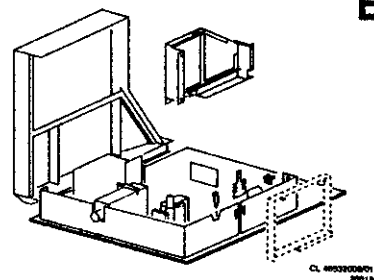


Service
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Service Manual

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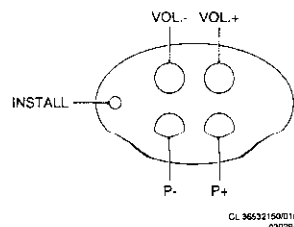
PHILIPS

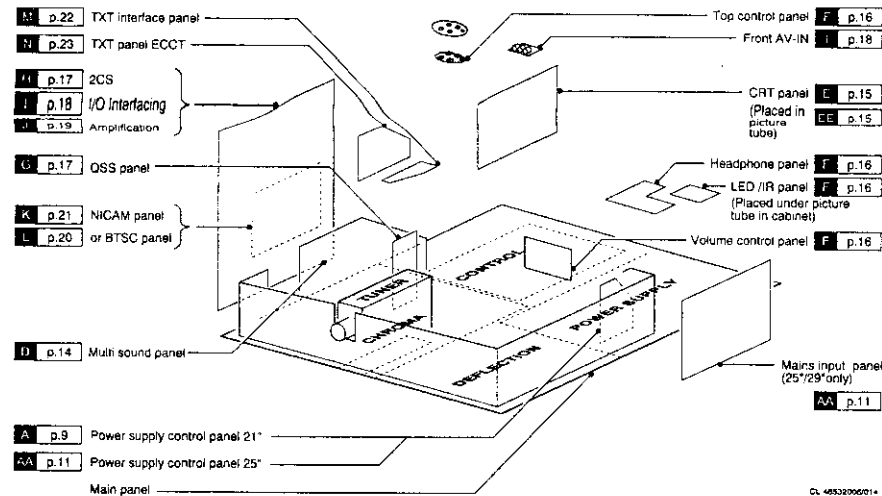
1. Technical specifications

Mains voltage	: 140 - 276 V : 50/60 Hz (± 5%) : 90 - 276 V; 50/60 Hz (± 5%)
Power cons. at 220V-	: 21" 64 W (stand-by ≤ 12 W) : 25" 76 W (stand-by ≤ 14 W)
Aerial input impedance TV	: 75Ω - coax
Min. aerial input VHF	: 30μV
Min. aerial input UHF	: 40μV
Max. aerial input VHF/UHF	: ≥ 180mV
Pull-in range colour sync	: ± 300Hz (NTSC 3.58: ± 250Hz)
Pull-in range horizontal sync	: ± 600Hz
Pull-in range vertical sync	: ± 5Hz
Picture tube range	: 21" A51 KXR 95X Narrow neck Global Hemisphere : 25" A59 LAM 93X01 Narrow neck Northern Hemisphere : 25" A59 LAM 94X01 Narrow neck Neutral Hemisphere : 25" A59 LAM 95X01 Narrow neck Southern Hemisphere
	: 2x2W squeeters 25Ω + 1x4W subwoofer 16Ω; 20Hz-14kHz
TV Systems	: /65/67/68/79/94: PAL B/G (NTSC 4.43 PB optional) : /75: PAL B/H (NTSC 4.43 PB optional) : /66/57/69/70/93: PAL B/G/I & SECAM B/G/D/K & NTSC M (NTSC 4.43 PB optional) : /58/59/62: PAL B/G & SECAM B/G/D/K (NTSC 4.43 PB optional) : /54: PAL M/N & NTSC M : /71/85: NTSC M : /78: PAL M
Indications	: On Screen Display (OSD) : 1 LED ( green,  red, *RC5* orange)
VCR programs	: 0 and 39
Tuning and operating system	:  VST/PLL
UV 913/IEC (VST)	: Band I: 48.25 - 82.25 MHz : Band III: 163.25 - 224.25 MHz : UHF: 471.25 - 855.25 MHz
UV 915E/IEC (VST)	: Band I: 48.25 - 168.25 MHz : Band III: 175.25 - 447.25 MHz : UHF: 455.25 - 855.25 MHz
UV 936E/F & UV 936E/IEC (PLL)	: Band I: 55.25 - 157.25 MHz : Band III: 162.00 - 451.25 MHz : UHF: 457.25 - 801.25 MHz
UV 953/IEC (VST)	: Band I: 48.25 - 93.25 MHz : Band III: 168.25 - 224.25 MHz : UHF: 471.25 - 863.25 MHz
UV 963/IEC (VST)	: Band I: 46.25 - 102.25 MHz : Band III: 138.25 - 224.25 MHz : UHF: 471.25 - 855.25 MHz
Local operating functions	: Volume +/-, Program +/-, Install

2. Connection facilities

Rear cinch AV IN	:  1 x cinch CVBS  1V _{pp} / 75Ω :  2 x cinch Audio L & R  500mV RMS / 47kΩ
Rear cinch AV OUT	:  1 x cinch CVBS  1V _{pp} / 75Ω :  2 x cinch Audio L & R  500mV RMS / 47kΩ
Rear SVHS	: Y 1V _{pp} / 75Ω : C 1V _{pp} / 75Ω
Rear SCART (for /62)	: 1 x CVBS  1V _{pp} / 75Ω : 2 x Audio L & R  500mV RMS / 47kΩ : 1 x CVBS  1V _{pp} / 75Ω : 2 x Audio L & R  500mV RMS / 47kΩ
Front cinch AV IN (optional)	:  1 x cinch CVBS  1V _{pp} / 75Ω :  2 x cinch Audio L & R  500mV RMS / 47kΩ
Front headphone	:  8-600Ω; 10mW





3. Warnings and notes

Warnings

1. A set to be repaired should always be connected to the mains via a suitable isolating transformer.
2. Safety regulations demand that the set be restored to its original condition and that components identical with the original types be used. Safety components are marked by the symbol
3. To prevent damage to ICs and transistors any flash-over of the EHT should be avoided. To prevent damage to the picture tube the method, indicated in Fig. 3.1, has to be applied to discharge the picture tube. Make use of an EHT probe and a universal meter (position DC-V). Discharge until the reading of the meter is 0V (after approx. 30s).
4. **ESD** All ICs and many other semi-conductors are susceptible to electrostatic discharges (ESD). Careless handling during repair may reduce life drastically. When repairing, make sure that you are connected with the same potential as the mass of the set via a wrist wrap with resistance. Keep components and tools on the same potential.
5. The deflection and multipole unit is delivered separately of the picture tube; it has to be adjusted by the service technician (see chapter 7).
6. Proceed with care when testing the EHT section and the picture tube.
7. Never replace any modules or any other parts while the set is switched on.

8. Wear safety goggles during replacement of the picture tube.

9. Use plastic instead of metal alignment tools. This in order to preclude short-circuit or to prevent a specific circuit from being rendered unstable.

10. Upon a repair of a transistor or IC assembly i.e. a transistor or IC with heatsink and spring remounting should be carried out in the following order:
 1. Mount transistor or IC on heatsink with spring.
 2. Mount assembly and resolder the joints at last.

Notes

1. Do not use heatsinks as earth reference.
2. The direct voltages and waveforms should be measured relative to the nearest earthing point on the printed circuit board.
3. The DC voltages and oscillograms are where necessary measured with () and without () aerial signal. (settings as in Service Default Mode; see chapter 8). Voltages and oscillograms in the power supply section have been measured for both normal operation () and in the stand-by mode (). As an input signal a colour bar pattern has been used.
4. Connectors used for the modules (board to board) are gold-plated and must be replaced by the same type only.

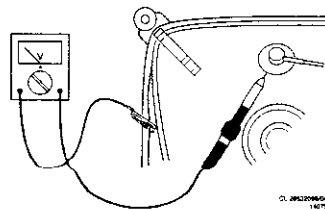


Fig. 3.1

4. Mechanical instructions

General

All panels are plugged for easy (dis)connecting and can be removed without damaging the circuitry.

For **video related faultfinding** the main carrier can be disconnected from the TXT panel and the 2CS+I/O+AMPL panel as the set will automatically switch to internal CVBS (except for SECAM chroma which signal path is via the 2CS+I/O+AMPL panel). Of course for CVBS I/O faultfinding the 2CS+I/O+AMPL panel should be connected to the main carrier.

For **audio related faultfinding** first measure pin 1 IC7225-6F (AUDIO_OUT LF audio signal inclusive BTSC and NICAM info) and TP 42 and 43 at resp pin 5 and 3 of connector Q4 (AF1 and AF2):

* If all OK, the fault is on the 2CS+I/O+AMPL or NICAM or BTSC panel

* If not all OK, the fault is on the main carrier (QSS or IC7225-6F)

Service position MAIN CARRIER

For the main carrier panel with the plugged panels on it there two service positions are possible:

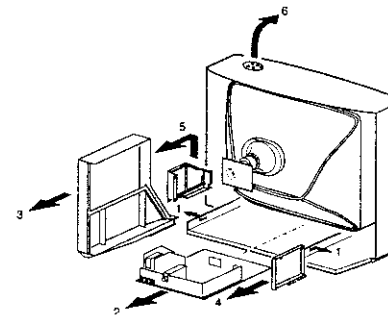
- A: For faultfinding on the component side of the main carrier
- B: For (de)soldering activities on the copper side of the main carrier

Position A can be reached by first shifting out the mains cord fixation block, then loosen the carrier clips (1) and then pulling the carrier panel (2) for approximately 10 cm (all cables to all other panels in the TV can be remained connected).

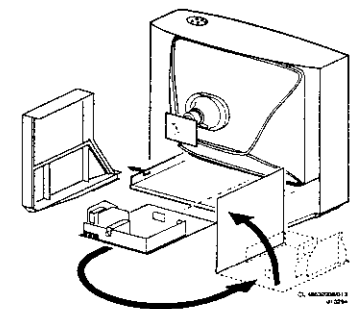
Position B can be reached from position A by disconnecting all cables to the TXT and the 2CS+I/O+AMPL panel and the degaussing cable. Put the carrier on the line transformer side.

Service position 2CS+I/O+AMPL panel and NICAM/BTSC panel

The entire bracket with both the 2CS+I/O+AMPL panel and the NICAM/BTSC panel can be shifted out of the cabinet by pulling backwards the entire bracket (3). By then the bracket with all panels in it can be laid on it's left side (seen from the back) while still connected to the main carrier.



A



B

Also both panels can be easily clicked out of the bracket. The 2CS+I/O+AMPL panel can be shifted backwards after releasing one catching finger on the top part of the bracket. The NICAM or BTSC panel can be released by pulling upwards the middle part of the bracket a little.

Service position MAINS INPUT panel (25" only)

The entire bracket can be shifted out of the cabinet by pulling backwards the entire bracket (4). By then the bracket with the mains input panel in it can be laid on it's left side (seen from the back) while still connected to the main carrier.

Also the mains input panel can easily be clicked out of it's bracket by releasing the 2 catching fingers on the top part of the bracket.

Service position TXT and TXT INTERFACE panel

The entire bracket can be shifted out of the cabinet by lifting the release finger at the bottom side of the bracket with a screwdriver and then pulling backwards the entire bracket (5). By then the bracket with the TXT and TXT interface panel in it can be laid on the left side (seen from the back) while still connected to the main carrier.

Also the TXT and the TXT interface panel can be easily clicked out of the panel by releasing the 2 catching fingers on the top and the back part of the bracket.

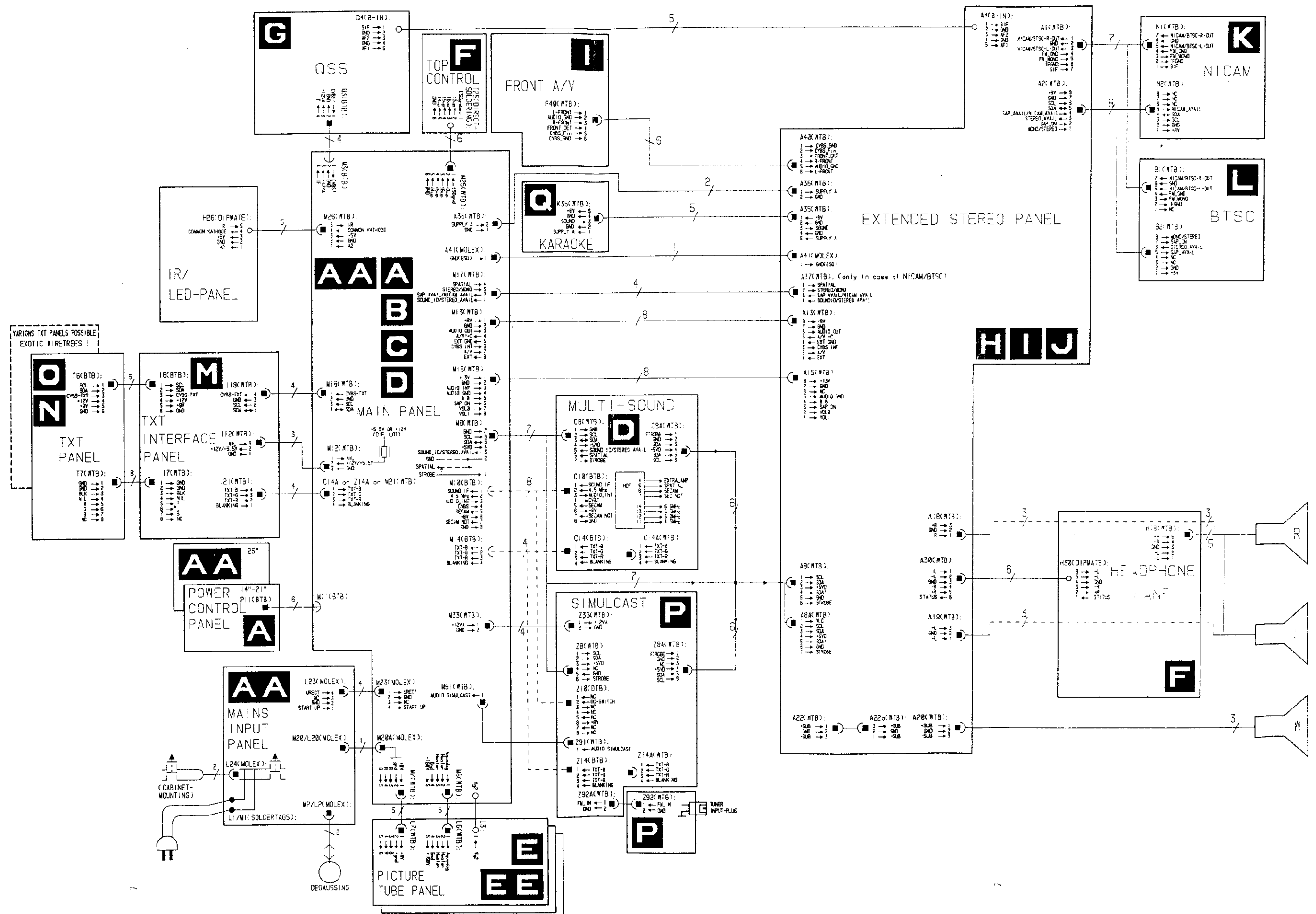
Service position TOP CONTROL panel

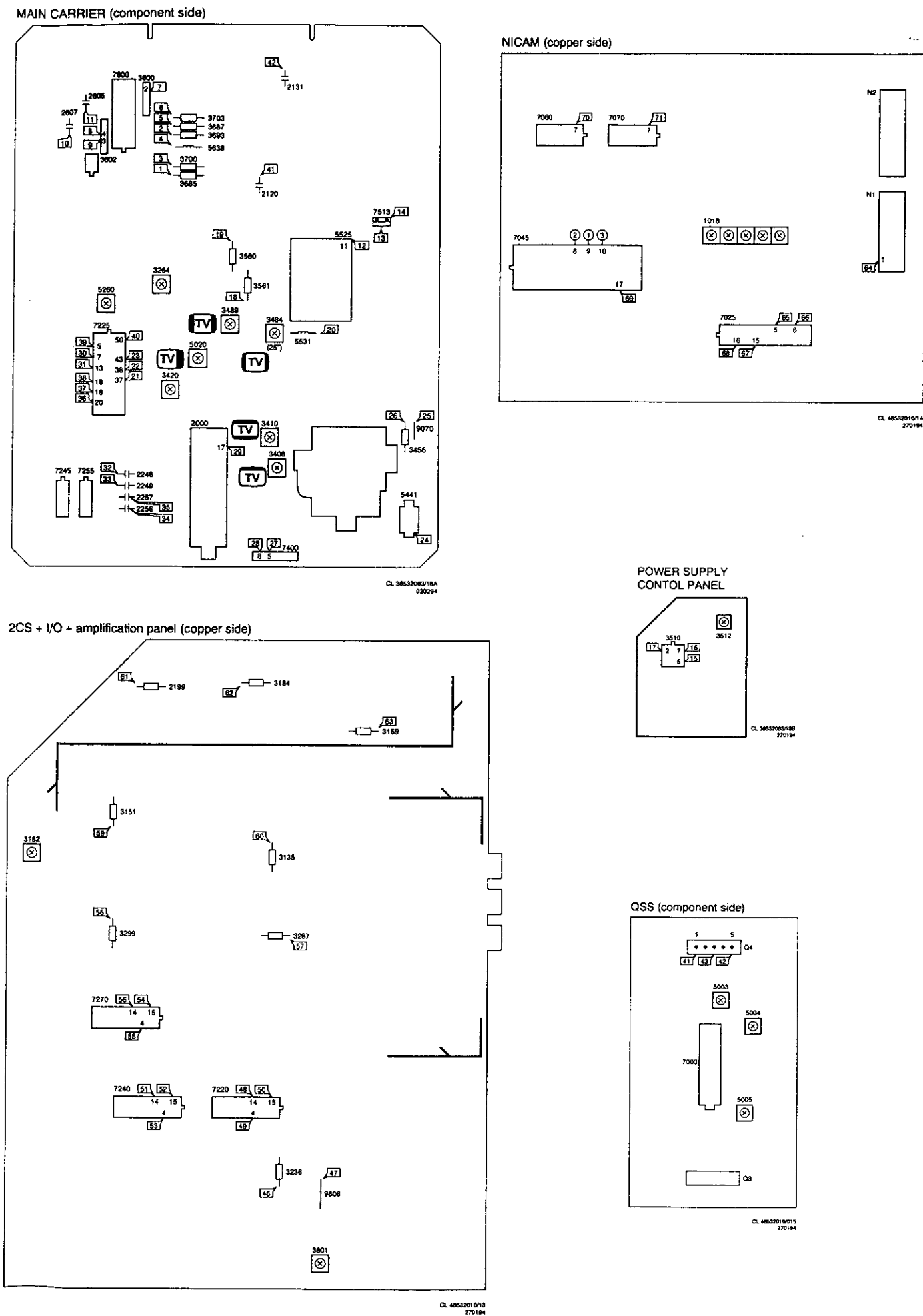
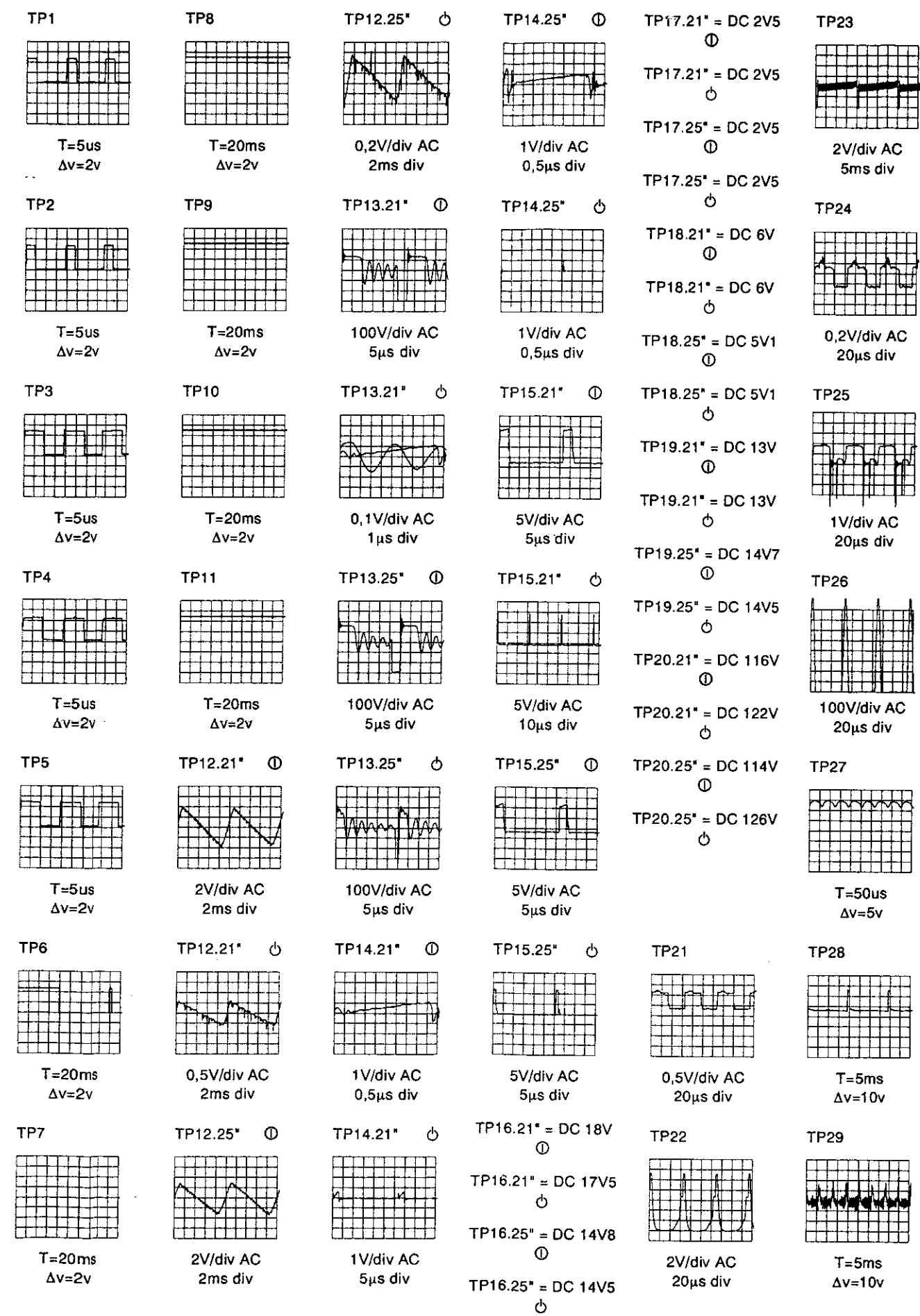
The top control panel can be taken out of the cabinet by first smoothly releasing the click fit on the left under side of the top control bracket (seen from the back) with a small plier. By then "turn" out the bracket with the panel out of the cabinet (6).

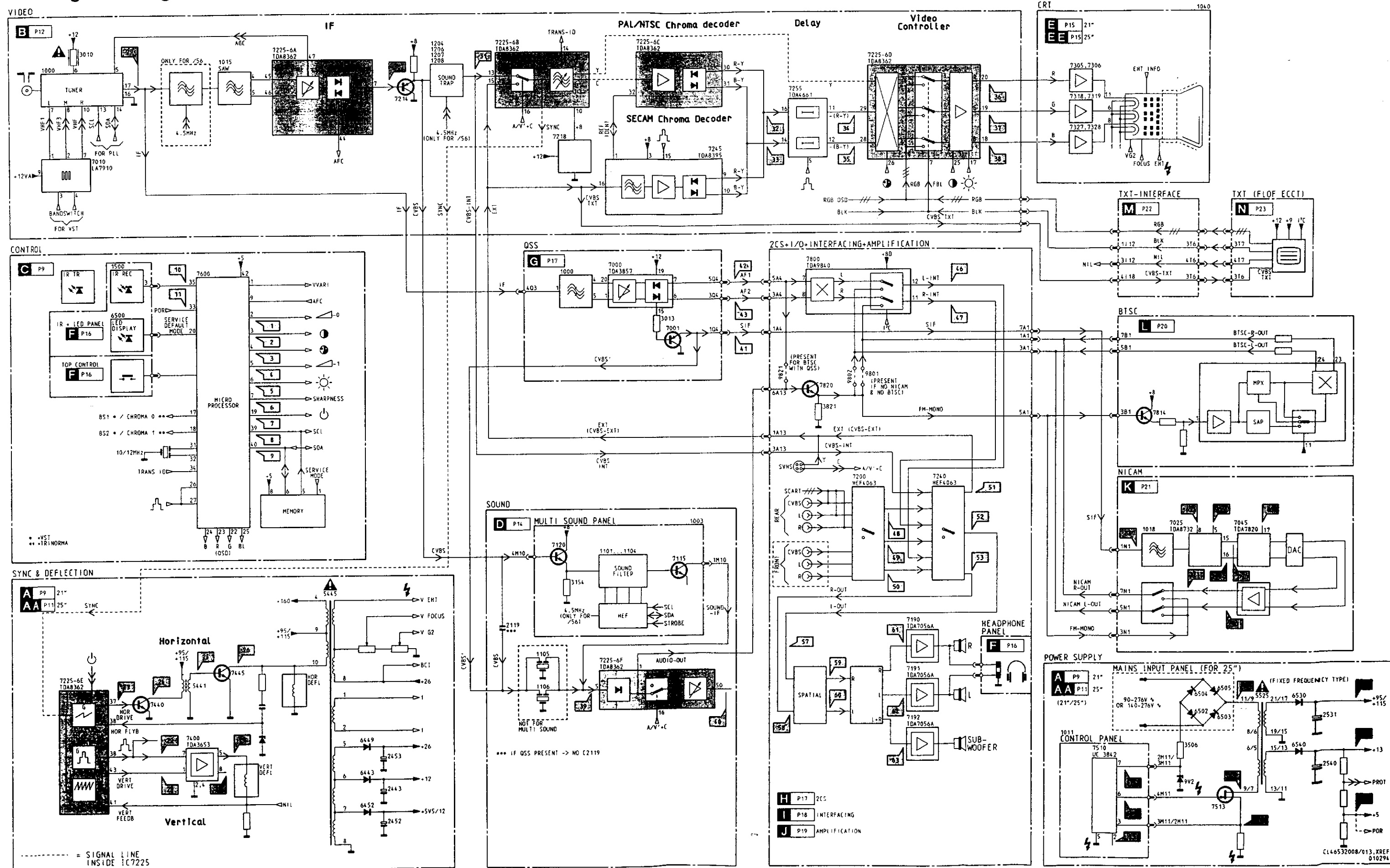
Service position LED + IR panel and HEADPHONE panel

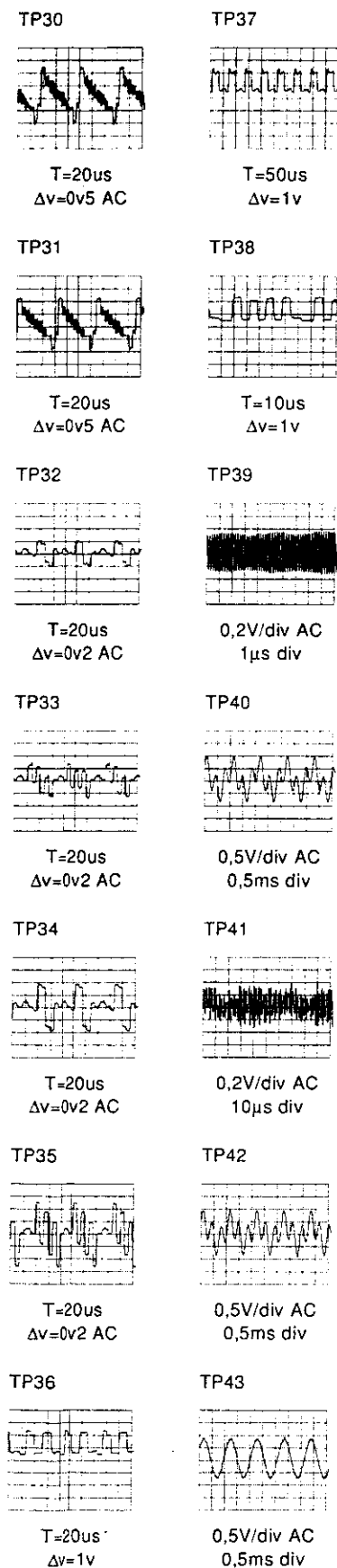
First pull out the main carrier. Then screw out the 2 fixation screws of the LED +IR and headphone bracket. By then pull backwards the bracket with the extended handgrip.

Also the LED + IR panel and the HEADPHONE panel can be easily clicked out of it's bracket by releasing the clicks.

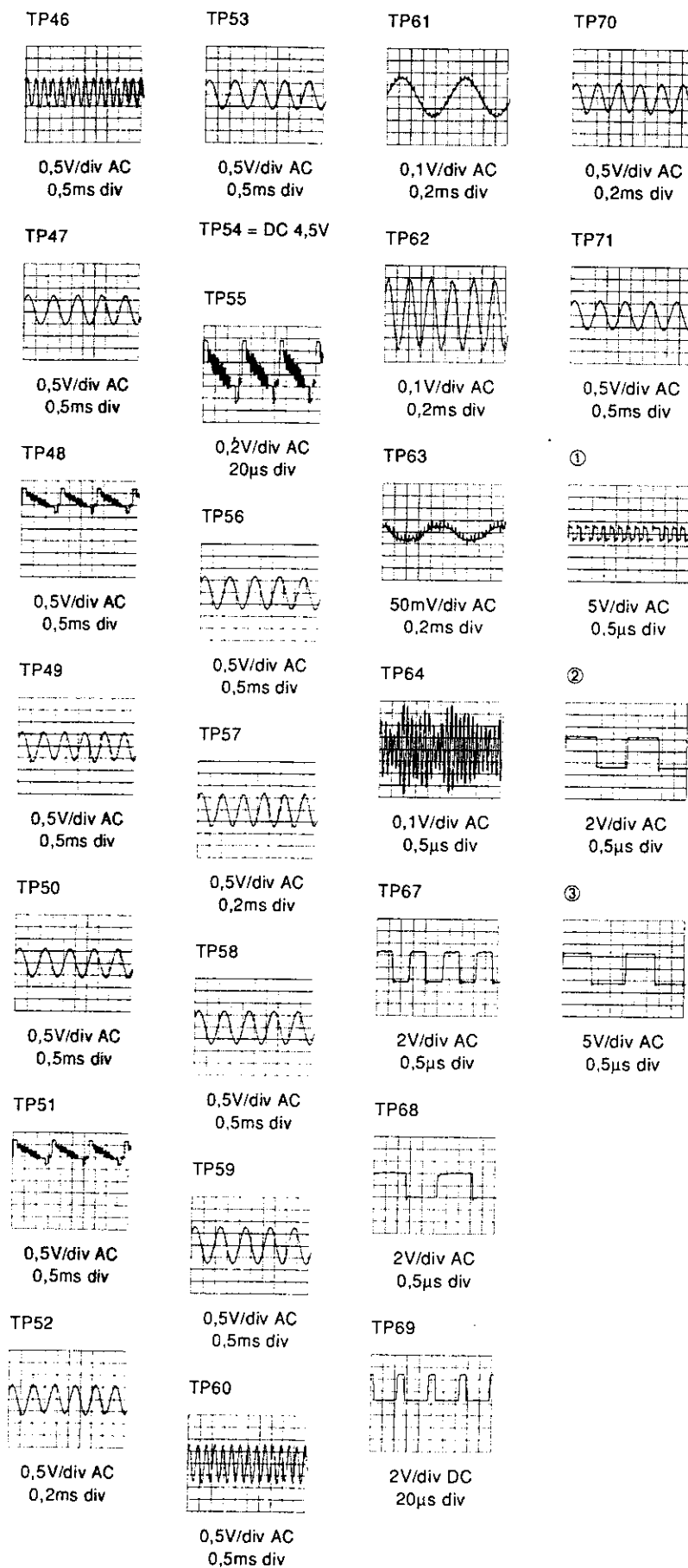




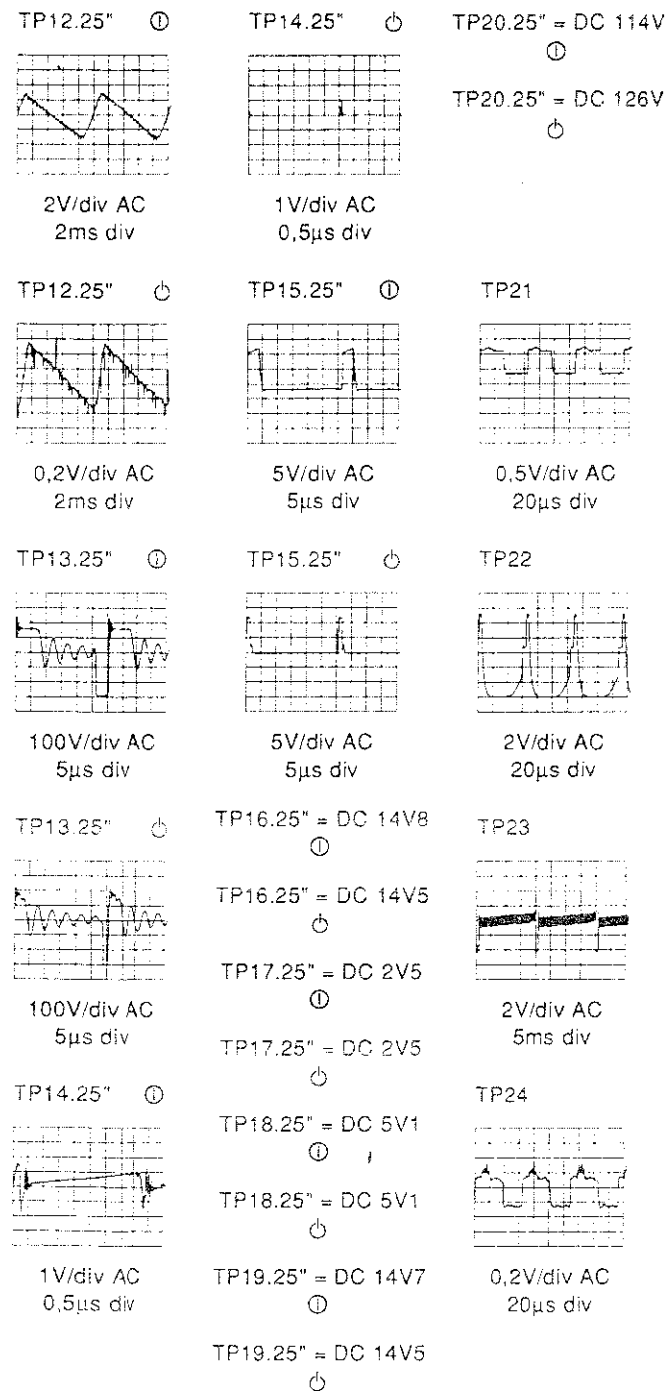




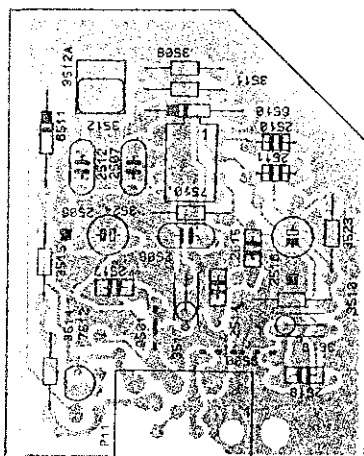
Overview oscillograms / Sumario de oscilogramas



11a



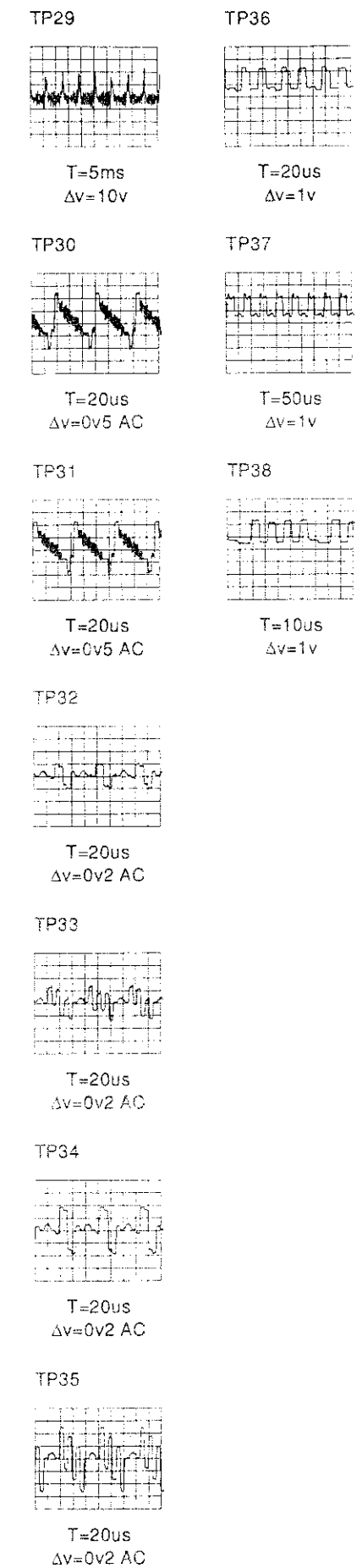
Power supply control panel 25"

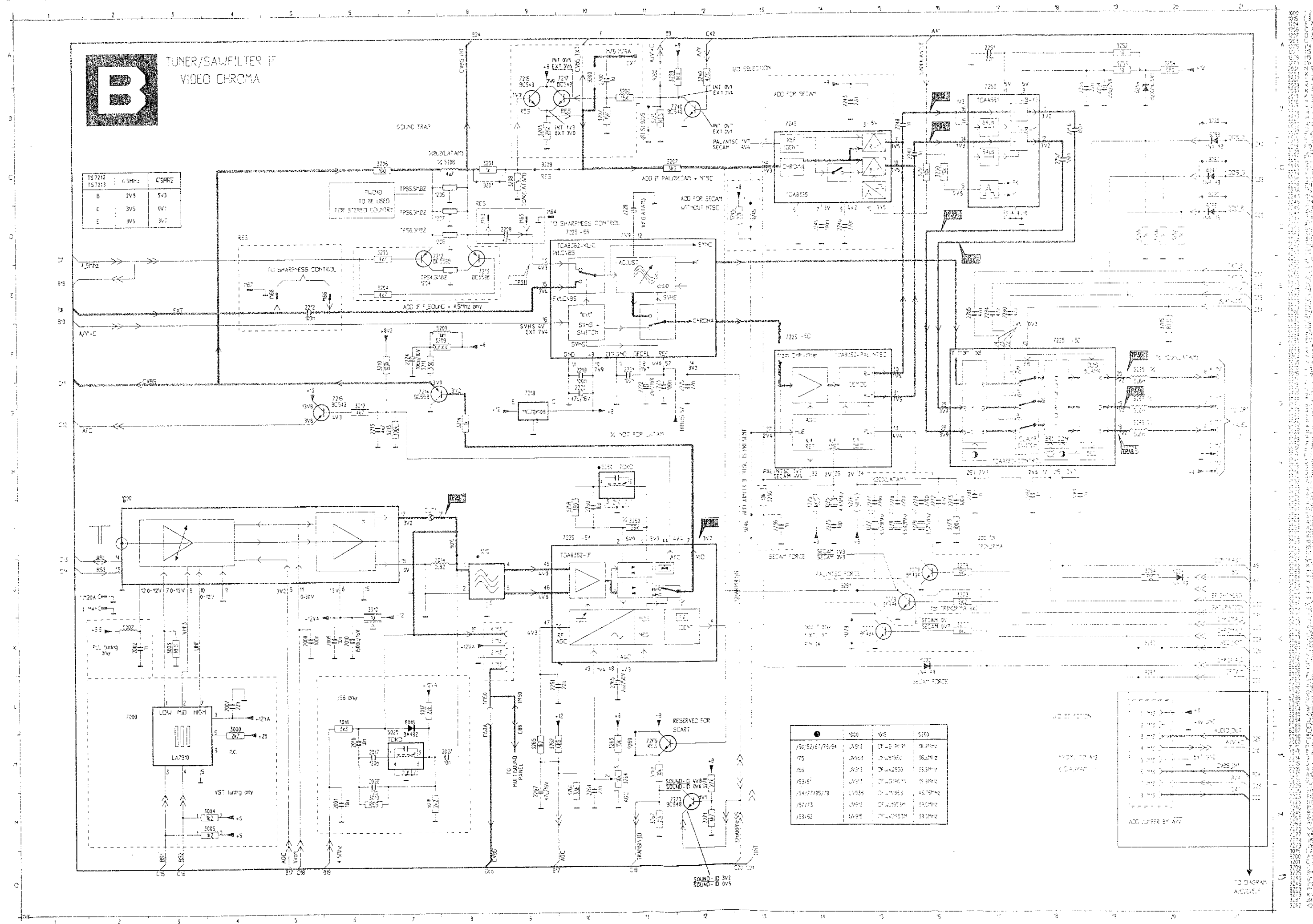


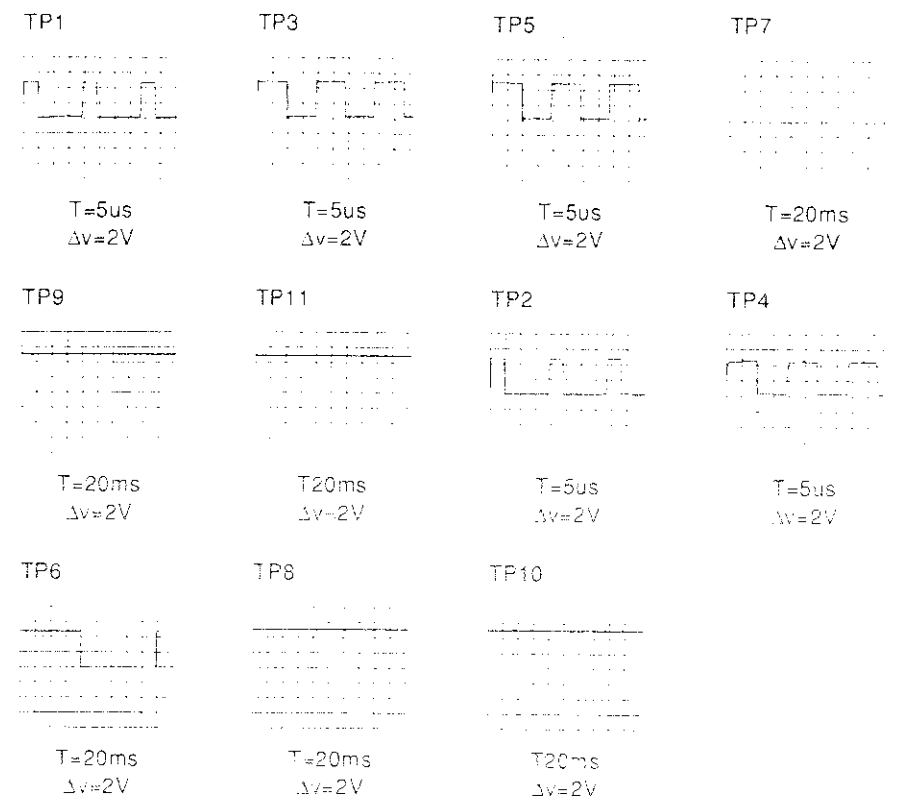
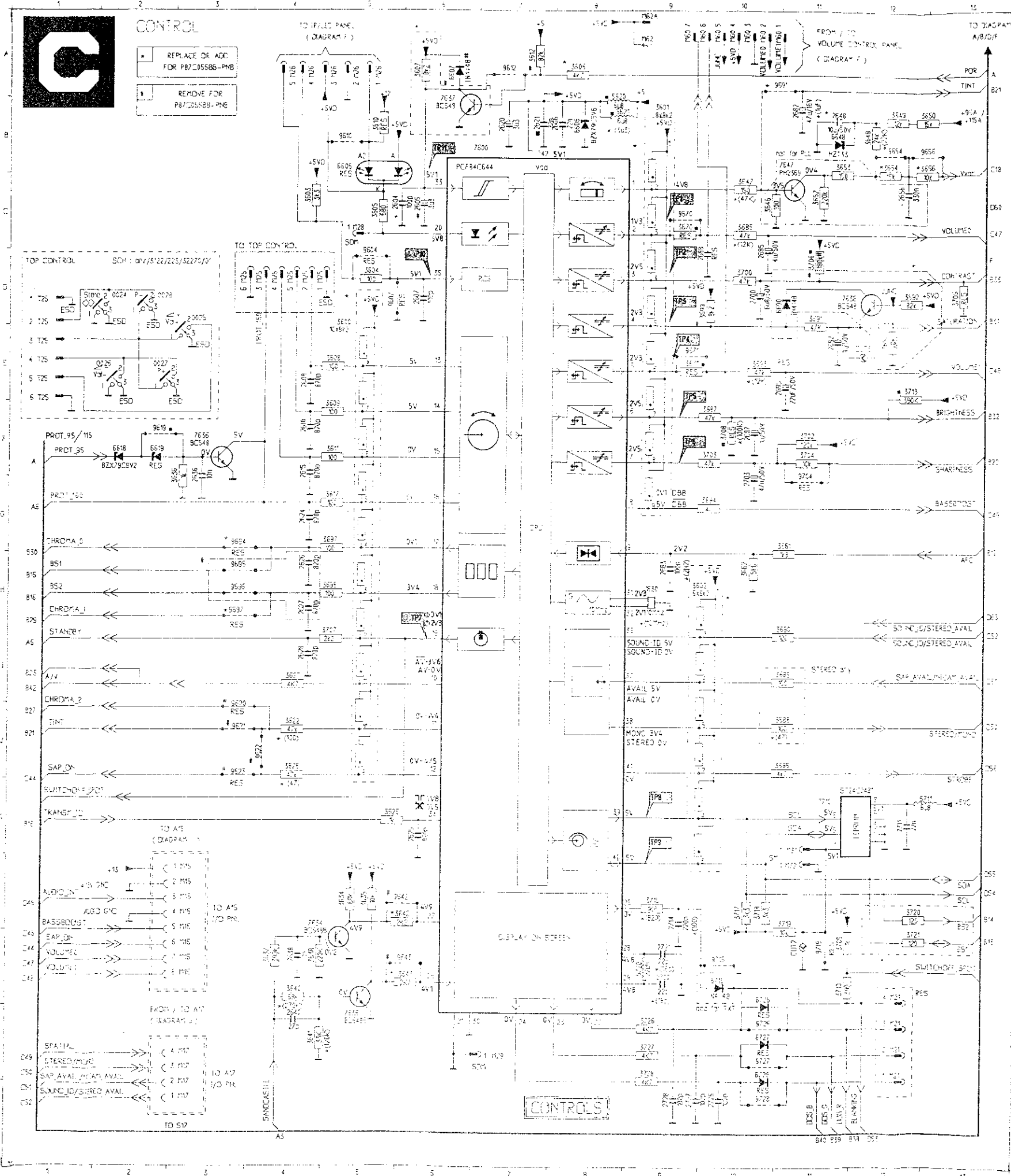
P11		M11
1	--- GND - HOT	1
2	--- FEEDBACK	2
3	--- START - UP	3
4	--- DRIVE	4
5	--- SENSE	5
6	--- SENSE	6

CI 46537008/11E
270194

Tuner + IF + Video

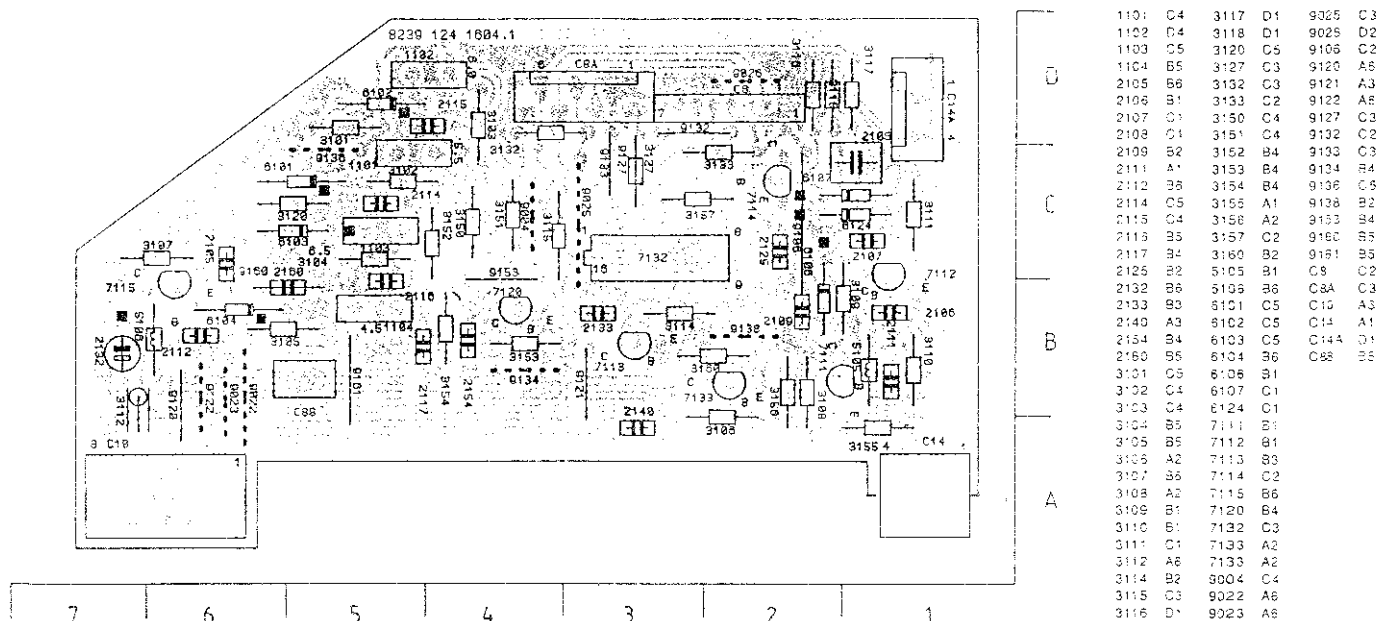






	for PCA84C644P	21"	25"
2621		22n	--
3670		560Ω	jumper
3671		560Ω	jumper
3706		--	180k
3708		100k	--
3713		--	390k
5620		3μ3	6μ8
5621		3μ3	6μ8
9619		--	jumper

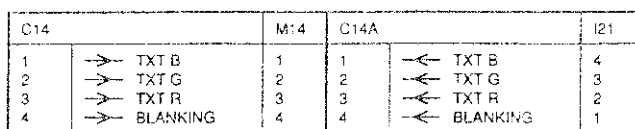
	for P87C055BBPNE (South America)	21"	25"
2620		--	1μ
2621		22n	--
3708		100k	--
3713		--	390k
9619		--	jumper



List of abbreviations / Lista de abreviatures

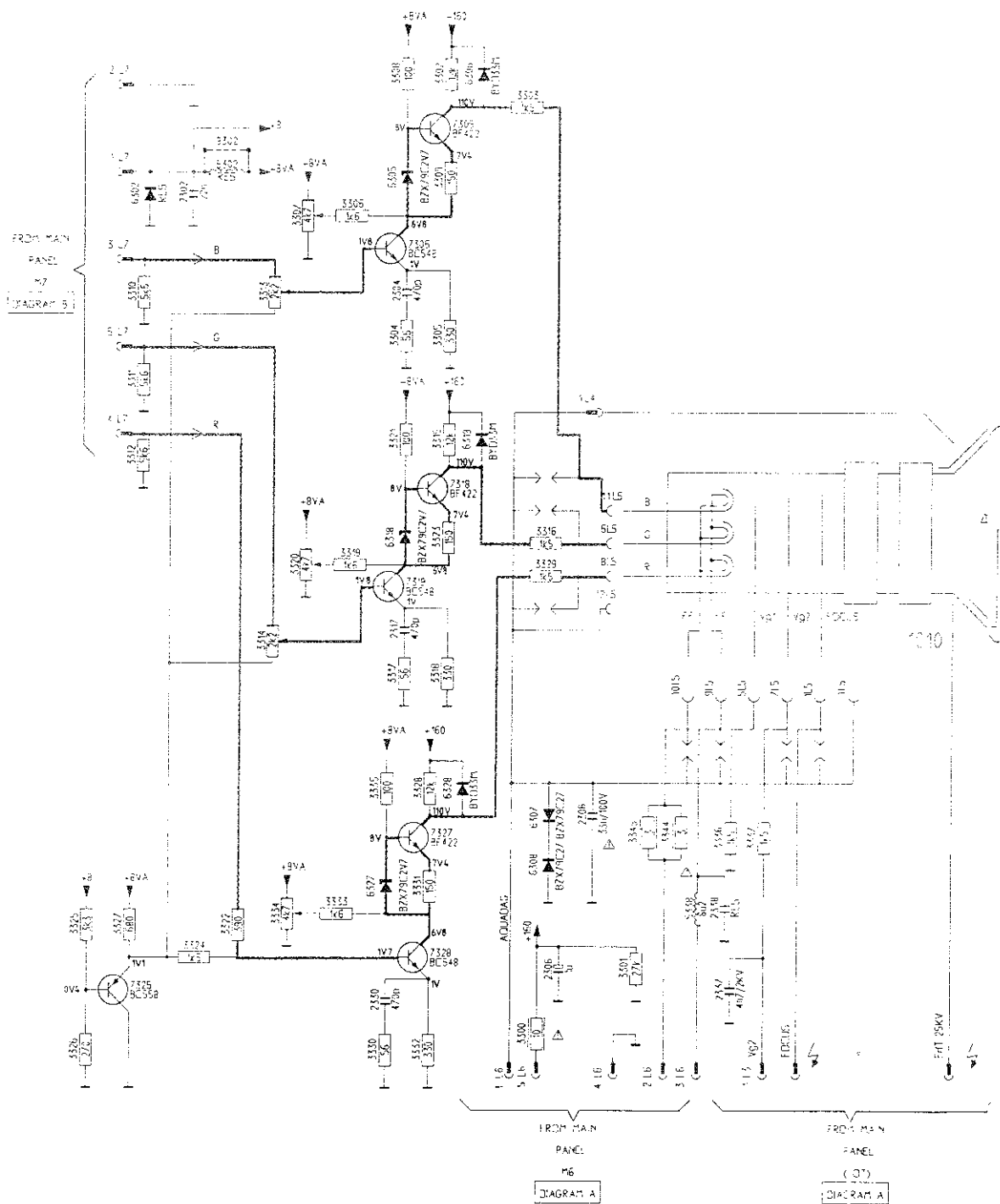
+95/-115	+95/-115 Supply voltage from the power supply to the line output stage	NIL	Non Interface
2CS	Two carrier system (stereo sound system with 2 different sound carriers for L-R and 2R sound info)	NOT-SVHS	Status signal; "open" if SVHS connector inserted and "high" if SVHS connector not inserted
4.5 MHz	Status signal; "low" sound trap also blocks 4.5 MHz and SAW filter adjusted at 33.4 MHz (for NTSC M)	NTSC	National Television System Committee
A.V.	Status signal; "high" for external CVBS, "low" for internal CVBS	OSD (DOS)	On Screen Display (in diagrams Display On Screen)
A.V.	Status signal; "low" for external CVBS, "high" for internal CVBS	PB	Play Back
A.V.8V	Status signal; "low" (0V) for external CVBS, "high" (8V) for internal CVBS	PLL	Phase Locked Loop
A.V. + C	A.V. status signal with chrominance part of SVHS superimposed on it	POR	Power On Reset
AF1	Demodulated audio signal L + R (so low frequency audio signal)	PROT_160	Status signal; switching set in standby in case beam current is too high (so BCI too low)
AF2	Demodulated audio signal 2R (so low frequency audio signal)	PROT_95/-115	Status signal; switching set in standby in case +95 exceeds 110V +115 exceeds 100V
AFC	Automatic Frequency Control	QSS	Quasi Split Sound Extracts L-R and 2R audio output and SIF info from tuner IF
AGC	Automatic Gain Control	R-NT	Low frequency 2CS demodulated (IC7800) sound from R channel
AUDIO_IN	Volume controlled LF audio signal from pin 50 IC7225-6F (mono FM sound decoder) to Multisound panel	RC5	Remote Control 5 system
AUDIO_OUT	Not volume controlled LF audio signal from pin 1 IC7225-6F (mono FM sound decoder) via 2CS panel to BTSC or NICAM	RGB	Red Green Blue
BASSBOOST	Status signal; "low" for bassboost "on"	SAP	Second Audio Program
BCI	Beam Current Info, if beam current increases the BCI signal decreases	SAP_AVAIL	Status signal; pulled "low" by BTSC panel if SAP is available
BF_VOLUME	Pulse width modulated volume control signal from µP before Volume Control Panel	SAP_ON	Status signal; "low" for SAP selected
BQS 52	Signal coming from pin 52 IC7225-6B to pin 36 IC7225-6E preventing IC7225 being "changed" at ESD flashes	SAW	Sawtooth signal coming from frame IC7100 which is inverted and integrated to an inverted parabola for EW correction in 25"
B81	For VST sets bandswitching signal; for PLL sets SDA from IFC	SCL	Clock of the IFC-bus
B82	For VST sets bandswitching signal; for PLL sets SCL from IFC	SDA	Data of the IFC-bus
BTSC	Broadcast Television System Committee (L-R and L+R)	SDM	Service default mode
C-REAR	Chrominance part from SVHS signal	SEC	Status signal; "low" forces IC7225-6C to SECAM (Sequential Couleur à Mémoire) chroma decoding mode
CRT	Picture tube	SHARPNESS CONTROL	Provision for possible future enhanced sharpness control features
CVBS	Colour Video Blanking Sound	SIF	Second Intermediate Frequency; Signal with only audio info on 5.5, 5.74, 6.5 and/or 6.74 MHz sound carrier(s) (same signal as CVBS)
CVBS'	Signal with only audio info on 5.5, 5.74, 6.5 and/or 6.74 MHz sound carrier(s) (same signal as SIF)	SM	Service mode
CVBS_INT	Off-air CVBS (from tuner) after sound trap to I/O + interface panel	SOUND_ID	Status signal; pulled "low" by multisound panel if current selected sound system is not correct
EEPROM	Electrical Erasable Programmable Read Only Memory	SOUND_IF	LF sound signal from Multisound panel to FM mono decoder IC7225-6F
EXT	Extra High Tension (25 kV)	SPATIAL	Status signal; "high" gives spatial mode
EXT (Y)	CVBS from I/O + interface panel (EXT) or luminance part of SVHS (Y)	STATUS	Status signal; DC level at positive side C2 87 "high" if headphones inserted and "open" if no headphone
FM-MONO	Low frequency FM demodulated sound from IC7225-6F	STEREO/AVAIL	Status signal; pulled "low" by BTSC decode if stereo sound is available
FRONT-IO	Status signal; only used if front AV IN is present; "high" if CVBS from: plug is inserted so FRONT AV and "low" for REAR AV	STROBE	Strobe signal from microprocessor to control IC7132 at multisound panel
HOR	Horizontal	SWITCHOFF SPOT	Status signal equal to standby status signal direct activating blanking at switching set to standby
HUE	Tint adjustment for NTSC system	TINT	Pulse width modulated control signal for hue control
IFC	Digital control bus of the microcomputer	TRANS_ID	Status signal; "high" for hor. sync. present a video identification
IF	Intermediate Frequency	V in	The DC voltage across C2505 present at pin 11 of the primary side of the transformer
IFC	IF signal from tuner to QSS panel	V-VARI	Tuning voltage (0-30V) for VST, 30V for PLL
JUNC	Power supply voltage coming from volume control panel supplying saturation control at diagram C	VG2	Voltage on Grid 2 of the picture tube
KAR_SUPPLY	Supply voltage for Karaoke (optional)	VST	Voltage Synthesized Tuning
L-INT	Low frequency 2CS demodulated (IC7800) sound from L-channel	Y	Luminance part of the video signal
MPX	Multiplexed BTSC signal	Y-REAR	Luminance part from SVHS signal
MUTE	Status signal; equal to SOUND-ID status signal from multisound muting the sound at system search		
NICAM_AVAIL	Status signal; pulled "low" by NICAM panel if NICAM available		

C10	M10	C8	M8	C8A	A8
1	→ SOUND IF	1	← GND	1	← NC
2	→ 4.5MHz	2	← SCL	2	← GND
3	→ AUDIO - INT	3	→ SDA	3	→ MUTE
4	→ CVBS	4	→ +5VD	4	→ NC
5	→ SECAM	5	→ SOUND ID/	5	→ SDA
6	→ +8V	6	→ STEREO AVAIL	6	→ SCL
7	→ SECAM NOT	7	→ SPATIAL		
8	→ GND	8	→ STROBE		

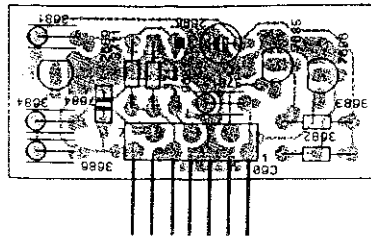




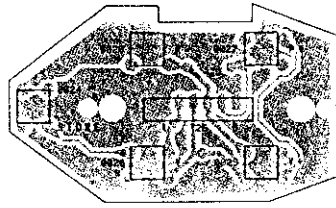
CET 21



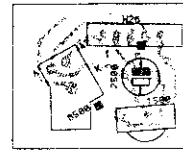
Volume control panel

CL 46532008-11H
27C194

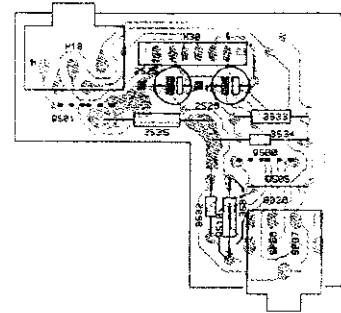
Top control panel

CL 46532008-11K
27C194

LED + IR panel

CL 46532008-11L
27C194

Headphone panel

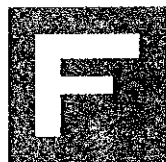
CL 46532008-11M
27C194

A15	M15	A8	C8A	A4	Q4	A1 (NICAM)	N1
1 VOL 1	8	1 SCL		1 SIF	1	1 NICAM /	7
2 VOL 0	7	2 SDA		2 GND	2	2 BTSC - R - OUT	
3 SAP ON	6	3 NC		3 AF2	3	3 GND	6
4 BASS BOOST	5	4 MUTE		4 GND	4	4 NICAM /	5
5 AUDIO GND	4	5 GND		5 AF2	5	5 BTSC - L - OUT	
6 NC	3	6 NC				6 FM - GND	4
7 GND	2					7 FM - MONO	3
8 +13V	1					8 IF - GND	2
						9 SIF	1
A13	M13	A8A	M8	A2 (NICAM)	N2	A1 (BTSC)	B1
1 EXT	8	1 NC	7	1 NC	8	1 NICAM /	7
2 A/V	7	2 SCL	6	2 NC	7	2 BTSC - R - OUT	
3 CVBS INT	6	3 SDA	5	3 NC	6	3 GND	6
4 EXT GND	5	4 NC	4	4 NICAM - AVAIL	5	4 NICAM /	5
5 A/V + CHROMA	4	5 MUTE	3	5 SDA	4	5 BTSC - L - OUT	
6 AUDIO OUT	3	6 GND	2	6 SCL	3	6 FM - GND	4
7 GND	2	7 NC	1	7 GND	2	7 FM - MONO	3
8 +5V	1			8 +5V	1	8 IF - GND	2
						9 SIF	1
A17	M17	A40	F40	A2 (BTSC)	B2	A19	LS
1 SPATIAL	4	1 CVBS - GND	6	1 STEREO / MONO	8	1 -L	-L
2 STEREO / MONO	3	2 CVBS - FRONT	5	2 SAP - ON	7	2 GND	
3 SAP AVAIL /	2	3 R - FRONT	4	3 STEREO - AVAIL	6	3 +L	+L
NICAM AVAIL	1	4 AUDIO - GND	3	4 SAP - AVAIL	5		
SOUND ID /		5 L - FRONT	2	5 NC	4		
STEREO AVAIL		6	1	6 NC	3		
				7 GND	2		
				8 +8V	1		
A36	M36	A30	H30	A18	LS	A20	LS
1 SUPPLY A	2	1 -L	6	1 -R	-R	1 +SUB	+SUB
2 GND	1	2 +L	5	2 GND		2 GND	
		3 -R	4	3 +R	+R	3 -SUB	-SUB
		4 STATUS	1				
A41	M41					A22	A22A
1 GND	1					1 +SUB	3
						2 GND	2
						3 -SUB	1

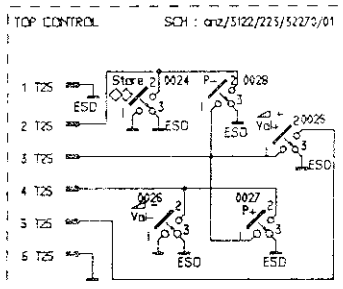
CL 46532008-11P
27C194

3105	G7	3276	F5
3106	F7	3277	F5
3108	F7	3278	F5
3110	G8	3283	F7
3112	G7	3285	B7
3115	G7	3286	B7
3116	G7	3287	D6
3120	D7	3289	G6
3121	D7	3291	F4
3124	D7	3294	D7
3126	E7	3295	D7
3130	H7	3296	G7
3135	D7	3297	F7
3136	G9	3300	B8
3137	G8	3311	E4
3140	G9	3315	G2
3141	G8	3316	G2
3143	F8	3320	G2
3144	F8	3321	G3
3145	F8	3325	G3
3146	F8	3801	C1
3147	E8	3803	D1
3148	E8	3804	D1
3149	E8	3807	S1
3150	D8	3808	C3
3151	G8	3810	B1
3152	D8	3811	B1
3153	F8	3820	E2
3154	E8	3821	D1
3155	E8	3822	E1
3156	F8	3823	F2
3157	C8	3824	F1
3158	D8	3825	F2
3159	D7	3826	F2
3160	F10	3827	F2
3161	E9	3828	F1
3162	D10	3829	F1
3163	D9	3900	H9
3164	C8	3901	H9
3165	A8	5202	F3
3166	A8	5201	D6
3167	B8	5801	C2
3168	B8	6101	E7
3169	C8	6140	G8
3170	F8	6186	C10
3171	D8	6190	D8
3172	C8	6191	D8
3173	C8	6192	D9
3174	D8	6193	F8
3175	B8	6194	F9
3176	B8	6195	E8
3177	B8	6196	B8
3178	B9	6198	C6
3179	E10	6199	B10
3180	E10	6201	C5
3181	B8	6202	C5
3182	A8	6203	C5
3183	F10	6204	C5
3184	D10	6205	B7
3185	F10	6206	D10
3186	D10	6207	H5
3187	B10	6208	B7
3188	B10	6217	B4
3189	B8	6222	S7
3190	H7	6270	E4
3191	A8	6275	E7
3192	G6	6276	E7
3193	H6	6295	C6
3194	H7	6296	B9
3195	H6	6297	B4
3196	B9	6298	G3
3197	A9	6823	F2
3198	B10	6828	F2
3199	A9	7105	F7
3201	B5	7106	F7
3202	B5	7110	F7
3203	D5	7115	G7
3204	B5	7120	E6
3205	B4	7125	G7
3206	C5	7130	G7
3207	C4	7135	E7
3208	B5	7140	G8
3209	B4	7150	B8
3210	B7	7161	D7
3211	C7	7162	E8
3212	H5	7169	F9
3213	B7	7191	D9
3214	H5	7192	B9
3215	C6	7193	C5
3216	B6	7194	C5
3220	D4	7195	C8
3221	C4	7196	B10
3223	C3	7205	C5
3224	C3	7208	C4
3225	C3	7219	E4
3226	B4	7228	E3
3227	D3	7229	D4
3228	C4	7240	F3
3229	E3	7250	G3
3230	D3	7260	F3
3231	D3	7261	F7
3232	D3	7265	E6
3233	D3	7266	E7
3235	D2	7270	G5
3236	D2	7275	F5
3238	G2	7275	F5
3239	G2	7280	F5
3241	B3	7285	C7
3242	B5	7291	F4
3243	B3	7315	G3
3244	C4	7320	G3
3245	H4	7321	G3
3246	D5	7800	C2
3247	D4	7820	E1
3249	F4	7825	E2
3249	F4	7826	E1
3250	G4	7829	F1
3251	G4	9000	36
3252	C7	9001	E2
3253	F6	9002	E2
3254	C6	9003	E8
3255	F6	9004	36
3256	E5	9005	28
3257	F6	9006	36
3258	F7	9007	28
3259	F6	9008	36
3260	F7	9009	37
3261	E5	9010	17
3262	E5	9011	16
3263	E6	9012	36
3264	F6	9013	24
3265	E7	9014	34
3266	C8	9015	24
3267	C8	9016	22
3268	B6	9017	22
3269	B6	9018	22
3270	G5	9019	36
3271	G5	9020	24
3272	E5	9021	2
3273	H5	9022	13
3275	E5	9023	16

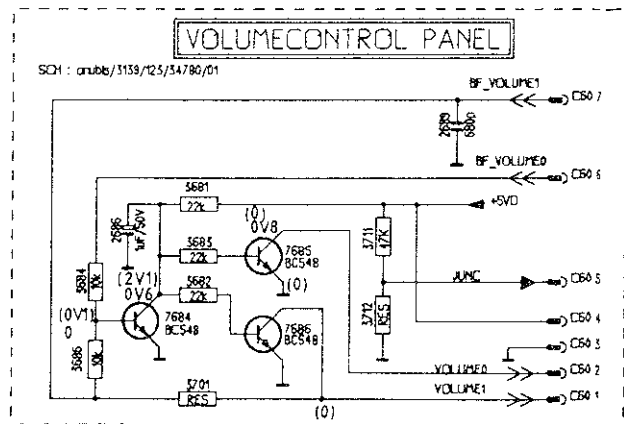
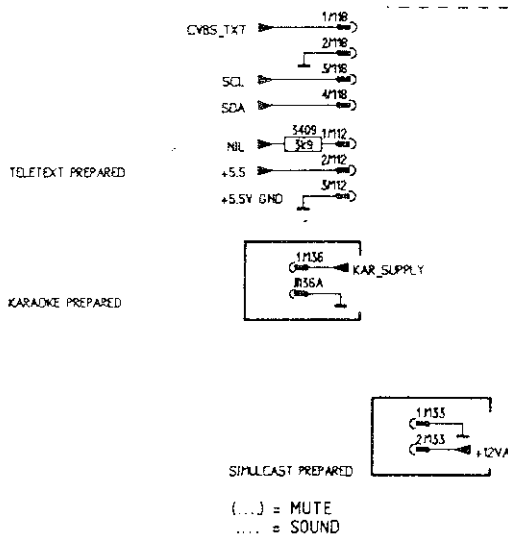
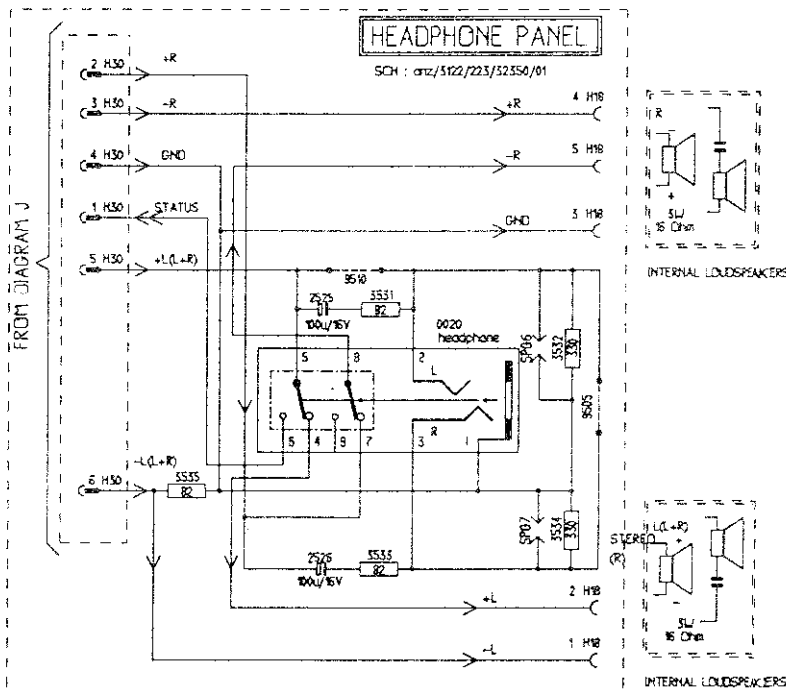
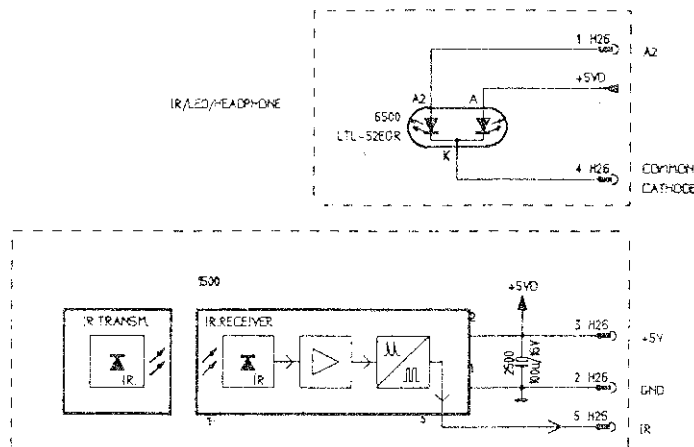
Volume control / Top control / LED + IR / Headphone

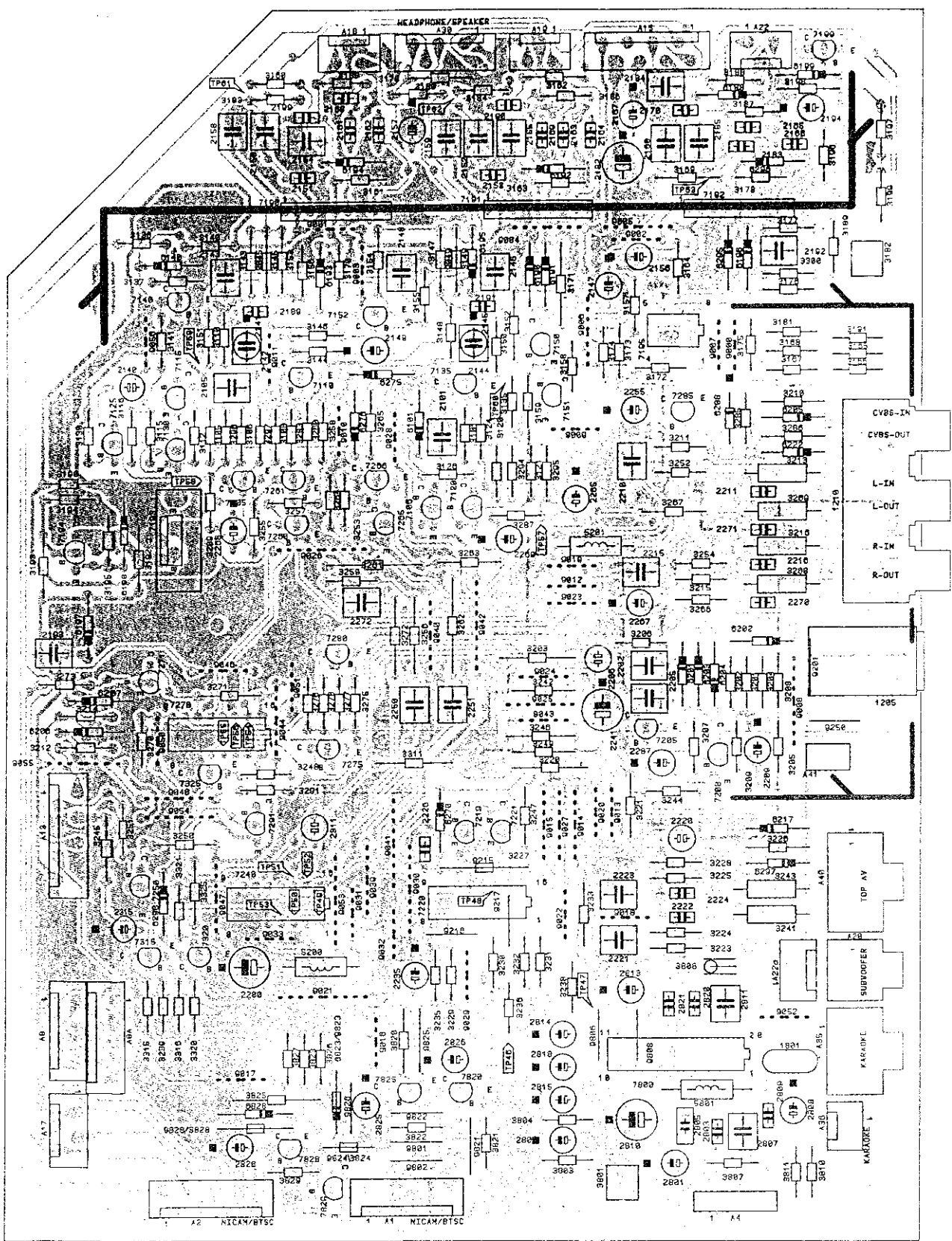


FEATURES

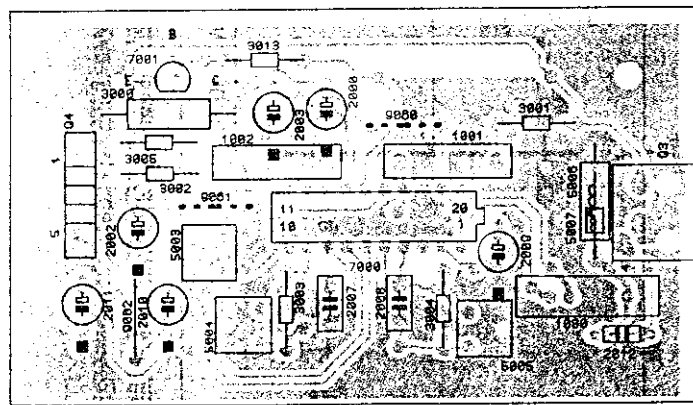
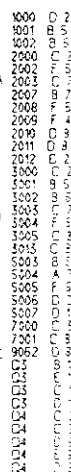


	MONO	STEREO
2125	-	100u/16V
2126	-	100u/16V
5131	-	B2
5132	56	550
5133	-	B2
5134	-	550
5135	B2	-
9005	J.P.P	-
9110	J.P.P	-
X13	-	L7TB
X14	L7TB	L7TB





H			G			F			E			D			C			B			A									
205	A5	2147	C8	2155	E8	2182	C5	2202	C5	2224	C3	2271	B6	2810	C1	3024	D5	3041	E4	3053	F3	3068	C2	A8A	A2	A4	A6	A8	A10	A12
210	A6	2148	F8	2160	C8	2183	B8	2203	C5	2226	C4	2272	E6	2811	C2	3025	D5	3042	E5	3054	G4	3069	E1	A13	H4	A41	B1	B3	B5	B7
215	B2	2149	E8	2161	F9	2184	C10	2204	E5	2235	E3	2267	C4	2813	C3	3026	F6	3043	D5	3055	H4	3070	C2	A15	C10					
220	B7	2150	F9	2162	C9	2185	C9	2205	B4	2241	D5	2211	F4	2814	D2	3027	D4	3044	F5	3056	G8	3073	F2	A17	H1					
225	F7	2151	F9	2163	D9	2186	F8	2210	C7	2250	E5	2315	G3	2815	D2	3028	E7	3045	F8	3071	B5	3074	F1	A16	F10					
230	G7	2152	F9	2164	D9	2187	D10	2211	B7	2251	E5	2801	C1	2818	D2	3029	E3	3046	G5	3075	D4	3075	E2	A19	C10					
235	F8	2153	D9	2165	B9	2188	D9	2215	C6	2255	C7	2802	D1	2820	C2	3030	F3	3047	G3	3076	F3	3076	F2	A20	A3					
240	F8	2154	F9	2166	B9	2189	B9	2216	B6	2265	D6	2803	C1	2821	C1	3031	F3	3048	G4	3077	D3	3077	F1	A22	D10					
245	G8	2155	C9	2167	C10	2193	H5	2220	C4	2266	C4	2804	C1	2822	E2	3032	E2	3049	E2	3078	E5	3078	E4	A22a	B5					
250	E8	2156	C8	2168	F10	2194	B10	2221	C3	2268	F6	2807	B1	2826	E2	3033	F3	3050	G5	3081	E1	A2	G1	A3	E10					
255	E8	2157	C8	2169	D9	2195	F10	2222	C3	2269	D6	2808	B2	2828	F1	3034	E3	3051	F5	3082	E1	A4	B1	A35	A2					
260	D8	2158	F9	2170	C10	2199	F3	2223	C3	2270	B6	2809	B2	3101	E7	3040	E5	3052	B2	3086	D2	A8	H2	A36	B1					



1000 A1
1001 B2
1002 B3
2000 C3
2002 B4
2003 C3
2007 A3
2008 A2
2009 B2
2010 A4
2011 A5
2012 A1
3000 C4
3001 C2
3002 B4
3003 A3
3004 A2
3005 B4
5003 B4
5004 A4
5005 A2
5006 B1
5007 B1
7000 A3
7001 C4
9000 C2
9061 B4
9262 A4
Q3 B1
Q4 B5

Q3		M3	Q4		A4
1	CVBS	1	1	SIF	1
2	GND	2	2	GND	2
3	+12VA	3	3	AF2	3
4	IF	4	4	GND	4
			5	AF1	5

Description QSS, 2CS, I/O+interfacing and amplification

QSS (Diagram G)

- From the IF signal, coming from the tuner, the following signals are extracted on the QSS panel:
 - AF1**: L+R demodulated low frequency audio signal for 2CS stereo sound dematrixing in IC7800.
 - AF2**: 2R demodulated low frequency audio signal for 2CS stereo sound dematrixing in IC7800.
 - CVBS' = SIF**: Audio info on sound-carrier for NICAM or BTSC sound decoding (so not demodulated yet). In this CVBS'/SIF the following audio signals can be present: 4.5 MHz for M reception, 5.5 and 5.74 MHz for PAL BG 2CS stereo, 6.5 and 6.74 MHz for PAL DK 2CS stereo, 6.0 MHz for PAL I mono, 5.85 MHz for NICAM BG and 6.25 MHz NICAM I.
- For **2CS BG stereo** sets filters 1002/1001 and coils 5004/5005 are tuned at resp. 5.5 and 5.74 MHz and 5003 at 38.9 MHz.
- For **2CS DK stereo** sets filters 1002/1001 and coils 5004/5005 are tuned at resp. 6.5 and 6.74 MHz and 5003 at 38.9 MHz.
- For **NICAM BG or NICAM I** only sets, only coil 5003 is present and tuned at 38.9 MHz.
- If QSS is present CVBS from IF-detector IC7225-6A is only used for video processing and not for audio processing any more. Also if QSS is present C2119 (diagram D) is not present. The sound path is as follows (see diagram B, D and G):
 - In case the **multisound panel is present** CVBS from the IF-detector IC7225-6A is not used for multisound as jumpers 9120 and 9121 on multisound panel are not present. CVBS' from QSS panel is used for multisound panel via a wire from 1M50 to 1C88 from main carrier to multisound panel (jumper 9153 on multisound panel is present). After passing through the correct sound carrier on the multisound panel, the undemodulated audio signal is fed (via SOUND_IF) to IC7225-6F for FM mono sound demodulation.
 - In case the **multisound panel is not present** CVBS' from QSS panel is fed to IC7225-6F via a wire from 1M50 to 1M50A and filters 1105 and/or 1106 (CVBS is not used as C2119 is not present if QSS is present).

2CS (Diagram H)

- 4 main functions of IC7800 (TDA9840)**:
 - Dematrixing AF1 (L+R) and AF2 (2R) to L and R audio signals. R3801 is used to align the stereo separation.
 - Detect MONO, STEREO or DUAL available; send this info to μC via I²C.
 - Source select between "internal" L & R (extracted from pin 7 and 8 IC7800) or L & R from input pins 9 & 10 IC7800. Control from μC via I²C.
 - Source select DUAL I or DUAL II via I²C from μC .
- If **no NICAM or BTSC** panel is present, then jumpers 9801 and 9802 are present passing through AUDIO_OUT from FM-mono detector IC7225-6F to pin 9 and 10 IC7800.
- If NICAM or BTSC panel is present, then L-OUT and R-OUT (low frequency audio signals from NICAM or BTSC) is fed to pin 9 and 10 IC7800.
- Jumper 9821** is present in case of BTSC reception via the QSS panel; by then AF1 signal is used for BTSC decoding and not the AUDIO_OUT signal from IC7225-6F.
- The **amplitude** of the AUDIO_OUT signal from IC7225-6F is adapted to the same level as L and R internally in IC7800 by TS7820 and TS7825.
- If multisound panel is present **TS7828 and TS7829** is present. TS7829 will mute FM-MONO signal while multisound panel is searching for the correct sound system (while searching SOUND_ID and so MUTE is "low"; < 0.8V).

I/O + INTERFACING (Diagram I)

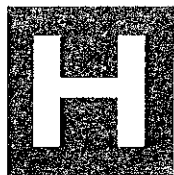
- IC7220** switches between REAR AV-IN (from SVHS or SCART) **OR** FRONT AV-IN. The FRONT-ID status signal switches IC7220 and is "high" in case CVBS cinch in FRONT-AV panel is inserted (mechanical switch). So Front AV has priority to Rear AV if both are present.
- IC7240** switches between AV-INT (aerial) **OR** AV-EXT

(from REAR or FRONT via IC7220). The A/V status signal switches IC7240 and is "high" for INT and "low" for EXT.

- IC7270** switches between:
 - Stereo **OR** mono sound (input pin 12-13). If status signal STEREO/MONO is "low" for stereo and "high" for MONO (L-OUT and R-OUT are shortcircuited).
 - CVBS-INT/EXT from IC7240 **OR** CVBS from SVHS to CVBS-monitor out (input pins 12-13 IC7270).
 - A/V' **OR** A/V+C (A/V'+C is A/V' status signal with superimposed on it the chrominance part of the SVHS) (input pins 1-2 IC7270).
- Switching for output pins 4 and 15 (resp. CVBS-monitor out and A/V' with or without C-SVHS) are driven by pin 9 and 10 IC7270 in parallel via the status signal:
 - NOT-SVHS** is "open" (or high ohmic) for SVHS connector inserted and "high" for SVHS connector not inserted (mechanical switch).
 - A/V(8V)** is "high" for INT and "low" for EXT (so the same polarity as the status signal A/V but then switching with 0V and 8V).
 - F-ID** is "high" if CVBS front plug is inserted (so FRONT AV) and "low" if not inserted (so REAR AV). The F-ID status signal will only be used if Front AV panel is present.
- If **SVHS plug is not inserted**, then NOT-SVHS is "high". Both switches are in the lower position so CVBS-INT and A/V' without chroma is selected at pin 15-4 IC7270 independent of F-ID and A/V(8V).
- If **SVHS plug is inserted**, then NOT-SVHS is "open".
 - Only if F-ID and A/V(8V) are both "low" (so REAR AV and EXT AV selected) pin 9 and 10 IC7270 will be "low". Both switches are in the upper "SVHS-position" (CVBS-SVHS to monitor out and A/V'+C to IC7225-6B). So SVHS has priority to REAR AV in cinches if both are inserted.
 - If one or both F-ID and A/V(8V) are "high" pin 9 and 10 IC7270 will be "high". Both switches are in the lower position (CVBS-INT/EXT from IC7240 to CVBS monitor out and A/V'+C).

AMPLIFICATION (Diagram J)

- SPATIAL**: circuitry around TS7105, 7120, 7115 and 7130 is spatial circuitry. Spatial feature is activated if SPATIAL status signal is "high".
- HIGH PASS FILTER**: This filter passes through the mid and high frequency ranges for the squeezer-amplifiers IC7190 and IC7191. For R-channel this filter is formed by C2141 and R3143 and R3153. For L-channel this filter is formed by C2144 and R3147 and R3154. If a headphone is connected the filters are deactivated to give full frequency range to IC7190 and 7191 for headphone (see STATUS).
- The **LOW PASS FILTER** for the subwoofer only passes through the low tones to IC7192. Low pass filter by C2167 and R3151, R3152 (R3157 for BASSBOOST "on", so "low") and by C2184 and R3169.
- IC7195** is used to determine the highest volume control level of VOLUME-0 and VOLUME-1. This highest control level is used for controlling the subwoofer amplifier at pin 5 IC7192.
- The **BIAS** voltage makes a stable collector current through TS7266 and TS7261 (diagram I) and a stable supply voltage for the spatial circuitry (diagram J) independent of a ripple on +13V.
- The **STATUS** status signal (DC at the positive side of C2157) is "high" if headphone plug is inserted and "open" if no headphone plug is inserted.
 - If **no headphone**, STATUS is "open" so IC7195 can determine correct volume control level for the subwoofer amplifier.
 - If **headphone is inserted**, STATUS is "high" and so output of IC7195 is zero. The subwoofer is muted. Also TS7151 will not conduct any more, so C2149 will not block the low frequencies (low pass filtered by R3155 and C2148) of L+R at the basis of TS7152 any more. The L+R low frequencies will be added to the mid and high frequencies from the L & R channels and so make a full range sound to the headphone.
- If **HEADPHONE** is inserted the speaker sound is muted on the headphone panel.



2CS

- NOT PRESENT FOR MULTISOUND
- ▲ PRESENT FOR MULTISOUND

- STEREO/MONO SLP-IN
- SOUND ID/STEREO AVAIL
- SAP AVAIL/NICAM AVAIL
- SDA
- SCL
- +80

- SIF
- FM-MONO
- NICAM/BTSC-L-OUT
- NICAM/BTSC-R-OUT

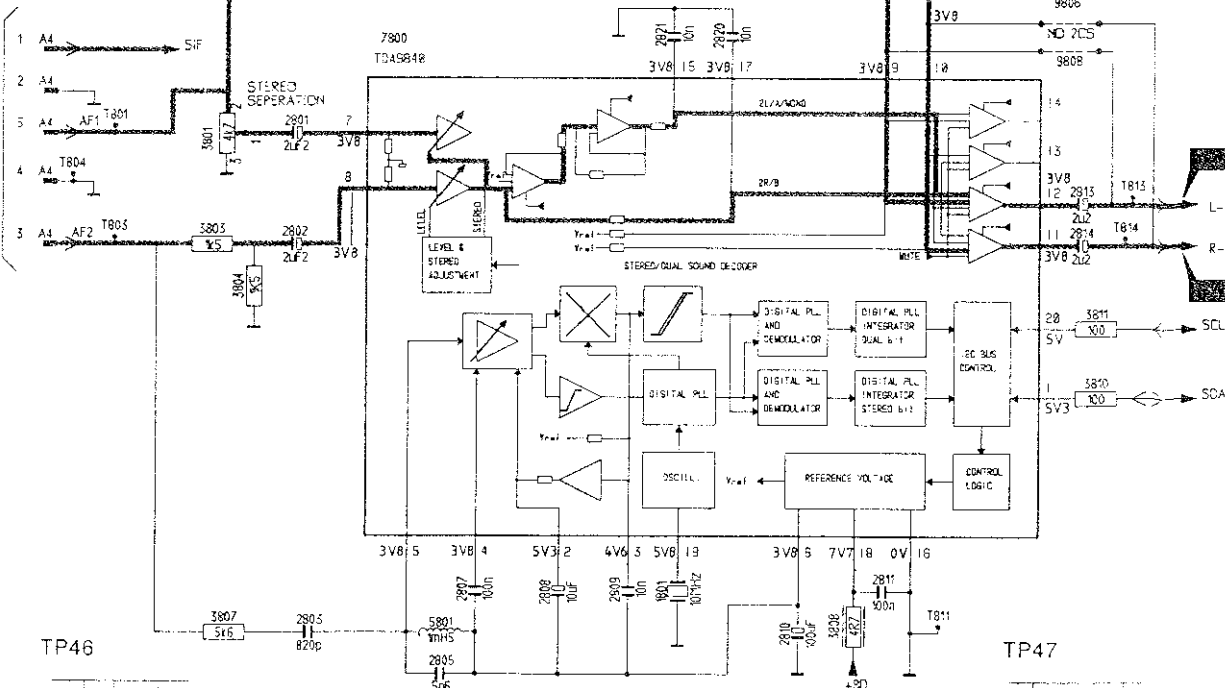
FROM/TO NICAM/BTSC PANEL (DIAGRAM K / L)

ONLY FOR BTSC & QSS

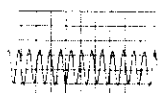
ONLY FOR MULTISOUND

NO NICAM/BTSC

FROM QSS PANEL (DIAGRAM G)

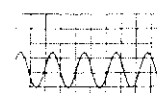


TP46



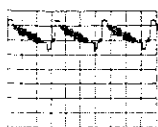
0,5V/div AC
0,5ms div

TP47



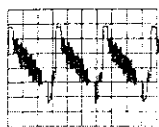
0,5V/div AC
0,5ms di

TP48



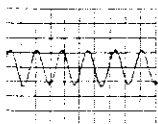
0,5V/div AC
0,5ms div

TP55



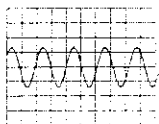
0,2V/div AC
20ms div

TP49



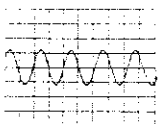
0,5V/div AC
0,5ms div

TP56



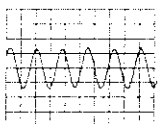
0,5V/div AC
0,5ms div

TP50



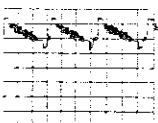
0,5V/div AC
0,5ms div

TP57



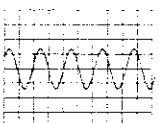
0,5V/div AC
0,2ms div

TP51



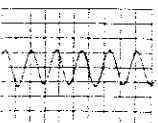
0,5V/div AC
0,5ms div

TP58



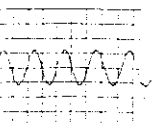
0,5V/div AC
0,5ms div

TP52



0,5V/div AC
0,2ms div

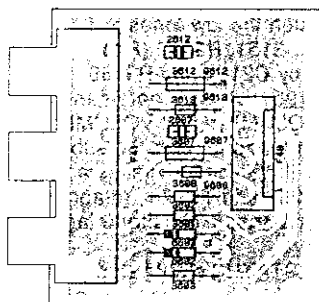
TP53



0,5V/div AC
0,5ms div

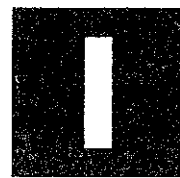
TP54 = DC 4,5V

Front AV-IN panel

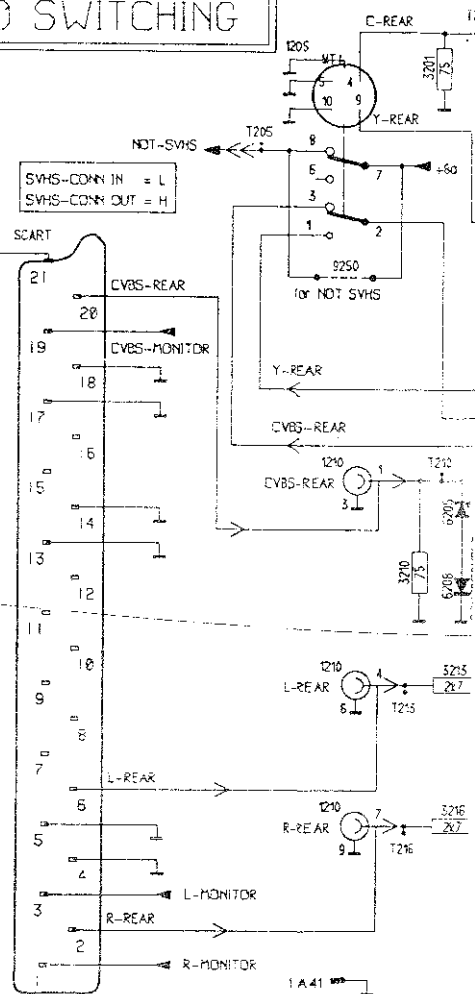


F40		A40
1	→ L - FRONT	6
2	→ AUDIO GND	5
3	→ R - FRONT	4
4	→ FRONT - ID	3
5	→ CVBS - FRONT	2
6	→ CVBS - GND	1

CL 45532005 11N
27C194

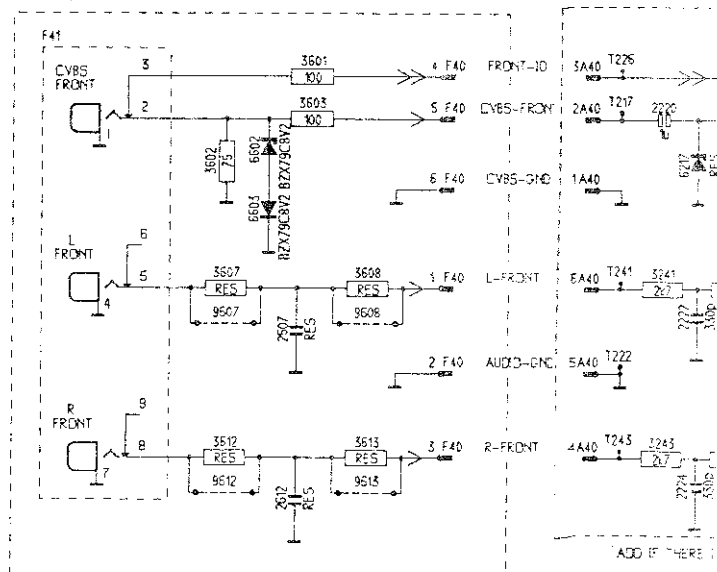


I/O SWITCHING

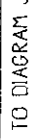


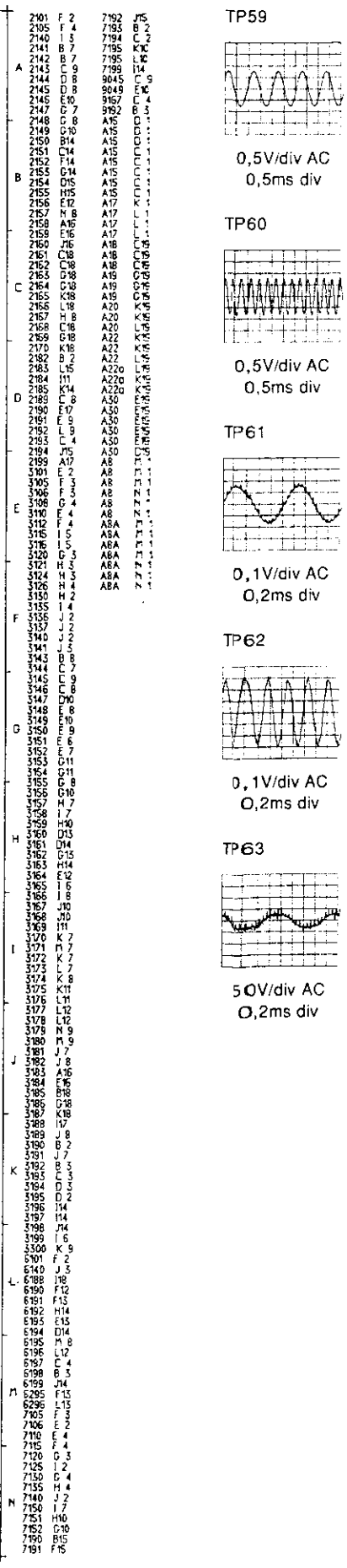
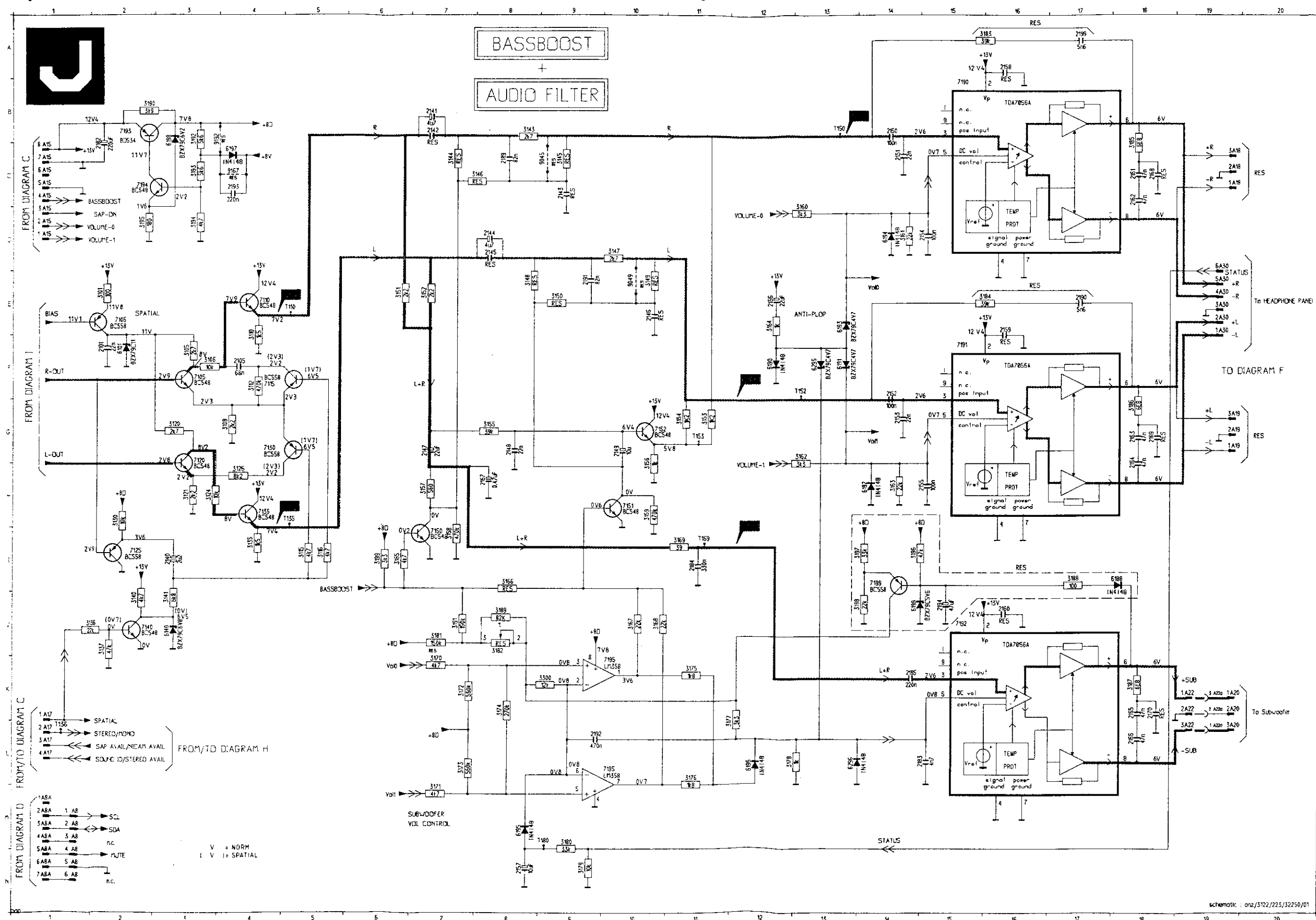
With Front A/V	W/o Front A/V
3221	—
3230	—
3232	—
5270	—
7220	—
—	9215
—	9216
—	9217

FRONT-A/V PANEL



V = NORM
(V...) = SPATIAL

[illegible]

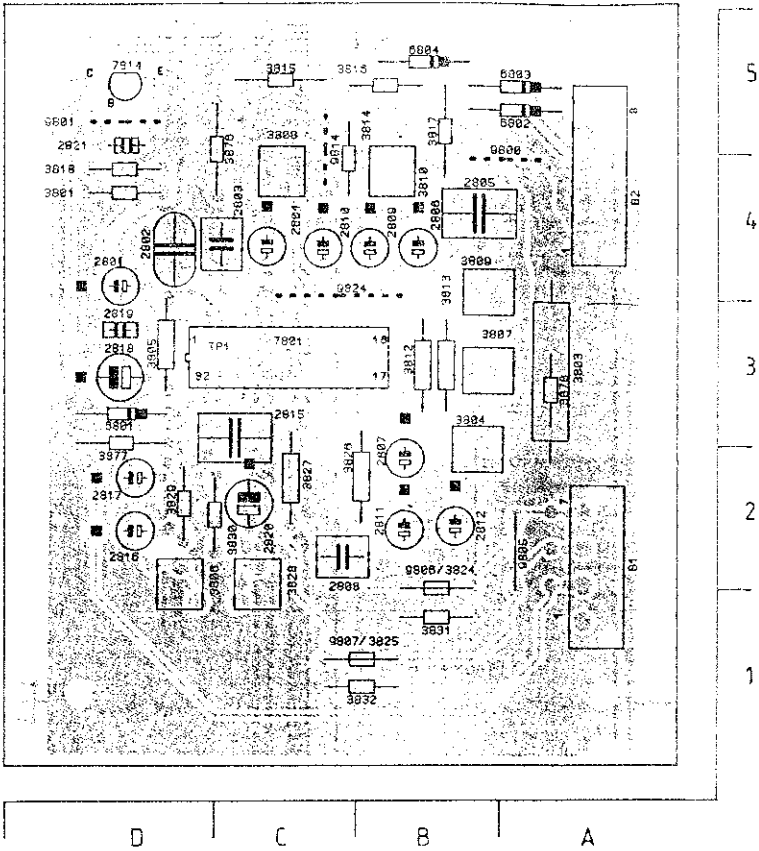


BTSC panel

B1			A1
1	NC		7
2	IF - GND		6
3	FM - MONO		5
4	FM - GND		4
5	NICAM /		3
6	BTSC - L - OUT		2
7	GND		1
	NICAM /		
	BTSC - R - OUT		

B2			A2
1	+8V		8
2	GND		7
3	NC		6
4	NC		5
5	SAP - AVAIL		4
6	STEREO - AVAIL		3
7	SAP - ON		2
8	STEREO - MONO		1

CL 46532008 113
270194



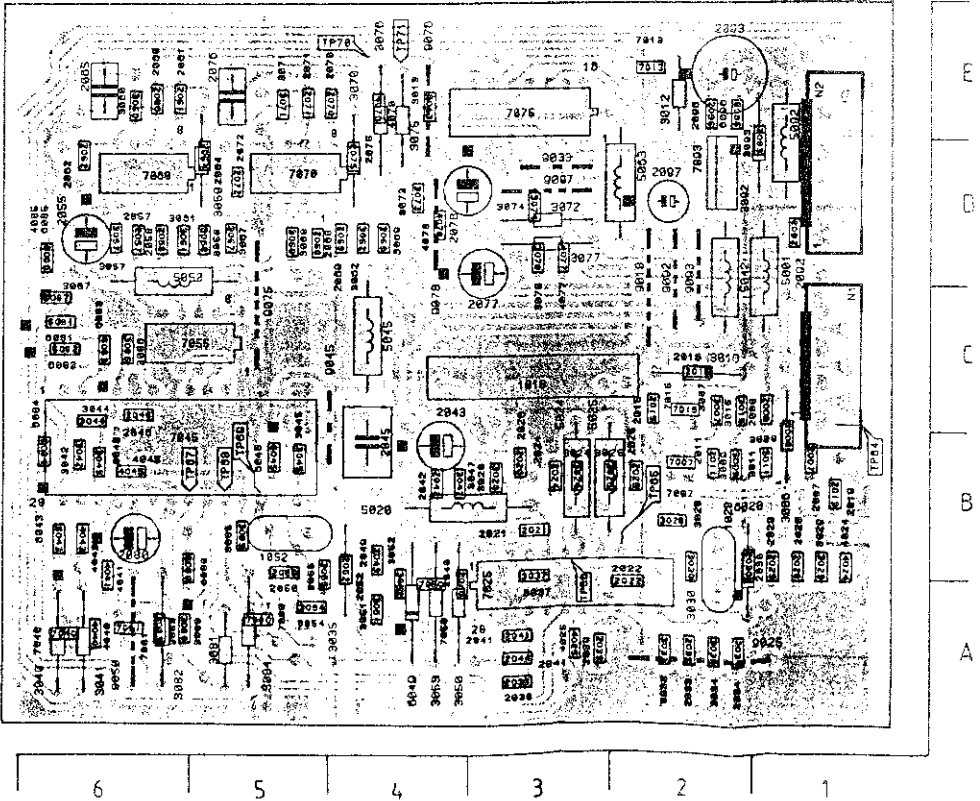
2801	D3	3807	D1
2802	D4	3814	D4
2803	D4	3824	D3
2804	D4	B1	D2
2805	B4	B2	A4
2806	B4		
2807	B2		
2808	C2		
2809	C4		
2810	C2		
2811	B2		
2812	B2		
2813	D2		
2814	D2		
2815	D2		
2816	D2		
2817	D2		
2818	D3		
2819	D3		
2820	D2		
2821	D4		
3801	D4		
3802	A3		
3803	D3		
3804	B2		
3805	D3		
3806	D1		
3807	B3		
3808	C4		
3809	B3		
3810	C4		
3811	B3		
3812	B3		
3813	B3		
3814	C4		
3815	C5		
3816	C5		
3817	B5		
3818	D4		
3819	B1		
3820	C1		
3821	C2		
3822	C2		
3823	C1		
3824	D2		
3825	D2		
3826	C1		
3827	D2		
3828	D2		
3829	D2		
3830	D2		
3831	B1		
3832	C1		
3833	D4		
3834	D2		
3835	A3		
3836	D3		
3837	B5		
3838	B5		
3839	C3		
3840	C5		
3841	D5		
3842	B4		
3843	D5		
3844	B2		
3845	B1		

NICAM panel

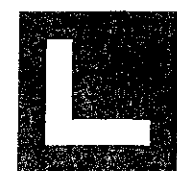
N1			A1
1	SIF		7
2	IF - GND		6
3	FM - MONO		5
4	FM - GND		4
5	NICAM /		3
6	BTSC - L - OUT		2
7	GND		1
	NICAM /		
	BTSC - R - OUT		

N2			A2
1	+8V		8
2	GND		7
3	SCL		6
4	SDA		5
5	NICAM - AVAIL		4
6	NC		3
7	NC		2
8	NC		1

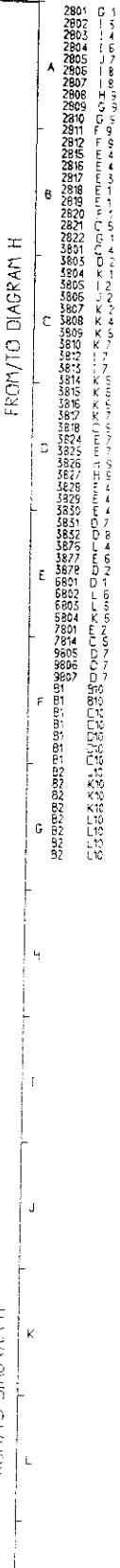
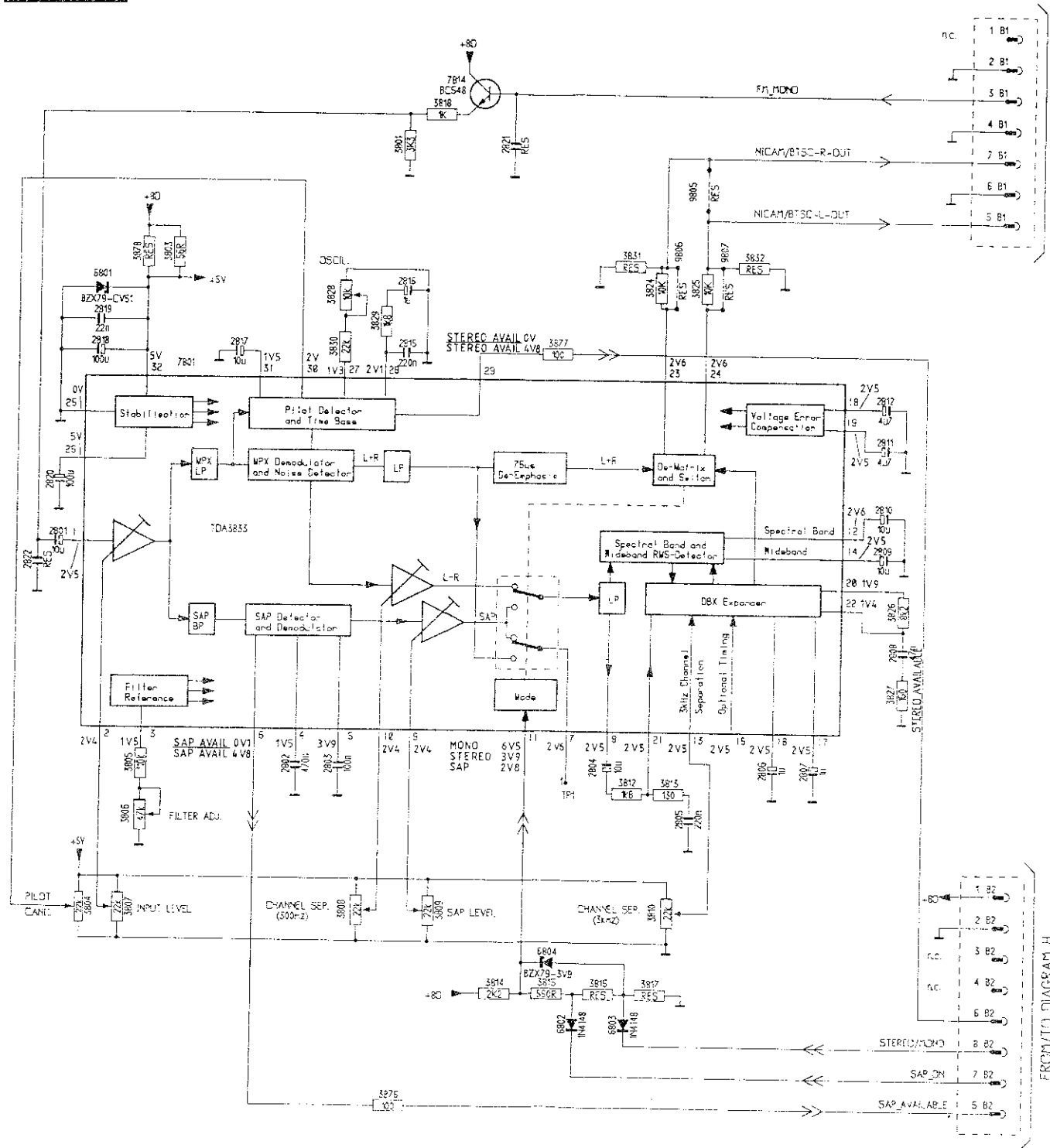
CL 46532008 117
270194



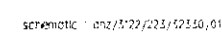
1018	C3	3012	E2	4041	A6
1028	B1	3013	E4	4043	B6
1052	B4	3015	C1	4045	B6
2007	B1	3016	C2	4070	E4
2008	C1	3020	B3	4077	D3
2011	B2	3024	B2	4078	D3
2015	C2	3025	B2	4079	D3
2016	C2	3028	B2	4085	D6
2019	B1	3029	B1	5001	D1
2020	B3	3030	B2	5020	B3
2021	B3	3033	A2	5024	B2
2022	A2	3034	A2	5025	B2
2024	B3	3035	B4	5042	D1
2025	B2	3037	A3	5045	D1
2028	D1	3040	A6	5050	D3
2029	B1	3041	A6	5053	D2
2030	B1	3042	B6	5052	D1
2033	A2	3043	B6	5028	B3
2034	A1	3044	C6	5043	B6
2036	A3	3045	B4	5045	B3
2039	A2	3047	B3	5049	A4
2040	A3	3050	A3	5050	B5
2041	A3	3051	A4	5051	C6
2042	B3	3052	A4	5052	C6
2043	B3	3053	A3	5053	C6
2044	A3	3054	A4	5054	B5
2045	B4	3055	A4	5055	D6
2046	C6	3057	D6	5056	E1
2049	B4	3058	D5	5057	B2
2050	A5	3059	D5	5058	B2
2052	B4	3060	E6	5059	B2
2055	D6	3061	D6	5060	B2
2057	D6	3062	D4	5061	B2
2058	D5	3067	D5	5062	B2
2060	E5	3068	D4	5063	B2
2061	E5	3069	D4	5064	B2
2062	D6	3070	D4	5065	B2
2064	D5	3071	E5	5066	B2
2065	E8	3072	D3	5067	B2
2068	D4	3073	D4	5068	B2
2069	D4	3074	D3	5069	B2
2070	E4	3075	E4	5070	B2
2071	E4	3076	E4	5071	B2
2072	D5	3077	D3	5072	B2
2073	D4	3078	D3	5073	B2
2074	E5	3079	A5	5074	B2
2077	D3	3081	A5	5075	B2
2078	D3	3082	A5	5076	B2
2080	B6	3083	A5	5077	B2
2082	D1	3084	A5	5078	B2
2083	E1	3085	B5	5079	B2
2086	E2	3086	C6	5080	B2
2087	O2	3087	C6	5081	B2
3006	B1	3092	D1	5082	B2
3007	C2	3093	D1	5083	B2
3008	B1	4024	B1	5084	B2
3009	B1	4025	A2	5085	B2
3011	B1	4040	A6	5086	B2

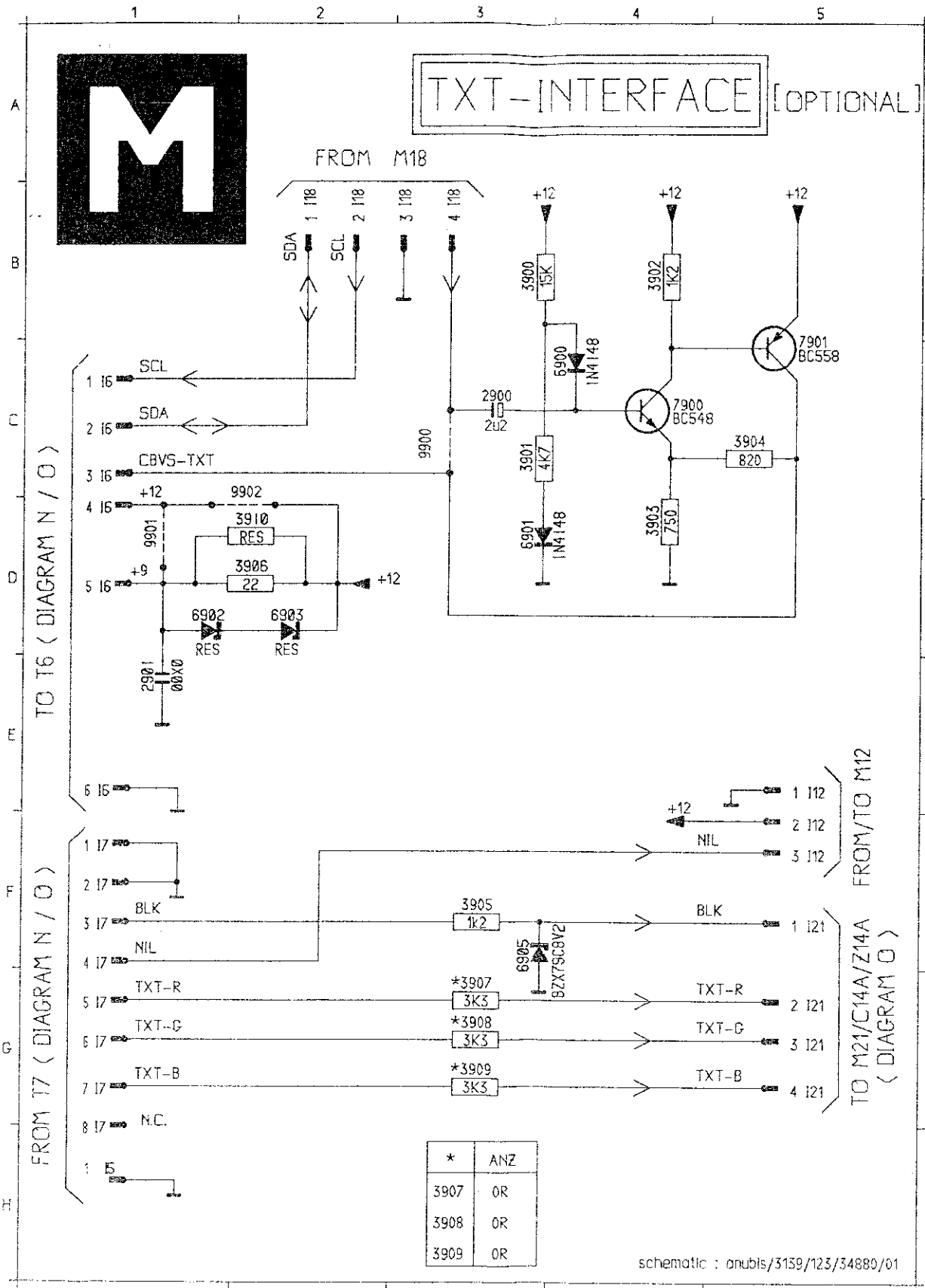


BTSC

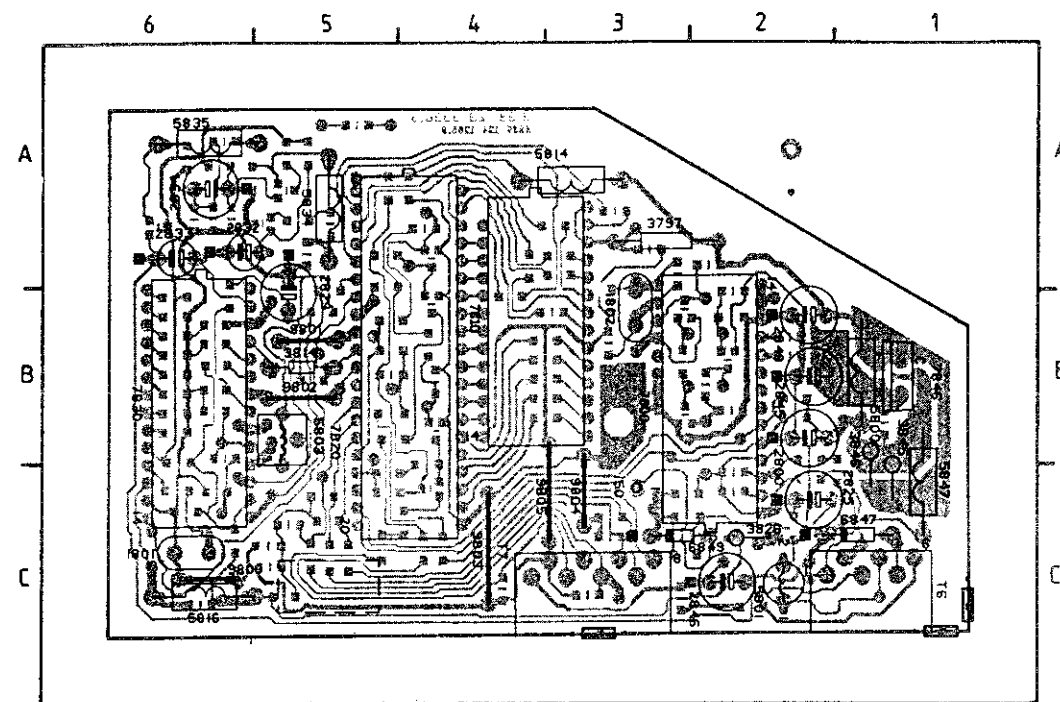
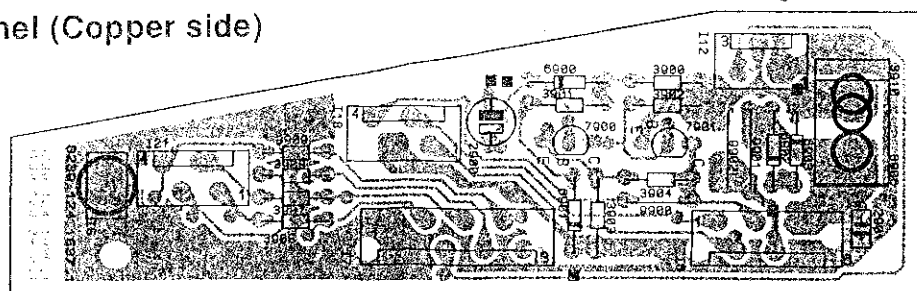


STEREO AVAILABLE = L	STEREO/MONO	SAP ON
STEREO NOT AVAILABLE = H	STEREO	L
SAP NOT AVAILABLE = L	SAP	H
SAP NOT AVAILABLE = H	MONO	L

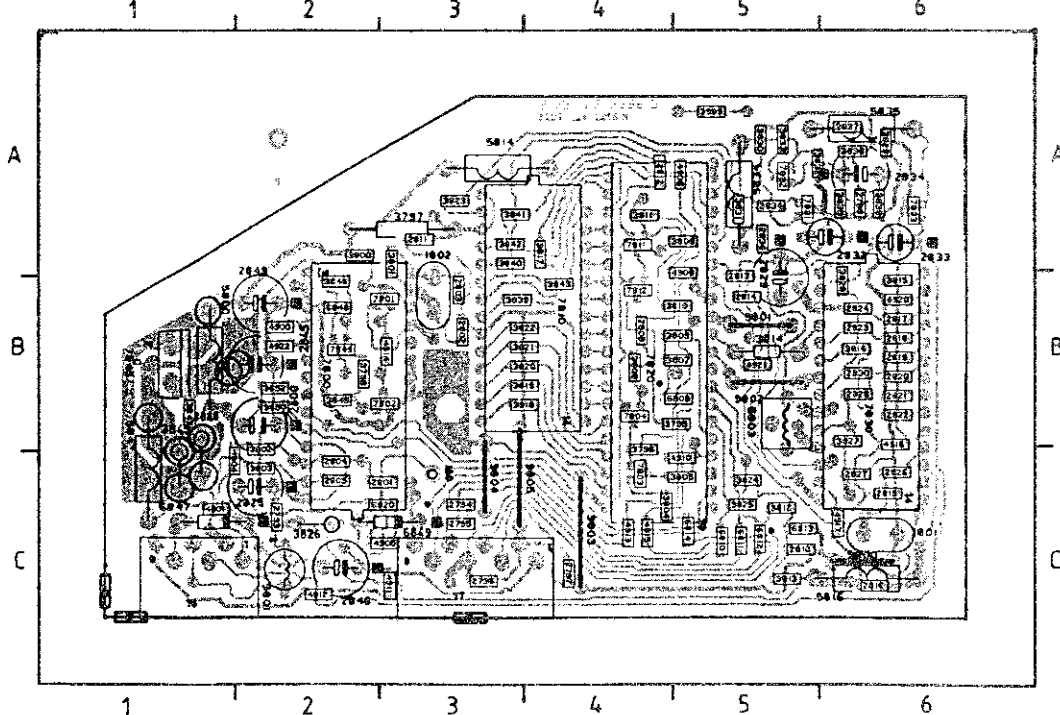


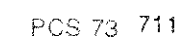


TXT interface panel (Copper side)



1801	C6	2814	B5	2834	A6	3811	A4	3830	A6	3850	B2	6800	B1	7801	B2	9805	C4
1802	A3	2815	C6	2835	A5	3812	C5	3831	A5	3852	B2	6801	C2	7802	B2	T6	C1
2793	C2	2816	C6	2846	C2	3813	C5	3832	A5	3853	A5	6803	B5	7803	C4	T7	C3
2794	C3	2817	B6	2847	B2	3814	B5	3833	A5	4900	B2	6814	A3	7804	B4		
2795	C3	2818	B6	2795	B4	3815	B6	3834	A5	4901	C1	6816	C6	7810	B4		
2796	C3	2819	B6	2796	C4	3816	B6	3835	A6	4902	C2	6817	A5	7811	A4		
2797	C4	2820	B6	2797	A3	3817	A4	3836	A6	4903	A6	6818	B1	7812	B4		
2798	A6	2821	B6	2798	B2	3818	B3	3837	A6	4904	A5	6819	B5	7813	B4		
2800	B2	2822	B6	3800	A2	3819	B3	3838	A6	4905	B5	6820	C2	7814	B6		
2801	C2	2823	B6	3801	A3	3820	B3	3839	B3	4910	C4	6821	C5	7815	A5		
2802	B3	2824	B6	3802	B2	3821	B3	3840	A3	4911	C3	6822	C5	7816	A6		
2803	B3	2825	C2	3803	C2	3822	B3	3841	A3	4912	C2	6823	C5	7817	A6		
2804	C2	2826	C6	3804	C4	3823	A3	3842	A3	4913	C4	6824	C5	7818	B1		
2805	C2	2827	C6	3805	C4	3824	C6	3843	B4	4914	C4	6825	C5	7819	B2		
2806	B4	2828	B6	3806	B4	3825	C6	3844	B1	4915	B6	6826	C1	7820	B5		
2807	A5	2829	A6	3807	B4	3826	C2	3845	B1	4916	B6	6827	C1	7821	B5		
2810	C5	2830	B6	3808	A5	3827	B6	3846	B1	4917	B6	6828	B2	7822	B5		
2811	A4	2831	A6	3809	B4	3828	B6	3847	B2	4918	B5	6829	C3	7823	C4		
2812	A4	2832	A6	3810	B4	3829	A6	3848	B2	4919	B2	6830	B2	7824	C3		
2813	B5	2833	A6	3811	B4	3830	A6	3849	B2	4920	B2	6831	B2	7825	C3		





1. Settings on the carrier panel

1.1 +95V / +115V power supply voltage

Connect a multimeter (DC) across C2531. Set brightness at mid position and contrast at maximum. Apply a pattern generator with a colour bar. Adjust potentiometer **3512** to $+95\text{V} \pm 0.5\text{V}$, DC / $+115 \pm 0.5\text{V}$.

1.2 Horizontal centring

Is adjusted with potentiometer 3420.

1.3 Picture width (horizontal amplitude) 25" only

Is adjusted with potentiometer 3484.

1.4 East west correction 25" only

Is adjusted with potentiometer 3489.

1.5 Vertical centring

Is adjusted with switch 3408.

1.6 Picture height

Is adjusted with potentiometer 3410.

1.7 Focusing

Is adjusted with the focusing potentiometer in the line output transformer 5445 (if necessary brightness at minimum and contrast at maximum).

1.8 RF AGC adjustment

Connect pattern generator (e.g. PM5518) to the aerial input with RF signal amplitude = 1 mV. Connect a multimeter (DC) at pin 5 of tuner. Adjust **R3264** so that voltage at pin 5 of tuner is $7.5 \pm 0.5V$ DC.

1.9 Picture demodulator adjustment

Connect a pattern generator (e.g. PM5518) with a cross hatch. Connect an oscilloscope (1 μ s/DIV) to pin 7 of IC7225 and adjust **L5260** so that the overshoot response is minimum, see Fig. 7.1.

Select a colour bar signal and verify if the picture is alright.

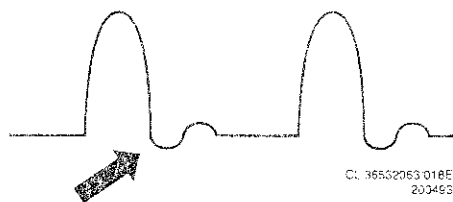


Fig. 7.1

1.10 Adjustment of 34.4 MHz carrier trap
(for full multi sets only, so -/56/57/69/70/93)

Switch off the set.
Disconnect pin 17 of the tuner by desoldering the V-cut at pin 17 of the tuner. Switch on the set and force it to M-reception via the second install menu. Connect a signal generator at 34.4 MHz at pin 4 of plug M3. Connect an oscilloscope (1 μ s/DIV) to pin 1 of the SAW filter 10f5 and adjust **L5020** for minimum amplitude of the signal.
Resolder the V-cut to reconnect the tuner.

2. Settings on the CRT panel

2.1 VG2 cut off adjustment

Connect a pattern generator (e.g. PM5518) and set it to white raster pattern.
Set contrast and the Vg2 potentiometer (in line output transformer) minimum. Adjust with brightness control the top video level at pin 4 of plug L7 (on CRT panel) to the same voltage level as the emitter of transistor of transistor TS7325.

Note: store this value as Personal Preference (PP)!!
Pre-adjust the black level preset potentiometers of each gun, **3307 (B)**, **3320 (G)** and **3334 (R)**, to give a black level of 140V on pins 11, 6 and 8 on the picture tube socket.

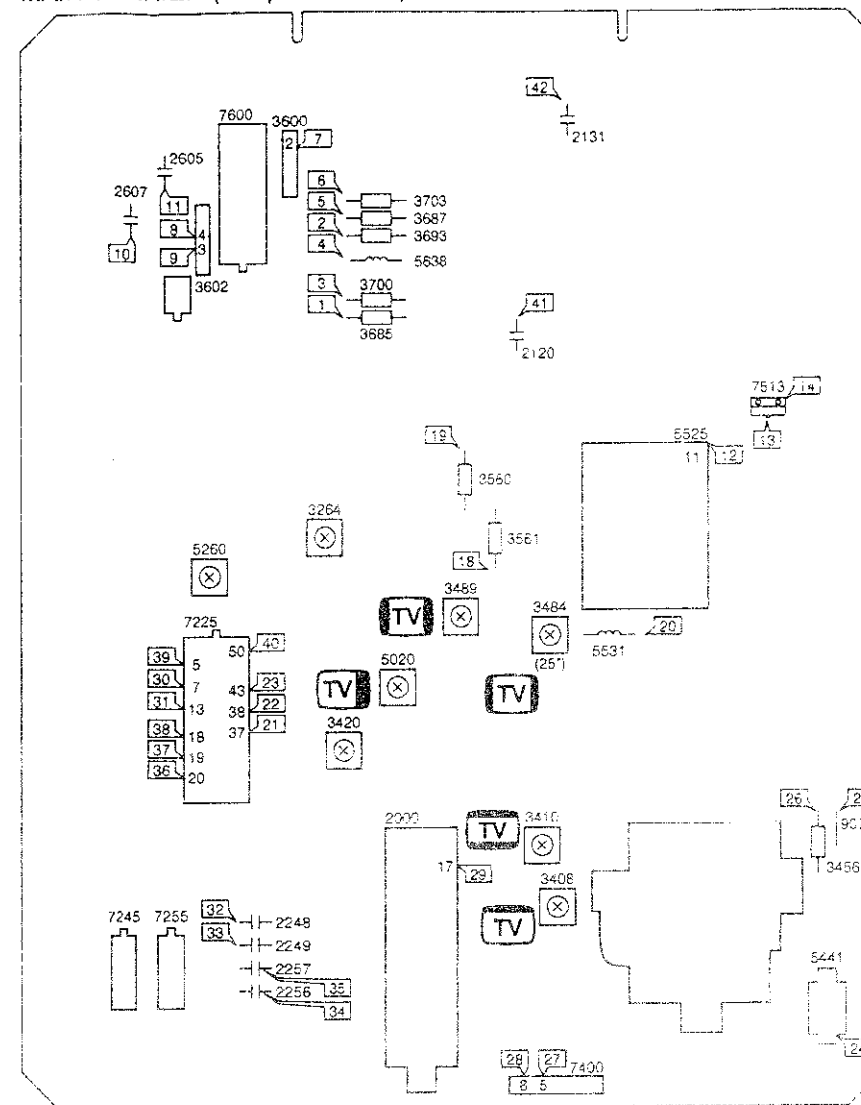
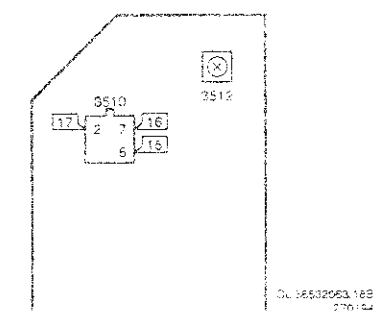
Remove probe of voltmeter or oscilloscope.
Adjust the Vg2 potentiometer until one of the colours just becomes visible. Adjust the **other** two guns by means of the corresponding resistors (3307, 3320 or 3334) until the colours just become visible or until the picture is white.

2.2 White-D adjustment

Use the same signal as prescribed in 2.1. Adjust contrast to such a level that red is good visible. Adjust potentiometers **3313** (B) and **3314** (G) to have a correct White-D picture.

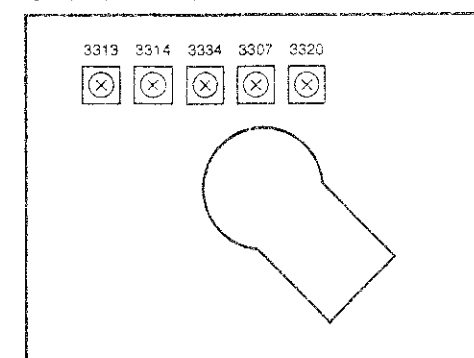
Note: Store nominal values for contrast, saturation and brightness as Personal Preference when settings 2.1 and 2.2 have been carried out.

MAIN CARRIER (component side)

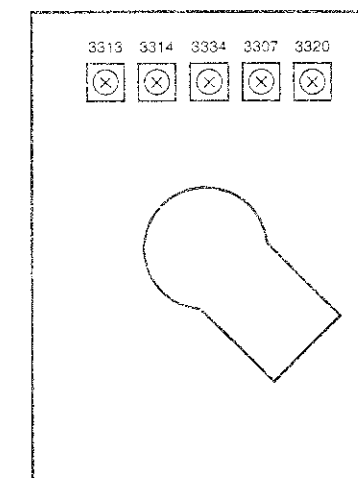
CL 36502063-18
02029POWER SUPPLY
CONTROL PANEL

DL 16532053 183
270194

CRT PANEL 21"



CRT PANEL 25"



CL 465220:0/016
270194

3. Adjusting the picture tube

Note:

The colour purity and convergence adjustments described hereafter need only be carried out if a completely new adjustment is called for or if a new picture tube has been fitted. Otherwise, for instance after replacing the deflection unit, it will not be necessary to remove the rubberwedges (G in Fig. 4), corrections by means of the multi-pole unit will then suffice.

3.1 Colour purity (see Fig. 4)

1. Loosen fixing screw "F" of the deflection unit a few turns.
2. Move the deflection unit and remove the three rubber wedges "G".
3. Slide the deflection unit forward as far as possible against the glass of the picture tube cone and tighten fixing screw "F" in such a manner that the deflection unit can be moved with some friction.
4. Place the multi-pole unit in the position shown, turn screw "A" and turn securing ring "B" counter clockwise.
5. Let the apparatus face East or West and switch on the set.
Supply a cross-hatch pattern and set brightness control to maximum. Allow for a warming-up time of 10 minutes.
6. Adjust the static convergence, using tabs "C" and "D" (if necessary, see procedure II).
7. Switch off the green and the blue gun by disconnecting the resistors 3316 and 3303.
8. By turning the colour purity rings with tabs "E", the vertical red bar is adjusted nearest to the centre of the screen, while the central horizontal line should be as straight as possible.
9. Supply a white pattern signal and check that the red bar is in the centre of the screen. If not, switch on the cross-hatch pattern again and move the red bar in the right direction, taking care that the picture does not move too much in vertical direction.
10. Supply the white pattern signal and move the deflection unit until the whole picture surface is uniformly red.
11. Switch on the green and the blue guns by reconnecting R3316 and R3303. No colour patches should occur in the white picture now obtained. If necessary a minor correction can be made by slightly turning the colour purity rings "E" and/or slightly moving the deflection unit.
12. Tighten screw "F" tightly.
13. Proceed to the static and dynamic convergence adjustments.

3.2 Static convergence (see Fig. 4)

1. Supply a cross-hatch pattern and allow for a warming-up time of 10 minutes.
2. Switch off the green gun by disconnecting resistor 3316 and turn locking ring "B" anticlockwise.
3. By turning the four-pole rings with tabs "C", the red and blue cross-hatch patterns in the centre of the screen are placed on top of each other.
4. Switch on the green gun by reconnecting 3316 and switch-off the blue gun by disconnecting resistor 3303.
5. By turning the six-pole rings with tabs "D" the red and green cross-hatch patterns in the centre of the screen are placed on top of each other.
6. Switch-on the blue gun again and tighten ring "B" again.

3.3 Dynamic convergence (see Fig. 5 and 6)

Remark:

The dynamic convergence is achieved by vertical and horizontal tilting of the deflection unit. To secure the right position of the deflection unit, three rubber wedges are fitted between the glass of the picture tube and the deflection unit, as shown in Fig. 5d or 6d.

1. First check the colour purity and switch off the green gun by disconnecting resistor.
2. Supply a cross-hatch pattern and switch off the green gun by disconnecting resistor 3316.
3. Eliminate the crossing of the central horizontal blue and red line and the crossing of the central vertical blue and red line, by vertical tilting of the deflection unit. If the position of the deflection unit is correct, then place rubber wedge 1, paper strip not removed, at the top (Fig. 5a) or at the bottom (Fig. 6a). Fig. 5a is applicable if the deflection unit is tilted upwards and Fig. 6a if the unit is tilted downwards.
4. by horizontal tilting of the deflection unit, now both the horizontal blue and red lines in the upper and lower halves of the picture and the vertical blue and red lines on the left and right hand side of the picture are placed on top of the other.
If the position of the deflection unit is correct, then place wedges 2 and 3 with paper strips removed, as shown in Fig. 5b or 6b. Firmly press the adhesive sides of these wedges against the glass of the picture tube.
5. Now place wedge 4 as shown in Fig. 5c or 6c and press on the adhesive side firmly.
6. Remove wedge 1, to obtain the condition shown in Fig. 5d or 6d.
7. Switch on the green gun by reconnecting 3316.

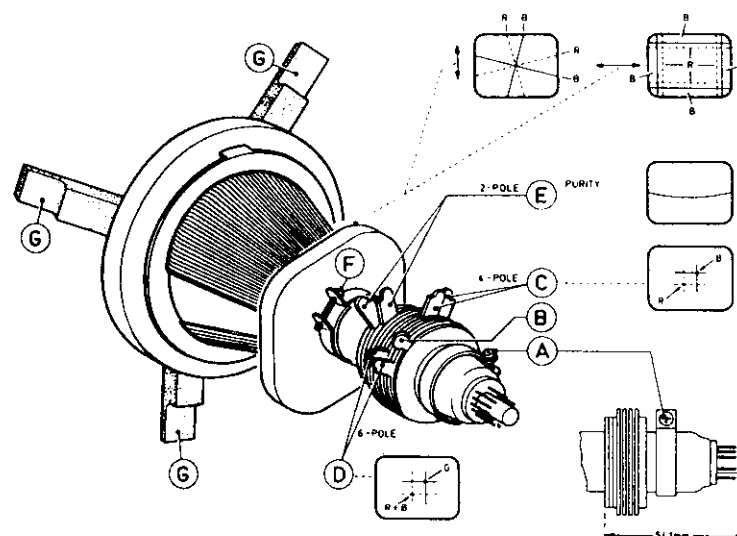


Fig. 4

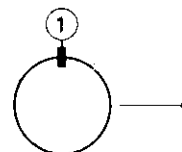


Fig. 5a

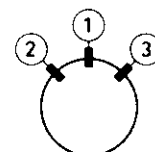


Fig. 5b

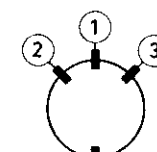


Fig. 5c

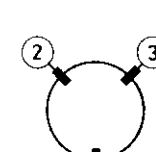


Fig. 5d

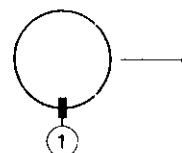


Fig. 6a

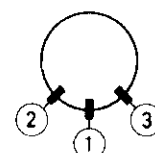


Fig. 6b

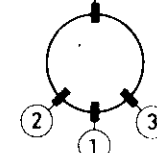


Fig. 6c

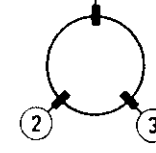
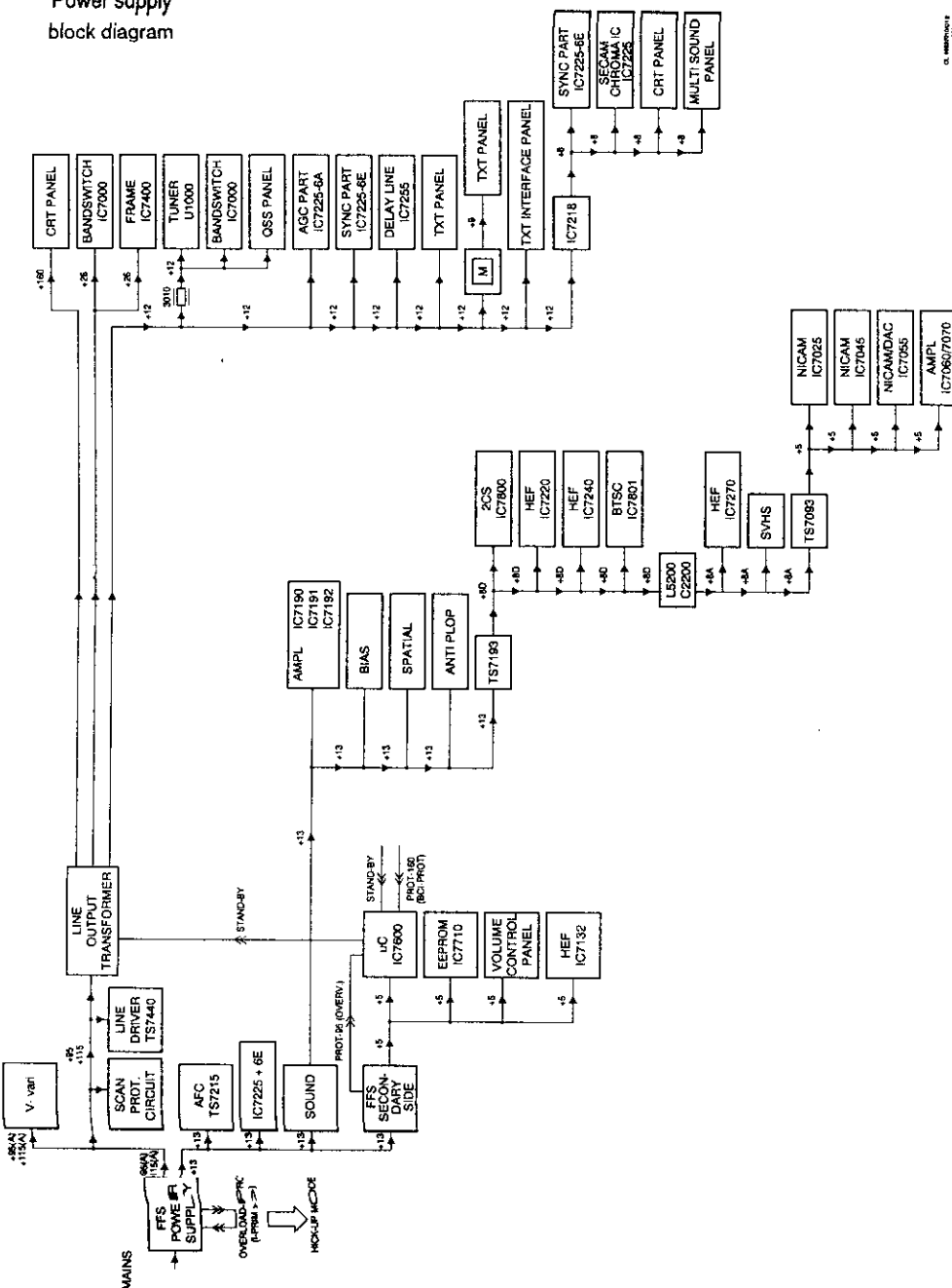


Fig. 6d

Power supply
block diagram

Repair tips

1. Service position for video and audio faultfinding

For **video related faultfinding** the main carrier can be disconnected from the TXT panel and the 2CS+I/O+AMPLIFICATION panel as the set will automatically switch to internal CVBS (except for SECAM chroma which signal path is via the 2CS+I/O+AMPLIFICATION panel). Of course for CVBS I/O faultfinding the 2CS+I/O+AMPLIFICATION panel should be connected to the main carrier.

For **audio related faultfinding** first measure pin 1 IC7225-6F (AUDIO_OUT LF audio signal inclusive BTSC and NICAM info) and TP 42 and 43 at resp pin 5 and 3 of connector Q4 (AF1 and AF2):

- If all OK, the fault is on the 2CS+I/O+AMPLIFICATION or NICAM or BTSC panel (QSS or IC7225-6F)
- If not all OK, the fault is on the main carrier

2. Error messages

Via I²C the μ C can detect malfunction of all I²C controlled IC's. Maximal 3 error codes can be displayed indicating maximal 3 different errors detected at switch on (see Table 8.1). These error codes will be displayed via OSD, only in normal operation mode after every switch on of the set. Error codes detected in the past can be displayed in the Service Mode (see section 3.1.3).

Error code	Error description	Possible defective component
1	Not used (only for PLL tuner sets)	Not used
2	EEPROM Checksum Error	Set not correct configured
3	Simulcast tuning	TDA8442
4	2CS Stereo decoder	IC 7800
5	Internal RAM error	IC 7600
6	EEPROM	IC 7710
7	NICAM stereo decoder	IC 7045
8	Not used	--

Table 8.1

3. Service Default Mode

3.1 Entry of the Service Default Mode:

Shortcircuit the 2 Service Default Mode pins on the main carrier (M28 and M29 near μ C) for a short moment while switching on the set. An 'S' on the screen will indicate the activated Service Default Mode

3.2 Functions of the Service Default Mode:

In the Service Default Mode the set is in a pre-defined condition: All controls at 50% except volume 25%, VST sets tuned at program 1 and PLL sets tuned at 475.25 MHz (with auto system search). All DC voltages & oscillograms indicated in the Service Manual are measured in the Service Default Mode.

3.3 Exit of the Service Default Mode:

Standby and switching off the set (of course the Service Default Mode pin shortcircuit has to be removed by then).

4. Service Mode

4.1 Entry of the Service Mode:

Shortcircuit 2 Service Mode pins on the main carrier (M31 and M32 near μ C) for a short moment while switching on the set (EEPROM-protection will automatically be deactivated at entering the service mode, and activated again at exiting the service mode via standby (content of address 255 will be adapted automatically, so this does not have to be checked)).

4.2 Functions of the Service Mode:

Functions of the Service Mode are; display the software number and version, set all software controlled options, display error codes detected in the past and erase the error code detected in the past.

4.2.1 Display the software number and version.

In the Service Mode the following menu will appear:

ANUBIS-S AHV V1.3
ADR XXX DATA XXX"

SA indicates software number A, H indicates Hotel Mode option is present in this software and V1.3 indicates 1st masking with 3rd version.

4.2.2 Set all software controlled options

The addresses where the option settings are stored are the addresses 245 up to and including 253. The default data (stored by the factory) differs from stroke version to stroke version. This default data is given at a sticker inside the set.

For manipulation of the data at the option addresses 245 up to and including 253 table 8.3 can be used.

Changing the options settings according to the hardware environment, can be done in the Service Mode via the keys:

1. **"CONTROL +/-"** By pressing the "control +/-" keys the value behind ADR or DATA will be highlighted sequently. By pressing "prog +/-" keys the highlighted value can be increased or decreased.
- 2a. **"PROG +/-"**
- 2b. **"0-9"** By pressing "0-9" keys the highlighted value can directly be keyed in.
3. **"STORE"** After every ADR and/or DATA change a "store" command has to be given to store these changes!!!

For the option addresses 245 and 246 first determine what is valid for your particular set (e.g. the first option for a software number A set at address 245 is to choose for is "2CS stereo" or "No 2CS stereo" possible) by choosing between the option A or B (option A is always the opposite of option B). After determination of all options (so 8 option choices per address) the 8 corresponding values can be added for that particular address. This sum is the data to be keyed in, so e.g. for address 245 a set with software number A data can be calculated as follows:

2CS stereo possible	→	0
AV stereo playback is selectable	→	0
AV is selectable	→	32
Spatial sound possible	→	16
Hue control possible	→	8
No simulcast	→	0
Remote STORE key not allowed	→	2
"Normal" bandswitch signals used	→	1

The data at address 254 by then is: 59

For option addresses 247 up to and including 253 the values in table 8.3 are related to the used tuner and to NICAM and Multisound panel present or not present. The values given in this table can directly be keyed in as the data for the corresponding option addresses.

The changed settings are only activated when the set is switched off and on again and if the checksum at address 254 is correctly updated; if the checksum is not OK the set will use default settings!!

The checksum can be obtained by adding all data at the addresses 245 up to and including 253 and then subtract 256 until the data has a value under 256; for example, if EEPROM contains the following data, the checksum will be:

Address	Data
245	187
246	117
247	41
248	82
249	74
250	33
251	132
252	8
253	226

	900

$$900 - 256 - 256 - 256 = 132$$

Checksum address	Data
254	132

The other addresses of the EEPROM (so all addresses except 240 to 254 and 220) contain program information and preference-, factory- and current settings.

4.2.3 Display error codes detected in the past

The data at address 220 indicates all error codes detected in the past. The data at address 220 is a byte whereby the 8 bits refer to 8 possible error codes detected in the past; see table 8.2.

Data at address 220	Error codes: 8 7 6 5 4 3 2 1	Error codes detected in the past
000	0 0 0 0 0 0 0 0	No error codes detected
001	0 0 0 0 0 0 0 1	1
002	0 0 0 0 0 0 1 0	2
003	0 0 0 0 0 0 1 1	1 & 2
004	0 0 0 0 0 1 0 0	3
005	0 0 0 0 0 1 0 1	1 & 3
006	0 0 0 0 0 1 1 0	2 & 3
007	0 0 0 0 0 1 1 1	1 & 2 & 3
etc.		
etc.		
255	1 1 1 1 1 1 1 1	1 & 2 & 3 & 4 & 5 & 6 & 7 & 8

Table 8.2

4.2.4 Erase the error code detected in the past

If data at address is overwritten with 000 the error code history has been erased.

4.3 Exit of the Service Mode:

For all software numbers the Service Mode is exited via the standby command.

5. Replacing an EEPROM

Besides of the option settings also information about programs, PP (personal preference), IP (initial or factory preference, the "NORMAL" in the PP-toggle function) and CU (current settings at the moment the set was switched off) are stored in the EEPROM. After replacing an EEPROM the PP will be stored after pressing the PP store button and the CU will be stored after switching off the set. But as the IP can not be filled via a "Normal Operation", this has to be done (although it is not necessary for basic operation of the set) in the Service Mode by storing the following data at the respective addresses:

Address	VST-sets	PLL-sets
232	63	63
233	20	30
234	33	39
235	32	32
236	176	170
237	160	160
238	20	20

6. Hotel mode

Hotel mode can only be activated if:

1. Software for hotel mode is available (so an "H" version)
 2. When hotel mode option (address 246) is enabled
- Two hotel modes are possible:

Hotel mode 1:

- * Activating by simultaneously pressing the "STORE" and "PROGRAM-" on the local keyboard while program 38 is selected. Both keys must be held down for at least 3 seconds.
- * Features:
 - Install menu (also automatic search) not possible.
 - Storing PP not possible.
 - Using the "PROGRAM +/-" keys from standby will switch the TV on to program 1 instead of to the last selected program.
 - Maximum volume value is limited to the value present at the moment the hotel mode was activated.
- * Deactivating by simultaneously pressing the "PROGRAM+" and "VOLUME-" keys on the local keyboard for at least 3 seconds while program 38 is selected.

Hotel mode 2:

- * Entering by simultaneously pressing the "STORE" and "PROGRAM-" on the local keyboard while program 37 is selected. Both keys must be held down for at least 3 seconds.
- * Features:
 - Same features as Hotel mode 1 except from program numbers 30 up to 49 the screen remains blanked to be used as a radio (the transmitter should produce a valid horizontal IDENT).
 - While these blanked program numbers are tuned the small program number will be displayed permanently.
- * Deactivating by simultaneously pressing the "PROGRAM+" and "VOLUME-" keys on the local keyboard for at least 3 seconds while program 37 is selected.

Option setting table for software number A

Address	Option A	Value	Option B	Value
245	2 CS stereo possible	0	2 CS stereo not possible	128
	AV stereo playback enabled	0	AV uses mono only	64
	No AV selectable	0	AV selectable	32
	No spatial sound possible	0	Spatial sound selectable	16
	No hue control possible	0	Hue control possible	8
	No simulcast	0	Simulcast available	4
	Remote STORE key allowed	0	No remote STORE key	2
246	VHF1 and VHF3 swapped for UV973 tuner	0	"Normal" bandswitch signals	1
	No hotel mode possible	0	Hotel mode can be enabled	128
	No UHF tuning possible	0	UHF band allowed	64
	No VHF3 tuning possible	0	VHF3 band allowed	32
	No VHF1 tuning possible	0	VHF1 band allowed	16
	Not used			0
	No sound standard selection	0	Auto, M, B/G, I, D/K sound selection possible	4
	Not used			0
	No colour system selection	0	Auto, SECAM, PAL/NTSC	1
247	No NICAM panel possible, multisound panel not present			40
	No NICAM panel possible, multisound panel present			41
	NICAM available, multisound panel not present			168
	NICAM available, multisound panel present			169
248	UV 913 / UV 973 (VST)			191
	UV 915 (VST)			42
	UV 953 (VST)			162
249	UV 913 / UV 953 / UV 973 (VST)			93
	UV 915 (VST)			73
250	UV 913 / UV 953 / UV 973 (VST)			25
	UV 915 (VST)			0
251	UV 913 / UV 953 / UV 973 (VST)			134
	UV 915 (VST)			129
252	All VST tuners			0
253	UV 913 / UV 953 / UV 973 (VST)			224
	UV 953 (VST)			225

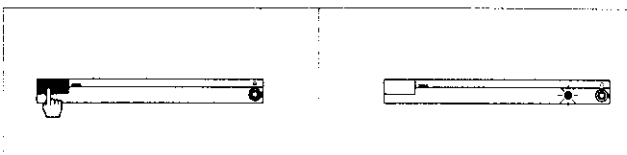
Table 8.3

9. Directions for use

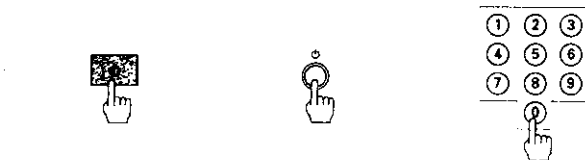
Switching the TV ON/OFF

- Press the **POWER** button on the front bottom left hand corner of the TV to switch ON/OFF and wait a few seconds for the sound or signal to come on.

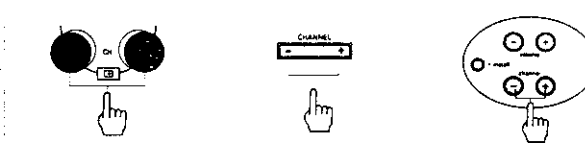
If there is a red light on the bottom of the screen, it indicates that the TV has been put to "Stand-by" mode.



- Press the **STAND-BY** button () or any digit buttons on the remote control handset OR



- Press the **CHANNEL +** or **-** button on the remote control handset or the TV control



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Searching and Storing TV Channels

For searching and storing TV channels you need to work with the control buttons at the top of the TV and your remote control handset. (Up to 70 TV stations can be stored on channel numbers using the following methods.) You can store the TV stations either automatically or manually.

(Note : For Australia (version /75) the TV is pre-tuned to channel number 0, 2, 7, 9, 10 and 28.)

A. To Store the TV Stations Automatically

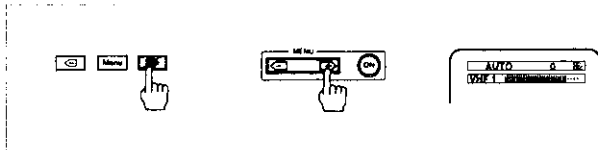
- Press the **INSTALL** button at the top of the TV with a pointed object to start the **INSTALLATION** menu; the **AUTO** menu is selected first.



- Press the **MENU** or **MENU ON** button on the remote control handset to select the **AUTO** menu.



- Press the **MENU +** button on the remote control handset to start the **AUTO** mode. The TV will start searching and store all available stations in an ascending sequence.



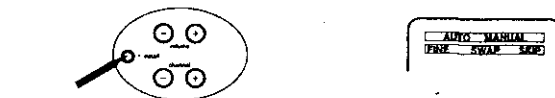
NOTE : If at any time of the **AUTOMATIC TUNING** procedures and you wish to exit, press the **EXIT** button on your remote control handset.

When all the available stations are stored, it will automatically exit from the **INSTALLATION** Menu and channel 1 will be displayed. In case the picture and sound is not optimum, proceed to the section on **Fine Tuning**.

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B. To Store the TV Stations Manually

- Press the **INSTALL** button at the top of the TV set with a pointed object to start the **INSTALLATION** Menu.



- Press the **MENU +** button on the remote control handset to highlight the **MANUAL** menu.



NOTE : If at any time of the **MANUAL TUNING** procedures and you wish to exit press the **EXIT** button on your remote control handset.

- Press the **MENU** or **MENU ON** button on the remote control handset to select the **MANUAL** Menu.



- Press the **MENU +** button on the remote control handset to start the **MANUAL** mode. The TV will start searching and at every available station, it will prompt you to enter your preference channel number.



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If the signal is weak and you do not wish to store the TV station, press the **MENU +** button to continue searching.

If the signal is good and you wish to store the TV station, select the desired channel number by pressing the **CHANNEL +** or **-** button on your remote control handset or TV control. Store our selection by pressing the **INSTALL** button.

- Repeat Step 4 to store other available TV stations.

TO EXIT :

- Press the **INSTALL** button again.

NOTE : If in case the picture and sound stored is not optimum, proceed to the section on **Fine Tuning**.

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Directions for use

C. Fine Tuning

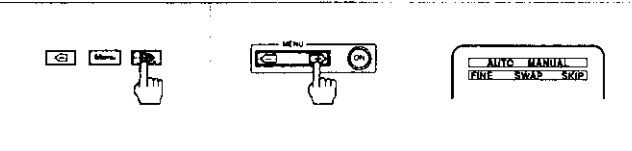
In case the picture and sound is not optimum or in area of poor reception and constant interference, a slight adjustment of the tuning may improve the picture and sound quality.

- 1. Select the channel which you want to fine tune with the CHANNEL + or - button on the remote control handset or TV control.
- 2. Press the INSTALL button at top of the TV to start the INSTALLATION Menu.

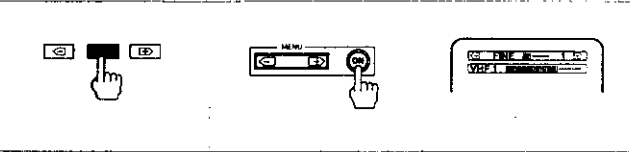


NOTE : If at any time of the FINE TUNING procedures and you wish to exit, press the [EXIT] button on your remote control handset.

- 3. Press the MENU + button on the remote control handset to highlight the FINE tuning menu.

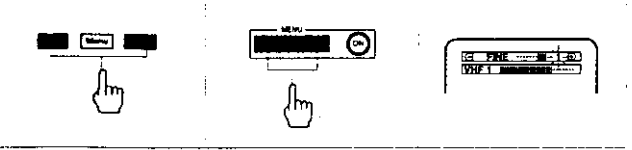


- 4. Press the MENU or MENU ON button on the remote control handset to start the FINE tuning Menu.



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- 5. Press and hold the MENU + or - button on the remote control handset until the desired picture or sound is obtained. A moving indicator and blinking channel number will appear on the screen indicating that the set is being fine tuned.



- 6. Press the INSTALL button on the TV control to store the new settings. Repeat the above procedures for other channel numbers which you wish to do a fine tuning.



TO EXIT:
• Press the INSTALL button again.

D. Swapping channel numbers

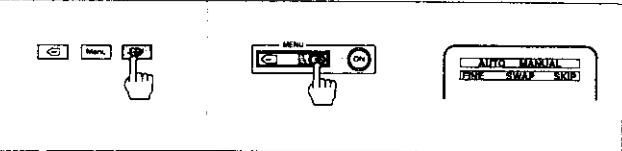
If you had used the automatic frequency searching, the TV stations stored under the channel numbers may not be to your preference. You can make use of the SWAP feature to re-arrange the TV stations according to the channel numbers of your preference.

- 1. Select the channel number which you want to do a swap.
- 2. Press the INSTALL button at the top of the TV with a pointed object to start the INSTALLATION Menu.

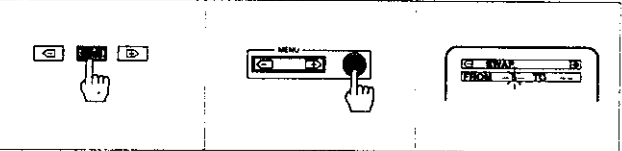


NOTE : If at any time of the SWAPPING procedures and you wish to exit, just press the [EXIT] button on your remote control handset.

- 3. Press the MENU + button on the remote control handset to highlight the SWAP menu.

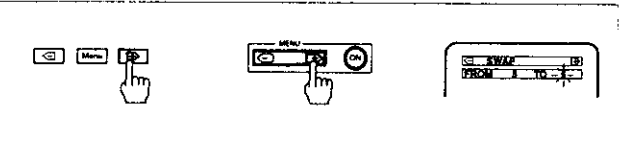


- 4. Press the MENU or MENU ON button on the remote control handset to start the SWAP Menu. The current channel will be indicated at the FROM column in green and flashing. e.g. Ch 5

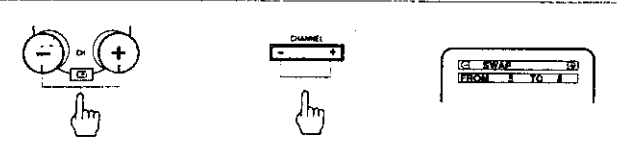


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- 5. Press the MENU + button on the remote control handset to select the TO column. (Pressing the MENU + or - button will enable you to toggle between the TO and the FROM function).



- 6. Select the channel number you wish to do the swapping by pressing the CHANNEL + or - button on the remote control handset or TV control e.g. Ch 8.



- 7. Press the INSTALL button to activate the SWAP function and to store the swapped channels.



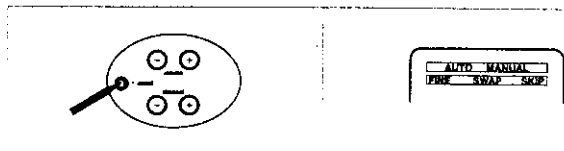
TO EXIT:
• Press the INSTALL button again.

NOTE :
When the TV is at the following modes, the SWAP feature does not activate :-
1. AV
2. Teletext (if your set is equipped)
3. The FROM column is indicated with -- symbol.

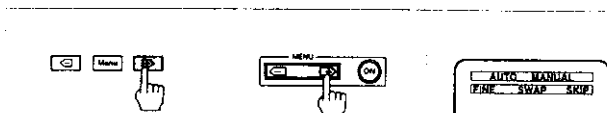
E. Skipping channel numbers

This feature enable you to skip those channel numbers which have bad or no TV station signal via the CHANNEL + or - button on the remote control handset or TV control. But if you do a direct channel number keying on a remote control handset, you still can select the particular channel number even though it is been skipped.

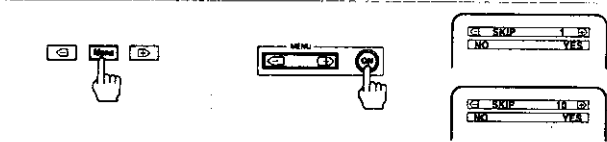
1. Press the **INSTALL** button at the top of the TV, to start the **INSTALLATION** Menu.



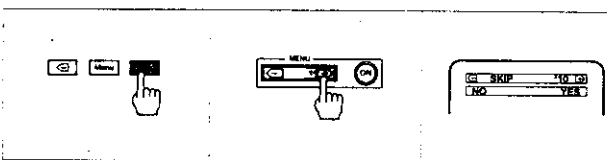
2. Press the **MENU +** button on the remote control handset to highlight the **SKIP** menu.



3. Press the **MENU** or **MENU ON** button on the remote control handset to start the **SKIP** Menu and select the required channels to be skipped with the **CHANNEL +** or **-** button on the remote control handset or TV control e.g. Ch 10.



4. Press the **MENU +** button on the remote control handset to select **YES** and the channel will be skipped from the memory. When a channel is skipped, the On Screen Display in the **SKIP** Menu will display e.g. *10 in red.



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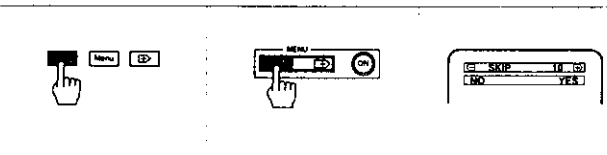
TO EXIT:

- Press the **INSTALL** button at the top of the TV.

NOTE: If you need to add back the channel that you have skipped, please refer to the section on 'Adding back the skipped channel numbers' below.

F. Adding back the skipped channel numbers

1. Repeat steps **E1** to **E4** on the previous page.
2. Press the **MENU -** button to select **NO** and the channel will be added to the memory. When a channel is added, the On Screen Display in the **SKIP** Menu will displayed, e.g. 10 in green.



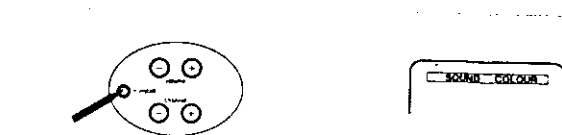
TO EXIT:

- Press the **INSTALL** button at the top of the TV.

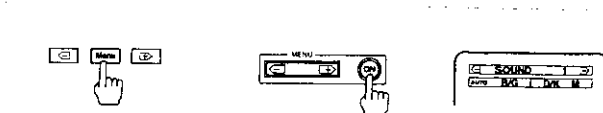
TV System Sound Selection (for multi-system sets only)

If during Automatic or Manual Tuning, the selected sound is distorted due to different TV transmission system, proceed with the following operations to restore the correct sound for the respective transmission.

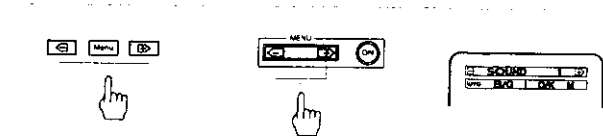
1. Select the channel number you want to rectify the sound system.
2. Press and hold the **INSTALL** button at the top of the TV continuously for about 2 seconds, to activate the **SOUND** and **COLOUR** Menu; the **SOUND** menu is selected first.



3. Press the **MENU** or **MENU ON** button on the remote control handset to start the **SOUND** menu.



4. Press the **MENU +** or **-** button on the remote control handset to select one of the following sound systems according to the respective transmission mode: **AUTO**; **B/G**; **I**; **D/K** or **M**.



If you select the **AUTO** mode, the TV will automatically select the respective sound system according to the transmission system.

NOTE: In area of poor reception, select the respective transmission mode **B/G**, **I**, **D/K** or **M** instead of **AUTO** mode.

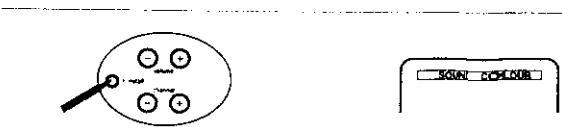
5. Press the **INSTALL** button on the TV control to store the selections and to exit from the **SOUND** and **COLOUR** Menu.

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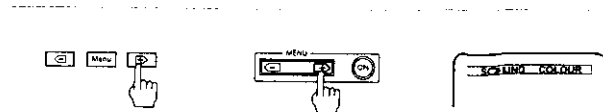
TV System Colour Selection (for multi-system sets only)

If during Automatic or Manual Tuning, the selected colour is distorted due to different TV transmission system, proceed with the following operations to restore the correct colour for the respective transmission.

1. Select the channel number you want to rectify the colour system.
2. Press and hold the **INSTALL** button on top of the TV continuously for about 2 seconds, to start the **SOUND** and **COLOUR** Menu.

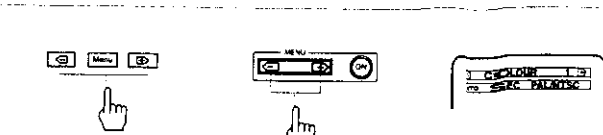


3. Press the **MENU +** button to select the **COLOUR** menu.



4. Press the **MENU** or **MENU ON** button on the remote control handset to start the **COLOUR** menu.

5. Press the **MENU +** or **-** button to select one of the following colour systems according to the respective transmission mode: **AUTO**; **SECAM** or **PALNTSC**.



If you select the **AUTO** mode, the TV will automatically select the respective colour system according to the transmission system.

NOTE: In area of poor reception, select the respective transmission mode **SECAM** or **PAL/NTSC** instead of **AUTO** mode.

6. Press the **INSTALL** button on the TV control to store the selections and to exit from the **SOUND** and **COLOUR** Menu.

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Directions for use

You can now operate your TV either directly using the TV buttons or the remote control handset.

1. Switching the TV ON/OFF

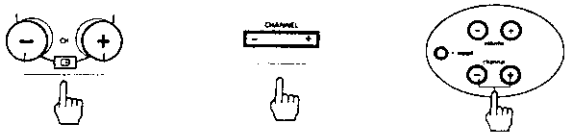
- Press the **POWER** button on the bottom left hand corner of your TV to switch the TV ON and OFF.



NOTE : The last viewed TV station will be automatically selected when the set is first switched on.

2. Selecting the TV Channels

- To select a TV station stored on a higher channel number
 - Press the **CHANNEL +** on the remote control handset or the TV control.
- To select a TV station stored on a lower channel number
 - Press the **CHANNEL -** on the remote control handset or the TV control.



Channel numbers can also be selected using the digit buttons 0 to 9 on the remote control handset.

A. Single Digit Channel Number

- Press and hold any of the respective digit buttons which correspond to the stored TV station. (see Fig. 1)

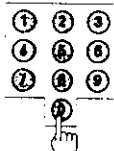


Fig. 1

B. Two Digits Channel Number

- (e.g. channel 28, see Fig. 2)
 - Press the digit 2 button then
 - Press the digit 8 button.

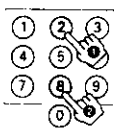


Fig. 2

You must complete the above operation within a time frame of 2 seconds, if not, it will react as a Single Digit operation.

B. Automatically

Approximately 10 minutes after a TV station stops transmission or at no signal reception, then the TV switches itself automatically to 'Stand-by' mode.

6. Switching the TV ON from 'Stand-by' mode

- Press the **CHANNEL +** or **-** button or any digit buttons.



OR

- Press the **⏻** button continuously for about 2 seconds.



The RED light below the TV screen will disappear.

7. Displaying OSD

The 'On-Screen-Display' (OSD) allows you to see the channel number on which a TV station is stored and also the sleep-timer and bass-boost selections.

- Press the **OSD** button ONCE to display the channel number, TWICE to display the sleep-timer and bass-boost and ONCE MORE to switch off the displayed information.



3. Adjusting the Volume

- To increase the volume
 - Press the **VOLUME +** on the remote control handset or the TV control.
- To decrease the volume
 - Press the **VOLUME -** on the remote control handset or the TV control.



NOTE : If you want to store the volume as your personal preference, press the **INSTALL** button on the TV set while the volume indicator bar is still on the screen.

The following functions, S/No 4 to 12 are operations with the remote control handset.

4. Muting the Sound

- Press the mute button to switch off the sound.



The sound is temporarily muted and the mute symbol is display on the screen.

- Press the mute button or the **VOLUME +** or **-** button to restore the sound.

5. Switching to 'Stand-by' mode

The TV can be put into 'Stand-by' mode in the following two ways.

A. Directly

- Press the **⏻** button. The RED light below the TV screen is lighted up and the TV is put into 'Stand-by' mode.



8. Personal Preference (PP)

If adjustments had been made to the picture and sound settings, it is possible to recall the stored settings either from your own or factory stored preferences.

Recalling Personal Preference (PP) and Factory Stored Personal Preference (NORMAL)

- Press the **PP** button ONCE to reset the picture and sound settings to the one you have stored previously. (Refer to section on Menu Operation for storing of personal preference. It is indicated by the word **PP**.)
- Press the **PP** button ONCE MORE will enable you to reset the picture and sound settings to the one that had been stored by the factory previously (you cannot adjust this settings) and is indicated by the word **NORMAL**.



9. Dynamic Bass-Boost (DBB)

This feature enable you to enhance the bass especially for musical programmes.

- Press the **DBB** button to switch on or off the amplification.



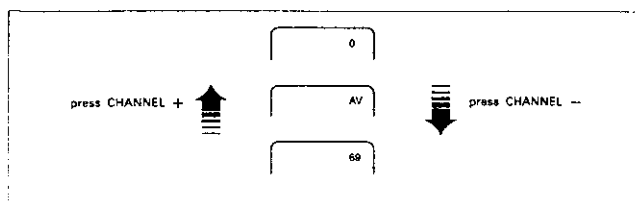
10. AV Source Selection

If your TV is connected to other peripherals equipment via the AV input, you can watch the playback programmes in the AV channel.

- Press the **AV** button to switch between the AV mode and the TV mode.



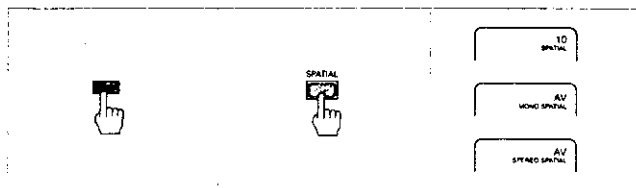
AV can also be selected via the CHANNEL + or - button by scrolling through the channel numbers (provided AV channel is not skipped).



11. Spatial Sound

This feature enable you to hear a Surround effect.

- Press the SPATIAL button to switch on or off the special acoustic sound effect.



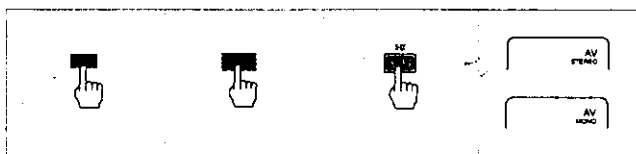
You can select either STEREO SPATIAL or MONO SPATIAL depending on which sound mode you are playing back.

12. Stereo Playback

This feature is only applicable if you are playing back STEREO programme via the AV sockets from a stereo VCR or laser disc player.

- Press the STEREO or HI button to switch between STEREO or MONO sound.

If you are playing back mono programmes (i.e. you only connect the Video socket and the Audio L socket), you must select to the mono sound mode, if not, you will only hear the sound coming out from one of the speakers.



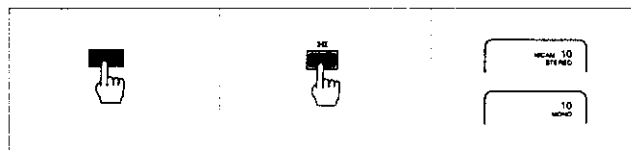
27

For models 21GX1870, 21GX1970, 25GX1880 and 25GX1980 only

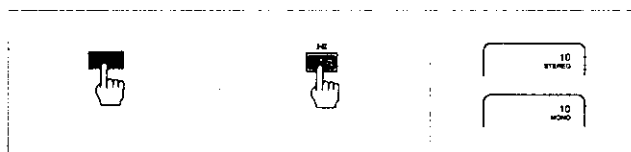
This feature is only applicable if the TV broadcast is transmitted in NICAM Stereo and 2CS Stereo sound. If not you will receive either normal-stereo or mono sound. With NICAM (Near Instantaneous Companded Audio Multiplex) sound you can experience a sound quality that is comparable to compact disc quality.

- Press the HI button on the remote control handset to select between NICAM Stereo / 2CS Stereo and FM Sound (appear as MONO in yellow on the TV On-Screen-Display).

For NICAM Stereo



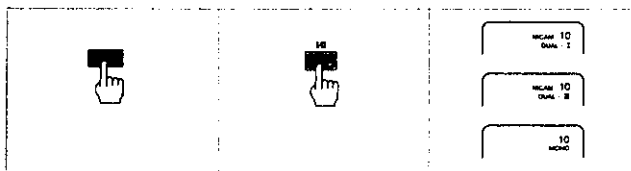
For 2CS Stereo



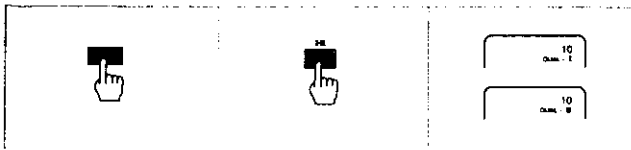
When a programme is broadcasted in two languages,

- For NICAM Stereo, press the HI button to select either DUAL-I or DUAL-II or FM sound.
- For 2CS Stereo, press the HI button to select either DUAL-I or DUAL-II.

For NICAM Stereo



For 2CS Stereo



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The picture and sound settings are pre-set by the factory for ideal viewing, but you can store your own personal preference for CONTRAST, BRIGHTNESS, COLOUR, HUE, SHARPNESS, BALANCE and BASS-BOOST using the 'On Screen Menu' (see Fig. 1).

- Press the MENU or MENU ON button on the remote control handset to cycle through the menu.

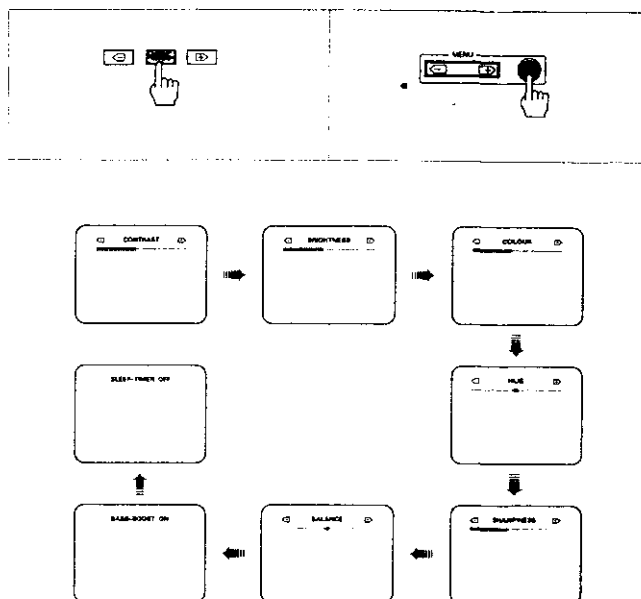
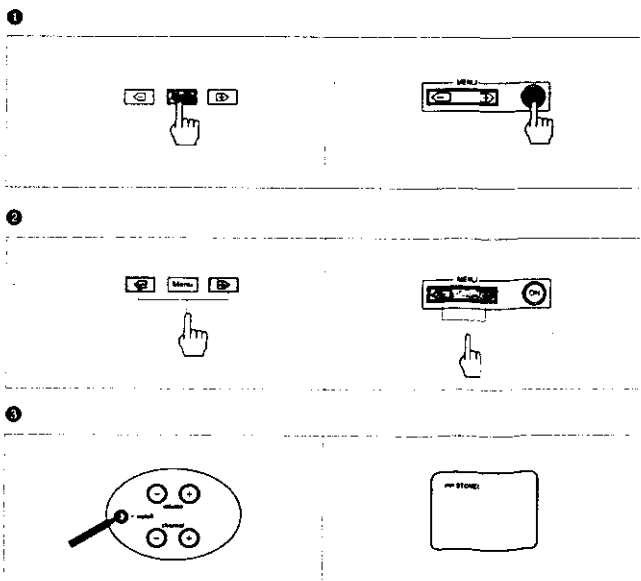


Fig. 1 : On Screen Menu

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To store your personal preference



NOTE : You must perform the settings of the following selections within a time frame of about 4 seconds. Otherwise the On Screen Display will go off and you have to start the whole cycle again.

CONTRAST

- Press the MENU or MENU ON button to select CONTRAST.
- Press the MENU + or - button to increase or decrease the contrast setting.
- If you want to store this setting as your personal preference, press the INSTALL button on the TV control.

BRIGHTNESS

- Press the MENU or MENU ON button to select BRIGHTNESS.
- Press the MENU + or - button to increase or decrease the brightness setting.
- If you want to store this setting as your personal preference, press the INSTALL button on the TV control.

COLOUR

- Press the MENU or MENU ON button to select COLOUR.
- Press the MENU + or - button to increase or decrease the colour setting.
- If you want to store this setting as your personal preference, press the INSTALL button on the TV control.

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Directions for use

HUE (For NTSC System or Playback only)

- 1 Press the MENU or MENU ON button to select HUE.
- 2 Press the MENU + or - button to increase or decrease the colour tone setting.
- 3 If you want to store this setting as your personal preference, press the INSTALL button on the TV control.

SHARPNESS

- 1 Press the MENU or MENU ON button to select SHARPNESS.
- 2 Press the MENU + or - button to decrease or increase the sharpness setting.
- 3 If you want to store this setting as your personal preference, press the INSTALL button on the TV control.

BALANCE (For off-air stereo and AV stereo only)

- 1 Press the MENU or MENU ON button to select BALANCE.
- 2 Press the MENU + or - button to select right or left speaker output.
- 3 If you want to store this setting as your personal preference, press the INSTALL button on the TV control.

BASS-BOOST

- 1 Press the MENU or MENU ON button to select BASS-BOOST.
- 2 Press the MENU + or - button to switch on or off the bass-boost.
- 3 If you want to store this setting as your personal preference, press the INSTALL button on the TV control.

SLEEP-TIMER

- 1 Press the MENU or MENU ON button to select SLEEP-TIMER.
- 2 Press the MENU + or - button to increase or decrease the sleeptimer setting.

With this feature, you can select a time period after which the TV set will switch to Stand-by mode automatically. The timer can be set in steps of 15 minutes from OFF up to a maximum of 120 minutes.

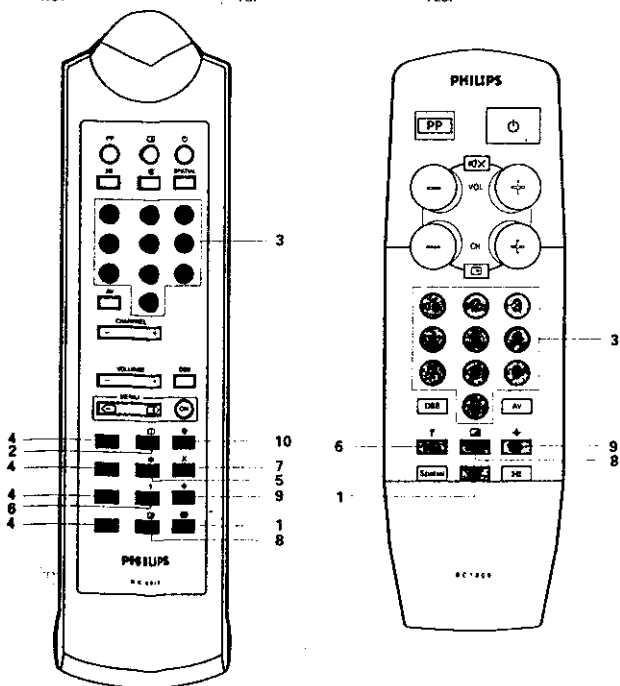
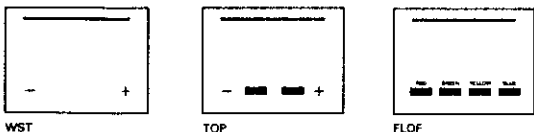
NOTE: At the final minute of the selected time period, an indication bar will be shown on the screen. During the final 30 seconds, the indication bar will begin to count down on the screen informing you that the TV set is going to switch to the Stand-by mode. At the end of the countdown, the TV will switch over to the Stand-by mode.

You can switch off the SLEEP-TIMER with one of the following steps:-

- 1 Select the SLEEP-TIMER menu and select the timer to OFF.
- 2 Switch the TV set to Stand-by mode or
- 3 Switch off the TV set.

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Most TV channel broadcast contains teletext information. Each channel that broadcasts teletext transmits a page (index page) with information on how to use its teletext system - usually on page 100. TV programmes are sometimes subtitled for the benefit of the hard of hearing. Depending on the TV broadcast, teletext is transmitted in different systems: WST, TOP or FLOF. The system transmitted is indicated in the option line at the bottom of the screen.



For models 21GX1970, 21GX1971, 25GX1980 and 25GX1981

For models 21GX1870 and 25GX1880

1. Switching Teletext On and Off — [Icon]

Select a TV channel on which teletext is being transmitted. (Check with a TV programme guide.)

- 1 Press the [Icon] button to switch on or off the Teletext display. Usually the list of contents (index) is displayed on the screen.

2. Index — [Icon] (For RC 6940 only)

- 1 Press the [Icon] button to select the index page.

3. Selecting a Teletext Page — Digit 0 - 9

- 1 Press the digit button for the required Teletext page number (3 digits).

The selected page number is displayed at the top left corner of the screen. The Teletext page counter searches until the selected page is located. Then the required page is displayed on the screen. If the counter keeps searching, it means that the page is not available for selection. If you had made a mistake in keying the page number, you have to complete the three digit number before re-keying the correct page number.

NOTE: If an inappropriate digit button is pressed a '?' symbol will be displayed on the top left corner of the screen. To return to normal Teletext operation, just press the appropriate digit buttons.

4. To 'Fast' Select a Teletext (For RC 6940 only)

If the teletext is transmitting with FLOF (or Fast Text) format, you can make use of the corresponding colour buttons (red, green, yellow and blue) to select the respective Teletext page. If the Teletext is transmitting with the WST format, there is a four page memory. You can select the next two sequential pages or the previous page quickly.

- 1 Press the red button to select the previous page.
- 2 Press the blue button to select the next sequential page.

5. Hold — [Icon] (For RC 6940 only)

A selected page number sometimes contains a few sub-pages. The sub-page will automatically rotate to the next sub-page after about 20 seconds. The total numbers of sub-pages are indicated on the top right corner of the screen. (e.g. 1/4)

- 1 Press the [Icon] button to hold a sub-page to read the text at your own pace. [Icon] symbol appears at the top left corner of the screen indicating that the page is on hold.
- 2 Press the [Icon] button to resume page rotation.

6. Reveal — ?

Sometimes a Teletext page contains concealed information such as in a quiz or puzzle.

- 1 Press the ? button to reveal the concealed information.
- 2 Press the ? button again to hide the concealed information.

7. Interrupt — X (For RC 6940 only)

To swap the Teletext and TV mode.

- 1 Press the X button to change to the TV mode. The TV programme appears and the [Icon] symbol appears at the top left corner of the screen indicating that the page is swapped.
- 2 Press the [Icon] button again to return to the Teletext page.

8. Mix — [Icon]

- 1 Press [Icon] button to superimpose the Teletext page over the TV programmes on the screen.
- 2 Press [Icon] button again to return to the Teletext page.

9. Enlarge — +

This mode enables you to view the Teletext page at double size in two pages.

- 1 Press the + button to view the top half of the Teletext page.
- 2 Press the + button again to view the bottom half of the Teletext page.
- 3 Press the + button once more to return to normal size Teletext page.

10. Subcode / Time Display — [Icon] (For RC 6940 only)

By adding a subcode, you can call up a sub-page and hold it.

- 1 Enter the Teletext page number (the Teletext page must have sub-pages in it).
- 2 Press the [Icon] button.
- 3 Enter the subpage with 4 digits: e.g. 0003 for 3/4 (third of 4 pages).
- 4 Press the X button.

The TV programme appears and the digits 0003 will be displayed as soon as the sub-page has been found.

- 1 Press the X button to switch to the Teletext mode.
- 2 Press the [Icon] button to cancel the subcode.

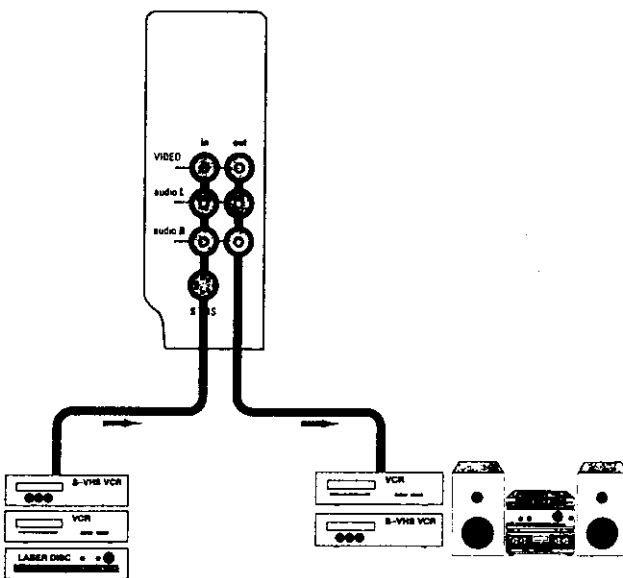
To display the time (only applicable to those channels that is broadcasting Teletext)

- 1 Press the [Icon] button to switch on the time display. The time is displayed on the top right hand corner of the screen.
- 2 Press the [Icon] button to switch off the time display.

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Rear and antenna connections are located at the back panel of the TV set while headphone connection is located in the front. Drawings below are graphical representation of the connection options of the TV set.

Rear Connections



AV INPUT

Connect the Video and Audio Left sockets to your mono VCR. If stereo VCR or Laser Disc are used, connect the Audio Right socket also. If you have a S-VHS VCR, you can enhance the picture quality by using the S VIDEO socket. Note: S-VHS signal will have priority over Video signal if both are connected.

AV OUTPUT

Allows you to record what you are viewing on the TV onto a VCR. Connect the Video, Audio Left and Right sockets respectively. If a S-VHS VCR is used, connect to the S-VHS socket instead of the Video socket. Note: S-VHS signal will have priority over Video signal if both are connected.

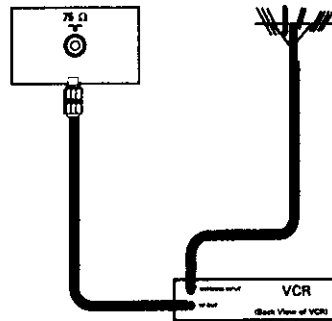
You can also enhance the sound of your TV by connecting the Audio Left and Right sockets to your external amplifier.

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PCS 73 719 G6

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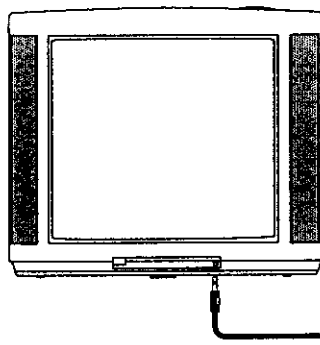
Antenna Connection



ANTENNA RF INPUT

You can connect the antenna either through the VCR or directly to the TV. Connect the antenna to the RF input of the VCR and from the VCR RF output, connect to the antenna input ("A") of your TV.

Headphone Connection



HEADPHONES SOCKET

The headphones socket is of the 3.5 mm jack type and the headphones used should be between 32 and 4000 ohms.

	21"	25"
Picture Tube Size	21" (51 cm)	25" (59 cm)
Audio Output : Speakers : Woofer	2 x 2 W 4W	
Channel Numbers	VHF II, III and UHF with 70 pre-selections	
Tuning System	VST	
Antenna Input	75 ohm co-axial	
Connections : AV Input / Output : Headphones Socket	1 x Video, 2 x Audio Sockets, 1 x S-VHS Ø 3.5 mm	
Dimensions (Width x Height x Depth)	(576 x 440 x 484) mm	(648 x 500 x 501) mm
Weight (Approx. Only and without packaging)	24 kg	31 kg

		VERSION /XX								
		52	56	57	58	59	69	75	79	93
TV System	PAL B/G	*	*				*		*	
	PAL B/H							*		
	PAL D									*
	PAL I			*						*
	PAL/SECAM B/G/D/K		*	*	*	*	*			*
	NTSC M		*	*			*			*
	PAL 60 Playback	*	*	*	*	*	*	*	*	*
Operating Voltage	160 - 250 V~, 50/60 Hz	*			*					
	220 V~, 50/60 Hz									*
	230 V~, 50/60 Hz							*		
	240 V~, 50/60 Hz							*		
	100 - 250 V~, 50/60 Hz		*	*		*	*			

NOTE : Please refer to the type plate at the rear of the TV set or the Identification Sticker on the carton box for reference to the version number for the set.

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To store the Video Cassette Recorder (VCR) signal on a channel number

(Please refer to section on 'Peripheral Equipment Connections' on how to connect your VCR.)

NOTE : Your VCR could already have pre-tuned TV channel numbers stored. For detailed connection and installation of the VCR, please refer to the instruction Manual of the VCR.

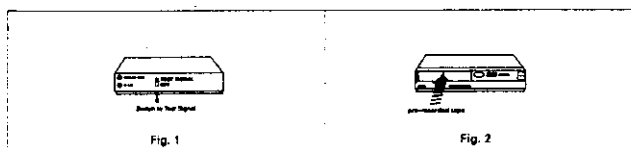
1. Switch on the TV and the VCR.

In most VCR, there is a test signal switch located at the back of the set.

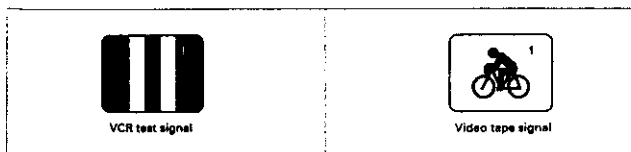
- 2a. Switch the test signal switch from the off position to the test signal position. (see Fig. 1)

If your VCR does not have the test signal switch, you can use a pre-recorded tape to simulate the video signal.

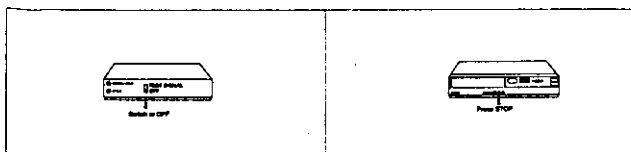
- 2b. Insert a pre-recorded tape into the VCR and press the PLAY button on the VCR. (see Fig. 2)



3. Perform a manual searching (see section under "To Store the TV Stations Manually") to search for the VCR test signal or the tape signal.
4. When the VCR test signal or the video tape signal is located, select the desired channel number to be stored. Then press the INSTALL button to store the channel number.



5. Switch back the test signal switch on the VCR to the off position (or stop the VCR if you are using the pre-recorded tape).



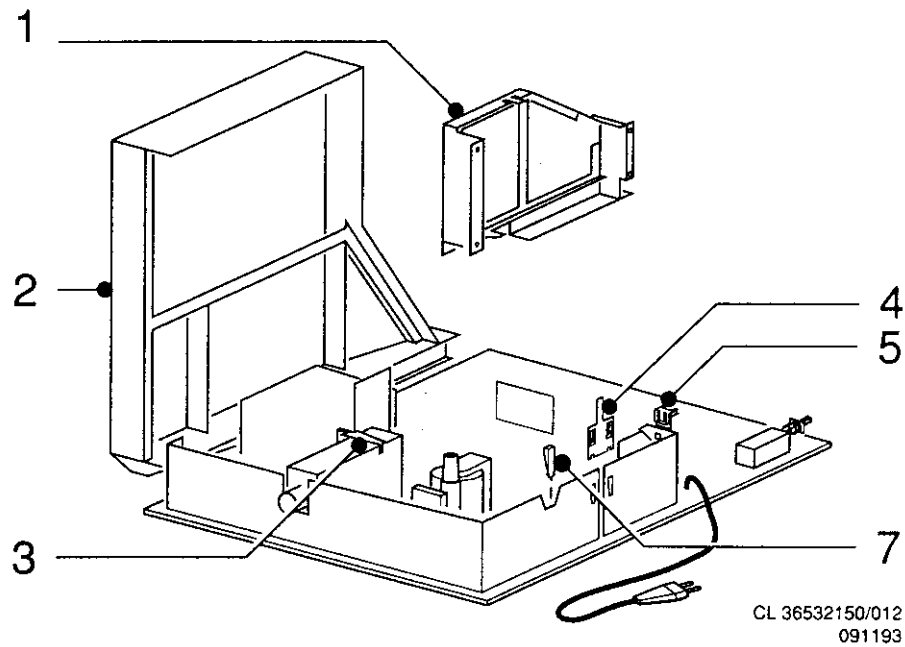
6. Switch off the TV and the VCR.

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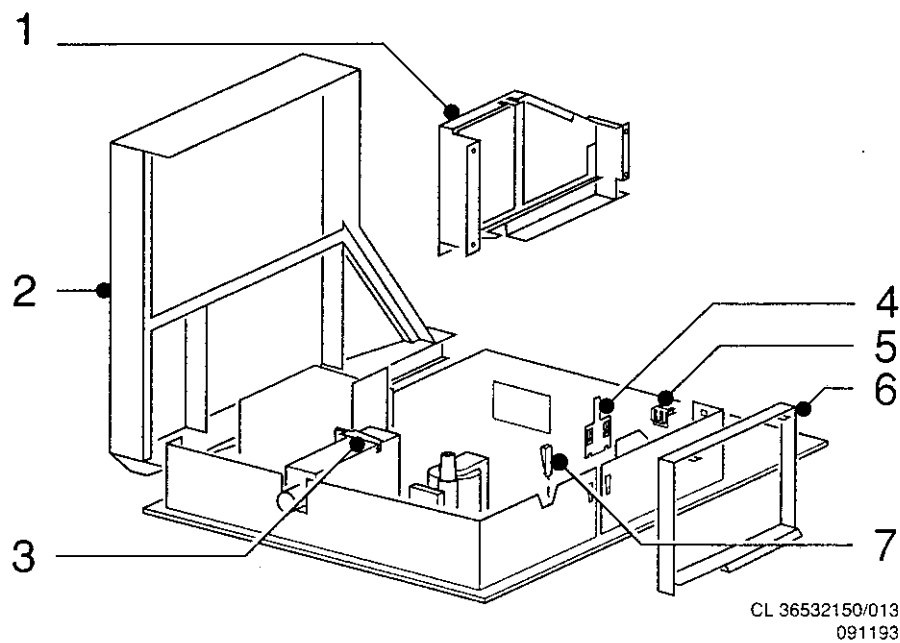
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10. Spare parts list

Chassis 21"



Chassis 25"



10. Spare parts list / Liste des pièces

Anubis S 33

Main carrier 21 and 25 [A], [AA], [B], [C], [D]

Various

1	4822 404 31327	Bracket for TXT
2	4822 404 30359	Bracket for 2CS + VO + ampli panel
3	4822 404 31356	Bracket for GSS panel
4	4822 404 21263	Bracket clamping heatinks
5	4822 404 31353	Main cord relief
6	4822 404 31357	Bracket for main input panel (25)
7	4822 482 70289	Spring for SOPS for 21" and line for
8	4822 492 62076	Spring for SOPS for 25" and frame
9	4822 404 31362	Spring for easting transistor
10	4822 404 31358	Spring for 6529 (21")
11	4822 265 20366	1 pin header 2 35 mm
12	4822 267 40648	2 pins header 2 35 mm
13	4822 265 20441	3 pins header
14	4822 265 31101	3 pins male BTB (AU)
15	4822 264 40207	3 pins male WTB
16	4822 417 50217	3 pins male BTB (AU)
17	4822 265 30796	4 pins header (MS)
18	4822 265 30378	4 pins male WTB
19	4822 265 31181	5 pins male WTB (M25)
20	4822 265 30394	5 pins header (M26)
21	4822 267 50591	5 pins male BTB (AU)
22	4822 260 40295	7 pins male WTB
23	4822 264 50148	8 pins male BTB (AU)
24	4822 265 40818	8 pins male WTB
25	4822 532 61201	EHT cable spacer
26	4822 276 13431	Main switch
27	4822 256 30496	Fuse holder
28	4822 410 63149	Push button for 21" main switch
29	4822 210 10448	UV915E
30	4822 210 10459	UV913/IEC
31	4822 242 72197	OFWK2950M 38.9 MHz
32	4822 242 81637	OFWK3952M 38.9 MHz
33	4822 242 72547	5.5 MHz
34	4822 242 72057	5.5 MHz
35	4822 242 71207	5.5 MHz
36	4822 242 81529	5.5 MHz
37	4822 242 81529	5.5 MHz
38	4822 242 81529	5.5 MHz
39	4822 242 81529	5.5 MHz
40	4822 242 81529	5.5 MHz
41	4822 242 81529	5.5 MHz
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68	4822 242 81529	5.5 MHz
69	4822 242 81529	5.5 MHz
70	4822 242 81529	5.5 MHz
71	4822 242 81529	5.5 MHz
72	4822 242 81529	5.5 MHz
73	4822 242 81529	5.5 MHz
74	4822 242 81529	5.5 MHz
75	4822 242 81529	5.5 MHz
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77	4822 242 81529	5.5 MHz
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79	4822 242 81529	5.5 MHz
80	4822 242 81529	5.5 MHz
81	4822 242 81529	5.5 MHz
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89	4822 242 81529	5.5 MHz
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92	4822 242 81529	5.5 MHz
93	4822 242 81529	5.5 MHz
94	4822 242 81529	5.5 MHz
95	4822 242 81529	5.5 MHz
96	4822 242 81529	5.5 MHz
97	4822 242 81529	5.5 MHz
98	4822 242 81529	5.5 MHz
99	4822 242 81529	5.5 MHz
100	4822 242 81529	5.5 MHz

2501	4822 121 70141	33nF 5% 400V
2502	4822 126 12793	2.2nF 10% 2KV
2503	4822 126 12793	2.2nF 10% 2KV
2504	4822 126 12793	2.2nF 10% 2KV
2505	4822 126 12793	2.2nF 10% 2KV
2506	4822 126 12793	2.2nF 10% 2KV
2507	4822 126 12793	2.2nF 10% 2KV
2508	4822 126 12793	2.2nF 10% 2KV
2509	4822 126 12793	2.2nF 10% 2KV
2510	4822 126 12793	2.2nF 10% 2KV
2511	4822 126 12793	2.2nF 10% 2KV
2512	4822 126 12793	2.2nF 10% 2KV
2513	4822 126 12793	2.2nF 10% 2KV
2514	4822 126 12793	2.2nF 10% 2KV
2515	4822 126 12793	2.2nF 10% 2KV
2516	4822 126 12793	2.2nF 10% 2KV
2517	4822 126 12793	2.2nF 10% 2KV
2518	4822 126 12793	2.2nF 10% 2KV
2519	4822 126 12793	2.2nF 10% 2KV
2520	4822 126 12793	2.2nF 10% 2KV
2521	4822 126 12793	2.2nF 10% 2KV
2522	4822 126 12793	2.2nF 10% 2KV
2523	4822 126 12793	2.2nF 10% 2KV
2524	4822 126 12793	2.2nF 10% 2KV
2525	4822 126 12793	2.2nF 10% 2KV
2526	4822 126 12793	2.2nF 10% 2KV
2527	4822 126 12793	2.2nF 10% 2KV
2528	4822 126 12793	2.2nF 10% 2KV
2529	4822 126 12793	2.2nF 10% 2KV
2530	4822 126 12793	2.2nF 10% 2KV
2531	4822 126 12793	2.2nF 10% 2KV
2532	4822 126 12793	2.2nF 10% 2KV
2533	4822 126 12793	2.2nF 10% 2KV
2534	4822 126 12793	2.2nF 10% 2KV
2535	4822 126 12793	2.2nF 10% 2KV
2536	4822 126 12793	2.2nF 10% 2KV
2537	4822 126 12793	2.2nF 10% 2KV
2538	4822 126 12793	2.2nF 10% 2KV
2539	4822 126 12793	2.2nF 10% 2KV
2540	4822 126 12793	2.2nF 10% 2KV
2541	4822 126 12793	2.2nF 10% 2KV
2542	4822 126 12793	2.2nF 10% 2KV
2543	4822 126 12793	2.2nF 10% 2KV
2544	4822 126 12793	2.2nF 10% 2KV
2545	4822 126 12793	2.2nF 10% 2KV
2546	4822 126 12793	2.2nF 10% 2KV
2547	4822 126 12793	2.2nF 10% 2KV
2548	4822 126 12793	2.2nF 10% 2KV
2549	4822 126 12793	2.2nF 10% 2KV
2550	4822 126 12793	2.2nF 10% 2KV
2551	4822 126 12793	2.2nF 10% 2KV
2552	4822 126 12793	2.2nF 10% 2KV
2553	4822 126 12793	2.2nF 10% 2KV
2554	4822 126 12793	2.2nF 10% 2KV
2555	4822 126 12793	2.2nF 10% 2KV
2556	4822 126 12793	2.2nF 10% 2KV
2557	4822 126 12793	2.2nF 10% 2KV
2558	4822 126 12793	2.2nF 10% 2KV
2559	4822 126 12793	2.2nF 10% 2KV
2560	4822 126 12793	2.2nF 10% 2KV
2561	4822 126 12793	2.2nF 10% 2KV
2562	4822 126 12793	2.2nF 10% 2KV
2563	4822 126 12793	2.2nF 10% 2KV
2564	4822 126 12793	2.2nF 10% 2KV
2565	4822 126 12793	2.2nF 10% 2KV
2566	4822 126 12793	2.2nF 10% 2KV
2567	4822 126 12793	2.2nF 10% 2KV
2568	4822 126 12793	2.2nF 10% 2KV
2569	4822 126 12793	2.2nF 10% 2KV
2570	4822 126 12793	2.2nF 10% 2KV
2571	4822 126 12793	2.2nF 10% 2KV
2572	4822 126 12793	2.2nF 10% 2KV
2573	4822 126 12793	2.2nF 10% 2KV
2574	4822 126 12793	2.2nF 10% 2KV
2575	4822 126 12793	2.2nF 10% 2KV
2576	4822 126 12793	2.2nF 10% 2KV
2577	4822 126 12793	2.2nF 10% 2KV
2578	4822 126 12793	2.2nF 10% 2KV
2579	4822 126 12793	2.2nF 10% 2KV
2580	4822 126 12793	2.2nF 10% 2KV
2581	4822 126 12793	2.2nF 10% 2KV
2582	4822 126 12793	2.2nF 10% 2KV
2583	4822 126 12793	2.2nF 10% 2KV
2584	4822 126 12793	2.2nF 10% 2KV
2585	4822 126 12793	2.2nF 10% 2KV
2586	4822 126 12793	2.2nF 10% 2KV
2587	4822 126 12793	2.2nF 10% 2KV
2588	4822 126 12793	2.2nF 10% 2KV
2589	4822 126 12793	2.2nF 10% 2KV
2590	4822 126 12793	2.2nF 10% 2KV
2591	4822 126 12793	2.2nF 10% 2KV
2592	4822 126 12793	2.2nF 10% 2KV
2593	4822 126 12793	2.2nF 10% 2KV
2594	4822 126 12793	2.2nF 10% 2KV
2595	4822 126 12793	2.2nF 10% 2KV
2596	4822 126 12793	2.2nF 10% 2KV
2597	4822 126 12793	2.2nF 10% 2KV
2598	4822 126 12793	2.2nF 10% 2KV
2599	4822 126 12793	2.2nF 10% 2KV
2600	4822 126 12793	2.2nF 10% 2KV

3504*	4822 051 21745	4M7 5% 0.5W	5206	4822 152 2070
3505	4822 113 80648	112 10% 5W	5208	4822 157 533
3505	4822 113 80647	112 5% 5W	5209*	4822 157 52160
			5260	4822 157 711
3506	4822 051 21731	27% 5% 2W		
3507	4822 116 52263	2K7 5% 0.3W	5288	4822 152 207
3519	4822 117 10422	0.33K 5% 3W	5288	4822 157 533
3520	4822 113 80637	1.5W 5W	5287	4822 152 207
3521*	4822 051 21730	10% 0.5 0.33W	5287	4822 157 533
3522	4822 116 52260	12K 5% 0.5W	5288	4822 152 207
3522	4822 116 52221	360K 5% 0.5W	5288	4822 157 533 0.5W
3523*	4822 116 80127	4M 7 5% 1W	5424	4822 157 530
3526	4822 053 11473	47K 5% 2W	5441	4822 156 80
3526*	4822 052 11018	11% 5% 0.33W	5441	4822 156 80
			5443*	4822 157 511
3529	4822 116 52298	680K 5% 0.5W		
3530	4822 116 52231	820K 5% 0.5W	5445*	4822 140 10
3542	4822 116 52191	33K 5% 0.5W	5445*	4822 140 10
3542	4822 051 21732	10% 0.5 0.33W	5445*	4822 157 533
3560	4822 116 52123	180K 5% 0.5W	5454	4822 157 533
3561	4822 116 52195	47K 5% 0.5W	5454	4822 157 533
3562	4822 116 52294	470K 5% 0.5W	5481	4822 157 821
3563*	4822 116 52151	220K 0.5 0.5W	5500*	4822 157 80
3565	4822 116 52298	680K 5% 0.5W	5501	4822 157 80
3589*	4822 116 52272	33K 5% 0.5W	5520	4822 157 60
			5522	4822 157 60
3603*	4822 116 52269	3K 5% 0.5W		
3604	4822 116 52175	100K 5% 0.5W	5523	4822 157 71
3605	4822 116 52298	680K 5% 0.5W	5528*	4822 148 31
3608	4822 116 52175	100K 5% 0.5W	5529	4822 148 31
3609	4822 116 52175	100K 5% 0.5W	5529	4822 157 71
3611	4822 116 52175	100K 5% 0.5W	5530	4822 157 821
3612	4822 116 52304	82K 5% 0.5W	5530	4822 157 80
3617	4822 116 52175	100K 5% 0.5W	5531	4822 157 80
3622	4822 116 52284	22K 5% 0.5W	5531	4822 158 10
3625	4822 050 11002	1K 1% 0.4W	5532	4822 157 60
			5540	4822 157 60
3626	4822 116 52284	47K 5% 0.5W		
3627	4822 116 52298	680K 5% 0.5W	5543	4822 157 52
3633	4822 050 11002	1K 1% 0.4W	5546	4822 157 52
3634	4822 116 52297	68K 5% 0.5W	5620*	4822 157 52
3635	4822 116 52233	10K 5% 0.5W	5620	4822 157 52
3635	4822 050 11002	1K 1% 0.4W	5621*	4822 157 52
3637	4822 116 52298	680K 5% 0.5W	5621	4822 157 52
3638	4822 116 52258	22K 5% 0.5W	5711*	4822 157 52
3640	4822 116 52297	68K 5% 0.5W	5720*	4822 157 52
3641	4822 116 52271	33K 5% 0.5W		
			—H—	
3646	4822 116 52175	100K 5% 0.5W	6016	5322 130 34
3647	4822 116 52211	150K 5% 0.5W	6254	5322 130 34
3648	4822 116 52261	24K 5% 0.5W	6260*	4822 130 30
3649	4822 116 52238	12K 5% 0.5W	6260	4822 130 30
3650	4822 116 52244	15K 5% 0.5W	6261*	4822 130 30
3652	4822 116 52298	680K 5% 0.5W	6262*	4822 130 30
3653	4822 116 52231	150K 5% 0.5W	6263*	4822 130 30
3654	4822 116 52244	15K 5% 0.5W	6266*	4822 130 30
3655	4822 116 52233	10K 5% 0.5W	6287*	4822 130 30
3661	4822 116 52249	18K 5% 0.5W	6288*	4822 130 30
			6412	4822 130 34
3662	4822 116 52289	5K 5% 0.5W	6415*	4822 130 30
3670	4822 116 52226	560K 5% 0.5W		
3671	4822 116 52226	560K 5% 0.5W	6418	4822 130 42
3685	4822 116 52284	47K 5% 0.5W	6417*	4822 130 34
3687	4822 116 52298	680K 5% 0.5W	6420	5322 130 34
3688	4822 116 52175	100K 5% 0.5W	6423	5322 130 34
3689	4822 116 52175	100K 5% 0.5W	6425	4822 130 31
3690	4822 116 52175	100K 5% 0.5W	6426	4822 130 31
3691	4822 116 52284	47K 5% 0.5W	6427	4822 130 31
3693	4822 116 52294	47K 5% 0.5W	6428	4822 130 31
			6429	4822 130 34
3694	4822 116 52195	47K 5% 0.5W	6439*	4822 130 31
3696*	4822 116 52283	4K 7% 0.5W		
3697	4822 116 52175	100K 5% 0.5W	6441*	4822 130 30
3698	4822 116 52175	100K 5% 0.5W	6442	4822 130 42
3700	4822 116 52298	680K 5% 0.5W	6443	4822 130 42
3702	4822 116 52294	47K 5% 0.5W	6445*	4822 130 30
3703	4822 116 52284	47K 5% 0.5W	6446*	4822 130 83
3704	4822 116 52293	10K 5% 0.5W	6447	5322 130 34
3706	4822 116 52252	18K 5% 0.5W	6447*	4822 130 34
			6449	4822 130 42
3707*	4822 116 52256	2K 5% 0.5W	6450	4822 130 42
3708	4822 116 52234	100K 5% 0.5W	6451	4822 130 42
3709	4822 050 11002	1K 1% 0.4W	6452	4822 130 42
3710	4822 116 52298	680K 5% 0.5W	6455	4822 130 34
3713	4822 116 52278	38K 5% 0.5W	6470	4822 130 42
3715	4822 116 52249	18K 5% 0.5W	6480*	4822 130 61
3717*	4822 116 52269	3K 5% 0.5W	6500	4822 130 80
3718*	4822 116 52269	3K 5% 0.5W	6506	4822 130 80
3719	4822 116 52283	4K 7% 0.5W	8507	4822 130 80
3726*	4822 116 52283	4K 7% 0.5W	8508	4822 130 80
			8512*	4822 130 30
3727*	4822 116 52283	4K 7% 0.5W		
3728*	4822 116 52283	4K 7% 0.5W	8513*	4822 130 30
4xxx	4822 051 10008	0K 1% 0.25W	8519	5322 130 34
			8520	4822 130 42
			8526*	4822 130 33
			8528*	4822 130 33
5014	4822 157 83065	0.88W	8531*	4822 130 33
5020	4822 157 7049	7.0K	8540	4822 130 33
5080	4822 157 71112	3.3uH 10%	8541*	4822 130 33
5100	4822 157 71039	120uH 5%	8542*	4822 130 34
5112*	4822 157 72288	2.2uH 10%	8582	4822 130 34

OPTION SETTING TABLE FOR SOFTWARE NUMBER 12

Address	Option A	Value	Option B	Value
252	BTSC panel not present	0	BTSC panel present	128
	Mono set	0	AV stereo playback	64
	Not used			0
	AV selection not allowed	0	AV selection allowed	16
	No trinorma set	0	Trinorma set	8
	Not used			0
	Not used			0
	Not used			0
253	No subwoofer present	0	Subwoofer present	128
	Keys local control	0	Keys local control	64
	Protection bit can not be saved in EEPROM	0	Protection bit is saved in EEPROM (so after protection occurred, the set remains in protection until entering the Service Mode)	32
	Spatial feature is not present	0	Spatial feature is present	16
	Multi voltage is not present	0	Multi voltage is present	8
	Sharpness feature is not present	0	Sharpness feature is present	4
	Hotel mode not allowed	0	Hotel mode allowed	2
	HUE control disabled	0	HUE control enabled, for NTSC only sets	1
254	Checksum Add data on address 252 and 253 and then (if necessary) subtract 256 until the data has a value under 256. If checksum is not OK the set will use default setting.			

Table 8.4

Multi sound panel [D]					
Various		3106	4822 116 52244	15k 5% 0.5W	
		3107	4822 116 52246	560Q 5% 0.5W	
		3108	4822 116 52225	510k 5% 0.5W	
		3109	4822 116 52265	150k 5% 0.5W	
		3110	4822 116 52245	150k 5% 0.5W	
	4822 212 31346 4822 265 20366	3111	4822 116 52273	3k6 5% 0.5W	
		3112	4822 052 10129	12Q 5% 0.33W	
	4822 265 40421	3114	4822 116 52233	10k 5% 0.5W	
	4822 185 30378	3115	4822 116 52266	2k2 5% 0.5W	
	4822 268 30276	3116	4822 116 52263	4k7 5% 0.5W	
		3117	4822 116 52266	560Q 5% 0.5W	
	4822 265 40471	3118	4822 116 52292	560k 5% 0.5W	
		3119	4822 116 52263	3k3 5% 0.5W	
1101	4822 224 72547	3150	4822 116 52255	220Q 5% 0.5W	
1102	4822 224 71713	3151	4822 116 52224	470Q 5% 0.5W	
1103	4822 224 72057				
1104	4822 224 71725				
		3152	4822 116 52219	330Q 5% 0.5W	
		3152	4822 116 52224	470Q 5% 0.5W	
		3153	4822 116 52219	330Q 5% 0.5W	
		3154	4822 116 52226	560Q 5% 0.5W	
		3155	4822 116 52291	56k 5% 0.5W	
		3156	4822 116 52244	15k 5% 0.5W	
		3180	4822 116 52245	150k 5% 0.5W	
		5105	4822 157 71039	120uH	
		5106	4822 157 71113	10uH 10%	
2105	4822 122 33293	100pF 5% 50V			
2106	5322 122 32491	1nF 20% 100V			
2108	4822 124 40242	1nF 20% 63V			
2109	4822 121 43714	820pF 5% 50V			
2108	4822 121 51438	820pF 10% 63V			
2111	4822 121 51231	820pF 1% 100V			
2111	4822 126 13173	820pF 5% DC 50V			
2112	4822 126 12788	30pF 5% 50V			
2114	5322 122 32491	1nF 20% 100V			
2115	5322 122 32491	1nF 20% 100V			
2116	5322 122 32491	1nF 20% 100V			
2117	5322 122 32491	1nF 20% 100V			
2125	4822 126 12643	22nF 20% 50V			
2132	4822 124 40248	10uF 20% 63V			
2133	4822 124 12643	22nF 20% 50V			
2140	5322 122 32511	475pF 10% 100V			
2154	4822 126 12643	22nF 20% 50V			
2160	5322 122 32491	1nF 20% 100V			
3101	4822 116 52269	3k3 5% 0.5W			
3102	4822 116 52289	5k6 5% 0.5W			
3103	4822 116 52289	5k6 5% 0.5W			
3104	4822 116 52289	5k6 5% 0.5W			
3105	4822 116 52289	5k6 5% 0.5W			
		7111	4822 130 40937	BC548B	
		7112	4822 130 40938	BC548	
		7113	4822 130 40938	BC548	
		5105	4822 157 71039	120uH	
		5106	4822 157 71113	10uH 10%	
		6101	4822 130 30621	1N4148	
		6102	4822 130 30621	1N4148	
		6103	4822 130 30621	1N4148	
		6104	4822 130 30621	1N4148	
		6106	5322 130 80617	BA781	
		6107	5322 130 80617	BA781	

Anubis S

BB&CC

94.02

Service
Service
Service

Service Information



Incredible stereo

In this service information the Incredible stereo panel and all other related modifications are published (the incredible stereo panel is the same for both Anubis S BB and CC).

In the Anubis S BB (english 4822 727 20262, spanish 4822 727 20281; 21-25" Anubis S stereo) the incredible stereo feature will be added and indicated with the typenumbers -/xxT (for the future 29" this will be -/xxR). For the Anubis S BB the slightly adapted Multisound panel (diagram D) and the slightly adapted 2CS + I/O + Amplification panel (diagram H and a part of diagram J) are published in this service information.

In the Anubis S CC (english 4822 727 20288, spanish 4822 727 20289; 14-20-21" Anubis S with Interface + Amplifier panel) this incredible stereo feature can also be introduced in future. For the Anubis S CC the Interfacing + Amplification panel (diagram I) and the Multisound panel (diagram D) are already prepared for incredible stereo, so they are not published in this service information.

1. Software number A+

Anubis S BB and CC sets with production code SV03 are foreseen with a μ C with software number "A+" (sets with production code SV02 and thus with a μ C with software number "A" will remain in production in parallel).

Microprocessor IC7600 (diagram C) software number "A+" version 0.9 (ANUBIS-SAPHV 0.9 in the Service Mode and CTV110SAPHV 0.9 printed on the μ C): PCA84C84P/163; 4822 209 33773

Software number "A+" has the following extra features in comparison with software number A:

- * **Incredible stereo**
For selection of the incredible stereo feature, first press the I-I button to select stereo or NICAM and then press the SPATIAL button to switch on/off incredible stereo.
- * **TDSP2 NICAM via SAA7282**
This software can handle both the present SAA7280 NICAM (single system) decoder and the future SAA7282 (both single system NICAM and the so called BINICAM systems BG and I). At the introduction of this SAA7282 this will be published via a separate service information.

* New hotel mode:

Extra features of hotel mode 1 of software number "A+" in comparison with hotel mode 1 of software number "A":

- Switching "on" the set from stand-by using the PROGRAM +/- buttons will select the last viewed program number.
- When the preset maximum volume level for hotel mode is reached, the volume menu OSD will not increase any further.

Extra feature of hotel mode 2 of software number "A+" in comparison with hotel mode 2 of software number "A":

- At program numbers 30..49 in "radio mode" via OSD the word "AUDIO" will be displayed.

* Checksum:

Via one of the options at address 245 (with values 0 and 4) it is determined whether the checksum area should be calculated over the addresses 245 up to and included 253 or over the addresses 239 up to and included 253 (the protected area in the EEPROM will be adapted accordingly, so either 245..253 or 239..253).

Checksum calculation is done in the same way as for software number "A" (see service manual Anubis S BB chapter 8).

2. Software number 12

Anubis S BB and CC sets with production code SV03 and higher with software number 12 are foreseen with a μ C with the incredible stereo feature.

- * For Anubis S BB IC7600 (diagram C) software number 12 version 2.8 (ANUBIS-S12HV 2.8): P83C055-CV6108NB; 4822 209 33622
- * For Anubis S CC IC7600 (diagram C) software number 12 version 2.9 (ANUBIS-S12HV 2.9): (this software version has a demo mode with AV-IN only) P83C055-CV6118NB; 4822 209 52596

Selection of the incredible stereo feature can be done in 2 ways:

- * Direct via the SPATIAL button on the remote (toggle function incredible stereo/spatial effect on and off.
- * Indirect via the SOUND-MENU via control left/right.

3. Control and muting

* Control for Anubis S BB

- **Shift register (output expander) HEF4094**
For Anubis S BB an (extra) shift register IC7827 (HEF4094; diagram H) is applied only in case incredible stereo is used.

The following shift register configuration are possible:

- * 1 shift register HEF4094 (IC7132) on the Multisound panel.
- * 1 shift register HEF4094 (IC7827) on the 2CS+I/O+Ampl panel.
- * 2 shift registers HEF4094 (IC7132 and IC7827) in cascade (note the configuration table address 244 for software number "A+" and address 252 for software number "12").
In case of 2 shift registers jumper 9144 is present and 9143 and CUT1 on the Multisound panel are not present (diagram D). As a result the Os' at pin 10 IC7827 (diagram H) shifts through the data (16 bits i.s.o. 8 bits as there are 2 shift registers in cascade) to SDA pin 2 of IC7132 via connector 5A8A (diagram J) to connector 3C8A and Jumper 9144 (diagram D).

Incredible stereo control in Anubis S BB

Switching on/off the incredible stereo feature is done via pin 6 IC7827 (HEF4094) on diagram H. Via connector A7A (diagram H) to connector A7 and 3A9 (diagram J) to 319 and the signal line "INC-SWITCH" on the incredible sound panel.

This "INC-SWITCH" signal line selects via IC7400 (HEF4053) between L and R audio signals with and without incredible stereo effect (INC-SWITCH "high" is incredible stereo feature "on", if "low" then "off").

* Control for Anubis S CC

- Shift register (output expander) HEF4094

For Anubis S CC an (extra) shift register IC7290 (HEF4094; diagram I of the Anubis S CC service manual) is reserved.

- * 1 shift register HEF4094 (IC7132) on the Multisound panel.
- * 1 shift register HEF4094 (IC7920) on the Interfacing + Amplification panel.
- * 2 shift registers in cascade (combination of IC7132 and IC7290).

- Incredible stereo control in Anubis S CC

Provisions to switch on/off the incredible stereo panel by IC7290 on the Interfacing + Amplification panel (diagram I) are not yet foreseen.

* Muting for Anubis S BB

a. For sets with incredible stereo, so IC7827 present (with and without multisound panel)

In case of a set with incredible stereo IC7827 on the 2CS+I/O+Ampl panel is present (diagram H). Muting is done via pin 4 IC7827.

- * **FM_MONO mute:** In case the μ C (via SOUND_ID or SAP_AVAL or NICAM_AVAL) knows that the Multisound or NICAM or BTSC decoder have not found a correct signal, pin 4 IC7827 becomes "low". TS7828 and so TS7829 conduct. Herewith the FM_MONO signal and the NICAM or BTSC signal will be muted.
- * **AV_OUT mute:** In case the AV-OUT cinches are present, AV-OUT muting also takes place via pin 4 IC7827. At muting pin 4 IC7827 is "low", FM_MONO will be muted and as a result AV_OUT will be muted (AV_OUT will not be muted by TS7830, A5A and A6A, as these components are not present for sets with IC7827).

b. For sets without incredible stereo (IC7827 not present) + with multisound panel

In case of a set without incredible stereo IC7827 is not mounted. Jumper 9143 and CUT1 on the Multisound panel are present, jumper 9144 is not present (diagram D).

- * **FM_MONO mute:** FM-MONO is not muted as C2823 is not present for a set without IC7827.
- * **AV_OUT mute:** Muting is done via the SOUND_ID

signal from the Multisound panel (diagram D). Via jumper 9143, 3C8A (diagram D), 5A8A (diagram J), via Os' and jumper 9827 and 9828 (diagram H). In case the Multisound panel does not detect a correct sound system, the SOUND_ID will be "low" (diagram D). By then TS7828 is driven into conduction and so TS7829 and TS7830 are conducting. Connector A5A (diagram H) is connected to A5 (diagram I of the Anubis S BB service manual) which is directly connected to the L_MONITOR output cinch. Connector A6A (diagram H) is connected to A6 (diagram I) which is directly connected to the R_MONITOR output cinch. As a result in case of muting the L_MONITOR and R_MONITOR are shorted by TS7829 and TS7830.

c. For sets without incredible stereo (IC7827 not present) + without multisound panel

In this case muting of AV_OUT on the 2CS+I/O+Ampl panel is not needed as there is no "noise" coming from the Multisound panel.

* Muting for Anubis S CC

For sets with Multisound panel (mono and stereo versions) muting is described in the service manual of Anubis S CC (diagram I page 13)

4. Incredible stereo/sound

For stereo in television sets in general the loudspeakers are too close to each other for a good stereo effect. Some television sets make use of a spatial effect, which measures the difference between left and right and amplifies the stereo effect before giving the signals to the left and right speakers. Although it gives some improvement it is not the real widening of stereo as if the loudspeakers are more separated. For the Anubis S BB the sound system has been extended with an "electronic" stereo widening system.

With aid of his two ears a listener can detect where the sound is coming from. If e.g. the loudspeakers are more separated, than the angle between the boxes and the listener will be different and with this the phase and amplitude of both left and right sound signals to both ears. Via mathematic calculations of the phase relations from boxes to ears, frequency depending phase and amplitude can be determined for influencing the stereo effect.

The implemented "electronic" stereo widening system of the Anubis S BB will give the listener an experience of this "Incredible Stereo" as if the loudspeakers are really separated in line with the original transmitted stereo recording.

Realisation in the Anubis S BB and CC

The left signal L-IN is fed to a low-pass passive filter by R3206, C2202 and R3207, R3208, C2203, R3210 and R3209. This filter influences the phase characteristic from 500Hz to 15kHz and gives an amplitude variation rolling off at 1kHz. The right signal R-IN is fed to an active phase-shift filter (starting at 500Hz) by IC7200-4A, R3201, R3200, C2200 and R3202, C2201. This filter influences the frequency and amplitude characteristic. The output of these 2 filters are added via input pins 9 and 10 of IC7200-4B. Finally IC7300-2A amplifies the signal to compensate the level. The adapted left signal is fed to the left amplifier.

Similar the right signal is adapted: passive R-IN low pass filter, active L-IN phase-shifting (IC7200-4C), mixing (IC7400-4D) and amplitude correction (IC7300-2B). The "Incredible Stereo" signals or the standard signals can be selected. If "INC-SWITCH" is "high", TS7001 will conduct and IC7400 (HEF4053) will select "Incredible stereo". If "INC-SWITCH" is "low", the standard signals are selected. IC7200-4B-4D will get the DC bias (7V) at pin 10 and 3 from R3501 and R3502.

Estéreo Increíble

En la presente información de servicio aparecen publicados el panel de **estéreo increíble** con todas sus modificaciones relacionadas (el panel de **estéreo increíble** para el Anubis S BB es el mismo que para el Anubis CC).

Al Anubis S BB (inglés 4822 727 20262, español 4822 8727 20281; 21-25" Anubis S estéreo) se añadirá la función de **estéreo increíble** y será indicada con los números de tipo -/xxT (para el futuro 29" el número será -/xxR). Para el Anubis S BB el ligeramente cambiado panel Multisound (esquema D) y el ligeramente cambiado 2CS +I/O + panel de amplificación (esquema H y parte del esquema J) están incluidos en la presente información de servicio.

En el Anubis S CC (inglés 4822 727 20288, español 4822 727 20289; 14-20-21" Anubis S con panel de interfaz y de amplificación) se puede introducir esta función de **estéreo increíble** también en el futuro. Para el Anubis S CC el panel de interfaz y de amplificación (esquema I) y el panel de Multisound (esquema D) están preparados ya para **estéreo increíble**, por consiguiente, no aparecen publicados en la presente información de servicio.

1. Número de software A+

Los aparatos Anubis S BB y CC con el código de producción SV03 están dotados de un µC con el número de software "A+" (aparatos con el código de producción SV02 y, por lo tanto, con un µC con el número de software "A" permanecerán en producción en paralelo). El microprocesador IC7600 (esquema C) con el número de software "A+", versión 0.9 (ANUBIS-SAPHV 0.9 en el Modo de Servicio y CTV110SAPHV 0.9 impreso en el µC): PCA84CB44P/163; 4822 209 33773. El número de software "A+" tiene las siguientes extra funciones que no tiene el número de software A:

- **Estéreo increíble**
Para seleccionar la función de **estéreo increíble**, pulse primero el botón I-II para seleccionar **estéreo** o **NICAM** y pulse el botón SPATIAL para activar/desactivar el **estéreo increíble**.
- **TDSP2 NICAM a través de SAA7282**
Este software puede manejar el decodificador presente SAA7280 NICAM (sistema sencillo) y el decodificador futuro SAA7282 (tanto el sistema sencillo NICAM y los llamados sistemas BINICAM BG y J). Con la introducción de este SAA7282 se publicará una separada información de servicio.
- **Nuevo modo hotel**
Extra funciones del modo hotel 1 del número de software "A+" y que no tiene el modo hotel 1 del número de software "A":
 - Cuando se enciende el aparato desde la posición de espera pulsando los botones PROGRAM +/-, aparecerá el último número de programa que se haya estado mirando.
 - Cuando se haya alcanzado el nivel máximo del volumen que se haya preajustado para el modo hotel, el OSD del menú del volumen no aumentará más.
- Una función extra del modo hotel 2 del número de software "A+" en comparación con el modo de hotel 2 del número de software "A":
 - Con los números de programa 30...49 en el "radio mode" a través de OSD se visualizará la palabra "AUDIO".
- **Suma de control:**
A través de una de las opciones en la dirección 245 (con

los valores 0 y 4) se determina si se debe calcular la área de la suma de control sobre las direcciones 245 hasta 253, ambas inclusive o sobre las direcciones 239 hasta 253, ambas inclusive (la **área protegida** en la EEPROM será adaptada conformemente, por lo tanto, 245, 253 o 239...253). El cálculo de la suma de control se realiza del mismo modo que para el número de software "A" (véase el manual de servicio Anubis S BB, capítulo 8).

2. Número de software 12

Los aparatos Anubis S BB y CC con el código de producción SV03 y códigos siguientes con el número de software 12 están dotados de un µC con la función de **estéreo increíble**.

- Para el Anubis S BB IV7600 (esquema C) número de software 12, versión 2.8 (ANUBIS-S12HV 2.8): P83C055-CV61081NB; 4822 209 33622
- Para el Anubis S CC IC7600 (esquema C) número de software 12, versión 2.9 (ANUBIS-S12HV 2.9): (esta versión de software posee un modo demo con solamente AV-IN) P83C055-CV6118NB; 4822 209 52596

La selección de la función **estéreo increíble** se puede hacer de dos maneras:

- Directamente a través del botón SPATIAL en el mando a distancia (función basculante **estéreo increíble/efecto espacial** activado y desactivado).
- Indirectamente a través del MENU DE SONIDO mediante el mando izquierdo y derecho.

3. Control y supresión

• Control para el Anubis S BB

- **Registro de desplazamiento (expansor de salida) HEF4094:**
Para el Anubis S BB se ha aplicado solamente un registro de desfaseamiento (extra) IC7827 (HEF4094; esquema H) cuando se usa **estéreo increíble**. Las siguientes configuraciones del registro de desplazamiento son posibles:
 - 1 registro de desplazamiento HEF4094 (IC7132) en el panel Multisound
 - 1 registro de desplazamiento HEF4094 (IC7827) en el 2CS+I/O+panel de amplificación.
 - 2 registros de desplazamiento HEF4094 (IC7132 e IC7827) en cascada (observe la tabla de configuración dirección 244 para el número de software "A+" y la dirección 252 para el número de software "12").
- En el caso 2 registros de desplazamiento, los saltadores 9144 y 9143 están presentes y CUT1 en el panel Multisound no está presente (esquema D). A consecuencia de ello el OS en la patilla 10 del IC7827 (esquema H) desplaza por los datos (16 bits o 8 bits si hay dos registros de desplazamiento en cascada) a SDA patilla 2 del IC7132 a través del conector 5A8A (esquema J) al conector 3C8A y saltador 9144 (esquema D).
- **Control de **estéreo increíble** en el Anubis S BB**
La función **estéreo increíble** se activa o se desactiva a través de la patilla 6 del IC7827 (HEF4094) en el esquema H. A través del conector A7A (esquema H) al conector A7 y 3A9 (esquema J) a 319 y la línea de señal "INC-SWITCH" en el panel de sonido increíble. Esta línea de señal "INC-SWITCH" selecciona, a través del IC7400 (HEF4053), entre señales acústicas L o R (izquierda o derecha) con y sin efecto de **estéreo increíble** (si el INC-SWITCH está en alta: "high", entonces la función de **estéreo increíble** está activada, si está en baja: "low", entonces está desactivada).

• Control para Anubis S CC

- **Registro de desplazamiento (expansor de salida) HEF4094:**
Para el Anubis S CC se ha aplicado un (extra) registro de desplazamiento IC7290 (HEF4094; esquema I del manual de servicio del Anubis S CC) está reservado
 - 1 registro de desplazamiento HEF4094 (IC7132) en el panel Multisound
 - 1 registro de desplazamiento HEF4094 (IC7920) en el panel de interfaz y de amplificación.
 - 2 registros de desplazamiento en cascada (una combinación de IC7132 e IC7290).
- **Control de **estéreo increíble** en el Anubis S CC**
Aún no se han tomado provisiones para que el IC7290 pueda activar y desactivar el panel de **estéreo increíble** en el panel de interfaz y de amplificación (esquema I).
- **Supresión para el Anubis S BB**
 - a. **Para aparatos con **estéreo increíble**, así que, el IC7827 está presente (con y sin el panel multisound)**
En caso de un aparato con **estéreo increíble**, el IC7827 está presente en el 2CS+I/O+panel de amplificación (esquema H). La supresión se efectúa a través de la patilla 4 IC7827.
 - **Supresión FM-MONO:** en el caso que el µC (a través de SOUND-ID o SAP-AVAIL o NICAM-AVAIL) detecta que el Multisound o el decodificador NICAM o BTSC no han encontrado una señal correcta, la patilla 4 del IC7827 se pone en "baja". El TS7828 y, en consecuencia, el TS7829 conducen. Debido a ello la señal FM-MONO y la señal NICAM o BTSC serán suprimidas.
 - **Supresión AV-OUT:** Si los cinches AV-OUT están presentes, la supresión AV-OUT tiene también lugar a través de la patilla 4 IC7827. Al suprimir la patilla 4 del IC7827 está en "baja", FM-MONO será suprimido y a consecuencia de ello también AV-OUT será suprimido (AV-OUT no será suprimido por TS7830, A5A y A6A, ya que estos componentes no están presentes para aparatos con IC7827).
 - b. **Para aparatos con **estéreo increíble** (IC7827 no presente) + con panel multisound**
En los aparatos sin **estéreo increíble** no está montado el IC7827. El saltador 9143 y CUT1 en el panel Multisound están presentes, el saltador 9144 no está presente (esquema D).
 - **Supresión FM-MONO:** FM-MONO no se suprime ya que C2823 no está presente en los aparatos que no tienen IC7827.
 - **Supresión AV-OUT:** La supresión se efectúa a través de la señal SOUND-ID del panel Multisound (esquema D), a través del saltador 9143, 3C8A (esquema D), 5A8A (esquema J), a través de Os y los saltadores 9827 y 9828 (esquema H). Cuando el panel Multisound no detecta un sistema de sonido correcto, el SOUND-ID estará en "baja" (esquema D). TS7823 habrá entrado en conducción y, por lo tanto, TS7829 y TS7830 conducen. El conector A5A (esquema H) está conectado con A5 (esquema I del manual de servicio del Anubis S BB) que está conectado directamente con el cinch de la salida L-MONITOR. El conector A6A (esquema H) está conectado con A6 (esquema I) el cual está conectado directamente con el cinch de salida R-MONITOR. Como consecuencia de ello, el L-MONITOR y el R-MONITOR están cortados por TS7829 y TS7830.
 - c. **Para aparatos sin **estéreo increíble** (IC7827 no presente) + sin panel multisound**
En este caso la supresión del AV-OUT en 2CS+I/O+panel de amplificación no está presente ya que no saldrá ningún "ruido" del panel Multisound.

• Supresión para el Anubis S CC

Para aparatos con panel Multisound (versiones mono y estéreo) la supresión está descrita en el manual de servicio del Anubis S CC (esquema I, página 13).

4. Sonido/estéreo increíble

Para poder escuchar bien el efecto **estéreo** de los aparatos de televisión, la distancia entre las altavoces suele estar demasiado corta. Algunos aparatos de televisión hacen uso de un efecto espacial, que mide la diferencia entre el canal izquierdo y derecho y amplifica el efecto **estéreo** antes de transmitir las señales a los altavoces izquierdo y derecho. Aunque es una mejora, sin embargo no es realmente la ampliación de **estéreo** como si las altavoces estuvieran más separadas.

Para el Anubis S BB el excelente sistema acústico ha sido ampliado con un sistema "electrónico" de amplificación del **estéreo**.

Mediante sus dos oídos el oyente puede detectar de donde proviene el sonido. Si, por ejemplo, la distancia entre los dos altavoces fuera más grande, el ángulo entre las altavoces y el oyente sería diferente y con ello también las fases y la amplitud de las señales acústicas izquierdas y derechas a ambas oídos. Haciendo cálculos aritméticos de las relaciones de fases de los altavoces a los oídos, es posible determinar la fase y amplitud que depende de la frecuencia para influir en el efecto **estereofónico**.

El sistema "electrónico" de amplificación del **estéreo** introducido en el Anubis S BB da al oyente una experiencia de este "Estéreo Increíble" como si los altavoces estuvieran realmente separados de acuerdo con la grabación estereofónica originalmente transmitida.

Realización en el Anubis S BB y CC

La señal izquierda L-IN es alimentada a un filtro pasivo de paso bajo por R3206, C2202 y R3207, R3208, C2203, R3210 y R3209. Este filtro influye en la característica de fase de 500Hz a 15kHz, dando una variación de amplitud cortando a 1kHz. La señal derecha R-IN es alimentada a un filtro activo de desfaseamiento (comenzando a 500Hz), por el IC 7200-4A, R3201, R3200, C2200 y R3202, C2201. Este filtro influye en la característica de la frecuencia y de la amplitud. La salida de estos 2 filtros es añadida a las patillas 9 y 10 del IC7200-4B. Finalmente, el IC7300-2A amplifica la señal para compensar el nivel. La señal izquierda adaptada es alimentada al amplificador izquierdo.

La señal derecha se adapta similarmente: R-IN pasivo filtro de paso bajo, L-IN activo desplazamiento de fase (IC7200-4C), mezclando (IC7400-4D y corrección de amplitud (IC7300-2B). Se puede seleccionar las señales "Estéreo increíble" o las señales estándar. Si "INC-SWITCH" está en "alta", TS7001 conducirá y el IC7400 (HEF4053) seleccionará "Estéreo increíble". Si "INC Switch" está en "baja", se seleccionan las señales estándar. El IC7200-4B-4D tomará la polarización de corriente continua (7V) en las patillas 10 y 3 de R3501 y R3502.

Option setting table for software number "A+" (so "A+"!!!)
and IC(only for VST sets)

Address	Option A	Value	Option B	Value
239 ^{*)}	Maximum error limit values for the SAA7282 (TDSD2)			80
240 ^{*)}	Minimum error limit values for the SAA7282 (TDSD2)			20
241 ^{*)}	Not used			255
242 ^{*)}	Not used			255
243 ^{*)}	Not used			255
244 ^{*)}	Not used			0
	Not used			0
	Not used			0
	Remote STORE key allowed	0	Remote STORE key not allowed	16
	If no Anubis S CC sets or Anubis S CC set without Multisound panel	0	For Anubis S CC sets with Multisound panel (muting and spatial via IC7132)	8
	Set with no HEF4094 or only one HEF4094 shift register - for Anubis S BB either IC7132 or IC7827 (only one) - for Anubis S CC either IC7132 or IC7827 (only one)	0	Set with two HEF4094 shift registers - for Anubis S BB IC7132 and IC7827 present (both) - for Anubis S CC IC7132 and IC7290 present (both)	4
	Incredible stereo panel present	0	Incredible stereo panel not present	2
	SAA7282 (TDSD2) used as single system	0	SAA7282 (TDSD2) used as dual system (BINICAM)	1
245	2CS stereo decoder (IC7800) present	0	2CS stereo decoder (IC7800) not present	128
	AV stereo playback present	0	AV uses mono only	64
	No AV selectable	0	AV present	32
	No spatial sound possible	0	Spatial sound selectable	16
	No hue control possible	0	Hue control possible	8
	Checksum area to be calculated from address 245 up to and included 253 (also protected EEPROM area by then from 245 up to and included 253)	0	Checksum area to be calculated from address 239 up to and included 253 (also protected EEPROM area by then from 239 up to and included 253) ^{*)}	4
	NICAM uses SAA7282 (TDSD2)	0	NICAM uses TDA7280 (TDSD1)	2
	UV973 tuner is used (bandswitch signals for VHF1 and VHF3 are swapped)	0	"Normal" bandswitch signals	1
246	No hotel mode possible	0	Hotel mode can be enabled	128
	No UHF tuning possible	0	UHF band allowed	64
	No VHF3 tuning possible	0	VHF3 band allowed	32
	No VHF1 tuning possible	0	VHF1 band allowed	16
	Not used			0
	Multisound panel not present (no sound standard selection)	0	Multisound panel present (auto, M, B/G, I, D/K sound selection possible)	4
	Not used			0
	No colour system selection	0	Auto, SECAM, PAL/(NTSC)	1
247	NICAM panel not present, multisound panel not present			40
	NICAM panel not present, multisound panel present			41
	NICAM panel present, multisound panel not present			168
	NICAM panel present, multisound panel present			169
248	UV 913 / UV 973 (VST)			191
	UV 915 (VST)			42
	UV 953 (VST)			162
249	UV 913 / UV 953 / UV 973 (VST)			93
	UV 915 (VST)			73
250	UV 913 / UV 953 / UV 973 (VST)			25
	UV 915 (VST) 0251 UV 913 / UV 953 / UV 973 (VST)			134
	UV 915 (VST)			129
252	All VST tuners			0
253	UV 913 / UV 915 / UV 973 (VST)			224
	UV 953 (VST)			225
254	Checksum (see for calculation of the checksum service manual chapter 8) Add data from addresses 245 up to and included 253 or addresses 239 up to and included 253 ^{*)} . Then (if necessary) subtract 256 until the data has a value under 256. If checksum is not OK the set will use default setting.			



Option setting table for software number 12
(only for PLL sets)

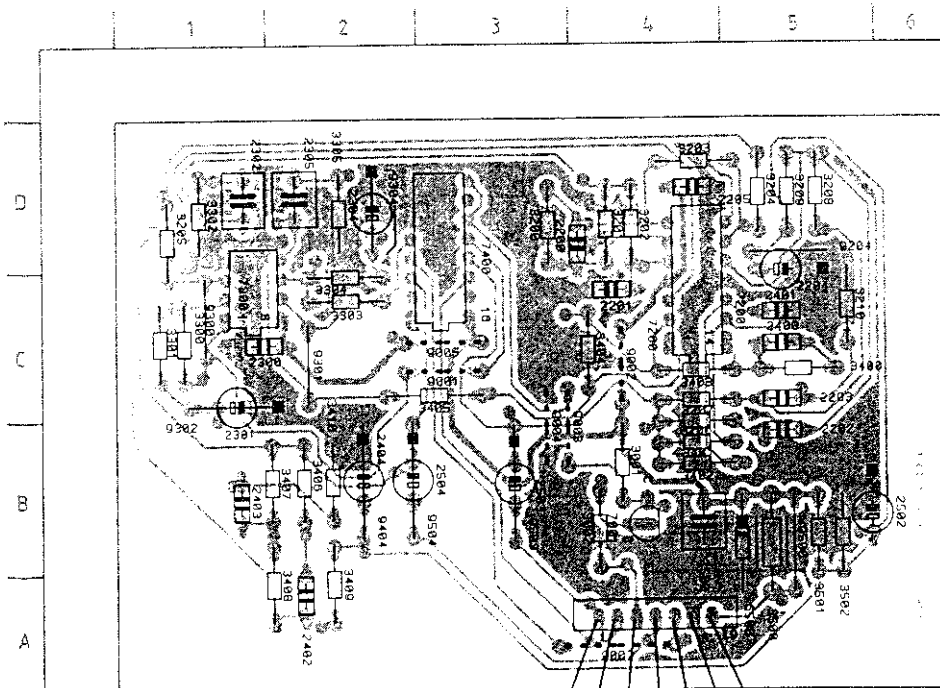
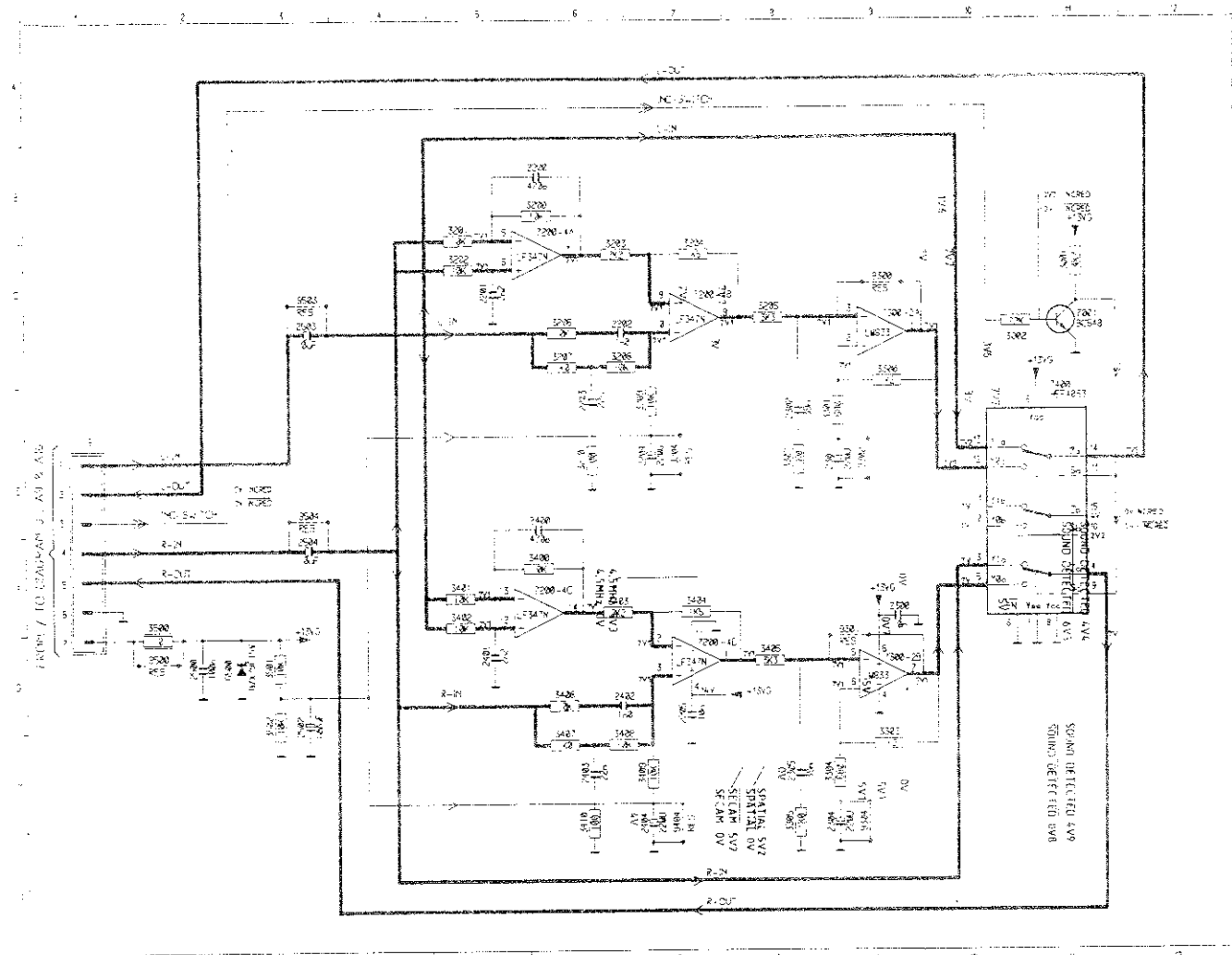
Address	Option A	Value	Option B	Value
252	BTSC panel not present	0	BTSC panel present	128
	Mono set	0	AV stereo playback	64
	No HEF4094 present - for Anubis S BB IC7827 not present - for Anubis S CC IC7290 not present	0	a HEF4094 shift register present - for Anubis S BB IC7827 present - for Anubis S CC IC7290 present	32
	AV selection not allowed	0	AV selection allowed	16
	No trinorma set	0	Trinorma set	8
	No incredible stereo panel present	0	Incredible stereo panel present	4
	Not used			0
	Not used			0
253	No subwoofer present	0	Subwoofer present	128
	5 keys local control	0	8 keys local control	64
	Protection bit can not be saved in EEPROM	0	Protection bit is saved in EEPROM (so after protection occurred, the set remains in protection until entering the Service Mode)	32
	Spatial feature is not present	0	Spatial feature is present	16
	Multi voltage is not present	0	Multi voltage is present	8
	Sharpness feature is not present	0	Sharpness feature is present	4
	Hotel mode not allowed	0	Hotel mode allowed	2
	HUE control disabled	0	HUE control enabled; NTSC only sets	1
254	Checksum (see for calculation of the checksum service manual chapter 8) Add data on address 252 and 253 and then (if necessary) subtract 256 until the data has a value under 256. If checksum is not OK the set will use default setting.			



Tabla de ajuste de opciones para el número de software 12
(Solamente para aparatos PLL)

Dirección	Opción A	Valor	Opción B	Valor
252	Panel BTSC no presente	0	Panel BTSC presente	128
	Aparato mono	0	Reproducción AV estéreo	64
	HEF 4094 no presente - para anubis S BB IC7827 no presente - para Anubis S CC IC7290 no presente	0	Registro de desfaseamiento HEF4094 presente - para Anubis S BB IC7827 presente - para Anubis S CC IC7290 presente	32
	Selección AV no permitido	0	Selección AV permitido	16
	No aparato norma	0	Aparato norma	8
	Panel estéreo increíble no presente	0	Panel estéreo increíble presente	4
	No usado			0
	No usado			0
253	No 'subwoofer' (altavoz de tonos bajos) presente	0	'Subwoofer' presente	128
	Control local 5 teclas	0	Control local 8 teclas	64
	Bit de protección no puede ser almacenado en EEPROM	0	Bit de protección está almacenado en EEPROM (a saber: una vez realizada la protección, el equipo permanece en protección hasta que entra en el Modo de Servicio)	32
	Función espacial no presente	0	Función espacial presente	16
	Multi tensión no presente	0	Multi tensión presente	8
	Función de nitidez no presente	0	Función de nitidez presente	4
	Modo hotel no permitido	0	Modo hotel permitido	2
	Control HUE desactivado	0	Control HUE activado; NTSC solamente activa	1
254	Suma de control: se suman (véase para esta suma el manual de servicio, capítulo 8) los datos a las direcciones 252 y 253 y luego (si fuese necesario) se resta 256 hasta que el dato tenga un valor inferior a 256. Si la suma de control no está correcta, el equipo utilizará los valores por omisión.			

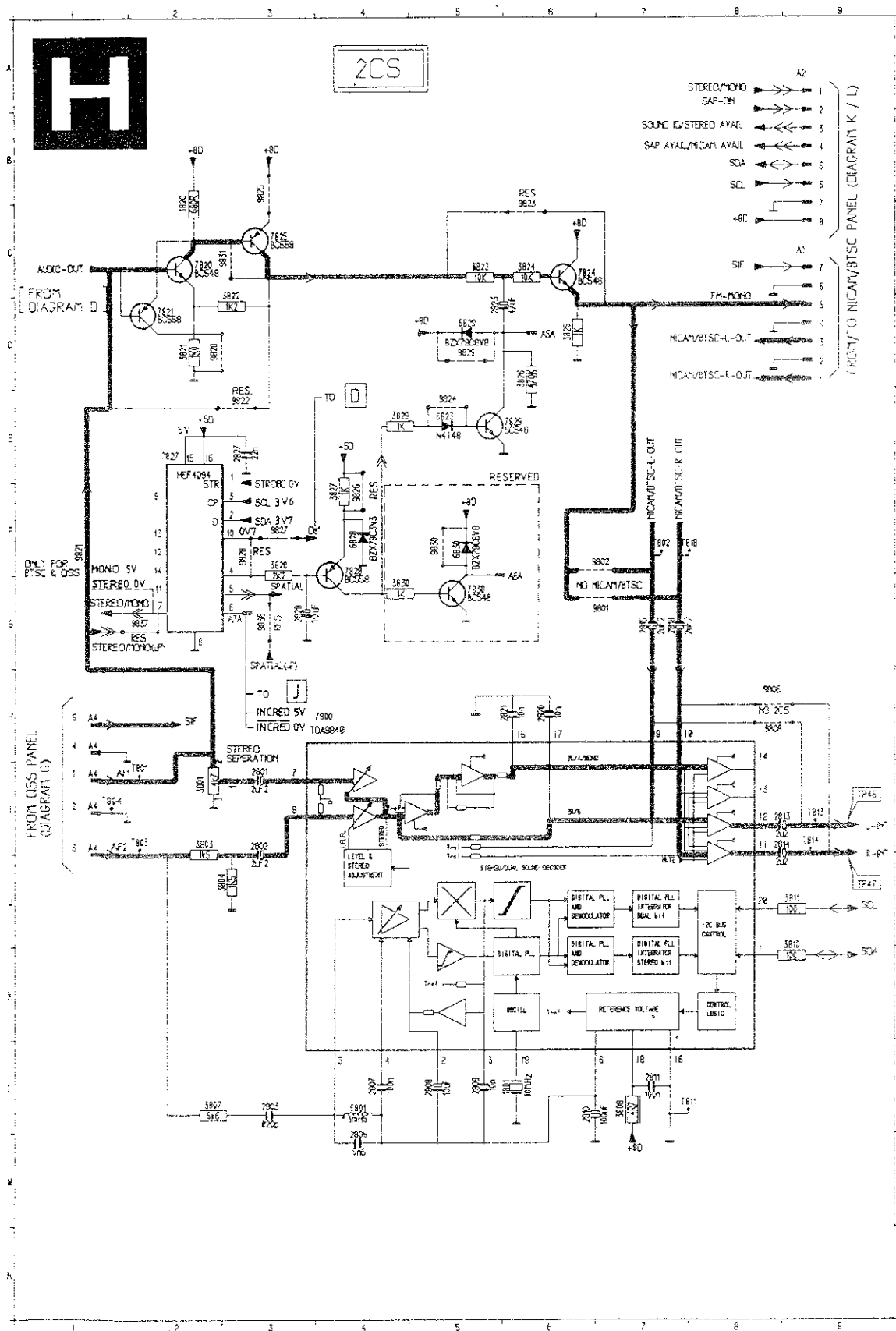
Incredible stereo panel (Anubis S BB&CC)



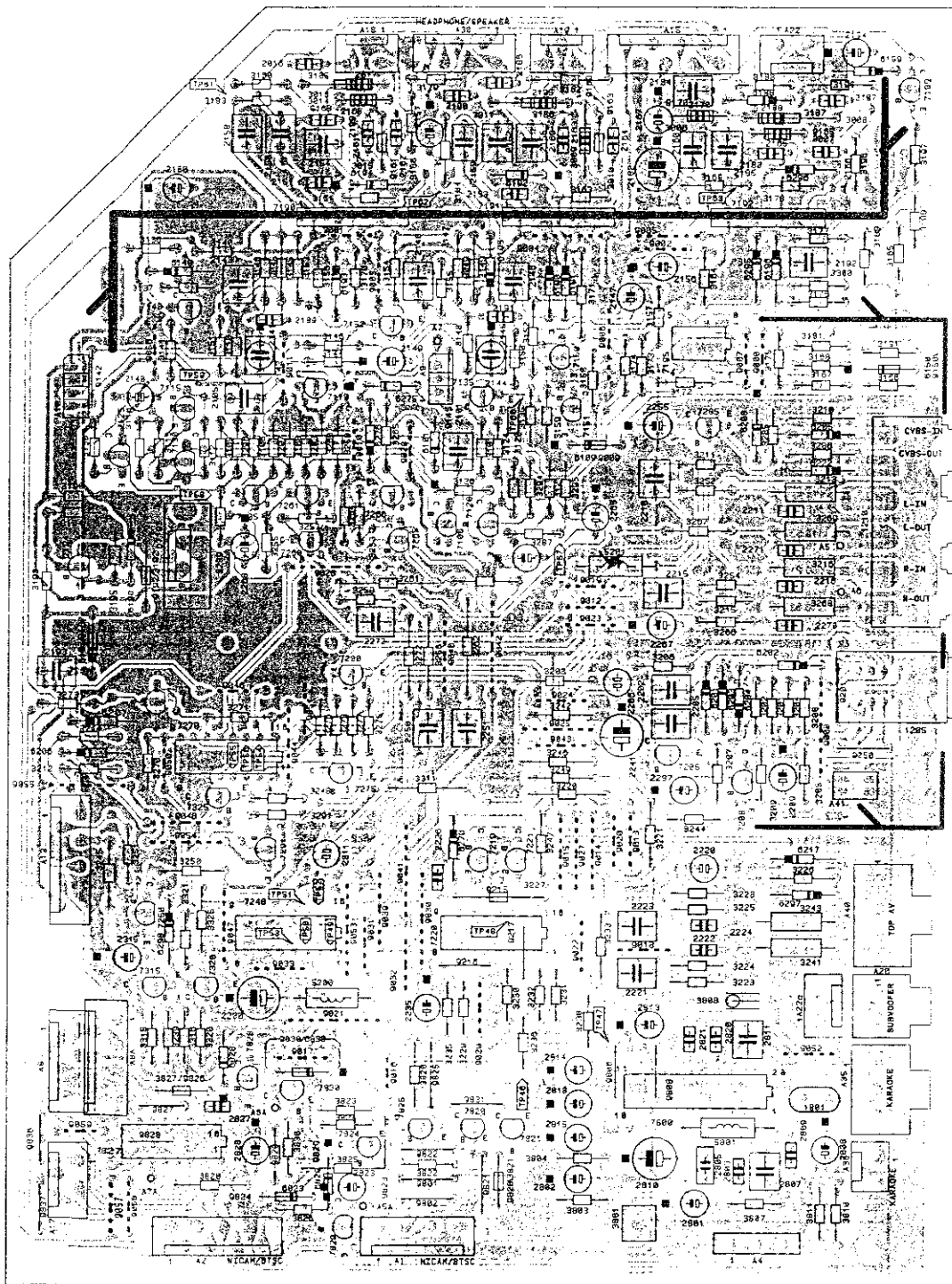
L-IN
L-OUT
INC-SWITCH
R-IN
R-OUT
GND
+13V

- | | |
|------|----|
| 2200 | C4 |
| 2201 | C4 |
| 2202 | B5 |
| 2203 | B5 |
| 2204 | C5 |
| 2205 | C4 |
| 2300 | C2 |
| 2301 | B1 |
| 2302 | D1 |
| 2304 | D2 |
| 2305 | D2 |
| 2400 | C6 |
| 2401 | C6 |
| 2402 | A2 |
| 2403 | B1 |
| 2404 | B2 |
| 2500 | B4 |
| 2502 | B6 |
| 2503 | B3 |
| 2504 | B3 |
| 3001 | B4 |
| 3002 | B4 |
| 3200 | D3 |
| 3201 | D4 |
| 3202 | D4 |
| 3203 | D4 |
| 3204 | D5 |
| 3205 | D1 |
| 3206 | B4 |
| 3207 | B4 |
| 3208 | D5 |
| 3209 | D5 |
| 3210 | C6 |
| 3300 | C1 |
| 3301 | C1 |
| 3302 | D1 |
| 3303 | C2 |
| 3304 | C2 |
| 3305 | D2 |
| 3400 | C5 |
| 3401 | B4 |
| 3402 | B4 |
| 3403 | C4 |
| 3404 | C4 |
| 3405 | C3 |
| 3406 | B2 |
| 3407 | B2 |
| 3408 | A2 |
| 3409 | A2 |
| 3410 | B2 |
| 3500 | A5 |
| 3501 | B5 |
| 3502 | B5 |
| 8500 | A5 |
| 7001 | B4 |
| 7200 | C4 |

2 CS + I/O part (Anubis S BB)



2 CS + I/O + Amplification part (Anubis S BB)

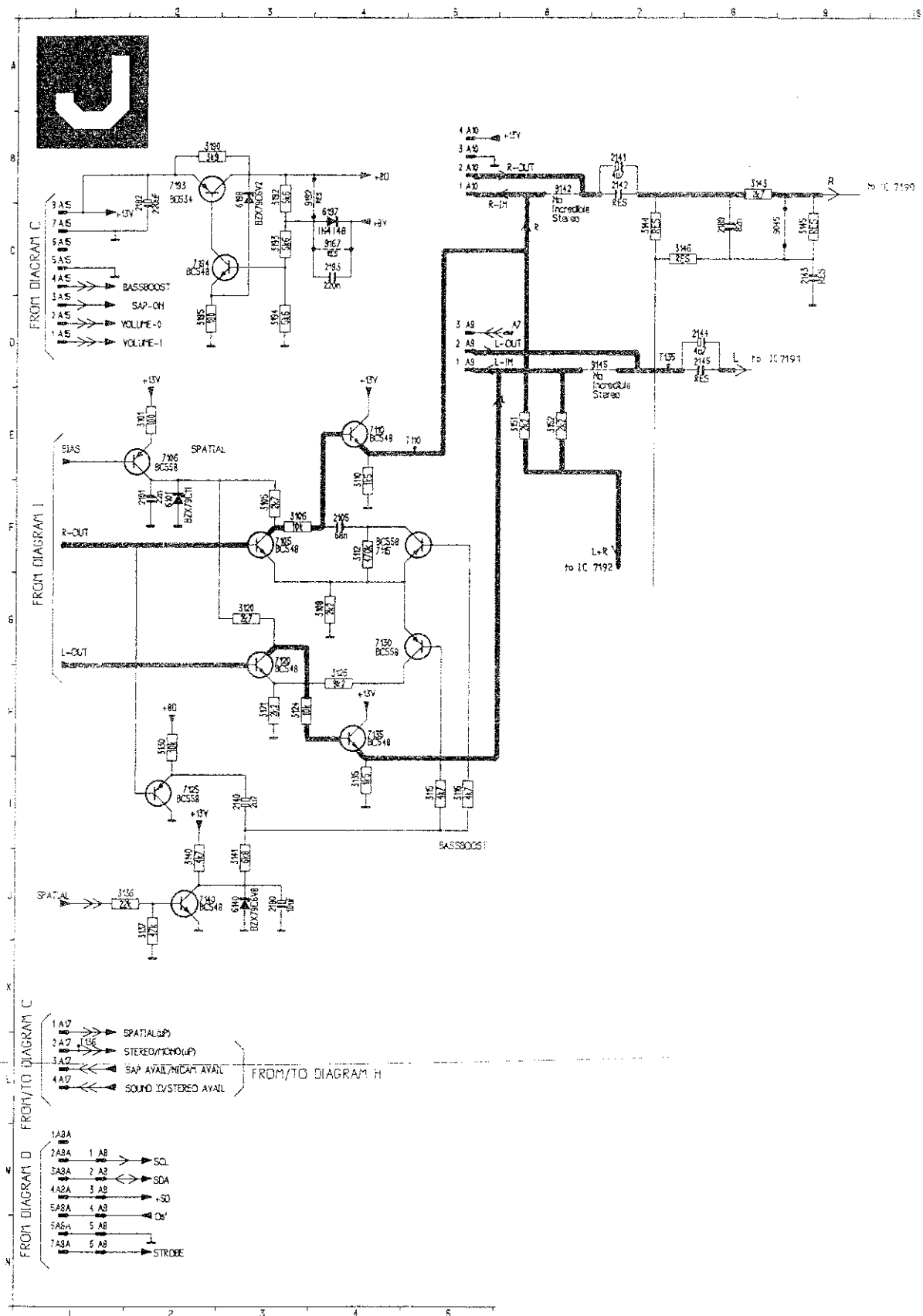


	1235 A6	3136 H1	3273 G	7325 T
	1240 A8	3137 H10	3275 F6	7327 H6
	1501 A9	3140 A11	3278 G6	7328 B1
	1503 G12	3141 G10	3278 F6	7328 C1
	2017 F12	3143 G10	3278 F6	7330 C4
	2117 A9	3144 G9	3283 G3	9002 C1
	2155 G9	3145 G10	3285 B9	9001 A1
	2140 H8	3146 G10	3287 G3	9001 A1
	2141 G10	3147 E10	3287 E3	9003 A1
	2142 G10	3148 E10	3289 H8	9004 C1
	2143 G10	3149 E10	3291 G3	9005 C1
	2144 G10	3150 H10	3294 C8	9006 C1
	2145 E10	3151 H10	3295 C8	9007 C1
	2146 E10	3152 E10	3296 G3	9008 B6
	2147 F10	3153 G10	3297 G8	9008 B6
	2148 F10	3154 H10	3298 G3	9009 C1
	2149 F9	3155 E10	3311 F5	9011 G3
	2150 G12	3156 G10	3315 H0	9012 G3
	2151 G11	3157 H11	3317 C1	9013 C1
	2152 F12	3158 D9	3320 H0	9014 C8
	2153 E11	3155 D9	3321 A4	9016 C8
	2154 G12	3156 G12	3325 H1	9016 C3
	2155 E12	3157 H12	3327 C2	9017 C2
	2156 E12	3158 D12	3328 H2	9018 C2
	2157 F12	3159 H11	3358 H2	9019 C2
	2158 E12	3160 C10	3359 F1	9019 C1
	2159 E12	3161 C10	3401 C1	9020 C1
	2160 C12	3162 A9	3504 D2	9022 C4
	2161 F12	3167 B9	3507 B1	9023 C1
	2162 E12	3168 B9	3508 D3	9024 C6
	2163 D12	3169 B10	3511 C1	9025 C1
	2164 D12	3170 F10	3811 S1	9026 C1
	2165 R12	3171 D10	3820 G3	9027 C6
	2166 H12	3172 G10	3821 E7	9028 B3
	2167 D12	3173 C10	3822 C2	9029 B3
	2168 F12	3174 D9	3823 F2	9030 F4
	2169 D12	3175 D10	3824 F2	9031 F4
	2170 C11	3176 H10	3825 C2	9032 C1
	2180 H11	3177 B11	3826 G1	9033 D4
	2182 C11	3178 B11	3827 H2	9038 F4
	2183 D12	3175 F12	3828 H1	9040 E5
	2184 C12	3176 F12	3829 H1	9041 F5
	2185 G12	3181 B10	3830 G2	9042 E2
	2186 E12	3182 G12	5200 G3	9043 D6
	2187 B12	3183 E12	5201 D8	9044 G6
	2188 E12	3184 E12	5202 D8	9045 G6
	2189 G10	3186 D12	6101 F9	9046 G3
	2190 E12	3187 B12	6109 D9	9047 H4
	2191 E12	3188 B12	6142 D10	9048 G3
	2192 E10	3190 E10	6150 A9	9049 F7
	2193 E6	3190 B18	9188 B12	9050 H6
	2194 A12	3191 A10	6190 D13	9051 G6
	2195 C12	3192 G12	6191 H12	9052 F6
	2199 G12	3193 F12	6192 H11	9053 F4
	2200 G3	3194 H8	6193 D10	9054 H4
	2202 C6	3195 B18	6194 F11	9055 B5
	2205 C6	3196 B18	6195 H10	9056 H4
	2206 D10	3197 A12	5196 D10	9056 F1
	2209 B5	3198 B12	6197 F7	9058 F1
	2210 C8	3198 A11	6198 B12	9058 D2
	2211 B9	3199 A12	5199 A12	9142 C1
	2215 C7	3202 B6	6201 C6	9145 E9
	2216 B7	3202 C6	6202 B7	9150 A9
	2219 C9	3203 B6	6203 B7	9151 F9
	2221 C4	3205 B9	6204 C5	9152 D9
	2222 C4	3206 C7	6205 B9	9155 B12
	2223 C4	3207 C5	9206 C6	9157 F1
	2224 C4	3208 C5	9207 C6	9158 F1
	2225 E4	3209 B5	6208 B9	9159 D7
	2226 F5	3210 B9	9217 B5	9171 C7
	2227 F5	3211 C8	4222 C8	9172 C7
	2228 F6	3212 C8	9270 F5	9213 B6
	2231 F6	3213 B5	5275 F9	9215 A1
	2234 C9	3214 B5	9275 F9	9217 E4
	2235 D8	3215 C6	9280 H0	9218 C1
	2237 E7	3216 A11	9286 B11	9219 C1
	2236 B6	3217 C5	9297 B4	9401 F1
	2237 E6	3217 C5	6099 H4	9402 F2
	2238 F6	3218 C5	6099 H4	9402 F2
	2239 F6	3219 C5	6099 H4	9402 F2
	2240 F6	3220 C5	6099 H4	9402 F2
	2241 F6	3221 C5	6099 H4	9402 F2
	2242 F6	3222 C5	6099 H4	9402 F2
	2243 F6	3223 C5	6099 H4	9402 F2
	2244 F6	3224 C5	6099 H4	9402 F2
	2245 F6	3225 C5	6099 H4	9402 F2
	2246 F6	3226 C5	6099 H4	9402 F2
	2247 F6	3227 C5	6099 H4	9402 F2
	2248 F6	3228 C5	6099 H4	9402 F2
	2249 F6	3229 C5	6099 H4	9402 F2
	2250 F6	3230 C5	6099 H4	9402 F2
	2251 F6	3231 C5	6099 H4	9402 F2
	2252 F6	3232 C5	6099 H4	9402 F2
	2253 F6	3233 C5	6099 H4	9402 F2
	2254 F6	3234 C5	6099 H4	9402 F2
	2255 F6	3235 C5	6099 H4	9402 F2
	2256 F6	3236 C5	6099 H4	9402 F2
	2257 F6	3237 C5	6099 H4	9402 F2
	2258 F6	3238 C5	6099 H4	9402 F2
	2259 F6	3239 C5	6099 H4	9402 F2
	2260 F6	3240 C5	6099 H4	9402 F2
	2261 F6	3241 C5	6099 H4	9402 F2
	2262 F6	3242 C5	6099 H4	9402 F2
	2263 F6	3243 C5	6099 H4	9402 F2
	2264 F6	3244 C5	6099 H4	9402 F2
	2265 F6	3245 C5	6099 H4	9402 F2
	2266 F6	3246 C5	6099 H4	9402 F2
	2267 F6	3247 C5	6099 H4	9402 F2
	2268 F6	3248 C5	6099 H4	9402 F2
	2269 F6	3249 C5	6099 H4	9402 F2
	2270 F6	3250 C5	6099 H4	9402 F2
	2271 F6	3251 C5	6099 H4	9402 F2
	2272 F6	3252 C5	6099 H4	9402 F2
	2273 F6	3253 C5	6099 H4	9402 F2
	2274 F6	3254 C5	6099 H4	9402 F2
	2275 F6	3255 C5	6099 H4	9402 F2
	2276 F6	3256 C5	6099 H4	9402 F2
	2277 F6	3257 C5	6099 H4	9402 F2
	2278 F6	3258 C5	6099 H4	9402 F2
	2279 F6	3259 C5	6099 H4	9402 F2
	2280 F6	3260 C5	6099 H4	9402 F2
	2281 F6	3261 C5	6099 H4	9402 F2
	2282 F6	3262 C5	6099 H4	9402 F2
	2283 F6	3263 C5	6099 H4	9402 F2
	2284 F6	3264 C5	6099 H4	9402 F2
	2285 F6	3265 C5	6099 H4	9402 F2
	2286 F6	3266 C5	6099 H4	9402 F2
	2287 F6	3267 C5	6099 H4	9402 F2
	2288 F6	3268 C5	6099 H4	9402 F2
	2289 F6	3269 C5	6099 H4	9402 F2
	2290 F6	3270 C5	6099 H4	9402 F2
	2291 F6	3271 C5	6099 H4	9402 F2
	2292 F6	3272 C5	6099 H4	9402 F2
	2293 F6	3273 C5	6099 H4	9402 F2
	2294 F6	3274 C5	6099 H4	9402 F2
	2295 F6	3275 C5	6099 H4	9402 F2
	2296 F6	3276 C5	6099 H4	9402 F2
	2297 F6	3277 C5	6099 H4	9402 F2
	2298 F6	3278 C5	6099 H4	9402 F2
	2299 F6	3279 C5	6099 H4	9402 F2
	2300 F6	3280 C5	6099 H4	9402 F2
	2301 F6	3281 C5	6099 H4	9402 F2
	2302 F6	3282 C5	6099 H4	9402 F2
	2303 F6	3283 C5	6099 H4	9402 F2
	2304 F6	3284 C5	6099 H4	9402 F2
	2305 F6	3285 C5	6099 H4	9402 F2
	2306 F6	3286 C5	6099 H4	9402 F2
	2307 F6	3287 C5	6099 H4	9402 F2
	2308 F6	3288 C5	6099 H4	9402 F2
	2309 F6	3289 C5	6099 H4	9402 F2
	2310 F6	3290 C5	6099 H4	9402 F2
	2311 F6	3291 C5	6099 H4	9402 F2
	2312 F6	3292 C5	6099 H4	9402 F2
	2313 F6	3293 C5	6099 H4	9402 F2
	2314 F6	3294 C5	6099 H4	9402 F2
	2315 F6	3295 C5	6099 H4	9402 F2
	2316 F6	3296 C5	6099 H4	9402 F2
	2317 F6	3297 C5	6099 H4	9402 F2
	2318 F6	3298 C5	6099 H4	9402 F2
	2319 F6	3299 C5	6099 H4	9402 F2
	2320 F6	3300 C5	6099 H4	9402 F2
	2321 F6	3301 C5	6099 H4	9402 F2
	2322 F6	3302 C5	6099 H4	9402 F2
	2323 F6	3303 C5	6099 H4	9402 F2
	2324 F6	3304 C5	6099 H4	9402 F2
	2325 F6	3305 C5	6099 H4	9402 F2
	2326 F6	3306 C5	6099 H4	9402 F2
	2327 F6	3307 C5	6099 H4	9402 F2
	2328 F6	3308 C5	6099 H4	9402 F2
	2329 F6	3309 C5	6099 H4	9402 F2
	2330 F6	3310 C5	6099 H4	9402 F2
	2331 F6	3311 C5	6099 H4	9402 F2
	2332 F6	3312 C5	6099 H4	9402 F2
	2333 F6	3313 C5	6099 H4	9402 F2
	2334 F6	3314 C5	6099 H4	9402 F2
	2335 F6	3315 C5	6099 H4	9402 F2
	2336 F6	3316 C5	6099 H4	9402 F2
	2337 F6	3317 C5	6099 H4	9402 F2
	2338 F6	3318 C5	6099 H4	9402 F2
	2339 F6	3319 C5	6099 H4	9402 F2
	2340 F6	3320 C5	6099 H4	9402 F2
	2341 F6	3321 C5	6099 H4	9402 F2
	2342 F6	3322 C5	6099 H4	9402 F2
	2343 F6	3323 C5	6099 H4	9402 F2
	2344 F6	3324 C5	6099 H4	9402 F2
	2345 F6	3325 C5	6099 H4	9402 F2
	2346 F6	3326 C5	6099 H4	9402 F2
	2347 F6	3327 C5	6099 H4	9402 F2
	2348 F6	3328 C5	6099 H4	9402 F2
	2349 F6	3329 C5	6099 H4	9402 F2
	2350 F6	3330 C5	6099 H4	9402 F2
	2351 F6	3331 C5	6099 H4	9402 F2
	2352 F6	3332 C5	6099 H4	9402 F2
	2353 F6	3333 C5	6099 H4	9402 F2
	2354 F6	3334 C5	6099 H4	9402 F2
	2355 F6	3335 C5	6099 H4	9402 F2
	2356 F6	3336 C5	6099 H4	9402 F2
	2357 F6	3337 C5	6099 H4	9402 F2
	2358 F6	3338 C5	6099 H4	9402 F2
	2359 F6	3339 C5	6099 H4	9402 F2
	2360 F6	3340 C5	6099 H4	9402 F2
	2361 F6	3341 C5	6099 H4	9402 F2
	2362 F6	3342 C5	6099 H4	9402 F2
	2363 F6	3343 C5	6099 H4	9402 F2
	2364 F6	3344 C5	6099 H4	9402 F2
	2365 F6	3345 C5	6099 H4	9402 F2
	2366 F6	3346 C5	6099 H4	9402 F2
	2367 F6	3347 C5	6099 H4	9402 F2
	2368 F6	3348 C5	6099 H4	9402 F2
	2369 F6	3349 C5	6099 H4	9402 F2
	2370 F6	3350 C5	6099 H4	9402 F2
	2371 F6	3351 C5	6099 H4	9402 F2
	2372 F6	3352 C5	6099 H4	9402 F2
	2373 F6	3353 C5	6099 H4	9402 F2
	2374 F6	3354 C5	6099 H4	9402 F2
	2375 F6	3355 C5	6099 H4	9402 F2
	2376 F6	3356 C5	6099 H4	9402 F2
	2377 F6	3357 C5	6099 H4	9402 F2
	2378 F6	3358 C5	6099 H4	9402 F2
	2379 F6	3359 C5	6099 H4	9402 F2
	2380 F6	3360 C5	6099 H4	9402 F2
	2381 F6	3361 C5	6099 H4	9402 F2
	2382 F6	3362 C5	6099 H4	9402 F2
	2383 F6	3363 C5	6099 H4	9402 F2
	2384 F6	3364 C5	6099 H4	9402 F2
	2385 F6	3365 C5	6099 H4	9402 F2
	2386 F6	3366 C5	6099 H4	9402 F2
	2387 F6	3367 C5	6099 H4	9402 F2
	2388 F6	3368 C5	6099 H4	9402 F2
	2389 F6	3369 C5	6099 H4	9402 F2
	2390 F6	3370 C5	6099 H4	9402 F2
	2391 F6	3371 C5	6099 H4	9402 F2
	2392 F6	3372 C5	6099 H4	9402 F2
	2393 F6	3373 C5	6099 H4	9402 F2
	2394 F6	3374 C5	6099 H4	9402 F2
	2395 F6	3375 C5	6099 H4	9402 F2

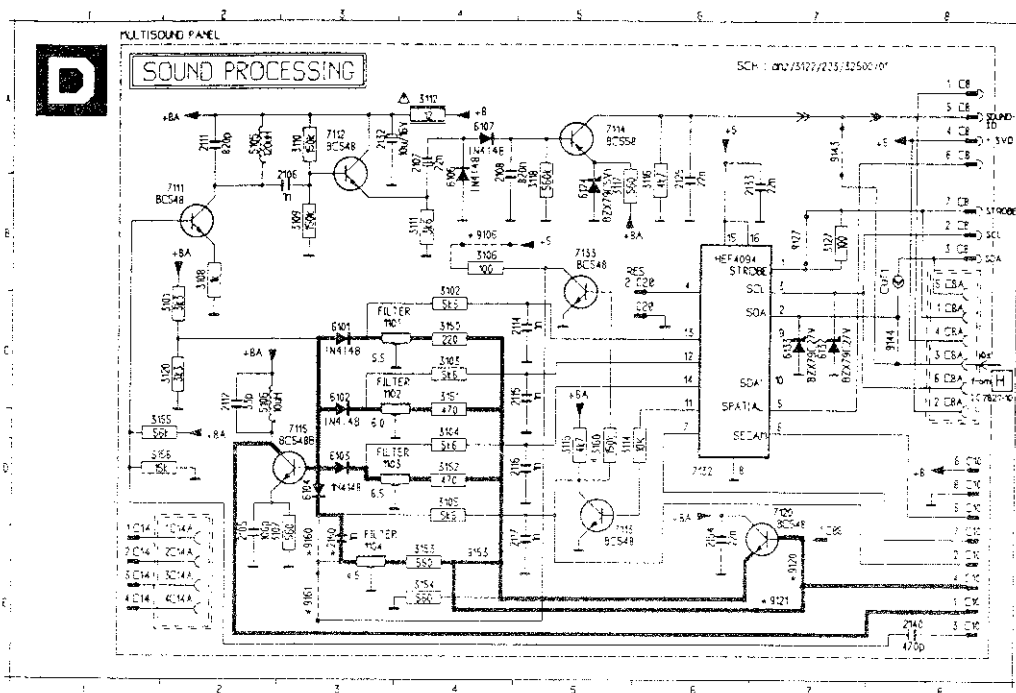
Spare parts list / Listado de Repuestos

[illegible]

Amplification part (Anubis S BB)



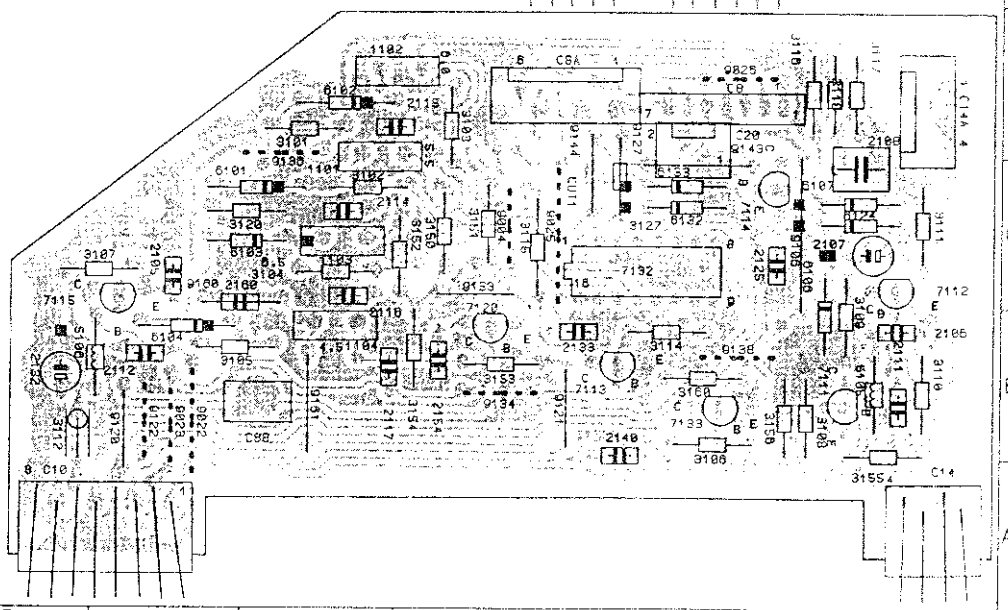
Multisound panel / Multi sonido (Anubis S BB)



FROM / TO
NOT USED M8 MAIN CARRIER

STEREO
SOUND ID/STEREO AVAIL.

D → XT_E
 → XT_G
 → XT_R
 → BANKING



6

→ SOUND IF
→ 4.5 MHZ.
→ AUDIO INT
→ CVBS
→ SECAM
→ +8
→ SEC. NOT
→ GND

TXI-3
TXI-6
TXI-R
BLANKING

1103	D4	7133	B2
1102	D4	9004	C4
1103	C5	9022	B6
1104	C5	9023	C3
2106	C6	9025	B5
2106	C1	9026	D2
2107	C1	9106	B6
2108	D1	9120	B6
2111	C1	9121	B3
2112	B5	9122	B6
2114	C6	9127	D3
2115	D4	9134	B4
2116	C5	9136	D5
2117	B4	9138	B2
2125	C2	9143	D2
2132	B6	9144	D3
2133	C3	9153	C4
2140	B3	9160	C5
2154	B4	9161	B5
2160	C5	C8	D2
3101	D5	C8A	D3
3102	C4	C10	A6
3103	D4	C14	A1
3104	C5	C14A	D1
3105	B5	C20	D2
3106	B2	C8a	B5
3107	C6		
3108	B2		
3109	C1		
3110	B1		
3111	C1		
3112	B5		
3114	C2		
3115	C3		
3116	D2		
3117	D1		
3118	D1		
3120	C5		
3127	D3		
3150	D4		
3151	C4		
3152	C4		
3153	B4		
3154	B4		
3155	B1		
3156	B2		
3162	B2		
3165	B1		
3106	B6		
3107	C5		
3108	C6		
3109	C1		
3110	C1		
3111	C1		
3112	B5		
3113	B3		
3114	C2		
3115	C3		
3116	D2		
3117	D1		
3118	D1		
3120	C5		
3127	D3		
3150	D4		
3151	C4		
3152	C4		
3153	B4		
3154	B4		
3155	B1		
3156	B2		
3162	B2		
3165	B1		
3106	B6		
3107	C5		
3108	C6		
3109	C1		
3110	C1		
3111	C1		
3112	B5		
3113	B3		
3114	C2		
3115	C3		
3116	D2		
3117	D1		
3118	D1		
3120	C5		
3127	D3		
3150	D4		
3151	C4		
3152	C4		
3153	B4		
3154	B4		
3155	B1		
3156	B2		
3162	B2		
3165	B1		
3106	B6		
3107	C5		
3108	C6		
3109	C1		
3110	C1		
3111	C1		
3112	B5		
3113	B3		
3114	C2		
3115	C3		
3116	D2		
3117	D1		
3118	D1		
3120	C5		
3127	D3		
3150	D4		
3151	C4		
3152	C4		
3153	B4		
3154	B4		
3155	B1		
3156	B2		
3162	B2		
3165	B1		
3106	B6		
3107	C5		
3108	C6		
3109	C1		
3110	C1		
3111	C1		
3112	B5		
3113	B3		
3114	C2		
3115	C3		
3116	D2		
3117	D1		
3118	D1		
3120	C5		
3127	D3		
3150	D4		
3151	C4		
3152	C4		
3153	B4		
3154	B4		

7133	B2
9004	C4
9022	B6
9023	B6
9025	C3
9026	D2
9106	C2
9120	B6
9121	B3
9122	B6
9127	D3
9134	34
9136	05
9138	B2
9143	D2
9144	D3
9153	C4
9160	C5
9161	B5
C8	D2
C8A	D3
C10	A6
C14	A1
C14A	D1
C20	D2
C88	B5

Colour television

Service
Service
Service

Anubis S

BB 94.03

Service information

25" Anubis S BB sets 110° picture tube (for -/93)

29" Anubis S BB (all versions)

In this service information all relevant adaptations are published for the -/93 25" Anubis S BB sets with 110° picture tube and all versions 29" Anubis S BB.

The following is published in this service information:

- Adapted PWB's for the main carrier and the mains input and power supply control panel for the 25" and the 29". Further a new PWB for the S-correction panel of the 25" 110°. The spare parts list of these panels and the adapted large signal diagram (diagram AA) is published.
- Adapted PWB for the new combined CRT panel for the 25" and 29" Anubis S BB. Also the spare parts list of this adapted CRT panel and the adapted diagram EE is given.
- A description of the 50/60 Hz identification circuitry for the 25" 110° Anubis S BB.
- A description of the dynamic S circuitry for the 25" 110° Anubis S BB.

Description of the 50/60 Hz identification circuitry for the 25" Anubis S BB 110° picture tube.

For 110° picture tubes used in 25" -/93 a 50/60 Hz identification circuitry is required as IC7225 does not have a 50/60 Hz identification pin. This 50/60 Hz identification circuitry is used for adapting the amount of E/W correction for the different pin-cushion effect for 50/60 Hz frames.

Operation.

HORZ_PULSE is a 15625 Hz pulse for 50 Hz frame, or a 15750 Hz pulse for 60 Hz frame. This HORZ_PULSE signal is coming from pin 26 of the µC OSD generator.

VERT_PULSE is a 50 Hz pulse for 50 Hz frame, or a 60 Hz pulse for 60 Hz frame. This VERT_PULSE signal is coming from pin 27 of the µC OSD generator. The collector of TS7734 is "high" in case the frame starts again.

Counter IC7730 is a HEF4040BP which counts the pulses at the CP (clock input) input pin 10 and gives a pulse at output pins after 2⁴·8·16·32·64 etc pulses. The counting starts again when pin 11 MR (master reset) becomes "high".

In this application the horizontal pulses at the CP input pin 10 IC7730 are counted to a quantity of 272 pulses via output pins 3 and 12 (256 · 16 = 272; 256 pulses are counted at output pin 3, and 16 pulses are counted at output pin 12). The MR is connected to the VERT_PULSE, so IC7730 starts counting again at the beginning of a new 50 or 60 Hz frame.

Data D flip flop IC7731 is a HEF4013BP which clocks through the data at pin D (resp. 5 and 9) to the output pins (pin 1 positive output and pin 12 negative output) at the rising edge of the clock input CP (resp. pin 3 and 11) depending on the SD (set direct) and CD (clear direct) pins.

- When the set direct (SD) pins 6 and 8 are "high", the positive output pins are "high" and the negative output pins are "low" independent from the data at pin 5 resp 9 (only as long as the CD is "low").
- In this application this feature is not used as both pins 6 and 8 are shorted.

When the clear direct (CD) pins 4 and 10 are "high", the positive output pins are "low" and the negative output pins are "high" independent from the data at pin 5 resp 9 (only as long as SD is "low").

In this application this feature is only used for pin 4 IC7731/2A (and not for IC7731/2B as pin 10 is shorted).

- At the moment when the SD and CD are "high", this is a conflict status. In that case both the positive and the negative output will be made "high" independent from the data at pin 5 resp 9.

Only in case when the SD and the CD are "low", the data at the data pins 5 and 9 can be clocked through to the positive and negative output pins.

So in this application,

- IC7731/2A is configured for clocking through the data at pin 5 to the positive output pin 1 at the rising edge of pin 3 only as long as pin 4 is "low".

- IC7731/2B is configured for clocking through the data at pin 9 to the negative output pin 12 at the rising edge of pin 11.

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At 50 Hz reception (see Fig. 1) each frame is 312.5 lines (15625 Hz for 50 frames), which is more than 272 pulses. On the moment the counter has passed 272 both output pins 3 and 12 of counter IC7730 are "high" and so TS7332 blocks. As a result the collector of TS7332 thus pin 3 IC7731/2A becomes "low". At the rising edge of pin 3 (at pulse 288), the data at pin 5 IC7332/2A (+5V) is clocked to the positive output pin 1 IC7731/2A (so making pin 1 "high") as long as pin 4 remains "low". So in case of 50 Hz reception output pin 1 is "high" from pulse 288 to the end of a frame because:

- pin 3 IC7731/2A is "low" from pulse 272 to 288, giving a rising edge at pulse 288 (pin 3 is also "low" from pulse 304 to 312 giving a rising edge at pulse 312, but this is not important as by then pin 5 is already clocked to pin 1).
- pin 4 IC7731/2A is always "low" until the voltage at pin 4 across the RC network 3734/2734 has become +5V at the end of the frame.

On the moment pin 4 becomes +5V, IC7731/2A is resetted, enabling 50/60 Hz detection for every frame again and again.

The "high" output pin 1 IC7731/2A is fed to input pin 9 IC7731/2B and is inverted clocked through to pin 12 at the rising edge of pin 11 (making output pin 12 IC7731/2B "low").

As a result pin 12 IC7731/2B becomes "low" at the end of the frame when a 50 Hz frame is detected for the first time. After that pin 12 will remain "low" until a 60 Hz frame is counted.

At 60 Hz reception each frame is 262.5 lines (15750 Hz for 60 frames), which is less than 272 pulses. In that case both output pins 3 and 12 of counter IC7730 will never become "high" any more at the same time (also not at the end of the frame). As a result TS7332 always conducts and so the collector of TS7332 thus pin 3 IC7731/2A always remains "high".

The data at pin 5 IC7731/2A (+5V) is only "flip flopped" to output pin 1 IC7731/2A in case of a rising edge at pin 3 and as long as pin 4 is "low". As pin 3 is constantly "high", there will never be a rising edge, so in case of 60 Hz reception pin 1 IC7731/2A always remain "low", so pin 12 IC7731/2B always remain "high" (also at the end of a frame).

For 50 Hz pin 12 IC7731/2B is "low", so TS7733 is not conducting. This results in a less modified E/W modulation.

For 60 Hz pin 12 is always "high", so TS7733 conducts constantly, shorting R3474 in the E/W modulator. This modifies the E/W modulation by changing the current.

Description of the dynamic S circuitry for the 25" Anubis S BB 110° picture tube.

This separate panel is only needed for the 25" Anubis S BB sets with 110° picture tube. This panel is used for reducing the pin-cushion effect within the picture content (every line) (this can not be realised via the E/W modulator as these modulator takes care of the outline of each frame).

The dynamic S panel consists of the S-correction capacitor C2490 and an auto-transformer. The panel is inserted at the position and instead of jumper 9455. For every line (50 or 60 Hz) a dynamic S correction is modulated on the horizontal deflection to achieve a good linear horizontal scan.

Finally, to correct the 4 corners from bending inwards D6471 and 6473 with R3471 and 3473 are added (only for 25" Anubis S BB 110° picture tube). This circuit is called the higher order S-correction circuitry.

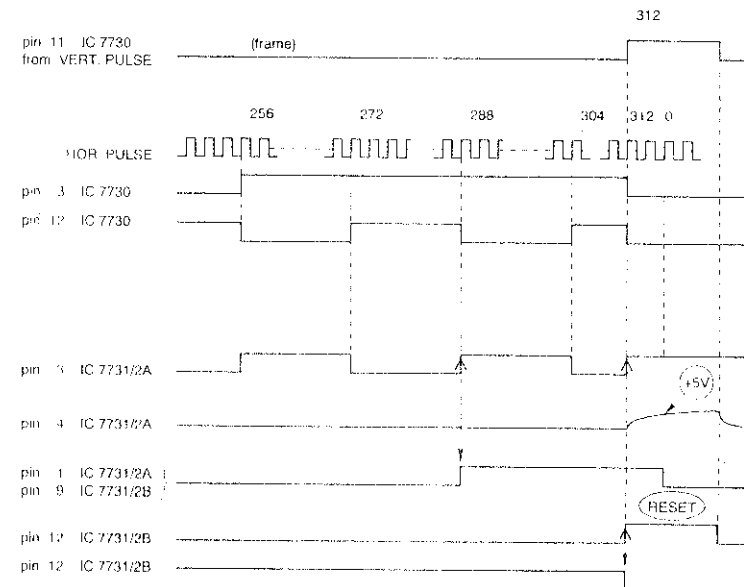


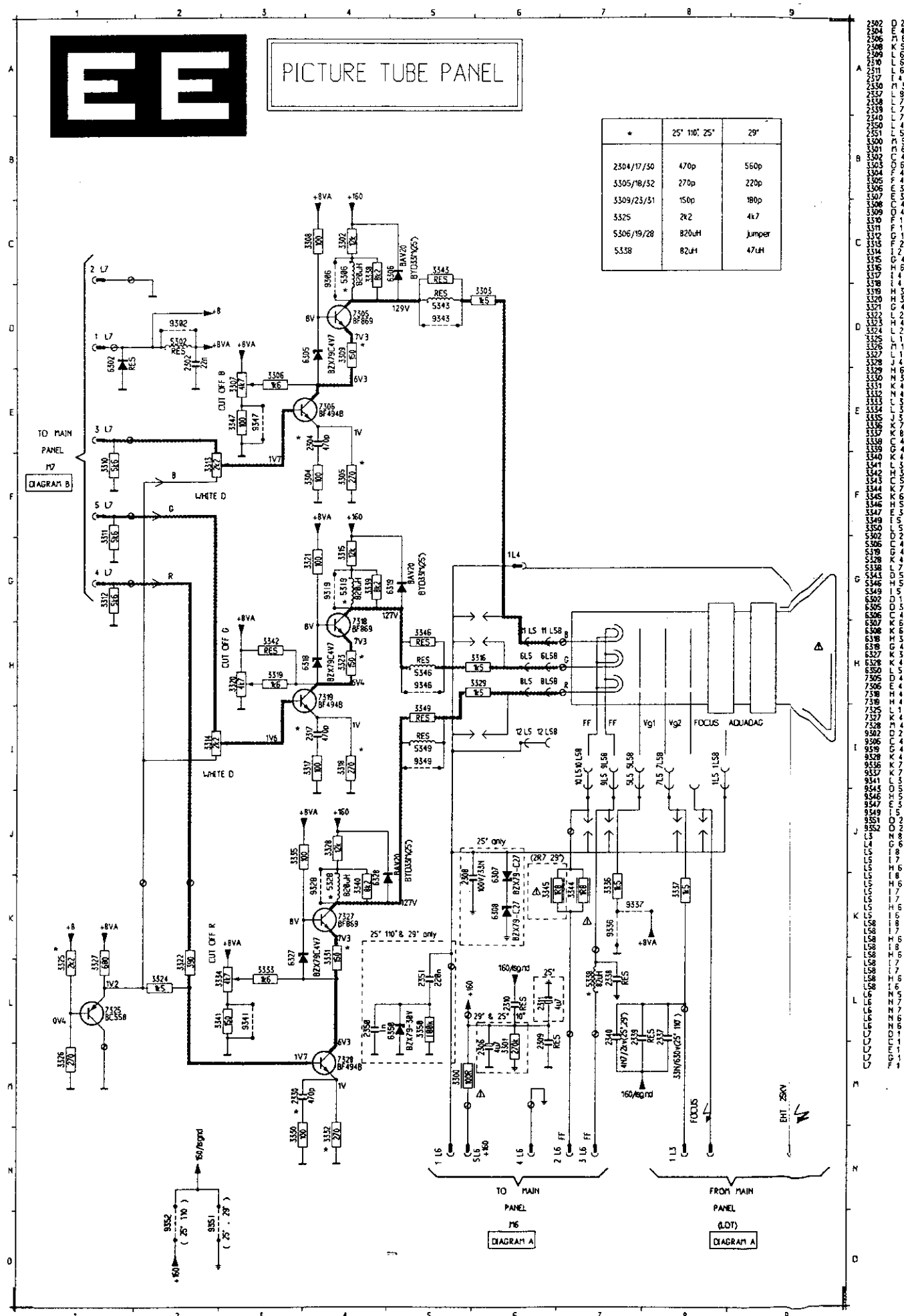
Fig. 1 - Figures at 1st time 50 Hz detection

4822 121 2066B

Main carrier 25" and 29" Anubis S BB (Copper side)

1000	F3	2193	C2	3409	F2	3695	B3	6541	B3	9211	C4
1015	D4	2525	A2	3410	E3	3696	B4	6542	B3	9212	F4
1105	C4	2526	B2	3411	F2	3697	A4	6543	C3	9225	C5
1106	F4	2529	B1	3412	F3	3698	A4	6545	C3	9228	F5
1204	C5	2530	C3	3413	F3	3699	B4	6546	A5	9227	D4
1206	C4	2531	B3	3414	F2	3700	B4	6547	A5	9245	F4
1207	C3	2540	B3	3415	F2	3702	B4	6548	F4	9246	F4
1308	C5	2541	B3	3416	F5	3703	B4	6549	C5	9269	C5
1321	C4	2542	B3	3417	F4	3704	B4	6550	A5	9270	F5
1377	E4	2548	C2	3418	D1	3705	B4	6551	C5	9281	F4
1429	E4	2549	C3	3419	D1	3706	B4	6552	C2	9281	F4
1436	F2	2550	A3	3420	D3	3707	A4	6553	C3	9282	F4
1440	F2	2551	A3	3421	D3	3708	A4	6554	C3	9283	C4
1440	F2	2552	A3	3422	D3	3709	A4	6555	C3	9284	C4
1440	F2	2553	A3	3423	D3	3710	A4	6556	C3	9285	C4
1440	F2	2554	A3	3424	D3	3711	A4	6557	C3	9286	C4
1440	F2	2555	A3	3425	D3	3712	A4	6558	C3	9287	C4
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1440	F2	2558	A3	3428	D3	3715	A4	6561	C3	9290	C4
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1440	F2	2567	A3	3437	D3	3724	A4	6570	C3	9299	C4
1440	F2	2568	A3	3438	D3	3725	A4	6571	C3	9300	C4
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1440	F2	2573	A3	3443	D3	3730	A4	6576	C3	9305	C4
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1440	F2	2578	A3	3448	D3	3735	A4	6581	C3	9310	C4
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PCS 80 502



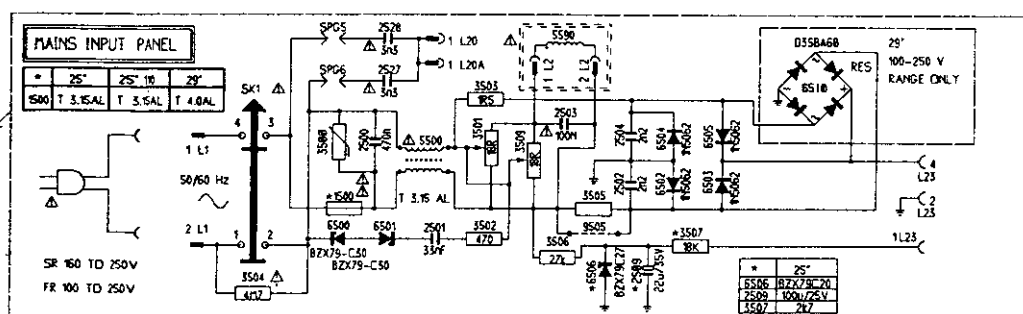
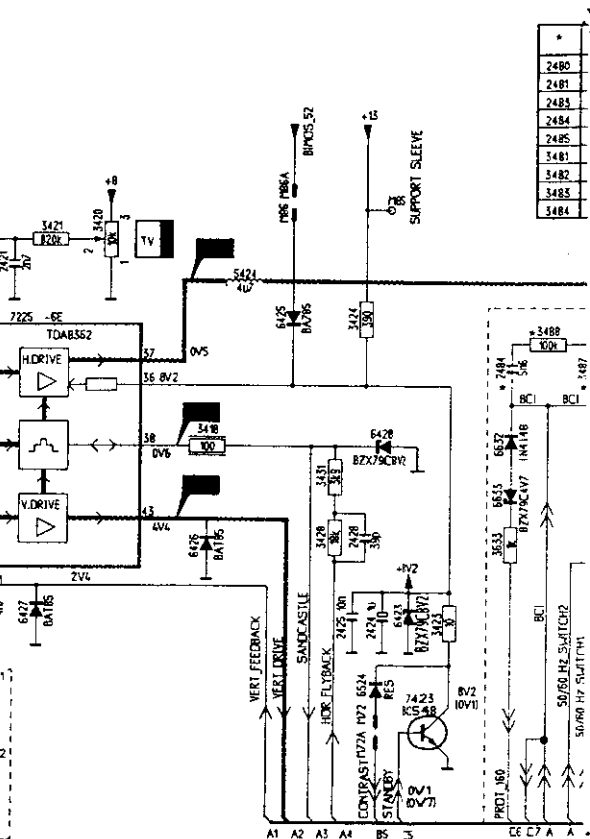
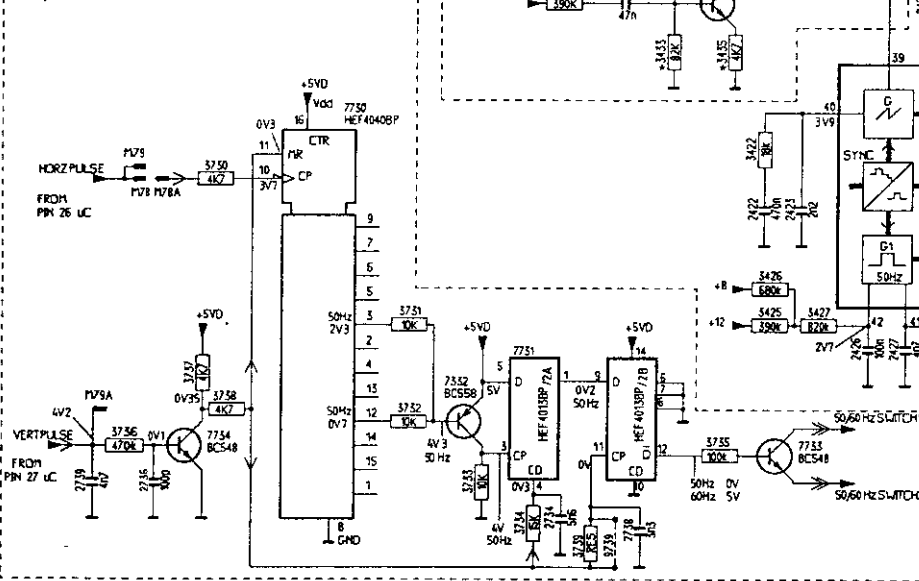
Power supply + Synchronisation + Deflection



SYNC/ HOR-DEFL
POWER-SUPPLY

SYNC/LINE-DRIVE + OUTPUT

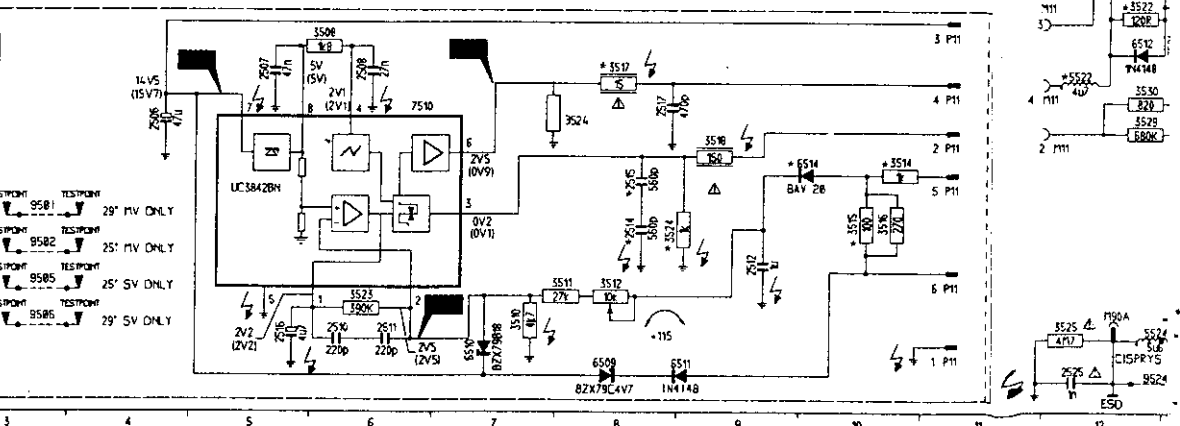
25" / 95 ONLY
50/60 HZ IDENTIFICATION CCT



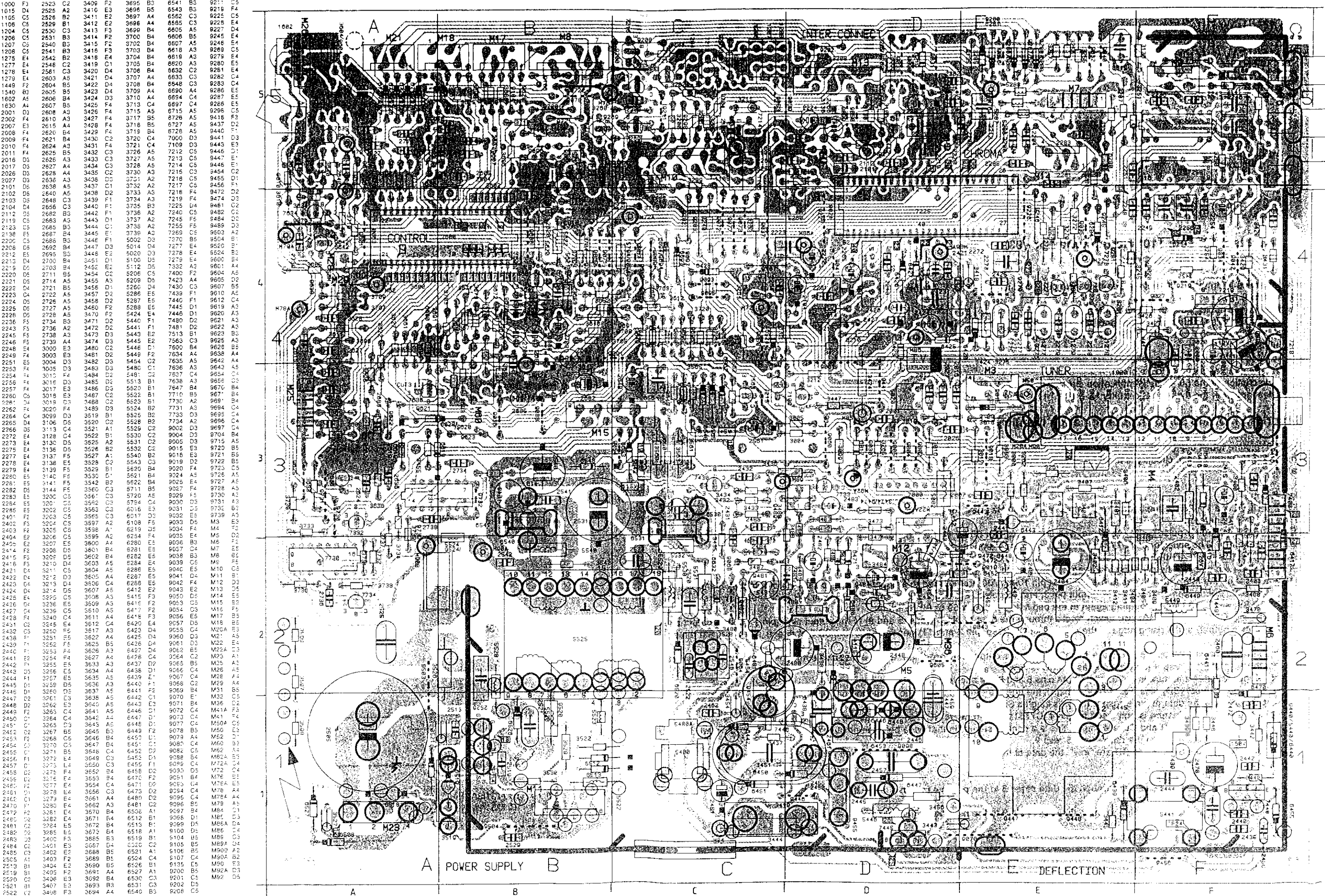
WARNING : - DO NOT TOUCH TRANSISTOR (7515)
W/ MULTIMETER PROBE WHENSE T ON
OR MAIN SWITCH IS OFF
- DISCHARGE MAINS CAP. (250)
W/ 1WATT RESISTOR BEFORE
TOUCHING THE TRANSISTOR (515)

POWER SUPPLY CONTROL

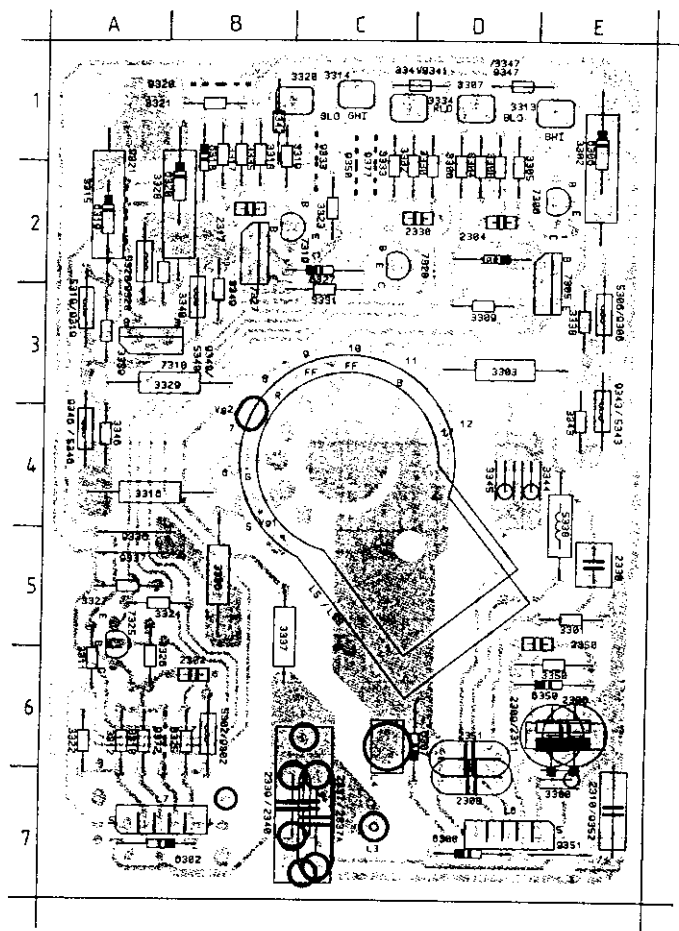
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2514/15	212	550p	560p	560p
3511	30K	27K	27K	27K
3514	*	---	---	---
3515	820	270 1/4W	---	---
3516	---	---	270 1/4W	---
3517	22	33	15	33
3524	1K5	1K5	1K	1K2
6514	---	BAV20	BAV20	BAV20
7512	BS172A	---	---	---



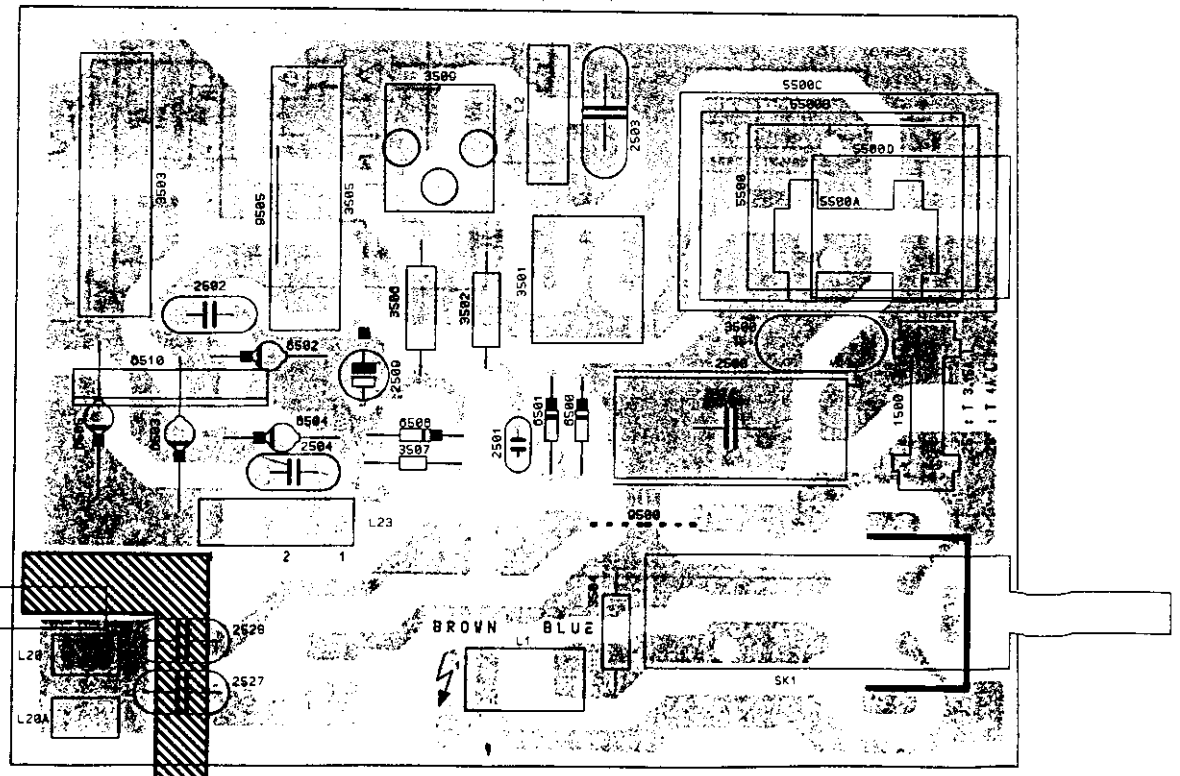
Main carrier 25" and 29" Anubis S BB (Copper side)



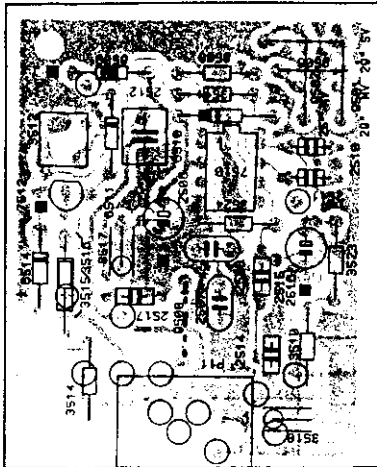
CRT panel 25" and 29" (Copper side)



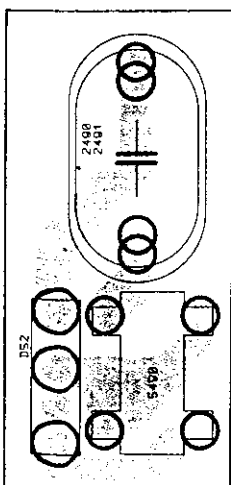
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23004	D2	5302	B6
23006	E6	5306	E3
23008	D7	5319	A3
23009	E6	5328	A2
23010	E7	5338	E4
23111	E6	5343	E4
23117	B2	5346	A4
23300	D2	5349	A3
23337	C7	5302	A7
23337	C7	6305	D2
23337	E5	6305	E1
23339	C7	6307	D6
23440	C7	6308	D7
23505	E5	6318	B1
23511	D6	6319	A2
30000	E7	6327	C2
30015	E5	6328	B2
30022	E2	6350	E6
30033	D3	7305	E2
30042	D2	7306	E2
30055	D2	7318	A3
30057	D2	7319	B2
30071	D1	7325	A5
30082	D2	7327	B2
30089	D3	7328	C2
30110	A6	9302	B6
30111	A6	9306	E3
30112	A6	9319	A3
30113	E1	9321	A2
30114	C1	9333	C1
30115	A2	9336	A5
30116	A4	9347	A5
30117	B1	9331	D1
30118	B1	9343	E4
30119	B1	9346	A4
30200	C1	9347	D1
30211	B6	9349	B3
30222	A6	9350	C2
30233	C2	9351	E7
30245	A5	9352	E7
30256	B6	9372	B6
30266	A6	9377	C1
30275	A5	L3	C7
30282	B2	L4	C6
30283	B2	L5	C4
30284	B2	L6	C7
30331	C3	L7	B7
30332	C2	L58	C4
30333	C2		
30334	C1		
30335	B1		
30336	B5		
30337	B5		
30338	B5		
30339	A3		
30340	A2		
30341	D1		
30342	B1		
30343	E4		
30344	E4		
30345	D4		
30346	A4		
30347	D1		
30349	B3		



Power supply control panel 25" and 29" (Copper side)



S-correction panel 25" 110° (Copper side)



Main carrier 25" and 29" [AA/B/C/D]

Various

4822 404 21262	Bracket clamping heatsink	2251 4822 126 12643	22nF 20% 50V
4822 492 62076	Spring for TS7513 and IC7400	2253 4822 126 12643	22nF 20% 50V
▲ 4822 492 70289	Spring for TS7445	2254 4822 124 81032	22μF 20% 50V
▲ 4822 532 61201	EHT cable spacer	2254 5322 124 41431	22μF 20% 35V
4822 265 31193	3 pins male WTB	2256 5322 121 42386	100nF 5% 63V
4822 265 20441	3 pins header	2257 5322 121 42386	100nF 5% 63V
4822 417 50217	4 pins male BTB (AU)	2260 4822 122 31061	18pF 2% 100V
4822 265 31189	4 pins male WTB	2260 4822 126 12643	15pF 5% 50V
4822 265 30378	4 pins male WTB	2261 4822 126 12643	22nF 20% 50V
4822 265 30796	4 pins header (M5)	2262▲ 4822 124 40433	47μF 20% 25V
4822 265 30934	5 pins header (M26)	2264 4822 126 12643	22nF 20% 50V
4822 265 31181	5 pins male WTB (M25)	2265 4822 124 81023	2.2μF 20% 50V
4822 265 31093	6 pins male BTB (AU)	2266 4822 124 41757	10μF 20% 16V
4822 265 31099	6 pins snap blue	2272 4822 126 12641	4.7nF 20%
4822 290 40295	7 pins male WTB	2273 5322 121 42386	100nF 5% 63V
4822 267 51241	8 pins male BTB (AU)	2275 5322 122 32334	220pF 10% 100V
4822 265 40818	8 pins male WTB	2277 5322 122 32334	220pF 10% 100V
1000 4822 210 10448	UV915E/IEC	2280 4822 121 43526	47nF 5% 250V
1000▲ 4822 210 10459	UV913/IEC	2281 5322 122 32491	1nF 20% 100V
1000 4822 210 10561	UV936E/F (PLL)	2282 5322 122 32491	1nF 20% 100V
1000 3139 147 11380	UV953/IEC -/93 (local sourcing)	2283 5322 122 32491	1nF 20% 100V
1015 4822 242 72197	OFWK2950 38.9 MHz	2284 4822 121 43526	47nF 5% 250V
1015 4822 242 73792	OFWM1963 45.75 MHz	2285 4822 121 43526	47nF 5% 250V
1015 4822 242 81556	OFWK2950M 38.9 MHz	2302 4822 126 12643	22nF 20% 50V
1015 4822 242 81637	OFWK3952M 38.9 MHz	2304 4822 126 13097	560pF 10% 50V
1105 4822 242 71713	6.0 MHz	2306 4822 124 80495	4.7μF 20%
1105 4822 242 72547	5.5 MHz	2317 4822 126 13097	560pF 10% 50V
1105 4822 242 81557	4.5 MHz	2330 4822 126 13097	560pF 10% 50V
1106 4822 242 72057	6.5 MHz	2340 4822 126 12833	4.7nF 20% 2KV
1204 4822 242 71207	4.5 MHz	2350 5322 122 32491	1nF 20% 100V
1206 4822 242 71207	4.5 MHz	2351 4822 121 41673	220nF 10% 100V
1206 4822 242 81712	5.5/5.74 MHz	2401 4822 122 31176	390pF 10% 500V
1207 4822 242 81301	6.5 MHz	2401 4822 126 13185	880pF 10% 500V
1208 4822 153 30025	6.0 MHz	2402 5322 121 42386	100nF 5% 63V
1208 4822 242 81712	5.5/5.74 MHz	2403 4822 126 11134	5.6nF 10% 50V
1275 4822 242 81691	4.433619 MHz	2404 4822 124 81039	3300μF 20% 25V
1277 4822 242 81575	3.579500 MHz	2405 4822 124 21212	5μF 20% 40V
1449▲ 4822 071 56301	Fuse 630 mA	2414 4822 126 12639	2.2nF 20%
1540▲ 4822 071 53152	Fuse 3.15 A	2415 4822 124 80059	100nF 20% 25V
1630 4822 242 81727	10.0 MHz ceramic	2416 4822 121 43526	47nF 5% 250V
1630 4822 242 81893	10.0 MHz crystal	2421 4822 122 33305	2.7nF 5% 50V
		2422 4822 121 43823	470nF 5% 50V
		2423 4822 126 12864	2.2nF 2% 250V
		2424 4822 124 81022	1μF 20% 50V
		2425 4822 126 12642	10nF 20% 50V
		2426 4822 121 41853	100nF 10% 100V
		2427 4822 126 12641	4.7nF 20%
		2428 4822 122 30045	27pF 2% 100V
		2431 4822 121 43526	47nF 5% 250V
		2431 4822 122 33449	47nF 30% 50V
		2432 4822 121 43526	47nF 5% 250V
		2432 4822 122 33449	47nF 30% 50V
		2438 4822 121 42007	100nF 10% 100V
		2439 4822 126 11308	47pF 5% 500V
		2440 4822 126 12519	330pF 10%
		2441▲ 4822 126 11382	1nF 10% 1KV
		2442 4822 122 40112	500pF 20% 500V
		2443 4822 124 41545	20nF 20% 16V
		2444 4822 121 42007	100nF 10% 100V
		2445▲ 4822 126 12274	1500pF 10% R(HR) 2KV
		2446▲ 4822 121 70465	1nF 5% 1.6KV
		2446▲ 4822 121 70542	10nF 5% 1.6KV
		2447▲ 4822 126 13435	12nF 10% 2KV
		2448 4822 124 22583	4μF 160V
		2448 4822 124 81042	4μF 50-200% 200V
		2449▲ 4822 126 11382	1nF 10% 1KV
		2450▲ 4822 121 42073	30nF 10% 400V
		2450 4822 121 70281	50nF 5% 400V
		2451 4822 124 81043	1μF 20% 100V
		2451 4822 124 40756	1F 20% 100V
		2452 4822 124 22582	22mF 20% 16V
		2452 4822 124 40432	1000μF 20% 25V
		2453 4822 124 41747	60μF 20% 35V
		2453 4822 124 80063	60μF 20% 35V
		2454▲ 4822 126 11382	1nF 10% 1KV
		2456 4822 126 11308	4pF 5% 500V
		2457 4822 121 51524	5nF 10% 250V
		2457 5322 121 42532	1nF 10% 400V
		2458 4822 124 81022	1F 20% 50V
		2460 4822 121 51385	3nF 20% 100V
		2461 4822 121 40475	1nF 10% 400V
		2462▲ 4822 126 12269	60pF 10% R(HR) 2V
		2470 4822 124 10533	2μF 20% 250V
		2472 4822 126 12792	2nF 10% 500V
		2480 4822 121 43368	4μF 160V
		2480 4822 124 40756	1F 20% 100V
		2481 4822 121 43396	10nF 5% 63V
		2482 4822 124 81022	1F 20% 50V
		2483▲ 4822 124 40433	4μF 20% 25V
		2484 4822 126 11134	5nF 10% 50V
		2484 4822 126 12639	2nF 20%
		2485 4822 121 51436	80nF 10% 63V
		2505 4822 124 41748	20μF 20% 400V
		2505▲ 4822 124 42159	30μF 20% 400V
		2505 4822 124 80855	30μF 20% 400V
		2513 4822 126 12792	2nF 10% 500V
		2520▲ 4822 126 12269	60pF 10% R(HR) 2V
		2521▲ 4822 126 12095	20pF 10% 2KV
		2522 4822 126 11824	10pF 10% 1KV
		2525▲ 4822 122 40602	1F 20% 400V

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2001 4822 126 12642	10nF 20% 50V	2001 4822 126 12642	10nF 20% 50V
2002 4822 124 81022	1μF 20% 50V	2002 4822 124 81022	1μF 20% 50V
2007 4822 121 41856	22nF 5% 250V	2007 4822 121 41856	22nF 5% 250V
2008 5322 121 42386	100nF 5% 63V	2008 5322 121 42386	100nF 5% 63V
2009 4822 126 12642	10nF 20% 50V	2009 4822 126 12642	10nF 20% 50V
2010 4822 124 40202	1500μF 20% 16V	2010 4822 124 40202	1500μF 20% 16V
2016 4822 126 12642	10nF 20% 50V	2016 4822 126 12642	10nF 20% 50V
2017 4822 122 31348	120pF 2% 100V	2017 4822 122 31348	120pF 2% 100V
2026 4822 122 31056	12pF 2% 100V	2026 4822 122 31056	12pF 2% 100V
2027 4822 126 12642	10nF 20% 50V	2027 4822 126 12642	10nF 20% 50V
2101 4822 122 33532	3.3nF 5% 50V	2101 4822 122 33532	3.3nF 5% 50V
2102 4822 122 31072	47pF 2% 100V	2102 4822 122 31072	47pF 2% 100V
2102 4822 126 12641	4.7nF 20%	2102 4822 126 12641	4.7nF 20%
2102 4822 126 12789	82pF 5% 50V	2102 4822 126 12789	82pF 5% 50V
2103 4822 121 51231	620pF 1% 400V	2103 4822 121 51231	620pF 1% 400V
2104 4822 124 40248	10μF 20% 63V	2104 4822 124 40248	10μF 20% 63V
2112 4822 122 31072	47pF 2% 100V	2112 4822 122 31072	47pF 2% 100V
2112 4822 126 12519	330pF 10%	2112 4822 126 12519	330pF 10%
2112 4822 126 13097	560pF 10% 50V	2112 4822 126 13097	560pF 10% 50V
2119 4822 126 12862	56pF 5% 50V	2119 4822 126 12862	56pF 5% 50V
2119 4822 126 13096	270pF 10% 50V	2119 4822 126 13096	270pF 10% 50V
2123 4822 126 12639	2.2nF 20%	2123 4822 126 12639	2.2nF 20%
2200 4822 121 51319	1μF 10% 63V	2200 4822 121 51319	1μF 10% 63V
2208 4822 122 33449	47nF 30% 50V	2208 4822 122 33449	47nF 30% 50V
2212 5322 121 42386	100nF 5% 63V	2212 5322 121 42386	100nF 5% 63V
2213 4822 121 42866	220nF 5% 50V	2213 4822 121 42866	220nF 5% 50V
2219 4822 121 51319	1μF 10% 63V	2219 4822 121 51319	1μF 10% 63V
2220▲ 4822 124 40433	47μF 20% 25V	2220▲ 4822 124 40433	47μF 20% 25V
2221 5322 121 42386	100nF 5% 63V	2221 5322 121 42386	100nF 5% 63V
2222 4822 124 81023	2.2μF 20% 50V	2222 4822 124 81023	2.2μF 20% 50V
2223 5322 121 42386	100nF 5% 63V	2223 5322 121 42386	100nF 5% 63V
2224 4822 124 81021	100μF 20% 16V	2224 4822 124 81021	100μF 20% 16V
2225 4822 126 12643	22nF 20% 50V	2225 4822 126 12643	22nF 20% 50V
2228 4822 121 51252	470nF 5% 63V	2228 4822 121 51252	470nF 5% 63V
2228 4822 124 81022	1μF 20% 50V	2228 4822 124 81022	1μF 20% 50V
2236 5322 122 32491	1nF 20% 100V	2236 5322 122 32491	1nF 20% 100V
2243 4822 126 12643	22nF 20% 50V	2243 4822 126 12643	22nF 20% 50V
2245 5322 121 42386	100nF 5% 63V	2245 5322 121 42386	100nF 5% 63V
2246 4822 121 42408	220nF 5% 63V	2246 4822 121 42408	220nF 5% 63V
2248 5322 122 32491	1nF 20% 100V	2248 5322 122 32491	1nF 20% 100V
2249 5322 122 32491	1nF 20% 100V	2249 5322 122 32491	1nF 20% 100V

Spare parts list

2526	4822 121 42071	3.9nF 10% 400V	3261	4822 116 52271	33k 5% 0.5W	3438	4822 116 52303	8k2 5% 0.5W	3643	4822 116 52256	2k2 5% 0.5W
2529	4822 126 12642	10nF 20% 50V	3262	4822 116 52296	6k8 5% 0.5W	3439	4822 116 52269	3k3 5% 0.5W	3645	4822 050 26804	680k 1% 0.5W
2530	4822 126 13153	1nF 10% R(HR)	3263	4822 116 52244	15k 5% 0.5W	3440	4822 116 52199	680 5% 0.5W	3646	4822 116 52263	2k7 5% 0.5W
		3KV	3264	4822 100 20166	10k 30% lin 0.1W	3442	4822 116 52289	5k6 5% 0.5W	3647	4822 116 52233	10k 5% 0.5W
2531	4822 124 22583	47uF 160V	3265	4822 116 52207	1k2 5% 0.5W	3443	4822 052 10222	2k2 5% 0.33W	3647	4822 116 52284	47k 5% 0.5W
2531	4822 124 81042	47uF 20% 200V	3265	4822 116 52231	820 5% 0.5W	3446	4822 116 52213	180 5% 0.5W	3648	4822 116 52257	22k 5% 0.5W
2540	4822 124 42106	1500uF 20% 35V	3267	4822 116 52244	15k 5% 0.5W	3447	4822 116 52296	6k8 5% 0.5W	3648	4822 116 52261	24k 5% 0.5W
2541	4822 126 11382	1nF 10% 1KV	3268	4822 116 52233	10k 5% 0.5W	3448	4822 052 11108	1 5% 0.5W	3649	4822 116 52238	12k 5% 0.5W
2548	4822 126 11824	1000pF 10% 1KV	3270	4822 116 52264	27k 5% 0.5W	3451	4822 116 52271	33k 5% 0.5W	3650	4822 116 52244	15k 5% 0.5W
2561	4822 124 81032	22uF 20% 50V	3271	4822 116 52283	4k7 5% 0.5W	3452	4822 052 10279	27 5% 0.33W	3652	4822 116 52258	220k 5% 0.5W
2561	5322 124 41431	22uF 20% 35V	3273	4822 116 52234	100k 5% 0.5W	3452	4822 052 11108	1 5% 0.5W	3653	4822 116 52211	150 5% 0.5W
2604	4822 122 33293	100pF 5% 50V	3278	4822 116 52283	4k7 5% 0.5W	3454	4822 050 22202	2k2 1% 0.6W	3654	4822 116 52244	15k 5% 0.5W
2605	4822 124 40749	3.3uF 20% 63V	3284	4822 050 11002	1k 1% 0.4W	3455	4822 116 52228	680 5% 0.5W	3656	4822 116 52233	10k 5% 0.5W
2605	4822 124 81041	3.3uF 20% 50V	3300	4822 052 10101	100 5% 0.33W	3456	4822 053 20334	330k 5% 0.25W	3661	4822 116 52249	1k8 5% 0.5W
2606	4822 126 12643	22nF 20% 50V	3301	4822 116 52265	270k 5% 0.5W	3456	4822 053 20434	430k 5% 0.25W	3662	4822 116 52289	1k8 5% 0.5W
2607	4822 122 33293	100pF 5% 50V	3302	4822 053 12123	12k 5% 3W	3457	4822 116 52233	10k 5% 0.5W	3670	4822 116 52226	560 5% 0.5W
2608	5322 122 32356	820pF 10% 100V	3303	4822 050 21502	1k5 1% 0.6W	3458	4822 116 52226	560 5% 0.5W	3671	4822 116 52226	560 5% 0.5W
2610	5322 122 32356	820pF 10% 100V	3304	4822 116 52175	100 5% 0.5W	3460	4822 116 52251	18k 5% 0.5W	3672	4822 116 52233	10k 5% 0.5W
2615	5322 122 32356	820pF 10% 100V	3305	4822 116 52215	220 5% 0.5W	3460	4822 116 52257	22k 5% 0.5W	3673	4822 116 52233	10k 5% 0.5W
2620	4822 124 81022	1uF 20% 50V	3306	4822 116 52246	1k6 5% 0.5W	3470	4822 052 11828	802 5% 0.5W	3681	4822 050 22203	22k 1% 0.6W
2624	5322 122 32356	820pF 10% 100V	3307	5322 100 11542	4k7 30% lin 0.1W	3471	4822 116 52224	470 5% 0.5W	3682	4822 116 52257	22k 5% 0.5W
2625	5322 122 32356	820pF 10% 100V	3308	4822 116 52175	100 5% 0.5W	3472	4822 116 52228	680 5% 0.5W	3683	4822 116 52257	22k 5% 0.5W
2625	5322 122 32356	820pF 10% 100V	3309	4822 116 52213	180 5% 0.5W	3473	4822 116 52224	470 5% 0.5W	3684	4822 050 21003	10k 1% 0.6W
2627	5322 122 32356	820pF 10% 100V	3310	4822 116 52289	5k6 5% 0.5W	3474	4822 116 52223	430 5% 0.5W	3685	4822 116 52257	22k 5% 0.5W
2628	5322 122 32356	820pF 10% 100V	3311	4822 116 52289	5k6 5% 0.5W	3480	4822 052 10128	1 5% 0.33W	3685	4822 116 52284	47k 5% 0.5W
2636	4822 122 33307	10nF 5% 50V	3312	4822 116 52289	5k6 5% 0.5W	3481	4822 116 52252	180k 5% 0.5W	3686	4822 050 21003	10k 1% 0.6W
2636	4822 126 12642	10nF 20% 50V	3313	5322 100 11541	2k2 30% lin 0.1W	3481	4822 116 52284	47k 5% 0.5W	3687	4822 116 52284	47k 5% 0.5W
2638	5322 122 32491	1nF 20% 100V	3314	5322 100 11541	2k2 30% lin 0.1W	3482	4822 116 52251	18k 5% 0.5W	3688	4822 116 52175	100 5% 0.5W
2640	4822 122 30045	27pF 2% 100V	3315	4822 053 12123	12k 5% 3W	3482	4822 116 52284	47k 5% 0.5W	3688	4822 116 52195	47k 5% 0.5W
2640	4822 124 40248	10uF 20% 63V	3316	4822 050 21502	1k5 1% 0.6W	3483	4822 116 52283	4k7 5% 0.5W	3689	4822 116 52175	100 5% 0.5W
2656	5322 121 42661	330nF 5% 63V	3317	4822 116 52175	100 5% 0.5W	3483	4822 116 52291	56k 5% 0.5W	3690	4822 116 52175	100 5% 0.5W
2662	4822 124 40433	47uF 20% 25V	3318	4822 116 52215	220 5% 0.5W	3484	4822 100 20166	10k 30% lin 0.1W	3691	4822 116 52284	47k 5% 0.5W
2662	4822 124 81022	1uF 20% 50V	3319	4822 116 52246	1k6 5% 0.5W	3484	4822 101 11003	220k 30% 0.1W	3691	4822 116 52303	8k2 5% 0.5W
2683	4822 126 12639	2.2nF 20%	3320	5322 100 11542	4k7 30% lin 0.1W	3485	4822 050 11002	1k 1% 0.4W	3692	4822 116 52304	82k 5% 0.5W
2683	5322 121 42386	100nF 5% 63V	3321	4822 116 52175	100 5% 0.5W	3486	4822 116 52224	470 5% 0.5W	3693	4822 116 52257	22k 5% 0.5W
2685	4822 124 81032	22uF 20% 50V	3322	4822 116 52222	390 5% 0.5W	3486	4822 116 52283	4k7 5% 0.5W	3693	4822 116 52284	47k 5% 0.5W
2686	4822 124 81022	1uF 20% 50V	3323	4822 116 52213	180 5% 0.5W	3487	4822 116 52235	1M 5% 0.5W	3694	4822 116 52195	47k 5% 0.5W
2687	4822 124 81022	1uF 20% 50V	3324	4822 116 52243	1k5 5% 0.5W	3487	4822 117 11566	2M 5%	3695	4822 116 52238	12k 5% 0.5W
2688	5322 122 32491	1nF 20% 100V	3325	4822 116 52283	4k7 5% 0.5W	3488	4822 116 52234	100k 5% 0.5W	3695	4822 116 52277	39k 5% 0.5W
2689	5322 122 32491	1nF 20% 100V	3326	4822 116 52217	270 5% 0.5W	3489	4822 100 11348	1k 30% lin 0.1W	3696	4822 050 11002	1k 1% 0.4W
2692	4822 124 40753	6.8uF 20% 63V	3327	4822 116 52228	680 5% 0.5W	3489	4822 100 20589	20k 30% lin 0.1W	3696	4822 116 52283	4k7 5% 0.5W
2692	4822 124 81022	1uF 20% 50V	3328	4822 053 12123	12k 5% 3W	3519	4822 117 10422	0.33 5% 0.5W	3697	4822 116 52175	100 5% 0.5W
2695	4822 124 81032	22uF 20% 50V	3329	4822 050 21502	1k5 1% 0.6W	3520	4822 113 80637	1k5 5% 5W	3698	4822 116 52175	100 5% 0.5W
2700	4822 124 40248	10uF 20% 63V	3330	4822 116 52175	100 5% 0.5W	3521	4822 052 10222	2k2 5% 0.33W	3699	4822 116 52303	8k2 5% 0.5W
2700	4822 124 40753	6.8uF 20% 63V	3331	4822 116 52213	180 5% 0.5W	3522	4822 116 52206	120 5% 0.5W	3700	4822 116 52284	47k 5% 0.5W
2703	4822 124 40433	47uF 20% 25V	3332	4822 116 52215	220 5% 0.5W	3522	4822 116 52215	220 5% 0.5W	3702	4822 116 52239	120k 5% 0.5W
2711	4822 126 12643	22nF 20% 50V	3333	4822 116 52246	1k6 5% 0.5W	3525	4822 116 60127	4M 7 5% 1W	3703	4822 116 52284	47k 5% 0.5W
2714	4822 126 12688	47pF 5% 50V	3334	5322 100 11542	4k7 30% lin 0.1W	3526	4822 053 11473	47k 5% 2W	3704	4822 116 52233	10k 5% 0.5W
2714	5322 122 32334	220pF 10% 100V	3335	4822 116 52175	100 5% 0.5W	3527	4822 052 11109	10 5% 0.5W	3706	4822 116 52252	180 5% 0.5W
2721	4822 122 31061	18pF 2% 100V	3336	4822 050 21502	1k5 1% 0.6W	3528	4822 117 11562	1k5 5% 7W	3707	4822 116 52256	2k2 5% 0.5W
2721	5322 122 32143	22pF 100V	3337	4822 050 21502	1k5 1% 0.6W	3529	4822 116 52298	680 5% 0.5W	3708	4822 116 52245	150k 5% 0.5W
2722	4822 122 31061	18pF 2% 100V	3344	4822 052 10188	108 5% 0.33W	3530	4822 116 52231	820 5% 0.5W	3709	4822 050 11002	1k 1% 0.4W
2722	5322 122 32143	22pF 100V	3345	4822 052 10278	207 5% 0.33W	3542	4822 116 52191	33k 5% 0.5W	3710	4822 116 52222	390 5% 0.5W
2726	4822 122 33293	100pF 5% 50V	3350	4822 116 52234	100k 5% 0.5W	3560	4822 116 52213	180 5% 0.5W	3711	4822 116 52284	47k 5% 0.5W
2727	4822 122 33293	100pF 5% 50V	3400	4822 116 52256	2k2 5% 0.5W	3561	4822 116 52195	47 5% 0.5W	3713	4822 116 52278	390k 5% 0.5W
2728	4822 122 33293	100pF 5% 50V	3401	4822 116 52243	1k5 5% 0.5W	3562	4822 116 52224	470 5% 0.5W	3715	4822 116 52249	1k8 5% 0.5W
2734	4822 126 11134	5.6nF 10% 50V	3402	4822 050 11002	1k 1% 0.4W	3563	4822 116 52215	220 5% 0.5W	3717	4822 116 52269	3k3 5% 0.5W
2736	4822 122 33527	100pF 10% 50V	3402	4822 050 21002	1k 1% 0.6W	3565	4822 116 52233	10k 5% 0.5W	3718	4822 116 52269	3k3 5% 0.5W
2738	4822 122 33532	3.3nF 5% 50V	3403	4822 116 52259	2k4 5% 0.5W	3597	4822 116 52233	10k 5% 0.5W	3719	4822 116 52233	10k 5% 0.5W
2739	5322 122 32491	1nF 20% 100V	3403	4822 116 52263	2k7 5% 0.5W	3597	4822 116 52234	100k 5% 0.5W	3720	4822 116 52206	120 5% 0.5W
			3404	4822 116 52243	1k5 5% 0.5W	3597	4822 116 52239	120k 5% 0.5W	3721	4822 116 52206	120 5% 0.5W
			3404	4822 116 52266	3k 5% 0.5W	3597	4822 116 52245	150k 5% 0.5W	3726	4822 116 52283	4k7 5% 0.5W
			3405	4822 116 52193	39k 5% 0.5W	3597	4822 116 52252	180k 5% 0.5W	3727	4822 116 52283	4k7 5% 0.5W
			3405	4822 116 81844	207 5% 0.5W	3597	4822 116 52258	220k 5% 0.5W	3728	4822 116 52283	4k7 5% 0.5W
			3406	4822 116 52257	22k 5% 0.5W	3597	4822 116 52291	56k 5% 0.5W	3730	4822 116 52283	4k7 5% 0.5W
			3406	4822 116 52271	33k 5% 0.5W	3597	4822 116 52297	68k 5% 0.5W	3731	4822 116 52233	10k 5% 0.5W
			3407	4822 116 52254	20k 5% 0.5W	3598	4822 116 52271	33k 5% 0.5W	3732	4822 116 52233	10k 5% 0.5W
			3407	4822 116 52264	27k 5% 0.5W	3599	4822 116 52228	680 5% 0.5W	3733	4822 116 52233	10k 5% 0.5W
			3408	4822 273 30397	1P 50M A 35V	3599	4822 116 52252	180k 5% 0.5W	3734	4822 116 52244	15k 5% 0.5W

Spare parts list

5445	4822 140 10494	LOT 25" TXT & non TXT
5445	4822 140 10511	LOT 25" -/93
5445	4822 140 10506	LOT 29" non TXT
5445	4822 140 10507	LOT 29" TXT
5446	4822 157 60171	Bead 10 MHz
5449	4822 157 51482	10µH 10%
5454	4822 157 71118	Lin. coil 25"
5454	4822 152 20721	Lin. coil 25" -/93
5454	4822 157 71406	Lin. coil 29"
5480	4822 157 71405	Bridge coil
5480	4822 157 10728	Bridge coil -/93
5481	4822 157 62336	100µH 10%
5513	4822 157 60171	Bead 10 MHz
5522	4822 157 52007	4.7µH 10%
5523	4822 152 20667	5.6µH 10%
5524	4822 157 63708	5.6µH 10%
5525	4822 146 31348	FFS transformer 25"
5525	4822 140 10508	FFS transformer 29" 140-276V
5525	4822 146 81405	FFS transformer 29" 90-276V
5528	4822 157 70823	3µH 10%
5529	4822 157 60171	Bead 10 MHz
5530	4822 157 60171	Bead 10 MHz
5531	4822 157 63698	33µH 7.5%
5532	4822 157 60171	Bead 10 MHz
5540	4822 157 60171	Bead 10 MHz
5543	4822 157 52259	5.6µH 10%
5620	4822 157 52285	6.8µH 10%
5620	4822 157 71112	3.3µH 10%
5621	4822 157 52285	6.8µH 10%
5621	4822 157 71112	3.3µH 10%
5711	4822 157 52285	6.8µH 10%
5720	4822 157 52286	22µH 10%
5720	4822 157 52983	22µH 10%



6016	5322 130 34955	BA482
6017	4822 130 30621	1N4148
6219	4822 130 31983	BAT85
6254	4822 130 34233	BZX79-C5V1
6280	4822 130 30621	1N4148
6281	4822 130 30621	1N4148
6282	4822 130 30621	1N4148
6284	4822 130 30621	1N4148
6286	4822 130 30621	1N4148
6287	4822 130 30621	1N4148
6288	4822 130 30621	1N4148
6305	4822 130 34174	BZX79-C4V7
6306	4822 130 34189	BAV20
6318	4822 130 34174	BZX79-C4V7
6319	4822 130 34189	BAV20
6327	4822 130 34174	BZX79-C4V7
6328	4822 130 34189	BAV20
6350	4822 130 80928	BZX79-C30
6412	4822 130 30621	1N4148
6415	4822 130 30621	1N4148
6416	4822 130 42488	BYD33D
6417	4822 130 34173	BZX79-C5V6
6418	4822 130 30621	1N4148
6420	5322 130 34563	BZX79-C2V7
6423	4822 130 34382	BZX79-C8V2
6425	4822 130 31983	BAT85
6426	4822 130 31983	BAT85
6427	4822 130 31983	BAT85
6428	4822 130 34382	BZX79-C8V2
6437	4822 130 34281	BZX79-C15
6438	4822 130 34281	BZX79-C15
6439	4822 130 31631	BYV10-20
6441	4822 130 30621	1N4148
6442	4822 130 42488	BYD33D
6443	4822 130 42488	BYD33D
6446	5322 130 31559	BY448
6447	4822 130 42488	BYD33D
6447	5322 130 31938	BYV27-200
6448	4822 130 41275	BY228/20
6449	4822 130 42489	BYD33G
6450	4822 130 42488	BYD33D
6451	4822 130 42488	BYD33D
6452	4822 130 42489	BYD33G
6453	5322 130 31559	BY448
6455	4822 130 34382	BZX79-C8V2
6458	4822 130 30621	1N4148
6470	4822 130 42489	BYD33G
6471	4822 130 31983	BAT85
6473	4822 130 31983	BAT85
6491	5322 130 31574	BZT03-C15
6512	4822 130 30621	1N4148
6513	4822 130 30621	1N4148
6518	4822 130 34174	BZX79-C4V7
6519	4822 130 34174	BZX79-C4V7
6519	5322 130 31574	BZT03-C15
6520	4822 130 42606	BYD33J
6521	4822 130 34493	BZX79-C20
6526	4822 130 32896	BYD33M
6527	4822 130 42606	BYD33J
6531	4822 130 33531	BY229F-600
6541	4822 130 81104	MA689
6562	4822 130 34174	BZX79-C4V7
6565	5322 130 31504	BZX79-C3V3

6606	4822 130 34173	BZX79-C5V6
6607	4822 130 30621	1N4148
6618	4822 130 34195	BZX79-B13
6618	4822 130 34197	BZX79-B12
6632	4822 130 30621	1N4148
6633	4822 130 34174	BZX79-C4V7
6648	4822 130 34142	BZX79-C33
6648	4822 130 82037	HZT33
6690	4822 130 30621	1N4148
6715	4822 130 30621	1N4148



7000	4822 209 10892	LA7910
7109	4822 130 40938	BC548
7212	4822 130 44197	BC558B
7213	4822 130 44197	BC558B
7214	4822 130 40941	BC558
7215	4822 130 40938	BC548
7216	4822 130 40938	BC548
7217	4822 130 40938	BC548
7218	5322 209 86283	L7808CP
7225	4822 209 33398	TDA8362E/N2
7225	4822 209 33479	TDA8361E/N3
7225	4822 209 33916	TDA8361E/N4
7245	4822 209 32359	TDA8395/N1
7255	4822 209 31714	TDA4661/V2
7270	4822 130 40938	BC548
7278	4822 130 41376	BF494B
7305	4822 130 41773	BF869
7306	4822 130 41376	BF494B
7318	4822 130 41773	BF869
7319	4822 130 41376	BF494B
7325	4822 130 40941	BC558
7327	4822 130 41773	BF869
7328	4822 130 41376	BF494B
7332	4822 130 40941	BC558
7400	4822 209 33321	TDA3654/N3
7423	4822 130 40938	BC548
7430	4822 130 40938	BC548
7439	5322 130 44647	BC368
7440	4822 130 42159	BF819
7445	4822 130 63569	BU1508DX
7446	4822 130 41646	BF423
7480	4822 130 40824	BD136
7481	4822 130 40938	BC548
7513	4822 130 63499	STH12N60FI
7513	4822 130 63698	STH8NA60FI
7563	4822 130 40941	BC558
7600	4822 209 33773	PCA84C844/163

7600	4822 209 33774	SA+ V0.9
7634	4822 130 40937	P83C055-CV
7635	4822 130 40937	6123NB S12 V3.1
7636	4822 130 40937	BC548B
7636	4822 130 40938	BC548
7637	4822 130 40938	BC548
7638	4822 130 40938	BC548
7647	4822 130 41594	PH2369
7684	4822 130 40938	BC548
7685	4822 130 40938	BC548
7686	4822 130 40938	BC548
7710	4822 209 52316	ST24C04B1
7730	4822 209 10257	HEF4040BP
7731	4822 209 10248	HEF4013BP
7733	4822 130 44196	BC548C
7734	4822 130 40938	BC548

Power supply control panel 29" [AA]

Various

4822 212 31771	Power supply cont. panel 29" 90-276V
4822 212 31774	Power supply cont. panel 29" 140-276V
3139 138 64170	Power supply cont. panel 29" -/93
4822 265 31099	6 pins blue snap connector



2506	5322 121 10472	47µF 25
2507	4822 121 43526	47nF 5% 250V
2508	4822 121 43167	27nF 5% 250V
2510	5322 122 32334	220pF 10% 100V
2511	5322 122 32334	220pF 10% 100V
2512	4822 121 51319	1µF 10% 63V
2514	4822 126 13097	560pF 10% 50V
2515	4822 126 13097	560pF 10% 50V
2516	4822 124 80371	4.7µF 20% 50V
2517	4822 126 11157	470pF 10% 500V

3508	4822 116 52249	1k8 5% 0.5W
3510	4822 116 52283	4k7 5% 0.5W
3511	4822 116 52264	27k 5% 0.5W
3512	4822 100 20166	10k 30% lin 0.1W
3515	4822 116 52175	100Ω 5% 0.5W
3516	4822 050 22701	270Ω 1% 0.6W
3517	4822 052 10159	15Ω 5% 0.33W
3517	4822 052 10339	33Ω 5% 0.33W
3518	4822 052 10151	150Ω 5% 0.33W
3523	4822 116 52278	390k 5% 0.5W
3524	4822 050 11002	1k 1% 0.4W
3524	4822 116 52207	1k2 5% 0.5W



6509	4822 130 34174	BZX79-C4V7
6510	4822 130 31024	BZX79-B18
6511	4822 130 30621	1N4148
6514	4822 130 34189	BAV20



7510	4822 209 33432	UC3842BN
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Mains input panel 29" [AA]

Various

	4822 212 31769	Mains input panel 29" 90-276V
	4822 212 31773	Mains input panel 29" 140-276V
▲	4822 276 13431	Mains switch
▲	4822 256 30496	Fuse holder
▲	4822 267 31359	2 pins header
▲	4822 265 20441	3 pins header
	4822 410 63517	Mains knob 29"
	4822 404 31357	Bracket for mains input panel
1500	4822 070 34002	Fuse 4 AT



2500	4822 121 70285	470nF 10% 250V
2501	4822 121 70141	33nF 5% 400V
2502	4822 126 12793	2.2nF 10% 2KV
2503	4822 121 42059	100nF 10% 400V
2504	4822 126 12793	2.2nF 10% 2KV
2509	4822 124 22623	22µF 20% 35V
2527	4822 122 33665	3.3nF 20% 125V
2528	4822 122 33665	3.3nF 20% 125V



3501	4822 116 40247	18Ω 270V
3502	4822 111 20403	470Ω 10%
3503	4822 113 80603	1.5Ω 10% 7W
3504	4822 053 21475	4M7 5% 0.5W
3505	4822 113 80603	1.5Ω 10% 7W
3506	4822 053 11273	27k 5% 2W
3507	4822 116 52251	18k 5% 0.5W
3509	4822 116 40247	18Ω 270V



5500	4822 157 71408	28mH mains filter
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6500	4822 130 80928	BZX79-C30
6501	4822 130 80928	BZX79-C30
6502	4822 130 80858	1N5062
6503	4822 130 80858	1N5062
6504	4822 130 80858	1N5062
6505	4822 130 80858	1N5062
6506	4822 130 34379	BZX79-C27
6510	4822 130 82158	D3SBA60-4003

Dynamic S-correction panel [AA]

Various

3139 138 57190	Dynamic S-corr panel -/93
4822 265 20441	3 pins header



42490	4822 121 42442	260nF 5% 200V
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5490	4822 140 10509	Bridge coil 250µH
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CRT panel 29" [EE]

Various

4822 212 31772	CRT panel 29" NN
3139 138 64180	CRT panel 29" -/93
4822 255 70254	(local sourcing)
4822 265 30934	Holder valve
4822 265 31153	5 pins header
4822 265 31153	5 pins header black



2302	4822 126 12643	22nF 20% 50V
2304	4822 126 13097	560pF 10% 50V
2306	4822 124 80495	4.7uF 20%
2317	4822 126 13097	560pF 10% 50V
2330	4822 126 13097	560pF 10% 50V
2340	4822 126 12833	4.7nF 20% 2KV
2350	5322 122 32491	1nF 20% 100V
2351	4822 121 41673	220nF 10% 100V