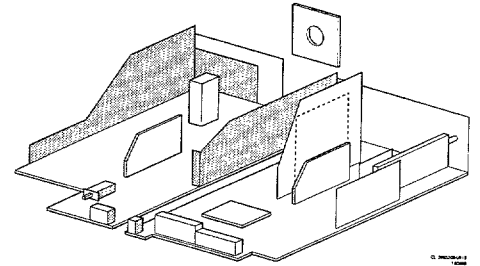


Service
Service
Service

FL 1.10
AA



Service Manual

Contents

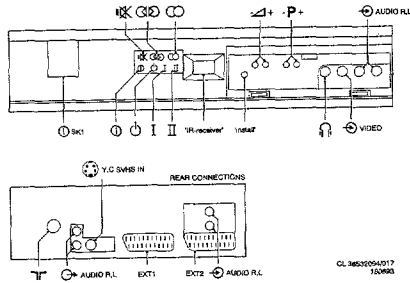
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1. Technical data

Mains voltage	: 220 - 240 V (± 10%)
	: 50 Hz - 60 Hz (± 5%)
Aerial input impedance	: 75 Ω - coaxial
Minimum aerial voltage	: 30 μV (VHF), 40 μV (UHF)
Maximum aerial voltage VHF/S/UHF	: 180 mV
Programmes	: 0 - 59
VCR programmes	: 0, 50 - 59

2. Connection facilities and Chassis overview



Specification of the connectors

EXT1 (AUX): RGB+CVBS

1	-Audio	⊕	R(0,5VRMS ≤ 1kΩ)
2	-Audio	⊖	R(0,5VRMS ≥ 10kΩ)
3	-Audio	⊕	L(0,5VRMS ≤ 1kΩ)
4	-Audio	⊥	
5	-Blue	⊥	
6	-Audio	⊖	L(0,5VRMS ≥ 10kΩ)
7	-Blue (0,7V _{pp} /75Ω)		
8	-CVBS-status	⊖	0-2V: INT 4,5-7V: EXT 16:9 9,5-12V: EXT 4:3
9	-Green	⊥	
10	--		
11	-Green (0,7V _{pp} /75Ω)		
12	--		
13	-Red	⊥	
14	-RGB-status		
15	-Red (0,7V _{pp} /75Ω)		
16	-RGB-status (0-0,4V: INT; 1-3V: EXT/75Ω)		
17	-CVBS	⊥	
18	-CVBS	⊥	
19	-CVBS	⊕	(1V _{pp} /75Ω)
20	-CVBS	⊖	(1V _{pp} /75Ω)
21	-Earth screen		

EXT2 (VCR): SVHS (Y/C) + CVBS

1	-Audio	⊕	R(0,5VRMS ≤ 1kΩ)
2	-Audio	⊖	R(0,5VRMS ≥ 10kΩ)
3	-Audio	⊕	L(0,5VRMS ≤ 1kΩ)
4	-Audio	⊥	
5	--		
6	-Audio	⊖	L(0,5VRMS ≥ 10kΩ)
7	--		
8	-CVBS-status	⊖	0-2V: int 4,5-7V: EXT 16:9 9,5-12V: EXT 4:3 ⊕ 4,5 : EXT 16:9
9	--		
10	--		
11	--		
12	--		
13	-C	⊥	
14	--		
15	-C	⊖	(1V _{pp} /75Ω)
16	--		
17	-CVBS	⊥	
18	-CVBS	⊥	
19	-CVBS	⊕	(1V _{pp} /75Ω)
20	-CVBS/Y	⊖	(1V _{pp} /75Ω)
21	-Earth screen		

EXT2 (SVHS) (rear)

SVHS	1 -	⊥	
	2 -	⊥	
	3 - Y	⊕	(1V _{pp} ; 75Ω)
	4 - C	⊖	(0,3V _{pp} ; 75Ω)
	⊕ CINCH Audio	⊖	L(0,2 - 2VRMS; ≥ 10kΩ)
	⊕ CINCH Audio	⊖	R(0,2 - 2VRMS; ≥ 10kΩ)

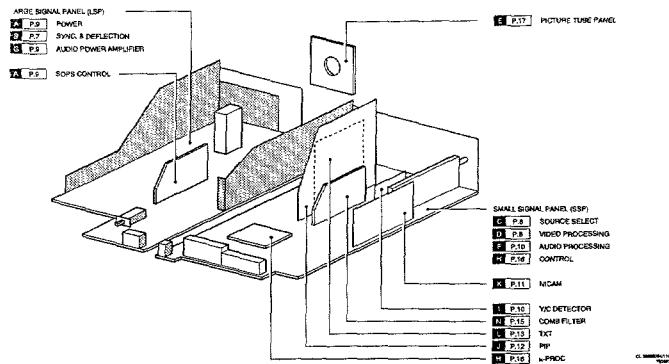
EXT3 (front)

⊕ CINCH Video	⊖	300mV _{pp} /75Ω
⊕ CINCH Audio	⊖	L(0,2 - 2VRMS; ≥ 10kΩ)
⊕ CINCH Audio	⊖	R(0,2 - 2VRMS; ≥ 10kΩ)
⊕ 8.3mm	⊕	32-2000Ω ≥ 10mW

Audio out (rear)

⊕ CINCH Audio	⊕	L(0,5VRMS; ≤ 1kΩ)
⊕ CINCH Audio	⊕	R(0,5VRMS; ≤ 1kΩ)

Chassis overview



3. Warnings and Notes

Warnings

Safety regulations require that the unit should be returned in its original condition and that components identical to the original components are used. The safety components are indicated by the symbol ▲.

In order to prevent damage to ICs and transistors, all high-voltage flashovers must be avoided. In order to prevent damage to the picture tube, the method shown in Fig. 3.1 should be used to discharge the picture tube. Use a high-voltage probe and a multimeter (position DC-V). Discharge until the meter reading is 0V (after approx. 30s).

ESD ▲

All ICs and many other semiconductors are sensitive to electrostatic discharges (ESD). Careless handling during repair can drastically shorten the life. Make sure that during repair you are connected by a pulse band with resistance to the same potential as the earth of the unit. Keep components and tools also at this same potential.

When repairing a unit, always connect it to the mains voltage via an isolating transformer.

Be careful when taking measurements in the high-voltage section and on the picture tube.

Never replace modules or other components while the unit is switched on.

It is recommended that safety goggles are worn when replacing the picture tube.

When making settings, use plastic rather than metal tools. This will prevent any short circuits and the danger of a circuit becoming unstable.

After repair the wiring should be fastened once more in the cable clamps for this purpose.

10. In order to prevent measuring errors, the heat sinks should not be used as reference points for measurements. The heat sink for the sound output amplifier is connected to the -16/-11 volts.
11. On this unit the 140 volt supply voltage is not supplied via an interconnection on the deflection yoke to the line output transformer. When the deflection cable is detached, the +140 volt supply remains loaded. In order to unload the +140 volts, coil 5511 should be removed.
12. Together with the deflection unit and any multipole unit, the flat square picture tubes used form an integrated unit. The deflection and the multipole units are set optimally at the factory. Adjustment of this unit during repair is therefore not recommended.

Notes

1. The direct voltages and oscillograms should be measured with regard to the tuner earth (⊥_T), or hot earth (⊥) as this is called.
2. The direct voltages and oscillograms shown in the diagrams should be measured in the **Service Default Mode** (see chapter 8) with a colour bar signal and stereo sound (L: 3 kHz, R: 1 kHz unless stated otherwise) and picture carrier at 475.25 MHz.
3. Where necessary, the oscillograms and direct voltages are measured with (⏏) and without aerial signal (✖). Voltages in the power supply section are measured both for normal operation (⏻) and in standby (⏹). These values are indicated by means of the appropriate symbols.
4. The picture tube PCB has printed spark gaps. Each spark gap is connected between an electrode of the picture tube and the Aquadag coating.
5. The semiconductors indicated in the circuit diagram and in the parts lists are completely interchangeable per position with the semiconductors in the unit, irrespective of the type indication on these semiconductors.
6. The connectors used for the modules (board to board) are gold-plated and should only be replaced by the same type.

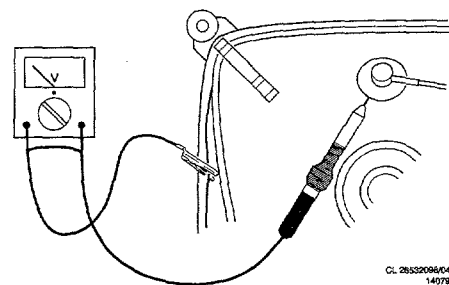


Fig. 3.1

4. It Ca th gu
1. R: B: st O: st R:



2. Se FL Re Re the Se

Se

2 4. Mechanical instructions

It is extremely important that following disassembly all cables are replaced in their original positions in order that safety and sound and picture quality may be guaranteed.

1. Removing the rear panel

Before the rear panel is removed the connection to the subwoofer should first be disconnected:
 Open the flap in the rear panel. Disconnect the subwoofer cable. (connector L36)
 Remove the rear panel from the set.

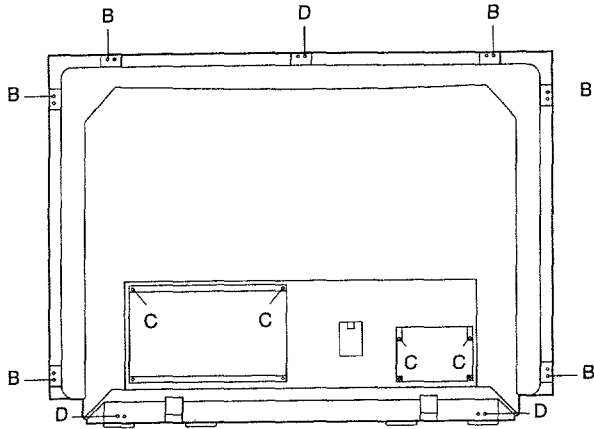


Fig. 4.1

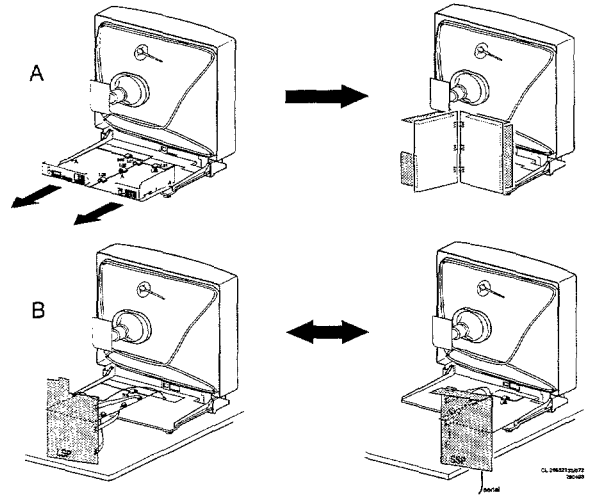


Fig. 4.2

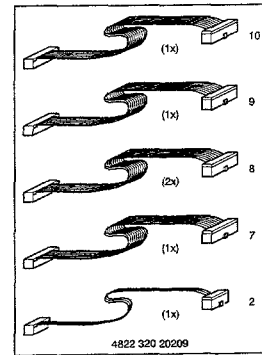


Fig. 4.3

2. Service positions

FL1 can be placed in two service positions. (fig. 4.2)
 Remove the rear panel.
 Remove the screw behind the flap on the front side of the set.

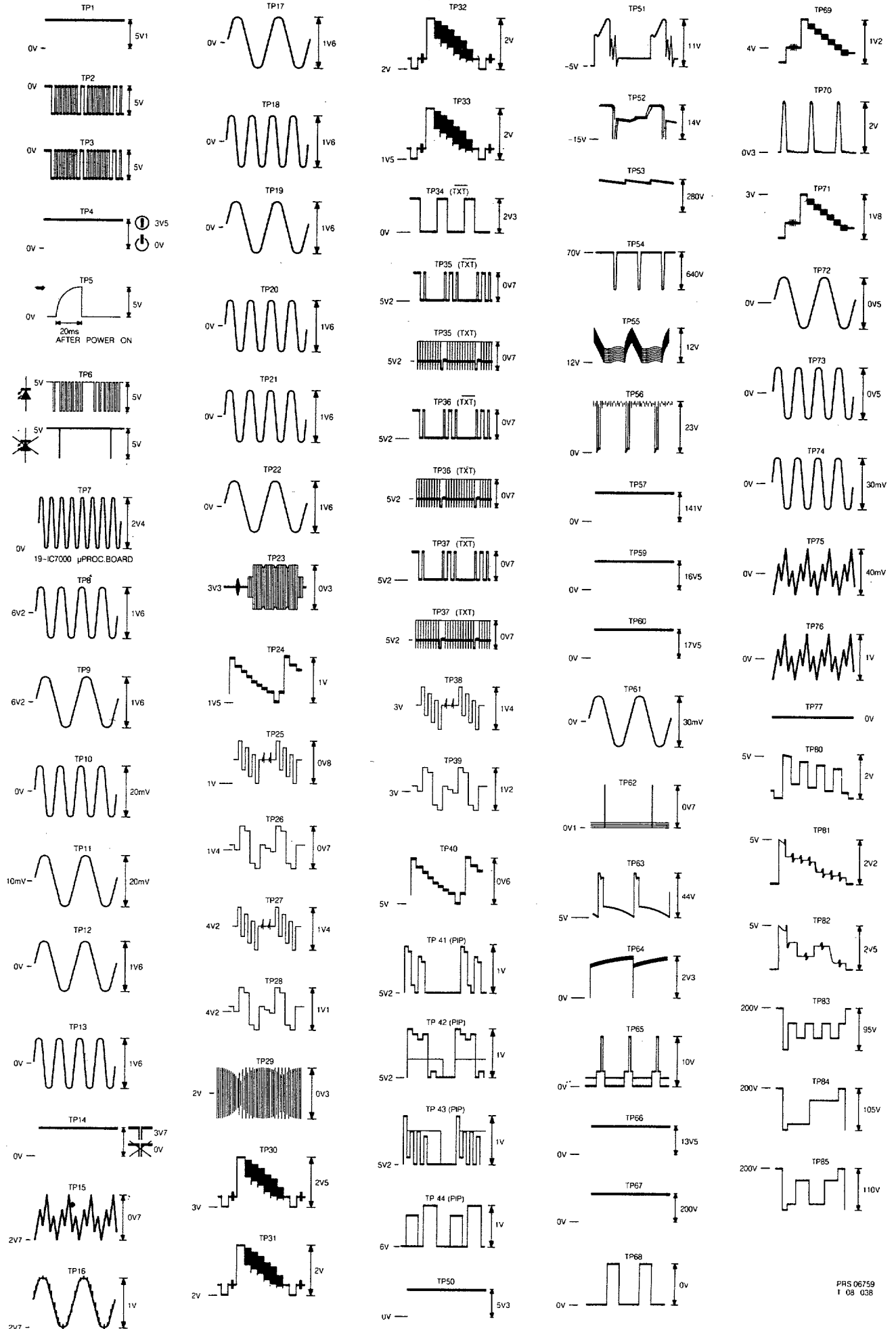
Service position 1:

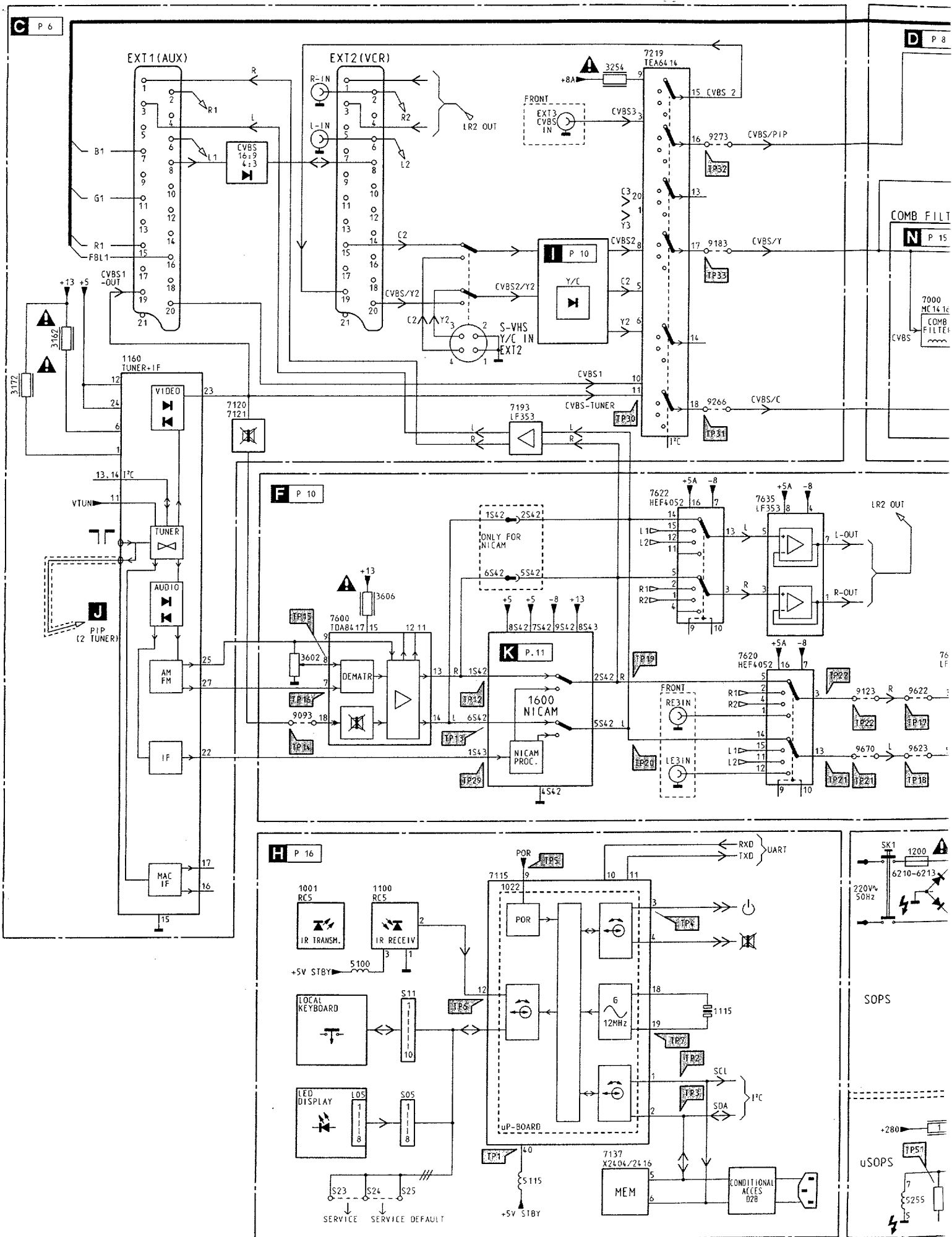
If present, press down the lugs with which the chassis is secured and pull both panels simultaneously to the rear, removing any hindering cables from the cable ties if necessary.
 Place the panels vertically behind the set as illustrated in figure 4.2a.

Service position 2:

Disconnect connectors L01, L02 and L03 that connect the small (SSP) and large signal panel (LSP) together. Pull the panel concerned backwards out of the set. Using extension cable set 4822 320 20209 (fig. 4.3) reconnect both panels together. Place the panel concerned behind the set as illustrated in figure 4.2b.

Oscillograms Oscillograms / Oscillogrammes





Blockdiagram / Blockschaltbild /

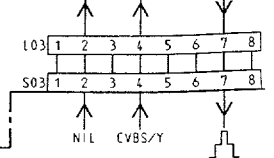
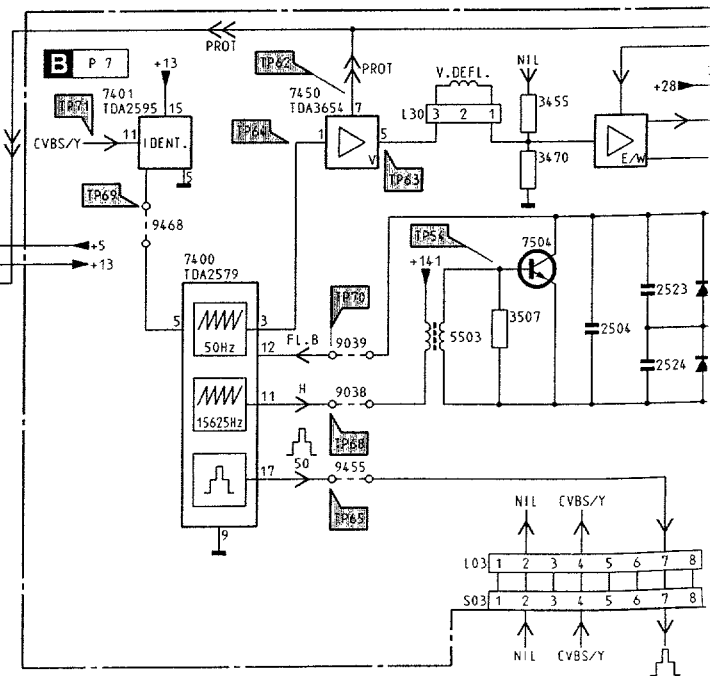
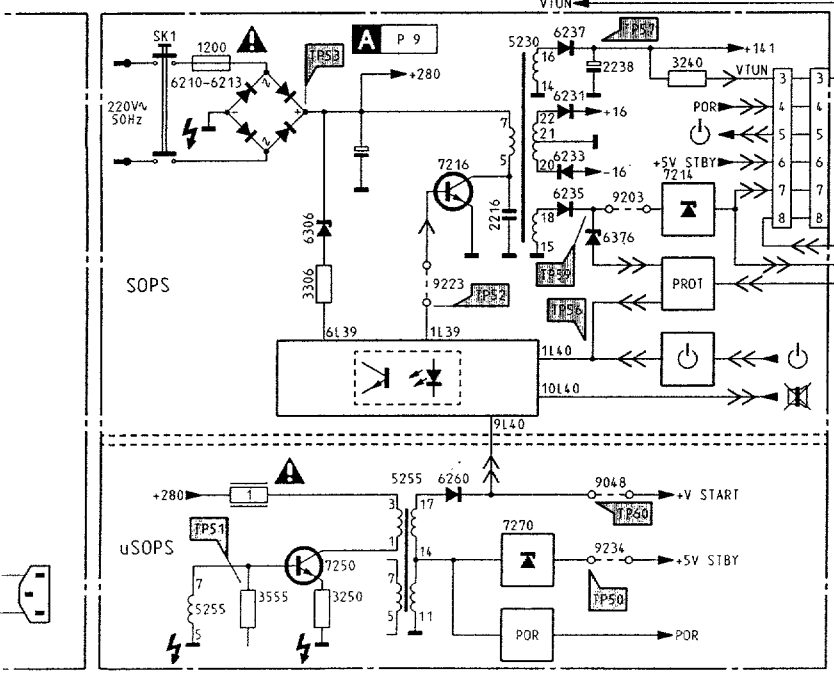
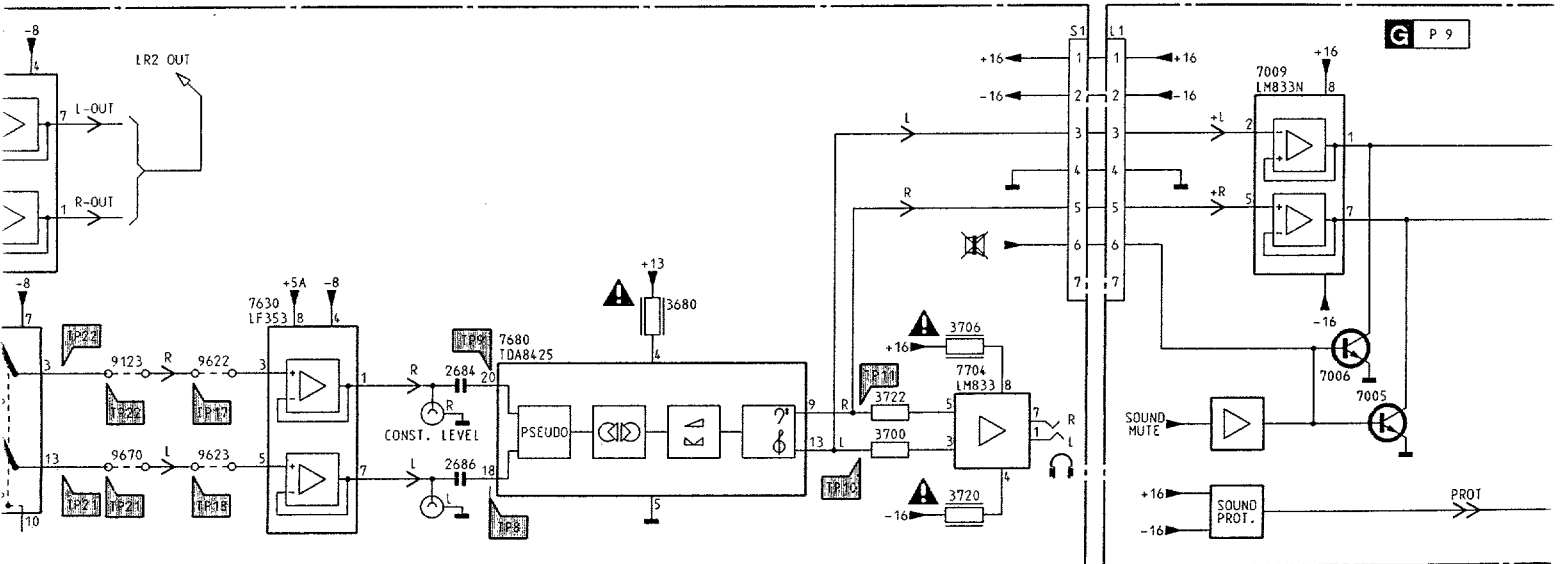
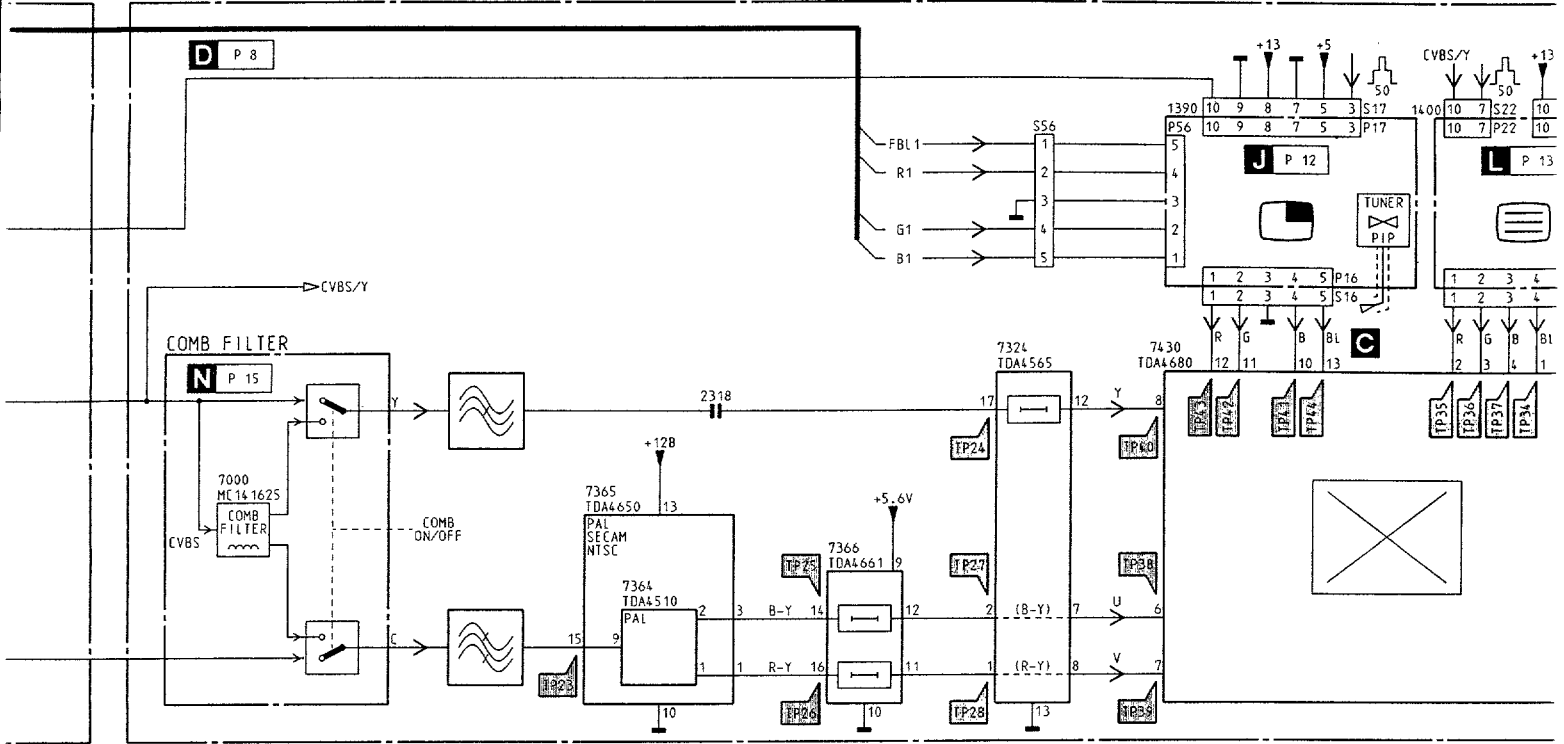
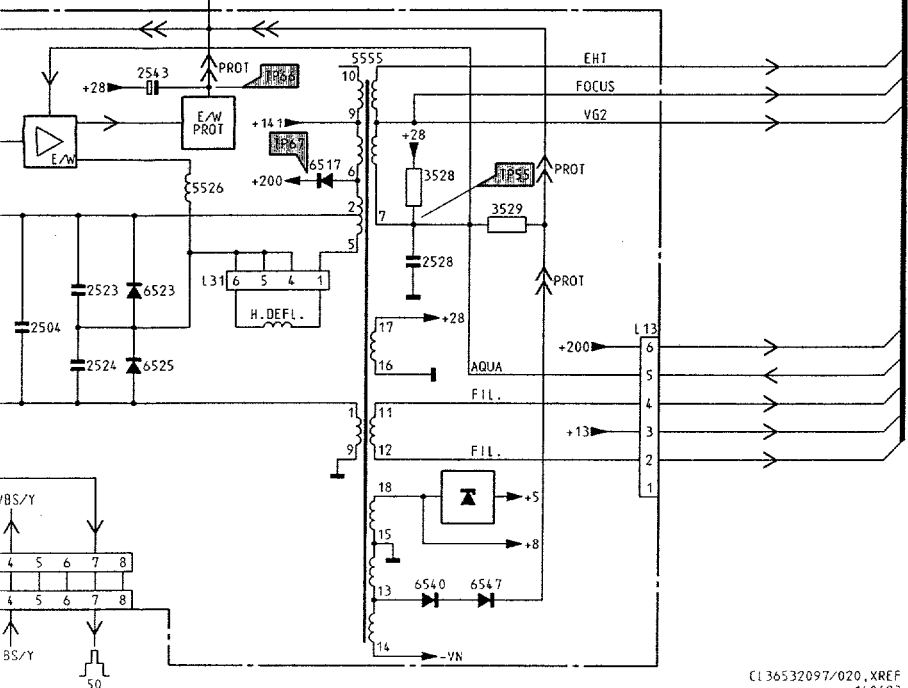
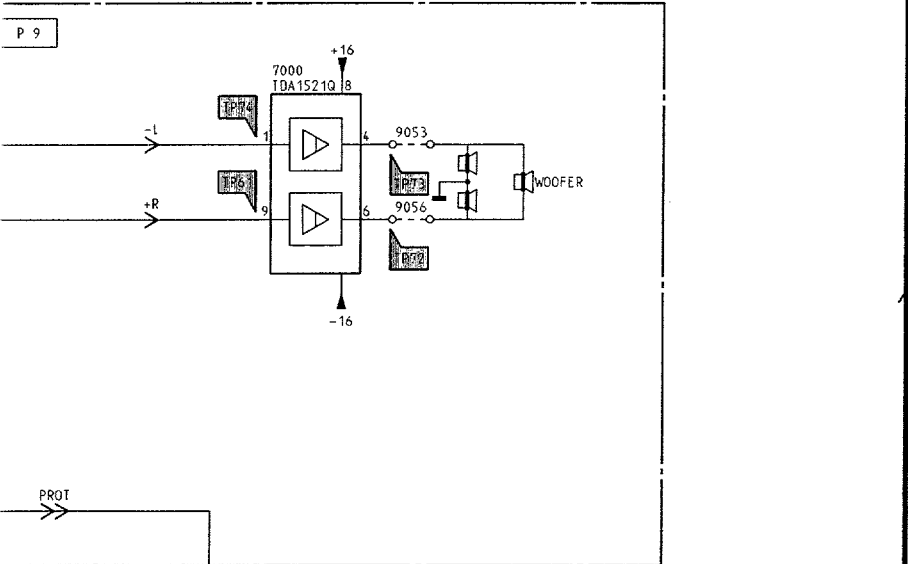
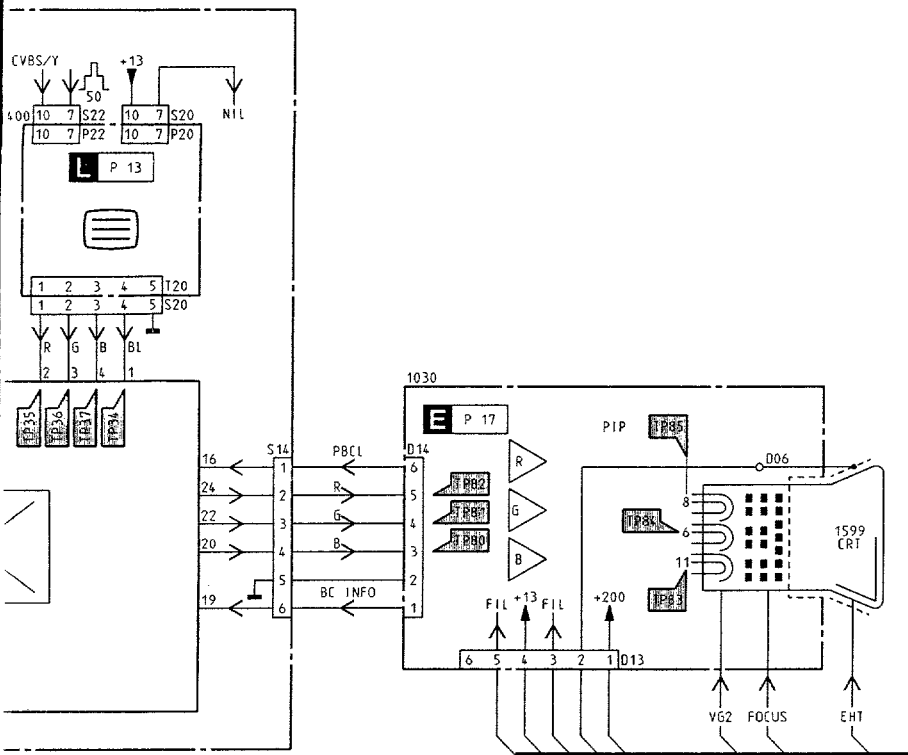
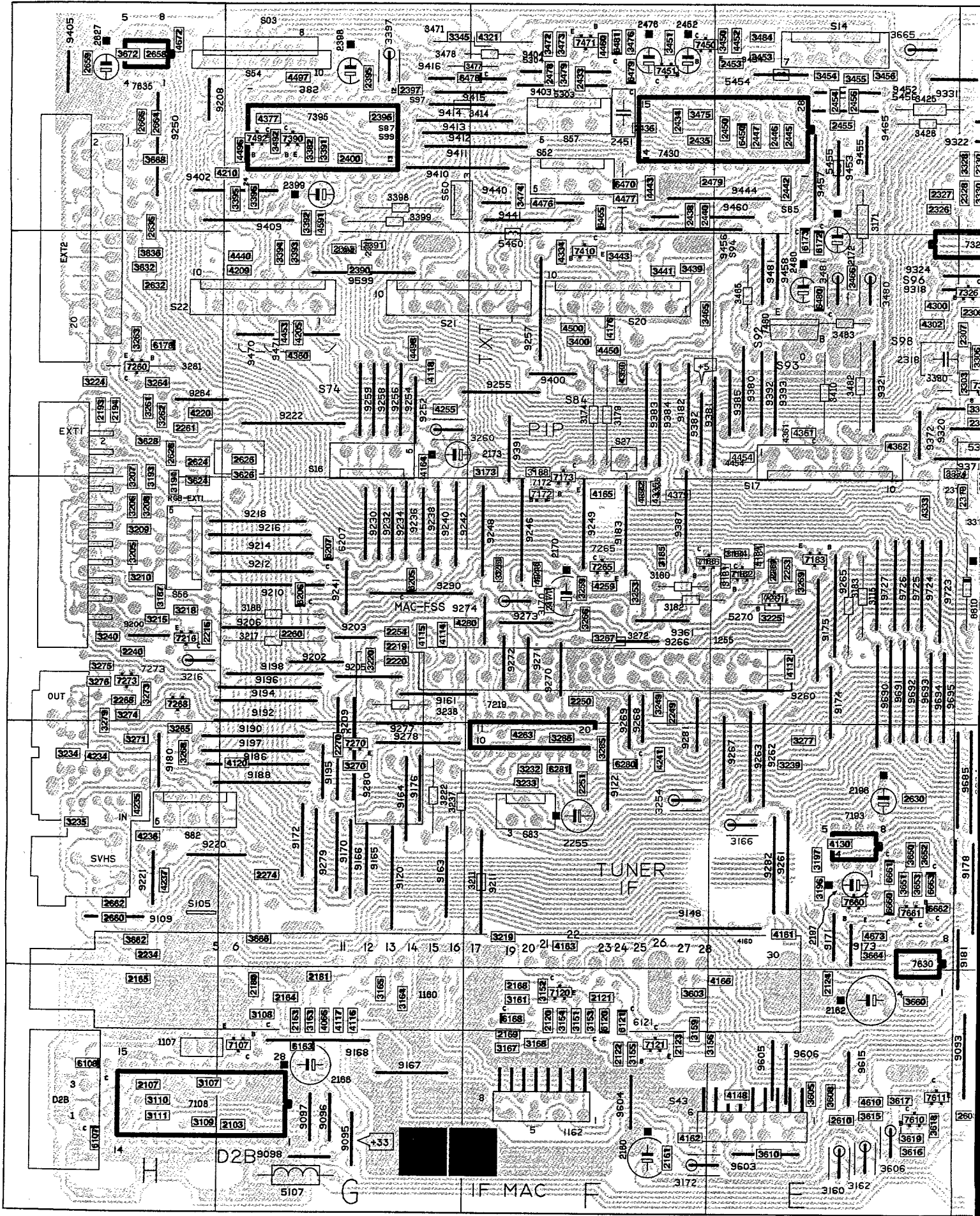
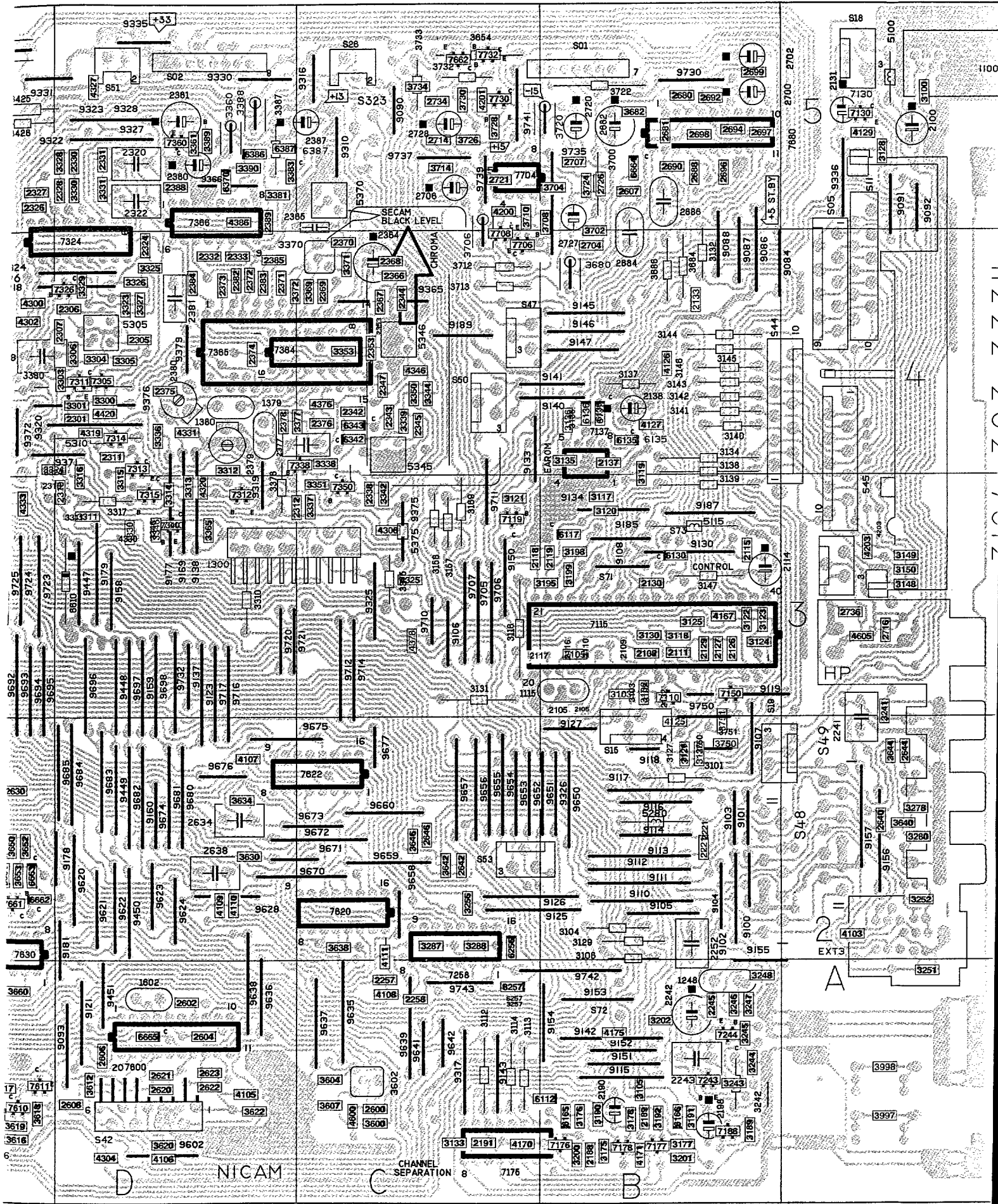
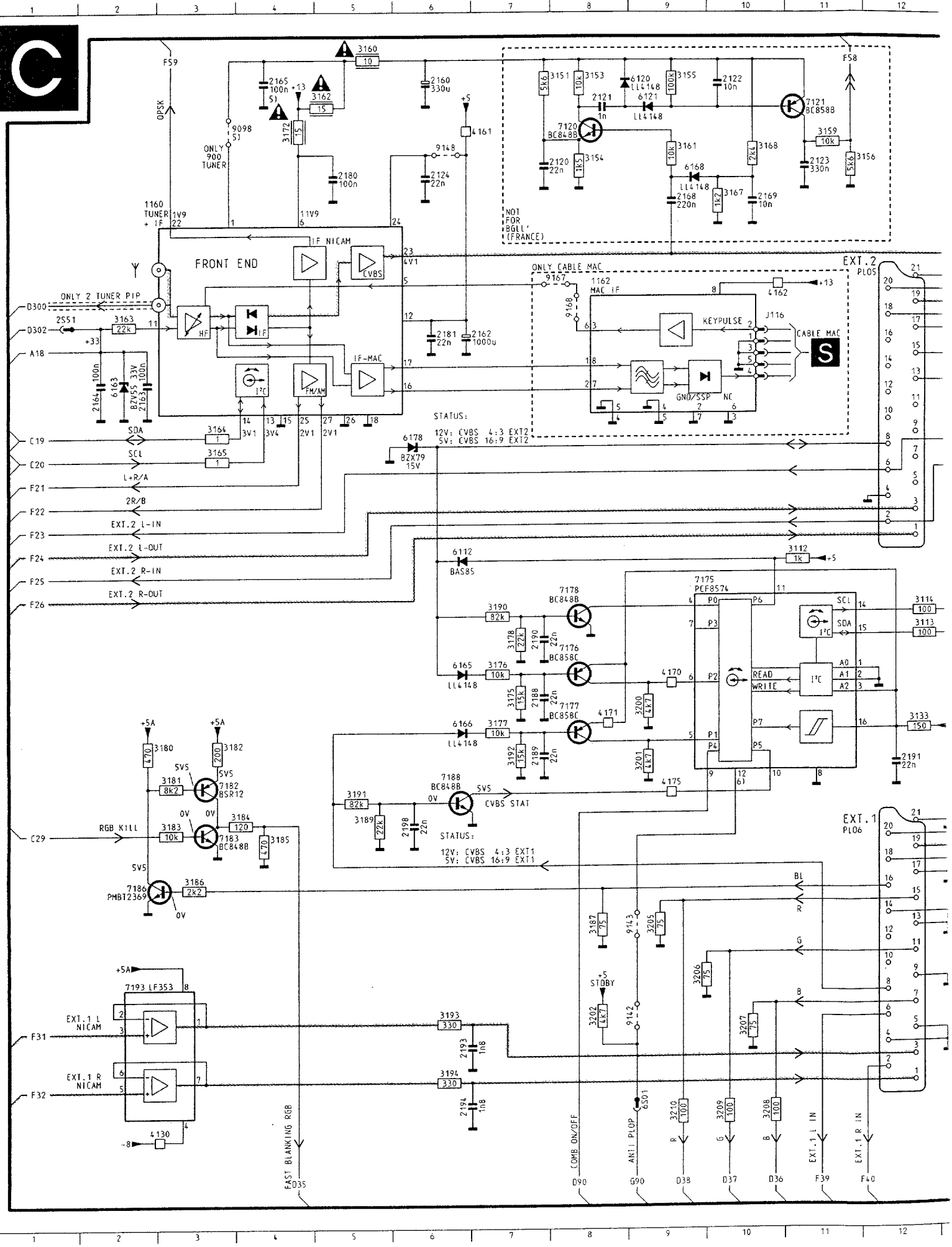


Diagramme schématique



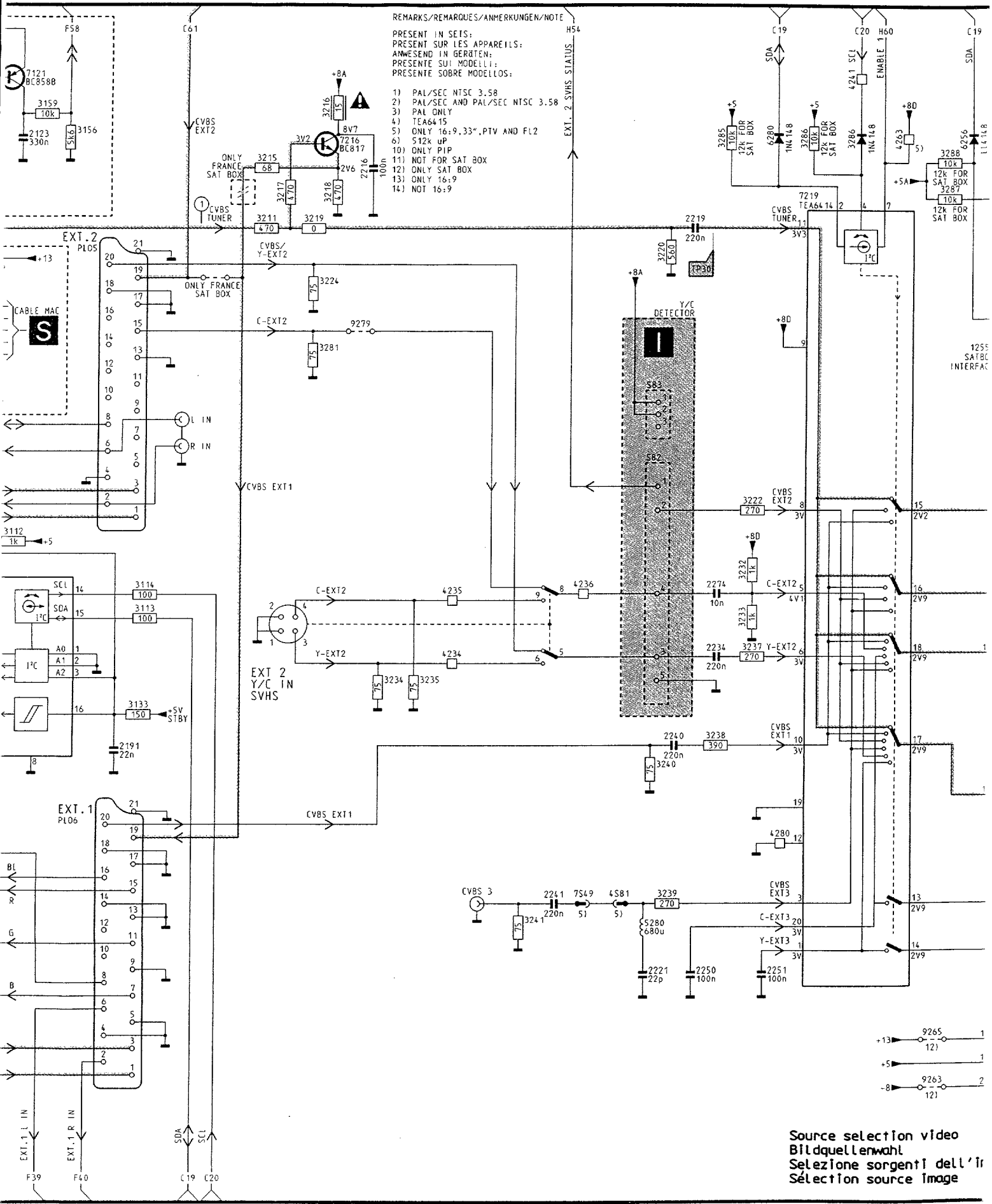






Sélection de source

11 12 13 14 15 16 17 18 19 20 21 22

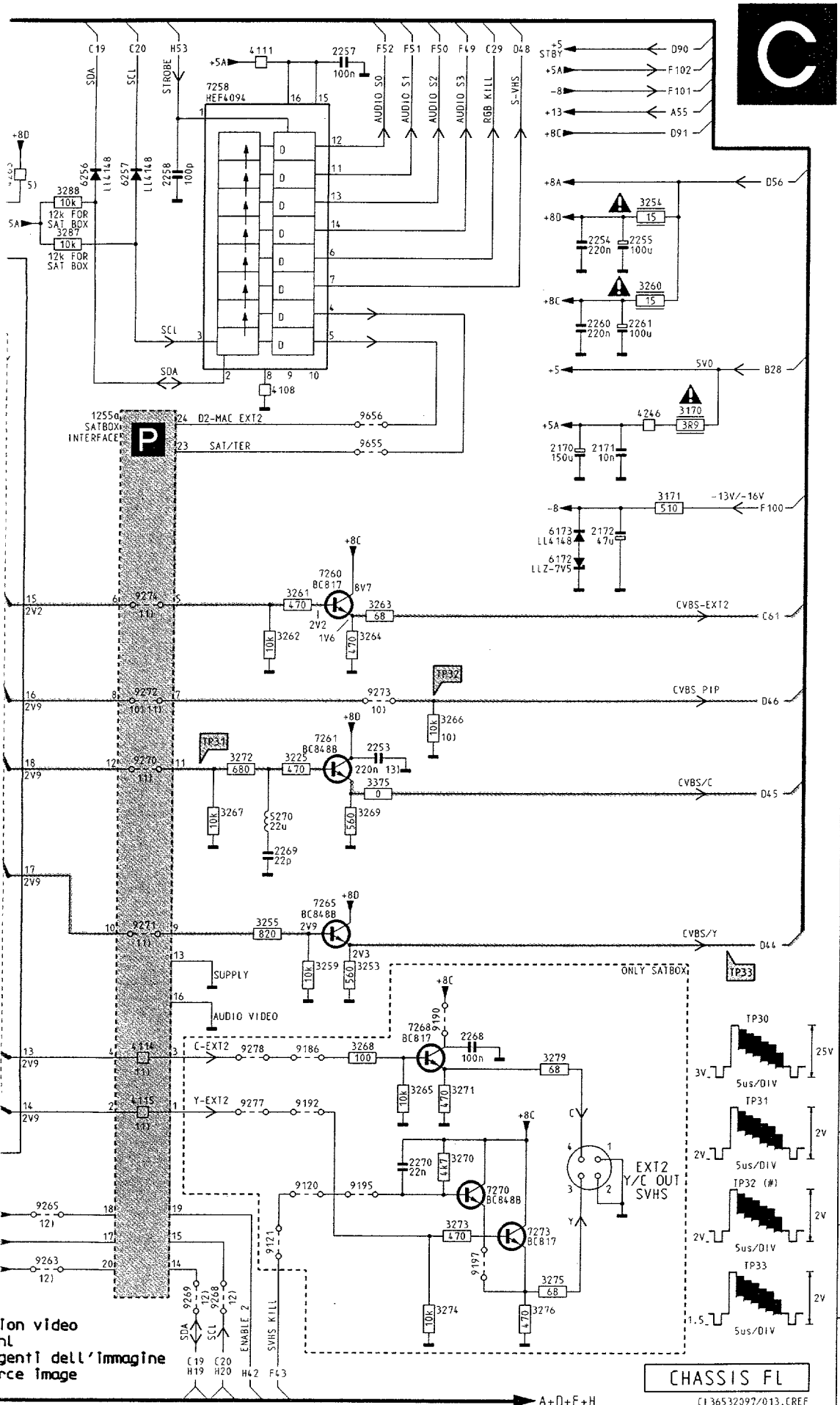


REMARKS/REMARQUES/ANMERKUNGEN/NOTE
 PRESENT IN SETS:
 PRESENT SUR LES APPAREILS:
 ANWESENDE IN GERÄTEN:
 PRESENTE SUI MODELLI:
 PRESENTE SOBRE MODELOS:

- 1) PAL/SEC NTSC 3.58
- 2) PAL/SEC AND PAL/SEC NTSC 3.58
- 3) PAL ONLY
- 4) TEA6415
- 5) ONLY 16:9, 33", PTV AND FL2
- 6) 512K UP
- 10) ONLY PIP
- 11) NOT FOR SAT BOX
- 12) ONLY SAT BOX
- 13) ONLY 16:9
- 14) NOT 16:9

Source selection video
 Bildquellenwahl
 Selezione sorgenti dell'ir
 Sélection source Image

11 12 13 14 15 16 17 18 19 20 21 22



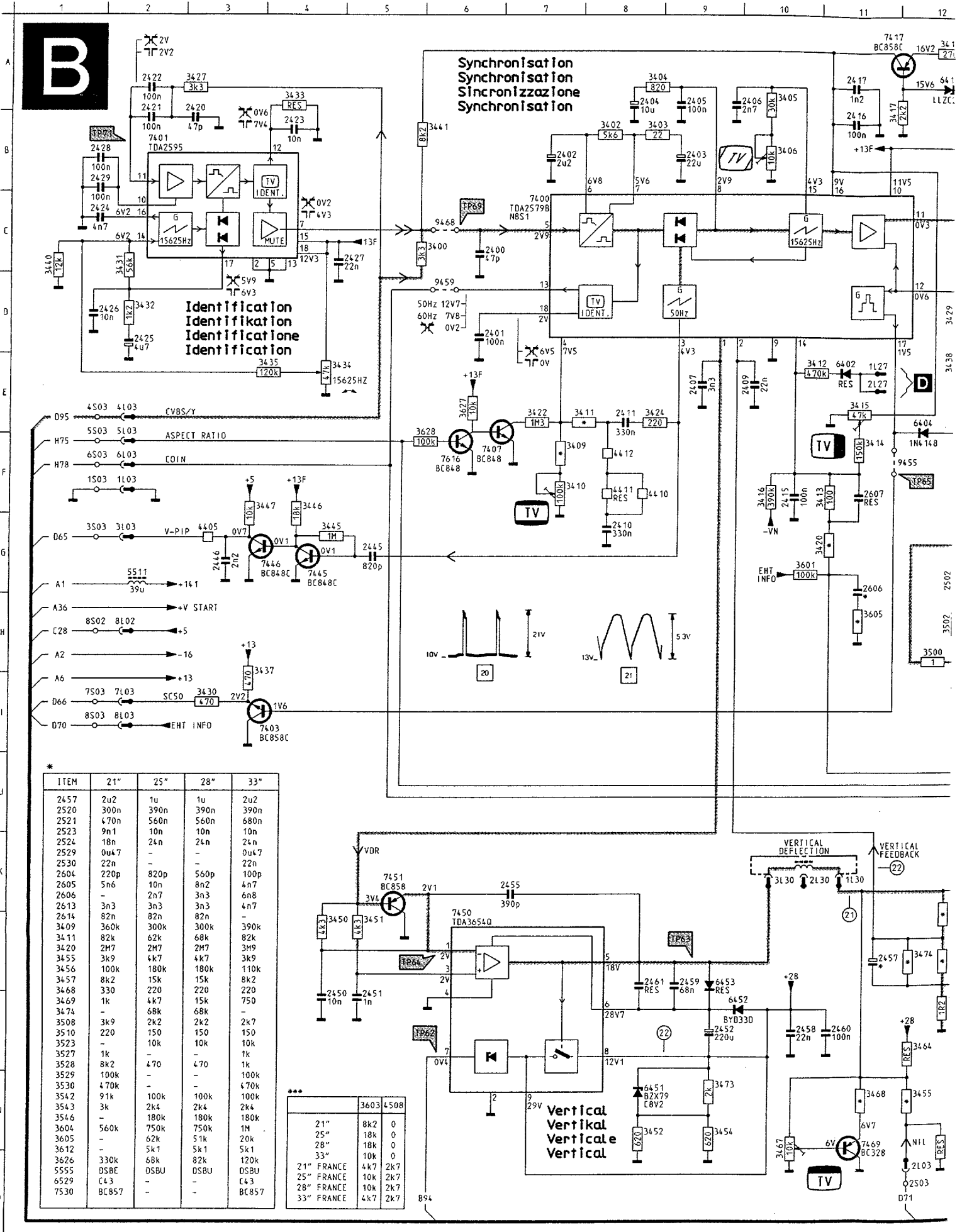
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2122	A10	3264	G25
2123	B11	3265	L26
2124	B 6	3266	H26
2160	A 6	3267	I24
2162	D 7	3268	L26
2163	E 2	3269	I25
2164	E 2	3270	M27
2165	A 4	3271	L27
2168	C 9	3272	I24
2169	C10	3273	N27
2170	E28	3274	N26
2171	E28	3275	N28
2172	F28	3276	N27
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2181	D 6	3281	E14
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2189	J 7	3286	B21
2190	H 7	3286	B21
2191	J12	3287	C22
2193	M 6	3288	B22
2194	N 6	3375	I26
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2221	M19	4115	L23
2234	I19	4130	N 3
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2250	M19	4170	I 9
2251	M20	4171	I 8
2253	H26	4175	J 9
2254	C28	4234	I16
2255	C28	4235	H16
2257	A25	4236	H18
2258	B23	4241	B21
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2261	D28	4263	B22
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2269	J25	5270	I25
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3113	H12	6121	A 9
3114	H12	6163	E 2
3133	I12	6165	I 6
3151	A 7	6166	I 6
3153	A 8	6168	B 9
3154	B 8	6172	F28
3155	A 9	6173	F28
3156	B11	6178	F 6
3159	B11	6256	B23
3160	A 5	6257	B23
3161	B 9	6280	B20
3162	A 5	7120	B 8
3163	D 2	7121	B11
3164	F 3	7175	H 9
3165	F 3	7176	H 8
3167	C10	7177	I 8
3168	B10	7178	H 8
3170	E29	7182	J 3
3171	F29	7183	K 3
3172	B 4	7186	K 2
3175	I 7	7188	J 6
3176	I 7	7193	M 2
3177	I 7	7216	B15
3178	H 7	7219	C20
3180	I 2	7258	A24
3181	J 3	7260	G25
3182	I 3	7261	H25
3183	K 3	7265	J25
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3185	K 4	7270	M27
3186	K 3	7273	N27
3187	L 8	9098	B 3
3189	J 5	9120	M25
3190	H 7	9121	N25
3191	J 5	9142	M 9
3192	J 7	9143	L 9
3193	M 6	9148	B 6
3194	N 6	9167	D 8
3200	I 9	9168	D 8
3201	J 9	9186	L25
3202	M 8	9190	K26
3205	L 9	9192	L25
3206	L 9	9195	M26
3207	M10	9197	N27
3208	N10	9263	M22
3209	N10	9265	M22
3210	N 9	9268	N24
3211	C14	9269	N24
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3216	B15	9271	J23
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3235	I16		
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3240	J19		
3241	L17		
3253	K25		
3254	C29		
3255	J25		

Ion video
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070693

Synchronisation / Synchronisierung /

Sync



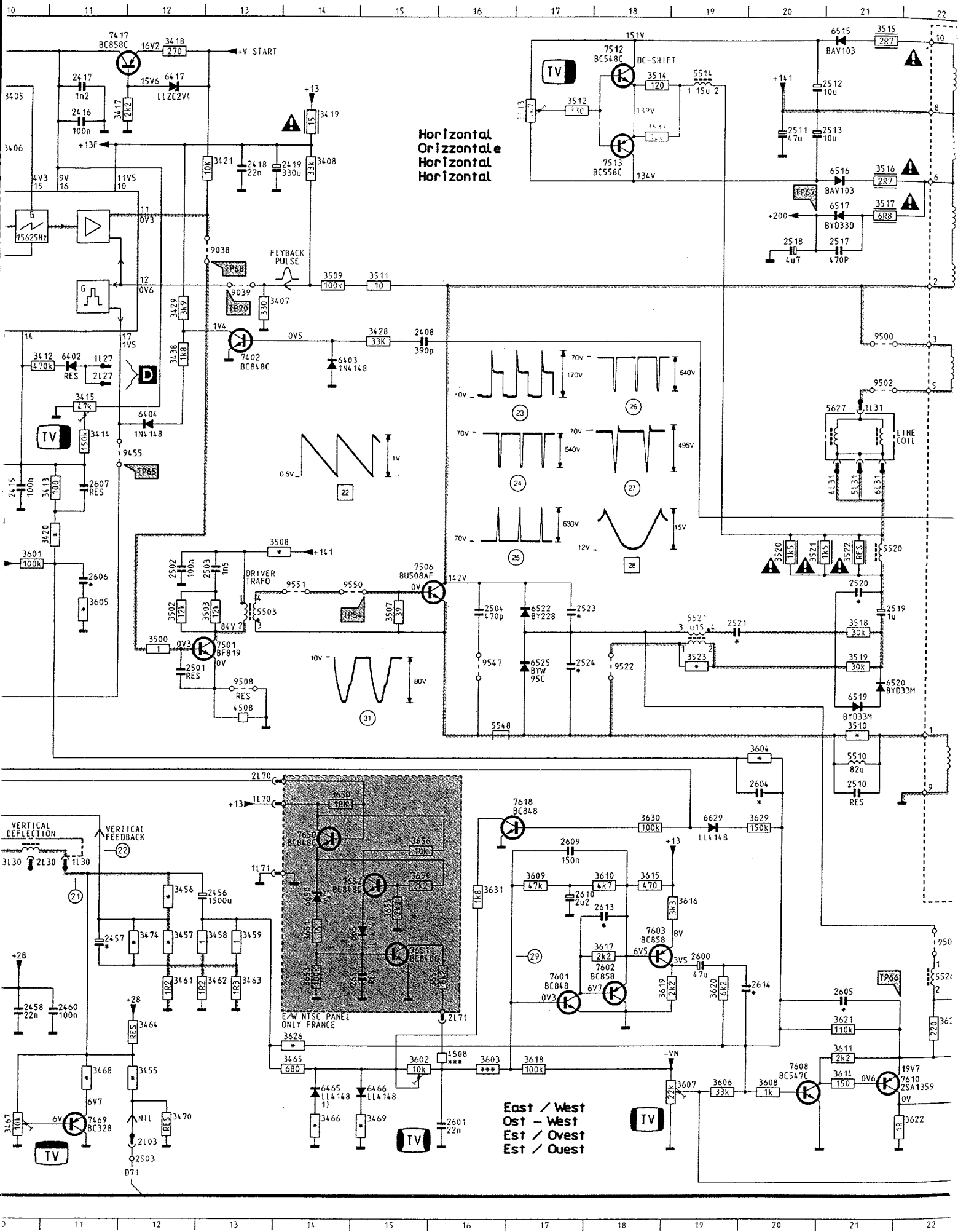
Identification
Identification
Identification
Identification

Synchronisation
Synchronizzazione
Synchronisation

Vertical
Vertical
Vertical
Vertical

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2530	22n	-	-	22n
2604	220p	820p	560p	100p
2605	5n6	10n	8n2	4n7
2606	-	2n7	3n3	6n8
2613	3n3	3n3	3n3	4n7
2614	82n	82n	82n	-
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3411	82k	62k	68k	82k
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3456	100k	180k	180k	110k
3457	8k2	15k	15k	8k2
3468	330	220	220	220
3469	1k	4k7	15k	750
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3523	-	10k	10k	10k
3527	1k	-	-	1k
3528	8k2	470	470	1k
3529	100k	-	-	100k
3530	470k	-	-	470k
3542	91k	100k	100k	100k
3543	3k	2k4	2k4	2k4
3546	-	180k	180k	180k
3604	560k	750k	750k	1M
3605	-	62k	51k	20k
3612	-	5k1	5k1	5k1
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6529	C43	-	-	C43
7530	BC857	-	-	BC857

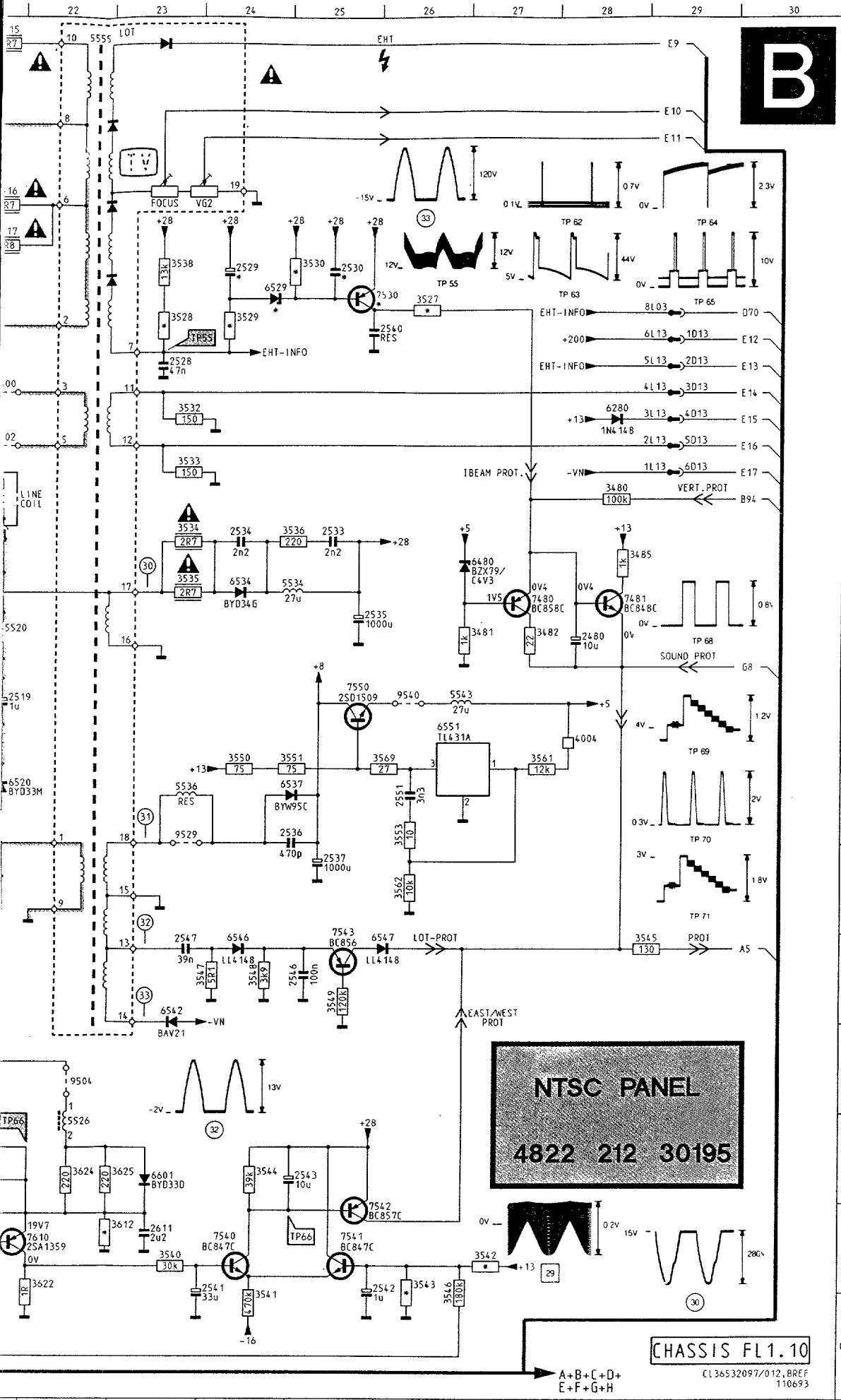
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25" FRANCE	18k	0
28" FRANCE	18k	0
33" FRANCE	10k	0
21" FRANCE	4k7	2k7
25" FRANCE	10k	2k7
28" FRANCE	10k	2k7
33" FRANCE	4k7	2k7



Horizontal
Orizzontale
Horizontal
Horizontal

East / West
Ost - West
Est / Ovest
Est / Ouest

B



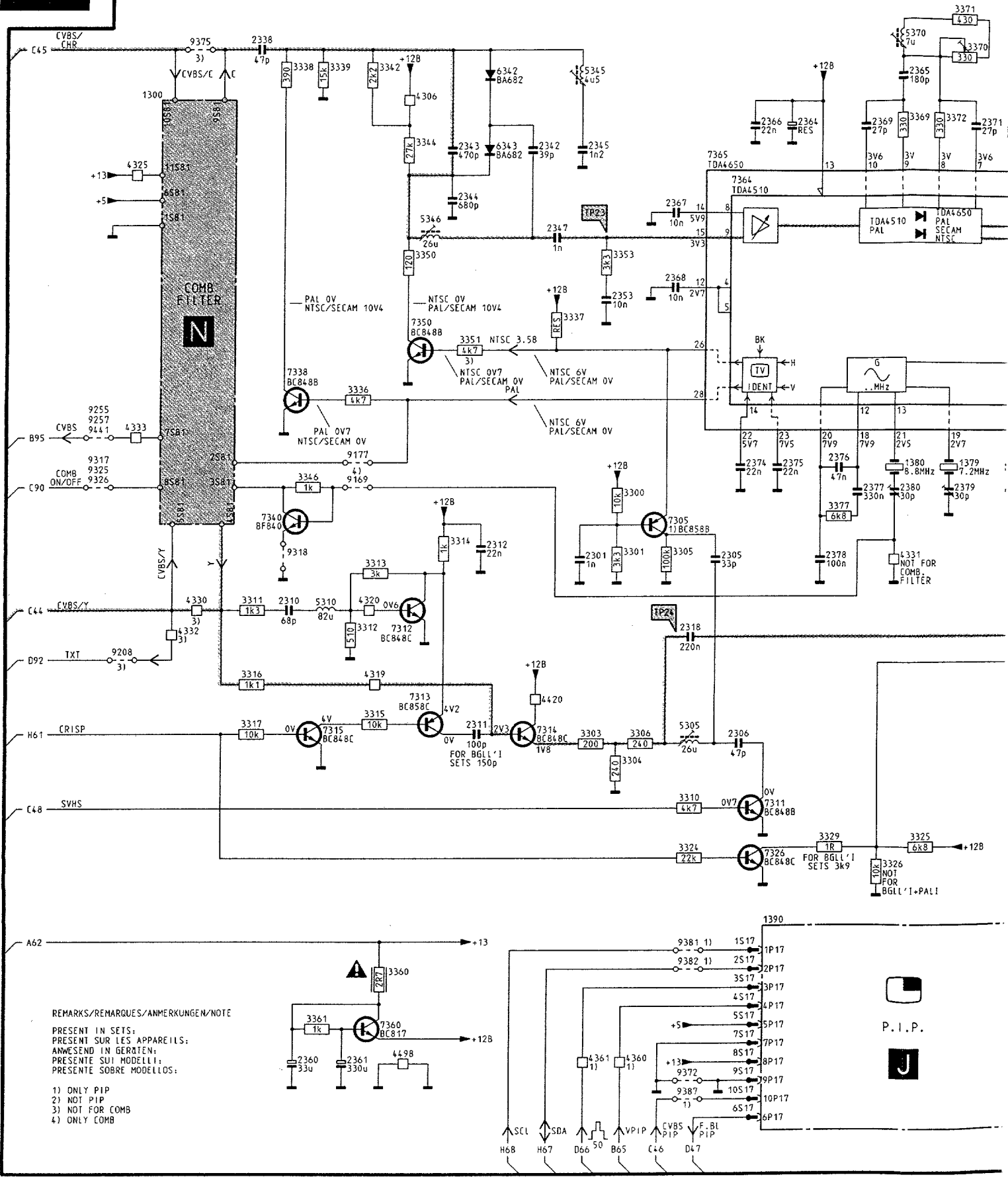
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2404	A 8	3446	F 4	4508	N16
2405	A 9	3447	F 3	4503	H13
2406	A 9	3450	L 4	4510	J21
2407	E 9	3451	L 5	4511	G 2
2408	D15	3452	N 8	4514	A19
2409	E10	3454	N 9	4520	G21
2410	G 8	3455	N12	4521	H19
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2419	B14	3462	M13	4555	A22
2420	B 3	3463	M13	4567	E21
2421	B 2	3464	M12	4620	E28
2422	A 2	3465	N14	4602	E11
2423	B 4	3466	N14	4603	E14
2424	C 1	3467	N10	4604	E12
2425	D 2	3468	N11	4617	A12
2426	D 1	3469	N15	4651	N 8
2427	C 4	3470	N12	4652	H10
2428	B 1	3473	N 9	4653	L 9
2429	B 1	3474	L12	4665	N14
2445	G 5	3480	F28	4686	N15
2446	G 3	3481	G27	4680	F27
2450	M 4	3482	G27	4615	A21
2451	M 5	3485	F28	4616	B21
2452	M 9	3500	H12	4617	C21
2455	K 7	3502	H12	4619	I21
2456	L13	3503	H13	4620	I21
2456	L13	3507	H15	4622	H17
2457	L11	3508	G14	4625	I17
2458	M10	3509	D14	4629	C24
2459	L 9	3510	I21	4634	G24
2460	M11	3511	D15	4637	I25
2461	L 8	3512	A17	4642	K23
2480	G28	3513	A17	4646	K24
2501	I12	3514	A18	4647	K26
2502	G12	3515	A21	4651	H26
2503	G13	3516	B21	4601	H23
2504	H16	3517	C21	4629	K19
2510	J21	3518	H21	4650	L14
2511	B20	3519	I21	4651	L15
2512	A20	3520	G20	7400	C 7
2513	B20	3521	G20	7401	B 2
2517	C21	3522	G21	7402	E13
2518	C20	3523	I19	7403	I 3
2519	H21	3527	C26	7407	F 6
2520	H21	3528	D23	7417	A12
2521	H19	3529	D24	7445	G 4
2523	H17	3530	C25	7446	G 3
2524	I17	3532	E23	7450	L 6
2528	D23	3533	E23	7451	K 5
2529	C24	3534	F23	7469	N11
2530	C25	3535	G23	7480	G27
2533	F25	3536	F25	7481	G28
2534	F24	3537	B18	7501	H13
2535	G25	3538	C23	7506	G16
2536	I25	3540	N23	7512	A18
2537	J25	3541	N24	7513	B18
2540	O25	3542	N27	7530	C25
2541	O24	3543	N26	7540	N24
2542	O25	3544	H24	7541	N25
2543	M25	3545	K29	7542	N25
2546	K25	3546	O26	7543	K25
2547	K23	3547	K24	7550	H25
2551	I26	3548	K24	7601	M17
2600	L19	3549	K25	7602	M18
2601	N16	3550	I24	7603	L19
2604	J20	3551	I25	7608	N20
2605	M21	3553	I26	7610	N22
2606	G11	3561	I27	7616	F 6
2607	F11	3562	J26	7618	J17
2609	K17	3569	I26	7650	K14
2610	L17	3601	G10	7651	L15
2611	N23	3602	N15	7652	K15
2613	L18	3603	N16	9038	C13
2614	M20	3604	J20	9039	D13
2653	M15	3605	H11	9455	F11
3400	C 6	3606	N19	9459	D 6
3402	B 8	3607	N19	9468	C 6
3403	B 8	3608	N20	9500	D21
3404	A 8	3609	K17	9502	E21
3405	A10	3610	K18	9504	L22
3406	B10	3611	N21	9508	I13
3407	D13	3612	M23	9522	I18
3408	B14	3614	N21	9529	I23
3409	F 7	3615	K18	9540	H26
3410	F 7	3616	L19	9547	I16
3411	E 8	3617	L18	9550	H14
3412	E10	3618	N17	9551	H14
3413	F11	3619	M19		
3414	F11	3620	M19		
3415	E11	3621	M21		
3416	F10	3622	M22		
3417	A11	3624	M22		
3418	A12	3625	M23		
3419	A14	3626	M14		
3420	G11	3627	E 6		
3421	B13	3628	F 6		
3422	E 7	3629	K20		
3424	E 8	3630	K18		
3427	A 3	3631	K16		
3428	D15	3650	J14		
3429	D12	3651	L14		
3430	I 3	3652	M16		
3431	C 2	3653	M14		
3432	D 2	3654	K15		
3433	A 4	3655	L15		
3434	E 4	3656	K15		
3435	E 4	4004	H28		
3437	H 3	4405	G 3		

NTSC PANEL
4822 212 30195

CHASSIS FL1.10

CL36532097/012, BREF
110693

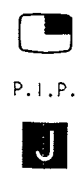
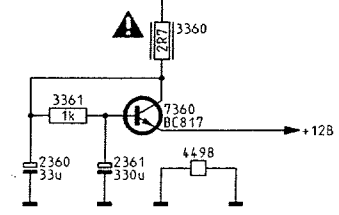
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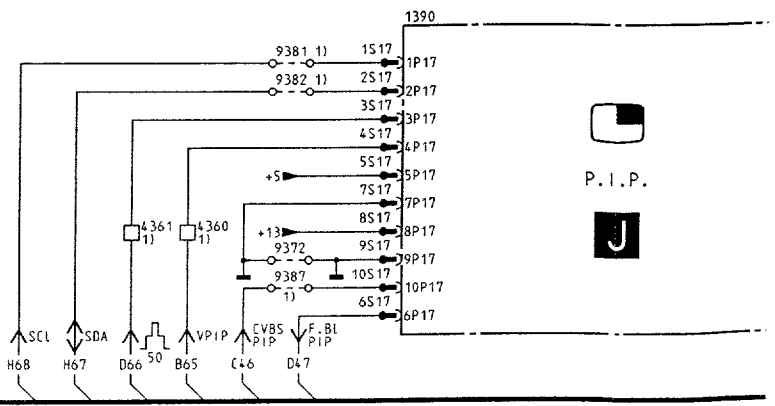
REMARKS/REMARQUES/ANMERKUNGEN/NOTE

PRESENT IN SETS:
 PRESENT SUR LES APPAREILS:
 ANWESEND IN GERÄTEN:
 PRESENTE SUI MODELLI:
 PRESENTE SOBRE MODELLOS:

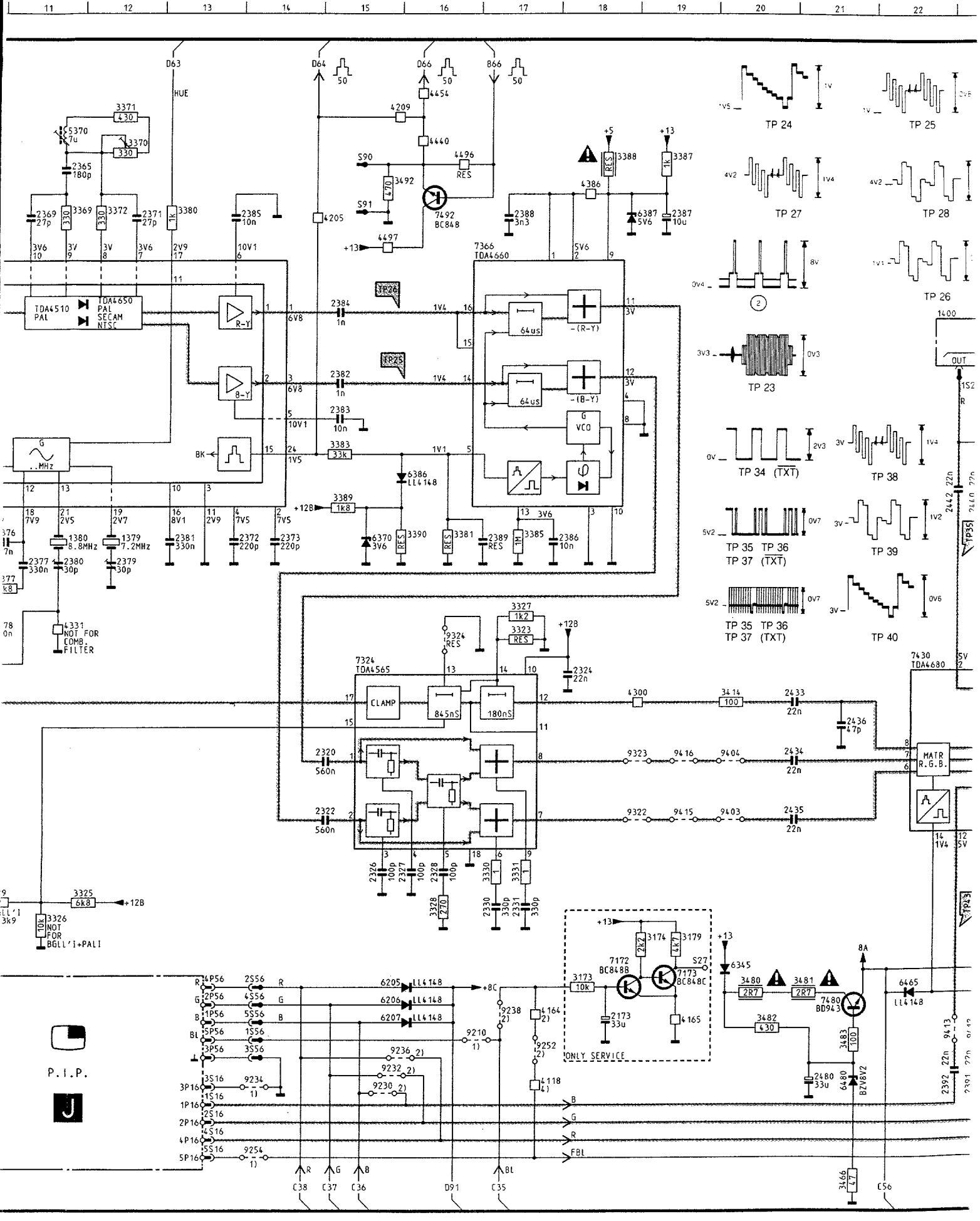
- 1) ONLY PIP
- 2) NOT PIP
- 3) NOT FOR COMB
- 4) ONLY COMB



P. I. P.



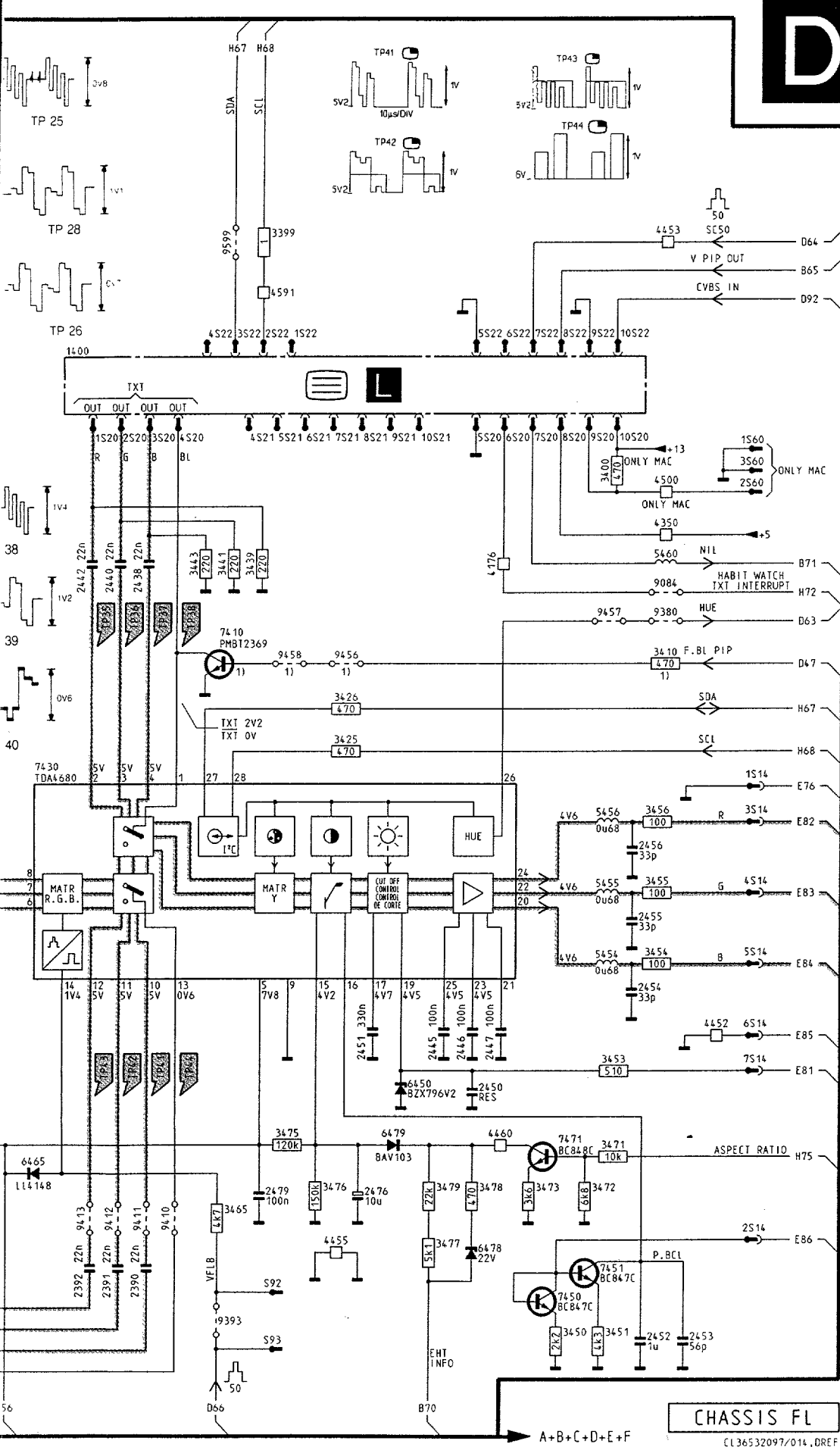
Traitement vidéo



P. I. P.



ONLY SERVICE

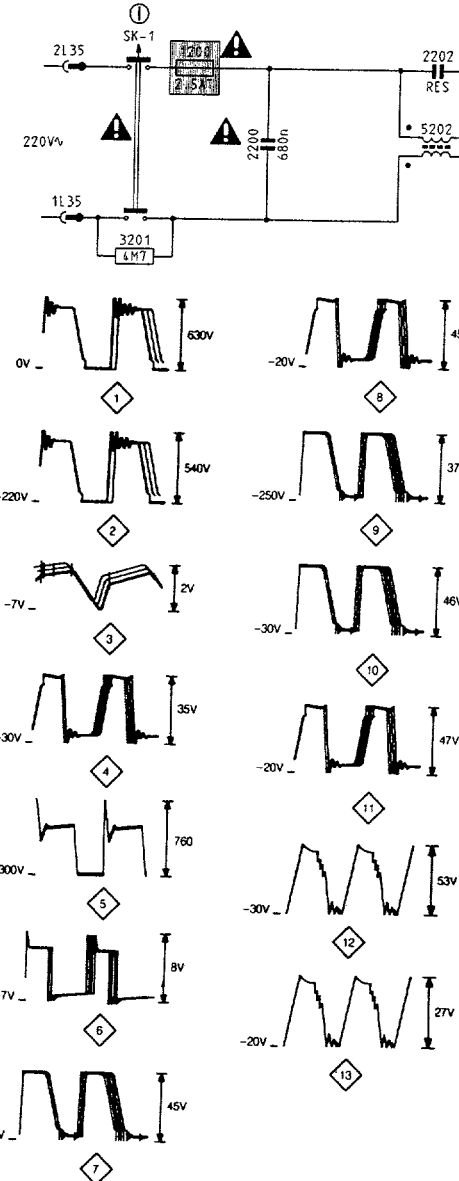
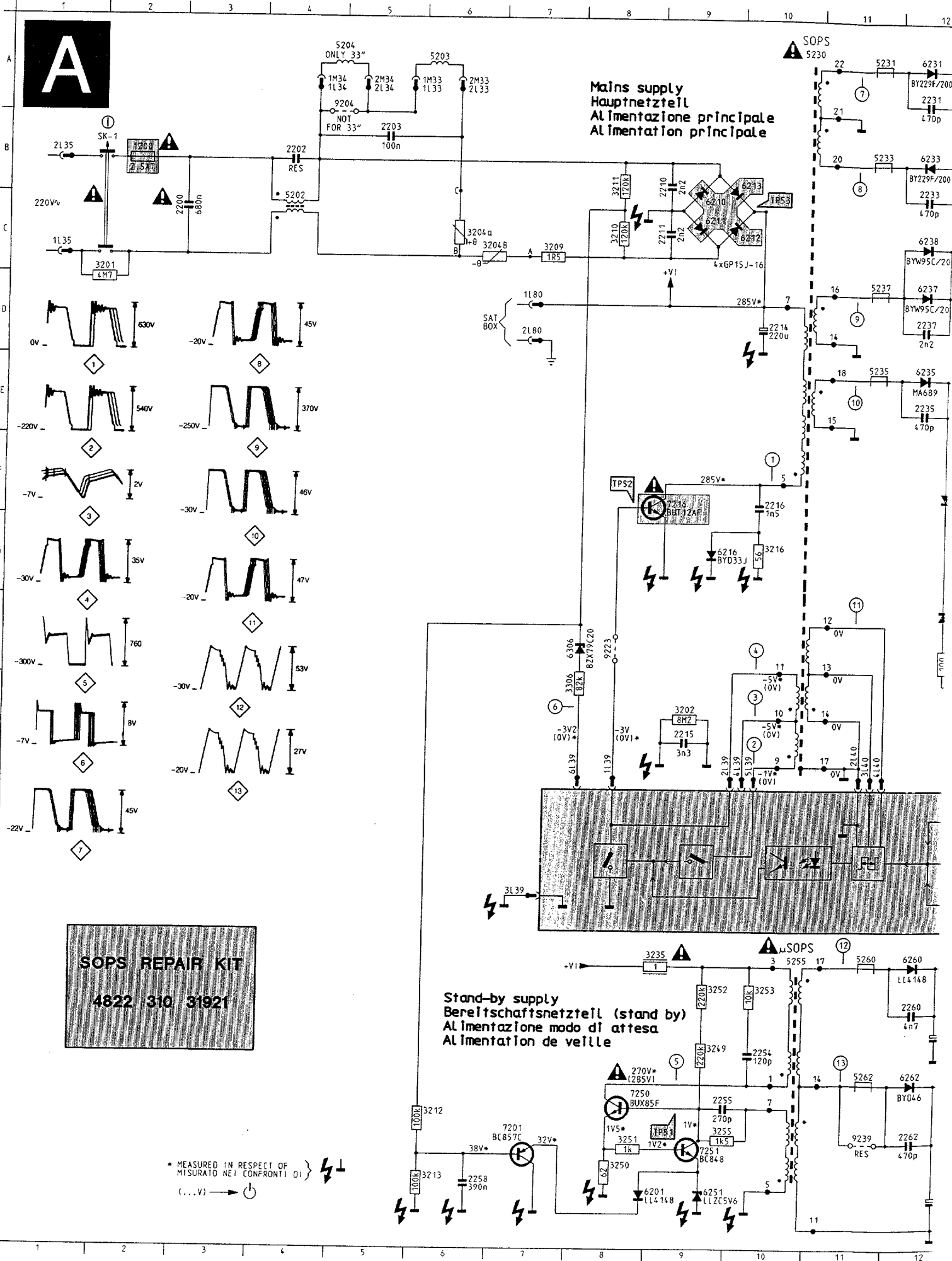


1300	C 2	3369	C11	7450	N27
1379	G12	3370	B12	7451	N28
1380	G11	3371	B12	7471	L27
1390	L10	3372	C12	7480	M21
1400	D22	3377	G11	7492	C16
2173	M18	3380	C13	9084	F29
2301	H 7	3381	G16	9169	G 5
2305	H 9	3383	F15	9177	G 5
2306	J 9	3385	G17	9208	I 2
2310	I 4	3387	B19	9210	M16
2311	J 6	3388	B18	9230	N15
2312	H 6	3389	F15	9232	N15
2318	I 9	3390	G16	9234	N14
2320	J15	3399	C24	9236	M16
2322	J15	3400	E28	9238	M17
2324	I18	3410	G29	9252	M17
2326	K15	3414	I20	9254	O14
2327	K16	3425	H25	9255	F 2
2328	K16	3426	H25	9257	F 2
2330	L17	3439	F24	9317	G 2
2331	L17	3441	F24	9318	H 4
2338	B 4	3443	F24	9322	J18
2342	C 7	3450	M27	9323	J18
2343	C 6	3451	N28	9324	H16
2344	D 6	3453	K28	9325	G 2
2345	C 7	3454	J28	9326	G 2
2347	D 7	3455	J28	9372	N 9
2353	E 8	3456	I28	9375	B 3
2360	N 4	3465	M24	9380	G29
2361	N 5	3466	O21	9381	M 9
2364	C10	3471	L28	9382	M 9
2365	B11	3472	M28	9387	N 9
2366	C10	3473	M27	9393	N24
2367	D 9	3475	L25	9403	J20
2368	E 9	3476	M25	9404	J20
2369	C11	3477	M26	9410	M23
2371	C12	3478	M27	9411	M23
2372	G13	3479	M26	9412	M23
2373	G14	3480	L20	9413	M23
2374	G 9	3481	L21	9415	J19
2375	G10	3482	M20	9416	J19
2376	G11	3483	M21	9441	F 2
2377	G11	3492	B15	9456	G25
2378	H10	4118	M17	9457	G28
2379	H12	4164	M17	9458	G25
2380	G11	4165	M19	9599	C24
2381	G13	4176	F27		
2382	E15	4205	C14		
2383	E15	4209	B15		
2384	D15	4300	I18		
2385	C13	4306	C 5		
2386	G17	4319	I 5		
2387	C19	4320	I 5		
2388	C17	4325	C 2		
2389	G17	4330	I 3		
2390	N23	4331	H11		
2391	N23	4332	I 3		
2392	N22	4333	F 2		
2433	I20	4350	F29		
2434	J20	4360	N 8		
2435	J20	4361	N 8		
2436	I21	4386	B18		
2438	F23	4420	J 7		
2440	F23	4440	B16		
2442	F22	4452	K29		
2445	K26	4453	C29		
2446	K26	4454	A16		
2447	K27	4455	M25		
2450	L27	4460	L27		
2451	K25	4496	B16		
2452	N28	4497	C15		
2453	N29	4498	N 5		
2454	K28	4500	E29		
2455	J28	4591	C24		
2456	I28	5305	J 9		
2476	M25	5310	I 4		
2479	M24	5345	B 7		
2480	N21	5346	D 6		
3173	L18	5370	B11		
3174	L19	5454	J28		
3179	L19	5455	J28		
3300	G 8	5456	I28		
3301	H 8	5460	F29		
3303	J 8	6205	M16		
3304	J 8	6206	M16		
3305	H 9	6207	M16		
3306	J 8	6342	B 6		
3310	K 9	6343	C 6		
3311	I 3	6345	L20		
3312	I 5	6370	G15		
3313	H 5	6386	F16		
3314	H 6	6387	C18		
3315	J 5	6450	L26		
3316	I 3	6465	M22		
3317	J 3	6478	M27		
3323	H17	6479	L26		
3324	K 9	6480	N21		
3325	K12	7172	L18		
3326	L11	7173	L19		
3327	H17	7305	H 8		
3328	L16	7311	K10		
3329	K10	7312	I 5		
3330	K17	7313	J 6		
3331	K17	7314	J 7		
3336	F 5	7315	J 4		
3337	E 7	7324	H15		
3338	B 4	7326	L10		
3339	B 4	7338	F 4		
3342	B 5	7340	H 4		
3344	C 5	7350	E 5		
3346	G 4	7360	N 5		
3350	D 5	7364	D 9		
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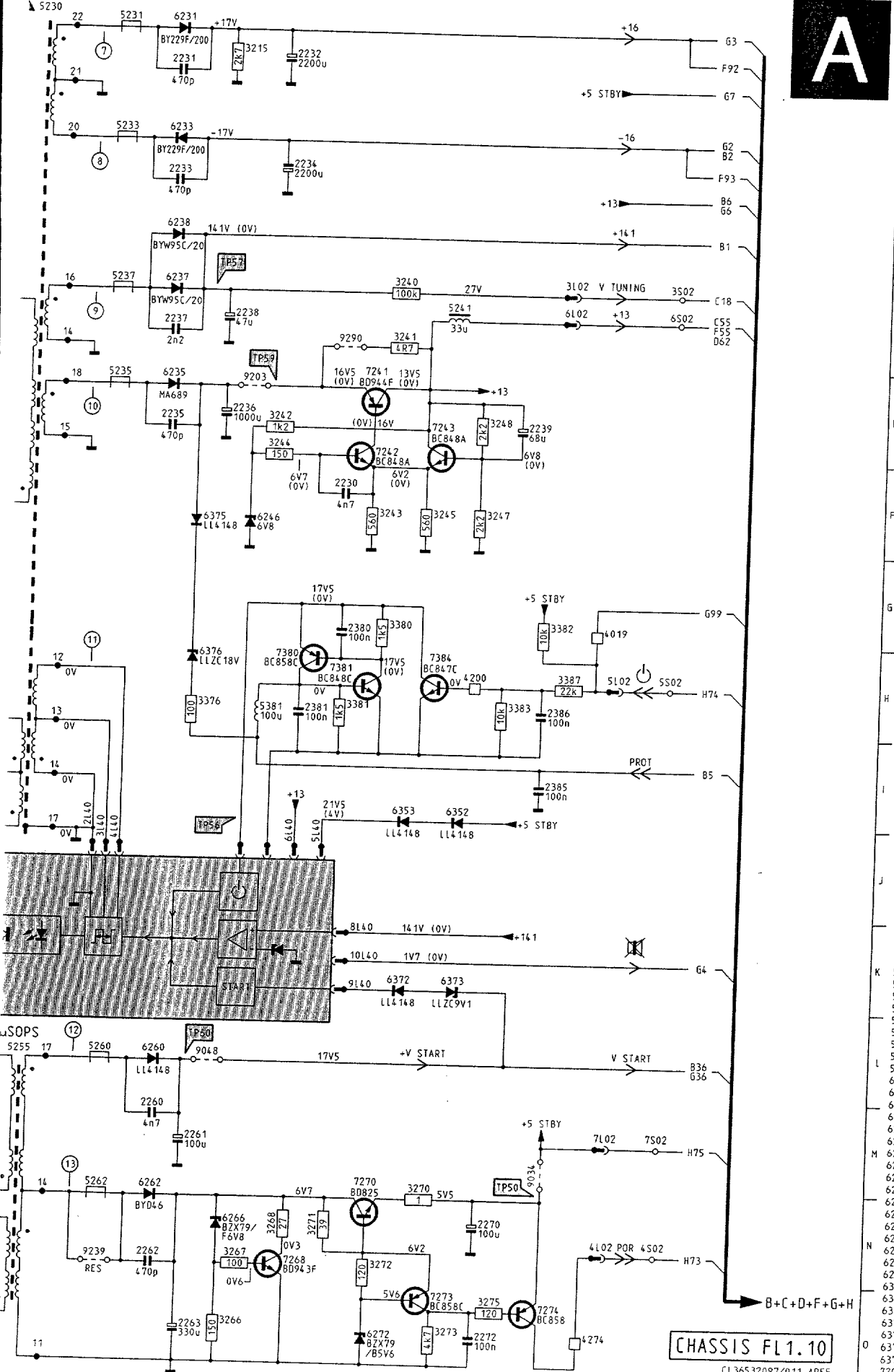
CHASSIS FL
CL36532097/014, DREF
110693

Power supply / Stromversorgung / L'alimentation

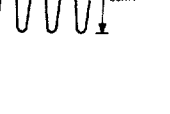
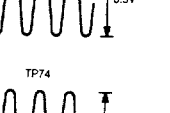
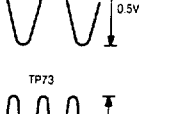
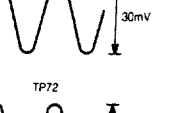
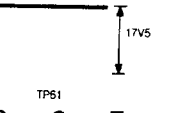
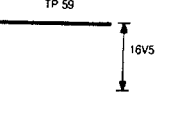
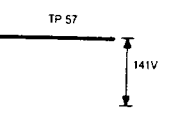
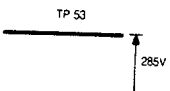
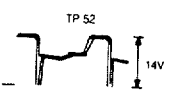
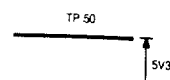
A



SOPS



1200	B 2	7242	E 14
2200	C 2	7243	E 15
2202	B 4	7250	N 8
2203	B 5	7251	N 9
2210	B 9	7268	N 13
2211	C 9	7270	M 14
2214	D 10	7273	O 15
2215	I 9	7274	O 16
2216	F 10	7380	H 13
2230	F 14	7381	H 14
2231	A 12	7384	H 15
2232	A 13	9034	M 16
2233	B 12	9048	L 12
2234	B 13	9203	E 13
2235	E 12	9204	A 4
2236	E 12	9223	H 8
2237	D 12	9239	N 11
2238	D 12	9290	D 14
2239	E 16		
2254	M 10		
2255	N 9		
2258	O 6		
2260	M 12		
2261	M 12		
2262	N 12		
2263	O 12		
2270	M 15		
2272	O 15		
2380	G 14		
2381	H 13		
2385	I 16		
2386	H 16		
3201	C 1		
3202	I 9		
3204	C 6		
3204	C 6		
3209	C 7		
3210	C 8		
3211	B 8		
3212	N 6		
3213	O 6		
3215	A 13		
3216	G 10		
3235	I 9		
3240	D 14		
3241	D 14		
3242	E 13		
3243	F 14		
3244	E 13		
3245	F 15		
3247	F 15		
3248	E 15		
3249	M 9		
3250	O 8		
3251	N 8		
3252	L 9		
3253	L 10		
3255	N 9		
3266	O 13		
3267	N 13		
3268	N 13		
3270	N 15		
3271	N 14		
3272	N 14		
3273	O 15		
3275	O 16		
3306	I 7		
3376	H 12		
3380	G 14		
3381	H 14		
3382	G 16		
3383	H 16		
3387	H 16		
4019	G 17		
4200	H 15		
4274	O 17		
5202	C 4		
5203	A 6		
5204	A 4		
5230	A 10		
5231	A 11		
5233	B 11		
5235	E 11		
5237	D 11		
5241	D 15		
5255	L 10		
5260	L 11		
5262	N 11		
5381	H 13		
6201	O 9		
6210	C 9		
6211	C 9		
6212	C 9		
6213	B 9		
6216	G 9		
6231	A 12		
6233	B 12		
6235	E 12		
6237	D 12		
6238	C 12		
6246	F 13		
6251	O 9		
6260	L 12		
6262	N 12		
6266	N 13		
6272	O 14		
6306	H 7		
6352	I 15		
6353	I 14		
6372	K 14		
6373	K 15		
6375	F 12		
6376	H 12		
7201	N 7		
7216	F 9		
7241	E 14		



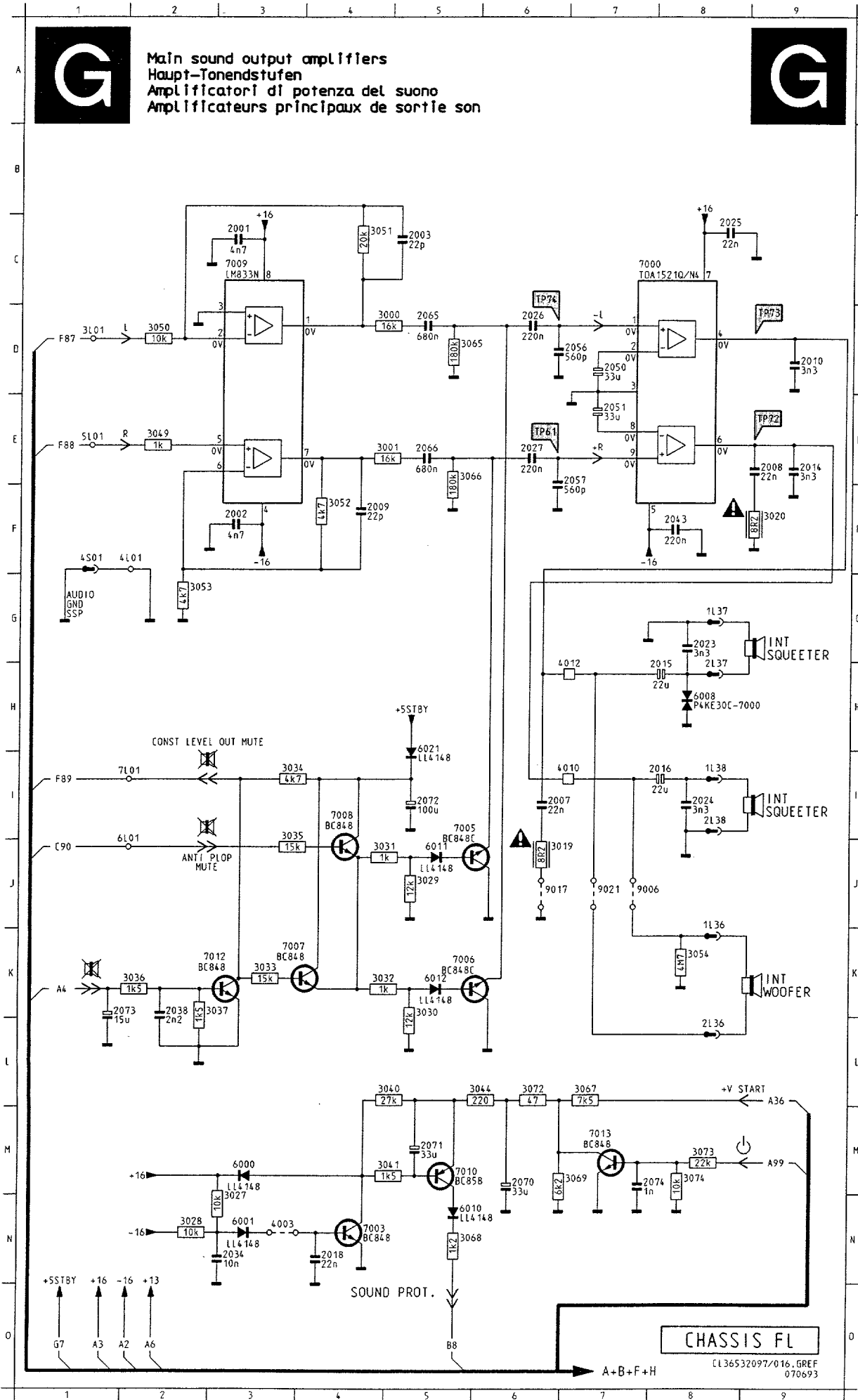
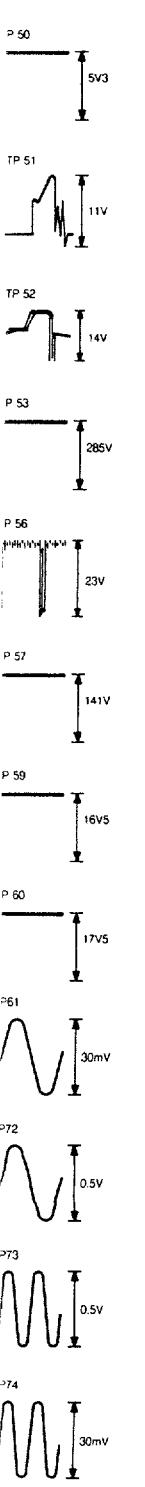
CHASSIS FL 1.10

CL36532097/011, AREF 070693

Audio amplification / Tonsignal Verstärker / Amplificateur audio



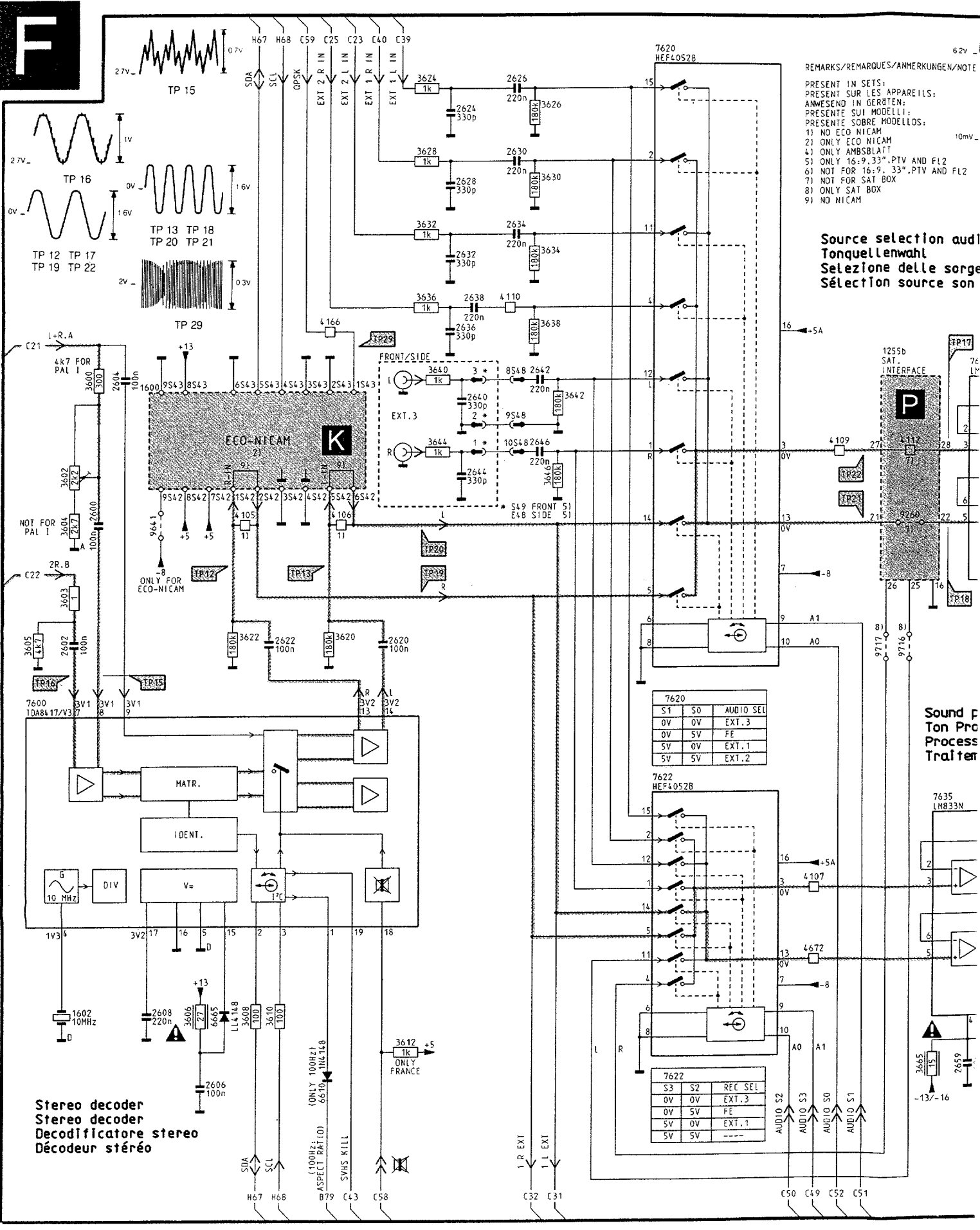
Main sound output amplifiers
 Haupt-Tonendstufen
 Amplificatori di potenza del suono
 Amplificateurs principaux de sortie son



2001	C 3
2002	F 3
2003	C 5
2007	I 6
2008	E 9
2009	F 4
2010	D 9
2014	E 9
2015	H 8
2016	I 8
2018	N 4
2023	G 8
2024	I 8
2025	C 8
2026	D 6
2027	E 6
2034	N 3
2038	K 2
2043	F 8
2050	D 7
2051	E 7
2056	D 6
2057	F 6
2065	D 5
2066	E 5
2070	M 6
2071	M 5
2072	I 5
2073	K 1
2074	M 7
3000	D 4
3001	E 4
3019	J 6
3020	F 9
3027	M 3
3028	N 2
3029	J 5
3030	K 5
3031	J 4
3032	K 4
3033	K 3
3034	I 3
3035	J 3
3036	K 2
3037	K 2
3040	L 5
3041	M 5
3044	L 6
3049	E 2
3050	O 2
3051	C 4
3052	F 4
3053	G 2
3054	K 8
3065	D 5
3066	E 5
3067	L 7
3068	N 5
3069	M 7
3072	L 6
3073	M 8
3074	M 8
4003	N 3
4010	I 7
4012	H 7
6000	M 3
6001	N 3
6008	H 8
6010	N 5
6011	J 5
6012	K 5
6021	I 5
7000	C 7
7003	N 4
7005	I 5
7006	K 5
7007	K 3
7008	I 4
7009	C 3
7010	M 5
7012	K 2
7013	M 7
9006	J 7
9013	L 7
9017	J 6
9021	J 7

CHASSIS FL

CL36532097/016, GREF 070693



REMARKS/REMARQUES/ANMERKUNGEN/NOTE
 PRESENT IN SETS:
 PRESENT SUR LES APPAREILS:
 ANWESEND IN GERÄTEN:
 PRESENTE SUI MODELLI:
 PRESENTE SOBRE MODELOS:
 1) NO ECO NICAM
 2) ONLY ECO NICAM
 4) ONLY AMBSBLATT
 5) ONLY 16:9, 33" PTV AND FL2
 6) NOT FOR 16:9, 33" PTV AND FL2
 7) NOT FOR SAT BOX
 8) ONLY SAT BOX
 9) NO NICAM

Source selection aud
 Tonquellenwahl
 Selezione delle sorg
 Sélection source son

S1	S0	AUDIO SEL
0V	0V	EXT. 3
0V	5V	FE
5V	0V	EXT. 1
5V	5V	EXT. 2

S3	S2	REC SEL
0V	0V	EXT. 3
0V	5V	FE
5V	0V	EXT. 1
5V	5V	---

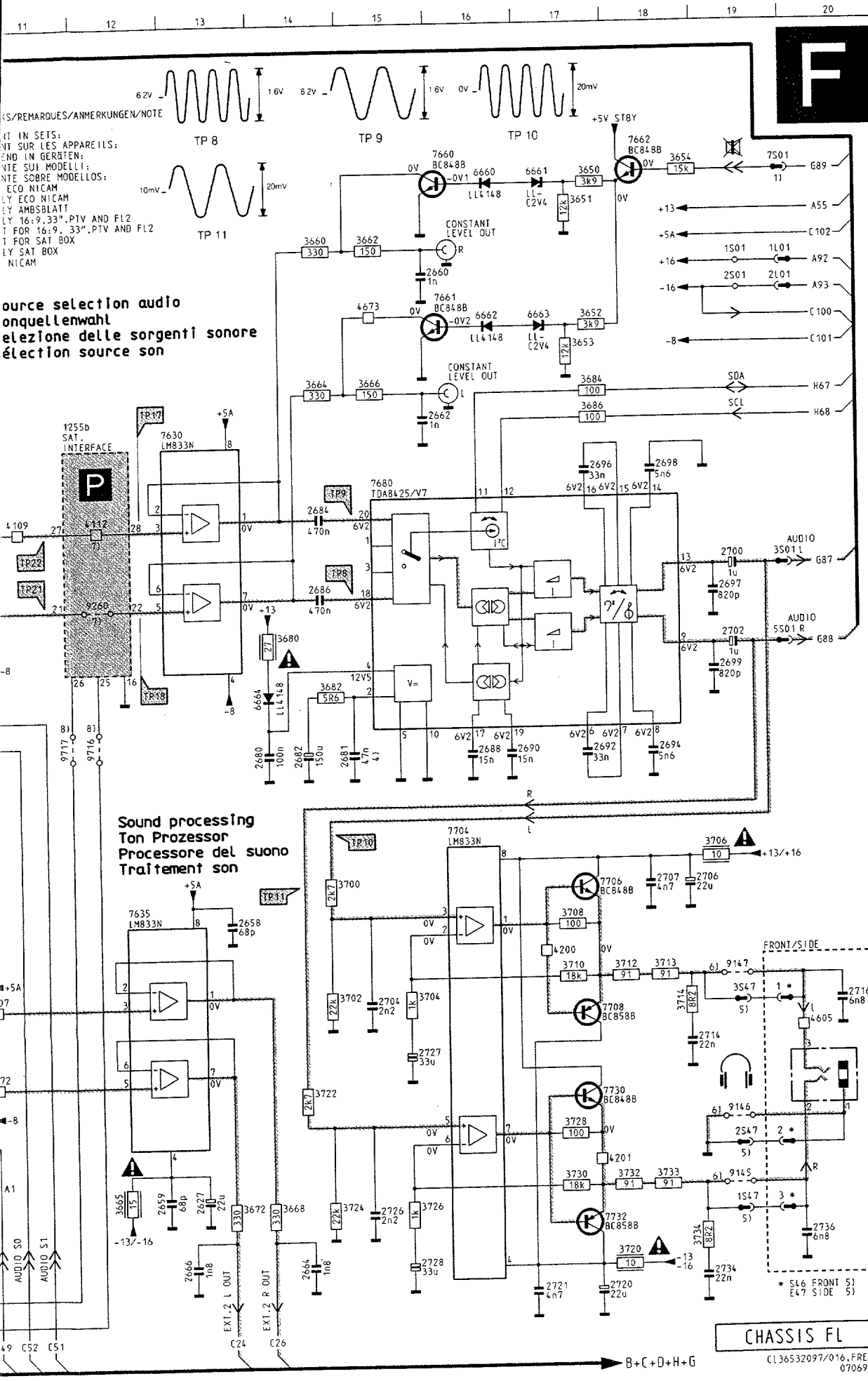
Sound p
 Ton Proc
 Process
 Traiter

Stereo decoder
 Stereo decoder
 Decodificatore stereo
 Décodeur stéréo

7635
 LH833N

-13/-16

Traitement audio



REMARKS/ANMERKUNGEN/NOTE
 IN SETS:
 SUR LES APPAREILS:
 IN GERÄTEN:
 SUI MODELLI:
 SOBRE MODELOS:
 ECO NICAM
 Y ECO NICAM
 AMBSBLATT
 16:9, 33" PTV AND FL2
 16:9, 33" PTV AND FL2
 FOR SAT BOX
 Y FOR SAT BOX
 NICAM

Source selection audio
 Tonquellenwahl
 elezione delle sorgenti sonore
 sélection source son

Sound processing
 Ton Processor
 Processore del suono
 Traitement son

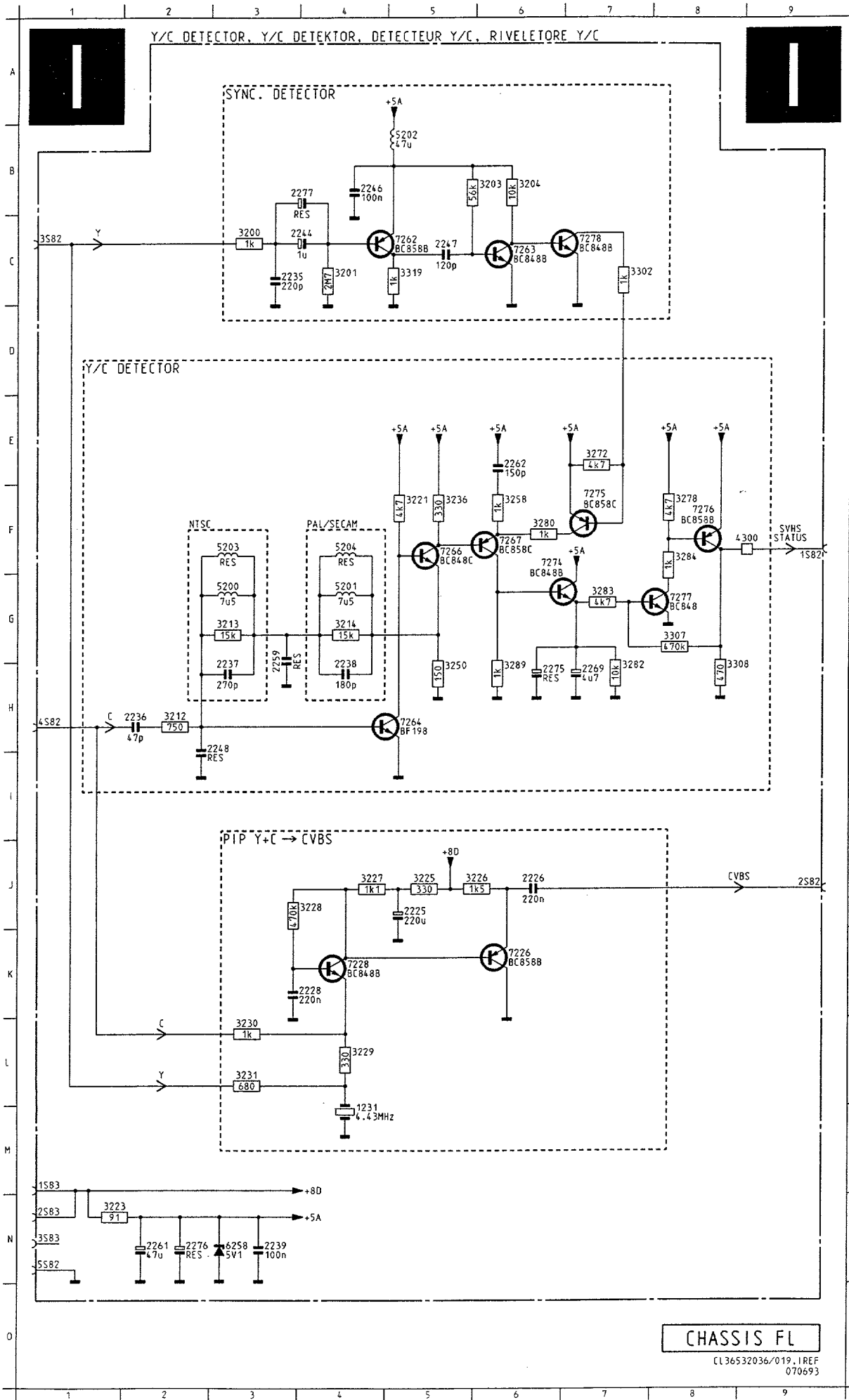
CHASSIS FL
 (L36532097/016, FREF 070693)

1255	E11	4109	F11
1600	E 2	4110	D 7
1602	M 1	4112	F12
2600	G 2	4166	D 5
2602	H 1	4200	K17
2604	E 2	4201	M17
2606	N 3	4605	L20
2608	M 2	4672	L11
2620	H 5	4673	C15
2622	H 4	6610	N 5
2624	B 6	6660	B16
2626	A 7	6661	B17
2627	M13	6662	D16
2628	C 6	6663	D17
2630	B 7	6664	H14
2632	D 6	6665	M 3
2634	C 7	7600	I 1
2636	D 6	7620	A 9
2638	D 6	7622	J 9
2640	E 6	7630	E12
2642	E 7	7635	J12
2644	F 6	7660	B16
2646	F 7	7661	C16
2658	J13	7662	B18
2659	M12	7680	E15
2660	C16	7704	L16
2662	E16	7706	J17
2664	N14	7708	K17
2666	M13	7730	L17
2680	H14	7732	N17
2681	H15	9145	M19
2682	H14	9146	M19
2684	F14	9147	K19
2686	G14	9260	G12
2688	H16	9641	G 2
2690	H16	9716	H12
2692	H17	9717	H11
2694	H18		
2696	E17		
2697	E19		
2698	E18		
2699	H19		
2700	F19		
2702	G19		
2704	K15		
2706	J18		
2707	J18		
2714	L18		
2716	K20		
2720	O17		
2721	O17		
2726	N15		
2727	L15		
2728	N15		
2734	N19		
2736	N20		
3600	F 2		
3602	F 1		
3603	H 1		
3604	G 1		
3605	H 1		
3606	M 3		
3608	M 4		
3610	M 4		
3612	M 6		
3620	H 5		
3622	H 3		
3624	A 6		
3626	B 7		
3628	B 6		
3630	C 7		
3632	C 6		
3634	C 7		
3636	D 6		
3638	D 7		
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3644	F 6		
3646	F 7		
3650	B17		
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3652	O17		
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3654	B18		
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3664	D14		
3665	M12		
3666	D15		
3668	N14		
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3684	O17		
3686	E17		
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3708	J17		
3710	K17		
3712	K18		
3713	K18		
3714	K18		
3720	N18		
3722	L14		
3724	N14		
3726	N15		
3728	M17		
3730	M17		
3732	M18		
3733	M18		
3734	N18		
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4106	G 5		
4107	K11		

Y - C Detector / Y - C Detektor / Détecteur Y - C

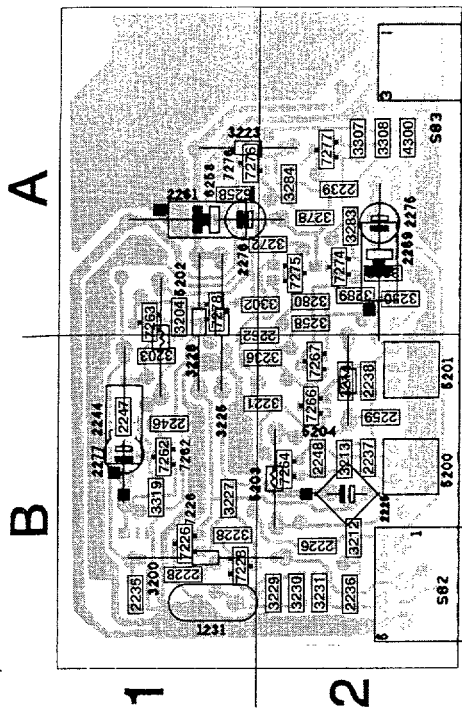
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12 F12
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01 M17
05 L20
72 L11
73 C15
10 N 5
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62 D16
63 D17
64 H14
65 M 3
00 I 1
20 A 9
22 J 9
30 E12
35 J12
60 B16
61 C16
62 B18
80 E15
04 I16
06 J17
08 K17
30 L17
32 N17
45 M19
46 M19
47 K19
60 G12
41 G 2
16 H12
17 H11

1231 M 4
2225 J 5
2226 J 6
2228 K 3
2235 C 3
2236 H 2
2237 H 3
2238 H 4
2239 N 3
2244 C 4
2246 B 4
2247 C 5
2248 I 2
2259 G 3
2261 N 2
2262 E 6
2269 H 7
2275 H 6
2276 N 2
2277 B 1
3200 C 3
3201 C 4
3203 B 5
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3212 H 2
3213 G 3
3214 G 4
3221 F 5
3223 N 1
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3226 J 5
3227 J 4
3228 J 4
3229 L 4
3230 L 3
3231 L 3
3236 F 5
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3258 F 6
3272 E 7
3278 F 8
3280 F 6
3282 G 7
3283 G 7
3284 F 8
3289 G 6
3302 C 7
3307 G 8
3308 G 8
3319 C 5
4300 F 9
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5201 G 4
5202 B 5
5203 F 3
5204 F 4
6258 N 3
7226 K 6
7262 C 5
7263 C 6
7264 H 5
7266 F 5
7267 F 6
7274 F 6
7275 F 7
7276 F 8
7277 G 8
7278 C 7



1 2 3 4 5 6 7 8 9

1231 M 4
 2225 J 5
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 2228 K 3
 2235 C 3
 2236 H 2
 2237 H 3
 2238 H 4
 2239 N 3
 2244 C 4
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 3230 L 3
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 3236 F 5
 3250 G 5
 3258 F 6
 3272 E 7
 3278 F 8
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 3307 G 8
 3308 G 8
 3319 C 5
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 5202 B 5
 5203 F 3
 5204 F 4
 6258 N 3
 7226 K 6
 7228 K 4
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 7278 C 7

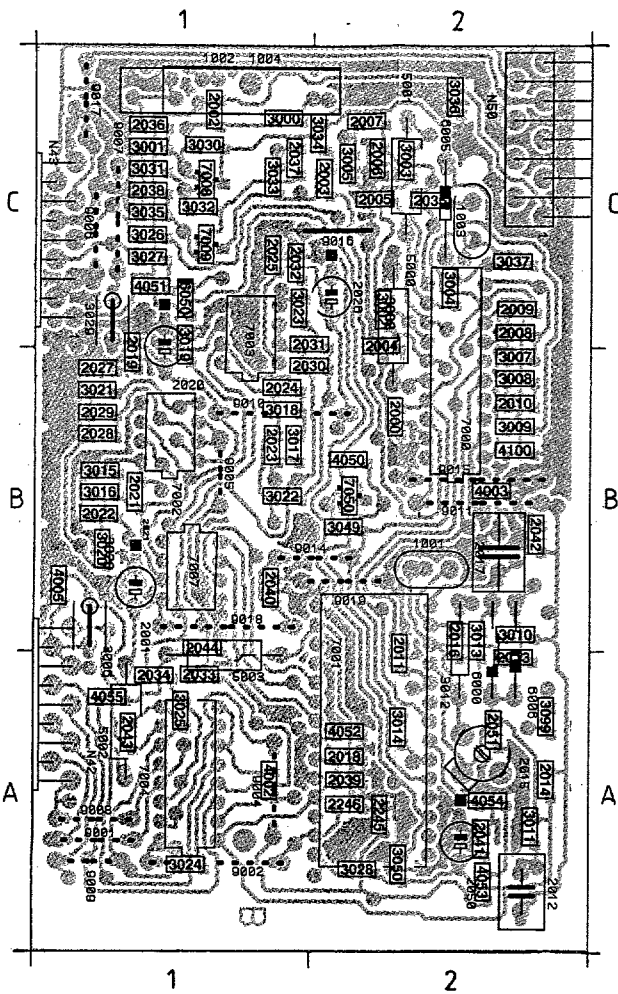


S82 B2	2239 A2	2276 A1	3221 B2	3250 A2
S83 A2	2244 B1	2277 B1	3223 A1	3258 B2
1231 B1	2246 B1	3190 A2	3225 A1	3272 A2
2225 B2	2247 B1	3200 B1	3226 A1	3278 A2
2226 B2	2248 B2	3201 A1	3227 B1	3280 A2
2228 B1	2258 B2	3203 B1	3228 B1	3282 A2
2235 B1	2261 A1	3204 A1	3229 B2	3283 A2
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2237 B2	2269 A2	3213 B2	3231 B2	3289 A2
2238 B2	2275 A2	3214 B2	3236 B2	3302 A2
3307 A2	6258 A1	7276 A1		
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3991 A2	7262 B1			
4300 A2	7263 A1			
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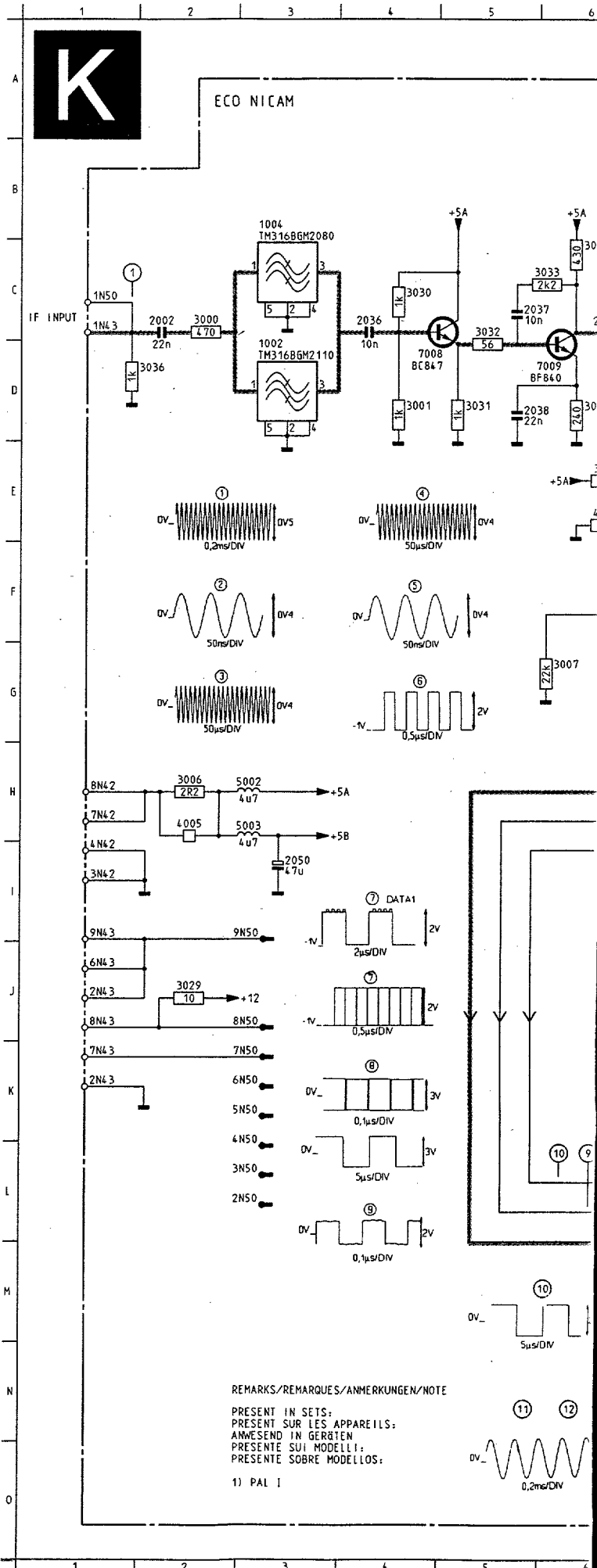
NICAM



ECO NICAM



N42	A1	2018	A2	2043	A1	3019	B1	4050	B2	9002	A1
N43	C1	2019	B1	2044	A1	3020	B1	4051	C1	9004	A1
N50	C2	2020	B1	2050	A2	3021	B1	4052	A2	9005	B1
1001	B2	2021	B1	2051	A2	3022	B1	4053	A2	9006	C1
1002	C1	2022	B1	2245	A2	3023	C1	4054	A2	9007	C1
1003	C2	2023	B1	2246	A2	3024	A1	4055	A1	9008	A1
1004	C1	2024	B1	3000	C1	3025	A1	4100	B2	9009	A1
2000	B2	2025	C1	3001	C1	3026	C1	5000	C2	9010	B1
2001	B1	2026	C2	3002	C2	3027	C1	5001	C2	9011	B2
2002	C1	2027	B1	3003	C2	3028	A2	5002	A1	9014	B2
2003	C2	2028	B1	3004	C2	3029	C1	5003	A1	9015	B2
2004	B2	2029	B1	3005	C2	3030	C1	6000	A2	9016	C2
2005	C2	2030	B2	3006	B1	3031	C1	6005	C2	9017	C1
2006	C2	2031	B2	3007	B2	3032	C1	6006	A2	9018	B1
2007	C2	2032	C1	3008	B2	3033	C1	6050	C1	9019	B2
2008	B2	2033	A1	3009	B2	3034	C2	7000	B2		
2009	C2	2034	A1	3010	A2	3035	C1	7001	A2		
2010	B2	2035	C2	3011	A2	3036	C2	7002	B1		
2011	A2	2036	C1	3012	A2	3037	C2	7003	B1		
2012	A2	2037	C1	3013	A2	3049	B2	7004	A1		
2013	A2	2038	C1	3014	A2	3050	A2	7007	B1		
2014	A2	2039	A2	3015	B1	3099	A2	7008	C1		
2015	A2	2040	B1	3016	B1	4002	A1	7009	C1		
2016	A2	2041	A2	3017	B1	4003	B2	7050	B2		
2017	B2	2042	B2	3018	B1	4005	B1	9001	A1		



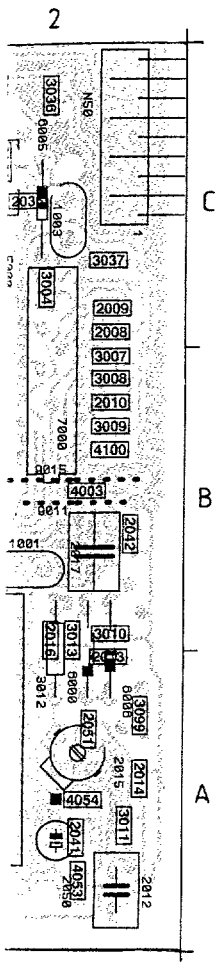
REMARKS/REMARQUES/ANMERKUNGEN/NOTE

PRESENT IN SETS:
PRESENT SUR LES APPAREILS:
ANWESEND IN GERÄTEN
PRESENTE SUI MODELLI:
PRESENTE SOBRE MODELLOS:

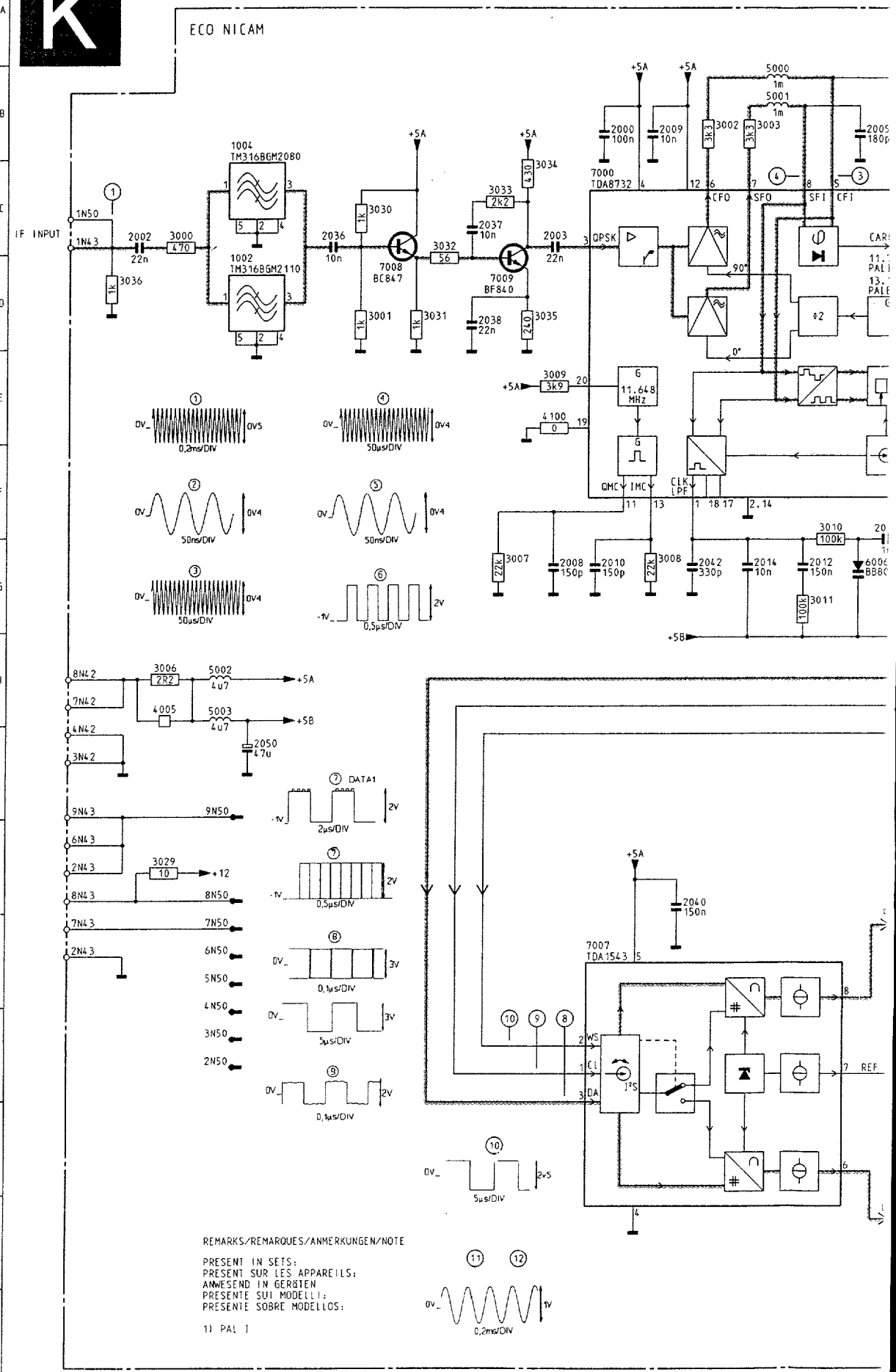
1) PAL I



ECO NICAM



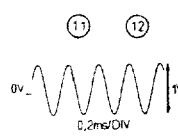
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4052	A2	9005	B1
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4055	A1	9008	A1
4100	B2	9009	A1
5000	C2	9010	B1
5001	C2	9011	B2
5002	A1	9014	B2
5003	A1	9015	B2
6000	A2	9016	C2
6005	C2	9017	C1
6006	A2	9018	B1
6050	C1	9019	B2
7000	B2		
7001	A2		
7002	B1		
7003	B1		
7004	A1		
7007	B1		
7008	C1		
7009	C1		
7050	B2		
9001	A1		

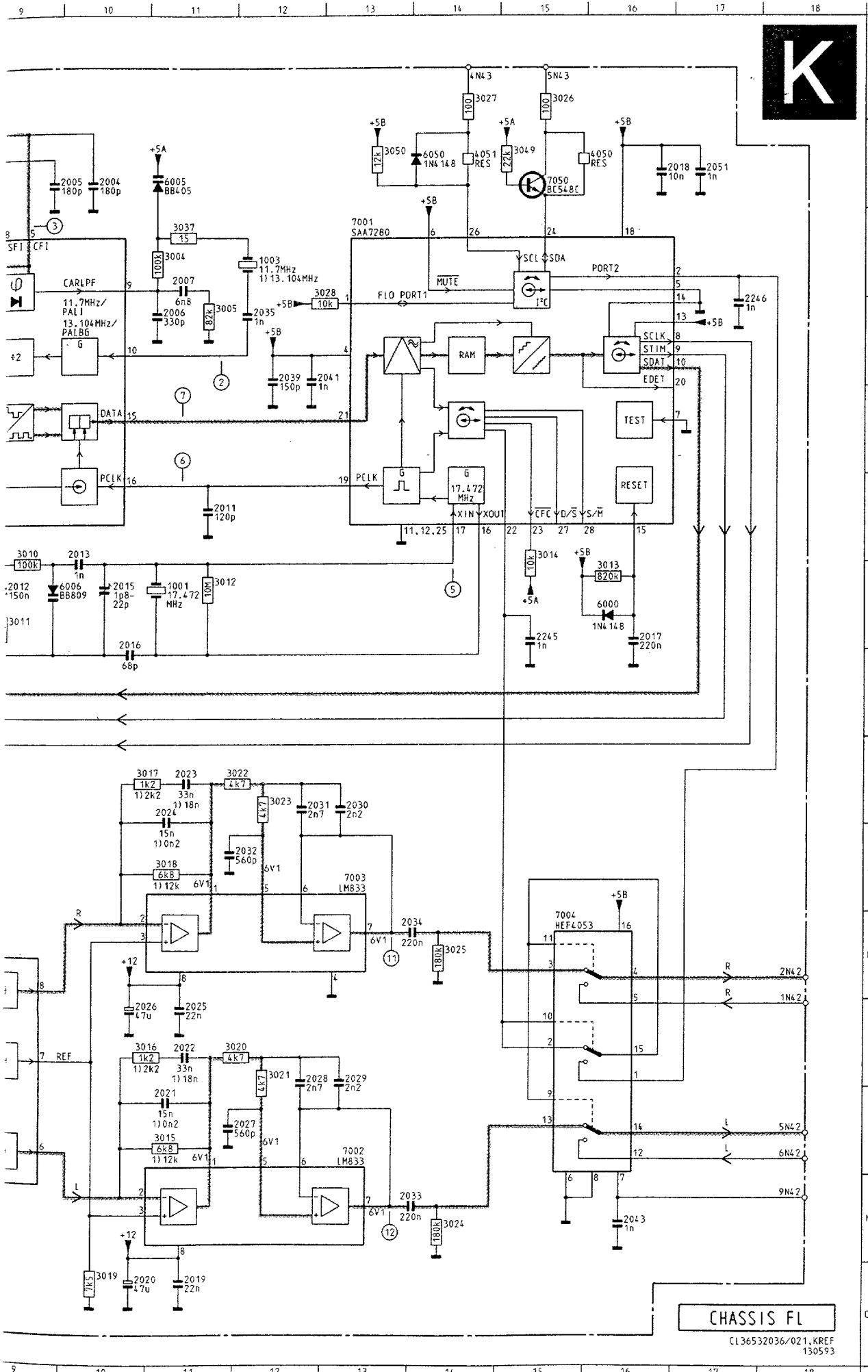
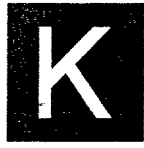


REMARKS/REMARQUES/ANMERKUNGEN/NOTE

PRESENT IN SETS:
 PRESENT SUR LES APPAREILS:
 ANWESEND IN GERÄTEN
 PRESENTE SUI MODELLI:
 PRESENTE SOBRE MODELLOS:

1) PAL I





1001	G11
1002	D 3
1003	C12
1004	B 3
2000	B 7
2002	C 2
2003	C 6
2004	B10
2005	B 9
2006	D11
2007	C11
2008	G 6
2009	B 7
2010	G 7
2011	F11
2012	G 9
2013	F10
2014	G 8
2015	G10
2016	G10
2017	G16
2018	B16
2019	O11
2020	O10
2021	M11
2022	L11
2023	L11
2024	L11
2025	L11
2026	L10
2027	M12
2028	L12
2029	L13
2030	L13
2031	L12
2032	J12
2033	N14
2034	K14
2035	D12
2036	C 4
2037	C 5
2038	D 5
2039	D12
2040	J 8
2041	D12
2042	G 8
2043	N16
2050	I 3
2051	B17
2245	G15
2246	D17
3000	C 2
3001	D 4
3002	B 8
3003	B 8
3004	C11
3005	D11
3006	H 2
3007	G 6
3008	G 7
3009	E 6
3010	F 9
3011	G 9
3012	G11
3013	G16
3014	F15
3015	M11
3016	L10
3017	L10
3018	J11
3019	O10
3020	L12
3021	L12
3022	L12
3023	L12
3024	N14
3025	K14
3026	A15
3027	A14
3028	C13
3029	J 2
3030	C 4
3031	D 5
3032	C 5
3033	C 6
3034	C 6
3035	D 6
3036	D 1
3037	C11
3049	B15
3050	B13
4005	H 2
4050	B16
4051	B14
4100	E 6
5000	B 9
5001	B 9
5002	H 3
5003	H 3
6000	G16
6005	B11
6006	G 9
6050	B14
7000	C 7
7001	C13
7002	M13
7003	J13
7004	K15
7007	K 7
7008	D 5
7009	D 6
7050	B15
P16	C2
P17	C4
P51	B5
P54	A5
P56	A1
P57	A1
1155	A4
1201	B4
1212	B4
1500	B2
1600	B5
1610	C5
2103	B4
2105	C4
2118	C4
2119	C4

CHASSIS FL
CL36532036/021, KREF
130593



PIP-MODULE

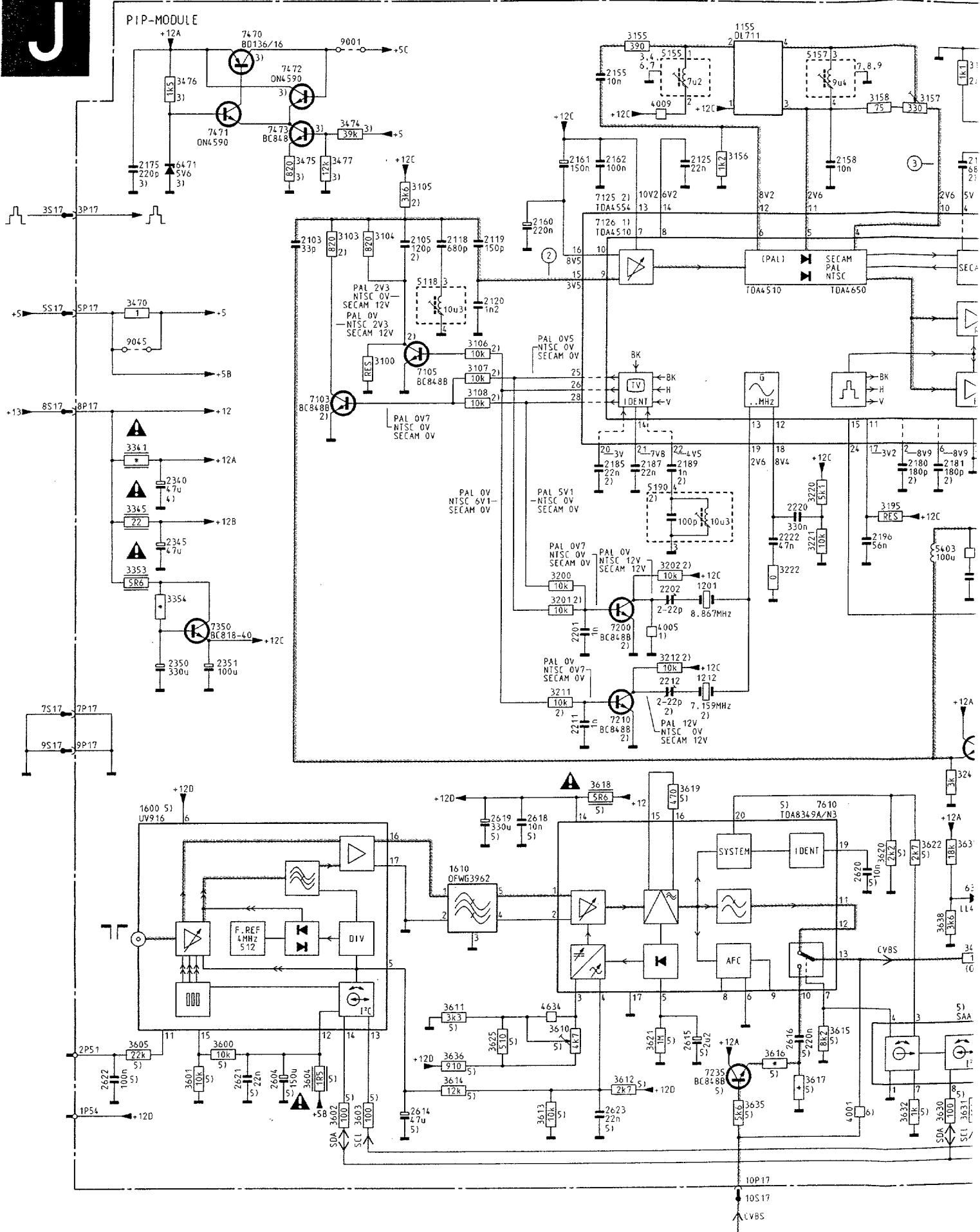
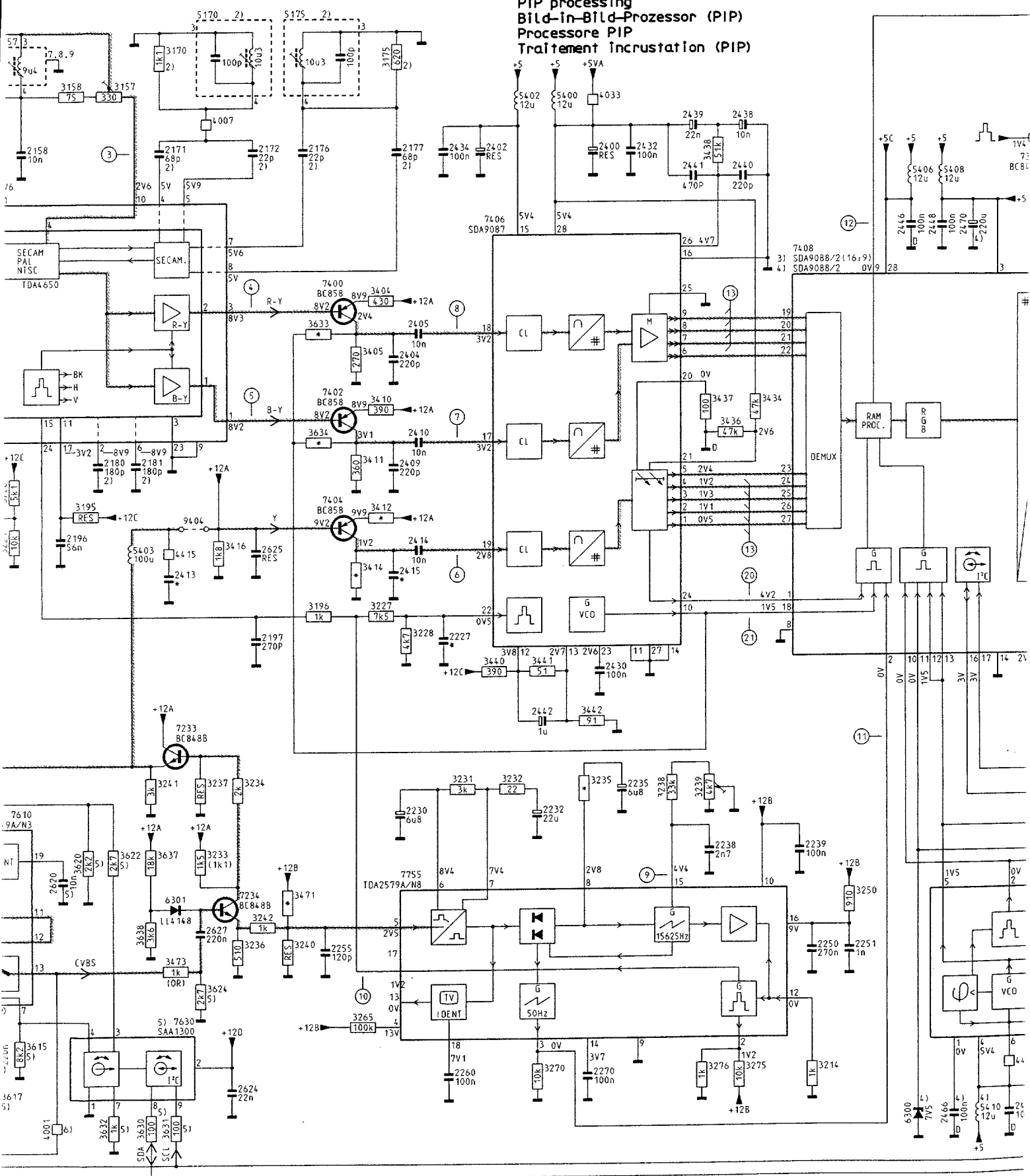
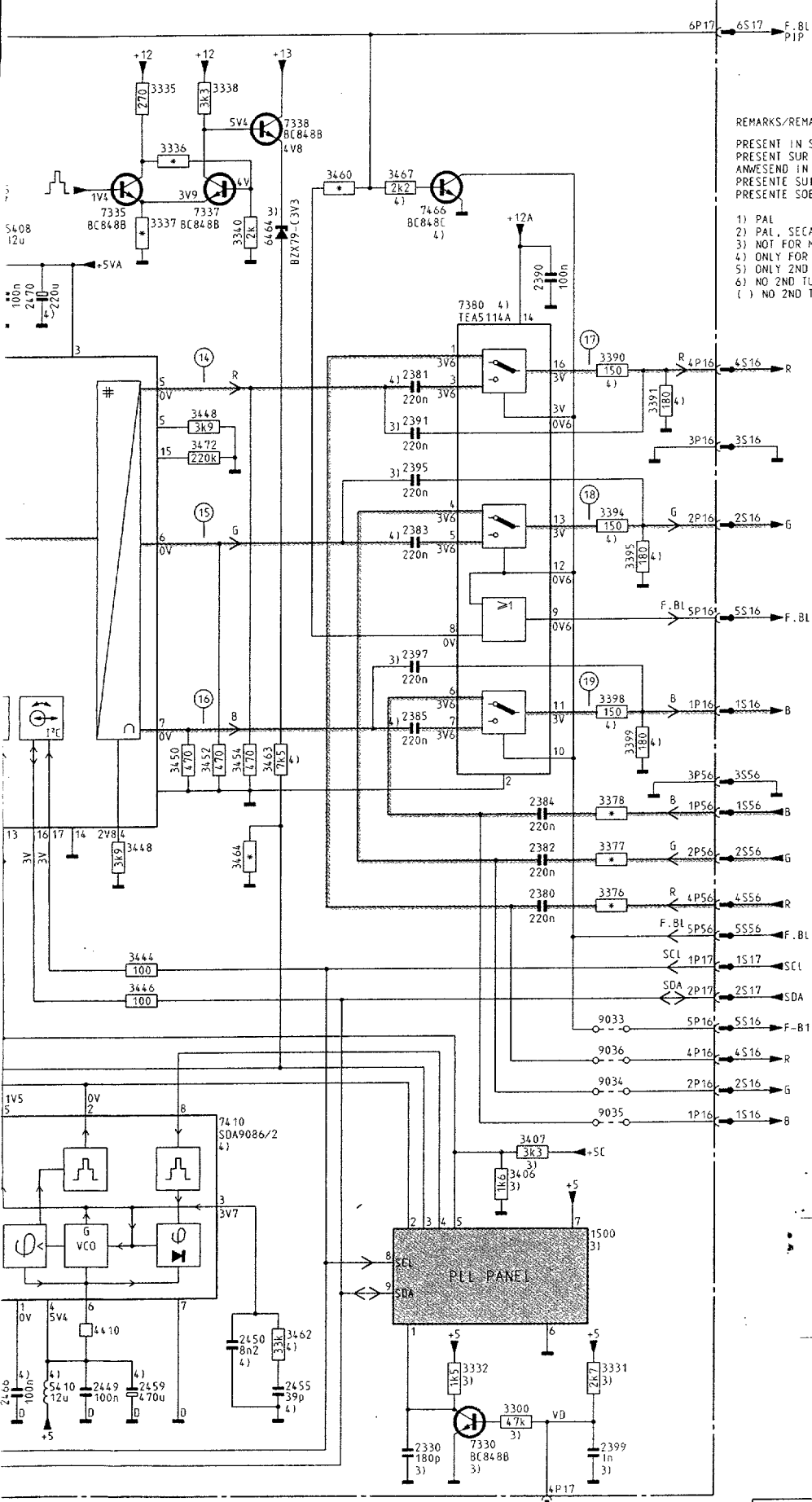


Image dans l'image

PIP processing Bild-in-Bild-Prozessor (PIP) Processore PIP Traitement incrustation (PIP)





REMARKS/REMARQUES/ANMERKUNGEN/NOTE
 PRESENT IN SETS:
 PRESENT SUR LES APPAREILS:
 ANWESEND IN GERÄTEN:
 PRESENTE SUI MODELLI:
 PRESENTE SOBRE MODELOS:

- 1) PAL
- 2) PAL, SECAM, NTSC
- 3) NOT FOR MULTI PIP
- 4) ONLY FOR MULTI PIP
- 5) ONLY 2ND TUNER
- 6) NO 2ND TUNER
- () NO 2ND TUNER

* MULTI PIP	PIP
2227	330p
2227	220p
2413	18p
2413	100p
2415	820p
2415	220p
3235	1k2
3235	2k0
3336	4k7
3336	6k8
3337	1k2
3337	1k0
3341	22
3341	12
3354	270
3354	330
3376	1k
3376	0
3377	1k
3377	0
3378	1k
3378	0
3412	390
3412	750
3414	100
3414	180
3464	4k7
3464	1k0
3471	10k
3471	7k5
3616	750
3616	1k
3617	750
3617	1k
3633	100k
3633	120k
3634	100k
3634	120k

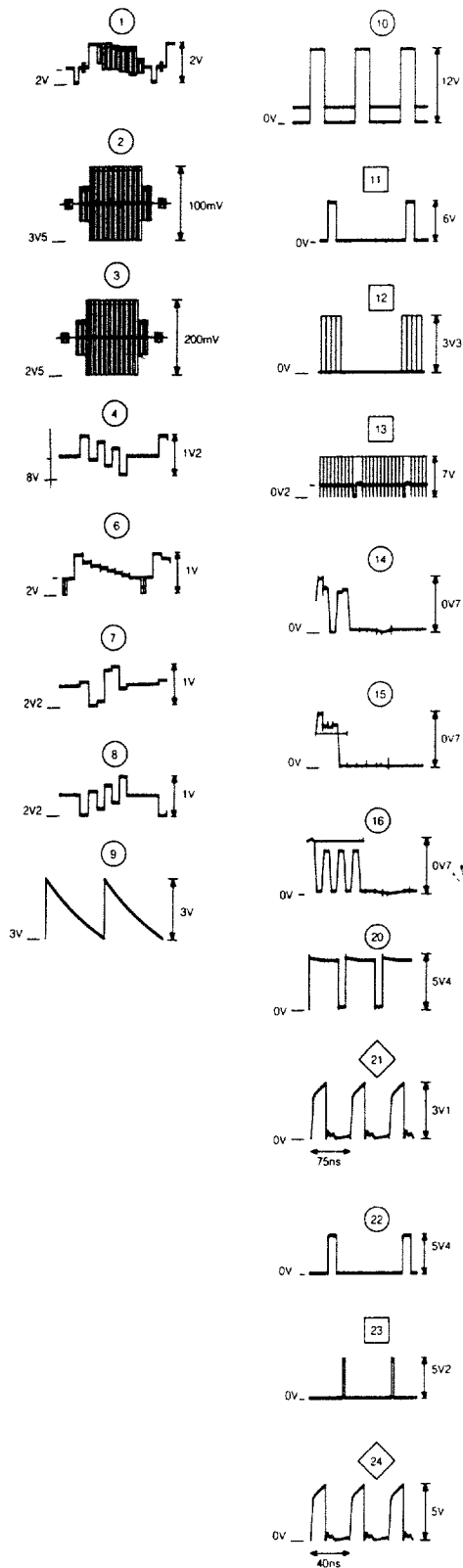
FL 1.10

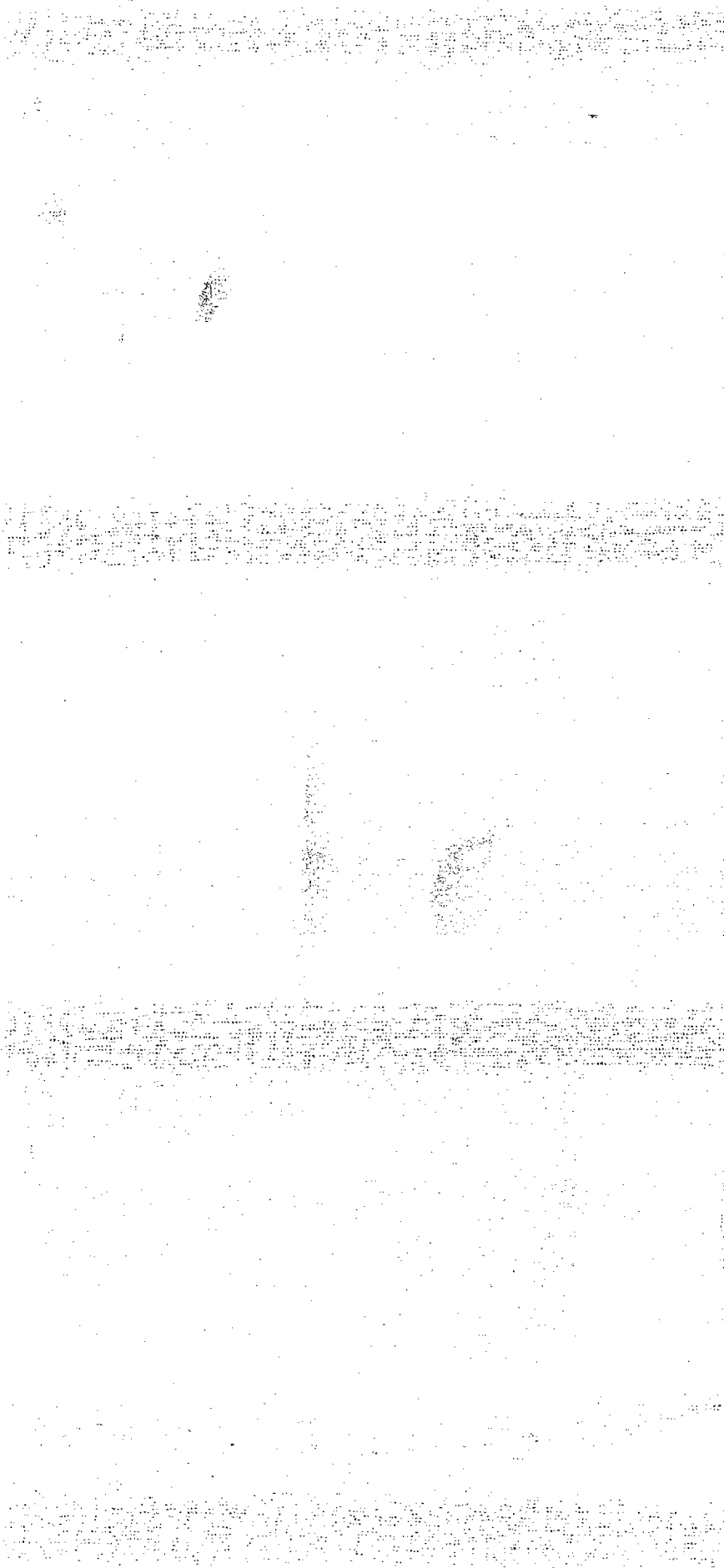
2413	82p
2470	10u
3239	820
3412	360
3414	120
3450	620
3452	620
3454	620
3100	1) 0

CHASSIS FL
 (130532036/020, JREF 130593)

1155	A 9	3201	H 7	4007	B13
1201	H 9	3202	G 9	4009	B 8
1212	I 9	3211	I 7	4033	B17
1500	L27	3212	I 9	4410	M22
1600	J 2	3214	M20	4415	G12
1610	K 6	3220	G10	4634	M 7
2103	D 4	3221	G10	5118	D 5
2105	D 5	3222	G10	5155	A 8
2118	D 6	3227	H15	5157	A10
2119	D 6	3228	H15	5170	A13
2120	D 6	3231	J16	5175	A14
2125	C 9	3232	J16	5190	G 8
2155	B 8	3233	K13	5400	B17
2158	C11	3234	J13	5402	B16
2160	C 7	3235	J17	5403	G12
2161	C 7	3236	L13	5406	C21
2162	C 8	3237	J13	5408	C21
2171	C12	3238	J18	5410	N22
2172	C13	3239	J19	6300	N21
2175	C 2	3240	L14	6301	K12
2176	C14	3241	L12	6464	C24
2177	C15	3242	J13	6471	C 3
2180	F11	3250	K20	7103	E 4
2181	F12	3265	M15	7105	E 5
2185	F 8	3270	M17	7125	C 8
2187	F 8	3275	M19	7126	C 8
2189	F 9	3276	M19	7200	H 8
2196	G11	3300	N26	7210	I 8
2197	H13	3331	N27	7233	I12
2201	H 7	3332	N26	7234	K13
2202	H 9	3335	A23	7235	N 9
2211	I 7	3336	B23	7330	N26
2212	I 9	3337	C23	7335	C23
2220	G10	3338	A24	7337	C23
2222	G10	3340	C23	7338	B24
2227	H16	3341	F 2	7350	H 3
2230	J15	3345	G 2	7380	D26
2232	J17	3353	G 2	7400	D14
2235	J18	3354	H 2	7402	E14
2238	K19	3376	I27	7404	G14
2239	K20	3377	I27	7406	C16
2250	L20	3378	H27	7408	D20
2251	L20	3390	D27	7410	K23
2255	L14	3391	D28	7466	C26
2260	M16	3394	F27	7470	A 3
2270	M17	3395	F27	7471	B 3
2330	O25	3398	G27	7472	A 4
2340	F 2	3399	H27	7473	B 4
2345	G 2	3404	D15	7610	J11
2350	I 2	3405	E15	7630	M13
2351	I 3	3406	L26	7755	K15
2380	I27	3407	L26	9001	A 5
2381	D25	3410	F15	9033	J27
2382	I27	3411	F15	9034	K27
2383	F25	3412	G15	9035	K27
2384	H27	3414	G15	9036	K27
2385	H25	3416	G13	9045	E 2
2390	C27	3434	F19	9404	G13
2391	E25	3436	F19		
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2397	G25	3438	F19		
2399	O27	3440	I16		
2400	C17	3441	I17		
2402	C16	3442	I17		
2404	E15	3444	J23		
2405	E15	3446	J23		
2409	F15	3448	I23		
2410	F15	3448	E23		
2413	H12	3450	H23		
2414	G15	3452	H23		
2415	H15	3454	H24		
2430	I17	3460	B25		
2432	C18	3462	M24		
2434	C16	3463	H24		
2438	B19	3464	I24		
2439	B18	3467	B25		
2440	C19	3470	D 2		
2441	C18	3471	K14		
2442	I17	3472	E23		
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2448	C21	3474	B 5		
2449	N22	3475	B 4		
2450	M24	3476	B 3		
2455	N24	3477	B 4		
2459	N23	3600	M 3		
2466	N21	3601	N 3		
2470	C22	3602	N 5		
2604	N 4	3603	N 5		
2614	N 5	3604	N 4		
2615	M 9	3605	M 2		
2616	M10	3610	M 7		
2618	K 7	3611	M 6		
2619	K 6	3612	N 8		
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3100	E 5	3620	K11		
3103	C 5	3621	M 8		
3104	C 5	3622	K12		
3105	C 5	3624	L13		
3106	E 6	3625	M 6		
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3108	E 6	3631	N12		
3155	A 8	3632	N12		
3156	B 9	3633	E14		
3157	B12	3634	F14		
3158	B11	3635	N10		
3170	A12	3636	M 6		
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3195	G11	3638	L12		
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3200	H 7	4005	H 8		

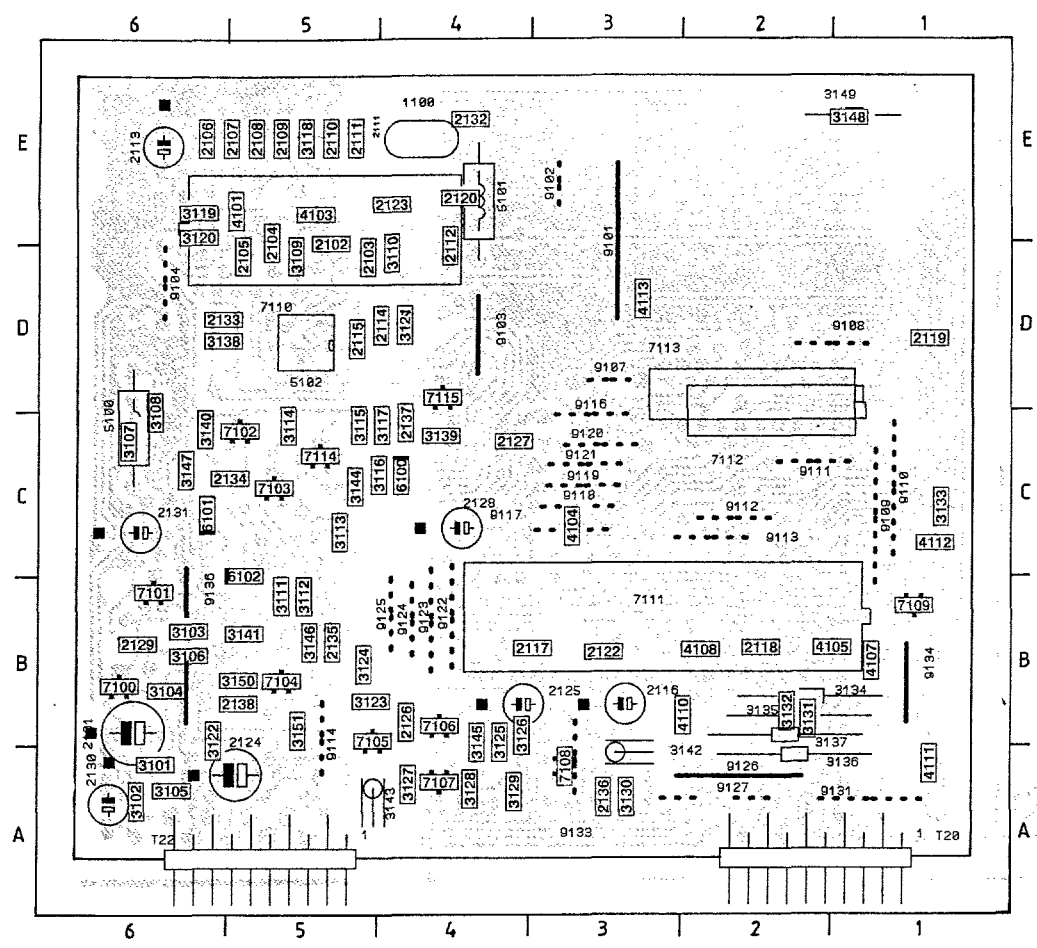
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 5190 G 8
 54.00 B17
 54.02 B16
 54.03 G12
 54.06 C21
 54.08 C21
 54.10 M22
 6300 N21
 6301 K12
 64.64 C24
 64.71 C 3
 7103 E 4
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 7125 C 8
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 7235 N 9
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 7335 C23
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 7350 H 3
 7380 D26
 74.00 D14
 74.02 E14
 74.04 G14
 74.06 C16
 74.08 D20
 74.10 K23
 74.66 C26
 74.70 A 3
 74.71 B 3
 74.72 A 4
 74.73 B 4
 76.10 J11
 76.30 M13
 7755 K15
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 9033 J27
 9034 K27
 9035 K27
 9036 K27
 9045 E 2
 9404 G13





Txt panel / Txt Platte / Platine txt

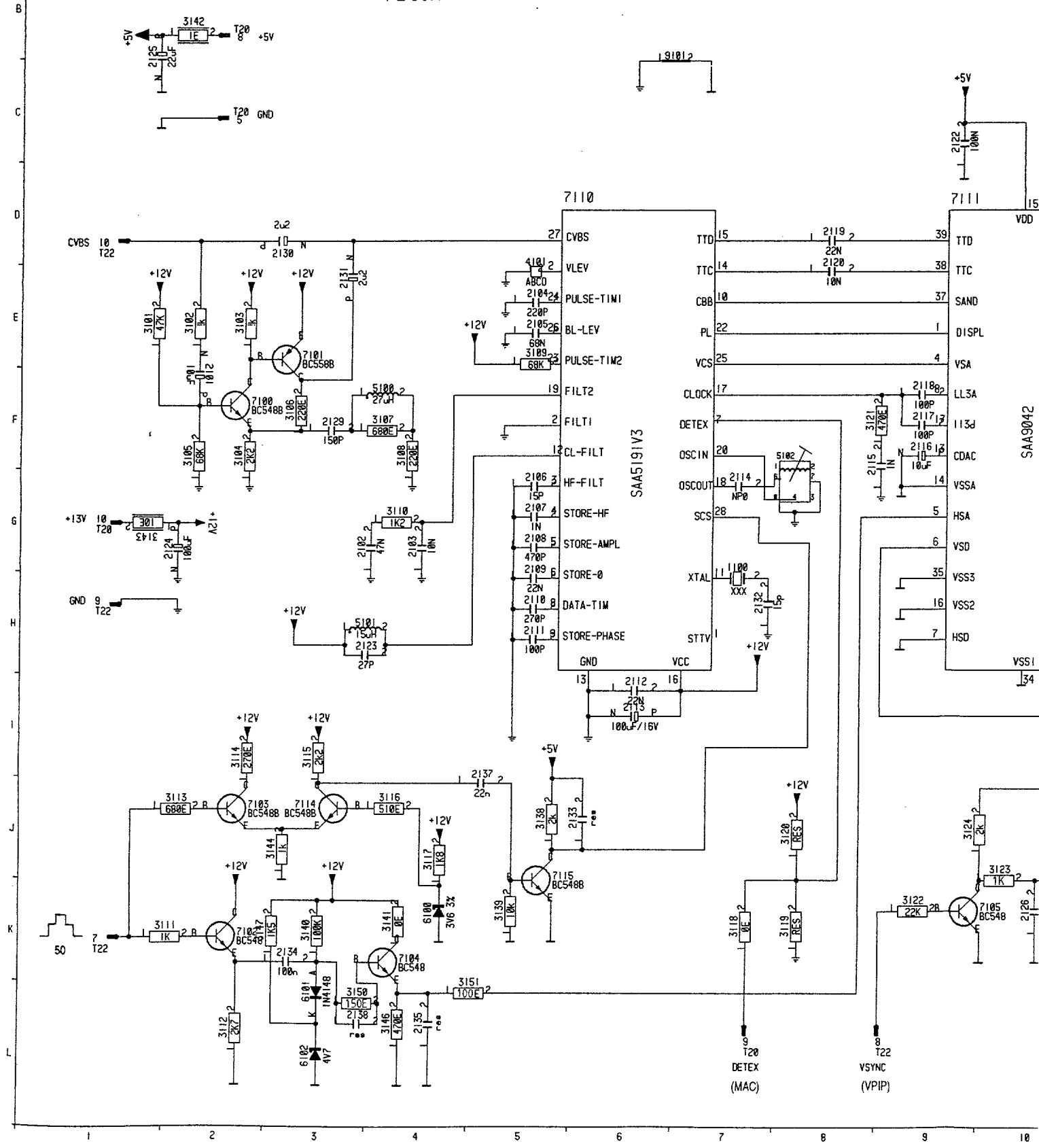
Tele



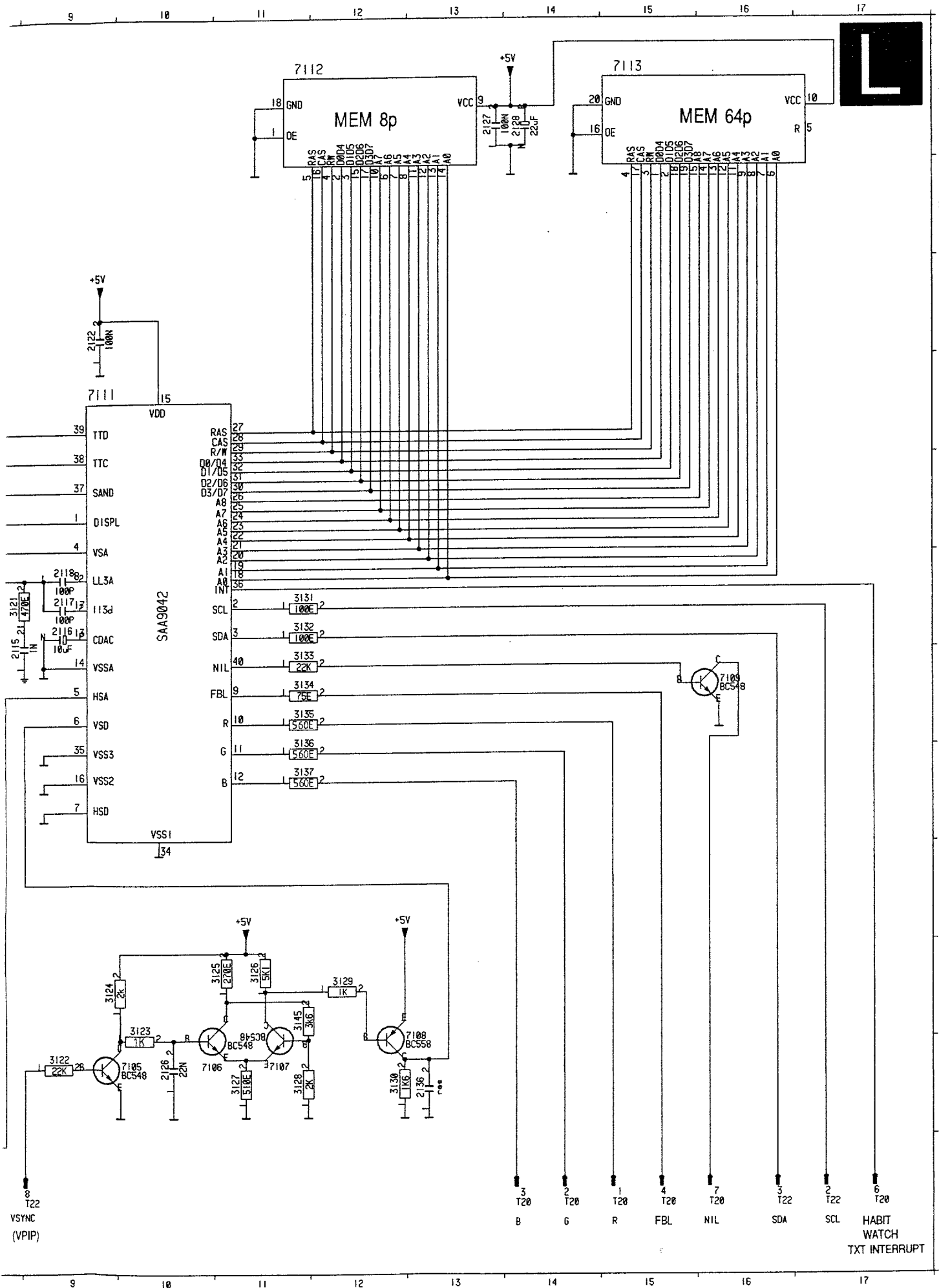
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1100 E4	2117 B3	2135 B5	3114 C5	3131 B2	3148 E1	6100 C4	7114 C5	9119 C3
2101 B6	2118 B2	2136 A3	3115 C5	3132 B2	3149 E1	6101 C6	7115 D4	9120 C3
2102 E5	2119 D1	2137 C4	3116 C4	3133 C1	3150 B5	6102 C5	9101 E3	9121 C3
2103 D5	2120 E4	2138 B5	3117 C4	3134 B2	3151 B5	7100 B6	9102 E3	9122 B4
2104 E5	2122 B3	3101 A6	3118 E5	3135 B2	4101 E5	7101 B6	9103 D4	9123 B4
2105 D5	2123 E4	3102 A6	3119 E6	3136 A2	4103 E5	7102 C5	9104 D6	9124 B4
2106 E6	2124 A5	3103 B6	3120 E6	3137 B2	4104 C3	7103 C5	9107 D3	9125 B4
2107 E5	2125 B4	3104 B6	3121 D4	3138 D6	4105 B1	7104 B5	9108 D1	9126 A2
2108 E5	2126 B4	3105 A6	3122 B6	3139 C4	4107 B1	7105 B5	9109 C1	9127 A2
2109 E5	2127 C4	3106 B6	3123 B5	3140 C6	4108 B2	7106 B4	9110 C1	9131 A1
2110 E5	2128 C4	3107 C6	3124 B5	3141 B5	4110 B2	7107 A4	9111 C2	9133 A3
2111 E5	2129 B6	3108 D6	3125 B4	3142 A3	4111 A1	7108 A3	9112 C2	9134 B1
2112 E4	2130 A6	3109 D5	3126 B4	3143 A5	4112 C1	7109 B1	9113 C2	9136 B6
2113 E6	2131 C6	3110 D4	3127 A4	3144 C5	4113 D3	7110 E5	9114 B5	
2114 D4	2132 E4	3111 B5	3128 A4	3145 B4	5100 C6	7111 B3	9116 C3	
2115 D5	2133 D6	3112 B5	3129 A4	3146 B5	5101 E4	7112 D2	9117 C3	



TELETEXT DECODER
 DECODEUR TELETEXTE
 DECODIFICATORE TELEVIDEO
 VIDEOTEXT DEKODER
 FL-50Hz

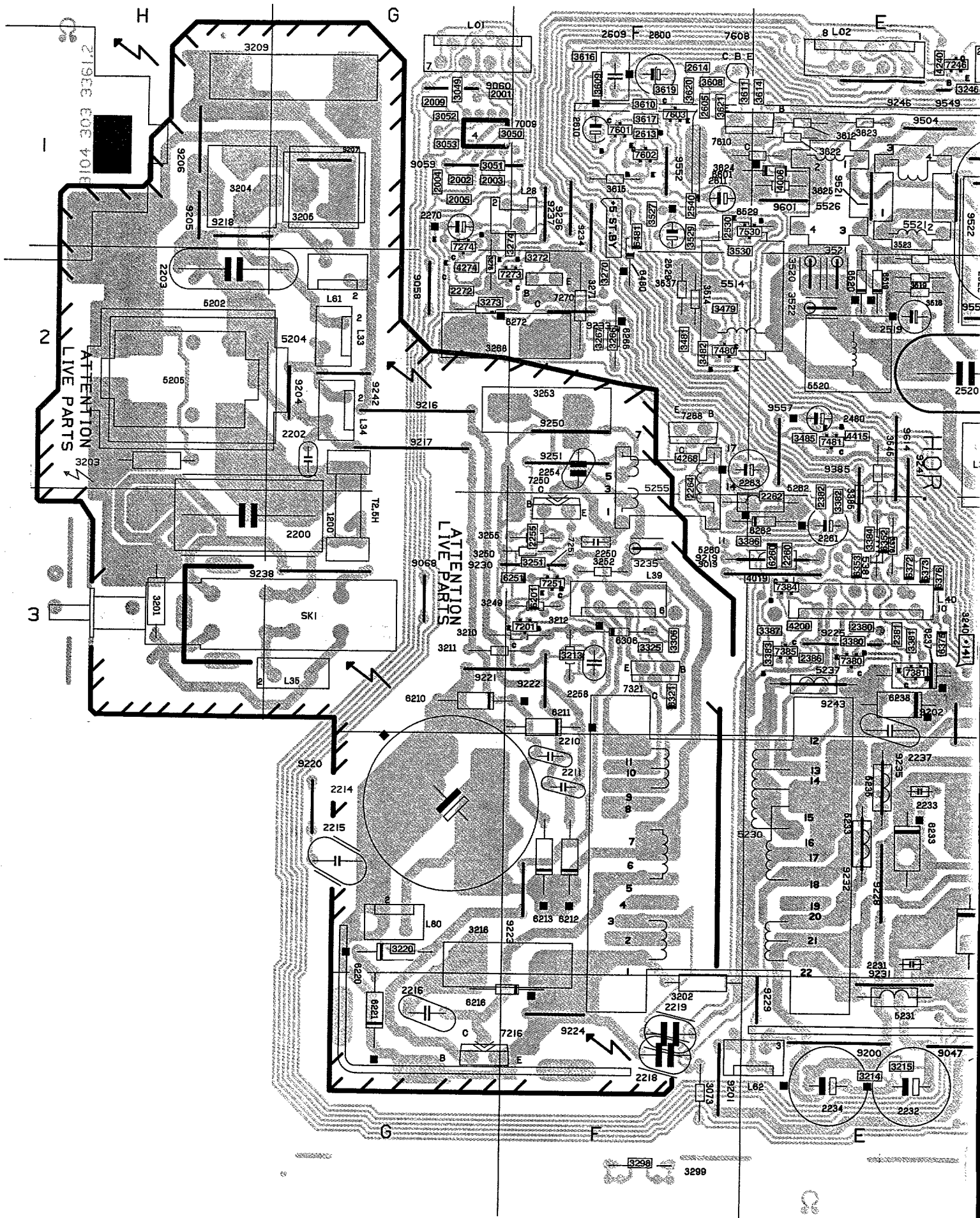


Decodeur téletexte



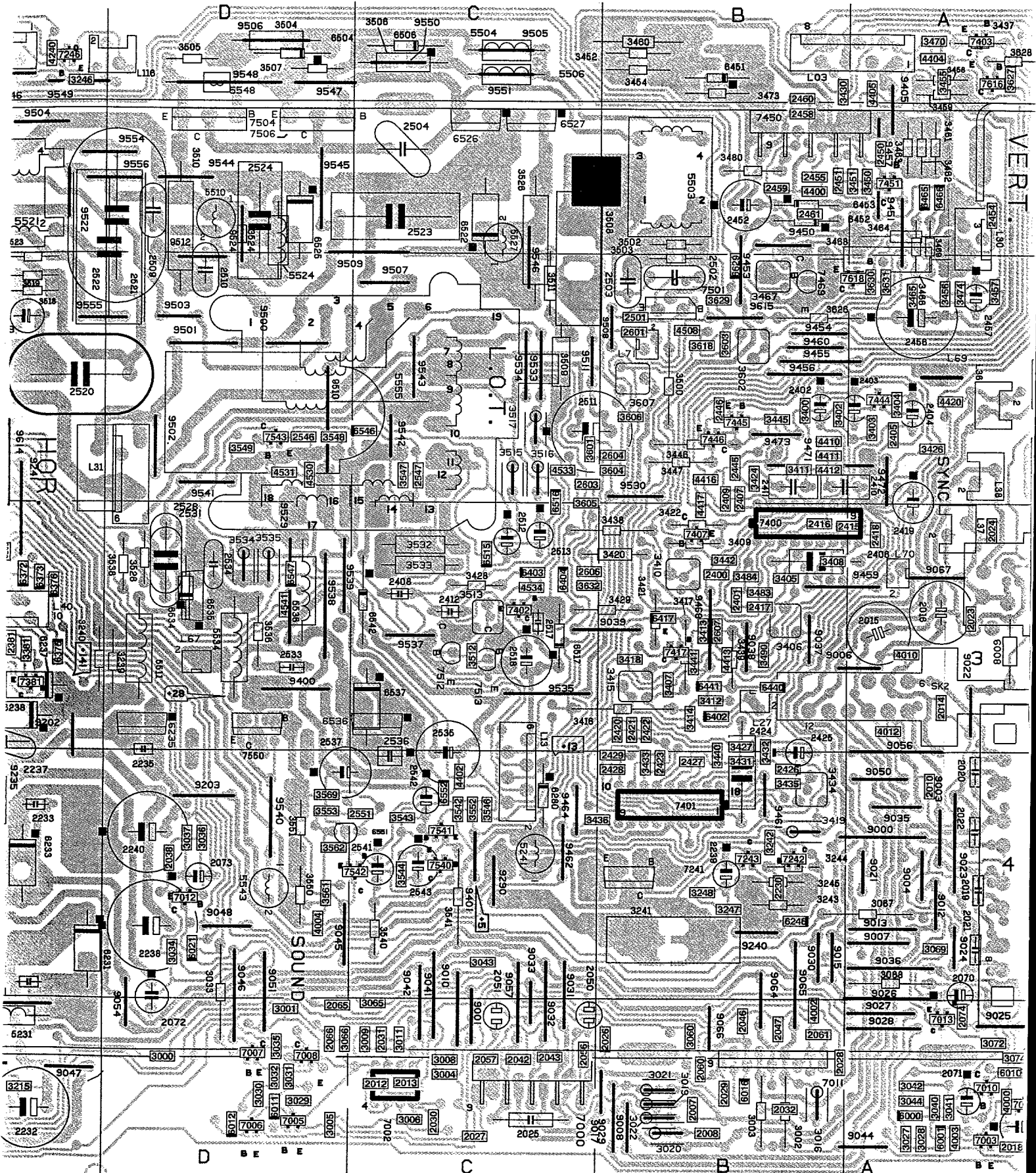
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1103	D	6
1104	C	6
1105	B	6
1106	A	6
1107		5
1108		5
1109		5
1110		5
1111		5
1112		5
1113		5
1114		5
1115		5
1116		5
1117		5
1118		5
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1123		5
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1125		5
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1215		5
1216		5
1217		5
1218		5
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1221		5
1222		5

HABIT
WATCH
TXT INTERRUPT



Large signal panel / Groß-signal Platte /

Plati

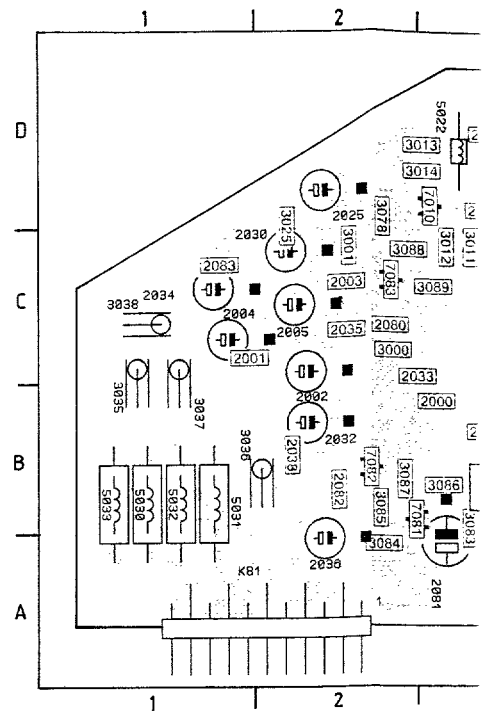


8204 004 16242

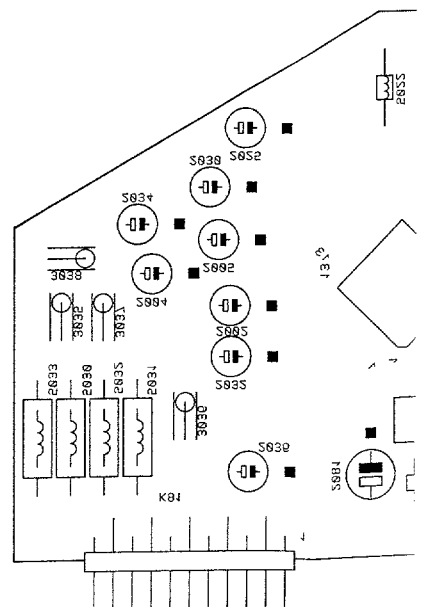
8204 004 16202

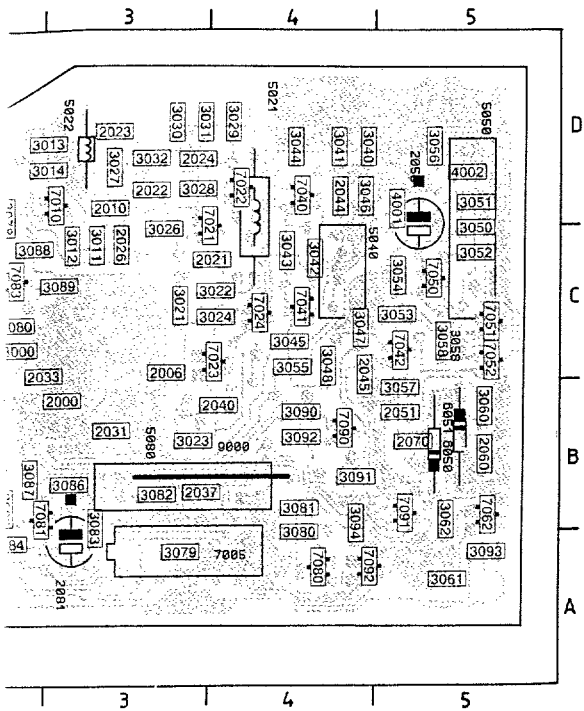
9533 C2
9534 C2
9535 C3
9537 C3
9538 D3
9539 D3
9540 D4
9541 D2
9542 C2
9543 C2
9544 D1
9545 D1
9546 C2
9547 D1
9548 D1
9549 E1
9550 C1
9551 C1
9552 F1
9554 D1
9555 E2
9556 D1
9557 E2
9601 E1
9614 E2
9615 B2

2
2
1
3
4
3
3
4
5
3
4
5
3
5
4
2
1
1
1
33
34
E3
32
E3
E1
F2
F2
C4
H5
H4
E2
D3
C4
A1
B1
A1
B2
B2
B2
B2
A1
B3
B2
B4
C4
C4
B3
B2
A2
B2
D2
D2
D2
E1
C1
D1
C2
B2
C1
D2
C2
D2
E1
E1
D1
D3
D2

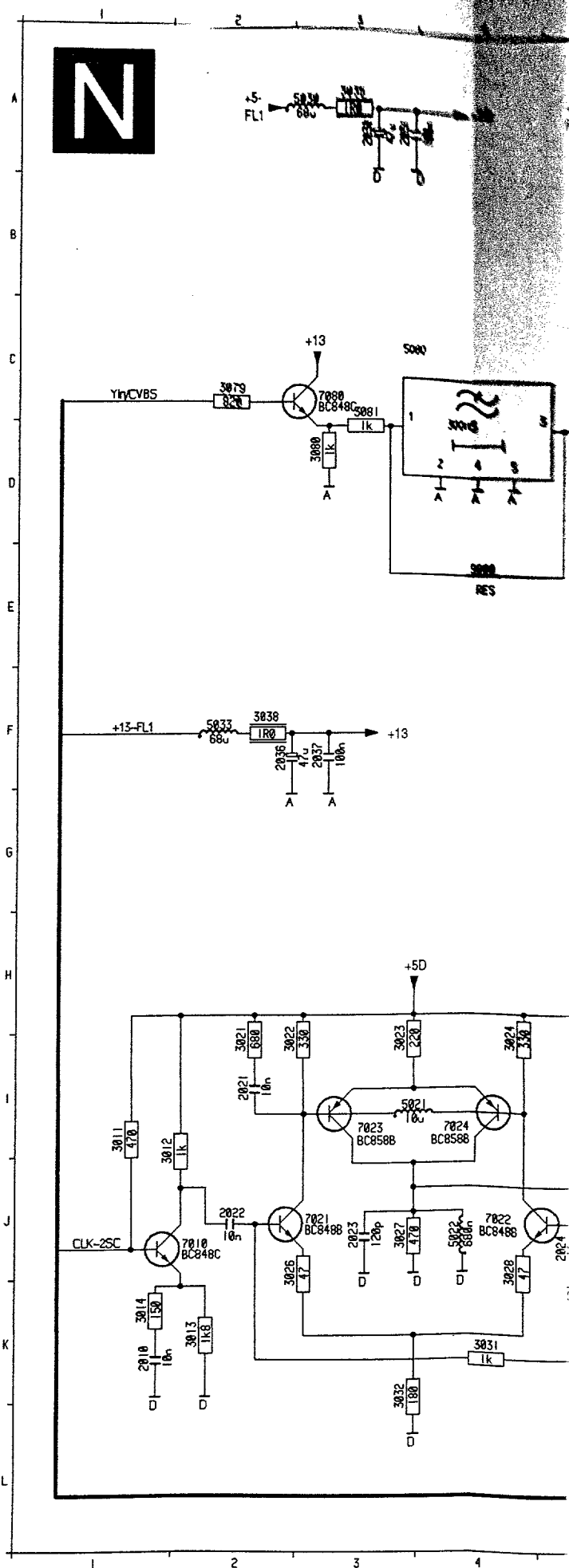
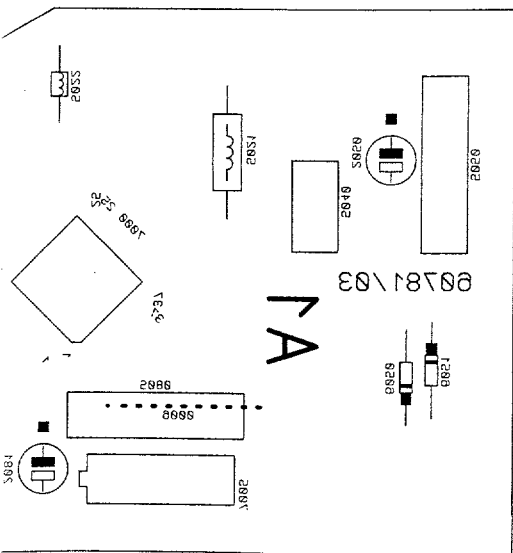


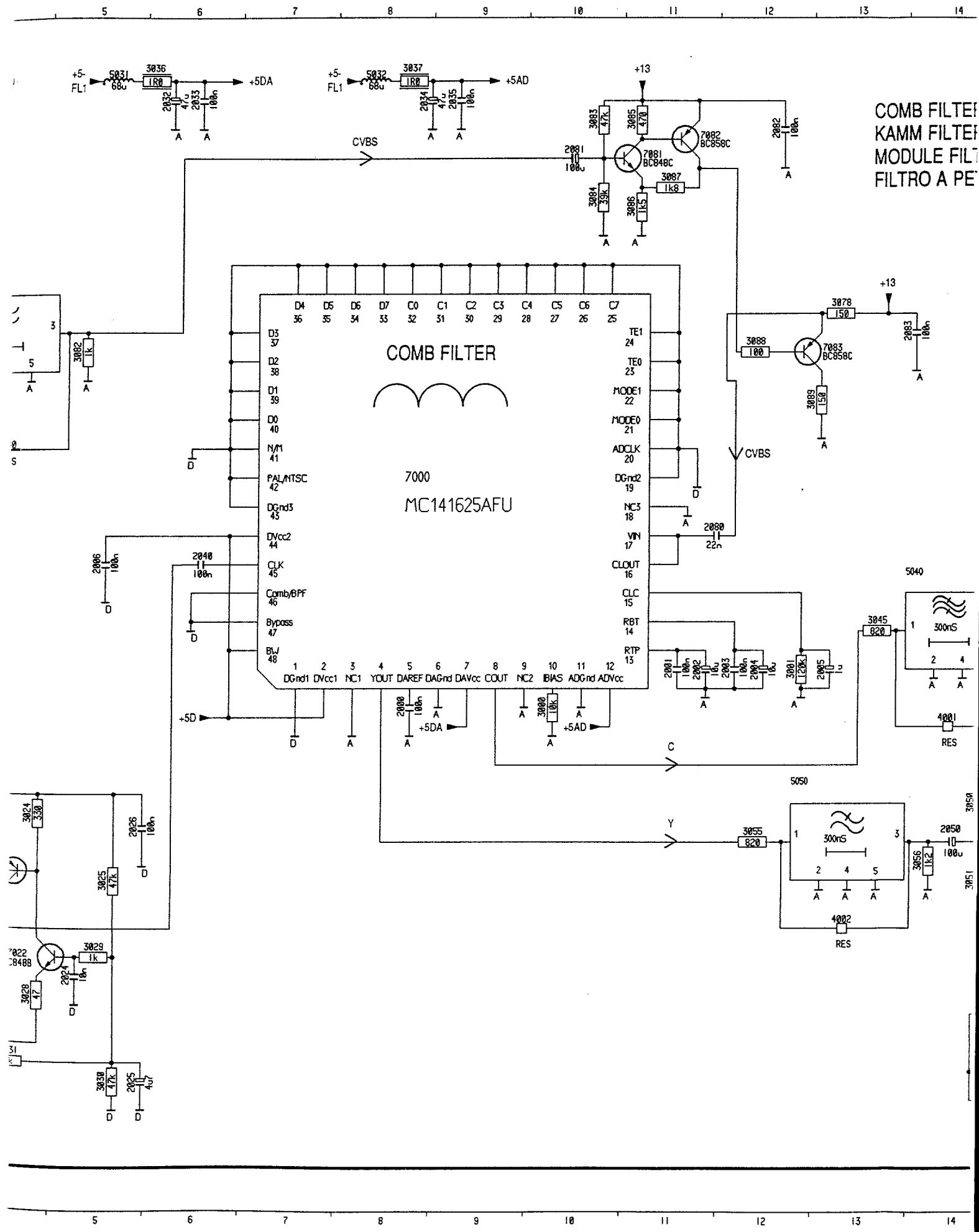
2000 B3	2032 B2	2082 B2	3029 D4	304:
2001 C1	2033 C3	2083 C1	3030 D3	305:
2002 C2	2034 C1	3000 C2	3031 D4	305
2003 C2	2035 C2	3001 C2	3032 D3	305:
2004 C1	2036 A2	3011 C3	3035 B1	305:
2005 C2	2037 B3	3012 C3	3036 B2	305
2006 C3	2038 B2	3013 D3	3037 B1	305
2010 D3	2040 B4	3014 D3	3038 C1	305:
2021 C4	2044 D4	3021 C3	3040 D4	305
2022 D3	2045 C4	3022 C4	3041 D4	305
2023 D3	2050 D5	3023 B3	3042 C4	306
2024 D3	2051 B5	3024 C4	3043 C4	306
2025 D2	2060 B5	3025 D2	3044 D4	306
2026 C3	2070 B5	3026 C3	3045 C4	307
2030 C2	2080 C2	3027 D3	3046 D4	307
2031 B3	2081 A3	3028 D3	3047 C4	308





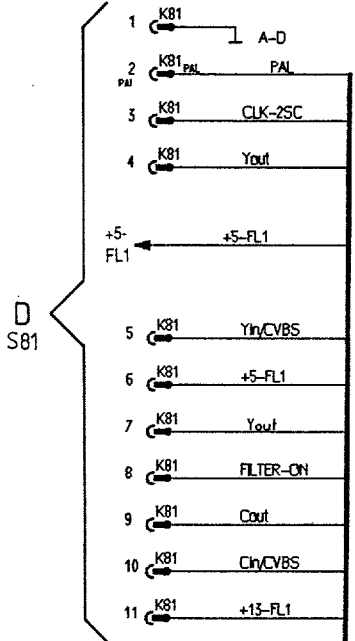
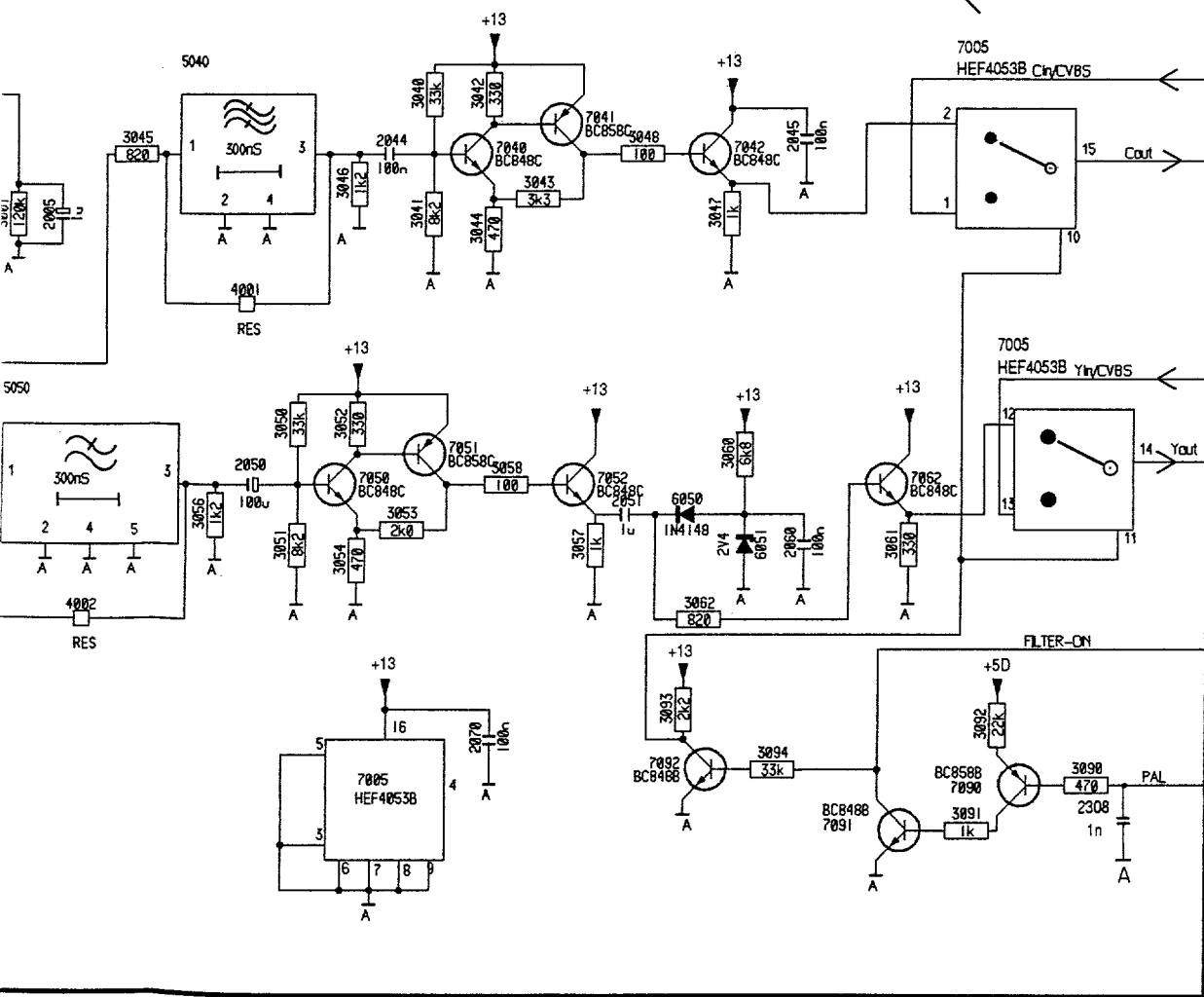
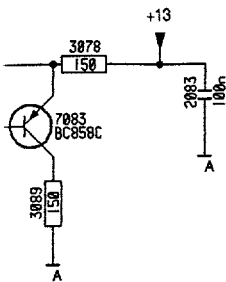
04	3048 C4	3081 B4	5021 D4	7023 C4	9000 B4
03	3050 C5	3082 B3	5022 D3	7024 C4	
04	3051 D5	3083 B3	5030 B1	7040 D4	
03	3052 C5	3084 A2	5031 B1	7041 C4	
31	3053 C5	3085 B2	5032 B1	7042 C5	
32	3054 C5	3086 B3	5033 B1	7050 C5	
31	3055 C4	3087 B2	5040 C4	7051 C5	
01	3056 D5	3088 C2	5050 C5	7052 C5	
04	3057 B5	3089 C3	5080 B3	7062 B5	
04	3058 C5	3090 B4	6050 B5	7080 A4	
04	3060 B5	3091 B4	6051 B5	7081 B2	
04	3061 A5	3092 B4	7000 C3	7082 B2	
04	3062 B5	3093 A5	7005 A3	7083 C2	
04	3078 D2	3094 B4	7010 D3	7090 B4	
04	3079 A3	4001 D5	7021 C4	7091 B5	
04	3080 A4	4002 D5	7022 D4	7092 A4	



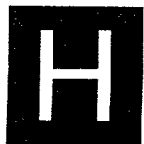


COMB FILTER
KAMM FILTER
MODULE FILT
FILTRO A PE

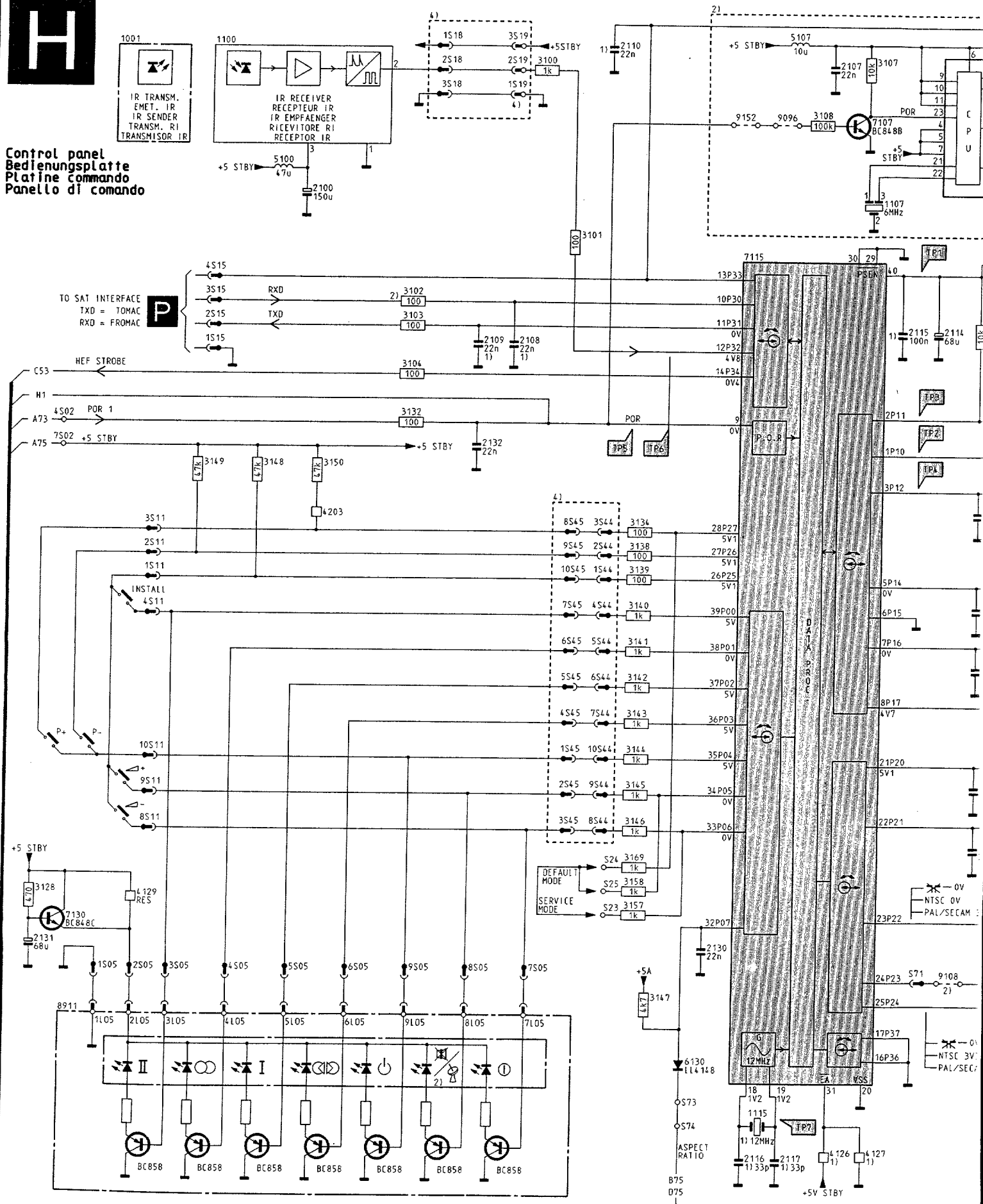
COMB FILTER
KAMM FILTER
MODULE FILTRE EN PEIGNE
FILTRO A PETTINE

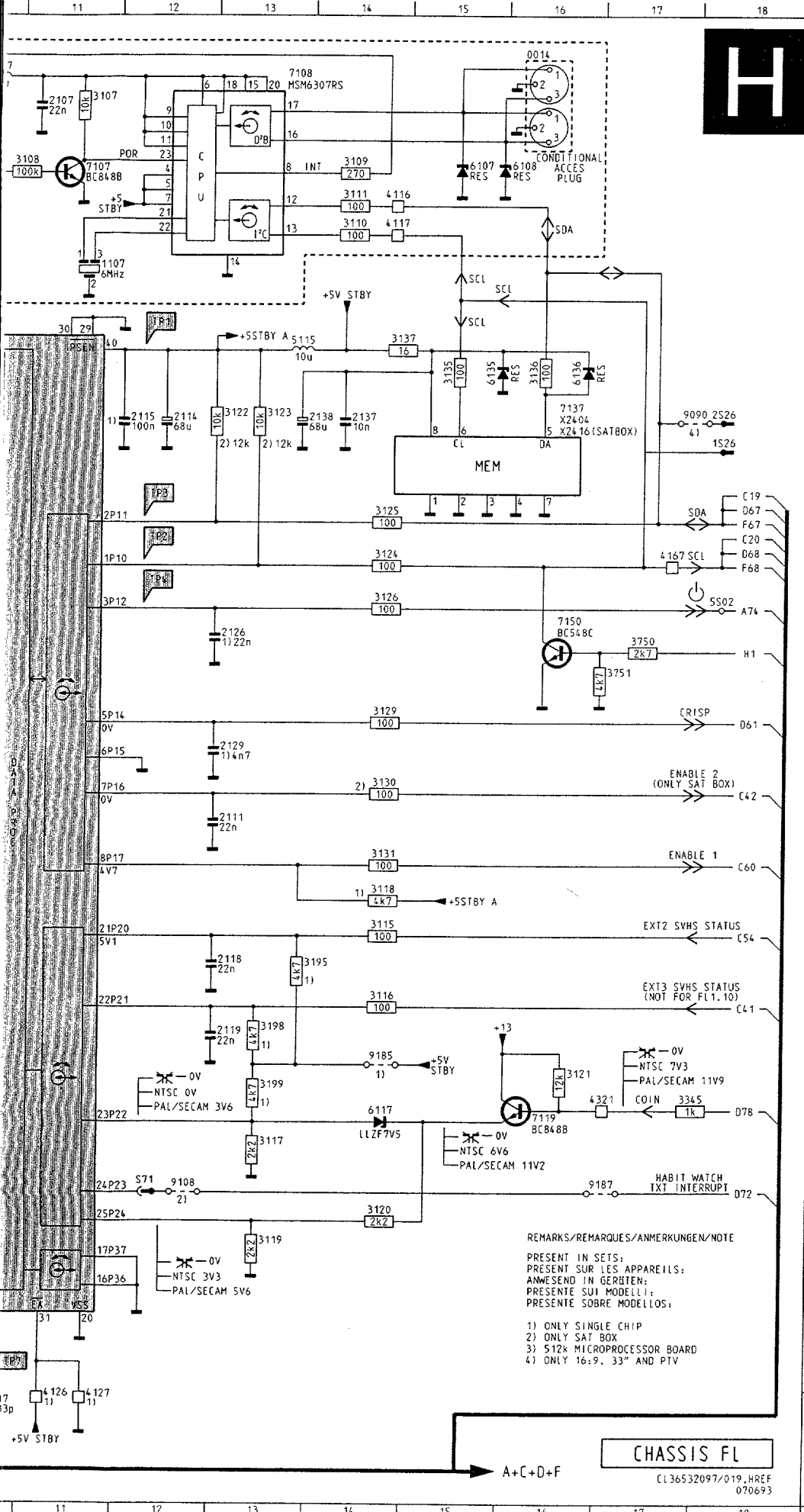


2800	G 8	K81	B19
2801	G11	K81	B19
2802	G11	K81	C19
2803	G12	K81	D19
2804	G12	K81	D19
2805	G13	K81	D19
2806	F 5	K81	E19
2810	K 1	K81	E19
2821	J 2	K81	E19
2822	J 2	K81	E19
2823	J 2	K81	E19
2824	J 2	K81	E19
2825	J 2	K81	E19
2826	J 2	K81	E19
2830	A 3	K81	A 3
2831	A 3	K81	A 3
2832	A 6	K81	A 6
2833	A 6	K81	A 6
2834	A 8	K81	A 8
2835	A 8	K81	A 8
2836	F 8	K81	F 8
2837	F 8	K81	F 8
2838	F 8	K81	F 8
2839	F 8	K81	F 8
2844	G15	K81	G15
2845	G18	K81	G18
2850	I14	K81	I14
2851	I16	K81	I16
2860	I18	K81	I18
2870	K16	K81	K16
2880	F11	K81	F11
2881	B10	K81	B10
2882	A12	K81	A12
2883	D14	K81	D14
2884	G10	K81	G10
2881	G12	K81	G12
2811	I 1	K81	I 1
2812	I 1	K81	I 1
2813	K 2	K81	K 2
2814	I 2	K81	I 2
2821	I 2	K81	I 2
2822	I 3	K81	I 3
2823	I 3	K81	I 3
2824	I 4	K81	I 4
2825	I 4	K81	I 4
2826	I 5	K81	I 5
2827	I 5	K81	I 5
2828	J 4	K81	J 4
2829	J 5	K81	J 5
2830	K 4	K81	K 4
2831	K 4	K81	K 4
2832	K 3	K81	K 3
2833	A 3	K81	A 3
2834	A 8	K81	A 8
2835	A 8	K81	A 8
2836	F 8	K81	F 8
2837	F 8	K81	F 8
2838	F 8	K81	F 8
2839	F 8	K81	F 8
2841	G15	K81	G15
2842	F15	K81	F15
2843	G16	K81	G16
2844	G15	K81	G15
2845	G13	K81	G13
2846	G15	K81	G15
2847	G17	K81	G17
2848	H14	K81	H14
2851	I14	K81	I14
2852	H15	K81	H15
2853	I15	K81	I15
2854	I15	K81	I15
2855	I12	K81	I12
2856	I14	K81	I14
2857	I16	K81	I16
2858	H14	K81	H14
2859	I17	K81	I17
2861	I18	K81	I18
2862	J17	K81	J17
2878	C13	K81	C13
2879	C 2	K81	C 2
2880	D 3	K81	D 3
2881	C 3	K81	C 3
2882	D 5	K81	D 5
2883	A10	K81	A10
2884	B10	K81	B10
2885	A11	K81	A11
2886	B11	K81	B11
2887	B11	K81	B11
2888	D12	K81	D12
2889	D12	K81	D12
2890	K20	K81	K20
2891	K19	K81	K19
2892	J19	K81	J19
2893	J17	K81	J17
2894	K17	K81	K17
4001	H14	K81	H14
4002	J12	K81	J12
4003	I 3	K81	I 3
5022	J 4	K81	J 4
5030	A 3	K81	A 3
5031	A 5	K81	A 5
5032	A 8	K81	A 8
5033	F 2	K81	F 2
5040	F13	K81	F13
5050	H12	K81	H12
5080	C 3	K81	C 3
6050	I17	K81	I17
7000	E 8	K81	E 8
7005	K15	K81	K15
7005	G19	K81	G19
7005	I19	K81	I19
7010	J 2	K81	J 2
7021	J 3	K81	J 3
7022	J 4	K81	J 4
7023	I 4	K81	I 4
7024	G16	K81	G16
7041	F16	K81	F16
7042	G17	K81	G17
7050	I15	K81	I15
7051	I15	K81	I15
7052	I16	K81	I16
7062	I18	K81	I18
7080	C 3	K81	C 3
7081	B11	K81	B11
7082	B11	K81	B11
7083	D12	K81	D12
7090	K18	K81	K18
7091	K18	K81	K18
7092	K17	K81	K17
9808	E 4	K81	E 4
K81	B19		

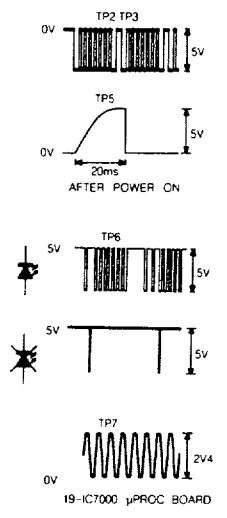


Control panel
Bedienungsplatte
Platine Commande
Pannelo di comando





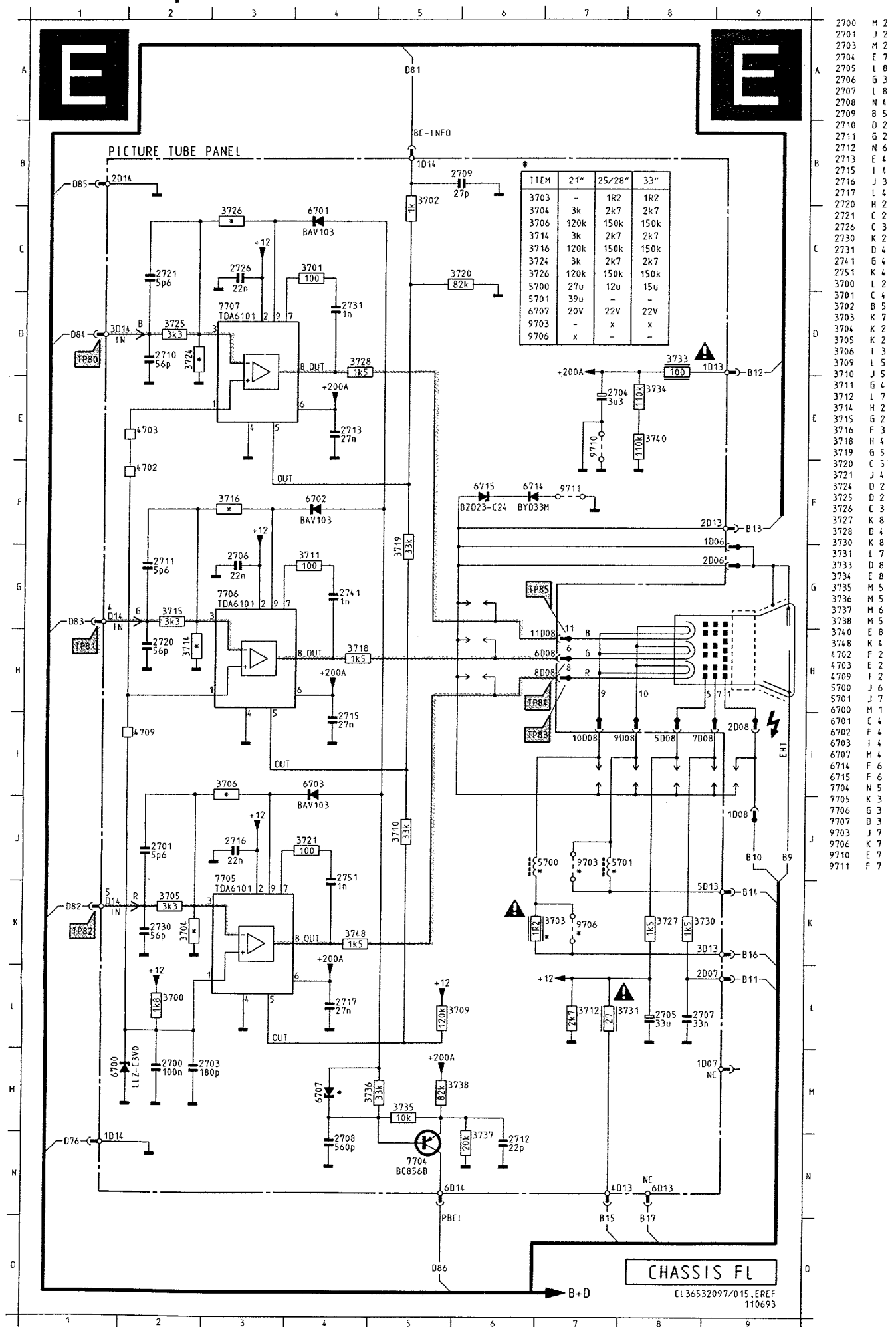
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1001	A 2
1100	A 3
1107	C11
1115	H10
2100	C 4
2107	A11
2108	E 7
2109	E 6
2110	A 8
2111	I13
2114	D12
2115	D12
2116	O10
2117	O10
2118	J13
2119	K13
2126	G13
2129	H13
2130	L 9
2131	L 1
2132	F 6
2137	D14
2138	D13
3100	A 7
3101	C 8
3102	D 5
3103	D 5
3104	E 5
3107	A11
3108	B11
3109	B14
3110	B14
3111	B14
3115	J14
3116	J14
3117	L13
3118	I14
3119	M13
3120	M14
3121	K16
3122	D13
3123	D13
3124	F14
3125	E14
3126	F14
3128	K 1
3129	H14
3130	H14
3131	I14
3132	F 5
3134	G 8
3135	D15
3136	D16
3137	D14
3138	G 8
3139	G 8
3140	H 8
3141	H 8
3142	I 8
3143	I 8
3144	J 8
3145	J 8
3146	K 8
3147	M 9
3148	F 4
3149	F 3
3150	F 4
3157	L 8
3158	K 8
3169	K 8
3195	J13
3198	K13
3199	K13
3345	L17
3750	G17
3751	G17
4116	B14
4117	B14
4126	O11
4127	O11
4129	K 2
4167	F17
4203	G 4
4321	L17
5100	B 4
5107	A10
5115	O13
6107	B15
6108	B16
6117	L14
6130	M 9
6135	D15
6136	D16
7107	B11
7108	A13
7115	D10
7119	L16
7130	L 1
7137	D16
7150	G16
8911	M 1
9090	D17
9096	B10
9108	L12
9152	B10
9185	K14
9187	L17



REMARKS/REMARQUES/ANMERKUNGEN/NOTE
 PRESENT IN SETS:
 PRESENT SUR LES APPAREILS:
 ANWESEND IN GERÄTEN:
 PRESENTE SUI MODELLI:
 PRESENTE SOBRE MODELOS:
 1) ONLY SINGLE CHIP
 2) ONLY SAT BOX
 3) 512K MICROPROCESSOR BOARD
 4) ONLY 16:9, 33" AND PTV

CHASSIS FL

CL36532097/019.HREF
070693

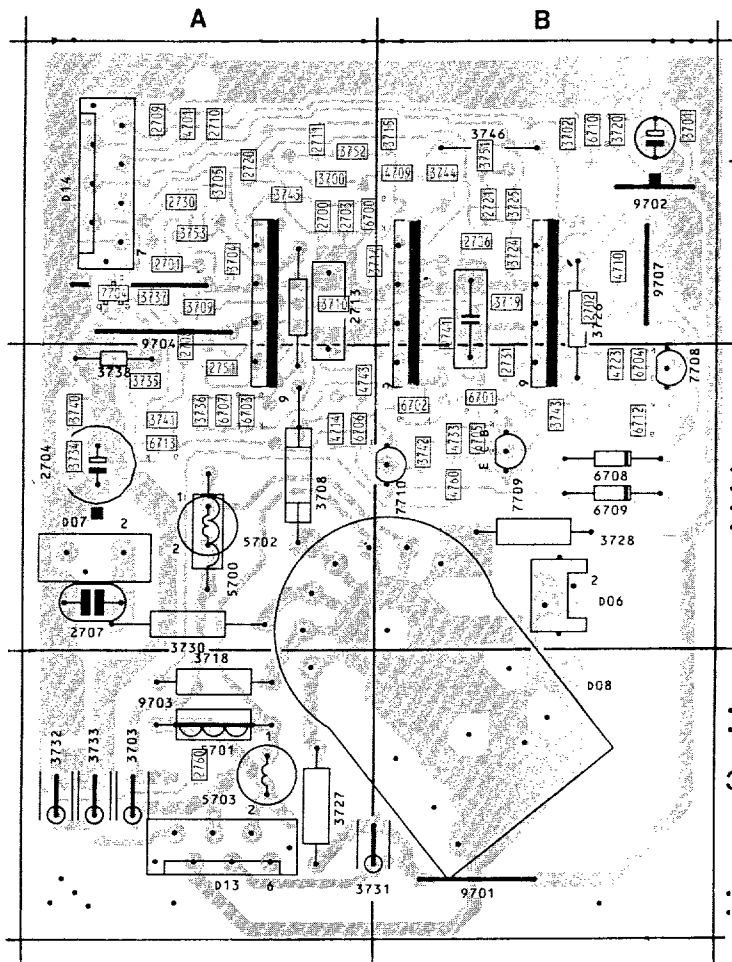


- 2700 M 2
- 2701 J 2
- 2703 M 2
- 2704 E 7
- 2705 L 8
- 2706 G 3
- 2707 L 8
- 2708 N 4
- 2709 B 5
- 2710 D 2
- 2711 G 2
- 2712 N 6
- 2713 E 4
- 2715 I 4
- 2716 J 3
- 2717 L 4
- 2720 H 2
- 2721 C 2
- 2726 C 3
- 2730 K 2
- 2731 D 4
- 2741 G 4
- 2751 K 4
- 3700 L 2
- 3701 C 4
- 3702 B 5
- 3703 K 7
- 3704 K 2
- 3705 K 2
- 3706 I 3
- 3709 L 5
- 3710 J 5
- 3711 G 4
- 3712 L 7
- 3714 H 2
- 3715 G 2
- 3716 F 3
- 3718 H 4
- 3719 G 5
- 3720 C 5
- 3721 J 4
- 3724 D 2
- 3725 D 2
- 3726 C 3
- 3727 K 8
- 3728 D 4
- 3730 K 8
- 3731 L 7
- 3733 D 8
- 3734 E 8
- 3735 M 5
- 3736 M 5
- 3737 M 6
- 3738 M 5
- 3740 E 8
- 3748 K 4
- 4702 F 2
- 4703 E 2
- 4709 J 2
- 5700 J 6
- 5701 J 7
- 6700 M 1
- 6701 C 4
- 6702 F 4
- 6703 I 4
- 6707 M 4
- 6714 F 6
- 6715 F 6
- 7704 N 5
- 7705 K 3
- 7706 G 3
- 7707 D 3
- 9703 J 7
- 9706 K 7
- 9710 E 7
- 9711 F 7

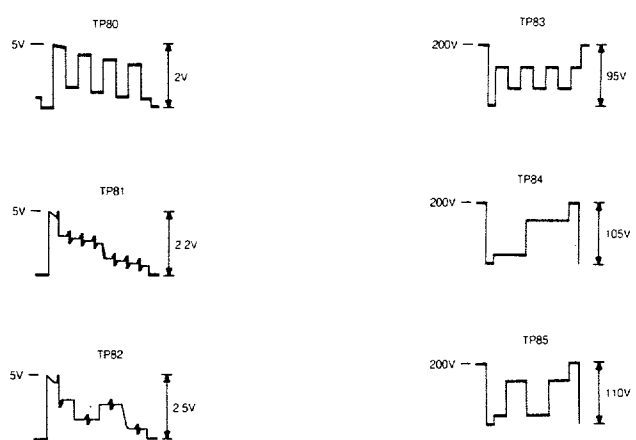
CHASSIS FL
CL 36532097/015, EREF
110693

Platine Tube-image

700 M 2
 701 J 2
 703 M 2
 704 E 7
 705 L 8
 706 G 3
 707 L 8
 708 N 4
 709 B 5
 710 D 2
 711 G 2
 712 N 6
 713 E 4
 715 I 4
 716 J 3
 717 L 4
 720 H 2
 721 C 2
 726 C 3
 730 K 2
 731 D 4
 741 G 4
 751 K 4
 700 L 2
 701 C 4
 702 B 5
 703 K 7
 704 K 2
 705 K 2
 706 I 3
 709 L 5
 710 J 5
 711 G 4
 712 L 7
 714 H 2
 715 G 2
 716 F 3
 718 H 4
 719 G 5
 720 C 5
 721 J 4
 724 D 2
 725 D 2
 726 C 3
 727 K 8
 728 D 4
 730 K 8
 731 L 7
 733 D 8
 734 E 8
 735 M 5
 736 M 5
 737 M 6
 738 M 5
 740 E 8
 748 K 4
 702 F 2
 703 E 2
 709 I 2
 700 J 6
 701 J 7
 700 M 1
 701 C 4
 702 F 4
 703 I 4
 707 M 4
 714 F 6
 715 F 6
 704 N 5
 705 K 3
 706 G 3
 707 D 3
 703 J 7
 706 K 7
 710 E 7
 711 F 7



- 2700 A1
- 2701 A1
- 2702 B1
- 2703 A1
- 2704 A2
- 2705 B1
- 2706 B1
- 2707 A2
- 2708 A2
- 2709 A1
- 2710 A1
- 2711 A1
- 2713 A1
- 2715 B1
- 2720 A1
- 2721 B1
- 2730 A1
- 2731 B2
- 2741 B1
- 2751 A2
- 2760 A3
- 3700 A1
- 3701 B1
- 3702 B1
- 3703 A3
- 3704 A1
- 3705 A1
- 3706 A1
- 3708 A2
- 3709 A1
- 3710 A1
- 3711 A1
- 3715 B1
- 3716 B1
- 3718 A3
- 3719 B1
- 3720 B1
- 3724 B1
- 3725 B1
- 3726 B1
- 3727 A3
- 3728 B2
- 3730 A2
- 3731 A3
- 3732 A3
- 3733 A3
- 3734 A2
- 3735 A2
- 3736 A2
- 3737 A1
- 3738 A2
- 3740 A2
- 3741 A2
- 3742 B2
- 3743 B2
- 3744 B1
- 3745 A1
- 3746 B1
- 3748 A2
- 3751 B1
- 3752 A1
- 3753 A1
- 4701 A1
- 4709 B1
- 4710 B1
- 4714 A2
- 4723 B2
- 4733 B2
- 4743 A2
- 4760 B2
- 5700 A2
- 5701 A3
- 5702 A2
- 5703 A3
- 6700 A1
- 6701 B2
- 6702 B2
- 6703 A2
- 6704 B2
- 6705 B2
- 6706 A2
- 6707 A2
- 6708 B2
- 6709 B2
- 6710 B1
- 6711 B2
- 6712 B2
- 6713 A2
- 7704 A1
- 7705 A1
- 7706 B1
- 7707 B1
- 7708 B2
- 7709 B2
- 7710 B2
- 9701 A1
- 9701 B3
- 9702 B1
- 9703 A3
- 9704 A1
- 9705 A1
- 9706 A3
- 9707 B1
- D06 B2
- D07 A2
- D08 B2
- D13 A3
- D14 A1



Setting conditions

- * Unless stated otherwise, the supply voltage used is: 220 - 240V ± 10%; 50 - 60Hz ± 5%
- * Voltages and oscillograms are measured in relation to tuner earth. **Never** use the cooling plates as earth.
- * Warming-up time ≈ 10 minutes
- * For all measurements it is true that:
- * probe Ri > 1MΩ; Ci ≤ 10pF

1. Electrical settings on the large signal panel

1.1 +141V supply voltage

Supply the mains voltage; this must be isolated from the mains.

Connect a voltmeter over C2238.

Using R3371, on the SOPS DRIVE CIRCUIT

(fig. 7.2) set the supply voltage to + 141V ± 0.5V.

1.2 Focusing

This is set with the focus potentiometer (top one on the Line output transformer).

1.3 Vg2 setting

Supply an aerial signal.

Set the contrast to maximum and the brightness and saturation to nominal.

Using an oscilloscope set to field frequency, measure the direct voltage level of the measurement pulse (fig. 7.1) on pin 9 of IC7705, IC7706 and IC7707 in relation to earth.

Now adjust the highest voltage level found with the aid of the Vg2 potentiometer (bottom left on the Line output transformer to 150V ± 2V.

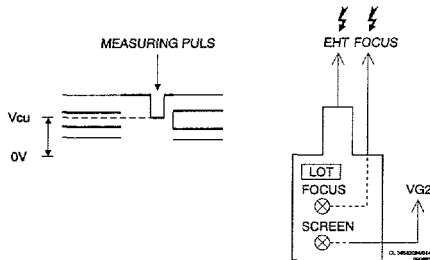


Fig. 7.1

1.4 Stable OSD

Short circuit pin 11 IC7401 to pin 13 IC7401

Short circuit pin 5 IC7755 to earth.

Measure the frequency on pin 16-IC7401 and set this to 15,625 Hz ± 25 Hz with R3434.

Remove the short circuits.

1.5 Horizontal synchronisation

Connect point 5-IC7400 to point 9-IC7400.

Supply an aerial signal and set the receiver.

Adjust potentiometer R3406 until the picture is straight.

Break the through connection.

1.6 Horizontal centring

Feed in a test pattern that makes the horizontal linearity visible (e.g. a symmetrical cross pattern or a test circle).

Adjust the DC offset current through the horizontal deflection coil using R3513 so that the horizontal linearity is optimal (the distance between the two vertical lines should be equal on both the left and right hand sides of the picture).

1.7 Picture width

Set using potentiometer R3607.

1.8 Vertical centring

Set using potentiometer R3467.

1.9 Picture height

Set using potentiometer R3410.

1.10 East/West correction

Set using potentiometer R3602.

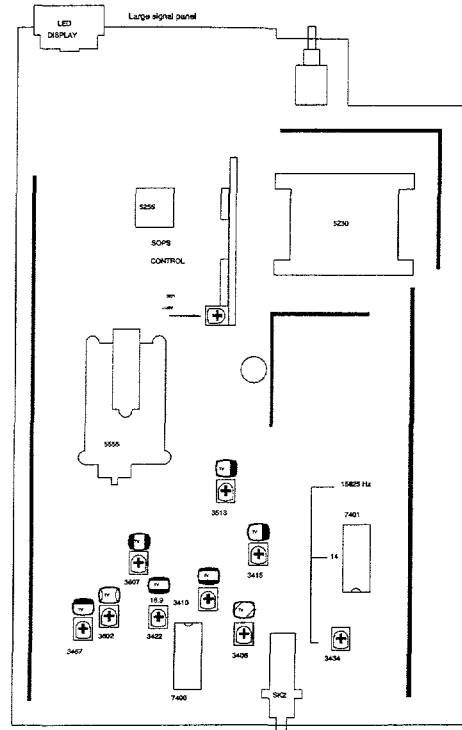


Fig. 7.2

2. Electrical settings on the small signal panel

2.1 Stereo audio channel separation

Connect a signal generator with a 2 carrier stereo signal ("stereo" mode).

Select 1kHz for the right-hand channel and switch off the sound for the left-hand channel.

Connect an oscilloscope to pin 3 of Euroconnector EXT1 Using R3602 on the small signal panel, set the amplitude of the signal to minimum amplitude.

2.2 4.43 MHz chroma suppression circuit

Supply a colour bar signal. Connect an oscilloscope to point 17 of IC7324 and set L5305 to minimum amplitude of the chrominance signal.

2.3 Electrical settings IC7365 (TDA4650)

2.3.1 Chroma bandpassfilter

Connect a signal generator (e.g. PM 5326) to pin 20 of the euroconnector (EXT1) and set its frequency to 4.286 MHz/0.2 Vpp. Switch the unit to EXT1. Connect pin 27-IC7365 to pin 13-IC7365 (+12V). Connect an oscilloscope to pin 15-IC7365.

Set L5345 to maximum amplitude.

Remove the interconnection

2.3.2 4
C
V
C
C
S
F

2.3.3 6
C
E
2
C
C
S
F

2.3.4 C
C
b
e
p

2.3.5 C
C
b
e
p

2.3.6 5
C
b
e
C
r

- 2.3.2 **4.50 MHz NTSC sound suppression**
 Connect a generator to point 20 of Euroconnector EXT1 with a frequency of 4.50 MHz and 200mV_{rms}. Connect point 26-IC7365 to point 13-IC7365. Connect an oscilloscope to point 15 of IC7365. Set L5346 to minimum amplitude. Remove the short circuit.
- 2.3.3 **6.50 MHz SECAM DK sound suppression**
 Connect a sine-wave generator to point 20 of Euroconnector EXT1 with a frequency of 6.50 MHz and 200mV_{rms}. Connect point 28-IC7365 to point 13-IC7365. Connect an oscilloscope to point 15 of IC7365. Set L5346 to minimum amplitude. Remove the short circuit.
- 2.3.4 **Chroma 8,87 MHz auxiliary oscillator**
 Connect a pattern generator and supply a PAL colour bar pattern. Connect pin 17-IC7365 (TDA4650) to earth. Set C2380 so that the colour on the screen has practically stopped. Remove the interconnection.
- 2.3.5 **Chroma 7,16 MHz auxiliary oscillator**
 Connect a pattern generator and supply a PAL colour bar pattern. Connect pin 17-IC7365 (TDA4650) to earth. Set R2379 so that the colour on the screen has practically stopped. Remove the interconnection.
- 2.3.6 **SECAM demodulators**
 Connect a pattern generator and supply a SECAM black pattern. Connect an oscilloscope to pin 3-IC7365. Set L5370 to minimum amplitude. Connect the oscilloscope to pin 1-IC7365. Set R3370 to minimum amplitude.

SMALL SIGNAL PANEL

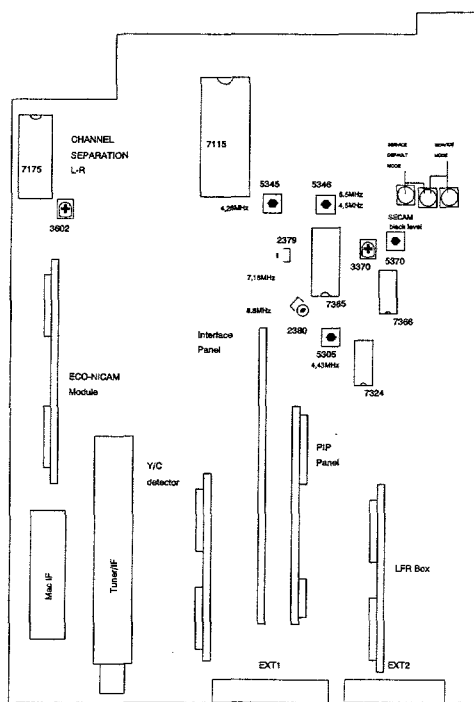


Fig. 7.3

3. Electrical setting on the teletext decoder

Connect pin 7-T22 briefly to earth. Connect a frequency counter to pin 17-IC7110. Using L5102, set to 13.500 MHz ± 100 kHz. Remove the short circuit.

4. Electrical settings on the ECO-NICAM decoder panel

- 4.1 **Neutral frequency adjustment**
 Connect a frequency counter via a probe (C_i ≤ 15pF) to pin 19 of IC7001 (SAA 7280) and pin 15 (GND). Adjust C2015 in such a manner that the clock frequency is set at 728.025 kHz. (±5Hz)

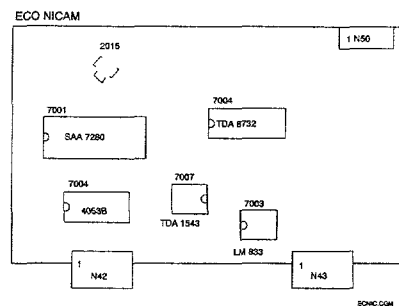


Fig. 7.4

5. Y/C detector adjustment

- 5.1 **PAL/SECAM**
 Inject a chroma signal of 4.418 MHz/200mV on pin 15 of EXT2 SCART (PL05). Connect an oscilloscope to the collector of T7266 (T7). Using L5201 adjust the 4.418 MHz signal to maximum amplitude.
- 5.2 **NTSC**
 As PAL/SECAM but with a signal of 3.582 MHz/200mV. Adjust with L5200.

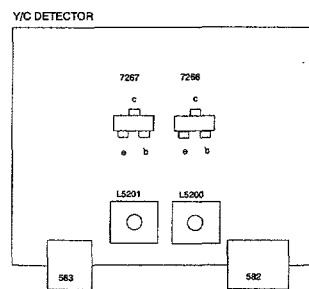


Fig. 7.5

6. Electrical settings on the PIP panel

Setting conditions

Before carrying out each setting, it should be ensured that a P.I.P. picture with colour bar is visible on the screen and the unit should have reached its operating temperature (after ≈20 min.).

Electrical adjustments

6.1 Horizontal synchronisation

Supply an aerial or generator signal.
 Connect pin 28-IC7125 to pin 13-IC7125.
 Connect pin 5-IC7755 to earth.
 Measure the frequency on pin 17-IC7755 and set this to 15,625 Hz \pm 25 Hz with R3239.
 Remove the short circuits.

6.2 AGC

If the picture from a strong local transmitter is distorted, adjust 3160 until the picture is not distorted.

6.3a Setting for PIP modules with IC7126 (TDA4510)

a-1 Chroma bandpass filter

Connect a signal generator (e.g. PM 5326) to pin 10 of P17 and set its frequency to 4.43 MHz/0.2Vpp.
 Connect an oscilloscope to pin 9-IC7126.
 Set L5118 to maximum amplitude.

a-2 PAL chroma auxiliary oscillator

Connect a pattern generator and supply a PAL colour bar pattern. Connect pin 11-IC7126 (TDA4510) to earth.
 Set C2202 so that the colour of the PIP picture is practically still.
 Remove the interconnection.

a-3 The delayline

Connect a pattern generator and supply a PAL colour bar signal. Connect the X-input of the oscilloscope to pin 1-IC7126 (TDA4510). Connect the Y-input of the oscilloscope to 2-IC7126 (TDA4510). Set the oscilloscope to the X-Y position.
 Set L5155 and L5157 so that the vectors lie in one line (points which are furthest from the origin).
 Set the pattern generator to the "DEM" mode.
 Set R3157 so that the vectors lie on top of one another in the origin.

6.3b Setting for PIP modules with IC7125 (TDA2554)

b-1 Chroma bandpass filter

Connect a signal generator (e.g. PM 5326) to pin 10 of P17 and set its frequency to 4.286 MHz/0.2 Vpp.
 Connect pin 27-IC7125 to 13-IC7125.
 Connect an oscilloscope to pin 15-IC7125.
 Set L5118 to maximum amplitude.
 Remove the interconnection.

b-2 PAL chroma auxiliary oscillator

Connect a pattern generator and supply a PAL colour bar pattern. Connect pin 17-IC7125 (TDA4554) to earth.
 Set C2202 so that the colour of the PIP picture is practically still.
 Remove the interconnection.

b-3 NTSC chroma auxiliary oscillator

Connect a pattern generator and supply an NTSC M colour bar pattern. Connect pin 17-IC7125 to earth. Set C2212 so that the colour of the PIP picture is practically still.
 Remove the interconnection.

6.3.4 The delay line

Connect a pattern generator and supply a PAL colour bar signal. Connect the X-input of the oscilloscope to pin 1-IC7125 (TDA4554). Connect the Y-input of the oscilloscope to pin 3-IC7125 (TDA4554). Set the oscilloscope to the X-Y position.
 Set L5155 and L5157 so that the vectors lie in one line (points which are furthest from the origin).
 Set the pattern generator to the "DEM" mode.
 Set R3157 so that the vectors lie on top of one another in the origin.

6.3.5 SECAM identification

Connect a pattern generator and supply a SECAM colour bar signal.
 Connect pin 27-IC7125 to pin 13-IC7125.
 Connect an oscilloscope to pin 21-IC7125.
 Adjust L5190 to maximum DC level.
 Remove the interconnection.

6.3.6 SECAM demodulators

Connect a pattern generator and supply a SECAM signal without contents (black). Connect pin 27-IC7125 to pin 13-IC7125. Connect an oscilloscope to pin 1-IC7125. Using L5175, set the DC level during the scan equal to the DC level during the flyback.
 In the same way set L5170, but now measure at pin 3-IC7125.
 Remove the interconnection.

PIP MODULE

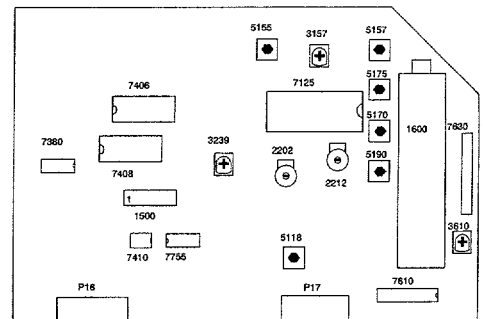


Fig. 7.6

Electrical adjustments

7. Alignments in the Service Menu

- 7.1 Switch in the Service Menu by momentarily connecting together pins S23 and S24 on the small signal panel (diagram H). The Service Menu will then appear on the screen. The procedure is as follows:
- Select the required alignment with the coloured keys A to E.
 - Change the values set using the "Menu +/-" key.
 - Store the values set in the EAROM and leave the Service Menu by selecting STORE.

7.2 White Drive Alignment

Select a white picture. (A black picture (e.g. VCR1) set at maximum brightness is also suitable). Switch the Service Menu in. Select the required white drive alignment by adjusting the colours red and blue in relation to green (green is the reference colour).

Remarks: In the original factory settings "white" has a colour temperature of 7600K (White with a bluish tint). The point of departure is green with a value of 44. The factory setting for blue is then approx. 44. The factory setting for red is then approx. 21.

7.3 Cut-off Alignment

Select a black picture (e.g. VCR1). Switch the service menu in. Set the brightness level so that the picture just (but clearly) illuminates. Using the Cut-off adjustments align the colour temperatures in such a manner that at minimum illumination of the picture they are the same as the colour temperatures at maximum brightness. (At minimum picture illumination it is possible that one colour may dominate. This is however normal and does not have to be (fully) compensated with the cut-off alignment).

Remarks: In the original factory settings "white" has a colour temperature of 7600K (White with a bluish tint). The point of departure is green with a value of 28. The factory setting for blue is then approx. 33. The factory setting for red is then approx. 25.

7.4 D2-MAC Alignment

These alignments are described in the section: FL1 SAT box chapter 7.

7.5 Option Alignment

The microprocessor communicates with a great number of components in the set. For correct communication the microprocessor has to know what IC's and modules are present in the set. This is done using option codes. An incorrectly set option code will give a communication problem and an accompanying error code. Every function has been allocated a value. The sum of 8 values forms an option code. This number can vary from 0 to 255. The option code tables are given at the end of this paragraph.

For example, a set has:

Option code 1	
<i>Function</i>	<i>Value</i>
Frontend FQ916/ME/IF	2
PIP Module	8
NTSC-M	16
NICAM module	64 +

Option code 1 is now:	218

Option code 2	
<i>Function</i>	<i>Value</i>
Comb filter	128+

Option code 2 is now:	128

Option code 3	
<i>Function</i>	<i>Value</i>
-	0 +

Option code 3 is now:	0

Option code 4:	
<i>Function</i>	<i>Value</i>
IC 7000 = MC 141625	16 +

Option code 4 is now:	16

Optioncode 1	
Nbr.	Function
0	Front end = FQ916 A reception of PAL BG or PAL BG and SECAM BG is now possible
1	Front-End = FQ944 Only reception of the UHF band is now possible
2	Front end = FQ916/ME/IF Reception of SECAM L but not of SECAM L' is now possible (reception of NTSC-M is now usually also possible).
4	Front end = FQ916/MF/IF Reception of both SECAM L and SECAM L' is now possible (NTSC M reception is generally possible now via the Euroconnector).
8	PIP module present This makes it possible to show PIP (Picture in Picture) displays.
16	NTSC-M reception possible This is normally always in combination with front end FQ916/ME/IF.
32	SECAM DK module fitted In this case transmissions using the SECAM DK system can also be received.
64	NICAM module fitted In this case the digital sound with NICAM transmission can be received.
128	Second front end for PIP fitted If this second front end is fitted a second transmitter can be displayed in the PIP picture. The PIP function (number 8) still applies.

Optioncode
Nbr.
1
2
4
8-32
64
128

Optioncode
Nbr.
1-32
64
128

Optioncode
Nbr.
1
2
4
8
16
32-128

Optioncode 2	
Nbr.	Function
1	Not in use
2	Not in use
4	100Hz featuring present
8-32	Not in use
64	100 Hz LFR box present
128	Comb filter (see further the number 16 of option code 4).

Optioncode 3	
Nbr.	Function
1-32	Not in use
64	16:9 present
128	"Videocolor 36" Picture tube

Optioncode 4	
Nbr.	Function
1	Teletext Peaking Filter on/off for LFR box (Scandinavia) In Scandinavia this number must be selected .
2	Multi-PIP (100 Hz, LFR) When the PIP-module operates on a 50Hz basis the Multi-PIP function is present and this option is active. (Multi-PIP provides 9 or 16 small pictures on the screen simultaneously).
4	FL2 model When the operating buttons are located on the side of the set, the set is an FL2 model.
8	Not in use
16	Comb filter: IC 7000 = MC 141625 (see further the number 128 of option code 2).
32-128	Not in use

8. Repair tips

1. The Service Default Mode

The FL1/2 is equipped with a service default mode. The service default mode is a fixed, definite state to which the set can be switched.

1.1 Definition state

The definition of the fixed state in the service default mode is as follows:

- all sound and picture controls are in the central position (exception volume which is turned down)
- tuned to 475.25 MHz
- system:
 - * PAL/SECAM BG for Multi Europe
 - * PAL I for UK
 - * SECAM L for Multi French

1.2 Switch on and off

The service default mode is switched on by shorting pins S24 and S25 on the small signal panel.

The service default mode can only be switched off by switching the set to stand-by. If the set is switched off and then on again using the mains switch or the mains plug, the service default mode will remain on.

If the set switches to stand-by immediately after switching-on, the set cannot be operated and also cannot be switched to the service default mode. The child-proof lock has already been activated (see also Section 9).

1.3 Fault signals

To indicate that the set is in the service default mode, the following is displayed on the screen:

SERVICE 00 00 05 06 05

The five numbers after the word "service" stand for the last five fault signals noted by the operator(s). The number on the extreme right represents the last fault signal, that on the extreme left the last fault signal but 4. Since this enables fault reports to be looked at afterward, it means that intermittent faults can be traced.

When the set leaves the service default mode, the fault-report memory is cleared.

1.4 Operation

During the service default mode the set will accept all operating commands. When, however, the set is switched off and on, it will return to the state as defined above.

2. Error messages

In both FL1 and FL2 models the IC error messages are indicated by a combination of flashing LED's. In FL1 7 LED's on the front of the set are used. In FL2 only 2 LED's have been fitted to the front of the set: 'on' and 'stand-by'; for service purposes the 7 LED's have been fitted inside the set in an SMD version. These are located on the solder side of the panel with buttons for local control on the side of the set. The 2 LED's on the front of the set are connected in parallel with the corresponding service LED's.

M BG
le
s now
also
now
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DK

Figure 8.1 illustrates the situation for FL1 and FL2. A table of error messages is provided at the end of this chapter.

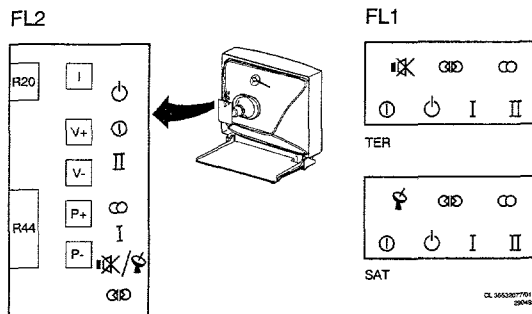


Fig. 8.1

3. Replacement of EEPROM IC7137

If, during a repair, the EEPROM has to be replaced, the microprocessor will detect that the EEPROM is empty. A fault signal (No. 21) will then be displayed.

If the service mode is now activated (see section 7), the microprocessor will load the EEPROM with a number of standard values for the white balance and the other linear settings. These values, however, must all be checked and, if necessary, re-adjusted.

All options have also to be set, the programs installed and the personal preference set.

4. Extension prints

To simplify the measurements ON the various modules extension prints are available for the modules fitted with BTB connectors. Modules can be placed in these connectors so that they stick out above the other prints when the chassis is in the service position.

The code numbers for the extension prints are:

5-fold	4822 395 30261
6-fold	4822 395 30259
8-fold	4822 214 31402
9-fold	4822 395 30258
10-fold	4822 395 30257

5. Removing the PIP module

The PIP module can be simply removed, leaving the set functioning normally (The LED display does however indicate an error condition). Following the removal of the PIP module the signal path is broken. The signal path can be restored by placing the 5-core flat cable with connector S56 in connector foot S16 (see diagram D). The error message can be removed through the application of the option codes (see chapter 7).

6. Extension cables

Extension cables are available to lead the large signal and small signal panel signals (LSP and SSP) separately out of the set. These are made up as follows:

4822 320 20209	Set of 6 cables for LSP and SSP connections.
----------------	--

See chapter 4 also.

7 Diagnosis and protection

7.1 Hardware and software protection

In case any serious fault occurs in the set, one of the protection circuits will activate. A protection circuit switches of the main power supply (SOPS) via the stand-by input (STBY) of the SOPS control panel. This input is located on pin 1 of connector pin L40 with test point number TP56, and is illustrated on diagram A. As the microprocessor is fed by a separate stand-by power supply (SOPS), the processor and the LED's will continue to operate, even when the main power supply is switched off.

A number of protection circuits can switch off the power supply independently and immediately (hardware protection). In two protection circuits the microprocessor itself switches off the power supply (software protection).

All protection circuits come together on the stand-by input (TP56 of the main power supply. A diagnosis determines which protection circuit is active.

7.2 Protection test point TP56 [diagram A]

The following voltages may be present on the stand-by input of the SOPS control panel (TP56): [see diagram A]

1	Approx. 17V	during operation;
2	0.5 - 1V	during hardware protection; (this value is maintained by a thyristor circuit formed by TS7380/TS7381);
3	<0.5V	during stand-by and software protection.

7.3 Hardware protection:

- Power supply voltage +13 from the SOPS too high (+V) [diagram A].
This protection circuit activates if the voltage in +13V circuit of the SOPS becomes too high during operation.
- SOPS and/or +11/+16/-11/-16V for the audio output amplifier defective (SOUND-PROT). [diagram G]
The protection circuit activates when the +11/+16V and -11/-16V voltages are no longer in balance, or when both voltages are absent. This protection circuit also operates when the SOPS does not function or is short-circuited.
This protection circuit is fed by the start-up voltage 'Vstart' from the SOPS.
- Beam current too high (I-BEAM) [diagram B]
When the beam current becomes too high this protection circuit switches off the power supply. Before this protection circuit can activate the picture will first illuminate brightly. This fault occurs for example on the absence of the +200V power supply voltage on the picture tube panel.

4 Deviating LOT behaviour (EHT, LOT-PROT) [diagram B].
This protection circuit becomes active when a 'unusual' voltage forms appear on the LOT outputs (5555). This may indicate defective or loose components in the line deflection circuit. (LOT, switching transistors, capacitors).

5 East/west output stage defective [diagram B].
This protection circuit activates when the current through the east/west switching transistor T7610 exceeds a specific value. In this case transistor T7542 will conduct for a brief period. (the base-emitter voltage U_{be} from T7542 is then momentary greater than 0.6V).

6 Vertical deflection end stage (IC7450) defective [diagram B].
The frame output stage IC7450 has a protection output (pin 7, TP62). This output becomes momentarily high on any defect in this IC or during the absence of the power supply voltage.
During normal operation there are short pulses on this output.
The frame output stage is fed by a winding on the LOT (5555) (+28V or +32V).
During diagnosis a check should be made whether the +28/+32V power supply voltage continually drops before the protection circuit output is activated. If this is the case then one of the other protection circuits is responsible for switching out the power supply.
By measuring the timing pulses between the protection output (pin 7) and the power supply voltage (pin 6) in relation to earth (pin 2 or 4) it can be determined whether the protection is originating from the frame output stage.
The protection circuit overview at the end of this chapter provides a schematic overview of the measurements.

4 Software protection

4.1 Error message 99

Error message 99 is displayed when software protection is generated by the microprocessor.
Software protection becomes active when the +13V and or +5V power supply voltage is not present on the small signal panel (SSP). Due to the absence of the power supply the connected components are unable to provide an I²C signal to the microprocessor. The processor then sets the SOPS in stand-by. If this is the case error message 99 is then displayed.
Software protection can be switched out by activating the 'Service Default Mode' (see §8.1).

If the +13V or +5V are absent as a result of hardware protection switching out the power supply, error message 99 will be displayed by the LED's following a short period, as the microprocessor is no longer receiving any signal from the connected IC's. The processor now bridges the hardware protection via the STBY signal. Each hardware protection will therefore eventually result in software protection, resulting in error message 99 being displayed.

During hardware protection the microprocessor makes repeated attempts at communication with the connected I²C IC's before making a decision for software protection. During this period (up to approximately 5 minutes) the set will not react to any operational commands. Because none of the I²C IC's responds in this period various error messages will be displayed by the LED's. If error message 99 does not eventually appear then the protection circuits are not operational and the cause of the fault can be sought elsewhere.

When the microprocessor generates a STBY signal for implementing software protection TP56 will be made lower than 0.5V by the STBY signal, through which any eventual hardware protection on TP56 will be bridged. In order to determine whether hardware protection is active via TP56 the voltage on TP56 should be measured with the set in the 'Service Default Mode' or measured before error message 99 appears on the LED display.

7.4.2 Software protection

7 +5V on the small signal panel (SSP) [diagram B and C]

To test whether the +5V power supply voltage, from the LOT winding (5555) [diagram B], is reaching the small signal panel without short-circuiting the front-end (1160 [diagram C]) must provide a signal to the microprocessor via I²C within a specific time. If this signal does not arrive, the microprocessor switches the main power supply into stand-by, and the LED's will indicate error message 99 once more.
To test whether the front-end is defective the service default mode will have to be selected. If the power supply voltages on the front-end are correct and a front-end error message persists (error 11), then the front-end is defective.

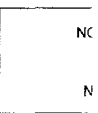
8 +13V on the small signal panel (SSP) [diagrams A, D and F]

To test whether the +13V power supply voltage from the main power supply (SOPS) [diagram A] is reaching the small signal panel without short-circuiting, IC7430 (TDA4680 video processor, [diagram D]) or IC7600 (TDA8417, stereo decoder, [diagram F]) or IC7680 (TDA8425, audio processor [diagram F]) must provide a signal via I²C to the microprocessor within a specific time. If none of these three IC's provides any signal the microprocessor switches the main power supply into stand-by. The LED's indicate error code 99.

7.5 Measurements in the protection circuits.

All hardware circuits are illustrated in figure 8.2. The oscillograms indicate the voltages on the relevant test points immediately after the set is switched on. In this case the signals illustrated are for during:

- normal operation
- protection caused by this circuit (PROT);
- protection caused by a different protection circuit (N-PROT).



Faultfindingtree

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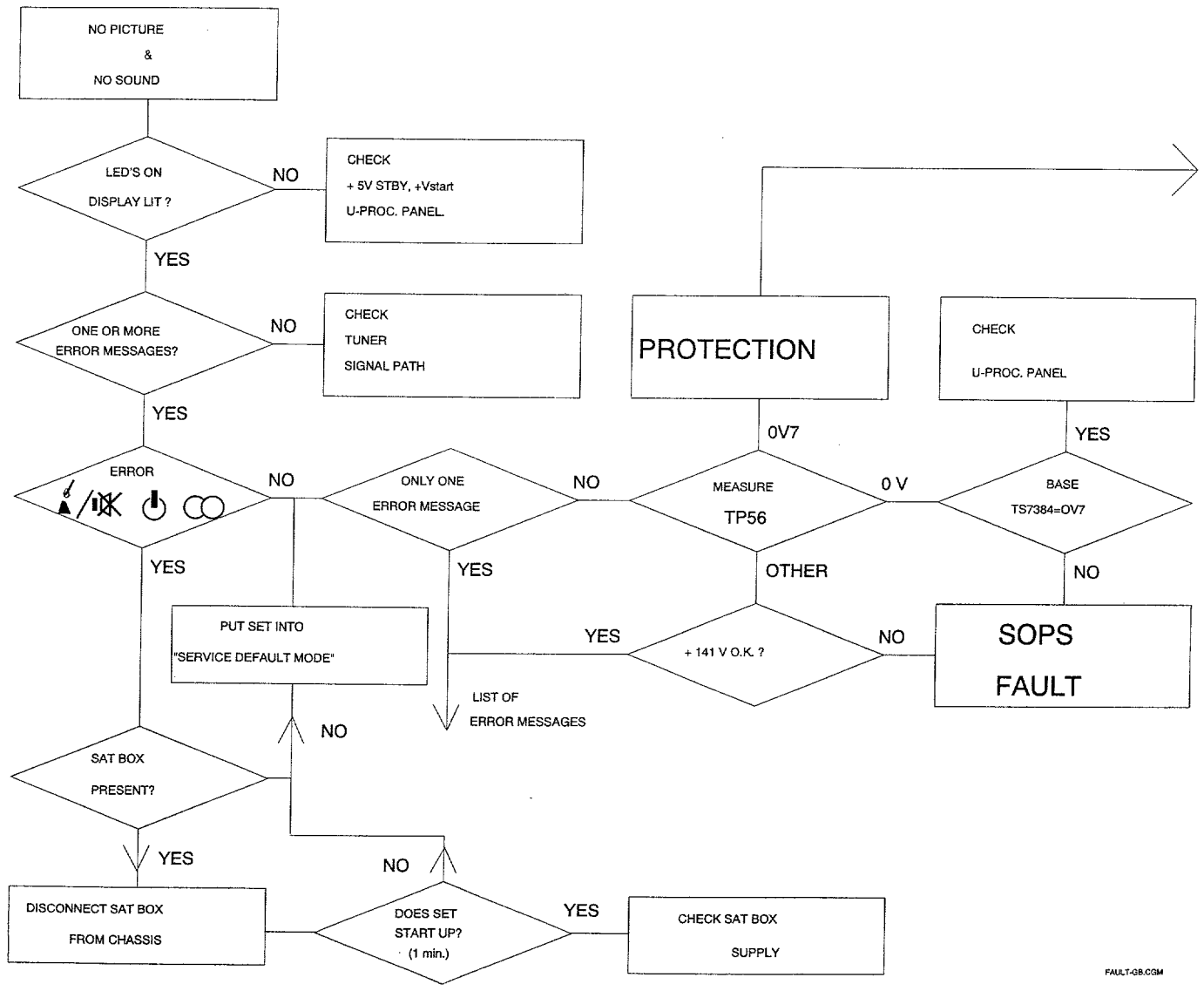
B and C]
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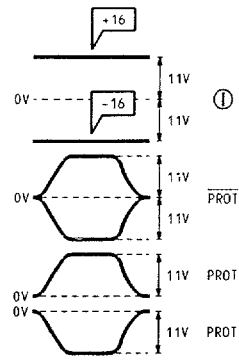
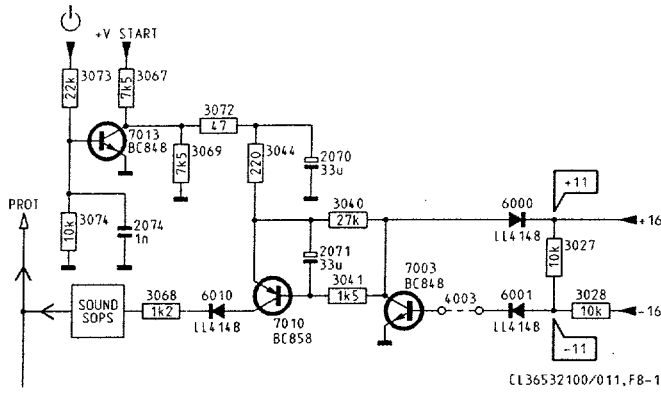
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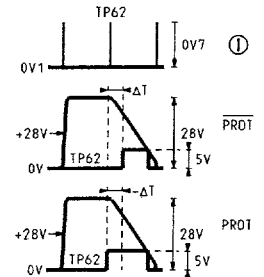
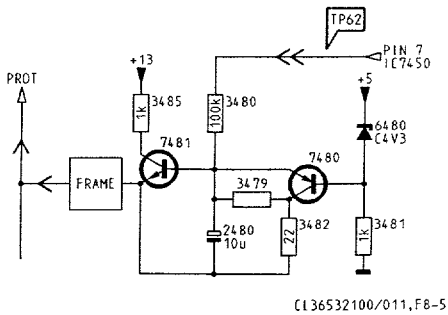
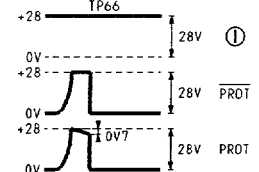
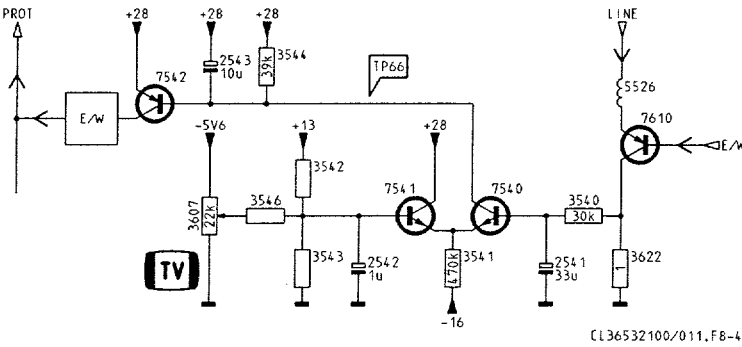
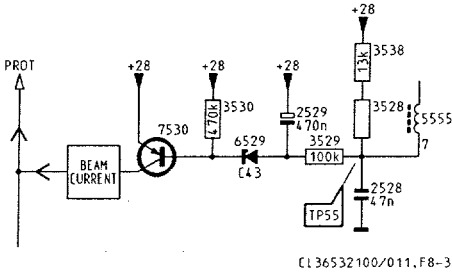
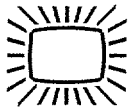
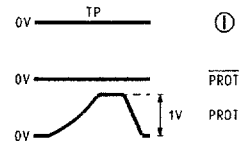
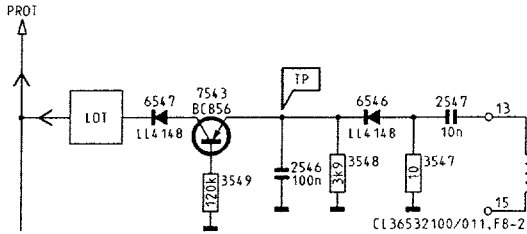


FAULT-GB.COM

SOPS
+ 16
- 16



EHT



+V

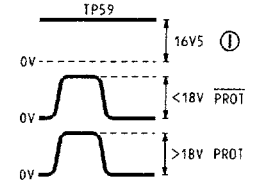
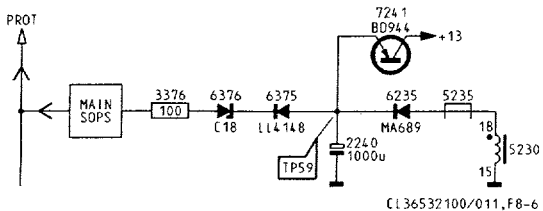


Fig. 8.2

Erri	1
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36	45
37	46
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39	48
40	49
41	51
42	52
43	53
44	55
45	99

List of error messages

Error number on screen	Flashing LED							Description of error
						I	II	
1 ¹⁾			X		X	X		I ² C, IC7108, SSP [H] (MSM6307)
3					X	X		I ² C, IC7215, TXT SAA 9042 [L] [L'] I ² C, IC7111, TXT SAA 9042 [L]
4				X			X	I ² C, IC7220, 100Hz [M] [L'] 83C652
5				X				I ² C, IC7408, PIP [J] (SDA9088)
6				X	X	X		I ² C, IC7600, SSP [F] (TDA8417)
7							X	I ² C, IC7680, SSP [F] (TDA8425)
8						X	X	IC7440, frame rotation [Z], PCF8574 (16:9)
9			X	X		X		I ² C, IC7430, SSP [D] (TDA4680)
10				X	X		X	I ² C, IC7395, SSP [D] (TDA8443)
11				X	X			I ² C, front-end, SSP [C] (FQ 9XX)
12						X		I ² C, IC7137, SSP [H] (X24C04)
13			X					I ² C, bus on chassis blocked
14			X	X				I ² C, IC7258, SSP [C] (HEF4094)
15			X	X	X			I ² C, IC7219, SSP [C] (TEA6414)
16			X			X		I ² C, IC7040, SAT Interface [P] (TEA6414)
17			X		X			IR-receiver on SSP [H] blocked (1100)
18				X		X	X	7115, SSP, μ proc. [H]
19			X	X	X	X		UART Bus blocked, 7115, SSP, μ proc. [H]
20				X	X	X	X	7115, SSP, μ proc. [H]
21				X				EAROM X24C04 empty, IC7137, SSP [H] (§ 8.3)
23	X				X			I ² C, IC7080, convergence panel [V] (TDA8444)
28		X						I ² C, PIP tuner [J]
29		X						I ² C, IC7638, PIP-modulo [J] (SAA1300)
30			X		X		X	I ² C, IC7175, SSP [C] (PCF8574)
31			X		X	X	X	I ² C, IC7001, NICAM-panel [K] (SAA7280)
33		X						I ² C, PLL (1500) PIP modulo [L]
34 ¹⁾	X		X				X	LNC supply on SAT box [Q,R] not correct
35 ¹⁾	X		X		X		X	IM-bus on SAT box [Q,S] blocked.
36 ¹⁾	X		X	X			X	I ² C, bus on SAT box blocked.
37 ¹⁾	X		X	X	X		X	I ² C, IC7450, D2-MAC [S] (X24C02)
38 ¹⁾	X		X			X	X	I ² C, SAT Tuner [Q] (SF914; SF916)
39 ¹⁾	X		X		X	X	X	HEF STROBE 1, IC7925, FSS [T] (HEF4094)
40 ¹⁾	X		X	X		X	X	D2-MAC [S]
41 ¹⁾	X		X	X	X	X	X	HEF STROBE 2, IC7475, D2-MAC [S] (HEF4094)
42 ¹⁾	X				X		X	IC7250, TUNER/CONTROL [Q]
43 ¹⁾	X			X			X	UART bus blocked IC7250, TUNER/CONTROL [Q].
44 ¹⁾	X			X	X		X	SAT Tuner [Q] (SF914/916)
45 ¹⁾	X					X	X	IC7250, TUNER/CONTROL [Q]
46 ¹⁾	X				X	X	X	IC7250, TUNER/CONTROL [Q]
47 ¹⁾	X			X		X	X	IC7262, TUNER/CONTROL [Q]
48 ¹⁾	X			X	X	X	X	D2-MAC [S]
49 ¹⁾	X			X		X		EAROM X24C02 empty, 7450, D2-MAC [S] (§17)
51 ¹⁾					X	X	X	IC7250, TUNER/CONTROL [Q]
52 ¹⁾			X				X	D2B Bus EXT, SSP [H] blocked.
53			X			X	X	IC7330, MAC TXT [S], TPU2735
55			X	X		X	X	IC7140, Panorama [B], PCF8574 (16:9)
99	X		X		X			Protection

1) This error is only possible on sets with built in SAT box.

In case an error indication on the set is not included in this table, then check the optional codes (see § 7).

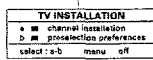
About this handbook

This is a handbook to help you with the installation and operation of your new menu TV. With a menu TV, menus can be called up on the screen. These menus provide information either about operations to be carried out or about functions you can select.

This handbook consists of two parts :

Installation

This part helps you with installing your TV, selecting your menu language, locating and storing your TV channels and composing your favourite list of programme numbers. To do this, follow the directions of the **SYSTEM INSTALLATION** menu very closely. The installation menu is shown as it will appear on your screen.



Operation

After you have stored the TV channels, you can call them up on the screen. You can adjust the picture and sound via the main menu. The **MAIN MENU** is shown here as it will appear on the screen. Feel free to try out all the different possibilities of your TV. Use this part of the handbook to help you doing this.



- This circle in front of a sentence indicates that you have to do something.
- ▷ This arrow in front of a sentence indicates the result of what you have done.

In the stripe under each menu you are told which keys you can press and how you can switch the menus off again.

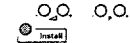
Contents

Installation	Operation
Preparation	Operation
Switching TV on	Main Menu
Selecting your Menu language	Other Functions
Searching for and Storing TV channels	Pip Picture in Picture
	Teletext
	Peripherals
	Equipment Tips

Selecting your menu language

You can choose for yourself the language of the menus - the instructions and the various possible choices - which you call up on your screen.

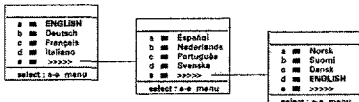
- Open the control panel on the front of your TV.



- Press **Install**. If the message **CHILD LOCK ON** appears, the child lock should be switched off.
 - ▷ The **SYSTEM INSTALLATION** menu appears on the screen.
- It is also possible to enter the installation menu via the main menu.*



- Press the red key a on the remote control.
- ▷ The language menu appears on the screen.



- Press the colour key of your language choice.
 - Press the corresponding colour key for >>>> if the language you want does not appear on the first language menu.
 - ▷ **LANGUAGE STORED** appears for a moment at the top of the menu. The language menu disappears and the **SYSTEM INSTALLATION** menu appears again.
- From this point on, all menus are presented in the language of your choice.

Have you pressed the wrong key ? Press the red key a for language again and make a new choice.

Searching for and storing TV channels

After you have switched on your TV and selected your menu language, you can search for and store your TV channels. Within the installation menu you yourself assign each of these TV channels a number and a name of your own choice, which are then used to call the channels up for viewing.

- Press the green key b.
- ▷ The **TV INSTALLATION** menu appears.

Is the menu that appears not in your chosen language ? Press the MENU key and go back to 3. Select your menu language.

- Press the red key a.
- ▷ The **CHANNEL INSTALLATION** menu appears.



Now follow very closely and step by step the instructions of the **CHANNEL INSTALLATION** menu. You must go through every step. Do this for every TV channel.

Selecting the TV system

The television picture is not broadcast in the same way in all countries. We speak of different television systems (PAL, SECAM, NTSC,...) Now you must select the TV system yourself.

- Press the red key a. **ONLY ONE SYSTEM AVAILABLE** appears
 - ▷ The **SELECTING THE SYSTEM** menu appears..... **OR** You have a set that can receive only one system. You do not need to make any selection.
- 1 You have your own aerial.
 - Press the colour key of the country or part of the world from where you want to select the TV channel.
 - ▷ The **CHANNEL INSTALLATION** menu now appears.
 - ▷ Your selection lights up.
 - 2 You are connected to the cable system.
 - Press the colour key of the country or part of the world where you now are located.
 - ▷ The **CHANNEL INSTALLATION** menu now appears.
 - ▷ Your selection lights up.

Searching for a TV channel

This can be done in two different ways : Either automatic searching or else entering a frequency yourself.

Automatic searching.....OR.....Entering a frequency yourself.....

- The TV itself searches for the channel.
 - Press the green key b.
 - ▷ **SEARCHING** appears and the TV is searching for a channel.
 - ▷ The frequency increases until a channel is found.
 - Go on to step 2 if you want to store the channel that has been found.
 - Press **□** under the door of the remote control to recognise which programme is being broadcast.
 - ▷ The **CHANNEL INSTALLATION** menu disappears temporarily.
- A TV channel is transmitted at a certain frequency. If you know the frequency, you can enter it directly and in this way call up the TV channel. Ask for a list of the frequencies at your cable company or at a dealer.
 - First enter the 5 digits of the desired frequency.
 - For frequencies under 100 MHz, first enter a 0. For example : 063.25.
 - Have you entered a wrong number ? First complete the frequency with arbitrary numbers and then start again.*

Do you want a different channel or is the reception poor ?

- Press the green key b again.

Is the reception still poor ? See Tips.

If no TV channel is found, interrupt the automatic searching by pressing any digit key. Check if you have selected the correct TV system or if the aerial is connected properly.

Fine-tuning

You may be able to improve the reception of picture and sound of a TV channel. Adjust the frequency yourself with the **MENU** - or + key on the remote control.

Entering the programme number and name

Now you yourself must assign a number of your choice and a name to the TV channel located. In this way you decide for yourself the order of all your TV channels.

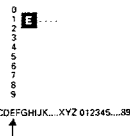
With the assigned programme number you can call up your TV channel again later.

A name of maximum 5 letters or numbers can be given to the programme numbers 0 to 29. For example : SUPER, BBC1, ... Thus you see immediately which TV channel you have stored under which programme number.

- Press the yellow key c.
- ▷ **NAMING THE PROGRAMME** appears.
- Press the red key a.
- Hold down the **P** - or + key on the remote control until the desired programme number appears in the menu.

In this list you can now enter the name of the TV channel. With the arrow under the letter and number line you select which letter or which number in the list above you wish to enter. In the list there is a red block next to the chosen programme number.

- Hold, as desired, either the green key b down to move the arrow to the left, or else the yellow key c to move the arrow to the right.
- ▷ The letter or number that you indicate with the arrow appears in the block.
- Press the blue key d.
- ▷ The block moves over one space. Now you can choose a following letter or number with the arrow.
- Place the arrow between 2 and 0 for a space.



Did you fill in a wrong letter or number ? Press repeatedly on the blue key d until the block is back in the place where you want to make a change. Now choose with the arrow the correct letter or the correct number.

- Is the complete name filled in ?
- Then press **MENU**.
- ▷ The **CHANNEL INSTALLATION** menu appears again.

Storing

Now the TV system, the located TV channel, its programme number and its programme name must be stored in the memory.

- Press the blue key d.
- ▷ **PROGRAMME STORED** appears briefly at the top of the menu.
- ▷ The TV channel is stored in the memory.

out

Do you want to exit the **CHANNEL INSTALLATION** menu or have you finished locating TV channels ?

- Press **MENU**.
- ▷ The **TV INSTALLATION** menu appears

Preselection Preferences

All the stored TV channels have been automatically placed into the programme list. In the PRESELECTION PREFERENCES menu you yourself should indicate for each stored TV channel if you want to keep that programme number as a favourite. You can do this also for a programme number you want to reserve for the programmes you receive from your decoder. This will make selecting your favourite TV channels a lot easier and faster.

TV INSTALLATION	
a	channel installation
b	preselection preferences
select: a-b menu off	

PRESELECTION PREFERENCES	
a	programme number
b	favourite status
c	decoder
select: a-c 0-9 menu off	

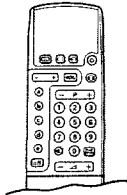
Favourite TV channels


- o Press the green key b in the TV INSTALLATION menu.
- o The PRESELECTION PREFERENCES menu appears.
- o Press the red key a.
- o PROGRAMME NUMBER lights up.
- o Select the programme number of a TV channel with MENU - or + or with the digit keys.
- o Press the green key b.
- o FAVOURITE STATUS lights up.
- o Press MENU - or + to select NO or YES. In this way you decide whether you want to keep the selected TV channel as a favourite TV channel or not.
- o Repeat this for each programme number.
- o From now on when you run quickly through the TV channels by holding the P - or + key pressed down, only those TV channels which are in the favourite list will be displayed. When you select a TV channel with the digit keys, the indication of the selected TV channel will be displayed in white characters when it is a TV channel from the favourite list, in red characters when it is a TV channel which is not in the favourite list.

Decoder




- In case you have connected a decoder, see Decoders, you can define one or more programme numbers as a decoder preselection.
- o Press the red key a in the PRESELECTION PREFERENCES menu.
 - o PROGRAMME NUMBER lights up.
 - o Select the programme number under which you want to store the programme coming from your decoder with MENU - or + or with the digit keys.
 - o Press the yellow key c.
 - o DECODER lights up.
 - o Press MENU - or + repeatedly until the designation EXT1 or EXT2 appears according to the euroconnector to which you connected your decoder. Select NO if you do not want the selected programme number being activated as a decoder preselection.
 - o Press MENU twice.
 - o The SYSTEM INSTALLATION menu appears again.

Operation





Every time you press a key on the remote control, the green lamp  on the front of your TV set blinks.


Switching TV on

- o Press  on the front of your TV.
- o A green lamp  lights up. PRI appears briefly and possibly also the programme name.
- o Does a red lamp  light up? Your TV is on standby. Read on.

Standby

- o With the standby key  at the top of the remote control you can temporarily switch the TV off.
- o The lamp  on the TV lights up.
- o Press a digit key in order to turn the TV on again. If for a period of 10 minutes no aerial signal is received, then your set automatically switches to standby. Switch off your TV overnight instead of leaving it on standby. You save energy and the picture tube is demagnetised which supports good picture quality.

Selecting TV channels

- o Select the TV channel with the digit keys on the remote control.
- o For a two-digit programme number, enter the second digit within 2 seconds.
- o If you want to know which channel you are watching, open the door of the remote control and press  short.




Quickly run through the TV channels from the Favourite list.

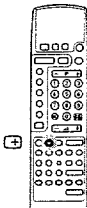
- o Hold the P - or + key pressed down.

Volume control

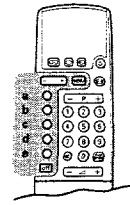
- o Press  - or +.

Temporarily interrupt the sound

- o Press .
- o The sound is temporarily interrupted.
- o The lamp  on the front of the TV lights up.
- o Press  again to get the sound back.



Main Menu



You use the keys in the grey area of the drawing to operate the main menu.

With the colour keys a-b-c-d-e you select your choice in the menus.

The main menu is split into 2 menus and you can:

- o adjust picture and sound according to personal preference
- o call up a programme list with an overview of the TV channels stored
- o select from among various special features
- o select recording sources for your video recorder
- o enter the system installation menu.

- o Press MENU.
- o The MAIN MENU appears.
- o Press off to switch off each menu.

MAIN MENU 1	
a	picture
b	sound
c	programme list
d	special features
e	*****
select: a-e menu off	

MAIN MENU 2	
a	recording source
b	system installation
c	>>>>
select: a-c menu off	

Adjusting the picture

- o Press MENU.
- o Press the corresponding colour key for PICTURE.
- o The PICTURE menu appears.
- o Press one of the colour keys to select the adjustment you want to regulate. When you have a set that can receive the NTSC system and when USA is selected in Selecting the TV system, also the option tint appears.
- o The selected adjustment lights up.
- o Press MENU - or + in order to regulate the selected adjustment.
- o Press a colour key once more in order to select another adjustment. Do you want to store the changed adjustment in the memory? See Special Features, PP store.
- o Press MENU.
- o The MAIN MENU appears again.

PICTURE 1	
a	brightness
b	colour
c	contrast
d	sharpness
select: a-d menu off	

Adjusting the sound


- o Press MENU.
- o Press the corresponding colour key for SOUND.
- o The SOUND 1 menu appears.
- o Volume, balance, treble, bass
- o Press one of the colour keys to select the adjustment you want to regulate.
- o The selected adjustment lights up.
- o Press MENU - or + in order to regulate the selected adjustment.
- o Press a colour key again to select another adjustment. Do you want to store the modified adjustment in the memory? See Special Features, PP store.
- o Press MENU.
- o The MAIN MENU appears.
- o See Special Features, PP store.

SOUND 1	
a	volume
b	balance
c	treble
d	bass
select: a-d menu off	


SOUND 2	
a	speech
b	spatial
c	sound mode
d	*****
select: a-d menu off	

- o Speech
- o Press the white key a in the SOUND 1 menu.
- o The SOUND 2 menu appears.
- o Press the corresponding colour key for SPEECH.
- o SPEECH lights up.
- o Press MENU + to reveal the treble and to suppress the bass.
- o Press MENU - to switch off.




Spatial sound

- o Press the corresponding colour key for SPATIAL in the SOUND 2 menu.
- o SPATIAL lights up.
- o Press MENU - or + to switch off or on.
- o When SPATIAL ON is selected, it seems as though the loudspeakers are spread further apart from one another. You get a spatial sound effect.
- o The lamp  on the TV lights up.

Mono broadcasting

- o Select SPATIAL ON.
- o The lamp  on the front of the TV lights up.
- o You get a pseudo stereo effect.

Stereo broadcasting

- o The lamp  on the front of the TV lights up.
- o Select SPATIAL ON.
- o The lamps  and  on the front of the TV lights up.
- o You get a spatial stereo effect.

Sound mode

- o Press the corresponding colour key for SOUND MODE in the SOUND 2 menu.
- o SOUND MODE lights up.
- o If the TV channel which you are now watching transmits stereo or digital sound you can choose between stereo or mono if the TV channel transmits stereo sound, digital or analogue if the TV channel transmits digital sound.
- o Select analogue or mono in case of weak digital or weak stereo sound signals.
- o Press MENU - or +.



If you do not make a sound choice for the TV channel which you are watching your TV will choose between stereo or digital sound, depending on the sound the TV channel transmits.

- o Press MENU.
- o The MAIN MENU 1 appears again.
- o Press off to switch off each menu.

Programme list

- o Press MENU.
- o Press the corresponding colour key for PROGRAMME LIST.
- o A list with an overview of the stored TV channels appears. TV channels from the favourite list are displayed in white characters. TV channels which are not in the favourite list are displayed in red characters.
- o Press MENU.
- o The MAIN MENU 1 appears again.
- o Press off.
- o The MAIN MENU disappears.

Special features

- o Press MENU.
- o Press the corresponding colour key for SPECIAL FEATURES.
- o The SPECIAL FEATURES menu appears.
- o Press a colour key in order to choose between child lock, sleep timer, pp store, demonstration or pip size (for TV sets with the picture in picture option).
- o Your choice lights up.
- o Press once more on a colour key to make another choice.

SPECIAL FEATURES 1	
a	child lock
b	sleep timer
c	pp store
d	demonstration
v	pip size
select : a menu off	

Child lock

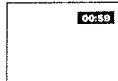
If the child lock is on, the TV can only be switched on with the digit keys on the remote control. The keys on the TV cannot be used.

- o Press the corresponding colour key for CHILD LOCK.
- o Press MENU - or + to switch the child lock off or on.

Sleep timer

With the aid of the sleep timer you can set the time when the TV should switch itself off.

- o Press the corresponding colour key for SLEEP TIMER.
- o Hold the key MENU + pressed down.
- o The counter runs from off up to 90 minutes.
- o Hold the key MENU - pressed down.
- o The counter runs from 90 down to off.
- o If you have set a time, then one minute before the TV switches off the remaining minute automatically appears on the screen. You can always switch off your set earlier. Up to the last minute you can always change the time set.



PP store

Adjustments made in the picture- and sound menu can be stored in the memory and be called up again with the PP key.

- o Press the corresponding colour key for PP STORE.
- o PP STORE lights up and PERSONAL PREFERENCE STORED appears briefly on the top of the menu.
- o At this point all previous adjustments are cancelled.

Demonstration

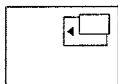
This function demonstrates one after another all the possible options of your TV.

- o Press the corresponding colour key for DEMONSTRATION.
- o Press MENU + to switch the demonstration on.
- o Press off in order to stop the demonstration.

Pip size

You can select either a large or a small pip format.

- o Press the corresponding colour key for PIP SIZE.
- o Press MENU - or +.
- o For more information about Pip, see Pip, Picture in Picture.



Recording Source

If you want to record a programme, then first read Peripherals, Recording.

System Installation

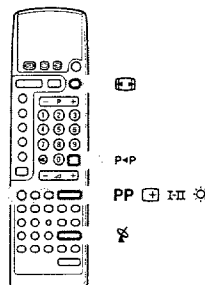
You can also enter the System Installation menu via the Main Menu 2 to select your menu language and to locate and to store your TV channels.

- o Press MENU.
- o Press the corresponding colour key for SYSTEM INSTALLATION.
- o The SYSTEM INSTALLATION menu appears on the screen.
- o Now follow very closely and step by step the instructions as described on page 4 and following.

OFF

- o Press MENU to leave the SYSTEM INSTALLATION menu.
- o Press off to leave the SYSTEM INSTALLATION menu or the MAIN MENU.

Other functions



Movie compress

Movies and other new programmes in the future are broadcast in the Wide Screen format. D2-MAC satellite programmes in the Wide Screen format recorded on a video recorder or prerecorded Wide Screen tapes can be reproduced on a normal TV screen in a conventional picture format.

- o Press [P+P].
- o The picture is compressed. There are black bars at the top and bottom of the screen.
- o Press [P+P] again to switch off movie compress. When you have a Wide Screen format video recorder connected with a eurocable, the pictures will be compressed automatically.



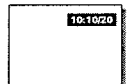
Previous programme

- o Press the P+P key.
- o The previous selected TV channel is displayed again. The P+P indication has a video recorder function.

Time

The time can only be called up if the TV channel you are watching is also broadcasting teletext.

- o Teletext does not need to be switched on.
- o Open the door of the remote control.
- o Press [P+P].
- o The time appears in the upper right hand corner of the screen.
- o Press [P+P] again in order to switch off.



Selecting satellites

The keys I and II are only functional when having connected a satellite tuner in combination with a satellite positioner and an automatically rotatable polarmount antenna to select satellites.

PP key

With the green PP-key you can call up again the picture and sound adjustments which have been stored with the PP store in the Special Features menu.

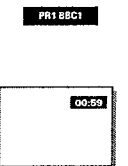
- o Open the door of the remote control.
- o Press PP.

Information on screen

After the selection of a TV channel the following information appears briefly on your screen:

- o the programme number and name of the selected TV channel
- o the actually selected sound mode if the TV-channel transmits stereo or digital sound
- o the name of the pip connection if pip is switched on. See Pip-Picture in Picture.

- o Open the door of the remote control.
- o Press [P+P] short.
- o The channel information appears on the screen for a few seconds.
- o If the sleep timer is on, then the remaining time becomes visible.



Permanent Programme number

- o Open the door of the remote control.
- o Press [P+P] long.
- o The channel information appears on the screen for a few seconds. The permanent programme number remains in the upper right hand corner of the screen when it was off, or disappears when it was on.

Bilingual Broadcast

If you are watching a TV channel which is being broadcast in two languages, dubbed and original language, the lamp I or II on the front of your TV lights up.

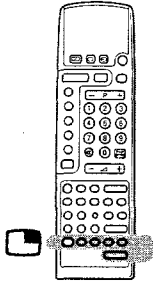
- o Open the door of the remote control.
- o Press key I or II and select language I or II.
- o The setting is stored in the memory for the selected TV channel when switching to another TV channel or to standby.

I-II

Brightness

- o Open the door of the remote control.
- o Press [P+P] - or + in order to adjust the brightness.

Pip - Picture in Picture



For TV sets with the Picture in Picture option.

With pip, picture in picture, you can call up a little screen within the main TV screen. Thus at the same time you can watch a programme from other equipment, connected with a eurocable.

The picture in the small screen has no sound.

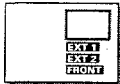
Switching pip on and off

- Open the door of the remote control.
- Press **[PIP]**.
- ▷ The pip screen appears and the image is the same as in the main screen.
- ▷ The name of the pip programme appears briefly on the main screen.
- Press **[PIP]** again to switch pip off.



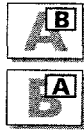
Selecting pip connections

- Press **[PIP]** repeatedly.
- ▷ The name of the connections appear.
- ▷ If any other electronic unit is connected and switched on, then its programmes appear in the pip screen.
- Select on your video recorder the TV channels which you have stored in it.
- For connecting equipment to EXTERNAL 1, EXTERNAL 2, FRONT, see Peripheral Equipment.



Switching screens

- Press **[PIP]**.
- ▷ The main screen and the pip screen exchange places.
- If the TV channel is only in the pip screen and not in the main screen, then use - P + of the pip keys in order to change your TV channel in the pip screen.

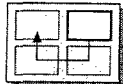


Still Picture

- Press **[PIP]**.
- ▷ The picture in the pip screen stands still.
- Even when pip is not switched on, the main screen will appear as a still picture in the pip screen.
- Press **[PIP]** again or select another channel in the pip screen in order to cancel the still picture.

Moving the Pip screen

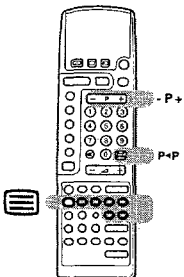
- Press **[PIP]**.
- ▷ Each time you press this key, the pip screen moves to another corner of the main screen.



Pip Size

You can select either a large or a small pip screen. See Main Menu : Special Features.

Teletext



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



Switching Teletext On and Off

- Select the TV channel for the desired teletext broadcast.
- Teletext cannot be switched on when there is a menu on the screen.
- Open the door of the remote control.
- Press **[PIP]** in order to switch on the teletext.
- ▷ The contents appear on the screen together with two information lines at the top and an options line at the bottom.

When a selected teletext page contains several subpages, the subpage numbers which are automatically stored in the memory appear in the first information line. The coloured number indicates the displayed subpage. The white numbers refer to the subpages which can be selected with MENU - or +.

In the following information line appears:

- the name of the TV channel selected
- the page counter
- date and time.
- Press **[PIP]** again in order to switch off the teletext.
- ▷ The TV channel reappears.

Easy Teletext system

The major advantages of this new teletext system are :

- A considerable **reduced waiting time** by predicting what the user will probably select and which results in :
 - a fast and direct selection of previous and following pages which are in transmission
 - the precapturing of the pagenumbers read from the displayed page
 - the direct selection of the last 2 page numbers selected with the digit keys
 - the precapturing of the pages referred to in the options line
 - the creation of a **habit watcher list** : not predictable pages, being selected by the user, are put in a list of preferred pages so that they are immediately available afterwards.

The precapturing of up to 9 subpages to be controlled by the teletext user.

Selecting a Teletext Page

With the digit keys OR With the options line

- Enter the desired page number with the digit keys.
- ▷ The page counter seeks the page or the page appears immediately when the page number has been stored in the memory.
- ▷ A message appears when you have entered a not existing or an incorrect page number. Page numbers beginning with 0 or 9 do not exist.
- Enter the correct page number.
- Select with the colour keys, corresponding to the coloured options at the bottom of the screen and depending on the teletext the selected TV channel transmits,
 - the previous or the following pages
 - the previous selected pages
 - another subject

Quickly run through the teletext pages

- Press P - to run through the previous pages.
- Press P + to run through the following pages.

Selecting the previous teletext page

- Press the P-P key.
- ▷ The previous selected teletext page is displayed again.

Selecting subpages

When a selected teletext page consists of different subpages, one of the subpages appears on the screen. The coloured number in the first information line refers to the displayed subpage.

- The other subpage numbers appear in white as soon as the transmission has found them.
- Press MENU - to select the previous subpage.
- Press MENU + to select the following subpage.



Selecting the table of contents

- Press the white colour key e.
- ▷ The table of contents appears.

Special teletext functions

Hold

You can stop the page counter from seeking when you have entered a wrong page number or when the page is not available.

- Press **[HOLD]**.
- ▷ **[HOLD]** appears in the first information line.
- The page counter stops seeking the entered page number.
- Enter another page number.
- ▷ **[HOLD]** disappears.



Reveal

Some pages contain concealed information, such as solutions to riddles and puzzles.

- Press **[REVEAL]** to call up concealed information.
- Press **[REVEAL]** again in order to switch off the concealed information.

Interrupt

- Press **[INTERRUPT]**.
- ▷ The TV programme appears.
- ▷ The teletext page indicates that you are still in the teletext mode.
- Before interrupting teletext, you can select a page number.
- When the page has been found, the information line appears briefly on your screen.
- Press **[INTERRUPT]** again.
- ▷ Teletext reappears.



Mix

- Press **[MIX]**.
- ▷ The teletext page and the TV programme appear on the screen at the same time.
- Press **[MIX]** again.
- ▷ Only the teletext page is displayed.

Enlarge

- Press **[ENLARGE]** to enlarge the top half of the teletext page.
- Press **[ENLARGE]** again to enlarge the bottom half of the teletext page.
- Press once more to return to normal page size.



Subpage

- By adding a subcode you can call up a desired subpage.
- Enter the page number.
- Press **[SUBPAGE]**.
- Enter the desired subpage with the digit keys : e.g. 3 for the third page of seven subpages.
- Press **[SUBPAGE]** in order to cancel the subcode.

Subtitles and newflashes

- Select the contents page (usually page 100).
- Select the page number for subtitles or newflashes.
- ▷ Subtitles or newflashes, if there are, appear at the bottom of the TV programme.

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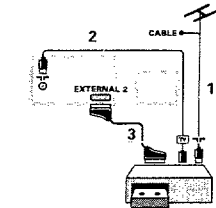
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Peripheral Equipment

There is a wide range of electronic equipment that can be connected to your TV. The following connection diagrams show you where the different equipment should be connected at the back or the front of the TV.

TV and video recorder

- Connect the aerial cables 1 and 2 as shown alongside. A better picture quality is obtained if you connect a eurocable 3 additionally.

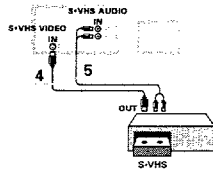


S-VHS video recorder

- Do you have a S-VHS video recorder with S-VHS cinch connectors, then connect as well as the aerial cables 1 and 2

the S-VHS cables 4 and 5

Do not connect an additional eurocable.



OR

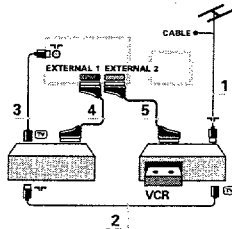
- Do you have a S-VHS video recorder with a S-VHS euroconnector, then connect as well as the aerial cables 1 and 2, the S-VHS eurocable 3.

Never connect to the same TV one video recorder with S-VHS cables at the same time as one video recorder with a euroconnector. The euroconnector has no function.

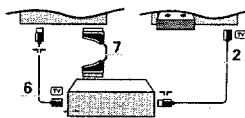
- Searching for and storing the test signal of the video recorder
- Unplug the aerial cable of the aerial socket "T" of your video recorder.
 - Switch on your TV and video recorder.
 - Press the Install key at the front of your TV, or enter the System Installation menu via the main menu.
 - The SYSTEM INSTALLATION menu appears.
 - Search for the test signal of your video recorder in the same way as you searched for and stored the TV channels. See Installation, Searching for and storing TV channels.
 - Store the test signal either under programme number 0 or between 50 and 99.
 - Insert the aerial plug again into the aerial socket "T" of your video recorder after you have stored the test signal.

TV, video recorder 1 and one or more peripherals

- Connect the aerial cables 1, 2 and 3 as shown alongside. A better picture quality is obtained if you connect the eurocables 4 and 5 additionally.
- Look for the test signal of your peripheral in the same way as you do for a video recorder.



When having more than one peripheral, connect them to each other with an extra aerial cable 6 and an additional eurocable 7 to obtain a better picture quality.

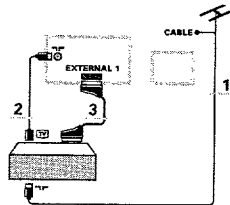


Only with a video recorder connected to EXTERNAL 2 it is possible to record a programme from your TV as well as from other connected equipment. See Recording with your video recorder.

TV and laser disc or satellite tuner

- Connect the aerial cables 1 and 2 as shown alongside. A better picture quality is obtained if you connect the eurocable 3 additionally.

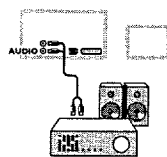
Look for the test signal of your equipment in the same way as you do for a video recorder.



Audio equipment

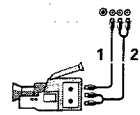
You can listen to your TV sound via your audio equipment.

- Therefore connect the audio cables to the audio input of your equipment and to AUDIO L and R at the back of your TV.
- Press **⏸** on the remote control.
- The loudspeakers of your TV are switched off.



Camera and camcorder

- Connect your camera or camcorder to FRONT at the front of your TV.
- Connect the equipment to Video 1 and Audio L 2 for mono equipment.
- In the SOUND menu select mono sound. See Main Menu, Adjusting the sound, Sound mode
- Connect Audio R 2 for stereo equipment.
- In the SOUND menu select stereo sound.



Headphone

- Insert the plug into the headphone socket at the front of the TV.
 - Adjust the volume with **⏪** - or **+**.
 - Press **⏸** on the remote control.
 - The internal loudspeakers of your TV are switched off.
- The headphone socket has an impedance of between 8 and 4000 Ohm and is of the 6.3 mm jack type.

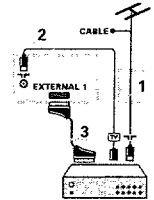


Decoders

Cable TV offers you a wide choice of programmes. Most of them are free, others are to be paid for by the viewer. This means that you will need to subscribe to the broadcasting organisation whose programmes you wish to receive. This organisation will supply you a corresponding decoder unit to allow the programmes to be unscrambled. For further information, ask your dealer. See also the booklet supplied with your decoder.

Connecting a decoder with an aerial socket to the TV

- Connect the aerial cables 1 and 2 as shown alongside. When your decoder has a euroconnector you obtain a better picture quality if you connect a eurocable 3 additionally.

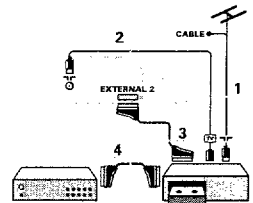


Connecting a decoder without an aerial socket to the TV

- Connect the decoder with your TV with a eurocable 3 only.

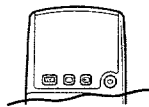
Connecting the decoder to the video recorder

- Some video recorders have a special euroconnector for decoder.
- Connect a eurocable to the euroconnector of your decoder and to the special euroconnector of your video recorder.
- See also the handbook of your video recorder.
- To connect your video recorder to the TV, see before.



If you want to connect more equipment to your TV, consult your dealer.

Reproducing Picture and Sound



Most of the audio and video equipment from our range of products can be operated with the remote control.

a. from equipment connected only with an aerial cable

- Switch your TV on.
- With the digit keys select the programme number under which you have stored the test signal.
- Switch on the equipment with the remote control.
- The picture and/or sound is reproduced.

Do you want to watch TV again ?

- Enter the programme number of the TV channel which you want to watch with the digit keys.

b. from equipment connected with a eurocable

- Switch your TV on.
- Switch your equipment on.
- Either the picture and/or the sound is reproduced or descrambled.

If this is not the case :

- Press **⏸** repeatedly until the designation EXT1, EXT2 or FRONT appears on the screen, according to where you connected your equipment at the back or the front of your TV.
- Either the picture and/or the sound is reproduced.

Do you want to watch TV again ?

- Press **⏸**.

c. from a S-VHS recorder connected with S-VHS cables

- Switch your TV on.
- Press **EXT2** until the indication EXT2 appears on the screen.
- Switch your S-VHS recorder on.
- The picture stored in your video recorder from a pre-recorded cassette or from a TV channel is reproduced.

d. from equipment connected to the front of the TV

- Switch your TV on.
 - Press **FRONT** repeatedly until the indication FRONT appears on the screen.
 - Switch your equipment on.
 - The picture is reproduced.
- Do you want to watch the TV picture again ?
- Enter the programme number of the TV channel which you want to watch with the digit keys.

Operating the video recorder with the TV remote control

- Keep the VCR key pressed and press one of the video recorder keys of the remote control at the same time.

- VCR + **▶** for play
- VCR + **■** for record
- VCR + **■** for stop
- VCR + **◀◀** for rewind
- VCR + **▶▶** for wind
- VCR + **⏸** for timer.

Recording with your video recorder

1. Recording a TV programme

only using an aerial cable

- Select the programme number on your video recorder.
- Press record **●** under the door of the remote control or on your video recorder.

using a eurocable connected to the euroconnector EXTERNAL 2

- Select the programme number on the TV.
- Press MENU.
- Press the corresponding colour key for RECORDING SOURCE in the MAIN MENU 2 menu.
- RECORDING SOURCE appears.
- Press the red key a.
- TV TO EXT 2 is displayed.
- Set your video recorder to record.
- (See the handbook for your video recorder.)
- Press record **●** under the door of the remote control or on your video recorder.

using a eurocable connected to the euroconnector EXTERNAL 1

- Select the programme number on the TV.
- Set your video recorder to record.
- (See the handbook for your video recorder.)
- Press record **●** under the door of the remote control or on your video recorder.

2. Recording a programme from connected peripheral equipment

- Switch on the equipment.
- Press MENU.
- Press the corresponding colour key for RECORDING SOURCE in the MAIN MENU 2 menu.
- RECORDING SOURCE appears.
- With the colour keys select the connection from which you want to record.
- Your selection lights up.
- Set your video recorder to record.
- (See the handbook for your video recorder.)
- Press record **●** under the door of the remote control or on your video recorder.

RECORDING SOURCE	
A	TV TO EXT 2
B	EXT 1 to EXT 2
C	FRONT to EXT 2
select: a-c menu off	

Tips

Poor Picture

Have you selected the correct TV system ? Is your TV set or house aerial located too close to loudspeakers, non-earthed audio equipment or neon lights, etc. ? Mountains or high buildings can cause double pictures or ghost images. Sometimes you can improve the picture quality by changing the direction of the outside aerial. Is the picture unrecognisable ? Check if you have entered the correct frequency or adjust the frequency by fine tuning. See Installation, p. 5. Are brightness and contrast out of adjustment ? Press the PP key. Switch off your TV overnight with **⏸** on the front of the TV.

No picture

Is the aerial connected properly ? Are the plugs tightly connected in the aerial socket ? Is the aerial cable in good condition and does it have suitable plugs ? Are the connection facilities to a possible secondly installed TV in good condition ? If in doubt, consult your dealer.

NO PICTURE means that the selected peripheral equipment is transmitting no picture.

Did you press the correct keys on the remote control ? Try it once more.

Did you press **⏸** again after switching on teletext ?

Has the child lock been switched off ? See Special Features, p. 14

Sound

Did you perhaps interrupt the sound with the **TX** key ? Were the internal loudspeakers perhaps switched off by the switch on the back of your TV set ? See Extra loudspeakers, p. 27. Is the sound coming out of only one loudspeaker ? Was the balance perhaps set to one extreme ? See SOUND menu, p. 12. Select SPATIAL ON in the Sound menu if there is no sound coming out of the extra loudspeakers in back. See Spatial and Surround Sound, p. 12.

Remote control

Does your TV no longer respond to the remote control ? Press the **⏸** key again. Perhaps the batteries are empty. See Preparation, p. 2.

Menu

Did you select the wrong menu ? Once more press MENU or off to exit from the menu.

Connections

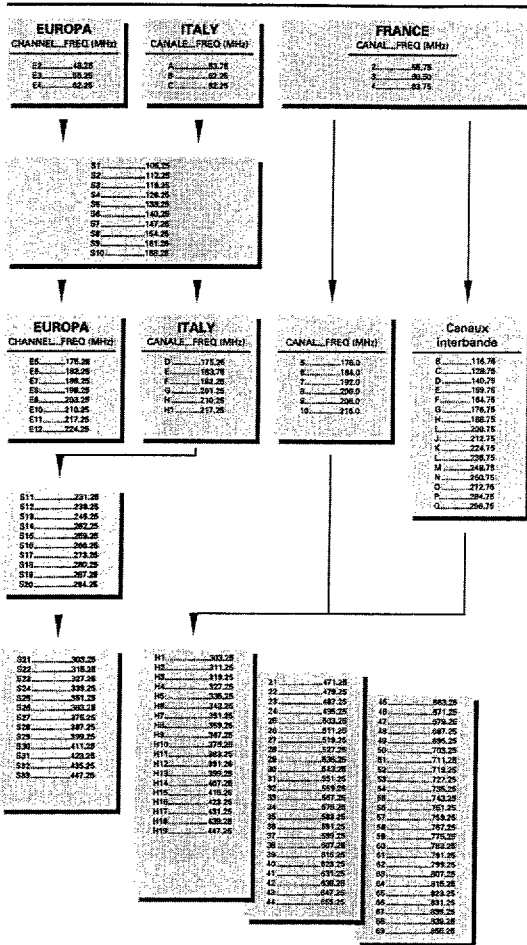
Check whether your peripheral equipment is in fact properly connected. Have you switched on the peripheral equipment ?

Table of TV frequencies.

Frequenztafel der Fernsehender.
Liste des fréquences des émetteurs.
Frequenztafel TV-zenders.
Tabella delle frequenze delle trasmissioni.
Lista de frequências.

Tabla de frecuencias de transmisión de televisión.

Frekvens oversigt.
Frekvenstabell.
Tabell över TV-frekvenser.
TV-taajuksien taulukko.



GB

The frequencies used by a cable company may differ from the frequencies on the table. Consult your cable company or your dealer for detailed information.

D

In Kabelfernsehanlagen können Abweichungen von den in den Frequenztabellen aufgeführten Frequenzen vorkommen. Bitte wenden Sie sich an Ihren Fachhändler oder Ihre Kabelfernsehgeseilschaft, die Ihnen die zutreffenden Frequenzen mitteilt.

F

Les fréquences utilisées par une société de télédistribution peuvent être différentes de celles sur la liste des fréquences. Consultez votre société de télédistribution ou votre revendeur pour des informations plus détaillées.

NL

De frequenties die gebruikt worden door een kabelmaatschappij kunnen verschillen van deze op de tabel. Raadpleeg uw kabelexploitant of uw handelaar voor meer informatie.

I

Le frequenze usate da una società di tele distribuzione possono essere differenti da quelle sulla tabella. Consultare la società di tele distribuzione o il vostro rivenditore per informazioni specifiche.

E

Las frecuencias utilizadas por las empresas de distribución de señal por cable, pueden ser diferentes de las que se encuentran en esta tabla. Consulte con su compañía de distribución de televisión por cable o con su distribuidor para que le proporcionen una información más detallada.

P

As frequências utilizadas por uma sociedade de tele distribuição podem ser diferentes das indicadas na lista de frequências. Consultar a sociedade de tele distribuição ou o vendedor para informações mais detalhadas.

DK

Frekvenser benyttes af kabel operatører kan være afvigende fra disse, kontakt deres kabel operatør eller forhandler for nærmere information.

N

Frekvensene som benyttes på et kabelnett kan avvike fra de som er oppført i tabellen. Kontakt ditt kabel-TV selskap eller din forhandler for nærmere opplysninger.

S

Frekvenserna som används i kabel-TV-nätten kan avvika från frekvenserna i tabellen. Kontakta ditt kabel-TV-bolag eller din radiohandlare för vidare information.

SF

Kaapeliyhtiöiden käyttämät taajuudet voivat poiketa taajuusosasto ohjeista taajuuslista. Tarkat tiedot saat kaapeliyhtiöltä tai myyjältä.

5% 0,25W

H 10%
H 10%
H 10%
3µH 20%
trim. 2,52MHz
H 10%
trim. 7,96MHz
trim. 2,52MHz
trim. 7,96MHz
3µH 20%
3µH 20%
9µH 20%

H148
-F7V5
148
148
148

-F5V1
150
-F33
148
148

-C7V5
148
-C15
148

148
148
148
148
148

148
382
382
1150
-F3V6

148
-C5V6
-C6V2
148
-C22

/103
-F8V2
148
-C2V4
148

-C2V4
148
148
148

348B
348B
358C
348C
34C04B

348C
348B
-F8574P
358C
358C

348B
312
348B
BT2369
347B

53N
317-40
6414
-F4094BP
317-40

348C
348B
358B
348B
348C

Table with 4 columns: Part number, Value, Tolerance, and Component type. Includes parts like 7313, 7314, 7315, 7324, 7326.

Table with 4 columns: Part number, Value, Tolerance, and Component type. Includes parts like 7338, 7340, 7350, 7360, 7365.

Table with 4 columns: Part number, Value, Tolerance, and Component type. Includes parts like 7366, 7410, 7430, 7450, 7451.

Table with 4 columns: Part number, Value, Tolerance, and Component type. Includes parts like 7471, 7480, 7492, 7600, 7620.

Table with 4 columns: Part number, Value, Tolerance, and Component type. Includes parts like 7622, 7630, 7635, 7660, 7661.

Table with 4 columns: Part number, Value, Tolerance, and Component type. Includes parts like 7662, 7680, 7704, 7706, 7708.

Table with 4 columns: Part number, Value, Tolerance, and Component type. Includes parts like 7730, 7732.

PIP panel [J]

Table with 4 columns: Part number, Value, Tolerance, and Component type. Includes parts like 4822 265 31085, 4822 265 41328.

Table with 4 columns: Part number, Value, Tolerance, and Component type. Includes parts like 1023 4822 212 30921, 1023 4822 212 30922.

Table with 4 columns: Part number, Value, Tolerance, and Component type. Includes parts like 2103 4822 126 10324, 2105 4822 122 31766.

Table with 4 columns: Part number, Value, Tolerance, and Component type. Includes parts like 2125 4822 126 11544, 2155 4822 122 32862.

Table with 4 columns: Part number, Value, Tolerance, and Component type. Includes parts like 2162 4822 122 31947, 2171 4822 122 31961.

Table with 4 columns: Part number, Value, Tolerance, and Component type. Includes parts like 2180 4822 122 31768, 2181 4822 122 31768.

Table with 4 columns: Part number, Value, Tolerance, and Component type. Includes parts like 2196 4822 122 32183, 2197 4822 122 31385.

Table with 4 columns: Part number, Value, Tolerance, and Component type. Includes parts like 2212 4822 125 50045, 2211 4822 122 31746.

Table with 4 columns: Part number, Value, Tolerance, and Component type. Includes parts like 2220 5322 121 42661, 2222 4822 122 32542.

Table with 4 columns: Part number, Value, Tolerance, and Component type. Includes parts like 2232 5322 124 41431, 2234 4822 122 33496.

Table with 4 columns: Part number, Value, Tolerance, and Component type. Includes parts like 2250 4822 121 41738, 2251 5322 122 31647.

Table with 4 columns: Part number, Value, Tolerance, and Component type. Includes parts like 2340 4822 124 40433, 2345 4822 124 40433.

Table with 4 columns: Part number, Value, Tolerance, and Component type. Includes parts like 2381 4822 122 32927, 2382 4822 122 32927.

Table with 4 columns: Part number, Value, Tolerance, and Component type. Includes parts like 2390 4822 122 31947, 2399 4822 122 31748.

Table with 4 columns: Part number, Value, Tolerance, and Component type. Includes parts like 2410 4822 122 32862, 2413 4822 122 31839.

Table with 4 columns: Part number, Value, Tolerance, and Component type. Includes parts like 2432 4822 122 31947, 2434 4822 122 31947.

Table with 4 columns: Part number, Value, Tolerance, and Component type. Includes parts like 2441 4822 122 31727, 2442 4822 124 40242.

Table with 4 columns: Part number, Value, Tolerance, and Component type. Includes parts like 2450 4822 122 32856, 2452 4822 122 31765.

Table with 4 columns: Part number, Value, Tolerance, and Component type. Includes parts like 2459 4822 124 41997, 2466 4822 122 31947.

Table with 4 columns: Part number, Value, Tolerance, and Component type. Includes parts like 3100 4822 051 10008, 3103 4822 051 10821.

Table with 4 columns: Part number, Value, Tolerance, and Component type. Includes parts like 3107 4822 051 10103, 3108 4822 051 10103.

Table with 4 columns: Part number, Value, Tolerance, and Component type. Includes parts like 3158 4822 051 10759, 3170 4822 051 10112.

Table with 4 columns: Part number, Value, Tolerance, and Component type. Includes parts like 3201 4822 051 10103, 3202 4822 051 10103.

Table with 4 columns: Part number, Value, Tolerance, and Component type. Includes parts like 3220 4822 051 10512, 3221 4822 116 52233.

Table with 4 columns: Part number, Value, Tolerance, and Component type. Includes parts like 3231 4822 051 10302, 3232 4822 051 10229.

Table with 4 columns: Part number, Value, Tolerance, and Component type. Includes parts like 3236 4822 051 10511, 3237 4822 051 10153.

Table with 4 columns: Part number, Value, Tolerance, and Component type. Includes parts like 3238 4822 051 10333, 3239 4822 100 11319.

Table with 4 columns: Part number, Value, Tolerance, and Component type. Includes parts like 3242 4822 050 11002, 3250 4822 051 10911.

Table with 4 columns: Part number, Value, Tolerance, and Component type. Includes parts like 3276 4822 051 10102, 3335 4822 051 10271.

Table with 4 columns: Part number, Value, Tolerance, and Component type. Includes parts like 3340 4822 051 10202, 3341 4822 111 41424.

Table with 4 columns: Part number, Value, Tolerance, and Component type. Includes parts like 3376 4822 051 10102, 3377 4822 051 10102.

Table with 4 columns: Part number, Value, Tolerance, and Component type. Includes parts like 3394 4822 051 10151, 3395 4822 051 10181.

Table with 4 columns: Part number, Value, Tolerance, and Component type. Includes parts like 3405 4822 051 10271, 3410 4822 051 10391.

Table with 4 columns: Part number, Value, Tolerance, and Component type. Includes parts like 3416 4822 051 10182, 3434 4822 051 10473.

Table with 4 columns: Part number, Value, Tolerance, and Component type. Includes parts like 3440 4822 116 52222, 3441 4822 051 10519.

Table with 4 columns: Part number, Value, Tolerance, and Component type. Includes parts like 3448 4822 051 10392, 3450 4822 051 10621.

Table with 4 columns: Part number, Value, Tolerance, and Component type. Includes parts like 3462 4822 051 10333, 3463 4822 116 52299.

Table with 4 columns: Part number, Value, Tolerance, and Component type. Includes parts like 3472 4822 051 10224, 3473 4822 051 10008.

Table with 4 columns: Part number, Value, Tolerance, and Component type. Includes parts like 3631 4822 051 10105, 3623 4822 051 10104.

Table with 4 columns: Part number, Value, Tolerance, and Component type. Includes parts like 3637 4822 051 20183, 3638 4822 051 10362.

Table with 4 columns: Part number, Value, Tolerance, and Component type. Includes parts like 5118 4822 157 60435, 5155 4822 157 60433.

Table with 4 columns: Part number, Value, Tolerance, and Component type. Includes parts like 5157 4822 157 60434, 5170 4822 157 60432.

Table with 4 columns: Part number, Value, Tolerance, and Component type. Includes parts like 5190 4822 157 60432, 5400 4822 157 50943.

Table with 4 columns: Part number, Value, Tolerance, and Component type. Includes parts like 6300 4822 130 80906, 6301 4822 130 80446.

Table with 4 columns: Part number, Value, Tolerance, and Component type. Includes parts like 7103 5322 130 41982, 7105 5322 130 41982.

Table with 4 columns: Part number, Value, Tolerance, and Component type. Includes parts like 7210 5322 130 41982, 7211 5322 130 41982.

Table with 4 columns: Part number, Value, Tolerance, and Component type. Includes parts like 7210 5322 130 41982, 7233 5322 130 41982.

Table with 4 columns: Part number, Value, Tolerance, and Component type. Includes parts like 7338 5322 130 41982, 7350 4822 130 42616.

Table with 4 columns: Part number, Value, Tolerance, and Component type. Includes parts like 7404 5322 130 41983, 7406 4822 209 62473.

Table with 4 columns: Part number, Value, Tolerance, and Component type. Includes parts like 7408 4822 209 62474, 7410 4822 209 63644.

Table with 4 columns: Part number, Value, Tolerance, and Component type. Includes parts like 7466 4822 209 73852, 7755 4822 209 63423.

Picture tube panel [E]

Table with 4 columns: Part number, Value, Tolerance, and Component type. Includes parts like 4822 265 20509, 4822 265 40596.

Table with 4 columns: Part number, Value, Tolerance, and Component type. Includes parts like 4822 267 51225, 4822 267 40985.

Table with 4 columns: Part number, Value, Tolerance, and Component type. Includes parts like 1030 4822 212 23716, 1030 4822 212 23762.

Table with 4 columns: Part number, Value, Tolerance, and Component type. Includes parts like 2700 4822 122 33496, 2701 4822 122 32506.

Table with 4 columns: Part number, Value, Tolerance, and Component type. Includes parts like 2703 4822 122 31768, 2704 4822 124 42182.

Table with 4 columns: Part number, Value, Tolerance, and Component type. Includes parts like 2706 4822 122 31797, 2707 4822 121 51562.

Table with 4 columns: Part number, Value, Tolerance, and Component type. Includes parts like 2711 4822 122 32506, 2712 4822 126 11175.

Table with 4 columns: Part number, Value, Tolerance, and Component type. Includes parts like 2713 4822 121 42066, 2715 4822 121 42066.

Table with 4 columns: Part number, Value, Tolerance, and Component type. Includes parts like 2716 4822 122 31797, 2717 4822 121 42066.

Table with 4 columns: Part number, Value, Tolerance, and Component type. Includes parts like 2720 4822 122 31774, 2721 4822 122 32506.

Table with 4 columns: Part number, Value, Tolerance, and Component type. Includes parts like 2730 4822 122 31774, 2731 5322 122 31647.

Spare parts lists / Ersatzteilliste / Liste des pièces

Table with columns: Part Code, Description, Value. Rows include parts like -C7V5, 148, 48B, 48B, 4554/V1, etc.

Table with columns: Part Code, Description, Value. Rows include parts like 3731, 3733, 3734, 3735, 3736, etc.

Table with columns: Part Code, Description, Value. Rows include parts like 3737, 3738, 3739, 3740, 3741, etc.

Table with columns: Part Code, Description, Value. Rows include parts like 3761, 3761A, 3761B.

Table with columns: Part Code, Description, Value. Rows include parts like 5700, 5700, 5700, 5701, etc.

Table with columns: Part Code, Description, Value. Rows include parts like 6700, 6701, 6702, 6703, 6707, etc.

Table with columns: Part Code, Description, Value. Rows include parts like 7704, 7705, 7706, 7707.

Table with columns: Part Code, Description, Value. Rows include parts like 1600, 1600, 1001, 1002, 1002.

Table with columns: Part Code, Description, Value. Rows include parts like 1003, 1003, 1106.

Table with columns: Part Code, Description, Value. Rows include parts like 2000, 2001, 2002, 2003, 2004.

Table with columns: Part Code, Description, Value. Rows include parts like 2005, 2006, 2007, 2008, 2009.

Table with columns: Part Code, Description, Value. Rows include parts like 2010, 2011, 2012, 2013, 2014.

Table with columns: Part Code, Description, Value. Rows include parts like 2015, 2016, 2017, 2018, 2019.

Table with columns: Part Code, Description, Value. Rows include parts like 2020, 2021, 2021, 2022, 2022.

Table with columns: Part Code, Description, Value. Rows include parts like 2023, 2023, 2024, 2024, 2025.

Table with columns: Part Code, Description, Value. Rows include parts like 2026, 2027, 2028, 2029, 2030.

Table with columns: Part Code, Description, Value. Rows include parts like 2031, 2032, 2033, 2034, 2035.

Table with columns: Part Code, Description, Value. Rows include parts like 2036, 2037, 2038, 2039, 2041.

Table with columns: Part Code, Description, Value. Rows include parts like 2042, 2043, 2044, 2050, 2051.

Table with columns: Part Code, Description, Value. Rows include parts like 2245, 2246.

Table with columns: Part Code, Description, Value. Rows include parts like 3000, 3002, 3003, 3004, 3005, etc.

Table with columns: Part Code, Description, Value. Rows include parts like 3012, 3013, 3014, 3015, 3015, etc.

Table with columns: Part Code, Description, Value. Rows include parts like 3016, 3017, 3017, 3018.

Table with columns: Part Code, Description, Value. Rows include parts like 3018, 3019, 3019, 3020.

Table with columns: Part Code, Description, Value. Rows include parts like 3021, 3022, 3023, 3024, 3025, 3026, etc.

Table with columns: Part Code, Description, Value. Rows include parts like 3027, 3028, 3029, 3030, 3031.

Table with columns: Part Code, Description, Value. Rows include parts like 3032, 3033, 3034, 3035, 3036.

Table with columns: Part Code, Description, Value. Rows include parts like 3037, 3049, 3050, 3099, 3099.

Table with columns: Part Code, Description, Value. Rows include parts like 4xxx, 5000, 5001, 5002, 5003.

Table with columns: Part Code, Description, Value. Rows include parts like 6000, 6005, 6006, 6050.

Table with columns: Part Code, Description, Value. Rows include parts like 7000, 7001, 7002, 7003, 7004.

Table with columns: Part Code, Description, Value. Rows include parts like 7007, 7008, 7009, 7050.

Table with columns: Part Code, Description, Value. Rows include parts like 7000, 7001, 7002, 7003, 7004.

Table with columns: Part Code, Description, Value. Rows include parts like 7007, 7008, 7009, 7050.

Table with columns: Part Code, Description, Value. Rows include parts like 4822 265 41337 terminal strip 11P

Table with columns: Part Code, Description, Value. Rows include parts like 1300, 4822 212 30906 COMBFILTER

Table with columns: Part Code, Description, Value. Rows include parts like 2000, 2001, 2002, 2003, 2004.

Table with columns: Part Code, Description, Value. Rows include parts like 2005, 2006, 2010, 2021, 2022.

Table with columns: Part Code, Description, Value. Rows include parts like 2023, 2024, 2025, 2026, 2030.

Table with columns: Part Code, Description, Value. Rows include parts like 2031, 2032, 2033, 2034, 2035.

Table with columns: Part Code, Description, Value. Rows include parts like 2036, 2037, 2038.

Table with columns: Part Code, Description, Value. Rows include parts like 2040, 2044.

Table with columns: Part Code, Description, Value. Rows include parts like 2045, 2050, 2051, 2060, 2070.

Table with columns: Part Code, Description, Value. Rows include parts like 2080, 2081, 2082, 2083.

Table with columns: Part Code, Description, Value. Rows include parts like 3000, 3001, 3011, 3012, 3013.

Table with columns: Part Code, Description, Value. Rows include parts like 3014, 3021, 3022, 3023, 3024.

Table with columns: Part Code, Description, Value. Rows include parts like 3025, 3026, 3027, 3028, 3029.

Table with columns: Part Code, Description, Value. Rows include parts like 3030, 3031, 3032, 3035, 3036.

Table with columns: Part Code, Description, Value. Rows include parts like 3037, 3038, 3040, 3041, 3042.

Table with columns: Part Code, Description, Value. Rows include parts like 3043, 3044, 3045, 3046, 3047.

Table with columns: Part Code, Description, Value. Rows include parts like 3048, 3050, 3051, 3052, 3053.

Table with columns: Part Code, Description, Value. Rows include parts like 3054, 3055, 3056, 3057, 3058.

Table with columns: Part Code, Description, Value. Rows include parts like 3060, 3061, 3062, 3078, 3079.

Table with columns: Part Code, Description, Value. Rows include parts like 3080, 3081, 3082, 3083, 3084.

Table with columns: Part Code, Description, Value. Rows include parts like 3085, 3086, 3087, 3088, 3089.

Table with columns: Part Code, Description, Value. Rows include parts like 3090, 3091, 3092, 3093, 3094.

Table with columns: Part Code, Description, Value. Rows include parts like 5021, 5022, 5030, 5031, 5032.

Table with columns: Part Code, Description, Value. Rows include parts like 5033, 5040.

