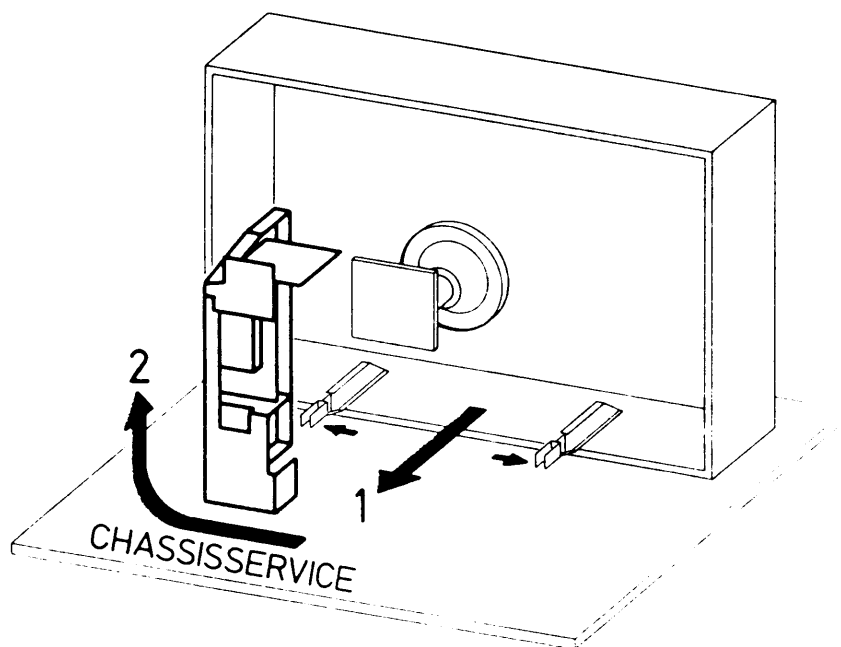


- Ⓓ Servicestellung
- ⒼⒷ Service position
- Ⓘ Posizione di servizio



GRUNDIG



Ⓓ Btx ★ 32700 #

SERVICE MANUAL CUC 3800

M70-490/9	(9.25481-01)
M70-490/9 text	(9.25481-02)
M70-490/9 text	(9.25481-06)
M70-495/9	(9.25482-01)
M70-495/9 text	(9.25482-02)
M70-495 CTI/text	(9.25482-06)

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GB

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(D) Symbole und ihre Bedeutung
(GB) Symbols and their meaning
(I) Simboli e loro significati

P	PROGR.	U_{VQ}	SCHALTSP. VIDEO QUELLE SWITCHING VOLT. VIDEO SOURCE TENS. DI COMMUT. SORG. VIDEO TENS. DE COMMUT. SOURCE VIDEO TENS. COMMUT. VIDEO
P1	PROGR. TASTE PROGR. BUTTON TASTO PROGR. TOUCHE PROGR. PULS. PROGR.	U_{DATA}	SCHALTSP. DATENBETR. SWITCHING VOLT. DATA MODE TENS. DI COMMUT. DATI TENS. DE COMMUT. FONCT. DONNEES TENS. COMMUT. DATOS
M	SPEICHERTASTE MEMORY BUTTON TASTO DI MEMORIA TOUCHE MEMOIRE PULS. MEMORIA	U_{50/60HZ}	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
NORM	NORMTASTE TV STANDARD SELECT. BUTTON COMMUT. DI NORMA TOUCHE DE NORME PULS. DE NORMA	U_T	REGELSP. VERZOEGERT DELAYED CONTR. VOLTAGE TENS. DI CONTR. RITARD TENS. DE REGUL. RETARDEE TENS. REGUL. RETARDADA
▷▷+	FEINABST. + FINE TUNING + SINT. FINE + REGLAGE FIN + SINT. FIMA +	U_{TUN}	ABSTIMMSP. TUNER TUNING VOLT. TUNER TENS. DI SINTONIA TUNER TENS. D'ACCORD TUNER TENS. SINTONIA AL TUNER
◁◁-	FEINABST. - FINE TUNING - SINT. FINE - REGLAGE FIN - SINT. FIMA -	U_{AFC}	REGELSP. AFC AFC CONTROL VOLT. TENS. DI CONTR. AFC TENS. DE REGUL. AFC TENS. REGUL. CAF
I	SUCHLAUF BD I SELF-SEEK BAND I SINT. AUTOM. BANDA I RECHERCHE AUTOM. BANDE I SINT. AUTOM. BANDA-I	U_{MUTE}	STUMMSCHALTUNG MUTING SILENCIAMENTO SILENCIEUX MUTING
I	SUCHLAUF BANDWAHL III SELF-SEEK BAND III SINT. AUTOM. BANDA III RECHERCHE AUTOM. BANDE III SINT. AUTOM. BANDA-III	U_{IMP}	TASTIMPULS GATING PULSE IMPULSO A CADENZA IMPULS. DE DECLENCHEMENT IMP. PUERTA
UHF	SUCHLAUF UHF SELF-SEEK UHF SINT. AUTOM. UHF RECHERCHE AUTOM. UHF SINT. AUTOM. UHF	U_{VERT}	VERT. TASTIMPULS VERT. GATING PULSE IMP. A CADENZA VERT. IMP. TRAME IMP. CUADRO
L	LAUTSTAERKE VOLUME VOLUME SONORE VOLUMEN	U_{PARAB}	VERT. PARABEL VERT. PARABOLA PARABOLA VERT. SIGNAL PARABOLIQUE SEÑAL PARABOL. VERT.
FT	FEINABST. FINE TUNING SINT. FINE REGLAGE FIN SINT. FIMA	U_{VERT}	VERT. SAEGEZAHN VERT. SAW TOOTH DENTE DI SEGA VERT. SIGNAL DENT DE SCIE DIENTE DE SIERRA VERT.
C	KANALWAHL CHANNEL SEL. SELEZ. CANALE SELECT. DE CANAUX SELECCION CANAL	U_{HOR}	HOR. ANSTEUERUNG HORIZ. DRIVE PILOTAGGIO ORIZZ. SYNCH. LIGNES EXCITACION HORIZ.
B	BALANCE BALANCIAM. BALANCE BALANCE	U_{REF}	REF. IMPULS REFERENCE PULSE IMP. DI RIFER. IMP. DE REFER. IMP. REFERENCIA HORIZ.
→	SUCHLAUF SELF-SEEK SINT. AUTOM. RECHERCHE AUTOM. SINTONIA AUTOMATICA	U_{PROT}	SCHUTZSCHALTUNG CIRCUIT PROTECTION CIRCUITO DI PROTEZIONE CIRCUIT DE SECURITE CIRCUITO DE PROTECCION
U_{TV}	SCHALTSP. BANDWAHL BAND SEL. SWITCHING VOLTAGE TENS. DI COMMUT. SELEZ. BANDA TENS. DE COMMUT. SELECT. BANDE TENS. COMMUT. SELEC. BANDA	U_{FARB}	FARBTON TINT TINTA TEINTE TINTE
U_{VHF}	SCHALTSP. VHF SWITCHING VOLT. VHF TENS. DI COMMUT. VHF TENS. DE COMMUT. VHF TENS. COMMUT. VHF	U_{REF}	REF. LAUTSTAERKE VOLUME REF. VOLT. TENS. DI RIF. VOLUME TENS. DE REF. VOL. SONORE TENS. REF. VOLUMEN
U_{UHF}	SCHALTSP. UHF SWITCHING VOLT. UHF TENS. DI COMMUT. UHF TENS. DE COMMUT. UHF TENS. COMMUT. UHF	U_B	HELLIGKEIT BRIGHTNESS LUMINOSITA' LUMINOSITE BRILLO
U_{AFC}	SCHALTSP. AFC SWITCHING VOLT. AFC TENS. DI COMMUT. AFC TENS. DE COMMUT. AFC TENS. COMMUT. CAF	U_K	KONTRAST CONTRAST CONTRASTO CONTRASTE CONTRASTE
U_{AV}	SCHALTSP. AV AV SWITCHING VOLT. TENS. DI COMMUT. AV TENS. DE COMMUT. AV TENS. COMMUT. AV	U_{FBAS}	FARBKONTRAST CONTRAST COLOUR CONTRASTO COLORE CONTRASTE COULEUR SATUR. COLOR
U_{NORM}	SCHALTSP. NORM SWITCHING VOLT. STANDARD TENS. DI COMMUT. NORMA TENS. DE COMMUT. STANDARD TENS. COMMUT. NORMA	U_{FBAS}	FBAS-SIGNAL CCVS SIGNAL SEGNAL SVCC SIGNAL VIDEO COMPOSITE SEÑAL VIDEO COMUESTA
U_{COINC}	SCHALTSP. KOINZ. SWITCHING VOLT. COINC. TENS. DI COMMUT. COINC. TENS. DE COMMUT. COINC. TENS. COMMUT. COINCIDENCIA	SSC	SUPERSANDCASTLE
U_{EURO-AV}	SCHALTSP. EURO-AV SWITCHING VOLT. EURO-AV TENS. DI COMMUT. EURO-AV TENS. DE COMMUT. NORME FR TENS. COMMUT. EURO-AV	SB	STRAHLSTR. BEGR. BEAM CURRENT LIM. CORRENTE CATODICA MEDIA LIM. COUR. DE FAISCEAU CORRIENTE MEDIA DE HAZ

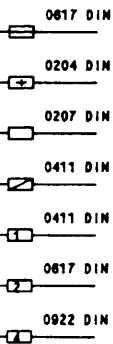
SSB	SPITZ. STRAHLSTR. BEGR. PEAK BEAM CURRENT LIMITING CORR. CATODICA DI PICCO LIM. DE FAISCEAU CRETE CORRIENTE PICO DE HAZ
R	ROT-SIGNAL RED SIGNAL SEGNAL ROSSO SIGNAL ROUGE SEÑAL ROJA
G	GRUEN-SIGNAL GREEN SIGNAL SEGNAL VERDE SIGNAL VERDE SEÑAL VERDE
B	BLAU-SIGNAL BLUE SIGNAL SEGNAL BLU SIGNAL BLEU SEÑAL AZUL
Y	Y-SIGNAL Y SIGNAL SEGNAL Y SIGNAL Y SEÑAL Y
F	F-SIGNAL CHROMA SIGNAL SEGNAL F SIGNAL CHROMA SEÑAL CROMA
SW	SCHWARZWERT BLACK LEVEL LIVELLO DEL NERO NIVEAU DU NOIR NIVEL DE NEGRO
AUDIO	AUDIO-SIGNAL SEGNAL AUDIO SIGNAL AUDIO SEÑAL AUDIO
AUDIO-L	AUDIO SIGNAL LINKS AUDIO SIGNAL LEFT SEGNAL AUDIO SINISTRA SIGNAL AUDIO GAUCHE SEÑAL AUDIO IZQUIERDA
AUDIO-R	AUDIO SIGNAL RECHTS AUDIO SIGNAL RIGHT SEGNAL AUDIO DESTRA SIGNAL AUDIO DROIT SEÑAL AUDIO DERECHA
EURO-AV VIDEO	VIDEO SIGNAL EURO-AV SEGNAL VIDEO EURO-AV SIGNAL VIDEO NORME FR SEÑAL VIDEO EURO-AV
EURO-AV AUDIO-R	AUDIO SIGNAL EURO-AV RECHTS AUDIO SIGNAL EURO-AV RIGHT SEGNAL AUDIO EURO-AV DESTRA SIGNAL AUDIO NORME FR DROIT SEÑAL AUDIO DERECHA EURO-AV
EURO-AV AUDIO-L	AUDIO SIGNAL EURO-AV LINKS AUDIO SIGNAL EURO-AV LEFT SEGNAL VIDEO EURO-AV SINISTRA SIGNAL AUDIO NORME FR GAUCHE SEÑAL AUDIO IZQUIERDA EURO-AV
IR	IR-SIGNAL SEGNAL IR SIGNAL IR SEÑAL IR
U_{G1}	SPG. GITTER 1 VOLTAGE GRID 1 TENS. GRIGLIA 1 TENS. GRILLE G1 TENS. REJILLAS G-1
U_{FOC}	FOKUSSP. FOCUSING VOLTAGE TENS. DI FOCALIZZ. TENS. DE FOCALIS. TENS. FOCALIZACION
U_H	HOCHSPANNUNG ENT VOLTAGE ALTA TENS. HAUTE TENS. MAT
U_{SG}	SCHIRMGITTEP. SCREEN-GRID VOLT. TENS. GRIGLIA SCHERMO TENS. GRILLE-ECRAN TENS. ACELERADORES
TE	TEXT ENABLE
SCL	I ² C-CLOCK I ² C-BUS
VCL	VCR-CLOCK
ICL	I-BUS-CLOCK

SDA	DATEN DATA DATI DONNEES DATA
ZF	ZF-SIGNAL IF SIGNAL SEGNAL FI SIGNAL FI SEÑAL DE FI
PP	PAL PRIORITAET PAL PRIORITY PRIORITA' PAL PRIORITE PAL PRIORIDAD PAL
F-DIR.	F-SIGNAL DIREKT F-SIGNAL DIRECT SEGNAL F DIRETTO SIGNAL CHROMA DIRECT SEÑAL CROMA DIRECTA
F_V	FV-SIGNAL FV SIGNAL SEGNAL FV SIGNAL FV SEÑAL FV
F_U	FU-SIGNAL FU SIGNAL SEGNAL FU SIGNAL FU SEÑAL FU
F-VERZ	F-SIGNAL VERZOEGERT F-SIGNAL DELAYED SEGNAL F RITARD SIGNAL CHROMA RETARDE SEÑAL CROMA RETARDADA
DL	VERZOEGERUNGSEITUNG 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 SEGNAL SINCR. /VIDEO COL. COMP. SIGNAL SYNC./VIDEO COMPOSITE SEÑAL SINCR./VIDEO COMUESTA
SYNC.	SYNC.-SIGNAL SYNC. SIGNAL SEGNAL SINCR. SIGNAL SYNC. SEÑAL DE SINCRONISMO
U_{50/60HZ}	SCHALTSP. 50/60HZ SWITCHING VOLT. 50/60HZ TENS. DI COMMUT. 50/60HZ TENS. DE COMMUT. 50/60HZ TENS. COMMUT. 50/60HZ
U_{BTX}	SCHALTSP. BTX SWITCHING VOLT. BTX (VIEWDATA) TENS. COMMUT. VIDEOTEL TENS. COMMUT. VIDEOTEXT TENS. COMMUT. VIDEOTEXTO
SYNC VT	SYNC. VT SYNC. VT (TELETEXT) SINCR. TELEVIDEO SYNCR. TELETXT SINCR. TELETXTO
SYNC. BTX	SYNC. BTX SYNC. BTX (VIEWDATA) SINCR. VIDEOTEL SYNCR. VIDEOTEXT 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. DEVIACION TENS. COMMUT. DEVIATION TENS. COMMUT. DEVIACION
U_{DEEM}	SCHALTSP. DEEM SWITCHING VOLT. DEEMPHASIS TENS. COMMUT. DEENFASI TENS. COMMUT. DESACCENT. TENS. COMMUT. DEENFASIS
U_{CM AV}	SCHALTSP. KAMERA WIEDERG. SWITCHING VOLT. CAMERA PLAYBACK TENS. COMMUT. RIPRODUZ. TELECAM. TENS. COMMUT. REPROD. CAMARA 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 HORIZONTAL AMPLITUD HORIZONTAL
	OST / WEST AMPLITUDE EAST / WEST AMPLITUDE AMPIEZZA EST / OVEST AMPLITUDE EST / OUEST AMPLITUD E/O
	HOR. LINEARITAET HORIZ. LINEARITY LINEAR. ORIZZ. LINEAR. HORIZONT. LINEAL. HORIZONTAL
	BILDAGE HOR. HORIZ. PICTURE POSITION POSIZIONE ORIZZ. D'IMMAGINE CADRAGE HORIZONT. CENTRADO HORIZONTAL
	FOKUSREGLER FOCUS CONTROL REGULAT. DI FOCALIZZ. REGLAGE DE FOCALISATION CONTROL DE FOCO
	BILDAGE 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 TRAPEZIO TRAPEZIO
	HOR. FREQUENZ HOR. FREQUENCY FREQ. ORIZZ. FREQ. HORIZ. FRECUENCIA HORIZONTAL
	VERT. FREQUENZ VERT. FREQUENCY FREQ. VERT. FRECUENCIA VERTICAL
	VERT. LINEARITAET VERT. LINEARITY LINEAR. VERT. LINEALIDAD VERTICAL
	OST/WEST SYMMETRIE EAST/WEST SYMMETRY SIMMETRIA EST/OVEST SYMMETRIE EST/OUEST SIMETRIA E/O

(D) Wichtige Schaltzeichen
(GB) Important circuit symbols
(I) Segni circuitali importanti

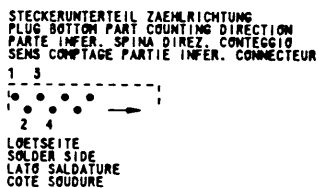
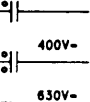
	WIDERSTAND NICHT BRENNBAR RESISTOR NOT FLAMMABLE RESISTENZA NON INFIAMMABILE RESISTANCE ININFLAMMABLE
	DRANTWIDERSTAND WIRE RESISTOR RESISTENZA A FILO RESISTANCE BOBINEE
	SICHERUNGSWIDERSTAND SAFETY RESISTOR RESISTENZA DI SICUREZZA RESISTANCE DISJONCTABLE
	KONDENSATOR CAPACITOR CONDENSATORE CONDENSATEUR
	ELKO ELECTROLYTIC ELECTROLITICO ELECTROLYTIC
	KERAMIK CERAMIC CERAMICO CERAMIQUE
	FOLIE FOLIE A FOLIA FOLIO PLASTIQUE
	DIODE DIODE DIODE DIODE
	TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR
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	VARIABLE TRANSFORMER VARIABLE TRANSFORMER VARIABLE TRANSFORMER VARIABLE TRANSFORMER
	VARIABLE INDUCTOR VARIABLE INDUCTOR VARIABLE INDUCTOR VARIABLE INDUCTOR
	VARIABLE CAPACITOR VARIABLE CAPACITOR VARIABLE CAPACITOR VARIABLE CAPACITOR
	VARIABLE RESISTOR VARIABLE RESISTOR VARIABLE RESISTOR VARIABLE RESISTOR
	VARIABLE DIODE VARIABLE DIODE VARIABLE DIODE VARIABLE DIODE
	VARIABLE TRANSISTOR VARIABLE TRANSISTOR VARIABLE TRANSISTOR VARIABLE TRANSISTOR
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	VARIABLE TRIAC VARIABLE TRIAC VARIABLE TRIAC VARIABLE TRIAC
	VARIABLE RELAY VARIABLE RELAY VARIABLE RELAY VARIABLE RELAY
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UND NICHT BRENNBAR
R NOT FLAMMABLE
NZA NON INFIAMMABILE
NCE ININFLAMMABLE



NSWIDERSTAND
RESISTOR
NZA DI SICUREZZA
NCE DISJONCTABLE



ACHTUNG: BEI EINGRIFFEN INS GERÄT SIND DIE SICHERHEITSVORSCHRIFTEN NACH VDE701(REPARATURBEZOGEN) BZW.VDE0860/IEC65 (GERÄTEBEZOGEN) ZU BEACHTEN.

(D)

IM REPARATURFALL DÜRFEN NUR ORIGINALBAUTEILE VERWENDET WERDEN !

ACHTUNG! VORSCHRIFTEN BEIM UMGANG MIT MOS - BAUTEILEN BEACHTEN !

(D)

ATTENTION: PLEASE OBSERVE THE APPLICABLE SAFETY REQUIREMENTS ACCORDING TO VDE 701 (CONCERNING REPAIRS) AND VDE 0860/IEC 65 (CONCERNING TYPE OF PRODUCT).

(GB)

ONLY USE COMPONENTS WITH THE SAME SPECIFICATION FOR REPLACEMENT !

ATTENTION! OBSERVE MOS COMPONENTS HANDLING INSTRUCTIONS WHEN SERVICING !

(GB)

ATTENTION: PRIERE D'OBSERVER LES PRESCRIPTIONS DE SECURITE VDE 701 (CONCERNANT LES REPARATIONS) ET VDE 0860/IEC 65 (CONCERNANT LE TYPE DE PRODUIT).

(F)

EN CAS DE REMPLACEMENT N'UTILISER QUE DES COMPOSANTS DES MEMES SPECIFICATIONS !

ATTENTION! LORS DE LA MANIPULATION DES CIRCUITS MOS, RESPECTER LES PESCRPTIONS MOS !

(F)

ATTENZIONE: OSSERVARNE LE CORRISPONDENTI PRESCRIZIONI DI SICUREZZA VDE 701 (CONCERNENTE SERVIZIO) E VDE 0860/IEC 65 (CONCERNENTE IL TIPO DI PRODOTTO).

(I)

IN CASO DI SOSTITUZIONE IMPIEGARE SOLO COMPONENTI CON LE STESSE CARATTERISTICHE !

ATTENZIONE! OSSERVARE LE RELATIVE PRESCRIZIONI DURANTE, LAVORI CON COMPONENTI MOS !

(I)

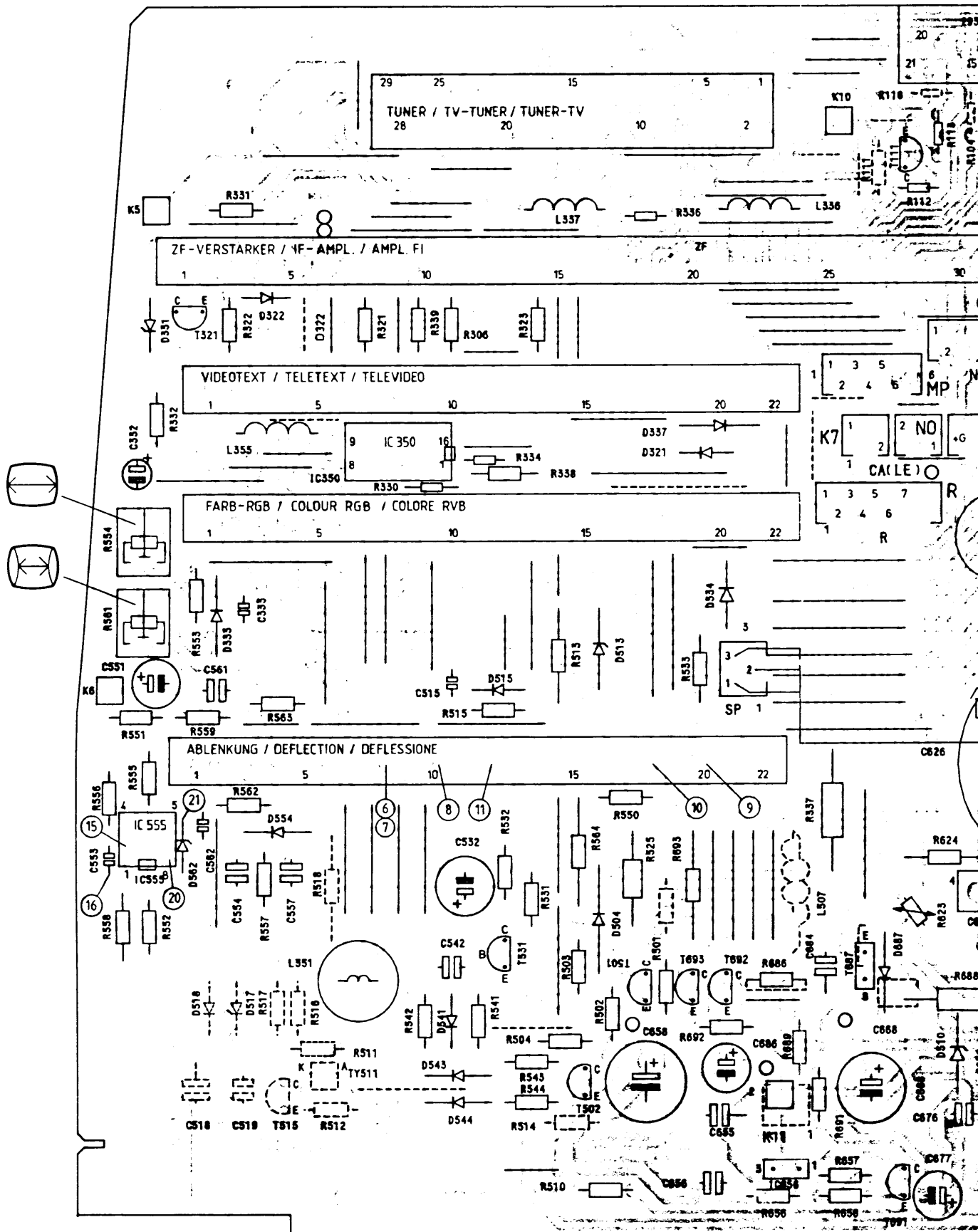
ATENCION: RECOMENDAMOS LAS NORMAS DE SEGURIDAD VDE U OTRAS NORMAS EQUIVALENTES. POR EJEMPLO : VDE 701 PARA REPARACIONES, VDE 0860/IEC 65 PARA APARATOS.

(E)

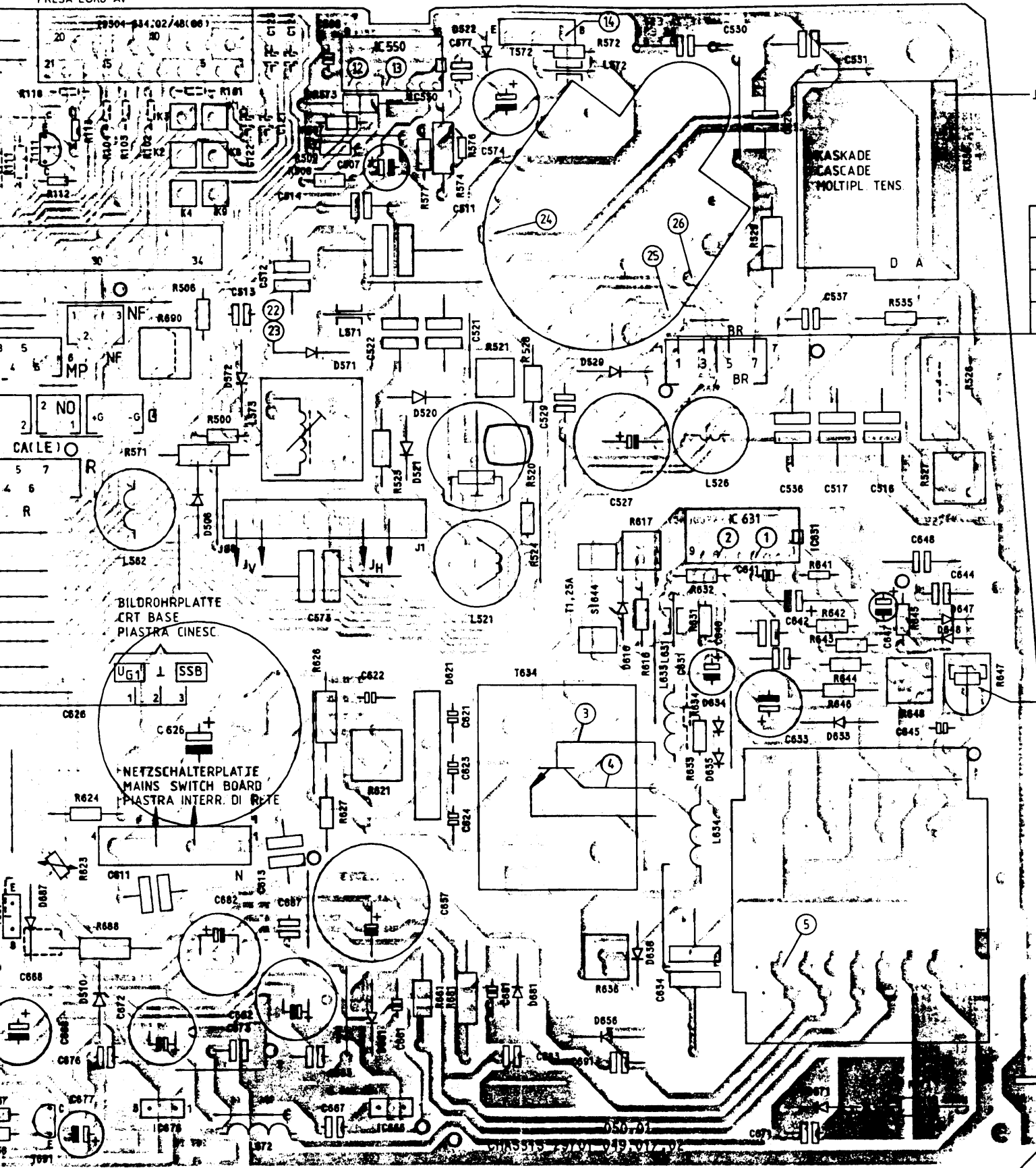
EN CASO DE REPARACION UTILIZAR UNICAMENTE REPUESTOS ORIGINALES.

ATENCION! DURANTE LA REPARACION OBSERVAR LAS NORMAS SOBRE COMPONENTES MOS !

(E)

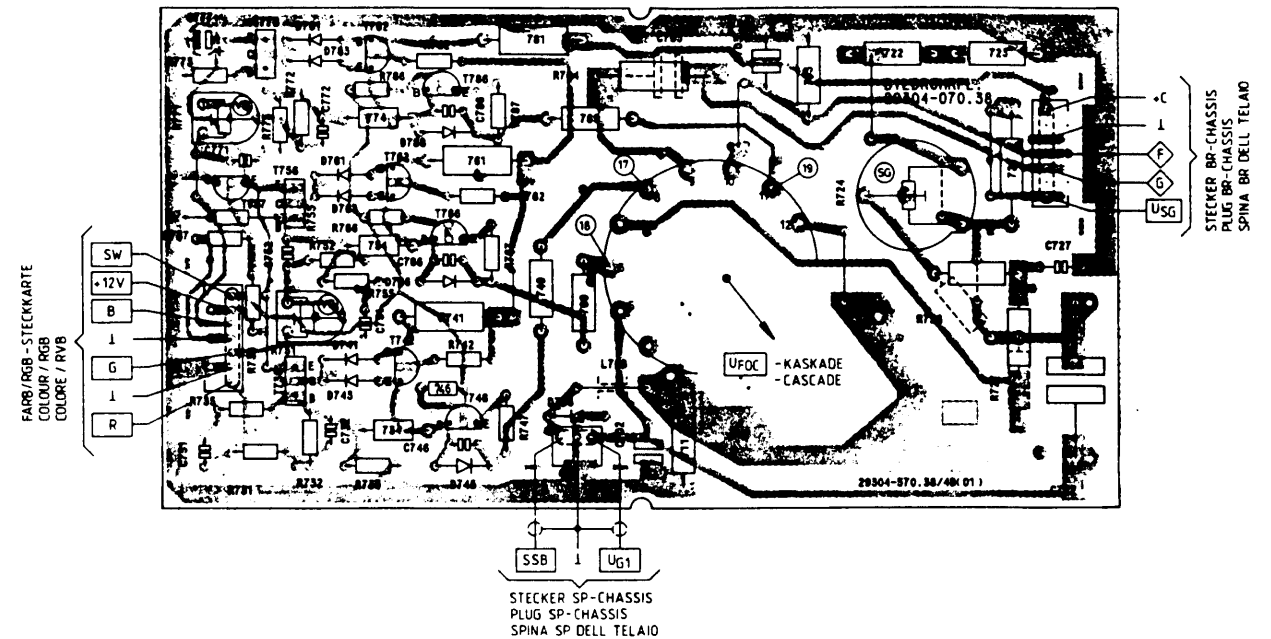


EURO - AV - BUCHSE
EURO AV SOCKET
PRESA EURO AV



BILDROHRPLATTE - STECKER BR
CRT BASE-PLUG BR
SPINA BR PIASTRA CINESC.

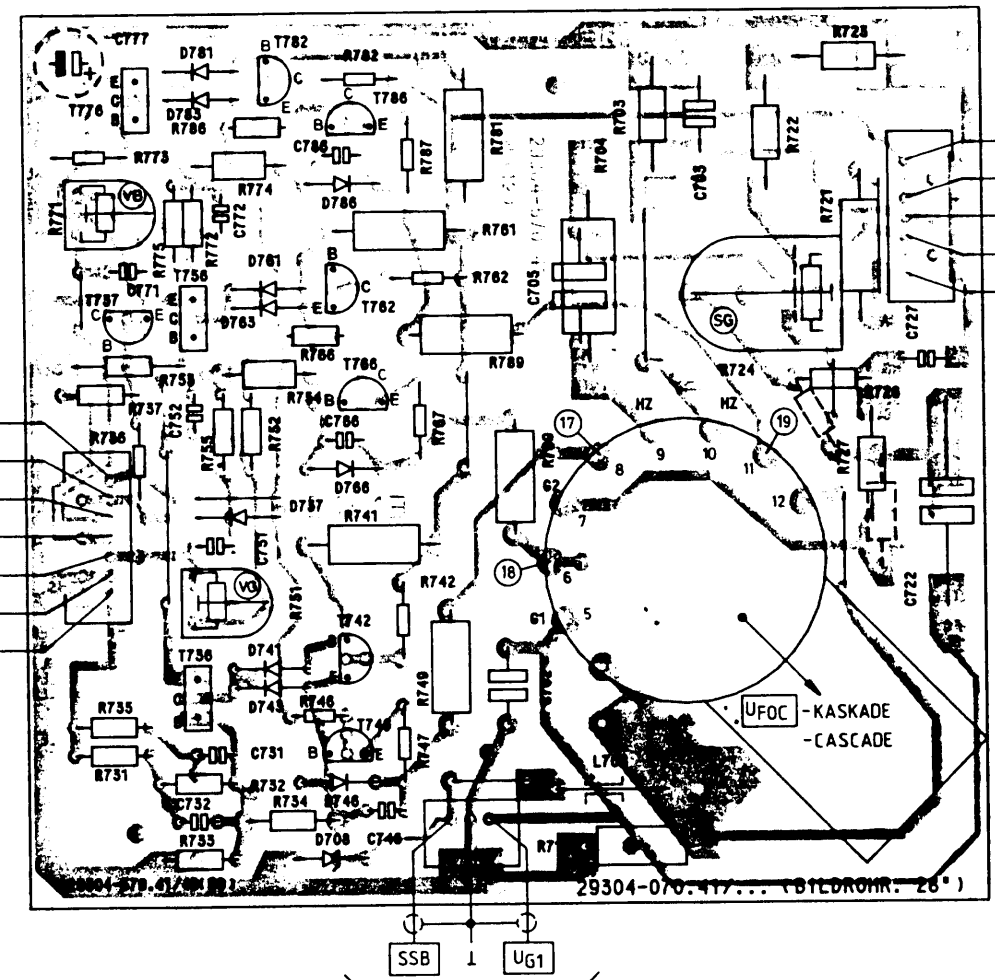
+A / 159V
MIN.



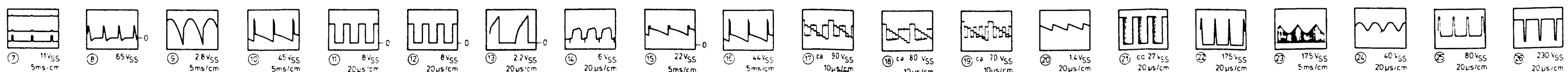
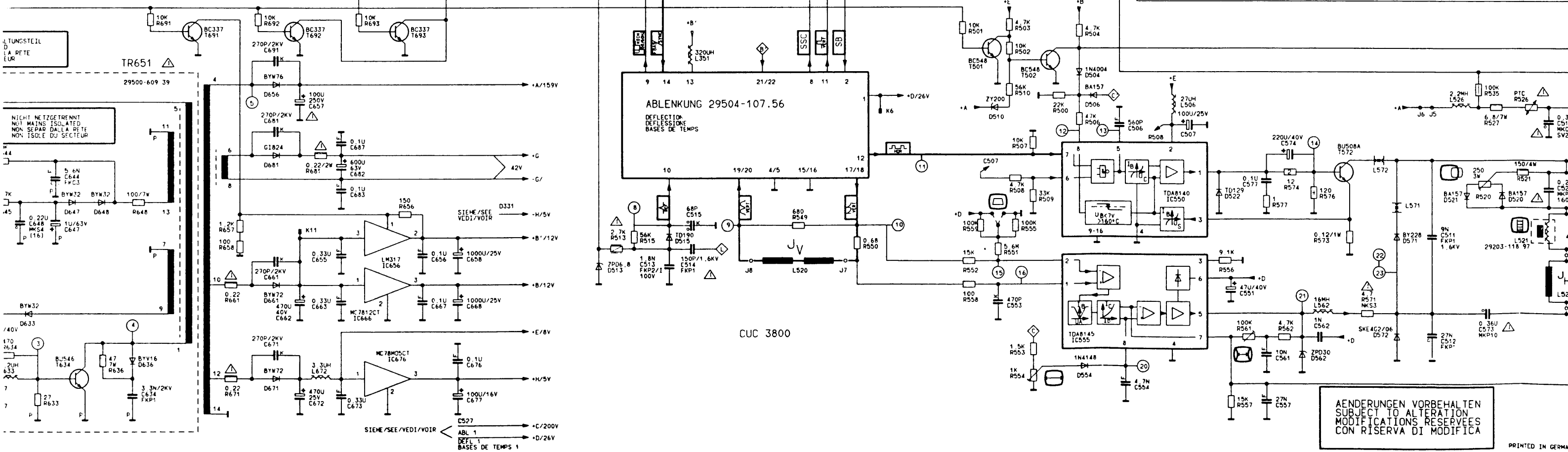
FARB / RGB - STECKKARTE
COLOUR / RGB
COLORE / RVB

SW
+12V
B
G
I
R

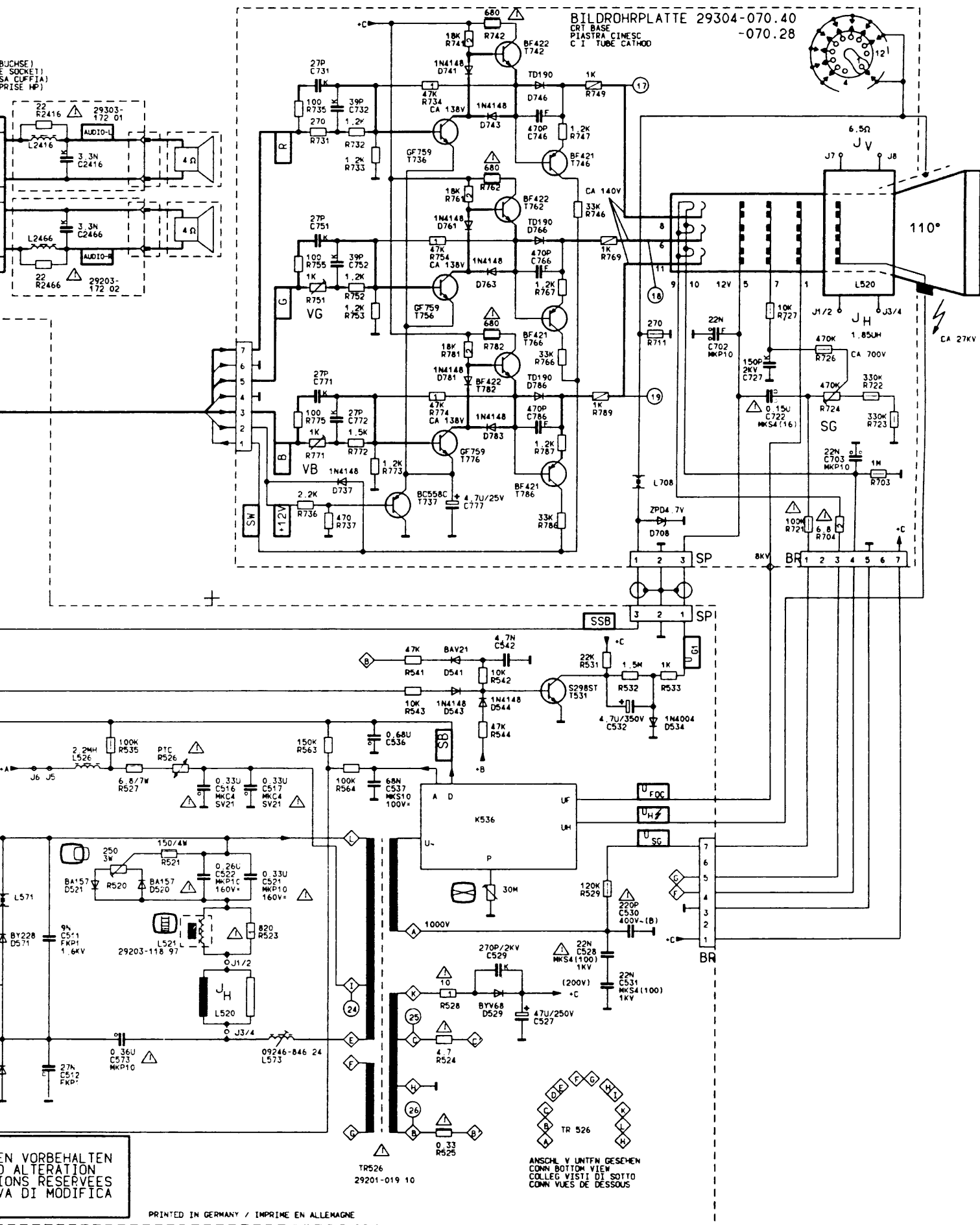
STECKER BR-CHASSIS
PLUG BR-CHASSIS
SPINA BR DELL TELAIO



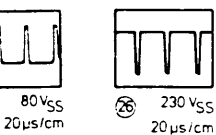
STECKER SP-CHASSIS
PLUG SP-CHASSIS
SPINA SP DELL TELAIO



BUCHSE)
E. SOCKET 1)
SA. CUFF 1A)
PRISE HP)



EN VORBEHALTEN
O. ALTERATION
ONS. RESERVES
VA DI MODIFICA



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	12 V 5 V _{pp}	IF, Pins 21, 17 IF, Pins 25, 24

No analog signals, Brightness Contrast Colour contrast	I ² C bus, IC 350 D/A converter D/A converter D/A converter	5 V _{pp} 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.				

Service checks on the I²C Bus (with SIEMENS 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 40, IC 850	D 671, IC 676, IC 850
Reset	LOW only at moment of switch on	Pin 9	C 811, D 811
12MHz clock	12 MHz, 3 V _{pp}	Pin 19, IC 850	F 808, IC 850
I ² C bus	5 V _{pp}	Pin 21, 22, 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

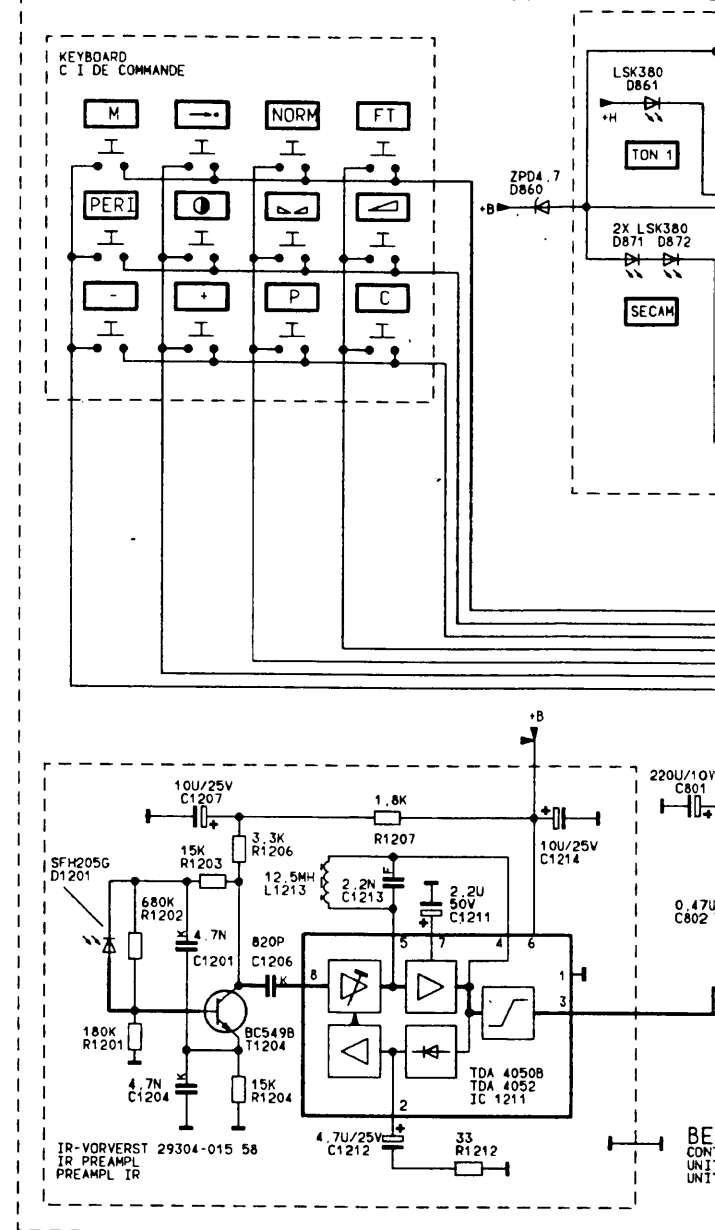
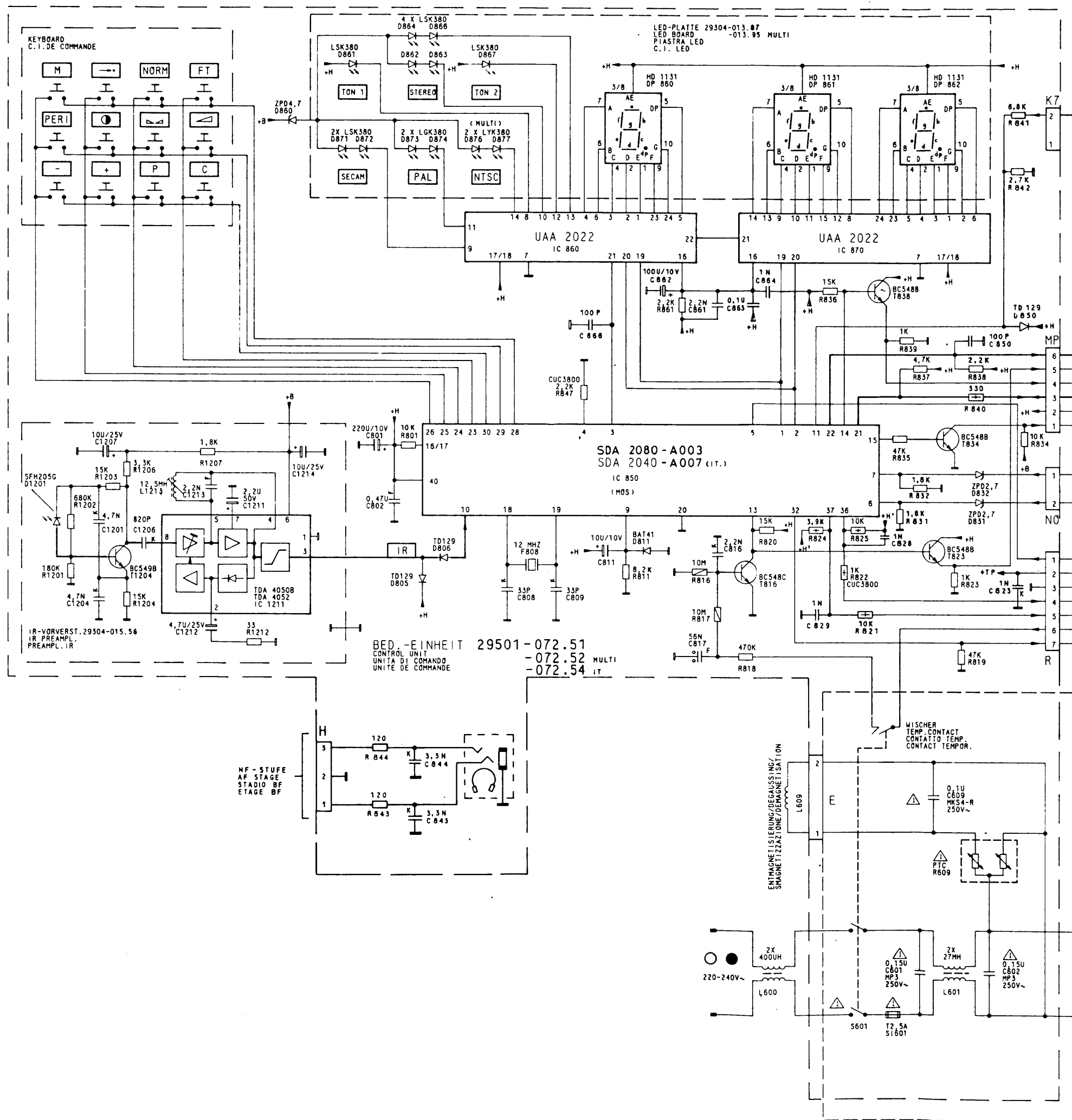
Possible faults due to I²C Bus control which can occur in any part of set.

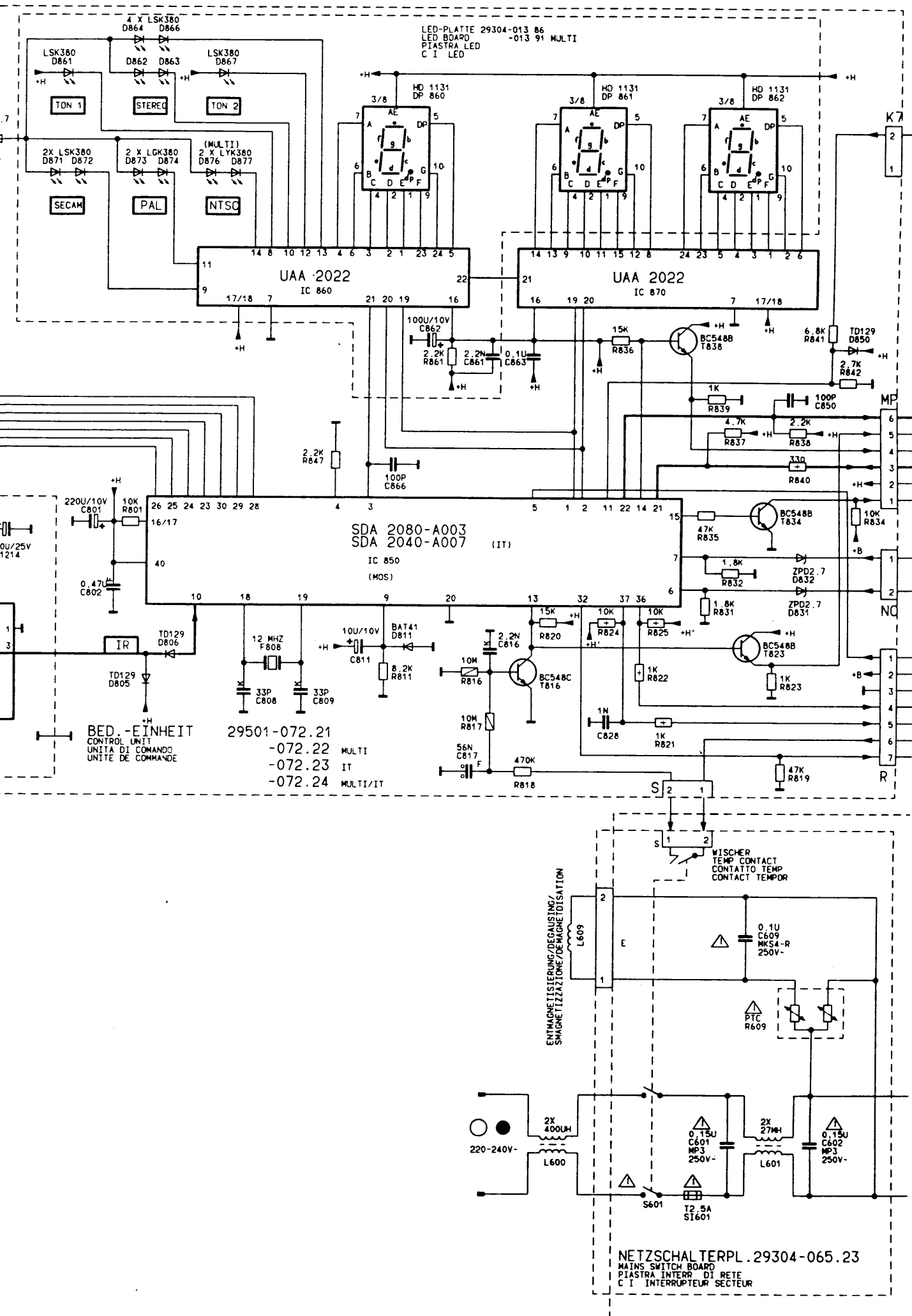
Fault	Possible Cause	Measured Value	Test Point
No functions accepted by keyboard	+ H IC 850	5 V see Table 1	IC 850, Pin 40
Channel No. cannot be changed with remote control	IR preamplifier D 1201, T 1204, + B	+ B = 12 V	Pin 6, IC 1211
Dark display, no indication	+ H	5 V	Pins 17, 18 ICs 860, 870
	C 862, 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'	12 V	IF, Pins 21, 17

No analog signals, Brightness Contrast Colour contrast	I ² C bus, IC 350 D/A converter D/A converter D/A converter	5 V _{pp} 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 Piont	Measured Value			
			„0” CCIR (st. B/G)	„1” FR (st. L)	„2” GB (st. I)	„3” OIRT (st. D)
No stand-ards conversion	Control unit tuner, IF AMP	Indication (press „standard”)				
		IF Pin2 (st. 1)	0	1	0	1
		IF Pin3 (st. 2)	0	0	1	1
		IF Pin 1 (st. 3)	0	0	0	0
		1 = 12 V approx.				



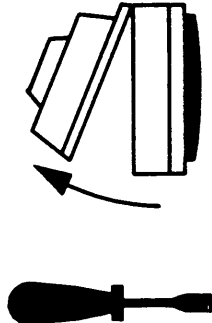
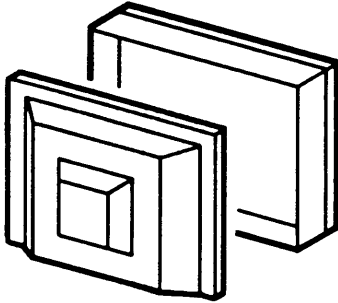
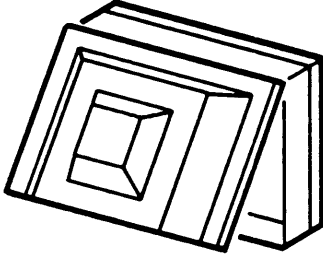


GERÄT SET APPARECCHIO APPAREIL	SACHNUMMER ORDER NO N° DI ORDINAZ N° DE PRODUITE	BILDROHRE PICTURE TUBE CINESCOPIO TUBE CATHOD	CUC 3800 CHASSIS TELAIO	BR-PLATTE CRT BASE PIASTRA CINESC C I TUBE CATHOD	BED. EINHEIT CONTR. UNIT UNITÀ DI COMANDO UNITÉ DE COMMANDE	NETZ MEIN PIASTRA C I
			29701-050	29304-070	29501-	29304-
M70-490/9 TEXT	9 25481-02	28" II ☐ TINTED	72	40	-066 28	
M70-490/9 TEXT	9 25481-06	28" II ☐ TINTED	72	40	-072 24	
M70-495/9 TEXT	9 25482-02	28" II ☐ TINTED	72	40	-066 74	AUF
M70-495 CTI/TEXT	9 25482-06	28" II ☐ TINTED	74	40	-072 54	AUF

④ Abnehmen und Aufsetzen der Geräterückwand

④ Disassembly and assembly of the cabinet rear panel

④ Smontaggio e montaggio dello schienale dell'apparecchio

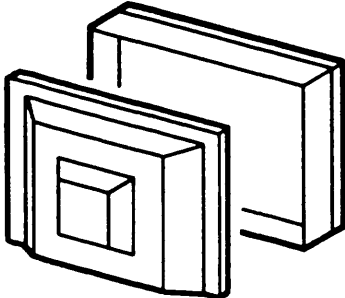
Symbol auf der Geräterückwand beachten! Please note the symbol at the rear of the cabinet! Osservare il simbolo sullo schienale			
Hinweis Note Nota	Schraubendreher (Größe 4) in die markierten Aussparungen stecken. Drücken oder drehen bis der Schnapphaken ausrastet. Insert the screwdriver (size 4) into the marked holes. Press or turn it until the catch disengages. Inserire un giravite (di misura 4) nelle rientranze contrassegnate. Premere o ruotare poi fino a che il gancio a scatto viene a sganciarsi.		Drehen Turn Ruotare
Abnehmen und Aufsetzen der Geräterückwand Disassembly and assembly of the cabinet rear panel Smontaggio e montaggio dello schienale			

	NETZSCHALTERPL WEINS SWITCH BOARD PIASTRA INTERRU DI RETE C I INTERRUPTEUR SECTEUR 29304-065	KOPFH ANSCHL PL HEADPHONE SOCKET BOARD PIASTRA PRESA CUFFIA C I RACCORD CASQUE 29304-054	CINCHBUCHSENPL PHONO SOCKET BOARD PIASTRA PRESE CINCH C I PRISES CINCH 29304-008	NF AF BF 29504-104	TELE-PILOT 29622-050
	23 23 AUF BED -EINHEIT AUF BED -EINHEIT	AUF CINCHBUCHSENPL AUF CINCHBUCHSENPL AUF BED -EINHEIT AUF BED -EINHEIT	06 06 05 05	.13 .13 .16 .16	01 03 01 03

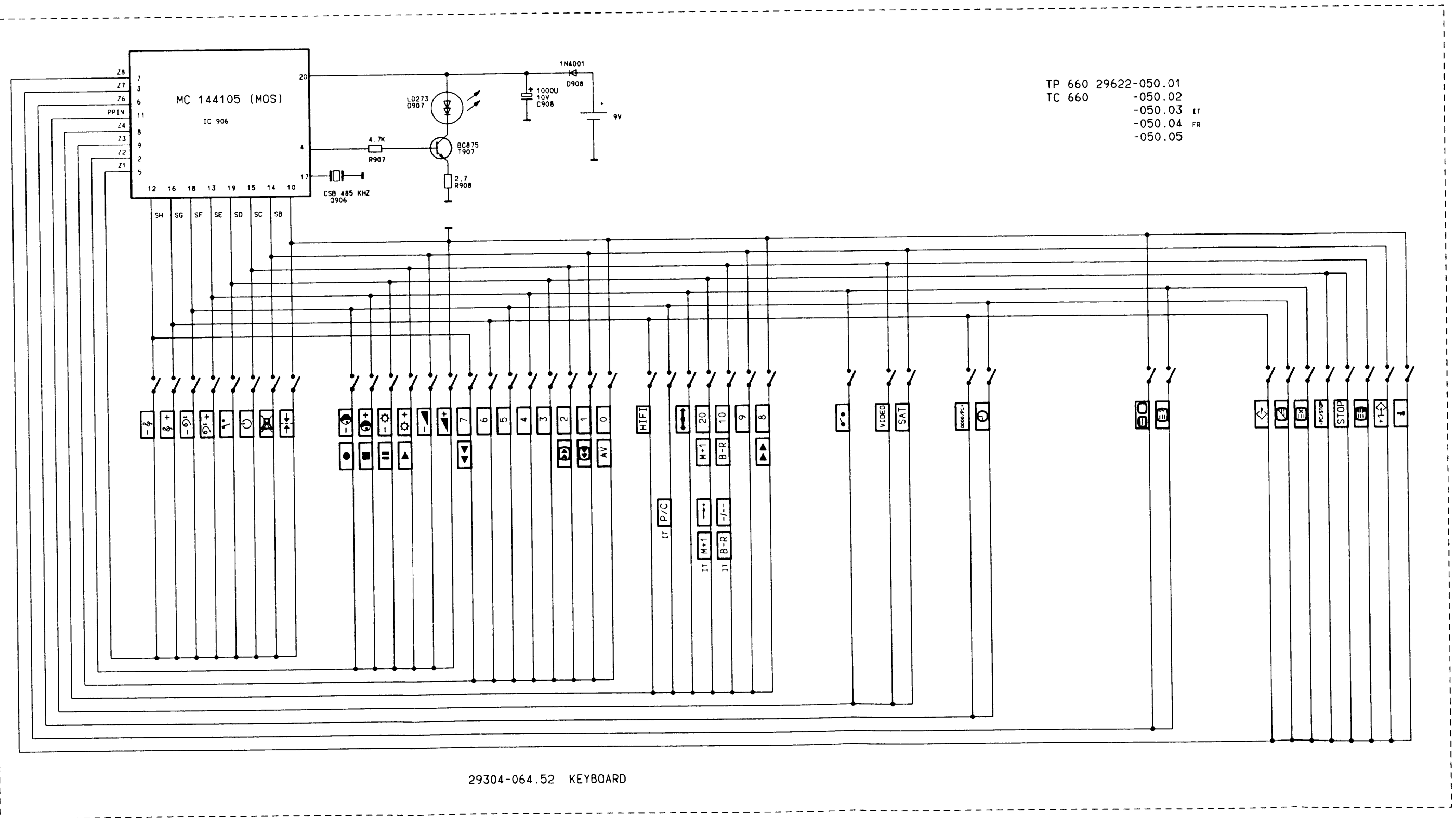
TABELLE UEBER 110° BILDROEHRENTYPEN
TABLE OF 110° PICTURE TUBE TYPES
TABELLA DI TIPI DI TUBI A 110°
TABLEAU DES MODELES DE TUBES CATHOD 110°

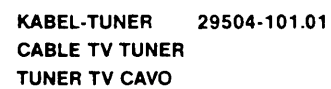
○ = RUNDROEHRE/ CIRCULAR PICTURE TUBE / TUBO AD ANGOLI TONDI / TUBE A COINS ROUNDS

□ = FLAT SQUARE-ROEHRE / FLAT SQUARE TUBE / TUBO FLAT SQUARE / TUBE FLAT SQUARE

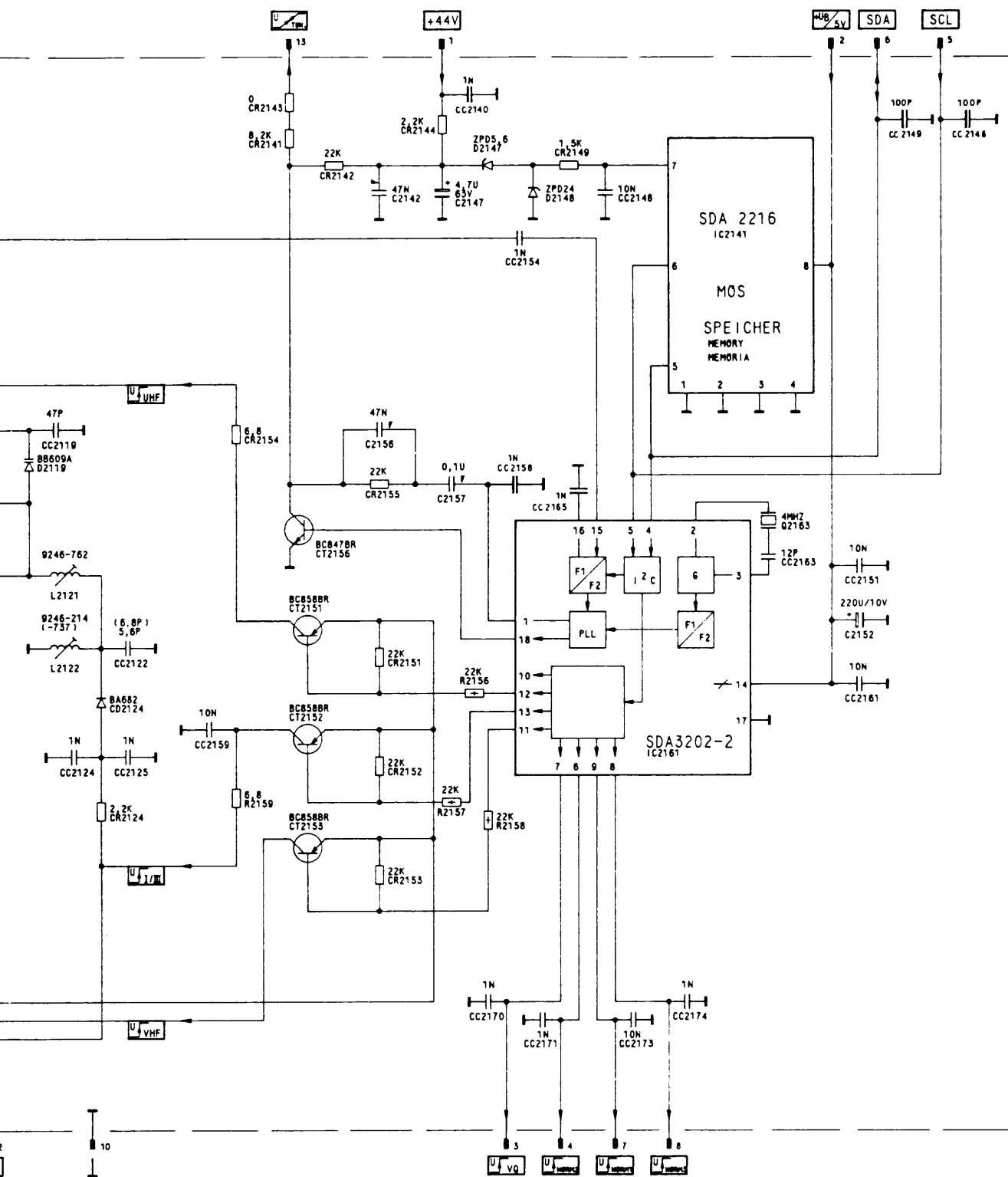
	 
n.	Drehen um 90° Turn by 90° Ruotare di 90°
	

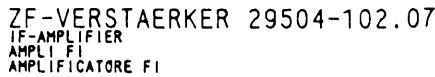
	TYPE TYPE TIPO MODELE	HERSTELLER MANUFACTURER DITTA FABRICANT	BEMERKUNG REMARK OSSERVAZIONE REMARQUE	L _V MM	L _H MM	R _V Ω	R _H Ω	U _H KV	U _{FOC} KV	SACHNUMMER ORDER NO. N° D'ORDINAZIONE N° DE PRODUITE
21"/55CM	A 51 EAK 01X 05	PHILIPS	□ TINTED GLASS 45 AX	11.2	1.84	5.76	1.91	25	7.75	8300-020-351
22"/56CM	A 56-540 X	PHILIPS/ ELEKTRONSKA	○ CLEAR GLASS 30 AX	10	1.5	5.9	1.3	25	7	8300-020-390
22"/56CM	560 EYB 22-TC 01	HITACHI	○ CLEAR GLASS 30 AX ERSATZ (PIL SOCKEL / REPL. PIL SOCKET RICAMBIO ZOCCHOLO PIL / RECHANGE SOCCLE PIL	25	1.5	10.7	1.5	25	7	8300-020-390
22"/56CM	A 56-701 X	VIDEO COLOR	○ CLEAR GLASS PIL	24.6	1.5	9.6	1.33	25	2	8300-020-390
25"/63CM	A 59 EAK 00X 01	PHILIPS	□ CLEAR GLASS 45 AX	11	1.85	6.5	1.85	25	7.75	8300-020-400
25"/63CM	A 59 EAK 01X 01	PHILIPS	□ TINTED GLASS 45 AX	11	1.85	6.5	1.85	25	7.75	8300-020-401
25"/63CM	A 59 EAS 00X 01	VIDEO COLOR	□ CLEAR GLASS FS 10	24.6	1.5	9.6	1.33	25	7.75	8300-020-405
26"/66CM	A 66-540 X	PHILIPS/ ELEKTRONSKA	○ CLEAR GLASS 30 AX	9.7	1.5	5.85	1.3	25	7	8300-030-540
28"/70CM	A 66 EAK 00X 01	PHILIPS	□ CLEAR GLASS 45 AX	11	1.85	6.5	1.85	25	7.75	8300-030-410
28"/70CM	A 66 EAK 01X 01	PHILIPS	□ TINTED GLASS 45 AX	11	1.85	6.5	1.85	25	7.75	8300-030-412
28"/70CM	A 66 EAK 50X 33	PHILIPS	□ CLEAR GLASS 45 AX (32 KHZ)	8.8	0.426	5.22	0.6	25	7.75	8300-030-433
28"/70CM	A 66 EAK 50X 32	PHILIPS	□ CLEAR GLASS 45 AX (32 KHZ II. GENER.)	6.5	0.426	3.9	0.6	25	7.75	
28"/70CM	A 66 EAK 50X 01	PHILIPS	□ CLEAR GLASS 45 AX (II GENER.)	10.33	1.83	6.7	1.84	25	7.75	
28"/70CM	A 66 EAK 51X 01	PHILIPS	□ TINTED GLASS 45 AX (II GENER.)	10.33	1.83	6.7	1.84	25	7.75	8300-030-435
28"/70CM	A 66 EAS 00X 01	VIDEO COLOR	□ CLEAR GLASS FS 10	24.6	1.5	9.6	1.33	25	7.75	8300-030-411
28"/70CM	A 66 ECF 00X 01	SEL	□ PLAN GON	11	1.85	5.4	1.85	25	7.1	
32"/82CM	A 76 JTS 90X 03 (W)	TOSHIBA	□ TINTED GLASS	24.6	1.5	9.6	1.26	29	8.1	8300-020-760
37"/95CM	A 89 JKA 81X	MITSUBISHI	□ TINTED GLASS (I GENER.)	19.0	0.8	6	0.89	30	7.4	8300-020-890
37"/95CM	A 89 JVU 11X	MITSUBISHI	□ TINTED GLASS (II GENER.)	14.5	0.8	7.5	0.81	30	7.4	8300-020-891

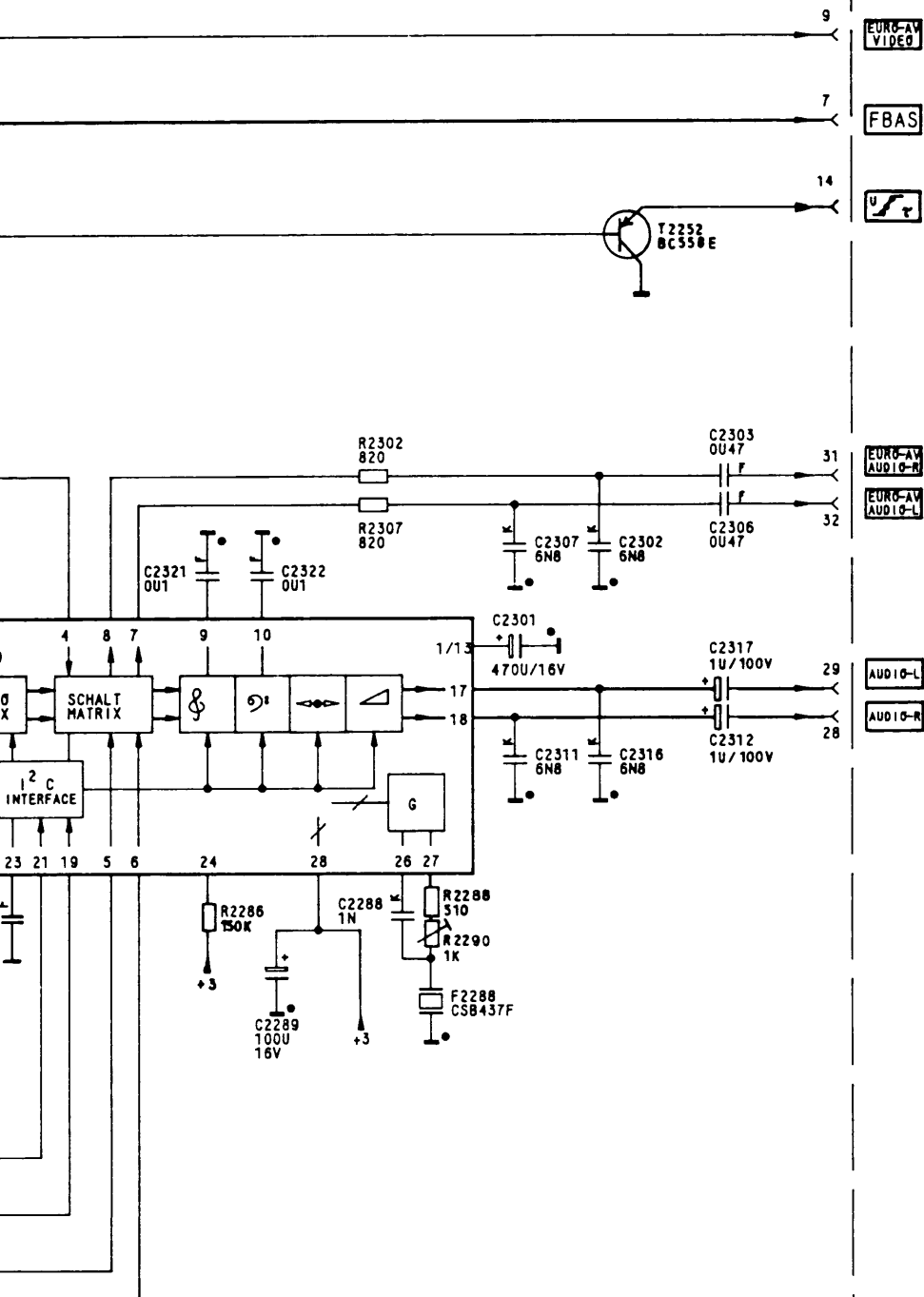




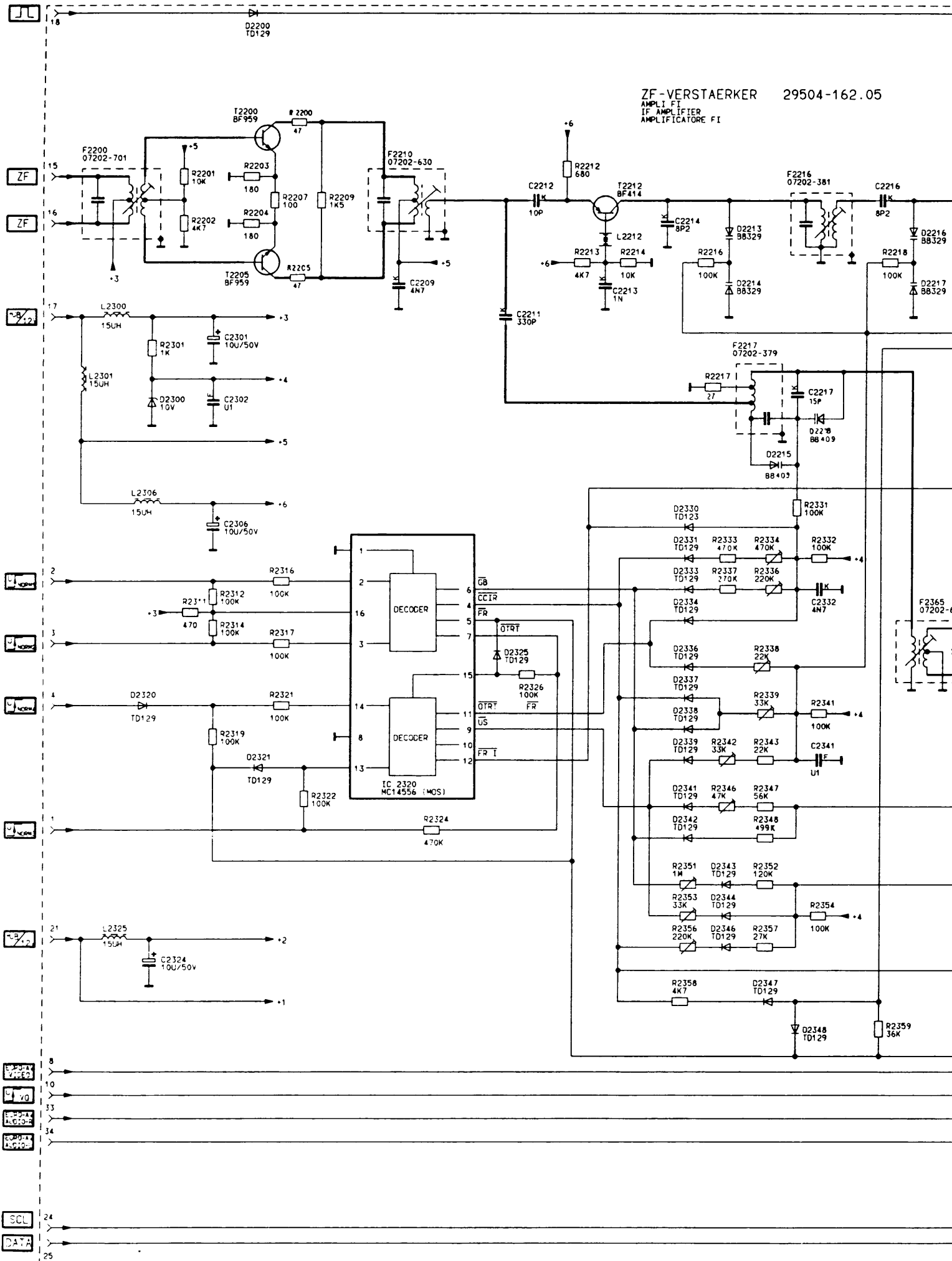
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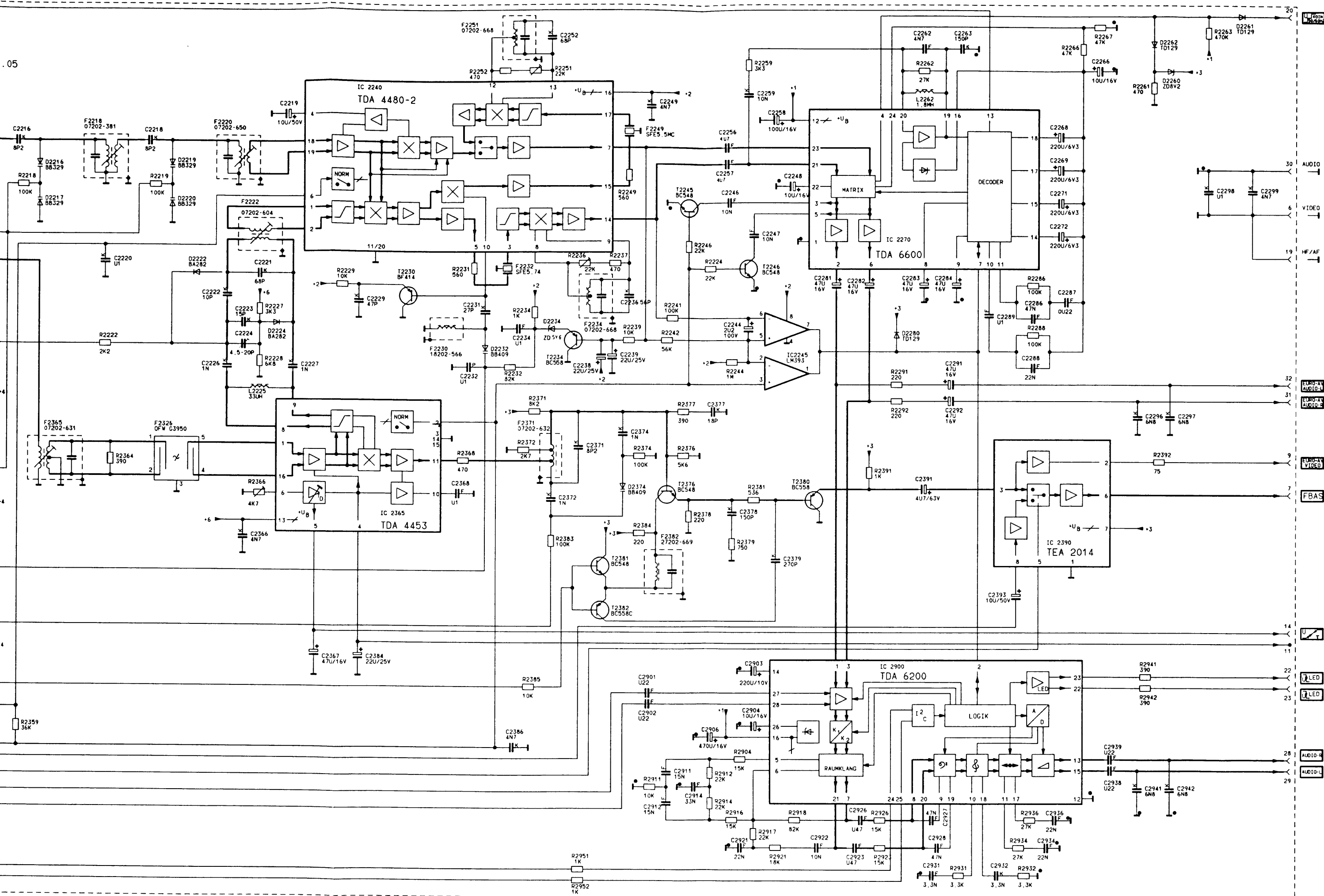


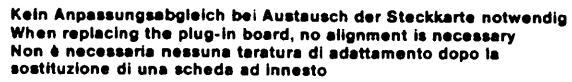


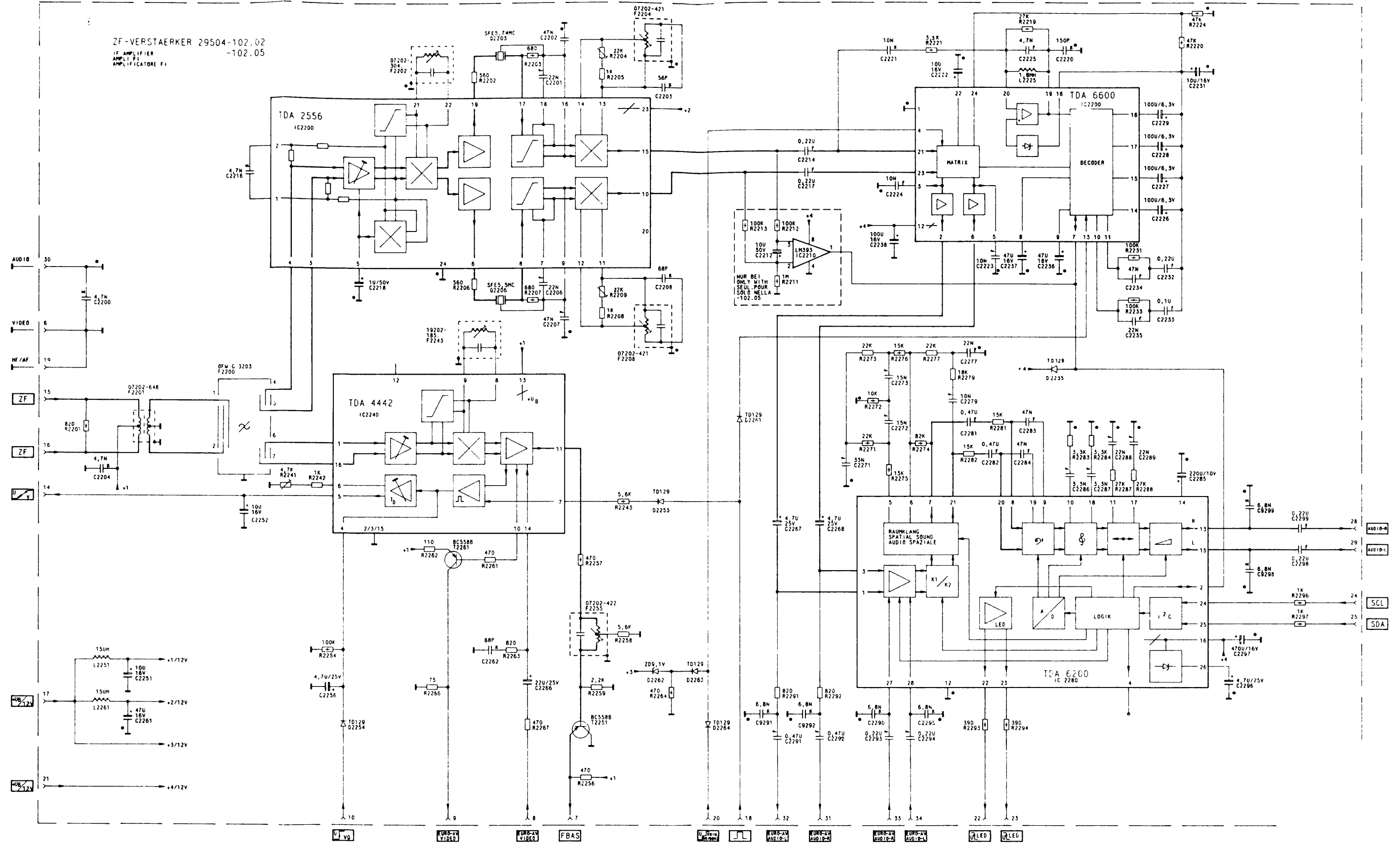


Kein Anpassungsabgleich bei Austausch der Steckkarte notwendig
 When replacing the plug-in board, no alignment is necessary
 Non è necessaria nessuna taratura di adattamento dopo la
 sostituzione di una scheda ad innesto

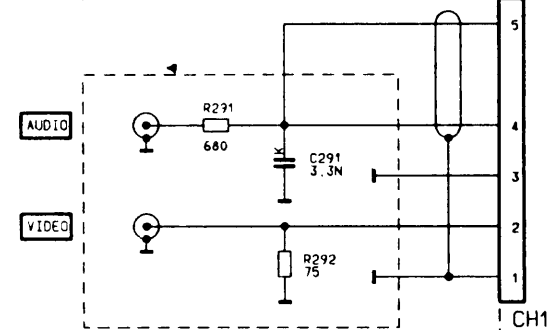




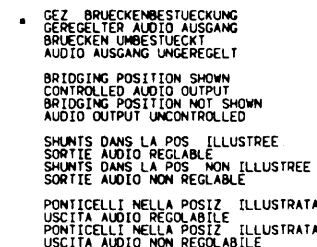


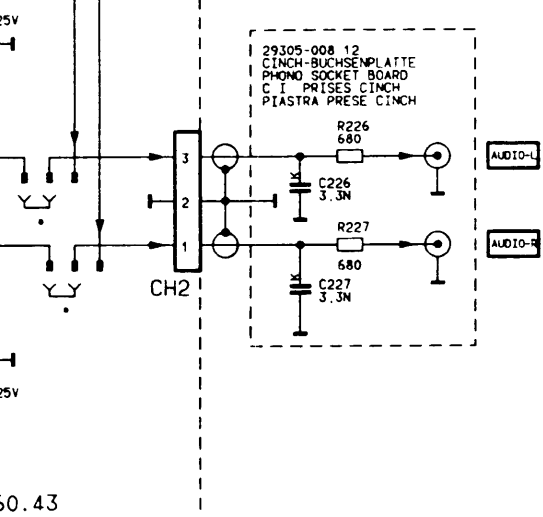


Kein Anpassungsabgleich bei Austausch der Steckkarte notwendig
When replacing the plug-in board, no alignment is necessary
Non è necessaria nessuna taratura di adattamento dopo la
sostituzione di una scheda ad innesto



29305-008.05/.06
CINCH-BUCHSENPLATTE
PHONE SOCKET BOARD
C I PRISES CINCH
PIASTRA PRESE CINCH





29305-008 12
CINCH-BUCHSENPLATTE
PHONO SOCKET BOARD
C 1 PRISES CINCH
PIASTRA PRESE CINCH

R226
680

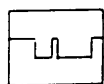
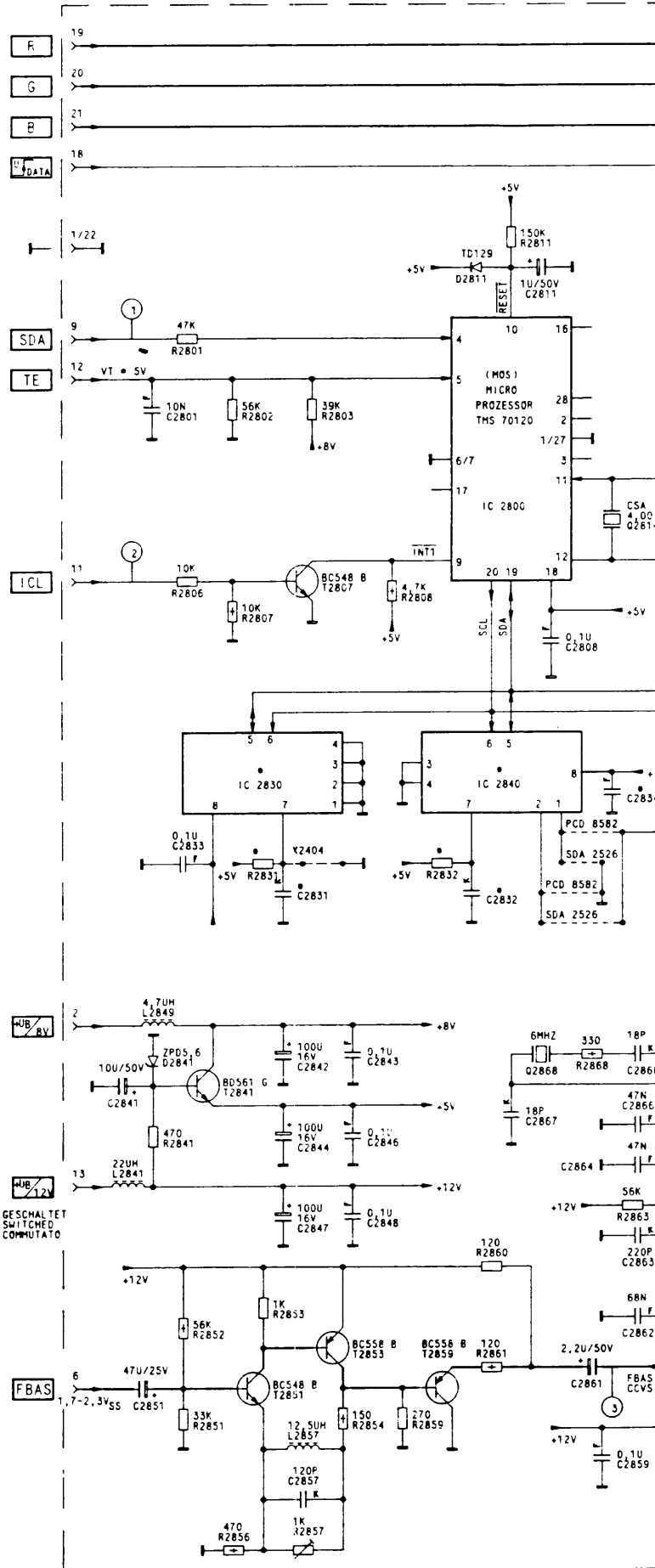
C226
3.3n

R227
680

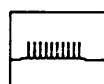
C227
3.3n

AUDIO-L

AUDIO-R



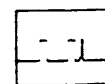
① BITFOLGE JE NACH
TASTENDRUCK
(E.D. TASTE) 100µsec/cm



② ICL-TV-10BIT CLK 100µsec/cm



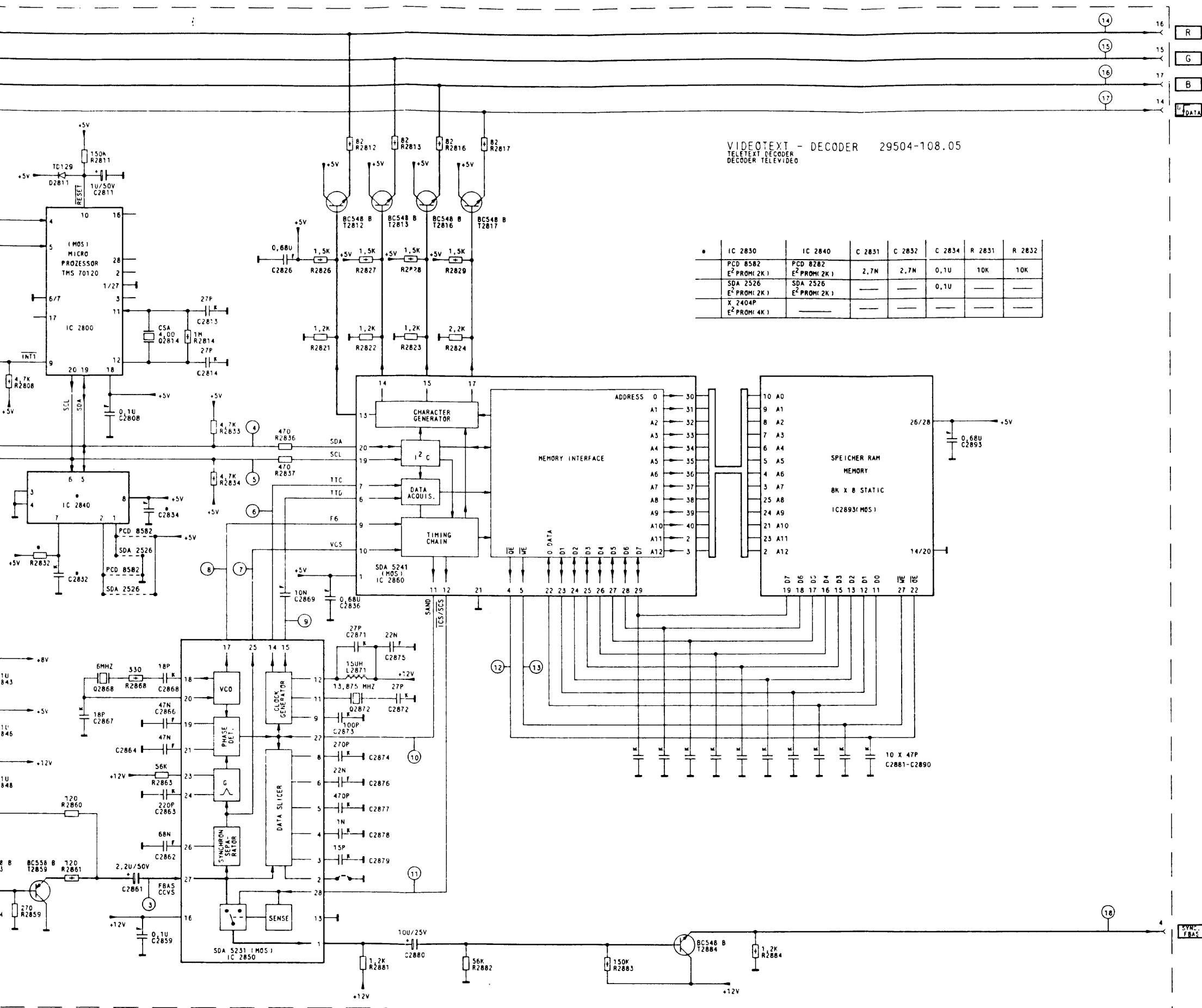
③ FBAS DC-4V
AC 15VSS
10µsec/cm



④ 100µsec/cm



⑤



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.

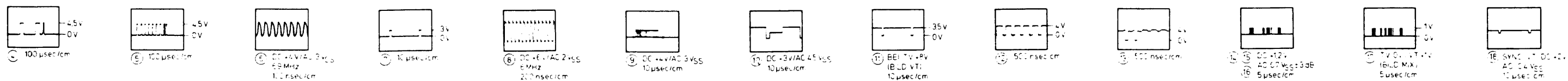
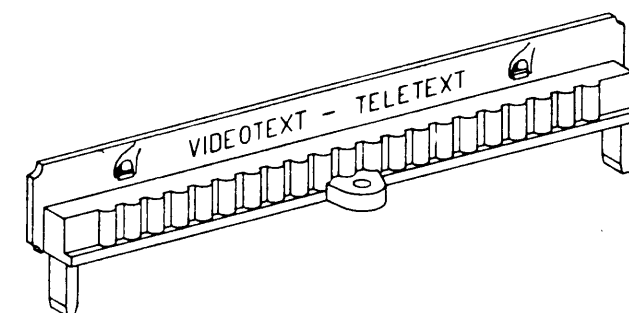
Page 199 must always be selected anew during the adjustment, as only this effects a new read-in of the page making it possible to evaluate the error level.

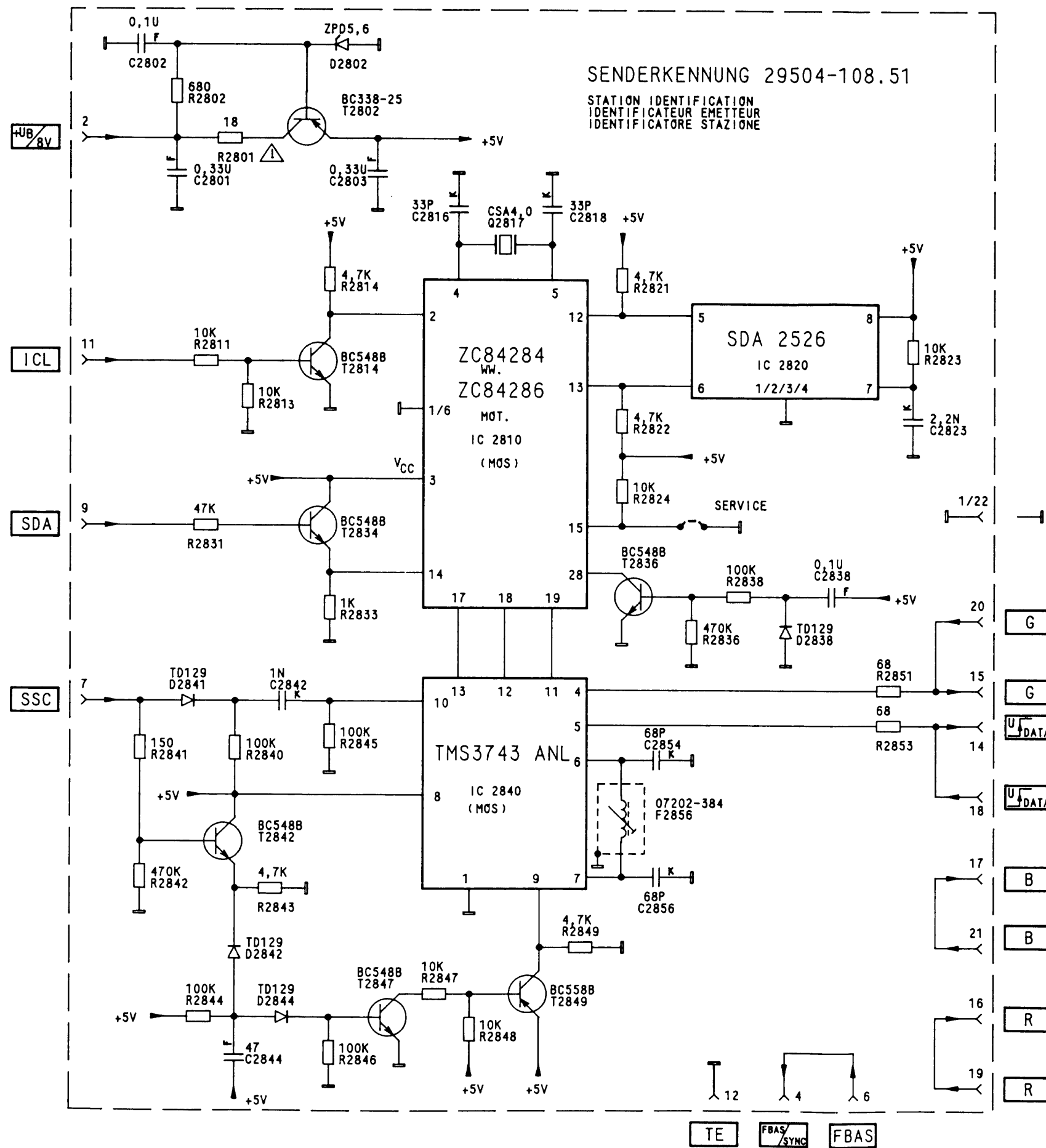
Montaggio e taratura d'addatamento della scheda ad innesto

Nel montare la scheda televideo togliere la piastrina televideo.

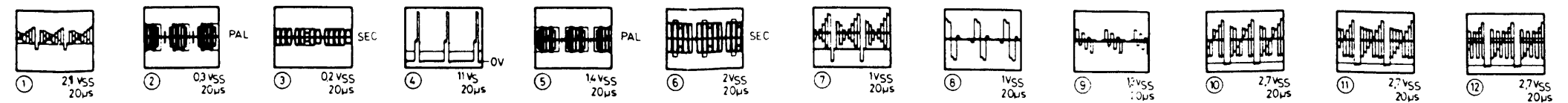
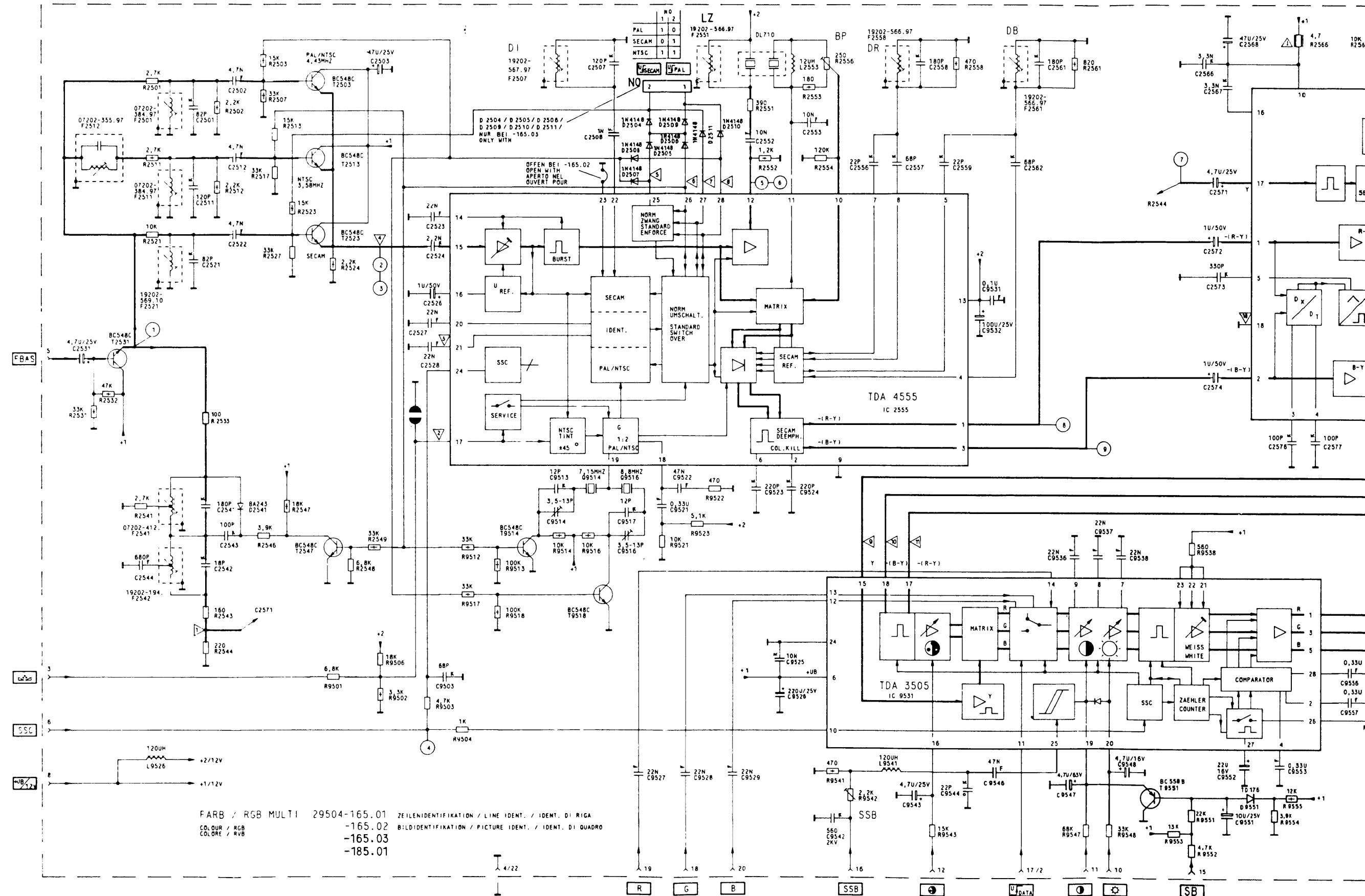
Il regolatore R 2857 viene fornito col cursore girato completamente all'estrema sinistra (minima esaltazione delle alte frequenze, ca. 2 dB). Se si manifestano errori di carattere, nonostante un perfetto segnale d'antenna, girare lentamente il cursore di R 2857 verso destra fino ad eliminare gli errori.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





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.
- ⓐ 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. 140-150V.

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 Zeilentastriveau bringen.
- Spule F 2521 so einstellen, daß das (B-Y)-Signal keine Überschwinger hat.

4. 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 Bildrohrmitte) auftreten, so muß mit Regler "SSB" auf scharfe Schriftkonturen eingestellt werden (Reduzierung des Spitzenstrahlstromes).

1. White level adjustment

- Display colour bar test pattern.
- Set ⓐ to min., ⓐ to nom., ⓐ to max.
- Adjust presets VG and VB (CRT 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.
- 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 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 ⓐ 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):

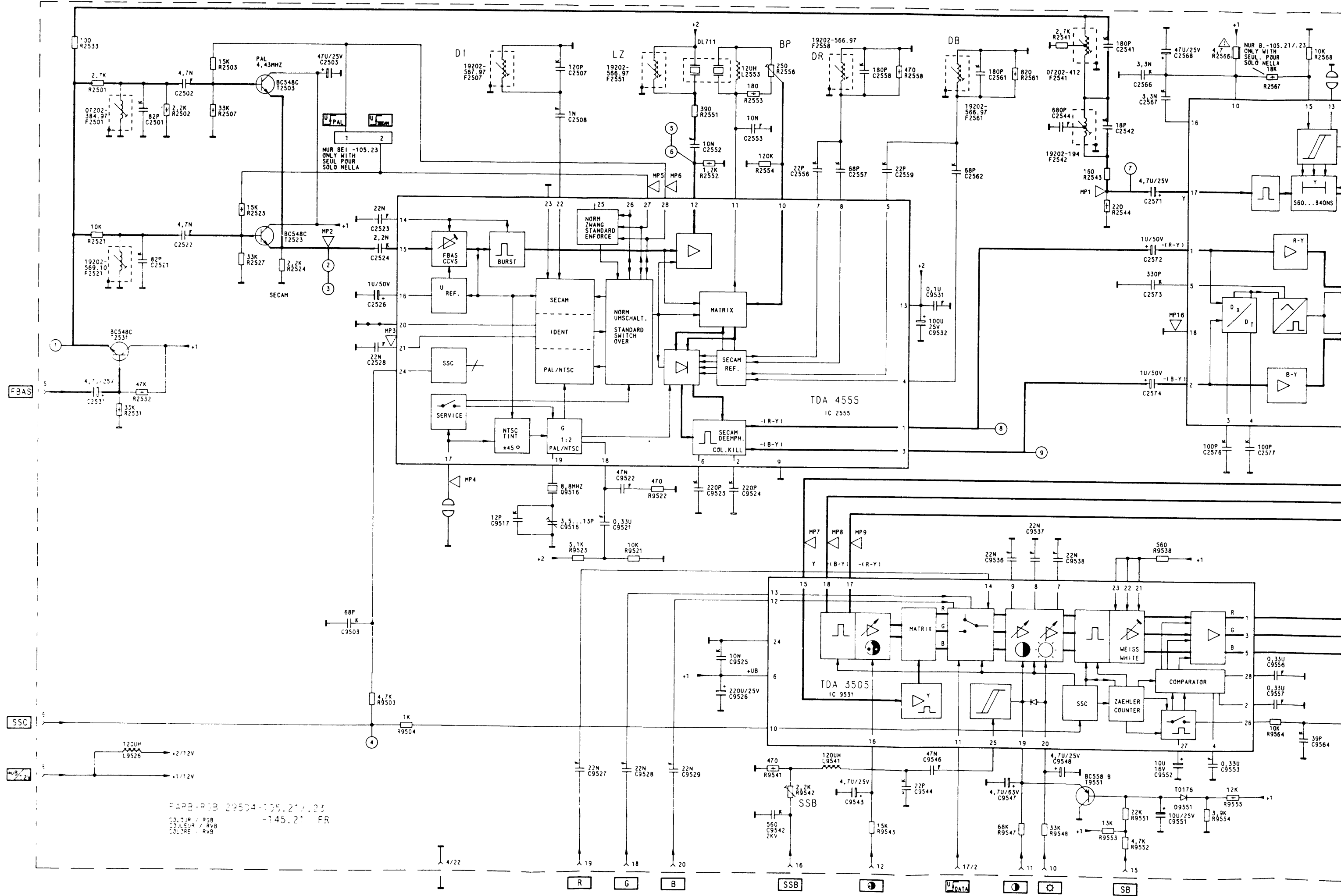
- Applicare un monoscopio FuBK.
- Regolare ⓐ al minimo, ⓐ sul valore nominale e ⓐ al minimo.
- Collegare la sonda ai collettori dei transistori T 736, T 756, T 776 (piastra cinescopio).
- Valore nero dei tre segnali catodici ca. 140-150V.

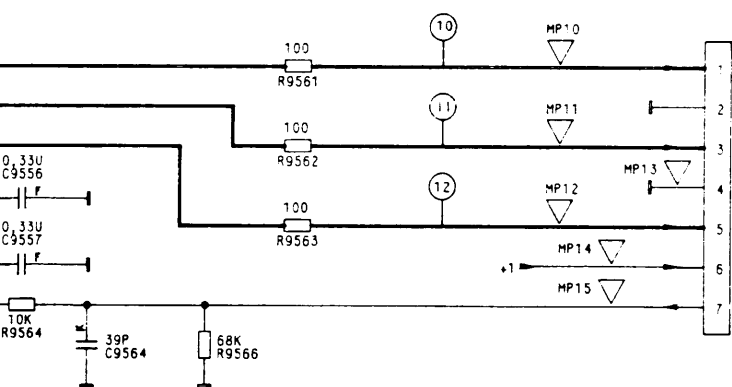
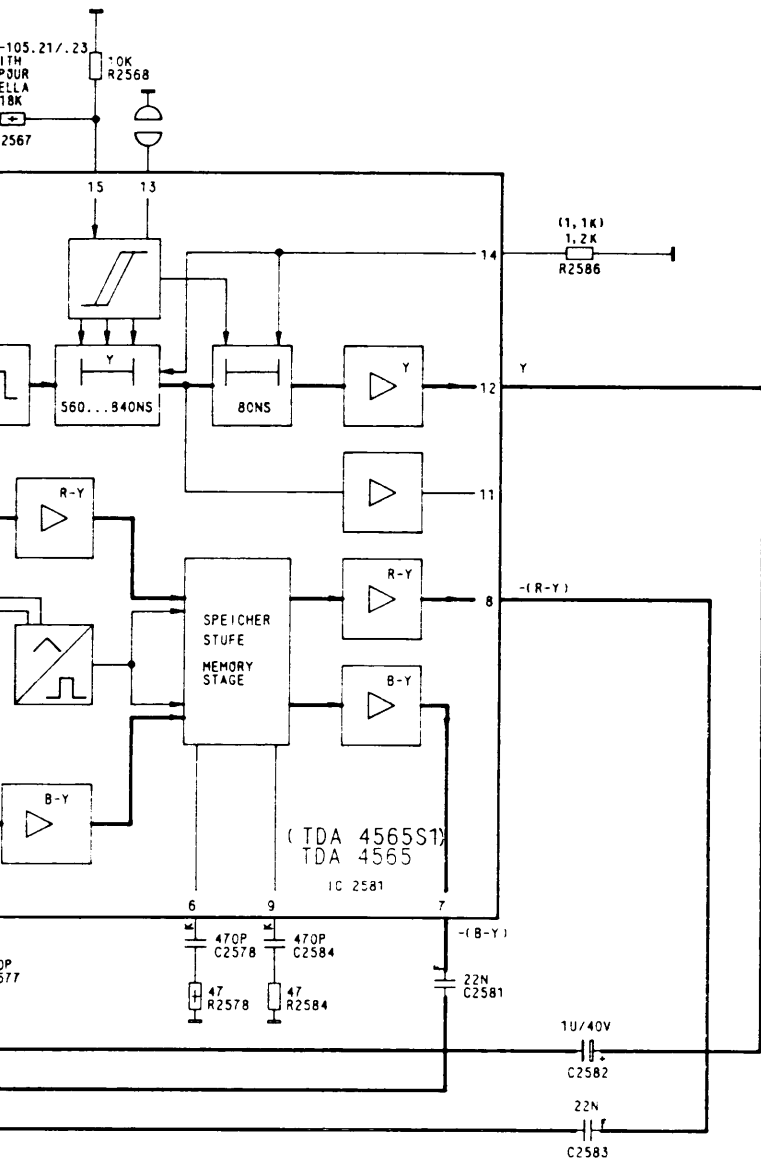
3. Regolazione del canale colore

- 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.

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 sfocalizzazione 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).





R

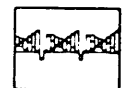
G

B

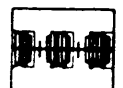
+12V

SW

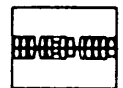
B. CRODUPPLATE
BASE
PLASTRA CINESCOPIO
C.I. TUBE CATHOD.



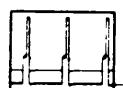
① 2,5VSS
20μs



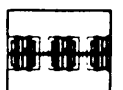
② 0,3VSS
20μs



③ 0,2VSS
20μs



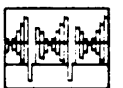
④ 11VSS
20μs



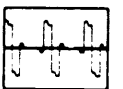
⑤ 14VSS
20μs



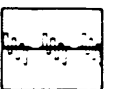
⑥ 2VSS
20μs



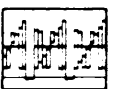
⑦ 1VSS
20μs



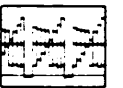
⑧ 1VSS
20μs



⑨ 1VSS
20μs



⑩ 2,7VSS
20μs



⑪ 2,7VSS
20μs



⑫ 2,7VSS
20μs

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. 140-150V.

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.
- 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.

4. 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).

1. 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.

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 $\odot$ 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 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. Bring the double image produced by the B-signal to coincidence by adjusting the preset BP and the coil LZ.

- 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):

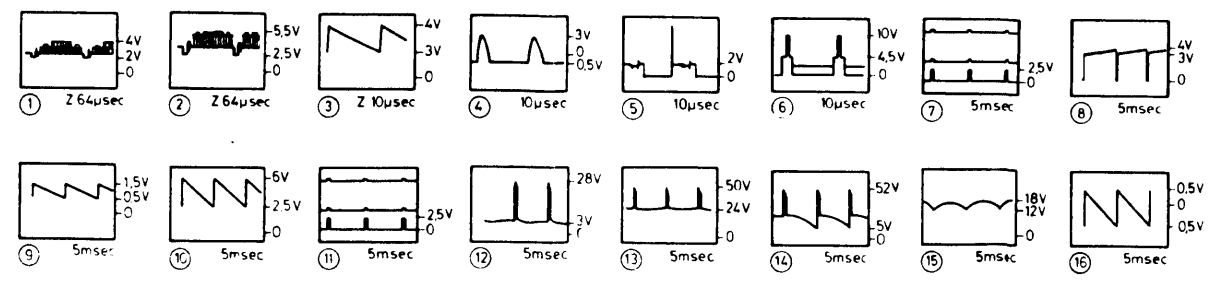
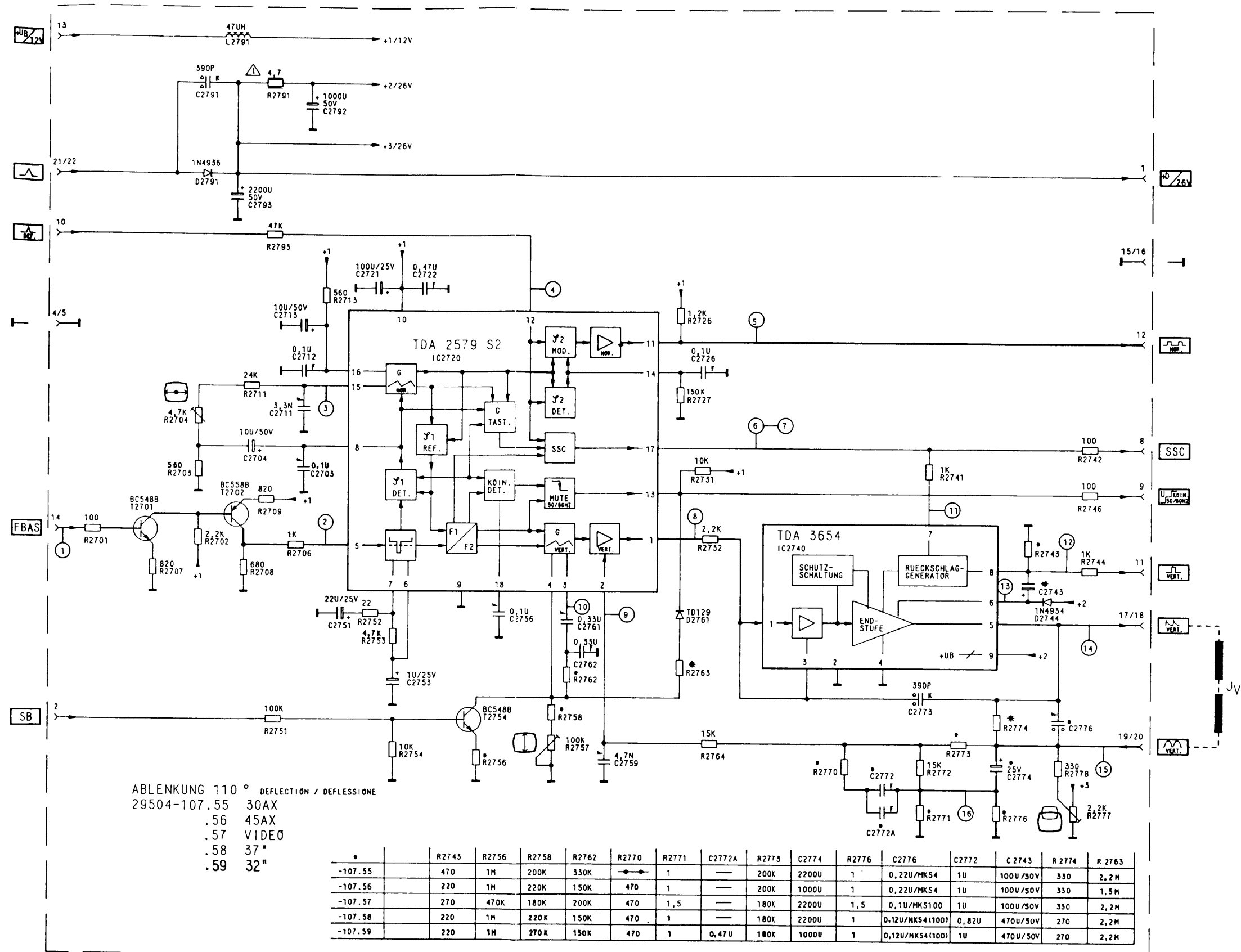
- Applicare un monoscopio FuBK.
- Regolare $\odot$ al minimo, $\odot$ sul valore nominale e $\odot$ al massimo.
- Collegare la sonda ai collettori dei transistori T 736, T 756, T 776 (piastra cinescopio).
Valore nero dei tre segnali catodici ca. 140-150V.

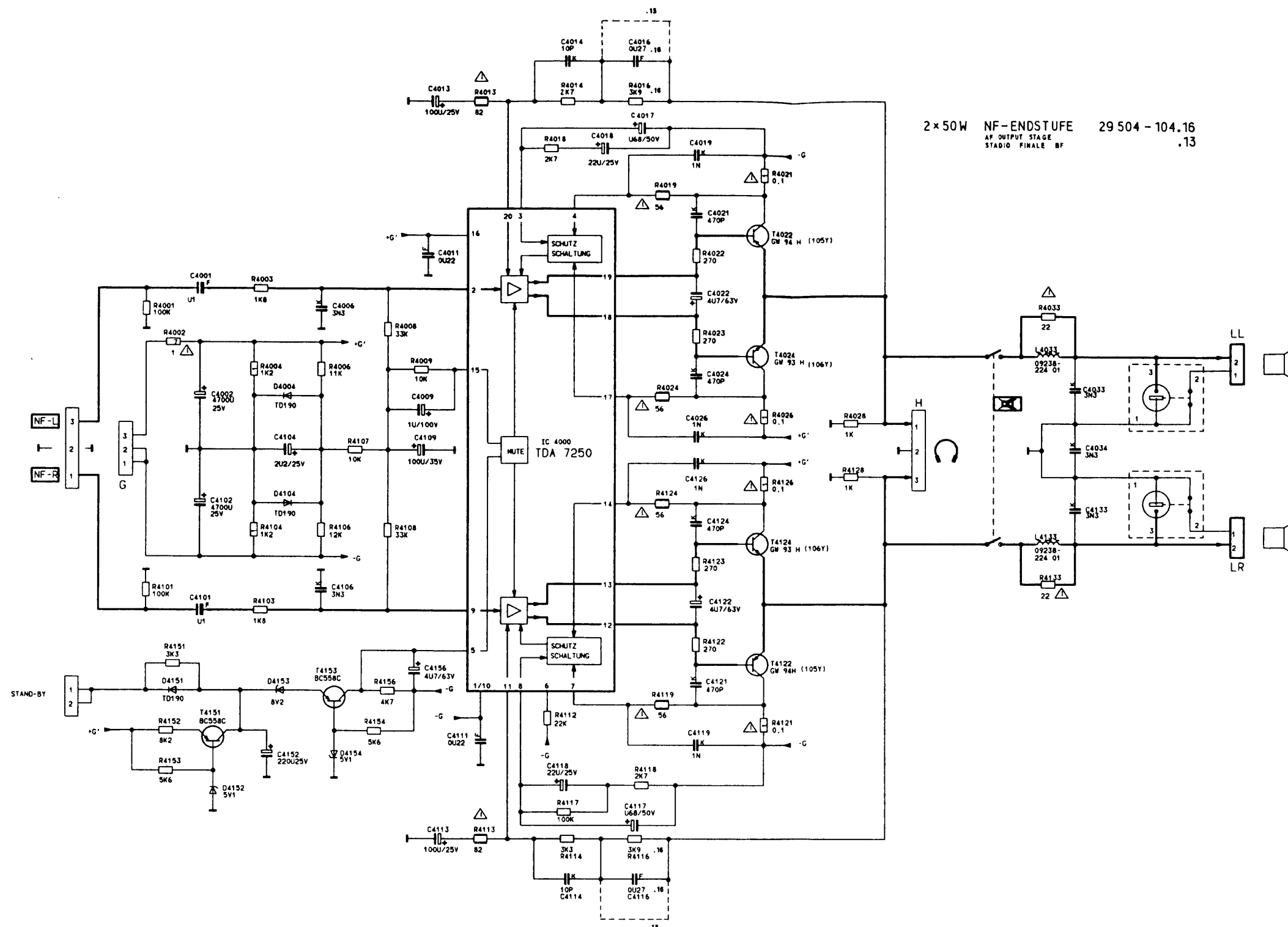
3. Regolazione del canale colore

- 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 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 sfocalizzazione 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).





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 $2.5 V_{DD}$ 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.

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

- Normal operation
All supply voltages are produced.
- TV sound reproduction via HiFi system
T 693 conducts, T 687 is cut off and the + G/- G voltage for the AF output stage is not provided.

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

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

