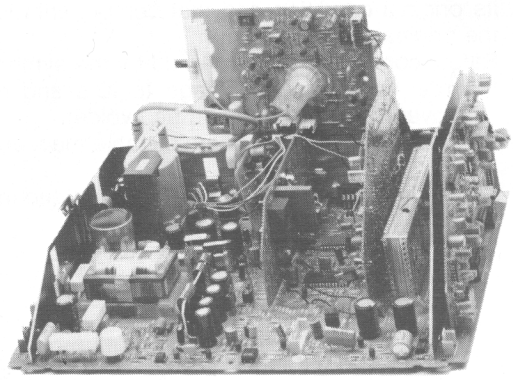
Service
Service
Service



39 012 A

Applicable to sets with serial numbers AG00

Service Manual

TECHNICAL DATA

Mains voltage	: 220-240 V ~ (± 10%)
Aerial input impedance	: 75 Ω - coax
Minimum aerial input VHF	: 30 µV
Minimum aerial input UHF	: 40 µV
Maximum aerial input	: 180 mV
Pull-in range colour sync	: +300 Hz/–300 Hz
Pull-in range horizontal sync	: +600 Hz/–600 Hz
Pull-in range vertical sync	: +5 Hz/–5 Hz
Picture tube range	: 24/27 inch 110° flat-square
	: 21 inch 90° flat square

CONTENTS

Documentation Technique Service Dokumentation Documentazione di Servizio Huolte-Ohje Manual de Servicio Manual de Serviço

Subject to modification

GB 4822 727 15485

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Published by
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CS 1 293 GB

2.

WARNINGS

1. Safety regulations demand that the set be restored to its original condition and that components identical to the original types be used.
   Safety components are marked by the symbol ⚠.
2. In order to preclude damage to IC's and transistors flashover of the EHT should be avoided.
   For checking the EHT, use a suitable measuring instrument.
   The picture tube should only be discharged in the manner shown in Fig. 1.
3. A set to be repaired should always be connected to the mains via a suitable isolating transformer.
4. Proceed with care when testing the EHT section and the picture tube.
5. Never replace any modules or other parts while the set is switched on.
6. Wear safety goggles during replacement of the picture tube.
7. Use plastic instead of metal alignment tools.
   This is in order to preclude short-circuits or to prevent a specific circuit from being rendered unstable.

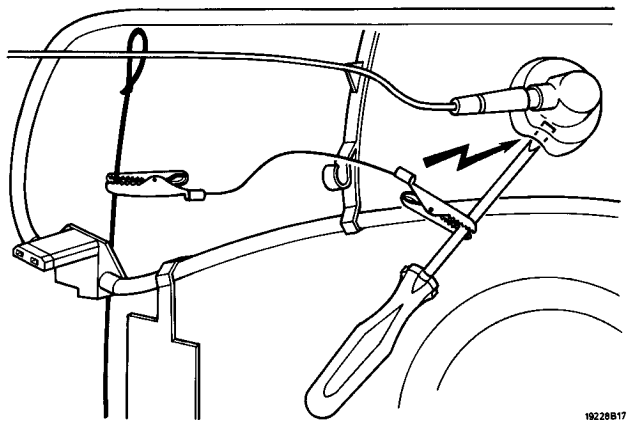


Fig. 1

REMARKS

1. The direct voltages and waveforms should be measured relative to the nearest earthing point on the p.c. board.
2. The direct voltages should be measured as follows:
   Apply an aerial signal and adjust receiver for minimum brightness, maximum saturation and contrast.
3. The waveforms should be measured under the following conditions:
   a. Use a colour-bar pattern as input signal.
   b. Connect an oscilloscope (0,1 V/div.-DC) to point 5 of TDA4580 (item 7300) via an 10:1 attenuator probe.
   c. Set the saturation control to obtain 3 V d.c. on point 16 of TDA4580 (item 7300).
   d. Set the brightness control so that the level of the black bar in the video signal is situated at 3 V (see Fig. 2).
   e. Set the contrast control for a video signal amplitude of 2,8 V.
4. The CRT board is provided with printed spark gaps.
   Each spark gap is arranged between an electrode of the CRT and the aquadag coating.
5. During manufacture alternative semi-conductors may be used.
   However the semi-conductors specified in the parts list and circuit diagram can always be used as replacements.
6. Connectors used for the modules (board to board) have been gold-plated and must be replaced by the same type only.

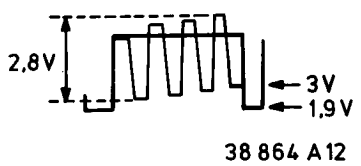
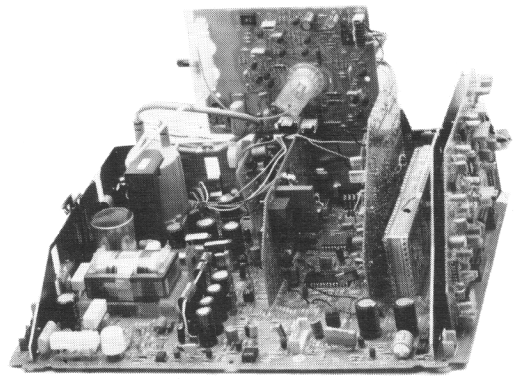


Fig. 2

Colour television CHASSIS 2B

Service
Service
Service

Version 2



39 012 A

Applicable to sets with serial numbers AG02 and higher

Service Manual

TECHNICAL DATA

Mains voltage	: 220-240 V ~ (± 10%)
Aerial input impedance	: 75 Ω - coax
Minimum aerial input VHF	: 30 µV
Minimum aerial input UHF	: 40 µV
Maximum aerial input	: 180 mV
Pull-in range colour sync	: +300 Hz/–300 Hz
Pull-in range horizontal sync	: +600 Hz/–600 Hz
Pull-in range vertical sync	: +5 Hz/–5 Hz
Picture tube range	: 24/27 inch 110° flat-square
	: 21 inch 90° flat square

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2.

WARNINGS

1. Safety regulations demand that the set be restored to its original condition and that components identical to the original types be used.
   Safety components are marked by the symbol ⚠.
2. In order to preclude damage to IC's and transistors flashover of the EHT should be avoided.
   For checking the EHT, use a suitable measuring instrument.
   The picture tube should only be discharged in the manner shown in Fig. 1.
3. A set to be repaired should always be connected to the mains via a suitable isolating transformer.
4. Proceed with care when testing the EHT section and the picture tube.
5. Never replace any modules or other parts while the set is switched on.
6. Wear safety goggles during replacement of the picture tube.
7. Use plastic instead of metal alignment tools.
   This is in order to preclude short-circuits or to prevent a specific circuit from being rendered unstable.

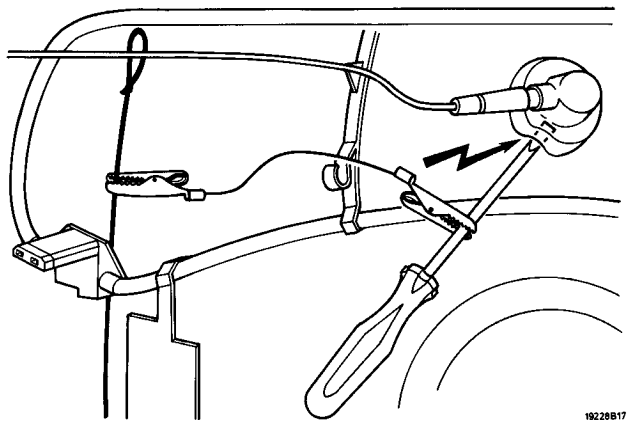

Fig. 1

REMARKS

1. The direct voltages and waveforms should be measured relative to the nearest earthing point on the p.c. board.
2. The direct voltages should be measured as follows:
   Apply an aerial signal and adjust receiver for minimum brightness, maximum saturation and contrast.
3. The waveforms should be measured under the following conditions:
   a. Use a colour-bar pattern as input signal.
   b. Connect an oscilloscope (0,1 V/div.-DC) to point 5 of TDA4580 (item 7300) via an 10:1 attenuator probe.
   c. Set the saturation control to obtain 3 V d.c. on point 16 of TDA4580 (item 7300).
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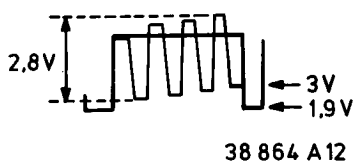

Fig. 2

Colour television CHASSIS 2B

Service
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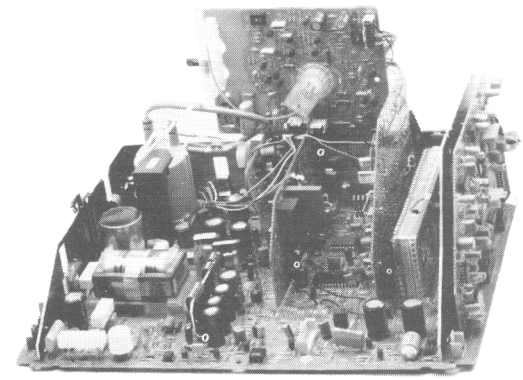
Service

Version 3



39 012 A

Applicable to sets with serial numbers AG04 and higher

Service Manual

TECHNICAL DATA

Mains voltage	: 220-240 V ~ (± 10%)	Pull-in range colour sync	: +300 Hz/–300 Hz
Aerial input impedance	: 75 Ω - coax	Pull-in range horizontal sync	: +600 Hz/–600 Hz
Minimum aerial input VHF	: 30 µV	Pull-in range vertical sync	: +5 Hz/–5 Hz
Minimum aerial input UHF	: 40 µV	Picture tube range	: 24/27 inch 110° flat-square
Maximum aerial input	: 180 mV		: 21 inch 90° flat square

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WARNINGS

1. Safety regulations demand that the set be restored to its original condition and that components identical to the original types be used.
   Safety components are marked by the symbol ⚠.
2. In order to preclude damage to IC's and transistors flashover of the EHT should be avoided.
   For checking the EHT, use a suitable measuring instrument.
   To prevent damage of the picture tube, the method indicated in Fig. 1 has to be applied when discharging the picture tube.
   Make use of a high-voltage probe and a universal meter (position DC-V)
   Discharge until the deflection on the meter has become 0 Volt (after about 30 s)
3. **ESD**

   All ICs 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 also at this potential.

REMARKS

1. The direct voltages and waveforms should be measured relative to the nearest earthing point on the p.c. board.
2. The direct voltages should be measured as follows:
   Apply an aerial signal and adjust receiver for minimum brightness, maximum saturation and contrast.
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   b. Connect an oscilloscope (0,1 V/div.-DC) to point 5 of TDA4580 (item 7300) via an 10:1 attenuator probe.
   c. Set the saturation control to obtain 3 V d.c. on point 16 of TDA4580 (item 7300).
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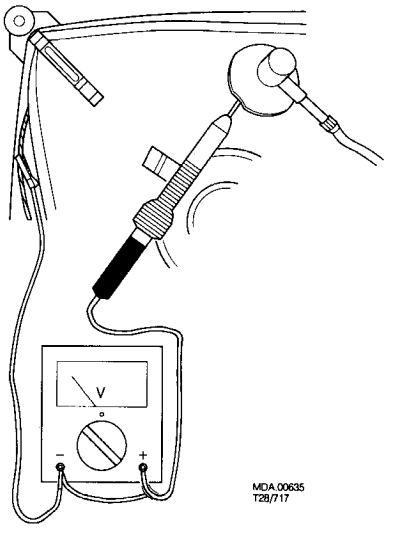

Fig. 1

   d. Set the brightness control so that the level of the black bar in the video signal is situated at 3 V (see Fig. 2).
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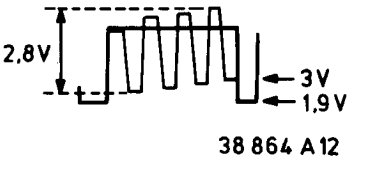

Fig. 2

Service
Service
Service

Supplement to chassis 2B

Service Manual

CONTENTS

TECHNICAL DATA

Mains voltage	: 220–240 V (10 %)
Aerial input impedance	: 75 Ω – coax
Minimum aerial input VHF	: 30 µV
Minimum aerial input UHF	: 40 µV
Maximum aerial input	: 180 mV
Pull–in range colour sync	: +300 Hz / –300 Hz
Pull–in range horizontal sync	: +600 Hz / –600 Hz
Pull–in range vertical sync	: +5 Hz / –5 Hz
Picture tube range	: 24"/27" 110° flat–square
	: 21" 90° flat–square

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CS 17 652

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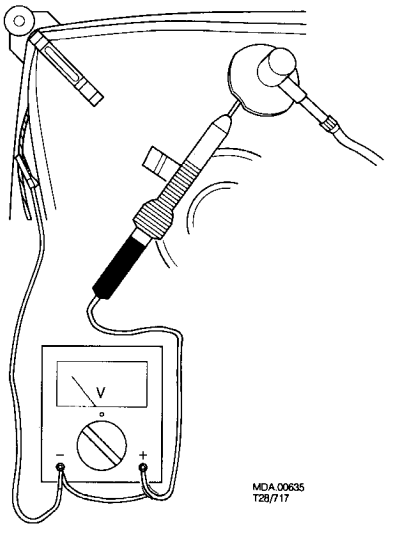

Fig. 1

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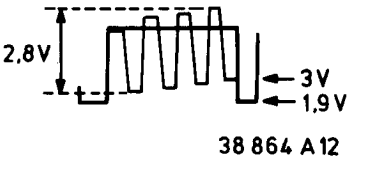
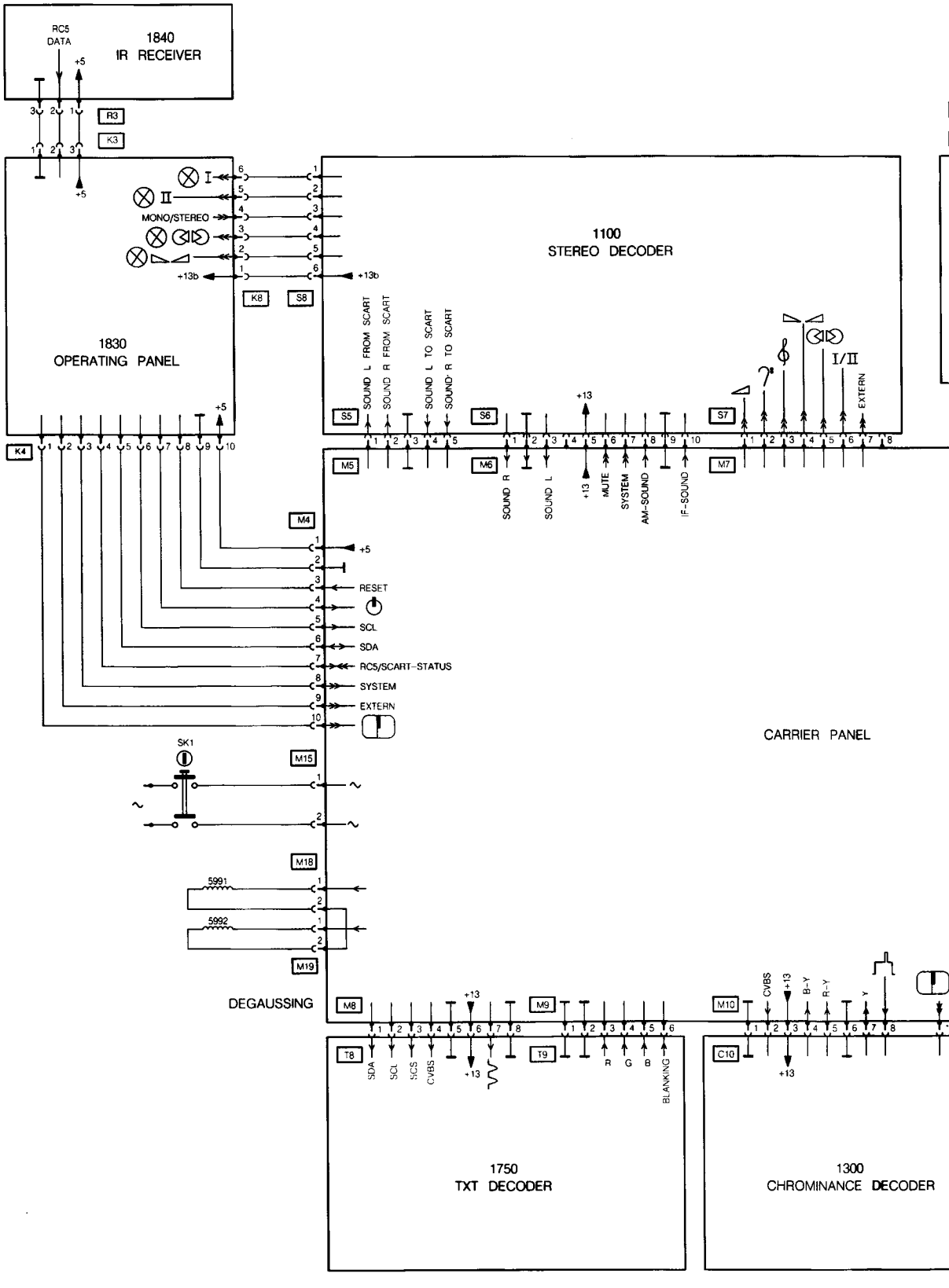
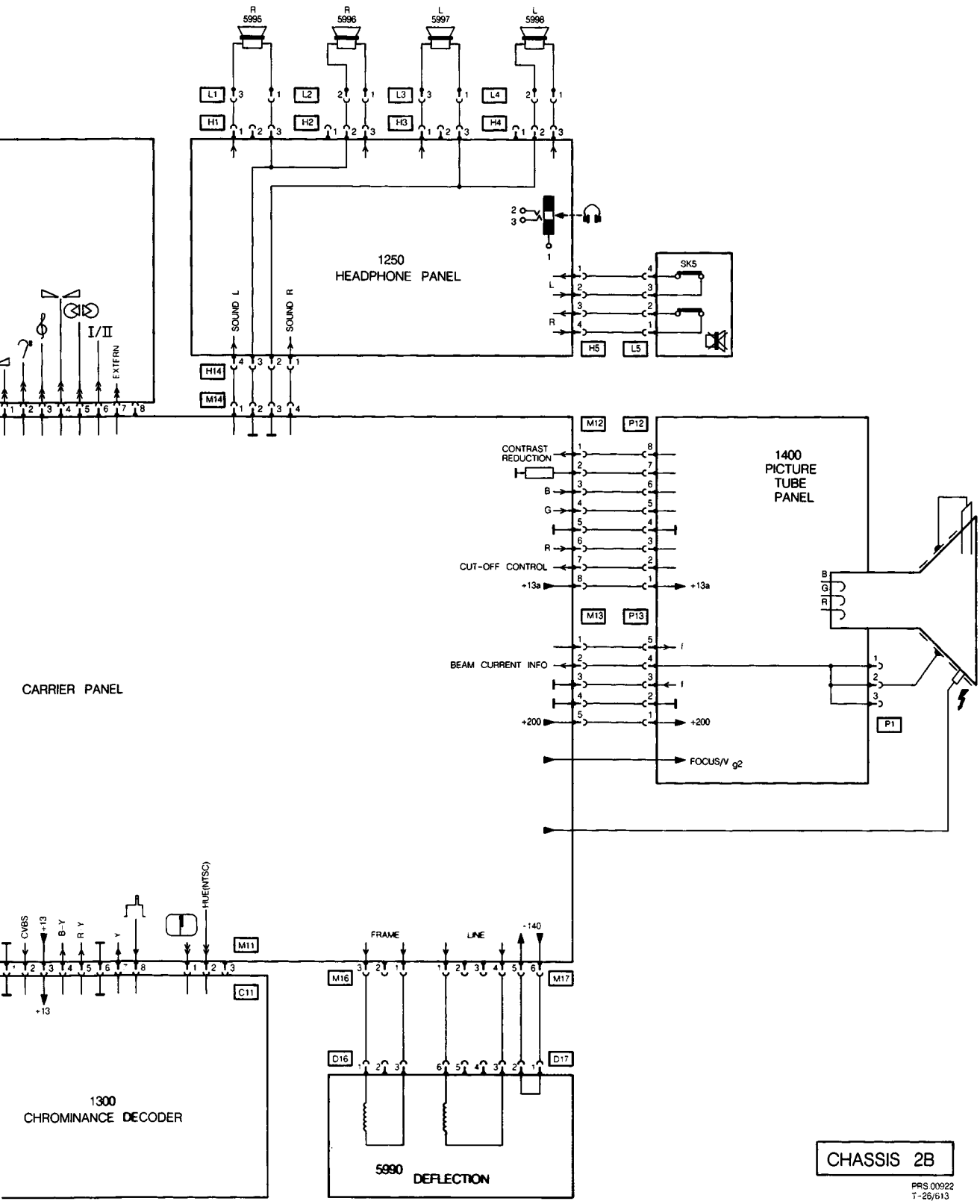


Fig. 2


RC5
DATA
+5
1840
IR RECEIVER
R3
K3
1830
OPERATING PANEL
I
II
MONO/STEREO
+13b
K8
S8
K4
1100
STEREO DECODER
SOUND L FROM SCART
SOUND R FROM SCART
SOUND L TO SCART
SOUND R TO SCART
S5
S6
S7
+13
I/II
EXTERN
M5
M6
M7
SOUND R
SOUND L
MUTE
SYSTEM
AM-SOUND
IF-SOUND
M4
RESET
SCL
SDA
RC5/SCART-STATUS
SYSTEM
EXTERN
CARRIER PANEL
SK1
M15
M18
5991
5992
M19
DEGAUSSING
M8
M9
M10
CVBS
B-Y
R-Y
Y
T8
T9
C10
SDA
SCL
SCS
CVBS
R
G
B
BLANKING
1750
TXT DECODER
1300
CHROMINANCE DECODER



CHASSIS 2B

PRS 00922
T-26/613

CARRIER PANEL

CNX62	4822 130 90121	
PCD8571P	4822 209 10427	
SAB3035	4822 209 11012	
TDA1520AQ	4822 209 70223	(for 2× 15 W)
TDA1520BQ	4822 209 70021	(for 2× 10 W)
TDA3653AQ	4822 209 83263	(for 90°)
TDA3654Q	4822 209 83351	(for 110°)
TDA4580	4822 209 70018	
TDA8370	4822 209 70178	

BC369	5322 130 44593	
BC547	4822 130 44257	
BC548	4822 130 40938	
BC548C	4822 130 44196	
BC556	4822 130 40989	
BC557	4822 130 44256	
BC558	4822 130 40941	
BC558B	4822 130 44197	
BD234	4822 130 40917	
BD826	4822 130 41774	
BD943	5322 130 44921	
BF819	4822 130 42159	
BUT12A	4822 130 43919	
2SD1577PV	4822 130 43921	

BAS11	4822 130 41273
BAV21	4822 130 30842
BT151F-500R	4822 130 20194
BY228	4822 130 41275
BY229F-200	4822 130 33529
BY229F-600	4822 130 33531
BYD33D	4822 130 42488
BYD33G	4822 130 42489
BYD33J	4822 130 42606
BYV27-150	4822 130 31628
BYW95C	4822 130 41602
BZV85-C5V1	4822 130 31456
BZX55-B5V1	4822 130 33524
BZX55-B6V2	4822 130 33525
BZX55-B9V1	4822 130 33668
BZX55-C33	4822 130 33684
BZX79-C2V7	5322 130 34563
BZX79-C3V9	4822 130 31981
BZX79-C4V7	4822 130 34174
BZX79-C12	4822 130 34197
BZX79-C18	4822 130 31024
BZX79-C33	4822 130 34142
BZX79-C47	4822 130 34383
HZ7A3	4822 130 33523
OF705-8V2	4822 130 33633
OF705-30	4822 130 32807

SF2D41	4822 130 20193	
1N4148	4822 130 31438	
1N5061	4822 130 31933	

5027	4822 157 50961	
5555	4822 157 52681	
5567	4822 157 50964	
5601	4822 158 10728	(for 110°)
5601	4822 156 21293	(for 90°)
5611	4822 157 52472	(for 110°)
5611	4822 158 10553	(for 90°)
5612	4822 157 52688	(for 110°)
5612	4822 156 21332	(for 90°)
5619	4822 157 52505	
5620	4822 140 10294	Line output
5632	4822 146 10111	Line driver
5637	4822 157 51157	
5642	4822 157 52506	
5643	4822 157 52506	
5644	4822 157 52506	
5646	4822 157 52506	
5651	4822 157 52505	
5652	4822 157 52505	
5663	4822 146 21121	SOPS transformer
5687	4822 156 10769	
5697	4822 157 52407	
5698	4822 157 52407	

Various

1921	4822 242 70668	Crystal 4 MHz
1925	4822 138 10138	Battery 1,2 V
	4822 267 60172	SCART socket
	4822 276 11237	Switch SK2
	4822 410 24151	Knob on SK2
	4822 273 30324	Switch SK4
	4822 256 30274	Fuse holder 1651
	4822 267 30631	Socket var. level
1224	4822 280 20213	Relais
	4822 492 41268	Spring fix. TS7599
	4822 492 63339	Spring fix. TS7618
	4822 492 62907	Spring fix. other transistors and IC's
	4822 255 40527	Isolation plates
	4822 320 20097	EHT cable
	4822 320 20126	Focus cable long
	4822 320 40136	Focus cable short
	4822 267 50606	Connector on focus cable

CARRIER PANEL

3023	4822 111 30515	18 Ω	0,33 W
3030	4822 111 30505	7.5 Ω	0,33 W
3203	4822 111 30494	2.7 Ω	0,33 W
3213	4822 111 30494	2.7 Ω	0,33 W
3290	4822 111 30508	10 Ω	0,33 W
3535	4822 111 30508	10 Ω	0,33 W
3542	4822 100 20487	10 kΩ	potm.
3557	5322 116 64011	30 MΩ	0,25 W
3558	4822 110 72201	3.3 MΩ	0,25 W
3559	4822 100 11022	1 MΩ	potm.
3560	5322 116 64026	6.2 MΩ	0,25 W
3592	4822 116 52302	750 kΩ	0,5 W
3595	4822 100 20487	10 kΩ	potm.
3602	4822 111 30513	15 Ω	0,33 W
3632	4822 116 53418	2.7 kΩ	5 W
3632	4822 116 53568	3.3 kΩ	5 W
3644	4822 111 30483	1 Ω	0,33 W
3645	4822 111 30483	1 Ω	0,33 W
3646	4822 111 30494	2.7 Ω	0,33 W
3647	4822 111 30494	2.7 Ω	0,33 W
3651	4822 111 30553	470 Ω	0,33 W
3652	4822 111 30553	470 Ω	0,33 W
3653	4822 116 40033	NTC/PTC	(110°)
3653	4822 116 40065	PTC/PTC	(90°)
3654	5322 113 41033	2.2 Ω	7 W
3654	4822 113 80388	3.9 Ω	7 W
3664	4822 113 80383	82 Ω	7 W
3666	4822 111 30502	5.6 Ω	0,33 W
3671	4822 113 11002	15 Ω	5 W
3678	4822 116 52784	2.7 kΩ	0,4 W
3679	4822 116 52776	2.2 kΩ	0,4 W
3683	4822 116 53087	1.2 kΩ	0,4 W
3705	4822 116 53028	7.5 kΩ	0,6 W
3715	4822 100 20488	470 Ω	potm.
3935	4822 111 30498	4.3 Ω	0,33 W

2544	4822 121 42477	47 nF	50 V
2553	4822 121 42477	47 nF	50 V
2554	4822 121 50753	2.2 nF	160 V
2572	4822 121 42477	47 nF	50 V
2608	4822 124 21208	4.7 µF	50 V
2609	4822 121 40249	8.2 nF	1600 V
2609	4822 121 42383	6.2 nF	2000 V
2611	4822 121 40479	390 nF	250 V
2612	4822 121 42597	360 nF	250 V
2612	4822 121 42376	470 nF	250 V
2617	4822 122 32771	1.5 nF	2000 V
2617	4822 122 20039	270 pF	2000 V
2638	4822 124 21923	3.3 µF	250 V
2651	4822 121 50627	470 nF	250 V
2654	4822 122 32769	2.2 nF	1000 V
2655	4822 122 32769	2.2 nF	1000 V
2656	4822 122 32769	2.2 nF	1000 V
2657	4822 122 32769	2.2 nF	1000 V
2659	4822 124 21686	220 µF	385 V
2664	4822 122 32071	2.2 nF	1000 V
2675	4822 121 42589	82 nF	63 V
2690	4822 124 41282	1 µF	50 V
2691	4822 122 20038	47 pF	
2694	4822 122 20039	270 pF	2000 V

1601	4822 253 30174	T125 mA	(for 90°)
1601	4822 253 10074	T315 mA	(for 110°)
1642	4822 253 10057	T800 mA	
1651	4822 253 30025	T2 A	
1704	4822 253 30089	T2,5 A	
1707	4822 253 30089	T2,5 A	
1711	4822 253 10074	T315 mA	

(board)

M4	4822 265 40442	10p
M5	4822 267 40648	5p
M6	4822 264 50149	10p
M7	4822 264 50148	8p
M8	4822 264 50148	8p
M9	4822 267 50591	6p
M10	4822 264 50148	8p
M11	4822 265 30437	3p
M12	4822 265 40422	8p
M13	4822 265 30351	5p
M14	4822 265 30378	4p
M15	4822 265 30389	2p
M16	4822 265 30407	3p
M17	4822 265 40421	6p
M18	4822 265 30389	2p
M19	4822 265 30389	2p

(cable)

M4	4822 267 50637	10p
M12	4822 265 40253	8p
M13	4822 265 30275	5p
M14	4822 267 40507	4p
M15	4822 267 40653	3p
M16	4822 265 30273	3p
M17	4822 267 30546	6p
M18	4822 267 30639	2p
M19	4822 267 30639	2p

PICTURE TUBE PANEL 1400

BC548C	4822 130 44196		
BC558B	4822 130 44197		
BF423	4822 130 41646		
BF485	4822 130 42702		
BF583	4822 130 60143		
BF870	4822 130 60126		
1N4148	4822 130 31438		
3400	4822 111 30539	150 Ω	0,33 W
3401	4822 111 30582	6.2 kΩ	0,33 W
3402	4822 111 30568	2 kΩ	0,33 W
3402	4822 111 30561	1 kΩ	0,33 W
3414	4822 100 20148	1 kΩ	potm.
3419	4822 116 52408	2.2 kΩ	0,5 W
3421	4822 111 30582	6.2 kΩ	0,33 W
3422	4822 111 30568	2 kΩ	0,33 W
3422	4822 111 30561	1 kΩ	0,33 W
3434	4822 100 20148	1 kΩ	potm.
3439	4822 116 52408	2.2 kΩ	0,5 W
3441	4822 111 30582	6.2 kΩ	0,33 W
3442	4822 111 30568	2 kΩ	0,33 W
3442	4822 111 30561	1 kΩ	0,33 W
3459	4822 116 52408	2.2 kΩ	0,5 W
3470	4822 116 52408	2.2 kΩ	0,5 W
3471	4822 116 52413	2.7 kΩ	0,5 W
3472	4822 101 10127	4.7 MΩ	potm.
3473	5322 116 52489	1.3 MΩ	0,25 W
3491	4822 116 53105	3.3 kΩ	0,6 W
3492	4822 116 52776	2.2 kΩ	0,4 W
2466	4822 122 31695	1 nF	2000 V
	(board)		
P12	4822 265 40422	8p	
P13	4822 265 30351	5p	
P1	4822 265 30407	3p	
	(cable)		
P12	4822 265 40253	8p	
P13	4822 265 30275	5p	
P1	4822 265 30273	3p	
Various			
1474	4822 101 20814	Focus pot. meter	
	4822 255 70216	Socket picture tube	

AUXILIARY PANEL NEAR SYNC. IC

BC557	4822 130 44256		
BC558	4822 130 40941		
BZX55-C33	4822 130 33684		
BZX79-C12	4822 130 34197		
1N4148	4822 130 31438		
3548	4822 110 72203	3.9 MΩ	0,25 W
3549	4822 110 72214	10 MΩ	0,25 W
3550	4822 110 72189	1.2 MΩ	0,25 W

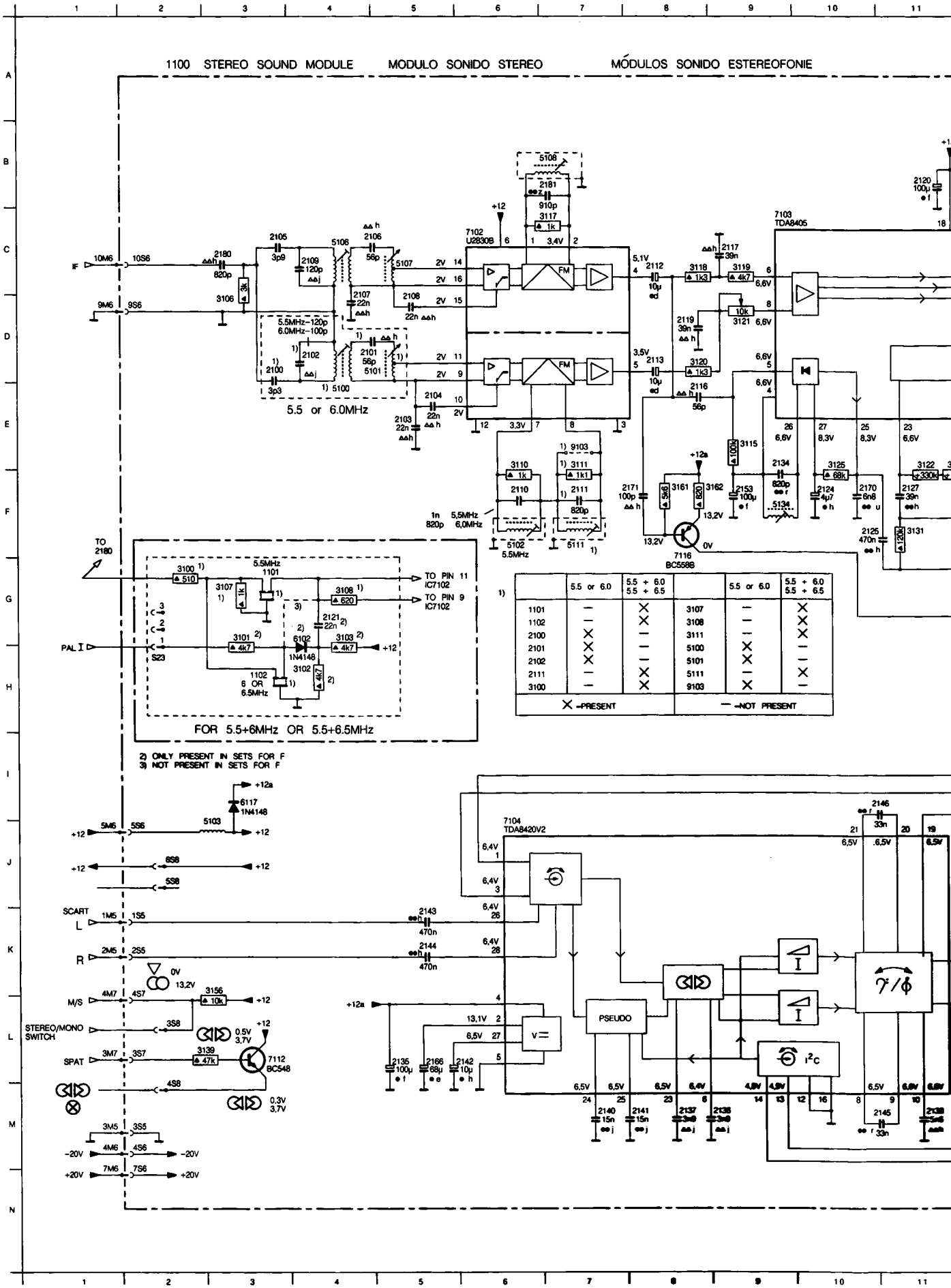
HEADPHONE PANEL 1250

2244	4822 124 21941	2.2 µF	63 V
2245	4822 124 21941	2.2 µF	63 V
	(board)		
H1÷H4	4822 265 30407	3p	
H5	4822 265 30378	4p	
H14	4822 265 30378	4p	
	(cable)		
H1÷H4	4822 265 30273	3p	
H5	4822 265 40507	4p	
H14	4822 265 40507	4p	
Various			
	4822 267 30324	Socket,jack	
	4822 404 30643	Bracket	

MAINS FILTER 1950 (ONLY FOR 24 INCH)

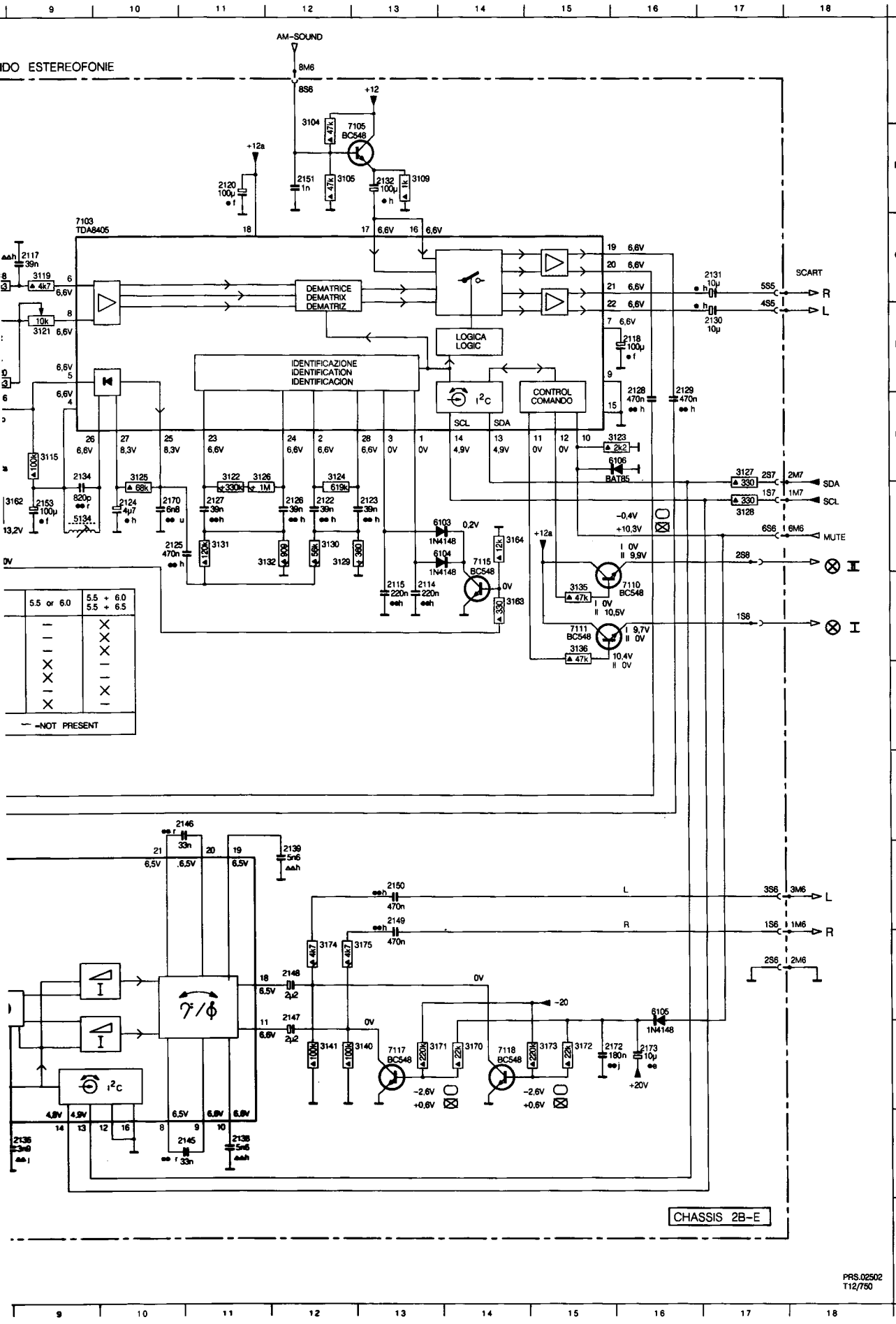
2101	4822 121 50627	470 nF	250 V
5101	4822 158 30208		

1100 STEREO SOUND MODULE MODULO SONIDO STEREO MÓDULOS SONIDO ESTEREOFONIE

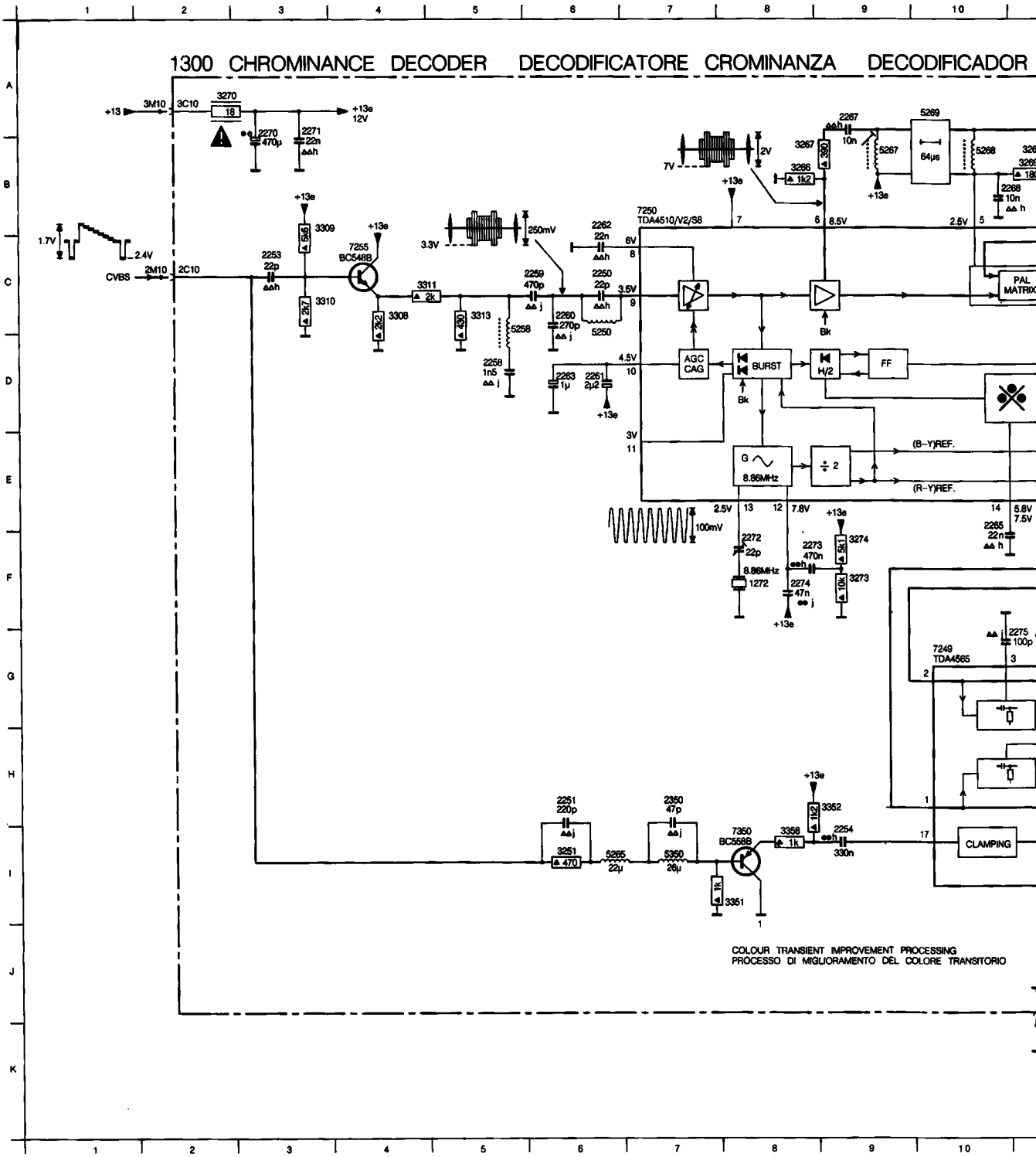


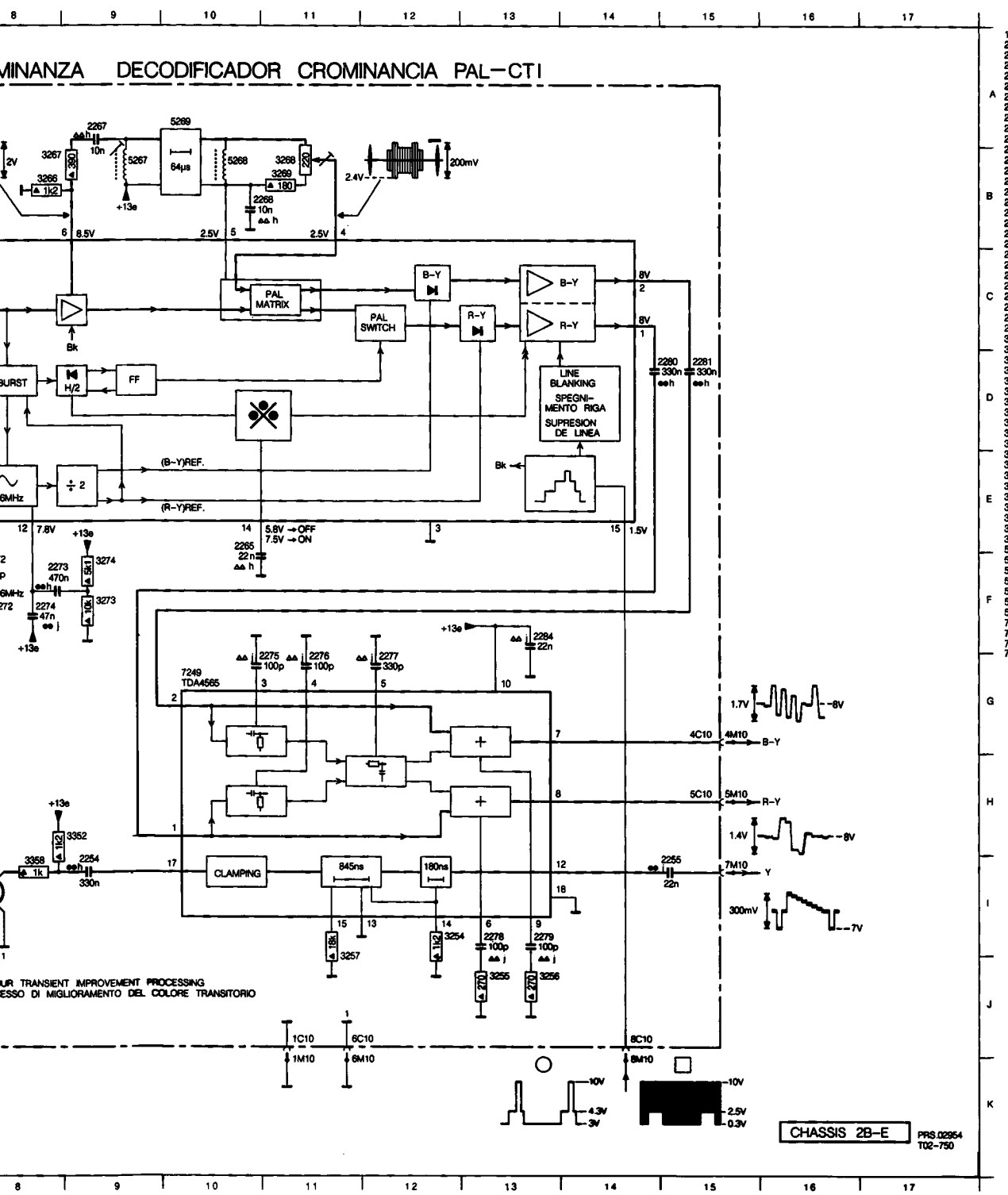
	5.5 or 6.0	5.5 + 6.0 5.5 + 6.5		5.5 or 6.0	5.5 + 6.0 5.5 + 6.5
1101	—	X	3107	—	X
1102	—	X	3108	—	X
2100	X	—	3111	—	X
2101	X	—	5100	X	—
2102	X	—	5101	X	—
2111	—	X	5111	—	X
3100	—	X	9103	X	—
X =PRESENT			— =NOT PRESENT		

1)



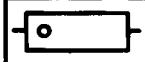
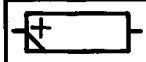
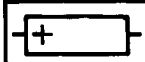
1100 A 2
1101 G 3
1102 H 3
2100 D 3
2101 D 4
2102 D 4
A 2103 E 5
2104 E 5
2105 C 3
2106 C 5
2107 C 4
2108 D 5
2109 C 4
2110 F 6
2111 F 7
B 2112 C 8
2113 D 8
2114 G13
2115 G13
2116 E 8
2117 C 9
2118 D16
2119 D 8
2120 B11
2121 G 4
C 2122 F12
2123 F13
2124 F10
2125 F10
2126 F12
2127 F11
2128 D16
2129 D16
2130 D17
2131 C17
D 2132 B13
2134 E 9
2135 L 5
2136 M 9
2137 M 8
2138 M11
2139 J12
2140 M 7
2141 M 8
E 2142 L 6
2143 K 5
2144 K 5
2145 M11
2146 I 11
2147 K12
2148 K12
2149 J13
2150 J13
2151 B12
F 2153 F 9
2166 L 5
2170 F10
2171 F 8
2172 L16
2173 L16
2180 C 3
2181 B 7
3100 G 2
3101 G 3
G 3102 H 4
3103 G 4
3104 A12
3105 B12
3106 D 3
3107 G 3
3108 G 4
3109 B13
3110 E 6
3111 E 7
H 3115 E 9
3117 C 7
3118 C 8
3119 C 9
3120 D 8
3121 D 9
3122 E11
3123 E16
3124 E12
I 3125 E10
3126 E11
3127 E17
3128 F17
3129 F12
3130 F12
3131 F11
3132 F12
3135 G15
3136 G15
J 3139 L 2
3140 L13
3141 L12
3156 K 3
3161 F 8
3162 F 9
3163 G14
3164 F14
3170 L14
3171 L13
K 3172 L15
3173 L15
3174 K12
3175 K13
5100 E 4
5101 D 5
5102 F 6
5103 J 3
5106 C 4
L 5107 C 5
5108 B 7
5111 F 7
5134 F 9
6102 G 4
6103 F14
6104 F14
6105 K16
6106 E16
6117 I 3
M 7102 C 6
7103 C 9
7104 J 6
7105 B13
7110 G16
7111 G15
7112 L 3
7116 F 8
7117 L13
7118 L14
N 9103 E 7

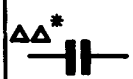
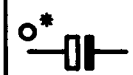

1300 CHROMINANCE DECODER DECODIFICATORE CROMINANZA DECODIFICADOR
+13
3M10
3C10
3270
18
+13e
12V
2270
470µ
2271
22n
CVBS
2M10
2C10
1.7V
2.4V
2253
22p
3309
5k6
3310
2k7
7255
BC548B
3308
2k2
3311
2k
3313
430
5258
2258
1n5
2259
470p
2260
270p
3.3V
250mV
2262
22n
6V
2250
22p
5250
3.5V
4.5V
2263
1µ
2261
2µ2
7250
TDA4510/V2/S8
7V
2V
3267
390
3266
1k2
2267
10n
5267
5269
64µs
5268
2268
10n
8.5V
2.5V
PAL MATRIX
Bk
AGC CAG
BURST
H/2
FF
3V
(B-Y)REF.
(R-Y)REF.
G
8.86MHz
÷ 2
100mV
7.8V
2272
22p
2273
470n
3274
5k1
2274
47n
3273
10k
1272
2275
100p
7249
TDA4565
2265
22n
5.8V
7.5V
2251
220p
2350
47p
3251
470
5265
22µ
5350
26µ
7350
BC559B
3358
1k
3352
1k2
2254
330n
3351
1k
CLAMPING
COLOUR TRANSIENT IMPROVEMENT PROCESSING
PROCESSO DI MIGLIORAMENTO DEL COLORE TRANSITORIO



1272	F	8
2250	C	6
2251	H	6
2253	C	3
2254	I	9
2255	I	15
2258	C	5
2259	C	6
2260	C	6
2261	D	6
2262	B	6
2263	D	6
2265	E	10
2267	A	9
2268	B	11
2270	A	3
2271	A	3
2272	F	8
2273	F	8
2274	F	8
2275	G	11
2276	G	11
2277	G	12
2278	I	13
2279	I	13
2280	D	15
2281	D	15
2284	F	13
2350	H	7
3251	I	6
3254	I	12
3255	J	13
3256	J	13
3257	J	11
3266	B	8
3267	B	8
3268	B	11
3269	B	11
3270	A	2
3273	F	9
3274	F	9
3308	C	4
3309	B	4
3310	C	4
3311	C	5
3313	C	5
3351	I	8
3352	H	9
3357	I	8
5250	C	6
5258	D	6
5265	I	6
5267	B	9
5268	B	10
5269	A	10
5360	I	7
7249	G	10
7250	B	7
7350	I	8
7255	C	4

SYMBOLS USED IN CIRCUIT DIAGRAMS

SYMBOL	TYPE	t^{P}_{amb} 70°	TOLERANCE	SERIES
	SFR16T	0.5	1E - 3M 5%	E24
	SFR25H	0.5	1E - 10M 5%	E24
	MRS25	0.6	1E - 1M 1%	E24
	MR30	0.5	1E - 1M 1% (2%)	E24
	VR37	0.5	220K - 33M 5%	E24
	PR37	1.6	1E - 1M 5%	E24
	VR68	1	100K - 68M 5%	E24
	MRS16T	0.4	10R–100K	E24/E96

SYMBOL	TYPE	VOLTAGE DC	TOLERANCE
	POLYESTER FLATFOIL	SEE NOTE	10%
	PLATE CERAMIC	SEE NOTE	DEPENDING ON CAPACITY
	ELCO MINIATURE SINGLE	SEE NOTE	-10+50%
	ELCO SINGLE ENDED	SEE NOTE	±20%

NOTE:

*

a = 2.5V
b = 4V
c = 6.3V
d = 10V
e = 16V

f = 25V
g = 40V
h = 63V
j = 100V
l = 125V
m = 150V
n = 160V

q = 200V
r = 250V
s = 300V
t = 350V
u = 400V
v = 500V
w = 630V

x = 1000V
z = 1600V
A = 1.6V
B = 6V
C = 12V
D = 15V

E = 20V
F = 35V
G = 50V
H = 75V
I = 80V

39 301 A13/617

Notes to NICAM faultfinding tree

Note 1

This signal depends on the input signal.
In case a generator with a NICAM sound signal is used the AF sound signal generated by the generator appears here.
In case an aerial signal with NICAM sound is used the broadcast AF sound signal appears here.

Note 2

Measurement of the I^2S signals must take place as follows.
Connect one channel of the oscilloscope to the word selection (WS) line. Use this signal also to trigger the oscilloscope.
Measure with the other channel of the oscilloscope the clock (CL) signal (see fig.1).
Next connect one channel of the oscilloscope to the clock (CL) line. Use this signal to trigger the oscilloscope.
Measure with the other channel of the oscilloscope the data (DA) signal (see fig.2).

Note 3

The frequency of the clock signal (pin 22) is 728 kHz.
The data signal (pin 23) is locked to the clock signal and has a maximum frequency equal to the clock frequency (see fig.3).

Note 4

With this measurement the oscilloscope is operated in X–Y operation. Which signal is used as X or Y drive is immaterial; however, the input sensitivities have to de equal (1 V/div). The picture below (see fig.4) must be visible on the oscilloscope now and the cross pattern must be still and straight.

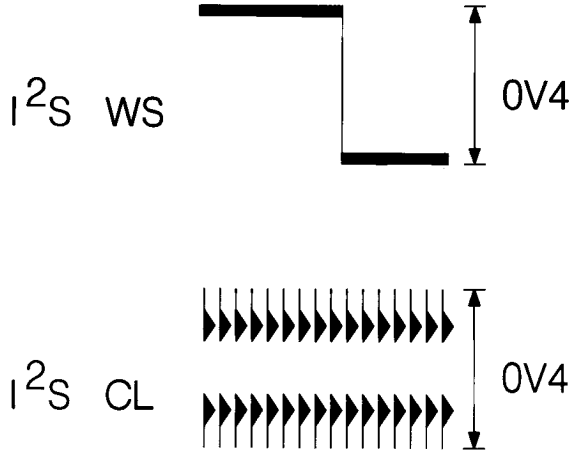


Fig. 1

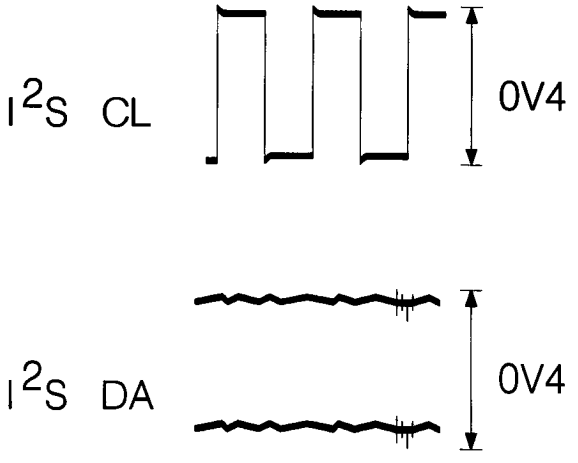


Fig. 2

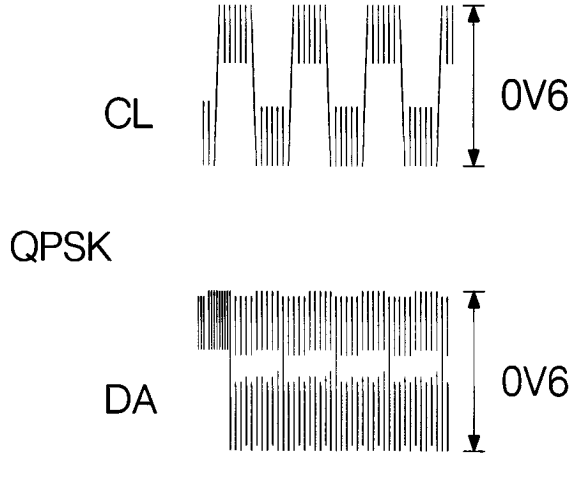


Fig. 3

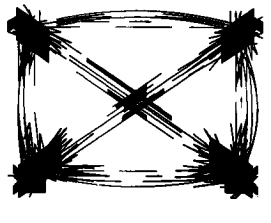
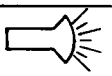
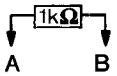
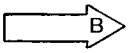


Fig. 4

MDA.01467
T28/827

SYMBOLS FOR FAULT-FINDING TREE

(NICAM)	Connect generator (with NICAM sound)	(NICAM)	Supply aerial signal (with NICAM sound)
=	Correct	≠	Incorrect
	Measure the signal/ oscillogram		Check circuit between ... and ...
V-Ω ...	Check the circuit	(NICAM)	No or bad NICAM sound
 A B	Insert 1000Ω resistor between A and B	f	Measure frequency
V	Measure voltage	 B	See faultfinding tree B

SURVEY OF CONNECTORS

Board to board Au

	male	female
3P	4822 265 30437	4822 265 30431
4P	4822 417 50217	4822 265 30276
5P	4822 267 40648	4822 265 40503
6P	4822 267 50591	4822 265 40469
8P	4822 264 50148	4822 265 40471
10P	4822 264 50149	4822 265 40472

Wire to board

	male	female
3P	4822 264 40207	4822 267 40582
4P	4822 265 30378	4822 267 40597
5P	4822 265 30351	4822 267 40583
6P	4822 265 40421	4822 267 40584
8P	4822 265 40422	4822 267 50544
10P	4822 265 40442	4822 267 50571

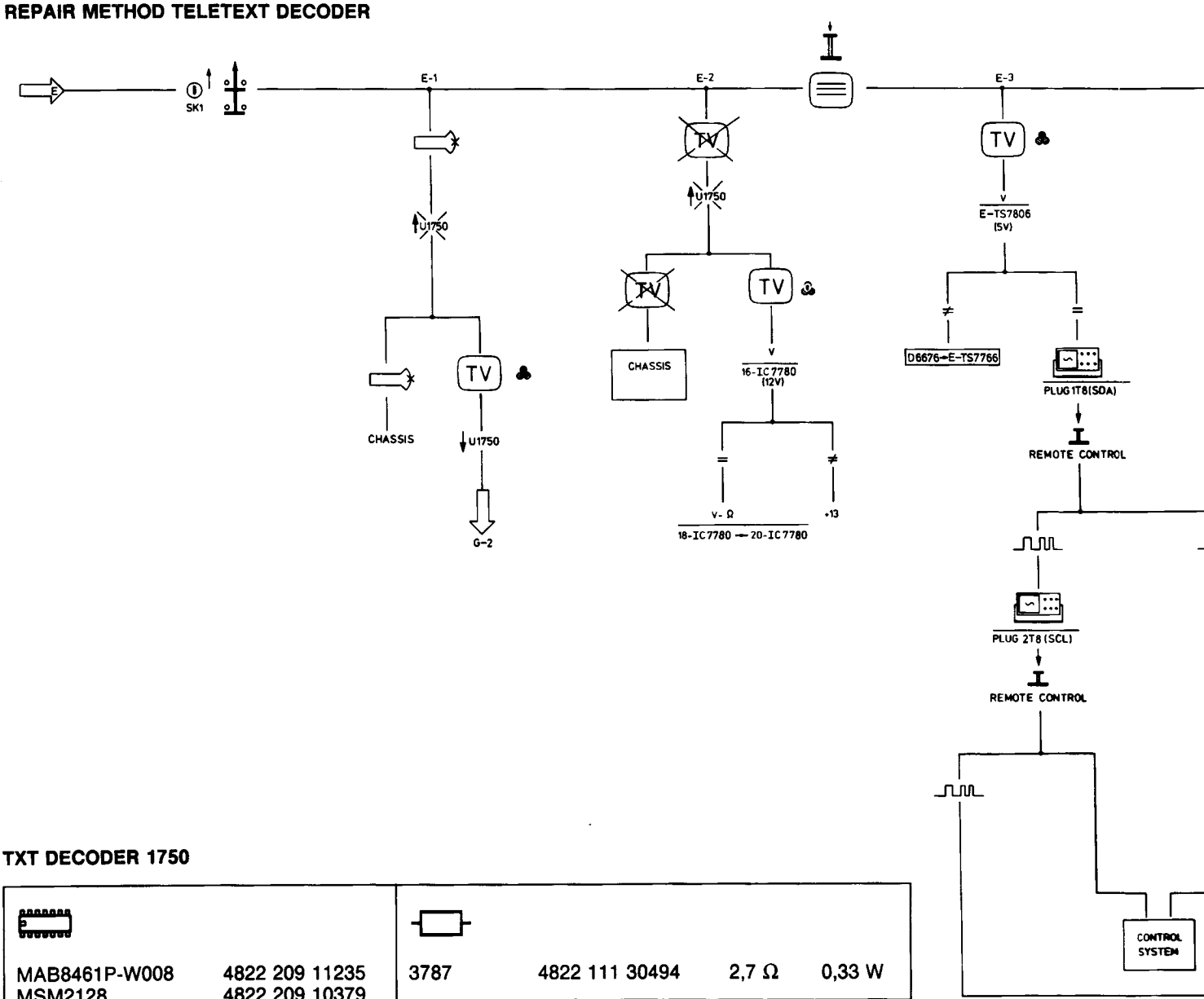
Wire to board

	male (edge)	female
3P	4822 267 40575	4822 267 40582
4P	4822 267 40576	4822 267 40597
5P	4822 265 30497	4822 267 40583
6P	4822 267 50592	4822 267 40584
8P	4822 267 50526	4822 267 50544
10P	4822 267 50593	4822 267 50571

Mains

	male	female
2P	4822 265 30389	4822 267 30639
2P	4822 265 40596 (STOCKO)	4822 290 60626 (STOCKO)

REPAIR METHOD TELETEXT DECODER



TXT DECODER 1750

MAB8461P-W008	4822 209 11235
MSM2128	4822 209 10379
SAA5230	4822 209 82786
SAA5241A	4822 209 82819
SAA5241B	4822 209 82785

BC548	4822 130 40938
BC548B	4822 130 40937
BC558	4822 130 40941
BC558B	4822 130 44197
BD943	5322 130 44921
PH2369	4822 130 41594

BYD33G	4822 130 42489
BZX55-B5V1	4822 130 33524
BZX55-B8V2	4822 130 33526

5750	4822 157 51462
5766	4822 157 51157
5795	4822 157 52392
5800	4822 157 50965

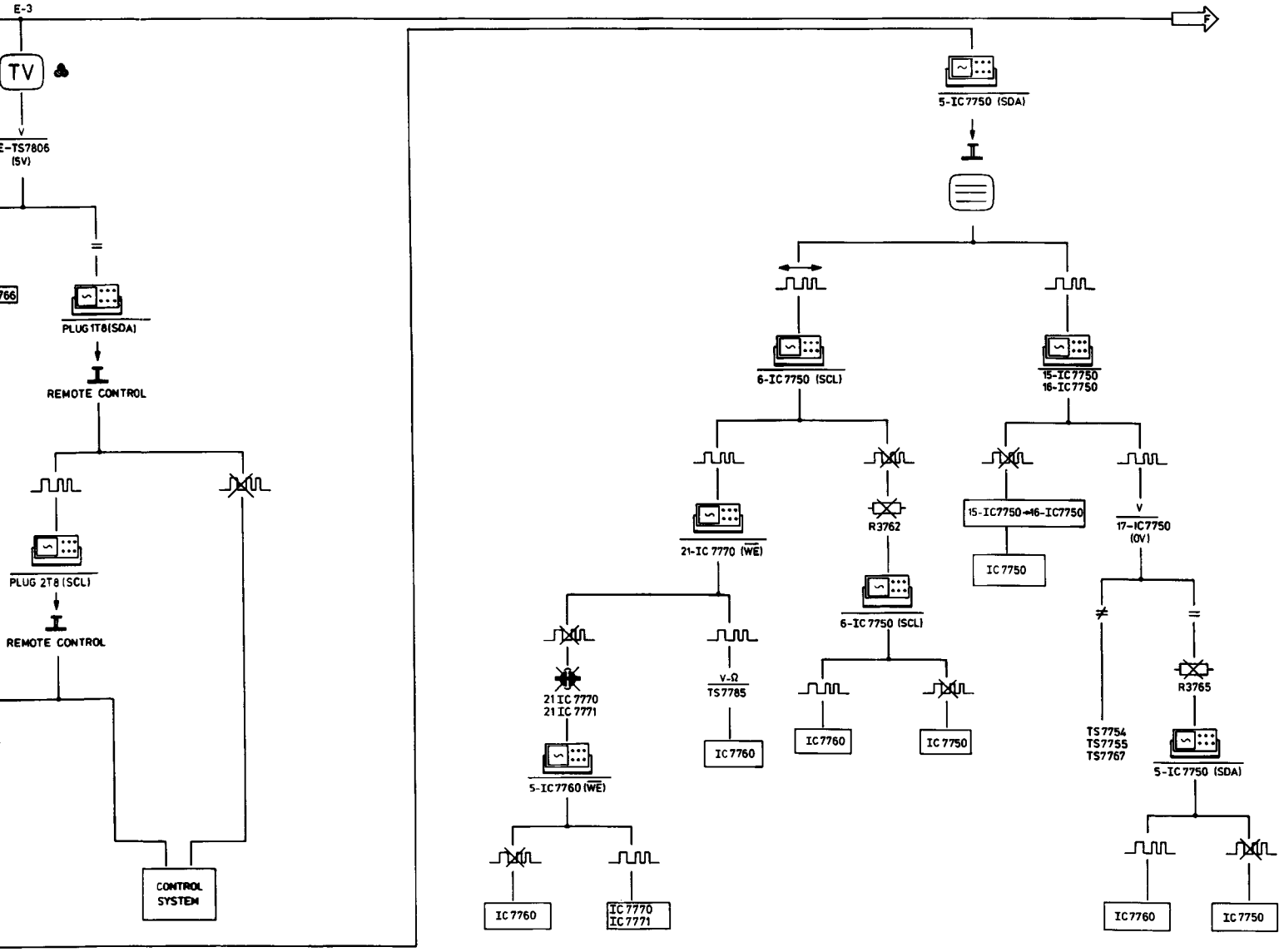
3787	4822 111 30494	2,7 Ω	0,33 W

2788	4822 125 50045	20 pF	trimm.
2789	4822 124 21936	2.2 µF	50 V

Various

1752	4822 242 70932	Crystal 6 MHz
1788	4822 242 70932	Crystal 6 MHz
1800	4822 242 71417	Crystal 13,875 MHz

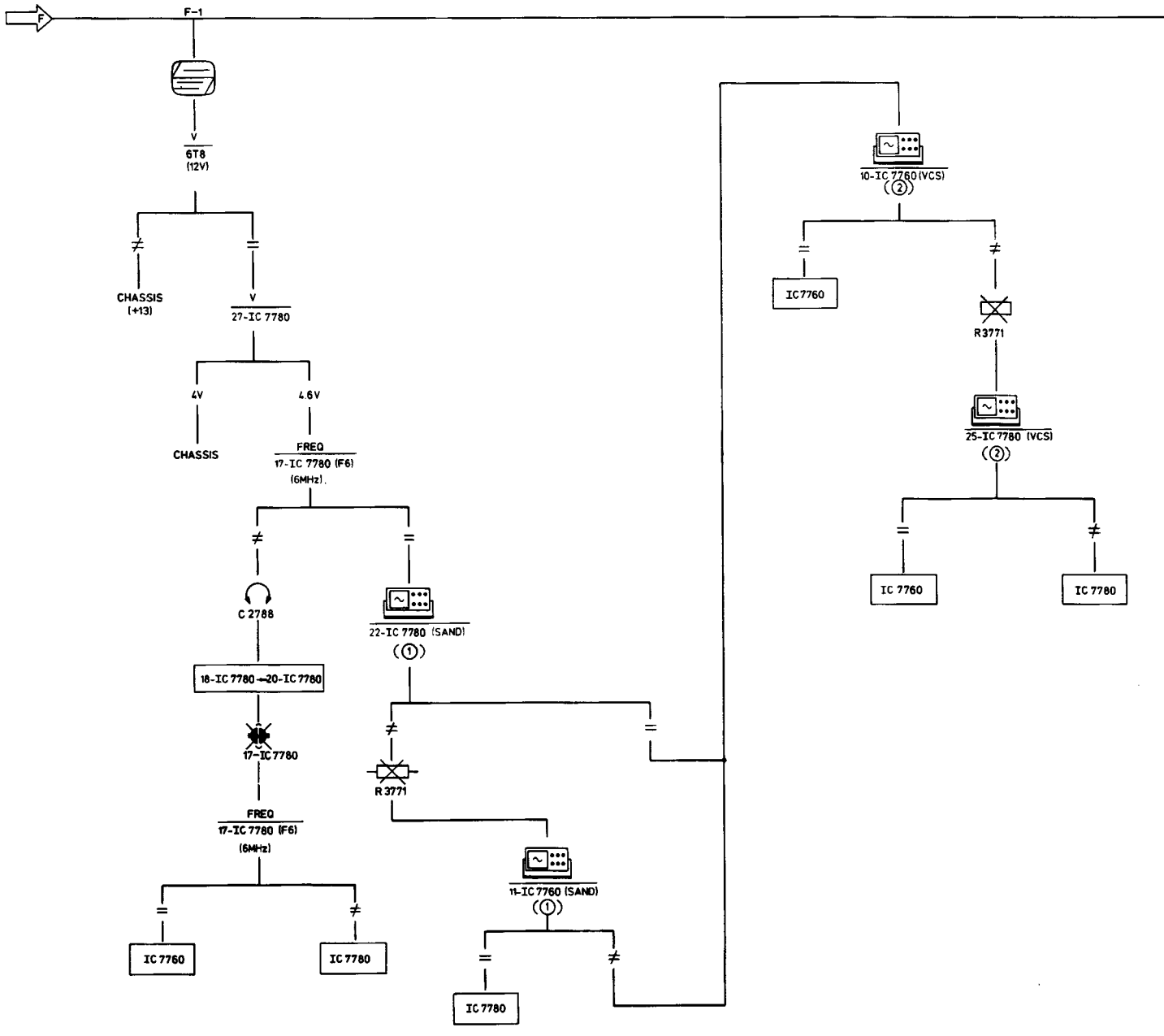
T8	4822 265 40471	8p
T9	4822 265 40469	6p

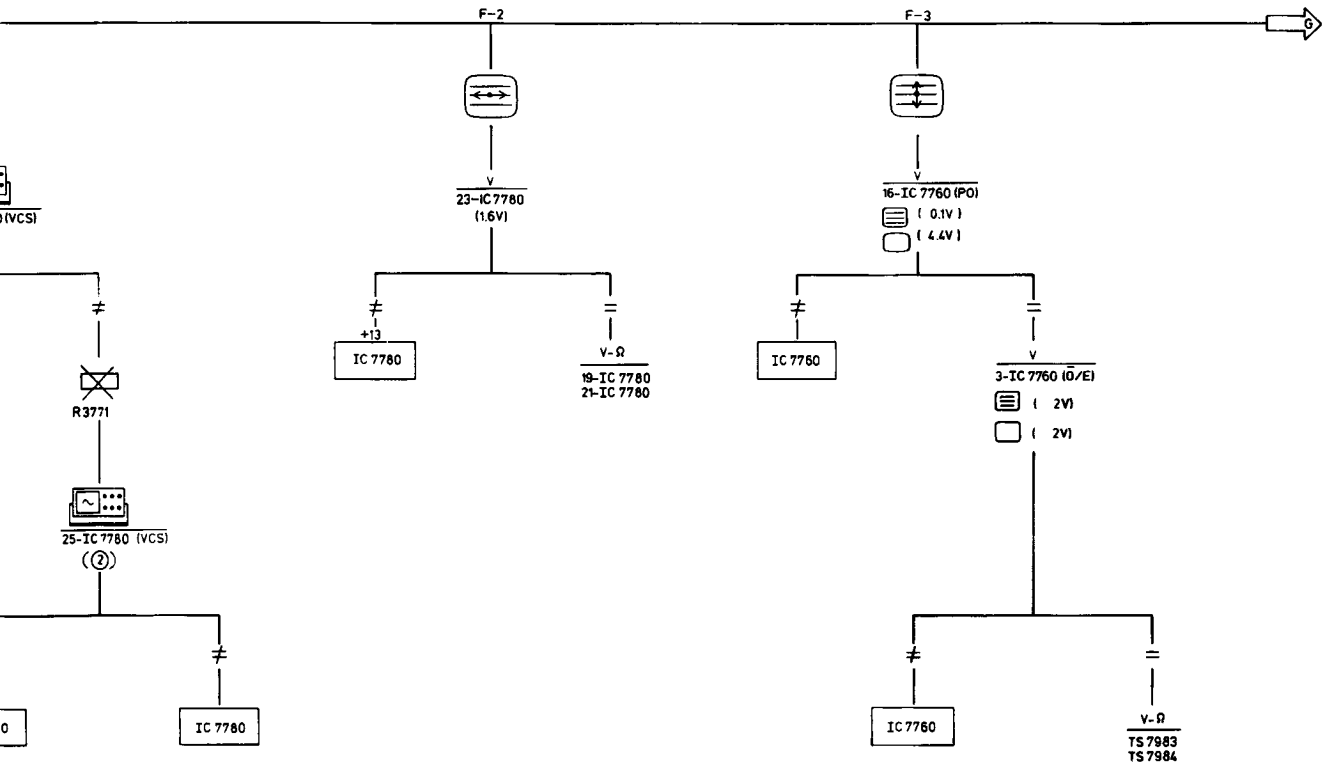

E-3
F
TV
V
E-TS7806
(5V)
766
PLUG 1T8(SDA)
REMOTE CONTROL
PLUG 2T8 (SCL)
REMOTE CONTROL
CONTROL SYSTEM
5-IC7750 (SDA)
6-IC7750 (SCL)
15-IC7750
16-IC7750
21-IC 7770 (WE)
R3762
15-IC7750→16-IC7750
IC7750
V
17-IC7750
(0V)
6-IC7750 (SCL)
21 IC 7770
21 IC 7771
V-Ω
TS7785
IC7760
IC7760
IC7750
R3765
TS7754
TS7755
TS7767
5-IC7760 (WE)
5-IC7750 (SDA)
IC7760
IC7770
IC7771
IC7760
IC7750

38 865 E12

20.

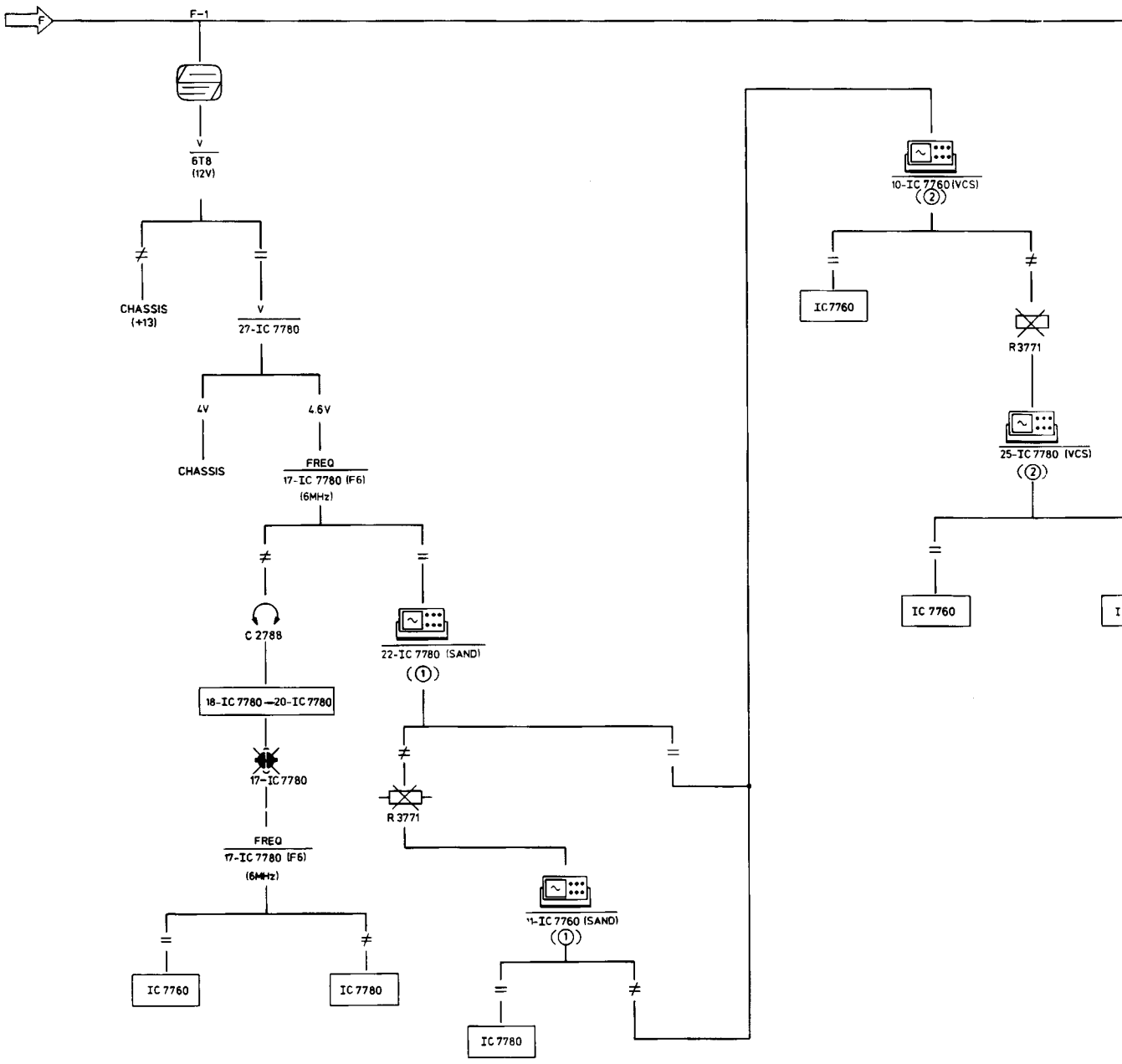
REPAIR METHOD TELETEXT DECODER

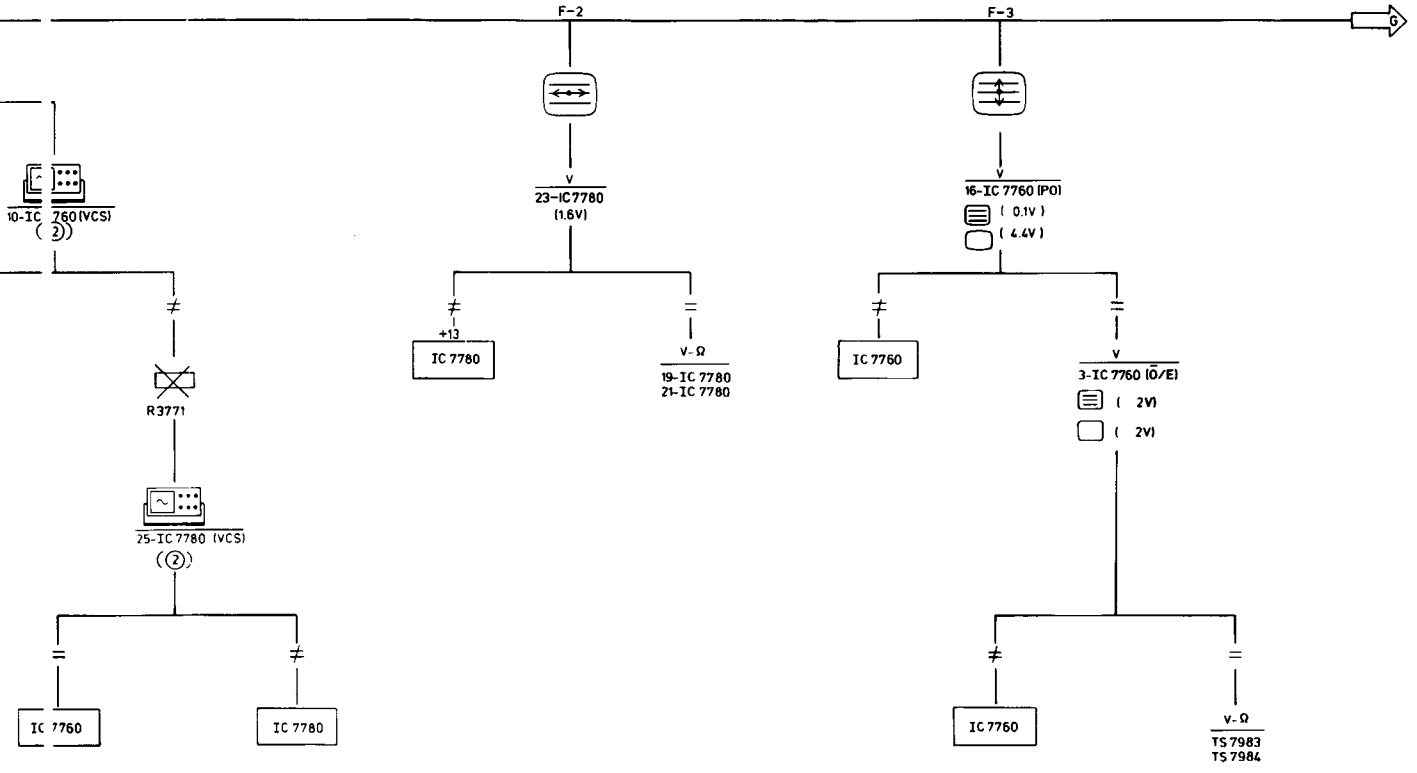



F-2
F-3
G
(VCS)
R3771
25-IC 7780 (VCS)
(2)
IC 7780
V
23-IC 7780
(1.6V)
+13
IC 7780
V-Ω
19-IC 7780
21-IC 7780
V
16-IC 7760 (PO)
(0.1V)
(4.4V)
IC 7760
V
3-IC 7760 (O/E)
(2V)
(2V)
IC 7760
V-Ω
TS 7983
TS 7984

38 866 E12

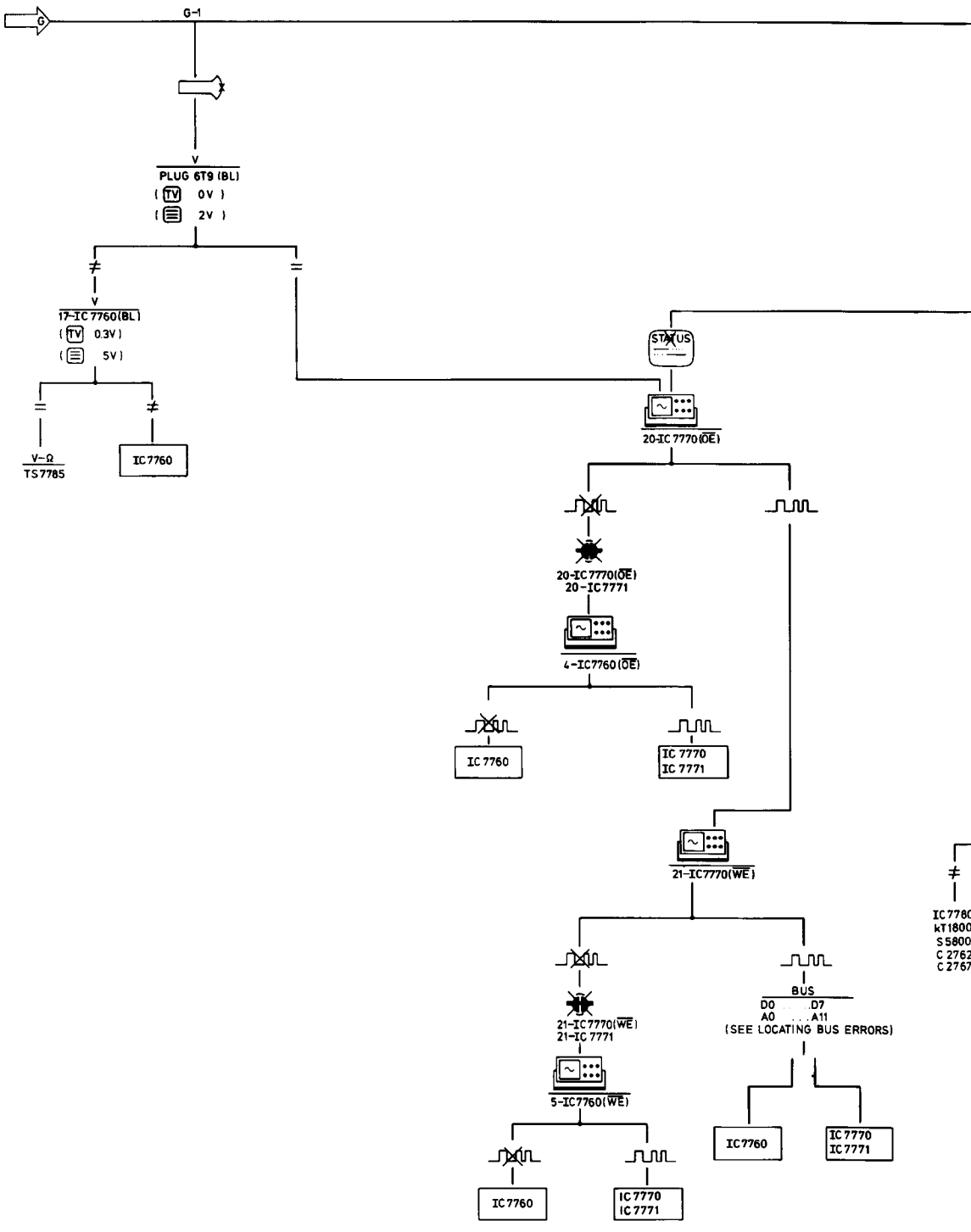
REPAIR METHOD TELETEXT DECODER

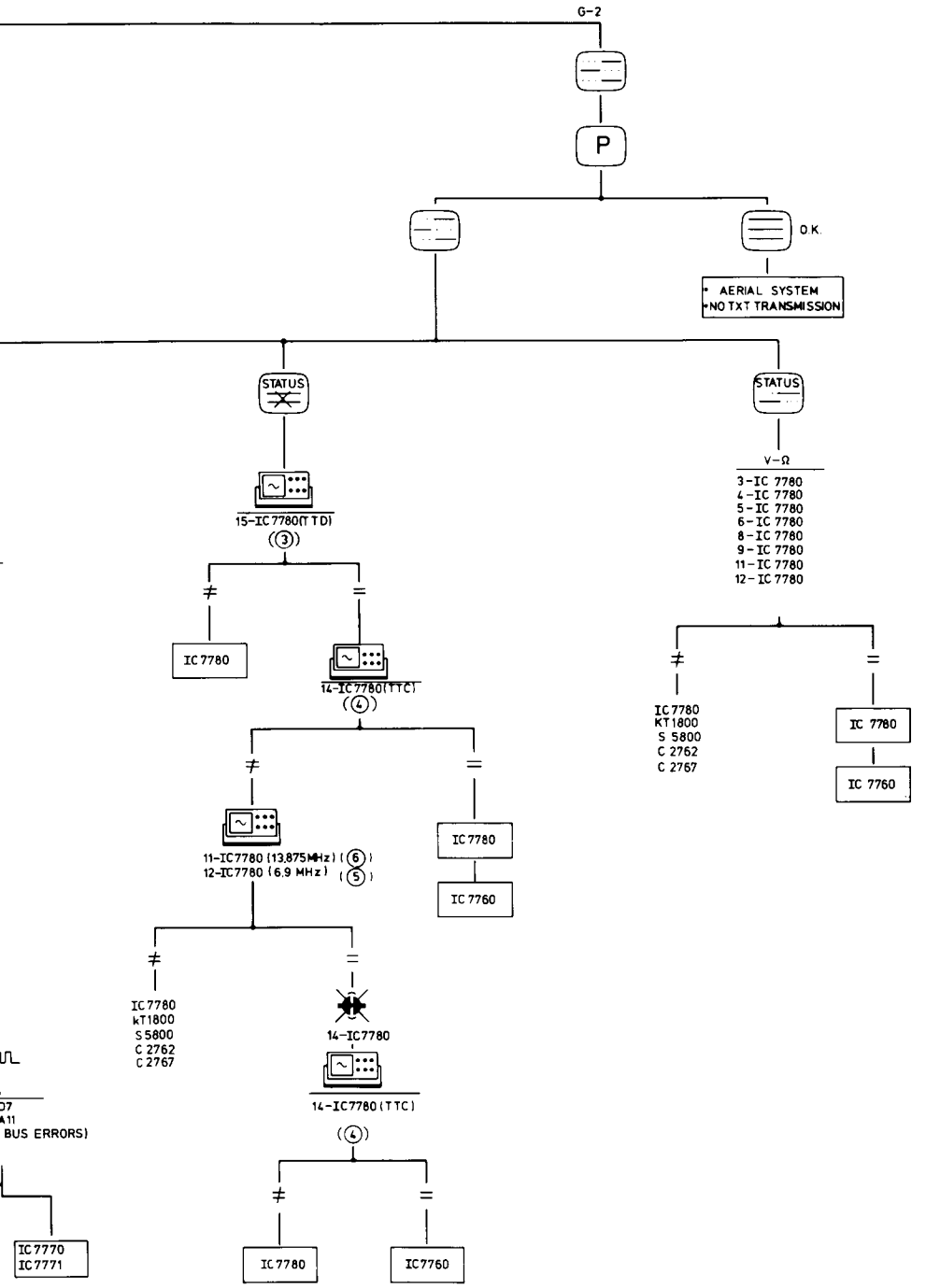



F-2
F-3
G
10-IC 7760 (VCS)
(2)
R3771
25-IC 7780 (VCS)
(2)
IC 7760
IC 7780
23-IC 7780
(1.6V)
+13
IC 7780
V-Ω
19-IC 7780
21-IC 7780
16-IC 7760 (PO)
(0.1V)
(4.4V)
IC 7760
3-IC 7760 (Ö/E)
(2V)
(2V)
IC 7760
V-Ω
TS 7983
TS 7984

38 866 E12

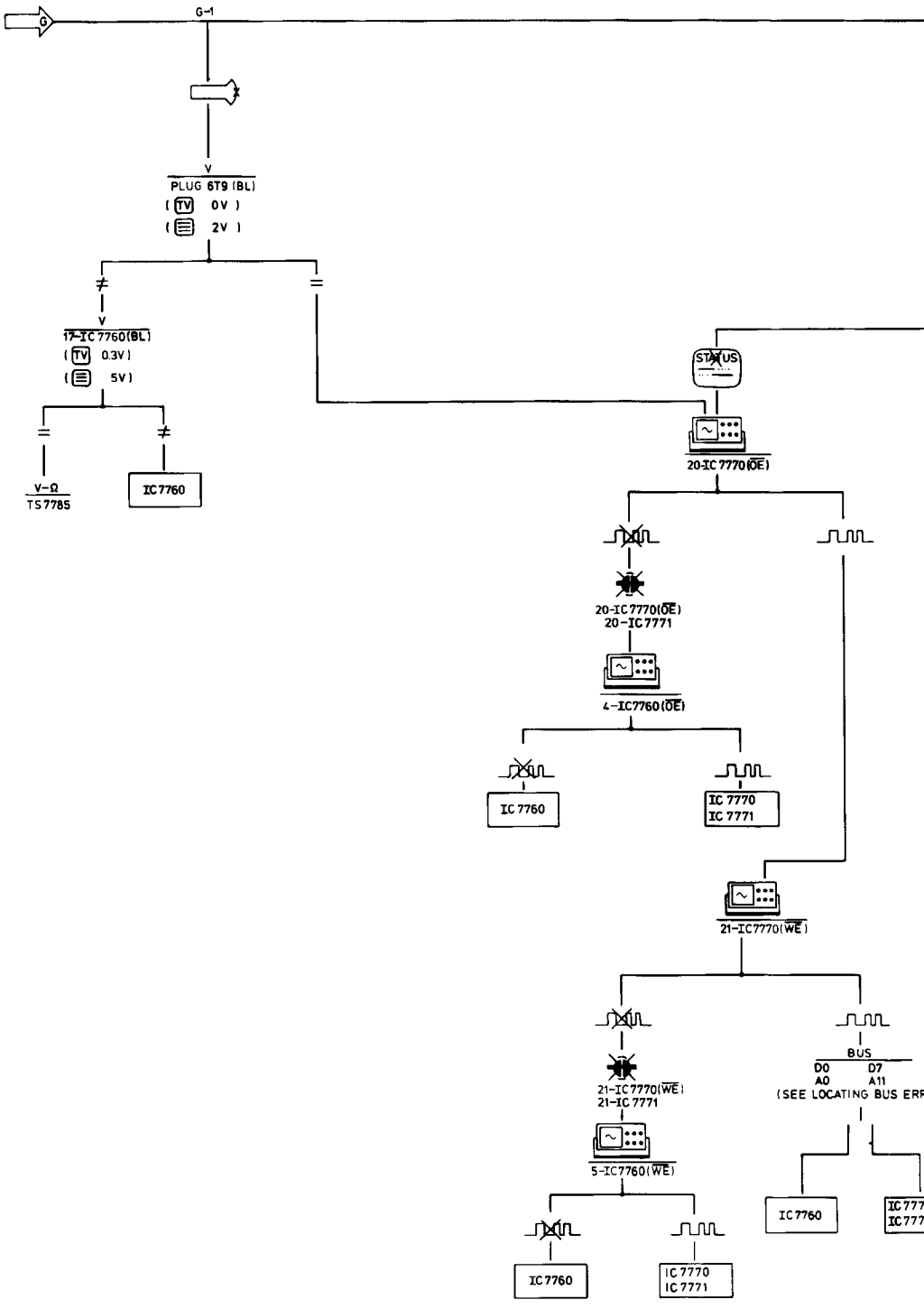
RE 'AIR METHOD TELETEXT DECODER

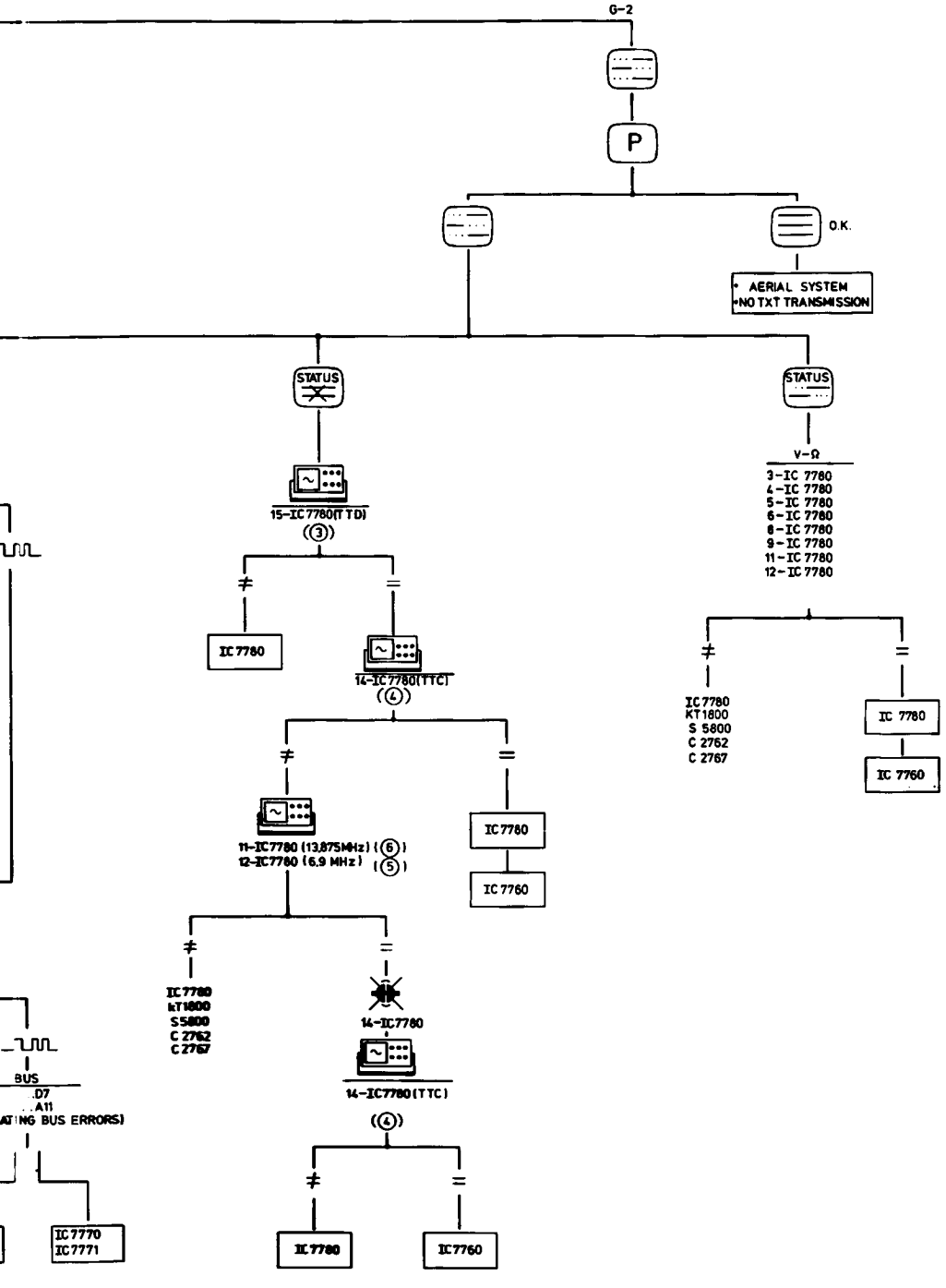



G-2
P
O.K.
* AERIAL SYSTEM
*NO TXT TRANSMISSION
STATUS
STATUS
V-Ω
3-IC 7780
4-IC 7780
5-IC 7780
6-IC 7780
8-IC 7780
9-IC 7780
11-IC 7780
12-IC 7780
15-IC7780(I TD)
(3)
≠
=
IC 7780
14-IC7780(TTC)
(4)
IC7780
KT1800
S 5800
C 2762
C 2767
IC 7780
IC 7760
11-IC7780 (13,875MHz) (6)
12-IC7780 (6,9 MHz) (5)
IC 7780
IC 7760
IC7780
kT1800
S5800
C 2762
C 2767
14-IC7780
14-IC7780(TTC)
(4)
BUS ERRORS)
IC7770
IC7771
IC7780
IC7760

38 867 E12

REPAIR METHOD TELETEXT DECODER

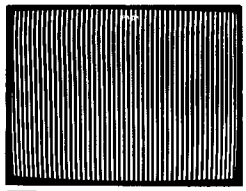


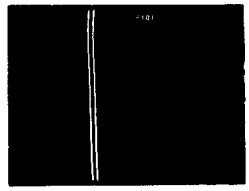

G-2
P
O.K.
• AERIAL SYSTEM
•NO TXT TRANSMISSION
STATUS
STATUS
V-Ω
3-IC 7780
4-IC 7780
5-IC 7780
6-IC 7780
8-IC 7780
9-IC 7780
11-IC 7780
12-IC 7780
15-IC 7780(TTD)
(③)
≠
=
IC 7780
14-IC 7780(TTC)
(④)
IC 7780
KT1800
S 5800
C 2762
C 2767
IC 7780
IC 7760
≠
=
IC 7780
IC 7760
11-IC 7780 (13,875MHz) (⑥)
12-IC 7780 (6,9 MHz) (⑤)
IC 7780
KT1800
S5800
C 2762
C 2767
14-IC 7780
14-IC 7780(TTC)
(④)
≠
=
IC 7780
IC 7760
BUS
.D7
...A11
ATING BUS ERRORS)
IC 7770
IC 7771

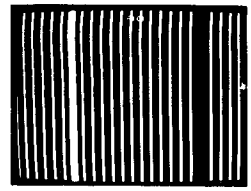
38 867 E12

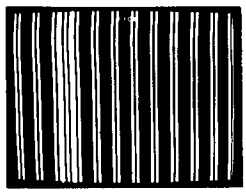
LOCATING BUS ERRORS IN THE TELETEXT DECODER

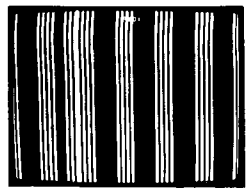
1. Loosen one side of resistor 3785 on the teletext decoder.
   Connect a piece of wire with measuring-pin to point 6 of socket T9.
2. Connect a TV pattern generator (i.e. PM5519) and tune the receiver normally.
   Apply a white pattern and select the teletext mode with the remote control.
3. When transferring the measuring-pin to the points of IC7760 which are indicated under the pictures below a defined pattern will be displayed on the screen.
   If the pattern is not present, but a uniform white or dark picture arises, there is question of short-circuit or an open connection on the relevant point. It may be caused by one of the three ICs, namely IC7760 - IC7770 - IC7771.

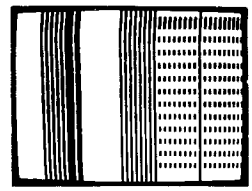

$\overline{OE}$ 4-IC7760

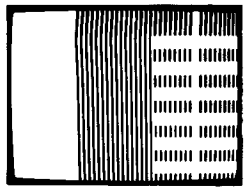

$\overline{WE}$ 5-IC7760

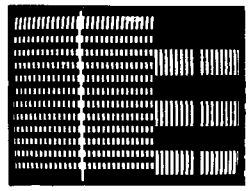

A0 30-IC7760

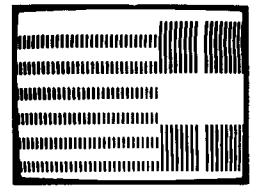

A1 31-IC7760

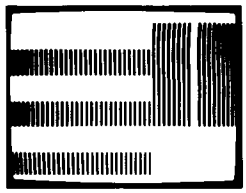

A2 32-IC7760

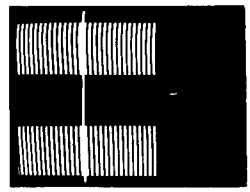

A3 33-IC7760

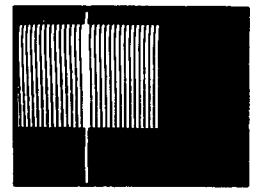

A4 34-IC7760

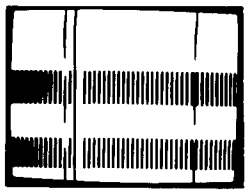

A5 35-IC7760

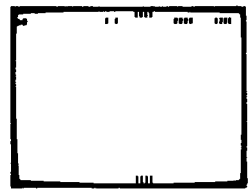

A6 36-IC7760

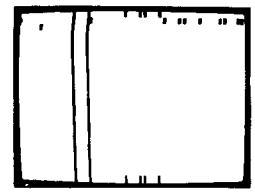

A7 37-IC7760

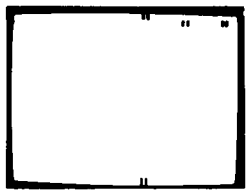

A8 38-IC7760

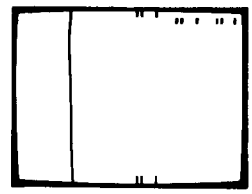

A9 39-IC7760

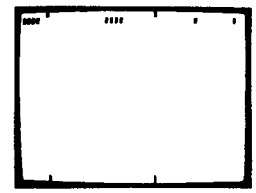

A10 40-IC7760

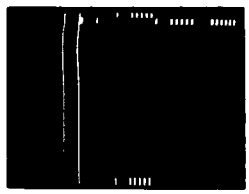

D0 22-IC7760

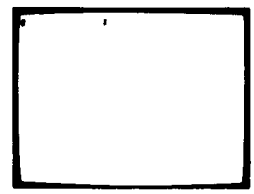

D1 23-IC7760

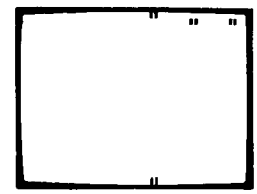

D2 24-IC7760

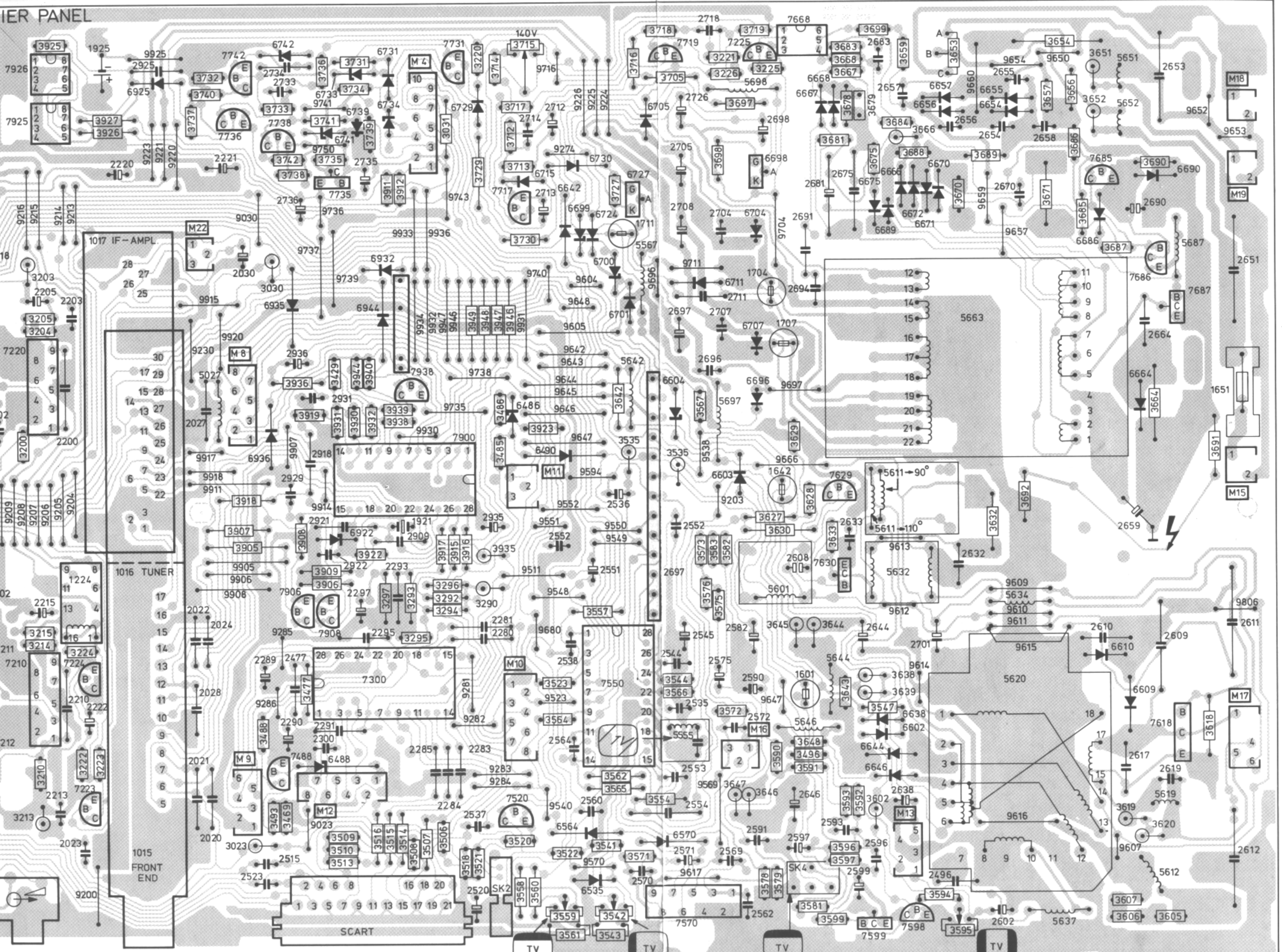

D3 25-IC7760

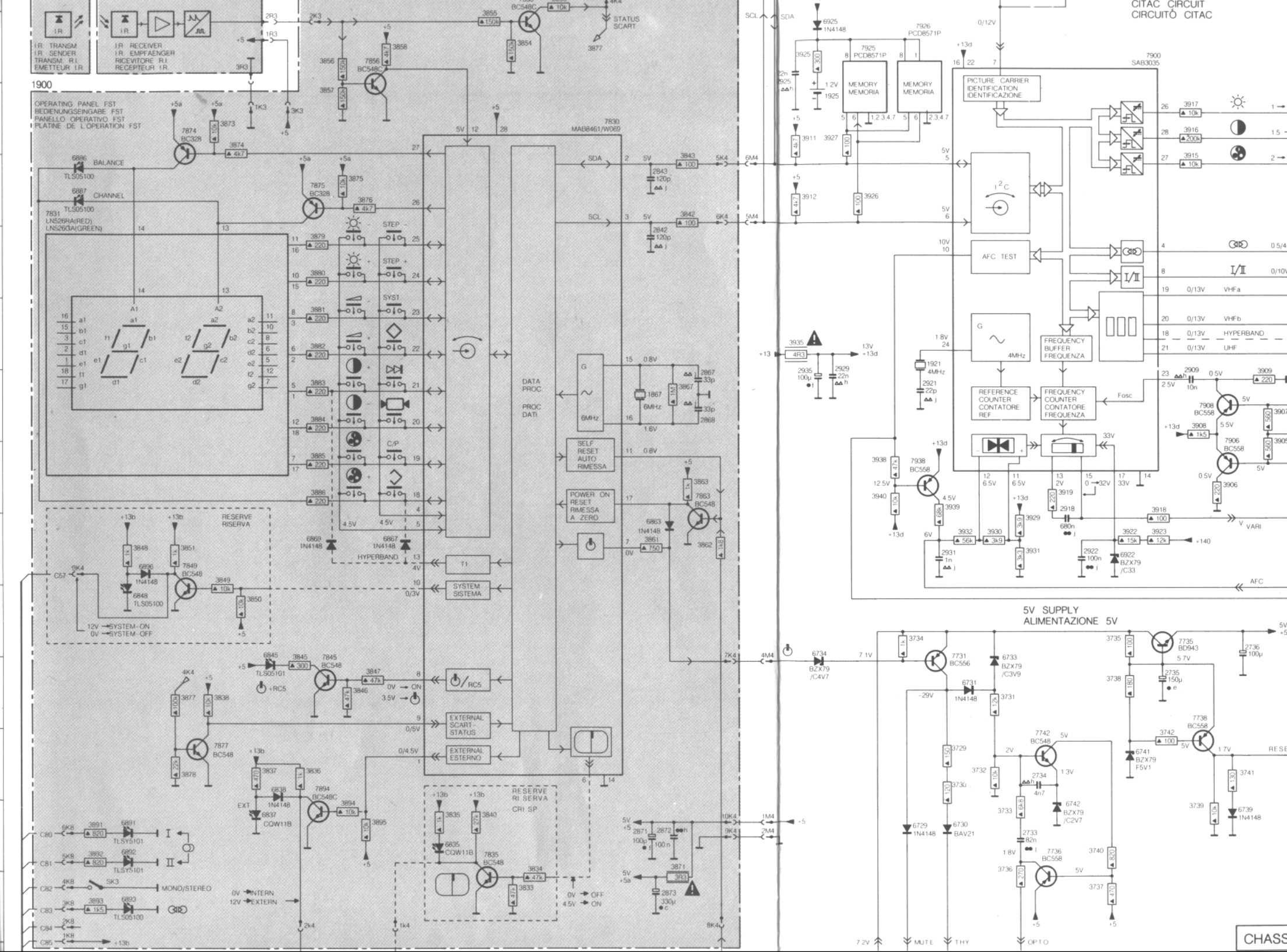

D4 26-IC7760

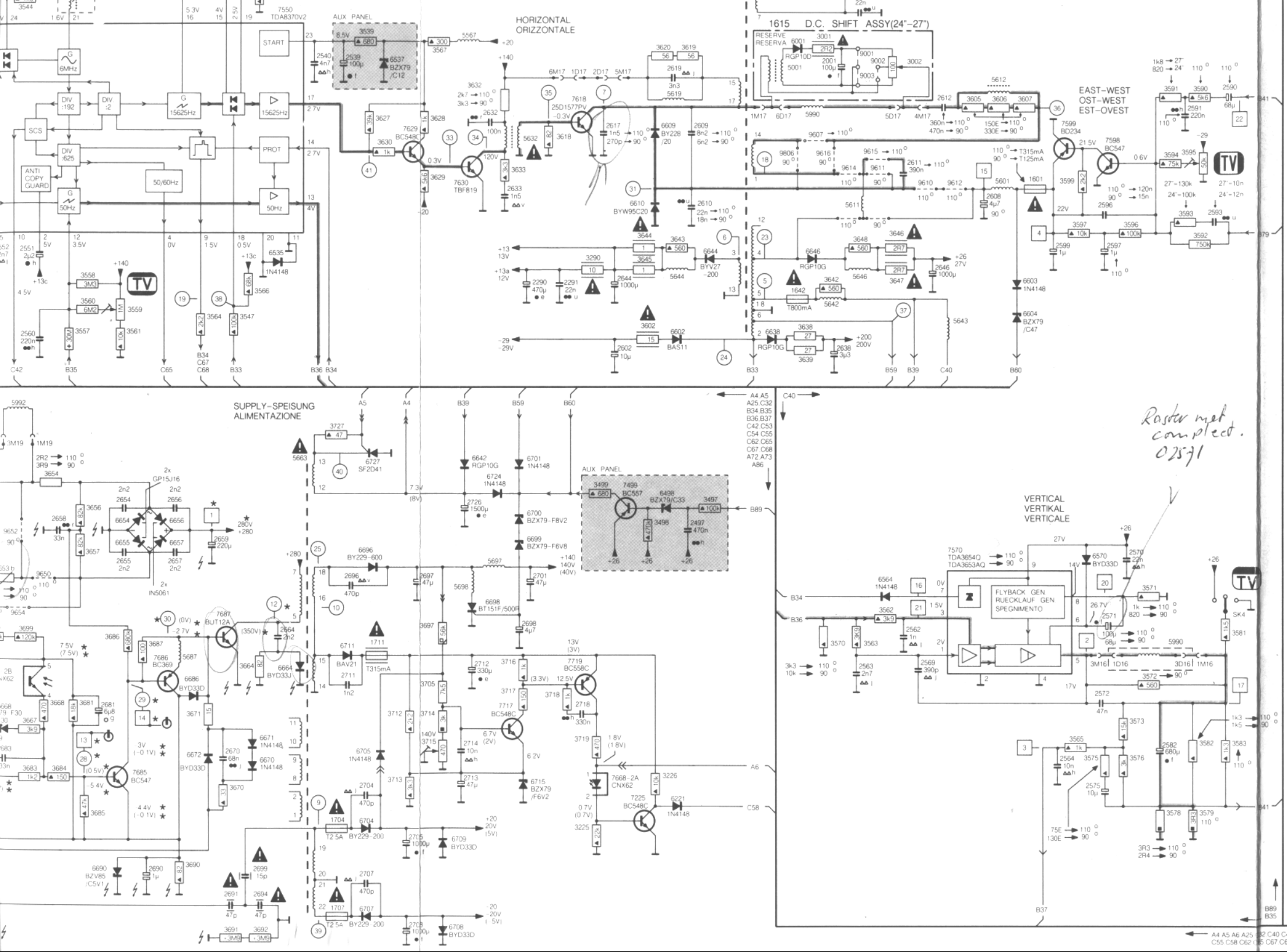

D5 27-IC7760

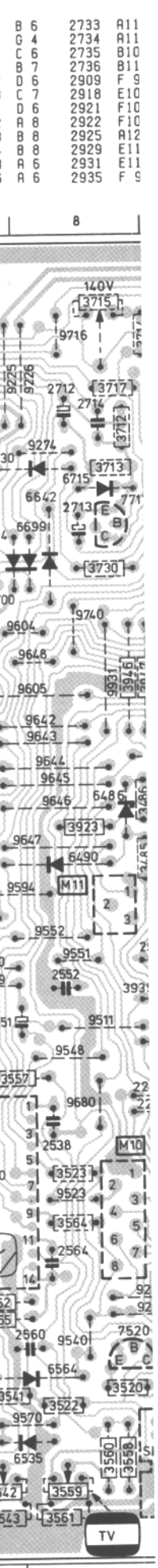

D6 28-IC7760


D7 29-IC7760

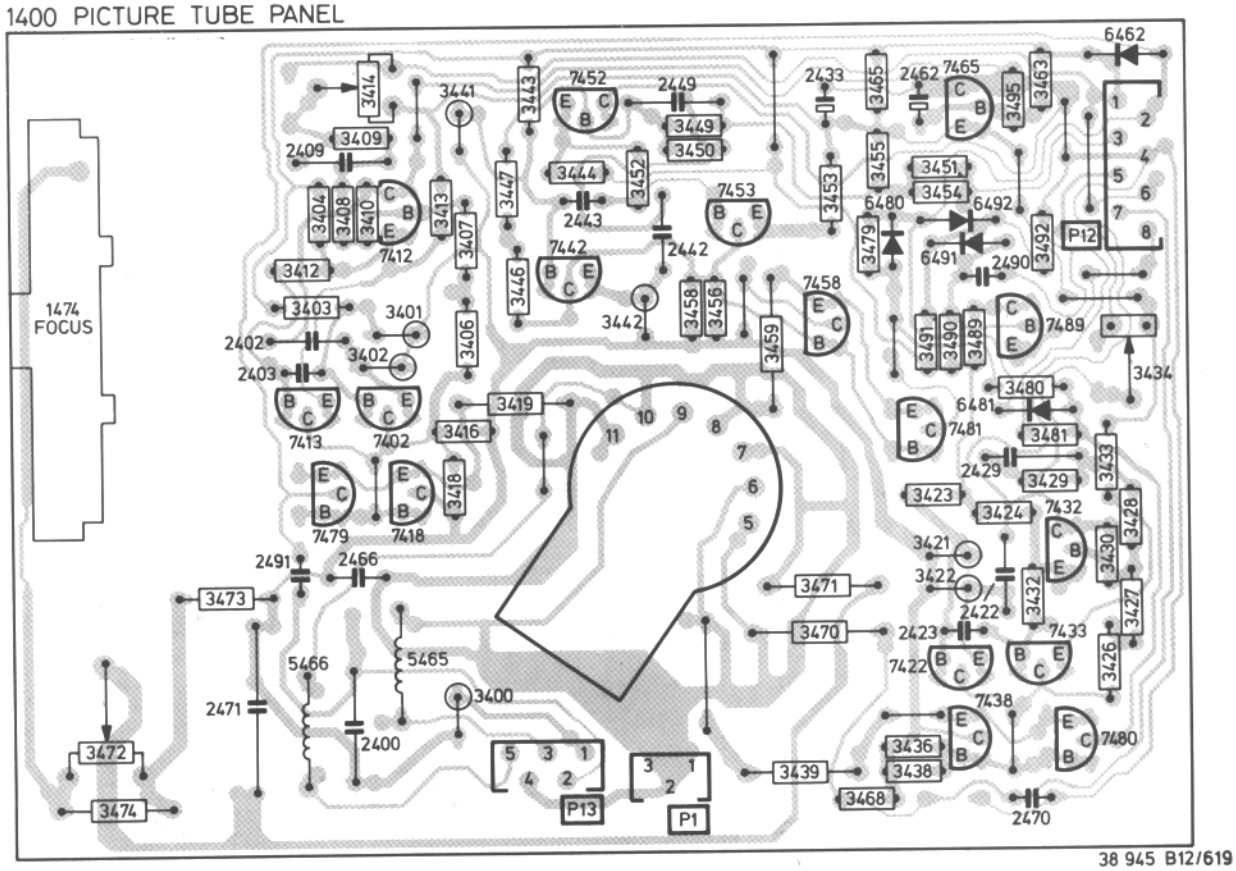

IER PANEL
1017 IF-AMPL.
1016 TUNER
1015 FRONT END
SCART
TV


I.R. TRANSM
I.R. SENDER
TRANSM. R.I.
EMETTEUR I.R.
I.R. RECEIVER
I.R. EMPFAENGER
RICEVITORE R.I.
RECEPTEUR I.R.
1900
OPERATING PANEL FST
BEDIENUNGSEINGABE FST
PANELLO OPERATIVO FST
PLATINE DE L'OPERATION FST
BALANCE
CHANNEL
STEP -
STEP +
SYST
C/P
HYPERBAND
RESERVE
RISERVA
12V →SYSTEM-ON
0V →SYSTEM-OFF
DATA PROC.
PROC. DATI
SELF RESET AUTO RIMESSA
POWER ON RESET RIMESSA A ZERO
T1
SYSTEM SISTEMA
RC5
EXTERNAL SCART STATUS
EXTERNAL ESTERNO
STATUS SCART
EXT
0V →INTERN
12V →EXTERN
MONO/STEREO
RESERVE RISERVA CRT SP
0V →OFF
4.5V →ON
SDA
SCL
MEMORY MEMORIA
PICTURE CARRIER IDENTIFICATION
IDENTIFICAZIONE
AFC TEST
REFERENCE COUNTER CONTATORE REF
FREQUENCY BUFFER FREQUENZA
FREQUENCY COUNTER CONTATORE FREQUENZA
Fosc
VARI
AFC
5V SUPPLY
ALIMENTAZIONE 5V
MUTE
THY
OPTO
CHASS


HORIZONTAL
ORIZZONTALE
1615 D.C. SHIFT ASSY(24"-27")
EAST-WEST
OST-WEST
EST-OVEST
SUPPLY-SPEISUNG
ALIMENTAZIONE
AUX PANEL
VERTICAL
VERTIKAL
VERTICALE
FLYBACK GEN
RUECKLAUF GEN
SPEGNIMENTO
START
PROT
SCS
ANTI COPY GUARD
50/60Hz
RESERVE
RESERVA
Raster met complect.
025/1

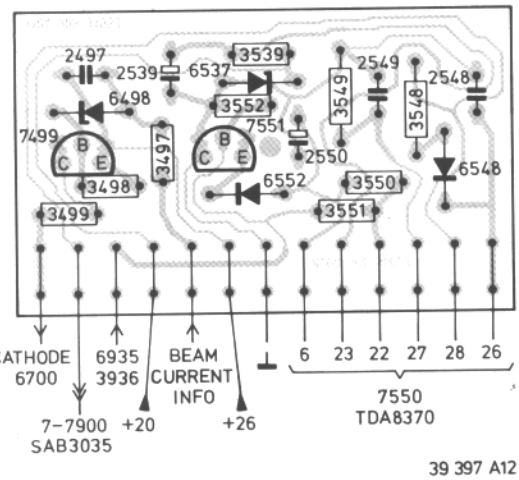


1400 PICTURE TUBE PANEL



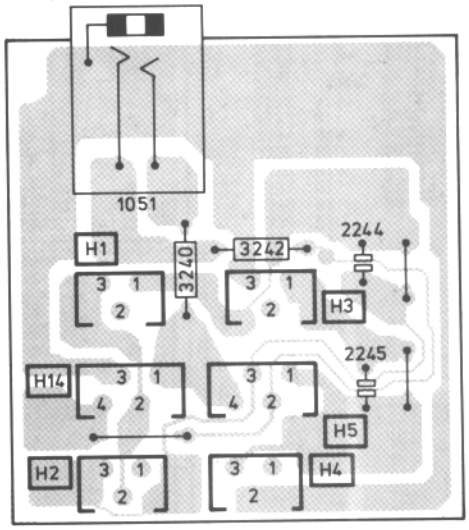
38 945 B12/619

AUXILIARY PANEL NEAR SYNC. IC 4822 212 22529

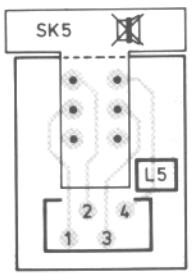


39 397 A12

1250 HEADPHONE PANEL



38 942 A7(619)



38 941 A7(619)