

Service  
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Service



PHIL -05405

# Service Manual

## Table of contents

## Page

1.	Technical data	1.1
2.	Connecting facilities	2.1
3.	Warnings and notes	3.1
4.	Mechanical instructions	4.1
5.	Detailed blockdiagram for fault diagnosis	5.1
6.	Electrical diagrams and print lay-outs	
	Controls (diagram A)	6.1
	Tuner, IF and source selection (diagram B)	6.5
	Video and CRT panel (diagram C)	6.9
	Power supply and deflection (diagram D)	6.21
	NICAM (diagram E)	6.25
	Sound module (diagram F)	6.33
	Auto multivoltage module (diagram G)	6.36
	Teletext module (diagram H)	6.39
7.	Electrical adjustments	7.1
8.	Repair tips	8.1
10.	Spare parts list	10.1



PHILIPS

CS 58 145  
5405

## Technical data

Mains voltage	: 160-276 V ( $\pm$ 10%); 50/60 Hz ( $\pm$ 5%) : 90-140V, 160-276 ( $\pm$ 10%) 50/60 Hz ( $\pm$ 5%) : (for multivoltage)
Power cons. at 230V~	: 25" 90W (stand-by $\leq$ 10W) : 29" 90W (stand-by $\leq$ 10W)
Aerial input impedance	: 75 $\Omega$ - coax
Min. aerial input VHF	: 35 $\mu$ V
Min. aerial input UHF	: 40 $\mu$ V
Max. aerial input VHF/UHF	: 100mV
Pull-in range colour sync	: $\pm$ 300Hz
Pull-in range horizontal sync	: $\pm$ 600Hz
Pull-in range vertical sync	: $\pm$ 5Hz
Picture tube range	: 25" A59JMZ140X : 29" M68JUA125X
TV Systems	: Multi PAL/SECAM B/G/D/K/K1 : NTSC 3.58 and NTSC 4.43 : Dependent on stroke number.
Indications	: On Screen Display (OSD) : 1- LED (①, ④, RC5)
VCR programs	: 0 - 59
Tuning and operating system	:  UV916 PLL : Band I: 47 - 170 MHz : Band II: 170 - 450 MHz : UHF: 450 - 861 MHz
Local operating functions	: ①,  , $\pm$ P, HUE $\pm$ , ④ $\pm$ ,  $\pm$ , $\triangleright/\triangleleft$ , $\blacktriangleright$

## Specification of the terminal sockets

### SCART rear

- 1 - Audio  $\ominus$  R (0.5V RMS  $\leq$  1k $\Omega$ )
- 2 - Audio  $\ominus$  R (0.5V RMS  $\geq$  10k $\Omega$ )
- 3 - Audio  $\ominus$  L (0.5V RMS  $\leq$  1k $\Omega$ )
- 4 - Audio mass
- 5 - Blue mass
- 6 - Audio  $\ominus$  L (0.5V RMS  $\geq$  10k $\Omega$ )
- 7 - Blue  $\ominus$  (0.7V<sub>pp</sub>/75 $\Omega$ )
- 8 - n.c.
- 9 - Green mass
- 11 - Green  $\ominus$  (0.7V<sub>pp</sub>/75 $\Omega$ )
- 13 - Red mass
- 15 - Red  $\ominus$  (0.7V<sub>pp</sub>/75 $\Omega$ )
- 16 - n.c.
- 17 - mass
- 18 - CVBS mass
- 19 - CVBS  $\ominus$  (1V<sub>pp</sub>/75 $\Omega$ )
- 20 - CVBS  $\ominus$  (1V<sub>pp</sub>/75 $\Omega$ )
- 21 - Earth screen

### Various rear

- $\odot$  3,5mm 2 x 8W/8 $\Omega$  for L.S.

### front

- $\odot$  3mm 8- 1000  $\Omega$

### CINCH front

- $\odot$  Cinch CVBS  $\ominus$  1V<sub>pp</sub>/75 $\Omega$
  - $\odot$  Cinch Audio  $\ominus$  0,5V RMS  $\geq$  10k $\Omega$
- 
- ### S-VHS rear
- $\odot$
- 1 -  $\perp$
  - 2 -  $\perp$
  - 3 - Y:  $\ominus$  1V<sub>pp</sub>/75 $\Omega$
  - 4 - C:  $\ominus$  300mV<sub>pp</sub>/75 $\Omega$
- $\odot$  Cinch Audio  $\ominus$  L 0,2-2V RMS  $\geq$  10k $\Omega$
  - $\odot$  Cinch Audio  $\ominus$  R 0,2-2V RMS  $\geq$  10k $\Omega$

## Warnings

1. A set to be repaired should always be connected to the mains via a suitable isolating transformer.
2. Safety regulations demand that the set be restored to its original condition and that the components identical to the original types be used. Safety components are marked by the symbol .
3. To prevent damage to IC's and transistors any flash-over of the EHT should be avoided. To prevent damage to the picture tube the method, indicated in Fig. 3.1, has to be applied to discharge the picture tube. Make use of an EHT probe and a universal meter (position DC-V). Discharge until the reading of the meter is OV (after approx 30s).

### 4. ESD



All IC's and many other semi-conductors are susceptible to electrostatic discharges (ESD). Careless handling during repair can reduce life drastically.  
When repairing, make sure that you are connected with the same potential as the mass of the set via a wrist wrap with resistance. Keep components and tools on the same potential.

5. The deflection and multipole units have been adjusted in an optimum way in the factory. Adjustment of these units during repair is thus not recommended.

### 6. Removing the EHT cable.

After removal of the tule and nip out of the clamping rings N with a screwdriver or side-cutting pliers, the EHT cable may be pulled off the line output transformer (see Fig. 3.2). When refitting the cable, first press the clamping ring onto the transformer until a click is heard; after this the cable may be pressed home. Make sure that the cable is pressed down well.

7. Proceed with care when testing the EHT section and the picture tube.
8. Never replace any modules or any other parts while the set is switched on.
9. Wear safety goggles during replacement of the picture tube.
10. Use plastic instead of metal alignment tools. This in order to preclude short-circuit or to prevent a specific circuit from being rendered unstable.
11. Upon a repair of a transistor or IC assembly i.e. a transistor or IC with heatsink and spring remounting should be carried out in the following order:  
- Transistor or IC on heatsink with spring.  
- Mount assembly and resolder the joints at last.

## Notes

1. The direct voltages and waveforms should be measured relative to the nearest earthing point on the printed circuit board.
2. The DC voltages and oscilloscopes are where necessary measured with (T) and without (X) aerial signal, minimum brightness and maximum saturation and contrast (see diagrams). Voltages and oscilloscopes in the power supply section have been measured for both normal operation (O) and in the stand-by mode (S). As an input signal a colour bar pattern has been used.
3. The CRT board is provided with printed spark gaps. Each spark gap is arranged between an electrode of the CRT and the aquadag coating.
4. Connectors used for the modules (board to board) are gold-plated and must be replaced by the same type only.
5. The accessibility of the circuits on plugged boards can be increased through application of extension printed circuit boards.  
Code numbers of extension printed circuit boards:  
5-fold 4822 395 30261  
6-fold 4822 395 30259  
8-fold 4822 214 31402

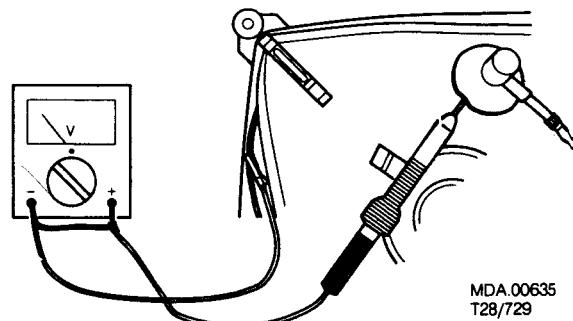


Fig. 3.1

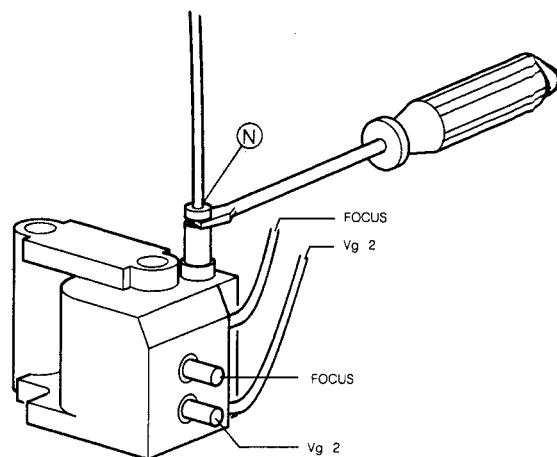


Fig. 3.2

# Mechanical instructions

CHASSIS G112

4.1

## 1. Service position

To facilitate troubleshooting and repairing the set, the chassis can, after disconnecting the degaussing cable, be pulled out of the cabinet, turned 180°, and placed behind the set on the LOT side of the chassis.

## 2. Servicing of SMD's (Surface Mounted Devices)

### 2.1 General cautions on handling and storage.

- a. Oxidation on the SMD's terminals results in poor soldering. Do not handle SMD's with bare hands.
- b. Avoid for storage places with sulfur or chlorine gas, direct sunlight, high temperatures or a high degree of humidity. As a result the capacitance or resistance value of the SMD's may be affected.
- c. Rough handling of circuit boards containing SMD's may cause damage to the components as well as the circuit boards. Circuit boards containing SMD's should never be bent or flexed. Different circuit board materials expand and contract at different rates when heated or cooled and the components and/or solder connections may be damaged due to the stress. Never rub or scrape SMD components as this may cause the value of the component to change. Similarly, do not slide the circuit board across any surface.

### 2.2 Removal of SMD's

- a. Heat the solder (for 2-3 seconds) at each terminal of the SMD. Small components can, by means of litze wire and a limited horizontal force, be removed with the soldering iron. They can also be removed with a solder sucker (see Fig. 4.1A) or.
- b. While holding the SMD with a pair of tweezers take it off gently using the soldering iron's heat applied to each terminal (see Fig. 4.1B).
- c. Remove the excess solder on the solder lands by means of litze wire or a solder sucker (see Fig. 4.1C).

### Caution on removal:

- a. When handling the soldering iron, use suitable pressure and be careful.
- b. When removing the SMD, do not use undue force with the pair of tweezers.
- c. The soldering iron to be used (approx. 30W), must preferably be provided with a thermal control (soldering temperature about 225 to 250°C)
- d. The SMD, once removed, must **never** be used again.

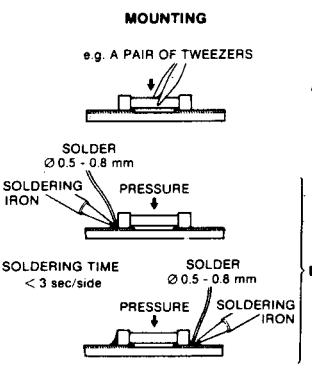


Fig. 4.2

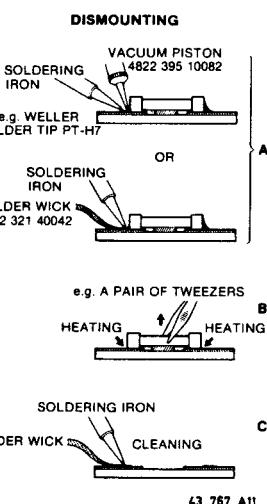


Fig. 4.1

### EXAMPLES

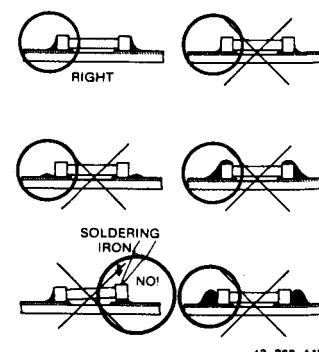
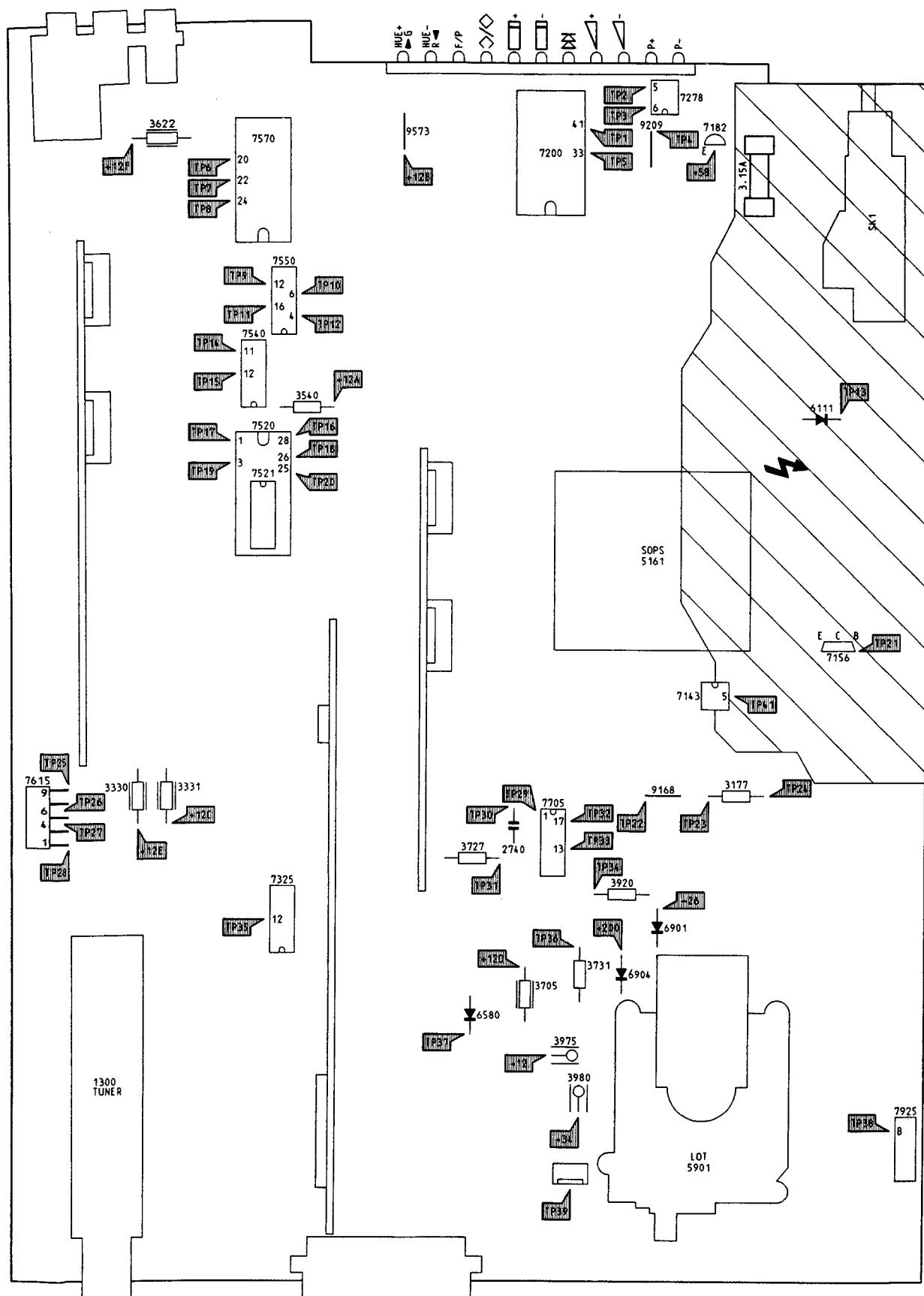


Fig. 4.3

5.1 CHASSIS G112

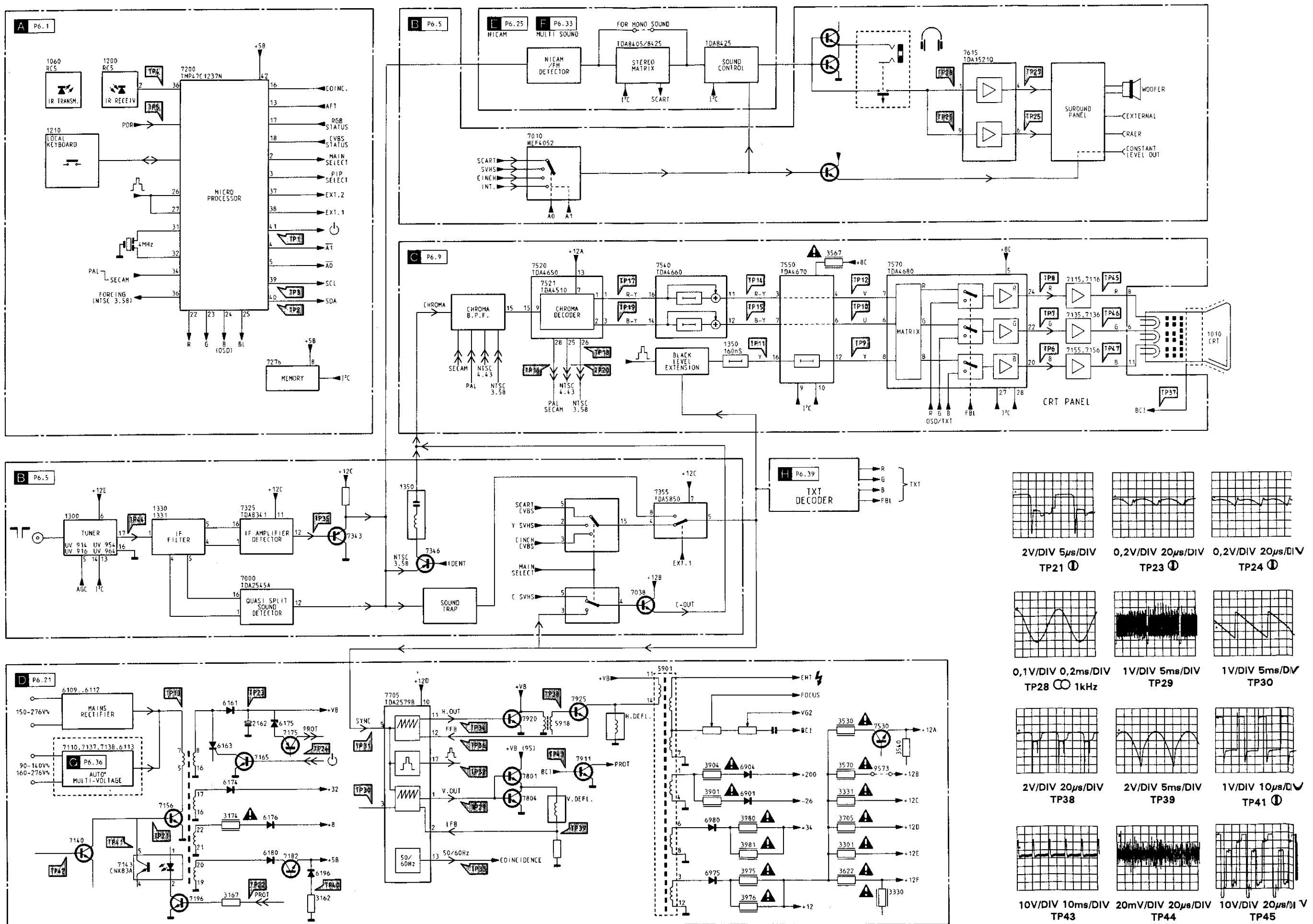


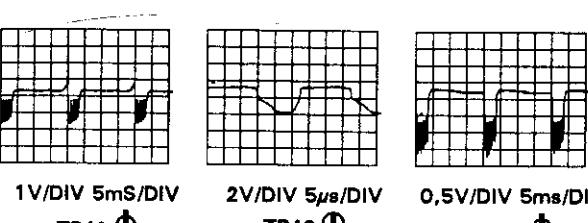
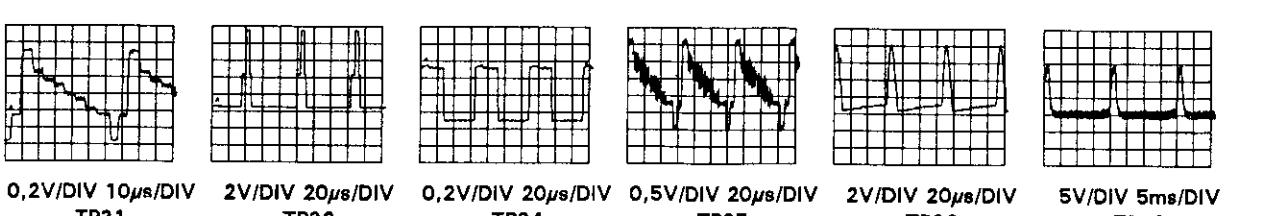
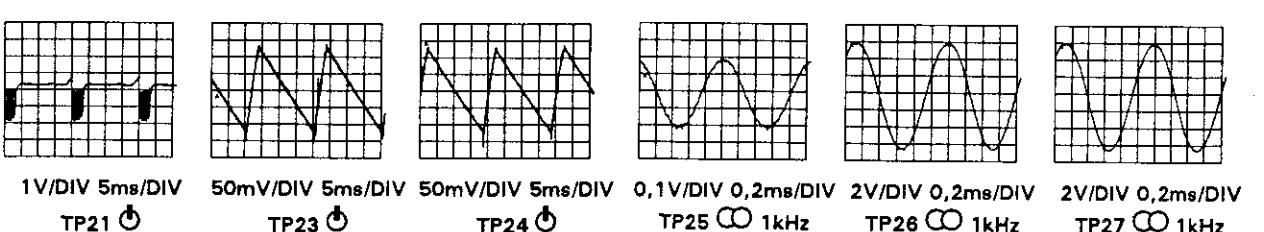
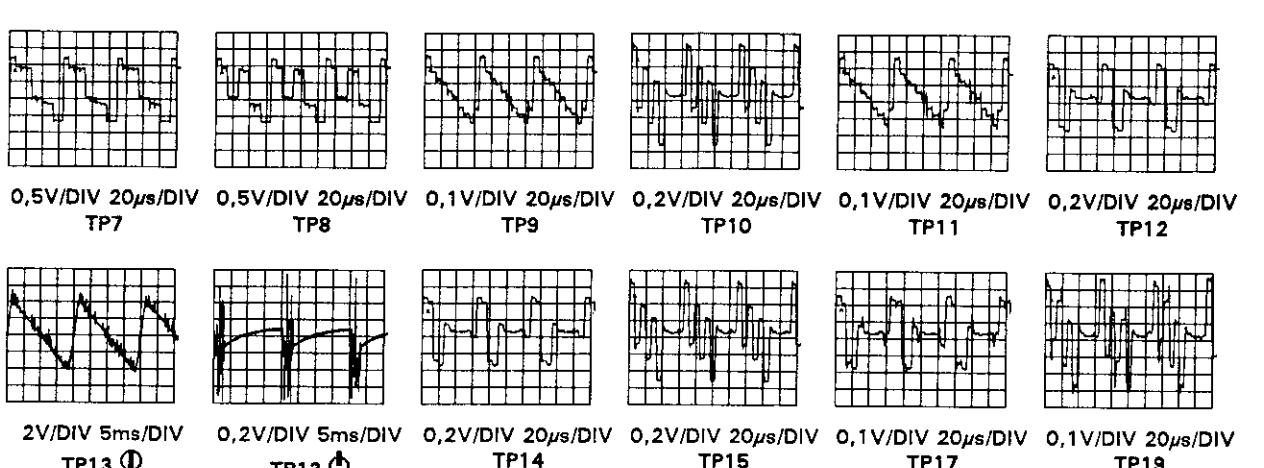
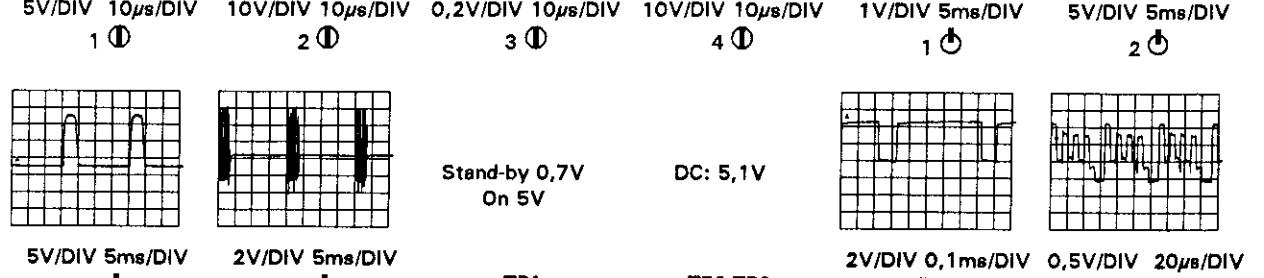
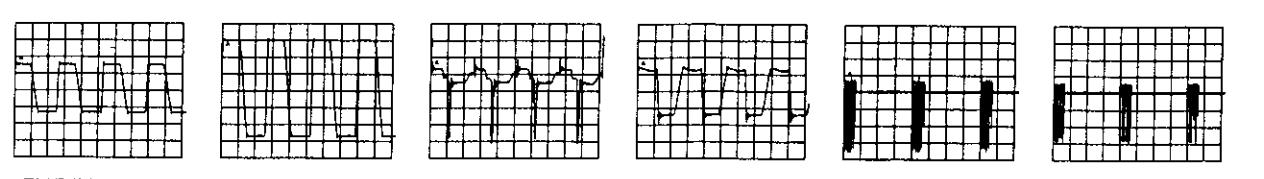
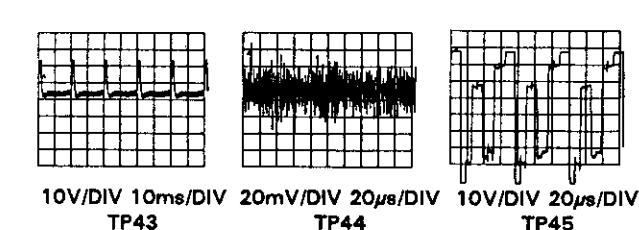
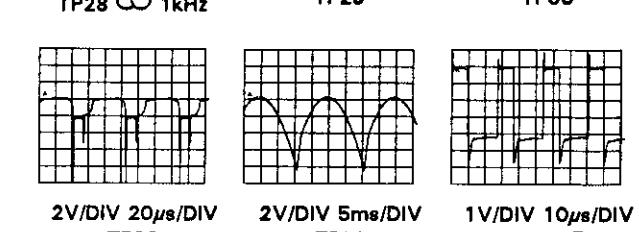
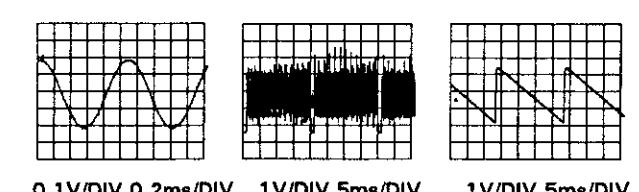
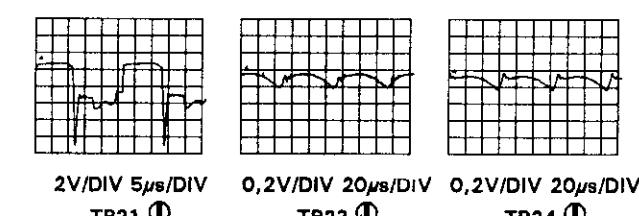
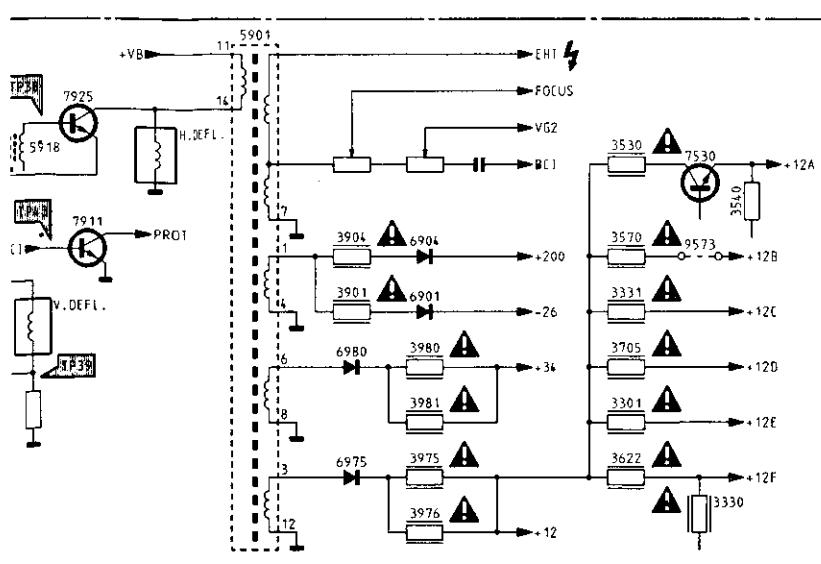
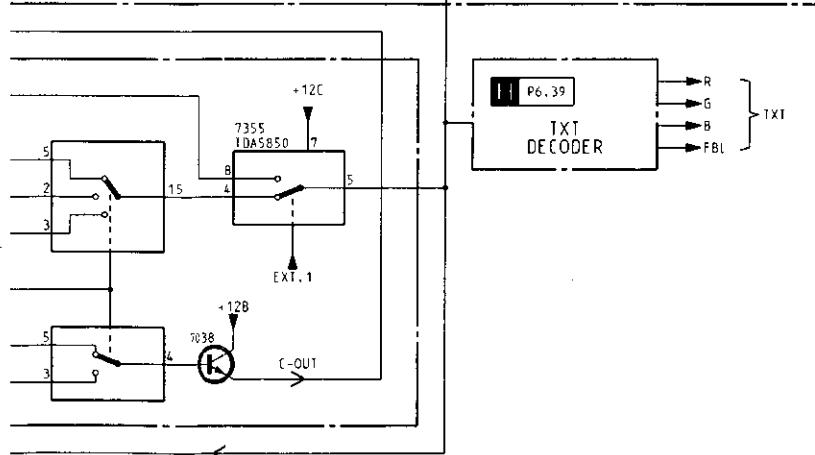
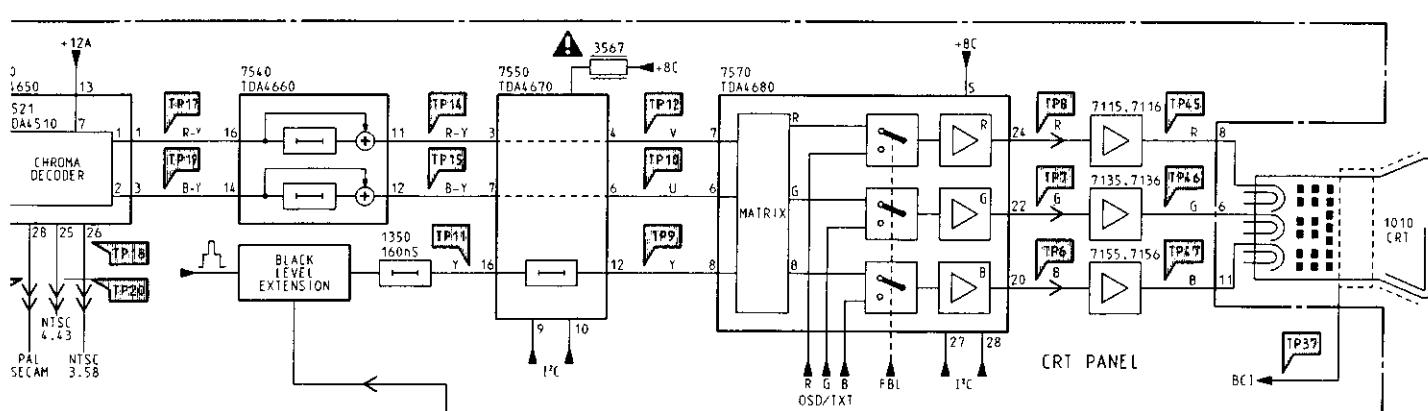
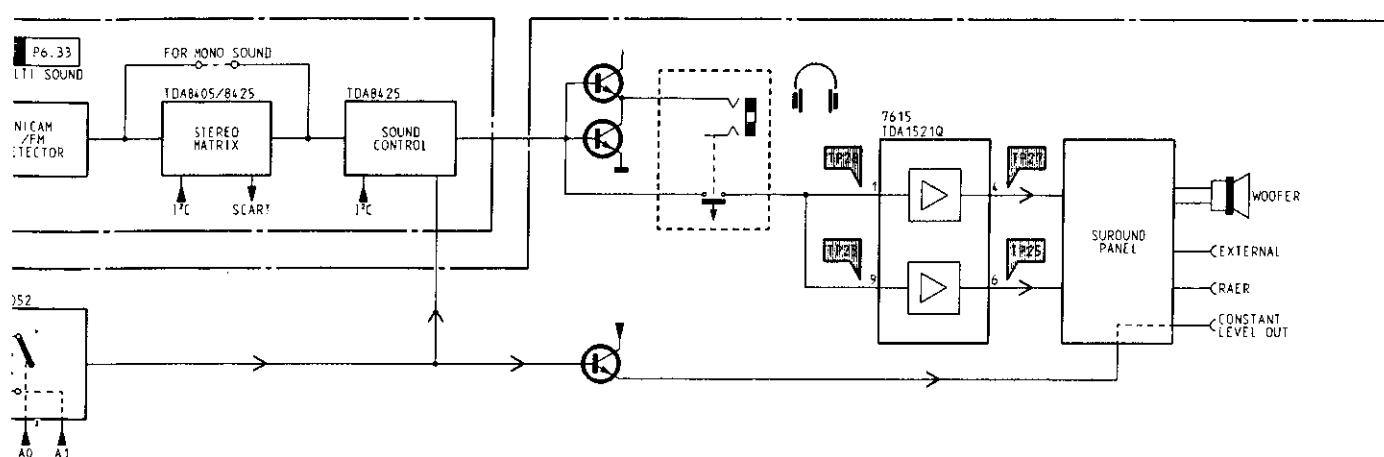
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# Blockdiagram

CHASSIS G112 5.2

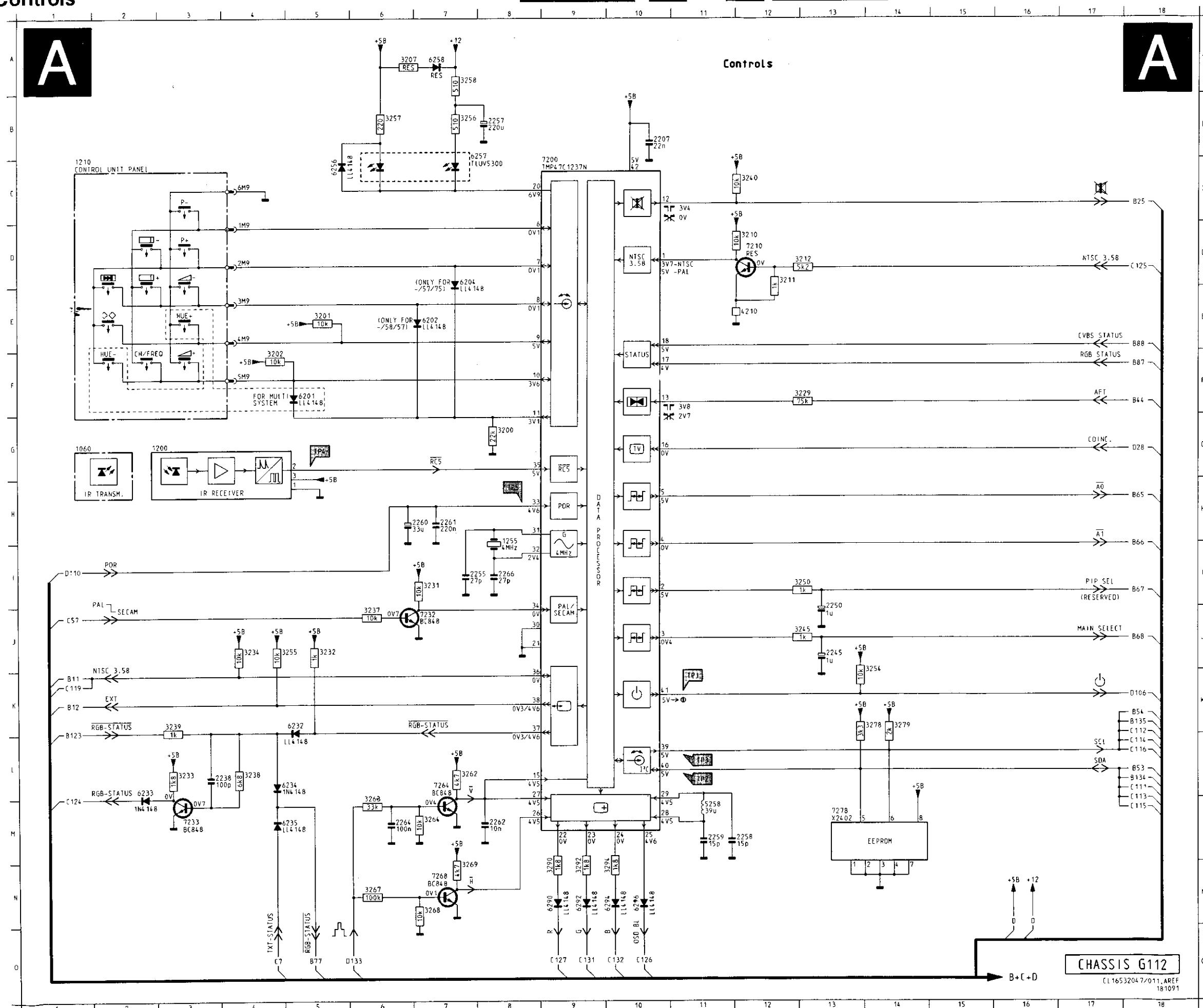
5.3 CHASSIS G112





## Controls

CHASSIS G112 6.1 6.2 CHASSIS G112

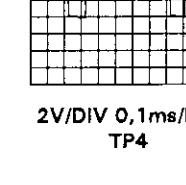


Stand-by 0,7V  
On 5V

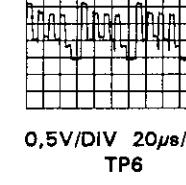
TP1

DC: 5,1V

TP2 TP3

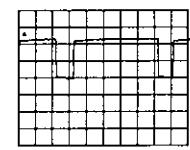


2V/DIV 0,1ms/DIV  
TP4



TP6

1060	G 1
1200	G 2
1210	C 1
1255	I 8
A 2207	B10
2238	L 3
2245	J13
2250	J13
2255	I 7
2257	B 8
2258	M12
2259	M11
2260	H 6
2261	H 7
2262	M 8
2264	H 6
2266	I 8
3200	G 8
3201	F 5
3202	F 4
3207	A 6
3210	D12
3211	D12
3212	D13
3229	I13
3231	I 7
3232	J 5
3233	L 3
3234	J 4
3237	J 6
3238	L 4
3239	K 3
3240	C12
3245	J13
3250	I13
3254	J74
3255	J 4
3256	B 7
3257	B 6
3258	A 7
3262	L 7
3263	M 6
3264	M 7
3267	N 6
3268	N 7
3269	M 7
3278	K14
3279	K14
3290	N 9
3292	N 9
3294	N10
4210	E12
5258	M11
6201	F 5
6202	E 7
6204	D 7
6232	K 5
6233	L 2
6234	L 4
6235	M 4
6256	C 5
6257	B 7
6258	A 7
6290	N 9
6292	N 9
6294	N10
6296	N10
7200	C 9
7210	D12
7232	J 7
7233	M 3
7264	L 7
7268	N 7
7238	M13



2V/DIV 0,1ms/DIV  
TP4

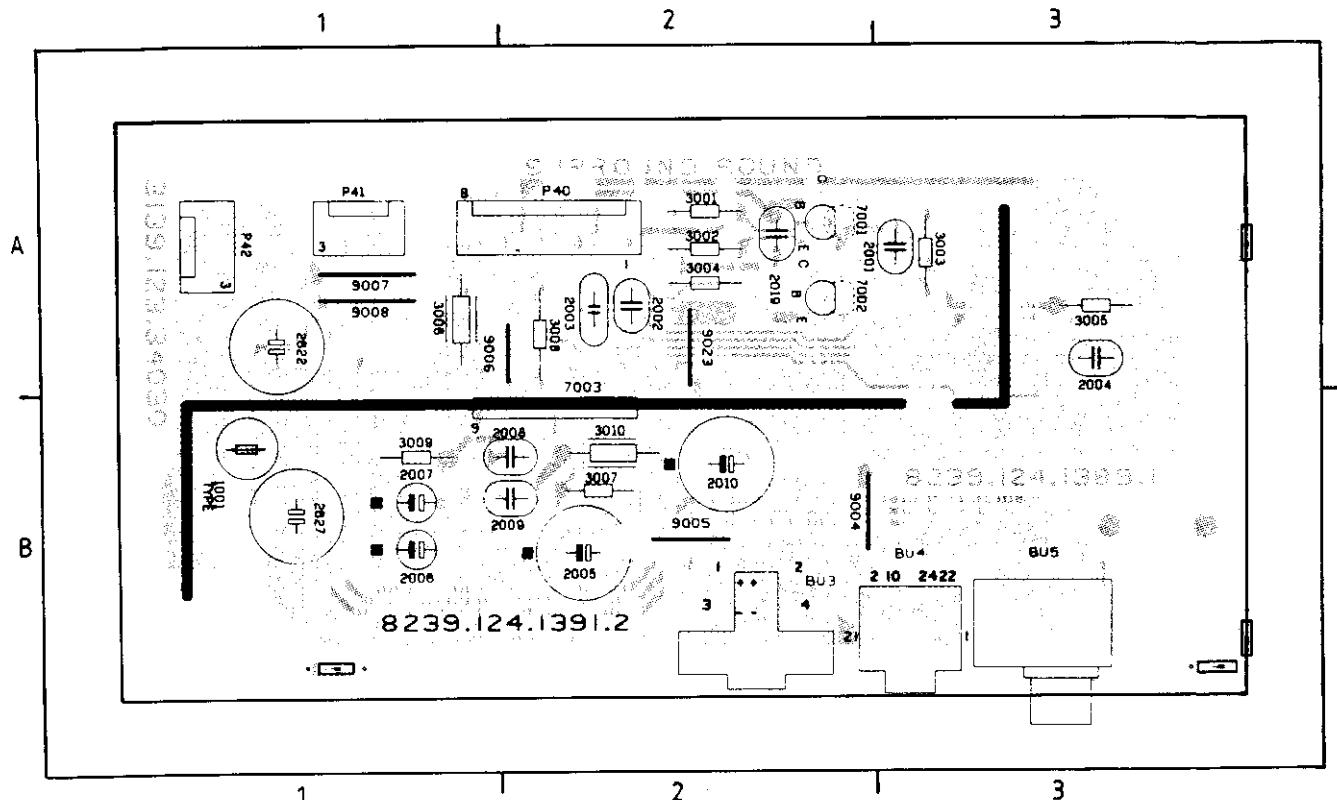


0,5V/DIV 20 $\mu$ s/DIV  
TP6

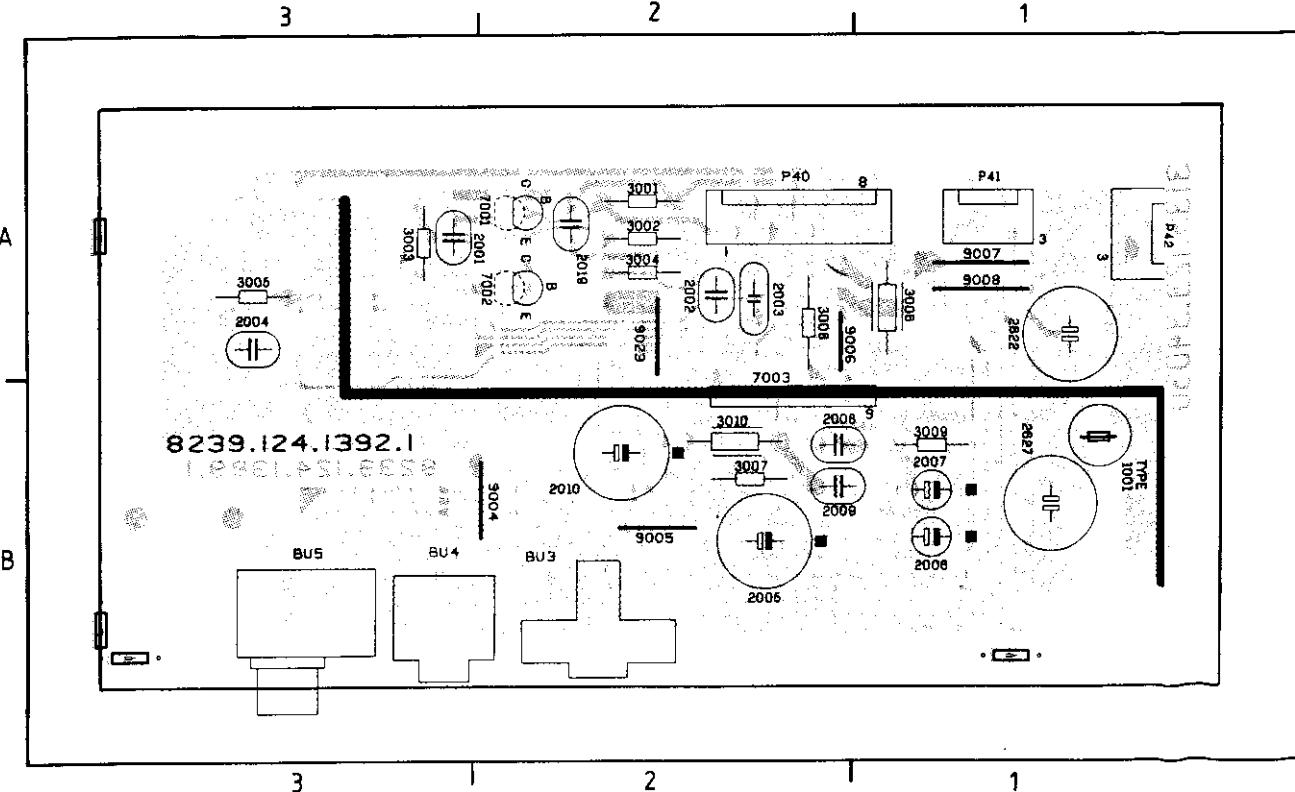
# Surround sound module

CHASSIS G112

6.3

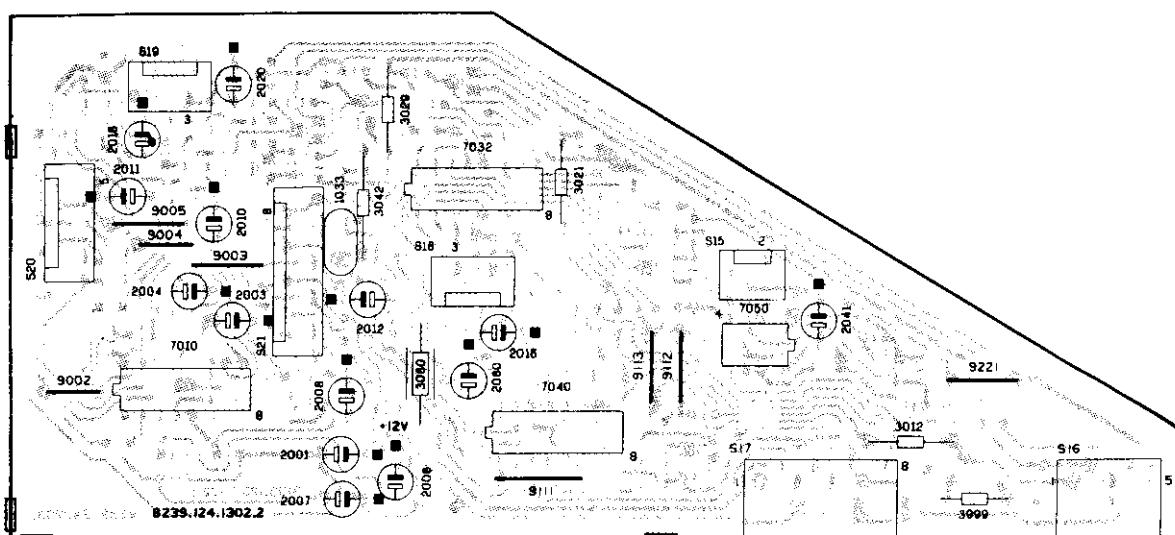
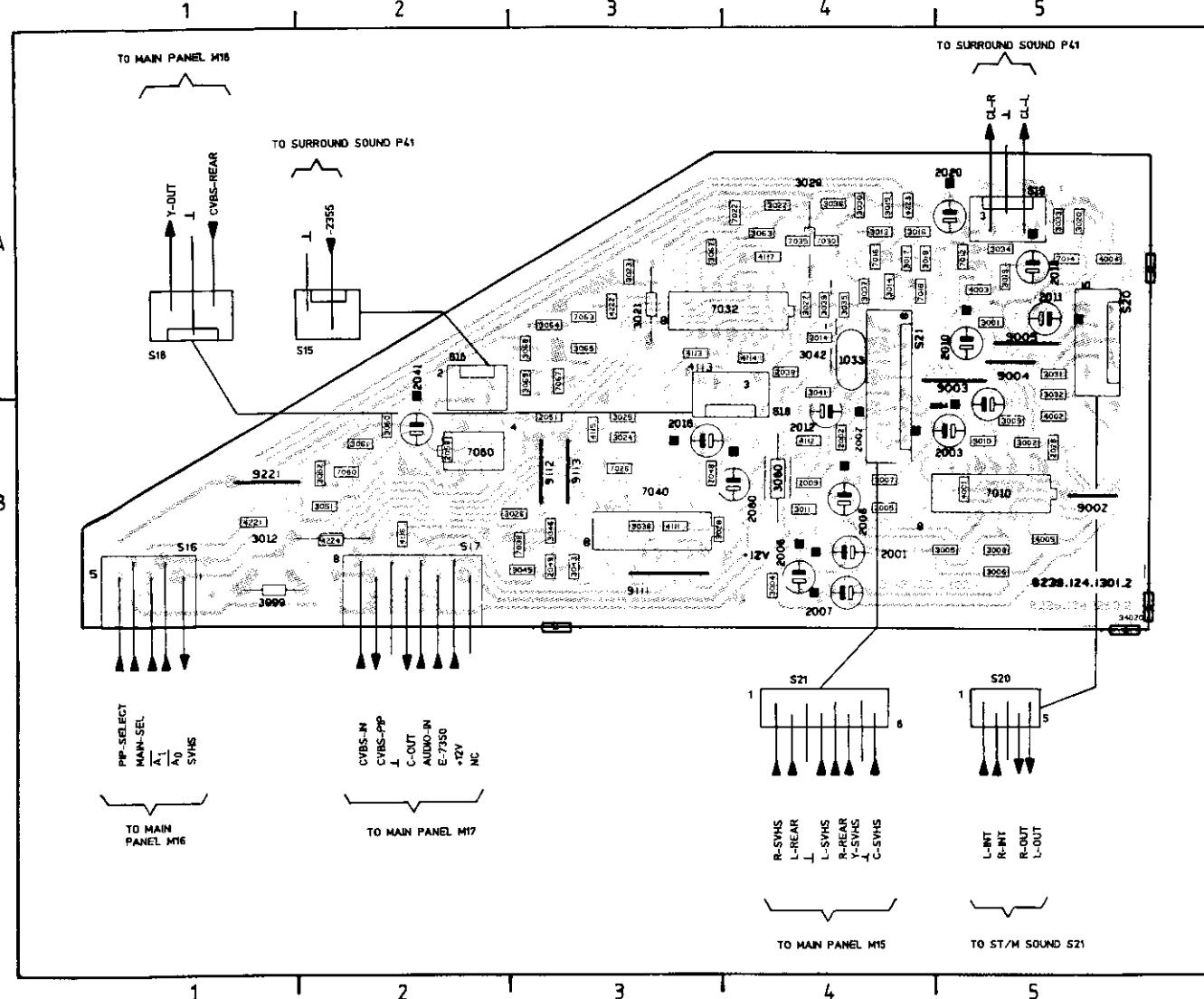


1001 B1	2005 B2	2010 B2	3002 A2	3007 B2	7002 A2	9007 A1	BUS B3
2001 A3	2006 B1	2019 A2	3003 A3	3008 A2	7003 B2	9008 A1	P40 A2
2002 A2	2007 B1	2622 A1	3004 A2	3009 B1	9004 B2	9023 A2	P41 A1
2003 A2	2008 B2	2627 B1	3005 A3	3010 B2	9005 B2	BU3 B2	P42 A1
2004 A3	2009 B2	3001 A2	3006 A1	7001 A2	9006 A2	BU4 B2	



## AV module

1033 A4	2011 A5	2051 B3	3010 B5	3021 A3	3032 B6	3045 B3	3069 A3	4114 A4	7016 A4	7063 A3	S18 B1
2001 B4	2012 B4	2058 B2	3011 B4	3022 A4	3033 A6	3046 B3	3080 B4	4115 B3	7018 A4	7067 A3	S17 B2
2002 B4	2014 A4	2080 B4	3012 B2	3023 A3	3034 A5	3051 B2	3098 B1	4116 B2	7022 A4	8002 B5	S18 A3
2003 B5	2016 B3	3001 A5	3013 A4	3024 B3	3035 A4	3052 B2	4001 B5	4117 A4	7026 B3	9003 A5	S19 A6
2004 B5	2018 A5	3002 B5	3014 A4	3025 B3	3036 A4	3080 B2	4002 B5	4221 B1	7030 A4	9004 A6	S20 A5
2005 B4	2020 A6	3004 B4	3016 A4	3026 B3	3037 A4	3061 B2	4003 A6	4222 A3	7032 A4	8006 A5	S21 B4
2006 B4	2028 B5	3005 B5	3018 A4	3027 A4	3038 B3	3063 A4	4004 A6	4223 A4	7035 A4	9111 B3	
2007 B4	2038 A4	3006 B5	3017 A4	3028 B4	3039 A4	3064 A3	4006 B5	4224 B2	7038 B3	9112 B3	
2008 B4	2041 B2	3007 B4	3018 A4	3029 A4	3041 B4	3065 A3	4111 B3	7010 B5	7040 B3	9113 B3	
2009 B4	2048 B3	3008 B5	3019 A5	3030 A4	3042 A4	3067 A3	4112 B4	7012 A6	7050 B2	9221 B1	
2010 A6	2049 B3	3009 B5	3020 A5	3031 A5	3043 B3	3068 A3	4113 A3	7014 A5	7060 B2	S15 B2	



# Tuner IF

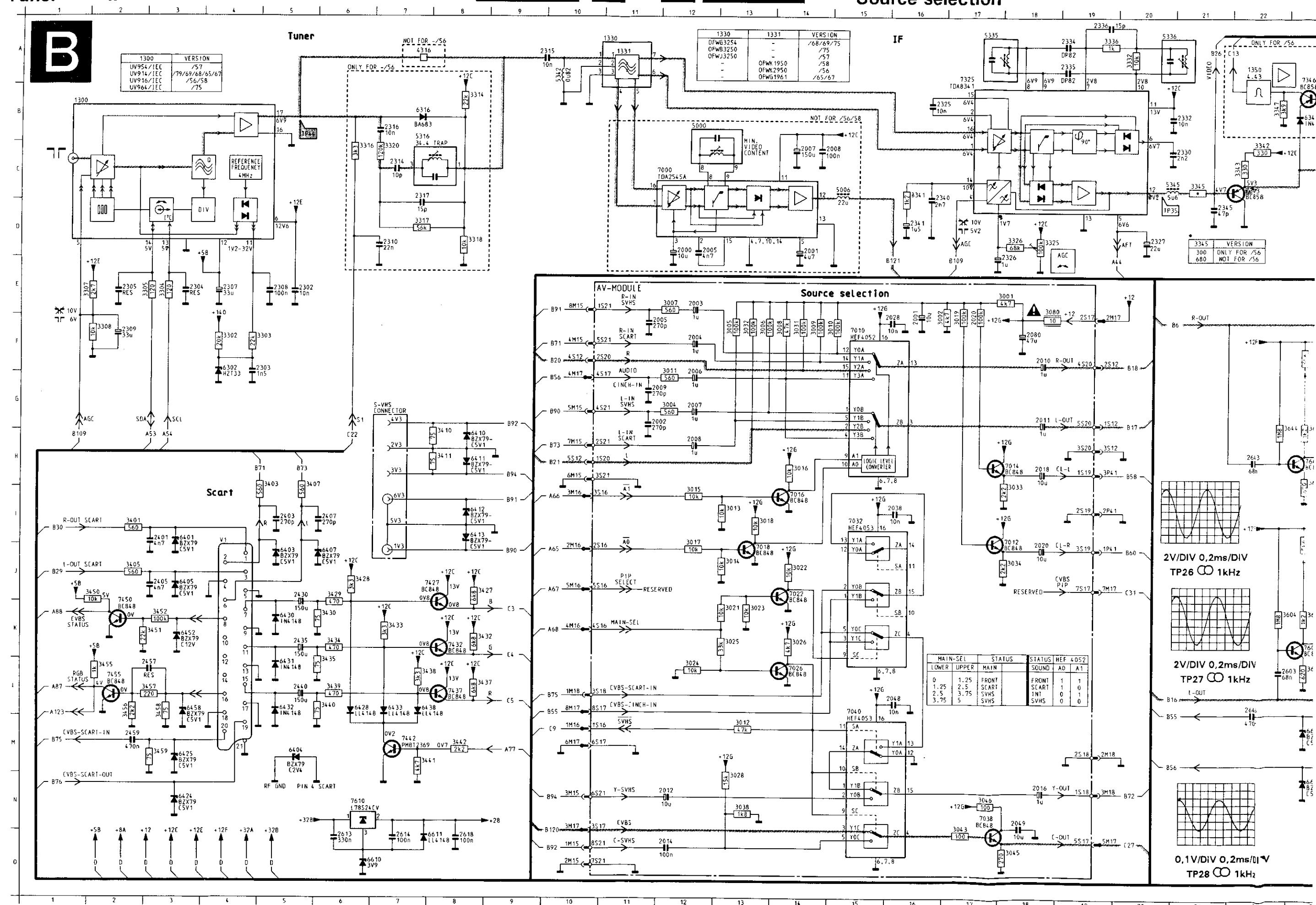
CHASSIS G112

6.5

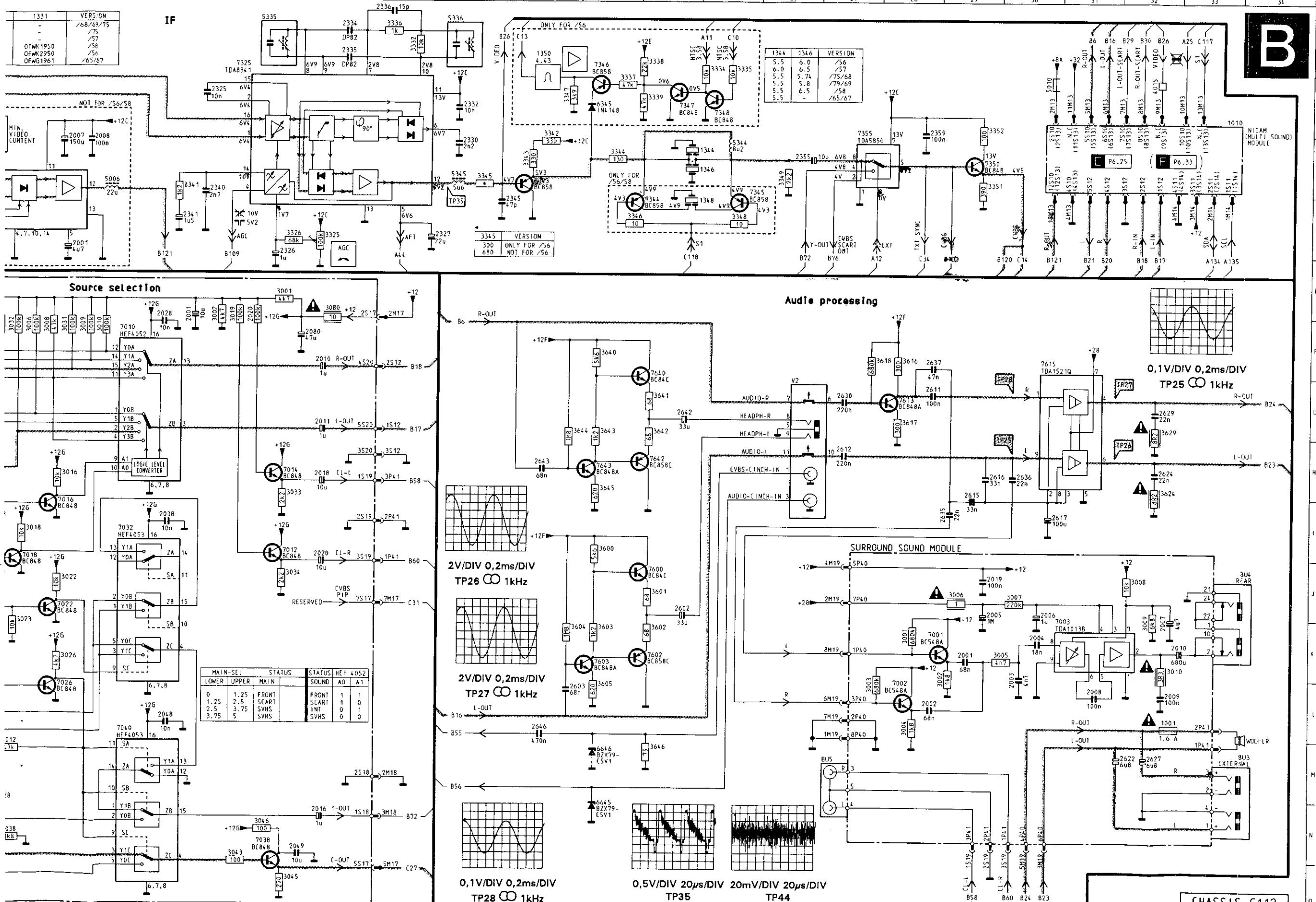
6.6

CHASSIS G112

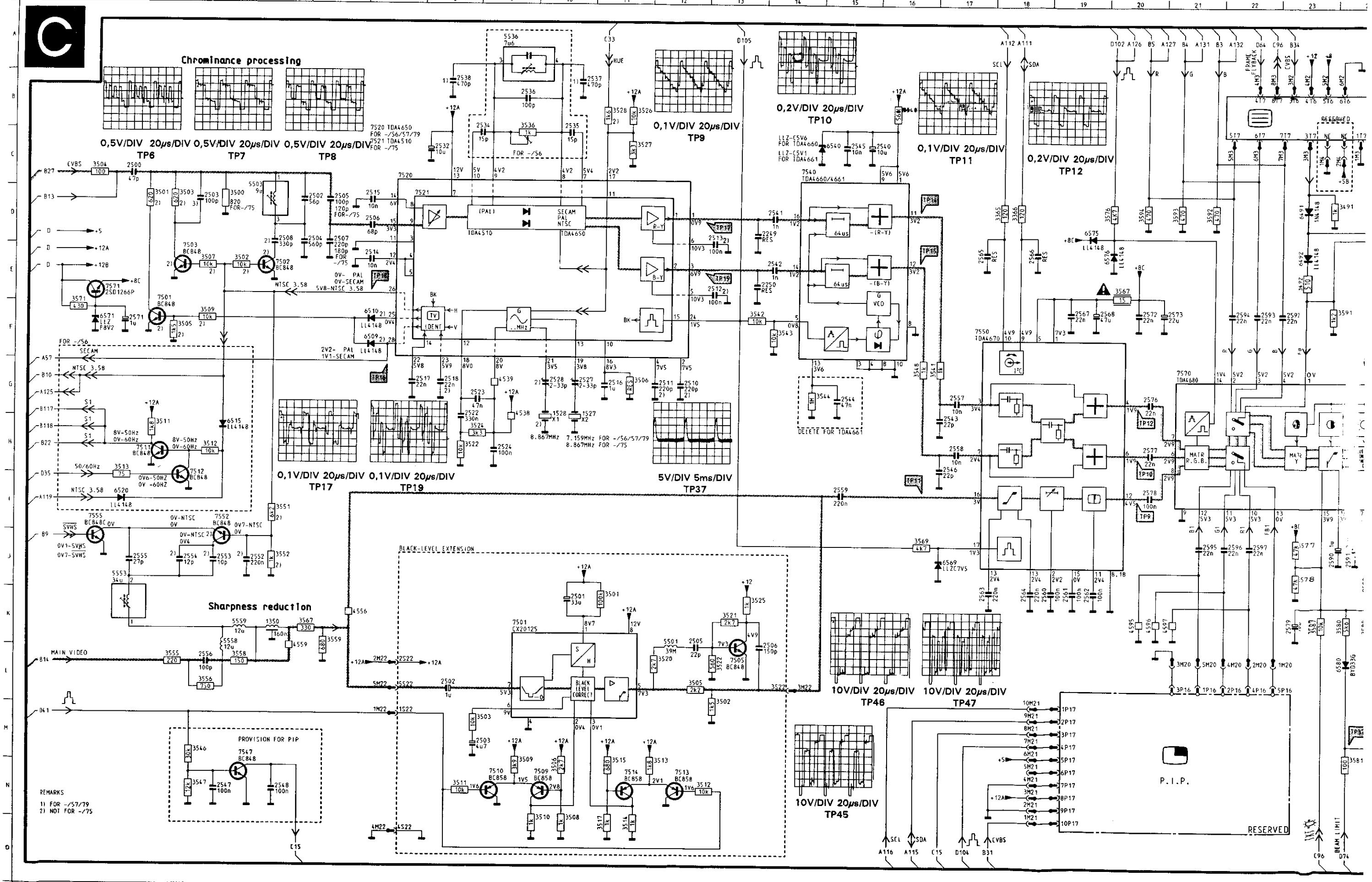
# Source selection

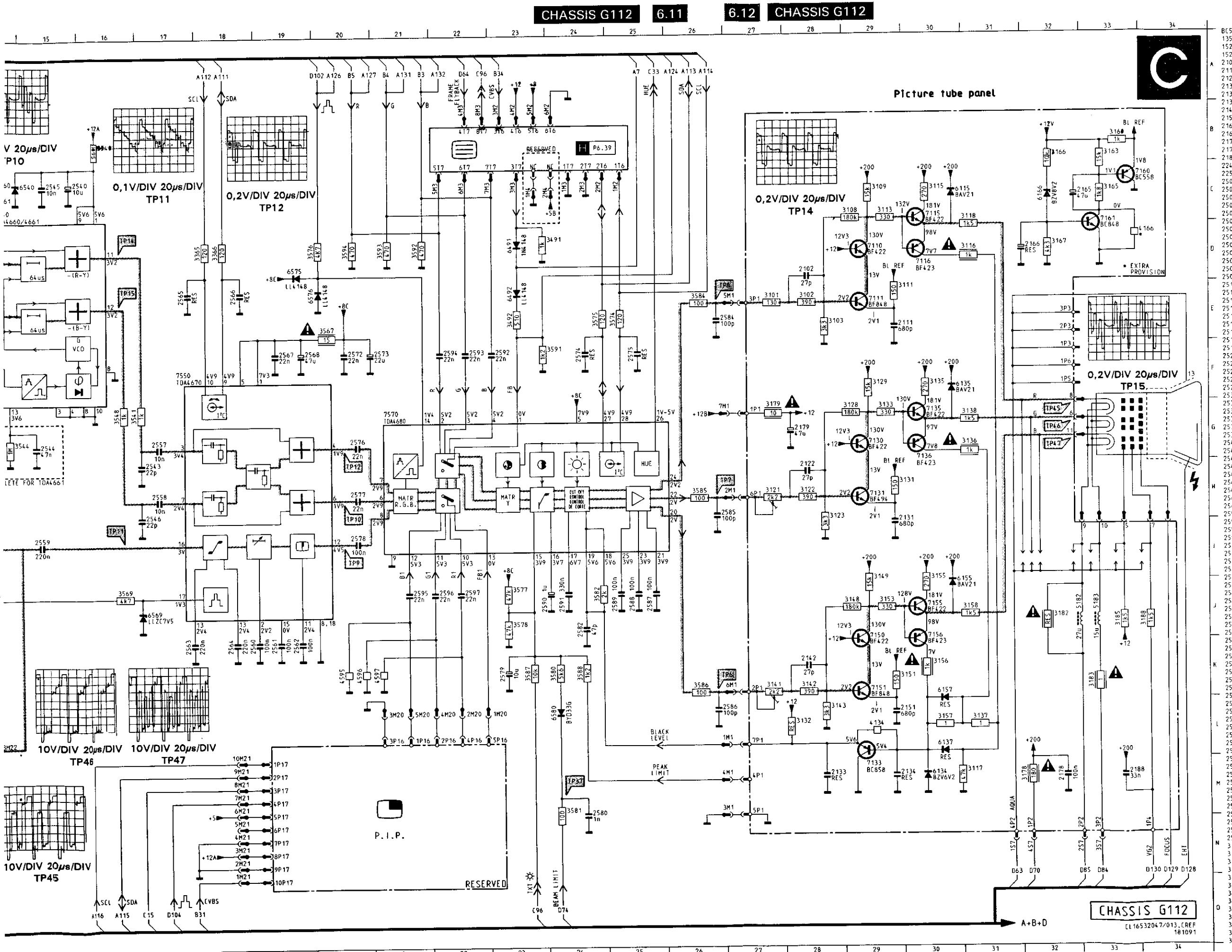


## Source selection



101	B33	3008	J32	5345	C20
1001	L32	3009	F14	6302	F 4
1300	B 1	3009	K32	6316	B 7
1330	A10	3010	F15	6345	B23
1331	A11	3010	K32	6401	I 3
134	C24	3011	G12	6403	J 5
1346	C24	3012	M13	6404	M 5
1348	D24	3013	I13	6405	J 3
1350	A22	3014	J13	6407	J 6
2000	D12	3015	I12	6470	H 8
2001	F16	3016	H14	6411	H 8
2001	D14	3017	J12	6412	I 8
2001	K29	3018	I13	6413	I 8
2002	G11	3019	F17	6424	N 3
2002	L28	3021	K13	6425	M 3
2003	E12	3022	J14	6428	L 6
-	K30	3023	K13	6430	K 3
2004	F12	3024	L12	6431	L 5
2004	K30	3025	K13	6432	L 5
2005	F11	3026	K14	6433	L 7
2005	D12	3028	M 3	6438	L 7
2005	J29	3031	F14	6452	K 3
2006	G12	3032	F13	6458	L 3
2006	J30	3033	H18	6610	O 6
2007	G12	3034	J18	6611	O 8
2007	L11	3038	N13	6615	N23
2007	K32	3043	N17	6646	M23
2008	H12	3045	O18	7000	C11
2008	C14	3046	N17	7001	K29
2008	L31	3080	E18	7002	L28
2009	G11	3302	F 4	7003	K30
2009	L32	3303	F 4	7010	F15
2010	F18	3304	E 3	7012	I18
2010	K33	3305	E 3	7014	H18
2011	G18	3307	E 1	7016	I14
2012	N12	3308	F 2	7018	J13
2014	O12	3311	B 8	7022	J14
2016	N18	3316	C 6	7026	I14
2018	H18	3317	D 7	7032	I15
2019	J29	3318	D 8	7038	N17
2020	F17	3320	C 7	7043	L15
2020	J18	3325	D18	7325	A17
2028	F16	3326	O18	7343	C27
2038	L16	3332	A20	7344	D24
2048	L16	3334	A25	7345	C25
2049	N18	3335	A25	7345	A23
2080	F18	3336	A19	7347	B24
2302	E 5	3337	B23	7348	B25
2303	F 4	3338	A24	7350	C29
2304	E 3	3339	B24	7351	C27
2305	E 2	3341	C16	7421	J 8
2307	E 4	3342	C22	7431	K 8
2308	E 5	3343	C22	7431	L 8
2309	F 2	3344	C23	7441	M 7
2310	D 7	3345	C21	7451	K 2
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2315	A 9	3347	B22	7601	J24
2316	B 7	3348	D25	7601	K24
2317	C 7	3349	C26	7601	K23
2325	B16	3351	C29	7611	N 6
2326	E17	3352	B29	7641	G28
2327	D20	3401	I 2	7641	F30
2330	C21	3403	H 5	7648	G24
2332	B21	3405	J 2	7661	H24
2334	A19	3407	H 5	7661	H23
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2355	C26	3430	K 6		
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2637	F28	3629	G32		
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2646	L22	3642	G24		
3001	E18	3643	G23		
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3002	K29	3646	M24		
3003	I27	4015	B32		
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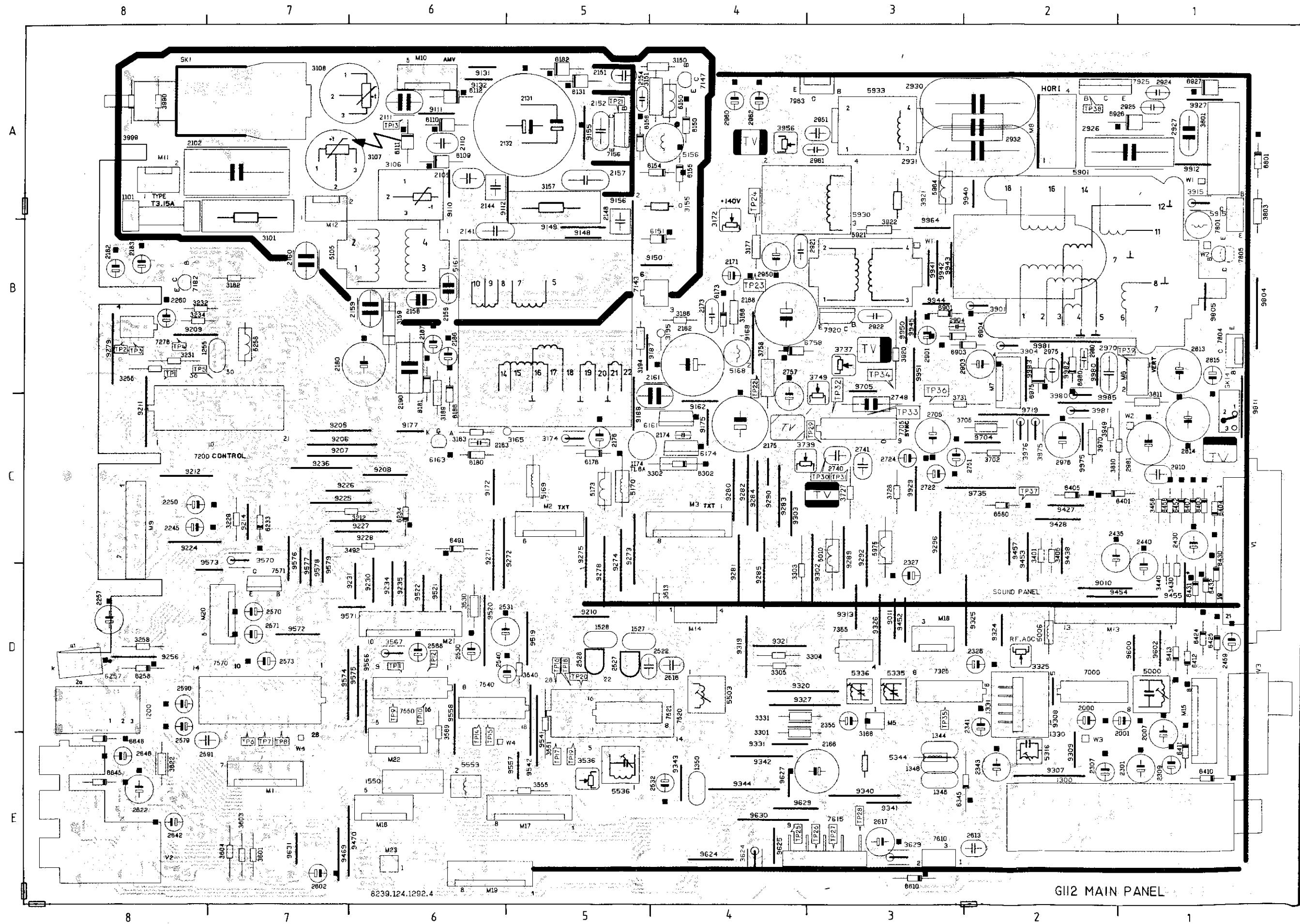




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I29	3136	S31	5559	K 4
M28	3137	L31	6115	C30
M29	3138	G31	6134	M30
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L29	3142	K28	6137	L30
C32	3143	L28	6155	J30
D32	3148	J29	6157	K30
H32	3149	L29	6166	C32
G28	3151	K29	6491	D23
H33	3153	J29	6492	E23
O13	3155	L30	6509	F 7
E13	3156	K30	6510	F 7
L 2	3157	L30	6515	H 4
K10	3158	J31	6520	I 2
D 5	3160	B33	6540	C15
L 8	3163	S33	6569	J17
D 4	3165	C33	6571	F 2
M 9	3166	B32	6575	D19
D 5	3167	D32	6576	E20
D 6	3178	M32	6580	L24
K12	3179	G27	7110	D29
D 7	3182	J32	7111	E29
L14	3183	K33	7115	C30
D 6	3185	J33	7116	D30
D 5	3188	J34	7130	D29
G12	3365	D18	7131	H29
G12	3366	D18	7133	M29
E13	3491	D24	7135	G30
D13	3492	E23	7136	G30
E 7	3500	D 4	7150	K29
D 7	3501	D 3	7151	K29
G11	3501	K11	7155	J30
G 7	3502	E 4	7156	K30
G 8	3502	L13	7161	D33
G 8	3503	D 3	7501	F 3
G 8	3503	M 9	7501	K 9
H 9	3504	E 2	7502	E 5
G10	3505	F 3	7503	E 3
G10	3505	L12	7505	L13
C 8	3506	G11	7509	N10
B 9	3506	N10	7510	N 9
B10	3507	E 4	7511	H 3
B 9	3508	N10	7512	I 3
B10	3509	F 4	7513	M12
B 8	3509	M 9	7514	N11
C15	3510	N10	7520	C 7
D14	3511	H 3	7520	C 7
E14	3511	N 8	7521	D 7
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G15	3512	N13	7540	E14
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H17	3513	M12	7550	H17
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J 2	3517	O11	7570	G21
J 4	3520	L12	7571	E 2
J 3	3521	K13		
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G17	3524	H 8		
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K19	3527	C11		
K 1	3528	B11		
K 2	3536	B 9		
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K 5	3542	F13		
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F19	3544	G14		
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G20	3556	L 4		
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F20	3559	K 6		
K23	3567	K 6		
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L26	3575	E24		
J25	3576	D20		
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E27	3591	F24		
E28	3592	D21		
E28	3593	D21		
C29	3594	D20		
C29	3594	L29		
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E29	4166	D34		
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C30	4539	G 9		
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## Monocarrier

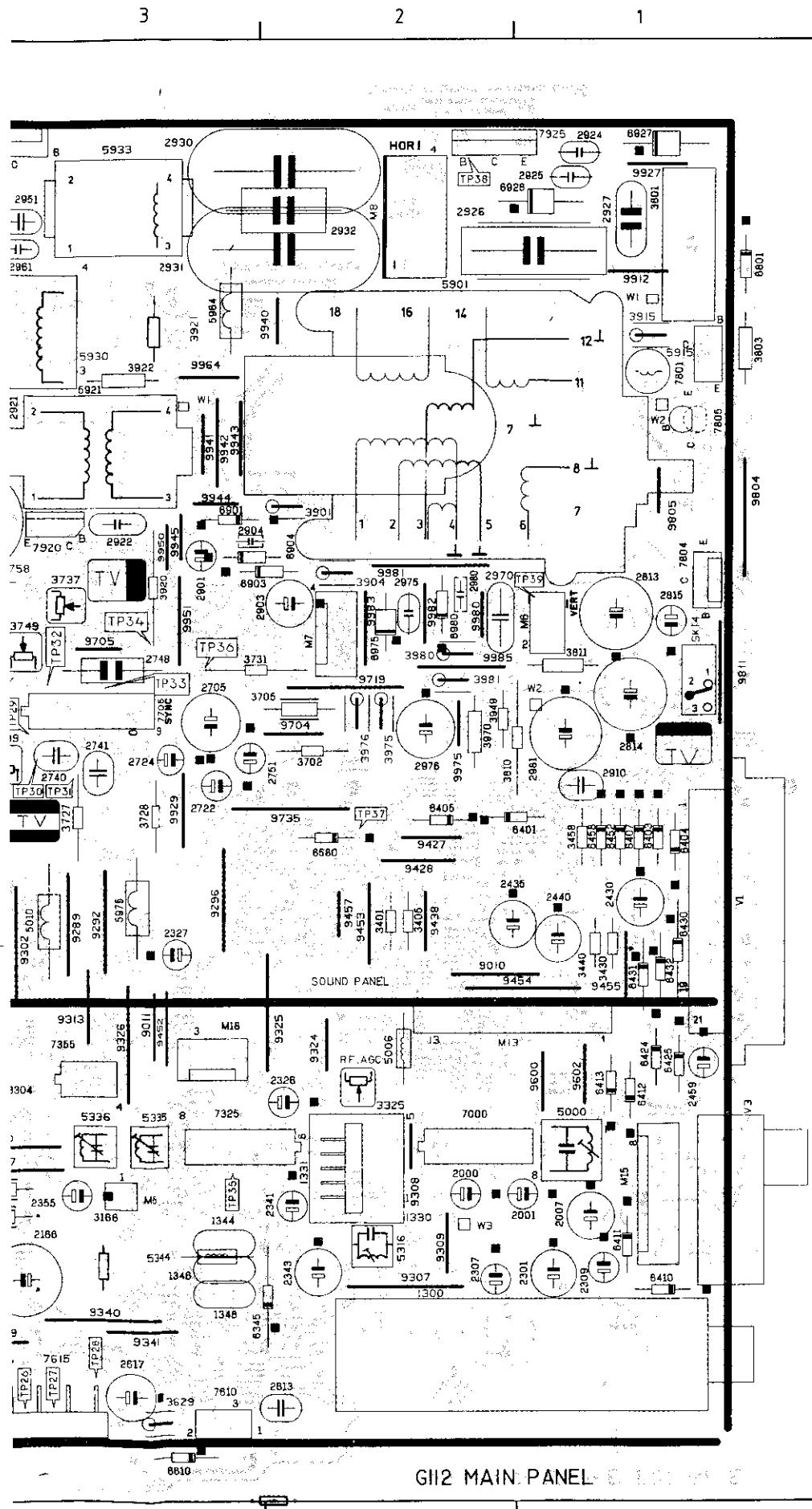
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## **Picture tube module**

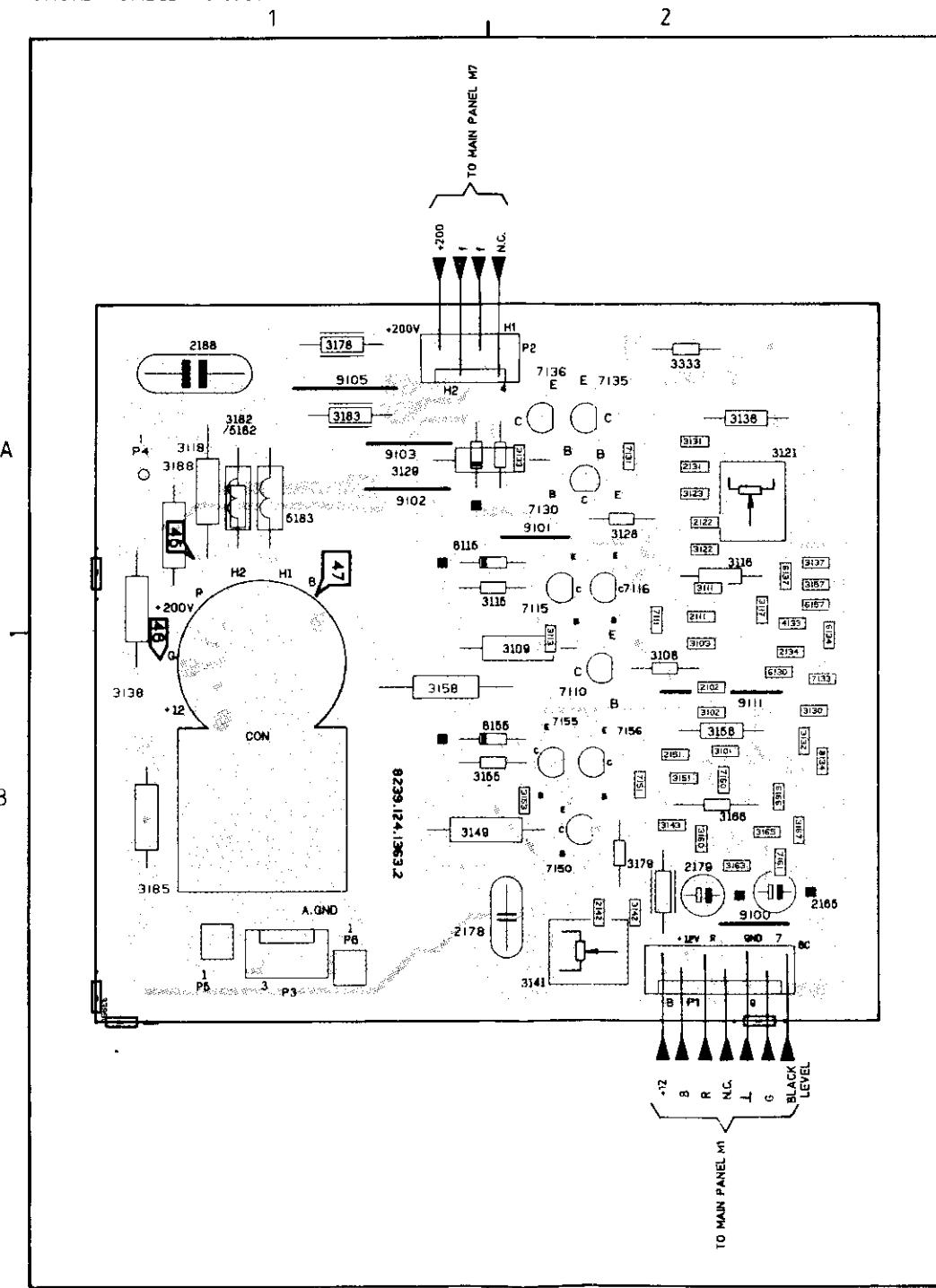
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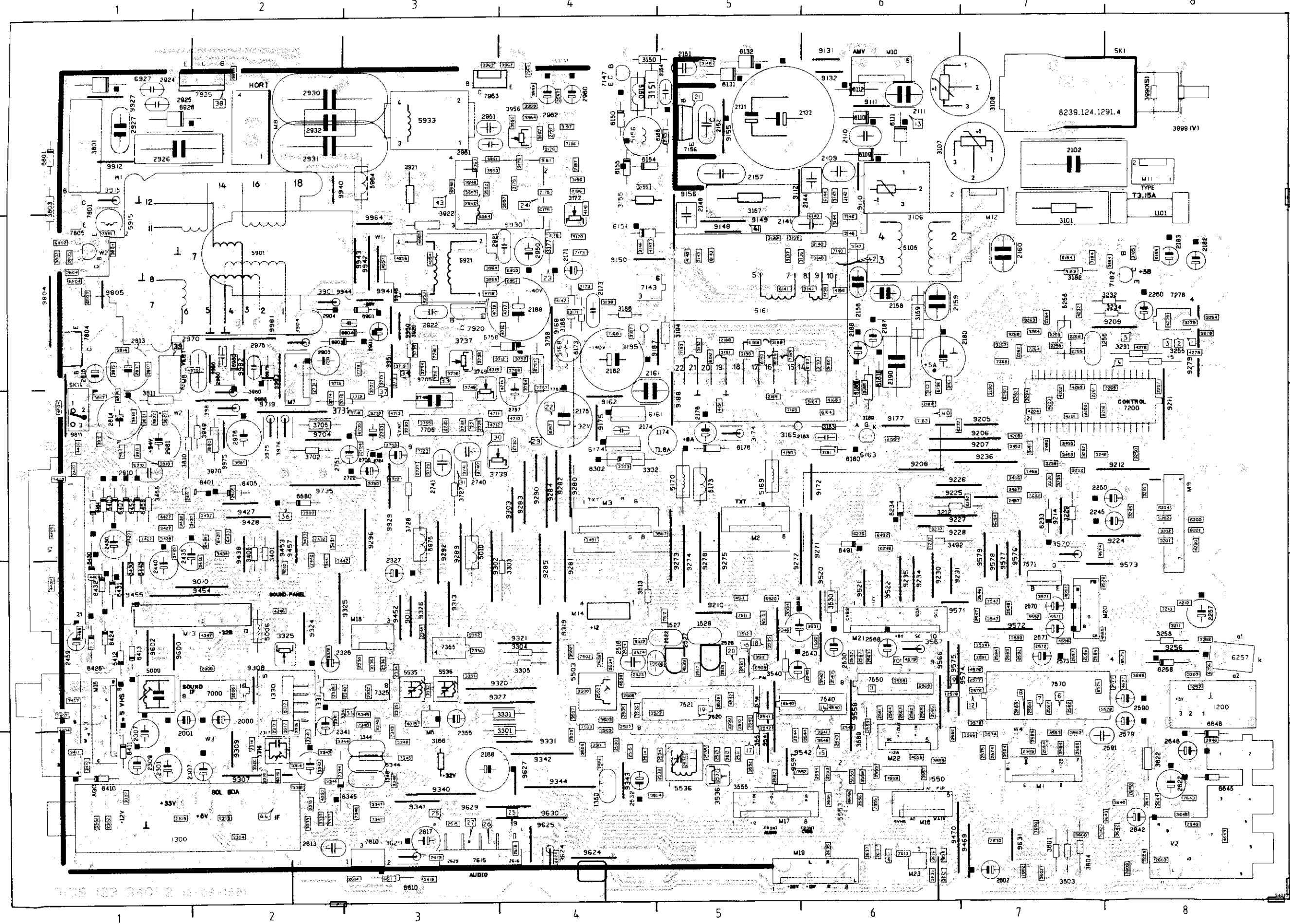
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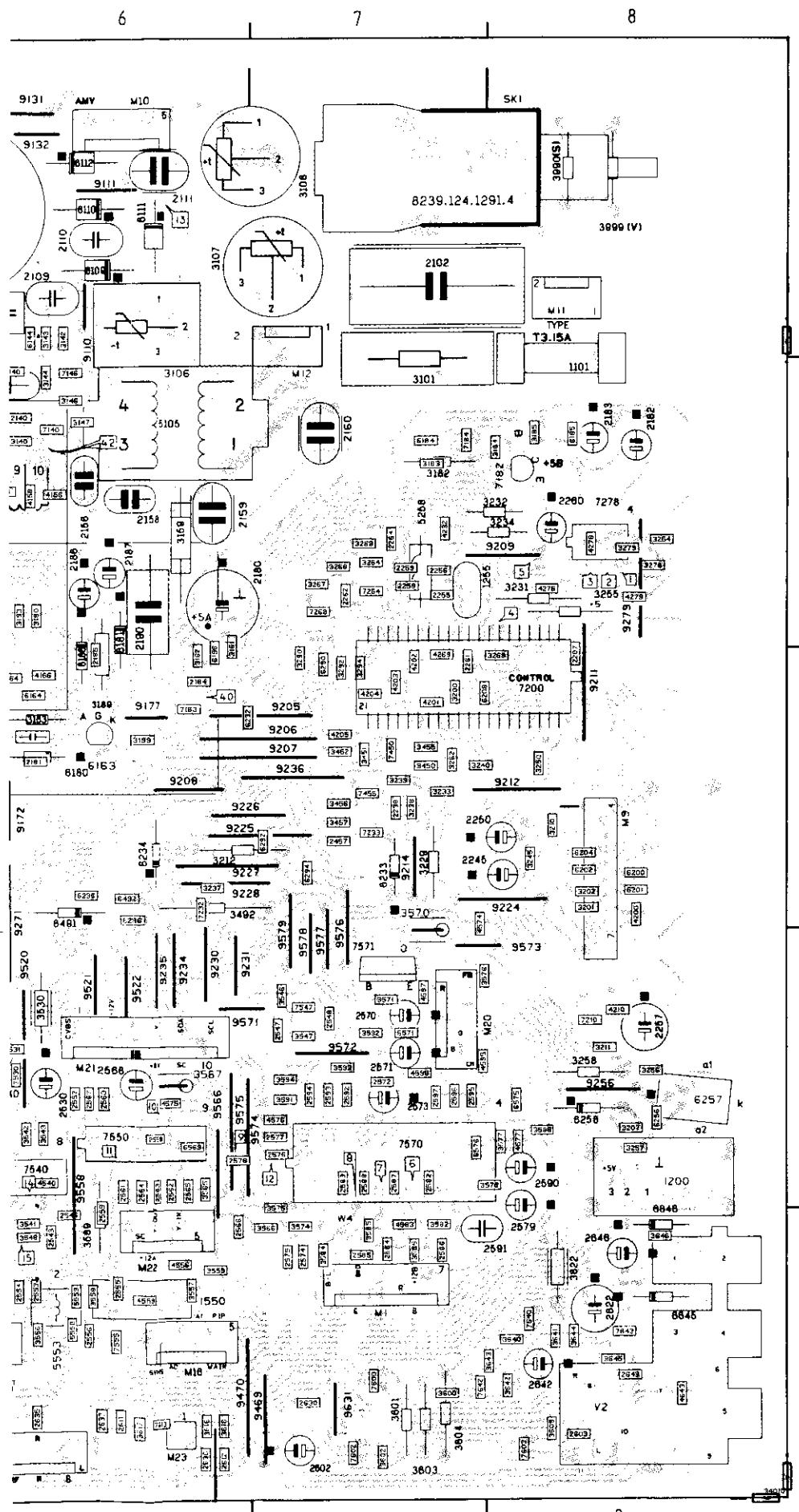
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1255 B7	2981 C1	6132 A5	9274 C5	M9
1300 E1	3101 A7	6150 A4	9275 C5	SK14
1330 D2	3108 A6	6151 B5	9278 D5	V1
1331 D2	3107 A7	6154 A5	9279 B8	V2
1344 E3	3108 A7	6155 A4	9280 C4	V3
1346 E3	3150 A5	6156 A5	9281 D4	W1
1348 E3	3151 A5	6181 C4	9282 C4	W2
1350 E4	3155 A5	6183 C9	9283 C4	W3
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2007 E1	3188 B4	6188 C6	9296 C3	
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2540 D5	3901 B2	7805 B1	9705 B3	
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2570 D7	3915 A1	7925 A2	9735 C2	
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2573 D7	3921 A3	9010 D2	9805 B1	
2579 D8	3922 B3	9011 D3	9811 C1	
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2622 E8	3980 C2	9148 B5	9942 B3	
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2740 C3	5010 C3	9183 B4	9964 B3	
2741 C3	5105 B6	9172 C6	9975 C2	
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2922 B3	5344 E3	9212 C8	M14 D4	
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2928 A1	5536 E5	9224 C8	M16 E6	
2927 A1	5553 E8	9225 C7	M17 F5	
2930 A2	5501 A2	9226 C7	M18 D3	
2931 A2	5515 A1	9227 C6	M19 E5	
2932 A2	5521 B3	9228 C8	M2 C5	
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2961 A4	5575 C3	9235 D6	M23 E8	
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**CHASSI**



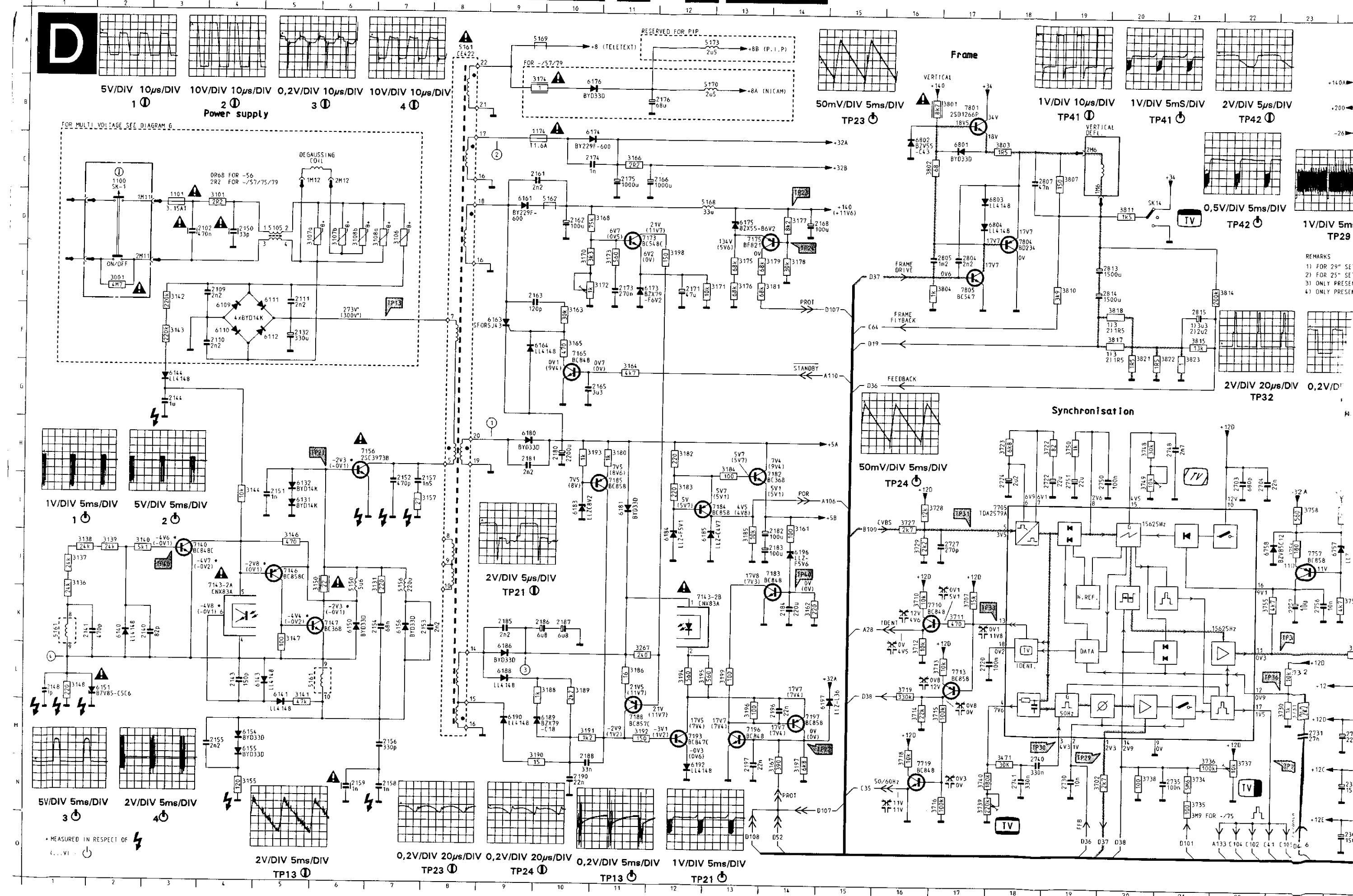
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2163 C6	2557 D8	3143 A6	3401 C2	3716 C3	4575 D6	6412 D1	7801 A1	9629 E4
2165 C5	2558 D6	3144 A6	3403 C1	3718 C3	4576 D7	6413 D1	7804 B1	9630 E4
2166 E3	2559 D6	3145 A5	3405 C2	3719 B3	4577 D8	6424 D1	7805 B1	9631 E7
2168 B4	2560 B6	3146 B6	3407 D1	3722 C3	4583 E7	6425 D1	7811 C1	9704 C2
2171 B4	2561 D6	3147 B6	3410 E1	3723 C3	4595 D7	6428 C2	7820 B3	9705 B3
2173 B4	2562 D6	3148 B4	3411 E1	3727 C3	4596 D7	6430 D1	7925 A2	9719 C2
2174 C4	2563 D6	3150 A5	3427 C1	3728 C3	4597 D8	6431 D1	7982 A4	9735 C2
2175 C4	2564 D6	3151 A4	3428 C1	3729 C3	4843 E8	6432 D1	7863 A4	9804 B1
2176 C5	2565 D6	3155 A5	3429 C1	3730 C3	4710 C4	6433 C2	9010 D2	9805 B1
2180 C8	2566 E8	3157 A4	3430 D1	3731 C3	4711 C4	6438 C2	9011 D3	9811 C1
2181 C9	2567 D6	3158 B6	3432 C2	3732 C3	4712 C4	6452 C1	9110 A6	9912 A1
2182 B8	2568 E8	3181 B6	3433 C2	3734 B3	4713 C3	6458 C1	9111 A6	9927 A1
2183 B8	2570 D7	3182 B6	3434 C2	3735 B3	4714 B4	6491 C6	9112 A5	9929 C3
2184 C4	2571 D7	3183 C6	3435 C2	3736 B3	4715 B4	6492 C6	9131 A6	9940 A2
2185 B6	2572 D7	3184 C6	3437 C2	3737 B3	4716 B4	6509 D5	9132 A6	9941 B3
2186 B7	2573 D7	3185 C5	3438 C1	3738 B3	4717 B4	6510 D5	9148 B5	9942 B3
2187 B6	2574 E7	3186 B3	3439 C1	3739 C3	4718 B4	6515 D5	9149 B5	9943 B3
2188 B5	2575 E7	3187 A4	3440 D1	3740 C3	4719 B4	6520 D5	9150 B5	9944 B3
2190 B6	2576 D7	3188 B4	3441 C2	3741 C3	4804 C1	6540 D5	9155 A5	9945 B3
2194 A4	2577 D7	3170 B4	3442 C3	3748 B3	4815 C1	6568 D6	9156 B5	9950 B3
2197 A4	2578 D8	3171 B4	3450 C7	3749 C3	4953 B3	6571 D7	9182 C4	9951 B3
2207 B8	2579 D8	3172 B4	3451 C7	3750 C3	4954 B3	6575 D8	9188 B4	9964 B3
2238 C7	2580 C2	3173 B4	3452 C7	3754 B4	4955 B3	6576 D7	9172 C6	9975 C2
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2256 E7	2586 E7	3177 B4	3458 C1	3758 B4	5000 D1	6645 E8	9188 C5	9983 B2
2257 D8	2587 D7	3178 B4	3459 D1	3801 A1	5006 D2	6646 E8	9205 C7	9985 C2
2258 D7	2588 D7	3179 B4	3459 C8	3802 B1	5010 C3	6705 C3	9208 C7	C8
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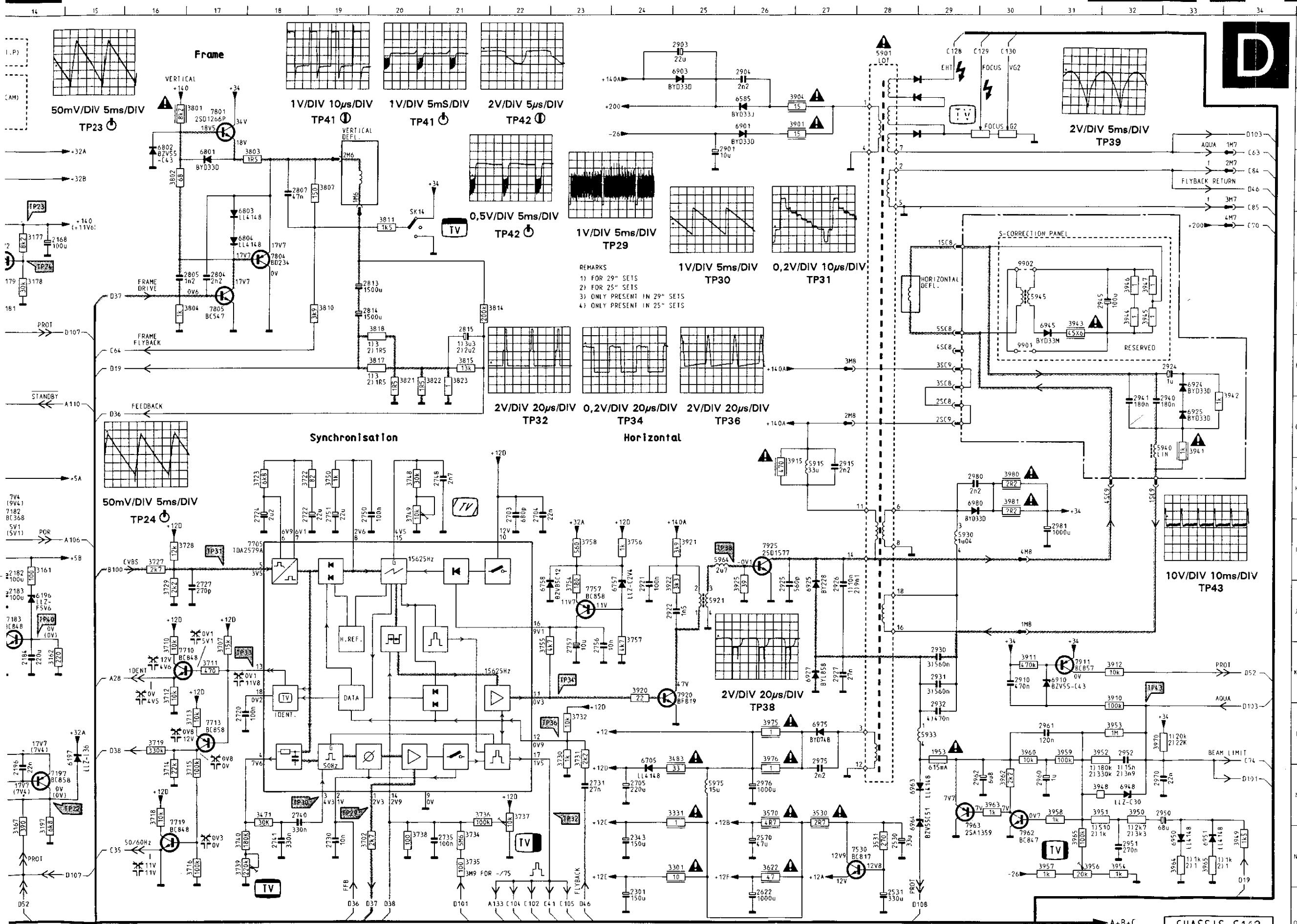
## Power supply

## Synchronization

CHASSIS G112 6.21

6.22 CHASSIS G112





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1953	L29	3143	F 3	3945	E32	7193	M12
A 2102	O 3	3144	I 4	3946	E32	7196	M13
2109	E 4	3146	J 5	3947	E32	7197	M14
2110	F 4	3147	K 5	3948	M32	7530	N27
2111	E 5	3148	L 1	3949	N34	7705	118
2132	F 5	3150	J 6	3950	M32	7710	K16
2140	K 3	3155	N 4	3951	M32	7713	:17
2141	K 2	3157	I 7	3952	L32	7719	M16
2143	I 4	3161	I14	3953	L32	7757	J23
B 2144	G 3	3162	K14	3954	M32	7801	817
2148	L 1	3163	O10	3956	N31	7804	D18
2150	D 4	3164	G11	3957	N31	7805	E17
2151	I 5	3165	T10	3958	M31	7911	K31
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2153	K 8	3167	N14	3960	L30	7925	I26
2154	K 7	3168	D10	3962	M30	7962	N30
2155	M 4	3170	E10	3963	M30	7963	M29
C 2156	M 7	3171	I13	3964	N33	9501	F30
2157	I 7	3172	E10	3965	N33	9902	D30
2158	N 7	3173	E11	3965	N33		

2159	N 6	3174	E 13	5983	N 51
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2162	D 10	3176	E 13	3976	L 26
2163	E 9	3177	D 14	3980	H 30
2165	G 10	3178	E 14	3981	H 30
2166	C 11	3179	E 13	5105	D 5
2168	D 14	3180	H 11	5150	J 6
2171	E 12	3181	E 13	5156	J 7
2173	E 11	3182	H 12	5161	A 8
2174	C 10	3183	I 12	5161	K 1
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2176	B 11	3185	I 13	5162	D 10
2180	H 10	3186	L 11	5168	D 12
2181	H 9	3188	L 10	5169	A 9
2182	I 14	3189	L 10	5170	B 12
2183	J 14	3190	M 10	5173	A 12
2184	K 14	3191	M 10	5901	A 28
2185	K 9	3192	M 11	5915	H 27
2186	K 10	3193	H 10	5921	J 25
= 2187	K 10	3194	L 12	5930	I 29
2188	M 10	3195	L 13	5933	L 29
2190	N 10	3196	M 13	5940	G 32
2196	M 14	3197	N 12	5945	E 30
- 2197	N 13	3198	D 12	5944	I 25
2301	D 24	3199	L 13	5975	M 25
2343	N 24	3267	L 11	6109	F 4
2530	N 28	3301	N 25	6110	F 4
5 2531	O 28	3331	M 25	6111	E 5
2570	N 26	3471	M 18	6112	F 5
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- 2704	H 22	3531	N 28	6140	K 2
2705	M 24	3570	M 26	6141	I 5
2720	L 17	3622	N 26	6143	L 5
2722	H 19	3702	N 20	6144	G 3
2724	H 18	3707	K 17	6150	K 6
2727	J 17	3710	K 16	6151	L 2
2730	N 19	3711	K 17	6154	M 4
- 2731	M 23	3712	K 16	6155	M 4
2735	N 21	3713	L 17	6156	K 7
2740	M 18	3714	M 16	6161	O 9
2741	N 18	3715	M 17	6163	F 9
2748	H 21	3716	N 17	6164	F 9
2750	H 21	3718	M 16	6173	E 11
2751	H 19	3719	L 16	6174	B 10
2756	K 23	3722	H 19	6175	D 13
- 2757	K 23	3723	H 18	6176	B 10
2804	E 17	3727	I 16	6180	H 9
2805	E 16	3728	I 16	6181	I 11
2807	E 18	3729	J 16	6183	H 10
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2901	C 25	3734	N 21	6188	L 9
2903	A 25	3735	N 21	6189	M 10
2904	A 26	3736	M 21	6190	M 9
2910	K 30	3737	M 22	6192	N 12
2915	H 27	3738	N 20	6196	J 14
2921	J 24	3739	N 17	6197	L 15
2922	J 25	3740	N 17	6585	B 26
2924	F 33	3748	H 20	6705	M 24
2925	J 26	3749	H 20	6757	J 24
2926	J 27	3750	H 19	6758	J 22
2927	K 27	3754	J 23	6801	C 17
2930	K 29	3755	K 22	6802	C 16
2931	K 29	3756	I 24	6803	D 17
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2940	G 33	3758	I 23	6901	B 26
2941	G 32	3801	B 17	6903	A 25
2945	E 32	3802	C 16	6910	K 31
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2951	N 32	3804	E 16	6925	J 27
2952	L 32	3807	C 19	6952	G 33
2960	M 31	3810	E 19	6927	K 27
2961	L 31	3811	D 20	6945	E 31
2962	M 30	3814	E 22	6948	M 32
2970	M 33	3815	F 21	6950	N 33
2975	M 27	3817	F 20	6951	N 33
2976	M 26	3818	E 20	6953	M 29
2980	H 29	3821	F 20	6964	M 29
2981	I 31	3822	F 20	6975	L 27
3001	E 2	3823	F 21	6980	H 29
3101	D 4	3901	B 27	7140	J 3
3106	D 7	3904	B 27	7143	K 13
3107	D 5	3910	K 32	7143	K 4
3107	D 6	3911	K 30	7146	J 5
3108	D 6	3912	K 32	7147	K 6
3108	D 7	3915	H 26	7156	H 6
3131	J 7	3920	K 24	7165	F 10
3136	J 1	3921	I 25	7173	D 11
3137	J 1	3922	J 25	7175	D 13
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CHASSIS G112

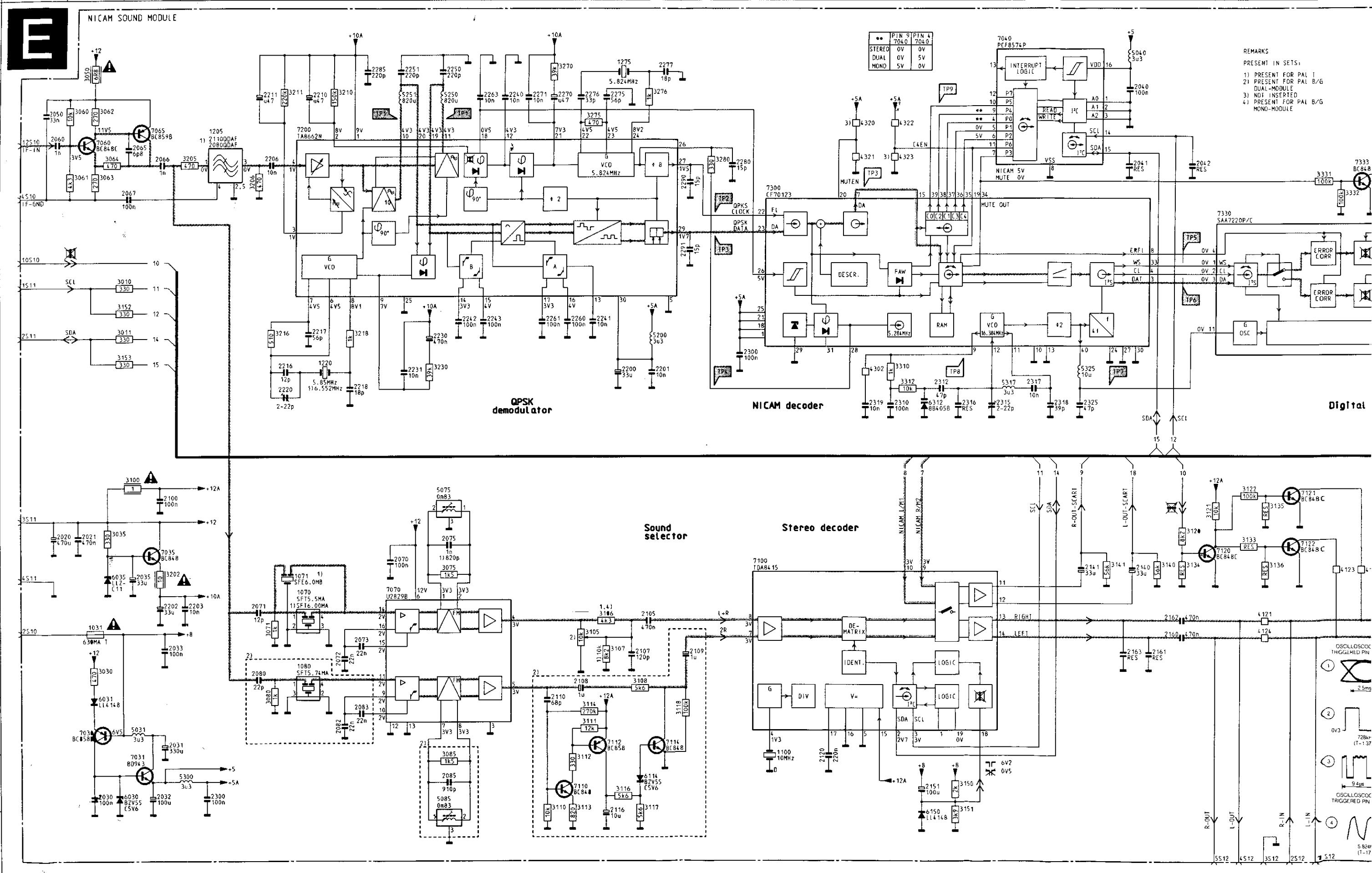
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CHASSIS G112

## NICAM module

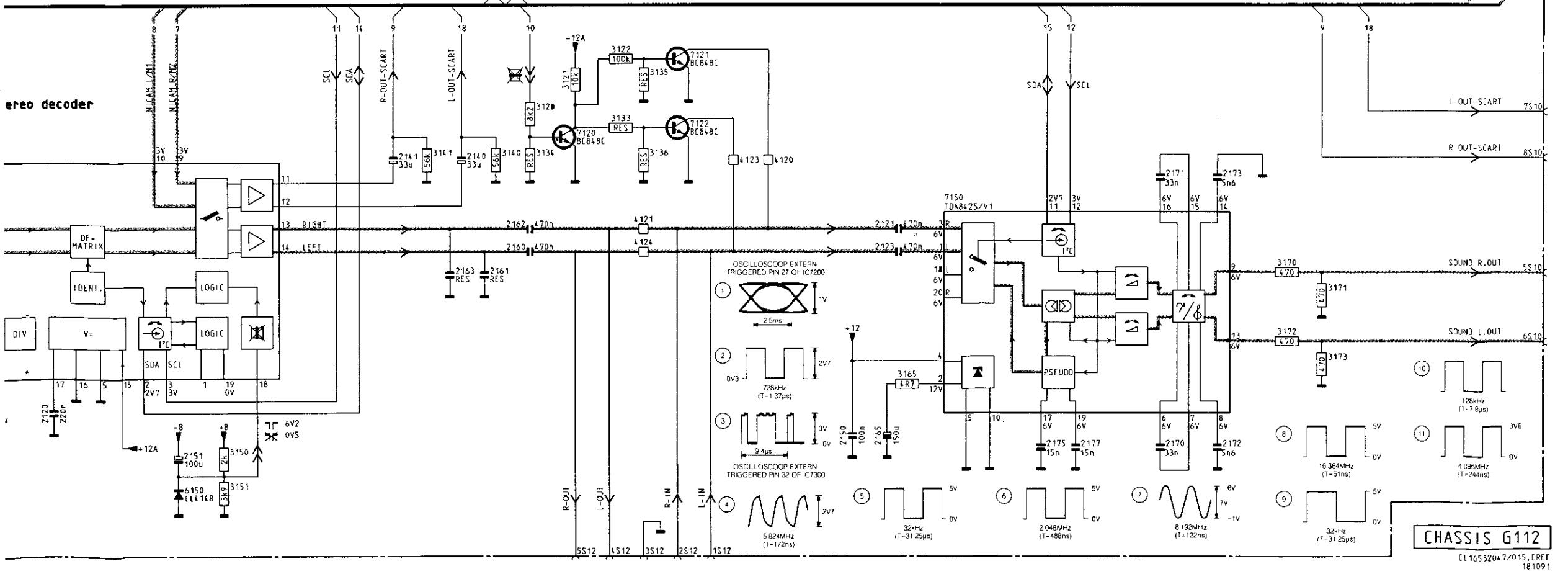
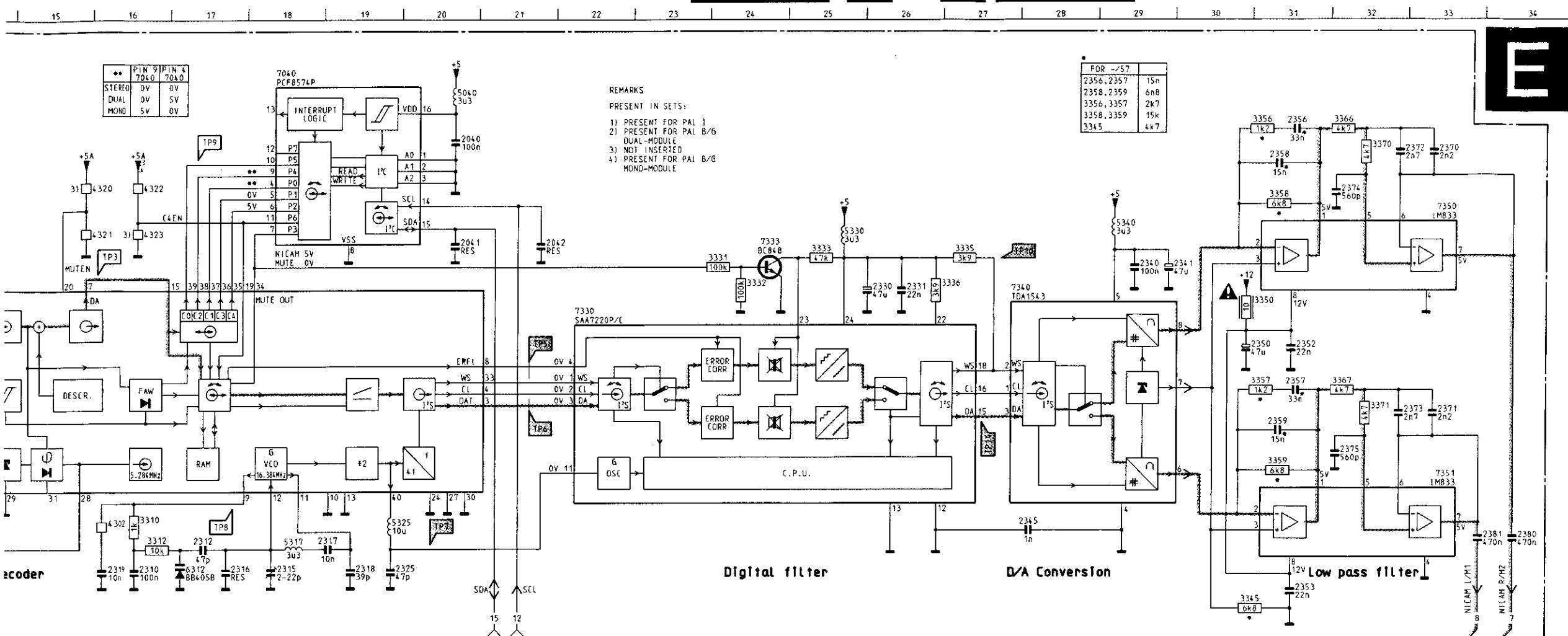
CHASSIS G



CHASSIS G112

6.27

6.28 CHASSIS G112



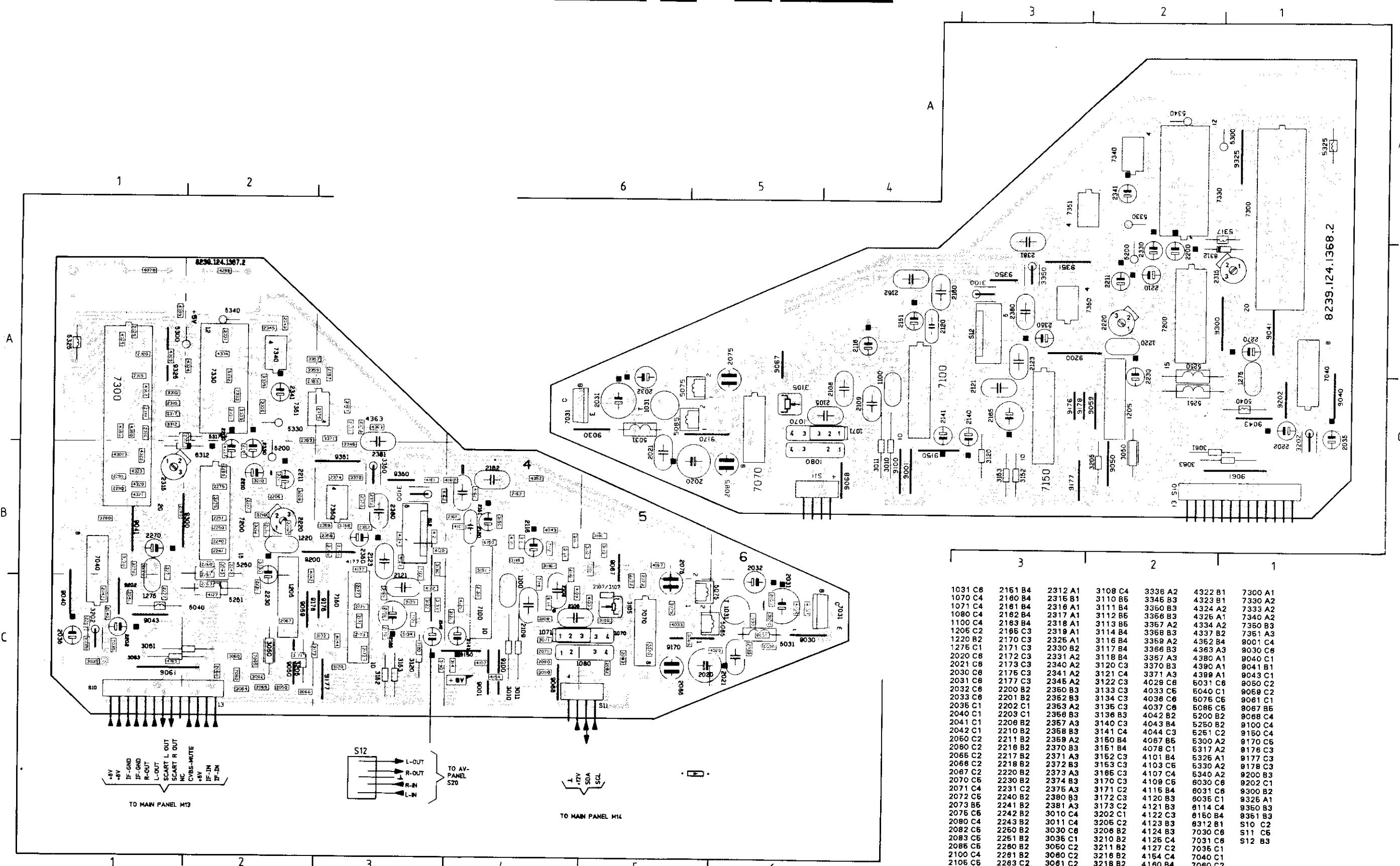
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	1205	N14	3050	B 2	7350	D22
	1220	G 6	3061	C 2	7340	D27
	1275	A11	3062	B 2	7350	C33
	2020	J 1	3063	C 2	7351	F33
	2021	J 2	3064	C 2		
	2030	N 2	3071	K 5		
	2031	M 3	3075	J 8		
	2032	N 3	3080	H 5		
	2033	L 3	3085	N 8		
	2035	J 3	3100	I 3		
	2040	B20	3105	K11		
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	2042	C21	3107	L11		
	2050	B 1	3108	L12		
	2060	C 1	3110	H10		
	2065	C 3	3111	H11		
	2066	C 3	3112	N11		
	2067	D 3	3113	N11		
	2070	J 7	3114	M11		
	2071	K 5	3116	N11		
	2072	L 6	3117	N12		
	2073	L 7	3118	H12		
	2075	J 8	3120	J21		
	2080	L 5	3121	I22		
	2082	M 6	3122	I22		
	2083	M 7	3133	J22		
	2085	N 8	3134	J21		
	2100	I 3	3135	I23		
	2105	K12	3136	J23		
	2107	L 12	3140	J21		
	2108	L 11	3141	J20		
	2109	L 13	3150	H17		
	2110	M 10	3151	N17		
	2116	O 11	3152	F 3		
	2120	N 15	3153	G 3		
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	2141	J19	3170	L31		
	2150	N25	3171	L31		
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	2172	N30	3218	F 7		
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	2177	N28	3275	B11		
	2200	G11	3276	B12		
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	2206	C 5	3331	C24		
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	2211	B 5	3333	C25		
	2216	G 5	3335	C27		
	2217	F 6	3336	D26		
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	2261	B 9	4123	J24		
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	2277	B12	4322	B16		
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	2330	D26	5340	C29		
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	2341	C29	6035	J 2		
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	2357	E31	7035	J 3		
	2358	B31	7040	A18		
	2359	F31	7060	C 2		
	2370	B33	7065	C 3		
	2371	E33	7070	K 7		
	2372	B32	7100	J 14		
	2373	E32	7110	N10		
	2374	C32	7112	M11		
	2375	F32	7114	M12		
	2380	G34	7120	J22		
	2381	G33	7121	I23		

NICAM module

CHASSIS G112

29

6.30 CHASSIS G112



1031 C6	2151 B4	2312 A1	3108 C4	3338 A2	4322 B1	7300 A1
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1071 C4	2181 B4	2316 A1	3111 B4	3350 B3	4324 A2	7333 A2
1080 C4	2182 B4	2317 A1	3112 B6	3356 B3	4325 A1	7340 A2
1100 C4	2183 B4	2318 A1	3113 B5	3357 A2	4334 A2	7350 B3
1205 C2	2185 C3	2319 A1	3114 B4	3358 B3	4337 B2	7351 A3
1220 B2	2170 C3	2325 A1	3116 B4	3359 A2	4362 B4	9001 C4
1275 C1	2171 C3	2330 B2	3117 B4	3366 B3	4363 A3	9030 C8
2020 C8	2172 C3	2331 A2	3118 B4	3357 A3	4380 A1	8040 C1
2021 C8	2173 C3	2340 A2	3120 C3	3370 B3	4380 A1	8041 B1
2030 C8	2176 C3	2341 A2	3121 C4	3371 A3	4389 A1	9043 C1
2031 C8	2177 C3	2345 A2	3122 C3	4028 C8	5031 C8	8050 C2
2032 C8	2200 B2	2360 B3	3133 C3	4033 C5	5040 C1	9058 B2
2033 C8	2201 B2	2352 B3	3134 C3	4038 C6	5076 C5	8081 C1
2035 C1	2202 C1	2353 A2	3135 C3	4037 C8	5085 C6	8087 B6
2040 C1	2203 C1	2356 B3	3136 B3	4042 B2	5200 B2	8088 C4
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2050 C2	2211 B2	2359 A2	3150 B4	4087 B6	5300 A2	9170 C5
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2072 C5	2240 B2	2380 B3	3172 C3	4120 B3	8035 C1	9325 A1
2073 B6	2241 B2	2381 A3	3173 C2	4121 B3	8114 C4	9350 B3
2078 C6	2242 B2	3010 C4	3202 C1	4122 C3	8150 B4	8361 B1
2080 C4	2243 B2	3011 C4	3205 C2	4123 B3	8312 B1	S10 C2
2082 C6	2260 B2	3030 C6	3206 B2	4124 B3	7030 C8	S11 C6
2083 C5	2261 B2	3035 C1	3210 B2	4125 C4	7031 C8	S12 B3
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2107 C5	2270 B1	3082 C2	3230 B2	4161 B3	7065 C2	
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2110 B4	2276 B1	3071 C4	3278 B1	4177 B3	7110 B6	
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2123 B3	2280 B1	3100 B3	3331 A2	4302 A1	7121 C3	
2140 C3	2281 B1	3105 C6	3332 A2	4305 A1	7122 B3	
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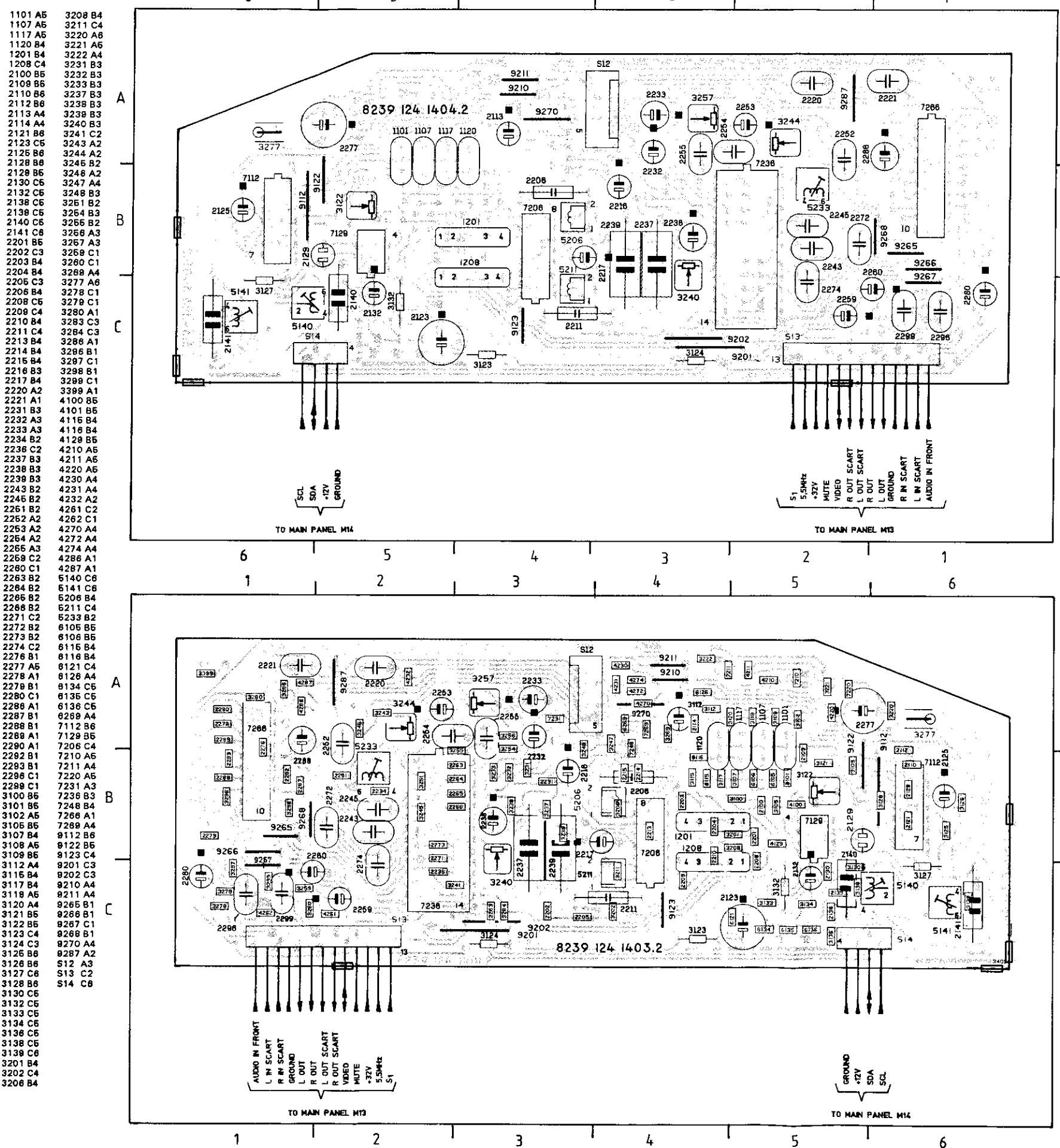
# Sound module

CHASSIS G112

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CHASSIS G112

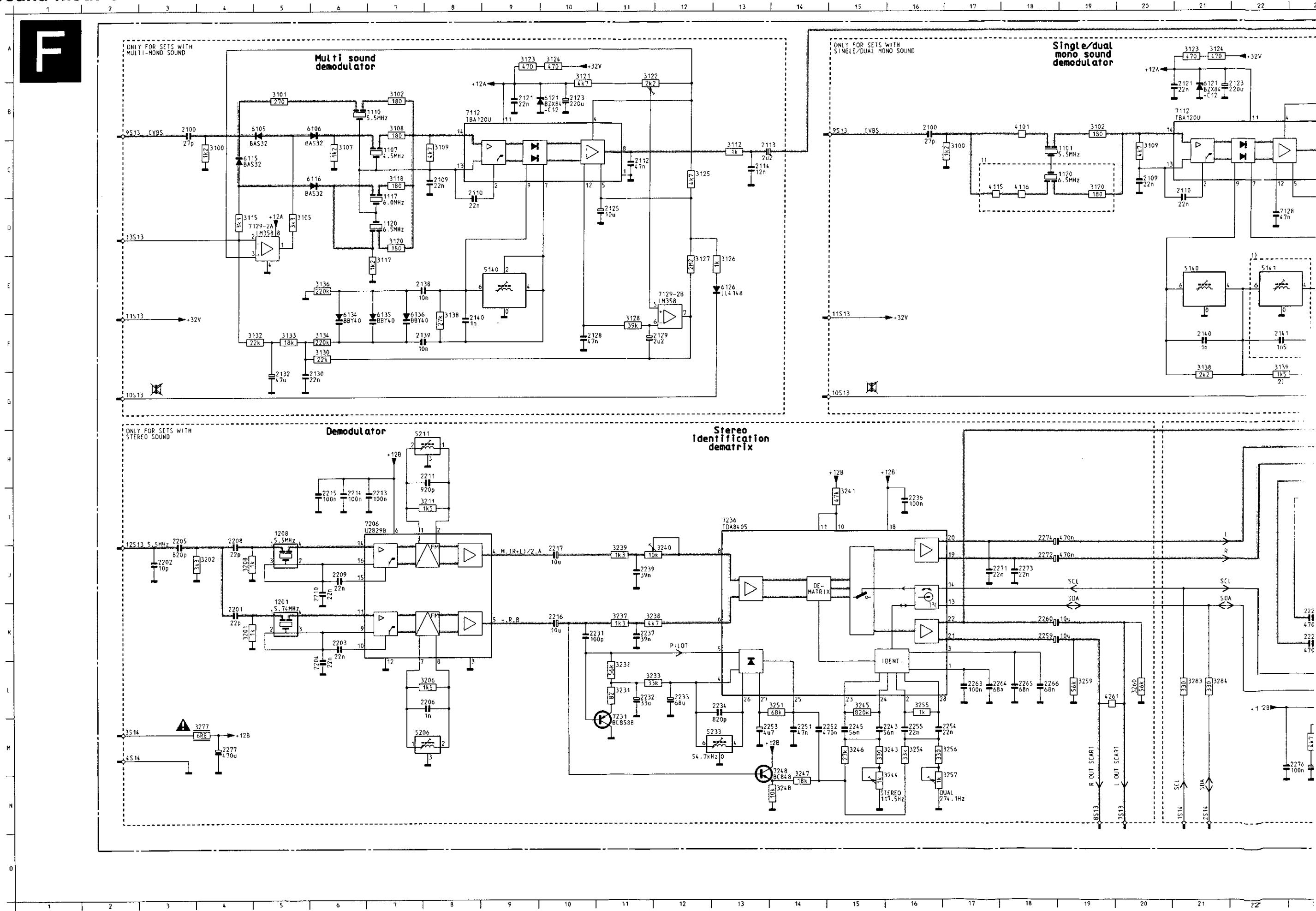


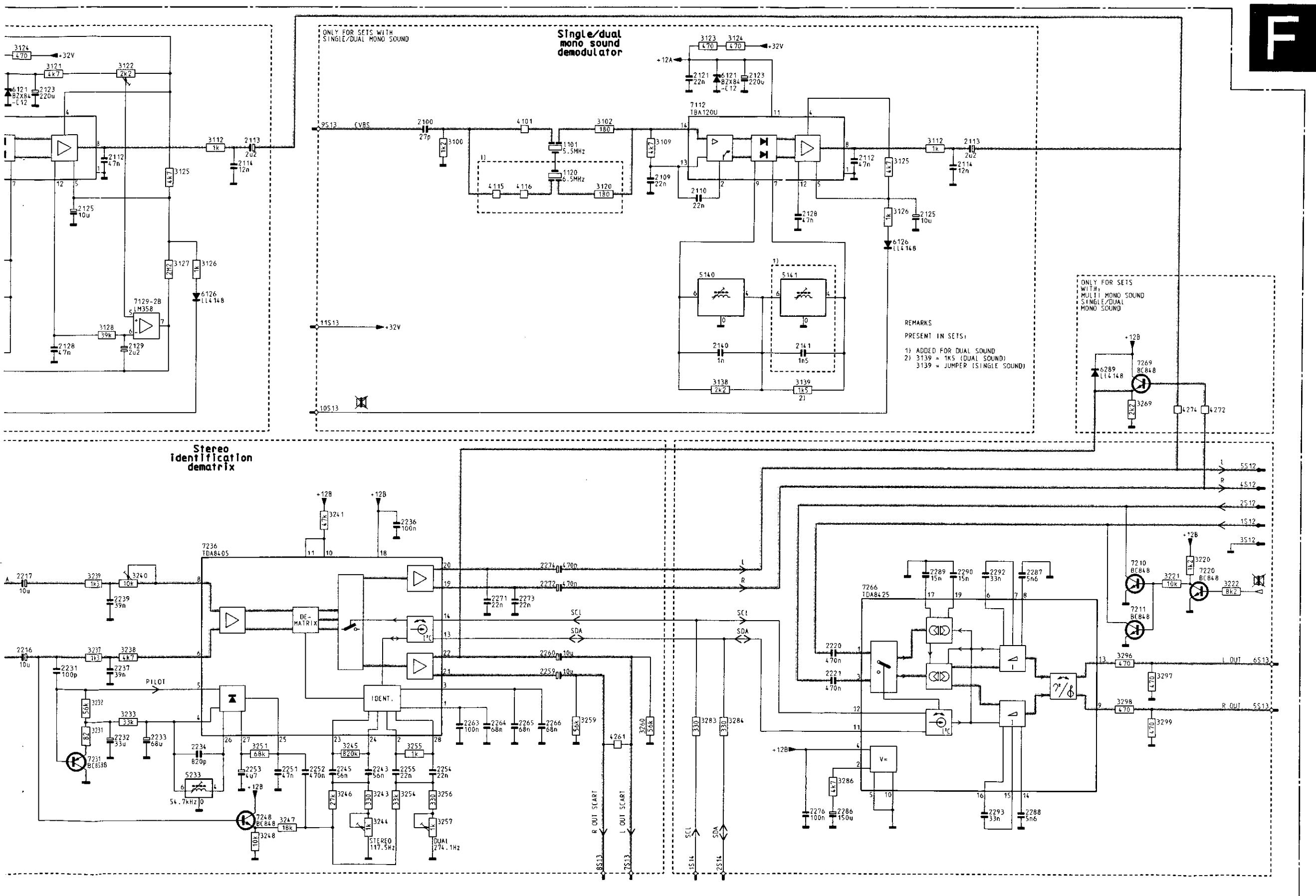
## Sound module

CHASSIS G112

6.33

.34 CHASSIS G112



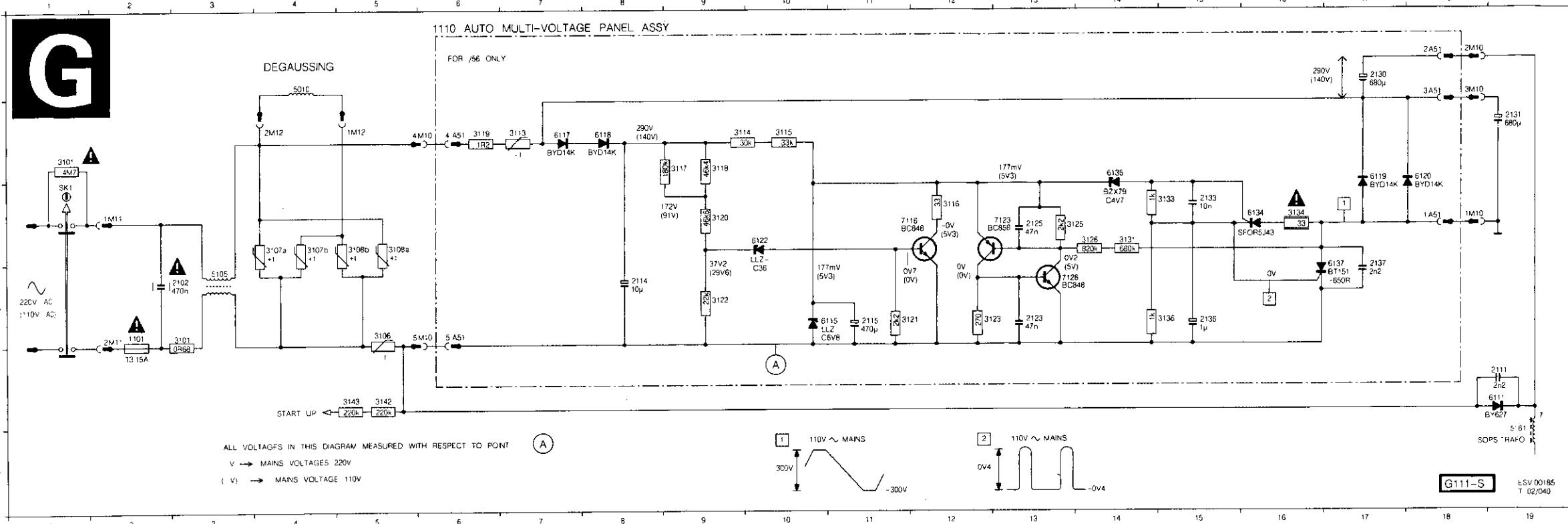


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1117	D 7	3135	E 6
A 1120	D 7	3136	E 8
1120	C18	3138	G21
1201	K 5	3139	G22
1208	I 5	3201	K 4
2100	B 3	3202	J 4
2108	B10	3204	J 8
2109	C 8	3208	J 4
2109	(20)	3211	I 8
2110	C 8	3220	I29
2110	(21)	3221	J28
2112	C11	3222	J29
2112	C23	3231	L11
2113	C25	3232	L11
2113	C13	3233	L12
2114	C25	3237	K11
2114	C13	3238	K12
C 2121	B 9	3239	J11
2121	B21	3240	J12
2123	B10	3241	L15
2123	B21	3243	M15
2125	D11	3244	H15
2125	D24	3245	L15
2128	F10	3246	M15
2128	D22	3247	N14
2129	F12	3248	N14
2130	G 6	3251	L14
2132	G 5	3254	M16
2138	E 8	3255	L16
2139	F 8	3256	M17
2140	F 8	3257	M17
E 2141	F22	3260	L20
2201	K 4	3269	G28
2202	J 3	3277	M 4
2203	K 6	3283	L21
2204	L 6	3284	L21
2205	I 3	3286	M23
2206	L 8	3286	K28
2208	I 4	3297	K28
2209	J 6	3298	L28
2210	J 6	3299	L28
2211	H 8	4101	B18
2213	I 7	4115	C17
2214	I 6	4116	C18
2215	I 6	4261	L19
2216	K10	4272	G29
G 2217	J10	4274	G28
2220	K23	5140	E 9
2221	K23	5140	E21
2231	K10	5141	E22
2232	L11	5206	M 7
2233	L12	5211	H 7
2234	L13	5233	M12
2236	I16	6105	B 5
H 2237	K11	6106	B 6
2239	J11	6135	C 4
2243	M15	6136	C 6
2245	M15	6121	B10
2251	M4	6121	B21
2252	M4	6126	E13
I 2253	M13	6126	D24
I 2254	M17	6134	F 6
I 2255	M16	6135	F 7
I 2259	K18	6136	F 7
I 2260	K18	6289	F27
I 2263	L17	7112	B 8
I 2264	L17	7112	B21
I 2265	L18	7129	O 4
J 2266	L18	7129	E12
J 2271	J17	7206	I 6
J 2272	J18	7210	I28
J 2273	J18	7211	J28
J 2274	I18	7220	J29
J 2276	M23	7231	M11
J 2277	M 4	7236	I13
K 2286	M23	7248	M14
K 2287	J26	7266	J23
K 2288	H26	7269	F28
J 2289	J24		
J 2290	J25		
J 2292	J25		
J 2293	M25		
L 3100	C 4		
L 3101	B 5		
L 3102	B 7		
L 3102	B19		
L 3105	D 5		
M 3107	C 6		
M 3108	B 7		
M 3109	C 8		
M 3109	C20		
M 3112	C24		
M 3112	C13		
M 3115	D 4		
N 3117	E 7		
N 3118	C 7		
N 3120	D 7		
N 3121	C19		
N 3122	A10		
N 3123	A11		
N 3123	A 9		
N 3124	A21		
N 3124	A10		
N 3125	A21		
N 3125	C12		
N 3126	C24		
N 3126	E13		
N 3126	D24		
N 3127	E12		
N 3128	F11		
N 3130	F 6		

6.36 CHASSIS G112

**Auto multivoltage module**

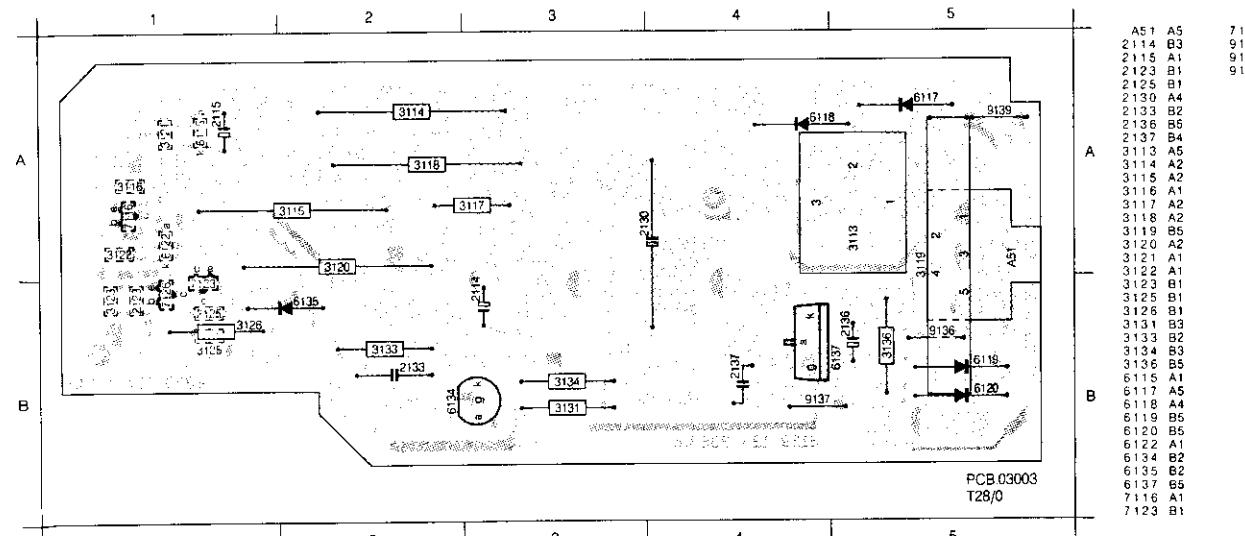
A51 A18	M10 B6	M12 B5	2114 DB	3101 D3	3116 C12	3121 D11	3131 C14	3143 E5	6115 D10	6122 C10	7126 D13
A51 B18	M10 D6	SK1 C1	2115 D11	3106 D5	3117 B9	3122 D9	3133 C15	5010 A4	6117 B7	6134 C15	9137 C4
A51 B6	M11 C2	1101 D2	2123 D13	2136 D15	3113 B7	3123 D12	3134 C16	5105 D3	6118 B6	6135 B14	9137 D17
A51 C18	M11 D2	2102 D9	2125 C13	2137 D17	3114 B9	3119 B6	3125 C13	5136 D15	6119 C17	6137 D17	9108a C5
A51 D6	M12 B4	2111 E19	2130 A17	3101 B1	3115 B10	3120 C9	3126 C14	3142 E5	6111 E19	6120 C18	7116 C11
											3108b C5



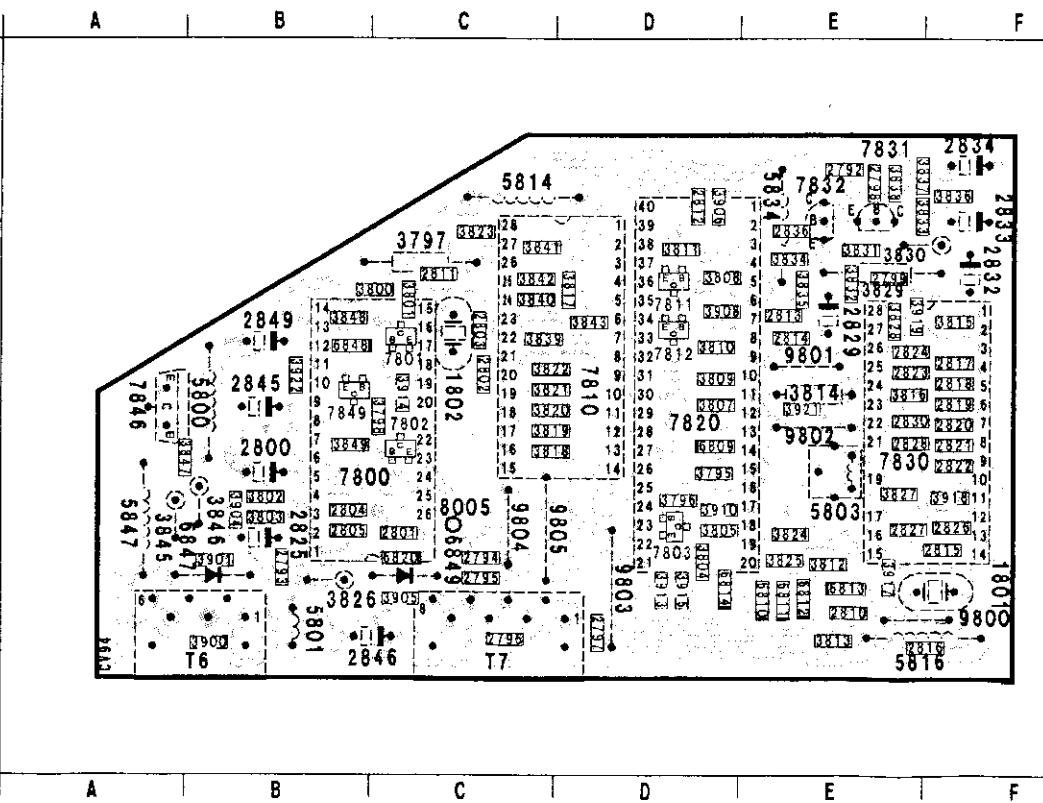
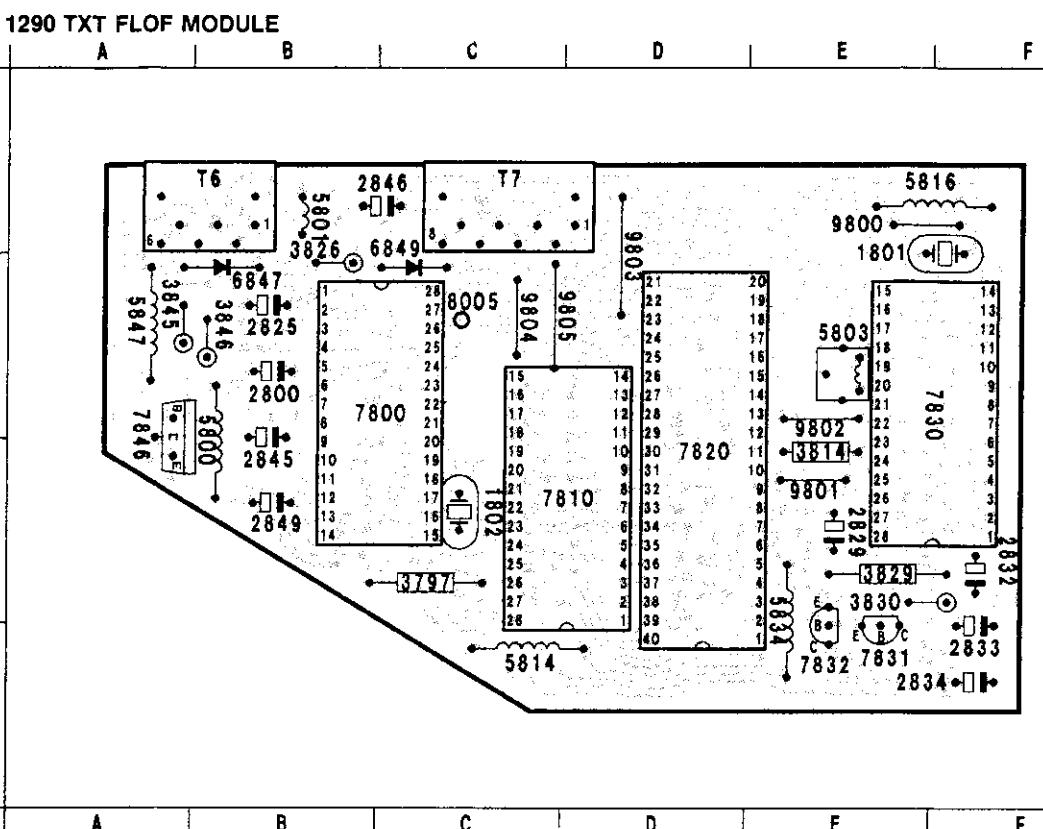
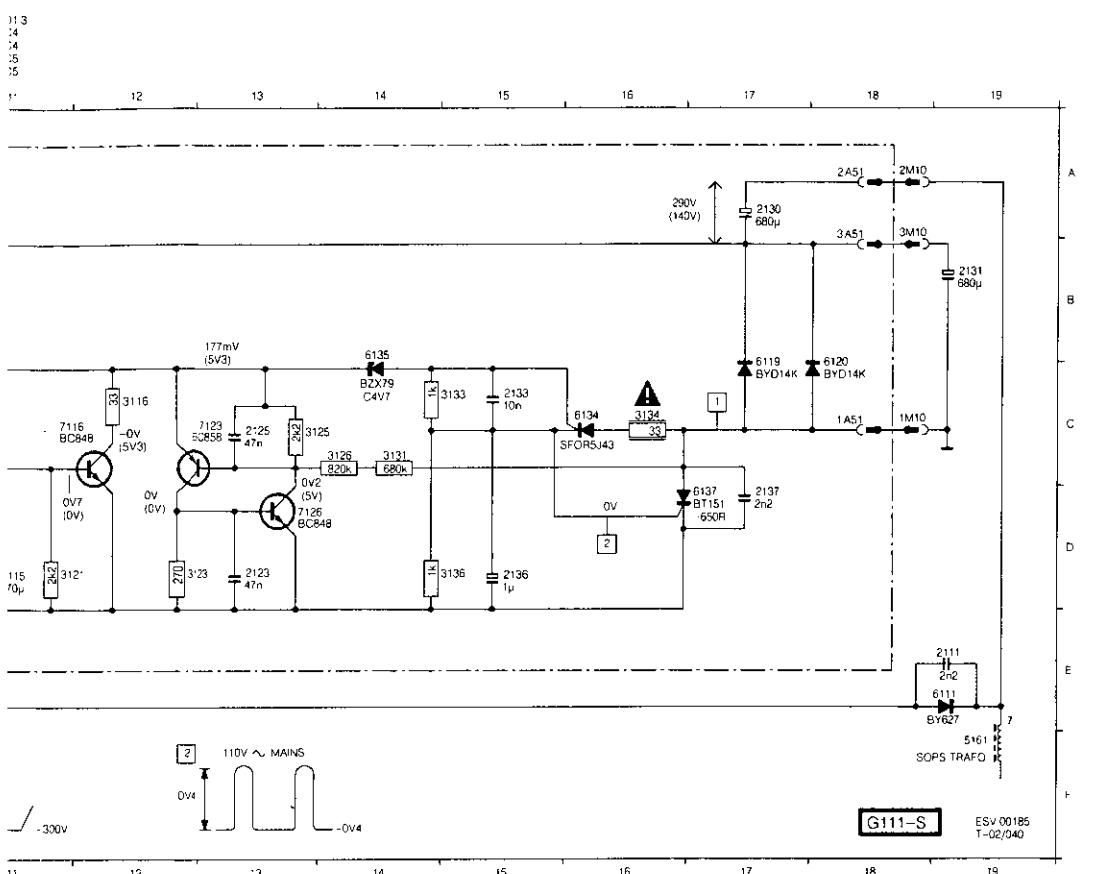
CHASSIS G112 6.37

6.38 CHASSIS

1290 TXT FLOF M



## Teletext module

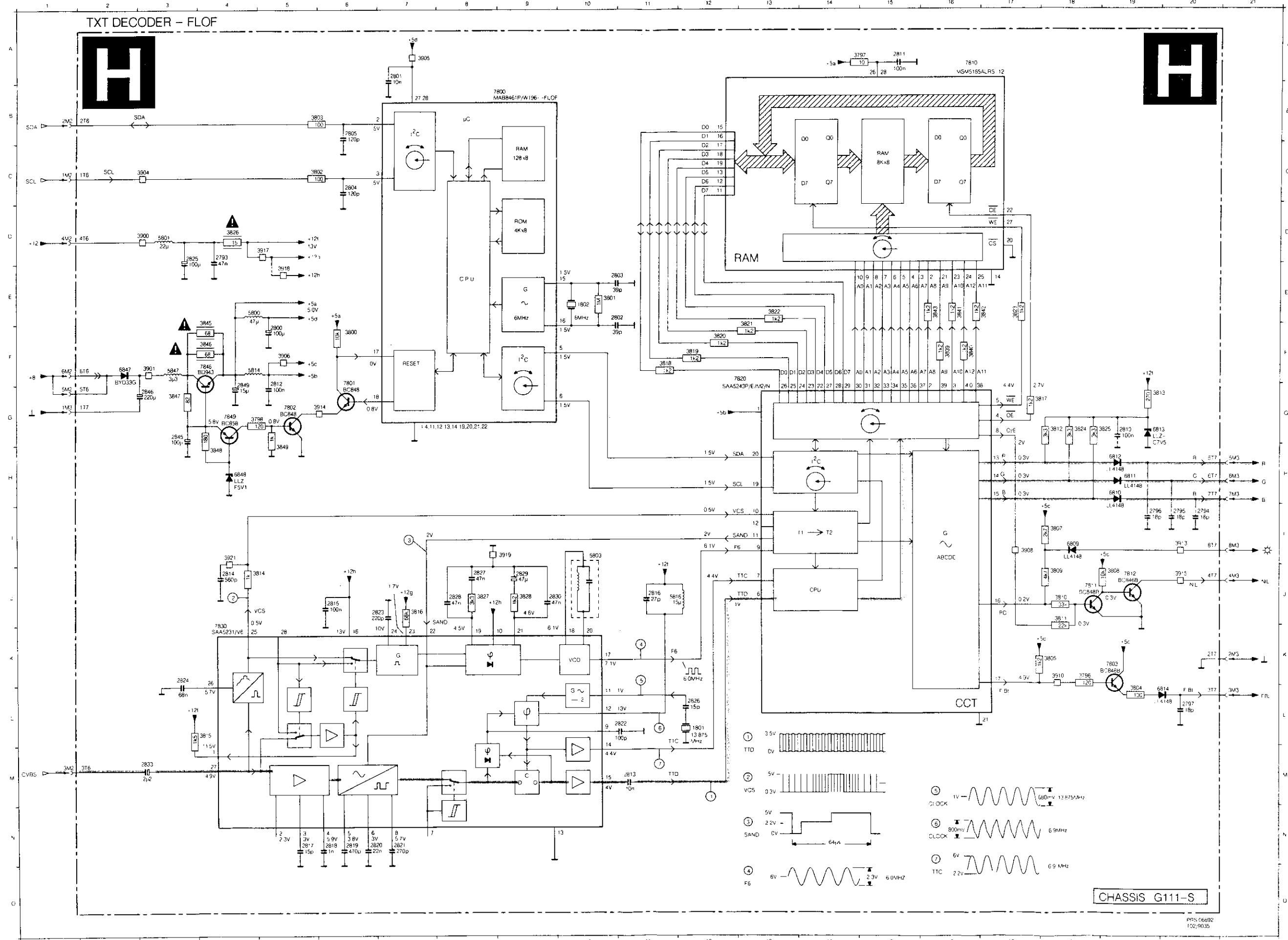


## **Teletext module**

CHASSIS G112 6.39

1

40 CHASSIS G112



# Electrical Settings

CHASSIS G112 7.1

## 1. Settings on the carrier board

### 1.1 +140V power supply voltage

Connect a voltmeter (DC) across C2162. Adjust potentiometer 3172 to +140V ± 0.5V.

### 1.2 Horizontal synchronization

Interconnect pins 5 and 9 of IC7705.

Apply an aerial signal.

Adjust potentiometer 3749 until the picture is straight. Remove the interconnection.

### 1.3 Horizontal centring

Set the brightness and contrast control to nominal. Adjust with potentiometer 3737.

### 1.4 Picture width

Is adjusted with potentiometer 3956.

### 1.5 Vertical centring

Is adjusted with switch SK14.

### 1.6 Picture height

Is adjusted with potentiometer 3739.

### 1.7 Focusing

Is adjusted with the focusing potentiometer in the line output transformer.

### 1.8 VG2 adjustment

Connect a signal generator (e.g. PM5515) and set it to black raster signal. Set brightness, contrast and saturation to a minimum. Measure with an oscilloscope (frame-frequent) to the points 6,8 and 11 of the picture tube. Note at which level the lower side of each oscilloscope lies (see Fig. 7.1). Now connect the oscilloscope to the point where the lowest level was noted. Adjust with the Vg<sub>2</sub> potentiometer so, that this level becomes 150V (see Fig. 7.1)

### 1.9 RF AGC

If the picture of a strong local transmitter is reproduced distorted, adjust potentiometer 3325 until the picture shows no distortion.

### 1.10 AFC

Connect a D.C. voltmeter to pin 5 of IC7325. Connect a signal generator as shown in Fig. 7.2. Set the signal generator to \*MHz (see table I) and adjust coil 5336 for a voltage of 6.0V ± 0.2V.

### 1.11 Chroma bandpass filter

#### a. Setting for PAL/SECAM sets (TDA4650)

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 IC7520 to pin 13 IC7520 (+12V). Connect an oscilloscope to pin 15 IC7520. Set 5503 to maximum amplitude. Remove the interconnection.

#### b. Setting for PAL sets (TDA4510)

Connect a signal generator (e.g. PM 5326) to pin 20 of the euroconnector (EXT1) and set its frequency to 4.43 MHz. Connect the unit to EXT1. Connect an oscilloscope to pin 9 IC7521. Set 5503 to maximum amplitude.

## 1.12 Subcarrier oscillator

### a. PAL sets (TDA4510)

Apply a colour signal with 4.43MHz subcarrier. Connect point 11 of IC7521 to ground. Adjust 2527 in such a manner so that the colour on the screen has practically come to a standstill. Remove the interconnection.

### b. PAL/SECAM sets (TDA4650)

Apply a colour signal with 4.43MHz subcarrier. Connect point 17 of IC7520 to ground and interconnect points 28 and 13. Adjust 2528 in such a manner so that the colour on the screen has practically come to a standstill. Remove the interconnections.

### c. MULTI system sets (TDA4650)

Repeat setting 1.11b.

Apply a colour signal with 3.58Mhz subcarrier. Connect point 17 of IC7520 to ground and interconnect points 26 and 13. Adjust 2528 in such a manner so that the colour on the screen has practically come to a standstill. Remove the interconnection.

## 1.13 The 4.43 Mhz and the 3.58Mhz chroma trap in the luminance circuit

Apply a colourbar signal with 4.43 Mhz subcarrier. Connect an oscilloscope to point 16 of IC7550 and adjust L5553 to minimum amplitude of the chrominance signal.

## 1.14 SECAM demodulators for PAL/SECAM sets (TDA4650)

Connect a pattern generator and supply a SECAM black pattern. Connect an oscilloscope to pin 1 IC7520. Turn R3536 fully clockwise. Set 5536 to minimum amplitude. Connect the oscilloscope to pin 3 IC7520. Set 3536 to minimum amplitude.

## 1.15 The picture demodulator

Connect a signal generator (e.g. PM5326) as shown in Fig. 7.2 and adjust it for a frequency of \*MHz (see table I). Modulate (AM) the signal with for instance 1 kHz. Desolder resistor 2315 at one side. Connect an oscilloscope to pin 5 of IC7355 and adjust 5335 for a maximum distortion free signal. Ensure that the demodulator is not overloaded. Secure capacitor 2315 again by soldering.

Version	IF Frequency
/65,/67,/68,/69,/79	38.9MHz
/56	38.9MHz
/75	36.875MHz
/57	39.5MHz
/58	38.0MHz

7.2 CHASSIS G112

## 1.16 The intercarrier demodulator

Connect a signal generator (e.g. PM5326) as indicated in Fig. 7.3 and adjust it for a frequency of 38,9 Mhz (38.0 Mhz for /93). Modulate (AM) the signal with for instance 1 kHz. Connect an oscilloscope to pin 12 of IC7000 and adjust 5000 for a minimum amplitude. Ensure that the demodulator is not overloaded.

## 1.17 Alignment of I.F.-response curve (/56/65/67/68 only)

Inject a signal of 37.4 Mhz (100mV) via a capacitor of 1nF to point 17 of tuner 1300. Measure the output at pin 1 of sawfilter 1331. Reduce the output of the generator to 34.4 Mhz. Adjust coil 5316 for an output of -18dB ± 0.5dB with relation to the output voltage measured at 37.4Mhz.

## 2 Settings on the stereo sound module

Note: Where the adjustment mention a generator signal, colour pattern generator PM5515 has been used.

### 2.1 The 5,5 Mhz (6,5 Mhz for /93)sound section

Apply a generator signal (PAL or SECAM B/G) whose sound carrier is (FM) modulated with a frequency of for instance 1 kHz. Set the generator to the mono mode and adjust 5211 for a minimum interference in the sound. Or measure with an oscilloscope at pin 4 IC7206 (oscilloscope in the AC mode) and adjust 5211 for a maximum amplitude.

### 2.2 The 5,742Mhz (6,742 Mhz for /93) sound section

- a. Apply a generator signal (PAL or SECAM B/G) with two sound carriers, of which the sound carriers have been modulated with a frequency (e.g. 1 kHz) and the second sound carrier has been provided with the pilot signal for the 2nd language. Select II by means of the remote control.
- b. Next adjust 5206 for a minimum interference in the sound. Or measure with an oscilloscope at pin 5 IC7206 (oscilloscope in mode AC) and adjust 5206 for maximum amplitude.

### 2.3 Pilot tone adjustment

Apply a generator signal as in point 2a. Adjust 5233 so that the set switches over well between language I and language II (pilot tone = 54,688 kHz).

### 2.4 Stereo matrix

Apply a generator signal and set the generator to the stereo mode and modulate the (R) right channel with 1kHz. Connect an oscilloscope to pin 20 IC7236 and adjust 3240 for a minimum amplitude.

### 2.5 117,5 Hz active filter (stereo filter)

Apply a generator signal and set the generator to the stereo mode. Both sound carriers are unmodulated. Connect an oscilloscope to pin 23 IC7236 and adjust 3244 for a maximum amplitude.

### 2.6 274,1 Hz active filter (2nd language filter)

Apply a generator signal with 2 sound carriers which are unmodulated. (Generator in the DUAL mode) Connect an oscilloscope to pin 2 of IC7236 and adjust 3257 for a maximum amplitude.

## 3. Settings on the NICAM sound module

### 3.1 The 5,5 Mhz(6,0 Mhz for /57) sound section

Apply a generator signal (PM5515) and set the generator to the mono mode. Sound carrier M1 has to be modulated with a frequency of 1 kHz. Adjust 5075 for a minimum interference in the sound. Or measure with an oscilloscope at pin 4 of IC7070 (oscilloscope in the AC mode) and adjust 5075 for a maximum amplitude.

### 3.2 The 5,742 Mhz sound section

Apply a generator signal (PM5515) and set the generator to the dual mode. Sound carrier M2 (R) has to be modulated with a frequency of 1 kHz. Select language II on the set by means of the remote control. Adjust 5075 for a minimum interference in the sound. Or measure with an oscilloscope at pin 5 of IC7070 (oscilloscope in mode AC) and adjust 5085 for maximum amplitude.

### 3.3 Stereo matrix

Apply a generator signal (PM5515) and set the generator to the stereo mode. Sound carrier M2 has to be modulated with a frequency of 1 kHz. Connect an oscilloscope to pin 14 of IC7100 and adjust 3105 for a minimum amplitude.

### 3.4 The NICAM demodulator

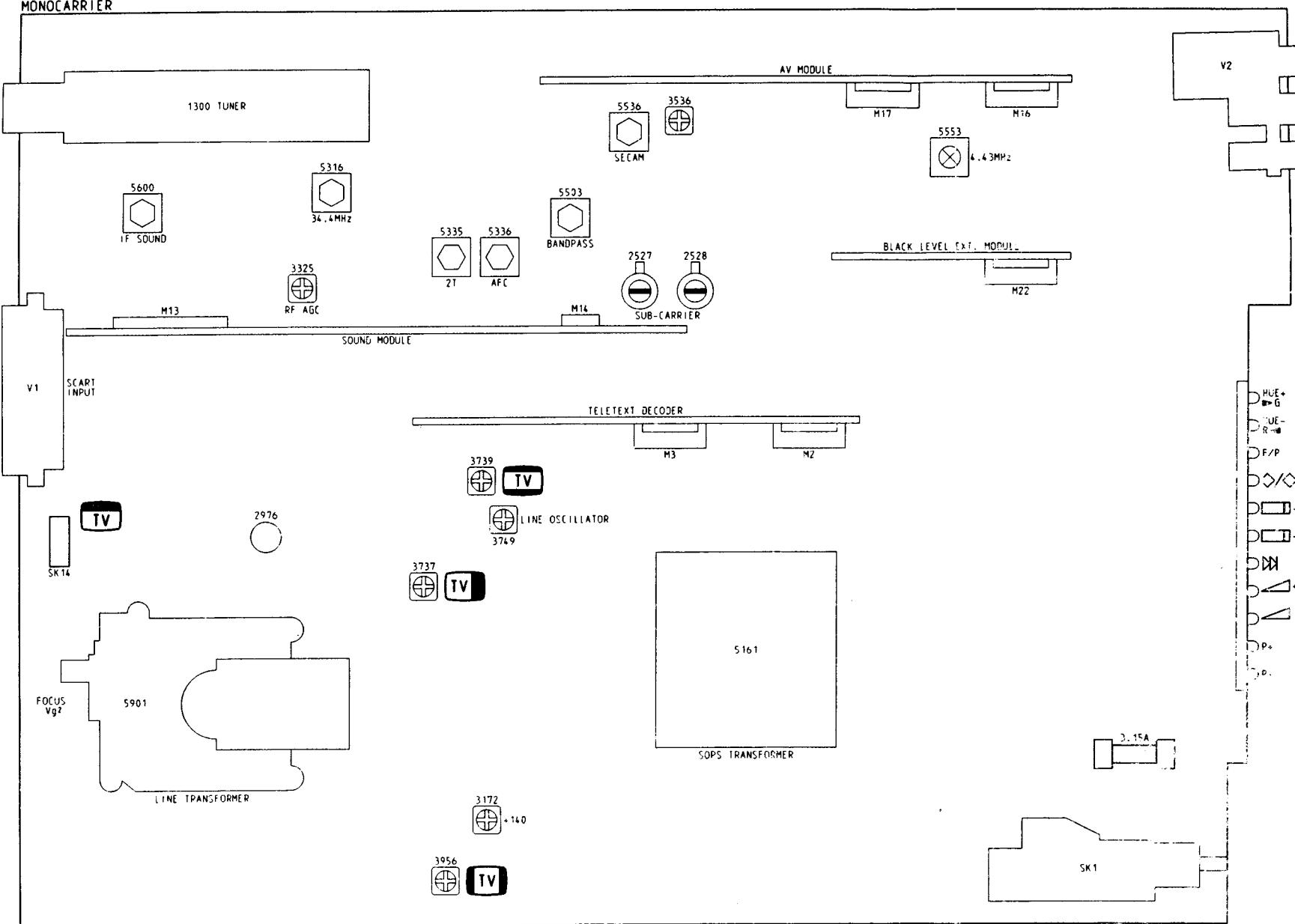
Apply an aerial or generator signal provided with a NICAM sound signal. Connect an oscilloscope in X-Y operation to pins 19 and 20 of IC7200 (which signal is used as X or as Y drive is immaterial). Adjust the oscilloscope for a sensitivity (both X and Y) of 1 V/div AC. Adjust the X and Y position so that the cross pattern is situated in the centre of the oscilloscope picture. Adjust 2220 for a straight cross pattern (see Fig. 7.4).

### 3.5 The NICAM sample clock oscillator

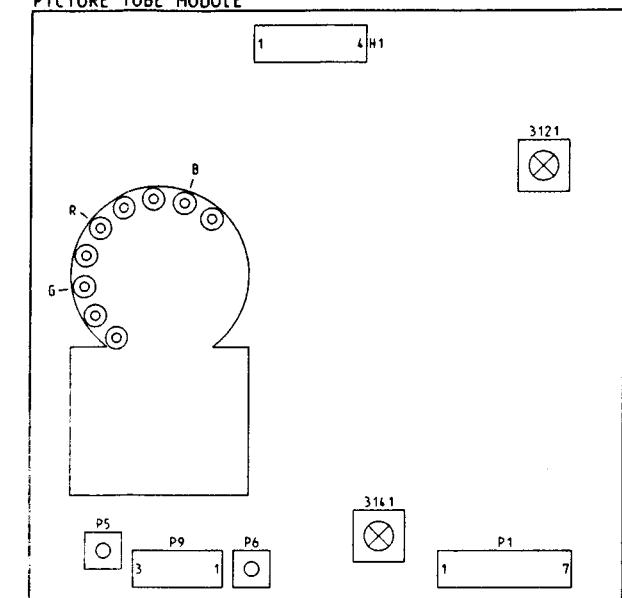
Apply an aerial or generator signal provided with a NICAM sound signal. Connect an oscilloscope to pin 9 of IC7300. Adjust the oscilloscope for a sensitivity of 1 V/div and a time base of 2 μsec/div. Adjust 2315 for a still and symmetric square wave (50% duty cycle).

CHASSIS G112 7.3 7.4 CHASSIS G112

MONOCARRIER



PICTURE TUBE MODULE



4.

4.1

4.2

4.3

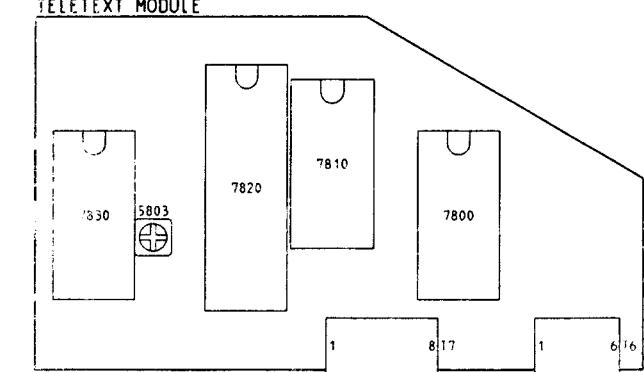
5.

5.1

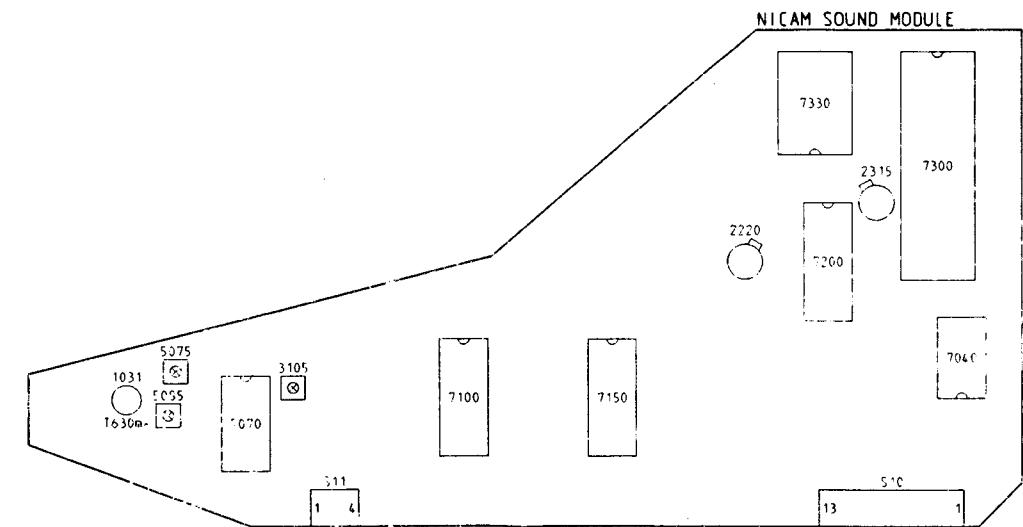
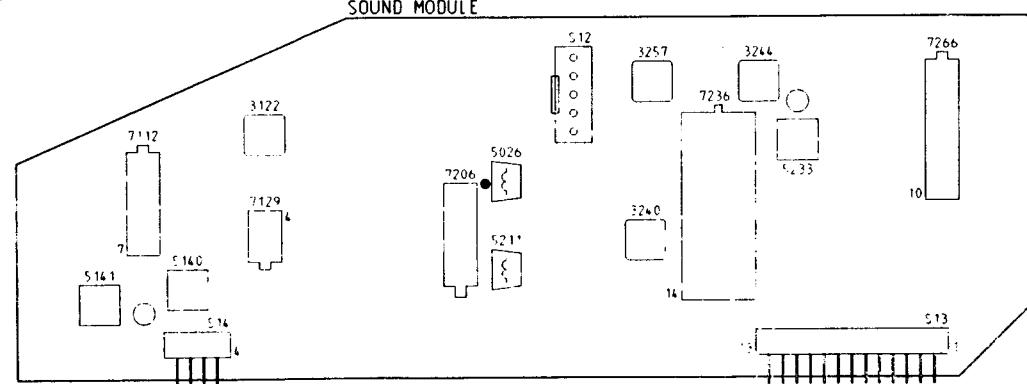
5.2

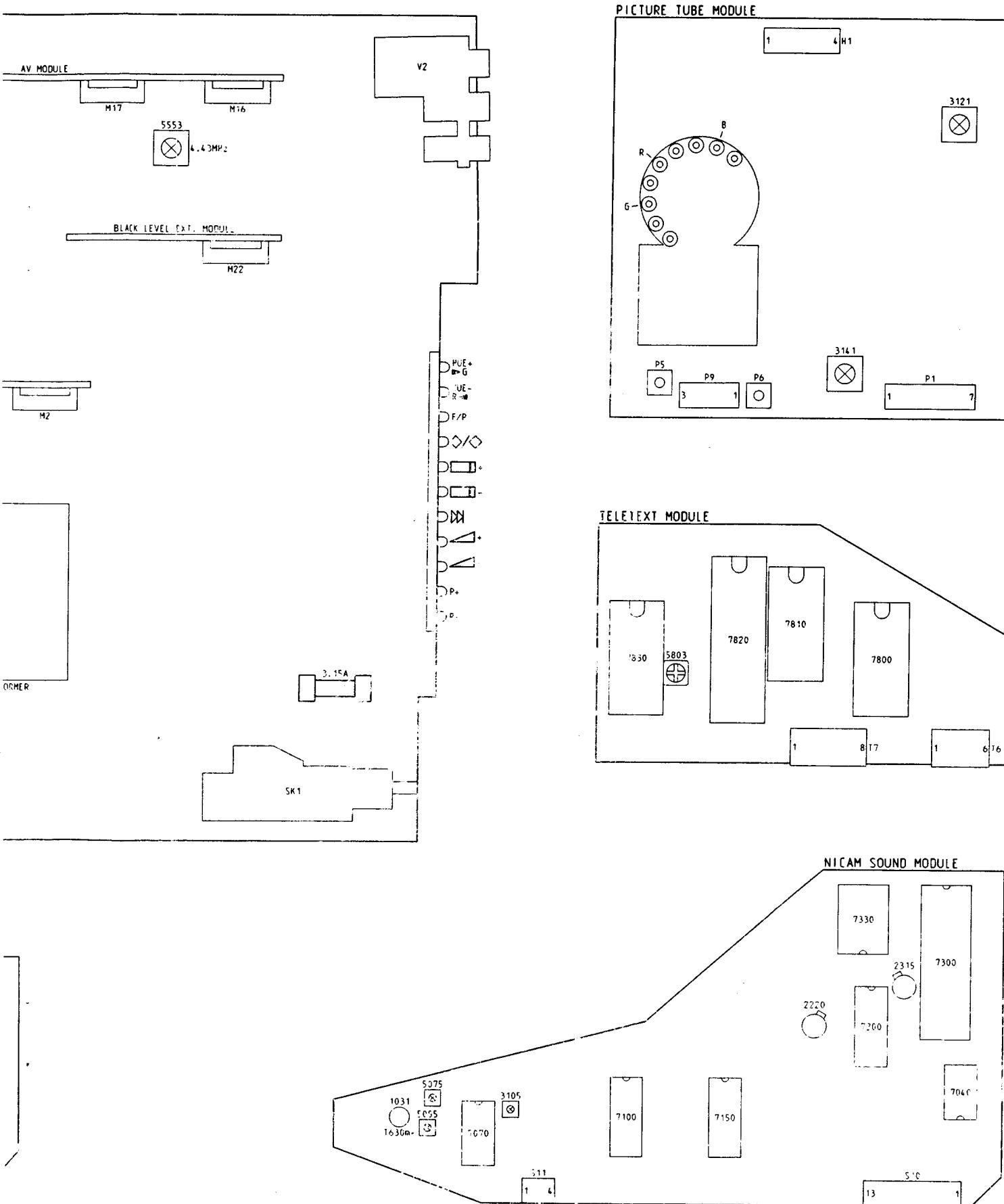
6.

TELETEXT MODULE



SOUND MODULE





#### 4. Settings on the mono sound module

##### 4.1 Dual mono sound circuit

Apply transmitter or generator signal, of which the sound carrier (PAL B,G 5,5 MHz) is modulated with one frequency (for instance 1kHz). Next adjust 5141 towards minimum interference in the sound (=maximum AM suppression). Apply transmitter or generator signal, of which the sound carrier (PAL D,K 6,5 Mhz) is modulated with one frequency (for instance 1kHz). Next adjust 5140 towards minimum interference in the sound (= maximum AM suppression). If there is no interference present in the sound it may be generated with a collector motor of which the interference is not suppressed.

##### 4.2 Multi sound circuit

Apply a generator or transmitter signal with 5.5 Mhz picture-sound distance. Next apply 12V DC to pin 14 of IC7112 via a resistor of 470kΩ. Measure pin 8 of IC7112 voltage as V1 volt (DC). Then disconnect the 12V and the resistor. Now adjust R3122 such that the voltage at pin 8 of IC7112 is again V1 volt (DC). Adjust L5140 for an output voltage of 8V at pin 7 of IC7129.

##### 4.3 PAL B/G mono sound

Apply a generator or transmitter signal, of which the sound carrier (PAL B/G 5,5MHz) is modulated with one frequency (for instance 1kHz). Next adjust 5140 towards minimum interference in the sound (=maximum AM suppression).

#### 5. Settings on the picture tube panel

##### 5.1 Cut-off points

Apply an aerial signal. Adjust contrast, brightness and saturation for minimum.

##### 5.2 Grey scale

Apply a grey scale pattern and adjust the set for normal operation. Allow the set to warm-up for about 10 minutes. Adjust 3380 and 3384 until the desired grey scale has been obtained.

#### 6. Settings on the teletext decoder

Connect pin 22 of IC7830 to ground. Connect a frequency counter to pin 17 of IC7830 and adjust 5803 for 6,000 Mhz  $\pm$  30 kHz.

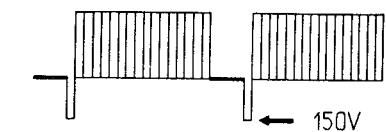


Fig. 7.1

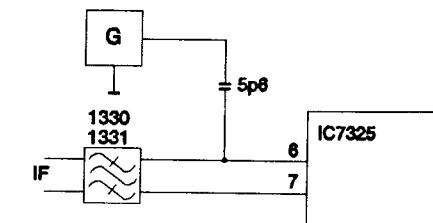


Fig. 7.2

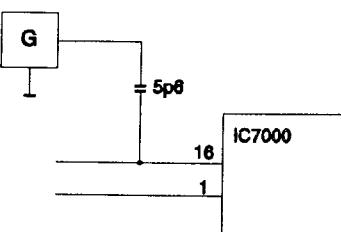


Fig. 7.3

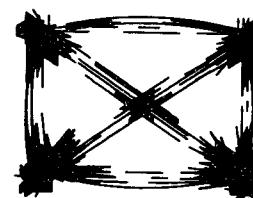


Fig. 7.4

MDA.146B  
T28/86

Error messages displayed via OSD and flashing LED  
(on time is 58msec; off time is variable)

Error message	Off time (ms)	Description of error	Possible defective component
on the screen		Flashing LED indication	
F0	58	Internal Ram	IC7240
F1	117	12V power supply	
F2	235	Internal timer	IC7200
F3	469	Nicam Decoder	IC7040
F4	958	EEPROM error	IC7278
F5	827	Stereo decoder	IC7236
			IC7100
F6	606	Sound control amplifier	IC7150
			IC7266
F7*	164	Teletext decoder	IC7820
			IC7800
F8	-	Chroma Processing	IC7570
F9	-	Chroma Processing	IC7550
FA	-	Tuner error	1300
FB	-	PIP error	Reserved

**Note:**  
If there is no picture the off time of the LED indication can be measured by means of an oscilloscope, in order to nevertheless be able to determine which error message has been generated.

\*) This error message only occurs in a functioning set. After switching-off and on the set this error message will no longer be given while the error continues to exist.

## Spare parts list

### Mono carrier

		2310 4822 122 31797 22nF 10% 63V
		2314 4822 122 31971 10pF 10% 50V
		2315 4822 122 32442 10nF 50V
		2316 4822 122 32442 10nF 50V
		2317 4822 122 32504 15pF 5% 50V
		2325 4822 122 32442 10nF 50V
		2326 4822 124 40242 1μF 20% 63V
		2327 4822 124 41878 22μF 20% 25V
		2330 4822 122 31644 2,2nF 10% 63V
		2332 4822 122 32442 10nF 50V
		2334 4822 126 11147 820nF 25% 500V
		2335 4822 126 11147 820nF 25% 500V
		2336 4822 122 32504 15pF 5% 50V
		2340 4822 122 33498 2,7nF 10% 63V
		2341 4822 124 40243 1,5μF 20% 63V
		2343 4822 124 40195 150μF 20% 18V
		2345 4822 122 31772 47pF 5% 50V
		2355 4822 124 40435 10μF 20% 50V
		2359 4822 122 33498 100nF 10% 63V
		2401 4822 122 31784 4,7nF 10% 50V
		2403 4822 122 32142 270pF 5% 63V
		2405 4822 122 31784 4,7nF 10% 50V
		2407 4822 122 32142 270pF 5% 63V
		2430 4822 124 40195 150μF 20% 18V
		2435 4822 124 40195 150μF 20% 16V
		2440 4822 124 40195 150μF 20% 16V
		2459 4822 121 51252 470nF 5% 63V
		2500 4822 122 31772 47pF 5% 50V
		2502 4822 122 31774 56pF 5% 50V
		2503 4822 122 31765 100pF 5% 50V
		2504 4822 122 31773 560pF 5% 50V
		2505 4822 122 31765 100pF 5% 50V
		2505 4822 122 31766 120pF 5% 50V
		2506 4822 122 31961 68pF 5% 63V
		2507 4822 122 31768 180pF 5% 50V
		2507 4822 122 31965 220pF 5% 63V
		2512 4822 122 33496 100nF 10% 63V
		2513 4822 122 33496 100nF 10% 63V
		2514 4822 122 32442 10nF 50V
		2515 4822 122 32442 10nF 50V
		2516 4822 121 51319 1μF 10% 63V
		2517 4822 122 31797 22nF 10% 63V
		2518 4822 122 31797 22nF 10% 63V
		2522 5322 121 42661 330nF 5% 63V
		2523 4822 122 32542 47nF 10% 63V
		2524 4822 122 33496 100nF 10% 63V
		2527 4822 125 50534 20pF 150V
		2528 4822 125 50534 20pF 150V
		2530 4822 124 40272 33μF 20% 16V
		2531 4822 124 40849 330μF 20% 16V
		2532 4822 124 40435 10μF 20% 50V
		2534 4822 122 32504 15pF 5% 50V
		2535 4822 122 32504 15pF 5% 50V
		2536 4822 122 31765 100pF 5% 50V
		2537 4822 122 31727 470pF 5% 63V
		2538 4822 122 31727 470pF 5% 63V
		2540 4822 124 40435 10μF 20% 50V
		2541 4822 122 31746 1000pF 5% 50V
		2542 4822 122 31746 1000pF 5% 50V
		2543 4822 122 32482 22pF 5% 63V
		2544 4822 122 32542 47nF 10% 63V
		2545 4822 122 32442 10nF 50V
		2546 4822 122 32482 22pF 5% 63V
		2552 4822 122 32927 220nF
		2553 4822 122 31971 10pF 10% 50V
		2554 4822 122 33205 12pF 10% 63V
		2559 4822 122 33205 12pF 10% 63V

### Mono carrie

2555	4822 1
2556	4822 1
2557	4822 1
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2915	4822 1
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2917	4822 1
2918	4822 1
2919	4822 1

## Spare parts list

CHASSIS G112 10.1

### Mono carrier

		-	
4822 290 00626	2p female mains		2310 4822 122 31797 22nF 10% 63V
4822 264 40207	3p male wtb		2314 4822 122 31971 10pF 10% 50V
4822 264 50148	8p male btb		2315 4822 122 32442 10nF 50V
4822 265 20439	2p hor defl		2316 4822 122 32442 10nF 50V
4822 265 30351	5p male wtb		2317 4822 122 32504 15pF 5% 50V
4822 265 30378	4p male wtb		2325 4822 122 32442 10nF 50V
4822 265 30389	2p male		2326 4822 122 40242 1μF 20% 63V
4822 265 30796	4p vert defl		2327 4822 122 41678 22μF 20% 25V
4822 265 40442	10p male wtb		2330 4822 122 31644 2,2nF 10% 63V
4822 265 40822	7p male wtb		2332 4822 122 32442 10nF 50V
4822 267 30639	2p male mains		2334 4822 126 11147 820nF 25% 500V
4822 267 40648	5p male btb		2335 4822 126 11147 820nF 25% 500V
4822 267 50591	6p male btb		2338 4822 122 32504 15pF 5% 50V
4822 267 50881	8p male wtb		2340 4822 122 33498 2,7nF 10% 63V
4822 267 60243	scart 21p		2341 4822 124 40243 1,5μF 20% 63V
4822 267 50823	foil conn.		2343 4822 124 40195 150μF 20% 16V
4822 267 20355	cinch		2345 4822 122 31772 47pF 5% 50V
4822 267 20387	svhs socket		2355 4822 124 40435 10μF 20% 50V
various			2359 4822 122 33498 100nF 10% 63V
4822 256 30274	fuse holder		2401 4822 122 31784 4,7nF 10% 50V
4822 256 91844	led		2403 4822 122 32142 270pF 5% 63V
4822 273 30324	sk4		2405 4822 122 31784 4,7nF 10% 50V
4822 276 12916	sk1		2407 4822 122 32142 270pF 5% 63V
4822 276 13195	sk1 for /68		2430 4822 124 40195 150μF 20% 16V
4822 401 10751	pcb spacer		2435 4822 124 40195 150μF 20% 16V
4822 404 31058	holder sk1		2440 4822 124 40195 150μF 20% 16V
4822 404 31059	strap heats.		2459 4822 121 51252 470nF 5% 63V
4822 404 31219	Surr snd brack		2500 4822 122 31772 47pF 5% 50V
4822 404 31221	s-corr bracket		2502 4822 122 31774 58pF 5% 50V
4822 432 92152	cover sk1		2503 4822 122 31785 100pF 5% 50V
4822 432 92822	cover sk1 /68		2504 4822 122 31773 560pF 5% 50V
4822 492 70429	spring 7156		2505 4822 122 31765 100pF 5% 50V
4822 492 70429	spring 7801		2506 4822 122 31766 120pF 5% 50V
4822 492 70429	spring 7963		2507 4822 122 31788 180pF 5% 50V
4822 492 70429	spring 7804		2508 4822 122 31965 220pF 5% 63V
4822 492 70429	spring 7610		2510 4822 122 31965 220pF 5% 63V
4822 492 70507	spring 7925		2511 4822 122 31965 220pF 5% 63V
4822 492 70507	spring 7615		2512 4822 122 31788 180pF 5% 50V
1101	4822 070 33152	FUSE 3.15AT	2513 4822 122 33498 100nF 10% 63V
1174	4822 071 51802	FUSE 1.6AT	2514 4822 122 32442 10nF 50V
1200	4822 212 22983	INFRA RED RC5	2515 4822 122 32442 10nF 50V
1210	4822 218 21059	KEYBOARD ASSY	2516 4822 121 51319 1μF 10% 63V
1255	4822 242 70831	CER. RES. 4MHz	2517 4822 122 31797 22nF 10% 63V
1300	4822 210 10465	UV964/IEC	2518 4822 122 31797 22nF 10% 63V
1300	4822 210 10466	UV914/IEC	2522 5322 121 42661 330nF 5% 63V
1300	4822 210 50124	UV916E/IEC	2523 4822 122 32542 47nF 10% 63V
1300	4822 210 10471	UV954/IEC	2524 4822 122 33498 100nF 10% 63V
1330	4822 242 72554	OFWG3254	2527 4822 125 50534 20pF 150V
1330	4822 242 73202	OFWB3250	2528 4822 125 50534 20pF 150V
1330	4822 242 73561	OFWJ3250	2530 4822 124 40272 33μF 20% 16V
1331	4822 242 71813	OFWK1950	2531 4822 124 40849 330μF 20% 16V
1331	4822 242 72197	OFWK2950	2532 4822 124 40435 10μF 20% 50V
1344	4822 153 30025	TPS6.0MB	2534 4822 122 32504 15pF 5% 50V
1344	4822 242 72086	TPS5.5MB	2535 4822 122 32504 15pF 5% 50V
1348	4822 153 30025	TPS6.0MB	2536 4822 122 31765 100pF 5% 50V
1348	4822 157 63723	TRAP 5.74MHz	2537 4822 122 31727 470pF 5% 63V
1348	4822 157 63724	TRAP 5.8MHz	2538 4822 122 31727 470pF 5% 63V
1348	4822 157 63725	TPS6.5MB	2539 4822 122 31971 10pF 10% 50V
1350	4822 242 81077	4.43MHz	2540 4822 124 40435 10μF 20% 50V
1527	4822 242 70304	8.867MHz	2544 4822 122 32442 10nF 50V
1527	4822 242 70736	7.159MHz	2545 4822 122 32442 10nF 50V
1528	4822 242 70304	8.867MHz	2546 4822 122 32482 22pF 5% 63V
1550	4822 320 40257	160ns	2547 4822 122 32927 220nF
2301	4822 124 40195	150μF 20% 16V	2552 4822 122 32927 220nF
2302	4822 122 32442	10nF 50V	2553 4822 122 31971 10pF 10% 50V
2303	4822 122 31781	1500pF 10% 50V	2554 4822 122 33205 12pF 10% 63V
2308	4822 122 33496	100nF 10% 63V	2555 4822 122 31825 27pF 10% 50V
2309	4822 124 40272	33μF 20% 16V	2556 4822 122 31765 100pF 5% 50V

CHASSIS G112 10.2

## Spare parts list

### Mono carrier

2555	4822 122 31825	27pF 10% 50V	2804 4822 122 31644 2,2nF 10% 63V
2556	4822 122 31765	100pF 5% 50V	2805 4822 122 32808 1,2nF 10% 63V
2557	4822 122 32442	10nF 50V	2807 4822 122 32542 47nF 10% 63V
2558	4822 122 32442	10nF 50V	2813 4822 124 42106 1500μF 20% 35V
2559	4822 122 32927	220nF	2814 4822 124 42106 1500μF 20% 35V
2560	4822 122 33496	100nF 10% 63V	2815 4822 124 41566 3,3μF 20% 50V
2561	4822 122 33496	100nF 10% 63V	2901 4822 124 40435 10μF 20% 50V
2562	4822 122 33496	100nF 10% 63V	2903 4822 124 41598 22μF 20% 50V
2563	4822 122 32927	220nF	2904 4822 126 11958 2,2nF 10% 500V
2564	4822 122 32927	220nF	2910 4822 121 51252 470nF 5% 63V
2567	4822 122 31797	22nF 10% 63V	2915 4822 122 31644 2,2nF 10% 63V
2568	4822 124 41506	47μF 20% 16V	2921 4822 121 42007 100nF 10% 100V
2570	4822 124 41506	47μF 20% 16V	2922 4822 126 10472 1,5nF 10% 500V
2571	4822 124 40242	1μF 20% 63V	2925 4822 122 50078 560pF 10% 2kV
2572	4822 122 31797	22nF 10% 63V	2926 4822 121 70055 10nF 20% 2kV
2573	4822 124 41678	22μF 20% 25V	2926 4822 121 70058 9,1nF 2% 2kV
2576	4822 122 31797	22nF 10% 63V	2927 4822 121 43395 27nF 10% 250V
2577	4822 122 31797	22nF 10% 63V	2930 4822 121 51563 560nF 5% 250V
2578	4822 122 33496	100nF 10% 63V	2931 4822 121 51563 560nF 5% 250V
2579	4822 124 40435	10μF 20% 50V	2932 4822 121 51528 470nF 5% 250V
2580	5322 122 31647	1nF 10% 63V	2950 4822 124 40744 68μF 20% 40V
2582	4822 122 31772		

## Spare parts list

CHASSIS G112 10.3

### Mono carrier

3331	4822 052 11108	1Ω 5% 0,5W	3541	4822 051 10102	1k 2% 0,25W	3730	4822 051 10102	1k 2% 0,25W
3332	4822 051 10103	10k 2% 0,25W	3542	4822 051 10103	10k 2% 0,25W	3731	4822 116 52256	2k 2% 0,5W
3334	4822 051 10103	10k 2% 0,25W	3543	4822 051 10103	10k 2% 0,25W	3732	4822 051 10103	10k 2% 0,25W
3335	4822 051 10103	10k 2% 0,25W	3544	4822 051 10105	1M 5% 0,25W	3734	4822 051 10565	5M 6 5% 0,25W
3336	4822 051 10102	1k 2% 0,25W	3548	4822 051 10102	1k 2% 0,25W	3735	4822 051 10101	100Ω 2% 0,25W
3337	4822 051 10473	47k 2% 0,25W	3551	4822 116 52293	8k 2% 0,5W	3735	4822 051 10395	3M 9 5% 0,25W
3338	4822 051 10223	22k 2% 0,25W	3552	4822 051 10102	1k 2% 0,25W	3736	4822 051 10104	100k 2% 0,25W
3339	4822 051 10473	47k 2% 0,25W	3555	4822 116 52215	220Ω 5% 0,5W	3737	4822 100 20166	10k Lin
3341	4822 051 10122	1k2 2% 0,25W	3558	4822 051 10751	750Ω 2% 0,25W	3738	4822 051 10104	100k 2% 0,25W
3342	4822 051 10331	330Ω 2% 0,25W	3557	4822 051 10331	330Ω 2% 0,25W	3739	4822 101 21154	200k 25%
3343	4822 051 10331	330Ω 2% 0,25W	3558	4822 051 10151	150Ω 2% 0,25W	3740	4822 051 10184	180k 2% 0,25W
3344	4822 051 10131	130Ω 2% 0,25W	3559	4822 051 10681	680Ω 2% 0,25W	3741	4822 051 10134	130k 2% 0,25W
3345	4822 051 10301	300Ω 2% 0,25W	3565	4822 116 90536	120Ω 1% 1/W	3748	4822 051 10303	30k 2% 0,25W
3346	4822 051 10103	10k 2% 0,25W	3566	4822 116 90536	120Ω 1% 1/W	3749	4822 100 20166	10k Lin
3347	4822 051 10392	3k9 2% 0,25W	3567	4822 052 10159	15Ω 5% 0,3W	3750	4822 051 10102	1k 2% 0,25W
3348	4822 051 10103	10k 2% 0,25W	3569	4822 116 52283	4k 7 5% 0,5W	3754	4822 051 10181	180Ω 2% 0,25W
3349	4822 051 20222	2k2 5% 0,1W	3570	4822 052 10478	4,7Ω 5% 0,5W	3755	4822 051 10472	4k7 2% 0,25W
3351	4822 051 10391	390Ω 2% 0,25W	3571	4822 051 10431	430Ω 2% 0,25W	3756	4822 051 10102	1k 2% 0,25W
3352	4822 051 10561	560Ω 2% 0,25W	3574	4822 116 90536	120Ω 1% 1/W	3757	4822 051 10472	4k7 2% 0,25W
3401	4822 116 52226	560Ω 5% 0,5W	3575	4822 116 90536	120Ω 1% 1/W	3758	4822 053 11561	560Ω 5% 2W
3403	4822 051 10561	560Ω 2% 0,25W	3576	4822 051 10472	4k7 2% 0,25W	3801	4822 113 80473	8k2 5% 5W
3405	4822 116 52226	560Ω 5% 0,5W	3577	4822 051 10473	47k 2% 0,25W	3802	4822 051 10689	68Ω 2% 0,25W
3407	4822 051 10561	560Ω 2% 0,25W	3578	4822 051 10473	47k 2% 0,25W	3803	4822 050 21508	1Q5 1% 0,6W
3410	4822 051 10759	75Ω 2% 0,25W	3580	4822 051 10562	5k6 2% 0,25W	3804	4822 051 10102	1k 2% 0,25W
3411	4822 051 10759	75Ω 2% 0,25W	3581	4822 051 10101	100Ω 2% 0,25W	3807	4822 051 10151	150Ω 2% 0,25W
3427	4822 051 10682	6k8 2% 0,25W	3582	4822 051 10202	2k 2% 0,25W	3810	4822 116 52278	3k 9 5% 0,5W
3428	4822 051 10332	3k3 2% 0,25W	3584	4822 051 10101	100Ω 2% 0,25W	3811	4822 050 21502	1k5 1% 0,6W
3429	4822 051 10471	470Ω 2% 0,25W	3585	4822 051 10101	100Ω 2% 0,25W	3814	4822 051 10204	200k 2% 0,25W
3430	4822 116 52201	75Ω 5% 0,5W	3586	4822 051 10101	100Ω 2% 0,25W	3815	4822 051 10133	13k 2% 0,25W
3432	4822 051 10682	6k8 2% 0,25W	3587	4822 051 10103	10k 2% 0,25W	3817	4822 051 10158	105 5% 0,25W
3433	4822 051 10332	3k3 2% 0,25W	3591	4822 051 10122	1k2 2% 0,25W	3817	4822 051 10308	3Ω 5% 0,25W
3434	4822 051 10471	470Ω 2% 0,25W	3592	4822 051 10471	470Ω 2% 0,25W	3818	4822 051 10158	105 5% 0,25W
3435	4822 051 10759	75Ω 2% 0,25W	3593	4822 051 10471	470Ω 2% 0,25W	3818	4822 051 10308	3Ω 5% 0,25W
3437	4822 051 10682	6k8 2% 0,25W	3594	4822 051 10471	470Ω 2% 0,25W	3821	4822 051 10158	105 5% 0,25W
3438	4822 051 10332	3k3 2% 0,25W	3600	4822 051 10562	5k8 2% 0,25W	3822	4822 051 10158	105 5% 0,25W
3439	4822 051 10471	470Ω 2% 0,25W	3601	4822 116 52199	68Ω 5% 0,5W	3823	4822 051 10108	1Ω 5% 0,25W
3440	4822 116 52201	75Ω 5% 0,5W	3602	4822 051 10689	68Ω 2% 0,25W	3901	4822 052 11159	15Ω 5% 0,5W
3441	4822 051 10472	4k7 2% 0,25W	3603	4822 116 52207	1k 2% 0,5W	3904	4822 052 11159	15Ω 5% 0,5W
3442	4822 051 20222	2k2 5% 0,1W	3604	5322 111 41103	1M81 5% 0,5W	3910	4822 051 10104	100k 2% 0,25W
3450	4822 051 10103	10k 2% 0,25W	3605	4822 051 10621	620Ω 2% 0,25W	3911	4822 051 10474	470k 2% 0,25W
3451	4822 051 10223	22k 2% 0,25W	3616	4822 051 10301	300Ω 2% 0,25W	3912	4822 051 10103	10k 2% 0,25W
3452	4822 051 10104	100k 2% 0,25W	3617	4822 051 10301	300Ω 2% 0,25W	3915	4822 052 11471	470Ω 5% 0,5W
3455	4822 051 10102	1k 2% 0,25W	3618	4822 111 90368	680k 2% 0,125W	3920	4822 116 52186	22Ω 5% 0,5W
3456	4822 051 20222	2k2 5% 0,1W	3622	4822 052 10479	47Ω 5% 0,3W	3921	4822 112 41123	3k9 5% 5,8W
3457	4822 051 10221	220Ω 2% 0,25W	3624	4822 052 10828	8,2Ω 5% 0,3W	3921	4822 116 83537	3k9 10% 7W
3458	4822 116 52201	75Ω 5% 0,5W	3629	4822 052 10828	8,2Ω 5% 0,3W	3922	4822 050 23302	3k3 1% 0,6W
3459	4822 051 10759	75Ω 2% 0,25W	3640	4822 051 10562	5k6 2% 0,25W	3925	4822 051 10399	39Ω 2% 0,25W
3491	4822 051 10102	1k 2% 0,25W	3641	4822 051 10689	68Ω 2% 0,25W	3948	4822 051 10124	120k 2% 0,25W
3492	4822 116 52225	510Ω 5% 0,5W	3642	4822 051 10689	68Ω 2% 0,25W	3949	4822 116 52243	1k 5 5% 0,5W
3500	4822 051 10113	11k 2% 0,25W	3643	4822 051 10122	1k2 2% 0,25W	3950	4822 051 10272	2k7 2% 0,25W
3500	4822 051 10821	820Ω 2% 0,25W	3644	4822 051 10185	1M 8 5% 0,25W	3950	4822 051 10332	3k3 2% 0,25W
3501	4822 051 10621	620Ω 2% 0,25W	3645	4822 051 10621	620Ω 2% 0,25W	3951	4822 051 10102	1k 2% 0,25W
3502	4822 051 10103	10k 2% 0,25W	3646	4822 051 10759	75Ω 2% 0,25W	3951	4822 051 10511	51

## Mono carrier

3980	4822 052 11228	2,2Ω 5% 0,5W	6189	4822 130 82195	BZV55-B18	6950	4822 130 80446	LL4148
3981	4822 052 11228	2,2Ω 5% 0,5W	6190	4822 130 80446	LL4148	6951	4822 130 80446	LL4148
3990	4822 051 10333	33k 2% 0,25W	6192	4822 130 80446	LL4148	6963	4822 130 80446	LL4148
3990	4822 116 52257	22k 5% 0,5W	6196	4822 130 81227	LLZ-F5V6	6964	4822 130 81764	BZV55-C51
4xxx	4822 051 10008	0Ω 5% 0,25W	6197	4822 130 80887	LLZ-C36	6975	4822 130 80914	BYD74B
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5000	4822 157 60536	0,34μH	6201	4822 130 80446	LL4148	6980	4822 130 42488	BYD33D
5006	4822 157 52286	22μH	6202	4822 130 80446	LL4148			
5010	4822 157 60171	ferite bead	6204	4822 130 80446	LL4148	7000	4822 209 81878	TDA2545A
5105	4822 158 30224	CU20D3	6232	4822 130 80446	LL4148	7140	5322 130 42136	BCB48C
5105	4822 212 23611	CU20D3	6233	4822 130 30621	1N4148	7143	4822 130 82034	CNX83A
5150	4822 157 51216	5,6μH	6234	4822 130 30621	1N4148	7146	4822 130 42513	BC858C
5156	4822 157 63707	ferite bead	6236	4822 130 80446	LL4148	7147	5322 130 44647	BC368
5161	4822 148 80946	CE 465	6256	4822 130 80446	LL4148	7156	4822 130 60851	2SC3973B
5168	4822 157 52505	33μH	6257	4822 209 72895	TLUV5300	7165	4822 130 61207	BC848
5169	4822 157 53202	choke	6290	4822 130 80446	LL4148	7173	5322 130 42136	BC848C
5170	4822 157 62769	2,5μH	6292	4822 130 80446	LL4148	7175	4822 130 61923	BF821
5258	4822 157 52287	39μH	6294	4822 130 80446	LL4148	7182	5322 130 44647	BC368
5316	4822 157 60528	0,43μH	6296	4822 130 80446	LL4148	7183	4822 130 61207	BC848
5317	4822 157 62324	0,82μH	6302	4822 130 82037	HZT33	7184	5322 130 42012	BC858
5335	4822 156 21445	0,24μH	6316	4822 130 81785	BA683	7185	5322 130 42012	BC858
5336	4822 156 21446	0,2μH	6345	4822 130 30621	1N4148	7188	5322 130 42756	BC857C
5344	4822 157 62787	8,2μH	6401	4822 130 34233	BZX79-C5V1	7193	5322 130 42755	BC847C
5345	4822 157 63722	5,6μH	6403	4822 130 34233	BZX79-C5V1	7196	4822 130 61207	BC848
5503	4822 156 20819	9μH	6404	4822 130 31253	BZX79-C2V4	7197	5322 130 42012	BC858
5536	4822 156 21148	7,6μH	6405	4822 130 34233	BZX79-C5V1	7200	4822 209 30977	TMP47C1237N
5553	4822 156 21026	34 μH	6407	4822 130 34233	BZX79-C5V1	7232	4822 130 61207	BC848
5558	4822 157 62852	12μH	6410	4822 130 34233	BZX79-C5V1	7233	4822 130 61207	BC848
5559	4822 157 62852	12μH	6411	4822 130 34233	BZX79-C5V1	7264	4822 130 61207	BC848
5901	4822 140 10382	L.O.T.	6412	4822 130 34233	BZX79-C5V1	7268	4822 130 61207	BC848
5915	4822 157 52505	33μH	6413	4822 130 34233	BZX79-C5V1	7278	4822 209 62098	X2402
5921	4822 148 80943	CU20	6424	4822 130 34233	BZX79-C5V1	7325	4822 209 72746	TDA8341/N6
5930	4822 157 52472	1,04mH	6425	4822 130 34233	BZX79-C5V1	7343	5322 130 42012	BC858
5933	4822 158 10728	TRANSF.ASSY	6428	4822 130 80446	LL4148	7344	5322 130 42012	BC858
5964	4822 157 62769	2,5μH	6430	4822 130 30621	1N4148	7345	5322 130 42012	BC858
5975	5322 157 52539	15μH	6431	4822 130 30621	1N4148	7346	5322 130 42012	BC858
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6109	4822 130 81766	BYD14K	6432	4822 130 80446	LL4148	7347	4822 130 61207	BC848
6110	4822 130 81766	BYD14K	6433	4822 130 80446	LL4148	7348	4822 130 61207	BC848
6111	4822 130 80432	BY627	6452	4822 130 34197	BZX79-C12	7350	4822 130 61207	BC848
6111	4822 130 81766	BYD14K	6458	4822 130 34233	BZX79-C5V1	7355	4822 209 83119	TDA5850
6112	4822 130 81766	BYD14K	6491	4822 130 30621	1N4148	7427	4822 130 61207	BC848
6131	4822 130 81766	BYD14K	6492	4822 130 80446	LL4148	7432	4822 130 61207	BC848
6132	4822 130 81766	BYD14K	6509	4822 130 80446	LL4148	7437	4822 130 61207	BC848
6140	4822 130 80446	LL4148	6510	4822 130 80446	LL4148	7442	4822 209 73852	PMBT2369
6141	4822 130 80446	LL4148	6515	4822 130 80446	LL4148	7450	4822 130 61207	BC848
6143	4822 130 80446	LL4148	6520	4822 130 80446	LL4148	7455	4822 130 61207	BC848
6144	4822 130 80446	LL4148	6540	4822 130 80954	LLZ-C5V6	7501	4822 130 61207	BC848
6150	4822 130 42488	BYD33D	6569	4822 130 80906	LLZ-C7V5	7502	4822 130 61207	BC848
6151	4822 130 32904	BZV85-C5V6	6571	4822 130 82882	- LLZ-F8V2	7503	4822 130 61207	BC848
6154	4822 130 42488	BYD33D	6575	4822 130 80446	LL4148	7511	4822 130 61207	BC848
6155	4822 130 42488	BYD33D	6576	4822 130 80446	LL4148	7512	4822 130 61207	BC848
6156	4822 130 42488	BYD33D	6580	4822 130 42489	BYD33G	7520	4822 209 30011	TDA4650/V3
6161	4822 130 82831	ERC20M-06	6610	4822 130 31981	BZX79-C3V9	7521	4822 209 30389	TDA4510/V6
6163	4822 130 20215	SFOR5J43	6611	4822 130 80446	LL4148	7530	4822 130 42133	BC817
6164	4822 130 80446	LL4148	6645	4822 130 34233	BZX79-C5V1	7540	4822 209 63108	TDA4660/V2
6173	4822 130 34167	BZX79-F6V2	6646	4822 130 34233	BZX79-C5V1	7550	4822 209 63994	TDA4670/V1
6174	4822 130 82831	ERC20M-06	6705	4822 130 80446	LL4148	7552	4822 130 61207	BC848
6175	4822 130 82194	BZV55-B6V2	6757	4822 130 81223	LLZ-C2V4	7555	5322 130 42138	BC848C
6176	4822 130 42488	BYD33D	6758	4822 130 31966	BZV85-C12	7570	4822 209 63298	TDA4680/V4
6180	4822 130 42488	BYD33D	6801	4822 130 42488	BYD33D	7571	4822 130 60775	2SD1266P
6181	4822 130 42488	BYD33D	6802	4822 130 81141	BZV55-C43	7600	5322 130 42136	BC848C
6183	4822 130 82192	LLZ-C8V2	6803	4822 130 80446	LL4148	7602	4822 130 42513	BC858C
6184	4822 130 80905	LLZ-F5V1	6804	4822 130 80446	LL4148	7603	5322 130 41981	BC848A
6185	4822 130 80883	LLZ-C4V7	6901	4822 130 42488	BYD33D	7610	4822 209 61882	L78S24CV
6186	4822 130 42488	BYD33D	6903	4822 130 42488	BYD33D	7613	5322 130 41981	BC848A
6188	4822 130 80446	LL4148	6904	4822 130 42606	BYD33J	7615	4822 209 73311	TDA15210/N4
			6910	4822 130 81141	BZV55-C43	7640	5322 130 42136	BC848C
			6926	4822 130 41275	BY228	7642	4822 130 42513	BC858C
			6927	4822 130 32058	BYW95B	7643	5322 130 41981	BC848A
			6948	4822 130 81144	LLZ-C30			

## Mono carrier

7705	4822 209 63297	TDA2579B/N1
7710	4822 130 61207	BC848
7713	5322 130 42012	BC858
7719	4822 130 61207	BC848
7757	5322 130 42012	BC858
7801	4822 130 60775	2SD1266P
7804	4822 130 61236	BD234
7805	4822 130 44257	BC547
7911	4822 130 61233	BC857
7920	4822 130 42159	BF819
7925	4822 130 43921	2SD1577PV
7962	5322 130 60159	BC846B
7963	5322 130 60268	BD236
<hr/>		
Various		
1001	4822 071 51602	fuse 1,6A
<hr/>		
2001	5322 121 42465	68nF 5% 63V
2002	5322 121 42465	68nF 5% 63V
2003	4822 121 43343	4,7nF 10% 400V
2004	4822 121 43179	18nF 5% 250V
2005	5322 124 41468	1000µF 20% 40V
2006	4822 124 40242	1µF 20% 63V
2007	4822 124 41577	4,7µF 20% 50V
2008	5322 121 42388	100nF 5% 63V
2009	5322 121 42386	100nF 5% 63V
2010	4822 124 41747	680µF 20%
2019	5322 121 42386	100nF 5% 63V
2622	4822 124 41577	4,7µF 20% 50V
2627	4822 124 41577	4,7µF 20% 50V
<hr/>		
3001	4822 116 52298	680k 5% 0,5W
3002	4822 116 52249	1k8 5% 0,5W
3003	4822 116 52298	680k 5% 0,5W
3004	4822 116 52249	1k8 5% 0,5W
3005	4822 116 52283	4k7 5% 0,5W
3006	4822 052 10108	1Ω 5% 0,3W
3007	4822 116 52258	220k 5% 0,5W
3008	4822 116 52233	10k 5% 0,5W
3009	4822 116 52296	6k8 5% 0,5W
3010	4822 052 10338	3,3Ω 5% 0,3W
<hr/>		
7001	4822 130 40948	BC548A
7002	4822 130 40948	BC548A
7003	4822 209 61758	TDA1013B/N1
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2001	4822 264 40207	3p male wtb
2002	4822 267 31291	2p cinch
2003	4822 267 31442	ext. Loudsp.
2004	4822 267 50861	8p male wtb
2005	4822 404 31219	bracket
<hr/>		
2001	4822 124 40435	10µF 20% 50V
2002	4822 122 32142	270pF 5% 63V
2003	4822 124 40242	1µF 20% 63V
2004	4822 124 40242	1µF 20% 63V
2005	4822 122 32142	270pF 5% 63V
2006	4822 124 40242	1µF 20% 63V
2007	4822 124 40242	1µF 20% 63V
2008	4822 124 40242	1µF 20% 63V
2009	4822 122 32142	270pF 5% 63V
2010	4822 124 40242	1µF 20% 63V
2011	4822 124 40242	1µF 20% 63V
2012	4822 124 40242	1µF 20% 63V
2014	4822 122 33496	100nF 10% 63V
2016	4822 124 40242	1µF 20% 63V
2018	4822 124 40435	10µF 20% 50V
2020	4822 124 40435	10µF 20% 50V
2028	4822 122 32442	10nF 50V
2038	4822 122 32442	10nF 50V
2048	4822 122 32442	10nF 50V
2049	4822 122 32442	10nF 50V
2080	4822 124 40433	47µF 20% 25V
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3001	4822 051 10472	4k7 2% 0,25W
3002	4822 051 10472	4k7 2% 0,25W
3004	4822 051 10561	560Ω 2% 0,25W
3005	4822 051 10104	100k 2% 0,25W
3006	4822 051 10104	100k 2% 0,25W
3007	4822 051 10561	560Ω 2% 0,25W
3008	4822 051 10473	47k 2% 0,25W
3009	4822 051 10104	100k 2% 0,25W
3010	4822 051 10104	100k 2% 0,25W
3011	4822 051 10561	560Ω 2% 0,25W
3012	4822 116 52284	47k 5% 0,5W
3013	4822 051 10103	10k 2% 0,25W
3014	4822 051 10103	10k 2% 0,25W
3015	4822 051 10103	10k 2% 0,25W
3016	4822 051 10103	10k 2% 0,25W
3017	4822 051 10103	10k 2% 0,25W
3018	4822 051 10103	10k 2% 0,25W
3019	4822 051 10104	100k 2% 0,25W
3020	4822 051 10104	100k 2% 0,25W
3021	4822 116 52233	10k 5% 0,5W
3022	4822 051 10103	10k 2% 0,25W
3023	4822 051 10103	10k 2% 0,25W
3024	4822 051 10103	10k 2% 0,25W
3025	4822 051 10333	33k 2% 0,25W
3026	4822 051 10472	4k7 2% 0,25W
3028	4822 051 10153	15k 2% 0,25W
3031	4822 051 10104	100k 2% 0,25W
3032	4822 051 10104	100k 2% 0,25W
3033	4822 051 20222	2k2 5% 0,1W
3034	4822 051 20222	2k2 5% 0,1W
3038	4822 051 10182	1k8 2% 0,25W
3043	4822 051 10101	100Ω 2% 0,25W
3045	4822 051 10271	270Ω 2% 0,25W
3046	4822 051 10101	100Ω 2% 0,25W
3080	4822 052 10109	10Ω 5% 0,3W
4xxx	4822 051 10008	0Ω 5% 0,25W

## AV module

## CRT module

7010 7012 7014  7016 7018 7022 7026 7032  7038 7040	-●-	4822 255 70247 CRT SOCKET	5182 5183 5182 5183	4822 157 52392 27µH
		4822 265 20366 1P MALE		4822 157 52136 82µH
		4822 265 30378 4P MALE		4822 158 10551 27µH
		4822 265 40822 7P MALE		5322 157 52539 15µH
	-■-	2102 4822 122 31825 27pF 10% 50V	6115 6134 6135 6155 6166	4822 130 30842 BAV21
		2111 4822 122 31775 680pF 5% 50V		4822 130 81512 LLZ-C6V2
		2122 4822 122 31825 27pF 10% 50V		4822 130 30842 BAV21
		2131 4822 122 31775 680pF 5% 50V		4822 130 30842 BAV21
		2142 4822 122 31825 27pF 10% 50V		4822 130 82192 LLZ-C8V2
		2151 4822 122 31775 680pF 5% 50V		
		2165 4822 124 40433 47µF 20% 25V		
		2178 4822 121 41689 100N 10% 250V		
		2179 4822 124 40433 47µF 20% 25V		
		2188 4822 121 41926 33N 10% 630V		
	-□-	3101 4822 051 10221 220Ω 2% 0,25W	7110 7111 7115 7116 7130 7131 7135 7136 7150 7151	4822 130 41782 BF422
		3102 4822 051 10391 390Ω 2% 0,25W		4822 130 61207 BC848
		3103 4822 051 10332 3k3 2% 0,25W		4822 130 41782 BF422
		3108 4822 116 52252 180k 5% 0,5W		4822 130 41648 BF423
		3109 4822 053 11153 15k 5% 2W		4822 130 41782 BF422
		3111 4822 051 10151 150Ω 2% 0,25W		4822 130 61207 BC848
		3113 4822 051 10331 330Ω 2% 0,25W		4822 130 41782 BF422
		3115 4822 116 52217 270Ω 5% 0,5W		4822 130 41646 BF423
		3116 4822 052 10102 1k 5% 0,3W		5322 130 42012 BC858
		3117 4822 051 10823 82k 2% 0,25W		4822 130 61207 BC848
		3118 4822 111 50518 1k5 10% 0,25W		
	-●-	3121 4822 100 20149 2K2 LIN 20%	7155 7156 7160 7161	4822 130 41782 BF422
		3122 4822 051 10391 390Ω 2% 0,25W		4822 130 41646 BF423
		3123 4822 051 10332 3k3 2% 0,25W		5322 130 42012 BC858
		3128 4822 116 52252 180k 5% 0,5W		4822 130 61207 BC848
		3129 4822 053 11153 15k 5% 2W		
		3131 4822 051 10151 150Ω 2% 0,25W		
		3133 4822 051 10331 330Ω 2% 0,25W		
		3135 4822 116 52217 270Ω 5% 0,5W		
		3136 4822 052 10102 1k 5% 0,3W		
		3137 4822 051 10108 1Ω 5% 0,25W		
	-□-	3138 4822 111 50518 1k5 10% 0,25W	2940 2941 2942	4822 265 30798 4P
		3141 4822 100 20149 2k2 LIN 20%		4822 265 30935 5P
		3142 4822 051 10391 390Ω 2% 0,25W		
		3143 4822 051 10332 3k3 2% 0,25W		
		3148 4822 116 52252 180k 5% 0,5W		
		3149 4822 053 11153 15k 5% 2W		
		3151 4822 051 10151 150Ω 2% 0,25W		
		3153 4822 051 10331 330Ω 2% 0,25W		
		3155 4822 116 52217 270Ω 5% 0,5W		
		3156 4822 052 10102 1k 5% 0,3W		
	-●-	3157 4822 051 10108 1Ω 5% 0,25W	3941 3942	4822 121 51593 180nF 250V
		3158 4822 111 50518 1k5 10% 0,25W		4822 121 51593 180nF 250V
		3160 4822 051 10102 1k 2% 0,25W		4822 124 40756 1µF 20% 100V
		3163 4822 051 10153 15k 2% 0,25W		
		3165 4822 051 10182 1k8 2% 0,25W		
		3166 4822 051 10103 10k 2% 0,25W		
		3167 4822 051 10432 4k3 2% 0,25W		
		3178 4822 052 10181 180Ω 5% 0,3W		
		3179 4822 052 10109 10Ω 5% 0,3W		
		3183 4822 052 10108 1Ω 5% 0,3W		
	-■-	3183 4822 052 11108 1Ω 5% 0,5W	5940	4822 157 52688 AT4042/92
		3185 4822 111 50518 1k5 10% 0,25W		
		3188 4822 111 50518 1k5 10% 0,25W		
		3333 4822 051 10333 33k 2% 0,25W		
		3333 4822 116 52257 22k 5% 0,5W		
		4133 4822 051 10008 0Ω 5% 0,25W		
		4134 4822 051 10008 0Ω 5% 0,25W		
		6924 4822 130 42488 BYD33D		
		6925 4822 130 42488 BYD33D		

## Spare parts list

## Spare parts list

## **Black level module**

## Nicam sound module

	4822 265 40503	5P FEM BTB	
	2501	4822 124 40272	33µF 20% 16V
	2502	4822 124 40242	1µF 20% 63V
	2503	4822 124 41577	4,7µF 20% 50V
	2505	4822 122 32482	22pF 5% 63V
	2506	4822 122 31965	220pF 5% 63V
	3501	4822 051 10104	100k 2% 0,25W
	3502	4822 051 10102	1k 2% 0,25W
	3503	4822 051 10103	10k 2% 0,25W
	3505	4822 116 52207	1k 2,5% 0,5W
	3506	4822 051 10272	2k7 2% 0,25W
	3508	4822 051 10102	1k 2% 0,25W
	3509	4822 051 10392	3k9 2% 0,25W
	3510	4822 051 10102	1k 2% 0,25W
	3511	4822 051 10103	10k 2% 0,25W
	3512	4822 051 10103	10k 2% 0,25W
	3513	4822 051 10182	1k8 2% 0,25W
	3514	4822 051 10102	1k 2% 0,25W
	3515	4822 051 10681	680Ω 2% 0,25W
	3517	4822 051 10102	1k 2% 0,25W
	3520	4822 051 10272	2k7 2% 0,25W
	3521	4822 051 10272	2k7 2% 0,25W
	3522	4822 051 10561	560Ω 2% 0,25W
	3525	4822 051 10102	1k 2% 0,25W
	5501	4822 157 52287	39µH
	7501	4822 209 30711	CX20125.
	7505	4822 130 61207	BC848
	7509	5322 130 42012	BC858
	7510	5322 130 42012	BC858
	7513	5322 130 42012	BC858
	7514	5322 130 42012	BC858
	1031	4822 071 56301	FUSE 630MA
	1070	4822 242 70714	SFT5,5MA
	1071	4822 242 71713	SFE6,0MBF
	1080	4822 242 70485	SFT5,74MA
	1100	5322 242 72349	9,216 MHZ
	1101	4822 242 72547	SFE5,5MBF
	1107	4822 242 71725	SFE4,5MBF
	1117	4822 242 71713	SFE6,0MBF
	1120	4822 242 72057	SFE6,5MBF
	1201	4822 242 70485	SFT5,74MA
	1205	4822 242 72301	TH316BOM
	1205	4822 242 72303	TH316BQM
	1208	4822 242 70714	SFT5,5MA
	1220	4822 242 72302	5,850 MHZ
	1220	4822 242 72347	6,552 MHZ
	1275	4822 242 72304	5,824 MHZ
	2020	4822 124 21725	470µF 20% 16V
	2021	4822 121 51252	470nF 5% 63V
	2030	4822 122 33496	100nF 10% 63V
	2031	4822 124 40198	470µF 20% 16V
	2032	4822 124 41438	100µF 20% 16V
	2033	4822 122 33496	100nF 10% 63V
	2035	4822 124 41433	33µF 20% 16V
	2040	4822 122 33496	100nF 10% 63V
	2050	4822 122 31981	33nF 0,5pF 50V
	2060	5322 122 31647	1nF 10% 63V
	2065	4822 122 32507	6,8pF 5% 50V
	2066	5322 122 31647	1nF 10% 63V
	2067	4822 122 33496	100nF 10% 63V
	2070	4822 122 33496	100nF 10% 63V
	2071	4822 122 33205	12pF 10% 63V
	2072	4822 122 31797	22nF 10% 63V
	2073	4822 122 31797	22nF 10% 63V
	2075	4822 121 43066	1nF 2% 400V
	2080	4822 122 32482	22pF 5% 63V
	2082	4822 122 31797	22nF 10% 63V
	2083	4822 122 31797	22nF 10% 63V
	2085	4822 121 51262	910pF 5% 400V
	2100	4822 122 31825	27pF 10% 50V
	2100	4822 122 33496	100nF 10% 63V
	2105	4822 121 51252	470nF 5% 63V
	2108	4822 121 43047	1µF 10% 63V
	2109	4822 121 43047	1µF 10% 63V
	2109	4822 122 31797	22nF 10% 63V
	2110	4822 122 31797	22nF 10% 63V
	2110	4822 122 31961	68pF 5% 63V
	2112	4822 122 32542	47nF 10% 63V
	2113	4822 124 41578	2,2µF 20% 50V
	2114	5322 122 31648	12nF 10% 50V
	2116	4822 124 41757	10µF 20% 16V
	2120	4822 121 42408	220nF 5% 63V
	2121	4822 121 42008	470nF 10% 63V
	2121	4822 121 31797	22nF 10% 63V
	2123	4822 121 42008	470nF 10% 63V
	2123	4822 124 22263	220µF 20% 25V
	2125	4822 124 40435	10µF 20% 50V
	2128	4822 122 32542	47nF 10% 63V
	2129	4822 124 21443	2,2µF 20% 50V
	2130	4822 122 31797	22nF 10% 63V
	2132	4822 124 40433	47µF 20% 25V
	2138	4822 122 32442	10nF 50V
	2139	4822 122 32442	10nF 50V
	2140	4822 121 43066	1nF 5% 250V
	2140	4822 124 41433	33µF 20% 16V
	2141	4822 121 42729	1,5nF 1% 250V
	2141	4822 124 41433	33µF 20% 16V
	2150	4822 122 33496	100nF 10% 63V
	2151	4822 124 41643	100µF 20% 16V
	2160	4822 121 51252	470nF 5% 63V
	2162	4822 121 51252	470nF 5% 63V
	2165	4822 124 41569	150µF 20% 16V
	2170	4822 122 31981	33nF 0,5pF 50V
	2171	4822 122 31981	33nF 0,5pF 50V
	2172	4822 122 31918	5,6nF 10% 63V
	2173	4822 122 31916	5,6nF 10% 63V
	2175	4822 122 31782	15nF 10% 50V
	2176	4822 121 42008	470nF 10% 63V
	2177	4822 122 31782	15nF 10% 50V
	2178	4822 121 51252	470nF 5% 63V
	2200	4822 124 41433	33µF 20% 50V
	2201	4822 122 32442	10nF 50V
	2201	4822 122 32482	22pF 5% 63V
	2202	4822 122 31971	10pF 10% 50V
	2202	4822 124 41641	33µF 20% 16V
	2203	4822 122 31797	22nF 10% 63V
	2203	4822 122 32442	10nF 50V
	2204	4822 122 31797	22nF 10% 63V
	2205	4822 122 32765	820pF 10% 63V
	2206	4822 121 43066	1nF 2% 400V
	2206	4822 122 32442	10nF 50V
	2208	4822 122 33205	12pF 10% 63V
	2209	4822 122 31797	22nF 10% 63V
	2210	4822 122 31797	22nF 10% 63V
	2210	4822 124 41644	0,47µF 20% 50V
	2211	4822 121 51262	0,47µF 20% 50V
	2213	4822 122 33496	100nF 10% 63V
	2214	4822 122 33496	100nF 10% 63V
	2215	4822 122 33496	100nF 10% 63V
	2216	4822 122 33205	12pF 10% 63V
	2216	4822 124 40435	10µF 20% 50V
	2217	4822 122 31774	56pF 5% 50V
	2217	4822 124 40435	10µF 20% 50V
	2218	4822 122 31769	18pF 5% 50V
	2220	4822 121 42008	470nF 10% 63V
	2220	4822 121 51252	470nF 5% 63V
	2220	4822 125 50045	22pF 250V
	2221	4822 121 42008	470nF 10% 63V
	2221	4822 121 51252	470nF 5% 63V
	2230	4822 124 41644	0,47µF 20% 50V
	2231	4822 122 31785	100pF 5% 50V
	2231	4822 122 32442	10nF 50V
	2232	4822 124 40272	33µF 20% 16V
	2233	4822 124 22606	68µF 20% 16V
	2234	4822 122 33479	820pF
	2236	4822 122 33496	100nF 10% 63V
	2237	4822 121 42936	39nF 1% 63V
	2238	4822 124 40195	150µF 20% 16V
	2239	4822 121 42936	39nF 1% 63V
	2240	4822 122 32442	10nF 50V
	2241	4822 122 32442	10nF 50V
	2242	4822 122 33496	100nF 10% 63V
	2243	4822 121 43523	56nF 10% 63V
	2243	4822 122 33496	100nF 10% 63V
	2245	4822 121 43523	56nF 10% 63V
	2250	4822 122 31965	220pF 5% 63V
	2251	4822 122 31965	220pF 5% 63V
	2251	4822 122 32542	47nF 10% 63V
	2252	4822 121 20238	82nF 10% 63V
	2253	4822 124 41577	4,7µF 20% 50V
	2254	4822 121 41934	22nF 10% 100V
	2255	4822 121 41934	22nF 10% 100V
	2259	4822 124 40435	10µF 20% 50V
	2260	4822 122 33496	100nF 10% 63V

**CHASSIS G112**

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### Nicam sound m

2260	4822 124 4
2261	4822 122 3
2263	4822 122 3
2264	4822 122 3
2265	4822 122 3
2266	4822 122 3
2270	4822 124 4
2271	4822 122 3
2271	4822 122 3
2272	4822 121 4
2273	4822 122 3
2274	4822 121 4
2275	4822 122 3
2278	4822 122 3
2278	4822 122 3
2277	4822 122 3
2277	4822 124 4
2280	4822 122 3
2285	4822 122 3
2286	4822 124 4
2287	4822 122 3
2288	4822 122 3
2289	4822 122 3
2290	4822 122 3
2290	4822 122 3
2291	4822 122 3
2292	4822 122 3
2293	4822 122 3
2300	4822 122 3
2310	4822 122 3
2312	4822 122 3
2315	4822 125 5
2317	4822 122 3
2318	4822 122 3
2319	4822 122 3
2325	4822 122 3
2330	4822 124 4
2331	4822 122 3
2340	4822 122 3
2341	4822 124 4
2345	5322 122 3
2350	4822 124 4
2352	4822 122 3
2353	4822 122 3
2356	4822 122 3
2357	4822 122 3
2358	4822 122 3
2359	4822 122 3
2370	4822 122 3
2371	4822 122 3
2372	4822 122 3
2373	4822 122 3
2374	4822 122 3
2375	4822 122 3
2380	4822 121 5
2381	4822 121 4
3010	4822 116 5
3011	4822 116 5
3030	4822 051 1
3035	4822 051 1
3050	4822 052 1
3060	4822 051 1
3061	4822 116 5
3062	4822 051 1
3063	4822 116 5
3064	4822 051 1
3071	4822 051 1

## Spare parts list

**CHASSIS G112** **10.7**

10.8

**CHASSIS G112**

## Spare parts list

## Black level module

## Nicam sound module

	4822 265 40503	5P FEM BTB			
	2501	4822 124 40272	33μF 20% 16V		
	2502	4822 124 40242	1μF 20% 63V		
	2503	4822 124 41577	4,7μF 20% 50V		
	2505	4822 122 32482	22pF 5% 63V		
	2506	4822 122 31965	220pF 5% 63V		
	3501	4822 051 10104	100k 2% 0,25W		
	3502	4822 051 10102	1k 2% 0,25W		
	3503	4822 051 10103	10k 2% 0,25W		
	3505	4822 116 52207	1k 2 5% 0,5W		
	3506	4822 051 10272	2k7 2% 0,25W		
	3508	4822 051 10102	1k 2% 0,25W		
	3509	4822 051 10392	3k9 2% 0,25W		
	3510	4822 051 10102	1k 2% 0,25W		
	3511	4822 051 10103	10k 2% 0,25W		
	3512	4822 051 10103	10k 2% 0,25W		
	3513	4822 051 10182	1k8 2% 0,25W		
	3514	4822 051 10102	1k 2% 0,25W		
	3515	4822 051 10681	680Ω 2% 0,25W		
	3517	4822 051 10102	1k 2% 0,25W		
	3520	4822 051 10272	2k7 2% 0,25W		
	3521	4822 051 10272	2k7 2% 0,25W		
	3522	4822 051 10561	560Ω 2% 0,25W		
	3525	4822 051 10102	1k 2% 0,25W		
	5501	4822 157 52287	39μH		
	7501	4822 209 30711	CX20125.		
	7505	4822 130 61207	BC848		
	7509	5322 130 42012	BC858		
	7510	5322 130 42012	BC858		
	7513	5322 130 42012	BC858		
	7514	5322 130 42012	BC858		
	1031	4822 071 56301	FUSE 630MA		
	1070	4822 242 70714	SFT5,5MA		
	1071	4822 242 71713	SFE6,0MBF		
	1080	4822 242 70485	SFT5,74MA		
	1100	5322 242 72349	9,216 MHZ		
	1101	4822 242 72547	SFE5,5MBF		
	1107	4822 242 71725	SFE4,5MBF		
	1117	4822 242 71713	SFE6,0MBF		
	1120	4822 242 72057	SFE6,5MBF		
	1201	4822 242 70485	SFT5,74MA		
	1205	4822 242 72301	TH316BOM		
	1205	4822 242 72303	TH316BQM		
	1208	4822 242 70714	SFT5,5MA		
	1220	4822 242 72302	5,850 MHZ		
	1220	4822 242 72347	6,552 MHZ		
	1275	4822 242 72304	5,824 MHZ		
	2020	4822 124 21725	470μF 20% 16V		
	2021	4822 121 51252	470nF 5% 63V		
	2030	4822 122 33496	100nF 10% 63V		
	2031	4822 124 40198	470μF 20% 16V		
	2032	4822 124 41438	100μF 20% 16V		
	2033	4822 122 33496	100nF 10% 63V		
	2035	4822 124 41433	33μF 20% 16V		
	2040	4822 122 33496	100nF 10% 63V		
	2050	4822 122 31981	33nF 0,5pF 50V		
	2060	5322 122 31647	1nF 10% 63V		
	2065	4822 122 32507	6,8pF 5% 50V		
	2066	5322 122 31647	1nF 10% 63V		
	2067	4822 122 33496	100nF 10% 63V		
	2070	4822 122 33496	100nF 10% 63V		
	2071	4822 122 33205	12pF 10% 63V		
	2072	4822 122 31797	22nF 10% 63V		
	2073	4822 122 31797	22nF 10% 63V		
	2075	4822 121 43066	1nF 2% 400V		
	2080	4822 122 32482	22pF 5% 63V		
	2082	4822 122 31797	22nF 10% 63V		
	2083	4822 122 31797	22nF 10% 63V		
	2085	4822 121 51262	910pF 5% 400V		
	2100	4822 122 31825	27pF 10% 50V		
	2100	4822 122 33496	100nF 10% 63V		
	2105	4822 121 51252	470nF 5% 63V		
	2108	4822 121 43047	1μF 10% 63V		
	2109	4822 121 43047	1μF 10% 63V		
	2109	4822 122 31797	22nF 10% 63V		
	2110	4822 122 31797	22nF 10% 63V		
	2110	4822 122 31961	68pF 5% 63V		
	2112	4822 122 32542	47nF 10% 63V		
	2113	4822 124 41576	2,2μF 20% 50V		
	2114	5322 122 31648	12nF 10% 50V		
	2116	4822 124 41757	10μF 20% 16V		
	2120	4822 121 42408	220nF 5% 63V		
	2121	4822 121 42008	470nF 10% 63V		
	2121	4822 121 31797	22nF 10% 63V		
	2123	4822 121 42008	470nF 10% 63V		
	2123	4822 124 22263	220μF 20% 25V		
	2125	4822 124 40435	10μF 20% 50V		
	2128	4822 122 32542	47nF 10% 63V		
	2129	4822 124 21443	2,2μF 20% 50V		
	2130	4822 122 31797	22nF 10% 63V		
	2132	4822 124 40433	47μF 20% 25V		
	2138	4822 122 32442	10nF 50V		
	2139	4822 122 32442	10nF 50V		
	2140	4822 121 43066	1nF 5% 250V		
	2140	4822 124 41433	33μF 20% 16V		
	2141	4822 121 42729	1,5nF 1% 250V		
	2141	4822 124 41433	33μF 20% 16V		
	2150	4822 122 33496	100nF 10% 63V		
	2151	4822 124 41643	100μF 20% 16V		
	2160	4822 121 51252	470nF 5% 63V		
	2162	4822 121 51252	470nF 5% 63V		
	2165	4822 124 41569	150μF 20% 16V		
	2170	4822 122 31981	33nF 0,5pF 50V		
	2171	4822 122 31981	33nF 0,5pF 50V		
	2172	4822 122 31916	5,6nF 10% 63V		
	2173	4822 122 31916	5,6nF 10% 63V		
	2175	4822 122 31782	15nF 10% 50V		
	2176	4822 121 42008	470nF 10% 63V		
	2177	4822 122 31782	15nF 10% 50V		
	2178	4822 121 51252	470nF 5% 63V		
	2200	4822 124 41433	33μF 20% 50V		
	2201	4822 122 32442	10nF 50V		
	2201	4822 122 32482	22pF 5% 63V		
	2202	4822 122 31971	10pF 10% 50V		
	2202	4822 124 41644	33μF 20% 16V		
	2203	4822 122 31797	22nF 10% 63V		
	2203	4822 122 32442	10nF 50V		
	2204	4822 122 31797	22nF 10% 63V		
	2205	4822 122 32785	820pF 10% 63V		
	2206	4822 121 43066	1nF 2% 400V		
	2206	4822 122 32442	10nF 50V		
	2208	4822 122 33205	12pF 10% 63V		
	2209	4822 122 31797	22nF 10% 63V		
	2210	4822 122 31797	22nF 10% 63V		
	2210	4822 124 41644	0,47μF 20% 50V		
	2211	4822 121 51262	0,47μF 20% 50V		
	2213	4822 122 33496	100nF 10% 63V		
	2214	4822 122 33496	100nF 10% 63V		
	2215	4822 122 33496	100nF 10% 63V		
	2216	4822 122 33205	12pF 10% 63V		
	2216	4822 124 40435	10μF 20% 50V		
	2217	4822 122 31774	56pF 5% 50V		
	2217	4822 124 40435	10μF 20% 50V		
	2218	4822 122 31769	18pF 5% 50V		
	2220	4822 121 42008	470nF 10% 63V		
	2220	4822 121 51252	470nF 5% 63V		
	2220	4822 125 50045	22pF 250V		
	2221	4822 121 42008	470nF 10% 63V		
	2221	4822 121 51252	470nF 5% 63V		
	2230	4822 124 41644	0,47μF 20% 50V		
	2231	4822 122 31785	100pF 5% 50V		
	2231	4822 122 32442	10nF 50V		
	2232	4822 124 40272	33μF 20% 18V		
	2233	4822 124 22806	68μF 20% 16V		
	2234	4822 122 33479	820pF		
	2236	4822 122 33496	100nF 10% 63V		
	2237	4822 121 42936	39nF 1% 63V		
	2238	4822 124 40195	150μF 20% 16V		
	2239	4822 121 42936	39nF 1% 63V		
	2240	4822 122 32442	10nF 50V		
	2241	4822 122 32442	10nF 50V		
	2242	4822 122 33496	100nF 10% 63V		
	2243	4822 121 43523	56nF 10% 63V		
	2243	4822 122 33496	100nF 10% 63V		
	2245	4822 121 43523	56nF 10% 63V		
	2250	4822 122 31985	220pF 5% 63V		
	2251	4822 122 31985	220pF 5% 63V		
	2251	4822 122 32542	47nF 10% 63V		
	2252	4822 121 20238	82nF 10% 63V		
	2253	4822 124 41577	4,7μF 20% 50V		
	2254	4822 121 41934	22nF 10% 100V		
	2255	4822 121 41934	22nF 10% 100V		
	2259	4822 124 40435	10μF 20% 50V		
	2260	4822 122 33498	100nF 10% 63V		

## Nicam sound module

2260	4822 124 40435	10µF 20% 50V	3075	4822 051 10152	1k5 2% 0,25W	3208	4822 051 10102	1k 2% 0,25W
2261	4822 122 33496	100nF 10% 63V	3080	4822 051 10102	1k 2% 0,25W	3210	4822 051 10154	150k 2% 0,25W
2263	4822 122 32442	10nF 50V	3085	4822 051 10152	1k5 2% 0,25W	3211	4822 051 10152	1k5 2% 0,25W
2265	4822 122 33496	100nF 10% 63V	3100	4822 051 10122	1k2 2% 0,25W	3211	4822 051 10224	220k 2% 0,25W
2266	4822 122 32891	68nF 10% 63V	3100	4822 052 10108	1Ω 5% 0,3W	3216	4822 051 10511	510Ω 2% 0,25W
2267	4822 122 31797	22nF 10% 63V	3101	4822 051 10271	270Ω 2% 0,25W	3218	4822 051 10102	1k 2% 0,25W
2268	4822 122 32442	10nF 50V	3102	4822 051 10181	180Ω 2% 0,25W	3220	4822 051 10122	1k2 2% 0,25W
2269	4822 121 42008	470nF 10% 63V	3105	4822 051 10332	3k3 2% 0,25W	3221	4822 051 10103	10k 2% 0,25W
2270	4822 124 41644	0,47µF 20% 50V	3105	4822 100 20168	10k Lin	3222	4822 051 10822	8k2 2% 0,25W
2271	4822 122 31797	22nF 10% 63V	3106	4822 051 10682	6k8 2% 0,25W	3230	4822 051 10393	39k 2% 0,25W
2272	4822 121 42008	470nF 10% 63V	3107	4822 051 10103	10k 2% 0,25W	3231	4822 051 10829	82Ω 2% 0,25W
2273	4822 122 31797	22nF 10% 63V	3107	4822 051 10122	1k2 2% 0,25W	3232	4822 051 10563	56k 2% 0,25W
2274	4822 121 42008	470nF 10% 63V	3107	4822 051 10822	8k2 2% 0,25W	3233	4822 051 10333	33k 2% 0,25W
2275	4822 122 31774	56pF 5% 50V	3108	4822 051 10181	180Ω 2% 0,25W	3237	4822 051 10132	1k3 2% 0,25W
2276	4822 122 32444	33pF 5% 50V	3108	4822 051 10562	5k6 2% 0,25W	3238	4822 051 10472	4k7 2% 0,25W
2276	4822 122 33496	100nF 10% 63V	3109	4822 051 10472	4k7 2% 0,25W	3239	4822 051 10132	1k3 2% 0,25W
2277	4822 122 31769	18pF 5% 50V	3110	4822 051 10103	10k 2% 0,25W	3240	4822 100 20168	10k 30% Lin
2277	4822 124 40198	470µF 20% 16V	3111	4822 051 10123	12k 2% 0,25W	3241	4822 051 10473	47k 2% 0,25W
2280	4822 122 32504	15pF 5% 50V	3112	4822 051 10102	1k 2% 0,25W	3243	4822 051 10561	560Ω 2% 0,25W
2285	4822 122 32442	10nF 50V	3112	4822 051 10331	330Ω 2% 0,25W	3244	4822 101 10927	470Ω 30% Lin
2286	4822 124 40195	150µF 20% 16V	3113	4822 051 10821	820Ω 2% 0,25W	3245	4822 051 10824	820k 2% 0,25W
2287	4822 122 32856	8,2nF 10% 63V	3114	4822 051 10274	270k 2% 0,25W	3248	4822 051 10273	27k 2% 0,25W
2288	4822 122 32856	8,2nF 10% 63V	3115	4822 051 10332	3k3 2% 0,25W	3247	4822 051 20183	18k 5% 0,1W
2289	4822 122 31782	15nF 10% 50V	3116	4822 051 10562	5k6 2% 0,25W	3248	4822 051 10103	10k 2% 0,25W
2290	4822 122 31782	15nF 10% 50V	3117	4822 051 10122	1k2 2% 0,25W	3251	4822 051 10683	88k 2% 0,25W
2290	4822 122 32504	15pF 5% 50V	3117	4822 051 10562	5k6 2% 0,25W	3254	4822 051 10333	33k 2% 0,25W
2291	4822 122 32504	15pF 5% 50V	3118	4822 051 10104	100k 2% 0,25W	3255	4822 051 10105	1M 5% 0,25W
2292	4822 122 31981	33nF 0,5pF 50V	3118	4822 051 10181	180Ω 2% 0,25W	3256	4822 051 10561	560Ω 2% 0,25W
2293	4822 122 31981	33nF 0,5pF 50V	3120	4822 051 10181	180Ω 2% 0,25W	3257	4822 101 10927	470Ω 30% Lin
2300	4822 122 33496	100nF 10% 63V	3120	4822 051 10822	8k2 2% 0,25W	3259	4822 051 10563	56k 2% 0,25W
2310	4822 122 33496	100nF 10% 63V	3121	4822 051 10122	1k2 2% 0,25W	3260	4822 051 10563	56k 2% 0,25W
2312	4822 122 31772	47pF 5% 50V	3121	4822 051 10472	4k7 2% 0,25W	3269	4822 051 20222	2k2 5% 0,1W
2315	4822 125 50045	22p 250V	3122	4822 051 10102	1k 2% 0,25W	3270	4822 051 10393	39k 2% 0,25W
2317	4822 122 32442	10nF 50V	3122	4822 100 11368	2k Lin	3275	4822 051 10471	470Ω 2% 0,25W
2318	4822 122 31972	39pF 5% 50V	3123	4822 116 52224	470Ω 5% 0,5W	3276	4822 051 10102	1k 2% 0,25W
2319	4822 122 32442	10nF 50V	3124	4822 116 52224	470Ω 5% 0,5W	3277	4822 052 10688	8,8Ω 5% 0,3W
2325	4822 122 31961	68pF 5% 63V	3125	4822 051 10472	4k7 2% 0,25W	3280	4822 051 10331	330Ω 2% 0,25W
2330	4822 124 41506	47µF 20% 16V	3126	4822 051 10102	1k 2% 0,25W	3283	4822 051 10331	330Ω 2% 0,25W
2331	4822 122 31797	22nF 10% 63V	3127	4822 116 81682	2M2 5% 0,5W	3284	4822 051 10331	330Ω 2% 0,25W
2340	4822 122 33496	100nF 10% 63V	3128	4822 051 10393	39k 2% 0,25W	3286	4822 051 10472	4k7 2% 0,25W
2341	4822 124 41506	47µF 20% 16V	3130	4822 051 10223	22k 2% 0,25W	3298	4822 051 10471	470Ω 2% 0,25W
2345	5322 122 31647	1nF 10% 63V	3132	4822 116 52257	22k 5% 0,5W	3299	4822 051 10471	470Ω 2% 0,25W
2350	4822 124 41506	47µF 20% 16V	3133	4822 051 10102	1k 2% 0,25W	3310	4822 051 10102	1k 2% 0,25W
2352	4822 122 31797	22nF 10% 63V	3133	4822 051 20183	18k 5% 0,1W	3312	4822 051 10103	10k 2% 0,25W
2353	4822 122 31797	22nF 10% 63V	3134	4822 051 10202	2k 2% 0,25W	3331	4822 051 10104	100k 2% 0,25W
2356	4822 122 31981	33nF 0,5pF 50V	3134	4822 051 10224	220k 2% 0,25W	3332	4822 051 10104	100k 2% 0,25W
2357	4822 122 31981	33nF 0,5pF 50V	3135	4822 051 10102	1k 2% 0,25W	3333	4822 051 10473	47k 2% 0,25W
2358	4822 122 31782	15nF 10% 50V	3136	4822 051 10224	220k 2% 0,25W	3335	4822 051 10392	3k9 2% 0,25W
2359	4822 122 31782	15nF 10% 50V	3138	4822 051 10273	27k 2% 0,25W	3336	4822 051 10392	3k9 2% 0,25W
2370	4822 122 32999	2,2N 5%	3138	4822 051 20222	2k2 5% 0,1W	3345	4822 051 10682	6k8 2% 0,25W
2371	4822 122 32999	2,2N 5%	3139	4822 051 10152	1k5 2% 0,25W	3350	4822 052 10109	10Ω 5% 0,3W
2372	4822 122 33498	2,7nF 10% 63V	3140	4822 051 10563	56k 2% 0,25W	3356	4822 051 10122	1k2 2% 0,25W
2373	4822 122 33498	2,7nF 10% 63V	3141	4822 051 10563	56k 2% 0,25W	3357	4822 051 10122	1k2 2% 0,25W
2374	4822 122 31773	560pF 5% 50V	3150	4822 051 10202	2k 2% 0,25W	3358	4822 051 10682	6k8 2% 0,25W
2375	4822 122 31773	560pF 5% 50V	3151	4822 051 10392	3k9 2% 0,25W	3359	4822 051 10682	6k8 2% 0,25W
2380	4822 121 51252	470nF 5% 63V	3152	4822 116 52219	330Ω 5% 0,5W	3366	4822 051 10472	4k7 2% 0,25W
2381	4822 121 42008	470nF 10% 63V	3153	4822 116 52219	330Ω 5% 0,5W	3367	4822 051 10472	4k7 2% 0,25W
			3165	4822 051 10478	4Ω7 5% 0,25W	3370	4822 051 10472	4k7 2% 0,25W
3010	4822 116 52219	330Ω 5% 0,5W	3170	4822 051 10471	470Ω 2% 0,25W	3371	4822 051 10472	4k7 2% 0,25W
3011	4822 116 52219	330Ω 5% 0,5W	3171	4822 051 10471	470Ω 2% 0,25W	4xxx	4822 051 10008	0Ω 5% 0,25W
3030	4822 051 10471	470Ω 2% 0,25W	3172	4822 051 10471	470Ω 2% 0,25W			
3035	4822 051 10331	330Ω 2% 0,25W	3173	4822 051 10471	470Ω 2% 0,25W			
3050	4822 052 10688	6,8Ω 5% 0,3W	3182	4822 051 10008	0Ω 5% 0,25W			
3060	4822 051 10103	10k 2% 0,25W	3201	4822 051 10102	1k 2% 0,25W			
3061	4822 116 52279	4k 3 5% 0,5W	3202	4822 051 10332	3k3 2% 0,25W			
3062	4822 051 10271	270Ω 2% 0,25W	3202	4822 052 10109	10Ω 5% 0,3W			
3063	4822 116 52217	270Ω 5% 0,5W	3205	4822 116 52224	470Ω 5% 0,5W			
3064	4822 051 10471	470Ω 2% 0,25W	3206	4822 051 10152	1k5 2% 0,25W			
3071	4822 051 10102	1k 2% 0,25W	3206	4822 051 10471	470Ω 2% 0,25W			

# Spare parts list

CHASSIS G112

10.9

## Nicam sound module

5200	4822 157 62665	3,3µH
5206	4822 157 52511	0,83µH
5211	4822 157 52511	0,83µH
5233	4822 157 52512	10600,0 µH
5250	4822 157 51238	820µH
5251	4822 157 51238	820µH
5300	4822 157 53202	Choke
5317	4822 157 53575	3,3µH
5325	4822 152 20877	10µH
5330	4822 157 62665	3,3µH
5340	4822 157 62665	3,3µH

6030	4822 130 80954	BBV55-C5V6
6031	4822 130 80446	LL4148
6035	4822 130 81027	LLZ-C11
6105	4822 130 80446	LL4148
6106	4822 130 80446	LL4148
6114	4822 130 80954	LLZ-C5V6
6115	4822 130 80446	LL4148
6116	4822 130 80446	LL4148
6121	4822 130 81288	LLZ-C12
6126	4822 130 80446	LL4148
6134	5322 130 80119	BBY40
6135	5322 130 80119	BBY40
6136	5322 130 80119	BBY40
6150	4822 130 80446	LL4148
6289	4822 130 80446	LL4148
6312	5322 130 34953	BB405B

7030	5322 130 41983	BC858B
7031	4822 130 60775	2SD1266P
7035	4822 130 61207	BC848
7040	5322 209 10883	PCF8574P
7060	5322 130 42138	BC848C
7065	4822 130 60514	BC859B
7070	4822 209 73758	U2829B
7100	4822 209 30764	TDA8415/V1
7110	4822 130 61207	BC848
7112	5322 130 42012	BC858
7112	4822 209 81118	TBA120U/V4
7114	4822 130 61207	BC848
7120	4822 130 61207	BC848
7121	4822 130 61207	BC848
7122	4822 130 61207	BC848
7129	4822 209 70672	LM358N
7150	4822 209 63734	TDA8425/V5
7200	4822 209 62227	TA8662N
7206	4822 209 73756	U2829B
7210	4822 130 61207	BC848
7211	4822 130 61207	BC848
7220	4822 130 61207	BC848
7231	5322 130 41983	BC858B
7236	4822 209 72371	TDA8405/V4
7248	4822 130 61207	BC848
7266	4822 209 63734	TDA8425/V5
7269	4822 130 61207	BC848
7300	4822 209 61114	CF70123
7330	4822 209 72545	SAA7220P/C
7333	4822 130 61207	BC848
7340	4822 209 73236	TDA1543/N2
7350	4822 209 83163	LM833N
7351	4822 209 83163	LM833N
7351	4822 209 83163	LM833N

## Auto multi voltage module

4822 265 30497	5P MALE WTB
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2114	4822 124 41889	10µF 10% 400V
2115	4822 124 40198	470µF 20% 18V
2123	4822 122 32542	47nF 10% 63V
2125	4822 122 32542	47nF 10% 63V
2130	4822 124 41892	680µF 20% 400V
2133	4822 121 41677	10nF 10% 400V
2136	4822 124 40242	1µF 20% 63V
2137	4822 122 32769	2N2 10% 1kV

3113	4822 116 30344	NTC
3114	4822 116 52133	30k 5% 2,5W
3115	4822 116 51736	33k 5% 2,5W
3116	4822 051 10339	33Ω 2% 0,25W
3117	4822 116 52252	180k 5% 0,5W
3118	4822 116 52132	46k 4 1% 1W
3119	4822 116 82147	1,2Ω 10% 10W
3120	4822 116 52132	46k 4 1% 1W
3121	4822 051 20222	2k2 5% 0,1W
3122	4822 051 10223	22k 2% 0,25W
3123	4822 051 10271	270Ω 2% 0,25W
3125	4822 051 20222	2k2 5% 0,1W
3126	4822 050 28204	820k 1% 0,6W
3131	4822 050 26804	680k 1% 0,6W
3133	4822 050 11002	1k 5% 0,5W
3134	4822 052 10339	33Ω 5% 0,3W
3136	4822 050 11002	1k 5% 0,5W

6115	4822 130 81513	LLZ-C6V8
6117	4822 130 81766	BYD14K
6118	4822 130 81766	BYD14K
6119	4822 130 81766	BYD14K
6120	4822 130 81766	BYD14K
6122	4822 130 80887	LLZ-C36
6134	4822 130 20215	SFOR5J43
6135	4822 130 34174	BZX79-C4V7
6306	5322 130 24081	BT151-650R

7116	4822 130 61207	BC848
7123	5322 130 42012	BC858
7126	4822 130 61207	BC848

## TXT module

4822 265 40469	6P FEM
4822 265 40471	8P FEM

Various	
1801	4822 242 73552
1802	4822 242 71508
	13,875 000 MHz
	8,00 MHz
2793	4822 122 32542
2794	4822 122 31769
2795	4822 122 31769
2796	4822 122 31769
2797	4822 122 31769
2800	4822 124 40178
2801	4822 122 32442
2802	4822 122 31972
2803	4822 122 31972
2804	4822 122 31766
2805	4822 122 31766
2810	4822 122 33496
2811	4822 122 33496
2812	4822 122 33496
2813	4822 122 32442
2814	4822 122 31773
2815	4822 122 33496
2816	4822 122 31825
2817	4822 122 32504
2818	5322 122 31647
2819	4822 122 31727
2820	4822 122 31797
2821	4822 122 32142
2822	4822 122 31765
2823	4822 122 31965
2824	4822 122 32891
2825	4822 124 41525
2826	4822 122 32504
2827	4822 122 32542
2828	4822 122 32542
2829	4822 124 41506
2830	4822 122 32542
2833	4822 124 41576
2845	4822 124 40178
2846	4822 124 41554
2849	4822 124 21212
	15µF 20% 40V
3795	4822 051 10392
3796	4822 116 90536
3797	4822 116 52176
3798	4822 116 90536
3800	4822 051 10103
3801	4822 051 10105
3802	4822 051 10101
3803	4822 051 10101
3804	4822 051 10101
3805	4822 051 10122
3807	4822 051 10622
3808	4822 051 10103
3809	4822 051 10132
3810	4822 051 10333
3811	4822 051 10223
3812	4822 051 10332
3813	4822 051 10361
3814	4822 050 11002
3815	4822 051 10152
3816	4822 051 10683
3817	4822 051 10122
3818	4822 051 10122
3819	4822 051 10122

## TXT module

3820	4822 051 10122	1k2 2% 0,25W		
3821	4822 051 10122	1k2 2% 0,25W		
3822	4822 051 10122	1k2 2% 0,25W		
3823	4822 051 10122	1k2 2% 0,25W		
3824	4822 051 10332	3k3 2% 0,25W		
3825	4822 051 10332	3k3 2% 0,25W		
3826	4822 052 10159	15Ω 5% 0,33W		
3827	4822 051 10332	3k3 2% 0,25W		
3828	4822 051 10829	82Ω 2% 0,25W		
3839	4822 051 10122	1k2 2% 0,25W		
3840	4822 051 10122	1k2 2% 0,25W		
3841	4822 051 10122	1k2 2% 0,25W		
3842	4822 051 10122	1k2 2% 0,25W		
3843	4822 051 10122	1k2 2% 0,25W		
3845	4822 052 10689	68Ω 5% 0,33W		
3846	4822 052 10689	68Ω 5% 0,33W		
3847	4822 051 10829	82Ω 2% 0,25W		
3848	4822 051 10181	180Ω 2% 0,25W		
3849	4822 051 10102	1k 2% 0,25W		
3850	4822 051 20222	2k2 5% 0,1W		
3852	4822 051 20222	2k2 5% 0,1W		
3999	4822 051 10182	1k8 2% 0,25W		
3999	4822 051 20222	2k2 5% 0,1W		
3999	4822 051 10392	3k9 2% 0,25W		
4xxx	jumper			
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5800	4822 156 20966	47µH 10%		
5801	4822 157 52849	22µH 10%		
5803	4822 157 52825	60µH		
5814	4822 157 53608	10µH 10%		
5816	4822 157 52224	15µH 10%		
5847	4822 157 51157	3,3µH 10%		
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6809	4822 130 80446	LL4148		
6810	4822 130 80446	LL4148		
6811	4822 130 80446	LL4148		
6812	4822 130 80446	LL4148		
6813	4822 130 81512	LLZ-C6V2		
6814	4822 130 80446	LL4148		
6847	4822 130 42489	BYD33G		
6848	4822 130 80905	LLZ-F5V1		
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7800	4822 209 62479	MAB8461p/w196		
7800	4822 209 30281	PCF84C81A/097		
7800	4822 209 30279	PCF84C81A/096		
7801	4822 130 61207	BC848		
7802	4822 130 61207	BC848		
7803	5322 130 41982	BC848B		
7811	5322 130 41982	BC848B		
7812	5322 130 60159	BC846B		
7820	4822 209 73879	SAA5243P/E/M2		
7820	4822 209 63974	SAA5243P/H		
7820	4822 209 63975	SAA5243P/T		
7830	4822 209 63645	SAA5231/V6		
7846	5322 130 44921	BD943		
7849	5322 130 42012	BC858		