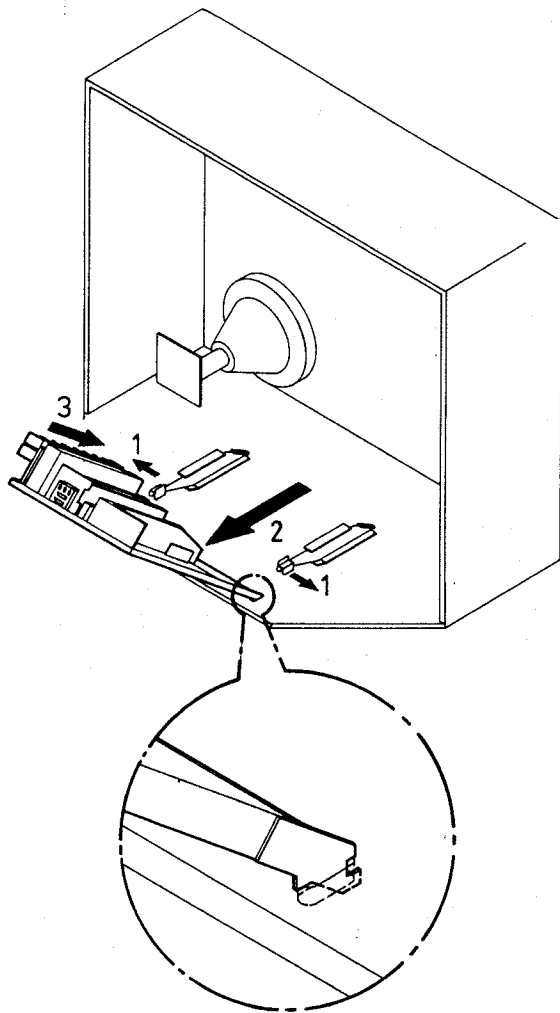


Servicestellung Service position



12134

GRUNDIG 

Ⓛ Btx ★ 32700 #

SERVICE MANUAL

CUC 1835
CUC 1860
CUC 1880
CUC 1890

Ⓛ

Wichtige Servicehinweise!

Das Gerät hat ein integriertes Fehlersuchprogramm. Die in diesem Programm angezeigten Fehler beziehen sich nur auf I²C Bus Defekte. Auch bei korrekter Rückmeldung kann ein Fehler im Signalverarbeitungsteil des entsprechenden Bausteines vorliegen.

Bevor die Feature Box oder das IC 360 gewechselt werden, sollten die beiden Teile mit den Daten des auf Seite 16 beschriebenen Notprogramms geladen werden.

ⓁB

Important Service Advice!

The Receiver has integrated fault tracing program. The faults located and indicated by this program refer only to faults on the I²C Bus. Even if correct feedback is indicated, a fault can still exist in the signal processing circuit of the appropriate modules.

Before the Feature Box or IC 360 is replaced, the dates of Emergency Program must be loaded into both these stages as described on page 17.

M 70 - 100 IDTV
M 70 - 100 IDTV / (IT)
M 70 - 100 IDTV NIC
M 70 - 580 IDTV
M 70 - 580 IDTV / (IT)
M 82 - 100 IDTV
M 82 - 100 IDTV / (IT)
M 95 - 100 IDTV
M 95 - 100 IDTV / (IT)
M 95 - 100 IDTV NIC

(9.25594-01)
(9.25594-05)
(9.25594-68)
(9.25660-01)
(9.25660-05)
(9.25546-01)
(9.25546-05)
(9.25559-01)
(9.25559-05)
(9.25559-68)

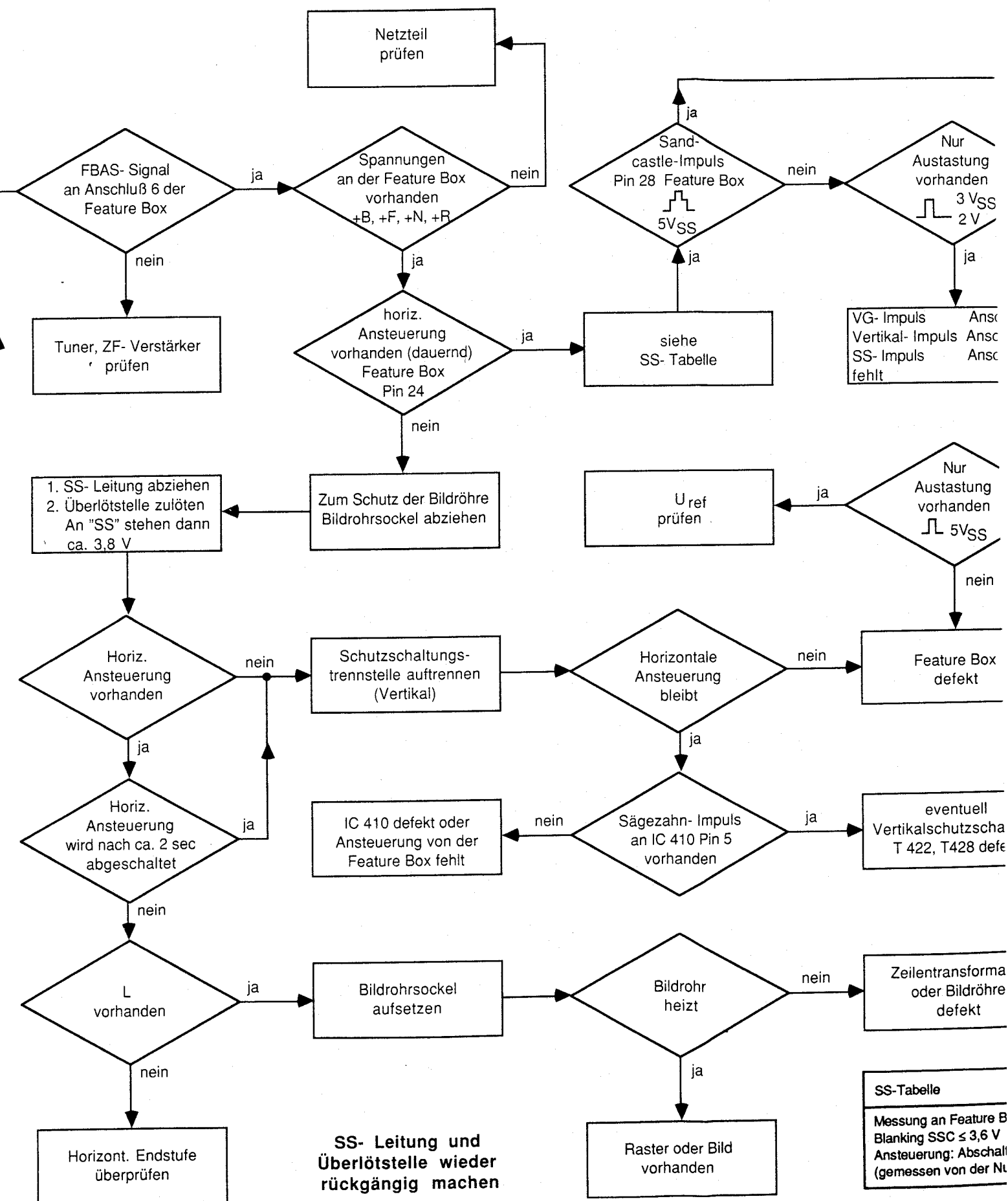
Service Manual CUC 1835, 1860, 1880, 1890
Sach. - Nr. 72010 - 007.30
Service Manual CUC 1835, 1860, 1880, 1890
Order - No. 72010 - 007.30

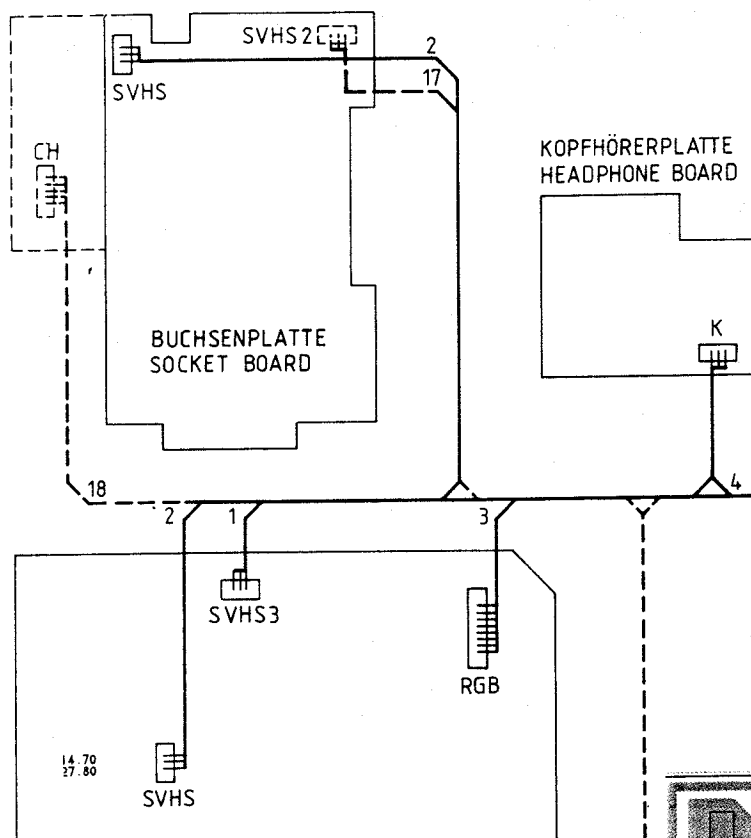
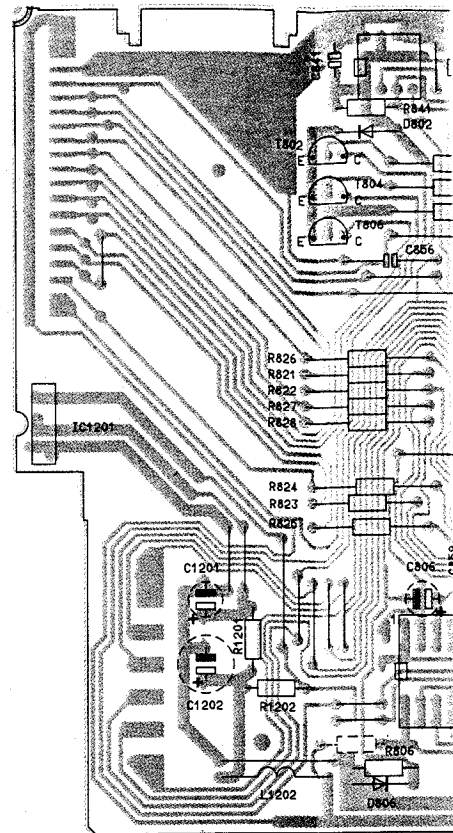
Tratamiento de componentes en técnica MOS

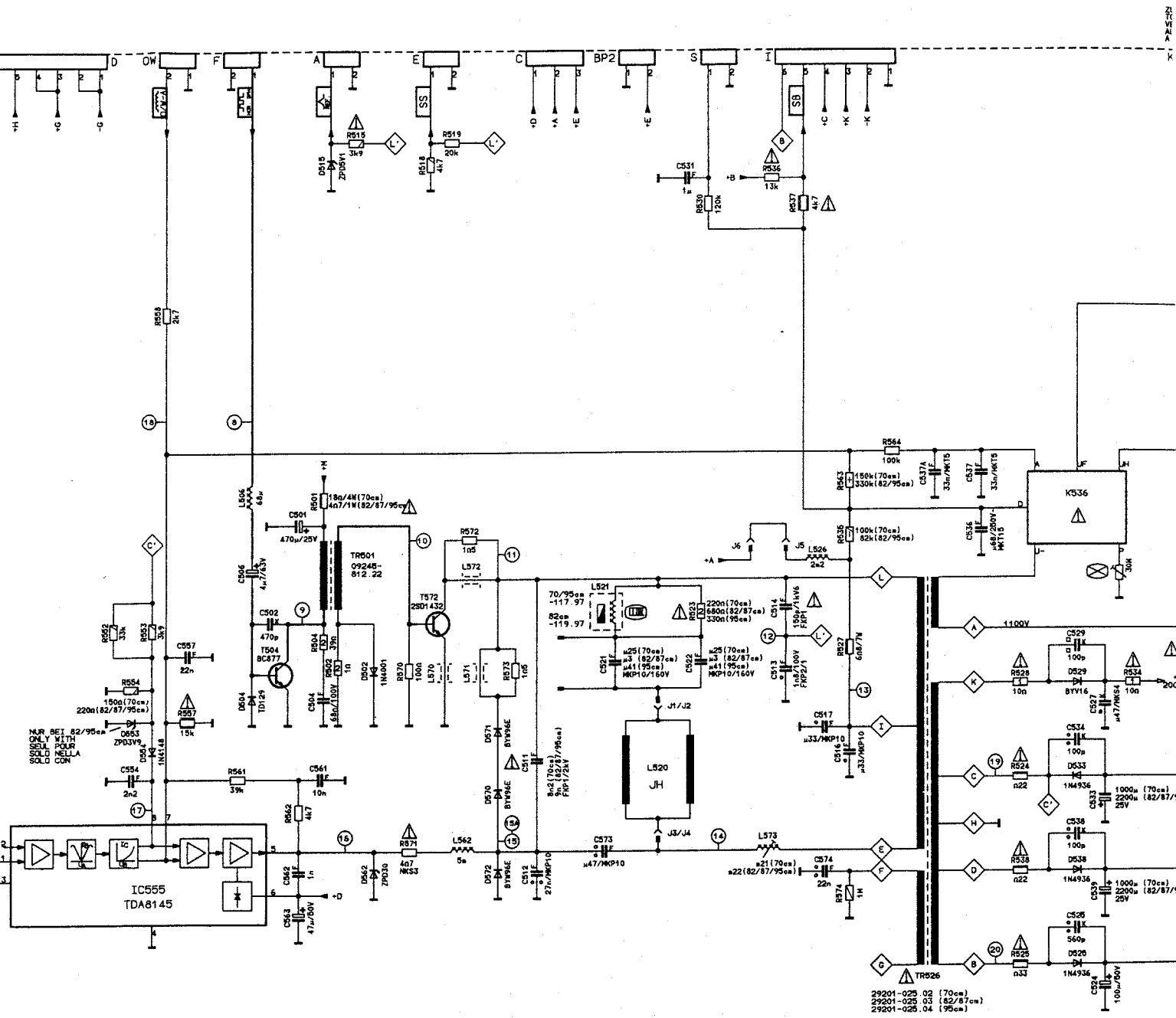
Los circuitos contruidos en técnica MOS precisan un cuidado especial contra las cargas estáticas.

En todos los materiales plásticos de elevado aislamiento pueden aparecer cargas estáticas y también ser transmitidas a la persona, especialmente cuando las manos y zapatos son de materia

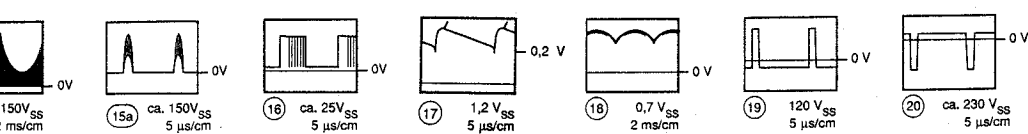
3. Los elementos MOS sólo deben cogerse por la cápsula, sin rozar siquiera los terminales.
4. Pruebas y trabajos con los circuitos MOS sólo deben realizarse en aparatos que estén puestos a tierra.
5. No extraer ni establecer contacto bajo tensión de funciona-

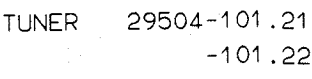


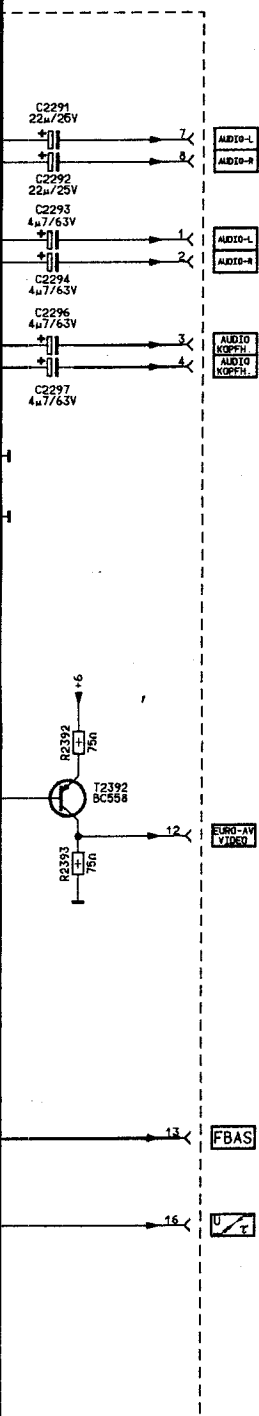




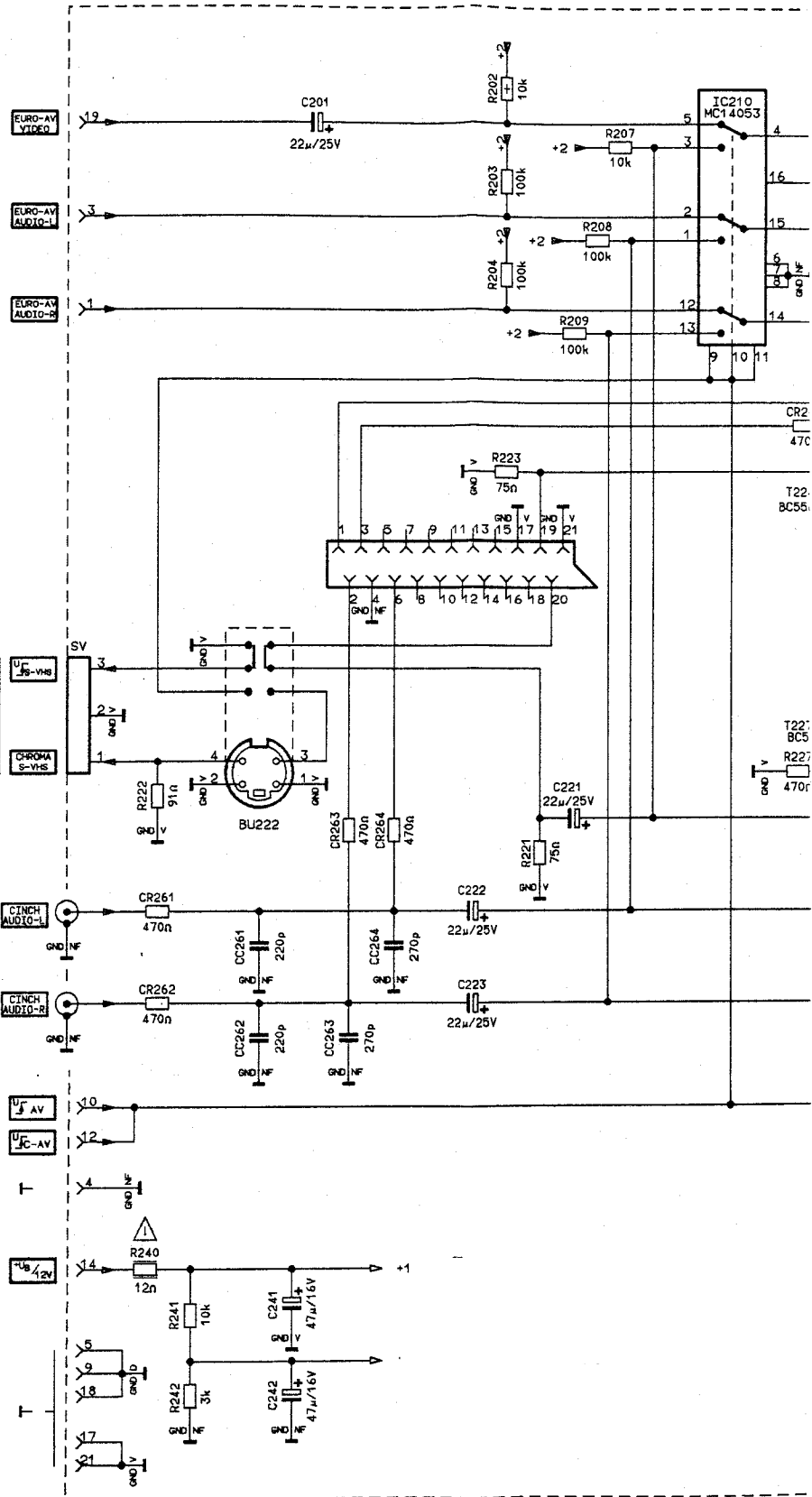
NDIG
 7 - CHASSIS CUC 1835/60 (70 cm)
 CUC 1880 (80 cm)
 CUC 1890 (90 cm)



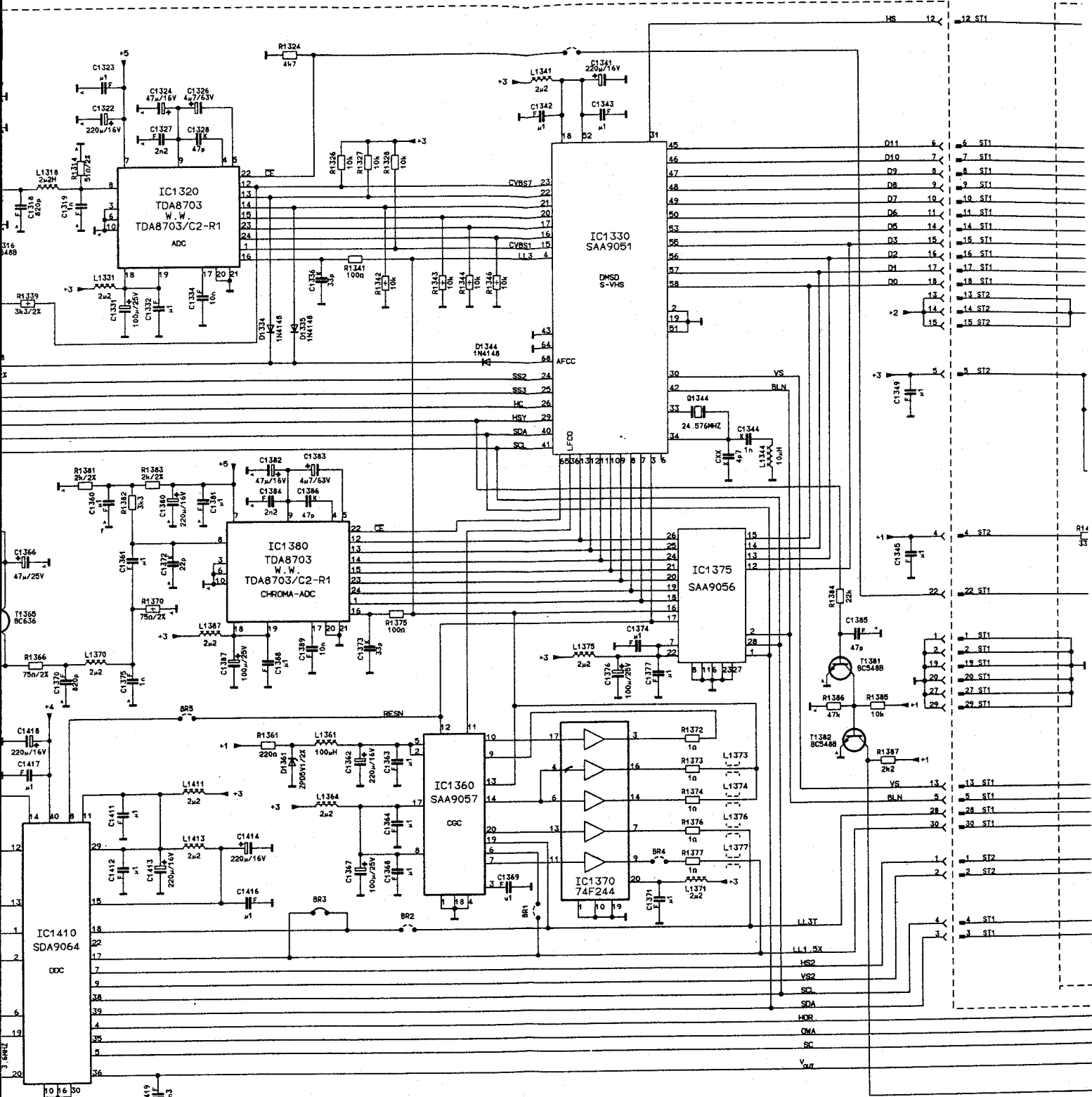




ZUM FARB/RGB
TO COLOUR RGB
VERS COECODEUR RVB
ALLOI COEUR RVB
AL CROIX RGB



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

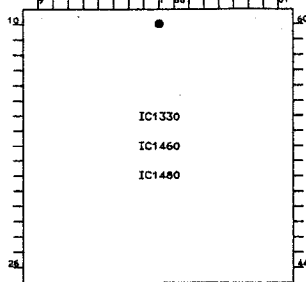


PLCC68



IC VON UNTEN
IC BOTTOM VIEW
IC VUES DE DESSOUS
IC VEDUTO DA SOTTO
IC VISTO POR DEBAJO

PLCC68



IC VON OBEN
IC TOP VIEW
IC VUES DE DESSUS
IC VEDUTO DA SOPRA
IC VISTO DESDE ARRIBA

POS. NR.	SACHNUMMER	BEZEICHNUNG 
POS. NO.	PART NUMBER	DESCRIPTION 
		
C 201	8415-162-126	ELKO GRP 22UF 25V
C 211	8415-161-126	ELKO GRM 22UF 25V
C 212	8452-665-122	ELKO GRM 22UF 16V
C 221	8415-161-126	ELKO GRM 22UF 25V
C 222	8452-665-122	ELKO GRM 22UF 16V
C 223	8415-161-126	ELKO GRM 22UF 25V
C 226	8684-067-194	KERKO.5 470PF 5%
C 228	8684-067-194	KERKO.5 470PF 5%
C 244	8415-162-126	ELKO GRP 22UF 25V
C 246	8415-161-126	ELKO GRM 22UF 25V
C 338	8452-966-135	ELKO GRP 100UF 25V
C 339	8452-965-052	ELKO GRM 100UF 10V
C 344	8452-966-246	ELKO GRP 10UF 50V
C 346	8683-963-194	KERKO.5 270PF 5%
C 347	8685-993-094	EDPU/SDPU 5 270PF 2%
C 351	8684-367-139	KERKO.5 3300PF 20%
C 352	8452-966-126	ELKO GRP 22UF 25V
C 356	8555-367-673	MKT 5 0,1 UF 20%
C 357	8452-966-095	ELKO GRP 220UF 16V
C 362	8555-263-173	MKT 5/1 0,1 UF 20%
C 363	8684-367-148	KERKO.5 4700PF 20%
C 364	8684-367-148	KERKO.5 4700PF 20%
C 365	8684-367-148	KERKO.5 4700PF 20%
C 366	8452-996-150	ELKO CB 2200UF 25V
C 367	8668-203-023	ABBLOCK-C 0,1 UF -GR
C 368	8668-203-023	ABBLOCK-C 0,1 UF -GR
C 369	8668-203-023	ABBLOCK-C 0,1 UF -GR
C 371	8684-367-139	KERKO.5 3300PF 20%
C 374	8452-965-052	ELKO GRM 100UF 10V
C 403	8555-367-685	MKT 5 0,33 UF 20%
C 404	8555-367-673	MKT 5 0,1 UF 20%
C 406	8452-996-147	ELKO CB 1000UF 25V
C 411	8555-367-673	MKT 5 0,1 UF 20%
C 412	8452-996-147	ELKO CB 1000UF 25V
C 414	8563-731-418	MKS 4 (16) 0,22 UF 20%
C 421	8555-267-189	MKT 5/1+3+25 0,47 UF 20%
C 424	8555-367-681	MKT 5 0,22 UF 20%
C 429	8452-965-135	ELKO GRM 100UF 25V
C 431	8555-367-649	KT/MKT 5 0,01 UF 20%
C 532	8426-098-061	ELKO CB 4,7UF 350V
C 682	8452-297-056	ELKO 8 600UF 63V
C 907	8684-367-148	KERKO.5 4700PF 20%
C 908	8684-367-148	KERKO.5 4700PF 20%
CC 271	8672-259-242	KEFQ 1206 470PF 10%
CC 274	8672-259-242	KEFQ 1206 470PF 10%
CR 261	8706-297-065	R-CHIP 1206 470 OHM 5%
CR 262	8706-297-065	R-CHIP 1206 470 OHM 5%
CR 263	8706-297-065	R-CHIP 1206 470 OHM 5%
CR 264	8706-297-065	R-CHIP 1206 470 OHM 5%
CR 266	8706-297-065	R-CHIP 1206 470 OHM 5%
CR 267	8706-297-065	R-CHIP 1206 470 OHM 5%
CR 271	8706-297-057	R-CHIP 1206 220 OHM 5%
CR 272	8706-297-057	R-CHIP 1206 220 OHM 5%
CR 273	8706-297-065	R-CHIP 1206 470 OHM 5%
CR 274	8706-297-065	R-CHIP 1206 470 OHM 5%
		
D 337	8309-720-331	Z DIODE 30 C 0,5W
D 403	8309-720-052	Z DIODE 5,1 C 0,5W

ÄNDERUNGEN VORBEHALTEN

POS. NR.	SACHNUMMER	BEZEICHNUNG 
POS. NO.	PART NUMBER	DESCRIPTION 
D 413	8309-210-401	DIODE 1 N 4934/4935 MOT/
D 424	8309-215-045	DIODE 1 N 4148 ITT/TID
D 426	8309-215-045	DIODE 1 N 4148 ITT/TID
D 428	8309-720-033	Z DIODE 3,3 C 0,5W
D 429	8309-215-045	DIODE 1 N 4148 ITT/TID
D 431	8309-214-010	DIODE TD 129 -GA
D 432	8309-720-112	Z DIODE 12 C 0,5W
D 433	8309-215-045	DIODE 1 N 4148 ITT/TID
D 534	8309-215-020	DIODE 1 N 4004 -GA
D 536	8309-720-052	Z DIODE 5,1 C 0,5W
D 541	8309-200-021	DIODE BAV 21 ITT
D 543	8309-215-045	DIODE 1 N 4148 ITT/TID
D 544	8309-215-045	DIODE 1 N 4148 ITT/TID
D 545	8309-215-045	DIODE 1 N 4148 ITT/TID
		
IC 210	8305-201-953	IC CD4053BE RCA/BC NSC/MC
IC 240	8305-201-953	IC CD4053BE RCA/BC NSC/MC
IC 350	8305-332-820	IC TDA 2822 M ATE
IC 360	8305-158-428	IC SDA 3526-2 SIE
IC 410	8305-338-179	IC TEA 8172 A-1 TFK
		
L 210	8104-982-014	DAEMPFUNGSERLE
L 336	09241-035.97	STABKERNDROSSEL
L 337	09241-035.97	STABKERNDROSSEL
L 345	8140-526-325	DR AX 0411-GA 1,8UH
L 366	09241-035.97	STABKERNDROSSEL
L 560	29500-817.97	FUNKENTSTOERDROSSEL
L 901	8140-525-969	DR AX 0411-GA 22UH
L 902	8140-525-969	DR AX 0411-GA 22UH
L 903	09240-815.01	DROSSEL 19,5 UH
		 
R 202	8700-011-297	KSW AX 0204-GA 10 KOHM
R 203	8700-007-521	KSW AX 0207-GA 100 KOHM
R 204	8700-007-521	KSW AX 0207-GA 100 KOHM
R 207	8700-007-497	KSW AX 0207-GA 10 KOHM
R 208	8700-007-521	KSW AX 0207-GA 100 KOHM
R 209	8700-007-521	KSW AX 0207-GA 100 KOHM
R 213	8700-007-465	KSW AX 0207-GA 470 OHM
R 214	8700-011-265	KSW AX 0204-GA 470 OHM
R 222	8700-007-448	KSW AX 0207-GA 91 OHM
R 223	8700-007-446	KSW AX 0207-GA 75 OHM
R 226	8700-007-465	KSW AX 0207-GA 470 OHM
R 227	8700-007-465	KSW AX 0207-GA 470 OHM
R 232	8700-007-446	KSW AX 0207-GA 75 OHM
R 233	8700-007-446	KSW AX 0207-GA 75 OHM
R 234	8700-007-446	KSW AX 0207-GA 75 OHM
R 236	8700-007-446	KSW AX 0207-GA 75 OHM
R 240	 8700-229-027	KSW AX 0207-GA NB
R 241	8700-007-497	KSW AX 0207-GA 10 KOHM
R 242	8700-007-484	KSW AX 0207-GA 3 KOHM
R 243	8700-007-521	KSW AX 0207-GA 100 KOHM
R 244	8700-007-521	KSW AX 0207-GA 100 KOHM
R 246	8700-011-297	KSW AX 0204-GA 10 KOHM
R 336	8700-007-473	KSW AX 0207-GA 1 KOHM

ALTERNATIONS RESERVED

POS. NR. POS. NO.	SACHNUMMER PART NUMBER	BEZEICHNUNG  DESCRIPTION 
R 337	8705-269-101	MOW AX 0617-GA 15 KOHM
R 340	8700-007-497	KSW AX 0207-GA 10 KOHM
R 341	8790-250-051	ESTR.PPK10-A 10 KOHM LIN
R 342	8700-007-513	KSW AX 0207-GA 47 KOHM
R 343	8700-007-487	KSW AX 0207-GA 3,9 KOHM
R 344	8700-011-309	KSW AX 0204-GA 33 KOHM
R 345	8700-007-497	KSW AX 0207-GA 10 KOHM
R 347	8700-011-273	KSW AX 0204-GA 1 KOHM
R 348	8700-007-446	KSW AX 0207-GA 75 OHM
R 351	8700-007-481	KSW AX 0207-GA 2,2 KOHM
R 352	8700-007-457	KSW AX 0207-GA 220 OHM
R 354	8700-007-473	KSW AX 0207-GA 1 KOHM
R 356 	8700-229-025	KSW AX 0207-GA NB
R 358	8700-007-521	KSW AX 0207-GA 100 KOHM
R 361	8790-250-051	ESTR.PPK10-A 10 KOHM LIN
R 362	8790-250-051	ESTR.PPK10-A 10 KOHM LIN
R 363	8700-011-289	KSW AX 0204-GA 4,7 KOHM
R 364	8700-011-289	KSW AX 0204-GA 4,7 KOHM
R 371	8700-007-481	KSW AX 0207-GA 2,2 KOHM
R 372	8700-007-457	KSW AX 0207-GA 220 OHM
R 374	8700-007-473	KSW AX 0207-GA 1 KOHM
R 378	8700-007-521	KSW AX 0207-GA 100 KOHM
R 401	8700-007-530	KSW AX 0207-GA 240 KOHM
R 402	8700-007-519	KSW AX 0207-GA 82 KOHM
R 403	8700-007-537	KSW AX 0207-GA 470 KOHM
R 404	8700-007-475	KSW AX 0207-GA 1,2 KOHM
R 408	8765-098-208	MSW AX 0207-GA 1,8 OHM
R 409	8765-098-208	MSW AX 0207-GA 1,8 OHM
R 414 	8765-097-009	MSW AX 0204-GA 2,2 OHM
R 421	8700-007-521	KSW AX 0207-GA 100 KOHM
R 422	8700-007-521	KSW AX 0207-GA 100 KOHM
R 423	8700-007-507	KSW AX 0207-GA 27 KOHM
R 426	8700-007-473	KSW AX 0207-GA 1 KOHM
R 428	8700-007-449	KSW AX 0207-GA 100 OHM
R 429	8700-007-475	KSW AX 0207-GA 1,2 KOHM
R 433	8700-007-475	KSW AX 0207-GA 1,2 KOHM
R 531	8700-007-505	KSW AX 0207-GA 22 KOHM
R 533	8700-007-497	KSW AX 0207-GA 10 KOHM
R 541	8700-007-515	KSW AX 0207-GA 56 KOHM
R 543	8700-011-297	KSW AX 0204-GA 10 KOHM
R 544	8700-011-309	KSW AX 0204-GA 33 KOHM
R 545	8700-007-497	KSW AX 0207-GA 10 KOHM
R 901 	8700-249-017	KSW AX 0411-NB 4,7 OHM
R 902 	8700-249-017	KSW AX 0411-NB 4,7 OHM
		
T 214	8303-201-548	TRANS.BC 548
T 216	8303-200-558	TRANS.BC 558
T 224	8303-205-558	TRANS.BC 558 B
T 227	8303-207-548	TRANS.BC 548 C
T 344	8303-205-548	TRANS.BC 548 B
T 422	8303-204-548	TRANS.BC 548 B
T 428	8303-204-548	TRANS.BC 548 B
T 433	8303-205-548	TRANS.BC 548 B

Sicherheitsvorschriften/Safety requirements / Prescrizioni de sicurezza / Prescriptions de sécurité / Prescripciones de seguridad



Achtung: Bei Eingriffen ins Gerät sind die Sicherheitsvorschriften nach VDE 701 (reparaturbezogen) bzw. VDE 0860 / IEC 65 (gerätebezogen) zu beachten!



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

MOS - Vorschriften beim Umgang mit MOS - Bauteilen beachten!



Attention: Please observe the applicable safety requirements according to VDE 701 (concerning repairs) and VDE 0860 / IEC 65 (concerning type of product)!



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

Observe **MOS** components handling instructions when servicing!



Attenzione: Osservare le corrispondenti prescrizioni di sicurezza VDE 701 (concernente servizio) e VDE 0860 / IEC 65 (concernente il tipo di prodotto)!



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

Osservare le relative prescrizioni durante, lavori con componenti **MOS**!



Attention: Priere d'observer les prescriptions de sécurité VDE 701 (concernant les réparations) et VDE 0860 / IEC 65 (concernant le type de produit)!



Composants répondant aux normes VDE ou IEC. Les remplacer uniquement par des composants ayant les mêmes spécifications.

Lors de la manipulation des circuits **MOS**, respecter les prescriptions **MOS**!



Atención: Recomendamos las normas de seguridad VDE u otras normas equivalentes, por ejemplo: VDE 701 para reparaciones, VDE 0860 / IEC 65 para aparatos!



Componentes que cumplen las normas VDE/IEC. En caso de sustitución, emplear componentes con idénticas especificaciones!

Durante la reparación observar las normas sobre componentes **MOS**!



U.S. &
Canada

Attention: This set can only be operated from AC mains of 120 V/60 Hz. Also observe the information given on the rear of the set.

CAUTION: For continued protection against risk of fire replace only with same type fuses!

CAUTION: To reduce the risk of electric shock, do not remove cover (or back), no user-serviceable parts inside, refer servicing to qualified service personnel.



Components to safety guidelines (IEC/U.L.)! Only use components with the same specifications for replacement!

Observe by checking leakage-current or resistance measurement that the exposed parts are acceptably insulated from the supply circuit.

Observe **MOS** components handling instructions when servicing!



10 / 89

CUC 1860 CUC 1890

SACH-NR. / PART NO. 29701-063.10
SACH-NR. / PART NO. 29701-063.11

POS. NR. POS. NO.	ABB NR. FIG. NO.	SACHNUMMER PART NUMBER	ANZ. QUA.	BEZEICHNUNG (D)	DESCRIPTION (GB)
0001.000		29504-101.22		CHIP-TUNER/HYP.	CHIP-TUNER /HYP.
0002.000		29504-102.46	X	ZF-VERSTAERKER NICAM	IF AMPLIFIER NICAM
0003.000		29504-103.03		FEATURE BOX DIGI 3	FEATURE BOX DIGI 3
0004.000		29504-104.51	X	NF-STEREO (2X60W)	AF-STEREO
0005.000		29504-105.36	X	FBAS-ENCODER DIGI 3	FBAS-ENCODER DIGI 3
0006.000		29504-108.72	X	VIDEOTEXT 100HZ	VIDEOTEXT
0007.000		29700-412.01		ABDECKUNG	COVER
0008.000		29303-153.14		MONTAGECLIP	MOUNTING CLIP
0008.001		29303-153.01		MONTAGECLIP	ASSEMBLY CLIP
0009.000		29700-427.01		BAUSTEINHALTER	MODULE HOLDER
0010.000		29304-060.67		EURO AV-BUCHSENPLATTE	EURO-AV-SOCKET PANEL
0010.002		29303-168.01	2	CINCHBUCHSE	CHINCH SOCKET
0010.003		29303-522.04		S-VHS BUCHSE	S-VHS-SOCKET
0010.004		29700-436.01		BUCHSENPL.AUFNAHME (CUC 1890)	SOCKET PLATE RECORD
0010.005		29303-119.09		PERIBUCHSE	PERI SOCKET
0010.006		29303-119.08		PERIBUCHSE	PERI SOCKET
0011.000		29303-431.01		TUNERAUFNAHME KPL.13-POL.	TUNER HOLDER
0012.000		29304-519.68		SCHALTERPLATTE KPL. (CUC 1890)	SWITCHTING BOARD
0012.001		29703-325.02		SCHIEBESCHALTER (CUC 1890)	SLIDING SWITCH
		29701-062.54	X	NETZTEIL-EINBAUCHASSIS KEIN E - TEIL	MAINS PART-MOUNTING CHASSIS NO SPARE PART
				X = SIEHE GESONDERTE E - LISTE	X = SEE SEPARATE PARTS LIST

POS. NR.	SACHNUMMER	BEZEICHNUNG (D)
POS. NO.	PART NUMBER	DESCRIPTION (GB)
		
C 201	8555-263-173	MKT 5/1 0,1 UF 20%
C 202	8452-665-122	ELKO GRM 22UF 16V
C 246	8452-665-122	ELKO GRM 22UF 16V
C 251	8684-367-133	KERKO.5 2200PF 20%
C 253	8684-367-133	KERKO.5 2200PF 20%
C 261	8555-263-173	MKT 5/1 0,1 UF 20%
C 262	8452-665-122	ELKO GRM 22UF 16V
C 276	8684-367-133	KERKO.5 2200PF 20%
C 278	8684-367-133	KERKO.5 2200PF 20%
C 281	8452-665-122	ELKO GRM 22UF 16V
C 338	8452-966-135	ELKO GRP 100UF 25V
C 339	8452-965-052	ELKO GRM 100UF 10V
C 344	8452-966-246	ELKO GRP 10UF 50V
C 346	8683-963-194	KERKO.5 270PF 5%
C 347	8685-993-094	EDPU/SDPU 5 270PF 2%
C 351	8684-367-139	KERKO.5 3300PF 20%
C 356	8555-367-673	MKT 5 0,1 UF 20%
C 357	8452-966-095	ELKO GRP 220UF 16V
C 362	8555-263-173	MKT 5/1 0,1 UF 20%
C 363	8684-367-148	KERKO.5 4700PF 20%
C 364	8684-367-148	KERKO.5 4700PF 20%
C 365	8684-367-148	KERKO.5 4700PF 20%
C 366	8452-996-150	ELKO CB 2200UF 25V
C 367	8668-203-023	ABBLOCK-C 0,1 UF -GR
C 368	8668-203-023	ABBLOCK-C 0,1 UF -GR
C 369	8668-203-023	ABBLOCK-C 0,1 UF -GR
C 371	8684-367-139	KERKO.5 3300PF 20%
C 372	8452-966-126	ELKO GRP 22UF 25V
C 374	8452-965-052	ELKO GRM 100UF 10V
C 403	8555-367-685	MKT 5 0,33 UF 20%
C 404	8555-367-673	MKT 5 0,1 UF 20%
C 406	8452-996-147	ELKO CB 1000UF 25V
C 411	8555-367-673	MKT 5 0,1 UF 20%
C 412	8452-996-147	ELKO CB 1000UF 25V
C 414	8563-731-418	MKS 4 (16) 0,22 UF 20%
C 421	8555-267-189	MKT 5/1+3+25 0,47 UF 20%
C 424	8555-367-681	MKT 5 0,22 UF 20%
C 429	8452-965-135	ELKO GRM 100UF 25V
C 431	8555-367-649	KT/MKT 5 0,01 UF 20%
C 532	8426-098-061	ELKO CB 4,7UF 350V
C 682	8452-297-056	ELKO 8 600UF 63V
C 907	8684-367-148	KERKO.5 4700PF 20%
C 908	8684-367-148	KERKO.5 4700PF 20%
		
D 226	8309-215-045	DIODE 1 N 4148 ITT/TID
D 236	8309-214-218	DIODE TD 129 UNI/1N 4148/
D 237	8309-214-218	DIODE TD 129 UNI/1N 4148/
D 238	8309-214-218	DIODE TD 129 UNI/1N 4148/
D 239	8309-214-218	DIODE TD 129 UNI/1N 4148/
D 337	8309-720-331	Z DIODE 30 C 0,5W
D 403	8309-720-052	Z DIODE 5,1 C 0,5W
D 413	8309-210-401	DIODE 1 N 4934/4935 MOT/
D 424	8309-215-045	DIODE 1 N 4148 ITT/TID
D 426	8309-215-045	DIODE 1 N 4148 ITT/TID
D 428	8309-720-033	Z DIODE 3,3 C 0,5W
D 429	8309-215-045	DIODE 1 N 4148 ITT/TID
D 431	8309-214-010	DIODE TD 129 -GA
D 432	8309-720-112	Z DIODE 12 C 0,5W
D 433	8309-215-045	DIODE 1 N 4148 ITT/TID

ÄNDERUNGEN VORBEHALTEN

POS. NR.	SACHNUMMER	BEZEICHNUNG (D)
POS. NO.	PART NUMBER	DESCRIPTION (GB)
D 534	8309-215-020	DIODE 1 N 4004 -GA
D 536	8309-720-052	Z DIODE 5,1 C 0,5W
D 541	8309-200-021	DIODE BAV 21 ITT
D 543	8309-215-045	DIODE 1 N 4148 ITT/TID
D 544	8309-215-045	DIODE 1 N 4148 ITT/TID
D 545	8309-215-045	DIODE 1 N 4148 ITT/TID
		
IC 210	8305-205-041	IC MC 14052 B CP MOT
IC 240	8305-205-064	IC MC 14053 B CP MOT
IC 241	8305-205-064	IC MC 14053 B CP MOT
IC 270	8305-205-041	IC MC 14052 B CP MOT
IC 350	8305-332-820	IC TDA 2822 M ATE
IC 360	8305-158-428	IC SDA 3526-2 SIE
IC 410	8305-338-179	IC TEA 8172 A-1 TFK
		
L 223	8140-526-014	DR AX 0309-GA 6,8UH
L 336	09241-035.97	STABKERNDROSSEL
L 337	09241-035.97	STABKERNDROSSEL
L 345	8140-526-325	DR AX 0411-GA 1,8UH
L 366	09241-035.97	STABKERNDROSSEL
L 560	29500-817.97	FUNKENTSTOERDROSSEL
L 901	8140-525-969	DR AX 0411-GA 22UH
L 902	8140-525-969	DR AX 0411-GA 22UH
L 903	09240-815.01	DROSSEL 19,5 UH
		 
R 201	8700-011-265	KSW AX 0204-GA 470 OHM
R 211	8700-011-305	KSW AX 0204-GA 22 KOHM
R 212	8700-011-305	KSW AX 0204-GA 22 KOHM
R 221	8700-011-321	KSW AX 0204-GA 100 KOHM
R 222	8700-011-321	KSW AX 0204-GA 100 KOHM
R 226	8700-011-265	KSW AX 0204-GA 470 OHM
R 231	8700-011-265	KSW AX 0204-GA 470 OHM
R 233	8700-011-265	KSW AX 0204-GA 470 OHM
R 238	8700-011-321	KSW AX 0204-GA 100 KOHM
R 239	8700-011-321	KSW AX 0204-GA 100 KOHM
R 241	8700-011-321	KSW AX 0204-GA 100 KOHM
R 242	8700-011-321	KSW AX 0204-GA 100 KOHM
R 251	8700-011-245	KSW AX 0204-GA 68 OHM
R 256	8700-011-213	KSW AX 0204-GA 3,3 OHM
R 271	8700-011-321	KSW AX 0204-GA 100 KOHM
R 272	8700-011-321	KSW AX 0204-GA 100 KOHM
R 273	8700-011-321	KSW AX 0204-GA 100 KOHM
R 274	8700-011-321	KSW AX 0204-GA 100 KOHM
R 275	8700-011-321	KSW AX 0204-GA 100 KOHM
R 276	8700-011-321	KSW AX 0204-GA 100 KOHM
R 277	8700-011-321	KSW AX 0204-GA 100 KOHM
R 278	8700-011-321	KSW AX 0204-GA 100 KOHM
R 287	8700-011-213	KSW AX 0204-GA 3,3 OHM
R 288	8700-011-245	KSW AX 0204-GA 68 OHM
R 291	8700-229-027	KSW AX 0207-GA NB
R 292	8765-097-297	MSW AX 0204-GA 10 KOHM
R 336	8700-007-473	KSW AX 0207-GA 1 KOHM
R 337	8705-269-101	MOW AX 0617-GA 15 KOHM

ALTERNATIONS RESERVED

POS. NR. POS. NO.	SACHNUMMER PART NUMBER	BEZEICHNUNG DESCRIPTION	 
R 340 R 341	8700-007-497 8790-250-051	KSW AX 0207-GA 10 KOHM ESTR.PPK10-A 10 KOHM LIN	

**Sicherheitsvorschriften/Safety requirements /
Prescrizioni de sicurezza / Prescriptions de
sécurité / Prescripciones de seguridad**



Achtung: Bei Eingriffen ins Gerät sind die Sicherheitsvor-
schriften des Herstellers zu beachten.



5 / 89

CUC 1880 D 3

SACH-NR. 29701-063.03

POS. NR. POS. NO.	ABB NR. FIG. NO.	SACHNUMMER PART NUMBER	ANZ. QUA.	BEZEICHNUNG Ⓓ	DESCRIPTION ⒼⒷ
For Service Manuals Contact MAURITRON TECHNICAL SERVICES 8 Cherry Tree Rd, Chinnor Oxon OX9 4QY Tel:- 01844-351694 Fax:- 01844-352554 Email:- enquiries@mauritron.co.uk					
0001.000		29504-101.22		CHIP-TUNER/HYP.	CHIP-TUNER
0002.000		29504-103.03		FEATURE BOX DIGI 3	FEATURE BOX
0003.000		29504-104.51		NF-STEREO (2X60W)	AF-STEREO
0004.000		29504-105.36		FBAS-ENCODER DIGI 3	FBAS-ENCODER
0005.000		29504-108.72		VIDEOTEXT 100HZ	VIDEOTEXT
0006.000		29504-162.14		ZF-MULTI STEREO	IF-MULTISTEREO
0007.000		29700-412.01		ABDECKUNG	COVER
0008.000		29303-153.14		MONTAGECLIP	MOUNTING CLIP
0009.000		29701-062.53		NETZTEIL-EINBAUCHASSIS (SIEHE GESONDERTE E.-LISTE)	
0010.000		29304-060.64		EURO AV-BUCHSENPLATTE	EURO SOCKET PLATE
0010.002		29303-168.01		CINCHBUCHSE	CHINCH SOCKET
0010.003		29303-522.04		S-VHS-BUCHSE	S-VHS-SOCKET
0010.004		29700-436.01		BUCHSENPLAUFNAHME	SOCKET PL.RECORD
0011.000		29303-153.01		MONTAGECLIP	ASSEMBLY CLIP
0012.000		29303-156.08		GLIMMERSCHEIBE	MICA WASHER

POS. NR. POS. NO.	SACHNUMMER PART NUMBER	BEZEICHNUNG Ⓓ	DESCRIPTION ⒼⒷ
—II—			
C 201	8555-263-173	MKT 5/1 0,1 UF 20%	
C 202	8452-665-122	ELKO GRM 22UF 16V	
C 246	8452-665-122	ELKO GRM 22UF 16V	
C 251	8684-367-133	KERKO.5 2200PF 20%	
C 253	8684-367-133	KERKO.5 2200PF 20%	
C 261	8555-263-173	MKT 5/1 0,1 UF 20%	
C 262	8452-665-122	ELKO GRM 22UF 16V	
C 276	8684-367-133	KERKO.5 2200PF 20%	
C 278	8684-367-133	KERKO.5 2200PF 20%	
C 281	8452-665-122	ELKO GRM 22UF 16V	
C 338	8452-965-135	ELKO GRM 100UF 25V	
C 339	8452-965-052	ELKO GRM 100UF 10V	
C 344	8452-965-246	ELKO GRM 10UF 50V	
C 346	8683-963-194	KERKO.5 270PF 5%	
C 347	8685-993-094	EDPU/SDPU 5 270PF 2%	
C 351	8684-367-139	KERKO.5 3300PF 20%	
C 356	8555-367-673	MKT 5 0,1 UF 20%	
C 357	8452-966-095	ELKO GRP 220UF 16V	
C 362	8555-263-173	MKT 5/1 0,1 UF 20%	
C 363	8684-367-148	KERKO.5 4700PF 20%	
C 364	8684-367-148	KERKO.5 4700PF 20%	
C 365	8684-367-148	KERKO.5 4700PF 20%	
C 366	8452-996-150	ELKO CB 2200UF 25V	
C 367	8668-203-023	ABBLOCK-C 0,1 UF -GR	
C 368	8668-203-023	ABBLOCK-C 0,1 UF -GR	
C 369	8668-203-023	ABBLOCK-C 0,1 UF -GR	

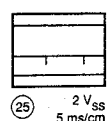
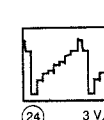
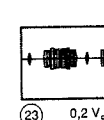
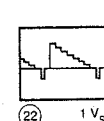
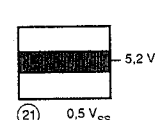
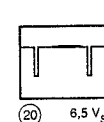
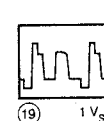
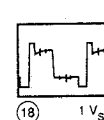
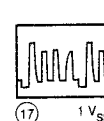
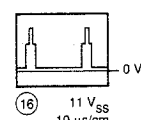
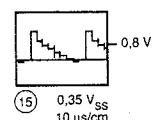
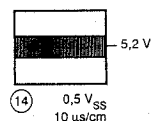
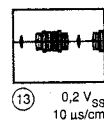
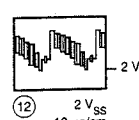
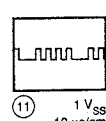
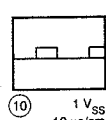
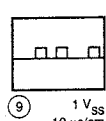
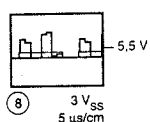
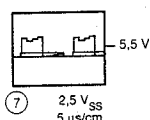
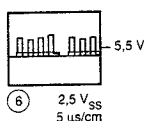
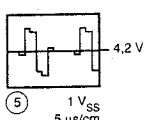
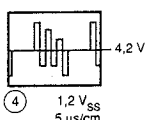
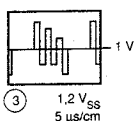
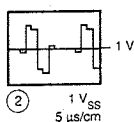
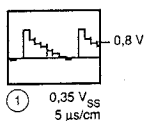
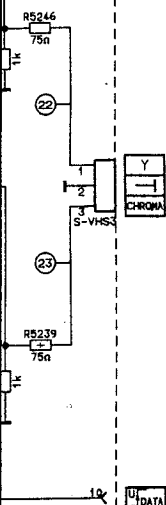
POS. NR. POS. NO.	SACHNUMMER PART NUMBER	BEZEICHNUNG Ⓓ	DESCRIPTION ⒼⒷ
C 371	8684-367-139	KERKO.5 3300PF 20%	
C 372	8452-966-126	ELKO GRP 22UF 25V	
C 403	8555-367-685	MKT 5 0,33 UF 20%	
C 404	8555-367-673	MKT 5 0,1 UF 20%	
C 406	8452-996-147	ELKO CB 1000UF 25V	
C 407	8515-722-210	MKP 10 0,1 UF 5% 160V	
C 411	8555-367-673	MKT 5 0,1 UF 20%	
C 412	8452-996-147	ELKO CB 1000UF 25V	
C 414	8563-731-418	MKS 4 (16) 0,22 UF 20%	
C 421	8555-267-189	MKT 5/1+3+25 0,47 UF 20%	
C 424	8555-367-681	MKT 5 0,22 UF 20%	
C 429	8452-965-135	ELKO GRM 100UF 25V	
C 532	8426-098-061	ELKO CB 4,7UF 350V	
C 550	8515-722-206	KF 50 0,15 UF 5% 160V	
C 552	8531-505-221	MKT 1816-86216/X 680PF20%	
C 682	8452-297-056	ELKO 8 600UF 63V	
C 906	8684-367-148	KERKO.5 4700PF 20%	
C 907	8684-367-148	KERKO.5 4700PF 20%	
C 908	8684-367-148	KERKO.5 4700PF 20%	
—II—			
D 226	8309-215-045	DIODE 1 N 4148 ITT/TID	
D 236	8309-214-218	DIODE TD 129 UNI/1N 4148/	
D 237	8309-214-218	DIODE TD 129 UNI/1N 4148/	
D 238	8309-214-218	DIODE TD 129 UNI/1N 4148/	
D 239	8309-214-218	DIODE TD 129 UNI/1N 4148/	

POS. NR.	SACHNUMMER	BEZEICHNUNG (D)
POS. NO.	PART NUMBER	DESCRIPTION (GB)
		
D 337	8309-720-331	Z DIODE 30 C 0,5W
D 403	8309-720-052	Z DIODE 5,1 C 0,5W
D 413	8309-210-401	DIODE 1 N 4934/4935 MOT/
D 424	8309-215-045	DIODE 1 N 4148 ITT/TID
D 426	8309-215-045	DIODE 1 N 4148 ITT/TID
D 428	8309-720-033	Z DIODE 3,3 C 0,5W
D 429	8309-215-045	DIODE 1 N 4148 ITT/TID
D 534	8309-215-020	DIODE 1 N 4004 -GA
D 536	8309-720-052	Z DIODE 5,1 C 0,5W
D 541	8309-215-045	DIODE 1 N 4148 ITT/TID
D 543	8309-215-045	DIODE 1 N 4148 ITT/TID
D 544	8309-215-045	DIODE 1 N 4148 ITT/TID
D 661	8309-820-840	DIODE MUR 840 MOT
D 671	8309-820-840	DIODE MUR 840 MOT
D 681	8309-820-840	DIODE MUR 840 MOT
		
IC 210	8305-205-041	IC MC 14052 B CP MOT
IC 240	8305-205-064	IC MC 14053 B CP MOT
IC 241	8305-205-064	IC MC 14053 B CP MOT
IC 270	8305-205-041	IC MC 14052 B CP MOT
IC 350	8305-332-820	IC TDA 2822 M ATE
IC 360	8305-158-426	IC SDA 3526 SIE
IC 410	8305-338-179	IC TDA 8179
IC 620	8305-204-317	IC LM 317 T NSC/MOT/
IC 666	8305-204-317	IC LM 317 T NSC/MOT/
IC 676	8305-204-317	IC LM 317 T NSC/MOT/
IC 900	8305-204-322	IC LM 323 K (G)
L 336	8140-526-310	DR AX 0411-GA 10UH
L 337	8140-526-310	DR AX 0411-GA 10UH
L 345	8140-526-325	DR AX 0411-GA 1,8UH
L 560	29500-817,97	FUNKENTSTOERDROSSEL
L 901	8140-525-969	DR AX 0411-GA 22UH
L 901.	09240-815.01	DROSSEL 19,5 UH
L 902	8140-525-969	DR AX 0411-GA 22UH
		
R 201	8700-011-265	KSW AX 0204-GA 470 OHM
R 211	8700-011-305	KSW AX 0204-GA 22 KOHM
R 212	8700-011-305	KSW AX 0204-GA 22 KOHM
R 221	8700-011-321	KSW AX 0204-GA 100 KOHM
R 222	8700-011-321	KSW AX 0204-GA 100 KOHM
R 226	8700-011-265	KSW AX 0204-GA 470 OHM
R 231	8700-011-265	KSW AX 0204-GA 470 OHM
R 233	8700-011-265	KSW AX 0204-GA 470 OHM
R 238	8700-011-321	KSW AX 0204-GA 100 KOHM
R 239	8700-011-321	KSW AX 0204-GA 100 KOHM
R 241	8700-011-321	KSW AX 0204-GA 100 KOHM
R 242	8700-011-321	KSW AX 0204-GA 100 KOHM
R 251	8700-011-245	KSW AX 0204-GA 68 OHM
R 256	8700-011-213	KSW AX 0204-GA 3,3 OHM
R 271	8700-011-321	KSW AX 0204-GA 100 KOHM
R 272	8700-011-321	KSW AX 0204-GA 100 KOHM
R 273	8700-011-321	KSW AX 0204-GA 100 KOHM
R 274	8700-011-321	KSW AX 0204-GA 100 KOHM
R 275	8700-011-321	KSW AX 0204-GA 100 KOHM
R 276	8700-011-321	KSW AX 0204-GA 100 KOHM
R 277	8700-011-321	KSW AX 0204-GA 100 KOHM

ÄNDERUNGEN VORBEHALTEN

POS. NR.	SACHNUMMER	BEZEICHNUNG (D)
POS. NO.	PART NUMBER	DESCRIPTION (GB)
For Service Manuals Contact MAURITRON TECHNICAL SERVICES 8 Cherry Tree Rd, Chinnor Oxon OX9 4QY Tel: 01844-351694 Fax: 01844-352554 Email: enquiries@mauritron.co.uk		
		
R 278	8700-011-321	KSW AX 0204-GA 100 KOHM
R 287	8700-011-213	KSW AX 0204-GA 3,3 OHM
R 288	8700-011-245	KSW AX 0204-GA 68 OHM
R 291	8700-229-027	KSW AX 0207-GA NB
R 292	8765-097-297	MSW AX 0204-GA 10 KOHM
R 336	8700-007-473	KSW AX 0207-GA 1 KOHM
R 337	8705-269-101	MOW AX 0617-GA 15 KOHM
R 340	8700-007-497	KSW AX 0207-GA 10 KOHM
R 341	8790-287-146	ESTR.PP10 4,7 KOHM
R 342	8700-007-497	KSW AX 0207-GA 10 KOHM
R 343	8700-007-487	KSW AX 0207-GA 3,9 KOHM
R 344	8700-011-309	KSW AX 0204-GA 33 KOHM
R 345	8700-007-497	KSW AX 0207-GA 10 KOHM
R 347	8700-011-273	KSW AX 0204-GA 1 KOHM
R 348	8700-007-446	KSW AX 0207-GA 75 OHM
R 351	8700-007-481	KSW AX 0207-GA 2,2 KOHM
R 352	8700-007-457	KSW AX 0207-GA 220 OHM
R 354	8700-007-473	KSW AX 0207-GA 1 KOHM
R 356	8700-229-025	KSW AX 0207-GA NB
R 358	8700-007-521	KSW AX 0207-GA 100 KOHM
R 361	8790-287-151	ESTR.PP10 10 KOHM
R 362	8790-287-151	ESTR.PP10 10 KOHM
R 363	8700-011-289	KSW AX 0204-GA 4,7 KOHM
R 364	8700-011-289	KSW AX 0204-GA 4,7 KOHM
R 366	8700-011-297	KSW AX 0204-GA 10 KOHM
R 371	8700-007-481	KSW AX 0207-GA 2,2 KOHM
R 372	8700-007-457	KSW AX 0207-GA 220 OHM
R 374	8700-007-473	KSW AX 0207-GA 1 KOHM
R 378	8700-007-521	KSW AX 0207-GA 100 KOHM
R 403	8700-007-537	KSW AX 0207-GA 470 KOHM
R 404	8700-007-475	KSW AX 0207-GA 1,2 KOHM
R 408	8765-098-203	MSW AX 0207-GA 1,2 OHM
R 409	8765-098-205	MSW AX 0207-GA 1,5 OHM
R 414	8765-097-009	MSW AX 0204-GA 2,2 OHM
R 421	8700-007-521	KSW AX 0207-GA 100 KOHM
R 422	8700-007-521	KSW AX 0207-GA 100 KOHM
R 423	8700-007-507	KSW AX 0207-GA 27 KOHM
R 426	8700-007-473	KSW AX 0207-GA 1 KOHM
R 428	8700-007-449	KSW AX 0207-GA 100 OHM
R 429	8700-007-475	KSW AX 0207-GA 1,2 KOHM
R 531	8700-007-505	KSW AX 0207-GA 22 KOHM
R 533	8700-007-497	KSW AX 0207-GA 10 KOHM
R 541	8700-007-515	KSW AX 0207-GA 56 KOHM
R 543	8700-007-497	KSW AX 0207-GA 10 KOHM
R 544	8700-007-509	KSW AX 0207-GA 33 KOHM
R 545	8700-007-497	KSW AX 0207-GA 10 KOHM
R 550	8799-999-620	FOKUSREGLER 120 MOHM
R 901	8700-249-017	KSW AX 0411-NB 4,7 OHM
R 902	8700-249-017	KSW AX 0411-NB 4,7 OHM
R 243/2	8700-011-265	KSW AX 0204-GA 470 OHM
R 265/2	8700-011-265	KSW AX 0204-GA 470 OHM
		
T 223 -	8303-207-548	TRANS.BC 548 C
T 227	8303-207-548	TRANS.BC 548 C
T 228	8303-201-558	TRANS.BC 558
T 236	8303-201-548	TRANS.BC 548
T 256	8303-275-338	TRANS.BC 338-40
T 287	8303-274-338	TRANS.BC 338-40
T 344	8303-204-548	TRANS.BC 548 B
T 422/428	8303-204-548	TRANS.BC 548 B
T 572	8302-631-432	TRANS.2 SD 1432 TOS

ALTERNATIONS RESERVED



FBAS - Encoder Abgleich (Italien)

Farbgenerator mit den RGB- und FBAS-Ausgängen an die Euro-AVBuchse anschließen.
Gerät auf AV Betrieb schalten und Schaltspannung 1V an Steckkontakt 16 der Buchse anlegen.

Ⓐ nom., Ⓑ nom., Ⓒ max. einstellen

1. Farboszillatorabgleich

- Frequenzzähler mit Tastkopf 10:1 oder Kondensator 2-3 pF zwischen C 5044 und C 5046 anschließen.
- Mit C 5043 auf 4,433619 MHz abgleichen.

Ersatzweise kann der Trimmer C 5043 nach links und rechts verdreht werden, bis die Farbe ausfällt. Anschließend die Mitte zwischen beiden Abschaltpunkten einstellen.

2. Farbabgleich

- Oszilloskop an Bausteinkontakt S-VHS 3; 3 anschließen.
- Den Farbhilfsträger auf der Nulllinie mit den Reglern R 5222 und R 5224 wechselseitig auf Minimum abgleichen (Fig. 1).

3. Sandcastle - Oszillator Abgleich

- Pin 9, TDA 2593 nach Masse kurzschließen.
- Einen Tastkopf eines Oszilloskops an Pin 7, IC 5160 anschließen.
- Anderen Tastkopf an Bausteinkontakt 5 (FBAS-Signal) anschließen.
- Mit Trimmer R 5147 Sandcastle-Impuls auf das FBAS-Signal triggern.
- Kurzschluß entfernen.

4. PAL - Oszillator

- PAL-Testbild einspeisen.
- Ⓐ nom., Ⓑ nom., Ⓒ max. einstellen.
- IC-Pin 2 vom TDA 3566 mit +12V verbinden.
- IC-Pin 24 und 25 vom TDA 3566 miteinander verbinden.
- Mit Trimmer C 5078 die durchlaufenden Farbbalken zum Stehen bringen.
- Kurzschlußbrücken entfernen.

5. Farbfilter - Abgleich

- Oszilloskop an Pin 4, IC 5020 anschließen
- Chroma-Signal mit F 5057 auf Maximum abgleichen

6. Farbtrap - Abgleich

- Oszilloskop an Pin 8, IC 5020 anschließen
- Restträger mit F 5053 auf Minimum abgleichen

7. PAL - Laufzeit - Abgleich

- Tastkopf an Pin 17, IC 5020 mit Regler BP (R 5017) und Spule LZ (F 5014) die Doppelbilder des B-Signals zur Deckung bringen.

CCVS Encoder Alignment (Italy)

Connect the RGB and CCVS output terminals of the colour generator to the Euro-AV socket. Switch the receiver to AV mode and apply a switching voltage of 1V to contact 16 of the socket.
Set Ⓐ at nom., Ⓑ at nom., Ⓒ at max.

1. Colour oscillator alignment

- Connect a frequency counter with a 10:1 probe or via a 2-3pF capacitor between C 5044 and C 5046.
- Adjust for 4.433619 MHz with C 5043.

Alternatively, the trimmer C 5043 can be turned to the left and right until the colour drops out. Thereafter, set the trimmer to the mid-position between the two colour drop-out points.

2. Colour alignment

- Connect an oscilloscope to the module, contact S-VHS 3;3.
- Use the presets R5222 and R 5224 to alternately adjust the colour sub-carrier on the zero line to minimum (Fig.1).

3. Sandcastle oscillator alignment

- Connect Pin 9, TDA 2593, to chassis.
- Connect one probe of an oscilloscope to Pin 7, IC 5160.
- Connect the other probe to the module, contact 5 (CCVS signal).
- Adjust the trimmer R 5147 so that the Sandcastle pulse triggers the CCVS signal.
- Remove the short circuit.

4. PAL oscillator

- Feed in a PAL test pattern.
- Set * at nom., * at nom., and * at max.
- Connect Pin 2 of TDA 3566 to +12V.
- Connect Pins 24 and 25 of TDA 3566 with each other.
- Adjust trimmer C 5078 so that the colour bars running across the screen become stationary.
- Remove the short-circuit jumpers.

5. Colour filter alignment

- Connect an oscilloscope to Pin 4, IC 5020.
- Adjust F 5057 to set the chroma signal at maximum.

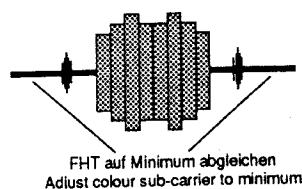
6. Colour trap alignment

- Connect an oscilloscope to Pin 8, IC 5020.
- Adjust F 5053 to set the residual carrier at minimum.

7. PAL delay time alignment

- Connect the probe to Pin 17 of IC 5020; adjust control BP (R 5017) and coil LZ (F 5014) so that the two displays of the video signal coincide.

Fig. 1

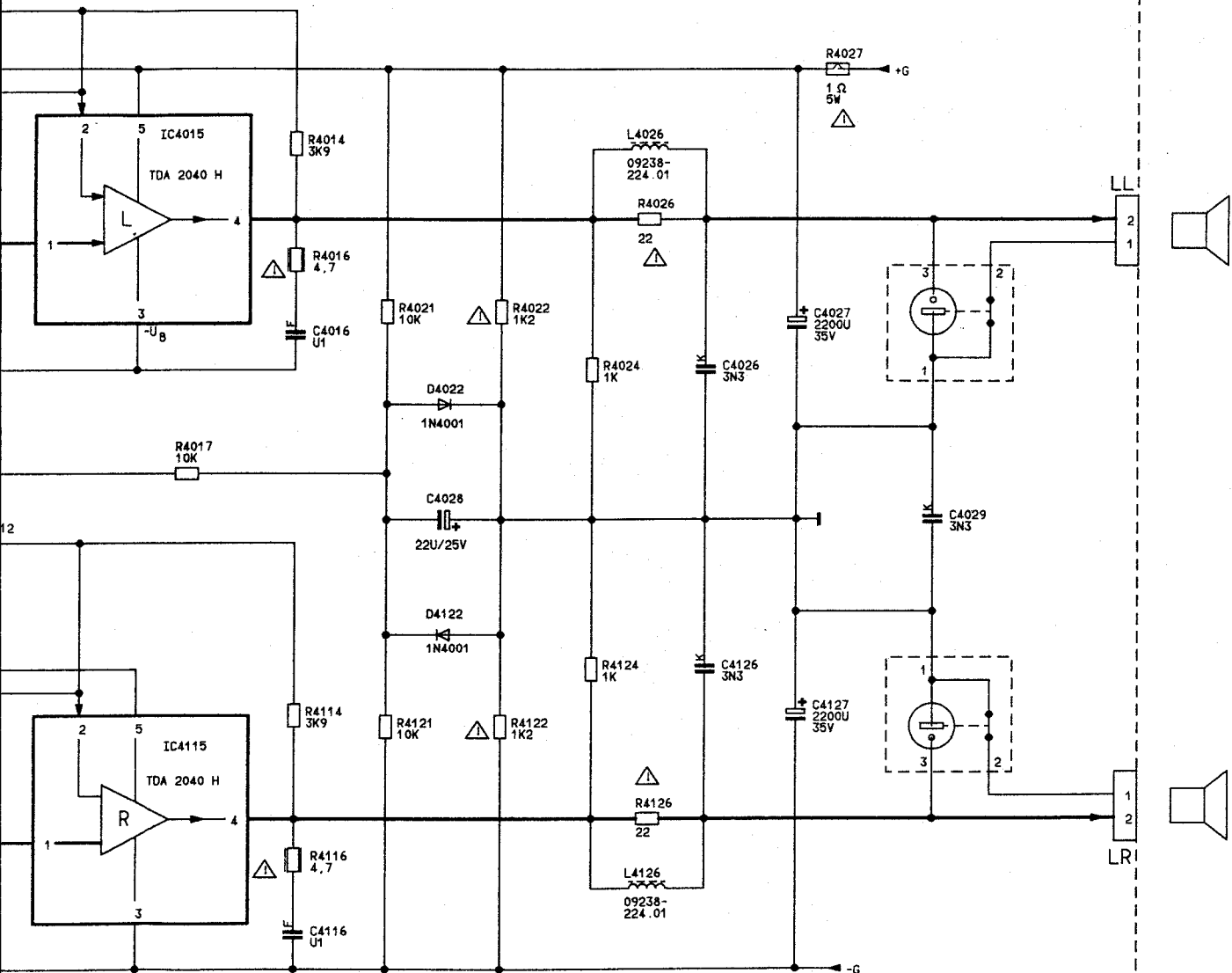


NF 2X35W

AF
BF
BF
BF

NF 2X35W 29504-104.08

AF
BF
BF
BF



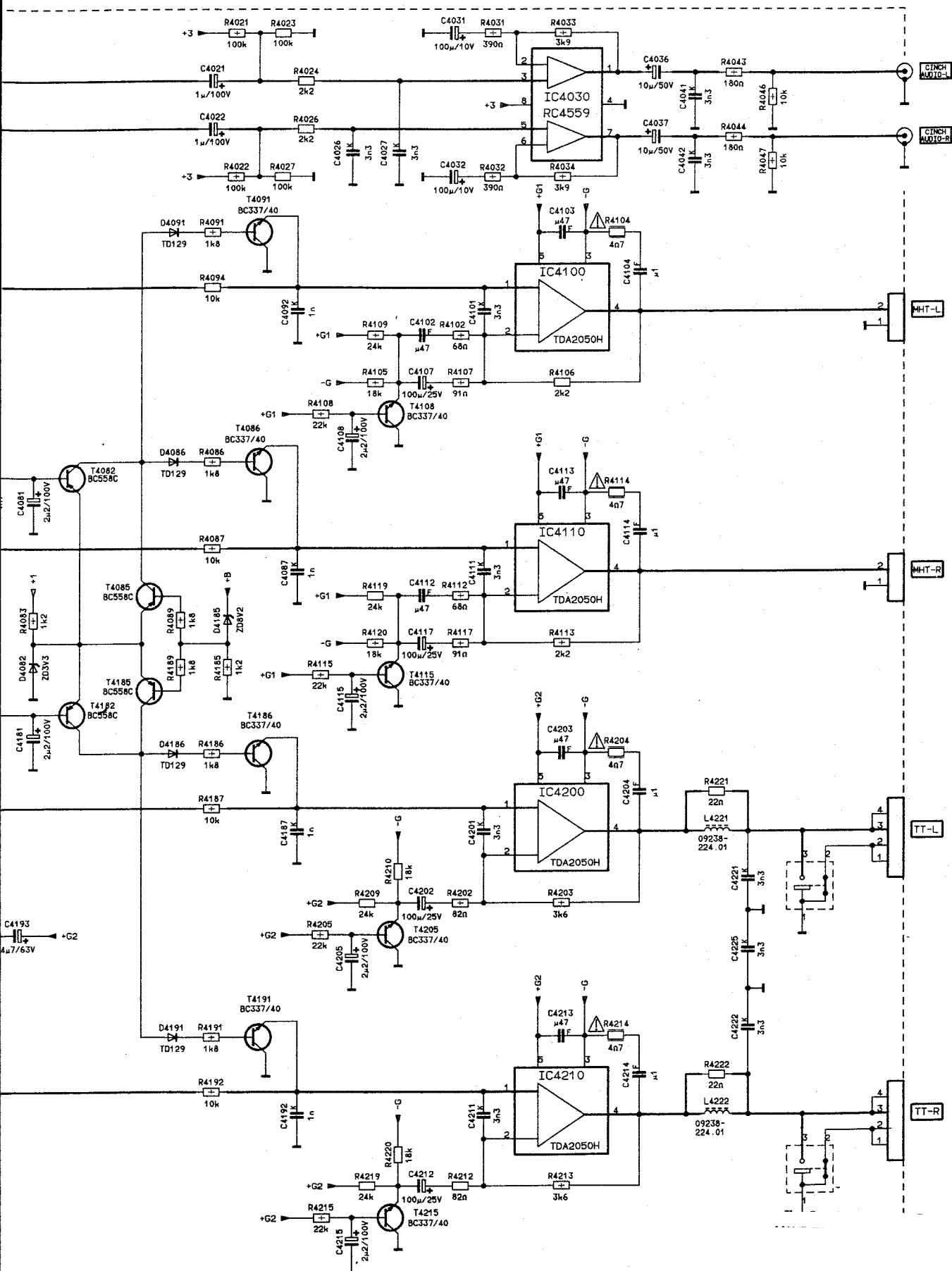
Kein Anpassungsabgleich bei Austausch der Steckkarte notwendig
When replacing the plug-in board, no alignment is necessary
Non è necessaria nessuna taratura di adattamento dopo la
sostituzione di una scheda ad innesto

AF AMPLIFIER
AMPLI. BF
BF AMPLI.
AMPL. DE 8F



AF AMPLIFIER
AMPLI. 8F
BF AMPLI.
AMPL. DE BF





GRUNDIG

Ersatzteilliste List of spare parts



(D) Btx *32700 #

11 / 89

CUC 1835 DIGI 3

SACH-NR. / PART NO. 29701-063.07

POS. NR. POS. NO.	ABB NR. FIG. NO.	SACHNUMMER PART NUMBER	ANZ. QUA.	BEZEICHNUNG (D)	DESCRIPTION (GB)
0001.000		29504-101.22		CHIP-TUNER/HYP.	CHIP-TUNER/HYP.
0002.000		29504-103.03	X	FEATURE BOX DIGI 3	FEATURE BOX DIGI 3
0003.000		29504-104.08	X	NF-STEREO (2X35W)	AF-STEREO
0004.000		29504-105.36	X	FBAS-ENCODER DIGI 3	FBAS-ENCODER DIGI 3
0005.000		29504-108.72	X	VIDEOTEXT 100HZ	VIDEOTEXT
0006.000		29504-162.14	X	ZF-MULTI STEREO	IF-MULTI STEREO
0007.000		29700-437.01		ABDECKUNG NF	COVER
0008.000		29303-153.14		MONTAGECLIP	MOUNTING CLIP
		29701-062.56	X	NETZTEIL-EINBAUCHASSIS KEIN E-TEIL	MAINS CHASSIS COMP. NO SPARE PART
0010.000		29304-060.62		EURO AV-BUCHSENPLATTE	AURO-AV-SOCKET PANEL
0010.001		29303-119.05		PERIBUCHSE	PERI SOCKET
0010.002		29303-119.07		PERIBUCHSE	PERI SOCKET
0010.003		29303-168.01		CINCHBUCHSE	CHINCH SOCKET
0010.004		29303-522.01		S-VHS BUCHSE	S-VHS-SOCKET
0010.005		29700-386.01		BUCHSENPLATTE AUFN.	SOCKET PLATE
011.000		29303-153.01		MONTAGECLIP	ASSEMBLY CLIP
0013.000		29303-431.01		TUNERAUFNAHME KPL.13-POL.	TUNER HOLDER
0014.000		29700-441.01		BAUSTEINHALTER	MODULE HOLDER
				X = SIEHE GESONDERTE E-LISTE	X = SEE SEPARATE PARTS LIST

ÄNDERUNGEN VORBEHALTEN

ALTERATIONS RESERVED

HS 12

12 SI1

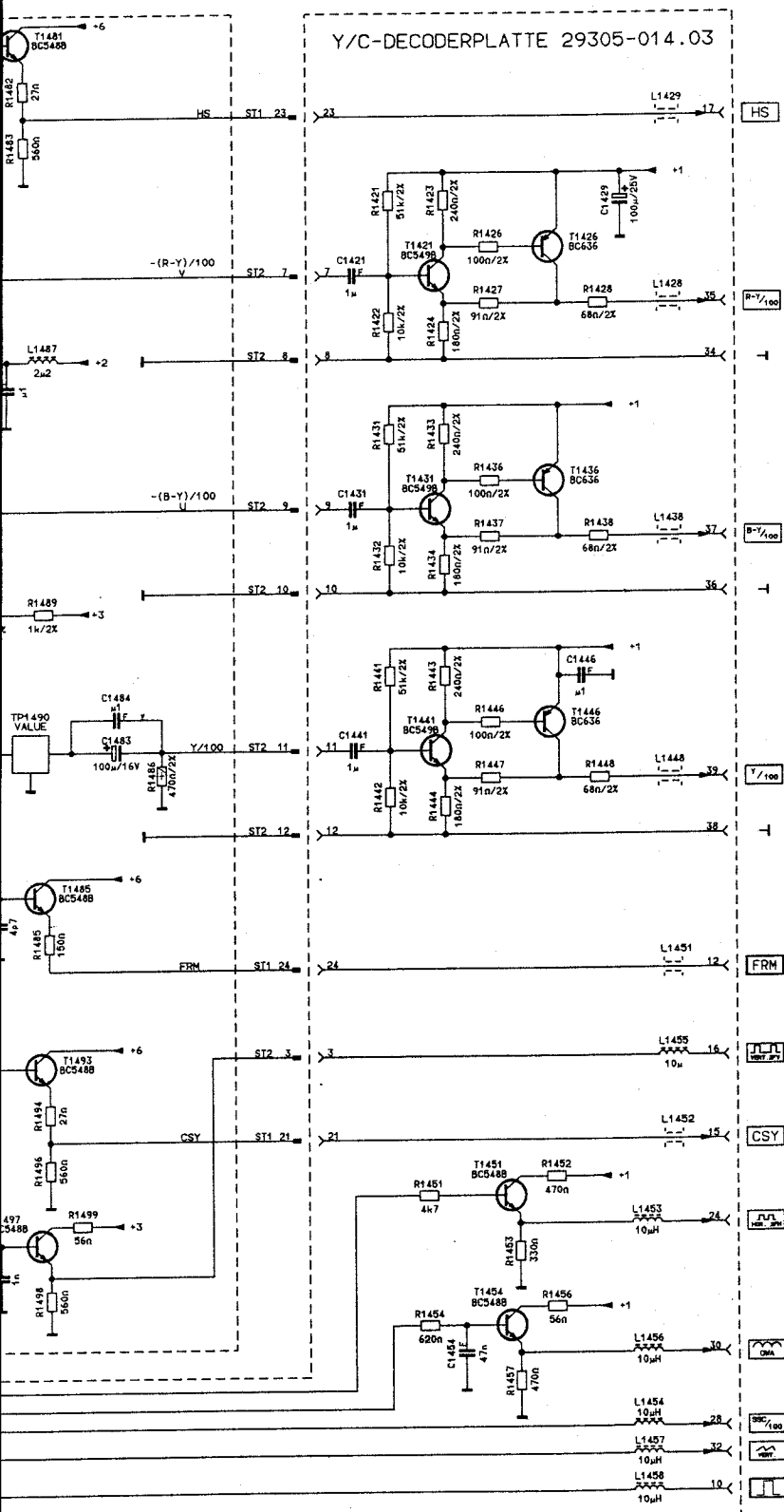
C1341
220μ/16V
+00

20	21	22	23	24	25	26	27	28	29	30	31
----	----	----	----	----	----	----	----	----	----	----	----

9x D41264 C-12

IC1479
DUAL PORT DRAM
64K X 4
D41264 C-12





D

FBAS - Encoder Abgleich

Farbgenerator mit den RGB- und FBAS-Ausgängen an die Euro-AV Buchse anschließen, Gerät auf AV Betrieb schalten und Schaltspannung 1V an Steckkontakt 16 der Buchse anlegen.

1. Farboszillatorabgleich

Frequenzzähler mit Tastkopf 10:1 oder Kondensator 2-3 pF zwischen C 5044 und C 5046 anschließen. Mit C 5043 auf 4.433619 MHz abgleichen.

Ersatzweise kann der Trimmer C 5043 nach links und rechts verdreht werden, bis die Farbe ausfällt. Anschließend die Mitte zwischen beiden Abschaltpunkten einstellen.

2. Farbabgleich

Oszilloskop an Bausteinkontakt S-VHS 3; 3 anschließen.

Den Farbhilfsträger auf der Nulllinie mit den Reglern R 5033 und R 5034 wechselseitig auf Minimum abgleichen.

GB

CCVS Encoder Alignment

1. Colour Oscillator Alignment

Connect the RGB and CCVS output terminals of the colour generator to the EURO-AV socket. Switch the receiver to AV mode and apply a switching voltage of 1 V to plug contact 16 of the socket.

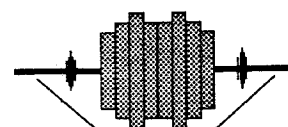
1. Connect a frequency counter via a 10:1 test probe or via a ca-pacitor 2-3 pF between C 5044 and C 5046. Adjust for 4.433619 MHz with C 5043.

Alternatively, the trimmer C 5043 can be turned to the left and right until the colour drops out. Thereafter, set the trimmer to the mid-position between the two colour drop-out points.

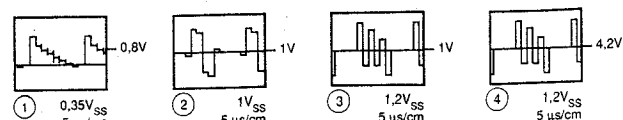
2. Colour Aligment

Connect an oscilloscope to the module, contact S-VHS 3,3.

Use the presets R 5033 and R 5034 to alternately adjust the colour sub-carrier on the zero line to minimum.



FHT auf Minimum abgleichen
Adjust colour sub-carrier to minimum



Abgleich

mit den RGB- und FBAS-
die Euro-AV Buchse an-
trieb schalten und Schalt-
Steckkontakt 16 der Buch-

Abgleich

er mit Tastkopf 10:1 oder
2-3 pF zwischen C 5044
anschließen. Mit C 5043 auf
z abgleichen.

ann der Trimmer C 5043
rechts verdreht werden, bis
fällt. Anschließend die Mitte
den Abschaltpunkten ein-

Bausteinkontakt S-VHS 3;

träger auf der Nulllinie mit
5033 und R 5034 wechsel-
sum abgleichen.

Alignment

Color Alignment

B and CCVS output termi-
generator to the EURO-AV
e receiver to AV mode and
g voltage of 1 V to plug
socket.

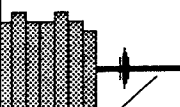
quency counter via a 10:1
via a ca-pacitor 2-3 pF bet-
and C 5046. Adjust for
z with C 5043.

the trimmer C 5043 can be
left and right until the colour
ereafter, set the trimmer to
on between the two colour
s.

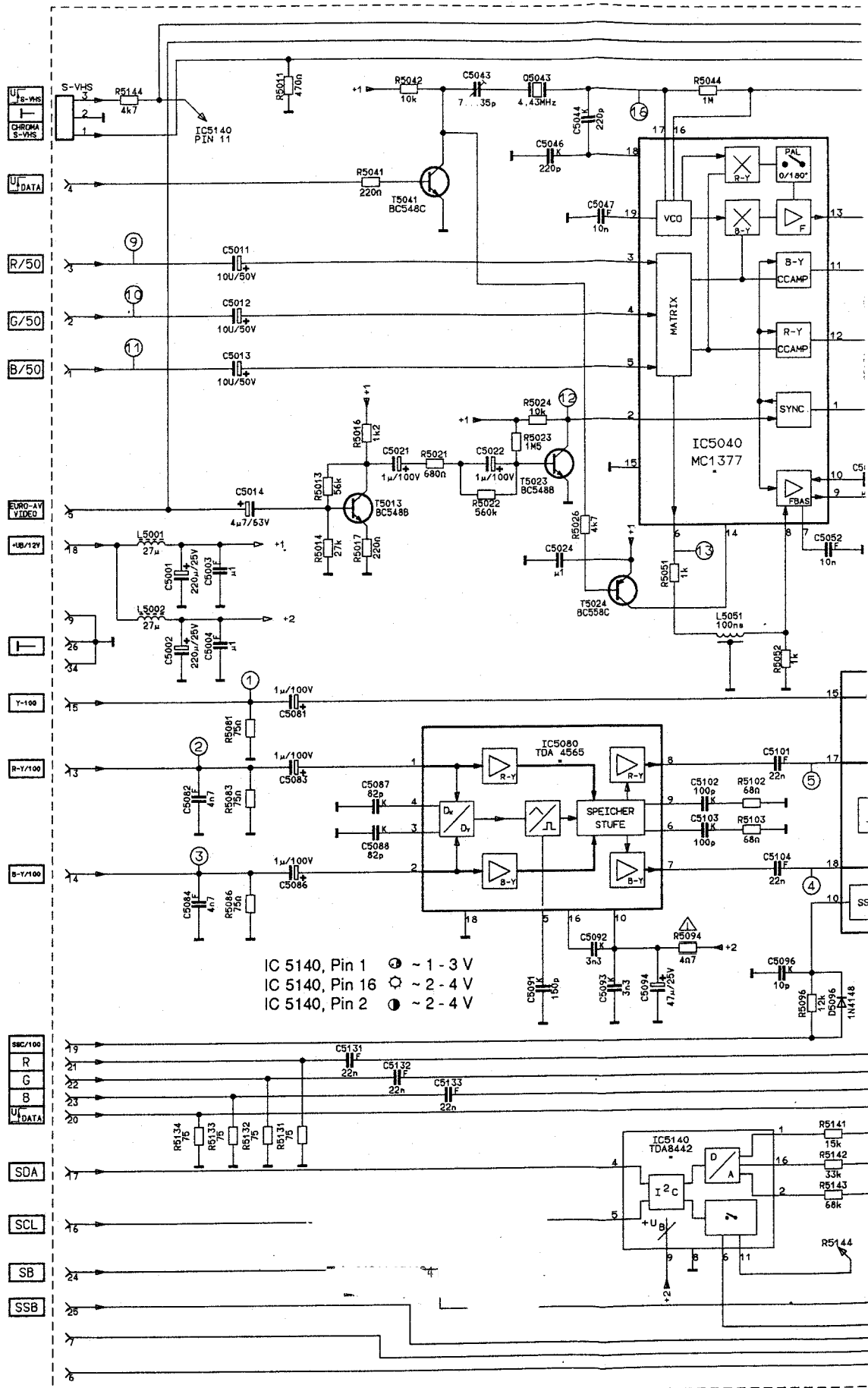
Alignment

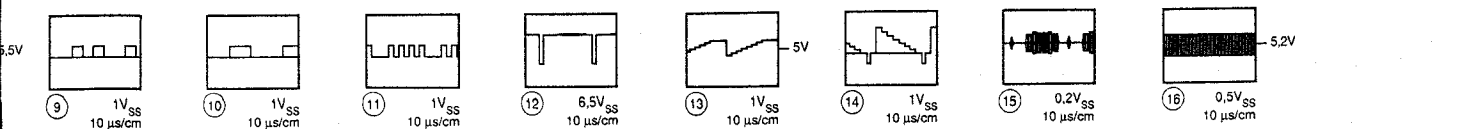
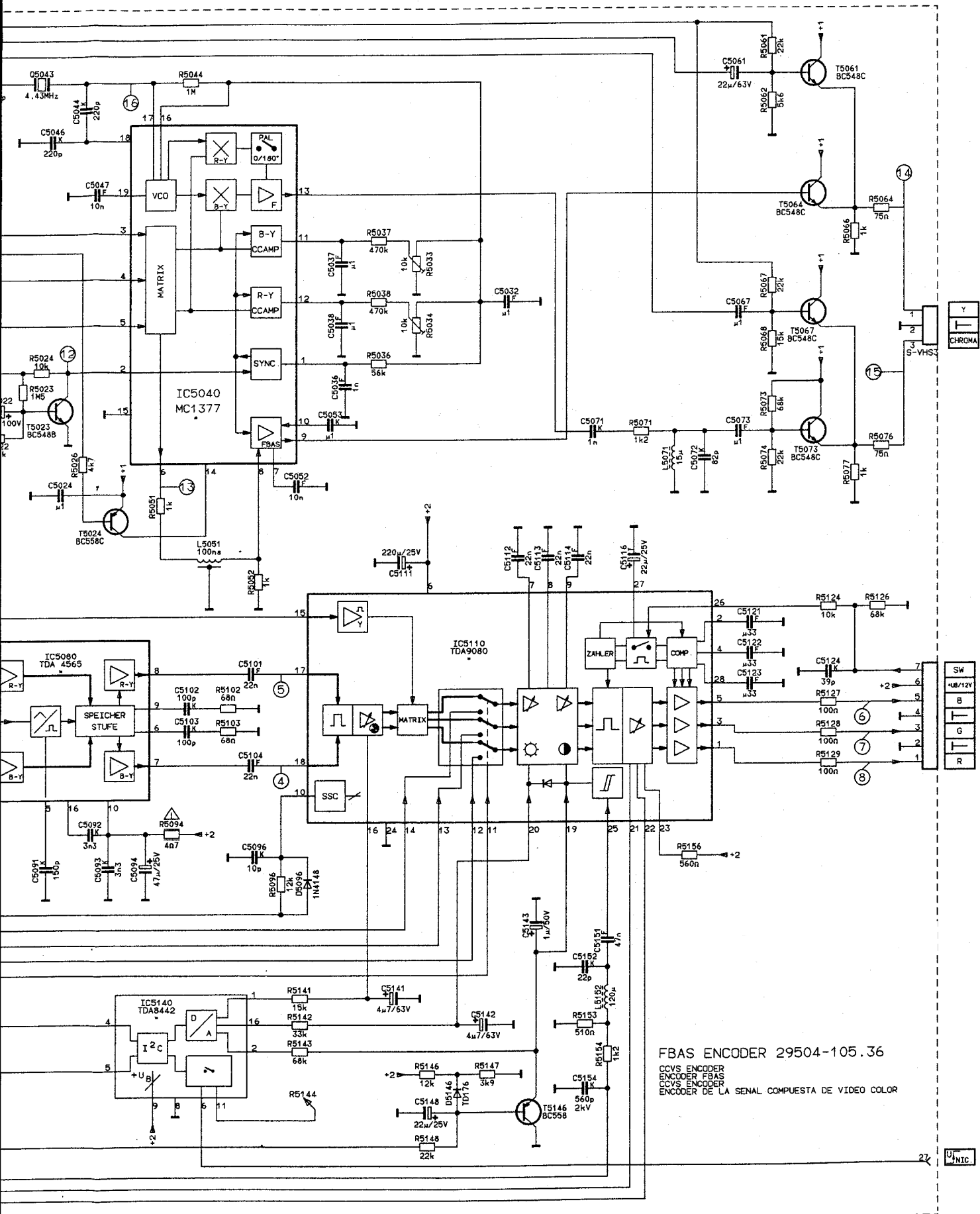
oscilloscope to the module,
S 3,3.

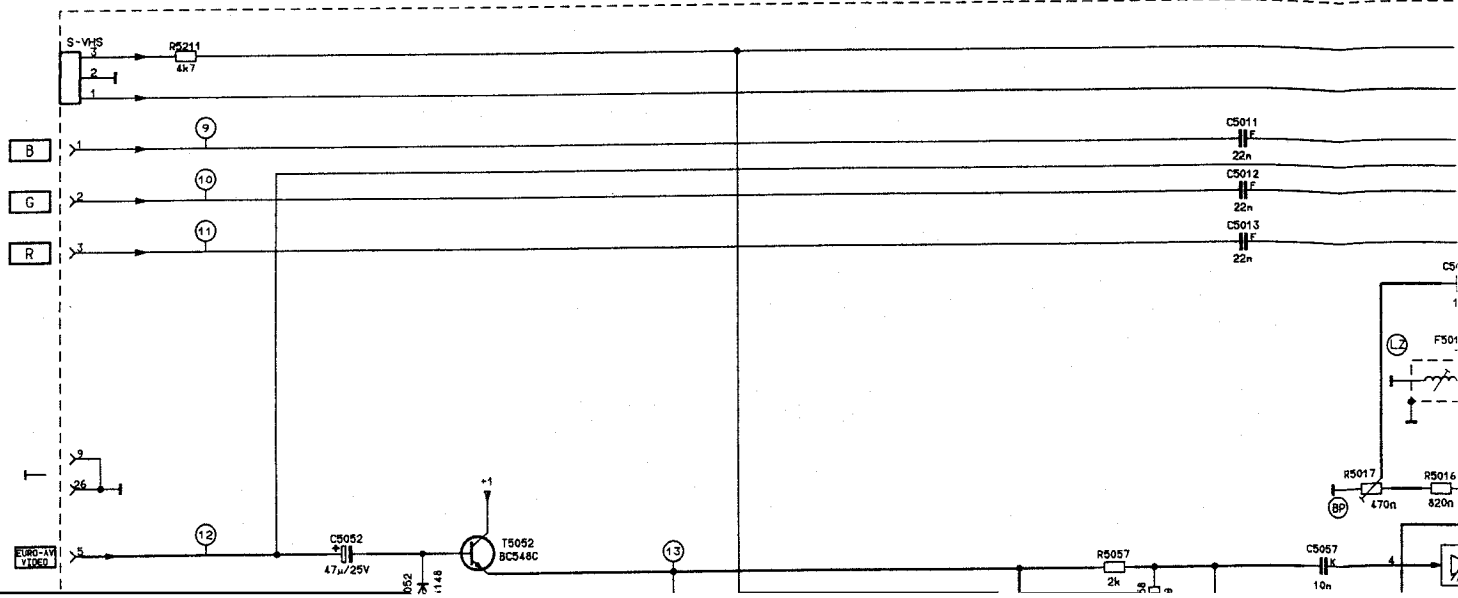
ts R 5033 and R 5034 to al-
st the colour sub-carrier on
p minimum.

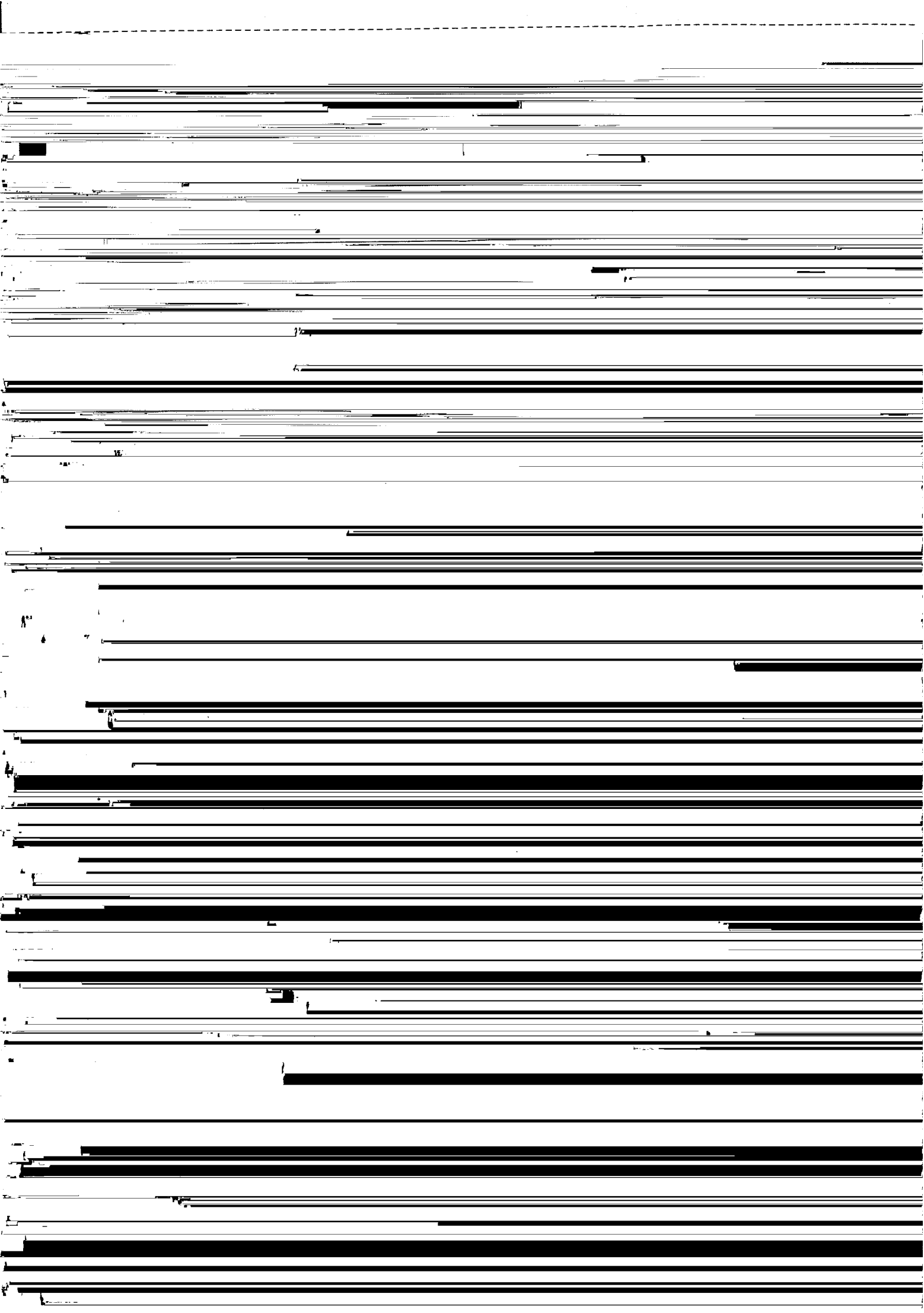


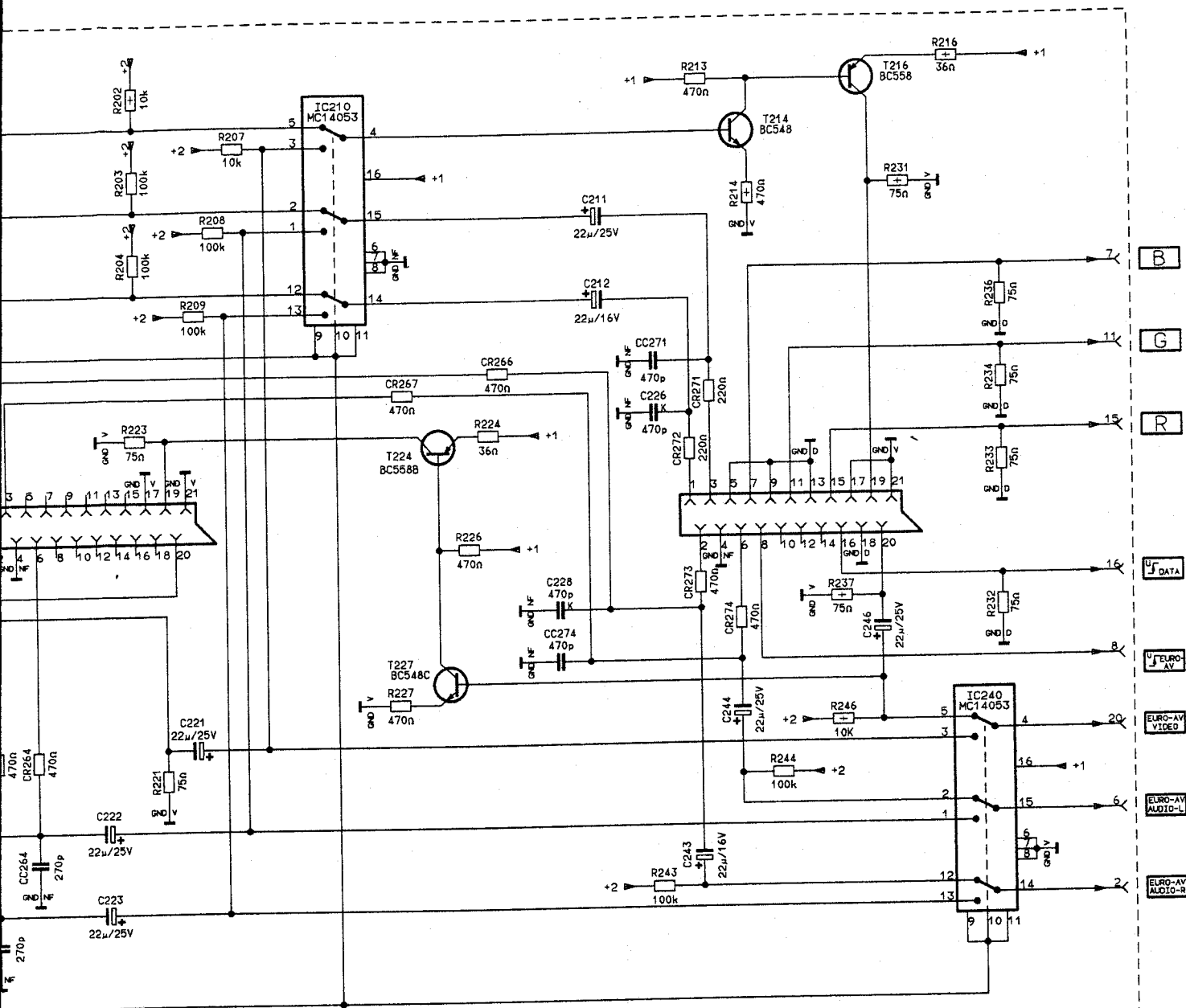
Minimum abgleichen
sub-carrier to minimum







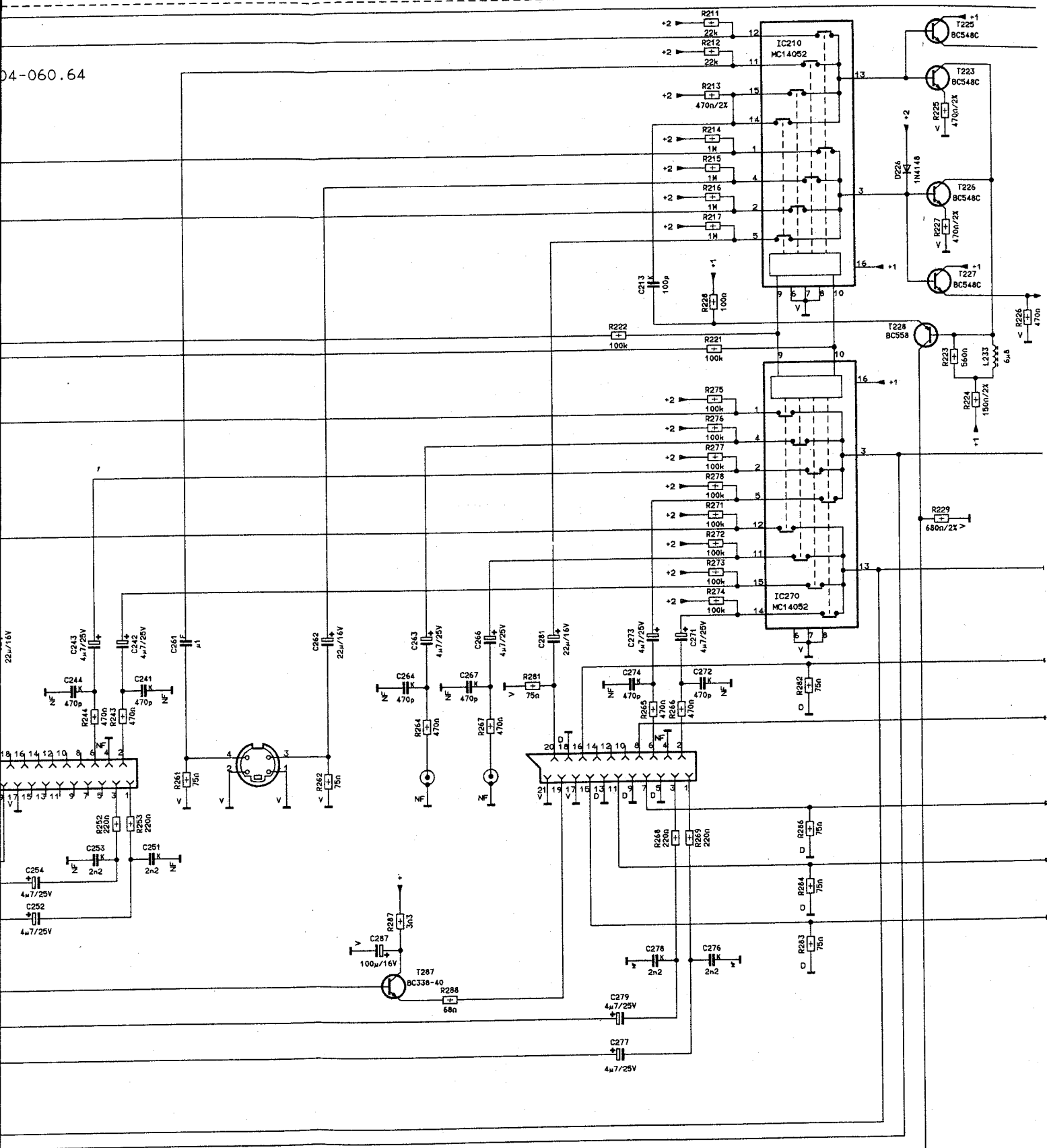


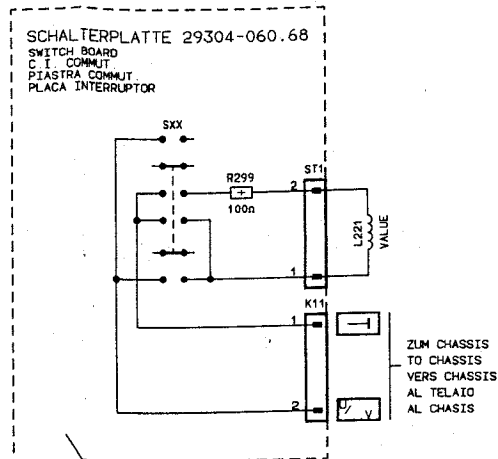
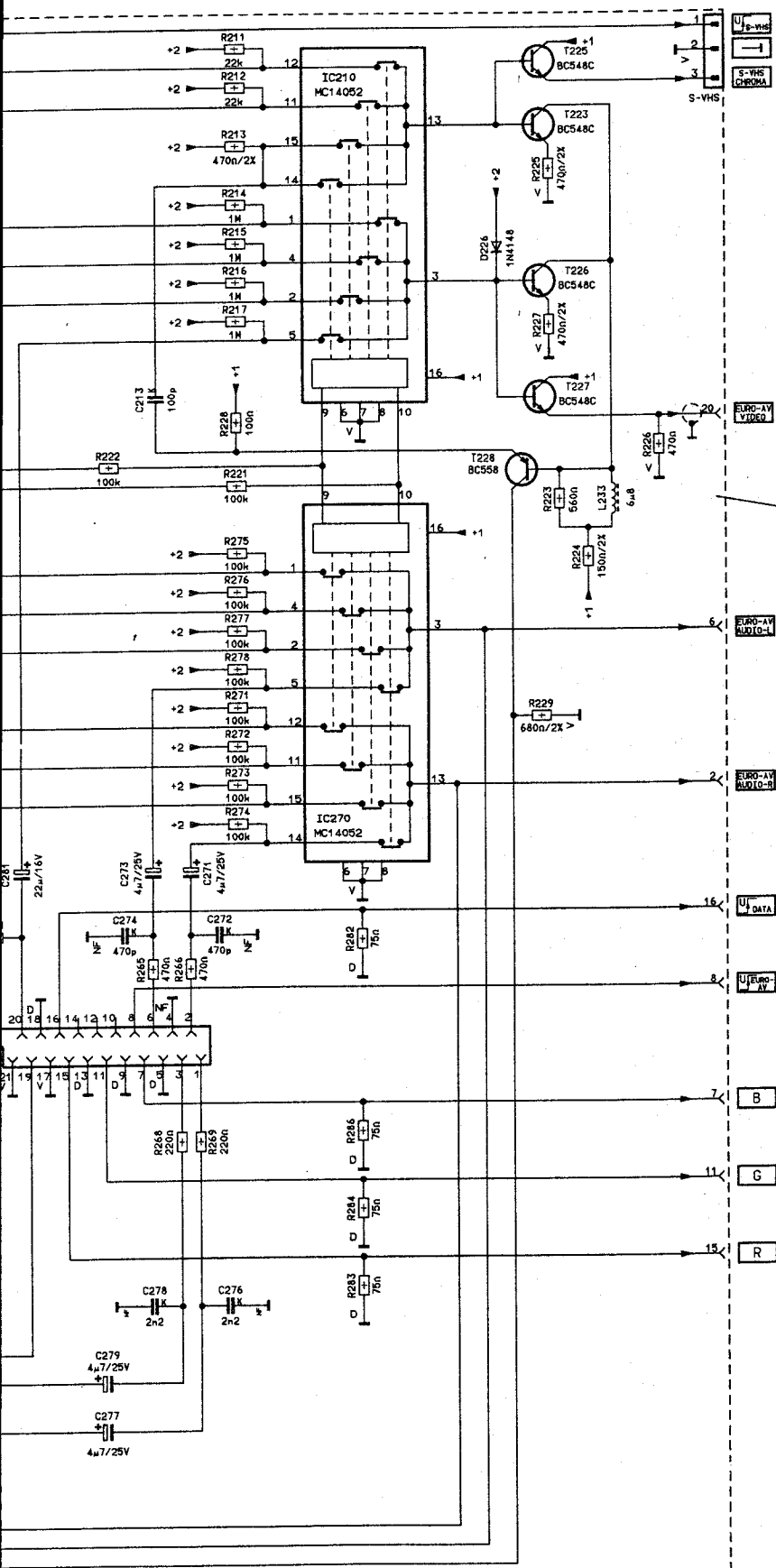


EURO-AV-BUCHSENPLATTE 29304-060.62

EURO-AV SOCKET BOARD
C.I. PRISES EURO-AV
PIASTRA PRESE EURO AV
PLACA CONECTORES EURO-AV

04-060.64





EURO-AV-BUCHSENPLATTE 29304-060.67

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

D

VT - Anpassungsabgleich

Der Einsteller R 2857 steht bei der Auslieferung (kleinste Höhenanhebung, ca 2 dB). Tr Antennensignal Zeichenfehler auf, R 2857 verstellen, bis Fehler verschwinden. Nicht Fehlerhäufigkeit wieder zunehmen kann. Während des Abgleiches ist es notwendig, anzuwählen, da nur so die Seite neu e Beurteilung der Fehlerschwelle möglich ist. F 2868 ist werksseitig abgeglichen und so

GB

VT (GB:Teletext) matching adjustment.

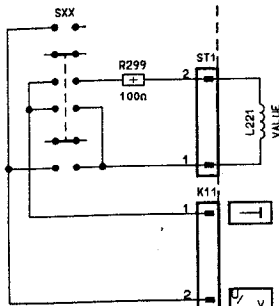
The control R 2857 is set in the fully anti cl unit is delivered (smallest treble boost: app aerial signal character faults occur, turn R 2857 the faults disappear. Do not turn R 2857 u may increase again.

Page 199 must always be selected a new only this effects a new read-in of the p evaluate the error level.

F 2868 is preset in factory and must not b

SCHALTERPLATTE 29304-060.68

SWITCH BOARD
C.I. COMMUT
PIASTRA COMUT
PLACA INTERRUPTOR



ZUM CHASSIS
TO CHASSIS
VERS CHASSIS
AL TELAIQ
AL CHASIS

EURO-AV-BUCHSENPLATTE 29304-060.67

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

D

VT - Anpassungsabgleich

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

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

F 2868 ist werksseitig abgeglichen und sollte nicht verstellt werden.

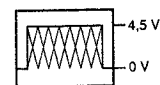
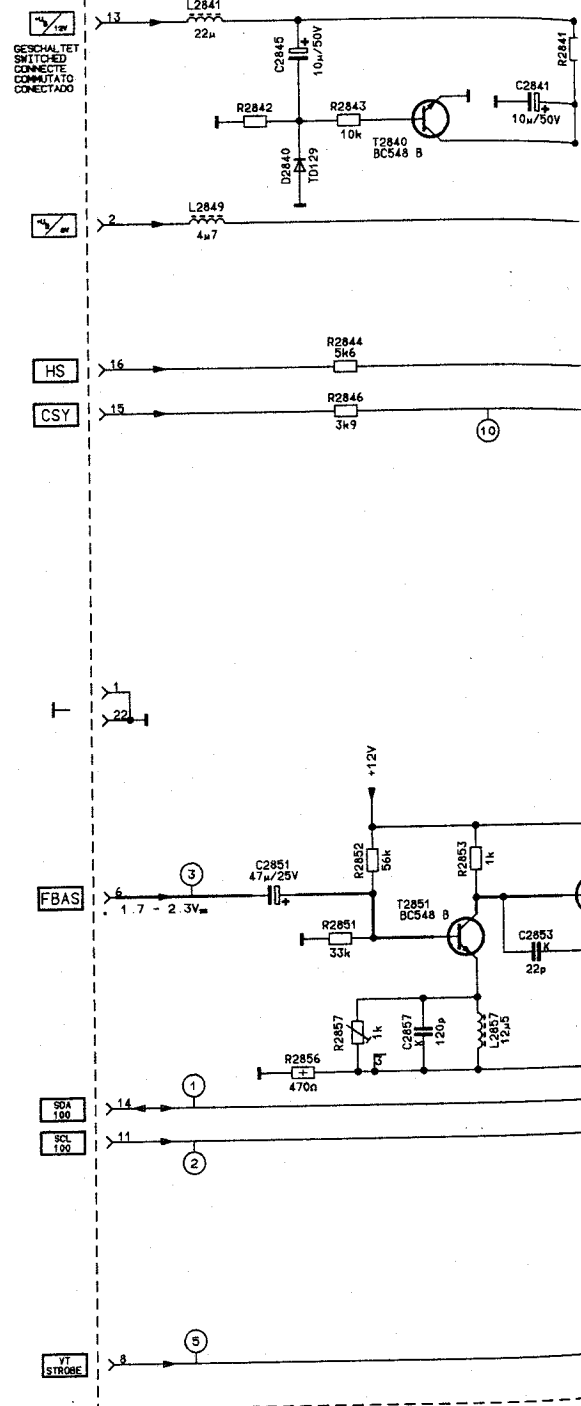
GB

VT (GB:Teletext) matching adjustment.

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

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

F 2868 is preset in factory and must not be changed.



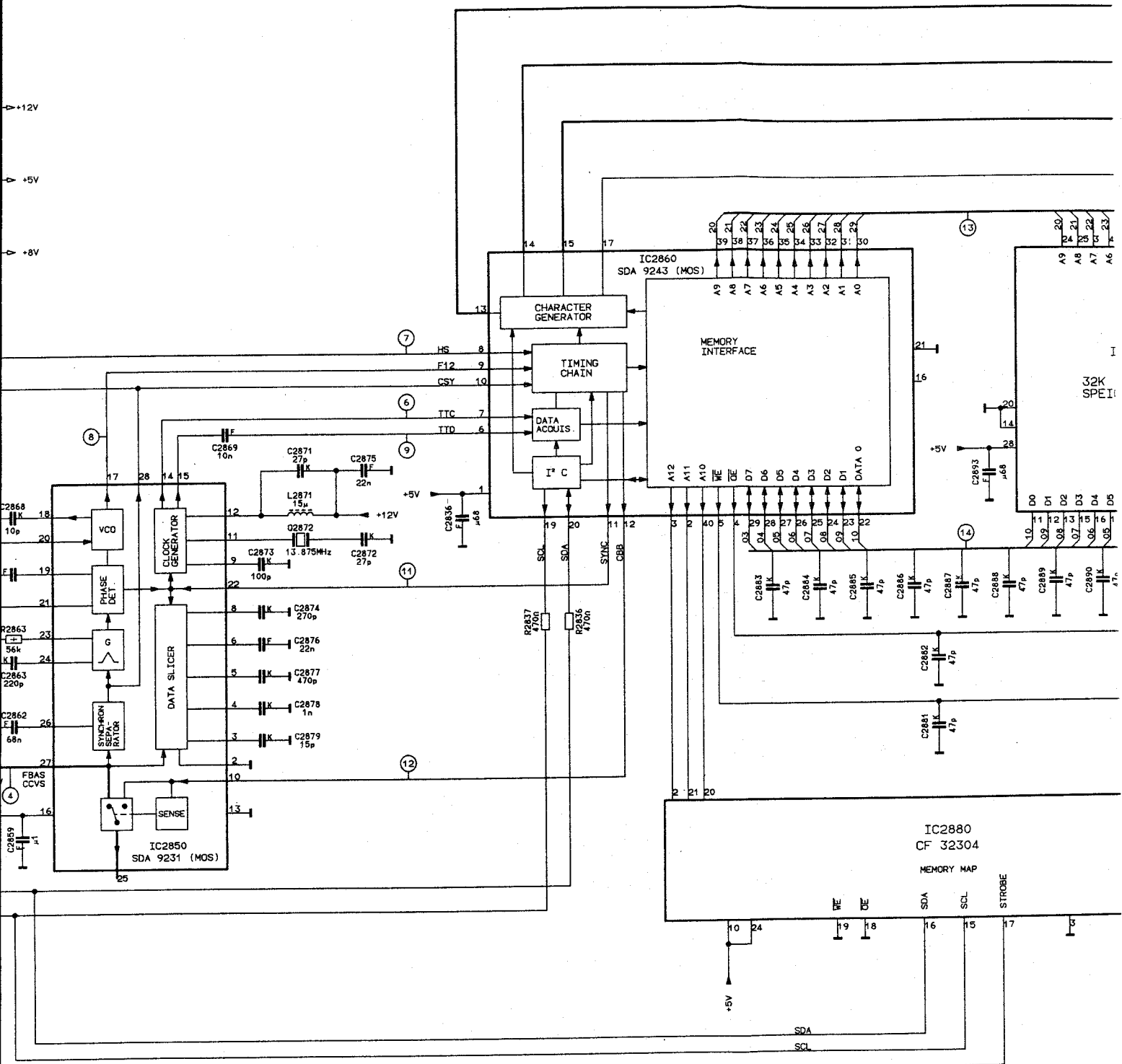
① ② 100 μs/cm
⑬ ⑭

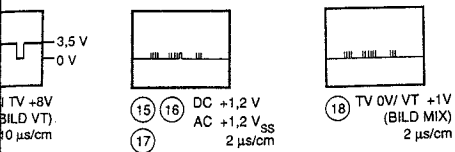
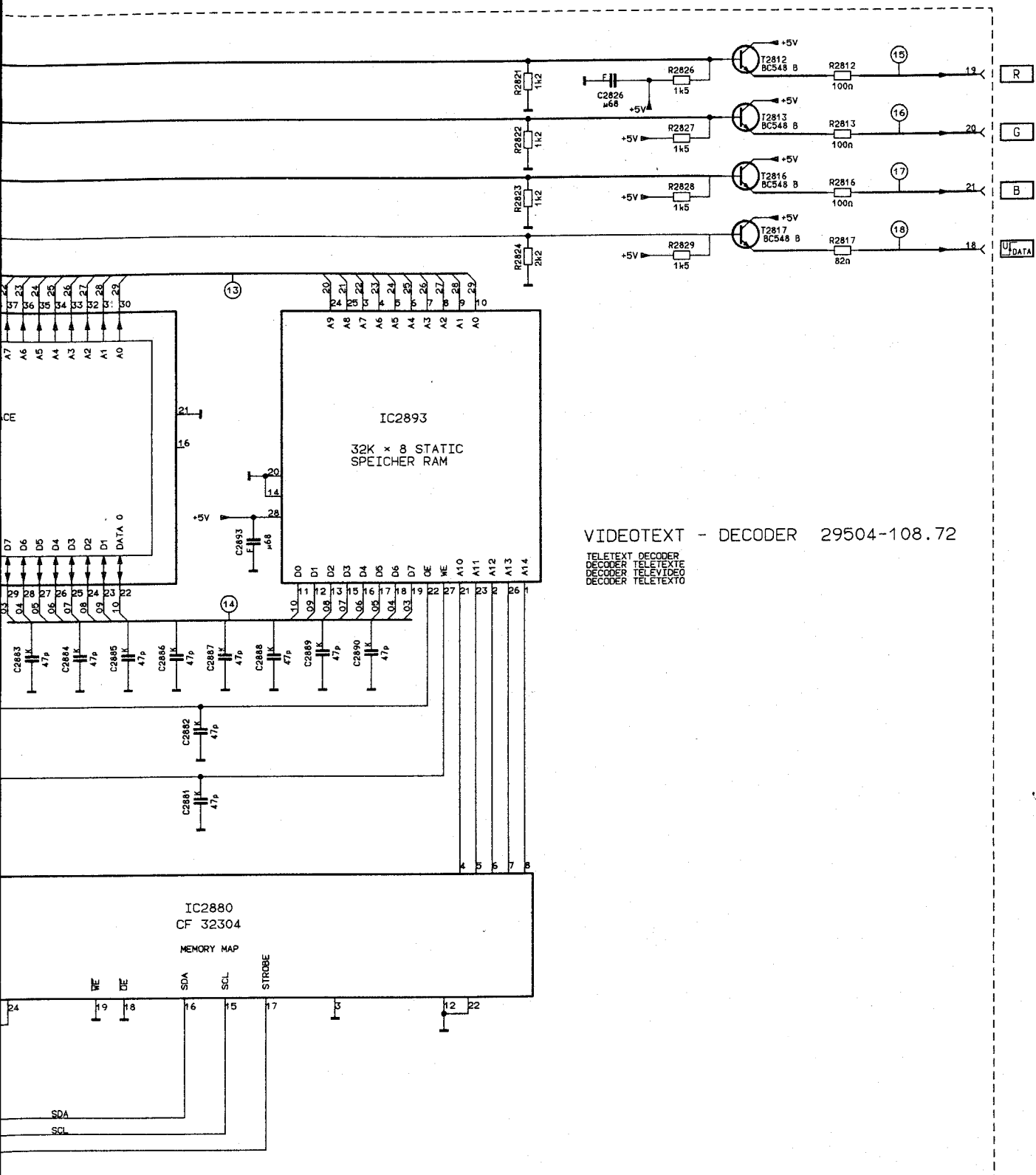


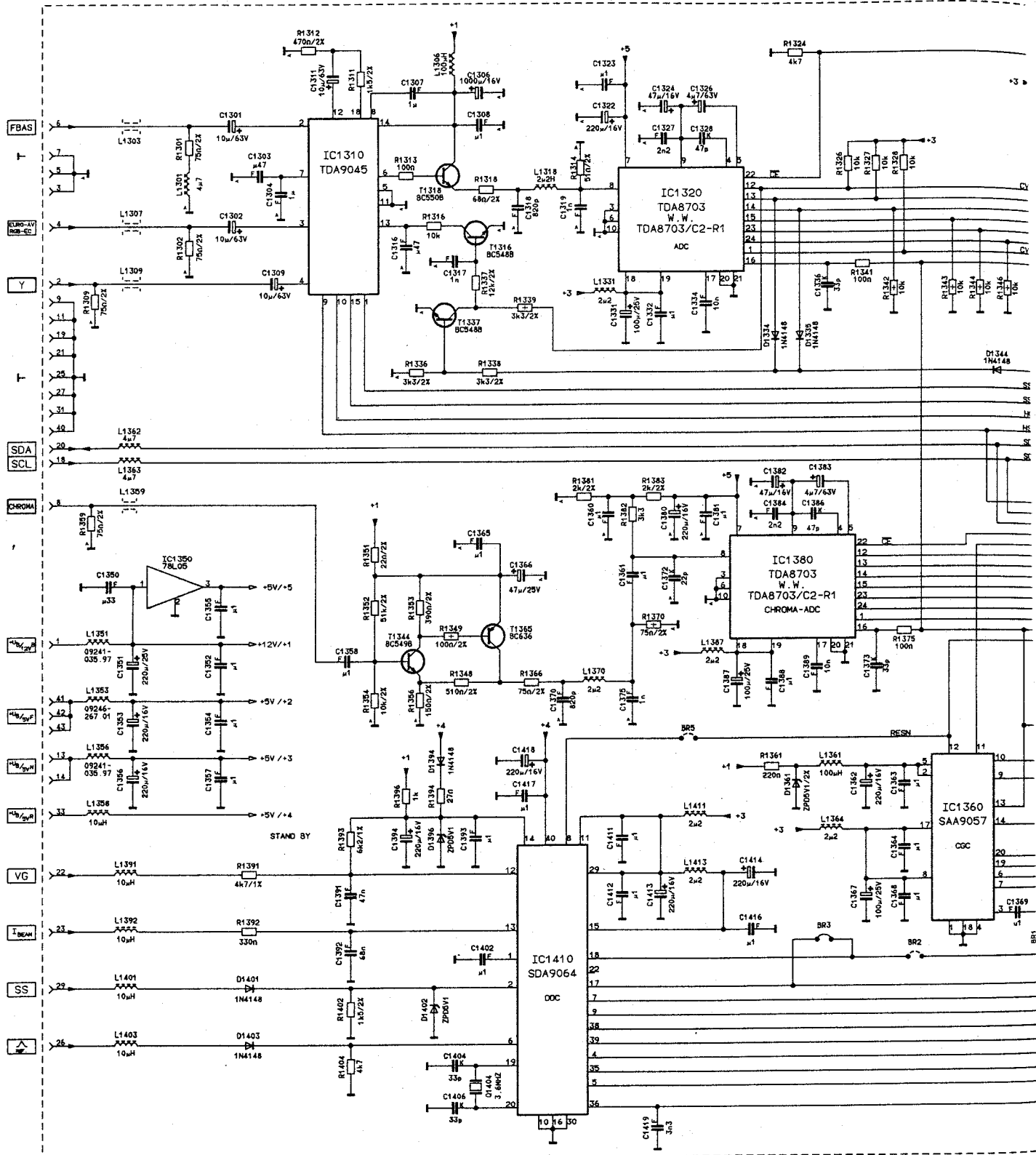
③ FBAS DC+3V
AC 2V_{SS}
10 μs/cm



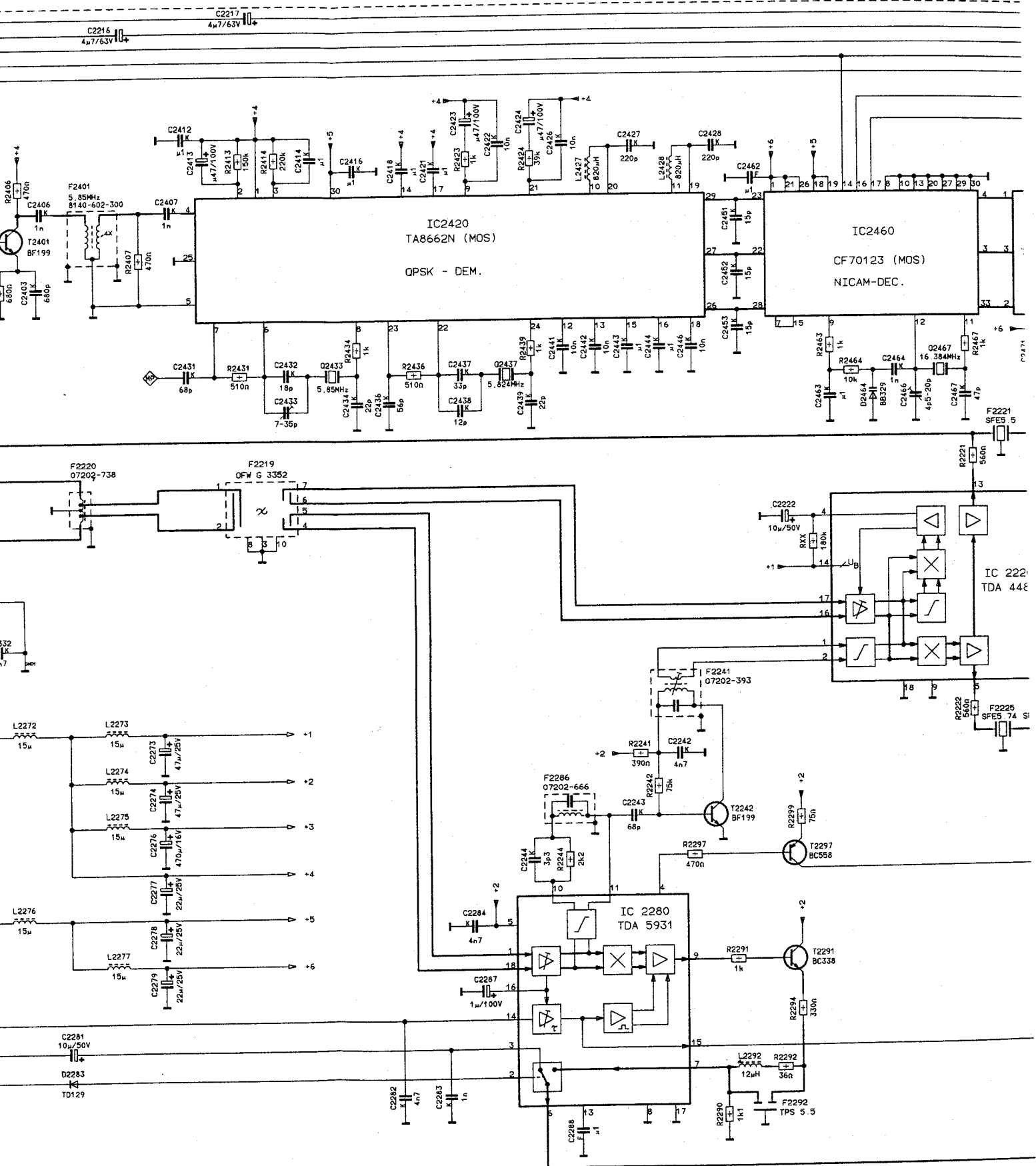
④ FBAS DC
AC 1

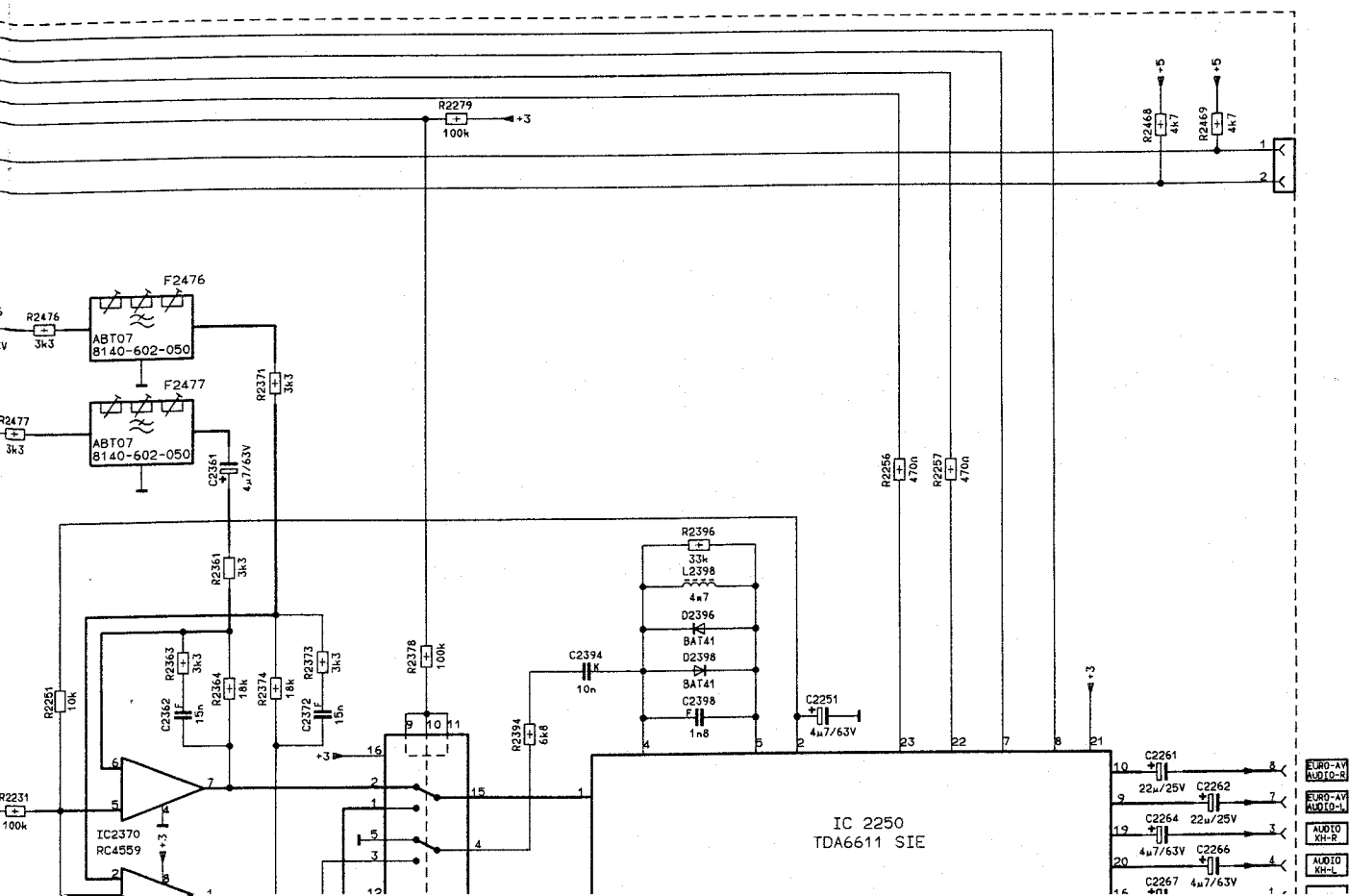


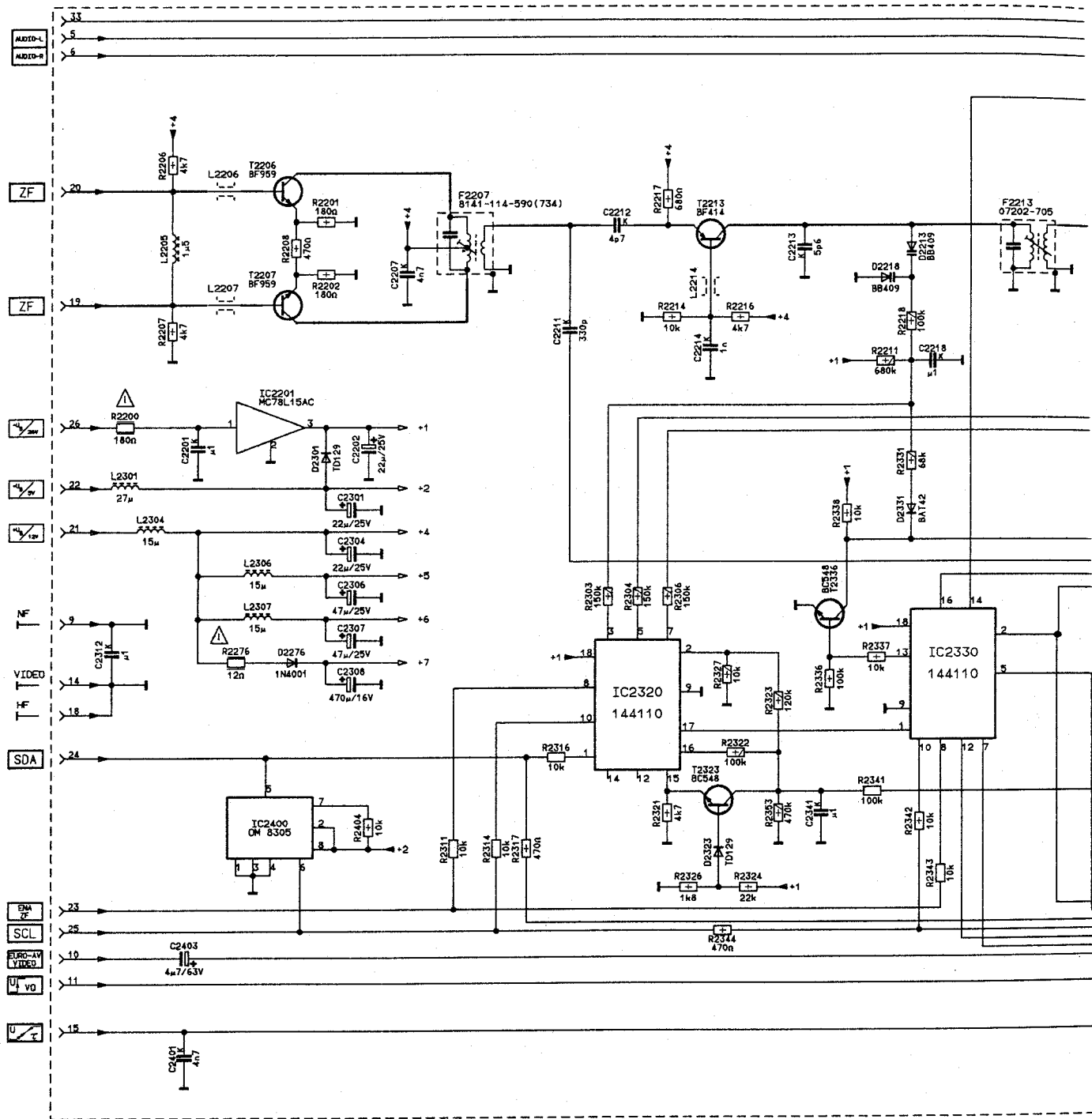


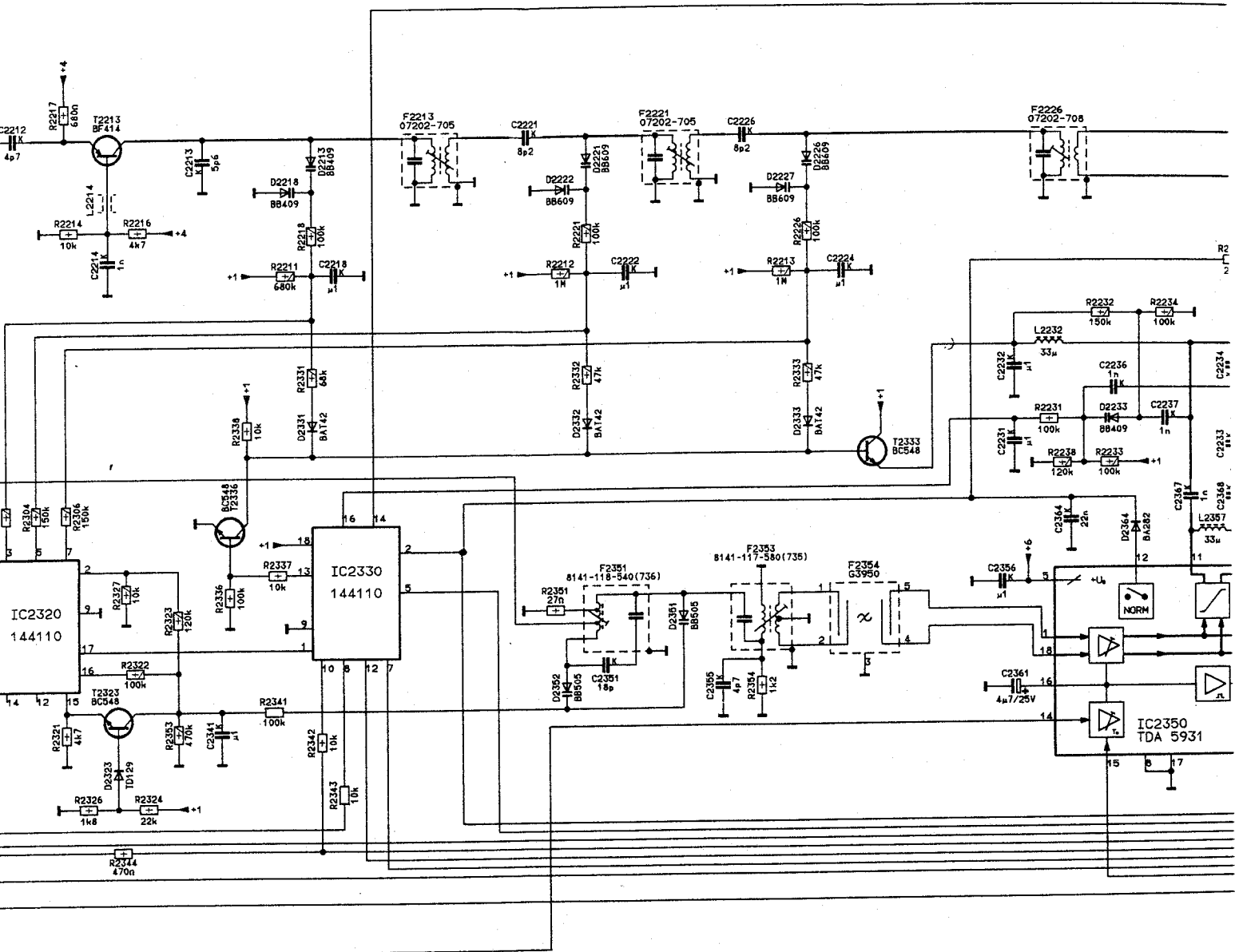












BEDIENEINHEIT 29501-074.18

CONTROL UNIT
UNITE DE COMMANDE
UNITA DI COMANDO
UNIDAD DE MANDO

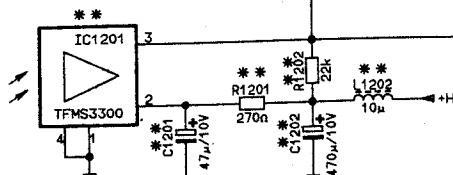
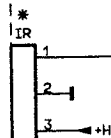
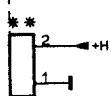
29501-074.27

LED-PLATTE 29305-017.20

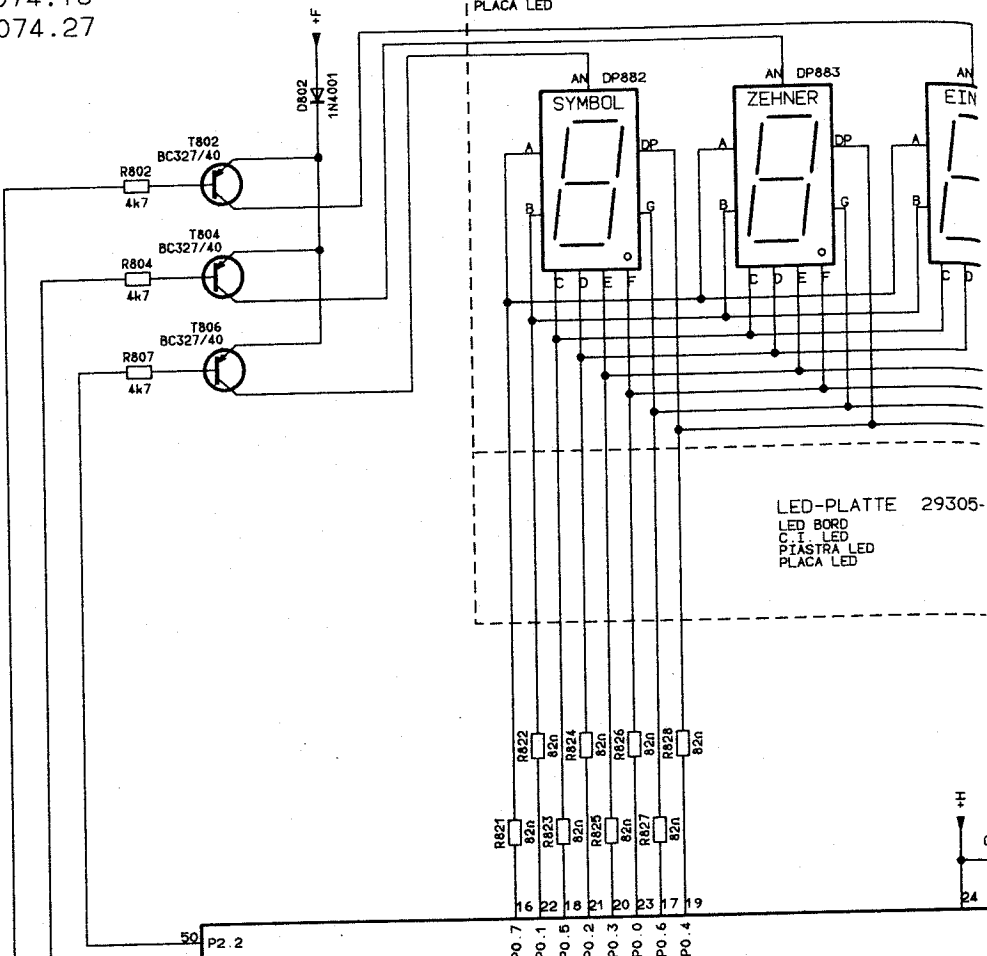
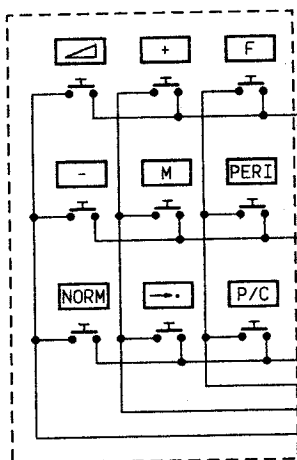
LED BORD
C.I. LED
PIASTRA LED
PLACA LED

LED-PLATTE 29305-

LED BORD
C.I. LED
PIASTRA LED
PLACA LED

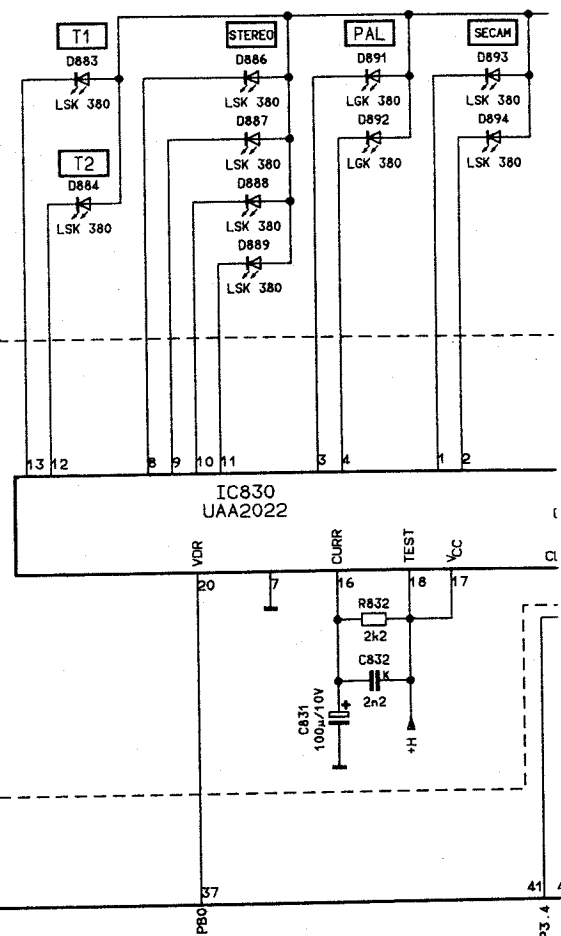
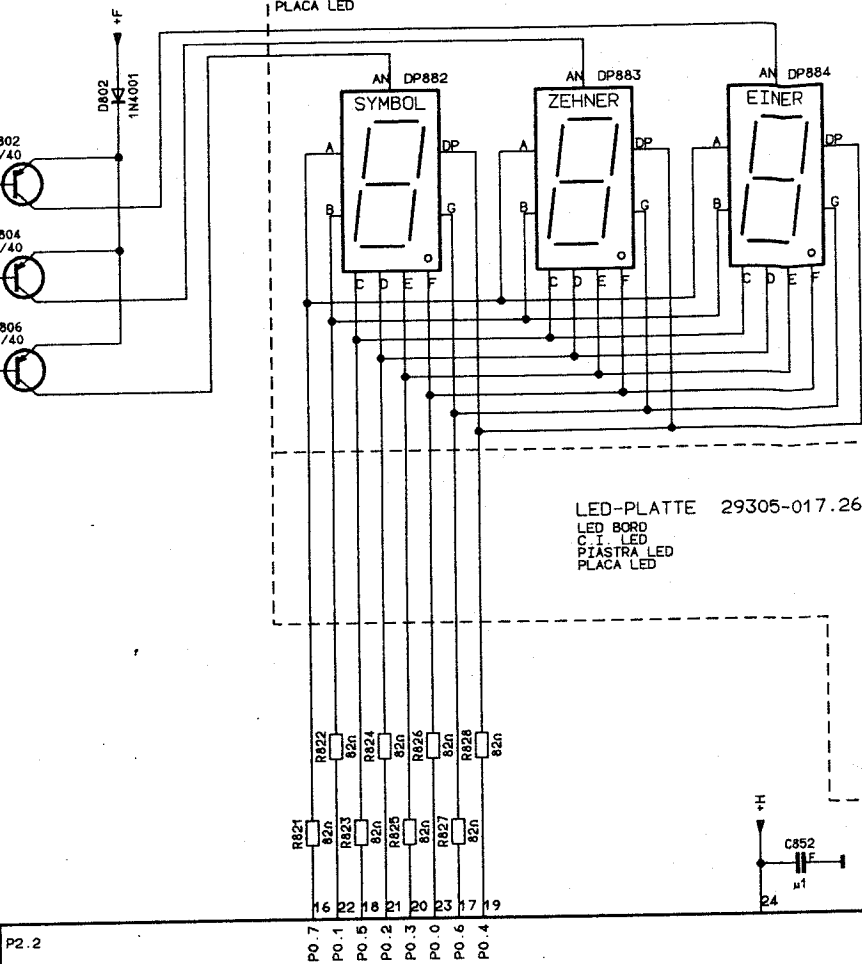


ENTFAELLT BEI 29501-074.18
DELETED ON
EST SUPPRIMEE SUR
MANCA NEI
SUPRIMIDO EN

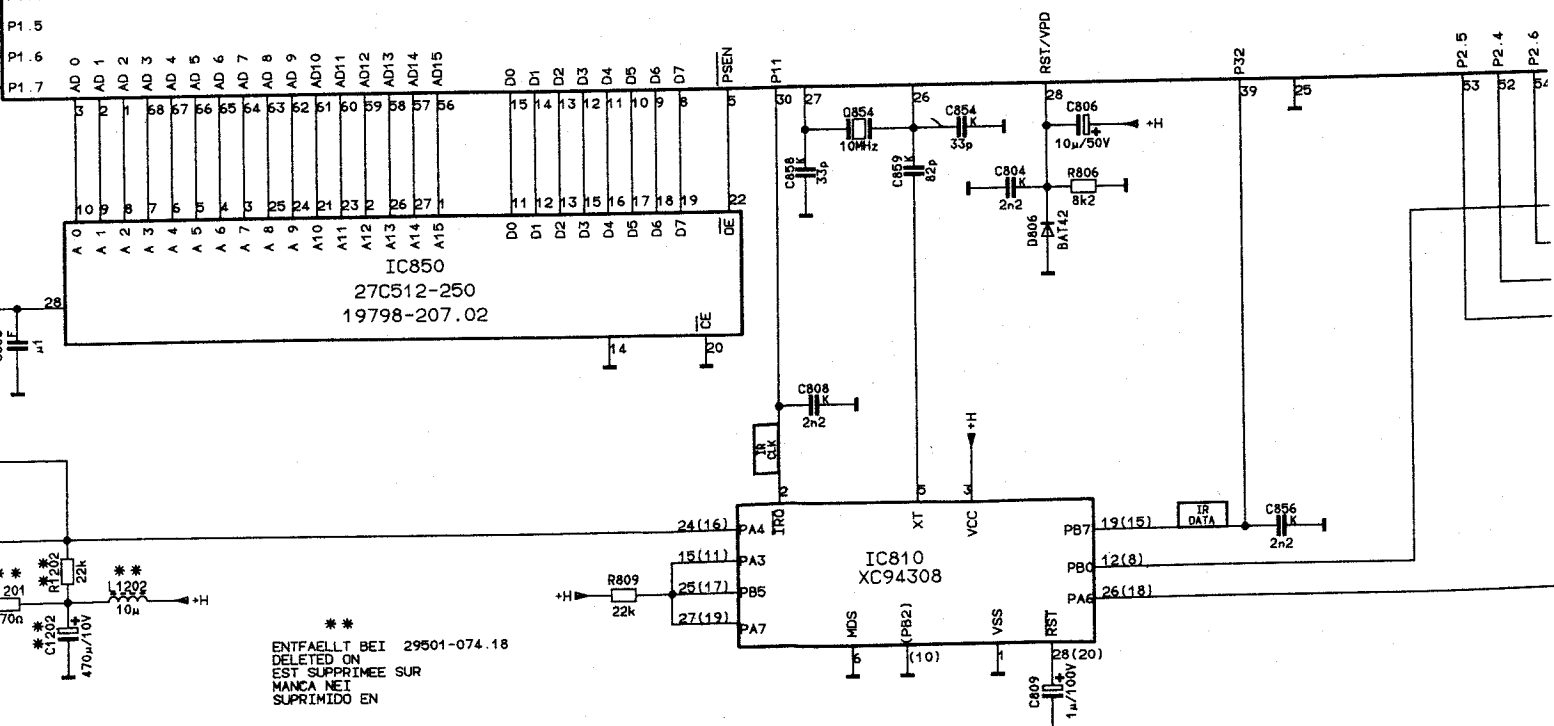


LED-PLATTE 29305-017.20

LED BORD
C.T. LED
PIASTRA LED
PLACA LED

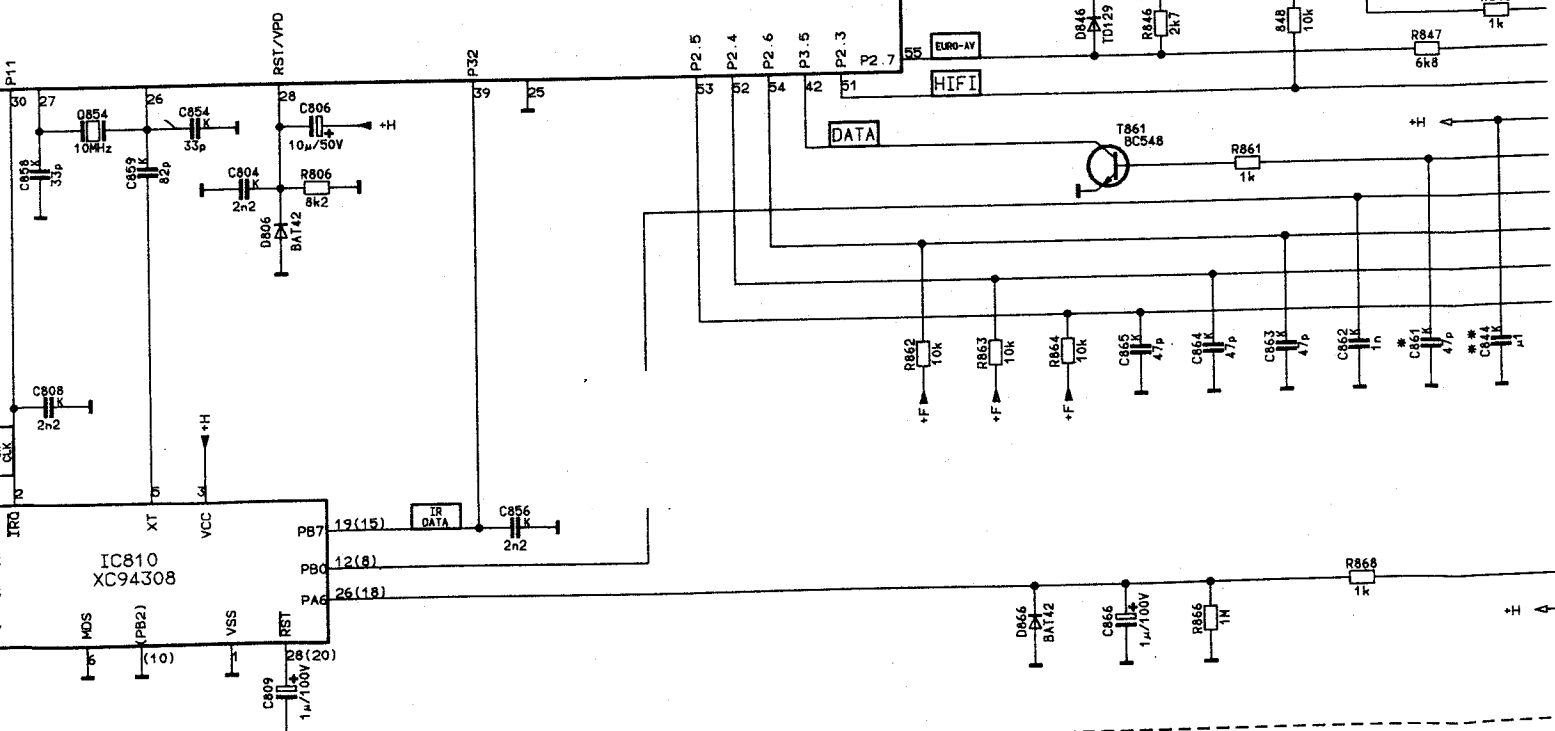


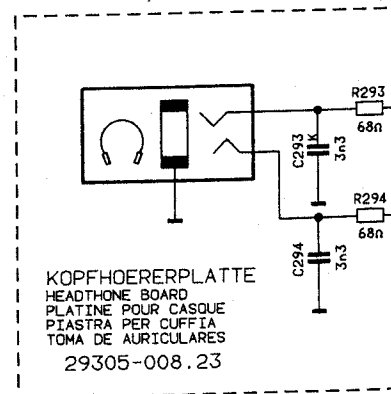
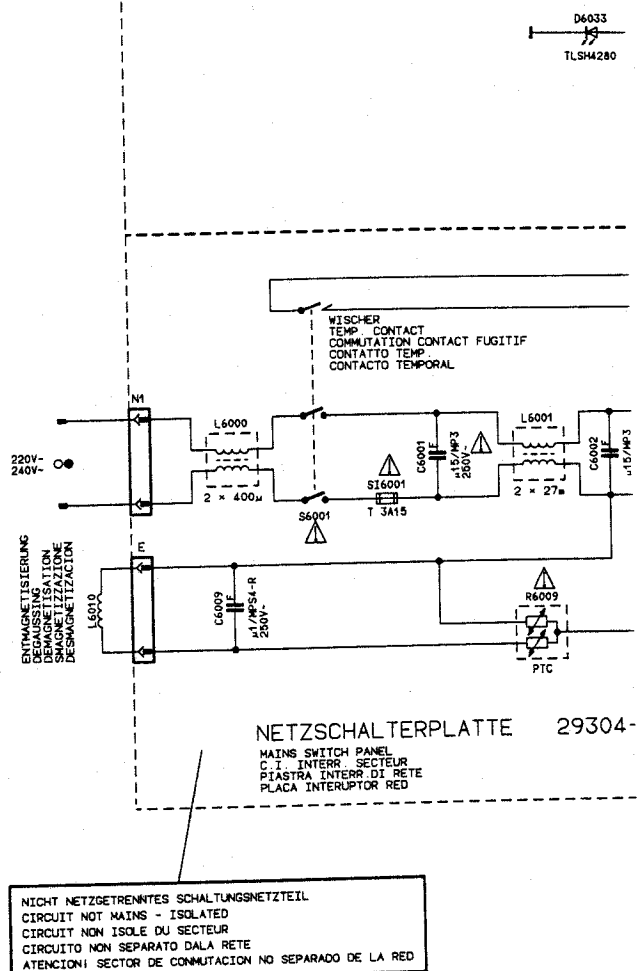
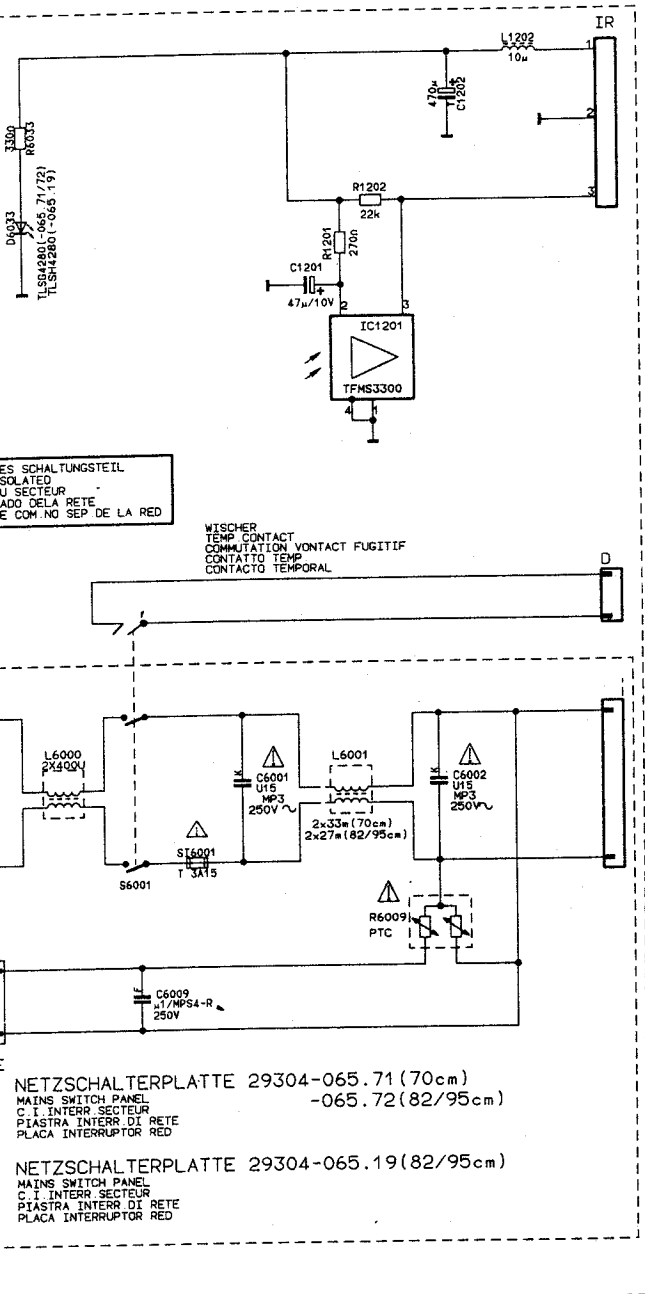
IC860
SDA30161

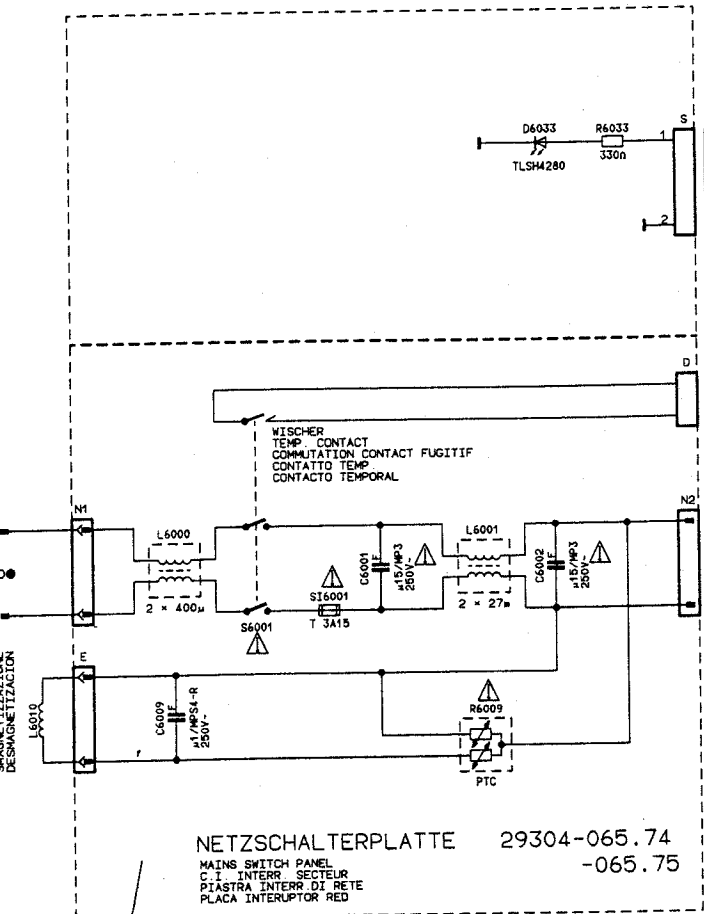


05-017.26

IC860
SDA30161



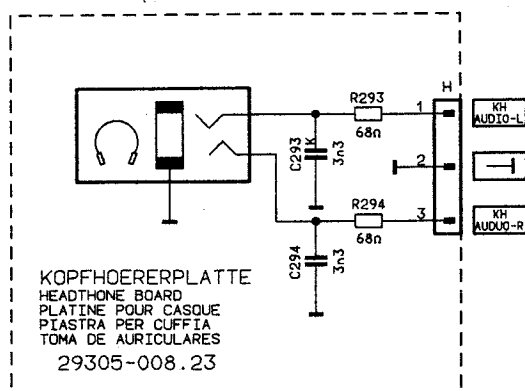
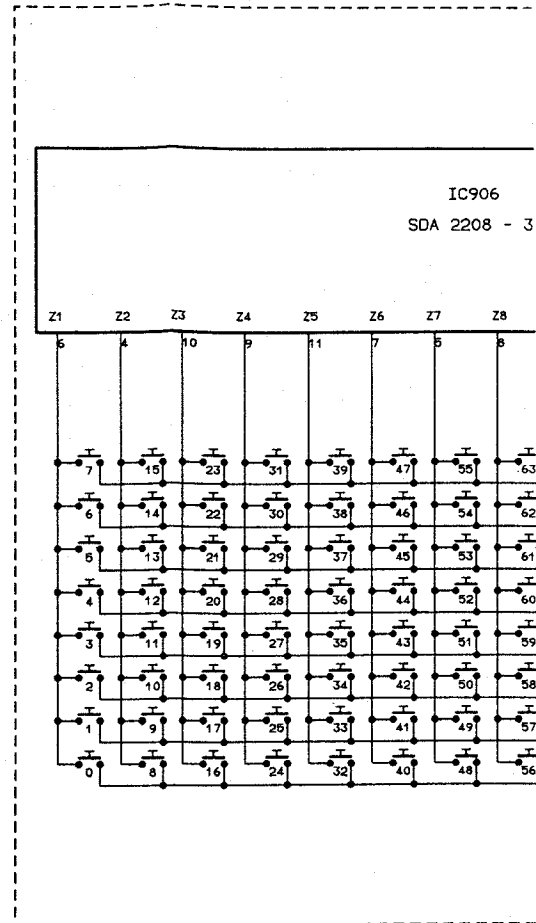


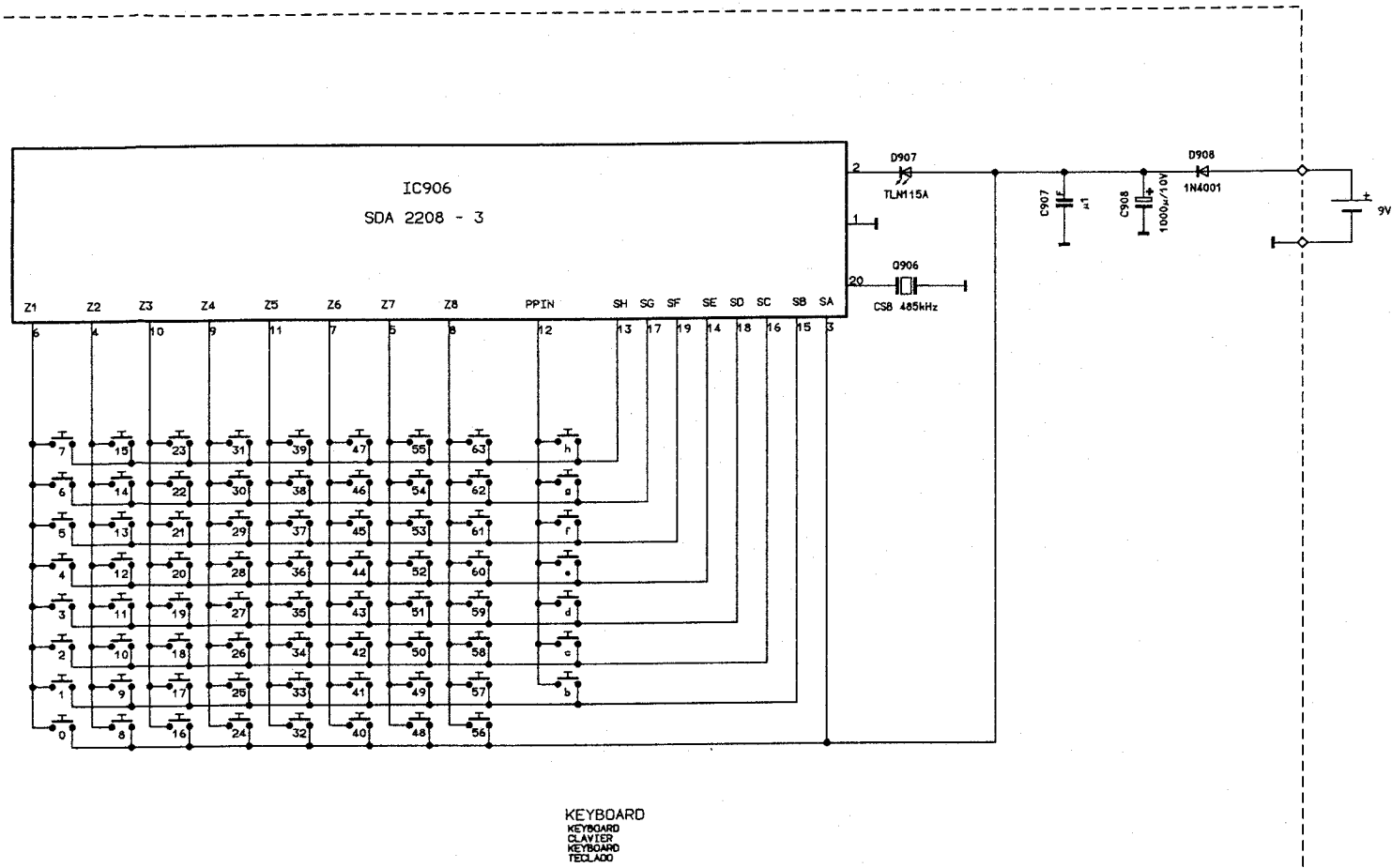


ZUR BEDIENEINHEIT
TO CONTROL UNIT
VERS UNITÉ DE COMMANDE
AL UNITÀ DI COMANDO
A LA UNIDAD DE MANO

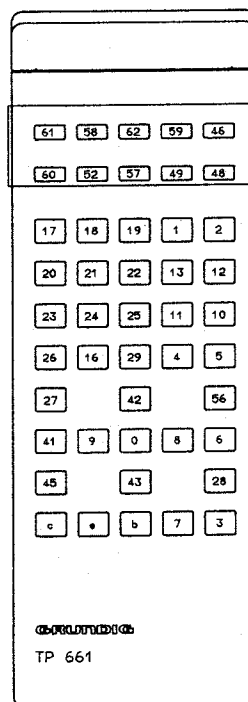
ZUM CHASSIS
TO CHASSIS
VERS CHASSIS
AL TELAIO
AL CHASIS

NETZGETRENNTES SCHALTUNGSNETZTEIL
IT NOT MAINS - ISOLATED
IT NON ISOLE DU SECTEUR
ITO NON SEPARATO DALLA RETE
IONI SECTOR DE CONMUTACION NO SEPARADO DE LA RED





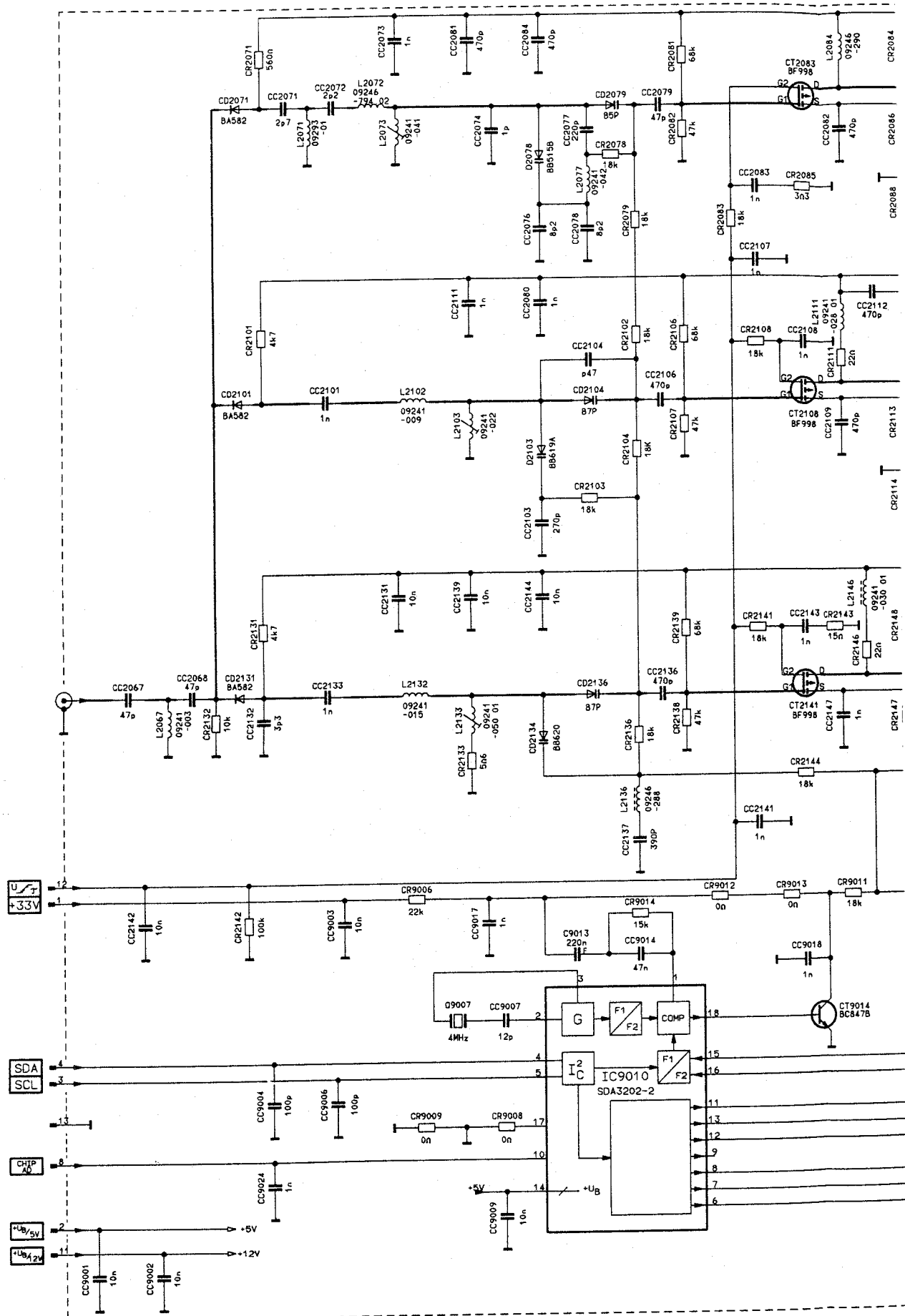
TP 661
TP 661 FASTTEXT
TP 661 TOP
TP 661 US

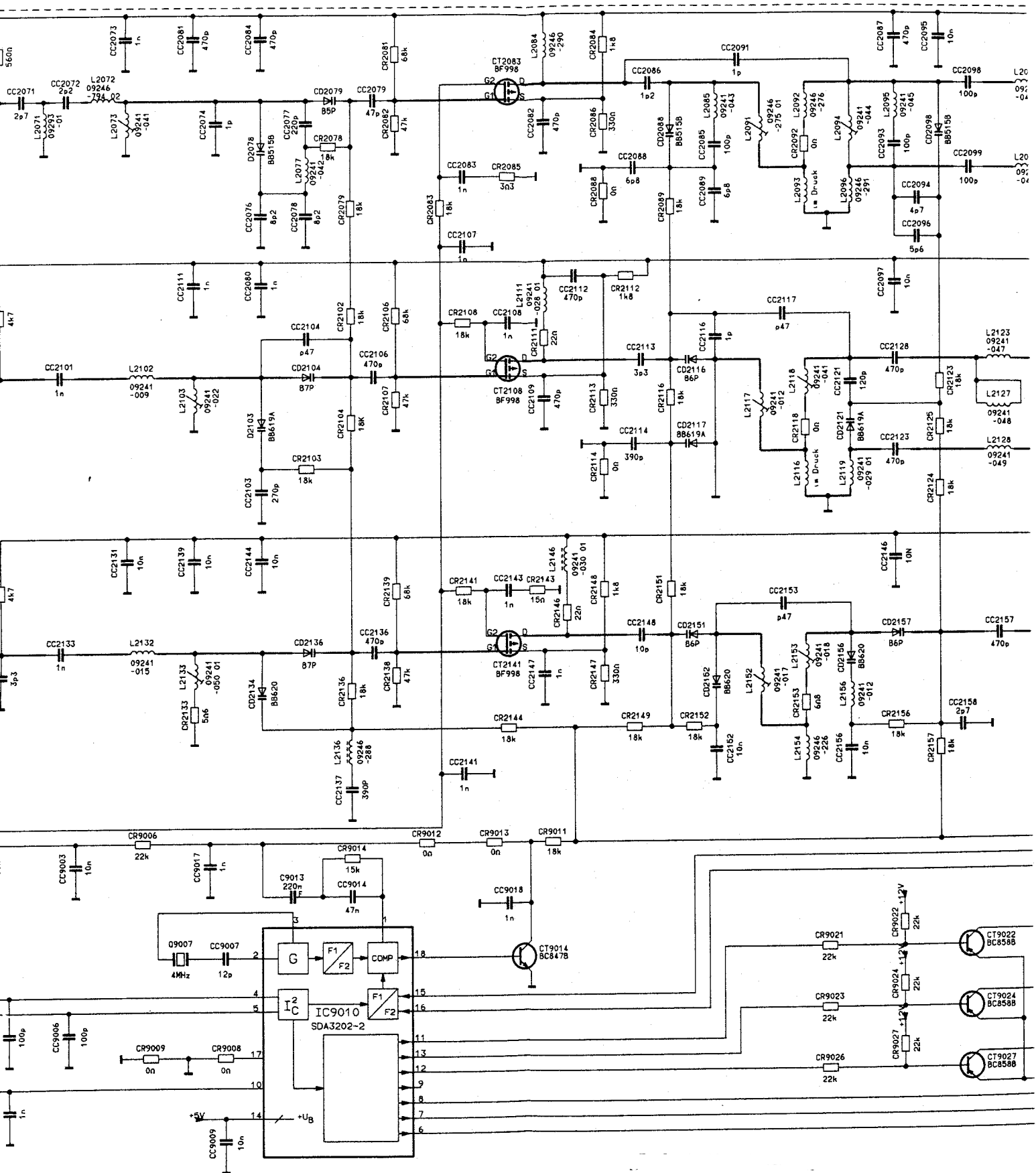


STOP FUER STANDBILO/DIG.
STOP FOR STILL PICTURE / DIGITAL
STOP POUR ARRET SUR IMAGE DIGITAL
STOP PER FERMO IMMAGINE / DIGITALE
STOP PARA IMAGEN PARADA / DIG

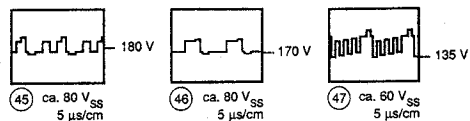
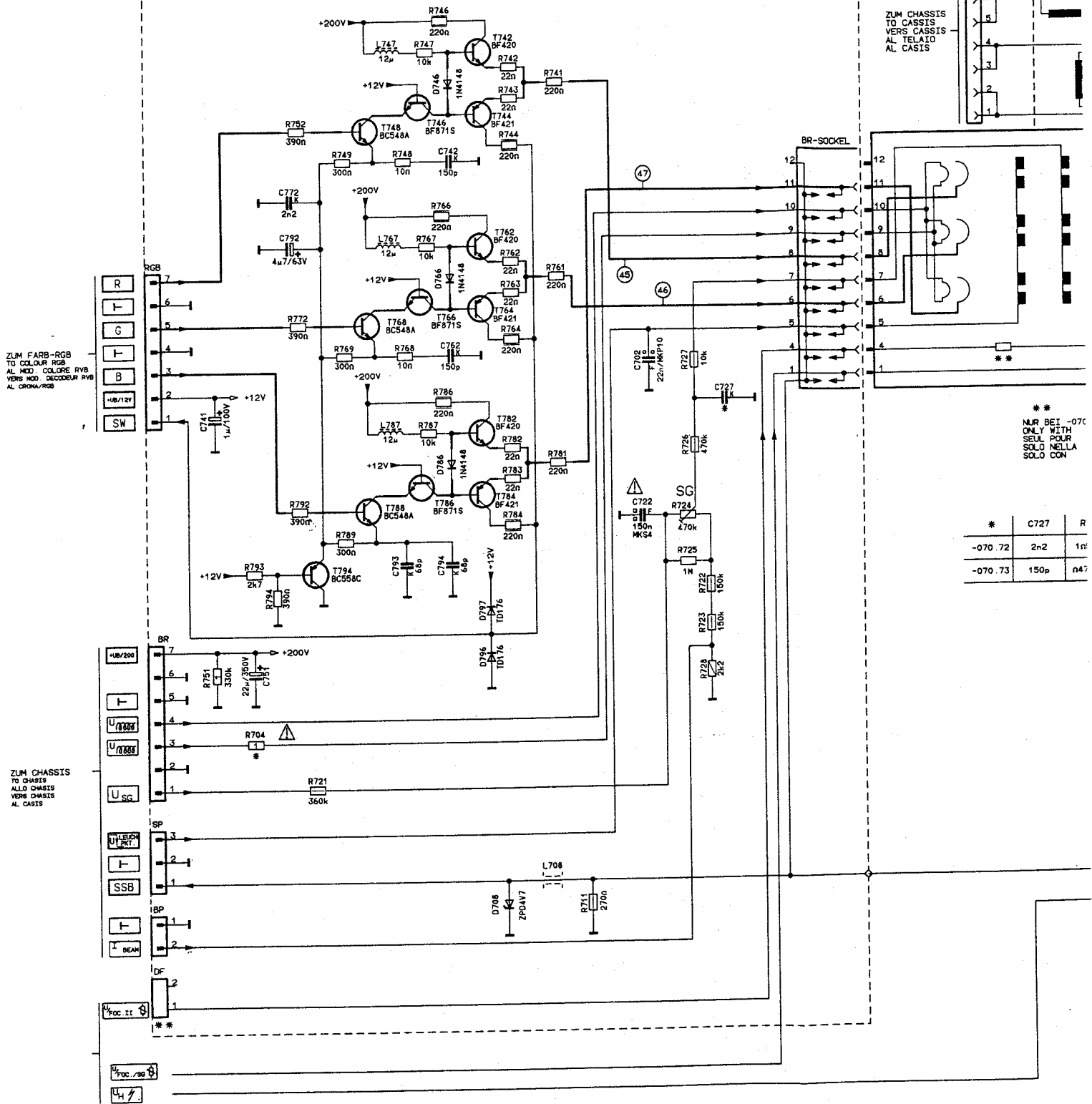
FERNBEDIENUNG 29622-053.01
REMOTE CONTROL -053.12 FASTTEXT
TELE COMMANDE -053.13 TOPTXT
TELECOMANDO -053.15 US
TELE MANDO

29304-620.71 KEYBOARD
KEYBOARD
CLAVIER
KEYBOARD
TECLADO





BILDROHRPLATTE 29304-070.72 (82cm)
CRT BASE -070.73 (95cm)
C. I. TUBE CATHOD.
PIASTRA CINESC.
PLACA ZOCALO TRC



-070.72 (82cm)
-070.73 (95cm)

ZUM CHASSIS
TO CASSIS
VERS CASSIS
AL TELAIO
AL CASIS

J_V
L520
J_H

BR-SOCKET

110°

NUR BEI -070.72
ONLY WITH
SEUL POUR
SOLO NELLA
SOLO CON

*	C727	R704
-070.72	2n2	1n5/1W
-070.73	150p	n47/W75

ABGLEICH DER BRÜCKENSPULE L 573

GB

ADJUSTMENT OF THE BRIDGE COIL L

Picture width to minimum, then connect one test probe of a twin beam oscilloscope to the collector of transistor T 572. Connect the other test probe to the junction of D 570, D 572.

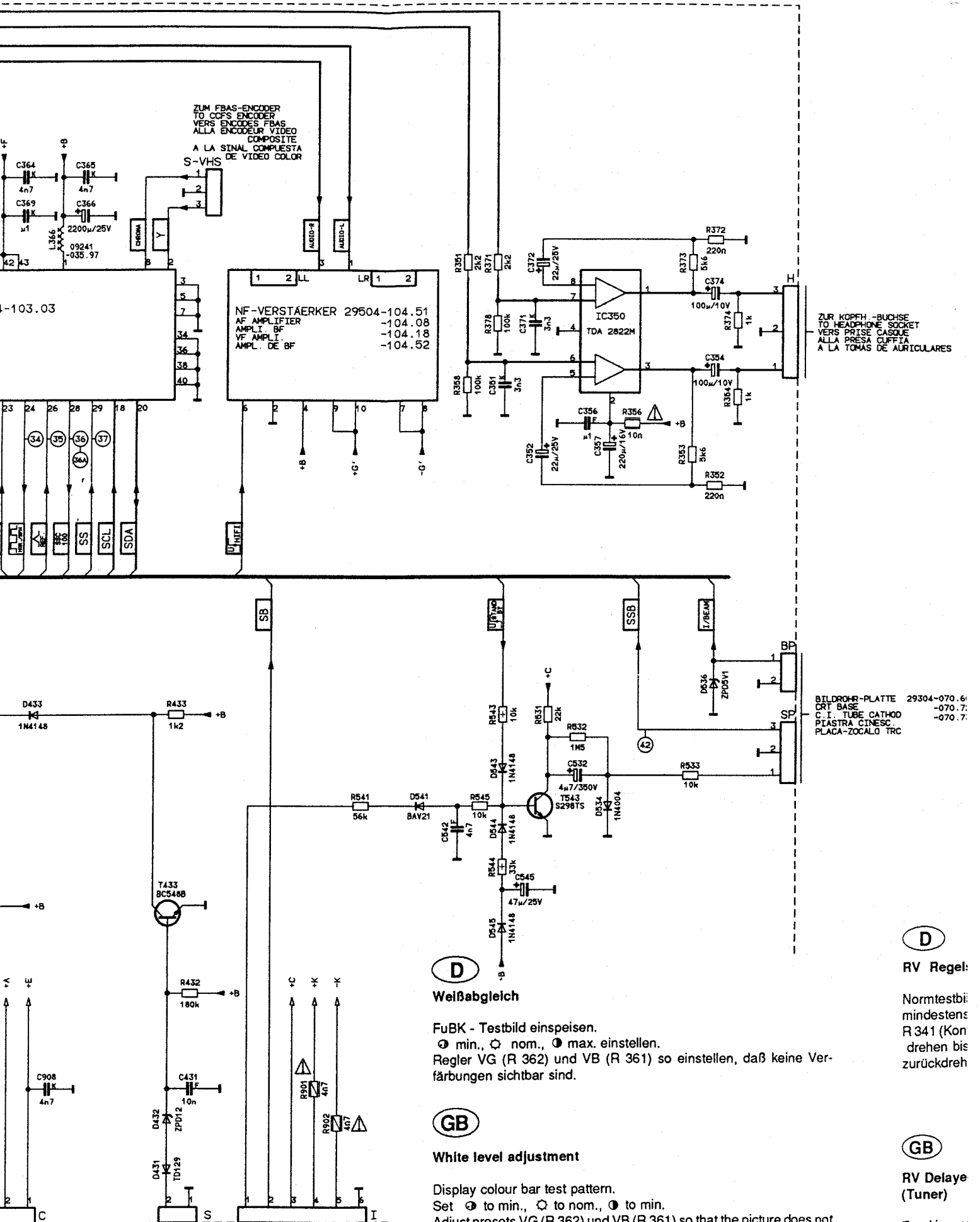
Adjust the coil L 573 so that both oscillograms have the same pulse width.

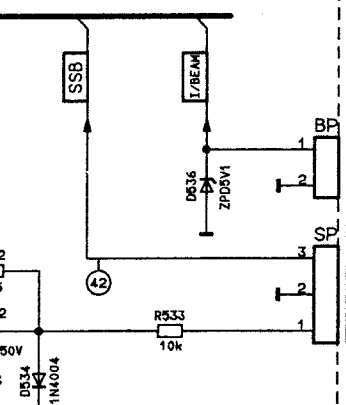
*	C727	R704
-070.72	2n2	1n5/1W
-070.73	150p	n47/W75



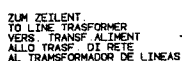






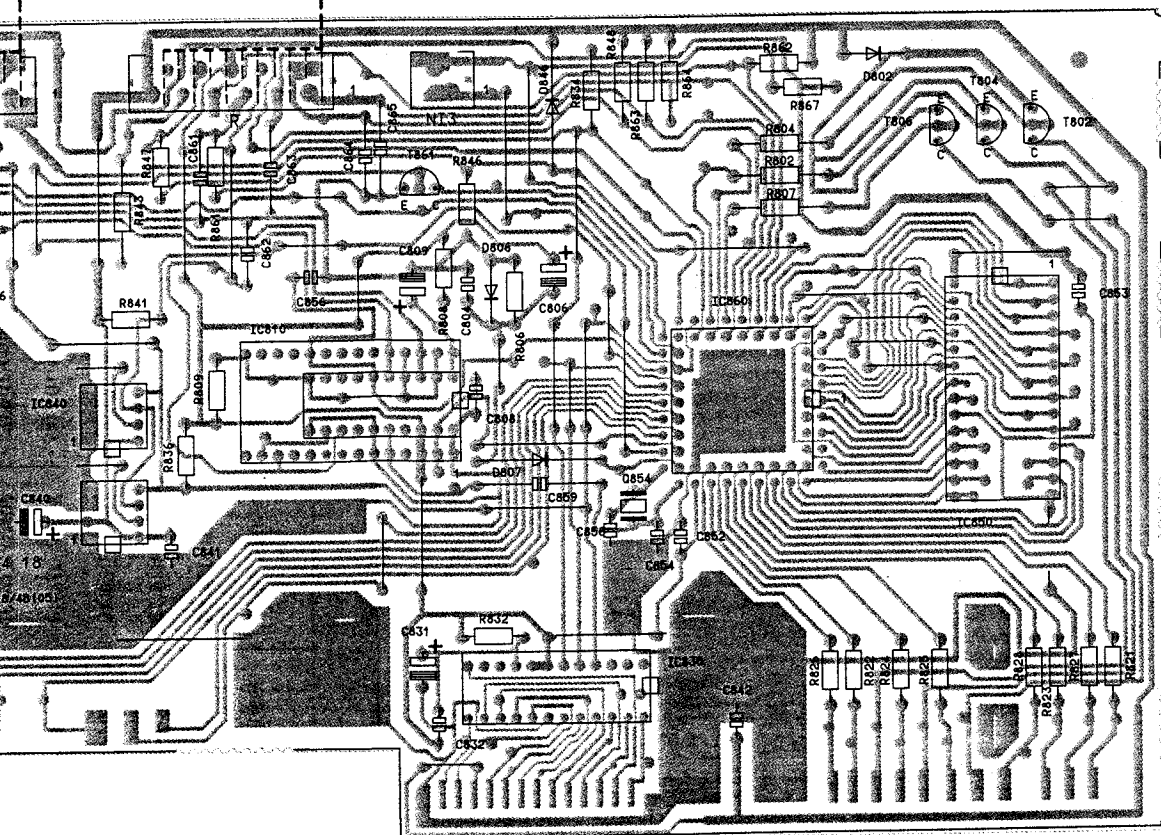
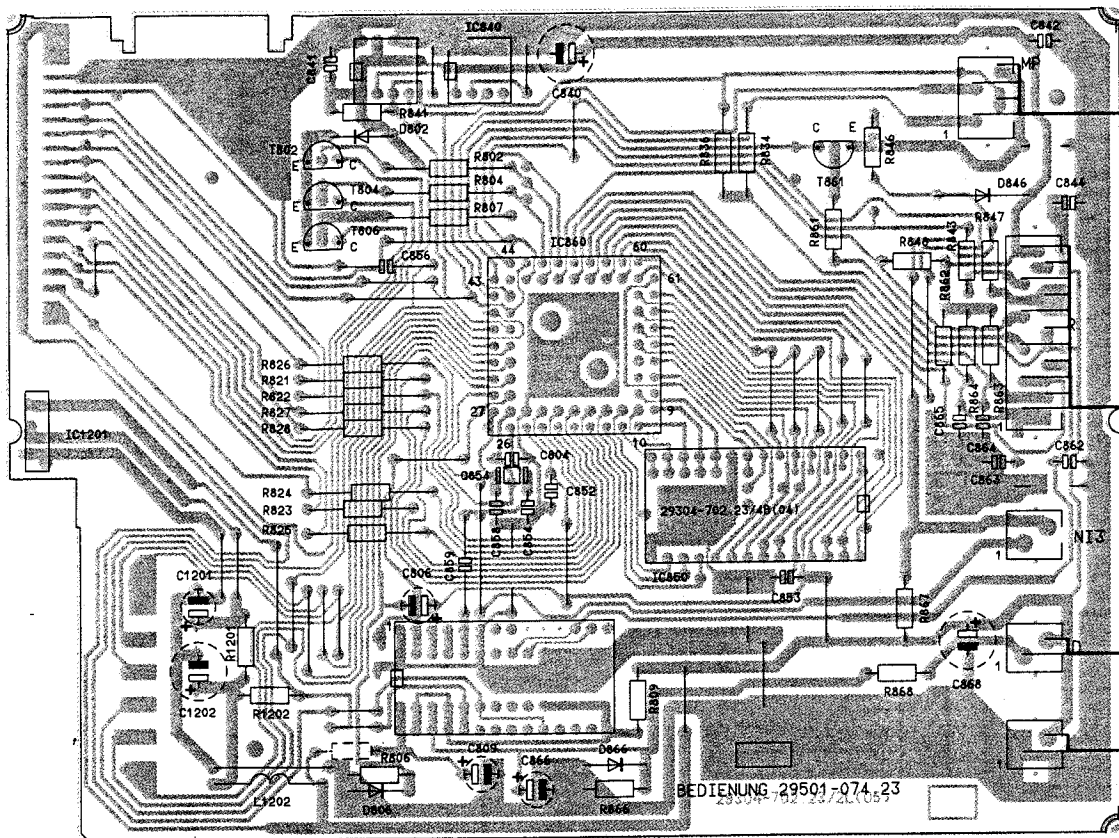


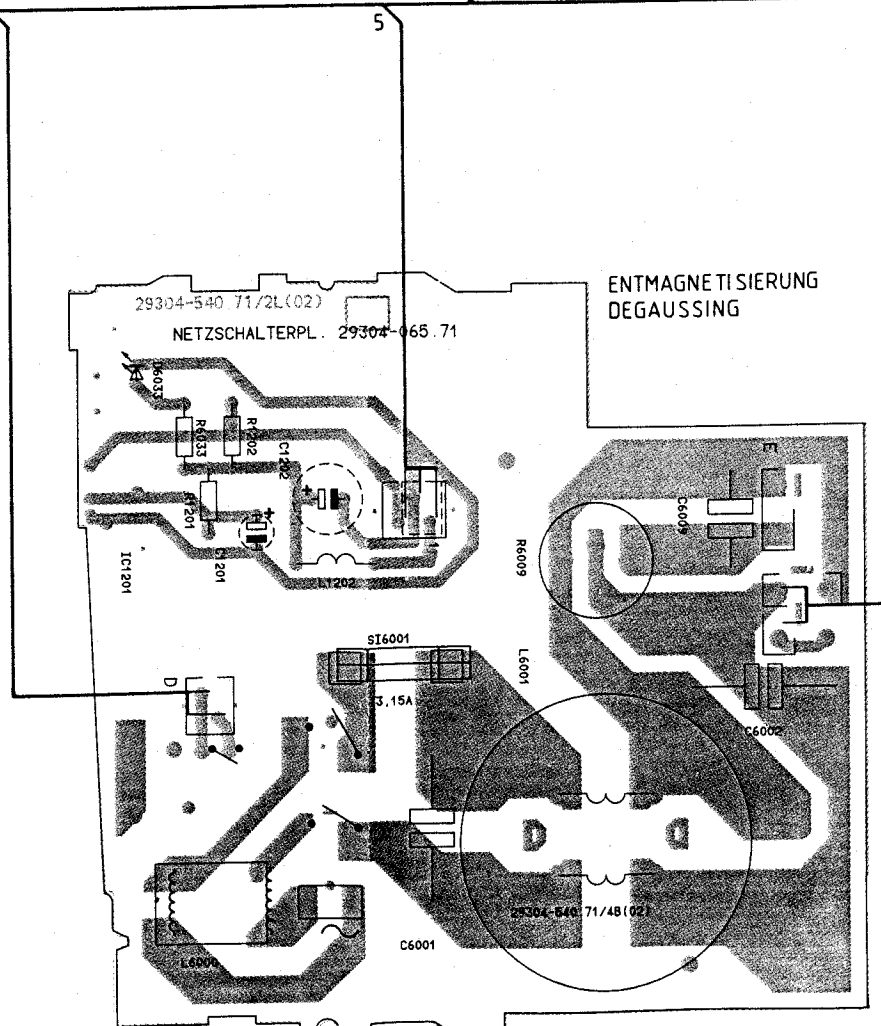
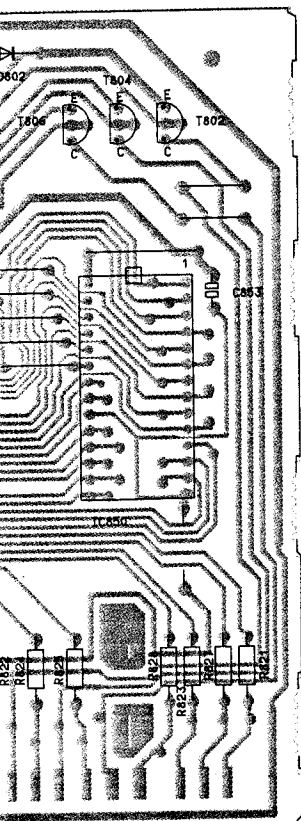
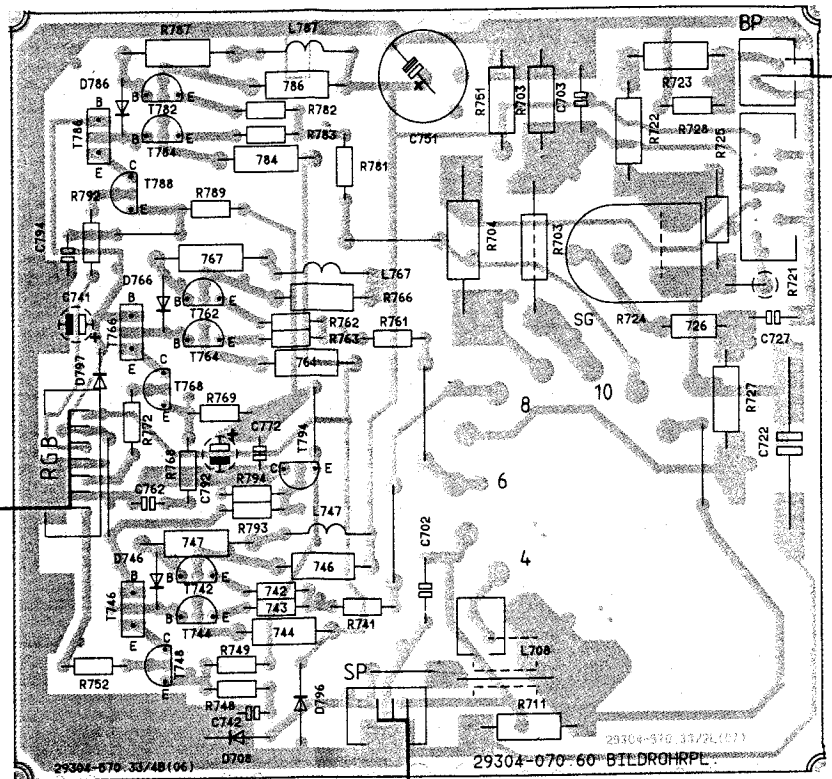
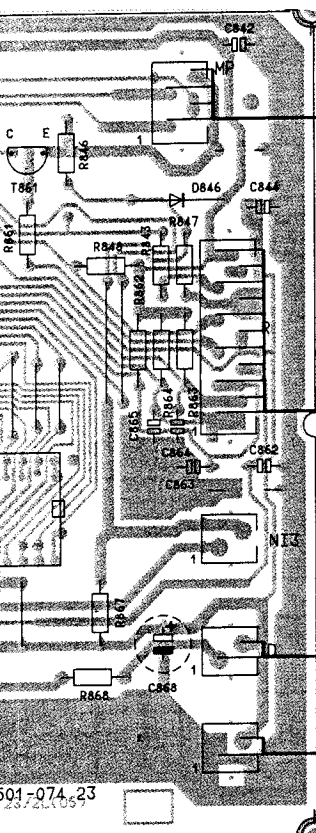
BILDROHR-PLATTE	29304-070.60
CRT BASE	-070.72
C.I. TUBE CATHOD	-070.73
PIASTRA CINESC.	
PLACA-ZOCALO TRC	



**Achtung! Brücke darf nur kurzzeitig
erfeststellung aufgetrennt werden (keine
Beschädigung der Bildröhre zu vermeiden)**

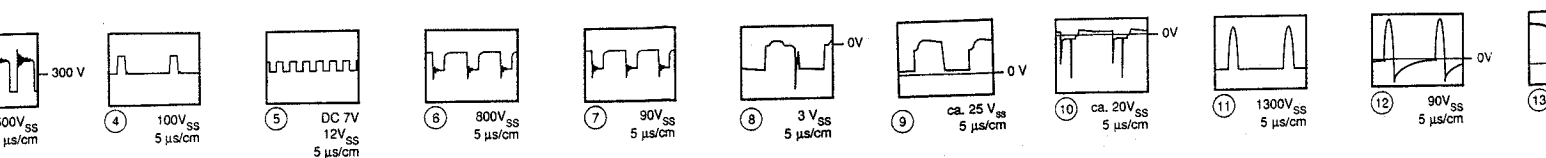
und VB (R 361) so that the picture does not

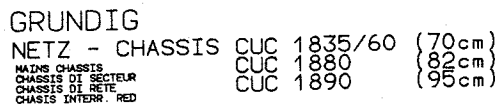


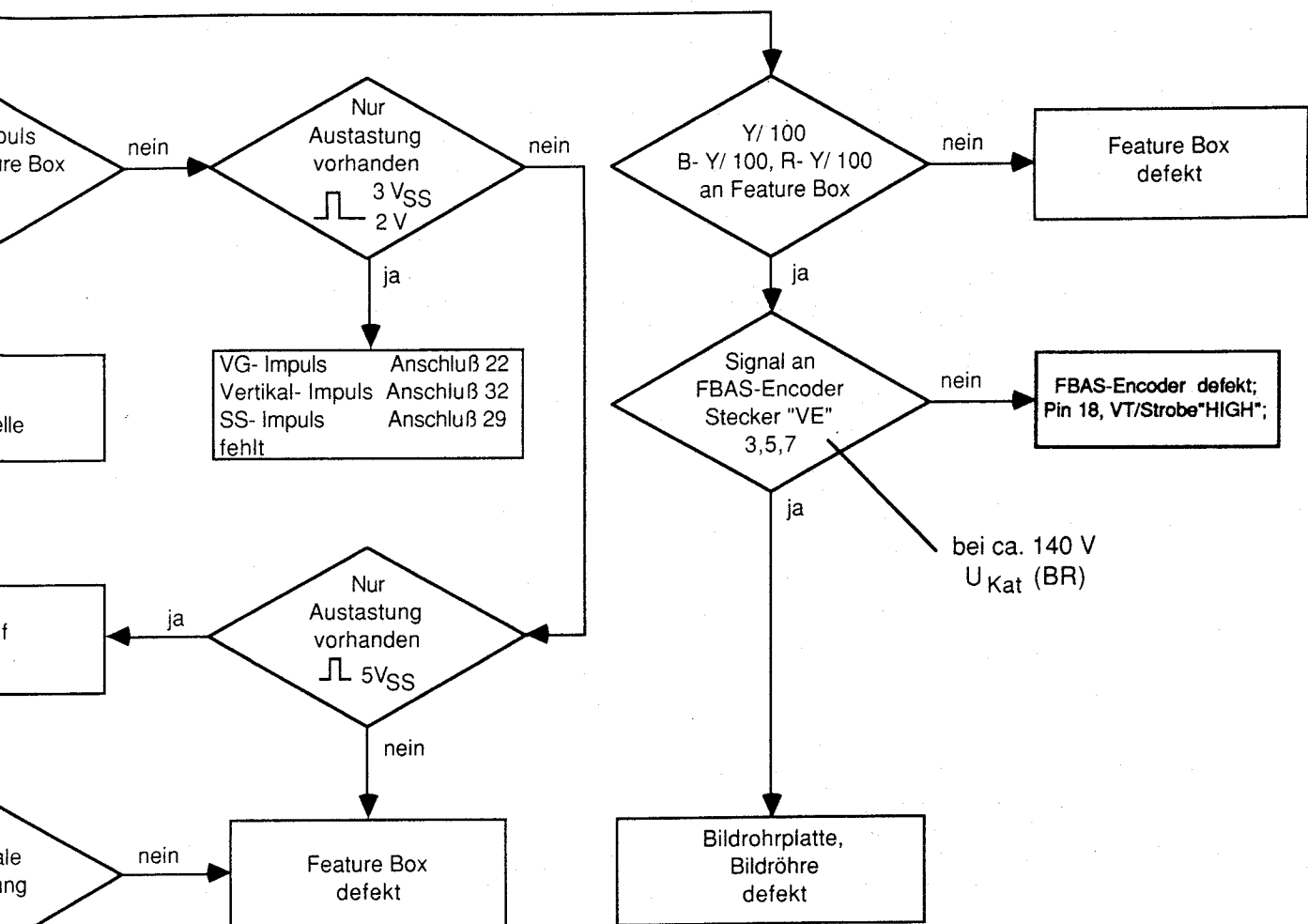




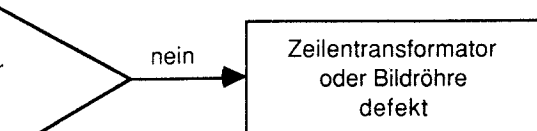
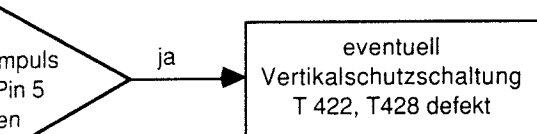






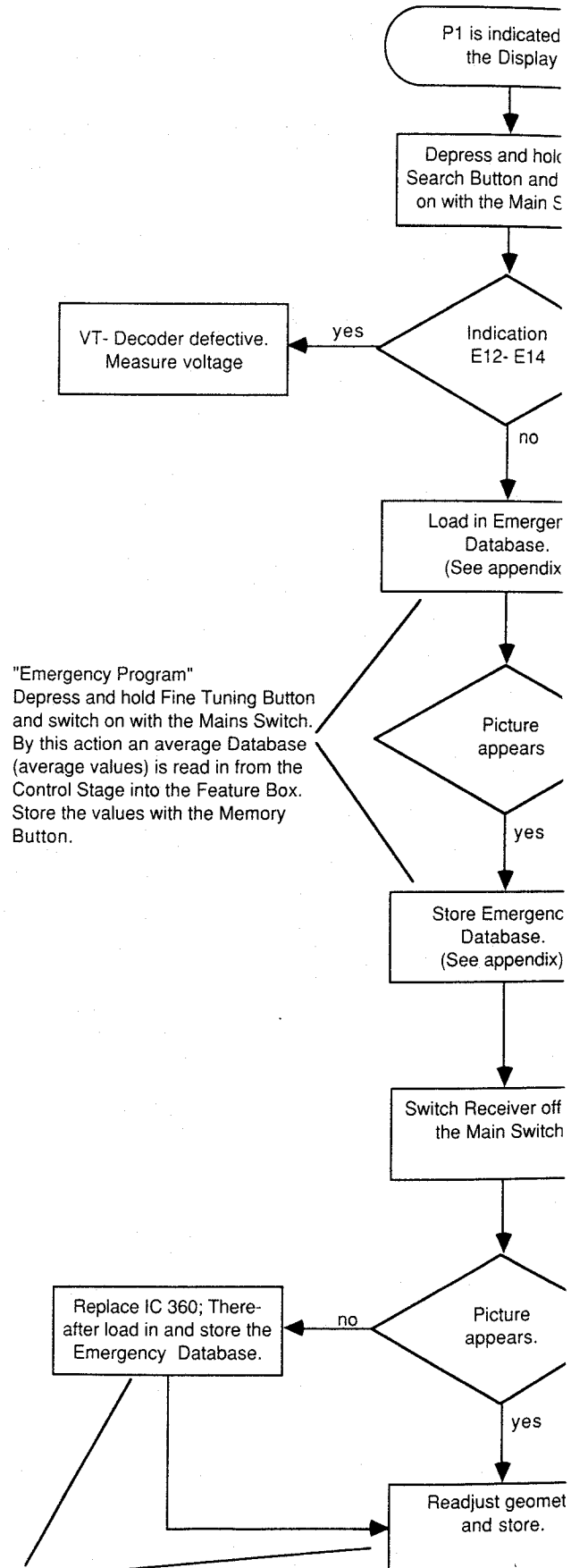
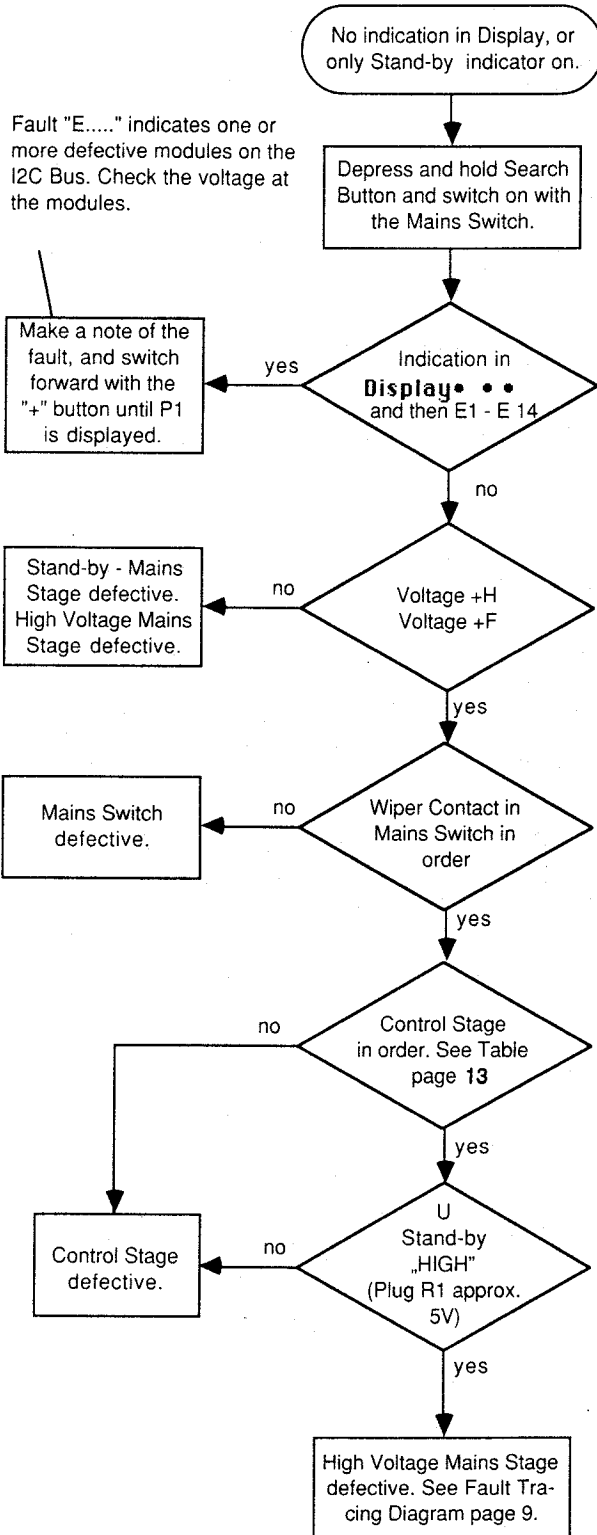


Fehlersuchdiagramm

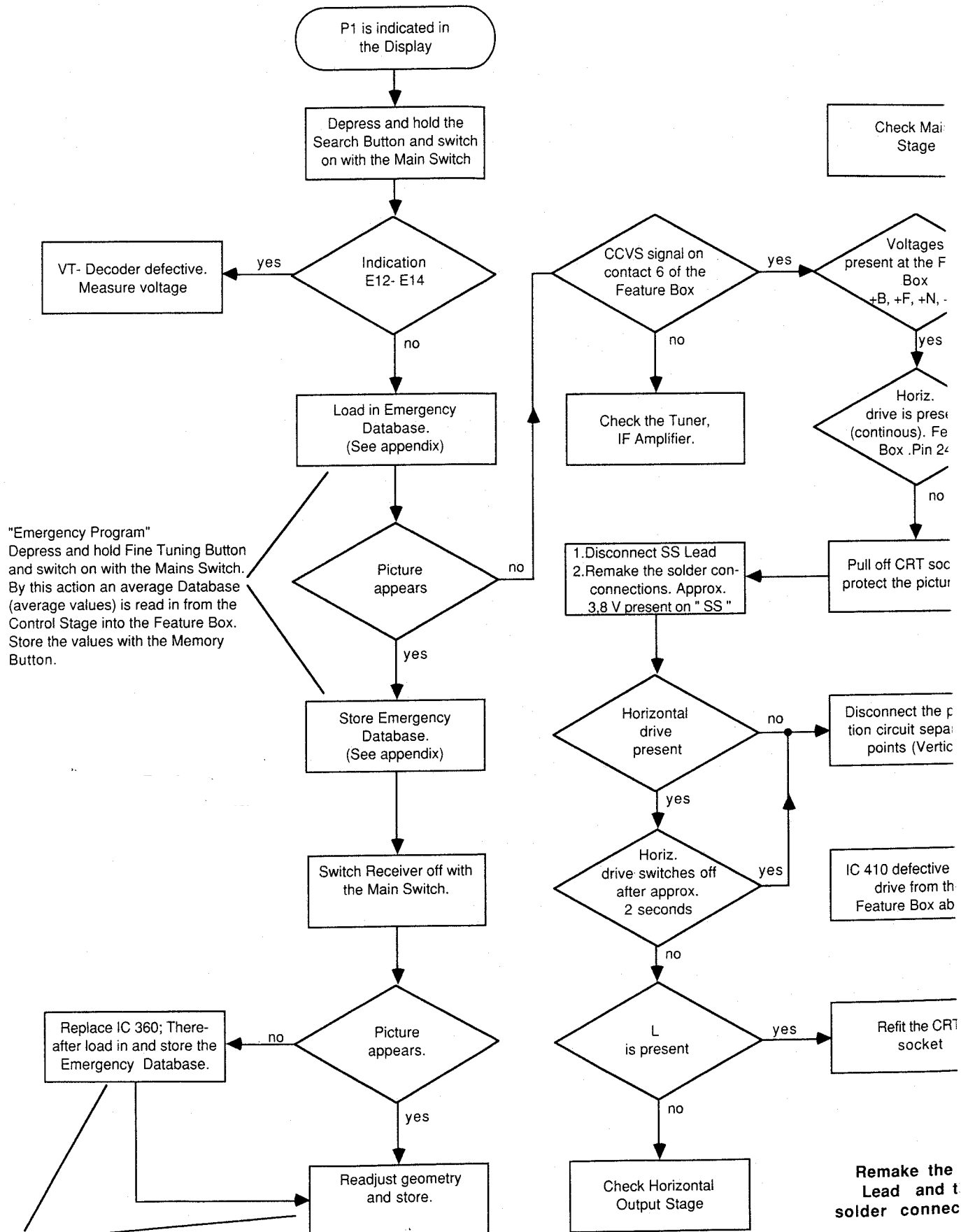


SS-Tabelle
Messung an Feature Box Pin 29
Blanking SSC ≤ 3,6 V
Ansteuerung: Abschaltung+ Blanking SSC ≥ 4,5 V (gemessen von der Nulllinie zur pos. Impulsspitze)

No Picture, No Sound



No Picture, No Sound



in

the
switch
switch

cy

no

y

with

ry

Check Mains
Stage

CCVS signal on
contact 6 of the
Feature Box

yes

no

Check the Tuner,
IF Amplifier.

Voltages
present at the Feature
Box
+B, +F, +N, +R

yes

no

Horiz.
drive is present
(continuous). Feature
Box .Pin 24

Sandcastle
pulse

yes

no

See SS
Table

Only
Blanking
is present

yes

no

VG-Pulse
Vertical- Pulse
SS- Pulse
missing

Contact
Contact
Contact

1.Disconnect SS Lead
2.Remake the solder con-
nections. Approx.
3.8 V present on " SS "

Pull off CRT socket to
protect the picture tube

Check
U ref

Only
Blanking
is present

yes

no

Horizontal
drive
present

yes

no

Horiz.
drive switches off
after approx.
2 seconds

Disconnect the protec-
tion circuit separation
points (Vertical)

Horizontal
drive stays
on

yes

no

Feature Box
defective

IC 410 defective or the
drive from the
Feature Box absent

Saw-tooth-pulse
on IC 410, Pin 5 is
present

yes

no

Vertical protection stage
T 422, T 426 possibly
defective

L
is present

yes

no

Refit the CRT
socket

Picture tube
heats up

yes

no

Line Transformer or
Picture Tube
defective

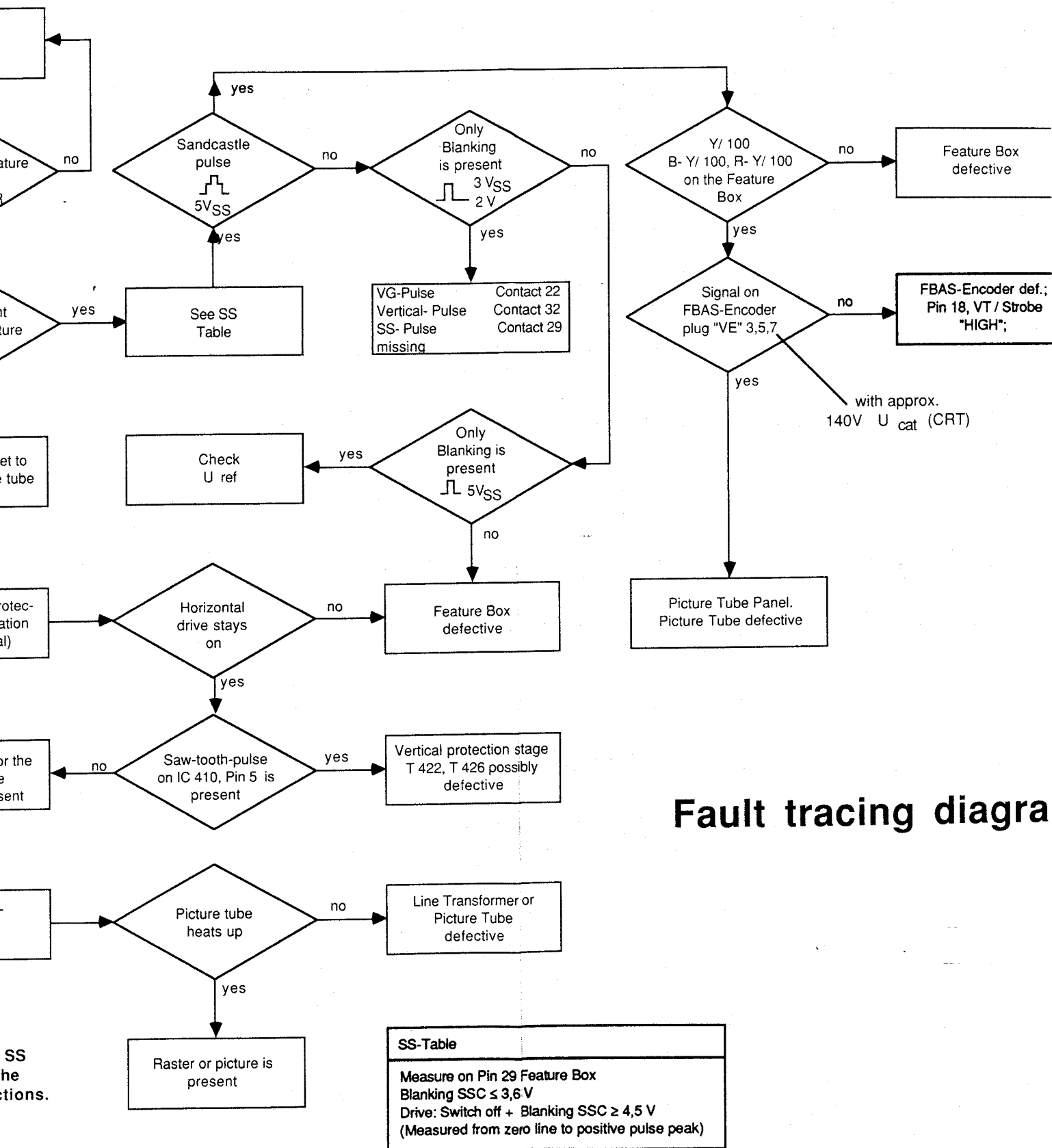
Check Horizontal
Output Stage

Remake the SS
Lead and the
solder connections.

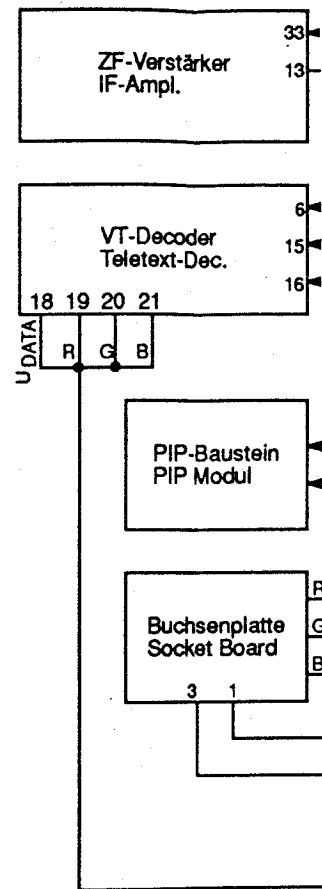
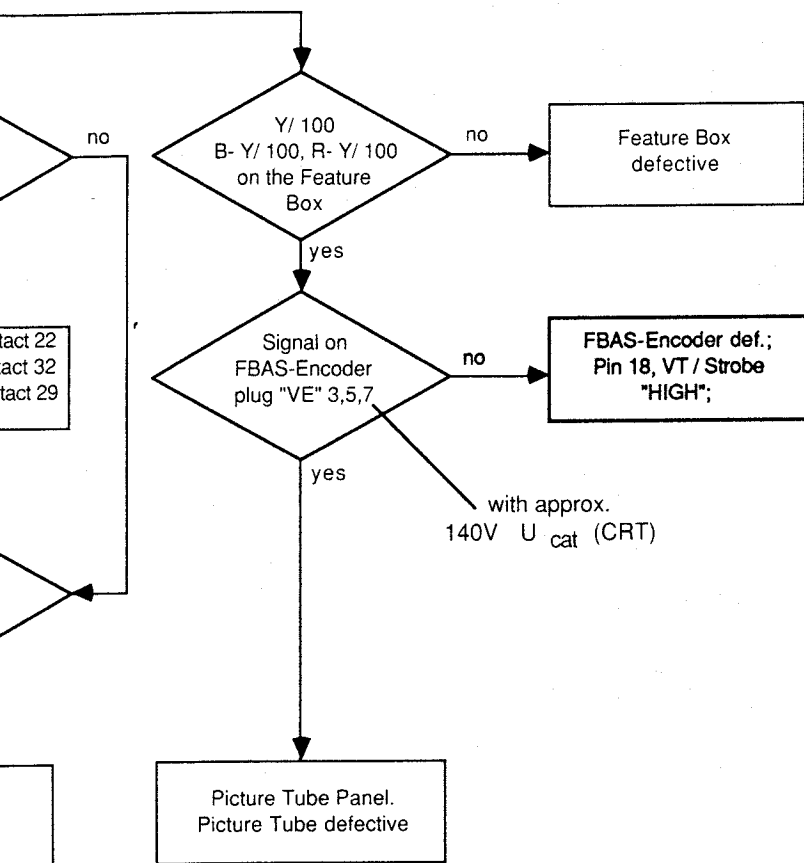
Raster or picture is
present

SS-Table

Measure on Pin 29 Featur
Blanking SSC $\leq 3.6V$
Drive: Switch off + Blanki
(Measured from zero line



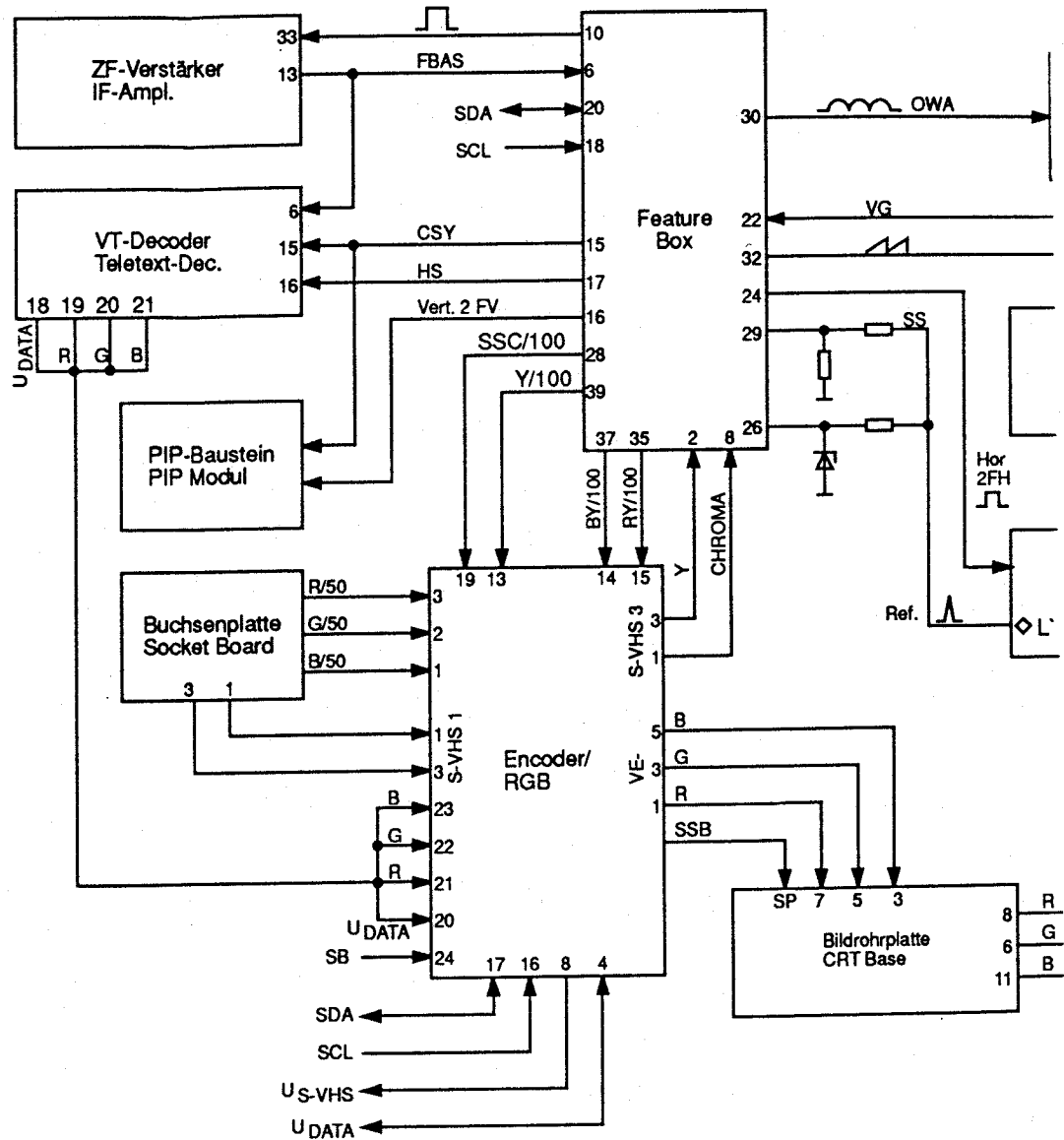
Fault tracing diagram



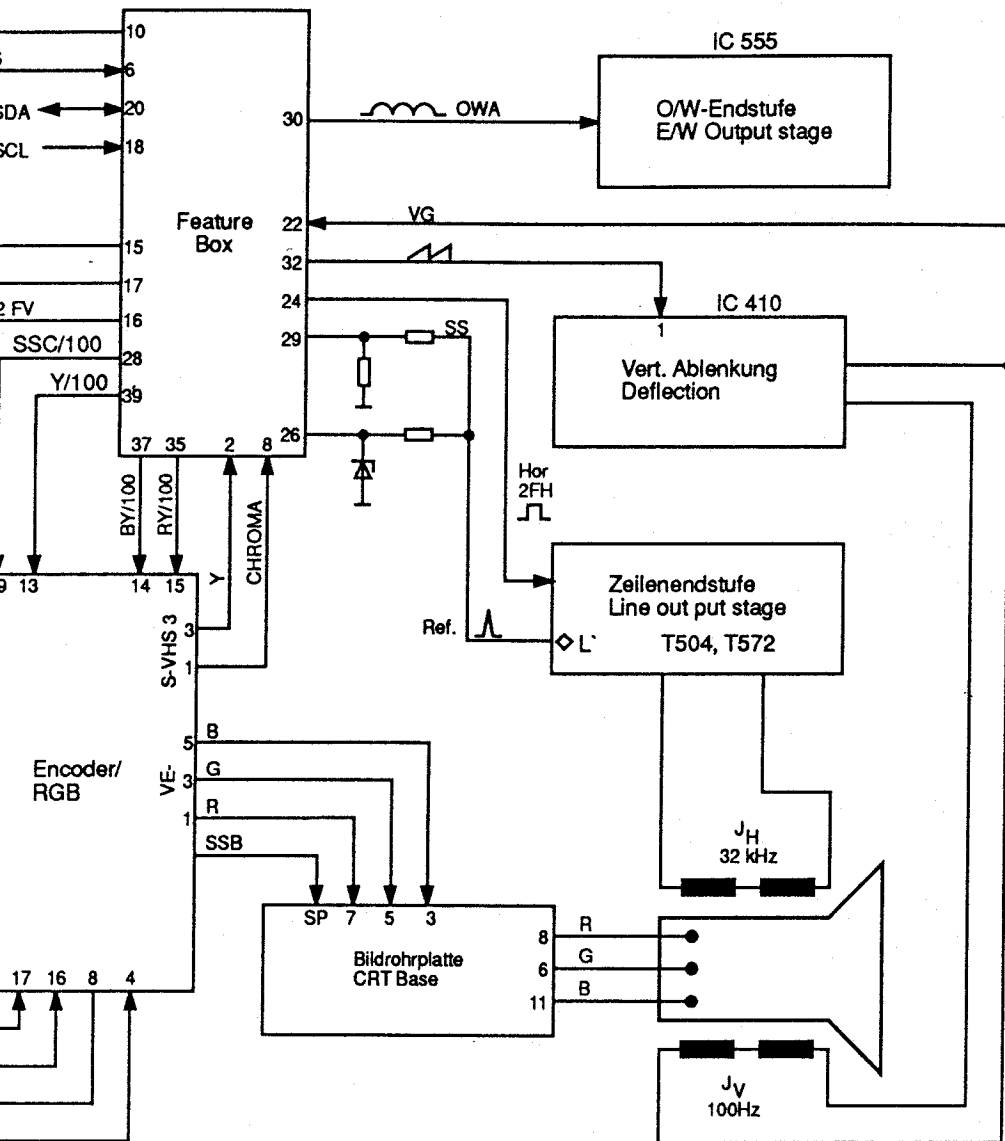
Fault tracing diagram

Feature Box
V
Blanking SSC $\geq 4,5$ V
to line to positive pulse peak)

Signalverlauf im 100Hz Gerät Signal path in 100 Hz receivers



Signalverlauf im 100Hz Gerät Signal path in 100 Hz receivers



M 82 - 100 IDTV (IT)	29304-060.62	29305-070.60	29504-101.22	29504-162.14	29504-105.38	29504-108.72	29504-104.08	29504-103.03	29501-074.27	29304-065.75
M 82 - 100 IDTV	29304-060.64	29305-070.72	29504-101.22	29504-162.14	29504-105.36	29504-108.72	29504-104.51	29504-103.03	29501-074.18	29304-065.72
M 82 - 100 IDTV (IT)	29304-060.64	29305-070.72	29504-101.22	29504-162.14	29504-105.38	29504-108.72	29504-104.51	29504-103.03	29501-074.18	29304-065.72
M 95-100 IDTV	29304-060.67	29305-070.73	29504-101.22	29504-162.14	29504-105.36	29504-108.72	29504-104.51	29504-103.03	29501-074.18	29304-065.72
M 95-100 IDTV (IT)	29304-060.67	29305-070.73	29504-101.22	29504-162.14	29504-105.38	29504-108.72	29504-104.51	29504-103.03	29501-074.18	29304-065.72
M 95-100 IDTV NIC	29304-060.67	29305-070.73	29504-101.22	29504-162.14	29504-105.36	29504-108.72	29504-104.51	29504-103.03	29501-074.18	29304-065.72

Baustein - Übersicht

Module list

Vue d'ensemble composantes

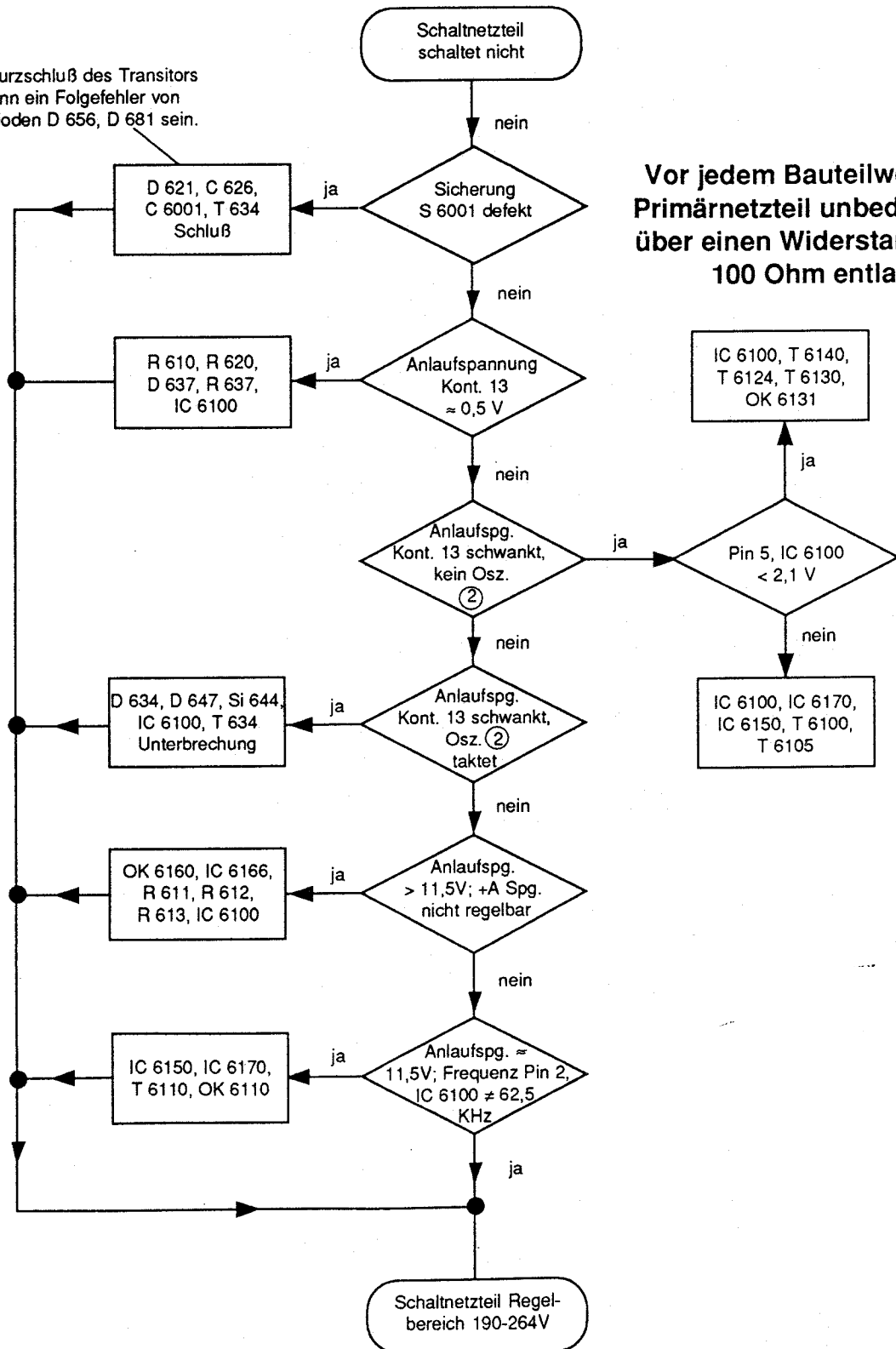
Viduta dei componenti

Lista de Modulos

Gerät Set Apparecchio Appareil Aparato	Buchsenplatte EURO-AV S.Board C.I. Prises Peri-TV P. Pr. EURO-AV Pl. con. EURO AV	BR-Platte CRT Base C.I. Tube Cathod. Plastra cinesc. Placa Zocalo TRC	Tuner	ZFVerstärker IF amplifier Amplificateur de FI Amplificatore FI Amplificador de FI	FBAS Encoder CCVS Encoder Encodeur FBAS Encoder FBAS Encoder FBAS	Videotext Teletext Videotext Colore/RVB Teletexto	NF AF B.F. BF BF	Feature Box Feature Box Feature Box Feature Box Feature Box	Bedieneinheit Control Unit Unita de Comm. Unita di Comando Unidad de Mando	Netzschalterpl. Mains Switch B. C.I. Int. Secteur Plastra Int. di Rete Placa interr. Red
M 70 - 100 IDTV	29304-060.64	29305-070.60	29504-101.22	29504-162.14	29504-105.36	29504-108.72	29504-104.51	29504-103.03	29501-074.18	29304-065.71
M 70 - 100 IDTV (IT)	29304-060.64	29305-070.60	29504-101.22	29504-162.14	29504-105.38	29504-108.72	29504-104.51	29504-103.03	29501-074.18	29501-065.71
M 70 - 100 IDTV NIC	29304-060.64	29305-070.60	29504-101.22	29504-102.46	29504-105.36	29504-108.72	29504-104.51	29504-103.03	29501-074.18	29501-065.71
M 70 - 580 IDTV	29304-060.62	29305-070.60	29504-101.22	29504-162.14	29504-105.36	29504-108.72	29504-104.08	29504-103.03	29501-074.27	29304-065.75
M 70 - 580 IDTV (IT)	29304-060.62	29305-070.60	29504-101.22	29504-162.14	29504-105.38	29504-108.72	29504-104.08	29504-103.03	29501-074.27	29304-065.75
M 82 - 100 IDTV	29304-060.64	29305-070.72	29504-101.22	29504-162.14	29504-105.36	29504-108.72	29504-104.51	29504-103.03	29501-074.18	29304-065.72
M 82 - 100 IDTV (IT)	29304-060.64	29305-070.72	29504-101.22	29504-162.14	29504-105.38	29504-108.72	29504-104.51	29504-103.03	29501-074.18	29304-065.72
M 95-100 IDTV	29304-060.67	29305-070.73	29504-101.22	29504-162.14	29504-105.36	29504-108.72	29504-104.51	29504-103.03	29501-074.18	29304-065.72
M 95-100 IDTV (IT)	29304-060.67	29305-070.73	29504-101.22	29504-162.14	29504-105.38	29504-108.72	29504-104.51	29504-103.03	29501-074.18	29304-065.72
M 95-100 IDTV NIC	29304-060.67	29305-070.73	29504-101.22	29504-102.46	29504-105.36	29504-108.72	29504-104.51	29504-103.03	29501-074.18	29304-065.72

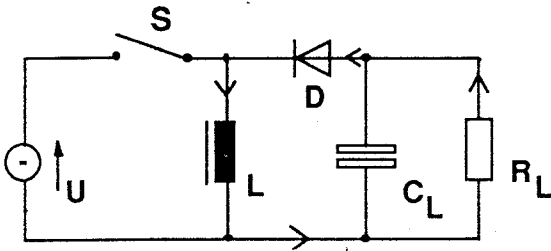
Netzteil - Fehlersuchdiagramm

Achtung! Kurzschluß des Transistors T 634 kann ein Folgefehler von defekten Dioden D 656, D 681 sein.



Functional Description of the POWERMOS Switch-mode Power Supply with IC - TDA 4601

The principle functions carried out by the circuit are to chop the DC voltage at a frequency of 62.5 kHz, to transform and rectify so that the load relationship is correctly maintained on the secondaries.



The inductance (L) is connected to the DC voltage source (U_a) via a switch (S) activated by a control circuit, so that during the conduction phase of the switch a linear rising current in the inductance causes a magnetic field to build up and for energy to be stored. The rectifying diode (D) is cut off and decouples the secondary load from the input circuit. After the switch is open, the EMF becomes effective, the diode conducts and connects the load and the charging capacitor to the inductance.

The expanded basic circuit as used in the television sets

In this expanded circuit a transformer takes over the function of the coil; the switch is replaced by a transistor. The energy source for the secondary is during the switch-off phase of the transistor via the diode (D). This switch-mode power supply with line-frequency synchronization assures a very high stabilising factor due to variation of the duty cycle.

The appropriate upper and lower limiting values are fixed by the circuit and by physical values.

Primary Side

In this line-frequency-coupled blocking-oscillator converter mains stage the IC 6100 takes over the function of driving the MOS power transistor T 634 as well as all control and monitoring functions. The power supply of IC 6100 is provided on pin 9 via the resistor R 637 and diode D 637 until the switch-on threshold is achieved. After start-up the supply voltage is obtained via the diode D 634 and the resistor L 634 from the winding 11/9 of the converter transformer.

The serial circuit of the power transistor T 634 and the primary winding 5/1 of the blocking oscillator converter is connected to the rectified mains voltage (C 626). During the conduction phase of the transistor energy is stored in the transformer; this energy is transferred via the secondary winding during the switch-off period. The IC 6100 controls

the transferred energy (base of transistor T 634) so that the secondary voltages remain stable largely independent of the mains voltage and load. The necessary information is obtained from the transformer winding 11/13 and is supplied via R 648, D 647, R 6158 and R 6157 to pin 3 of IC 6100. In parallel to this circuit, the operating voltage +A is automatically readjusted (via the optocoupler OK 6160 due to the mains isolation). This reference voltage is applied to the operational amplifier IC 6166 via R 613, R 612, R 611, and to the optocoupler via R 6127. By means of the control R 611, the +A voltage is set to 161 V or 155 V, respectively (minimum brightness and contrast). At the logic block pin 2, IC 6100, double the line frequency is provided for pulse start-up. The oscillator of IC 6170 operates on 125 kHz (4 times the line frequency); its frequency and phase are controlled. On pin 14, the IC 6170 is synchronized with the line frequency via T 6110, OK 6110 and T 6120. The time constant for the control of the VCO is determined by C 6171, R 6171 (pin 9 and pin 13). Due to this fact a connection is established between the mains supply and the line deflection. In IC 6150 the frequency is divided and applied to pin 1 where it is available for the logic block via R 6152, C 6111. This 62.5 kHz frequency can be measured on pin 2 of IC 6100 using a frequency counter. In order to reduce the start-up current the operating voltage (+NE) for IC 6150 and IC 6170 is released by the transistors T 6100 and T 6105 not before U_a (pin 1, IC 6100) reaches the switching threshold of the T 6100 base voltage.

Overload cut-out circuit

If the power from the mains supply circuit exceeds the permissible level the voltage dropped on the test resistor R 627 increases and turns on the transistor T 6140. Pin 5 of IC 6100 is thus connected to chassis level and the mains supply unit switches off.

The limiting of the control, as well as the overload identification is obtained from the so-called "collector current simulation" of the switching transistor T 634 on pin 4 of TDA 4601 in combination with R 638 and C 6151.

Due to the mains isolation, a data transfer from the secondary to the primary side is only possible via optocouplers.

Stand-by mode

On stand-by mode the blocking-oscillator converter mains stage is completely switched off by the stand-by function of IC 6100/TDA 4601 (pin 5; < 2.1 V). The base of transistor T 6130 is taken to HIGH. Consequently, all secondary voltages are absent.

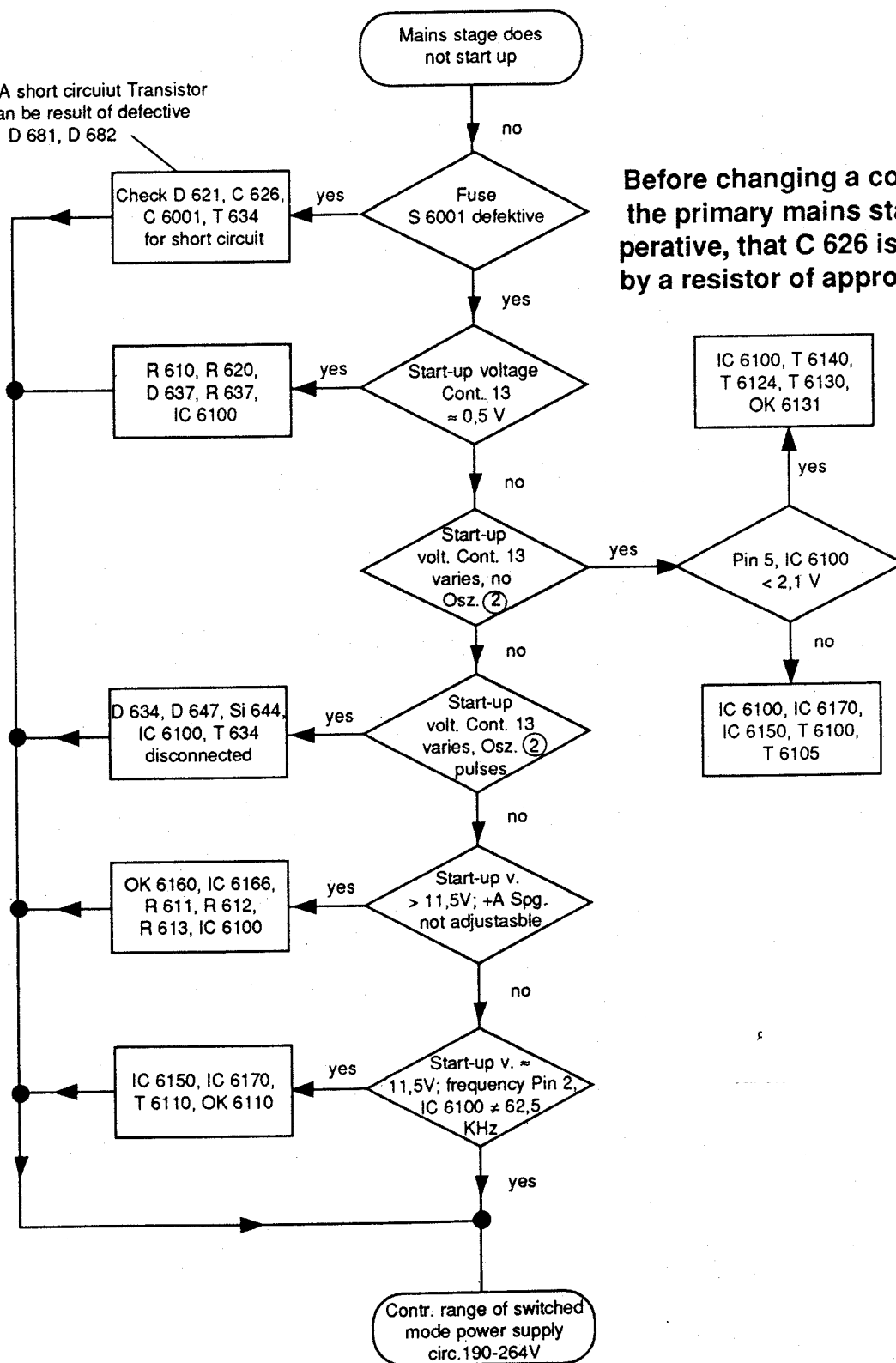
Due to this circuit concept the power consumption on stand-by mode is reduced to about 8 Wh.

To allow the operating control unit to be in operation a separate mains supply is used to generate the +5V voltage (+H). It supplies the operating voltage for both processors IC 860 and IC 810.

IC 810 (pin 8) drives the blocking-oscillator converter mains stage via the stand-by lead and evaluates the data of the IR pre-amplifier (IC 1201). Communication between the master processor IC 860 and IC 810 is accomplished via the lead "IR Data" and "IR Clock" (pin 39, 11).

Fault tracing diagram

Attention! A short circuit Transistor T 634 can be result of defective D 681, D 682



Before changing a component in the primary mains stage it is imperative, that C 626 is discharged by a resistor of approx. 100 Ohm.

Bedieneinheit

Diese Bedieneinheit ist mit 2 Microcomputern aufgebaut, dem **Prozessor** IC 810 und dem **Prozessor** IC 860. Durch diese Schaltung wird die aufgenommene Leistung im Stand By - Betrieb auf ca. 8 Wh reduziert.

Intelligenter Vorverstärker (IC 810)

Dieser beinhaltet den μ P IC 810, den Infrarotempfänger IC 1201, sowie die Stand - By Auswertung. Die Betriebsspannung +H (5 V) wird vom Festspannungsregler IC 620 stabilisiert und über Stecker R 6 dem Bedienteil zugeführt. Die im Biphasecode modulierten Infrarotsignale werden durch das IC 1201 empfangen und mit 5 V_{cc} dem μ P, Pin 16 mitgeteilt. Der IC 810 besitzt ein internes Programm, das nur die Infrarotsignale decodiert und den Wischerkontakt abfragt. Ist ein 10 Bit Datenwort für richtig erkannt worden, gibt der IC 810 eine Meldung durch einen HIGH-LOW Sprung an Pin 15 aus. Im Hauptrechner IC 860 wird somit ein Interruptimpuls ausgelöst. Der Befehl den der Hauptrechner momentan bearbeitet, wird nun zu Ende geführt. Danach sendet der Rechner an den Requesteingang, Pin 2 des IC 810, 10 Impulse. Mit diesen Impulsen gibt das IC 810 einen 10 Bit Datenwort an Pin 15 aus. Der Quarz Q 854 liefert zwischen Pin 27 und Pin 26 die 10 Mhz Taktfrequenz (meßbar an Pin 26; 5 V_{cc}) für beide Prozessoren. Wird das Gerät in Stand By geschaltet, gibt IC 810 an Pin 8 LOW aus und schaltet das Netzteil über T 6130, T 6124 und OK 6131 ab. Beim Einschalten des Gerätes mit dem Netzschalter wird Pin 18 des μ P durch den Wischerkontakt kurzzeitig auf HIGH gelegt. Der Kondensator C 866 bleibt für einige Zeit aufgeladen und der Rechner kann diesen Pegel auswerten. Nach dem Resetimpuls über C 806, R 806 und T 806 am Pin 20 IC 810, Pin 28 IC 860 fragt der Rechner den Pin 18 IC 810 ab. Liegt LOW an, erkennt der μ P daß das Gerät mit dem Netzstecker eingeschaltet wurde.

Kontroll - Einheit (IC 860)

Der Steuerrechner dieser Schaltung der μ P IC 860 bezieht sein Programm aus dem EPROM IC 850. Der μ P übernimmt die Ansteuerung der Anzeigen, Abfrage der Tastatur, Umschaltung der EURO-AV Buchse, der ZF, des Farbbausteines, des Videotextdecoders, sowie den Datenverkehr zwischen den Bausteinen und dem Datenspeicher IC 360.

Der μ P liefert im 2 msec Rhythmus Impulse von Pin 34-36. Bei einer Tastenbetätigung liegen diese Impulse am Eingang 31-33. Daraus kann der Rechner die gedrückte Taste erkennen.

Die Display Ansteuerung erfolgt im Zeitmultiplexverfahren, über die Ausgangsports 48-50 des μ P's. Die Transistoren T 802, T 804, und T 806 liefern im 2 msec Takt die Anodenspannung für die LED's. Die Daten für die Digits stehen an den Pins 16-21. Die Informationen für die Anzeige-LED's werden nach der Freigabe (PBO, Pin 37) an Pin 19, 21 (I²C Bus) seriell in das Schieberegister des LED Treibers (IC 830) eingelesen und parallel ausgegeben.

Der Datenverkehr mit den Bausteinen und dem Speicher findet ebenso über den I²C Bus statt. Der I²C Bus ist eine bidirektionaler Zweileiterbus, bestehend aus den SDA (System Daten)- und dem SCL (System Clock) Leitungen. Beide liegen über die Pull-Up Widerstände R 834, R 836 an +H.

Control Unit

This control unit employs two microcomputers the **Slave Processor** IC 810 and the **Master Processor** IC 860.

Due to this circuit design the power consumed on standby mode is reduced to approx. 8 Wh.

Intelligent Pre-amplifier (Slave Processor) (IC 810)

This stage is made up of the microprocessor IC 810, the infrared receiver IC 1201, as well as the standby evaluation.

The operating voltage +H (5V) is stabilized by the fixed voltage control IC 620 and applied to the control unit via plug R6. The biphase-code-modulated infrared signals are processed by IC 1201 and fed to pin 16 of the microprocessor at 5Vpp. The IC 810 contains an internal programme which is used only for decoding the infrared signals and for sampling the temporary contact. If a 10 bit word is "correctly" identified, the IC 810 announces this by a HIGH-LOW level change on pin 15. The main computer reacts by producing an interrupt pulse. The programme sequence being presently carried out by the main computer is now completed. Then the computer sends ten pulses to the request input, pin 2 of IC 810. With these pulses, the IC 810 feeds out the 10 bit word from pin 15. The quartz Q 854 produces the 10 MHz clock frequency between pins 27 and 26 (measurable at pin 26; 5Vpp) for both processors. If the receiver is switched to standby the IC 810 produces a LOW level on pin 8 and the mains stage is switched off via T 6130, T 6124 and OK 6131. When switching the receiver on with the mains switch, pin 18 of the microprocessor is connected to a HIGH level for a short period by the temporary contact. The capacitor C 866 remains charged up for a period and the computer evaluates the level. After the reset pulse via C 806, R 806 and T 806 on pin 20, IC 810, pin 28, IC 860, the computer samples pin 18, IC 810. If this is at LOW, the microprocessor identifies that the receiver has been switched on with the mains plug.

Control Unit (Master Processor) (IC 860)

The control computer in this circuit, the microprocessor IC 860, obtains its programme from the EPROM IC 850. The microprocessor is used for driving the display, scanning the keyboard, switching over the EURO-AV socket, the IF, the colour module, the Teletext decoder, as well as controlling the data traffic between the modules and the data memory IC 360.

The microprocessor feeds out pulses from pins 34-36 at a rhythm of 2 msec. When a button is depressed, these pulses are applied to the input pins 31-33. From this the computer identifies the button which has been depressed.

The display drive is carried out in time multiplex mode from the output ports 48-50 of the microprocessor. The transistors T 802, T 804 and T 806 produce the anode voltage for the LEDs at a 2 msec rate. The data for the digits are present on the pins 16-21. On reception of the enable signal (PBO, pin 37) the information for the display LEDs is fed out from pins 19, 21 (I²C bus) in serial into the shift register of the LED driver (IC 830) and is then fed out in parallel.

The data transfer with the modules and the memory is also carried out on the I²C bus. The I²C bus is a bidirectional two-lead bus consisting of the SDA (System Data) and SCL (System Clock) leads. Both leads are connected via the pull-up resistors R 834, R 836 to +H.

Service am I²C-Bus

Bei Fehlfunktionen des Gerätes, die nicht auf Netzteil, Hochspannung und Ablenkung zurückzuführen sind, ist der I²C-Bus gemäß Tabelle zu prüfen. Der µComputer in der Bedieneinheit IC 860 liefert Steuerbefehle für Tuner, ZF, Videotext, Feature Box und Encoder RGB über den I²C-Bus.

Hinweis:

Bei Bausteinwechsel ist das Gerät generell auszuschalten!

Auch in Stellung "Bereitschaft" darf kein Baustein gezogen werden! MOS-handling beachten.

Messung	Meßwert	Meßpunkt	Mögliche Fehler
+ H	5 V	Pin 3, IC 810 Pin 24, IC 860	D604, IC 620, IC 810, IC 860
10 MHz Takt	10MHz, 3 V _{ss}	Pin 5, IC 810 Pin 26, IC 860	IC 810, IC 860 Q 854
Reset	Nur im Einschaltmoment	LOW Pin 20, IC 810 HIGH Pin 28, IC 860	D 806, C 806, IC 860 T 806, IC 810
I ² C-Bus	5 V _{ss}	Pin 47,46, IC 860	IC 860, IC 840, IC 841 Die I ² C-Bus-Daten sind auch ohne TP - Bedienung oder Keyboardeingaben vorhanden. Bei fehlenden Daten: Tuner-, ZF-, Videotext- Encoder RGB- Steckkarte oder Feature Box nacheinander ziehen bzw. IC 360 Pin 5,6 ablöten. Stellen sich trotz dieser Maßnahmen keine Daten ein, ist die Bedieneinheit zu wechseln.

Service checks on the I²C Bus

If faults occur in the set which cannot be power supply unit, the EHT or the deflection system, the I²C bus should be checked using Table.

Via the I²C bus the microcomputer in the control unit IC 860 supplies control signals for the tuner, IF, Videotext (Teletext), Feature Box and the Encoder RGB analog signals.

Note:

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

Test	Measured Value	Testpoint	Possible Faults
+ H	5 V	Pin 3, IC 810 Pin 24, IC 860	D604, IC 620, IC 810, IC 860
10 MHz Clock	10MHz, 3 V _{pp}	Pin 5, IC 810 Pin 26, IC 860	IC 810, IC 860 Q 854
Reset	LOW only at moment of switch on	LOW Pin 20, IC 810 HIGH Pin 28, IC 860	D 806, C 806, IC 860 T 806, IC 810
I ² C-Bus	5 V _{pp}	Pin 47,46, IC 860	IC 860, IC 840, IC 841 The I ² C bus data are even without input from the remote control or keyboard. If data are no data: Take out the tuner, IF, Videotext, Encoder RGB plug-in boards or Feature Box successively or unsolder pins 5, 6 of IC 360. If there are still no data replace the control unit.

Serviceeinstellungen der Bildgeometrie und Bildlage

Zur genauen Einstellung sollte ein Testgenerator- oder Sendertestbild verwendet werden. Für Rasterkorrekturen kann auch das geräteeigene Testbild benutzt werden.

Reihenfolge der Bedienung am Telepilot:

1. Mit Taste "i" Programmenue aufrufen. Am Bildschirm erscheint die Anzeige "Info Center".
2. Mit der Taste "P" das Demo/Service Programm aufrufen (Zeile erscheint rot).
3. Mit der Taste "OK" aktivieren. Am Bildschirm erscheint Anzeige "System Setup".
4. Mit der Taste "AUX" Service Demo aufrufen
5. Mit der Taste "P" Service Mode aufrufen.
6. Die Taste "OK" drücken und Zahlenkombination 8500 eingeben.
7. Mit der Taste "AUX" Geometrie Abgleich aufrufen
8. Wenn kein Sendertestbild vorhanden, mit den Cursortasten gelben Rollbalken auf das Feld "Testbild" stellen und geräteeigenes Testbild einschalten.
9. Mit den Cursortasten gelben Rollbalken auf das gewünschte Einstellfeld z.B. "Bildhöhe" stellen.
10. Taste "OK" drücken.
11. Mit den Cursortasten-Stellfunktionen "+" oder "-" optimales Bild einstellen.
12. Zum Abspeichern Brücke an Pin 2, IC 360 schließen oder Steckerkontakt 1 des Steckers "BB" an Masse legen. Mit der Taste "i" Rollbalken aufrufen, auf "Speichern" setzen und mit der Taste "OK" abspeichern.
Achtung! Die Bildgeometrie stellt sich nach jedem Einschalten auf den abgespeicherten Wert ein.

Grundwerte:

Unter dem Feld "Grundwerte" sind die optimalen Abgleichdaten für die Bildgeometrie des Gerätes der Fertigung abgespeichert. Nach einem irrtümlichen Serviceabgleich können diese Grundwerte jederzeit wieder, wie unter Punkt 12 beschrieben, geladen werden. Dazu Rollbalken auf "Grundwerte" stellen. Die Taste "OK" drücken. Eine weitere Betätigung der Taste "OK" stellt die Bild-Grundwerte ein. Speichervorgang siehe Pkt. 12

13. Mit Taste "i" zurück in die normale Auswahl.

In der Rubrik "Abgleich - Liste DDC, DMSD, DSD, " sind nur geräteinterne Angaben für die Fertigung enthalten.

Programmsperre ("Security System") entriegeln

Zum Löschen der "PROGRAMM gesperrt" Funktion ist die nachfolgende Tastenkombination mit den Videotext Tasten der Fernbedienung einzugeben:

VIDEOTEXT - GROSS - AKTUELL - GROSS - OK



Service - Mode Programm

In diesem Fehlersuchprogramm fragt der Mikro Prozessor im Bedienteil die am I2C Bus angeschlossenen Bausteine ab und zeigt sie als Code-Nummer im Display an. Erfolgt keine Rückmeldung (kein acknowledge) ist der Baustein oder die Peripherie fehlerhaft (z.B. Unterbrechung der Leitungsführung, keine Betriebsspannung). Bei Fehlfunktionen des Gerätes die auf eine Störung von IC's, die über den I2C Bus angesteuert werden, zurückzuführen sind, kann zur schnelleren Fehlerfindung das nachfolgende Fehlersuchprogramm aufgerufen werden:

1. Gerät mit Netzschalter ausschalten.
2. Während des Einschaltens mit dem Netzschalter, Suchlauf-Taste "→" am Bedienteil gedrückt halten.
Es erscheinen 3 Punkte ...
Im Fehlerfall wird nach ca. 5 Sekunden eine Fehlermeldung angezeigt z.B. "E 02".
Aus der Fehlertabelle ist die fehlerhafte Steckkarte bzw. Peripherie abzulesen, "E 02" ist ZF-Speicher.
Mit der Taste "+" am Bedienteil können noch evtl. weitere Fehler angezeigt werden.
Liegen keine weiteren Fehlermeldungen vor, wird "P 1" angezeigt
3. Liegt kein Fehler in der I2C Bus Kommunikation vor, zeigt das Display nach dem Einschalten 3 Punkte ...; nach 5 Sekunden "P1" an.

Anzeige

"E 01" →	NVM (Dig.-Sp; SDA 3526, IC 360; Chassis)	kein ack
"E 02" →	NVM 1 (ZF-Speicher; SDA 3526)	kein ack
"E 03" →	NVM 2 (Tuner-Speicher; SDA 2586, 24 C 14)	kein ack
"E 04" →	DDC (Feature Box; SDA 9064)	kein ack
"E 05" →	DMSD (Feature Box; SAA 9051)	kein ack
"E 06" →	DSD (Feature Box; SAA 9056)	kein ack
"E 07" →	PLL (Tuner; SDA 3202)	kein ack
"E 08" →	Stereoton; (ZF; TDA 6611)	kein ack
"E 09" →	MSC (Feature Box; SDA 9099)	kein ack
"E 10" →	MOIF (Feature Box; SDA 9093)	kein ack
"E 11" →	DA Wandler (Encoder; TDA 8442, IC 940)	kein ack
"E 12" →	VT MII (Feature Box; SDA 9090)	kein ack
"E 14" →	VTP (VT-Dec.; SDA 9241)	kein ack

Notdatensatz

Dieses Gerät besitzt einen nichtflüchtigen Speicher (IC 360) in dem alle wichtigen Parameter wie z.B. Farbdecoderdaten oder Bildgeometrie abgelegt sind.

Bei Ausfall oder veränderten Daten dieses IC's, läßt sich ein komplettes Programm mit Mittelwerten aus dem EPROM des Bedienteils in die Feature Box laden. Im Servicefall kann mit dieser Möglichkeit ein evtl. Fehler der Feature Box festgestellt werden.

Notdatensatz abspeichern

"Finetuning" -Taste gedrückt halten und mit Netzschalter einschalten. Durch diesen Vorgang werden die Mittelwerte der Farbdecoderdaten und Bildgeometrie vom Bedienteil in die Feature Box eingelesen. "Service-Mode" - Programm aufrufen, Rollbalken auf "Grundwerte" stellen und mit der Taste "OK" abspeichern.

Service Adjustments of Picture Geometry and Picture Position

For accurate adjustment a test generator or a transmitted test pattern must be used. For raster correction the built-in test pattern can also be used.

Sequence of operation from the Telepilot (remote control):

1. Call up the programme menu with button "i". The indication 'Info Center' is shown on the screen.
2. Call up the Service/Demo programme with button "P" (line appears red).
3. Enable with button "OK". The information "System Setup" is shown on the screen.
4. Call up Service Demo with button "AUX".
5. Call up Service Mode with button "P".
6. Depress the "OK" button and enter the number code 8500.
7. Call up the Geometry Alignment function with button "AUX".
8. When no transmitted test pattern is available, move the yellow bar with the cursor buttons to the "Test Pattern" field and switch on the built-in test pattern.
9. Move the yellow bar with the cursor buttons to the requested alignment item, eg. "Picture Height".
10. Depress the button "OK".
11. With the cursor positioning functions "+" or "-" adjust for an optimum picture.
12. For storing this value close the jumper at pin 2, IC 360 or connect contact 1 of the plug "BB" to chassis. Call up the yellow bar with button "i", set it to the field "Store" and depress the button "OK". **Attention!** The picture geometry is set to the stored value whenever the receiver is switched on.

Basic Values:

Under the field "Basic Values" the optimum picture geometry alignment data of the receiver has been stored in production.

If the geometry has been aligned wrongly during repair work, these basic values can be loaded again at any time as described under point 12. For this purpose, set the yellow bar to the field "Basic Values". Depress button "OK". When pressing the "OK" button once again the basic values for the "Picture Geometry" are selected. See point 12 for storing the data.

13. Return to normal selection mode with the button "i".

The column "Alignment List DDC, DMSD, DSD" contains internal data available only for production purposes.

Removing the Electronic Lock ("Security System")

For clearing the function "PROGRAMME locked" enter the following code with the teletext (videotext) buttons on the remote control:

VIDEOTEXT - PAGE - CANCEL - PAGE - OK



Service Mode Programme

In this fault finding programme the microprocessor in the operating control unit calls up the individual modules which are connected to the I²C bus and indicates them in the form of a code number on the display. If no acknowledgement occurs the module or peripheral unit is defective (eg. connection is interrupted, no operating voltage). With a receiver which is defective due to a breakdown of the ICs driven by the I²C bus very fast fault location can be carried out by calling up the following fault finding programme:

1. Switch off the receiver with the mains switch.
2. When the receiver is switched on with the mains switch, depress and hold the search button "→" on the operating control unit. Three points ... appear in the display. After approx. 5 seconds a code, eg. "E02" will be indicated in the display if a fault is found. The defective plug-in module or peripheral unit can be established from the fault table; "E02" is the IF memory. Additional faults which are possible, can be indicated by depressing the "+" button on the operating control unit. If no additional faults are indicated, the display shows "P1".
3. If no fault is found in the I²C bus communication the display shows three points ... when the receiver is switched on, and after 5 seconds "P1".

Indication

"E 01" → NVM (digital store; SDA 3526, IC 360; chassis)	no ack
"E 02" → NVM 1 (IF memory; SDA 3526)	no ack
"E 03" → NVM 2 (tuner memory; SDA 2586, 24 C 16)	no ack
"E 04" → DDC (Feature Box; SDA 9064)	no ack
"E 05" → DMSD (Feature Box; SAA 9051)	no ack
"E 06" → DSD (Feature Box; SAA 9056)	no ack
"E 07" → PLL (tuner; SDA 3202)	no ack
"E 08" → stereo sound (IF; TDA 6611)	no ack
"E 09" → MSC (Feature Box; SDA 9099)	no ack
"E 10" → MOIF (Feature Box; SDA 9093)	no ack
"E 11" → DA converter (encoder; TDA 8442, IC 940)	no ack
"E 12" → VT MII (Feature Box; SDA 9090)	no ack
"E 14" → VTP (VT decoder; SDA 9241)	no ack

Emergency Data Base

This receiver is fitted with a non-volatile memory (IC 360) in which all important parameters, such as, eg. colour decoder data or picture geometry, are stored.

In case of a fault or altered data of this IC it is possible to load a complete programme with average values from the EPROM of the operating control unit into the Feature Box. When carrying out services this provides a means of establishing a possible fault in the Feature Box.

Emergency Data Base Storage

Depress and hold the Fine Tuning button and switch the receiver on with the mains button. By this action the average values of the colour decoder data and picture geometry are read from the operating control into the Feature Box. Select the Service Mode Programme, set the bar to field "Basic Values" and store with the "OK" button.

D

Fehler "E....." weisen auf den oder die defekten Bausteine am I C- Bus hin. Spannungen am Baustein prüfen.

Keine Anzeige am Display, oder nur Bereitschaftsanzeige

Suchlauffaste gedrückt halten und mit Netzschalter einschalten.

Fehler merken, mit Taste "+" weiterschalten bis P1 erscheint.

Anzeige am Display danach E1-E14

Stand-By Netzteil def. Hochvoltnetzteil def.

Spg. +H Spg. +F

Netzschalter def.

Wischer-Kontakt am Netzschalter funktioniert

Bedienteil ok. siehe Tabelle Seite 11

Bedienteil def.

U Stand-By „HIGH“ (Stecker R1 ca. 5V)

Hochvoltnetzteil def. siehe Fehlersuchdiagramm Seite 9

Kein Bild, kein Ton

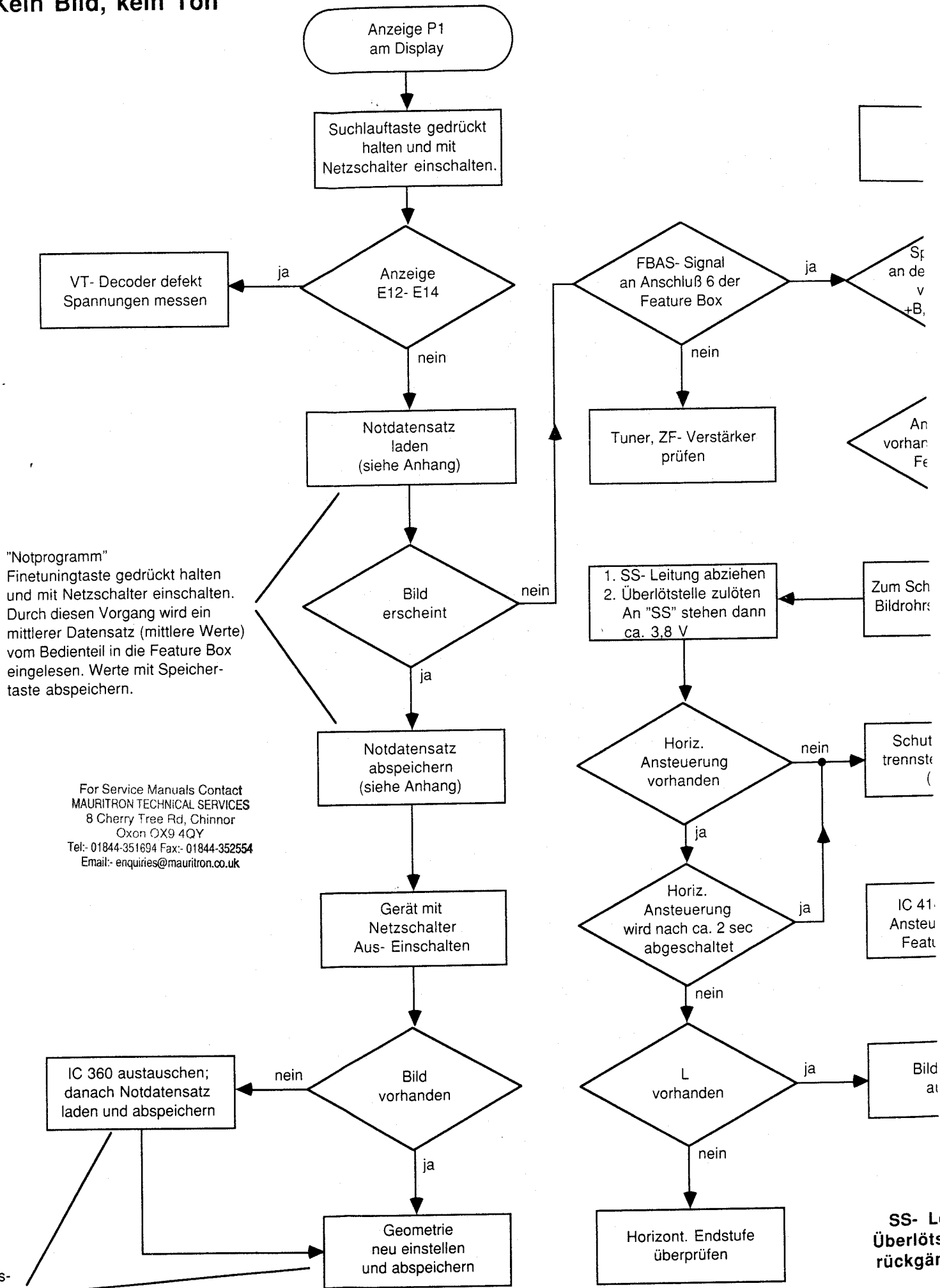
VT- Decoder defekt Spannungen messen

"Notprogramm"
Finetuningtaste gedrückt halten und mit Netzschalter einschalten. Durch diesen Vorgang wird ein mittlerer Datensatz (mittlere Werte) vom Bedienteil in die Feature Box eingelesen. Werte mit Speichertaste abspeichern.

IC 360 austauschen; danach Notdatensatz laden und abspeichern

Programm wurde evtl. durch Hochspannungsüberschlag verändert

Kein Bild, kein Ton



Inhaltsverzeichnis

Servicestellung	
Symbole - Wichtige Schaltzeichen	3-5
Sicherheitsvorschriften	6-8
MOS Bauelemente	9
Funktionsbeschreibung - Schaltnetzteil	10-13
Funktionsbeschreibung - Bedieneinheit	14
Fehlersuche am I ² C Bus	15
Serviceeinstellungen - Service Mode Programm	17
Fehlersuchdiagramm - Gesamtgerät	18-23
Signalverlauf im 100 Hz Gerät	24
Modulübersicht	25
Leiterplatten	26-30
Gesamtschaltplan - Netzteil	31-33
Bildrohrplatte	
•29304 - 070.72/.73	34-35
Gesamtschaltplan - Colorchassis	36-39
Bildrohrplatte	
•29304 - 070.60	40
Bedieneinheiten	
•29501 - 074.18/.27	41-42
Netzschalterplatte	
•29304 - 065.71/.72	43
•29304 - 065.74/.75	44
Kopfhörerplatte	
•29305 - 008.23	44
Tele Pilot TP 661	
•29622 - 053.01/.12/.13	45
Tuner	
•29504 - 101.21/.22	46-47
ZF - Sync.	
•29504 - 102.46	48-50
•29504 - 162.14	51-53
EURO - AV - Buchsenplatte	
•29304 - 060.62	54-55
•29304 - 060.64/.67	56-57
Videotext	
•29504 - 108.72	58-60
Feature Box	
•29504-103.03	61-63
FBAS Encoder	
•29504-105.36	64-65
•29504-105.38	66-70
NF	
•29504 - 104.08	71-72
•29504 - 104.51	73-74
Ersatzteilliste	75-82

Table of Contents

Service position	
Symbols- important circuit symbols	3-5
Safety requirements	6-8
MOS chip components	9
Circuit description - Power Supply	10-13
Circuit description - Control Unit	14
Service checks on I ² C Bus	15
Service adjustments - Service Mode Programme	17
Fault tracing diagram	18-23
Signal path in 100 Hz receivers	24
Module list	25
Printed circuit diagrams	26-30
General circuit diagrams - Mains sync. board	31-33
CRT Base	
•29304 - 070.72/.73	34-35
General circuit diagrams - Colour chassis	36-39
CRT Base	
•29304 - 070.60	40
Keyboards	
•29501 - 074.18/.27	41-42
Mains Switch Board	
•29304 - 065.71/.72	43
•29304 - 065.74/.75	44
Headphone board	
•29305 - 008.23	44
Remote Control TP 661	
•29622 - 053.01/.12/.13	45
Tuner	
•29504 - 101.21/.22	46-47
IF - Sync.	
•29504 - 102.46	48-50
•29504 - 162.14	51-53
EURO - AV - Socket Board	
•29304 - 060.62	54-55
•29304 - 060.64/.67	56-57
Teletext	
•29504 - 108.72	58-60
Feature Box	
•29504-103.03	61-63
CCVS Encoder	
•29504-105.36	64-65
•29504-105.38	66-70
AF	
•29504 - 104.08	71-72
•29504 - 104.51	73-74
Spare parts list	75-82

	PROGR.		ABSTIMMSP. TUNER TUNING VOLT. TUNER TENS. DI SINTONIA TUNER TENS. D'ACCORD TUNER TENS. SINTONIA AL TUNER		AUDIO SIGNAL LINKS AUDIO SIGNAL LEFT SEGNALE AUDIO SINISTRA SIGNAL AUDIO GAUCHE SEÑAL AUDIO IZQUIERDA		SCHALTSP. BTX SWITCHING VOLT. BTX (VIEWDATA) TENS. COMMUT. VIDEO TEL TENS. COMMUT. VIDEOTEXTE TENS. COMMUT. VIDEOTEXTO		AFC AFC TEN TEN
	PROGR. TASTE PROGR. BUTTON TASTO PROG. TOUCHE PROG. PULS. PROG.		REGELSP. AFC AFC CONTROL VOLT. TENS. DI CONTR. AFC TENS. DE REGUL. AFC TENS. REGUL. CAF		AUDIO SIGNAL RECHTS AUDIO SIGNAL RIGHT SEGNALE AUDIO DESTRA SIGNAL AUDIO DROIT SEÑAL AUDIO DERECHA		SYNC. VT SYNC. VT (TELETEXT) SINCR. TELEVIDEO TENS. COMMUT. TELETEXT SINCR. TELETEXTO		AV AV TEN TEN
	SPRECHERTASTE MEMORY BUTTON TASTO DI MEMORIA TOUCHE MEMOIRE PULS. MEMORIA		STUMMSCHALTUNG MUTING SILENZIAMENTO SILENCIEUX MUTING		VIDEO SIGNAL EURO-AV SEGNALE VIDEO EURO-AV SIGNAL VIDEO NORME FR SEÑAL VIDEO EURO-AV		SYNC. BTX SYNC. BTX (VIEWDATA) SINCR. VIDEO TEL TENS. COMMUT. VIDEOTEXTE SINCR. VIDEOTEXTO		V V TEN TEN
	NORMTASTE TV STANDARD SELECT. BUTTON TASTO NORMA TOUCHE DE NORME PULS. DE NORMA		TASTIMPULS. GATING PULSE IMPIULSO A CADENZA IMPULS. DE DECLenchement IMP. PUERTA		AUDIO SIGNAL EURO-AV RECHTS AUDIO SIGNAL EURO-AV RIGHT SEGNALE AUDIO EURO-AV DESTRA SIGNAL AUDIO NORME FR DROIT SEÑAL AUDIO DERECHA EURO-AV		SCHALTSP. RESET SWITCHING VOLT. RESET TENS. COMMUT. RESET TENS. COMMUT. RESET		VID VID TEN TEN
	FEINABST. FINE TUNING + SINT. FINE + REGLAGE FIN + SINT. FINA +		VERT. TASTIMPULS. VERT. GATING PULSE IMP. A CADENZA VERT. IMP. TRAME IMP. CUADRO		AUDIO SIGNAL EURO-AV LINKS AUDIO SIGNAL EURO-AV LEFT SEGNALE VIDEO EURO-AV SINISTRA SIGNAL AUDIO NORME FR GAUCHE SEÑAL AUDIO IZQUIERDA EURO-AV		SCHALTSP. STAND BY SWITCHING VOLT. STAND BY TENS. COMMUT. STAND BY TENS. COMMUT. VEILLE TENS. COMMUT. STAND BY		SCH SCH TEN TEN
	FEINABST. - FINE TUNING - SINT. FINE - REGLAGE FIN - SINT. FINA -		VERT. PARABEL VERT. PARABOLA SEGN. PARABOLA VERT SIGNAL PARABOLIQUE SEÑAL PARABOL. VERT.		IR-SIGNAL SEGNALE R.I. SIGNAL IR SEÑAL IR		SCHALTSP. HUB SWITCHING VOLT. DEVIATION TENS. COMMUT. DEVIATION TENS. COMMUT. DEVIATION TENS. COMMUT. DEVIATION		KLE KLE TEN TEN
	SUCHLAUF BD I SELF-SEEK BAND I SINT. AUTOM. BANDE I RECHERCHE AUTOM. BANDE I SINT. AUTOM. BANDE I		VERT. SAEGEZAHN VERT. SAW TOOTH DENTE DI SEG. VERT. SIGNAL DENT DE SCIE DIENTE DE SIERRA VERT.		SPG. GITTER 1 VOLTAGE GRID 1 TENS. GRIGLIA 1 TENS. GRIJLLA 1 TENS. REJILLAS G-1		SCHALTSP. DEEM SWITCHING VOLT. DEEMPHASIS TENS. COMMUT. DEEMFASI TENS. COMMUT. DEACENT TENS. COMMUT. DEEMFASIS		NF2 NF2 TEN TEN
	SUCHLAUF BANDWAHL III SELF-SEEK BAND III SINT. AUTOM. BANDE III RECHERCHE AUTOM. BANDE III SINT. AUTOM. BANDE III		HOR. ANSTEUERUNG HORIZ. DRIVE PILOTAGGIO ORIZZ. SYNDUR. LIGNES EXCITACION HORIZ.		FOKUSSP. FOCUSING VOLTAGE TENS. DI FOCALIZZ. TENS. FOCALIS TENS. FOCALIZACION		SCHALTSP. KAMERA WIEDERG. SWITCHING VOLT. CAMERA PLAYBACK TENS. COMMUT. RIPODIZ. TELECAM. TENS. COMMUT. REPROD. CAMERA TENS. COMMUT. REPROD. CAMARA		NF1 NF1 TEN TEN
	SUCHLAUF UHF SELF-SEEK UHF SINT. AUTOM. UHF RECHERCHE AUTOM. UHF SINT. AUTOM. UHF		REF. IMPULS. REFERENCE PULSE IMP. DI RIFER. IMP. DE REFERENCE IMP. REFERENCIA HORIZ.		HOCHSPANNUNG EHT VOLTAGE ALTA TENS. HAUTE TENS. HAT		SCHALTSP. LED LED SWITCHING VOLT. TENS. DI COMMUT. LED TENS. DE COMMUT. LED TENS. COMMUT. LED		POL POL TEN TEN
	LAUTSTÄRKE VOLUME VOLUME SONORE VOLUMEN		SCHUTZSCHALTUNG PROTECTION CIRCUIT CIRCUITO DI PROTEZIONE CIRCUIT DE SECURITE CIRCUITO DE PROTECCION		SCHIRMGITTERSP. SCREEN GRID VOLT. TENS. GRIGLIA SCHERMO TENS. GRILLE-ECRAN TENS. ACERELADORES		SCHALTSP. NICAM SWITCHING VOLT. NICAM TENS. COMMUT. NICAM TENS. DE COMMUT. NICAM TENS. DE COMMUT. NICAM		FEL FEL TEN TEN
	FEINABST. TUNING SINT. FINE REGLAGE FIN SINT. FINA		FARBTON TINTA TINTA TEINTE TINTE		TEXT FREIGABE TEXT ENABLE ABILITAZ. TELEVIDEO VALIDATION TEXTE HABILITATION TEXTE		VERT. SYNCR. IMP. 50HZ VERT. SYN. IMP. 50HZ SIGNAL DE SYNCR. IMP. 50HZ IMP. SINCR. VERT. 50HZ		PUL PUL TEN TEN
	KANALWAHL CHANNEL SEL. SELECT. DE CANAUX SELECCION CANAL		REF. LAUTSTÄRKE VOLUME REF. VOLT. TENS. DE REF. VOL. SONORE TENS. REF. VOLUMEN		I ² C-CLOCK I ² C-BUS		REF. IMP. 31250HZ REF. IMP. 31250HZ IMP. DE RIF. 31250HZ IMP. REF. 31250HZ IMP. REF. 31250HZ		O/S O/S TEN TEN
	BALANCE BALANCIAM. BALANCE BALANCE		HELLIGKEIT BRIGHTNESS LUMINOSITA' LUMINOSITE BRILLO		VCR-CLOCK		AUDIO-SIGNAL VCR-GERAET AUDIO SIGNAL VCR UNIT SEGNALE AUDIO VCR SIGNAL AUDIO MAGNETOSCOPE SEÑAL AUDIO VCR		VID VID TEN TEN
	SUCHLAUF SELF-SEEK SINT. AUTOM. RECHERCHE AUTOM. SINTONIA AUTOMATICA		KONTRAST CONTRAST CONTRASTO CONTRASTE CONTRASTE		I-BUS-CLOCK		DATEN DATA DATI DONNEES DATOS		CSY CSY TEN TEN
	SCHALTSP. BANDWAHL BAND SEL. SWITCHING VOLTAGE TENS. DI COMMUT. SELEZ. BANDE TENS. DE COMMUT. SELECT. BANDE TENS. COMMUT. SELEC. BANDE		FARBKONTRAST CONTRAST COLOUR CONTRASTO COLORE CONTRASTE COULEUR SATUR. COLOR		I ² C-DATEN I ² C-DATA I ² C-DATI I ² C-DONNEES I ² C-DATOS		AUDIO-SIGNAL FERNSEH-GERAET AUDIO SIGNAL TV SET SEGNALE AUDIO TV SIGNAL AUDIO TELEVISEUR SEÑAL AUDIO TV		HS HS TEN TEN
	SCHALTSP. VHF SWITCHING VOLT. VHF TENS. DI COMMUT. VHF TENS. DE COMMUT. VHF TENS. COMMUT. VHF		FBS-SIGNAL CCVS SIGNAL SEGNALE VIDEO COMPOSITO SIGNAL VIDEO COMPOSITE SEÑAL VIDEO COMPUESTA		ZF-SIGNAL F SIGNAL SEGNALE FI SIGNAL FI SEÑAL FI		FREIGABE LED ENABLE LED CONSENSO AL LED AUTORISATION LED HABILITACION LED		D D TEN TEN
	SCHALTSP. UHF SWITCHING VOLT. UHF TENS. DI COMMUT. UHF TENS. DE COMMUT. UHF TENS. COMMUT. UHF		SUPERSANDCASTLE		PAL PRIORITAET PAL PRIORITY PRIORITA PAL PRIORITE PAL PRIORIDAD PAL		SCHALTSPANNUNG EURO-AV-BUCHSE/CINCH-BUCHSE EURO-AV SOCKET SWITCHING VOLTAGE/PHONO SOCKET TENSION COMMUT. PRISE PERI-TV/CINCH TENS. COMM. EURO AV/CINCH		BB BB TEN TEN
	SCHALTSP. AFC SWITCHING VOLT. AFC TENS. DI COMMUT. AFC TENS. DE COMMUT. CAF TENS. COMMUT. CAF		STRAHLSTR. BEGR. BEAM CURRENT LIM. LIM. CORR. DE RAGGIO LIM. CORR. DE FAISCEAU CORRIENTE MEDIA DE HAZ		F-SIGNAL DIREKT F SIGNAL DIRECT SEGNALE CROMA DIRETTO SIGNAL CROMA DIRECT SEÑAL CROMA DIRECTA		SCHALTSPG. TON 1/2 SWITCHING VOLT. SOUND 1/2 TENS. COMMUT. AUDIO 1/2 TENSION COMMUT. SON 1/2 TENS. COMM. SON 1/2		FRM FRM TEN TEN
	SCHALTSP. AV AV SWITCHING VOLT. TENS. DI COMMUT. AV TENS. DE COMMUT. AV TENS. COMMUT. AV		SPITZ. STRAHLSTR. BEGR. PEAK BEAM CURRENT LIMITING LIM. CORR. CATOD. DI PICCO LIM. CORR. FAISCEAU CRETE CORRIENTE PICO DE HAZ		FV-SIGNAL FV SIGNAL SEGNALE FV SIGNAL FV SEÑAL FV		CLOCK		VG VG TEN TEN
	SCHALTSP. NORM SWITCHING VOLT. STANDARD TENS. DI COMMUT. NORMA TENS. DE COMMUT. STANDARD TENS. COMMUT. NORMA		ROT-SIGNAL RED SIGNAL SEGNALE ROSSO SIGNAL ROUGE SEÑAL ROJA		FU-SIGNAL FU SIGNAL SEGNALE FU SIGNAL FU SEÑAL FU		FREIGABE FEINTUNING FINE TUNING ENABLE ABILITAZ. SINTONIA FINE AUTORISATION REGLAGE FIN HAB. SINTONIA FINA		I I TEN TEN
	SCHALTSP. KOINZ. SWITCHING VOLT. COINC. TENS. DI COMMUT. COINC. TENS. DE COMMUT. COINC. TENS. COMMUT. COINCIDENCIA		GRUEN-SIGNAL GREEN SIGNAL SEGNALE VERDE SIGNAL VERT SEÑAL VERDE		F-SIGNAL VERZOEERT F SIGNAL DELAYED SEGNALE CROMA RITARDO SIGNAL CROMA RETARDE SEÑAL CROMA RETARDADA		I-BUS DATEN I-BUS DATA DATI I-BUS DONNEES I-BUS DATOS I-BUS		U U TEN TEN
	SCHALTSP. EURO-AV SWITCHING VOLT. EURO-AV TENS. DI COMMUT. EURO-AV TENS. DE COMMUT. NORME FR TENS. COMMUT. EURO-AV		BLAU-SIGNAL BLUE SIGNAL SEGNALE BLEU SIGNAL BLEU SEÑAL AZUL		VERZOEGERUNGSLEITUNG DELAY LINE LIGNE A RETARD LINEA DE RETARDO		I-BUS CLOCK I-BUS CLOCK CLOCK I-BUS I-BUS CLOCK CLOCK I-BUS		U U TEN TEN
	SCHALTSP. VIDEO QUELLE SWITCHING VOLT. VIDEO SOURCE TENS. DI COMMUT. SOURCE VIDEO TENS. DE COMMUT. SOURCE VIDEO TENS. COMMUT. VIDEO		Y-SIGNAL SEGNALE Y SIGNAL Y SEÑAL Y		SCHALTSP. /SCHUTZFUNKTION SWITCHING VOLT. /PROTECTIVE FUNC. TENS. DI COMMUT. /FUNZ. DI PROTEZ. TENS. DE COMMUT. /SECURITE TENS. COMMUT. /PROTECCION		FREIGABE TON SOUND ENABLE ABILITAZ. AUDIO AUTORISATION SON HABILITACION SONIDO		J J TEN TEN
	SCHALTSP. DATENBETR. SWITCHING VOLT. DATA MODE TENS. DI COMMUT. DATI TENS. DE COMMUT. FONCT. DONNEES TENS. COMMUT. DATOS		F-SIGNAL CROMA SIGNAL SEGNALE CROMA SIGNAL CROMA SEÑAL CROMA		FBS-SIGNAL CCVS SIGNAL SEGNALE SINC. VIDEO COL. COMP. SIGNAL SYNC. VIDEO COMPOSITE SEÑAL SINC. VIDEO COMPUESTA		BASISBAND BASEBAND BANDE BASE BANDE DE BASE BANDE BASE		U U TEN TEN
	SCHALTSP. 4.5 MHz SWITCHING VOLT. 4.5 MHz TENS. DI COMMUT. 4.5 MHz TENS. DE COMMUT. 4.5 MHz TENS. COMMUT. 4.5 MHz		SCHWARZWEISS BLACK LEVEL LIVELLO DEL NERO NIVEAU DU NOIR NIVEL DE NEGRO		SYNC-SIGNAL SYNC SIGNAL SEGNALE SINC. SIGNAL SYNC. SEÑAL DE SINCRONISMOS		SCHALTSPANNUNG HUB SWITCHING VOLT. DEVIATION TENS. COMMUT. DEVIATION TENSION COMMUT. DEVIATION TENS. COMM. DEVIATION		U U TEN TEN
	REGELSP. VERZOEERT DELAYED CONTR. VOLTAGE TENS. DI CONTR. RITARDO TENS. DE REGUL. RETARDEE TENS. REGUL. RETARDADA		AUDIO-SIGNAL SEGNALE AUDIO SIGNAL AUDIO SEÑAL AUDIO		SCHALTSP. 50/60HZ SWITCHING VOLT. 50/60HZ TENS. DI COMMUT. 50/60HZ TENS. DE COMMUT. 50/60HZ TENS. COMMUT. 50/60HZ		FELDSTÄRKE ABHÄNGIGE SPG. FIELDSTRENGTH DEPENDENT VOLT. TENS. DIPEND. INTENS. CAMPO CONTROLE AUTOMATIQUE DE GAIN TENS. GAG		AGC AGC TEN TEN

STRA
RDA
RA
AV
FR
AV RECHTS
AV RIGHT
AV DESTRA
FR DROIT
A EURO-AV
AV LINKS
AV LEFT
AV SINISTRA
FR GAUCHE
RDA EURO-AV
RMO
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ADA
UNG
NKTION
ROTECTIVE FUNC.
FUNZ DI PROTEZ.
SECURITE
TECCION
VIDEO COL. COMP.
COMPOSITE
COMPUESTA
SMOS
60/60HZ
50/60HZ
50/60HZ

U1 BTX SCHALTSP. BTX
SWITCHING VOLT. BTX (VIEWDATA)
TENS. COMMUT. VIDEOTEL
TENS. COMMUT. VIDEOTEXTE
TENS. COMMUT. VIDEOTEXTO

U1 SYNC SYNC. VT
SYNC. VT (TELETEXT)
TENS. COMMUT. TELEVIDEO
TENS. COMMUT. TELETEXTE
TENS. COMMUT. TELETEXTO

U1 SYNC BTX SYNC. BTX
SYNC. BTX (VIEWDATA)
TENS. COMMUT. VIDEOTEL
TENS. COMMUT. VIDEOTEXTE
TENS. COMMUT. VIDEOTEXTO

U1 RESE SCHALTSP. RESET
SWITCHING VOLT. RESET
TENS. COMMUT. RESET
TENS. COMMUT. RESET

U1 STAN BY SCHALTSP. STAND BY
SWITCHING VOLT. STAND BY
TENS. COMMUT. STAND BY
TENS. COMMUT. VEILLE
TENS. COMMUT. STAND BY

U1 HUB SCHALTSP. HUB
SWITCHING VOLT. DEVIATION
TENS. COMMUT. DEVIATION
TENS. COMMUT. DEVIATION
TENS. COMMUT. DEVIATION

U1 DEEP SCHALTSP. DEEM
SWITCHING VOLT. DEEMPHASIS
TENS. COMMUT. DEEMPHASIS
TENS. COMMUT. DEESACENT
TENS. COMMUT. DEEFASIS

U1 CAM AV SCHALTSP. KAMERA WIEDERG.
SWITCHING VOLT. CAMERA PLAYBACK
TENS. COMMUT. RIPRODUZ. TELECAM.
TENS. COMMUT. REPROD. CAMERA
TENS. COMMUT. REPROD. CAMARA

U1 LED SCHALTSP. LED
LED SWITCHING VOLT.
TENS. DI COMMUT. LED
TENS. DE COMMUT. LED
TENS. COMMUT. LED

U1 NIC SCHALTSP. NICAM
SWITCHING VOLT. NICAM
TENS. COMMUT. NICAM
TENS. DE COMMUT. NICAM
TENS. DE COMMUT. NICAM

U1 VERT VERT. SYNCH. IMP. 50HZ
VERT. SYN. IMP. 50HZ
IMP. SINCR. VERT. 50HZ
SIGNAL DE SYNCH. IMAGE 50HZ
IMP. SINCR. VERT. 50HZ

U1 REF REF. IMP. 31250HZ
REF. IMP. 31250HZ
IMP. DI REF. 31250HZ
IMP. DE REF. 31250HZ
IMP. REF. 31250HZ

AUDIO VCR AUDIO-SIGNAL VCR-GERAET
AUDIO SIGNAL VCR UNIT
SEGNAL AUDIO VCR
SIGNAL AUDIO MAGNETOSCOPE
SENAL AUDIO VCR

DATA DATEN
DATA
DATI
DONNEES
DATOS

AUDIO TV AUDIO-SIGNAL FERNSEH-GERAET
AUDIO SIGNAL TV SET
SEGNAL AUDIO TV
SIGNAL AUDIO TELEVISEUR
SENAL AUDIO TV

ENABLE LED FREIGABE LED
ENABLE LED
CONSENSO LED
AUTORISATION LED
HABILITATION LED

U1 EURO-AV SCHALTSPANNUNG EURO-AV-BUCHSE/CINCH-BUCHSE
EURO-AV SOCKET SWITCHING VOLTAGE/PHONO SOCKET
TENS. COMMUT. PRISE PERI-TV/CINCH
TENS. COMM. EURO AV/CINCH

U1 TON 1/2 SCHALTSP. TON 1/2
SWITCHING VOLT. SOUND 1/2
TENS. COMMUT. AUDIO 1/2
TENS. COMMUT. AUDIO 1/2
TENS. COMM. SON 1/2

CLK CLOCK

ENABLE FT FREIGABE FEINTUNING
FINE TUNING ENABLE
ABILITAZ. SINTONIA FINE
AUTORISATION REGLAGE FIN
HAB. SINTONIA FINA

I BUS DATA I-BUS DATEN
I-BUS DATA
DATI I-BUS
I-BUS DONNEES
DATOS I-BUS

I BUS CLK I-BUS CLOCK
I-BUS CLOCK
CLOCK I-BUS
I-BUS CLOCK
CLOCK I-BUS

ENABLE TON FREIGABE TON
SOUND ENABLE
ABILITAZ. AUDIO
AUTORISATION SON
HABILITATION SONIDO

PBAS TON BASISBAND
BASEBAND
BANDA BASE
BANDE DE BASE
BANDA BASE

U1 HUB SCHALTSPANNUNG HUB
SWITCHING VOLT. DEVIATION
TENS. COMMUT. DEVIATION
TENS. COMMUT. DEVIATION
TENS. COMM. DEVIATION

AGC FELDSTÄRKE ABHÄNGIGE SPG
FIELDSTRENGTH-DEPENDENT VOLT.
TENS. DEP. INTENS. CAMPO
CONTROLE AUTOMATIQUE DE GAIN
TENS. CAG.

REF AFC-REFERENZSPG.
AFC REFERENCE VOLT.
TENS. RIFERIMENTO AFC
TENSION DE REFERENCE AFC
TENS. CAF

U1 AV SCHALTSP. AV
AV SWITCHING VOLT.
TENS. COMMUT. AV
TENSION COMMUT. AV
TENS. COMMUT. AV

U1 V/N SCHALTSP. ZF BREIT/SCHMAL
IF SWITCHING VOLT. WIDE/NARROW
TENS. COMMUT. FI LARGA/STREITA
TENSION COMMUT. FI LARGE/ETROIT
TENS. FI ANCHO/ESTRECHO

U1 STROBE VIDEOTEXT ÜBERNAHME
TELETEXT DATA TRANSFER
RICEZIONE DATI TELEVIDEO
TRANSFER DE DONNEES VIDEOTEXTE
ADMISION DE DATOS TELETEXTO

U1 KEY SCHALTSP. LEUCHTPUNKTUNTERDRÜCKUNG
SWITCHING VOLT. BEAM SPOT SUPPRESSION
TENS. SUPPRESS. PUNTO LUMINOSO
TENS. DE COMM. SUPPRESS. DU SPOT LUMINEUX
TENS. DE COMM. FILTRO SUPRESOR DEL PUNTO LUZ

U1 NF2 KLEMMUNG ETN/AUS
CLAMPING ON/OFF
CLAMPING INS./OUTINS.
ECRATAGE MARCHÉ/ARRÊT
CLAMPING ENC./APAG

U1 NF1 SCHALTSP. NF 2
SWITCHING VOLT. AF 2
TENS. COMMUT. BF 2
TENSION COMMUT. BF 2
TENS. COMM. BF 2

U1 POL SCHALTSP. POLARITÄT
SWITCHING VOLT. POLARITY
TENS. COMMUT. POLARITA
TENSION COMMUT. POLARITE
TENS. COMM. POLARIZACION

U1 FELDSTÄRKE ABHÄNGIGE SPG.
FIELDSTRENGTH-DEPENDENT VOLT.
TENS. DEP. INTENS. CAMPO
CONTROLE AUTOMATIQUE DE GAIN
TENS. CAG

U1 PULSE FÜR POLARISATOR
PULSES FOR POLARISATOR
IMPULSI PER ROTORE POLARIZZAZIONE
IMPULSION ROTOR DE POLARISATION
IMPULSOS PARA POLARISATOR

U1 ANTENNENSCHALTSP.
AERIAL SWITCHING VOLT.
TENS. COMMUT. D'ANTENNA
TENSION COMMUT. ANTENNE
TENS. COMM. ANTENNA

VIDEO VIDEO-SIGNAL
SEGNAL VIDEO
SIGNAL VIDEO
SENAL VIDEO

CSY COMPOSITE SYNC IMP. FUER VT
COMPOSITE SYNC PULSE FOR IT
IMP. SINCR. COMP. PER TELEVIDEO
IMP. DE SYNC. VIDEO-COMPOSITE POUR TXT
IMP. DE SYNC. PARA VIDEO COMP.

HS HOR. SYNC IMP. FUER VT
HOR. SYNC PULSE FOR IT
IMP. SINCR. ORIZZ. PER TELEVIDEO
IMP. DE SYNC. HOR. POUR TXT
IMP. HOR. PARA VIDEO COMP.

U1 O/V-AMPLITUDE
E/V AMPLITUDE
AMPIEZZA E/O
AMPLITUDE E/O
AMPLITUD E/O

BB RECHNER STOP I²C-BUS IST FREI
COMPUTER STOP I²C BUS IS FREE
CALCOLO STOP I²C-BUS LIBERO
MICROPROCESSEUR STOP I²C-BUS DISPONIBLE
STOP MICROPR. I²C DISPONIBLE

FRM RAHMENSIGNAL
FRAME SIGNAL
SEGNAL CORNICE
SIGNAL D'ENCADREMENT
SENAL DE MARCO

VG VERT. GEGENKOPPLUNG
VERT. FEEDBACK
CONTROREAZIONE VERT.
CONTRE-REACTION VERTICALE
ALIMENT. NEG. VERT.

U1 BEAM STRAHLSTR. REF. (GEOM. STABILISIERUNG)
BEAM-CURRENT REF. (GEO. STABILISATION)
RIFER. CORRENTE CATTODICA (STABILIZZAZIONE GEOM.)
REF. DU COURANT DE FASCICULO (STABILISATION GEOM.)
REF. DE HAZ. (ESTABILIZACION GEOM.)

U1 S-VHS SCHALTSP. S-VHS
SWITCHING VOLTAGE S-VHS
TENS. DI COMMUT. S-VHS
TENS. DE COMMUT. S-VHS
TENS. DE COMM. S-VHS

U1 C-AV SCHALTSP. CAM. WIEDERGAB. ÜBER C-AV EINGANG
SWITCHING VOLTAGE CAM. PLAYBACK VIA C-AV INPUT
TENS. DI COMMUT. IN RIPRODUZ. CAM. TRAMITE L'INGRESSO C-AV
TENS. DE COMMUT. POUR LEC. DE CAMERA PAR L'ENTREE C-AV

U1 31,25 KHZ ANSTEUERIMP. FUER ZEILENENSTUFE
31,25 KHZ TRIGGERING PULSE FOR HORIZ. OUTPUT
IMP. PILOTAGGIO DI 31,25 KHZ PER STADIO FINALE DI RIGA
31,25 KHZ COMMANDE POUR L'ETAGE FINAL LIGNES

U1 SEC SCHALTSP. SECAM
SWITCHING VOLT. SECAM
TENS. DI COMMUT. SECAM
TENS. DE COMMUT. SECAM
TENS. COMMUT. SECAM

U1 PAL SCHALTSP. PAL
SWITCHING VOLT. PAL
TENS. DI COMMUT. PAL
TENS. DE COMMUT. PAL
TENS. COMMUT. PAL

U1 HIFI SCHALTSP. HIFI
SWITCHING VOLT. HIFI
TENS. DI COMMUT. HIFI
TENS. DE COMMUT. HIFI
TENS. COMMUT. HI-FI

R/50 ROT-SIGNAL/50HZ BILDFREQ. 15625HZ HZ ZEILENFREQ.
RED SIGNAL/50HZ FIELD FREQ. 15625HZ LINE FREQ.
SEGNAL ROSSO/FREQ. DI QUADRO 50HZ/FREQ. DI RIGA 15625HZ
SIGNAL ROUGE/FREQ. TRAME 50HZ FREQ. LIGNES 15625HZ
SENAL ROJA/FREQ. CUADRO 50HZ-FREQ. LINEA 15625HZ

G/50 GRÜN-SIGNAL/50HZ BILDFREQ. 15625HZ ZEILENFREQ.
GREEN SIGNAL/50HZ FIELD FREQ. 15625HZ LINE FREQ.
SEGNAL VERDE/FREQ. DI QUADRO 50HZ/FREQ. DI RIGA 15625HZ
SIGNAL VERT/FREQ. TRAME 50HZ FREQ. LIGNES 15625HZ
SENAL VERDE/FREQ. CUADRO 50HZ-FREQ. LINEA 15625HZ

B/50 BLAU-SIGNAL/50HZ BILDFREQ. 15625HZ ZEILENFREQ.
BLUE SIGNAL/50HZ FIELD FREQ. 15625HZ LINE FREQ.
SEGNAL BLU/FREQ. DI QUADRO 50HZ/FREQ. DI RIGA 15625HZ
SIGNAL BLEU/FREQ. TRAME 50HZ FREQ. LIGNES 15625HZ
SENAL AZUL/FREQ. CUADRO 50HZ-FREQ. LINEA 15625HZ

R/100 ROT-SIGNAL/100HZ BILDFREQ. 31250HZ ZEILENFREQ.
RED SIGNAL/100HZ FIELD FREQ. 31250HZ LINE FREQ.
SEGNAL ROSSO/FREQ. DI QUADRO 100HZ FREQ. DI RIGA 31250HZ
SIGNAL ROUGE/FREQ. TRAME 100HZ FREQ. LIGNES 31250HZ
SENAL ROJA/FREQ. CUADRO 100HZ-LINEA 31250HZ

G/100 GRÜN-SIGNAL/100HZ BILDFREQ. 31250HZ ZEILENFREQ.
GREEN SIGNAL/100HZ FIELD FREQ. 31250HZ LINE FREQ.
SEGNAL VERDE/FREQ. DI QUADRO 100HZ FREQ. DI RIGA 31250HZ
SIGNAL VERT FREQ. TRAME 100HZ FREQ. LIGNES 31250HZ
SENAL VERDE/FREQ. CUADRO 100HZ-LINEA 31250HZ

B/100 BLAU-SIGNAL/100HZ BILDFREQ. 31250HZ ZEILENFREQ.
BLUE SIGNAL/100HZ FIELD FREQ. 31250HZ LINE FREQ.
SEGNAL BLU/FREQ. DI QUADRO 100HZ FREQ. DI RIGA 31250HZ
SIGNAL BLEU/FREQ. TRAME 100HZ FREQ. LIGNES 31250HZ
SENAL AZUL/FREQ. CUADRO 100HZ-LINEA 31250HZ

R-Y (R-Y) SIGNAL/50HZ BILDFREQ. 15625HZ ZEILENFREQ.
(R-Y) SIGNAL/50HZ FIELD FREQ. 15625HZ LINE FREQ.
SEGNAL (R-Y)/FREQ. DI QUADRO 50HZ FREQ. DI RIGA 15625HZ
SIGNAL (R-Y)/FREQ. TRAME 50HZ FREQ. LIGNES 15625HZ
SENAL (R-Y)/FREQ. CUADRO 50HZ-FREQ. LINEA 15625HZ

R-Y (B-Y) SIGNAL/50HZ BILDFREQ. 15625HZ ZEILENFREQ.
(B-Y) SIGNAL/50HZ FIELD FREQ. 15625HZ LINE FREQ.
SEGNAL (B-Y)/FREQ. DI QUADRO 50HZ FREQ. DI RIGA 15625HZ
SIGNAL (B-Y)/FREQ. TRAME 50HZ FREQ. LIGNES 15625HZ
SENAL (B-Y)/FREQ. CUADRO 50HZ-FREQ. LINEA 15625HZ

R-Y (Y) SIGNAL/50HZ BILDFREQ. 15625HZ ZEILENFREQ.
(Y) SIGNAL/50HZ FIELD FREQ. 15625HZ LINE FREQ.
SEGNAL (Y)/FREQ. DI QUADRO 50HZ FREQ. DI RIGA 15625HZ
SIGNAL (Y)/FREQ. TRAME 50HZ FREQ. LIGNES 15625HZ
SENAL (Y)/FREQ. CUADRO 50HZ-LINEA 15625HZ

R-Y (R-Y) SIGNAL/100HZ BILDFREQ. 31250HZ ZEILENFREQ.
(R-Y) SIGNAL/100HZ FIELD FREQ. 31250HZ LINE FREQ.
SEGNAL (R-Y)/FREQ. DI QUADRO 100HZ FREQ. DI RIGA 31250HZ
SIGNAL (R-Y)/FREQ. TRAME 100HZ FREQ. LIGNES 31250HZ
SENAL (R-Y)/FREQ. CUADRO 100HZ-LINEA 31250HZ

R-Y (B-Y) SIGNAL/100HZ BILDFREQ. 31250HZ ZEILENFREQ.
(B-Y) SIGNAL/100HZ FIELD FREQ. 31250HZ LINE FREQ.
SEGNAL (B-Y)/FREQ. DI QUADRO 100HZ FREQ. DI RIGA 31250HZ
SIGNAL (B-Y)/FREQ. TRAME 100HZ FREQ. LIGNES 31250HZ
SENAL (B-Y)/FREQ. CUADRO 100HZ-LINEA 31250HZ

R-Y (Y) SIGNAL/100HZ BILDFREQ. 31250HZ ZEILENFREQ.
(Y) SIGNAL/100HZ FIELD FREQ. 31250HZ LINE FREQ.
SEGNAL (Y)/FREQ. DI QUADRO 100HZ FREQ. DI RIGA 31250HZ
SIGNAL (Y)/FREQ. TRAME 100HZ FREQ. LIGNES 31250HZ
SENAL (Y)/FREQ. CUADRO 100HZ-LINEA 31250HZ

U1 HOR. AUSTAUSTSIGNAL 15625HZ
HOR. BLANKING SIGNAL 15625HZ
SEGNAL DI SUPPRESS. ORIZZ. 15625HZ
SIGNAL PARABOLICA 100HZ
IMP. SUPPRESSION HORIZ. 15625HZ

ABK BURSTSTAUSTSIMP. 15625HZ (BURST KEY)
BURST BLANKING PULSE 15625HZ (BURST KEY)
IMP. DI SUPPRESS. DEL BURST 15625HZ (BURST KEY)
SALVE DE SUPPRESS. 15625HZ (BURST KEY)
IMP. SUPPRESSION BURST 15625HZ (BURST KEY)

SEC SUPERSANDCASTLE 50HZ BILDFREQ. 15625HZ ZEILENFREQ.
SUPERANDCASTLE 50HZ FIELD FREQ. 15625HZ LINE FREQ.
SEGNAL SUPERANDCASTLE/FREQ. DI QUADRO 50HZ FREQ. DI RIGA 15625HZ
SIGNAL SUPERANDCASTLE/FREQ. TRAME 50HZ FREQ. LIGNES 15625HZ
SENAL SUPERANDCASTLE/FREQ. CUADRO 50HZ-LINEA 15625HZ

SEC SUPERSANDCASTLE 100HZ BILDFREQ. 31250HZ ZEILENFREQ.
SUPERANDCASTLE 100HZ FIELD FREQ. 31250HZ LINE FREQ.
SEGNAL SUPERANDCASTLE/FREQ. DI QUADRO 100HZ FREQ. DI RIGA 31250HZ
SIGNAL SUPERANDCASTLE/FREQ. TRAME 100HZ FREQ. LIGNES 31250HZ
SENAL SUPERANDCASTLE/FREQ. CUADRO 100HZ-LINEA 31250HZ

SEC SUPERSANDCASTLE 100HZ BILDFREQ. 31250HZ ZEILENFREQ.
SUPERANDCASTLE 100HZ FIELD FREQ. 31250HZ LINE FREQ.
SEGNAL SUPERANDCASTLE/FREQ. DI QUADRO 100HZ FREQ. DI RIGA 31250HZ
SIGNAL SUPERANDCASTLE/FREQ. TRAME 100HZ FREQ. LIGNES 31250HZ
SENAL SUPERANDCASTLE/FREQ. CUADRO 100HZ-LINEA 31250HZ

SEC SUPERSANDCASTLE 100HZ BILDFREQ. 31250HZ ZEILENFREQ.
SUPERANDCASTLE 100HZ FIELD FREQ. 31250HZ LINE FREQ.
SEGNAL SUPERANDCASTLE/FREQ. DI QUADRO 100HZ FREQ. DI RIGA 31250HZ
SIGNAL SUPERANDCASTLE/FREQ. TRAME 100HZ FREQ. LIGNES 31250HZ
SENAL SUPERANDCASTLE/FREQ. CUADRO 100HZ-LINEA 31250HZ

SEC SUPERSANDCASTLE 100HZ BILDFREQ. 31250HZ ZEILENFREQ.
SUPERANDCASTLE 100HZ FIELD FREQ. 31250HZ LINE FREQ.
SEGNAL SUPERANDCASTLE/FREQ. DI QUADRO 100HZ FREQ. DI RIGA 31250HZ
SIGNAL SUPERANDCASTLE/FREQ. TRAME 100HZ FREQ. LIGNES 31250HZ
SENAL SUPERANDCASTLE/FREQ. CUADRO 100HZ-LINEA 31250HZ

SEC SUPERSANDCASTLE 100HZ BILDFREQ. 31250HZ ZEILENFREQ.
SUPERANDCASTLE 100HZ FIELD FREQ. 31250HZ LINE FREQ.
SEGNAL SUPERANDCASTLE/FREQ. DI QUADRO 100HZ FREQ. DI RIGA 31250HZ
SIGNAL SUPERANDCASTLE/FREQ. TRAME 100HZ FREQ. LIGNES 31250HZ
SENAL SUPERANDCASTLE/FREQ. CUADRO 100HZ-LINEA 31250HZ

U1 KOMBINIERTES HOR./VERT. SYNCH. SIGNAL 31250HZ/100HZ (COMPOST)
COMBINED HOR./VERT. SYNCH. SIGNAL 31250HZ/100HZ (COMPOSITE SYN)
SEGNAL SINCR. ORIZZ./VERT. COMBINATO 31250HZ/100HZ (SINCR. C)
SIGNAL SYNCH. HOR./VERT. COMBINE 31250HZ/100HZ (COMPOSITE SYN)
SENAL COMBINADA SINCR. HOR./VERT. 31250HZ/100HZ (SINCR. COMPUST)

U1 VERT. PARABEL 100HZ
PARABOLA 100HZ VERT.
SEGNAL PARAB. VERT.
SIGNAL PARABOLICA VERT. 100HZ
SENAL PARABOLICA VERT. 100HZ

U1 VERT. SÄGEZAHN 100HZ
VERT. SAWTOOTH 100HZ
DENTE DI SEG. VERT. 100HZ
DENTE DE SIERRA VERT. 100HZ

U1 HOR. ANSTEUERUNG 31250HZ
HOR. DRIVE 31250HZ
PILOTAGGIO ORIZZ. 31250HZ
SYNCH. LIGNES 31250HZ
EXCITACION HORIZ. 31250HZ

U1 SCHALTSP. KOINZ. MIT VIDEO QUELLE VERKNÜPFTE
COINC. VOLT. LINKED WITH VIDEO
TENS. DI COMMUT. A COINC. COMBINATA CON SORG. VIDEO
SIGNAL DE COINCID. COMBINE AVEC SOURCE VIDEO
SENAL DE COINCIDENCIA COMBINADA CON VIDEO

SHIFT DYNAM. VERT. VERSCH. 25HZ AKTIV BEI STANDBILD U. VT
DYNAM. VERT. SHIFT 25HZ ACTIVE ON FREEZE-FRAME AND TELETEXT
SPOSTAM. VERT. DINAM. 25HZ ATTIVO CON FERMO IMAG. E TELEVIDEO
DECAL. DYNAM. DE L'IMAGE 25HZ ACTIF SUR ARRET IMAGE ET TELETE
DEPLAZ. DINAMICO VERT. 25HZ ACTIVO CON IMAGEN PARADA Y TELETE

SHIFT DYNAM. VERT. VERSCH. 25HZ AKTIV BEI VIDEO U. MIX BETRIEB
DYNAM. VERT. SHIFT 25HZ ACTIVE ON VIDEO AND MIX OPERATION
SPOSTAM. VERT. DINAM. 25HZ ATTIVO CON VIDEO E FUNZIONAM. MIST
DEPLAZ. DYNAM. DE L'IMAGE 25HZ ACTIF SUR VIDEO Y FUNCIONAM. MIST

U SEC SCHALTSP. SECAM
SWITCHING VOLT. SECAM
TENS. DI COMMUT. SECAM
TENS. DE COMMUT. SECAM
TENS. COMMUT. SECAM

U PAL SCHALTSP. PAL
SWITCHING VOLT. PAL
TENS. DI COMMUT. PAL
TENS. DE COMMUT. PAL
TENS. COMMUT. PAL

U HI-FI SCHALTSP. HI-FI
SWITCHING VOLT. HI-FI
TENS. DI COMMUT. HI-FI
TENS. DE COMMUT. HI-FI
TENS. COMMUT. HI-FI

R/50 ROT-SIGNAL/50HZ BILD-FREQ. 15625HZ HZ ZEILEN-FREQ.
RED SIGNAL/50HZ FIELD FREQ. 15625HZ LINE FREQ.
SEGNAL ROSSO/FREQ. DI QUADRO 50HZ/FREQ. DI RIGA 15625HZ
SIGNAL ROUGE/FREQ. TRAME 50HZ FREQ. LIGNES 15625HZ
SEÑAL ROJA/FREQ. CUADRO 50HZ-FREQ. LINEA 15625HZ

G/50 GRUEN-SIGNAL/50HZ BILD-FREQ. 15625HZ ZEILEN-FREQ.
GREEN SIGNAL/50HZ FIELD FREQ. 15625HZ LINE FREQ.
SEGNAL VERDE/FREQ. DI QUADRO 50HZ/FREQ. DI RIGA 15625HZ
SIGNAL VERT/FREQ. TRAME 50HZ FREQ. LIGNES 15625HZ
SEÑAL VERDE/FREQ. CUADRO 50HZ-FREQ. LINEA 15625HZ

B/50 BLAU-SIGNAL/50HZ BILD-FREQ. 15625HZ ZEILEN-FREQ.
BLUE SIGNAL/50HZ FIELD FREQ. 15625HZ LINE FREQ.
SEGNAL BLAU/FREQ. DI QUADRO 50HZ/FREQ. DI RIGA 15625HZ
SIGNAL BLEU/FREQ. TRAME 50HZ FREQ. LIGNES 15625HZ
SEÑAL AZUL/FREQ. CUADRO 50HZ-FREQ. LINEA 15625HZ

R/100 ROT-SIGNAL/100HZ BILD-FREQ. 31250HZ ZEILEN-FREQ.
RED SIGNAL/100HZ FIELD FREQ. 31250HZ LINE FREQ.
SEGNAL ROSSO/FREQ. DI QUADRO 100HZ/FREQ. DI RIGA 31250HZ
SIGNAL ROUGE/FREQ. TRAME 100HZ FREQ. LIGNES 31250HZ
SEÑAL ROJA/FREQ. CUADRO 100HZ-LINEA 31250HZ

G/100 GRUEN-SIGNAL/100HZ BILD-FREQ. 31250HZ ZEILEN-FREQ.
GREEN SIGNAL/100HZ FIELD FREQ. 31250HZ LINE FREQ.
SEGNAL VERDE/FREQ. DI QUADRO 100HZ FREQ. DI RIGA 31250HZ
SIGNAL VERT/FREQ. TRAME 100HZ FREQ. LIGNES 31250HZ
SEÑAL VERDE/FREQ. CUADRO 100HZ-LINEA 31250HZ

B/100 BLAU-SIGNAL/100HZ BILD-FREQ. 31250HZ ZEILEN-FREQ.
BLUE SIGNAL/100HZ FIELD FREQ. 31250HZ LINE FREQ.
SEGNAL BLAU/FREQ. DI QUADRO 100HZ FREQ. DI RIGA 31250HZ
SIGNAL BLEU/FREQ. TRAME 100HZ FREQ. LIGNES 31250HZ
SEÑAL AZUL/FREQ. CUADRO 100HZ-LINEA 31250HZ

R-Y (R-Y) SIGNAL/50HZ BILD-FREQ. 15625HZ ZEILEN-FREQ.
(R-Y) SIGNAL/50HZ FIELD FREQ. 15625HZ LINE FREQ.
SEGNAL (R-Y)/FREQ. DI QUADRO 50HZ FREQ. DI RIGA 15625HZ
SIGNAL (R-Y)/FREQ. TRAME 50HZ FREQ. LIGNES 15625HZ
SEÑAL (R-Y)/FREQ. CUADRO 50HZ-FREQ. LINEA 15625HZ

B-Y (B-Y) SIGNAL/50HZ BILD-FREQ. 15625HZ ZEILEN-FREQ.
(B-Y) SIGNAL/50HZ FIELD FREQ. 15625HZ LINE FREQ.
SEGNAL (B-Y)/FREQ. DI QUADRO 50HZ FREQ. DI RIGA 15625HZ
SIGNAL (B-Y)/FREQ. TRAME 50HZ FREQ. LIGNES 15625HZ
SEÑAL (B-Y)/FREQ. CUADRO 50HZ-FREQ. LINEA 15625HZ

Y (Y) SIGNAL/50HZ BILD-FREQ. 15625HZ ZEILEN-FREQ.
(Y) SIGNAL/50HZ FIELD FREQ. 15625HZ LINE FREQ.
SEGNAL (Y)/FREQ. DI QUADRO 50HZ FREQ. DI RIGA 15625HZ
SIGNAL (Y)/FREQ. TRAME 50HZ FREQ. LIGNES 15625HZ
SEÑAL (Y)/FREQ. CUADRO 50HZ-FREQ. LINEA 15625HZ

R-Y (R-Y) SIGNAL/100HZ BILD-FREQ. 31250HZ ZEILEN-FREQ.
(R-Y) SIGNAL/100HZ FIELD FREQ. 31250HZ LINE FREQ.
SEGNAL (R-Y)/FREQ. DI QUADRO 100HZ FREQ. DI RIGA 31250HZ
SIGNAL (R-Y)/FREQ. TRAME 100HZ FREQ. LIGNES 31250HZ
SEÑAL (R-Y)/FREQ. CUADRO 100HZ-LINEA 31250HZ

B-Y (B-Y) SIGNAL/100HZ BILD-FREQ. 31250HZ ZEILEN-FREQ.
(B-Y) SIGNAL/100HZ FIELD FREQ. 31250HZ LINE FREQ.
SEGNAL (B-Y)/FREQ. DI QUADRO 100HZ FREQ. DI RIGA 31250HZ
SIGNAL (B-Y)/FREQ. TRAME 100HZ FREQ. LIGNES 31250HZ
SEÑAL (B-Y)/FREQ. CUADRO 100HZ-LINEA 31250HZ

Y (Y) SIGNAL/100HZ BILD-FREQ. 31250HZ ZEILEN-FREQ.
(Y) SIGNAL/100HZ FIELD FREQ. 31250HZ LINE FREQ.
SEGNAL (Y)/FREQ. DI QUADRO 100HZ FREQ. DI RIGA 31250HZ
SIGNAL (Y)/FREQ. TRAME 100HZ FREQ. LIGNES 31250HZ
SEÑAL (Y)/FREQ. CUADRO 100HZ-LINEA 31250HZ

L HOR. AUSTAUST-SIGNAL 15625HZ
HOR. BLANKING SIGNAL 15625HZ
SEGNAL DI SOPPRESS. ORIZZ. 15625HZ
IMP. D'EFFACEMENT LIGNES 15625HZ
IMP. SUPRESION HORIZ. 15625HZ

ABK BURST-AUSTAUSTIMP. 15625HZ (BURST KEY)
BURST BLANKING PULSE 15625HZ (BURST KEY)
IMP. DI SOPPRESS. DEL BURST 15625HZ (BURST KEY)
SALVE DE SUPPRESS. 15625HZ (BURST KEY)
IMP. SUPRESION BURST 15625HZ (BURST KEY)

SSC SUPERSANDCASTLE 50HZ BILD-FREQ. 15625HZ ZEILEN-FREQ.
SUPERSANDCASTLE 50HZ FIELD FREQ. 15625HZ LINE FREQ.
SEGNAL DI SUPPRESS. DEL BURST 15625HZ (BURST KEY)
SALVE DE SUPPRESS. 15625HZ (BURST KEY)
IMP. SUPRESION BURST 15625HZ (BURST KEY)

SSC SUPERSANDCASTLE 100HZ BILD-FREQ. 31250HZ ZEILEN-FREQ.
SUPERSANDCASTLE 100HZ FIELD FREQ. 31250HZ LINE FREQ.
SEGNAL DI SUPPRESS. DEL BURST 15625HZ (BURST KEY)
SALVE DE SUPPRESS. 15625HZ (BURST KEY)
IMP. SUPRESION BURST 15625HZ (BURST KEY)

CS KOMBINIERTES HOR./VERT. SYNCH. SIGNAL 31250HZ/100HZ (COMPOSITE SYNC.)
COMBINED HOR./VERT. SYNC. SIGNAL 31250HZ/100HZ (COMPOSITE SYNC.)
SEGNAL SINC. ORIZZ./VERT. COMBINATO 31250HZ/100HZ (SINC. COMPOSITO)
SIGNAL SYNCH. HOR./VERT. COMBINE 31250HZ/100HZ (COMPOSITE SYNC.)
SEÑAL COMBINADA SINC. HOR./VERT. 31250HZ/100HZ (SINC. COMUESTO)

VERT VERT. PARABEL 100HZ
PARABOLA 100HZ/VERT.
SEGNAL PARAB. VERT. 100HZ
SIGNAL PARABOLIQUE 100HZ
SEÑAL PARABOLICA VERT. 100HZ

VERT VERT. SAEGEZAHN 100HZ
VERT. SAWTOOTH 100HZ
DIENTE DI SEGA VERT. 100HZ
SIGNAL DENT DE SCIE 100HZ
DIENTE DE SIERRA VERT. 100HZ

JLPL HOR. ANSTEUERUNG 31250HZ
HOR. DRIVE 31250HZ
PILOTAGGIO ORIZZ. 31250HZ
SYNCH. LIGNES 31250HZ
EXCITACION HORIZ. 31250HZ

ROIN SCHALTSP. KOINZ. MIT VIDEO QUELLE VERKNUEPFT
COINC. VOLT. LINKED WITH VIDEO
TENS. DI COMMUT. A COINC. COMBINATA CON SORG. VIDEO
SIGNAL DE COINCID. COMBINE AVEC SOURCE VIDEO
SEÑAL DE COINCIDENCIA COMBINADA CON VIDEO

SHIFT DYNAM. VERT. VERSCH. 25HZ AKTIV BEI STANDBILD U. VT
DYNAM. VERT. SHIFT 25HZ ACTIVE ON FREEZE-FRAME AND TELETXT
SPOSTAM. VERT. DINAM. 25HZ ATTIVO CON FERMO IMAG. E TELETXT
DECAL DYNAM. DE L'IMAGE 25HZ ACTIF SUR VIDEO ET FONCTIONN. MIXTE
DESPLAZ. DINAMICO VERT. 25HZ ACTIVO CON IMAGEN PARADA Y FUNCIONES MIXTAS

SHIFT DYNAM. VERT. VERSCH. 25HZ AKTIV BEI VIDEO U. MIX BETRIEB
DYNAM. VERT. SHIFT 25HZ ACTIVE ON VIDEO AND MIX OPERATION
SPOSTAM. VERT. DINAM. 25HZ ATTIVO CON VIDEO E FUNZIONAM. MISTO
DECAL DYNAM. DE L'IMAGE 25HZ ACTIF SUR VIDEO ET FONCTIONN. MIXTE
DESPLAZ. DINAMICO VERT. 25HZ ACTIVO CON VIDEO Y FUNCIONES MIXTAS

T1 BEI ZWEITON. TON 1
ON TWO CHANNEL SOUND. SOUND 1
IN BICANALE. AUDIO 1
POUR DOUBLE SON. SON 1 (CANAL 1)
EN DUAL. SONIDO 1

T2 BEI ZWEITON. TON 2
ON TWO CHANNEL SOUND. SOUND 2
IN BICANALE. AUDIO 2
POUR DOUBLE SON. SON 2 (CANAL 2)
EN DUAL. SONIDO 2

NIC CLK NTCAM CLOCK
CLOCK NTCAM
HORLOGE NTCAM
CLOCK NTCAM

IR DATA INFRAROT SIGNAL
INFRARED SIGNAL
SEGNAL INFRAROSSO
SIGNAL IR
DATA INFRARROJOS

VT SCL VIDEOTEXT CLOCK
TELETXT CLOCK
CLOCK TELEVIDEO
HORLOGE IR
CLOCK TELETXT

VT SOA VIDEOTEXT DATEN
TELETXT DATA
DATTI TELEVIDEO
DONNEES TELETXT
DATA TELETXT

SCL 100 SCHNELLER I²C BUS
I²C BUS CLOCK HIGH SPEED
I²C BUS VELOC
BUS I²C GRANDE VITESSE
CLOCK DEL I²C-BUS DE ALTA VELOCIDAD

ENA 2F FREIGABE 2F SYNC
ENABLE IF SYNC
ABILITAZ. SINC. FI
VALIDATION SYNC FI
HABILITACION DEL FI SYNC.

VT DATA VT DATEN
TELETXT DATA LEAD
DATTI TELEVIDEO
DONNEES TELETXT
DATA TELETXT

VT SCL VIDEOTEXT CLOCK
TELETXT CLOCK
CLOCK TELEVIDEO
HORLOGE IR
CLOCK TELETXT

S SONDERKANAL
SPECIAL CHANNEL
CANALE SPECIALE
CANAL SPECIAL
CANAL ESPECIAL

IR CLK SCHALTSP. WISCHER KONTAKT
SWITCHING VOLT. TEMP. CONTACT
TENS. DE COMMUT. CONTACT FUGITIF
CONTACTO SUPRESOR TENS. DE COMMUT.

IR CLK INFRAROT CLOCK
INFRARED CLOCK
CLOCK SEGNALE R.I.
SIGNAL IR HORLOGE
CLOCK INFRARROJOS

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. LINEARITÄT
HOR. LINEARITY
LINEAR. ORIZZ.
LINEAR. HORIZONTAL
LINEAL. HORIZONTAL

BILDAGE HOR.
HORIZ. PICTURE POSITION
POSIZIONE ORIZZ. D'IMMAGINE
CADRAGE HORIZONT.
CENTRADO HORIZONTAL

FOKUSREGLER
FOCUS CONTROL
REGOLAT. 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
TRAPEZ
TRAPECIO

HOR. FREQUENZ
HOR. FREQUENCY
FREQ. ORIZZ.
FREQ. HORIZ.
FRECUENCIA HORIZONTAL

VERT. FREQUENZ
VERT. FREQUENCY
FREQ. VERT.
FRECUENCIA VERTICAL

VERT. LINEARITÄT
VERT. LINEARITY
LINEAR. VERT.
LINEAR. VERT.
LINEALIDAD VERTICAL

OST/WEST SYMMETRIE
EAST/WEST SYMMETRY
SIMMETRIA EST/OVEST
SYMMETRIE EST/OUEST
SIMETRIA E/O

ZEILENBREITE
LINE WIDTH
LARGHEZZA DI RIGA
AMPLITUDE HORIZONTAL
AMPLITUDE HORIZONTAL

OST / WEST AMPLITUDE
EAST / WEST AMPLITUDE
AMPIEZZA EST / OVEST
AMPLITUDE EST / OUEST
AMPLITUDE E/O

HOR. LINEARITÄT
HORIZ. LINEARITY
LINEAR. ORIZZ.
LINEAR. HORIZONTAL
LINEAR. HORIZONTAL

BILDAGE HOR.
HORIZ. PICTURE POSITION
POSIZIONE ORIZZ. D'IMMAGINE
CADRAGE HORIZONTAL
CENTRADO HORIZONTAL

FOKUSREGLER
FOCUS CONTROL
REGOLAT. 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
AMPLITUDE VERTICAL

TRAPEZ.
TRAPEZIUM
TRAPEZIO
TRAPEZIO

HOR. FREQUENZ
HOR. FREQUENCY
FREQ. ORIZZ.
FREQ. HORIZ.
FRECUENCIA HORIZONTAL

VERT. FREQUENZ
VERT. FREQUENCY
FREQ. VERT.
FRECUENCIA VERTICAL

VERT. LINEARITÄT
VERT. LINEARITY
LINEAR. VERT.
LINEAR. VERT.
LINEALIDAD VERTICAL

OST/WEST SYMMETRIE
EAST/WEST SYMMETRY
SIMMETRIA EST/OVEST
SYMMETRIE EST/OUEST
SIMETRIA E/O

3/4W 0617 DIN

1/10W 0204 DIN

1/4W 0207 DIN

1/2W 0411 DIN

1W 0411 DIN

2W 0617 DIN

4W 0922 DIN

WIDERSTAND NICHT BRENNBAR
RESISTOR NOT FLAMMABLE
RESISTENZA NON INFAMMABILE
RESISTANCE ININFLAMMABLE
RESISTENCIA ININFLAMABLE

DRAHTWIDERSTAND
WIRE RESISTOR
RESISTENZA A FTILO
RESISTANCE BOBINÉE
RESISTENCIA BOBINADA

SICHERUNGSWIDERSTAND
SAFETY RESISTOR
RESISTENZA DI SICUREZZA
RESISTANCE DISJONCTABLE
RESISTENCIA FUSIBLE

KONDENSATOR
CAPACITOR
CONDENSATORE
CONDENSATEUR
CONDENSADOR

250V=

400V=

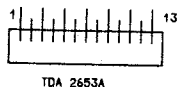
630V=

1000V=

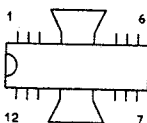
FOLIE
FOIL
A FOGLIA
FOLIO PLASTIQUE
LÁMINA E

KERAMIK
CERAMIC
CERAMICO
CERAMIQUE
CERAMICO

ELKO
ELECTROLYTIC
ELETTRIOLITICO
ELECTROLYTIQUE
ELECTROLITICO



TDA 2653A



TDA 2655B

BEI ERSATZ AUS SICHERHEITSGRÜNDE NUR ORIGINALBAUTEILE VERWENDEN.
FOR REASONS OF SAFETY USE ORIGINAL PARTS ONLY WHEN REPLACING.
IN CASO DI SOSTITUZIONE UTILIZZARE PER RAGIONI DI SICUREZZA SOLAMENTE
PEZZI DI RICAMBIO ORIGINALI.
EN CAS DE REMPLACEMENT N'UTILISER, POUR DES RAISONS DE SECURITE,
QUE DES PIECES D'ORIGINE.
EN CASO DE SUSTITUCION Y POR RAZONES DE SEGURIDAD
UTILIZAR EXCLUSIVAMENTE COMPONENTES ORIGINALES.

BEI EINGRIFFEN SCHUTZMASSNAHMEN FÜR MOS-BAUTEILE BEACHTEN!
WHEN HANDLING MOS-CIRCUITS, ALWAYS OBSERVE THE MOS PROTECTION MEASURES!
ADOPERANDO COMPONENTI O CIRCUITI MOS OSSERVARE LE CORRISPONDENTI
MISURE DI PROTEZIONE!
LORS DE LA MANIPULATION DES CIRCUITS MOS, RESPECTER LES
PRESCRIPTIONS MOS!
AL MANTIPULAR CIRCUITOS MOS RESPETENSE LAS OPORTUNAS
NORMAS DE SEGURIDAD MOS.

STECKERUNTERTEIL ZÄHLRICHTUNG
PLUG BOTTOM PART COUNTING DIRECTION
PARTE INFER. SPINA DIREZ. CONTEGGIO
SENS. COMPTAGE PARTIE INFER. CONNEXEUR
PARTE INFERIOR DEL CONECTOR-DIREC. CONTACTOS

LOETSEITE
SOLDER SIDE
LATO SALDATURA
CÔTE SOUDURE
LADO SOLDADURAS

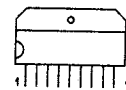
IC'S VON UNTEN GEGEHEN
IC'S SEEN FROM BOTTOM
IC'S VISTI DA SOTTO
IC'S VUS DU DESSOUS
IC'S VISTOS POR DEBAJO



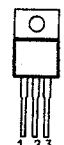
BU 508A / BU 903
BU 508D / BU 908



BU 208A
BU 546



TDA 4601



TY 40164 / MC 7505
MC78 MOS CT 7812



BD 561G
BU 908
BU 903
S 568T
BUT 11A
BUT 56A



BF 199



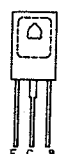
78 L05 CP



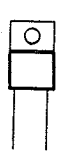
BF 421 / BF 422
BC 637 / BF 423



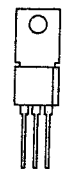
BC 548 / BC 558
BC 337/25
PH 2222
BC 338 / BC 324
BF 414
BC 308 / BC 248
BC 547



BD 561 G
BD 139



TDA 8170



GF 759



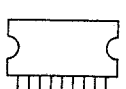
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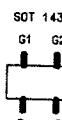
DL 60292



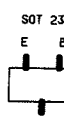
TDA 2040



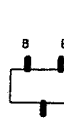
TDA 3684
TDA 3653A



BF 994
BF 996



BF 569
BF 579



BC 847
BC 858

Sicherheitsvorschriften / Safety requirements / Prescrizioni de sicurezza / Prescriptions de sécurité / Prescripciones de seguridad

D **Achtung:** Bei Eingriffen ins Gerät sind die Sicherheitsvorschriften nach VDE 701 (reparaturbezogen) bzw. VDE 0860 / IEC 65 (gerätebezogen) zu beachten!

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

MOS - Vorschriften beim Umgang mit MOS - Bauteilen beachten!

GB **Attention:** Please observe the applicable safety requirements according to VDE 701 (concerning repairs) and VDE 0860 / IEC 65 (concerning type of product)!

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

Observe **MOS** components handling instructions when servicing!

I **Attenzione:** Osservare le corrispondenti prescrizioni di sicurezza VDE 701 (concernente servizio) e VDE 0860 / IEC 65 (concernente il tipo di prodotto)!

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

Osservare le relative prescrizioni durante, lavori con componenti **MOS**!

F **Attention:** Priere d'observer les prescriptions de securite VDE 701 (concernant les reparations) et VDE 0860 / IEC 65 (concernant le type de produit)!



Composants répondant aux normes VDE ou IEC. Les remplacer uniquement par des composants ayant les memes spécifications.

Lors de la manipulation des circuits **MOS**, respecter les prescriptions **MOS**!



E **Atención:** Recomendamos las normas de seguridad VDE u otras normas equivalentes, por ejemplo: VDE 701 para reparaciones, VDE 0860 / IEC 65 para aparatos!



Componentes que cumplen las normas VDE/IEC. En caso de sustitución, emplear componentes con idénticas especificaciones!

Durante la reparacion observar las normas sobre componentes **MOS**!



USA **Attention:** This set can only be operated from AC mains of 120 V/60 Hz. Also observe the information given on the rear of the set.



CAUTION-for continued protection against risk of fire replace only with same type fuses!

CAUTION: to reduce the risk of electric shock, do not remove cover (or back), no user-serviceable parts inside, refer servicing to qualified service personnel.



Components to safety guidelines (IEC/U.L.)! Only use components with the same specifications for replacement! Observe by checking leakage-current or resistance measurement that the exposed parts are acceptably insulated from the supply circuit.

Observe **MOS** components handling instructions when servicing!

D Sicherheitsbestimmungen

GB Safety Standard Compliance

I Norme di Sicurezza

F Prescriptions de Sécurité

E Disposiciones para la Seguridad

USA Safety Instructions

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 Netzpolen und zwischen allen Gehäuse- oder Funktionsteilen (Antenne, Buchsen, Tasten, Zerteilen, 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: $\geq 1 \text{ s}$ (Fig. 1)

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.

• Messen des Ableitstromes nach VDE 0701.

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

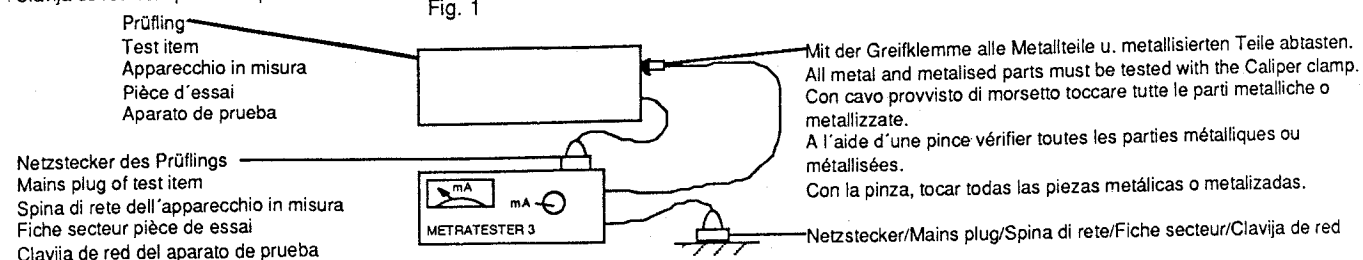
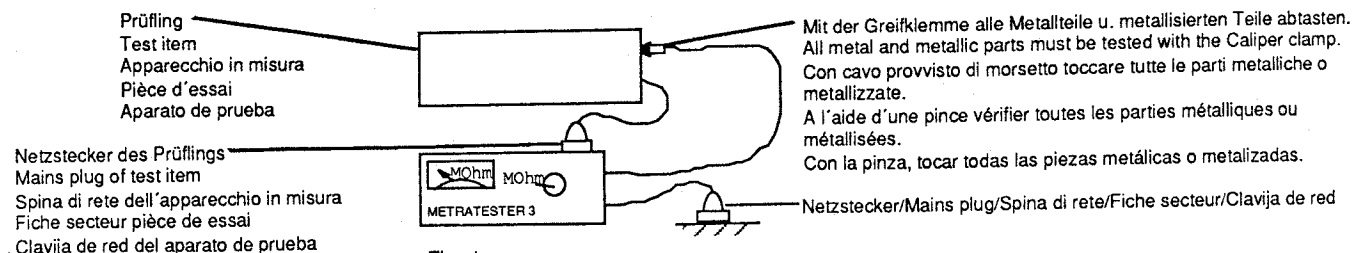
$$I_{\text{Ableit}} \leq 1 \text{ mA bei } U_{\text{Test}} = 220 \text{ V}$$

Meßzeit $\geq 1 \text{ s}$ (Fig. 2)

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

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- 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.



Empfehlungen für den Servicefall

- Nur Original - Ersatzteile verwenden.
Bei Bauteilen oder Baugruppen mit der Sicherheitskennzeichnung  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.

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: $\geq 1 \text{ s}$, (Fig. 1)

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.

• 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.) mad 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: $\geq 1 \text{ s}$, (Fig. 2)

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 .

• Mesure de la résistance d'isolement selon VDE 0701

Brancher un appareil de mesure d'isolement ($U_{\text{test}} = 500 \text{ V}$) 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:

$$R_{\text{isol}} \geq 2 \text{ M}\Omega \text{ pour une } U_{\text{test}} : 500 \text{ V}$$

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 inférieur 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):

$$I_{\text{fuite}} \leq 1 \text{ mA pour } U_{\text{test}} : 200 \text{ V}$$

Durée de la mesure $\geq 1 \text{ s}$.

- Netzleitungen und Anschlußleitungen sind auf äußere Mängel vor dem Anschluß zu prüfen. Isolation prüfen!
- Die Funktionssicherheit der Zugentlastung und von Biegeschutztüllen ist zu prüfen.
- Thermisch belastete Lötstellen absaugen und neu löten.
- Belüftungen frei lassen.

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

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- 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.

Recommendation for service repairs

- Use only original spare parts.
With components or assemblies accompanied with the Safety Symbol  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 be suck off and re-soldered.
- Ensure that the ventilation slots are not obstructed.

- Pour ces mesures, nous préconisons l'utilisation du **METRATER 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  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.

Norme di sicurezza

Successivamente ai lavori di riparazione, negli apparecchi della classe di protezione II 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 (tens. $U_{prova} = 500\text{ V}$) 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:

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

Tempo di misura: $\geq 1\text{ s}$ (Fig. 1).

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

Applicare il misuratore di isolamento (tens. $U_{prova} = 220\text{ V}$) 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:

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

Tempo di misura: $\geq 1\text{ s}$ (Fig. 2)

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 .

● Medida de la resistencia de aislamiento según VDE 0701.

Aplicar el medidor de aislamiento ($U_{prueba} = 500\text{ V}$), 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:

$$R_{aisl} \geq 2\text{ M}\Omega \text{ con } U_{prueba} = 500\text{ V}$$

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 ($U_{prueba} = 220\text{ V}$) 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):

$$I_{deriv} \leq 1\text{ mA con } U_{prueba} = 220\text{ V}$$

Tiempo de medida: $\geq 1\text{ seg.}$

- Si recomienda di effettuare le misure con lo strumento **METRA/STER 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, perché
 - una riparazione non è possibile
 - oppure è desiderio del cliente che una riparazione non avvenga
 in questi casi si deve comunicare per iscritto all'utilizzatore la pericolosità dell'apparecchio riguardo il suo isolamento.

Raccomandazione per il servizio assistenza

- Impiegare solo componenti originali:
I componenti o i gruppi di componenti contraddistinti dall'indicare  devono assolutamente venir sostituiti con parti originali.
- Osservare il valore nominale dei fusibili.
- I componenti che concorrono alla sicurezza dell'apparecchio 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.
- È necessario controllare la sicurezza dei fermacavi e delle guaine flessibili.
- Saldature caricate termicamente vanno rifatte.
- Lasciare libere le fessure di areazione.

- Aconsejamos llevar a cabo las medidas con el **METRATEST** (instrumento de medida para la comprobación de aparatos eléctricos según VDE 0701).

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- Si no se cumple la seguridad del aparato, por lo que
 - la puesta en orden es imposible, o
 - existe el deseo 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  son de obligada necesidad piezas de repuesto originales.
- Las partes del aparato que contribuyan a la seguridad del mismo 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 utilizarlos, 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 de aireación.

Behandlung von MOS-Bauelementen

Schaltungen in MOS-Technik bedürfen besonderer Vorsichtsmaßnahmen gegenüber statischer Aufladung. Statische Aufladungen können an allen hochisolierenden Kunststoffen auftreten und auf den Menschen übertragen werden, wenn Kleidung und Schuhe aus synthetischem Material bestehen. Schutzstrukturen an den Ein- und Ausgängen der MOS-Schaltungen geben wegen ihrer Ansprechzeit nur begrenzte Sicherheit.

Bitte beachten Sie folgende Regeln, um Bauelemente vor Beschädigung durch statische Aufladungen zu schützen:

1. MOS-Schaltungen sollen bis zur Verarbeitung in elektrisch leitenden Verpackungen verbleiben. Keinesfalls MOS-Bauteile in Styropor oder Plastikschieben lagern oder transportieren.
2. Personen müssen sich durch Berühren eines geerdeten Gegenstandes entladen, bevor sie MOS-Bauteile anfassen.
3. MOS-Bauelemente nur am Gehäuse anfassen, ohne die Anschlüsse zu berühren.
4. Prüfung und Bearbeitung nur an geerdeten Geräten vornehmen.
5. Lösen oder kontaktieren Sie MOS-ICs in Steckfassungen nicht unter Betriebsspannung.
6. Bei p-Kanal-MOS-Bauelementen dürfen keine positiven Spannungen (bezogen auf den Substratschluß VSS) an die Schaltung gelangen.

Lötvorschriften für MOS-Schaltungen:

- Nur netzgetrennte NiedervoltlötKolben verwenden.
- Maximale Lötzeit 5 Sekunden bei einer LötKolbentemperatur von 300 °C bis 400 °C.

Impiego dei componenti MOS

I circuiti in tecnica MOS necessitano di una particolare attenzione per evitare le scariche elettrostatiche.

Tutti i materiali sintetici ad alto potere isolante possono caricare staticamente e queste cariche possono trasmettersi all'uomo, particolarmente se scarpe o vestiti sono sintetici.

Le strutture di sicurezza sull'ingresso e sull'uscita dei circuiti MOS hanno un'efficacia limitata a causa del loro periodo di intervento.

Per proteggere i componenti MOS dalle scariche elettrostatiche si consiglia di adottare le seguenti precauzioni:

1. Fino al momento del loro impiego, i MOS devono restare in materiale elettricamente conduttivo. Non trasportarli o depositarli mai in listelli di plastica o in polistirolo.
2. Le persone che maneggiano i componenti MOS devono prima scaricare le elettrostaticamente toccando un oggetto con collegamento a massa.
3. Maneggiare i componenti MOS toccandone solo l'involucro e mai i piedini.
4. Controlli e lavorazioni devono avvenire soltanto su apparecchi con messa a terra.
5. Non inserire e non staccare mai gli integrati MOS dagli zoccoli quando la tensione di alimentazione è collegata.
6. Ai componenti MOS canale P non devono giungere tensioni positive (rif. a collegamento del substrato VSS).

Norme di taratura per gli integrati MOS:

- Impiegare solo saldatori a bassa tensione con separazione dalla rete.
- Il tempo massimo di saldatura è di 5 sec. con una temperatura del saldatore compresa fra 300 °C e 400 °C.

Handling of MOS Chip Components

MOS circuits require special attention with regard to static charges. Static charges may occur with any highly insulating plastics and can be transferred to persons wearing clothes and shoes made of synthetic materials.

Protective circuits on the inputs and outputs of MOS circuits give protection to a limited extent only due to the time of reaction. Please observe the following instructions to protect the components against damages from static charges:

1. Keep MOS components in conductive packages until they are used. MOS components must never be stored or transported in Styropor materials or plastic magazines.
2. Persons have to rid themselves of electrostatic charges by touching a grounded object before handling MOS components.
3. Take the chip by the body without touching the terminals.
4. Use only grounded instruments for testing and processing purposes.
5. Remove or connect MOS ICs with in mounting sockets only if the operating voltage is disconnected.
6. The circuits of p-channel MOS components must not be connected to positive voltages (with reference to bulk VSS).

MOS Soldering Instructions

- Use only mains isolated low-voltage soldering irons.
- Maximum soldering period 5 seconds at a soldering iron temperature of 300 to 400 degrees Celsius.

Précautions à prendre pour la manipulation des circuits MOS

Les circuits équipés en technique MOS exigent des précautions particulières contre les charges statiques.

Des charges statiques peuvent se créer sur toutes les matières synthétiques à fort pouvoir isolant, elles peuvent se transmettre au corps humain et le risque est d'autant plus important si la personne porte des vêtements ou des chaussures en matière synthétique.

Les systèmes de protection dont sont équipées les entrées et sorties des circuits MOS n'apportent qu'une sécurité limitée du fait de leur temps de fonctionnement.

Afin de protéger les composants contre les charges statiques, il est recommandé d'observer règles suivantes:

1. Les circuits MOS doivent rester placés dans un matériau conducteur jusqu'au moment de leur utilisation. Il ne doivent en aucun cas être stockés ou transportés dans du styropore ou sur des bandes de plastique.
2. Les personnes travaillant sur des circuits MOS doivent au préalable se décharger de leur charge statique en touchant un objet mis à terre.
3. Les ensembles équipés de circuits MOS doivent être saisis uniquement par leur boîtier, on ne doit pas toucher les broches de raccordement.
4. On ne doit effectuer de contrôles et travaux que sur des appareils mis à la terre.
5. Ne jamais retirer ou raccorder un circuit MOS sur un appareil sous tension.
6. Les circuits MOS canal p ne doivent en aucun cas recevoir de tensions positives (en VSS par rapport à la liaison vers le substrat).

Prescription de soudure sur les circuits MOS

- N'utiliser que des fers à souder basse tension isolés du secteur
- Temps de souder maximum : 5 secondes pour une température comprise entre 300 °C et 400 °C.