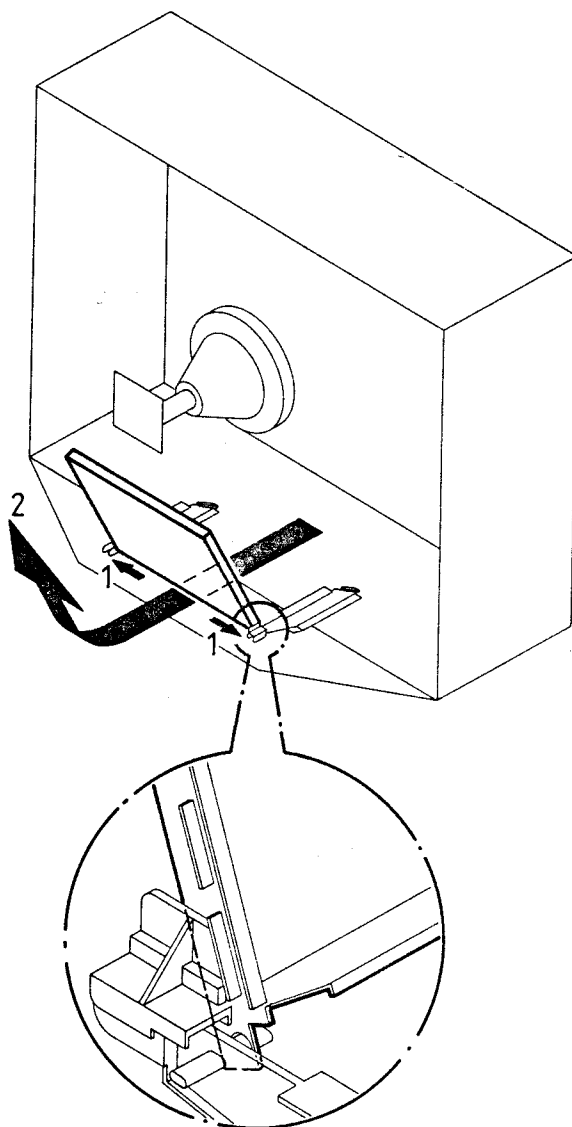


84

Servicestellung
Service position
Posizione di servizio



GRUNDIG



Ⓢ Btx ★ 32700 #

SERVICE MANUAL CUC 3850

M 95 - 490 / 9 S / P.I.P.



Service Manual CUC 3850 Sach. - Nr. 72010 - 004.30
Service Manual CUC 3850 Order - No. 72010 - 004.30
Manuale di Servizio CUC 3850 N. di 72010 - 004.30

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Symbole und ihre Bedeutung

Symbols and their meaning

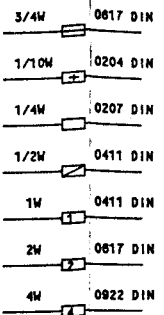
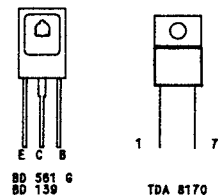
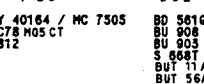
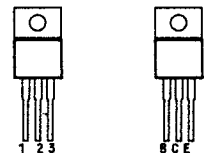
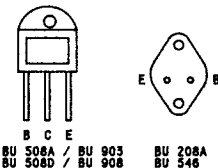
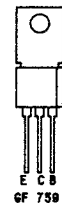
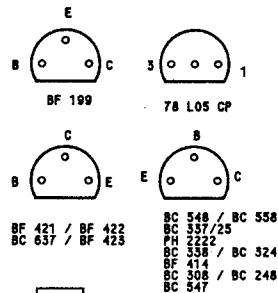
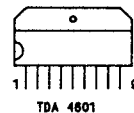
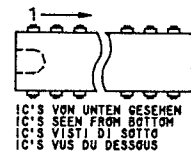
Simboli e loro significati

	PROGR.		SCHALTSP. VIDEO QUELLE SWITCHING VOLT. VIDEO SOURCE TENS. DI COMMUT. SORG. VIDEO TENS. DE COMMUT. SOURCE VIDEO TENS. COMMUT. VIDEO		SPITZ. STRAHLSTR. BEGR. PEAK BEAM CURRENT LIMITING CORR. CATODICA DI PICCO LIM. DE FAISCEAU CRETE CORRIENTE PICO DE HAZ		DATEN DATA DONNEES DATA
	PROGR. TASTE PROGR. BUTTON TASTO PROGR. TOUCHE PROGR. PULS. PROGR.		SCHALTSP. DATENBETR. SWITCHING VOLT. DATA MODE TENS. DI COMMUT. DATI TENS. DE COMMUT. FONCT. DONNEES TENS. COMMUT. DATOS		ROT-SIGNAL RED SIGNAL SEGNALE ROSSO SIGNAL ROUGE SENAL ROJA		ZF-SIGNAL IF SIGNAL SEGNALE F SIGNAL F SENAL DE FI
	SPEICHERTASTE MEMORY BUTTON TASTO DI MEMORIA TOUCHE MEMOIRE PULS. MEMOIRE		SCHALTSP. 4,5 MHZ SWITCHING VOLT. 4,5 MHZ TENS. DI COMMUT. 4,5 MHZ TENS. DE COMMUT. 4,5 MHZ TENS. COMMUT. 4,5MHZ		GRUEN-SIGNAL GREEN SIGNAL SEGNALE VERDE SIGNAL VERT SENAL VERDE		PAL PRIORITA PAL PRIORITY PRIORITA' PAL PRIORITE PAL PRIORIDAD PAL
	NORMTASTE TV STANDARD SELECT. BUTTON COMMUT. DI NORMA TOUCHE DE NORME PULS. DE NORMA		REGELSP. VERZOEGERT DELAYED CONTR. VOLTAGE TENS. DI CONTR. RITARD. TENS. DE REGUL. RETARDEE TENS. REGUL. RETARDADA		BLAU-SIGNAL BLUE SIGNAL SEGNALE BLU SIGNAL BLEU SENAL AZUL		F-SIGNAL DIR. F SIGNAL DIR. SEGNALE F DIR. SIGNAL CHROMA SENAL CROMA
	FEINABST. + FINE TUNING + SINT. FINE + REGLAGE FIN + SINT. FINA +		ABSTIMMSP. TUNER TUNING VOLT. TUNER TENS. DI SINTONIA TUNER TENS. D'ACCORD TUNER TENS. SINTONIA AL TUNER		Y-SIGNAL SEGNALE Y SIGNAL Y SENAL Y		FV-SIGNAL FV SIGNAL SEGNALE FV SIGNAL FY SENAL FY
	FEINABST. - FINE TUNING - SINT. FINE - REGLAGE FIN - SINT. FINA -		REGELSP. AFC AFC CONTROL VOLT. TENS. DI CONTR. AFC TENS. DE REGUL. AFC TENS. REGUL. CAF		F-SIGNAL CHROMA SIGNAL SEGNALE F SIGNAL CHROMA SENAL CROMA		FU-SIGNAL FU SIGNAL SEGNALE FU SIGNAL FX SENAL FU
	SUCHLAUF BD I SELF-SEEK BAND I SINT. AUTOM. BANDA I RECHERCHE AUTOM. BANDE I SINT. AUTOM. BANDA-I		STUMMSCHALTUNG MUTING SILENZIAMENTO SILENCIEUX MUTING		SCHWARZWERT BLACK LEVEL LIVELLO DEL NERO NIVEAU DU NOIR NIVEL DE NEGRO		F-SIGNAL VE. F SIGNAL DE SEGNALE F R SIGNAL CHRO SENAL CROMA
	SUCHLAUF BANDWAHL III SELF-SEEK BAND III SINT. AUTOM. BANDA III RECHERCHE AUTOM. BANDE III SINT. AUTOM. BANDA-III		TASTIMPULS GATING PULSE IMPULSO A CADENZA IMPULS. DE DECLENCHEMENT IMP. PUERTA		AUDIO-SIGNAL SEGNALE AUDIO SIGNAL AUDIO SENAL AUDIO		VERZOEGERUNG DELAY LINE LINEA DI RET. LIGNE A RET. LINEA DE RET.
	SUCHLAUF UHF SELF-SEEK UHF SINT. AUTOM. UHF RECHERCHE AUTOM. UHF SINT. AUTOM. UHF		VERT. TASTIMPULS VERT. GATING PULSE IMP. A CADENZA VERT. IMP. FRAME IMP. CUADRO		AUDIO SIGNAL LINKS AUDIO SIGNAL LEFT SEGNALE AUDIO SINISTRA SIGNAL AUDIO GAUCHE SENAL AUDIO IZQUIERDA		SCHALTSP. /S SWITCHING V. TENS. DI CO TENS. DE CO TENS. COMMU
	LAUTSTAERKE VOLUME VOLUME SONORE VOLUMEN		VERT. PARABEL VERT. PARABOLA PARABOLA VERT. SIGNAL PARABOLIQUE SENAL PARABOL. VERT.		AUDIO SIGNAL RECHTS AUDIO SIGNAL RIGHT SEGNALE AUDIO DESTRA SIGNAL AUDIO DROIT SENAL AUDIO DERECHA		FBAS/SYNC. CCVS/SYNC. SEGNALE SIN SIGNAL SYNC SENAL SINCR
	FEINABST. FINE TUNING SINT. FINE REGLAGE FIN SINT. FINA		VERT. SAEGEZAHN VERT. SAW TOOTH DENTE DI SEGA VERT. SIGNAL DENT DE SCIE DIENTE DE SIERRA VERT.		VIDEO SIGNAL EURO-AV SEGNALE VIDEO EURO-AV SIGNAL VIDEO NORME FR SENAL VIDEO EURO-AV		SYNC.-SIGNAL SYNC. SIGNAL SEGNALE SIN SIGNAL SYNC SENAL DE SI
	KANALWAHL CHANNEL SEL. SELEZ. CANALE SELECT. DE CANAUX SELECCION CANAL		HOR. ANSTEUERUNG HORIZ. DRIVE PILOTAGGIO GRIZZ. SYNCHR. LIGNES EXCITACION HORIZ.		AUDIO SIGNAL EURO-AV RECHTS AUDIO SIGNAL EURO-AV RIGHT SEGNALE AUDIO EURO-AV DESTRA SIGNAL AUDIO NORME FR DROIT SENAL AUDIO DERECHA EURO-AV		SCHALTSP. 5 SWITCHING V. TENS. DI CO TENS. DE CO TENS. COMMU
	BALANCE BILANCIAM. BALANCE BALANCE		REF. IMPULS REFERENCE PULSE IMP. DI RIFER. IMP. DE REFER. IMP. REFERENCIA HORIZ.		AUDIO SIGNAL EURO-AV LINKS AUDIO SIGNAL EURO-AV LEFT SEGNALE VIDEO EURO-AV SINISTRA SIGNAL AUDIO NORME FR GAUCHE SENAL AUDIO IZQUIERDA EURO-AV		SCHALTSP. B SWITCHING V. TENS. DI CO TENS. DE CO TENS. COMMU
	SUCHLAUF SELF-SEEK SINT. AUTOM. RECHERCHE AUTOM. SINTONIA AUTOMATICA		SCHUTZSCHALTUNG CIRCUIT PROTECTION CIRCUITO DI PROTEZIONE CIRCUIT DE SECURITE CIRCUITO DE PROTECCION		IR-SIGNAL SEGNALE IR SIGNAL IR SENAL IR		SYNC. VT SYNC. VT SINCR. TELE SYNC. TELE SINCR. TELE
	SCHALTSP. BANDWAHL BAND SEL. SWITCHING VOLTAGE TENS. DI COMMUT. SELEZ. BANDA TENS. DE COMMUT. SELECT. BANDE TENS. COMMUT. SELEC. BANDA		FARBTON TINT TINTA TEINTE TINTE		SPG. GITTER 1 VOLTAGE GRID 1 TENS. GRIGLIA 1 TENS. GRILLE G1 TENS. REJILLAS G-1		SYNC. BTX SYNC. BTX SINCR. VIDEO SYNC. VIDEO SINCR. VIDEO
	SCHALTSP. VHF SWITCHING VOLT. VHF TENS. DI COMMUT. VHF TENS. DE COMMUT. VHF TENS. COMMUT. VHF		REF. LAUTSTAERKE VOLUME REF. VOLT. TENS. DI RIF. VOLUME TENS. DE REF. VOL. SONORE TENS. REF. VOLUMEN		FOKUSSP. FOCUSING VOLTAGE TENS. DI FOCALIZZ. TENS. DE FOCALIS. TENS. FOCALIZACION		SCHALTSP. R SWITCHING V. TENS. DI CO TENS. DE CO TENS. COMMU
	SCHALTSP. UHF SWITCHING VOLT. UHF TENS. DI COMMUT. UHF TENS. DE COMMUT. UHF TENS. COMMUT. UHF		HELLIGKEIT BRIGHTNESS LUMINOSITA LUMINOSITE BRILLO		HOCHSPANNUNG EHT VOLTAGE ALTA TENS. HAUTE TENS. MAT		SCHALTSP. S SWITCHING V. TENS. DI CO TENS. DE CO TENS. COMMU
	SCHALTSP. AFC SWITCHING VOLT. AFC TENS. DI COMMUT. AFC TENS. DE COMMUT. AFC TENS. COMMUT. CAF		KONTRAST CONTRAST CONTRASTO CONTRASTE CONTRASTE		SCHIRMGITTERS. SCREEN-GRID VOLT. TENS. GRIGLIA SCHERMO TENS. GRILLE-ECRAN TENS. ACELERADORES		SCHALTSP. H SWITCHING V. TENS. DI CO TENS. DE CO TENS. COMMU
	SCHALTSP. AV AV SWITCHING VOLT. TENS. DI COMMUT. AV TENS. DE COMMUT. AV TENS. COMMUT. AV		FARBKONTRAST CONTRAST COLOUR CONTRASTO COLORE CONTRASTE COULEUR SATUR. COLOR		TEXT ENABLE		SCHALTSP. D SWITCHING V. TENS. DI CO TENS. DE CO TENS. COMMU
	SCHALTSP. NORM SWITCHING VOLT. STANDARD TENS. DI COMMUT. NORMA TENS. DE COMMUT. STANDARD TENS. COMMUT. NORMA		FBAS-SIGNAL CCVS SIGNAL SEGNALE SYCC SIGNAL VIDEO COMPOSITE SENAL VIDEO COMPUESTA		I ² C-CLOCK I ² C-BUS		SCHALTSP. K SWITCHING V. TENS. DI CO TENS. DE CO TENS. COMMU
	SCHALTSP. KOINZ. SWITCHING VOLT. COINC. TENS. DI COMMUT. COINC. TENS. DE COMMUT. COINC. TENS. COMMUT. COINCIDENCIA		SUPERSANDCASTLE		VCR-CLOCK		SCHALTSP. L LED SWITCHING LED TENS. DI TENS. DE CO TENS. COMMU
	SCHALTSP. EURO-AV SWITCHING VOLT. EURO-AV TENS. DI COMMUT. EURO-AV TENS. DE COMMUT. NORME FR TENS. COMMUT. EURO-AV		STRAHLSTR. BEGR. BEAM CURRENT LIM. CORRENTE CATODICA MEDIA LIM. COUR. DE FAISCEAU CORRIENTE MEDIA DE HAZ		I-BUS-CLOCK		

Wichtige Schaltzeichen Important circuit symbols Segni circuitali importanti

SDA	DATEN DATA DONNEES DATA
ZF	ZF-SIGNAL IF SIGNAL SEGNALE FI SIGNAL FI SENAL DE FI
PP	PAL PRIORITAET PAL PRIORITY PRIORITA' PAL PRIORITE PAL PRIORIDAD PAL
F-DIR.	F-SIGNAL DIREKT F SIGNAL DIRECT SEGNALE F DIRETTO SIGNAL CHROMA DIRECT SENAL CROMA DIRECTA
FV	FV-SIGNAL FV SIGNAL SEGNALE FV SIGNAL FV SENAL FV
FU	FU-SIGNAL FU SIGNAL SEGNALE FU SIGNAL FU SENAL FU
F-VERZ	F-SIGNAL VERZOEGERT F SIGNAL DELAYED SEGNALE F RITARD. SIGNAL CHROMA RETARDE SENAL CROMA RETARDADA
DL	VERZOEGERUNGSLEITUNG DELAY LINE LINEA DI RITARDO LIGNE A RETARD LINEA DE RETARDO
U SCHUTZ	SCHALTSP. /SCHUTZFUNKTION SWITCHING VOLT. /PROTECTIVE FUNC. TENS. DI COMMUT. /FUNZ. DI PROTEZ. TENS. DE COMMUT. /SECURITE TENS. COMMUT. /PROTECCION
FBAS SYNC.	FBAS/SYNC.-SIGNAL CCVS/SYNC. SIGNAL SEGNALE SINCR. /VIDEO COL. COMP. SIGNAL SYNC./VIDEO COMPOSITE SENAL SINCR./VIDEO COMPUESTA
SYNC.	SYNC.-SIGNAL SYNC. SIGNAL SEGNALE SINCR. SIGNAL SYNC. SENAL DE SINCRONISMOS
U 50/60 Hz	SCHALTSP. 50/60HZ SWITCHING VOLT. 50/60HZ TENS. DI COMMUT. 50/60HZ TENS. DE COMMUT. 50/60HZ TENS. COMMUT. 50/60HZ
U B-X	SCHALTSP. BTX SWITCHING VOLT. BTX (VIEWDATA) TENS. COMMUT. VIDEOTEL TENS. COMMUT. VIDEOTEXTE TENS. COMMUT. VIDEOTEXTO
SYNC. VT	SYNC. VT SYNC. VT (TELETEXT) SINCR. TELEVIDEO SYNC. TELETXT SINCR. TELETXTO
SYNC. BTX	SYNC. BTX SYNC. BTX (VIEWDATA) SINCR. VIDEOTEL SYNC. VIDEOTEXTE SINCR. VIDEOTEXTO
U RESET	SCHALTSP. RESET SWITCHING VOLT. RESET TENS. COMMUT. RESET TENS. COMMUT. RESET
U STAND BY	SCHALTSP. STAND BY SWITCHING VOLT. STAND BY TENS. COMMUT. STAND BY TENS. COMMUT. VEILLE TENS. COMMUT. STAND BY
U HUB	SCHALTSP. HUB SWITCHING VOLT. DEVIATION TENS. COMMUT. DEVIATIONE TENS. COMMUT. DEVIATION TENS. COMMUT. DESVIACION
U DEEM	SCHALTSP. DEEM SWITCHING VOLT. DEEMPHASIS TENS. COMMUT. DEENFASI TENS. COMMUT. DESACCENT. TENS. COMMUT. DEENFASIS
U KAM. WIEDERG.	SCHALTSP. KAMERA WIEDERG. SWITCHING VOLT. CAMERA PLAYBACK TENS. COMMUT. RIPRODUZ. TELECAM. TENS. COMMUT. REPROD. CAMERA TENS. COMMUT. REPROD. CAMARA
U LED	SCHALTSP. LED LED SWITCHING VOLT. LED TENS. DI COMMUT. TENS. DE COMMUT. LED TENS. COMMUT. LED

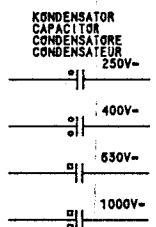
	ZEILENBREITE LINE WIDTH LARGHEZZA DI RIGA AMPLITUDE HORIZONTALE AMPLITUD HORIZONTAL
	OST / WEST AMPLITUDE EAST / WEST AMPLITUDE AMPIEZZA EST / OVEST AMPLITUDE EST / OUEST AMPLITUD E/O
	HOR. LINEARITAET HORIZ. LINEARITY LINEAR. GRIZZ LINEAR. HORIZONT. LINEAL. HORIZONTAL
	BILDLAG E HORIZ. PICTURE POSITION POSIZ. HORIZ. D'IMMAGINE CADRAGE HORIZONT. CENTRADO HORIZONTAL
	FOKUSREGLER FOCUS CONTROL REGOLAT. DI FOCALIZZ. REGLAGE DE FOCALISATION CONTROL DE FOCO
	BILDLAG E VERT. VERT. PICTURE POSITION POSIZ. VERT. D'IMMAGINE CADRAGE VERTICAL CENTRADO VERTICAL
	BILDAMPLITUDE FIELD AMPLITUDE AMPIEZZA D'IMMAGINE AMPLITUDE VERTICALE AMPLITUD VERTICAL
	TRAPEZ TRAPEZIUM TRAPEZIO TRAPEZE TRAPECTO
	HOR. FREQUENZ HOR. FREQUENCY FREQ. GRIZZ FREQ. HORIZ. FRECUENCIA HORIZONTAL
	VERT. FREQUENZ VERT. FREQUENCY FREQ. VERT. FRECUENCIA VERTICAL
	VERT. LINEARITAET VERT. LINEARITY LINEAR. VERT. LINEAR. VERT. LINEALIDAD VERTICAL
	OST/WEST SYMMETRIE EAST/WEST SYMMETRY SIMMETRIA EST/OVEST SYMMETRIE EST/OUEST SIMETRIA E/O



WIDERSTAND NICHT BRENNBAR
RESISTOR NOT FLAMMABLE
RESISTENZA NON INFIAMMABILE
RESISTANCE INFLAMMABLE

DRABTWIDERSTAND
WIRE RESISTOR
RESISTENZA A FILO
RESISTANCE BOBINEE

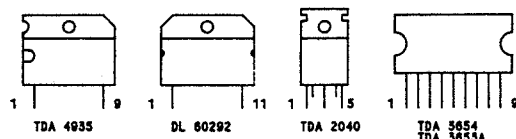
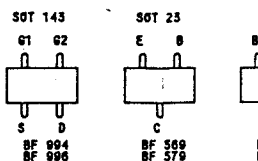
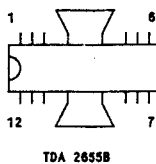
SICHERUNGSWIDERSTAND
SAFETY RESISTOR
RESISTENZA DI SICUREZZA
RESISTANCE DISJONCTABLE



FOLIE
FOLI
A FOGLIA
FOLIO PLASTIQUE

KERAMIK
CERAMIC
CERAMICO
CERAMIQUE

ELKO
ELECTROLYTIC
ELECTROLITICO
ELECTROLYTIQUE



SICHER-
REPARATUR-
ÄTBEZO-

ORIGINALBAU -

SAFETY RE-
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C 65 (CON-

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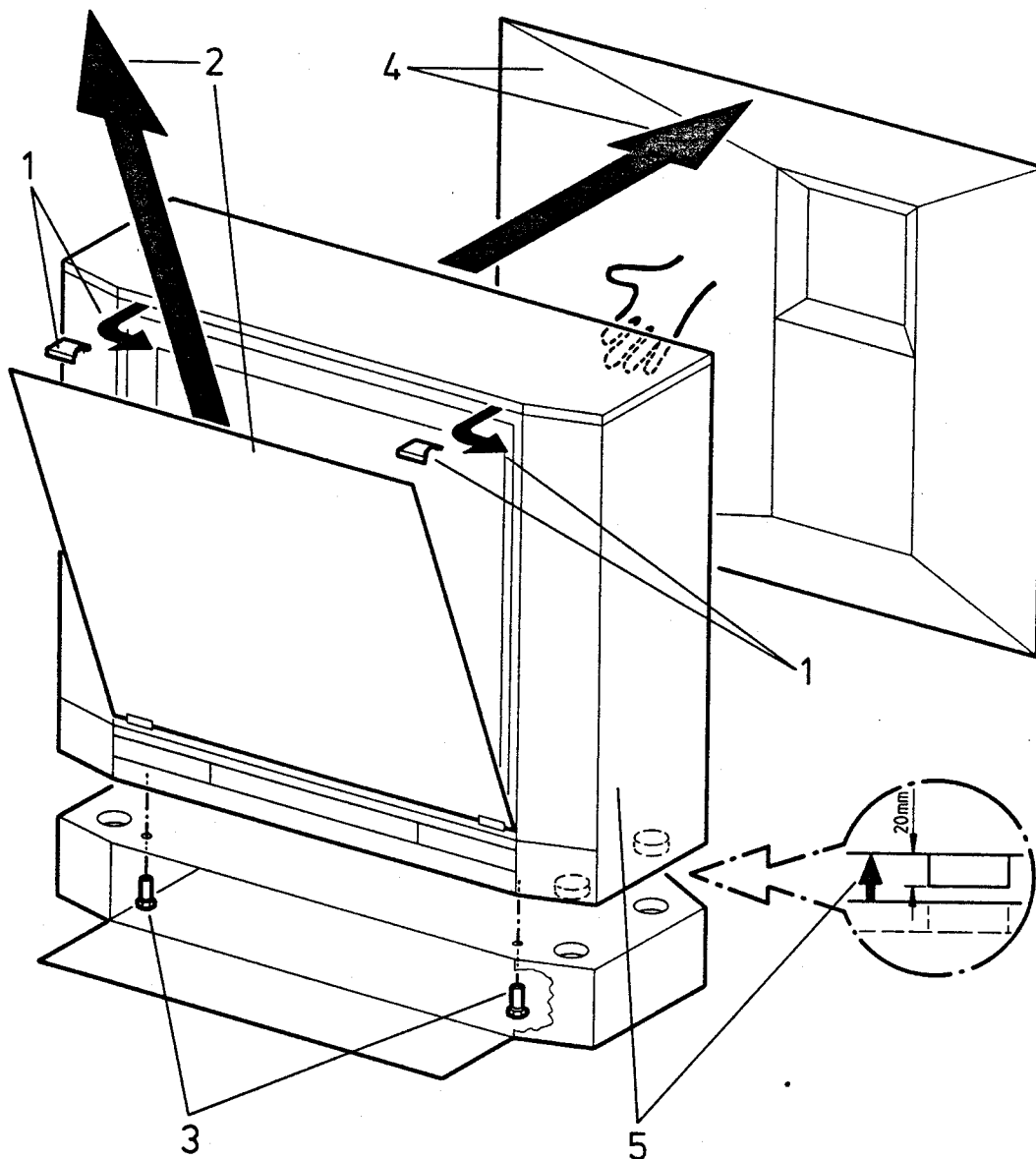
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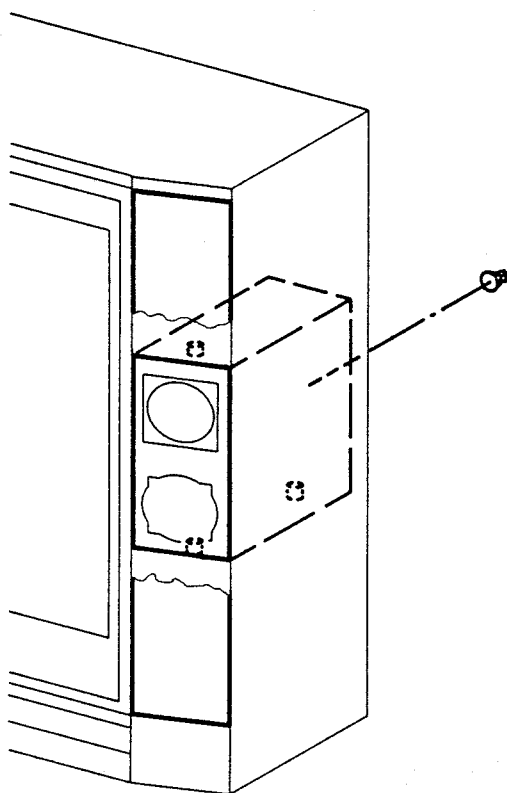
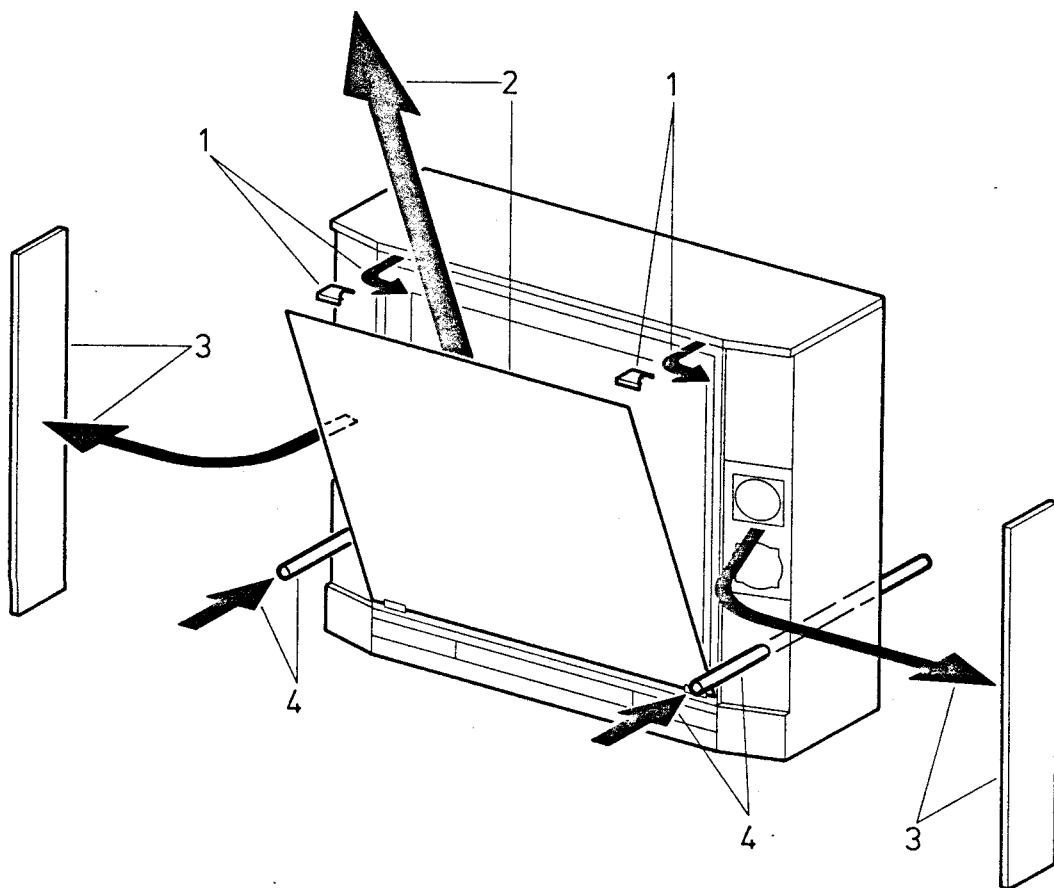
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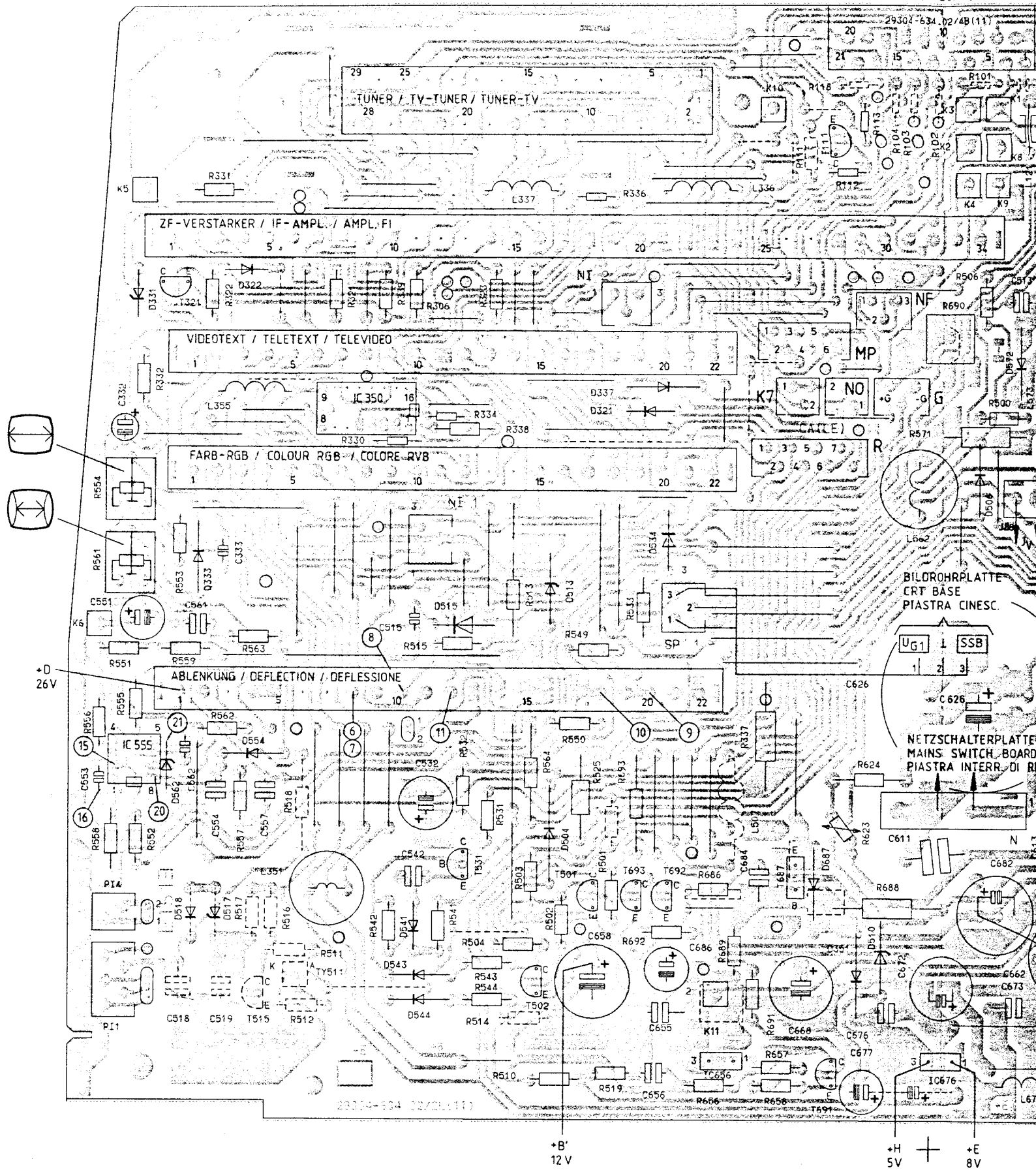
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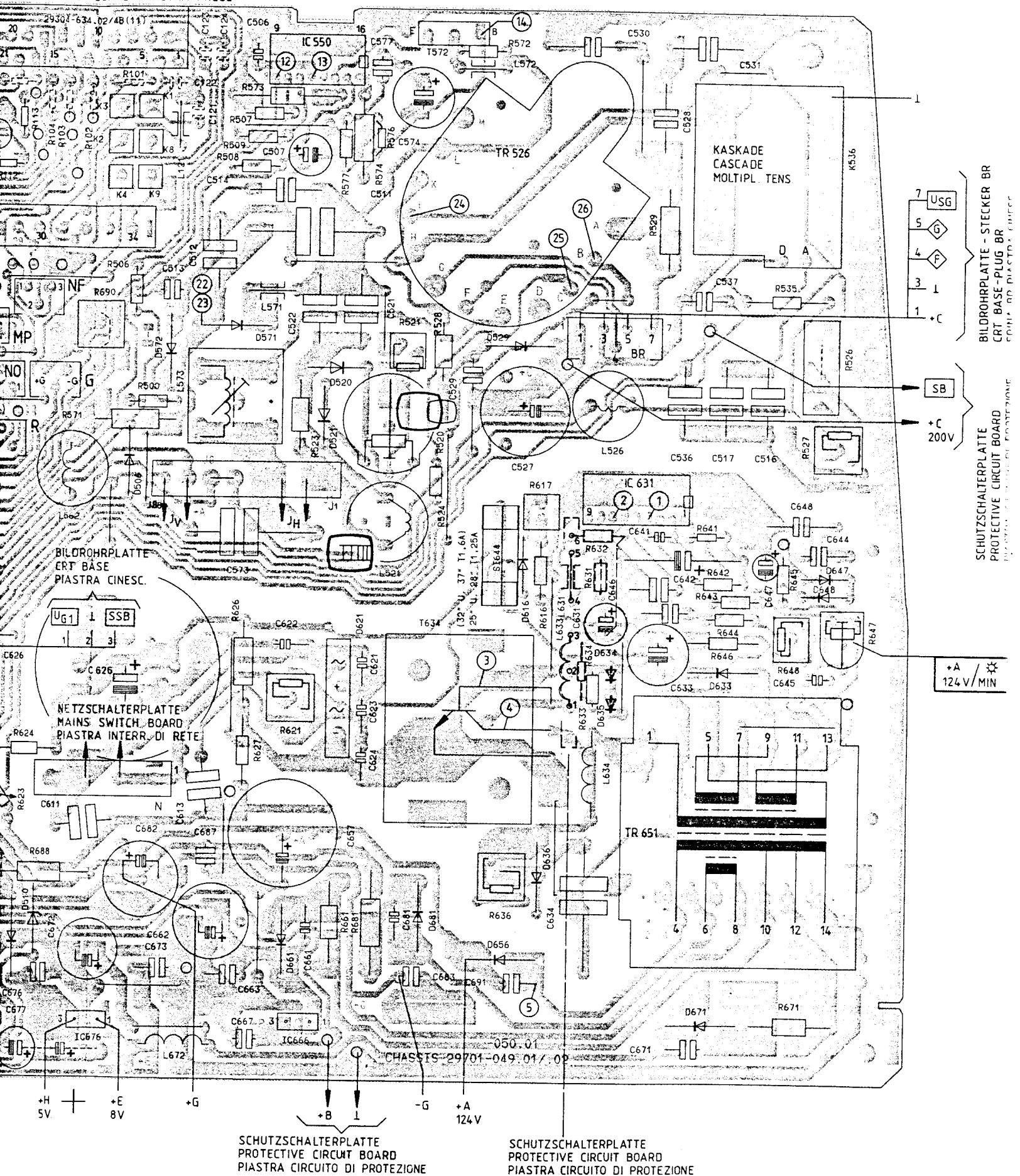
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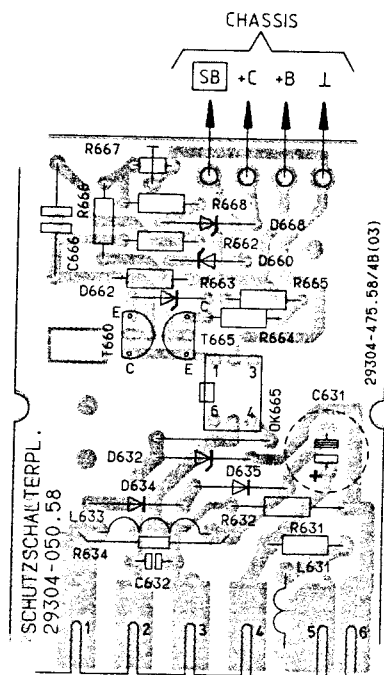




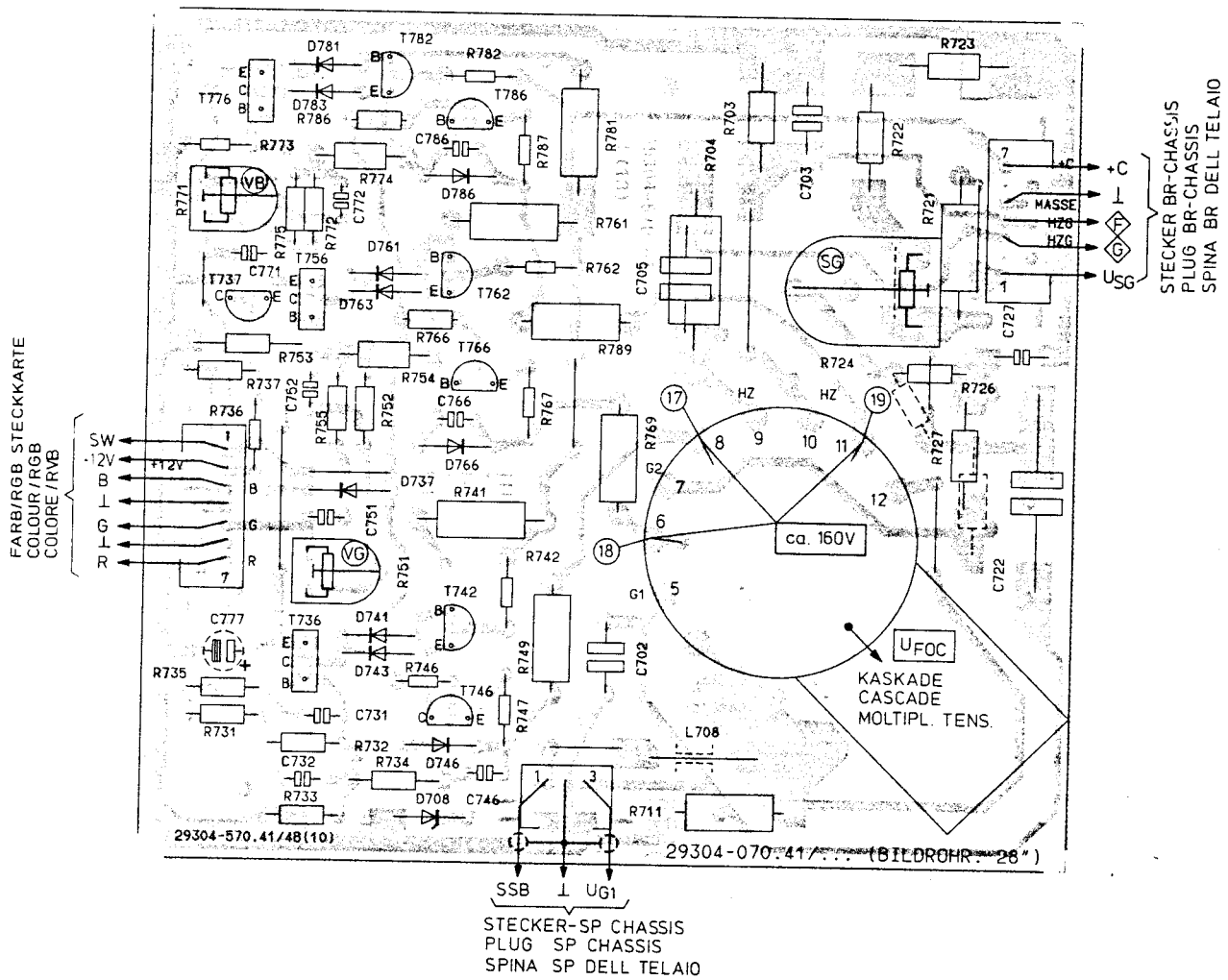
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29302
15
R104
R103
3
80P
221
BI
CF
PI
UG
C611
88
14
C672
52
53
+H
SV

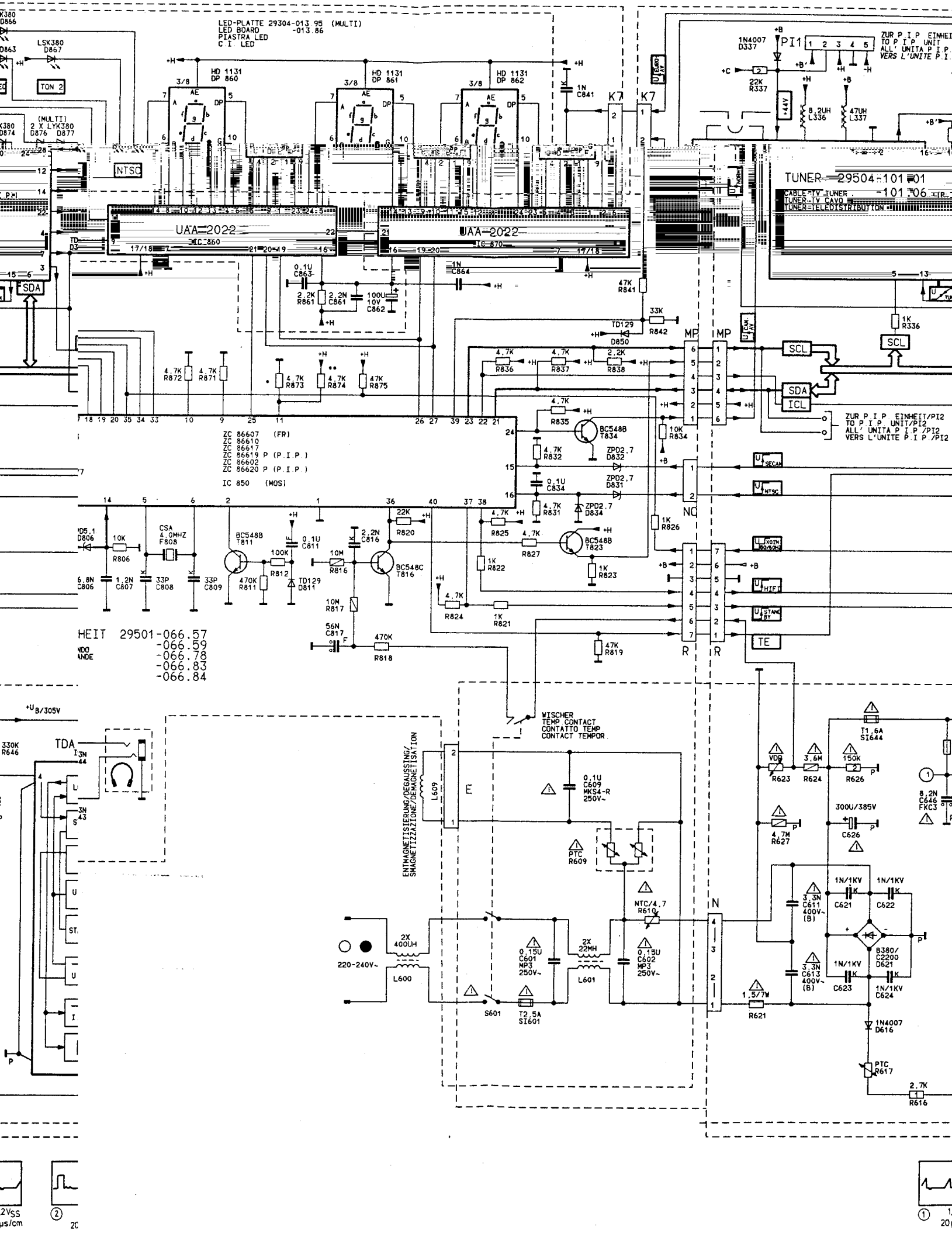




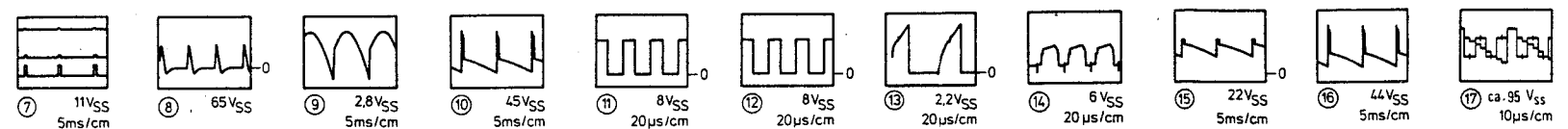
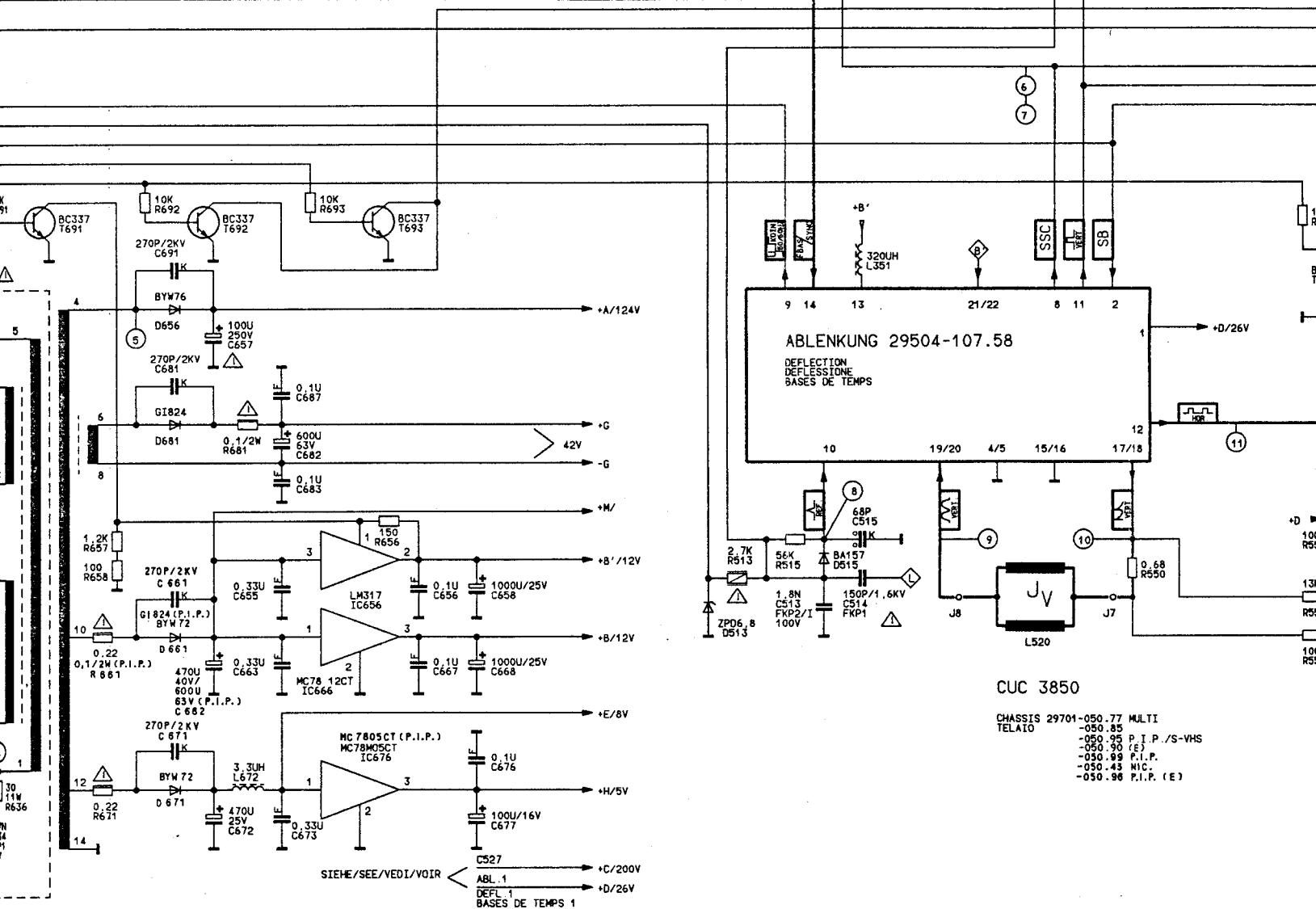
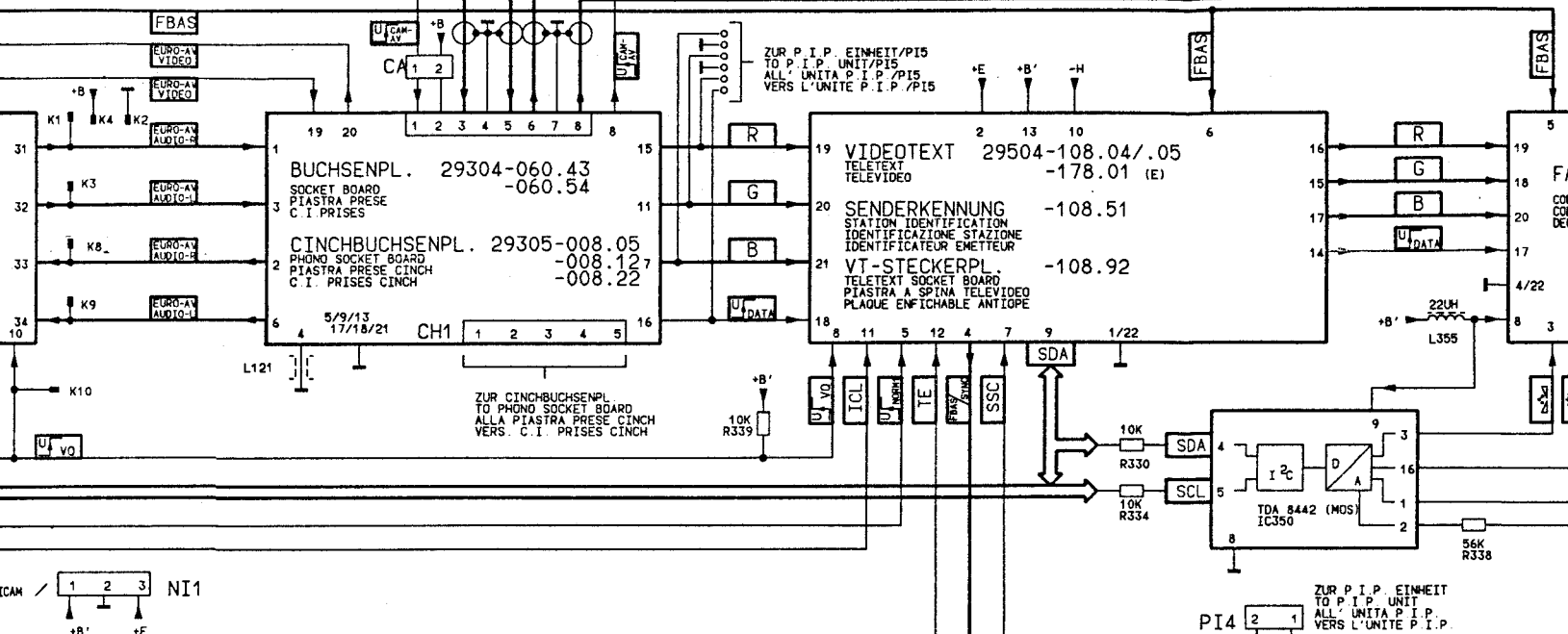


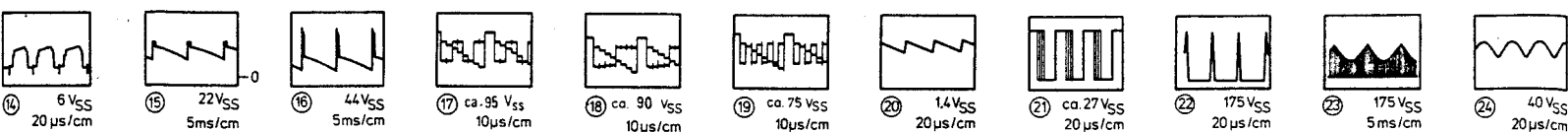
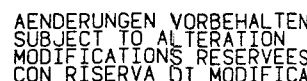
BILDROHRPLATTE
CRT BASE
PIASTRA CINESC.





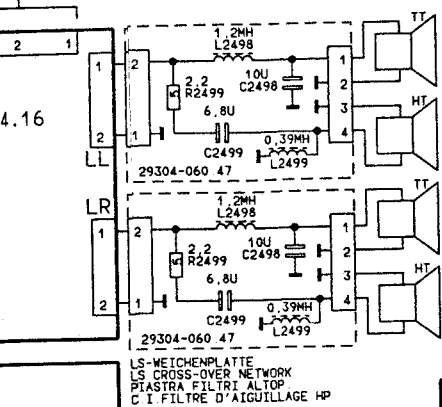
R P I P EINHEIT/PI3
P I P UNIT/PI3
L'UNITA P I P /PI3
RS L'UNITA P I P /PI3



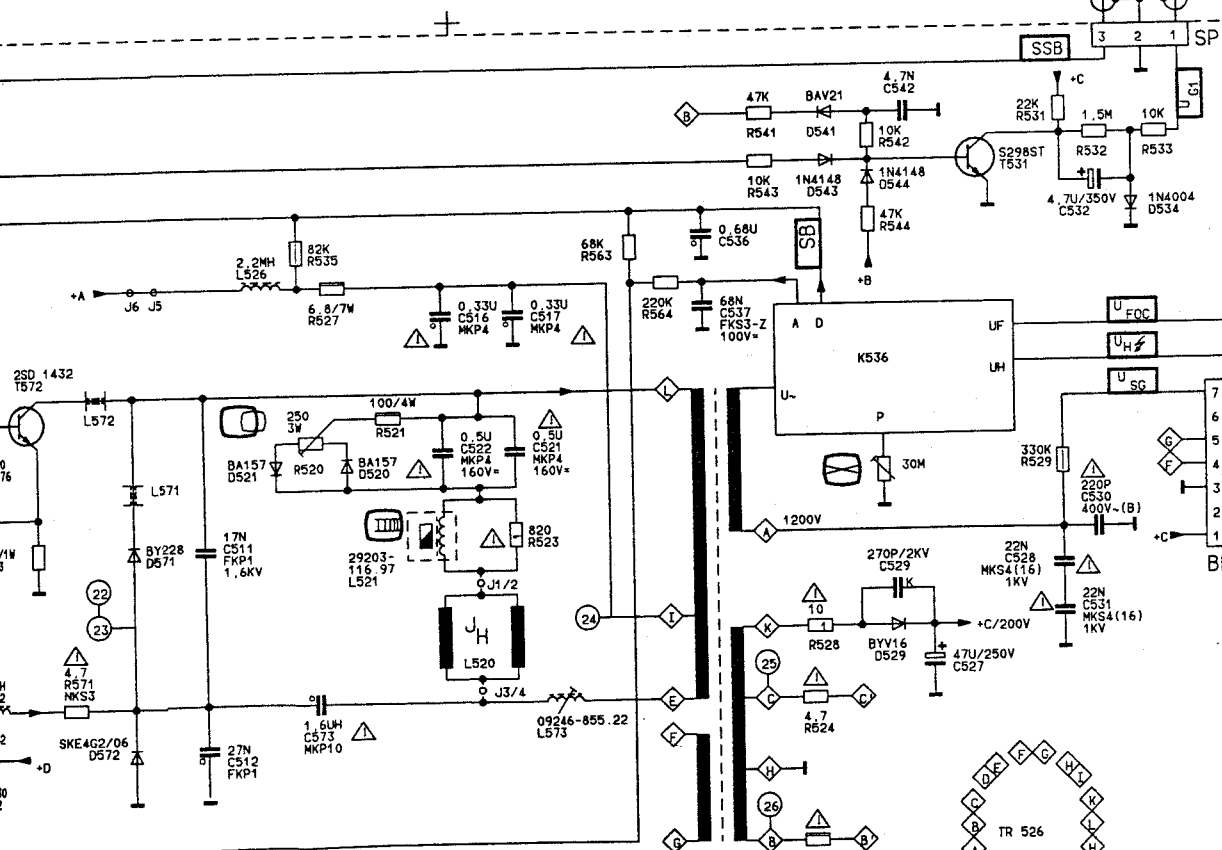
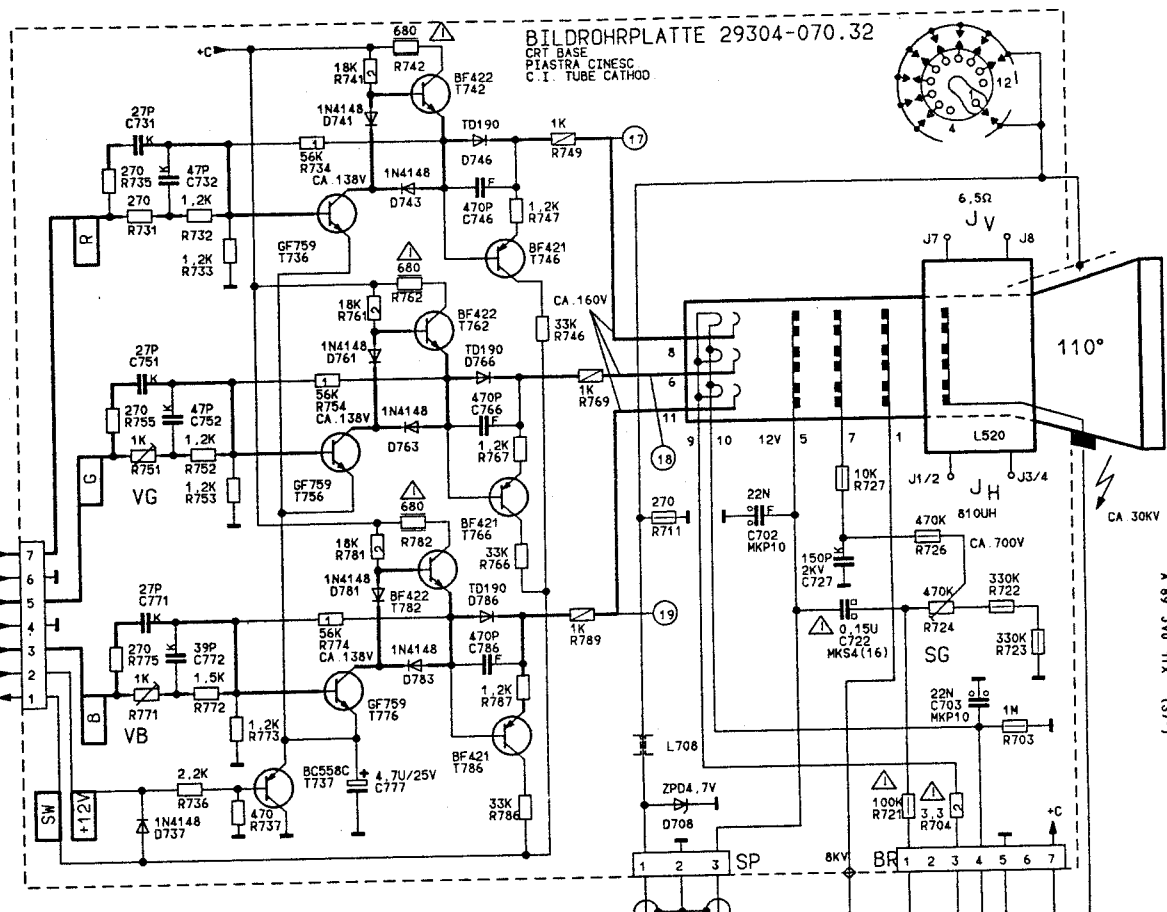


ED - EINHEIT (KOPFH - BUCHSE)
CONTROL UNIT (HEADPHONE SOCKET)
UNITÀ DI COMANDO (PRESA CUFFIA)
UNITÉ DE COMMANDE (PRISE HP)

4.16

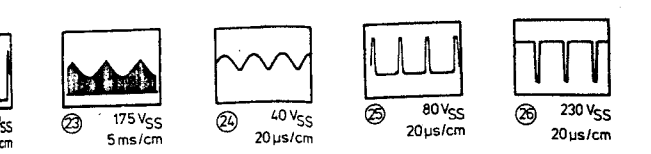


060 48



ÄNDERUNGEN VORBEHALTEN
SUBJECT TO ALTERATION
MODIFICATIONS RESERVEES
CON RISERVA DI MODIFICA

PRINTED IN GERMANY / IMPRIME EN ALLEMAGNE



ANSCHL. V. UNTEN GESEHEN
CONN. BOTTOM VIEW
COLLEG. VISTI DI SOTTO
CONN. VUES DE DESSOUS

Lat

Service am I²C-Bus (mit MOTOROLA-Prozessor)

Bei Fehlfunktionen des Gerätes, die nicht auf Netzteil, Hochspannung und Ablenkung zurückzuführen sind, ist der I²C-Bus gemäß Tabelle 1 zu prüfen, bevor weitere Servicearbeiten nach Tabelle 2 durchgeführt werden. Der µComputer in der Bedieneinheit IC 850 liefert Steuerbefehle für Tuner, ZF, Videotext, Buchsenplatte (Euro-AV-Buchse) inklusive VCR-Fernsteuerung und RGB-Analogwerte über den I²C Bus.

Hinweis:

Bei Modulwechsel ist das Gerät generell auszuschalten!

Auch in Stellung »Bereitschaft« darf kein Modul gezogen werden! MOS-handling beachten.

Tabelle 1

Messung	Meßwert	Meßpunkt	Mögliche Fehler
+H	5 V	Pin 4, IC 850	D 671, IC 676, IC 850
Reset	LOW nur im Einschaltmoment	Pin 2	T 811, D 811
4 MHz Takt	4 MHz, 3 V _{ss}	Pin 6, IC 850	F 808, IC 850
I ² C Bus	5 V _{ss}	Pin 21,23, IC 850	Die I ² C-Bus-Daten sind auch ohne TP-Bedienung oder Keyboardeingabe vorhanden. Bei fehlenden Daten: Tuner-, ZF-, Videotext-Steckkarte nacheinander ziehen bzw. IC 350 Pin 4,5 ablöten. Stellen sich trotz dieser Maßnahmen keine Daten ein ist die Bedieneinheit zu wechseln.

Tabelle 2

Mögliche Fehlerarten des Gesamtgerätes in Abhängigkeit der I²C-Bus-Steuerung.

Fehler	Mögliche Ursache	Meßwert	Meßpunkt
Keine Bedienfunktion per Keyboard	+ H IC 850	5 V siehe Tabelle 1	IC 850 Pin 4
Keine Kanal-Programmu- mschaltung mit TP	IR-Vorverstärker D 1201, T 1204, + B,	+ B = 12 V	Pin 6 IC 1211
Display dunkel keine Anzeige	+ H	5 V	Pin 17, 18 IC 860, 870
	C 862, C 863, R 861	5 V	Pin 16 IC 860, 870
	IC 860, 870	Ausgangssignale LOW ca. 3 V	an den Katoden der LED's.
Display dunkel oder fehlerhafte Anzeige	Schluß oder Unter- brechung der CLOCK-, DATEN- und Freigabe- leitung	ca. 5 V _{ss}	IC 860, 870 Pin 19, 21, 20
Keine Frequenzab- stimmung	+ C über R 337	ca. 44 V	Tuner Pin 1
	+ B, + H	12 V, 5 V	Tuner Pin 16, 2
	Daten (SDA)/Clock (SCL) I ² C Bus	5 V _{ss}	Tuner Pin 6, 5
Rauschen am Bild- schirm	variable Abstimmspan- nung in Abhängigkeit der Kanaleingabe	0,2-30 V	Tuner Pin 13, 15
Bildschirm dunkel- kein Rauschen	Tuner Pin 3 HIGH	HF 0 V AV > 8 V	Tuner Pin 3
Kein FBAS-Signal an ZF-Bst. Kont. 7, 9	+ B, + B' I ² C Bus, SDA, SCL fehlt am Tuner ZF Pin 10 HIGH	12 V 5 V _{ss}	ZF 21, 17 Tuner 6, 5 ZF Pin 10
Kein Ton	ZF-Verstärker	bei voller Laut- stärke ca. 1,5 V _{ss}	ZF Pin 28, 29
	Buchsenplatte	"	Stecker AU Pin 6, 8
	NF-Steckkarte	"	Stecker NF Pin 1, 3
	+ G und - G	42 V	Stecker G
	+ B, + B' I ² C Bus, SDA, SCL keine Koinzidenz	12 V 5 V _{ss} 12 V 5 V	ZF 21, 17 ZF 25, 24 ZF 20 IC 850 Pin 35

Keine Analogwerte

Keine Helligkeit
Kein Kontrast
Kein Farbkontrast

Nur bei TP-Bedienung
Kein Videotext

Nur bei Multi-Geräten

Fehler	Mögliche Ursache
Keine Norm- um- schal- tung	Bedienung Tuner, ZF-Verstärker

Ablenkung zurückzuführen sind, ist nach Tabelle 2 durchgeführt werden.
ZF, Videotext, Buchsenplatte (Euro-
PC Bus.

Handling beachten.

Keine Analogwerte	I ² C Bus, IC 350	5 V _{SS}	IC 350 Pin 4/5
Keine Helligkeit	D/A-Converter	1-3 V	Stift 10 (Helligk.)
Kein Kontrast	D/A-Converter	2-4 V	Stift 11 (Kontrast)
Kein Farbkontrast	D/A-Converter	2-4 V	Stift 12 (Farbkon.)
Nur bei TP-Bedienung			
Kein Videotext	+ B', + E I ² C Bus, SDA	12 V, 8 V 5 V _{SS}	VT Pin 13, 2 VT Pin 9

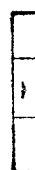
Mögliche Fehler
IC 671, IC 676, IC 850
IC 811, D 811
IC 808, IC 850
IC-Bus-Daten sind auch ohne Bedienung oder Keyboard- einheit vorhanden. Bei fehlenden Daten: Tuner-, ZF-, Videotext- steckkarte nacheinander ziehen w. IC 350 Pin 4,5 ablöten. ellen sich trotz dieser Maßnahmen keine Daten ein ist die Bedieneinheit zu wechseln.

Nur bei Multi-Geräten

Fehler	Mögliche Ursache	Meßpunkt	Meßwert			
Keine Norm- um- schal- tung	Bedieneinheit Tuner, ZF-Verstärker	Displayanzeige (Taste „Norm“ drücken)	„0“ CCIR (Norm B/G)	„1“ FR (Norm L)	„2“ GB (Norm I)	„3“ OIRT (Norm D)
		ZF-Pin 2 (Norm 1)	0	1	0	1
		ZF-Pin 3 (Norm 2)	0	0	1	1
		ZF-Pin 1 (Norm 3)	0	0	0	0
		1 = ca. 12 V				

Steuerung.

Meßpunkt
IC 850 Pin 4
Pin 6 IC 1211
Pin 17, 18 IC 860, 870
Pin 16 IC 860, 870
an den Katoden der LED's.
IC 860, 870 Pin 19, 21, 20
Tuner Pin 1
Tuner Pin 16, 2
Tuner Pin 6, 5
Tuner Pin 13, 15
Tuner Pin 3
ZF 21, 17 Tuner 6, 5
ZF Pin 10
ZF Pin 28, 29
Stecker AU Pin 6, 8
Stecker NF Pin 1, 3
Stecker G
ZF 21, 17 ZF 25, 24 ZF 20 IC 850 Pin 35



Service checks on the I²C Bus (with MOTOROLA processor)

If faults occur in the set which cannot be attributed to the power supply unit, the EHT or the deflection system, the I²C bus should be checked using Table 1 before further service work is carried using Table 2.

Via the I²C bus the microcomputer in the control unit IC 850 supplies control signals for the tuner, IF, Videotext (teletext), socket board (Euro AV socket) including the VCR remote control, and the RGB analog signals.

Note:

N.B. when a module is being changed, the set should always be switched off. Modules must not be unplugged even in the "standby" mode. Observe MOS handling precautions.

Table 1

Test	Measured Value	Test Point	Possible Faults
+H	5 V	Pin 4, IC 850	D 671, IC 676, IC 850
Reset	LOW only at moment of switch on	Pin 2	T 811, D 811
4 MHz clock	4 MHz, 3 V _{pp}	Pin 6, IC 850	F 808, IC 850
I ² C bus	5 V _{pp}	Pin 21, 23, IC 850	The I ² C bus data are present even without input from the remote control or keyboard. If there are no data: Take out the tuner, IF, Videotext plug-in boards successively or unsolder Pins 4,5 of IC 350. If there are still no data replace the control unit.

Table 2

Possible faults due to I²C Bus control which can occur in any part of set.

Fault	Possible Cause	Measured Value	Test Point
No functions accepted by keyboard	+ H IC 850	5 V see Table 1	IC 850, Pin 4
Channel No. cannot be changed with remote control	IR preamplifier D 1201, T 1204, + B	+ B = 12 V	Pin 6, IC 1211
Dark display, no indication	+ H	5 V	Pins 17, 18 ICs 860, 870
	C 862, C 863, R 861	5 V	Pin 16, ICs 860, 870
	ICs 860, 870	LOW output signals, approx. 3 V	on the cathodes of the LEDs
Dark display or defective display segments	Short circuit or interruption in CLOCK, DATA and release lines	approx. 5 V _{pp}	ICs 860, 870 Pins 19, 21, 20
No frequency tuning	+ C via R 337	approx. 44 V	Tuner, Pin 1
	+ B, + H	12 V, 5 V	Tuner, Pins 16, 2
	Data (SDA)/clock (SCL) I ² C bus	5 V _{pp}	Tuner, Pins 6, 5
Noise-infested picture	Variable tuning voltage as function of channel selection	0.2-30 V	Tuner, Pins 13, 15
Dark screen — no noise	Tuner, Pin 3 HIGH	HF 0 V AV > 8 V	Tuner, Pin 3
No CCVS at IF module, contacts 7, 9	+ B, + B' I ² C bus, SDA, SCL missing at tuner, IF Pin 10 HIGH	12 V 5 V _{pp}	IF, Pins 21, 17 Tuner, Pins 6, 5 IF, Pin 10
No sound	IF amplifier	approx. 1.5 V _{pp} at max. volume	IF, Pins 28, 29
	Socket board	"	AU plug, Pins 6, 8
	AF plug-in board	"	AF, plug, Pins 1, 3
	+ G and -G	42 V	Plug G
	+ B, + B' I ² C bus, SDA, SCL no coincidence	12 V 5 V _{pp} 12 V 5 V	IF, Pins 21, 17 IF, Pins 25, 24 IF, Pin 20 IC 850, Pin 35

No analog signals,
contrast, colour
contrast
Brightness
Contrast
Colour contrast

Only in case of rem
No Videotext
(teletext)

For multi-standard T

Fault	Possible Cause
No stand-ards conver-sion	Control unit tuner, IF AMP

it, the EHT or the deflection system,
 is carried using Table 2.
 control signals for the tuner, IF, Videotext
 control, and the RGB analog signals.
 off. Modules must not be unplugged

Possible Faults
71, IC 676, IC 850
11, D 811
08, IC 850
I ² C bus data are present even without input from the remote control keyboard. There are no data: Take out the tuner, IF, Videotext plug-in boards successively or unsolder Pins 4,5 of IC 350. If there are still no data replace the control unit.

	Test Point
	IC 850, Pin 4
	Pin 6, IC 1211
	Pins 17, 18 ICs 860, 870
	Pin 16, ICs 860, 870
als,	on the cathodes of the LEDs
	ICs 860, 870 Pins 19, 21, 20
	Tuner, Pin 1
	Tuner, Pins 16, 2
	Tuner, Pins 6, 5
	Tuner, Pins 13, 15
	Tuner, Pin 3
	IF, Pins 21, 17 Tuner, Pins 6, 5 IF, Pin 10
at	IF, Pins 28, 29
	AU plug, Pins 6, 8
	AF, plug, Pins 1, 3
	Plug G
	IF, Pins 21, 17 IF, Pins 25, 24 IF, Pin 20 IC 850, Pin 35

No analog signals, contrast, colour contrast Brightness Contrast Colour contrast	I ² C bus, IC 350 IC 350 D/A converter D/A converter D/A converter	5 V _{pp} Analog signals 1-3 V 2-4 V 2-4 V	IC 350, Pins 4/5 Colour/RGB module: Pin 10 (brightness) Pin 11 (contrast) Pin 12 (col. contrast)
Only in case of remote control No Videotext (teletext)	+ B', + E I ² C bus, SDA	12 V, 8 V 5 V _{pp}	VT, Pins 13, 2 VT, Pin 9

For multi-standard TV sets only

Fault	Possible Cause	Test Point	Measured Value			
			„0“ CCIR (st.B/G)	„1“ FR (st.L)	„2“ GB (st.I)	„3“ OIRT (st.D)
No stand- ards conver- sion	Control unit tuner, IF AMP	Indication (press „standard“)				
		IF Pin 2 (st. 1)	0	1	0	1
		IF Pin 3 (st. 2)	0	0	1	1
		IF Pin 1 (st. 3)	0	0	0	0
		1 = 12 V approx.				

4/5.
module:
(ness)
ast)
ontrast).

„3” OIRT (st.D)
1
1
0

Servizio per I²C-Bus (con processore MOTOROLA)

Se si riscontrano anomalie che non sono dovute nè all'alimentatore, nè all'alta tensione o alla deflessione, controllare prima di tutto il sistema I²C-Bus secondo la tabella 1 e successivamente effettuare i lavori riportati in tabella 2.

Il microcomputer dell'unità comandi IC 850 fornisce istruzioni o tuner, FI, Televideo e piastra prese (Euro-Scart) per mezzo del sistema I²C-Bus; inoltre provvede al telecomando VCT e ai valori analogici RGB.

Avviso:

Mentre si sostituisce un modulo, l'apparecchio va spento!

Non estrarre il modulo nemmeno quando l'apparecchio si trova in posizione d'attesa! Prestare attenzione alle norme MOS.

Tabella 1

Misura	Valore di misura	Punto di misura	Possibili guasti
+H	5 V	Pin 4, IC 850	D 671, IC 676, IC 850
Reset	LOW solo all'atto dell'accensione	Pin 2	T 811, D 811
Cadenza 4 MHz	4 MHz, 3 V _{pp}	Pin 6, IC 850	F 808, IC 850
I ² C Bus	5 V _{pp}	Pin 21, 23, IC 811	I dati nel sistema I ² C-Bus sono presenti anche senza immissione mediante TP o tastiera. Se i dati mancano: staccare una dopo l'altra le schede tuner, FI e Televideo risp.te dissaldare i pin 4 e 5 di IC 350. Se malgrado ciò i dati non sono presenti: sostituire l'unità comandi.

Tabella 2

Possibili guasti dell'apparecchio dipendenti dal sistema I²C-Bus.

Guasto	Possibile causa	Valore di misura	Punto di misura
Le funzioni immesse con tastiera non vengono accettate	+ H IC 850	5 V vedi tabella 1	IC 850, pin 4
Non viene commutato da canale a programma mediante TP	Preamplif. ad infrarossi D 1201, T 1204, + B	+ B = 12 V	IC 1211, pin 6
Display oscuro Non appaiono indicazioni	+ H	5 V	Pin 17, 18 IC 860, 870
	C 862, C 863, R 861	5 V	Pin 16 – IC 860, 870
	IC 860, 870	Segnali d'uscita LOW ca. 9 V	Ai catodi dei LED
Display oscuro oppure errori d'indicazione	CLOCK interrotto o in corto; linea dati e di consenso	ca. 5 V _{pp}	IC 860, 870 pin 19, 21, 20
La frequenza non viene sintonizzata	+ C mediante R 337	ca. 44 V	Tuner pin 1
	+ B, + H	12 V, 5 V	Tuner pin 16, 2
	Dati (SDA)/Clock (SCL) I ² C-Bus	5 V _{pp}	Tuner pin 6, 5
Rumore sullo schermo	Tensione di sintonia variabile in funzione dell'immissione di canale	0,2-30 V	Tuner pin 13, 15
Schermo oscuro Il rumore non è presente	Tuner pin 3 HIGH	HF 0 V AV > 8 V	Tuner pin 3
Manca il segnale FBAS sul mod. FI cont. 7, 9	+ B', + B' I ² C-Bus, SDA, SCL manca nel tuner, FI pin 10 HIGH	12 V 5 V _{pp}	FI 21, 17 Tuner 6, 5 FI pin 10

Manca l'audio

Mancano i valori analogici
Contrasto, controllo colore
Manca la luminosità
Manca il contrasto
Manca il controllo colore

Solo con l'uso de
Le funzioni Televi
non vengono accettate

Solo per apparecchio

Guasto	Possibile causa
Non avviene la commutazione di norma sion	Unità di Tuner, amplificatore

La
10
—

all'alta tensione o alla deflessione, con-
vamente effettuare i lavori riportati in ta-

FI, Televideo e piastra prese (Euro-Scart)
T e ai valori analogici RGB.

zione d'attesa! Prestare attenzione alle

Possibili guasti

D 671, IC 676, IC 850

T 811, D 811

F 808, IC 850

I dati nel sistema I²C-Bus sono
presenti anche senza immissione

mediante F o tastiera. Se i dati
mancano: staccare una dopo l'altra
le schede tuner, FI e Televideo
risp.te dissaldare i pin 4 e 5 di
IC 350.

Se malgrado ciò i dati non sono
presenti: sostituire l'unità
comandi.

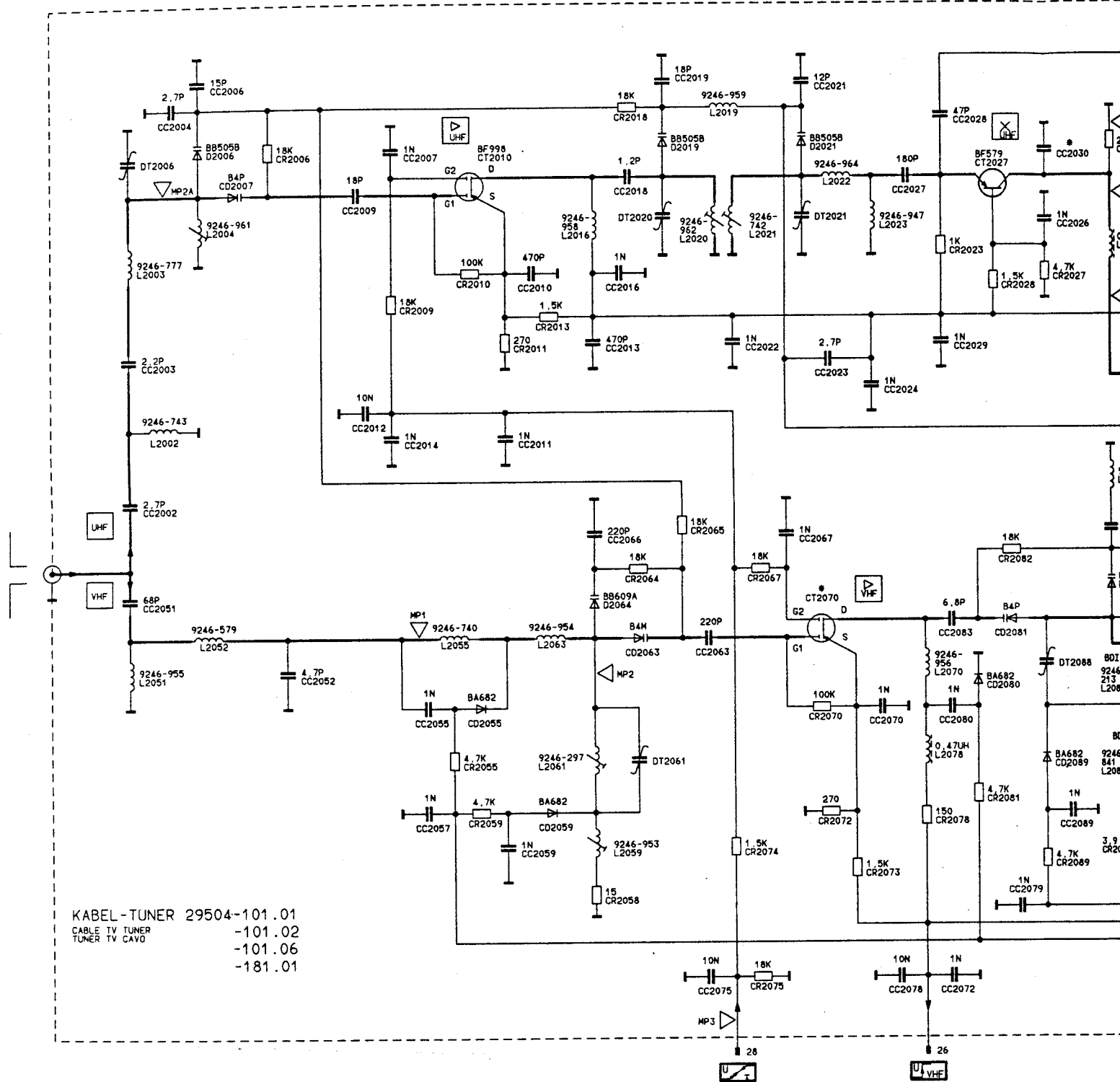
Manca l'audio	Amplificatore FI	a massimo volume ca. 1,5 V _{pp}	FI pin 28, 29
	Piastra prese	"	Spina AV pin 6, 8
	Modulo BF	"	Spina BF pin 1, 3
	+ G e - G	42 V	Spina G
	+ B, + B' I ² C Bus, SDA, SCL Manca la coincidenza	12 V 5 V _{pp} 12 V 5 V	FI 21, 17 FI 25, 24 FI 20 IC 850 pin 35
Mancano i valori analogici Contrasto, contro. colore Manca la luminosità Manca il contrasto Manca il contr. colore	I ² C Bus, IC 350	5 V _{pp}	IC 350 pin 4/5
	IC 350	valori analogici	Modulo colore/RGB:
	Convertitore D/A	1-3 V	spinotto 10 (luminosità)
	Convertitore D/A	2-4 V	spinotto 11 (contrasto)
Solo con l'uso del TP Le funzioni Televideo	+ B', + E	12 V, 8 V	VT pin 13, 2
	non vengono accettate	I ² C Bus, SDA	5 V _{pp} pin 9

Solo per apparecchi Multi-System

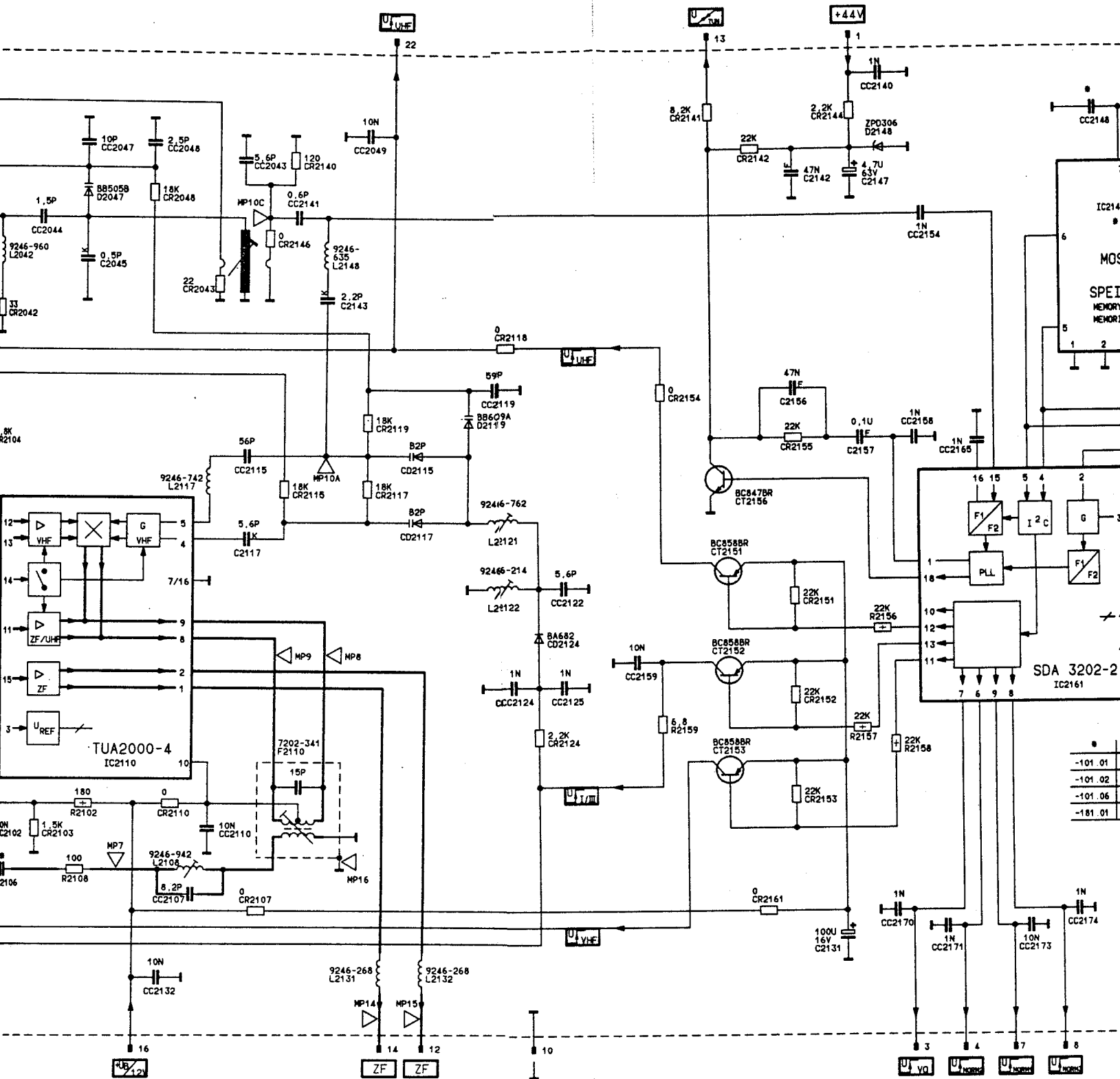
Guasto	Possibile cause	Punto di misura	Valore di misura			
Non avviene la commutazione di norma sion	Unità comandi Tuner, amplificatore FI	Indicazione sul display (premere tasto "Norm")	„0”	„1”	„2”	„3”
			CCIR Norma B/G	FR Norma L	GB Norma I	OIRT Norma D
		FI pin 2 (norma 1)	0	1	0	1
		FI pin 3 (norma 2)	0	0	1	1
		FI pin 1 (norma 3)	0	0	0	0
		1 = ca. 12 V				

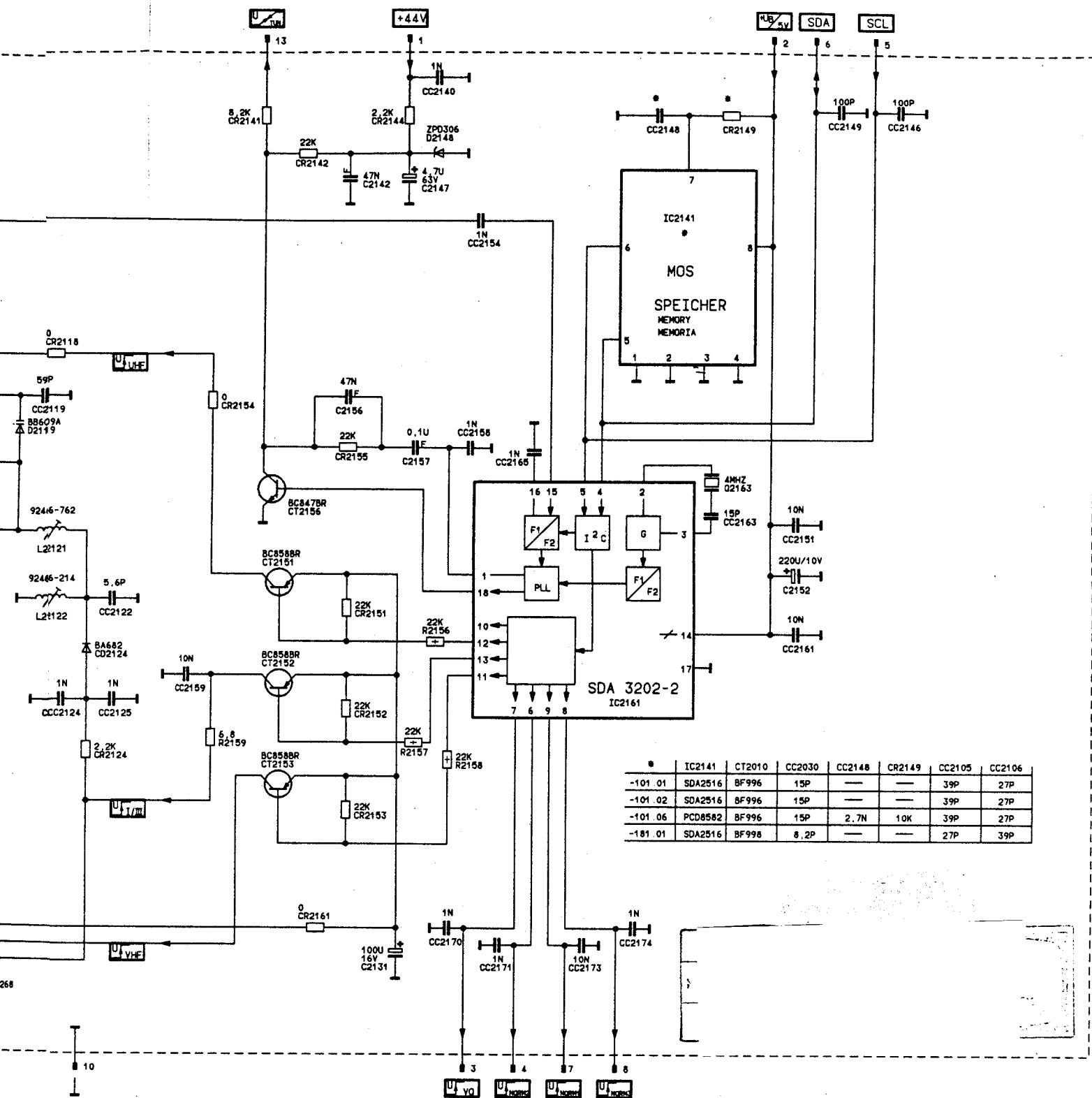
Punto di misura
IC 850, pin 4
IC 1211, pin 6
Pin 17, 18 IC 860, 870
Pin 16 – IC 860, 870
Ai catodi dei LED
IC 860, 870 pin 19, 21, 20
Tuner pin 1
Tuner pin 16, 2
Tuner pin 6, 5
Tuner pin 13, 15
Tuner pin 3
FI 21, 17 Tuner 6, 5
FI pin 10

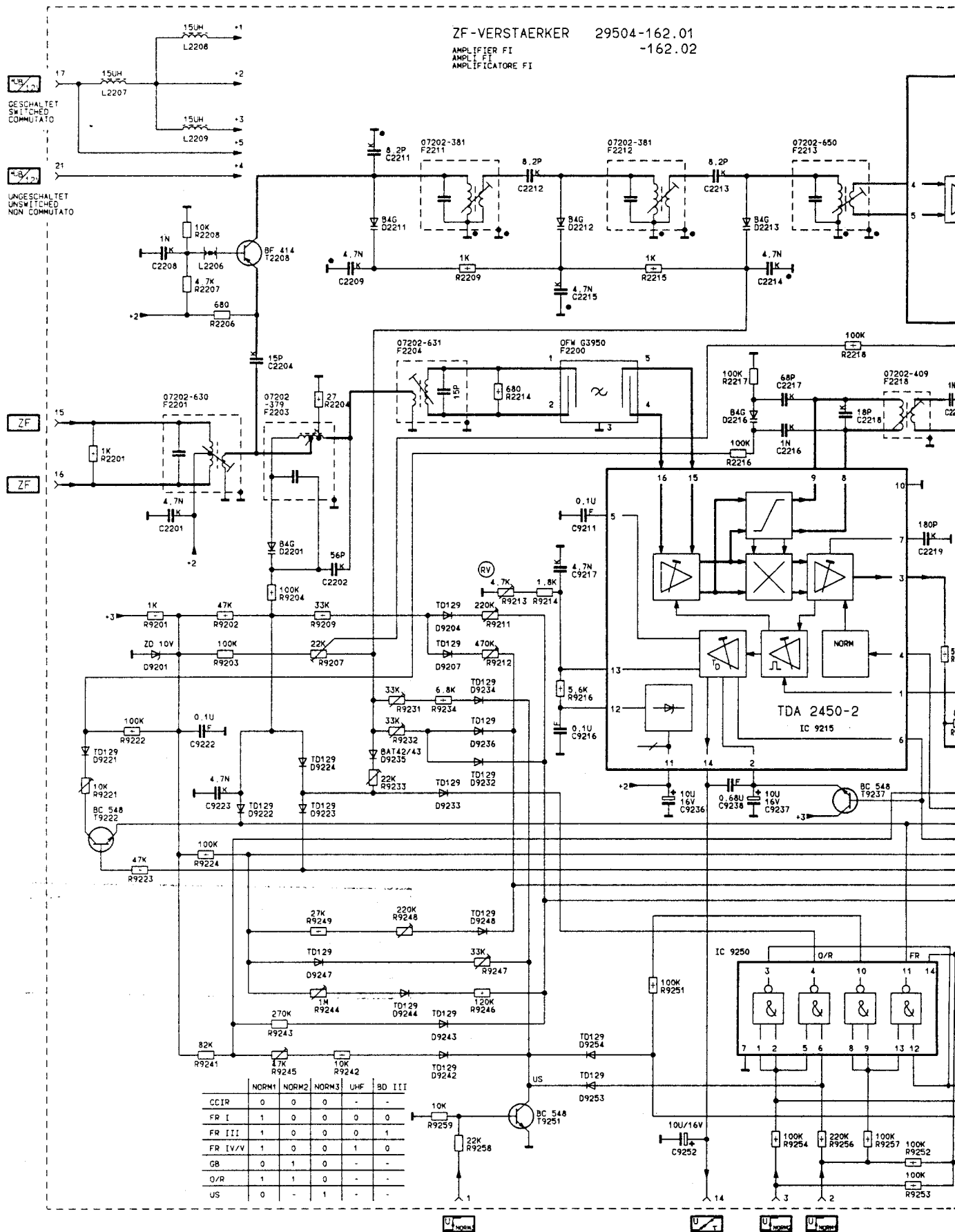




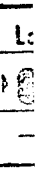
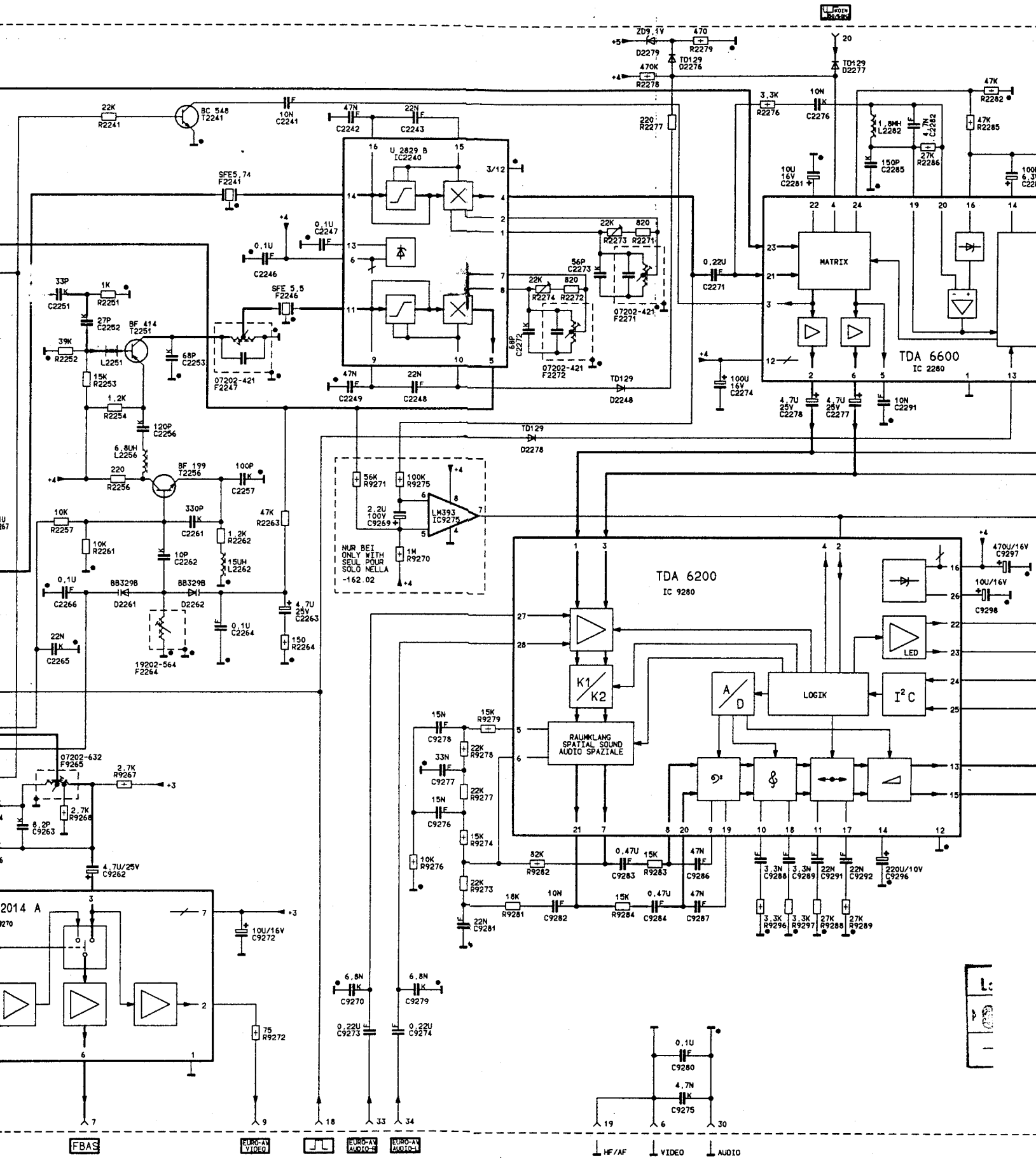
Kein Anpassungsabgleich bei Austausch der Steckkarte notwendig
 When replacing the plug-in board, no alignment is necessary
 Non è necessaria nessuna taratura di adattamento dopo la
 sostituzione di una scheda ad innesto

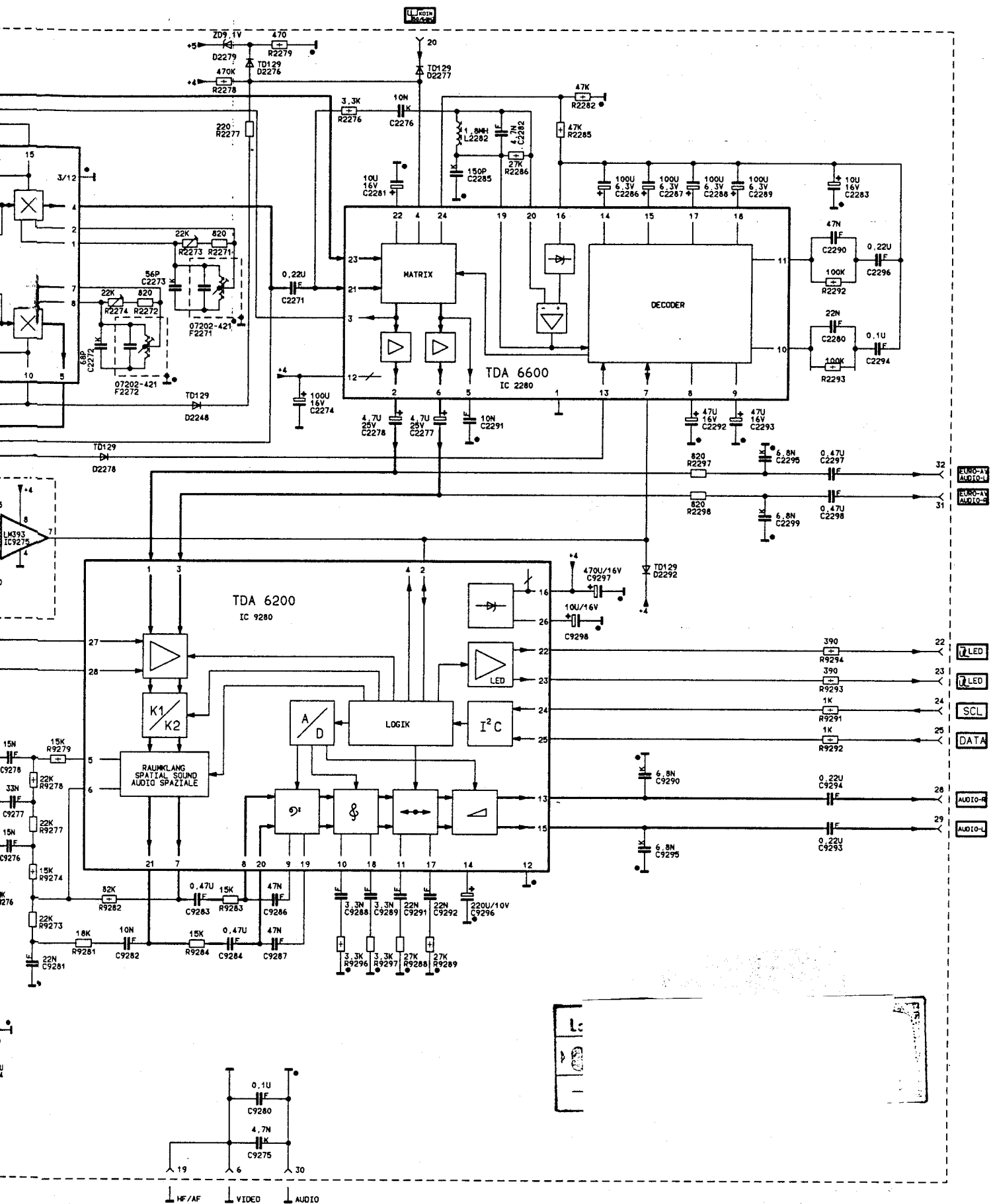


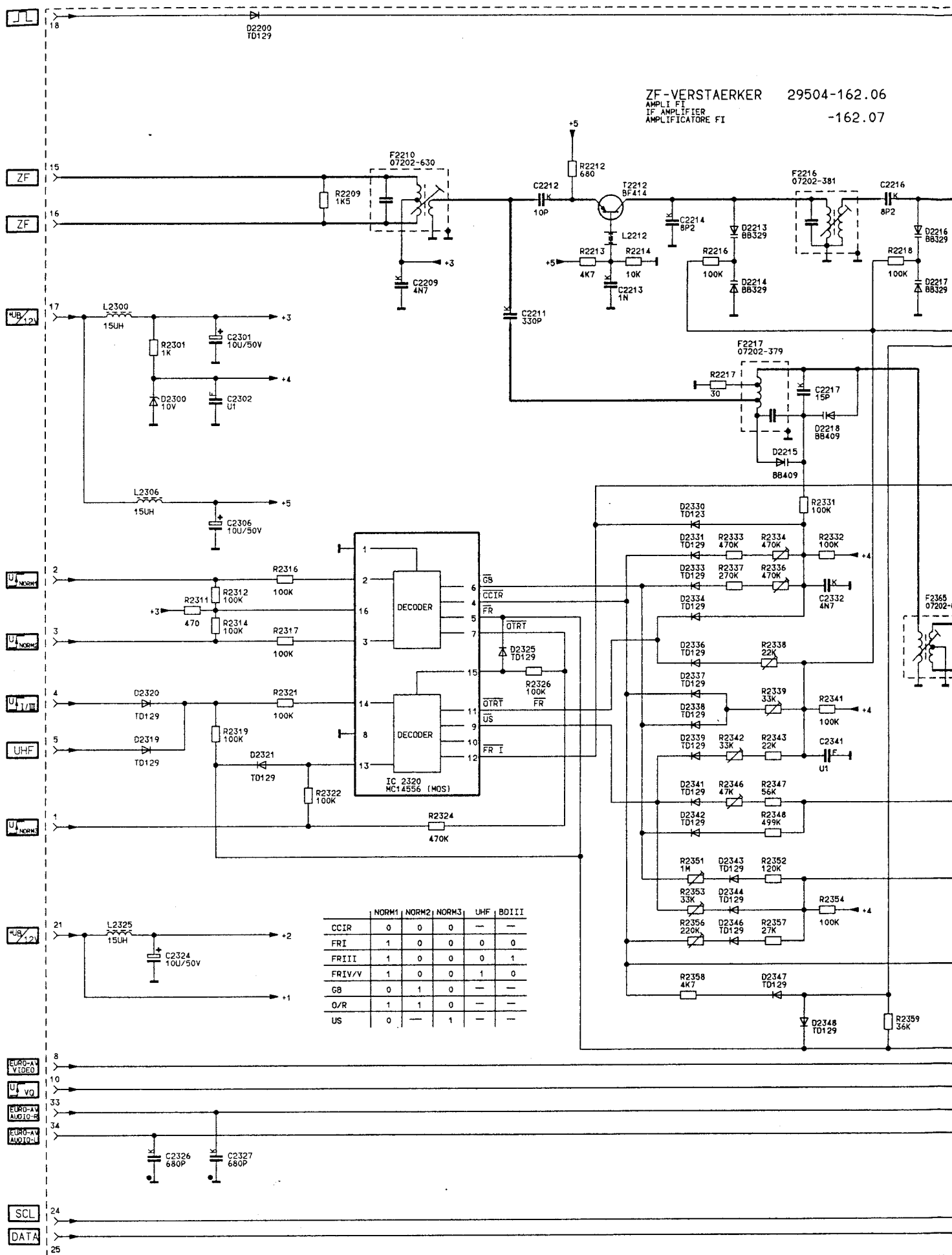




Kein Anpassungsabgleich bei Austausch der Steckkarte notwendig
When replacing the plug-in board, no alignment is necessary
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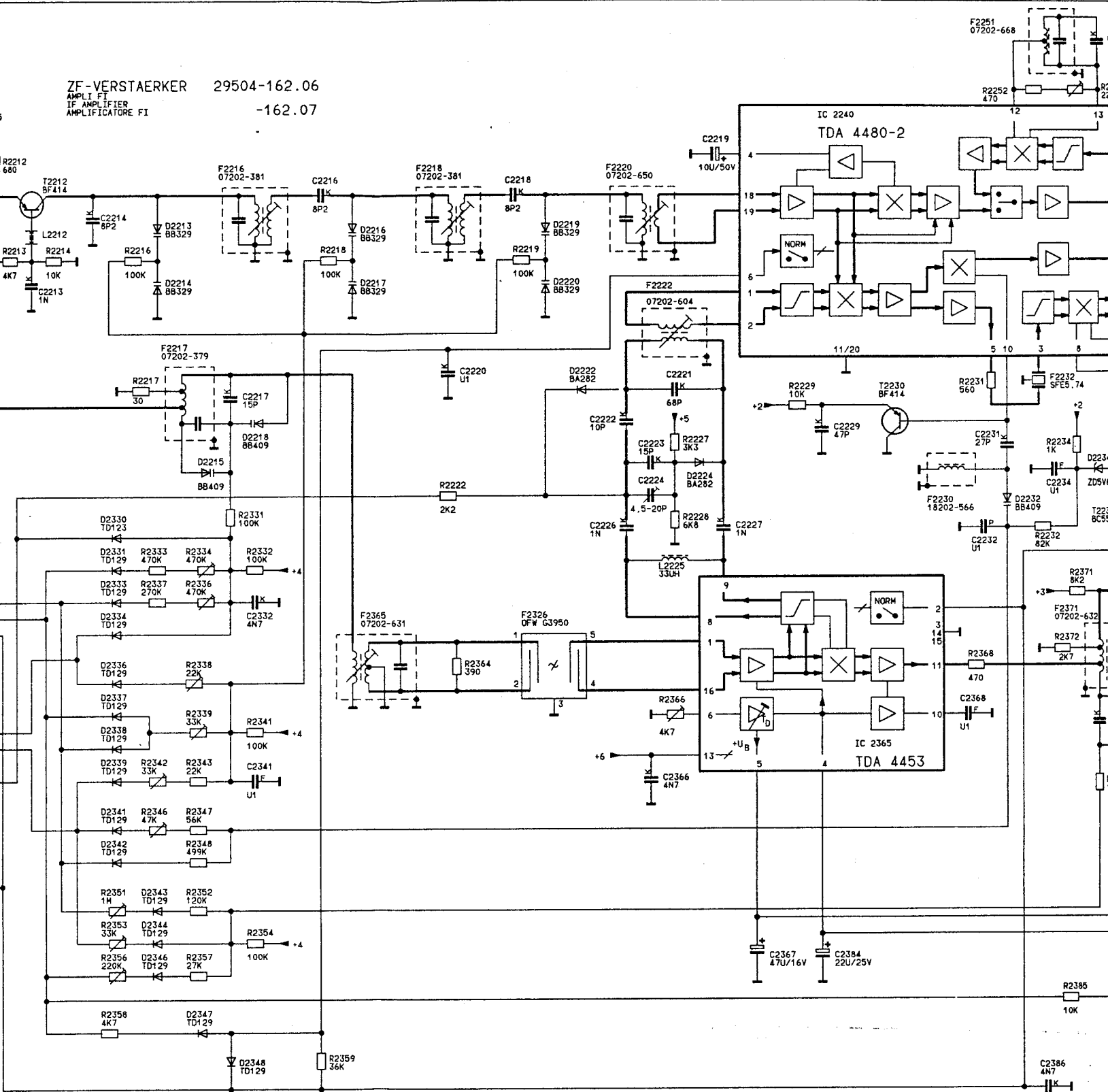


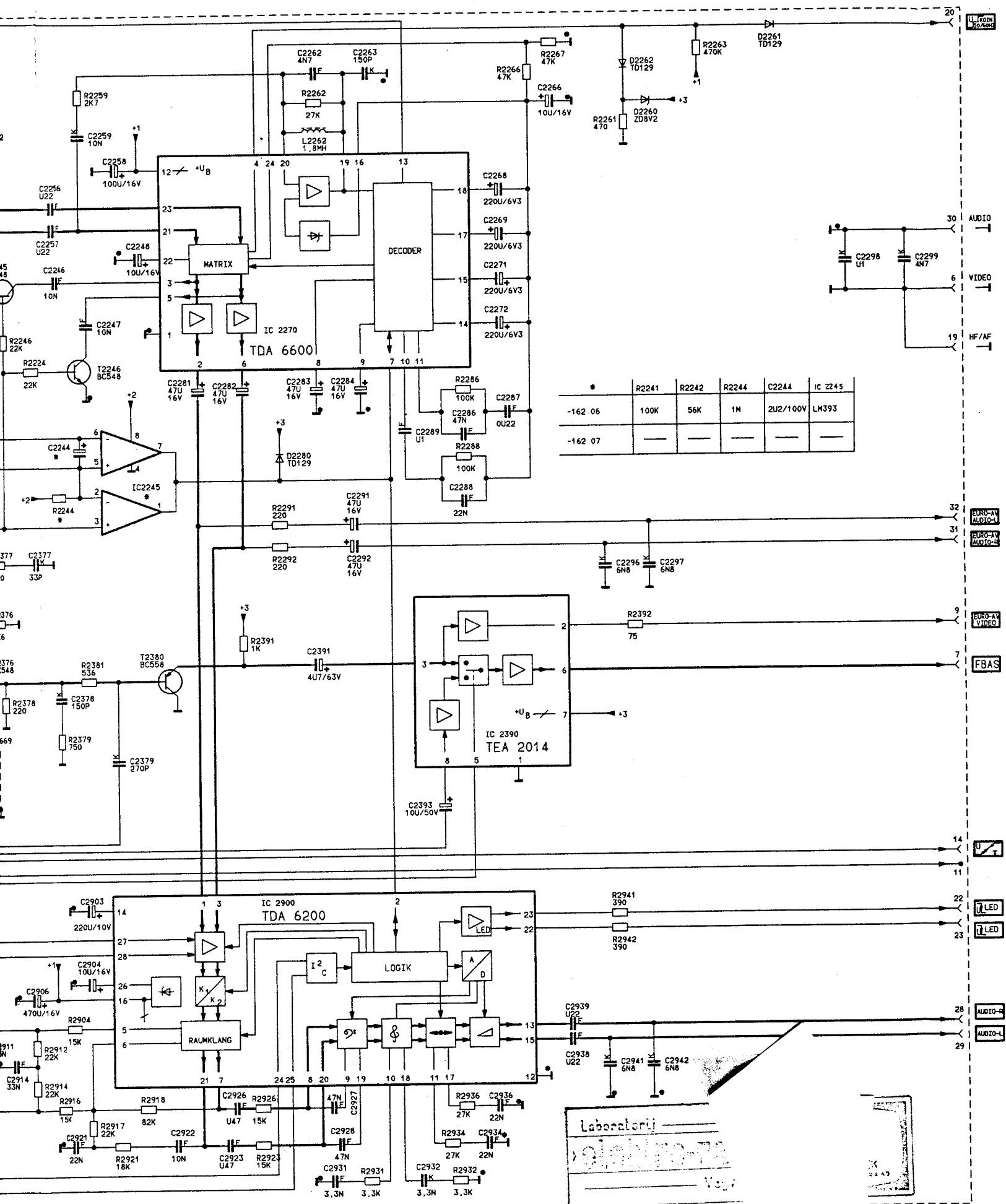


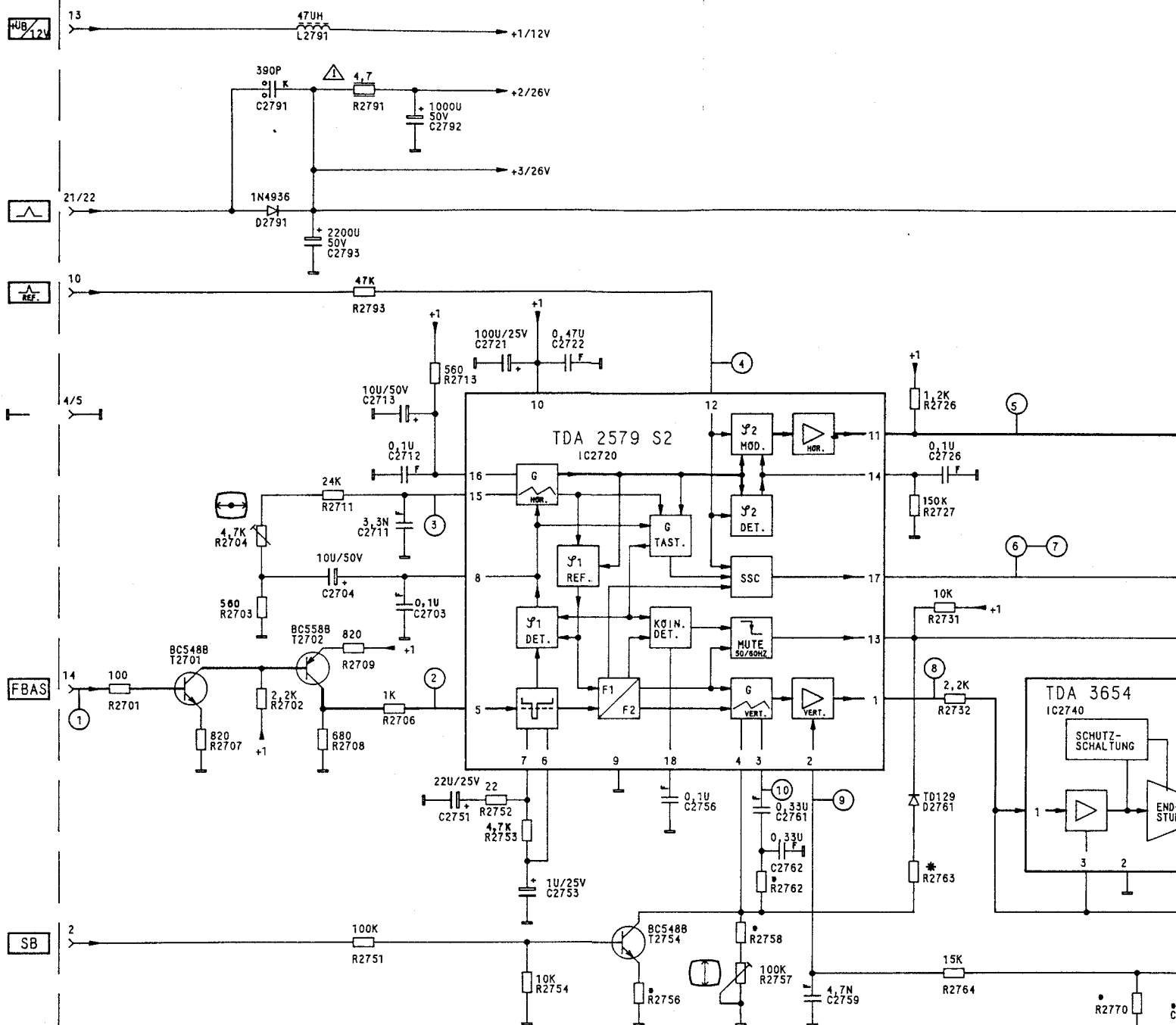


Kein Anpassungsabgleich bei Austausch der Steckkarte notwendig
When replacing the plug-in board, no alignment is necessary
Non è necessaria nessuna taratura di adattamento dopo la sostituzione di una scheda ad innesto

ZF-VERSTAERKER 29504-162.06
AMPLI FI
IF AMPLIFIER
AMPLIFICATORE FI -162.07



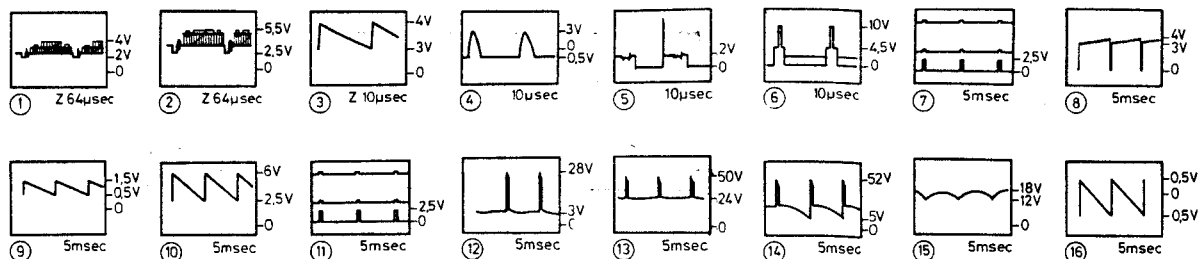




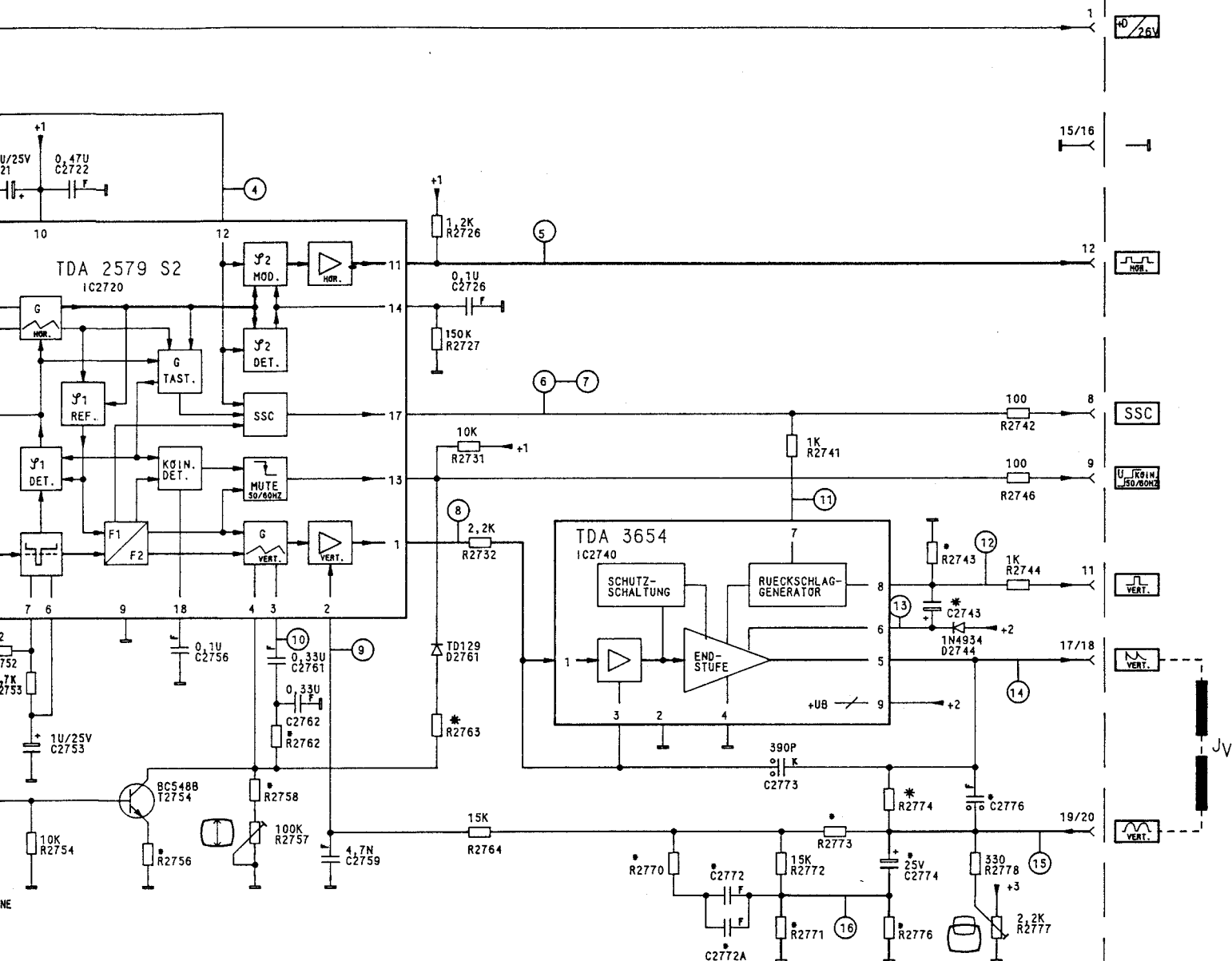
ABLENKUNG 110° DEFLECTION / DEFLESSIONE

29504-107.55 30AX
 .56 45AX
 .57 VIDEO
 .58 37"
 .59 32"

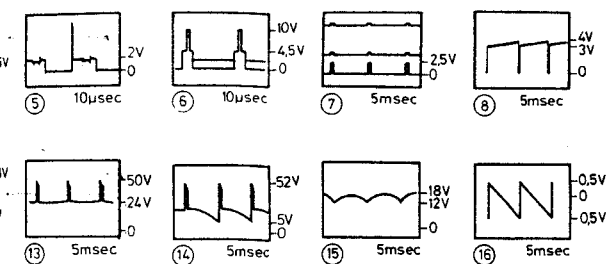
	R2743	R2756	R2758	R2762	R2770	R2771	C2772A	R2773	C2774	R2776
-107.55	470	1M	200K	330K	—	1	—	200K	2200U	1
-107.56	220	1M	220K	150K	470	1	—	200K	1000U	1
-107.57	270	470K	180K	200K	470	1,5	—	180K	2200U	1,5
-107.58	220	1M	220K	150K	470	1	—	180K	2200U	1
-107.59	220	1M	270K	150K	470	1	0,47U	180K	1000U	1

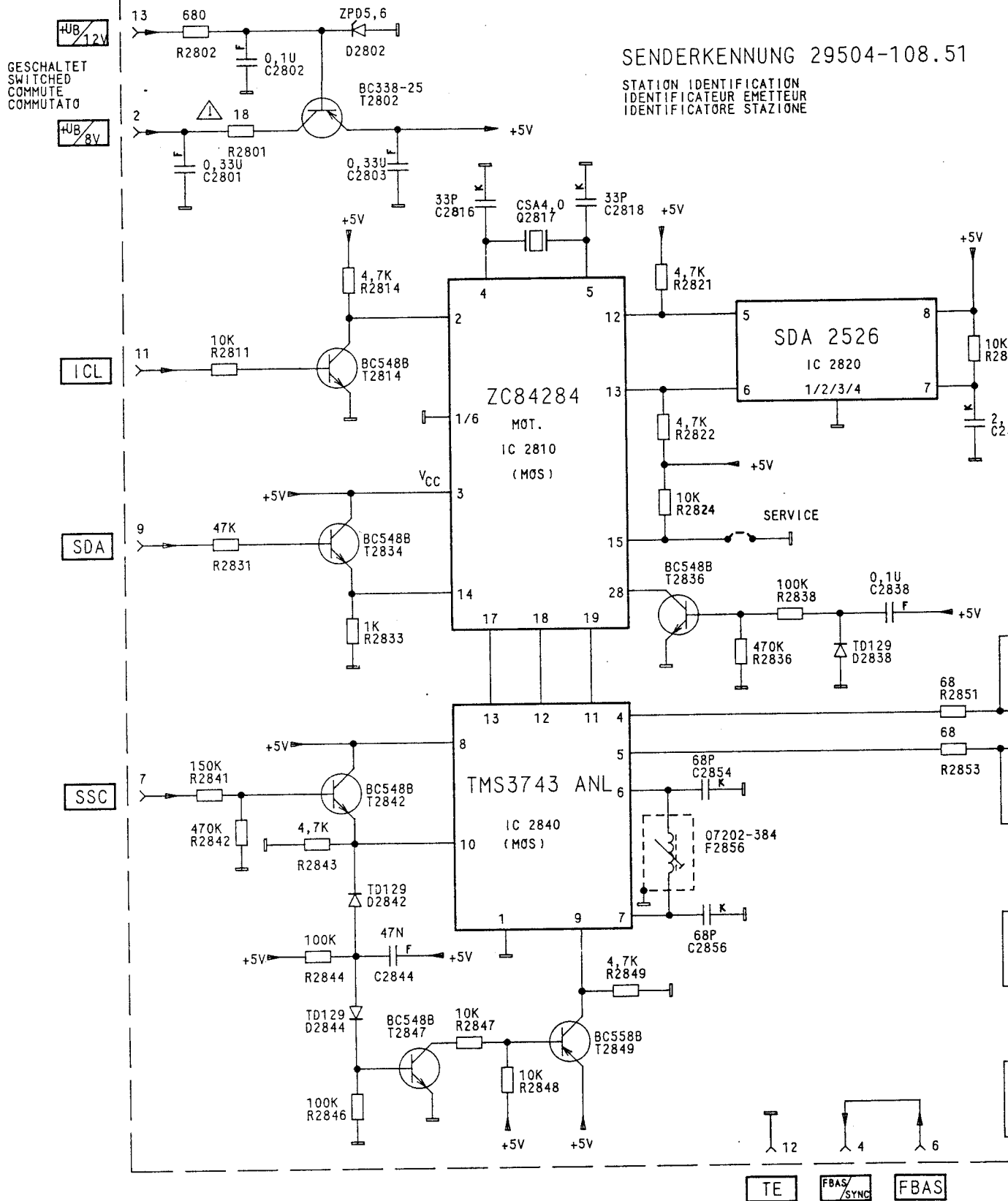


+1/12V
+2/26V
+3/26V

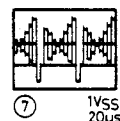
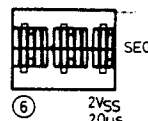
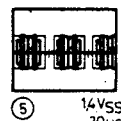
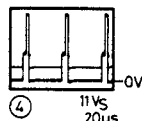
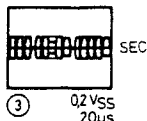
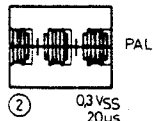
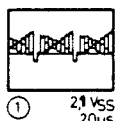
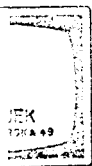
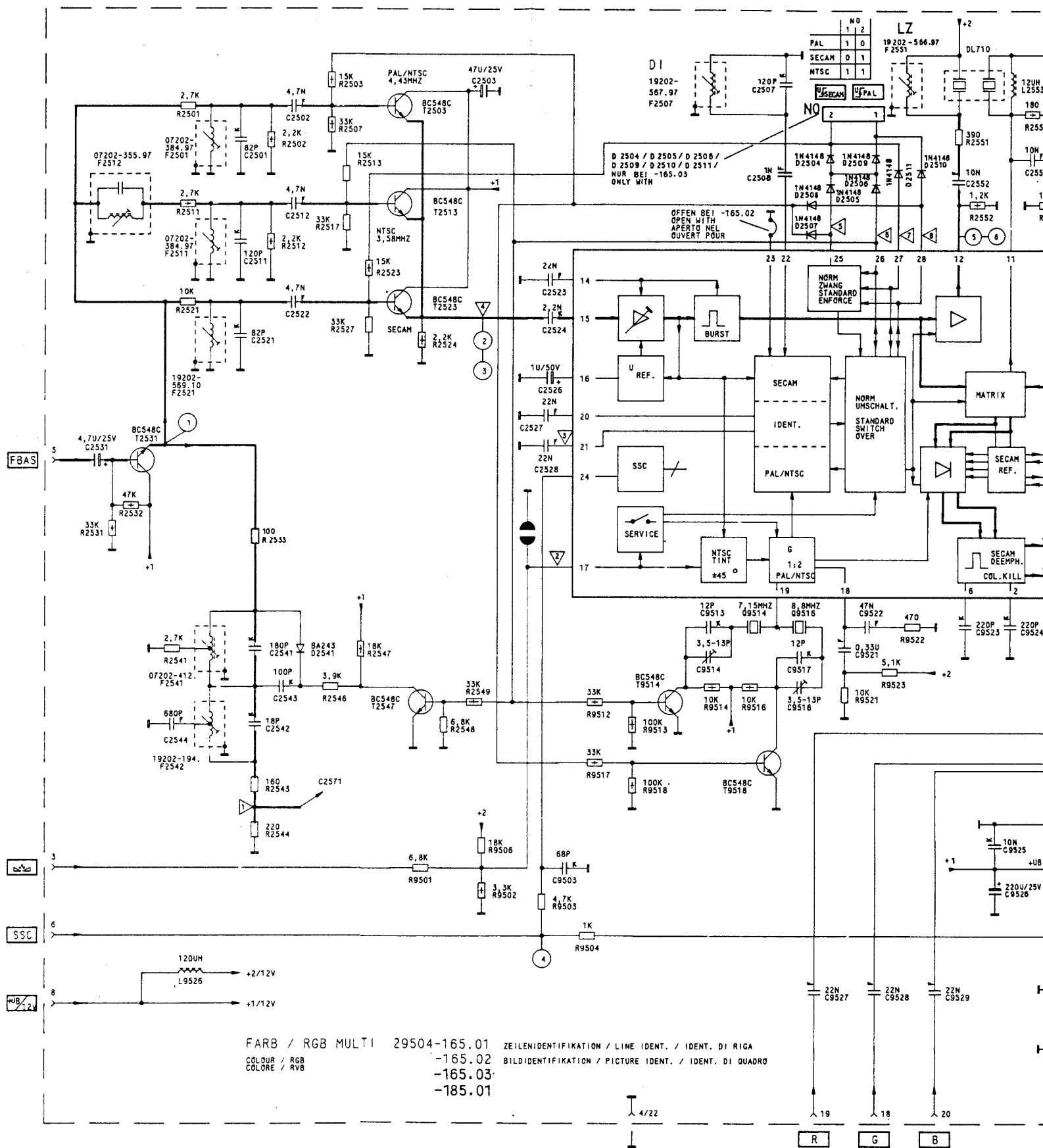


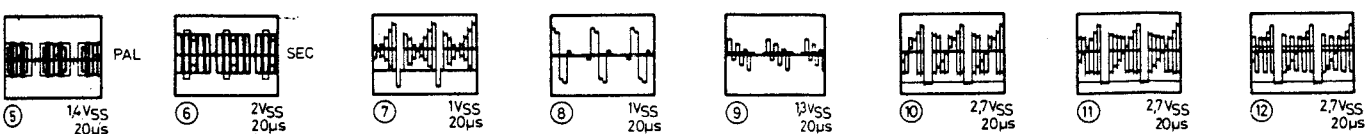
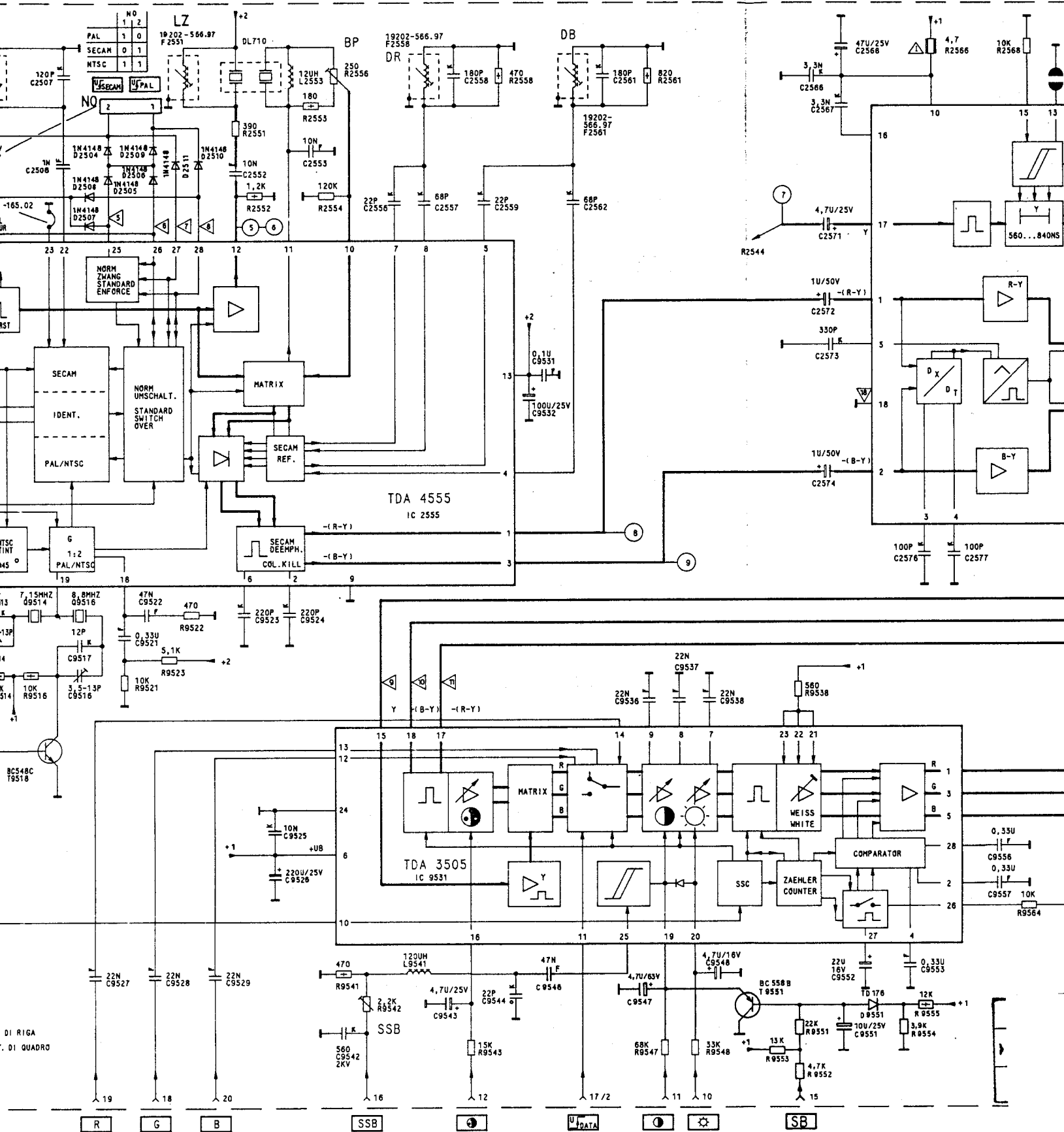
	R2743	R2756	R2758	R2762	R2770	R2771	C2772A	R2773	C2774	R2776	C2776	C2772	C2743	R2774	R2763
15	470	1M	200K	330K	470	1	—	200K	2200U	1	0,22U/MKS4	1U	100U/50V	330	2,2H
16	220	1M	220K	150K	470	1	—	200K	1000U	1	0,22U/MKS4	1U	100U/50V	330	1,5H
17	270	470K	180K	200K	470	1,5	—	180K	2200U	1,5	0,1U/MKS100	1U	100U/50V	330	2,2H
18	220	1M	220K	150K	470	1	—	180K	2200U	1	0,12U/MKS4(100)	0,82U	470U/50V	270	2,2H
19	220	1M	270K	150K	470	1	0,47U	180K	1000U	1	0,12U/MKS4(100)	1U	470U/50V	270	2,2H

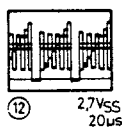
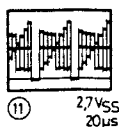
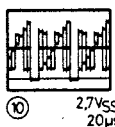
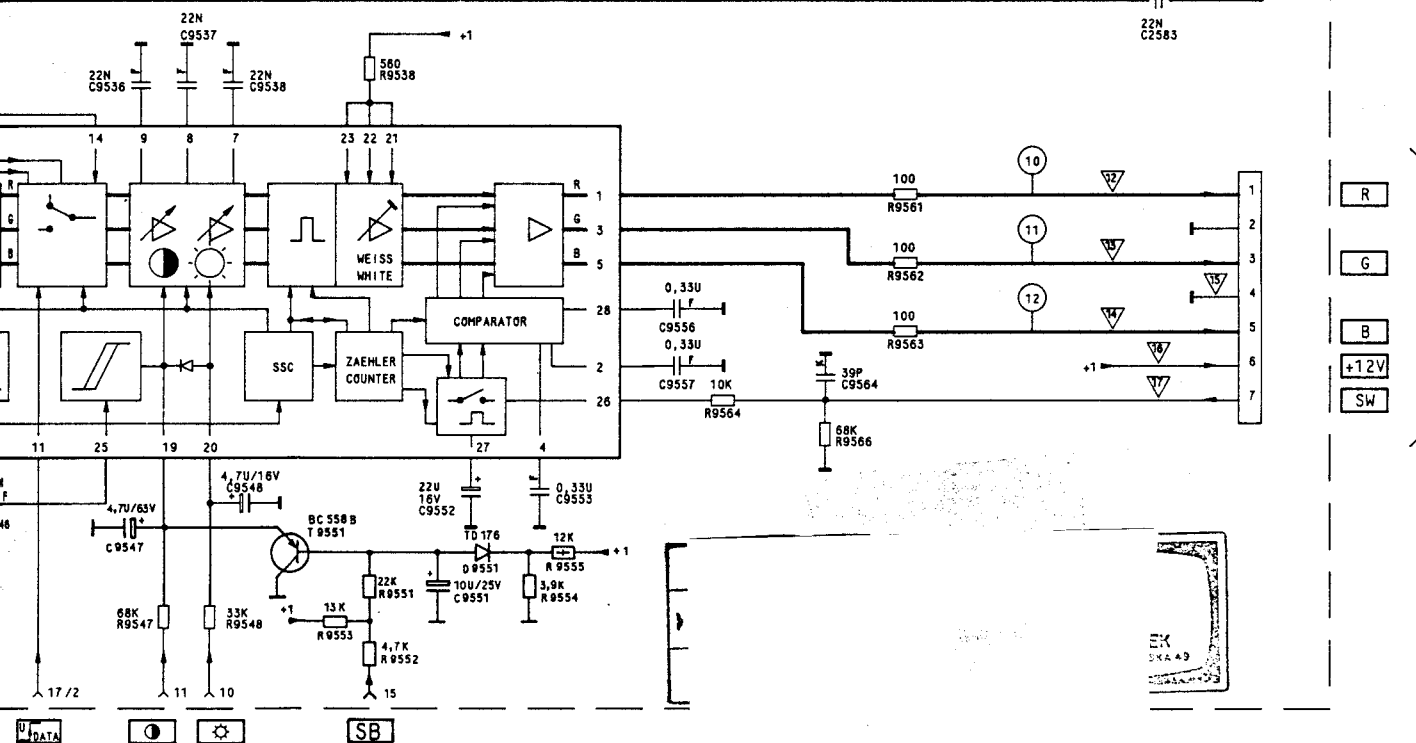
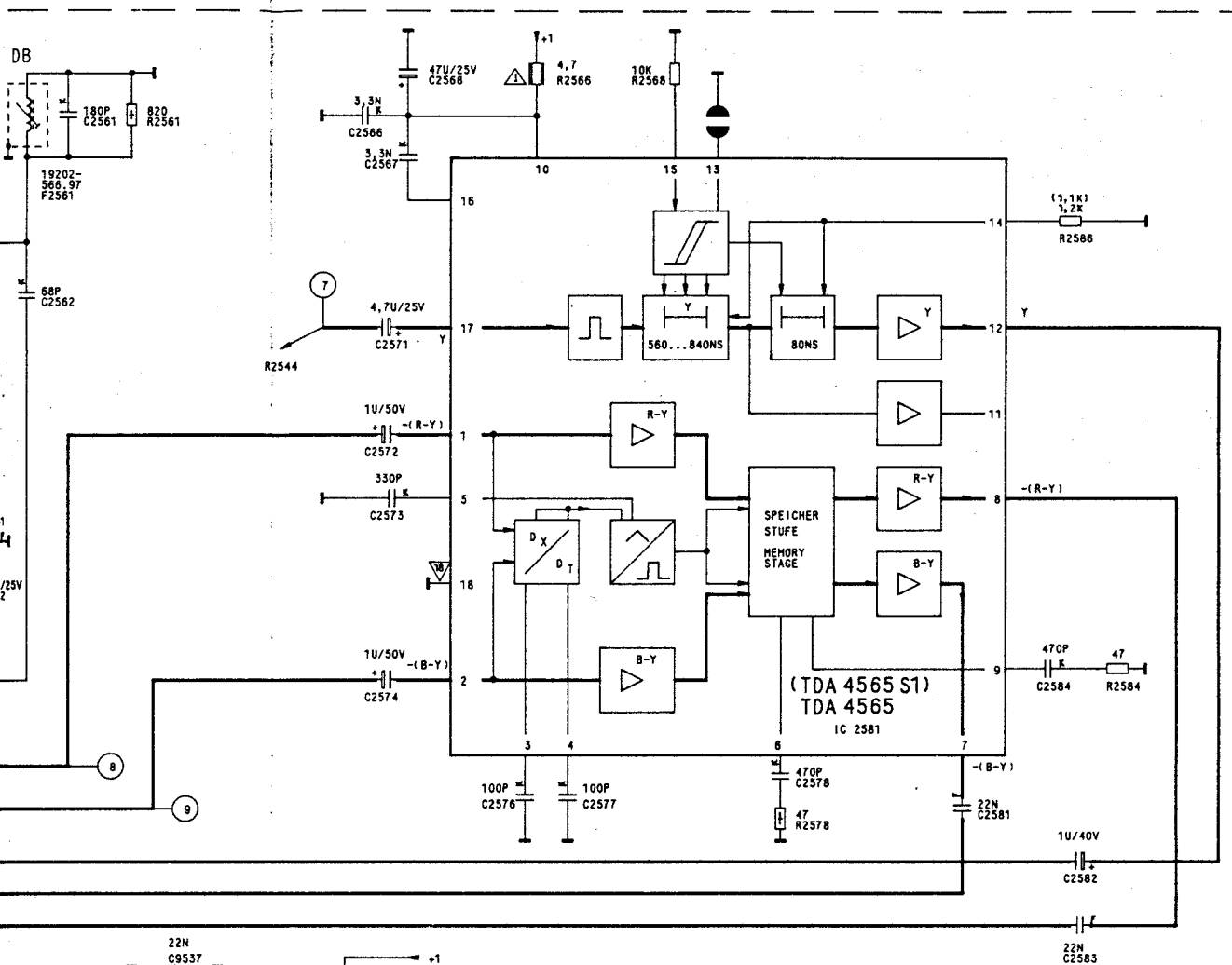




Kein Anpassungsabgleich bei Austausch der Steckkarte notwendig
When replacing the plug-in board, no alignment is necessary
Non è necessaria nessuna taratura di adattamento dopo la
sostituzione di una scheda ad innesto







1. Weißabgleich

- FuBK-Testbild einspeisen.
- $\odot$ min., $\odot$ nom., $\odot$ 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.
- $\odot$ min., $\odot$ nom., $\odot$ min., einstellen.
- Tastkopf an den Kollektoren der Transistoren T 736, T 756, T 776 anhängen (Bildrohrplatte). Die Schwarzwerte der drei Kathodensignale liegen bei ca. 150 - 160 V.

3. Einstellungen im Farbkanal

- PAL-Testbild einspeisen.
- FK nom., H nom. K max. einstellen.
- IC-Pin 28 vom TDA 4555 mit +12V verbinden.
- IC-Pin 17 vom TDA 4555 mit Masse verbinden.
- Mit Trimmer C9516 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 4555 mit +12V verbinden.
- IC-Pin 17 vom TDA 4555 mit Masse verbinden.
- Mit Trimmer C9514 die durchlaufenden Farbbalken zum Stehen bringen.
- Kurzschlußbrücken entfernen.
- SECAM-Testbild einspeisen.
- Tastkopf an Pin 1 vom TDA 4555 anschließen, mit Spule DR Nulllinie des (R-Y)-Signals auf Zeilenniveau bringen.
- Tastkopf an Pin 3 vom TDA 4555 anschließen, mit Spule DB Nulllinie des (B-Y)-Signals auf Zeilentastniveau bringen.
- Spule F 2521 so einstellen, daß das (B-Y)-Signal keine Überschwinger hat.

Strahlstrom

- Der Regler "SSB" wird werkseitig auf Mittelwert eingestellt.
- Sollte bei vollem Kontrast und normal eingestellter Helligkeit in Spitzenweißfeldern des Sendertestbildes eine Defokussierung (starke Unschärfe bei weißen Schriftzeichen in Bildröhrenmitte) auftreten, so muß mit Regler "SSB" auf scharfe Schriftkonturen eingestellt werden (Reduzierung des Spitzenstrahlstromes).

White level adjustment

- Display colour bar test pattern.
- Set $\odot$ to min., $\odot$ to nom., $\odot$ to max.
- Adjust presets VG and VB (CRT socket board) so that the picture does not show any colouration.

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 $\odot$ to min., $\odot$ to nom., $\odot$ 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 150 - 160 V.

Adjustments in chroma channel

- Display PAL test pattern.
- Adjust colour level and brightness to nominal value, contrast to maximum.
- Connect pin 28 of IC TDA 4555 to +12V supply.
- Connect pin 17 to IC TDA 4555 to chassis.
- Adjust trimmer C9516 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 4555 to +12V supply.

- Connect pin 17 of IC TDA 4555 to chassis.
- Adjust trimmer C 9514 for stationary pattern in colour bars.
- Remove wire links.
- Display SECAM test pattern.
- Connect test probe to pin 1 of IC TDA 4555.
- 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 4555.
- Use coil DB to align zero level of the (B-Y) signal with the line black level.
- Adjust coil F2521 so that the (B-Y) signal is free of overshooting.

4. Beam current

- During manufacture the control "SSB" is adjusted to middle value.
- If during max. contrast and normal brightness adjustment the peak-white fields of the test picture should be defocused (in the middle of the screen white letters are very distorted) the contours of the letters must be adjusted using control "SSB" (reducing the peak beam current).

1. Taratura del bianco

- Applicare un monoscopio FuBK.
- Regolare $\odot$ al minimo, $\odot$ sul valore nominale e $\odot$ 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 $\odot$ al minimo, $\odot$ sul valore nominale e $\odot$ al massimo.
- Collegare la sonda ai collettori dei transistori T 736, T 756, T 776 (piastra cinescopio).
- Valore nero dei tre segnali catodici ca. 150 - 160 V.

3. Regolazione del canale colore

- Applicare un monoscopio PAL.
- Regolare FK e H sul valore nominale, K al massimo.
- Sull'integrato TDA 4555 collegare pin 28 a +12V.
- Sull'integrato TDA 4555 collegare pin 17 a massa.
- Con C9516 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 4555 collegare pin 26 a +12V.
- Sull'integrato TDA 4555 collegare pin 17 a massa.
- Con C9514 fermare le barre colorate scorrevoli.
- Togliere i cortocircuiti.
- Applicare un monoscopio SECAM.
- Collegare la sonda al pin 1 dell'integrato TDA 4555, 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 4555, con la bobina DB portare la linea zero del segnale (B-Y) sul livello della frequenza di riga.
- La bobina F2581 applicarla così in modo che il segnale (B-Y) sia chiaro.

4. Corrente catodica

- Il regolatore "SSB" viene regolato già in fabbrica su valori medi.
- Se con il contrasto al massimo ed una regolazione normale della luminosità dovesse presentarsi una sfocizzazione nei campi ultrabianchi del cinescopio (le lettere bianche al centro del cinescopio risultano molto sfuocate), agire sul regolatore "SSB" per mettere a fuoco i contorni delle lettere (riducendo la corrente catodica di picco).

T5041
BC548

33

1K

N

04

13P

03

2P

1K

13

Q2

8

3

Q5

7

1K

13

14

13P

14

13P

14

13P

14

13P

14

13P

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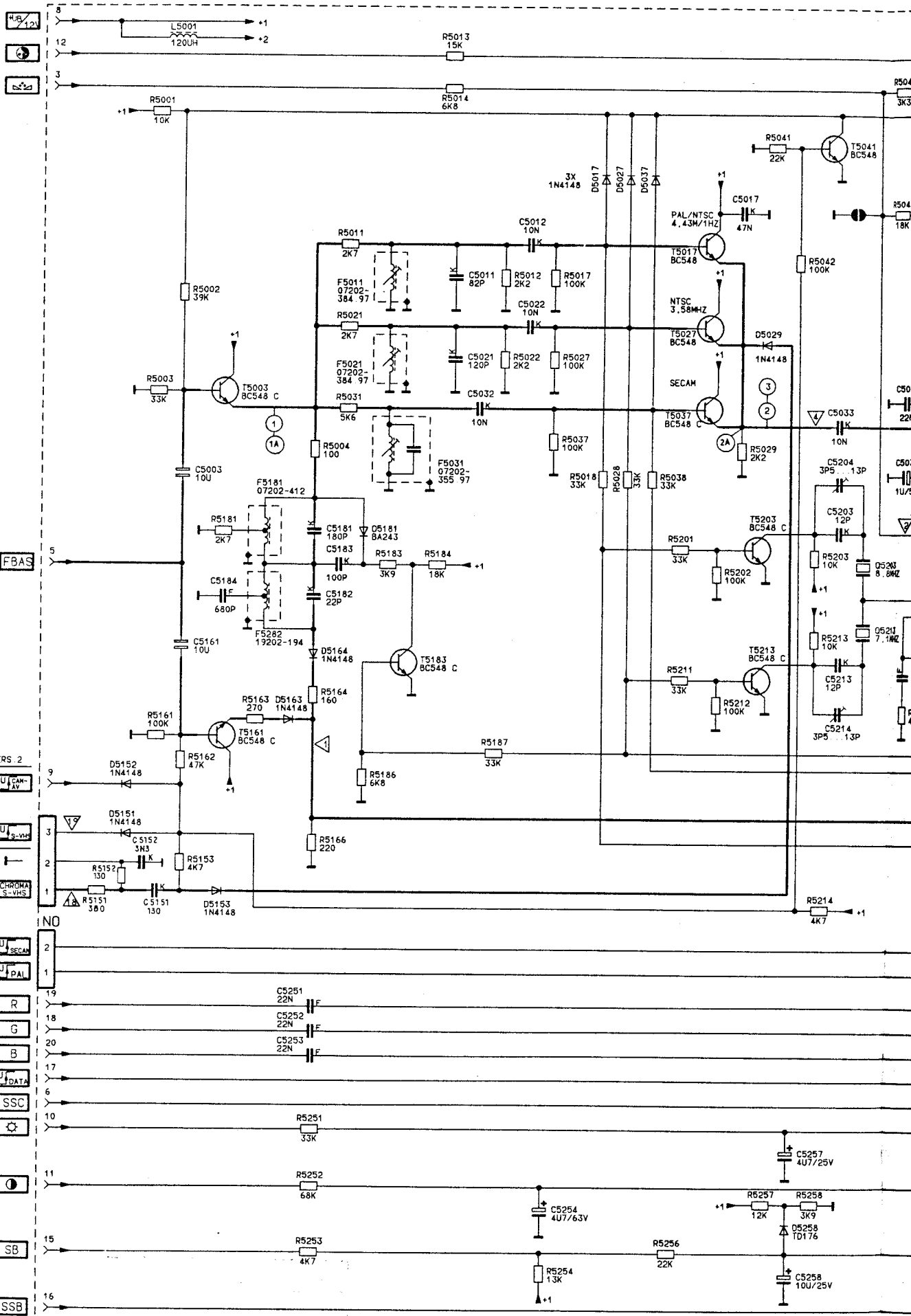
14

13P

14

13P

14



VERS. 1	VERS. 2
U1 S-VHS	U1 S-VHS
U1 S-VHS	U1 S-VHS
U1 S-VHS	U1 S-VHS

	1	2
SECAM	0	1
NTSC	1	1
PAL	1	0

	1	2
U1 SECAM	0	1
U1 PAL	1	0

R

G

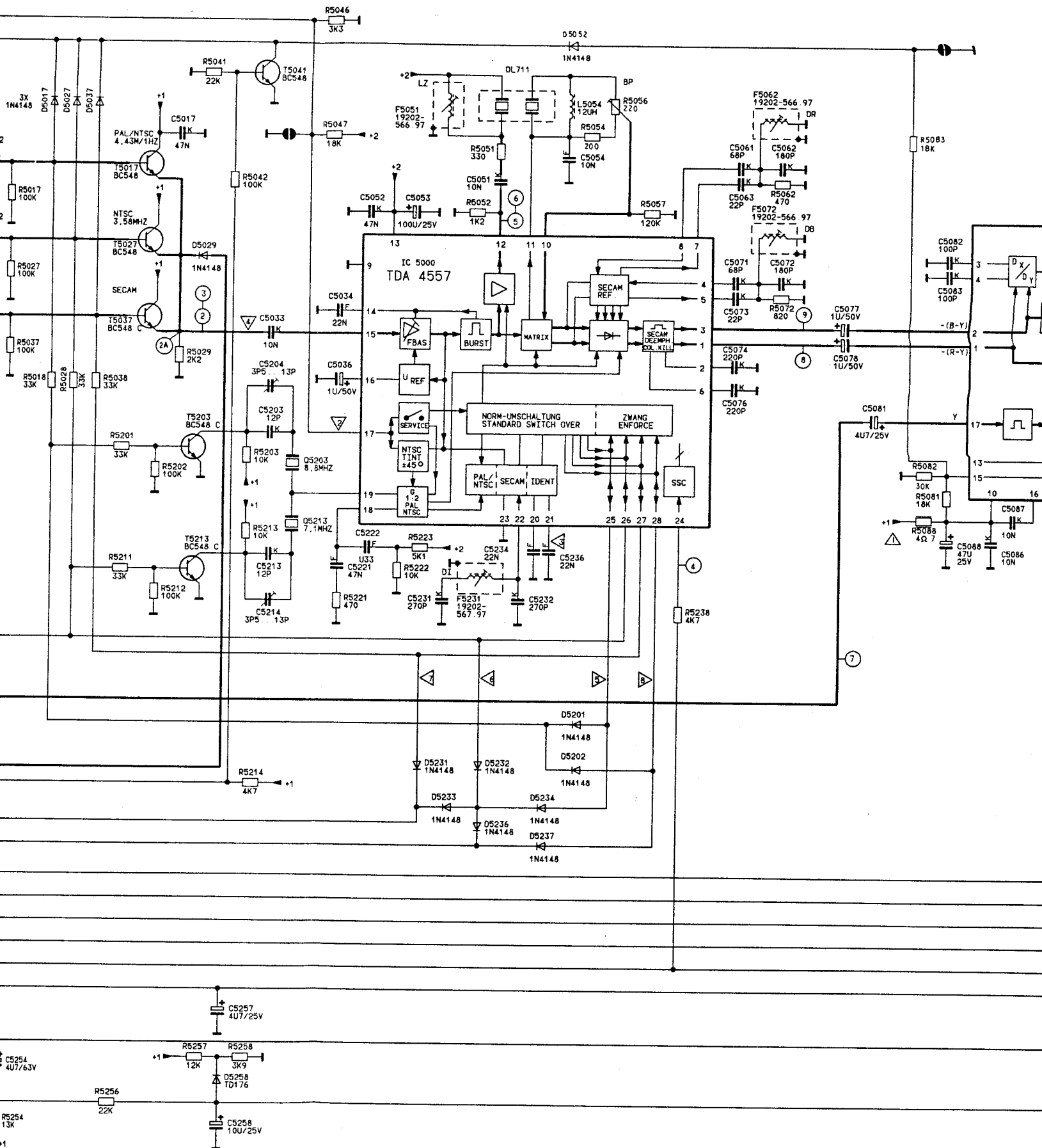
B

U1 DATA

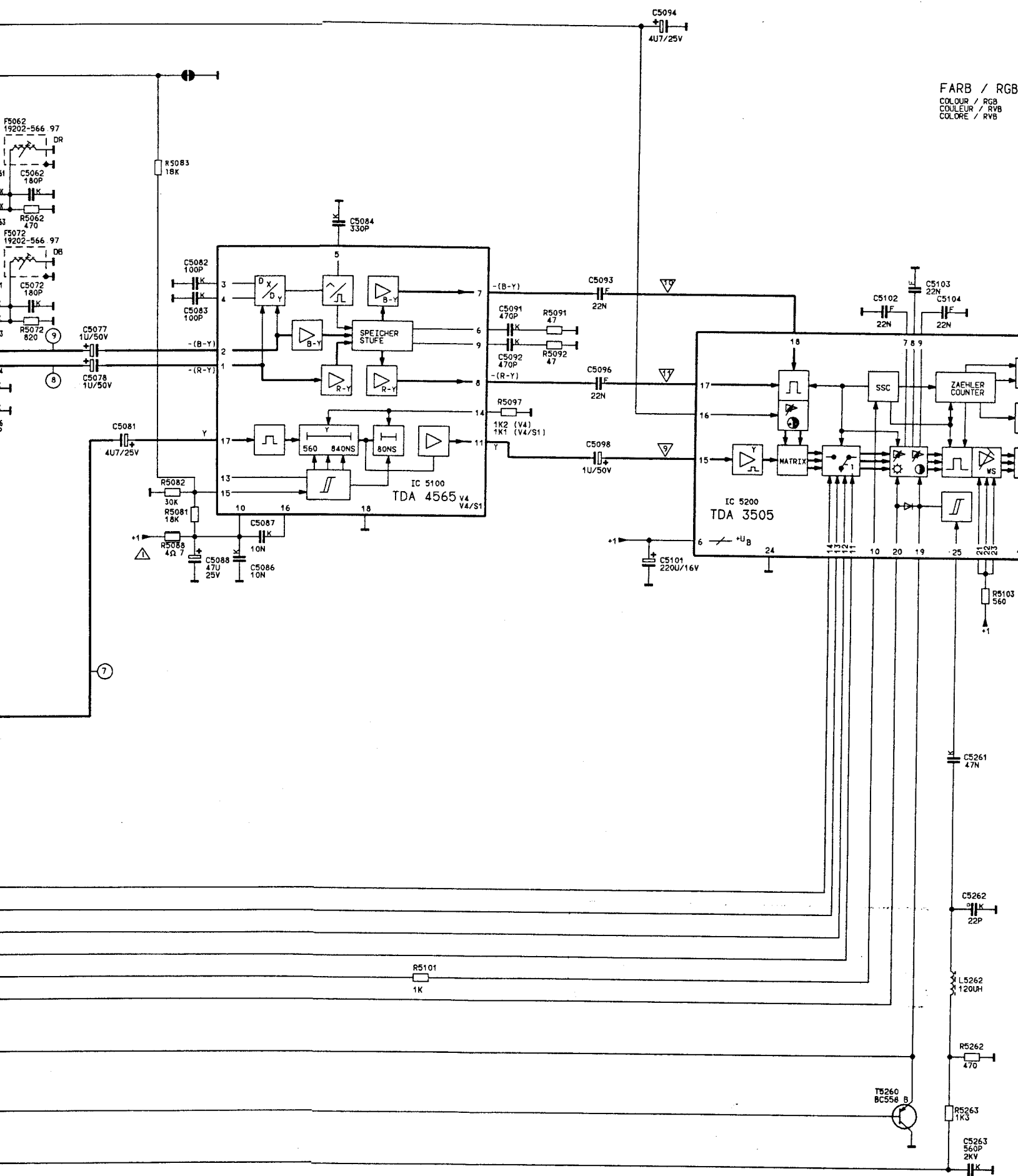
SSC

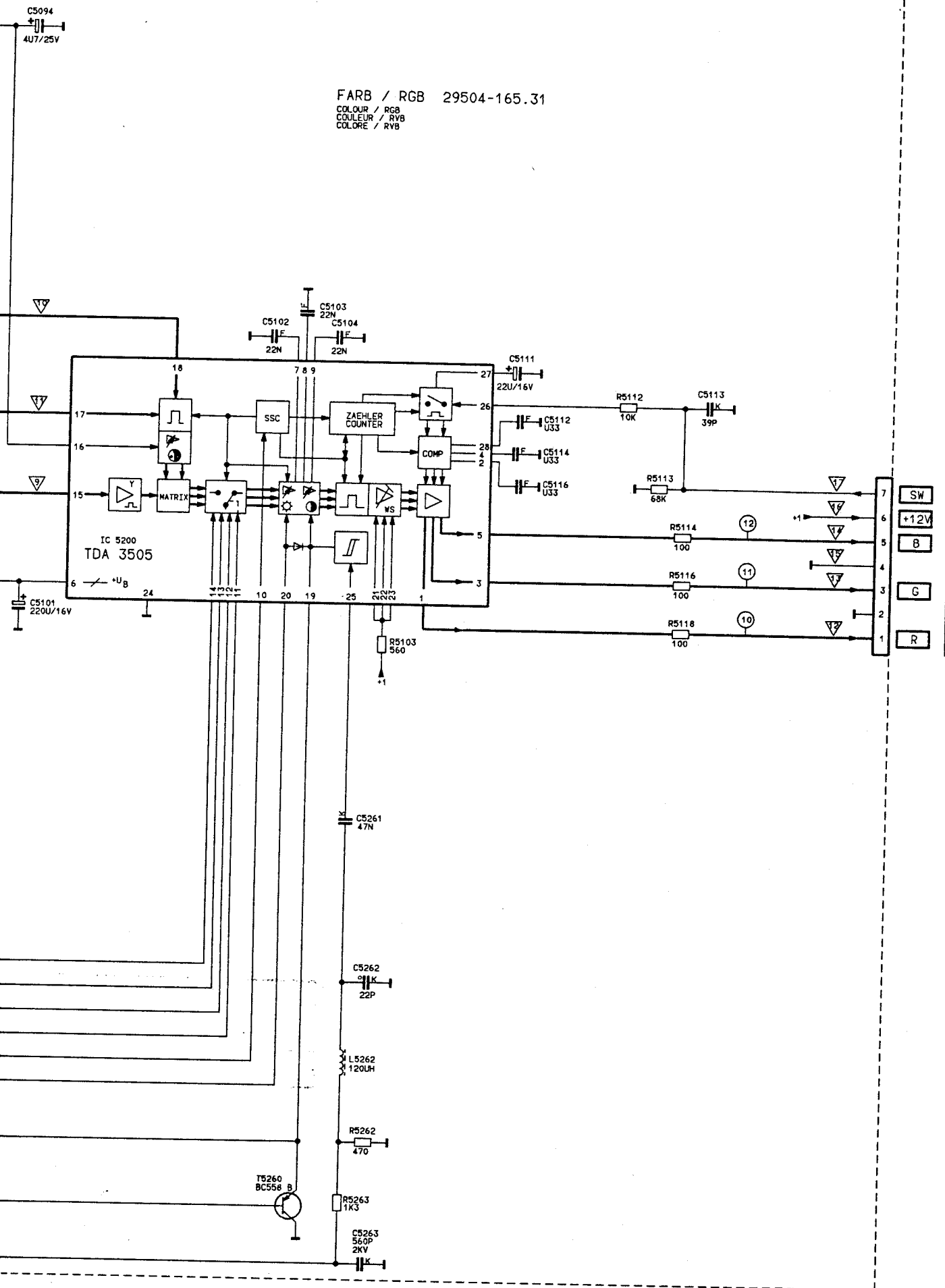
SB

SSB

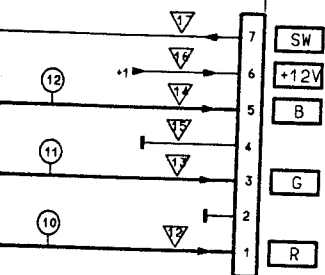


FARB / RGB
COLOUR / RGB
COULEUR / RVB
COLORE / RVB

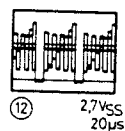
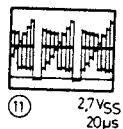
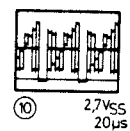
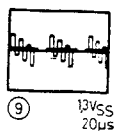
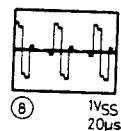
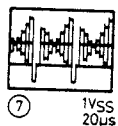
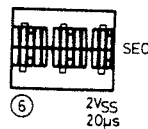
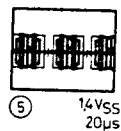
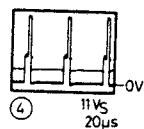
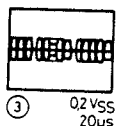
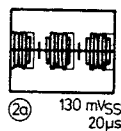
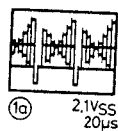
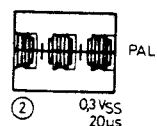
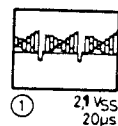




1113
9P



BILDROHRPLATTE
CRT BASE
C.T. TUBE CATHOD.
PIASTRA CINESC.



D**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

- 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.

GB**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.

I**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.

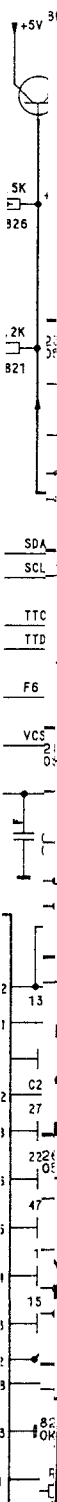
2. Taratura del punto di blocco

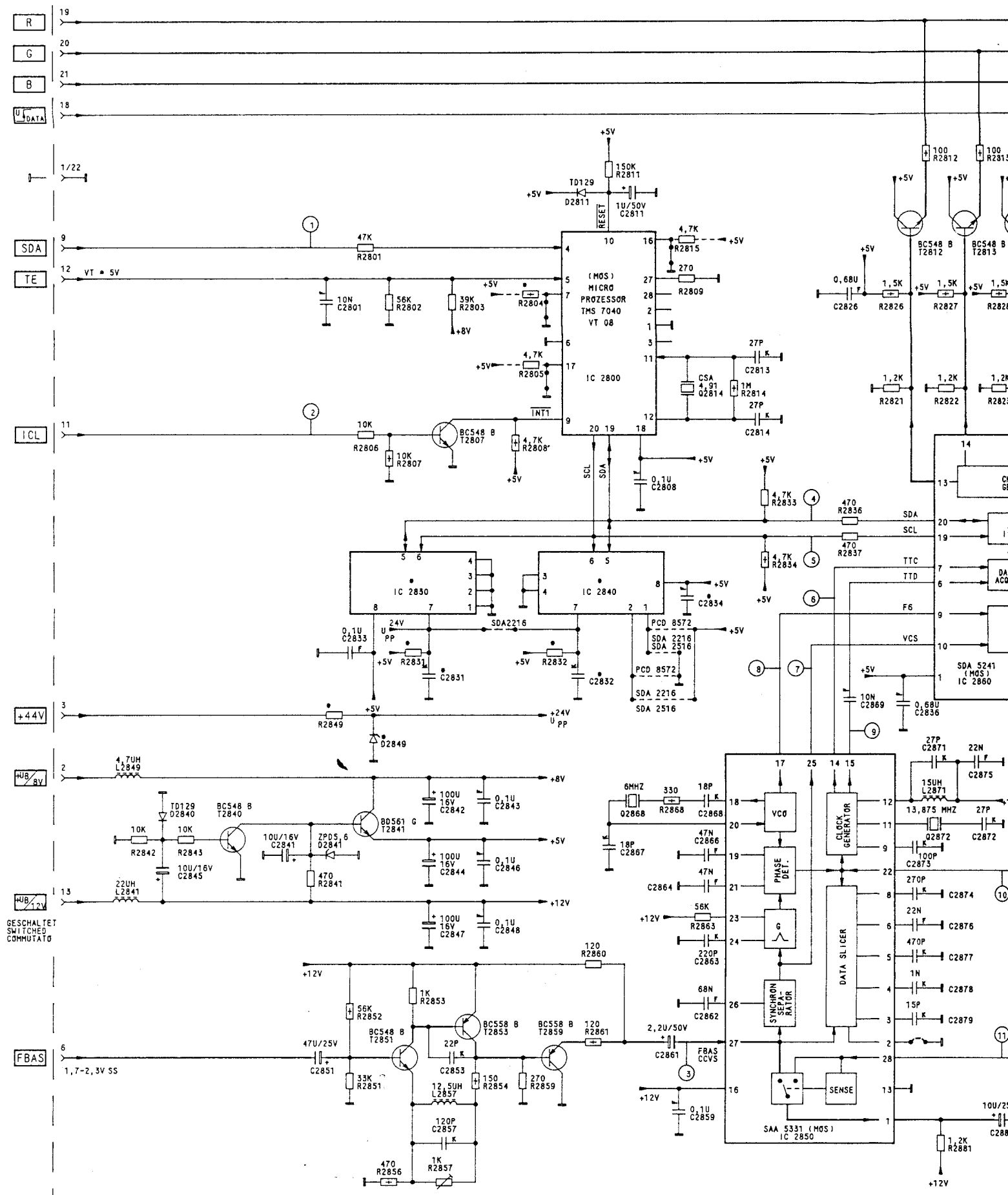
Una regolazione manuale non è possibile, poiché questa scheda incorpora una regolazione automatica della corrente d'interdizione. Controllo del punto di blocco (è necessario un oscilloscopio):

- 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.

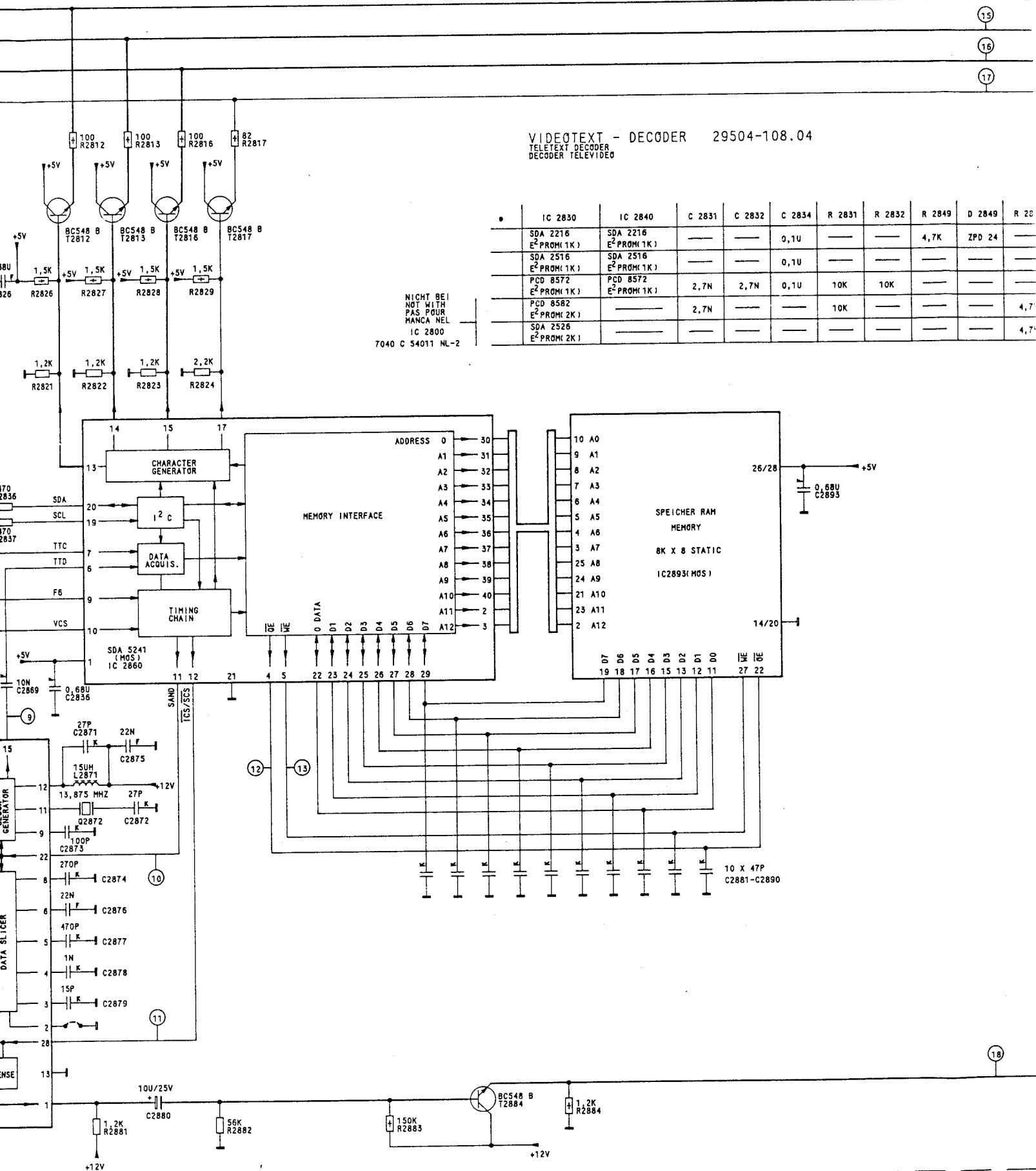




VIDEOTEXT - DECODER 29504-108.04
TELETEXT DECODER
DECODER TELEVIDEO

[illegible]

NICHT BEI
NOT WITH
PAS POUR
MANCA NEL
IC 2800
7040 C 54011 NL-2



VT-Nachrüstung und Anpassungsabgleich

Beim Nachrüsten der Videotext-Steckkarte muß die Videotext-Steckerplatte entfernt werden.

Der Einsteller R 2857 steht bei 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 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.

VT (GB: Teletext) instalation and matching adjustment

When fitting the Videotext (GB: Teletext) plug-in board, the Videotext plug plate 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. 2 dB). If, with a perfect aerial signal character faults occur, turn R 2857 slowly clockwise until the faults disappear. Do not turn R 2875 up any further as error rate may increase again.

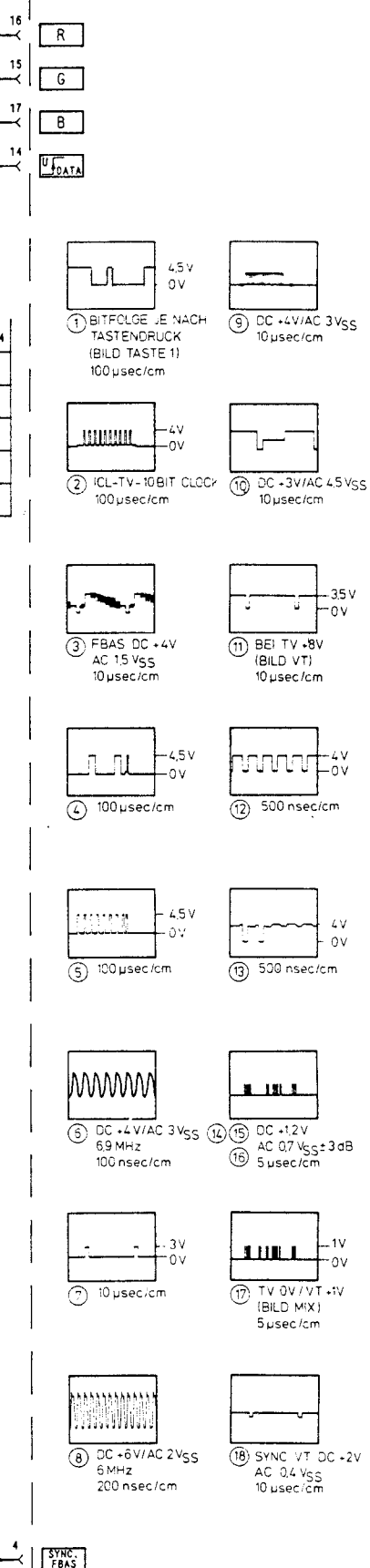
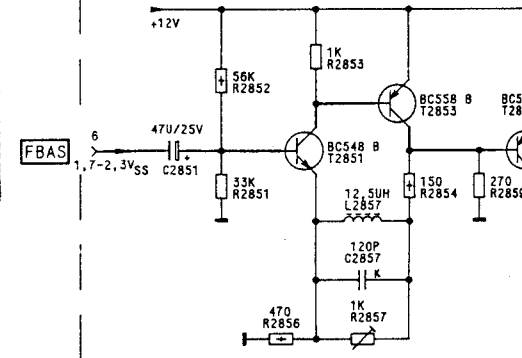
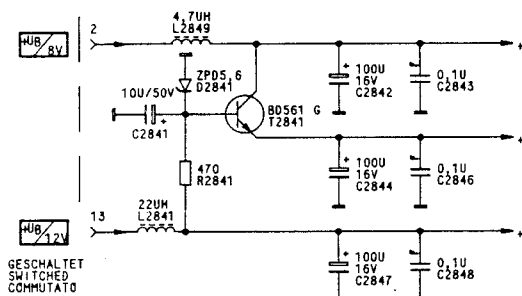
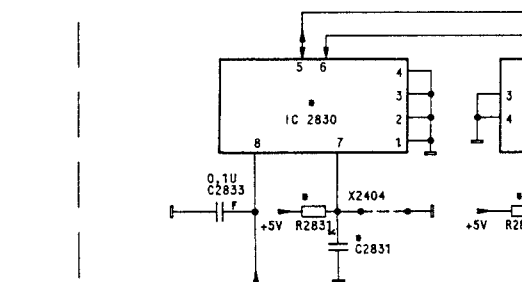
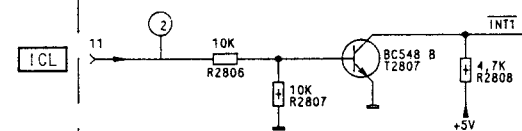
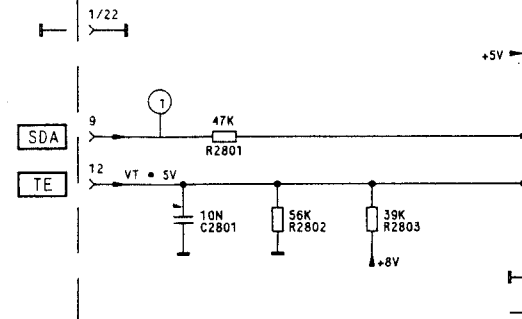
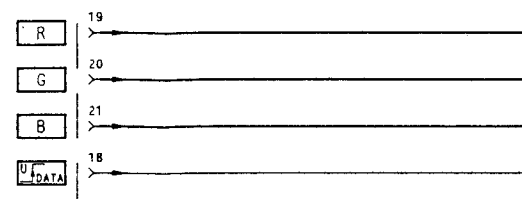
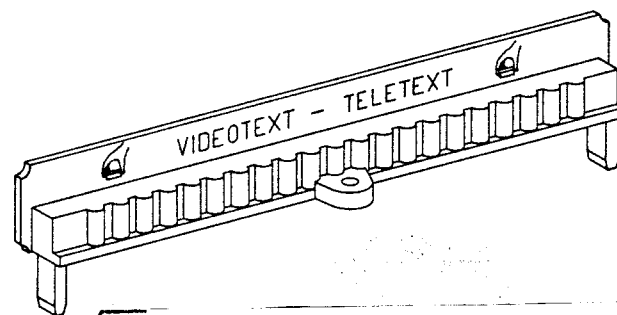
Page 199 must always be selected anew during the adjustment, as only this effects a new read-in of the page making it possible to evaluate the error level.

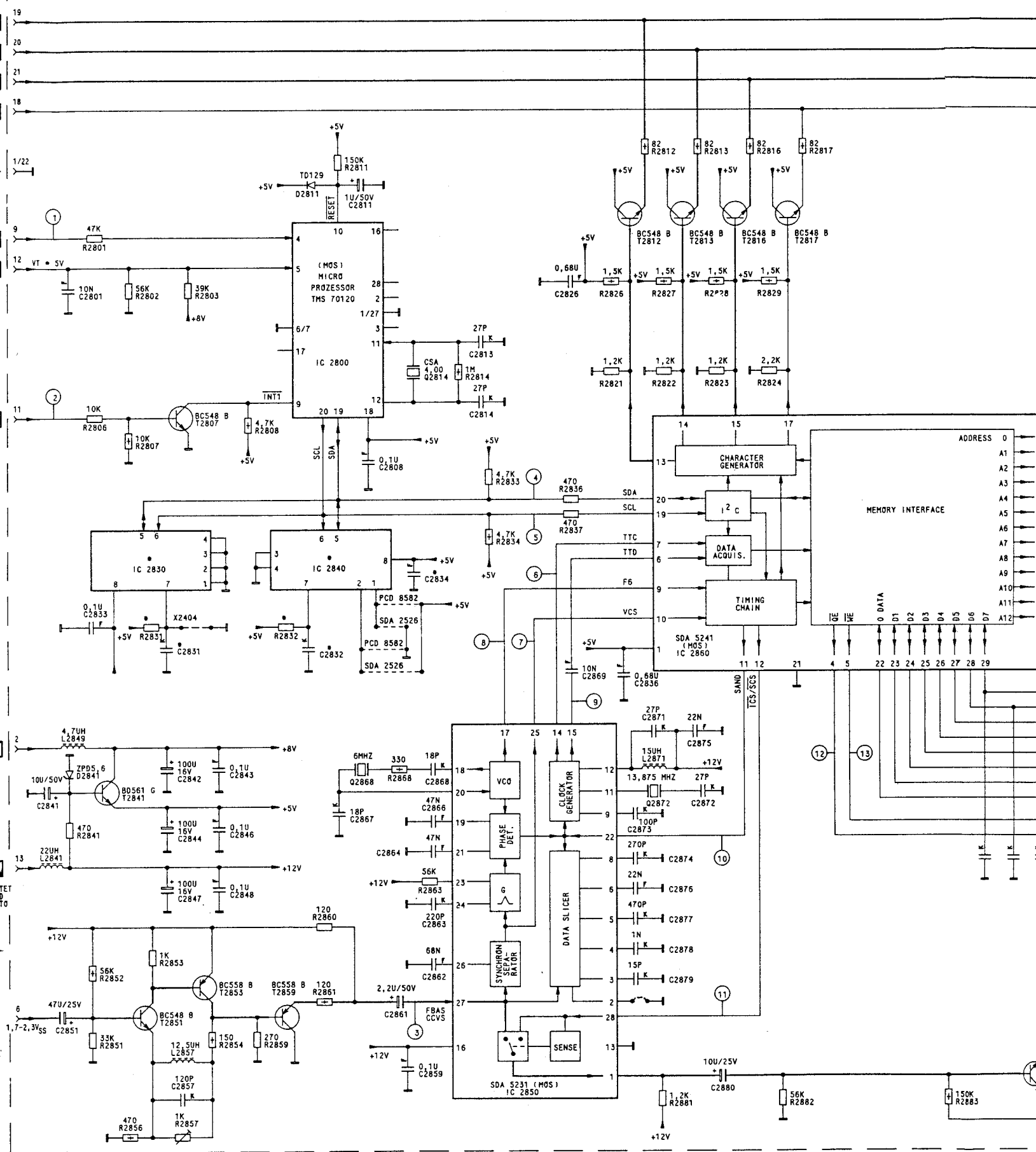
Montaggio e taratura d'addattamento della scheda ad innesto

Nel montare la scheda televideo togliere la piastrina televideo.

Il regolatore R 2857 viene fornito col cursore girato completamente all'estrema sinistra (minima esaltazione delle alte frequenze, ca. 2 dB). Se si manifestano errori di carattere, nonostante un perfetto segnale d'antenna, girare lentamente il cursore di R 2857 verso destra fino ad eliminare gli errori. Non girarlo oltre può riaumentare la presenza degli errori.

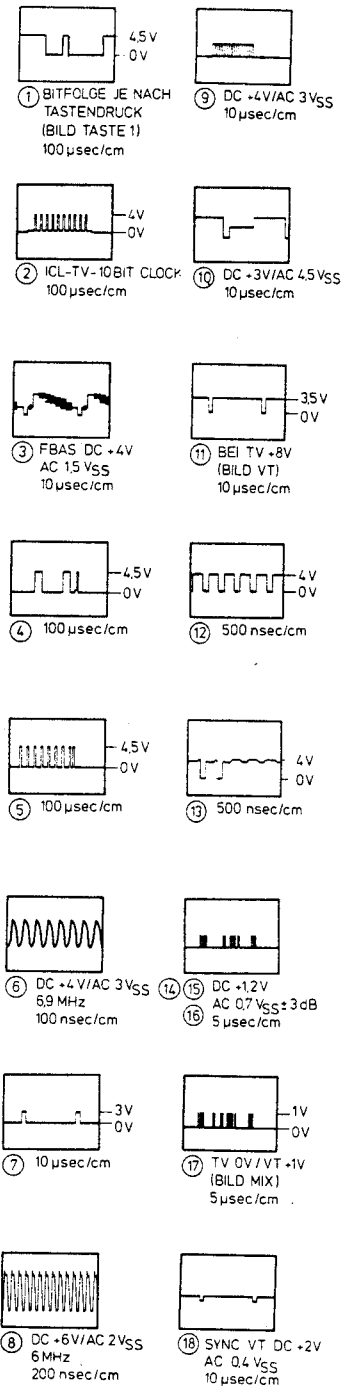
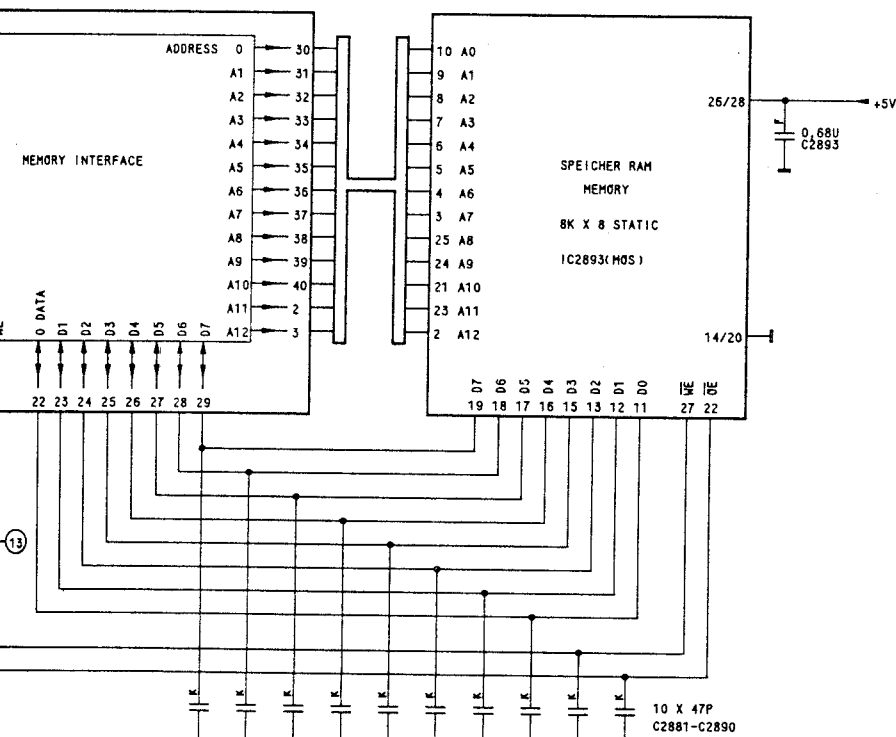
Durante la taratura è necessario selezionare ripetutamente la pagina 199, poiché solo così è possibile una nuova immissione della pagina ed una valutazione della soglia degli errori.

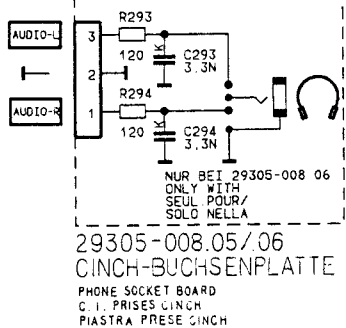
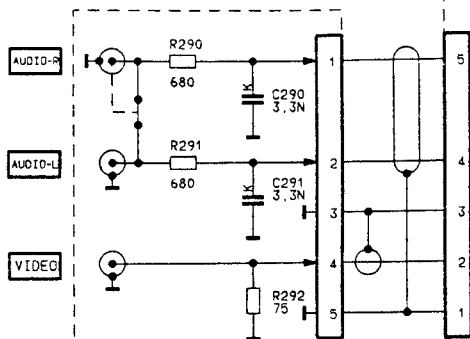




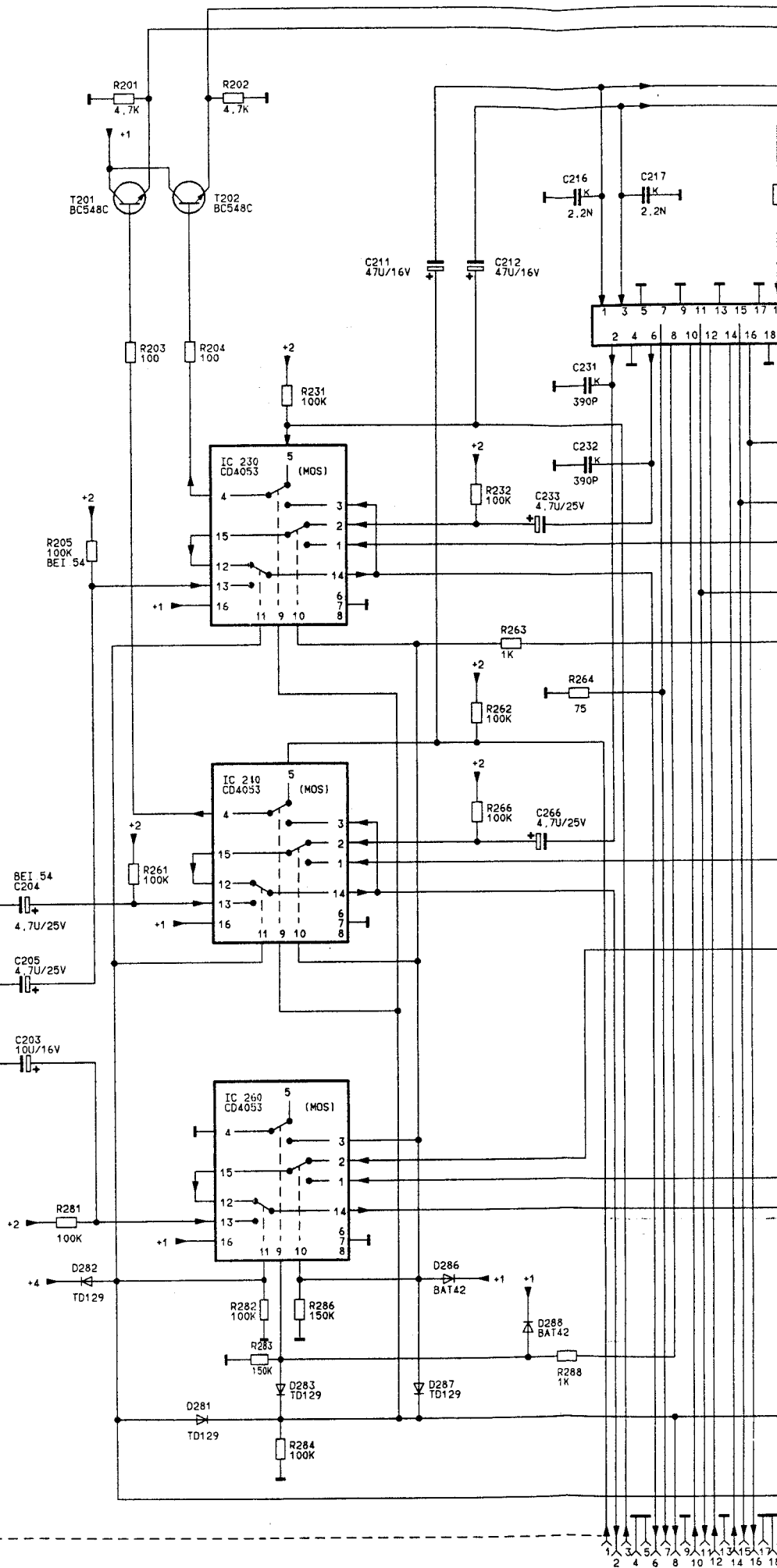
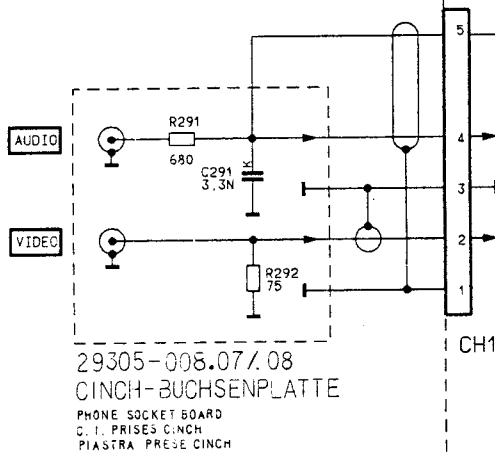
VIDEOTEXT - DECODER 29504-108.05 TELETEXT DECODER DECODER TELEVIDEO

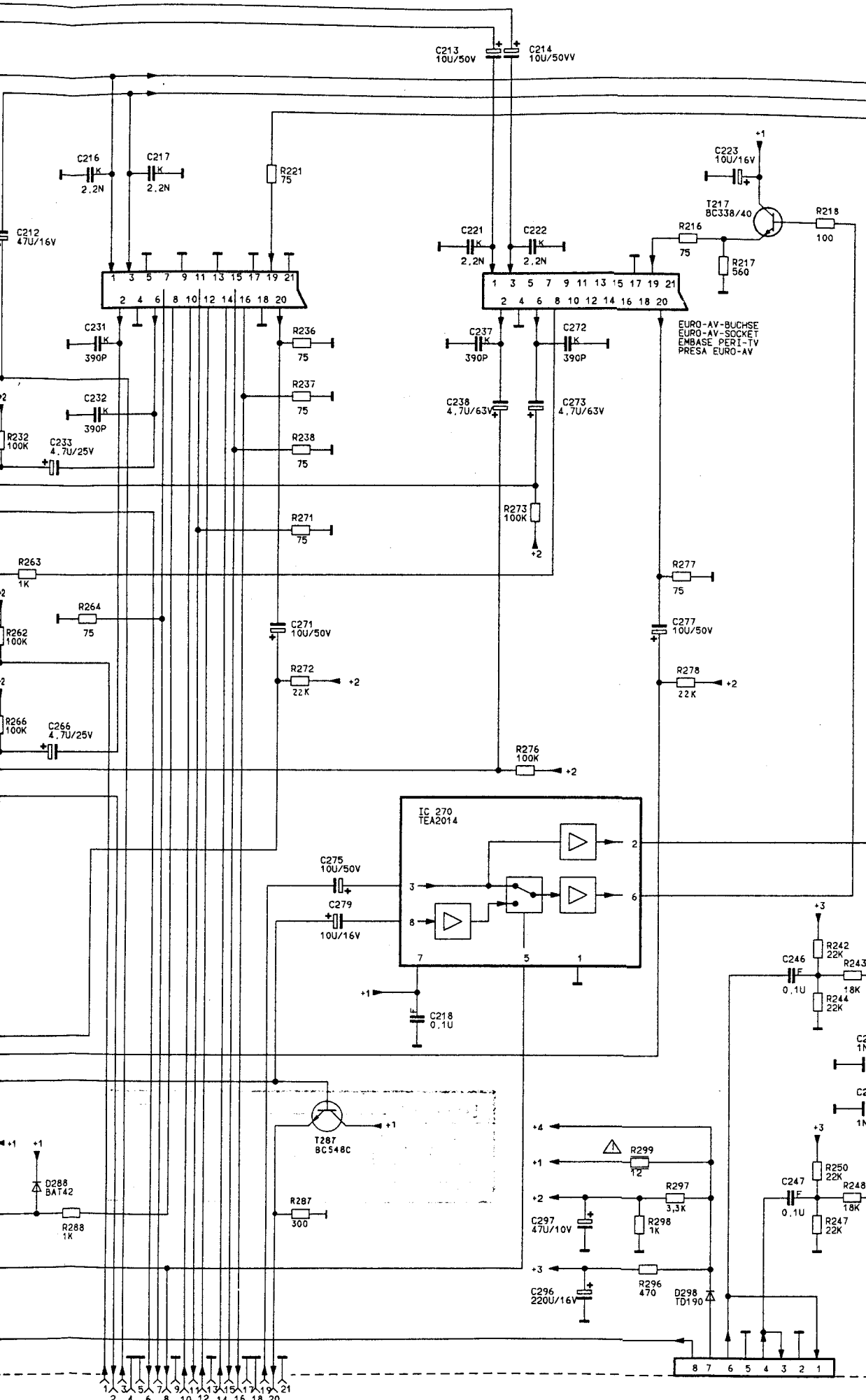
	IC 2830	IC 2840	C 2831	C 2832	C 2834	R 2831	R 2832
	PCD 8582 E ² PROM(2K)	PCD 8282 E ² PROM(2K)	2,7N	2,7N	0,1U	10K	10K
	SDA 2526 E ² PROM(2K)	SDA 2526 E ² PROM(2K)	—	—	0,1U	—	—
	X 2404P E ² PROM(4K)	—	—	—	—	—	—





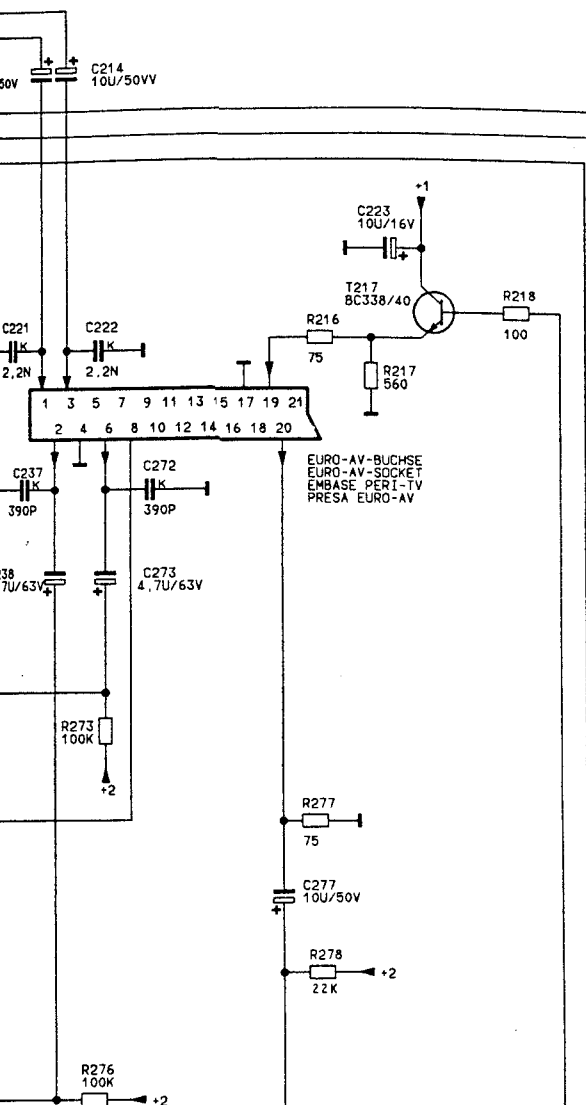
WAHLWEISE





• GEZ. BRÜCKENBESTÜCKUNG:
 GEREGLTER AUDIO AUSGANG
 BRÜCKEN UMBESTÜCKT:
 AUDIO AUSGANG UNGEREGLT
 BRIDGING POSITION SHOWN
 CONTROLLED AUDIO OUTPUT
 BRIDGING POSITION NOT SHOWN
 AUDIO OUTPUT UNCONTROLLED
 SHUNTS DANS LA POS. ILLUSTRÉE:
 SORTIE AUDIO RÉGLABLE
 SHUNTS DANS LA POS. NON ILLUSTRÉE:
 SORTIE AUDIO NON RÉGLABLE
 PONTICELLI NELLA POSIZ. ILLUSTRATA:
 USCITA AUDIO REGOLABILE
 PONTICELLI NELLA POSIZ. NON ILLUSTRATA:
 USCITA AUDIO NON REGOLABILE

EURO-AV-BUCHSENPLATTE 29304
 EURO-AV SOCKET BOARD
 C.I. PRISES PERI-TV
 PIASTRA PRESE EURO-AV

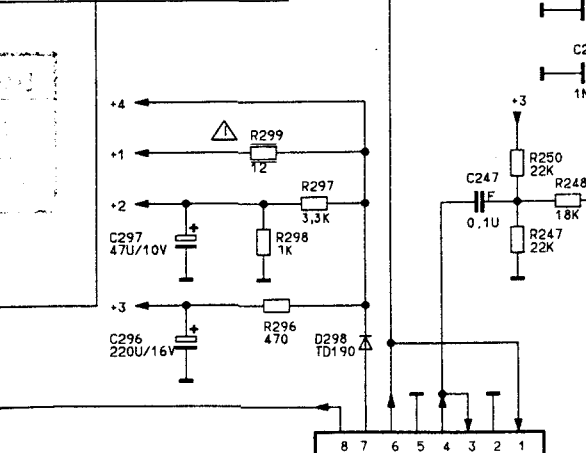
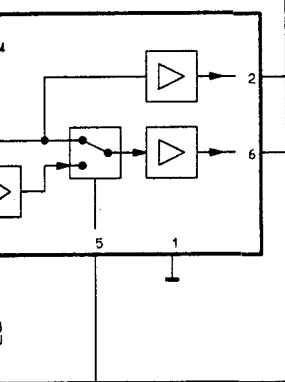


GEZ. BRUECKENBESTUECKUNG:
GEREGELTER AUDIO AUSGANG
BRUECKEN UMBESTUECKT
AUDIO AUSGANG UNGEREGELT

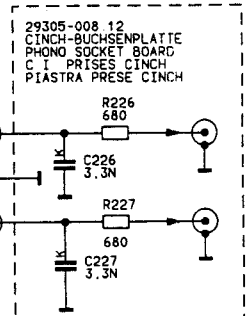
BRIDGING POSITION SHOWN:
CONTROLLED AUDIO OUTPUT
BRIDGING POSITION NOT SHOWN:
AUDIO OUTPUT UNCONTROLLED

SHUNTS DANS LA POS. ILLUSTRÉE:
SORTIE AUDIO REGLABLE
SHUNTS DANS LA POS. NON ILLUSTRÉE:
SORTIE AUDIO NON REGLABLE

PONTICELLI NELLA POSIZ. ILLUSTRATA:
USCITA AUDIO REGOLABILE
PONTICELLI NELLA POSIZ. NON ILLUSTRATA:
USCITA AUDIO NON REGOLABILE

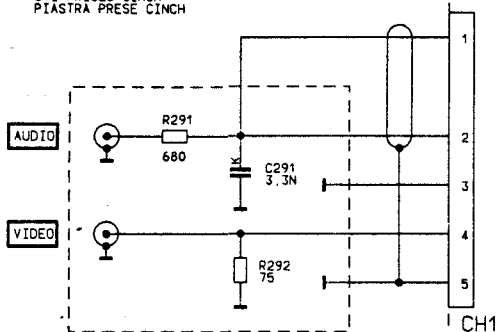


EURO-AV-BUCHSENPLATTE 29304-060.39
EURO-AV SOCKET BOARD
C.I. PRISES PERI-TV
PIASTRA PRESE EURO-AV

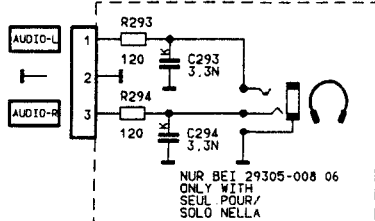
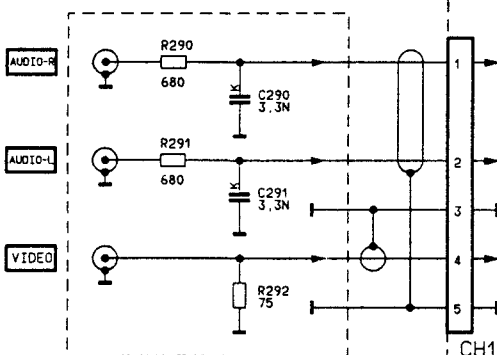


AUDIO-L
AUDIO-R

29305-008 07/ 08
CINCH-BUCHSENPLATTE
PHONE SOCKET BOARD
C 1 PRISES CINCH
PIASTRA PRESE CINCH

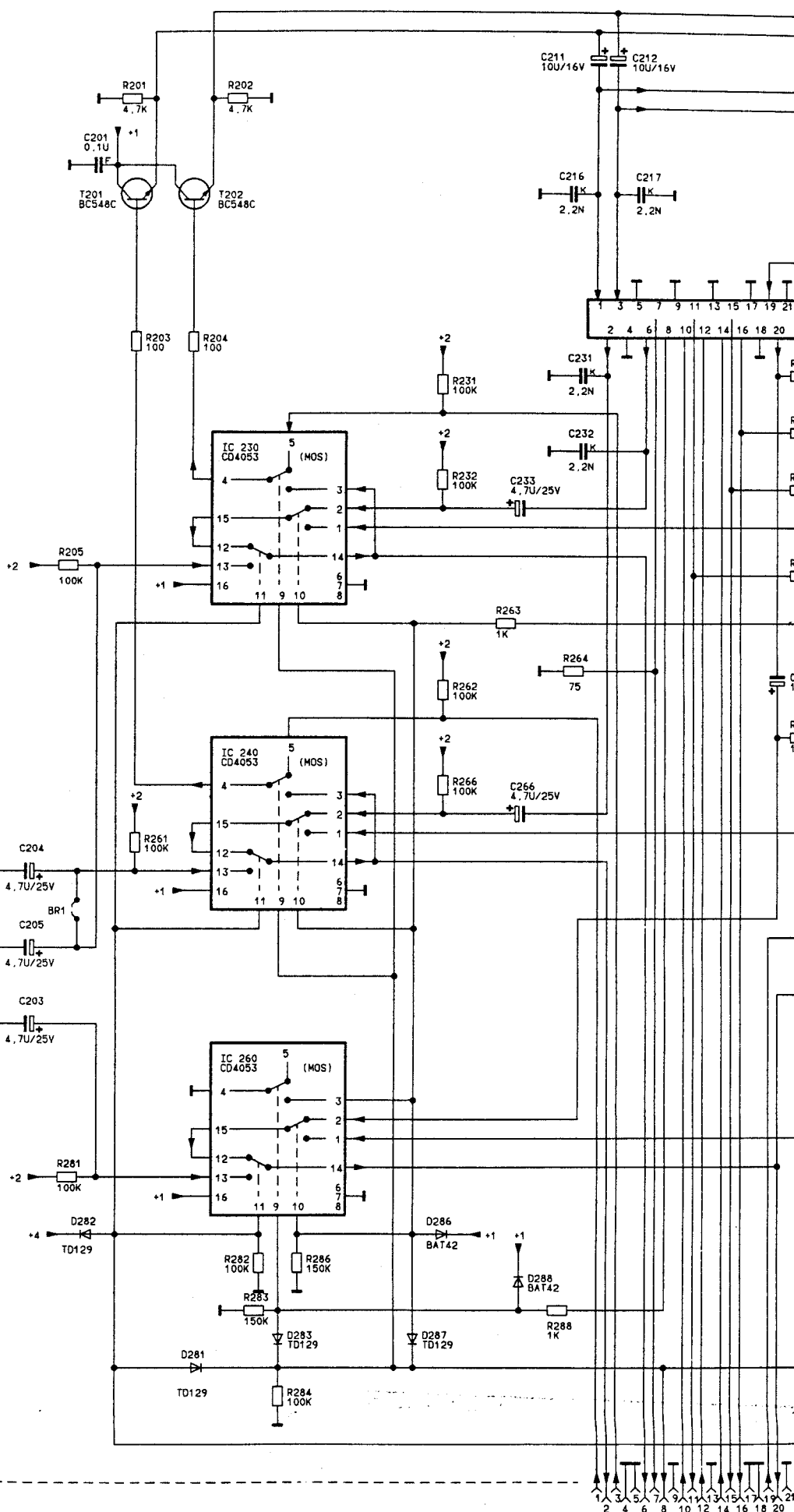


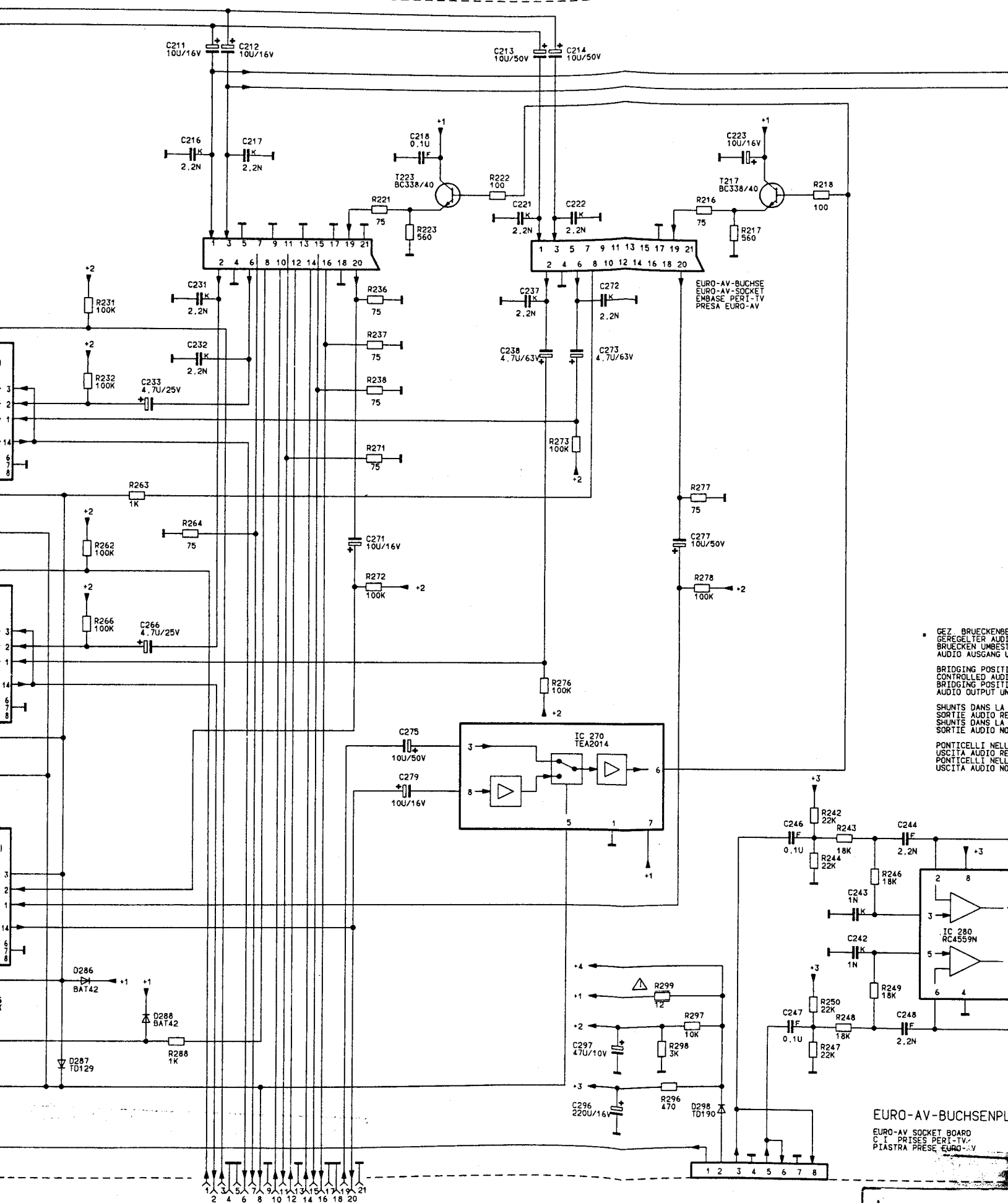
WAHLWEISE



29305-008.05/.06
CINCH-BUCHSENPLATTE

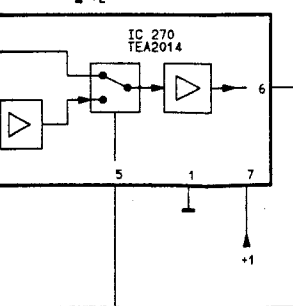
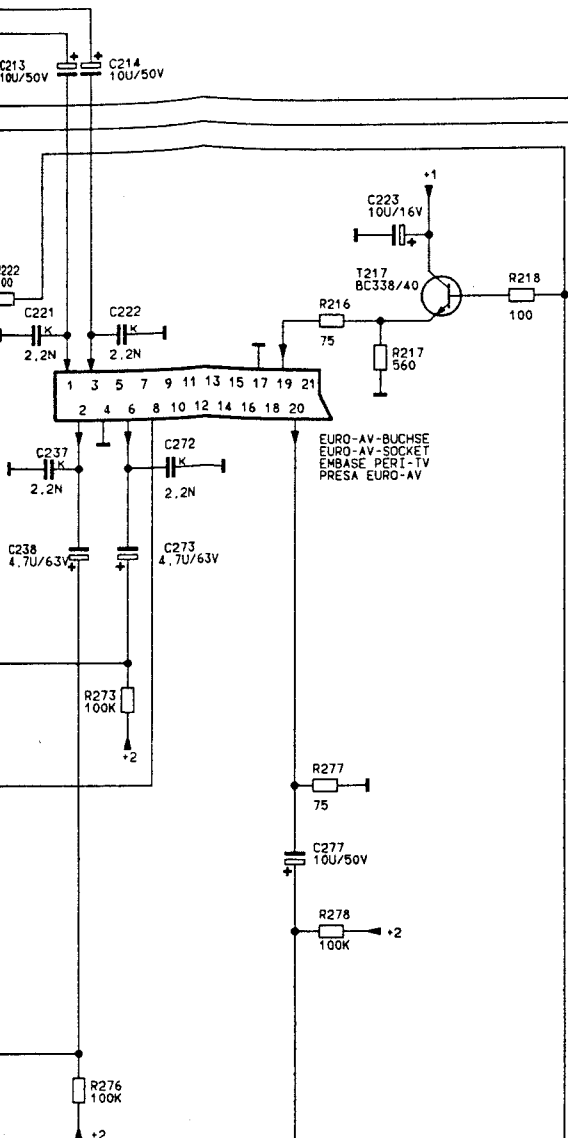
PHONE SOCKET BOARD
C 1 PRISES CINCH
PIASTRA PRESE CINCH





GEZ. BRUECKENBE-
 GEREGLTER AUDIO-
 BRUECKEN UMBEST-
 AUDIO AUSGANG U-
 BRIDGING POSITI-
 CONTROLLED AUDIO-
 BRIDGING POSITI-
 AUDIO OUTPUT UN-
 SHUNTS DANS LA
 SORTIE AUDIO RE-
 SHUNTS DANS LA
 SORTIE AUDIO NO-
 PONTICELLI NELL-
 USCITA AUDIO RE-
 PONTICELLI NELL-
 USCITA AUDIO NO-

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

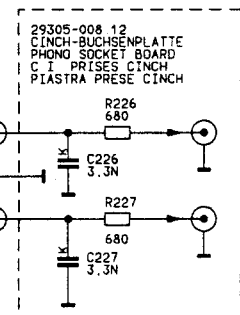
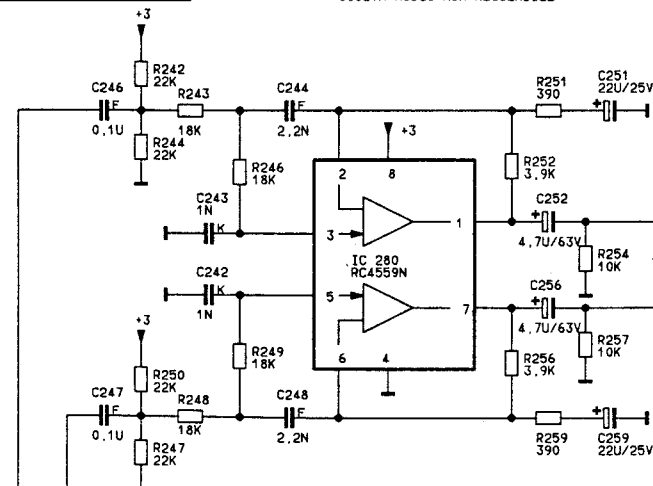
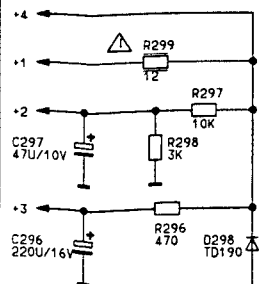


• GEZ BRUECKENBESTUECKUNG
 GEREGELTER AUDIO AUSGANG
 BRUECKEN UMGESTUECKT
 AUDIO AUSGANG UNGEREGELT

BRIDGING POSITION SHOWN
 CONTROLLED AUDIO OUTPUT
 BRIDGING POSITION NOT SHOWN
 AUDIO OUTPUT UNCONTROLLED

SHUNTS DANS LA POS. ILLUSTRÉE
 SORTIE AUDIO REGLABLE
 SHUNTS DANS LA POS. NON ILLUSTRÉE
 SORTIE AUDIO NON REGLABLE

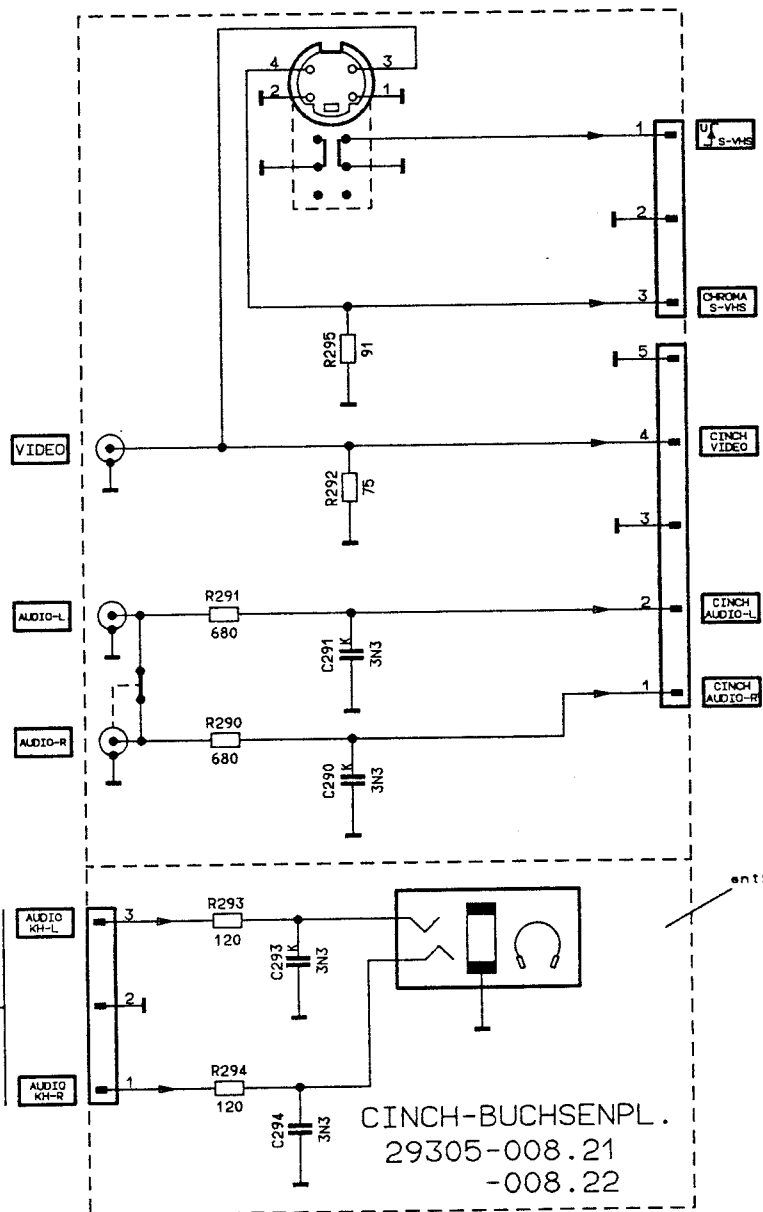
PONTICELLI NELLA POSIZ. ILLUSTRATA
 USCITA AUDIO REGOLABILE
 PONTICELLI NELLA POSIZ. ILLUSTRATA
 USCITA AUDIO NON REGOLABILE



EURO-AV-BUCHSENPLATTE 29304-060.43

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





ZUM FARB-RGB
TO COLOUR-RGB
AL MOD. COLORE-RVB

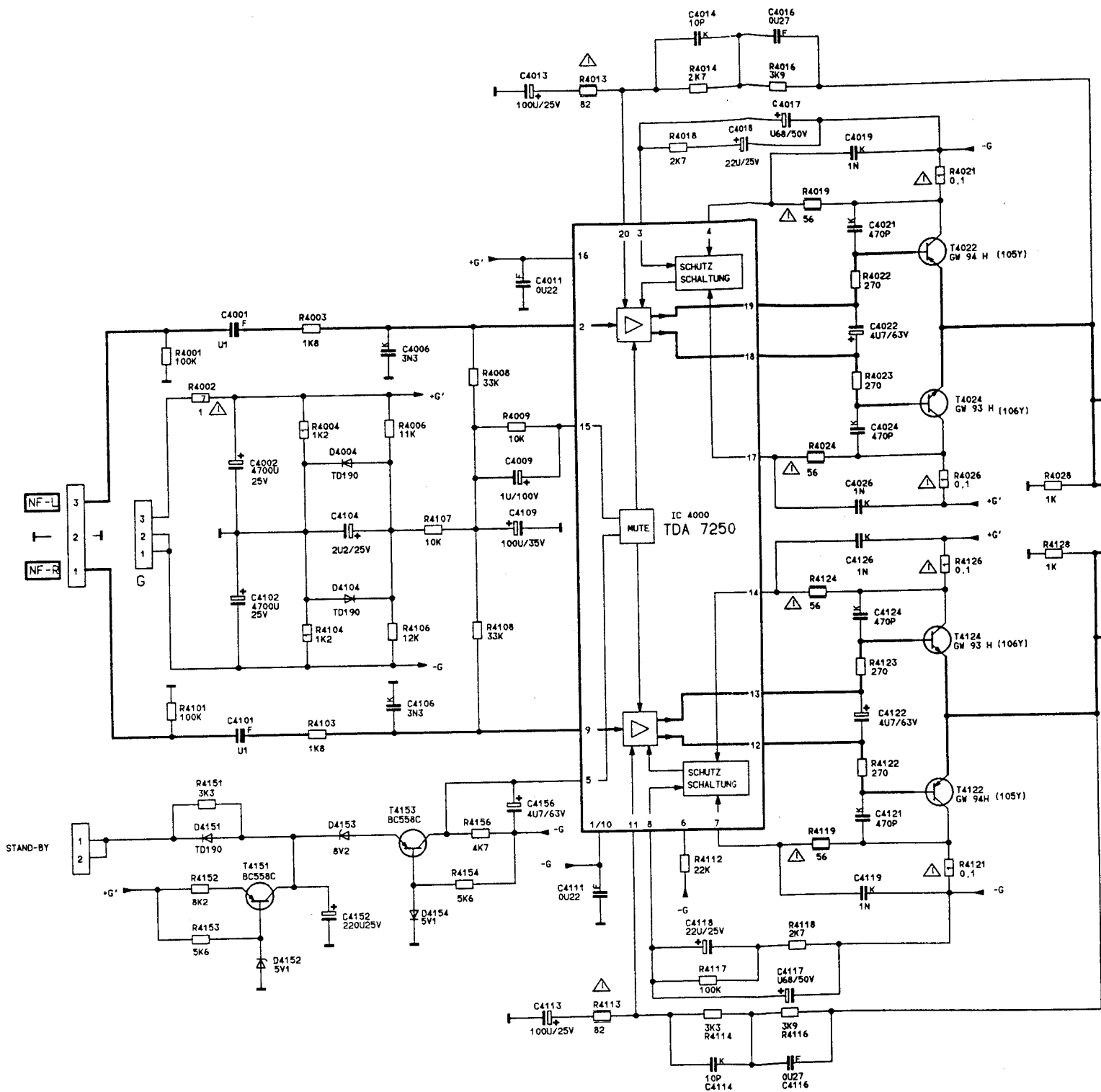
ZUR EURO-AV-BUCHSENPLATTE
TO EURO-AV-SOCKET BOARD
ALLA PIASTRA PRESE EURO-AV

entfaellt bei .22

ZUM KOPFHOERER-
VERSTAERKER

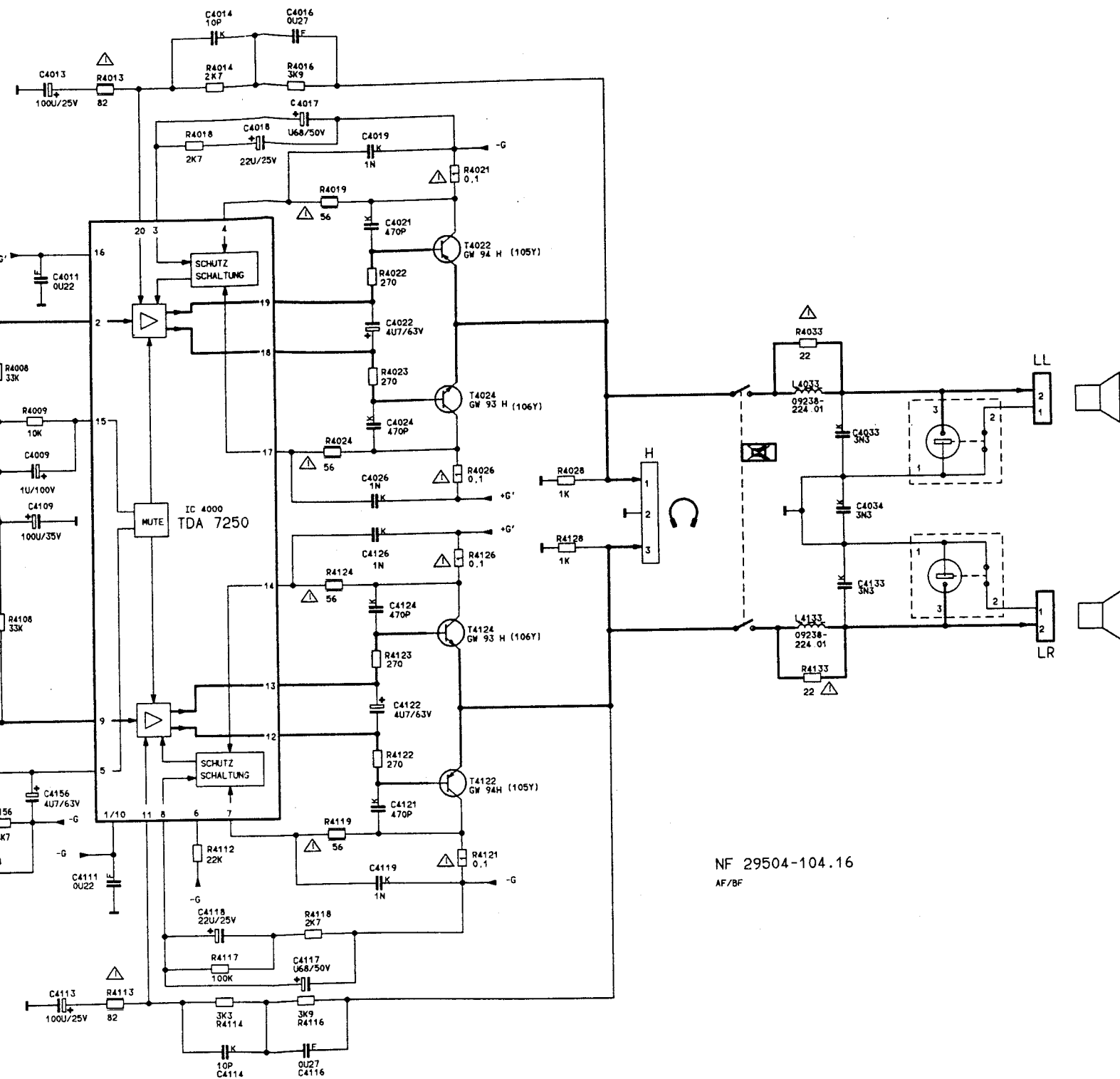
CINCH-BUCHSENPL.
29305-008.21
-008.22

14
14
2
4
12
TUNG
0
7250
KUTZ
IAL TUN
7
H112
K
18
/25V
4117
00K
3K3
R4114
10P
C4114

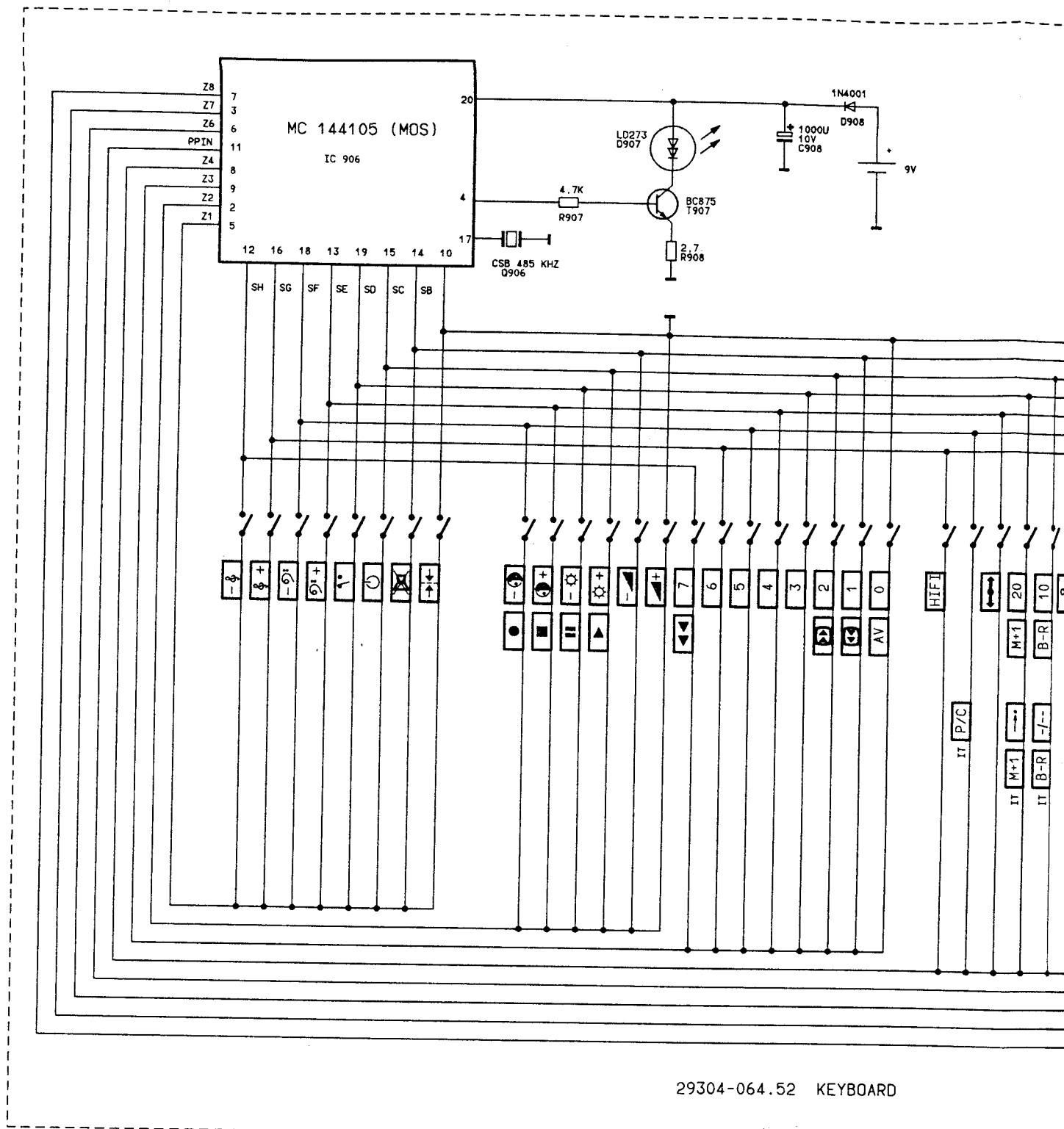


Kein Anpassungsabgleich bei Austausch der Steckkarte notwendig
 When replacing the plug-in board, no alignment is necessary
 Non è necessaria nessuna taratura di adattamento dopo la
 sostituzione di una scheda ad innesto

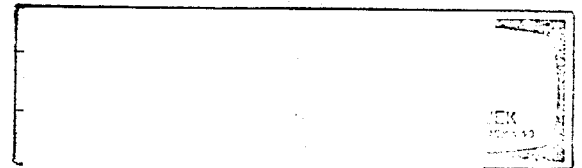




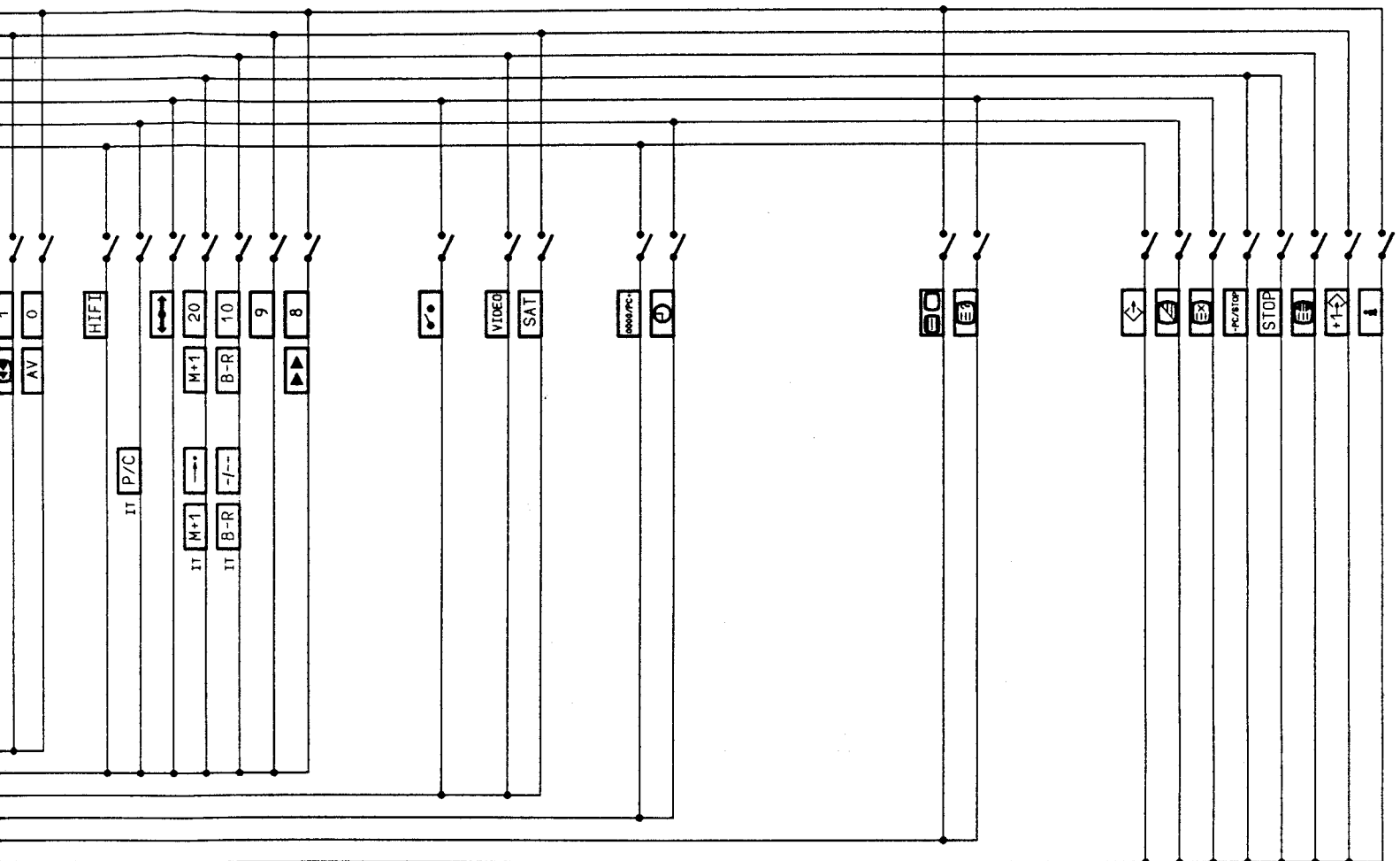
NF 29504-104.16
 AF/BF



29304-064.52 KEYBOARD



01
98
+
9V



D

Sicherheitsbestimmungen

Nach Servicearbeiten ist bei Geräten der Schutzklasse II die Messung des Isolationswiderstandes und des Ableitstromes bei eingeschaltetem Gerät nach VDE 0701 / Teil 200 bzw. der am Aufstellort geltenden Vorschrift, durchzuführen!

Dieses Gerät entspricht der Schutzklasse II, erkennbar durch das Symbol .

Messen des Isolationswiderstandes nach VDE 0701.

Isolationsmesser ($U_{\text{Test}} = 500 \text{ V}$) gleichzeitig an beiden Netzpole und zwischen allen Gehäuse- oder Funktionsteilen (Antenne, Buchsen, Tasten, Zierteilen, Schrauben, usw.) aus Metall oder Metallegierungen anlegen. Fehlerfrei ist das Gerät bei einem:

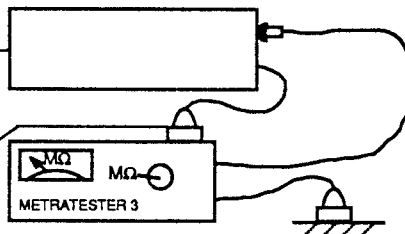
$$R_{\text{isol}} \geq 2 \text{ M}\Omega \text{ bei } U_{\text{Test}} = 500 \text{ V}$$

Meßzeit: $\geq 1 \text{ s}$

Anmerkung: Bei Geräten der Schutzklasse II kann durch Entladungswiderstände der Meßwert des Isolationswiderstandes konstruktionsbedingt $< 2 \text{ M}\Omega$ sein. In diesen Fällen ist die Ableitstrommessung maßgebend.

Prüfung
Test item
Apparecchio in misura
Pièce d'essai
Aparato de prueba

Netzstecker des Prüfings
Mains plug of test item
Spina di rete dell'apparecchio in misura
Fiche secteur pièce de essai
Clavija de red del aparato de prueba



Mit der Greifklemme alle Metallteile u. metallisierten Teile abtasten.
All metal and metalised parts must be tested with the Caliper clamp.
Con cavo provvisto di morsetto toccare tutte le parti metalliche o metallizzate.
A l'aide d'une pince vérifier toutes les parties métalliques ou métallisées.
Con la pinza, tocar todas las piezas metálicas o metalizadas.

Netzstecker/Mains plug/Spina di rete/Fiche secteur/Clavija de red

Fig. 1

Messen des Ableitstromes nach VDE 0701.

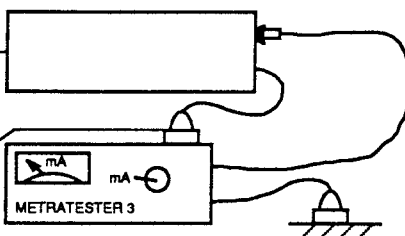
Ableitstrommesser ($U_{\text{Test}} = 220 \text{ V}$) gleichzeitig an beiden Netzpole und zwischen allen Gehäuse- oder Funktionsteilen (Antenne, Buchsen, Tasten, Zierteilen, Schrauben, usw.) aus Metall oder Metallegierungen anlegen. Fehlerfrei ist das Gerät bei einem

$$I_{\text{Ableit}} \leq 1 \text{ mA bei } U_{\text{Test}} = 220 \text{ V}$$

Meßzeit $\geq 1 \text{ s}$

Prüfung
Test item
Apparecchio in misura
Pièce d'essai
Aparato de prueba

Netzstecker des Prüfings
Mains plug of test item
Spina di rete dell'apparecchio in misura
Fiche secteur pièce de essai
Clavija de red del aparato de prueba



Mit der Greifklemme alle Metallteile u. metallisierten Teile abtasten.
All metal and metalised parts must be tested with the Caliper clamp.
Con cavo provvisto di morsetto toccare tutte le parti metalliche o metallizzate.
A l'aide d'une pince vérifier toutes les parties métalliques ou métallisées.
Con la pinza, tocar todas las piezas metálicas o metalizadas.

Netzstecker/Mains plug/Spina di rete/Fiche secteur/Clavija de red

Fig. 2

Wir empfehlen die Messungen mit dem METRATESTER 3 durchzuführen. (Meßgerät zur Prüfung elektrischer Geräte nach VDE 0701).

Metrawatt GmbH
Geschäftsstelle Bayern
Triebstr. 44
D 8000 München 50

Ist die Sicherheit des Gerätes nicht gegeben, weil

- eine Instandsetzung unmöglich ist
- oder der Wunsch des Benützers besteht, die Instandsetzung nicht durchführen zu lassen, so muß dem Betreiber die vom Gerät ausgehende Gefahr schriftlich mitgeteilt werden.

GB

Safety Standard Compliance

After service work on a product conforming to the Safety Class II, the insulating resistance and the leakage current with the product switch on must be checked according to VDE 0701 or to the specification valid at the installation location!

This product conforms to the Safety Class II, as identified by the symbol .

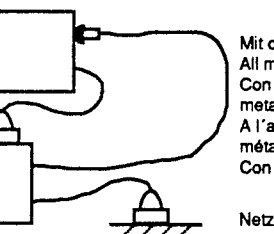
Measurement of the Insulation Resistance to VDE 0701

Connect an Insulation Meter ($U_{\text{Test}} = 500 \text{ V}$) to both mains poles simultaneously and between all cabinet or functional parts (antenna, sockets, buttons, decorative parts, etc.) made from metal or metal alloy. The product is fault free if

$$R_{\text{isol}} \geq 2 \text{ M}\Omega \text{ at } U_{\text{Test}} = 500 \text{ V}$$

Measuring time: $\geq 1 \text{ s}$

Comment: On product conforming to the Safety class II the Insulation Resistance can be $< 2 \text{ M}\Omega$, dependent constructively on discharge resistors. In this cases, the check of the leakage current is significant.



Mit der Greifklemme alle Metallteile u. metallisierten Teile abtasten.
All metal and metalised parts must be tested with the Caliper clamp.
Con cavo provvisto di morsetto toccare tutte le parti metalliche o metallizzate.
A l'aide d'une pince vérifier toutes les parties métalliques ou métallisées.
Con la pinza, tocar todas las piezas metálicas o metalizadas.

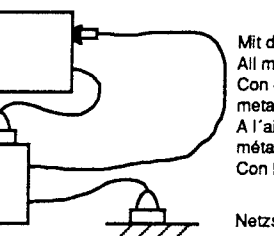
Netzstecker/Mains plug/Spina di rete/Fiche secteur/Clavija de red

Measurement of the Leakage Current to VDE 0701.

Connect the Leakage Current Meter ($U_{\text{Test}} = 220 \text{ V}$) to both mains poles simultaneously and between all cabinet or functional parts (antenna, sockets, buttons, screws, etc.) made from metal or metal alloy. The product is fault free if

$$I_{\text{Leak}} \leq 1 \text{ mA at } U_{\text{Test}} = 220 \text{ V}$$

Measuring time: $\geq 1 \text{ s}$



Mit der Greifklemme alle Metallteile u. metallisierten Teile abtasten.
All metal and metalised parts must be tested with the Caliper clamp.
Con cavo provvisto di morsetto toccare tutte le parti metalliche o metallizzate.
A l'aide d'une pince vérifier toutes les parties métalliques ou métallisées.
Con la pinza, tocar todas las piezas metálicas o metalizadas.

Netzstecker/Mains plug/Spina di rete/Fiche secteur/Clavija de red

We recommend that the measurements are carried out using the METRATESTER 3. (Test equipment for checking electrical products to VDE 0701).

Metrawatt GmbH
Geschäftsstelle Bayern
Triebstr. 44
D 8000 München 50

If the safety of the product is not proved, because

- a repair and restoration is impossible
- or the request of the user is that the restoration is not to be carried out, the operator of the product must be warned of the danger by a written warning.

I

Norme di sicurezza

Successivamente ai lavori di riparazione, negli apparecchi della classe di protezione. Il occorre effettuare la misura della resistenza di isolamento e della corrente di dispersione quando l'apparecchio è acceso, secondo le norme VDE 0701 / parte 200 e rispettivamente le norme locali!

Questo apparecchio corrisponde alla classe di protezione II ed è riconoscibile dal simbolo .

Misura della resistenza di isolamento secondo VDE 0701

Applicare il misuratore di isolamento ($U_{\text{prova}} = 500 \text{ V}$) contemporaneamente ai due poli di rete e tra tutte le parti del mobile e delle funzioni (antenna, prese, tasti, mascherine, viti ecc.) in metallo o in lega metallica. L'apparecchio non presenta difetti quando:

$$R_{\text{isol}} \geq 2 \text{ M}\Omega \text{ con } U_{\text{prova}} = 500 \text{ V}$$

Tempo di misura: $\geq 1 \text{ s}$

Nota: Negli apparecchi della classe II, che per motivi costruttivi dispongono di resistenze di dispersione, il valore di misura della resistenza di isolamento può essere inferiore a $< 2 \text{ M}\Omega$. In questi casi è determinante la misura della corrente di dispersione.

Misura della corrente di dispersione secondo VDE 0701

Applic. il misuratore di isolamento ($U_{\text{prova}} = 220 \text{ V}$) contemporaneamente ai due poli di rete e tra tutte le parti del mobile e delle funzioni (antenna, prese, tasti, mascherine, viti ecc.) in metallo o in lega metallica. L'apparecchio non presenta difetti quando:

$$I_{\text{disp.}} \leq 1 \text{ mA con } U_{\text{prova}} = 220 \text{ V}$$

Tempo di misura: $\geq 1 \text{ s}$

Mit der Greifklemme alle Metallteile u. metallisierten Teile abtasten.
All metal and metalised parts must be tested with the Caliper clamp.
Con cavo provvisto di morsetto toccare tutte le parti metalliche o metallizzate.
A l'aide d'une pince vérifier toutes les parties métalliques ou métallisées.
Con la pinza, tocar todas las piezas metálicas o metalizadas.

Netzstecker/Mains plug/Spina di rete/Fiche secteur/Clavija de red

Si raccomanda di effettuare le misure con lo strumento METRATESTER 3 (strumento di misura per il controllo di apparecchi elettrici secondo VDE 0701).

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Se la sicurezza dell'apparecchio non è raggiunta, perchè

- una riparazione non è possibile
- oppure è desiderio del cliente che una riparazione non avvenga in questi casi si deve comunicare per iscritto all'utilizzat. la pericolosità dell'apparecchio riguardo il suo isolamento.

Empfehlungen für den Servicefall

- Nur Original-Ersatzteile verwenden.
- Bei Bauteilen oder Baugruppen mit der Sicherheitskennzeichnung Δ sind Original-Ersatzteile zwingend notwendig.
- Auf Sollwert der Sicherungen achten.
- Zur Sicherheit beitragende Teile des Gerätes dürfen weder beschädigt noch offensichtlich ungeeignet sein.
- Dies gilt besonders für Isolierungen und Isolierteile.
- Netzleitungen und Anschlußleitungen sind auf äußere Mängel vor dem Anschluß zu prüfen. Isolation prüfen!
- Die Funktionssicherheit der Zugentlastung und von Biegeschutz-Tüllen ist zu prüfen.
- Thermisch belastete Lötstellen absaugen und neu löten.
- Belüftungen frei lassen.

Recommendation for service repairs

- Use only original spare parts.
- With components or assemblies accompanied with the Safety Symbol Δ only original-spare parts are strictly to be used.
- Use only original fuse value.
- Safety compliance, parts of the product must not be visually damaged or unsuitable. This is valid especially for insulators and insulating parts.
- Mains leads and connecting leads should be checked for external damage before connection. Check the insulation!
- The functional safety of the tension relief and bending protection bushes are to be checked:
- Thermally loaded solder pads are to suck off and re-soldered.
- Ensure that the ventilation slots are not obstructed.

Raccomandazione per il servizio assistenza

- Impiegare solo componenti originali:
- I componenti o i gruppi di componenti contraddistinti dall'indicaz. Δ devono assolutamente venir sostituiti con parti originale.
- Osservare il valore nominale dei fusibili.
- I componenti che concorrono alla sicurezza dell'apparecchio non possono essere né danneggiati né risultare visibilmente inadatti. Questo vale soprattutto per isolamenti e parti isolate.
- I cavi di rete e di collegamento vanno controllati prima dell'utilizzo affinché non presentino imperfezioni esteriori. Controllare l'isolamento.
- E' necessario controllare la sicurezza dei fermacavi e delle guaine flessibili.
- Saldature caricate termicamente vanno rifatte.
- Lasciare libere le fessure di areazione.

F

Prescriptions de securite

Suite aux travaux de maintenance sur les appareils de la classe II, il convient de mesurer la résistance d'isolement et le courant de fuite sur l'appareil en état de marche, conformément à la norme VDE 0701 §200, ou selon les prescriptions en vigueur sur le lieu de fonctionnement de l'appareil.

Cet appareil est conforme aux prescriptions de sécurité classe II, signalée par le symbole $\square$.

Mesure de la resistance d'isolement selon VDE 0701

Brancher un appareil de mesure d'isolation ($U_{\text{test}} = 500 \text{ V}$) simultanément sur les deux pôles secteur et entre toutes les parties métalliques ou métallisées accessibles de l'appareil (antenne, embases, touches, enjoliveurs, vis, etc.).

Le fonctionnement est correct lorsque:

$$R_{\text{isol}} \geq 2 \text{ M}\Omega \text{ pour une } U_{\text{test}} = 500 \text{ V}$$
$$\text{Durée de la mesure: } \geq 1 \text{ s}$$

Observations: L'isolation des appareils de la classe II, de part leur conception (résistance de décharge), peut être inférieure à $2 \text{ M}\Omega$, (Fig. 1).

Mesure du courant de fuite selon VDE 0701

Brancher un ampèremètre du courant de fuite ($U_{\text{test}} = 220 \text{ V}$) simultanément sur les deux pôles du secteur et entre toutes les parties métalliques ou métallisées accessibles de l'appareil (antenne, embases, touches, enjoliveurs, vis, etc.). Le fonctionnement est correct lorsque (Fig. 2):

$$I_{\text{fuite}} \leq 1 \text{ mA pour } U_{\text{test}} = 200 \text{ V}$$
$$\text{Durée de la mesure } \geq 1 \text{ s}$$

Pour ces mesures, nous préconisons l'utilisation du METRATESTOR 3 (instrument de mesure pour le contrôle d'appareils électriques conformes à la norme VDE 0701).

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Dans le cas où la sécurité de l'appareil n'est pas assurée pour les raisons suivantes:

- la remise en état est impossible
- l'utilisateur ne souhaite pas la remise en état de l'appareil. l'utilisateur doit être informé par écrit du danger que représente l'utilisation de l'appareil.

Recommandations pour la maintenance

- Utiliser exclusivement des pièces de rechange d'origine. Les composants et ensembles de composants signalés par le symbole Δ doivent être impérativement remplacés par des pièces d'origine.
- Respecter la valeur nominale des fusibles.
- Veiller au bon état et la conformité des pièces contribuant à la sécurité de fonctionnement de l'appareil. Ceci s'applique particulièrement aux isollements et pièces isolantes.
- Vérifier le bon état extérieur des câbles secteur et des câbles de raccordement au point de vue isolement avant la mise sous tension.
- Vérifier le bon état des protections de gaine.
- Nettoyer les soudures avant de les renouveler.
- Dégager les voies d'aération.

E

Disposiciones para la seguridad

Después de operaciones de servicio en aparatos de la clase de protección II, se llevará a cabo la medida de la resistencia de aislamiento y de la corriente derivada, con el aparato conectado, de acuerdo con VDE 0701 o de las disposiciones vigentes en el lugar de instalación.

Este aparato corresponde a la clase de protección II, reconocible por el símbolo $\square$.

Medida de la resistencia de aislamiento según VDE 0701. Aplicar el medidor de aislamiento ($U_{\text{prueba}} = 500 \text{ V}$), simultáneamente, a los dos polos de red y entre todas las partes del mueble o de funciones (antena, conectores, teclas, tornillos, etc.) de metal o aleaciones metálicas. El aparato estará libre de defectos con:

$$R_{\text{aisl}} \geq 2 \text{ M}\Omega \text{ con } U_{\text{prueba}} = 500 \text{ V}$$
$$\text{Tiempo de medida } \geq 1 \text{ seg.}$$

Observación: En aparatos de la clase de protección II, condicionado por la construcción y por resistencias de descarga, el valor de medida de la resistencia de aislamiento puede ser superior a $< 2 \text{ M}\Omega$. En este caso es decisiva la medida de la corriente derivada (Fig. 1).

Medida de la corriente derivada de acuerdo con VDE 0701. Aplicar el medidor de corriente derivada ($U_{\text{prueba}} = 220 \text{ V}$) simultáneamente a los dos polos de red y entre todas las partes del mueble o de funciones (antena, conectores, teclas, tornillos, etc.) de metal o aleaciones metálicas. El aparato estará libre de defectos con (Fig. 2):

$$I_{\text{deriv}} \leq 1 \text{ mA con } U_{\text{prueba}} = 220 \text{ V}$$
$$\text{Tiempo de medida } \geq 1 \text{ seg.}$$

Aconsejamos llevar a cabo las medidas con el METRATESTOR 3. (Instrumento de medida para la comprobación de aparatos eléctricos según VDE 0701).

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Si no se cumple la seguridad del aparato, poroue

- la puesta en orden es imposible, o
- existe el riesgo del usuario de no realizarla, se ha de comunicar a quien lo haga funcionar, por escrito, del peligro dimanante del aparato.

Recomendaciones para caso de servicio

- Emplear sólo componentes originales.
- Con componentes o grupos constructivos con el indicativo de seguridad Δ son de obligada necesidad piezas de repuesto originales.
- Las partes del aparato que contribuyan a la seguridad del mismo no deben estar deterioradas ni ser manifiestamente inadecuadas. Esto es especialmente válido para aislamientos o piezas aislantes.
- Los cables de red y de conexión se comprobarán, antes de conectarlos, en cuanto a defectos externos. Comprobar el aislamiento.
- Se ha de comprobar la función de seguridad de la compensación de tiro o de los manguitos de protección contra doblamientos.
- Repasar los puntos de soldadura sometidos a carga térmica.
- Mantener libres los canales aireación.

Funktionsbeschreibung des Schaltnetzteils

Die Netzspannung wird durch den Brückengleichrichter D 621 eine positive Gleichspannung von ca. +300 V gewonnen. Über die Primärwicklung des Netztrafos TR 651 - Anschlüsse 5 und 1 - liegt der Hochspannungsschalttransistor T 634 an dieser Gleichspannung.

Die integrierte Schaltung IC 631 (TDA 4601) - sie übernimmt die Ansteuerung, Regelung und Überwachung des Schalt-Transistors T 634 - liefert an Pin 7 eine Rechteckspannung von ca. 2,5 V_{ss} über C 631 und C 633 an die Basis des Schalttransistors T 634.

Die Sekundärseite des Netzteils liefert die für die einzelnen Funktionsgruppen notwendigen Versorgungsspannungen. Diese sind vom Netz trennbar.

Während der Leitphase des Transistors T 634 fließt ein linear ansteigender Strom durch die Primärwicklung. Der sich aufbauende magnetische Fluss induziert auch in der Sekundärwicklung eine Spannung, die jedoch gerichtet ist, daß die Gleichrichter sperren; d.h. die gesamte magnetische Energie befindet sich im Trafo.

Wald der Transistor T 634 sperrt, nimmt der magnetische Fluß ab, in der Sekundärwicklung werden Spannungen induziert, deren Strom durch die jetzt leitenden Dioden die Lastkreise mit Energie versorgt. Da während der Sperrphase des Transistors T 634 Energie in die Lastkreise übertragen wird, nennt man diese Version »Sperrwandler-Netzteil«. Die Schaltfrequenz des Transistors liegt je nach Last zwischen 15 und 70 kHz. Die größte Stromflußzeit und damit die höchste Leistungstragung wird bei niedriger Frequenz und geringem Tastverhältnis erreicht. Normale Betriebswerte sind etwa 30 kHz bei einem Tastverhältnis von 3:1.

Anlaufschaltung:

Die Anlaufspannung für den TDA 4601 wird über die Diode D 616, den Widerstand R 617 und den Widerstand R 616 an den Pin 9 (IC 631) geleitet (Anlaufspannung ca. 12 V). Nach dem Anlaufen des Sperrwandlers übernimmt die Diode D 633 die Spannungsversorgung. An Pin 9 stellt sich eine Spannung von ca. 12,5 V ein.

Normalbetrieb:

Am Eingang Pin 2 des TDA 4601 werden die Nulldurchgänge der von der Rückkoppelspule eingespeisten Frequenzen registriert und an eine Steuerlogik weitergegeben. Den Pin 3, einem Regeleingang, werden die gleichgerichteten Amplitudenänderungen der Rückkoppelspule (11/13) über den Einsteller R 647 zugeführt.

Schutzschaltung:

Es auszuschließen, daß die Hochspannung über den zulässigen Wert steigt - bei gestörtem Gerätebetrieb - hat das Netzteil eine **Zusatzschaltung**, die dies verhindert.

Im Ansteigen der Rückschlagspannung des Zeilentrafos TR 526 wird Referenz der entsprechende Anstieg der + C Versorgungsspannung genutzt und bringt die im Netzteil eingesetzte Schutzschaltung zum Sprechen. Transistor T 665 schaltet den Optokoppler (Netztrennung) so, so daß der Ansteuerschaltkreis TDA 4601 über Pin 5 in den Stand-by-Betrieb geschaltet wird. Ein erneuter Start ist nicht möglich, der PTC R 617 in der Anlaufschaltung durch seine Widerstandserhöhung dies verhindert. Ein erneutes Einschalten des Gerätes ist nur mit der Netztaaste möglich. Der PTC ist dann wieder abgekühlt. Ist die Störung noch vorhanden, geht das Gerät wieder auf Stand-by. Im Service kann die Schutzfunktion durch Auftrennen am Anschlußpunkt der Diode D 668 außer Funktion gesetzt werden.

Wachte: In diesem Fall liegt die Hochspannung über dem Grenzwert. Die zweite Schutzschaltung - D 660, T 660, C 666 und D 661 - verhindert, daß bei Störfällen mit zu hohem Strahlstrom die Bildröhre beschädigt wird und Bauteile überhitzt werden. Die Schutzschaltung spricht eine Spannung von - 40 V an. Kurzzeitige negative Impulse bleiben ohne Einfluß.

Die Schutzschaltung - mit Optokoppler am Netzteil IC - spricht an, wenn die Transistoren T 736, T 756 und T 776 einen Kurzschluß haben.

Der Strahlstrom ist > 3 mA, wenn die Bildröhre einen Gitter-, Anodenfluß hat.

Das Schaltnetzteil ermöglicht folgende Betriebszustände

- a) Normalbetrieb
alle Versorgungsspannungen stehen zur Verfügung.
- b) Fernsehtonwiedergabe über HiFi-Anlage
T 693 wird gegen Masse geschaltet, dadurch geht die NF - Steckkarte in Stand by.

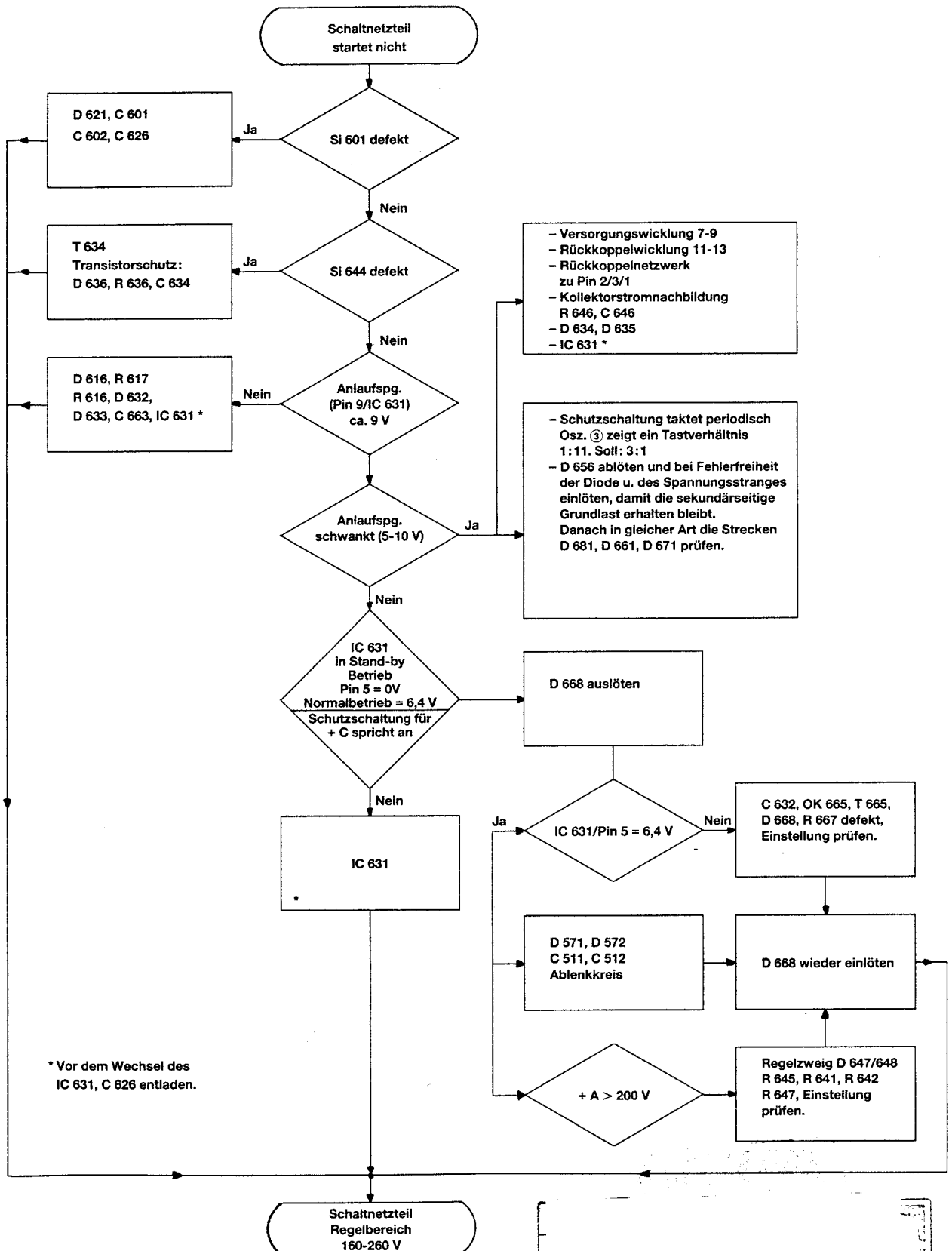
Die Cancellor-Spule

Das Erdmagnetfeld hat je nach Aufstellungsort des Gerätes Einfluß auf die Farbreinheit der Bildröhre. Farbreinheit ist eine gleichmäßige, farbfleckenfreie Bildwiedergabe. Den geringsten Einfluß auf die Farbreinheit der Bildröhre hat das Magnetfeld, wenn das Gerät mit der Vorder- bzw. Rückseite in Ost/West-Richtung steht.

Geringe Farbreinheitsrestfehler - überwiegend am oberen und unteren Bildrand - können mit dem Cancellor-Schalter auf der Geräterückseite fast gänzlich aufgehoben werden (siehe Bedienungsanleitung).

D

Tips zur Fehlersuche – Primärseite liegt an Netzpotential. Gerät mit Netztrenntransformator betreiben !



Circuit description of the switched mode power supply stage

A positive DC voltage of approximately 300 V is obtained via the bridge rectifier D 621 from the mains supply. This DC voltage is applied to the high voltage switching transistor T 634 via the primary winding of the mains transformer TR 651 from connections 5 and 1.

The integrated circuit IC 631 (TDA 4601) - which carries out the functions of drive, control and monitoring the switching transistor T 634 - provides on pin 7 a rectangular voltage of $2.5 V_{pp}$ approximately via C 631 and L 633 to the base of the switching transistor T 634.

The secondary side of the power supply stage provides the supply voltages required by the individual function groups. These are isolated from the mains.

During the conduction phase of the transistor T 634 a linear rising current flows through the primary winding. The magnetic flux which builds up, induces a voltage into the secondary winding in a direction to cause the rectifiers to be reverse biased; this means that the total magnetic energy is stored in the transformer.

When the transistor T 634 switches off, the magnetic flux decreases and a voltage is induced in the secondary windings causing current to flow via the now conducting diodes to the load circuits which are supplied with energy. As the energy is transferred into the load circuits during the switched off phase of the transistor T 634, this type of circuit is called "B.O.-type Converter Power Supply Stage". The switching frequency of the transistor lies between 15 and 70 kHz depending on the load. The largest current flowing time and with it the highest power transfer occurs with the lowest frequency and lowest mark-to-space ratio. In normal operating values this is approximately 30 kHz with a mark-to-space ratio of 3:1.

Start up Circuit

The starting voltage (approx. 12 V) for the TDA 4601 is provided via diode D 616, the PTC R 617 and the resistor R 616 to pin 9 (IC 631). After the B.O.-type converter has started up, the supply voltage is derived via D 633. On pin 9 the voltage of 12.5 V approx. builds up.

Normal Operation

On the input to pin 2 of the TDA 4601, the zero transitions from the feedback windings are registered as input frequencies and are fed to an internal control logic. To pin 3, a control input, is fed the rectified amplitude changes sensed in the feedback winding (11/13) via the adjustable pre-set R 647.

Safety Circuit

To switch the receiver off, if the EHT voltage rises above the allowed values in a defective receiver, the power supply stage has an additional **protection circuit** to prevent this happening.

If the flyback voltage in the line transformer TR 526 rises, the corresponding rise in the +C supply voltage is used as a reference and causes the safety circuit located in the power supply stage to operate. The transistor T 665 switches the optocoupler (mains isolation) on so that the drive integrated circuit TDA 4601 is switched to the standby mode via pin 5. A renewed start mode is not possible as this is prevented by the PTC R 617 in the start up circuit taking up a high resistance value. A renewed switch on of the receiver is only possible via the mains switch. The PTC then cools down. If the defect is still present, the receiver returns to the standby mode. For repair the protection circuit can be switched out of circuit by separating the connecting point to diode D 668.

Important note: In this case the EHT will exceed the specified value.

The second safety circuit - D 660, T 660, C 666 and D 661 - protects, in the event of a defect causing the beam current to be too high, the CRT from damage and prevents overheating of certain components.

The safety circuit switches in with a voltage of - 40 V. Short-term negative impulses do not influence the circuit.

The safety circuit - with optocoupler in the power supply IC - switches on:

- when the transistors T 736, T 756 and T 776 are short-circuit;
- the beam current is $> 3 \text{ mA}$;
- when the CRT has a grid- anode short circuit.

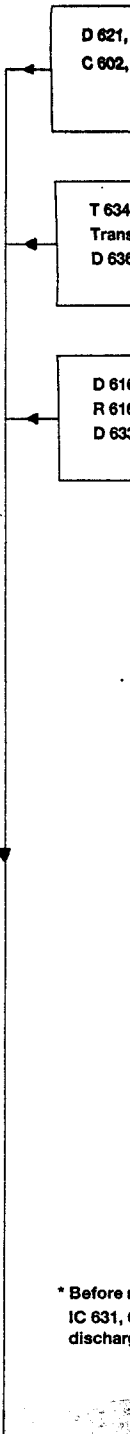
The Switched Mode Power Supply Circuit produces the following operating modes:

- a) Normal operation
All supply voltages are produced.
- b) TV sound reproduction via HiFi system

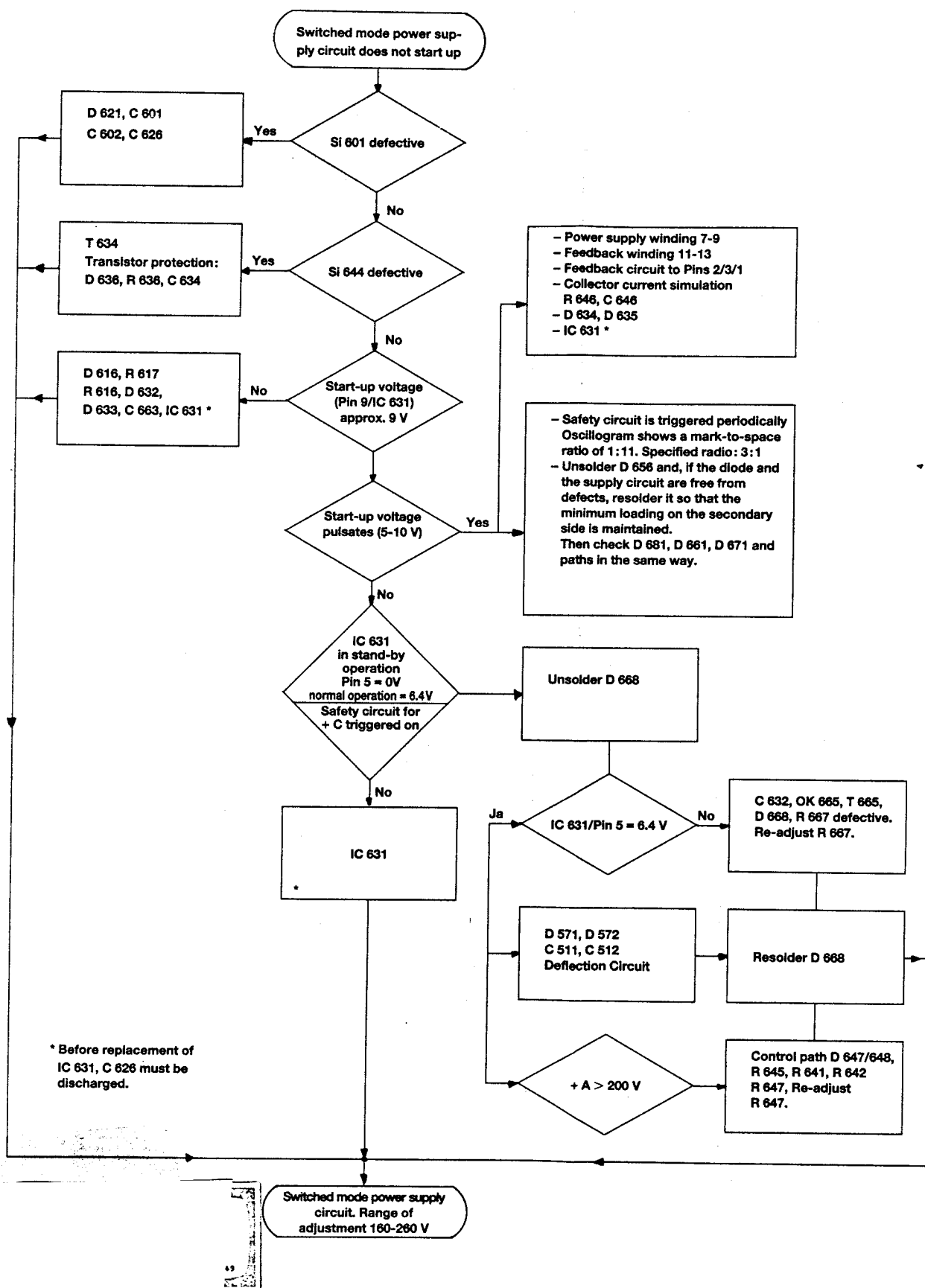
T 693 is connected to chassis so that the AF plug - in board changes to stand by.

The Canceller Coil

The earth magnetic field has an influence on the colour purity of the CRT according to the location of installation. Colour purity is a picture which is free from colour patches over the complete surface. The magnetic field has the minimum of influence on the colour purity of a CRT when the receiver is positioned so that the front or rear face is in the east/west direction. The lowest colour purity residual error - occurring in the upper or lower picture edges - can be achieved by operating the canceller switch on the rear of the receiver (see operating instructions).



Tips for Fault location – Primary side is normally not isolated. Operate set with mains isolating transformer !



Descrizione circuitale dell'alimentatore a commutazione

Dalla tensione di rete viene ricavata una tensione continua positiva di ca. + 300 V mediante il raddrizzatore a ponte D 621. Attraverso l'avvolgimento primario del trasformatore di rete TR 651 (collegamenti 5 e 1) questa tensione continua viene applicata al transistor di commutazione T 634.

Il circuito integrato IC 631 (TDA 4601) che effettua il pilotaggio, la regolazione ed il controllo del transistor T 634, invia una tensione rettangolare di ca. $2,5 V_{pp}$ al pin 7 e attraverso C 631 e L 633 alla base del transistor T 634.

Il lato secondario dell'alimentatore fornisce le tensioni di alimentazione necessarie ai singoli gruppi di funzioni. Questi sono separati dalla rete.

Durante la fase di conduzione del transistor T 634, nell'avvolgimento primario scorre una corrente che aumenta linearmente. Il flusso magnetico che si ottiene induce anche nell'avvolgimento secondario una tensione così conformata da bloccare i raddrizzatori; ciò significa che tutta l'energia magnetica si trova nel trasformatore.

Appena che il transistor T 634 si blocca, il flusso magnetico diminuisce; negli avvolgimenti secondari vengono indotte correnti che attraverso i diodi ora conduttivi alimentano il carico. Poiché soltanto durante la fase di interdizione del transistor T 634 viene trasmessa energia nel carico, questo concetto viene denominato «alimentatore con convertitore ad interdizione». La frequenza di commutazione del transistor è compresa a seconda del carico tra 15 e 70 kHz. La maggiore corrente e quindi il massimo trasferimento di potenza si ottengono alla più bassa frequenza e con basso rapporto di cadenza.

I normali valori di funzionamento si aggirano attorno ai 30 kHz con un rapporto di cadenza di 3:1.

Circuito di spunto:

La tensione di spunto per il TDA 4601 giunge al pin 9 (IC 631) attraverso il diodo D 616, il PTC R 617 e la resistenza R 616 (tensione di spunto ca. 12 V). Dopo l'innesco del convertitore ad interdizione, il diodo D 633 riceve la tensione d'alimentazione. Al pin 9 si forma una tensione di ca. 12,5 V.

Funzionamento normale:

All'ingresso, pin 2 del TDA 4601, vengono registrati i passaggi per lo zero delle funzioni derivate dalla bobina di reazione e condotti ad una logica di comando interna. Al pin 3 (ingresso di regolazione) vengono applicate attraverso il regolatore R 647 le variazioni di ampiezza raddrizzate della bobina di reazione (11/13).

Circuito di protezione:

Per evitare che l'alta tensione superi il valore consentito - in caso di funzionamento difettoso dell'apparecchio - l'alimentatore è provvisto di un **circuito di protezione supplementare**. Con l'aumento della tensione di ritorno del trasformatore di riga TR 526 viene utilizzato come punto di riferimento l'aumento corrispondente della tensione + C e ciò fa intervenire il circuito di protezione inserito nell'alimentatore. Il transistor T 665 rende conduttivo l'optoaccoppiatore (separazione di rete), cosicché il circuito di comando TDA 4601 attraverso il pin 5 viene commutato in funzionamento stand-by (attesa). Un nuovo avvio non è possibile, poiché il PTC 617 nel circuito di spunto lo impedisce a causa dell'aumento del suo valore ohmico. Per riaccendere l'apparecchio è necessario usare il tasto di rete. Il PTC è così nuovamente raffreddato. Se il disturbo è ancora presente, l'apparecchio si porta nuovamente in stand-by. Per escludere il circuito di protezione, staccare il diodo D 668.

Attenzione!

In questo caso l'alta tensione è al di sopra del valore limite consentito. Un secondo circuito di protezione (D 660, T 660, C 666 e D 661) interviene in caso di corrente catodica eccessiva per non danneggiare il cinescopio ed evitare il surriscaldamento dei componenti. L'intervento del circuito avviene con una tensione del valore di - 40 V. Brevi impulsi negativi non influiscono.

Il circuito di protezione - con optoaccoppiatore nell'integrato dell'alimentatore - interviene

- quando i transistor T 736, T 756 e T 776 sono in corto.
La corrente catodica è maggiore di 3 mA.
- quando il cinescopio presenta un cortocircuito all'anodo o alla griglia.

L'alimentatore a commutazione consente i seguenti funzionamenti

- a) normale
tutte le tensioni di alimentazione sono disponibili.
- b) riproduzione dell'audio televisivo tramite impianto HiFi

Il T 693 viene commutato a massa, portando così la scheda innesto BF in Stand-by.

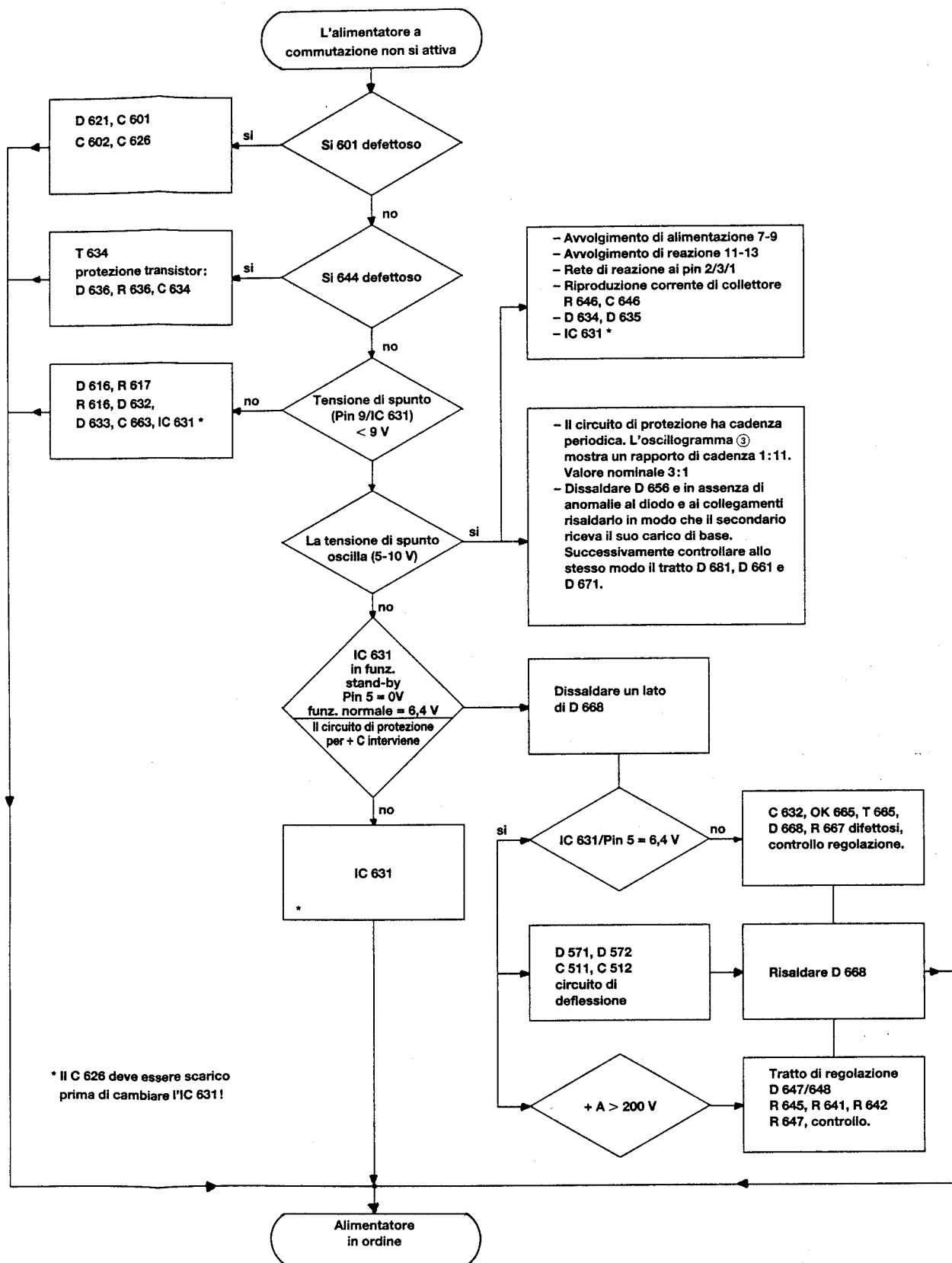
Bobina di cancellazione

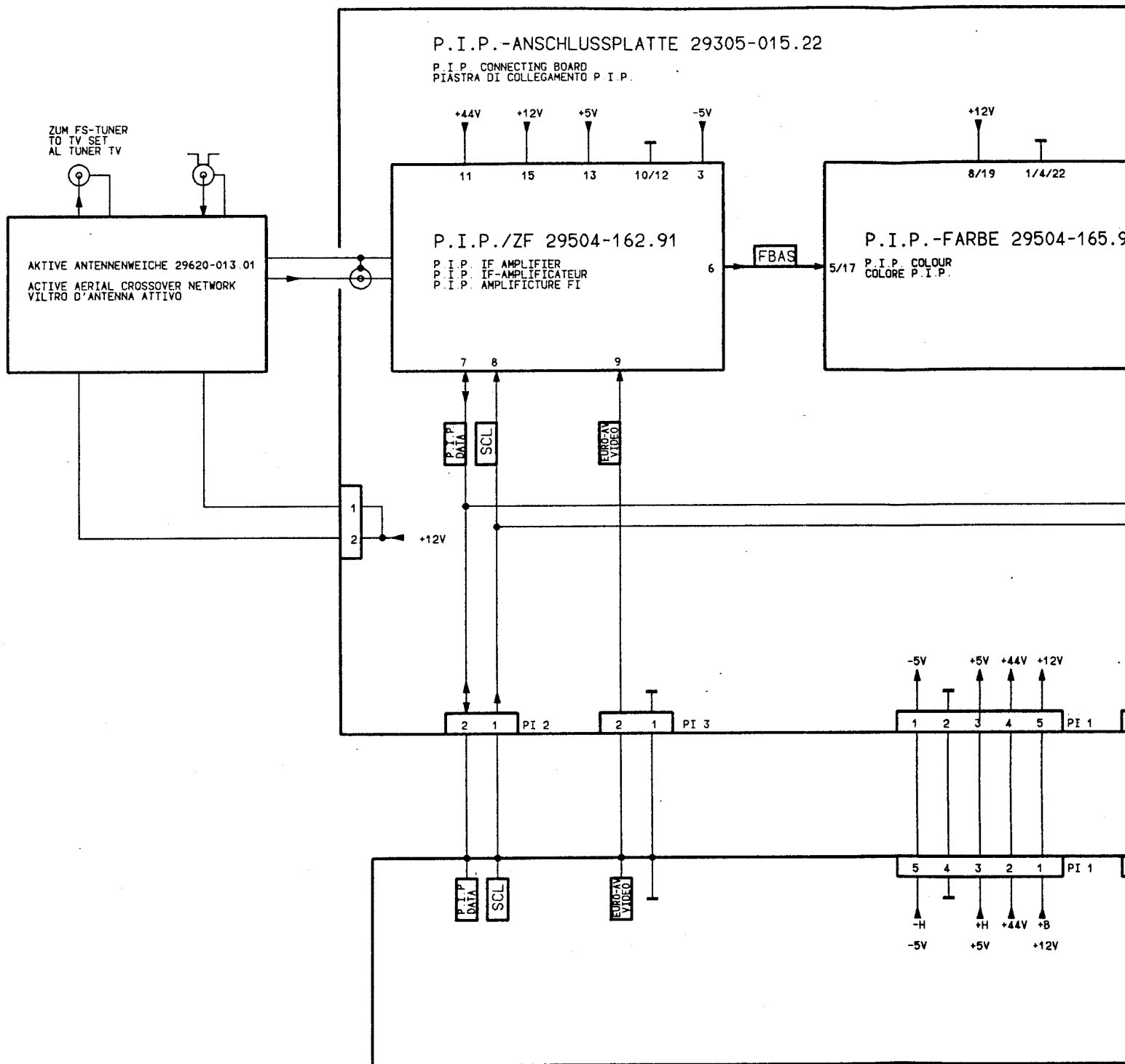
A seconda del luogo di installazione dell'apparecchio, il campo magnetico terrestre ha più o meno influenza sulla purezza colore del cinescopio. La purezza colore è la riproduzione unibforme dell'immagine senza macchie di colore. Per limitare il più possibile l'influenza del campo magnetico sulla purezza colore del cinescopio, disporre l'apparecchio in modo che il lato anteriore e rispettivamente posteriore si trovino in direzione est/ovest. Un eventuale errore residuo nella purezza cromatica - specialmente ai bordi superiore e inferiore dell'immagine - può essere eliminato quasi completamente con l'interruttore di cancellazione (Canceller) presente posteriormente sull'apparecchio (vedi le istruzioni per l'uso).

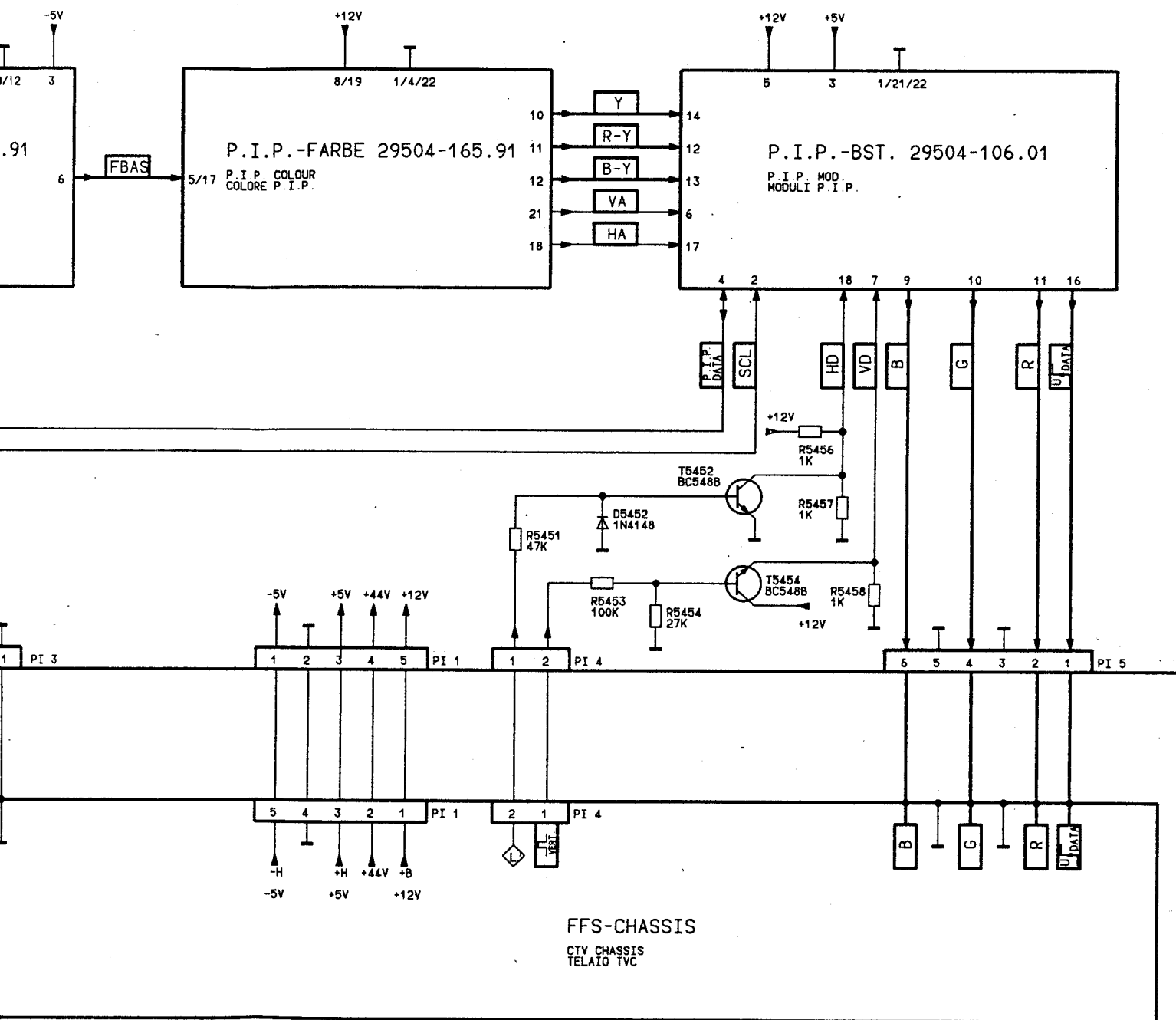
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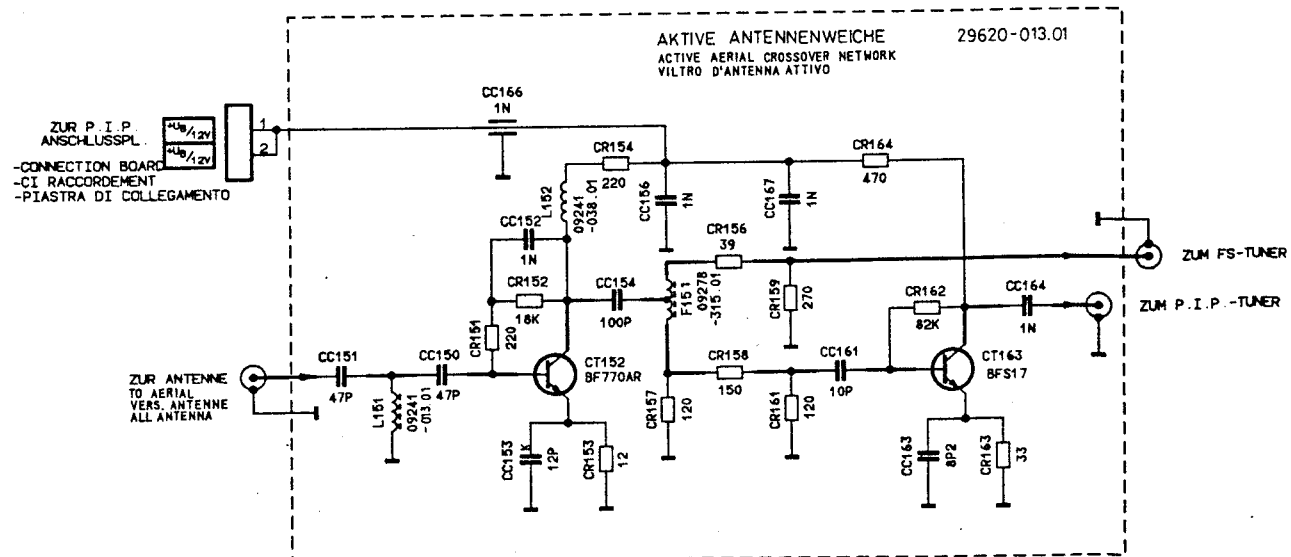
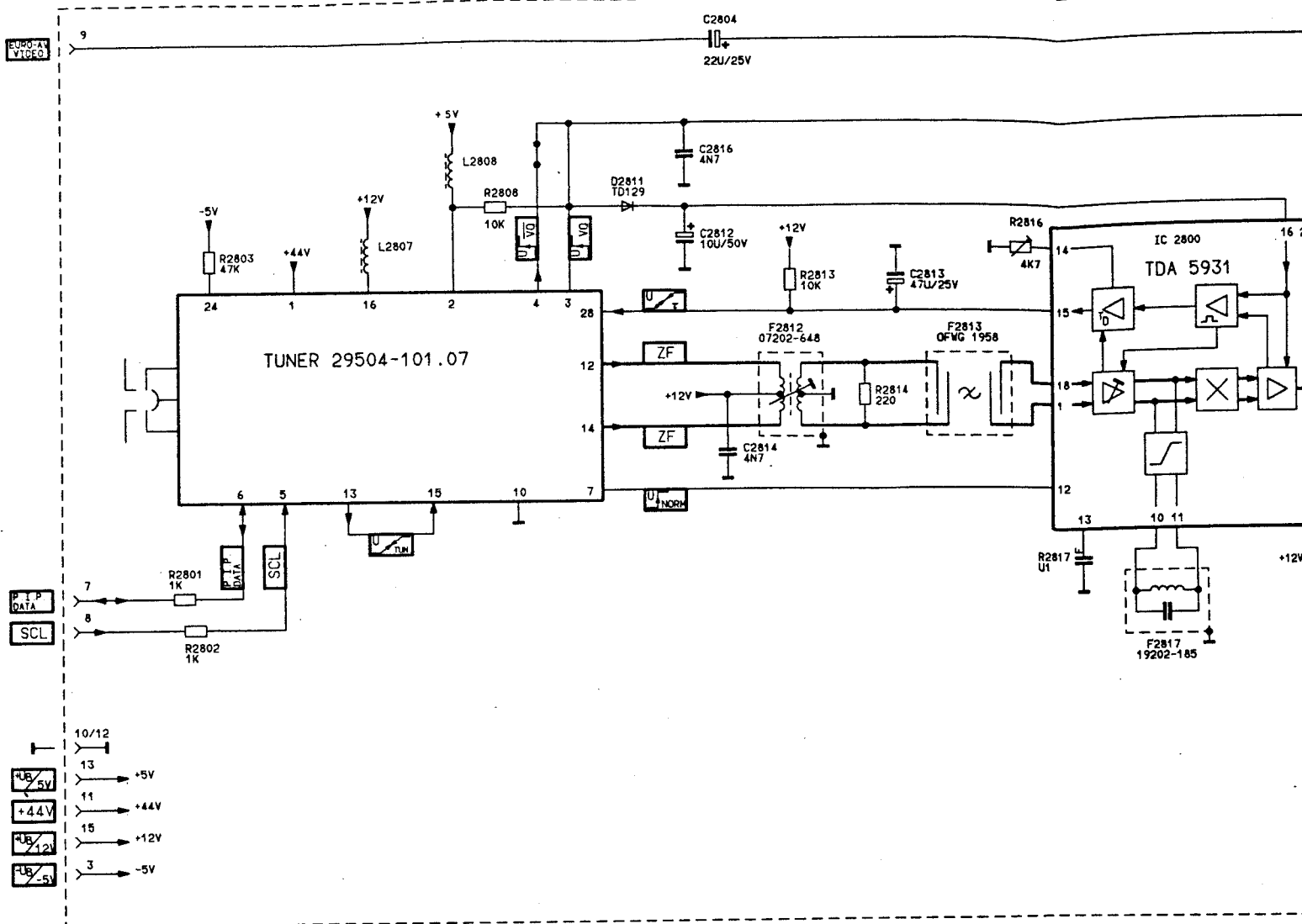
Suggerimenti per la ricerca guasti – Lato del primario collegato a potenziale di rete

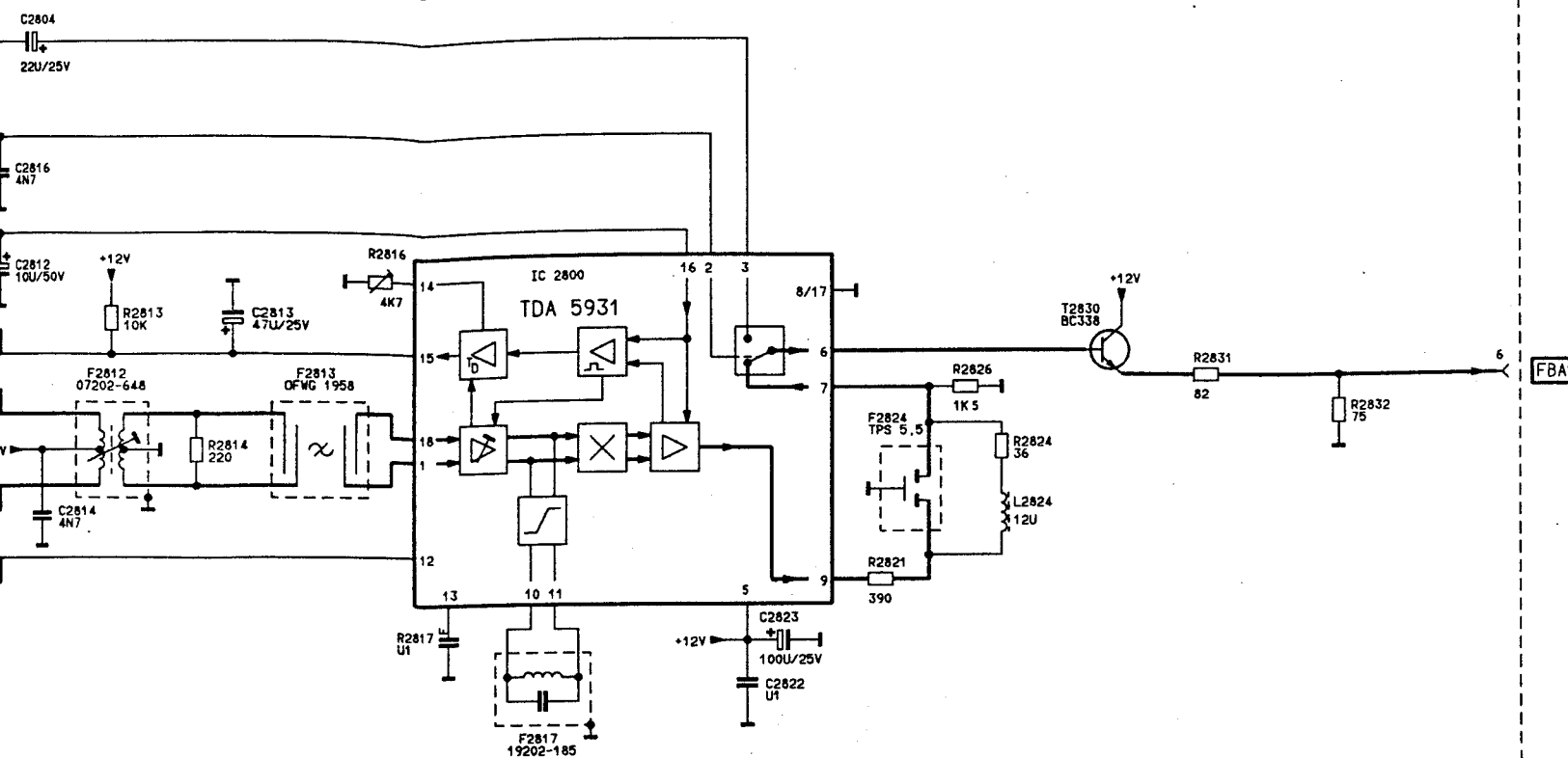
– Far funzionare l'apparecchio con un trasformatore separatore di rete





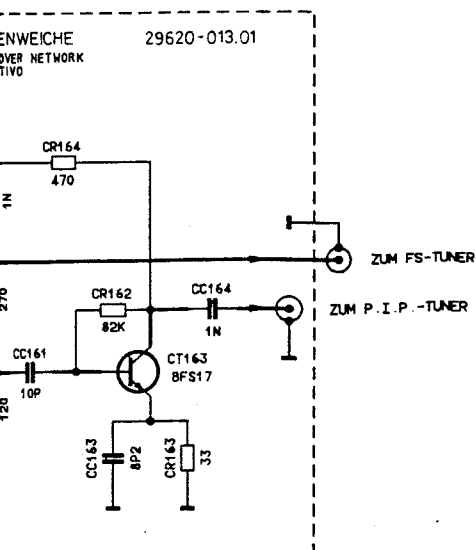




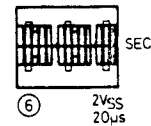
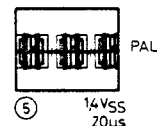
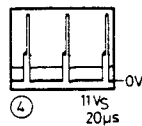
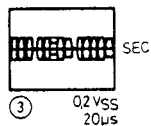
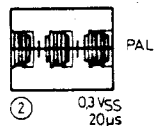
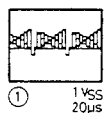
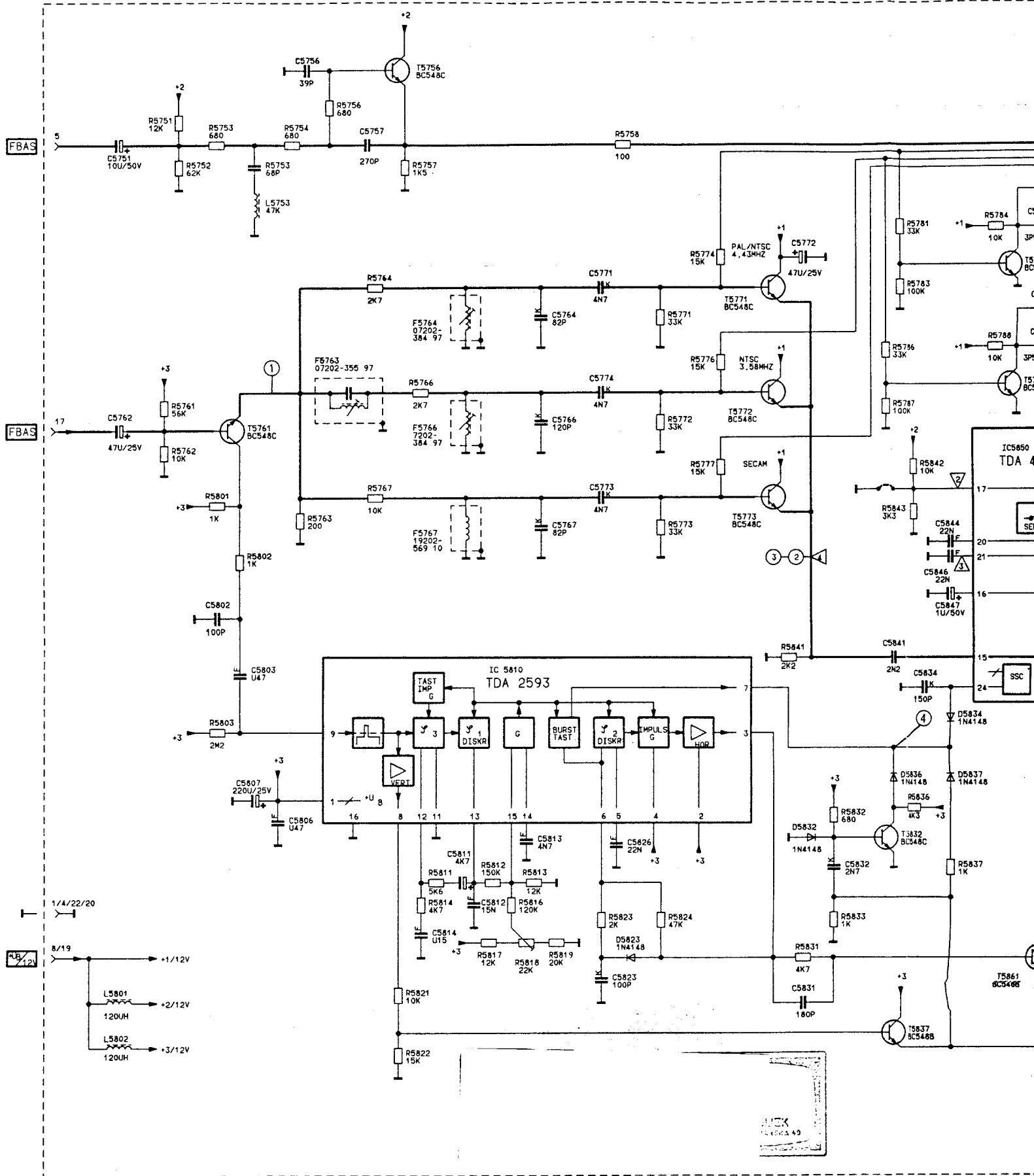


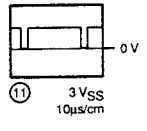
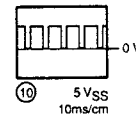
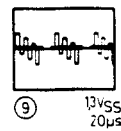
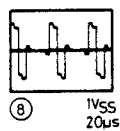
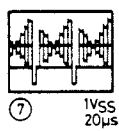
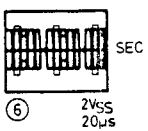
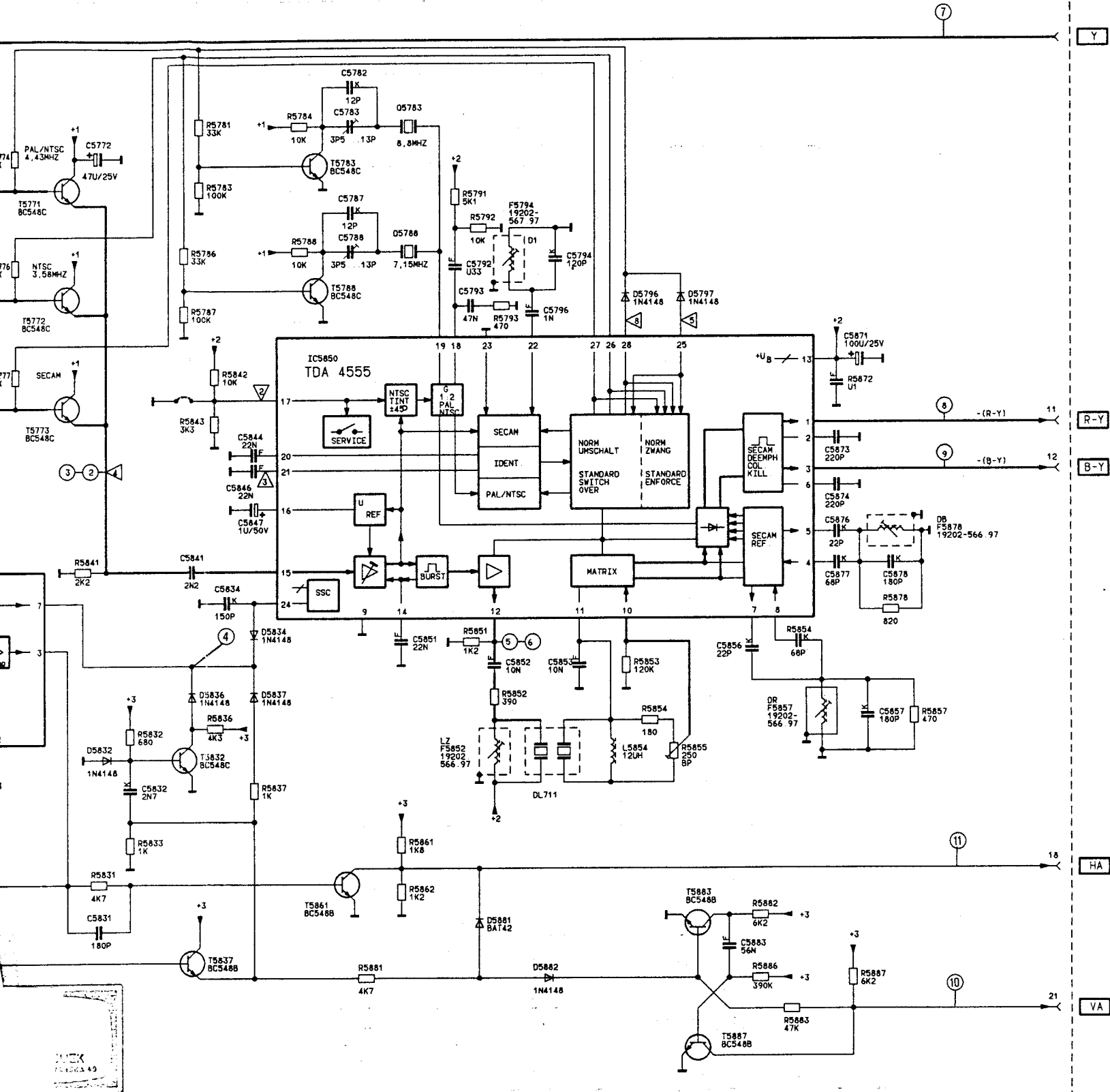
P.I.P.-ZF 29504-162.91

P.I.P.-IF-AMPLIFIER
P.I.P.-IF-AMPLIFICATEUR
P.I.P.-AMPLIFICATEUR FI
P.I.P.-AMPLIFICATEUR DE FI



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





1. Weißabgleich

- FuBK-Testbild einspeisen.
- $\Phi_{min.}$, $\Phi_{nom.}$, $\Phi_{max.}$ einstellen.
- Regler VG und VB (Steckkarte) 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.
- $\Phi_{min.}$, $\Phi_{nom.}$, $\Phi_{min.}$ einstellen.
- Tastkopf an den Kollektoren der Transistoren T 736, T 756, T 776 anhängen (Bildrohrplatte). Die Schwarzwerte der drei Kathodensignale liegen bei ca. 140-150V.

3. Einstellungen im Farbbkanal

- PAL-Testbild einspeisen.
- FK nom., H nom. K max. einstellen.
- IC-Pin 28 vom TDA 4555 mit +12V verbinden.
- IC-Pin 17 vom TDA 4555 mit Masse verbinden.
- Mit Trimmer C9516 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 4555 mit +12V verbinden.
- IC-Pin 17 vom TDA 4555 mit Masse verbinden.
- Mit Trimmer C9514 die durchlaufenden Farbbalken zum Stehen bringen.
- Kurzschlußbrücken entfernen.
- SECAM-Testbild einspeisen.
- Tastkopf an Pin 1 vom TDA 4555 anschließen, mit Spule DR Nulllinie des (R-Y)-Signals auf Zeilenniveau bringen.
- Tastkopf an Pin 3 vom TDA 4555 anschließen, mit Spule DB Nulllinie des (B-Y)-Signals auf Zeilentastniveau bringen.
- Spule F 2521 so einstellen, daß das (B-Y)-Signal keine Überschwinger hat.

1. White level adjustment

- Display colour bar test pattern.
- Set Φ to min., Φ to nom., Φ 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 Φ to min., Φ to nom., Φ 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.
- Adjust colour level and brightness to nominal value, contrast to maximum.
- Connect pin 28 of IC TDA 4555 to +12V supply.
- Connect pin 17 to IC TDA 4555 to chassis.
- Adjust trimmer C9516 for stationary pattern in colour bars.
- Remove wire links.
- Connect test probe to test point MP 12. LBring 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 4555 to +12V supply.
- Connect pin 17 of IC TDA 4555 to chassis.
- Adjust trimmer C9514 for stationary pattern in colour bars.
- Remove wire links.
- Display SECAM test pattern.
- Connect test probe to pin 1 of IC TDA 4555.
- 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 4555.

- With coil DB to align zero level of the (B-Y) signal with the line black level.
- Adjust coil F2521 so that the (B-Y) signal is free of overshooting.

1. Taratura del bianco

- Applicare un monoscopio FuBK.
- Regolare Φ al minimo, Φ sul valore nominale e Φ 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.

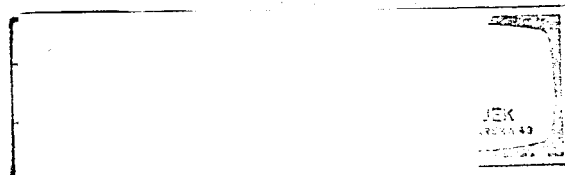
Controllo del punto di blocco (è necessario un oscilloscopio):

- Applicare un monoscopio FuBK.
- Regolare Φ al minimo, Φ sul valore nominale e Φ al minimo.
- 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 FK e H sul valore nominale, K al massimo.
- Sull'integrato TDA 4555 collegare pin 28 a +12V.
- Sull'integrato TDA 4555 collegare pin 17 a massa.
- Con C9516 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 4555 collegare pin 26 a +12V.
- Sull'integrato TDA 4555 collegare pin 17 a massa.
- Con C9514 fermare le barre colorate scorrevoli.
- Togliere i cortocircuiti.
- Applicare un monoscopio SECAM.
- Collegare la sonda al pin 1 dell'integrato TDA 4555, 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 4555, con la bobina DB portare la linea zero del segnale (B-Y) sul livello della frequenza di riga.
- La bobina F2581 applicarla così in modo che il segnale (B-Y) sia chiaro.



D

Farbab

Vorbere
Die Bild
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P.I.P. Ba
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Farbabgleich.

Vorbereitungen:

Die Bildgeometrie des Fernsehgerätes muß korrekt eingestellt sein. Mit einem Farbgenerator das Normfarbalkentestbild einspeisen. Am P.I.P. Baustein Steckkontakt 14 muß ein BAS-Signal von 1 Vss anstehen.

Bei den nachfolgenden Abgleichpunkten müssen der Inhalt des großen Bildes, sowie des P.I.P. Bildes identisch sein.

1. Gittertestbild mit Kreis einspeisen. Mit Einstellregler R 5688 den jeweils gleichen Abstand des P.I.P. Rahmens zum rechten und linken Bildrand einstellen.
2. Mit Einsteller R 5678 symmetrische Lage und Rundung des Kreises im P.I.P. Rahmen einstellen.
3. Normbalkentestbild schwarz-weiß einspeisen. Mit Einsteller R 5576 den weißen Balken des P.I.P. Bildes unbunt abgleichen.
4. Normfarbbalkentestbild einspeisen. Oszillograf an Pin 1 des D/A Wandlers PNA 7509 (IC 5580) einhängen (Oszillogramm 14).
 - a. Mit Einsteller R 5507 die Y-Signalamplitude ohne Synchronimpuls (1. Balken im Oszillogramm) auf 2,3 Vss abgleichen.
 - b. Mit Einsteller R 5527 die B-Y Signalamplitude (2. Balken im Oszillogramm) auf den Weißpegel des Y-Signals einstellen.
 - c. Mit Einsteller R 5547 die R-Y Signalamplitude (3. Balken im Oszillogramm) auf den Weißpegel des Y-Signals einstellen.

GB

Colour alignment.

Preparation:

The picture geometry of the television receiver must be correctly set. Feed in a standart colour bar test pattern from a colour generator. On plug contact 14 of the P.I.P. Module there must be a CVS signal 1 Vpp.

For the following alignment points, the content of the large picture and the P.I.P. picture must be identical.

1. Feed in a grid test pattern with a circle. With the adjustment resistor R 5688, adjust for the same distance of the P.I.P. frame from the right und left picture edges.
2. With the adjustment resistor R 5678, adjust for a symmetrical position and rounding of the circle within the P.I.P. frame.
3. Feed in a standard bar test black/white picture. With the adjustment resistor R 5576, adjust for uncoloured white bars within the the P.I.P. picture.
4. Feed in a standart colour bar test pattern. Connect an oscilloscope to pin 1 of the A/D converter PNA 7509 (IC 5580) -Oscillogram 14).
 - a. With the adjustment resistor R 5507, adjust the Y-Signal amplitude without synchronising pulses (first bar in oscillogram) to 2,3 Vpp.
 - b. With the adjustment resistor R 5527, adjust the B-Y-Signal amplitude (second bar in oscillogram) to the white level of the Y-Signal.
 - c. With the adjustment resistor R 5547, adjust the R-Y-Signal amplitude (third bar in oscillogram) to the white level of the Y-Signal.

I

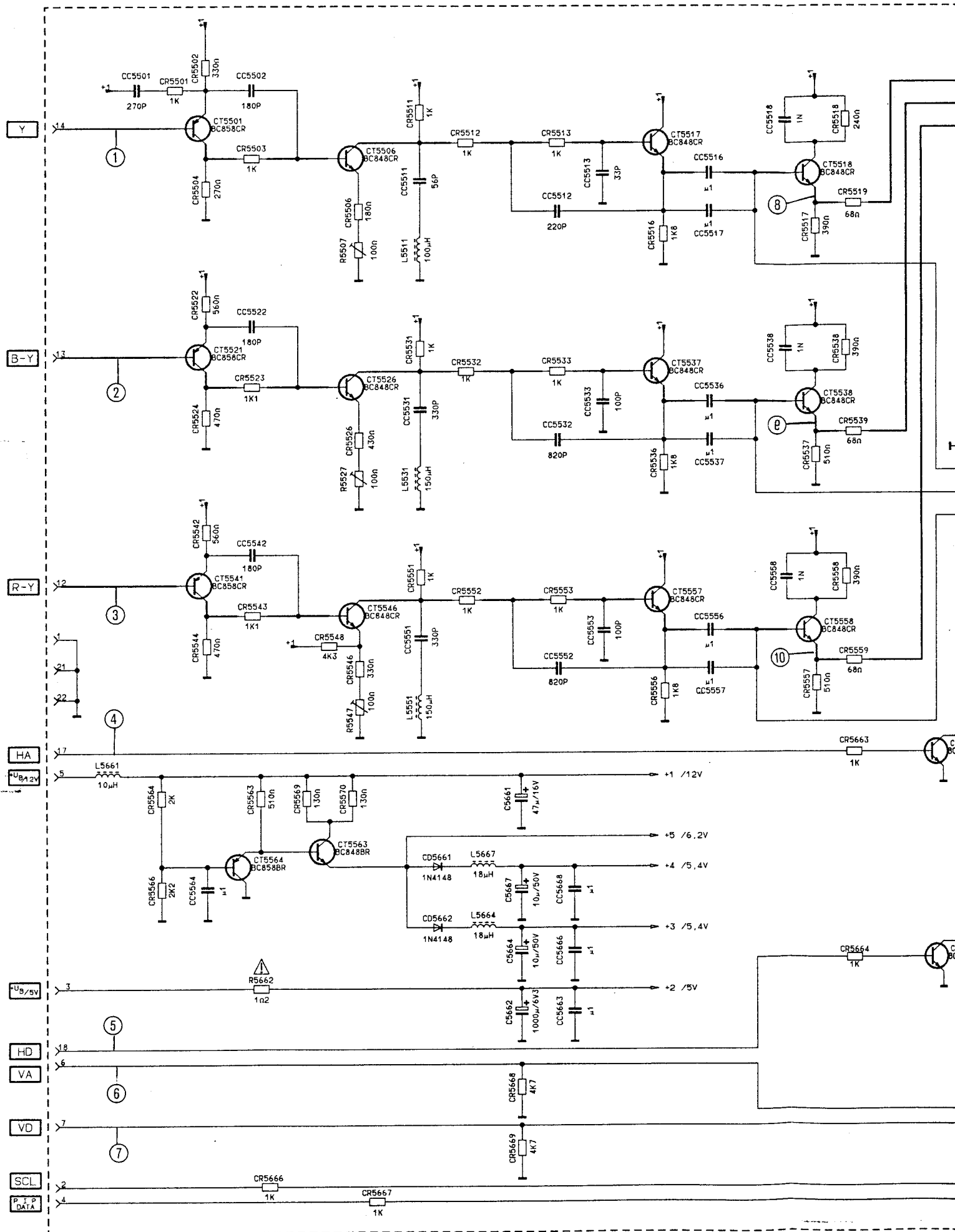
Taratura dei colore.

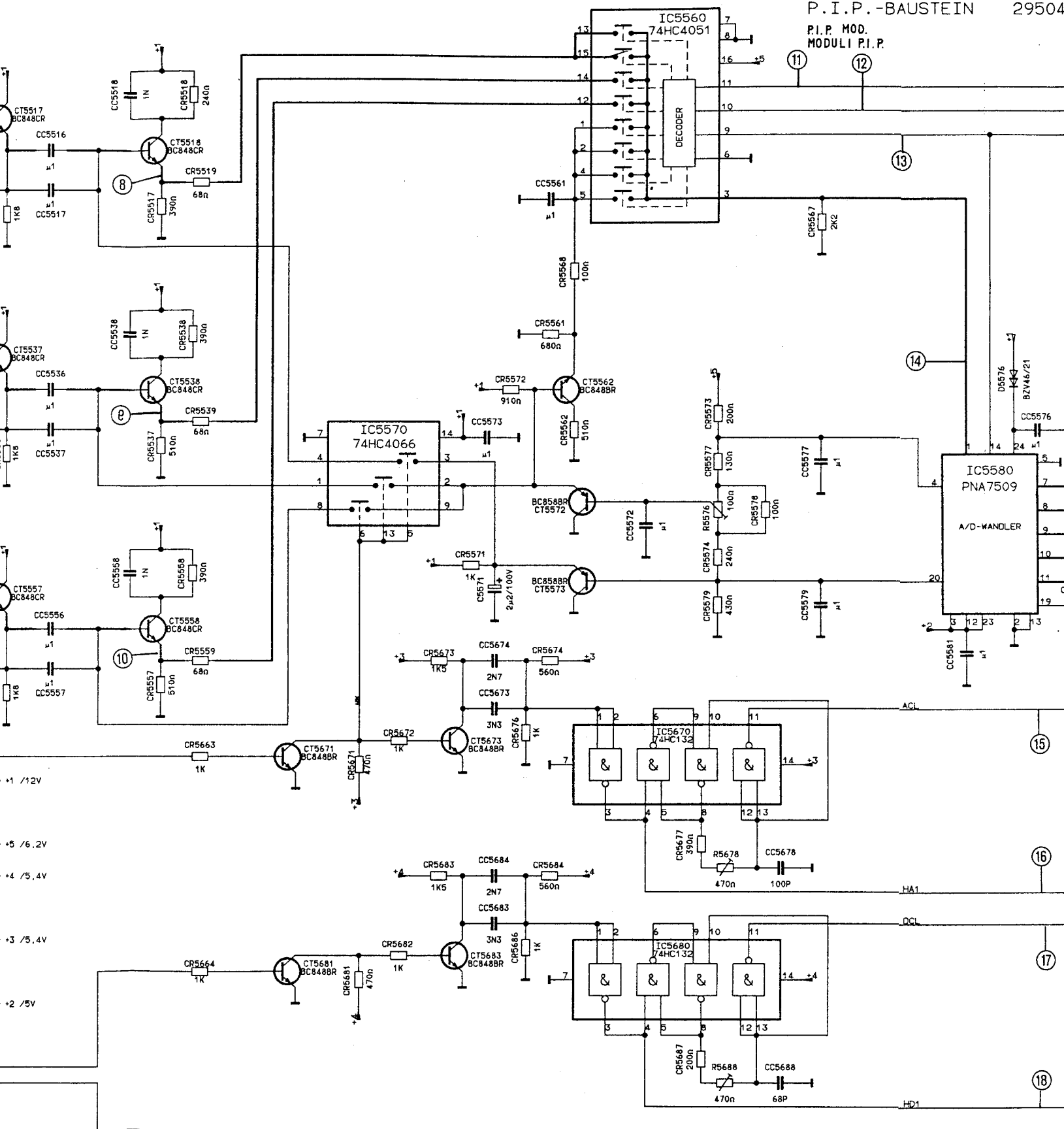
Preparativi:

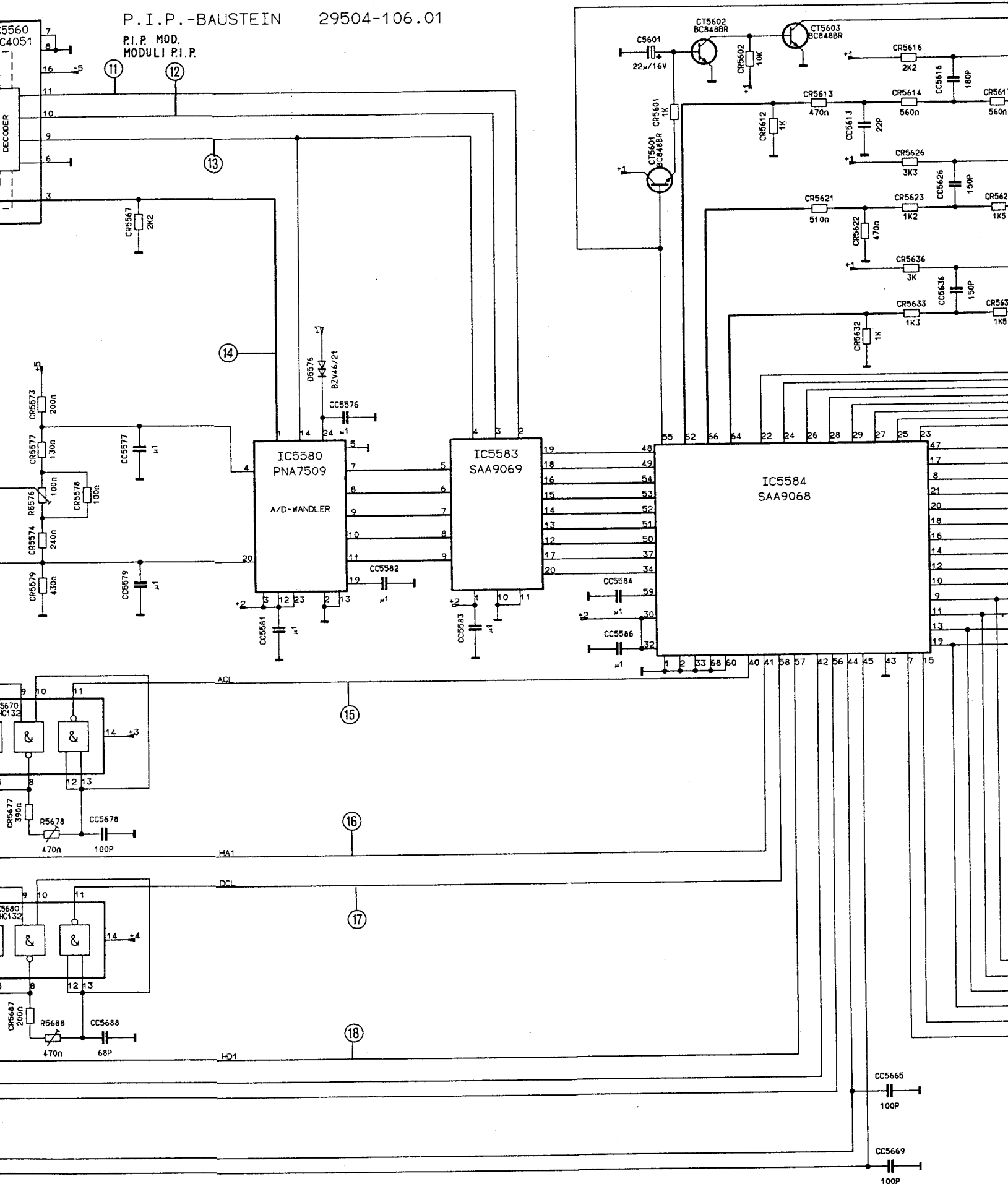
La geometria dell'immagine del televisore deve essere regolata correttamente. Con un generatore colore applicare il monoscopio normalizzato con barre colore. Al contatto 14 del modulo P.I.P. deve risultare un segnale BAS di 1 Vpp.

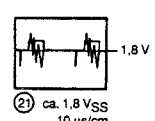
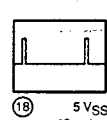
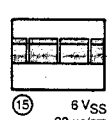
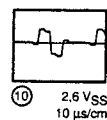
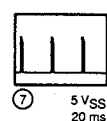
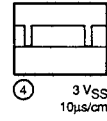
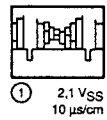
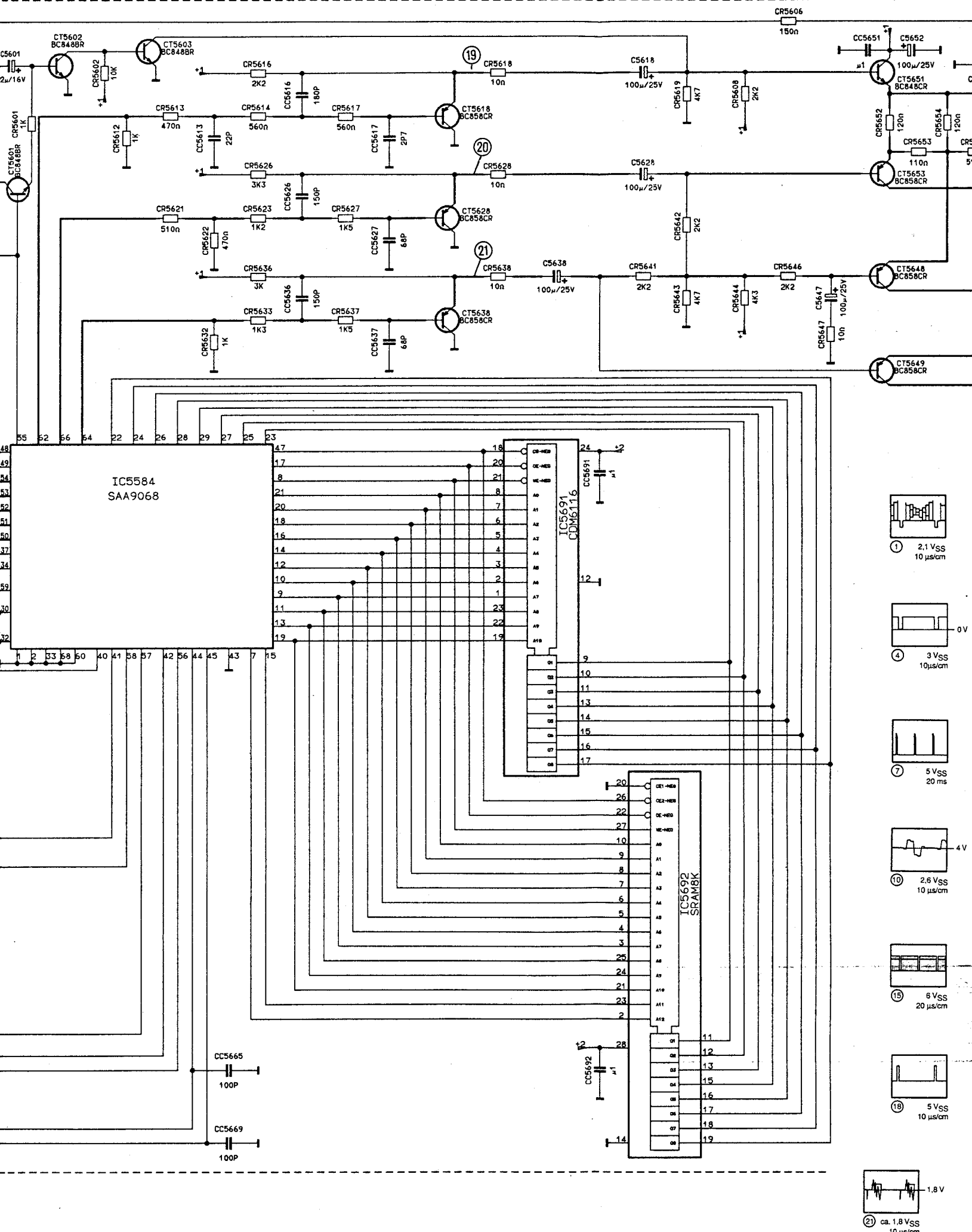
Durante i seguenti lavori di taratura, il contenuto dell'immagine grande deve essere identico a quello dell'immagine P.I.P.

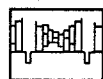
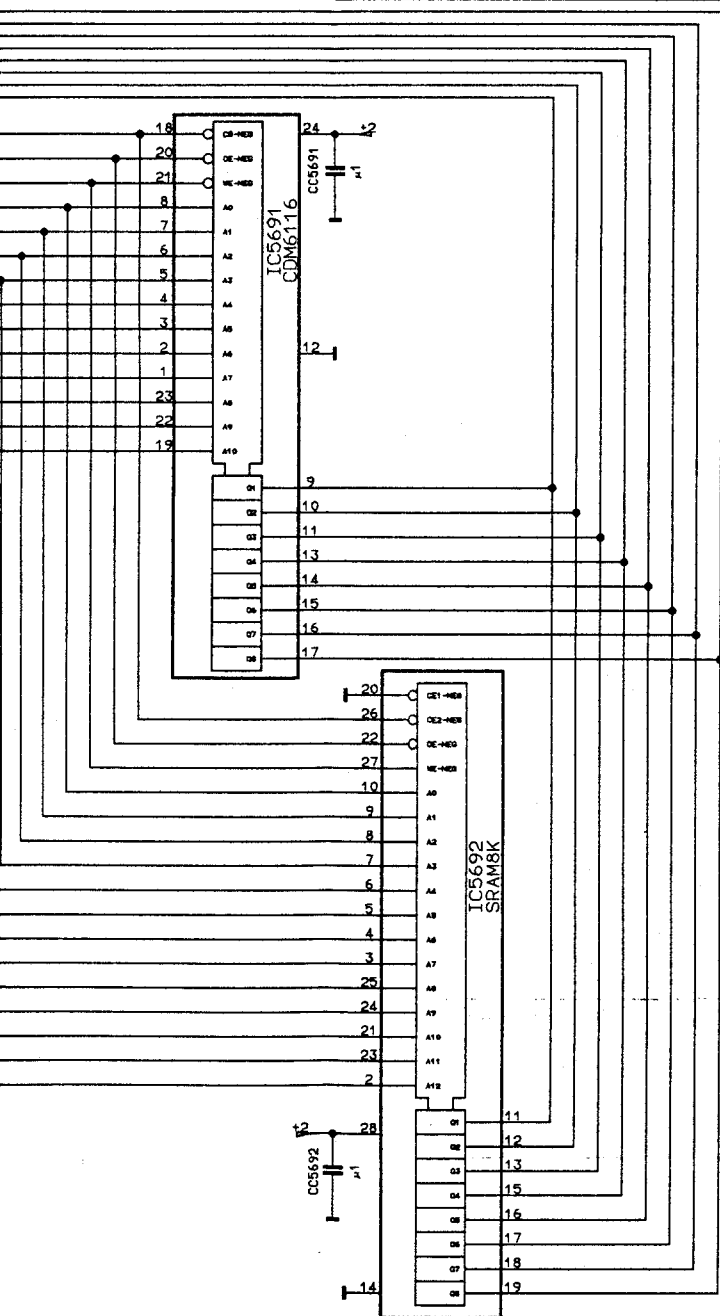
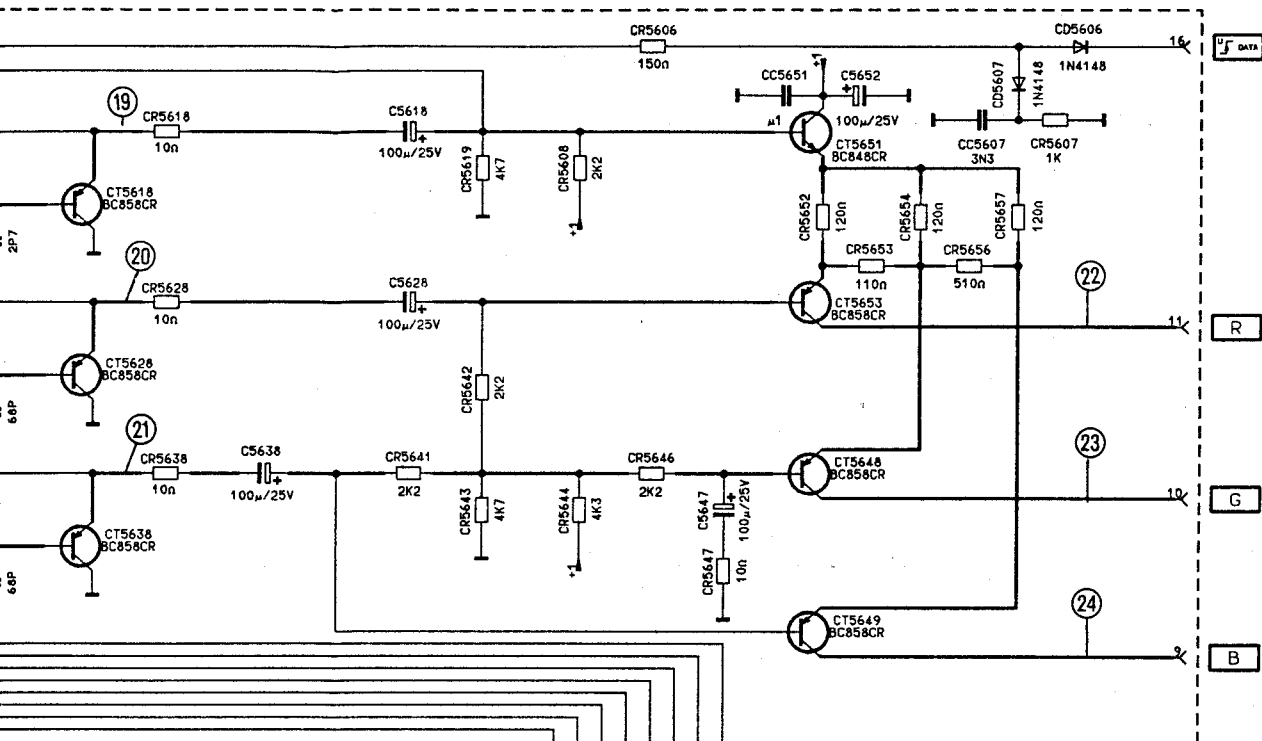
1. Utilizzare il monoscopio reticolo con cerchio. Con R 5688 regolare una distanza uguale tra il quadro P.I.P. ed il margine destro e sinistro dell'immagine.
2. Con R 5678 regolare simmetria e rotondità del cerchio all'interno del quadro P.I.P.
3. Utilizzare il monoscopio normalizzato a barre b/n. Con R 5576 tarare le barre bianche dell'immagine P.I.P. in modo che risultino incolore.
4. Utilizzare il monoscopio normalizzato con barre colore. Collegare l'oscillografo al pin 1 del convertitore A/D PNA 7509 (IC 5580) (oscillogramma 14).
 - a. Con R 5507 tarare a 2,3 Vpp l'ampiezza del segnale Y senza impulso di sincronismo (barra 1 nell'oscillogramma).
 - b. Con R 5527 regolare l'ampiezza del segnale B-Y (barra 2 nell'oscillogramma) sul livello del bianco del segnale Y.
 - c. Con R 5547 regolare l'ampiezza del segnale R-Y (barra 3 nell'oscillogramma) sul livello del bianco del segnale Y.



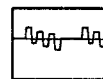




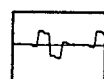




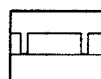
① 2.1 V_{SS}
10 μs/cm



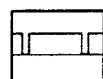
② 1.3 V_{SS}
10 μs/cm



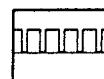
③ 1 V_{SS}
10 μs/cm



④ 3 V_{SS}
10 μs/cm



⑤ ca. 4 V_{SS}
10 μs/cm



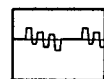
⑥ 5 V_{SS}
10 ms/cm



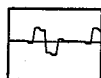
⑦ 5 V_{SS}
20 ms



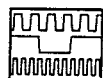
⑧ ca. 5.2 V_{SS}
10 μs/cm



⑨ 2.6 V_{SS}
10 μs/cm



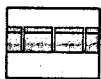
⑩ 2.6 V_{SS}
10 μs/cm



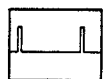
⑪ 2 V/cm
200 ns



⑫ ca. 2.3 V_{SS}
10 μs/cm



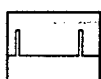
⑬ 6 V_{SS}
20 μs/cm



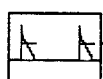
⑭ 5 V_{SS}
10 μs/cm



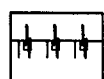
⑮ 6 V_{SS}
20 μs/cm



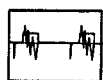
⑯ 5 V_{SS}
10 μs/cm



⑰ ca. 1.7 V_{SS}
10 μs/cm



⑱ ca. 2 V_{SS}
20 μs/cm



⑲ ca. 1.8 V_{SS}
10 μs/cm



⑳ ca. 1 V_{SS}
10 μs/cm



㉑ ca. 1 V_{SS}
10 μs/cm



㉒ ca. 1 V_{SS}
10 μs/cm

Ersatzteilliste (Auszug) • List of Spare- Parts (extract) • Lista ricambi (estratto)
CUC 3850

Poz. Fig. Bestell-Nr. No. No. Part No./Fert. Nr. d'ordinazioni	Benennung	Description	Denominazione
1	25486-910.51	Gehäuse	Cabinet cpl.
2	25410-101.01	Blende	Mask
2.1	29624-498.05	Bedienteil kpl.(PiP)	Operating part cpl.PiP
2.1	29624-498.03	Bedienteil kpl.(02.51)	Operating part (-02.51)
2.2	29624-632.03	Klappe	Flap
2.3	29624-453.01	Schalthebel	Switch lever
3	29608-721.01	4x Fuß	Foot
4	29602-601.01	GRUNDIG-Emblem (PiP)	Emblem GRUNDIG
5	29624-449.01	LED-Fenster	Window LED
6	29624-450.01	Infra-Fenster	Window Infra
7	29624-058.01	Abdeckung (PiP)	Cover (PiP)
7	29624-772.01	Abdeckung (-02.51)	Cover (-02.51)
8	29608-727.01	Glasscheibe	Glas disc
9	29608-722.01	2x Halter f. Glasscheibe	Holder f. glass disc
10	25410-114.01	Rückwand kpl.	Cabinet back cpl.
13	19750-794.01	16x Schnäpper-Buchse	Snap catch socket
14	19750-795.01	16x Schnäpper-Knopf	Snap knob
15	19144-001.84	2x Rundlautsprecher	Loudspeaker round
16	19145-012.97	2x Lautsprecher	Loudspeaker
17	29608-802.01	6x Gummipuffer	Rubber buffer
18	29608-697.01	2x Chassisbefestigung	Chassis fixture
19	29608-801.01	2x Gummipuffer	Rubber buffer
20	29700-280.01	NF-Aufnahme	Record AF
21	29703-325.02	Schiebeschalter	Slider switch
22	29608-831.01	Servicehalter	Service holder
<u>Bildrohrmontage</u>		<u>CRT assembly</u>	<u>Montaggio cinescopio</u>
(29656-002.85)		(29656-002.85)	(29656-002.85)
(kein E.-Teil)		(no spare part)	(nessun pezzo di ricambio)
24	09246-195.31	2x Entmagnetisierungssp.	Degaussing coil
25	8300-020-891	BILDROHRE	PICUTRE TUBE
A 89 JVU 11 X MIT		A 89 JVU 11 X MIT	A 89 JVU 11 X MIT
26	29608-733.01	2x Bildrohrhalter kpl.	Picture tube holder
30	29501-066.84	Bedieneinheit (PiP)	Keyboard unit (PiP)
30	29501-066.57	Bedieneinheit (02.51)	Keyboard unit (02.51)
30.1	29624-510.01	Frontplatte kpl.	Front panel cpl.
30.2	29503-925.11	Keyboardplatte	Keyboard pcb
30.5	29501-317.06	Tastensatz kpl.	Push button set cpl.
30.6	29501-319.06	12x Tastenknopf	Push button knob
30.7	29303-506.09	Snapfolie	Elastic foil
30.8	29304-013.95	LED-Platte	LED-plate
30.9	29304-015.56	IR-Vorverstärker	Preamplifier IR
30.10	29303-390.16	Stereo-Koaxialbuchse	Stereo-Koaxial-socket
30.11	09621-113.02	2x Sicherungshalter	Fuse holder
30.12	29304-122.01	Sicherungsabdeckung	Fuse cover
30.13	29703-291.22	Netzschalter (!)	Mains switch (!)
30.14	29303-452.01	Netzsteckerplatte (!)	Mains plug plate (!)
31	8140-601-403	Ablenkjoch	Deflection yoke
32	8140-601-402	Mehrpoleinheit	Multi pin device

Pos. No.	Fig. No.	Bestell-Nr./Part No. Réf./Nr. d'ordinazioni	Benennung	Description	Denominazione
43		29304-060.48	Schalterplatte	Switching board	Piastra commutatori
44		29305-008.22	Cinchbuchsenplatte mit S-VHS (PiP)	Cinch socket plate w.S-VHS (PiP)	Presa cinch piastra S-VHS (PiP)
44		29305-008.05	Cinchbuchsenpl.(02.51)	Cinch-socket pl.(02.51)	Presa cinch piastra (02.51)
44.1		29303-168.04	Cinchbuchse 3-fach	Cinch socket 3-way	Presa cinch 3-volte
44.2		29303-522.02	S-VHS-Buchse	S-VHS-socket	S-VHS-presca
51		29703-317.05	Tastenkopf (Netz)	Push button knob	Tasto
55		8290-991-006	Netzkabel ()	Mains lead ()	Cavo di rete ()
56		29608-452.01	Zugentlastung	Tension relief	Fermacavo
57		29500-802.97	Entstördrossel	Suppres; or choke	Impedenza Antidisturbo
58		29202-181.01	Gummikeil	Rubber wedge	Cuneo in gomma
59		29202-184.01	Korrekturmagnet	Correction magnet	Magnete di correzione
60		29202-182.01	Blech B, gekrümmt	Met.plate B, bent	Lamier B, curvato
61		29202-183.01	Blech A, rechteckig	Met.plate A, Rectangular	Lamier A, rettangolare
62		29202-185.01	Gummimagnet	Rubber magnet	Magnete in gomma

PiP-Einheit
(29305-020.01)

PiP-Unit
(29305-020.01)

PiP-Unità
(29305-020.01)

63		29504-101.07	Chip-Kabeltuner (PiP)	Chip-cable tuner (PiP)	Chip-tele-distr.(PiP)
64	*	(29504-162.91)	PiP-ZF-Multi	PiP-IF-Multi	PiP-FI-Multi
65	*	(29504-165.91)	PiP-Farb,RGB-Multi	PiP-Col,RGB-Multi	PiP-Coul,RGB-Multi
66	*	(29504-106.01)	PiP-Baustein	PiP-Module	PiP-Module
67		29305-015.22	PiP-Anschlussplatte	PiP-connection panel	PiP-plaque de conn.
68		29700-378.01	PiP-Gehäuse	PiP-housing	PiP-boitier



F 808 8602-331-085 4,0 MG
oder
F 808 8602-331-087 4,19 MHz



29500-809.97
L 801 8140-526-039
L1213 07202-370.97



IC 850 8305-686-620 ZC 86620 P (MOS)
IC 850 8305-686-603 ZC 86602 P (MOS)
IC 860 8305-202-242 UAA 2022
IC 870 8305-202-242 UAA 2022
IC1211 8305-334-052 TDA 4052



T 811 8303-205-548 BC 548 B
T 816 8303-207-548 BC 548 C
T 823 8303-205-548 BC 548 B
T 834 8303-204-548 BC 548 B
T1204 8303-205-549 BC 549 B



D 806 8309-720-052 5.1 C 0,5 W
D 811 8309-214-010 TD 129
D 831 8309-720-027 2,7 C/0,5 W
D 832 8309-720-027 2,7 C/0,5 W
D 834 8309-720-027 2,7 C/0,5 W
D 850 8309-214-010 TD 129
D 860 8309-720-048 Z 4,7/0,5 W
D 1201 8309-211-705 SFH 205 G



DP 860 8309-931-130 HD 1131 G
DP 861 8309-931-130 HD 1131 G
DP 862 8309-931-130 HD 1131 G
D 861 8309-972-380 LSK 380
D 862 8309-972-380 LSK 380
D 863 8309-972-380 LSK 380
D 864 8309-972-380 LSK 380
D 866 8309-972-380 LSK 380
D 867 8309-972-380 LSK 380
D 871 8309-972-380 LSK 380
D 872 8309-972-380 LSK 380
D 873 8309-971-380 LGK 380
D 874 8309-971-380 LGK 380
D 876 8309-973-380 LYK 380 NP
D 877 8309-973-380 LYK 380 NP

Pos. Fig. Bestell-Nr. No. No. Part No. Réf. Nr. d'ordinazioni	Benennung Description Désignation Denominazione
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C 601	8599-990-025	0,15 uF/250 V	(!)
C 602	8599-990-025	0,15 uF/250 V	(!)
C 603	8563-732-425	0,1 uF/250 V	(!)



R 609	8311-200-010	PTC 662-98009
R 610	8311-005-017	NTC 4,7 Ohm



Si 601	8315-617-006	2,5 A/T	(!)
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Bauteilhinweis

(!) Hinweis:

Bauelemente nach VDE- bzw. IEC-Richtlinien. Im Ersatzfall nur Teile mit gleicher Spezifikation verwenden!

Notes on components (!) Cautions

Components to VDE or IEC guidelines. Only use components with the same specification for replacement!

(!) nota:

Componenti secondo le norme VDE risp. te iec. in caso di sostituzione impiegare solo componenti con le stesse caratteristiche!

- * (siehe gesonerte E-Liste)
- (see separate parts lists)
- (vedi liste ricambi a parte)

Pos. Fig. Bestell-Nr. No. No. Part No. Réf. Nr. d'ordinazioni	Benennung Description Désignation Denominazione
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FFS-Einbauchassis CUC 3850, 29701-050.77/95
mit Bildrohrplatte 29304-070.32
CTV-Chassis with the picture tube plate
Telaio chassis and piastra cinescopio

NF-Baustein
AV-Stereo-modul
BF-Stereo-modul
(29504-104.16)

Konsole 95 (9.25410-21.51)

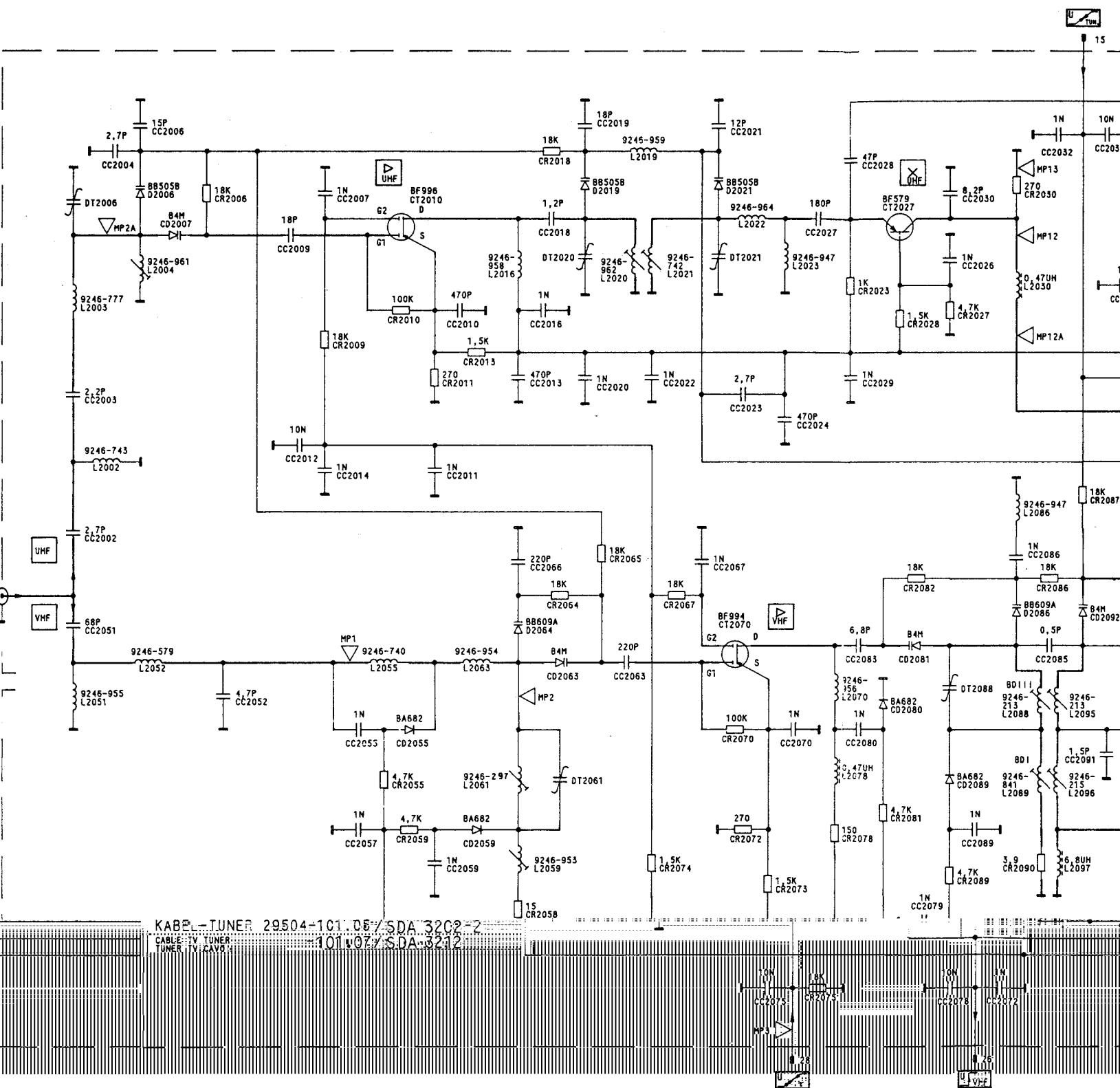
Tele-Pilot 660
(29622-050.01/61)

Bedienungsanleitung
Instruction book
Istruzioni d'uso
(25486-941.01)

Servie manual
Manuale di servizio
(72010-002.60
(72010-004.30) (S/PiP)

MOS = Vorschriften beachten !
Observe MOS precautions
Attenzione alle norme MOS





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



