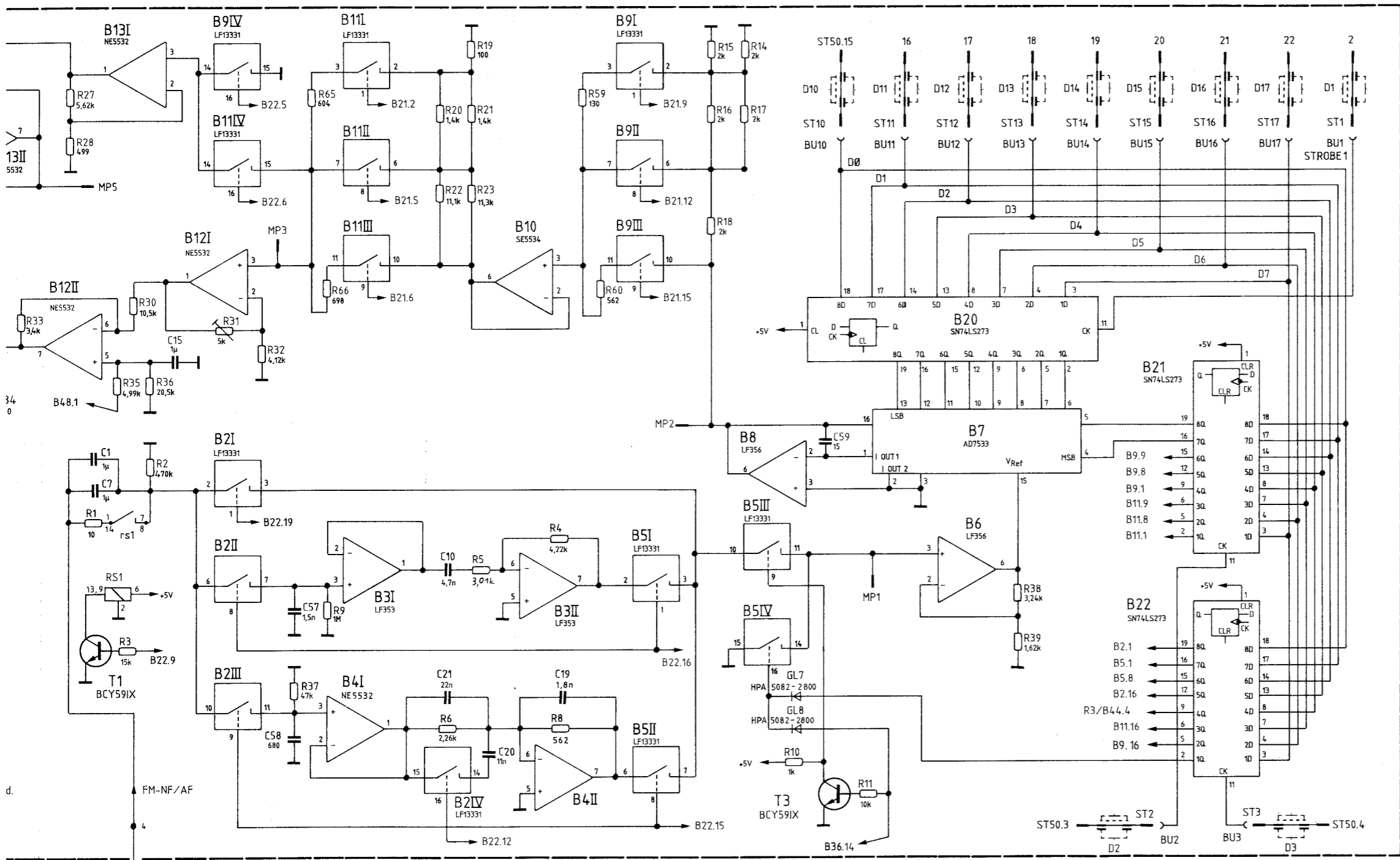
AK 010.5163

300.5057

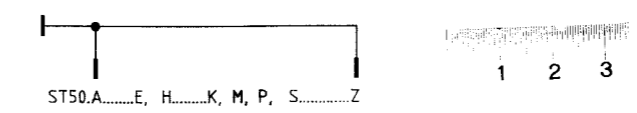
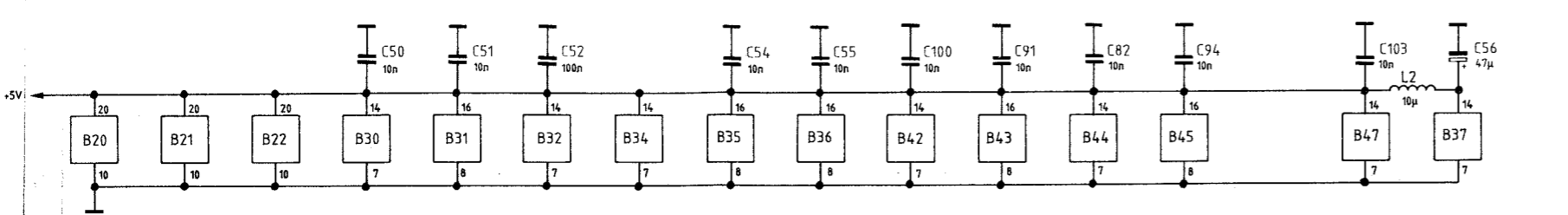
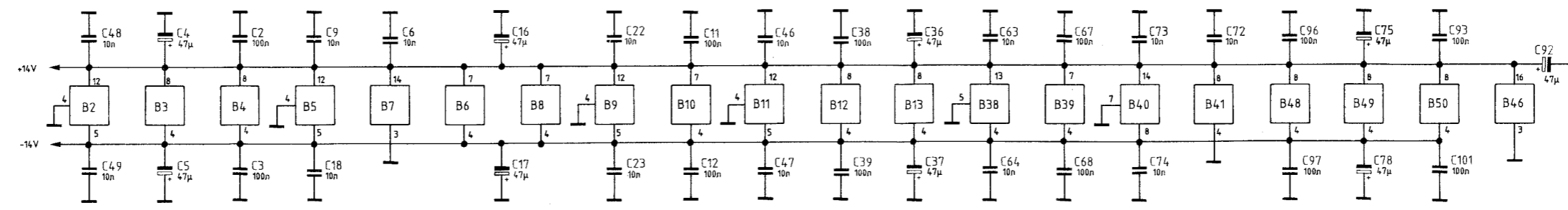
- ENDE -

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300.7014.00 SA BL17-



vom NF-Generator und Eichteitung
From AF generator and attenuator

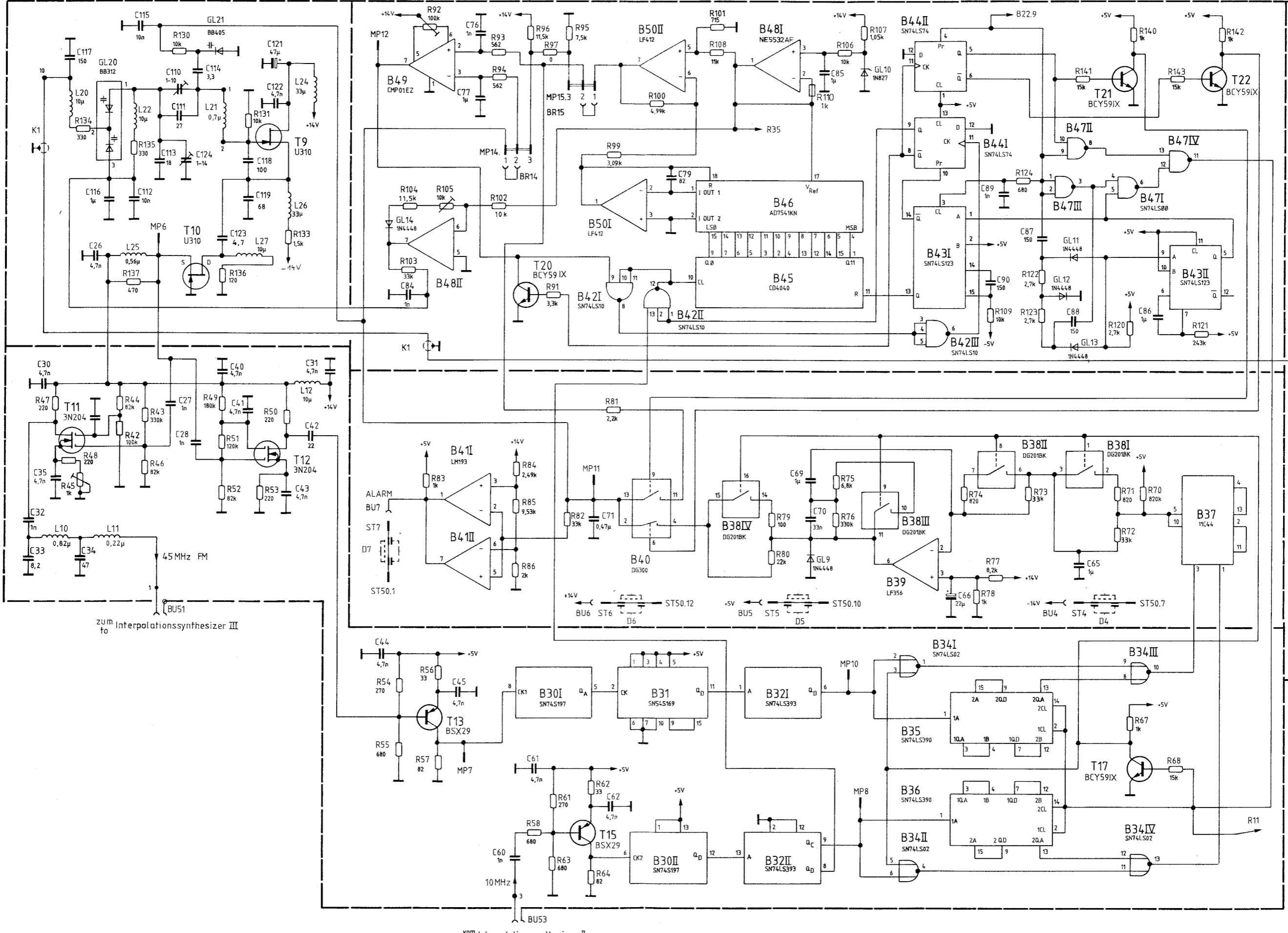


| | |
|--|----------|
| Platte FM- Stufe PCB FM-stage | 300.5057 |
| Platte Zuführung FM-Stufe PCB feed FM-stage | 300.5070 |

| | | | | | | |
|--------------------------------------|-----------|------------|----------|----------|----------------------------------|---------------------|
| Stromlauf zu FM-Stufe FM-stage | reg. i. V | 300.1000 V | erste Z. | 300.1000 | Zeichn.-Nr. 300.7014 S | Blatt-Nr. v. Bl. |
| | Z | | | | | |

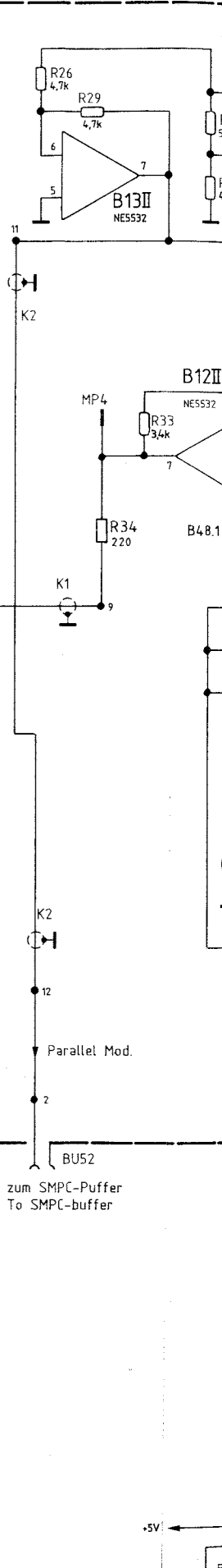
| | |
|------------------|------------|
| Zeichn.-Nr. | 300.7014 S |
| IKGA | 7.82 |
| gezeichnet | gu |
| bearbeitet | ls |
| geprüft | J |
| normgepr. | K |
| Name | GS |
| Datum | 22.1.86 |
| And.-Mittig. Nr. | 32942 |
| And.-Zust. | L |
| Name | GS |
| Datum | 22.1.86 |
| And.-Mittig. Nr. | 32942 |
| And.-Zust. | L |

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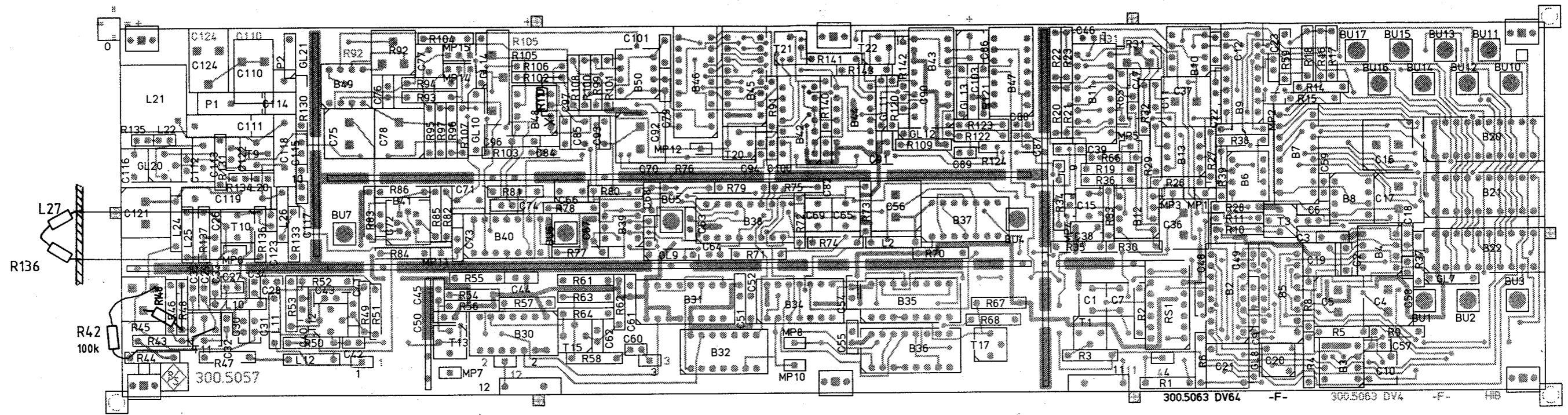
zum Interpolationssynthesizer III
to

vom Interpolationssynthesizer II
from



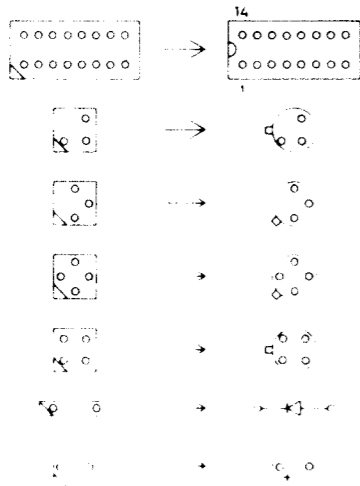
| | |
|------------------|-------|
| Name | LS |
| Datum | 7.82 |
| And.-Mittig. Nr. | 27860 |
| And.-Zust. | G |
| Name | gs |
| Datum | 4.83 |
| And.-Mittig. Nr. | 32288 |
| And.-Zust. | J |
| Name | GS |
| Datum | 6.85 |
| And.-Mittig. Nr. | 32542 |
| And.-Zust. | K |
| Name | H o |
| Datum | 17.85 |

Ansicht und Leitungsführung Bauteilseite
View of tracks on component side



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Symbolschlüssel

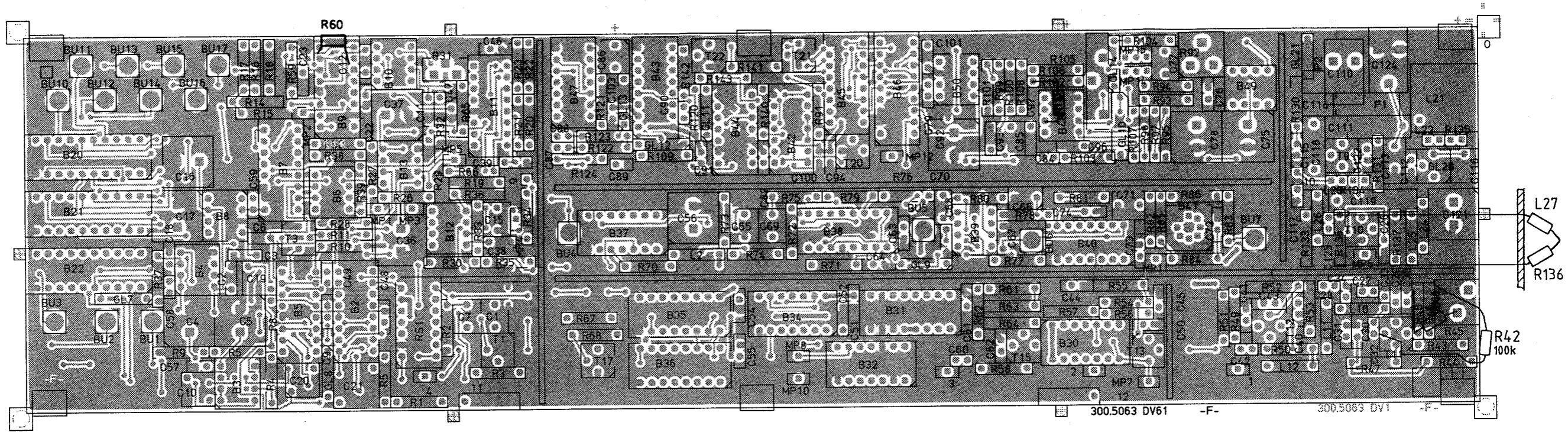


Achtung! MOS-Bauteile
Caution. MOS components

| | | | | | | | | |
|----------|----------------------|------|------|--------------------------|-------------|-------------------------------|--|----------|
| F | 27860 | 5.82 | LS | Maße ohne Toleranzangabe | Maßstab 1:1 | Halbzeug, Werkstoff | | |
| G | 27860 | 7.82 | LS | | | | | |
| H | 30063 | 4.83 | gs | | | | | |
| J | 32288 | 3.85 | GS | | | | | |
| | | | | 1KG | Tag | Name | Benennung FM - STUFE FM-Stage | Z |
| | | | | Bearb | 5.82 | LS | | |
| | | | | Gepr | | | | |
| | | | | Norm | | | | |
| | | | | | | Zeichn.-Nr 300.5057 | Blatt-Nr 2 | |
| And Zust | Anderungs-Mitteilung | Tag | Name | | | | | zu Gerät |

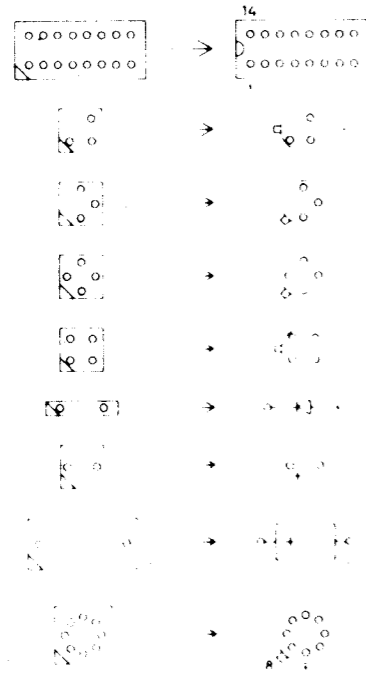
ISO-Projektion
Methode E

Ansicht und Leitungsführung Lötseite
View of tracks on solder side



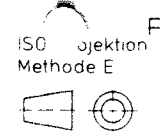
Für diese Unterlage behalten wir uns alle Rechte vor

Symbolschlüssel

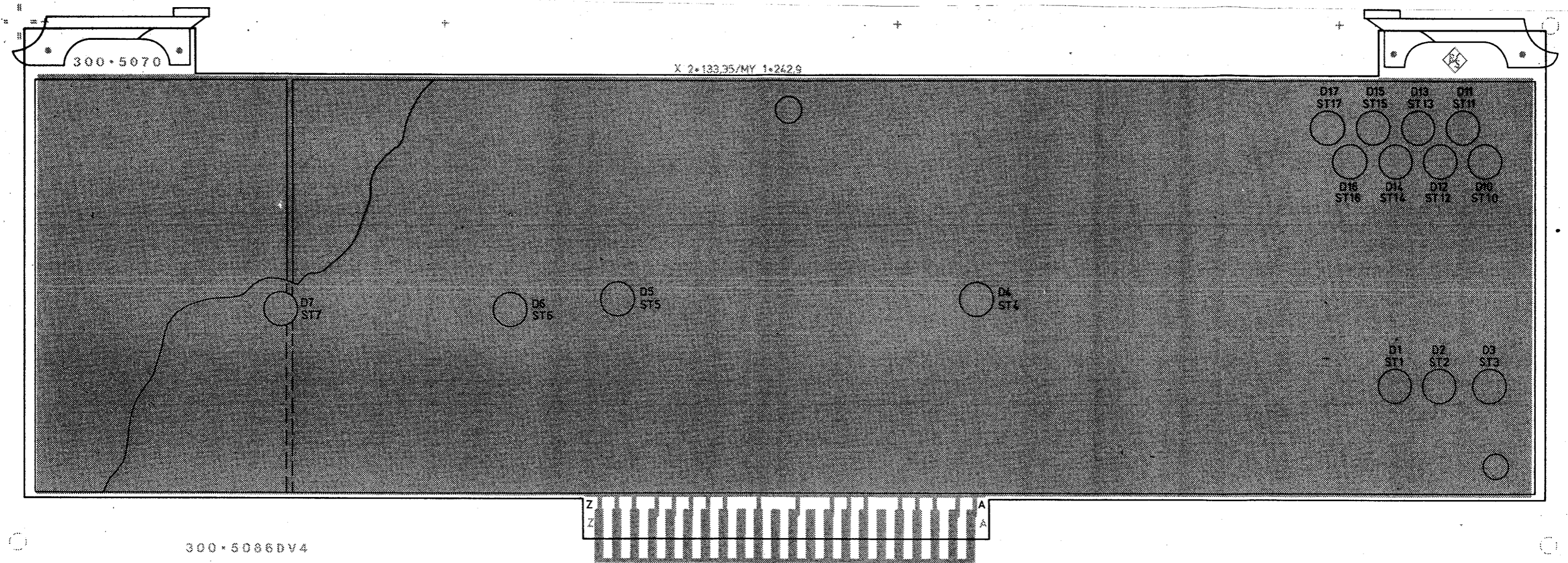


Achtung! MOS-Bauteile
Caution. MOS components

| | | | | | | | | | |
|------------|----------------------|------|------|--------------------------|-------------|---------------------|------------------------|---------------|--------|
| F | 27860 | 5.82 | LS | Maße ohne Toleranzangabe | Maßstab 1:1 | Halbzeug, Werkstoff | Benennung | Z | |
| G | 27860 | 7.82 | LS | | | | | | |
| H | 30063 | 4.83 | gs | | | | | | |
| J | 32288 | 3.85 | Gs. | | | | | | |
| | | | | 1KG | Tag | Name | FM - STUFE FM-Stage | Blatt-Nr 3 | |
| | | | | Bearb | 5.82 | LS | | | |
| | | | | Gepr | | | | | |
| | | | | Norm | | | | | |
| | | | | | | | Zeichn.-Nr | 300.5057 | v. Bl. |
| And. Zust. | Anderungs-Mitteilung | Tag | Name | | | | zu Gerät | | |



Ansicht und Leitungsführung Bauteilseite
View of tracks on component side

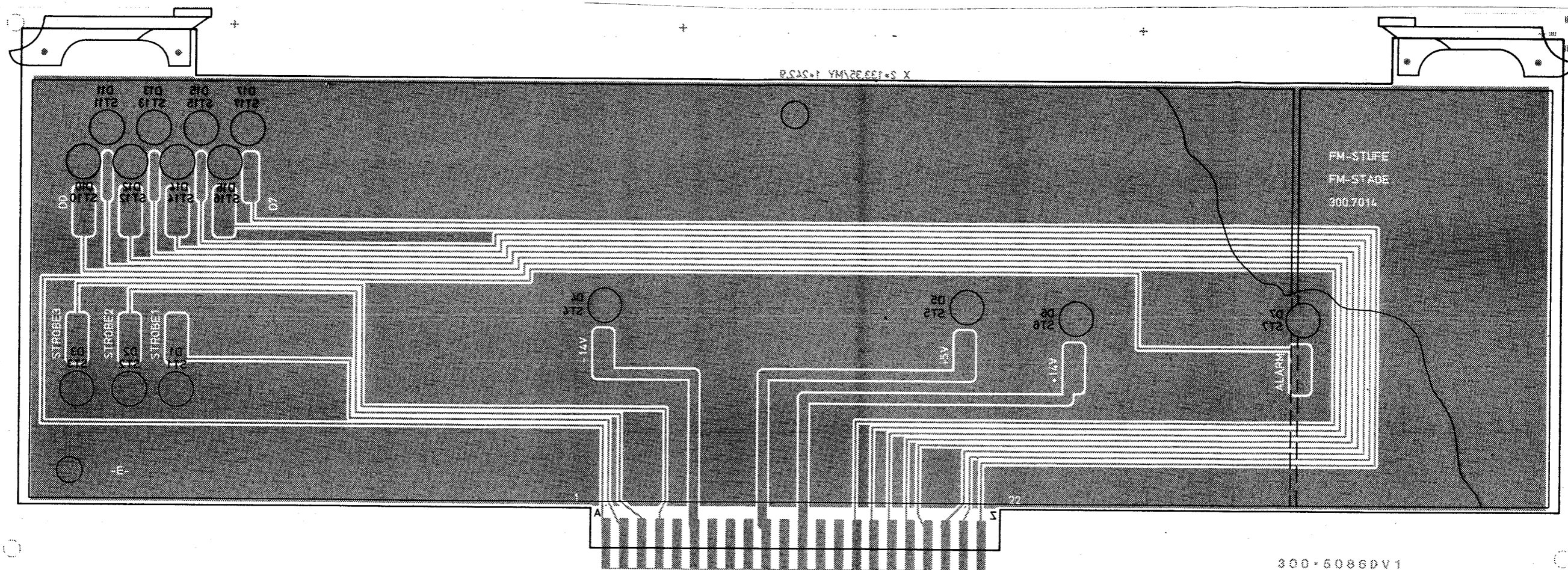


Für diese Unterlage behalten wir uns alle Rechte vor.

ISO Projektion Methode E

| | | | | | |
|----------|----------------------|-----|--------------------------|---------------------|-----------|
| E | 28.182 | LS | Maße ohne Toleranzangabe | Maßstab 1 : 1 | |
| | | | | Halbzeug, Werkstoff | |
| | | | 1KGA Tag Name | Benennung | Z |
| | | | Bearb 28.182 LS | Zuführ. FM-Stufe | |
| | | | Gepr | Feed FM-Stage | |
| | | | Norm | | |
| | | | | Zeichn.-Nr | Blatt-Nr. |
| | | | | 300.5070 | 2 |
| | | | | reg I V 300.1000V | v Bl. |
| And Zust | Anderungs-Mitteilung | Tag | Name | erste Z 300.7014 | |
| | | | | zu Gerät SMPC | |

Ansicht und Leitungsführung Lötseite
View of tracks on solder side



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| | | | | | | |
|----------|----------------------|-----|----------------------------|-----------|---------------------|--------------------|
| E | 28.1.82 | LS | Maße ohne Toleranzangabe | | Maßstab 1 : 1 | |
| | | | | | Halbzeug, Werkstoff | |
| | | | 1KGA | Tag | Name | Benennung |
| | | | Bearb | 28.1.82 | LS | Zuführ. FM - Stufe |
| | | | Gepr | | | Feed FM-Stage |
| | | | Norm | | | |
| | | | ROHDE & SCHWARZ | | Zeichn.-Nr | Blatt-Nr |
| | | | zu Gerät SMPC | | 300.5070 | 3 |
| And Zust | Anderungs-Mitteilung | Tag | Name | reg. i. V | 300.1000 V | erste Z 300.7014 |





ROHDE & SCHWARZ

SERVICE INSTRUCTIONS

AF Generator and Attenuator

300.3819 (Y3)

Table of Contents

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Parts list
 Circuit diagram
 Components location plans

5.1 Circuit Description

(See circuit diagram 300.3819 S and Fig. 5-1)

The digital AF synthesizer is tunable within the range 10 Hz to 100 kHz. The minimal resolution is 1 Hz (up to 10 kHz). A binary coded increment I is added to a clock frequency of 1 MHz in the 20-bit adder Bu to B11. The clock frequency is derived from the 10-MHz reference frequency. The 12 most significant bits provide the addresses for the sinewave EPROMs B14/B15 where the amplitude values of one cycle of sinusoidal oscillation with a resolution of 12 bits are stored. B14 contains the lower four bits and B15 the upper eight bits. From the chosen modulation frequency f_{AF} and the clock frequency $f_{dk} = 1$ MHz, the required increment I is defined from the following formula:

$$I = \frac{f_{AF} \text{ (Hz)}}{10^6} \times 220$$

The following D/A converter now produces a stepped sinusoidal signal. In order to minimize interference at the D/A converter, data is retained in the latches B16/B17 during the access time of the EPROMs until the new data has had time to settle.

Interference on the sinusoidal signal is removed by a sample and hold circuit whose sample-pulse timing can be optimized with R23/R24.

The active, 100-kHz low pass filter B30 smoothes the output signal and together with the series resonance circuit L30/C45 ensures good suppression of the clock frequency. The modulation signal is fed to the SMPC's rear-panel AF output via B36 (nominal level adjustment) and B37.

Internal FM Operation

The f_{AF} is fed to BU61 via B35 and B66.

Internal AM Operation

The AM attenuator B41 is switched in by B38, B43 and B55. The modulation depth is set with a 10-bit resolution. The data word y is calculated from the formula:

$$y = m \times \frac{2^{10}}{100}$$

and is transferred in binary code. When the modulation depth m is < 10, a fixed 20-dB attenuator is switched into circuit by B43 and, as a consequence, m must be multiplied by 10. The signal superimposed with the AM reference value (at MP40) is fed via B56 to BU66.

AM-ALC Operation

The source of the AM reference value is selected by B55 and can be varied by an external DC voltage applied to BU64 (AM input). The level converter B57 provides an output voltage of -4.24 to 0 V for an input voltage of 0 to -2.82 V.

External AM Operation

B58 amplifies the AF applied at BU64 to the required reference level and the signal then is fed via B38 to the input of the AM attenuator.

Level Monitoring

Two level monitoring circuits are provided for external modulation. They indicate whether the level applied to BU64 (AM) or BU65 (FM) has deviated by more than 3% from the correct value. The peak-value rectifiers B59 (AM) and B65 (FM) feed, via the window comparators B61, the relevant data to the tri-state driver B52 which is interrogated by the microprocessor (Y1).

FM-EXT./FM-DC Operation

The applied voltage is fed, via B66, to the FM output BU61.

Mixed-modulation Operation

At the FM-EXT. input, an additional modulation signal can be applied and combined with the internal AF voltage. The combined signal is available at the FM output BU61.

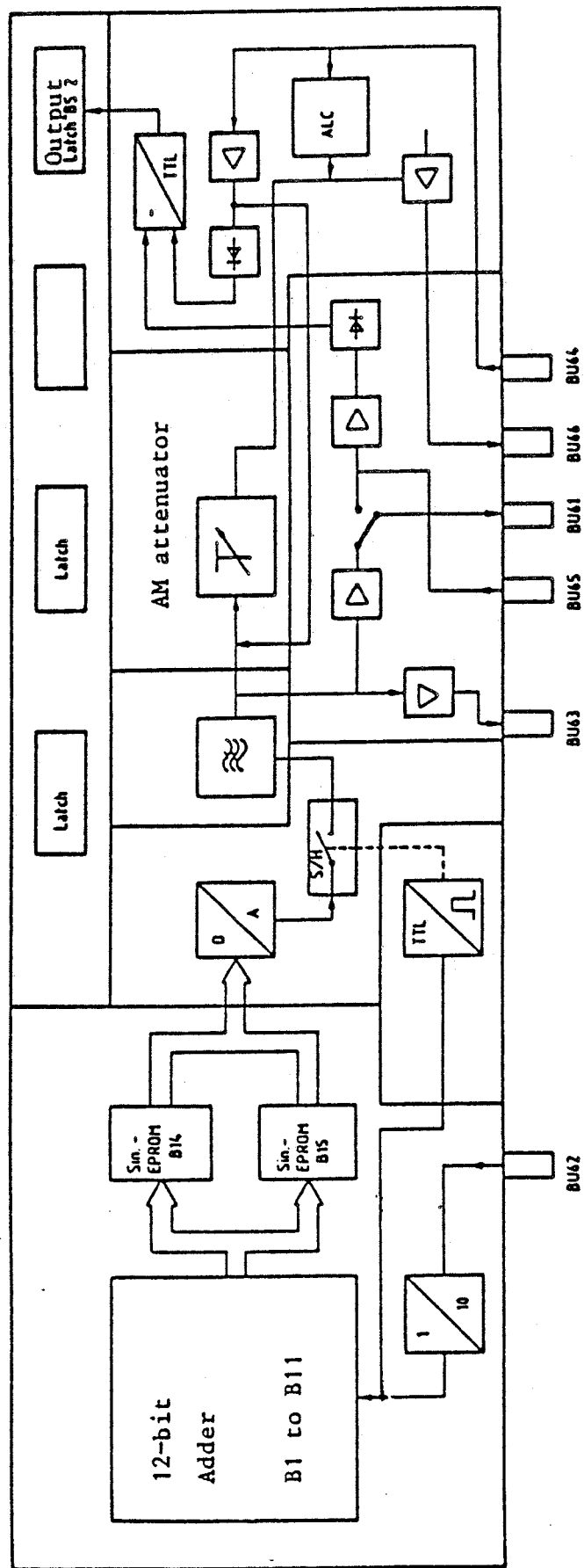


Fig. 5-1 Block diagram of AF generator and attenuator

5.2 Checking and Adjusting

5.2.1 Checking the Adder Stage

In order to check the operation of the adder stage, individual bits of the increment can be set by the microprocessor (Y1).

Preparation in Y1: change B10 for a test EPROM Id. No. 337.9904
 (included in Service Kit XPC-Z1)

After switching on, when key 20 (kHz) is pressed, the display shows:

 MHz dBm

 ↑
 bit no. 0: all bits set to L
 (0 to 17) 1: selected bit is set H

The following is then applicable:

"0 to 17" bit number

"+" The first key stroke sets the selected bit to 1.
 With every further key stroke, the next highest bit is
 set to 1.

"-" The first key stroke sets the selected bit to 1.
 With each further key stroke, the next lowest bit is
 set to 1.

"C" Sets the bit number to 0 and all bits to L.

The carry outputs of the individual adders can now be checked with an oscilloscope. The following pulse rates should be displayed:

| Check point | Bit set to H | Period (μ s) |
|-------------|--------------|-------------------|
| MP 7 | 0 | 16 |
| | 1 | 8 |
| | 2 | 4 |
| | 3 | 2 |
| MP 8 | 4 | 16 |
| | 5 | 8 |
| | 6 | 4 |
| | 7 | 2 |
| MP 9 | 8 | 16 |
| | 9 | 8 |
| | 10 | 4 |
| | 11 | 2 |
| MP 10 | 12 | 16 |
| | 13 | 8 |
| | 14 | 4 |
| | 15 | 2 |
| MP 11 | 16 | 16 |
| | 17 | 8 |

5.2.2 Adjusting Spurious and Harmonic Signal Levels

With a f_{mod} of 70 kHz, minimize (< -65 dBc) the spurious and harmonic signal levels with R23 and R24. Check the complete frequency range at various settings to ensure that the spurious and harmonic levels remain < -65 dBc and if necessary readjust R23 and R24.

5.2.3 Filter Adjustment (L30)

- connect an AF spectrum analyzer to BU46 (rear panel AFoutput).

Adjust the level of the 1-MHz clock frequency to < -75 dBc with L30.

5.2.4 Adjusting the Output Level and Frequency Response (R20, R43)

- connect a millivoltmeter ($R_i > 1 \text{ M}\Omega$) to MP31.

With $f_{\text{AF}} = 1$ kHz adjust the output level to $3.000 V_{\text{rms}}$ with R20.

Subsequently, adjust the frequency response from 10 Hz to 100 kHz to $< \pm 0.5\%$ with C43.

5.2.5 Checking the Output Voltage and Frequency

- connect the millivoltmeter to BU63. The f_{AF} voltage measured at 1 kHz is to be $1 \pm 0.02 V_{\text{rms}}$.
- connect a frequency counter to BU46. Synchronize the reference frequencies from the counter and SMPC. Within the whole frequency range the deviation of the measured from the selected frequency is to be < 1 Hz.

5.2.6 Checking the Distortion

- connect a distortion meter to BU63.

The distortion is to be $< 0.1\%$ within the frequency range 10 Hz to 100 kHz.

5.2.7 Checking the Internal FM Output

- switch to internal FM. Connect millivoltmeter to BU61.

The AF voltage (10 Hz to 100 kHz) at BU61 is to be $1 \pm 0.025 V_{\text{rms}}$.

5.2.8 Checking the AM Reference Value

- switch to "unmodulated" operation.
- connect DC voltmeter to MP40.

The DC voltage at MP40 is to be -4.24 ± 0.02 V.

5.2.9 Checking the AM Attenuator

- set the modulation frequency to 1 kHz and switch to internal AM.

Measure the AF voltage at BU66 for various modulation depths m . The nominal value is $(m \times 3) V_{rms}$; the deviation for $m = 10$ to 99% is to be $< 5 mV_{rms}$, that for $m = 0.1$ to 9.9% $< 1 mV_{rms}$.

Vary the modulation frequency when $m = 99\%$. The frequency response between 10 Hz and 50 kHz is to be $< \pm 0.6\%$.

5.2.10 Checking the External AM Path

- switch to external AM.
- connect the AF generator, set to between 10 Hz and 50 kHz and 1.00 V_{rms} , to BU64 (external AM).

Measure the voltage at BU66 as described in 5.2.9.

5.2.11 Adjusting and Checking the ALC Output (R74)

- key in RCL93 at the SMPC.
- connect a DC voltage source of 0 to -4.24 V to BU64 (V_i).
- connect a DC voltmeter to BU66 (V_o).

With an input DC voltage $V_i < -2.82$ V, V_o is to be adjusted to $0 \text{ V} \pm 10 \text{ mV}$ with R74.

In the range $V_i = 0$ to -2.82 V, V_o must vary linearly from -4.24 to 0 V.

5.2.12 Checking the AM Input Monitor Circuit

- switch to external AM.
- connect the AF generator, set to 1 kHz, to BU64.

Measure the voltage V_i at BU64.

With $V_i = 1 \pm 0.03 V_{rms}$, the modulation depth is indicated in the AM display 3.

With a smaller V_i , only the lower segments of the display should be on; with a larger V_i , only the upper segments of the display should be on.

5.2.13 Checking the FM Input Monitor Circuit and the External FM Path

- switch to external FM.
- connect AF generator, set to 1 kHz, to BU65.

When the voltage at BU65 is varied, the FM display 2 is to respond as the AM display 3 in 5.2.12.

- connect millivoltmeter to BU61. The difference between this measured voltage and that input at BU65 is to be $< \pm 0.5\%$.

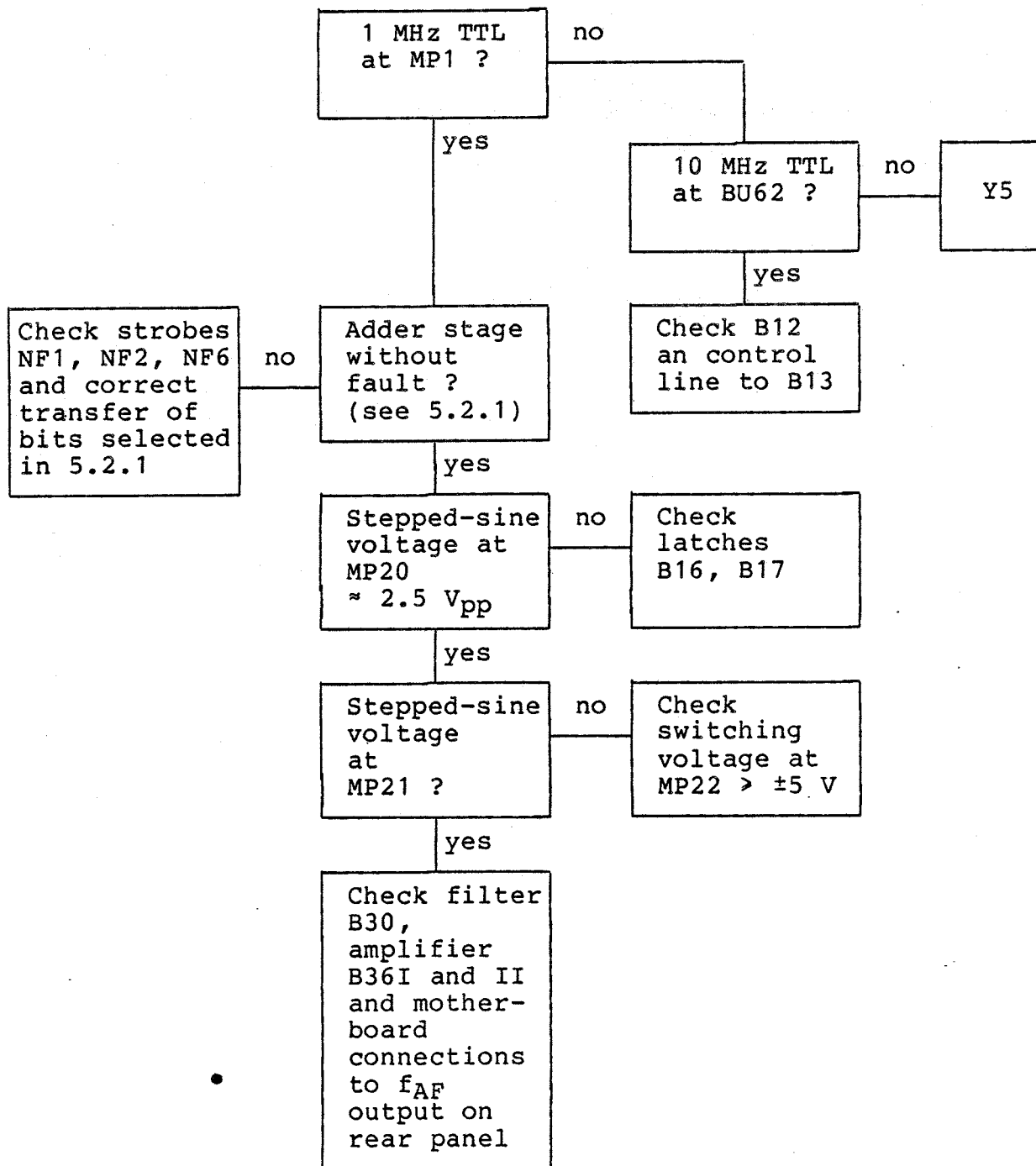
5.2.14 Checking Mixed Modulation

- key in RCL92 at the SMPC.
- connect AF generator, set to 1 V_{rms} , to BU65.

An oscilloscope connected to BU61 must display the sum of the internal AF voltage and the externally applied signal ($V_{pp} = 5.65$ V approx.).

5.3.1 No Voltage at AF Output on Rear Panel

(For signature analysis, see microprocessor subassembly Y1.)



5.3.2 No AF Voltage at BU61 during FM Operation

Internal FM operation

Setup: AF voltage at MP31 = 3 V_{rms}, otherwise see 5.3.1.

Check switch B38 and its control lines.

External FM operation

Setup: apply 1 V_{rms} with AF generator to FM input.

If AF voltage = 1 V_{rms} is present at BU65, check relay RS1.

5.3.3 No AF Voltage (dependent on AM Attenuator) at BU66 during AM Operation

Internal AM operation

Setup: AF voltage at MP31 = 3 V_{rms}, otherwise see 5.3.1.

Check switches B38, B43, B55 and data transfer from latches B50, B51.

External AM operation

Setup: apply 1 V_{rms} with AF generator to AM input.

If AF voltage = 1 V_{rms} is present at BU64, check switches B60 and B38.

If AF voltage = 3 V_{rms} at B40.6, check switches B38, B43, B55 and data transfer from latches B50, B51.

5.3.4 No Indication of External Modulation

External AM

Follow signal to B59.3 where nominal level is 3.00 V_{rms}.
2.1 V_{DC} should then be present at MP50.

Comparators

| Voltage at BU64 | B61.1 | B61.8 | Voltage at BU65 | B61.7 | B61.14 |
|-----------------|-------|-------|-----------------|-------|--------|
| too low | L | L | too low | L | L |
| correct | H | L | correct | H | L |
| too high | H | H | too high | H | H |

External FM

Follow signal to B65.3 where nominal level is 3.00 V_{rms}.
2.1 V_{DC} should then be present at MP60.
For comparator states see table above.

B53.6 is normally H; during interrogation by microprocessor (Y1),
it is L for 15 μ s in every 40 ms.

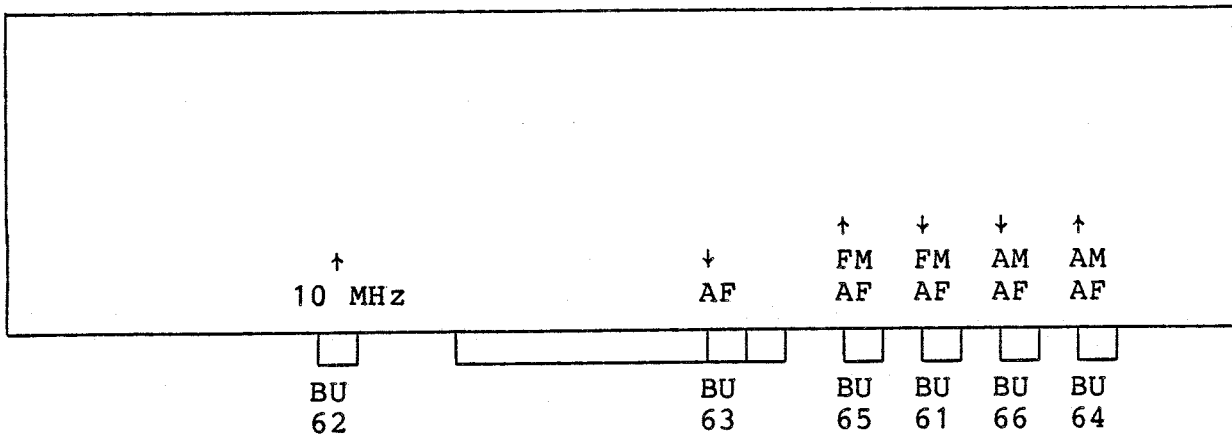
Digital Interface

| Data bus ST 60 | D7 .22 | D6 .21 | D5 .20 | D4 .19 | D3 .18 | D2 .17 | D1 .16 | D0 .15 | Strobe ST 60 |
|----------------|--------------------------------|--------------------------|---------------------|-----------------|------------------|--------------------|------------------------------|--------|--------------|
| 1 0 | bit 7 ← Increment I → | | | | | | | bit 0 | 1 .13 |
| 1 0 | bit 15 ← Increment I → | | | | | | | bit 8 | 2 .11 |
| 1 0 | X | X | X | X | Level monitor FM | | Level monitor AM | | 3 .2 |
| 1 0 | mix,ext FM int | X | ext AM DC,int | AC AM DC | on AM off | <10% AM >10% | bit0 → bit1 y | | 4 .4 |
| 1 0 | bit 2 → Modulation depth (y) → | | | | | | | bit 9 | 5 .7 |
| 1 0 | X | mix,int FM off,ext | int AM ext | on AF off | on AF off | X | bit17 ← bit16 Increment I | | 6 .9 |

Strobe 3: With a H to L transition, the tri-state driver B52 switches into the low impedance state for 15 μs approx. During this period, the microprocessor interrogates the level monitor circuits (s. 5.3.4).

The remaining strobes cause, with a L to H transition, the transfer of the data from the data bus. The increment I and modulation depth setting y are transferred as binary code (see 5.1 for calculations).

Analog Interfaces



| ST/BU | 61 | 62 | 63 | 64 |
|----------------|--------------------|-------|--------------------|--|
| f | 0 to 125kHz | 10MHz | 10Hz to 100kHz | 0Hz to 50kHz |
| Level | 1 V _{rms} | TTL | 1 V _{rms} | 1 V _{rms} , 0 to -2.82 V _{DC} |
| R _i | < 1 Ω | | 10 Ω | 600 Ω |
| Coupling | DC | | DC | DC |
| Signal shape | sine | | sine | sine |

| ST/BU | 65 | 66 |
|----------------|--------------------|--|
| f | 0 to 125 kHz | 0 to 50 kHz |
| Level | 1 V _{rms} | 3 mV _{rms} to 3 V _{rms} , 0 to -4.24V _{DC} |
| R _i | 600 Ω | < 1 Ω |
| Coupling | DC | DC |
| Signal shape | Sine | Sine |



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Schalteillisten
Stromläufe
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Parts lists
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| Kennzeichen Component No. | Benennung/Beschreibung Designation | Sachnummer Stock No. | enthalten in contained in |
|------------------------------|--|-------------------------|------------------------------|
| B1 | BL SN74LS273N 8BIT-D-REG. 8BIT-D-REGISTER TEXAS SN74LS273N | 214.8998 | 300.5092 |
| BIS/TO | | | |
| B6 | | | |
| B7 | BL SN74LS283N 4-BIT-ADD. IC SN74LS283N 4-BIT-ADD. TEXAS SN74LS283N | 283.1760 | 300.5092 |
| BIS/TO | | | |
| B11 | | | |
| B12 | BL SN74LS90N DEZ.ZAEHLER IC COUNTER SN74LS90N TEXAS SN74LS90N | 266.7940 | 300.5092 |
| B13 | BL SN74LS132N 4XSCHMITT. IC SCHMITT TRIGGER SN74LS TEXAS SN74LS132132N | 267.0291 | 300.5092 |
| B14 | BC 2732 PROGR.1 B14 EPROM | 300.9781 | 300.9846 |
| B15 | BC 3732 PROGR.1 B15 EPROM | 300.9800 | 300.9846 |
| B16 | BL SN74LS273N 8BIT-D-REG. 8BIT-D-REGISTER TEXAS SN74LS273N | 214.8998 | 300.5092 |
| B17 | BL SN74LS273N 8BIT-D-REG. 8BIT-D-REGISTER TEXAS SN74LS273N | 214.8998 | 300.5092 |
| B20 | BJ DAC80CBII 12B.D/A-CONV D/A-CONVERTER BURR-BROWN DAC-80CBI-I | 300.6330 | 300.5092 |
| B21 | BO LF156H BIFET OPAMP OPERATIONAL AMPLIFIER MOTOROLA LF156H | BO 333.5862 | 300.5092 |
| B22 | BJ SD5000N 4X ANALOGSCH BJ SD5000N 4XANALOGSWITCH SILICONIX SD5000N | BJ 342.2340 | 300.5092 |
| B23 | BO LM218H PREC. OPAMP OPERATIONAL AMPLIFIER AMD LM218H | BO 275.0845 | 300.5092 |
| B30 | BO HA2A-2525 H.S.R.OPAMP OPERATIONAL AMPLIFIER HARRIS HA2A-2525-5 | BO 334.4360 | 300.5092 |
| B35 | BO SE5534AFE LOW N.OPAMP OPERATIONAL AMPLIFIER SIGNETICS SE5534AFE | BO 301.3335 | 300.5092 |
| B36 | BO NE5532AFE 2XL.N.OPAMP OPERATIONAL AMPLIFIER VALVO NE5532AFE | BO 356.0450 | 300.5092 |
| B38 | BJ TL191CN 4X ANALOGSCH ANALOG SWITCH TEXAS INST TL191CN | BJ 300.6182 | 300.5092 |
| B40 | BO SE5534AFE LOW N.OPAMP OPERATIONAL AMPLIFIER SIGNETICS SE5534AFE | BO 301.3335 | 300.5092 |
| B41 | BJ AD7520KN 10B.D/A-CONV D/A-CONVERTER ANALOG-DEV AD7520KN | BJ 300.6499 | 300.5092 |

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| Kennzeichen Component No. | Benennung/Beschreibung Designation | Sachnummer Stock No. | enthalten in contained in |
|------------------------------|---|-------------------------|------------------------------|
| B42 | BO SE5534AFE LOW N.OPAMP OPERATIONAL AMPLIFIER SIGNETICS SE5534AFE | BO 301.3335 | 300.5092 |
| B43 | BJ TL191CN 4X ANALOGSCH ANALOG SWITCH TEXAS INST TL191CN | BJ 300.6182 | 300.5092 |
| B44 | BO SE5534AFE LOW N.OPAMP OPERATIONAL AMPLIFIER SIGNETICS SE5534AFE | BO 301.3335 | 300.5092 |
| B45 | BO AD581J 10V 10mA VREF VOLTAGE REFERENCE ANALOG-DEV AD581J | BO 300.6347 | 300.5092 |
| B50 | BL SN74LS273N 8BIT-D-REG. 8BIT-D-REGISTER TEXAS SN74LS273N | 214.8998 | 300.5092 |
| B51 | BL SN74LS273N 8BIT-D-REG. 8BIT-D-REGISTER TEXAS SN74LS273N | 214.8998 | 300.5092 |
| B52 | BL SN74LS125AN4/BUS-TREIB BL SN74LS125AN4/BUS-DRIV. TEXAS SN74LS125AN | 292.0404 | 300.5092 |
| B53 | BL SN74LS122N MONOFLOP IC MONOFLOP SN74LS122N TEXAS SN74LS122N | 303.8957 | 300.5092 |
| B55 | BJ TL604CP 2X ANALOGSCH ANALOG SWITCH TEXAS INST TL604CP | BJ 300.6199 | 300.5092 |
| B56 | BO SE5534AFE LOW N.OPAMP OPERATIONAL AMPLIFIER SIGNETICS SE5534AFE | BO 301.3335 | 300.5092 |
| B57 | BO LF156H BIFET OPAMP OPERATIONAL AMPLIFIER MOTOROLA LF156H | BO 333.5862 | 300.5092 |
| B58 | BO LF156H BIFET OPAMP OPERATIONAL AMPLIFIER MOTOROLA LF156H | BO 333.5862 | 300.5092 |
| B59 | BO SE5534AFE LOW N.OPAMP OPERATIONAL AMPLIFIER SIGNETICS SE5534AFE | BO 301.3335 | 300.5092 |
| B60 | BJ TL604CP 2X ANALOGSCH ANALOG SWITCH TEXAS INST TL604CP | BJ 300.6199 | 300.5092 |
| B61 | BO LM124J 4XL.P.OPAMP OPERATIONAL AMPLIFIER NSC LM124J | BO 300.6353 | 300.5092 |
| B64 | BO LF156H BIFET OPAMP OPERATIONAL AMPLIFIER MOTOROLA LF156H | BO 333.5862 | 300.5092 |
| B65 | BO SE5534AFE LOW N.OPAMP OPERATIONAL AMPLIFIER SIGNETICS SE5534AFE | BO 301.3335 | 300.5092 |
| B66 | BO NE5532AFE 2XL.N.OPAMP OPERATIONAL AMPLIFIER VALVO NE5532AFE | BO 356.0450 | 300.5092 |
| BU1 | FP BUCHSE VERTIKAL P.V.1P SOCKET BERG 75377-001 | FP 278.5577 | 300.5092 |

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| Kennzeichen Component No. | Benennung/Beschreibung Designation | Sachnummer Stock No. | enthalten in contained in |
|------------------------------|--|-------------------------|------------------------------|
| BIS/T0 BU17 BU61 | FJ EINBAUBUCHSE SYST.SMS FIXED SOCKET RADIALL R.299 012 | 300.6876 | |
| BU62 | FJ EINBAUBUCHSE SYST.SMS FIXED SOCKET RADIALL R.299 012 | 300.6876 | |
| BU63 | FJ EINBAUBUCHSE SYST.SMS FIXED SOCKET RADIALL R.299 012 | 300.6876 | |
| BU64 | FJ EINBAUBUCHSE SYST.SMS FIXED SOCKET RADIALL R.299 012 | 300.6876 | |
| BU65 | FJ EINBAUBUCHSE SYST.SMS FIXED SOCKET RADIALL R.299 012 | 300.6876 | |
| BU66 | FJ EINBAUBUCHSE SYST.SMS FIXED SOCKET RADIALL R.299 012 | 300.6876 | |
| C1 | CC 10NF-20+50%7X8R6000 CAPACITOR VALVO 2222 63051 64051103 | CC 087.7525 | 300.5092 |
| BIS/T0 C17 C18 | CE 100UF-10+50% 16V 9X13 ELECTROLYTIC CAPACITOR ROEDERST EK 00CB 310 D | CE 006.7165 | 300.5092 |
| C19 | CE 100UF-10+50% 16V 9X13 ELECTROLYTIC CAPACITOR ROEDERST EK 00CB 310 D | CE 006.7165 | 300.5092 |
| C20 | CE 100UF-10+50% 16V 9X13 ELECTROLYTIC CAPACITOR ROEDERST EK 00CB 310 D | CE 006.7165 | 300.5092 |
| C21 | CE 100UF-10+50% 25V 13X13 ELECTROLYTIC CAPACITOR ROEDERST ELK0EK100/25 | CE 208.4007 | 300.5092 |
| C22 | CE 100UF-10+50% 25V 13X13 ELECTROLYTIC CAPACITOR ROEDERST ELK0EK100/25 | CE 208.4007 | 300.5092 |
| C23 | CK 47NF+-5%63V5RM MKT CAPACITOR WIMA MKS2/63/0,047UF/5% | CK 099.2917 | 300.5092 |
| C24 | CK 47NF+-5%63V5RM MKT CAPACITOR WIMA MKS2/63/0,047UF/5% | CK 099.2917 | 300.5092 |
| C25 | CK 47NF+-5%63V5RM MKT CAPACITOR WIMA MKS2/63/0,047UF/5% | CK 099.2917 | 300.5092 |
| C26 | CC 10NF-20+50%7X8R6000 CAPACITOR VALVO 2222 63051 64051103 | CC 087.7525 | 300.5092 |
| C27 | CC 10NF-20+50%7X8R6000 CAPACITOR VALVO 2222 63051 64051103 | CC 087.7525 | 300.5092 |

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| Kennzeichen Component No. | Benennung/Beschreibung Designation | Sachnummer Stock No. | enthalten in contained in |
|------------------------------|---|-------------------------|------------------------------|
| C28 | CC 220PF+-2%6X7N750 CAPACITOR VALVO 2222 678 58221 | CC 087.6941 | 300.5092 |
| C29 | CC 10NF-20+50%7X8R6000 CAPACITOR VALVO 2222 63051 64051103 | CC 087.7525 | 300.5092 |
| C30 | CC 10NF-20+50%7X8R6000 CAPACITOR VALVO 2222 63051 64051103 | CC 087.7525 | 300.5092 |
| C31 | CC 100PF+-2%4X5N750 CAPACITOR VALVO 2222 678 58101 | CC 087.6906 | 300.5092 |
| C32 | CC 100PF+-2%4X5N750 CAPACITOR VALVO 2222 678 58101 | CC 087.6906 | 300.5092 |
| C33 | CC 4,7NF+-10%6X9R2000 CAPACITOR VALVO 2222 63051 472 | CC 087.7102 | 300.5092 |
| C34 | CC 47PF+-2%4X5N150 CAPACITOR VALVO 2222 678 34479 | CC 087.6670 | 300.5092 |
| C35 | CC 10NF-20+50%7X8R6000 CAPACITOR VALVO 2222 63051 64051103 | CC 087.7525 | 300.5092 |
| C36 | CC 10NF-20+50%7X8R6000 CAPACITOR VALVO 2222 63051 64051103 | CC 087.7525 | 300.5092 |
| C37 | CC 1UF+-10%50V7K1200VIEL CAPACITOR UNION CARB CK06BX105K | CC 084.5538 | 300.5092 |
| C38 | CC 1UF+-10%50V7K1200VIEL CAPACITOR UNION CARB CK06BX105K | CC 084.5538 | 300.5092 |
| C39 | CC 1UF+-10%50V7K1200VIEL CAPACITOR UNION CARB CK06BX105K | CC 084.5538 | 300.5092 |
| C40 | CK 1,2NF+-1%63V6,3X11 KP CAPACITOR SIEMENS B33531-A5122-F | CK 283.1682 | 300.5092 |
| C41 | CK 3,9NF+-1%63V6,3QUX11KP CAPACITOR SIEMENS B33531-A5392-F | CK 340.8057 | 300.5092 |
| C42 | CK 150PF+-1%63V6,3X11 KP CAPACITOR SIEMENS B33531-A5151-F | CK 340.8070 | 300.5092 |
| C43 | CC 10NF-20+50%7X8R6000 CAPACITOR VALVO 2222 63051 64051103 | CC 087.7525 | 300.5092 |
| C44 | CC 10NF-20+50%7X8R6000 CAPACITOR VALVO 2222 63051 64051103 | CC 087.7525 | 300.5092 |
| C45 | CK 120PF+-1%63V 6,3X11 KP FOIL CAPACITOR SIEMENS B33531-A5121-F | CK 099.3613 | 300.5092 |
| C47 | CT 16PF KF-TRIMMER 1SEIT. CAPACITOR VALVO KF-TR.2222/809/05003 | 252.5634 | 300.5092 |

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|------------------------------|--|-------------------------|------------------------------|
| C49 | CC 1UF+-10%50V7K1200VIEL CAPACITOR | CC 084.5538 | 300.5092 |
| C50 | UNION CARB CK06BX105K CC 10NF-20+50%7X8R6000 CAPACITOR | CC 087.7525 | 300.5092 |
| C51 | VALVO 2222 63051 64051103 CC 1UF+-10%50V7K1200VIEL CAPACITOR | CC 084.5538 | 300.5092 |
| C52 | UNION CARB CK06BX105K CC 10NF-20+50%7X8R6000 CAPACITOR | CC 087.7525 | 300.5092 |
| C53 | VALVO 2222 63051 64051103 CC 10NF-20+50%7X8R6000 CAPACITOR | CC 087.7525 | 300.5092 |
| C54 | VALVO 2222 63051 64051103 CC 10NF-20+50%7X8R6000 CAPACITOR | CC 087.7525 | 300.5092 |
| C56 | VALVO 2222 63051 64051103 CC 10NF-20+50%7X8R6000 CAPACITOR | CC 087.7525 | 300.5092 |
| C57 | VALVO 2222 63051 64051103 CC 10NF-20+50%7X8R6000 CAPACITOR | CC 087.7525 | 300.5092 |
| C58 | VALVO 2222 63051 64051103 CC 10NF-20+50%7X8R6000 CAPACITOR | CC 087.7525 | 300.5092 |
| C59 | CE 100UF-10+50% 25V 13X13 ELECTROLYTIC CAPACITOR | CE 208.4007 | 300.5092 |
| C60 | ROEDERST ELKOEK100/25 CC 10NF-20+50%7X8R6000 CAPACITOR | CC 087.7525 | 300.5092 |
| C61 | VALVO 2222 63051 64051103 CC 10NF-20+50%7X8R6000 CAPACITOR | CC 087.7525 | 300.5092 |
| C62 | VALVO 2222 63051 64051103 CC 10NF-20+50%7X8R6000 CAPACITOR | CC 087.7525 | 300.5092 |
| C63 | VALVO 2222 63051 64051103 CC 15PF+-2%3X4NPO CAPACITOR | CC 087.6441 | 300.5092 |
| C64 | VALVO 2222 678 10159 CC 10NF-20+50%7X8R6000 CAPACITOR | CC 087.7525 | 300.5092 |
| | VALVO 2222 63051 64051103 | | |
| BIS/TO | | | |
| C68 | | | |
| C69 | CE 100UF-10+50% 25V 13X13 ELECTROLYTIC CAPACITOR | CE 208.4007 | 300.5092 |
| C70 | ROEDERST ELKOEK100/25 CC 10NF-20+50%7X8R6000 CAPACITOR | CC 087.7525 | 300.5092 |
| C71 | VALVO 2222 63051 64051103 CC 1UF+-10%50V7K1200VIEL CAPACITOR | CC 084.5538 | 300.5092 |
| | UNION CARB CK06BX105K | | |

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|------------------------------|--|-------------------------|------------------------------|
| C72 | CC 10NF-20+50%7X8R6000 CAPACITOR VALVO 2222 63051 64051103 | CC 087.7525 | 300.5092 |
| C73 | CC 1UF+-10%50V7K1200VIEL CAPACITOR UNION CARB CK06BX105K | CC 084.5538 | 300.5092 |
| C74 | CC 10NF-20+50%7X8R6000 CAPACITOR VALVO 2222 63051 64051103 | CC 087.7525 | 300.5092 |
| BIS/TO C78 | | | |
| C79 | CK 470NF+-5%63V5RM MKT CAPACITOR WIMA MKS2/63/0,47UF/5% | CK 099.2975 | 300.5092 |
| C80 | CC 10NF-20+50%7X8R6000 CAPACITOR VALVO 2222 63051 64051103 | CC 087.7525 | 300.5092 |
| BIS/TO C85 | | | |
| C86 | CE 100UF-10+50% 25V 13X13 ELECTROLYTIC CAPACITOR ROEDERST ELK0EK100/25 | CE 208.4007 | 300.5092 |
| C87 | CC 10NF-20+50%7X8R6000 CAPACITOR VALVO 2222 63051 64051103 | CC 087.7525 | 300.5092 |
| C90 | CK 100NF+-5%63V5RM MKT CAPACITOR WIMA MKS/2/63/0,1UF/5% | CK 099.2930 | 300.5092 |
| C91 | CC 10NF-20+50%7X8R6000 CAPACITOR VALVO 2222 63051 64051103 | CC 087.7525 | 300.5092 |
| BIS/TO C94 | | | |
| C96 | CE 100UF-10+50% 25V 13X13 ELECTROLYTIC CAPACITOR ROEDERST ELK0EK100/25 | CE 208.4007 | 300.5092 |
| C97 | CE 100UF-10+50% 25V 13X13 ELECTROLYTIC CAPACITOR ROEDERST ELK0EK100/25 | CE 208.4007 | 300.5092 |
| C98 | CC 10NF-20+50%7X8R6000 CAPACITOR VALVO 2222 63051 64051103 | CC 087.7525 | 300.5092 |
| C99 | CC 10NF-20+50%7X8R6000 CAPACITOR VALVO 2222 63051 64051103 | CC 087.7525 | 300.5092 |
| C100 | CC 1UF+-10%50V7K1200VIEL CAPACITOR UNION CARB CK06BX105K | CC 084.5538 | 300.5092 |
| C101 | CC 10NF-20+50%7X8R6000 CAPACITOR VALVO 2222 63051 64051103 | CC 087.7525 | 300.5092 |
| C102 | CC 10NF-20+50%7X8R6000 CAPACITOR VALVO 2222 63051 64051103 | CC 087.7525 | 300.5092 |
| C106 | CE 100UF-10+50% 25V 13X13 ELECTROLYTIC CAPACITOR ROEDERST ELK0EK100/25 | CE 208.4007 | 300.5092 |

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|------------------------------|--|-------------------------|------------------------------|
| C108 | CC 390PF+-10%3X4R2000 CAPACITOR | CC 087.6987 | 300.5092 |
| C120 | VALVO 2222 63051 391 CC 22PF+-2%4X5NP0 CAPACITOR | CC 087.6464 | 300.5092 |
| C121 | VALVO 2222 678 10229 CC 22PF+-2%4X5NP0 CAPACITOR | CC 087.6464 | 300.5092 |
| C122 | VALVO 2222 678 10229 CC 22PF+-2%4X5NP0 CAPACITOR | CC 087.6464 | 300.5092 |
| C176 | CE 100UF-10+50% 25V 13X13 ELECTROLYTIC CAPACITOR ROEDERST ELKOEK100/25 | CE 208.4007 | 300.5092 |
| D1 | LD 35DB/200M-10GHZ PI-FIL CHOKE ERIE 1214-038 | LD 300.6818 | 300.5592 |
| BIS/TO D17 | | | |
| GL1 | AD 1N4448 75V 0,15A UDI DIODE | AD 012.0700 | 300.5092 |
| GL51 | VALVO 1N4448 AE 5082-2800 SCHOTTKYDI DIODE HEWLETT-P. 5082-2800 | AE 012.9066 | 300.5092 |
| BIS/TO GL54 | | | |
| GL60 | AE 5082-2800 SCHOTTKYDI DIODE HEWLETT-P. 5082-2800 | AE 012.9066 | 300.5092 |
| GL61 | AE 5082-2800 SCHOTTKYDI DIODE HEWLETT-P. 5082-2800 | AE 012.9066 | 300.5092 |
| K1 | DX KABEL K1 CABLE | 356.0621 | 300.5092 |
| K2 | DX KABEL K2 CABLE | 356.0638 | |
| L20 | LD 120 UH10%13,00HMO,066A CHOKE DELEVAN DROSSEL1025-70 | LD 067.3118 | 300.5092 |
| L21 | LD 10,0UH10%3,300HMO,144A CHOKE DELEVAN DROSSEL1025-44 | LD 026.4184 | 300.5092 |
| L30 | LF 200UH SCHALENK.RD9X5 FERRIT POT CORE | 300.9823 | 300.5092 |
| MP1 | VL WIRE-WRAP PIN BERG NR. 75 403-001 | VL 088.4507 | 300.5092 |
| MP7 | VL WIRE-WRAP PIN BERG NR. 75 403-001 | VL 088.4507 | 300.5092 |

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| Kennzeichen Component No. | Benennung/Beschreibung Designation | Sachnummer Stock No. | enthalten in contained in |
|------------------------------|--|-------------------------|------------------------------|
| BIS/T0 | | | |
| MP11 | | | |
| MP20 | VL WIRE-WRAP PIN BERG NR. 75 403-001 | VL 088.4507 | 300.5092 |
| MP21 | VL WIRE-WRAP PIN BERG NR. 75 403-001 | VL 088.4507 | 300.5092 |
| MP22 | VL WIRE-WRAP PIN BERG NR. 75 403-001 | VL 088.4507 | 300.5092 |
| MP30 | VL WIRE-WRAP PIN BERG NR. 75 403-001 | VL 088.4507 | 300.5092 |
| MP31 | VL WIRE-WRAP PIN BERG NR. 75 403-001 | VL 088.4507 | 300.5092 |
| MP40 | VL WIRE-WRAP PIN BERG NR. 75 403-001 | VL 088.4507 | 300.5092 |
| MP50 | VL WIRE-WRAP PIN BERG NR. 75 403-001 | VL 088.4507 | 300.5092 |
| MP60 | VL WIRE-WRAP PIN BERG NR. 75 403-001 | VL 088.4507 | 300.5092 |
| R19 | RF 0,25W 1,8 OHM +-5% RESISTOR DRALORIC LCA0207/+5%1,8 | 073.9937 | 300.5092 |
| R20 | RL 0,35W 1,50KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/1,50K-F-D | RL 083.0732 | 300.5092 |
| R21 | RL 0,35W 150 OHM+-1%TK50 RESISTOR DRALORIC SMA0207/150OHM-F-D | RL 082.9942 | 300.5092 |
| R22 | RL 0,35W 150 KOHM+-1%TK50 RESISTOR DRALORIC SMA/207/150K-F-C | RL 083.2129 | 300.5092 |
| R23 | RS 0,5W2KOHM+-10%10X10X5 CERMET POTENTIOMETER T BOURNS 3386F-1-202 | RS 247.7884 | 300.5092 |
| R24 | RS 0,5W2KOHM+-10%10X10X5 CERMET POTENTIOMETER T BOURNS 3386F-1-202 | RS 247.7884 | 300.5092 |
| R25 | RL 0,35W 221 OHM+-1%TK50 RESISTOR DRALORIC SMA0207/221OHM-F-D | RL 083.0084 | 300.5092 |
| R26 | RL 0,35W 27,4KOHM+-1%TK50 RESISTOR DRALORIC SMA 0207/27,4K-F-C | RL 082.2583 | 300.5092 |
| R27 | RL 0,35W 1,30KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/1,30K-F-D | RL 083.0678 | 300.5092 |
| R28 | RL 0,35W 681 OHM+-1%TK50 RESISTOR DRALORIC SMA0207/681OHM-F-D | RL 083.0490 | 300.5092 |
| R29 | RL 0,35W 10,0 OHM+-1%TK50 RESISTOR DRALORIC SMA0207/10OHM-F-D | RL 082.8852 | 300.5092 |
| R30 | RL 0,35W 10,0 OHM+-1%TK50 RESISTOR DRALORIC SMA0207/10OHM-F-D | RL 082.8852 | 300.5092 |

300.3819.00 SA BL 8+

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| | |
|----|-------|
| ÄZ | Datum |
| 32 | 0686 |

 Schaltteilliste für
 Parts list for
 ZE NF-GEN U. NF-EICHLIT.
 AF GENERATOR + ATTENUATOR

| | |
|-------------|-----------|
| Sachnummer | Stock No. |
| 300.3819.00 | SA |

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| Kennzeichen Component No. | Benennung/Beschreibung Designation | Sachnummer Stock No. | enthalten in contained in |
|------------------------------|--|-------------------------|------------------------------|
| R40 | RL 0,35W 1,1KOHM+-1%TK50 RESISTOR DRALORIC SMA 0207/1,10K-F-C | RL 082.2483 | 300.5092 |
| R41 | RL 0,35W 1,21KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/1,21K-F-D | RL 083.0655 | 300.5092 |
| R42 | RL 0,35W 768 OHM+-1%TK50 RESISTOR DRALORIC SMA0207/768OHM-F-D | RL 083.0532 | 300.5092 |
| R43 | RL 0,35W 475 OHM+-1%TK50 RESISTOR DRALORIC SMA0207/475OHM-F-D | RL 083.0390 | 300.5092 |
| R50 | RL 0,35W3,01KOHM+-0,1%T25 RESISTOR DRALORIC SMA0207/3,01K-B-E | RL 084.2068 | 300.5092 |
| R51 | RL 0,35W9,09KOHM+-0,1%T25 RESISTOR DRALORIC SMA0207/9,09K-B-E | RL 084.2980 | 300.5092 |
| R52 | RL 0,35W 16,2KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/16,2K-F-D | RL 083.1439 | 300.5092 |
| R53 | RS 0,5W5KOHM+-10%10X10X5 CERMET POTENTIOMETER T BOURNS 3386F-1-502 | RS 247.7890 | 300.5092 |
| R54 | RL 0,35W 10,0KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/10K-F-D | RL 083.1297 | 300.5092 |
| R55 | RL 0,35W3,01KOHM+-0,1%T25 RESISTOR DRALORIC SMA0207/3,01K-B-E | RL 084.2068 | 300.5092 |
| R56 | RL 0,35W 10,0 OHM+-1%TK50 RESISTOR DRALORIC SMA0207/10OHM-F-D | RL 082.8852 | 300.5092 |
| R57 | RL 0,35W9,09KOHM+-0,1%T25 RESISTOR DRALORIC SMA0207/9,09K-B-E | RL 084.2980 | 300.5092 |
| R60 | RL 0,35W1,17KOHM+-0,1%T25 RESISTOR DRALORIC SMAC207/1,17K-B-E | RL 083.9275 | 300.5092 |
| R61 | RL 0,35W130 OHM+-0,1%TK25 RESISTOR DRALORIC 0207 130 OHM 0,1% | RL 083.7443 | 300.5092 |
| R62 | RL 0,35W35,2KOHM+-0,1%T25 RESISTOR DRALORIC 0207 35,2KOHM 0,1% | RL 084.4119 | 300.5092 |
| R63 | RL 0,35W25,8KOHM+-0,1%T25 RESISTOR DRALORIC 0207 25,8KOHM 0,1% | RL 084.3858 | 300.5092 |
| R70 | RL 0,35W 30,1KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/30,1K-F-C | RL 083.1639 | 300.5092 |
| R71 | RL 0,35W 20,0KOHM+-1%TK50 RESISTOR DRALORIC SMA/207/20K-F-C | RL 083.1522 | 300.5092 |
| R72 | RL 0,35W 8,45KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/8,45K-F-D | RL 083.1245 | 300.5092 |

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ÄZ Datum
Date
32 0686

Schaltteilliste für
Parts list for
ZE NF-GEN U. NF-EICHLIT.
AF GENERATOR + ATTENUATOR

Sachnummer
Stock No.
300.3819.00 SA

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| Kennzeichen Component No. | Benennung/Beschreibung Designation | Sachnummer Stock No. | enthalten in contained in |
|------------------------------|---|-------------------------|------------------------------|
| R73 | RL 0,35W21,5KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/21,5K-F-C | RL 082.1741 | 300.5092 |
| R74 | RS 0,5W20KOHM+-10%10X10X5 CERMET POTENTIOMETER T BOURNS 3386F-1-203 | RS 087.7577 | 300.5092 |
| R75 | RL 0,35W 221 KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/221K-F-C | RL 083.2270 | 300.5092 |
| R76 | RL 0,35W 604 OHM+-1%TK50 RESISTOR DRALORIC SMA/207/604OHM-F-C | RL 082.2425 | 300.5092 |
| R77 | RL 0,35W3,16KOHM+-0,1%T25 RESISTOR DRALORIC 0207 3,16KOHM 0,1% | RL 084.2100 | 300.5092 |
| R78 | RL 0,35W1,58KOHM+-0,1%T25 RESISTOR DRALORIC 0207 1,58KOHM 0,1% | RL 083.9523 | 300.5092 |
| R79 | RL 0,35W 8,25KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/8,25K-F-D | RL 083.1239 | 300.5092 |
| R80 | RL 0,35W13,7KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/13,7K-F-D | RL 082.6608 | 300.5092 |
| R81 | RL 0,35W82,5KOHM+-0,1%T25 RESISTOR DRALORIC SMA0207/82,5K-B-E | RL 084.4825 | 300.5092 |
| R83 | RL 0,35W 475 KOHM+-1%TK50 RESISTOR DRALORIC SMA/207/475K-F-C | RL 083.2593 | 300.5092 |
| R84 | RL 0,35W 475 KOHM+-1%TK50 RESISTOR DRALORIC SMA/207/475K-F-C | RL 083.2593 | 300.5092 |
| R85 | RL 0,35W2,05KOHM+-0,1%T25 RESISTOR DRALORIC SMA/207/2,05K-B-E | RL 083.9746 | 300.5092 |
| R86 | RL 0,35W120 OHM+-0,1%TK25 RESISTOR DRALORIC SMA0207/120OHM-B-E | RL 083.7372 | 300.5092 |
| R87 | RL 0,35W7,77KOHM+-0,1%T25 RESISTOR DRALORIC 0207 7,77KOHM 0,1% | RL 084.2851 | 300.5092 |
| R90 | RL 0,35W 1MOHM+-1%TK50 RESISTOR DRALORIC SMA0207/1M-F-D | RL 082.7862 | 300.5092 |
| R92 | RL 0,35W3,16KOHM+-0,1%T25 RESISTOR DRALORIC 0207 3,16KOHM 0,1% | RL 084.2100 | 300.5092 |
| R93 | RL 0,35W1,58KOHM+-0,1%T25 RESISTOR DRALORIC 0207 1,58KOHM 0,1% | RL 083.9523 | 300.5092 |
| R94 | RL 0,35W 47,5KOHM+-1%TK50 RESISTOR DRALORIC SMA/207/47,5K-F-C | RL 083.1800 | 300.5092 |
| R96 | RL 0,35W 475 KOHM+-1%TK50 RESISTOR DRALORIC SMA/207/475K-F-C | RL 083.2593 | 300.5092 |

300.3819.00 SA BL10+

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|----|-------|
| ÄZ | Datum |
| 32 | 0686 |

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|---|
| Schaltteilliste für Parts list for |
| ZE NF-GEN U. NF-EICHLIT. AF GENERATOR + ATTENUATOR |

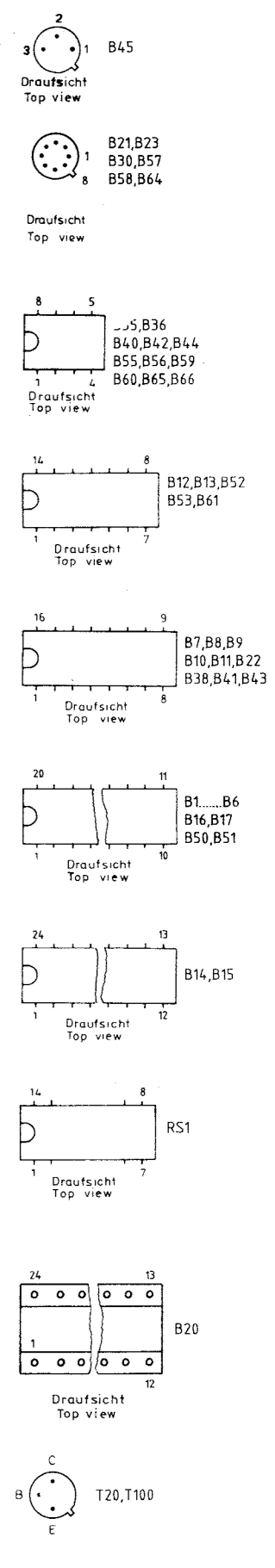
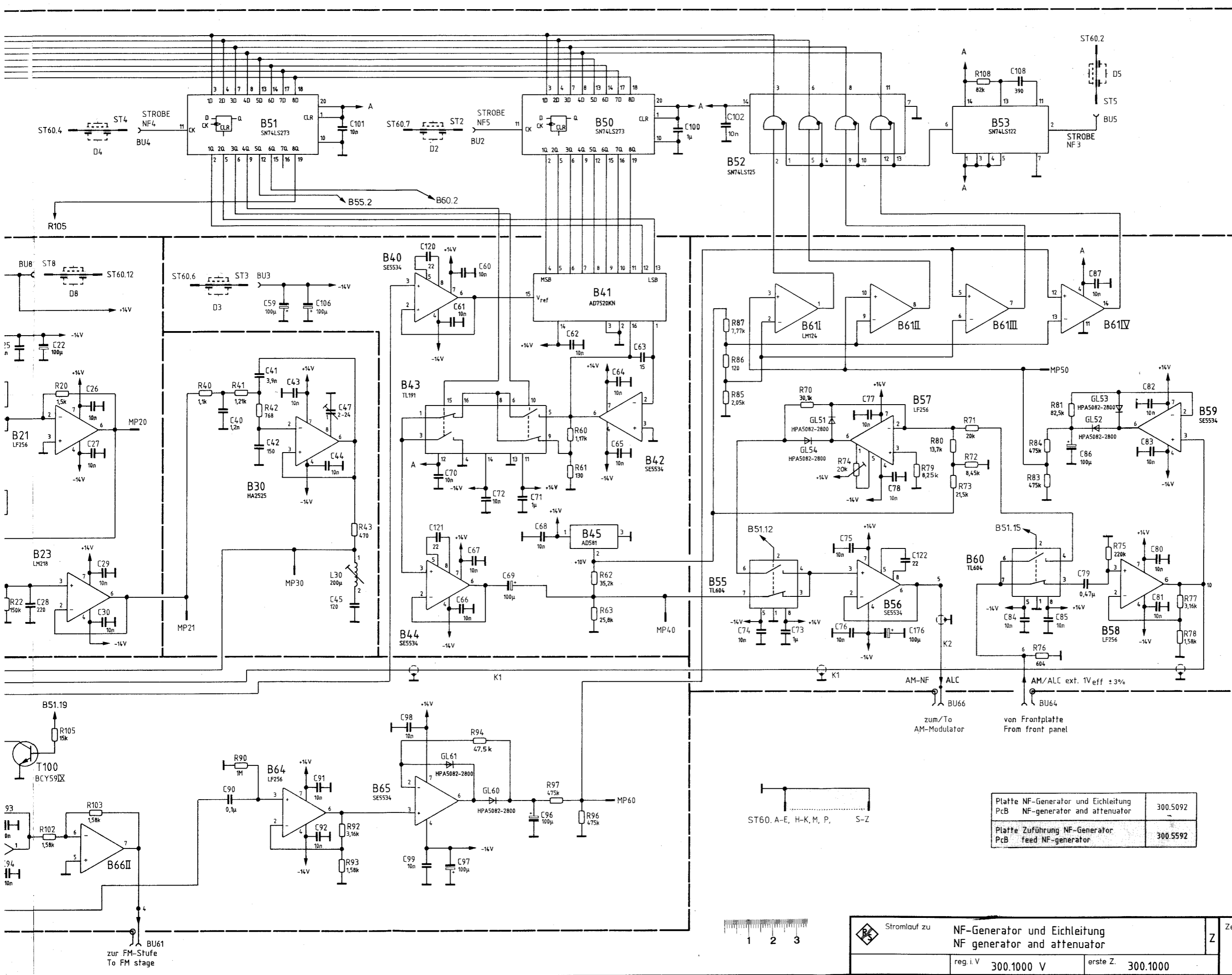
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|-------------------------|
| Sachnummer Stock No. |
| 300.3819.00 SA |

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| Kennzeichen Component No. | Benennung/Beschreibung Designation | Sachnummer Stock No. | enthalten in contained in |
|------------------------------|---|-------------------------|------------------------------|
| R97 | RL 0,35W 475 KOHM+-1%TK50 RESISTOR DRALORIC SMA/207/475K-F-C | RL 083.2593 | 300.5092 |
| R100 | RL 0,35W604 OHM+-0,1%TK25 RESISTOR DRALORIC 0207 604 OHM 0,1% | RL 083.8727 | 300.5092 |
| R101 | RL 0,35W604 OHM+-0,1%TK25 RESISTOR DRALORIC 0207 604 OHM 0,1% | RL 083.8727 | 300.5092 |
| R102 | RL 0,35W1,58KOHM+-0,1%T25 RESISTOR DRALORIC 0207 1,58KOHM 0,1% | RL 083.9523 | 300.5092 |
| R103 | RL 0,35W1,58KOHM+-0,1%T25 RESISTOR DRALORIC 0207 1,58KOHM 0,1% | RL 083.9523 | 300.5092 |
| R104 | RL 0,35W604 OHM+-0,1%TK25 RESISTOR DRALORIC 0207 604 OHM 0,1% | RL 083.8727 | 300.5092 |
| R105 | RL 0,35W 15,0KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/15K-F-D | RL 083.1400 | 300.5092 |
| R108 | RL 0,35W 82,5KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/82,5K-F-C | RL 082.2302 | 300.5092 |
| RS1 | SR 5 V 1XU DIL RELAY SIEMENS V23100-V4305-C000 | SR 340.4551 | 300.5092 |
| ST1 | FP EINZELKONTAKTSTIFT SINGLE-CONTACT PIN ULMIC R&S.ZCHNG.300.8804 | 300.8804 | 300.5592 |
| BIS/TO ST17 ST60 | ENTHALTEN IN/INCLUDED IN LEITERPLATTE/PCB | | 300.5592 |
| T20 | AK 2N5109 NPN 20V 400MA TRANSISTOR RCA 2N5109 | AK 010.0761 | 300.5092 |
| T100 | AK BCY59IX NPN 45V 200MA TRANSISTOR SIEMENS BCY59IX | AK 010.5163 | 300.5092 |
| | | | - ENDE - |

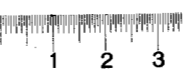
300.3819.00 SA BL11-

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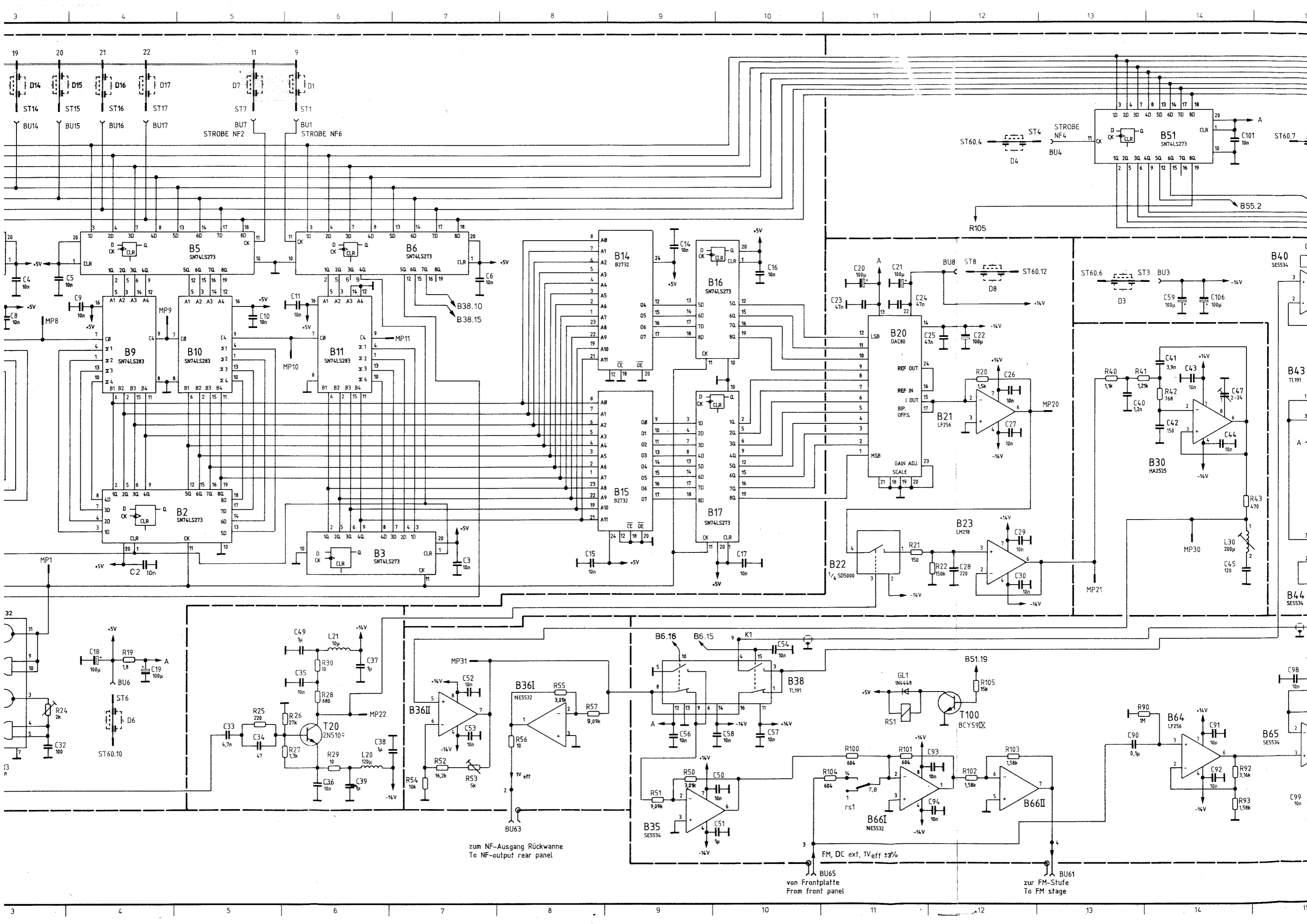


| | |
|--|----------|
| Platte NF-Generator und Eichleitung PcB NF-generator and attenuator | 300.5092 |
| Platte Zuführung NF-Generator PcB feed NF-generator | 300.5592 |

| | | | | | | |
|---|---|------------|------------|-------------|----------|---------------------|
| Stromlauf zu NF-Generator und Eichleitung NF generator and attenuator | Z | reg. i. V | 300.1000 V | erste Z. | 300.1000 | Blatt-Nr. v. Bl. |
| | | 300.3819 S | | Zeichn.-Nr. | | |



ST60. A-E, H-K, M, P, S-Z



STROBE NF2

STROBE NF6

STROBE NF4

zur NF-Ausgang Rückwanne
To NF-output rear panel

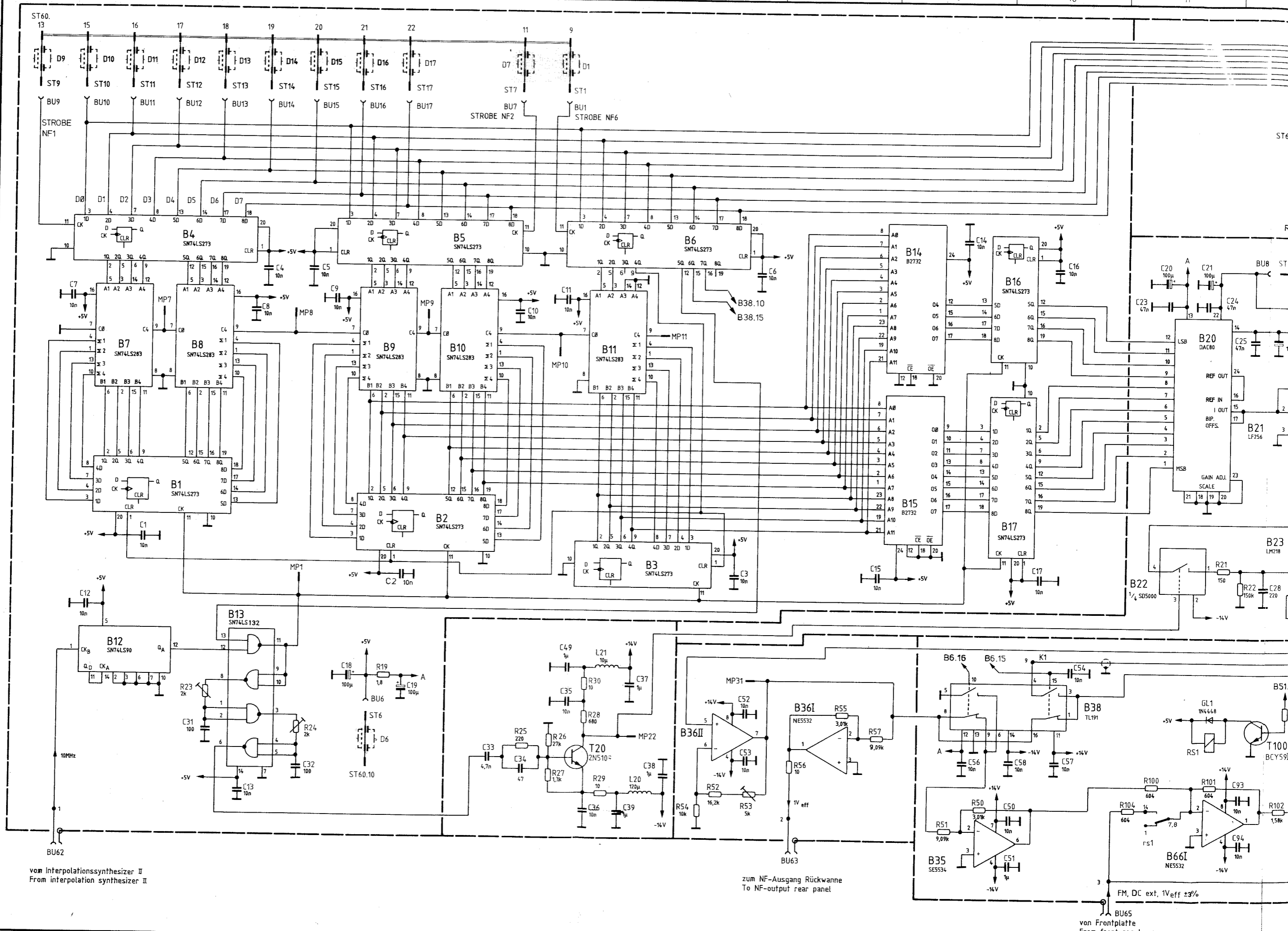
FM, DC ext, 1V_{eff} ±3%

zur FM-Stufe
To FM stage

von Frontplatte
From front panel

| | |
|-----------------|------------|
| Zeichn.-Nr. | 100.3819 S |
| 1:GA | |
| gezeichnet | gu |
| bearbeitet | ls |
| geprüft | 7.82 |
| normgepr. | J |
| And-Mittig. Nr. | 27860 |
| Datum | 13.7.82 |
| Name | ls |
| And-Mittig. Nr. | 31057 |
| Datum | 11.82 |
| Name | ls |
| And-Mittig. Nr. | 32288 |
| Datum | 11.84 |
| Name | OS |

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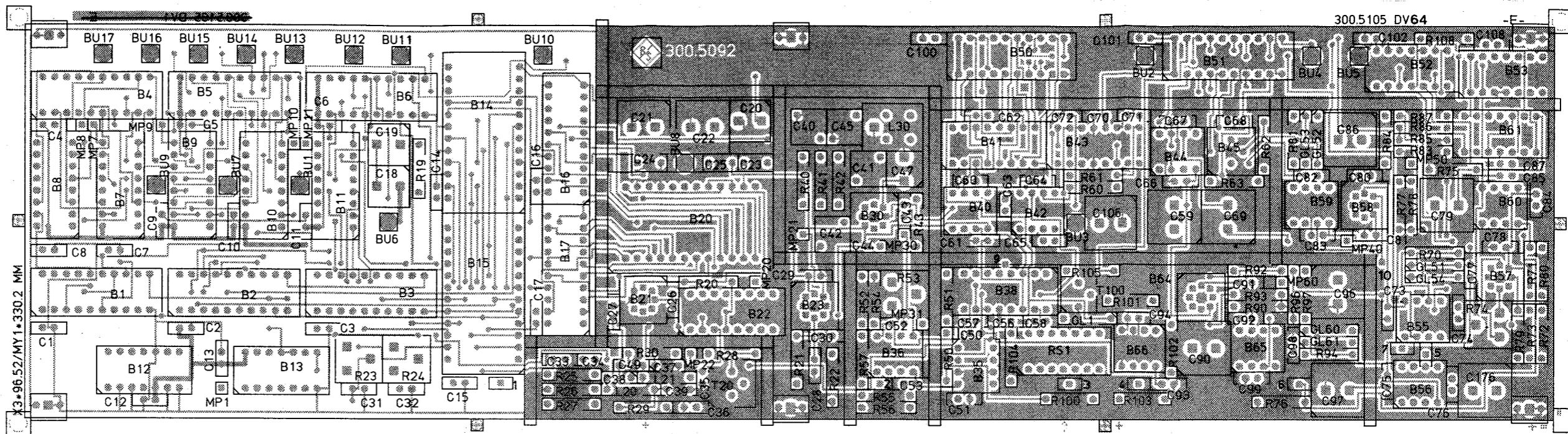
vom Interpolationssynthesizer II
From interpolation synthesizer II

zum NF-Ausgang Rückwanne
To NF-output rear panel

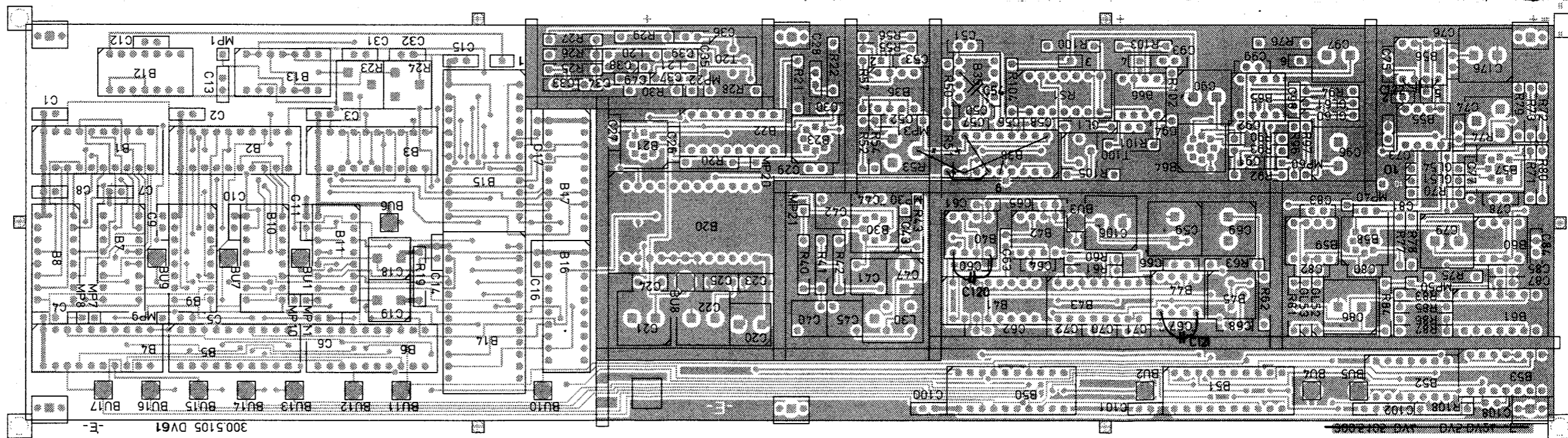
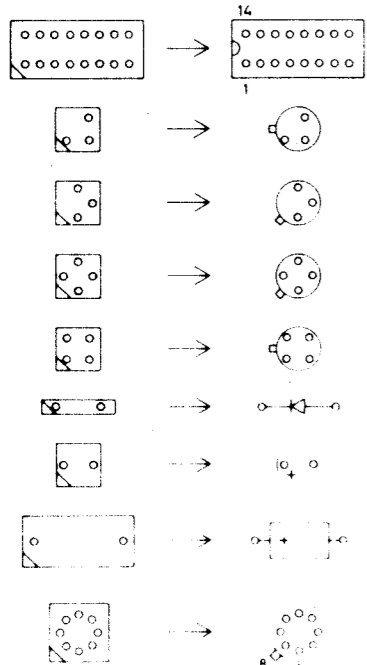
FM, DC ext, 1V_{eff} ±3%
von Frontplatte
From front panel

Für diese Unterlage behalten wir uns alle Rechte vor.

Ansicht und Leitungsführung Bauteilseite
View of tracks on component side



Symbolschlüssel



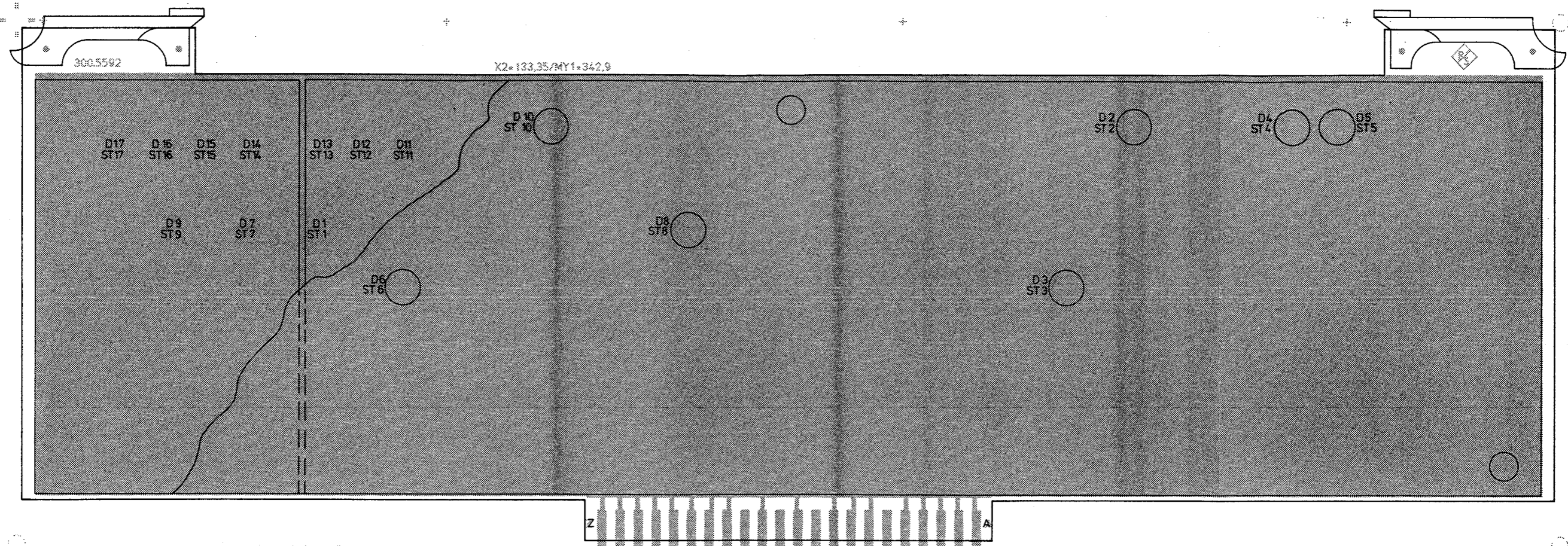
Ansicht und Leitungsführung Lötseite
View of tracks on solder side

Achtung! MOS - Bauteile
Caution. MOS components

| | | | | | | | | | |
|---|-------|-------|----|--------------------------|---------------|------------|--|---------------|-----------|
| E | 27860 | 6.82 | LS | Maße ohne Toleranzangabe | Maßstab 1 : 1 | | | | |
| F | 27860 | 11.82 | LS | | | | | | |
| G | 32288 | 11.84 | GS | | | | | | |
| | | | | 1GM | Tag | Name | Benennung NF-GENERATOR UND EICHLITUNG NF-Generator and attenuator | Z | |
| | | | | Bearb | 6.82 | LS | | | |
| | | | | Gepr | | | | | |
| | | | | Norm | | | | | |
| | | | | | | Zeichn.-Nr | 300.5092 | Blatt-Nr 2 | |
| | | | | zu Gerat | SMPC | reg. v | | | 300.1000V |

ISO Projektionsmethode E

Ansicht und Leitungsführung Bauteilseite
View of tracks on component side

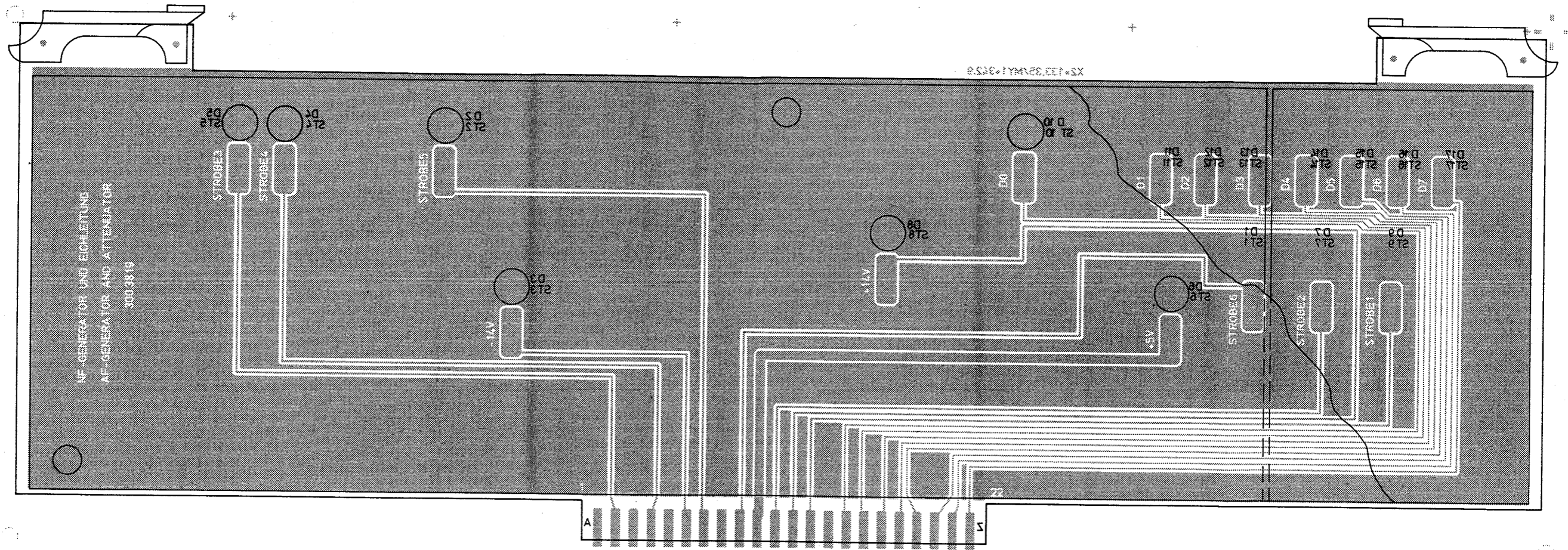


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| | | | | | |
|----------|----------------------|-----|---------------------------|---------------------------|------------|
| D | 27.1.82 | LS | Mafle ohne Toleranzangabe | Maßstab 1 : 1 | |
| | | | | Halbzeug, Werkstoff | |
| | | | 1GMS | Tag | Name |
| | | | Bearb | 27.1.82 | LS |
| | | | Gepr | | |
| | | | Norm | | |
| | | | | Benennung | Z |
| | | | | Zuführ. NF-Gen.+ Eichl. | |
| | | | | Feed NF-Gen. + Attenuator | |
| | | | | Zeichn. Nr. | Blatt-Nr. |
| | | | | 300.5592 | 2 |
| And Zust | Anderungs Mitteilung | Tag | Name | zu Gerät | reg. V |
| | | | | SMPC | 300.1000 V |
| | | | | | erste Z |
| | | | | | 300.3819 |

ISO Projektion
Methode 1

Ansicht und Leitungsführung Lötseite
View of tracks on solder side



Für diese Unterlage behalten wir uns alle Rechte vor.



| | | | | | |
|----------|----------------------|-----|----------------------------|---------------------------|------------------|
| D | 27.1.82 | LS | Mafie ohne Toleranzangabe | Maßstab 1 : 1 | |
| | | | | Halbzeug, Werkstoff | |
| | | | 1GME Tag Name | Benennung | Z |
| | | | Bearb 27.1.82 LS | Zuführ. NF-Gen. + Eichl, | |
| | | | Gepr | Feed NF-Gen. + Attenuator | |
| | | | Norm | | |
| | | | ROHDE & SCHWARZ | Zeichn. Nr | Blatt-Nr |
| | | | | 300.5592 | 3 |
| And Zust | Anderungs-Mitteilung | Tag | Name | reg v 300.1000V | erste Z 300.3819 |
| | | | zu Gerät SMPC | | |



ROHDE & SCHWARZ

SERVICE INSTRUCTIONS FOR
Interpolation Synthesizer I
300.2812 (Y4)

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| <u>5</u> | <u>Service Instructions for</u> | |
| | <u>Interpolation Synthesizer I 300.2812 (Y4)</u> | <u>5.1</u> |
| 5.1 | Circuit Description | 5.1 |
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| | Circuit diagram | |
| | Components location plans | |

5.1 Circuit Description

(See circuit diagram 300.2812 S and Fig. 5-1)

Y4 contains a digital synthesizer which delivers a frequency of 200 to 300 kHz with a resolution of 1.2 MHz. Two mixers convert this frequency to 12.2 to 12.3 MHz. This signal is added to the interpolation oscillator III control loop where it produces the fine resolution of the 240-to-247-MHz signal.

5.1.1 Digital Synthesizer

Increment I which is added in a 32-bit adder with a clock of 5 MHz derived from the 10-MHz reference frequency is calculated in the processor Y1 and stored in the latches B9, B13, B17 and B21. The most significant bit of the sum switches an inverter made up of exclusive OR gates.

As long as this bit is low, an ascending series of figures is obtained after the inverter. When this sum reaches $2^{32}/2$ in the adder, the bit goes high. A descending series of figures is then obtained after the inverter.

This series of figures is converted in a 12-bit D/A converter into a triangular function the frequency f_T of which is determined by the increment I according to the formula

$$I = \frac{f_T/\text{Hz}}{5 \times 10^6} \cdot 2^{32}.$$

Since the summation of the increment does not normally go into the maximum value $2^{32}/2$ the triangular voltage at the output of the D/A converter exhibits amplitude and phase fluctuations. The carry being reused in the continuous summation and averaging over many periods brings about the high setting accuracy.

5.1.2 Analog Section

A sample circuit following the D/A converter suppresses interference pulses. After filtering in a lowpass filter and amplification the signal is applied to a comparator which suppresses the spurious AM. The 200-to-300-kHz signal is mixed with 2 and 10 MHz in two mixers to obtain 12.2 to 12.3 MHz. An amplifier with two transistors (T4, T5) boosts the output level to -3 dBm.

5.2 Checking and Adjustment Procedures

5.2.1 Adjustment of the Mixer Symmetry

Setup on Y4:

- Connect spectrum analyzer to BU73.

Set frequency of 240.050 MHz on the XPC/SMPC and adjust R16 for minimum amplitude of the 250-kHz side lines of the 12.25-MHz signal. The non-harmonic spurious signals must be < -70 dBc.

5.2.2 Setting the Output Level

Setup on Y4 as under 5.2.1.

Set the output power at BU73 to -3 ± 1 dBm at a frequency of 240.050 MHz.

5.2.3 Checking the Digital Adder

The individual bits of the increment can be set with the aid of the test EPROM provided on the processor board Y1 permitting the function of the digital adder to be checked.

Setup on Y1:

- Replace B10 by test EPROM Id.No. 337.9904 (incl. in Service Kit XPC-Z1)
- Switch on the XPC/SMPC.

At switch-on the selected IEC-bus address is displayed on the XPC/SMPC. By pressing the key

| | |
|----------|---|
| RF Hz | the interpolation synthesizer I test is called up. The display reads |
|----------|---|

INT_I 0 0

bit n 0: all bits are low
(0 to 27) 1: selected bit goes high

Now the following entries can be made:

| | |
|---|------------------------|
| 0 | |
| ⋮ | corresponding to bit n |
| ⋮ | |
| 2 | 7 |

- +** a) First stroke: selected bit n goes high and the data word is output.
 b) Next stroke: n is incremented and the new data word is output.
- a) First stroke: same as with **+**
 b) Next stroke: n is decremented and the data word is output.
- C** n is reset to 0 and the data word is output with all bits being reset to 0.

Bit 0 now goes high. A pulse train with a period of 3.2 μ s can then be measured at B7.9 by means of an oscilloscope. Subsequently n is incremented to between 1 and 3 and each time the period at B7.9 is halved. When bit 3 is set, a pulse train with a period of 6.4 μ s must be present at B8.9 (overflow of the adder B7 to B8).

This procedure is performed accordingly for all other adders:

| Adder | n |
|-------|---------|
| B7 | 0 - 3 |
| B8 | 4 - 7 |
| B11 | 8 - 11 |
| B12 | 12 - 15 |
| B15 | 16 - 19 |
| B16 | 20 - 23 |
| B19 | 24 - 27 |

5.2.4 Checking the Non-harmonic Spurious Signals

5.2.4.1 Non-harmonic Spurious Mixer Signals

Setup on Y4:

→ Connect spectrum analyzer to BU73.

Switch on XPC/SMPC and vary frequency between 240.0 and 240.1 MHz. The output frequency of the interpolation synthesizer I is then 12.2 to 12.3 MHz. The non-harmonic spurious signals must be ≤ -70 dBc at the following search frequencies:

10 MHz,
7.7 to 7.8 MHz
12.8 to 12.7 MHz
12.2 to 12.3 MHz $\pm f_T$, $2 f_T$, $3 f_T$, $4 f_T$

(f_T : 200 to 300 kHz)

5.2.4.2 Non-harmonic Spurious Synthesizer Signals

Set the following frequencies on the XPC/SMPC. Then detune the frequency first by 1 Hz and then by 20 Hz. Check the non-harmonic spurious signals by means of the spectrum analyzer (span 2 kHz). It must be ≤ -70 dBc at all frequencies.

| f XPC/MHz | |
|-----------|-----|
| 240.008 | 333 |
| 240.017 | 391 |
| 240.027 | 273 |
| 240.038 | 095 |
| 240.050 | 000 |
| 240.063 | 158 |
| 240.077 | 778 |
| 240.094 | 118 |

5.3 Troubleshooting

(For signature analysis see Processor Board Y1)

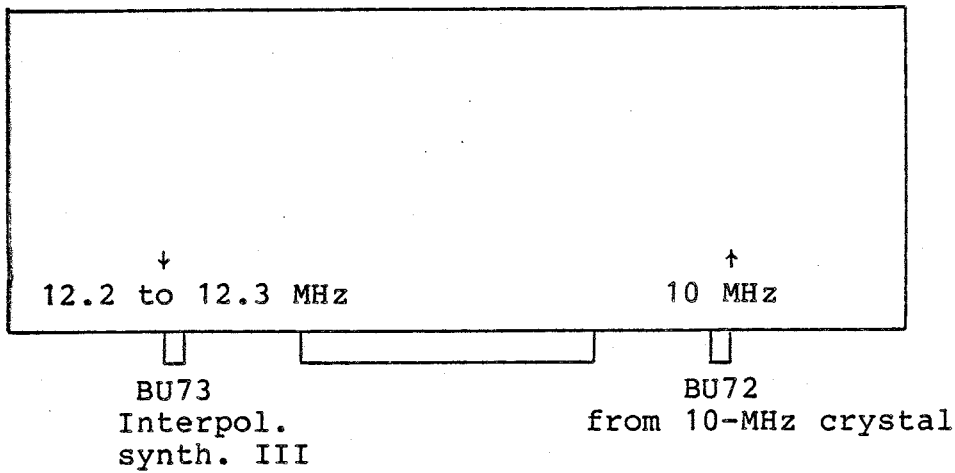
Errors in the digital section can be located according to 5.2.3. The analog section can be checked at the following test points starting from the D/A converter.

$$f_{XPC} = 240.050 \text{ MHz}$$

Measure by means of oscilloscope, 10:1 probe, C_i max 15 pF.

| Test point | Frequency | Amplitude | Shape of curve |
|------------|-----------|-----------------------|---------------------------------------|
| R5 | 250 kHz | $0.6 \pm 0.1 V_{pp}$ | Triangular, superimposed 5-MHz spikes |
| Coll. T101 | 5 MHz | $0/-14 V_{pp}$ | Rectangular |
| R11 | 250 kHz | $7 \pm 1 V_{pp}$ | Sinusoidal |
| ST21 | 250 kHz | $1.75 \pm 0.3 V_{pp}$ | Sinusoidal |
| R27 - C59 | 2 MHz | $1.2 \pm 0.2 V_{pp}$ | Sinusoidal |
| ST22 | 2.25 MHz | $2.5 \pm 0.5 V_{pp}$ | Sinusoidal |
| ST23 | 2.25 MHz | $1 \pm 0.2 V_{pp}$ | Sinusoidal |
| R31 - C83 | 10 MHz | $0.4 \pm 0.1 V_{pp}$ | Sinusoidal |
| BU73 | 12.25 MHz | 280 to 630 mV_{pp} | Sinusoidal with 50 Ω load |

5.3.1 Interfaces



| St/BU | 72 | 73 |
|----------------|--------------------|------------------------|
| f | 10 MHz | 12.2 to 12.3 MHz |
| Level | $2 \pm 0.2 V_{SS}$ | $-3 \pm 1 \text{ dBm}$ |
| Z | 220Ω | 50Ω |
| AC-DC | AC | AC |
| Shape of curve | rectangular | sinusoidal |

Digital interface

Four strobes, data: increment I is transferred in binary with 28-bit resolution.

| Data bus | D7 | D6 | D5 | D4 | D3 | D2 | D1 | D0 |
|----------------------|-------|-------|-------|-------|-------|-------|-------|-------|
| | ST | ST | ST | ST | ST | ST | ST | ST |
| | 70.22 | 70.21 | 70.20 | 70.19 | 70.18 | 70.17 | 70.16 | 70.15 |
| Strobe 1 ST 70.13 | X | X | X | X | MSB | - | - | - |
| Strobe 2 ST 70.5 | - | - | - | - | - | - | - | - |
| Strobe 3 ST 70.4 | - | - | - | - | - | - | - | - |
| Strobe 4 ST 70.3 | - | - | - | - | - | - | - | LSB |

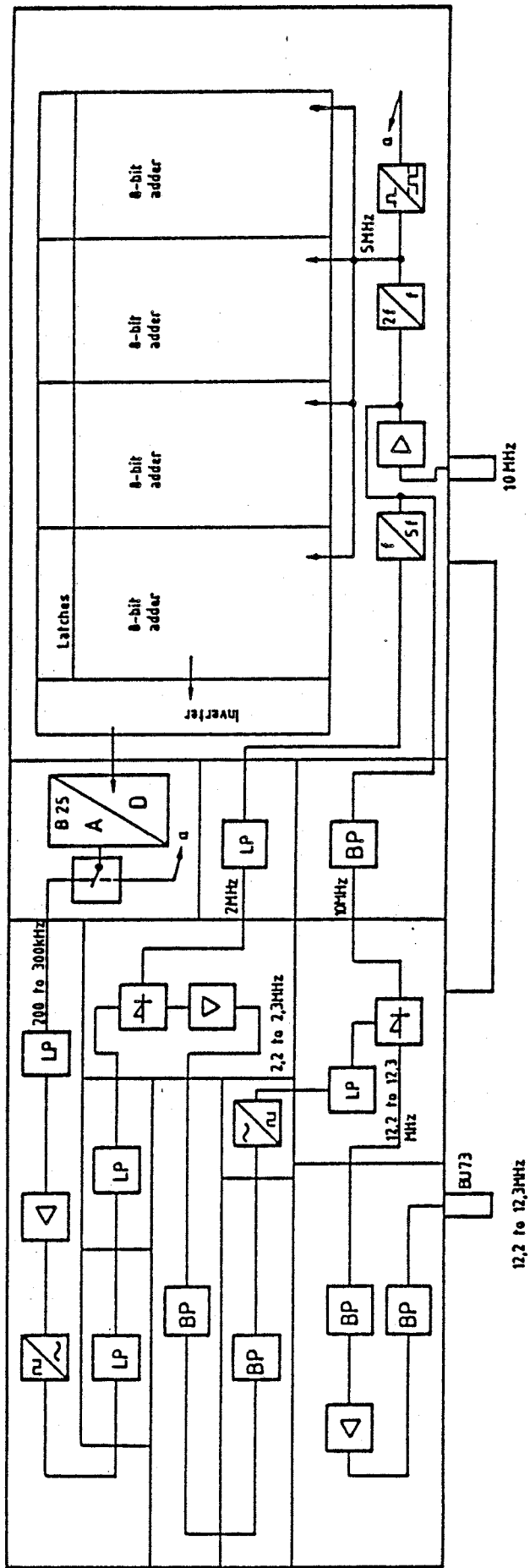


Fig. 5-1 Block diagram of interpolation synthesizer I



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Schalteillisten
Stromläufe
Bestückungspläne
Parts lists
Circuit diagrams
Components plans

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Schaltteilliste für
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Stock No.

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Kennzeichen
Component No.Benennung/Beschreibung
DesignationSachnummer
Stock No.enthalten in
contained in

B3

BL SN74LS107AN 2/JK-FLIPF
IC FLIP-FLOP SN74LS107AN
TEXAS SN74LS107AN

300.6453

300.5111

B4

BL SN74LS00N 4/2INP.NAND
IC NAND GATE SN74LS00N

266.4641

300.5111

B5

BL SN74LS290N DEC.COUNTER
IC DECADE COUNTER SN74LS2
TEXAS SN74LS290N

300.6447

300.5111

B6

BL SN74LS273N 8BIT-D-REG.
8BIT-D-REGISTER
TEXAS SN74LS273N

214.8998

300.5111

B7

BL SN74LS283N 4-BIT-ADD.
IC SN74LS283N 4-BIT-ADD.
TEXAS SN74LS283N

283.1760

300.5111

B8

BL SN74LS283N 4-BIT-ADD.
IC SN74LS283N 4-BIT-ADD.
TEXAS SN74LS283N

283.1760

300.5111

B9

BL SN74LS273N 8BIT-D-REG.
8BIT-D-REGISTER
TEXAS SN74LS273N

214.8998

300.5111

B10

BL SN74LS273N 8BIT-D-REG.
8BIT-D-REGISTER
TEXAS SN74LS273N

214.8998

300.5111

B11

BL SN74LS283N 4-BIT-ADD.
IC SN74LS283N 4-BIT-ADD.
TEXAS SN74LS283N

283.1760

300.5111

B12

BL SN74LS283N 4-BIT-ADD.
IC SN74LS283N 4-BIT-ADD.
TEXAS SN74LS283N

283.1760

300.5111

B13

BL SN74LS273N 8BIT-D-REG.
8BIT-D-REGISTER
TEXAS SN74LS273N

214.8998

300.5111

B14

BL SN74LS273N 8BIT-D-REG.
8BIT-D-REGISTER
TEXAS SN74LS273N

214.8998

300.5111

B15

BL SN74LS283N 4-BIT-ADD.
IC SN74LS283N 4-BIT-ADD.
TEXAS SN74LS283N

283.1760

300.5111

B16

BL SN74LS283N 4-BIT-ADD.
IC SN74LS283N 4-BIT-ADD.
TEXAS SN74LS283N

283.1760

300.5111

B17

BL SN74LS273N 8BIT-D-REG.
8BIT-D-REGISTER
TEXAS SN74LS273N

214.8998

300.5111

B18

BL SN74273N 8BIT-D-REGIST
IC REGISTER SN74273N
TEXAS SN74273N

335.8500

300.5111

B19

BL SN74LS283N 4-BIT-ADD.
IC SN74LS283N 4-BIT-ADD.
TEXAS SN74LS283N

283.1760

300.5111

B20

BL SN74LS283N 4-BIT-ADD.
IC SN74LS283N 4-BIT-ADD.
TEXAS SN74LS283N

283.1760

300.5111

B21

BL SN74LS273N 8BIT-D-REG.
8BIT-D-REGISTER
TEXAS SN74LS273N

214.8998

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Parts list for

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INTERPOL.-SYNTHESIZER I

Sachnummer
Stock No.

300.2812.00 SA

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| Kennzeichen Component No. | Benennung/Beschreibung Designation | Sachnummer Stock No. | enthalten in contained in |
|------------------------------|--|-------------------------|------------------------------|
| B22 | BL SN74LS86N EXOR-GATTER IC 74LS86N TEXAS SN74LS86N | 235.8497 | 300.5111 |
| BIS/TO B24 | | | |
| B25 | BJ DAC800BII 12B.D/A-CONV D/A-CONVERTER BURR-BROWN DAC-800BI-I | 300.6330 | 300.5111 |
| B26 | BO LF157H BIFET OPAMP OPERATIONAL AMPLIFIER VALVO LF157H | BO 300.9352 | 300.5111 |
| B27 | BO LM206H COMPAR COMPARATOR AMD LM206H | 300.6476 | 300.5111 |
| B28 | BO LM1596 MOD/DEMOM MODULATOR/DEMOMODULATOR NSC LM1596H | BO 417.0419 | 300.5111 |
| B29 | BO UA710HC DIFF COMPAR COMPARATOR NSC LM710C | 009.1074 | 300.5111 |
| B30 | BO LM1596 MOD/DEMOM MODULATOR/DEMOMODULATOR NSC LM1596H | BO 417.0419 | 300.5111 |
| BR6 | FP KURZSCHLUSSBUCHSE SHORTING PLUG PK 452-70302 | FP 491.7042 | 300.5111 |
| BR10 | FP KURZSCHLUSSBUCHSE SHORTING PLUG PK 452-70302 | FP 491.7042 | 300.5111 |
| BR14 | FP KURZSCHLUSSBUCHSE SHORTING PLUG PK 452-70302 | FP 491.7042 | 300.5111 |
| BR18 | FP KURZSCHLUSSBUCHSE SHORTING PLUG PK 452-70302 | FP 491.7042 | 300.5111 |
| BU2 | FP BUCHSE VERTIKAL P.V.1P SOCKET BERG 75377-001 | FP 278.5577 | 300.5111 |
| BIS/TO BU16 | | | |
| BU72 | FJ EINBAUBUCHSE SYST.SMS FIXED SOCKET RADIALL R.299 012 | 300.6876 | |
| BU73 | FJ EINBAUBUCHSE SYST.SMS FIXED SOCKET RADIALL R.299 012 | 300.6876 | |
| C1 | CC 4,7NF+-10%6X9R2000 CAPACITOR VALVO 2222 63051 472 | CC 087.7102 | 300.5111 |
| C2 | CE RICHTIGE SNR. 006.7142 ELECTROLYTIC CAPACITOR ROEDERST ELKO EK47/16 | 022.7543 | 300.5111 |
| C3 | CC 4,7NF+-10%6X9R2000 CAPACITOR VALVO 2222 63051 472 | CC 087.7102 | 300.5111 |
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| Kennzeichen Component No. | Benennung/Beschreibung Designation | Sachnummer Stock No. | enthalten in contained in |
|------------------------------|---|-------------------------|------------------------------|
| C4 | CE 100UF-10+50% 25V 13X13 ELECTROLYTIC CAPACITOR | CE 208.4007 | 300.5111 |
| C5 | ROEDERST ELKOEK100/25 CC 4,7NF+-10%6X9R2000 CAPACITOR | CC 087.7102 | 300.5111 |
| C6 | VALVO 2222 63051 472 CC 4,7NF+-10%6X9R2000 CAPACITOR | CC 087.7102 | 300.5111 |
| C8 | VALVO 2222 63051 472 CC 4,7NF+-10%6X9R2000 CAPACITOR | CC 087.7102 | 300.5111 |
| C9 | VALVO 2222 63051 472 CC 220PF+-2%6X7N750 CAPACITOR | CC 087.6941 | 300.5111 |
| C10 | VALVO 2222 678 58221 CC 680PF+-10%4X5R2000 CAPACITOR | CC 087.7019 | 300.5111 |
| C11 | VALVO 2222 63051 681 CC 220PF+-2%6X7N750 CAPACITOR | CC 087.6941 | 300.5111 |
| C12 | VALVO 2222 678 58221 CC 10NF-20+50%7X8R6000 CAPACITOR | CC 087.7525 | 300.5111 |
| C13 | VALVO 2222 63051 64051103 CC 4,7NF+-10%6X9R2000 CAPACITOR | CC 087.7102 | 300.5111 |
| C14 | VALVO 2222 63051 472 CC 4,7NF+-10%6X9R2000 CAPACITOR | CC 087.7102 | 300.5111 |
| C16 | VALVO 2222 63051 472 CC 4,7NF+-10%6X9R2000 CAPACITOR | CC 087.7102 | 300.5111 |
| C17 | VALVO 2222 63051 472 CC 4,7NF+-10%6X9R2000 CAPACITOR | CC 087.7102 | 300.5111 |
| C18 | VALVO 2222 63051 472 CC 4,7NF+-10%6X9R2000 CAPACITOR | CC 087.7102 | 300.5111 |
| C19 | VALVO 2222 63051 472 CC 4,7NF+-10%6X9R2000 CAPACITOR | CC 087.7102 | 300.5111 |
| C20 | VALVO 2222 63051 472 CC 4,7NF+-10%6X9R2000 CAPACITOR | CC 087.7102 | 300.5111 |
| C21 | VALVO 2222 63051 472 CC 4,7NF+-10%6X9R2000 CAPACITOR | CC 087.7102 | 300.5111 |
| C22 | VALVO 2222 63051 472 CC 4,7NF+-10%6X9R2000 CAPACITOR | CC 087.7102 | 300.5111 |
| C23 | VALVO 2222 63051 472 CC 4,7NF+-10%6X9R2000 CAPACITOR | CC 087.7102 | 300.5111 |
| C24 | VALVO 2222 63051 472 CC 4,7NF+-10%6X9R2000 CAPACITOR | CC 087.7102 | 300.5111 |

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| Kennzeichen Component No. | Benennung/Beschreibung Designation | Sachnummer Stock No. | enthalten in contained in |
|------------------------------|--|-------------------------|------------------------------|
| C25 | CC 4,7NF+-10%6X9R2000 CAPACITOR VALVO 2222 63051 472 | CC 087.7102 | 300.5111 |
| C26 | CC 4,7NF+-10%6X9R2000 CAPACITOR VALVO 2222 63051 472 | CC 087.7102 | 300.5111 |
| C27 | CC 4,7NF+-10%6X9R2000 CAPACITOR VALVO 2222 63051 472 | CC 087.7102 | 300.5111 |
| C28 | CC 4,7NF+-10%6X9R2000 CAPACITOR VALVO 2222 63051 472 | CC 087.7102 | 300.5111 |
| C29 | CC 4,7NF+-10%6X9R2000 CAPACITOR VALVO 2222 63051 472 | CC 087.7102 | 300.5111 |
| C30 | CC 4,7NF+-10%6X9R2000 CAPACITOR VALVO 2222 63051 472 | CC 087.7102 | 300.5111 |
| C31 | CC 4,7NF+-10%6X9R2000 CAPACITOR VALVO 2222 63051 472 | CC 087.7102 | 300.5111 |
| C32 | CC 4,7NF+-10%6X9R2000 CAPACITOR VALVO 2222 63051 472 | CC 087.7102 | 300.5111 |
| C33 | CC 4,7NF+-10%6X9R2000 CAPACITOR VALVO 2222 63051 472 | CC 087.7102 | 300.5111 |
| C34 | CC 4,7NF+-10%6X9R2000 CAPACITOR VALVO 2222 63051 472 | CC 087.7102 | 300.5111 |
| C35 | CC 4,7NF+-10%6X9R2000 CAPACITOR VALVO 2222 63051 472 | CC 087.7102 | 300.5111 |
| C38 | CC 4,7NF+-10%6X9R2000 CAPACITOR VALVO 2222 63051 472 | CC 087.7102 | 300.5111 |
| C39 | CC 4,7NF+-10%6X9R2000 CAPACITOR VALVO 2222 63051 472 | CC 087.7102 | 300.5111 |
| C40 | CC 4,7NF+-10%6X9R2000 CAPACITOR VALVO 2222 63051 472 | CC 087.7102 | 300.5111 |
| C41 | CC 4,7NF+-10%6X9R2000 CAPACITOR VALVO 2222 63051 472 | CC 087.7102 | 300.5111 |
| C42 | CC 4,7NF+-10%6X9R2000 CAPACITOR VALVO 2222 63051 472 | CC 087.7102 | 300.5111 |
| C43 | CC 180PF+-2%6X7N750 CAPACITOR VALVO 2222 678 58181 | CC 087.6935 | 300.5111 |
| C44 | CC 180PF+-2%6X7N750 CAPACITOR VALVO 2222 678 58181 | CC 087.6935 | 300.5111 |
| C46 | CC 150PF+-2%6X9N150 CAPACITOR VALVO 2222 678 34151 | CC 087.6735 | 300.5111 |
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| Sachnummer Stock No. |
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| Kennzeichen Component No. | Benennung/Beschreibung Designation | Sachnummer Stock No. | enthalten in contained in |
|------------------------------|---|-------------------------|------------------------------|
| C47 | CC 390PF+- 5%100V NPO VIE CERAMIC CAPACITOR | CC 060.0842 | 300.5111 |
| C48 | UNIONCARB C052C391J2G1CA CK 220PF+-1%125V 5RDX12KS CAPACITOR | CK 023.9210 | 300.5111 |
| C49 | SIEMENS B31861J1221F000 CC 390PF+- 5%100V NPO VIE CERAMIC CAPACITOR | CC 060.0842 | 300.5111 |
| C50 | UNIONCARB C052C391J2G1CA CK 220PF+-1%125V 5RDX12KS CAPACITOR | CK 023.9210 | 300.5111 |
| C51 | SIEMENS B31861J1221F000 CC 560PF+-5%100V NP05X3X5 CAPACITOR | CC 099.0637 | 300.5111 |
| C52 | ITW 302E0100RC561J CC 12PF+-2%3X4NPO CAPACITOR | CC 087.6435 | 300.5111 |
| C53 | VALVO 2222 678 10129 CC 390PF+- 5%100V NPO VIE CERAMIC CAPACITOR | CC 060.0842 | 300.5111 |
| C54 | UNIONCARB C052C391J2G1CA CC 100NF+-20%100V K6000VI CAPACITOR | 060.1326 | 300.5111 |
| C57 | ERIE 8133-100-25U-104-M CC 4,7NF+-10%6X9R2000 CAPACITOR | CC 087.7102 | 300.5111 |
| C58 | VALVO 2222 63051 472 CC 10NF-20+50%7X8R6000 CAPACITOR | CC 087.7525 | 300.5111 |
| C59 | VALVO 2222 63051 64051103 CC 4,7NF+-10%6X9R2000 CAPACITOR | CC 087.7102 | 300.5111 |
| C60 | VALVO 2222 63051 472 CC 10NF-20+50%7X8R6000 CAPACITOR | CC 087.7525 | 300.5111 |
| C61 | VALVO 2222 63051 64051103 CC 4,7NF+-10%6X9R2000 CAPACITOR | CC 087.7102 | 300.5111 |
| C62 | VALVO 2222 63051 472 CC 27PF+-2%4X5NPO CAPACITOR | CC 087.6470 | 300.5111 |
| C63 | VALVO 2222 678 10279 CC 10PF+-0,25PF5X6P100 CAPACITOR | CC 087.6293 | 300.5111 |
| C64 | VALVO 2222 678 03109 CC 120PF+-2%6X9NPO CAPACITOR | CC 087.6558 | 300.5111 |
| C65 | VALVO 2222 678 10121 CC 180PF+-2%6X7N750 CAPACITOR | CC 087.6935 | 300.5111 |
| C66 | VALVO 2222 678 58181 CC 150PF+-2%5X6N750 CAPACITOR | CC 087.6929 | 300.5111 |
| C67 | VALVO 2222 678 58151 CC 22PF+-2%4X5NPO CAPACITOR | CC 087.6464 | 300.5111 |
| | VALVO 2222 678 10229 | | |

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| Sachnummer Stock No. |
| 300.2812.00 SA |

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| Kennzeichen Component No. | Benennung/Beschreibung Designation | Sachnummer Stock No. | enthalten in contained in |
|------------------------------|--|-------------------------|------------------------------|
| C68 | CK 371PF+-1%160V6RDX12 KS CAPACITOR SIEMENS B31861-J1371-F1 | CK 076.5290 | 300.5111 |
| C69 | CC 56PF+-2%5X6NPO CAPACITOR VALVO 2222 678 10569 | CC 087.6512 | 300.5111 |
| C70 | CC 22PF+-2%4X5NPO CAPACITOR VALVO 2222 678 10229 | CC 087.6464 | 300.5111 |
| C71 | CK 390PF+-1%160V 6RDX12 CAPACITOR SIEMENS B31861-J1391-F | CK 087.4955 | 300.5111 |
| C72 | CK 371PF+-1%160V6RDX12 KS CAPACITOR SIEMENS B31861-J1371-F1 | CK 076.5290 | 300.5111 |
| C73 | CC 100PF+-2%6X9NPO CAPACITOR VALVO 2222 678 10101 | CC 087.6541 | 300.5111 |
| C74 | CC 27PF+-2%4X5NPO CAPACITOR VALVO 2222 678 10279 | CC 087.6470 | 300.5111 |
| C75 | CK 390PF+-1%160V 6RDX12 CAPACITOR SIEMENS B31861-J1391-F | CK 087.4955 | 300.5111 |
| C76 | CK 371PF+-1%160V6RDX12 KS CAPACITOR SIEMENS B31861-J1371-F1 | CK 076.5290 | 300.5111 |
| C77 | CK 390PF+-1%160V 6RDX12 CAPACITOR SIEMENS B31861-J1391-F | CK 087.4955 | 300.5111 |
| C78 | CC 82PF+-2%6X7N150 CAPACITOR VALVO 2222 678 34829 | CC 087.6706 | 300.5111 |
| C79 | CC 8,2PF+-0,25PF3X4N150 CAPACITOR VALVO 2222 678 33828 | CC 087.6587 | 300.5111 |
| C81 | CC 27PF+-2%4X5N150 CAPACITOR VALVO 2222 678 34279 | CC 087.6641 | 300.5111 |
| C82 | CC 82PF+-2%6X7N150 CAPACITOR VALVO 2222 678 34829 | CC 087.6706 | 300.5111 |
| C83 | CC 4,7NF+-10%6X9R2000 CAPACITOR VALVO 2222 63051 472 | CC 087.7102 | 300.5111 |
| C84 | CC 4,7NF+-10%6X9R2000 CAPACITOR VALVO 2222 63051 472 | CC 087.7102 | 300.5111 |
| C85 | CE 100UF-10+50% 25V 13X13 ELECTROLYTIC CAPACITOR ROEDERST ELKOEK100/25 | CE 208.4007 | 300.5111 |
| C86 | CC 180PF+-2%6X7N750 CAPACITOR VALVO 2222 678 58181 | CC 087.6935 | 300.5111 |
| C87 | CC 220PF+-2%6X7N750 CAPACITOR VALVO 2222 678 58221 | CC 087.6941 | 300.5111 |
| | | 300.2812.00 SA | BL 6+ |

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| ÄZ | Datum |
| 20 | 0686 |

 Schaltteilliste für
 Parts list for
 ZE INTERPOL.-SYNTHESIZ.I
 INTERPOL.-SYNTHESIZER I

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| Sachnummer | Stock No. |
| 300.2812.00 | SA |

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| Kennzeichen Component No. | Benennung/Beschreibung Designation | Sachnummer Stock No. | enthalten in contained in |
|------------------------------|--|-------------------------|------------------------------|
| C88 | CC 180PF+-2%6X7N750 CAPACITOR VALVO 2222 678 58181 | CC 087.6935 | 300.5111 |
| C89 | CC 4,7NF+-10%6X9R2000 CAPACITOR VALVO 2222 63051 472 | CC 087.7102 | 300.5111 |
| C90 | CC 4,7NF+-10%6X9R2000 CAPACITOR VALVO 2222 63051 472 | CC 087.7102 | 300.5111 |
| C91 | CC 4,7NF+-10%6X9R2000 CAPACITOR VALVO 2222 63051 472 | CC 087.7102 | 300.5111 |
| C92 | CC 4,7NF+-10%6X9R2000 CAPACITOR VALVO 2222 63051 472 | CC 087.7102 | 300.5111 |
| C93 | CC 27PF+-2%4X5NPO CAPACITOR VALVO 2222 678 10279 | CC 087.6470 | 300.5111 |
| C95 | CC 27PF+-2%4X5NPO CAPACITOR VALVO 2222 678 10279 | CC 087.6470 | 300.5111 |
| C97 | CC 22PF+-2%4X5NPO CAPACITOR VALVO 2222 678 10229 | CC 087.6464 | 300.5111 |
| C98 | CC 4,7NF+-10%6X9R2000 CAPACITOR VALVO 2222 63051 472 | CC 087.7102 | 300.5111 |
| C99 | CK 300PF+-1% 125V 5RD KS CAPACITOR SIEMENS B31861J1301F000 | CK 023.9333 | 300.5111 |
| C100 | CK 300PF+-1% 125V 5RD KS CAPACITOR SIEMENS B31861J1301F000 | CK 023.9333 | 300.5111 |
| C101 | CC 10NF-20+50%7X8R6000 CAPACITOR VALVO 2222 63051 64051103 | CC 087.7525 | 300.5111 |
| C102 | CC 4,7NF+-10%6X9R2000 CAPACITOR VALVO 2222 63051 472 | CC 087.7102 | 300.5111 |
| C103 | CE 100UF-10+50% 25V 13X13 ELECTROLYTIC CAPACITOR ROEDERST ELKOEK100/25 | CE 208.4007 | 300.5111 |
| C104 | CC 4,7NF+-10%6X9R2000 CAPACITOR VALVO 2222 63051 472 | CC 087.7102 | 300.5111 |
| C105 | CE 100UF-10+50% 25V 13X13 ELECTROLYTIC CAPACITOR ROEDERST ELKOEK100/25 | CE 208.4007 | 300.5111 |
| C106 | CE 100UF-10+50% 25V 13X13 ELECTROLYTIC CAPACITOR ROEDERST ELKOEK100/25 | CE 208.4007 | 300.5111 |
| C107 | CC 4,7NF+-10%6X9R2000 CAPACITOR VALVO 2222 63051 472 | CC 087.7102 | 300.5111 |
| C150 | CC 15PF+-2%3X4NPO CAPACITOR VALVO 2222 678 10159 | CC 087.6441 | 300.5111 |

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| C201 | CC 10PF+-0,25PF3X4N150 CAPACITOR VALVO 2222 678 33109 | CC 087.6593 | 300.5111 |
| C202 | CC 27PF+-2%4X5N150 CAPACITOR VALVO 2222 678 34279 | CC 087.6641 | 300.5111 |
| C203 | CC 10NF-20+50%7X8R6000 CAPACITOR VALVO 2222 63051 64051103 | CC 087.7525 | 300.5111 |
| C204 | CC 10NF-20+50%7X8R6000 CAPACITOR VALVO 2222 63051 64051103 | CC 087.7525 | 300.5111 |
| C205 | CC 100NF+-10% 50V5K1200LR CAPACITOR AEROVOX CKR05BX104KLEVELR | CC 092.0777 | 300.5111 |
| C206 | CC 10NF-20+50%7X8R6000 CAPACITOR VALVO 2222 63051 64051103 | CC 087.7525 | 300.5111 |
| C207 | CC 12PF+-2%3X4NPO CAPACITOR VALVO 2222 678 10129 | CC 087.6435 | 300.5111 |
| C208 | CK 220NF+-5%63V5RM MKT CAPACITOR WIMA MKS2/63/0,22UF/5% | CK 099.2952 | 300.5111 |
| C209 | CK 220NF+-5%63V5RM MKT CAPACITOR WIMA MKS2/63/0,22UF/5% | CK 099.2952 | 300.5111 |
| C210 | CC 330PF+-2%6X9N750 CERAMIC CAPACITOR VALVO 2222 678 58331 | CC 087.6964 | 300.5111 |
| D2 | LD 35DB/200M-10GHZ PI-FIL CHOKE ERIE 1214-038 | LD 300.6818 | 300.5134 |
| D3 | LD 35DB/200M-10GHZ PI-FIL CHOKE ERIE 1214-038 | LD 300.6818 | 300.5134 |
| D4 | LD 35DB/200M-10GHZ PI-FIL CHOKE ERIE 1214-038 | LD 300.6818 | 300.5134 |
| D5 | LD 35DB/200M-10GHZ PI-FIL CHOKE ERIE 1214-038 | LD 300.6818 | 300.5134 |
| D6 | LD 35DB/200M-10GHZ PI-FIL CHOKE ERIE 1214-038 | LD 300.6818 | 300.5134 |
| D7 | LD 35DB/200M-10GHZ PI-FIL CHOKE ERIE 1214-038 | LD 300.6818 | 300.5134 |
| D8 | LD 35DB/200M-10GHZ PI-FIL CHOKE ERIE 1214-038 | LD 300.6818 | 300.5134 |
| D9 | LD 35DB/200M-10GHZ PI-FIL CHOKE ERIE 1214-038 | LD 300.6818 | 300.5134 |

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| D10 | LD 35DB/200M-10GHZ PI-FIL CHOKE ERIE 1214-038 | LD 300.6818 | 300.5134 |
| D11 | LD 35DB/200M-10GHZ PI-FIL CHOKE ERIE 1214-038 | LD 300.6818 | 300.5134 |
| D12 | LD 35DB/200M-10GHZ PI-FIL CHOKE ERIE 1214-038 | LD 300.6818 | 300.5134 |
| D13 | LD 35DB/200M-10GHZ PI-FIL CHOKE ERIE 1214-038 | LD 300.6818 | 300.5134 |
| D14 | LD 35DB/200M-10GHZ PI-FIL CHOKE ERIE 1214-038 | LD 300.6818 | 300.5134 |
| D15 | LD 35DB/200M-10GHZ PI-FIL CHOKE ERIE 1214-038 | LD 300.6818 | 300.5134 |
| D16 | LD 35DB/200M-10GHZ PI-FIL CHOKE ERIE 1214-038 | LD 300.6818 | 300.5134 |
| L1 | LD 330 UH10%28,00HMO,045A CHOKE DELEVAN DROSSEL1025-80 | LD 067.3160 | 300.5111 |
| L2 | LD 330 UH10%28,00HMO,045A CHOKE DELEVAN DROSSEL1025-80 | LD 067.3160 | 300.5111 |
| L3 | LD 220 UH10%21,00HMO,052A CHOKE DELEVAN DROSSEL1025-76 | LD 067.3147 | 300.5111 |
| L4 | LD 220 UH10%21,00HMO,052A CHOKE DELEVAN DROSSEL1025-76 | LD 067.3147 | 300.5111 |
| L5 | LD 680UH 2%600HMO,034A CHOKE DELEVAN 1025-88 +-2% | 337.8772 | 300.5111 |
| L6 | LD 680UH 2%600HMO,034A CHOKE DELEVAN 1025-88 +-2% | 337.8772 | 300.5111 |
| L7 | LD 680UH 2%600HMO,034A CHOKE DELEVAN 1025-88 +-2% | 337.8772 | 300.5111 |
| L8 | LD 1000UH10%72,00HMO,028A CHOKE DELEVAN DROSSEL1025-92 | LD 037.8005 | 300.5111 |
| L9 | LD 68,0UH10%6,700HMO,092A CHOKE DELEVAN DROSSEL1025-64 | LD 067.3082 | 300.5111 |
| L10 | LD 68,0UH10%6,700HMO,092A CHOKE DELEVAN DROSSEL1025-64 | LD 067.3082 | 300.5111 |
| L11 | LD 12UH 2%2,700HMO,16A CHOKE DELEVAN 1025-46 +-2% | 337.8789 | 300.5111 |

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| L12 | LD 12UH 2%2,700HMO,16A CHOKE DELEVAN 1025-46 +-2% | 337.8789 | 300.5111 |
| L13 | LD 12UH 2%2,700HMO,16A CHOKE DELEVAN 1025-46 +-2% | 337.8789 | 300.5111 |
| L14 | LD 12UH 2%2,700HMO,16A CHOKE DELEVAN 1025-46 +-2% | 337.8789 | 300.5111 |
| L15 | LD 12UH 2%2,700HMO,16A CHOKE DELEVAN 1025-46 +-2% | 337.8789 | 300.5111 |
| L16 | LD 12UH 2%2,700HMO,16A CHOKE DELEVAN 1025-46 +-2% | 337.8789 | 300.5111 |
| L17 | LD 12,0UH10%2,700HMO,160A CHOKE DELEVAN DROSSEL1025-46 | LD 067.2992 | 300.5111 |
| L18 | LD 39,0UH10%3,600HMO,125A CHOKE DELEVAN DROSSEL1025-58 | LD 067.3053 | 300.5111 |
| L19 | LD 56,0UH10%5,700HMO,100A CHOKE DELEVAN DROSSEL1025-62 | LD 067.3076 | 300.5111 |
| L20 | LD 47,0UH10%4,500HMO,110A CHOKE DELEVAN DROSSEL1025-60 | LD 067.3060 | 300.5111 |
| L21 | LD 47,0UH10%4,500HMO,110A CHOKE DELEVAN DROSSEL1025-60 | LD 067.3060 | 300.5111 |
| L22 | LD 5,60UH 2%1,800HMO,195A CHOKE DELEVAN 1025-38 +-2% | 337.8808 | 300.5111 |
| L23 | LD 0,56UH 10% 560 MIA CHOKE DELEVAN | LD 092.3124 | 300.5111 |
| L24 | LD 5,60UH 2%1,800HMO,195A CHOKE DELEVAN 1025-38 +-2% | 337.8808 | 300.5111 |
| L25 | LD 0,56UH5%0,5 OHM 0,495A CHOKE DELEVAN 1025-14 +-5% | 300.9752 | 300.5111 |
| L26 | LD 0,56UH5%0,5 OHM 0,495A CHOKE DELEVAN 1025-14 +-5% | 300.9752 | 300.5111 |
| L37 | LD 27,0UH10%3,500HMO,140A CHOKE DELEVAN DROSSEL1025-54 | LD 067.3030 | 300.5111 |
| L101 | LD 3,90UH10%1,000HMO,263A CHOKE DELEVAN DROSSEL1025-34 | LD 067.2934 | 300.5111 |
| L102 | LD 3,90UH10%1,000HMO,263A CHOKE DELEVAN DROSSEL1025-34 | LD 067.2934 | 300.5111 |
| L104 | LD 1000UH10%72,00HMO,028A CHOKE DELEVAN DROSSEL1025-92 | LD 037.8005 | 300.5111 |
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| MP2 | VL WIRE-WRAP PIN BERG NR. 75 403-001 | VL 088.4507 | 300.5111 |
| MP3 | VL WIRE-WRAP PIN BERG NR. 75 403-001 | VL 088.4507 | 300.5111 |
| MP4 | VL WIRE-WRAP PIN BERG NR. 75 403-001 | VL 088.4507 | 300.5111 |
| MP6 | FP STIFTELEISTE 36POL. PIN CONNECTOR BERG 118-36 | FP 099.3807 | 300.5111 |
| MP7 | FP STIFTELEISTE 36POL. PIN CONNECTOR BERG 118-36 | FP 099.3807 | 300.5111 |
| MP8 | FP STIFTELEISTE 36POL. PIN CONNECTOR BERG 118-36 | FP 099.3807 | 300.5111 |
| MP10 | FP STIFTELEISTE 36POL. PIN CONNECTOR BERG 118-36 | FP 099.3807 | 300.5111 |
| MP11 | FP STIFTELEISTE 36POL. PIN CONNECTOR BERG 118-36 | FP 099.3807 | 300.5111 |
| MP12 | FP STIFTELEISTE 36POL. PIN CONNECTOR BERG 118-36 | FP 099.3807 | 300.5111 |
| MP14 | FP STIFTELEISTE 36POL. PIN CONNECTOR BERG 118-36 | FP 099.3807 | 300.5111 |
| MP15 | FP STIFTELEISTE 36POL. PIN CONNECTOR BERG 118-36 | FP 099.3807 | 300.5111 |
| MP16 | FP STIFTELEISTE 36POL. PIN CONNECTOR BERG 118-36 | FP 099.3807 | 300.5111 |
| MP18 | FP STIFTELEISTE 36POL. PIN CONNECTOR BERG 118-36 | FP 099.3807 | 300.5111 |
| MP19 | FP STIFTELEISTE 36POL. PIN CONNECTOR BERG 118-36 | FP 099.3807 | 300.5111 |
| MP20 | FP STIFTELEISTE 36POL. PIN CONNECTOR BERG 118-36 | FP 099.3807 | 300.5111 |
| MP25 | VL WIRE-WRAP PIN BERG NR. 75 403-001 | VL 088.4507 | 300.5111 |
| BIS/TO MP31 | | | |
| R1 | RL 0,35W 274 OHM+-1%TK50 RESISTOR DRALORIC SMA0207/2740HM-F-D | RL 083.0178 | 300.5111 |
| R2 | RL 0,35W 681 OHM+-1%TK50 RESISTOR DRALORIC SMA0207/6810HM-F-D | RL 083.0490 | 300.5111 |
| R3 | RL 0,35W 33,2 OHM+-1%TK50 RESISTOR DRALORIC SMA0207/33,20HM-F-D | RL 082.9359 | 300.5111 |
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| Kennzeichen Component No. | Benennung/Beschreibung Designation | Sachnummer Stock No. | enthalten in contained in |
|------------------------------|---|-------------------------|------------------------------|
| R4 | RL 0,35W 100 OHM+-1%TK50 METALFILM-RESISTOR DRALORIC SMA0207/100/HM-F-D | RL 082.6543 | 300.5111 |
| R5 | RL 0,35W 475 OHM+-1%TK50 RESISTOR DRALORIC SMA0207/475OHM-F-D | RL 083.0390 | 300.5111 |
| R6 | RL 0,35W 33,2KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/33,2K-F-C | RL 083.1674 | 300.5111 |
| R7 | RL 0,35W 274 OHM+-1%TK50 RESISTOR DRALORIC SMA0207/274OHM-F-D | RL 083.0178 | 300.5111 |
| R8 | RL 0,35W 825 OHM+-1%TK50 RESISTOR DRALORIC SMA 0207/825OHM-F-C | RL 082.2502 | 300.5111 |
| R9 | RL 0,35W 825 OHM+-1%TK50 RESISTOR DRALORIC SMA 0207/825OHM-F-C | RL 082.2502 | 300.5111 |
| R10 | RL 0,35W 33,2KOHM+-1%TK50 RESISTOR DRALORIC SMA 0207/33,2K-F-C | RL 083.1674 | 300.5111 |
| R11 | RL 0,35W 15,0KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/15K-F-D | RL 083.1400 | 300.5111 |
| R12 | RL 0,35W 3,32KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/3,32K-F-D | RL 083.0990 | 300.5111 |
| R13 | RL 0,35W 1,21KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/1,21K-F-D | RL 083.0655 | 300.5111 |
| R14 | RL 0,35W 392 OHM+-1%TK50 RESISTOR DRALORIC SMA0207/392K-F-C | RL 082.2183 | 300.5111 |
| R15 | RL 0,35W 10,0KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/10K-F-D | RL 083.1297 | 300.5111 |
| R16 | RS 0,5W50KOHM+-10%10X10X5 CERMET POTENTIOMETER T BOURNS 3386F-1-503 | RS 247.7910 | 300.5111 |
| R17 | RL 0,35W 392 OHM+-1%TK50 RESISTOR DRALORIC SMA0207/392K-F-C | RL 082.2183 | 300.5111 |
| R18 | RL 0,35W 1,82KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/1,82K-F-C | RL 082.2277 | 300.5111 |
| R19 | RL 0,35W 10,0KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/10K-F-D | RL 083.1297 | 300.5111 |
| R20 | RL 0,35W 1,21KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/1,21K-F-D | RL 083.0655 | 300.5111 |
| R21 | RL 0,35W 1,82KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/1,82K-F-C | RL 082.2277 | 300.5111 |
| R22 | RL 0,35W 5,62KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/5,62K-F-C | RL 082.2190 | 300.5111 |

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| R23 | RL 0,35W 12,1KOHM+-1%TK50 RESISTOR | RL 083.1351 | 300.5111 |
| R24 | DRALORIC SMA0207/12,1K-F-D RL 0,35W 825 OHM+-1%TK50 RESISTOR | RL 082.2502 | 300.5111 |
| R25 | DRALORIC SMA 0207/825OHM-F-C RL 0,35W 1KOHM+-1%TK50 RESISTOR | RL 082.2160 | 300.5111 |
| R26 | DRALORIC SMA0207/1K-F-C RL 0,35W 221 OHM+-1%TK50 RESISTOR | RL 083.0084 | 300.5111 |
| R27 | DRALORIC SMA0207/221OHM-F-D RL 0,35W 221 OHM+-1%TK50 RESISTOR | RL 083.0084 | 300.5111 |
| R28 | DRALORIC SMA0207/221OHM-F-D RL 0,35W 1KOHM+-1%TK50 RESISTOR | RL 082.2160 | 300.5111 |
| R29 | DRALORIC SMA0207/1K-F-C RL 0,35W 10,0KOHM+-1%TK50 RESISTOR | RL 083.1297 | 300.5111 |
| R30 | DRALORIC SMA0207/10K-F-D RL 0,35W 1KOHM+-1%TK50 RESISTOR | RL 082.2160 | 300.5111 |
| R31 | DRALORIC SMA0207/1K-F-C RL 0,35W 825 OHM+-1%TK50 RESISTOR | RL 082.2502 | 300.5111 |
| R32 | DRALORIC SMA 0207/825OHM-F-C RL 0,35W 1,50KOHM+-1%TK50 RESISTOR | RL 083.0732 | 300.5111 |
| R33 | DRALORIC SMA0207/1,50K-F-D RS 0,5W5KOHM+-10%10X10X5 CERMET POTENTIOMETER T BOURNS 3386F-1-502 | RS 247.7890 | 300.5111 |
| R34 | DRALORIC SMA 0207/825OHM-F-C RL 0,35W 825 OHM+-1%TK50 RESISTOR | RL 082.2502 | 300.5111 |
| R35 | DRALORIC SMA 0207/825OHM-F-C RL 0,35W 825 OHM+-1%TK50 RESISTOR | RL 082.2502 | 300.5111 |
| R36 | DRALORIC SMA 0207/825OHM-F-C RL 0,35W 825 OHM+-1%TK50 RESISTOR | RL 082.2502 | 300.5111 |
| R38 | DRALORIC SMA 0207/825OHM-F-C RL 0,35W 12,1KOHM+-1%TK50 RESISTOR | RL 083.1351 | 300.5111 |
| R39 | DRALORIC SMA0207/12,1K-F-D RL 0,35W 221 OHM+-1%TK50 RESISTOR | RL 083.0084 | 300.5111 |
| R40 | DRALORIC SMA0207/221OHM-F-D RL 0,35W 1KOHM+-1%TK50 RESISTOR | RL 082.2160 | 300.5111 |
| R41 | DRALORIC SMA0207/1K-F-C RL 0,35W 562 OHM+-1%TK50 RESISTOR | RL 083.0461 | 300.5111 |
| R42 | DRALORIC SMA0207/562OHM-F-D RL 0,35W 681 OHM+-1%TK50 RESISTOR | RL 083.0490 | 300.5111 |
| | DRALORIC SMA0207/681OHM-F-D | | |

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| R43 | RL 0,35W 47,5 OHM+-1%TK50 RESISTOR DRALORIC SMA0207/47,5OHM-F-D | RL 082.9507 | 300.5111 |
| R44 | RL 0,35W 681 OHM+-1%TK50 RESISTOR DRALORIC SMA0207/681OHM-F-D | RL 083.0490 | 300.5111 |
| R45 | RL 0,35W 182 OHM+-1%TK50 RESISTOR DRALORIC SMA0207/182OHM-F-D | RL 083.0010 | 300.5111 |
| R46 | RL 0,35W 2,21KOHM+-1%TK50 RESISTOR DRALORIC SMA 0207/2,21K-F-C | RL 082.2477 | 300.5111 |
| R47 | RL 0,35W 182 OHM+-1%TK50 RESISTOR DRALORIC SMA0207/182OHM-F-D | RL 083.0010 | 300.5111 |
| R48 | RL 0,35W 392 OHM+-1%TK50 RESISTOR DRALORIC SMA0207/392K-F-C | RL 082.2183 | 300.5111 |
| R49 | RL 0,35W 221 OHM+-1%TK50 RESISTOR DRALORIC SMA0207/221OHM-F-D | RL 083.0084 | 300.5111 |
| R50 | RL 0,35W 392 OHM+-1%TK50 RESISTOR DRALORIC SMA0207/392K-F-C | RL 082.2183 | 300.5111 |
| R51 | RL 0,35W 475 OHM+-1%TK50 RESISTOR DRALORIC SMA0207/475OHM-F-D | RL 083.0390 | 300.5111 |
| R101 | RL 0,35W 1,82KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/1,82K-F-C | RL 082.2277 | 300.5111 |
| R102 | RL 0,35W 392 OHM+-1%TK50 RESISTOR DRALORIC SMA0207/392K-F-C | RL 082.2183 | 300.5111 |
| R103 | RL 0,35W 82,5KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/82,5K-F-C | RL 082.2302 | 300.5111 |
| R104 | RL 0,35W 3,92KOHM+-1%TK50 RESISTOR RESISTA MK2 | RL 083.1039 | 300.5111 |
| R105 | RL 0,35W 825 OHM+-1%TK50 RESISTOR DRALORIC SMA 0207/825OHM-F-C | RL 082.2502 | 300.5111 |
| R106 | RL 0,35W 1,50KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/1,50K-F-D | RL 083.0732 | 300.5111 |
| ST2 | FP EINZELKONTAKTSTIFT SINGLE-CONTACT PIN ULMIC R&S.ZCHNG.300.8804 | 300.8804 | 300.5134 |
| ST3 | FP EINZELKONTAKTSTIFT SINGLE-CONTACT PIN ULMIC R&S.ZCHNG.300.8804 | 300.8804 | 300.5134 |
| ST4 | FP EINZELKONTAKTSTIFT SINGLE-CONTACT PIN ULMIC R&S.ZCHNG.300.8804 | 300.8804 | 300.5134 |

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| ST5 | FP EINZELKONTAKTSTIFT SINGLE-CONTACT PIN ULMIC R&S.ZCHNG.300.8804 | 300.8804 | 300.5134 |
| ST6 | FP EINZELKONTAKTSTIFT SINGLE-CONTACT PIN ULMIC R&S.ZCHNG.300.8804 | 300.8804 | 300.5134 |
| ST7 | FP EINZELKONTAKTSTIFT SINGLE-CONTACT PIN ULMIC R&S.ZCHNG.300.8804 | 300.8804 | 300.5134 |
| ST8 | FP EINZELKONTAKTSTIFT SINGLE-CONTACT PIN ULMIC R&S.ZCHNG.300.8804 | 300.8804 | 300.5134 |
| ST9 | FP EINZELKONTAKTSTIFT SINGLE-CONTACT PIN ULMIC R&S.ZCHNG.300.8804 | 300.8804 | 300.5134 |
| ST10 | FP EINZELKONTAKTSTIFT SINGLE-CONTACT PIN ULMIC R&S.ZCHNG.300.8804 | 300.8804 | 300.5134 |
| ST11 | FP EINZELKONTAKTSTIFT SINGLE-CONTACT PIN ULMIC R&S.ZCHNG.300.8804 | 300.8804 | 300.5134 |
| ST12 | FP EINZELKONTAKTSTIFT SINGLE-CONTACT PIN ULMIC R&S.ZCHNG.300.8804 | 300.8804 | 300.5134 |
| ST13 | FP EINZELKONTAKTSTIFT SINGLE-CONTACT PIN ULMIC R&S.ZCHNG.300.8804 | 300.8804 | 300.5134 |
| ST14 | FP EINZELKONTAKTSTIFT SINGLE-CONTACT PIN ULMIC R&S.ZCHNG.300.8804 | 300.8804 | 300.5134 |
| ST15 | FP EINZELKONTAKTSTIFT SINGLE-CONTACT PIN ULMIC R&S.ZCHNG.300.8804 | 300.8804 | 300.5134 |
| ST16 | FP EINZELKONTAKTSTIFT SINGLE-CONTACT PIN ULMIC R&S.ZCHNG.300.8804 | 300.8804 | 300.5134 |
| ST70 | ENTHALTEN IN 300.4150 | | 300.5134 |
| T1 | AK BSX29 PNP 12V 200MA TRANSISTOR SGS BSX29 | AK 010.3031 | 300.5111 |
| T2 | AM BF247B NKAN 25V FET FET TEXAS BF247B | AM 010.8879 | 300.5111 |
| T3 | AK 2N2369A NPN 15V 200MA TRANSISTOR VALVO 2N2369A | AK 010.4680 | 300.5111 |
| T4 | AK 2N2369A NPN 15V 200MA TRANSISTOR VALVO 2N2369A | AK 010.4680 | 300.5111 |
| T5 | AK 2N2369A NPN 15V 200MA TRANSISTOR VALVO 2N2369A | AK 010.4680 | 300.5111 |
| T101 | AK 2N2369A NPN 15V 200MA TRANSISTOR VALVO 2N2369A | AK 010.4680 | 300.5111 |
| | | 300.2812.00 SA | BL15+ |

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ROHDE & SCHWARZ

ÄZ Datum
Date
20 0686

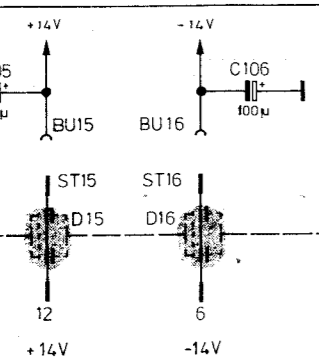
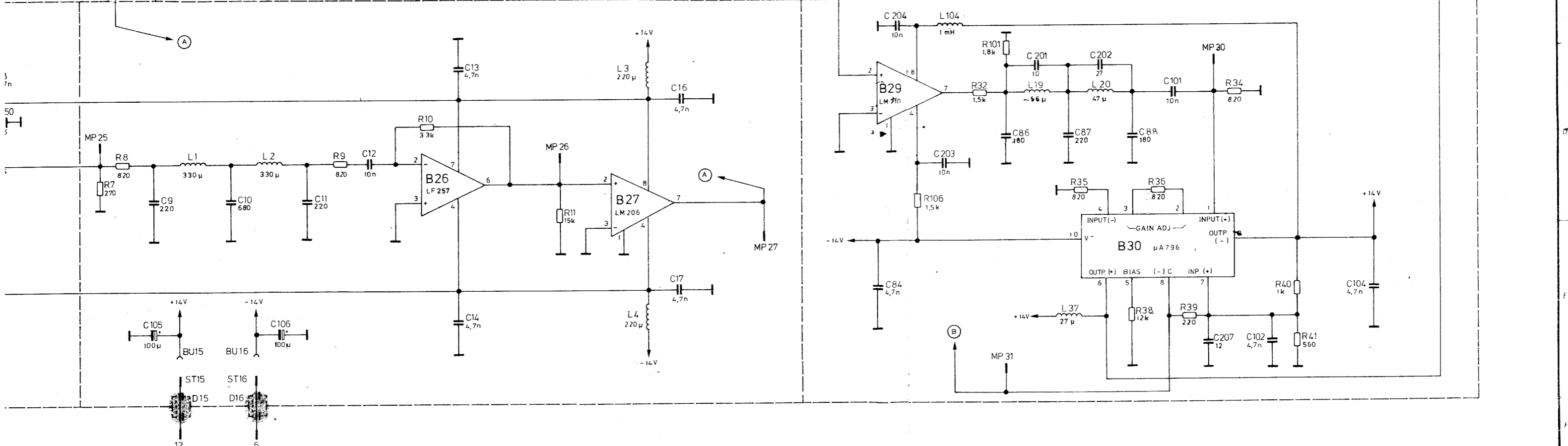
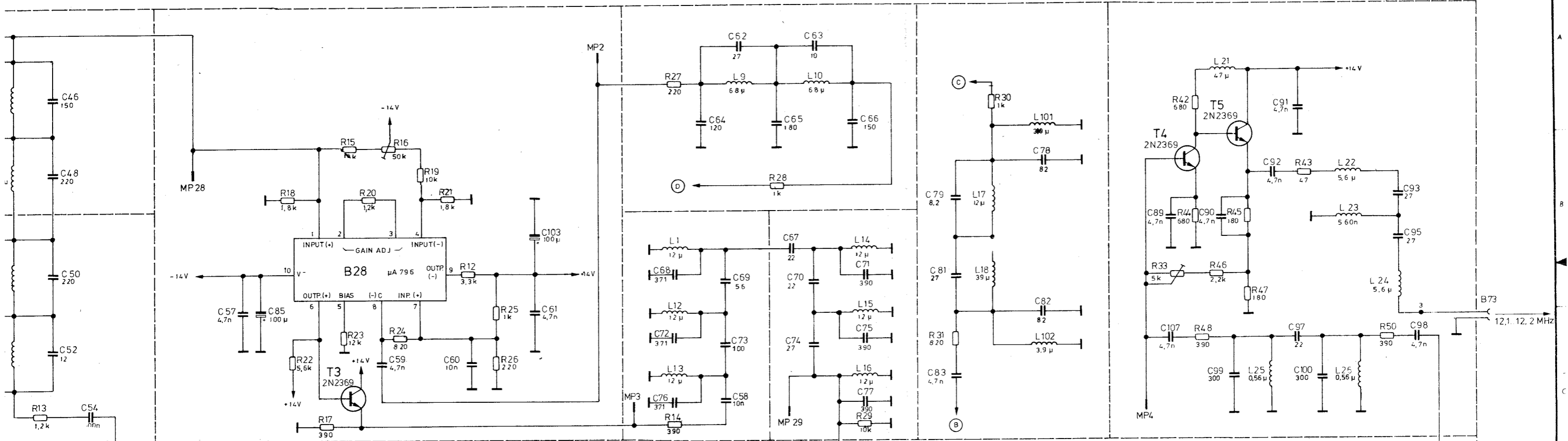
Schaltteilliste für
Parts list for
ZE INTERPOL.-SYNTHESIZ.I
INTERPOL.-SYNTHESIZER I

Sachnummer
Stock No.
300.2812.00 SA

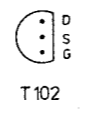
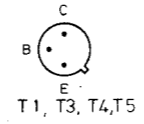
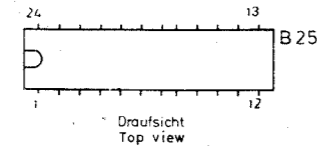
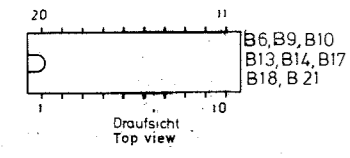
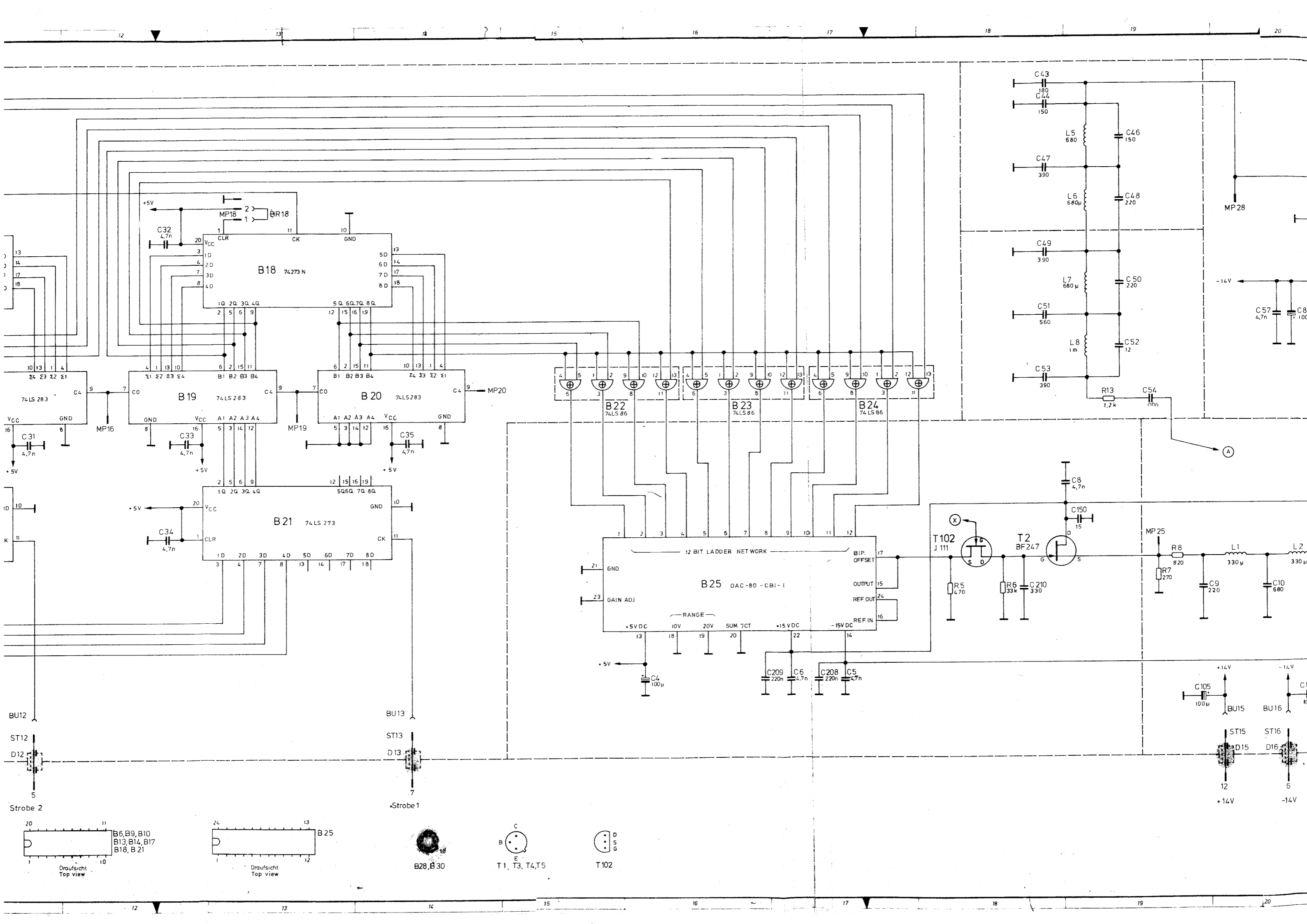
Blatt
Page
16

| Kennzeichen Component No. | Benennung/Beschreibung Designation | Sachnummer Stock No. | enthalten in contained in |
|------------------------------|---|-------------------------|------------------------------|
| T102 | AM J111A NKAN 35V FET FET SILICONIX J111A | AM 214.7685 | 300.5111 - ENDE - |

300.2812.00 SA BL16-



| And. Nr. | And. Mittig. Nr. | Datum | Name | Halbzeug, Werkstoff | Maßstab | Unf. Maße |
|-------------------------|------------------|-------|------|-----------------------|------------------------------|-----------------------|
| A | | 5.79 | DI | | | |
| B | | 03.81 | LS | | | |
| C | 27499 | 08.81 | LS | | | |
| D | 27860 | 11.82 | LS | | | |
| registr. in Verz. | | | | erste Z. | Zeichn. Nr. | |
| 300.1000 V | | | | 300.1000 | 300.2812 SI | |
| ROHDE & SCHWARZ MÜNCHEN | | | | Stelle 1GMA | gez. Datum Gü 02.79 | bearb. Datum Er 02.79 |
| | | | | geprüft Datum 2.11/79 | Ordn.-Nr. (nur für R.-Ordn.) | |



Strobe 2

Strobe 1

Draufsicht
Top view

Draufsicht
Top view

B28, B30

T1, T3, T4, T5

T102

+14V

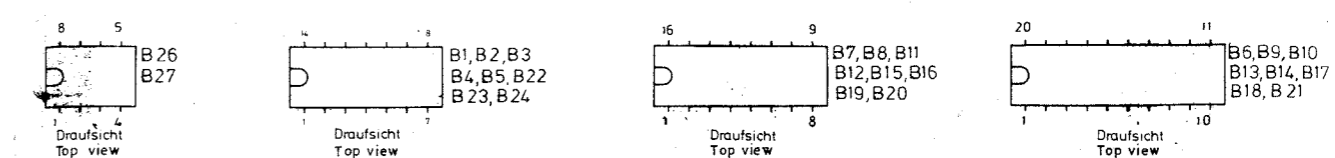
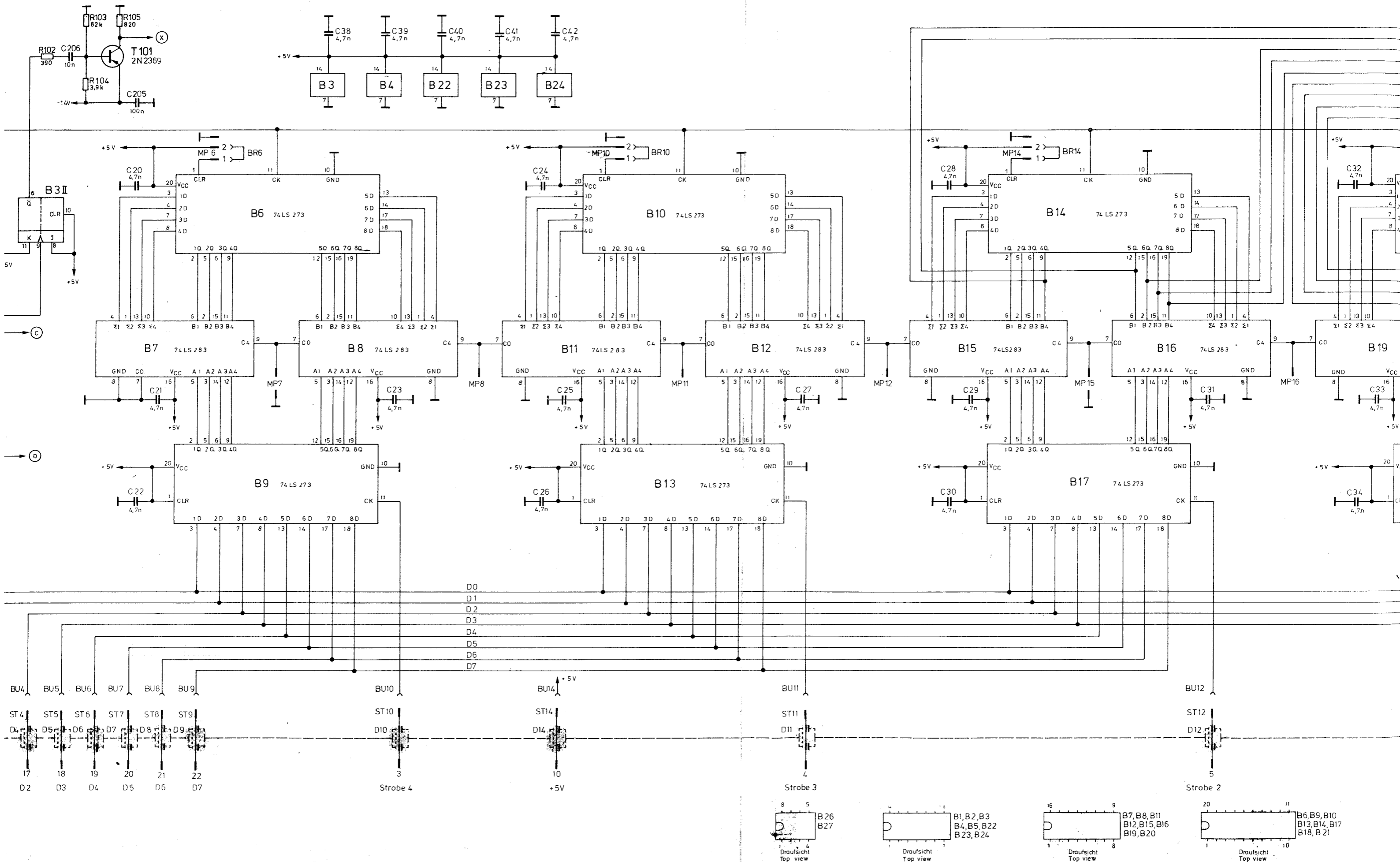
-14V

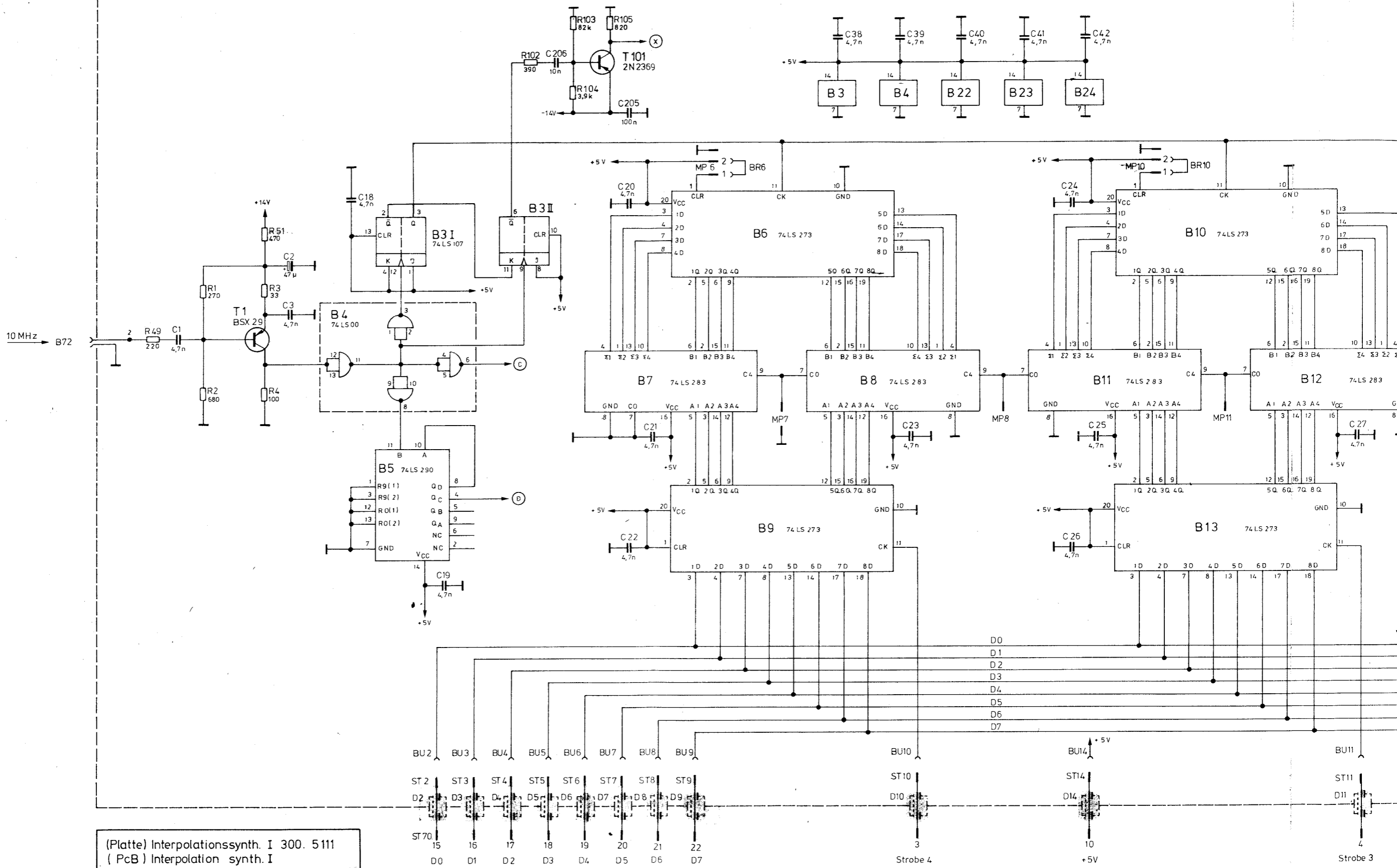
D15

D16

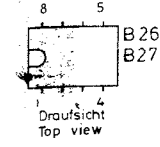
+14V

-14V





(Platte) Interpolationssynth. I 300. 5111
 (PcB) Interpolation synth. I
 Zuführung Interpolationssynth. I 300. 5134
 Feed interpolation synth. I



Diese Zeichnung ist unser Eigentum. Verwertung ohne
unbefugte Vervielfältigung, Mitteilung an Dritte
Strafbar und Schadensersatzpflichtig.

3.3 Projektion
Methode I

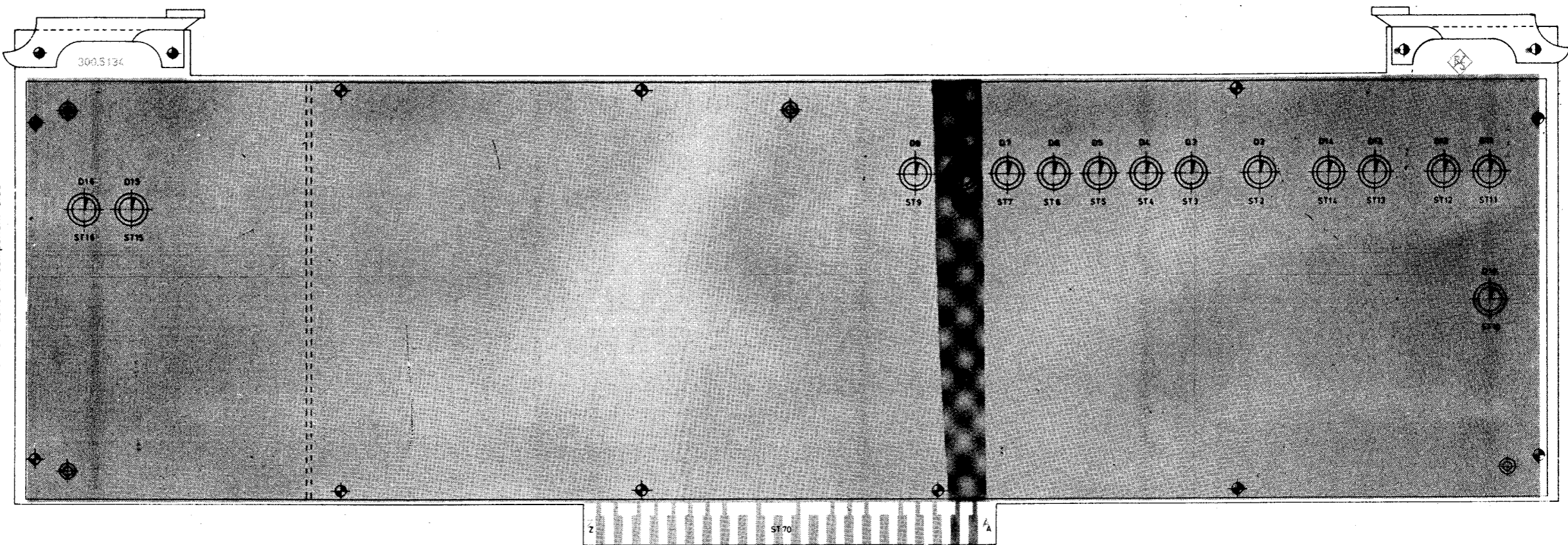
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Ansicht und Leitungsführung Lötseite Ansicht und Leitungsführung Bauteilseite
View of tracks on solder side View of tracks on component side

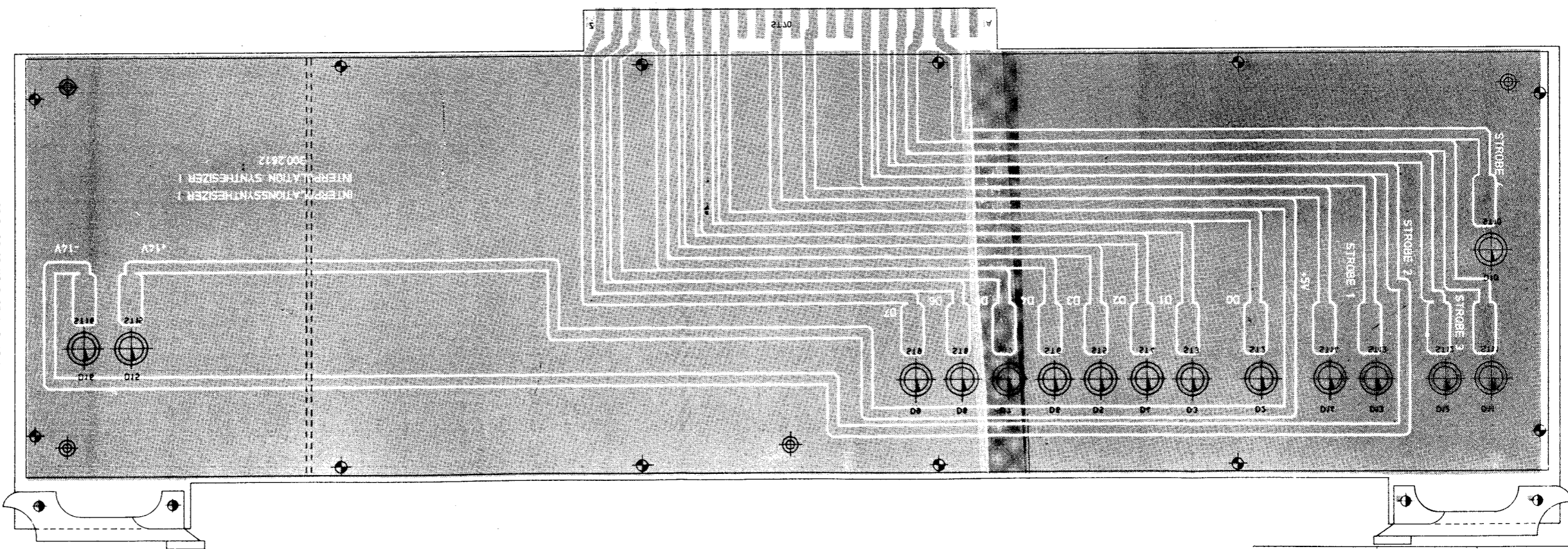


| | | | |
|--------------------------|-------|-----------------------------|----|
| Versorg.-Nr. | | VG-Sachnr. | |
| F | 27499 | 15.781 | LS |
| G | 27860 | 4.82 | GS |
| Maße ohne Toleranzangabe | | Maßstab 1 : 1 | |
| | | Halbzeug, Werkstoff | |
| 1GME Tag Name | | Benennung | |
| Bearb 15.7.81 LS | | Interpolationssynthesizer I | |
| Gepr | | Z | |
| Norm | | | |
| And Zust | | Zeichn.-Nr | |
| Anderungs-Mitteilung | | 300.5111 | |
| Tag | | Blatt-Nr | |
| Name | | 2 | |
| zu Gerät SMPC | | v Bl. | |
| reg V 300.1000V | | erste Z 300.2812 | |

Ansicht und Leitungsführung Bauteilseite
View of tracks on component side



Ansicht und Leitungsführung Lotseite
View of tracks on solder side



| | | | |
|------------------------|--|------------------------|--|
| Menge: 100 | | Menge: 2 1 | |
| Name: H.E. | | Name: H.E. | |
| Datum: 07.05.79 | | Datum: 07.05.79 | |
| Zuf Interpol - Synth 1 | | Zuf Interpol - synth I | |
| Teil-Nr. 300 5134 | | Teil-Nr. 300 5134 | |
| Zu Serie: SMPC | | Zu Serie: SMPC | |



ROHDE & SCHWARZ

SERVICE INSTRUCTIONS FOR
Interpolation Synthesizer II
300.7714 (Y5)

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| 5.2.1.1 | Checking the Synchronization | 5.2 |
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| 5.2.3 | Checking the Buffer Divider 300.6030 | 5.3 |
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| 5.3.1.2 | Synchronization | 5.4 |
| 5.3.2 | Buffer Divider 300.6030 | 5.4 |
| 5.3.3 | Interfaces | 5.5 |

Parts list
Circuit diagram
Components location plans

5.1 Circuit Description

(See circuit diagram 300.7714 S and Fig. 5-1)

5.1.1 135-MHz Oscillator 300.5234

Y5 contains a PLL crystal oscillator which acts as local oscillator for the conversion range and supplies the conversion frequency 135 MHz for Y6. It is synchronized with the 10-MHz reference frequency.

The 135-MHz signal from the oscillator (comprising Q100) is applied via buffer amplifiers to ST84 (to Y15), ST85 (to Y6) and to a 3:1 divider (B250) which drives the 5:1 divider (B400). With the aid of a phase comparator and the control amplifier B401 the oscillator is synchronized with the 9th harmonic of the 1-MHz signal which is produced in B50 by dividing the reference frequency arriving from ST86.

Phase comparators T401, T402. For the harmonic phase comparison the T401 supplies a sinusoidal 9-MHz signal (C402, L401). T402 adds to them narrow 1-MHz pulses which are obtained by differentiating the slope of the divider output signal (C404). The peak-value rectifier GL400 supplies a high voltage if the pulse is added to the positive peak of the 9-MHz sinusoidal voltage and a low voltage if the pulse is added to the negative peak of the 9-MHz sinusoidal signal, i.e. it is phase-sensitive.

5.1.2 Buffer Divider 300.6030

This divider must have very low inherent noise as it is to transfer the noise distribution curve of the buffer oscillator as purely as possible to the PLL. The 240-MHz signal is applied to conventional ECL (B201) and TTL (B202) dividers. A gating switch (T208) activated by a pulse shaper connects one edge of the 240-MHz signal through to the output (ST89). The 40-MHz signal from the first divider is brought out at ST88 for buffer control (Y7).

5.2 Checking and Adjustment Procedures

5.2.1 Checking the 135-MHz Oscillator 300.5234

Prior to carrying out any measurements allow the XPC/SMPC to warm up for at least 20 min.

5.2.1.1 Checking the Synchronization

Connect frequency counter to ST84.

Apply calibrated 10-MHz signal (error $< 5 \times 10^{-7}$) with a level $> 0.5 V_{rms}$ to ST86. Operate frequency counter with the same reference as the signal generator at ST86.

A frequency of 134.99865 MHz should be measured at 9.999900 MHz, of 135.00000 MHz at 10 MHz and of 135.00135 at 10.0000100 MHz. ST80.2 (ALARM, low = active) must always be high ($> 3.5 V$).

5.2.1.2 Checking the Spectrum

Connect RF analyzer with high resolution in vicinity of carrier to ST84. Connect internal crystal oscillator of XPC/SMPC to ST86. Measure spectrum with 1 kHz span and resolution of 10 Hz. Hum sidebands and non-harmonic spurious signals must be < -70 dB.

5.2.2 Adjustment of 135-MHz Oscillator

Remove BR1 and apply a DC voltage of 19 V to MP1. Connect frequency counter (error $< 5 \times 10^{-7}$) to ST84. Insert BR6 across contacts 1-2.

Start oscillator by turning C103. Stop oscillations by turning C103 counterclockwise, then adjust in the opposite direction until oscillations start again. Test for correct start of oscillator by repeated switch-on and off. The oscillator frequency should be > 135.0025 MHz and < 134.9975 MHz with MP1 at 15.6 V and 1.7 V, respectively.

Tuning range may be shifted max. 1 kHz downwards by screwing in C103 clockwise.

In case of replacing crystal Q100, choose L101 corresponding to the statical capacity C_0 in accordance with the following table:

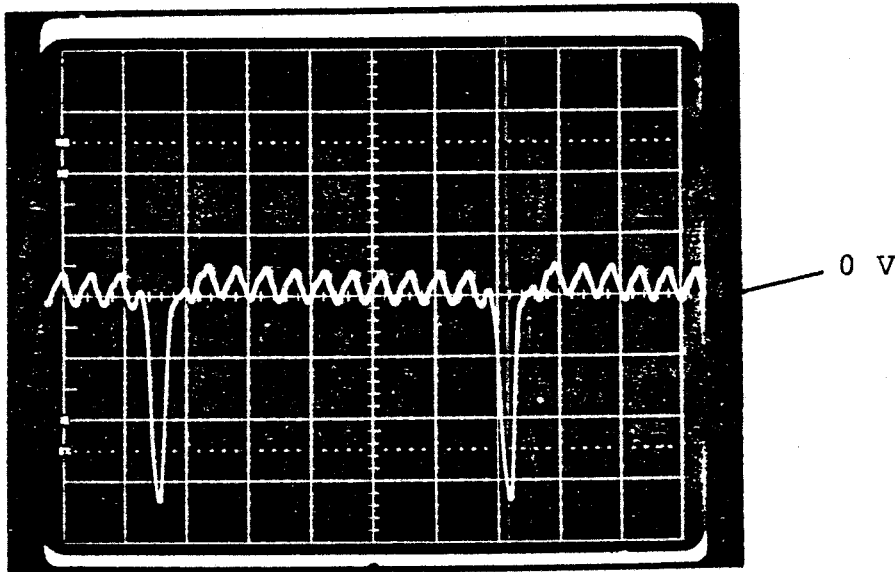
| C_0 of crystal in pF | 4 | 5 | 6 | 7 | 8 |
|------------------------|------|------|------|------|------|
| L101 in μH | 0.33 | 0.27 | 0.22 | 0.18 | 0.15 |

If tuning range is too narrow, use next smaller value of E-12-series for L101. Shortening connecting wires to the crystal shifts tuning range upwards.

5.2.3 Checking the Buffer Divider 300.6030

Feed 240-to-247-MHz signal with a level of 10 dBm to ST87. Connect oscilloscope with 50- Ω input and > 350 MHz bandwidth to ST89. The following oscillogram should be obtained:

10 ns/2 V



5.2.4 Adjustment of Buffer Divider

Same test setup as under 5.2.3. First adjust L202 for maximum residual RF at 243.5 MHz. Then adjust oscillogram according to section 5.2.3 by means of L206, R223 and R231. L206 determines the phase of the gated pulse, R223 its width and R231 its height. The pattern of the oscillogram must remain unchanged from 240 to 247 MHz. R223 must not reduce the amplitude of the pulse. Subsequently, the complete Synthesizer Generator must be adjusted according to section 4.3.

5.3 Troubleshooting

5.3.1 135-MHz Oscillator 300.5234

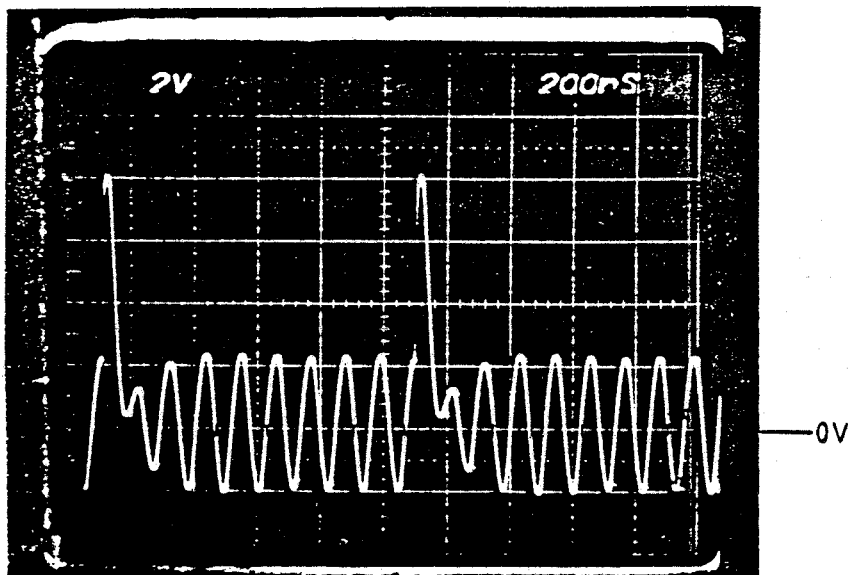
5.3.1.1 Nominal DC Voltages

| | |
|-----|-----------------|
| MP1 | 1.7 to 15.4 V |
| MP2 | 2.7 \pm 0.2 V |
| MP3 | 0.7 \pm 0.1 V |
| MP4 | 4.8 \pm 0.3 V |
| MP5 | 3.3 \pm 0.2 V |

5.3.1.2 Synchronization

Oscillogram at collector of T402

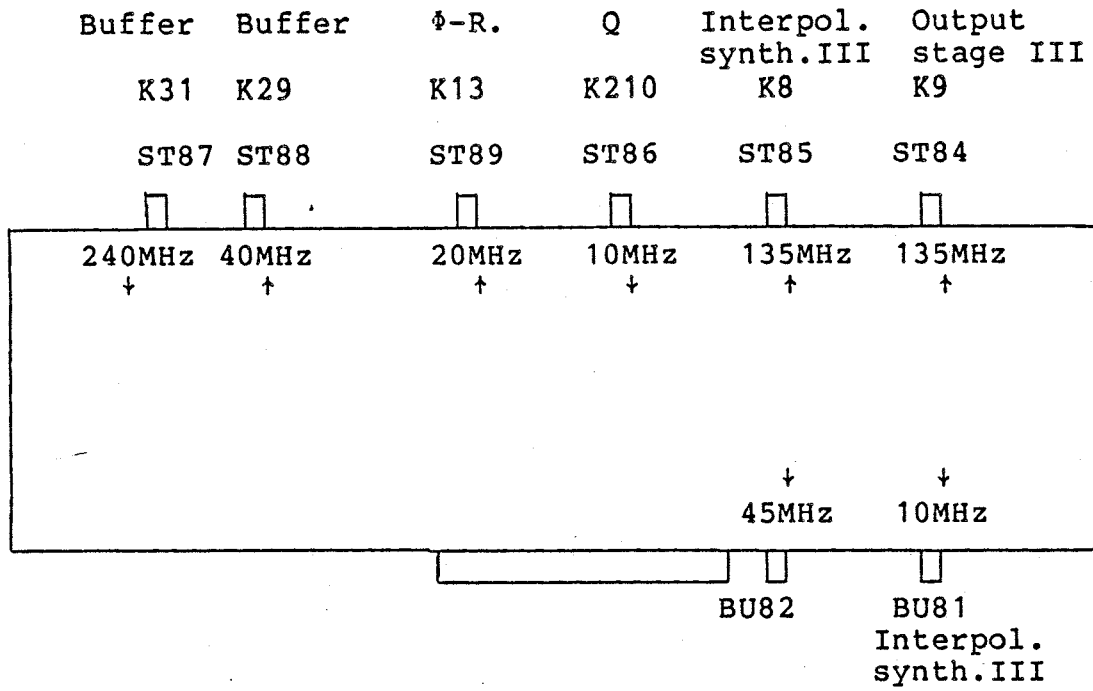
Interpol. synth. II coll. T402



5.3.2 Buffer Divider 300.6030

| | |
|-----------------|---|
| Collector T202: | 240 to 247 MHz, > 5 V _{pp} |
| Drain T207: | pulse > 10 V, width approximately 4 ns, period approximately 50 ns. |

5.3.3 Interfaces



| ST/BU | 81 | 82 | 84 | 85 |
|----------------|--------|-------------|------------|-----------------------|
| f | 10 MHz | 45 MHz | 135 MHz | 135 MHz |
| Level | TTL | 0 dBm | 0 ±1 dBm | 0 ±1 dBm |
| Z | | 56 Ω | 50 Ω | 50 Ω |
| AC-DC | DC | AC | AC | AC |
| Shape of curve | | rectangular | sinusoidal | sinusoidal, harmonics |

| ST/BU | 86 | 87 | 88 | 89 |
|----------------|-------------------------|-----------------------|-------------|-----------------------|
| f | 10 MHz | 240 to 247 MHz | 40 MHz | 20 MHz |
| Level | 1.4 ±0.2V _{pp} | 8 ±2 dBm | TTL | ≈5 V _{pp} |
| Z | 50 Ω | 50 Ω | 56 Ω | 50 Ω |
| AC-DC | AC | AC | DC | AC |
| Shape of curve | rectangular | sinusoidal, harmonics | rectangular | narrow pulse negative |

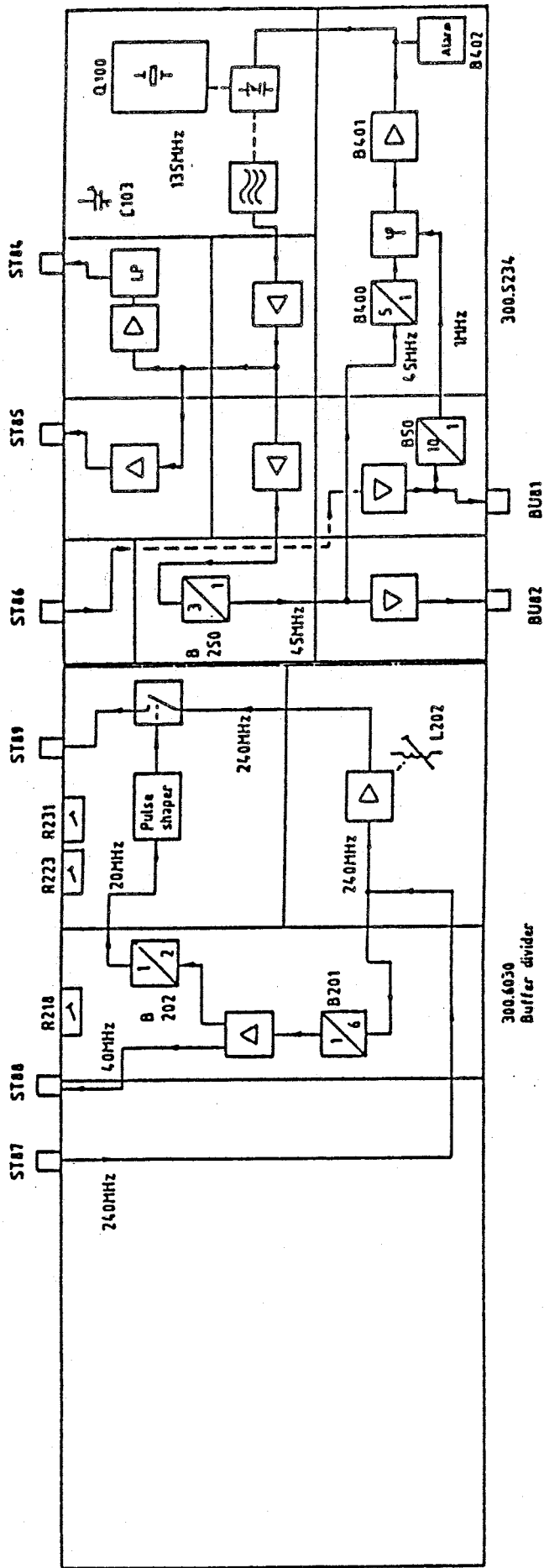


Fig. 5-1 Block diagram of interpolation synthesizer II



ROHDE & SCHWARZ
MÜNCHEN

Schalteillisten
Stromläufe
Bestückungspläne
Parts lists
Circuit diagrams
Components plans

**ROHDE & SCHWARZ**

| | |
|----|-------|
| ÄZ | Datum |
| 39 | 0686 |

| |
|--|
| Schaltteilliste für Parts list for ZE INTERPOL.-SYNTHESIZER INTERPO.-SYNTHESIZER II |
|--|

| |
|-------------------------|
| Sachnummer Stock No. |
| 300.7714.00 SA |

| |
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| Blatt Page |
| 1 |

| Kennzeichen Component No. | Benennung/Beschreibung Designation | Sachnummer Stock No. | enthalten in contained in |
|------------------------------|--|-------------------------|------------------------------|
| B50 | BL SN74LS290N DEC.COUNTER IC DECADE COUNTER SN74LS2 TEXAS SN74LS290N | 300.6447 | 300.5234 |
| B201 | BL SP8741BDG 7:1DIVID UHF DIVIDER PLESSEY SP8741BDG | BL 300.6899 | 300.6030 |
| B202 | BL SN74S112N DUALFLIPFLOP IC FLIP FLOP SN74S112N TEXAS SN74S112N | 210.6026 | 300.6030 |
| B250 | BL MC10231L 2XD FLIPFL FLIP FLOP MOTOROLA MC10231L | BL 300.6201 | 300.5234 |
| B400 | BL SN74S196N DEC.COUNTER IC DECADE COUNTER SN74S19 TEXAS SN74S196N | 300.6776 | 300.5234 |
| B401 | BO LF156H BIFET OPAMP OPERATIONAL AMPLIFIER MOTOROLA LF156H | BO 333.5862 | 300.5234 |
| B402 | BO TCA965 FENSTER-DISKRIM DISCRIMINATOR SIEMENS TCA965 | BO 279.2213 | 300.5234 |
| BR1 | FP KURZSCHL.BUCHSE OFFEN SHORTING PLUG BERG 76264-101 | FP 342.1895 | 300.5234 |
| BR6 | FP KURZSCHL.BUCHSE OFFEN SHORTING PLUG BERG 76264-101 | FP 342.1895 | 300.5234 |
| BU1 | FP BUCHSE VERTIKAL P.V.1P SOCKET BERG 75377-001 | FP 278.5577 | 300.5234 |
| BIS/TO BU4 BU5 | FP BUCHSE VERTIKAL P.V.1P SOCKET BERG 75377-001 | FP 278.5577 | 300.6030 |
| BU81 | FJ EINBAUBUCHSE SYST.SMS FIXED SOCKET RADIAL R.299 012 | 300.6876 | |
| C1 | CB 2,2NF-20+50% HDK4000DF FEED-THROUGH CAPACITOR DRALORIC 2200PFR4000N.ZEICHN. | CB 023.0159 | |
| C50 | CE 47UF-10+50% 40V 9X13 ELECTROLYTIC CAPACITOR ROEDERST EK 00 CB 247 G | CE 006.7142 | 300.5234 |
| C51 | CC 100NF+-10%50V5K1200VIE CAPACITOR UNION CARB CK05BX104K | CC 084.5350 | 300.5234 |
| C52 | CC 1,8NF+-10%4X5R2000 CAPACITOR VALVO 2222 63051 182 | CC 087.7054 | 300.5234 |
| C100 | CC 1NF+-10%100V2K1200CHIP CAPACITOR VITRAMON VJC805Y102KFA | CC 082.7385 | 300.5234 |

300.7714.00 SA BL 1+

Für diese Unterlage behalten wir
uns alle Rechte vor

| Kennzeichen Component No. | Benennung/Beschreibung Designation | Sachnummer Stock No. | enthalten in contained in |
|------------------------------|--|-------------------------|------------------------------|
| C101 | CE 2,2UF+-20%20V 5X 4X 7 ELECTROLYTIC CAPACITOR ERO-TANTAL TA-ELKOETR-2,2/20 | CE 022.8104 | 300.5234 |
| C102 | CC 270PF+-2%6X9N750 CAPACITOR DRALORIC EDPU6X9/270/2%N750 | CC 087.6958 | 300.5234 |
| C103 | CT 9,2PF TAUCHTR.RD 7X12 AIR-TYPE TRIMMER TEKELEC LUFTTRAT5201MMUTTER | CT 025.7373 | 300.5234 |
| C104 | CC 1NF+-10%63V K2000 CERAMIC CAPACITOR VALVO 2222 63051 102 | CC 022.0784 | 300.5234 |
| C105 | CC 120PF+- 5%100V NPO VIE CERAMIC CAPACITOR UNIONCARB C052C121J2G1CA | CC 060.0788 | 300.5234 |
| C106 | CC 270PF+- 5%100V NPO VIE CERAMIC CAPACITOR UNIONCARB C052C271J2G1CA | CC 060.0820 | 300.5234 |
| C107 | CC 8,2PF+-0,25PF3X4NPO CAPACITOR VALVO 2222 678 09828 | CC 087.6412 | 300.5234 |
| C109 | CE 2,2UF+-20%20V 5X 4X 7 ELECTROLYTIC CAPACITOR ERO-TANTAL TA-ELKOETR-2,2/20 | CE 022.8104 | 300.5234 |
| C110 | CC 100PF+-2%4X5N750 CAPACITOR VALVO 2222 678 58101 | CC 087.6906 | 300.5234 |
| C111 | CC 270PF+-5%50V NFO 1206 CERAMIC CHIP CAPACITOR VITRAMON VJ1206A271JFA | CC 099.8867 | 300.5234 |
| C201 | CC 5,6PF+-0,25PF4X5P100 CAPACITOR VALVO 2222 678 03568 | CC 087.6264 | 300.6030 |
| C202 | CC 680PF+-10%4X5R2000 CAPACITOR VALVO 2222 63051 681 | CC 087.7019 | 300.6030 |
| C203 | CC 680PF+-10%4X5R2000 CAPACITOR VALVO 2222 63051 681 | CC 087.7019 | 300.6030 |
| C204 | CC 1NF+-10%63V K2000 CERAMIC CAPACITOR VALVO 2222 63051 102 | CC 022.0784 | 300.6030 |
| C205 | CC 2,2PF+-0,25PF3N750PERL CAPACITOR STETTNER PDAL3 2,2/0,25/N750 | 249.4924 | 300.6030 |
| C206 | CC 10NF+-10% 50V3K1200 CH CAPACITOR VITRAMON VJ1005Y103KFB | CC 082.3344 | 300.6030 |
| C207 | CC 1NF+-10%63V K2000 CERAMIC CAPACITOR VALVO 2222 63051 102 | CC 022.0784 | 300.6030 |
| C208 | CC 3,3NF+-10%100V3K1200 C CAPACITOR VITRAMON VJ1005Y332KFB | CC 082.3280 | 300.6030 |
| R C209 | CE RICHTIGE SNR. 006.7142 ELECTROLYTIC CAPACITOR SIEMENS B41316-B7476-Z | 022.7589 | 300.6030 |

**ROHDE & SCHWARZ**

AZ

Datum

Date

39

0686

Schaltteilliste für
Parts list for
ZE INTERPOL.-SYNTHESIZER
INTERPO.-SYNTHESIZER IISachnummer
Stock No.

300.7714.00 SA


Blatt
Page

3

| Kennzeichen Component No. | Benennung/Beschreibung Designation | Sachnummer Stock No. | enthalten in contained in |
|------------------------------|---|-------------------------|------------------------------|
| C210 | CC 10NF-20+50%7X8R6000 CAPACITOR VALVO 2222 63051 64051103 | CC 087.7525 | 300.6030 |
| C211 | CC 1NF+-10%63V K2000 CERAMIC CAPACITOR VALVO 2222 63051 102 | CC 022.0784 | 300.6030 |
| C212 | CC 1NF+-10%63V K2000 CERAMIC CAPACITOR VALVO 2222 63051 102 | CC 022.0784 | 300.6030 |
| C213 | CC 10NF-20+50%7X8R6000 CAPACITOR VALVO 2222 63051 64051103 | CC 087.7525 | 300.6030 |
| C214 | CC 1NF+-10%63V K2000 CERAMIC CAPACITOR VALVO 2222 63051 102 | CC 022.0784 | 300.6030 |
| C218 | CE 47 UF+-20% 6V 7X 5X11 ELECTROLYTIC CAPACITOR ERO-TANTAL TA/ELKOETR247/6 | CE 022.8040 | 300.6030 |
| C219 | CC 1NF+-10%63V K2000 CERAMIC CAPACITOR VALVO 2222 63051 102 | CC 022.0784 | 300.6030 |
| C220 | CC 1NF+-10%63V K2000 CERAMIC CAPACITOR VALVO 2222 63051 102 | CC 022.0784 | 300.6030 |
| C221 | CE 4,7UF+-20%20V 7X 4X 8 ELECTROLYTIC CAPACITOR ERO-TANTAL TA-ELKOETR2-4,7/20 | CE 022.8110 | 300.6030 |
| C222 | CC 680PF+-10%4X5R2000 CAPACITOR VALVO 2222 63051 681 | CC 087.7019 | 300.6030 |
| C223 | CC 4,7NF+-10%6X9R2000 CAPACITOR VALVO 2222 63051 472 | CC 087.7102 | 300.6030 |
| C224 | CC 100PF+-2%6X9NPO CAPACITOR VALVO 2222 678 10101 | CC 087.6541 | 300.6030 |
| C225 | CC 100PF+-2%6X9NPO CAPACITOR VALVO 2222 678 10101 | CC 087.6541 | 300.6030 |
| C226 | CC 4,7NF+-10%6X9R2000 CAPACITOR VALVO 2222 63051 472 | CC 087.7102 | 300.6030 |
| C227 | CC 4,7NF+-10%6X9R2000 CAPACITOR VALVO 2222 63051 472 | CC 087.7102 | 300.6030 |
| C228 | CC 4,7NF+-10%100V3K1200 C CAPACITOR VITRAMON VJ1005Y472KFB | CC 082.3309 | 300.6030 |
| C229 | CC 4,7NF+-10%100V3K1200 C CAPACITOR VITRAMON VJ1005Y472KFB | CC 082.3309 | 300.6030 |
| C230 | CC 4,7NF+-10%100V3K1200 C CAPACITOR VITRAMON VJ1005Y472KFB | CC 082.3309 | 300.6030 |
| C231 | CC 1NF+-10%63V K2000 CERAMIC CAPACITOR VALVO 2222 63051 102 | CC 022.0784 | 300.6030 |

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| Kennzeichen Component No. | Benennung/Beschreibung Designation | Sachnummer Stock No. | enthalten in contained in |
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| C232 | CC 1NF+-10%63V K2000 CERAMIC CAPACITOR VALVO 2222 63051 102 | CC 022.0784 | 300.6030 |
| C250 | CC 1NF+-10%63V K2000 CERAMIC CAPACITOR VALVO 2222 63051 102 | CC 022.0784 | 300.5234 |
| C251 | CC 1NF+-10%63V K2000 CERAMIC CAPACITOR VALVO 2222 63051 102 | CC 022.0784 | 300.5234 |
| C252 | CC 1NF+-10%63V K2000 CERAMIC CAPACITOR VALVO 2222 63051 102 | CC 022.0784 | 300.5234 |
| C253 | CE 2,2UF+-20%20V 5X 4X 7 ELECTROLYTIC CAPACITOR ERO-TANTAL TA-ELKOETR-2,2/20 | CE 022.8104 | 300.5234 |
| C254 | CC 10NF-20+50%7X8R6000 CAPACITOR VALVO 2222 63051 64051103 | CC 087.7525 | 300.5234 |
| C400 | CC 100NF+-10%50V5K1200VIE CAPACITOR UNION CARB CK05BX104K | CC 084.5350 | 300.5234 |
| C401 | CC 100NF+-10%50V5K1200VIE CAPACITOR UNION CARB CK05BX104K | CC 084.5350 | 300.5234 |
| C402 | CC 100PF+-2%6X9NPO CAPACITOR VALVO 2222 678 10101 | CC 087.6541 | 300.5234 |
| C403 | CE 2,2UF+-20%20V 5X 4X 7 ELECTROLYTIC CAPACITOR ERO-TANTAL TA-ELKOETR-2,2/20 | CE 022.8104 | 300.5234 |
| C404 | CC 68PF+-2%6X7NPO CAPACITOR VALVO 2222 678 10689 | CC 087.6529 | 300.5234 |
| C405 | CC 47PF+-2%5X6NPO CAPACITOR VALVO 2222 678 10479 | CC 087.6506 | 300.5234 |
| C406 | CE 1,0UF+-20%35V 5X 4X 7 ELECTROLYTIC CAPACITOR ERO-TANTAL TA-ELKOETR1-1/35 | CE 022.8185 | 300.5234 |
| C407 | CC 47PF+-2%5X6NPO CAPACITOR VALVO 2222 678 10479 | CC 087.6506 | 300.5234 |
| C408 | CC 1UF+-10%50V7K1200VIEL CAPACITOR UNION CARB CK06BX105K | CC 084.5538 | 300.5234 |
| C409 | CE 100UF-10+50% 16V 9X13 ELECTROLYTIC CAPACITOR ROEDERST EK 00CB 310 D | CE 006.7165 | 300.5234 |
| C410 | CC 10NF-20+50%7X8R6000 CAPACITOR VALVO 2222 63051 64051103 | CC 087.7525 | 300.5234 |
| C411 | CK 220NF+-5%63V5RM MKT CAPACITOR WIMA MKS2/63/0,22UF/5% | CK 099.2952 | 300.5234 |
| C412 | CE 22UF-10+50% 63V 9X13 ELECTROLYTIC CAPACITOR ROEDERST EK 00 CB 222 J | CE 006.7120 | 300.5234 |

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| Kennzeichen Component No. | Benennung/Beschreibung Designation | Sachnummer Stock No. | enthalten in contained in |
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| C413 | CC 1NF+-10%63V K2000 CERAMIC CAPACITOR VALVO 2222 63051 102 | CC 022.0784 | 300.5234 |
| C600 | CC 1NF+-10%63V K2000 CERAMIC CAPACITOR VALVO 2222 63051 102 | CC 022.0784 | 300.5234 |
| C601 | CE 2,2UF+-20%20V 5X 4X 7 ELECTROLYTIC CAPACITOR ERO-TANTAL TA-ELKOETR-2,2/20 | CE 022.8104 | 300.5234 |
| C602 | CC 47PF+-2%4X5N150 CAPACITOR VALVO 2222 678 34479 | CC 087.6670 | 300.5234 |
| C603 | CC 1NF+-10%63V K2000 CERAMIC CAPACITOR VALVO 2222 63051 102 | CC 022.0784 | 300.5234 |
| C604 | CC 12PF+-2%3X4NPO. CAPACITOR VALVO 2222 678 10129 | CC 087.6435 | 300.5234 |
| C605 | CC 12PF+-2%3X4NPO CAPACITOR VALVO 2222 678 10129 | CC 087.6435 | 300.5234 |
| C700 | CC 1NF+-10%63V K2000 CERAMIC CAPACITOR VALVO 2222 63051 102 | CC 022.0784 | 300.5234 |
| C701 | CE 2,2UF+-20%20V 5X 4X 7 ELECTROLYTIC CAPACITOR ERO-TANTAL TA-ELKOETR-2,2/20 | CE 022.8104 | 300.5234 |
| C702 | CC 1NF+-10%63V K2000 CERAMIC CAPACITOR VALVO 2222 63051 102 | CC 022.0784 | 300.5234 |
| C703 | CC 1NF+-10%63V K2000 CERAMIC CAPACITOR VALVO 2222 63051 102 | CC 022.0784 | 300.5234 |
| D1 | LD 350B/200M-10GHZ PI-FIL CHOKE ERIE 1214-038 | LD 300.6818 | 300.5257 |
| BIS/TO D4 | | | |
| GL99 | AE 5082-2800 SCHOTTKYDI DIODE HEWLETT-P. 5082-2800 | AE 012.9066 | 300.5234 |
| GL100 | AE BB909B 25/ 3PF CDI TUNING DIODE VALVO BB909B | AE 092.9600 | 300.5234 |
| BIS/TO GL102 GL250 | | | |
| GL251 | AD 1N4448 75V 0,15A UDI DIODE VALVO 1N4448 | AD 012.0700 | 300.5234 |
| GL400 | AD 1N4448 75V 0,15A UDI DIODE VALVO 1N4448 | AD 012.0700 | 300.5234 |

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| Kennzeichen Component No. | Benennung/Beschreibung Designation | Sachnummer Stock No. | enthalten in contained in |
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| GL401 | AE BAV45 35V PICOAMP. DI LOW LEAKAGE DIODE VALVO BAV45 | AD 252.5386 | 300.5234 |
| GL402 | AE BAV45 35V PICOAMP. DI LOW LEAKAGE DIODE VALVO BAV45 | AD 252.5386 | 300.5234 |
| K1 | DX LEITUNG CABLE | 300.9281 | 300.5234 |
| K2 | DX LEITUNG CABLE | 300.9275 | 300.5234 |
| K3 | DX HF-KABEL RF CABLE | 300.8040 | |
| L100 | LF ROHRK. RD3,5X1,2X3 GETR TUBLAR CORE VALVO 4312 020 31051 | LF 026.9257 | 300.5234 |
| L101 | LD 0,22UH10%0,14OHM1,045A CHOKE DELEVAN DROSSEL1025-04 TRIMMWERT | LD 067.2786 | 300.5234 |
| L102 | LL SPULE 94 NH | 300.9875 | 300.5234 |
| L103 | LD 100UH10%72,00HMO,028A CHOKE DELEVAN DROSSEL1025-92 | LD 037.8005 | 300.5234 |
| L104 | LD 0,56UH10%0,50OHMO,550A CHOKE DELEVAN DROSSEL1025-14 | LD 067.2834 | 300.5234 |
| L113 | LD 4,70UH10%1,20OHMO,239A CHOKE DELEVAN DROSSEL1025-36 | LD 067.2940 | 300.5234 |
| L202 | LD 76,7NH/33PF Q110M.KERN CHOKE COMPONEX E520HS 30000 23 | 300.9381 | 300.6030 |
| L203 | LD 2,20UH10%0,40OHMO,415A CHOKE DELEVAN DROSSEL1025-28 | LD 067.2905 | 300.6030 |
| L204 | LD 2,20UH10%0,40OHMO,415A CHOKE DELEVAN DROSSEL1025-28 | LD 067.2905 | 300.6030 |
| L205 | LD 12,0UH10%2,70OHMO,160A CHOKE DELEVAN DROSSEL1025-46 | LD 067.2992 | 300.6030 |
| L206 | EP SNS-VERZOEGER.LTG.VAR. SNS-DELAY LINE,VARIABLE DATA DELAY 1509-05 B | 300.9775 | 300.6030 |
| L207 | LD 0,10UH10%0,08OHM1,400A CHOKE DELEVAN DROSSEL1025-94 | LD 067.2740 | 300.6030 |
| L208 | LD 0,10UH10%0,08OHM1,400A CHOKE DELEVAN DROSSEL1025-94 | LD 067.2740 | 300.6030 |
| L209 | LD 2,20UH10%0,40OHMO,415A CHOKE DELEVAN DROSSEL1025-28 | LD 067.2905 | 300.6030 |

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| Kennzeichen Component No. | Benennung/Beschreibung Designation | Sachnummer Stock No. | enthalten in contained in |
|------------------------------|--|-------------------------|------------------------------|
| L210 | LD 0,047 UH 10% CHOKE INDUSTRIA BAUREIHE1025,0,047 | 249.5995 | 300.6030 |
| L250 | LD 1,0 UH 10% 465 MIA CHOKE DELEVAN | LD 092.3153 | 300.5234 |
| L401 | LD 2,70UH10%0,550HM0,355A CHOKE DELEVAN DROSSEL1025-30 | LD 067.2911 | 300.5234 |
| L402 | LD 1000UH10%72,00HM0,028A CHOKE DELEVAN DROSSEL1025-92 | LD 037.8005 | 300.5234 |
| L403 | LD 1000UH10%72,00HM0,028A CHOKE DELEVAN DROSSEL1025-92 | LD 037.8005 | 300.5234 |
| L600 | LD 1000UH10%72,00HM0,028A CHOKE DELEVAN DROSSEL1025-92 | LD 037.8005 | 300.5234 |
| L601 | LD 0,12UH10%0,090HM1,300A CHOKE DELEVAN DROSSEL1025-96 | LD 067.2757 | 300.5234 |
| MP1 | VL WIRE-WRAP PIN BERG NR. 75 403-001 | VL 088.4507 | 300.5234 |
| BIS/TO MP7 | | | |
| Q100 | EQ 135MHZ 5.CL12HC-43/U-2 QUARTZ CRYSTAL UNIT QUAKE R&S-ZCHNG.090.8064 | 090.8064 | 356.1511 |
| R50 | RL 0,21W 182 OHM+-1%TK50 RESISTOR RESISTA MK1 1820HM 1% TK50 | RL 092.1350 | 300.5234 |
| R51 | RL 0,21W 22,1 OHM+-1%TK50 RESISTOR RESISTA MK1 22,10HM 1% TK50 | RL 092.1221 | 300.5234 |
| R52 | RL 0,35W 3,92KOHM+-1%TK50 RESISTOR RESISTA MK2 | RL 083.1039 | 300.5234 |
| R53 | RL 0,21W 10,0 OHM+-1%TK50 RESISTOR RESISTA MK1 10,00HM 1% TK50 | RL 092.1715 | 300.5234 |
| R55 | RL 0,21W 100 OHM+-1%TK50 DEPOS.-CARBON RESISTOR RESISTA MK1 1000HM 1% TK50 | RL 092.1321 | 300.5234 |
| R98 | RL 0,21W 562 OHM+-1%TK50 RESISTOR RESISTA MK1 5620HM 1% TK50 | RL 092.1415 | 300.5234 |
| R99 | RL 0,21W 1,0KOHM2% UNGEW. RESISTOR RESISTA MK1 1K 2% UNGEW. | RL 092.6075 | 300.5234 |
| R100 | RL 0,35W 15,0KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/15K-F-D | RL 083.1400 | 300.5234 |

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| Kennzeichen Component No. | Benennung/Beschreibung Designation | Sachnummer Stock No. | enthalten in contained in |
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| R101 | RL 0,35W 5,62KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/5,62K-F-C | RL 082.2190 | 300.5234 |
| R102 | RL 0,35W 10,0KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/10K-F-D | RL 083.1297 | 300.5234 |
| R103 | RL 0,21W 10,0 OHM+-1%TK50 RESISTOR RESISTA MK1 10,00HM 1% TK50 | RL 092.1715 | 300.5234 |
| R104 | RL 0,35W 562 OHM+-1%TK50 RESISTOR DRALORIC SMA0207/5620HM-F-D | RL 083.0461 | 300.5234 |
| R105 | RL 0,35W 56,2 OHM+-1%TK50 RESISTOR DRALORIC SMA0207/56,20HM-F-D | RL 082.9571 | 300.5234 |
| R106 | RL 0,35W 6,81KOHM+-1%TK50 RESISTOR DRALORIC SMA 0207/6,81K-F-C | RL 082.2560 | 300.5234 |
| R107 | RK KALTL 8 OHM 0,8W PTC-RESISTOR SIEMENS Q63100-P330-A14 | 300.6730 | 356.1511 |
| R108 | RL 0,35W 6,81KOHM+-1%TK50 RESISTOR DRALORIC SMA 0207/6,81K-F-C | RL 082.2560 | 300.5234 |
| R110 | RL 0,21W 1,82KOHM+-1%TK50 RESISTOR RESISTA MK1 1K82 1% TK50 | RL 092.1473 | 300.5234 |
| R111 | RL 0,21W 3,92KOHM+-1%TK50 RESISTOR RESISTA MK1 3K92 1% TK50 | RL 092.1515 | 300.5234 |
| R112 | RL 0,21W 12,1 OHM+-1%TK50 RESISTOR RESISTA MK1 | RL 092.1196 | 300.5234 |
| R114 | RL 0,21W 10,0 OHM+-1%TK50 RESISTOR RESISTA MK1 10,00HM 1% TK50 | RL 092.1715 | 300.5234 |
| R115 | RL 0,21W 330 OHM2% UNGEW. RESISTOR RESISTA MK1 3300HM 2% UNGEW. | RL 092.6017 | 300.5234 |
| R116 | RL 0,35W 332 OHM+-1%TK50 RESISTOR DRALORIC SMA0207/3320HM-F-D | RL 083.0255 | 300.5234 |
| R201 | RL 0,35W 47,5 OHM+-1%TK50 RESISTOR DRALORIC SMA0207/47,50HM-F-D | RL 082.9507 | 300.6030 |
| R202 | RL 0,35W 22,1KOHM+-1%TK50 RESISTOR DRALORIC SMA/207/22,1K-F-C | RL 083.1545 | 300.6030 |
| R203 | RL 0,35W 10,0KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/10K-F-D | RL 083.1297 | 300.6030 |
| R204 | RL 0,35W 681 OHM+-1%TK50 RESISTOR DRALORIC SMA0207/6810HM-F-D | RL 083.0490 | 300.6030 |
| R205 | RL 0,35W 121 OHM+-1%TK50 RESISTOR DRALORIC SMA0207/1210HM-F-D | RL 082.9859 | 300.6030 |

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| Kennzeichen Component No. | Benennung/Beschreibung Designation | Sachnummer Stock No. | enthalten in contained in |
|------------------------------|--|-------------------------|------------------------------|
| R206 | RL 0,35W22,10 OHM+-1%TK50 RESISTOR | RL 082.9188 | 300.6030 |
| R207 | DRALORIC SMA0207/22,10HM-F-D RL 0,35W 100 OHM+-1%TK50 DEPOS.-CARBON RESISTOR | RL 082.6543 | 300.6030 |
| R208 | DRALORIC SMA0207/100/HM-F-D RL 0,35W 39,2KOHM+-1%TK50 RESISTOR | RL 083.1745 | 300.6030 |
| R209 | DRALORIC SMA/207/39,2K-F-C RL 0,35W 100KOHM+-1%TK50 RESISTOR | RL 082.1764 | 300.6030 |
| R211 | DRALORIC SMA0207/100K-F-C RL 0,35W 221 OHM+-1%TK50 RESISTOR | RL 083.0084 | 300.6030 |
| R213 | DRALORIC SMA0207/2210HM-F-D RL 0,35W 332 OHM+-1%TK50 RESISTOR | RL 083.0255 | 300.6030 |
| R214 | DRALORIC SMA0207/3320HM-F-D RL 0,35W 56,2 OHM+-1%TK50 RESISTOR | RL 082.9571 | 300.6030 |
| R215 | DRALORIC SMA0207/56,20HM-F-D RL 0,35W15 OHM 1%TK50 RESISTOR | RL 082.9020 | 300.6030 |
| R216 | DRALORIC SMA0207/150HM-F-D RK HEISSL500 OHM 10%,80W THERMISTOR | 008.0080 | 300.6030 |
| R217 | SIEMENS K1110 500 OHM +-10% RL 0,35W 100 OHM+-1%TK50 DEPOS.-CARBON RESISTOR | RL 082.6543 | 300.6030 |
| R220 | DRALORIC SMA0207/100/HM-F-D RL 0,35W 22,1KOHM+-1%TK50 RESISTOR | RL 083.1545 | 300.6030 |
| R221 | DRALORIC SMA/207/22,1K-F-C RL 0,35W 56,2KOHM+-1%TK50 RESISTOR | RL 082.2231 | 300.6030 |
| R222 | DRALORIC SMA0207/56,2K-F-C RL 0,35W 47,5KOHM+-1%TK50 RESISTOR | RL 083.1800 | 300.6030 |
| R223 | DRALORIC SMA/207/47,5K-F-C RS 0,5W100KOHM+-10%10X10X CERMET POTENTIOMETER T | RS 087.7683 | 300.6030 |
| R224 | BOURNS 3386X-1-104 RL 0,35W 221 OHM+-1%TK50 RESISTOR | RL 083.0084 | 300.6030 |
| R225 | DRALORIC SMA0207/2210HM-F-D RL 0,35W 22,1KOHM+-1%TK50 RESISTOR | RL 083.1545 | 300.6030 |
| R226 | DRALORIC SMA/207/22,1K-F-C RL 0,35W 56,2KOHM+-1%TK50 RESISTOR | RL 082.2231 | 300.6030 |
| R227 | DRALORIC SMA0207/56,2K-F-C RL 0,35W 33,2KOHM+-1%TK50 RESISTOR | RL 083.1674 | 300.6030 |
| R228 | DRALORIC SMA0207/33,2K-F-C RL 0,35W 12,1KOHM+-1%TK50 RESISTOR | RL 083.1351 | 300.6030 |
| | DRALORIC SMA0207/12,1K-F-D | | |

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| Kennzeichen Component No. | Benennung/Beschreibung Designation | Sachnummer Stock No. | enthalten in contained in |
|------------------------------|--|-------------------------|------------------------------|
| R229 | RL 0,35W 221 OHM+-1%TK50 RESISTOR DRALORIC SMA0207/221OHM-F-D | RL 083.0084 | 300.6030 |
| R231 | RS 0,5W100KOHM+-10%10X10X CERMET POTENTIOMETER T BOURNS 3386X-1-104 | RS 087.7683 | 300.6030 |
| R232 | RL 0,35W 100KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/100K-F-C | RL 082.1764 | 300.6030 |
| R233 | RL 0,35W 100 OHM+-1%TK50 DEPOS.-CARBON RESISTOR DRALORIC SMA0207/100/HM-F-D | RL 082.6543 | 300.6030 |
| R235 | RL 0,35W 4,75KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/4,75K-F-D | RL 083.1097 | 300.6030 |
| R236 | RL 0,35W 1,82KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/1,82K-F-C | RL 082.2277 | 300.6030 |
| R237 | RL 0,35W 2,94KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/2,94K-F-D | RL 083.0955 | 300.6030 |
| R250 | RL 0,21W 220 OHM2% UNGEW. RESISTOR | RL 092.5991 | 300.5234 |
| R251 | RESISTA MK1 220OHM 2% UNGEW. RL 0,21W 220 OHM2% UNGEW. RESISTOR | RL 092.5991 | 300.5234 |
| R252 | RESISTA MK1 220OHM 2% UNGEW. RL 0,21W 1,82KOHM+-1%TK50 RESISTOR | RL 092.1473 | 300.5234 |
| R253 | RESISTA MK1 1K82 1% TK50 RL 0,21W 10,0 OHM+-1%TK50 RESISTOR | RL 092.1715 | 300.5234 |
| R254 | RESISTA MK1 10,0OHM 1% TK50 RL 0,21W 22 OHM2% UNGEW. RESISTOR | RL 092.5879 | 300.5234 |
| R255 | RESISTA MK1 22OHM 2% UNGEW. RL 0,21W 10 OHM2% UNGEW. RESISTOR | RL 092.5833 | 300.5234 |
| R256 | RESISTA MK1 100OHM 2% UNGEW. RL 0,21W 47 OHM2% UNGEW. RESISTOR | RL 092.5910 | 300.5234 |
| R257 | RESISTA MK1 47OHM 2% UNGEW. RL 0,21W 221 OHM+-1%TK50 RESISTOR | RL 092.1367 | 300.5234 |
| R258 | RESISTA MK1 221OHM 1% TK50 RL 0,21W 681 OHM+-1%TK50 RESISTOR | RL 092.1421 | 300.5234 |
| R259 | RESISTA MK1 681OHM 1% TK50 RL 0,21W 562 OHM+-1%TK50 RESISTOR | RL 092.1415 | 300.5234 |
| R260 | RESISTA MK1 562OHM 1% TK50 RL 0,21W 562 OHM+-1%TK50 RESISTOR | RL 092.1415 | 300.5234 |
| R261 | RESISTA MK1 562OHM 1% TK50 RL 0,21W 562 OHM+-1%TK50 RESISTOR RESISTA MK1 562OHM 1% TK50 | RL 092.1415 | 300.5234 |

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| Kennzeichen Component No. | Benennung/Beschreibung Designation | Sachnummer Stock No. | enthalten in contained in |
|------------------------------|---|-------------------------|------------------------------|
| R262 | RL 0,21W 562 OHM+-1%TK50 RESISTOR RESISTA MK1 5620HM 1% TK50 | RL 092.1415 | 300.5234 |
| R263 | RL 0,35W 332 OHM+-1%TK50 RESISTOR DRALORIC SMA0207/3320HM-F-D | RL 083.0255 | 300.5234 |
| R401 | RL 0,21W 75,0 OHM+-1%TK50 RESISTOR DRALORIC SMA0204 75 OHM 1% | RL 092.0119 | 300.5234 |
| R402 | RL 0,21W 274 OHM+-1%TK50 RESISTOR RESISTA MK1 2740HM 1% TK50 | RL 092.1373 | 300.5234 |
| R403 | RL 0,21W 562 OHM+-1%TK50 RESISTOR RESISTA MK1 5620HM 1% TK50 | RL 092.1415 | 300.5234 |
| R404 | RL 0,21W 56,2 OHM+-1%TK50 RESISTOR RESISTA MK1 56,20HM 1% TK50 | RL 092.1280 | 300.5234 |
| R405 | RL 0,35W 100 OHM+-1%TK50 DEPOS.-CARBON RESISTOR DRALORIC SMA0207/100/HM-F-D | RL 082.6543 | 300.5234 |
| R406 | RL 0,21W 562 OHM+-1%TK50 RESISTOR RESISTA MK1 5620HM 1% TK50 | RL 092.1415 | 300.5234 |
| R407 | RL 0,21W 681 OHM+-1%TK50 RESISTOR RESISTA MK1 6810HM 1% TK50 | RL 092.1421 | 300.5234 |
| R408 | RL 0,21W 200 KOHM+-1%TK50 RESISTOR RESISTA MK1 200K 1% TK50 | 092.0531 | 300.5234 |
| R409 | RL 0,35W 200KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/200K-F-D | RL 083.2235 | 300.5234 |
| R410 | RL 0,35W 10,0KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/10K-F-D | RL 083.1297 | 300.5234 |
| R411 | RL 0,35W 56,2KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/56,2K-F-C | RL 082.2231 | 300.5234 |
| R412 | RL 0,35W 392 KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/392K-F-C | RL 083.2512 | 300.5234 |
| R413 | RL 0,35W 2,21MOHM+-1%TK50 METALFILMRESISTOR RESISTA MK2 2,21MOHM 1% TK50 | RL 099.8173 | 300.5234 |
| R414 | RL 0,21W 1,00KOHM+-1%TK50 RESISTOR RESISTA MK1 1k00 1% TK50 | RL 092.1444 | 300.5234 |
| R416 | RL 0,21W 56,2KOHM+-1%TK50 RESISTOR RESISTA MK1 56K20 1% TK50 | RL 092.1650 | 300.5234 |
| R417 | RL 0,21W 182 KOHM+-1%TK50 RESISTOR DRALORIC SMA0204 182KOHM 1% | RL 092.0525 | 300.5234 |
| R418 | RL 0,21W 22,1KOHM+-1%TK50 RESISTOR RESISTA MK1 22K1 1% TK50 | RL 092.1609 | 300.5234 |

300.7714.00 SA BL11+

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| | | | | | |
|---|----|---------------|---|-------------------------|---------------|
|  ROHDE & SCHWARZ | ÄZ | Datum Date | Schaltteilliste für Parts list for | Sachnummer Stock No. | Blatt Page |
| | 39 | 0686 | ZE INTERPOL.-SYNTHESIZER INTERPO.-SYNTHESIZER II | 300.7714.00 SA | 12 |

| Kennzeichen Component No. | Benennung/Beschreibung Designation | Sachnummer Stock No. | enthalten in contained in |
|------------------------------|---|-------------------------|------------------------------|
| R419 | RL 0,21W 562 0HM+-1%TK50 RESISTOR | RL 092.1415 | 300.5234 |
| R420 | RESISTA MK1 5620HM 1% TK50 RS 0,5W500 0HM+-10%10X10X CERMET POTENTIOMETER T BOURNS 3386F-1-501 | RS 247.7878 | 300.5234 |
| R421 | RL 0,35W 1K0HM+-1%TK50 RESISTOR | RL 082.2160 | 300.5234 |
| R422 | DRALORIC SMA0207/1K-F-C RL 0,21W 562 0HM+-1%TK50 RESISTOR | RL 092.1415 | 300.5234 |
| R423 | RESISTA MK1 5620HM 1% TK50 RL 0,35W 47,5 0HM+-1%TK50 RESISTOR | RL 082.9507 | 300.5234 |
| R425 | DRALORIC SMA0207/47,50HM-F-D RL 0,21W 39,2K0HM+-1%TK50 RESISTOR | RL 092.1638 | 300.5234 |
| R430 | RESISTA MK1 39K2 1% TK50 RL 0,35W 82,5K0HM+-1%TK50 RESISTOR | RL 082.2302 | 300.5234 |
| R602 | DRALORIC SMA0207/82,5K-F-C RL 0,21W 1,82K0HM+-1%TK50 RESISTOR | RL 092.1473 | 300.5234 |
| R603 | RESISTA MK1 1K82 1% TK50 RL 0,21W 1,82K0HM+-1%TK50 RESISTOR | RL 092.1473 | 300.5234 |
| R604 | RESISTA MK1 1K82 1% TK50 RL 0,21W 10 0HM2% UNGEW. RESISTOR | RL 092.5833 | 300.5234 |
| R605 | RESISTA MK1 100HM 2% UNGEW. RL 0,21W 100 0HM2% UNGEW. RESISTOR | RL 092.5956 | 300.5234 |
| R606 | RESISTA MK1 1000HM 2% UNGEW. RL 0,21W 10,0 0HM+-1%TK50 RESISTOR | RL 092.1715 | 300.5234 |
| R607 | RESISTA MK1 10,00HM 1% TK50 RL 0,21W 150 0HM2% UNGEW. RESISTOR | RL 092.5979 | 300.5234 |
| R608 | RESISTA MK1 1500HM 2% UNGEW. RL 0,35W 82,5 0HM+-1%TK50 RESISTOR | RL 082.9707 | 300.5234 |
| R609 | DRALORIC SMA0207/82,50HM-F-D RL 0,21W 82 0HM2% UNGEW. RESISTOR | RL 092.5940 | 300.5234 |
| R702 | RESISTA MK1 820HM 2% UNGEW. RL 0,21W 1,82K0HM+-1%TK50 RESISTOR | RL 092.1473 | 300.5234 |
| R703 | RESISTA MK1 1K82 1% TK50 RL 0,21W 1,82K0HM+-1%TK50 RESISTOR | RL 092.1473 | 300.5234 |
| R704 | RESISTA MK1 1K82 1% TK50 RL 0,21W 39 0HM2% UNGEW. RESISTOR | RL 092.5904 | 300.5234 |
| R705 | RESISTA MK1 390HM 2% UNGEW. RL 0,21W 56,2 0HM+-1%TK50 RESISTOR | RL 092.1280 | 300.5234 |
| | RESISTA MK1 56,20HM 1% TK50 | | |

300.7714.00 SA BL12+

**ROHDE & SCHWARZ**

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|----|-------|
| ÄZ | Datum |
| 39 | 0686 |

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| Schaltteilliste für Parts list for ZE INTERPOL.-SYNTHESIZER INTERPO.-SYNTHESIZER II |
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|-------------------------|
| Sachnummer Stock No. |
| 300.7714.00 SA |

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|---------------|
| Blatt Page |
| 13 |

| Kennzeichen Component No. | Benennung/Beschreibung Designation | Sachnummer Stock No. | enthalten in contained in |
|------------------------------|---|-------------------------|------------------------------|
| R706 | RL 0,21W 10,0 OHM+-1%TK50 RESISTOR | RL 092.1715 | 300.5234 |
| R707 | RESISTA MK1 10,0OHM 1% TK50 RL 0,21W 220 OHM2% UNGEW. RESISTOR | RL 092.5991 | 300.5234 |
| R708 | RESISTA MK1 220OHM 2% UNGEW. RL 0,35W 332 OHM+-1%TK50 RESISTOR DRALORIC SMA0207/3320HM-F-D | RL 083.0255 | 300.5234 |
| ST1 | FP EINZELKONTAKTSTIFT SINGLE-CONTACT PIN ULMIC R&S.ZCHNG.300.8804 | 300.8804 | 300.5257 |
| BIS/TO ST4 ST80 | ENTHALTEN IN/INCLUDED IN LEITERPLATTE/PCB | | 300.5257 |
| ST84 | FJ EINBAUWINKELST. SMC ANGLE CONNECTOR RADIALL R 112 669 | FJ 249.9684 | 300.5234 |
| ST85 | FJ EINBAUWINKELST. SMC ANGLE CONNECTOR RADIALL R 112 669 | FJ 249.9684 | 300.5234 |
| ST86 | FJ EINBAUWINKELST. SMC ANGLE CONNECTOR RADIALL R 112 669 | FJ 249.9684 | 300.5234 |
| ST88 | FJ EINBAUSTECKER SYST.SMC PLUG RADIALL R112 553 | FJ 070.0322 | |
| ST89 | FJ EINBAUWINKELST. SMC ANGLE CONNECTOR RADIALL R 112 669 | FJ 249.9684 | 300.6030 |
| T50 | AK 2N2369A NPN 15V 200MA TRANSISTOR VALVO 2N2369A | AK 010.4680 | 300.5234 |
| T100 | AK BFW30 NPN 10V >1GHZ TRANSISTOR VALVO BFW30 | AK 010.6582 | 300.5234 |
| T102 | AK BFW30 NPN 10V >1GHZ TRANSISTOR VALVO BFW30 | AK 010.6582 | 300.5234 |
| T201 | AM BF910 N-DUAL-G.MOSF MOS-FET TEXAS BF910 | 300.6847 | 300.6030 |
| T202 | AK BFT12 NPN 25V 2GHZ TRANSISTOR SIEMENS BFT12 | AK 249.8236 | 300.6030 |
| T203 | AM BF910 N-DUAL-G.MOSF MOS-FET TEXAS BF910 | 300.6847 | 300.6030 |
| T204 | AK BFX48 PNP 30V 100MA TRANSISTOR SGS BFX48 | AK 010.3202 | 300.6030 |
| T205 | AK BFX48 PNP 30V 100MA TRANSISTOR SGS BFX48 | AK 010.3202 | 300.6030 |

300.7714.00 SA BL13+

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**ROHDE & SCHWARZ**

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| ÄZ | Datum |
| 39 | 0686 |

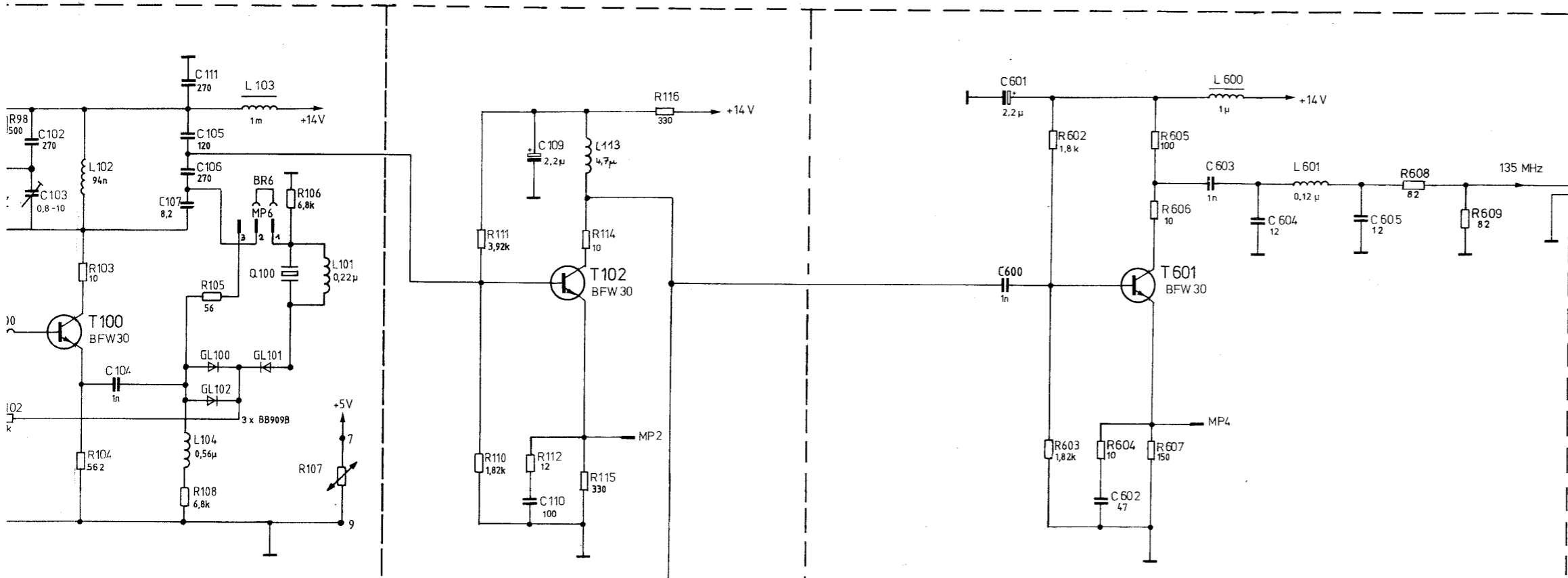
 Schalteilliste für
 Parts list for
 ZE INTERPOL.-SYNTHESIZER
 INTERPO.-SYNTHESIZER II

 Sachnummer
 Stock No.
 300.7714.00 SA

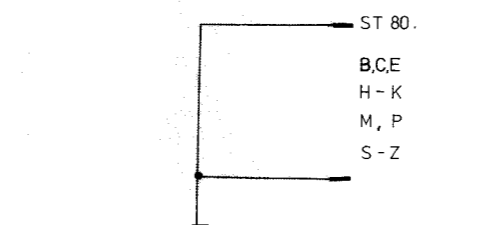
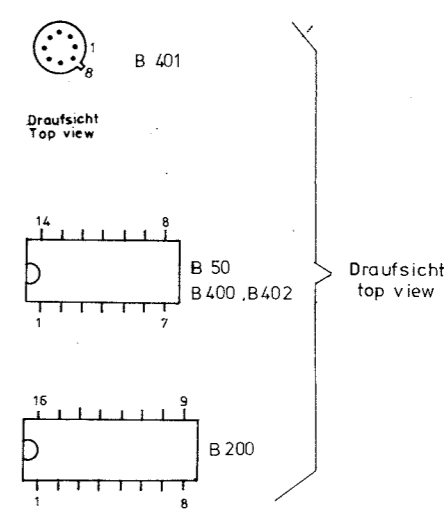
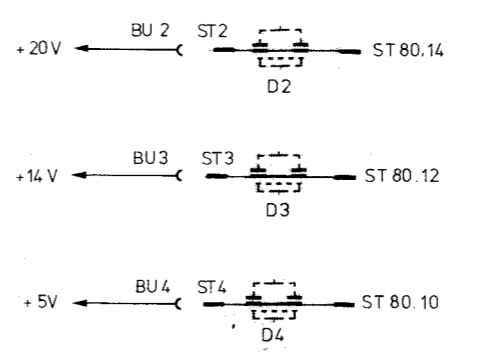
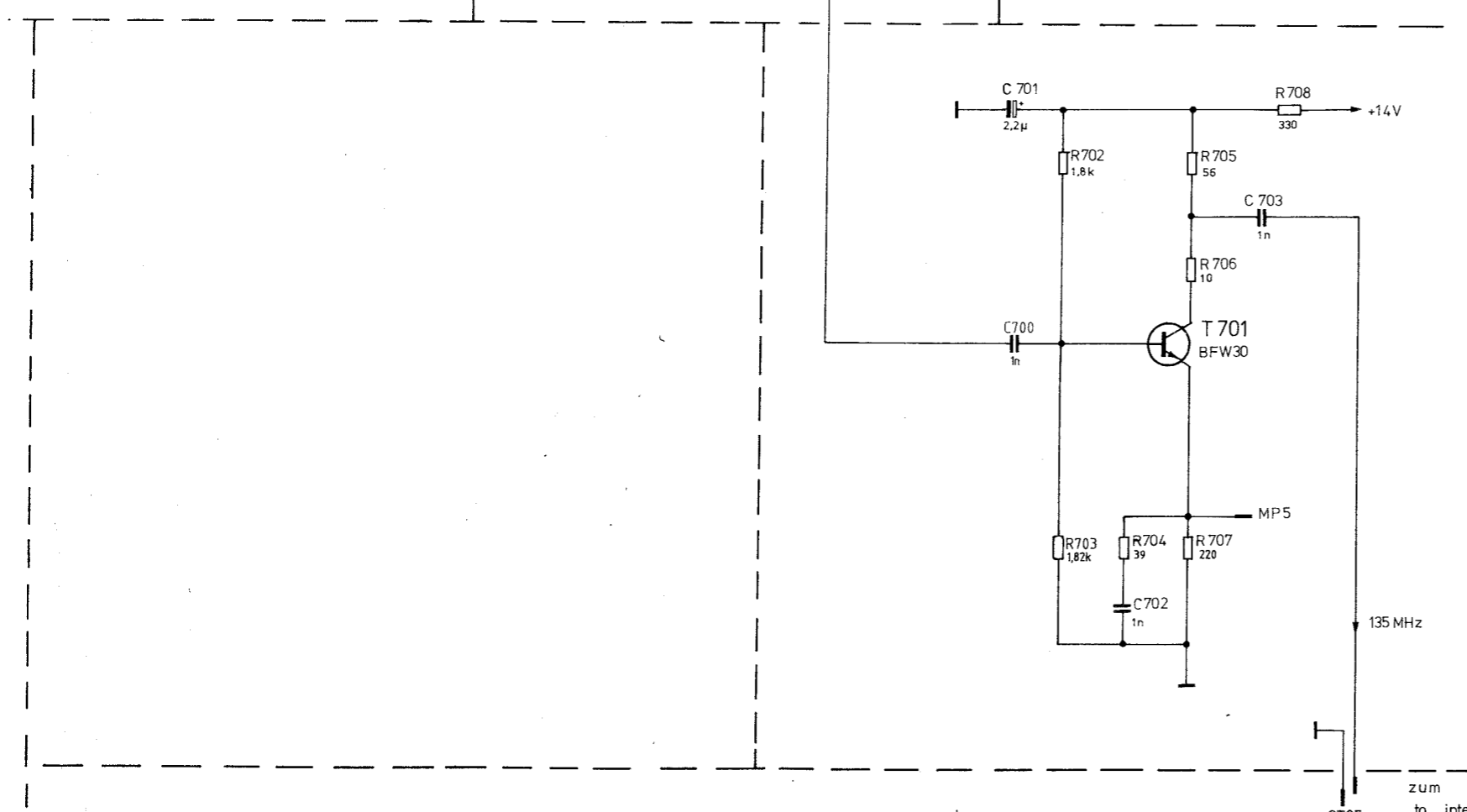
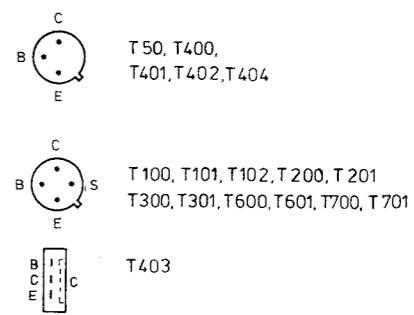
 Blatt
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 14

| Kennzeichen Component No. | Benennung/Beschreibung Designation | Sachnummer Stock No. | enthalten in contained in |
|------------------------------|---|-------------------------|------------------------------|
| T206 | AM BF910 N-DUAL-G.MOSF MOS-FET TEXAS BF910 | 300.6847 | 300.6030 |
| T207 | AM BF910 N-DUAL-G.MOSF MOS-FET TEXAS BF910 | 300.6847 | 300.6030 |
| T208 | AM BF910 N-DUAL-G.MOSF MOS-FET TEXAS BF910 | 300.6847 | 300.6030 |
| T209 | AL BD139 NPN 80V 1A0 TRANSISTOR VALVO BD139 | AL 274.8994 | 300.6030 |
| T210 | AK BCY79IX PNP 45V 200MA TRANSISTOR SIEMENS BCY79IX | AK 010.3777 | 300.6030 |
| T250 | AK BFW30 NPN 10V >1GHZ TRANSISTOR VALVO BFW30 | AK 010.6582 | 300.5234 |
| T251 | AK BFW30 NPN 10V >1GHZ TRANSISTOR VALVO BFW30 | AK 010.6582 | 300.5234 |
| T400 | AK BSX29 PNP 12V 200MA TRANSISTOR SGS BSX29 | AK 010.3031 | 300.5234 |
| T401 | AK BSX29 PNP 12V 200MA TRANSISTOR SGS BSX29 | AK 010.3031 | 300.5234 |
| T402 | AK BSX29 PNP 12V 200MA TRANSISTOR SGS BSX29 | AK 010.3031 | 300.5234 |
| T403 | AL BDX36 NPN 60V 5A0 TRANSISTOR VALVO BDX 36 | AL 332.4291 | 300.5234 |
| T601 | AK BFW30 NPN 10V >1GHZ TRANSISTOR VALVO BFW30 | AK 010.6582 | 300.5234 |
| T701 | AK BFW30 NPN 10V >1GHZ TRANSISTOR VALVO BFW30 | AK 010.6582 | 300.5234 |
| Y51 | BD QUARZEINHEIT | 356.1511 | 300.5234 - ENDE - |

300.7714.00 SA BL14-



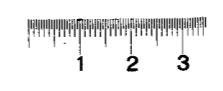
ST 84 zum Ausgangsteil III
to output stage III



ST 85 zum Interpolationssynthesizer III
to interpolation synthesizer III

(Platte) Interpolationssynthesizer II
(Pcb) Interpolation synthesizer II
300.5234

Zuführung Interpolationssynthesizer
Feed Interpolation synthesizer
300.5257

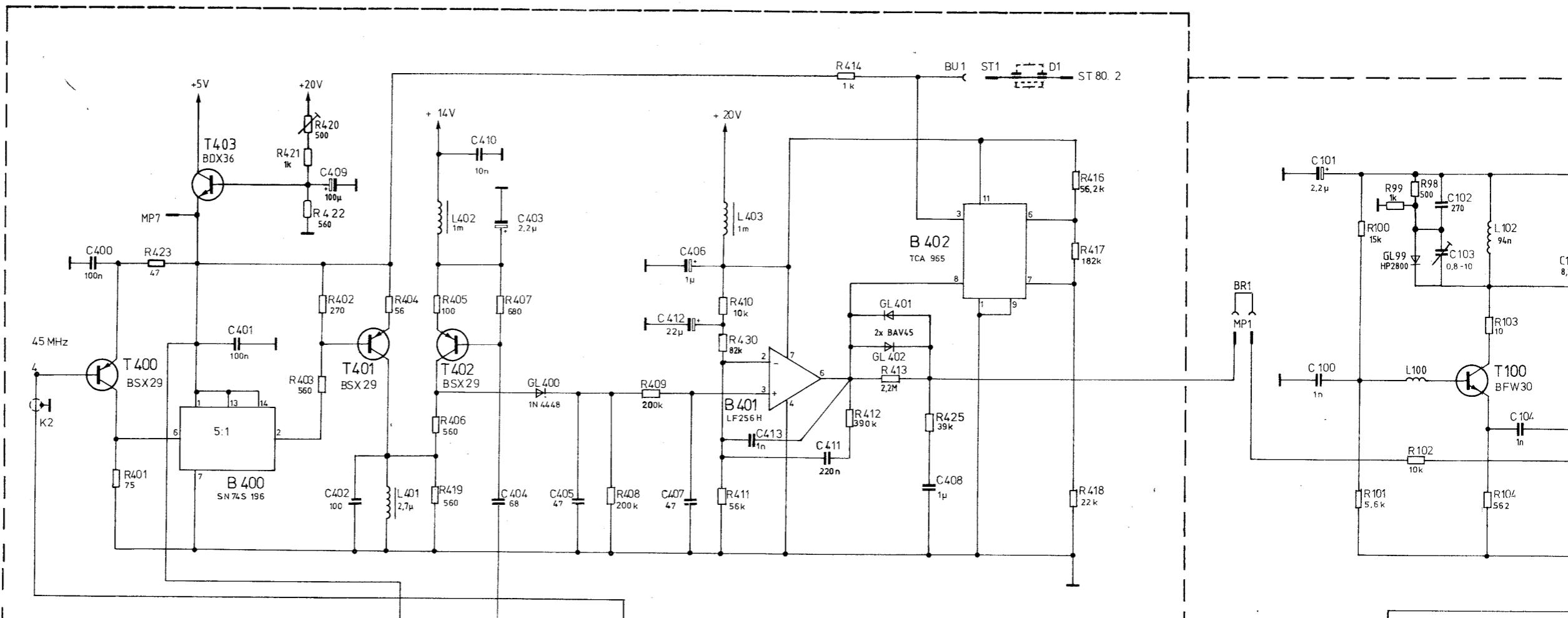
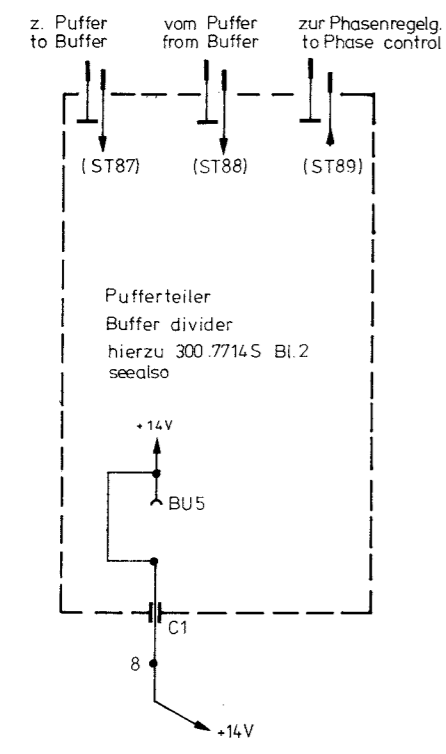


| Name | Datum | And. Nr. | And. Nr. |
|------|-------|----------|----------|
| G.S. | 8.2 | M. 32942 | |
| G.S. | 9.83 | | |
| G.S. | 12.83 | | |
| G.S. | 6.84 | | |
| G.S. | 11.84 | | |

Diese Zeichnung ist unter E
 unentgeltliche Verwertung, K
 straflos und schuldlos
 gestattet.

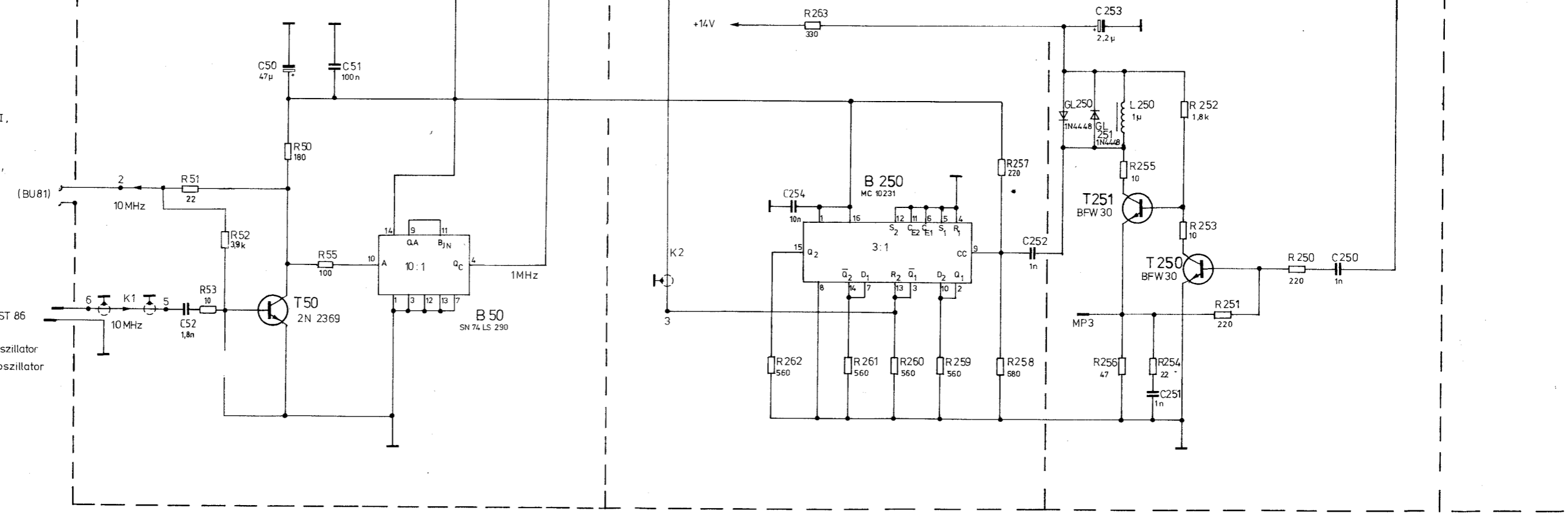
ROHDE & SCHWARZ MÜNCHEN

| Name | Datum | And. Nr. | And. Nr. |
|------|-------|----------|----------|
| LS | 6.79 | | |
| LS | 6.79 | | |
| LS | 5.80 | | |
| LS | 12.80 | | |
| LS | 7.81 | | |



zum Interpolationssynthesizer III,
NF-Generator und Eichleitung

to Interpolation synthesizer III,
AF-generator and attenuator



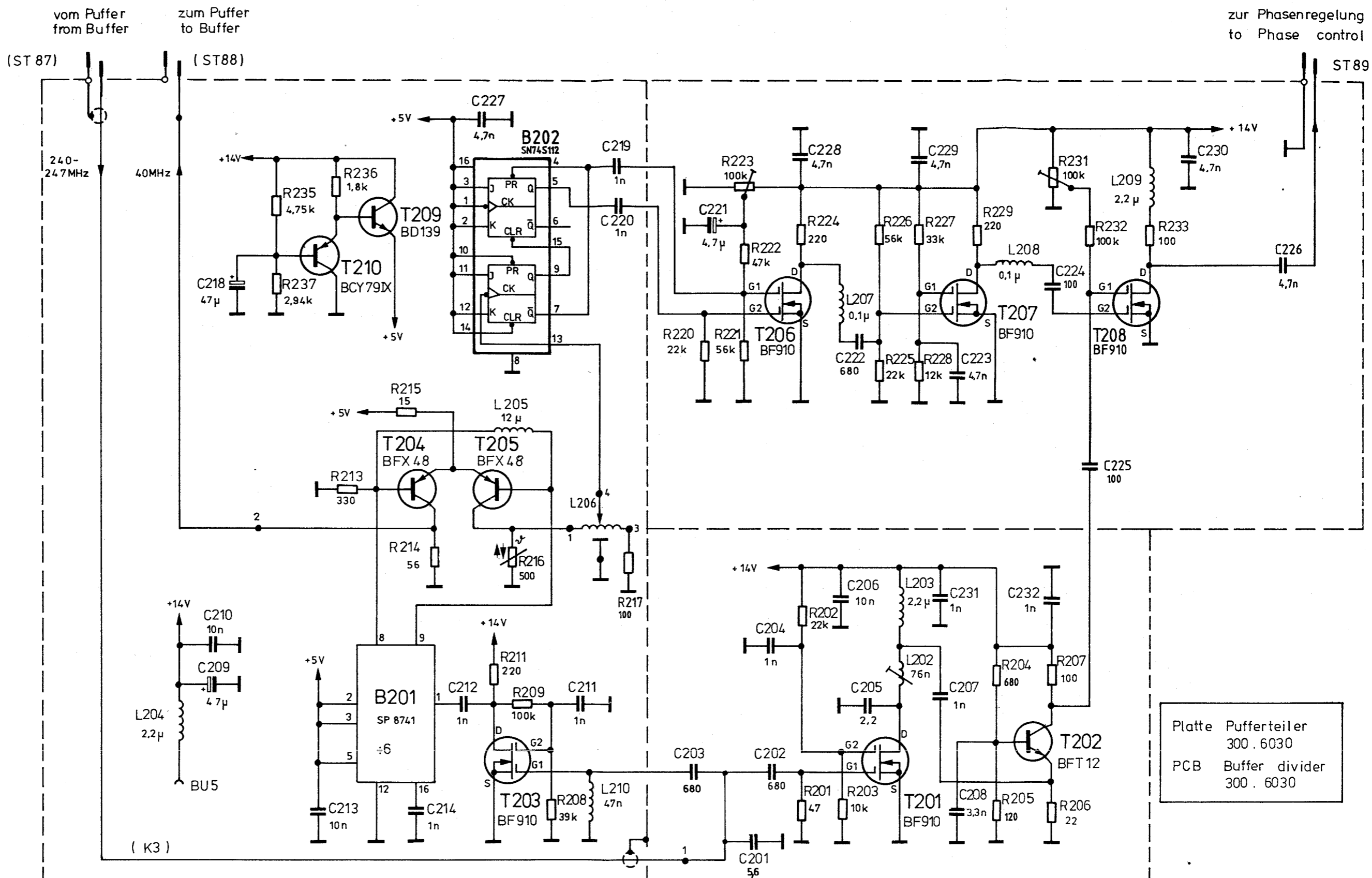
vom Quarzoszillator
from crystal oscillator

| | |
|---------------|--|
| Name | |
| Datum | |
| And-Mittg-Nr. | |
| And-zust. | |
| Name | |
| Datum | |
| And-Mittg-Nr. | |
| And-zust. | |

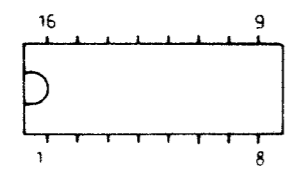
Diese Zeichnung ist unser Eigentum. Vervielfältigung, unbefugte Verwertung, Mitteilung an andere ist strafbar und schadenersatzpflichtig.

ROHDE & SCHWARZ · MÜNCHEN

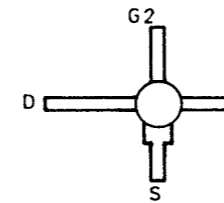
| | |
|---------------|--------|
| Name | LS |
| Datum | 12.80 |
| And-Mittg-Nr. | 27860 |
| And-zust. | A |
| Name | Hg |
| Datum | 1.4.80 |
| gezeichnet | |
| bearbeitet | LS |
| geprüft | 4.80 |
| normgepr. | |
| Datum | 11.82 |
| And-Mittg-Nr. | 27860 |
| And-zust. | B |
| Name | LS |
| Datum | 4.83 |
| gezeichnet | |
| bearbeitet | |
| geprüft | |
| normgepr. | |
| Datum | 9.83 |
| And-Mittg-Nr. | 30063 |
| And-zust. | F |
| Name | Hg |
| Datum | 30.55 |
| gezeichnet | |
| bearbeitet | |
| geprüft | |
| normgepr. | |
| Datum | 9.83 |
| And-Mittg-Nr. | 30455 |
| And-zust. | G |
| Name | gs |
| Datum | 9.83 |
| And-Mittg-Nr. | 30455 |
| And-zust. | H |
| Name | gs |
| Datum | 9.83 |
| And-Mittg-Nr. | 30455 |
| And-zust. | H |



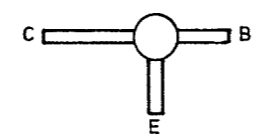
Platte Pufferteiler
300.6030
PCB Buffer divider
300.6030



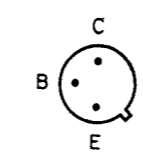
Draufsicht
Top view
B201, B202



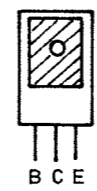
T201, T203, T206,
T207, T208



T202



T204, T205,
T210



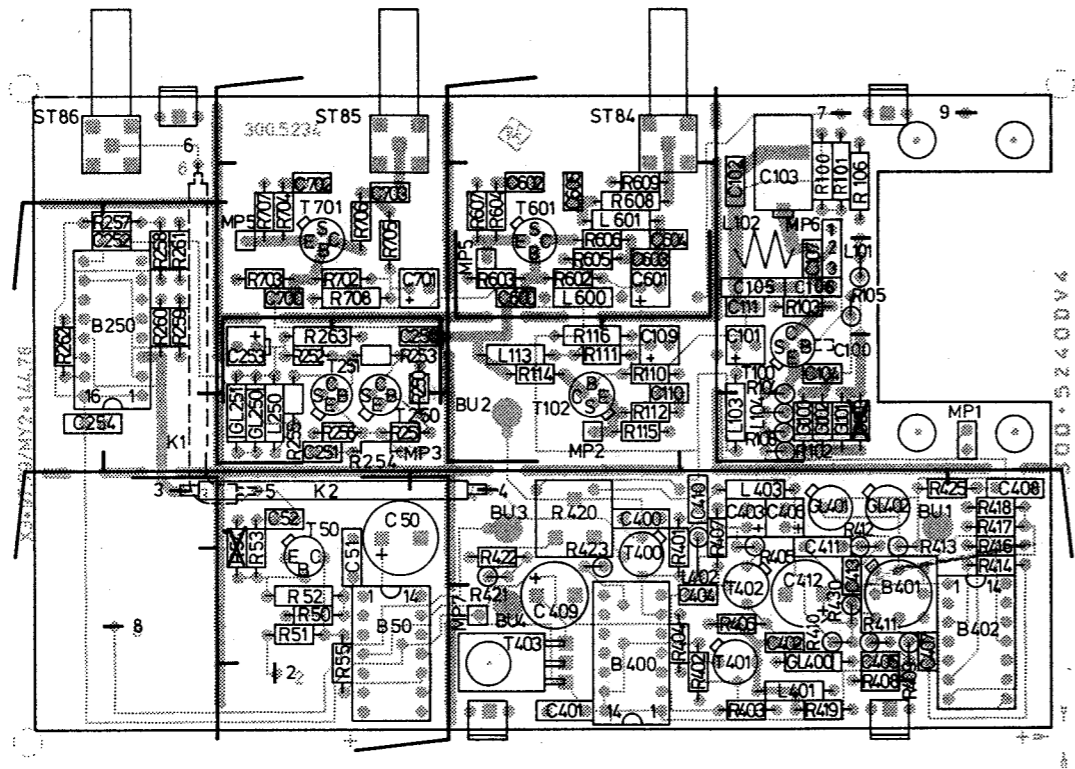
T209

Stromlauf zu
 Interpolationssynthesizer II
Interpolation synthesizer II

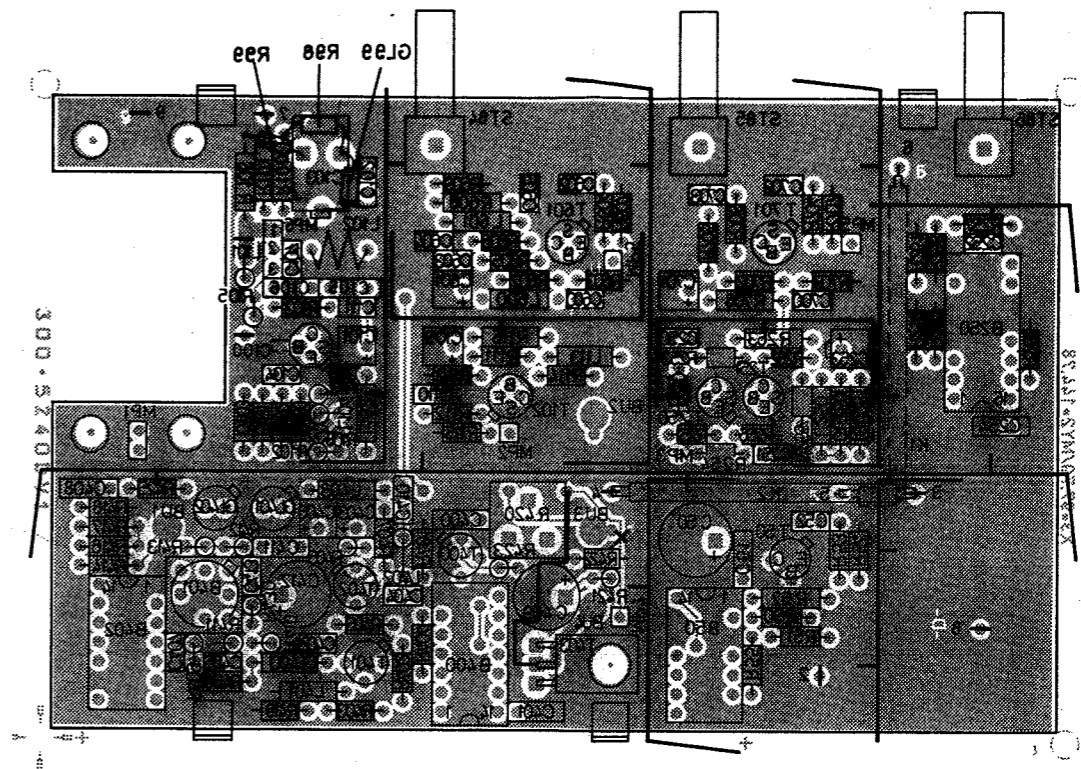
Z
Zeichn. Nr. 300.7714 S | Bl. 2
reg. iV 300.1000V erste Z 300.1000

A

Ansicht und Leitungsführung Bauteilseite
View of tracks on component side



Ansicht und Leitungsführung Lötseite
View of tracks on solder side

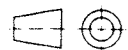


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D

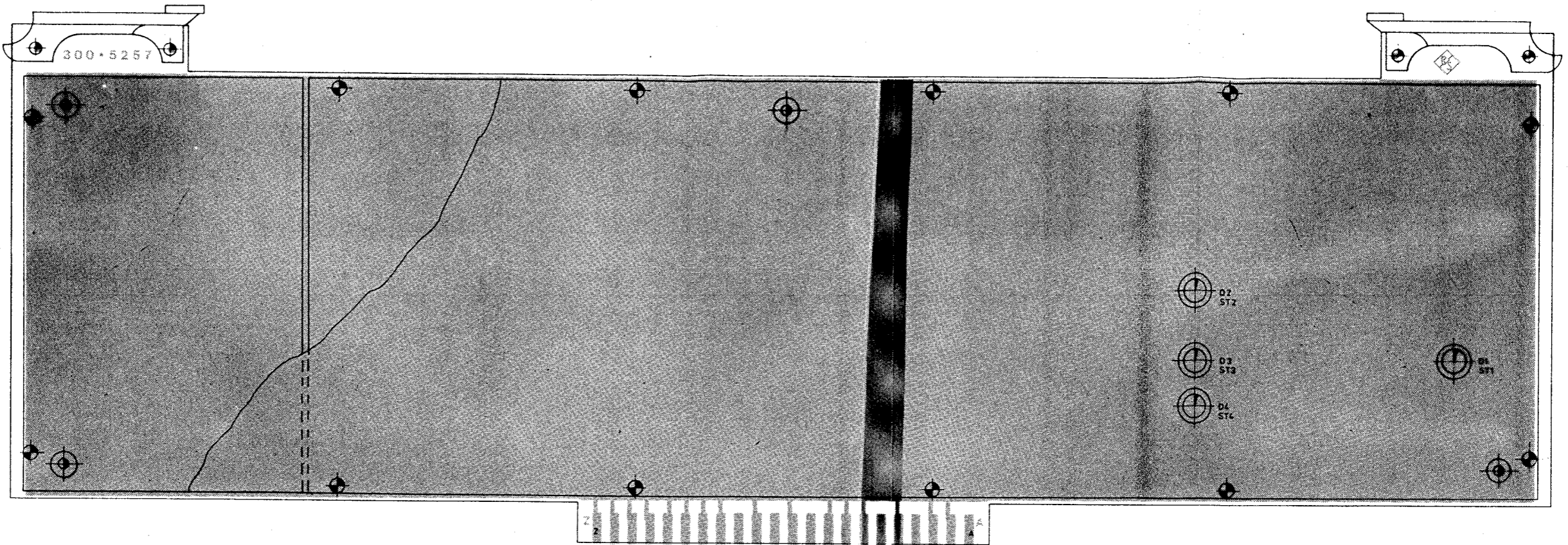
E

ISO...ektion
Methode E

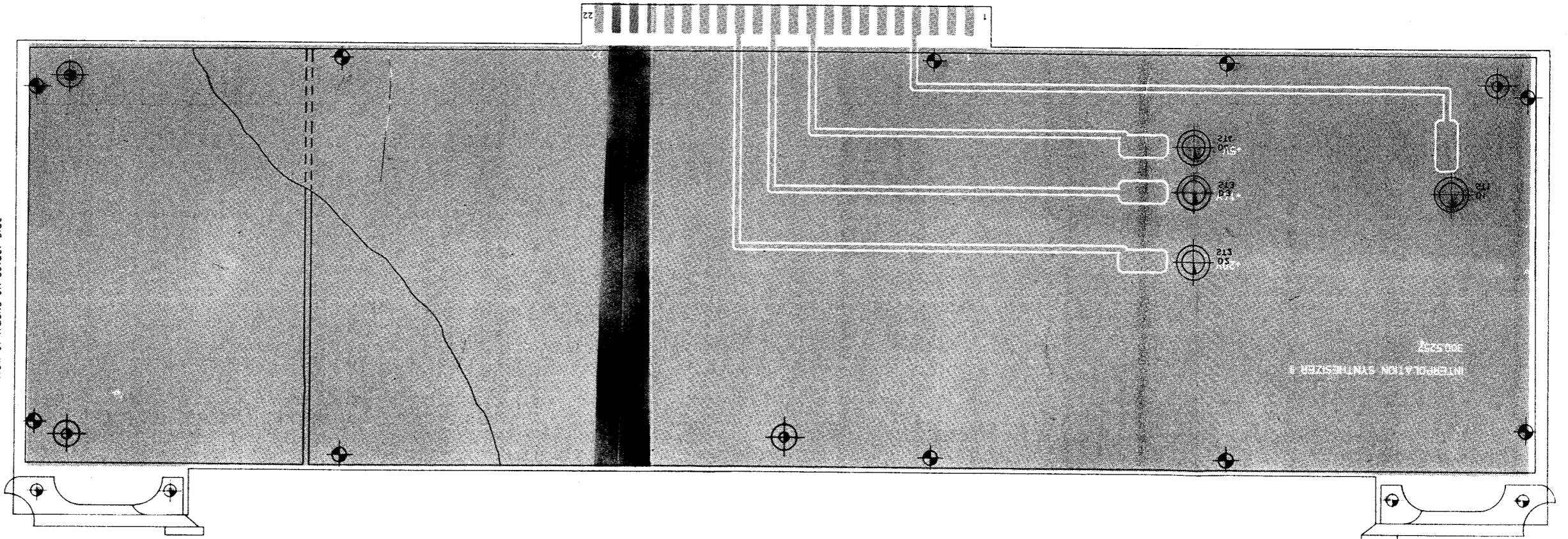


| | | | | | | | |
|------------|-----------------|-------|------|----------------------------|-------|------------|--------------------------------|
| G | 31057 | 12.83 | LS | Maße ohne Toleranzangabe | | | Maßstab 1 : 1 |
| H | 31341 | 6.84 | GS | | | | Halbzeug, Werkstoff |
| J | 32288 | 11.84 | GS | | | | |
| | | | | 1GMA | Tag | Name | Benennung |
| | | | | Bearb | 12.83 | LS | Interpolationssynthesizer II Z |
| | | | | Gepr | | | |
| | | | | Norm | | | |
| | | | | ROHDE & SCHWARZ | | | Zeichn. Nr. |
| | | | | | | | 300.5234 |
| And. Zust. | Anderungs-Mitt. | Tag | Name | zu Gerät | SMPC | reg. v. | Blatt-Nr. 2 |
| | | | | | | 300.1000 V | erste Z 300.7714 |

Ansicht und Leitungsführung Bauteilseite
View of tracks on component side

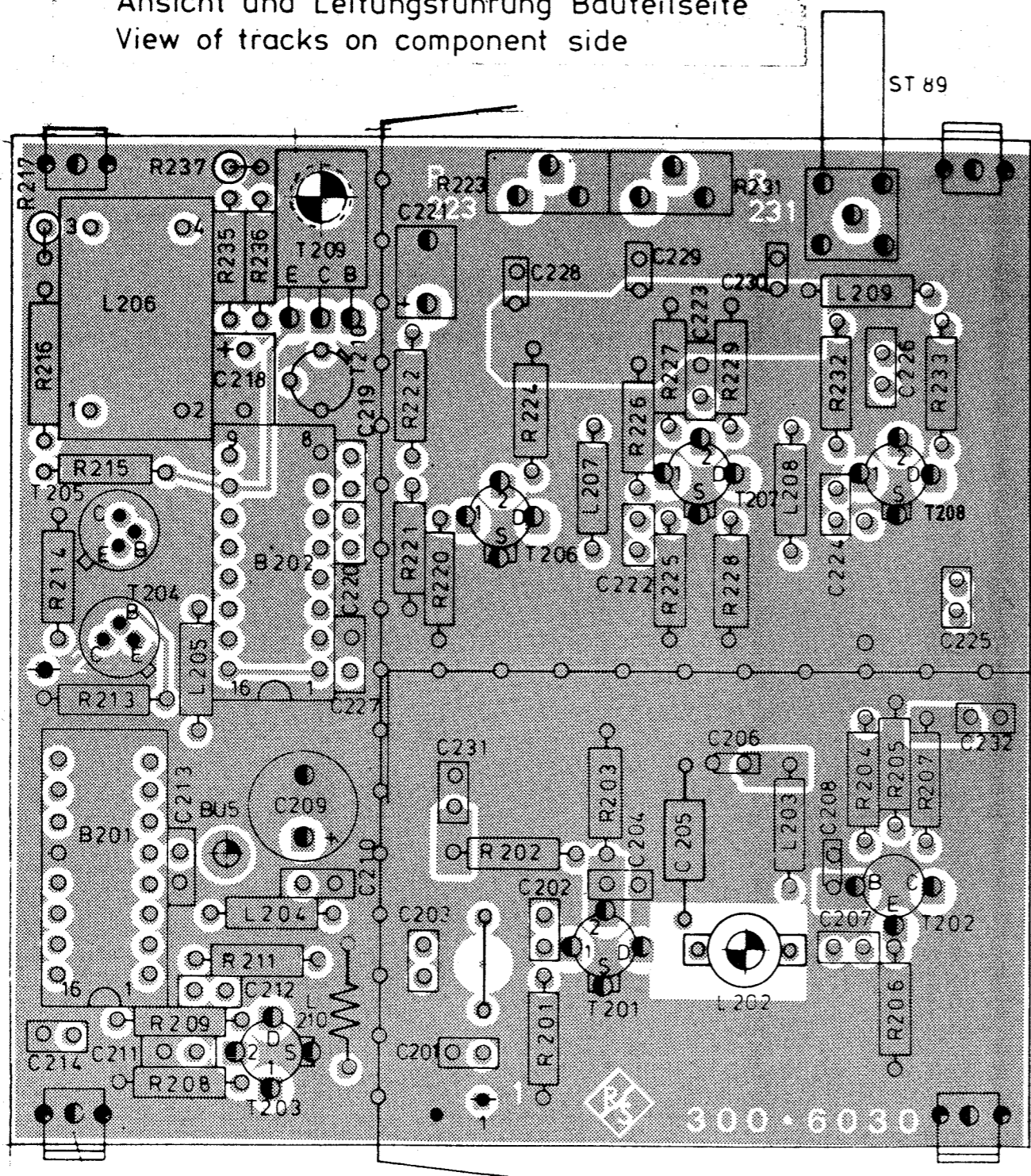


Ansicht und Leitungsführung Lotseite
View of tracks on solder side

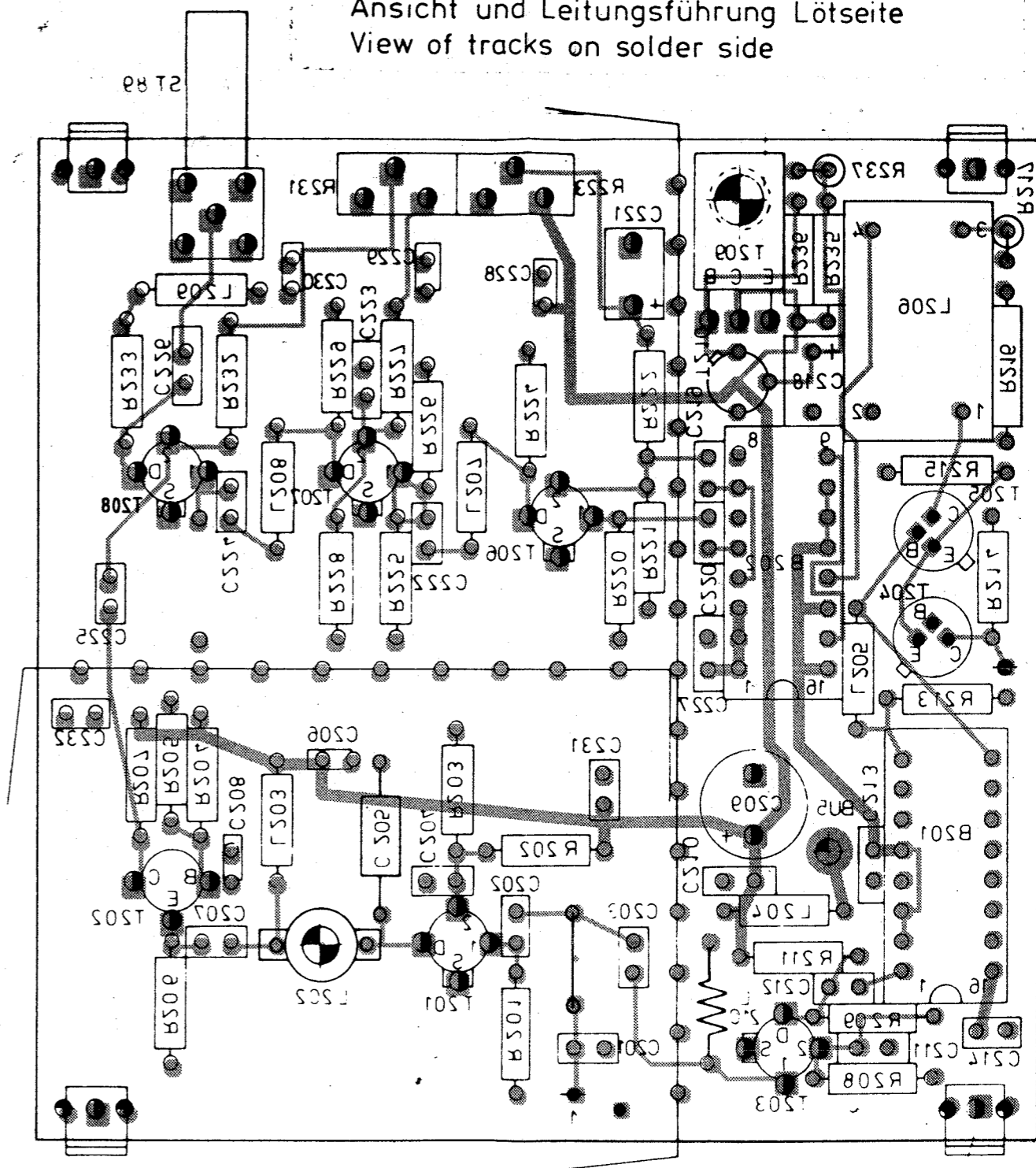


| | | | |
|----|----------------|--------------------------------|---|
| A. | 305 79 LS | Millimeter | 2 |
| | IGMA | | |
| | 305 79 | LS | |
| | 4 79 | Lt | |
| | | Zuführung-Interpol II | 2 |
| | | Feed interpolation synthesizer | |
| | | 300 5257 | 2 |
| | ROHM & SCHWARZ | | |
| | 300 1000 | | |

Ansicht und Leitungsführung Bauteilseite
View of tracks on component side



Ansicht und Leitungsführung Lötseite
View of tracks on solder side



| | | | | | |
|-------------------------------------|-------|--------|----|-----------------------------------|--------------------------------------|
| D | 27860 | 21.981 | LS | Messwert Transistortreiber | Maßstab: 1 : 1 Maßstab: Werkstück |
| E | 27860 | 11.82 | LS | | |
| F | 30063 | 4.83 | gs | | |
| G | 30455 | 9.83 | gs | | |
| 1GMA Bauteil: 21.981 Name: LS | | | | Pufferteiler | Z |
| ROHDE & SCHWARZ SMPC | | | | 300.6030 300.1000V 300.7714 | |
| | | | | 2 | |



ROHDE & SCHWARZ

SERVICE INSTRUCTIONS FOR

Interpolation Synthesizer III

300.4415 (Y6)

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| | Circuit diagram | |
| | Components location plan | |

5. Service Instructions for
Interpolation Synthesizer III 300.4415 (Y6)

5.1 Circuit Description

(See circuit diagram 300.4415 S and Fig. 5-2)

Y6 consists of a synthesizer which produces an output frequency of 240 to 247 MHz with the aid of programmable dividers and a 100-kHz reference frequency. By adding the fine resolution of Y4 to the control loop, a frequency resolution of 1.2 MHz is obtained.

5.1.1 Divider Loop

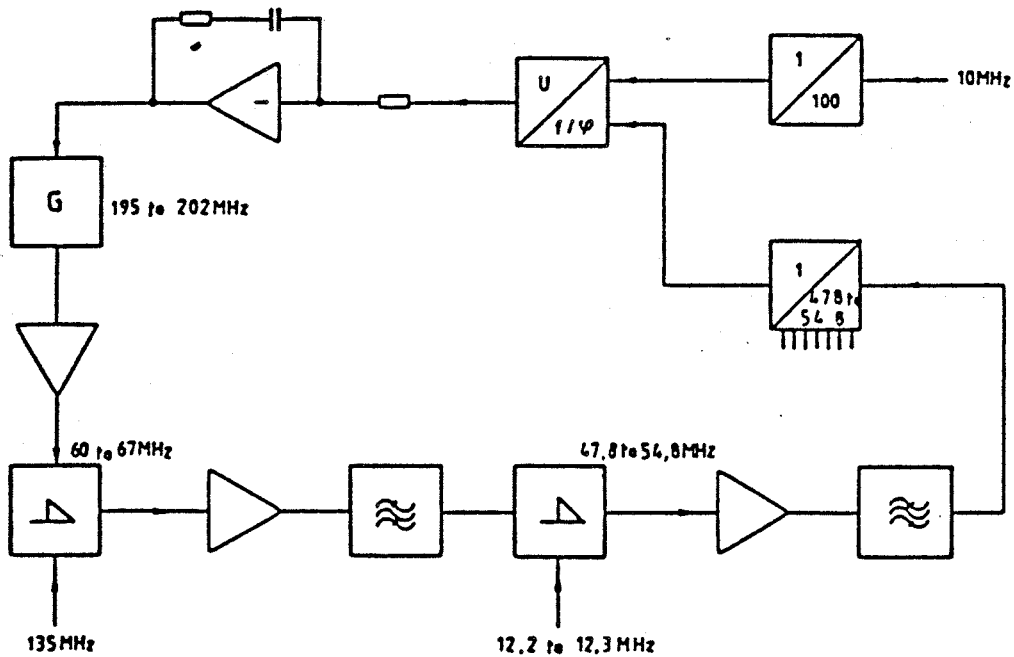


Fig. 5-1 Block diagram of the divider loop

The VCO combined with a FET (T201) forms a Clapp circuit which oscillates at a frequency of 195 to 202 MHz. Following a buffer stage (T200) an amplifier is connected supplying an output power of 7 dBm to the ring mixer.

The output frequency of the VCO is mixed with 135 MHz in B300 to obtain between 60 and 67 MHz. The IF power of B300 is boosted in a three-stage amplifier (T350, T400, T401) to 7 dBm.

The fine resolution of Y4 is added at B400 so that an IF of 47.8 to 54.8 MHz is obtained. A three-stage amplifier (T402, T403, T404) with a multisection band-pass filter drives the programmable divider B501 to B507. The division factor d of the divider determines the IF at B400 and, as a result, the output frequency of the interpolation oscillator III.

Example:

| | | |
|-----------|-------------|-------------------------------|
| $d = 500$ | IF_{B400} | 50 MHz |
| | + | 12.2 to 12.3 MHz |
| | + | 135 MHz |
| <hr/> | | |
| | | 197.2 to 197.3 MHz at the VCO |

The 100/1 divider B500 produces the 100-kHz reference frequency for the frequency phase detector B202 which controls the output frequency of the VCO via the control amplifier B201. The window comparator B200 monitors the control voltage.

5.1.2 Output Stage

In addition, the VCO frequency is applied via an amplifier (T32) with an output power of 7 dBm to the ring mixer B1 where it is mixed with 45 MHz obtained by dividing the auxiliary frequency 135 MHz (ST98) and thus converted to the output frequency 240 to 247 MHz.

Two further amplifiers (T3, T1), which are interconnected via a three-circuit band-pass filter, boost and filter out the IF signal from B1.

5.2 Checking and Adjusting

5.2.1 Checking and Adjusting the Oscillator (C207, C208)

Remove BR7.

Connect a DC source of 3.5 to 15 V to MP7.1.

Connect a frequency counter to MP35.

Check the following nominal values:

| Voltage at MP7.1 | Frequency at MP35 |
|------------------|-------------------|
| 3.5 \pm 0.1 V | 195 \pm 0.3 MHz |
| 15.0 \pm 0.1 V | 202 \pm 0.3 MHz |

and adjust C207 and C208 as necessary.

5.2.2 Adjusting the 63-MHz Circuit (L350)

Preparation as in 5.2.1.

Set oscillator to 198 \pm 0.3 MHz with the DC voltage.

Measure level at MP12 and adjust to a maximum with L350.

5.2.3 Adjusting the 47.8 to 54.8-MHz Band-pass Filter (L403, L404, L405, L503)

Remove BR40.

Connect a sweep tester to MP40.2 (signal input) and MP50.1 (high-impedance probe).

Screen filter sections with a cover with trimming holes.

Adjust to the following nominal values with L403, L404, L405 and L503.

| Frequency (MHz) | Characteristic | Nominal value (dB) |
|-----------------|----------------|--------------------|
| 47.8 to 54.8 | gain | 12 \pm 2 |
| 46.0 to 56.5 | relative loss | < 6 |
| 42.6 | relative loss | > 20 |
| 60 | relative loss | > 40 |
| 72.2 | relative loss | > 70 |

5.2.4 Adjusting the 240 to 247-MHz Band-pass Filter (C6, C8, C10)

Remove BR30.

Connect sweep tester to MP30.2 (signal input) and ST96 (50- Ω detector).

Screen the filter sections with the cover.

Adjust to the following nominal values with C6, C8, C10:

| Frequency (MHz) | Characteristic | Nominal value (dB) | Comments |
|-----------------|----------------|--------------------|-----------------|
| 240 to 247 | gain | < 10 to 21 | dependent on R7 |
| 240 to 247 | ripple | < 1 | |
| 255 | relative loss | > 25 | |
| 225 | relative loss | > 35 | |
| 195 to 202 | relative loss | > 70 | |

5.2.5 Checking and Adjusting the Output Level (R7)

Connect a power meter to ST96.

Measure level and if necessary adjust to the nominal value of 4 ± 1 dBm with R7.

5.2.6 Checking the Synchronization and Switching Time

Set the XPC/SMPC to sweep periodically:

start frequency = 680 MHz,
stop frequency = 699.9 MHz,
step size = 19900 kHz.

Display voltage at MP8 on an oscilloscope. It is to be a square-wave signal with an upper voltage of 15 V, a lower voltage of 3.5 V and a rise time of < 0.5 ms.

5.2.7 Checking and Adjusting the Supply Voltage B (R602)

Measure voltage at MP61.2 and if necessary adjust to 4.85 ± 0.05 V with R602.

5.3 Troubleshooting

5.3.1 DC Nominal Values

| | |
|------|--------------------------------|
| MP1 | 0.4 to 2.4 V (dependent on R7) |
| MP2 | 1.65 ±0.3 V |
| MP3 | 0.8 ±0.2 V |
| MP4 | 1.4 ±0.2 V |
| MP5 | 2.5 ±0.3 V |
| MP9 | 1.5 ±0.2 V |
| MP11 | 2.1 ±0.3 V |
| MP12 | 0.8 ±0.2 V |
| MP13 | 2.0 ±0.2 V |
| MP14 | 0.8 ±0.2 V |

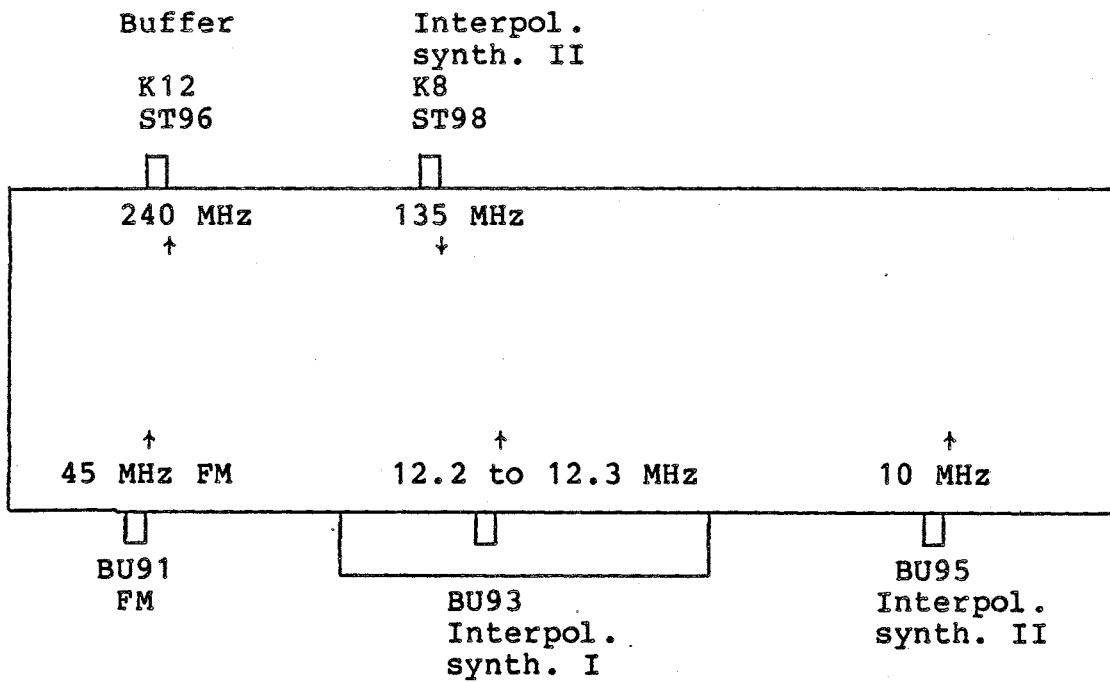
| | | |
|-------|-------------|-------------|
| | CW | FM |
| MP6.1 | 9.4 ±0.5 V | -5.6 ±0.5 V |
| MP6.2 | -5.6 ±0.5 V | 9.4 ±0.5 V |

5.3.2 AC Nominal Values

| Test Point | Level (dBm) | Frequency (MHz) |
|-----------------|-------------|-----------------|
| MP36 | 6 ±1 | 195 to 202 |
| R316/B300.1 | -24 ±2 | 135 |
| Terminal 6 (K2) | -6 ±2 | 12.2 to 12.3 |
| C401/L603 | 6 ±2 | 60 to 67 |
| MP50 | 2 ±2 | 47.8 to 54.8 |
| MP31 | 6 ±2 | 195 to 202 |
| R40/B1.1 | -9 ±1.5 | 45 |

5.4 Interfaces

5.4.1 Analog Interface



| ST/BU | 91 | 93 | 95 |
|----------------|------------|------------------|------------------|
| f | 45 MHz | 12.2 to 12.3 MHz | 10 MHz |
| Level | 2 ±1 dBm | -3 ±1 dBm | TTL |
| Z | ≈ 80 Ω | 50 Ω | 560 Ω |
| Coupling | AC | DC | DC |
| Shape of curve | sinusoidal | sinusoidal | rect- angular |

| ST/BU | 96 | 98 |
|----------------|----------------|------------|
| f | 240 to 247 MHz | 135 MHz |
| Level | 4 ±1 dBm | 0 ±1 dBm |
| Z | 50 Ω | 50 Ω |
| Coupling | DC | AC |
| Shape of curve | sinusoidal | sinusoidal |

5.4.2 Digital Interface

The division factor d and the code for the FM switchover are transferred in two data words.

| ST90 | | D7 | D6 | D5 | D4 | D3 | D2 | D1 | DO |
|----------|---|----|-----------|----|-----|----------------|----|----|-----|
| | | 22 | 21 | 20 | 19 | 18 | 17 | 16 | 15 |
| Strobe 1 | 1 | X | off FM | X | X | 8 | 4 | 2 | 1 |
| ST90.2 | 0 | | on | | | —————> | | | LSB |
| Strobe 2 | 1 | X | X | X | 160 | 80 | 40 | 20 | 10 |
| ST90.4 | 0 | | | | MSB | ←———— d factor | | | |

The d factor place value is specified by the numbers in the table, to which 320 must be added (hardwired).

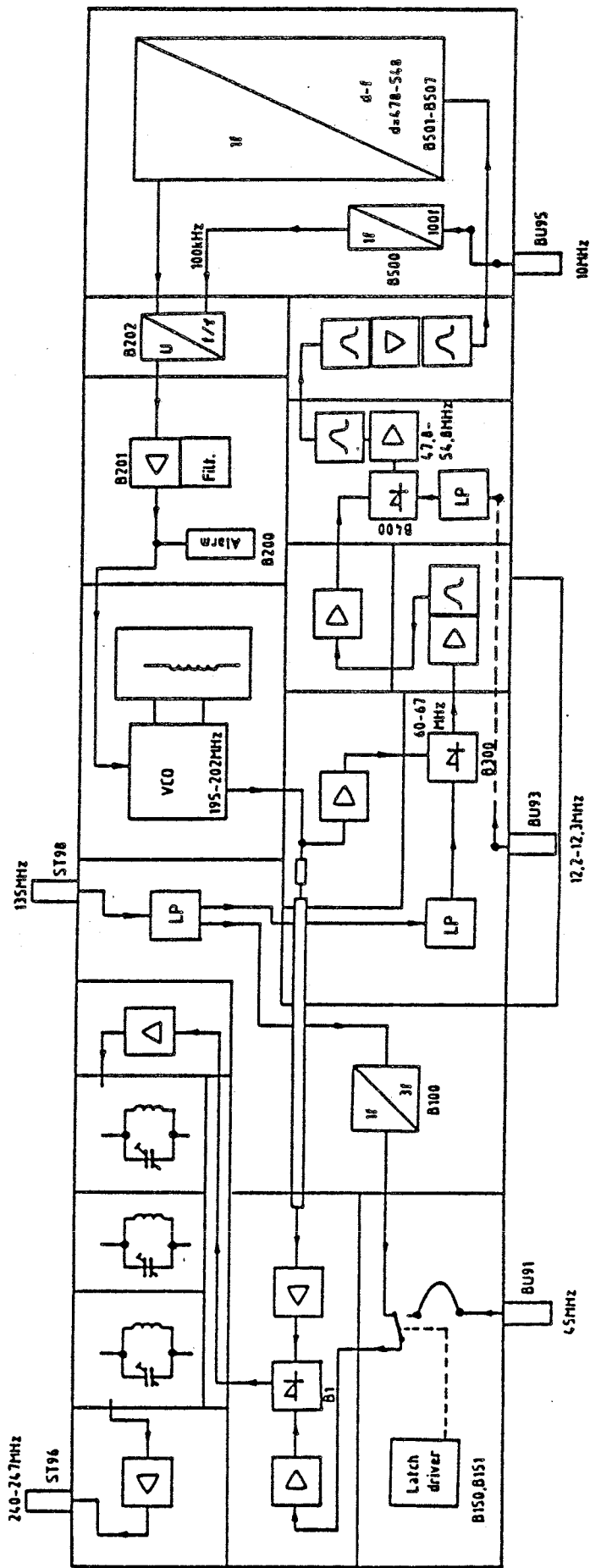


Fig. 5-2 Block diagram of the interpolation synthesizer III



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Schalteillisten
Stromläufe
Bestückungspläne
Parts lists
Circuit diagrams
Components plans

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| ÄZ | Datum Date |
| 33 | 0686 |

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| Schaltteilliste für Parts list for |
| ZE INTERPOL.-SYNTHESIZ. INTERPOL.-SYNTHESIZER III |

| |
|-------------------------|
| Sachnummer Stock No. |
| 300.4415.00 SA |

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| Blatt Page |
| 1 |

| Kennzeichen Component No. | Benennung/Beschreibung Designation | Sachnummer Stock No. | enthalten in contained in |
|------------------------------|--|-------------------------|------------------------------|
| B1 | BM SRA1 MIXER 0.5GHZ MIXER MINI-CCTS SRA1 | BM 207.3465 | 300.5192 |
| B100 | BL MC10231L 2XD FLIPFL FLIP FLOP MOTOROLA MC10231L | BL 300.6201 | 300.5192 |
| B150 | BL SN74LS175N 4/D-FLIPFLO IC FLIP FLOP SN74LS175N TEXAS SN74LS175N | 291.5048 | 300.5192 |
| B151 | BO LM124J 4XL.P.OPAMP OPERATIONAL AMPLIFIER NSC LM124J | BO 300.6353 | 300.5192 |
| B200 | BO TCA965 FENSTER-DISKRIM DISCRIMINATOR SIEMENS TCA965 | BO 279.2213 | 300.5192 |
| B201 | BO SE5534AFE LOW N.OPAMP OPERATIONAL AMPLIFIER SIGNETICS SE5534AFE | BO 301.3335 | 300.5192 |
| B202 | BL 11C44DC PHASE/FREQ.DET PHASE FREQU.DETECTOR FAIRCHILD 11C44PC | BL 300.9481 | 300.5192 |
| B300 | BM SRA1 MIXER 0.5GHZ MIXER MINI-CCTS SRA1 | BM 207.3465 | 300.5192 |
| B400 | BM SRA1 MIXER 0.5GHZ MIXER MINI-CCTS SRA1 | BM 207.3465 | 300.5192 |
| B500 | BL SN74LS390N 2XDEC.COUNT IC DECADE COUNTER SN74LS3 TEXAS SN74LS390N | 300.6760 | 300.5192 |
| B501 | BL SN74LS174N 6/D-FLIPFL. IC FLIP-FLOP SN74LS174N TEXAS SN74LS174N | 266.7970 | 300.5192 |
| B502 | BL SN74LS174N 6/D-FLIPFL. IC FLIP-FLOP SN74LS174N TEXAS SN74LS174N | 266.7970 | 300.5192 |
| B503 | BL SN74LS191N ZAEHLER IC COUNTER TEXAS SN74LS191N | 250.2721 | 300.5192 |
| B504 | BL SN74LS191N ZAEHLER IC COUNTER TEXAS SN74LS191N | 250.2721 | 300.5192 |
| B505 | BL SN74LS191N ZAEHLER IC COUNTER TEXAS SN74LS191N | 250.2721 | 300.5192 |
| B506 | BL SP8647BDG10:1DIVID UHF DIVIDER PLESSEY SP8647BDG | BL 300.6747 | 300.5192 |
| B507 | BL MC12014L CONTR.LOGIC CONTROL LOGIC MOTOROLA MC12014L | BL 300.6753 | 300.5192 |
| BR7 | FP KURZSCHLUSSBUCHSE SHORTING PLUG PK 452-70302 | FP 491.7042 | 300.5192 |

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| Kennzeichen Component No. | Benennung/Beschreibung Designation | Sachnummer Stock No. | enthalten in contained in |
|------------------------------|---|-------------------------|------------------------------|
| BR30 | FP KURZSCHLUSSBUCHSE SHORTING PLUG PK 452-70302 | FP 491.7042 | 300.5192 |
| BR40 | FP KURZSCHLUSSBUCHSE SHORTING PLUG PK 452-70302 | FP 491.7042 | 300.5192 |
| BU1 | FP BUCHSE VERTIKAL P.V.1P SOCKET BERG 75377-001 | FP 278.5577 | 300.5192 |
| BIS/TO BU14 BU91 | FJ EINBAUBUCHSE SYST.SMS FIXED SOCKET RADIALL R.299 012 | 300.6876 | |
| BU93 | FJ EINBAUBUCHSE SYST.SMS FIXED SOCKET RADIALL R.299 012 | 300.6876 | |
| BU95 | FJ EINBAUBUCHSE SYST.SMS FIXED SOCKET RADIALL R.299 012 | 300.6876 | |
| C1 | CC 100PF+-2%4X5N750 CAPACITOR VALVO 2222 678 58101 | CC 087.6906 | 300.5192 |
| C2 | CC 1NF+-10%63V K2000 CERAMIC CAPACITOR VALVO 2222 63051 102 | CC 022.0784 | 300.5192 |
| C3 | CE 2,2UF+-20%20V 5X 4X 7 ELECTROLYTIC CAPACITOR ERO-TANTAL TA-ELKOE TR-2,2/20 | CE 022.8104 | 300.5192 |
| C4 | CC 3,9PF+-0,25PF3X4NPO CAPACITOR VALVO 2222 678 09398 | CC 087.6370 | 300.5192 |
| C5 | CC 1NF+-10%63V K2000 CERAMIC CAPACITOR VALVO 2222 63051 102 | CC 022.0784 | 300.5192 |
| C6 | CT 9,2PF TAUCHTR.RD 7X12 AIR-TYPE TRIMMER TEKELEC LUFTTRAT5201MMUTTER | CT 025.7373 | 300.5192 |
| C7 | MZ KONDENSATORPLATTE CAPACITOR PLATE | 300.9130 | 300.5192 |
| C8 | CT 9,2PF TAUCHTR.RD 7X12 AIR-TYPE TRIMMER TEKELEC LUFTTRAT5201MMUTTER | CT 025.7373 | 300.5192 |
| C9 | MZ KONDENSATORPLATTE CAPACITOR PLATE | 300.9130 | 300.5192 |
| C10 | CT 9,2PF TAUCHTR.RD 7X12 AIR-TYPE TRIMMER TEKELEC LUFTTRAT5201MMUTTER | CT 025.7373 | 300.5192 |
| C11 | CC 47PF+-2%4X5N150 CAPACITOR VALVO 2222 678 34479 | CC 087.6670 | 300.5192 |
| C12 | CE 2,2UF+-20%20V 5X 4X 7 ELECTROLYTIC CAPACITOR ERO-TANTAL TA-ELKOE TR-2,2/20 | CE 022.8104 | 300.5192 |

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 Schaltteilliste für
 Parts list for
 ZE INTERPOL.-SYNTHESIZ.
 INTERPOL.-SYNTHESIZER III

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| Sachnummer | Stock No. |
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| Kennzeichen Component No. | Benennung/Beschreibung Designation | Sachnummer Stock No. | enthalten in contained in |
|------------------------------|--|-------------------------|------------------------------|
| C13 | CC 1NF+-10%63V K2000 CERAMIC CAPACITOR VALVO 2222 63051 102 | CC 022.0784 | 300.5192 |
| C14 | CC 1NF+-10%63V K2000 CERAMIC CAPACITOR VALVO 2222 63051 102 | CC 022.0784 | 300.5192 |
| C16 | CC 5,6PF+-0,25PF3X4NPO CAPACITOR VALVO 2222 678 09568 | CC 087.6393 | 300.5192 |
| C17 | CC 1NF+-10%63V K2000 CERAMIC CAPACITOR VALVO 2222 63051 102 | CC 022.0784 | 300.5192 |
| C19 | CC 1NF+-10%63V K2000 CERAMIC CAPACITOR VALVO 2222 63051 102 | CC 022.0784 | 300.5192 |
| C30 | CE 2,2UF+-20%20V 5X 4X 7 ELECTROLYTIC CAPACITOR ERO-TANTAL TA-ELKOETR-2,2/20 | CE 022.8104 | 300.5192 |
| C31 | CC 1NF+-10%63V K2000 CERAMIC CAPACITOR VALVO 2222 63051 102 | CC 022.0784 | 300.5192 |
| C32 | CC 1NF+-10%63V K2000 CERAMIC CAPACITOR VALVO 2222 63051 102 | CC 022.0784 | 300.5192 |
| C33 | CC 56PF+-2%5X6NPO CAPACITOR VALVO 2222 678 10569 | CC 087.6512 | 300.5192 |
| C34 | CC 120PF+-2%6X9NPO CAPACITOR VALVO 2222 678 10121 | CC 087.6558 | 300.5192 |
| C35 | CC 56PF+-2%5X6NPO CAPACITOR VALVO 2222 678 10569 | CC 087.6512 | 300.5192 |
| C36 | CE 2,2UF+-20%20V 5X 4X 7 ELECTROLYTIC CAPACITOR ERO-TANTAL TA-ELKOETR-2,2/20 | CE 022.8104 | 300.5192 |
| C37 | CC 1NF+-10%63V K2000 CERAMIC CAPACITOR VALVO 2222 63051 102 | CC 022.0784 | 300.5192 |
| C38 | CC 3,9PF+-0,25PF3X4NPO CAPACITOR VALVO 2222 678 09398 | CC 087.6370 | 300.5192 |
| C39 | CC 4,7NF+-10%6X9R2000 CAPACITOR VALVO 2222 63051 472 | CC 087.7102 | 300.5192 |
| C40 | CC 1NF+-10%63V K2000 CERAMIC CAPACITOR VALVO 2222 63051 102 | CC 022.0784 | 300.5192 |
| C49 | CC 1NF+-10%63V K2000 CERAMIC CAPACITOR VALVO 2222 63051 102 | CC 022.0784 | 300.5192 |
| C100 | CC 15PF+-2%3X4NPO CAPACITOR VALVO 2222 678 10159 | CC 087.6441 | 300.5192 |
| C101 | CC 1NF+-10%63V K2000 CERAMIC CAPACITOR VALVO 2222 63051 102 | CC 022.0784 | 300.5192 |

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| Kennzeichen Component No. | Benennung/Beschreibung Designation | Sachnummer Stock No. | enthalten in contained in |
|------------------------------|--|-------------------------|------------------------------|
| C102 | CC 33PF+-2%4X5NP0 CAPACITOR VALVO 2222 678 10339 | CC 087.6487 | 300.5192 |
| C103 | CC 1NF+-10%63V K2000 CERAMIC CAPACITOR VALVO 2222 63051 102 | CC 022.0784 | 300.5192 |
| C104 | CE 47UF-10+50% 40V 9X13 ELECTROLYTIC CAPACITOR ROEDERST EK 00 CB 247 G | CE 006.7142 | 300.5192 |
| C105 | CE 2,2UF+-20%20V 5X 4X 7 ELECTROLYTIC CAPACITOR ERO-TANTAL TA-ELKOETR-2,2/20 | CE 022.8104 | 300.5192 |
| C106 | CC 1NF+-10%63V K2000 CERAMIC CAPACITOR VALVO 2222 63051 102 | CC 022.0784 | 300.5192 |
| C107 | CC 1NF+-10%63V K2000 CERAMIC CAPACITOR VALVO 2222 63051 102 | CC 022.0784 | 300.5192 |
| C108 | CC 56PF+-2%5X6NP0 CAPACITOR VALVO 2222 678 10569 | CC 087.6512 | 300.5192 |
| C109 | CC 120PF+-2%6X9NP0 CAPACITOR VALVO 2222 678 10121 | CC 087.6558 | 300.5192 |
| C110 | CC 56PF+-2%5X6NP0 CAPACITOR VALVO 2222 678 10569 | CC 087.6512 | 300.5192 |
| C111 | CC 22PF+-2%4X5NP0 CAPACITOR VALVO 2222 678 10229 | CC 087.6464 | 300.5192 |
| C150 | CE 2,2UF+-20%20V 5X 4X 7 ELECTROLYTIC CAPACITOR ERO-TANTAL TA-ELKOETR-2,2/20 | CE 022.8104 | 300.5192 |
| C151 | CC 10NF-20+50%7X8R6000 CAPACITOR VALVO 2222 63051 64051103 | CC 087.7525 | 300.5192 |
| C152 | CC 10NF-20+50%7X8R6000 CAPACITOR VALVO 2222 63051 64051103 | CC 087.7525 | 300.5192 |
| C153 | CE 2,2UF+-20%20V 5X 4X 7 ELECTROLYTIC CAPACITOR ERO-TANTAL TA-ELKOETR-2,2/20 | CE 022.8104 | 300.5192 |
| C154 | CE 2,2UF+-20%20V 5X 4X 7 ELECTROLYTIC CAPACITOR ERO-TANTAL TA-ELKOETR-2,2/20 | CE 022.8104 | 300.5192 |
| C155 | CC 1NF+-10%63V K2000 CERAMIC CAPACITOR VALVO 2222 63051 102 | CC 022.0784 | 300.5192 |
| C156 | CC 1NF+-10%63V K2000 CERAMIC CAPACITOR VALVO 2222 63051 102 | CC 022.0784 | 300.5192 |
| C157 | CC 1NF+-10%63V K2000 CERAMIC CAPACITOR VALVO 2222 63051 102 | CC 022.0784 | 300.5192 |
| C158 | CC 1NF+-10%63V K2000 CERAMIC CAPACITOR VALVO 2222 63051 102 | CC 022.0784 | 300.5192 |

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Parts list for
ZE INTERPOL.-SYNTHESIZ.
INTERPOL.-SYNTHESIZER IIISachnummer
Stock No.
300.4415.00 SABlatt
Page
5

| Kennzeichen Component No. | Benennung/Beschreibung Designation | Sachnummer Stock No. | enthalten in contained in |
|------------------------------|--|-------------------------|------------------------------|
| C159 | CC 1NF+-10%63V K2000 CERAMIC CAPACITOR VALVO 2222 63051 102 | CC 022.0784 | 300.5192 |
| C160 | CC 1NF+-10%63V K2000 CERAMIC CAPACITOR VALVO 2222 63051 102 | CC 022.0784 | 300.5192 |
| C200 | CE 2,2UF+-20%20V 5X 4X 7 ELECTROLYTIC CAPACITOR ERO-TANTAL TA-ELKOETR-2,2/20 | CE 022.8104 | 300.5192 |
| C201 | CC 1NF+-10%63V K2000 CERAMIC CAPACITOR VALVO 2222 63051 102 | CC 022.0784 | 300.5192 |
| C202 | CC 1NF+-10%63V K2000 CERAMIC CAPACITOR VALVO 2222 63051 102 | CC 022.0784 | 300.5192 |
| C203 | CC 1PF+-0,25PF3X4P100 CAPACITOR VALVO 2222 678 03108 | CC 087.6170 | 300.5192 |
| C204 | CE 2,2UF+-20%20V 5X 4X 7 ELECTROLYTIC CAPACITOR ERO-TANTAL TA-ELKOETR-2,2/20 | CE 022.8104 | 300.5192 |
| C205 | CC 33 PF+-5% 500VRD8 N750 CERAMIC CAPACITOR DRALORIC N750/33/5SP80/500V | 022.0878 | 300.5192 |
| C206 | CC 22 PF+-2%N150/IA3ROHR CERAMIC CAPACITOR DRALORIC N150/IA22/2RD3X10LC | 022.3725 | 300.5192 |
| C207 | CT 9,2PF TAUCHTR.RD 7X12 AIR-TYPE TRIMMER TEKELEC LUFTTRATS201MMUTTER | CT 025.7373 | 300.5192 |
| C208 | CT 4PF N033 7S-13 TRIMMER | CT 087.7160 | 300.5192 |
| C209 | CC 1NF+-10%63V K2000 CERAMIC CAPACITOR VALVO 2222 63051 102 | CC 022.0784 | 300.5192 |
| C210 | CC 1NF+-10%63V K2000 CERAMIC CAPACITOR VALVO 2222 63051 102 | CC 022.0784 | 300.5192 |
| C212 | CC 3,3PF+-0,25PF3X4NPO CAPACITOR VALVO 2222 678 09338 | CC 087.6364 | 300.5192 |
| C251 | CK 430PF+-1,25%63V7,5QUAD CAPACITOR SIEMENS B33531-A5431-F | CK 213.4330 | 300.5192 |
| C252 | CK 1UF+-10%50V5RM MKT CAPACITOR WIMA MKS2/50/1UF/10% | CK 099.2998 | 300.5192 |
| C253 | CK 1UF+-10%50V5RM MKT CAPACITOR WIMA MKS2/50/1UF/10% | CK 099.2998 | 300.5192 |
| C254 | CK 15NF+-5%63V5RM MKT CAPACITOR WIMA MKS2/63/0,015UF/5% | CK 099.2875 | 300.5192 |
| C255 | CK 22NF+-5%63V5RM MKT CAPACITOR WIMA MKS2/63/0,022UF/5% | CK 099.2881 | 300.5192 |

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| 33 | 0686 |

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| Schalteilliste für Parts list for ZE INTERPOL.-SYNTHESIZ. INTERPOL.-SYNTHESIZER III |
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| Sachnummer Stock No. | 300.4415.00 SA |
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| Blatt Page | 6 |
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| Kennzeichen Component No. | Benennung/Beschreibung Designation | Sachnummer Stock No. | enthalten in contained in |
|------------------------------|--|-------------------------|------------------------------|
| C256 | CC 150PF+-2%5X6N750 CAPACITOR VALVO 2222 678 58151 | CC 087.6929 | 300.5192 |
| C257 | CE 2,2UF+-20%20V 5X 4X 7 ELECTROLYTIC CAPACITOR ERO-TANTAL TA-ELKOETR-2,2/20 | CE 022.8104 | 300.5192 |
| C258 | CE 2,2UF+-20%20V 5X 4X 7 ELECTROLYTIC CAPACITOR ERO-TANTAL TA-ELKOETR-2,2/20 | CE 022.8104 | 300.5192 |
| C259 | CE 47UF-10+50% 40V 9X13 ELECTROLYTIC CAPACITOR ROEDERST EK 00 CB 247 G | CE 006.7142 | 300.5192 |
| C260 | CC 100NF+-10%50V5K1200VIE CAPACITOR UNION CARB CK05BX104K | CC 084.5350 | 300.5192 |
| C261 | CK 22NF+-5%63V5RM MKT CAPACITOR WIMA MKS2/63/0,022UF/5% | CK 099.2881 | 300.5192 |
| C262 | CK 22NF+-5%63V5RM MKT CAPACITOR WIMA MKS2/63/0,022UF/5% | CK 099.2881 | 300.5192 |
| C300 | CC 1NF+-10%63V K2000 CERAMIC CAPACITOR VALVO 2222 63051 102 | CC 022.0784 | 300.5192 |
| C301 | CC 3,9PF+-0,25PF3X4NPO CAPACITOR VALVO 2222 678 09398 | CC 087.6370 | 300.5192 |
| C302 | CE 2,2UF+-20%20V 5X 4X 7 ELECTROLYTIC CAPACITOR ERO-TANTAL TA-ELKOETR-2,2/20 | CE 022.8104 | 300.5192 |
| C303 | CC 1NF+-10%63V K2000 CERAMIC CAPACITOR VALVO 2222 63051 102 | CC 022.0784 | 300.5192 |
| C305 | CC 1NF+-10%63V K2000 CERAMIC CAPACITOR VALVO 2222 63051 102 | CC 022.0784 | 300.5192 |
| C308 | CC 27PF+-2%4X5NPO CAPACITOR VALVO 2222 678 10279 | CC 087.6470 | 300.5192 |
| C309 | CC 33PF+-2%4X5NPO CAPACITOR VALVO 2222 678 10339 | CC 087.6487 | 300.5192 |
| C310 | CC 15PF+-2%3X4NPO CAPACITOR VALVO 2222 678 10159 | CC 087.6441 | 300.5192 |
| C349 | CC 3,3PF+-0,25PF3X4NPO CAPACITOR VALVO 2222 678 09338 | CC 087.6364 | 300.5192 |
| C350 | CC 10NF-20+50%7X8R6000 CAPACITOR VALVO 2222 63051 64051103 | CC 087.7525 | 300.5192 |
| C351 | CC 120PF+-2%6X9NPO CAPACITOR VALVO 2222 678 10121 | CC 087.6558 | 300.5192 |
| C352 | CC 1NF+-10%63V K2000 CERAMIC CAPACITOR VALVO 2222 63051 102 | CC 022.0784 | 300.5192 |

300.4415.00 SA BL 6+

**ROHDE & SCHWARZ**

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| ÄZ | Datum |
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| Schaltteilliste für Parts list for ZE INTERPOL.-SYNTHESIZ. INTERPOL.-SYNTHESIZER III |
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| Sachnummer Stock No. |
| 300.4415.00 SA |

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| Kennzeichen Component No. | Benennung/Beschreibung Designation | Sachnummer Stock No. | enthalten in contained in |
|------------------------------|--|-------------------------|------------------------------|
| C353 | CC 1NF+-10%63V K2000 CERAMIC CAPACITOR VALVO 2222 63051 102 | CC 022.0784 | 300.5192 |
| C354 | CC 1NF+-10%63V K2000 CERAMIC CAPACITOR VALVO 2222 63051 102 | CC 022.0784 | 300.5192 |
| C355 | CC 1NF+-10%63V K2000 CERAMIC CAPACITOR VALVO 2222 63051 102 | CC 022.0784 | 300.5192 |
| C356 | CC 3,9PF+-0,25PF3X4NPO CAPACITOR VALVO 2222 678 09398 | CC 087.6370 | 300.5192 |
| C357 | CC 47PF+-2%3X4N750 CAPACITOR VALVO 2222 678 58479 | CC 087.6864 | 300.5192 |
| C358 | CC 100PF+-2%4X5N750 CAPACITOR VALVO 2222 678 58101 | CC 087.6906 | 300.5192 |
| C359 | CC 100PF+-2%4X5N750 CAPACITOR VALVO 2222 678 58101 | CC 087.6906 | 300.5192 |
| C360 | CC 47PF+-2%3X4N750 CAPACITOR VALVO 2222 678 58479 | CC 087.6864 | 300.5192 |
| C361 | CC 6,8PF+-0,25PF3X4NPO CAPACITOR VALVO 2222 678 09688 | CC 087.6406 | 300.5192 |
| C362 | CC 220PF+-2%6X7N750 CAPACITOR VALVO 2222 678 58221 | CC 087.6941 | 300.5192 |
| C363 | CC 330PF+-2%6X9N750 CERAMIC CAPACITOR VALVO 2222 678 58331 | CC 087.6964 | 300.5192 |
| C364 | CC 1NF+-10%63V K2000 CERAMIC CAPACITOR VALVO 2222 63051 102 | CC 022.0784 | 300.5192 |
| C400 | CE 2,2UF+-20%20V 5X 4X 7 ELECTROLYTIC CAPACITOR ERO-TANTAL TA-ELKOETR-2,2/20 | CE 022.8104 | 300.5192 |
| C401 | CC 1NF+-10%63V K2000 CERAMIC CAPACITOR VALVO 2222 63051 102 | CC 022.0784 | 300.5192 |
| C402 | CC 1NF+-10%63V K2000 CERAMIC CAPACITOR VALVO 2222 63051 102 | CC 022.0784 | 300.5192 |
| C403 | CE 2,2UF+-20%20V 5X 4X 7 ELECTROLYTIC CAPACITOR ERO-TANTAL TA-ELKOETR-2,2/20 | CE 022.8104 | 300.5192 |
| C404 | CC 1NF+-10%63V K2000 CERAMIC CAPACITOR VALVO 2222 63051 102 | CC 022.0784 | 300.5192 |
| C405 | CC 1NF+-10%63V K2000 CERAMIC CAPACITOR VALVO 2222 63051 102 | CC 022.0784 | 300.5192 |
| C406 | CC 1NF+-10%63V K2000 CERAMIC CAPACITOR VALVO 2222 63051 102 | CC 022.0784 | 300.5192 |

300.4415.00 SA BL 7+

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| ÄZ | Datum |
| 33 | 0686 |

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| Schalteilliste für Parts list for ZE INTERPOL.-SYNTHESIZ. INTERPOL.-SYNTHESIZER III |
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| Sachnummer Stock No. |
| 300.4415.00 SA |

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| Kennzeichen Component No. | Benennung/Beschreibung Designation | Sachnummer Stock No. | enthalten in contained in |
|------------------------------|--|-------------------------|------------------------------|
| C407 | CC 82PF+-2%6X7NPO CAPACITOR VALVO 2222 678 10829 | CC 087.6535 | 300.5192 |
| C408 | CC 1NF+-10%63V K2000 CERAMIC CAPACITOR VALVO 2222 63051 102 | CC 022.0784 | 300.5192 |
| C409 | CC 1NF+-10%63V K2000 CERAMIC CAPACITOR VALVO 2222 63051 102 | CC 022.0784 | 300.5192 |
| C410 | CC 82PF+-2%6X7NPO CAPACITOR VALVO 2222 678 10829 | CC 087.6535 | 300.5192 |
| C411 | CC 10NF-20+50%7X8R6000 CAPACITOR VALVO 2222 63051 64051103 | CC 087.7525 | 300.5192 |
| C412 | CC 82PF+-2%6X7NPO CAPACITOR VALVO 2222 678 10829 | CC 087.6535 | 300.5192 |
| C413 | CC 1NF+-10%63V K2000 CERAMIC CAPACITOR VALVO 2222 63051 102 | CC 022.0784 | 300.5192 |
| C414 | CC 1NF+-10%63V K2000 CERAMIC CAPACITOR VALVO 2222 63051 102 | CC 022.0784 | 300.5192 |
| C415 | CC 12PF+-2%3X4NPO CAPACITOR VALVO 2222 678 10129 | CC 087.6435 | 300.5192 |
| C416 | CC 220PF+-2%6X7N750 CAPACITOR VALVO 2222 678 58221 | CC 087.6941 | 300.5192 |
| C417 | CC 10PF+-0,25PF3X4NPO CAPACITOR VALVO 2222 678 09109 | CC 087.6429 | 300.5192 |
| C418 | CC 10NF-20+50%7X8R6000 CAPACITOR VALVO 2222 63051 64051103 | CC 087.7525 | 300.5192 |
| C419 | CC 18PF+-2%3X4NPO CAPACITOR VALVO 2222 678 10189 | CC 087.6458 | 300.5192 |
| C420 | CC 33PF+-2%3X4N750 CAPACITOR VALVO 2222 678 58339 | CC 087.6841 | 300.5192 |
| C500 | CC 100NF+-10%50V5K1200VIE CAPACITOR UNION CARB CK05BX104K | CC 084.5350 | 300.5192 |
| C501 | CE 47UF-10+50% 40V 9X13 ELECTROLYTIC CAPACITOR ROEDERST EK 00 CB 247 G | CE 006.7142 | 300.5192 |
| C502 | CC 10NF-20+50%7X8R6000 CAPACITOR VALVO 2222 63051 64051103 | CC 087.7525 | 300.5192 |
| C503 | CC 10NF-20+50%7X8R6000 CAPACITOR VALVO 2222 63051 64051103 | CC 087.7525 | 300.5192 |
| C504 | CC 10NF-20+50%7X8R6000 CAPACITOR VALVO 2222 63051 64051103 | CC 087.7525 | 300.5192 |

300.4415.00 SA BL 8*

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| 33 | 0686 |

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| Schaltteilliste für Parts list for ZE INTERPOL.-SYNTHESIZ. INTERPOL.-SYNTHESIZER III |
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| Sachnummer Stock No. | 300.4415.00 SA |
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| Kennzeichen Component No. | Benennung/Beschreibung Designation | Sachnummer Stock No. | enthalten in contained in |
|------------------------------|--|-------------------------|------------------------------|
| C505 | CC 10NF-20+50%7X8R6000 CAPACITOR VALVO 2222 63051 64051103 | CC 087.7525 | 300.5192 |
| C506 | CC 10NF-20+50%7X8R6000 CAPACITOR VALVO 2222 63051 64051103 | CC 087.7525 | 300.5192 |
| C507 | CC 10NF-20+50%7X8R6000 CAPACITOR VALVO 2222 63051 64051103 | CC 087.7525 | 300.5192 |
| C508 | CC 10NF-20+50%7X8R6000 CAPACITOR VALVO 2222 63051 64051103 | CC 087.7525 | 300.5192 |
| C510 | CC 82PF+-2%6X7NPO CAPACITOR VALVO 2222 678 10829 | CC 087.6535 | 300.5192 |
| C511 | CC 12PF+-2%3X4NPO CAPACITOR VALVO 2222 678 10129 | CC 087.6435 | 300.5192 |
| C600 | CE 47UF-10+50% 40V 9X13 ELECTROLYTIC CAPACITOR ROEDERST EK 00 CB 247 G | CE 006.7142 | 300.5192 |
| C601 | CE 47UF-10+50% 40V 9X13 ELECTROLYTIC CAPACITOR ROEDERST EK 00 CB 247 G | CE 006.7142 | 300.5192 |
| C602 | CE 47UF-10+50% 40V 9X13 ELECTROLYTIC CAPACITOR ROEDERST EK 00 CB 247 G | CE 006.7142 | 300.5192 |
| C603 | CE 22UF-10+50% 63V 9X13 ELECTROLYTIC CAPACITOR ROEDERST EK 00 CB 222 J | CE 006.7120 | 300.5192 |
| C604 | CE 100UF-10+50% 16V 9X13 ELECTROLYTIC CAPACITOR ROEDERST EK 00CB 310 D | CE 006.7165 | 300.5192 |
| C605 | CC 1NF+-10%63V K2000 CERAMIC CAPACITOR VALVO 2222 63051 102 | CC 022.0784 | 300.5192 |
| D1 | LD 35DB/200M-10GHZ PI-FIL CHOKE ERIE 1214-038 | LD 300.6818 | 300.5211 |
| BIS/TO D14 | | | |
| GL100 | AD 1N4448 75V 0,15A UDI DIODE VALVO 1N4448 | AD 012.0700 | 300.5192 |
| GL150 | AE BA379 25V PINDI DIODE BA379 SIEMENS BA379 | 244.7031 | 300.5192 |
| BIS/TO GL155 GL200 | | | |
| GL250 | AE BB909B 25/ 3PF CDI TUNING DIODE VALVO BB909B | AE 092.9600 | 300.5192 |
| | AE 5082-2800 SCHOTTKYDI DIODE HEWLETT-P. 5082-2800 | AE 012.9066 | 300.5192 |

300.4415.00 SA BL 9+

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ÄZ Datum
Date
33 0686

Schaltteilliste für
Parts list for
ZE INTERPOL.-SYNTHESIZ.
INTERPOL.-SYNTHESIZER III

Sachnummer
Stock No.
300.4415.00 SA

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| Kennzeichen Component No. | Benennung/Beschreibung Designation | Sachnummer Stock No. | enthalten in contained in |
|------------------------------|--|-------------------------|------------------------------|
| GL251 | AE 5082-2800 SCHOTTKYDI DIODE HEWLETT-P. 5082-2800 | AE 012.9066 | 300.5192 |
| GL252 | AE 5082-2800 SCHOTTKYDI DIODE HEWLETT-P. 5082-2800 | AE 012.9066 | 300.5192 |
| GL253 | AE 5082-2800 SCHOTTKYDI DIODE HEWLETT-P. 5082-2800 | AE 012.9066 | 300.5192 |
| GL257 | AD 1N4448 75V 0,15A UDI DIODE VALVO 1N4448 | AD 012.0700 | 300.5192 |
| GL500 | AD 1N4448 75V 0,15A UDI DIODE VALVO 1N4448 | AD 012.0700 | 300.5192 |
| K1 | DX LEITUNG CABLE | 300.8033 | 300.5192 |
| K2 | DX LEITUNG CABLE | 300.8033 | 300.5192 |
| L1 | LD 0,18UH10%0,12OHM1,120A CHOKE DELEVAN DROSSEL1025-02 | LD 067.2770 | 300.5192 |
| L2 | LD 0,22UH10%0,14OHM1,045A CHOKE DELEVAN DROSSEL1025-04 | LD 067.2786 | 300.5192 |
| L3 | SPULE COIL | 300.9469 | 300.5192 |
| L4 | SPULE COIL | 300.9469 | 300.5192 |
| L5 | SPULE COIL | 300.9469 | 300.5192 |
| L7 | LD 10,0UH10%3,300HM0,144A CHOKE DELEVAN DROSSEL1025-44 | LD 026.4184 | 300.5192 |
| L19 | LD 10,0UH10%3,300HM0,144A CHOKE DELEVAN DROSSEL1025-44 | LD 026.4184 | 300.5192 |
| L20 | LD 10,0UH10%3,300HM0,144A CHOKE DELEVAN DROSSEL1025-44 | LD 026.4184 | 300.5192 |
| L31 | LD 0,27UH10%0,16OHM0,975A CHOKE DELEVAN DROSSEL1025-06 | LD 067.2792 | 300.5192 |
| L32 | LD 0,27UH10%0,16OHM0,975A CHOKE DELEVAN DROSSEL1025-06 | LD 067.2792 | 300.5192 |
| L34 | LD 0,10UH10%0,08OHM1,400A CHOKE DELEVAN DROSSEL1025-94 | LD 067.2740 | 300.5192 |
| L46 | LD 10,0UH10%3,300HM0,144A CHOKE DELEVAN DROSSEL1025-44 | LD 026.4184 | 300.5192 |
| L49 | LD 10,0UH10%3,300HM0,144A CHOKE DELEVAN DROSSEL1025-44 | LD 026.4184 | 300.5192 |

300.4415.00 SA BL10+

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| Schaltteilliste für Parts list for ZE INTERPOL.-SYNTHESIZ. INTERPOL.-SYNTHESIZER III |
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| Sachnummer Stock No. |
| 300.4415.00 SA |

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| Kennzeichen Component No. | Benennung/Beschreibung Designation | Sachnummer Stock No. | enthalten in contained in |
|------------------------------|---|-------------------------|------------------------------|
| L101 | LD 0,12UH10%0,090HM1,300A CHOKE DELEVAN DROSSEL1025-96 | LD 067.2757 | 300.5192 |
| L102 | LD 4,70UH10%1,200HMO,239A CHOKE DELEVAN DROSSEL1025-36 | LD 067.2940 | 300.5192 |
| L103 | LD 150 UH10%15,00HMO,061A CHOKE DELEVAN DROSSEL1025-72 | LD 067.3124 | 300.5192 |
| L104 | LD 0,27UH10%0,160HMO,975A CHOKE DELEVAN DROSSEL1025-06 | LD 067.2792 | 300.5192 |
| L105 | LD 0,27UH10%0,160HMO,975A CHOKE DELEVAN DROSSEL1025-06 | LD 067.2792 | 300.5192 |
| L107 | LD 0,12UH10%0,090HM1,300A CHOKE DELEVAN DROSSEL1025-96 | LD 067.2757 | 300.5192 |
| L108 | LD 0,10UH10%0,080HM1,400A CHOKE DELEVAN DROSSEL1025-94 | LD 067.2740 | 300.5192 |
| L109 | LD 0,12UH10%0,090HM1,300A CHOKE DELEVAN DROSSEL1025-96 | LD 067.2757 | 300.5192 |
| L110 | LD 10,00UH10%3,300HMO,144A CHOKE DELEVAN DROSSEL1025-44 | LD 026.4184 | 300.5192 |
| L150 | LD 150 UH10%15,00HMO,061A CHOKE DELEVAN DROSSEL1025-72 | LD 067.3124 | 300.5192 |
| L151 | LD 1000UH10%72,00HMO,028A CHOKE DELEVAN DROSSEL1025-92 | LD 037.8005 | 300.5192 |
| L152 | LD 1000UH10%72,00HMO,028A CHOKE DELEVAN DROSSEL1025-92 | LD 037.8005 | 300.5192 |
| L200 | LD 1,00UH10%1,000HMO,390A CHOKE DELEVAN 1025-20 | LD 067.2863 | 300.5192 |
| L201 | LD 0,15UH10%0,100HM1,230A CHOKE DELEVAN DROSSEL1025-00 | LD 067.2763 | 300.5192 |
| L202 | LD 1,00UH10%1,000HMO,390A CHOKE DELEVAN 1025-20 | LD 067.2863 | 300.5192 |
| L203 | LD 3,30UH10%0,850HMO,285A CHOKE DELEVAN DROSSEL1025-32 | LD 067.2928 | 300.5192 |
| L204 | LD SPULE 70NH COIL | 300.6624 | 300.5192 |
| L205 | LD 1,00UH10%1,000HMO,390A CHOKE DELEVAN 1025-20 | LD 067.2863 | 300.5192 |
| L206 | LD 1,00UH10%1,000HMO,390A CHOKE DELEVAN 1025-20 | LD 067.2863 | 300.5192 |

300.4415.00 SA BL11+

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| 33 | 0686 |

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| Schaltteilliste für Parts list for ZE INTERPOL.-SYNTHESIZ. INTERPOL.-SYNTHESIZER III |
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| Sachnummer Stock No. |
| 300.4415.00 SA |

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| Kennzeichen Component No. | Benennung/Beschreibung Designation | Sachnummer Stock No. | enthalten in contained in |
|------------------------------|---|-------------------------|------------------------------|
| L250 | LD 33,0UH10%3,400HMO,130A CHOKE DELEVAN DROSSEL 1025-56 | LD 067.3047 | 300.5192 |
| L251 | LD SPULE COIL | 303.1475 | 300.5192 |
| L252 | LD 2,2MIH 10%99MIA33,80HM CHOKE NYTRONIC HF-DROSSEL SWD-2200 | 073.1759 | 300.5192 |
| L254 | LD 47,0UH10%4,500HMO,110A CHOKE DELEVAN DROSSEL1025-60 | LD 067.3060 | 300.5192 |
| L300 | LD 0,10UH10%0,080HM1,400A CHOKE DELEVAN DROSSEL1025-94 | LD 067.2740 | 300.5192 |
| L303 | LD 0,10UH10%0,080HM1,400A CHOKE DELEVAN DROSSEL1025-94 | LD 067.2740 | 300.5192 |
| L304 | LD 0,12UH10%0,090HM1,300A CHOKE DELEVAN DROSSEL1025-96 | LD 067.2757 | 300.5192 |
| L350 | LD 53NH/47PF Q100 M.KERN CHOKE COMPONEX E521HN-020023 | 300.6653 | 300.5192 |
| L401 | LD 0,047 UH 10% CHOKE INDUSTRIA BAUREIHE 1025,0,047 | 249.5995 | 300.5192 |
| L402 | LD 0,82UH 5%0,850HMO,420A HIGH FREQUENCY CHOKE DELEVAN 1025-18 +-5% | 355.9890 | 300.5192 |
| L403 | LD 115NH/22PF Q100 M.KERN CHOKE COMPONEX E521HN-040023 | 300.6601 | 300.5192 |
| L404 | LD 0,16UH/47PF Q100/59MHZ COIL+CORE TOKO E521LS050033 | 300.9769 | 300.5192 |
| L405 | LD 115NH/22PF Q100 M.KERN CHOKE COMPONEX E521HN-040023 | 300.6601 | 300.5192 |
| L406 | LD 4,70UH10%1,200HMO,239A CHOKE DELEVAN DROSSEL1025-36 | LD 067.2940 | 300.5192 |
| L407 | LD 0,82UH 5%0,850HMO,420A HIGH FREQUENCY CHOKE DELEVAN 1025-18 +-5% | 355.9890 | 300.5192 |
| L500 | LD 15,0UH10%2,800HMO,157A CHOKE DELEVAN DROSSEL1025-48 | LD 067.3001 | 300.5192 |
| L501 | LD 22,0UH10%3,300HMO,114A CHOKE DELEVAN DROSSEL1025-52 | LD 067.3024 | 300.5192 |
| L502 | LD 1,00UH10%1,000HMO,390A CHOKE DELEVAN 1025-20 | LD 067.2863 | 300.5192 |
| L503 | LD 115NH/22PF Q100 M.KERN CHOKE COMPONEX E521HN-040023 | 300.6601 | 300.5192 |

300.4415.00 SA BL12+

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| Schaltteilliste für Parts list for ZE INTERPOL.-SYNTHESIZ. INTERPOL.-SYNTHESIZER III |
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| Sachnummer Stock No. |
| 300.4415.00 SA |

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| Kennzeichen Component No. | Benennung/Beschreibung Designation | Sachnummer Stock No. | enthalten in contained in |
|------------------------------|--|-------------------------|------------------------------|
| L601 | LD 0,56UH10%,500HMO,550A CHOKE | LD 067.2834 | 300.5192 |
| L603 | DELEVAN DROSSEL1025-14 LD 0,18UH10%,120HM1,120A CHOKE | LD 067.2770 | 300.5192 |
| L604 | DELEVAN DROSSEL1025-02 LD 0,18UH10%,120HM1,120A CHOKE | LD 067.2770 | 300.5192 |
| L605 | DELEVAN DROSSEL1025-02 LD 0,18UH10%,120HM1,120A CHOKE | LD 067.2770 | 300.5192 |
| L607 | DELEVAN DROSSEL1025-02 LD 0,39UH10%,300HMO,710A CHOKE | LD 067.2811 | 300.5192 |
| L608 | DELEVAN DROSSEL1025-10 LD 0,39UH10%,300HMO,710A CHOKE | LD 067.2811 | 300.5192 |
| L609 | DELEVAN DROSSEL1025-10 LD 0,82UH10%,850HMO,420A CHOKE | LD 067.2857 | 300.5192 |
| L610 | DELEVAN DROSSEL1025-18 LD 1,00UH10%,1,000HMO,390A CHOKE | LD 067.2863 | 300.5192 |
| L611 | DELEVAN 1025-20 LD 0,82UH10%,850HMO,420A CHOKE | LD 067.2857 | 300.5192 |
| L613 | DELEVAN DROSSEL1025-18 LD 0,82UH10%,850HMO,420A CHOKE | LD 067.2857 | 300.5192 |
| L614 | DELEVAN DROSSEL1025-18 LD 0,82UH10%,850HMO,420A CHOKE | LD 067.2857 | 300.5192 |
| L615 | DELEVAN DROSSEL1025-18 LD 0,82UH 5%,850HMO,420A HIGH FREQUENCY CHOKE | 355.9890 | 300.5192 |
| L616 | DELEVAN 1025-18 +-5% LD 0,47 UH +-5%,8A0,30HM CHOKE | 067.3230 | 300.5192 |
| MP1 | INDUSTRIA DROSSEL1025-12+5% | | |
| MP1 | VL WIRE-WRAP PIN BERG NR. 75 403-001 | VL 088.4507 | 300.5192 |
| BIS/T0 | | | |
| MP5 | | | |
| MP6 | FP INDIREKT.STECKERL.36P. PIN CONNECTOR BERG 75160-102-36 | FP 242.3600 | 300.5192 |
| MP7 | FP INDIREKT.STECKERL.36P. PIN CONNECTOR BERG 75160-102-36 | FP 242.3600 | 300.5192 |
| MP8 | VL WIRE-WRAP PIN BERG NR. 75 403-001 | VL 088.4507 | 300.5192 |
| MP9 | VL WIRE-WRAP PIN BERG NR. 75 403-001 | VL 088.4507 | 300.5192 |
| MP11 | VL WIRE-WRAP PIN BERG NR. 75 403-001 | VL 088.4507 | 300.5192 |

300.4415.00 SA BL13+

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|  ROHDE & SCHWARZ | | AZ 33 | Datum Date 0686 | Schaltteilliste für Parts list for ZE INTERPOL.-SYNTHESIZ. INTERPOL.-SYNTHESIZER III | Sachnummer Stock No. 300.4415.00 SA | Blatt Page 14 |
|---|--|-------------------------|------------------------------|---|---|---------------------|
| Kennzeichen Component No. | Benennung/Beschreibung Designation | Sachnummer Stock No. | enthalten in contained in | | | |
| MP12 | VL WIRE-WRAP PIN BERG NR. 75 403-001 | VL 088.4507 | 300.5192 | | | |
| MP13 | VL WIRE-WRAP PIN BERG NR. 75 403-001 | VL 088.4507 | 300.5192 | | | |
| MP14 | VL WIRE-WRAP PIN BERG NR. 75 403-001 | VL 088.4507 | 300.5192 | | | |
| MP15 | VL WIRE-WRAP PIN BERG NR. 75 403-001 | VL 088.4507 | 300.5192 | | | |
| MP17 | FP INDIREKT.STECKERL.36P. PIN CONNECTOR BERG 75160-102-36 | FP 242.3600 | 300.5192 | | | |
| MP30 | FP INDIREKT.STECKERL.36P. PIN CONNECTOR BERG 75160-102-36 | FP 242.3600 | 300.5192 | | | |
| MP31 | VL WIRE-WRAP PIN BERG NR. 75 403-001 | VL 088.4507 | 300.5192 | | | |
| MP35 | FP INDIREKT.STECKERL.36P. PIN CONNECTOR BERG 75160-102-36 | FP 242.3600 | 300.5192 | | | |
| MP36 | VL WIRE-WRAP PIN BERG NR. 75 403-001 | VL 088.4507 | 300.5192 | | | |
| MP40 | FP INDIREKT.STECKERL.36P. PIN CONNECTOR BERG 75160-102-36 | FP 242.3600 | 300.5192 | | | |
| MP50 | FP INDIREKT.STECKERL.36P. PIN CONNECTOR BERG 75160-102-36 | FP 242.3600 | 300.5192 | | | |
| MP60 | VL WIRE-WRAP PIN BERG NR. 75 403-001 | VL 088.4507 | 300.5192 | | | |
| MP61 | FP INDIREKT.STECKERL.36P. PIN CONNECTOR BERG 75160-102-36 | FP 242.3600 | 300.5192 | | | |
| R1 | RL 0,35W 2,00KOHM+-1%TK50 RESISTOR | RL 083.0826 | 300.5192 | | | |
| R2 | DRALORIC SMA0207/2,00K-F-D RL 0,21W 10 OHM2% UNGEW. RESISTOR | RL 092.5833 | 300.5192 | | | |
| R3 | RESISTA MK1 100HM 2% UNGEW. RL 0,35W 274 OHM+-1%TK50 RESISTOR | RL 083.0178 | 300.5192 | | | |
| R4 | DRALORIC SMA0207/2740HM-F-D RL 0,35W 332 KOHM+-1%TK50 RESISTOR | RL 083.2441 | 300.5192 | | | |
| R5 | DRALORIC SMA0207/332K-F-C RL 0,35W 82,5KOHM+-1%TK50 RESISTOR | RL 082.2302 | 300.5192 | | | |
| R6 | DRALORIC SMA0207/82,5K-F-C RL 0,35W 27,4KOHM+-1%TK50 RESISTOR | RL 082.2583 | 300.5192 | | | |
| R7 | DRALORIC SMA 0207/27,4K-F-C RS 0,5W50KOHM+-10%10X10X5 CERMET POTENTIOMETER T | RS 087.7677 | 300.5192 | | | |
| R10 | BOURNS 3386-1-503 RL 0,21W 3,92KOHM+-1%TK50 RESISTOR | RL 092.1515 | 300.5192 | | | |
| | RESISTA MK1 3K92 1% TK50 | | | | | |

300.4415.00 SA BL14+

**ROHDE & SCHWARZ**

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| 33 | 0686 |

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| Schaltteilliste für Parts list for |
| ZE INTERPOL.-SYNTHESIZ. INTERPOL.-SYNTHESIZER III |

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| Sachnummer Stock No. |
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| Kennzeichen Component No. | Benennung/Beschreibung Designation | Sachnummer Stock No. | enthalten in contained in |
|------------------------------|--|-------------------------|------------------------------|
| R11 | RL 0,21W 120 OHM2% UNGEW. RESISTOR | RL 092.5962 | 300.5192 |
| R12 | RESISTA MK1 120OHM 2% UNGEW. RL 0,21W 10 OHM2% UNGEW. RESISTOR | RL 092.5833 | 300.5192 |
| R30 | RESISTA MK1 100HM 2% UNGEW. RL 0,21W 1,82KOHM+-1%TK50 RESISTOR | RL 092.1473 | 300.5192 |
| R31 | RESISTA MK1 1K82 1% TK50 RL 0,21W 10 OHM2% UNGEW. RESISTOR | RL 092.5833 | 300.5192 |
| R32 | RESISTA MK1 100HM 2% UNGEW. RL 0,21W 56 OHM2% UNGEW. RESISTOR | RL 092.5927 | 300.5192 |
| R33 | RESISTA MK1 560HM 2% UNGEW. RL 0,21W 10 OHM2% UNGEW. RESISTOR | RL 092.5833 | 300.5192 |
| R34 | RESISTA MK1 100HM 2% UNGEW. RL 0,21W 390 OHM2% UNGEW. RESISTOR | RL 092.6023 | 300.5192 |
| R35 | RESISTA MK1 390OHM 2% UNGEW. RL 0,21W 220 OHM2% UNGEW. RESISTOR | RL 092.5991 | 300.5192 |
| R36 | RESISTA MK1 220OHM 2% UNGEW. RL 0,21W 27 OHM2% UNGEW. RESISTOR | RL 092.5885 | 300.5192 |
| R37 | RESISTA MK1 270HM 2% UNGEW. RL 0,21W 47,5 OHM+-1%TK50 RESISTOR | RL 092.1267 | 300.5192 |
| R38 | RESISTA MK1 47,5OHM 1% TK50 RL 0,21W 15 OHM2% UNGEW. RESISTOR | RL 092.5856 | 300.5192 |
| R39 | RESISTA MK1 150HM 2% UNGEW. RL 0,21W 82 OHM2% UNGEW. RESISTOR | RL 092.5940 | 300.5192 |
| R40 | RESISTA MK1 820HM 2% UNGEW. RL 0,21W 15 OHM2% UNGEW. RESISTOR | RL 092.5856 | 300.5192 |
| R41 | RESISTA MK1 150HM 2% UNGEW. RL 0,21W 220 OHM2% UNGEW. RESISTOR | RL 092.5991 | 300.5192 |
| R42 | RESISTA MK1 220OHM 2% UNGEW. RL 0,21W 22 OHM2% UNGEW. RESISTOR | RL 092.5879 | 300.5192 |
| R43 | RESISTA MK1 220HM 2% UNGEW. RL 0,21W 220 OHM2% UNGEW. RESISTOR | RL 092.5991 | 300.5192 |
| R44 | RESISTA MK1 220OHM 2% UNGEW. RL 0,21W 100 OHM2% UNGEW. RESISTOR | RL 092.5956 | 300.5192 |
| R45 | RESISTA MK1 1000HM 2% UNGEW. RL 0,21W 18 OHM2% UNGEW. RESISTOR | RL 092.5862 | 300.5192 |
| R106 | RESISTA MK1 180HM 2% UNGEW. RL 0,35W 1,82KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/1,82K-F-C | RL 082.2277 | 300.5192 |

300.4415.00 SA RL15+

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| Kennzeichen Component No. | Benennung/Beschreibung Designation | Sachnummer Stock No. | enthalten in contained in |
|------------------------------|--|-------------------------|------------------------------|
| R107 | RL 0,21W 274 0HM+-1%TK50 RESISTOR RESISTA MK1 2740HM 1% TK50 | RL 092.1373 | 300.5192 |
| R108 | RL 0,21W 825 0HM+-1%TK50 RESISTOR RESISTA MK1 8250HM 1% TK50 | RL 092.1438 | 300.5192 |
| R109 | RL 0,21W 562 0HM+-1%TK50 RESISTOR RESISTA MK1 5620HM 1% TK50 | RL 092.1415 | 300.5192 |
| R110 | RL 0,21W 562 0HM+-1%TK50 RESISTOR RESISTA MK1 5620HM 1% TK50 | RL 092.1415 | 300.5192 |
| R111 | RL 0,21W 562 0HM+-1%TK50 RESISTOR RESISTA MK1 5620HM 1% TK50 | RL 092.1415 | 300.5192 |
| R112 | RL 0,21W 562 0HM+-1%TK50 RESISTOR RESISTA MK1 5620HM 1% TK50 | RL 092.1415 | 300.5192 |
| R113 | RL 0,21W 33,2 0HM+-1%TK50 RESISTOR RESISTA MK1 33,20HM 1% TK50 | RL 092.1244 | 300.5192 |
| R114 | RL 0,21W 22 0HM2% UNGEW. RESISTOR RESISTA MK1 220HM 2% UNGEW. | RL 092.5879 | 300.5192 |
| R115 | RL 0,21W 56 0HM2% UNGEW. RESISTOR RESISTA MK1 560HM 2% UNGEW. | RL 092.5927 | 300.5192 |
| R116 | RL 0,21W 56 0HM2% UNGEW. RESISTOR RESISTA MK1 560HM 2% UNGEW. | RL 092.5927 | 300.5192 |
| R150 | RL 0,21W 1,50K0HM+-1%TK50 RESISTOR RESISTA MK1 1K5 1% TK50 | RL 092.1467 | 300.5192 |
| R151 | RL 0,21W 12,1K0HM+-1%TK50 RESISTOR RESISTA MK1 12K1 1% TK50 | RL 092.1573 | 300.5192 |
| R152 | RL 0,21W 2,21K0HM+-1%TK50 RESISTOR RESISTA MK1 2K21 1% TK50 | RL 092.1480 | 300.5192 |
| R153 | RL 0,21W 392 0HM+-1%TK50 RESISTOR RESISTA MK1 3920HM 1% TK50 | RL 092.1396 | 300.5192 |
| R154 | RL 0,21W 392 0HM+-1%TK50 RESISTOR RESISTA MK1 3920HM 1% TK50 | RL 092.1396 | 300.5192 |
| R155 | RL 0,21W 392 0HM+-1%TK50 RESISTOR RESISTA MK1 3920HM 1% TK50 | RL 092.1396 | 300.5192 |
| R156 | RL 0,21W 392 0HM+-1%TK50 RESISTOR RESISTA MK1 3920HM 1% TK50 | RL 092.1396 | 300.5192 |
| R157 | RL 0,21W 392 0HM+-1%TK50 RESISTOR RESISTA MK1 3920HM 1% TK50 | RL 092.1396 | 300.5192 |
| R158 | RL 0,21W 2,21K0HM+-1%TK50 RESISTOR RESISTA MK1 2K21 1% TK50 | RL 092.1480 | 300.5192 |

300.4415.00 SA BL16+

**ROHDE & SCHWARZ**AZ Datum
Date
33 0686Schaltteilliste für
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| Kennzeichen Component No. | Benennung/Beschreibung Designation | Sachnummer Stock No. | enthalten in contained in |
|------------------------------|---|-------------------------|------------------------------|
| R159 | RL 0,21W 392 OHM+-1%TK50 RESISTOR RESISTA MK1 392OHM 1% TK50 | RL 092.1396 | 300.5192 |
| R160 | RL 0,21W 2,21KOHM+-1%TK50 RESISTOR RESISTA MK1 2K21 1% TK50 | RL 092.1480 | 300.5192 |
| R161 | RL 0,21W 392 OHM+-1%TK50 RESISTOR RESISTA MK1 392OHM 1% TK50 | RL 092.1396 | 300.5192 |
| R162 | RL 0,21W 2,21KOHM+-1%TK50 RESISTOR RESISTA MK1 2K21 1% TK50 | RL 092.1480 | 300.5192 |
| R163 | RL 0,21W 392 OHM+-1%TK50 RESISTOR RESISTA MK1 392OHM 1% TK50 | RL 092.1396 | 300.5192 |
| R164 | RL 0,21W 100 OHM2% UNGEW. RESISTOR RESISTA MK1 100OHM 2% UNGEW. | RL 092.5956 | 300.5192 |
| R200 | RL 0,35W 182 KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/182K-F-C | RL 083.2193 | 300.5192 |
| R201 | RL 0,21W 121 KOHM+-1%TK50 RESISTOR RESISTA MK1 121K 1% TK50 | RL 092.1696 | 300.5192 |
| R202 | RL 0,21W 82,5KOHM+-1%TK50 RESISTOR RESISTA MK1 82K5 1% TK50 | RL 092.1673 | 300.5192 |
| R203 | RL 0,35W 182 OHM+-1%TK50 RESISTOR DRALORIC SMA0207/182OHM-F-D | RL 083.0010 | 300.5192 |
| R204 | RL 0,21W 562 OHM+-1%TK50 RESISTOR RESISTA MK1 562OHM 1% TK50 | RL 092.1415 | 300.5192 |
| R205 | RL 0,35W 392 OHM+-1%TK50 RESISTOR DRALORIC SMA0207/392K-F-C | RL 082.2183 | 300.5192 |
| R250 | RL 0,35W 4,87KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/4,87K-F-D | RL 083.1100 | 300.5192 |
| R251 | RL 0,21W 750 OHM+-1%TK50 RESISTOR RESISTA MK1 | 092.0231 | 300.5192 |
| R252 | RL 0,21W 3,92KOHM+-1%TK50 RESISTOR RESISTA MK1 3K92 1% TK50 | RL 092.1515 | 300.5192 |
| R253 | RL 0,35W 10,0KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/10K-F-D | RL 083.1297 | 300.5192 |
| R255 | RL 0,35W 82,5KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/82,5K-F-C | RL 082.2302 | 300.5192 |
| R256 | RL 0,35W 27,4KOHM+-1%TK50 RESISTOR DRALORIC SMA 0207/27,4K-F-C | RL 082.2583 | 300.5192 |
| R257 | RL 0,35W 332 OHM+-1%TK50 RESISTOR DRALORIC SMA0207/332OHM-F-D | RL 083.0255 | 300.5192 |

300.4415.00 SA BL17+

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| ÄZ | Datum Date |
| 33 | 0686 |

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| Schaltteilliste für Parts list for |
| ZE INTERPOL.-SYNTHESIZ. INTERPOL.-SYNTHESIZER III |

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| Kennzeichen Component No. | Benennung/Beschreibung Designation | Sachnummer Stock No. | enthalten in contained in |
|------------------------------|--|-------------------------|------------------------------|
| R258 | RL 0,35W 15,0KOHM+-1%TK50 RESISTOR | RL 083.1400 | 300.5192 |
| | DRALORIC SMA0207/15K-F-D | | |
| R259 | RL 0,35W 27,4KOHM+-1%TK50 RESISTOR | RL 082.2583 | 300.5192 |
| | DRALORIC SMA 0207/27,4K-F-C | | |
| R260 | RL 0,35W 2,21KOHM+-1%TK50 RESISTOR | RL 082.2477 | 300.5192 |
| | DRALORIC SMA 0207/2,21K-F-C | | |
| R261 | RL 0,35W 221 OHM+-1%TK50 RESISTOR | RL 083.0084 | 300.5192 |
| | DRALORIC SMA0207/2210HM-F-D | | |
| R262 | RL 0,35W 562 KOHM+-1%TK50 RESISTOR | RL 083.2664 | 300.5192 |
| | DRALORIC SMA0207/562K-F-C | | |
| R263 | RL 0,21W 562 OHM+-1%TK50 RESISTOR | RL 092.1415 | 300.5192 |
| | RESISTA MK1 5620HM 1% TK50 | | |
| R264 | RL 0,21W 1,82KOHM+-1%TK50 RESISTOR | RL 092.1473 | 300.5192 |
| | RESISTA MK1 1K82 1% TK50 | | |
| R265 | RL 0,35W 2,74KOHM+-1%TK50 RESISTOR | RL 083.0926 | 300.5192 |
| | DRALORIC SMA0207/2,74K-F-D | | |
| R266 | RL 0,35W 22,10 OHM+-1%TK50 RESISTOR | RL 082.9188 | 300.5192 |
| | DRALORIC SMA0207/22,10HM-F-D | | |
| R267 | RL 0,35W 200 OHM+-1%TK50 RESISTOR | RL 083.0049 | 300.5192 |
| | DRALORIC SMA0207/200OHM-F-D | | |
| R300 | RL 0,21W 18 OHM2% UNGEW. RESISTOR | RL 092.5862 | 300.5192 |
| | RESISTA MK1 180HM 2% UNGEW. | | |
| R301 | RL 0,21W 100 OHM2% UNGEW. RESISTOR | RL 092.5956 | 300.5192 |
| | RESISTA MK1 100OHM 2% UNGEW. | | |
| R302 | RL 0,35W 56,2 OHM+-1%TK50 RESISTOR | RL 082.9571 | 300.5192 |
| | DRALORIC SMA0207/56,20HM-F-D | | |
| R303 | RL 0,21W 220 OHM2% UNGEW. RESISTOR | RL 092.5991 | 300.5192 |
| | RESISTA MK1 220OHM 2% UNGEW. | | |
| R304 | RL 0,21W 22 OHM2% UNGEW. RESISTOR | RL 092.5879 | 300.5192 |
| | RESISTA MK1 220HM 2% UNGEW. | | |
| R305 | RL 0,21W 220 OHM2% UNGEW. RESISTOR | RL 092.5991 | 300.5192 |
| | RESISTA MK1 220OHM 2% UNGEW. | | |
| R315 | RL 0,21W 39 OHM2% UNGEW. RESISTOR | RL 092.5904 | 300.5192 |
| | RESISTA MK1 390HM 2% UNGEW. | | |
| R316 | RL 0,21W 39 OHM2% UNGEW. RESISTOR | RL 092.5904 | 300.5192 |
| | RESISTA MK1 390HM 2% UNGEW. | | |
| R317 | RL 0,21W 10 OHM2% UNGEW. RESISTOR | RL 092.5833 | 300.5192 |
| | RESISTA MK1 10OHM 2% UNGEW. | | |

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**ROHDE & SCHWARZ**AZ Datum
Date
33 0686Schaltteilliste für
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| Kennzeichen Component No. | Benennung/Beschreibung Designation | Sachnummer Stock No. | enthalten in contained in |
|------------------------------|---|-------------------------|------------------------------|
| R318 | RL 0,21W 10 OHM2% UNGEW. RESISTOR | RL 092.5833 | 300.5192 |
| R319 | RESISTA MK1 100HM 2% UNGEW. RL 0,21W 39 OHM2% UNGEW. RESISTOR | RL 092.5904 | 300.5192 |
| R350 | RESISTA MK1 390HM 2% UNGEW. RL 0,21W 182 KOHM+-1%TK50 RESISTOR | RL 092.0525 | 300.5192 |
| R351 | DRALORIC SMA0204 182KOHM 1% RL 0,21W 121 KOHM+-1%TK50 RESISTOR | RL 092.1696 | 300.5192 |
| R352 | RESISTA MK1 121K 1% TK50 RL 0,21W 82,5KOHM+-1%TK50 RESISTOR | RL 092.1673 | 300.5192 |
| R353 | RESISTA MK1 82K5 1% TK50 RL 0,21W 10 OHM2% UNGEW. RESISTOR | RL 092.5833 | 300.5192 |
| R354 | RESISTA MK1 100HM 2% UNGEW. RL 0,21W 274 OHM+-1%TK50 RESISTOR | RL 092.1373 | 300.5192 |
| R400 | RESISTA MK1 274OHM 1% TK50 RL 0,21W 1,82KOHM+-1%TK50 RESISTOR | RL 092.1473 | 300.5192 |
| R401 | RESISTA MK1 1K82 1% TK50 RL 0,21W 10 OHM2% UNGEW. RESISTOR | RL 092.5833 | 300.5192 |
| R402 | RESISTA MK1 100HM 2% UNGEW. RL 0,21W 100 OHM2% UNGEW. RESISTOR | RL 092.5956 | 300.5192 |
| R403 | RESISTA MK1 1000HM 2% UNGEW. RL 0,21W 330 OHM2% UNGEW. RESISTOR | RL 092.6017 | 300.5192 |
| R404 | RESISTA MK1 330OHM 2% UNGEW. RL 0,21W 82,5 OHM+-1%TK50 RESISTOR | RL 092.1315 | 300.5192 |
| R405 | RESISTA MK1 82,5OHM 1% TK50 RL 0,21W 39,2 OHM+-1%TK50 RESISTOR | RL 092.1250 | 300.5192 |
| R407 | RESISTA MK1 39,2OHM 1% TK50 RL 0,21W 182 KOHM+-1%TK50 RESISTOR | RL 092.0525 | 300.5192 |
| R408 | DRALORIC SMA0204 182KOHM 1% RL 0,21W 330 OHM2% UNGEW. RESISTOR | RL 092.6017 | 300.5192 |
| R409 | RESISTA MK1 330OHM 2% UNGEW. RL 0,35W 121KOHM+-1%TK50 RESISTOR | RL 083.2070 | 300.5192 |
| R410 | DRALORIC SMA/207/121K-F-C RL 0,21W 47 OHM2% UNGEW. RESISTOR | RL 092.5910 | 300.5192 |
| R411 | RESISTA MK1 47OHM 2% UNGEW. RL 0,35W 47,5 OHM+-1%TK50 RESISTOR | RL 082.9507 | 300.5192 |
| R412 | DRALORIC SMA0207/47,5OHM-F-D RL 0,35W 82,5KOHM+-1%TK50 RESISTOR | RL 082.2302 | 300.5192 |
| | DRALORIC SMA0207/82,5K-F-C | | |

300.4415.00 SA BL19+

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| Schalteilliste für Parts list for ZE INTERPOL.-SYNTHESIZ. INTERPOL.-SYNTHESIZER III |
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| Sachnummer Stock No. |
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| Kennzeichen Component No. | Benennung/Beschreibung Designation | Sachnummer Stock No. | enthalten in contained in |
|------------------------------|---|-------------------------|------------------------------|
| R414 | RL 0,21W 274 0HM+-1%TK50 RESISTOR RESISTA MK1 2740HM 1% TK50 | RL 092.1373 | 300.5192 |
| R418 | RL 0,21W 1,82KOHM+-1%TK50 RESISTOR RESISTA MK1 1K82 1% TK50 | RL 092.1473 | 300.5192 |
| R419 | RL 0,21W 10 0HM2% UNGEW. RESISTOR RESISTA MK1 100HM 2% UNGEW. | RL 092.5833 | 300.5192 |
| R420 | RL 0,21W 330 0HM2% UNGEW. RESISTOR RESISTA MK1 3300HM 2% UNGEW. | RL 092.6017 | 300.5192 |
| R421 | RL 0,21W 470 0HM2% UNGEW. RESISTOR RESISTA MK1 4700HM 2% UNGEW. | RL 092.6030 | 300.5192 |
| R422 | RL 0,21W 680 0HM2% UNGEW. RESISTOR RESISTA MK1 6800HM 2% UNGEW. | RL 092.6052 | 300.5192 |
| R423 | RL 0,21W 47,5 0HM+-1%TK50 RESISTOR RESISTA MK1 47,50HM 1% TK50 | RL 092.1267 | 300.5192 |
| R424 | RL 0,21W 10 0HM2% UNGEW. RESISTOR RESISTA MK1 100HM 2% UNGEW. | RL 092.5833 | 300.5192 |
| R425 | RL 0,35W 150 0HM+-1%TK50 RESISTOR DRALORIC SMA0207/1500HM-F-D | RL 082.9942 | 300.5192 |
| R426 | RL 0,35W 150 0HM+-1%TK50 RESISTOR DRALORIC SMA0207/1500HM-F-D | RL 082.9942 | 300.5192 |
| R500 | RL 0,21W 562 0HM+-1%TK50 RESISTOR RESISTA MK1 5620HM 1% TK50 | RL 092.1415 | 300.5192 |
| R501 | RL 0,21W 1,00KOHM+-1%TK50 RESISTOR RESISTA MK1 1K00 1% TK50 | RL 092.1444 | 300.5192 |
| R502 | RL 0,21W 75,0 0HM+-1%TK50 RESISTOR DRALORIC SMA0204 75 0HM 1% | RL 092.0119 | 300.5192 |
| R503 | RL 0,21W 274 0HM+-1%TK50 RESISTOR RESISTA MK1 2740HM 1% TK50 | RL 092.1373 | 300.5192 |
| R504 | RL 0,21W 825 0HM+-1%TK50 RESISTOR RESISTA MK1 8250HM 1% TK50 | RL 092.1438 | 300.5192 |
| R505 | RL 0,21W 1,50KOHM+-1%TK50 RESISTOR RESISTA MK1 1K5 1% TK50 | RL 092.1467 | 300.5192 |
| R506 | RL 0,21W 475 0HM+-1%TK50 RESISTOR RESISTA MK1 4750HM 1% TK50 | RL 092.1409 | 300.5192 |
| R507 | RL 0,21W 825 0HM+-1%TK50 RESISTOR RESISTA MK1 8250HM 1% TK50 | RL 092.1438 | 300.5192 |
| R508 | RL 0,35W 12,1KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/12,1K-F-D | RL 083.1351 | 300.5192 |

300.4415.00 SA BL20+

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| 33 | 0686 |

 Schaltteilliste für
 Parts list for
 ZE INTERPOL.-SYNTHESIZ.
 INTERPOL.-SYNTHESIZER III

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| Sachnummer | Stock No. |
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| Kennzeichen Component No. | Benennung/Beschreibung Designation | Sachnummer Stock No. | enthalten in contained in |
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| R600 | RL 0,35W 1KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/1K-F-C | RL 082.2160 | 300.5192 |
| R601 | RL 0,35W 4,75KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/4,75K-F-D | RL 083.1097 | 300.5192 |
| R602 | RS 0,5W500 OHM+-10%10X10X CERMET POTENTIOMETER T BOURNS 3386F-1-501 | RS 247.7878 | 300.5192 |
| R603 | RL 0,35W 1KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/1K-F-C | RL 082.2160 | 300.5192 |
| R604 | RL 0,35W 562 OHM+-1%TK50 RESISTOR DRALORIC SMA0207/562OHM-F-D | RL 083.0461 | 300.5192 |
| R605 | RL 0,21W 4,75KOHM+-1%TK50 RESISTOR RESISTA MK1 4K75 1% TK50 | RL 092.1521 | 300.5192 |
| ST1 | FP EINZELKONTAKTSTIFT SINGLE-CONTACT PIN ULMIC R&S.ZCHNG.300.8804 | 300.8804 | 300.5211 |
| BIS/T0 | | | |
| ST14 | | | |
| ST90 | ENTHALTEN IN/INCLUDED IN LEITERPLATTE/PCB | | 300.5211 |
| ST96 | FJ EINBAUWINKELST. SMC ANGLE CONNECTOR RADIALL R 112 669 | FJ 249.9684 | 300.5192 |
| ST98 | FJ EINBAUWINKELST. SMC ANGLE CONNECTOR RADIALL R 112 669 | FJ 249.9684 | 300.5192 |
| T1 | AM BF961 N-DUAL-G.MOSF MOS-FET SIEMENS BF961 | 303.9130 | 300.5192 |
| T3 | AM U310 NKAN 25V FET FET SILICONIX U310 | AM 454.6217 | 300.5192 |
| T30 | AK BFW30 NPN 10V >1GHZ TRANSISTOR VALVO BFW30 | AK 010.6582 | 300.5192 |
| T31 | AK BFW30 NPN 10V >1GHZ TRANSISTOR VALVO BFW30 | AK 010.6582 | 300.5192 |
| T32 | AM U310 NKAN 25V FET FET SILICONIX U310 | AM 454.6217 | 300.5192 |
| T102 | AK BSX29 PNP 12V 200MA TRANSISTOR SGS BSX29 | AK 010.3031 | 300.5192 |
| T200 | AM 3N204 N-DUAL-G.MOSF MOS-FET RCA 3N204 | AM 204.1910 | 300.5192 |
| T201 | AM U310 NKAN 25V FET FET SILICONIX U310 | AM 454.6217 | 300.5192 |

300.4415.00 SA BL21+

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ROHDE & SCHWARZ

ÄZ Datum
Date
33 0686

Schaltteilliste für
Parts list for
ZE INTERPOL.-SYNTHESIZ.
INTERPOL.-SYNTHESIZER III

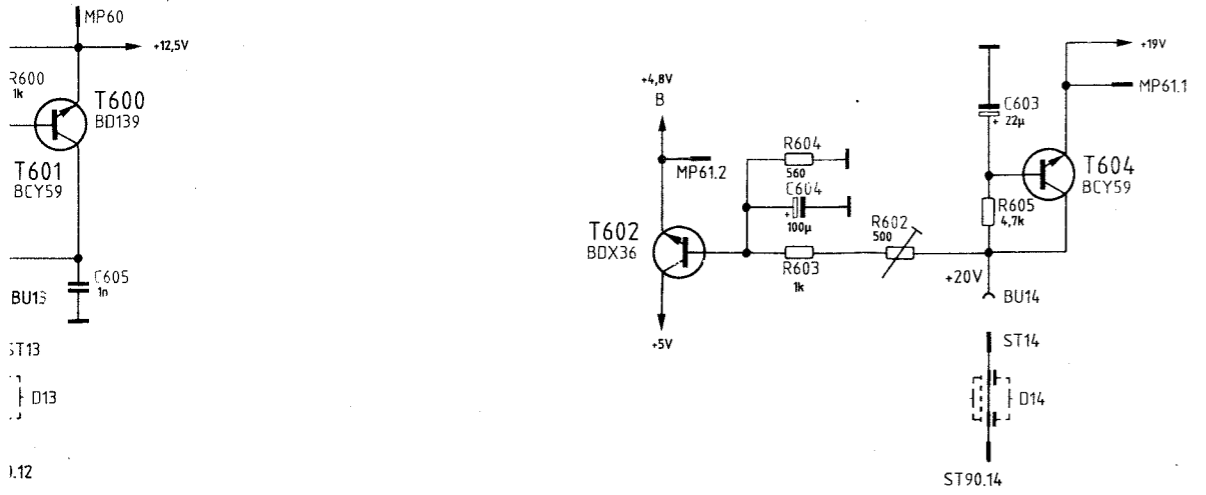
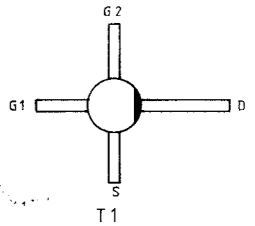
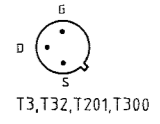
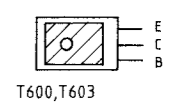
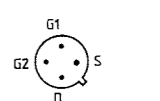
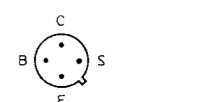
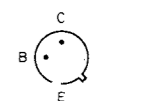
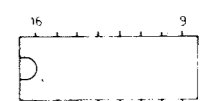
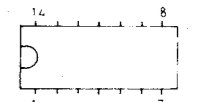
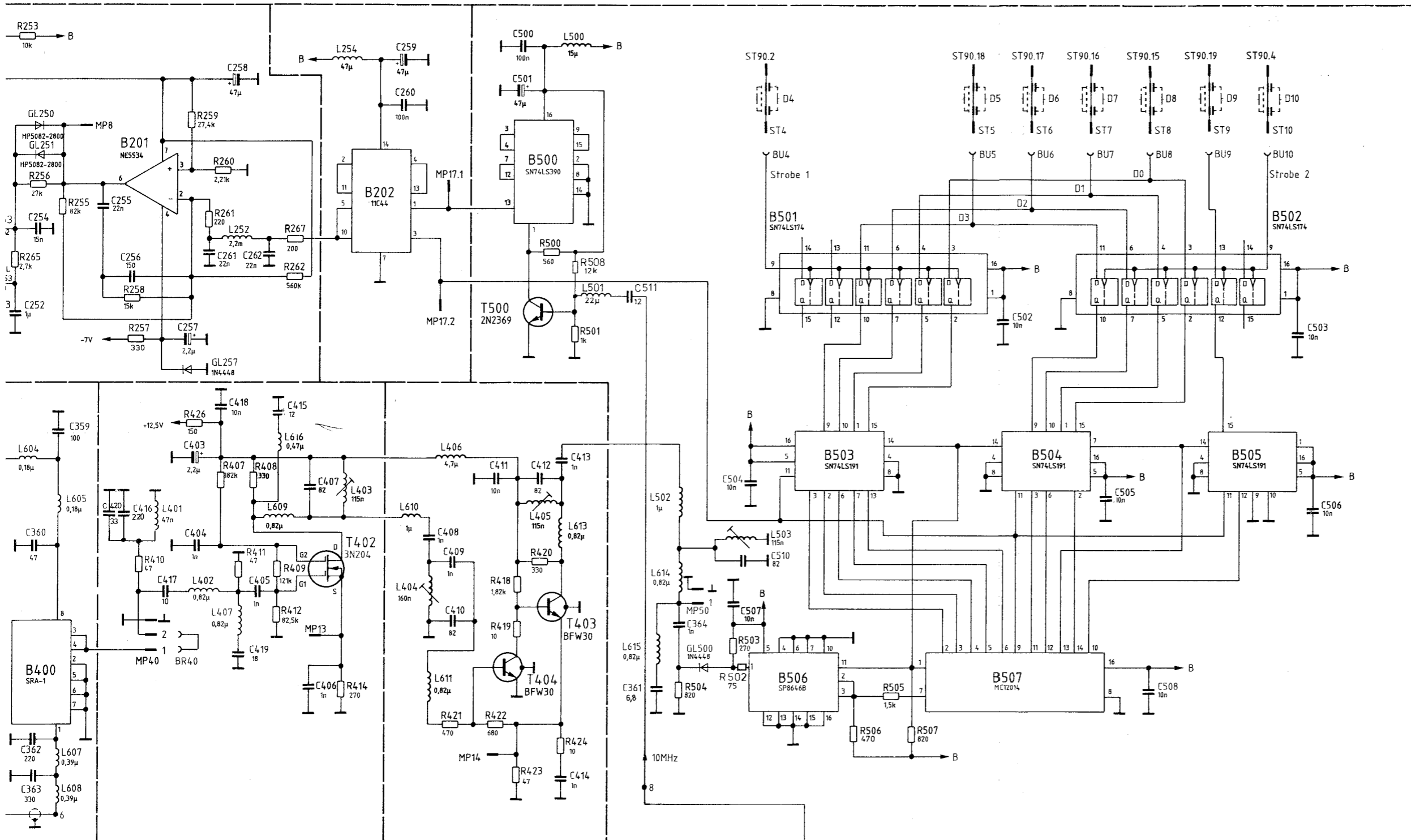
Sachnummer
Stock No.
300.4415.00 SA

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Page
22

| Kennzeichen Component No. | Benennung/Beschreibung Designation | Sachnummer Stock No. | enthalten in contained in |
|------------------------------|---|-------------------------|------------------------------|
| T300 | AM U310 NKAN 25V FET FET SILICONIX U310 | AM 454.6217 | 300.5192 |
| T350 | AM 3N204 N-DUAL-G.MOSF MOS-FET RCA 3N204 | AM 204.1910 | 300.5192 |
| T400 | AK BFW30 NPN 10V >1GHZ TRANSISTOR VALVO BFW30 | AK 010.6582 | 300.5192 |
| T401 | AK BFW30 NPN 10V >1GHZ TRANSISTOR VALVO BFW30 | AK 010.6582 | 300.5192 |
| T402 | AM 3N204 N-DUAL-G.MOSF MOS-FET RCA 3N204 | AM 204.1910 | 300.5192 |
| T403 | AK BFW30 NPN 10V >1GHZ TRANSISTOR VALVO BFW30 | AK 010.6582 | 300.5192 |
| T404 | AK BFW30 NPN 10V >1GHZ TRANSISTOR VALVO BFW30 | AK 010.6582 | 300.5192 |
| T500 | AK 2N2369A NPN 15V 200MA TRANSISTOR VALVO 2N2369A | AK 010.4680 | 300.5192 |
| T600 | AL BD139 NPN 80V 1A0 TRANSISTOR VALVO BD139 | AL 274.8994 | 300.5192 |
| T601 | AK BCY59IX NPN 45V 200MA TRANSISTOR SIEMENS BCY59IX | AK 010.5163 | 300.5192 |
| T602 | AL BDX36 NPN 60V 5A0 TRANSISTOR VALVO BDX 36 | AL 332.4291 | 300.5192 |
| T604 | AK BCY59IX NPN 45V 200MA TRANSISTOR SIEMENS BCY59IX | AK 010.5163 | 300.5192 |
| TR200 | LU UEBERTRAGER TRANSFORMER | 451.1937 | 300.5192 |
| TR602 | LU UEBERTRAGER TRANSFORMER | 451.1937 | 300.5192 |

- ENDE -

300.4415.00 SA BL22-



(BU95)
vom Interpolationssynthesizer II
From interpolation synthesizer II

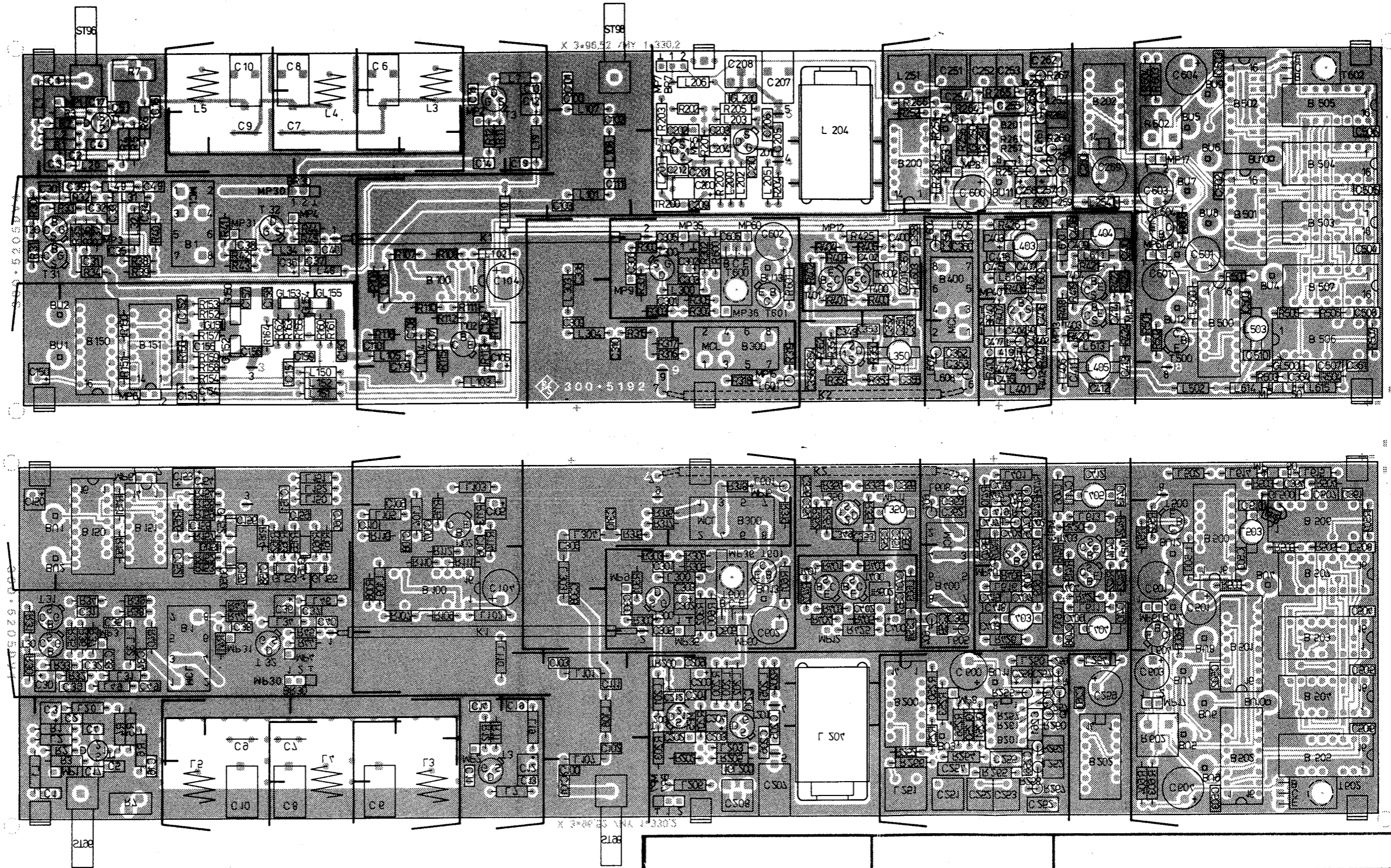
(Platte) Interpolationssynthesizer III 300.5192
(PCB) Interpolation synthesizer III
Zuführung-Interpol.-synth. III 300.5211
Feed-Interpol.-synth. III

| | | | | |
|---|--|--|---------------------------|---------------------|
| Stromlauf zu reg. i. V 300.1000 V erste Z. 300.1000 | Interpolationssynthesizer III Interpolation synthesizer III | | Zeichn.-Nr. 300.4415 S | Blatt-Nr. v. Bl. |
| | Stromlauf zu ST90. A - H, K, M, P, S - Z | | | |

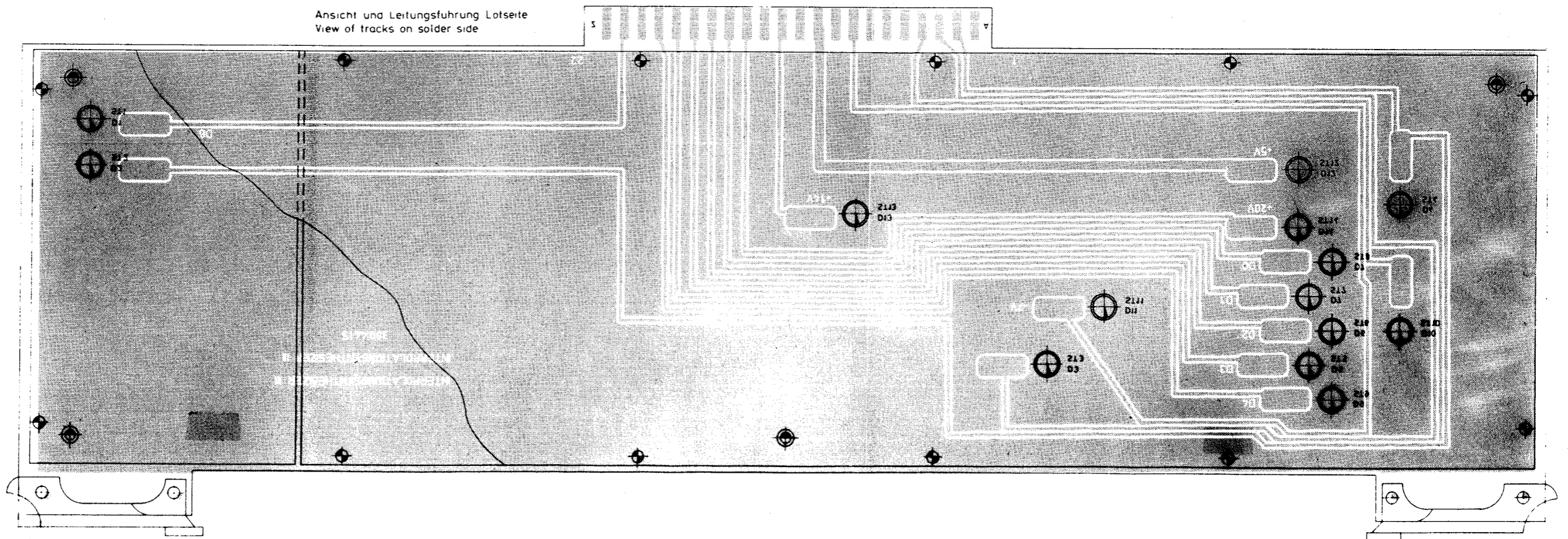
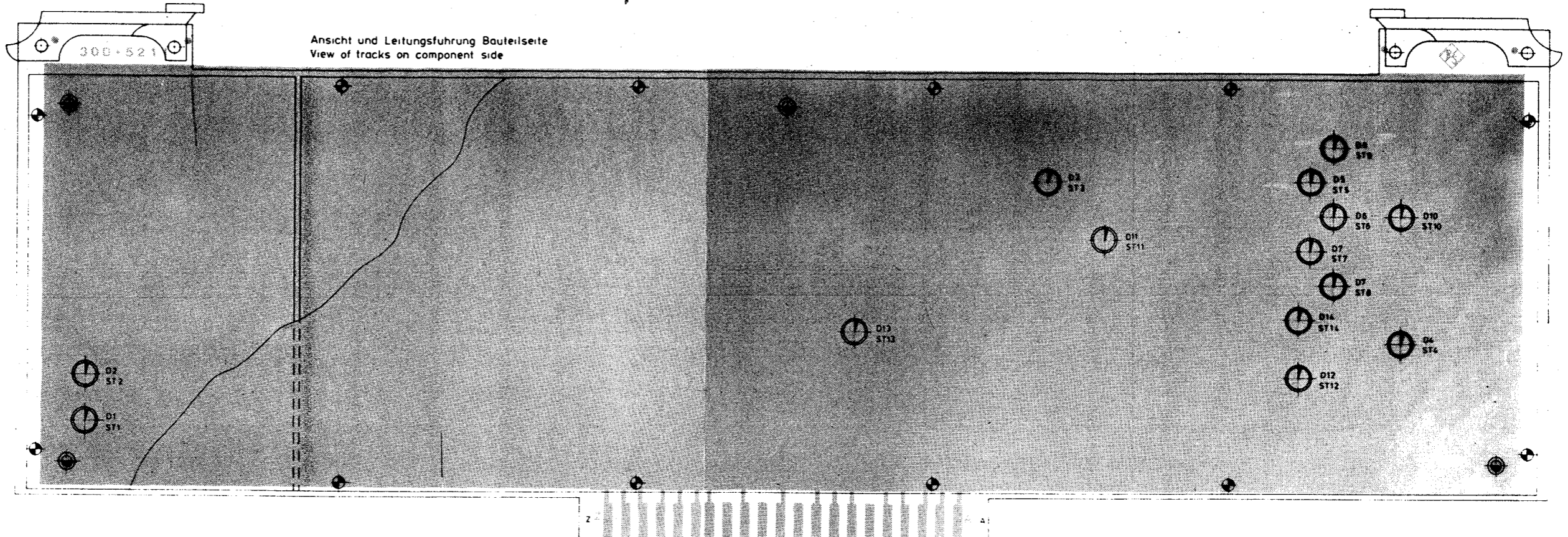
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Ansicht und Leitungsführung Lötseite
View of tracks on solder side

Ansicht und Leitungsführung Bauteilseite
View of tracks on component side



| | | | |
|--------------|-------|---------------------------------|----|
| Versorg.-Nr. | | Vg. Sachnr. | |
| H | 27860 | 10.81 | LS |
| J | 27860 | 11.92 | LS |
| K | 32288 | 11.84 | GS |
| IGMA | | Maßstab 1 : 1 | |
| Kont. 1.9.81 | | Halbzeug: Aervit | |
| Rep. | | Interpolationssynthesizer III Z | |
| Verf. | | Interpolation - synthesizer III | |
| SMPC | | 300.5192 | |
| | | 300.1000V | |
| | | 300.4415 | |
| | | 2 | |



| | | | |
|---------------------------------|-------------|--|---|
| C | 23 7 79, LS | 2 | 1 |
| ZGMMA 23 7 79, LS 7.13 LS | | Zuführung Interpol III Z Feed interpolation synthesizer III | |
| RÖHDE & SCHWARZ SMPC | | 300 5211 300 1000 V 300 6415 | |



ROHDE & SCHWARZ

SERVICE INSTRUCTIONS FOR

SMPC Buffer

300.3219 (Y7)

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Parts list
Circuit diagram
Component parts lists

5.1 Circuit Descriptions

(see circuit diagram 300.3219 S and Fig. 5-1)

The SMPC Buffer operates as a tracking narrow-band filter. It attenuates spurious responses from the frequency synthesizer and defines the noise level of the SMPC near the carrier. Since the SMPC Buffer must also transfer frequency modulated signals, the buffer oscillator has an additional modulator diode with which modulation outside the bandwidth of the phase control loop can be provided. If the deviation is greater than 20 kHz, the oscillator is switched off and the signal is fed, via an amplifier, directly to the output.

5.1.1 Phase Control Loop

The signal from Y6 (Interpol. Synth. III) is divided by 24 in B3 and B4. The output signal from the buffer oscillator is divided in B8 and B9. Phase comparison occurs at 10 MHz in B10. In order to achieve a fast response time, the bandwidth of the control loop can be switched by B12. The switching is done automatically when the phase comparison voltage from B10 moves outside the range of window comparator B14. The retriggerable monostable B15 determines the minimum switching time. A microprocessor-controlled switchover is possible via T26. For large jumps in frequency, a lock-on circuit, comprising B5, B6 and B7, provides charging current for C51 of the phase control loop. B5 is a frequency sensitive phase detector, B6 a window comparator and B7 contains two monostables which, via T19, T20 and T21, feed the charging current in the required direction.

Modulation

For modulating purposes, the SMPC Buffer is fed with a deviation-proportional AF signal from Y2 (FM Stage). Because the deviation slope of the modulation diode of the buffer oscillator varies with centre frequency, a microprocessor-controlled deviation corrector B1 is provided. The optimum working point of the modulation diode GL103 is set with R1, R4 sets the deviation correction and R5 minimizes the difference deviation to the input signal. With large deviations, T1 to T3 provide a negative control voltage which switches on amplifier T15 via T16 and feeds the amplifier input signal to output ST104 via the diode switch GL5 to GL8. At the same time, T4 and T5 switch the buffer oscillator off.

T7 to T11 protect the power supply from interference.

5.2 Checking and Adjusting

5.2.1 Buffer Oscillator 300.5157

5.2.1.1 Checking and Adjusting the Pulling Range (C101, C102)

Connect a frequency counter to ST104. Remove BR11. Connect a DC source of 1 to 17 V to MP11.1. Switch FM off on the SMPC. Check the following nominal values and if necessary adjust with C101 and C102.

| Voltage at MP11.1 | Frequency |
|-------------------|-------------------|
| 1 \pm 0.05 V | 239 \pm 0.4 MHz |
| 17 \pm 0.1 V | 248 \pm 0.4 MHz |

Seal the holes in the subassembly above C101 and C102 with aluminium foil.

5.2.1.2 Checking the Modulation Distortion and Setting the Working Point of the Deviation Diode GL103 (R1)

Use R1 to adjust 5 V at MP17 on the XPC. The following applies to the SMPC only:

Connect a distortion meter (generator) to BU101, a modulation analyzer to ST104 and the distortion meter (analyzer) to the modulation analyzer. The adjustment is simplified if an oscilloscope switched to X-Y operation is connected to BU101 and the monitor output of the distortion meter.

Set the SMPC to 690 MHz carrier frequency, 0.01 kHz modulation frequency and 0.01 kHz deviation. Set the generator of the distortion meter to a modulation frequency of 5 kHz and a deviation of approximately 20 kHz. Measure the distortion of the demodulated signal with a 20-kHz low-pass filter. Repeat the measurement with carrier frequencies of 680 and 699 MHz. The distortion is to be < -55 dB. Adjust for minimum distortion with R1. Typically, the working point voltage measured at MP17 is 10 V.

5.2.1.3 Checking the Deviation Corrector (SMPC only)

Connect a modulation analyzer to ST104. Set the SMPC to 680.7 MHz carrier frequency, 5 kHz modulation frequency and 50 kHz deviation. Measure the deviation at ST104 (18 kHz approx.). Repeat the measurement at the following carrier frequencies: 682, 683.5, 685, 686.4, 687.8, 689.2, 690.6, 692, 693.5, 695, 696.3, 697.7 and 699.1 MHz. The corresponding deviations should not vary from the first value by more than 1.5%.

5.2.1.4 Adjusting the Deviation Corrector (R4) (SMPC only)

Connect a signal generator set to 240 to 247 MHz and 4 dBm to ST105. Set the SMPC to 240 MHz carrier frequency, 5 kHz modulation frequency and 19 kHz deviation. Connect the modulation analyzer to ST104. Adjust for minimum deviation with R4. Feed 240 and then 247 MHz into ST105; measure and record the deviations obtained.

Carry out the following calculations:

H1 = deviation at 247 MHz
H2 = deviation at 240 MHz
R1 = $4280 \times (H1/H2 - 1)$
R2 = $R1 \times 1060 / (1060 - R1)$
F = $2060 / (R2 + 1060)$
H3 = F x H2

H3 is the new deviation to be set with R4 at a frequency of 240 MHz. Finally set the deviation to 19 kHz with R5. Then carry out the deviation adjustments according to 4.3.9.

5.2.2 Buffer Control 300.6018

5.2.2.1 Checking the Synchronization

Connect an oscilloscope to MP18. Vary the SMPC carrier frequency between 680 and 699.9 MHz. The voltage at MP18 must vary with the carrier frequency between 2.7 ± 0.5 V and 15.3 ± 0.5 V.

5.3 Troubleshooting

5.3.1 Nominal DC Voltages

MP1 10.5 \pm 0.5 V
MP2 -3.5 \pm 1 V
MP4 -6.4 \pm 0.3 V
MP5 19.4 \pm 0.3 V

| Test point | Without FM | FM, max. deviation |
|------------|----------------|--------------------|
| MP3 | -3.5 \pm 1 V | 0 -0.3 V |
| MP15 | 0 V | 2.9 \pm 0.3 V |
| MP16 | 5 \pm 0.5 V | -6 \pm 1 V |

5.3.2 Nominal AC Values (CW Operation)

| | | |
|----------------|-----------|----------------|
| K2, terminal 5 | 14 ±3 dBm | 240 to 247 MHz |
| MP6 | TTL level | 10 to 10.3 MHz |
| MP7 | TTL level | 10 to 10.3 MHz |

5.3.3 Lock-aid

Remove BR11. Apply 8 V_{DC} to MP11.1. At the XPC/SMPC, vary the carrier frequency without modulation between 680 and 699.9 MHz. With low frequencies at MP8 and high frequencies at MP9, a TTL pulse train should appear whose frequency is dependent on the amount of detuning. At approximately 690 MHz, the voltage at MP18 should jump from 0 V to 18 V.

5.3.4 Phase Control

Set up as in 5.3.3. When the frequency is varied, a sinusoidal oscillation of approximately 400 mV_{pp} should appear at MP14; its frequency is to be a minimum at approximately 690 MHz.

5.3.5 Control

| Test point | CW | Small deviation FM | Large deviation FM |
|------------|-----------|-----------------------|-----------------------|
| MP3 | -3.5 ±1 V | -3.5 ±1 V | 0 V |
| MP16 | 5 ±0.5 V | 5 ±0.5 V | -7 ±0.5 V |

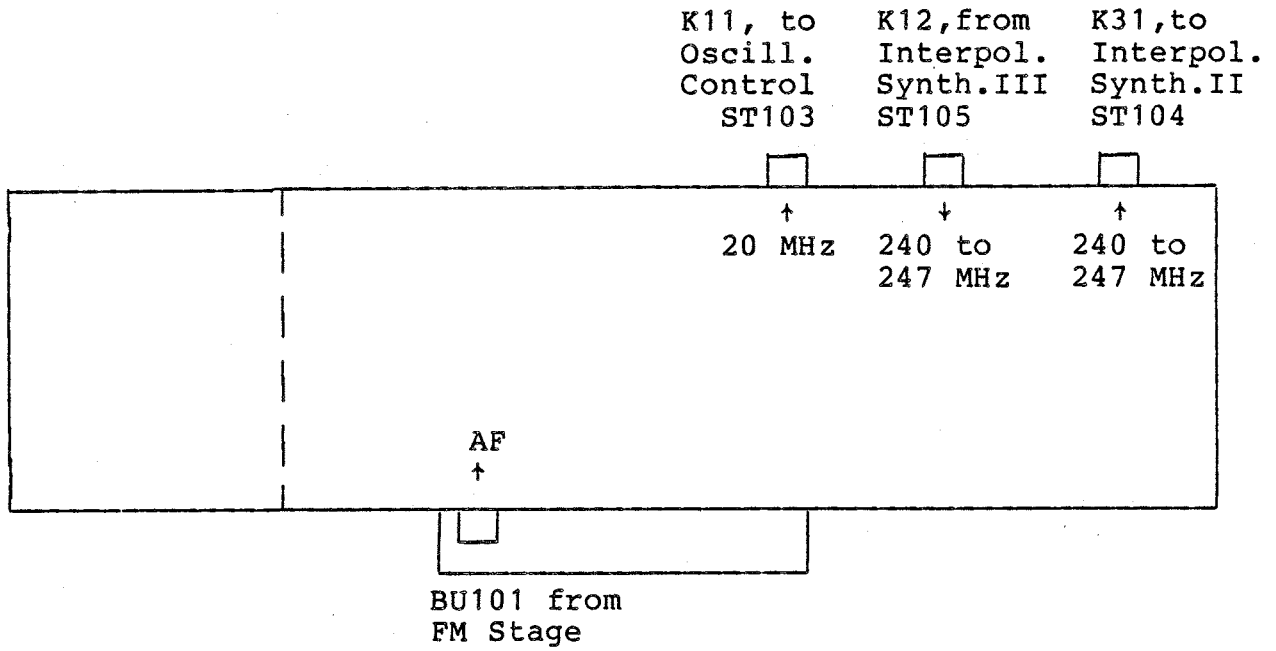
During CW operation, -7 ±0.5 V is present at MP12. When a frequency change occurs, the voltage jumps to 20 ±0.5 V for approximately 3 ms and for FM operation approximately 5 ms.

5.3.6 Oscillator

In the event of excessive microphonic noise or a failure, check L106 and L107. Both inductors must be glued to the PCB and the windings must remain free of glue.

5.4 Interfaces

5.4.1 Analog Interface



| ST/BU | 101 | 103 | 104 | 105 |
|----------------|---------------------------|-------------------------|--------------|---------------|
| f | 0 to 100 kHz | 20MHz | 240...247MHz | 240...247 MHz |
| Level | up to 1.67 V _p | 0.6±0,2 V _{pp} | 8±2 dBm | 4±1 dBm |
| R _i | 1.5kΩ approx. | 50 Ω | 50 Ω | 50 Ω |
| Coupling | DC | AC | DC | DC |
| Shape of curve | | square | | sine |

5.4.2 Digital Interface

1 data word with 6 bits, strobe at ST100.11

| ST 100 | D5 20 | D4 19 | D3 18 | D2 17 | D1 16 | D0 15 |
|--------|----------|------------|---------------------|----------|----------|----------|
| 1 | fast | off | MSB ————— LSB | | | |
| | loop | oscillator | Deviation Corrector | | | |
| 0 | slow | on | | | | |

The deviation corrector is switched in 500-kHz steps dependent on the buffer frequency.

| Buffer frequency MHz | Deviation corrector |
|----------------------|---------------------|
| 240 to < 240.5 | 0 0 0 0 |
| 240.5 to < 241 | 0 0 0 1 |
| 241 to < 241.5 | 0 0 1 0 |
| ⋮ | ⋮ |
| 247 to < 247.5 | 1 1 1 0 |

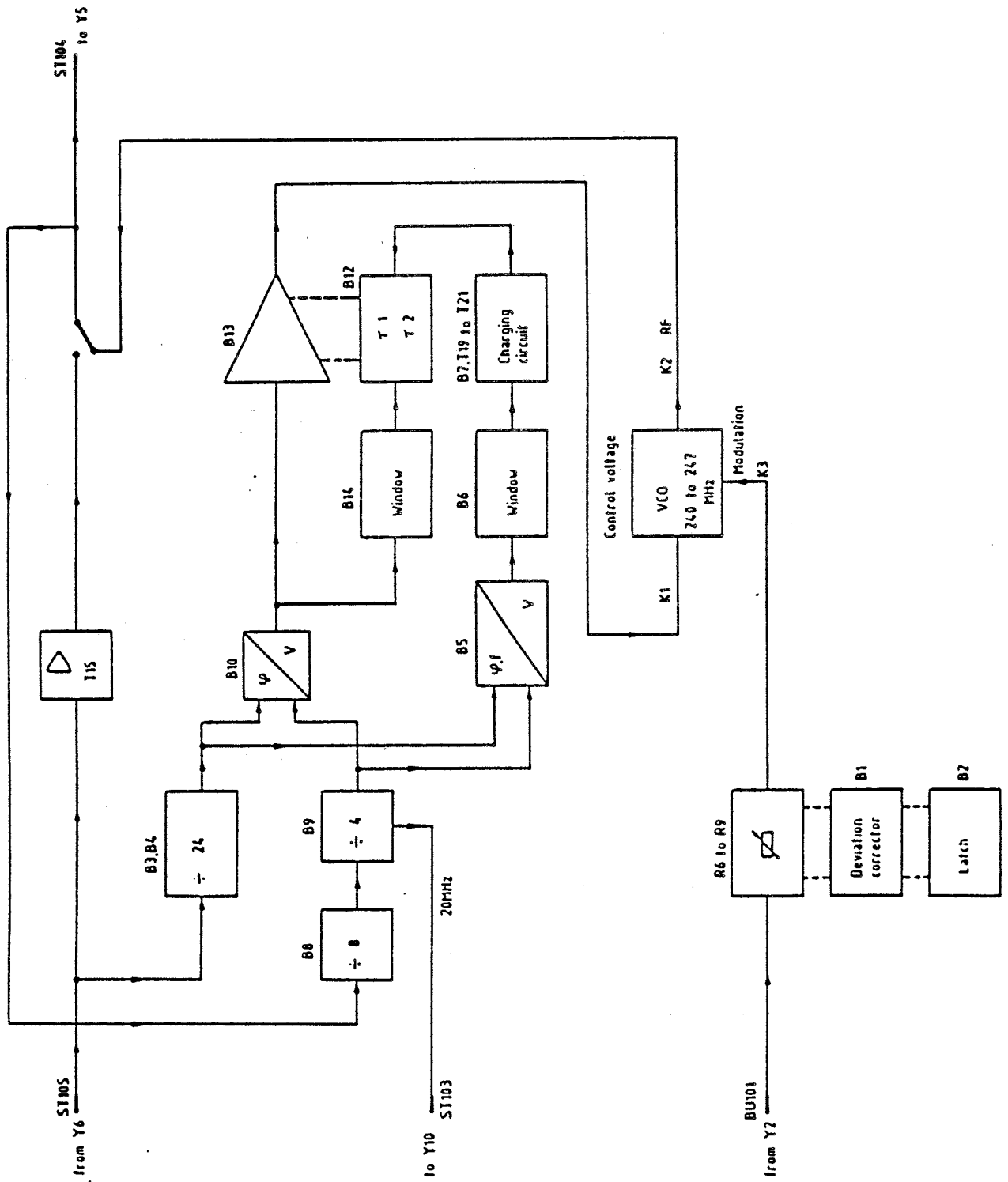


Fig. 5-1 Block diagram of SMPC Buffer



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MÜNCHEN

Schalteillisten
Stromläufe
Bestückungspläne
Parts lists
Circuit diagrams
Components plans

**ROHDE & SCHWARZ**

| | |
|----|---------------|
| ÄZ | Datum Date |
| 30 | 0686 |

| |
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| Schaltteilliste für Parts list for ZE SMPC-PUFFER SMPC-BUFFER |
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| | |
|-------------------------|----------------|
| Sachnummer Stock No. | 300.3219.00 SA |
|-------------------------|----------------|

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| Blatt Page | 1 |
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| Kennzeichen Component No. | Benennung/Beschreibung Designation | Sachnummer Stock No. | enthalten in contained in |
|------------------------------|---|-------------------------|------------------------------|
| B1 | BL CD4066BE 4XANALOGSCH ANALOG SWITCH RCA CD4066BE | BL 290.3906 | 300.6018 |
| B2 | BL SN74LS174N 6/D-FLIPFL. IC FLIP-FLOP SN74LS174N TEXAS SN74LS174N | 266.7970 | 300.6018 |
| B3 | BL SP8741BDG 7:1DIVID UHF DIVIDER PLESSEY SP8741BDG | BL 300.6899 | 300.6018 |
| B4 | BL SN74S74N 2/D-FLIPFLOP IC FLIP-FLOP SN74S74N TEXAS SN74S74N | 266.6621 | 300.6018 |
| B5 | BL MC4344L PHASE-L-L PHASE LOCKED LOOP MOTOROLA MC4344L | BL 475.1266 | 300.6018 |
| B6 | BO TL820CN 2X COMPAR COMPARATOR TEXAS TL820CN | 230.2278 | 300.6018 |
| B7 | BL SN74LS123N 2/MONOFLOP IC MONOFLOP SN74LS85N TEXAS SN74LS123N | 235.8468 | 300.6018 |
| B8 | BL SP8741BDG 7:1DIVID UHF DIVIDER PLESSEY SP8741BDG | BL 300.6899 | 300.6018 |
| B9 | BL SN74S74N 2/D-FLIPFLOP IC FLIP-FLOP SN74S74N TEXAS SN74S74N | 266.6621 | 300.6018 |
| B10 | BM SRA1 MIXER 0.56HZ MIXER MINI-CCTS SRA1 | BM 207.3465 | 300.6018 |
| B11 | BL SN74LS04N 6/INVERTER HEXINVERTER TEXAS SN74LS04N | 266.2010 | 300.6018 |
| B12 | BJ IH401AJE 4X ANALOGSCH ANALOG SWITCH INTERSIL IH401AJE | BJ 334.3870 | 300.6018 |
| B13 | BO LF356BJ BIFET OPAMP OPERATIONAL AMPLIFIER MOTOROLA LF356J | 300.6053 | 300.6018 |
| B14 | BO TL820CN 2X COMPAR COMPARATOR TEXAS TL820CN | 230.2278 | 300.6018 |
| B15 | BL SN74LS122N MONOFLOP IC MONOFLOP SN74LS122N TEXAS SN74LS122N | 303.8957 | 300.6018 |
| B101 | BD DIODEN-OKTETT DIODE-OKTETT DUENNSCHICHT-SPEZ.TEIL SPECIAL THIN-FILM CIRC. | 914.0406 | 300.5157 |
| BR11 | FP KURZSCHLUSSBUCHSE SHORTING PLUG PK 452-70302 | FP 491.7042 | 300.6018 |
| BU1 | FP BUCHSE VERTIKAL P.V.1P SOCKET BERG 75377-001 | FP 278.5577 | 300.6018 |

300.3219.00 SA BL 1+

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ROHDE & SCHWARZ

ÄZ Datum
Date
30 0686

Schaltteilliste für
Parts list for
ZE SMPC-PUFFER
SMPC-BUFFER

Sachnummer
Stock No.
300.3219.00 SA

Blatt
Page
2

| Kennzeichen Component No. | Benennung/Beschreibung Designation | Sachnummer Stock No. | enthalten in contained in |
|------------------------------|---|-------------------------|------------------------------|
| BIS/TO BU7 BU10 | FP BUCHSE VERTIKAL P.V.1P SOCKET BERG 75377-001 | FP 278.5577 | 300.6018 |
| BIS/TO BU15 BU101 | FJ EINBAUBUCHSE SYST.SMS FIXED SOCKET RADIAL R.299 012 | 300.6876 | |
| C1 | CE 10UF -10+50% 63V 9X13 ELECTROLYTIC CAPACITOR ROEDERST ELKOEK10/63 | CE 022.7650 | 300.6018 |
| C2 | CK 220NF+-5%63V5RM MKT CAPACITOR WIMA MKS2/63/0,22UF/5% | CK 099.2952 | 300.6018 |
| R C3 | CE RICHTIGE SNR. 006.7142 ELECTROLYTIC CAPACITOR SIEMENS B41316-B7476-Z | 022.7589 | 300.6018 |
| R C4 | CE RICHTIGE SNR. 006.7142 ELECTROLYTIC CAPACITOR SIEMENS B41316-B7476-Z | 022.7589 | 300.6018 |
| R C5 | CE RICHTIGE SNR. 006.7142 ELECTROLYTIC CAPACITOR ROEDERST ELKO EK47/16 | 022.7543 | 300.6018 |
| C6 | CE 220UF-10+50%6V 8,7X13 ELECTROLYTIC CAPACITOR ROEDERST EK 00 CB 322 B | CE 022.7520 | 300.6018 |
| C7 | CE 220UF-10+50%6V 8,7X13 ELECTROLYTIC CAPACITOR ROEDERST EK 00 CB 322 B | CE 022.7520 | 300.6018 |
| C8 | CE 100UF-10+50% 25V 13X13 ELECTROLYTIC CAPACITOR ROEDERST ELKOEK100/25 | CE 208.4007 | 300.6018 |
| C9 | CE 100UF-10+50% 25V 13X13 ELECTROLYTIC CAPACITOR ROEDERST ELKOEK100/25 | CE 208.4007 | 300.6018 |
| R C10 | CE RICHTIGE SNR. 006.7142 ELECTROLYTIC CAPACITOR SIEMENS B41316-B7476-Z | 022.7589 | 300.6018 |
| C11 | CC 47NF+-10%50V5K1200VIEL CAPACITOR UNION CARB CK05BX473K | CC 082.7810 | 300.6018 |
| C12 | CC 12PF+-2%3X4NPO CAPACITOR VALVO 2222 678 10129 | CC 087.6435 | 300.6018 |
| C13 | CC 8,2PF+-0,25PF3X4NPO CAPACITOR VALVO 2222 678 09828 | CC 087.6412 | 300.6018 |
| C14 | CC 15PF+-2%3X4NPO CAPACITOR VALVO 2222 678 10159 | CC 087.6441 | 300.6018 |
| C15 | CC 1NF+-10%63V K2000 CERAMIC CAPACITOR VALVO 2222 63051 102 | CC 022.0784 | 300.6018 |

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| Kennzeichen Component No. | Benennung/Beschreibung Designation | Sachnummer Stock No. | enthalten in contained in |
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| C16 | CC 1NF+-10%63V K2000 CERAMIC CAPACITOR VALVO 2222 63051 102 | CC 022.0784 | 300.6018 |
| C17 | CC 1NF+-10%63V K2000 CERAMIC CAPACITOR VALVO 2222 63051 102 | CC 022.0784 | 300.6018 |
| C18 | CC 1NF+-10%63V K2000 CERAMIC CAPACITOR VALVO 2222 63051 102 | CC 022.0784 | 300.6018 |
| C19 | CC 10NF-20+50%7X8R6000 CAPACITOR VALVO 2222 63051 64051103 | CC 087.7525 | 300.6018 |
| C20 | CC 10NF-20+50%7X8R6000 CAPACITOR VALVO 2222 63051 64051103 | CC 087.7525 | 300.6018 |
| C21 | CE 100UF-10+50% 16V 9X13 ELECTROLYTIC CAPACITOR ROEDERST EK 00CB 310 D | CE 006.7165 | 300.6018 |
| C22 | CE 100UF-10+50% 16V 9X13 ELECTROLYTIC CAPACITOR ROEDERST EK 00CB 310 D | CE 006.7165 | 300.6018 |
| C25 | CC 1NF+-10%63V K2000 CERAMIC CAPACITOR VALVO 2222 63051 102 | CC 022.0784 | 300.6018 |
| C26 | CC 100NF+-10%50V5K1200VIE CAPACITOR UNION CARB CK05BX104K | CC 084.5350 | 300.6018 |
| C27 | CC 1NF+-10%63V K2000 CERAMIC CAPACITOR VALVO 2222 63051 102 | CC 022.0784 | 300.6018 |
| C28 | CC 1NF+-10%63V K2000 CERAMIC CAPACITOR VALVO 2222 63051 102 | CC 022.0784 | 300.6018 |
| C29 | CC 1NF+-10%63V K2000 CERAMIC CAPACITOR VALVO 2222 63051 102 | CC 022.0784 | 300.6018 |
| C30 | CC 100NF+-10%50V5K1200VIE CAPACITOR UNION CARB CK05BX104K | CC 084.5350 | 300.6018 |
| C31 | CC 1NF+-10%63V K2000 CERAMIC CAPACITOR VALVO 2222 63051 102 | CC 022.0784 | 300.6018 |
| C32 | CC 1NF+-10%63V K2000 CERAMIC CAPACITOR VALVO 2222 63051 102 | CC 022.0784 | 300.6018 |
| C33 | CC 100NF+-10%50V5K1200VIE CAPACITOR UNION CARB CK05BX104K | CC 084.5350 | 300.6018 |
| C34 | CC 100NF+-10%50V5K1200VIE CAPACITOR UNION CARB CK05BX104K | CC 084.5350 | 300.6018 |
| C35 | CC 10NF-20+50%7X8R6000 CAPACITOR VALVO 2222 63051 64051103 | CC 087.7525 | 300.6018 |
| C36 | CC 100NF+-10%50V5K1200VIE CAPACITOR UNION CARB CK05BX104K | CC 084.5350 | 300.6018 |

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| C37 | CC 100PF+-2%6X9NP0 CAPACITOR VALVO 2222 678 10101 | CC 087.6541 | 300.6018 | | |
| C38 | CC 100PF+-2%6X9NPG CAPACITOR VALVO 2222 678 10101 | CC 087.6541 | 300.6018 | | |
| C39 | CC 100PF+-2%6X9NP0 CAPACITOR VALVO 2222 678 10101 | CC 087.6541 | 300.6018 | | |
| C40 | CC 100PF+-2%6X9NP0 CAPACITOR VALVO 2222 678 10101 | CC 087.6541 | 300.6018 | | |
| C41 | CC 1NF+-10%63V K2000 CERAMIC CAPACITOR VALVO 2222 63051 102 | CC 022.0784 | 300.6018 | | |
| C42 | CC 1NF+-10%63V K2000 CERAMIC CAPACITOR VALVO 2222 63051 102 | CC 022.0784 | 300.6018 | | |
| C43 | CC 270PF+-2%6X9N750 CAPACITOR DRALORIC EDPU6X9/270/2%N750 | CC 087.6958 | 300.6018 | | |
| C44 | CC 270PF+-2%6X9N750 CAPACITOR DRALORIC EDPU6X9/270/2%N750 | CC 087.6958 | 300.6018 | | |
| C45 | CC 10NF-20+50%7X8R6000 CAPACITOR VALVO 2222 63051 64051103 | CC 087.7525 | 300.6018 | | |
| C46 | CC 470PF+-10%3X4R2000 CAPACITOR VALVO 2222 63051 471 | CC 087.6993 | 300.6018 | | |
| C47 | CC 4,7NF+-10%6X9R2000 CAPACITOR VALVO 2222 63051 472 | CC 087.7102 | 300.6018 | | |
| C48 | CC 4,7NF+-10%6X9R2000 CAPACITOR VALVO 2222 63051 472 | CC 087.7102 | 300.6018 | | |
| C49 | CC 10NF-20+50%7X8R6000 CAPACITOR VALVO 2222 63051 64051103 | CC 087.7525 | 300.6018 | | |
| C50 | CC 10NF-20+50%7X8R6000 CAPACITOR VALVO 2222 63051 64051103 | CC 087.7525 | 300.6018 | | |
| C51 | CK 470NF+-5%63V RD18X34KS CAPACITOR SCHUEMANN CKS470000/5/63/40 | 024.4335 | 300.6018 | | |
| C52 | CC 10NF-20+50%7X8R6000 CAPACITOR VALVO 2222 63051 64051103 | CC 087.7525 | 300.6018 | | |
| C53 | CC 10NF-20+50%7X8R6000 CAPACITOR VALVO 2222 63051 64051103 | CC 087.7525 | 300.6018 | | |
| C54 | CK 1UF+-10%50V5RM MKT CAPACITOR WIMA MKS2/50/1UF/10% | CK 099.2998 | 300.6018 | | |
| C55 | CK 470NF+-5%63V RD18X34KS CAPACITOR SCHUEMANN CKS470000/5/63/40 | 024.4335 | 300.6018 | | |
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| Kennzeichen Component No. | Benennung/Beschreibung Designation | Sachnummer Stock No. | enthalten in contained in |
|------------------------------|--|-------------------------|------------------------------|
| C56 | CK 22NF+-5%63V5RM MKT CAPACITOR | CK 099.2881 | 300.6018 |
| C57 | WIMA MKS2/63/0,022UF/5% CK 22NF+-5%63V5RM MKT CAPACITOR | CK 099.2881 | 300.6018 |
| C60 | WIMA MKS2/63/0,022UF/5% CC 10NF-20+50%7X8R6000 CAPACITOR | CC 087.7525 | 300.6018 |
| C101 | VALVO 2222 63051 64051103 CT 9,2 PF TAUCHTR.RD7X14 AIR-TYPE TRIMMER | CT 037.7980 | 300.5157 |
| C102 | TEKELEC AT A070 CT 9,2 PF TAUCHTR.RD7X14 AIR-TYPE TRIMMER | CT 037.7980 | 300.5157 |
| C103 | TEKELEC AT A070 CC 1,0PF+-0,25PF5P100 CAPACITOR | 450.6841 | 300.5157 |
| C104 | VALVO 2222 654 03108 CC 18PF 5% N750/IB RD5 CERAMIC CAPACITOR | 006.0354 | 300.5157 |
| C105 | VALVO 2222 654 58189 CC 10PF+-0,5PF5N750 CERAMIC CAPACITOR | 006.0325 | 300.5157 |
| C106 | VALVO 2222 654 58109 CC 1NF+-10%63V K2000 CERAMIC CAPACITOR | CC 022.0784 | 300.5157 |
| C107 | VALVO 2222 63051 102 CC 1NF+-10%63V K2000 CERAMIC CAPACITOR | CC 022.0784 | 300.5157 |
| C108 | VALVO 2222 63051 102 CC 1NF+80-20%R4000 TRAP CERAMIC CAPACITOR | CC 086.7515 | 300.5157 |
| C109 | DRALORIC TRE7LOE1000/2080%R40 CC 1NF+80-20%R4000 TRAP CERAMIC CAPACITOR | CC 086.7515 | 300.5157 |
| C110 | DRALORIC TRE7LOE1000/2080%R40 CC 1NF+80-20%R4000 TRAP CERAMIC CAPACITOR | CC 086.7515 | 300.5157 |
| C111 | DRALORIC TRE7LOE1000/2080%R40 CB 1NF-20+50%HDK2000 DF-K FEED-THROUGH CAPACITOR | CB 023.0020 | |
| C112 | DRALORIC 1000PFR2000N.ZEICHN. CB 1NF-20+50%HDK2000 DF-K FEED-THROUGH CAPACITOR | CB 023.0020 | |
| C113 | DRALORIC 1000PFR2000N.ZEICHN. CB 1NF-20+50%HDK2000 DF-K FEED-THROUGH CAPACITOR | CB 023.0020 | |
| C114 | DRALORIC 1000PFR2000N.ZEICHN. CC 0,5PF+-0,25PF5P100 CAPACITOR | 006.0019 | 300.5157 |
| C115 | VALVO 2222 654 03477 CC 100PF+-2%6X9NFO CAPACITOR | CC 087.6541 | 300.5157 |
| D1 | VALVO 2222 678 10101 LD 35DB/200M-10GHZ PI-FIL CHOKE | LD 300.6818 | 300.5170 |
| | ERIE 1214-038 | | |

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| Kennzeichen Component No. | Benennung/Beschreibung Designation | Sachnummer Stock No. | enthalten in contained in |
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| BIS/TO D7 D10 | LD 35DB/200M-10GHZ PI-FIL CHOKE ERIE 1214-038 | LD 300.6818 | 300.5170 |
| BIS/TO D15 | | | |
| GL1 | AD 1N4448 75V 0,15A UDI DIODE VALVO 1N4448 | AD 012.0700 | 300.6018 |
| GL5 | AE BA379 25V PINDI DIODE BA379 SIEMENS BA379 | 244.7031 | 300.6018 |
| GL6 | AE BA379 25V PINDI DIODE BA379 SIEMENS BA379 | 244.7031 | 300.6018 |
| GL7 | AE BA379 25V PINDI DIODE BA379 SIEMENS BA379 | 244.7031 | 300.6018 |
| GL8 | AE BA379 25V PINDI DIODE BA379 SIEMENS BA379 | 244.7031 | 300.6018 |
| GL10 | AE 5082-2800 SCHOTTKYDI DIODE HEWLETT-P. 5082-2800 | AE 012.9066 | 300.6018 |
| GL11 | AE 5082-2800 SCHOTTKYDI DIODE HEWLETT-P. 5082-2800 | AE 012.9066 | 300.6018 |
| GL12 | AD BAV21 250V 0,25A UDI DIODE INTERMETAL BAV21 | AD 082.6837 | 300.6018 |
| GL102 | AE 5082-2800 SCHOTTKYDI DIODE HEWLETT-P. 5082-2800 | AE 012.9066 | 300.5157 |
| GL103 | AE BB909B 25/ 3PF CDI TUNING DIODE VALVO BB909B | AE 092.9600 | 300.5157 |
| K1 | DX HF-KABEL/RF-CABLE | 356.0280 | |
| K2 | DX HF-KABEL RF CABLE | 356.1686 | |
| K3 | DX HF-KABEL/RF-CABLE | 300.3502 | |
| L1 | LD 0,047 UH 10% CHOKE INDUSTRIA BAUREIHE1025,0,047 | 249.5995 | 300.6018 |
| L2 | LD 1,00UH10%1,00OHMO,390A CHOKE DELEVAN 1025-20 | LD 067.2863 | 300.6018 |
| L3 | LD 1,00UH10%1,00OHMO,390A CHOKE DELEVAN 1025-20 | LD 067.2863 | 300.6018 |
| L4 | LD 1,50UH10%0,22OHMO,560A CHOKE DELEVAN DROSSEL 1025-24 | LD 067.2886 | 300.6018 |
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| L5 | LD 47,0UH10%4,500HMO,110A CHOKE | LD 067.3060 | 300.6018 |
| L6 | DELEVAN DROSSEL1025-60 LD 4,70UH10%1,200HMO,239A CHOKE | LD 067.2940 | 300.6018 |
| L7 | DELEVAN DROSSEL1025-36 LD 220 UH10%21,00HMO,052A CHOKE | LD 067.3147 | 300.6018 |
| L8 | DELEVAN DROSSEL1025-76 LD 220 UH10%21,00HMO,052A CHOKE | LD 067.3147 | 300.6018 |
| L9 | DELEVAN DROSSEL1025-76 LD 1,50UH10%0,220HMO,560A CHOKE | LD 067.2886 | 300.6018 |
| L10 | DELEVAN DROSSEL 1025-24 LD 4,70UH10%1,200HMO,239A CHOKE | LD 067.2940 | 300.6018 |
| L11 | DELEVAN DROSSEL1025-36 LD 0,82UH10%0,850HMO,420A CHOKE | LD 067.2857 | 300.6018 |
| L12 | DELEVAN DROSSEL1025-18 LD 18,0UH10%3,100HMO,149A CHOKE | LD 067.3018 | 300.6018 |
| L13 | DELEVAN DROSSEL1025-50 LD 18,0UH10%3,100HMO,149A CHOKE | LD 067.3018 | 300.6018 |
| L14 | DELEVAN DROSSEL1025-50 LD 180 UH10%17,00HMO,057A CHOKE | LD 067.3130 | 300.6018 |
| L15 | DELEVAN DROSSEL1025-74 LD 1,00UH10%1,000HMO,390A CHOKE | LD 067.2863 | 300.6018 |
| L16 | DELEVAN 1025-20 LD 10,0UH10%3,300HMO,144A CHOKE | LD 026.4184 | 300.6018 |
| L101 | DELEVAN DROSSEL1025-44 ZM SCHWINGKREIS COIL | 300.3425 | 300.5157 |
| L102 | LD 0,33UH10%0,220HMO,830A CHOKE | LD 067.2805 | 300.5157 |
| L103 | DELEVAN DROSSEL1025--08 LD 0,33UH10%0,220HMO,830A CHOKE | LD 067.2805 | 300.5157 |
| L104 | DELEVAN DROSSEL1025--08 LD 1,00UH10%1,000HMO,390A CHOKE | LD 067.2863 | 300.5157 |
| L105 | DELEVAN 1025-20 LD 1,00UH10%1,000HMO,390A CHOKE | LD 067.2863 | 300.5157 |
| L106 | LD SPULE COIL | 300.3454 | 300.5157 |
| L107 | LD SPULE COIL | 300.3483 | 300.5157 |
| L108 | LD 0,82UH10%0,850HMO,420A CHOKE | LD 067.2857 | 300.5157 |
| | DELEVAN DROSSEL1025-18 | | |

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| MP1 BIS/TO MP9 | VL WIRE-WRAP PIN BERG NR. 75 403-001 | VL 088.4507 | 300.6018 |
| MP11 | FP INDIREKT.STECKERL.36P. PIN CONNECTOR BERG 75160-102-36 | FP 242.3600 | 300.6018 |
| MP12 | VL WIRE-WRAP PIN BERG NR. 75 403-001 | VL 088.4507 | 300.6018 |
| MP13 | VL WIRE-WRAP PIN BERG NR. 75 403-001 | VL 088.4507 | 300.6018 |
| MP14 | VL DURCHF. 9 X 3,8X 3,2 FEED TROUGH KLAR&BEILS TFD 5 0.705 | VL 016.1824 | |
| MP15 BIS/TO MP18 | VL WIRE-WRAP PIN BERG NR. 75 403-001 | VL 088.4507 | 300.6018 |
| R1 | RS 0,75W50KOHM+-10% CERMET DEPOS.-CARBON POTENTIOMET BOURNS 3006P-1-50 KOHM+-10% | RS 037.7421 | 300.6018 |
| R2 | RL 0,35W 100KOHM+-1% TK50 RESISTOR DRALORIC SMA0207/100K-F-C | RL 082.1764 | 300.6018 |
| R3 | RL 0,35W 10,0KOHM+-1% TK50 RESISTOR DRALORIC SMA0207/10K-F-D | RL 083.1297 | 300.6018 |
| R4 | RS 0,5W1KOHM+-10% 10X10X5 CERMET POTENTIOMETER T BOURNS 3386F-1-102 | RS 087.7560 | 300.6018 |
| R5 | RS 0,75W500OHM+-10% CERMET DEPOS.-CARBON POTENTIOMET BOURNS 3006P-1-500 OHM+-10% | RS 037.7350 | 300.6018 |
| R6 | RL 0,35W 68,1KOHM+-1% TK50 RESISTOR DRALORIC SMA 0207/68,1K-F-C | RL 082.2602 | 300.6018 |
| R7 | RL 0,35W 33,2KOHM+-1% TK50 RESISTOR DRALORIC SMA 0207/33,2K-F-C | RL 083.1674 | 300.6018 |
| R8 | RL 0,35W 15,0KOHM+-1% TK50 RESISTOR DRALORIC SMA0207/15K-F-D | RL 083.1400 | 300.6018 |
| R9 | RL 0,35W 8,25KOHM+-1% TK50 RESISTOR DRALORIC SMA0207/8,25K-F-D | RL 083.1239 | 300.6018 |
| R10 | RL 0,35W 562 OHM+-1% TK50 RESISTOR DRALORIC SMA0207/562OHM-F-D | RL 083.0461 | 300.6018 |
| R11 | RL 0,35W 5,62KOHM+-1% TK50 RESISTOR DRALORIC SMA0207/5,62K-F-C | RL 082.2190 | 300.6018 |
| R12 | RL 0,35W 5,62KOHM+-1% TK50 RESISTOR DRALORIC SMA0207/5,62K-F-C | RL 082.2190 | 300.6018 |

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| R13 | RL 0,35W 5,62KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/5,62K-F-C | RL 082.2190 | 300.6018 |
| R14 | RL 0,35W 5,62KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/5,62K-F-C | RL 082.2190 | 300.6018 |
| R19 | RL 0,35W 681 OHM+-1%TK50 RESISTOR DRALORIC SMA0207/681OHM-F-D | RL 083.0490 | 300.6018 |
| R20 | RL 0,35W 10,0KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/10K-F-D | RL 083.1297 | 300.6018 |
| R21 | RL 0,35W 4,75KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/4,75K-F-D | RL 083.1097 | 300.6018 |
| R22 | RL 0,35W 4,75KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/4,75K-F-D | RL 083.1097 | 300.6018 |
| R23 | RL 0,35W 1,50KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/1,50K-F-D | RL 083.0732 | 300.6018 |
| R24 | RL 0,35W 82,5KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/82,5K-F-C | RL 082.2302 | 300.6018 |
| R25 | RL 0,35W 2,74KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/2,74K-F-D | RL 083.0926 | 300.6018 |
| R26 | RL 0,35W 2,74KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/2,74K-F-D | RL 083.0926 | 300.6018 |
| R27 | RL 0,35W 681 OHM+-1%TK50 RESISTOR DRALORIC SMA0207/681OHM-F-D | RL 083.0490 | 300.6018 |
| R28 | RL 0,35W 3,32KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/3,32K-F-D | RL 083.0990 | 300.6018 |
| R29 | RL 0,35W 10,0 OHM+-1%TK50 RESISTOR DRALORIC SMA0207/10OHM-F-D | RL 082.8852 | 300.6018 |
| R30 | RL 0,35W 3,32KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/3,32K-F-D | RL 083.0990 | 300.6018 |
| R31 | RL 0,35W 3,32KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/3,32K-F-D | RL 083.0990 | 300.6018 |
| R32 | RL 0,35W 68,1 OHM+-1%TK50 RESISTOR DRALORIC SMA0207/68,1OHM-F-D | RL 082.9636 | 300.6018 |
| R33 | RL 0,35W 68,1 OHM+-1%TK50 RESISTOR DRALORIC SMA0207/68,1OHM-F-D | RL 082.9636 | 300.6018 |
| R34 | RL 0,35W 4,75KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/4,75K-F-D | RL 083.1097 | 300.6018 |
| R35 | RL 0,35W 27,4KOHM+-1%TK50 RESISTOR DRALORIC SMA 0207/27,4K-F-C | RL 082.2583 | 300.6018 |

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| R36 | RL 0,35W 2,74KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/2,74K-F-D | RL 083.0926 | 300.6018 |
| R37 | RL 0,35W 82,5 OHM+-1%TK50 RESISTOR DRALORIC SMA0207/82,5OHM-F-D | RL 082.9707 | 300.6018 |
| R38 | RL 0,35W 2,21KOHM+-1%TK50 RESISTOR DRALORIC SMA 0207/2,21K-F-C | RL 082.2477 | 300.6018 |
| R45 | RL 0,35W 100 OHM+-1%TK50 DEPOS.-CARBON RESISTOR DRALORIC SMA0207/100/HM-F-D | RL 082.6543 | 300.6018 |
| R46 | RL 0,35W 1KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/1K-F-C | RL 082.2160 | 300.6018 |
| R47 | RL 0,35W 1,50KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/1,50K-F-D | RL 083.0732 | 300.6018 |
| R48 | RL 0,35W 1,21KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/1,21K-F-D | RL 083.0655 | 300.6018 |
| R49 | RL 0,35W 1,21KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/1,21K-F-D | RL 083.0655 | 300.6018 |
| R50 | RL 0,35W 274 OHM+-1%TK50 RESISTOR DRALORIC SMA0207/274OHM-F-D | RL 083.0178 | 300.6018 |
| R51 | RL 0,35W 47,5 OHM+-1%TK50 RESISTOR DRALORIC SMA0207/47,5OHM-F-D | RL 082.9507 | 300.6018 |
| R52 | RL 0,35W 4,75KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/4,75K-F-D | RL 083.1097 | 300.6018 |
| R53 | RL 0,35W 3,92KOHM+-1%TK50 RESISTOR RESISTA MK2 | RL 083.1039 | 300.6018 |
| R54 | RL 0,35W 33,2 OHM+-1%TK50 RESISTOR DRALORIC SMA0207/33,2OHM-F-D | RL 082.9359 | 300.6018 |
| R58 | RL 0,21W 470 OHM2% UNGEW. RESISTOR RESISTA MK1 470OHM 2% UNGEW. | RL 092.6030 | 300.6018 |
| R59 | RL 0,35W 475 OHM+-1%TK50 RESISTOR DRALORIC SMA0207/475OHM-F-D | RL 083.0390 | 300.6018 |
| R60 | RL 0,21W 470 OHM2% UNGEW. RESISTOR RESISTA MK1 470OHM 2% UNGEW. | RL 092.6030 | 300.6018 |
| R61 | RL 0,35W 475 OHM+-1%TK50 RESISTOR DRALORIC SMA0207/475OHM-F-D | RL 083.0390 | 300.6018 |
| R62 | RL 0,21W 220 OHM2% UNGEW. RESISTOR RESISTA MK1 220OHM 2% UNGEW. | RL 092.5991 | 300.6018 |
| R63 | RL 0,21W 22 OHM2% UNGEW. RESISTOR RESISTA MK1 22OHM 2% UNGEW. | RL 092.5879 | 300.6018 |

300.3219.00 SA BL10+



ROHDE & SCHWARZ

ÄZ Datum
Date
30 0686

Schaltteilliste für
Parts list for
ZE SMPC-PUFFER
SMPC-BUFFER

Sachnummer
Stock No.
300.3219.00 SA

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| Kennzeichen Component No. | Benennung/Beschreibung Designation | Sachnummer Stock No. | enthalten in contained in |
|------------------------------|---|-------------------------|------------------------------|
| R64 | RL 0,21W 220 OHM2% UNGEW. RESISTOR RESISTA MK1 220OHM 2% UNGEW. | RL 092.5991 | 300.6018 |
| R65 | RL 0,35W 475 OHM+-1%TK50 RESISTOR DRALORIC SMA0207/475OHM-F-D | RL 083.0390 | 300.6018 |
| R68 | RL 0,35W 681 OHM+-1%TK50 RESISTOR DRALORIC SMA0207/681OHM-F-D | RL 083.0490 | 300.6018 |
| R69 | RL 0,35W 681 OHM+-1%TK50 RESISTOR DRALORIC SMA0207/681OHM-F-D | RL 083.0490 | 300.6018 |
| R70 | RL 0,21W 47 OHM2% UNGEW. RESISTOR RESISTA MK1 47OHM 2% UNGEW. | RL 092.5910 | 300.6018 |
| R71 | RL 0,21W 100 OHM2% UNGEW. RESISTOR RESISTA MK1 100OHM 2% UNGEW. | RL 092.5956 | 300.6018 |
| R72 | RL 0,21W 82 OHM2% UNGEW. RESISTOR RESISTA MK1 82OHM 2% UNGEW. | RL 092.5940 | 300.6018 |
| R73 | RL 0,21W 180 OHM2% UNGEW. RESISTOR RESISTA MK1 180OHM 2% UNGEW. | RL 092.5985 | 300.6018 |
| R74 | RL 0,35W 47,5 OHM+-1%TK50 RESISTOR DRALORIC SMA0207/47,5OHM-F-D | RL 082.9507 | 300.6018 |
| R75 | RL 0,35W 100 OHM+-1%TK50 DEPOS.-CARBON RESISTOR DRALORIC SMA0207/100/HM-F-D | RL 082.6543 | 300.6018 |
| R76 | RL 0,35W 47,5 OHM+-1%TK50 RESISTOR DRALORIC SMA0207/47,5OHM-F-D | RL 082.9507 | 300.6018 |
| R77 | RL 0,35W 100 OHM+-1%TK50 DEPOS.-CARBON RESISTOR DRALORIC SMA0207/100/HM-F-D | RL 082.6543 | 300.6018 |
| R78 | RL 0,21W 220 OHM2% UNGEW. RESISTOR RESISTA MK1 220OHM 2% UNGEW. | RL 092.5991 | 300.6018 |
| R79 | RL 0,21W 68 OHM2% UNGEW. RESISTOR RESISTA MK1 68OHM 2% UNGEW. | RL 092.5933 | 300.6018 |
| R80 | RL 0,35W 1KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/1K-F-C | RL 082.2160 | 300.6018 |
| R81 | RL 0,35W 1KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/1K-F-C | RL 082.2160 | 300.6018 |
| R82 | RL 0,35W 1KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/1K-F-C | RL 082.2160 | 300.6018 |
| R83 | RL 0,35W 1KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/1K-F-C | RL 082.2160 | 300.6018 |
| R84 | RL 0,21W 56 OHM2% UNGEW. RESISTOR RESISTA MK1 56OHM 2% UNGEW. | RL 092.5927 | 300.6018 |

300.3219.00 SA BL11+

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AZ Datum
Date
30 0686

Schaltteilliste für
Parts list for
ZE SMPC-PUFFER
SMPC-BUFFER

Sachnummer
Stock No.
300.3219.00 SA

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| Kennzeichen Component No. | Benennung/Beschreibung Designation | Sachnummer Stock No. | enthalten in contained in |
|------------------------------|---|-------------------------|------------------------------|
| R85 | RL 0,21W 100 OHM2% UNGEW. RESISTOR RESISTA MK1 100OHM 2% UNGEW. | RL 092.5956 | 300.6018 |
| R86 | RL 0,21W 22 OHM2% UNGEW. RESISTOR RESISTA MK1 220HM 2% UNGEW. | RL 092.5879 | 300.6018 |
| R87 | RL 0,35W 3,32KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/3,32K-F-D | RL 083.0990 | 300.6018 |
| R88 | RL 0,35W 1,50KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/1,50K-F-D | RL 083.0732 | 300.6018 |
| R89 | RL 0,35W 10,0KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/10K-F-D | RL 083.1297 | 300.6018 |
| R90 | RL 0,35W 10,0KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/10K-F-D | RL 083.1297 | 300.6018 |
| R91 | RL 0,35W 6,81KOHM+-1%TK50 RESISTOR DRALORIC SMA 0207/6,81K-F-C | RL 082.2560 | 300.6018 |
| R92 | RL 0,35W 121KOHM+-1%TK50 RESISTOR DRALORIC SMA/207/121K-F-C | RL 083.2070 | 300.6018 |
| R93 | RL 0,35W 121KOHM+-1%TK50 RESISTOR DRALORIC SMA/207/121K-F-C | RL 083.2070 | 300.6018 |
| R94 | RL 0,35W 1KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/1K-F-C | RL 082.2160 | 300.6018 |
| R95 | RL 0,35W 681 OHM+-1%TK50 RESISTOR DRALORIC SMA0207/681OHM-F-D | RL 083.0490 | 300.6018 |
| R96 | RL 0,35W 1,82KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/1,82K-F-C | RL 082.2277 | 300.6018 |
| R97 | RL 0,35W 1,50KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/1,50K-F-D | RL 083.0732 | 300.6018 |
| R98 | RL 0,35W 1KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/1K-F-C | RL 082.2160 | 300.6018 |
| R99 | RL 0,35W 1KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/1K-F-C | RL 082.2160 | 300.6018 |
| R101 | RL 0,35W 221 OHM+-1%TK50 RESISTOR DRALORIC SMA0207/221OHM-F-D | RL 083.0084 | 300.5157 |
| R102 | RL 0,35W 221 OHM+-1%TK50 RESISTOR DRALORIC SMA0207/221OHM-F-D | RL 083.0084 | 300.5157 |
| R200 | RL 0,35W 121 OHM+-1%TK50 RESISTOR DRALORIC SMA0207/121OHM-F-D | RL 082.9859 | 300.6018 |
| R201 | RL 0,35W 182 OHM+-1%TK50 RESISTOR DRALORIC SMA0207/182OHM-F-D | RL 083.0010 | 300.6018 |

300.3219.00 SA BL12+

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SMPC-BUFFERSachnummer
Stock No.Blatt
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30 0686

300.3219.00 SA

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| Kennzeichen Component No. | Benennung/Beschreibung Designation | Sachnummer Stock No. | enthalten in contained in |
|------------------------------|---|-------------------------|------------------------------|
| R202 | RL 0,35W 68,1 OHM+-1%TK50 RESISTOR DRALORIC SMA0207/68,1OHM-F-D | RL 082.9636 | 300.6018 |
| R203 | RL 0,35W 100KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/100K-F-C | RL 082.1764 | 300.6018 |
| R204 | RL 0,35W 4,75KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/4,75K-F-D | RL 083.1097 | 300.6018 |
| R205 | RL 0,35W 100 OHM+-1%TK50 DEPOS.-CARBON RESISTOR DRALORIC SMA0207/100/HM-F-D | RL 082.6543 | 300.6018 |
| R206 | RL 0,35W 22,10 OHM+-1%TK50 RESISTOR DRALORIC SMA0207/22,1OHM-F-D | RL 082.9188 | 300.6018 |
| R207 | RL 0,35W 475 OHM+-1%TK50 RESISTOR DRALORIC SMA0207/475OHM-F-D | RL 083.0390 | 300.6018 |
| R208 | RL 0,35W 681 OHM+-1%TK50 RESISTOR DRALORIC SMA0207/681OHM-F-D | RL 083.0490 | 300.6018 |
| R209 | RL 0,35W 10,0 OHM+-1%TK50 RESISTOR DRALORIC SMA0207/10OHM-F-D | RL 082.8852 | 300.6018 |
| R210 | RL 0,35W 10,0KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/10K-F-D | RL 083.1297 | 300.6018 |
| R211 | RL 0,35W 4,75KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/4,75K-F-D | RL 083.1097 | 300.6018 |
| R212 | RL 0,35W 4,75KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/4,75K-F-D | RL 083.1097 | 300.6018 |
| R213 | RL 0,35W 4,75KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/4,75K-F-D | RL 083.1097 | 300.6018 |
| R214 | RL 0,35W 4,75KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/4,75K-F-D | RL 083.1097 | 300.6018 |
| R215 | RL 0,35W 274 KOHM+-1%TK50 RESISTOR DRALORIC SMA/207/274K-F-C | RL 083.2364 | 300.6018 |
| R216 | RL 0,35W 150 OHM+-1%TK50 RESISTOR DRALORIC SMA0207/150OHM-F-D | RL 082.9942 | 300.6018 |
| R217 | RL 0,35W 150 OHM+-1%TK50 RESISTOR DRALORIC SMA0207/150OHM-F-D | RL 082.9942 | 300.6018 |
| R218 | RL 0,35W 1KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/1K-F-C | RL 082.2160 | 300.6018 |
| R219 | RL 0,35W 6,81KOHM+-1%TK50 RESISTOR DRALORIC SMA 0207/6,81K-F-C | RL 082.2560 | 300.6018 |
| R220 | RL 0,35W 4,75KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/4,75K-F-D | RL 083.1097 | 300.6018 |

300.3219.00 SA BL13+

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| ÄZ | Datum Date |
| 30 | 0686 |

 Schalteille für
 Parts list for
 ZE SMPC-PUFFER
 SMPC-BUFFER

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| Sachnummer Stock No. |
| 300.3219.00 SA |

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| Blatt Page |
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| Kennzeichen Component No. | Benennung/Beschreibung Designation | Sachnummer Stock No. | enthalten in contained in |
|------------------------------|---|-------------------------|------------------------------|
| R221 | RL 0,35W 4,75KOHM+-1%TK50 RESISTOR | RL 083.1097 | 300.6018 |
| R225 | DRALORIC SMA0207/4,75K-F-D RL 0,35W 100KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/100K-F-C | RL 082.1764 | 300.6018 |
| ST1 | FP EINZELKONTAKTSTIFT SINGLE-CONTACT PIN ULMIC R&S.ZCHNG.300.8804 | 300.8804 | 300.5170 |
| BIS/TO ST7 ST10 | FP EINZELKONTAKTSTIFT SINGLE-CONTACT PIN ULMIC R&S.ZCHNG.300.8804 | 300.8804 | 300.5170 |
| BIS/TO ST15 ST100 | ENTHALTEN IN/INCLUDED IN LEITERPLATTE/PCB | | 300.5170 |
| ST103 | FJ EINBAUWINKELST. SMC ANGLE CONNECTOR RADIALL R 112 669 | FJ 249.9684 | 300.6018 |
| ST104 | FJ EINBAUWINKELST. SMC ANGLE CONNECTOR RADIALL R 112 669 | FJ 249.9684 | 300.6018 |
| ST105 | FJ EINBAUWINKELST. SMC ANGLE CONNECTOR RADIALL R 112 669 | FJ 249.9684 | 300.6018 |
| T1 | AK BCY79IX PNP 45V 200MA TRANSISTOR SIEMENS BCY79IX | AK 010.3777 | 300.6018 |
| T2 | AK BCY79IX PNP 45V 200MA TRANSISTOR SIEMENS BCY79IX | AK 010.3777 | 300.6018 |
| T3 | AK BCY59IX NPN 45V 200MA TRANSISTOR SIEMENS BCY59IX | AK 010.5163 | 300.6018 |
| T4 | AK 2N4033 PNP 80V1000MA TRANSISTOR VALVO 2N4033 | AK 083.6460 | 300.6018 |
| T5 | AK 2N2219A NPN 40V 800MA TRANSISTOR VALVO 2N2219A | AK 083.6953 | 300.6018 |
| T6 | AK BCY59IX NPN 45V 200MA TRANSISTOR SIEMENS BCY59IX | AK 010.5163 | 300.6018 |
| T7 | AK BCY79IX PNP 45V 200MA TRANSISTOR SIEMENS BCY79IX | AK 010.3777 | 300.6018 |
| T8 | AK BCY59IX NPN 45V 200MA TRANSISTOR SIEMENS BCY59IX | AK 010.5163 | 300.6018 |
| T9 | AK BCY59IX NPN 45V 200MA TRANSISTOR SIEMENS BCY59IX | AK 010.5163 | 300.6018 |
| | | 300.3219.00 SA | BL14+ |

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| ÄZ | Datum |
| 30 | 0686 |

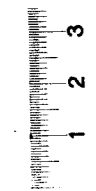
| |
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| Schaltteilliste für Parts list for ZE SMPC-PUFFER SMPC-BUFFER |
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| Sachnummer Stock No. | 300.3219.00 SA |
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| Kennzeichen Component No. | Benennung/Beschreibung Designation | Sachnummer Stock No. | enthalten in contained in |
|------------------------------|---|-------------------------|------------------------------|
| T10 | AK BCY79IX PNP 45V 200MA TRANSISTOR SIEMENS BCY79IX | AK 010.3777 | 300.6018 |
| T11 | AK BSY52 NPN 25V 500MA TRANSISTOR INTERMETAL BSY52 | AK 010.5005 | 300.6018 |
| T12 | AK BCY59IX NPN 45V 200MA TRANSISTOR SIEMENS BCY59IX | AK 010.5163 | 300.6018 |
| T15 | AK BFR15A NPN 12V >4GHZ TRANSISTOR SIEMENS BFR15A | AK 451.4320 | 300.6018 |
| T16 | AK BCY59IX NPN 45V 200MA TRANSISTOR SIEMENS BCY59IX | AK 010.5163 | 300.6018 |
| T17 | AK BSX29 PNP 12V 200MA TRANSISTOR SGS BSX29 | AK 010.3031 | 300.6018 |
| T18 | AK BSX29 PNP 12V 200MA TRANSISTOR SGS BSX29 | AK 010.3031 | 300.6018 |
| T19 | AK BSX29 PNP 12V 200MA TRANSISTOR SGS BSX29 | AK 010.3031 | 300.6018 |
| T20 | AK BSX29 PNP 12V 200MA TRANSISTOR SGS BSX29 | AK 010.3031 | 300.6018 |
| T21 | AK BSX26 NPN 15V 500MA TRANSISTOR SGS BSX26 | AK 010.4667 | 300.6018 |
| T22 | AK 2N2219A NPN 40V 800MA TRANSISTOR VALVO 2N2219A | AK 083.6953 | 300.6018 |
| T23 | AK 2N4033 PNP 80V1000MA TRANSISTOR VALVO 2N4033 | AK 083.6460 | 300.6018 |
| T24 | AK BCY59IX NPN 45V 200MA TRANSISTOR SIEMENS BCY59IX | AK 010.5163 | 300.6018 |
| T25 | AK BCY79IX PNP 45V 200MA TRANSISTOR SIEMENS BCY79IX | AK 010.3777 | 300.6018 |
| T26 | AK BCY59IX NPN 45V 200MA TRANSISTOR SIEMENS BCY59IX | AK 010.5163 | 300.6018 |
| T101 | AK BFT66 NPN 15V >3GHZ TRANSISTOR SIEMENS BFT66 | AK 252.5728 | 300.5157 |
| T102 | AK 2N3866 NPN 30V 400MA TRANSISTOR RCA 2N3866 | AK 010.0926 | 300.5157 |
| | | | - ENDE - |

300.3219.00 SA BL15-

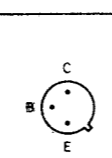
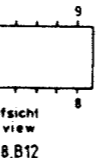
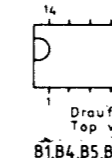
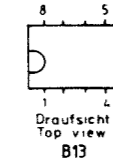
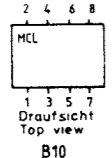
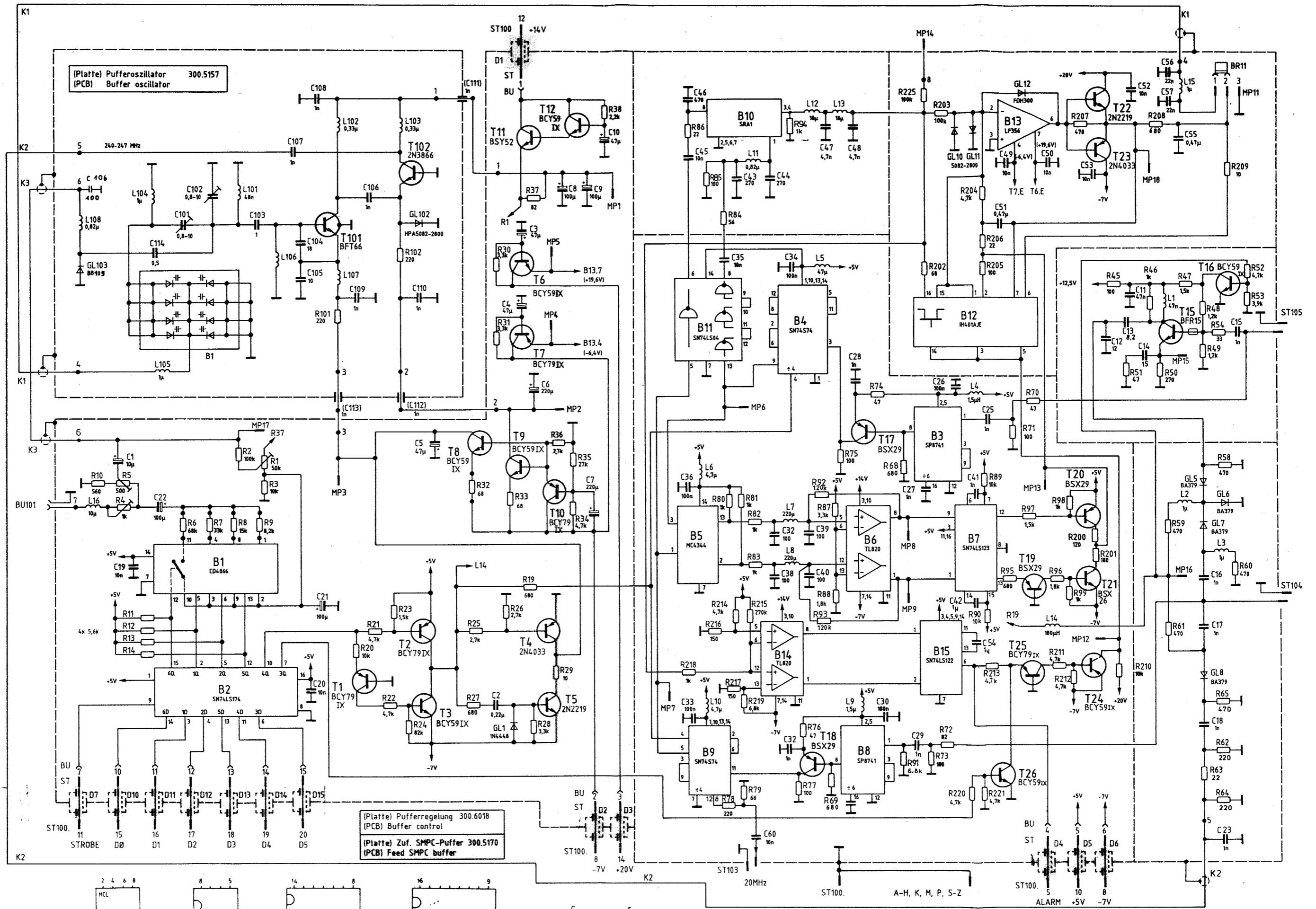


| Name | Datum | Änd. Nr. | Änd. zuef. |
|---------|-------|----------|------------|
| F 32288 | 5.85 | GS | |
| G 32942 | 10.85 | H.e. | |

Diese Zeichnung ist unser Eigentum. Vervielfältigung, unbefugte Verwertung, Mithilfe an andere ist strafbar und schadenersatzpflichtig.

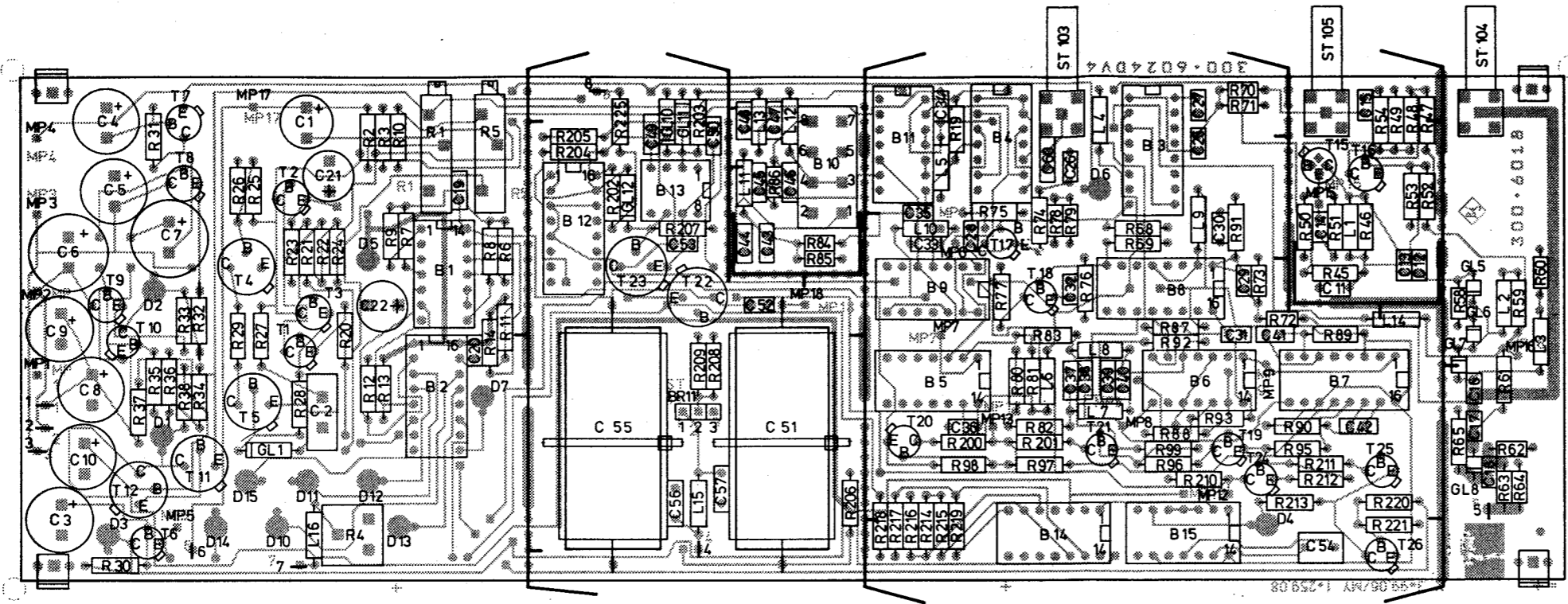
| Zeichn.-Nr. | Name | Datum | Änd. Nr. | Änd. zuef. |
|-------------|------|-------|----------|------------|
| 300.3719S | A | 9.82 | GS | |
| | B | 2.83 | GS | |
| | C | 4.83 | GS | |
| | D | 30.85 | GS | |
| | E | 7.84 | GS | |

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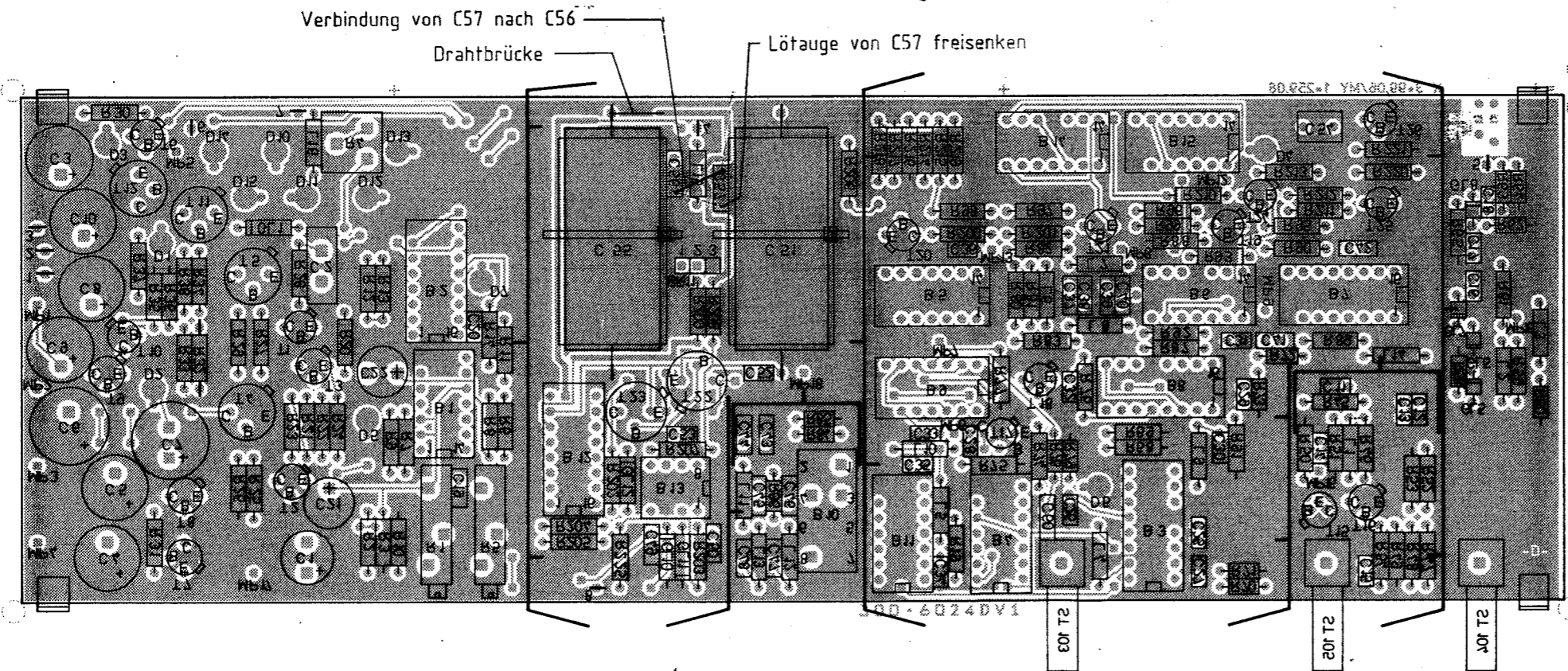


Stromlauf zu
 SMPC-Puffer / SMPC buffer

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| Zechn. Nr. | 300.3219 S |
| 300.1000V | 300.1000 |



Ansicht und Leitungsführung Bauteilseite
View of tracks on component side

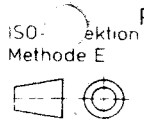


Ansicht und Leitungsführung Lötseite
View of tracks on solder side

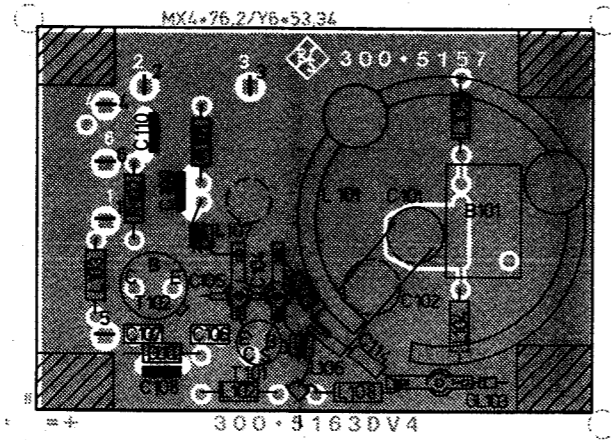
Verbindung von C57 nach C56
Drahtbrücke
Lötage von C57 freisenken

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| | | | | | | | | | |
|----------|----------------------|------|------|--------------------------|---------------|---------------------|----------------|----------|-----------|
| J | 30063 | 4.83 | GS | Maße ohne Toleranzangabe | Maßstab 1 : 1 | Halbzeug, Werkstoff | Benennung | Z | |
| K | 30455 | 9.83 | gs | | | | | | |
| L | 31341 | 6.84 | GS | | | | | | |
| M | 32288 | 9.84 | GS | | | | | | |
| | | | | 1GMC | Tag | Name | Pufferregelung | | |
| | | | | Bearb | 4.83 | GS | | | |
| | | | | Gepr | | | | | |
| | | | | Norm | | | | | |
| | | | | | | | Zeichn-Nr | 300.6018 | Blatt-Nr |
| And Zust | Anderungs-Mitteilung | Tag | Name | | | | v | | Bl |
| | | | | zu Gerät | SMPC | reg. i. V | 300.1000V | erste Z | 300.32.19 |

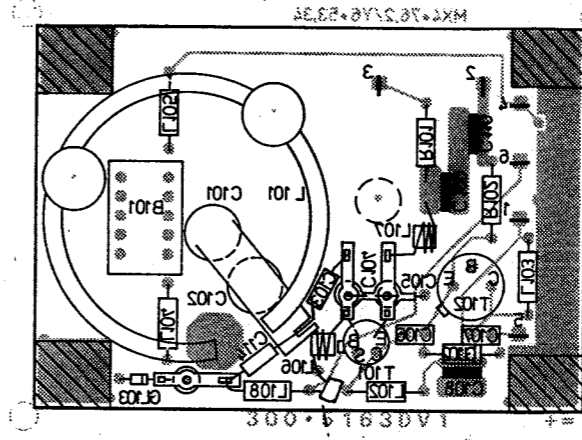


Ansicht und Leitungsführung Bauteilseite
View of tracks on component side



C106

Ansicht und Leitungsführung Lötseite
View of tracks on solder side

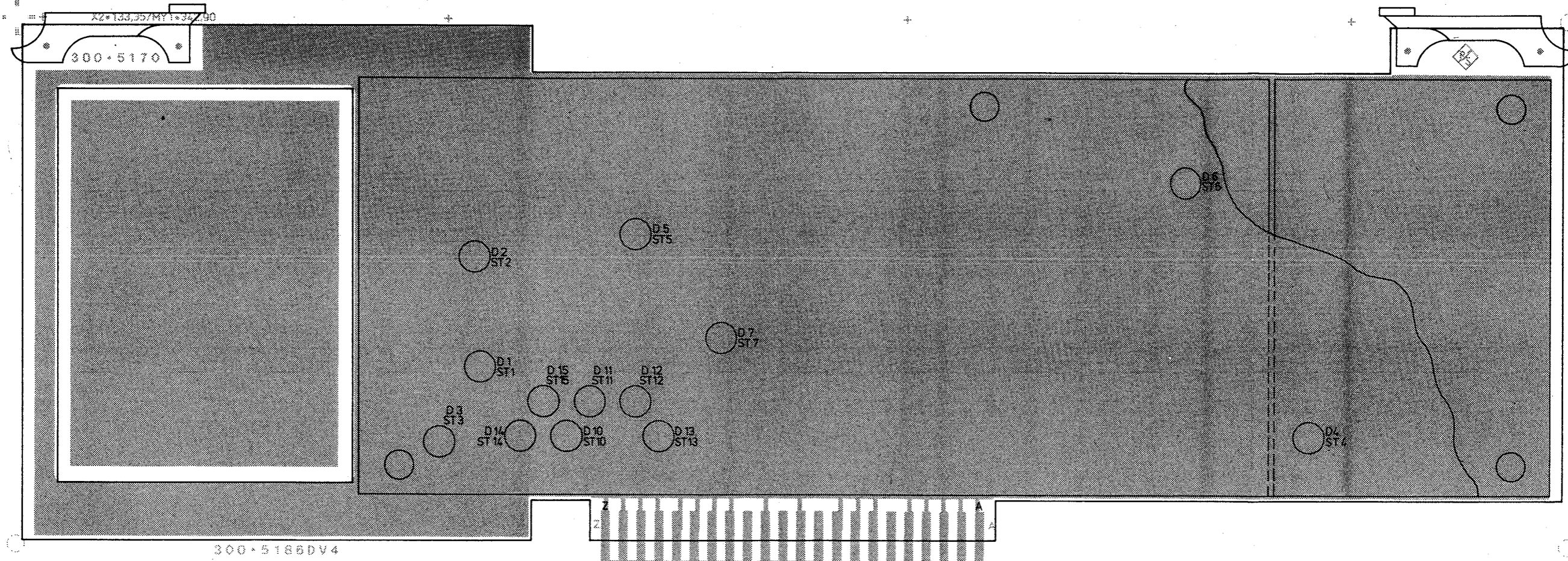


C106

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| | | | |
|--------------------------|----------------------|------------------|----------|
| Versorg-Nr | | VG-Sachnr | |
| B | — | 9.81 | WG |
| C | 32 942 | 12.85 | Ho |
| Maße ohne Toleranzangabe | | Maßstab 1 : 1 | |
| 1GMC | | Tag Name | |
| Bearb 7.10.81 | | WG | |
| Gepr | | | |
| Norm | | | |
| Benennung | | Z | |
| Pufferoszillator | | Bufferoscillator | |
| Zeichn-Nr | | Blatt-Nr | |
| 300.5157 | | 2 | |
| And Zust | Anderungs-Mitteilung | Tag | Name |
| zu Gerät SMPC | | reg V | erste Z |
| | | 300.1000 | 300.3219 |

Ansicht und Leitungsführung Bauteilseite
View of tracks on component side

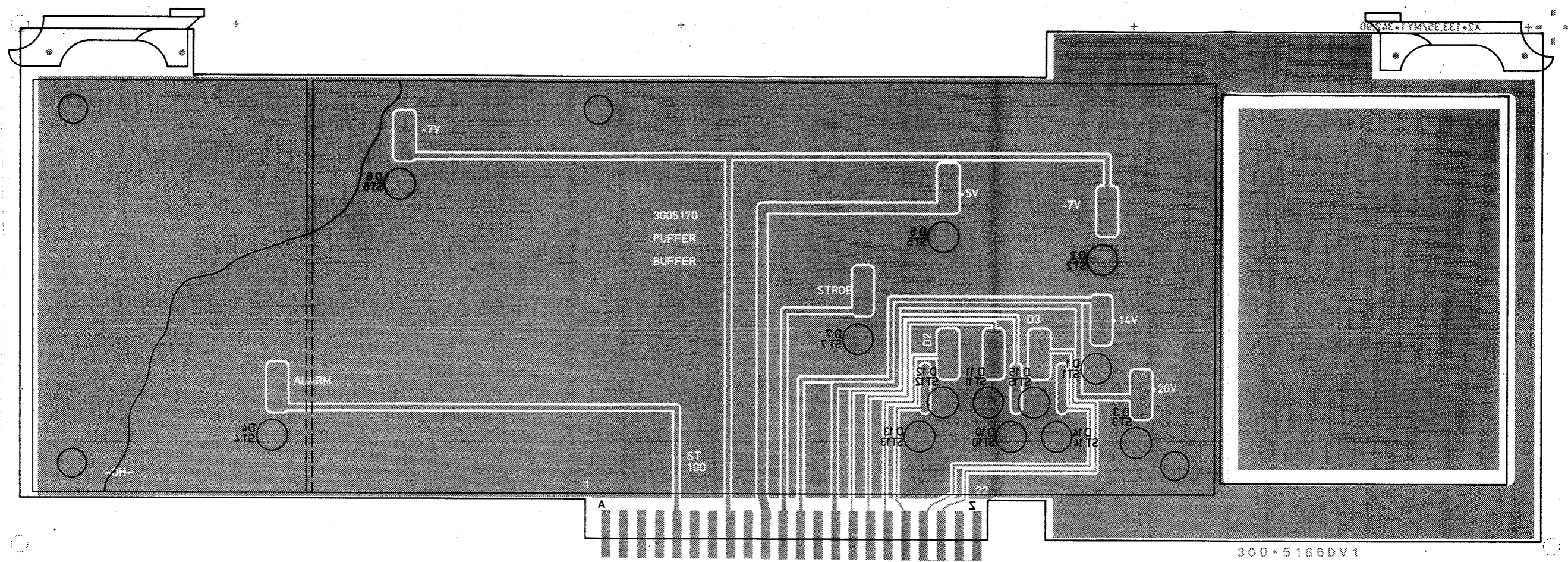


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| | | | | | |
|----------|----------------------|-----|--------------------------|-----------------------|------------------|
| C | 28.1.82 | WG | Maße ohne Toleranzangabe | Maßstab 1 : 1 | |
| | | | | Halbzeug Werkstoff | |
| | | | 1GMC | Tag | Name |
| | | | Bearb | 28.1.82 | WG |
| | | | Gepr. | | |
| | | | Norm | | |
| | | | | Benennung | Z |
| | | | | Zuführ. SMPC - Puffer | |
| | | | | Feed SMPC-Buffer | |
| | | | | Zechn.-Nr. | Blatt-Nr. |
| | | | | 300.5170 | 2 |
| And Zust | Anderungs-Mitteilung | Tag | Name | reg. V | v Bl |
| | | | zu Gerät SMPC | 300.1000 V | erste Z 300.3219 |

Ansicht und Leitungsführung Lötseite
View of tracks on solder side



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| | | | | | |
|------------|----------------------|-----|---------------------------|---------------------|-----------|
| C | 28.1.82 | WG | Mafle ohne Toleranzangabe | Maßstab 1 : 1 | |
| | | | | Halbzeug, Werkstoff | |
| | | | 1GMC | Tag | Name |
| | | | Bearb. | 28.1.82 | WG |
| | | | Gepr. | | |
| | | | Norm | | |
| | | | | Benennung | Z |
| | | | | Zuführ. SMPC-Puffer | |
| | | | | Feed SMPC-Buffer | |
| | | | | Zeichn.-Nr. | Blatt-Nr. |
| | | | | 300.5170 | 3 |
| And. Zust. | Anderungs-Mitteilung | Tag | Name | reg. v. | erste Z. |
| | | | | 300.1000V | 300.3219 |





ROHDE & SCHWARZ

SERVICE INSTRUCTIONS FOR

Output Oscillator I

300.3719 (Y8)

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Parts list
Circuit diagram
Components location plans

5.1 Circuit Description

(See circuit diagram 300.3719 S and Fig. 5-1)

Y8 supplies the upper frequency octave of the XPC/SMPC from 680 to 1360 MHz. This range is split up among three oscillators:

| Range in MHz | Designation in block diagram | Designation in circuit diagram |
|--------------|------------------------------|--------------------------------|
| 680 to 912 | Osc. 1 | T1 |
| 912 to 1144 | Osc. 2 | T6 |
| 1144 to 1360 | Osc. 3 | T10 |

The output power of the oscillators is applied via the output amplifier and three power dividers to Y9, Y10 and Y11 with the aid of PIN diode switches.

5.1.1 Oscillators

The three oscillators are of the negative-impedance type. The negative impedance at the base of the oscillator transistor reduces the damping of a resonant circuit. Two push-pull-connected vari-caps are used for tuning. The oscillator transistor is energized from a constant current source whose current determines the output power of the oscillator. A two-transistor switching stage driven with TTL level switches the supply voltage of -14 V for the oscillator transistor and the PIN diode switch.

5.1.2 Output Amplifier

The output amplifier (T18, T19) boosts the output power of the oscillators from 0 to 10 dBm. At the same time, it isolates the oscillators from the connected pcb's.

5.1.3 Control-voltage Amplifier

The control voltage from the phase-lock loop is applied to two complementary emitter followers (T13 to T16) via three adjustable voltage dividers which are selected with the aid of FET switches (T20 to T22). The relay RS1 is used for switching over the control bandwidth of the phase-lock loop (only SMPC).

5.2 Checking and Adjustment Procedures

5.2.1 Adjusting the Oscillators

Minimum and maximum output frequency as well as output power can be adjusted separately for each oscillator.

Setup on Y8:

- Connect DC power supply (0 to 20 V) to ST114.
- Connect power meter (max. 1.5 GHz) to ST112.
- Connect spectrum analyzer (max. 1.5 GHz) to ST111.
- Connect frequency counter (max. 1.5 GHz) to ST113.

Switch on XPC/SMPC and set frequency to 750 MHz. This switches on the 1st oscillator (T1) of the output oscillator III. A TTL H signal can be fed into ST110.4 instead.

Feed DC voltage of 2 ± 0.01 V into ST114. Vary C1 until a frequency of 676.6 ± 0.5 MHz is obtained on the frequency counter. Then increase tuning voltage to 15 ± 0.01 V and adjust 903.8 ± 0.5 MHz by means of R47.

Repeat this adjustment alternately until the upper and the lower frequency limits are observed.

Now gradually increase tuning voltage from 1 to 17 V and check the output power by means of the power meter. At the frequency at which maximum power is obtained, set -2.5 dBm by means of R11. Then check whether the output power is between -2.5 and -4.5 over the entire frequency range.

Finally, check on the spectrum analyzer whether the oscillator operates without sidebands, noise increases or frequency jumps over the entire frequency range.

Similarly adjust the other two oscillators.

2nd oscillator (T6): XPC/SMPC: 1000 MHz
 C12: 907.7 ± 0.5 MHz
 R48: 1135.3 ± 0.5 MHz
 R17: adjust output power.

3rd oscillator (T10): XPC/SMPC: 1250 MHz
 C23: 1140.4 ± 0.5 MHz
 R49: 1367.8 ± 0.5 MHz
 R28: adjust output power.

5.3 Troubleshooting

Troubleshooting on the Y8 is simple with the aid of the specified DC and RF levels.

5.3.1 Output Amplifier

Collector T18: 8.8 \pm 0.5 V
Gain: 10 dB
Output power: 10 dBm

5.3.2 Oscillators

A voltage of -13.8 \pm 0.2 V must be present at the collector of T3, T7 and T11 when switching on the respective oscillators.

The voltage drop at R5 is 1 to 1.5 V, at R16 1 to 1.5 V and at R27 0.75 to 1.25 V.

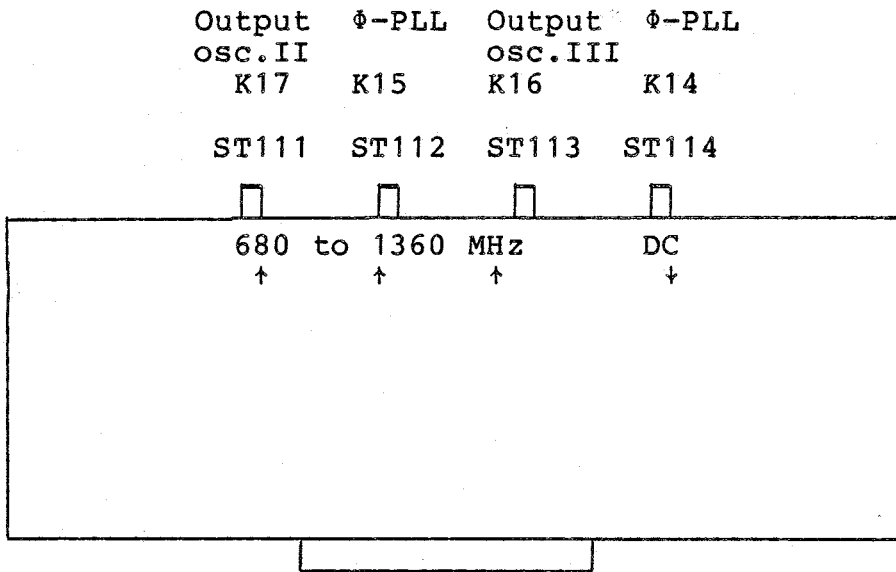
The RF power coupled out at R34 should be 0 \pm 1 dBm (use 500- Ω probe for measurement).

5.3.3 Control-voltage Amplifier

The DC offset between the base of T14 and the emitter of T15 must be $<$ 100 mV.

If a voltage of 17 V is applied to ST114 all three voltage dividers, R47, R48 and R49 must be adjustable so as to obtain between 14.5 \pm 0.2 V and 17 -0.2 V.

5.3.4 Interfaces



| ST/BU | 111 | 112 | 113 | 114 |
|----------------|----------------|-----------------|-----------------|---------------|
| f | | 680 to 1360 MHz | | DC-AF |
| Level | -3 \pm 2 dBm | -2.5 to 4.5 dBm | -10 \pm 2 dBm | 1 to 17 V |
| Z | 50 Ω | 50 Ω | 50 Ω | 12 k Ω |
| AC-DC | DC | DC | DC | DC |
| Shape of curve | sinusoidal | sinusoidal | sinusoidal | |

Digital Interface

4 data lines from output oscillator III

| | L | H |
|---------|--------------------------|------------------------|
| ST110.4 | Oscillator 1 off | Oscillator 1 on |
| ST110.3 | Oscillator 2 off | Oscillator 2 on |
| ST110.2 | Oscillator 3 off | Oscillator 3 on |
| ST110.5 | Narrow control bandwidth | Wide control bandwidth |

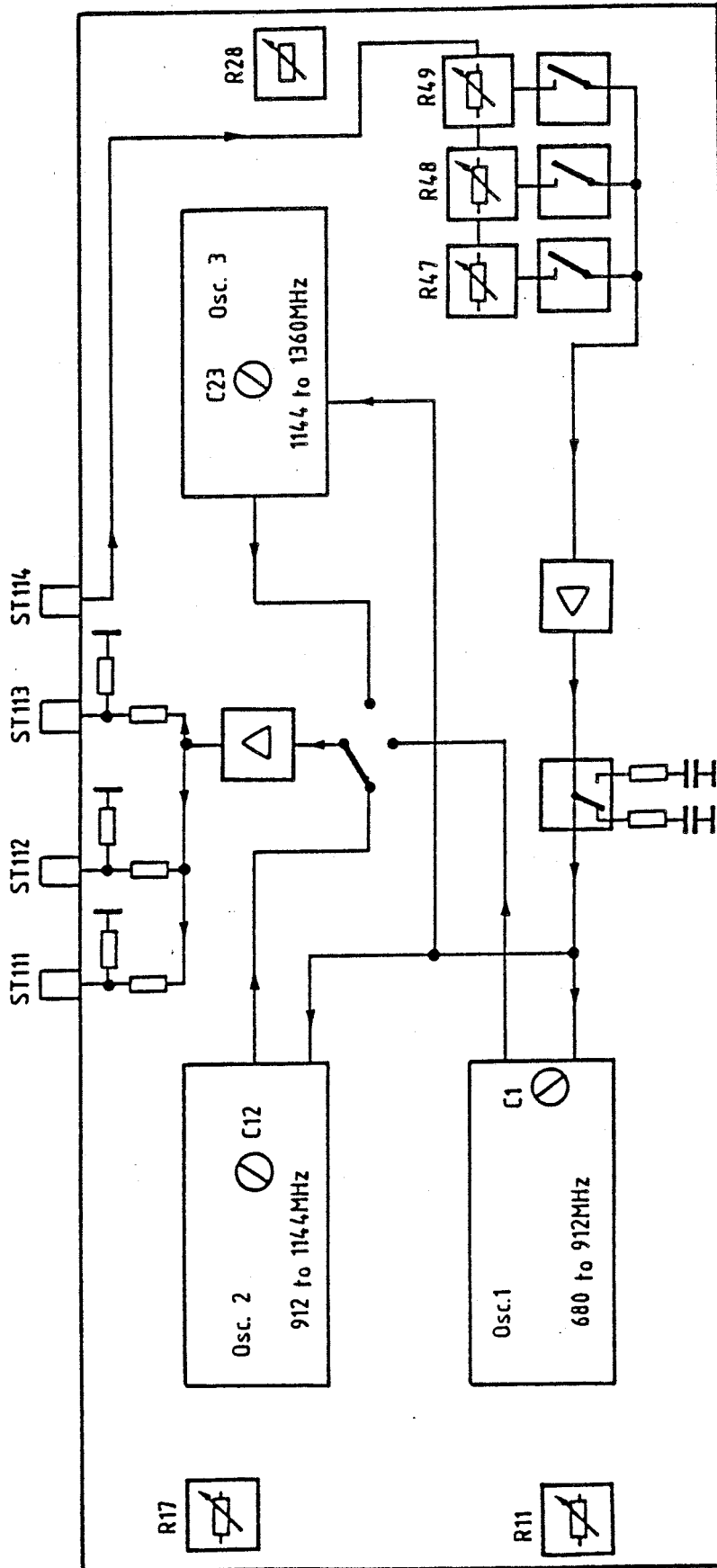


Fig. 5-1 Block diagram of the output oscillator I



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Schalteillisten
Stromläufe
Bestückungspläne
Parts lists
Circuit diagrams
Components plans

**ROHDE & SCHWARZ**AZ Datum
Date
09 0686Schaltteilliste für
Parts list for
ZE AUSGANGSOZILLATOR I
OUTPUT OSCILLATOR ISachnummer
Stock No.
300.3719.00 SABlatt
Page
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| Kennzeichen Component No. | Benennung/Beschreibung Designation | Sachnummer Stock No. | enthalten in contained in |
|------------------------------|---|-------------------------|------------------------------|
| BU1 | FP BUCHSE VERTIKAL P.V.1P SOCKET BERG 75377-001 | FP 278.5577 | 300.5270 |
| BIS/TO BU8 | | | |
| C1 | CT 9,2PF TAUCHTR.RD 7X12 AIR-TYPE TRIMMER TEKELEC LUFTTRAT5200 | CT 025.7367 | 300.5270 |
| C2 | CC 22PF+-10% N750 TRAP CAPACITOR STETTNER TEFK7/2210XN750 | CC 083.6724 | 300.5270 |
| C3 | CC 3,8PF+-0,25PF50V2NPO CAPACITOR VITRAMON VJ0805A3R8CFA | CC 093.5620 | 300.5270 |
| C4 | CC 4,3PF+-0,25PF50V2NPO CAPACITOR VITRAMON VJ0805A4R3CFA | CC 093.5643 | 300.5270 |
| C5 | CC 12PF+-5%100V NPO VS.C CERAMIC CAPACITOR VITRAMON VJ0805A120JFA | CC 022.3948 | 300.5270 |
| C6 | CC 4,3PF+-0,25PF50V2NPO CAPACITOR VITRAMON VJ0805A4R3CFA | CC 093.5643 | 300.5270 |
| C7 | CC 22PF+-10% N750 TRAP CAPACITOR STETTNER TEFK7/2210XN750 | CC 083.6724 | 300.5270 |
| C8 | CC 22PF+-10% N750 TRAP CAPACITOR STETTNER TEFK7/2210XN750 | CC 083.6724 | 300.5270 |
| C9 | CC 10NF-20+50%7X8R6000 CAPACITOR VALVO 2222 63051 64051103 | CC 087.7525 | 300.5270 |
| C11 | CC 4,7NF+-10%6X9R2000 CAPACITOR VALVO 2222 63051 472 | CC 087.7102 | 300.5270 |
| C12 | CT 9,2PF TAUCHTR.RD 7X12 AIR-TYPE TRIMMER TEKELEC LUFTTRAT5200 | CT 025.7367 | 300.5270 |
| C13 | CC 22PF+-10% N750 TRAP CAPACITOR STETTNER TEFK7/2210XN750 | CC 083.6724 | 300.5270 |
| C14 | CC 12PF+-5%100V NPO VS.C CERAMIC CAPACITOR VITRAMON VJ0805A120JFA | CC 022.3948 | 300.5270 |
| C15 | CC 2,3PF+-0,25PF50V2NPO CAPACITOR VITRAMON VJ0805A2R3CFA | CC 093.5566 | 300.5270 |
| C16 | CC 3,8PF+-0,25PF50V2NPO CAPACITOR VITRAMON VJ0805A3R8CFA | CC 093.5620 | 300.5270 |
| C17 | CC 2,3PF+-0,25PF50V2NPO CAPACITOR VITRAMON VJ0805A2R3CFA | CC 093.5566 | 300.5270 |
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| Schaltteilliste für Parts list for |
| ZE AUSGANGSOZILLATOR I OUTPUT OSCILLATOR I |

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| Sachnummer Stock No. |
| 300.3719.00 SA |

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| Kennzeichen Component No. | Benennung/Beschreibung Designation | Sachnummer Stock No. | enthalten in contained in |
|------------------------------|---|-------------------------|------------------------------|
| C18 | CC 22PF+-10% N750 TRAP CAPACITOR STETTNER TEFK7/2210%N750 | CC 083.6724 | 300.5270 |
| C19 | CC 22PF+-10% N750 TRAP CAPACITOR STETTNER TEFK7/2210%N750 | CC 083.6724 | 300.5270 |
| C20 | CC 10NF-20+50%7X8R6000 CAPACITOR VALVO 2222 63051 64051103 | CC 087.7525 | 300.5270 |
| C22 | CC 4,7NF+-10%6X9R2000 CAPACITOR VALVO 2222 63051 472 | CC 087.7102 | 300.5270 |
| C23 | CT 9,2PF TAUCHTR.RD 7X12 AIR-TYPE TRIMMER TEKELEC LUFTTRATS200 | CT 025.7367 | 300.5270 |
| C24 | CC 22PF+-10% N750 TRAP CAPACITOR STETTNER TEFK7/2210%N750 | CC 083.6724 | 300.5270 |
| C25 | CC 1,1PF+-0,1PF 500V 3X3X CAPACITOR ATC ATC 100-B1R1B-P500X | CC 467.8413 | 300.5270 |
| C26 | CC 2,6PF+-0,25PF50V2NPO CAPACITOR VITRAMON VJ0805A2R6CFA | CC 093.5572 | 300.5270 |
| C27 | CC 1,1PF+-0,1PF 500V 3X3X CAPACITOR ATC ATC 100-B1R1B-P500X | CC 467.8413 | 300.5270 |
| C28 | CC 22PF+-10% N750 TRAP CAPACITOR STETTNER TEFK7/2210%N750 | CC 083.6724 | 300.5270 |
| C29 | CC 22PF+-10% N750 TRAP CAPACITOR STETTNER TEFK7/2210%N750 | CC 083.6724 | 300.5270 |
| C30 | CC 10NF-20+50%7X8R6000 CAPACITOR VALVO 2222 63051 64051103 | CC 087.7525 | 300.5270 |
| C32 | CC 12PF+-5%100V NPO VS.C CERAMIC CAPACITOR VITRAMON VJ0805A120JFA | CC 022.3948 | 300.5270 |
| C33 | CC 4,7NF+-10%6X9R2000 CAPACITOR VALVO 2222 63051 472 | CC 087.7102 | 300.5270 |
| C34 | CC 10NF+-10% 50V3K1200 CH CAPACITOR VITRAMON VJ1005Y103KFB | CC 082.3344 | 300.5270 |
| C35 | CC 3,2PF+-0,25PF50V2NPO CAPACITOR VITRAMON VJ0805A3R2CFA | CC 093.5595 | 300.5270 |
| C36 | CC 10NF-20+50%7X8R6000 CAPACITOR VALVO 2222 63051 64051103 | CC 087.7525 | 300.5270 |
| C37 | CC 10NF-20+50%7X8R6000 CAPACITOR VALVO 2222 63051 64051103 | CC 087.7525 | 300.5270 |
| C38 | CC 100PF+-10%100V3NPO CHI CAPACITOR VITRAMON VJ1005A101KFB | CC 082.3109 | 300.5270 |
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| Schaltteilliste für |
| Parts list for |
| ZE AUSGANGSOZILLATOR I |
| OUTPUT OSCILLATOR I |

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| Sachnummer |
| Stock No. |
| 300.3719.00 SA |

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| Kennzeichen Component No. | Benennung/Beschreibung Designation | Sachnummer Stock No. | enthalten in contained in |
|------------------------------|---|-------------------------|------------------------------|
| C40 | CC 10NF+-10% 50V3K1200 CH CAPACITOR VITRAMON VJ1005Y103KFB | CC 082.3344 | 300.5270 |
| C42 | CE 47UF-10+50% 40V 9X13 ELECTROLYTIC CAPACITOR ROEDERST EK 00 CB 247 G | CE 006.7142 | 300.5270 |
| C43 | CC 10NF-20+50%7X8R6000 CAPACITOR VALVO 2222 63051 64051103 | CC 087.7525 | 300.5270 |
| C44 | CE 47UF-10+50% 40V 9X13 ELECTROLYTIC CAPACITOR ROEDERST EK 00 CB 247 G | CE 006.7142 | 300.5270 |
| C45 | CC 10NF-20+50%7X8R6000 CAPACITOR VALVO 2222 63051 64051103 | CC 087.7525 | 300.5270 |
| C47 | CC 4,7NF+-10%100V5K1200VI CERAMIC CAPACITOR UNION CARB CK05BX472K | CC 068.4053 | 300.5270 |
| C48 | CK 150NF+-5%63V5RM MKT CAPACITOR WIMA MKS2/63/0,15UF/5% | CK 099.2946 | 300.5270 |
| C49 | CC 4,7NF+-10%100V5K1200LR CAPACITOR AEROVOX CKR05BX472KLEVELR | CC 092.0619 | 300.5270 |
| C51 | CE 1,0UF+-20%35V 5X 4X 7 ELECTROLYTIC CAPACITOR ERO-TANTAL TA-ELKOETR1-1/35 | CE 022.8185 | 300.5270 |
| C52 | CC 10NF-20+50%7X8R6000 CAPACITOR VALVO 2222 63051 64051103 | CC 087.7525 | 300.5270 |
| C53 | CE 47UF-10+50% 40V 9X13 ELECTROLYTIC CAPACITOR ROEDERST EK 00 CB 247 G | CE 006.7142 | 300.5270 |
| C54 | CC 10NF-20+50%7X8R6000 CAPACITOR VALVO 2222 63051 64051103 | CC 087.7525 | 300.5270 |
| C55 | CE 47UF-10+50% 40V 9X13 ELECTROLYTIC CAPACITOR ROEDERST EK 00 CB 247 G | CE 006.7142 | 300.5270 |
| C56 | CC 120PF+-2%5X6N750 CAPACITOR VALVO 2222 678 58121 | CC 087.6912 | 300.5270 |
| D1 | LD 35DB/200M-10GHZ PI-FIL CHOKE ERIE 1214-038 | LD 300.6818 | 300.5292 |
| BIS/TO D8 | | | |
| GL1 | AE BB405B 11/ 2PF CDI TUNING DIODE VALVO BB405B | AE 596.6839 | 300.5270 |
| GL2 | AE BB405B 11/ 2PF CDI TUNING DIODE VALVO BB405B | AE 596.6839 | 300.5270 |

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| Schalteilleiste für Parts list for |
| ZE AUSGANGSOZILLATOR I OUTPUT OSCILLATOR I |

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| Sachnummer Stock No. |
| 300.3719.00 SA |

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| Kennzeichen Component No. | Benennung/Beschreibung Designation | Sachnummer Stock No. | enthalten in contained in |
|------------------------------|--|-------------------------|------------------------------|
| GL3 | AD 1N4448 75V 0,15A UDI DIODE VALVO 1N4448 | AD 012.0700 | 300.5270 |
| GL4 | AE BA379 PIN DIODE | 300.6918 | 300.5270 |
| GL5 | AE BA379 PIN DIODE | 300.6918 | 300.5270 |
| GL6 | AE BB405B 11/ 2PF CDI TUNING DIODE VALVO BB405B | AE 596.6839 | 300.5270 |
| GL7 | AE BB405B 11/ 2PF CDI TUNING DIODE VALVO BB405B | AE 596.6839 | 300.5270 |
| GL8 | AD 1N4448 75V 0,15A UDI DIODE VALVO 1N4448 | AD 012.0700 | 300.5270 |
| GL9 | AE BA379 PIN DIODE | 300.6918 | 300.5270 |
| GL10 | AE BA379 PIN DIODE | 300.6918 | 300.5270 |
| GL11 | AE BB405B 11/ 2PF CDI TUNING DIODE VALVO BB405B | AE 596.6839 | 300.5270 |
| GL12 | AE BB405B 11/ 2PF CDI TUNING DIODE VALVO BB405B | AE 596.6839 | 300.5270 |
| GL13 | AD 1N4448 75V 0,15A UDI DIODE VALVO 1N4448 | AD 012.0700 | 300.5270 |
| GL14 | AE BA379 PIN DIODE | 300.6918 | 300.5270 |
| GL15 | AE BA379 PIN DIODE | 300.6918 | 300.5270 |
| GL16 | AD 1N4448 75V 0,15A UDI DIODE VALVO 1N4448 | AD 012.0700 | 300.5270 |
| BIS/TO GL25 | | | |
| L1 | LD 0,22 UH 10% 690 MIA CHOKE DELEVAN | LD 092.3076 | 300.5270 |
| L2 | LD 0,22 UH 10% 690 MIA CHOKE DELEVAN | LD 092.3076 | 300.5270 |
| L3 | LD 0,22 UH 10% 690 MIA CHOKE DELEVAN | LD 092.3076 | 300.5270 |
| L4 | LD SPULE COIL | 300.3483 | 300.5270 |
| BIS/TO L8 L9 | | | |
| L11 | LL SPULE COIL LD 0,15 UH 10% 835 MIA CHOKE DELEVAN | 300.8940 LD 092.3053 | 300.5270 300.5270 |

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| Stock No. |
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| Kennzeichen Component No. | Benennung/Beschreibung Designation | Sachnummer Stock No. | enthalten in contained in |
|------------------------------|--|-------------------------|------------------------------|
| L12 | LD 0,15 UH 10% 835 MIA CHOKE DELEVAN | LD 092.3053 | 300.5270 |
| L13 | LD 0,15 UH 10% 835 MIA CHOKE DELEVAN | LD 092.3053 | 300.5270 |
| L14 | LD SPULE COIL | 300.3483 | 300.5270 |
| BIS/TO L18 | | | |
| L19 | LL SPULE COIL | 300.8991 | 300.5270 |
| L21 | LD 0,10 UH 10% 935 MIA CHOKE DELEVAN DROSSEL0819-00 | LD 092.3030 | 300.5270 |
| L22 | LD 0,10 UH 10% 935 MIA CHOKE DELEVAN DROSSEL0819-00 | LD 092.3030 | 300.5270 |
| L23 | LD 0,10 UH 10% 935 MIA CHOKE DELEVAN DROSSEL0819-00 | LD 092.3030 | 300.5270 |
| L24 | LD SPULE COIL | 300.3483 | 300.5270 |
| BIS/TO L28 | | | |
| L29 | LL SPULE COIL | 300.9046 | 300.5270 |
| L31 | LD SPULE COIL | 300.3483 | 300.5270 |
| L32 | ENTHALTEN IN/INCLUDED IN LEITERPLATTE / PCB | | 300.5270 |
| L40 | LD 33,0UH10%3,40OHMO,130A CHOKE DELEVAN DROSSEL 1025-56 | LD 067.3047 | 300.5270 |
| BIS/TO L43 | | | |
| R1 | RL 0,21W 47 OHM2% UNGEW. RESISTOR | RL 092.5910 | 300.5270 |
| R2 | RESISTA MK1 470HM 2% UNGEW. RL 0,21W 1,0KOHM2% UNGEW. RESISTOR | RL 092.6075 | 300.5270 |
| R3 | RESISTA MK1 1K 2% UNGEW. RL 0,21W 2,67KOHM+-1%TK50 RESISTOR | 092.4843 | 300.5270 |
| R4 | RESISTA MK1 2K67 1% TK50 RL 0,21W 1,00KOHM+-1%TK50 RESISTOR | RL 092.1444 | 300.5270 |
| R5 | RESISTA MK1 1K00 1% TK50 RL 0,21W 56,2 OHM+-1%TK50 RESISTOR | RL 092.1280 | 300.5270 |
| R6 | RESISTA MK1 56,2OHM 1% TK50 RL 0,21W 562 OHM+-1%TK50 RESISTOR | RL 092.1415 | 300.5270 |
| | RESISTA MK1 562OHM 1% TK50 | | |

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ZE AUSGANGSOZILLATOR I
OUTPUT OSCILLATOR ISachnummer
Stock No.
300.3719.00 SABlatt
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| Kennzeichen Component No. | Benennung/Beschreibung Designation | Sachnummer Stock No. | enthalten in contained in |
|------------------------------|---|-------------------------|------------------------------|
| R7 | RL 0,21W 10,0KOHM+-1%TK50 RESISTOR RESISTA MK1 10K0 1% TK50 | RL 092.1567 | 300.5270 |
| R8 | RL 0,21W 3,32KOHM+-1%TK50 RESISTOR RESISTA MK1 3K32 1% TK50 | RL 092.1509 | 300.5270 |
| R9 | RL 0,21W 820 OHM2% UNGEW. RESISTOR RESISTA MK1 820OHM 2% UNG. | RL 092.6069 | 300.5270 |
| R10 | RL 0,21W 10,0KOHM+-1%TK50 RESISTOR RESISTA MK1 10K0 1% TK50 | RL 092.1567 | 300.5270 |
| R11 | RS 0,5W500 OHM+-10%10X10X CERMET POTENTIOMETER T BOURNS 3386F-1-501 | RS 247.7878 | 300.5270 |
| R12 | RL 0,21W 47 OHM2% UNGEW. RESISTOR RESISTA MK1 47OHM 2% UNGEW. | RL 092.5910 | 300.5270 |
| R13 | RL 0,21W 1,0KOHM2% UNGEW. RESISTOR RESISTA MK1 1K 2% UNGEW. | RL 092.6075 | 300.5270 |
| R14 | RL 0,21W 2,67KOHM+-1%TK50 RESISTOR RESISTA MK1 2K67 1% TK50 | 092.4843 | 300.5270 |
| R15 | RL 0,21W 1,00KOHM+-1%TK50 RESISTOR RESISTA MK1 1K00 1% TK50 | RL 092.1444 | 300.5270 |
| R16 | RL 0,21W 56,2 OHM+-1%TK50 RESISTOR RESISTA MK1 56,2OHM 1% TK50 | RL 092.1280 | 300.5270 |
| R17 | RS 0,5W500 OHM+-10%10X10X CERMET POTENTIOMETER T BOURNS 3386F-1-501 | RS 247.7878 | 300.5270 |
| R18 | RL 0,21W 562 OHM+-1%TK50 RESISTOR RESISTA MK1 562OHM 1% TK50 | RL 092.1415 | 300.5270 |
| R19 | RL 0,21W 10,0KOHM+-1%TK50 RESISTOR RESISTA MK1 10K0 1% TK50 | RL 092.1567 | 300.5270 |
| R20 | RL 0,21W 3,32KOHM+-1%TK50 RESISTOR RESISTA MK1 3K32 1% TK50 | RL 092.1509 | 300.5270 |
| R21 | RL 0,21W 820 OHM2% UNGEW. RESISTOR RESISTA MK1 820OHM 2% UNG. | RL 092.6069 | 300.5270 |
| R22 | RL 0,21W 10,0KOHM+-1%TK50 RESISTOR RESISTA MK1 10K0 1% TK50 | RL 092.1567 | 300.5270 |
| R23 | RL 0,21W 47 OHM2% UNGEW. RESISTOR RESISTA MK1 47OHM 2% UNGEW. | RL 092.5910 | 300.5270 |
| R24 | RL 0,21W 1,0KOHM2% UNGEW. RESISTOR RESISTA MK1 1K 2% UNGEW. | RL 092.6075 | 300.5270 |
| R25 | RL 0,21W 2,67KOHM+-1%TK50 RESISTOR RESISTA MK1 2K67 1% TK50 | 092.4843 | 300.5270 |

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| Kennzeichen Component No. | Benennung/Beschreibung Designation | Sachnummer Stock No. | enthalten in contained in |
|------------------------------|---|-------------------------|------------------------------|
| R26 | RL 0,21W 1,00KOHM+-1%TK50 RESISTOR RESISTA MK1 1K00 1% TK50 | RL 092.1444 | 300.5270 |
| R27 | RL 0,21W 56,2 OHM+-1%TK50 RESISTOR RESISTA MK1 56,20HM 1% TK50 | RL 092.1280 | 300.5270 |
| R28 | RS 0,5W500 OHM+-10%10X10X CERMET POTENTIOMETER T BOURNS 3386F-1-501 | RS 247.7878 | 300.5270 |
| R29 | RL 0,21W 392 OHM+-1%TK50 RESISTOR RESISTA MK1 3920HM 1% TK50 | RL 092.1396 | 300.5270 |
| R30 | RL 0,21W 10,0KOHM+-1%TK50 RESISTOR RESISTA MK1 10K0 1% TK50 | RL 092.1567 | 300.5270 |
| R31 | RL 0,21W 3,32KOHM+-1%TK50 RESISTOR RESISTA MK1 3K32 1% TK50 | RL 092.1509 | 300.5270 |
| R32 | RL 0,21W 820 OHM2% UNGEW. RESISTOR RESISTA MK1 820OHM 2% UNG. | RL 092.6069 | 300.5270 |
| R33 | RL 0,21W 10,0KOHM+-1%TK50 RESISTOR RESISTA MK1 10K0 1% TK50 | RL 092.1567 | 300.5270 |
| R34 | RL 0,21W 820 OHM2% UNGEW. RESISTOR RESISTA MK1 820OHM 2% UNG. | RL 092.6069 | 300.5270 |
| R35 | RG 0,125W 33 OHM+-1% CHIP CHIP RESISTOR MSI WA-4 330HM 1% PG- | 337.8214 | 300.5270 |
| R36 | RL 0,21W 1,50KOHM+-1%TK50 RESISTOR RESISTA MK1 1K5 1% TK50 | RL 092.1467 | 300.5270 |
| R37 | RL 0,21W 180 OHM2% UNGEW. RESISTOR RESISTA MK1 180OHM 2% UNGEW. | RL 092.5985 | 300.5270 |
| R38 | RL 0,21W 150 OHM+-1%TK50 RESISTOR RESISTA MK1 150OHM 1% TK50 | RL 092.1344 | 300.5270 |
| R39 | RL 0,21W 47,5KOHM+-1%TK50 RESISTOR RESISTA MK1 47K5 1% TK50 | RL 092.1644 | 300.5270 |
| R40 | RL 0,21W 68,1KOHM+-1%TK50 RESISTOR RESISTA MK1 68K10 1% TK50 | RL 092.1667 | 300.5270 |
| R41 | RL 0,21W 82 OHM2% UNGEW. RESISTOR RESISTA MK1 82OHM 2% UNGEW. | RL 092.5940 | 300.5270 |
| R42 | RL 0,21W 68 OHM2% UNGEW. RESISTOR RESISTA MK1 68OHM 2% UNGEW. | RL 092.5933 | 300.5270 |
| R43 | RL 0,21W 82 OHM2% UNGEW. RESISTOR RESISTA MK1 82OHM 2% UNGEW. | RL 092.5940 | 300.5270 |
| R44 | RL 0,21W 68 OHM2% UNGEW. RESISTOR RESISTA MK1 68OHM 2% UNGEW. | RL 092.5933 | 300.5270 |

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|------------------------------|---|-------------------------|------------------------------|
| R45 | RL 0,21W 180 OHM2% UNGEW. RESISTOR | RL 092.5985 | 300.5270 |
| R46 | RESISTA MK1 180OHM 2% UNGEW. RL 0,21W 56 OHM2% UNGEW. RESISTOR | RL 092.5927 | 300.5270 |
| R47 | RESISTA MK1 560HM 2% UNGEW. RS 0,5W5KOHM+-10%10X10X5 CERMET POTENTIOMETER T BOURNS 3386F-1-502 | RS 247.7890 | 300.5270 |
| R48 | RS 0,5W5KOHM+-10%10X10X5 CERMET POTENTIOMETER T BOURNS 3386F-1-502 | RS 247.7890 | 300.5270 |
| R49 | RS 0,5W5KOHM+-10%10X10X5 CERMET POTENTIOMETER T BOURNS 3386F-1-502 | RS 247.7890 | 300.5270 |
| R50 | RL 0,35W 10,0KOHM+-1%TK50 RESISTOR | RL 083.1297 | 300.5270 |
| R51 | DRALORIC SMA0207/10K-F-D RL 0,35W 825 KOHM+-1%TK50 RESISTOR | RL 083.2812 | 300.5270 |
| R52 | DRALORIC SMA0207/825K-F-C RL 0,35W 825 KOHM+-1%TK50 RESISTOR | RL 083.2812 | 300.5270 |
| R53 | DRALORIC SMA0207/825K-F-C RL 0,35W 825 KOHM+-1%TK50 RESISTOR | RL 083.2812 | 300.5270 |
| R54 | DRALORIC SMA0207/825K-F-C RL 0,35W 47,5 OHM+-1%TK50 RESISTOR | RL 082.9507 | 300.5270 |
| R55 | DRALORIC SMA0207/47,5OHM-F-D RL 0,35W 10,0KOHM+-1%TK50 RESISTOR | RL 083.1297 | 300.5270 |
| R56 | DRALORIC SMA0207/10K-F-D RL 0,35W 475 OHM+-1%TK50 RESISTOR | RL 083.0390 | 300.5270 |
| R57 | DRALORIC SMA0207/475OHM-F-D RL 0,35W 221 OHM+-1%TK50 RESISTOR | RL 083.0084 | 300.5270 |
| R58 | DRALORIC SMA0207/221OHM-F-D RL 0,35W 10,0 OHM+-1%TK50 RESISTOR | RL 082.8852 | 300.5270 |
| R59 | DRALORIC SMA0207/100HM-F-D RL 0,35W 274 OHM+-1%TK50 RESISTOR | RL 083.0178 | 300.5270 |
| R60 | DRALORIC SMA0207/274OHM-F-D RL 0,35W 1,82KOHM+-1%TK50 RESISTOR | RL 082.2277 | 300.5270 |
| R61 | DRALORIC SMA0207/1,82K-F-C RL 0,35W 332 OHM+-1%TK50 RESISTOR | RL 083.0255 | 300.5270 |
| R62 | DRALORIC SMA0207/332OHM-F-D RL 0,35W 100 OHM+-1%TK50 METALFILM-RESISTOR | RL 082.6543 | 300.5270 |
| R63 | DRALORIC SMA0207/100/HM-F-D RF 0,25W 6,8 OHM +-5% RESISTOR | 074.0079 | 300.5270 |
| | DRALORIC LCA0207/+-5%6,8 | | |

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| Stock No. |
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| Kennzeichen Component No. | Benennung/Beschreibung Designation | Sachnummer Stock No. | enthalten in contained in |
|------------------------------|---|-------------------------|------------------------------|
| R64 | RL 0,35W 47,5 OHM+-1%TK50 RESISTOR DRALORIC SMA0207/47,5OHM-F-D | RL 082.9507 | 300.5270 |
| R65 | RL 0,35W 6,81KOHM+-1%TK50 RESISTOR DRALORIC SMA 0207/6,81K-F-C | RL 082.2560 | 300.5270 |
| R66 | RL 0,35W 6,81KOHM+-1%TK50 RESISTOR DRALORIC SMA 0207/6,81K-F-C | RL 082.2560 | 300.5270 |
| R67 | RL 0,35W 47,5 OHM+-1%TK50 RESISTOR DRALORIC SMA0207/47,5OHM-F-D | RL 082.9507 | 300.5270 |
| R80 | RL 0,21W 825 OHM+-1%TK50 RESISTOR RESISTA MK1 825OHM 1% TK50 | RL 092.1438 | 300.5270 |
| R81 | RL 0,21W 681 OHM+-1%TK50 RESISTOR RESISTA MK1 681OHM 1% TK50 | RL 092.1421 | 300.5270 |
| R85 | RL 0,21W 825 OHM+-1%TK50 RESISTOR RESISTA MK1 825OHM 1% TK50 | RL 092.1438 | 300.5270 |
| R86 | RL 0,21W 681 OHM+-1%TK50 RESISTOR RESISTA MK1 681OHM 1% TK50 | RL 092.1421 | 300.5270 |
| R90 | RL 0,21W 825 OHM+-1%TK50 RESISTOR RESISTA MK1 825OHM 1% TK50 | RL 092.1438 | 300.5270 |
| R91 | RL 0,21W 681 OHM+-1%TK50 RESISTOR RESISTA MK1 681OHM 1% TK50 | RL 092.1421 | 300.5270 |
| RS1 | SN 12V 1XU AU-CO MONOSTAB RELAY SDS RS-12V | SN 063.7083 | 300.5270 |
| ST1 | FP EINZELKONTAKT ABGEW. CONNECTOR ULMIC R&S-ZCHNG.303.0956 | 303.0956 | 300.5292 |
| BIS/TO ST8 ST110 | ENTHALTEN IN/INCLUDED IN LEITERPLATTE/PCB | | 300.5292 |
| ST111 | FJ EINBAUWINKELST. SMC ANGLE CONNECTOR RADIALL R 112 669 | FJ 249.9684 | 300.5270 |
| BIS/TO ST114 | | | |
| T1 | AK BFR96 NPN 15V 5GHZ TRANSISTOR VALVO BFR96 | AK 093.2738 | 300.5270 |
| T2 | AK BCY59IX NPN 45V 200MA TRANSISTOR SIEMENS BCY59IX | AK 010.5163 | 300.5270 |
| T3 | AK BCY59IX NPN 45V 200MA TRANSISTOR SIEMENS BCY59IX | AK 010.5163 | 300.5270 |

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Stock No.

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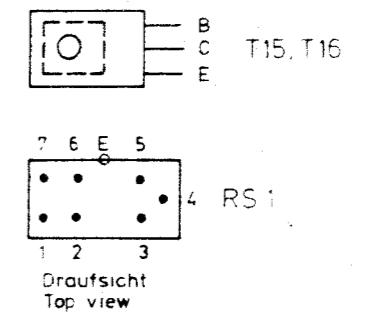
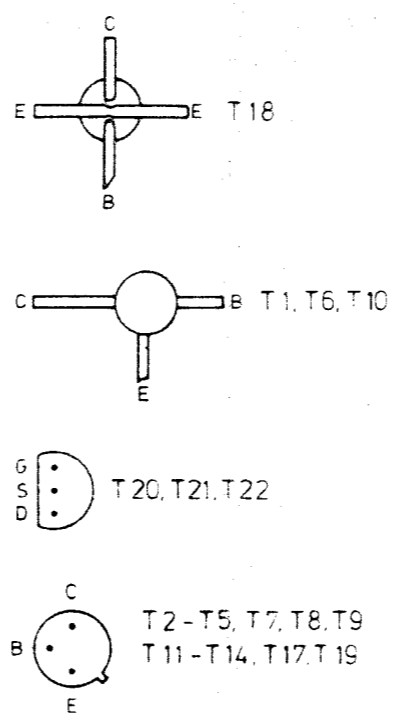
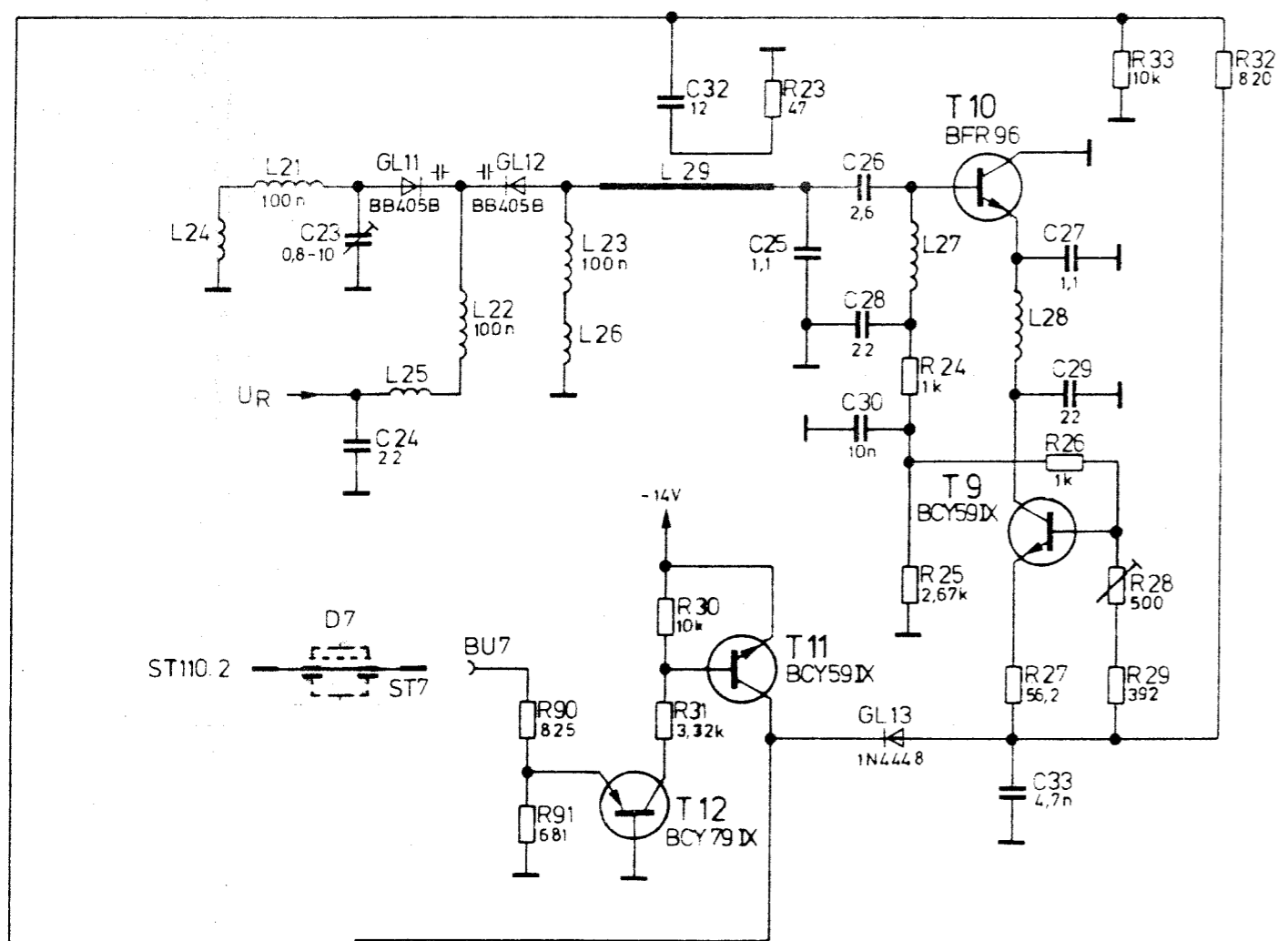
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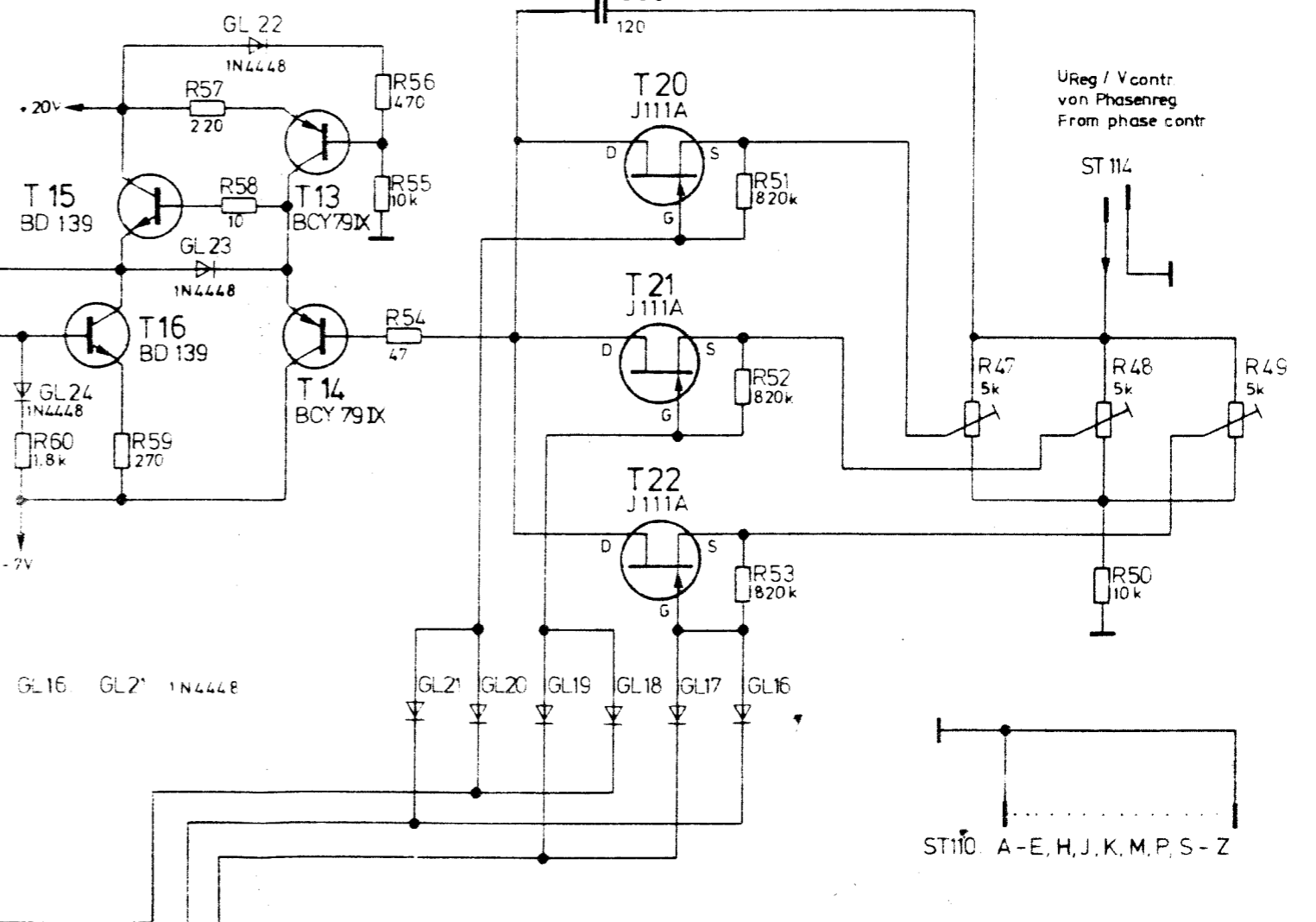
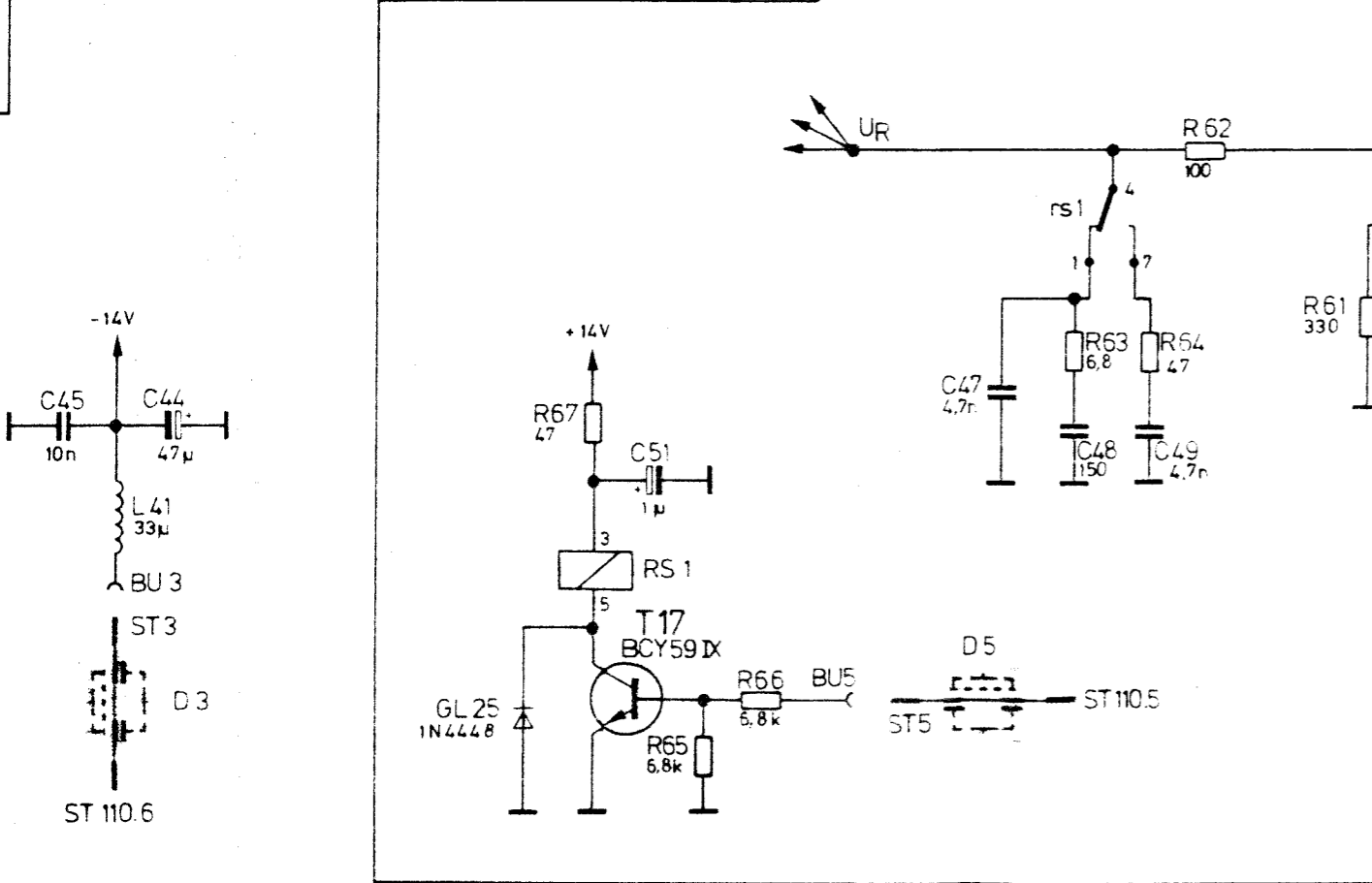
| Kennzeichen Component No. | Benennung/Beschreibung Designation | Sachnummer Stock No. | enthalten in contained in |
|------------------------------|---|-------------------------|------------------------------|
| T4 | AK BCY79IX PNP 45V 200MA TRANSISTOR SIEMENS BCY79IX | AK 010.3777 | 300.5270 |
| T5 | AK BCY59IX NPN 45V 200MA TRANSISTOR SIEMENS BCY59IX | AK 010.5163 | 300.5270 |
| T6 | AK BFR96 NPN 15V 5GHZ TRANSISTOR VALVO BFR96 | AK 093.2738 | 300.5270 |
| T7 | AK BCY59IX NPN 45V 200MA TRANSISTOR SIEMENS BCY59IX | AK 010.5163 | 300.5270 |
| T8 | AK BCY79IX PNP 45V 200MA TRANSISTOR SIEMENS BCY79IX | AK 010.3777 | 300.5270 |
| T9 | AK BCY59IX NPN 45V 200MA TRANSISTOR SIEMENS BCY59IX | AK 010.5163 | 300.5270 |
| T10 | AK BFR96 NPN 15V 5GHZ TRANSISTOR VALVO BFR96 | AK 093.2738 | 300.5270 |
| T11 | AK BCY59IX NPN 45V 200MA TRANSISTOR SIEMENS BCY59IX | AK 010.5163 | 300.5270 |
| T12 | AK BCY79IX PNP 45V 200MA TRANSISTOR SIEMENS BCY79IX | AK 010.3777 | 300.5270 |
| T13 | AK BCY79IX PNP 45V 200MA TRANSISTOR SIEMENS BCY79IX | AK 010.3777 | 300.5270 |
| T14 | AK BCY79IX PNP 45V 200MA TRANSISTOR SIEMENS BCY79IX | AK 010.3777 | 300.5270 |
| T15 | AL BD139 NPN 80V 1A0 TRANSISTOR VALVO BD139 | AL 274.8994 | 300.5270 |
| T16 | AL BD139 NPN 80V 1A0 TRANSISTOR VALVO BD139 | AL 274.8994 | 300.5270 |
| T17 | AK BCY59IX NPN 45V 200MA TRANSISTOR SIEMENS BCY59IX | AK 010.5163 | 300.5270 |
| T18 | AK NE02135 NPN 12V 5GHZ TRANSISTOR NEC NE02135 | 300.6147 | 300.5270 |
| T19 | AK BCY79IX PNP 45V 200MA TRANSISTOR SIEMENS BCY79IX | AK 010.3777 | 300.5270 |
| T20 | AM J111A NKAN 35V FET FET SILICONIX J111A | AM 214.7685 | 300.5270 |
| T21 | AM J111A NKAN 35V FET FET SILICONIX J111A | AM 214.7685 | 300.5270 |
| T22 | AM J111A NKAN 35V FET FET SILICONIX J111A | AM 214.7685 | 300.5270 |

- ENDE -

300.3719.00 SA BL10-



(Platte) Ausgangsoszillator I
 (Pcb) Output oscillator
 300.5270
 Zuführung Ausgangsoszillator I
 Feed output oscillator
 300.5292



Stromlauf zu Ausgangsoszillator I
 Output oscillator I
 Zeichn. Nr. 300.3719 S
 300.1000V 300.1000

Dieses Zeichnung ist unser Eigentum. Vervielfältigung, unbefugte Vervielfältigung, Mitteilung an andere ist strafbar und schadenersatzpflichtig.

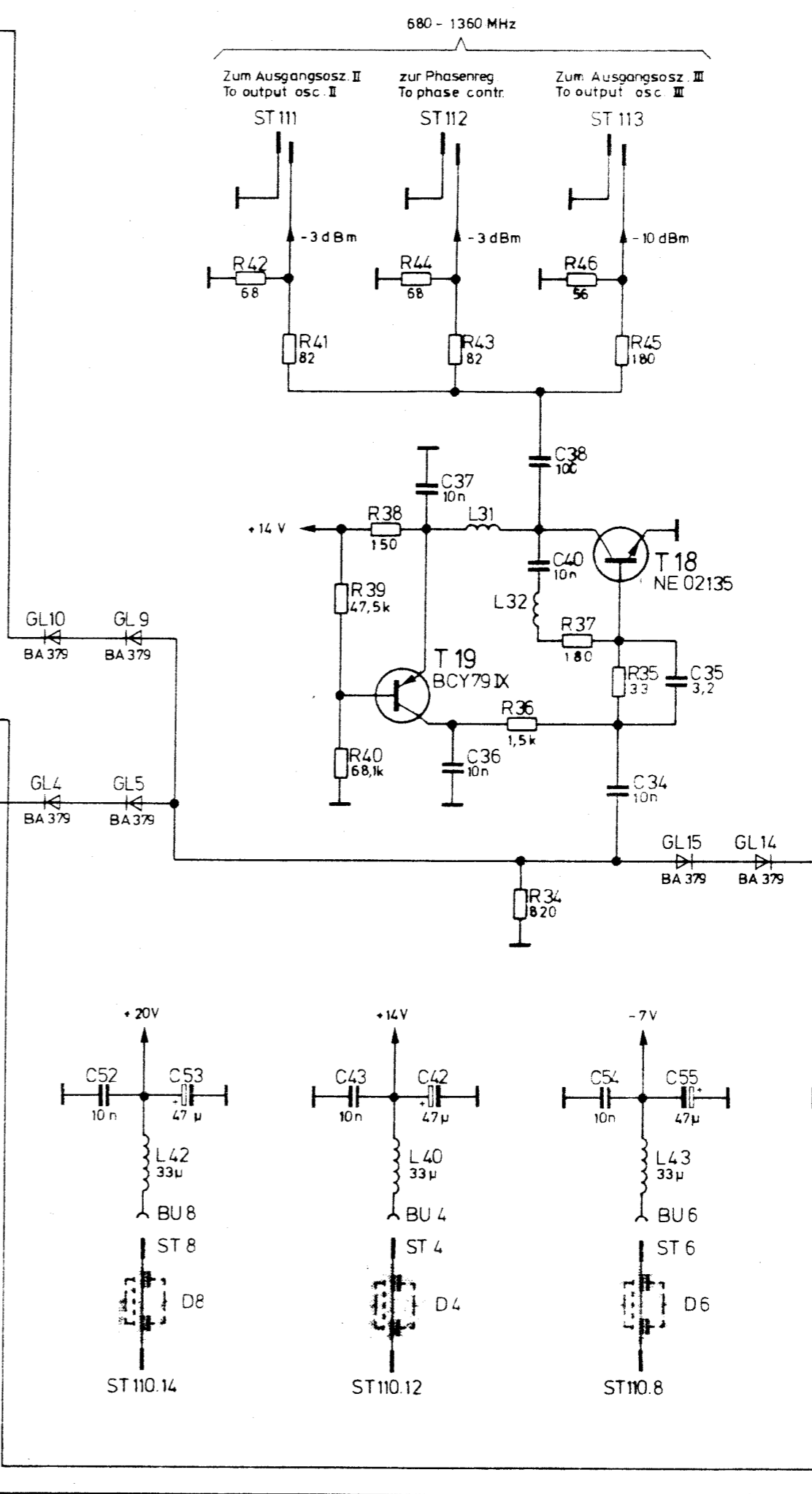
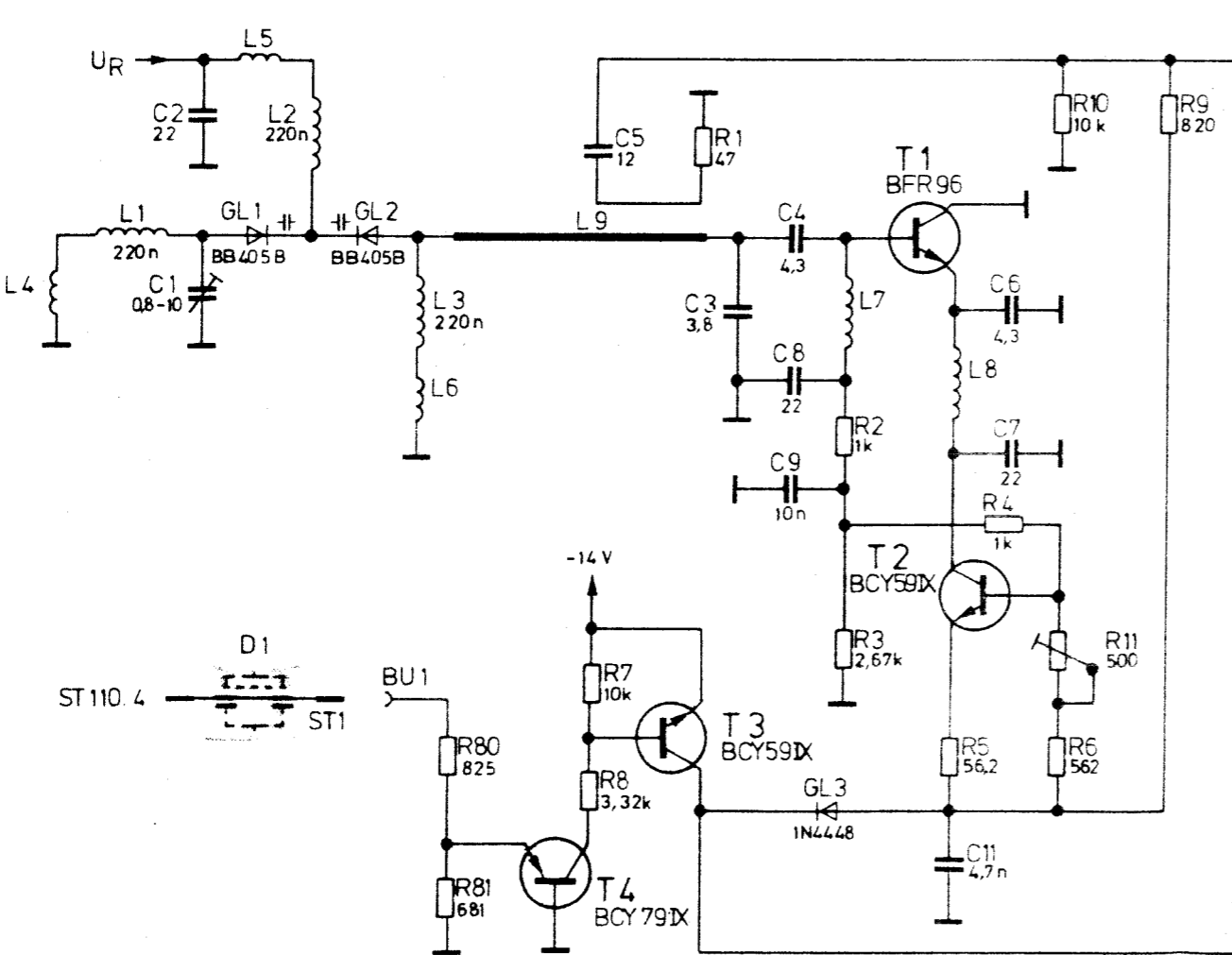
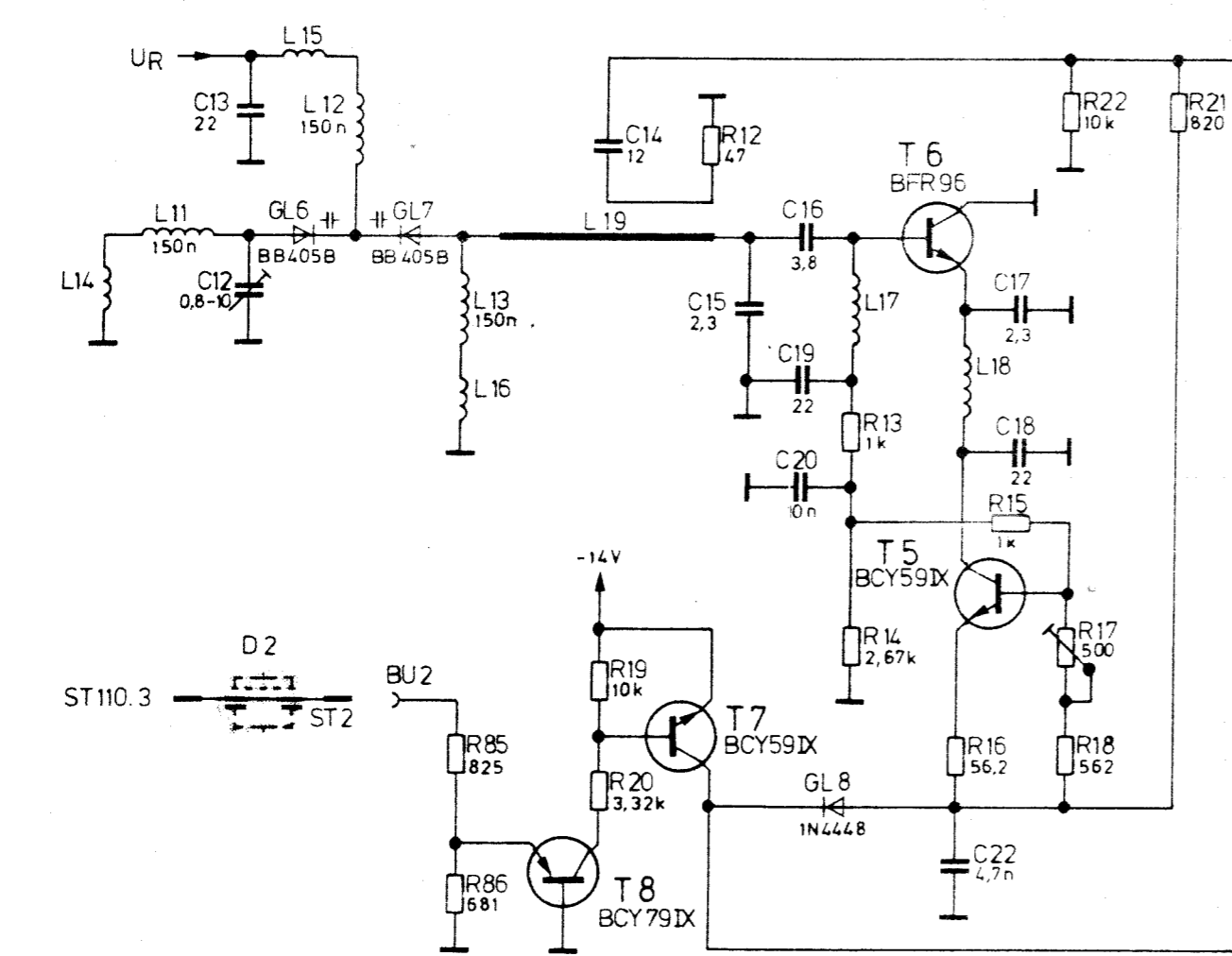
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| Name | Datum | Name | Datum |
|------|-------|------|-------|
| LS | 1.81 | LS | 1.81 |
| ib | 4.82 | ib | 4.82 |
| LS | 11.82 | LS | 11.82 |

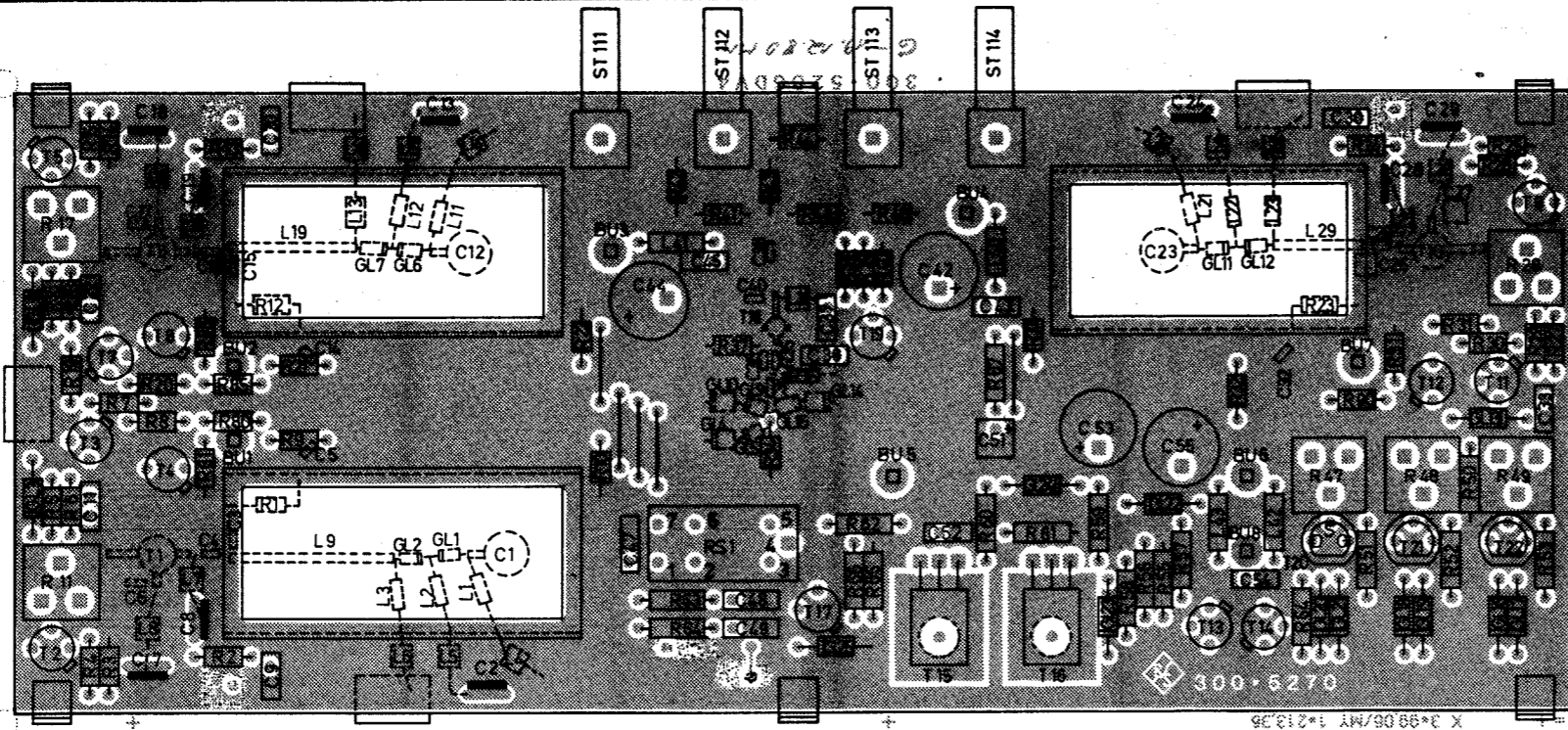
| Name | Datum | Name | Datum |
|------|-------|------|-------|
| C | 27860 | C | 27860 |
| D | 27860 | D | 27860 |
| E | 27860 | E | 27860 |

| Name | Datum | Name | Datum |
|------|---------|------|---------|
| Gu | 81 | Gu | 81 |
| LS | 20.1.81 | LS | 20.1.81 |
| AV | AV | AV | AV |

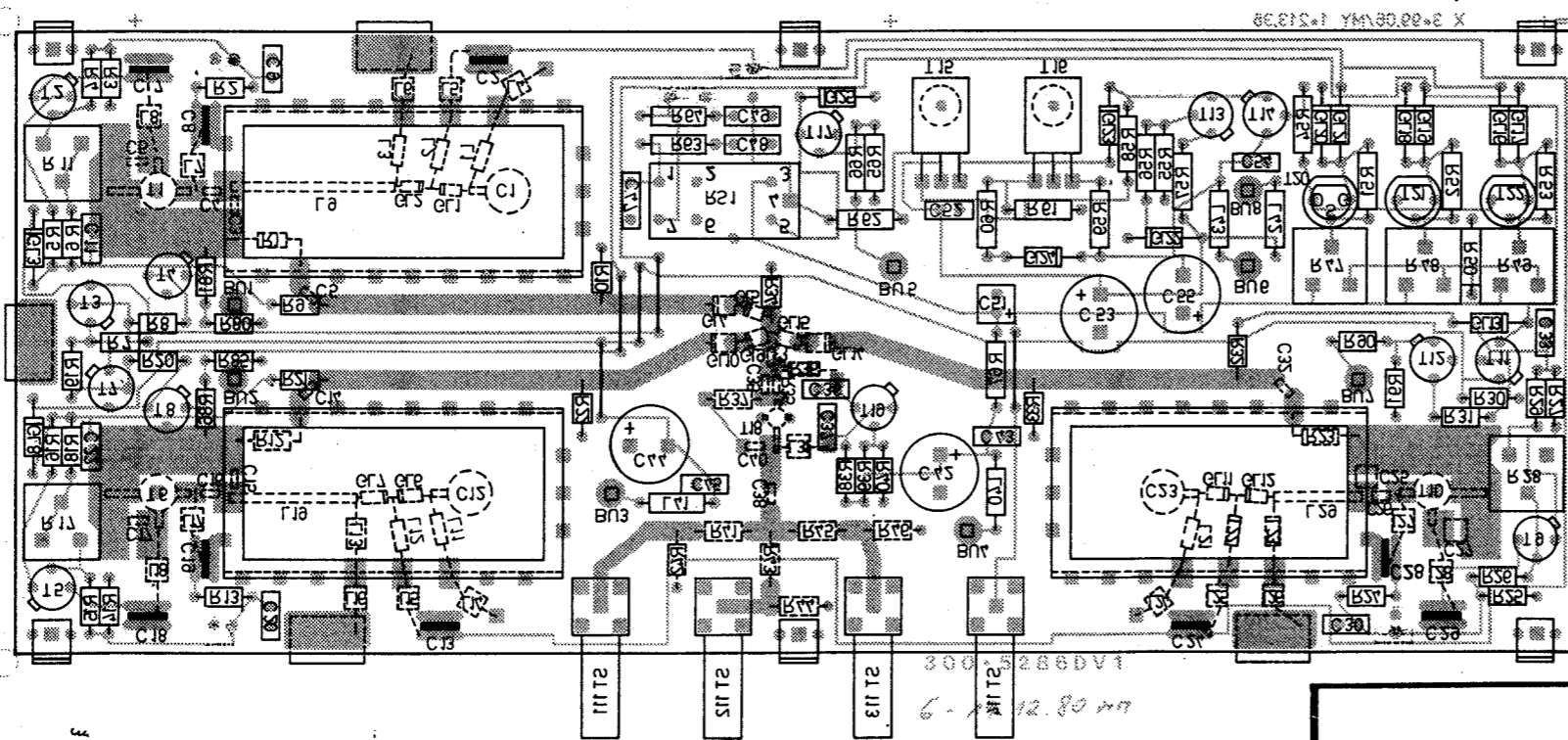
| Name | Datum | Name | Datum |
|------|-------|------|-------|
| 681 | 681 | 681 | 681 |
| 681 | 681 | 681 | 681 |



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Ansicht und Leitungsführung Bauteilseite
View of tracks on component side



Ansicht und Leitungsführung Lötseite
View of tracks on solder side

| | | | | | |
|-------------|-------|----------------------|----|--------------------------|-------------|
| Versorg.-Nr | | | | VG-Sachnr | |
| G | | 12.80 | LS | Maße ohne Toleranzangabe | Maßstab 1:1 |
| H | 27860 | 4.82 | ib | | |
| | | | | Halbzeug, Werkstoff | |
| | | | | Benennung | |
| | | | | Ausgangoszillator I | |
| | | | | Output oscillator I | |
| | | | | Blatt-Nr | |
| | | | | 3 | |
| | | | | Bl. | |
| And Zust | | Anderungs-Mitteilung | | Tag | |
| | | | | Name | |
| | | | | zu Gerät | |
| | | | | SMPC | |
| | | | | reg | |
| | | | | 300.1000 V | |
| | | | | erste Z | |
| | | | | 300.3719 | |
| | | | | Blatt-Nr | |
| | | | | 3 | |
| | | | | Bl. | |



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SERVICE INSTRUCTIONS FOR

Output Oscillator II

300.4315 (Y9)

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| 5.1 | Circuit Description | 5.1 |
| 5.2 | Checking and Adjustment Procedures | 5.1 |
| 5.2.1 | Checking the Output Level | 5.1 |
| 5.2.2 | Checking the Broadband Noise | 5.2 |
| 5.3 | Troubleshooting | 5.3 |
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| 5.3.2 | RF Levels | 5.3 |
| 5.3.3 | Interfaces | 5.4 |
| | Parts list | |
| | Circuit diagram | |
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5.1 Circuit Description

(See circuit diagram 300.4315 S and Fig. 5-1)

Y9 contains the switchable divider stages which divide the 680-to-1360-MHz octave directly produced in the output oscillator I (Y8) down to the 21.25-to-42.5-MHz octave.

The amplifier T1, T3 boosts the input signal to the level required for the divider B1 and corrects the frequency response of the input sensitivity of B1. The output signals of opposite phase from B1 to B4 are added in the transformers TR3 to TR5 ensuring optimum utilization of the level and matching between the dividers. A low broadband noise is thus obtained in conjunction with the limiting output amplifier T5, B6 which rejects AM noise.

To prevent subharmonics, divider stages not used at the input and output are switched off. The operational amplifiers B10 to B12 produce the control voltages for the PIN diodes switches using TTL levels.

5.2 Checking and Adjustment Procedures

5.2.1 Checking the Output Level

Setup on Y9:

- Connect spectrum analyzer (max. 1.5 GHz) to ST122.
- Apply frequency from 680 to 1360 MHz with a level of -3 ± 1 dBm to ST121. If Y9 is checked inside the chassis, the output oscillator I (Y8) may be used for this purpose.

Switch on XPC/SMPC and set frequency to 1000 MHz. Select division factor 1 in the output oscillator II. The control code for the division factor is available at the digital interface.

Vary the input frequency between 680 and 1360 MHz and measure output power at ST122. Proceed in the same manner for all factors. The nominal output levels are given in Table 5-2.

Table 5-2 Output levels of output oscillator II (Y9)

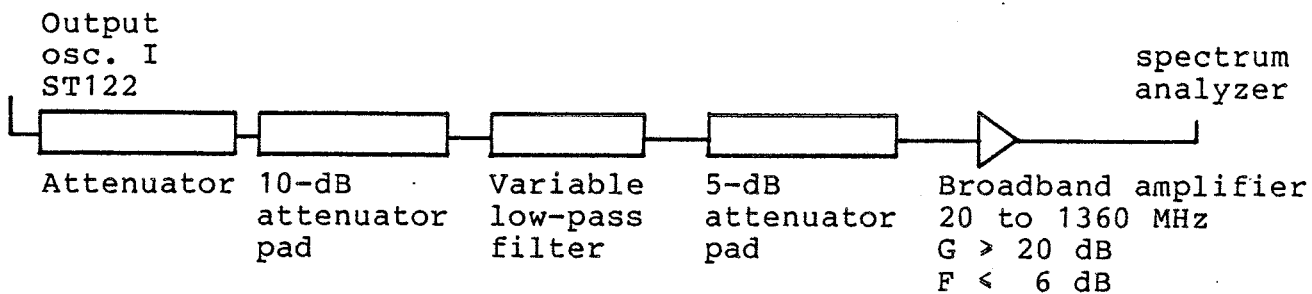
| Division factor | Output frequency/MHz | Output level/dBm |
|-----------------|----------------------|------------------|
| 1 | 680 to 1360 | 10 ±2 to 14 ±2 |
| 2 | 340 to 680 | 8 ±2 to 11 ±2 |
| 4 | 170 to 340 | 8 ±2 |
| 8 | 85 to 170 | 8 ±2 |
| 16 | 42.5 to 85 | 8 ±2 |
| 32 | 21.25 to 42.5 | 8 ±2 |

5.2.2 Checking the Broadband Noise

Setup on Y9:

- Connect 680-to-1360-MHz signal source with a level of -3 ± 1 dBm to ST121. The broadband noise of the signal source must be < -153 dB/Hz referred to 1 Hz bandwidth. If the Y9 is checked inside the chassis, the output oscillator I (Y8) can be used for this purpose.

Test setup:



Switch on XPC/SMPC and set frequency to 1000 MHz.

- Set variable attenuator to 40 dB. Select cut-off frequency of the low-pass filter so that the carrier frequency is within the pass band. Now vary the attenuator setting until the carrier power on the analyzer is 0 dBm.
- Then select the cut-off frequency of the low-pass filter so that the carrier frequency is within the stop band. Set the attenuator to 0 dB. Find the noise maximum in the pass band of the low-pass filter and reduce the noise power measured to 1 Hz test bandwidth. The broadband noise of the output oscillator II is the measured noise power referred to 1 Hz bandwidth minus the preset attenuation. In the case of an undue frequency response of the test setup a correction may become necessary.

The broadband noise over the input frequency range must be < -153 dBc referred to 1 Hz bandwidth for all division factors.

5.3 Troubleshooting

(For signature analysis see Processor Board 1)

5.3.1 Diode Switches

L corresponds to -6 ± 0.5 V

H corresponds to 17.5 ± 1.5 V

Division factor

| Pin | 1 | 2 | 4 | 8 | 16 | 32 |
|-------|---|---|---|---|----|----|
| B10.8 | L | H | H | H | H | H |
| 10.14 | H | L | L | L | L | L |
| 10.1 | H | L | H | H | H | H |
| 10.7 | L | H | L | L | L | L |
| B11.7 | H | H | L | H | H | H |
| 11.1 | L | L | H | L | L | L |
| 11.14 | H | H | H | L | H | H |
| 11.8 | L | L | L | H | L | L |
| B12.7 | H | H | H | H | L | H |
| 12.8 | L | L | L | L | H | L |
| 12.1 | L | L | L | L | L | H |
| 12.14 | L | L | L | H | H | H |

5.3.2 RF Levels

Measure the RF levels with the aid of a 500- Ω probe.
Pay attention to low-inductance earth connection of probe.

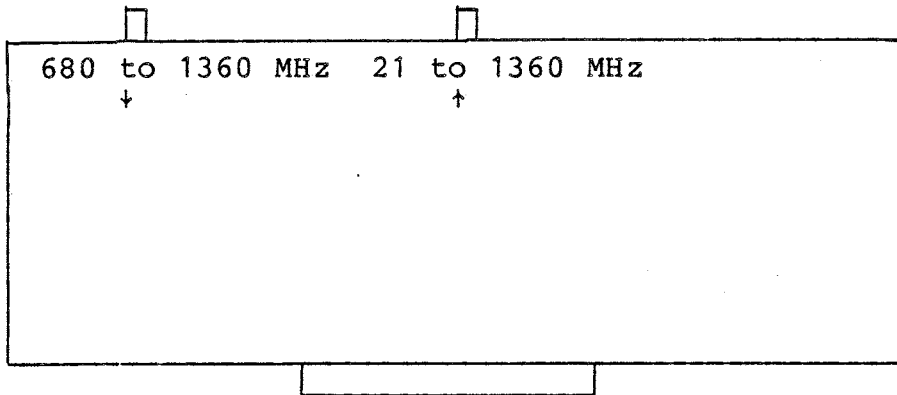
| Divider | Frequency/MHz | Level/dBm |
|---------|---------------|------------|
| B1.4 | 680 to 1360 | +5 to 10 |
| B2.4 | 340 to 680 | -5 to +5 |
| B3.4 | 170 to 340 | 0 to +5 |
| B4.1 | 85 to 170 | -5 \pm 2 |
| B5.1 | 42.5 to 85 | -5 \pm 2 |

Summing point of the divider outputs (R20):

Frequency 21.25 to 1360 MHz, level -5 to +5 dBm.

5.3.3 Interfaces

Output AM
osc. I
K17 K18
ST 121 ST 122



| ST/BU | 121 | 122 |
|----------------|-----------------|----------------|
| f | 680 to 1360 MHz | 21 to 1360 MHz |
| Level | -3 ±2 dBm | 9 to 13 dBm |
| Z | 50 Ω | 50 Ω |
| AC-DC | AC | AC |
| Shape of curve | sinusoidal | rectangular |

Digital Interface

| Octave/MHz | Divider factor | D5 | D4 | D3 | D2 | D1 | D0 |
|---------------|----------------|----------|-----|-----|-----|-----|-----|
| | | ST120.20 | .19 | .18 | .17 | .16 | .15 |
| 680 to 1360 | 1 | L | L | L | L | L | H |
| 340 to 680 | 2 | L | L | L | L | H | L |
| 170 to 340 | 4 | L | L | L | H | L | L |
| 85 to 170 | 8 | L | L | H | L | L | L |
| 42.5 to 85 | 16 | L | H | L | L | L | L |
| 21.25 to 42.5 | 32 | H | L | L | L | L | L |

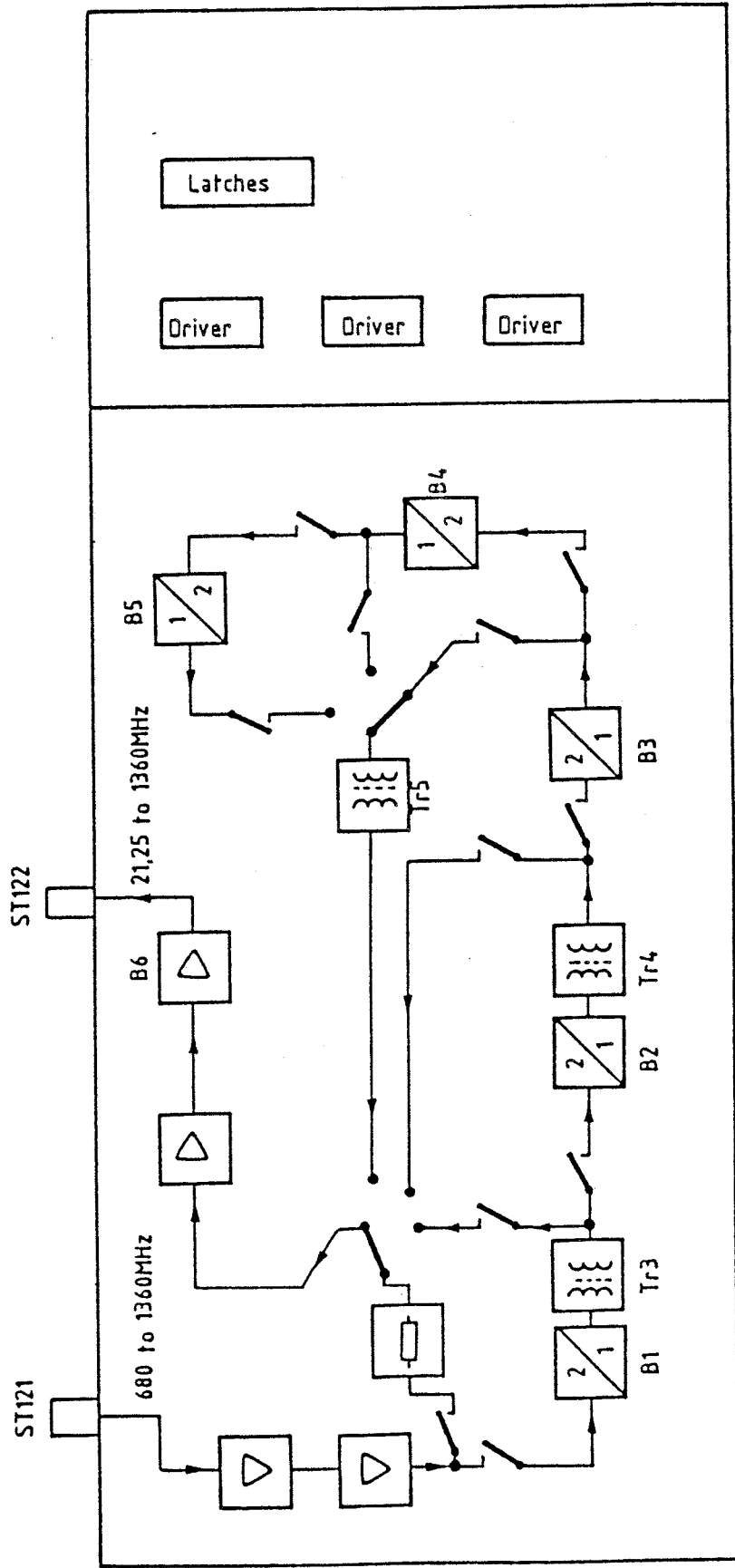


Fig. 5-1 Block diagram of the output oscillator II



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MÜNCHEN

Schalteillisten
Stromläufe
Bestückungspläne
Parts lists
Circuit diagrams
Components plans



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Schaltteilliste für
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AUSGANGSOSZILLATOR II
OUTPUT OSCILLATOR II

Sachnummer
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300.4315 SA

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| Kennzeichen Component No. | Benennung/Beschreibung Designation | Sachnummer Stock No. | enthalten in contained in |
|------------------------------|---|-------------------------|------------------------------|
| B1 | BL SP8606BDG 2:1DIVID UHF DIVIDER PLESSEY SP8606BDG | BL 092.9297 | 300.5311 |
| B2 | BL SP8606BDG 2:1DIVID UHF DIVIDER PLESSEY SP8606BDG | BL 092.9297 | 300.5311 |
| B3 | BL SP8606BDG 2:1DIVID UHF DIVIDER PLESSEY SP8606BDG | BL 092.9297 | 300.5311 |
| B4 | BL SP8602BCM 2:1DIVID UHF DIVIDER PLESSEY SP8602BCM | BL 092.9480 | 300.5311 |
| B5 | BL SP8602BCM 2:1DIVID UHF DIVIDER PLESSEY SP8602BCM | BL 092.9480 | 300.5311 |
| B6 | BD VERST.0,1-2GHZ/9DB 20V IC AMPLIFIER 0,1-2GHZ 9DB | 911.6826 | 300.5311 |
| B10 | B0 LM124J 4XOPER.AMPLIF. IC OPERATION AMPLIFIER LM NSC LM124J | B0 300.6353 | 300.5311 |
| B11 | B0 LM124J 4XOPER.AMPLIF. IC OPERATION AMPLIFIER LM NSC LM124J | B0 300.6353 | 300.5311 |
| B12 | B0 LM124J 4XOPER.AMPLIF. IC OPERATION AMPLIFIER LM NSC LM124J | B0 300.6353 | 300.5311 |
| B20 | BL SN74LS273N 8BIT-D-REG. 8BIT-D-REGISTER | BL 214.8998 | 300.5311 |
| BU1 | TEXAS SN74LS273N FP BUCHSE VERTIKAL P.V.1P SOCKET BERG 75377-001 | FP 278.5577 | 300.5311 |
| BIS/TO BU7 BU9 | FP BUCHSE VERTIKAL P.V.1P SOCKET BERG 75377-001 | FP 278.5577 | 300.5311 |
| BIS/TO BU12 | | | |
| C1 | CC 10NF+-10% 50V3K1200 CH CAPACITOR VITRAMON VJ1005Y103KFB | CC 082.3344 | 300.5311 |
| C3 | CC 10NF+-10% 50V3K1200 CH CAPACITOR VITRAMON VJ1005Y103KFB | CC 082.3344 | 300.5311 |
| C4 | CC 1NF+-10%63V K2000 CERAMIC CAPACITOR VALVO 2222 63051 102 | CC 022.0784 | 300.5311 |
| C5 | CC 10NF+-10% 50V3K1200 CH CAPACITOR VITRAMON VJ1005Y103KFB | CC 082.3344 | 300.5311 |
| C7 | CC 10NF+-10% 50V3K1200 CH CAPACITOR VITRAMON VJ1005Y103KFB | CC 082.3344 | 300.5311 |
| C8 | CC 1NF+-10%63V K2000 | CC 022.0784 | 300.5311 |
| | | 300.4315 | SA BL 1+ |

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| Kennzeichen Component No. | Benennung/Beschreibung Designation | Sachnummer Stock No. | enthalten in contained in |
|------------------------------|---|-------------------------|------------------------------|
| C9 | CERAMIC CAPACITOR VALVO 2222 63051 102 CC 1NF+-10%63V K2000 | CC 022.0784 | 300.5311 |
| C10 | CERAMIC CAPACITOR VALVO 2222 63051 102 CC 1NF+-10%63V K2000 | CC 022.0784 | 300.5311 |
| C11 | CERAMIC CAPACITOR VALVO 2222 63051 102 CC 10NF+-10% 50V3K1200 CH | CC 082.3344 | 300.5311 |
| C12 | CAPACITOR VITRAMON VJ1005Y103KFB CC 1NF+80-20%R4000 TRAP | CC 086.7515 | 300.5311 |
| C13 | CERAMIC CAPACITOR DRALORIC TRE7LOE1000/2080%R40 CC 1NF+80-20%R4000 TRAP | CC 086.7515 | 300.5311 |
| C14 | CERAMIC CAPACITOR DRALORIC TRE7LOE1000/2080%R40 CC 10NF-20+50%7X8R6000 | CC 087.7525 | 300.5311 |
| C15 | CAPACITOR VALVO 2222 63051 64051103 CC 1NF+80-20%R4000 TRAP | CC 086.7515 | 300.5311 |
| C16 | CERAMIC CAPACITOR DRALORIC TRE7LOE1000/2080%R40 CC 1NF+80-20%R4000 TRAP | CC 086.7515 | 300.5311 |
| C17 | CERAMIC CAPACITOR DRALORIC TRE7LOE1000/2080%R40 CC 1NF+80-20%R4000 TRAP | CC 086.7515 | 300.5311 |
| C18 | CERAMIC CAPACITOR DRALORIC TRE7LOE1000/2080%R40 CC 1NF+80-20%R4000 TRAP | CC 086.7515 | 300.5311 |
| C19 | CERAMIC CAPACITOR DRALORIC TRE7LOE1000/2080%R40 CC 1NF+80-20%R4000 TRAP | CC 086.7515 | 300.5311 |
| C20 | CERAMIC CAPACITOR DRALORIC TRE7LOE1000/2080%R40 CC 1NF+80-20%R4000 TRAP | CC 086.7515 | 300.5311 |
| C21 | CERAMIC CAPACITOR DRALORIC TRE7LOE1000/2080%R40 CC 10NF-20+50%7X8R6000 | CC 087.7525 | 300.5311 |
| C22 | CAPACITOR VALVO 2222 63051 64051103 CC 10NF-20+50%7X8R6000 | CC 087.7525 | 300.5311 |
| C23 | CAPACITOR VALVO 2222 63051 64051103 CC 10NF-20+50%7X8R6000 | CC 087.7525 | 300.5311 |
| C24 | CAPACITOR VALVO 2222 63051 64051103 CC 1NF+80-20%R4000 TRAP | CC 086.7515 | 300.5311 |
| C25 | CERAMIC CAPACITOR DRALORIC TRE7LOE1000/2080%R40 CC 1NF+80-20%R4000 TRAP | CC 086.7515 | 300.5311 |
| C26 | CERAMIC CAPACITOR DRALORIC TRE7LOE1000/2080%R40 CC 1NF+80-20%R4000 TRAP | CC 086.7515 | 300.5311 |
| C27 | CERAMIC CAPACITOR DRALORIC TRE7LOE1000/2080%R40 CC 1NF+80-20%R4000 TRAP | CC 086.7515 | 300.5311 |

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| Kennzeichen Component No. | Benennung/Beschreibung Designation | Sachnummer Stock No. | enthalten in contained in |
|------------------------------|---|-------------------------|------------------------------|
| C28 | CERAMIC CAPACITOR DRALORIC TRE7LOE1000/2080XR40 CC 1NF+80-20%R4000 TRAP | CC 086.7515 | 300.5311 |
| C29 | CERAMIC CAPACITOR DRALORIC TRE7LOE1000/2080XR40 CC 1NF+80-20%R4000 TRAP | CC 086.7515 | 300.5311 |
| C30 | CERAMIC CAPACITOR DRALORIC TRE7LOE1000/2080XR40 CC 1NF+80-20%R4000 TRAP | CC 086.7515 | 300.5311 |
| C31 | CERAMIC CAPACITOR DRALORIC TRE7LOE1000/2080XR40 CC 10NF-20+50%7X8R6000 | CC 087.7525 | 300.5311 |
| C32 | CAPACITOR VALVO 2222 63051 64051103 CC 10NF-20+50%7X8R6000 | CC 087.7525 | 300.5311 |
| C33 | CAPACITOR VALVO 2222 63051 64051103 CC 1NF+80-20%R4000 TRAP | CC 086.7515 | 300.5311 |
| C34 | CERAMIC CAPACITOR DRALORIC TRE7LOE1000/2080XR40 CC 1NF+80-20%R4000 TRAP | CC 086.7515 | 300.5311 |
| C35 | CERAMIC CAPACITOR DRALORIC TRE7LOE1000/2080XR40 CC 1NF+-10%63V K2000 | CC 022.0784 | 300.5311 |
| C36 | CERAMIC CAPACITOR VALVO 2222 63051 102 CC 1NF+-10%63V K2000 | CC 022.0784 | 300.5311 |
| C38 | CERAMIC CAPACITOR VALVO 2222 63051 102 TRIMMWERT / SELECTED | | 300.5311 |
| C39 | CC 10NF-20+50%7X8R6000 | CC 087.7525 | 300.5311 |
| C40 | CAPACITOR VALVO 2222 63051 64051103 CC 1NF+-10%63V K2000 | CC 022.0784 | 300.5311 |
| C41 | CERAMIC CAPACITOR VALVO 2222 63051 102 CC 1NF+-10%63V K2000 | CC 022.0784 | 300.5311 |
| C42 | CERAMIC CAPACITOR VALVO 2222 63051 102 CC 10NF-20+50%7X8R6000 | CC 087.7525 | 300.5311 |
| C43 | CAPACITOR VALVO 2222 63051 64051103 CC 10NF-20+50%7X8R6000 | CC 087.7525 | 300.5311 |
| C44 | CAPACITOR VALVO 2222 63051 64051103 CC 1NF+-10%63V K2000 | CC 022.0784 | 300.5311 |
| C45 | CERAMIC CAPACITOR VALVO 2222 63051 102 CC 10NF-20+50%7X8R6000 | CC 087.7525 | 300.5311 |
| C46 | CAPACITOR VALVO 2222 63051 64051103 CC 10NF-20+50%7X8R6000 | CC 087.7525 | 300.5311 |
| C47 | CAPACITOR VALVO 2222 63051 64051103 CC 10NF-20+50%7X8R6000 | CC 087.7525 | 300.5311 |
| | VALVO 2222 63051 64051103 | | |
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| Kennzeichen Component No. | Benennung/Beschreibung Designation | Sachnummer Stock No. | enthalten in contained in |
|------------------------------|---|-------------------------|------------------------------|
| C48 | CC 1NF+-10%63V K2000 CERAMIC CAPACITOR VALVO 2222 63051 102 | CC 022.0784 | 300.5311 |
| C49 | CC 1NF+-10%63V K2000 CERAMIC CAPACITOR VALVO 2222 63051 102 | CC 022.0784 | 300.5311 |
| C50 | CC 10NF-20+50%7X8R6000 CAPACITOR VALVO 2222 63051 64051103 | CC 087.7525 | 300.5311 |
| C51 | CC 1NF+-10%63V K2000 CERAMIC CAPACITOR VALVO 2222 63051 102 | CC 022.0784 | 300.5311 |
| C52 | CC 1NF+-10%63V K2000 CERAMIC CAPACITOR VALVO 2222 63051 102 | CC 022.0784 | 300.5311 |
| C53 | CC 10NF-20+50%7X8R6000 CAPACITOR VALVO 2222 63051 64051103 | CC 087.7525 | 300.5311 |
| C54 | CC 10NF-20+50%7X8R6000 CAPACITOR VALVO 2222 63051 64051103 | CC 087.7525 | 300.5311 |
| C55 | CC 10NF-20+50%7X8R6000 CAPACITOR VALVO 2222 63051 64051103 | CC 087.7525 | 300.5311 |
| C56 | CC 1NF+-10%63V K2000 CERAMIC CAPACITOR VALVO 2222 63051 102 | CC 022.0784 | 300.5311 |
| C57 | CC 1NF+-10%63V K2000 CERAMIC CAPACITOR VALVO 2222 63051 102 | CC 022.0784 | 300.5311 |
| C58 | CC 10NF-20+50%7X8R6000 CAPACITOR VALVO 2222 63051 64051103 | CC 087.7525 | 300.5311 |
| C59 | CC 10NF+-10% 50V3K1200 CH CAPACITOR VITRAMON VJ1005Y103KFB | CC 082.3344 | 300.5311 |
| C60 | CC 4,7PF+-0,5PF100V3NPO C CAPACITOR VITRAMON VJ1005A4R7DFB | CC 082.2977 | 300.5311 |
| C61 | CC 10NF+-10% 50V3K1200 CH CAPACITOR VITRAMON VJ1005Y103KFB | CC 082.3344 | 300.5311 |
| C62 | CC 10NF-20+50%7X8R6000 CAPACITOR VALVO 2222 63051 64051103 | CC 087.7525 | 300.5311 |
| C63 | CC 10NF-20+50%7X8R6000 CAPACITOR VALVO 2222 63051 64051103 | CC 087.7525 | 300.5311 |
| C64 | CC 10NF-20+50%7X8R6000 CAPACITOR VALVO 2222 63051 64051103 | CC 087.7525 | 300.5311 |
| C70 | CC 1NF+-10%63V K2000 CERAMIC CAPACITOR VALVO 2222 63051 102 | CC 022.0784 | 300.5311 |
| C71 | CC 1NF+-10%63V K2000 CERAMIC CAPACITOR VALVO 2222 63051 102 | CC 022.0784 | 300.5311 |

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| Kennzeichen Component No. | Benennung/Beschreibung Designation | Sachnummer Stock No. | enthalten in contained in |
|------------------------------|---|-------------------------|------------------------------|
| C72 | CC 1NF+-10%63V K2000 CERAMIC CAPACITOR VALVO 2222 63051 102 | CC 022.0784 | 300.5311 |
| C100 | CC 100NF+-10%50V5K1200VIE CAPACITOR AEROVOX CKR05BX104KL | CC 084.5350 | 300.5311 |
| C101 | CC 100NF+-10%50V5K1200VIE CAPACITOR AEROVOX CKR05BX104KL | CC 084.5350 | 300.5311 |
| C102 | CC 100NF+-10%50V5K1200VIE CAPACITOR AEROVOX CKR05BX104KL | CC 084.5350 | 300.5311 |
| C103 | CE 47UF -10+100%40V 11X13 ELECTROLYTIC CAPACITOR SIEMENS B41316-B7476-Z | CE 022.7589 | 300.5311 |
| C105 | CE 47UF -10+100%40V 11X13 ELECTROLYTIC CAPACITOR SIEMENS B41316-B7476-Z | CE 022.7589 | 300.5311 |
| C106 | CE 47UF -10+100%40V 11X13 ELECTROLYTIC CAPACITOR SIEMENS B41316-B7476-Z | CE 022.7589 | 300.5311 |
| C110 | CC 10NF-20+50%7X8R6000 CAPACITOR VALVO 2222 63051 64051103 | CC 087.7525 | 300.5311 |
| C111 | CC 10NF-20+50%7X8R6000 CAPACITOR VALVO 2222 63051 64051103 | CC 087.7525 | 300.5311 |
| C112 | CC 10NF-20+50%7X8R6000 CAPACITOR VALVO 2222 63051 64051103 | CC 087.7525 | 300.5311 |
| C113 | CC 10NF-20+50%7X8R6000 CAPACITOR VALVO 2222 63051 64051103 | CC 087.7525 | 300.5311 |
| C114 | CC 10NF-20+50%7X8R6000 CAPACITOR VALVO 2222 63051 64051103 | CC 087.7525 | 300.5311 |
| C115 | CC 10NF-20+50%7X8R6000 CAPACITOR VALVO 2222 63051 64051103 | CC 087.7525 | 300.5311 |
| C120 | CC 10NF-20+50%7X8R6000 CAPACITOR VALVO 2222 63051 64051103 | CC 087.7525 | 300.5311 |
| C121 | CE 47UF -10+100%16V 9X13 ELECTROLYTIC CAPACITOR ROEDERST ELKO EK47/16 | CE 022.7543 | 300.5311 |
| D1 | LD 35DB/200M-10GHZ PI-FIL CHOKE ERIE 1214-038 | LD 300.6818 | 300.5334 |
| BIS/TO D6 | | | |
| D7 | LD 35DB/200M-10GHZ PI-FIL CHOKE ERIE 1214-038 | LD 300.6818 | 300.5334 |
| D9 | LD 35DB/200M-10GHZ FI-FIL CHOKE ERIE 1214-038 | LD 300.6818 | 300.5334 |
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OUTPUT OSCILLATOR II**Sachnummer
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| Kennzeichen Component No. | Benennung/Beschreibung Designation | Sachnummer Stock No. | enthalten in contained in |
|------------------------------|--|-------------------------|------------------------------|
| BIS/TO D12 | | | |
| GL1 | AE BA379 PIN DIODE | 300.6918 | 300.5311 |
| GL2 | AE BA379 PIN DIODE | 300.6924 | 300.5311 |
| GL3 | AE BA379 PIN DIODE | 300.6918 | 300.5311 |
| GL4 | AE BA379 PIN DIODE | 300.6924 | 300.5311 |
| GL5 | AE BA379 PIN DIODE | 300.6924 | 300.5311 |
| GL6 | AE BA379 PIN DIODE | 300.6918 | 300.5311 |
| GL7 | AE BA379 PIN DIODE | 300.6918 | 300.5311 |
| GL8 | AE BA379 PIN DIODE | 300.6924 | 300.5311 |
| GL9 | AE BA379 PIN DIODE | 300.6918 | 300.5311 |
| GL10 | AE BA379 PIN DIODE | 300.6918 | 300.5311 |
| GL11 | AE BA379 PIN DIODE | 300.6924 | 300.5311 |
| GL12 | AE BA379 PIN DIODE | 300.6918 | 300.5311 |
| GL13 | AE BA379 PIN DIODE | 300.6924 | 300.5311 |
| GL14 | AE BA379 PIN DIODE | 300.6918 | 300.5311 |
| GL15 | AE BA379 PIN DIODE | 300.6924 | 300.5311 |
| GL16 | AE BA379 PIN DIODE | 300.6918 | 300.5311 |
| GL17 | AE BA244 BER.SCH.DIOD.UHF DIODE INTERMETAL BA244 | AE 439.6310 | 300.5311 |
| GL18 | AE BA244 BER.SCH.DIOD.UHF DIODE INTERMETAL BA244 | AE 439.6310 | 300.5311 |
| GL19 | AE BA244 BER.SCH.DIOD.UHF DIODE INTERMETAL BA244 | AE 439.6310 | 300.5311 |
| GL20 | AE BA244 BER.SCH.DIOD.UHF DIODE INTERMETAL BA244 | AE 439.6310 | 300.5311 |
| GL21 | AE BA244 BER.SCH.DIOD.UHF DIODE INTERMETAL BA244 | AE 439.6310 | 300.5311 |
| GL22 | AE BA244 BER.SCH.DIOD.UHF DIODE INTERMETAL BA244 | AE 439.6310 | 300.5311 |
| GL23 | AE BA244 BER.SCH.DIOD.UHF DIODE INTERMETAL BA244 | AE 439.6310 | 300.5311 |
| GL24 | AE BA244 BER.SCH.DIOD.UHF | AE 439.6310 | 300.5311 |
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| Kennzeichen Component No. | Benennung/Beschreibung Designation | Sachnummer Stock No. | enthalten in contained in |
|------------------------------|--|-------------------------|------------------------------|
| GL25 | DIODE INTERMETAL BA244 AE BA244 BER.SCH.DIOD.UHF | AE 439.6310 | 300.5311 |
| GL26 | DIODE INTERMETAL BA244 AE BA244 BER.SCH.DIOD.UHF | AE 439.6310 | 300.5311 |
| GL27 | DIODE INTERMETAL BA244 AE BA379 | 300.6924 | 300.5311 |
| GL28 | PIN DIODE AE BA379 | 300.6918 | 300.5311 |
| GL29 | PIN DIODE AE BA244 BER.SCH.DIOD.UHF | AE 439.6310 | 300.5311 |
| GL30 | DIODE INTERMETAL BA244 AE BA244 BER.SCH.DIOD.UHF | AE 439.6310 | 300.5311 |
| GL31 | DIODE INTERMETAL BA244 AE BA244 BER.SCH.DIOD.UHF | AE 439.6310 | 300.5311 |
| GL32 | DIODE INTERMETAL BA244 AE BA244 BER.SCH.DIOD.UHF | AE 439.6310 | 300.5311 |
| GL33 | DIODE INTERMETAL BA244 AE BA244 BER.SCH.DIOD.UHF | AE 439.6310 | 300.5311 |
| GL34 | DIODE INTERMETAL BA244 AE BA244 BER.SCH.DIOD.UHF | AE 439.6310 | 300.5311 |
| GL35 | DIODE INTERMETAL BA244 AE BA244 BER.SCH.DIOD.UHF | AE 439.6310 | 300.5311 |
| GL36 | DIODE INTERMETAL BA244 AE BA244 BER.SCH.DIOD.UHF | AE 439.6310 | 300.5311 |
| GL37 | DIODE INTERMETAL BA244 AE BA244 BER.SCH.DIOD.UHF | AE 439.6310 | 300.5311 |
| GL38 | DIODE INTERMETAL BA244 AE BA244 BER.SCH.DIOD.UHF | AE 439.6310 | 300.5311 |
| GL39 | DIODE INTERMETAL BA244 AE BA244 BER.SCH.DIOD.UHF | AE 439.6310 | 300.5311 |
| GL40 | DIODE INTERMETAL BA244 AE BA244 BER.SCH.DIOD.UHF | AE 439.6310 | 300.5311 |
| GL41 | DIODE INTERMETAL BA244 AE BA244 BER.SCH.DIOD.UHF | AE 439.6310 | 300.5311 |
| GL42 | DIODE INTERMETAL BA244 AE BA244 BER.SCH.DIOD.UHF | AE 439.6310 | 300.5311 |
| GL43 | DIODE INTERMETAL BA244 AE BA244 BER.SCH.DIOD.UHF | AE 439.6310 | 300.5311 |
| | INTERMETAL BA244 | | |
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| Kennzeichen Component No. | Benennung/Beschreibung Designation | Sachnummer Stock No. | enthalten in contained in |
|------------------------------|--|-------------------------|------------------------------|
| GL44 | AE BA244 BER.SCH.DIOD.UHF DIODE | AE 439.6310 | 300.5311 |
| GL80 | INTERMETAL BA244 AD 1N4148M 75V 0,08A UDI DIODE | 012.1536 | 300.5311 |
| GL81 | VALVO 1N4148M AD 1N4148M 75V 0,08A UDI DIODE | 012.1536 | 300.5311 |
| GL82 | VALVO 1N4148M AD 1N4148M 75V 0,08A UDI DIODE | 012.1536 | 300.5311 |
| GL83 | VALVO 1N4148M AD 1N4148M 75V 0,08A UDI DIODE | 012.1536 | 300.5311 |
| GL84 | VALVO 1N4148M AD 1N4148M 75V 0,08A UDI DIODE | 012.1536 | 300.5311 |
| GL85 | VALVO 1N4148M AD 1N4148M 75V 0,08A UDI DIODE | 012.1536 | 300.5311 |
| L1 | SPULE COIL | 300.9400 | 300.5311 |
| L2 | SPULE COIL | 300.9400 | 300.5311 |
| L6 | SPULE COIL | 300.9400 | 300.5311 |
| L7 | ENTHALTEN IN/INCLUDED IN LEITERPLATTE/PCB | | 300.5311 |
| L100 | LD 4,7 UH 10% 158 MIA CHOKE DELEVAN | LD 092.3230 | 300.5311 |
| L101 | LD 100 UH 10% 52 MIA CHOKE FELEVAN DROSSEL0819-72 | LD 092.3399 | 300.5311 |
| L102 | LD 0,56 UH 10% 560 MIA CHOKE DELEVAN | LD 092.3124 | 300.5311 |
| L103 | LD 4,7 UH 10% 158 MIA CHOKE DELEVAN | LD 092.3230 | 300.5311 |
| R1 | RG 0,125W 33 OHM+-1% CHIP CHIP RESISTOR MSI WA-4 330HM 1% PG-T | 337.8214 | 300.5311 |
| R2 | RL 0,21W 1,50KOHM+-1%TK50 RESISTOR | RL 092.1467 | 300.5311 |
| R3 | RESISTA MK1 1K5 1% TK50 RL 0,21W 68,1 OHM+-1%TK50 RESISTOR | RL 092.1309 | 300.5311 |
| R4 | RESISTA MK1 68,1OHM 1% TK50 RL 0,21W 68,1KOHM+-1%TK50 RESISTOR | RL 092.1667 | 300.5311 |
| R5 | RESISTA MK1 68K10 1% TK50 RL 0,21W 47,5KOHM+-1%TK50 RESISTOR | RL 092.1644 | 300.5311 |
| | | 300.4315 | SA BL 8+ |

**ROHDE & SCHWARZ**AZ Datum
Date

18 1083

Schaltteilliste für
Parts list forAUSGANGSOSZILLATOR II
OUTPUT OSCILLATOR IISachnummer
Stock No.

300.4315

SA

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| Kennzeichen Component No. | Benennung/Beschreibung Designation | Sachnummer Stock No. | enthalten in contained in |
|------------------------------|--|-------------------------|------------------------------|
| R6 | RESISTA MK1 47K5 1% TK50 RL 0,21W 180 OHM2% UNGEW. RESISTOR | RL 092.5985 | 300.5311 |
| R7 | RESISTA MK1 180OHM 2% UNGEW. RG 0,125W 33 OHM+-1% CHIP CHIP RESISTOR | 337.8214 | 300.5311 |
| R8 | MSI WA-4 330HM 1% PG-T RL 0,21W 1,50KOHM+-1%TK50 RESISTOP | RL 092.1467 | 300.5311 |
| R9 | RESISTA MK1 1K5 1% TK50 RL 0,21W 120 OHM2% UNGEW. RESISTOR | RL 092.5962 | 300.5311 |
| R10 | RESISTA MK1 120OHM 2% UNGEW. RL 0,21W 68,1KOHM+-1%TK50 RESISTOR | RL 092.1667 | 300.5311 |
| R11 | RESISTA MK1 68K10 1% TK50 RL 0,21W 47,5KOHM+-1%TK50 RESISTOR | RL 092.1644 | 300.5311 |
| R12 | RESISTA MK1 47K5 1% TK50 RL 0,21W 150 OHM2% UNGEW. RESISTOR | RL 092.5979 | 300.5311 |
| R13 | RESISTA MK1 150OHM 2% UNGEW. RL 0,21W 820 OHM2% UNGEW. RESISTOR | RL 092.6069 | 300.5311 |
| R14 | RESISTA MK1 820OHM 2% UNG. RL 0,21W 1,50KOHM+-1%TK50 RESISTOR | RL 092.1467 | 300.5311 |
| R15 | RESISTA MK1 1K5 1% TK50 RL 0,21W 1,50KOHM+-1%TK50 RESISTOR | RL 092.1467 | 300.5311 |
| R16 | RESISTA MK1 1K5 1% TK50 RL 0,21W 150 OHM2% UNGEW. RESISTOR | RL 092.5979 | 300.5311 |
| R17 | RESISTA MK1 150OHM 2% UNGEW. RL 0,21W 39 OHM2% UNGEW. RESISTOR | RL 092.5904 | 300.5311 |
| R18 | RESISTA MK1 39OHM 2% UNGEW. RL 0,21W 150 OHM2% UNGEW. RESISTOR | RL 092.5979 | 300.5311 |
| R19 | RESISTA MK1 150OHM 2% UNGEW. RL 0,21W 1,50KOHM+-1%TK50 RESISTOR | RL 092.1467 | 300.5311 |
| R20 | RESISTA MK1 1K5 1% TK50 RL 0,21W 820 OHM2% UNGEW. RESISTOR | RL 092.6069 | 300.5311 |
| R21 | RESISTA MK1 820OHM 2% UNG. RL 0,21W 5,62KOHM+-1%TK50 RESISTOR | RL 092.1538 | 300.5311 |
| R22 | RESISTA MK1 5K62 1% TK50 RL 0,21W 390 OHM2% UNGEW. RESISTOR | RL 092.6023 | 300.5311 |
| R23 | RESISTA MK1 390OHM 2% UNGEW. RL 0,21W 390 OHM2% UNGEW. RESISTOR | RL 092.6023 | 300.5311 |
| R24 | RESISTA MK1 390OHM 2% UNGEW. RL 0,21W 820 OHM2% UNGEW. RESISTOR | RL 092.6069 | 300.5311 |
| | | 300.4315 | SA BL 9+ |

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| | |
|----|-------|
| ÄZ | Datum |
| 18 | 1083 |

| |
|--|
| Schaltteilliste für Parts list for AUSGANGSOSZILLATOR II OUTPUT OSCILLATOR II |
|--|

| | |
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| Sachnummer Stock No. | Blatt Page |
| 300.4315 SA | 10 |

| Kennzeichen Component No. | Benennung/Beschreibung Designation | Sachnummer Stock No. | enthalten in contained in |
|------------------------------|---|-------------------------|------------------------------|
| R25 | RESISTA MK1 8200HM 2% UNG. RL 0,21W 820 OHM2% UNGEW. RESISTOR | RL 092.6069 | 300.5311 |
| R26 | RESISTA MK1 8200HM 2% UNG. RL 0,21W 1,50KOHM+-1%TK50 RESISTOR | RL 092.1467 | 300.5311 |
| R27 | RESISTA MK1 1K5 1% TK50 RL 0,21W 5,62KOHM+-1%TK50 RESISTOR | RL 092.1538 | 300.5311 |
| R28 | RESISTA MK1 5K62 1% TK50 RL 0,21W 470 OHM2% UNGEW. RESISTOR | RL 092.6030 | 300.5311 |
| R29 | RESISTA MK1 4700HM 2% UNGEW. RL 0,21W 470 OHM2% UNGEW. RESISTOR | RL 092.6030 | 300.5311 |
| R30 | RESISTA MK1 4700HM 2% UNGEW. RL 0,21W 820 OHM2% UNGEW. RESISTOR | RL 092.6069 | 300.5311 |
| R31 | RESISTA MK1 8200HM 2% UNG. RL 0,21W 820 OHM2% UNGEW. RESISTOR | RL 092.6069 | 300.5311 |
| R32 | RESISTA MK1 8200HM 2% UNG. RL 0,21W 1,50KOHM+-1%TK50 RESISTOR | RL 092.1467 | 300.5311 |
| R33 | RESISTA MK1 1K5 1% TK50 RL 0,21W 5,62KOHM+-1%TK50 RESISTOR | RL 092.1538 | 300.5311 |
| R34 | RESISTA MK1 5K62 1% TK50 RL 0,21W 470 OHM2% UNGEW. RESISTOR | RL 092.6030 | 300.5311 |
| R35 | RESISTA MK1 4700HM 2% UNGEW. RL 0,21W 470 OHM2% UNGEW. RESISTOR | RL 092.6030 | 300.5311 |
| R36 | RESISTA MK1 4700HM 2% UNGEW. RL 0,21W 1,78KOHM+-1%TK50 RESISTOR | RL 092.4720 | 300.5311 |
| R37 | RESISTA MK1 1K78 1% TK50 RL 0,21W 1,78KOHM+-1%TK50 RESISTOR | RL 092.4720 | 300.5311 |
| R38 | RESISTA MK1 1K78 1% TK50 RL 0,21W 1,78KOHM+-1%TK50 RESISTOR | RL 092.4720 | 300.5311 |
| R39 | RESISTA MK1 1K78 1% TK50 RL 0,21W 1,78KOHM+-1%TK50 RESISTOR | RL 092.4720 | 300.5311 |
| R40 | RESISTA MK1 1K78 1% TK50 RL 0,21W 2,15KOHM+-1%TK50 RESISTOR | RL 092.4772 | 300.5311 |
| R41 | RESISTA MK1 2K15 1% TK50 RL 0,21W 2,15KOHM+-1%TK50 RESISTOR | RL 092.4772 | 300.5311 |
| R42 | RESISTA MK1 2K15 1% TK50 RL 0,21W 15,0KOHM+-1%TK50 RESISTOR | RL 092.1580 | 300.5311 |
| R43 | RESISTA MK1 15K 1% TK50 RL 0,21W 820 OHM2% UNGEW. RESISTOR | RL 092.6069 | 300.5311 |

300.4315 SA BL10+



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AZ Datum
Date
18 1083

Schaltteilliste für
Parts list for
AUSGANGSOSZILLATOR II
OUTPUT OSCILLATOR II

Sachnummer
Stock No.

300.4315

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| Kennzeichen Component No. | Benennung/Beschreibung Designation | Sachnummer Stock No. | enthalten in contained in |
|------------------------------|--|-------------------------|------------------------------|
| R44 | RESISTA MK1 8200HM 2% UNG. RL 0,21W 1,50KOHM+-1%TK50 RESISTOR | RL 092.1467 | 300.5311 |
| R45 | RESISTA MK1 1K5 1% TK50 RL 0,21W 1,50KOHM+-1%TK50 RESISTOR | RL 092.1467 | 300.5311 |
| R46 | RESISTA MK1 1K5 1% TK50 RL 0,21W 1,50KOHM+-1%TK50 RESISTOR | RL 092.1467 | 300.5311 |
| R47 | RESISTA MK1 1K5 1% TK50 RL 0,21W 1,78KOHM+-1%TK50 RESISTOR | RL 092.4720 | 300.5311 |
| R48 | RESISTA MK1 1K78 1% TK50 RL 0,21W 1,78KOHM+-1%TK50 RESISTOR | RL 092.4720 | 300.5311 |
| R49 | RESISTA MK1 1K78 1% TK50 RL 0,21W 1,78KOHM+-1%TK50 RESISTOR | RL 092.4720 | 300.5311 |
| R50 | RESISTA MK1 1K78 1% TK50 RL 0,21W 1,78KOHM+-1%TK50 RESISTOR | RL 092.4720 | 300.5311 |
| R51 | RESISTA MK1 1K78 1% TK50 RL 0,21W 2,15KOHM+-1%TK50 RESISTOR | RL 092.4772 | 300.5311 |
| R52 | RESISTA MK1 2K15 1% TK50 RL 0,21W 2,15KOHM+-1%TK50 RESISTOR | RL 092.4772 | 300.5311 |
| R53 | RESISTA MK1 2K15 1% TK50 RL 0,21W 1,50KOHM+-1%TK50 RESISTOR | RL 092.1467 | 300.5311 |
| R54 | RESISTA MK1 1K5 1% TK50 RL 0,21W 1,50KOHM+-1%TK50 RESISTOR | RL 092.1467 | 300.5311 |
| R55 | RESISTA MK1 1K5 1% TK50 RL 0,21W 1,50KOHM+-1%TK50 RESISTOR | RL 092.1467 | 300.5311 |
| R56 | RESISTA MK1 1K5 1% TK50 RL 0,21W 1,78KOHM+-1%TK50 RESISTOR | RL 092.4720 | 300.5311 |
| R57 | RESISTA MK1 1K78 1% TK50 RL 0,21W 1,78KOHM+-1%TK50 RESISTOR | RL 092.4720 | 300.5311 |
| R58 | RESISTA MK1 1K78 1% TK50 RL 0,21W 1,78KOHM+-1%TK50 RESISTOR | RL 092.4720 | 300.5311 |
| R59 | RESISTA MK1 1K78 1% TK50 RL 0,21W 1,78KOHM+-1%TK50 RESISTOR | RL 092.4720 | 300.5311 |
| R60 | RESISTA MK1 1K78 1% TK50 RG 0,125W 33 OHM+-1% CHIP CHIP RESISTOR | 337.8214 | 300.5311 |
| P61 | MSI WA-4 330HM 1% PG-T RL 0,21W 180 OHM2% UNGEW. RESISTOR | RL 092.5985 | 300.5311 |
| R62 | RESISTA MK1 1800HM 2% UNGEW. RL 0,21W 1,50KOHM+-1%TK50 RESISTOR | RL 092.1467 | 300.5311 |
| | | 300.4315 | SA BL11+ |

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Schaltteilliste für
Parts list for
AUSGANGSOSZILLATOR II
OUTPUT OSCILLATOR IISachnummer
Stock No.

300.4315

SA

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| Kennzeichen Component No. | Benennung/Beschreibung Designation | Sachnummer Stock No. | enthalten in contained in |
|------------------------------|---|-------------------------|------------------------------|
| R63 | RESISTA MK1 1K5 1% TK50 RL 0,21W 68,1KOHM+-1%TK50 RESISTOR | RL 092.1667 | 300.5311 |
| R64 | RESISTA MK1 68K10 1% TK50 RL 0,21W 47,5KOHM+-1%TK50 RESISTOR | RL 092.1644 | 300.5311 |
| R65 | RESISTA MK1 47K5 1% TK50 RL 0,21W 150 OHM2% UNGEW. RESISTOR | RL 092.5979 | 300.5311 |
| R66 | RESISTA MK1 150OHM 2% UNGEW. RL 0,35W 15,0KOHM+-1%TK50 RESISTOR | RL 083.1400 | 300.5311 |
| R67 | DRALORIC SMA0207/15K-F-D RL 0,35W 15,0KOHM+-1%TK50 RESISTOR | RL 083.1400 | 300.5311 |
| R80 | DRALORIC SMA0207/15K-F-D RL 0,35W 18,2KOHM+-1%TK50 RESISTOR | RL 083.1480 | 300.5311 |
| R81 | DRALORIC SMA/207/18,2K-F-C RL 0,35W 1,50KOHM+-1%TK50 RESISTOR | RL 083.0732 | 300.5311 |
| R82 | DRALORIC SMA0207/1,50K-F-D RL 0,35W 18,2KOHM+-1%TK50 RESISTOR | RL 083.1480 | 300.5311 |
| R83 | DRALORIC SMA/207/18,2K-F-C RL 0,35W 1,50KOHM+-1%TK50 RESISTOR | RL 083.0732 | 300.5311 |
| R84 | DRALORIC SMA0207/1,50K-F-D RL 0,35W 18,2KOHM+-1%TK50 RESISTOR | RL 083.1480 | 300.5311 |
| R85 | DRALORIC SMA/207/18,2K-F-C RL 0,35W 1,50KOHM+-1%TK50 RESISTOR | RL 083.0732 | 300.5311 |
| R86 | DRALORIC SMA0207/1,50K-F-D RL 0,35W 10,0KOHM+-1%TK50 RESISTOR | RL 083.1297 | 300.5311 |
| R99. | DRALORIC SMA0207/10K-F-D RL 0,21W 33 OHM2% UNGEW. RESISTOR | RL 092.5891 | 300.5311 |
| R100 | RESISTA MK1 330HM 2% UNGEW. RL 0,21W 294 OHM+-1%TK50 RESISTOR | RL 092.4550 | 300.5311 |
| R101 | RESISTA MK1 294 1% TK50 RL 0,21W 36,5 OHM+-1%TK50 RESISTOR | RL 092.0077 | 300.5311 |
| R102 | RS 0,5W20 OHM+-10%10X10XS CERMET POTENTIOMETER T BOURNS 3386F-1-200 | RS 087.7548 | 300.5311 |
| ST1 | FP EINZELKONTAKTSTIFT SINGLE-CONTACT PIN ULMIC R&S.ZCHNG.300.8804 | 300.8804 | 300.5334 |
| BIS/TO ST6 ST7 | FP EINZELKONTAKTSTIFT SINGLE-CONTACT PIN ULMIC R&S.ZCHNG.300.8804 | 300.8804 | 300.5334 |
| | | 300.4315 | SA BL12+ |



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ÄZ Datum
Date

18 1083

Schaltteilliste für
Parts list for

AUSGANGSOSZILLATOR II
OUTPUT OSCILLATOR II

Sachnummer
Stock No.

300.4315

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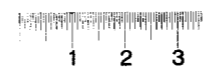
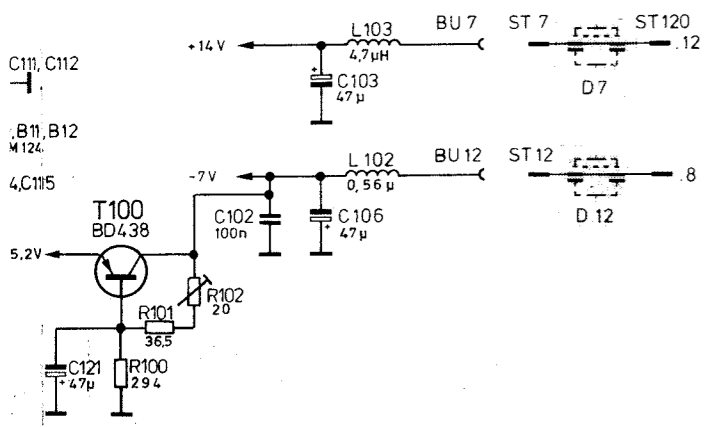
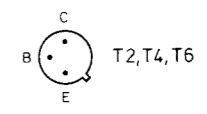
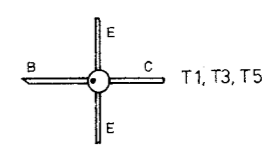
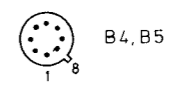
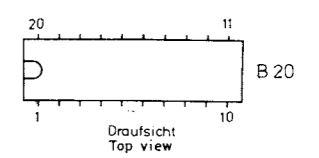
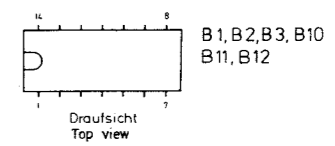
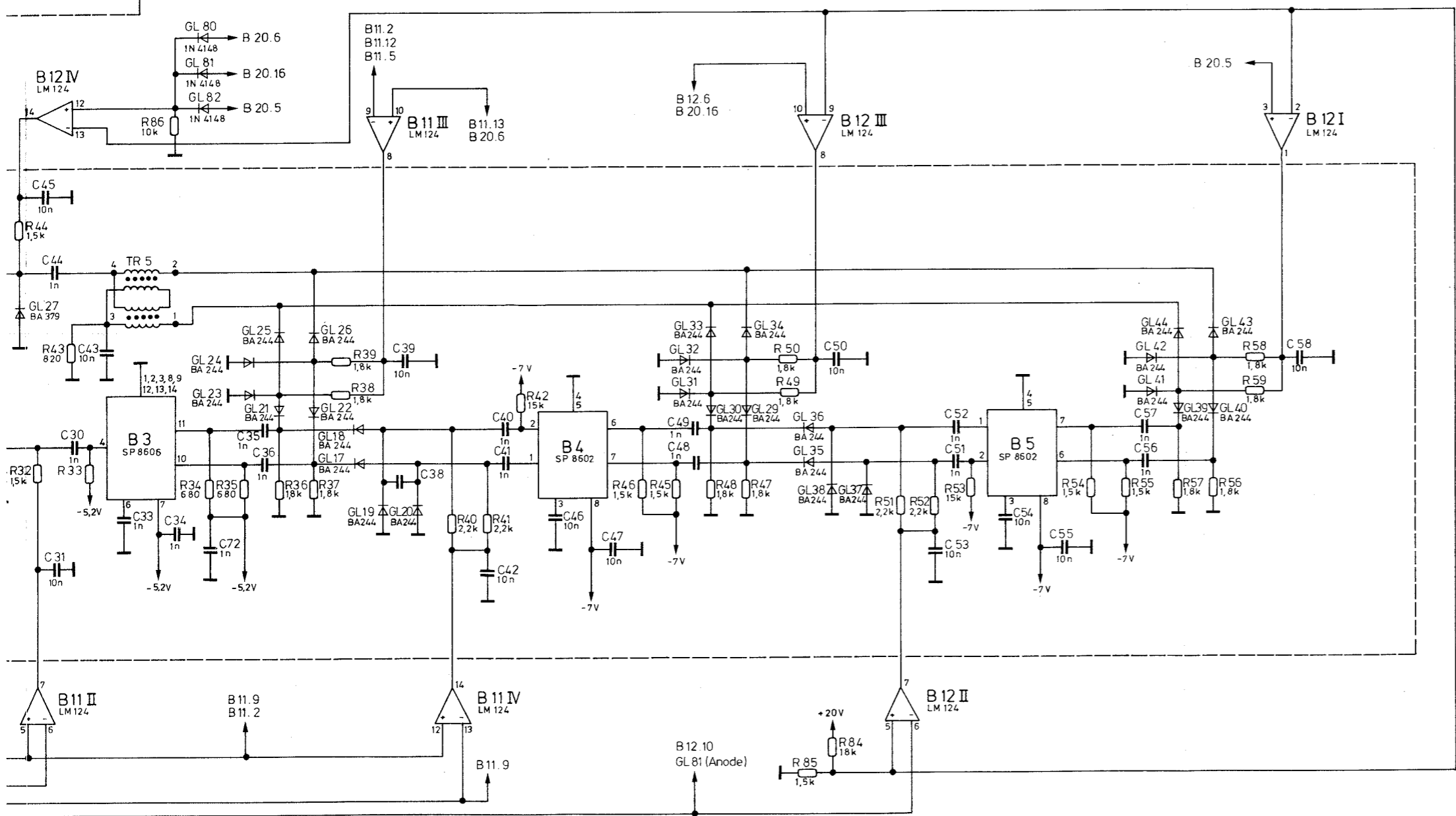
SA

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| Kennzeichen Component No. | Benennung/Beschreibung Designation | Sachnummer Stock No. | enthalten in contained in |
|------------------------------|---|-------------------------|------------------------------|
| ST9 | FP EINZELKONTAKTSTIFT SINGLE-CONTACT PIN ULMIC R&S.ZCHNG.300.8804 | 300.8804 | 300.5334 |
| BIS/TO ST12 ST120 | ENTHALTEN IN 300.5340 | | 300.5334 |
| ST121 | FJ EINBAUWINKELST. SMC ANGLE CONNECTOR RADIALL R 112 669 | FJ 249.9684 | 300.5311 |
| ST122 | FJ EINBAUWINKELST. SMC ANGLE CONNECTOR RADIALL R 112 669 | FJ 249.9684 | 300.5311 |
| T1 | AK NE02135 NPN 12V 5GHZ TRANSISTOR NEC NE02135 | 300.6147 | 300.5311 |
| T2 | AK BCY79IX PNP 45V 200MA TRANSISTOR SIEMENS BCY79IX | AK 010.3777 | 300.5311 |
| T3 | AK NE02135 NPN 12V 5GHZ TRANSISTOR NEC NE02135 | 300.6147 | 300.5311 |
| T4 | AK BCY79IX PNP 45V 200MA TRANSISTOR SIEMENS BCY79IX | AK 010.3777 | 300.5311 |
| T5 | AK NE02135 NPN 12V 5GHZ TRANSISTOR NEC NE02135 | 300.6147 | 300.5311 |
| T6 | AK BCY79IX PNP 45V 200MA TRANSISTOR SIEMENS BCY79IX | AK 010.3777 | 300.5311 |
| T100 | AL BD438 PNP 45V 4A0 TRANSISTOR VALVO BD438 | AL 010.0403 | 300.5311 |
| TR3 | UEBERTRAGER TRANSFORMER | 300.9246 | 300.5311 |
| TR4 | UEBERTRAGER TRANSFORMER | 300.8885 | 300.5311 |
| TR5 | UEBERTRAGER TRANSFORMER | 300.8885 | 300.5311 |
| | | | - ENDE - |
| | | 300.4315 | SA BL13- |

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zum / to Modulator



| | | | | | |
|------------|--------------|-----------------------|---|-------------|-----------|
| | Stromlauf zu | Ausgangsoszillator II | Z | Zeichn.-Nr. | Blatt-Nr. |
| | reg. i. V | Output oscillator II | | 300.1000 V | |
| SMPC / XPC | erste Z. | 300.1000 | | v. | Bl. |

| | |
|-------|-------|
| Name | |
| Datum | |
| Nr. | |
| Zust. | |
| Name | gs |
| Datum | 9.83 |
| Nr. | 30455 |
| Zust. | K |

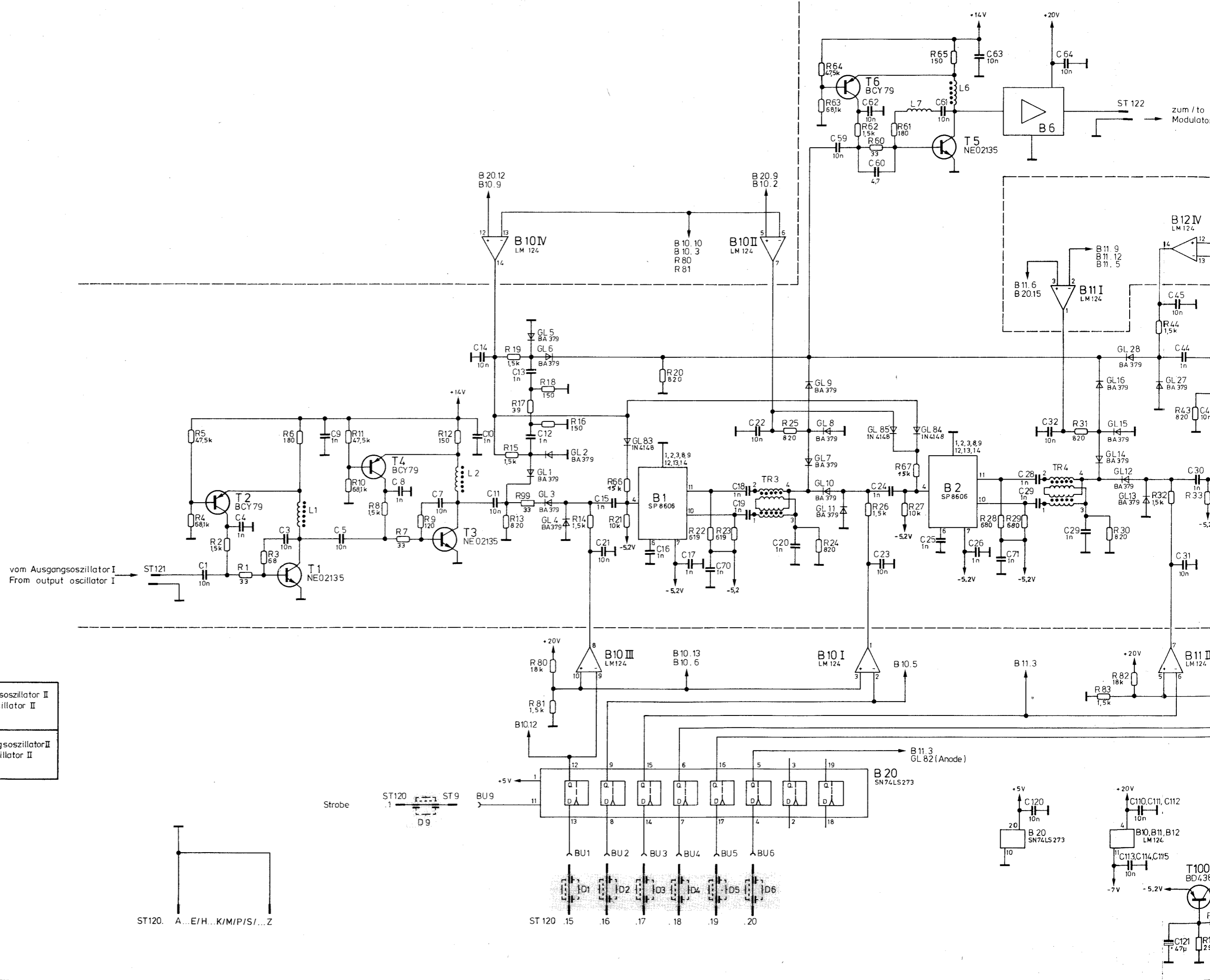
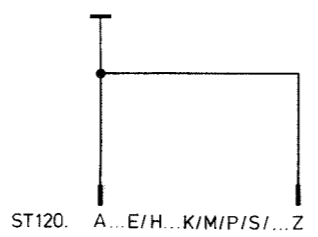
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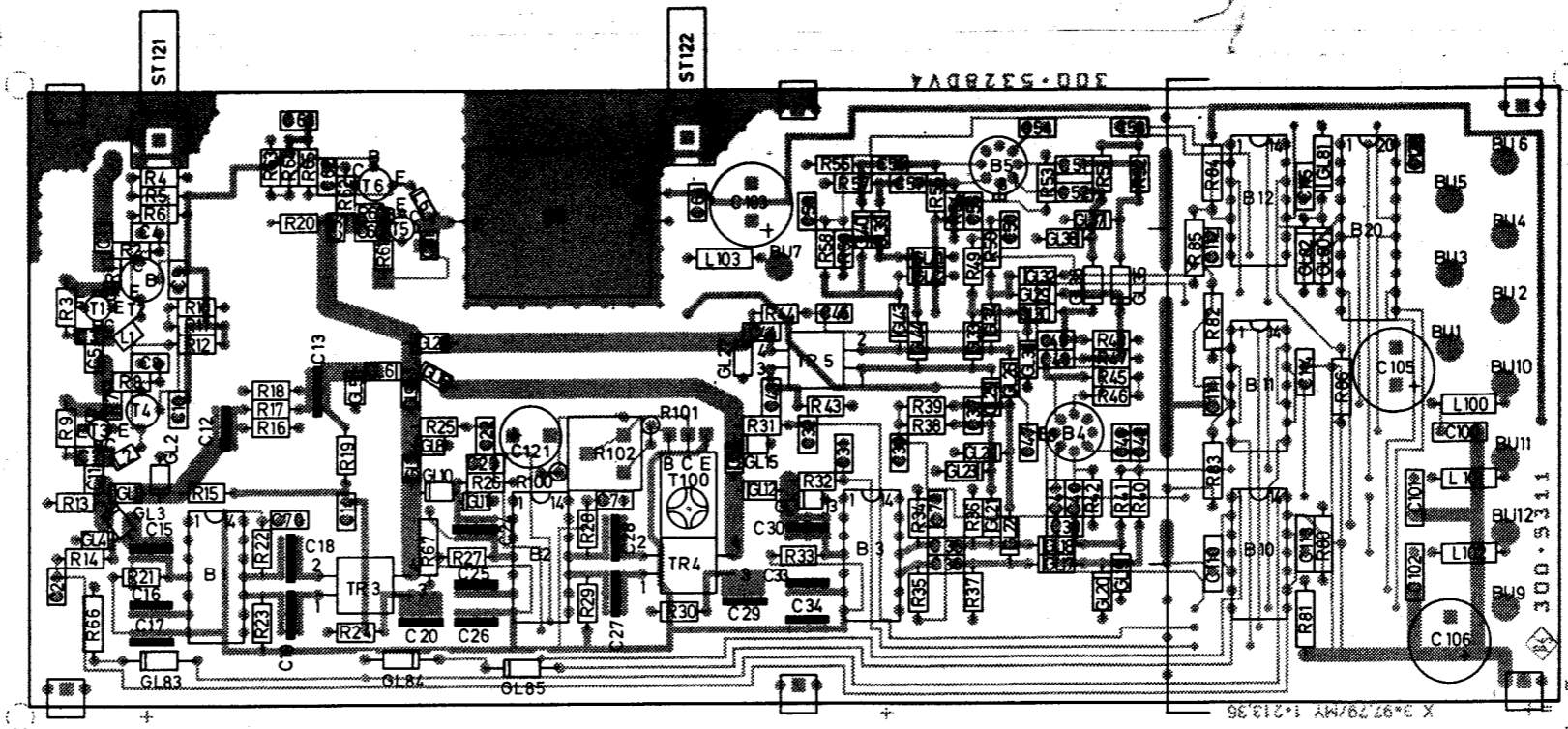
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| Name | Bg |
| Datum | 5.80 |
| Nr. | |
| Zust. | E |
| Name | Gü |
| Datum | 12.80 |
| Nr. | |
| Zust. | F |
| Name | Bg |
| Datum | 7.81 |
| Nr. | 27499 |
| Zust. | G |
| Name | M |
| Datum | 11.82 |
| Nr. | 27860 |
| Zust. | H |
| Name | rs |
| Datum | 2.83 |
| Nr. | 29709 |
| Zust. | J |
| Name | |
| Datum | |
| Nr. | |
| Zust. | |
| Name | |
| Datum | |
| Nr. | |
| Zust. | |

(Platte) Ausgangsoszillator II
(PcB) Output oscillator II
300.5311

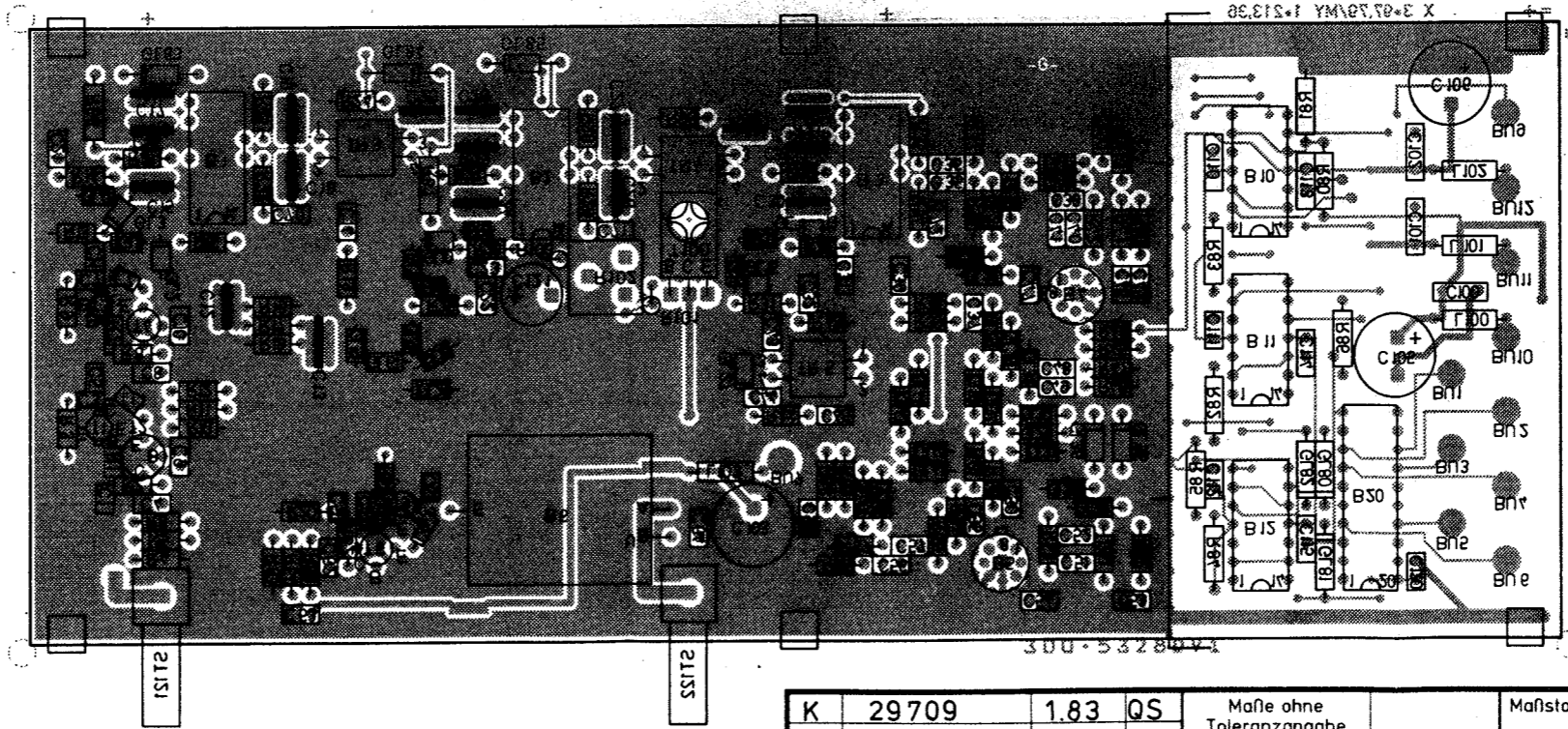
Zuführung Ausgangsoszillator II
Feed - output oscillator II
300.5334



Ansicht und Leitungsführung Bauteilseite
View of tracks on component side



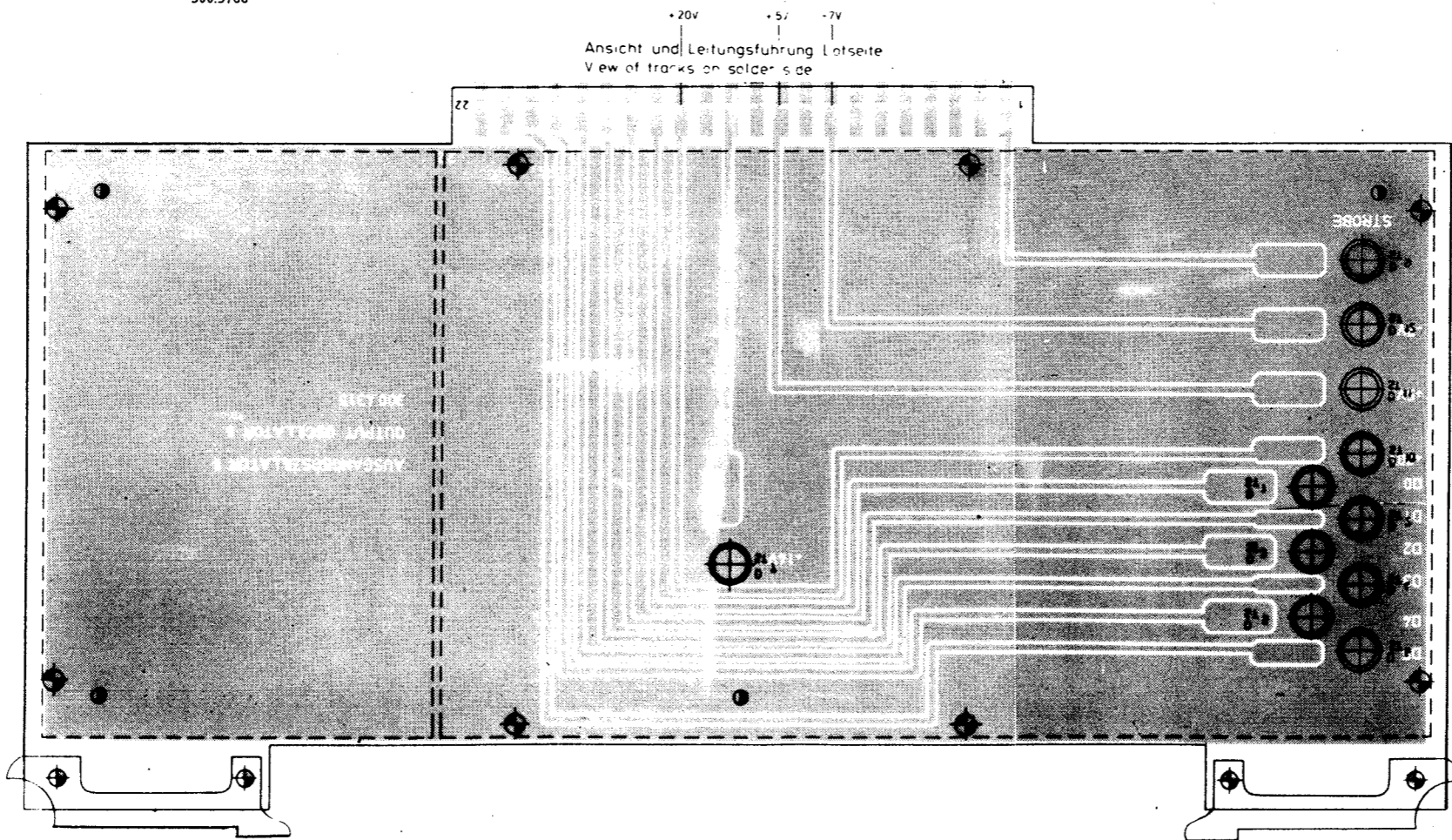
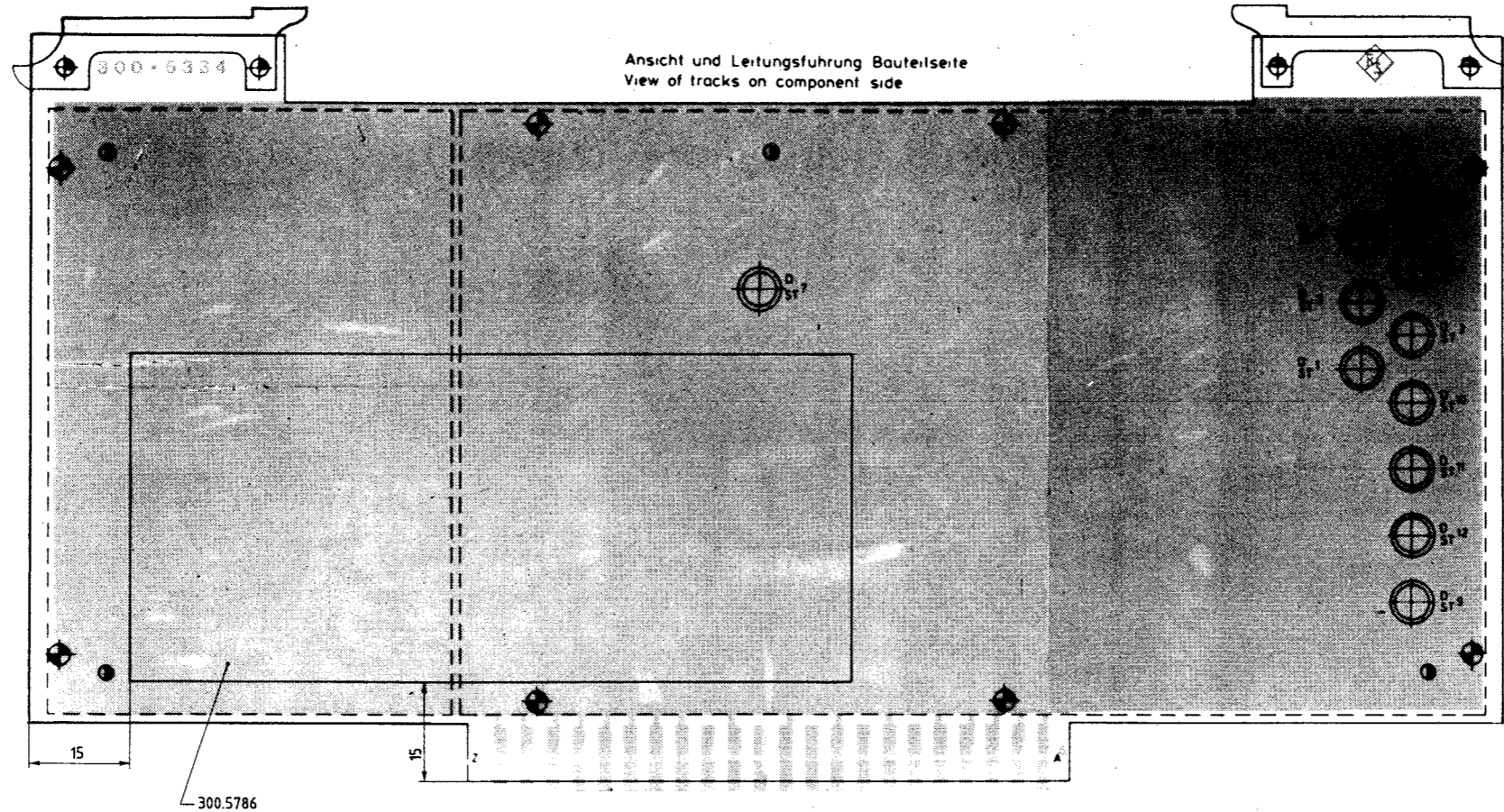
Ansicht und Leitungsführung Lötseite
View of tracks on solder side



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| | | | | | | | | |
|------------|----------------------|------|------|--------------------------|---------------------|---------|----------------------|----------------|
| K | 29709 | 1.83 | QS | Maße ohne Toleranzangabe | Maßstab 1 : 1 | | Benennung | Z |
| | | | | | Halbzeug, Werkstoff | | | |
| | | | | | Tag | Name | Ausgangoszillator II | Blatt-Nr. 2 |
| | | | | | Bearb. | 1.83 QS | | |
| | | | | | Gepr. | | | |
| | | | | | Norm | | | |
| And. Zust. | Anderungs-Mitteilung | Tag | Name | zu Gerät SMPC / XPC | ROHDE & SCHWARZ | | Zeichn.-Nr. | Bl. |
| | | | | | 300.5311 | | reg. V | |
| | | | | | 300.1000V | | erste Z. | 300.4315 |

ISO Projektion Methode E



| | | | | | | |
|--|---------|--------|----------|-------------------|---|----------------|
| A | 7.12.78 | Wm | Mitglied | Mitglied | 2 | 1 |
| B | 7.8.79 | Lo | | | | |
| C | 31941 | 2.7.84 | GS | | | |
| D | | | | | | |
| E | | | | | | |
| F | | | | | | |
| G | | | | | | |
| H | | | | | | |
| I | | | | | | |
| J | | | | | | |
| K | | | | | | |
| L | | | | | | |
| M | | | | | | |
| N | | | | | | |
| O | | | | | | |
| P | | | | | | |
| Q | | | | | | |
| R | | | | | | |
| S | | | | | | |
| T | | | | | | |
| U | | | | | | |
| V | | | | | | |
| W | | | | | | |
| X | | | | | | |
| Y | | | | | | |
| Z | | | | | | |
| ROHM & SCHWAB zu Gerät SN PC | | | | Name 300.5334 | | Blatt Nr. 2 |
| Änderung Mängelung | | | | Reg. V. 300.1000V | | erste Z |



ROHDE & SCHWARZ

SERVICE INSTRUCTIONS

Oscillator Control

355.9619 (Y10)

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| 5.3.3 | Frequency Remeasurement and Correction Fault ... | 5.9 |
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Parts list
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5.1 Circuit Description

(see circuit diagram 355.9619 S and block diagram 5-1)

Y8 contains three output oscillators, which cover the frequency range 680 to 1360 MHz (also refer to the description of Output Oscillator I (Y8) and PLL (Y11)). These oscillators are held by a phase control loop on the harmonics of a 20 to 20.58 MHz reference frequency. Since the phase control only has a bandwidth of about 100 kHz, the corresponding oscillator must be selected by the Oscillator Control and precisely set on the correct 20-MHz spot frequency so that it can be captured by the PLL.

The Oscillator Control consists of the following circuit groups:

a microcomputer unit: with the single component 8-bit microcomputer 8748, an 8-bit output latch, an 8-bit input latch and the 16-bit input/output expander 8243.

a precise 12-bit setting voltage output unit.

a frequency counter with a 16-bit resolution.

a working point monitor for the PLL.

Further details are given for these circuit groups in the block diagram 5-1.

5.1.1 Data Transfer and Oscillator Selection

The Processor (Y1) transfers three data bytes to the Oscillator Control. The first byte gives the correct 20-MHz spot frequency (34th to 68th harmonic) and data for the bandwidth of the PLL; the following two data bytes give the frequency data with a 32-kHz resolution. In the undivided octave 680 to 1360 MHz, the frequency data D_{OS} is given by:

$$D_{OS} = \frac{f(\text{kHz})}{32} \quad (\text{range } 21250 \text{ to } 42500)$$

Example: 978 MHz input

$$D_{OS} = \frac{978000}{32} = 30562, \text{ thus}$$

2nd byte = 77 H, 3rd byte = 62 H.

From the frequency data, the Oscillator Control determines which of the three oscillators is suitable and what the setting-voltage should be.

The oscillator ranges are:

| | |
|------------------|--------------|
| 680 to 912 MHz | oscillator 1 |
| 912 to 1144 MHz | oscillator 2 |
| 1144 to 1360 MHz | oscillator 3 |

The range switchover boundaries have a hysteresis of 3 MHz.

5.1.2 Setting Voltage Output

From the data bytes and by use of a stored voltage/frequency table, the microcomputer calculates the setting voltage. The result is converted into a voltage of between 0.5 and 8 V by a D/A converter. As the setting-voltage not only must have a very low noise level so that the spectral purities of the oscillators are not affected but also must be very quick to reach the required level, a switchable filter follows the D/A converter. After outputting the data, the microcomputer switches the filter from 100 kHz to 3 Hz bandwidth. Following the filter is an amplifier which has a gain of two to ensure that a sufficient voltage swing is available for the oscillators. A further filter is connected to the amplifier to reduce its wideband noise.

5.1.3 16-bit Frequency Counter

After the setting voltage has been output, the frequency is measured with a 16-bit counter. The oscillator frequency is fed to the counter, after being divided by 32, by a decoupling amplifier. The gate time of the counter is derived from the reference frequency of the PLL circuit (see block diagram). The microcomputer starts the counting procedure and the gate time ends the measurement. The result of the count is read by the microcomputer via the 8243 input/output expander. After comparing the set frequency with the output frequency, a corrected setting voltage is output. The frequency is then remeasured and, if necessary, corrected again. When there is a frequency difference of less than 600 kHz, the microcomputer switches in the phase control and informs the Processor via the interrupt line. Thereafter, the microcomputer monitors the working point of the PLL.

5.1.4 PLL Working Point Monitor

To ensure that the detector operates in the middle of its characteristic, the setting voltage must compensate for any variation (for instance, temperature drift, etc.). The window comparator B31 monitors the working point of the phase detector and gives a signal if the limits of the window are exceeded. The microcomputer then outputs the correspondingly opposing voltage in order to keep the working point within the window.

5.2 Checking and Adjusting

5.2.1 Adjusting the PLL Working Point Monitor

The subassemblies Y1, Y4, Y5, Y6, Y7, Y8, Y10, Y11, Y19 and Y25 must be fitted in the unit and are to be in working order.

- a) Key in a periodic sweep from 680 to 1360 MHz in 2 MHz steps.
- b) Remove cable K15 from subassembly Y11 (PLL).
- c) Adjust the voltage at test point (MP) 43 on Y10 to an average value of 7 ± 1 V with the resistor R34 during the sweep operation.
- d) Reconnect cable K15 to subassembly Y11.
- e) With all frequency settings, the voltage at testpoint (MP) 43 must be a value between +2 V and +12 V (lower and upper level of temperature window) after a few seconds.

5.2.2 Functional Checks

The functions of the assembly can be checked by three different tests:

- + signature analysis test,
- + program test,
- + frequency divider test.

5.2.2.1 Signature Analysis Test

Setup on Y1: replace B10 with a test EPROM Id. No. 337.9904
(included in the Service Kit XPC-Z1)

Setting the signature analyzer: START EDGE: †
 STOP EDGE: †
 CLOCK EDGE: †

- + connect the analyzer connector to plug (ST) 44.
The following pin connections apply:
1 - GND, 2 - CLOCK, 3 - STOP, 4 - START.
- + switch on unit. The signature analysis test program is called up by keying

| |
|-----|
| LEV |
| μV |

. The display indicates: OS SA

A complete list of the subassembly's relevant signatures is given in Table 5-1. The microcomputer (B44) and the output latch (B46) are tested by the analysis.

Table 5-1 Signature Analysis of Oscillator Control

| Chip | Measured signature | | | | | | |
|----------|--------------------|-----|------|------|------|------|------|
| | | | -Z2- | -Z4- | -Z5- | -Z6- | |
| B44, PIN | 21 | P20 | 11FO | 5AC8 | 7F03 | H6HU | |
| | 22 | P21 | ACF4 | 60HP | UFAH | CHFC | |
| | 23 | P22 | 53P1 | P964 | 4UH7 | 97A0 | |
| | 24 | P23 | A47P | 6691 | 095P | COF1 | |
| | 28 | P11 | 0655 | 9FC0 | 7AUP | 9AHP | |
| | 29 | P12 | 6529 | 0674 | AHA7 | FPFC | |
| | 30 | P13 | 4752 | CFC3 | P404 | 21HB | |
| | 31 | P14 | 4C72 | F877 | 96F5 | 9H51 | |
| | 32 | P15 | 3C62 | 225P | F451 | 208F | |
| | 33 | P16 | 62UU | A4A0 | 001H | 2298 | |
| | 34 | P17 | 7U2C | H08P | 4129 | H232 | |
| | 35 | P24 | P540 | PU37 | 8A24 | A284 | |
| | 36 | P25 | F5U3 | CH2C | A217 | 18PH | |
| | 37 | P26 | UU9A | 41UP | 3A6A | 30PU | |
| | 38 | P27 | 5761 | 1FU8 | 52H4 | 64P6 | |
| | B46, PIN | 2 | | A11F | 55AC | 27F0 | 4H6H |
| | | 5 | | FACF | 960H | 5UFA | 5CHF |
| | | 6 | | A53P | FP96 | C4UH | H97A |
| | | 12 | | 6P54 | 0PU3 | H8A2 | AA28 |
| 15 | | | 6F5U | 4CH2 | 8A21 | 118P | |
| 16 | | | 5UU9 | 941U | 03A6 | 530P | |

5.2.2.2 Program Test

The program of the Oscillator Control contains test routines with which the D/A converter output, the input and output latches and the window comparator can be checked.

The test routines can be called up on the front panel of the XPC/SMPC and specific data words can be output to the Oscillator Control.

Setup on Y1:

- + replace B10 with a test-EPROM,
- + switch on unit.

After switching on, the display indicates the selected IEC-bus address.

5.2.2.2.1 D/A Converter Output Test

The corresponding test program is called up by keying LEV
dBm. The display indicates: OS dA and the main processor transfers the data word 02H to the Oscillator Control. This bit pattern remains present on the data bus. In the Oscillator Control, the output filter is switched to fast and a periodic sawtooth voltage of 0 to 17 V is output from the setting voltage output ST133.

5.2.2.2.2 Window Comparator Test

The window comparator test is called up by keying LEV
mV. The display indicates: OS Fd and the main processor now transfers the data word 04H to the Oscillator Control.

For this test, a DC voltage is fed into the PLL monitor input ST134. If the value of the DC voltage is within the range of the window $V_O \pm 20$ mV, a DC voltage of 10 V is then present at the setting voltage output ST133. If the voltage is greater than or less than the window range, then +17 V or 0 V, respectively, is present at ST133. The centre of the window V_O can be set between 0.3 V and 1 V with R34.

The upper threshold of the window comparator B31 at B31.8 is 12 V, the lower is 2 V.

5.2.2.3 Frequency Divider Test

Setup on Y10:

- plug short circuit connector 45 to terminals 2-3.
- remove short circuit connector 100 and connect a frequency counter (100 MHz) or an oscilloscope to connector 100.1.
- switch the XPC/SMPC on.
- feed 680 to 1360 MHz at -10 dBm into ST132 with a signal generator.

Check the operation of the frequency divider across the complete frequency range with the oscilloscope or frequency counter. The input frequency divided by 32 is measured at ST100.1. Repeat the test at levels of -7 and -13 dBm.

5.3 Troubleshooting

(see Processor Y1 for signature analysis)

A faulty function of subassembly Y10 is indicated in the display by the fault signal "5".

5.3.1 Setting Voltage and Oscillator Selection

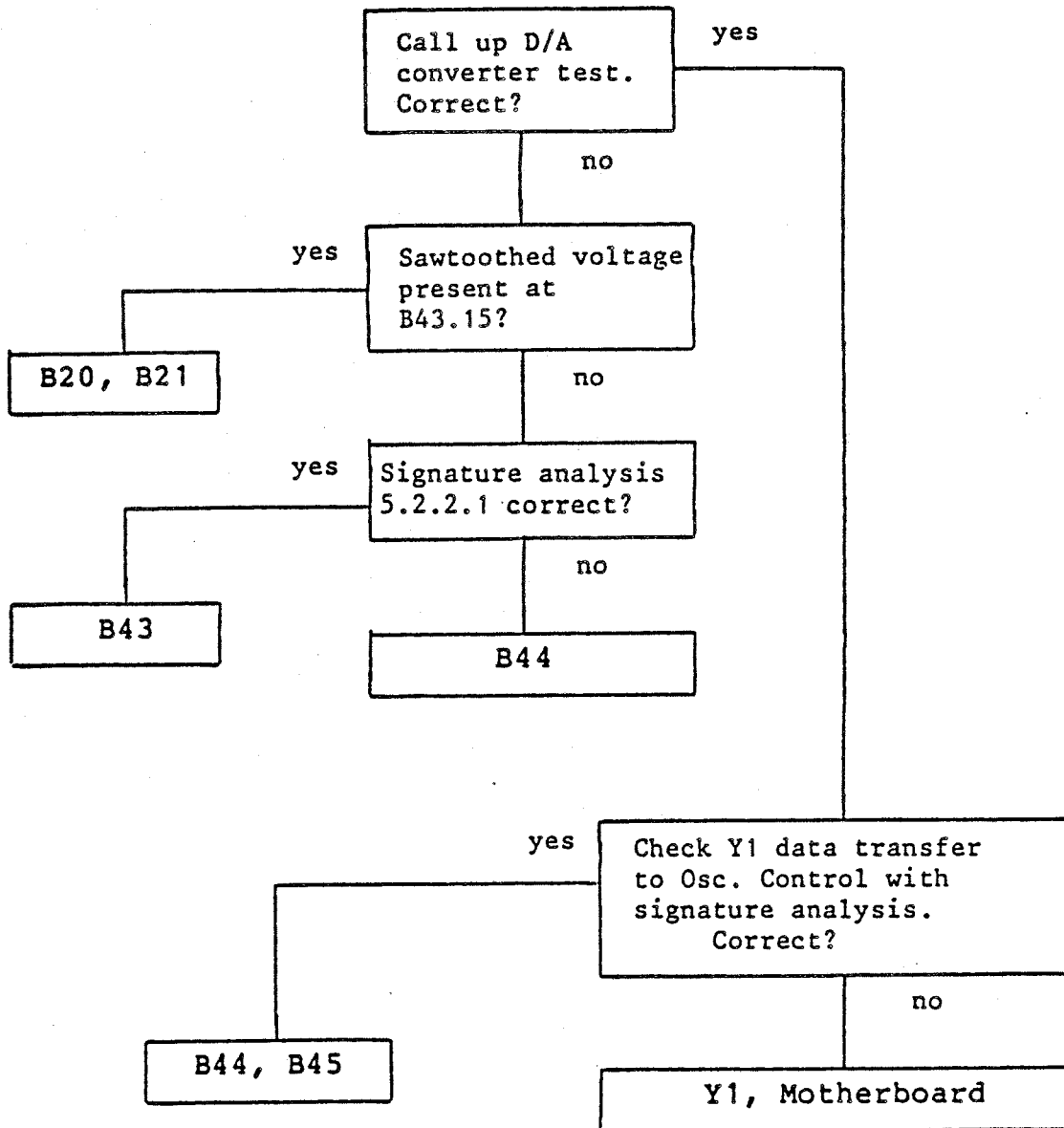
- Remove cable K11 from Y10. Key into the XPC/SMPC a sweep from 680 to 1360 MHz in 2000 kHz steps. A sawtoothed setting voltage of 3 to 15 V for the oscillators should then be present at ST133. The appropriate oscillators are selected by the output latch B46 (see digital interface).
- if the setting voltage is not correct, see 5.3.2.
- if the oscillators are not correctly selected, check output latch B46 with signature analysis (5.2.2.1).
- if the setting voltage and oscillator selection are correct, reconnect cable K11 to Y10.

5.3.1.1 Correction Cycles, Switching-in PLL

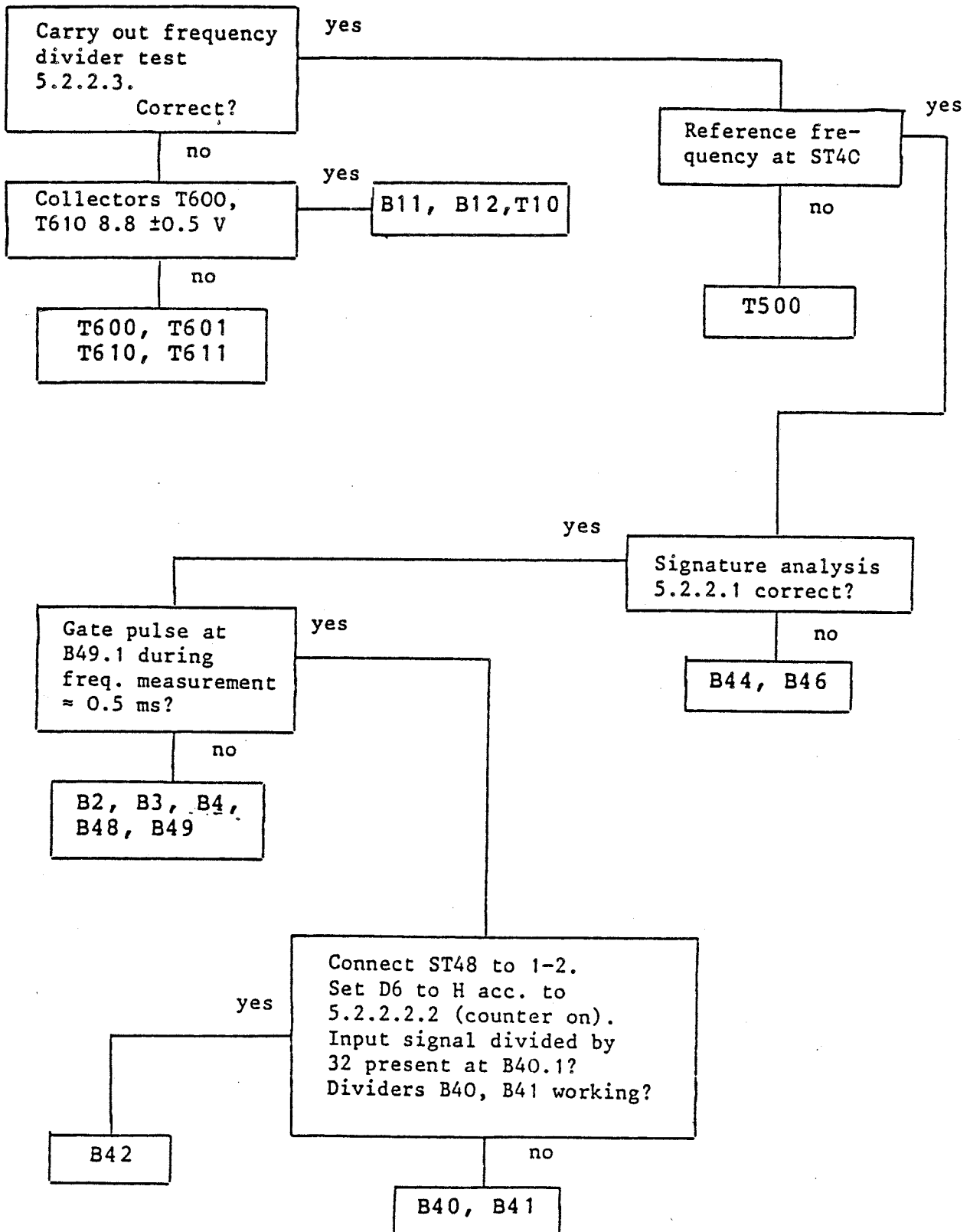
After outputting the setting voltage, the Oscillator Control measures the frequency from Output Oscillator I and corrects the tuning voltage as required. This correction should be < 1 V (typically 300 mV). After further measurements of the frequency, additional corrections are made as necessary. After 2 to 3 cycles, the PLL is switched in (B46.2 to H). If the correction sequence is not accurate, see 5.3.3.

- if the output oscillator does not synchronize even though the setting voltage is correct after 1 to 4 correction cycles, check the PLL (Y11).
- if the output oscillator drops out of synchronization after 1 to 10 seconds, check the setting of the working point of the PLL (5.2.1).
- if the working point is correct, check the operation of the working point monitor (5.2.2.2.2).

5.3.2 Setting Voltage Fault

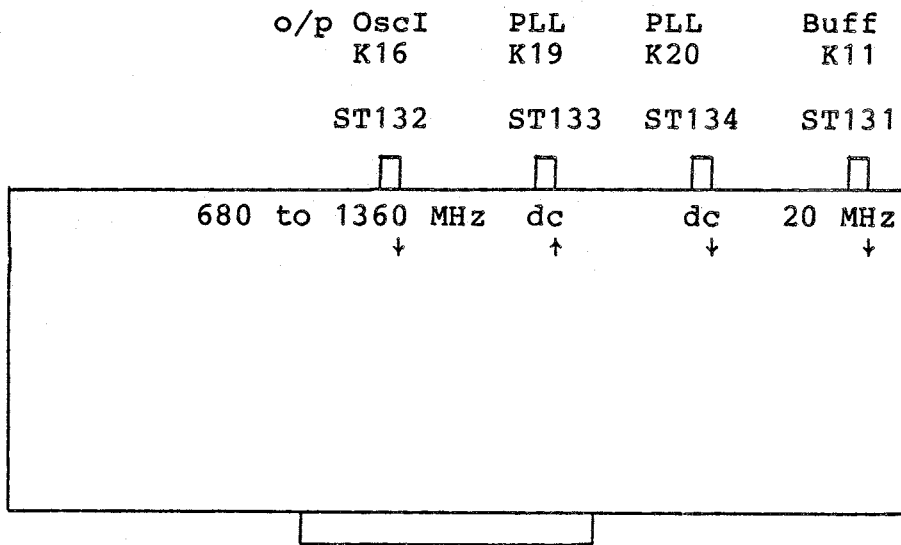


5.3.3 Frequency Remeasurement and Correction Fault



5.3.4 Interfaces

5.3.4.1 Analog Interface



| ST/BU | 131 | 132 | 133 | 134 |
|----------------|-----------------------------|-------------------------|------------------------|-------------------------|
| f | 20 MHz | 680 to 1360 MHz | DC | DC |
| Level | $0.5 \pm 0.1 V_{pp}$ | $-10 \pm 2 \text{ dBm}$ | 1 to 17V | $\approx 0.5 \text{ V}$ |
| R _i | $\approx 1 \text{ k}\Omega$ | 50Ω | $1.25 \text{ k}\Omega$ | |
| Coupling | AC | AC | DC | DC |
| Signal shape | square | sine | DC | DC |

5.3.4.2 Digital Interface

Data reception (see 5.1)

| | | | | | | | | |
|----------|-------------------------------|----|----|----|----|----|----|----|
| Data bus | D7 | D6 | D5 | D4 | D3 | D2 | D1 | D0 |
| ST130 | 22 | 21 | 20 | 19 | 18 | 17 | 16 | 15 |
| | MSB ----- data word ----- LSB | | | | | | | |

Control lines

| ST130 | Function | L | H |
|-------|--------------------|---------|---------|
| A | RESET | active | passive |
| 13 | PLL switch | off | on |
| D | Oscillator 1 | off | on |
| 5 | " 2 | off | on |
| 7 | " 3 | off | on |
| 9 | PLL loop bandwidth | narrow | wide |
| 11 | Interrupt | passive | active |

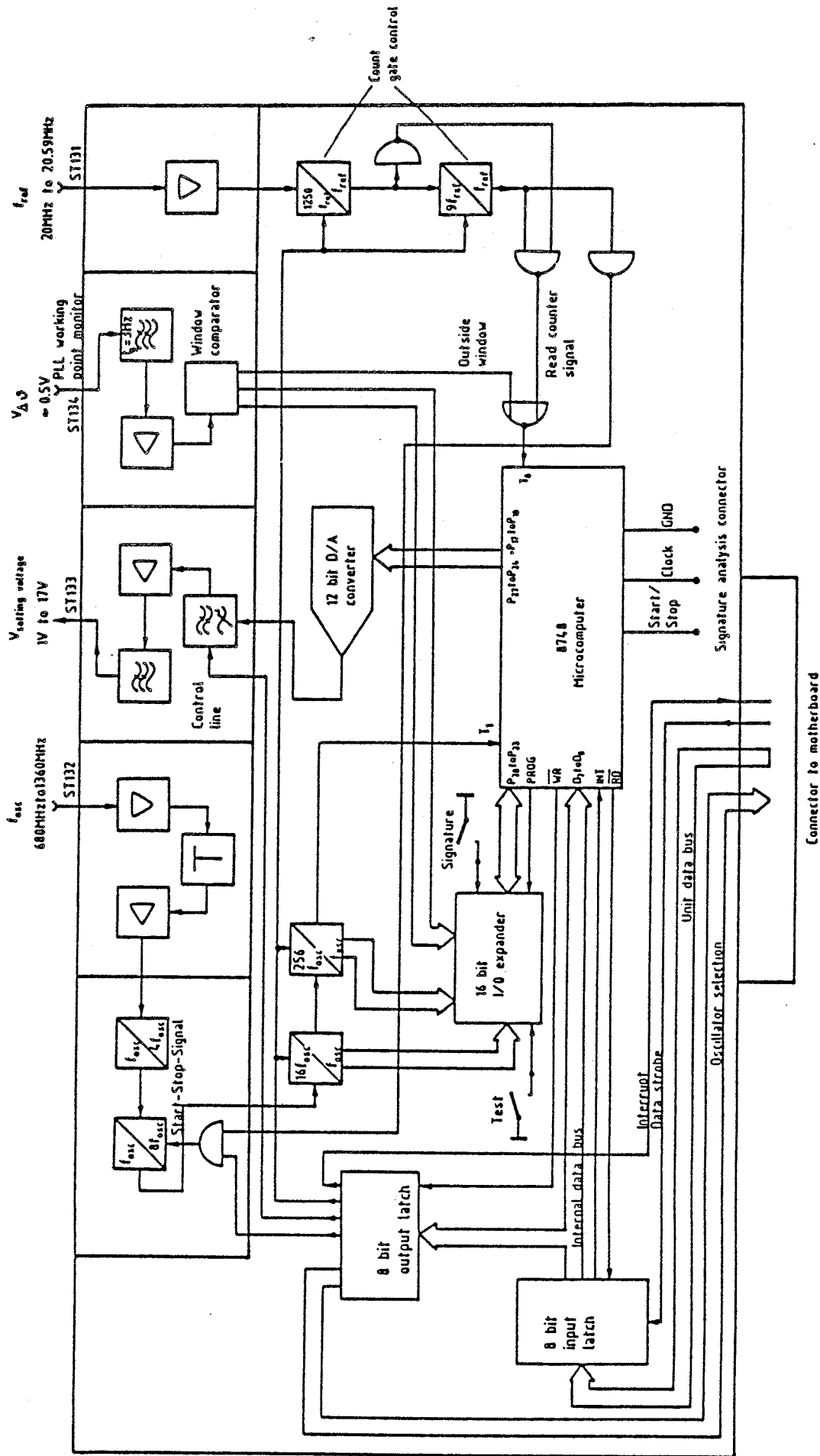


Fig. 5-1 Oscillator Control block diagram



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Schalteillisten
Stromläufe
Bestückungspläne
Parts lists
Circuit diagrams
Components plans

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| Schaltteilliste für Parts list for ZE OZILLATORSTEUERUNG OSCILLATOR-CONTROL |
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|-------------------------|
| Sachnummer Stock No. |
| 355.9619.00 SA |

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| Kennzeichen Component No. | Benennung/Beschreibung Designation | Sachnummer Stock No. | enthalten in contained in |
|------------------------------|--|-------------------------|------------------------------|
| B2 | BL SN74LS390N 2XDEC.COUNT IC DECADE COUNTER SN74LS3 TEXAS SN74LS390N | 300.6760 | 355.9625 |
| B3 | BL SN74LS390N 2XDEC.COUNT IC DECADE COUNTER SN74LS3 TEXAS SN74LS390N | 300.6760 | 355.9625 |
| B4 | BL SN74LS293N 4BIT-ZAEHL. IC BIT-COUNTER SN74LS293N TEXAS SN74LS293N | 291.4341 | 355.9625 |
| B11 | BL SP8619BDC 4:1DIVID UHF DIVIDER PLESSEY SP8619BDC | BL 300.6160 | 355.9625 |
| B12 | BL SP8735BDC 8:1DIVID UHF DIVIDER PLESSEY SP8735BDC | BL 300.6176 | 355.9625 |
| B20 | BJ DG300BP 2X ANALOGSCH ANALOG SWITCH SILICONIX DG300BP | BJ 300.9375 | 355.9625 |
| B21 | BO LF156H BIFET OPAMP OPERATIONAL AMPLIFIER MOTOROLA LF156H | BO 333.5862 | 355.9625 |
| B30 | BO UA741MJG OPAMP OPERATIONAL AMPLIFIER TEXAS UA741MJG | BO 275.0822 | 355.9625 |
| B31 | BO TCA965 FENSTER-DISKRIM DISCRIMINATOR SIEMENS TCA965 | BO 279.2213 | 355.9625 |
| B40 | BL SN74197N ZAEHLER 50MHZ IC COUNTER SN74197N TEXAS SN74197N | 443.2973 | 355.9625 |
| B41 | BL SN74LS393N 2XBIN.ZAEHL IC 2XBIN.COUNT.SN74LS393N TEXAS SN74LS393N | 300.6982 | 355.9625 |
| B42 | BC P8243 4X4B.I/O-EXP I/O-EXPANDER INTEL P8243 | BC 334.3270 | 355.9625 |
| B43 | BJ DAC80CBIV 12B.D/A-CONV D/A-CONVERTER BURR-BROWN DAC80CBI-V | 291.5131 | 355.9625 |
| B44 | BC 8748,UP+EPROM.PROGR.1 CPU+EPROM | 355.9677 | 355.9625 |
| B45 | BC P8212 8B.I/O LATCH I/O PORT INTEL P8212 | 335.8946 | 355.9625 |
| B46 | BL SN74LS273N 8BIT-D-REG. 8BIT-D-REGISTER TEXAS SN74LS273N | 214.8998 | 355.9625 |
| B47 | BL SN74LS02N 4/2INP.NOR IC NOR GATE SN74LS02N TEXAS SN74LS020N | 266.4658 | 355.9625 |
| B48 | BL SN7405N 0+70 HEXINV IC HEX INVERTER SN7405N TEXAS SN7405N | BL 009.3460 | 355.9625 |
| B49 | BL SN74LS01N 4X2INP.NANDG IC NAND GATE SN74LS01N TEXAS SN74LS01N | 274.9084 | 355.9625 |
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Stock No.

355.9619.00

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SA

| Kennzeichen Component No. | Benennung/Beschreibung Designation | Sachnummer Stock No. | enthalten in contained in |
|------------------------------|---|-------------------------|------------------------------|
| BU1 | FP BUCHSE VERTIKAL P.V.1P SOCKET BERG 75377-001 | FP 278.5577 | 355.9625 |
| BIS/TO BU21 BU40 | FP KURZSCHLUSSBUCHSE SHORTING PLUG PK 452-70302 | FP 491.7042 | 355.9625 |
| BU41 | FP KURZSCHLUSSBUCHSE SHORTING PLUG PK 452-70302 | FP 491.7042 | 355.9625 |
| BU42 | FP KURZSCHLUSSBUCHSE SHORTING PLUG PK 452-70302 | FP 491.7042 | 355.9625 |
| BU45 | FP KURZSCHLUSSBUCHSE SHORTING PLUG PK 452-70302 | FP 491.7042 | 355.9625 |
| BU47 | FP KURZSCHLUSSBUCHSE SHORTING PLUG PK 452-70302 | FP 491.7042 | 355.9625 |
| BU48 | FP KURZSCHLUSSBUCHSE SHORTING PLUG PK 452-70302 | FP 491.7042 | 355.9625 |
| BU49 | FP KURZSCHLUSSBUCHSE SHORTING PLUG PK 452-70302 | FP 491.7042 | 355.9625 |
| BU100 | FP KURZSCHLUSSBUCHSE SHORTING PLUG PK 452-70302 | FP 491.7042 | 355.9625 |
| C10 | CC 10 PF+-10%100V NPO C CERAMIC CAPACITOR VITRAMON VJ1005A100KFB | CC 022.4473 | 355.9625 |
| C11 | CC 1,2NF+-10%100V3K1200 C CAPACITOR VITRAMON VJ1005Y122KFB | CC 082.3238 | 355.9625 |
| C12 | CC 1NF+-10%100V3K1200CHIP CAPACITOR VITRAMON VJ1005Y102KFB | CC 082.3221 | 355.9625 |
| C13 | CC 1NF+-10%100V3K1200CHIP CAPACITOR VITRAMON VJ1005Y102KFB | CC 082.3221 | 355.9625 |
| C20 | CK 220NF+-5%63V5RM MKT CAPACITOR WIMA MKS2/63/0,22UF/5% | CK 099.2952 | 355.9625 |
| C21 | CK 68NF+-5%63V5RM MKT CAPACITOR WIMA MKS2/63/0,068UF/5% | CK 099.2923 | 355.9625 |
| C22 | CC 33NF+-10%50V5K1200VIEL CERAMIC CAPACITOR UNION CARB CK05BX333K | CC 084.5315 | 355.9625 |
| C23 | CC 1,5NF+-10%4X5R2000 CAPACITOR VALVO 2222 63051 152 | CC 087.7048 | 355.9625 |
| C30 | CE 22UF-10+50% 16V 9X13B ELECTROLYTIC CAPACITOR ROEDERST ELKO 22/16 | CE 086.4368 | 355.9625 |

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| Kennzeichen Component No. | Benennung/Beschreibung Designation | Sachnummer Stock No. | enthalten in contained in |
|------------------------------|---|-------------------------|------------------------------|
| C31 | CC 22 NF+-20%100V K6000VI CAPACITOR ERIE 8123-100Z5U-223-M | 060.1303 | 355.9625 |
| C32 | CC 4,7NF+-10%6X9R2000 CAPACITOR VALVO 2222 63051 472 | CC 087.7102 | 355.9625 |
| C40 | CC 10NF-20+50%7X8R6000 CAPACITOR VALVO 2222 63051 64051103 | CC 087.7525 | 355.9625 |
| C41 | CE 1UF -10+50% 63V 9X13 ELECTROLYTIC CAPACITOR ROEDERST ELKO EK 1/63 | CE 022.7620 | 355.9625 |
| C42 | CE 1UF -10+50% 63V 9X13 ELECTROLYTIC CAPACITOR ROEDERST ELKO EK 1/63 | CE 022.7620 | 355.9625 |
| C43 | CE 1UF -10+50% 63V 9X13 ELECTROLYTIC CAPACITOR ROEDERST ELKO EK 1/63 | CE 022.7620 | 355.9625 |
| C44 | CC 10PF+-0,25PF5X6P100 CAPACITOR VALVO 2222 678 03109 | CC 087.6293 | 355.9625 |
| C45 | CC 10PF+-0,25PF5X6P100 CAPACITOR VALVO 2222 678 03109 | CC 087.6293 | 355.9625 |
| C46 | CC 4,7NF+-10%6X9R2000 CAPACITOR VALVO 2222 63051 472 | CC 087.7102 | 355.9625 |
| C48 | CC 10NF-20+50%7X8R6000 CAPACITOR VALVO 2222 63051 64051103 | CC 087.7525 | 355.9625 |
| C49 | CC 10NF-20+50%7X8R6000 CAPACITOR VALVO 2222 63051 64051103 | CC 087.7525 | 355.9625 |
| C51 | CC 4,7NF+-10%6X9R2000 CAPACITOR VALVO 2222 63051 472 | CC 087.7102 | 355.9625 |
| C52 | CC 4,7NF+-10%6X9R2000 CAPACITOR VALVO 2222 63051 472 | CC 087.7102 | 355.9625 |
| C54 | CC 4,7NF+-10%6X9R2000 CAPACITOR VALVO 2222 63051 472 | CC 087.7102 | 355.9625 |
| C55 | CC 4,7NF+-10%6X9R2000 CAPACITOR VALVO 2222 63051 472 | CC 087.7102 | 355.9625 |
| C56 | CC 10NF-20+50%7X8R6000 CAPACITOR VALVO 2222 63051 64051103 | CC 087.7525 | 355.9625 |
| C74 | CC 82PF+-2%6X7NPO CAPACITOR VALVO 2222 678 10829 | CC 087.6535 | 355.9625 |
| C100 | CE 1,0UF+-20%35V 5X 4X 7 ELECTROLYTIC CAPACITOR ERO-TANTAL TA-ELKOETR1-1/35 | CE 022.8185 | 355.9625 |
| C101 | CC 1NF+80-20%R4000 TRAP CERAMIC CAPACITOR DRALORIC TRE7LOE1000/2080%R40 | CC 086.7515 | 355.9625 |

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| Kennzeichen Component No. | Benennung/Beschreibung Designation | Sachnummer Stock No. | enthalten in contained in |
|------------------------------|--|-------------------------|------------------------------|
| C102 | CC 4,7NF+-10%100V3K1200 C CAPACITOR VITRAMON VJ1005Y472KFB | CC 082.3309 | 355.9625 |
| C103 | CC 4,7NF+-10%100V3K1200 C CAPACITOR VITRAMON VJ1005Y472KFB | CC 082.3309 | 355.9625 |
| C201 | CC 10NF-20+50%7X8R6000 CAPACITOR VALVO 2222 63051 64051103 | CC 087.7525 | 355.9625 |
| C202 | CC 10NF-20+50%7X8R6000 CAPACITOR VALVO 2222 63051 64051103 | CC 087.7525 | 355.9625 |
| C204 | CC 10NF-20+50%7X8R6000 CAPACITOR VALVO 2222 63051 64051103 | CC 087.7525 | 355.9625 |
| C205 | CC 10PF+-0,25PF5X6P100 CAPACITOR VALVO 2222 678 03109 | CC 087.6293 | 355.9625 |
| C206 | CC 10NF-20+50%7X8R6000 CAPACITOR VALVO 2222 63051 64051103 | CC 087.7525 | 355.9625 |
| C300 | CC 10NF-20+50%7X8R6000 CAPACITOR VALVO 2222 63051 64051103 | CC 087.7525 | 355.9625 |
| C301 | CC 10NF-20+50%7X8R6000 CAPACITOR VALVO 2222 63051 64051103 | CC 087.7525 | 355.9625 |
| C302 | CC 10NF-20+50%7X8R6000 CAPACITOR VALVO 2222 63051 64051103 | CC 087.7525 | 355.9625 |
| C500 | CC 10NF-20+50%7X8R6000 CAPACITOR VALVO 2222 63051 64051103 | CC 087.7525 | 355.9625 |
| C501 | CC 10NF-20+50%7X8R6000 CAPACITOR VALVO 2222 63051 64051103 | CC 087.7525 | 355.9625 |
| C502 | CC 10NF-20+50%7X8R6000 CAPACITOR VALVO 2222 63051 64051103 | CC 087.7525 | 355.9625 |
| C540 | CE 100UF-10+50% 16V 9X13 ELECTROLYTIC CAPACITOR ROEDERST EK 00CB 310 D | CE 006.7165 | 355.9625 |
| C550 | CE 10UF -10+50% 63V 9X13 ELECTROLYTIC CAPACITOR ROEDERST ELKOEK10/63 | CE 022.7650 | 355.9625 |
| C600 | CC 27PF+-10%100V3NPO CHIP CAPACITOR VITRAMON VJ1005A270KFB | CC 082.3038 | 355.9625 |
| C601 | CC 4,7PF+-0,5PF100V3NPO C CAPACITOR VITRAMON VJ1005A4R7DFB | CC 082.2977 | 355.9625 |
| C602 | CC 10NF+-10% 50V3K1200 CH CAPACITOR VITRAMON VJ1005Y103KFB | CC 082.3344 | 355.9625 |
| C603 | CC 27PF+-10%100V3NPO CHIP CAPACITOR VITRAMON VJ1005A270KFB | CC 082.3038 | 355.9625 |

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| Kennzeichen Component No. | Benennung/Beschreibung Designation | Sachnummer Stock No. | enthalten in contained in |
|------------------------------|--|-------------------------|------------------------------|
| C604 | CC 1NF+80-20%R4000 TRAP CERAMIC CAPACITOR DRALORIC TRE7LOE1000/2080XR40 | CC 086.7515 | 355.9625 |
| C605 | CC 10NF-20+50%7X8R6000 CAPACITOR | CC 087.7525 | 355.9625 |
| C610 | VALVO 2222 63051 64051103 CC 27PF+-10%100V3NPO CHIP CAPACITOR | CC 082.3038 | 355.9625 |
| C611 | VITRAMON VJ1005A270KFB CC 4,7PF+-0,5PF100V3NPO C CAPACITOR | CC 082.2977 | 355.9625 |
| C612 | VITRAMON VJ1005A4R7DFB CC 10NF+-10% 50V3K1200 CH CAPACITOR | CC 082.3344 | 355.9625 |
| C613 | VITRAMON VJ1005Y103KFB CC 27PF+-10%100V3NPO CHIP CAPACITOR | CC 082.3038 | 355.9625 |
| C614 | VITRAMON VJ1005A270KFB CC 1NF+80-20%R4000 TRAP CERAMIC CAPACITOR | CC 086.7515 | 355.9625 |
| C615 | DRALORIC TRE7LOE1000/2080XR40 CC 10NF-20+50%7X8R6000 CAPACITOR | CC 087.7525 | 355.9625 |
| D1 | VALVO 2222 63051 64051103 LD 35DB/200M-10GHZ PI-FIL CHOKE ERIE 1214-038 | LD 300.6818 | 355.9648 |
| BIS/TO D21 | | | |
| GL1 | AD 1N4448 75V 0,15A UDI DIODE VALVO 1N4448 | AD 012.0700 | 355.9625 |
| GL2 | AD 1N4448 75V 0,15A UDI DIODE VALVO 1N4448 | AD 012.0700 | 355.9625 |
| GL11 | AE BZX79/C5V1 0,5W Z-DI ZENER DIODE VALVO BZX79/C5V1 | AE 012.2449 | 355.9625 |
| L26 | LD 10,0UH10%3,300HMO,144A CHOKE | LD 026.4184 | 355.9625 |
| L27 | DELEVAN DROSSEL1025-44 LD 1000UH10%72,00HMO,028A CHOKE | LD 037.8005 | 355.9625 |
| L600 | DELEVAN DROSSEL1025-92 ENTHALTEN IN/INCLUDED IN LEITERPLATTE/PCB | | 355.9625 |
| L601 | LD SPULE COIL | 300.9400 | 355.9625 |
| L610 | ENTHALTEN IN/INCLUDED IN LEITERPLATTE/PCB | | 355.9625 |
| L611 | LD SPULE COIL | 300.9400 | 355.9625 |

355.9619.00 SA BL 5+

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**ROHDE & SCHWARZ**
 AZ Datum
 Date
 09 0686

 Schalteilliste für
 Parts list for
 ZE O SZILLATORSTEUERUNG
 OSCILLATOR-CONTROL

 Sachnummer
 Stock No.
 355.9619.00 SA

 Blatt
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| Kennzeichen Component No. | Benennung/Beschreibung Designation | Sachnummer Stock No. | enthalten in contained in |
|------------------------------|---|-------------------------|------------------------------|
| Q1 | EQ 6,000 MHZ CL30PF HC43U CRYSTAL 6,000MHZ KRISTALLVE N. R&S SACHNUMMER | EQ 302.7186 | 355.9625 |
| R1 | RL 0,35W 1KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/1K-F-C | RL 082.2160 | 355.9625 |
| R2 | RL 0,35W 1KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/1K-F-C | RL 082.2160 | 355.9625 |
| R3 | RL 0,35W 1KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/1K-F-C | RL 082.2160 | 355.9625 |
| R4 | RL 0,35W 1,82KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/1,82K-F-C | RL 082.2277 | 355.9625 |
| R5 | RL 0,35W 1,82KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/1,82K-F-C | RL 082.2277 | 355.9625 |
| R10 | RL 0,35W 10,0KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/10K-F-D | RL 083.1297 | 355.9625 |
| R11 | RL 0,21W 619 OHM+-1%TK50 RESISTOR 619 OHMS RESISTA MK1 619OHM 1% TK50 | 092.0225 | 355.9625 |
| R12 | RL 0,35W 30,1KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/30,1K-F-C | RL 083.1639 | 355.9625 |
| R13 | RL 0,35W 619 OHM+-1%TK50 RESISTOR DRALORIC SMA0207/619OHM-F-D | RL 083.0478 | 355.9625 |
| R14 | RL 0,35W 1,82KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/1,82K-F-C | RL 082.2277 | 355.9625 |
| R15 | RL 0,35W 4,75KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/4,75K-F-D | RL 083.1097 | 355.9625 |
| R16 | RL 0,35W15 OHM 1%TK50 RESISTOR DRALORIC SMA0207/15OHM-F-D | RL 082.9020 | 355.9625 |
| R17 | RL 0,35W 1,21KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/1,21K-F-D | RL 083.0655 | 355.9625 |
| R18 | RL 0,35W 1KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/1K-F-C | RL 082.2160 | 355.9625 |
| R20 | RL 0,35W 68,1KOHM+-1%TK50 RESISTOR DRALORIC SMA 0207/68,1K-F-C | RL 082.2602 | 355.9625 |
| R21 | RL 0,35W 150 KOHM+-1%TK50 RESISTOR DRALORIC SMA/207/150K-F-C | RL 083.2129 | 355.9625 |
| R22 | RL 0,35W27,40 OHM+-1%TK50 RESISTOR DRALORIC SMA0207/27,40HM-F-D | RL 082.9271 | 355.9625 |

355.9619.00 SA BL 6+

| Kennzeichen Component No. | Benennung/Beschreibung Designation | Sachnummer Stock No. | enthalten in contained in |
|------------------------------|--|-------------------------|------------------------------|
| R23 | RL 0,35W 1 KOHM+-0,1%TK25 RESISTOR DRALORIC SMA0207/1K-B-E | 083.9146 | 355.9625 |
| R26 | RL 0,35W 1 KOHM+-0,1%TK25 RESISTOR DRALORIC SMA0207/1K-B-E | 083.9146 | 355.9625 |
| R28 | RL 0,35W 1,21KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/1,21K-F-D | RL 083.0655 | 355.9625 |
| R29 | RL 0,35W 221 OHM+-1%TK50 RESISTOR DRALORIC SMA0207/221OHM-F-D | RL 083.0084 | 355.9625 |
| R30 | RL 0,35W 5,62KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/5,62K-F-C | RL 082.2190 | 355.9625 |
| R31 | RL 0,35W 1,21MOHM+-1%TK50 METALFILMRESISTOR RESISTA MK2 1,21MOHM 1% TK50 | RL 099.8115 | 355.9625 |
| R32 | RL 0,35W 10,0KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/10K-F-D | RL 083.1297 | 355.9625 |
| R33 | RL 0,35W 2,74KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/2,74K-F-D | RL 083.0926 | 355.9625 |
| R34 | RS 0,5W200 OHM+-10%10X10X CERMET POTENTIOMETER BOURNS 3386X-1-201 | RS 247.7949 | 355.9625 |
| R37 | RF 0,25 W 1 KOHM +-2% RESISTOR DRALORIC LCA0207/2%1,00K | 028.1524 | 355.9625 |
| R38 | RL 0,35W 4,75KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/4,75K-F-D | RL 083.1097 | 355.9625 |
| R39 | RF 0,25 W 1 KOHM +-2% RESISTOR DRALORIC LCA0207/2%1,00K | 028.1524 | 355.9625 |
| R72 | RL 0,35W 1KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/1K-F-C | RL 082.2160 | 355.9625 |
| R73 | RL 0,35W 1KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/1K-F-C | RL 082.2160 | 355.9625 |
| R74 | RL 0,35W 1,82KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/1,82K-F-C | RL 082.2277 | 355.9625 |
| R76 | RL 0,35W 1KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/1K-F-C | RL 082.2160 | 355.9625 |
| R77 | RL 0,35W 1KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/1K-F-C | RL 082.2160 | 355.9625 |
| R300 | RL 0-WIDERSTAND DIN 0204 0-OHM RESISTOR DRALORIC OMA 0204 | RL 069.0000 | 355.9625 |
| R301 | RL 0,35W 1KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/1K-F-C | RL 082.2160 | 355.9625 |

355.9619.00 SA BL 7+

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**ROHDE & SCHWARZ**

AZ

Datum
Date

09

0686

Schaltteilliste für
Parts list for
ZE Oszillatorsteuerung
OSCILLATOR-CONTROLSachnummer
Stock No.

355.9619.00

Blatt
Page

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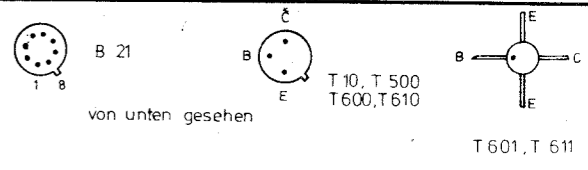
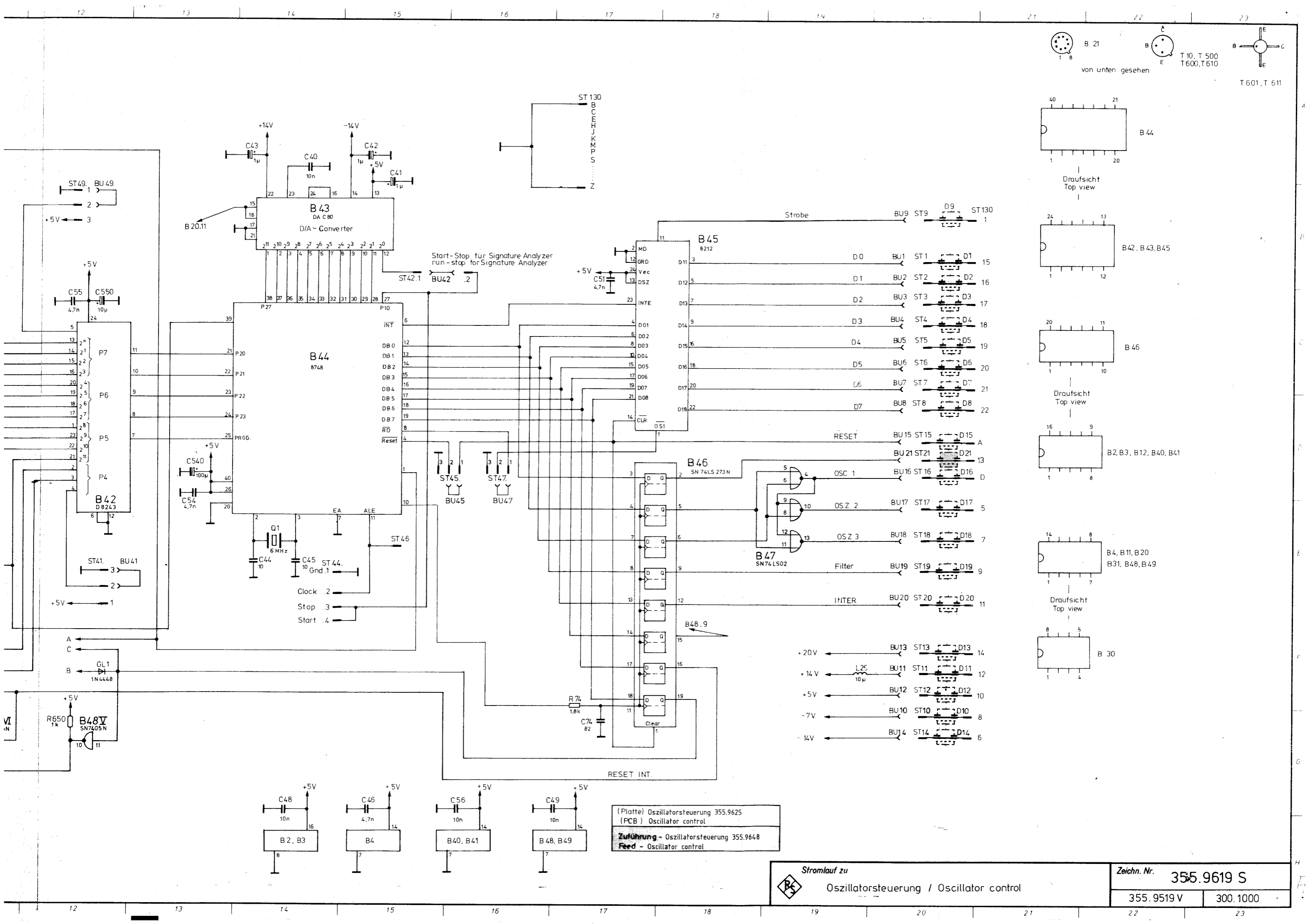
SA

| Kennzeichen Component No. | Benennung/Beschreibung Designation | Sachnummer Stock No. | enthalten in contained in |
|------------------------------|---|-------------------------|------------------------------|
| R302 | RL 0,35W 1KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/1K-F-C | RL 082.2160 | 355.9625 |
| R500 | RL 0,35W 1,82KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/1,82K-F-C | RL 082.2277 | 355.9625 |
| R501 | RL 0,35W 3,32KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/3,32K-F-D | RL 083.0990 | 355.9625 |
| R502 | RL 0,35W 274 OHM+-1%TK50 RESISTOR DRALORIC SMA0207/274OHM-F-D | RL 083.0178 | 355.9625 |
| R503 | RL 0,35W 332 OHM+-1%TK50 RESISTOR DRALORIC SMA0207/332OHM-F-D | RL 083.0255 | 355.9625 |
| R600 | RG 0,125W 33 OHM+-1% CHIP CHIP RESISTOR MSI WA-4 330HM 1% PG-T | 337.8214 | 355.9625 |
| R601 | RL 0,21W 180 OHM2% UNGEW. RESISTOR | RL 092.5985 | 355.9625 |
| R602 | RESISTA MK1 180OHM 2% UNGEW. RL 0,21W 1,50KOHM+-1%TK50 RESISTOR | RL 092.1467 | 355.9625 |
| R603 | RESISTA MK1 1K5 1% TK50 RL 0,21W 33,2KOHM+-1%TK50 RESISTOR | RL 092.1621 | 355.9625 |
| R604 | RESISTA MK1 33K2 1% TK50 RL 0,21W 22,1KOHM+-1%TK50 RESISTOR | RL 092.1609 | 355.9625 |
| R605 | RESISTA MK1 22K1 1% TK50 RL 0,21W 150 OHM+-1%TK50 RESISTOR | RL 092.1344 | 355.9625 |
| R606 | RESISTA MK1 150OHM 1% TK50 RL 0,21W 33 OHM2% UNGEW. RESISTOR | RL 092.5891 | 355.9625 |
| R607 | RESISTA MK1 330HM 2% UNGEW. RL 0,21W 33 OHM2% UNGEW. RESISTOR | RL 092.5891 | 355.9625 |
| R608 | RESISTA MK1 330HM 2% UNGEW. RL 0,21W 22 OHM2% UNGEW. RESISTOR | RL 092.5879 | 355.9625 |
| R610 | RESISTA MK1 220HM 2% UNGEW. RG 0,125W 33 OHM+-1% CHIP CHIP RESISTOR MSI WA-4 330HM 1% PG-T | 337.8214 | 355.9625 |
| R611 | RL 0,21W 180 OHM2% UNGEW. RESISTOR | RL 092.5985 | 355.9625 |
| R612 | RESISTA MK1 180OHM 2% UNGEW. RL 0,21W 1,50KOHM+-1%TK50 RESISTOR | RL 092.1467 | 355.9625 |
| R613 | RESISTA MK1 1K5 1% TK50 RL 0,21W 150 OHM+-1%TK50 RESISTOR | RL 092.1344 | 355.9625 |
| R650 | RESISTA MK1 150OHM 1% TK50 RL 0,35W 1KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/1K-F-C | RL 082.2160 | 355.9625 |

355.9619.00 SA BL 8+

| Kennzeichen Component No. | Benennung/Beschreibung Designation | Sachnummer Stock No. | enthalten in contained in |
|------------------------------|---|-------------------------|------------------------------|
| R 651 | RL 0,35W 1KOHM+-1%TK50 RESISTOR DRALORIC SMA0207/1K-F-C | RL 082.2160 | 355.9625 |
| ST1 | FP EINZELKONTAKTSTIFT SINGLE-CONTACT PIN ULMIC R&S.ZCHNG.300.8804 | 300.8804 | 355.9648 |
| BIS/TO ST21 | | | |
| ST40 | VL WIRE-WRAP PIN BERG NR. 75 403-001 | VL 088.4507 | 355.9625 |
| ST41 | VL WIRE-WRAP PIN BERG NR. 75 403-001 | VL 088.4507 | 355.9625 |
| ST42 | VL WIRE-WRAP PIN BERG NR. 75 403-001 | VL 088.4507 | 355.9625 |
| ST44 | VL WIRE-WRAP PIN BERG NR. 75 403-001 | VL 088.4507 | 355.9625 |
| ST45 | VL WIRE-WRAP PIN BERG NR. 75 403-001 | VL 088.4507 | 355.9625 |
| ST46 | VL WIRE-WRAP PIN BERG NR. 75 403-001 | VL 088.4507 | 355.9625 |
| ST47 | VL WIRE-WRAP PIN BERG NR. 75 403-001 | VL 088.4507 | 355.9625 |
| ST48 | VL WIRE-WRAP PIN BERG NR. 75 403-001 | VL 088.4507 | 355.9625 |
| ST49 | VL WIRE-WRAP PIN BERG NR. 75 403-001 | VL 088.4507 | 355.9625 |
| ST100 | VL WIRE-WRAP PIN BERG NR. 75 403-001 | VL 088.4507 | 355.9625 |
| ST130 | ENTHALTEN IN/INCLUDED IN LEITERPLATTE/PCB | | 355.9648 |
| ST131 | FJ EINBAUWINKELST. SMC ANGLE CONNECTOR RADIALL R 112 669 | FJ 249.9684 | 355.9625 |
| BIS/TO ST134 | | | |
| T10 | AK 2N3209 PNP 20V 100MA TRANSISTOR SGS 2N3209 | AK 010.3590 | 355.9625 |
| T500 | AK 2N3209 PNP 20V 100MA TRANSISTOR SGS 2N3209 | AK 010.3590 | 355.9625 |
| T600 | AK NE02135 NPN 12V 5GHZ TRANSISTOR NEC NE02135 | 300.6147 | 355.9625 |
| T601 | AK BCY79IX PNP 45V 200MA TRANSISTOR SIEMENS BCY79IX | AK 010.3777 | 355.9625 |
| T610 | AK NE02135 NPN 12V 5GHZ TRANSISTOR NEC NE02135 | 300.6147 | 355.9625 |
| T611 | AK BCY79IX PNP 45V 200MA TRANSISTOR SIEMENS BCY79IX | AK 010.3777 | 355.9625 |

- ENDE -



(Platte) Oszillatorsteuerung 355.9625
(PCB) Oscillator control
Zuführung - Oszillatorsteuerung 355.964.8
Feed - Oscillator control

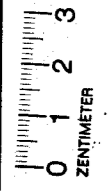
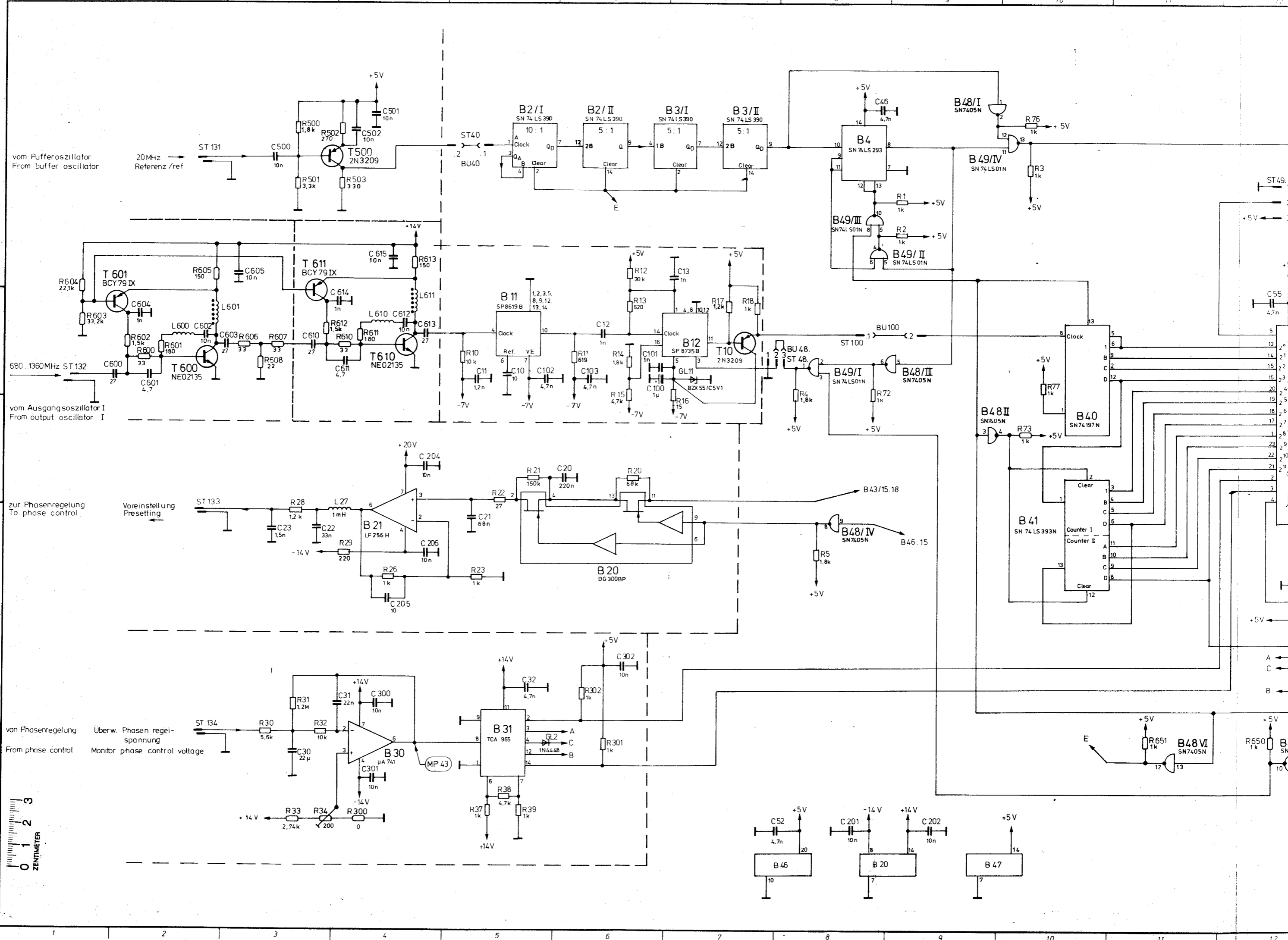
Stromlauf zu
 Oszillatorsteuerung / Oscillator control

Zeichn. Nr. 355.9619 S
355.9519 V 300.1000

| | | |
|-----------------|-------|----|
| Med. Auftr. Nr. | 27860 | LS |
| Datum | 7.82 | LS |
| Zeichn.-Nr. | A | LS |
| Gezeichnet | C.1 | LS |
| Geprüft | B.8 | LS |

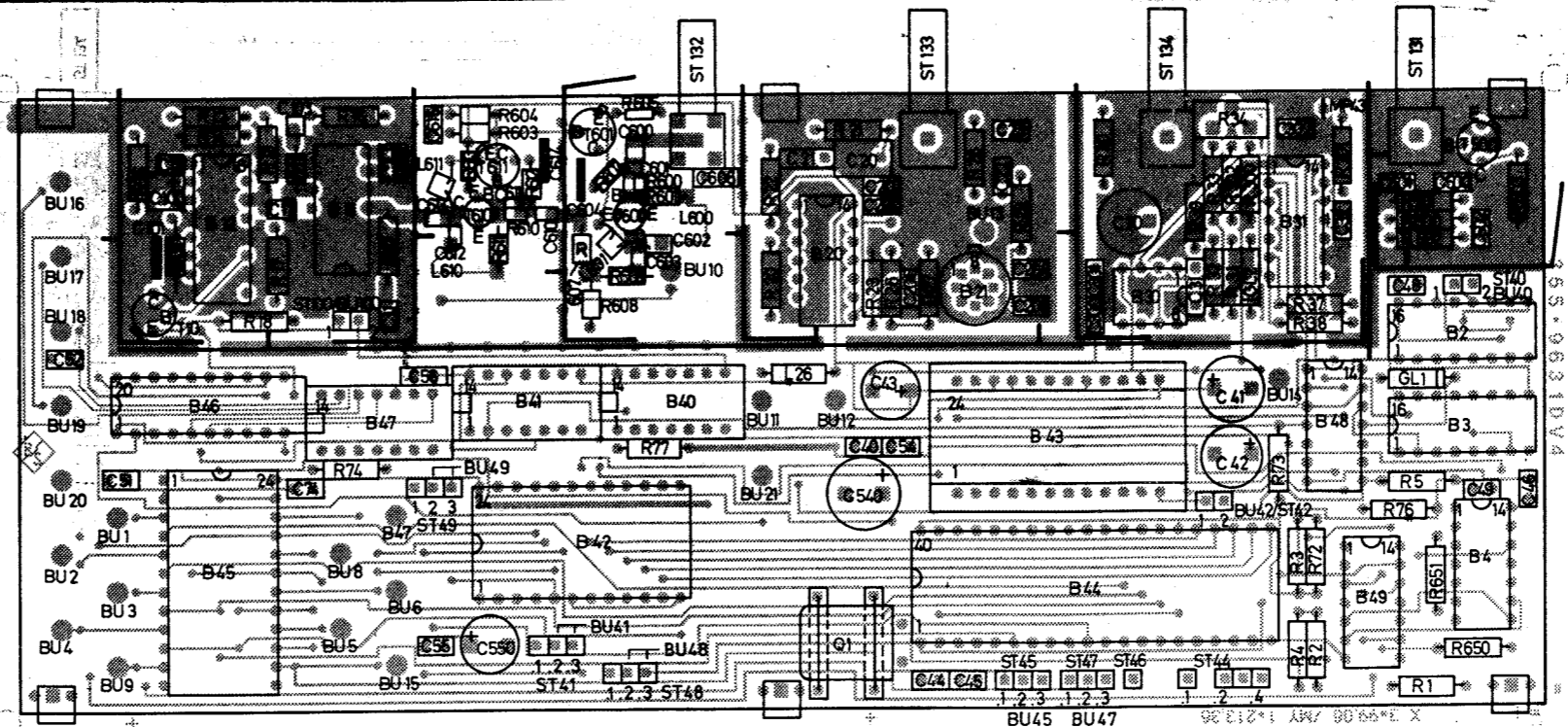
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ROHDE & SCHWARZ MÜNCHEN

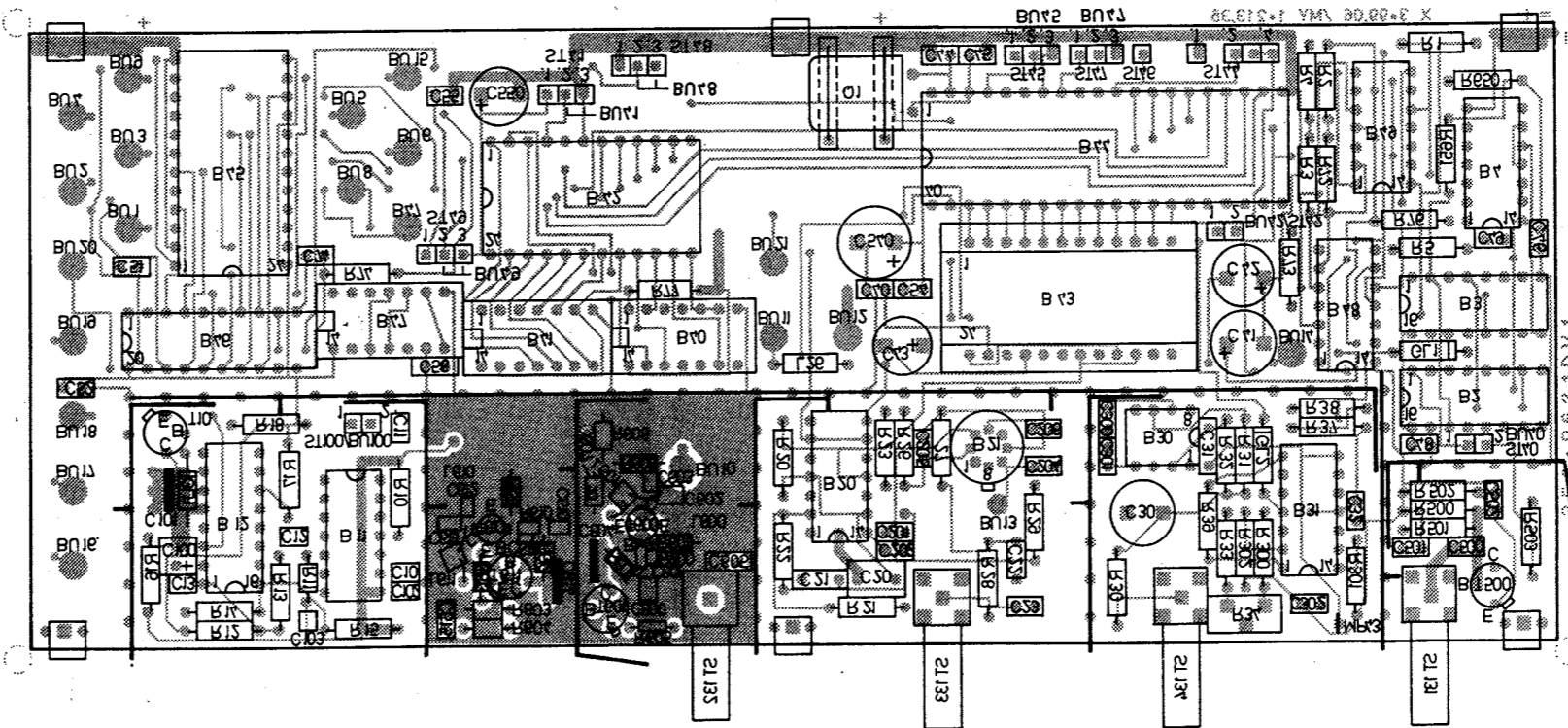


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Ansicht und Leitungsführung Bauteilseite
View of tracks on component side



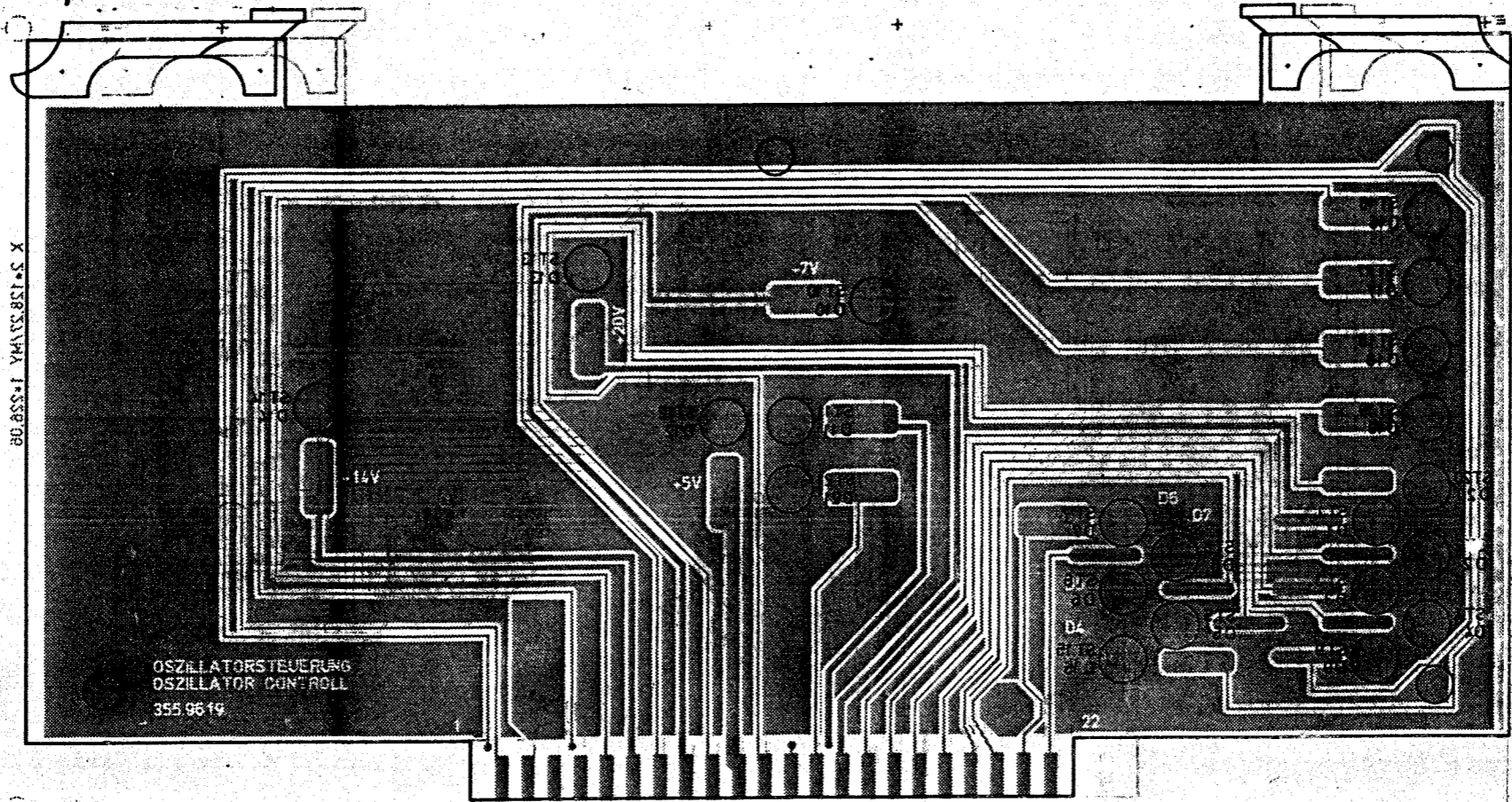
Ansicht und Leitungsführung Lötseite
View of tracks on solder side



| | | | |
|--------------------------|----------------------|---------------------------|------|
| Versorg-Nr | | VG-Sachnr | |
| Maße ohne Toleranzangabe | | Maßstab 1 : 1 | |
| | | Halbzeug, Werkstoff | |
| IGMC Tag Name | | Benennung | |
| Bearb 12.8.81 LS | | Oszillatorsteuerung | |
| Gepr | | Oscillator control | |
| Norm | | Z | |
| ROHDE & SCHWARZ MÜNCHEN | | Zeichn-Nr 355.9625 | |
| zu Gerat SMPC | | 355.9519 V erste 355.9619 | |
| And Zust | Anderungs Mitteilung | Tag | Name |

A
B
C
D
E
F

Ansicht von der Leiterbahnführung Lötseite
View of tracks on solder side IV



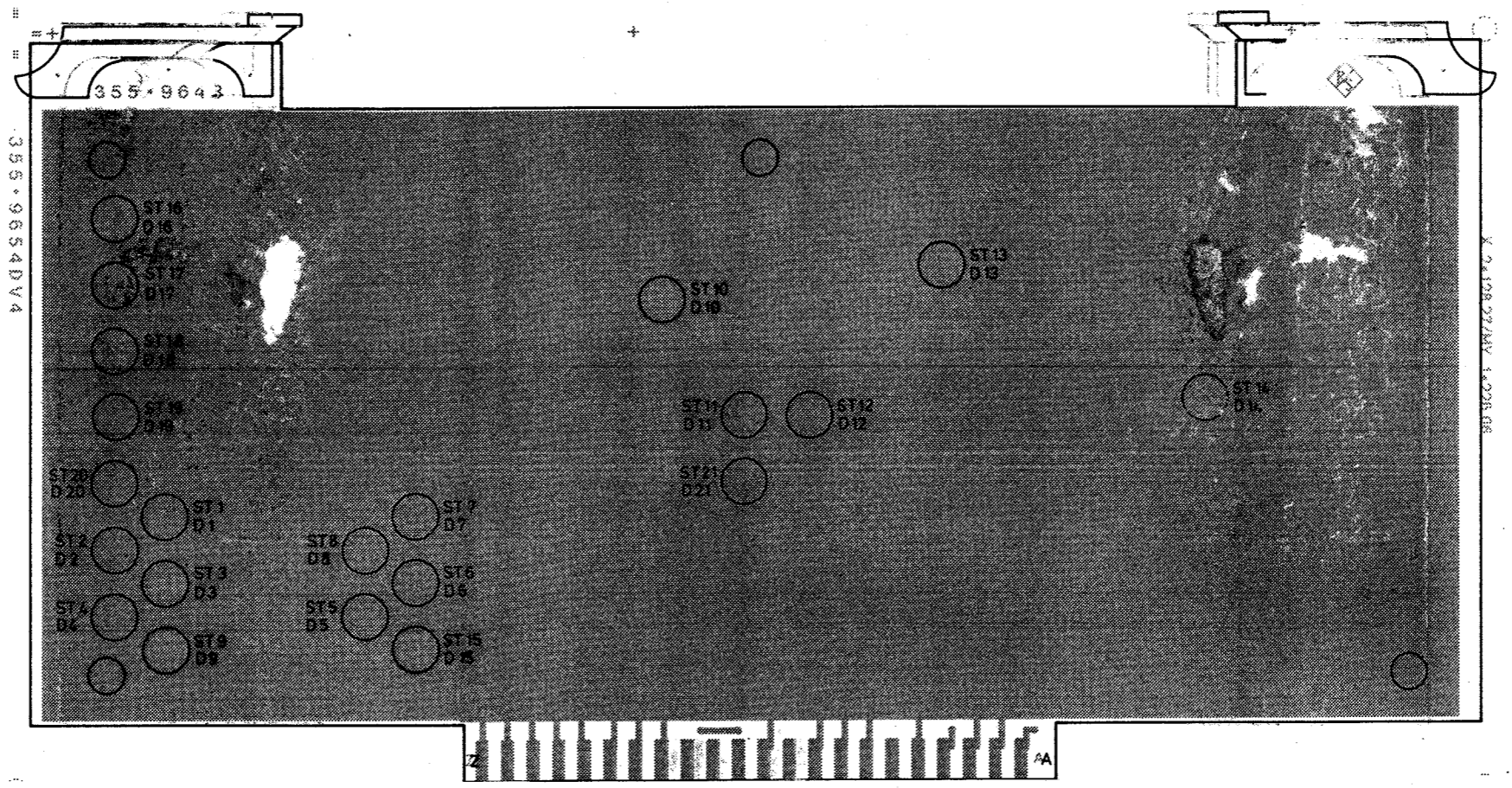
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| | | | |
|---------------------|--|--------------------|--|
| 355.9619 | | 19.8.81 | |
| OSZILLATORSTEUERUNG | | OSZILLATOR CONTROL | |
| ROHDE & SCHWARZ | | MÜNCHEN | |

| | | | |
|--------------------------|----------------------|---------------------|--|
| Versorg.-Nr | | VG-Sachnr | |
| Maße ohne Toleranzangabe | | Maßstab 1:1 | |
| | | Halbzeug, Werkstoff | |
| 1GMC | Tag | Name | Benennung Zuführung Osz.-Steuerung Feed Oscillator-control |
| Bearb | 19.8.81 | LS | |
| Gepr | | | |
| Norm | | | |
| ROHDE & SCHWARZ MÜNCHEN | | | Zeichn.-Nr 355.9648 |
| And Zust | Anderungs-Mitteilung | Tag | Blatt-Nr 3 |
| zu Gerät SMPC | | reg V 355.9519 V | erste Z 355.9619 |

A
B
C
D
E
F

Ansicht und Leitungsführung Bauteilseite
View of tracks on component side



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uns alle Rechte vor.

| | | | | | |
|------------|----------------------|--------------------------|---------|---------------------|--------------------------|
| Versorg-Nr | | Maße ohne Toleranzangabe | | VG-Sachnr | |
| | | | | Maßstab 1 : 1 | |
| | | | | Halbzeug, Werkstoff | |
| | | GMC | Tag | Name | Benennung |
| | | Bearb | 19.8.81 | LS | Zuführung Osz.-Steuerung |
| | | Gepr | | | Feed Oscillator-control |
| | | Norm | | | |
| | | ROHDE & SCHWARZ MÜNCHEN | | Zeichn-Nr | |
| | | | | 355.9648 | |
| And Zust | Anderungs-Mitteilung | Tag | Name | Gerät | Blatt-Nr |
| | | | | SMPC | 2 |
| | | | | Reg | Bl |
| | | | | 355.9519 V | 355.9619 |