

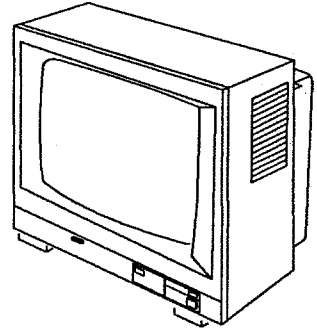
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aiwa

TV-1401
TV-2001

SERVICE MANUAL



COLOR TELEVISION

• TYPE. KE

AIWA CO.,LTD.

Tokyo Japan

Printed in Japan

SPECIFICATIONS

	TV-1401KE	TV-2001KE
TV Broadcasting System	PAL B/G, PAL D/K, SECAM B/G, SECAM D/K	
Number of Program Numbers	32	
Channel Indicator	On screen display	
RF Antenna Input	75 ohm unbalanced	
TV RF Frequency Range	VHF low band : 48.25 – 93.25MHz VHF high band : 175.25 – 224.25MHz UHF : 471.25 – 855.25MHz	
Intermediate Frequencies	Picture IF carrier frequency : 38.00MHz Sound IF carrier frequency : 31.50MHz/32.5MHz/32.0MHz Colour sub-carrier frequency : 33.57MHz	
Picture Tube Size	36cm (14 in.)	51cm (20 in.)
Timer on Screen	Television returns to standby condition after 10 to 120 minutes (10-minute intervals).	
Video Input/Output (75 ohm)	1Vp-p	
Audio Input/Output (High Impedance)	0.5Vrms	
Audio Output (1k ohm)	0.5Vrms	
Audio Output Power	1.5W max.	
Operating Voltage Power	AC100~240V 50, 60Hz	
Consumption	70W	75W
Dimensions	Width : 370mm Depth : 385mm Height : 353mm	Width : 510mm Depth : 475mm Height : 465mm
Weight	11.5kg	21kg
Remote Control Unit	RC-T2001	

DISASSEMBLY INSTRUCTIONS

1. Anode Cap Removal

1-1. Cautions before removing

Discharge the anode voltage

- 1) Since the anode voltage continues to charge the CRT in this model even after the power is turned off, it is very dangerous if you were to touch it. Be sure to discharge the residual anode voltage before removing the anode cap.

Do not use pliers

- 2) Do not use pliers, etc. to remove the cap. If you used pliers and narrowed the hook to remove the cap, the spring characteristics of the hook would be lost and, when reinstalled, the Anode cap would come off from the anode button easily, causing an accident.

Do not turn the Anode cap

- 3) If the cap is turned, it may come off.

1-2. Anode cap removal

Discharge the anode voltage. (See Fig. 1)

- 1) Connect the metal shaft of the flat-bladed screwdriver with an insulated grip, to ground via an alligator clip.
- 2) Check the end of the screwdriver and ground with a tester, for continuity.
- 3) Touch the hook with the end of the screwdriver.
Caution: Be careful not to damage the rubber cap.
- 4) Turn over the rubber cap. (See Fig. 2)
- Caution: Be careful not to damage the rubber cap.
- 5) Push the hook with your thumb in the direction of arrow ① (as shown in the figure), then lift the cap in the direction of arrow ② to release the hook on one side from the anode button. (See Fig. 3)
- 6) Turn over the rubber cap on the side where the hook was released and pull out the cap in the direction opposite to that in which the cap was pushed. (See Fig. 4)

Caution: Do not pull out the Anode cap straight up.

Caution: Do not pull the cap forcibly. After removing the cap, check that the hook is not deformed.

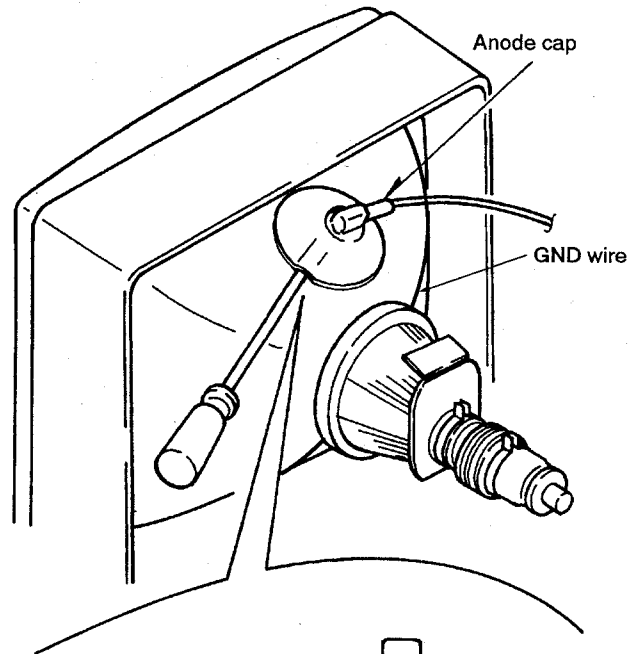


Fig-1

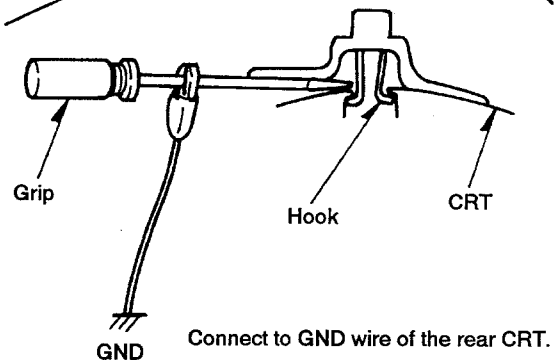


Fig-2

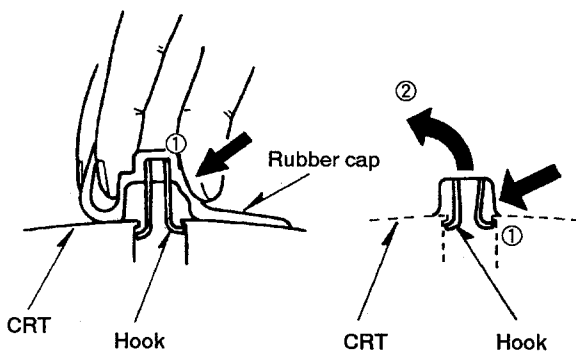


Fig-3

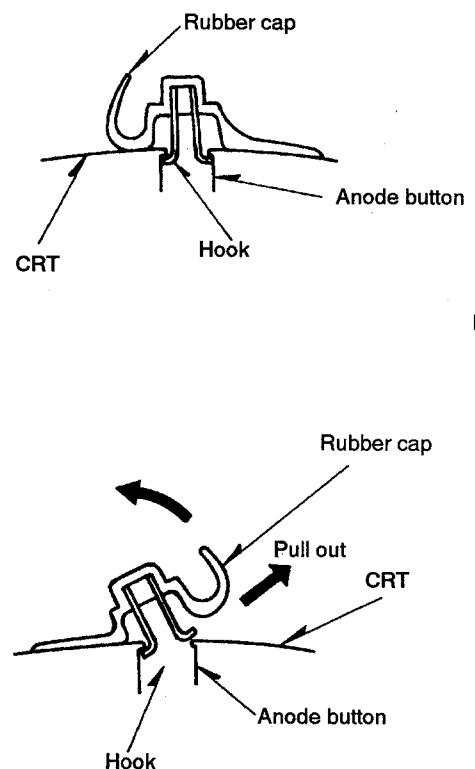


Fig-4

2. Anode Cap Reinstallation

Observe the cautions carefully so that no accident occurs due to a defect in installing the Anode cap and so it does not come off.

2-1. Cautions before reinstalling

Never turn the Anode cap after installing it.

Never re-use a Anode cap (FBT) when its hook has been deformed.

- 1) If the Anode cap is turned after it is installed, it may come off. Therefore, arrange the lead before attaching the Anode cap. (See Fig. 1)
- 2) If you attach the Anode cap before arranging the lead, remove the cap and re-attach it.

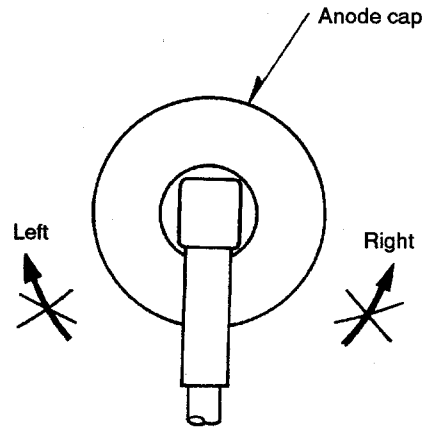


Fig-1

2-2. Anode cap reinstallation

- 1) Use a clean cloth moistened slightly with alcohol to clean the installation section. (See Fig. 2)

Caution: Check that the installation section is free from dust, foreign matter, etc.

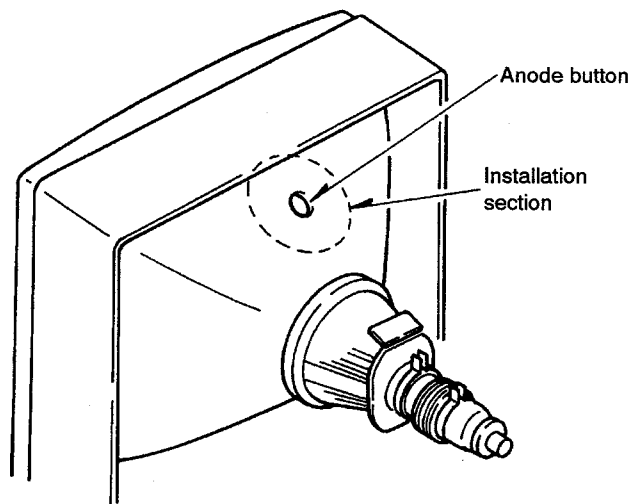


Fig-2

- 2) Eliminate twisting, etc. of the Anode lead and arrange it so that no twisting is produced.

(See Fig. 3)

Caution: If the lead is not arranged correctly, the Anode cap could turn and causes an installation defect.

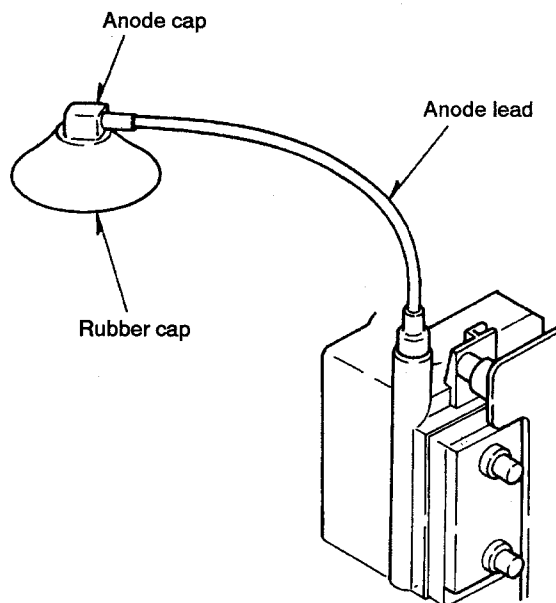


Fig-3

3) Turn over the rubber cap of the Anode cap as shown in the figure. (See Fig. 4)

Caution : Turn over the rubber cap symmetrically on the left and right.

Caution : Take great care not to damage the rubber cap.

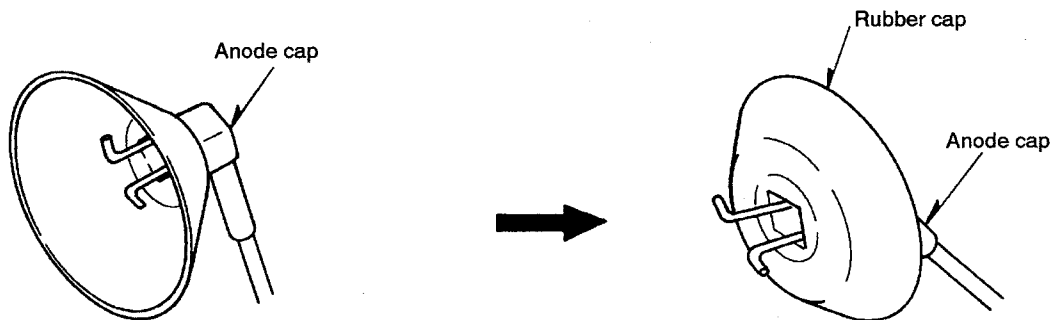


Fig-4

4) Fit your forefinger over the projection at the center of the cap and hold the cap with your thumb and middle finger. (See Fig. 5-1)

5) Apply the hook on one side to the anode button as shown in the figure. (See Fig. 5-2)

Caution : Check that the hook is caught securely.

6) Apply the hook on the other side to the anode button as shown in Fig. 5-3.

Caution : Apply the hook on the other side to the anode button so that it slips into the button.

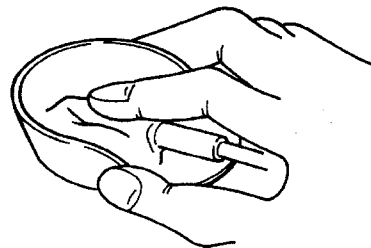


Fig-5-1

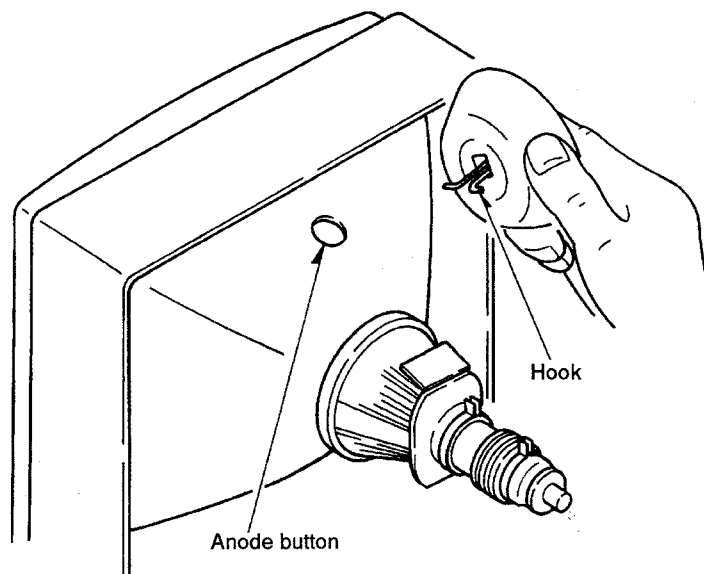
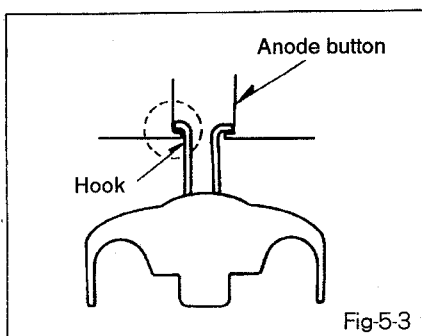
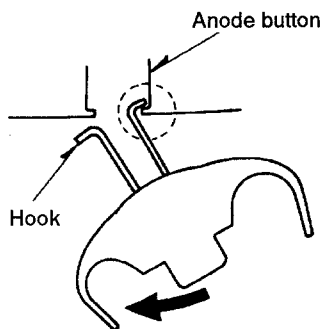


Fig-5-2

- 7) Pull the Anode cap slightly with the rubber cap turned over and visually check that the hook is applied securely.
 - 8) Release your hand from the rubber cap.
- Caution: Cover the rubber cap so that no lifting occurs.
- 9) Hold the skirt of the rubber cap slightly to improve the close contact between the cap and CRT.
 - 10) Check that the Anode cap is in close contact with the CRT.

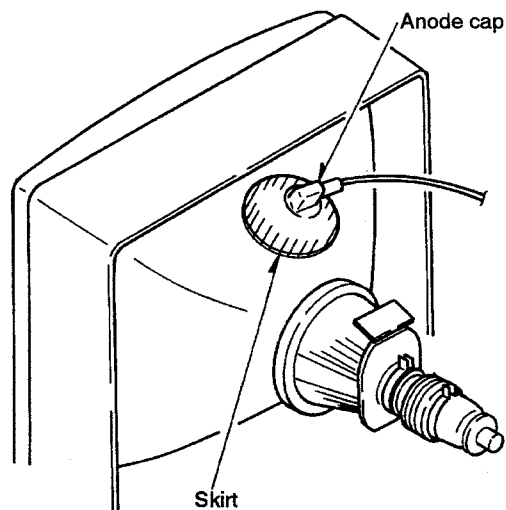


Fig-6

3. Case Removal

3-1. Rear Cabinet Removal (TV-1401) (See Fig. 1)

- 1) Cover the CRT surface with cloth as shown in the figure to protect it and place the set on its side.
- 2) Remove 6 screws (A, B) and then remove the rear cabinet in the direction of the arrow.

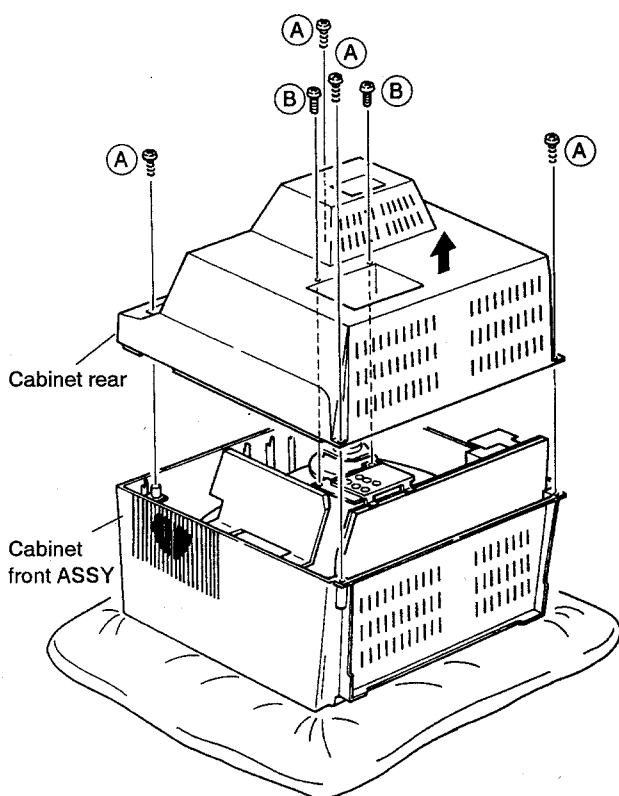


Fig-1

3-2. Power Unit, Main C.B and CRT Assembly Removal (TV-1401) (See Fig. 2)

- 1) Remove 2 screws (A) and then the power unit. Remove 4 screws (B) and the power C.B.
- 2) Remove 2 screws (C) and then the rear panel and main C.B.
- 3) Remove 4 screws (D) and then the CRT assembly in the direction of the arrow.

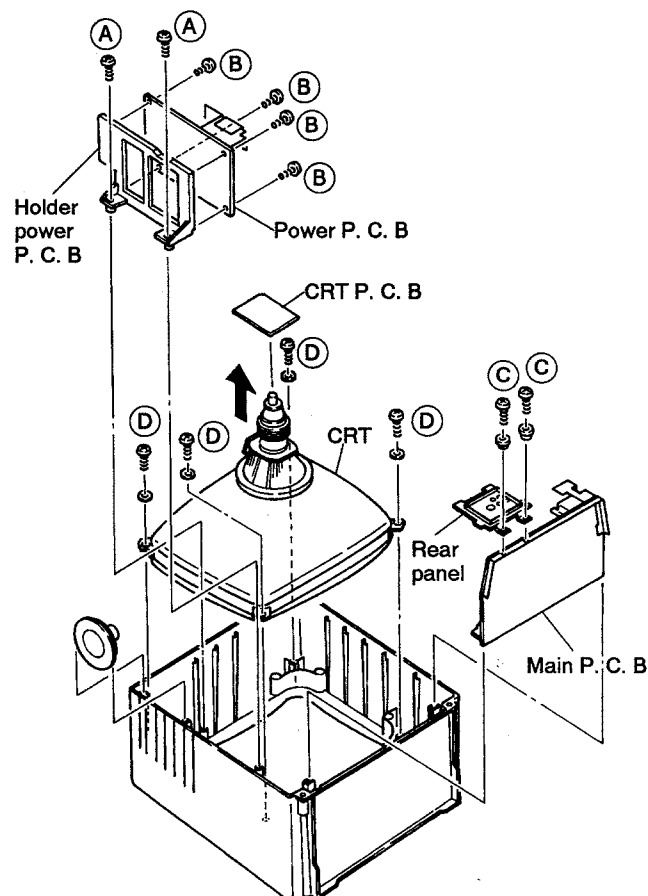


Fig-2

3-3. Rear Cabinet Removal (TV-2001) (See Fig. 3)

- 1) Cover the CRT surface with cloth as shown in the figure to protect it and place the set on its side.
- 2) Remove 12 screws (A, B) and then remove the rear cabinet in the direction of the arrow.

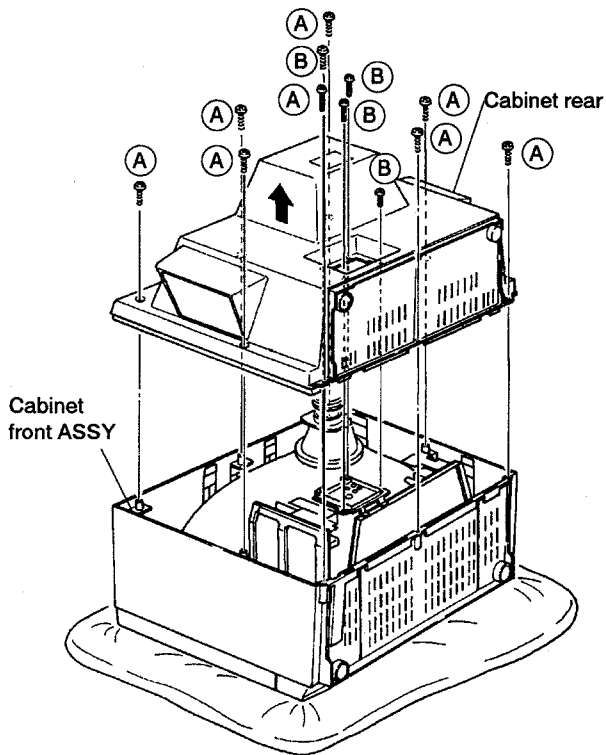


Fig-3

3-4. Power Unit, Main C.B and CRT Assembly Removal (TV-2001) (See Fig. 4)

- 1) Remove screw (A) and then the power unit. Remove 4 screws (B) and the power C.B.
- 2) Remove 2 screws (C) and then the rear panel and main C.B.
- 3) Remove 4 screws (D) and then the CRT assembly in the direction of the arrow.

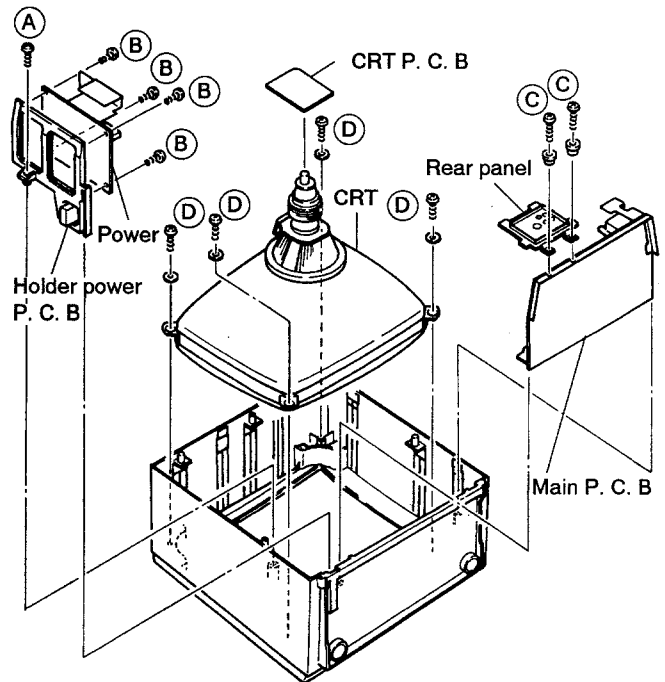


Fig-4

ELECTRICAL MAIN PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION
--- IC ---					
	87-020-334-010	IC, 4066 (ANALOG SW)	C102	★87-015-681-010	CAP, ELECT 10-16V
	S1-4LN-160-000	IC, AN5265	C103	★87-015-681-010	CAP, ELECT 10-16V
	S1-4LU-201-000	IC, M51397AP	C104	★87-015-681-010	CAP, ELECT 10-16V
	SS-TR5-804-1S0	IC, STR58041	C107	★87-010-258-010	CAP, ELECT 22-35V
	ST-A76-80A-PP0	IC, TA7680AP	C116	★87-010-495-010	CAP, ELECT 2.2-50V
	ST-A76-98A-PP0	IC, TA7698AP	C119	★87-010-381-010	CAP, ELECT 330-16V
	ST-C89-101-PP0	IC, TC89101P	C128	★87-010-493-010	CAP, ELECT 0.47-50V
	SP-47C-434-NP0	IC, TMP47C434N-CTS-140 (CPU)	C132	★87-010-480-010	CAP, ELECT 220-16V
--- TRANSISTOR ---					
	89-110-153-010	TRANSISTOR, 2SA1015-Y	C134	★SP-BC1-03J-010	CAP, MYLER 0.01-50V
	89-318-155-080	TRANSISTOR, 2SC1815Y	C143	★87-010-400-010	CAP, ELECT 0.47-50V
	S2-N39-040-B10	TRANSISTOR, 2N3904	C144	★SP-BC4-73J-010	CAP, MYLER 0.047-50V
	S2-SA9-400-A10	TRANSISTOR, 2SA940	C151	★87-010-553-010	CAP, ELECT 47-16V
	SA-562-TM0-B10	TRANSISTOR, 2SA562TM-0	C206	★SN-BC4-73J-010	CAP, MYLER NON 0.047-50V
	SS-C20-680-A10	TRANSISTOR, 2SC2068 (TV-2001)	C207	★87-010-112-010	CAP, ELECT 100-16V
	SS-C20-730-A10	TRANSISTOR, 2SC2073	C212	★87-010-401-010	CAP, ELECT 1-50V
	SS-C22-290-B10	TRANSISTOR, 2SC2229-0	C213	★87-010-401-010	CAP, ELECT 1-50V
	SS-C24-820-A10	TRANSISTOR, 2SC2482	C214	★87-015-698-010	CAP, ELECT 4.7-50V
	SS-C24-820-B10	TRANSISTOR, 2SC2482	C215A	★87-010-553-010	CAP, ELECT 47-16V
	SS-C38-8AM-B10	TRANSISTOR, 2SC388-ATM	C215	★SP-BC4-73J-010	CAP, MYLER 0.047-50V
	SS-D15-550-A10	TRANSISTOR, 2SD1555	C221	★87-010-493-010	CAP, ELECT 0.47-50V
	S0-BC3-380-B10	TRANSISTOR, BC338-40	C227	★87-015-698-010	CAP, ELECT 4.7-50V
	S0-BC3-680-A10	TRANSISTOR, BC368	C228	★87-010-381-010	CAP, ELECT 330-16V
	S0-BC5-48C-B10	TRANSISTOR, BC548C	C230	★SN-BC2-23K-010	CAP, MYLER NON 0.022-50V
			C231	★SN-BC2-23K-010	CAP, MYLER NON 0.022-50V
--- DIODE ---					
	S0-240-010-000	DIODE, 1N4001	C242	★SP-BC8-22J-010	CAP, MYLER 0.0082-50V
	82-596-799-080	DIODE, 1N4002	C243	★SP-BC4-73J-010	CAP, MYLER 0.047-50V
	82-135-799-010	DIODE, 1N4148	C262	★SB-EC2-20M-110	CAP, ELECT 22-35V
	87-051-060-080	DIODE, 1N60P	C263	★87-010-495-010	CAP, ELECT 2.2-50V
	87-027-097-810	DIODE, 1S1555	C271	★SP-BC1-03J-010	CAP, MYLER 0.01-50V
	87-027-324-010	DIODE, 1S1887	C301	★87-010-974-080	CAP, CERA 220PF-500V
	S1-S27-75E-B10	DIODE, 1S2775	C302	★87-010-405-010	CAP, ELECT 10-50V
	S0-BA1-57E-B10	DIODE, BA157 (FAST RECOVERY)	C306	★SA-1C3-32K-B10	CAP, CERA 0.0033U-500V
	S0-0EU-1ZE-010	DIODE, EU1Z (FAST RECOVERY)	C307	★87-010-495-010	CAP, ELECT 2.2-50V
	82-135-799-010	DIODE, 1N4148	C310	★SB-JA4-79M-110	CAP, ELECT 4.7-160V
	SB-V40-6MH-710	DIODE, RBV406M	C311	★88-337-220-010	CAP, ELECT 220-50V
	S0-00R-G2E-010	DIODE, RG 2 (FAST RECOVERY)	C311	★SA-BC2-21J-Z10	CAP, CERA 220-50V
	S0-0RU-1PE-010	DIODE, RU1P	C312	★SR-HQ3-33J-010	CAP, PP 0.033-400V
	SS-529-5GE-B10	DIODE, S5295G	C326	★SF-CB2-60K-110	CAP, ELECT 26-16V
	SS-529-5JE-B10	DIODE, S5295J	C401	★SA-1M4-72K-B10	CAP, CERA 0.0047U-500V
	87-027-364-080	DIODE, ZENER 12V 1/2W	C402	★87-010-400-010	CAP, ELECT 0.47-50V
	S0-HZ5-C2D-B10	DIODE, ZENER 5.0V 1/2W	C404	★SA-1C6-81K-B10	CAP, CERA 680-500V
	87-027-332-080	DIODE, ZENER 5.6V 1/2W	C405	★SA-MK2-21K-ZM0	CAP, CERA 220PF-2KV
	S8-3C5-1VD-B10	DIODE, ZENER 51V 1/2W	C411	★SR-HR3-94J-010	CAP, PP 0.39-400V
	87-027-825-010	DIODE, ZENER 8.1V 1/2W	C412	★87-010-493-010	CAP, ELECT 0.47-50V
	SP-C57-4JD-J10	DIODE, ZENER UPC 574J	C413	★SA-LR7-62J-010	CAP, PP 0.0076-1.6KV
	S1-404-82L-R20	LED, SLH56UR3F (STAND BY)	C415	★87-010-974-080	CAP, CERA 220PF-500V
--- MAIN CIRCUIT BOARD SECTION ---			C416	★SB-LA1-00M-110	CAP, ELECT 10-250V
			C417	★87-010-623-010	CAP, ELECT 470-63V
			C418	★87-010-488-010	CAP, ELECT 2200-16V
			C419	★87-010-974-080	CAP, CERA 220PF-500V
			C420	★SA-1C6-81K-B10	CAP, CERA 680PF-500V
			C423	★SR-HQ5-63J-010	CAP, PP 0.056-400V
			C427	★S6-22Z-737-000	CAP, ELECT 100-160V
			C430	★SA-1M4-72K-B10	CAP, CERA 0.0047U-500V
			C621	★87-010-112-010	CAP, ELECT 100-16V
			C622	★87-010-401-010	CAP, ELECT 1-50V
			C623	★87-010-401-010	CAP, ELECT 1-50V
			C624	★87-015-698-010	CAP, ELECT 4.7-50V
			C625	★87-015-681-010	CAP, ELECT 10-16V
			C626	★SP-BC1-03J-010	CAP, MYLER 0.01-50V
			C627	★87-010-388-010	CAP, ELECT 1000-25V
			C628	★87-010-238-010	CAP, ELECT 1000-16V
			C629	★SP-BC4-73J-010	CAP, MYLER 0.047-50V
			C900	★SP-BC2-72J-010	CAP, MYLER 0.0027-50V

REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION
C901	★87-010-495-010	CAP, ELECT 2.2-50V	T405	S1-074-810-000	TRANSFORMER, HORIZ EI-19
C902	★SP-BC2-24J-010	CAP, MYLER 0.22-50V	T406	S1-074-720-000	TRANSFORMER, SIDE DPC
C905	★87-015-682-010	CAP, ELECT 22-16V	△T414	S0-015-413-8L0	FLYBACK 154-138L(TV-1401)
C906	★SP-BC5-62J-010	CAP, MYLER 0.0056-50V	△T414	S0-015-413-8K0	FLYBACK 154-138K(TV-2001)
C907	★SK-BC3-02J-010	CAP, MYLER PP 0.003-50V	T1206	S1-382-600-000	FILTER BELL
C910	★87-010-401-010	CAP, ELECT 1-50V	TU101	S0-000-ET6-DK0	TUNER, ET-6D/K(01RT) (75ohm ANT.)
C911	★87-010-401-010	CAP, ELECT 1-50V	VR117	S2-029-905-020	VR, B5K
C912	★87-010-493-010	CAP, ELECT 0.47-50V	VR216	S1-416-103-020	VR, B3K
C913	★87-010-401-010	CAP, ELECT 1-50V	VR227	S2-029-905-020	VR, B5K
C914	★SP-BC1-53J-010	CAP, MYLER 0.015-50V	VR242	S1-416-204-710	VR, B470
C915	★SP-BC3-33J-010	CAP, MYLER 0.033-50V	VR303	S2-029-805-030	VR, B50K
C916	★SP-BC1-52J-010	CAP, MYLER 0.0015-50V	VR304	S2-130-414-730	VR, B47K
C1314	★SB-CB1-09M-110	CAP, ELECT 1-16V	VR315	S1-416-103-020	VR, B3K
C1315	★87-010-480-010	CAP, ELECT 220-16V	VR907	S1-427-101-030	VR, B10K
C1324	★87-010-480-010	CAP, ELECT 220-16V	X001	87-030-156-010	CERA, RESONATOR CSA-400MG
C1332	★SB-CB1-09M-110	CAP, ELECT 1-16V	X213	SE-LT1-02Z-860	DELY, LINE LUM. FLT-10Z286
C1344	★87-015-681-010	CAP, ELECT 10-16V	X215	S0-EN6-45A-110	DELAY, LINE CHROM. EFD-EN645A11G
L001	SA-220-K00-110	COIL, PL-22UH	X223	S1-071-901-000	CRYSTAL, 4.43 MHZ
L101	SA-568-K01-110	COIL, CHOKE 0.56UH	Z101	S2-045-203-000	SAW FILTER, F1036C
L104	SA-109-K01-110	COIL, CHOKE 1UH	Z103	S1-087-804-000	CERA, FILTER 6MHZ EFCS6R0MS4
L124	SR-569-J20-E10	COIL, PL-5.6UH	Z204	S1-350-706-000	CERA, TRAP TPS 5.5MHZ
L133	SR-569-J20-E10	COIL, PL-5.6UH	Z205	S1-371-706-000	CERA, TRAP TPS 6.0MHZ
L162	SR-150-J20-E10	COIL, PL-15UH	=== SECAM CIRCUIT BOARD SECTION ===		
L205	SR-100-J20-E10	COIL, PL-10UH	C1229	★87-010-493-010	CAP, ELECT 0.47-50V
L210	SR-330-J20-E10	COIL, PL-33UH	C1230	★87-010-401-010	CAP, ELECT 1-50V
L215	SR-829-J20-E10	COIL, PL-8.2UH	C1231	★87-010-401-010	CAP, ELECT 1-50V
L224	SR-221-J20-E10	COIL, PL-220UH	C1232	★87-010-401-010	CAP, ELECT 1-50V
L271	SR-330-J20-E10	COIL, PL-33UH	C1233	★87-010-401-010	CAP, ELECT 1-50V
L403	SR-109-J20-E10	COIL, PL-1UH	C1234	★87-010-401-010	CAP, ELECT 1-50V
L406	S1-305-800-000	COIL, 39 UH	C1236	★87-015-681-010	CAP, ELECT 10-16V
L410	SR-109-J20-E10	COIL, PL-1UH	C1237	★87-015-681-010	CAP, ELECT 10-16V
L412	SA-608-K61-BA0	COIL, CHOKE 0.6UH	C1238	★87-015-681-010	CAP, ELECT 10-16V
L413	S1-397-300-000	FERR. BEAD BF60	C1239	★87-015-681-010	CAP, ELECT 10-16V
L414	S1-397-300-000	FERR. BEAD BF60	C1241	★87-010-381-010	CAP, ELECT 330-16V
L418	SR-101-K21-B10	COIL, CHOKE 100UH	T1202	S1-382-700-000	COIL, DEMODULATION (TY-6045)
R026	★SF-E02-72J-G10	RES, M/O 2.7K 1/2W	T1203	S1-382-700-000	COIL, DEMODULATION (TY-6045)
R245	★87-025-311-010	RES, M/O 220 1W	T1204	S1-382-700-000	COIL, DEMODULATION (TY-6045)
R307	★SD-F02-79J-G10	RES, M/F 2.7 1W	VR1201	S2-005-601-020	VR, B1K
R310	★SF-E08-21J-C10	RES, M/O 820 1/2W	=== POWER CIRCUIT BOARD SECTION ===		
R312	★87-025-193-010	RES, M/O 10 2W	C801	★SM-QT2-24M-010	CAP, METAL PE 0.22UF-250V AC
R313	★SF-E08-21J-C10	RES, M/O 820 1/2W	C802	★SA-PK4-71M-BL0	CAP, CERA 470PF-400VAC
R319	★87-025-451-090	RES, M/F 2.2 1/2W	C803	★SA-PK4-71M-BL0	CAP, CERA 470PF-400VAC
R319	★87-025-451-090	RES, M/F 2.2 1/2W	C804	★SM-HW1-04K-010	CAP, METAL P.E. 0.1UF 400V
R320	★87-025-076-010	RES, M/O 680 1W	C805	★SA-QK4-72Z-F10	CAP, CERA 4700PF-250VAC
R325	★SF-E01-22J-C10	RES, M/O 1.2K 1/2W	C806	★SA-QK4-72Z-F10	CAP, CERA 4700PF-250VAC
R401	★SF-H02-42J-110	RES, M/O 2.4K 3W	C807	★SA-QK4-72Z-F10	CAP, CERA 4700PF-250VAC
R402	★SF-H06-82J-110	RES, M/O 6.8K 3W	C808	★SA-QK4-72Z-F10	CAP, CERA 4700PF-250VAC
R405	★SF-E01-81J-X10	RES, M/O 180 1/2W	C809	★SB-MJ3-91M-110	CAP, ELECT 390-400V
R406	★SF-E06-81J-G10	RES, M/O 680 1/2W	C810	★SR-JK3-33J-010	CAP, PP 0.033UF-630V
△R418	★SE-F02-29J-G10	RES, FUSE 2.2 1W	C811	★87-010-974-080	CAP, CERA 220PF-500V
△R422	★87-029-105-010	RES, FUSE 10 1/2W	C814	★SP-BC3-33J-010	CAP, MYLER 0.033-50V
R423	★87-029-388-010	RES, M/F 1 1W	C815	★SA-IA3-91K-Z10	CAP, CERA 390PF-500V
R424	★87-029-388-010	RES, M/F 1 1W	C816	★87-015-736-010	CAP, ELECT 10-50V
R429	★87-022-387-090	RES, M/O 3.3K 2W	C818	★87-010-974-080	CAP, CERA 220PF-500V
R429	★87-022-387-090	RES, M/O 3.3K 2W	C820	★87-010-968-090	CAP, CERA 680PF-2KV
R626	★87-025-193-010	RES, M/O 10 2W	C822	★SA-IM1-03K-B10	CAP, CERA 0.01UF-500V
R910	★SF-E01-53J-X10	RES, M/O 15K 1/2W	C823	★SB-502-50A-B40	CAP, CERA 2200PF-400V
T001	S2-159-700-000	COIL, I.F.T. TRF5414	C824	★87-010-974-080	CAP, CERA 220PF-500V
T114	S1-074-320-000	COIL, P.S.F. MATCHING TRF3800	C826	★87-010-393-010	CAP, ELECT 100-35V
T127	S1-074-400-000	COIL, P.I.F. DETECTOR	C827	★S6-220-487-000	CAP, CERA 470PF-1KV
T131	S1-074-400-000	COIL, P.I.F. DETECTOR	C828	★87-010-976-010	CAP, CERA 1000PF-500V
T140	S1-075-000-000	COIL, S.I.F. DETECTOR	C829	★SB-KJ2-21M-110	CAP, ELECT 220-200V
T217	S1-382-700-000	COIL, DEMODULATION (TY-6045)			
T232	S2-049-200-000	COIL, I.F.T. TRF5418J			

REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION
C831	★S6-220-487-000	CAP, CERA 470PF-1KV	Z02	S1-087-804-000	CERA, FILTER 6MHZ EFCS6R0MS4
C833	★SA-MK1-01K-Z10	CAP, CERA 100PF-2KV	Z03	S1-077-414-000	CERA, FILTER 6.5MHZ EFCS6R5MS4
C840	★SA-1M1-03K-B10	CAP, CERA 0.01UF-500V	=== RCA CIRCUIT BOARD SECTION ===		
C850	★87-010-990-080	CAP, ELECT 33-100V	JA1301	S1-426-200-000	RCA, JACK BD 4P(AUDIO/VIDEO)
△F801	S0-200-0D1-0S0	FUSE 2.0AT 250VAC 5-20MM	=== MISCELLANEOUS ===		
L805	S1-397-300-000	FERR. BEAD BF60(X2)	CRT	S2-150-400-000	CRT, 37CM GGA81-TC03(TV-1401)
L808	S1-397-300-000	FERR. BEAD BF60	CRT	S2-150-500-000	CRT, 51CM 51GGD91X-TC02(TV-2001)
L809	S1-397-300-000	FERR. BEAD BF60	SP	S1-275-210-000	SPEAKER 7.6-12.7-16 2W(TV-2001)
L810	S1-397-300-000	FERR. BEAD BF60	SP	S1-427-410-000	SPEAKER 7.6CM 8 OHM 1.5W(TV-1401)
L811	S1-397-300-000	FERR. BEAD BF60	△S801	S1-342-800-E00	SW, PUSH POWER(MAIN POWER)
L812	S1-397-300-000	FERR. BEAD BF60	T002	S2-359-300-0E0	TRANSFORMER
L812	S1-397-300-000	FERR. BEAD BF60			
L813	S1-397-300-000	FERR. BEAD BF60			
L814	S1-397-300-000	FERR. BEAD BF60			
L821	S1-397-300-000	FERR. BEAD BF60			
L822	S1-397-300-000	FERR. BEAD BF60			
L828	SR-101-K21-B10	COIL, CHOKE 100UH			
R802	★SG-M03-39J-T10	RES, CEMENT 3.3 7W			
R805	★SF-F01-88J-B10	RES, M/O 0.18 1W			
R812	★SF-H06-80J-HB0	RES, M/O 68 3W			
R814	★SF-G03-00J-G10	RES, M/O 30 2W			
R818	★SF-F04-79J-G10	RES, M/O 4.7/1W(TV-1401)			
R819	★SF-G05-63J-B10	RES, M/O 56K 2W			
R822	★87-025-391-010	RES, M/O 33 1W			
R823	★SF-E01-82J-B10	RES, M/O 1.8K 1/2W			
R856	★87-022-447-090	RES, M/O 18K 2W			
RL801	S0-0JW-1AF-HN0	RELAY, JW1AFHN DC5V			
RT801	S2-02B-G36-020	SFR, PTH451C202BG360N2			
△T801	S2-155-400-0B0	LINE, FILTER			
△T802	S2-155-300-0B0	LINE, FILTER			
△T803	S2-263-800-0D0	POWER TRANSFORMER			
=== CONTROL CIRCUIT BOARD SECTION ===					
C01	★87-010-379-010	CAP, ELECT 22-16V			
S02A	87-031-770-010	SW, TACT EVQ-QS2-05K(VOLUME UP)			
S03A	87-031-770-010	SW, TACT EVQ-QS2-05K(VOLUME DOWN)			
S04A	87-031-770-010	SW, TACT EVQ-QS2-05K(PROGRAM UP)			
S05A	87-031-770-010	SW, TACT EVQ-QS2-05K(PROGRAM DOWN)			
S06	87-031-770-010	SW, TACT EVQ-QS2-05K(ON/STAND BY)			
S011	S2-179-900-000	SLIDE, SW S2-3 RG8(NTSC4.43/PAL)			
VR221	S2-005-521-030	VR, 10KB SHAFT 13(TINT)			
VR901	S1-350-522-040	VR, 200KB SHAFT:13(VERT HOLD)			
=== CRT CIRCUIT BOARD SECTION ===					
C504	★SA-MK1-02K-B10	CAP, CERA 1000PF -2KV			
L501	SR-151-J20-A10	COIL, PL-150UH			
R501	★87-022-303-090	RES, M/O 15K 2W			
R502	★87-022-303-090	RES, M/O 15K 2W			
R503	★87-022-303-090	RES, M/O 15K 2W			
S501	S1-081-120-U00	SOCKET CRT 12P CS623/CS622			
SW501	S1-148-200-000	SW, CHANNEL BAND SELECTOR			
VR501	S2-037-101-030	VR, B10K			
VR502	S2-037-101-030	VR, B10K			
VR503	S2-037-101-030	VR, B10K			
VR510	S2-037-002-010	VR, B200			
VR511	S2-037-002-010	VR, B200			
=== SOUND CONV. CIRCUIT BOARD SECTION ===					
C03	★87-010-379-010	CAP, ELECT 22-16V			
C61	★87-010-379-010	CAP, ELECT 22-16V			
L01	SR-829-J20-E10	COIL, PL-8.2UH			
L02	SR-150-J20-E10	COIL, PL-15UH			
X01	87-030-228-010	CERA, RESONATOR CSB500E61			
Z01	S1-077-424-000	CERA, FILTER 5.5MHZ			

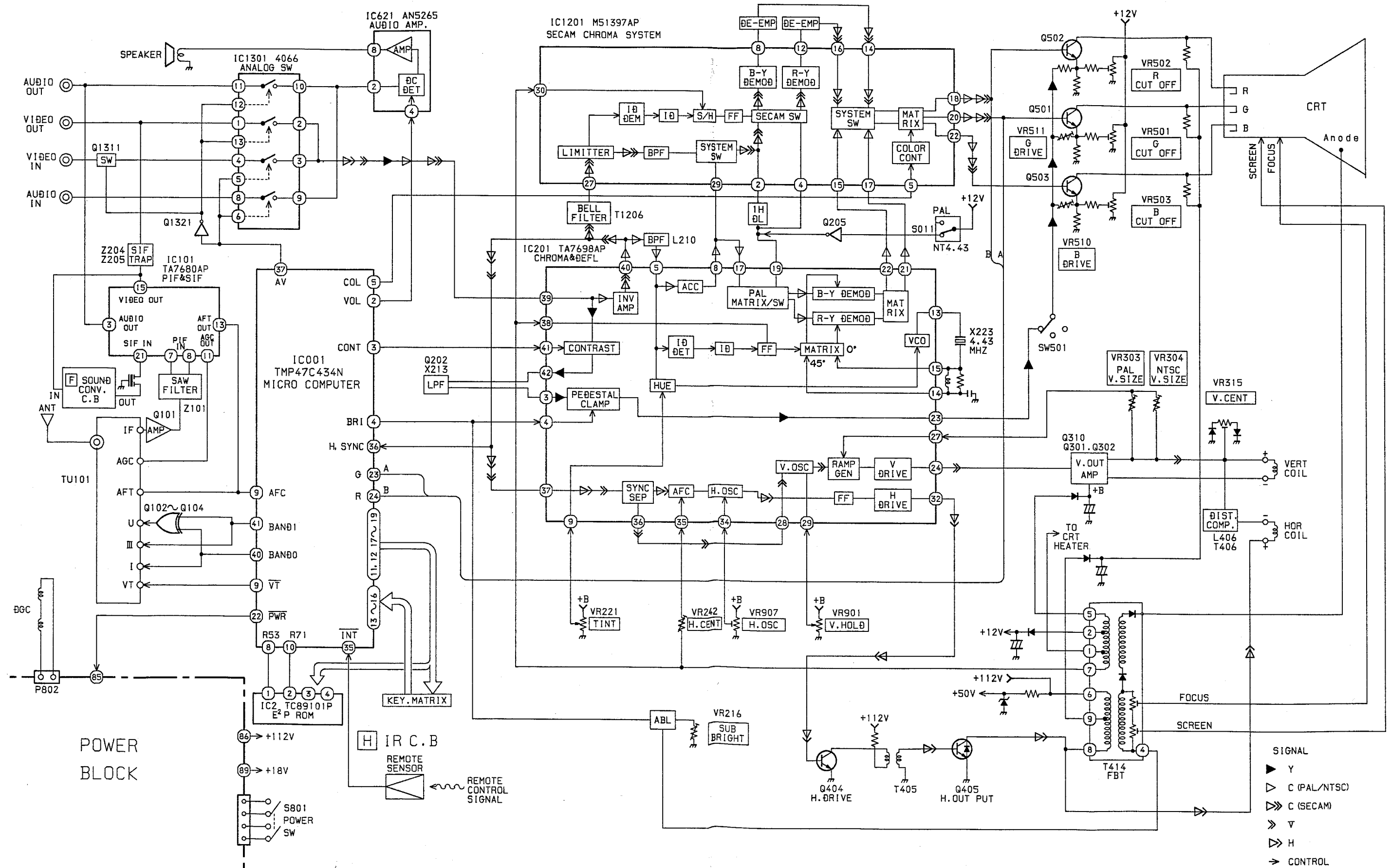
IC DESCRIPTION

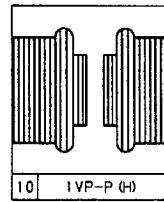
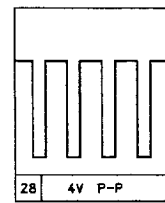
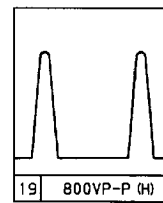
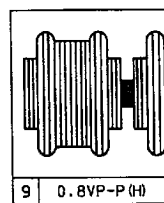
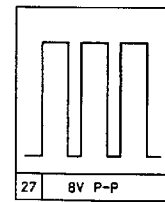
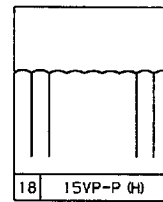
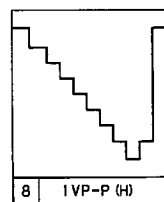
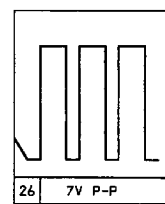
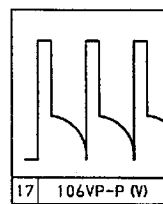
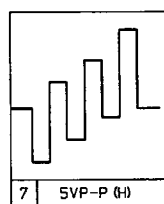
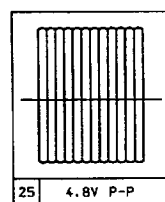
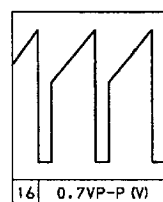
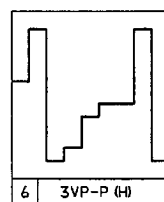
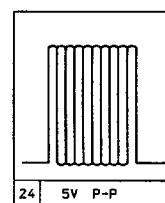
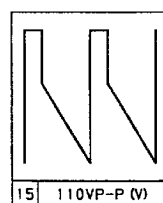
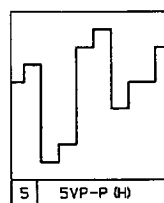
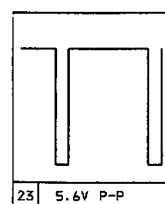
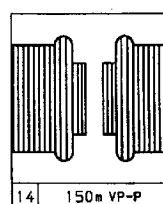
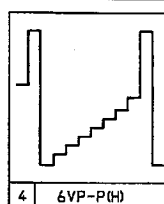
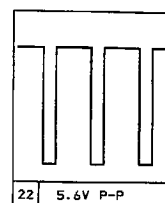
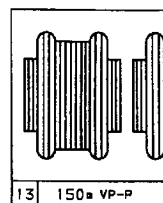
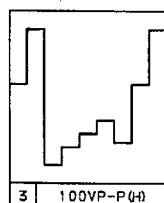
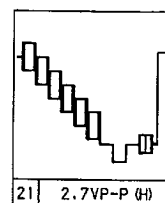
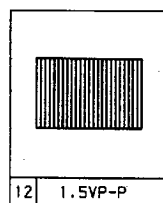
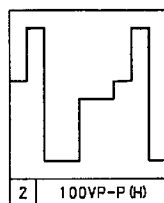
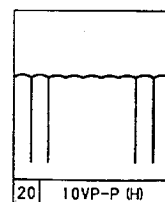
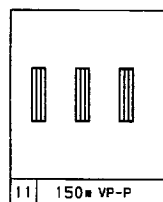
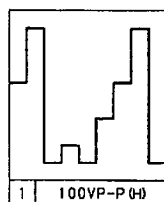
TMP47C434N

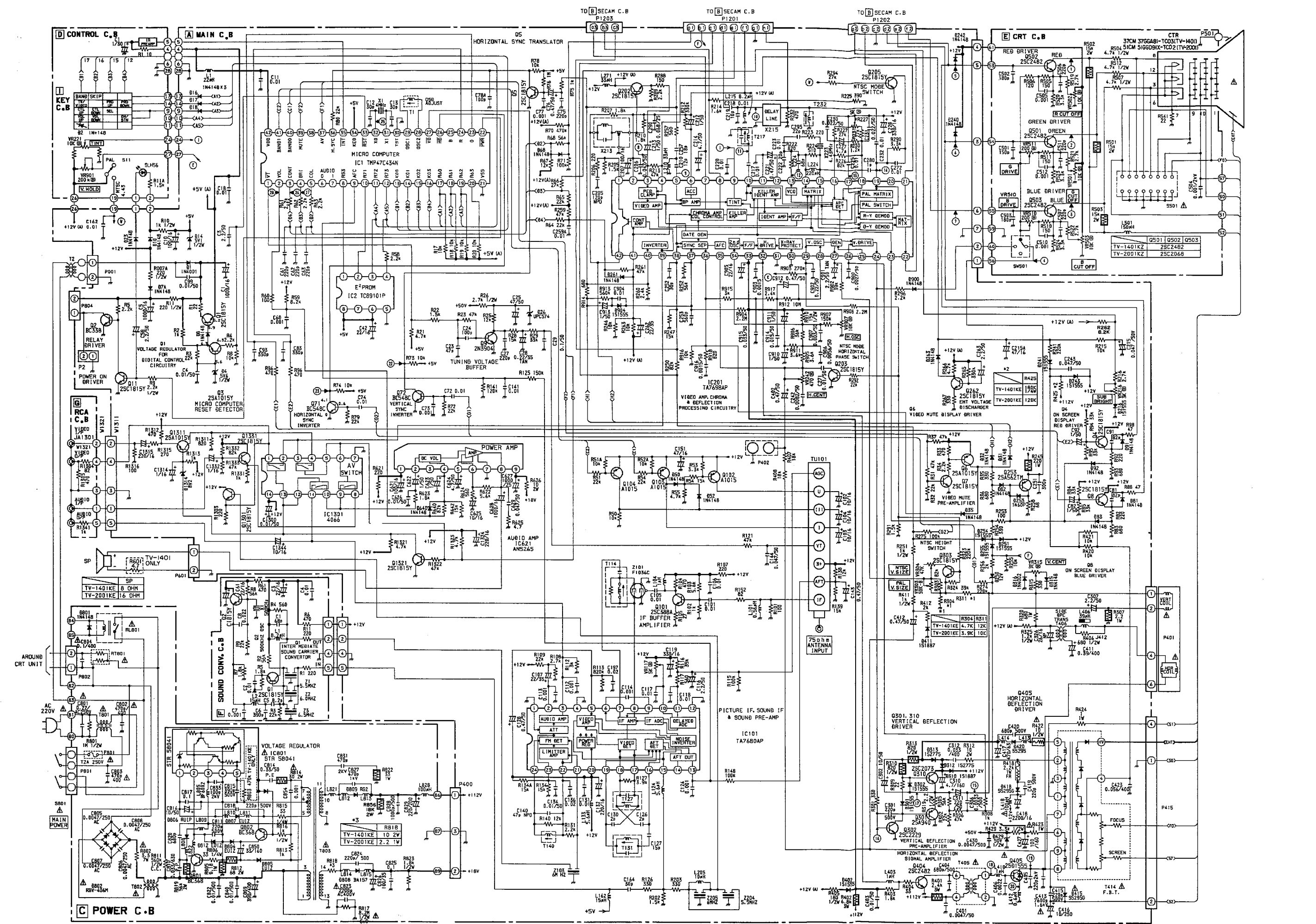
Pin No.	Pin Name	I/O	Description
1	$\overline{VT}$	O	PWM output for tuning voltage.
2	VOLUME	O	Volume PWM output.
3	CONTRAST	O	Contrast PWM output.
4	BRIGHTNESS	O	Brightness PWM output.
5	COLOR	O	Color PWM output.
6	AUDIO 0	O	Logic outputs for stereo decoder control.
7	AUDIO 1		
8	R53	O	E ² PROM CS.
9	AFT	I	S – curve signal input.
10	R71	O	E ² PROM CLOCK.
11	R72	I/O	E ² PROM DI.
12	R73	O	E ² PROM DO.
13	K0	I	Key data inputs.
14	K1		
15	K2		
16	K3		
17	R60	O	Key digit outputs.
18	R61		
19	R62		
20	R63		
21	VSS	–	GND connection.
22	POWER	O	Power output.
23	G	O	OSD G signal output.
24	R	O	OSD R signal output.
25	Y	O	OSD Y signal output.
26	$\overline{HD}$	I	HD signal output.
27	$\overline{VD}$	I	VD signal output.
28	OSC2	I	OSD oscillator connection.
29	OSC1	O	
30	TEST	I	GND connection.
31	XIN	I	4MHZ oscillator connection.
32	XOUT	O	
33	$\overline{RESET}$	I	RESET signal output.
34	KE0	I	POWER ON MODE input.

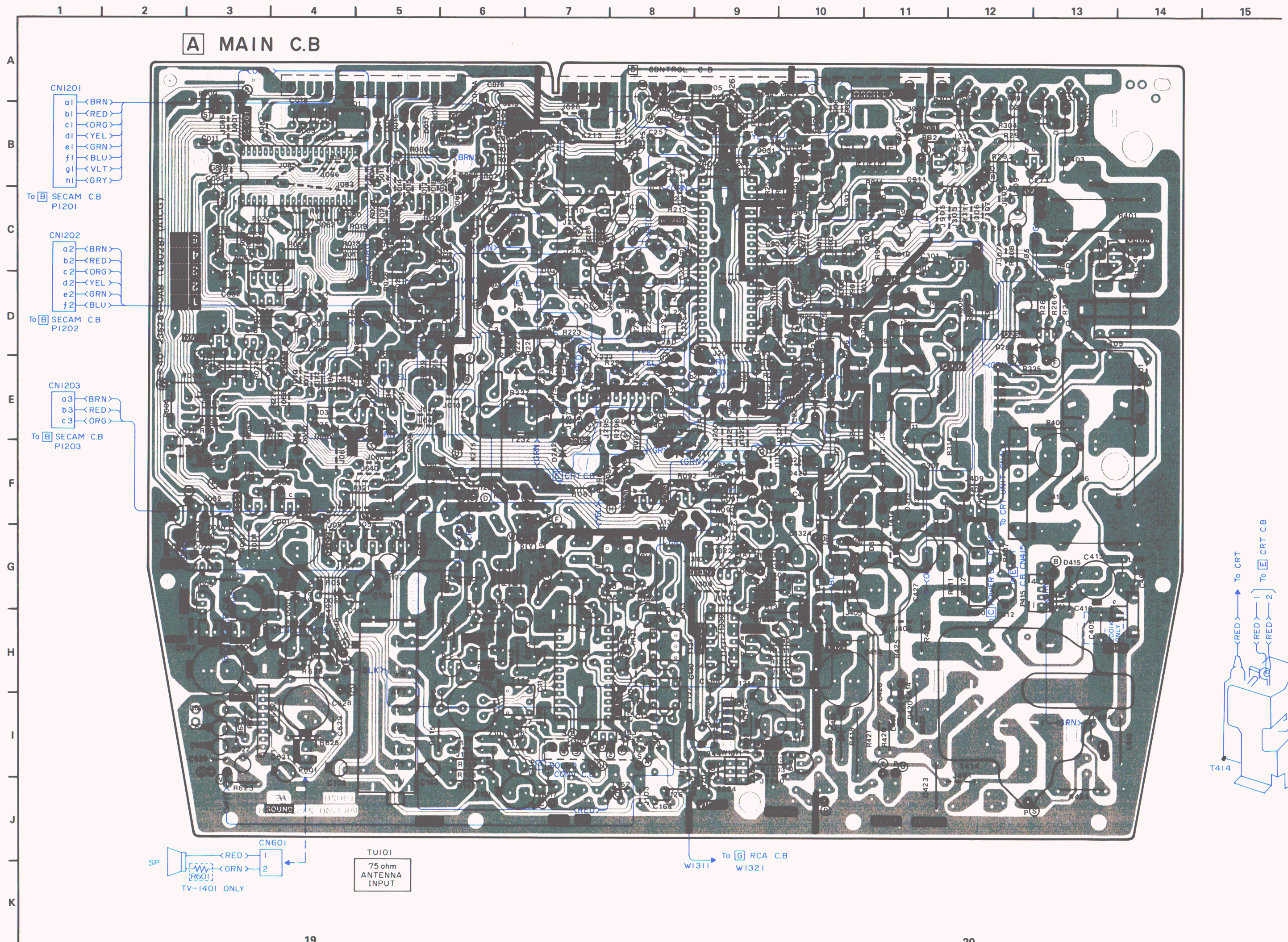
Pin No.	Pin Name	I/O	Description																				
35	INT	I	Remote control signal input.																				
36	H. SYNC	I	H. SYNC PULSE input.																				
37	AV	O	TV/AV switching output.																				
38	—	—																					
39	MUTE	O	External mute output.																				
40	BAND0	O	Band output <table border="1"><tr><th colspan="2">BAND</th><th>V_L</th><th>V_H</th><th>U</th></tr><tr><th>IC1</th><th></th><td></td><td></td><td></td></tr><tr><td>④0</td><td>BAND 0</td><td>L</td><td>H</td><td>H</td></tr><tr><td>④1</td><td>BAND 1</td><td>H</td><td>L</td><td>H</td></tr></table>	BAND		V _L	V _H	U	IC1					④0	BAND 0	L	H	H	④1	BAND 1	H	L	H
BAND				V _L	V _H	U																	
IC1																							
④0	BAND 0	L	H	H																			
④1	BAND 1	H	L	H																			
41	BAND1																						
42	VDD	—	+5V																				

BLOCK DIAGRAM

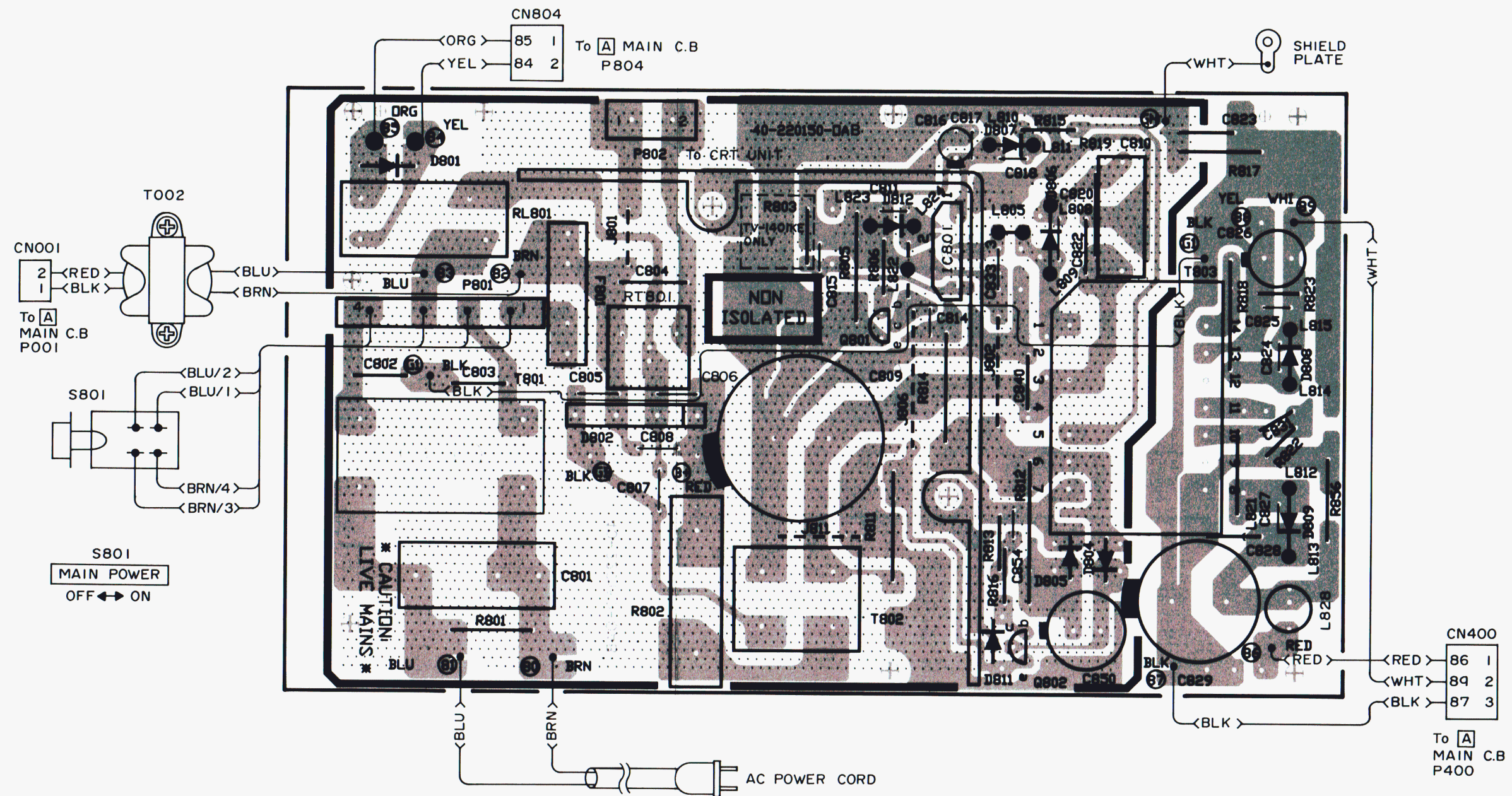




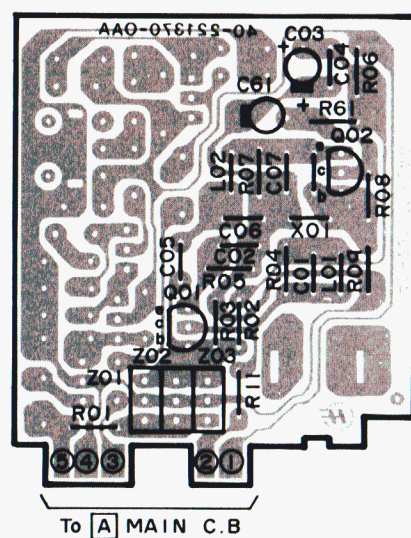




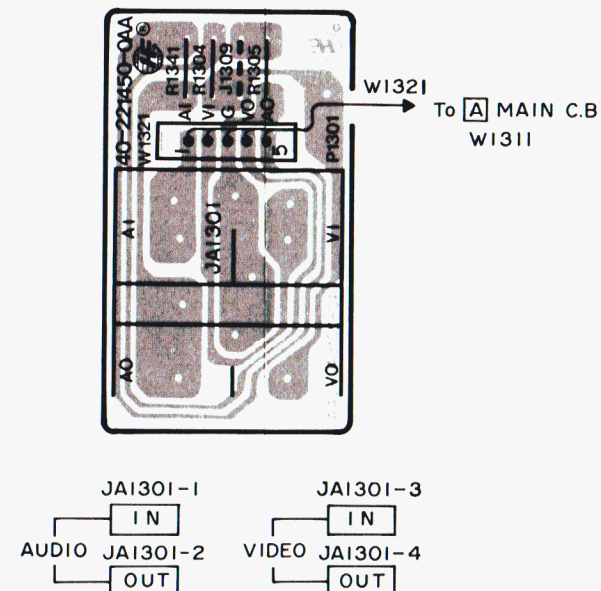
C POWER C.B



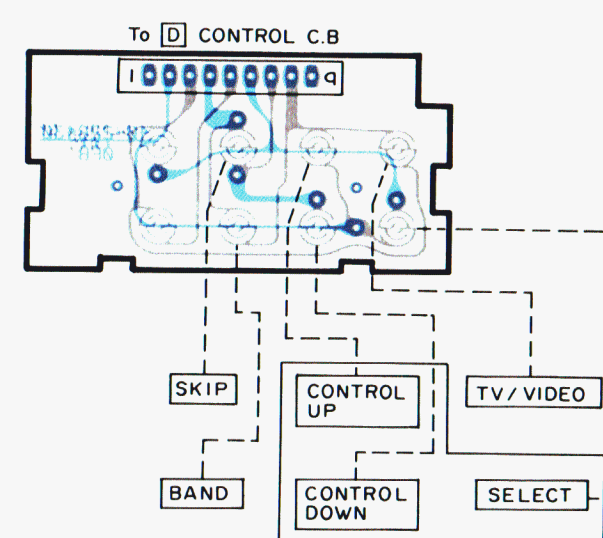
F SOUND CONV. C.B



G RCA C.B

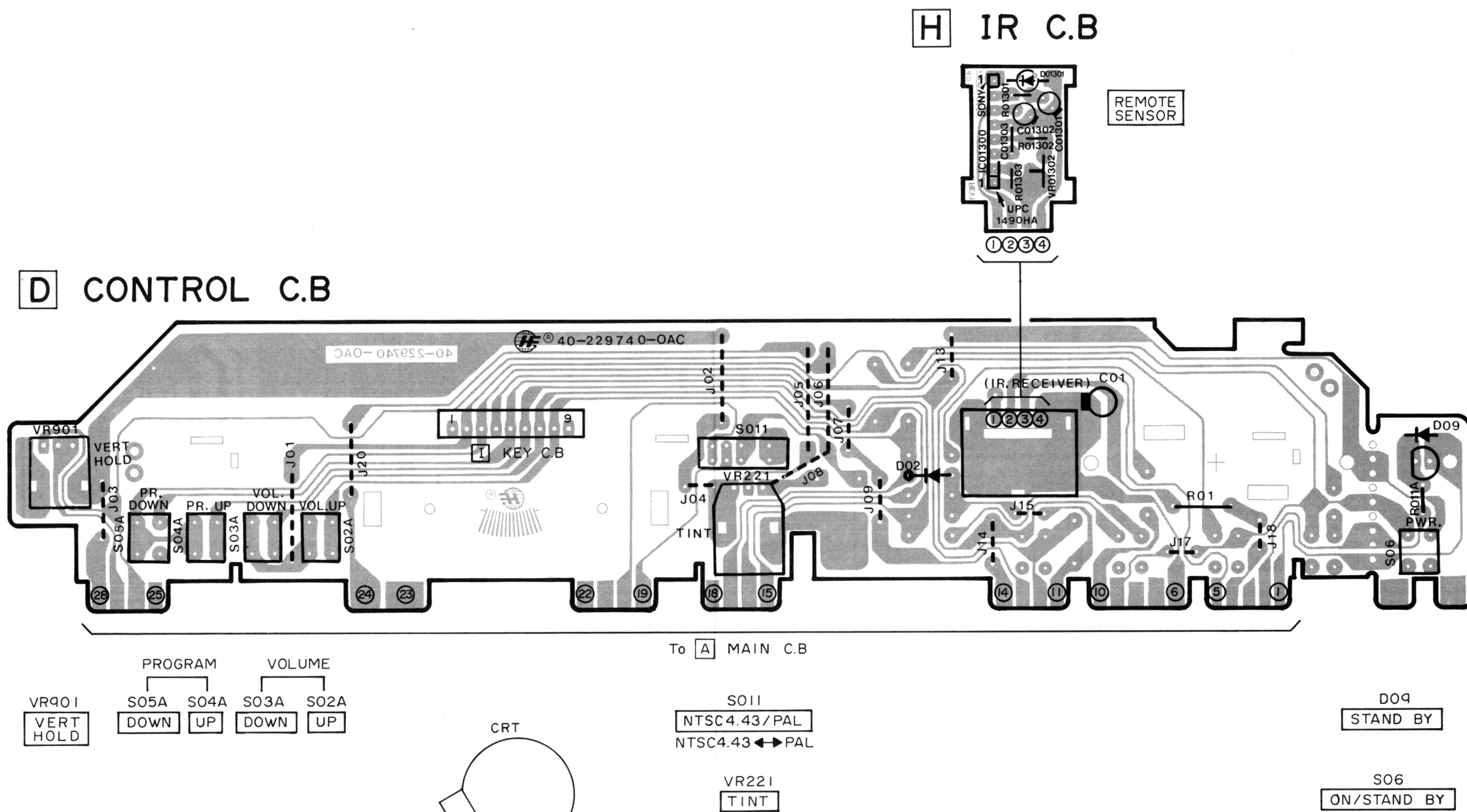


I KEY C.B



1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

A
B
C
D
E
F
G
H
I
J
K

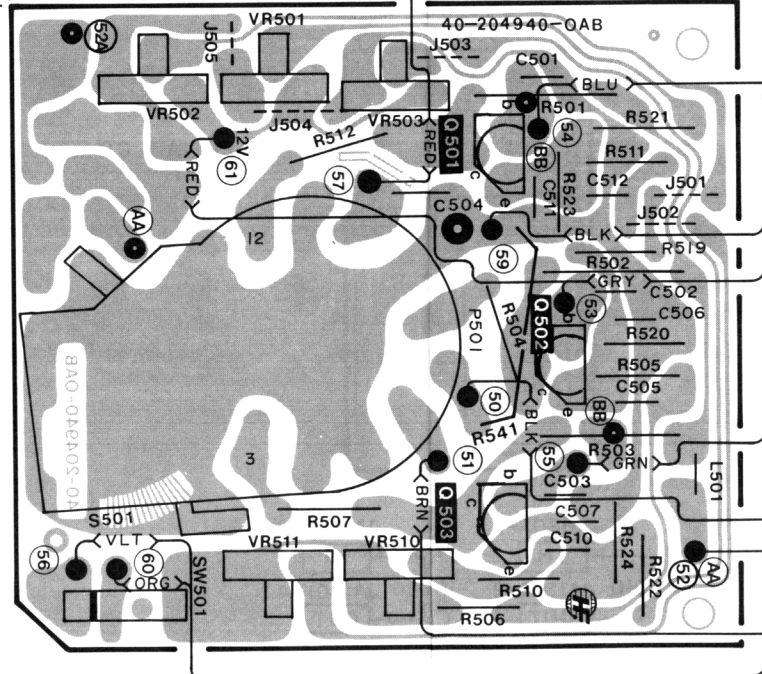


To T414
(**A** MAIN C.B)

1 <RED>

2 <RED>

E CRT C.B



CN201

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<BLU>	54	3
<RED>	61	4
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<BLK>	59	7

To **A** MAIN C.B
P201

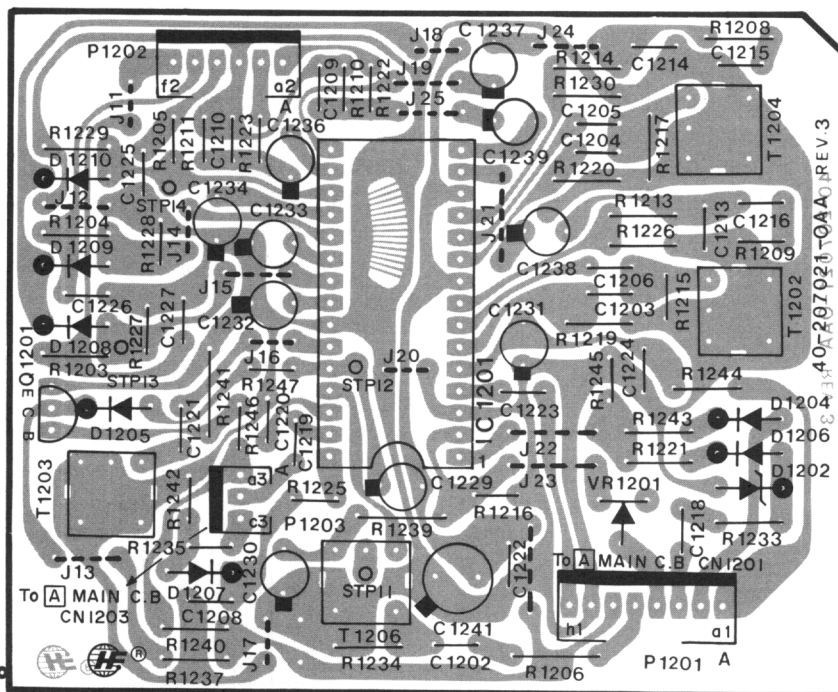
CN145

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		3
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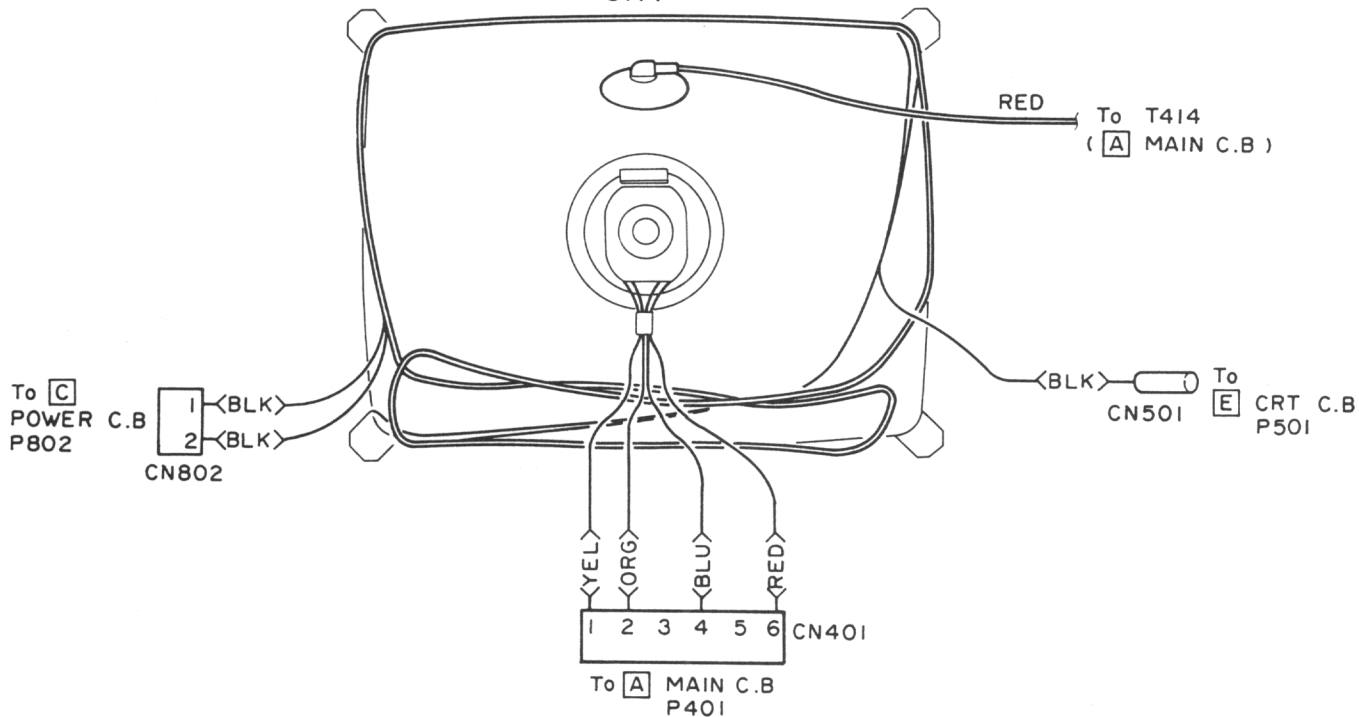
To **A** MAIN C.B
P415

B SECAM C.B

To **A** MAIN C.B CNI202



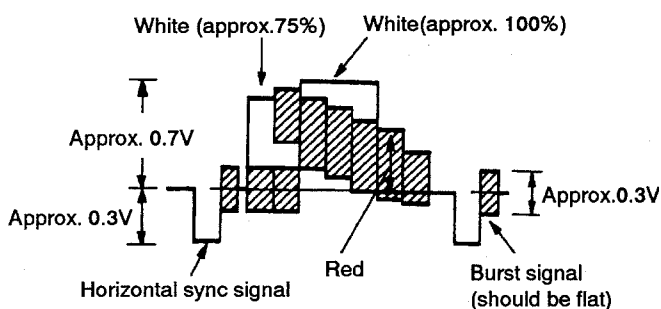
CRT



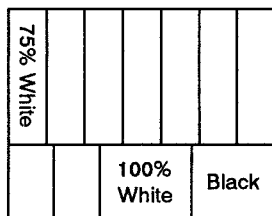
ELECTRICAL ADJUSTMENT

Set-up for adjustment

Since the video signal from the pattern generator is used for adjustment, the characteristics of this signal should be within the specifications. Therefore, while observing the output waveform with a 75-ohm load, check that the amplitudes of the sync signal, video component and the burst signal are approx. 0.3V, 0.7V and 0.3V, and the burst amplitude is flat. Also check that the ratio in level between the burst and red signals is 0.30 : 0.66. If these values are not satisfied with the video output signal, the pattern generator should be calibrated. (Refer to the instruction manual of the pattern generator.)

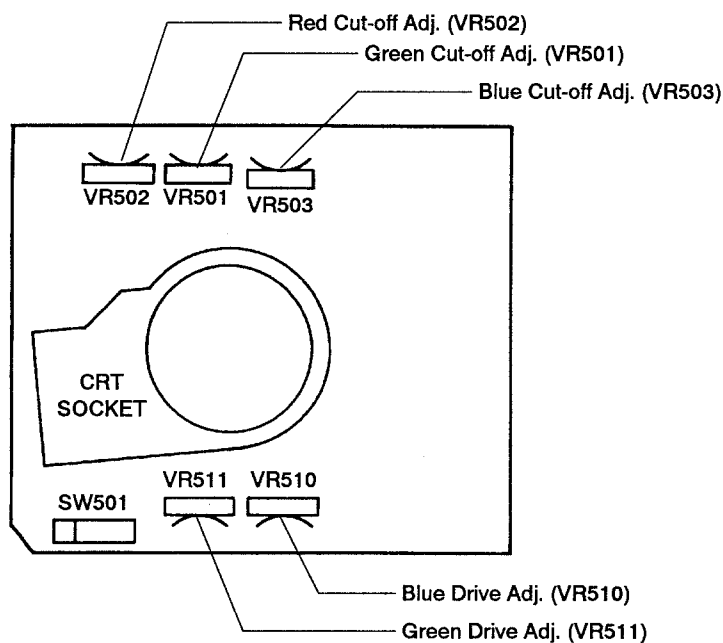


Color bar signal from pattern generator



TV screen

■ Purity Adjustment

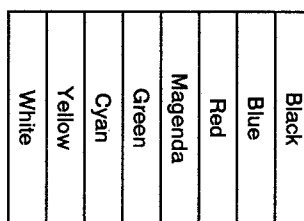


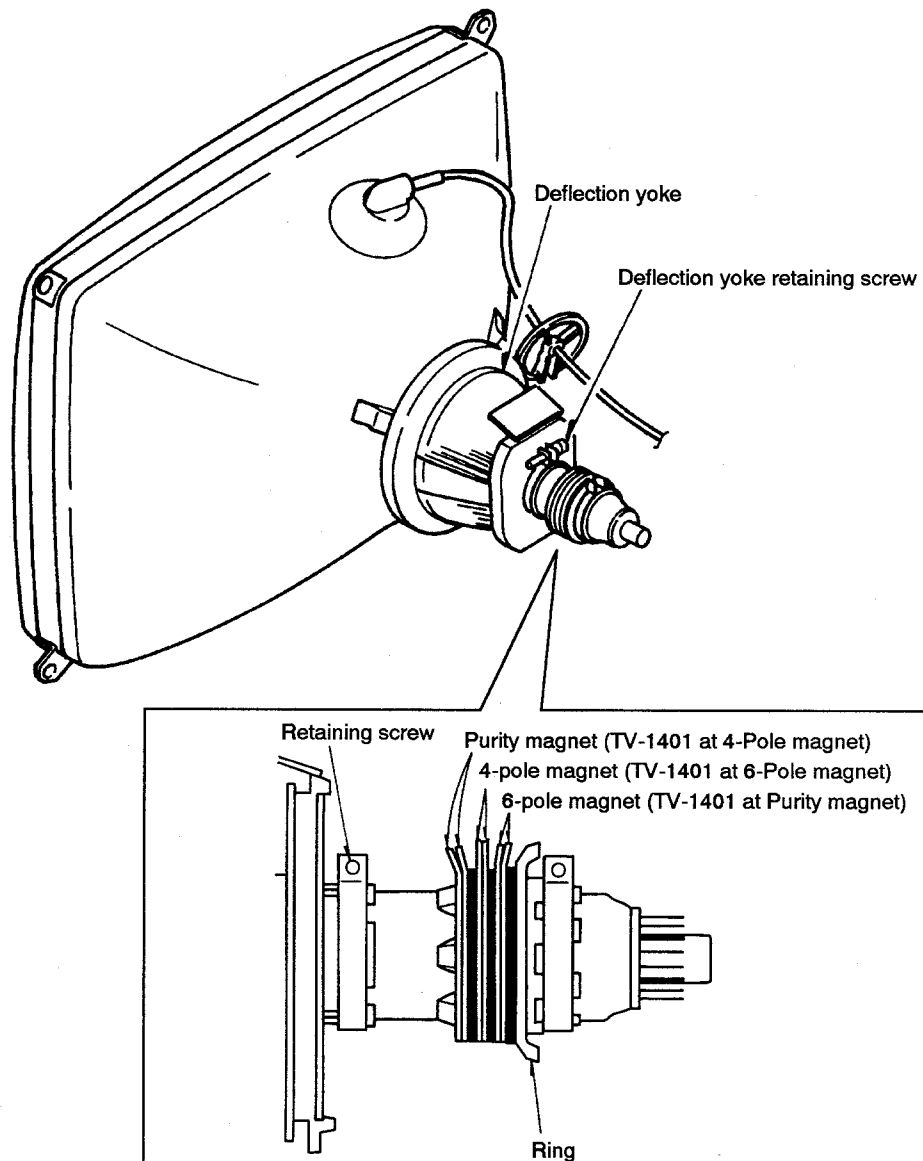
Cautions on adjustments

Check that the following conditions are satisfied before performing any adjustments.

- Warm up the set for more than 10 minutes (more than 30 minutes for adjustments concerning the CRT).
- Set the picture controls to "normal" when otherwise not specified.
- Set the output level of the pattern generator to 1.0Vp-p (with a 75-ohm load).
- When otherwise not specified, set the NTSC/PAL select switches of this set and the pattern generator to the PAL modes.

Use the color bar signal (gray scale) shown below for adjustment.



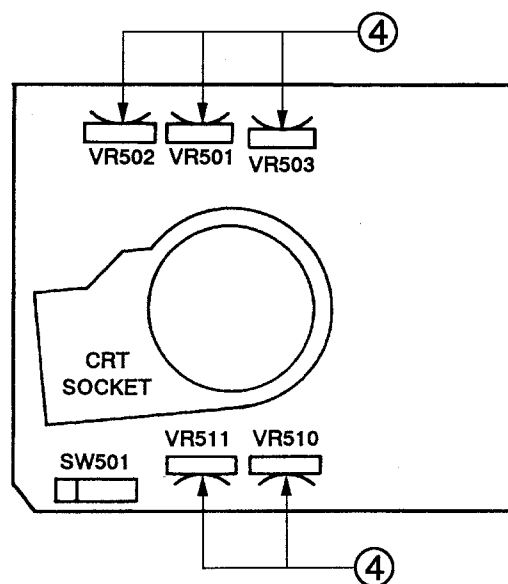
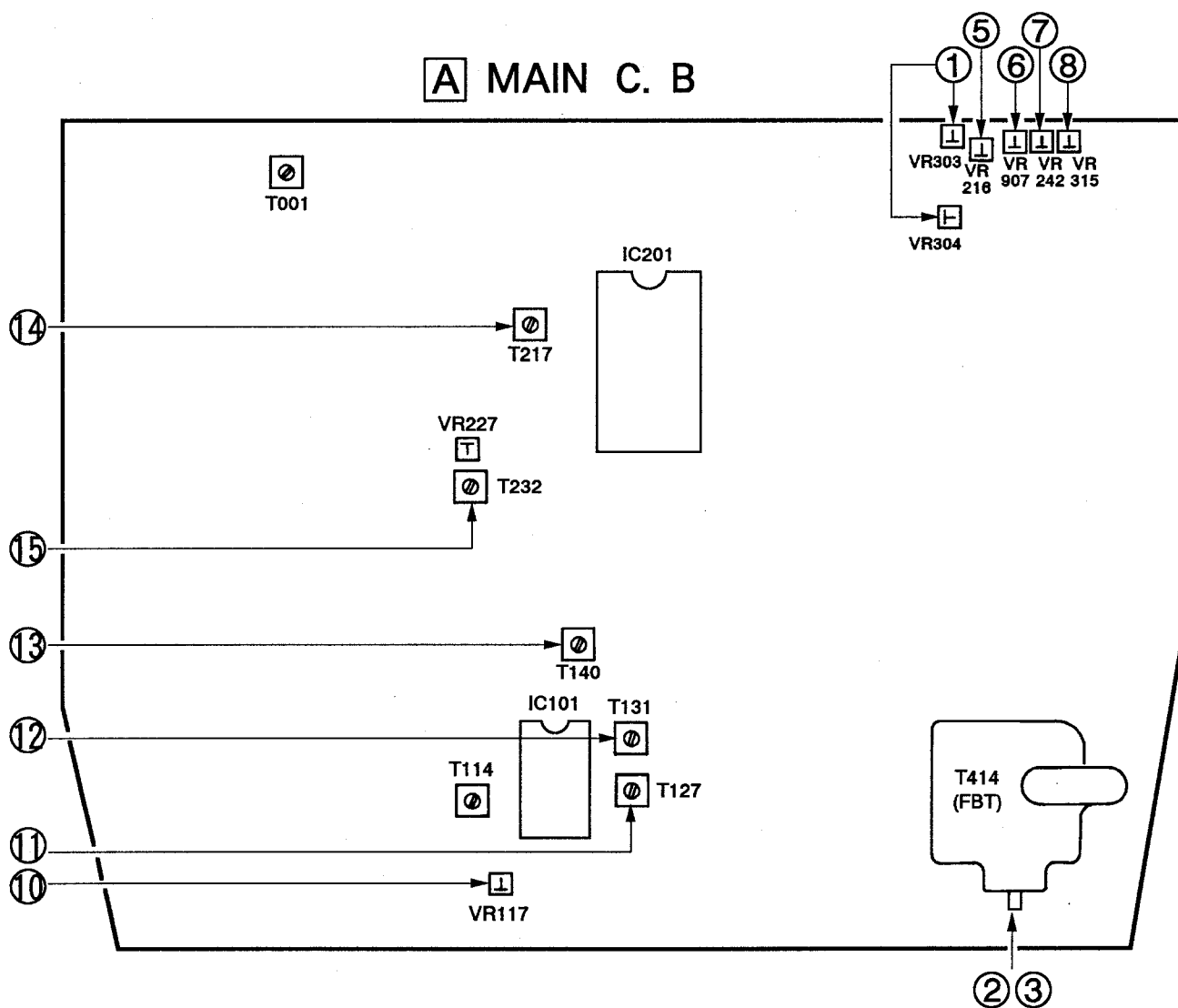


Note : Since the purity and convergence adjustments affect each other, repeat each adjustment to improve the precision.

- (1) Receive a white raster signal.
- (2) Turn the red cutoff VR (VR502) and blue cutoff VR (VR503) fully counterclockwise to produce a single green raster.
- (3) Loosen the deflection yoke retaining screw and move the deflection yoke fully backwards.
- (4) Loosen the ring and adjust the two purity magnets alternately so the center of the screen becomes green (fire ball).
- (5) Observing the screen, move the deflection yoke forward so the screen becomes uniformly green.
- ※ If the screen does not become uniformly green, repeat steps (3)-(5).
- (6) Also check that the screen becomes uniformly red and blue.
- (7) Set the screen to a white raster. If colors appear partially, move the deflection yoke backwards and forwards.

- (8) Adjust the front-to-back position of the deflection yoke and tighten the deflection yoke retaining screw.

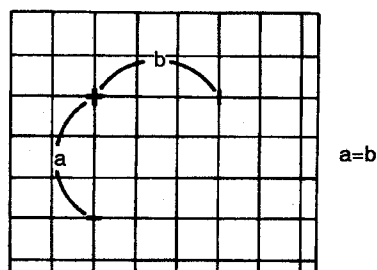
※ After this adjustment is completed, perform the white balance adjustment.



■ Video Adjustments

1. Vertical size adjustment

- (1) Set the NTSC/PAL select switch to PAL.
- (2) Receive a PAL cross-hatch pattern signal.
- (3) Adjust VR303 so the vertical-to-horizontal ratio of the cross-hatch pattern is the same.
(See the figure below.)
- (4) Set the NTSC/PAL select switch to NTSC.
- (5) Receive an NTSC cross-hatch pattern signal and adjust VR304 in the same way as in step (3).



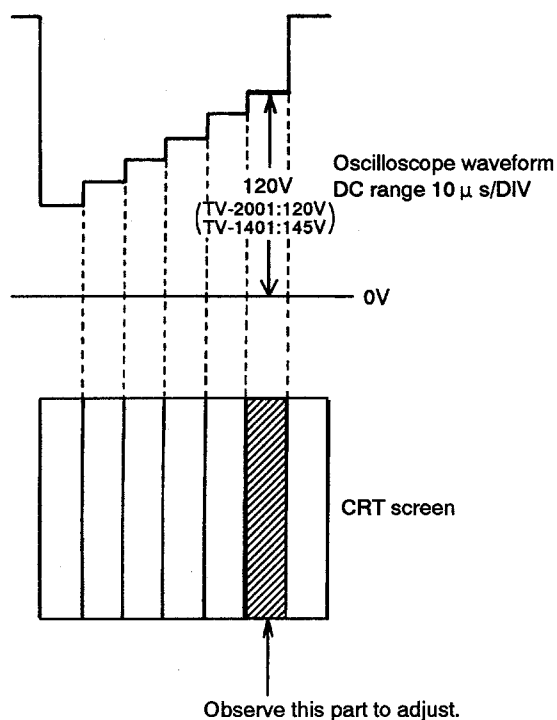
2. Focus adjustment

- (1) Receive a cross-hatch pattern signal.
- (2) Adjust the focus VR (FBT) so the focus is optimized.

3. Screen adjustment

- (1) Receive a gray scale pattern signal (color bars with no color).
- (2) Connect an oscilloscope to KG on the CRT circuit board.
- (3) Adjust the screen VR (FBT) so the part of the screen corresponding to the 120V (TV-2001) or 145V (TV-1401) DC level becomes completely black.

Example :

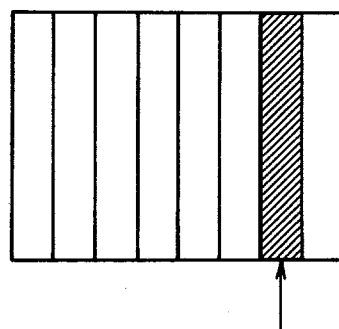


4. White balance adjustment

- (1) Receive a gray scale pattern signal (color bars with no color).
- (2) Set the color and contrast controls to minimum.
- (3) Set VR510~503, VR510, VR511 to their mechanical centers.
- (4) Leave one of the primary-color R, G and B cut-off VRs (VR501-503) that glows brightness on the screen, set to its center, and use the other two cut-off VRs to adjust the white balance (during the cut-off). (Observe the gray scale's second darkest gradation to adjust)
- (5) Set the contrast control to maximum.
- (6) Adjust VR510 and VR511 to optimize the white balance at the highlight level. (Observe the gray scale's brightest gradation to adjust)
- (7) Perform steps (2)-(6) several times to improve precision.

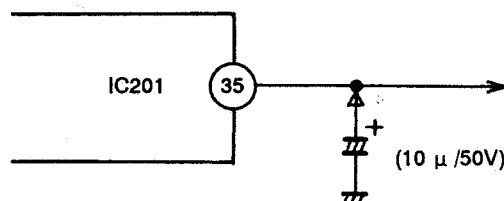
5. Sub-brightness adjustment

- (1) Receive a color bar signal.
- (2) Set the contrast and color controls to minimum.
- (3) Adjust VR216 so the second darkest color bar can be seen slightly. (See the figure below.)



6. Horizontal oscillator adjustment

- (1) Receive a cross-hatch pattern signal.
- (2) Connect IC201 pin 35 to ground via an electrolytic capacitor (10 μ/50V). (See the figure below.)
- (3) Adjust VR907 so the picture does not flow.
- (4) Disconnect the electrolytic capacitor.



7. Horizontal centering adjustment

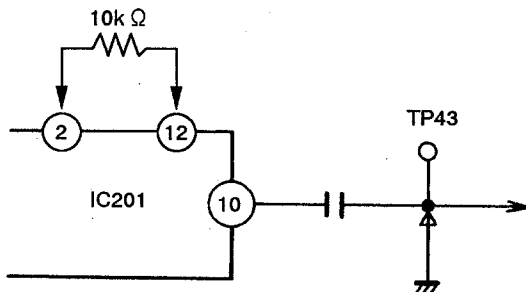
- (1) Receive a cross-hatch pattern signal (any signal will do if the center can be checked).
- (2) If the center drifts, adjust VR242 so the horizontal center is correct.

8. Vertical centering adjustment

- (1) Receive a cross-hatch pattern signal (any signal will do if the center can be checked).
- (2) If the center drifts, adjust VR315 so the vertical center is correct.

9. Color sync adjustment

- (1) Receive a color bar signal.
- (2) Connect TP43 to ground. (See the figure below.)



- (3) Connect IC201 pins ② and ⑫ via a 10kohm resistor (color killer off).
- (4) Adjust VR227 so the colors of the color bar are normal.
- (5) Disconnect the TP43 ground wire and 10kohm resistor.

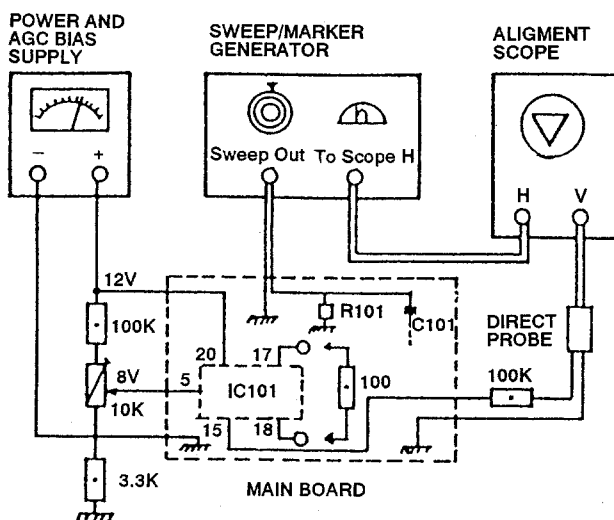
■ Tuner Adjustments

● Test equipment

- 1) IF SWEEP MARKER GENERATOR :
38.00MHz, 35.79MHz, 33.57MHz, 31.50MHz
- 2) ALIGNMENT SCOPE
- 3) DC POWER SUPPLY : 16V, 250mA
- 4) SWEEP GENERATOR : 5.5MHz, 6.5MHz
- 5) PAL & SECAM COLOR BAR GENERATOR
- 6) OSCILLOSCOPE
- 7) TV CHANNEL SIGNAL GENERATOR

10. IF adjusment

- (1) Connections



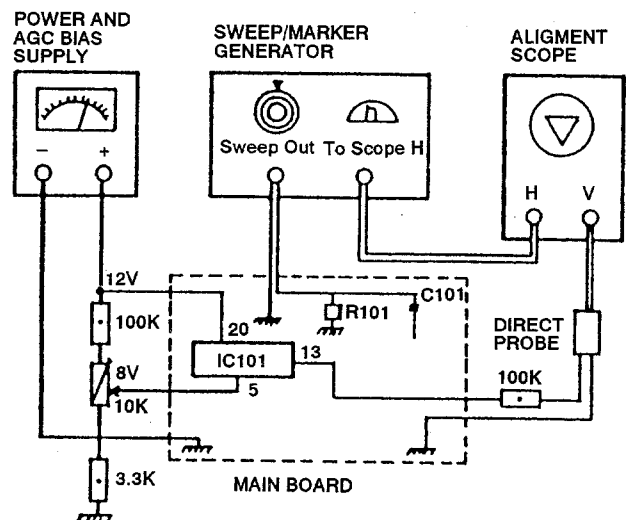
- (2) Connect the alignment scope's V input terminal to IC101 pin ⑮ via a 100kohm resistor and adjust T127 so the level is maximum at 38.0MHz.
- (3) Connect a 100ohm resistor between IC101 pins ⑰ and ⑱ and adjust T114 so the level is maximum at 35.79MHz.

11. AF AGC adjustment

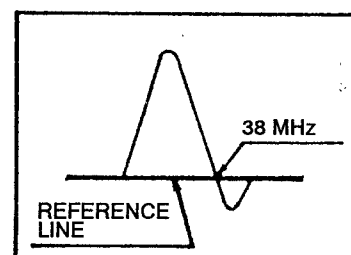
- (1) Receive a broadcast of approx. 67dB μ .
- (2) Turn VR117 fully clockwise and then gradually turn it clockwise to adjust it so that noise disappears from the screen.

12. AFT adjustment

- (1) Connections

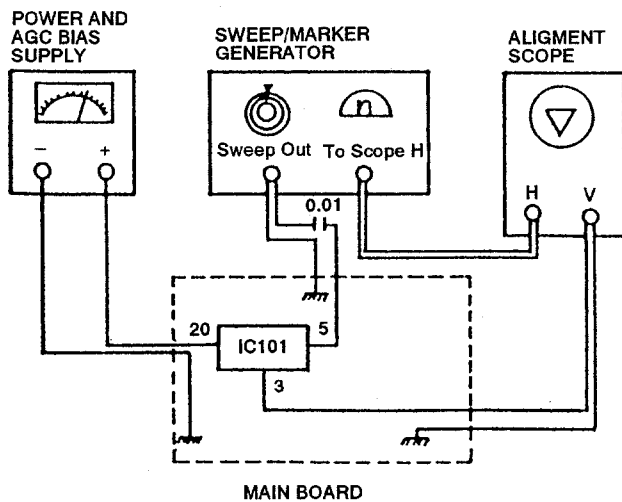


- (2) Adjust T131 so the waveform shown below is obtained.

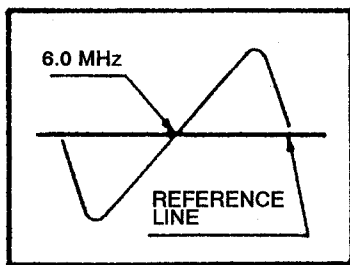


13. SIF adjustment

(1) Connections

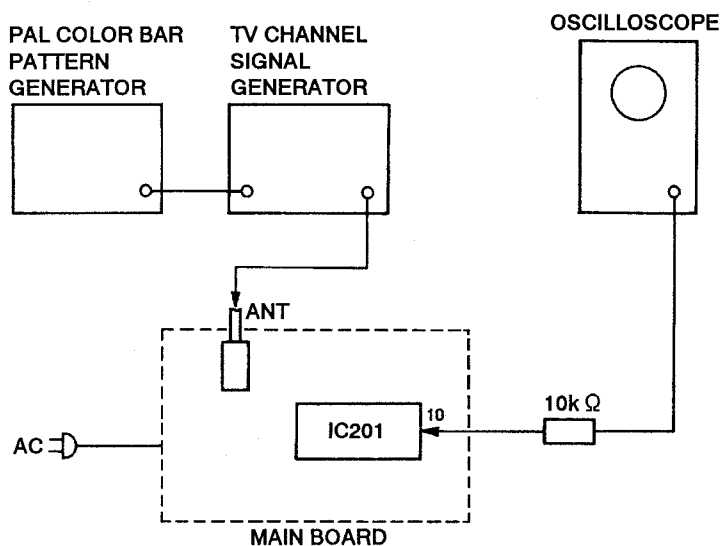


- (2) Adjust T140 so the waveform shown below (S-curve) is obtained.



14. Burst phase adjustment

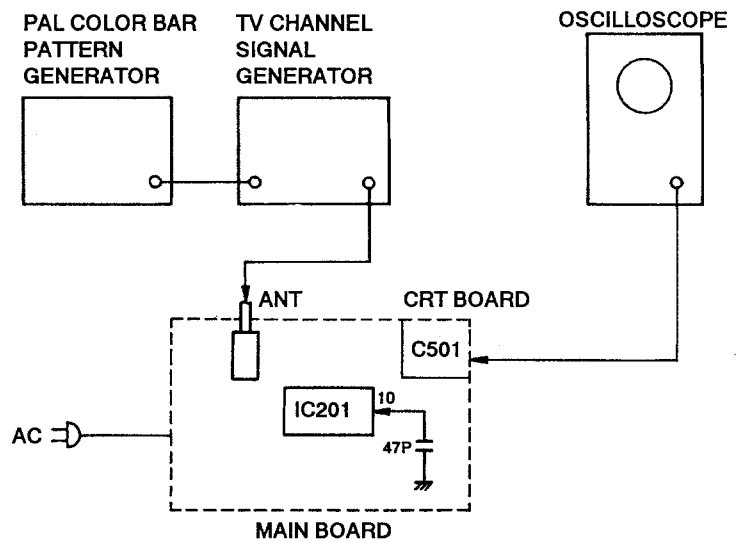
(1) Connections



- (2) Connect the oscilloscope's input terminal to IC201 pin ⑩ via a 10kohm resistor and adjust T217 so the color burst waveform level is maximum.

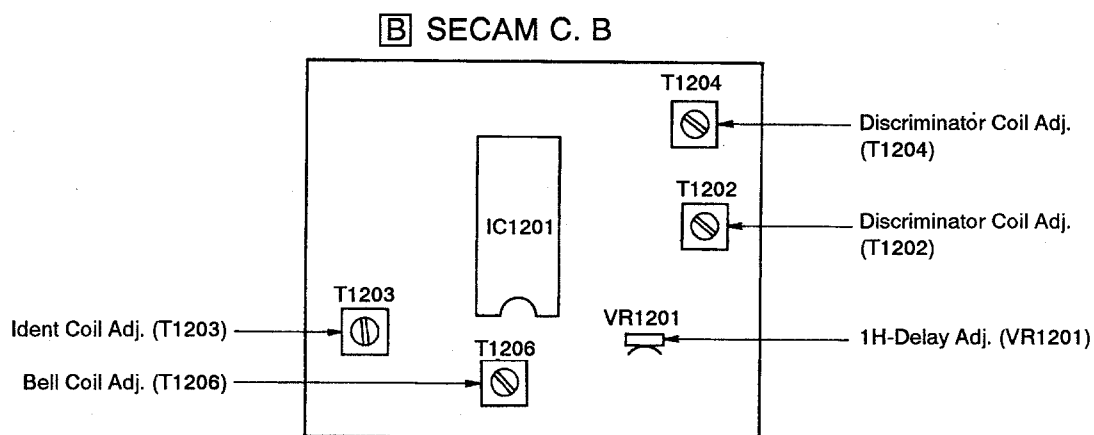
15. 1H delay adjustment

(1) Connections



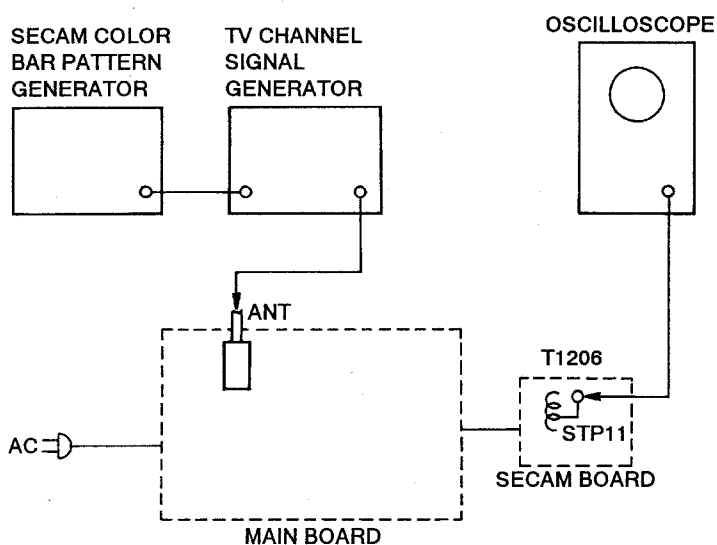
- (2) Connect a 47pF capacitor between IC201 pin ⑩ and ground.
 (3) Connect the oscilloscope's input terminal to C501 and adjust VR1201 on the SECAM board so the waveform is stable with minimum fluctuations.
 (4) Disconnect the 47pF capacitor and adjust T232 so the waveform is stable with minimum fluctuations.
 (5) Perform steps (2)-(4) several times.

■ SECAM Adjustments



1. Bell coil adjustment

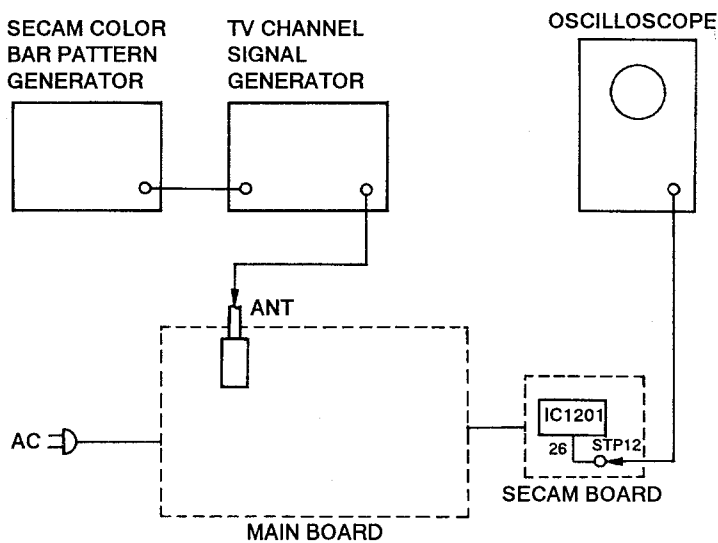
(1) Connections



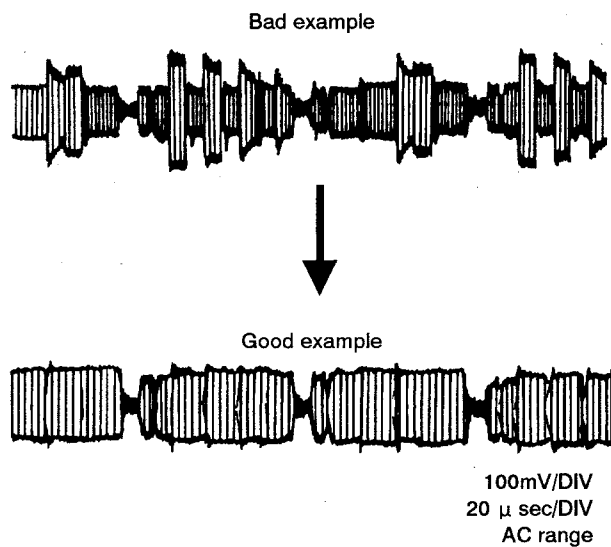
(2) Adjust T1206 so the amplitude of the observed waveform is flat as shown in the figure.

2. Identification coil adjustment

(1) Connections

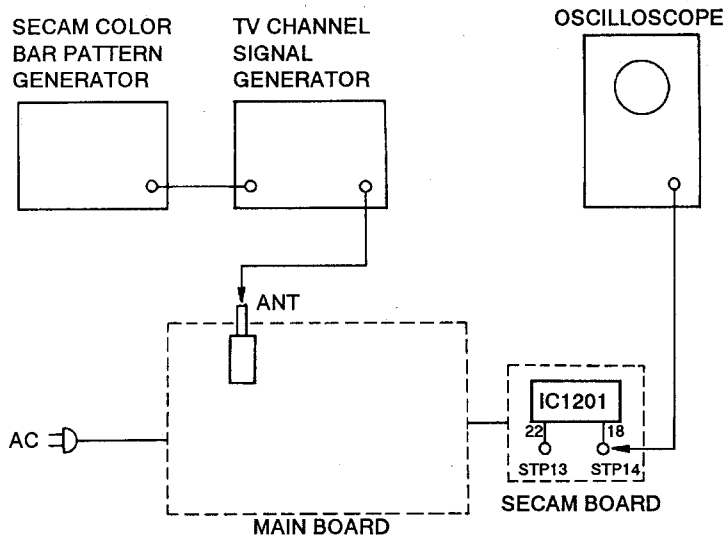


(2) Adjust T1203 so the DC voltage at IC1201 pin 26 (STP12) is maximum.



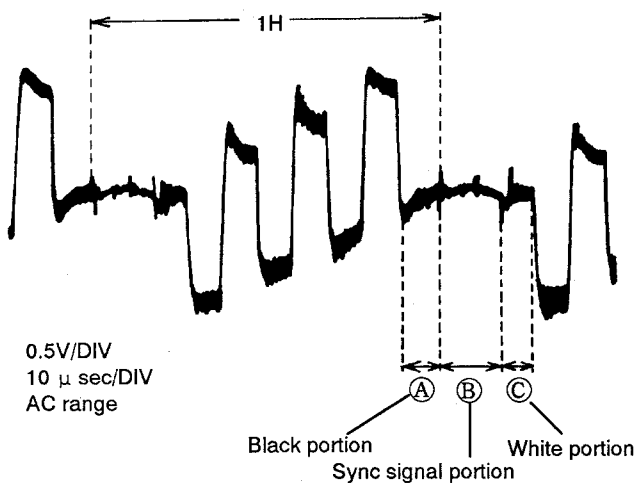
3. Discriminator coil adjustment

(1) Connections



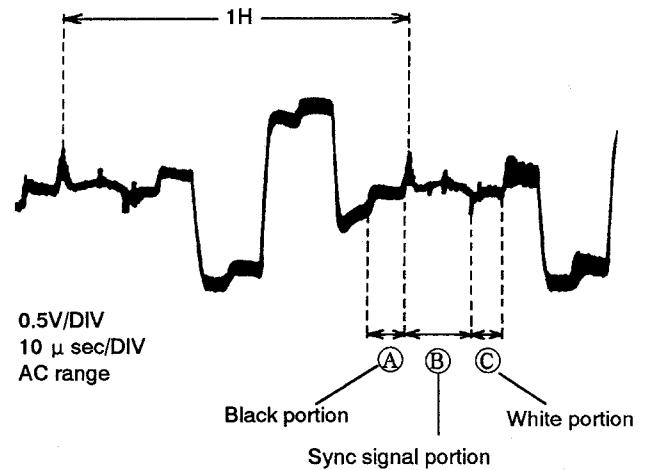
(2) B-Y signal adjustment

Connect the oscilloscope's input terminal to IC1201 pin 22 (STP13) and adjust T1202 so the level at black and white portions (A) and (C) is equal to that at sync signal portion (B), as shown in the figure.



(3) R-Y signal adjustment

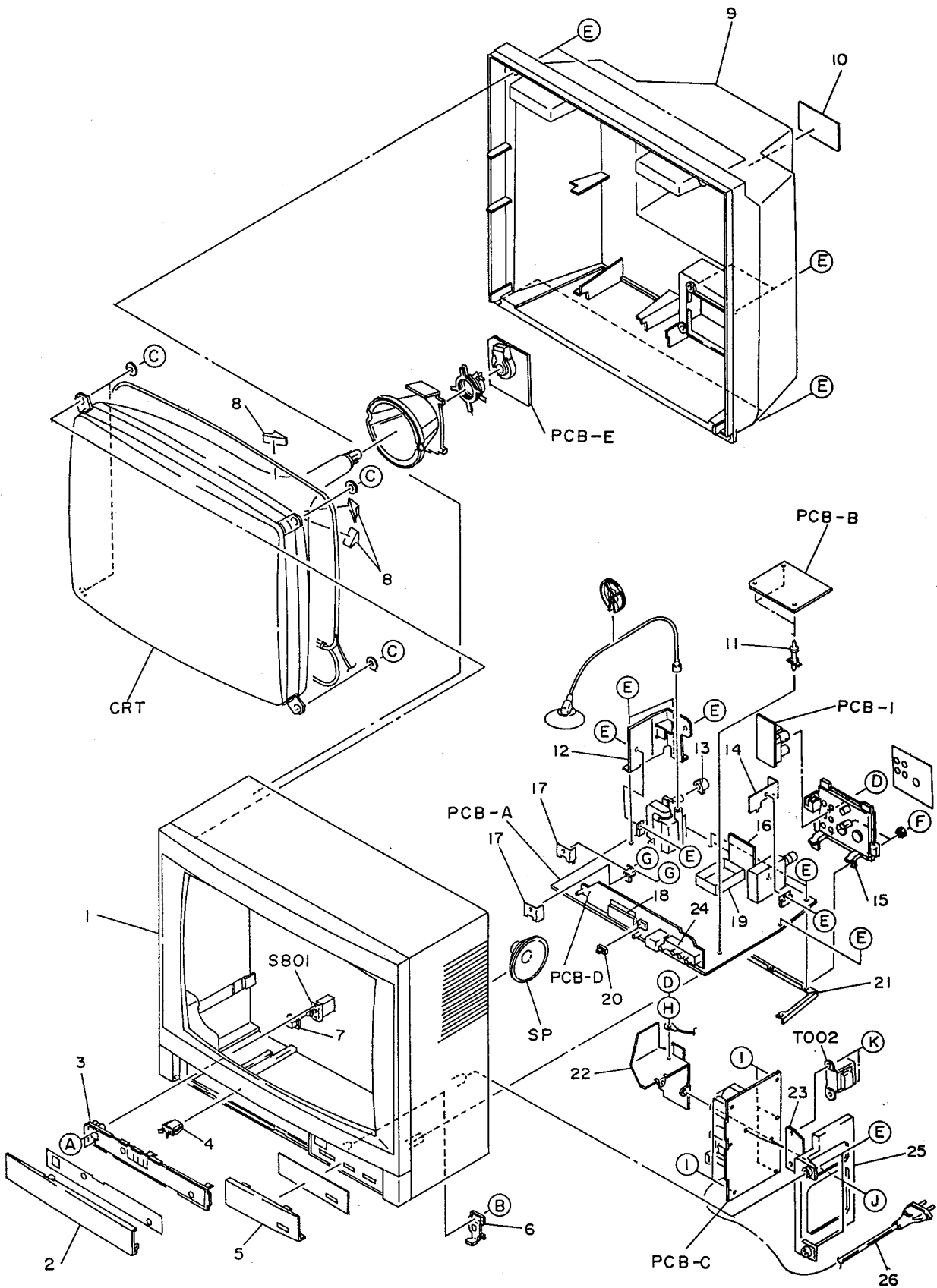
Connect the oscilloscope's input terminal to IC1201 pin 18 (STP14) and adjust T1204 so the level at black and white portions (A) and (C) is equal to that at sync signal portion (B), as shown in the figure.



※ After steps (2), (3) adjustment should have been completed, check the white balance is normal. If it is abnormal, repeat steps (2), (3) and readjust.

EXPLODED VIEW - 1 (1401)

REF.NO.	PART NO.	DESCRIPTION	REF.NO.	PART NO.	DESCRIPTION	REF.NO.	PART NO.	DESCRIPTION
A	SF-301-601-020	SCREW F3-16	E	SB-402-00A-B20	SCREW B4-20AB	I	87-741-096-410	SCREW B3-10BT
B	87-744-095-410	SCREW B3-8B	F	SP-351-400-B40	SCREW P3.5-14B	J	SB-351-00A-B20	SCREW B3.5-10AB
C	SB-502-50A-B40	SCREW B5-25AB	G	SB-300-601-020	SCREW B3-6	K	SW-301-00A-B20	SCREW 3-10AB
D	87-741-097-410	SCREW B3-12	H	SE-330-550-7E0	SPRING WASHER 3.3-5.5-0.7			

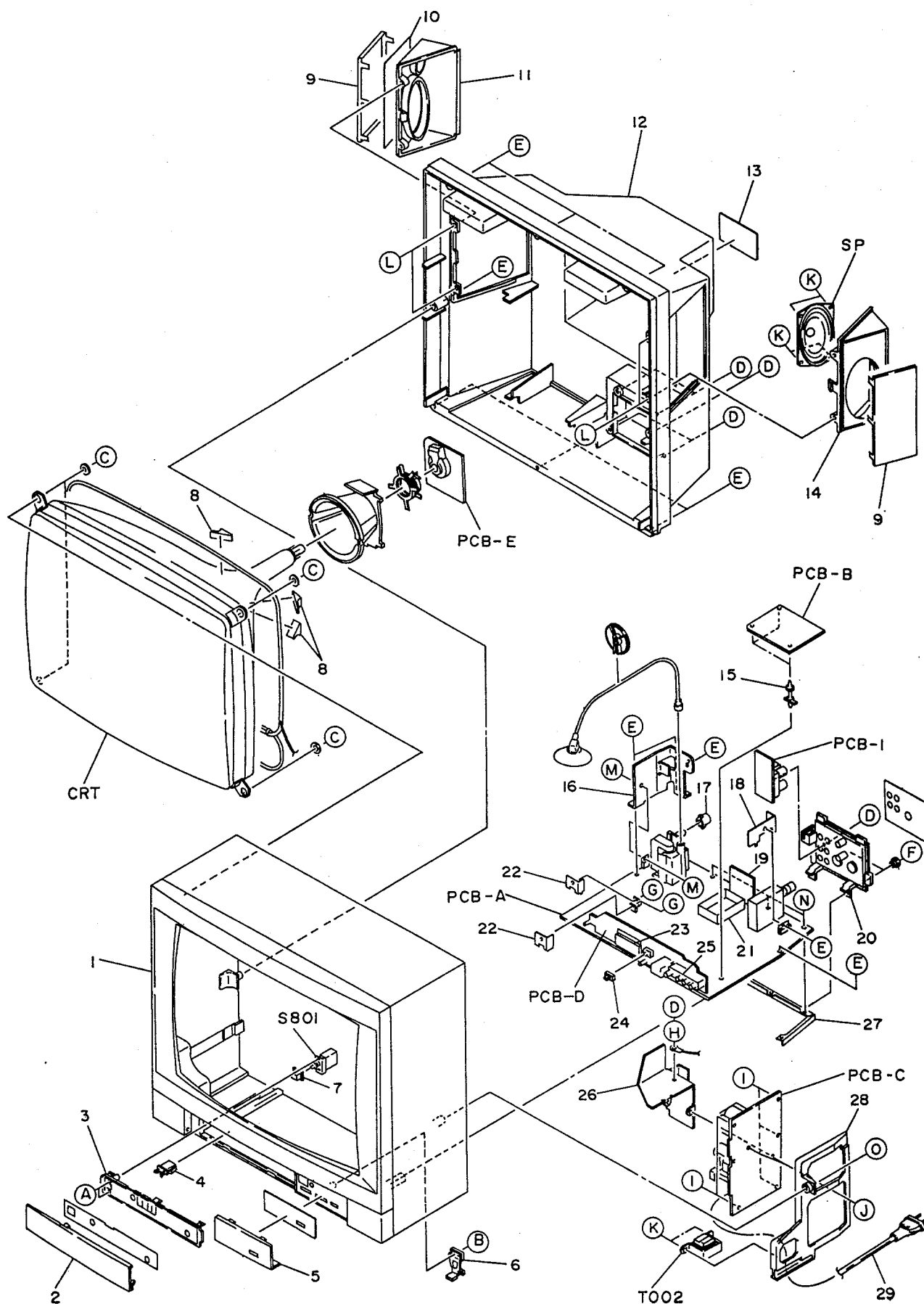


MECHANICAL MAIN PARTS LIST (1401)

PART NO. CHANGED TO	REF. NO.	PART NO.	DESCRIPTION	COMMON MODEL	Q. TY
1-1	★	S2-052-4P0-HA0	CABINET, FRONT		1
1-2	★	S2-055-6P0-HA0	DOOR		1
1-3	★	S2-200-101-HA0	PANEL, CONTROL		1
1-4	★	S2-056-400-HA0	PUSH BUTTON, 1 KEY		1
1-5	★	S2-055-3S0-HJ0	LENS, POWER ON/OFF		1
1-6	★	S1-007-302-HA0	HOLDER, AC POWER CORD		1
1-7	★	S2-026-200-HA0	KNOB, MAIN POWER		1
1-8	---	---	FELT, TAPE 150-19MM		3
1-9	★	S2-052-500-HA0	CABINET, REAR		1
1-10	---	---	LABEL		1
1-11	★	S2-083-200-0F0	SPACER, SECAM BD		3
1-12	---	---	HEAT SINK		1
1-13	---	---	MOUNTING SPACER, FBT		1
1-14	---	---	HEAT SINK		1
1-15	★	S2-206-200-HA0	TERMINAL, BOARD		1
1-16	★	S2-033-900-M20	BRACKET, MOUNTING		1
1-17	---	---	HEAT, SINK		2
1-18	★	S2-025-300-HA0	HOLDER, RUBBER KEY PAD		1
1-19	---	---	SHIELD, CAN IF		1
1-20	★	S2-056-400-HA0	PUSH BUTTON, 1 KEY		1
1-21	★	S2-023-301-M00	BRACKET, MAIN BOARD		1
1-22	---	---	HEAT SINK		1
1-23	★	S2-257-000-M00	BRACKET, TRANSFORMER		1
1-24	★	S2-055-500-HA0	HOLDER, LED		1
1-25	★	S2-063-001-UA0	BRACKET, POWER BD		1
1-26	★	SD-C02-430-CB0	POWER CORD, CEE W/PLUG		1

EXPLODED VIEW - 1 (2001)

REF.NO.	PART NO.	DESCRIPTION	REF.NO.	PART NO.	DESCRIPTION	REF.NO.	PART NO.	DESCRIPTION
A	SF-301-601-020	SCREW F3-16	F	SP-351-400-B40	SCREW P3.5-14B	K	SW-301-00A-B20	SCREW 3-10AB
B	87-744-095-410	SCREW B3-8B	G	SB-300-601-020	SCREW B3-6	L	SP-351-20A-B40	SCREW P3.5-12AB
C	SB-502-50A-B40	SCREW B5-25AB	H	SE-330-550-7E0	SPRING WASHER 3.3-5.5-0.7	M	87-352-130-010	SCREW P3.5-10
D	87-741-097-410	SCREW B3-12	I	87-741-096-410	SCREW B3-10BT	N	SP-350-800-B40	SCREW P3.5-8B
E	SB-402-00A-B20	SCREW B4-20AB	J	SB-351-00A-B20	SCREW B3.5-10AB	O	SP-401-50A-B40	SCREW P4-15B



MECHANICAL PARTS LIST (2001)

PART NO. CHANGED TO	REF. NO.	PART NO.	DESCRIPTION	COMMON MODEL	Q. TY
	1-1	★ S2-343-8P0-HA0	CABINET, FRONT		1
	1-2	★ S2-079-6X1-HA0	DOOR, FRONT		1
	1-3	★ S2-200-101-HA0	PANEL, CONTROL		1
	1-4	★ S2-246-800-HA0	PUSH BUTTON		1
	1-5	★ S2-079-7X1-HA0	LENS, FRONT		1
	1-6	★ S1-007-302-HA0	HOLDER, AC POWER CORD		1
	1-7	★ S2-026-200-HA0	KNOB, MAIN POWER		1
	1-8	---	FELT, TAPE 150-19MM		3
	1-9	★ S2-089-7P0-E00	GRILLE, SPEAKER		2
	1-10	★ S2-285-400-H10	COVER, PLATE SPEAKER PANEL		1
	1-11	★ S2-080-201-HA0	PANEL, LEFT SPEAKER		1
	1-12	★ S2-059-700-UA0	CABINET, REAR		1
	1-13	---	LABEL		1
	1-14	★ S2-080-301-HA0	PANEL, RIGHT SPEAKER		1
	1-15	★ S2-083-200-0F0	SPACER, SECAM BD		3
	1-16	---	HEAT, SINK		1
	1-17	---	MOUNTING, SPACER FBT		1
	1-18	---	HEAT, SINK		1
	1-19	★ S2-033-900-M20	BRACKET, MOUNTING		1
	1-20	★ S2-206-200-HA0	TERMINAL, BOARD		1
	1-21	---	SHIELD, CAN IF		1
	1-22	---	HEAT SINK		2
	1-23	★ S2-025-300-HA0	HOLDER, RUBBER KEY PAD		1
	1-24	★ S2-056-400-HA0	PUSH BUTTON, 1 KEY		1
	1-25	★ S2-055-500-HA0	HOLDER, LED		1
	1-26	---	HEAT, SINK POWER		1
	1-27	★ S2-023-301-M00	BRACKET, MAIN BD		1
	1-28	★ S2-080-400-UA0	BRACKET, POWER BD		1
	1-29	★ SD-C02-430-CB0	POWER, CORD CEE		1

■ ACCESSORIES/PACKAGE LIST

PART NO. CHANGED TO	REF. NO.	PART NO.	DESCRIPTION	COMMON MODEL	Q. TY
	1	S1-472-5TV-Y00	OPERATION MANUAL (TV-1401)		1
	2	S2-013-5TV-Y00	OPERATION MANUAL (TV-2001)		1
	3	S2-288-600-010	REMOTE CONTROL UNIT		1