

S.E.S. 45/48

Service

EUROD

69

TV
154
1992

NOKIA

- 7291**
Ident-No. 5439 47 20
(OC) Ident-No. 5439 47 40
(UK) Ident-No. 5439 98 40
- 8291**
Ident-No. 5439 46 70
(OC) Ident-No. 5439 47 00
(UK) Ident-No. 5439 98 50
- 9291**
Ident-No. 5430 82 80
Ident-No. 5439 46 50
(OC) Ident-No. 5430 83 20
(OC) Ident-No. 5439 46 60
(UK) Ident-No. 5430 83 00
(UK) Ident-No. 5439 98 60

SALORA

- 28F8**
Ident-No. 5439 47 60
(U) Ident-No. 5430 04 10
- 32F8**
(C) Ident-No. 5439 47 50
(U) Ident-No. 5430 03 90
- 36F8**
(C) Ident-No. 5439 46 30
(U) Ident-No. 5430 03 80

LUXOR

- 7128**
Ident-No. 5439 48 00
- 8228**
Ident-No. 5439 47 80
- 9128**
(LX) Ident-No. 5439 46 40

SCHAUB LORENZ

- 7128**
Ident-No. 5439 47 90
- 8228**
Ident-No. 5439 47 70
- 9128**
Ident-No. 5439 46 20

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Achtung ! Bei Reparaturen gültige Sicherheitsvorschriften beachten !
Warning ! Service and repair work to be performed only in accordance with existing safety regulations !
Attention ! En faisant des réparations tenez compte des prescriptions de sécurité !
Attenzione ! Osservare le norme di sicurezza vigenti in caso di riparazioni !

Röntgenverordnung: Die in der Röntgenverordnung festgelegte Ortsdosisleistung ist bei diesen Geräten durch die Bildröhrentype und die maximal zulässige Hochspannung gewährleistet.
X-ray regulations: The picture tube type and the maximum permissible high-voltage ensure that the X-ray intensity within the set remains far below the permissible value.
Règlementation portant sur les rayons X: La puissance de dose locale fixée dans la réglementation relative aux rayons X est garantie dans le cas de cet appareil grâce au type de tube-image et à la haute tension maximale admissible.
Regolamento raggi X: La potenza prevista dalla disciplina raggi X per questo genere di apparecchio viene garantita dal tipo di cinescopio e dalla tensione massima consentita.



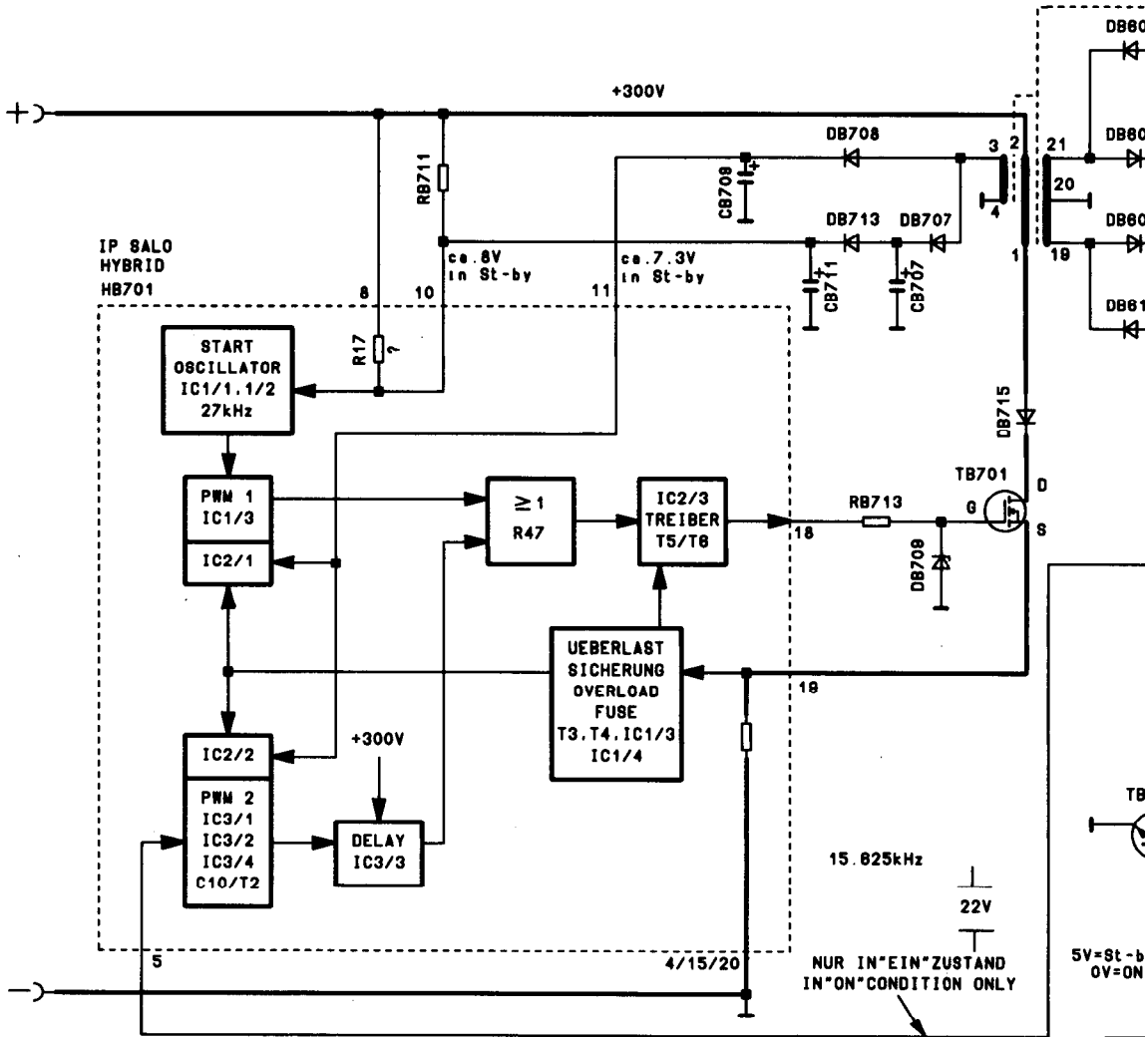
Schutzmaßnahmen für MOS-Bauelemente beachten !
 Pay attention to protective measures for MOS components !
 Respecter les mesures de protections pour les composants de MOS !
 Osservare le misure protettive per gli elementi costruttivi MOS !



Oszillogramm-Meßpunkt / Waveforms measuring point
 Tous les oscillogrammes / Riferire tutti gli oscillogrammi

Bei Nachbestellungen von Manualen bitte Gerätetyp und Geräte-Identnummer angeben.
 When re-ordering manuals, please quote the model name and part number.
 En cas de commande supplémentaire de manuels veuillez indiquer le typ et le numéro de l'appareil.
 Per riordinare i manuali, indicare il modello dell'apparecchio ed il numero categorico.

6611 75 27 (9209)

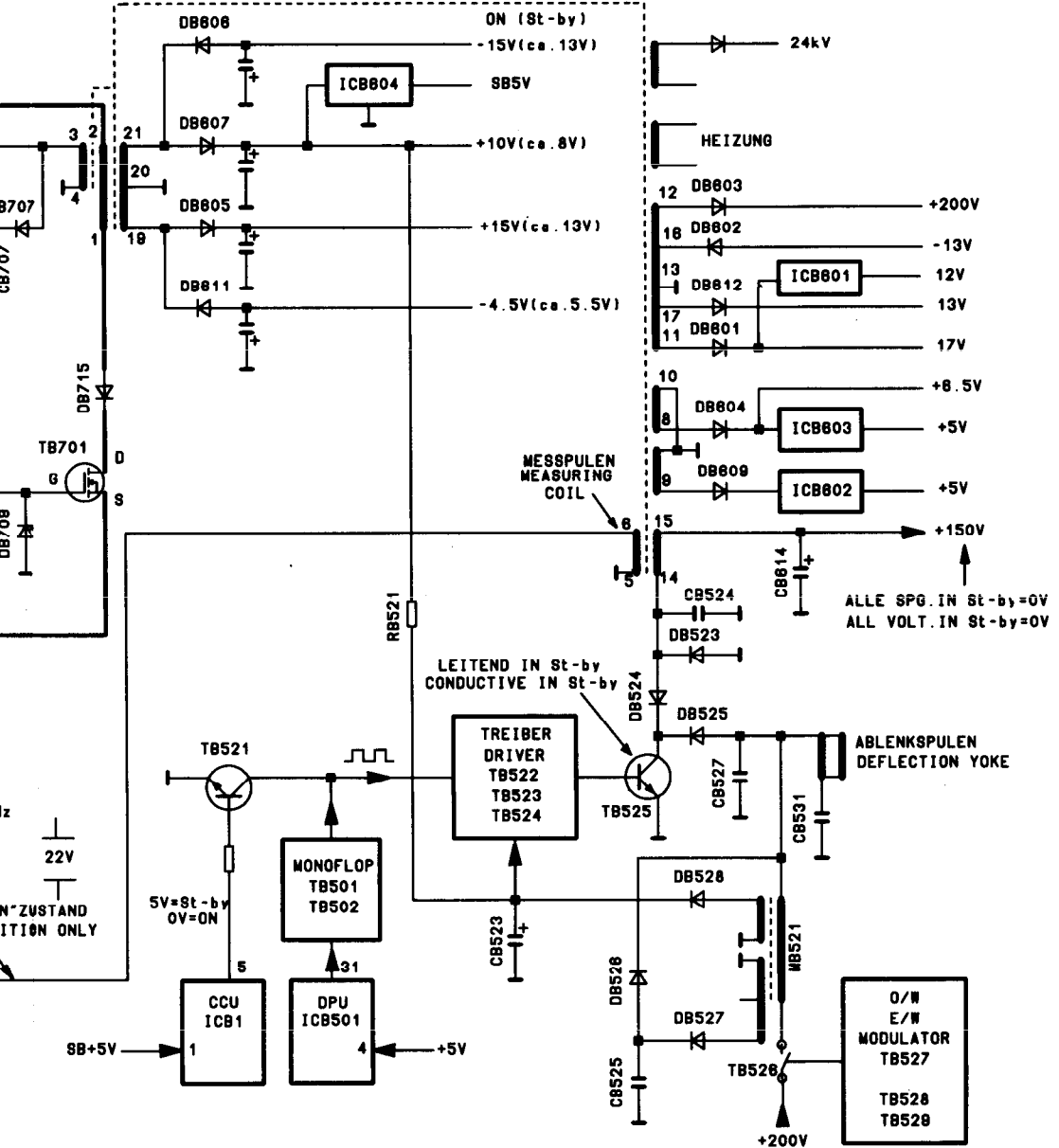


NETZTEIL/ABLENKUNG
POWERSUPPLY/DEFLECTION
EURO-DIGI-CHASSIS

8B+5V → 1

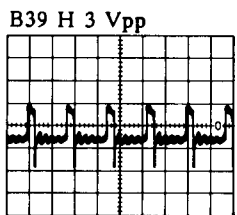
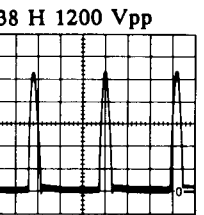
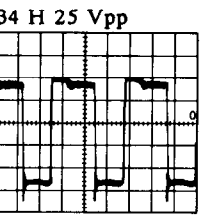
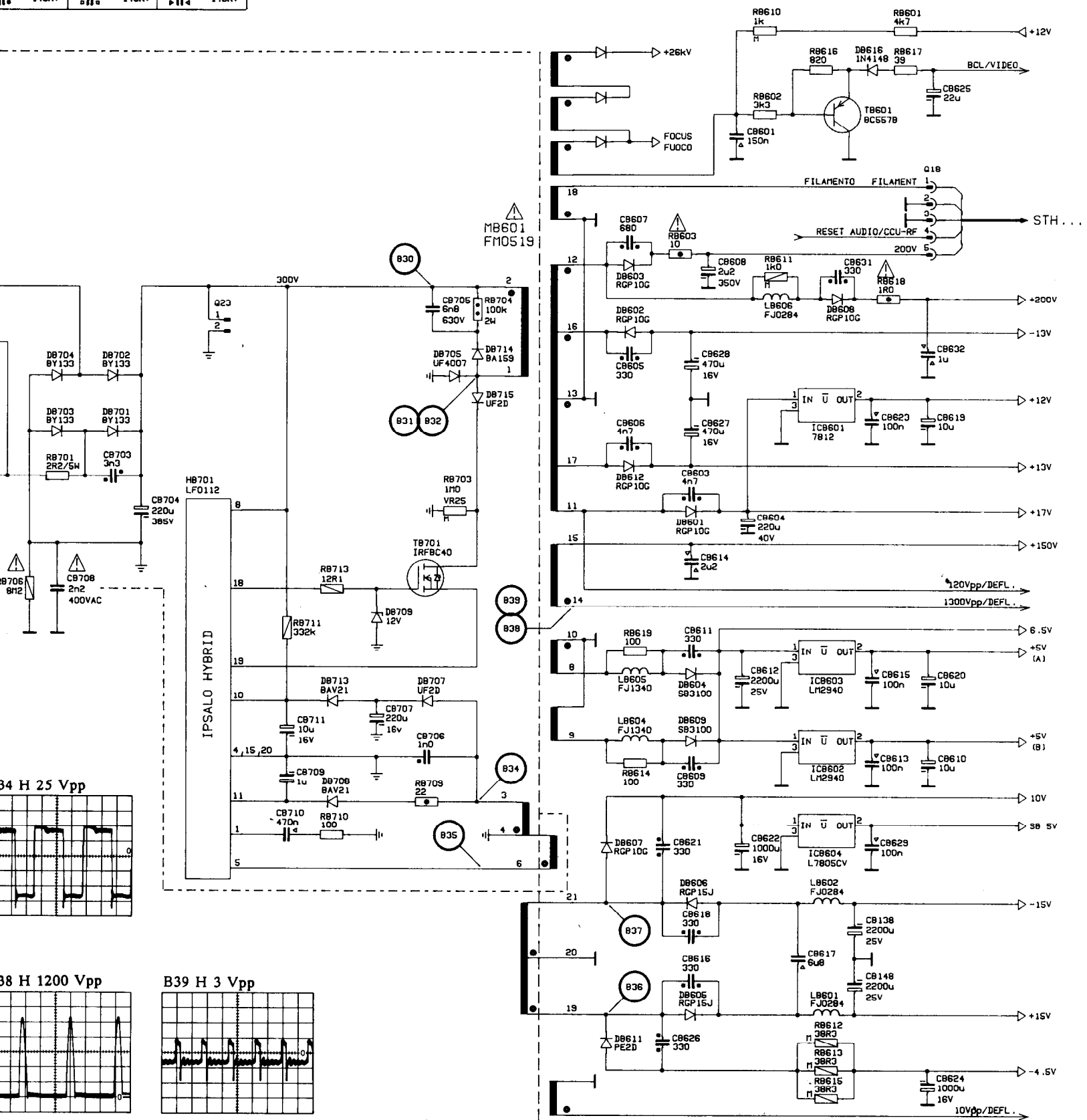
LOSE KOPPLUNG
LOOSE COUPLING

MB 801



STB...Schaltnetzteil

Ceramic	Polypropylen	Polyester	Polycarb.
<= 63V	<= 63V	100V	100V
160V	160V	160V	160V
250V	250V	250V	250V
500V	500V	400V	400V
1.5kV	1.5kV	1.5kV	1.5kV



Adjustment procedure for 16:9 TV sets

General

The adjustments of the receiver are performed with a remote control handset. Only focus and G2 adjustments are potentiometer adjustments. The settings have been distributed among **16 adjustment planes**. The usual colour and geometry adjustment routines are performed in **5 adjustment groups** on adjustment planes 1 - 7. Every adjustment group has its own separate adjuster buttons, which trigger different adjuster functions, depending on the adjustment plane you are currently on (**NOKIA/SALORA/LUXOR/SCHAUB LORENZ Fig. 3 / Page 72**). The digit display blinks during adjusting until the extreme value is reached. The adjustments are performed in **service mode**.

Adjustments required for different standards

Certain adjustments must be made for each standard separately on the respective programme position. When the TV is in normal mode, select the menu display to check the programme standard. In order to adjust different standards you have to preset such a standard to a programme position (e.g. programme position 1: PAL, programme position 10: SECAM etc.). The tables (**Page 77-78**) shows the adjustment values to be used with each colour system and standard.

Service mode

Access to the service mode is obtained by switching on the receiver with the mains switch **Ⓢ** and by keying in the following command within 6 seconds: (**Fig. 1 - Page 76/N.B.! Note the type of remote control handset involved !**). The display shows the programme memory's version (01...79). Depending on the type of remote control handset you have, the following buttons are operative in service mode: (**NOKIA/SALORA/LUXOR/SCHAUB LORENZ Fig. 3 / Page 72**)

Option bytes

The TV configuration is determined with option bytes. These byte settings are effective on all programme positions when not otherwise stated (**NOKIA/SALORA/LUXOR/SCHAUB LORENZ Fig. 3 / Page 70-71**). An option byte consists of 8 bits. The state of each bit is indicated by the corresponding segment in the right-hand digit display. The state of each bit can be toggled with numeric keys 0 to 7. If the segment lights up, corresponding bit is set to "1". The effect of option bytes is not visible until returning to the TV mode !

Detailed description of how to adjust colour and geometry, using the adjusting table (**NOKIA/SALORA/LUXOR/SCHAUB LORENZ Fig. 3 / Page 70-72**)

Geometry adjustments must be carried out completely after replacement or initialization of memory IC X24C16P (ICB 50). The following order of adjustments has been found to produce the desired result with the minimum of effort. Adjustments can also be made in another order or completely separately.

Upon completion of adjustments the settings can be stored all with a single depression of the memory key (**MENU or OK->M**) before leaving the service mode.

Exception

- Grey scale adjustments have to be stored separately on adjustment group 5/adjustment plane 5 or 6.
- Selecting another programme position is possible in the middle of an adjustment. Non-memorized adjustments are not retained if the new programme position has different adjustment values (e.g. another colour system).

SA Colour oscillator synchronization: Adjust the colours "upright" (*Adjust. plane 1 / Adjust. group 3*)

dL Luminance delay: For adjustment use an external RGB source and video signal in MIX mode. Select programme position 0. Apply the R signal to EXT1 input pin 15 and video signal to EXT1 input pin 20. Connect the Fast Blanking pin 16 to R input pin 15 at the EXT socket. Adjust the RGB and video pictures to the same position (*Adjust. plane 1 / Adjust. group 2*)

dC Chrominance delay: Using RF test picture, adjust the colour transition to the same position with the luma transition (*Adjust. plane 1 / Adjust. group 4*)

Note: If there is no DTI circuit in the system, perform the whole adjustment with **ud** !

Coarse adjustment of dL and dC without external RGB signal: Adjust **dC** to the maximum with, then decrease 10 steps. Adjust **dL** to same phase.

ud Chroma/luma delay (DTI or no DTI): Adjust **ud** to align the colour transient to the position of the luminance transition (*Adjust. plane 1 / Adjust. group 4*)

SP Horizontal centering: Center the picture with **SP**. If the adjustment is not possible, check **dL** adjustment (*Adjust. plane 1 / Adjust. group 1*)

Note: It helps picture centering if the centre point of the screen is marked on the tube e.g. with a piece of tape.

AO Vertical shift: Adjust the top border of test pattern (*Adjust. plane 2 / Adjust. group 1*)

HO Picture height: Adjust the bottom border of the test pattern the amount of half a square beyond the screen (*Adjust. plane 2 / Adjust. group 2*)

SO Vertical linearity: Adjust the bottom border of test pattern (**Fig. 4 / Page 69**) (*Adjust. plane 2 / Adjust. group 3*)

C1 Pincushion distortion correction 2: Depending on the remote control handset type involved, use the **AUDIO** button (NOKIA) or **▶▶** (SALORA) or **-** (LUXOR/SCHAUB LORENZ) to adjust to the extreme value (picture distortions will occur!), then use **VIDEO** or **▶** or **▶▶** to increase by three steps (**Fig. 5 / Page 69**) (*Adjust. plane 3 / Adjust. group 5*)

Z1 Trapezium distortion correction 2: Depending on the remote control handset type involved, use button **⊕** (NOKIA) or **◀◀** (SALORA) or **◀◀** (LUXOR/SCHAUB LORENZ) to stretch the picture far enough to render the bending points (summing points **K1** and **K2**) clearly visible (**Fig. 6a / Page 69**). At this juncture, pay no attention to the picture distortion (*Adjust. plane 3 / Adjust. group 4*)

K1 Summing point 1: Adjust summing point **K1** to position shown in Fig. 6a (2,5 squares from top). It may be necessary to adjust **Z1** too (*Adjust. plane 4 / Adjust. group 1*) (**Fig. 6a + 6b / Page 69**)

K2 Summing point 2: Adjust summing point K2 to position shown in Fig. 6a (2,5 squares from bottom). It may be necessary to adjust Z1 too (*Adjust. plane 4 / Adjust. group 2*) (**Fig. 6a + 6b / Page 69**)

Z1 Trapezium distortion correction 2: Adjust the lines between the summing points as straight as possible; adjustment usually at minimum (*Adjust. plane 3 / Adjust. group 4*) (**Fig. 6a + 6b / Page 69**)

ZO Trapezium distortion correction 1: Straighten the vertical lines at the upper half of the picture without paying attention to what happens to the lower half of the picture (*Adjust. plane 3 / Adjust. group 2*) (**Fig. 6a + 6b / Page 69**)

CO Pincushion distortion correction 1: Straighten the vertical lines at the lower half of the picture. Vertical lines can be straightened by alternately adjusting ZO and CO (*Adjust. plane 3 / Adjust. group 3*) (**Fig. 5 + 6b / Page 69**)

YO Picture width: Adjust the top corners to correct position (*Adjust. plane 3 / Adjust. group 1*)

CO Pincushion distortion correction 1: Check the position of the bottom corners. If the picture is not straight between the summing points, check C1 and Z1 adjustments (*Adjust. plane 3 / Adjust. group 3*)

St DTI start time adjustment: Use normal RF signal. Adjust the transients of colour bars to the same position as the transitions of B/W picture (*Adjust. plane 4 / Adjust. group 4*)

Sp DIT stop time adjustment: Use normal RF signal. Adjust the transients of colour bars to the same position as the transitions of B/W picture (*Adjust. plane 4 / Adjust. group 5*)

Grey Scale Adjustments

G2 Screen grid voltage: Adjust brightness and contrast to minimum. Adjust G2 trimmer of the potentiometer unit on the tube base panel. Adjustment is correct when neither of the dot LEDs are illuminated in the display. At the same time, the most efficient gun is clamped to a reference level (cut off voltage approx. 150 V), which is fixed at the lowlight adjustment and cannot be adjusted (*Adjust. plane 5 / Adjust. group 7*)

cr, cG, cb Black level adjustments: Increase contrast to a level where picture is slightly visible. The gun which was set fixed at G2 adjustment can be found at adjustment in which both dot LEDs are illuminated i.e. black level of this particular colour cannot be adjusted. Adjust the grey scale of test pattern to grey by changing the black level of the two remaining guns (*Adjust. plane 5 / Adjust. group 1+2+3*)

dr, dG, db Highlight adjustments: Measure with an oscilloscope at the bases of transistors TH 13, TH 23 and TH 33 to check which colour channel has the maximum preset gain. Leave the oscilloscope to the appropriate base and adjust contrast control for a reading of 60 V from black level to white. Disconnect the oscilloscope. Adjust for normal brightness (all grey bars are discernible) (*Adjust. plane 6 / Adjust. group 1+2+3*)

If the picture is too

- **red**, decrease red with **dr** adjustment until white parts of test pattern turn to white;
- **green**, decrease green with **dG** adjustment until white parts of test pattern turn to white;
- **blue**, decrease blue with **db** adjustment until white parts of test pattern turn to white.

Check black level adjustments. If you have to adjust these, then check the highlight adjustments too.

Note: Grey scale adjustments must be stored on adjustment group 5/adjustment plane 5 or 6 with the key **MENU** or **OK/->M**.

Other Adjustments

HA Horizontal adjustment of text page: Center the teletext page within the screen. At the same time also menus and screen displays are shifted (*Adjust. plane 7 / Adjust. group 1*)

CA Relative contrast of menus: Adjust the contrast of menus, screen displays and teletext (only MIX mode) relative to the contrast of normal picture (*Adjust. plane 7 / Adjust. group 2*)

CL Maximum contrast of teletext page: Adjust the contrast of test pattern to mid-position, then adjust white characters of text for equal brightness to the white in the test pattern (*Adjust. plane 7 / Adjust. group 3*)

PH Centering the PIP screen (*Adjust. plane 14*)

PA Colour oscillator sync. of PIP screen: Adjust the colours "upright" (*Adjust. plane 14*)

Note: The PH and PA adjustments are missing if there is no PIP module in the set.

Focus adjustment

Set contrast close to maximum and brightness for a well balanced grey scale. Adjust focus to optimum using the Focus potentiometer of the trimming unit on the tube base panel.

IC identification



On adjustment planes 12 and 13, you can check which ICs are connected to the I²C and the bus respectively. This feature can also be utilized for fault finding (**NOKIA/SALORA/LUXOR/SCHAUB LORENZ Fig. 3 / Page 70-71**)

IC replacement

X24C16P Memory IC ICB 50 (= STB / IC 50): If you suspect that some adjustment value prevents the set from starting up replace the memory IC with one which is O.K. and contains sufficient initializing values - e.g. preprogrammed spare memory IC (**Fig. 7 / Page 62**)

NVM 3060 EEPROM memory ICBM 1

Initializing memory ICs ICB 50 and ICBM 1 : Initializing replaces the values stored in memory IC ICB 50 with new ones (from ICB 2). The picture will not be perfect when using the initialized values.

1. Disconnect the mains plug.
2. Switch the TV on with the mains switch.
3. Reinsert the mains plug and within 6 seconds press the following buttons consecutively (depending on the type of remote control handset involved): (**NOKIA**) **MUTE** /  /  / or (**SALORA**) **■** / **■** / **▶** / **▶** or (**LUXOR/SCHAUB LORENZ**) **+** / **■** / **▶** / **▶▶** /.

The TV is switched on to programme position 1 after initializing. Channel 24 and PAL B/G standard will have been stored on all programme positions. After initialization check the options and perform all adjustments.

CCU 3000 Control unit ICB 1/

FA... Programme memory ICB 2: Check whether the new IC is of the same type. If the spare IC differs from the older one, other modifications may be necessary. Check to see whether corresponding modification instructions have been supplied with the IC or consult service bulletins.

MCU 2600 Clock generator ICB 80: Check **SA** (Colour synchronization)

ACVP 2205 Video processor ICB 230: Check **SA** (Colour synchronization), **ud** (Chrominance delay / not DTI) or **dL** (Luminance delay) and **dC** (Chrominance delay / DTI present)

SPU 2243 SECAM processor ICB 220: Check **ud** (Chrominance delay / no DTI) of the SECAM standard or **dL** (Luminance delay) **dC** (Chrominance delay / DTI present)

DTI 2250 Transient improvement processor ICB 240: Check **St** (DTI start time) and **Sp** (DTI stop time) of the standards in use. **ud** (Chrominance delay/no DTI), **dL** (Luminance delay) and **dC** (Chrominance delay / DTI present)

TPU 2735 Teletext processor ICB 250: Check **HA** (Teletext horizontal centering) and **CA** (Contrast, Menu & MIX)










VCU 2136 Video coder/decoder ICB 201: Check **G2**, **cr** (Black level, red), **cG** (Black level, green), **cb** (Black level, blue), **dr** (Gain, red), **dG** (Gain, green), **db** (Gain, blue) and **CA** (Contrast, Menu & MIX)

DPU 2553 Deflection processor: Check the geometry adjustments of all standards in use

TDA 8172 Vertical output stage ICB 570: Check picture height, position of top border and thereafter East/West adjustments

NVM 3060 EEPROM memory, PIP ICQM 203: Initialize the IC and perform **PH** (Horizontal centering, PIP) and **PA** (Colour synchronization, PIP) adjustments

Initialization

1. Switch the TV on with the mains switch.
 2. Within 6 seconds after switching on the TV press the following buttons consecutively (depending on the type of remote control hand onvolved): (NOKIA) **MUTE** /  /  or (SALORA)  /  /  /  or (LUXOR/SCHAUB LORENZ) **+** /  /  / 
- Initialize the IC and perform **PH** (Horizontal centering, PIP) and **PA** (Colour synchronization, PIP) adjustments

SK...Tuner TU 101/

STD... IF amplifier: Check automatic channel search, EXT1, different receiving bands and tuner AGC (tuner pin 2) 7 V for 1,5 - 2 mV aerial signal

STH... Tube base panel: Check **G2**, **Focus**, **cr** (Black level, red), **cG** (Black level, green), **cb** (Black level, blue), **dr** (Gain, red), **dG** (Gain, green) and **db** (Gain, blue)

Instruction for NVEDIT programme (16:9 TV sets / phase I)

The colour menu software from version FA2.0 on (SALORA, LUXOR and SCHAUB LORENZ) and the TV Mouse software from version FA102.0 on (NOKIA) include NVRAM (EEPROM) editing software. NVRAM (EEPROM) memories include user settings, initial values for IC chip set and production data. These values can be changed from the user interface in the service mode by using the production computer the NVEDIT programme.

Warning ! The NVEDIT programme is a very dangerous tool. It reads and writes directly to EEPROM memories. If you do not exactly know what you are doing, please do not use the NVEDIT programme !

Modifications in EEPROM register bits may be needed in following cases:

- In production has been used improper value that has be corrected as a service treatment;
- The EEPROM initialization programme does not match to the DSP and other IC's status, mask versions etc.;
- In service is used older or newer DSP IC mask version that predicts some register value adaption;
- The TV is customized by some special demand.

To start the NVEDIT programme

1. Go to the service mode
2. Select the NVEDIT programme. The **password** is:
red / blue / green / yellow (SALORA, LUXOR, SCHAUB LORENZ)
ZOOM / VOLUME - / TEXT (NOKIA)
3. The display shows
 - status row
 - warning info
 - EEPROM selection row (preset is TV EEPROM)

To use the NVEDIT programme

1. The active EEPROM memory can be selected using the following colour buttons:
 - **Red** = TV (The size is 16 KBits and it is located on the main board)
 - **Green** = PIP (The size is 4 KBits and it is located on the PIP module)
 - **Yellow** = NVM (The size is 4 KBits and it is located on the main board)
2. Decimal address and data can be given to the active field using the number buttons. Unfinished or incorrect addresses and unfinished data selection can be aborted using the "i" button (SALORA, LUXOR, SCHAUB LORENZ) or the "ALT" button (NOKIA). After the last address digit has been entered, the programme shows the current data and after the last data digit, the programme stores automatically the new data to the active EEPROM memory.
3. Note the **maximum values** which can not be exceeded:
 - Maximum address value for **TV memory** = **2047**
 - Maximum address value for **PIP and NVM memories** = **0511**
 - Maximum data for all **memories** = **255**

To exit from NVEDIT programme

- Press the **STANDBY** button

Einstelltabelle / List of adjustments / Liste de réglage / Elenco delle regolazioni

STEP +/-	1. Einstellgruppe 1st adjustment group 1er groupe de réglage Prima gruppo di regolazione	2. Einstellgruppe 2nd adjustment group 2ème groupe de réglage Seconda gruppo di regolazione	3. Einstellgruppe 3rd adjustment group 3ème groupe de réglage Terza gruppo di regolazione	4. Einstellgruppe 4th adjustment group 4ème groupe de réglage Quarta gruppo di regolazione
1. SP	SP SP Horizontal centering Horizontale Bildverschiebung Cadrage horizontal Centratura orizzontale	dL dL DTI Luminance delay Luminanzverzögerung Retardement de la luminance Ritardo di luminanza	SA SA Colour synchronization Farbsynchronisierung Synchronisation couleurs Sincronizzazione colore	dC dL Chrominance del ud ud Chrominance/Lu
2. AD	AO AD Vertical centering Vertikale Bildverschiebung Cadrage verticale Centratura verticale	HO HO Height Höhe Hauteur Ampiezza verticale	S0 S0 Vertical linearity Vertikale Linearität Linéarité verticale Linearità verticale	
3. Y0	YO Y0 Width Breite Largeur Ampiezza orizzontale	Z0 T0 Trapezium distortion correction 1 1. Korrektur der Trapezverzerrung Correction de trapèze 1 Correzione dell'effetto trapezio 1	C0 T0 Pincushion distortion correction 1 1. Korrektur der Kissenverzerrung Correction de canal 1 Correzione dell'effetto cuscino 1	Z1 T1 Trapezium distort 2. Korrektur der 1 Correction de tra Correzione dell'e
4. T1	K1 T1 Summing point 1 Summierungspunkt 1 Point d'addition 1 Punto di somma 1	K2 T2 Summing point 2 Summierungspunkt 2 Point d'addition 2 Punto di somma 2		St Sr DTI start time Einschaltzeitpunkt Moment de déma Punto d'inizio del
5. CR	CR CR Black level, red Schwarzpegel, Rot Blocage du canal rouge Cut-off del rosso	CG CB Black level, green Schwarzpegel, Grün Blocage du canal vert Cut-off del verde	CB CB Black level, blue Schwarzpegel, Blau Blocage du canal bleu Cut-off del blu	Co Co Contrast Kontrast Contraste Contraste
6. DR	DR DR Gain, red Verstärkung, Rot Gain, Rouge Guadagno del rosso	DG DB Gain, green Verstärkung, Grün Gain, vert Guadagno del verde	DB DB Gain, blue Verstärkung, Blau Gain, bleu Guadagno del blu	Co Co Contrast Kontrast Contraste Contraste
7. HR	HA HR Teletext horizontal centering Horizontale Bildverschiebung, Videotext Centrage horizontal de télétexte Centratura orizzontale del televideo	CA CA Contrast, Menu & MIX Kontrast, Menu & MIX Contraste Menu & MIX Contrasto del menu & MIX	CL CL Contrast, Teletext Kontrast, Videotext Contraste télétexte Contrasto del televideo	Co Co Contrast Kontrast Contraste Contraste
8. BB	Byte 1 BIT 1 0 IF/MHz 0 0 38.9 0 1 39.5 1 0 38.0 1 1 37.0	Bit 2 UHF only / 0 = no / 1 = yes Bit 3 TUNER / 0 = Salcomp / 1 = NSF Bit 4 DTI IC / 0 = no / 1 = yes	Bit 5 A2 stereo / 0 = no / 1 = yes Bit 6 AV Connectors / 0 = no / 1 = yes Bit 7 ITT AUDIO KIT-SECAM / 0 = 6,5 MHz 1 = 5,5 MHz	1 BB
9. BB	Byte 2 Bit 0 PAL CCIR / 0 = no / 1 = yes Bit 1 PAL UK / 0 = no / 1 = yes Bit 2 SECAM E / 0 = no / 1 = yes Bit 3 SECAM L / 0 = no / 1 = yes	Bit 4 NTSC 4,4 MHz / 0 = no / 1 = yes Bit 5 NTSC 3,58 MHz / 0 = no / 1 = yes Bit 6 SECAM video / 0 = no / 1 = yes Bit 7 NTSC 3,58 MHz Video / 0 = no / 1 = yes		2 BB
10. BB	Byte 3 Bit 0 AES / 0 = no / 1 = yes Bit 1 16:9 / 0 = no / 1 = yes Bit 2 0 = Normal use / 1 = Production mode Bit 3 Video identification start from standby (EXT) 0 = no / 1 = yes	Bit 4 NICAM / 1 = C4-Bit Bit 5 MAC IF Bit 6 Video level / 0 = 1Vpp / 1 = 2Vpp Bit 7 S-Filter (ACVP) / 0 = no / 1 = yes		3 BB
11. BB	Byte 4 Bit 0 WIDE / 0 = no / 1 = yes Bit 1 LOUDNESS / 0 = no / 1 = yes Bit 2 PROGRAMME INFO / 0 = no / 1 = yes Bit 3 VOLUME BAR / 0 = no / 1 = yes	Bit 4 DTI / 0 = no / 1 = yes Bit 5 Time out / 0 = no / 1 = yes Bit 6 Vertical blanking / 0 = DPU / 1 = PIP Bit 7 S-Filter / 0 = no / 1 = yes		4 BB
12. BB	IIC Bit 0 Tuner/ IC2/ TV tuner PLL/ TSA 5511 Bit 1 STEJ/ IC401/ IF I-O/ PCF 8574/ FM radio Bit 2 STEJ/ IC200/ FM PLL/ TSA 6057/ FM radio Bit 3 STSS/ IC003/ Cross point 1 switch/ TEA 6415/ SCART3, Record select	Bit 4 STSS/ IC007/ Crosspoint 2 switch/ TEA 6415/ Record select Bit 5 STSS/ IC001/ Interface I-O/ PCF 8574/ Rec. select, SCART2 & SCART3 video & SCART1-3 16:9 identification Bit 6 STSS/ IC005/ Interface 2 I-O/ PCF 8574/ Fixed level RCA output Bit 7 STSS/ IC002/ Audio cross 1/ TEA 6420/ SCART3, Record select		
13. BB	IM (&IIC) Bit 0 STB/ IC250/ TPU/ TPU 2735 Bit 1 STQM/ IC301/ PIP DPU/ VSP 2860/ PIP Bit 2 STQM/ IC203/ PIP memory/ NVM 3060/ PIP Bit 3 STBM/ IC1/ Added memory/ NVM 3060/ If missing, TV works like 4:3 TV	Bit 4 STSS/ IC006/ Audio cross 2/ TEA 6420/ Record select Bit 5 free Bit 6 STQM/ IC201/ Video switch IC/ TEA 6415 Bit 7 STN/ IC02/ SAT CITAC/ SAB 3037/ Satellite receiver		
14. PH	PH PH Horizontal centering PIP Horizontale Bildverschiebung Cadrage horizontal PIP Centratura orizzontale PIP	PA PA Colour synchronization, PIP Farbsynchronisation, PIP Synchronisation couleurs, PIP Sincronizzazione colore, PIP		Selection of PIP programme PIP-Programmwahl Sélection du programme PIP Selezione programma PIP
15. BB	PIP option bits Bit 0 = border → 0 = blue / blau 1 = black / schwarz Bit 1 = curtains → 0 = grey / grau 1 = black / schwarz 2 ... 7 = -			
16.+17.	Satellite - 70 -			

4. Einstellgruppe
4th adjustment group
4ème groupe de réglage
Quarta gruppo di regolazione

dC dL
Chrominance delay
ud ud
Chrominance/Luminance delay



5. Einstellgruppe
5th adjustment group
5ème groupe de réglage
Quinta gruppo di regolazione



- / - -

Speichern
Memorizing
Memorizza-
zione

Programme selection
Programmwahl
Sélection du
programme
Selezione di
programma

1/2 digits
1/2 Nummer
1/2 numéros
1/2 cifre

Z1 11



Trapezium distortion correction 2
2. Korrektur der Trapezverzerrung
Correction de trapèze 2
Correzione dell'effetto trapezio 2

C1 11



Pincushion distortion correction 2
2. Korrektur der Kissenverzerrung
Correction est-ouest 2
Correzione dell'effetto cuscino 2

4/3 picture
16/9 Full screen
4/3 pict.+multiPOP
4/3 picture RGB
4/3 Full screen
4/3 Full screen+Lift
4/3 Wide screen
4/3 Wide screen+Lift

St 5r



DTI start time
Einschaltzeitpunkt der Farbschärferegulung
Moment de démarrage DTI
Punto d'inizio del DTI

Sp 5r



DTI stop time
Abschaltzeitpunkt der Farbschärferegulung
Moment de la fin DTI
Punto di fine del DTI

Co 1a



Contrast
Kontrast
Contraste
Contraste

br br



Brightness
Helligkeit
Luminosité
Luminosità

G2

G2 voltage
G2-Spannung
Tension G2
Tensione di G2

MENU



OK/→M

Co 1a



Contrast
Kontrast
Contraste
Contraste

br br



Brightness
Helligkeit
Luminosité
Luminosità

Co 1a



Contrast
Kontrast
Contraste
Contraste

Page selection
Seitenwahl
Sélection de page
Selezione pagina

1
8.

0...7
Option bit settings
Einstellen des Option-Bits
Réglage des options
Impostazione del byte di controllo

2
8.

0...7
Option bit settings
Einstellen des Option-Bits
Réglage des options
Impostazione del byte di controllo

3
8.

0...7
Option bit settings
Einstellen des Option-Bits
Réglage des options
Impostazione del byte di controllo.

4
8.

0...7
Option bit settings
Einstellen des Option-Bits
Réglage des options
Impostazione del byte di controllo

MENU



OK/→M

EXIT

**Einstellelemente / Adjusting elements /
Éléments de réglage / Elementi di regolazione**

Funktion / Function Fonction / Funzione	Tasten/ Buttons/ Touches/ Tasti		
	NOKIA	SALORA	LUXOR / SCHAUB LORENZ
Einstellebenen aufwärts Adjustment planes upwards Plaines de réglage en montant Pianura di regolazione in alto	TV ↑	▲ +	◀ ▶ +
Einstellebenen abwärts Adjustment planes downwards Plaines de réglage en bas Pianura di regolazione di declino	TV ↓	▼ -	◀ ▶ -
1. Einstellgruppe 1st adjustment group 1er groupe de réglage Prima gruppo di regolazione			
2. Einstellgruppe 2nd adjustment group 2ème groupe de réglage Seconda gruppo di regolazione			
3. Einstellgruppe 3rd adjustment group 3ème groupe de réglage Terza gruppo di regolazione			
4. Einstellgruppe 4th adjustment group 4ème groupe de réglage Quarta gruppo di regolazione		TV/ ◀◀	□ / ◀◀
5. Einstellgruppe 5th adjustment group 5ème groupe de réglage Quinta gruppo di regolazione	AUDIO / VIDEO		- / ◀
Zurück zu 1. Einstellgruppe (Anzeige SP) Return to 1st adjustment group (Displ. SP) Retour au 1er groupe de réglage (Indic. SP) Ritorno al prima di regolaz. (Ind. SP)		i	i
Ausführung hängt von der Einstellebene ab Operation depends on adjustment plane Le fonction dépend du plaine de réglage La funzione dipende dal pianura di regolaz.	- / _ _	- / _ _	- / _ _
Ausführung hängt von der Einstellebene ab Operation depends on adjustment plane Le fonction dépend du plaine de réglage La funzione dipende dal pianura di regolaz.	0 ... 9	0...9	0...9
Speichern der Einstellungen Stores the adjustments Mémorise le réglages Memorizza le regolaciones	MENU	OK/→M	OK/→M
Beenden des Service-Mode (-> Standby) Exit from service mode Permet de sortir du mode de réglage Ritorno all normale funzione TV			

Service mode

IR-Sender / IR-Transmitter Émetteur IR / Trasmittitore IR	Tasten / Buttons / Touches / Tasti			
NOKIA	-/-- ^{*)}	MENU ^{*)}	TV ^{*)}	
SALORA			▶	▶▶
LUXOR/SCHAUB LORENZ	+	■	▶	-

*) Nahezu horizontale Position des IR-Senders ! / Almost horizontal position of the IR-Transmitter !
 Position quasiment horizontale de l'émetteur IR / Posizione quasi orizzontale del trasmettitore IR

Fig. 1

Übersicht für Einstellungen im PAL/SECAM/NTSC-Betrieb in Verbindung mit den versch. Gerätekonfigurationen
Overview of adjustment options in PAL/SECAM/NTSC operating mode, in conjunction with the various set configurations
Synoptique des réglages en mode PAL/SECAM/NTSC en liaison avec les différentes configurations d'appareil
Sommario per le regolazioni nel servizio PAL/SECAM/NTSC unitamente alle diverse configurazioni di apparecchio

PAL Cinescreen-Geometrien

	16/9 Full screen	4/3 picture	4/3 pict.+ multi POP	4/3 picture RGB	4/3 Full screen	4/3 Full screen +lift	4/3 Wide screen	4/3 wide screen +lift
SP								
dL								
SA								
dC								
ud								
AO								
HO								
SO								
YO								
ZO								
CO								
Z1								
C1								
K1								
K2								
St								
Sp								
cr								
cG								
cb								

Co Kontrastregelung/Contrast adjustment/Réglage du contraste/Regolazione contrasto
 br Helligkeitsreg./Brightness adj./Réglage de la luminosité/Regolazione luminosità

db
dr
dG
HA
CA
CL

- Auswahlbyte1/Option byte1/Octet de selection1/Byte selezione1
 = Auswahlbyte2/Option byte2/Octet de selection2/Byte selezione2
 = Auswahlbyte3/Option byte3/Octet de selection3/Byte selezione3

h Zusätzliche Auswahlbyte/Additional option byte/
 Octet de sélection supplémentaire/Byte selezione supplém.

L I²C-Schaltungen/circuits/Cicuits/Circuiti
 t IM(&I²C)Schaltungen/circuits/Circuits/Circuiti

PR
PH

PIP-Auswahlbits/PIP option bits/Bits de selection PIP/Bits selezione PIP
 5 Satellitenbits/Satellite bits/Bits satellite/Bits satellite

5F Auswählen von Satelliten-LNB und LNB-frequenz
 Selection of satellite LNB and LNB frequency
 Sélection du LNB satellite et de la fréquence LNB
 Selezione LNB satellite e frequenza LNB

SECAM Cinescreen-Geometrien

	16/9 Full screen	4/3 picture	4/3 pict.+ multi POP	4/3 picture RGB	4/3 Full screen	4/3 Full screen +lift	4/3 Wide screen	4/3 wide screen +lift
SP								
dL								
SA								
dC								
ud								
AO								
HO								
SO								
YO								
ZO								
CO								
Z1								
C1								
K1								
K2								
St								
Sp								
cr								
cG								
cb								

Co Kontrastregelung/Contrast adjustment/Réglage du contraste/Regolazione contrasto
 br Helligkeitsreg./Brightness adj./Réglage de la luminosité/Regolazione luminosità

db
dr
dG
HA
CA
CL

- Auswahlbyte1/Option byte1/Octet de selection1/Byte selezione1
 = Auswahlbyte2/Option byte2/Octet de selection2/Byte selezione2
 = Auswahlbyte3/Option byte3/Octet de selection3/Byte selezione3

h Zusätzliche Auswahlbyte/Additional option byte/
 Octet de sélection supplémentaire/Byte selezione supplém.

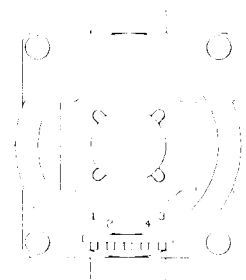
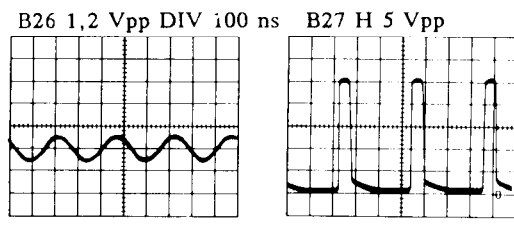
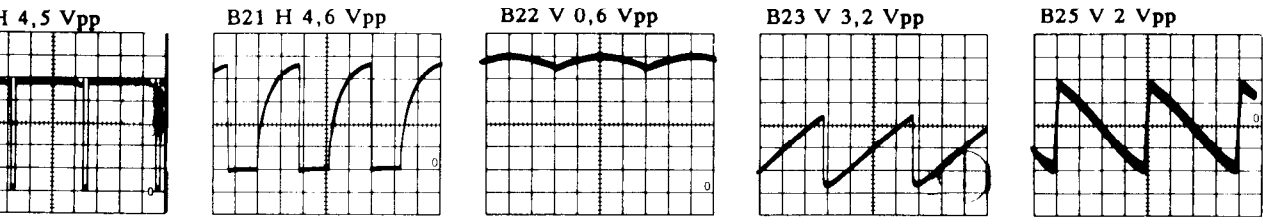
L I²C-Schaltungen/circuits/Cicuits/Circuiti
 t IM(&I²C)Schaltungen/circuits/Circuits/Circuiti

PR
PH

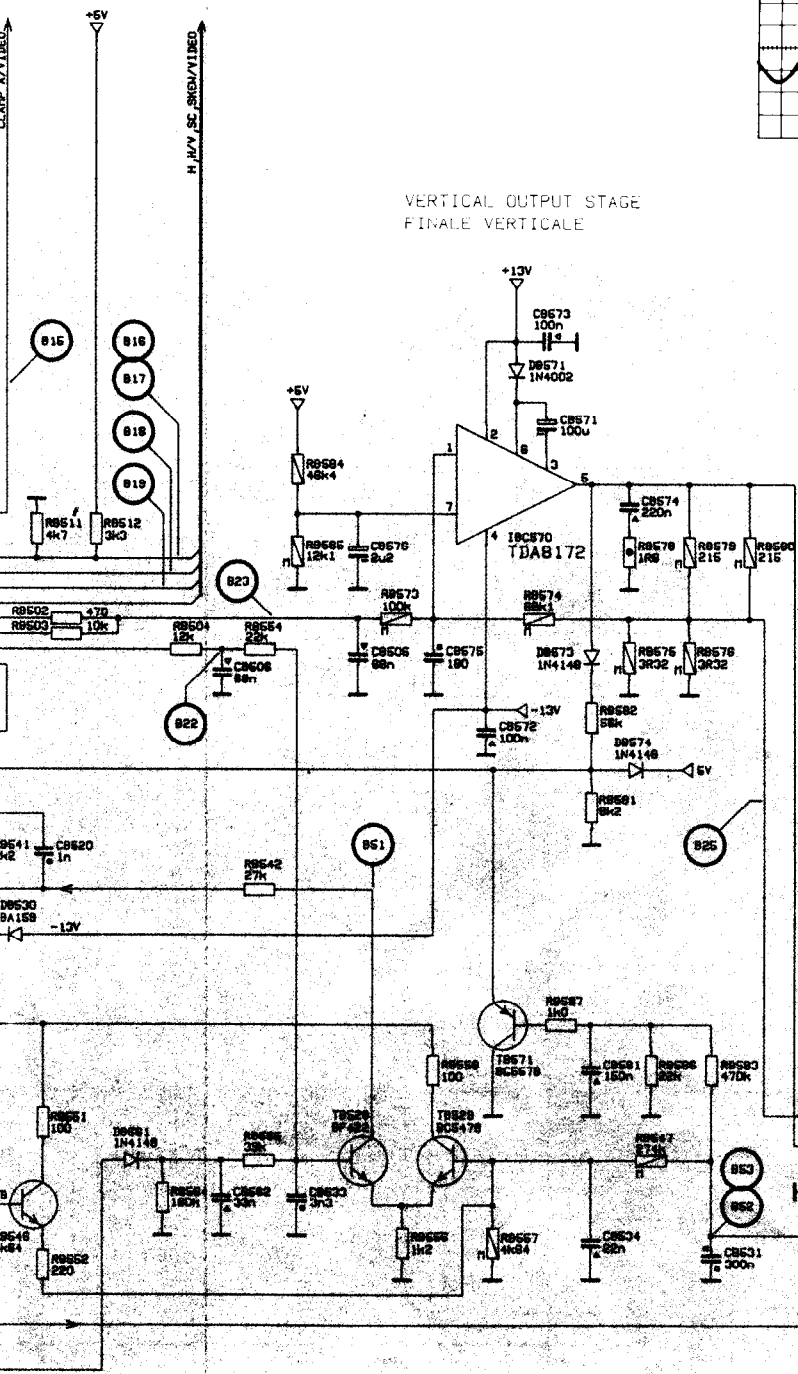
PIP-Auswahlbits/PIP option bits/Bits de selection PIP/Bits selezione PIP
 5 Satellitenbits/Satellite bits/Bits satellite/Bits satellite

5F Auswählen von Satelliten-LNB und LNB-frequenz
 Selection of satellite LNB and LNB frequency
 Sélection du LNB satellite et de la fréquence LNB
 Selezione LNB satellite e frequenza LNB

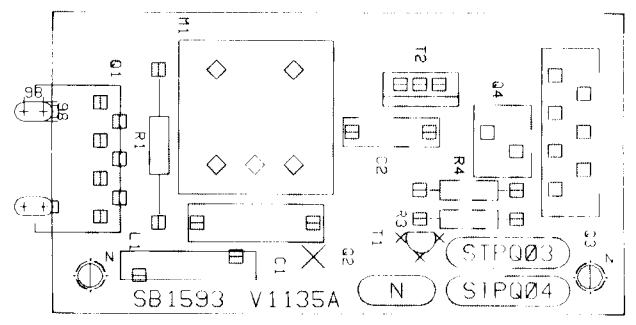
- PAL**
- Basiseinstellwerte fuer PAL-Fernsehgeraete mit 16:9-Bildseitenverhaeltnis / Basic Adjustment values for PAL 16:9 picture ratio TV sets
Val.de réglage de base pour télév.PAL à format d'image 16:9 / Valori regolazione base per televisori PAL con rapporto d'immagine 16:9
 - Gesonderte Einstellwerte fuer PAL-Fernsehgeraete mit 4:3-Bildseitenverhaeltnis / Separate adjustment values for PAL 4:3 picture ratio
Val.de réglage spéciales pour télév.PAL à format d'image 4:3 / Valori regolazione particolari per televisori PAL con rapporto d'immagine 4:3
 - Gesonderte Einstellwerte fuer PAL-Fernsehgeraete mit 4:3-Bildseitenverhaeltnis POP / Separate adjustment values for PAL 4:3 POP picture ratio
Val.de réglage spéciales pour télév.PAL à format d'image 4:3 POP / Valori regolazione particolari per televisori PAL con rapporto d'immagine POP 4:3
 - Gesonderte Einstellwerte fuer PAL-Fernsehgeraete mit 4:3-Bildseitenverhaeltnis RGB / Separate adjustment values for PAL 4:3 RGB picture ratio
Val.de réglage spéciales pour télév.PAL à format d'image 4:3 RVB / Valori regolazione particolari per televisori PAL con rapporto d'immagine BVB 4:3
 - Gesonderte Einstellwerte fuer PAL-Fernsehgeraete mit 4:3-Bildseitenverhaeltnis Vollformat / Separate adjustment values for PAL 4:3 full screen picture ratio
Val.de rég. spéc. pour télév.PAL à format d'image 4:3 format entier / Valori regolazione particolari per telev. PAL con rapporto d'immagine formato massimo 4:3
 - Gesonderte Einstellwerte fuer PAL-Fernsehgeraete mit 4:3-Bildseitenverhaeltnis Vollformat + Bildverschiebung nach oben
Separate adjustment values for PAL 4:3 full screen + lift picture ratio
Val.de réglage spéc. pour télév.PAL à format d'image 4:3 + déplacement d'image vers le haut
Valori regolazione particolari per televisori PAL con rapporto d'immagine formato massimo 4:3 + spostamento immagine verso l'alto
 - Gesonderte Einstellwerte fuer PAL-Fernsehgeraete mit 4:3-Bildseitenverhaeltnis Breitformat / Separate adjustment values for PAL 4:3 wide screen picture ratio
Val.de rég. spéc. pour télév.PAL à format d'image 4:3 format large / Valori regolazione particolari per telev. PAL con rapporto d'immagine 4:3 formato panoramico
 - Gesonderte Einstellwerte fuer PAL-Fernsehgeraete mit 4:3-Bildseitenverhaeltnis Breitformat + Bildverschiebung nach oben
Separate adjustment values for PAL 4:3 wide screen + lift picture ratio
Val.de réglage spéc. pour télév.PAL à format d'image 4:3 format large + déplacement d'image vers le haut
Valori regolazione particolari per televisori PAL con rapporto d'immagine 4:3 formato panoramico + spostamento immagine verso l'alto
- SECAM**
- Basiseinstellwerte fuer SECAM-Fernsehgeraete mit 16:9-Bildseitenverhaeltnis / Basic Adjustment values for SECAM 16:9 picture ratio TV sets
Val.de réglage de base pour télév.SECAM à format d'image 16:9 / Valori regolazione base per televisori SECAM con rapporto d'immagine 16:9
 - Gesonderte Einstellwerte fuer SECAM-Fernsehgeraete mit 4:3-Bildseitenverhaeltnis / Separate adjustment values for SECAM 4:3 picture ratio
Val.de réglage spéciales pour télév.SECAM à format d'image 4:3 / Valori regolazione particolari per televisori SECAM con rapporto d'immagine 4:3
 - Gesonderte Einstellwerte fuer SECAM-Fernsehgeraete mit 4:3-Bildseitenverhaeltnis POP / Separate adjustment values for SECAM 4:3 POP picture ratio
Val.de réglage spéciales pour télév.SECAM à format d'image 4:3 POP / Valori regolazione particolari per televisori SECAM con rapporto d'immagine POP 4:3
 - Gesonderte Einstellwerte fuer SECAM-Fernsehgeraete mit 4:3-Bildseitenverhaeltnis Breitformat / Separate adjustment values for SECAM 4:3 wide screen picture ratio
Val.de rég. spéc. pour télév.SECAM à format d'image 4:3 format large / Valori regolazione particolari per telev. SECAM con rapporto d'immagine 4:3 formato panoramico



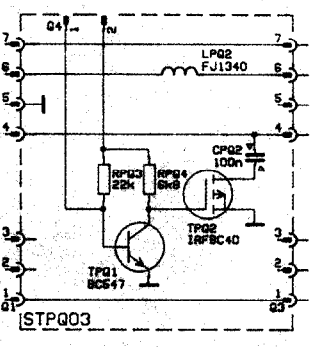
367-A/BEECT13X01
327-A/BEECT13X01
347-A/BEELX13X010



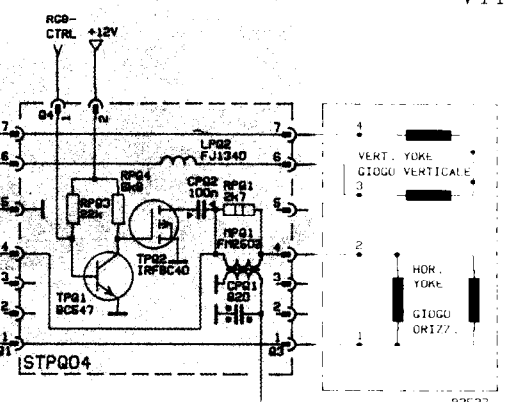
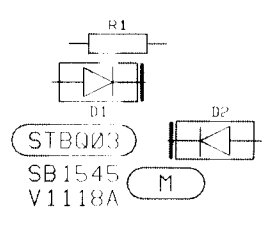
VERTICAL OUTPUT STAGE
FINALE VERTICALE



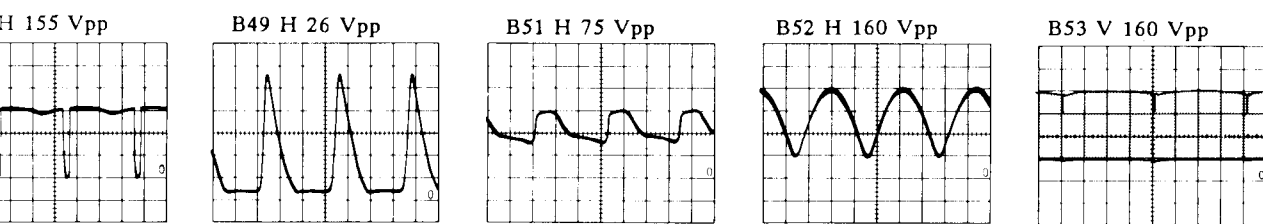
Focus dynamic
STPQ 03/04



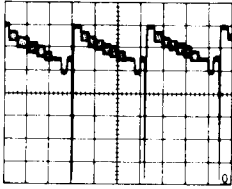
Diode module
STBQ 03



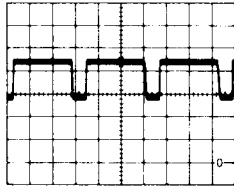
STH.../
DYN. FOCUS



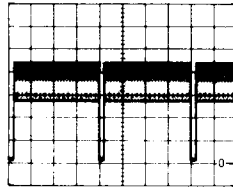
B15 H 7 Vpp



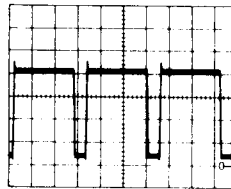
B16 H 1,5 Vpp



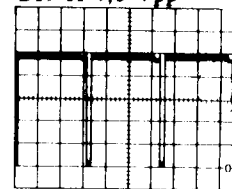
B17 V 4 Vpp



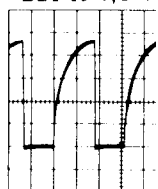
B18 H 3,5 Vpp



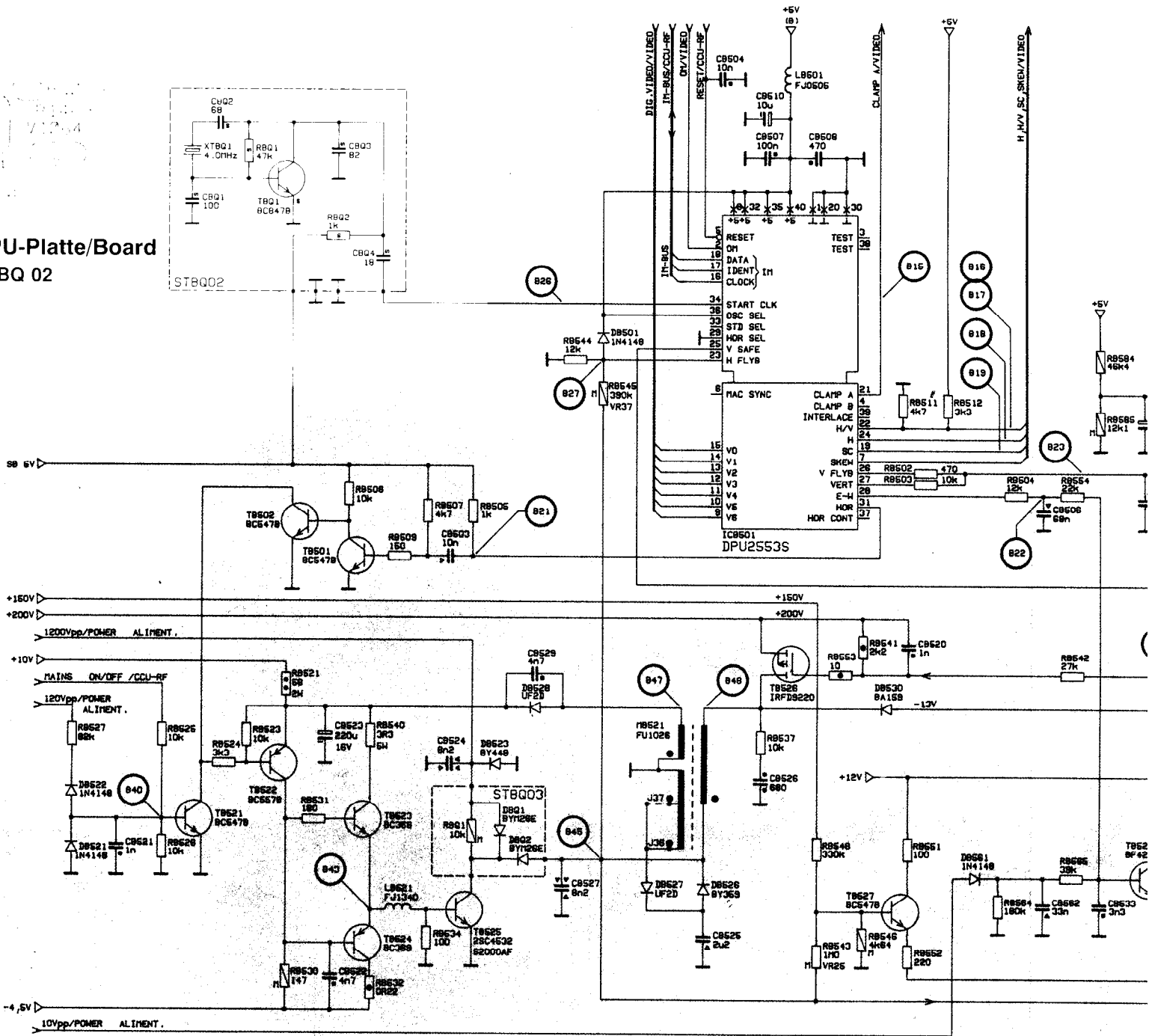
B19 H 4,5 Vpp



B21 H 4,6 V

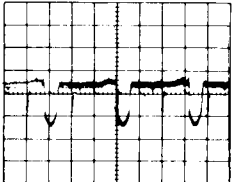


DPU-Platte/Board
STBQ 02

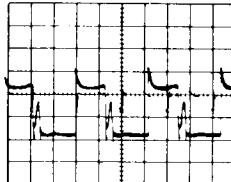


LINE OUTPUT STAGE
FINALE ORIZZONTALE

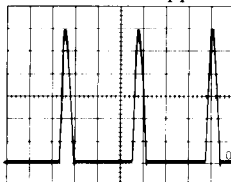
B40 H Vpp



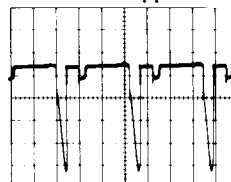
B43 H 6 Vpp



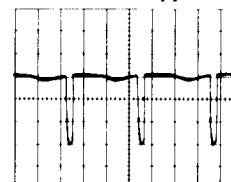
B45 H 1100 Vpp



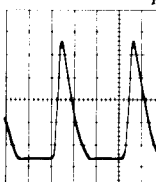
B47 H 48 Vpp



B48 H 155 Vpp



B49 H 26 V

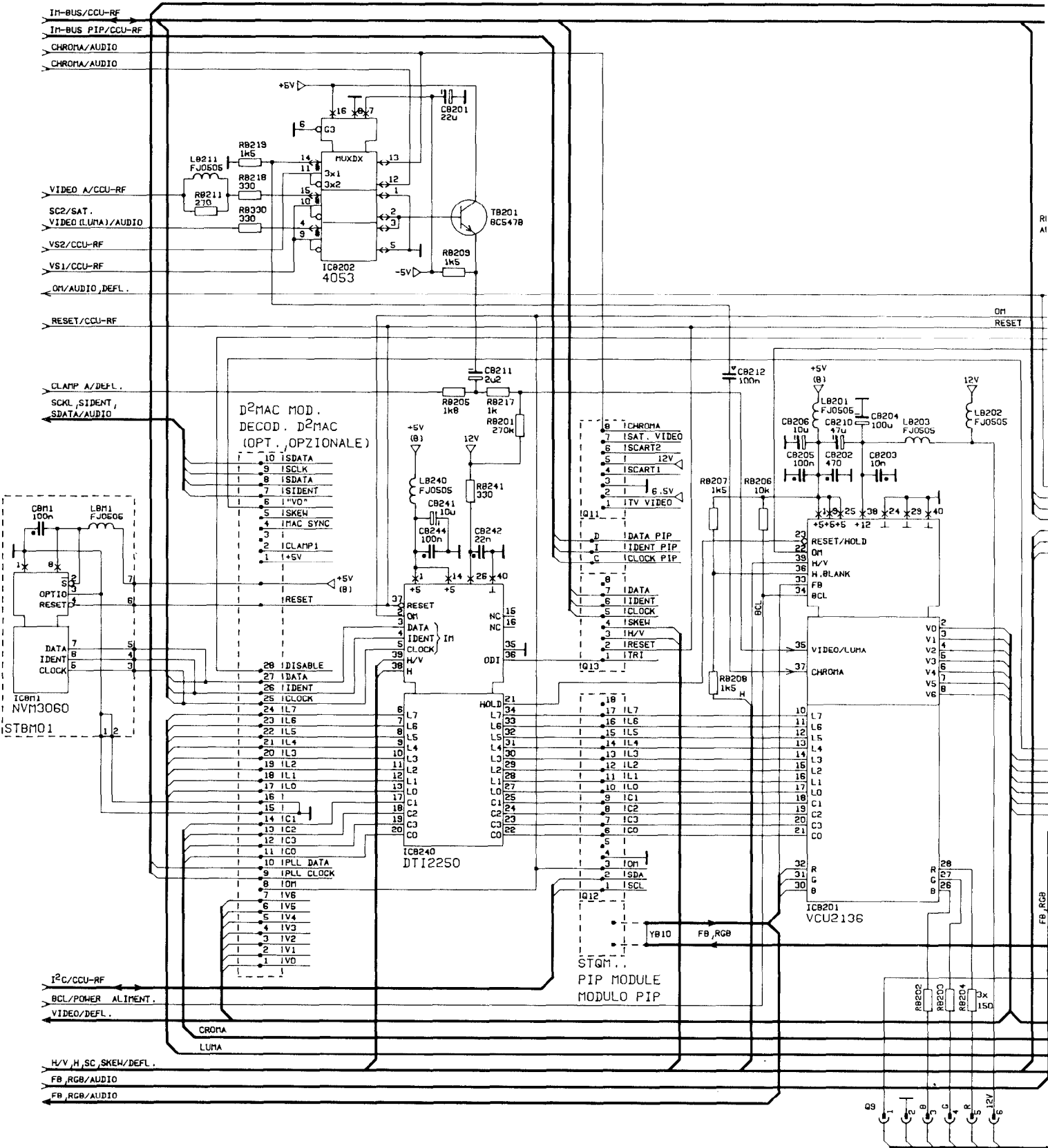
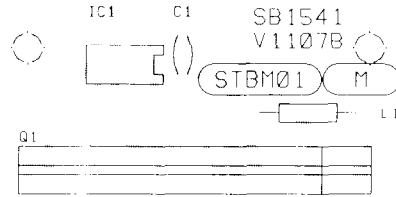


Netzteil/Power supply
Ablenkung/Deflection

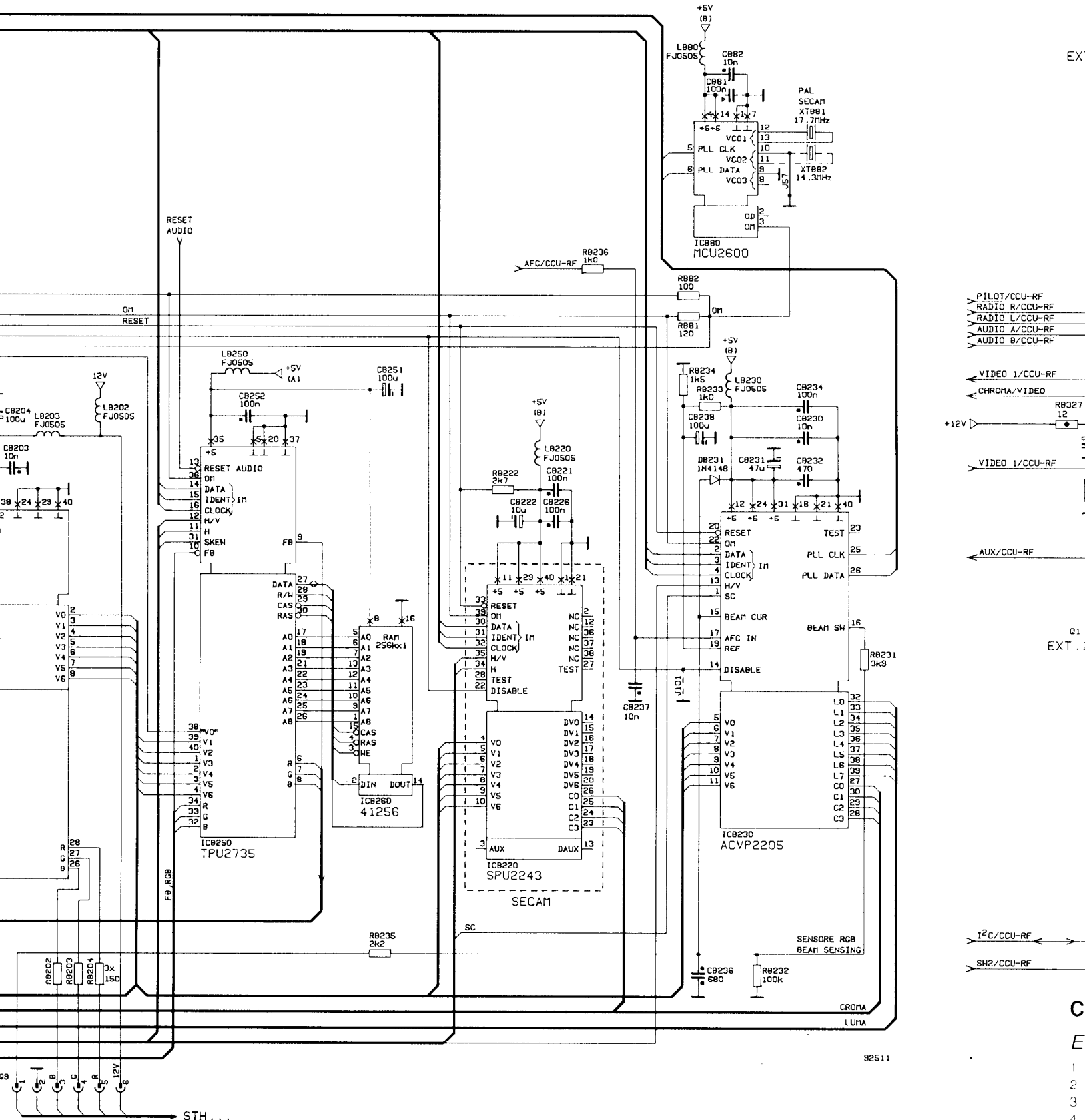
Bildspeicher-Modul
Geometry memory module
STBM 01

STB...

AUDIO/VIDEO



STB...VIDEO



92511

STH...

EX

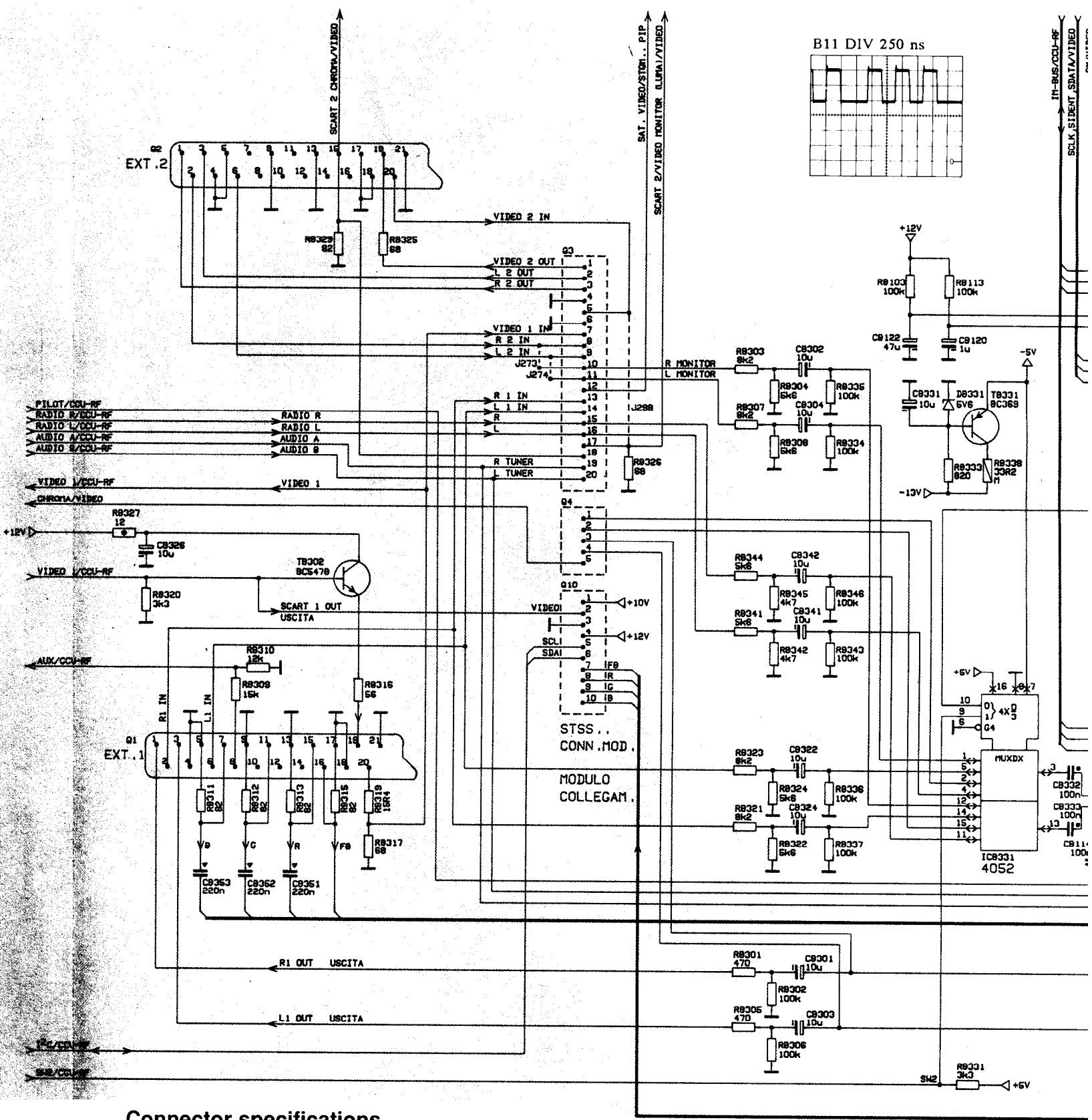
Q1
EXT

C
E

1
2
3
4
5
6
7
8
9
10

STB..AUDIO

STB...



Connector specifications

EXT1 (IEC 933-1)

- 1 Audio out, right channel 0.5 V_{RMS}
- 2 Audio in, right channel 0.5 V_{RMS}
- 3 Audio out, left channel 0.5 V_{RMS}
- 4 Ground (audio)
- 5 Ground (blue)
- 6 Audio in, left channel 0.5 V_{RMS}
- 7 RGB input, blue
- 8 Switching voltage
- 9 Ground (green)
- 11 RGB input, green

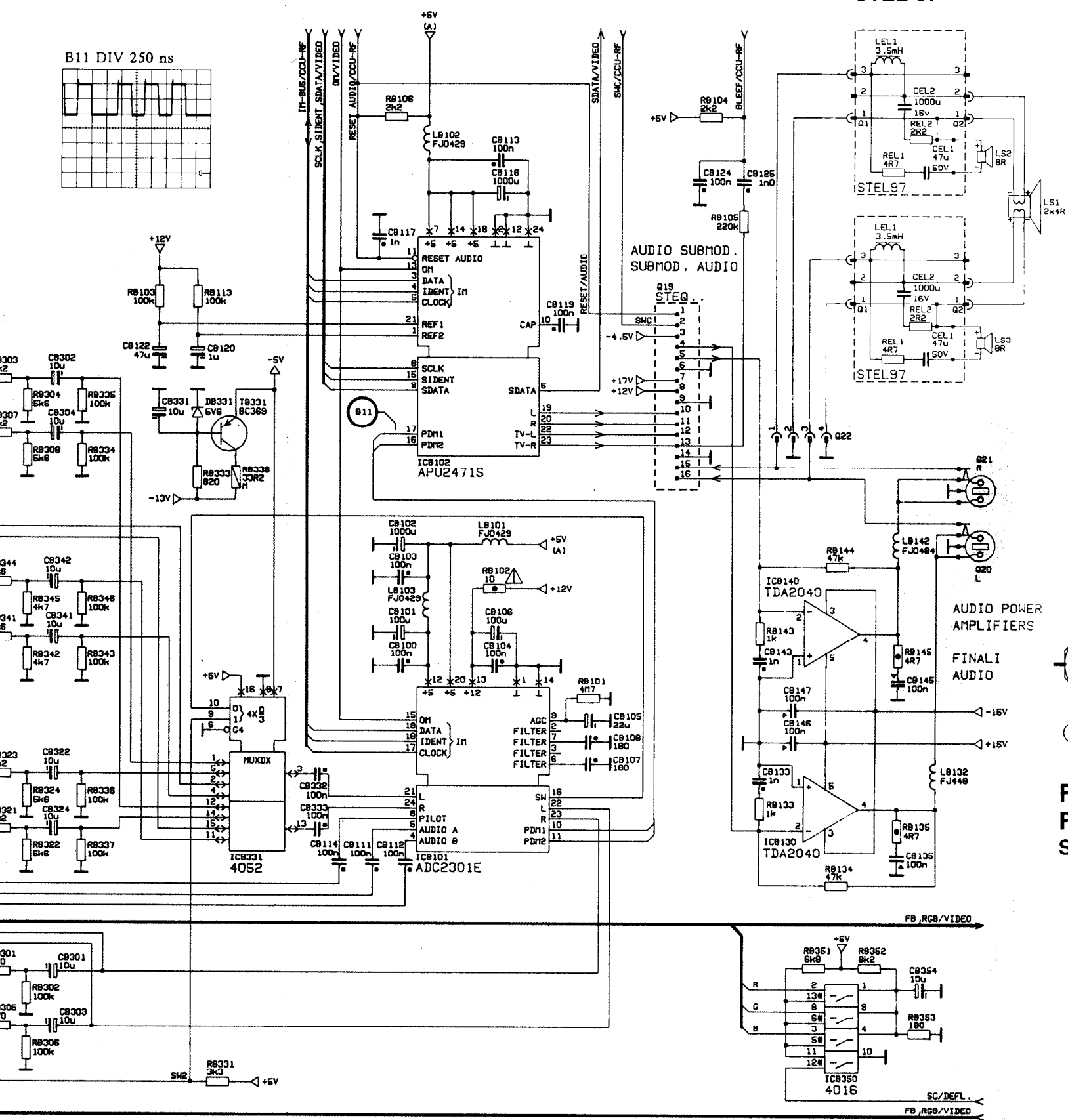
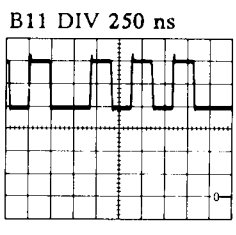
- 13 Ground (red)
- 14 Ground (blanking)
- 15 RGB input, red
- 16 Switching voltage, RGB (blanking)
- 17 Ground (video out)
- 18 Ground (video in)
- 19 Video out 1 Vpp/75 ohm
- 20 Video in 1 Vpp/75 ohm
- 21 Screen
- 10, 12 Not used

EXT2 (IEC 933-1)

- 1 Audio out, right channel 0.5 V_{RMS}
- 2 Audio in, right channel 0.5 V_{RMS}
- 3 Audio out, left channel 0.5 V_{RMS}
- 4 Ground (audio)
- 5 Ground
- 6 Audio in, left channel 0.5 V_{RMS}
- 9 Ground
- 13 Ground
- 15 S-VIDEO input (croma)
- 17 Ground
- 18 Ground
- 19 Video out
- 20 Video in
- 21 Screen
- 7, 8, 10, 11, 12

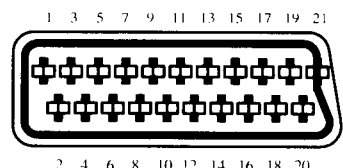
STB...

STEL 97

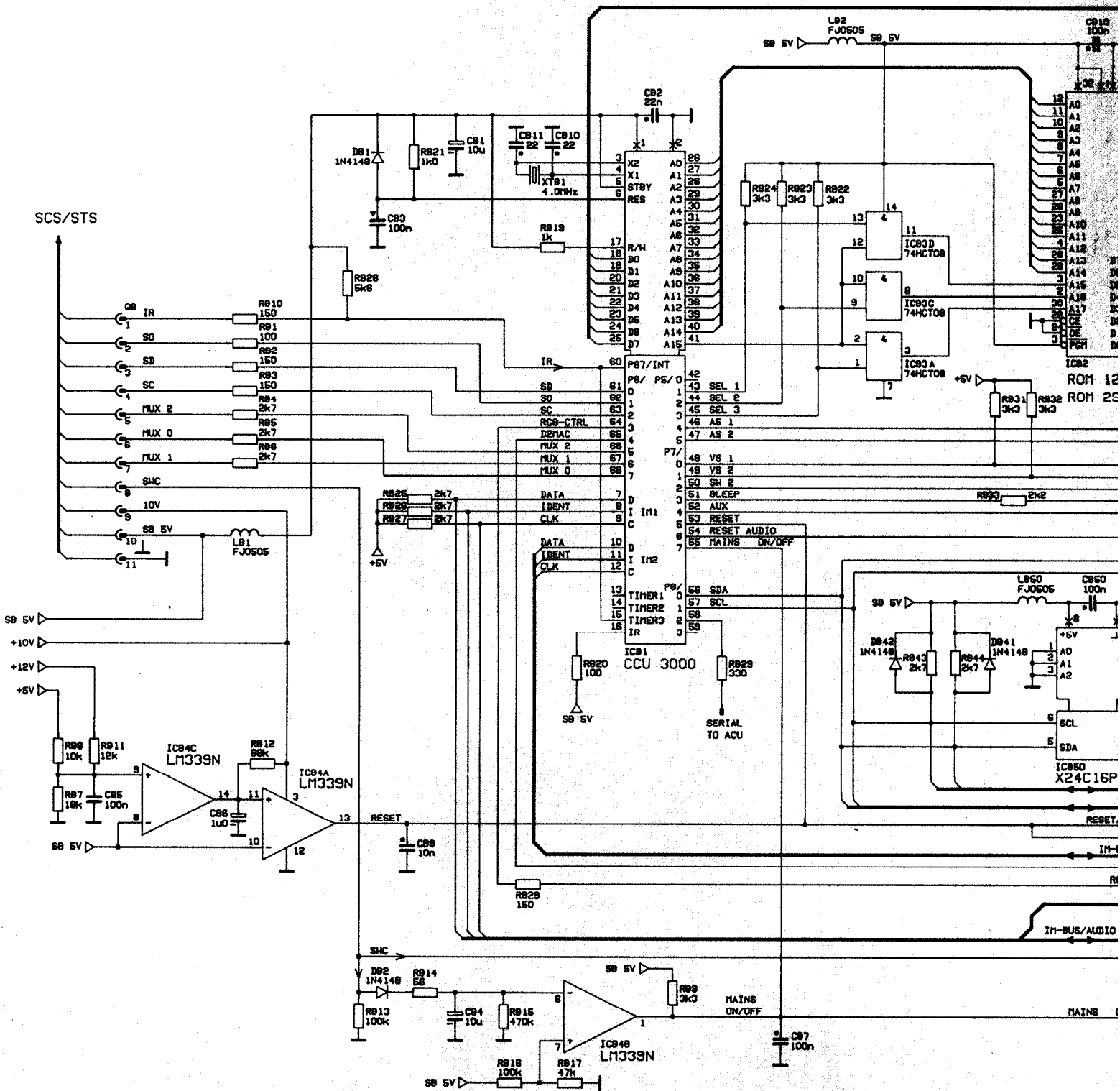


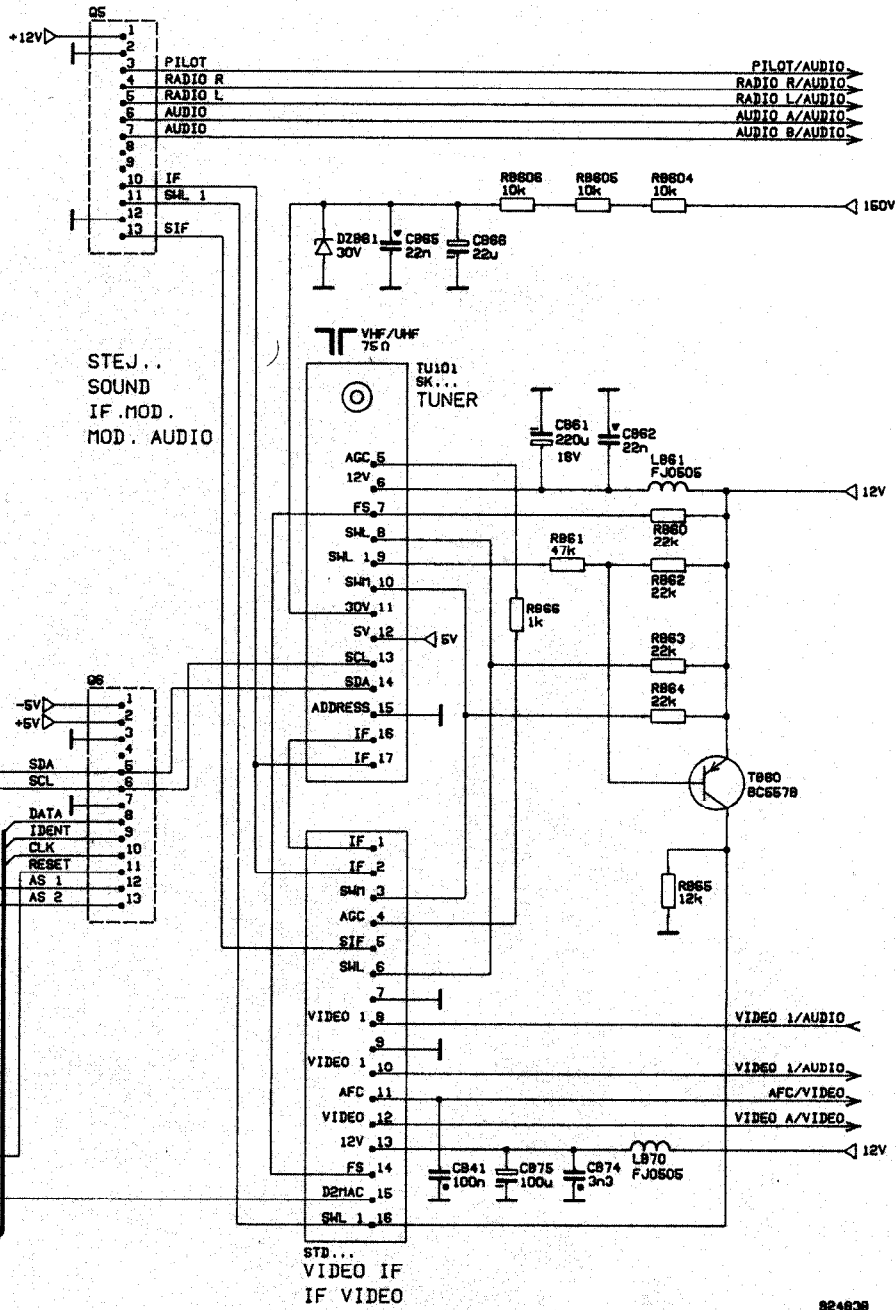
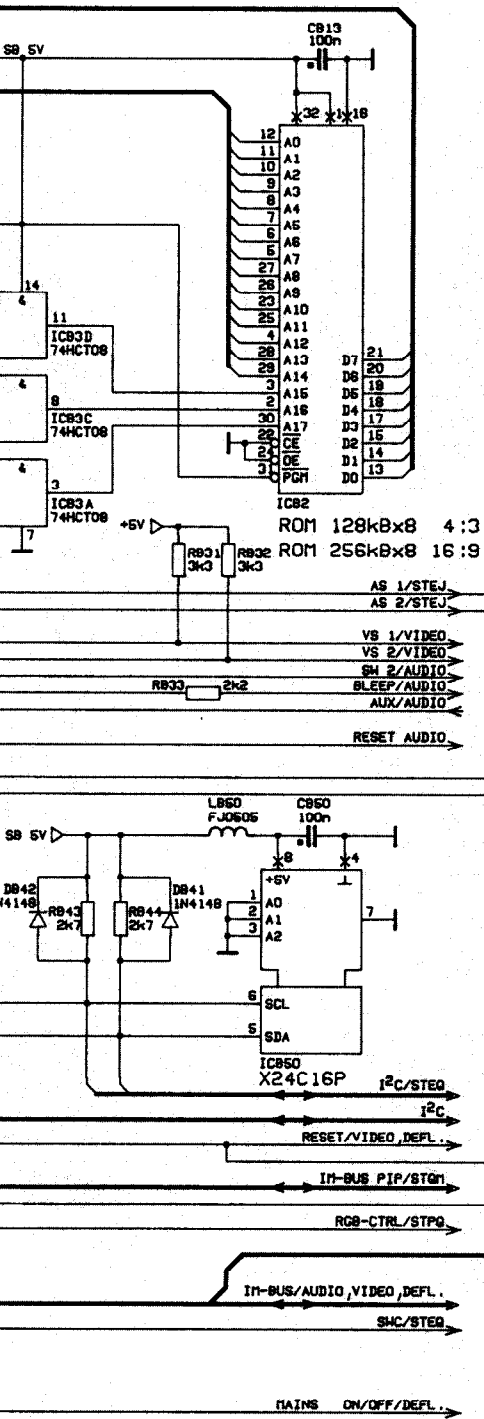
XT2 (IEC 933-1)

- Audio out, right channel 0.5 V_{RMS}
- Audio in, right channel 0.5 V_{RMS}
- Audio out, left channel 0.5 V_{RMS}
- Ground (audio)
- Ground
- Audio in, left channel 0.5 V_{RMS}
- Ground
- Ground
- S-VIDEO input (croma)
- 17 Ground (video out)
- 18 Ground (video in)
- 19 Video out 1 Vpp/75 ohm
- 20 Video in 1 Vpp/75 ohm
- 21 Screen
- 7, 8, 10, 11, 12, 14, 16 Not used



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