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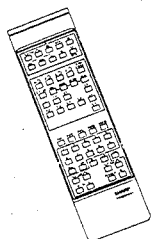
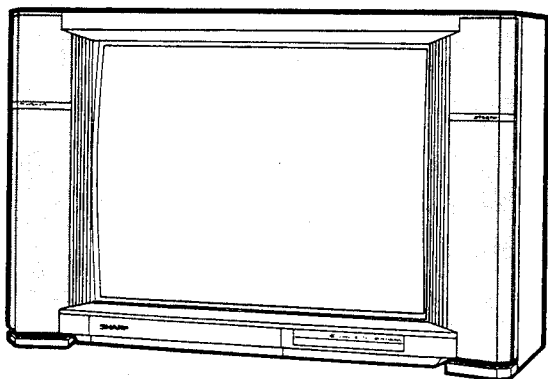
DV-28071S

SHARP SERVICE MANUAL SERVICE-ANLEITUNG

SEAADV28071S/

D 3000 CHASSIS

PAL/SECAM SYSTEM COLOUR TELEVISION
PAL/SECAM SYSTEM FARBFERNSEHGERÄT



MODEL DV-28071S MODELL DV-28071S

In the interests of user-safety (required by safety regulations in some countries) the set should be restored to its original condition and only parts identical to those specified should be used.

Im Interesse der Benutzer-Sicherheit (in einigen Länder durch Sicherheitsvorschriften gefordert) sollte dieses Gerät wieder auf seinen ursprünglichen Zustand eingestellt und nur die vorgeschriebenen Teile verwendet werden.

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SHARP CORPORATION

714

ELECTRICAL SPECIFICATIONS

Aerial Input Impedance 75 ohm unbalanced
 Convergence Self Converging System
 Focus Bi - potential electrostatic
 Audio Power Output Rating 10 Watt (M.P.O.)x2
 Intermediate Frequencies
 Picture IF Carrier Frequency 38.9 MHz
 Sound IF Carrier Frequency 33.16 MHz / 33.4 MHz
 Colour Sub-Carrier Frequency 34.47 MHz (Nominal)

Power Input 220 Volts AC 50 Hz
 Power Consumption 93 Wh
 Speaker Size 8 cm x 16 cm (Oval)
 Voice Coil Impedance 8 ohms x 2 units
 Sweep Deflection Magnetic
 Tuning Ranges VHF-Channels 2 to 12
 UHF-Channels 21 to 69
 CATV Special Channels

Specifications are subject to change without prior notice.

TECHNISCHE DATEN**Antennen-**

Eingangsimpedanz 75 ohm unsymmetrisch
 Konvergenz Selbstkonvergierendes System
 Sharfeinstellung Bi - Potential elektrostatisch
 Ton-Ausgangsleistung 10 Watt (M.P.O.) x 2
 Zwischenfrequenzen
 Bild-ZF-Trägerfrequenz 38,9 MHz
 Ton-ZF-Trägerfrequenz 33,16 MHz / 33,4 MHz
 Farb-Hilfsträgerfrequenz 34,47 MHz (Nominal)

Netzspannung 220 V Netzstrom, 50 Hz
 Leistungsaufnahme 93 Wh
 Lautsprechergröße 8 cm x 16 cm (Oval)
 Schwingspulenimpedanz 8 ohm x 2 st.
 Ablenkung Magnetisch
 Abstimmbereiche VHF-Kanäle 2 bis 12
 UHF-Kanäle 21 bis 69
 Sonderkanäle

Anderungen vorbehalten

WARNING

The chassis in this receiver is partially hot. Use an isolation transformer between the line cord plug and power receptacle, when servicing this chassis.

To prevent electric shock, do not remove cover. No user – serviceable parts inside. Refer servicing to qualified service personnel.

WARNUNG

Das Chassis dieses Empfangsgerätes steht teilweise unter hohen Spannungen. Bei Wartungsarbeiten an diesem Chassis muß deshalb ein Isolationstransformator zwischen dem Netzkabelstecker und der Steckdose verwendet werden.

Um elektrische Schläge zu vermeiden, darf das Abdeckgehäuse nicht entfernt werden. Im Inneren des Gerätes befinden sich keine von Benutzer einstellbaren Teile. Wartung und Reparaturarbeiten müssen qualifiziertem Service-Personal überlassen werden.

IMPORTANT SERVICE NOTES

Maintenance and repair of this receiver should be carried out by qualified service personnel only.

SERVICING OF HIGH VOLTAGE SYSTEM AND PICTURE TUBE

When servicing the high voltage system, remove static charge from it by connecting a 10 k ohm resistor in series with an insulated wire (such as a test probe) between picture tube ground tag and high voltage lead. (AC line cord should be disconnected from AC outlet).

1. Picture tube in this receiver employs integral implosion protection.
2. Replace with tube of the same type number for continued safety.
3. Do not lift picture tube by the neck.
4. Handle the picture tube only when wearing shatterproof goggles and after discharging the high voltage completely.

X-RAY

This receiver is designed so that any X-Ray radiation is kept to an absolute minimum. Since certain malfunctions or servicing may produce potentially hazardous radiation with prolonged exposure at close range, the following precautions should be observed.

1. When repairing the circuit, be sure not to increase the high voltage to more than 30.0 kV (at beam 1100 μ A) for the set.
2. To keep the set in a normal operation, be sure to make it function on 24.5 kV \pm 1.5 kV (at beam 1100 μ A) in the case of the set. The set has been factory adjusted to the above mentioned high voltage. If there is a possibility that the high voltage fluctuates as result of the repairs, never forget to check for such high voltage after the work.
3. Do not substitute a picture tube with unauthorized types or brands which may cause excess X-Ray radiation.

BEFORE RETURNING THE RECEIVER

Before returning the receiver to the user, perform the following safety checks.

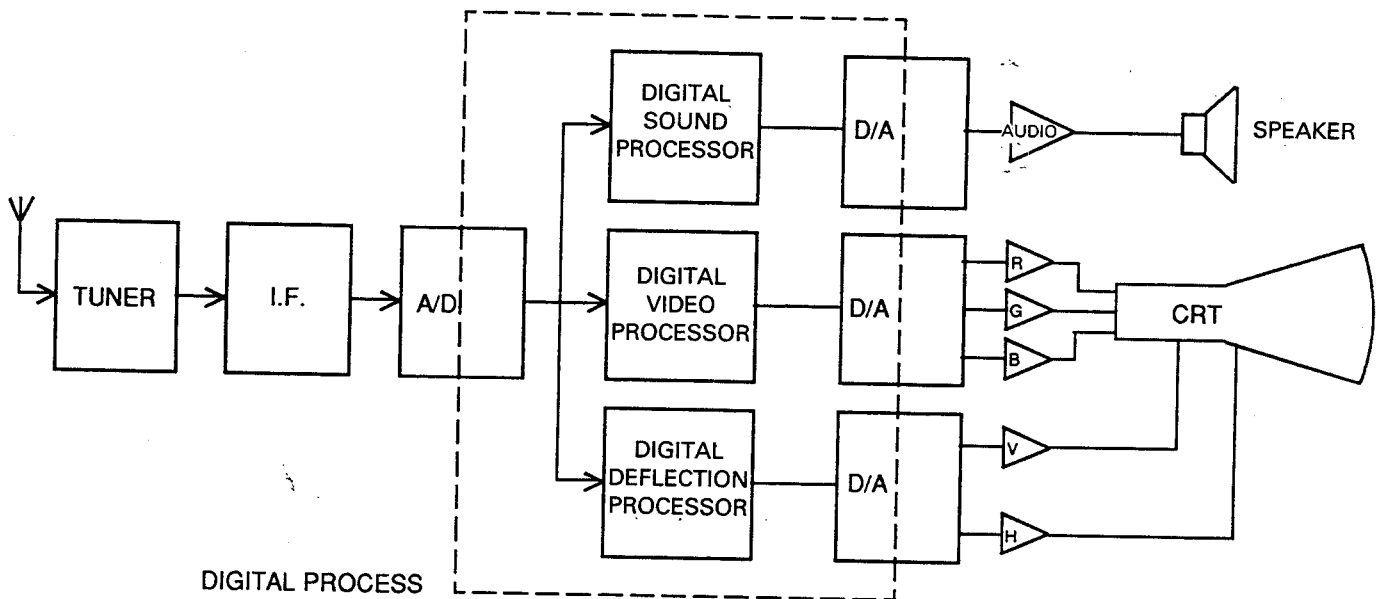
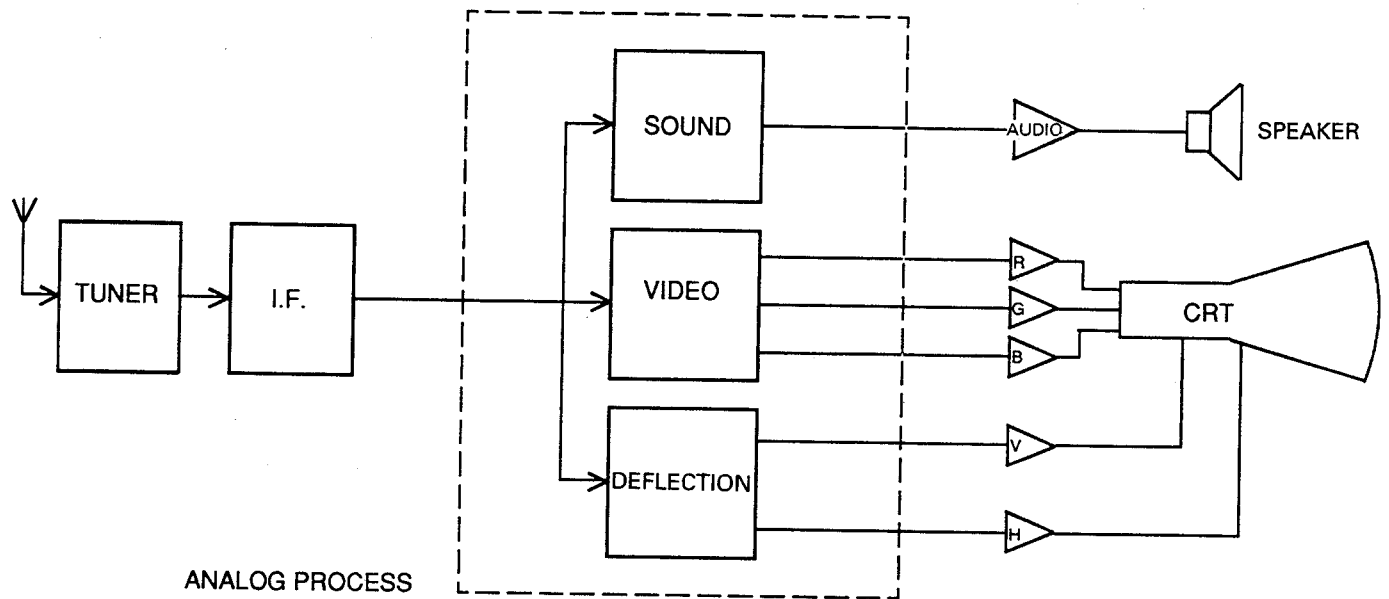
1. Inspect all lead insulation to make certain that leads are not pinched or that hardware is not lodged between the chassis and other metal parts in the receiver.
2. Inspect all protective devices such as non-metallic control knobs, insulating fishpapers, cabinet backs, adjustment and compartment covers or shields, isolation resistor-capacity networks, mechanical insulators, etc.

NEW TECHNOLOGY

DIGITAL TV SHARP

FUNCTIONAL CONCEPTS:

The function of a digital TV differs from a conventional analog one in the processing of the Video composite signal coming out from the IF Unit and entering (decoded) into amplifiers for Picture, Sound, Deflection and R.G.B..

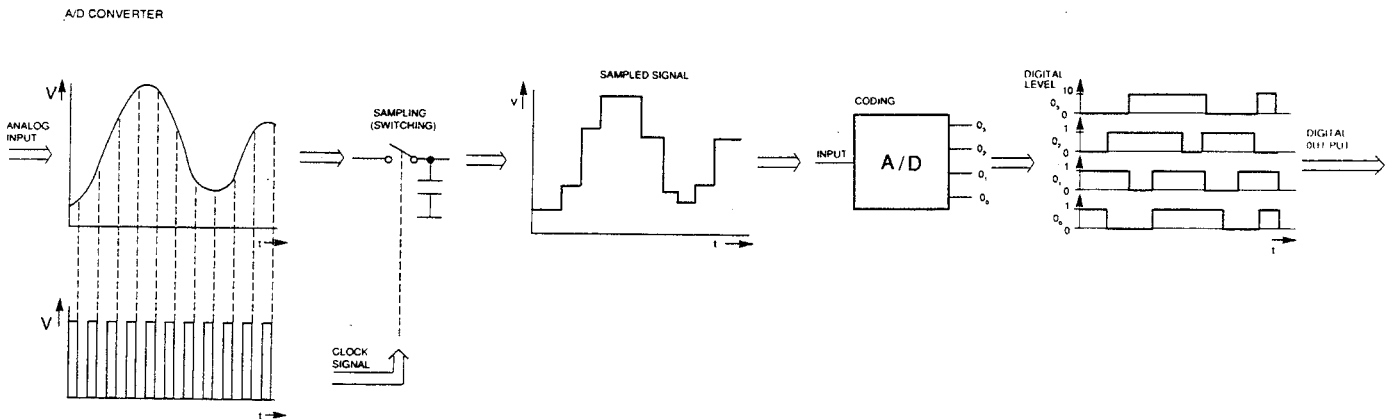


DIGITALIZATION OF ANALOG SIGNALS:

A/D CONVERTER

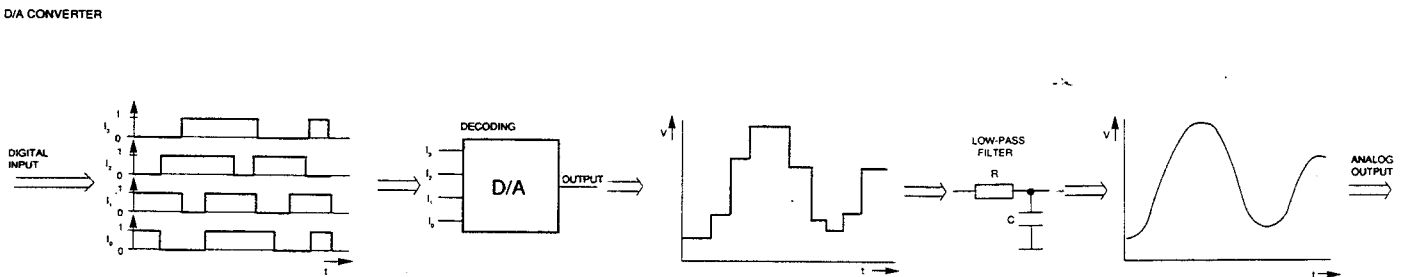
The first step is to chop the analog signal up into sample signals. This can be achieved by periodically opening and closing a circuit controlled by a clock signal. The signal obtained is then stored in a capacitor which maintains this information long enough to be converted into digital.

The converter contains predetermined voltage levels which serve as a reference point to compare them with the chopped signal and to assign a binary code for each sample.



D/A CONVERTER

The inverse process now takes place. When a binary code is introduced into the D/A converter, it assigns a voltage value to each code, which through continued succession of codes generates a series of voltage values which produce a waveform. To obtain the original analog signal, the waveform should be filtered through a Low-Pass filter. The final resultant waveform quality of this A/D and D/A process depends upon the number of bits of the converters and the sampling frequency which should be at least double that of the sampled signal.



DIGITAL PROCESS

The centre of the system is the microprocessor Central Control Unit (CCU) which communicates with the integrated circuits by means of the IMBUS communications network.

This network allows the CCU to read and write information data in each integrated circuit. The CCU acts as "Master" and the rest of the integrated circuits as "Slaves".

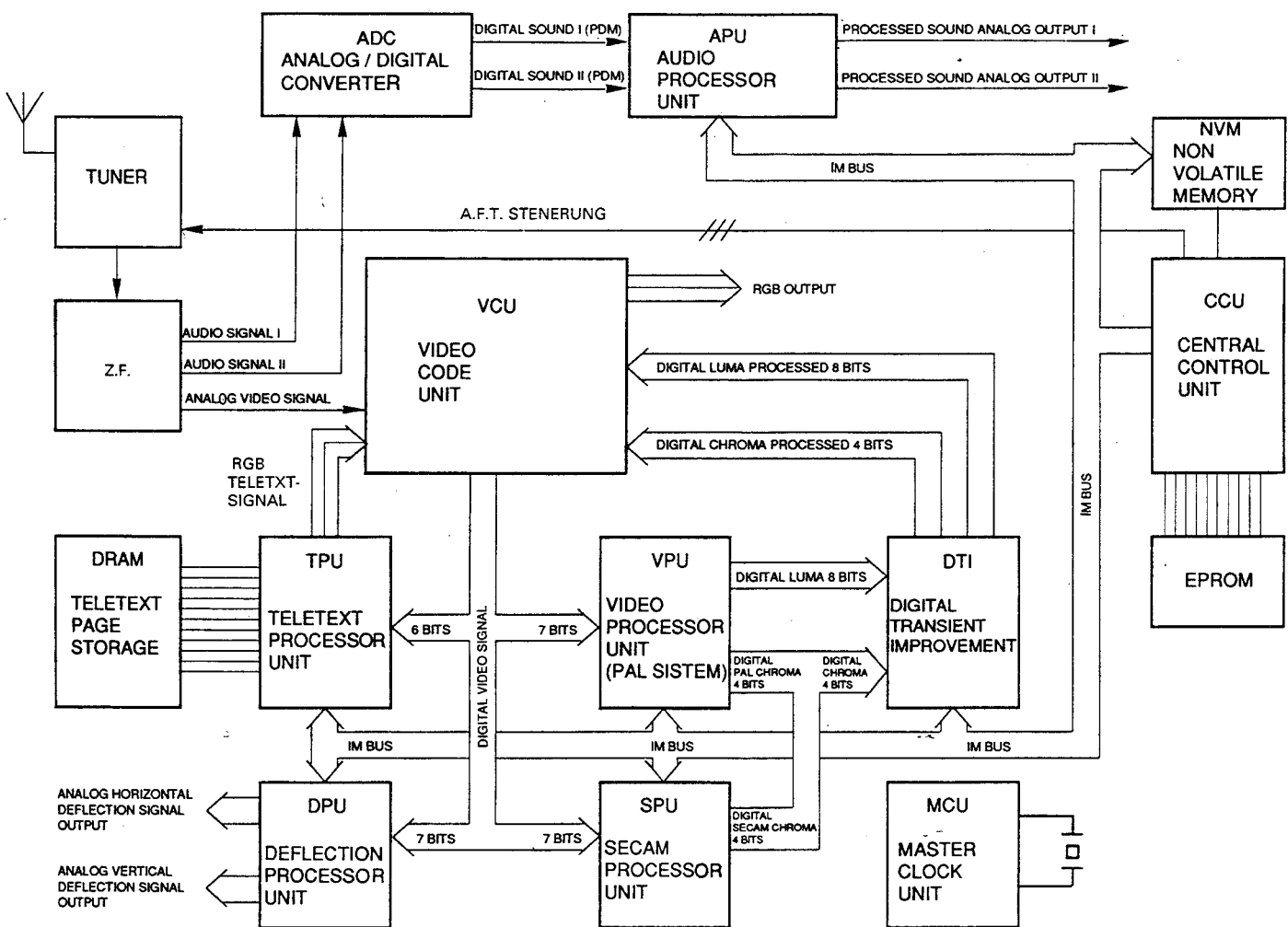
The IMBUS consists of three signal lines: CL is the clock signal line which synchronizes the communications and when this happens, the frequency of the signal is 17 KHz approx.

ID is the identification signal line. Each integrated circuit has an assigned code, all being connected in parallel to the IMBUS. This line determines which unit the CCU is communicating with. D is the data lines which are read and written by the CCU.

CL and ID lines are unidirectional, i.e., the communication comes from CCU to the other units. D line is bidirectional i.e., reading or writing.

The outputs of IMBUS at the CCU are open drained which require resistances on each positive line.

BASIC SIGNAL FLOW



IMBUS

- CL: CLOCK LINE
- ID: IDENTIFICATION LINE
- D: DATA LINE

The microprocessor is linked to two memories: An EPROM memory that contains CCU program software, which repeats itself constantly in a sequential manner.

The NVM memory that stores channel data, brightness and volume controls, etc., which can be modified by the user through the Remote Control Unit.

It also stores data referring to S and E-W parabola corrections. The data can only be modified by Technical Service staff and not by the user.

In order to operate in the service functions, press the service button found in the interior of the TV set and adjust the required controls by means of the Remote Control Unit.

The Television push buttons can also be used, as their specific functions change in this operation mode. Having seen how the microprocessor communicates with the rest of the integrated circuits, we now see how the Video signals process is followed.

The Composite Video Signal coming from the IF unit is fed into the VCU, part of which is an A/D converter. Once digitalized, the signal is fed in parallel into the Synchro Processor DPU, Video Processor VPU, Secam Processor SPU and Teletext Processor TPU.

The Synchro Processor DPU takes deflection information out and makes the required signal corrections controlled by the microprocessor.

The integrated circuit contains a D/A converter that provides analog outputs in order to excite the Horizontal and Vertical Amplifiers.

The Video Processor VPU separates the Luma and Chroma signals and then processes them separately. If the signal received is not PAL, then the Chroma process in the VPU becomes deactivated and the Secam Processor SPU starts functioning. The output of VPU and SPU is fed into the DTI whose mission is to improve picture quality of sudden colour transitions.

The output of the DTI is fed into the VCU again, which now transforms the digital signal to analog and codified RGB. The Teletext Processor Unit TPU functions with certain independence, due to its DRAM memory, where available page information can be stored. The output of this integrated circuit is not digital as it has been converted into analog and is obtained in RGB form. This signal is fed into the VCU and depending on the microprocessor commands, the VCU will switch the RGB signal provided by the DTI or the Teletext RGB. Both signals can also be mixed.

All this complex digital data processing has to be synchronized. To achieve this a MCU clock is used, oscillating at a frequency of 17.7 MHz.

The MCU is interconnected to all the integrated circuits involved in the signal processing.

The function of the Audio is also governed by the microprocessor CCU and communicates with said module by means of the IM Bus.

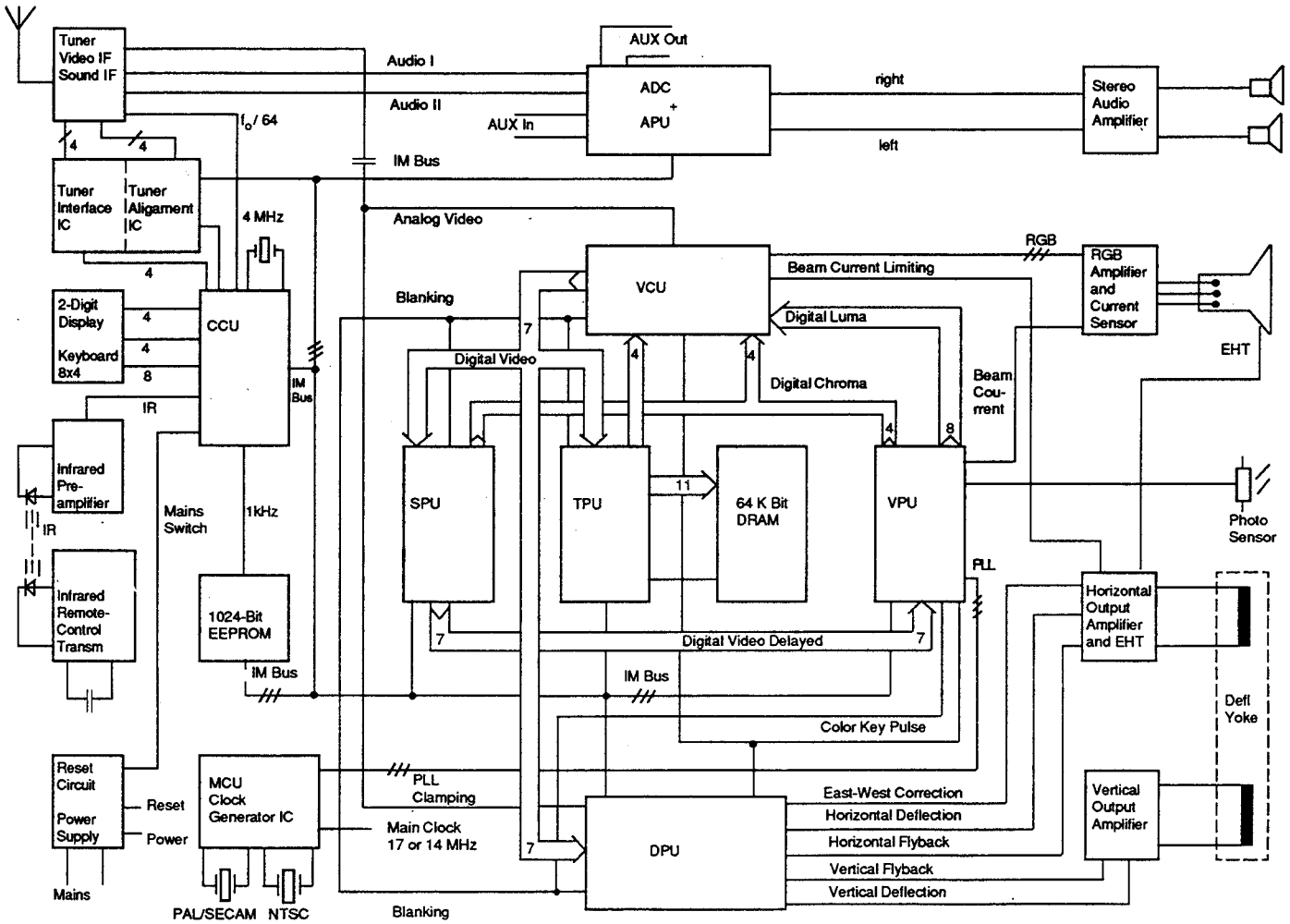
The Audio Signal is fed into the ADC which is an analog to PDM (Pulse Density Modulator) converter and this output is connected to the Audio Processor Unit APU, where all volume, balance, tone and stereo corrections are made. This Unit has a decodifier and the output is in analog mode in order to excite the Audio Amplifiers.

In addition, the CCU has control on the AFT and will automatically correct any drifts of frequency.

As it can be appreciated by the above explanation the system is completely modular, which facilitates the additional attachment of other features to the Television in the future.

STANDARD VERSION OF DIGITAL CTV

(with remote control, equipped for PAL, SECAM and Teletext reception)



SERVICE ADJUSTMENT

PIF/AFT/SIF/AGC/+B ADJUSTMENT

1. VCO T204 for Picture

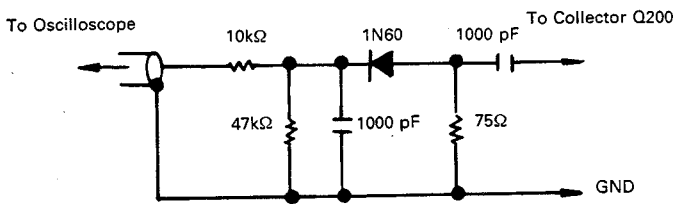
1. Apply 3V DC to pin 16 of IC200.
2. Measure and record voltage at pin 25 of IC200.
3. Apply carrier frequency of 38.9 MHz to pins 8 and 9 of IC200.
4. Adjust T204 to obtain same voltage value as step 2.

2. S detector T206 5.5 MHz for Sound

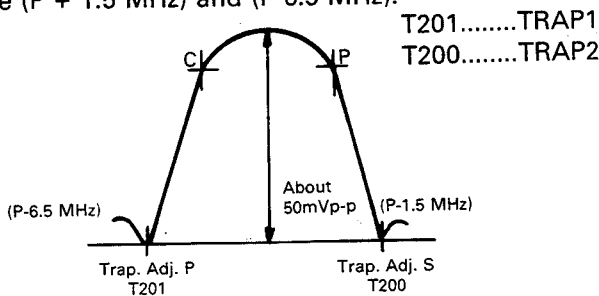
1. Apply carrier frequency of 5.5 MHz to pin 13 of IC200.
2. Connect DC voltmeter to pin 19 of IC200.
3. Adjust T206 to obtain 4.5 V at pin 19 of IC200.

3. Trap T201, T200

1. Connect sweep generator output to TUNER Test Point.
2. Connect response cable with detector to collector line of Q200 (see diagram).



3. Adjust T200 (S-Trap) and T201 (P-Trap) so that traps are (P + 1.5 MHz) and (P-6.5 MHz).



4. S2 Adjustment T208 5.74 MHz

1. Connect carrier frequency of 5.74 MHz to pin 8 of IC201.
2. Connect Voltmeter to pin 8 of IC201.
3. Adjust T208 to obtain 3V DC.

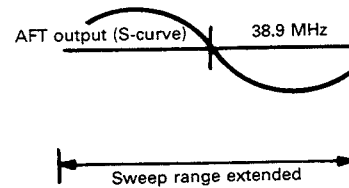
5. S-Level Adjustment R-231

1. Apply 3V DC to pin 6 of IC200.
2. Connect Stereo signal to base of Q201 (CH1, L+R) (CH2, 2R).
3. Connect oscilloscope to pin 22 of IC301 (IGR Unit).
4. Adjust R231 to obtain 0V(rms).

6. AFT Adjust T205

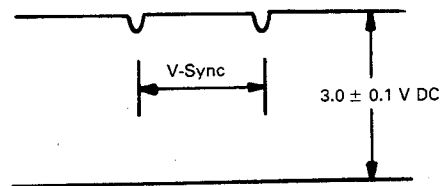
Coarse Adjustment

1. Connect sweep generator output to TUNER Test Point (T.P.).
2. Apply 3V DC to pin 6 of IC200.
3. Connect response lead (containing 10K ohm resistor in series) to pin 6 of IC200.
4. Adjust T205 to align Picture marker (38.9 MHz) of S-curve with base line.



Fine Adjustment

1. Receive CH12 (Real CH mode)
2. Set AFT mode to Off
3. Connect DC voltmeter to pin 16 of IC200.
4. Adjust T205 to obtain 3V DC \pm 0.1 V.



7. RF AGC R219

1. Receive colour bar signal (signal strength: 53 dB).
2. Connect DC voltmeter to Test Point 201 (RF AGC).
3. Set AGC-VR (R219) to maximum position (memory).
4. Adjust R219 to obtain a voltage of 0.1V below maximum voltage (step 3).

+B Adjustment R716 + B150 V

1. Receive monoscope pattern signal.
2. Set contrast control to maximum (100%) position and brightness control to centre position (50%).
3. Connect DC voltmeter to cathode of D601.
4. Adjust R716 to obtain a voltage of 150 V \pm 0.5 V.

SERVICE MODE

Most of the adjustments required by this TV set can be made through the Remote Control Unit or by means of the push buttons on the television itself.

The first step is to remove the rear cover and press the service button (S1401) found on the Video Unit (PWB-B). When in Service Mode "SHARP Software Service Ver" will appear on the screen.

The required adjustments can then be made from the Remote Control Unit. Having finalized the adjustments, the service button should be pressed again to restore the television to its normal function.

In Service Mode the Remote Control buttons change their function. The only buttons required are the following: +CH/-CH for movement in adjustment options menu; +V/-V are used to carry out an adjustment in said menu; ON/OFF is used to memorize a new adjustment.

Adjustment menu is as follows:

- | | |
|---------------------------|--|
| 1. Horizontal Phase Shift | 11. Trapezoid 2 |
| 2. Blanking Phase Shift | 12. Chroma-Luma Delay |
| 3. Vertical Phase | 13. VCO adjust |
| 4. Vertical Size | 14. G2 adjustment (adj. by potentiometer in FBT) |
| 5. S-Correction | 15. Cut Off Red |
| 6. Vertical Symmetry | 16. Cut Off Green |
| 7. Horizontal amplitude | 17. Cut Off Blue |
| 8. East/West 1 | 18. Drive Red |
| 9. Trapezoid 1 | 19. Drive Green |
| 10. East/West 2 | 20. Drive Blue |

Adjustment Note:

The procedure for making adjustments to East/West and Trapezoidal Corrections is as follows:

- Set Horizontal Amplitude to minimum.
- Set East/West 2 to minimum.
- Set Trapezoid 2 to minimum.
- Adjust East/West 1.
- Adjust Trapezoid 1.
- Adjust East/West 2.
- Adjust Trapezoid 2.
- Adjust Horizontal Amplitude.

1. Horizontal Phase Shift

- a) Receive Philips pattern signal.
- b) When volume-up button is pressed, picture moves to the right, and horizontal blanking appears on r.h.s.
- c) When volume-down button is pressed, picture moves to the left, and horizontal blanking appears on l.h.s.
- d) Adjust the horizontal phase to obtain a position where no horizontal blanking appears on either side (fig. 1).

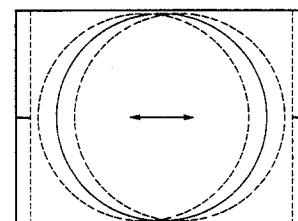


fig. 1

2. Horizontal Blanking Phase Shift

- a) Receive Philips pattern signal.
- b) When volume-up button is pressed, picture moves to the right.
- c) When volume-down button is pressed, picture moves to the left.
- d) Adjust the horizontal location to obtain picture centering (fig. 2).

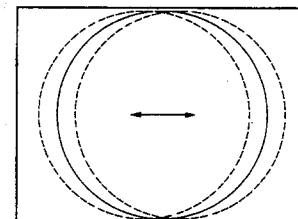


fig. 2

3. Vertical Phase

No adjustment required.

4. Vertical Size

- a) Receive Philips pattern signal.
- b) When volume-up button is pressed, vertical size of picture increases.
- c) When volume-down button is pressed, vertical size of picture decreases.
- d) Adjust the vertical size to obtain overscan (fig. 3).

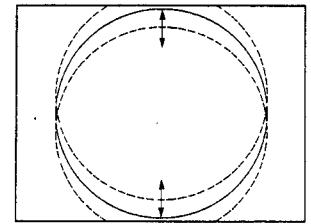


fig. 3

5. S-Correction

- a) Receive Philips pattern signal.
- b) When volume-up button is pressed, upper and lower scanning decreases, and center scanning increases.
- c) When volume-down button is pressed, upper and lower scanning increases, and center scanning decreases.
- d) Adjust the S-correction to obtain a balance between upper, lower and center (fig. 4).

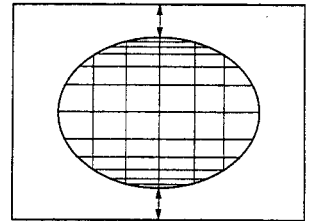


fig. 4

6. Vertical Symmetry

- a) Receive Philips pattern signal.
- b) When volume-up button is pressed, upper picture scanning decreases and lower picture scanning increases.
- c) When volume-down button is pressed, upper picture scanning increases and lower picture scanning decreases.
- d) Adjust the Vertical symmetry to obtain symmetrical scanning between upper and lower picture (fig. 5).

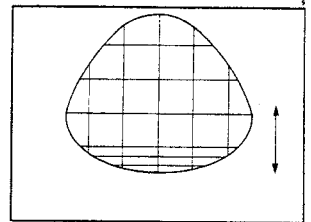


fig. 5

7. Horizontal Amplitude (except 21" model)

- a) Receive Philips pattern signal.
- b) When volume-up button is pressed, horizontal scanning increases.
- c) When volume-down button is pressed, horizontal scanning decreases.
- d) Adjust the horizontal amplitude to obtain 9% overscan (fig. 6).

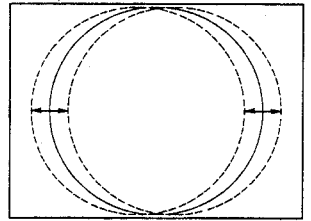


fig. 6

8. East/West 1

- a) Receive Philips pattern signal.
- b) When volume-up button is pressed, side pincushion changes from pincushion to barrel shape.
- c) When volume-down button is pressed, side pincushion changes from barrel to pincushion shape.
- d) Adjust the East/West 1 to obtain condition as in fig. 7.

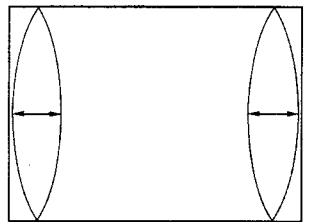


fig. 7

9. Trapezoid 1

- a) Receive Philips pattern signal.
- b) When volume-up button is pressed, side pincushion changes.
- c) When volume-down button is pressed, side pincushion changes.
- d) Adjust the Trapezoid 1 to obtain condition as in fig. 8.

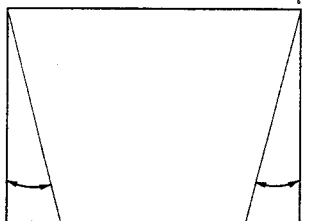


fig. 8

10. East/West 2

- a) Receive Philips pattern signal.
- b) When volume-up button is pressed, side pincushion changes.
- c) When volume-down button is pressed, side pincushion changes.
- d) Adjust the East/West 2 to obtain condition as in fig. 9.

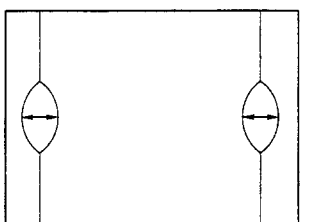


fig. 9

11. Trapezoid 2

- Receive Philips pattern signal.
- When volume-up button is pressed, side pincushion changes.
- When volume-down button is pressed, side pincushion changes.
- Adjust the Trapezoid 2 to obtain condition as in fig. 10.

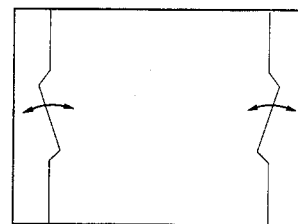


fig. 10

12. Chroma-Luma Delay

- Receive Philips pattern signal.
- When volume-up button is pressed, luma phase delays.
- When volume-down button is pressed, chroma phase delays.
- Adjust the Chroma-Luma delay.

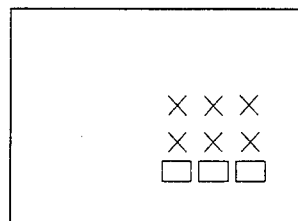


fig. 11

13. VCO Adjustment

- Receive Philips pattern signal.
- When volume-up button is pressed, VCO changes to high frequency.
- When volume-down button is pressed, VCO changes to low frequency.
- Adjust VCO to 4.43 MHz.

14. G2 Adjustment

- Receive monoscope pattern signal.
- First step, change mode to cutoff red.
- Adjust the value on the screen to 63 by the volume up/down button. (fig. 12).
- Second step, change mode to cutoff green.
- Same method as step (c).
- Third step, change mode to cutoff blue.
- Same method as step (c).
- Change mode to G2 Adjust.
- Adjust the screen VR (G2) to obtain value of 20-40, three values for RGB appear on the screen (fig. 11).

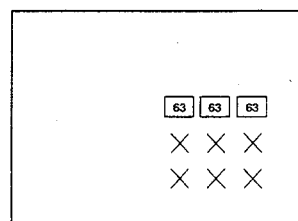


fig. 12

15. Cutoff red

- Receive monoscope pattern signal.
- Wait for stable picture.

16. Cutoff green

- Receive monoscope pattern signal.
- Wait for stable picture.

17. Cutoff blue

- Receive monoscope pattern signal.
- Wait for stable picture.

18. Drive Red

- Receive monoscope pattern signal.
- Adjust value on the picture to 139 (fig. 13).
- Wait for stable picture.

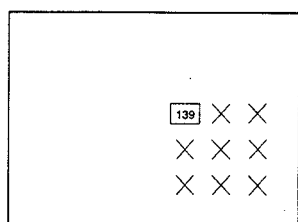


fig. 13

19. Drive Green

- Receive monoscope pattern signal.
- Adjust value on the picture to 105 (fig. 14).
- Wait for stable picture.

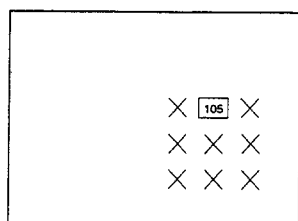


fig. 14

20. Drive Blue

- Receive monoscope pattern signal.
- Adjust value on the picture to 107 (fig. 15)
- Wait for stable picture.

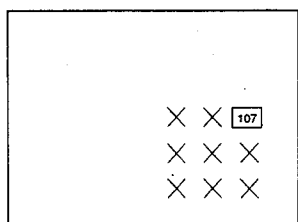
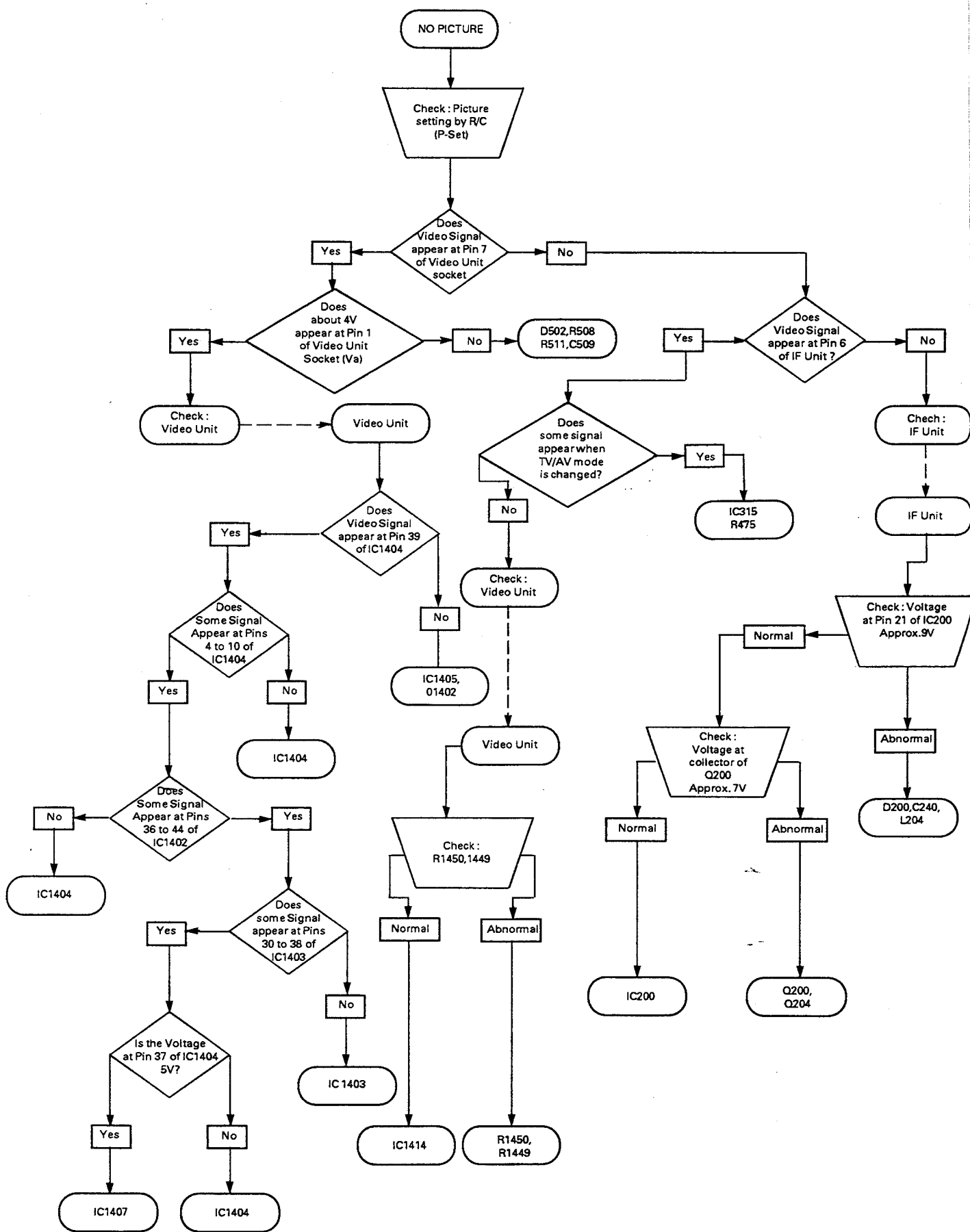
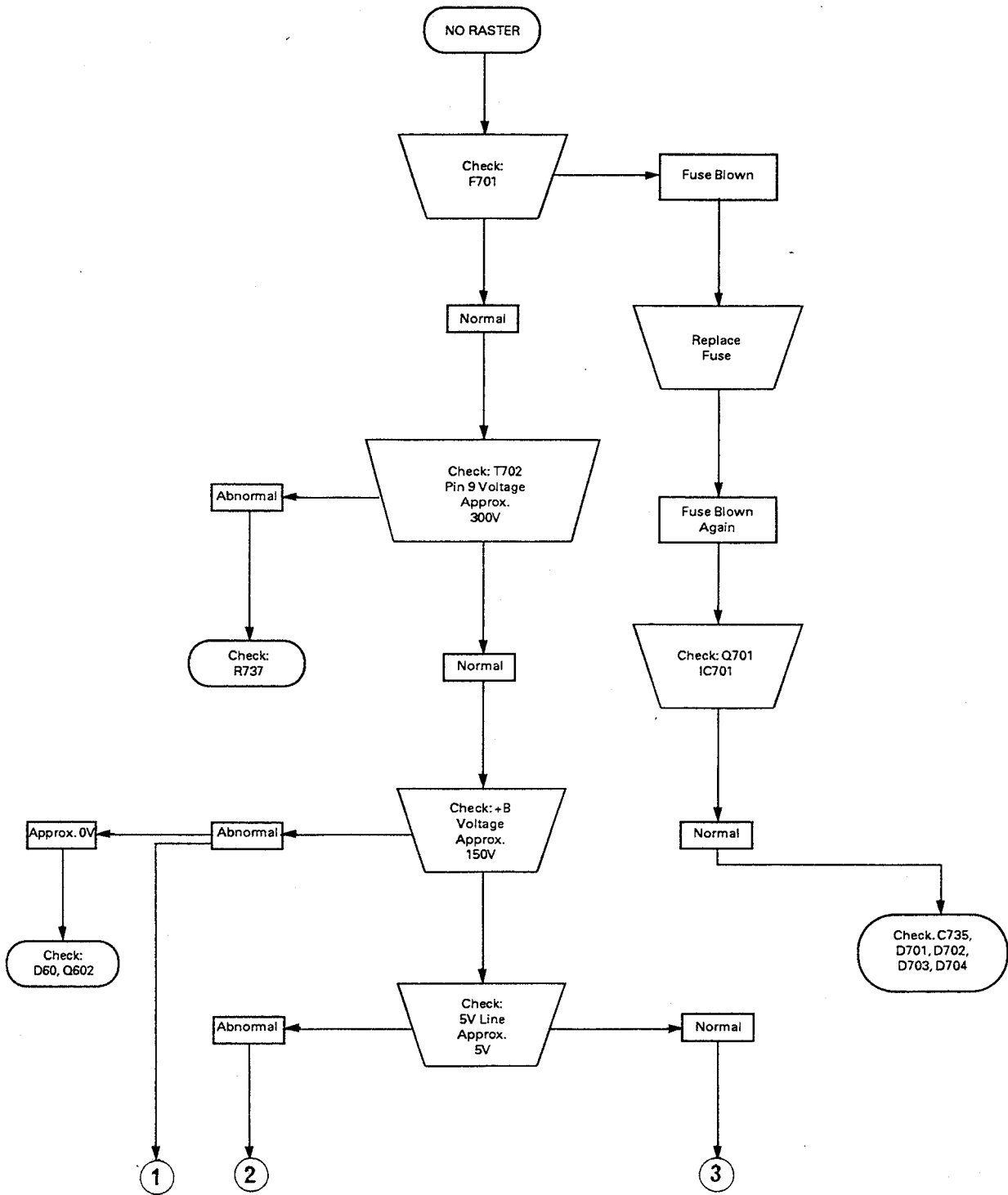
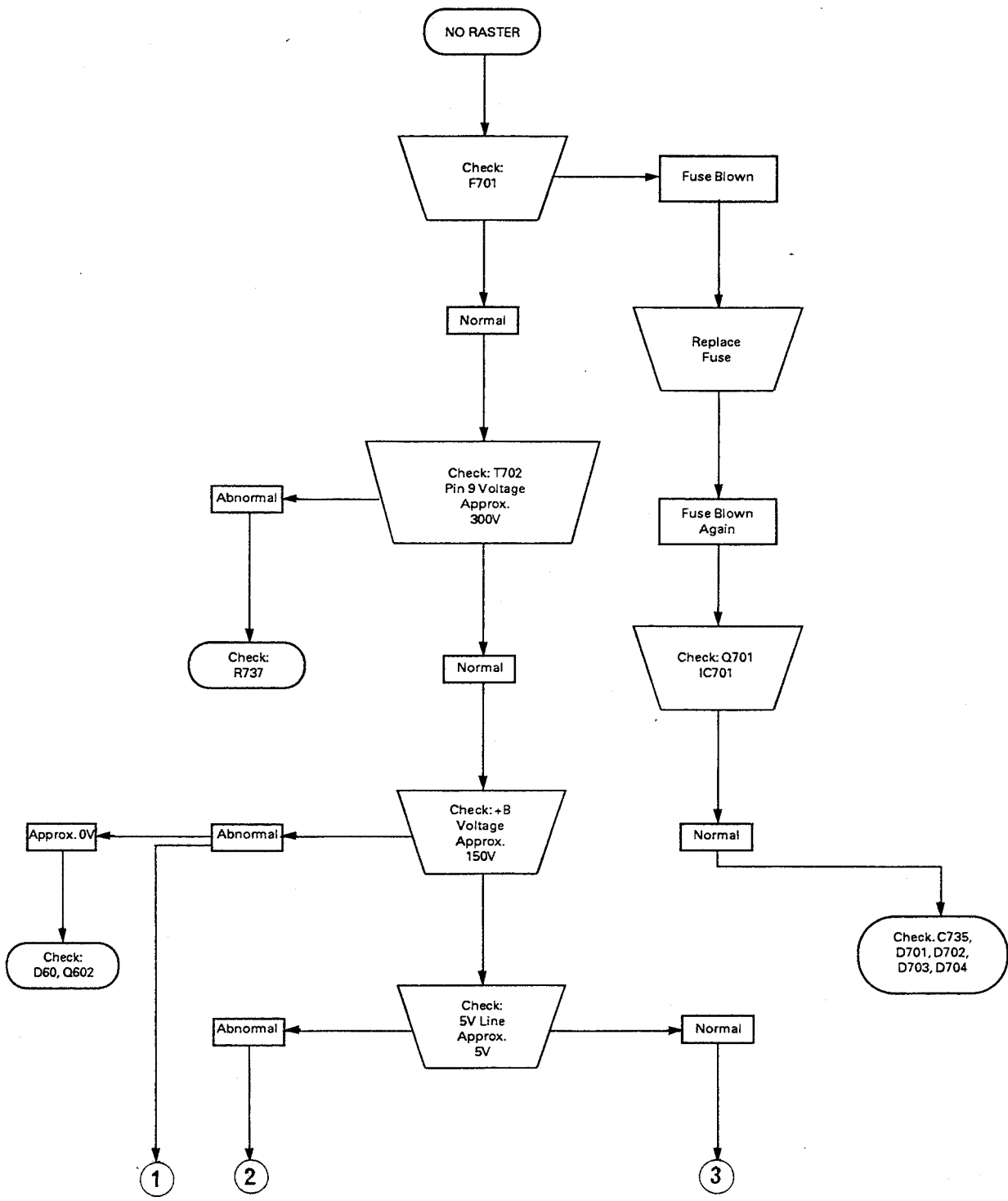


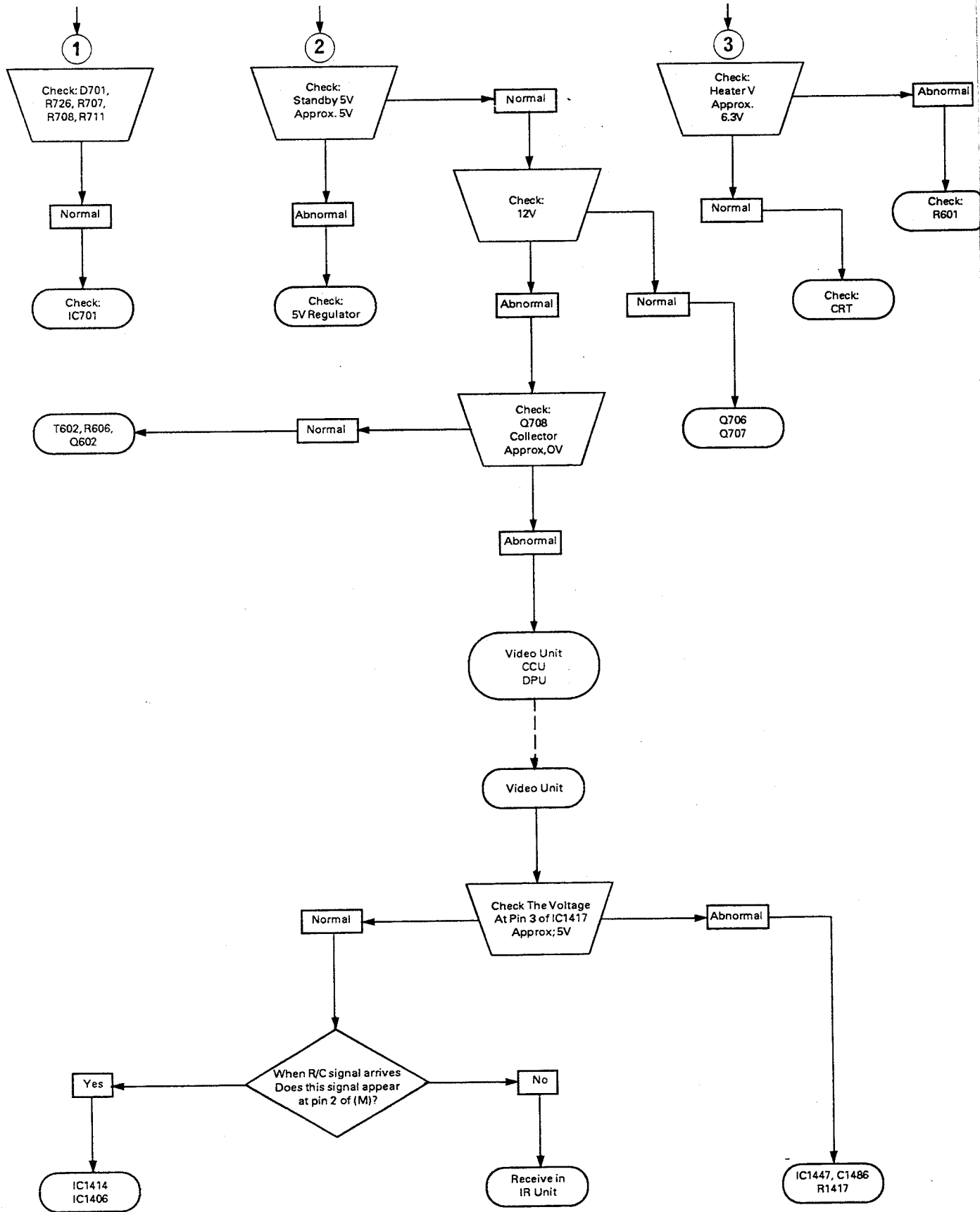
fig. 15

TROUBLESHOOTING TABLES



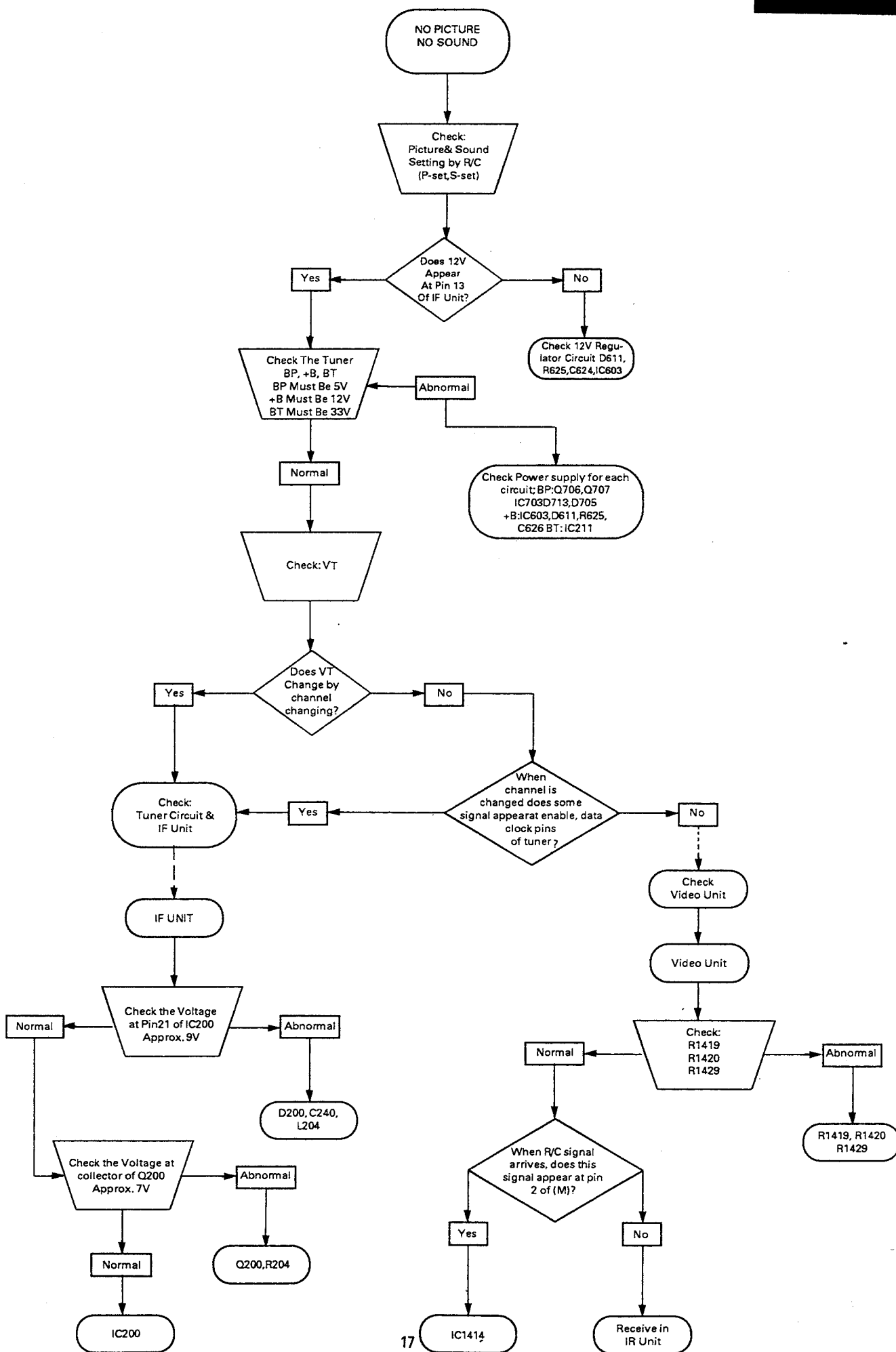


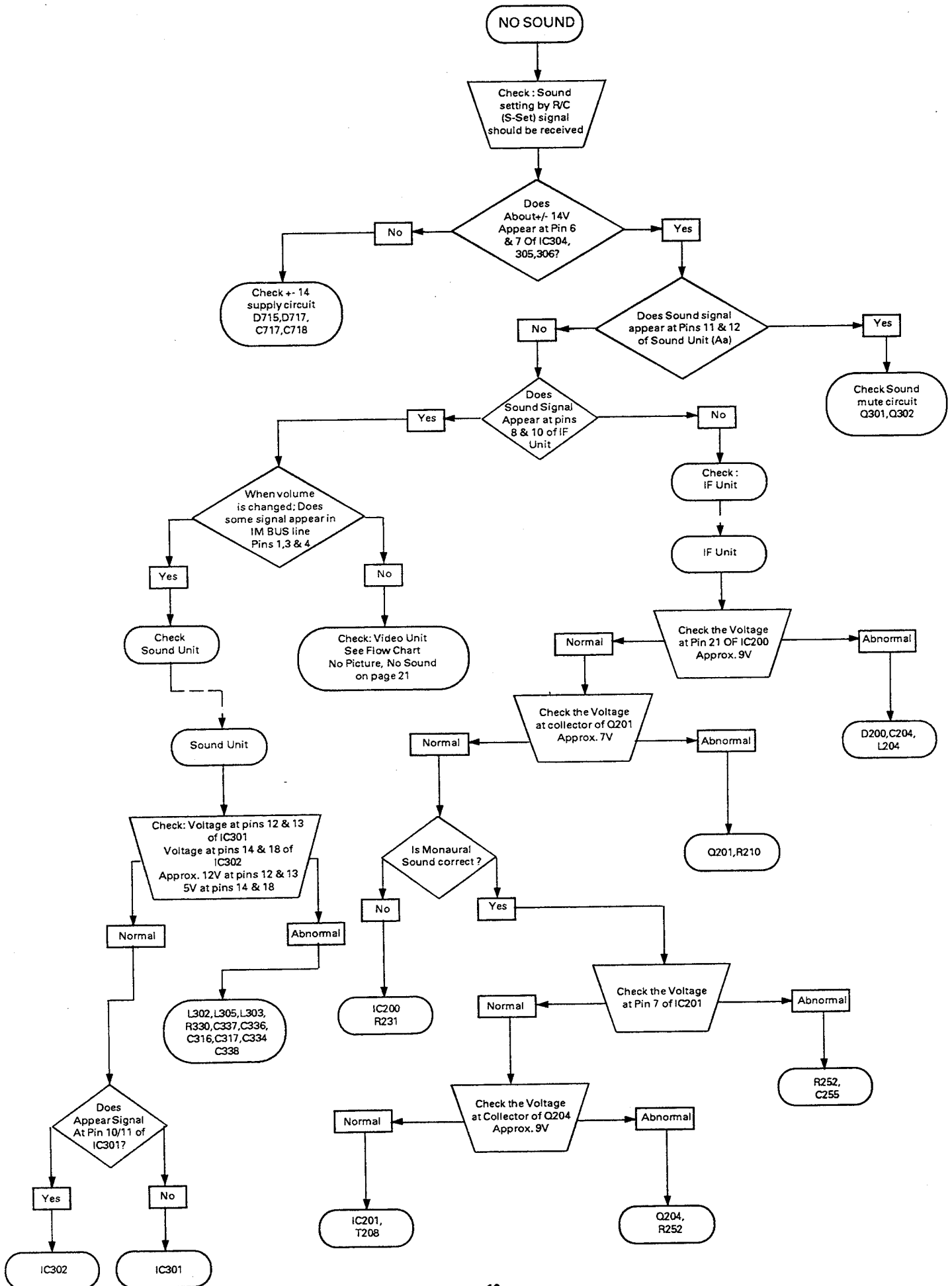


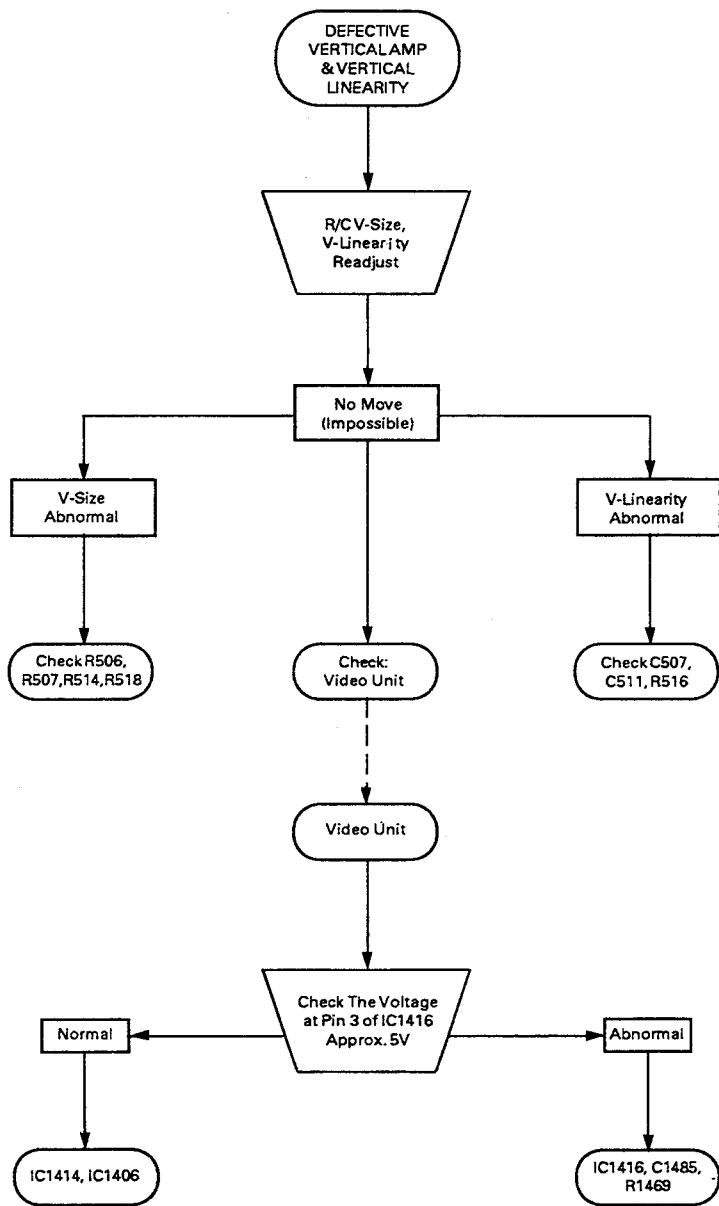


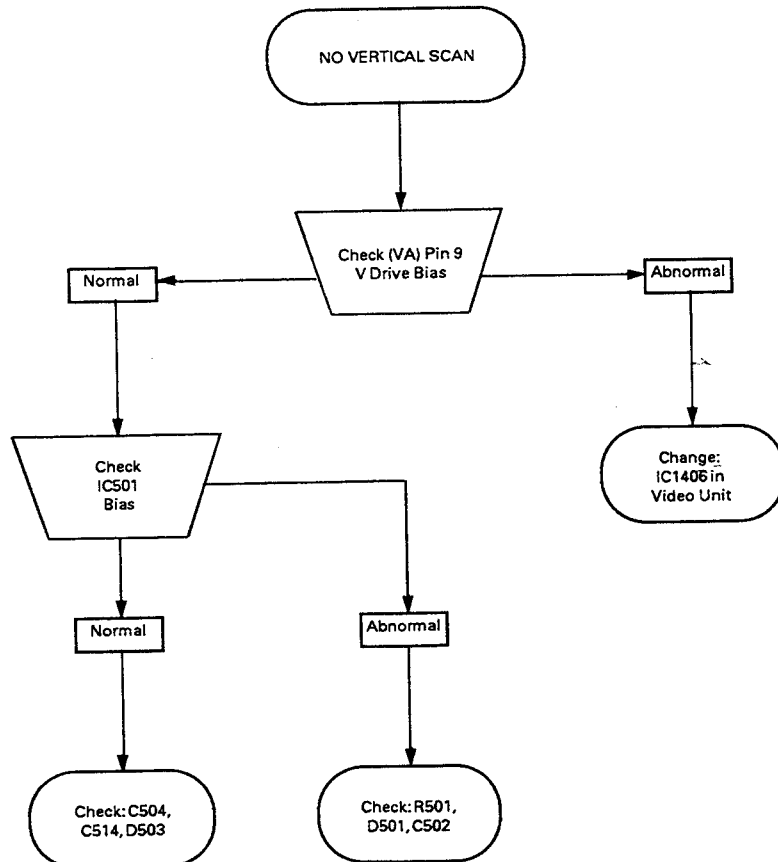
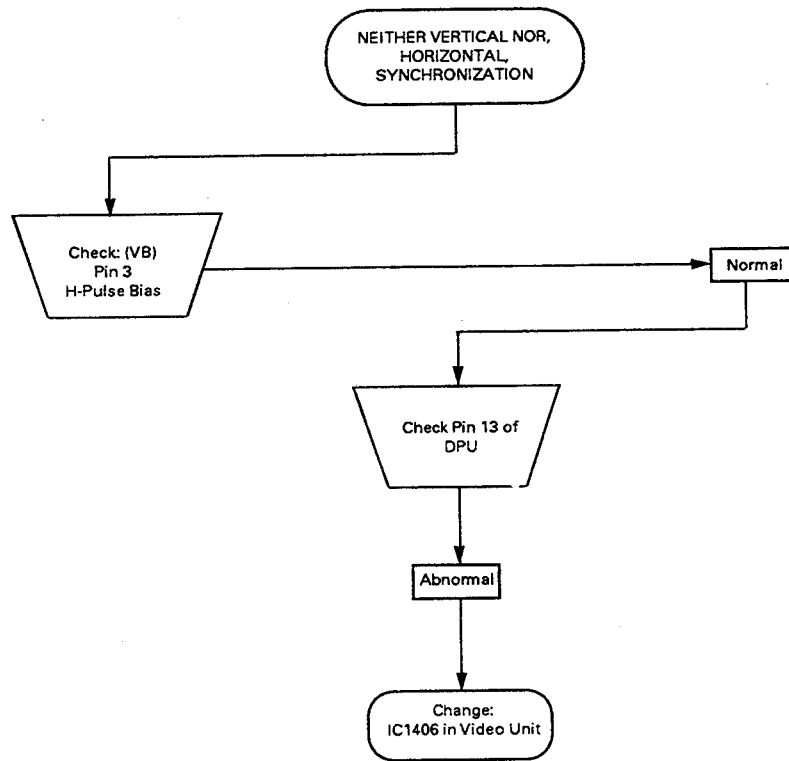
Abnormal

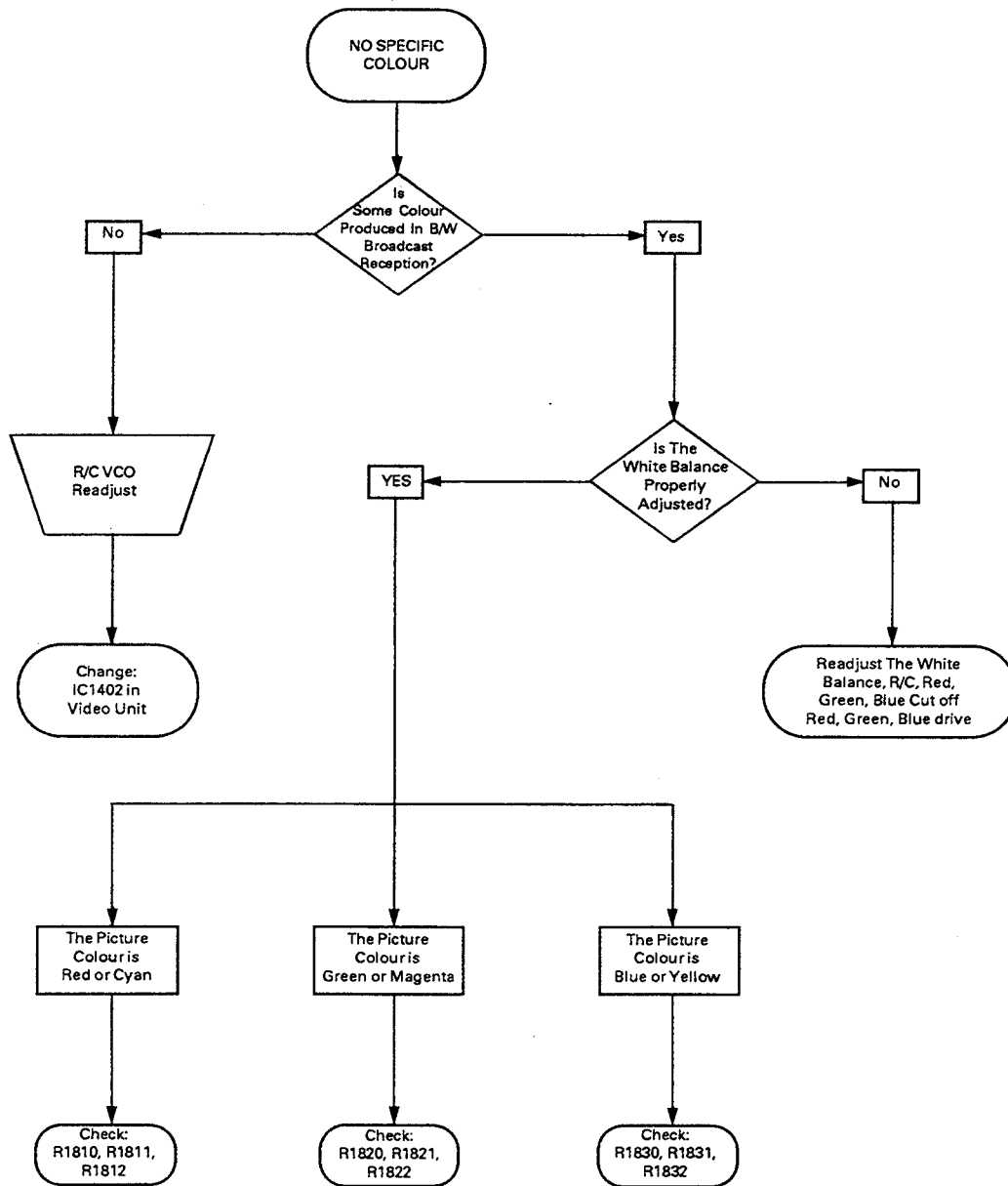
Check: R601







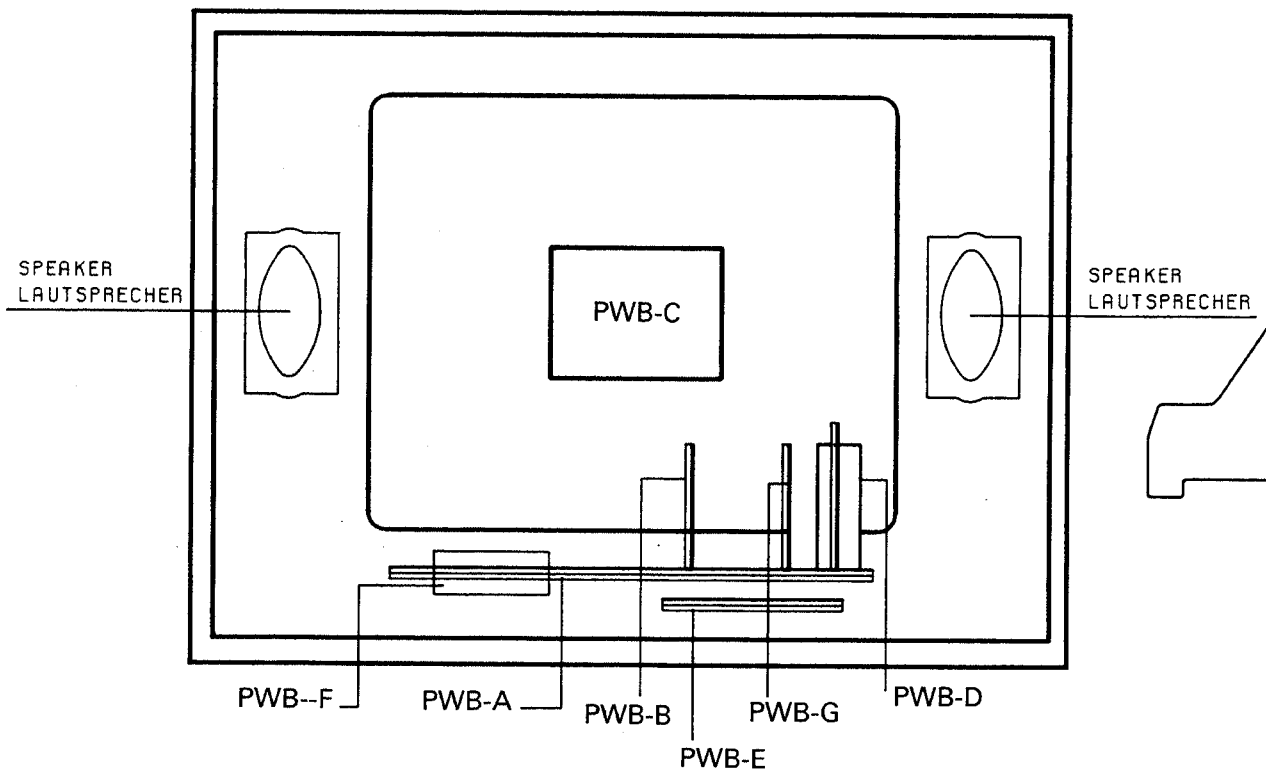




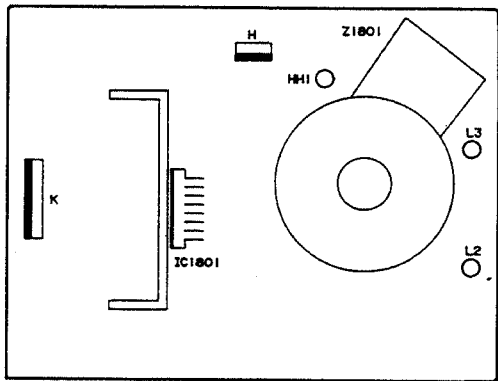
CHASSIS LAYOUT / CHASSISANORDNUNGSPLAN

H
G
F
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D
C
B
A

1 2 3 4 5 6

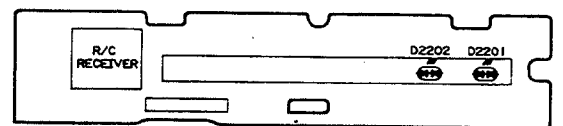


CRT SOCKET UNIT BILDRÖHRENPLATINE



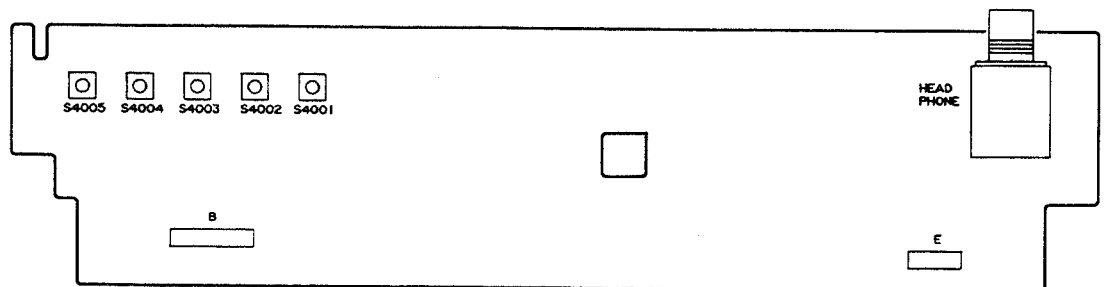
PWB-C

IR UNIT / IR-EINHEIT



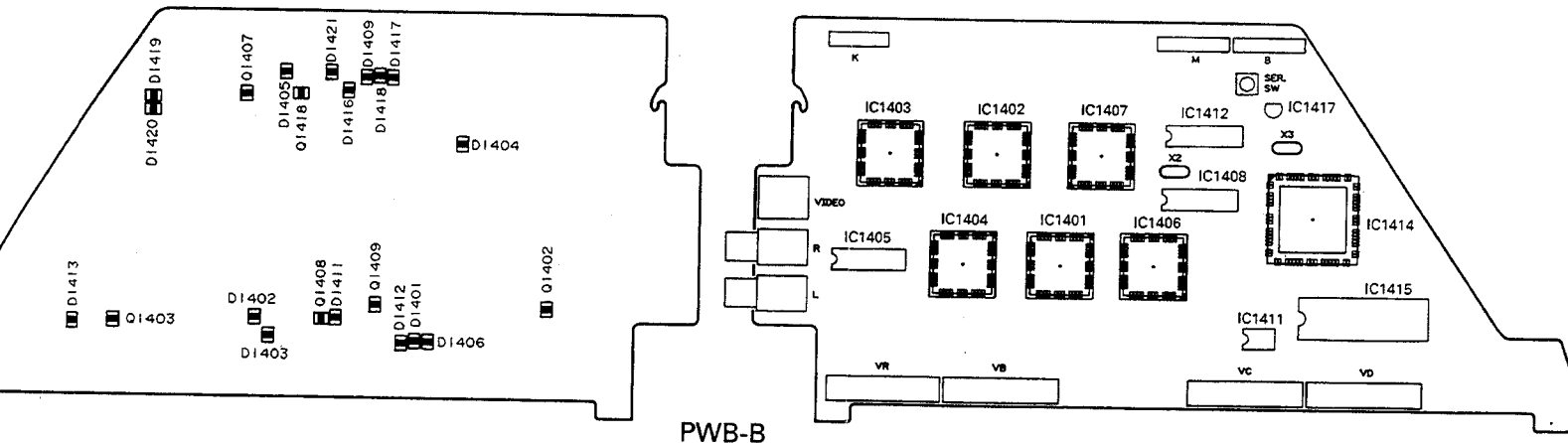
PWB-F

CONTROL UNIT / REGLER-EINHEIT

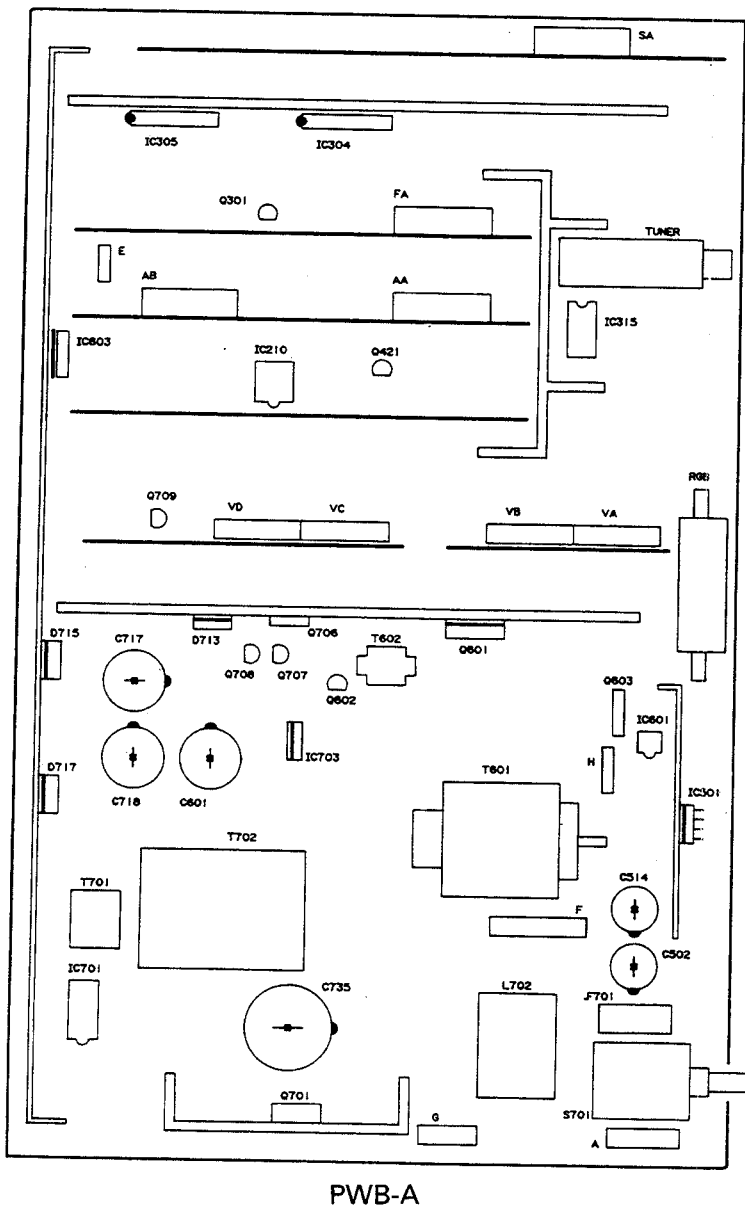


PWB-E

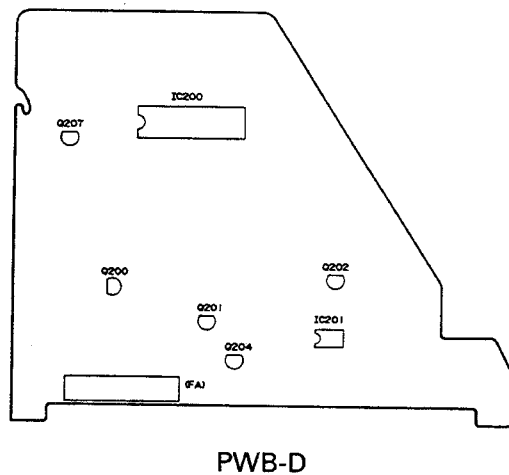
VIDEO UNIT / VIDEO-EINHEIT



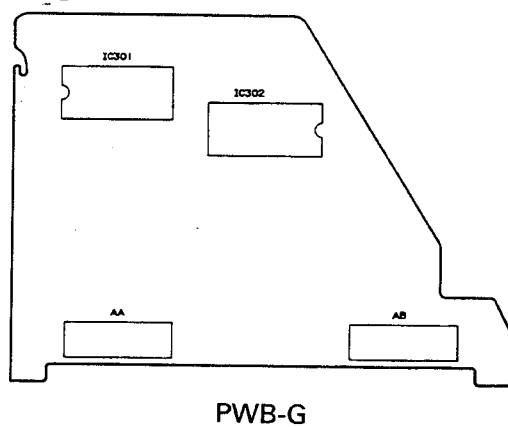
MOTHER UNIT / HAUPTPLATINE



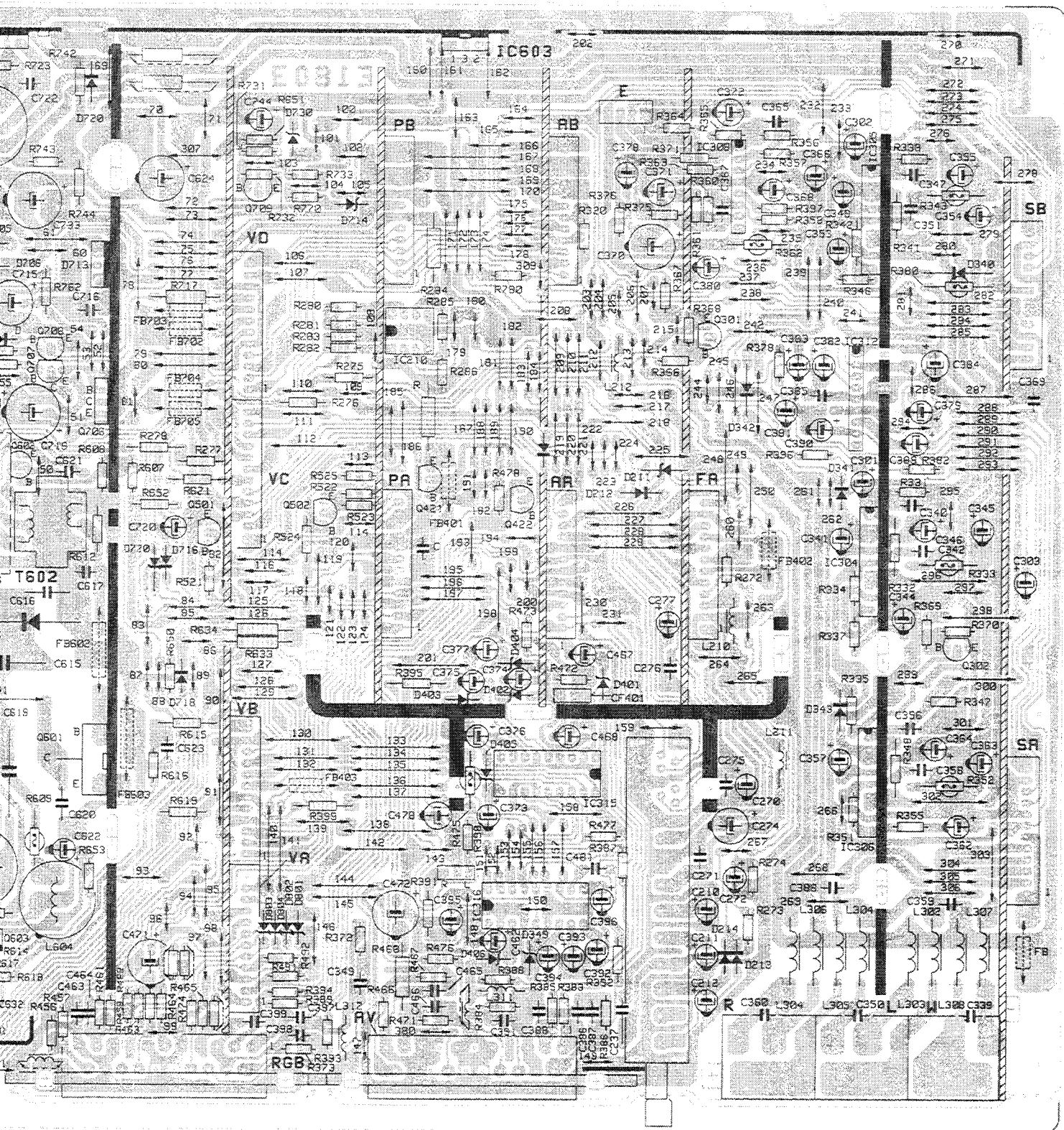
IF UNIT / ZF-EINHEIT



IGR UNIT / AUDIO-EINHEIT

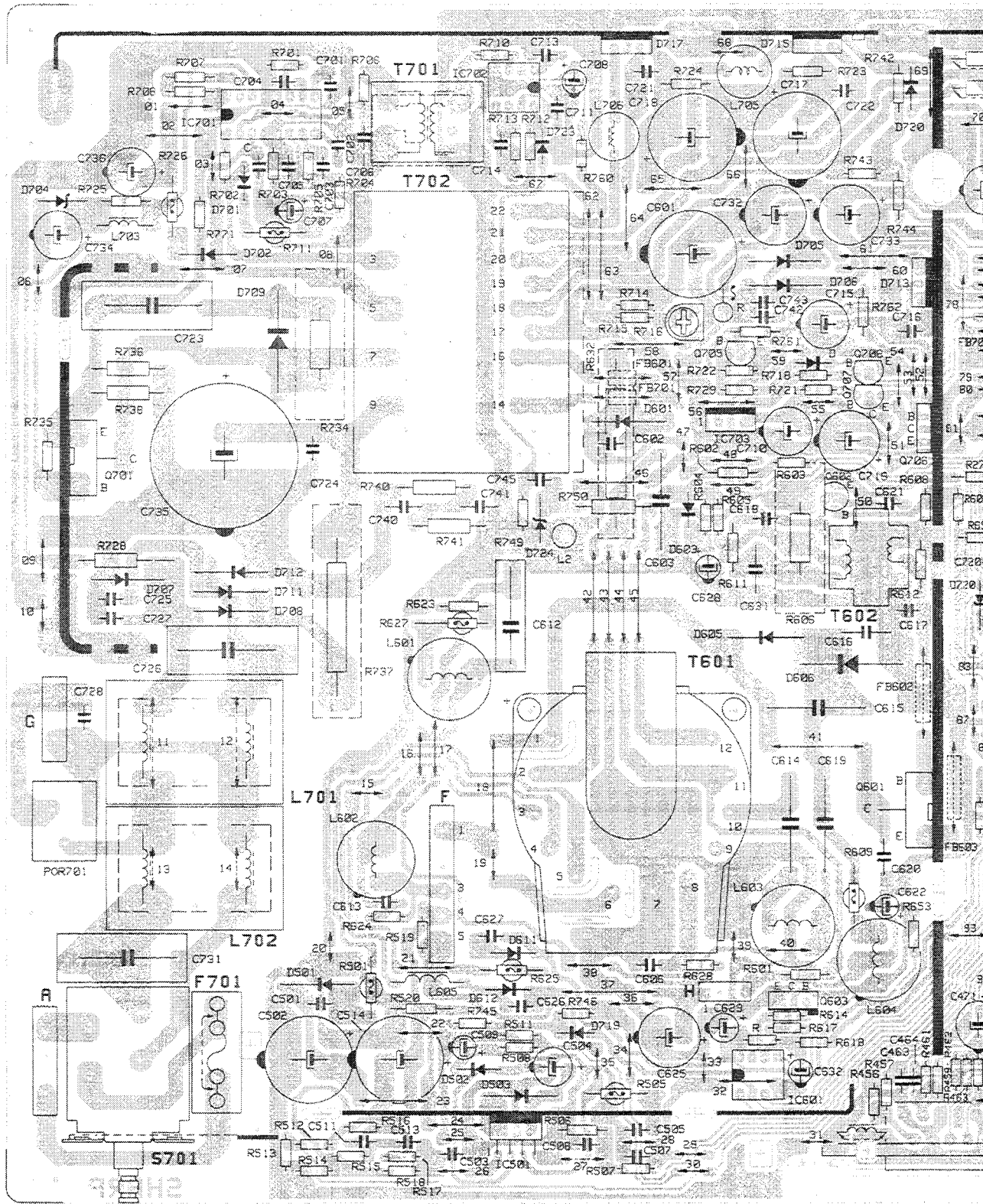


7	8	9	10	11	12
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PRINTED WIRING BOARD

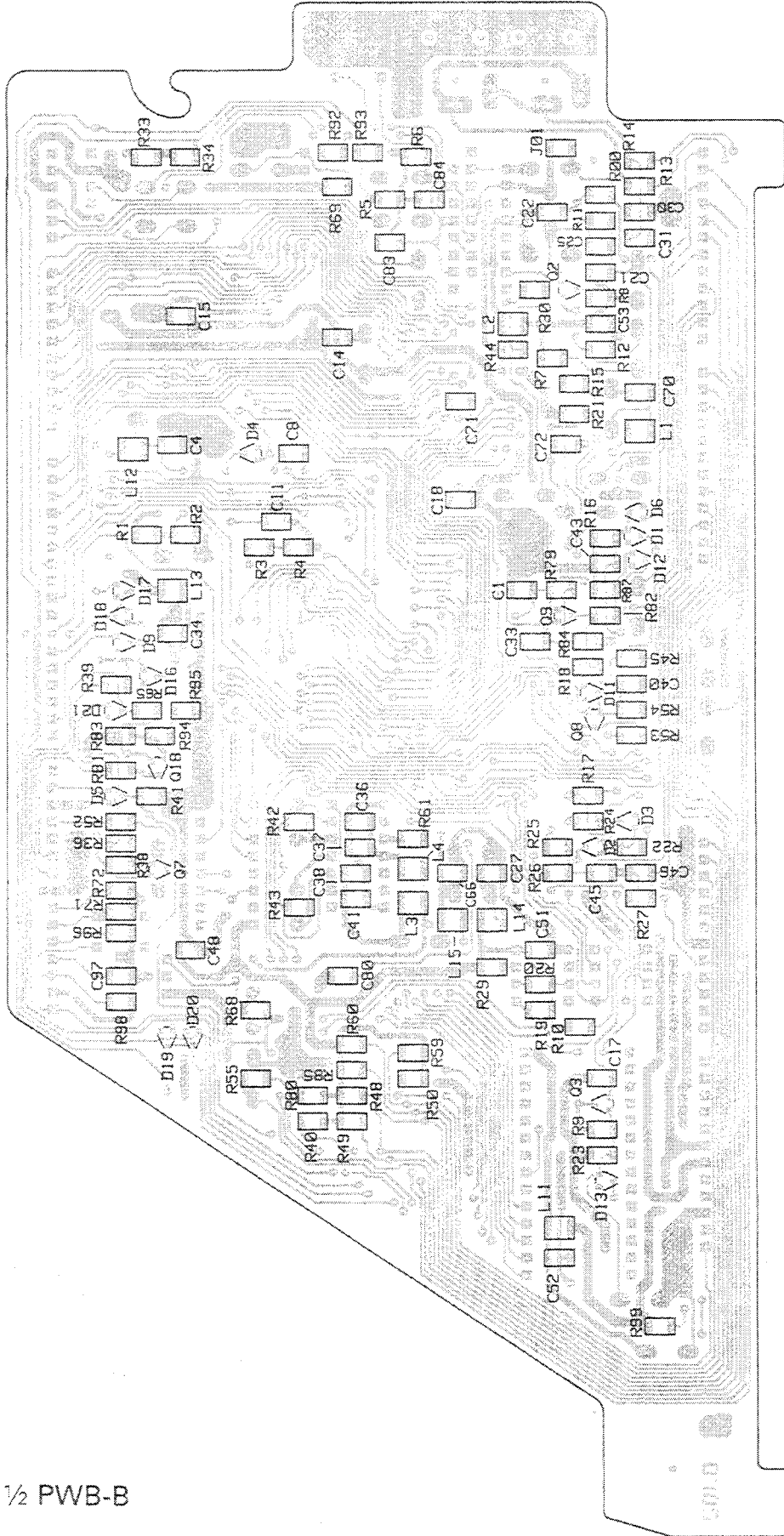
LEITERPLATTENEINHEIT



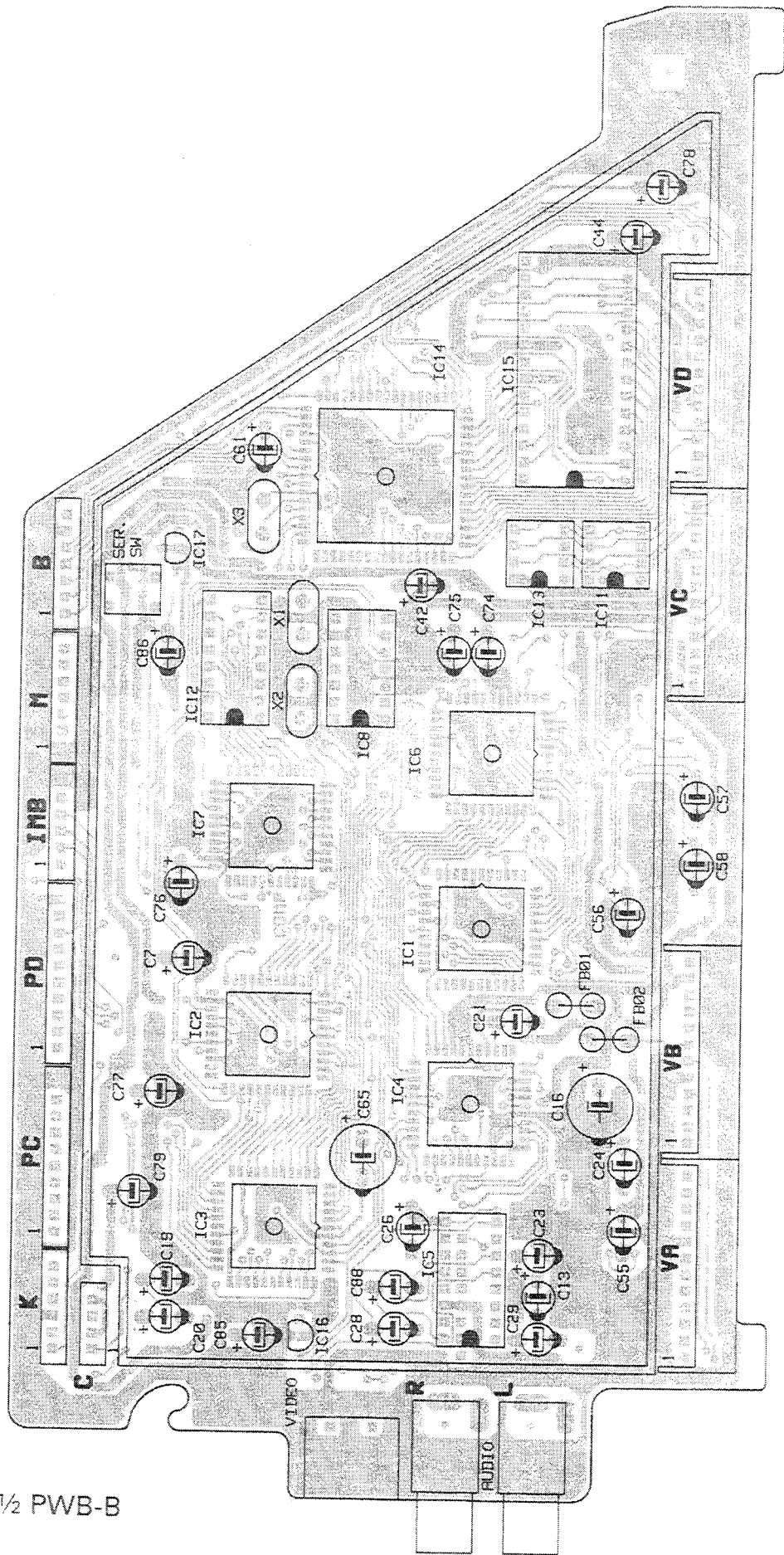
PWB-A

PRINTED WIRING BOARD

LEITERPLATTENEINHEIT



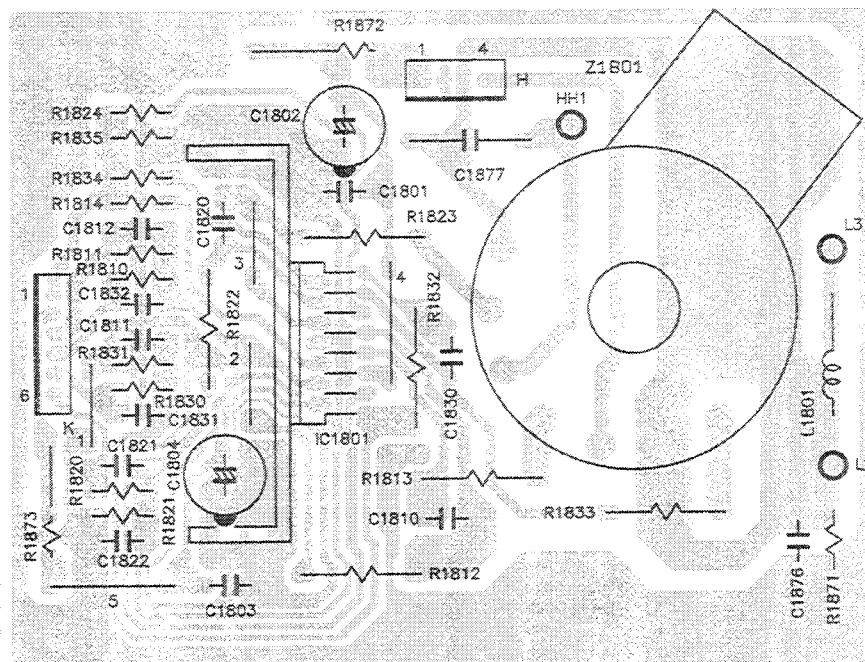
1/2 PWB-B



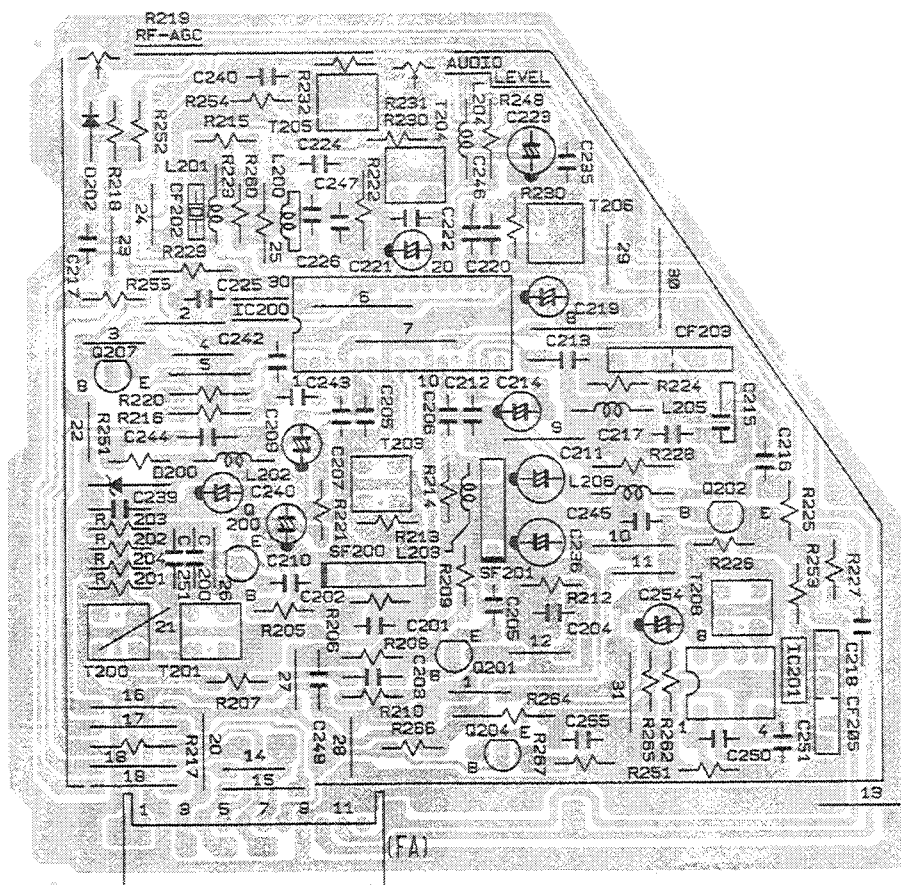
1/2 PWB-B

PRINTED WIRING BOARD

LEITERPLATTENEINHEIT



PWB-C



PWB-D

DESCRIPTION OF SCHEMATIC DIAGRAM**SAFETY NOTE:**

1. DISCONNECT THE AC PLUG FROM THE AC OUTLET BEFORE REPLACING PARTS.
2. SEMICONDUCTOR HEAT SINKS SHOULD BE REGARDED AS POTENTIAL SHOCK HAZARDS WHEN THE CHASSIS IS OPERATING.

IMPORTANT SAFETY NOTICE:

PARTS MARKED WITH "⚠" () ARE IMPORTANT FOR MAINTAINING THE SAFETY OF THE SET. BE SURE TO REPLACE THESE PARTS WITH SPECIFIED ONES FOR MAINTAINING THE SAFETY AND PERFORMANCE OF THE SET.

Service precaution:

The area enclosed by this line (—) is directly connected with AC Mains Voltage. When servicing the area connect an isolating transformer between TV receiver and AC line to eliminate hazard of electric shock.

BESCHREIBUNG DES SCHEMATISCHEN SCHALTPLANS**SICHERHEITSANMERKUNGEN:**

1. VOR DEM AUSWECHSELN VON TEILEN MUSS UNBEDINGT NETZSTECKER AUS DER NETZSTECKDOSE GEZOGEN WERDEN.
2. DIE WARMEABLEITER DER HALBLEITER SOLLTEN BEIM BETRIEB DES CHASSIS ALS MÖGLICHE URSACHEN VON GEFÄHRLICHEN ELEKTRISCHEN SCHLÄGEN BETRACHTET WERDEN.

WICHTIGE SICHERHEITSANMERKUNGEN

MIT "⚠" () BEZEICHNETEN TEILE SIND BESONDERS WICHTIG FÜR DIE AUFRECHTERHALTUNG DER SICHERHEIT. BEIM WECHDIESER TEILE SOLLTEN DIE VORGESCHRIEBENEN TEILE IMMER VERWENDET WERDEN, UM SOWOHL DIE SICHERHEIT ALS AUCH DIE LEISTUNG DES GERÄTES AUFRECHTZUERHALTEN.

VORSICHTSMASSREGEL BEI DER WARTUNG:

Daß mit dieser Linie (—) eingefaßte Gebiet ist direkt an der Wechselspannung angeschlossen. Bei der Wertung des Gebietes einen Trenntransformator zwischen Fernsehgerät und Wechselstromnets anschließen, um elektrische Schläge zu vermeiden.

NOTE:

1. The unit of resistance "ohm" is omitted (k = 1000 ohms, M = Megaohm).
2. All resistors are 1/8 watt, unless otherwise noted.
3. All capacitors μF , unless otherwise noted ($p = \mu\mu\text{F}$).

VOLTAGE MEASUREMENT CONDITIONS

1. Voltages in parenthesis measured with no signal.
2. Voltages without parenthesis measured with 3 mV B & W or Colour-Signal.
3. All the voltages in each point are measured with Vacuum Tube Voltmeter.

WAVEFORM MEASUREMENT CONDITIONS

1. Colour bar generator signal of 2.3V peak to peak applied at base of Video Buffer Amp Q202.
2. Approximately 4.0 V AGC bias.

ANMERKUNG:

1. Der Widerstandswert "Ohm" wurde in den Plän ausgelassen (k = 1000 Ohms, M = Megaohm).
2. Falls nicht anders angegeben, handelt es sich bei den Widerstanden um 1/8 Watt-Ausführunge.
3. Falls nicht anders angegeben, handelt es sich bei den Kondensatoren um μF -Typen ($p = \mu\mu\text{F}$).

SPANNUNGSMESSUNGEN

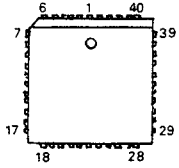
1. In Klammern eingeschlossene Spannungswerte werden ohne Signal gemessen.
2. Nicht in Klammern eingeschlossene Spannungswerte werden mit einem 3 mV S/W-oder Farbsignal gemessen.
3. Alle Spannungswerte werden mit einem Va-SEL kuumröhre-Volt-meter gemessen.

SIGNALFORMMESSUNGEN

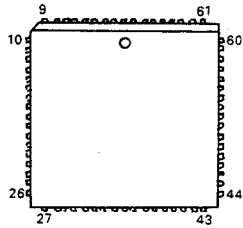
1. Das Farbbalkensignal von 2.3 Spitze zu Spitze wird der Basis des Video-Pufferverstärkers Q202 zugeleitet.
2. Ungefähr 4.0 V AGC-Vorspannung.

**SOLID STATE DEVICE BASE DIAGRAM
GRUNDDIAGRAM DER FESTKÖRPEREINRICHTUNG**

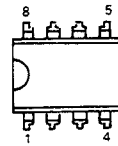
RH-IX1402BMZZ
RH-IX1403BMZZ
RH-IX1405BMZZ
RH-IX1406BMZZ
RH-IX1407BMZZ
RH-IX1423BMZZ



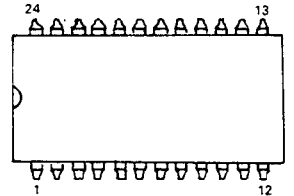
RH-IX1411BMZZ



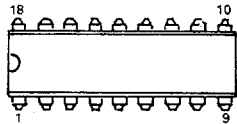
RH-IX1417BMZZ
RH-IX1409BMZZ
VHIPUC358C1-1
RH-IX1420BMZZ



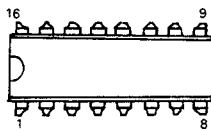
RH-IX1418BMZZ
RH-IX1419BMZZ



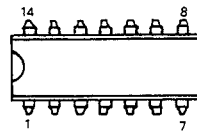
RH-IX1401BMZZ



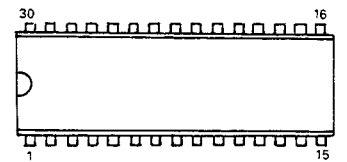
RH-IX1414BMZZ
RH-IX1410BMZZ



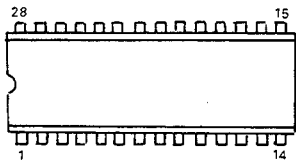
RH-IX1422BMZZ



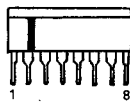
RH-IX1286CEZZ



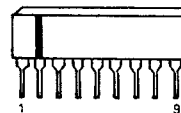
RH-IX1412BMZZ



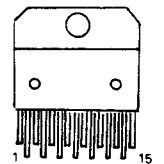
VHIM5218211-1
VHILA701611-1



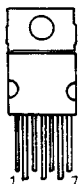
RH-IX1400BMZZ



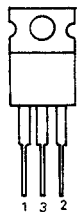
RH-IX1416BMZZ



RH-IX1413BMZZ



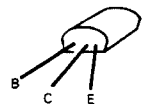
RH-IX1184BMZZ
RH-IX1185BMZZ



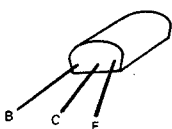
VHIPST529C2-1



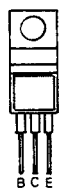
VS2SA1015Y11E
VS2SC18156W-1
VS2SC1906111E



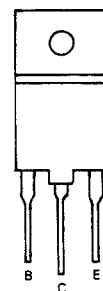
VS2SC2271-D1A



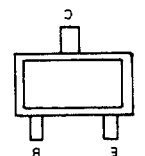
VS2SD1913511E
VS2SD1913XX1E



VS2SD1546XX1E



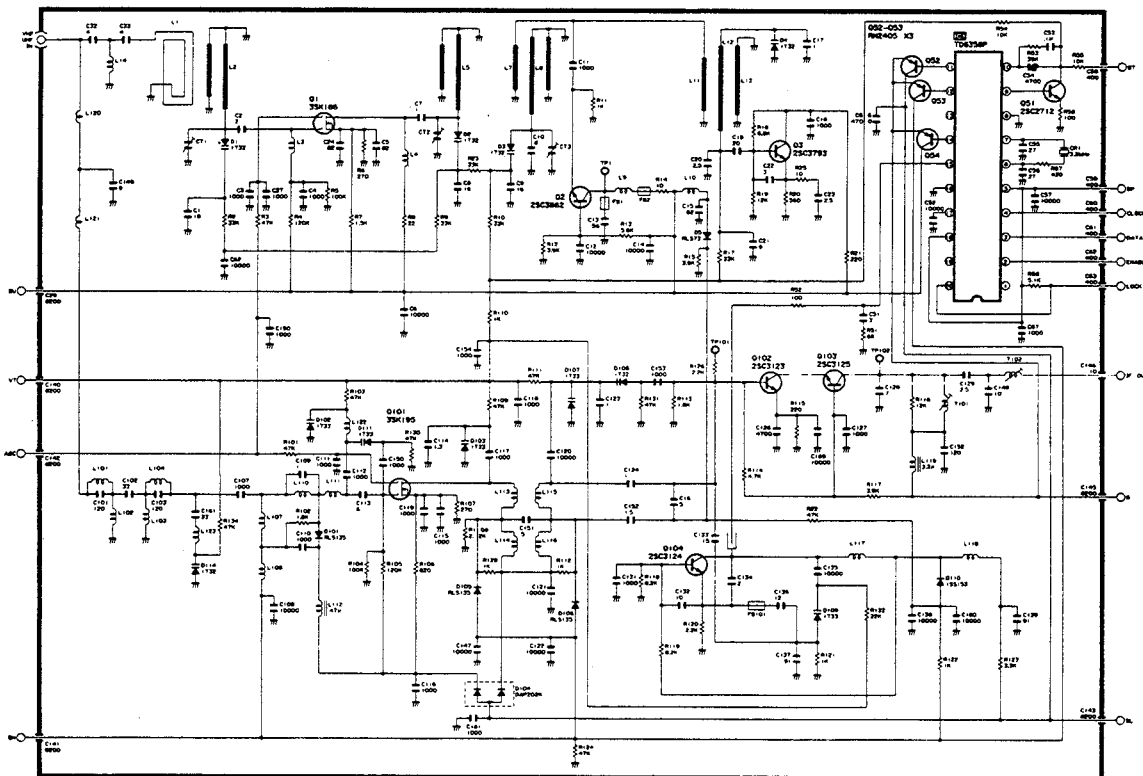
VS2SA1037KQ-1
VS2SC2412KQ-1



(SMD COMPONENT)

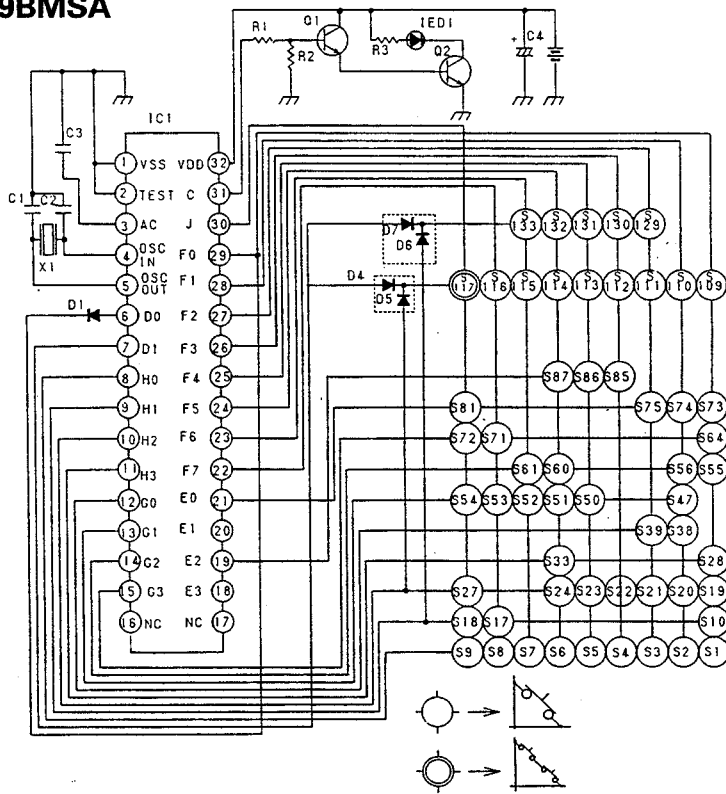
TUNER

VTUVTSA 1 SPL //



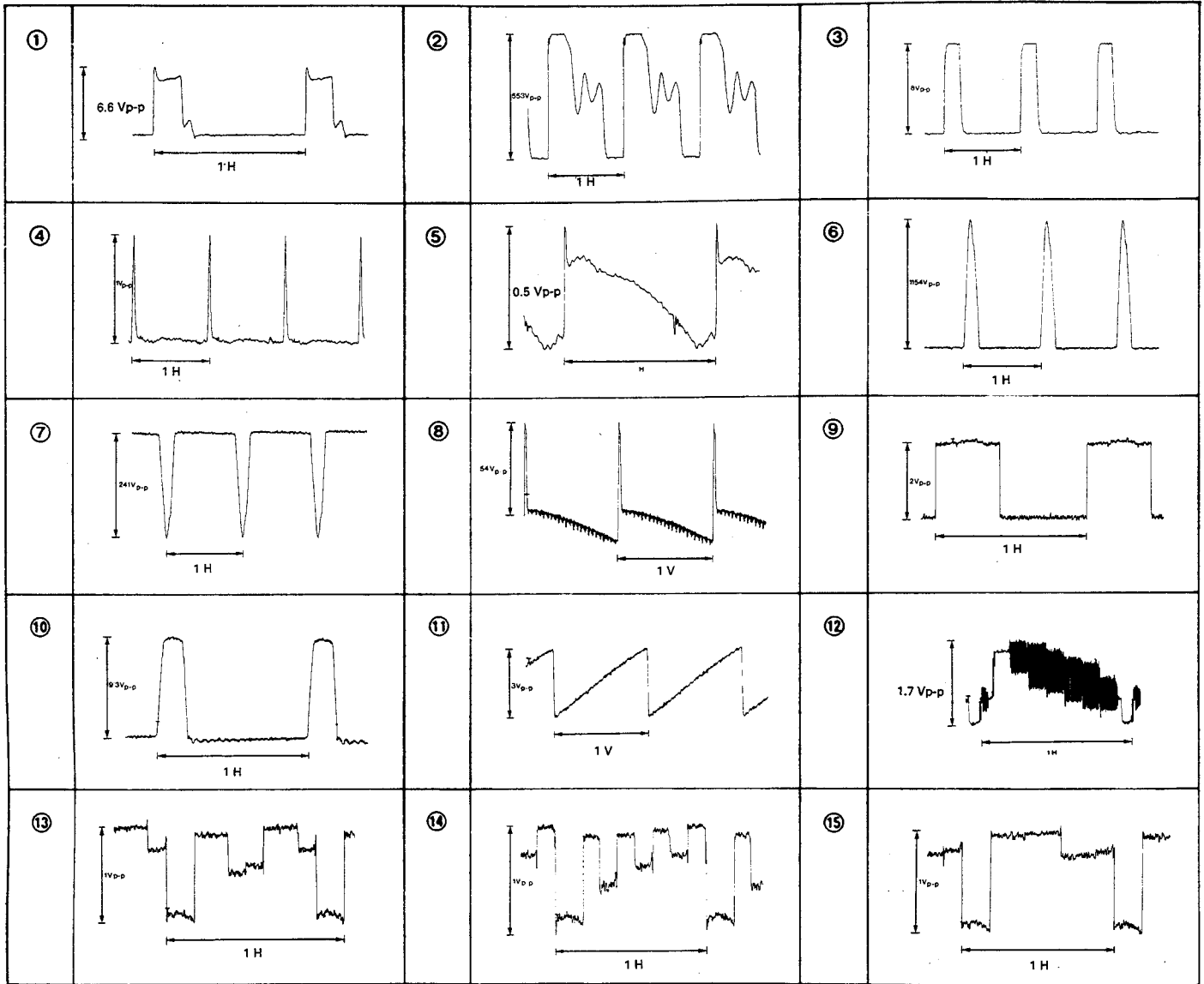
INFRARED REMOTE CONTROL UNIT SCHEMATIC DIAGRAM
INFRAROTFERNBEDIENUNGSEINHEIT SCHEMATISCHER SCHALTPLAN

RRMCG0739BMSA



D1, (D4,5) (D6,7)	DAN202K
IED1	GL-521
X1	CSB455EBL
Q2	2SC2411KT97
Q1	2SC2412K
R3	1.5Ω (1/4W)
R2	22KΩ (1/10W)
R1	2.2KΩ (1/10W)
C4	47µF 6.3V
C3	0.1µF
C1.2	100pF
IC1	M50461-056FP (iX0733PA)

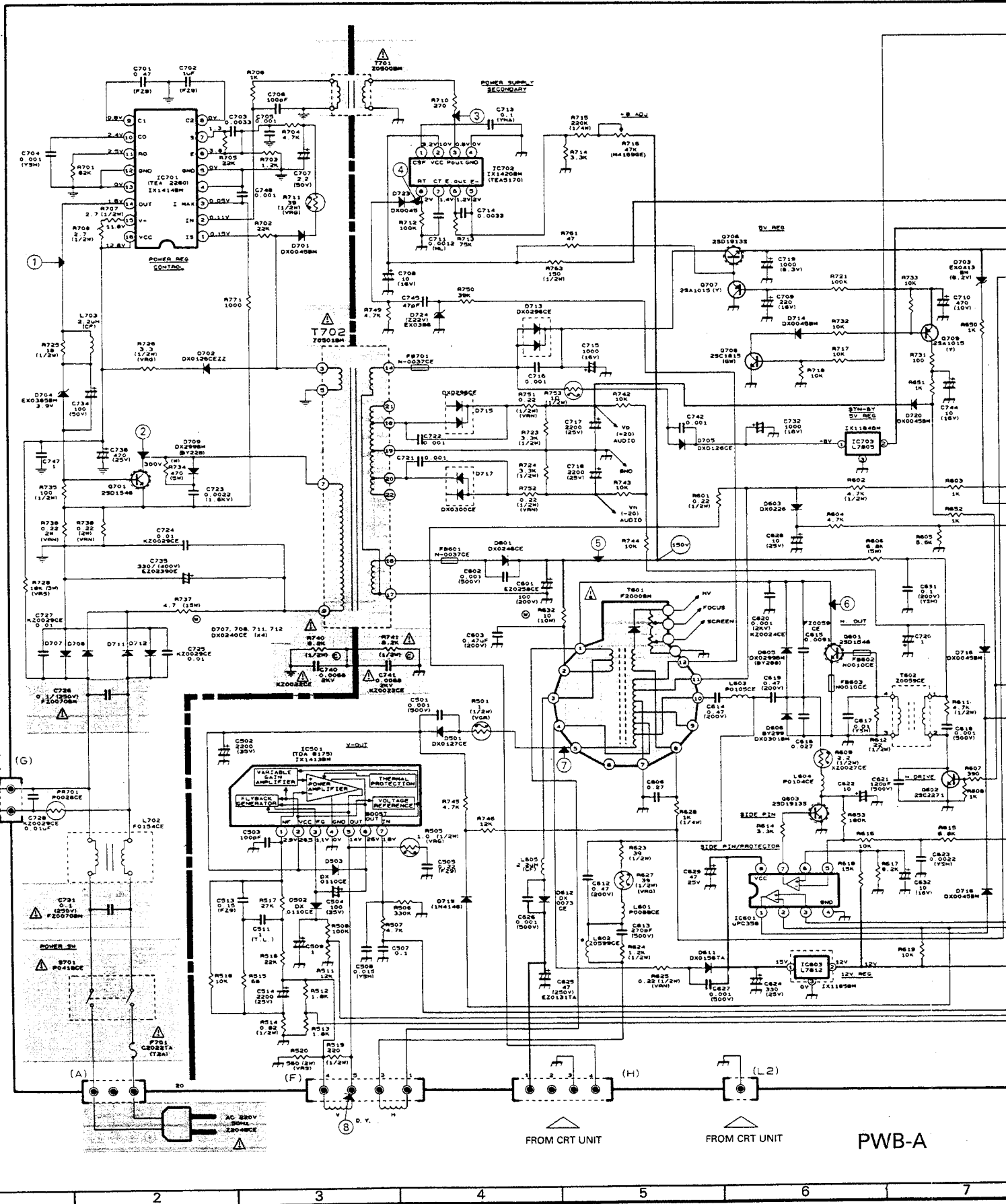
WAVEFORMS / SIGNALFORMEN



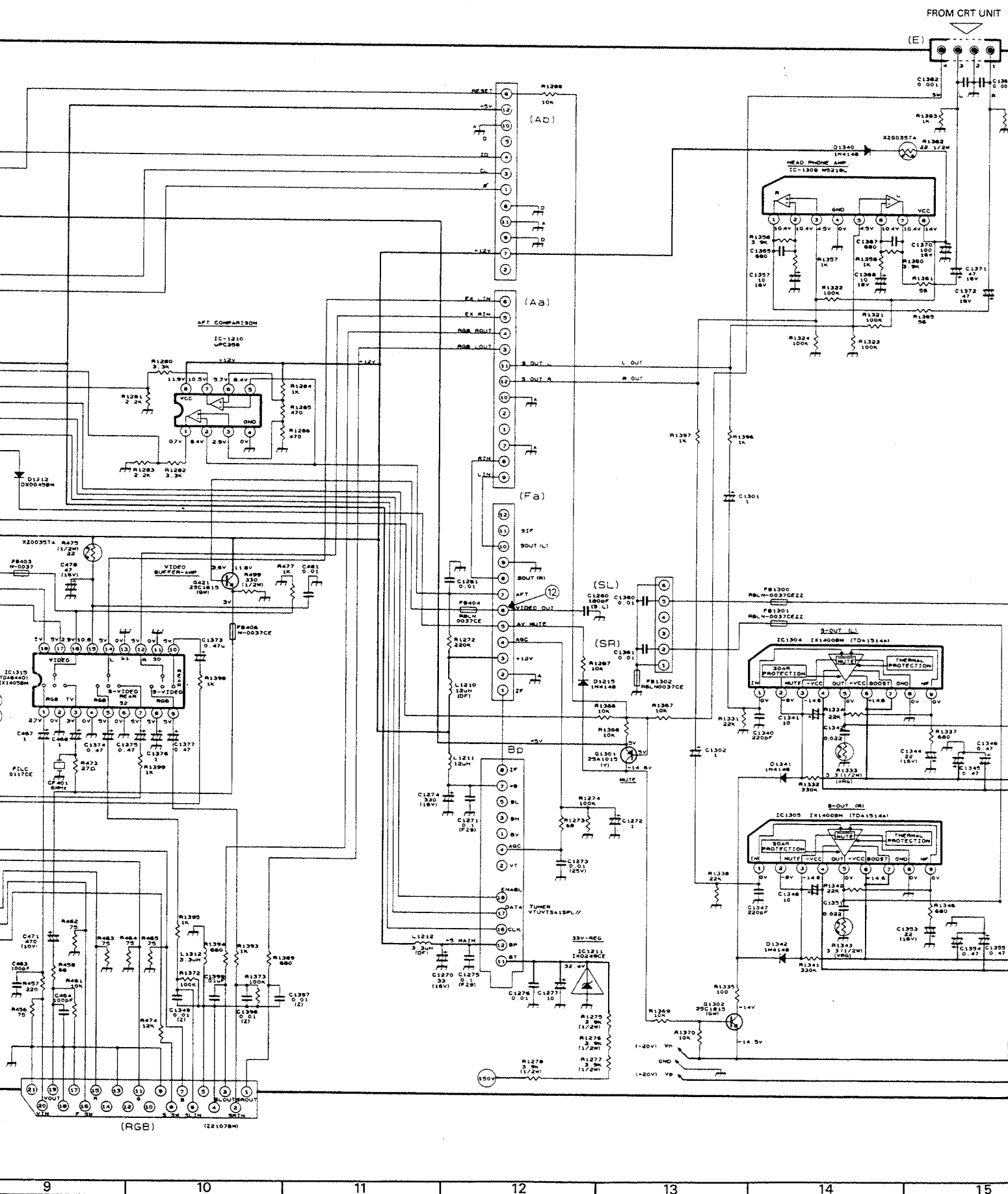
NOTE:
 WAVEFORMS N°S 1 to 12 ARE SHOWN ON MOTHER UNIT (PWB-A) DIAGRAM.
 WAVEFORMS N°S 13 to 15 ARE SHOWN ON VIDEO UNIT (PWB-B) DIAGRAM.

H
G
F
E
D
C
B
A

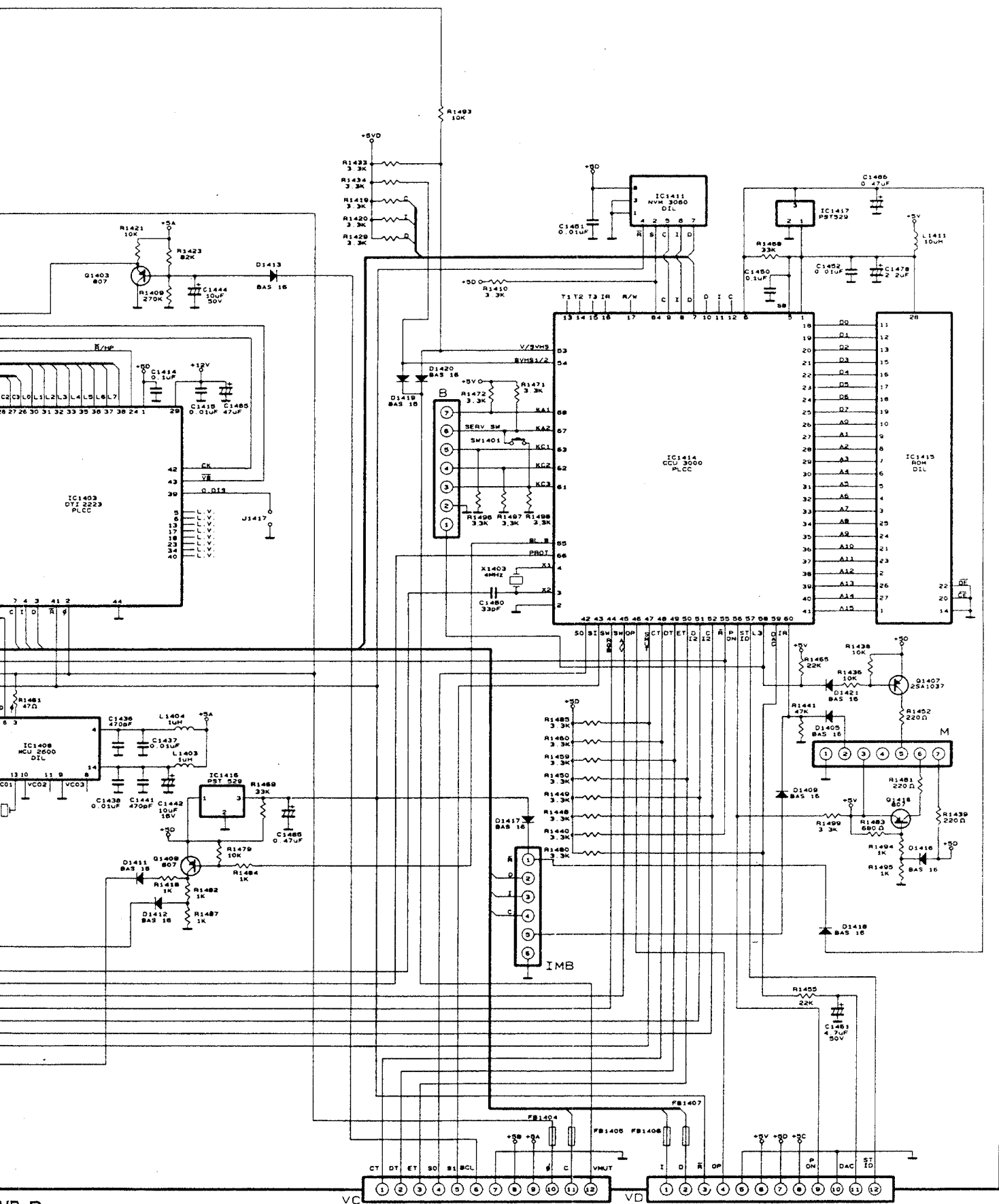
SCHEMATIC DIAGRAM MOTHER UNIT



PLAN HAUPTPLATINE



SCHEMATISCHER SCHALTPLAN VIDEO-EINHEIT



VB-B

7

8

9

10

11

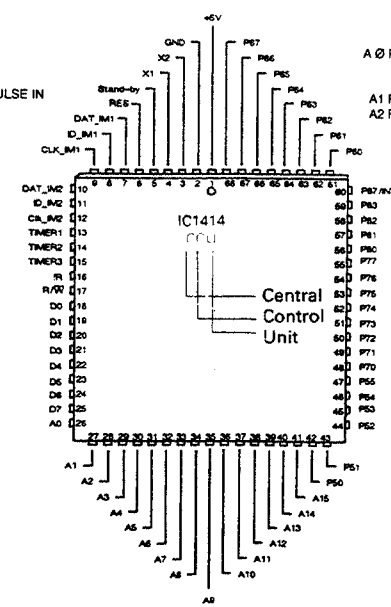
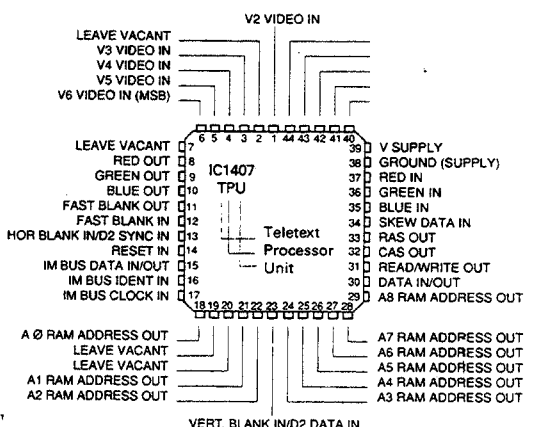
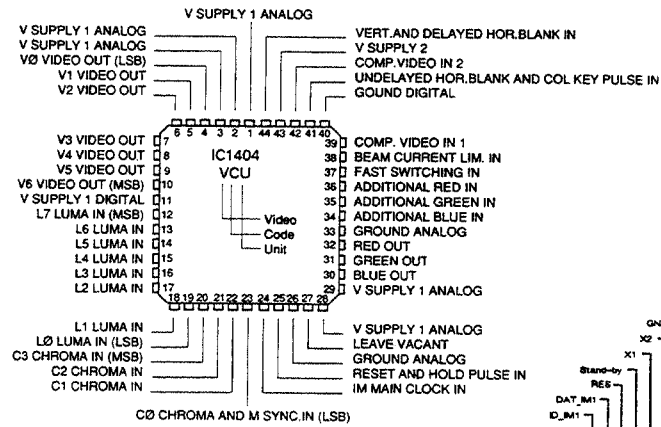
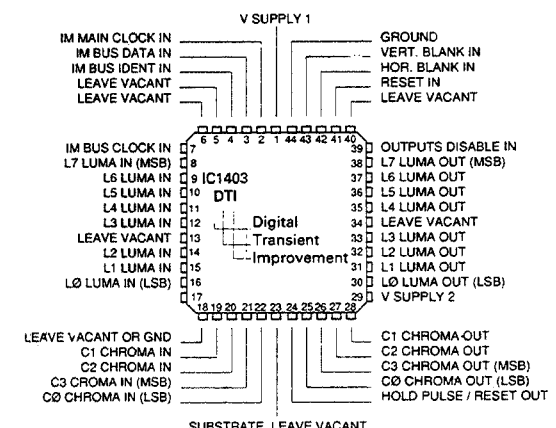
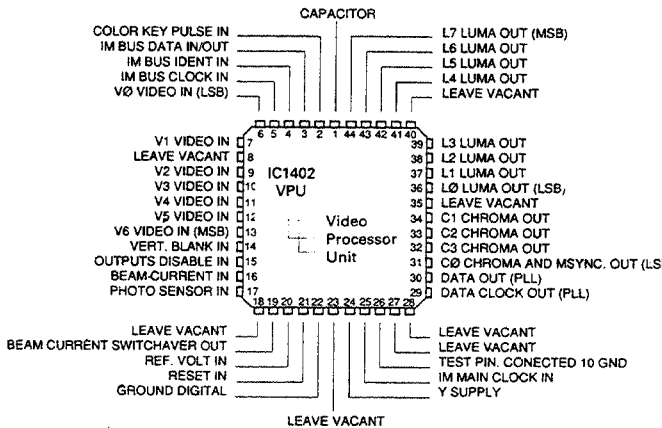
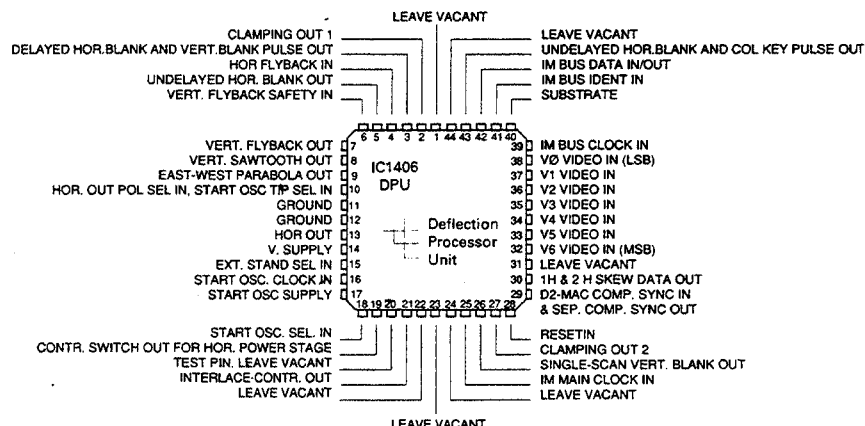
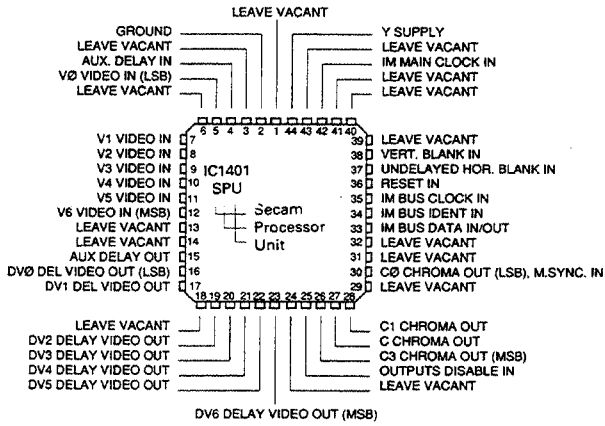
12

ABBREVIATIONS AS SHOWN ON THE VIDEO UNIT SCHEMATIC DIAGRAM

VA1 SAF	= SAFETY. Picture tube protection against burning in case of malfunction of vertical deflection.
VA2 AV SW	= AV, switching.
VA3 B	= Blue.
VA4 RGB SW	= RGB, switching. VA4
VA5 G	= Green.
VA6 R	= Red.
VA7 FSW	= Fast Switching (fast blanking input).
VA8 GNA	= Analog ground.
VA9 VDR	= Vertical drive.
VA10 INT	= Interface control output: vertical stage control in non interlace mode.
VA11 EW	= East/West parabola output.
VB1 H.DRI	= Horizontal driver output.
VB2 PR	= CCU input protection-functional blocking.
VB3 H PUL	= Horizontal pulse.
VB4 R	= Right (Audio channel).
VB5 GNS	= Ground Sound.
VB6 L	= Left (Audio channel).
VB7 VID IN	= Video input.
VB8 DI 2	= I2C Data.
VB9 CI 2	= I2C Clock.
VB10 S MUT	= Sound Mute.
VB11	= + 12 v.
VC1 CT	= Clock Tuner.
VC2 DT	= Data Tuner.
VC3 ET	= Enable Tuner.
VC4 S0	= Tuner variables.
VC5 S1	= Tuner variables.
VC6 BCL	= Beam current limiter (ABL).
VC7 GNA	= Analog ground.
VC8 + 5B	= 5V.
VC9 + 5A	= 5V analog.
VC10	= Main clock, generated by MCU.
VC11 C	= IMBUS clock (IMC).
VC12 VMUT	= Video Mute.
VD1 I	= IMI (IMBUS identification).
VD2 D	= IMD (IMBUS data).
VD3 R	= Reset (low level function).
VD4 OP	= OPTION (not used).
VD5 GND	= Ground digital.
VD6 + 5V	= 5 Volts standby.
VD7 + 5D	= 5 Volts digital.
VD8 + 5C	= 5 Volts clock.
VD9 P ON	= Power on.
VD11 DAC	= D/A converter Audio Control (not being controlled by IMBUS).
V0..V8	= Digitalized Video Signals.
L0..L7	= Digitalized Luminance Signals.
C0..C3	= Digitalized Chrominance Signals.
DV0..DV7	= Delayed digitalized Video Signals.
BL.B	= Blue back.
V/SVHS	= Switching Video to SVHS.
SVHS1/2	= Switching SVHS1 to SVHS2 (2 possible inputs).
KA1, KA2	= Keyboard Filters.
KC1, KC2, KC3	= Keyboard columns.
D0..D7	= Memory data signals.
A0..A15	= Memory address signals.
O DIS	= Output disable.

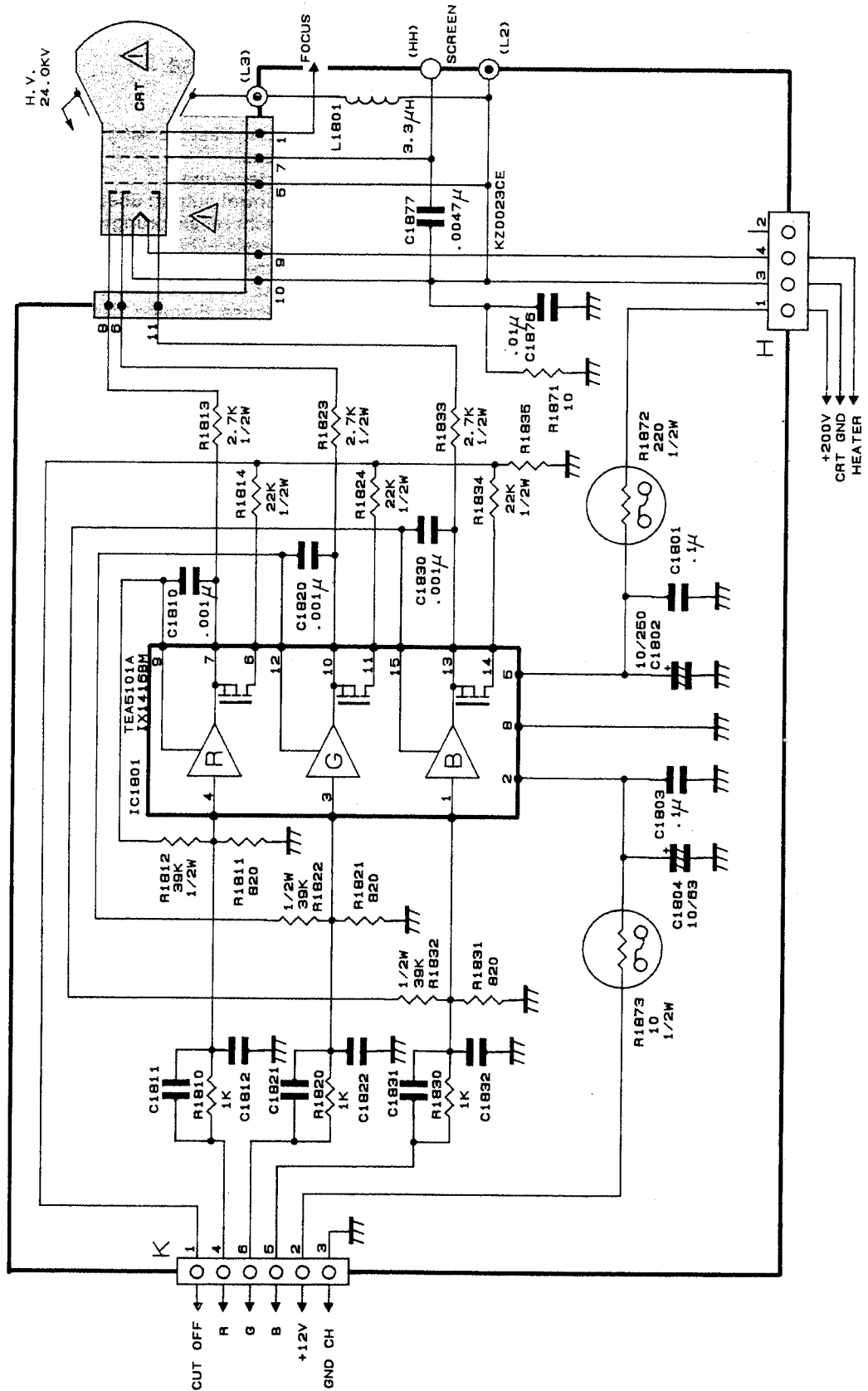
EINIGE ABKÜRZUNGEN DIE AUF DEM VIDEOMODUL ERSCHEINEN

SAFETY. Schützt die Bildröhre vor dem Durchbrennen im Fall ein Fehlfunktion der vertikalen Ablenkung.
Umschaltung auf AV.
Blau.
Umschaltung auf RGB.
Grün.
Rot.
Fast Switching (fast blanking input).
Analog Masse.
Vertikal ansteuerung.
Interface control output: überprüft die vertikale Ablenkung für den "Nicht zeilensprungverfahren» Betrieb.
Ost/West Parabel-Output.
Horizontal treiberausgang.
Input-Schutz - Blockiert Funktion.
Horizontal Pulse. Eingang, der von der DPU benötigt wird, durch welchen die Flyback-Impulse über die Festigung (Diode) einlaufen.
Rechts (Rechter Audio-Kanal).
Masse Ton.
Links (Linker Audio-Kanal).
(Video-Eingang, der aus einer externen Quelle stammt).
Daten des I2C
Takt des I2C.
Top still (Sound Mute).
+ 12 V.
Tackreinstellung.
Datentuner.
Enable Tuner.
Tuner-Variablen.
Tuner-Variablen.
Beam current limiter (Strahlstrombegrenzung, ABL).
Analog Masse.
5V.
5V analog.
Haupt-Takt, betrieben durch den MCU des Kathodenstrahls ABL.
Takt des IMBUS (IMC).
Video Mute.
IMI (IMBUS - Identifikation).
IMD (IMBUS Daten).
Reset (funktioniert auf niedrigem Niveau).
Option (wird nicht belegt).
Digitaler Masse.
5 Volt Standby.
5 Volt digital.
5 Volt Takt.
Power on.
Digital-Analog-Wandler für Audio-Kontrolle, der nicht durch IMBUS zu kontrollieren ist.
Digitalisierte Video-Signale.
Digitalisierte Leuchtdichtesignale.
Digitalisierte Chrominanz-Signale
Verzögerte digitalisierte Video-Signale
Blue back.
Umschalter von Video auf SVHS.
Umschalter von SVHS1 auf SVHS2 (zwei mögliche Eingänge)
Keyboard-Filter.
Spalten für den Speicher
Datensignale für den Speicher.
Richtungssignale (ADDRESS) für Speicher.
Disable ausgang.



CRT UNIT

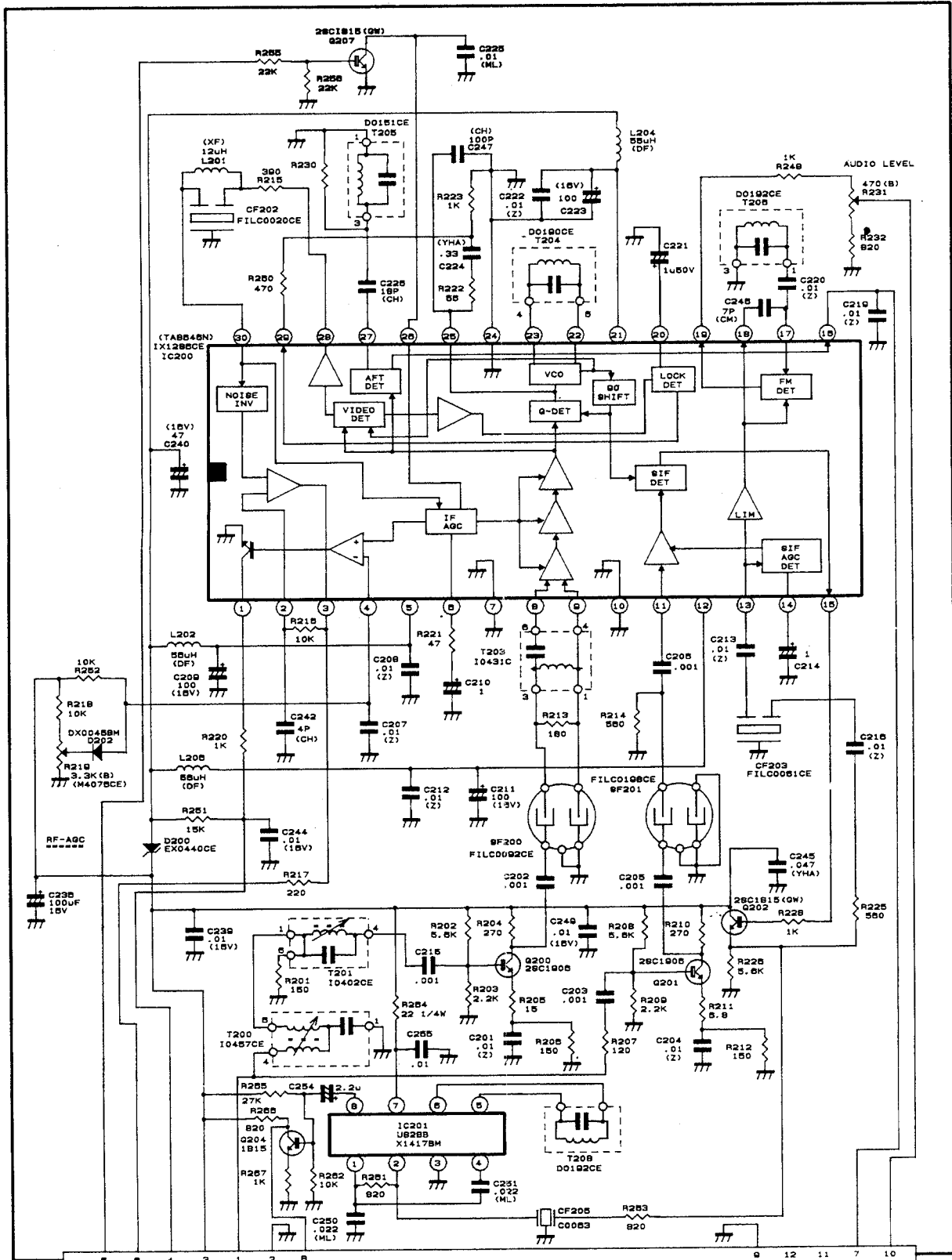
BILDRÖHRENPLATINE



PWB-C

IF UNIT

ZF-EINHEIT



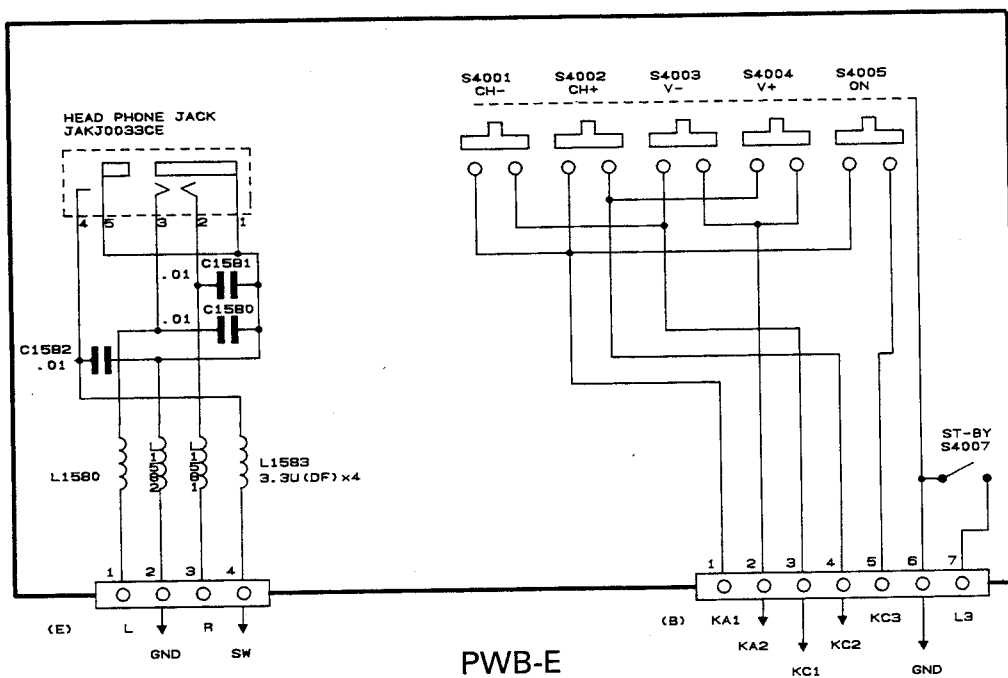
FA AGC MUTE 5 6 7 8 9 10 11 12
 GND 0Z 11 7 10
 +12V 4
 IN 1
 OUT (5, 7, 4) 2
 AUDIO OUT (5, 5) 10
 AFT 11
 -CO 12

PWB-D

7	8	9	10	11	12
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CONTROL UNIT

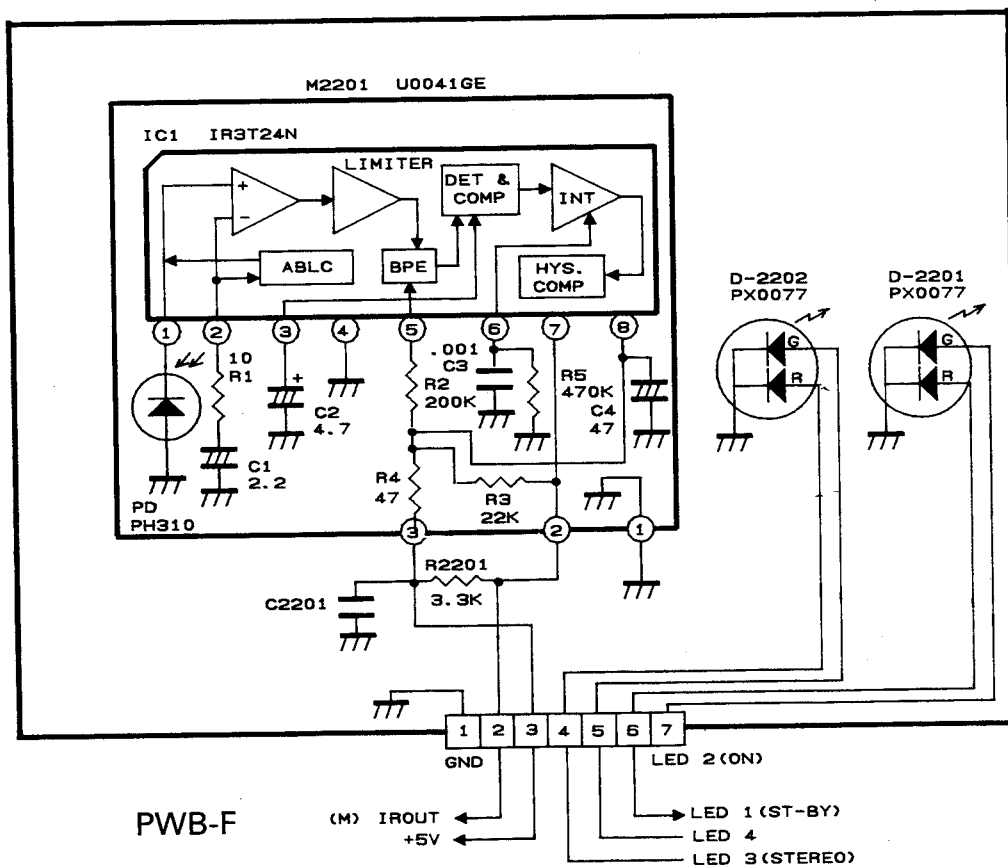
REGLER-EINHEIT



PWB-E

IR UNIT

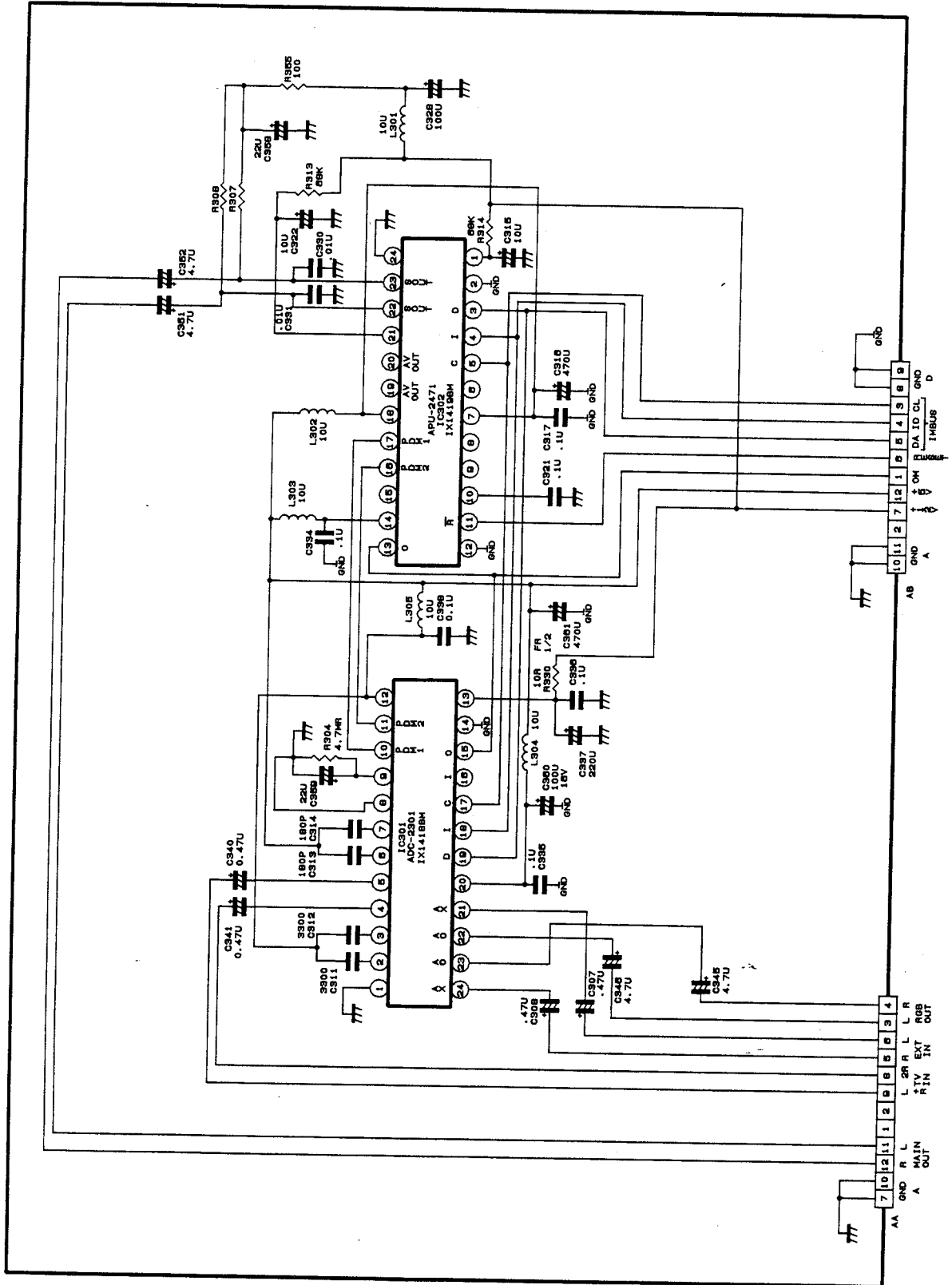
IR-EINHEIT



PWB-F

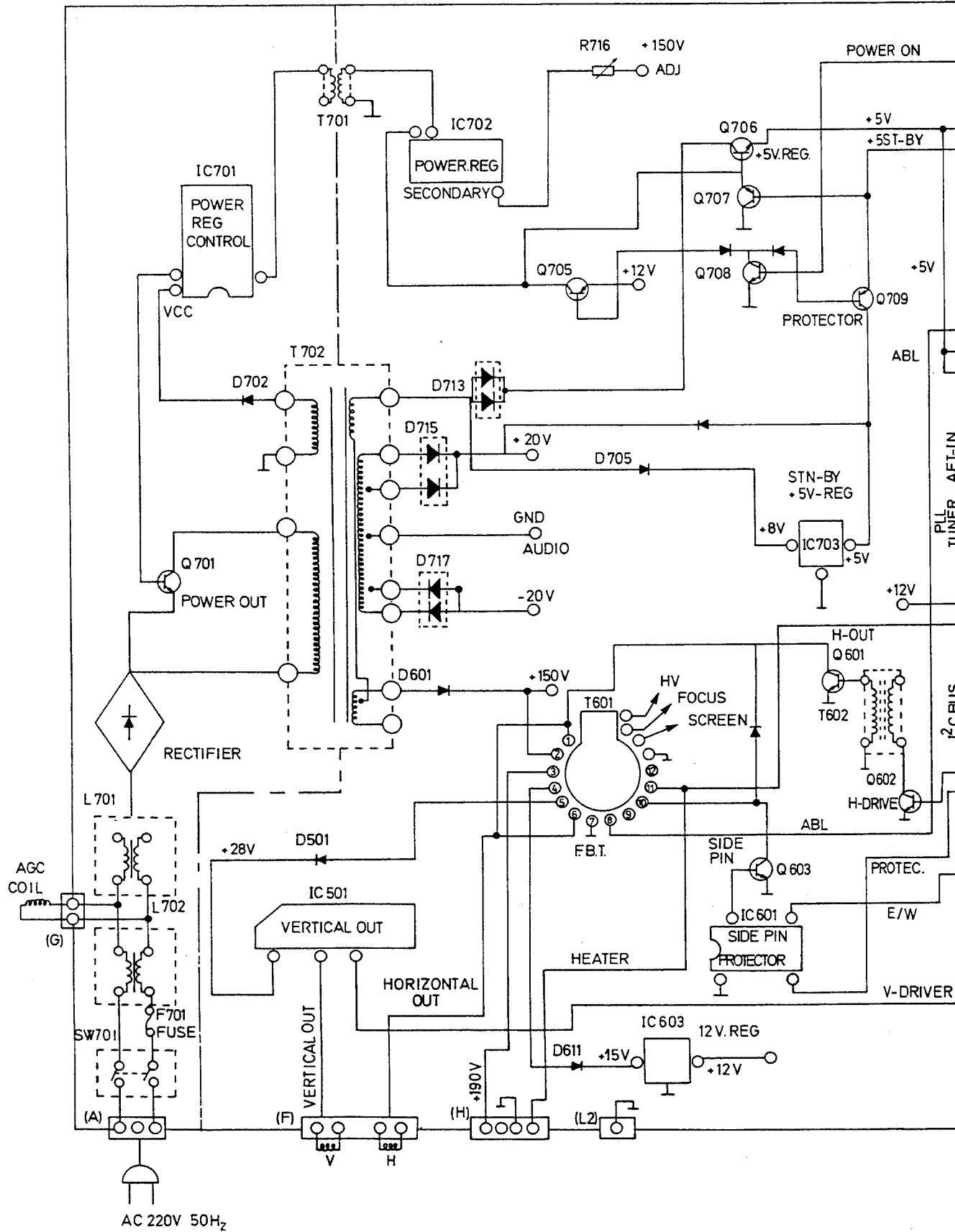
IGR AUDIO UNIT

AUDIO-EINHEIT

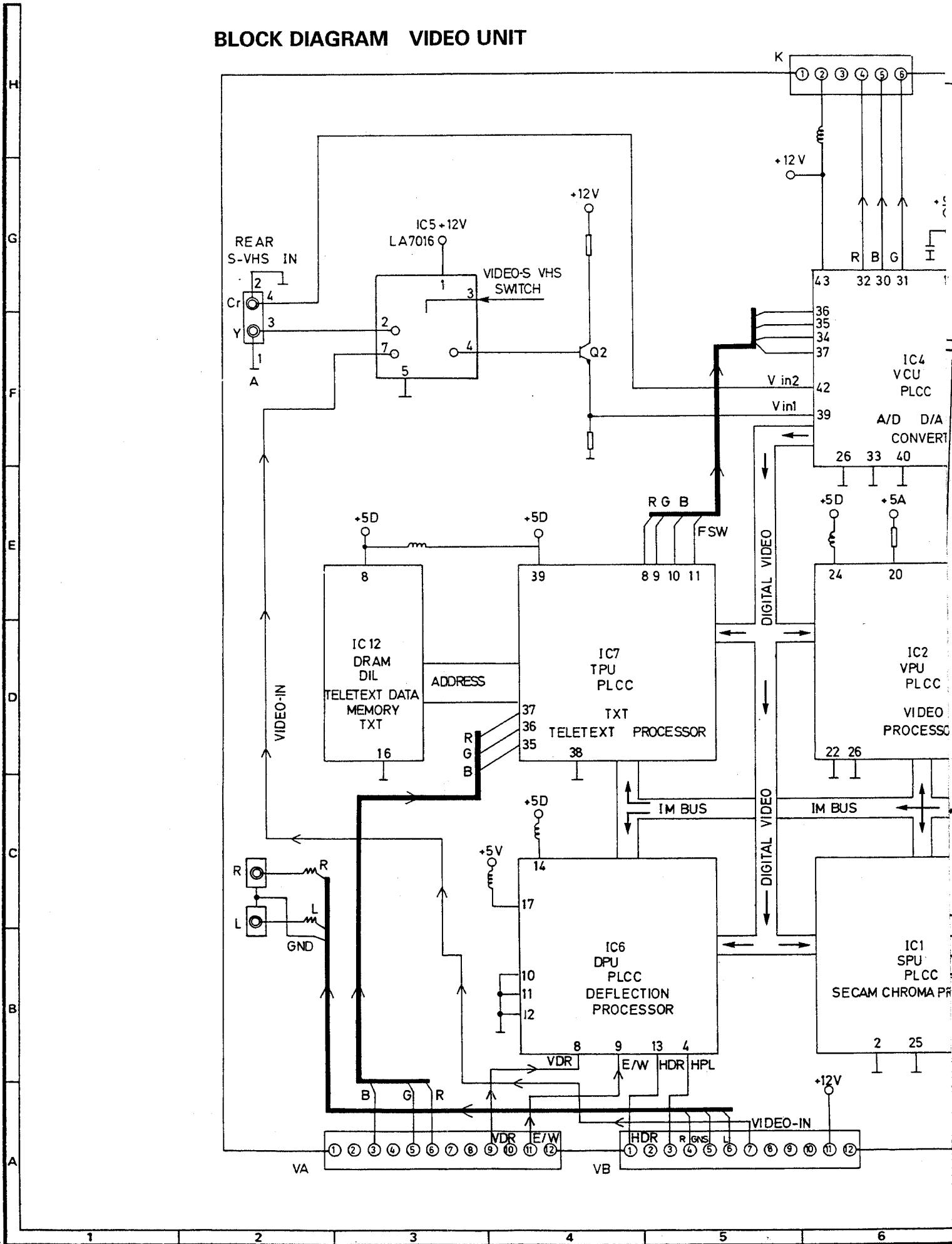


PWB-G

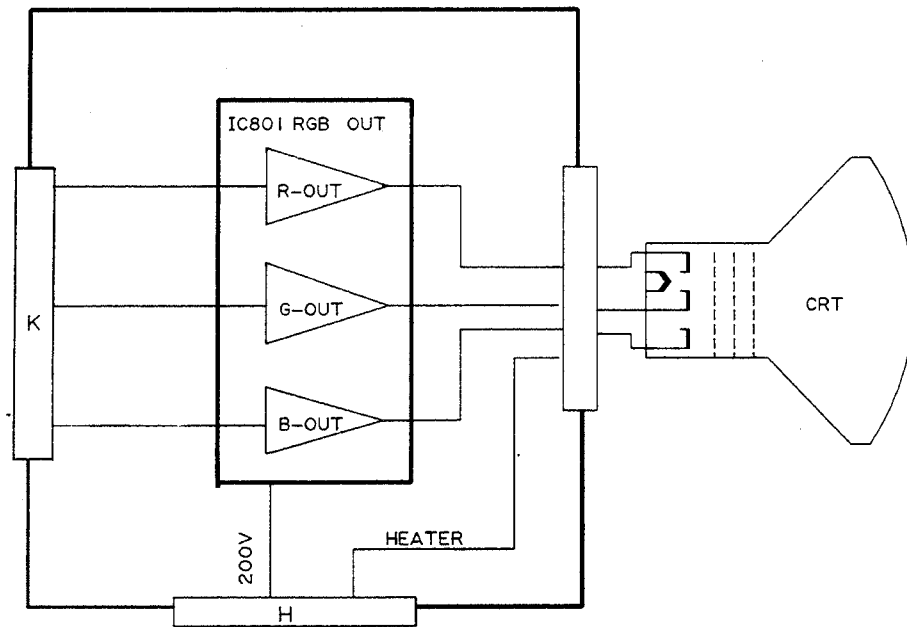
BLOCK DIAGRAM MOTHER BOARD



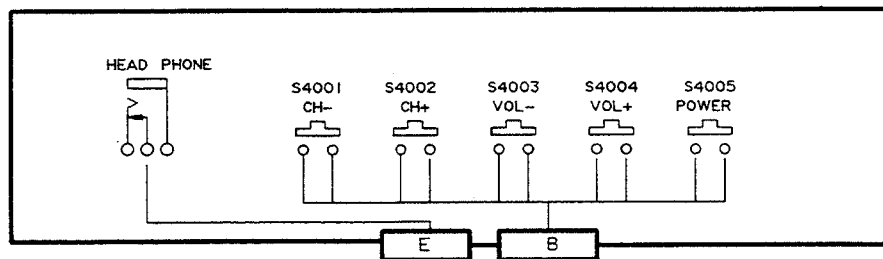
BLOCK DIAGRAM VIDEO UNIT



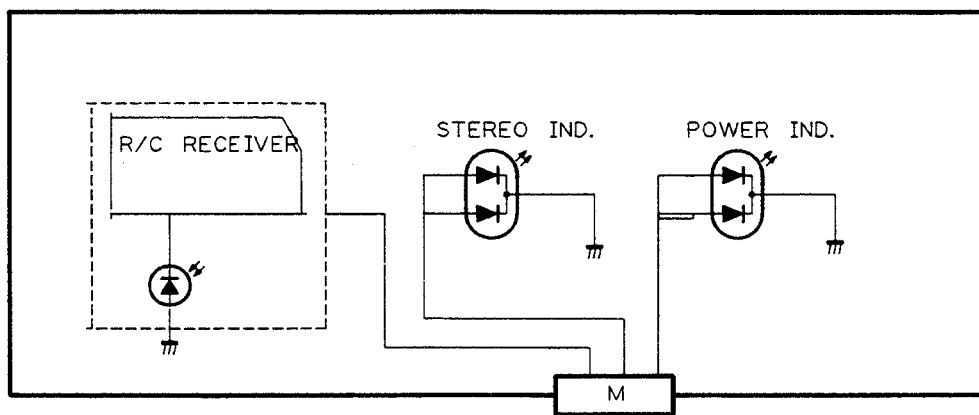
BLOCK DIAGRAM CRT SOCKET UNIT



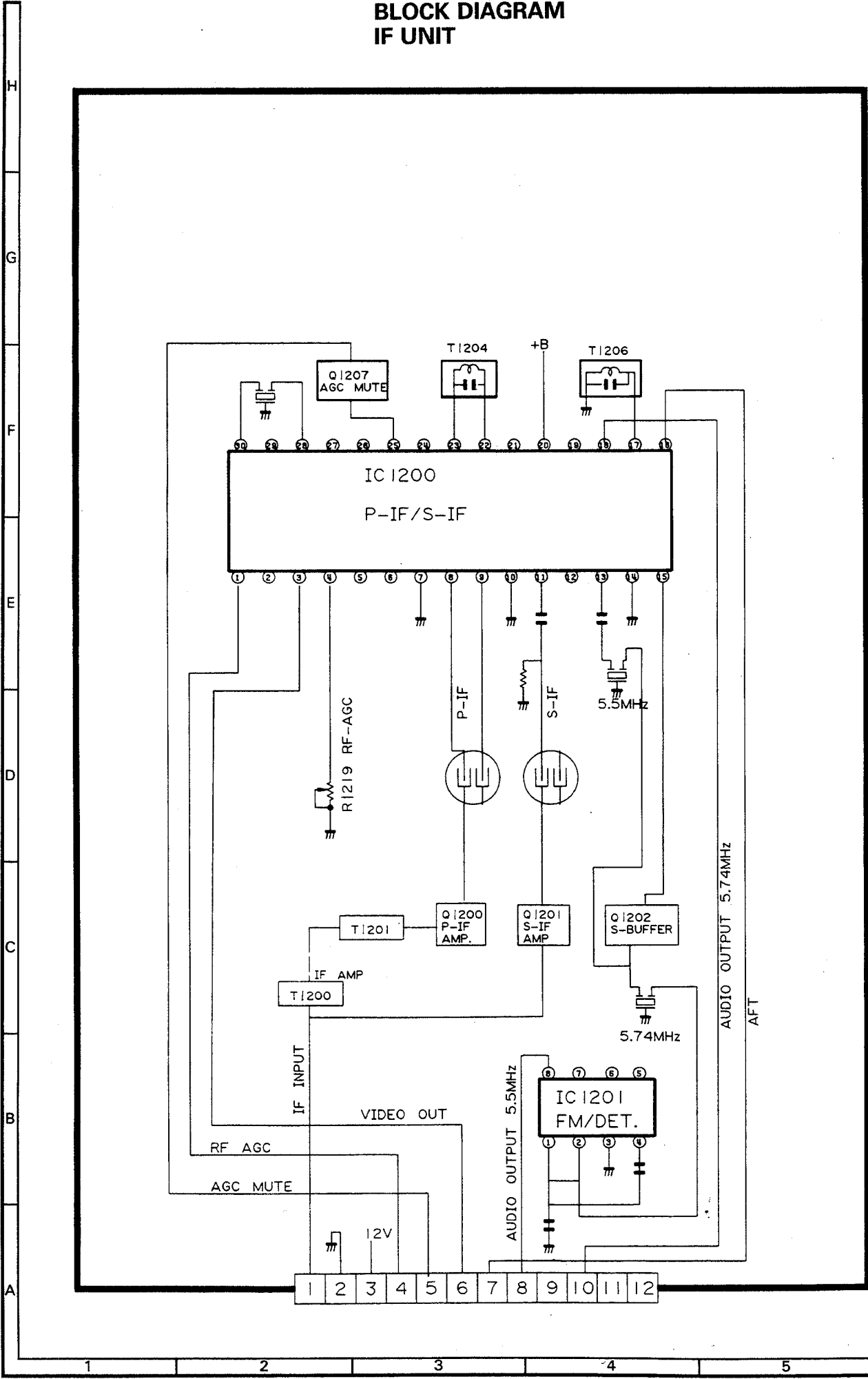
CONTROL UNIT



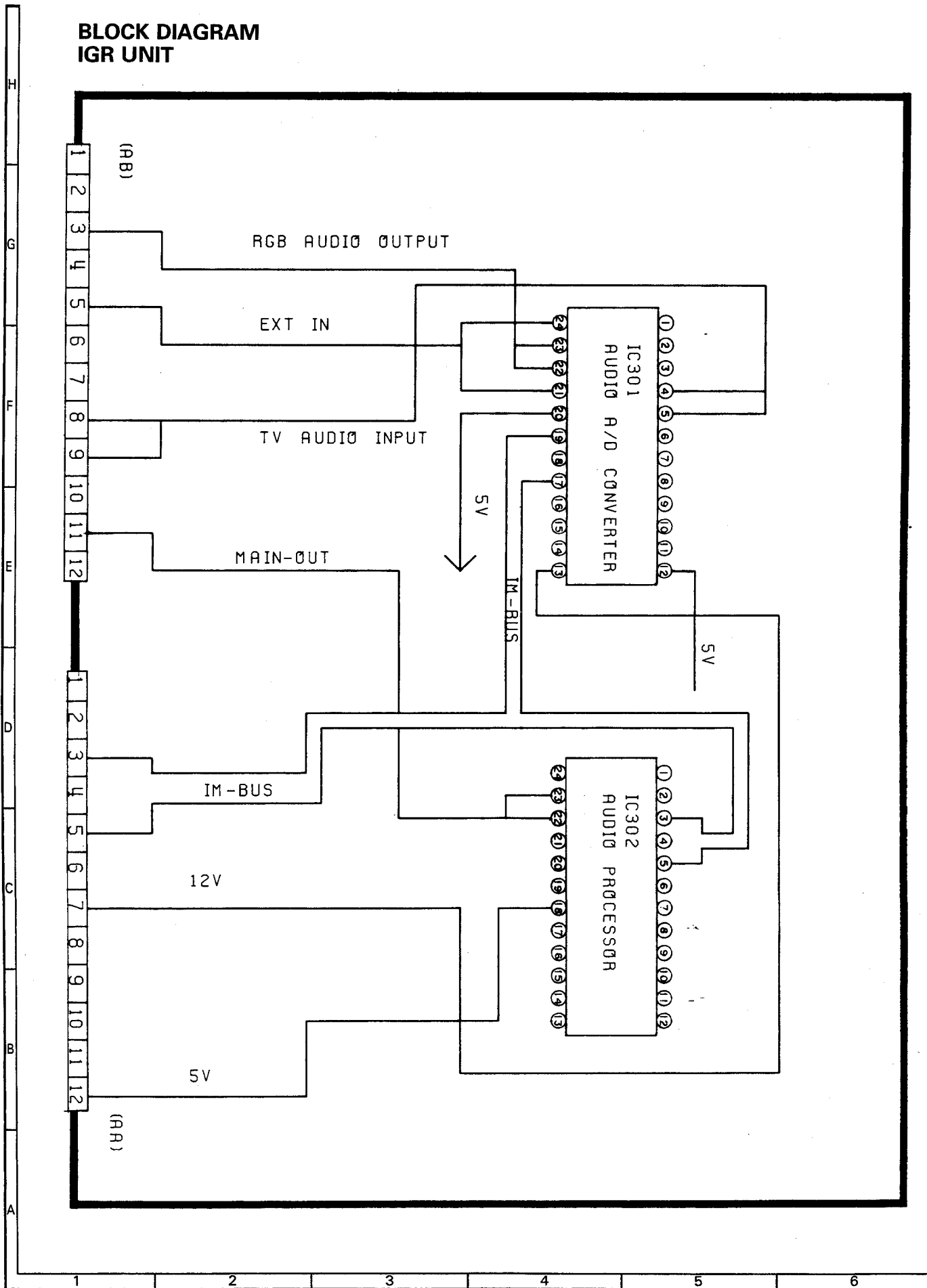
IR UNIT



BLOCK DIAGRAM IF UNIT



**BLOCK DIAGRAM
IGR UNIT**



PARTS LIST

REPLACEMENT PARTS

Replacement parts which have these special safety characteristics identified in this manual; electrical components having such features are identified by "⚠" in the Replacement Parts list.

The use of a substitute replacement part which does not have the same safety characteristics as the factory recommended replacement parts shown in this service manual may create shock, fire or other hazards.

"HOW TO ORDER REPLACEMENT PARTS"

To have your order completed promptly and correctly please supply the following information.

1. MODEL NUMBER
2. REF. NO.
3. PART NO.
4. DESCRIPTION
5. CODE

ERSATZTEILLISTE

AUSTAUSCH VON TEILEN

Ersatzteile, die besondere Sicherheitseigenschaften haben, sind in dieser Anleitung markiert. Elektrische Komponenten mit solchen Eigenschaften sind in den Ersatzteil durch "⚠" gekennzeichnet.

Der Gebrauch von Ersatzteilen, die nicht dieselben Sicherheitseigenschaften haben wie die vom Hersteller empfohlenen und in der Bedienungsanleitung, angegebenen, können zur Ursache von Blitzeinschlägen, Bränden und anderen Gefahren werden.

"WIE MAN ERSATZTEILE BESTELLT"

Damit Ihre Bestellung prompt und korrekt ausgeführt wird, geben Sie bitte folgende Informationen.

1. MODELL NR.
2. REF. NR.
3. ERSATZTEIL NR.
4. BESCHREIBUNG
5. KODE

★ MARK: SPARE PARTS-DELIVERY SECTION

★ MARKIERUNG: ERSATZTEILE-LIEFERUNG

REF. NO. REF. NR.	PART NO. TEIL NR.	★	DESCRIPTION	BESCHREIBUNG	CODE KODE
			PICTURE TUBE	BILDRÖHRE	
⚠	VB66EAK5101*N	S	CRT	Kathodenstrahlröhre	DC
⚠	CCILG0304WEV1	S	Degaussing coil	Entmagnetisierungsspule	AW
			PRINTED WIRING BOARD ASSEMBLIES (not replacement item, except Video Unit)	LEITERPLATTENEINHEITEN (keine Ersatzartikel)	
PWB-A	-		Mother Unit	Hauptplatine	-
PWB-B	DUNTK7001BMV0		Video Unit	Video-Einheit	-
PWB-C	-		CRT Socket Unit	Bildröhrenplatine	-
PWB-D	-		IF Unit	ZF-Einheit	-
PWB-E	-		Control Unit	Regler-Einheit	-
PWB-F	-		IR Unit	IR-Einheit	-
PWB-G	-		IGR Unit	Audio-Einheit	-


REF. NO. REF. NR.	PART NO. TEIL NR.	★	DESCRIPTION	BESCHREIBUNG	CODE KODE
PWB-A			MOTHER UNIT	HAUPTPLATINE	
			TUNER NOTE: The parts shown here are supplied as an assembly but not independently.	TUNER HINWEIS: Die hier aufgeführten bauteile werden nur als ganzer bausatz geliefert.	
	VTUVTSA1SPL//	S	VHF/UHF Interband tuner	VHF/UHF Interband tuner	
			INTEGRATED CIRCUITS	INTEGRATIONSKREISE	
IC1315 IC0701 IC0702 IC1308 IC1210, 0601 IC1211 IC1305, 1304 IC0501 IC0703 IC0603	RH-IX1401BMZZ RH-IX1434BMZZ RH-IX1420BMZZ VHIM5218L/-1 VHIUPC358C/-1 RH-IX0249CEZZ RH-IX1400BMZZ RH-IX1413BMZZ RH-IX1184BMZZ RH-IX1185BMZZ	S S S J J J S S S S S			AV AW AT AF AD AE AY AS AG AG
			TRANSISTORS	TRANSISTOREN	
Q0603 0706 Q1301, 0707, 0709 Q1302, 0421, 0708 Q0602 Q0601, 0701	VS2SD1913S/1E VS2SA1015Y/1E VS2SC1815GW-1 VS2SC2271-D1A VS2SD1546//1E	J J J J J			AD AC AB AD AP
			DIODES	DIODEN	
D0611 D0601 D0713, 0715 D0605, 0709 D0717 D0606 D1212, 0215, 1340, 1341, 1342, 0701, 0714, 0716, 0718, 0719, 0720, 0723,	RH-DX0156TAZZ RH-DX0246CEZZ RH-DX0296CEZZ RH-DX0299BMZZ RH-DX0300CEZZ RH-DX0301BMZZ RH-DX0045BMZZ	J J J S J S S			AD AD AG AK AG AM AA

REF. NO. REF. NR.	PART NO. TEIL NR.	★	DESCRIPTION	BESCHREIBUNG	CODE KODE
D0612	RH-DX0073CEZZ	J			AD
D0502, 0503	RH-DX0110CEZZ	J			AB
D0702, 0705	RH-DX0126CEZZ	J			AC
D0501	RH-DX0127CEZZ	J			AC
D0603	RH-DX0226CEZZ	J			AC
D0707, 0708, 0711, 0712	RH-DX0240CEZZ	J			AB
D0704	RH-EX0405BMZZ	S	Zener diode		AB
D0703	RH-EX0413BMZZ	S	Zener diode		AB
D0724	RH-EX0386BMZZ	S	Zener diode		AB
COILS			SPULEN		
L0702	RCILF0154CEZZ	J			AQ
L0601	RCILP0088CEZZ	J			AG
L0604	RCILP0104CEZZ	J			AG
L0603	RCILP0105CEZZ	J			AG
L0602	RCILZ0599CEZZ	J			AG
L0605, 0703	VP-CF2R2K0000	S	2.2 uH		AB
L0210, 0211	VP-DF120K0000	S	12 uH		AB
L0212, 0312	VP-DF3R3K0000	S	3.3 uH		AB
CERAMIC FILTER			KERAMIKFILTER		
CF0401	RFILC0117CEZZ	J			AD
TRANSFORMERS			TRANSFORMATOREN		
△T0601	RTRNF2000BMZZ	S	F.B.T.		BK
T0602	RTRNZ0059CEZZ	J	Driver		AF
△T0701	RTRNZ0500BMZZ	S	Pulse		AQ
△T0702	RTRNZ0501BMZZ	S	Chopper		BA
CONTROLS			REGLER		
R0716	RVR-M4169GEZZ	J	47K		AB
CAPACITORS			KONDENSATOREN		
C0625	RC-EZ0131TAZZ	J	10 250V Electrolytic	EleKtrolyt	AD
C0735	RC-EZ0239CEZZ	J	330 400V Electrolytic	EleKtrolyt	AS
C0601	RC-EZ0258CEZZ	J	Electrolytic	EleKtrolyt	AH
C0615	RC-FZ0059CEZZ	J	9100p 2KV Mylar	Mylar	AE
△C0726, △ 0731	RC-FZ0070BMZZ	S	0.1 250V Mylar	Mylar	AF
△C0740, △ 0741	RC-KZ0022CEZZ	J	6800p 2KV Ceramic	Keramik	AD
C0620	RC-KZ0024CEZZ	J	1000p 2KV Ceramic	Keramik	AC
C0719	VCEAAA0JW108M	S	1000 10V Electrolytic	EleKtrolyt	AD
C0715, 0732	VCEAAA1CW108M	S	1000 16V Electrolytic	EleKtrolyt	AD
C0624	VCEAAA1EW337M	J	330 25V Electrolytic	EleKtrolyt	AD
C0514, 0717, 0718	VCEAGH1EW228M	J	2200 35V Electrolytic	EleKtrolyt	AE
C0502	VCEAGH1VW228M	J	2200 35V Electrolytic	EleKtrolyt	AG
C0603, 0612, 0614, 0619	VCFPPD2DB474J	J	0.47 200V Polyester	Polyester	AE

REF. NO. REF. NR.	PART NO. TEIL NR.	★	DESCRIPTION			BESCHREIBUNG	CODE KODE
			CAPACITORS			KONDENSATOREN	
C0723	VCFPPD3CA222J	J	2200p	1600V	Polyester	Polyester	AD
C0616	VCQPSC2GA273K	J	0.02	7400V	Polyester	Polyester	AB
C0631	VCQYSH2DM104K	J	0.1	200V	Polyester	Polyester	AD
C1271, 0713	RC-FZ9104BMNJ	S	0.1	50V	Polyester	Polyester	AB
C0507, 0513	RC-FZ9154BMNJ	S	0.15	50V	Polyester	Polyester	AC
C0505, 0606,	RC-FZ9224BMNJ	S	0.22	50V	Polyester	Polyester	AD
C0702	RC-FZ9105BMNJ	S	0.1	63V	Polyester	Polyester	AB
C0713	RC-FZ9473BMNJ	S	0.047	50V	Polyester	Polyester	AB
C0724, 0725, 0727, 0728	RC-KZ0029CEZZ	J	0.01	250V	Ceramic	Keramik	AC
C0464, 0503, 0706	VCCSPA1HL101J	J	100p	50V	Ceramic	Keramik	AA
C0745	VCCSPA1HL470J	J	47p	50V	Ceramic	Keramik	AA
C0621	VCCSPA2HL121K	J	120p	500V	Ceramic	Keramik	AA
C0471, 0710	VCEAAA1AW477M	S	470	10V	Electrolytic	EleKtrolyt	AB
C1370	VCEAAA1CW107M	S	100	16V	Electrolytic	EleKtrolyt	AB
C1274	VCEAAA1CW337M	S	330	16V	Electrolytic	EleKtrolyt	AA
C0736	VCEAAA1EW477M	S	470	25V	Electrolytic	EleKtrolyt	AB
C0734	VCEAAA1HW107M	S	100	50V	Electrolytic	EleKtrolyt	AC
C0504	VCEAAA1VW107M	S	100	35V	Electrolytic	EleKtrolyt	AB
C0501, 0602, 0618, 0626, 0627	VCKYPA2HB102K	J	1000p	500V	Ceramic	Keramik	AA
C0613	VCKYPA2HB271K	J	270p	500V	Ceramic	Keramik	AA
C0705, 0716, 0349, 0722, 0742, 0748	VCKZPA1HB102K	J	1000p	50V	Ceramic	Keramik	AA
C1340, 1347	VCKZPA1HB221K	J	220p	50V	Ceramic	Keramik	AA
C0703, 0714	VCKZPA1HB332K	J	3300p	50V	Ceramic	Keramik	AA
C1365, 1367	VCKZPA1HB681K	J	680p	50V	Ceramic	Keramik	AA
C1276, 1397, 1398, 1399, 0481	VCKZPA1HF103Z	J	0.01	50V	Ceramic	Keramik	AA
C0704	VCQYSH1HM102K	J	1000p	50V	Polyester	Polyester	AA
C0617	VCQYSH1HM103K	J	0.01p	50V	Polyester	Polyester	AA
C0711	VCQYSH1HM122K	J	1200p	50V	Polyester	Polyester	AA
C0508	VCQYSH1HM153K	J	0.015	50V	Polyester	Polyester	AB

REF. NO. REF. NR.	PART NO. TEIL NR.	★	DESCRIPTION	BESCHREIBUNG	CODE KODE
			CAPACITORS	KONDENSATOREN	
C0623	VCQYSH1HM222K	J	2200p 50V Polyester	Polyester	AA
C1342, 1351, C0511	VCQYSH1HM223K	J	0.022 50V Polyester	Polyester	AB
C1273, 1360	VCSATA1VE105K	J	1 35V Tantalum	Tantal	AD
	VCKYAT1EX103N	J	0.01 25V Ceramic	Keramik	AA
			RESISTORS	WIDERSTÄNDE	
R0601, 0625, 0751, 0752	VRN-SV2HBR22J	J	0.22 ½W Metal Film	Metallschicht	AA
R0736, 0738	VRN-VV3DBR22J	S	0.22 2W Metal Oxid	Metalloxid	AB
R0520	VRS-VV3DB561J	S	560 2W Metal Oxid	Metalloxid	AB
R0728	VRS-VV3LB183J	S	18K 3W Metal Oxid	Metalloxid	AC
R0734	VRW-KX3HC471K	J	470 5W Cement	Zement	AD
R0606	VRW-KX3HC682K	J	6.8K 5W Cement	Zement	AD
R0632	VRW-KX4AC100K	J	10 10W Cement	Zement	AD
R0737	VRW-KX41C4R7K	J	4.7 15W Cement	Zement	AE
△R0740, △ 0741	VRC-UA2HG825K	J	8.2M ½W Solid	Massiv	AA
R0609	RR-XZ0027CEZZ	J	2.2 ½W Fuse Resistor	Sicherungswiderstand	AB
R1362, 0475	RR-XZ0035TAZZ	J	22 ½W Fuse Resistor	Sicherungswiderstand	AB
R0505, 0501, 0753	VRG-RL2HB1R0K	J	1 ½W Fuse Resistor	Sicherungswiderstand	AB
R1333, 1343	VRG-RL2HB3R3J	J	3.3 ½W Fuse Resistor	Sicherungswiderstand	AB
R0627, 0711	VGR-RL2HB390J	J	39 ½W Fuse Resistor	Sicherungswiderstand	AB
			MISCELLANEOUS PARTS	SONSTIGE TEILE	
FB0602, 0603	RBLN-0010CEZZ	J	Ferrite Bead	Ferritperle	AC
FB0601, 0701, 0702, 0703, 0704, 0705	RBLN-0037CEZZ	J	Ferrite Bead	Ferritperle	AB
△F0701	QFS-C2022TAZZ	S	Fuse -T2A	Sicherung-T2A	AE
△S0701	QSW-P0418CEZZ	J	Switch	Schalter	AK
FH0701	QFSDH1009CEZZ	J	Fuse Holder	Sicherungschalterung	AA
FH0702	QFSDH1010CEZZ	J	Fuse Holder	Sicherungschalterung	AA
PR0701	RMPTP0028CEZZ	J	PTC	Thermistor	AF

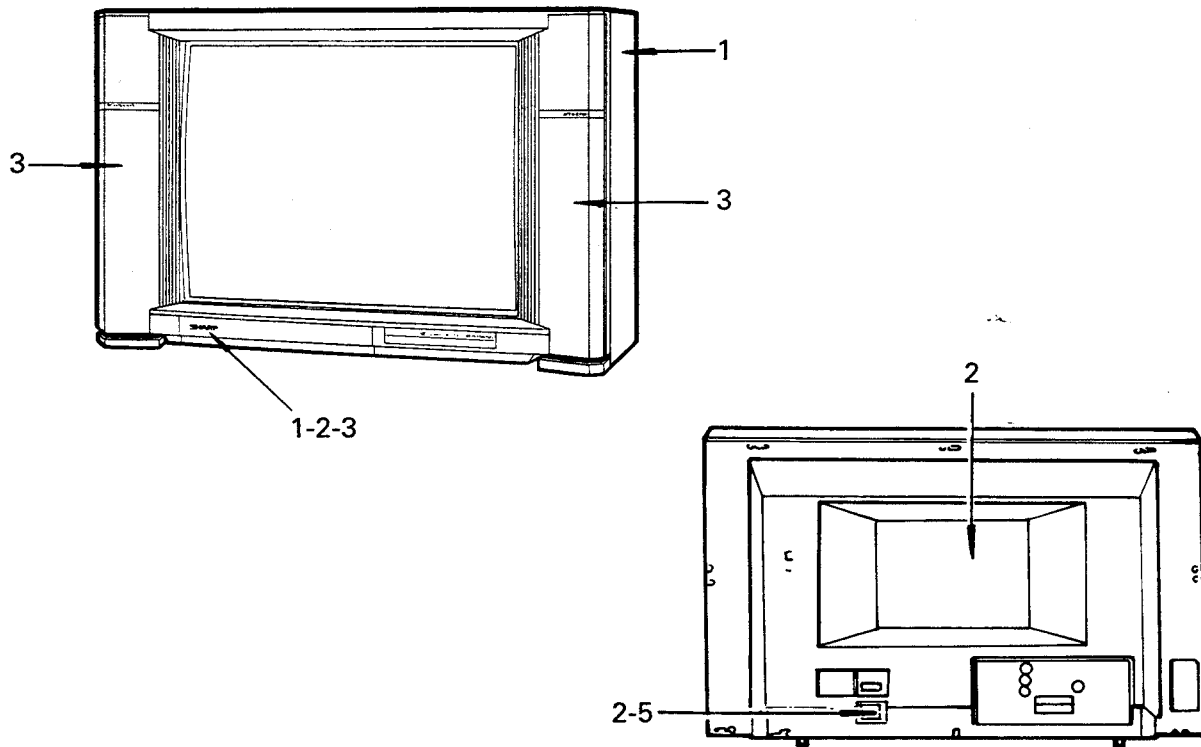
REF. NO. REF. NR.	PART NO. TEIL NR.	★	DESCRIPTION	BESCHREIBUNG	CODE KODE
PWB-B			VIDEO UNIT	VIDEO-EINHEIT	
			INTEGRATED CIRCUITS	INTEGRATIONSKREISE	
IC1411	RH-IX1409BMZZ	S			AT
IC1412	RH-IX1410BMZZ	S			AW
IC1415	RH-IX1412BMZZ	S			AY
IC1408	RH-IX1422BMZZ	S			AP
IC1405	VHILA7016//1	J			AH
IC1416, 1417	VHIPST529C2-1	J			AD
IC1401	RH-IX1402BMZZ	S			AY
IC1402	RH-IX1403BMZZ	S			AY
IC1404	RH-IX1405BMZZ	S			BA
IC1406	RH-IX1406BMZZ	S			AZ
IC1407	RH-IX1407BMZZ	S			BL
IC1414	RH-IX1411BMZZ	S			BC
IC1403	RH-IX1423BMZZ	S			BB
			TRANSISTORS	TRANSISTOREN	
Q1403, 1407, 1409, 1418	VS2SA1037KQ-1	S			AB
Q1402, 1408	VS2SC2412KQ-1	S			AB
			DIODES	DIODEN	
D1401, D1402, D1403, D1404, D1405, D1406, D1409, D1411, D1412, D1413, D1415, D1416, D1417, D1418, D1419, D1420, D1421	VHDDAN202K/-1	S			AM
D1430, D1431, D1432	RH-EX0412BMZZ	S	Zener diode		AB
			PACKAGED CIRCUITS	SCHALTANORDNUNG IN EINHEITEN	
X1402 X1403	RCRSB0200BMZZ RCRSB0201BMZZ	S S	Crystal 17.73 MHz Crystal 4 MHz	Quarz 17.73 MHz Quarz 4 MHz	AN AL
			COILS	SPULEN	
L1403, L1404, L1402, L1411, L1412, L1413, L1414, L1415	VP-NM1R0MR10N VP-NM100KR42N	S J	1u H SMD 10u H SMD		AC AB

REF. NO. REF. NR.	PART NO. TEIL NR.	★	DESCRIPTION	BESCHREIBUNG	CODE KODE			
CAPACITORS			KONDENSATOREN					
C1416	VCEAAA0JW108M	S	1000 10V Electrolytic	EleKtrolyt	AD			
C1407	VCEAAA0JW477M	S	470 6.3V Electrolytic	EleKtrolyt	AC			
C1465	VCEAAA1CW477M	S	470 16V Electrolytic	EleKtrolyt	AC			
MISCELLANEOUS PARTS			SONSTIGE TEILE					
FB1401, 1402	QSOCD0405CEZZ	J	S-Video Terminal	S-Video Klemme	AE			
	QJAKE0055CEZZ	J	Jack (Right)	Buchse, R-Ein	AC			
	QJAKE0054CEZZ	J	Jack (Left)	Buchse, L-Ein (mono)	AC			
	RBLN-0020CEZZ	J	Ferrite Bead	Ferritperle	AB			
PWB-C			CRT SOCKET UNIT			BILDRÖHRENPLATINE		
INTEGRATED CIRCUIT			INTEGRATIONSKREIS					
IC1801	RH-IX1416BMZZ	S			AS			
COIL			SPULE					
L1800	VP-CF3R3K0000	S	3.3 uH		AB			
CAPACITORS			KONDENSATOREN					
C1802	VCEAGHZEW476M	J	47 250V Electrolytic	EleKtrolyt	AD			
C1877	RC-KZ0023CEZZ	J	4700p 2KV Ceramic	Keramik	AD			
C1801	RC-KZ0029CEZZ	J	0.01 250V Ceramic	Keramik	AC			
C1810, 1820, 1830	VCKZPA1HB102K	J	1000p 50V Ceramic	Keramik	AA			
C1803, 1876	VCKZPA1HF103Z	J	0.01 50V Ceramic	Keramik	AA			
RESISTORS			WIDERSTÄNDE					
R1873	RR-XZ0017CEZZ	J	10 1/2W Fuse Resistor	Sicherungswiderstand	AB			
R1872	VRG-RL2HB221J	J	220 1/2W Fuse Resistor	Sicherungswiderstand	AB			
R1813, 1823, 1833	VRC-MA2HG272K	J	2.7 K 1/2W Solid	Massiv	AA			
MISCELLANEOUS PARTS			SONSTIGER TEILE					
	QSOVCV0913CEZZ	J	CRT Socket	Bildröhrenfassung	AK			
PWB-D			IF UNIT			ZF-EINHEIT		
INTEGRATED CIRCUITS			INTEGRATIONSKREISE					
IC0200 IC0201	RH-IX1286CEZZ RH-IX1417BMZZ	J S			AN AM			
TRANSISTORS			TRANSISTOREN					
Q0202 0204, 0207	VS2SC1815GW-1	J			AB			
Q0200, 0201	VS2SC1906//1E	J			AC			
DIODES			DIODEN					
D0202 D0200	RH-DX0045BMZZ RH-EX0440CEZZ	S J	Zener diode	Zenerdiode	AA AA			
PACKAGED CIRCUITS			SCHALTANORDNUNG IN EINHEITEN					
SF0200 SF0201	RFILC0092CEZZ RFILC0198CEZZ	J J	38.9 MHz 33.0 MHz		AL AH			
COILS			SPULEN					
L0201 L0202, 0204, 0206	VP-DF120K0000 VP-DF560K0000	S S	12 uH		AB AB			

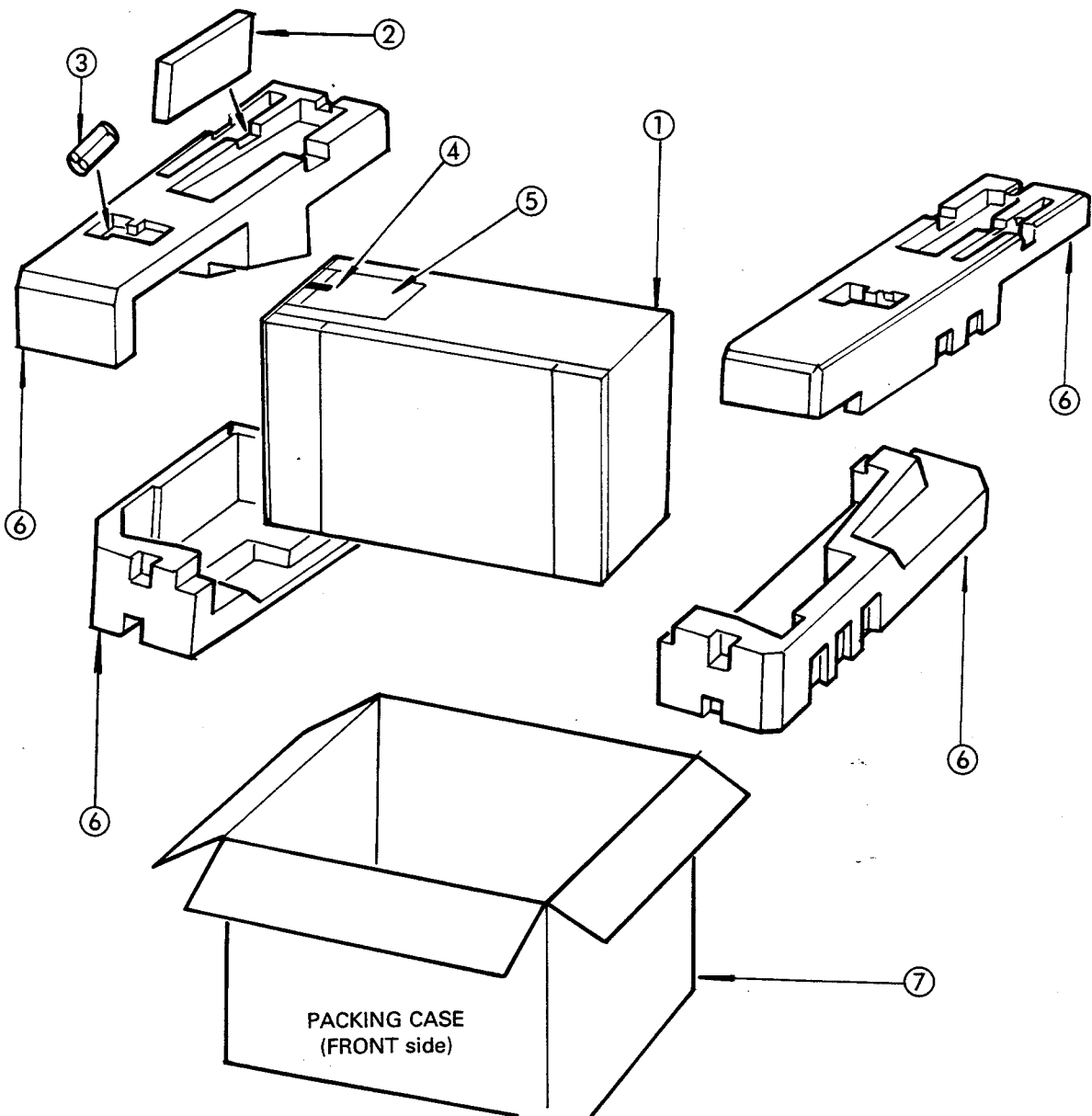
REF. NO. REF. NR.	PART NO. TEIL NR.	★	DESCRIPTION	BESCHREIBUNG	CODE KODE
			CERAMIC FILTERS	KERAMIKFILTER	
CF0202 CF0203 CF0205	RFILC0020CEZZ RFILC0061CEZZ RFILC0063CEZZ	J J J	5.5 MHz 5.5 MHz		AE AF AF
			TRANSFORMERS	TRANSFORMATOREN	
T0205 T0204 T0206, 0208 T0201 T0203 T0200	RCILD0151CEZZ RCILD0190CEZZ RCILD0192CEZZ RCILIO402CEZZ RCILIO431CEZZ RCILIO457CEZZ	J J J J J J	A.F.T. coil Coupling Adj. Trap 40.4 MHz		AD AD AD AD AD AD
			CONTROLS	REGLER	
R0231 R0219	RVR-M4071CEZZ RVR-M4076CEZZ	J J	Af. out Adj 5.5 MHz 3,3K		AB AB
			CAPACITORS	KONDENSATOREN	
C0224 C0245 C0247 C0226 C0242 C0246 C0209, 0211, 0223 C0202, 0205, 0206 C0201, 0204, 0207, 0208, 0212, 0213, 0216, 0220, 0222, 0255 C0225 C0250, 0261 C0203, 0215 C0239, 0244, 0249	RC-FZ9334BMNJ RC-FZ9473BMNJ VCCCPA1HH101J VCCCPA1HH180J VCCCPA1HH100D VCCCPA1HH7R0D VCEAAA1CW107M VCKZPA1HB102K VCKZPA1HF103Z VCQYSH1HM103K VCQYSH1HM223K VCKYD11HB102K VCKYD41CY103N	S S J J J J S J J J J J J J J	0.33 50V Polyester 0.047 50V Polyester 100p 50V Ceramic 18p 50V Ceramic 4p 50V Ceramic 7p 50V Ceramic 100 16V Electrolytic 1000p 50V Ceramic 0.01 50V Ceramic 0.01 50V Polyester 0.022 50V Polyester 1000p 0.01 16V Ceramic	Polyester Polyester Keramik Keramik Keramik Keramik EleKtrolyt Keramik Keramik Polyester Polyester Keramik	AE AB AA AA AA AA AB AA AA AA AB AA AA
			RESISTORS	WIDERSTÄNDE	
R0264	RR-XZ0035TAZZ	J	22 ½W Fuse Resistor	Sicherungswiderstand	AB

REF. NO. REF. NR.	PART NO. TEIL NR.	★	DESCRIPTION	BESCHREIBUNG	CODE KODE
PWB-E		CONTROL UNIT			REGLER-EINHEIT
COILS			SPULEN		
L1580, 1581, 1582, 1583	VP-DF3R3K0000	S	3.3 uH		AB
CAPACITORS			KONDENSATOREN		
C1580, 1581, 1582	VCKZPA1HB103Z	J	0.01 Ceramic	Keramik	AA
MISCELLANEOUS PARTS			SONSTIGE TEILE		
S4001, 4002, 4003, 4004, 4005	QSW-K0033CEZZ	J	Switch Channel (-) Channel (+) Volume (-) Volume (+) Power	Schalter Kanal (-) Kanal (+) Lautstärke (-) Lautstärke (+) Netz	AB
PWB-F		IR UNIT			IR-EINHEIT
DIODES			DIODEN		
D2201, 2202	RH-PX0077CEZZ	J			AE
PACKAGED CIRCUIT			SCHALTANORDNUNG IN EINHEITEN		
M2201	RRMCU0041GEZZ	J	Infrared Remote Control Receiver	Fernbedienungsempfänger	AM
PWB-G		IGR UNIT			AUDIO EINHEIT
INTEGRATED CIRCUITS			INTEGRATIONSKREISE		
IC0301 IC0302	RH-IX1418BMZZ RH-IX1419BMZZ	S S			AT BD
COILS			SPULEN		
L0302, 0303, 0304, 0320	VP-DF100K0000	S	10 uH		AB
CAPACITORS			KONDENSATOREN		
C0317, 0321, 0334, 0335, 0336, 0338	RC-FZ9104BMNJ	S	0.01 50V Polyester	Polyster	AB
C0313, 0314	VCCSPA1HL181J	J	180p 50V Ceramic	Keramik	AA
C0361	VCEAAA1AW477M	S	470 10V Electrolytic	EleKtrolyt	AB
C0360,	VCEAAA1CW107M	S	100 16V Electrolytic	EleKtrolyt	AB
C0337	VCEAAA1CW227M	S	220 16V Electrolytic	EleKtrolyt	AB
C0311, 0312	VCKZPA1HB332K	J	3300p 50V Ceramic	Keramik	AA
C0330, 0331, C0328	VCKZPA1HF103Z	J	0.01 50V Ceramic	Keramik	AA
	VCEAAA1CW337M	S	330 16V Electrolytic	Elektrolyt	AA

REF. NO. REF. NR.	PART NO. TEIL NR.	★	DESCRIPTION	BESCHREIBUNG	CODE CODE
			RESISTORS	WIDERSTÄNDE	
R0330,	RR-XZ0017CEZZ	J	10 ½W Fuse Resistor	Sicherungswiderstand	AB
			MISCELLANEOUS PARTS	SONSTIGE TEILE	
⚠ 1 1-1	QACCZ2048CESA RRMCG0739BMSA 92PFA11D2101	J S J	AC Cord Infrared Remote Control Unit Battery cover	Netzkabeleinheit Infrarotfernbedienungseinheit Batteriedeckel	AR BL AD
			CABINET PARTS	GEHÄUSE TEILE	
1 1-1 1-2 1-2-1 1-2-2 1-2-3 1-2-4 1-2-5 2 2-1 2-3 2-4 2-5 3	CCABA5500BMV0 Not available GDORF1781BMSB GMADT1000BMSA Not available HBDGB3086BMSB HINDP5006BMSA PKAI-1083CE00 CCABB1008BMV3 Not available HINDP5010BMSA HINDP5011BMSA JBTN-1574BMSA VSP1608PB068A	S - S S - S S S J S - S S S S S	Front Cabinet Assembly Front Cabinet Door Window Front panel Logo Indicator Door Latch Rear Cabinet Assembly Rear Cabinet Indicator Indicator Push button Speaker	Vordergehäuseeinheit Vordergehäuse Türe Anzeigefenster Vorder Schutzmarke Anzeigeplatte Türe, Türverriegelung Gehäuserückwardeinheit Gehäuserückward Anzeigeplatte Anzeigeplatte Taste Lautsprecher	CB AQ AL AL AQ AM BN AG AF AC BA



PART NO. TEIL NR.	DESCRIPTION	BESCHREIBUNG
1.	Television	Fernsehen
2. RRMCG0739BMSA	Infrared Remote Control Unit	Infrarotfernbedienungseinheit
3. UBATU0004CEZZ	Batteries (IR R/C)	Batterien (IR. Fernbedienung)
4. TINS-6007BMZZ	Operation Manual	Bedienungsanleitung
5. TGAN-1181BMZZ	Guarantee Card	Garantiekarte
6. -	Packing Material	Verpackungsmaterial
7. -	Packing Case	Karton



DV-28071S

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