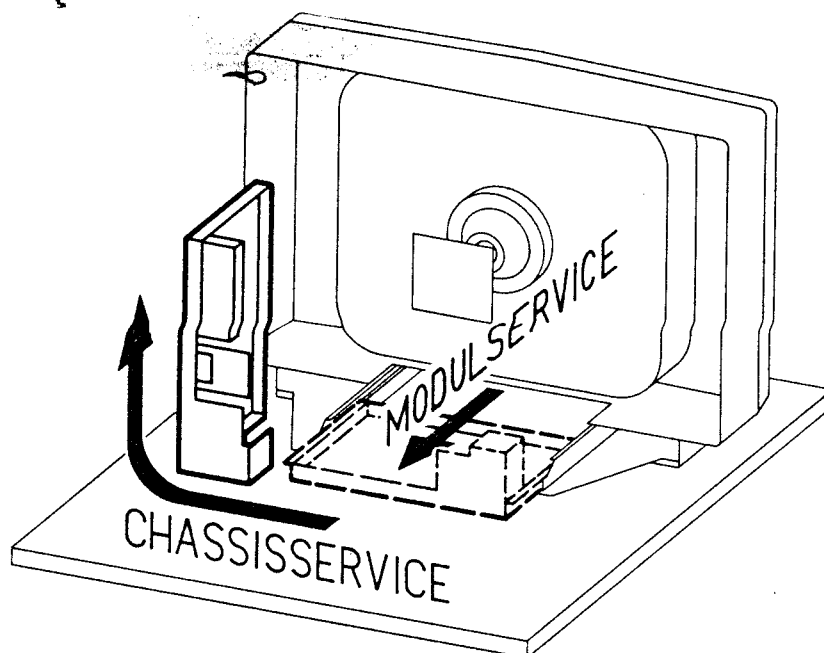




GRUNDIG

Ⓢ Btx ★ 32700 #

SERVICE MANUAL



CUC 5820
CUC 5835
CUC 5860
CUC 5880

M 55 - 575 Text	(9.25587-02)
M 63 - 575 Text	(9.25593.06)
M 63 - 575 / 9 Text	(9.25593-02)
M 63 - 575 NIC	(9.25593.68)
M 70 - 590 / 9 TOP	(9.25597-02)
M 70 - 590 NIC	(9.25597-68)
M 70 - 595 / 9 TOP	(9.25599-02)
ST 82 - 575 / 9 Text	(9.25545-02)
ST 82 - 575 NIC	(9.25545-68)
ST 82 - 575 / FT / GB	(9.25545-66)

Regel-, Überlast- und Leerlaufverhalten Abb.2

Ist der IC angelaufen, arbeitet er im Regelbereich. Die Spannung an Pin 1 beträgt typ. 400 mV. Wird der Ausgang an Pin 5 belastet, läßt der Regelverstärker breitere Ladeimpulse (U 5) zu. Der Spitzenwert der Spannung am Pin 2 steigt auf $U_{2S\text{Max}}$ an. Erhöht man die Sekundärlast weiter, beginnt der Überlastverstärker die Pulsbreite zurückzuregeln. Weil die Impulsbreitenänderung sich umkehrt, nennt man diesen Punkt den Umkehrpunkt des Netzteiles. Da die IC-Versorgungsspannung U_6 direkt proportional der Sekundärspannung ist, bricht sie gemäß des Überlastregelverhaltens zusammen. Unterschreitet U_6 den Wert $U_{6\text{Min}}$, geht der IC in den Abfragebetrieb über, d.h. ein neuer Einschaltversuch beginnt, U_6 steigt an, geht auf U_6 min. usw. Da die Zeitkonstante der Halbwellenladung an R 1 (Halbwellenanlauf) relativ groß ist, bleibt die Kurzschlußleistung gering. Der Überlastverstärker stellt dabei bis auf die Pulsbreite tpk (Impulsfolge bei Kurzschluß) zurück. Diese Pulsbreite muß möglich bleiben, damit der IC problemlos aus dem virtuellen Kurzschluß, den ja jedes Einschalten mit U_1 darstellt, anlaufen kann.

Entlastet man die Sekundärseite, werden die Ladeimpulse (U 5) schmäler. Die Frequenz steigt bis auf die Eigenfrequenz des Systems an. Entlastet man weiter, steigen die Sekundärspannungen und U_6 an. Bei $U_6 = U_{6\text{Max}}$ wird die Logik blockiert. Der IC geht in den Abfragebetrieb über. Dadurch wird die Schaltung absolut leerlaufsfähig (Sekundärseite ohne Belastung).

Verhalten bei Übertemperatur

Eine integrierte Temperatursicherung blockiert bei unzulässig hohen Chiptemperaturen die Logik. Der IC fragt automatisch seine Temperatur ab und sperrt sich, sobald die Temperatur auf unzulässige Werte steigt.

U_{GS}	U	Gate - Source
I_D	I	Drain
U_{DS}	U	Drain - Source

Regel- und Lastdiagramm

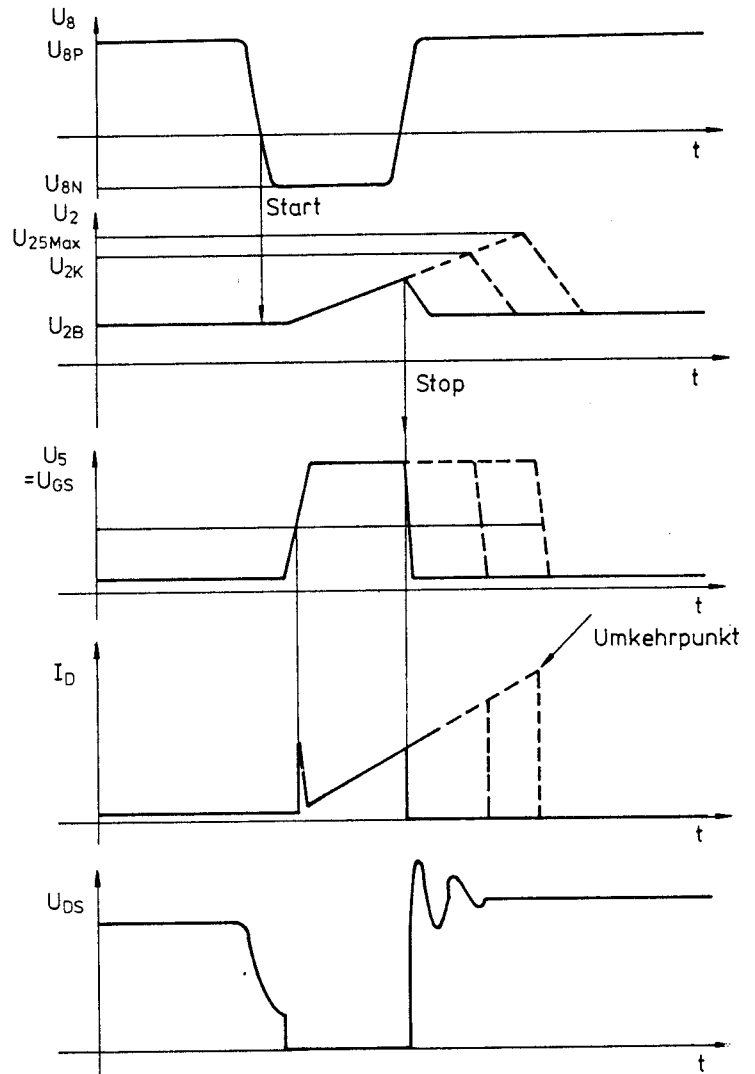
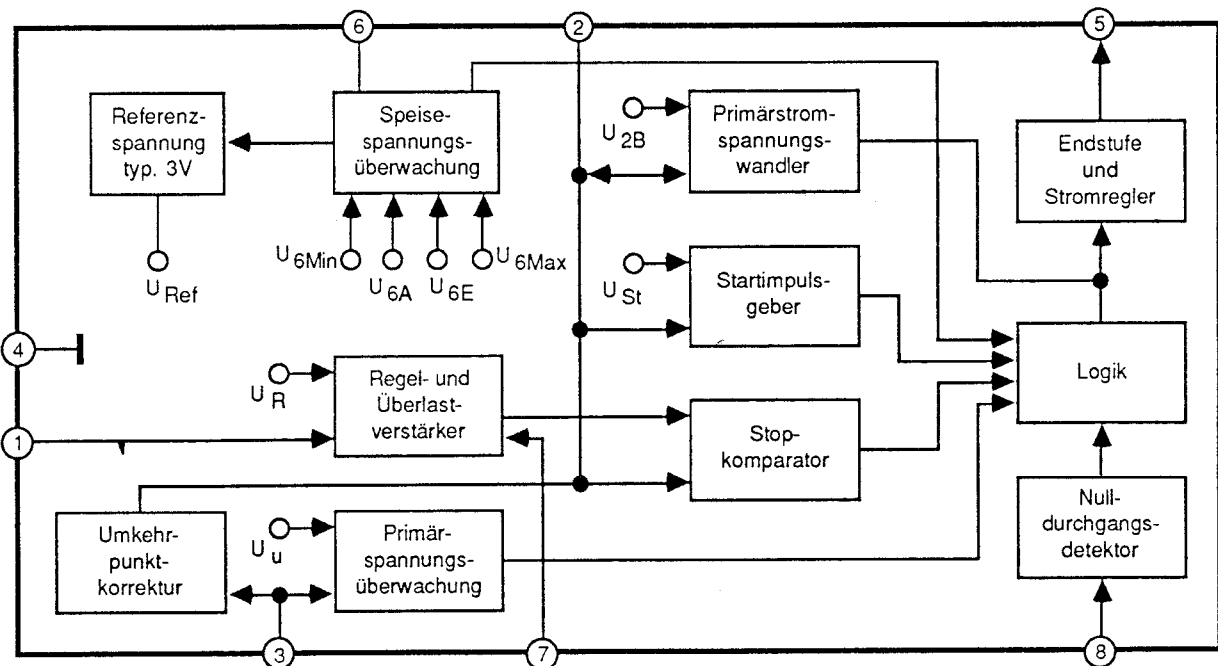
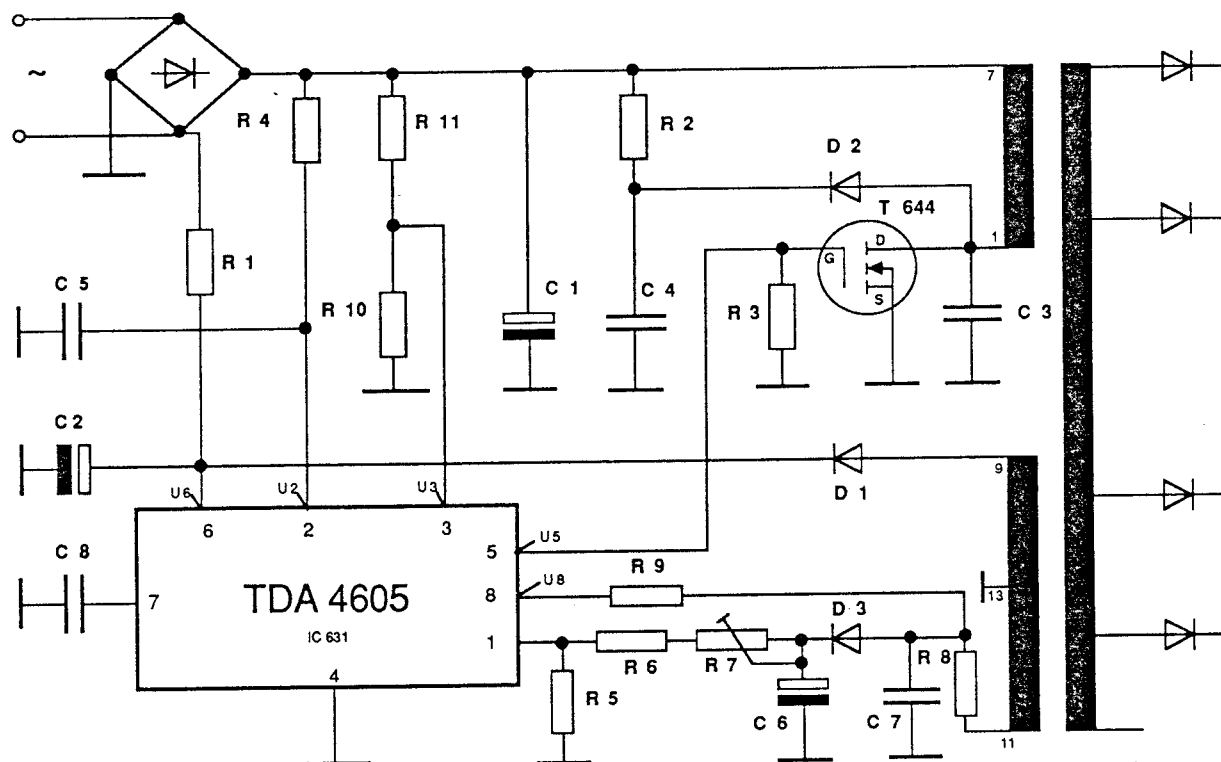


Abb. 2

Blockschaltbild



MAIN CIRCUIT DIAGRAM WITH A DESCRIPTION OF THE START-UP PROCESS



START-UP PROCESS

From the application of the Mains Voltage to Time t_0 the voltages applied to the IC rise as follows:

- U_6 (Pin 6) corresponds to the half-wave charging process via R1
- U_2 (Pin 2) to U_{2MAX}
- U_3 (Pin 3) to a value fixed by the divider R 10/R 11.

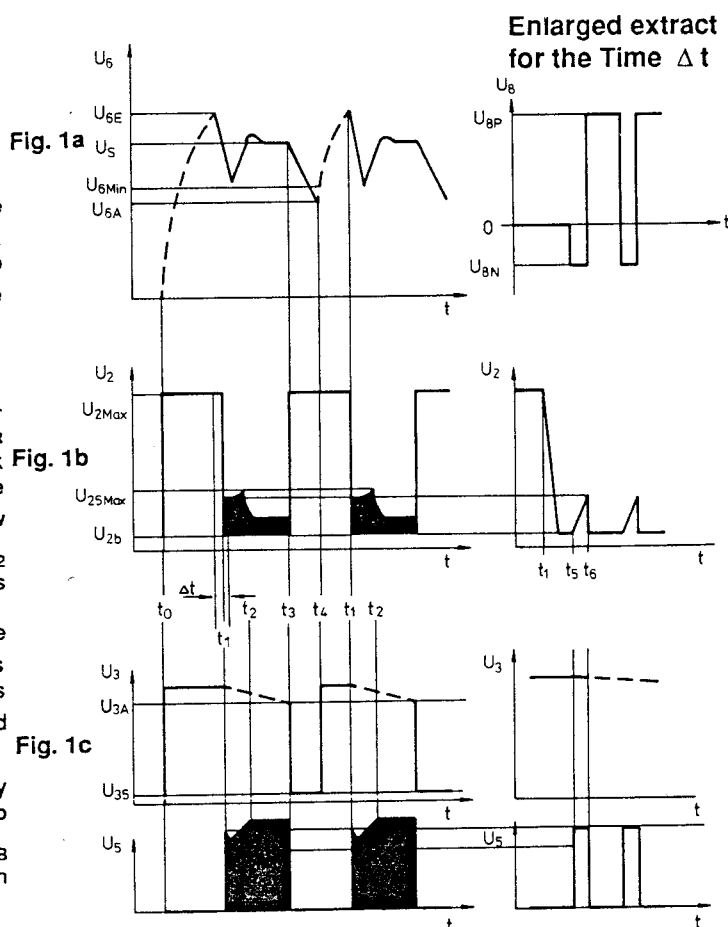
The current consumption of the IC in this operating mode is less than 1,6mA.

When U_6 reaches the Threshold U_{6E} (Time Point t_1), the IC switches the internal Reference Voltage on. The current consumption rises to a max. 12mA. The Primary Current-Voltage Converter controls U_2 to below the level on U_{2B} and from Time Point t_5 to t_6 the Start Pulse Circuit generates the Start Pulse. The Feedback to Pin 8 starts the next pulse and so on. All pulses, including the Start Pulse, are controlled in pulse width in relation to the Control Voltage on Pin 1. This corresponds, on Switch on, to the Short Circuit case, i.e. $U_1 = 0V$. During this the IC operates with "Short Circuit Pulses" which are then increased in pulse width due to the Control Voltage in the Feedback path. (The IC operates in the Overload Range). At Time Point t_2 the maximum pulse width is reached ($U_2 = U_{2B MAX}$). The IC operates now in reverse mode. Thereafter the peak value reduces quickly to U_2 because the IC is operating in the Control Range. The control loop is now in a steady state (locked in).

If the Voltage U_6 falls below the Switch Off Threshold U_{6MIN} before the reversal point is reached, the Start attempt is interrupted (Pin 5 is switched to LOW). As the IC remains switched on, the U_6 reduces further to U_{6A} . The IC switches off, U_6 can now rise (Time Point t_4) and a new switch on attempt can begin from Time Point t_1 .

When, due to loading, the rectified Mains Alternating Voltage (primary voltage) breaks down, U_3 reduces as indicated from Time Point t_3 to below U_{3A} . The Primary Voltage monitoring circuit clamps U_3 to U_{3B} until the IC switches off ($U_6 < U_{6A}$) at Time Point t_4 . Then a new switch on attempt begins from Time Point t_1 .

Start-Up Diagram



Control-, Overload- and No-Load Operation Behaviour (Fig 2)

If the IC has started up, it operates within a Control Range. The voltage on Pin 1 corresponds typically to 400 mV. If the output on Pin 5 is loaded, the Control Amplifier increases the pulse width of the charging pulse ($U_5=H$). The peak value of the voltage on Pin 2 rises to U_{2BMAX} . If the secondary load is increased, the Overload Amplifier commences to reduce the pulse width. Because the pulse width changes are in reverse, this is called the Reversal point of the Mains Stage. As the IC Supply Voltage U_6 is directly proportional to the secondary voltage, this now breaks down due to the behaviour of the Overload Control Circuit. If U_6 reduces below the value U_{6MIN} , the IC switches over to its sampling mode which means that a new switch on sample commences, U_6 rises, then falls to U_{6MIN} , etc. Because the Time Constant of the half cycle start up to $R1$ is relatively large, the Short Circuit power is low. The Overload Amplifier adjusts the pulse width back to tpk (pulse sequence as for "Short Circuit"). This Pulse Width must be held if possible so that even with a virtual short circuit, the IC can switch on again as shown from U_1 and start up without any problems.

If the load on Secondary side is reduced, the charging pulse ($U_5=H$) becomes smaller. The frequency rises to the natural frequency of the system. If the loading is further reduced, the secondary voltages and U_6 rise. When $U_6 = U_{6MAX}$, the Logic is blocked. The IC goes into the sampling mode. Due to this the circuit is absolutely reliable and free-running when operating with no load (Secondary side without load).

Behaviour with Over Temperatures

An integrated temperature protection circuit blocks the Logic when an unallowed high Chip Temperature is reached. The IC automatically samples the temperature and starts up when the temperature reduces to a permissible value.

- U_{GS} U Gate - Source
- I_D I Drain
- U_{DS} U Drain - Source

Fig. 2

Control- and Load Diagram

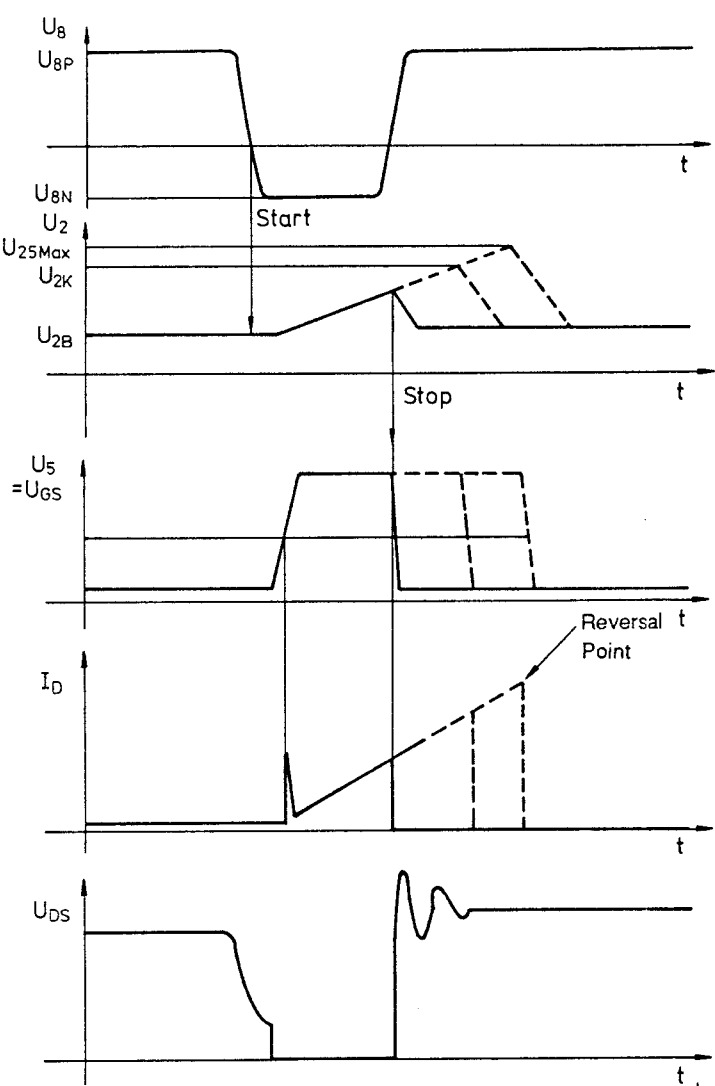
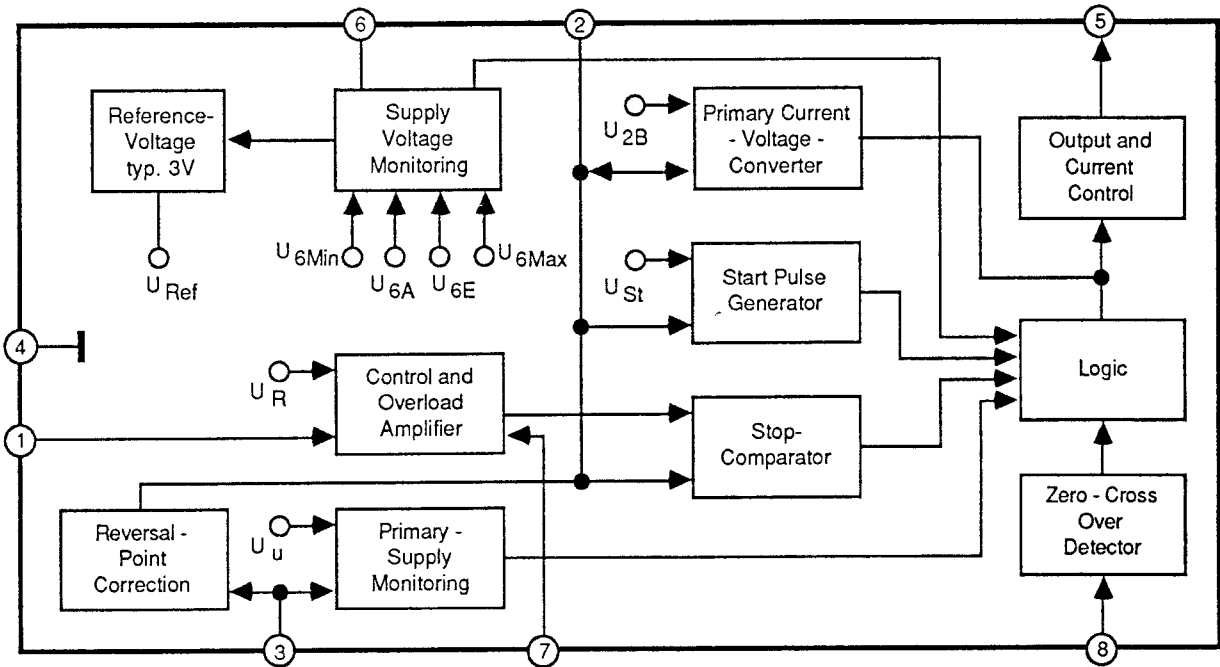
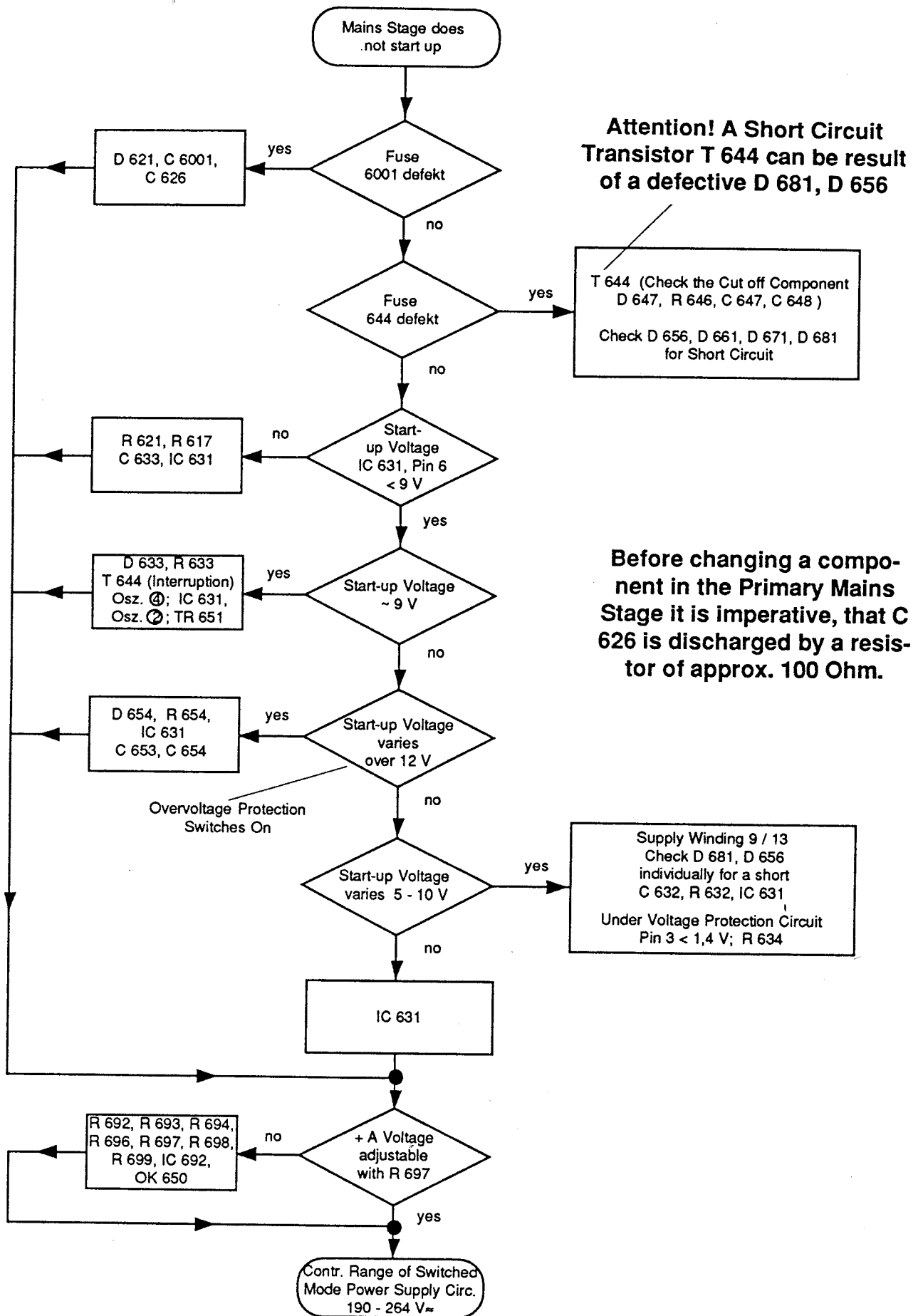


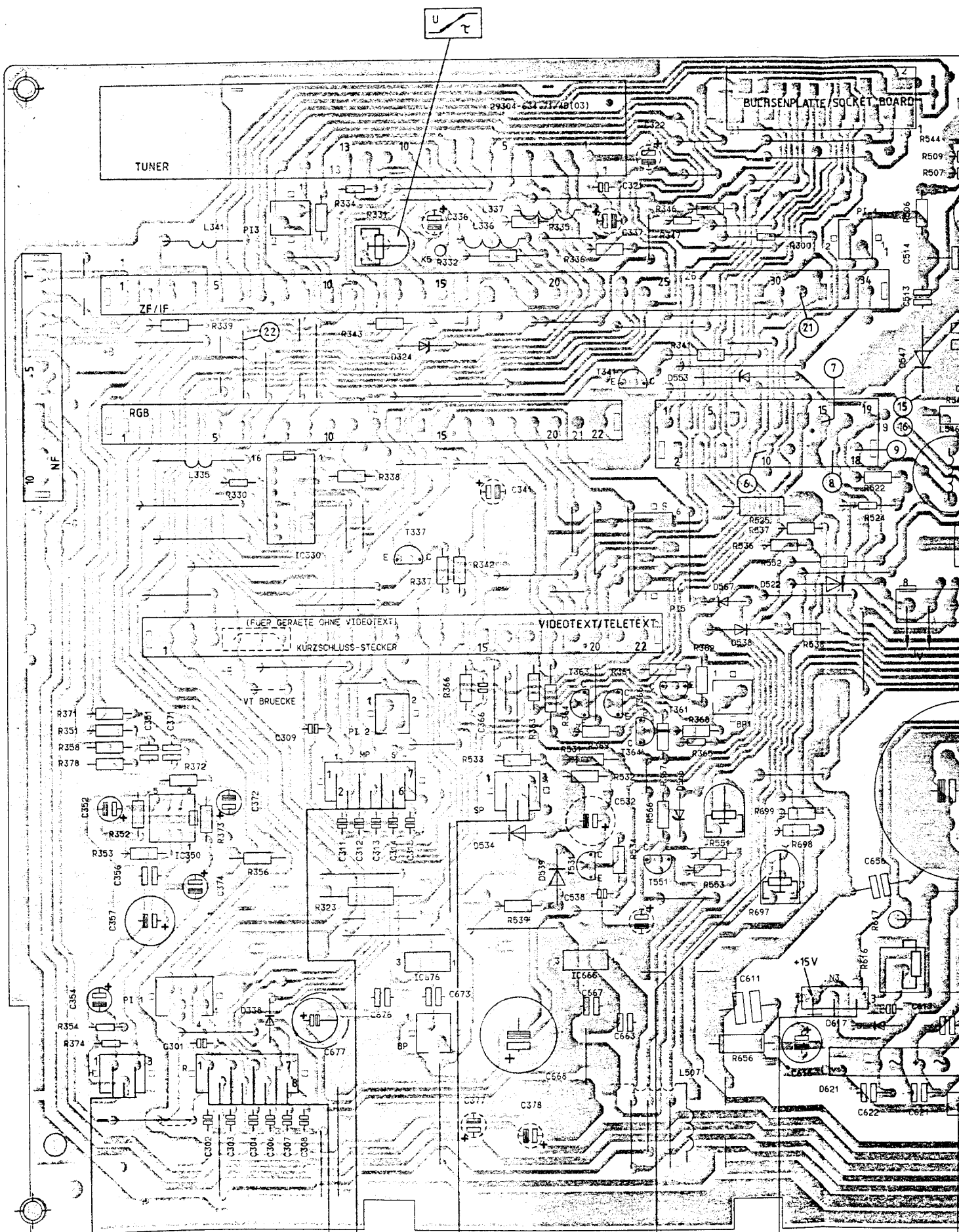
Fig. 2

Block Diagramm



Fault tracing diagram





ZUR KOPFHÖRERBUCHSE
TO HEADPHONE SOCKET

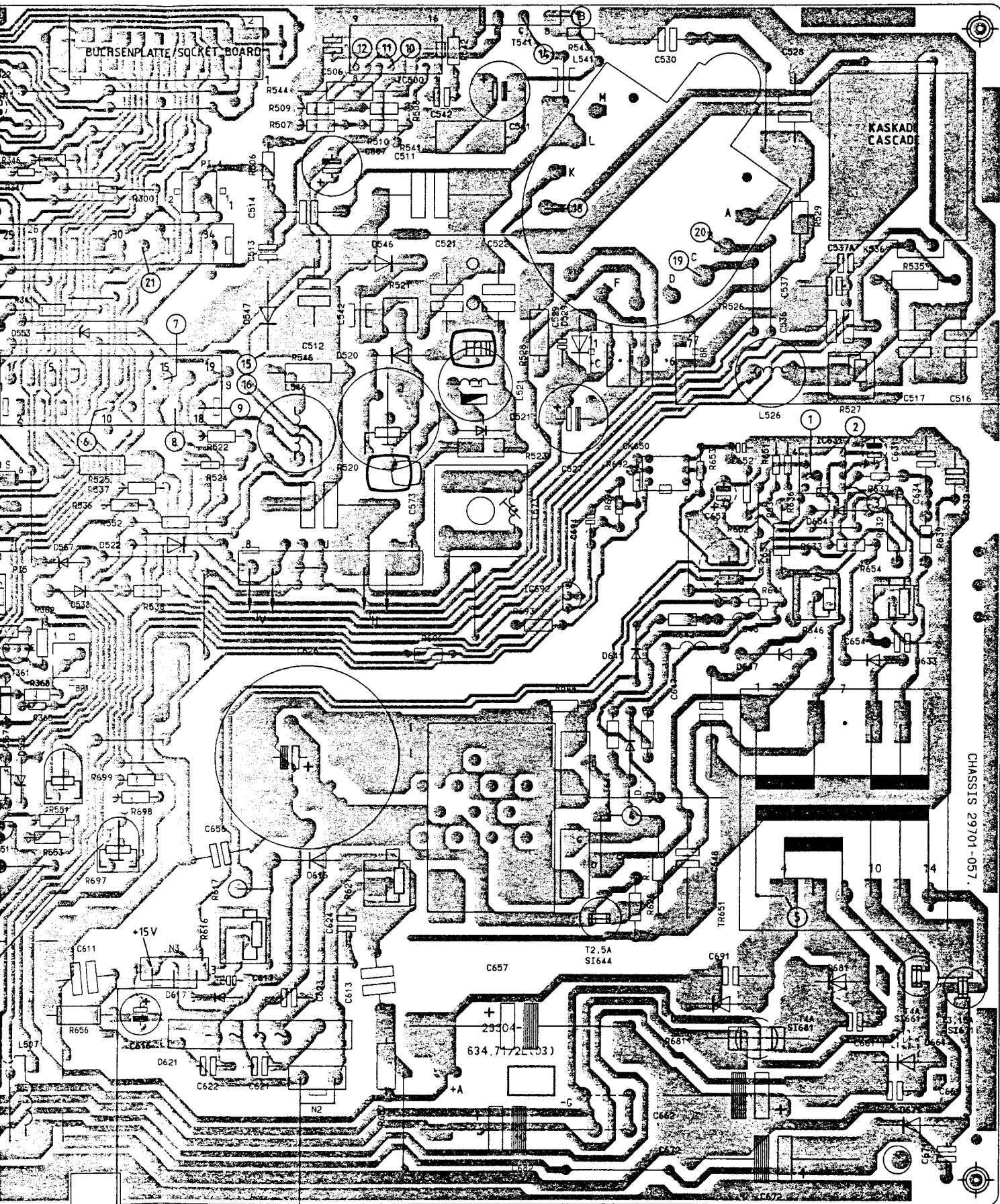
ZUM BEDIENTEIL
TO CONTROL UNIT

UTLEUCHTPUNKT
ZUR BILDROHRPLATTE / TO CRT BASE

+A
MIN

ZUM BEDIENTEIL
TO CONTROL UNIT

ZUR NETZ-
TO MAINS



ZUR BILDROHRPLATTE
TO CRT BASE

CHASSIS 29701-057

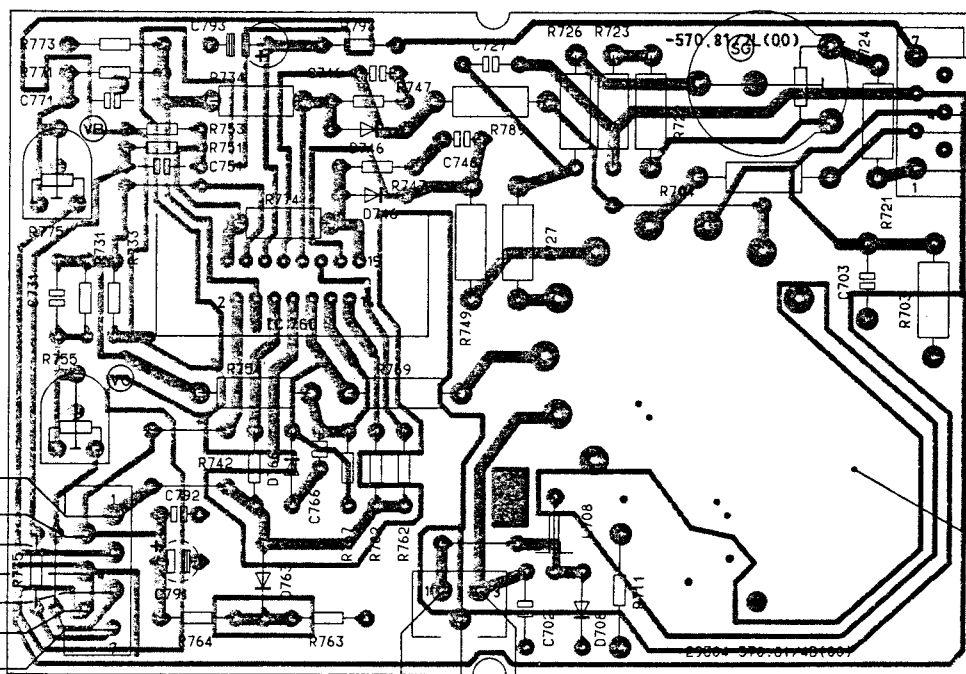
ZUM BEDIENITEIL
TO CONTROL UNIT

ZUR NETZSCHALTERPLATTE
TO MAINS SWITCH BOARD

ZUM CHASSIS
TO CHASSIS

FARB / RGB
COLOUR / RGB

SW
+12V
B
┴
G
┴
R

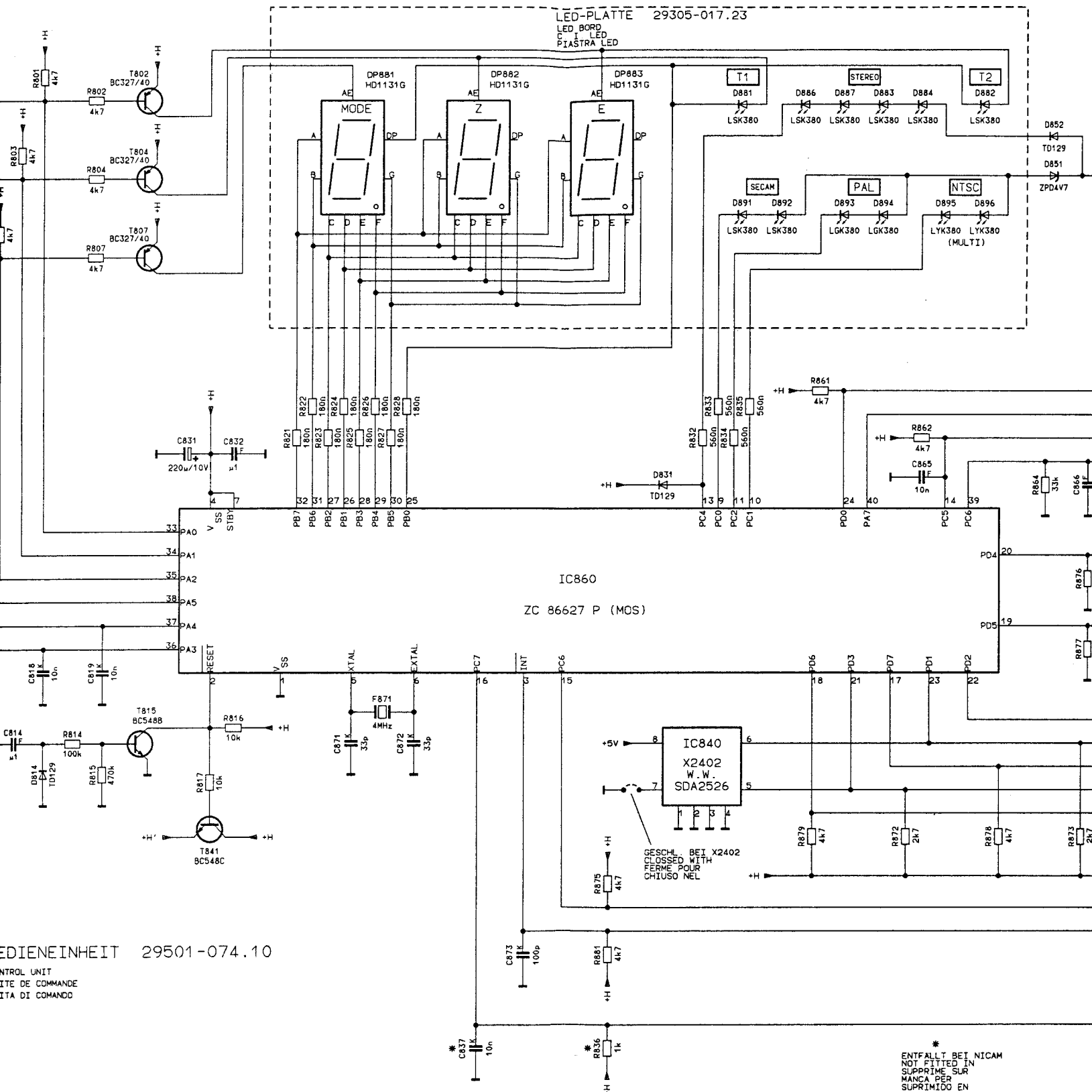


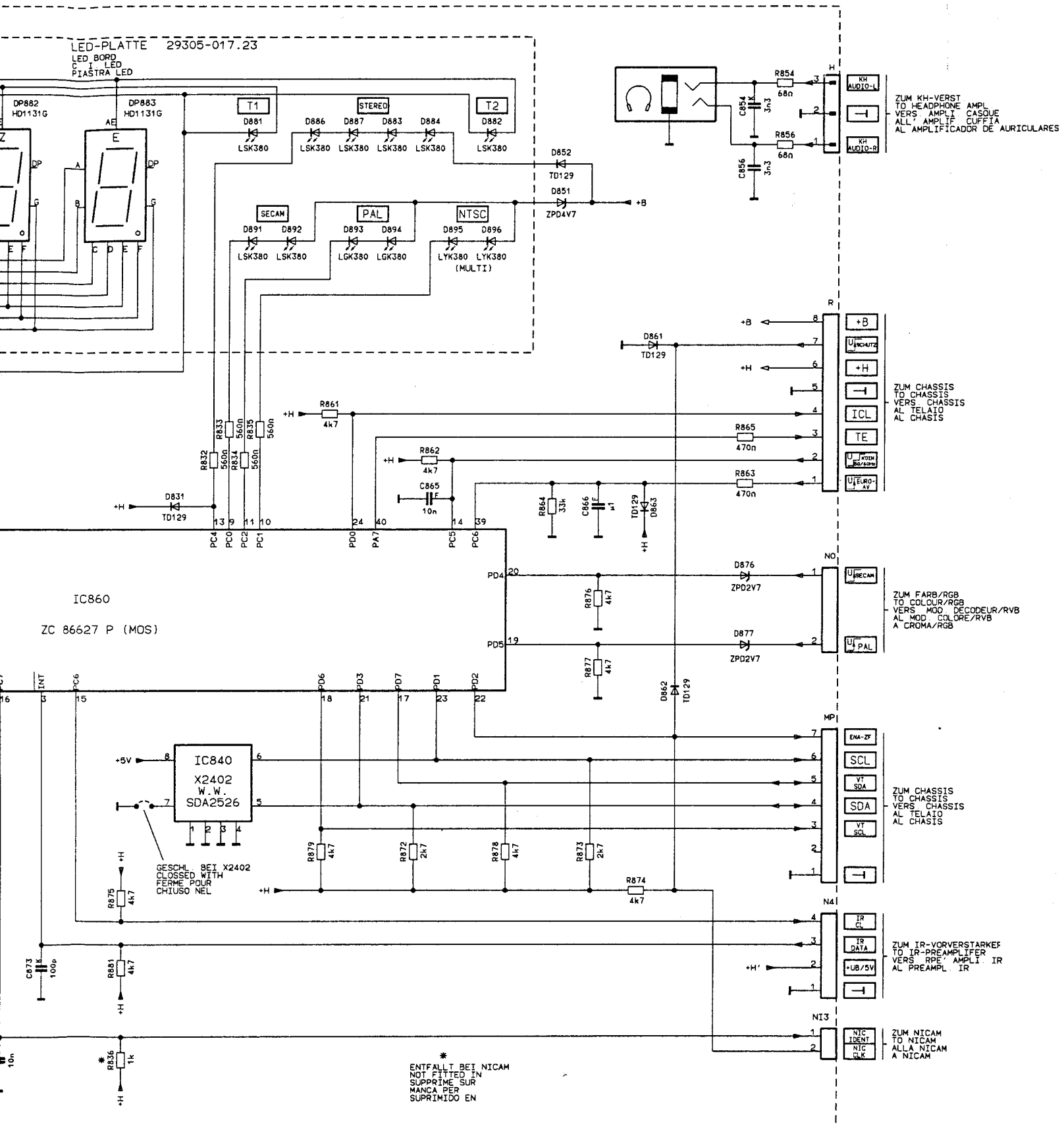
UFOC - KASKADE
- CASCADE

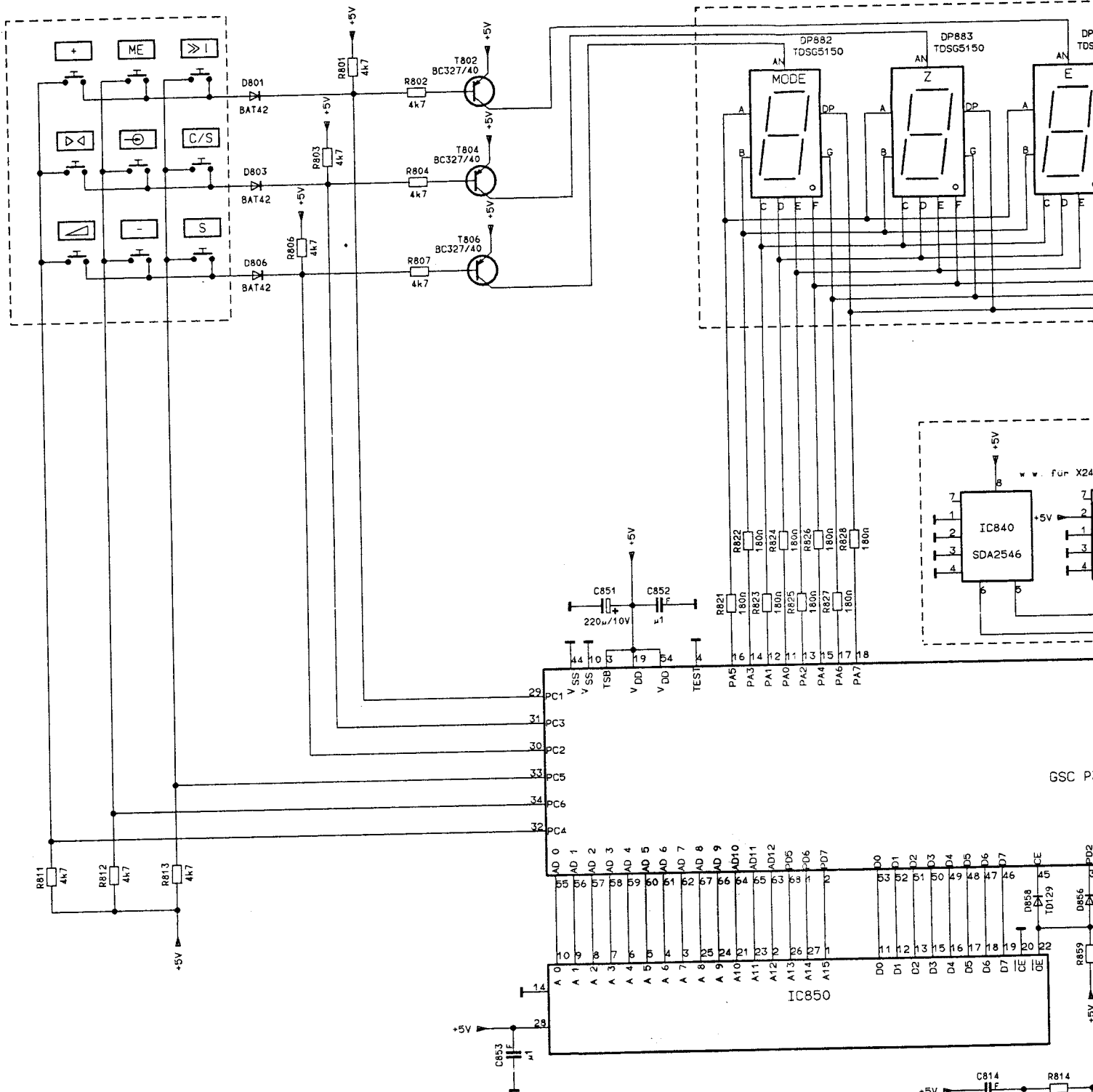
STECKER BR ZUM CHASSIS
PLUG BR TO CHASSIS

SSB U LEUCHTPUNKT

ZUM CHASSIS
TO CHASSIS

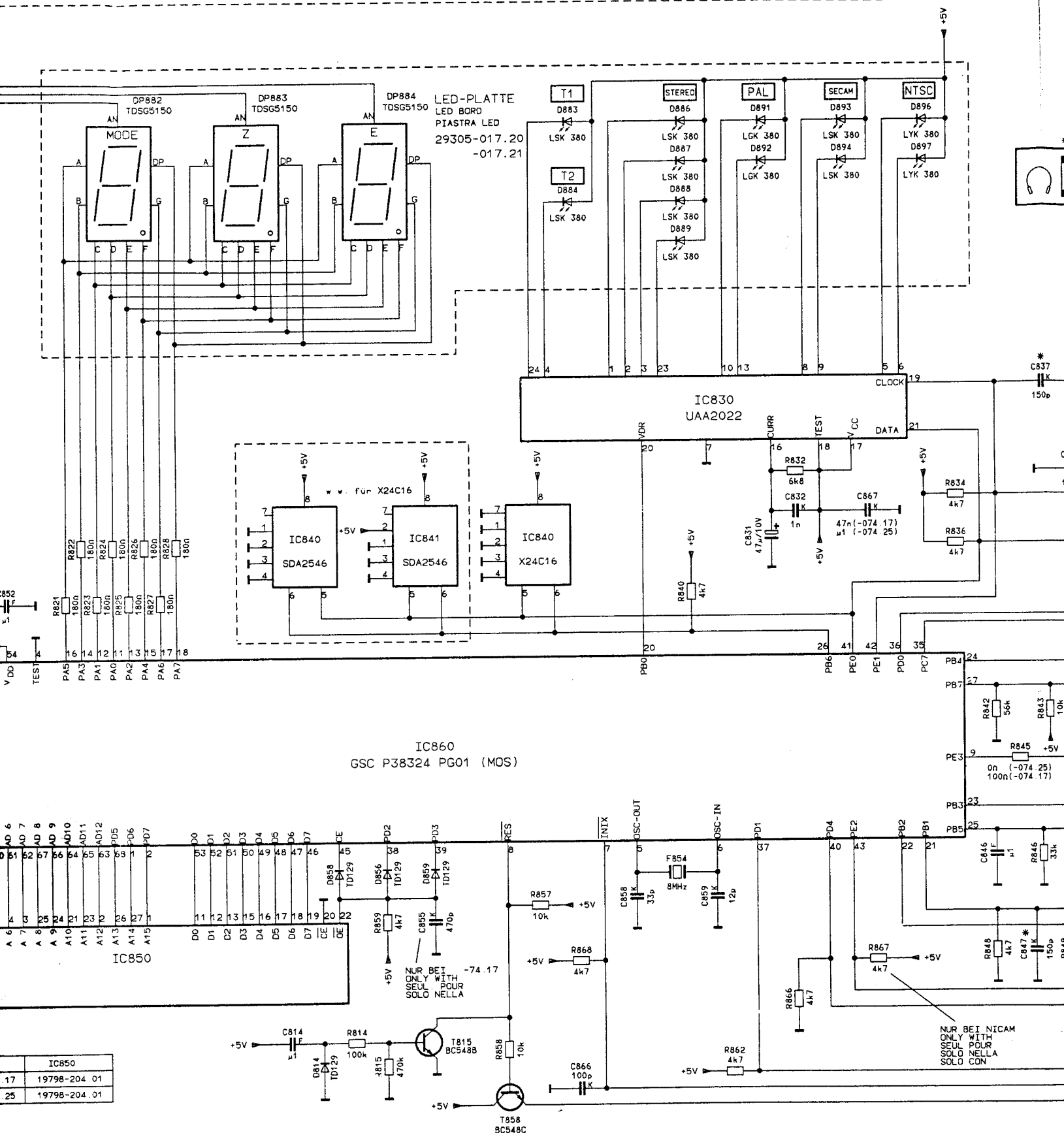






BEDIENEINHEIT 29501-074.17
 CONTROL UNIT
 UNITE DE COMMANDE
 UNITA DI COMANDO

	IC850
-074.17	19798-204.01
-074.25	19798-204.01



NETZSCHALTERPLATTE 29304-065.64

MAINS SWITCH BOARD

C I. INTERR. SECTEUR

PIASTRA INTERR. DI RETE

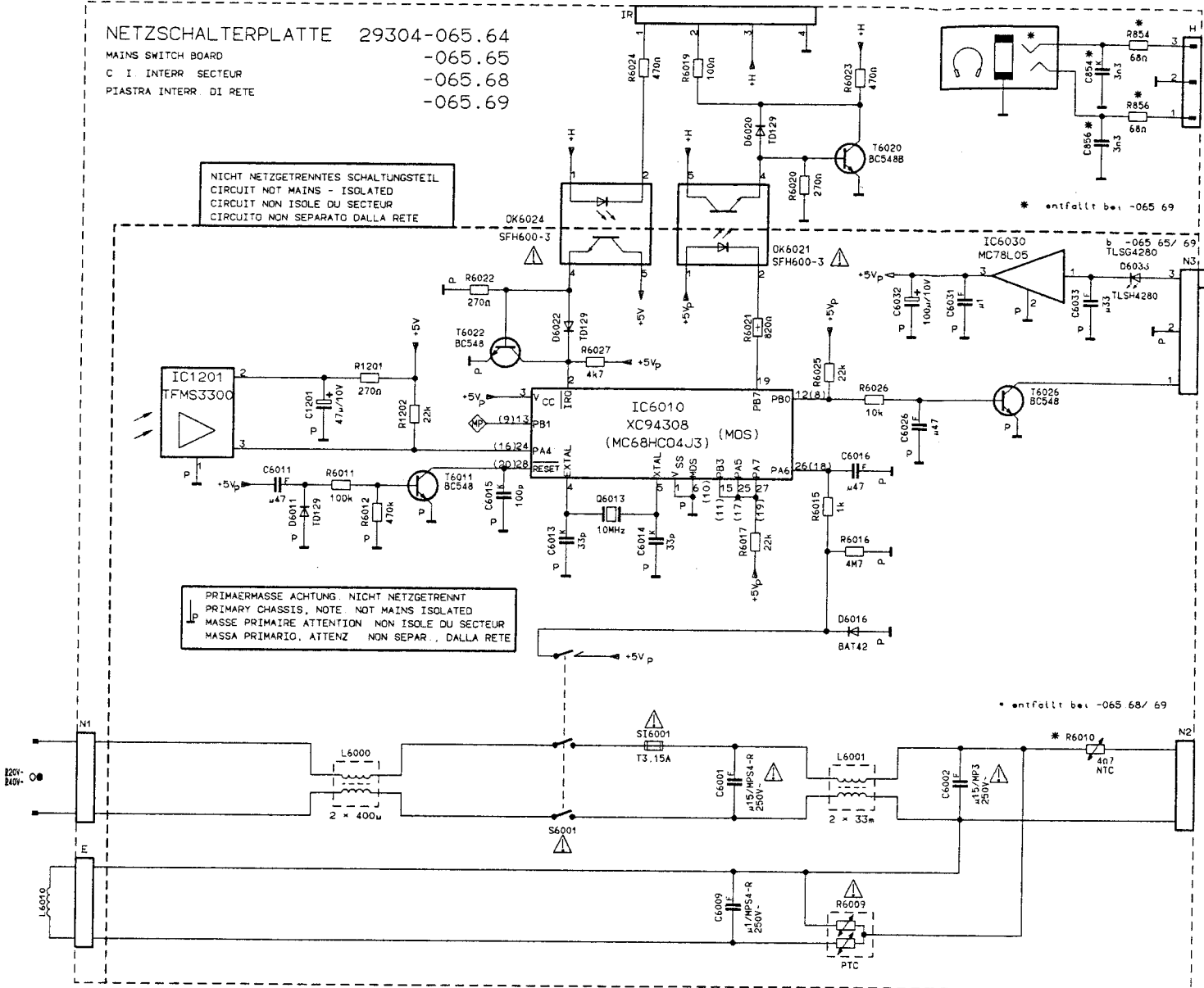
-065.65

-065.68

-065.69

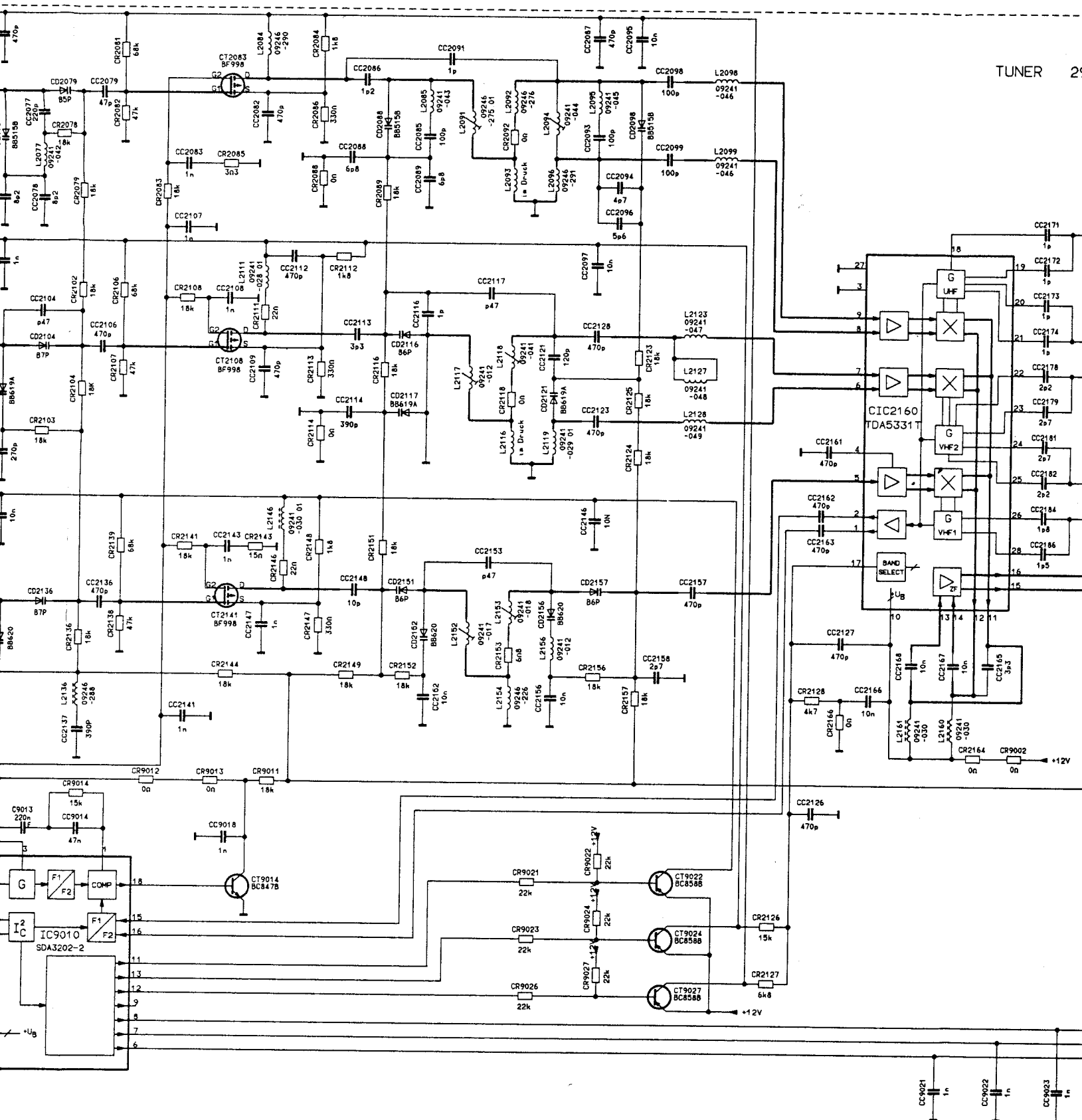
NICHT NETZGETRENNTES SCHALTUNGSTEIL
CIRCUIT NOT MAINS - ISOLATED
CIRCUIT NON ISOLE DU SECTEUR
CIRCUITO NON SEPARATO DALLA RETE

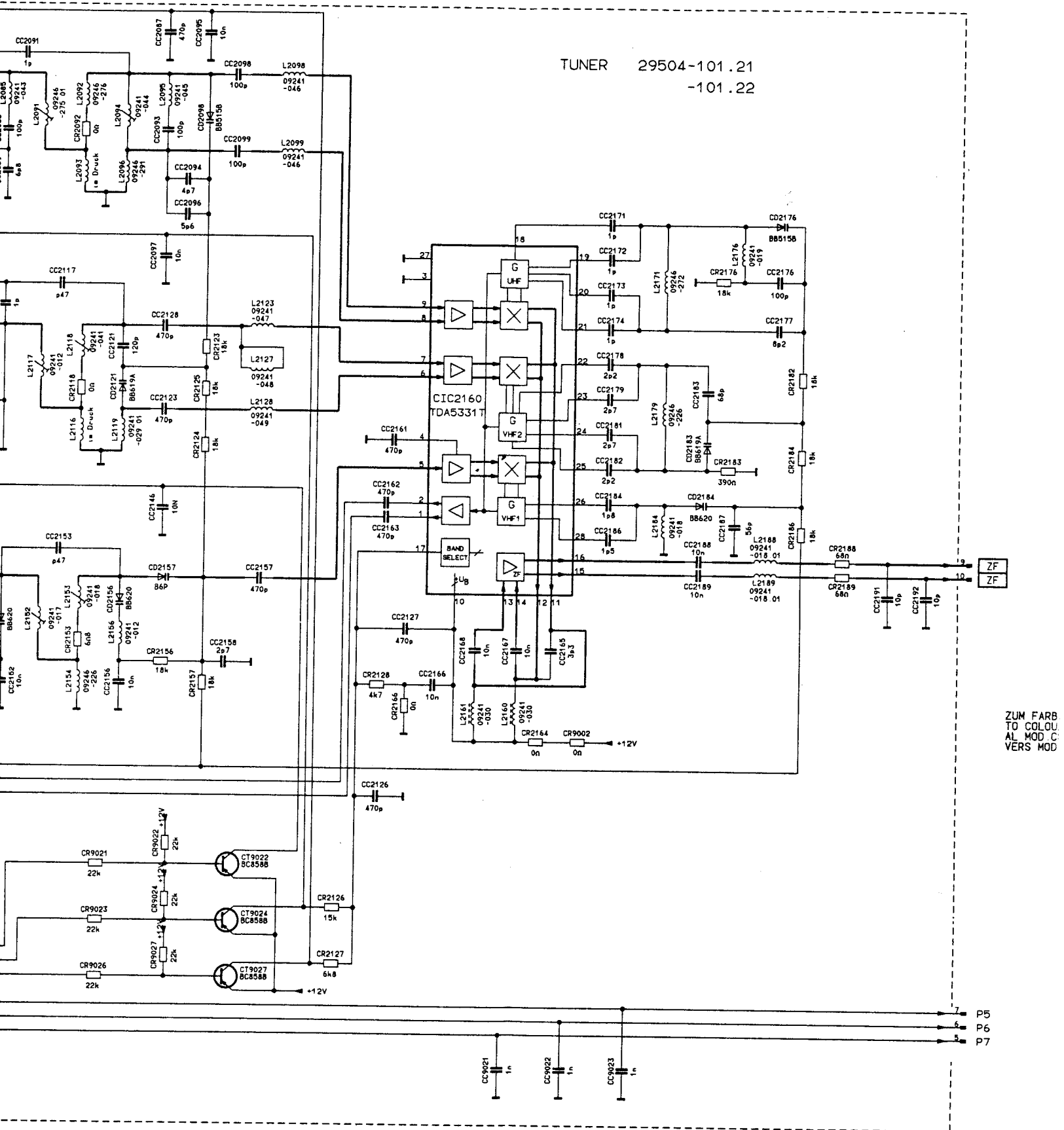
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PRIMARY CHASSIS, NOTE. NOT MAINS ISOLATED
MASSE PRIMAIRE ATTENTION NON ISOLE DU SECTEUR
MASSA PRIMARIO, ATTENZIONE NON SEPAR. DALLA RETE



* entfällt bei -065 69

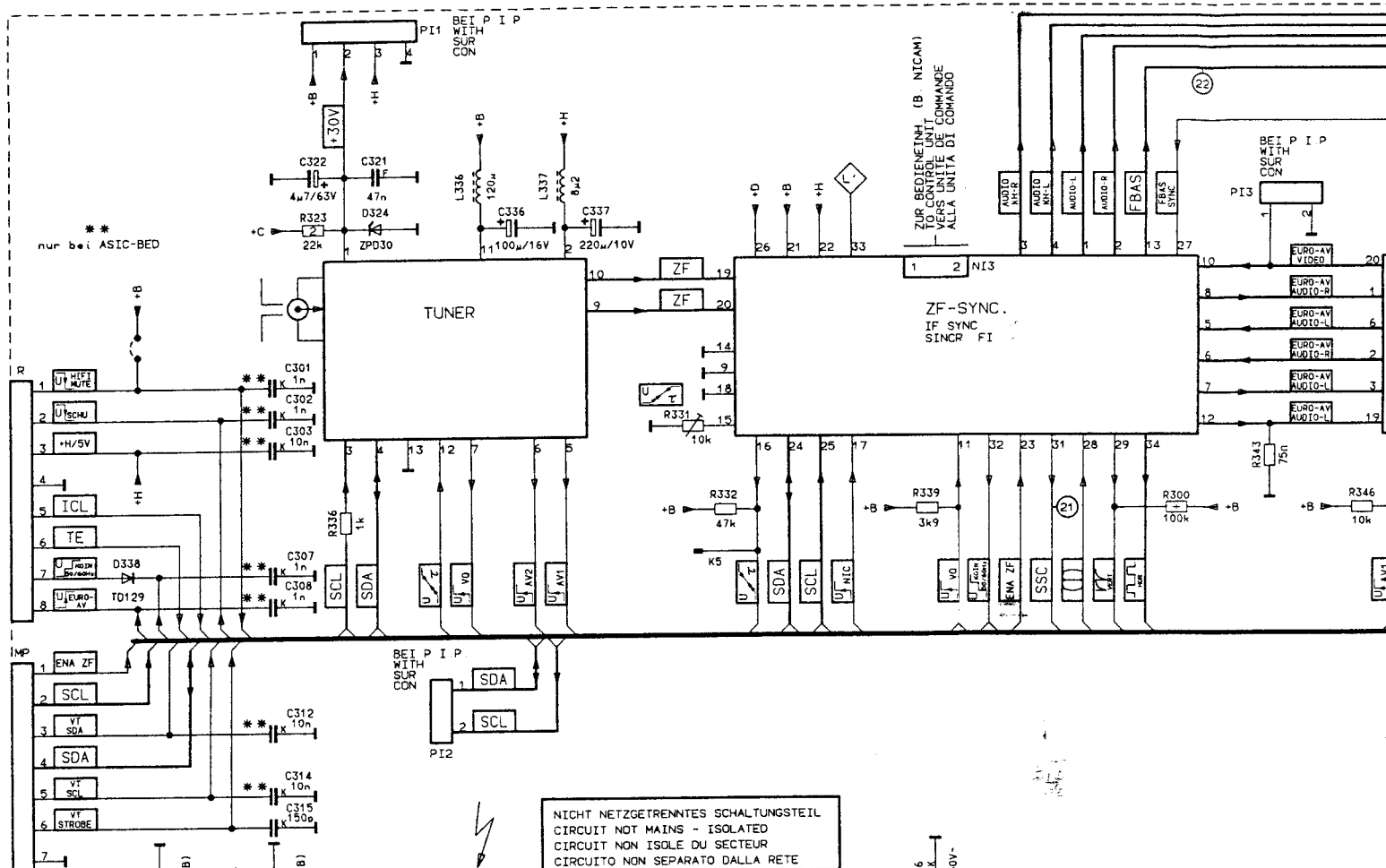
* entfällt bei -065 68/ 69



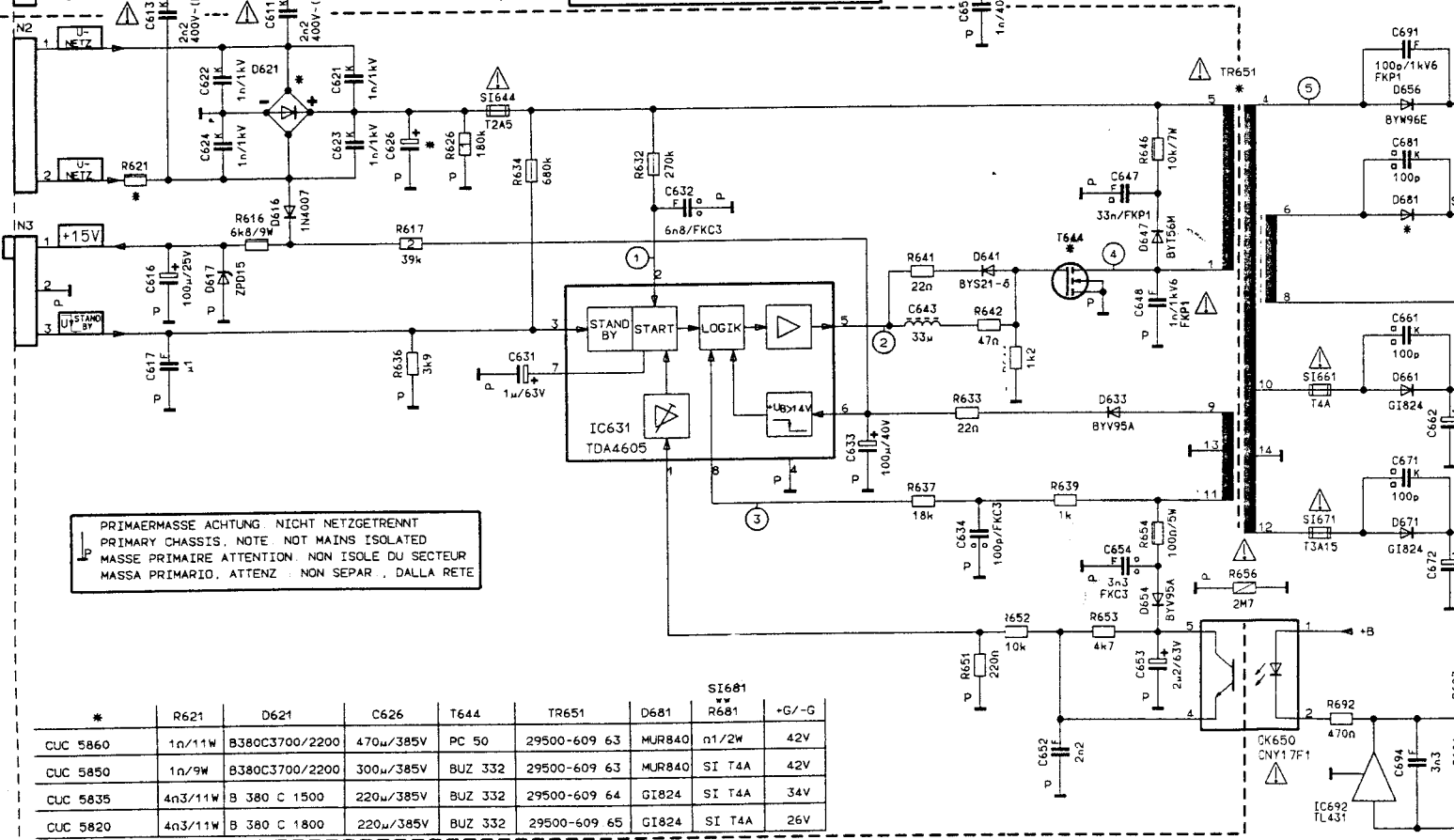


ZUR BEDienung

ZUR BEDienung BZW NETZPATTE

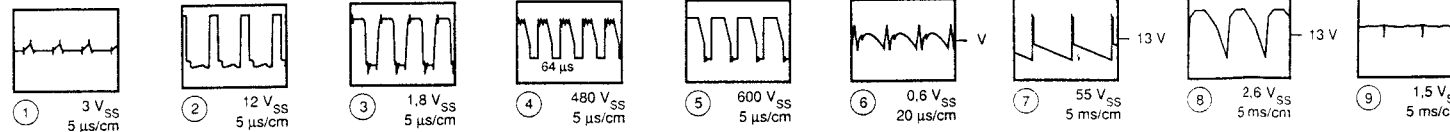


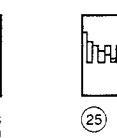
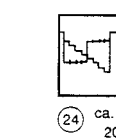
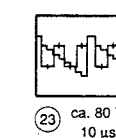
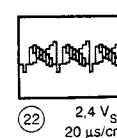
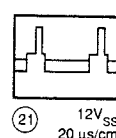
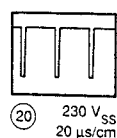
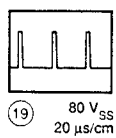
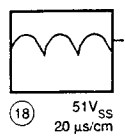
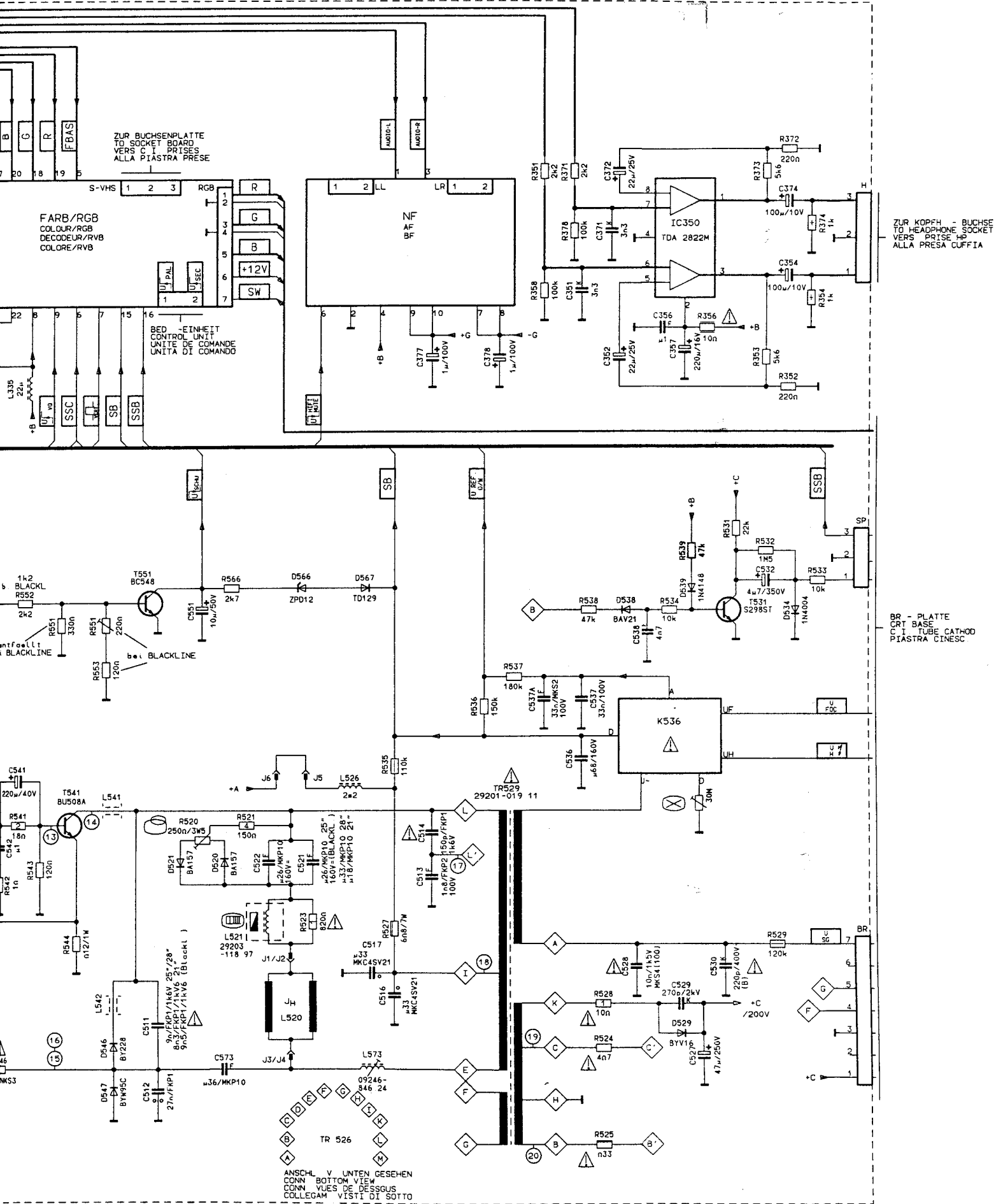
NICHT NETZGETRENNTES SCHALTUNGSTEIL
CIRCUIT NOT MAINS - ISOLATED
CIRCUIT NON ISOLE DU SECTEUR
CIRCUITO NON SEPARATO DALLA RETE



PRIMAERMASSE ACHTUNG: NICHT NETZGETRENNT
PRIMARY CHASSIS: NOTE: NOT MAINS ISOLATED
MASSE PRIMAIRE ATTENTION: NON ISOLE DU SECTEUR
MASSA PRIMARIO, ATTENZIONE: NON SEPARATO DALLA RETE

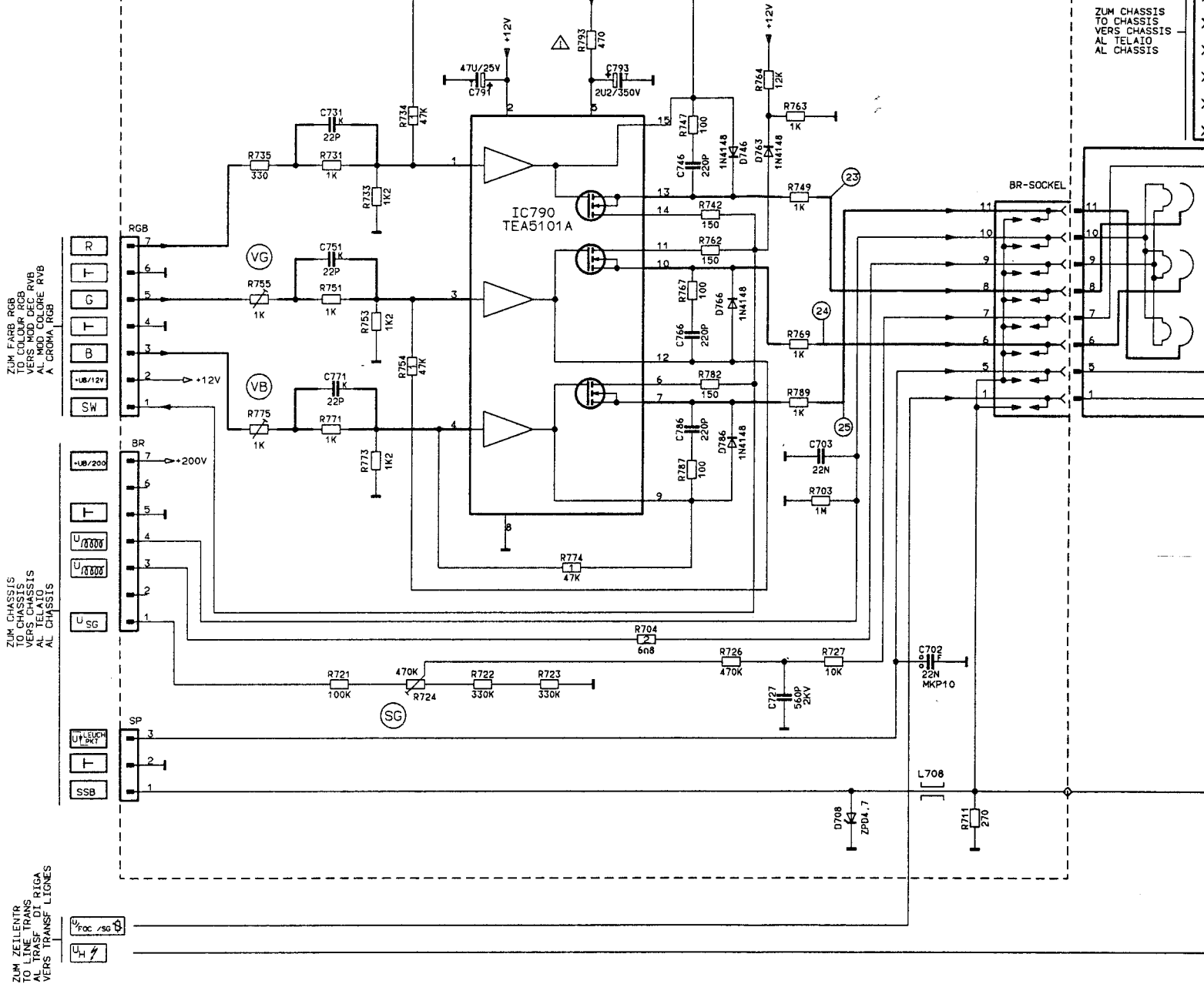
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CUC 5860	1n/11W	B380C3700/2200	470µ/385V	PC 50	29500-609 63	MUR840	n1/2W	42V
CUC 5850	1n/9W	B380C3700/2200	300µ/385V	BUZ 332	29500-609 63	MUR840	SI T4A	42V
CUC 5835	4n3/11W	B 380 C 1500	220µ/385V	BUZ 332	29500-609 64	GI824	SI T4A	34V
CUC 5820	4n3/11W	B 380 C 1800	220µ/385V	BUZ 332	29500-609 65	GI824	SI T4A	26V





BILDROHRPLATTE 29304-070.81

CRT BASE
C. I. TUBE CATHOD.
PIASTRA CINESC.
PLACA ZOCALO TRC



D

ABGLEICH DER BRÜCKENSPULE L 573

Bildbreite auf Minimum, den Tastkopf eines Zweistrahlzscopes an den Kollektor des Transistors T541 (BU 508 A) einhängen.
Den anderen Tastkopf zwischen den Dioden D 546 und D 547 anschließen.

Mit der Spule L 573 beide Oszillogramme auf gleiche Impulsbreite abgleichen.

GB

ADJUSTMENT OF THE BRIDGE COIL L 573

Picture width to minimum, then connect one test probe of a twin beam oscilloscope to the collector of transistor T 541 (BU 508 A).
Connect the other test probe to the junction of D 546, D 547.

Adjust the coil L 573 so that both oscillograms have the same pulse width.

D

RV Regelspannungsverzögerung (Tuner)

Normtestbild auf hohen UHF Kanal legen, die HF sollte mindestens 1,5 mV (rauschfreies Bild). Regler R 341 (Kontakt 15, ZF-Verst.) in Richtung Linksanschieben bis das Bild zu rauschen beginnt, dann wieder zurückdrehen bis das Bild gerade wird.

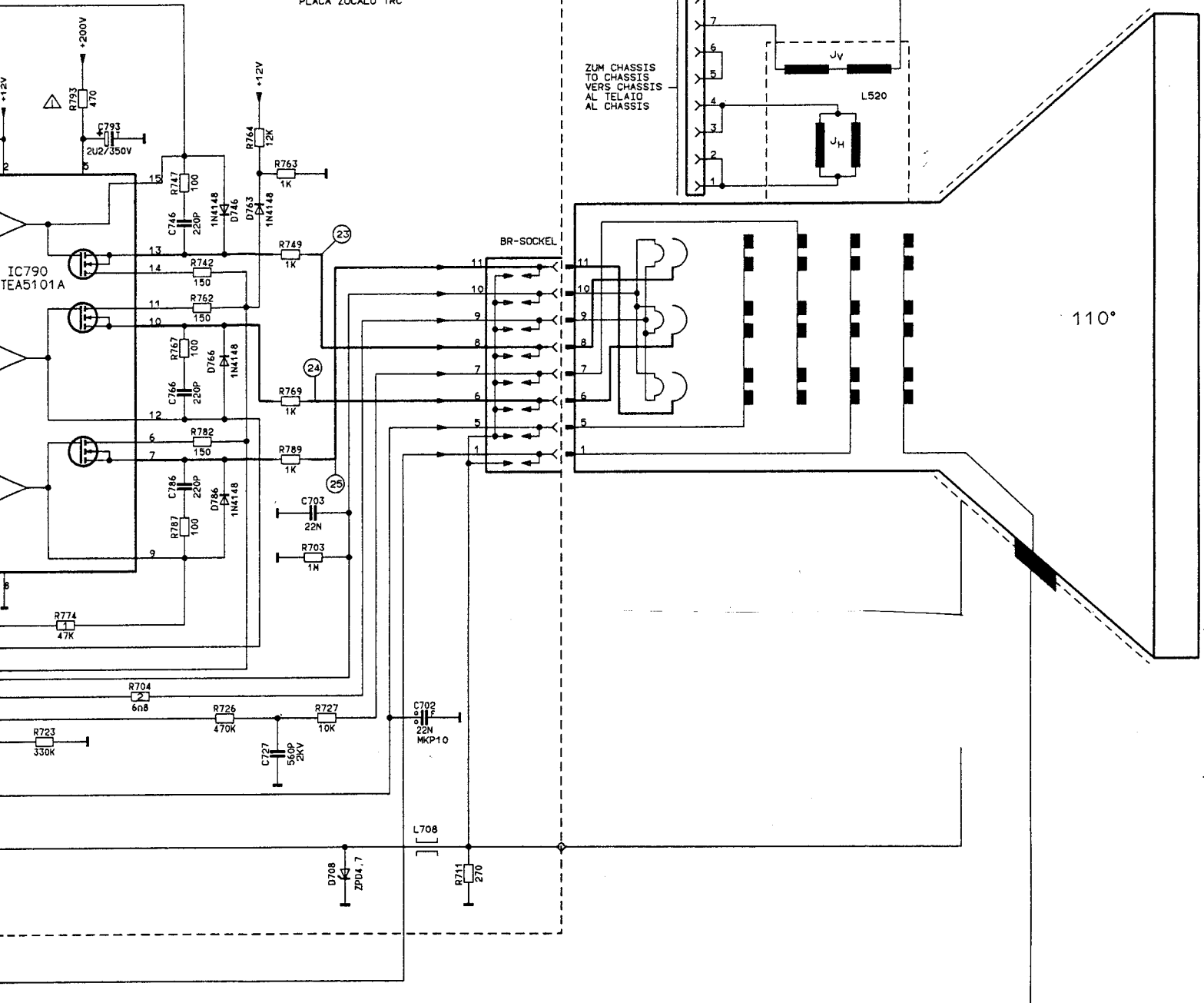
GB

RV Delayed Automatic Gain Control Voltage (Tuner)

Feed in a standard test pattern at a channel in the upper range of the UHF Band. The signal should be at least 1,5 mV (noise free picture). Rotate the control R 341 (contact 15, IF-Amplifier) towards the left until noise just begins to appear in the picture, then reverse the rotation until the picture just becomes noise free.

BILDROHRPLATTE 29304-070.81

CRT BASE
C. I. TUBE CATHOD.
PIASTRA CINESC.
PLACA ZOCALO TRC



D

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GB

RV Delayed Automatic Gain Control Voltage (Tuner)

Feed in a standard test pattern at a channel in the upper range of the UHF Band. The RF should be at least 1,5 mV (noise free picture). Rotate the control R 341 (contact 15, IF-Ampl.) towards the left hand and stop until noise just begins to appear in the picture, then reverse the direction of the control until the picture just becomes noise free.

M 55 - 575 text

M 63 - 575 text

M 63 - 575 / 9 text

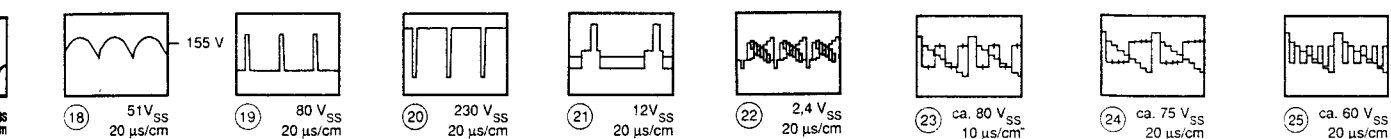
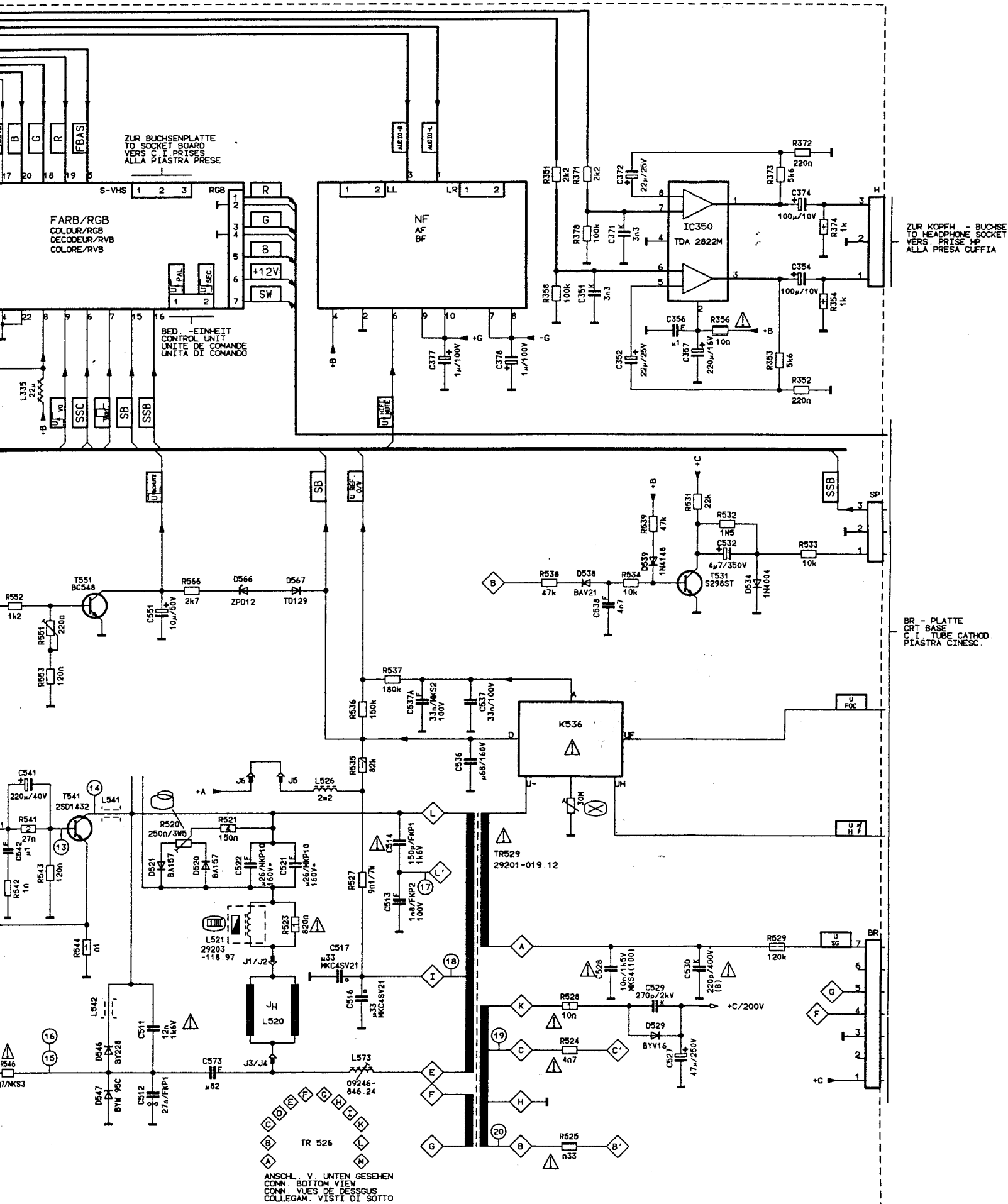
M 63 - 575 NIC

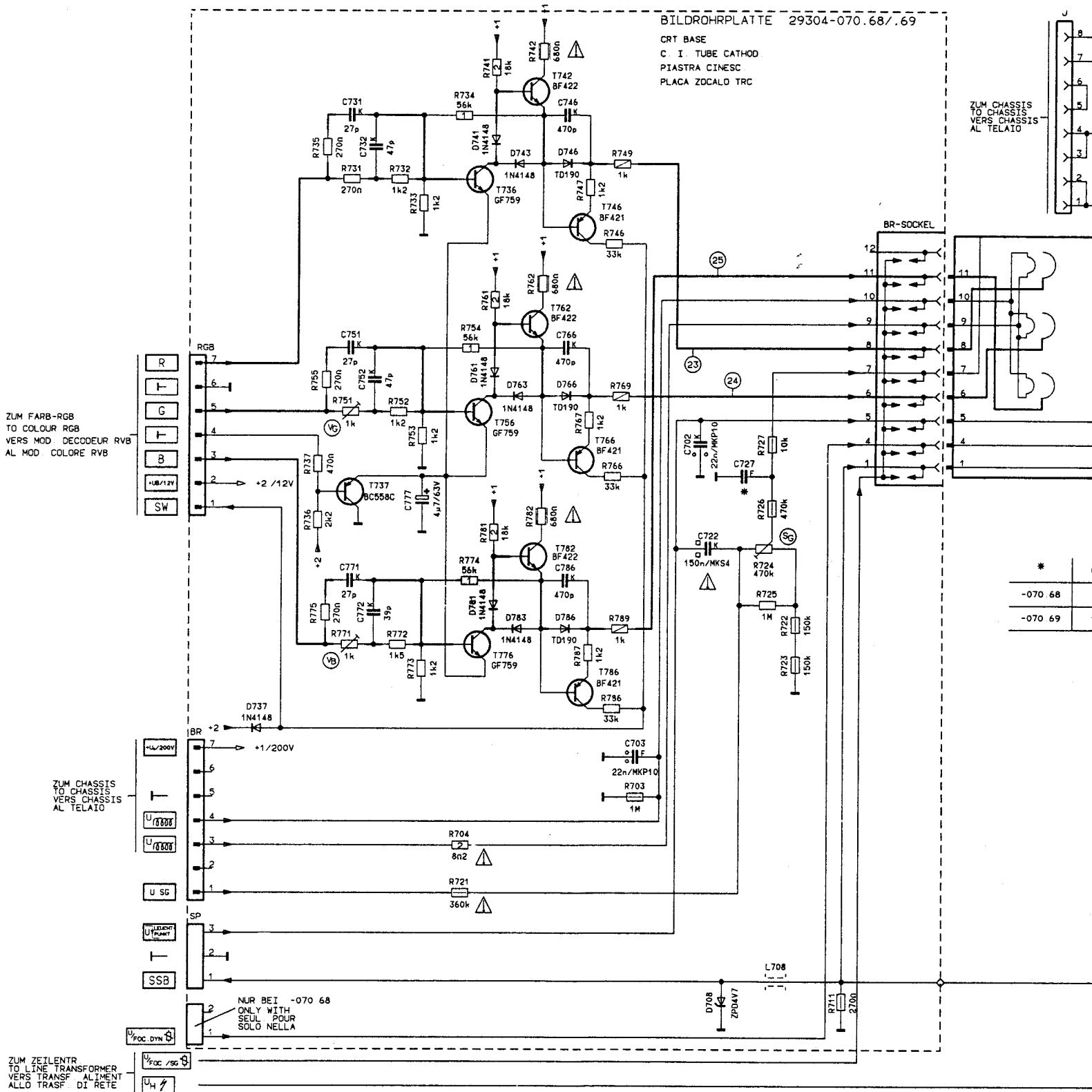
M 70 - 590 / 9 TOP

M 70 - 595 / 9 TOP

M 70 - 590 NIC







D

ABGLEICH DER BRÜCKENSPULE L 573

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Den anderen Tastkopf zwischen den Dioden D 546 und D 547 anschließen.

Mit der Spule L 573 beide Oszillogramme auf gleiche Impulsbreite abgleichen.

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Adjust the coil L 573 so that both oscillograms have the same pulse width.

D

Einstellung der Schutzschaltung

Mit dem Einstellregler R 551 wird die Ansprechschwelle der Schutzschaltung eingestellt. Den Regler so einstellen, daß bei +D 32,5 V das Gerät in Stand By Betrieb schaltet.

GB

Adjustment of the protective switch

The threshold value for the Safety Circuit is adjusted by R 551. Adjust the control R 551 so that the receiver switches to Stand-by when +D is 32,5V.

D

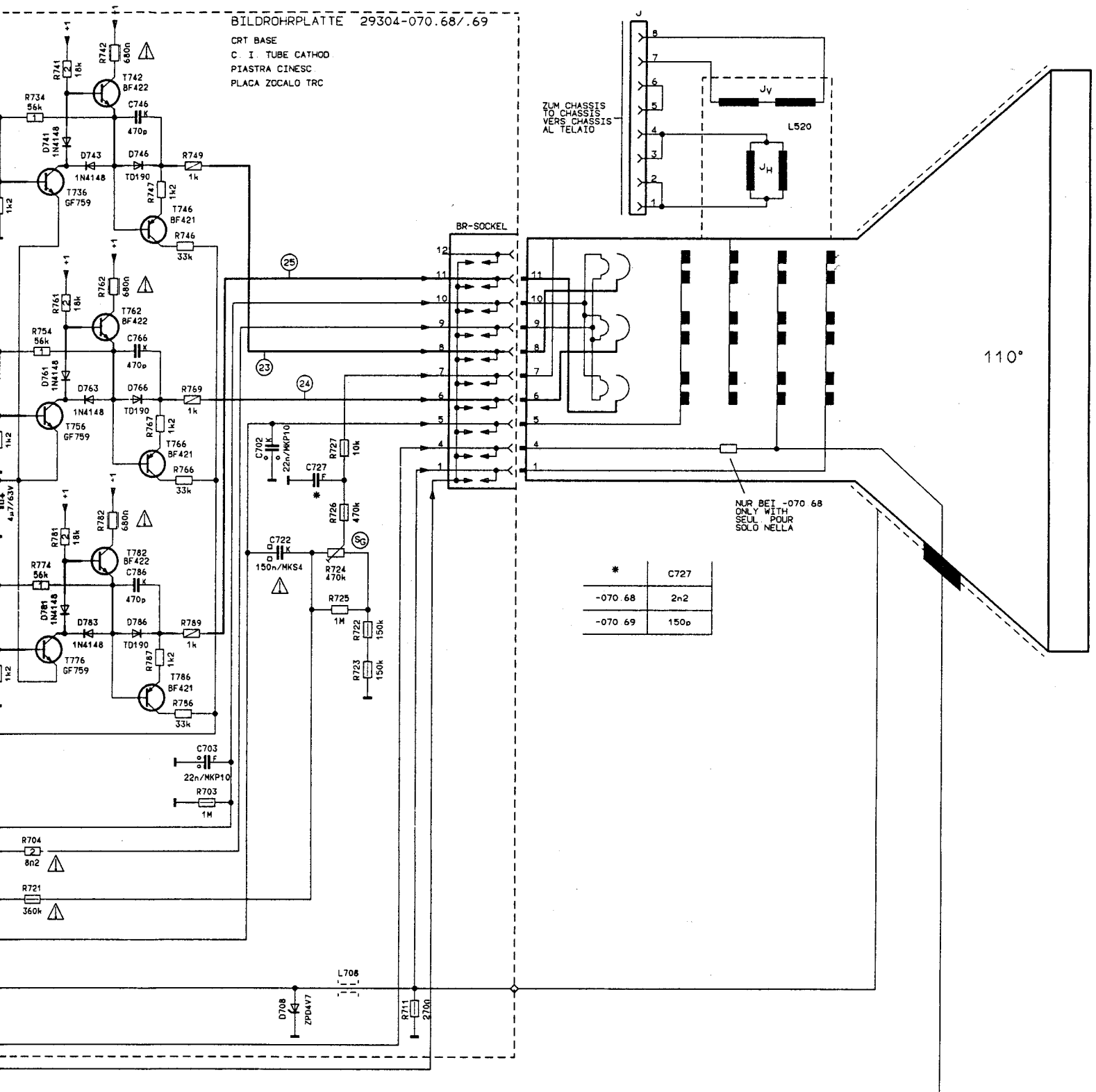
RV Regelspannung

Normtestbild auf hohe UHF Band. The RF signal. Rotate the control R 33 and stop until noise just begins, then reverse the direction of the control.

GB

RV Delayed Automatic

Feed in a standard test signal. The RF signal. Rotate the control R 33 and stop until noise just begins, then reverse the direction of the control.



D

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D

RV Regelspannungsverzögerung (Tuner)

Normtestbild auf hohen UHF Kanal legen, die HF sollte mindestens 1,5 mV betragen (rauschfreies Bild). Regler R 331 (Kontakt 15, ZF-Verst.) in Richtung Linksanschlagdrehen bis das Bild zu rauschen beginnt, dann wieder zurückdrehen bis das Bild gerade rauschfrei wird.

GB

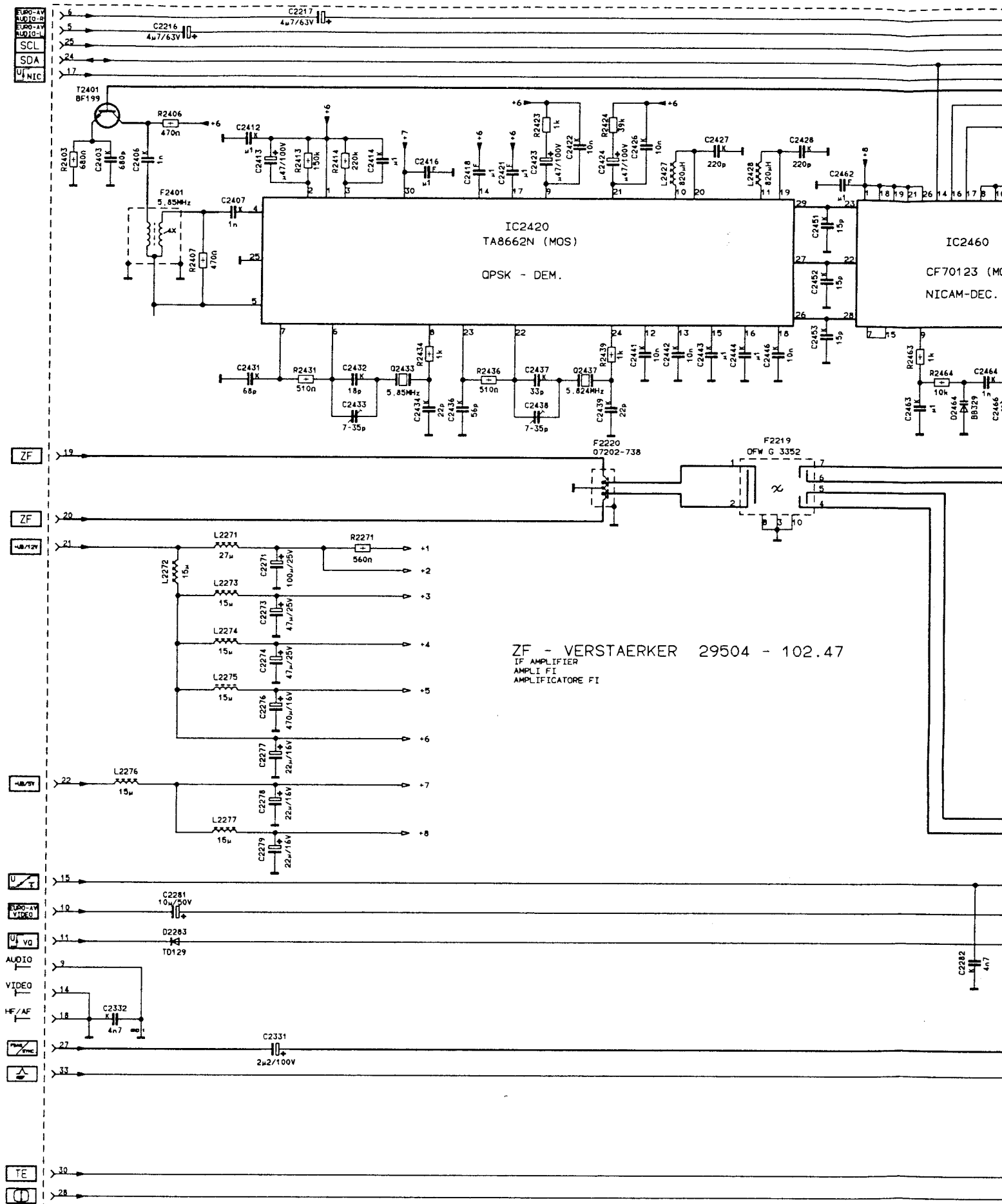
RV Delayed Automatic Gain Control Voltage (Tuner)

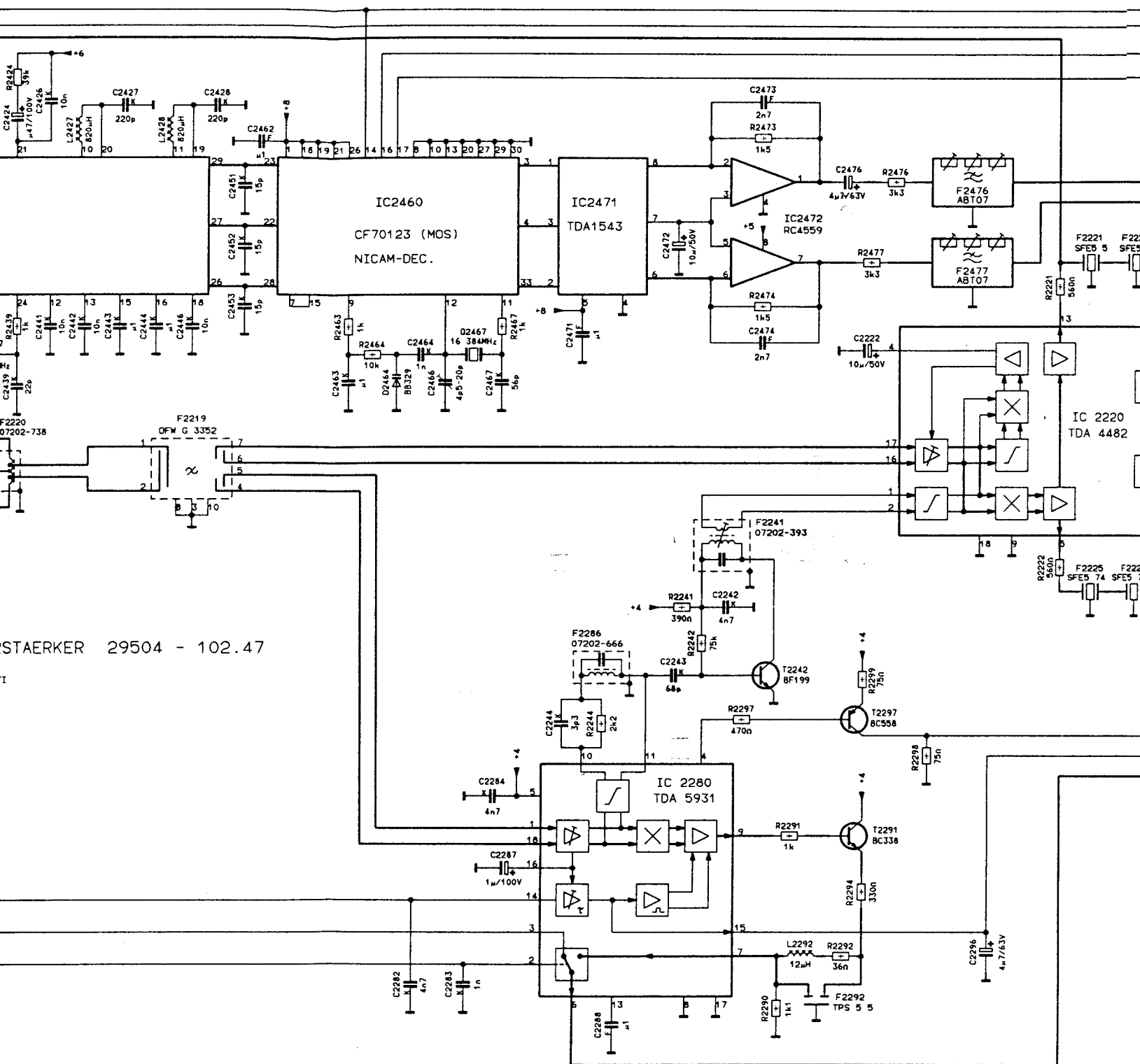
Feed in a standard test pattern at a channel in the upper range of the UHF Band. The RF should be at least 1,5 mV (noise free picture). Rotate the control R 331 (contact 15, IF-Ampl.) towards the left hand and stop until noise just begins to appear in the picture, then reverse the direction of the control until the picture just becomes noise free.

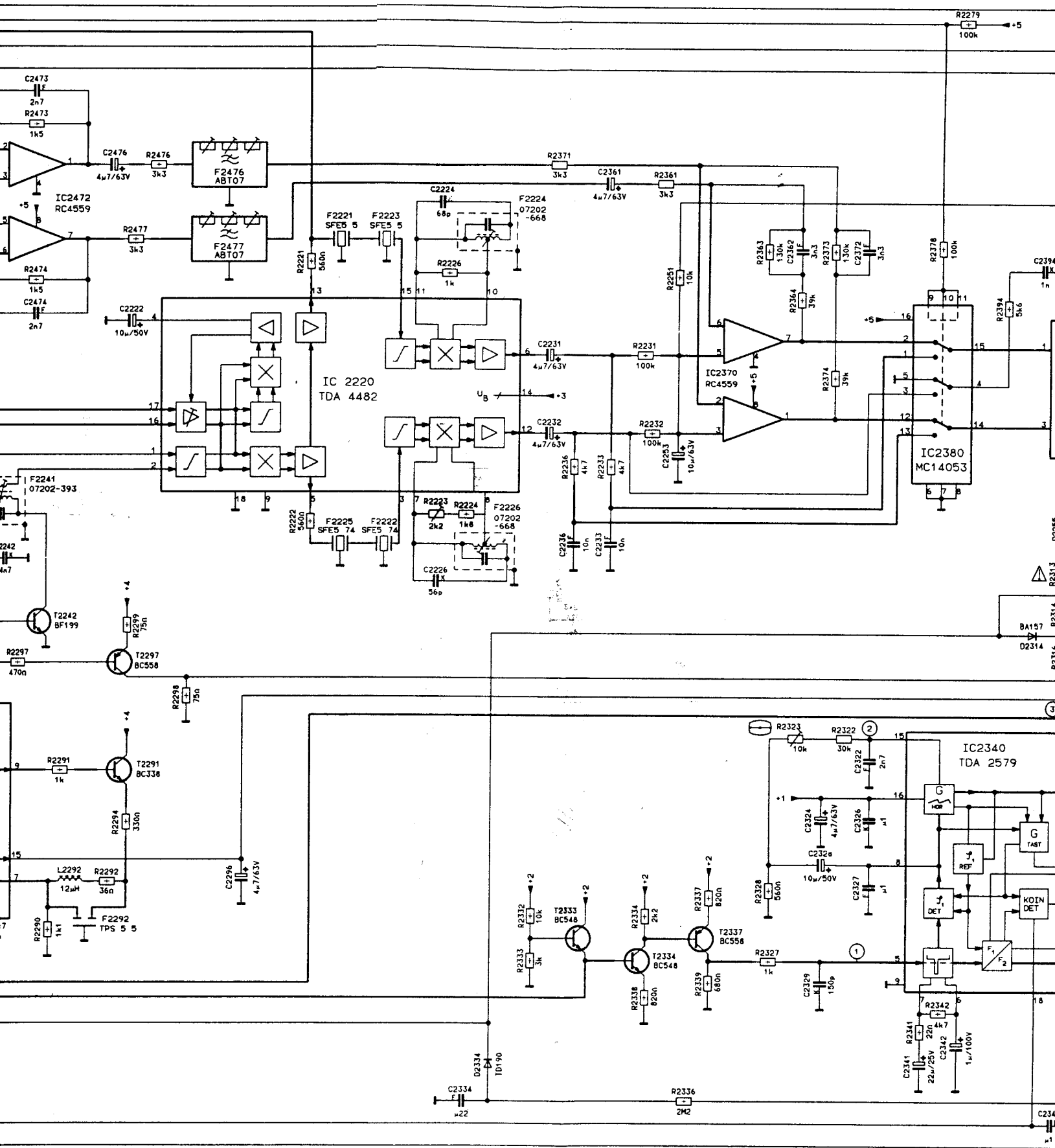
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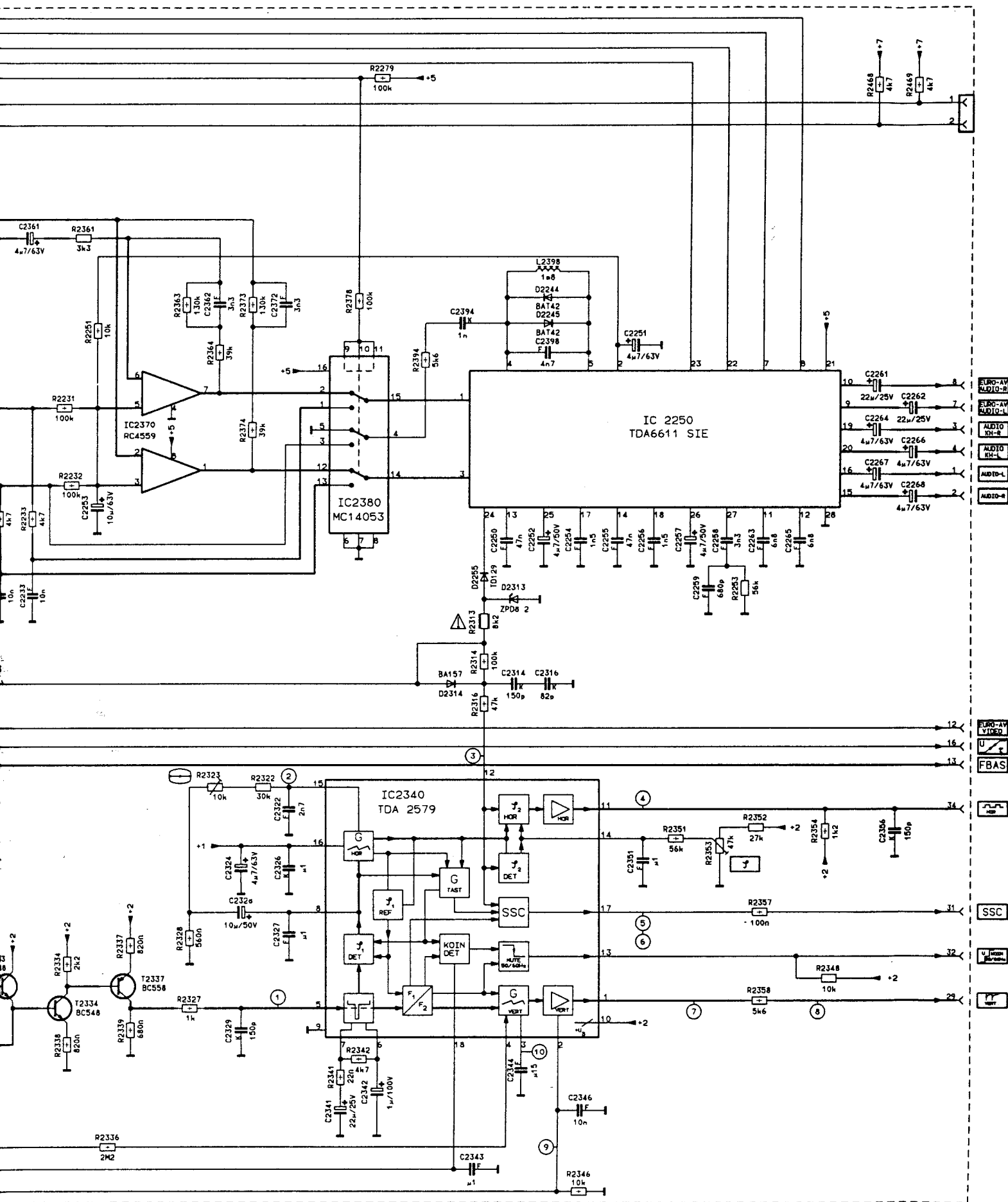
ST 82 - 575 NIC

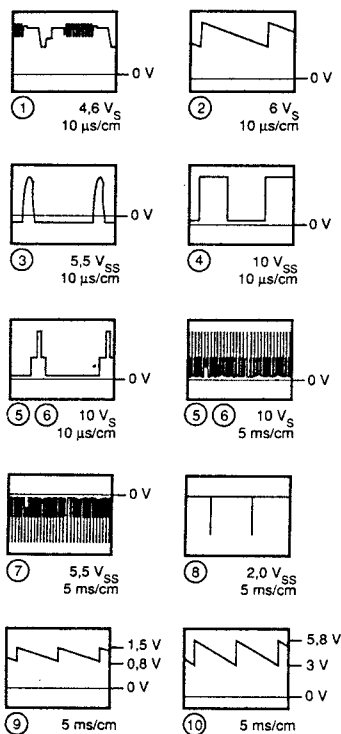
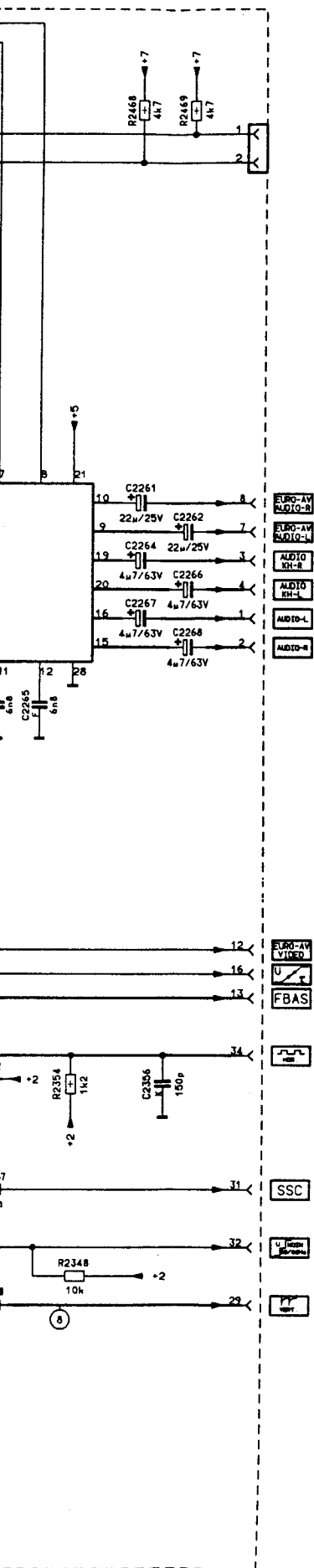
ST 82 - 575 / FT/GB











D

ABGLEICH DER ZEILENFREQUENZ UND -PHASE

Zeilenfrequenz:

1. Pin 5, IC 2340 (TDA 2579) nach Masse kurzschließen.
2. Mit Einstellregler R 2323 Bild auf langsames Durchlaufen einstellen.
3. Kurschluß entfernen.

ZeilenPhase:

1. Den Bildbreitenregler R 7002 auf Minimum stellen.
2. Mit dem Einstellregler R 2353 den grauen Bildrand symmetrisch zum rechten und linken Bildraster einstellen.
3. Den Bildbreitenregler wieder nach Testbild einstellen.

GB

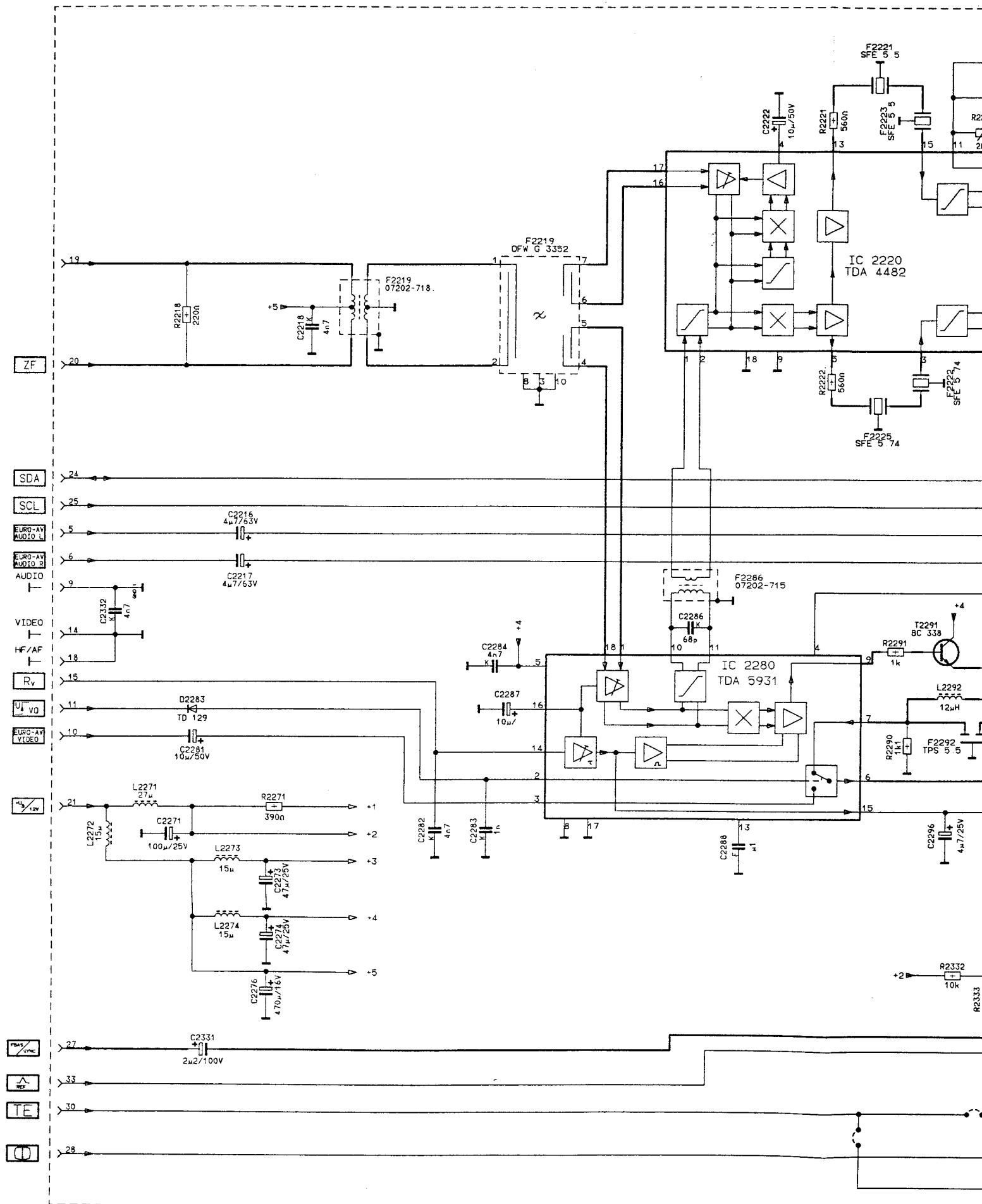
ADJUSTMENT OF LINE FREQUENCY AND PHASE

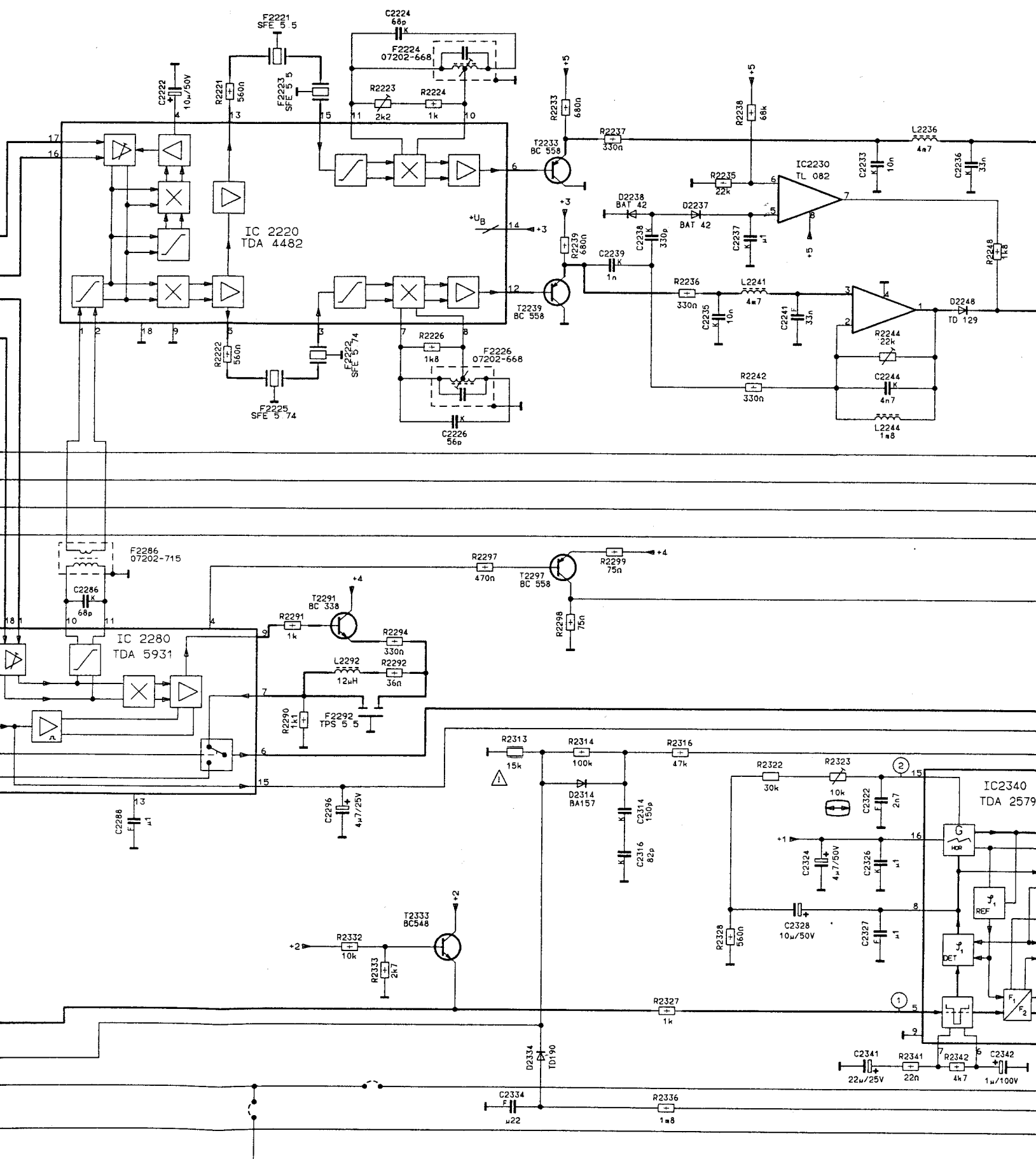
Line Frequency:

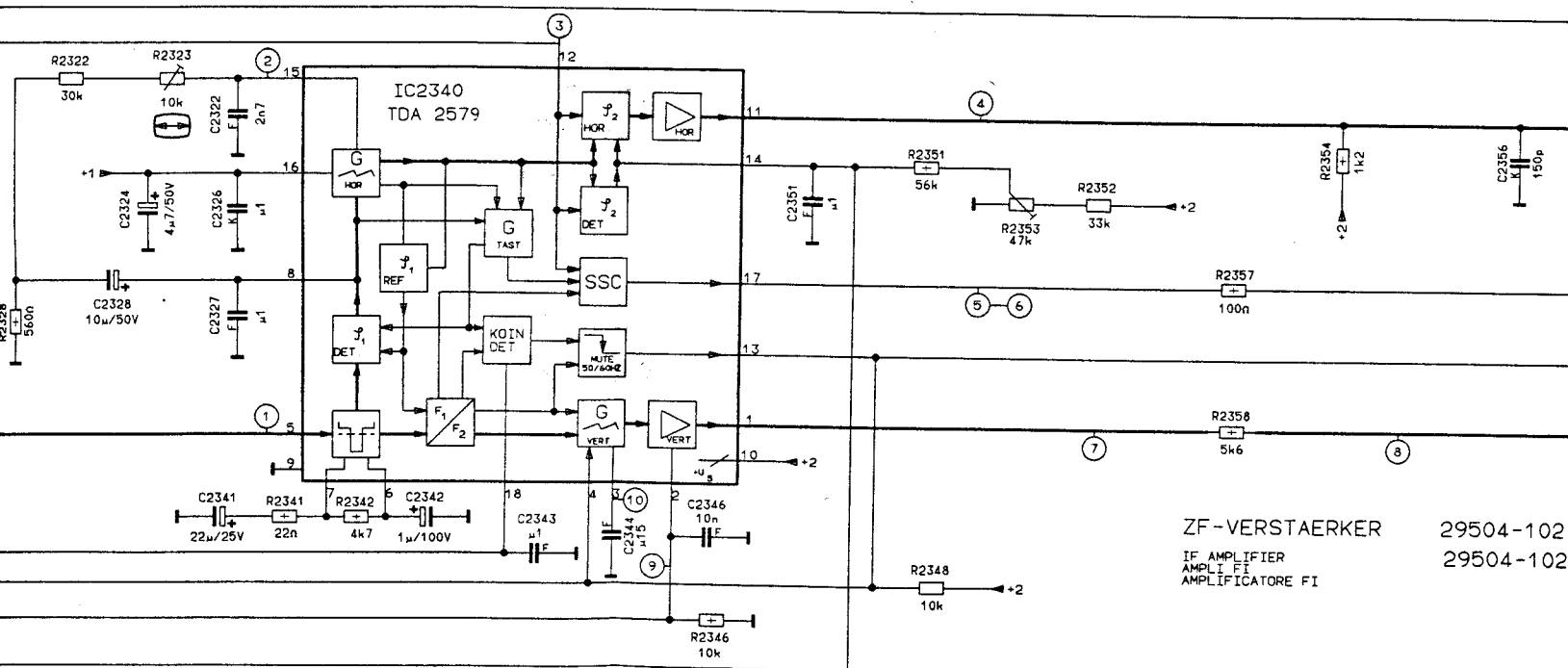
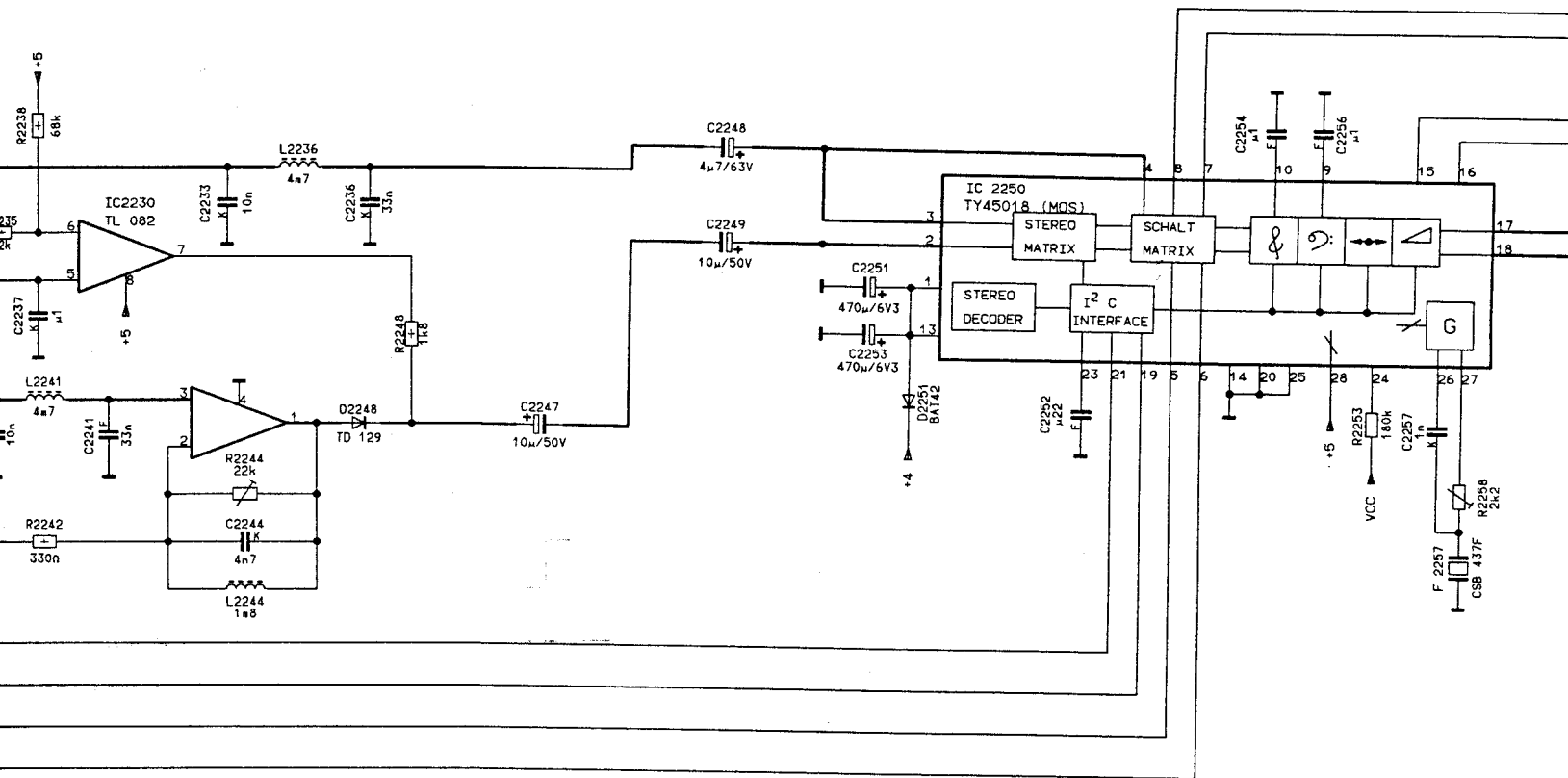
1. Short circuit Pin 5, IC 2340 (TDA 2579) to chassis.
2. With the adjustment control R 2323, adjust so that the picture runs through slowly.
3. Remove the short circuit.

Line Phase:

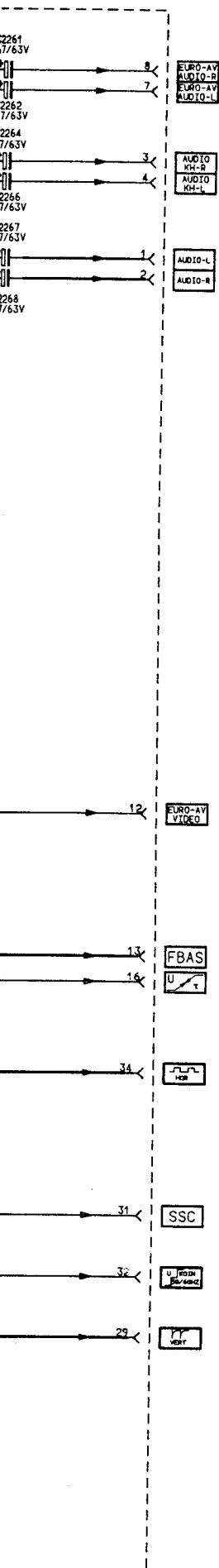
1. Set the picture width control R 7002 to minimum.
2. With the adjustment control R 2353, set the grey picture edges to be symmetrical within the right and left picture frame.
3. Reset the picture width control to conform with the test pattern.







ZF-VERSTÄRKER 29504-102
 IF AMPLIFIER 29504-102
 AMPLI FI
 AMPLIFICATORE FI



D

ABGLEICH DER ZEILENFREQUENZ UND -PHASE

Zellenfrequenz:

1. Pin 5, IC 2340 (TDA 2579) nach Masse kurzschließen.
2. Mit Einstellregler R 2323 Bild auf langsames Durchlaufen einstellen.
3. Kursor entfernt.

ZellenPhase:

1. Den Bildbreitenregler R 7002 auf Minimum stellen.
2. Mit dem Einstellregler R 2353 den grauen Bildrand symmetrisch zum rechten und linken Bildraster einstellen.
3. Den Bildbreitenregler wieder nach Testbild einstellen.

GB

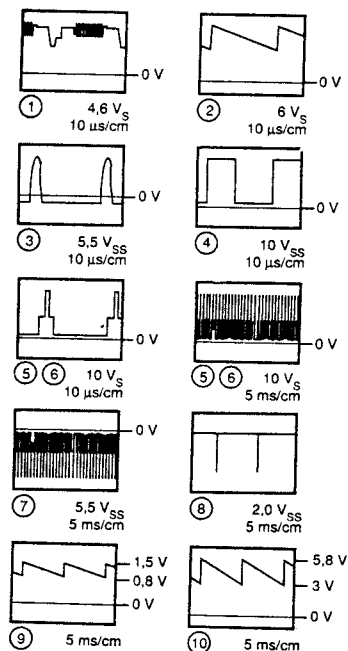
ADJUSTMENT OF LINE FREQUENCY AND PHASE

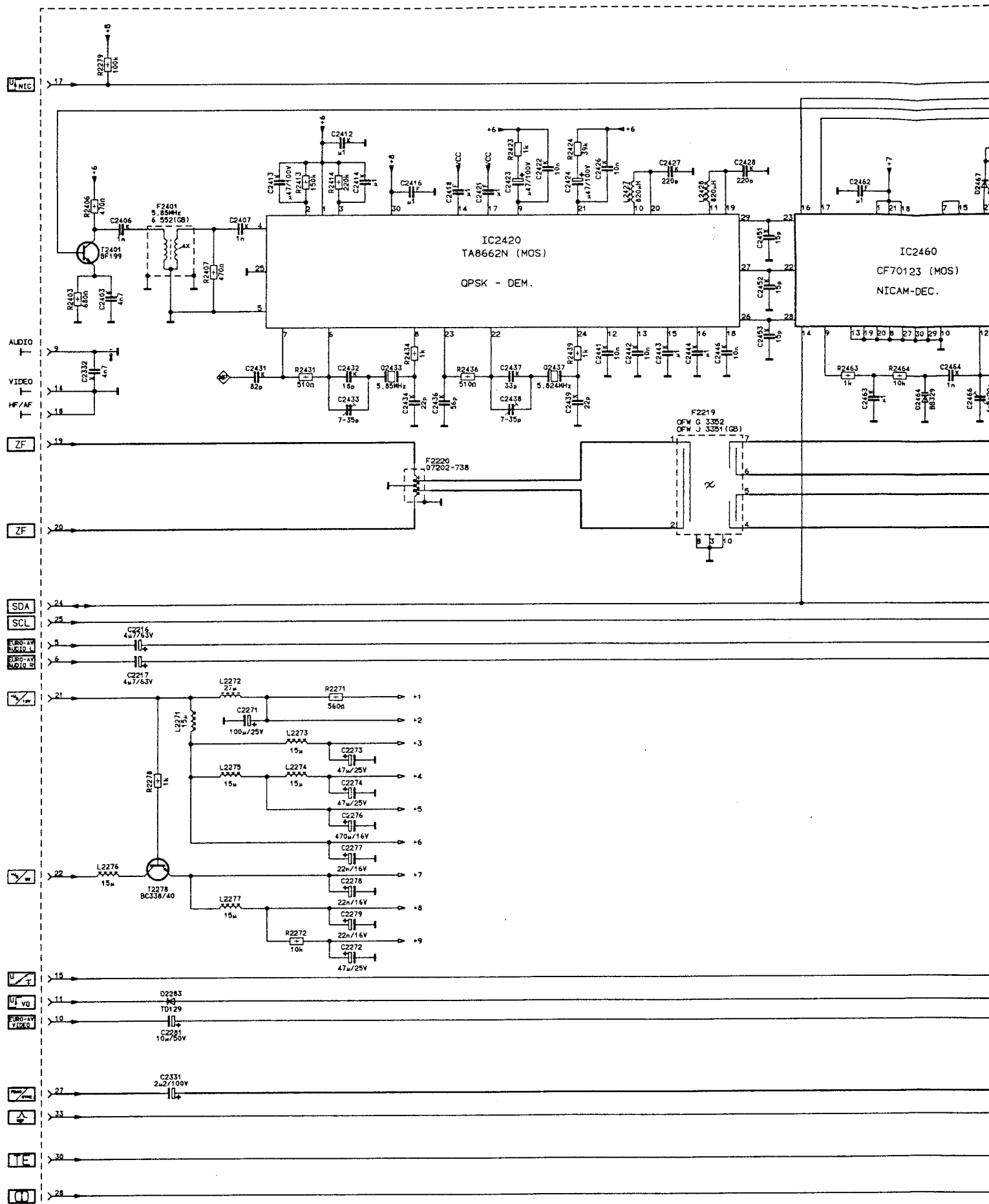
Line Frequency:

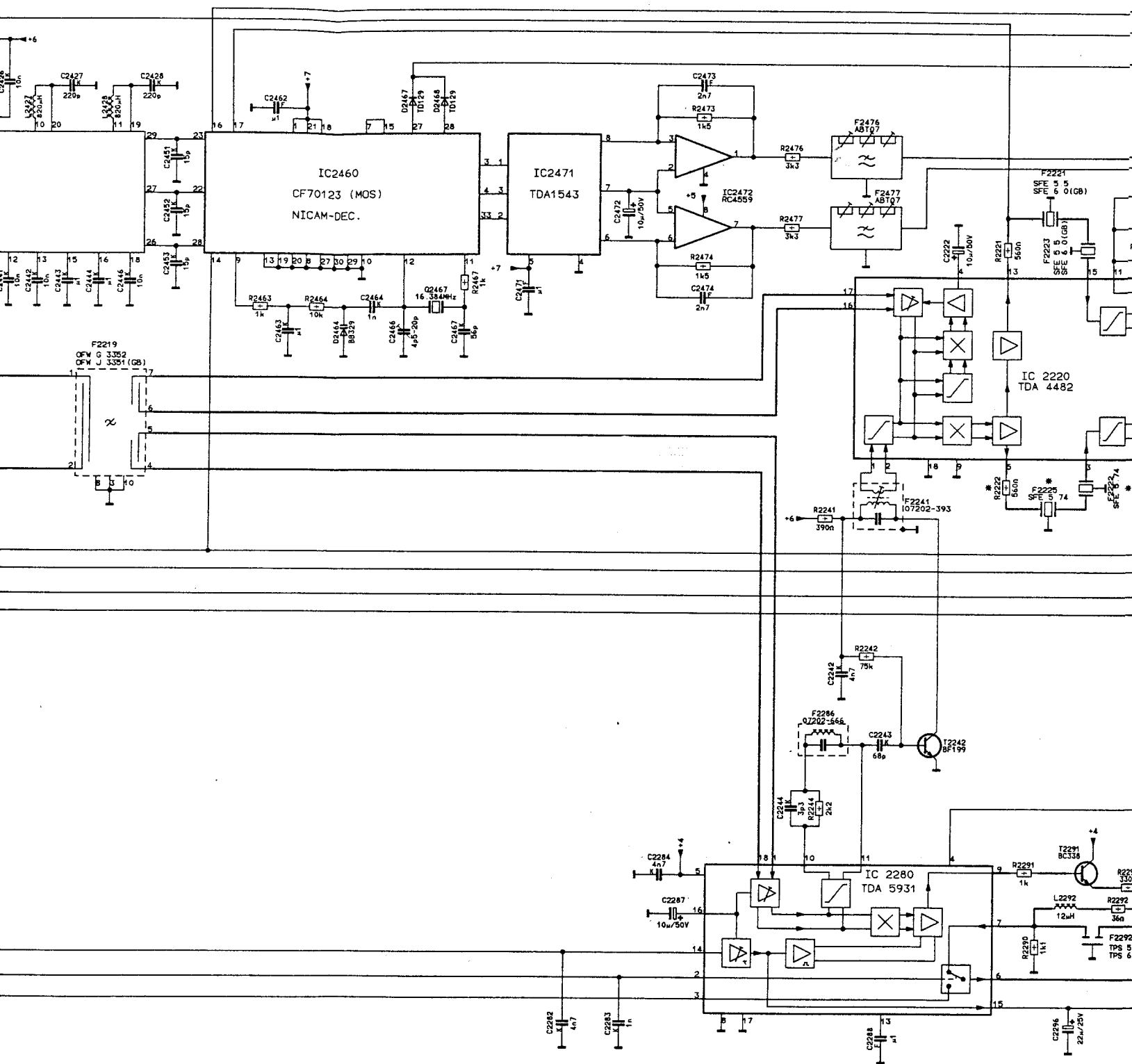
1. Short circuit Pin 5, IC 2340 (TDA 2579) to chassis.
2. With the adjustment control R 2323, adjust so that the picture runs through slowly.
3. Remove the short circuit.

Line Phase:

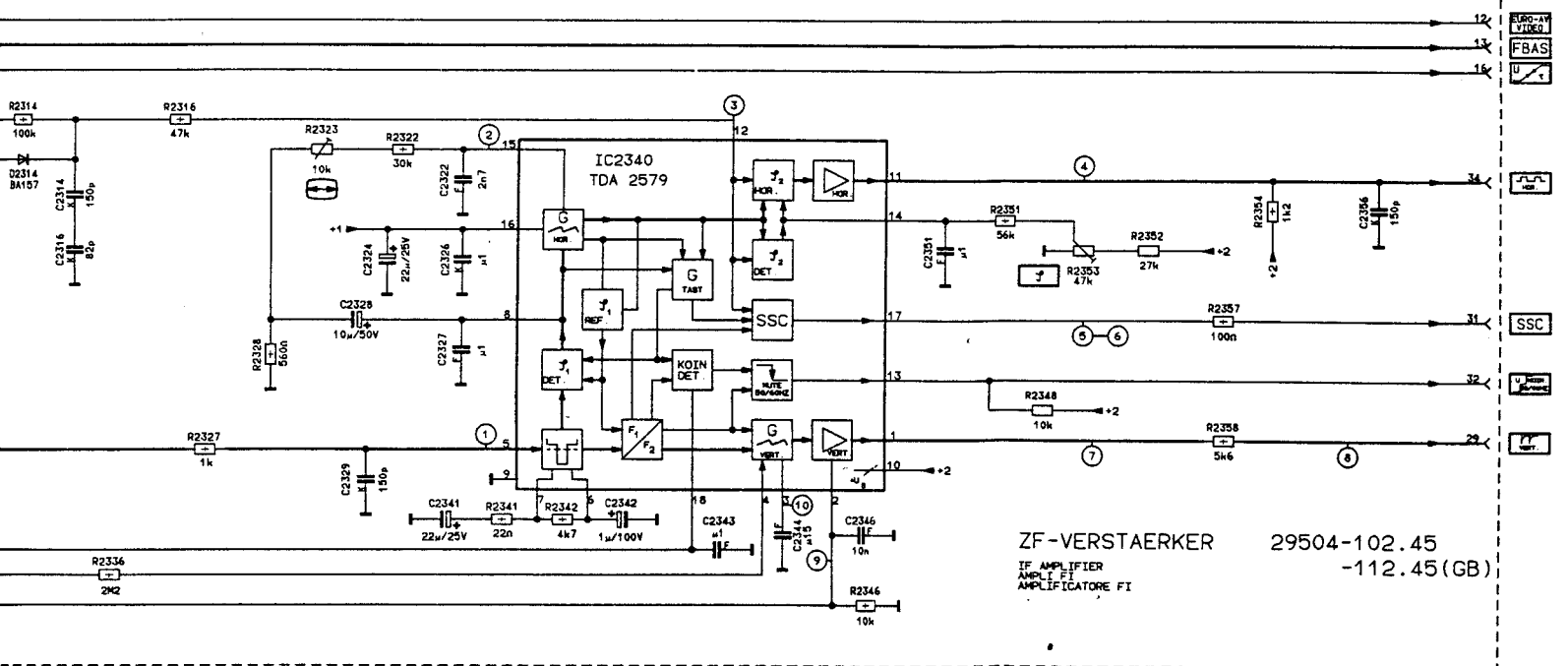
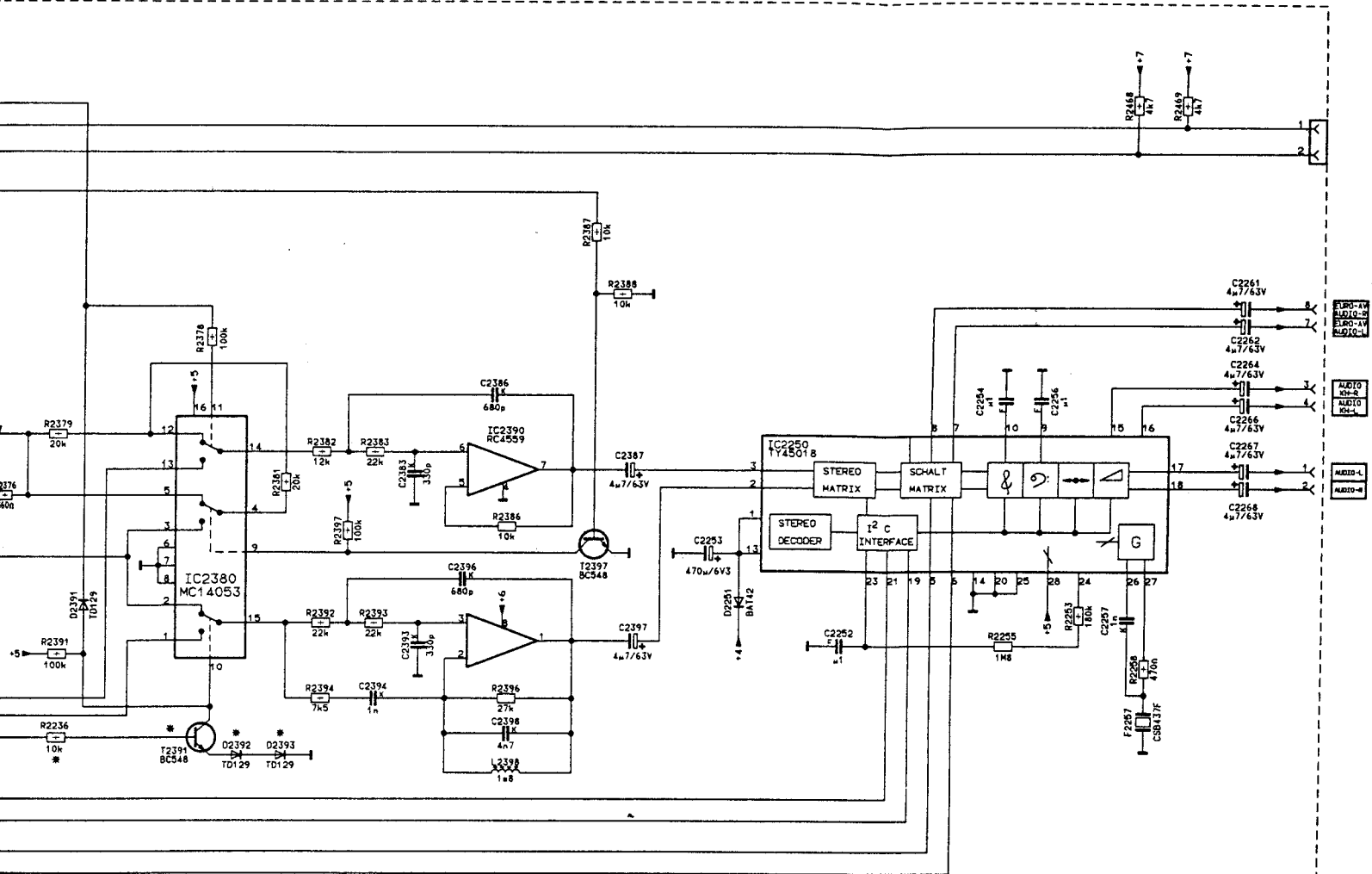
1. Set the picture width control R 7002 to minimum.
2. With the adjustment control R 2353, set the grey picture edges to be symmetrical within the right and left picture frame.
3. Reset the picture width control to conform with the test pattern.











D

ABGLEICH DER ZEILENFREQUENZ UND -PHASE

Zellenfrequenz:

1. Pin 5, IC 2340 (TDA 2579) nach Masse kurzschließen.
2. Mit Einstellregler R 2323 Bild auf langsames Durchlaufen einstellen.
3. Kurzschluß entfernen.

ZellenPhase:

1. Den Bildbreitenregler R 7002 auf Minimum stellen.
2. Mit dem Einstellregler R 2353 den grauen Bildrand symmetrisch zum rechten und linken Bildraster einstellen.
3. Den Bildbreitenregler wieder nach Testbild einstellen.

GB

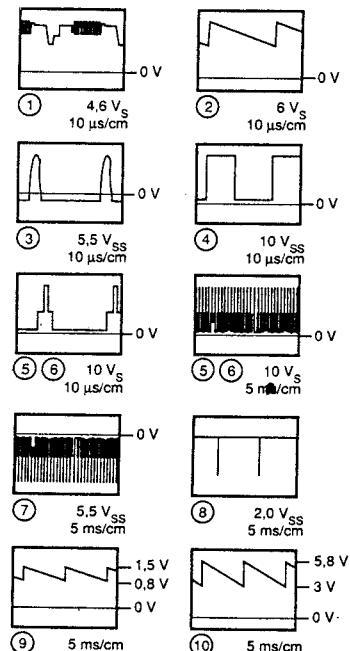
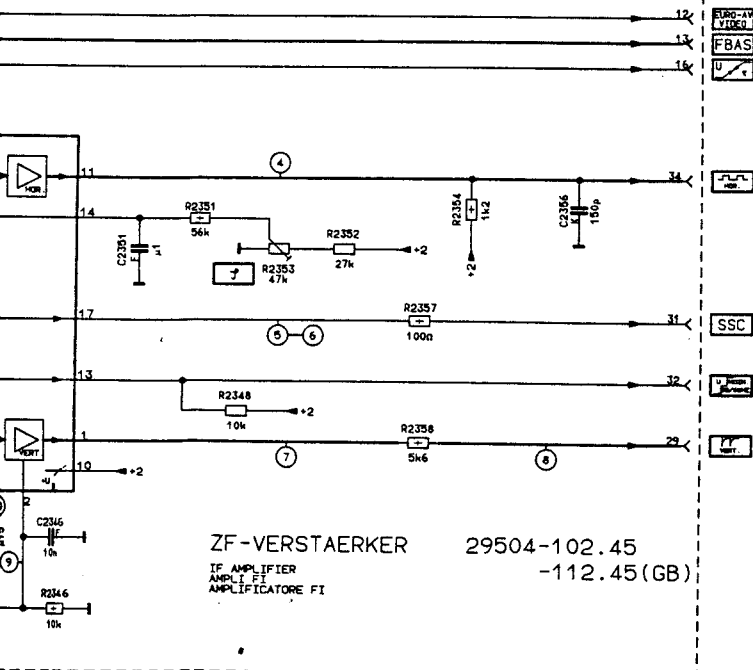
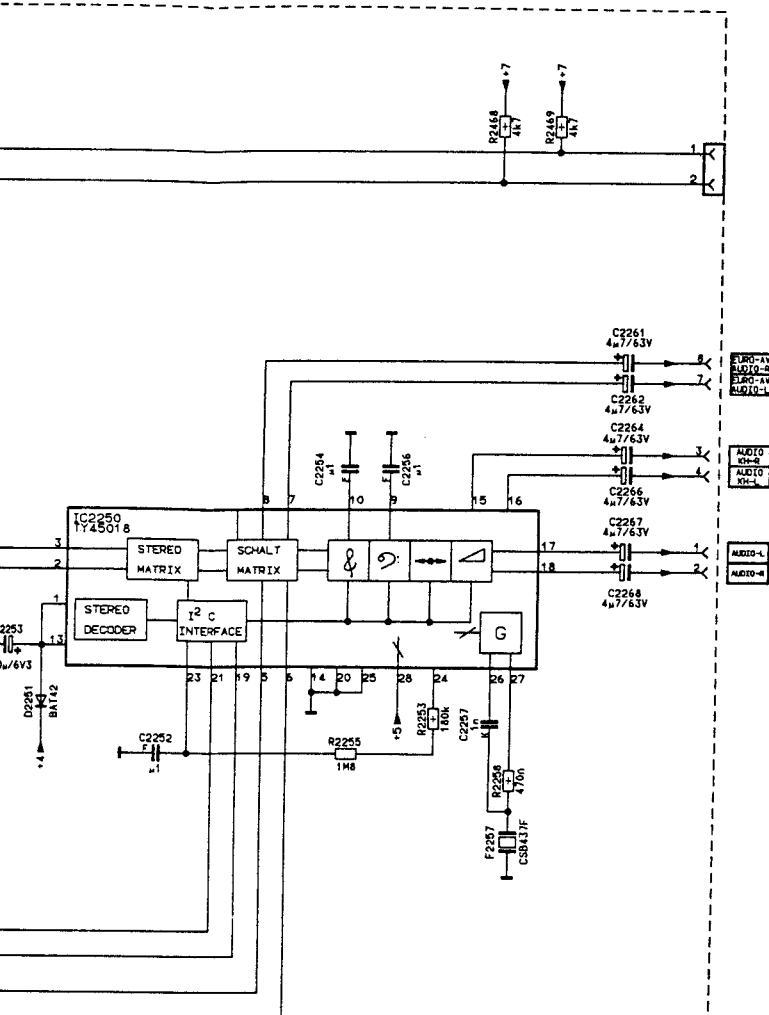
ADJUSTMENT OF LINE FREQUENCY AND PHASE

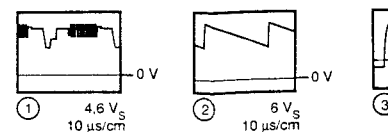
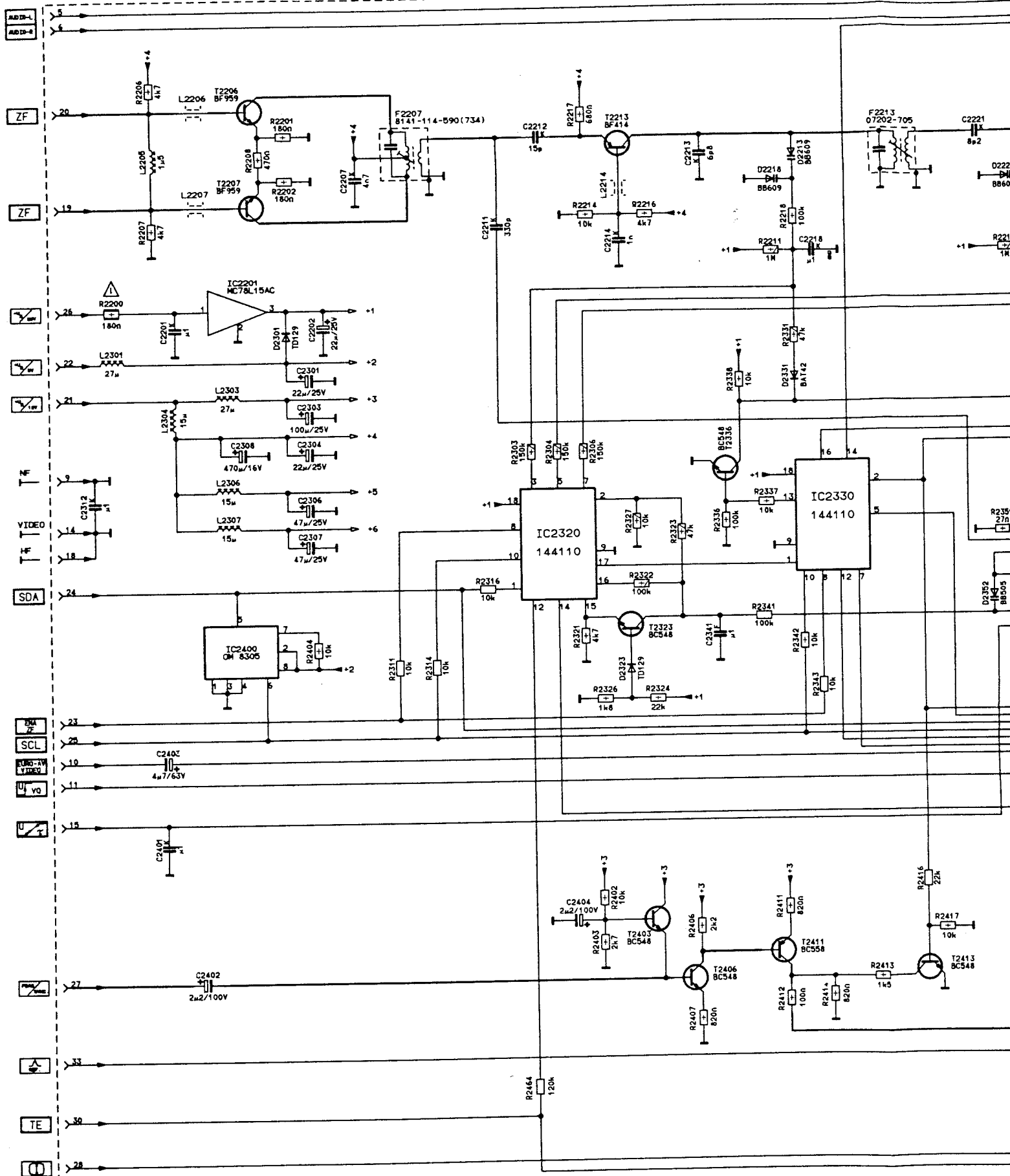
Line Frequency:

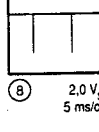
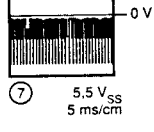
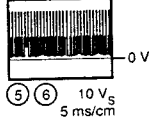
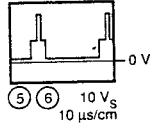
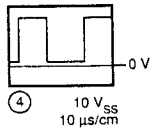
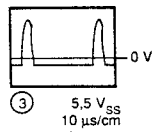
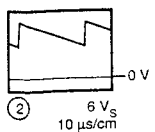
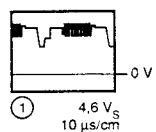
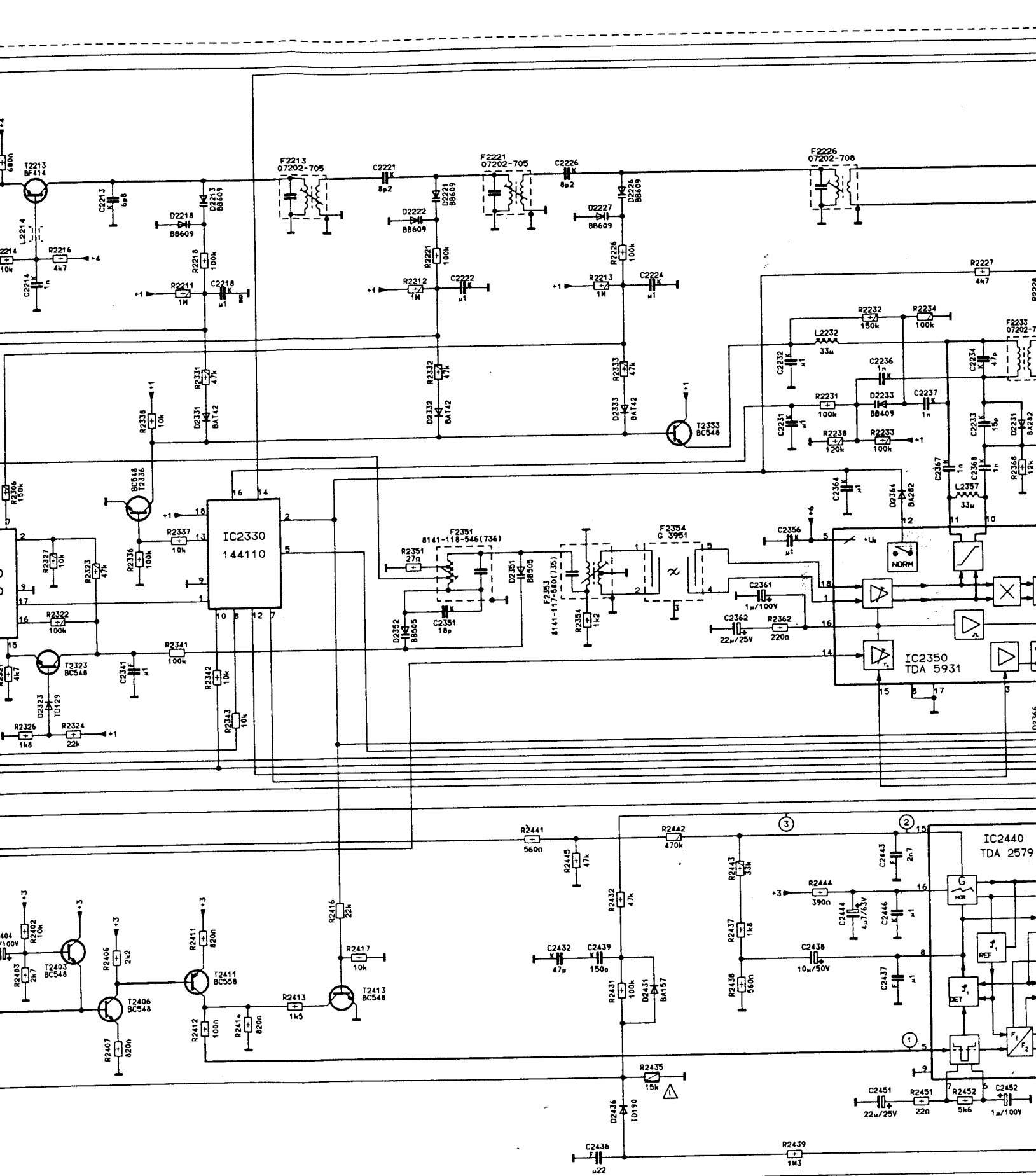
1. Short circuit Pin 5, IC 2340 (TDA 2579) to chassis.
2. With the adjustment control R 2323, adjust so that the picture runs through slowly.
3. Remove the short circuit.

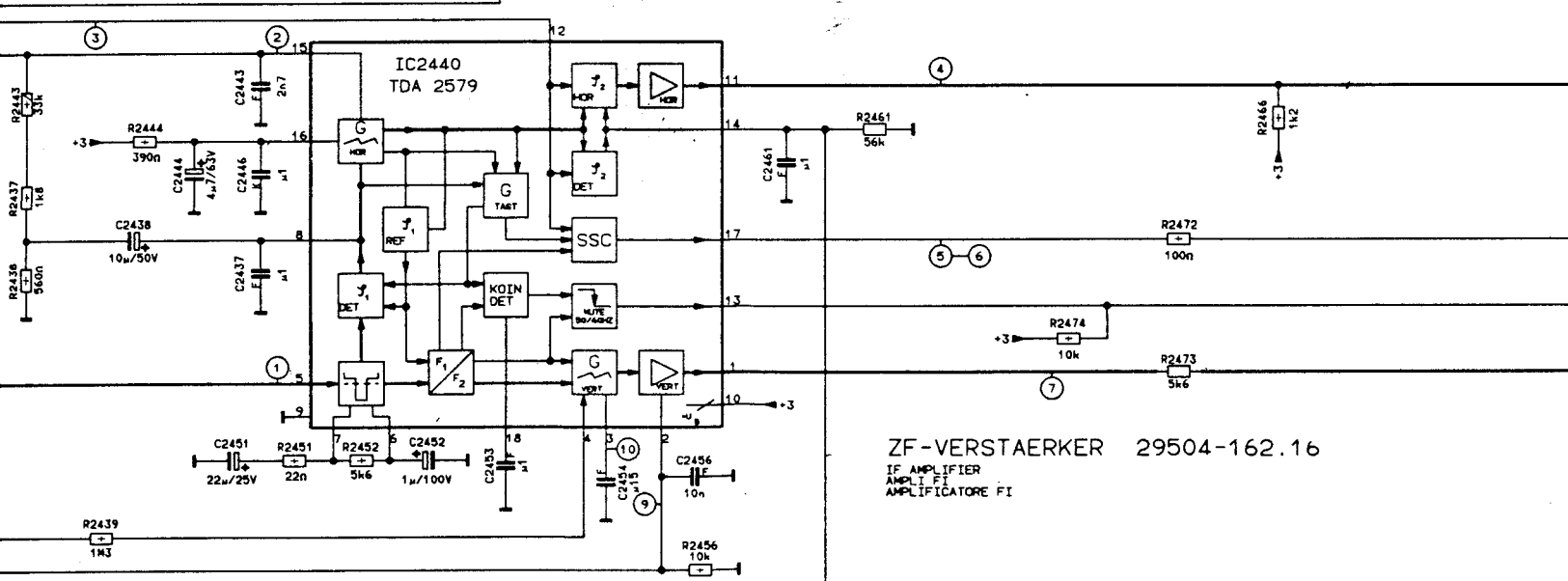
Line Phase:

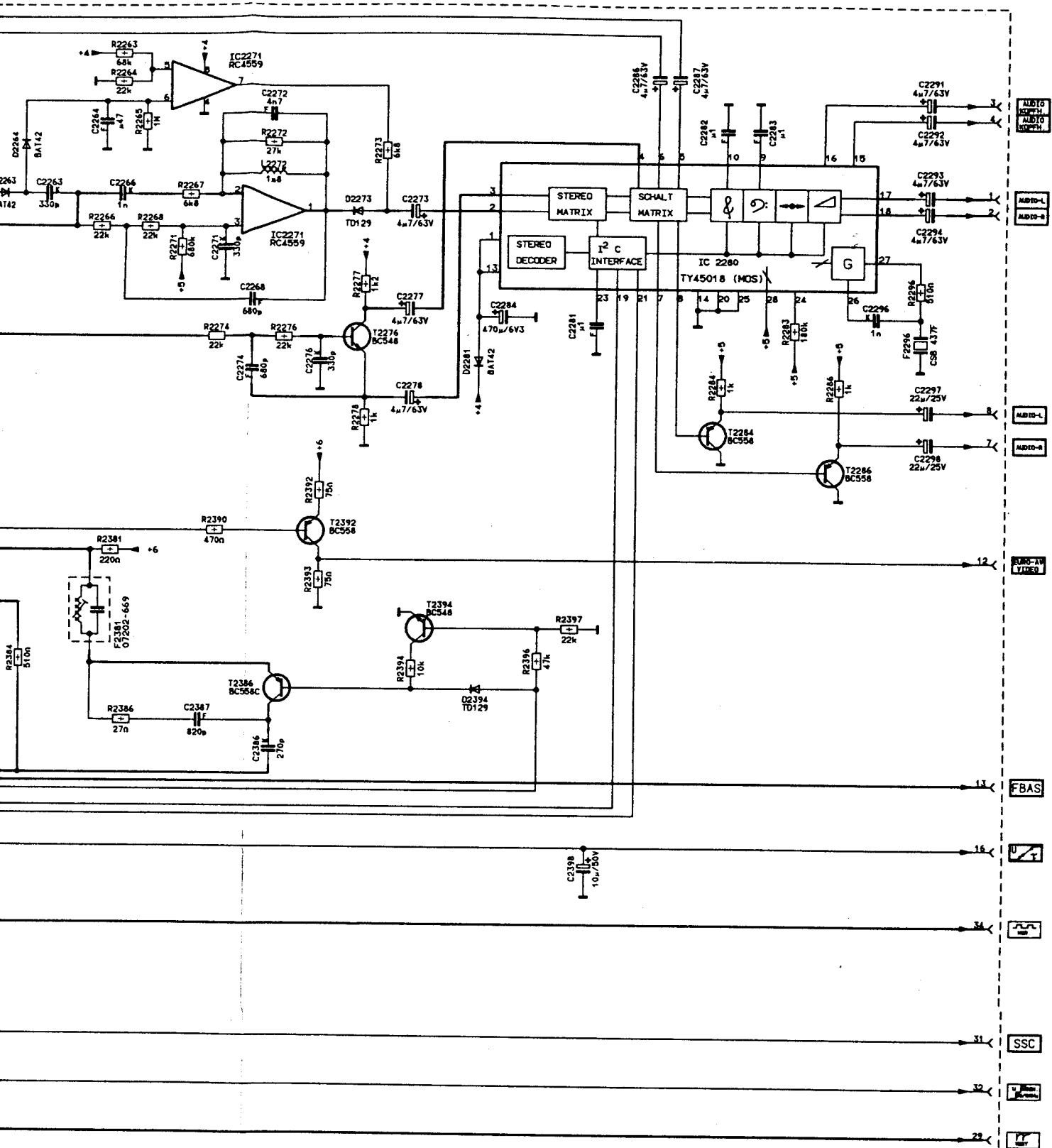
1. Set the picture width control R 7002 to minimum.
2. With the adjustment control R 2353, set the grey picture edges to be symmetrical within the right and left picture frame.
3. Reset the picture width control to conform with the test pattern.



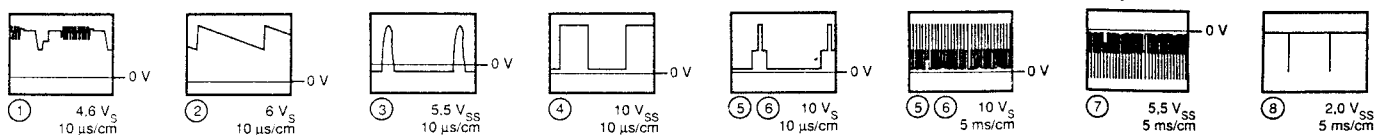
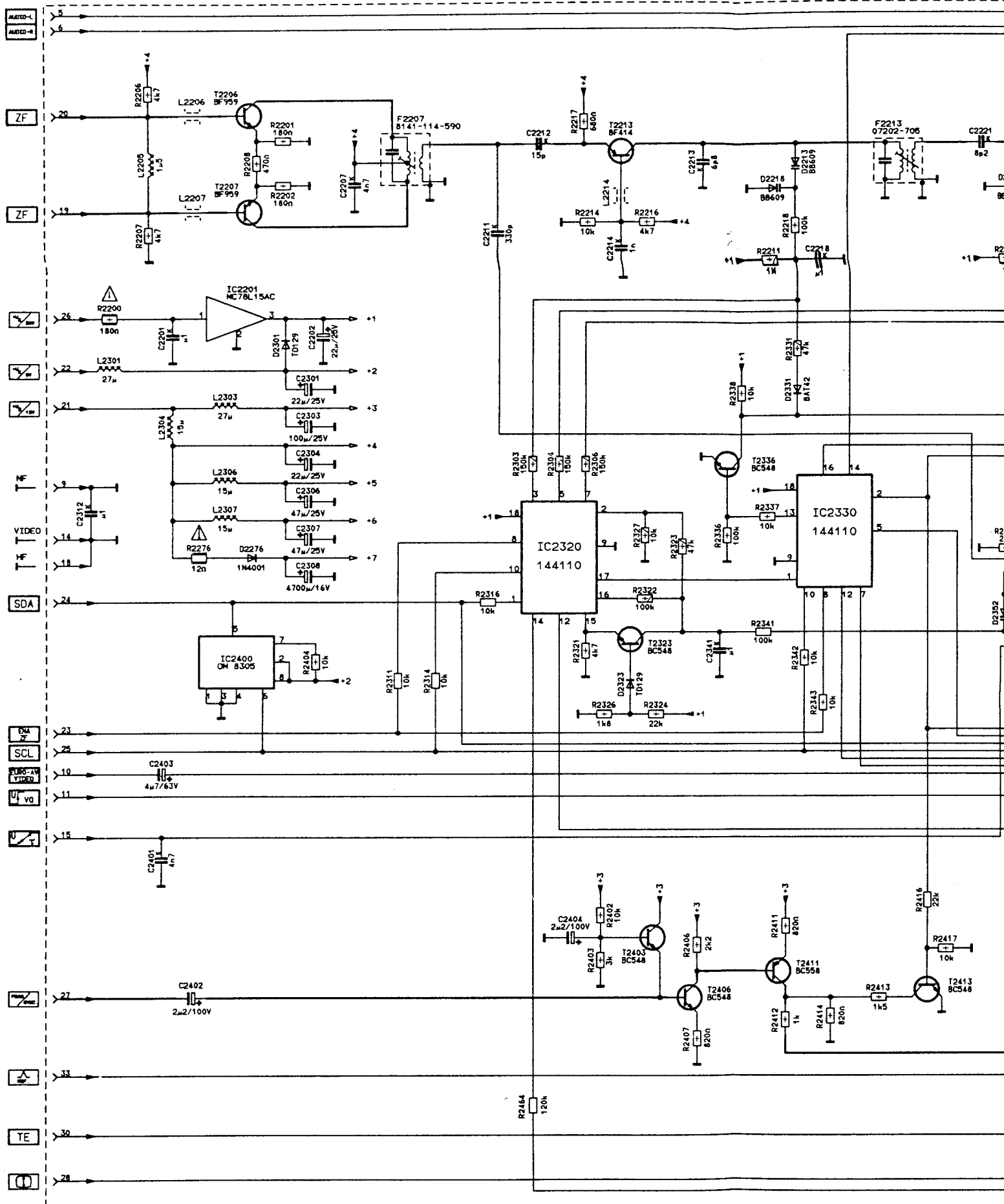


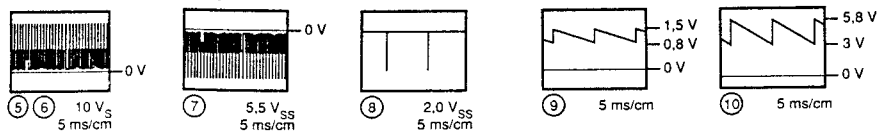


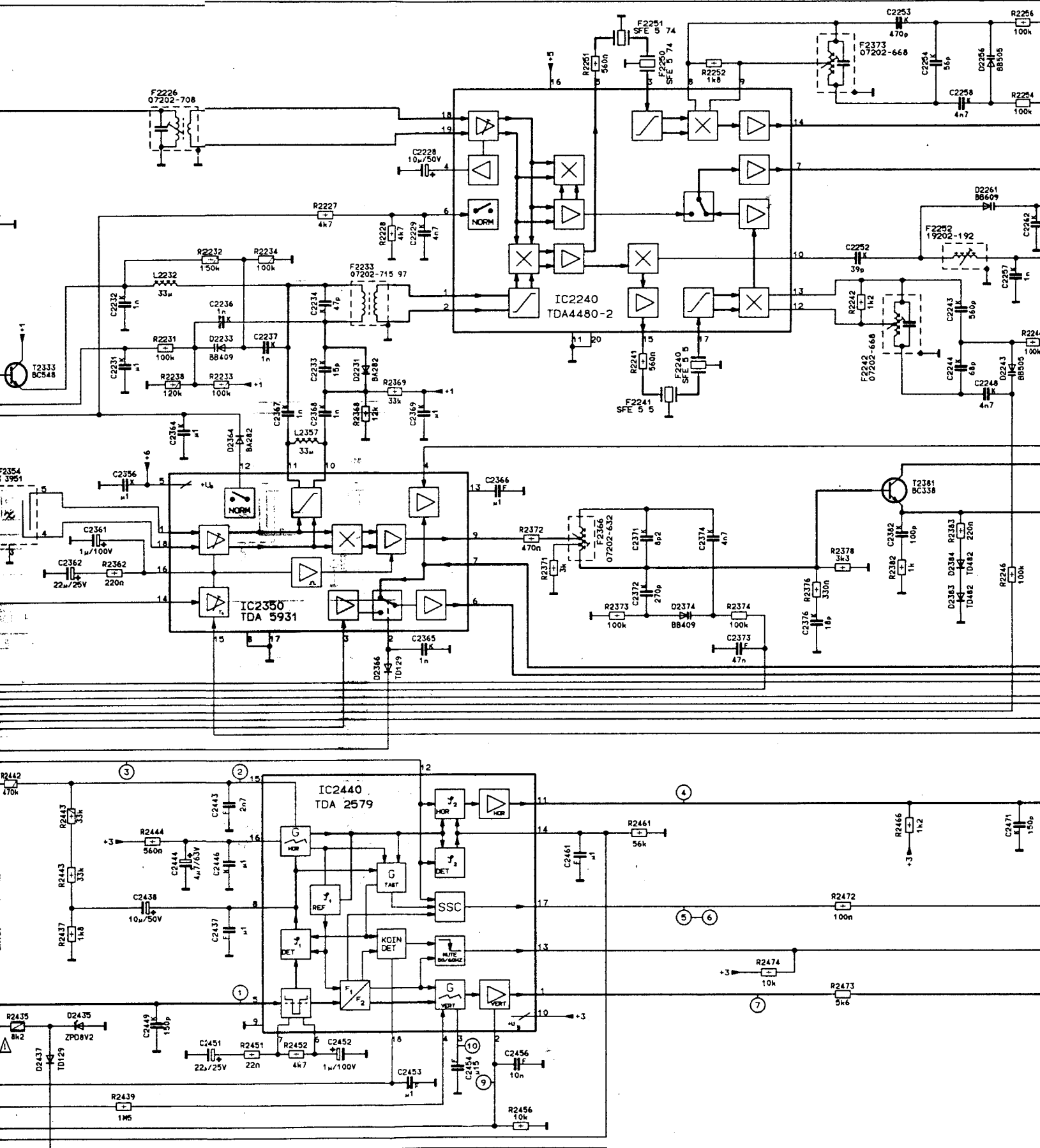


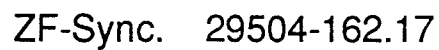


Kein Anpassungsabgleich bei Austausch der Steckkarte notwendig
 When replacing the plug-in board, no alignment is necessary

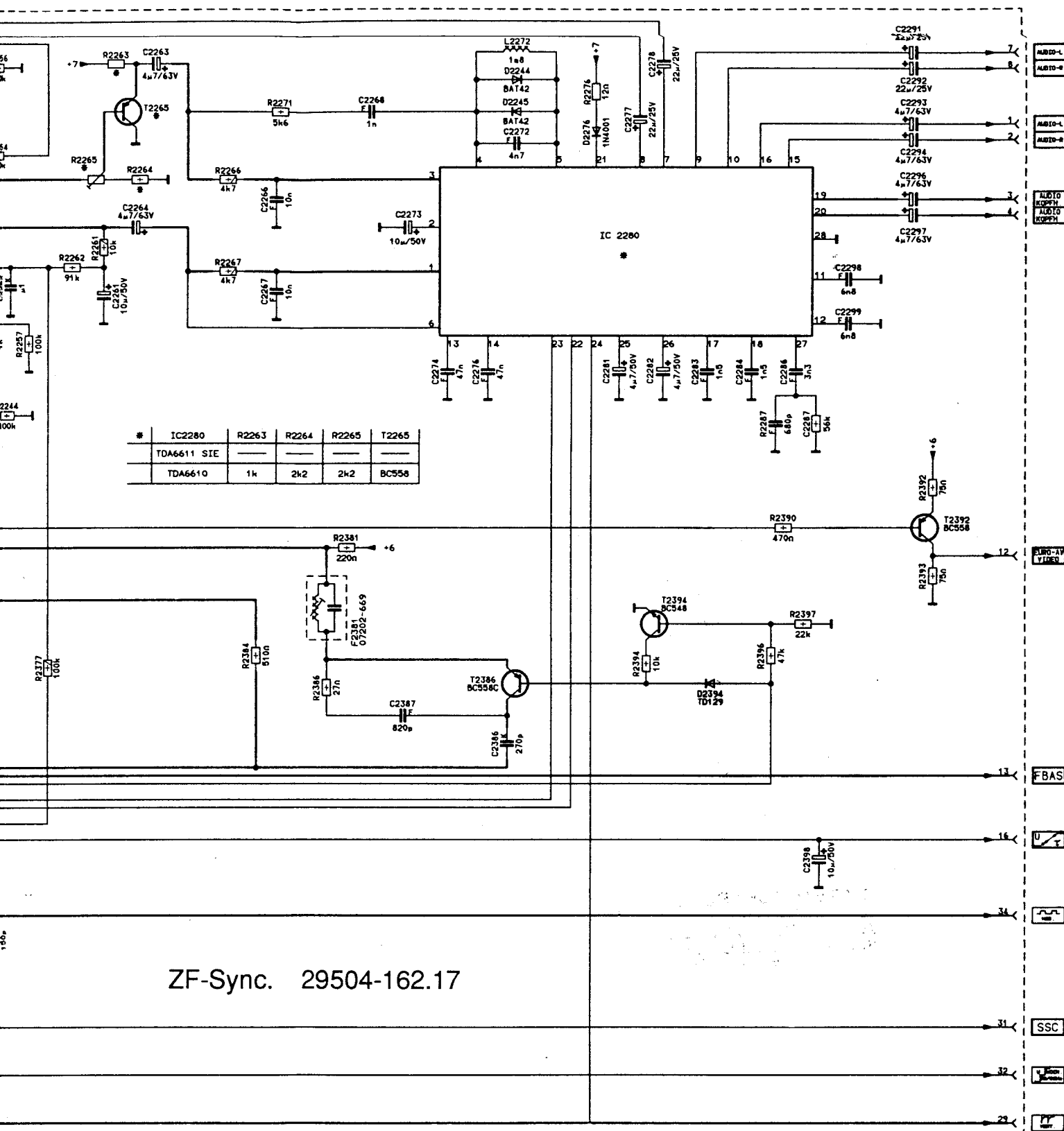






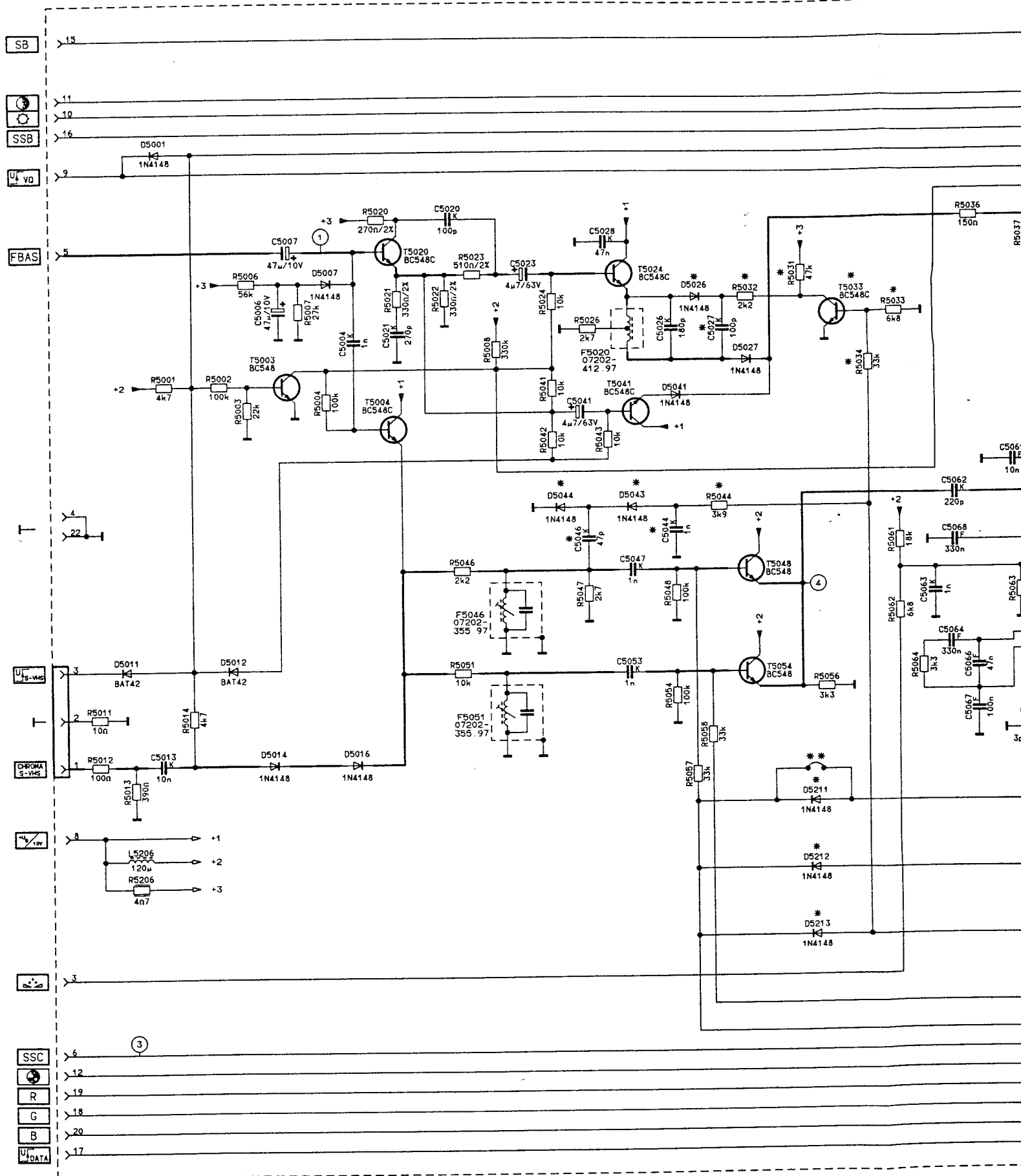


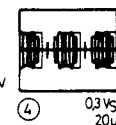
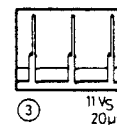
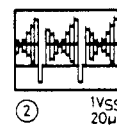
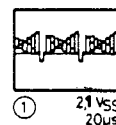
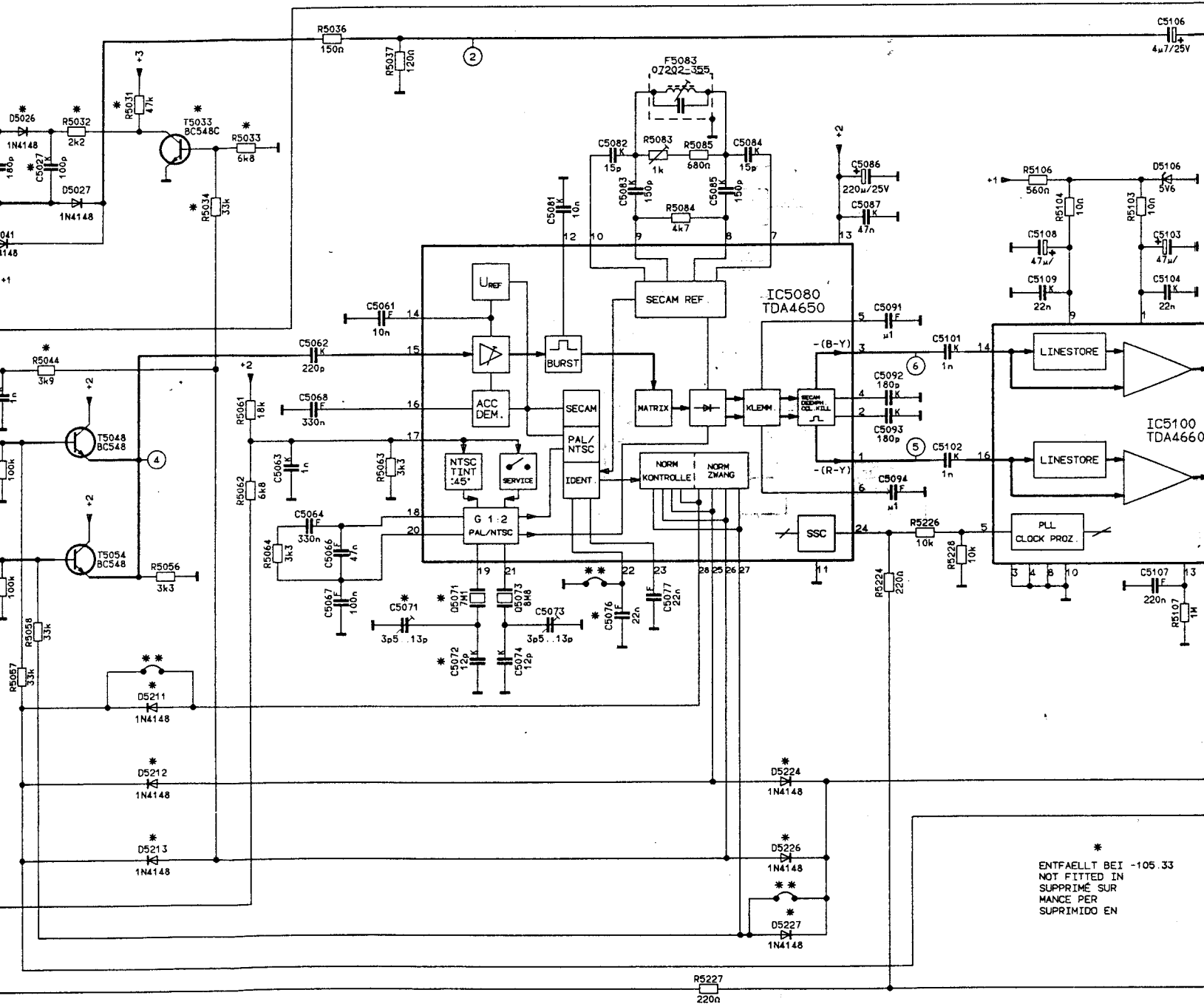
ZF-Sync.	295
IF-Sync.	295
Sync.FI	295
Sinc. FI	295
FI Sync.	295

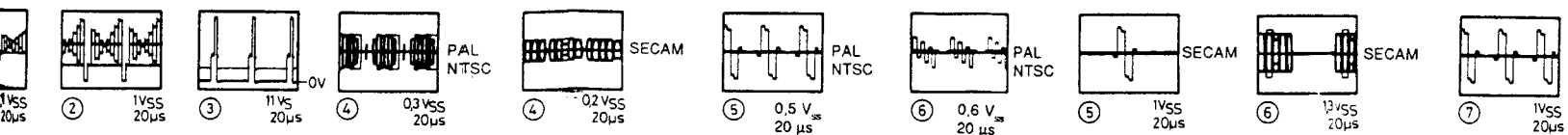
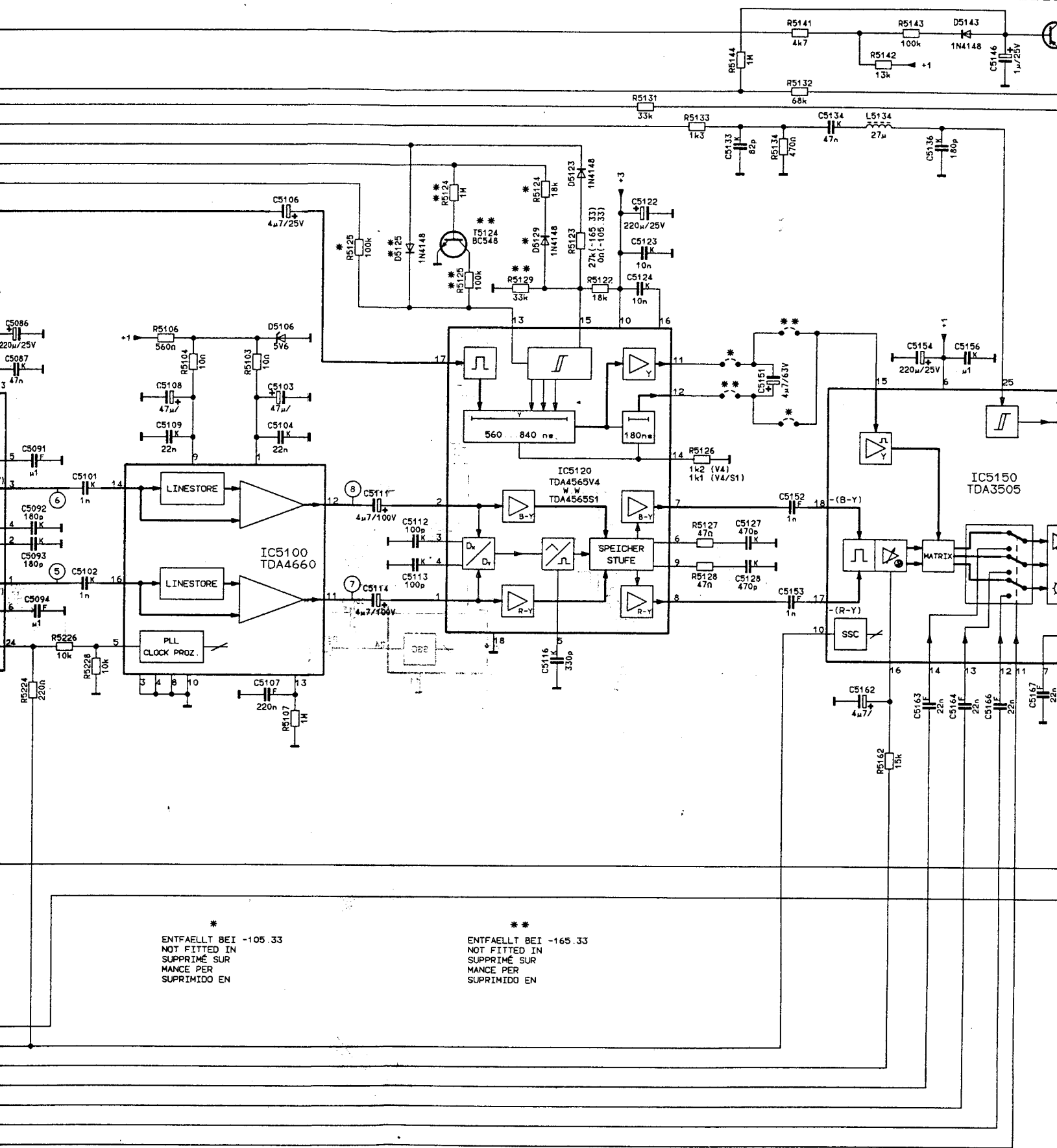


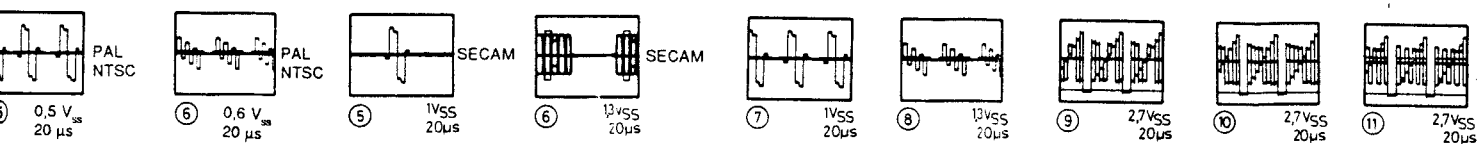
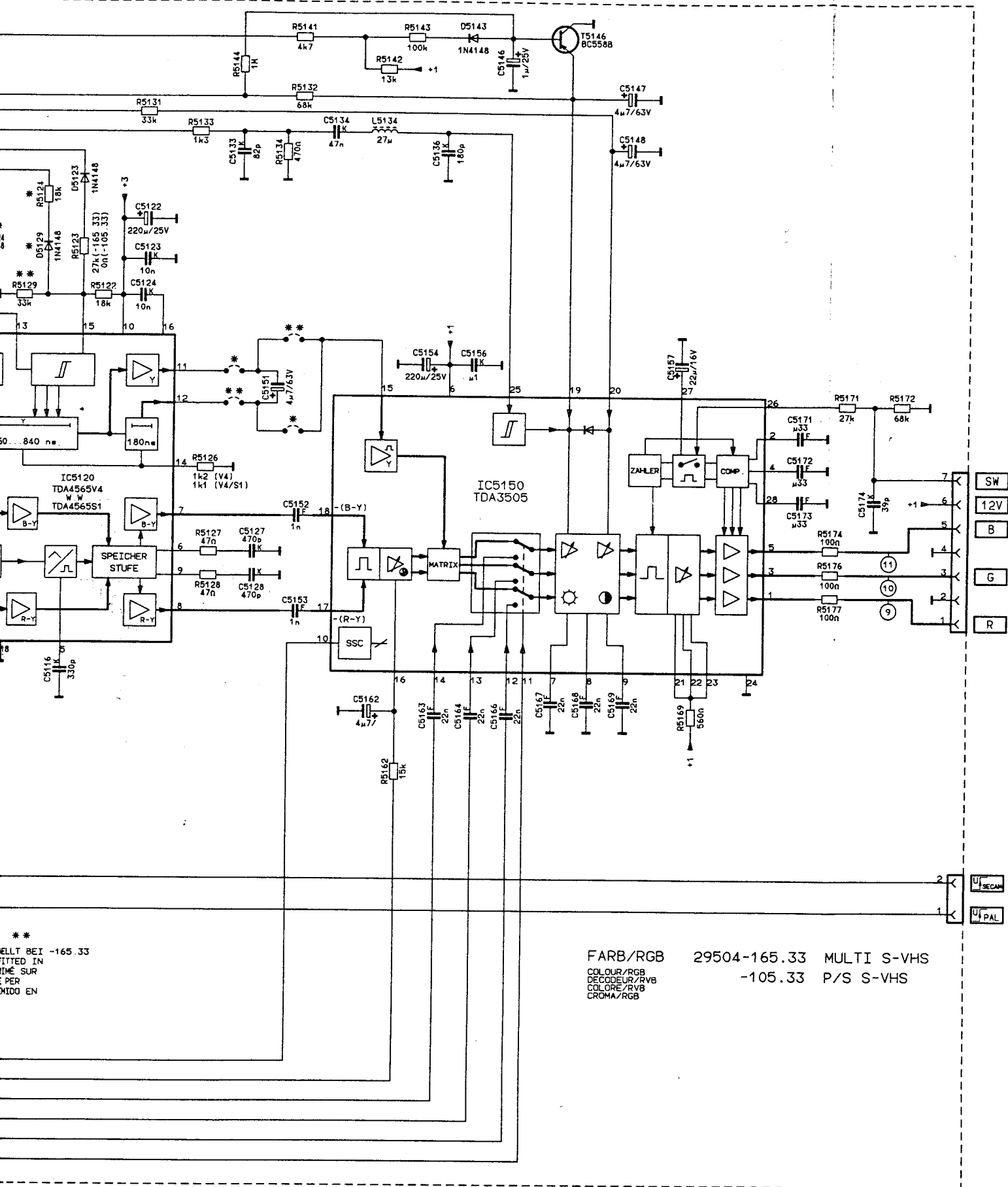
kein Anpassungsabgleich bei Austausch der Steckkarte notwendig
When replacing the plug-in board, no alignment is necessary

ZF-Sync.	29504-162.17
IF-Sync.	29504-162.17
Sync.FI	29504-162.17
Sinc. FI	29504-162.17
FI Sync.	29504-162.17









D

Abgleich Farb/RBG

1. Weißabgleich

- FuBK-Testbild einspeisen.
- Ⓢ min., Ⓞ nom., Ⓢ max. einstellen.
- Regler VG und VB (Bildrohrplatte) so einstellen, daß keine Verfärbungen in den Grauwerten sichtbar sind.

2. Sperrpunktgleich

Eine manuelle Einstellung ist nicht möglich, da die Steckkarte eine automatische Dunkelstromregelung besitzt. Kontrolle des Sperrpunkts (Oszilloskop erforderlich):

- FuBK-Testbild einspeisen.
- Ⓢ min., Ⓞ nom., Ⓢ min. einstellen.
- Tastkopf an den Kollektoren der Transistoren T 736, T 756, T 776 anhängen (Bildrohrplatte). Die Schwarzwerte der drei Kathodensignale liegen bei ca. 140 - 150 V.

3. Einstellungen im Farbkanal

(Bei allen Messungen Tastkopf 10 : 1, um Belastungen zu vermeiden)

- **PAL-Testbild einspeisen.**
- Abgleich des Farbtraps:
Tastkopf an Pin 17 des IC 5120 (TDA 4555), das Y-Signal mit dem Filter F 5020 auf minimalen Farbträger einstellen.
- Pin 28 des IC 5080 (TDA 4650) mit +12V verbinden.
- Pin 17 des IC 5080 (TDA 4650) mit Masse verbinden.
- Mit Trimmer C 5073 die durchlaufenden Farbbalken zum Stehen bringen.
- Kurzschlußbrücken entfernen.
- Farbauskopplung PAL:
Tastkopf an Emitter des Transistors T 5048, mit Filter F 5046 auf maximalen Farbträger einstellen.

- SECAM-Testbild einspeisen.

- Einen Tastkopf eines Zweistrahl-Oszilloskopes an Pin 11 des IC 5080 (TDA 4650), den zweiten Tastkopf an Pin 12 des IC 5080 (TDA 4650).
- Durch wechselseitigen Abgleich des Filters F 5083 und des Reglers R 5083 die Nulllinien des (B-Y)- und des (R-Y)-Signals auf Zeilentastriveau bringen. Hinweis: Mit F 5083 beginnen.
- SECAM-Glockenfilterabgleich:
Tastkopf an Pin 12 des IC 5100 (TDA 4660).
Mit F 5051 das (B-Y)-Signal einer Farbtreppe auf symmetrische und minimale Überschwinger abgleichen.

Nur bei Multi-Ausführung:

- NTSC-Testbild einspeisen.
- Pin 26 des IC 5080 (TDA 4650) mit +12V verbinden.
- Pin 17 des IC 5080 (TDA 4650) mit Masse verbinden.
- Mit Trimmer C 5071 die durchlaufenden Farbbalken zum Stehen bringen.
- Ein Abgleich der Farbauskopplung und des Farbtraps ist nach erfolgtem PAL/SECAM-Abgleich nicht erforderlich.

GB

Colour / RGB Alignment

1. White Alignment

- Feed in a FuBK Test Pattern.
- Adjust Ⓢ to min., Ⓞ to nom., Ⓢ to max.
- Adjust the controls VG and VB (Picture Tube panel) so that no colouration is visible in the Grey Value areas.

2. Cut-off point alignment

A manual adjustment is not possible as an automatic Dark-current control circuit is incorporated in the Plug-in Board.

Checking the Cut-off Point (an oscilloscope is required):

- Feed in a FuBK Test Pattern.
- Adjust Ⓢ to min., Ⓞ to nom., Ⓢ to min.
- Connect a test probe to collectors of the transistors T 736, T 756, T 776 (Picture Tube panel). The Black Level of the three signals on the cathodes will be at approx. 140-150 V.

3. Colour Channel adjustments

(Set the test probe to 10:1 for all measurements to avoid loading errors)

- **Feed in a PAL Test Pattern.**
- Colour Trap alignment:
Connect a test probe to pin 17 of IC 5120 (TDA 4555) and adjust Filter F 5020 so that the Colour Carrier within the Y-Signal is at minimum.
- Connect pin 28 of IC 5080 (TDA 4650) to the +12 V supply.
- Connect pin 17 of IC 5080 (TDA 4650) to chassis.
- Adjust Trimmer C 5078 so that the colour bars which are running through are stationary.
- Remove the short-circuits.
- Coupling out the PAL Colour:
Connect a test probe to the emitter of transistor T 5048 and adjust Filter F 5046 for maximum Colour Carrier.

Feed in a SECAM Pattern.

- Connect a test probe from the Dual Beam Oscilloscope to pin 11 of IC 5080 (TDA 4650) and the second test probe to pin 12 of IC 5080 (TDA 4650).
- By adjusting the Filter F 5083 and the control R 5083 alternately, set the Zero lines of the (B-Y)- and the (R-Y)-signals to the Line Blanking Threshold.

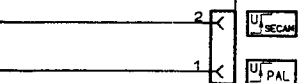
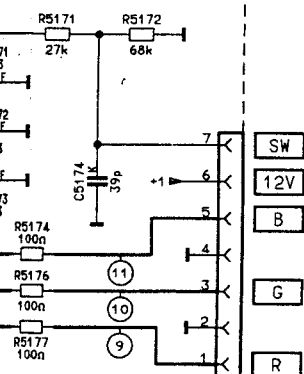
Note: Commence with F 5083.

- SECAM-Bell Filter Alignment:

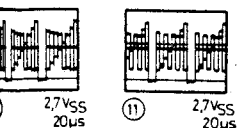
- Connect a test probe to pin 12 of IC 5100 (TDA 4660).
- Adjust F 5061 so that the (B-Y) Signal of one Colour staircase is symmetrical and contains minimum overshoots.

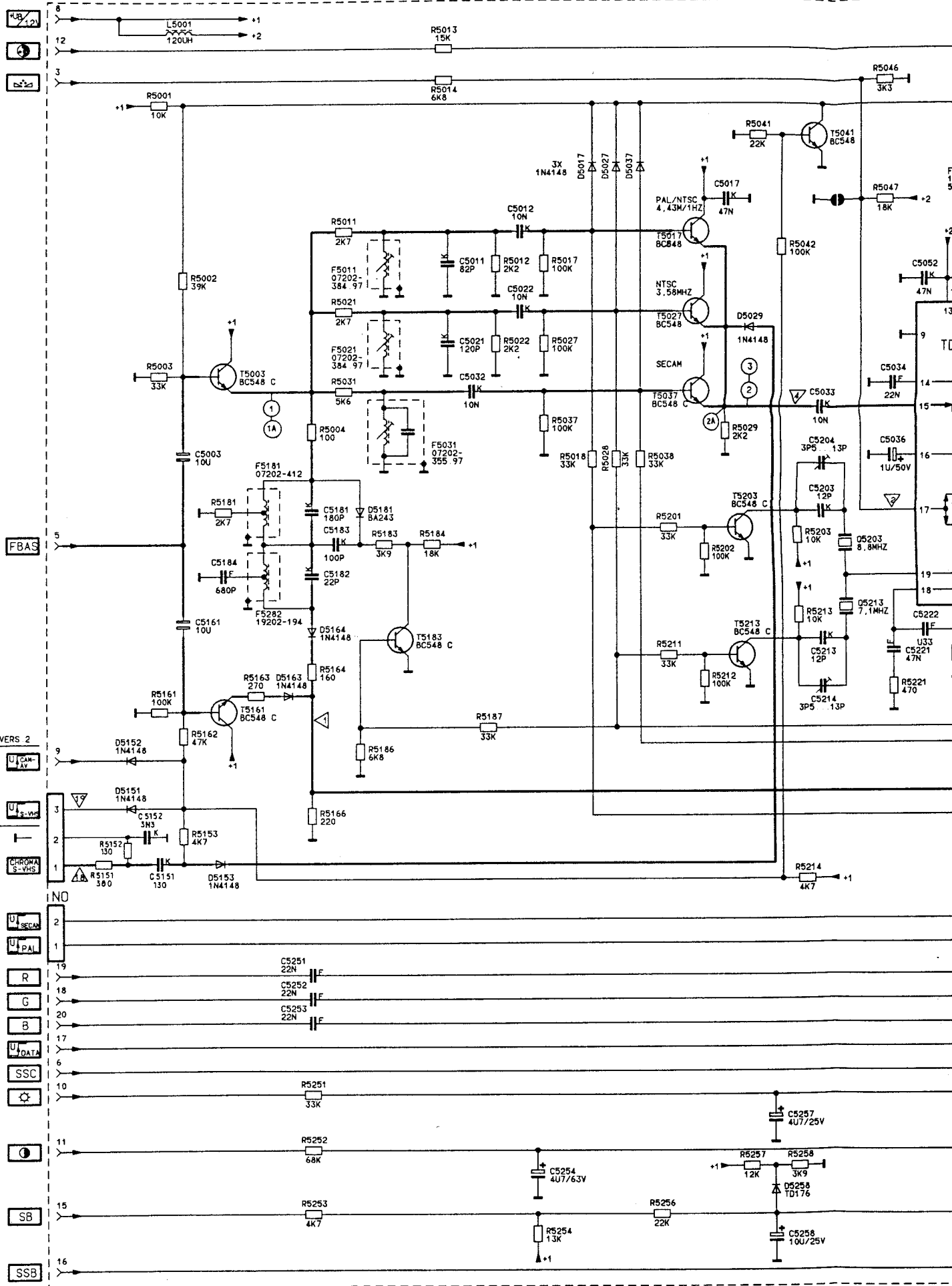
Only for Multi Standart Version

- Feed in a NTSC Test Pattern.
- Connect pin 26 of IC 5080 (TDA 4650) to the +12V supply.
- Connect Pin 17 of IC 5080 (TDA 4650) to chassis.
- Adjust Trimmer C 5071 so that the colour bars which are running through are stationary.
- Adjustments for coupling out the Colour and the Colour Trap are not necessary after carrying out the PAL/SECAM alignment.



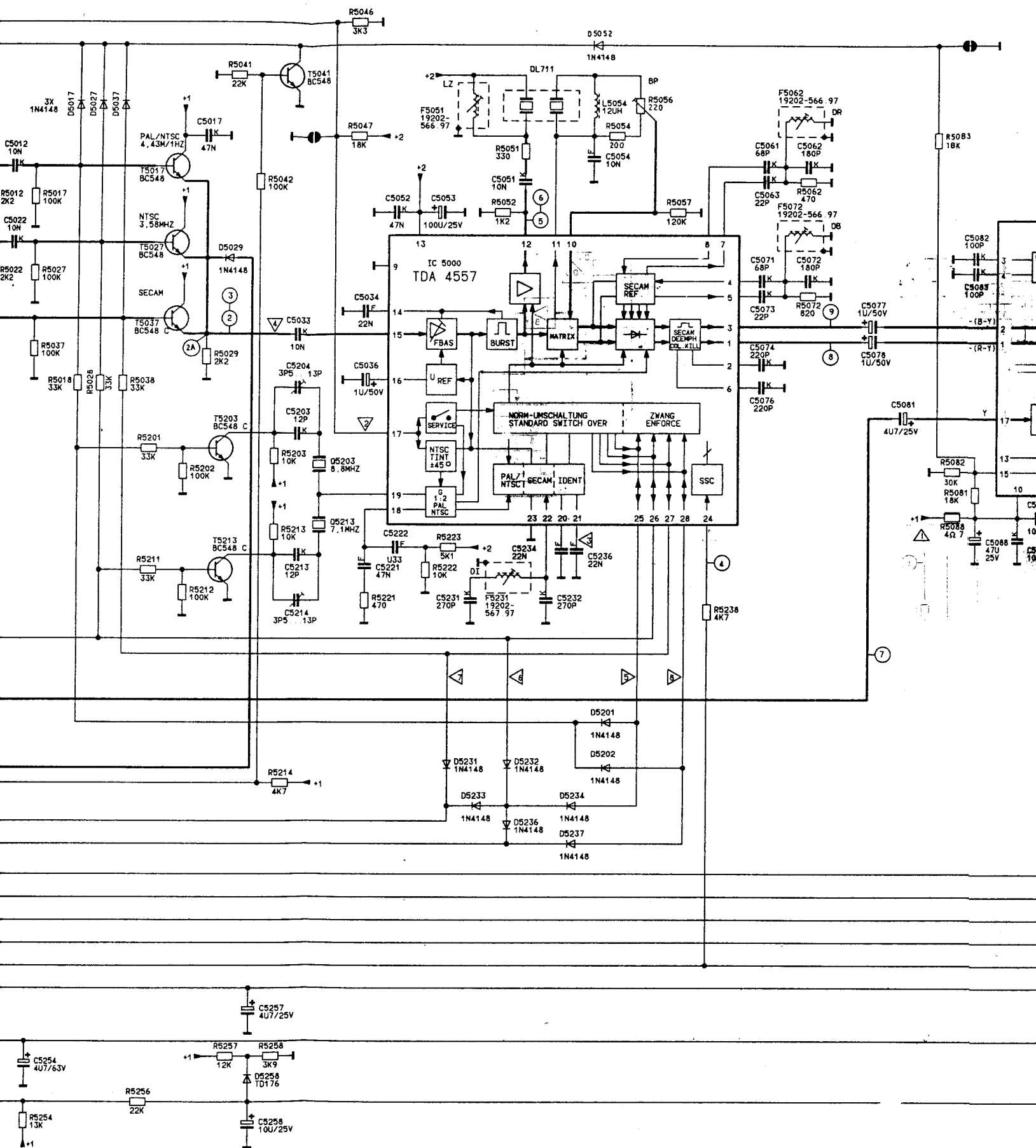
MULTI S-VHS
P/S S-VHS

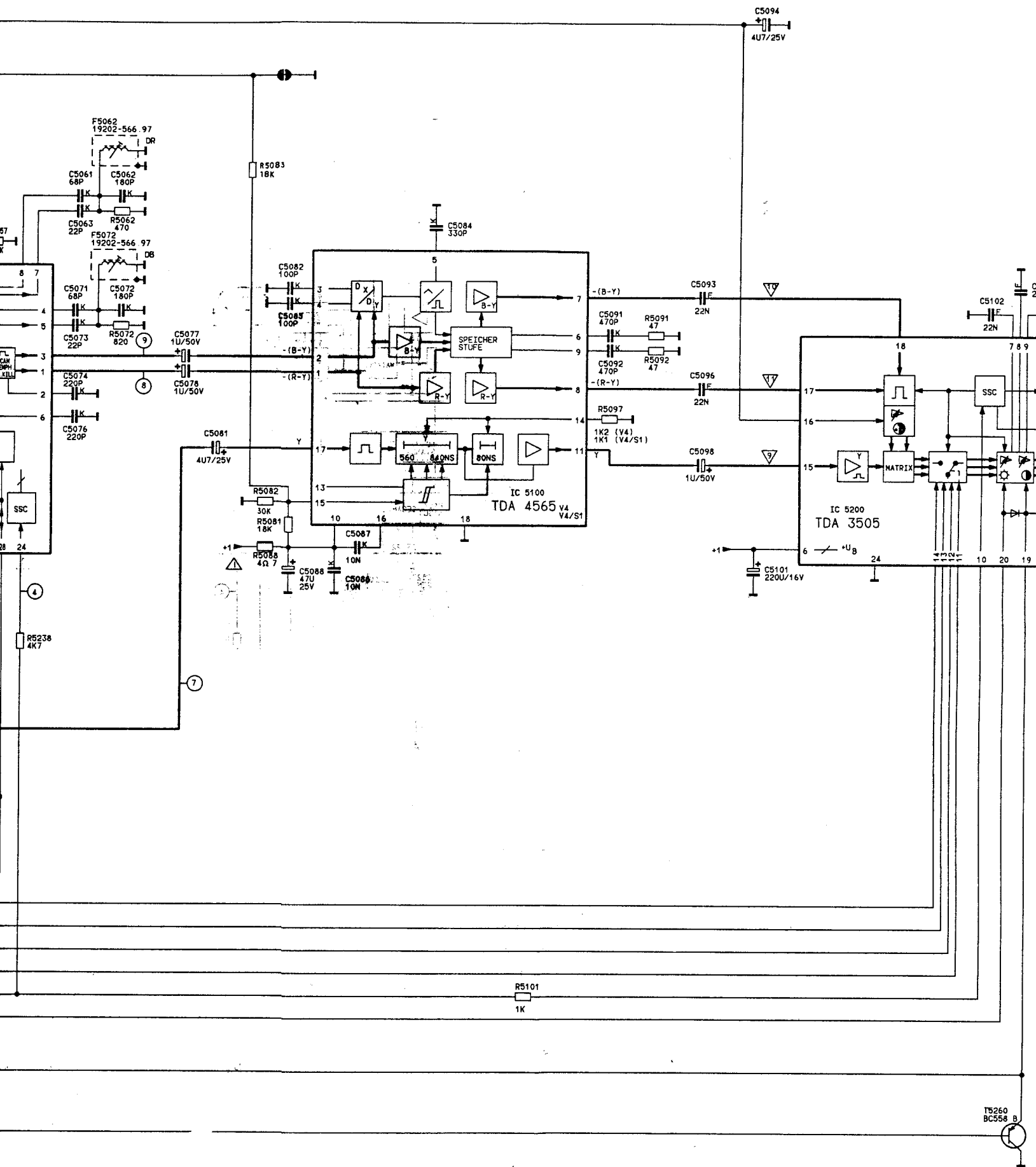


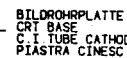


	VERS 1	VERS 2
U ₁ S-VHS		U ₁ CAM-AY
U ₁ S-VHS		U ₁ S-VHS
CHROMA S-VHS		
NO		
2		U ₁ SECAM
1		U ₁ PAL
19		
18		
20		
17		
6		
10		
11		
15		
16		

	1	2
SECAM	0	1
NTSC	1	1
PAL	1	0





COULEUR / RVB
COLORE / RVB

1. Weißabgleich

- FuBK-Testbild einspeisen.
- Ⓐ min., Ⓑ nom., Ⓒ max. einstellen.
- Regler VG und VB (Bildrohrplatte) so einstellen, daß keine Verfärbungen in den Grauwerten sichtbar sind.

2. Sperrpunktabgleich

Eine manuelle Einstellung ist nicht möglich, da die Steckkarte eine automatische Dunkelstromregelung besitzt. Kontrolle des Sperrpunkts (Oszilloskop erforderlich).

- FuBK-Testbild einspeisen.
- Ⓐ min., Ⓑ nom., Ⓒ min. einstellen.
- Tastkopf an den Kollektoren der Transistoren T 736, T 756, T 776 anhängen (Bildrohrplatte). Die Schwarzwerte der drei Kathoden-signale liegen bei ca. 140- 150 V.

3. Einstellungen im Farbkanal

- PAL-Testbild einspeisen.
- Ⓐ nom., Ⓑ nom., Ⓒ max. einstellen.
- IC-Pin 28 vom TDA 4557 mit +12V verbinden.
- IC-Pin 17 vom TDA 4557 mit Masse verbinden.
- Mit Trimmer C 5204 die durchlaufenden Farbbalken zum Stehen bringen.
- Kurzschlußbrücken entfernen.
- Tastkopf an MP 12, mit Regler BP und Spule LZ die Doppelbilder des B-Signals zur Deckung bringen.
- NTSC-Testbild 3.5 MHz einspeisen.
- IC-Pin 26 vom TDA 4557 mit +12V verbinden.
- IC-Pin 17 vom TDA 4557 mit Masse verbinden.
- Mit Trimmer C 5214 die durchlaufenden Farbbalken zum Stehen bringen.
- Kurzschlußbrücken entfernen.
- SECAM-Testbild einspeisen.
- Tastkopf an Pin 1 vom TDA 4557 anschließen, mit Spule DR Nulllinie des (R-Y)-Signals auf Zeilenniveau bringen.
- Tastkopf an Pin 3 vom TDA 4557 anschließen, mit Spule DB Nulllinie des (B-Y)-Signals auf Zeilentast-niveau bringen.
- Spule F 5031 so einstellen, daß das (B-Y)-Signal keine Überschwinger hat.

1. White level adjustment

- Display colour bar test pattern.
- Set Ⓐ to min., Ⓑ to nom., Ⓒ to max.
- Adjust presets VG and VB (CTR socket board) so that the picture does not show any colouration.

2. Adjustment of cut-off point

Manual adjustment is not possible, as the circuit board employs an automatic dark current control circuit.

To check cut-off point (oscilloscope required), proceed as follows:

- Display colour bar test pattern.
- Set Ⓐ to min., Ⓑ to nom., Ⓒ to min
- Connect test probe to collectors of T 736, T 756, T 776 (CRT socket board). The black levels of the three cathode signals should be 140- 150V.

3. Adjustments in chroma channel

- Display PAL test pattern.
- Set Ⓐ to nom., Ⓑ to nom., Ⓒ to max.
- Connect pin 28 of IC TDA 4557 to +12V supply.
- Connect pin 17 to IC TDA 4557 to chassis.
- Adjust trimmer C 5204 for stationary pattern in colour bars.
- Remove wire links.
- Connect test probe to test point MP 12. Bring the double image produced by the B-signal to coincidence by adjusting the preset BP and the coil LZ.
- Display 3.5 MHz NTSC test pattern.
- Connect pin 26 of IC TDA 4557 to +12V supply.
- Connect pin 17 of IC TDA 4557 to chassis.
- Adjust trimmer C 5214 for stationary pattern in colour bars.
- Remove wire links.
- Display SECAM test pattern.
- Connect test probe to pin 1 of IC TDA 4557.
- Use coil DR to align zero level of the (R-Y) signal with the line black level.
- Connect test probe to pin 3 of IC TDA 4557.
- Use coil DB to align zero level of the (B-Y) signal with the line black level.
- Adjust coil F 5031 so that the (B-Y) signal is free of overshooting.

1. Taratura del bianco

- Applicare un monoscopio FuBK.
- Regolare Ⓐ al minimo, Ⓑ sul valore nominale e Ⓒ al massimo.
- Con i regolatori VG e VB (piastra cinescopio) eliminare eventuali macchie di colore.

2. Taratura del punto di blocco

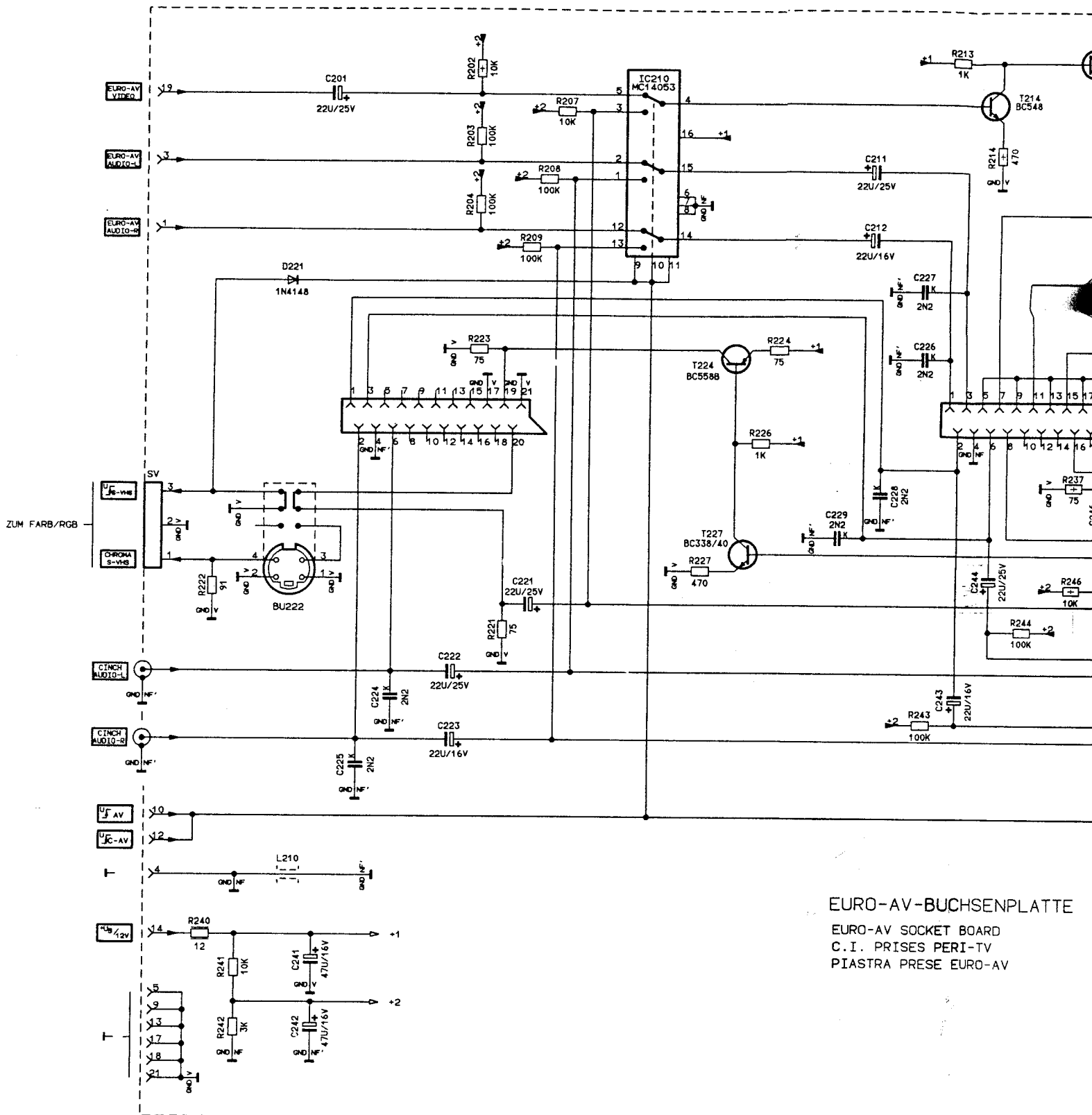
Una regolazione manuale non è possibile, poiché questa scheda incorpora una regolazione automatica della corrente d'interdizione.

Controllo del punto di blocco (è necessario un oscilloscopio):

- Applicare un monoscopio FuBK.
- Regolare Ⓐ al minimo, Ⓑ sul valore nominale e Ⓒ al massimo.
- Collegare la sonda ai collettori dei transistori T 736, T 756, T 776 (piastra cinescopio). Valore nero dei tre segnali catodici ca. 140-150V.

3. Regolazione del canale colore

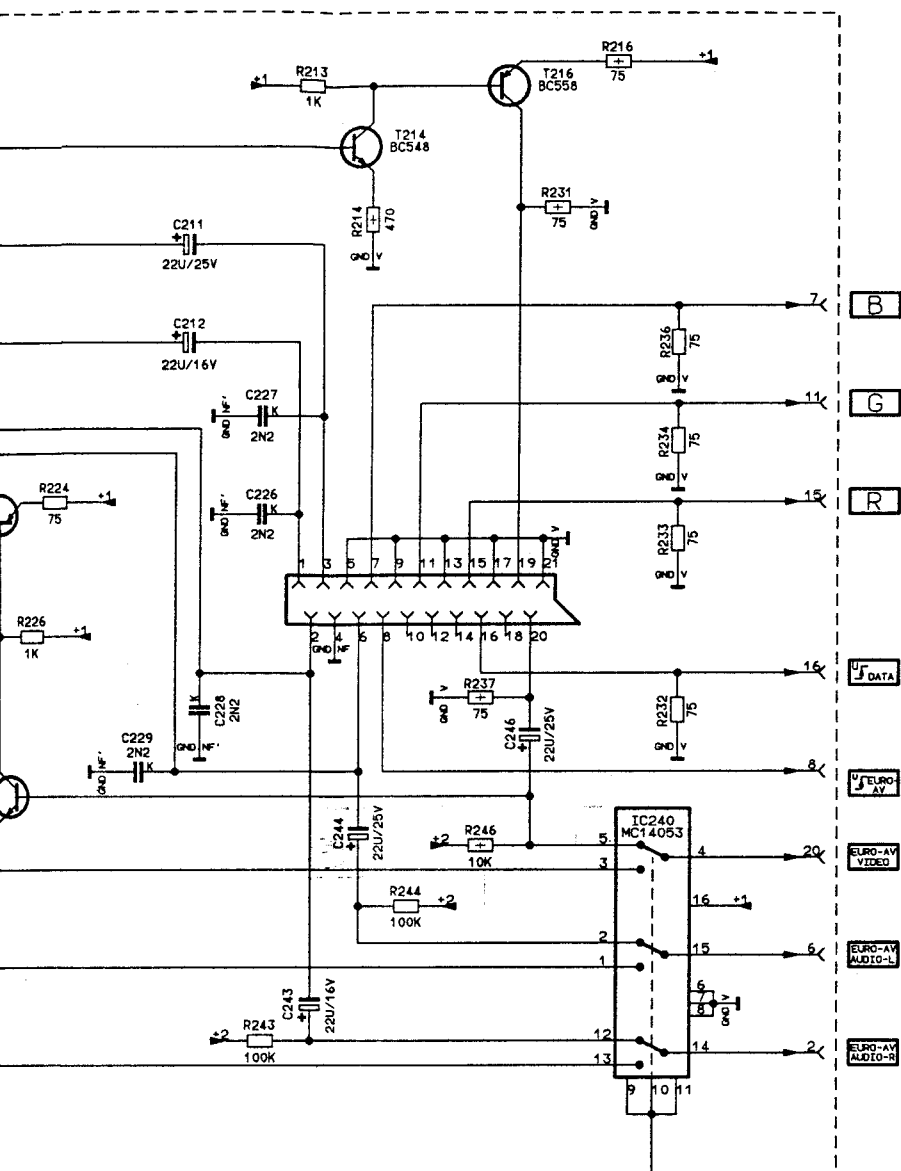
- Applicare un monoscopio PAL.
- Regolare Ⓐ al nominale, Ⓑ sul valore nominale e Ⓒ al massimo.
- Sull'integrato TDA 4557 collegare pin 28 a +12V.
- Sull'integrato TDA 4557 collegare pin 17 a massa.
- Con C 5204 fermare le barre colorate scorrevoli.
- Togliere i cortocircuiti.
- Collegare la sonda a MP 12, con il regolatore BP e la bobina LZ portare a copertura le immagini doppie del segnale B.
- Applicare un monoscopio NTSC 3,5 MHz
- Sull'integrato TDA 4557 collegare pin 26 a +12V.
- Sull'integrato TDA 4557 collegare pin 17 a massa.
- Con C 5214 fermare le barre colorate scorrevoli.
- Togliere i cortocircuiti.
- Applicare un monoscopio SECAM.
- Collegare la sonda al pin 1 dell'integrato TDA 4557, con la bobina DR portare la linea zero del segnale (R-Y) sul livello della frequenza di riga.
- Collegare la sonda al pin 3 dell'integrato TDA 4557, con la bobina DB portare la linea zero del segnale (B-Y) sul livello della frequenza di riga.
- La bobina F 5031 applicarla così in modo che il segnale (B-Y) sia chiaro.



EURO-AV-BUCHSENPLATTE

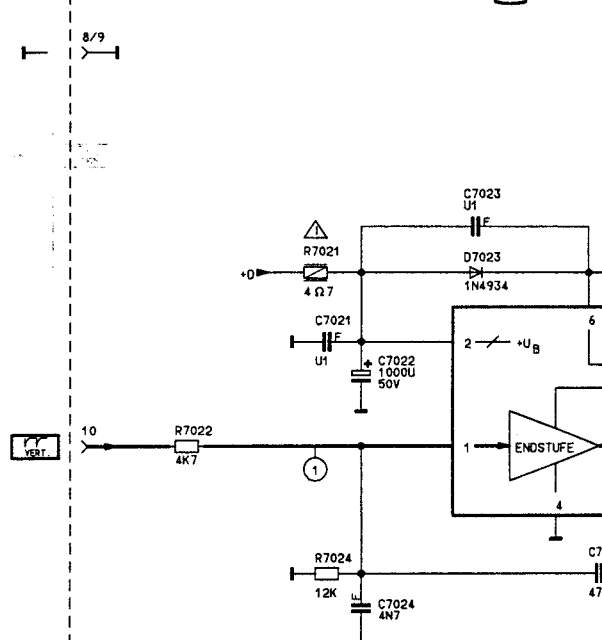
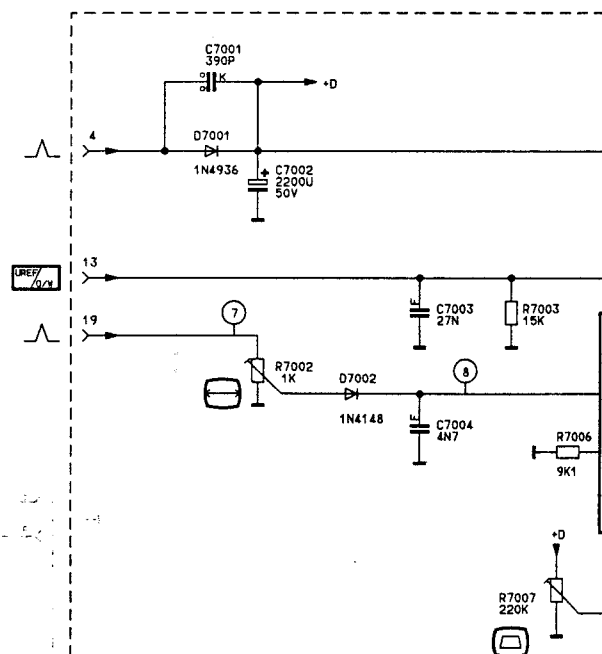
EURO-AV SOCKET BOARD
C.I. PRISES PERI-TV
PIASTRA PRESE EURO-AV

Kein Anpassungsabgleich bei Austausch der Steckkarte notwendig
When replacing the plug-in board, no alignment is necessary
Non è necessaria nessuna taratura di adattamento dopo la
sostituzione di una scheda ad innesto

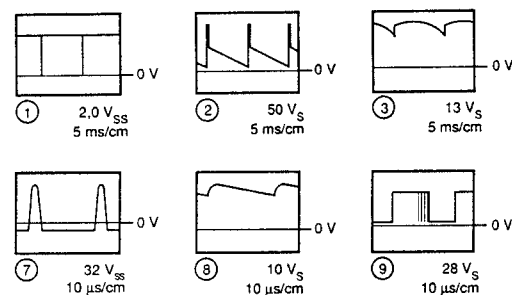


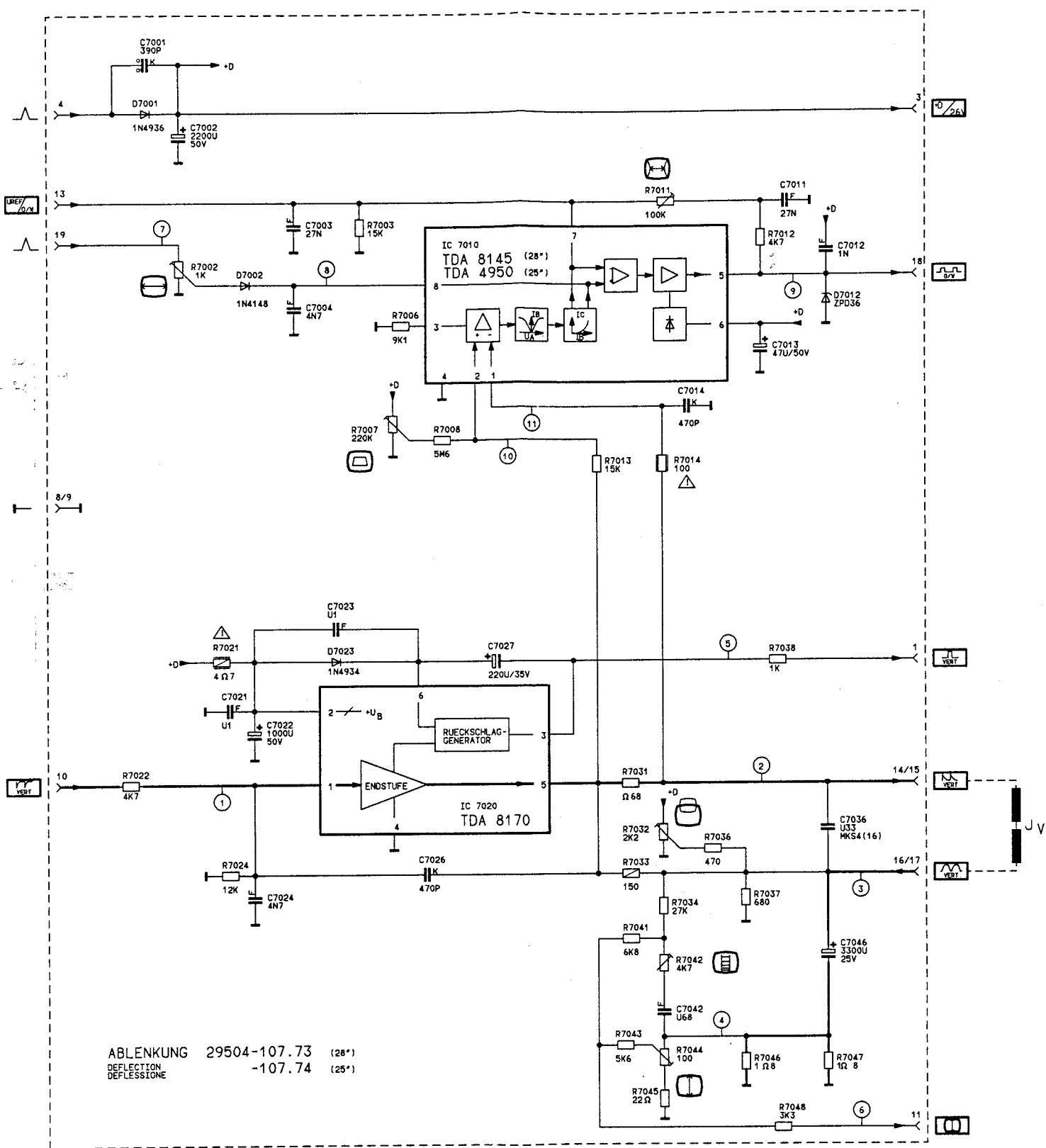
EURO-AV-BUCHSENPLATTE 29304-060.62

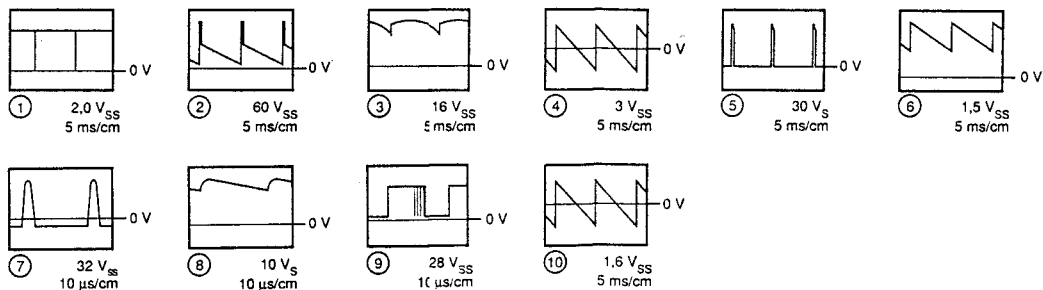
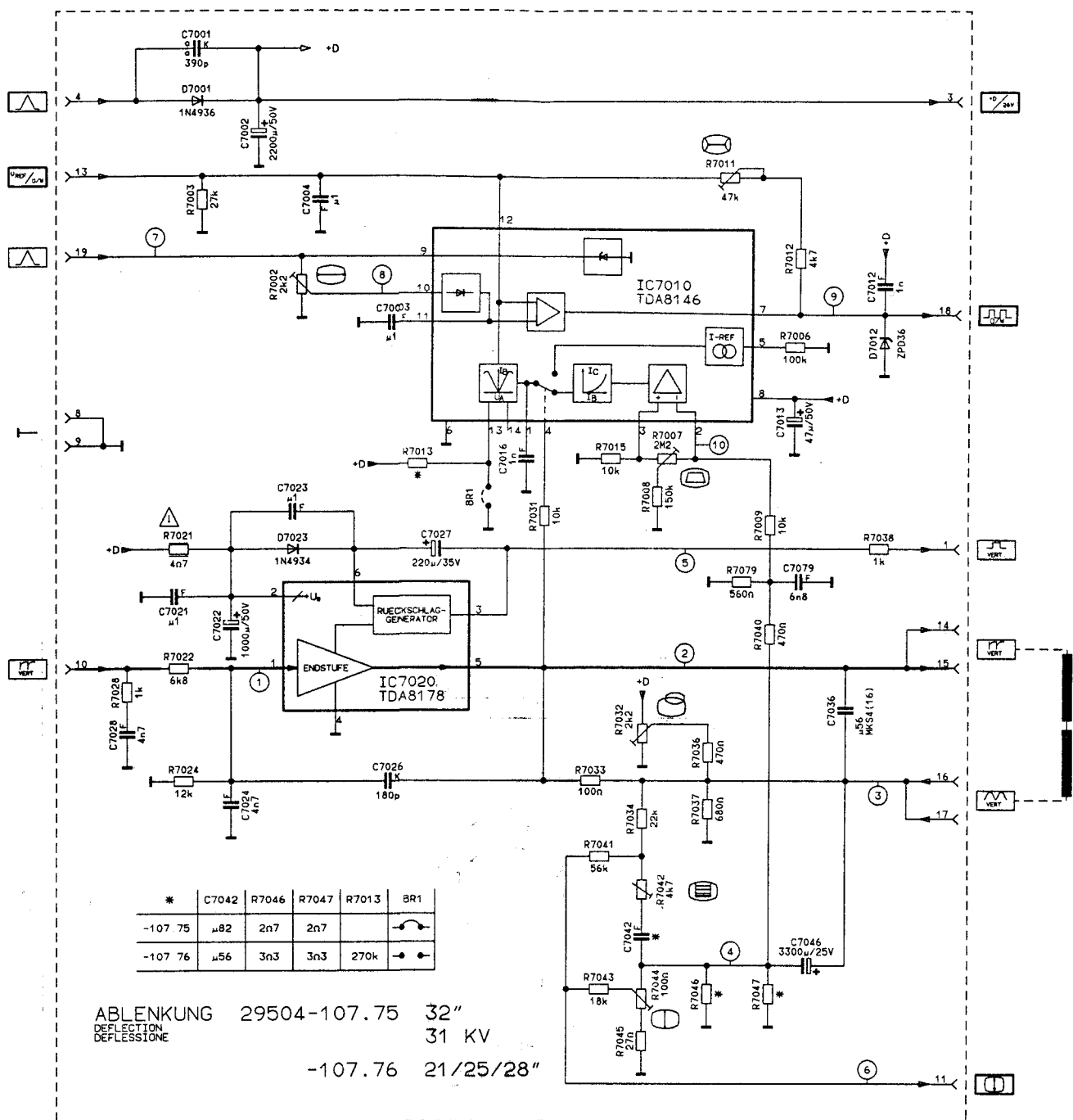
EURO-AV SOCKET BOARD
C.I. PRISES PERI-TV
PIASTRA PRESE EURO-AV



ABLENKUNG 29504-107.73 (28°)
DEFLECTION -107.74 (25°)
DEFLESSIONE







Baust
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 Lista

Ge
 S
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M 55 - 57
 M 63 - 57
 M 63 - 57
 M 63 - 57
 M 70 - 59
 M 70 - 59
 M 70 - 59
 ST 82 - 57
 ST 82 - 57
 ST 82 - 57

Baustein - Übersicht

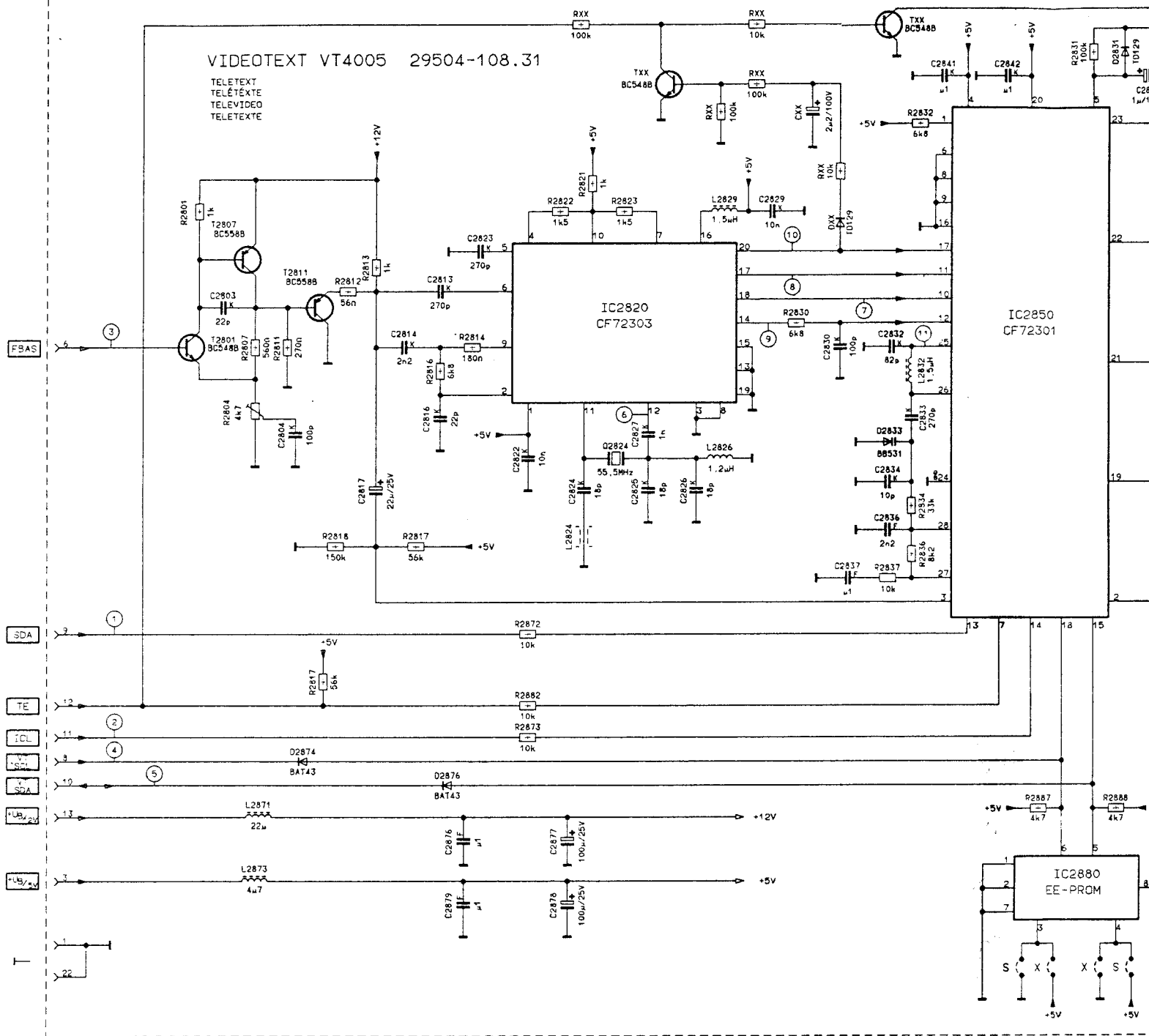
Module depending on version

Vue d'ensemble composantes

Viduta dei componenti

Lista de Modulos

Gerät Set Apparecchio Appareil Aparato	Buchsenplatte EURO-AV S.Board C.I. Prises Peri-TV P. Pr. EURO-AV Pl. con. EURO AV	BR-Platte CRT Base C.I. Tube Cathod. Piastra cinesc. Placa Zocalo TRC	Tuner	ZFVerstärker IF amplifier Ampificateur de FI Amplificatore FI Amplificador de FI	Farb RGB Colour/RGB Decodeur/RVB Colore/RVB Croma RGB	Videotext Teletext Videotext Colore/RVB Teletexto	NF AF B.F. BF BF	Ablenkung Deflection Bases de Temps Deflessione Deflexión	Bedieneinheit Control Unit Unità de Comm. Unità di Comando Unidad de Mando	Netzschalterpl. Mains Switch B. C.I. Int. Secteur Piastra Int. di Rete Placa interr. Red
M 55 - 575 text	29304-060.62	29305-070.40	29504-101.21	29504-102.16	29504-105.31	29504-108.31/33	29504-104.03	29504-107.76	29501-074.10	29304-065.69
M 63 - 575 text	29304-060.62	29305-070.40	29504-101.21	29504-102.16	29504-105.31	29504-108.31/33	29504-104.03	29504-107.76	29501-074.10	29501-065.69
M 63 - 575 / 9 text	29304-060.62	29305-070.40	29504-101.21	29504-162.16	29504-165.31/33	29504-108.31/33	29504-104.03	29504-107.74/76	29501-074.10	29501-065.69
M 63 - 575 NIC	29304-060.62	29305-070.40 / 81	29504-101.21	29504-102.45	29504-105.31	29504-108.31/33	29504-104.03	29504-107.74/76	29501-074.10	29304-065.69
M 70 - 590 / 9 TOP	29304-060.62	29305-070.40 / 81	29504-101.21	29504-162.17	29504-165.31/33	29504-108.71	29504-104.51	29504-107.73/76	29501-074.17	29304-065.65
M 70 - 595 / 9 TOP	29304-060.62	29305-070.40 / 81	29504-101.21	29504-162.17	29504-165.31/33	29504-108.71	29504-104.51	29504-107.73/76	29501-074.25	29304-065.65
M 70 - 590 NIC	29304-060.62	29305-070.40 / 81	29504-101.21	29504-102.47	29504-105.31/33	29504-108.71	29504-104.51	29504-107.73/76	29501-074.17	29304-065.65
ST 82 - 575 / 9 text	29304-060.62	29305-070.68	29504-101.21	29504-162.16	29504-165.31/33	29504-108.31/33	29504-104.08	29504-107.75	29501-074.10	29304-065.65
ST 82 - 575 NIC	29304-060.62	29305-070.68	29504-101.21	29504-102.45	29504-105.31/33	29504-108.31/33	29504-104.08	29504-107.75	29501-074.10	29304-065.65
ST 82 - 575 / FT/GB	29701-057.16	29305-070.68	29504-101.21	29504-112.45	29504-105.31/33	29504-108.41	29504-104.08	29504-107.75	29501-074.10	29304-065.65

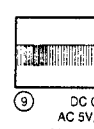
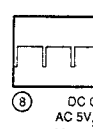
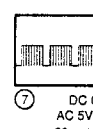
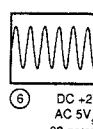
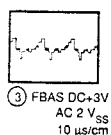
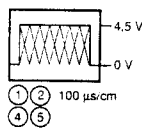
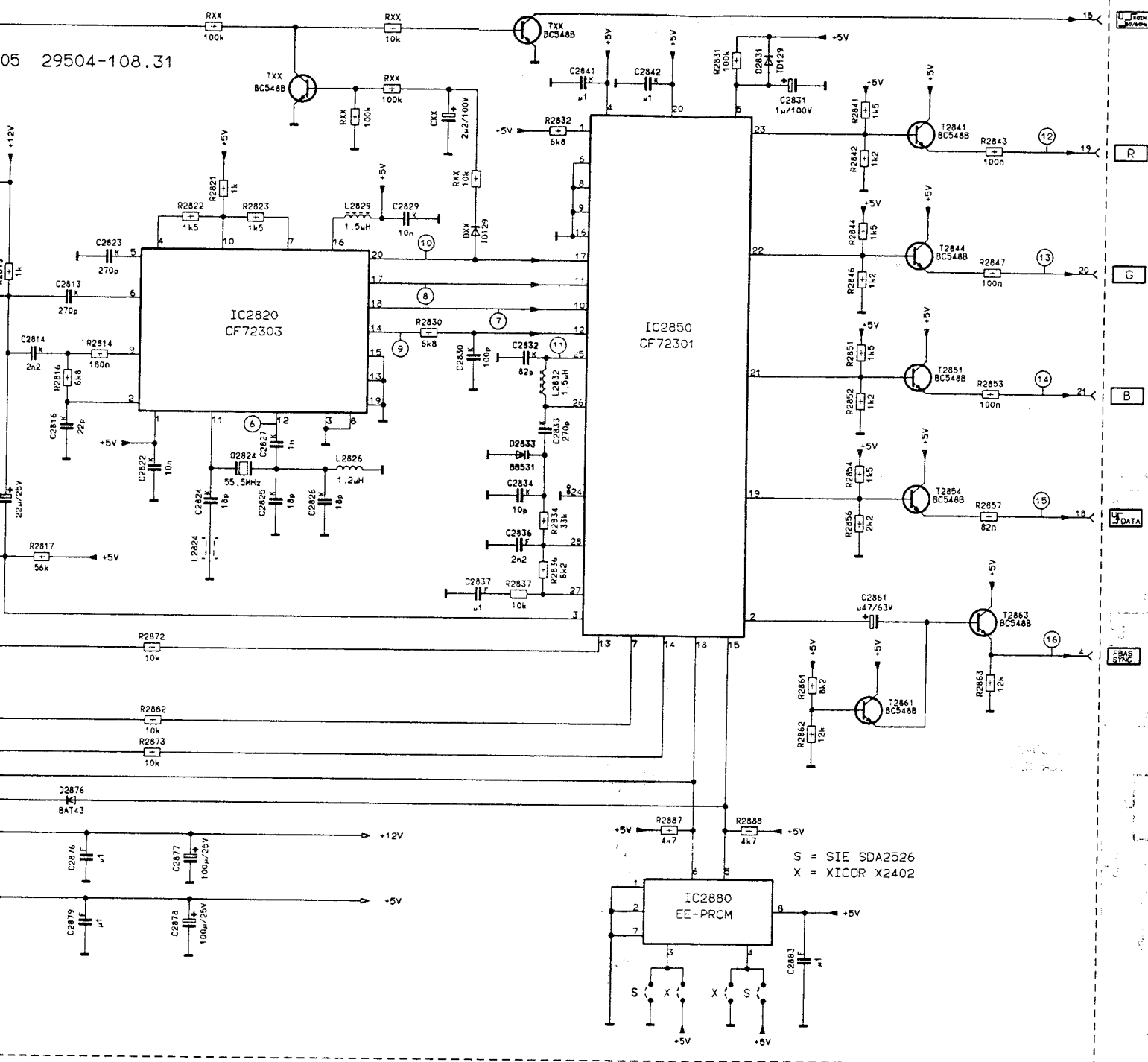


D

VT - Nachrüstung und Anpassungsabgleich

Beim Nachrüsten der Videosteckkarte muß der Kurzschlußstecker

Der Einsteller R 2804 steht bei der Auslieferung auf Links. Treten trotz einwandfreiem Antennensignal Zeichenfehler auf, so müssen die Fehler verschwinden. Nicht weiterdrehen, da die Fehlerhäufigkeit sonst ansteigt. Während des Abgleiches ist es notwendig, die Seite 199 ständig eingesehen wird und eine Beurteilung der Fehlerschwelle möglich ist.



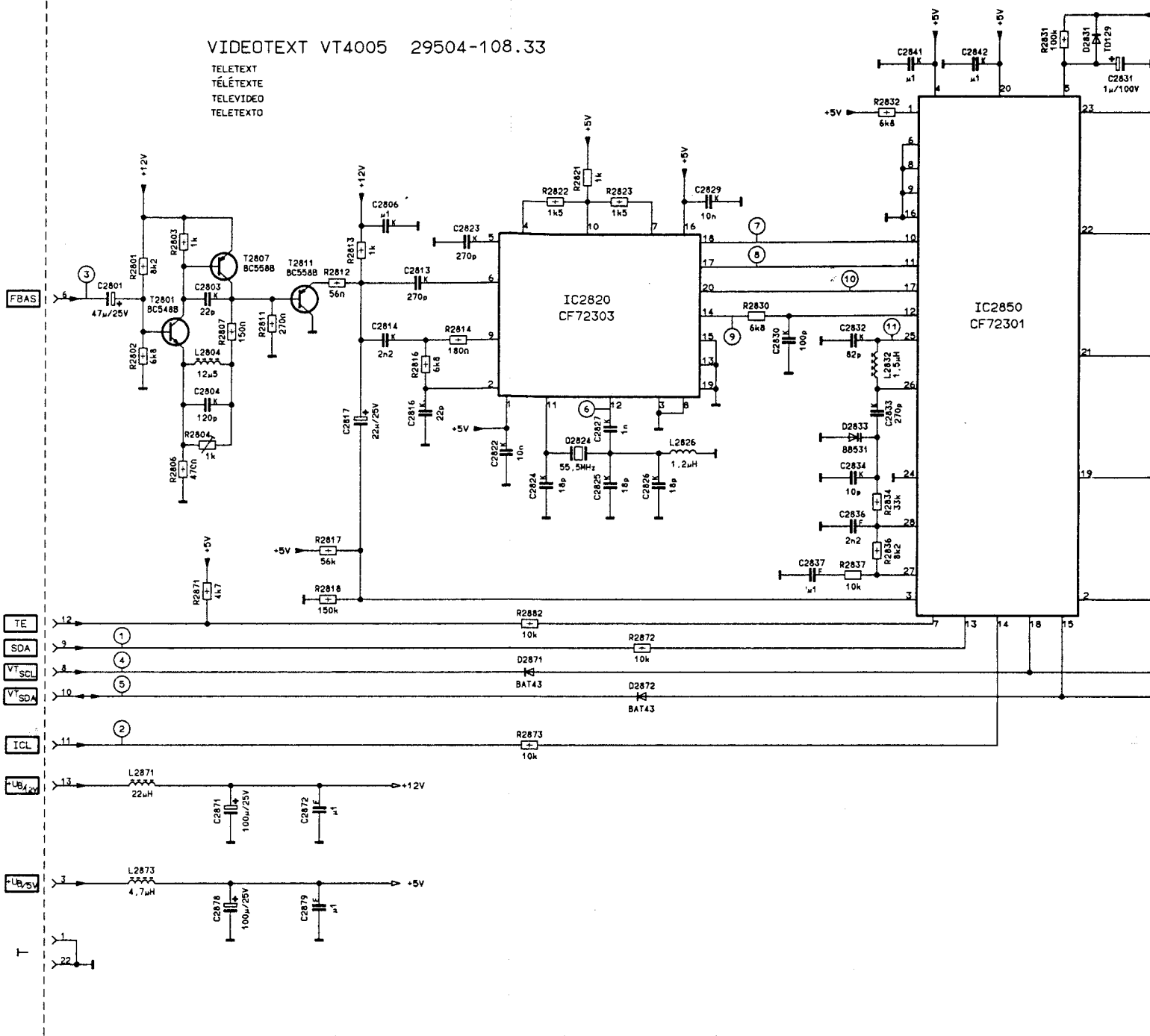
D

VT - Nachrüstung und Anpassungsabgleich

Beim Nachrüsten der Videosteckkarte muß der Kurzschlußstecker zwischen Kontakt 4 und 6 entfernt werden.

Der Einsteller R 2804 steht bei der Auslieferung auf Linksanschlag (kleinste Höhenanhebung, ca 2 dB). Treten trotz einwandfreiem Antennensignal Zeichenfehler auf, R 2804 langsam nach rechts verstellen, bis Fehler verschwinden. Nicht weiterdrehen, da die Fehlerhäufigkeit wieder zunehmen kann. Während des Abgleiches ist es notwendig, die Seite 199 ständig neu anzuwählen, da nur so die Seite neu eingelesen wird und eine Beurteilung der Fehlerschwelle möglich ist.

TELETEXT
TÉLÉTEXTE
TELEVIDEO
TELETEXTO



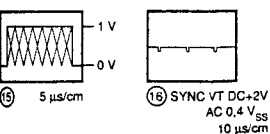
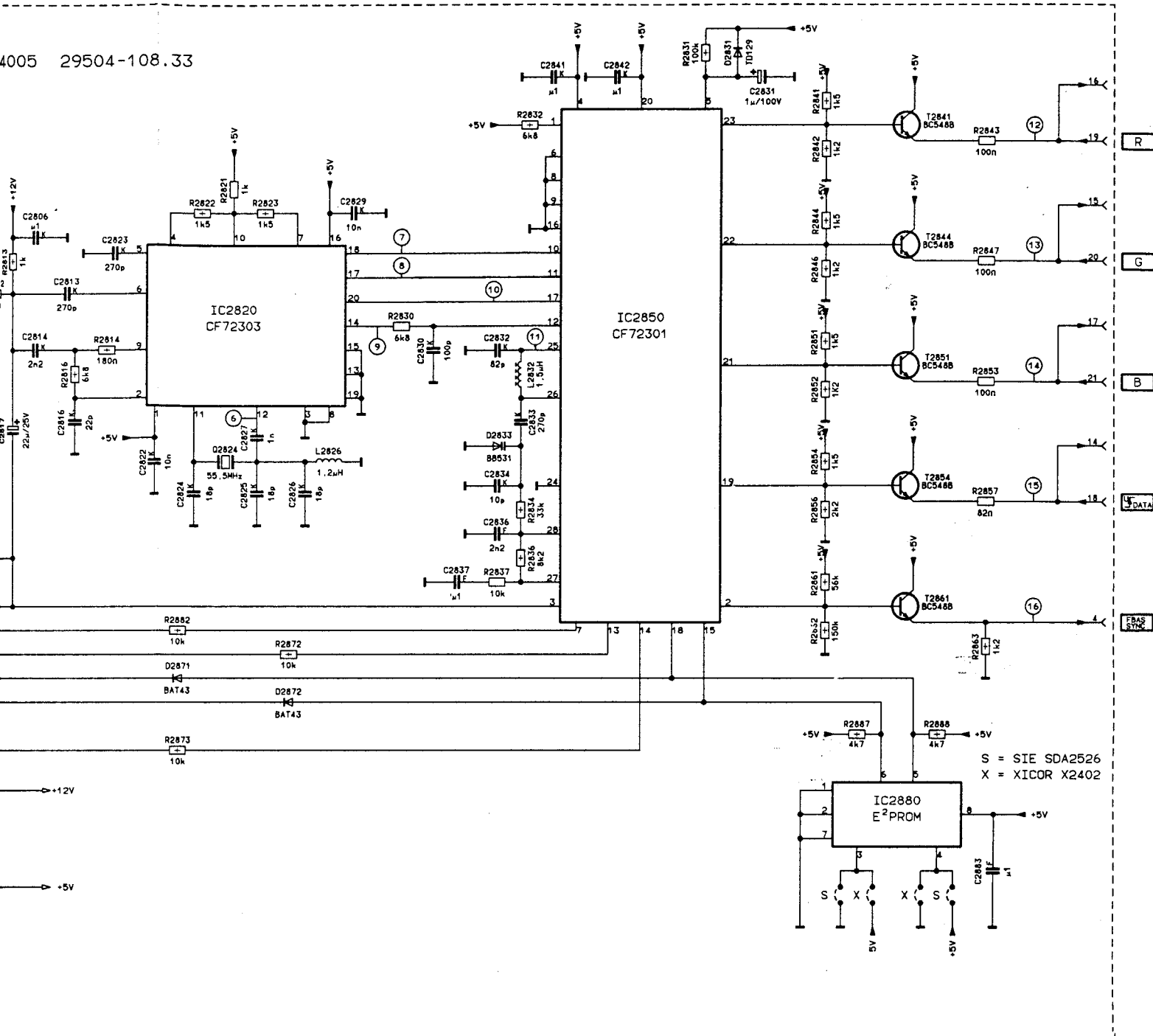
GB

VT GB: Teletext installation and matching adjustment.

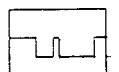
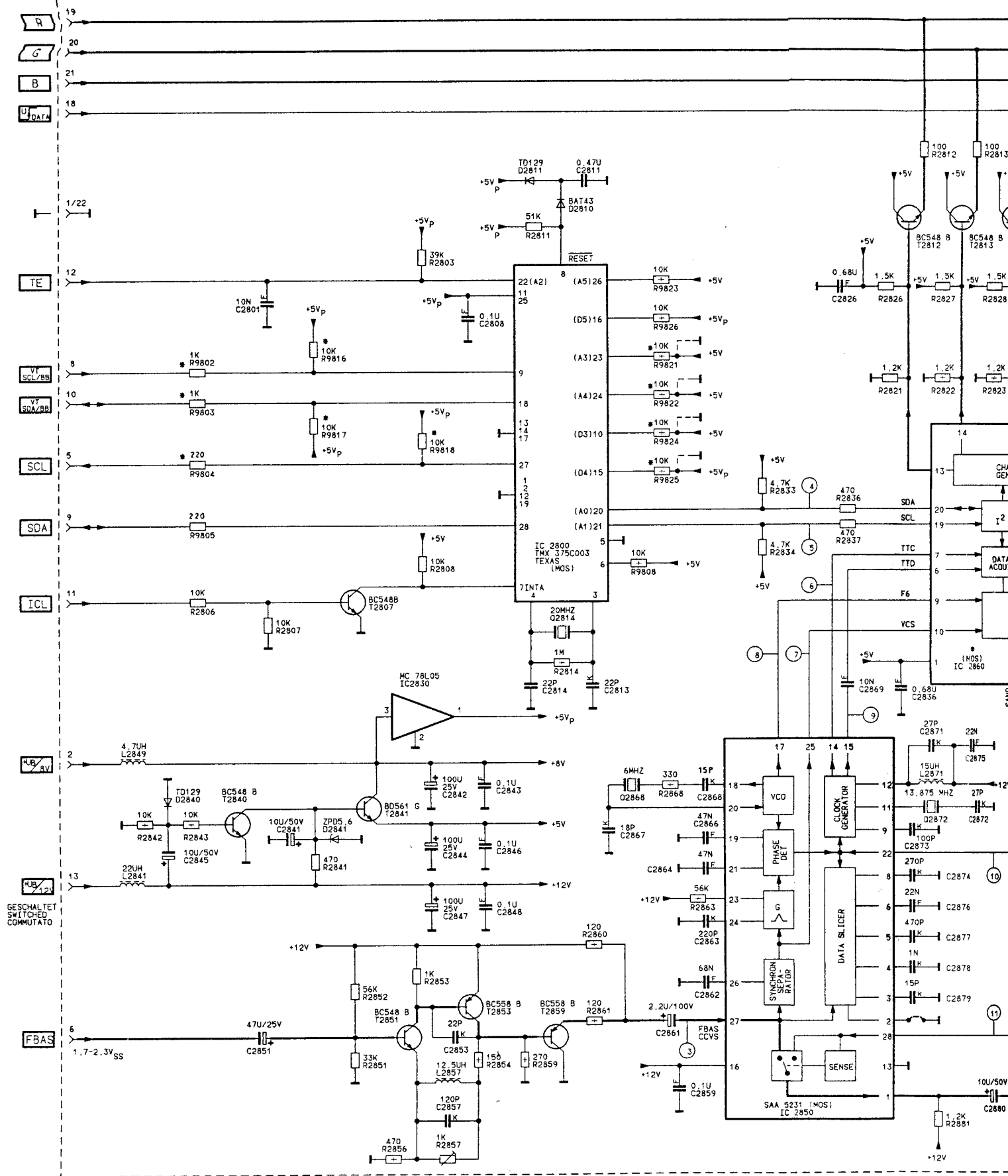
When fitting the Teletext plug-in board, the shorting plug on contact 4 and 6 has to be removed.

The control R 2804 is set in the fully anti clockwise position when the unit is delivered (smallest treble boost: approx. 2dB). If, with a perfect aerial signal character faults occur, turn R 2804 slowly clockwise until the faults disappear. Do not turn R 2804 up any further as error rate may increase again.

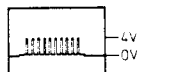
Page 199 must always be selected a new during the adjustment, as only this effects a new read-in of the page making it possible to evaluate the error level.



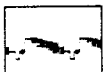
ment.
plug on contact 4 and 6 has to be removed.
position when the unit is delivered (smallest treble boost:
faults occur, turn R 2804 slowly clockwise until the faults
or rate may increase again.
adjustment, as only this effects a new read-in of the page



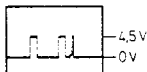
1 BITFOLGE JE NACH TASTENDRUCK (BILD TASTE 1) 100uSec/cm



2 ICL-TV-10BIT CLOCr 100uSec/cm



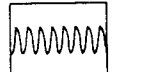
3 FBAS DC +4V AC 15VSS 10uSec/cm



4 100uSec/cm



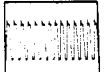
5 100uSec/cm



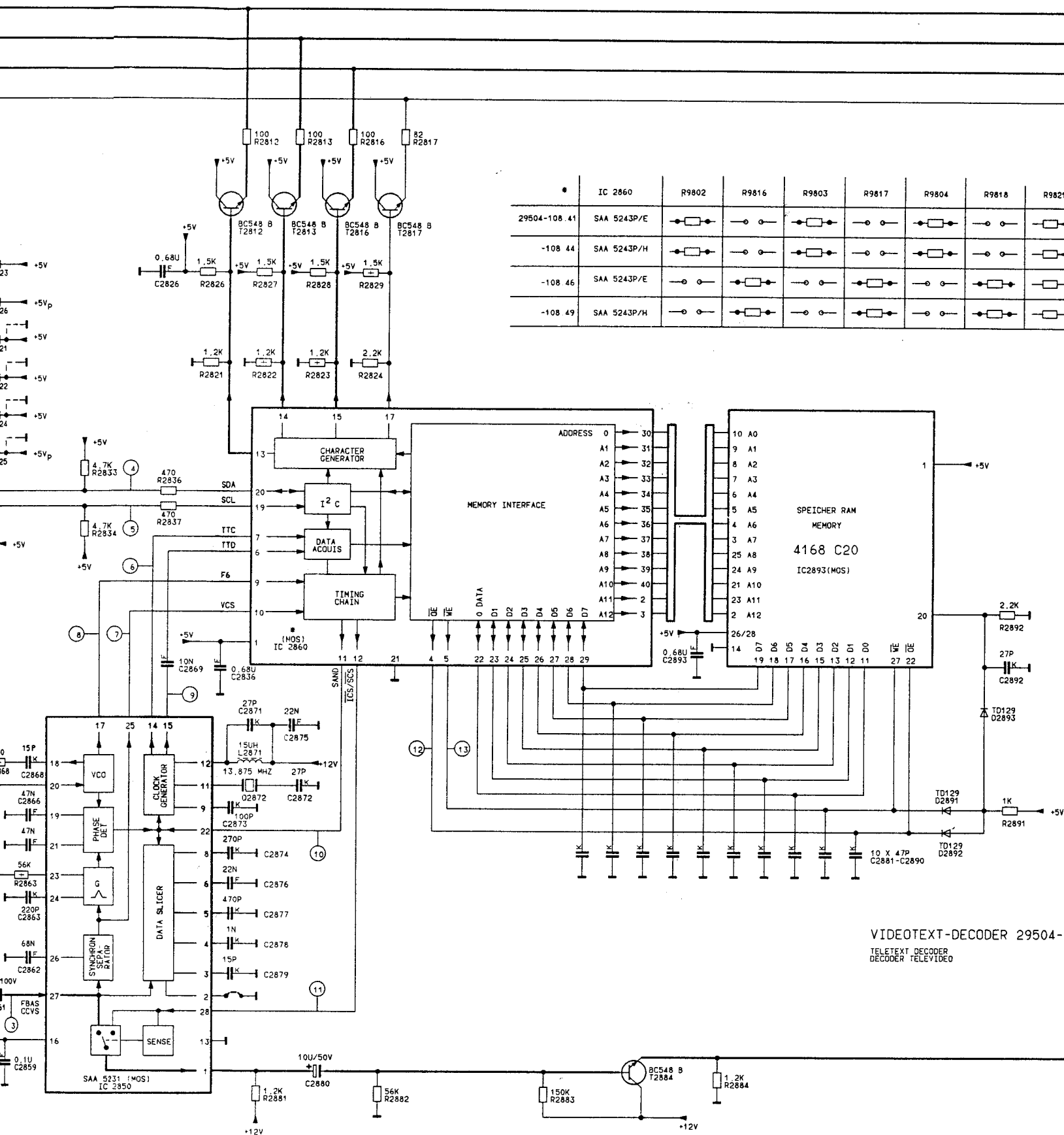
6 DC +4V/AC 3VSS 6.9 MHz 100nSec/cm



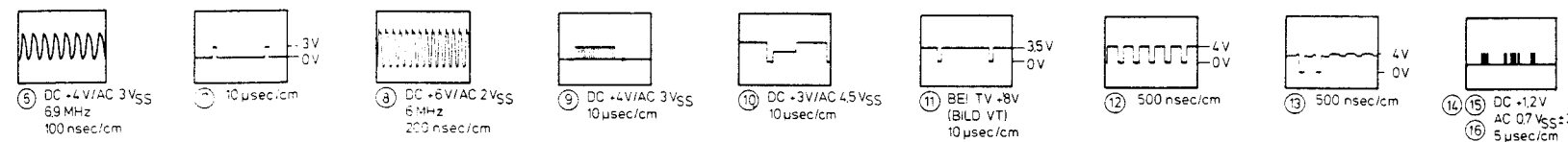
7 10uSec/cm

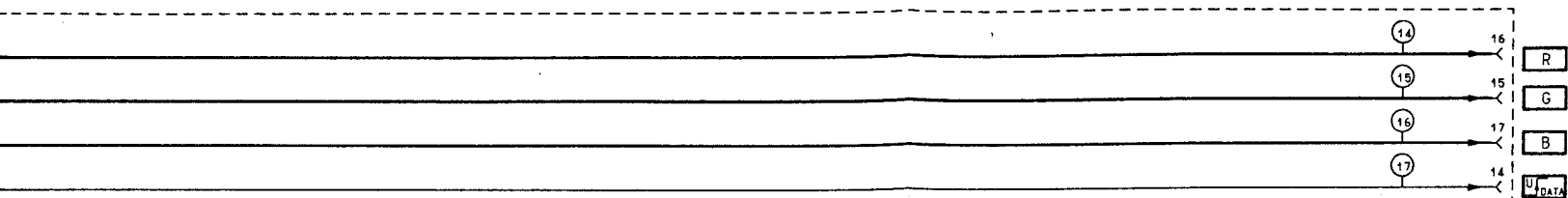


8 DC +6V/AC 6 MHz 200nSec/cm

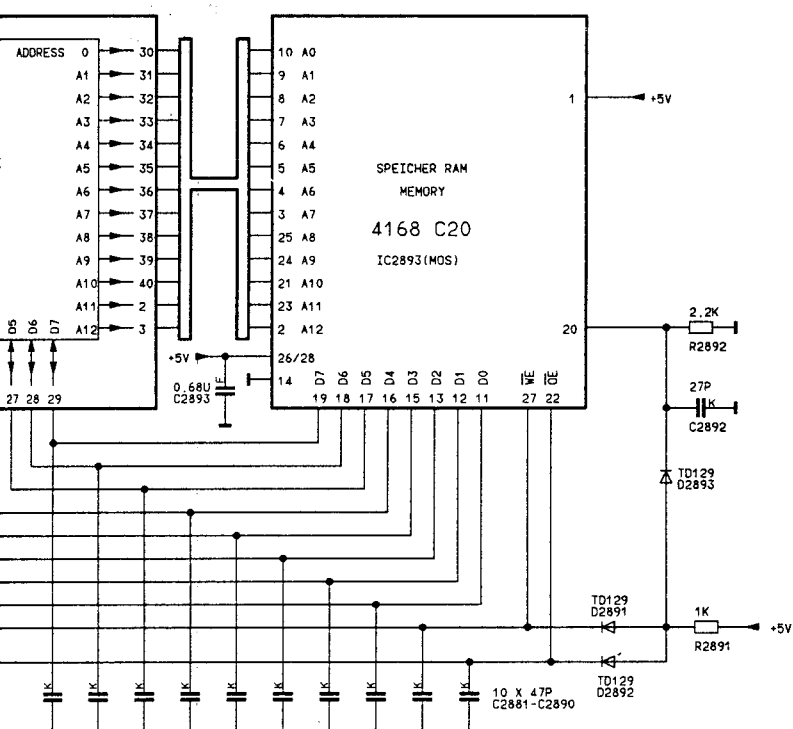


VIDEOTEXT-DECODER 29504-
TELETEXT DECODER
DECODER TELEVIDEO

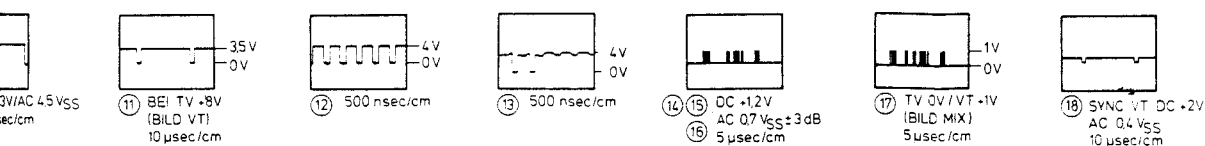
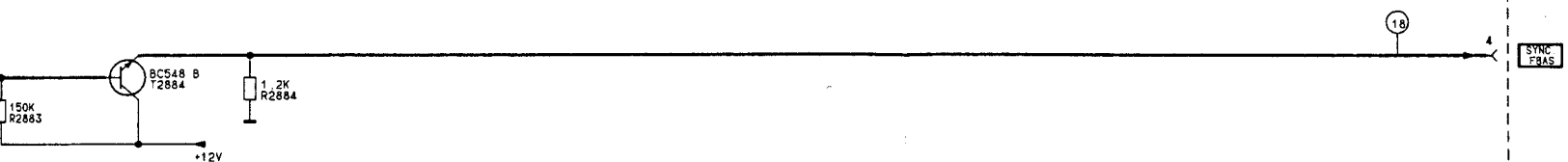


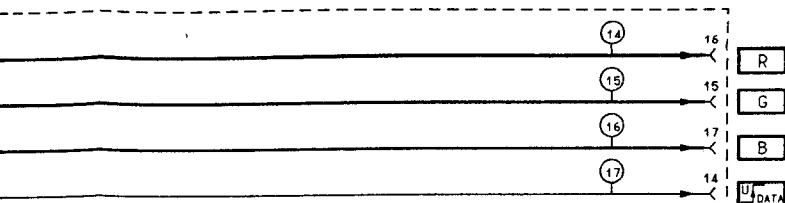


#	IC 2860	R9802	R9816	R9803	R9817	R9804	R9818	R9821	R9822	R9824	R9825
108.41	SAA 5243P/E										
108.44	SAA 5243P/H										
108.46	SAA 5243P/E										
108.49	SAA 5243P/H										



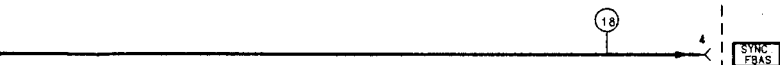
VIDEOTEXT-DECODER 29504-108.41 VT 4416
 TELETXT DECODER .44 VT 4416 CS
 DECODER TELEVIDEO .46 VT 3416
 .49 VT 3416 CS



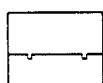


R9822	R9824	R9825
		+5V
	+5V	+5V
	+5V	

41 VT 4416
 44 VT 4416 CS
 46 VT 3416
 49 VT 3416 CS



17 TV 0V/VT +1V
 (BILD MIX)
 5µsec/cm



18 SYNC VT DC +2V
 AC 0.4 V_{SS}
 10µsec/cm

D

VT - Nachrüstung und Anpassungsabgleich

Beim Nachrüsten der Videosteckkarte muß der Kurzschlußstecker zwischen Kontakt 4 und 6 entfernt werden.

Der Einsteller R 2857 steht bei der Auslieferung auf Linksanschlag (kleinste Höhenanhebung, ca 2 dB). Treten trotz einwandfreiem Antennensignal Zeichenfehler auf, R 2857 langsam nach rechts verstellen, bis Fehler verschwinden. Nicht weiterdrehen, da die Fehlerhäufigkeit wieder zunehmen kann.

Während des Abgleiches ist es notwendig, die Seite 199 ständig neu anzuwählen, da nur so die Seite neu eingelesen wird und eine Beurteilung der Fehlerschwelle möglich ist.

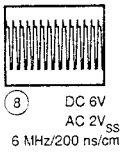
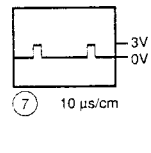
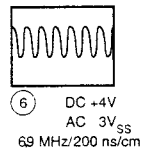
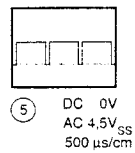
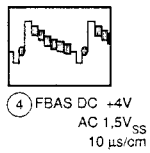
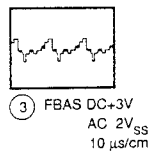
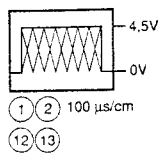
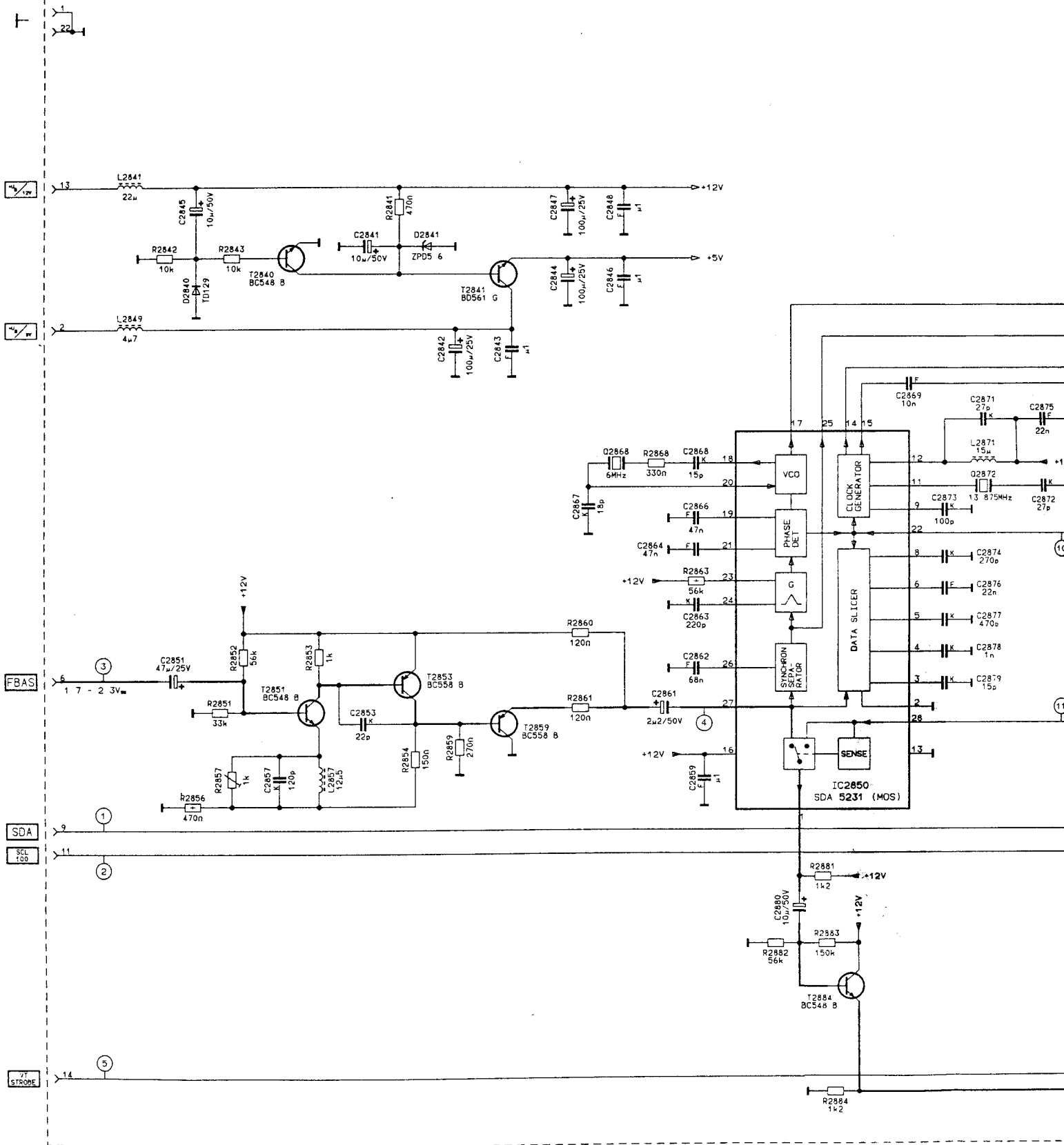
GB

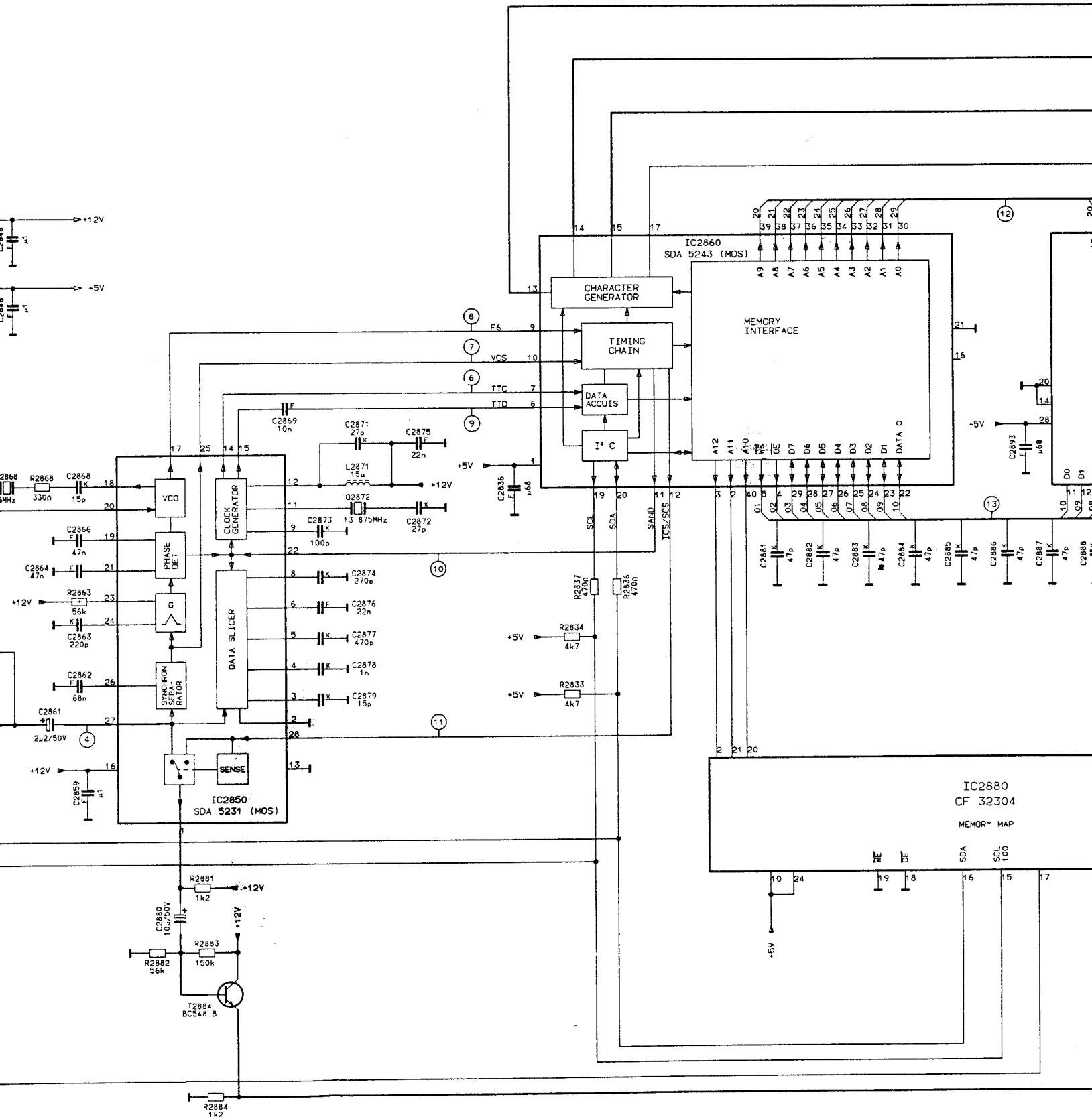
VT GB: (Teletext) Instalation and matching adjustment.

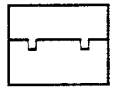
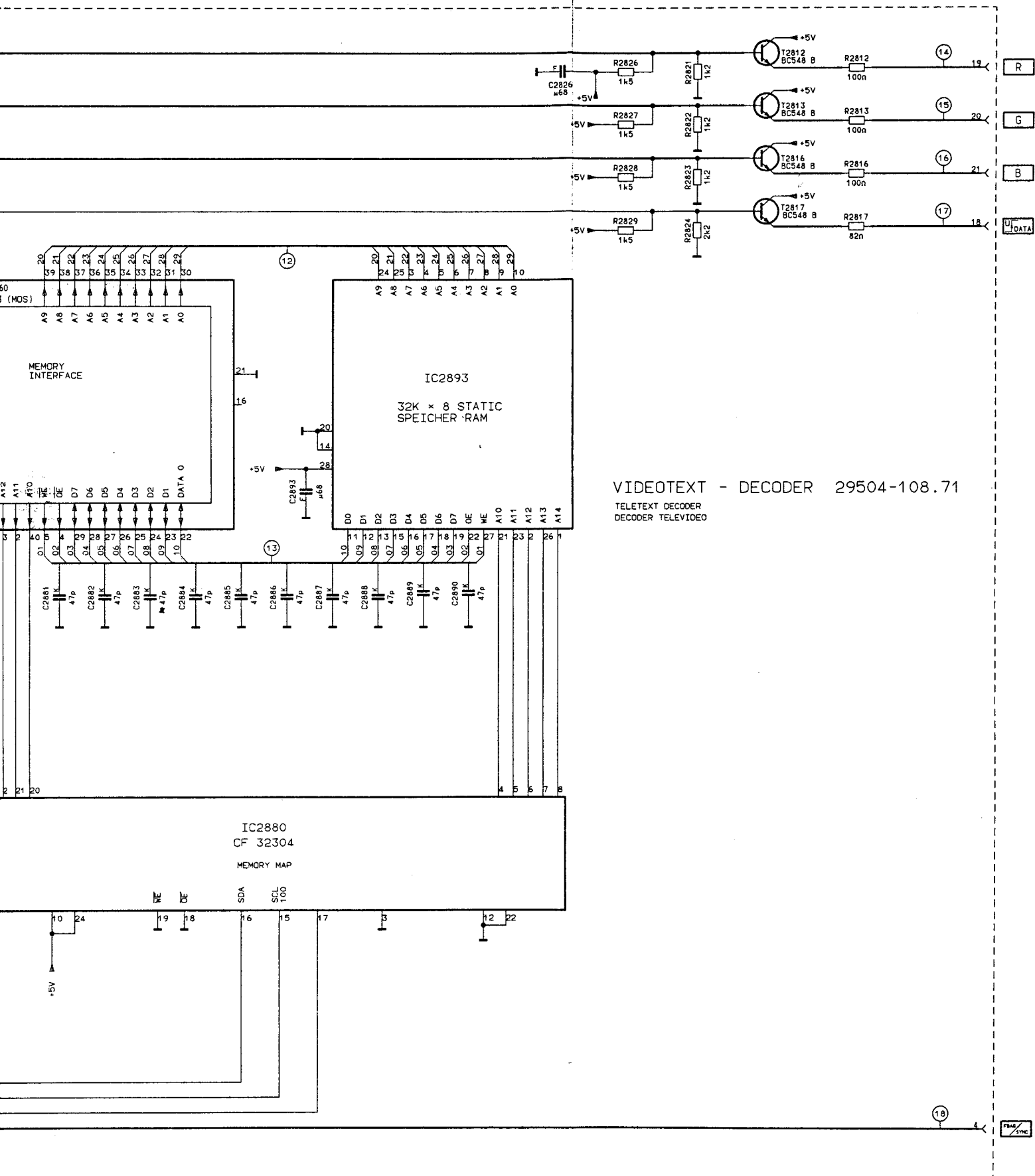
When fitting the Teletext plug-in board, the shorting plug on contact 4 and 6 has to be removed.

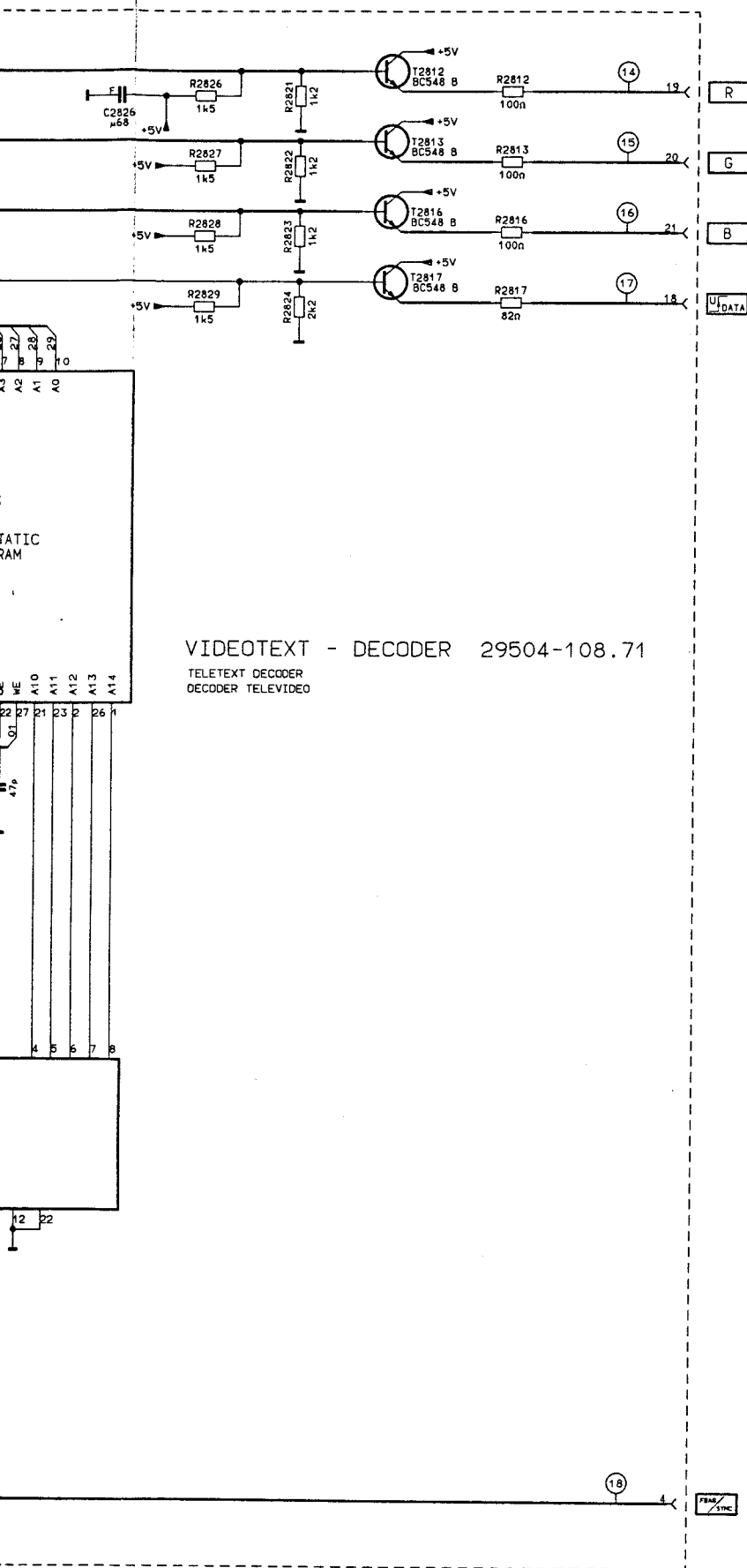
The control R 2857 is set in the fully anti clockwise position when the unit is delivered (smallest treble boost: approx. 2dB). If, with a perfect aerial signal character faults occur, turn R 2857 slowly clockwise until the faults disappear. Do not turn R 2857 up any further as error rate may increase again.

Page 199 must always be selected a new during the adjustment, as only this effects a new read-in of the page making it possible to evaluate the error level.









(D)

VT - Nachrüstung und Anpassungsabgleich

Beim Nachrüsten der Videosteckkarte muß der Kurzschlußstecker zwischen Kontakt 4 und 6 entfernt werden.

Der Einsteller R 2857 steht bei der Auslieferung auf Linksanschlag (kleinste Höhenanhebung, ca 2 dB). Treten trotz einwandfreiem Antennensignal Zeichenfehler auf, R 2857 langsam nach rechts verstellen, bis Fehler verschwinden. Nicht weiterdrehen, da die Fehlerhäufigkeit wieder zunehmen kann.

Während des Abgleiches ist es notwendig, die Seite 199 ständig neu anzuwählen, da nur so die Seite neu eingelesen wird und eine Beurteilung der Fehlerschwelle möglich ist.

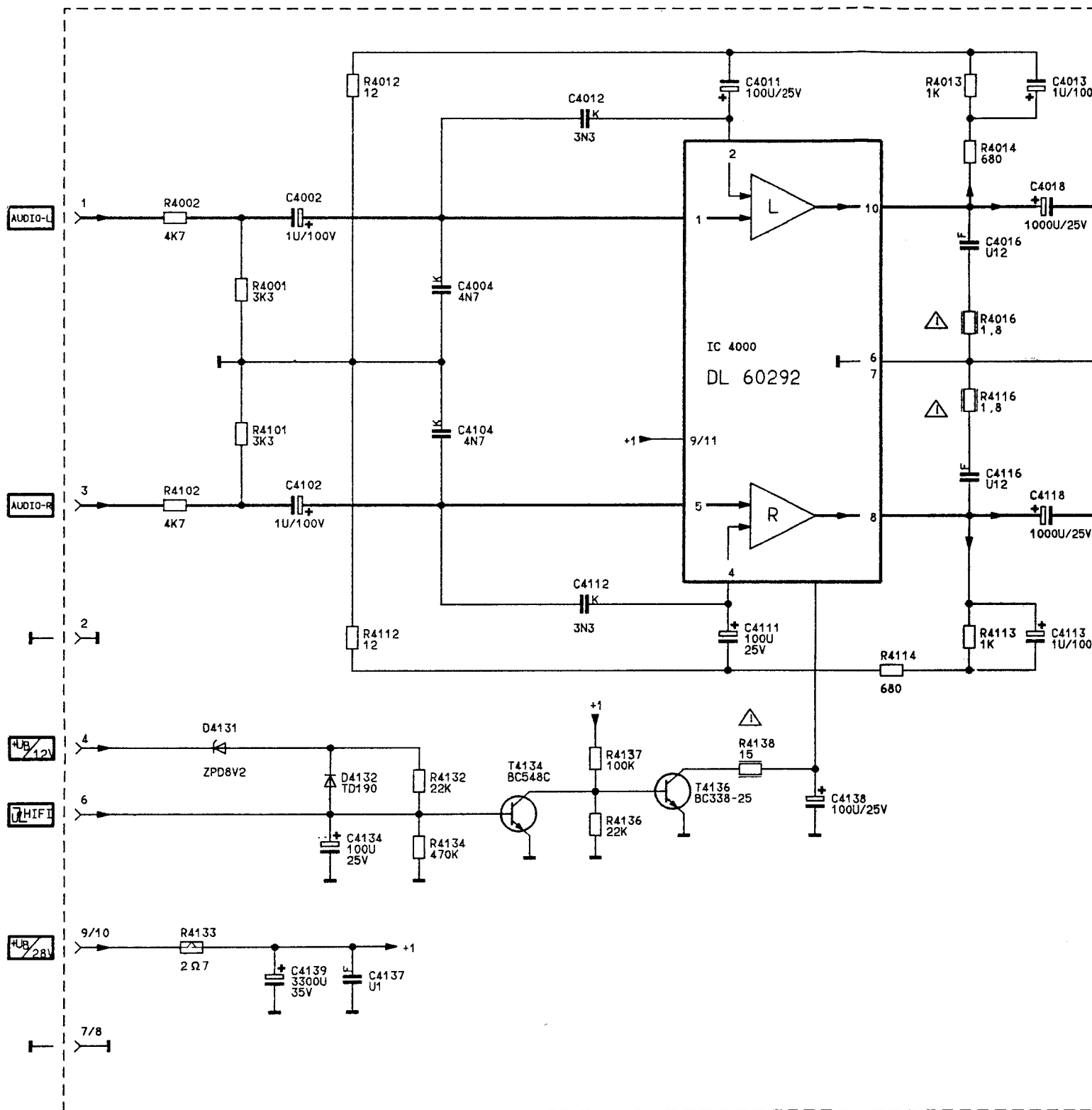
(GB)

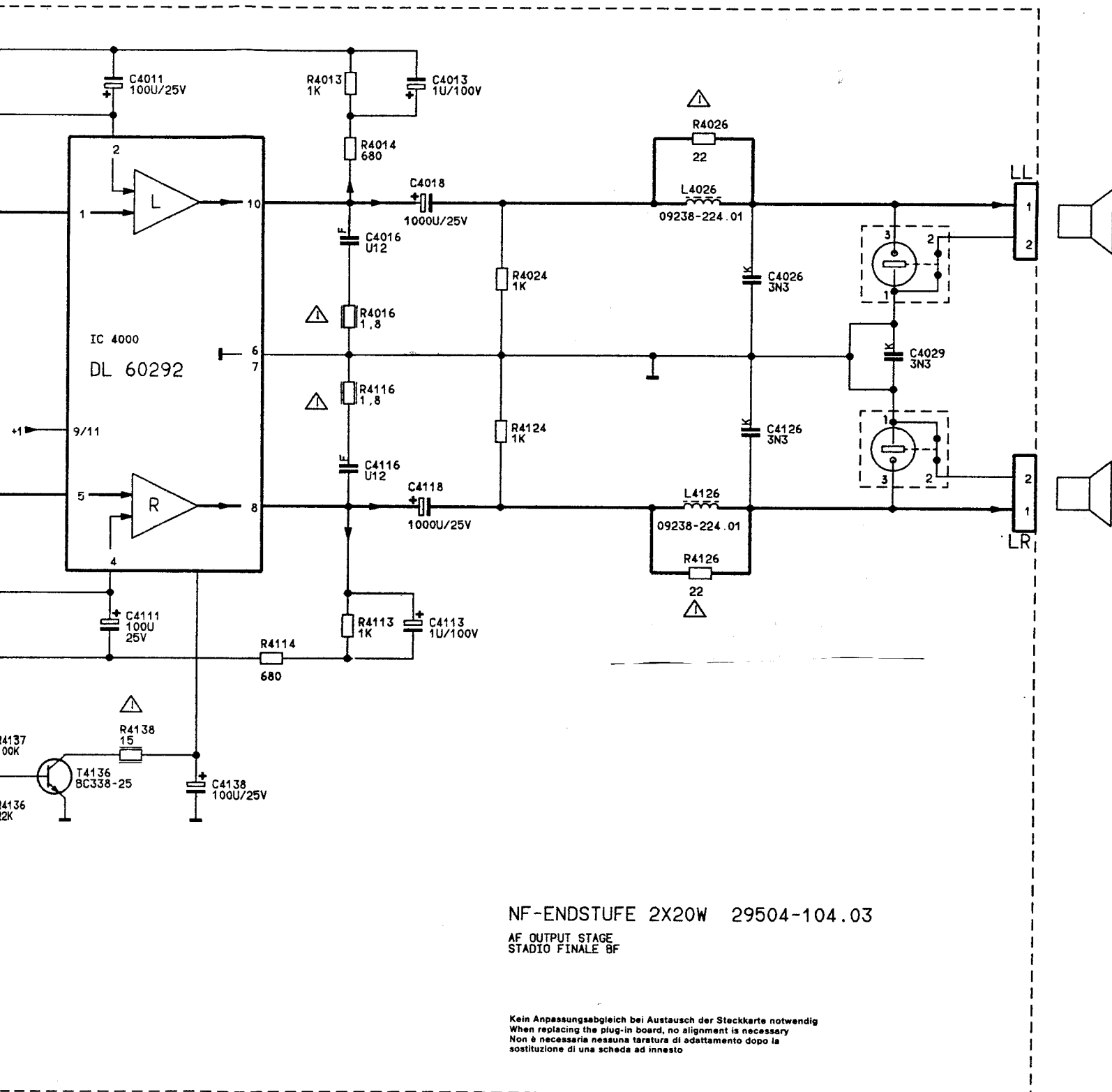
VT GB: (Teletext) Instalation and matching adjustment.

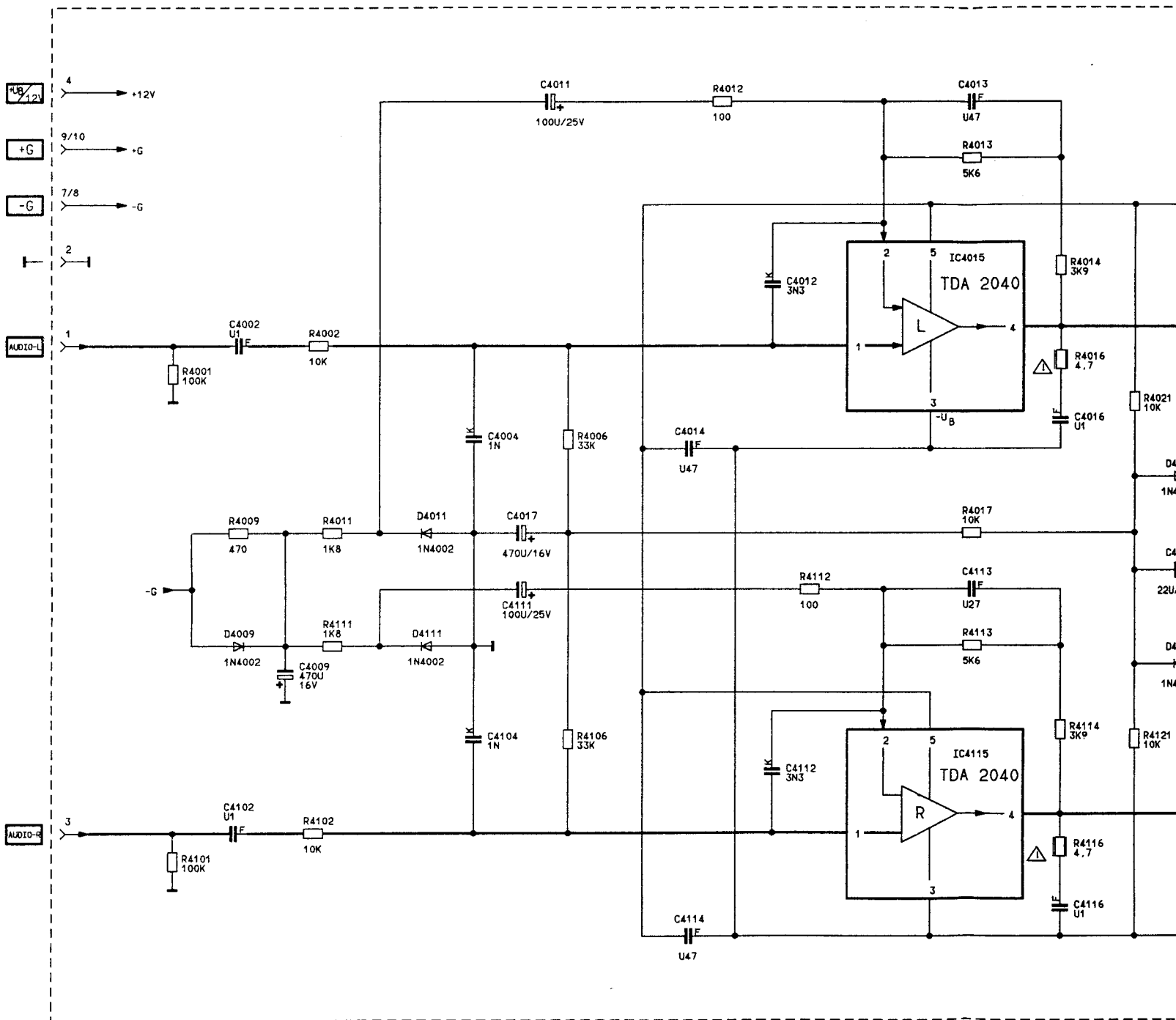
When fitting the Teletext plug-in board, the shorting plug on contact 4 and 6 has to be removed.

The control R 2857 is set in the fully anti clockwise position when the unit is delivered (smallest treble boost: approx. 2dB). If, with a perfect aerial signal character faults occur, turn R 2857 slowly clockwise until the faults disappear. Do not turn R 2857 up any further as error rate may increase again.

Page 199 must always be selected a new during the adjustment, as only this effects a new read-in of the page making it possible to evaluate the error level.

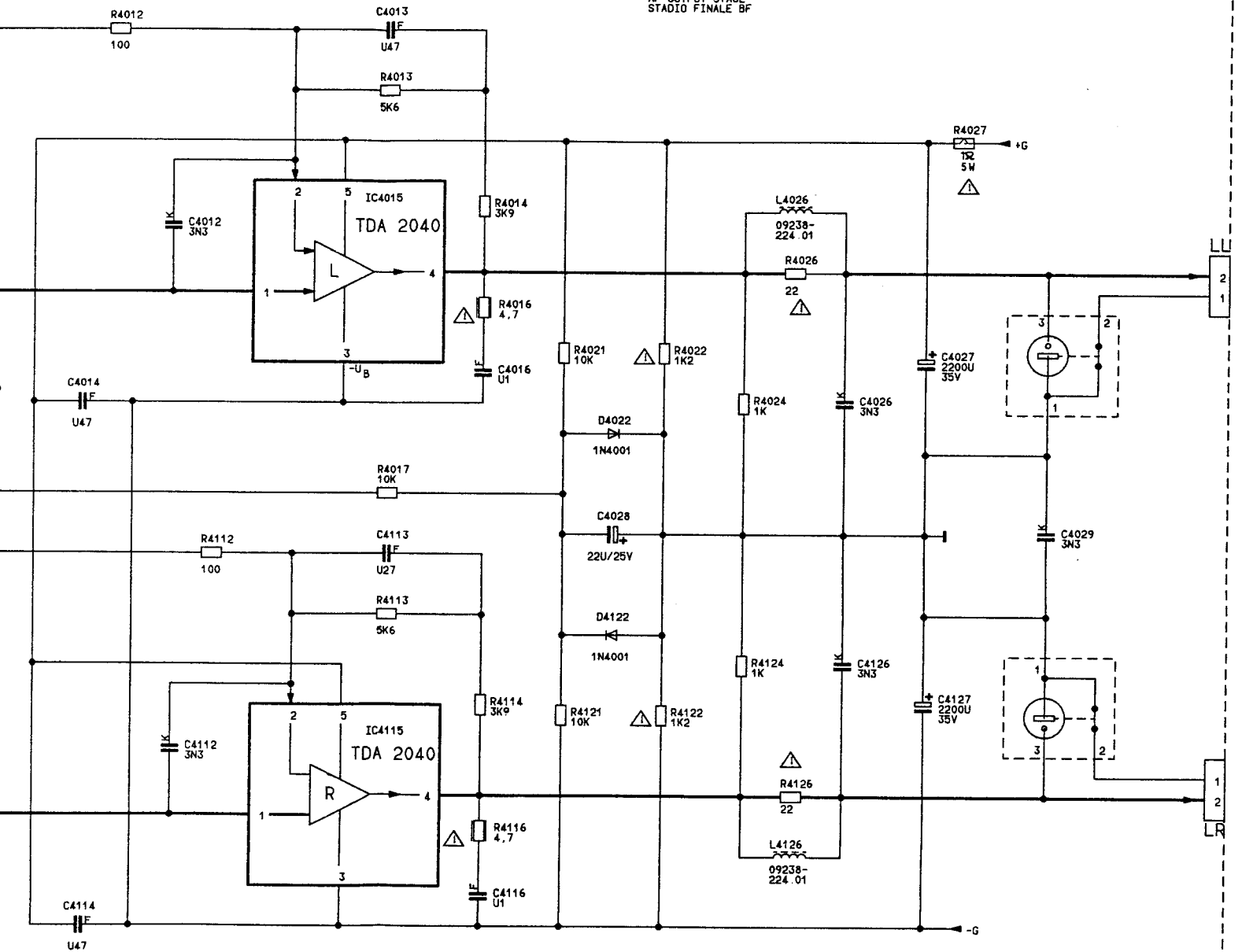






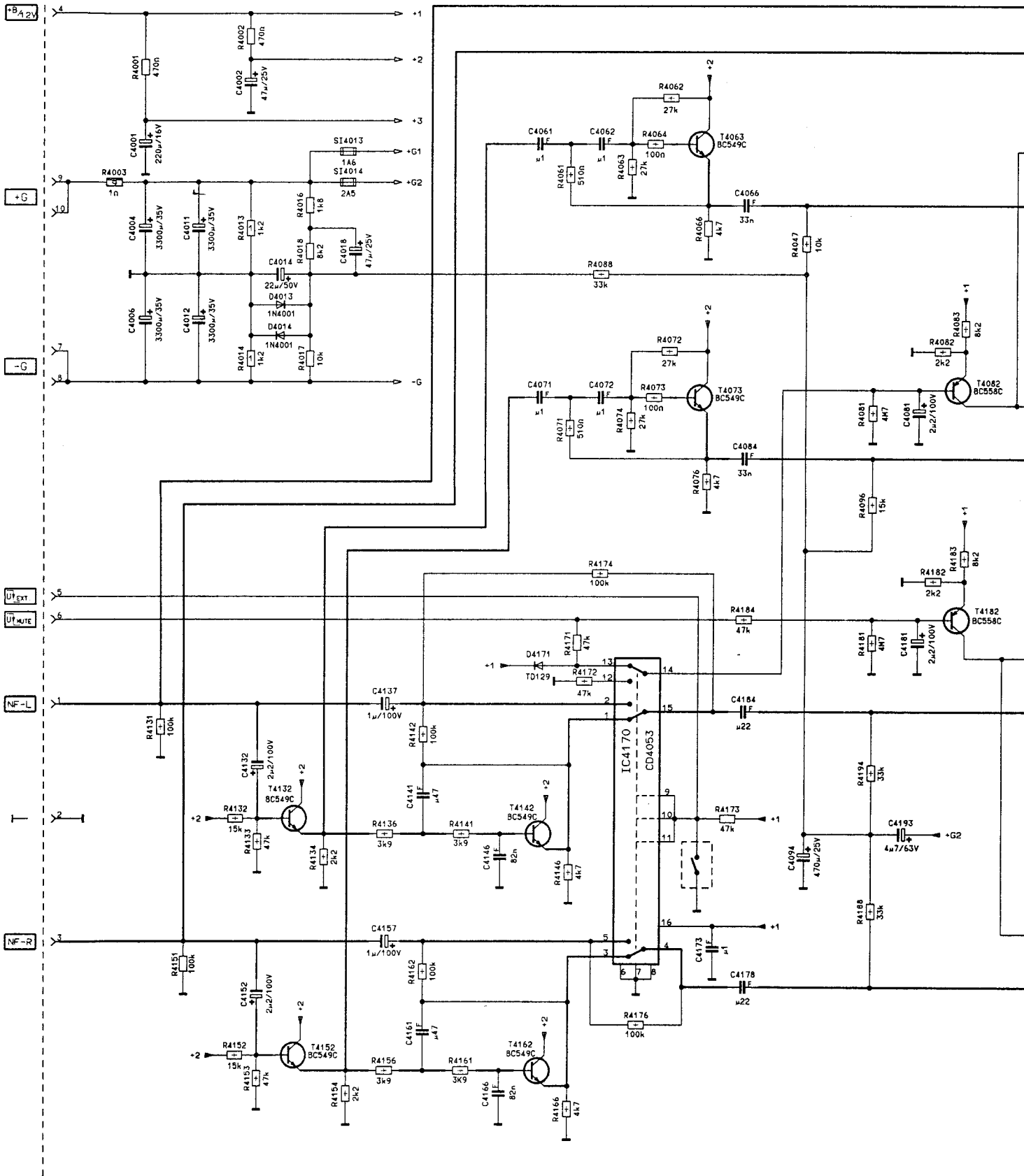
NF-ENDSTUFE 2X35W 29504-104.08

AF OUTPUT STAGE
STADIO FINALE BF

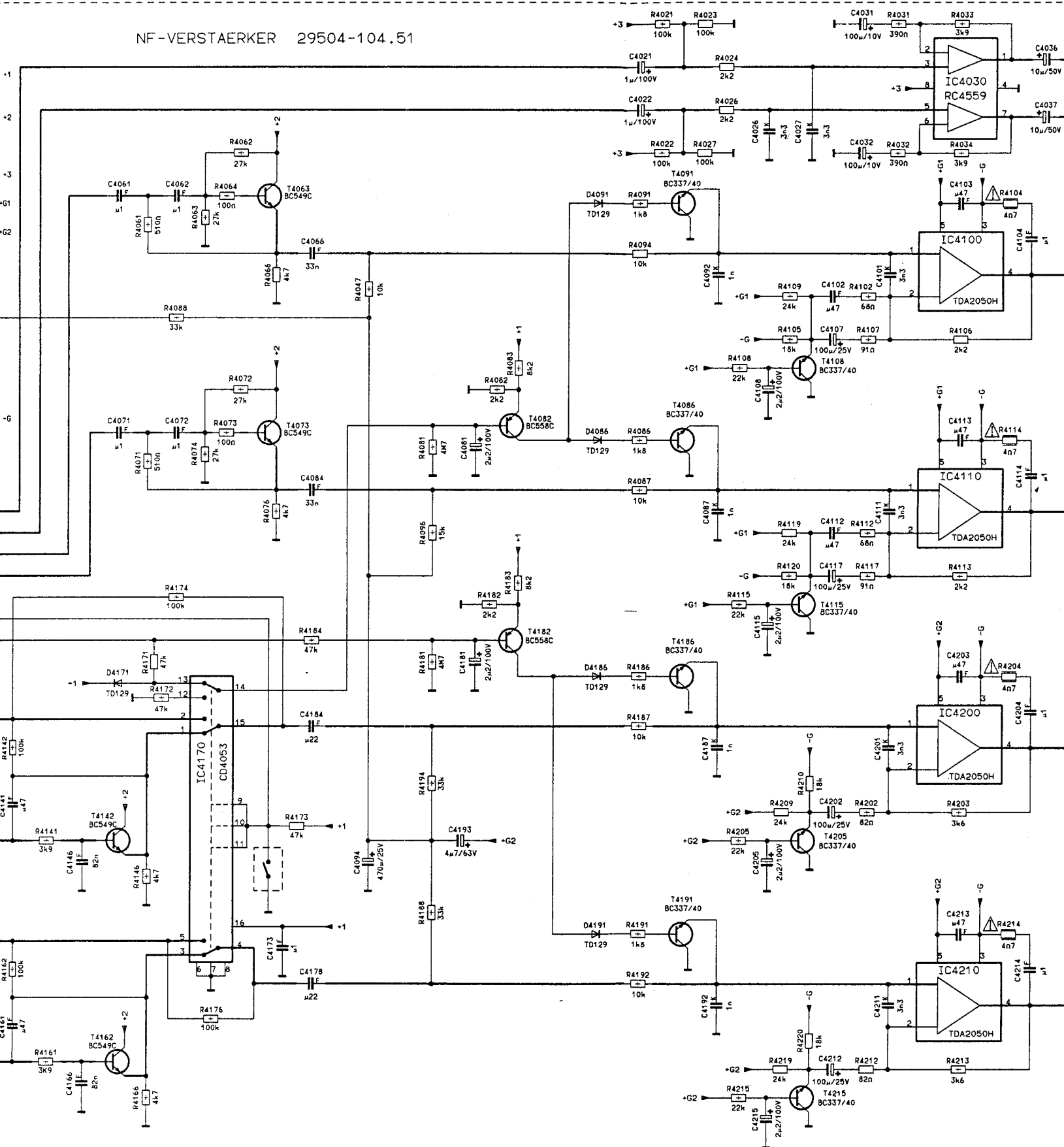


Kein Anpassungsabgleich bei Austausch der Steckkarte notwendig
When replacing the plug-in board, no alignment is necessary
Non è necessaria nessuna taratura di adattamento dopo la
sostituzione di una scheda ad innesto

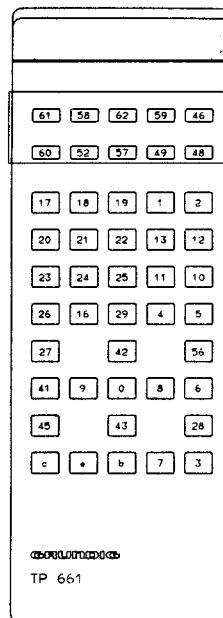
NF-VERSTÄRKER 29504-104.51



NF-VERSTAERKER 29504-104.51



TP 661
 TP 661 FASTTEXT
 TP 661 TOP



FERNBEDIENUNG 29622-053.01
 -053.12 FASTTEXT
 -053.13 TOPTEXT
 29304-620.71 KEYBOARD

