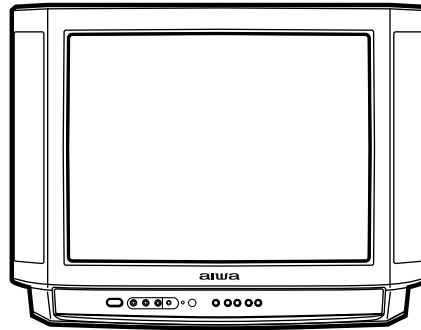




TV-SE2130 TV-SE1430

KY EZY

KY EZY



SERVICE MANUAL

COLOR TELEVISION

aiwa

S/M Code No. 09-009-350-0N1



NOTICES BEFORE REPAIRING

To make the best use of this equipment, make sure to obey the following items when repairing (or mending).

1. Do not damage or melt the tunicate of the leading wire on the AC1 side, including the power supply cord.
2. Do not soil or stain the letters on the spec. inscription plates, notice labels, fuse labels, etc.
3. When repairing the part extracted from the conducted side of the board pattern, fix it firmly with applying bond to the pattern and the part.
4. Restore the following items after repairing.
 - 1) Conditions of soldering of the wires (especially, the distance on the AC1 side).
 - 2) Conditions of wiring, bundling of wires, etc.
 - 3) Types of the wires.
 - 4) Attachment conditions of all types of the insulation.
5. After repairing, always measure the insulation resistance and perform the voltage-withstand test (See Fig-1).
 - 1) The insulation resistance must be 7.3 M Ω to 10.1 M Ω when applying 500V per second.
 - 2) In the voltage withstand test, apply 3.0 kV for 1 minute and check that the GO lamp lights.

Insulation resistance: 7.3M Ω to 10.1 M Ω (500 V/s)
Voltage-withstand: 3.0 kV for 1 minute

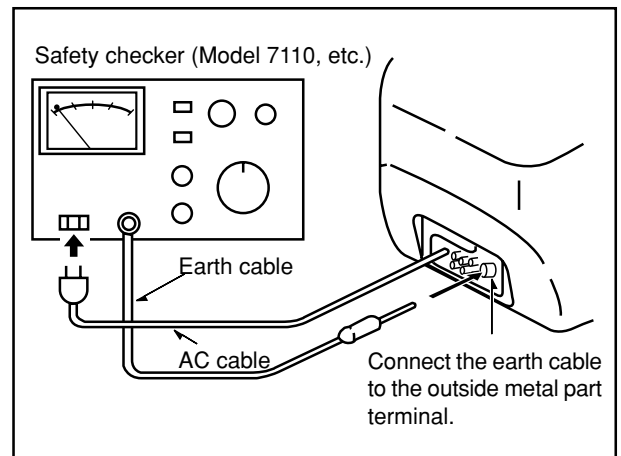


Fig-1

- * Breaking current set to 10 mA.
- * Connect the safety checker as shown in Fig-1, then measure the resistance and perform the test.
- * Do not touch the equipment during testing.
- * For details of the safety checker, refer to the supplied Operation manual.

When servicing and checking on the TV, note the followings.

1. Keep the notices
As for the places which need special attentions, they are indicated with the labels or seals on the cabinet, chassis and parts. Make sure to keep the indications and notices in the operation manual.
2. Avoid an electric shock.
There is a high voltage part inside. Avoid an electric shock while the electric current is flowing.
3. Use the designated parts.
The parts in this equipment have the specific characters of incombustibility and withstand voltage for safety.
Therefore, the part which is replaced should be used the part which has the same character. Especially as to the important parts for safety which is indicated in the circuit diagram or the table of parts as a Δ mark, the designated parts must be used.
4. Put parts and wires in the original position after assembling or wiring.
There are parts which use the insulation material such as a tube or tape for safety, or which are assembled so that these parts do not contact with the printed board. The inside wiring is designed not to get closer to the pyrogenic parts and high voltage parts. Therefore, put these parts in the original positions.
5. Take care of the cathode-ray tube.
By setting an explosion-proof cathode-ray tube is set in this equipment, safety is secured against implosion.
However, when removing it or serving from backward, it is dangerous to give a shock. Take enough care to deal with it.
6. Avoid an X-ray.
Safety is secured against an X-ray by considering about the cathode-ray tube and the high voltage peripheral circuit, etc. Therefore, when repairing the high voltage peripheral circuit, use the designated parts and do not change the circuit. Repairing except indicates causes rising of high voltage, and the cathode-ray tube emits an X-ray.
7. Perform a safety check after servicing.
Confirm that the screws, parts and wiring which were removed in order to service are put in the original positions, or whether there are the portions which are deteriorated around the places serviced.

Safety Components Symbol

This symbol is given to important parts which serve to maintain the safety of the product, and which are made to confirm to special Safety Specifications.
Therefore, when replacing a component with this symbol make absolutely sure that you use a designated part.

SPECIFICATIONS

Tuner system	Frequency synthesized tuner
Picture tube	TV-SE2130: 21 in.(50.8 cm "V"), 90 degree deflection TV-SE1430: 14 in.(34 cm "V"), 90 degree deflection
TV system	PAL (B/G, D/K, I), SECAM (D/K, L)
Channel coverage	VHF: E2-E12 UHF: E21-E69 CABLE: S1-S41
Antenna input	75 ohms, unbalanced
Video input	1.0 Vp-p, 75 ohms, unbalanced
Video output	1.0 Vp-p, 75 ohms, unbalanced
Audio input	-3.8 dBs, 50 kohms
Audio output	-3.8 dBs less than 1 kohm
Operating temperature	5°C to 40°C
Power requirements	220-240 V AC, 50 Hz
Power consumption	TV-SE2130: 74 watts TV-SE1430: 60 watts
Standby	TV-SE2130: 3 watts TV-SE1430: 3 watts
Dimensions	TV-SE2130: 610(W) x 448(H) x 485(D) mm (24 ¹ / ₈ x 17 ³ / ₄ x 19 ¹ / ₈ in.) TV-SE1430: 450(W) x 332(H) x 377(D) mm (17 ³ / ₄ x 13 ¹ / ₈ x 14 ⁷ / ₈ in.)
Weight	TV-SE2130: Approx. 22 kg (48.4 lbs.) TV-SE1430: Approx. 11.5 kg (25.3 lbs.)

- Design and specifications are subject to change without notice.

ACCESSORIES LIST

DESCRIPTIONで判断できない物は "REFERENCE NAME LIST" を参照してください。
If can't understand for Description please kindly refer to "REFERENCE NAME LIST".

REF. NO	PART NO.	KANRI NO.	DESCRIPTION
1	8A-JB4-901-010	IB,K (E)	-SE2130/ 1430<14KY,21KY>
1	8A-JB4-903-010	IB,EZ (EGDSI)	-SE2130/ 1430<14EZY,21EZY>
2	8A-JB4-610-010	RC UNIT,RC-AVT02	<14KY,14EZY>
2	8A-JB4-610-010	RC UNIT,RC-AVT02	<21KY,21EZY>

DISASSEMBLY INSTRUCTIONS

1. REAR CABINET REMOVAL

- (1) Remove eight screws ①, then remove the rear cabinet in the direction of the arrow.
(See Figure 1-1)

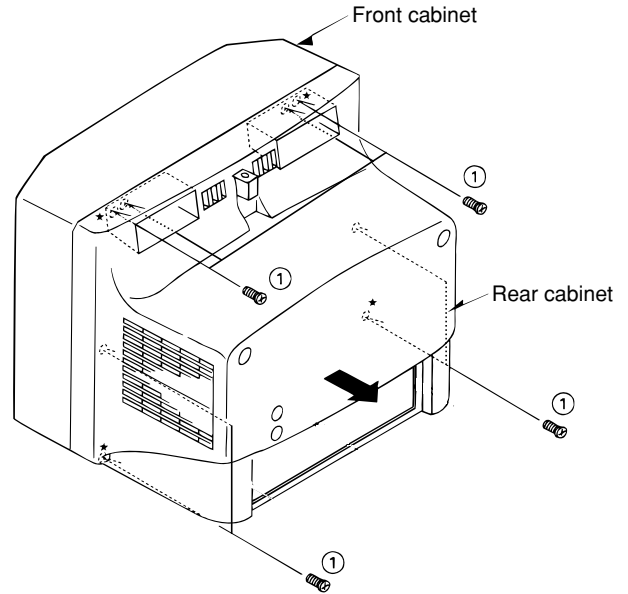


Figure 1-1

2. HIGH-VOLTAGE CAP (ANODE CAP) REMOVAL

2-1. Cautions before Removing

Discharge the anode voltage

- (1) The anode voltage is not discharged completely from the CRT of this unit even after the power is turned off. 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 anode cap. If you used pliers and bent the hook to remove the cap, the spring characteristics of the hook could be lost, and when reinstalled, the cap would come off from the CRT anode button easily, causing an accident.

Do not turn the anode cap

- (3) If the anode cap is turned in the direction of its circumference, the hook is likely to come off.

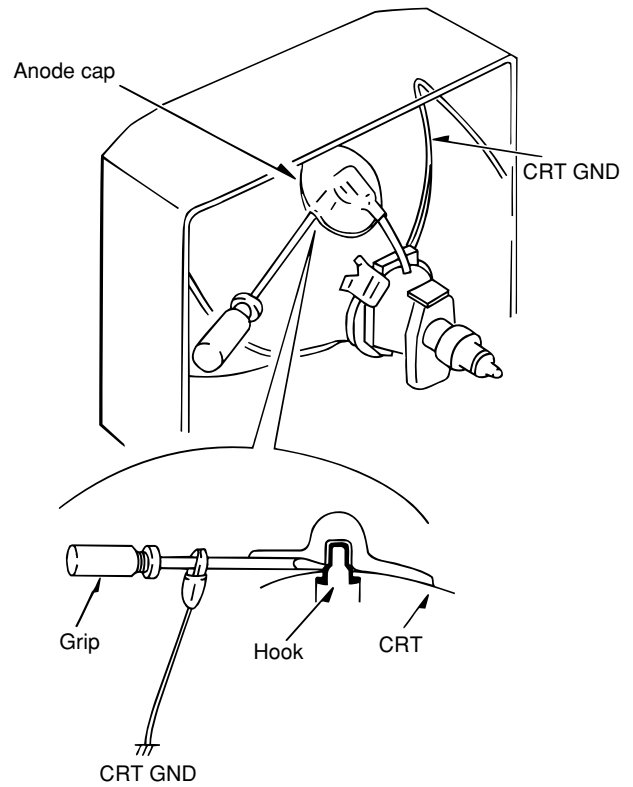


Figure 2-1

2-2. Anode Cap Removal

Discharge the anode voltage. (See Figure 2-1)

- (1) Connect a flat-bladed screwdriver to the CRT GND via an alligator clip.
- (2) Use a tester to check the end of the screwdriver and ground of the TV for continuity.
- (3) Touch the hook with the end of the screwdriver.
Caution : Be careful not to damage the anode cap.
- (4) Turn over the anode cap.
Caution : Be careful not to damage the anode cap.

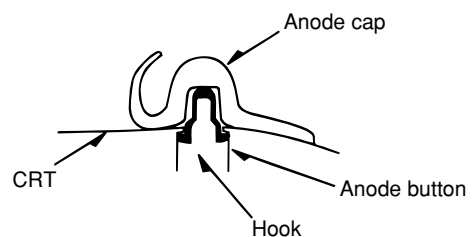


Figure 2-2

- (5) Push the anode cap 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. (See Figure 2-3)

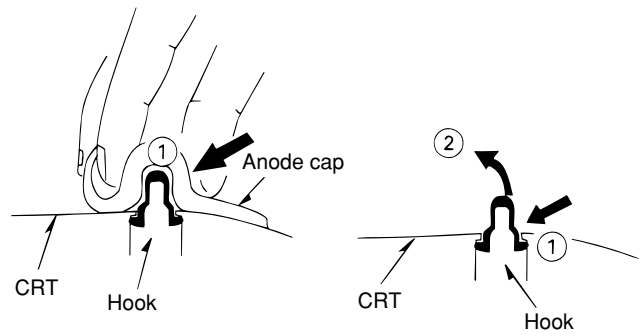


Figure 2-3

- (6) Turn over the anode cap on the side where the hook was released and pull out the cap in the direction opposite to that on which the cap was pushed. (See Figure 2-4)
Caution : Do not pull out the anode cap straight up.
 : Do not pull the cap forcibly. After removing the cap, check that the hook is not deformed.

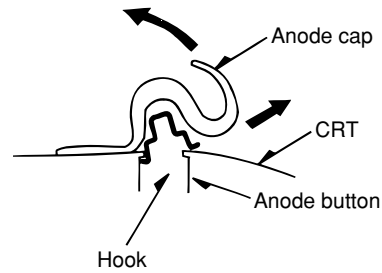


Figure 2-4

3. ANODE CAP REINSTALLTION

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.

3-1. Caution before Reinstalling

Never turn the anode cap after installing it

Never re-use the hook when it has been deformed

- (1) If the anode cap is turned after it is installed, it may come off. Therefore, arrange the high-voltage cable before attaching the anode cap. (See Figure 3-1)
- (2) If you have attached the anode cap before arranging the high-voltage cable, arrange the cable carefully so the cap does not turn.

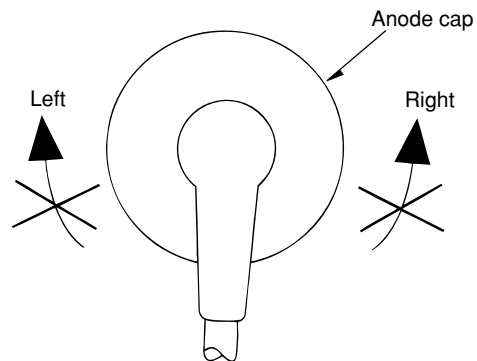


Figure 3-1

3-2. Anode cap reinstallation

- (1) Use a clean cloth moistened slightly with alcohol to clean the installation section. (See Figure 3-2)
Caution : Check that the installation section is free from dust, foreign matter, etc.
- (2) Coat the anode cap installation circumference with an appropriate amount of the specified silicone grease (KS-650N).
Caution : Be careful that silicone grease does not enter the anode button.

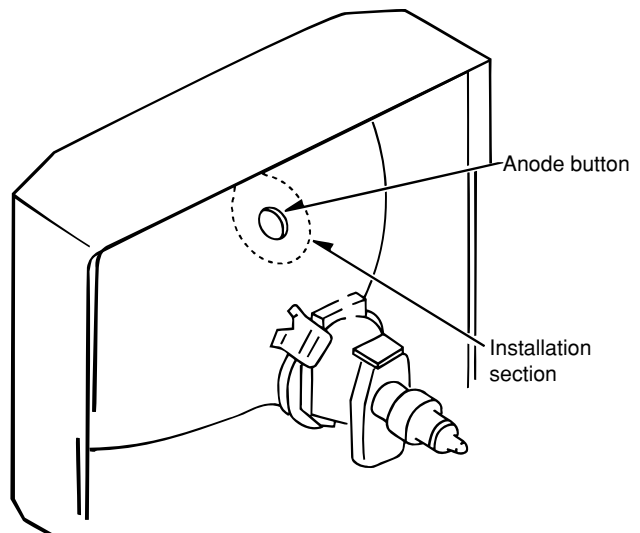


Figure 3-2

- (3) Eliminate twisting, etc. of the high-voltage cable and arrange it so that no twisting occurs. (See Figure 3-3)

Caution : If the cable is not arranged correctly, the anode cap could turn and cause an installation defect.

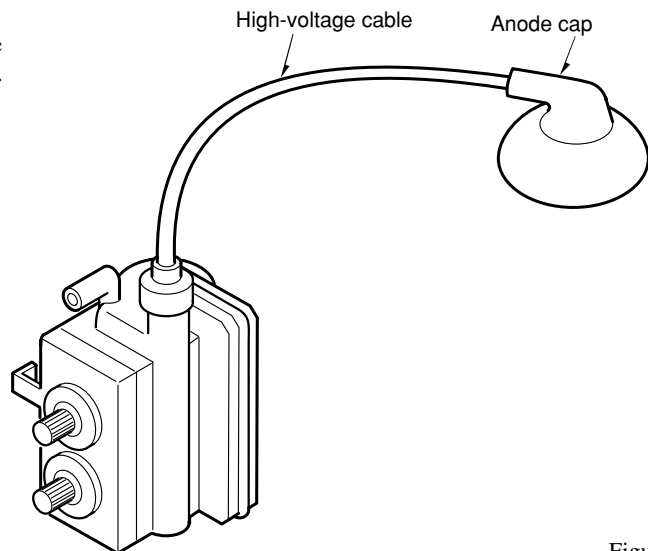


Figure 3-3

- (4) Turn over the rubber cap symmetrically on the left and right. (See Figure 3-4)

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

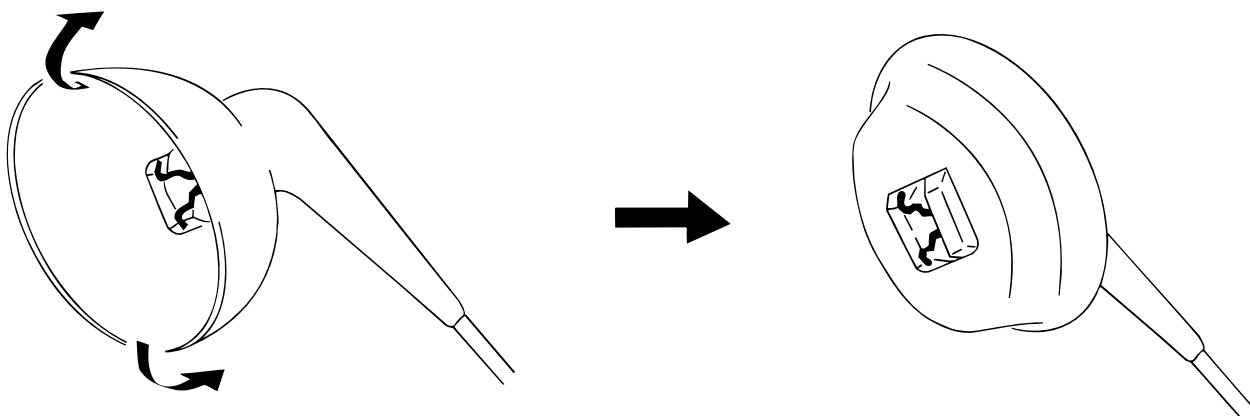


Figure 3-4

- (5) Fit your forefinger over the projection at the center of the cap and hold the cap between your thumb and middle finger. (See Figure 3-5)

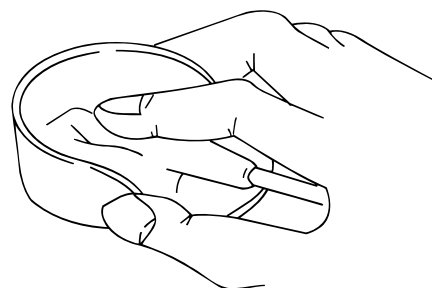


Figure 3-5

- (6) Apply the hook on one side to the anode button as shown on the figure. (See Figure 3-6)
Caution : Check that the hook is held securely.
- (7) Apply the hook on the other side to the anode button as shown in Figure 3-7.

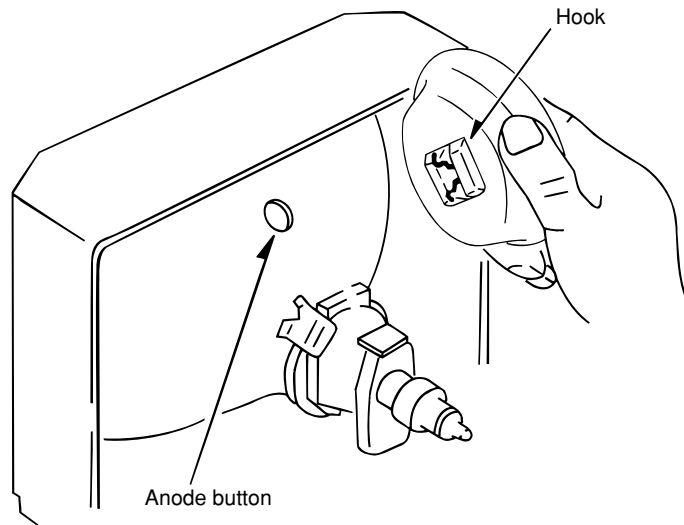
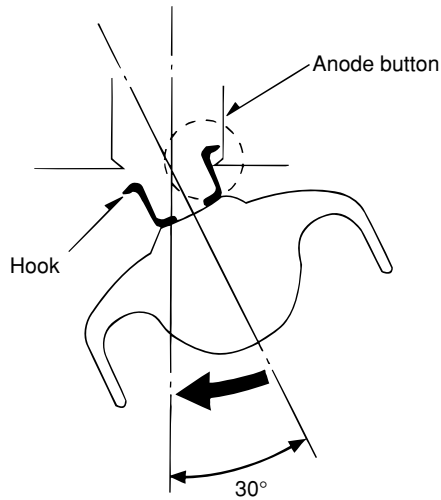


Figure 3-6

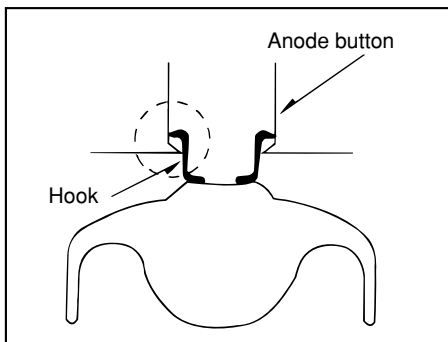


Figure 3-7

- (8) Pull the anode cap slightly with the rubber cap turned over and visually check that the hook is engaged securely.
- (9) Release your hand from the rubber cap of the anode cap.
Caution : Cover the anode cap so that it does not lift.
- (10) Hold the skirt of the anode cap slightly to improve the close contact between the cap and CRT.
- (11) Check that the anode cap is in close contact with the CRT. (See Figure 3-8)

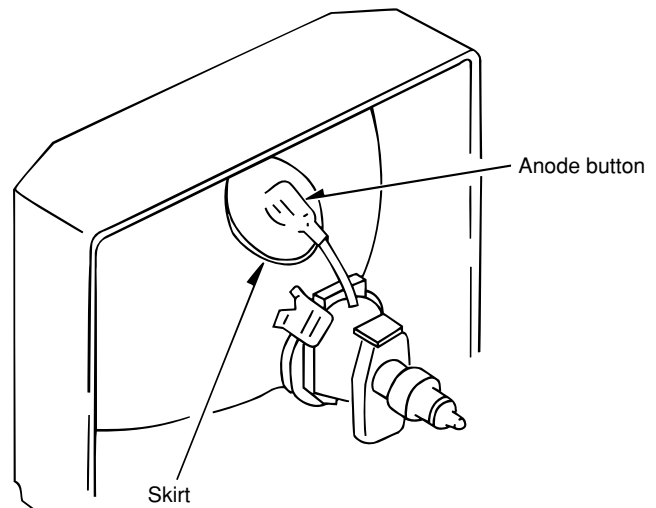


Figure 3-8

4. NECK C.B. REMOVAL

- (1) Disconnect P903 (CRT GND).
- (2) Remove the NECK C.B. in the direction of arrow ①
(See Figure 4-1).

5. MAIN C.B. REMOVAL

- (1) Remove connector (P601).
- (2) Remove connector (P801).
- (3) Remove connector (P802).
- (4) Remove connector (P402).
- (5) Pull out the MAIN C.B. in the direction of the arrow ②
(See Figure 4-1).

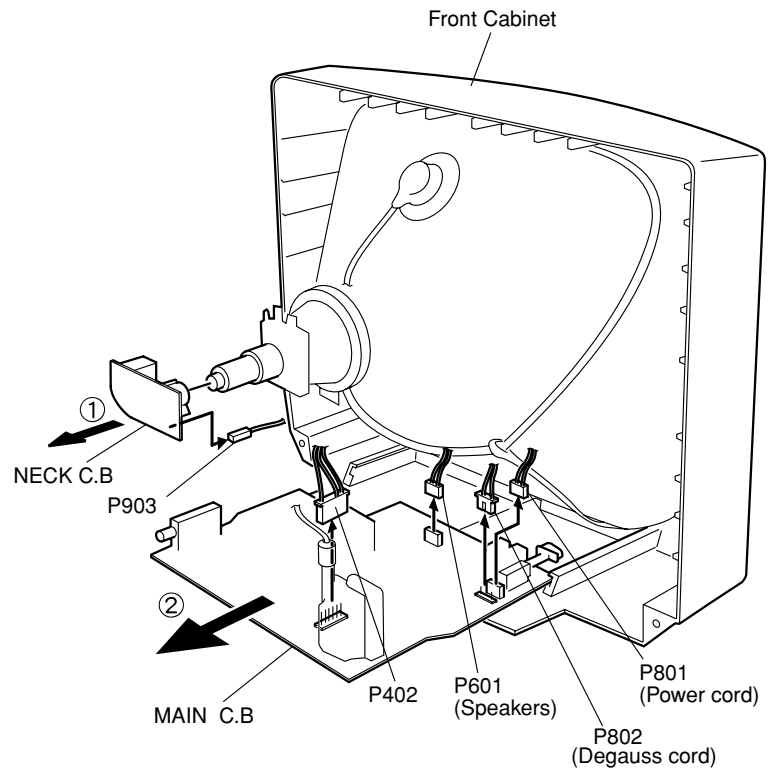
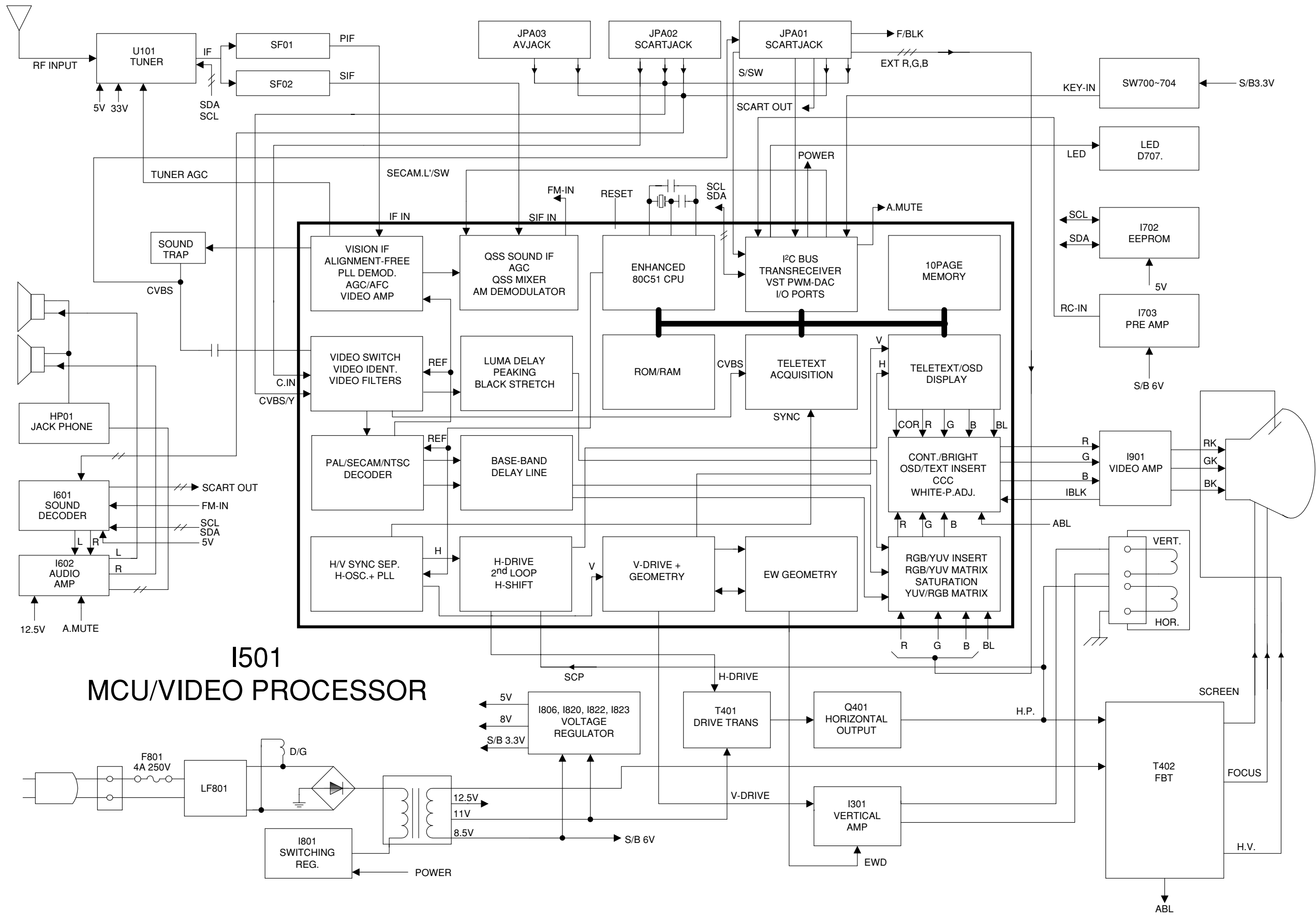


Figure 4-1

ELECTRICAL MAIN PARTS LIST

DESCRIPTIONで判断できない物は "REFERENCE NAME LIST" を参照してください。
If can't understand for Description please kindly refer to "REFERENCE NAME LIST".

REF. NO	PART NO.	KANRI NO.	DESCRIPTION	REF. NO	PART NO.	KANRI NO.	DESCRIPTION
IC				C541	87-A12-092-080		CAP, E 22MF-50V
	S1-TDA-835-7J0	IC, TDA8357J		C542	87-010-405-040		CAP, E 10MF-50V
	S1-TDA-936-7LW	IC, TDA9367LW		C543	87-010-405-040		CAP, E 10MF-50V
	S1-MSP-341-5D0	IC, MSP-3415D		C550	87-010-615-080		CAP, E 2.2MF-50V
	S1-TDA-894-4J0	IC, TDA8944J		C555	87-010-553-080		CAP, E 47MF-16V
	SI-AL2-416-00B	IC, AT24C08-10PC		C561	87-010-247-040		CAP, E 100MF-25V
	S1-TSO-P12-38W	IC, TSOP1238W11		C564	87-010-247-040		CAP, E 100MF-25V
	87-A20-969-010	IC, STR-F6653		C580	87-010-405-040		CAP, E 10MF-50V
▲	87-A91-033-010	IC, LTV-817C		C593	87-010-247-040		CAP, E 100MF-25V
	SU-PC5-74J-000	IC, UPC574J		C602	87-010-405-040		CAP, E 10MF-50V
	S0-0SE-110-NS0	IC, SE110N		C604	87-A10-493-080		CAP, E 1000MF-25V
	ST-X02-02D-A00	THYRISTOR X0202DA		C605	87-A10-216-080		CAP, E 47MF-25V
	S1-KA7-805-000	IC, KA7805		C608	87-010-405-040		CAP, E 10MF-50V
	S1-KA7-808-000	IC, KA7808		C610	87-010-405-040		CAP, E 10MF-50V
	S1-LE3-3CZ-000	IC, LE33CZ		C611	87-015-697-080		CAP, E 3.3MF-50V
	S1-TDA-610-7Q0	IC, TDA6107Q		C612	87-015-695-010		CAP, E 1MF-50V
				C613	87-015-695-010		CAP, E 1MF-50V
				C614	87-015-695-010		CAP, E 1MF-50V
TRANSISTOR				C615	87-015-695-010		CAP, E 1MF-50V
	87-A30-492-080	TR, 2SC5343Y		C616	87-010-405-040		CAP, E 10MF-50V
	ST-R32-020-9AA	TR, KTC3202Y		C625	87-015-698-080		CAP, E 4.7MF-50V
	87-A30-050-010	TR, 2SD2499		C626	87-015-698-080		CAP, E 4.7MF-50V
	87-A30-114-080	TR, 2SD1207-T		C630	87-A10-216-080		CAP, E 47MF-25V
	ST-R33-300-9DB	TR, STA933-Y		C636	87-010-408-040		CAP, E 47MF-50V
				C660	87-010-405-040		CAP, E 10MF-50V
DIODE				C690	87-015-698-080		CAP, E 4.7MF-50V
	SD-BAT-850-000	DIODE, BAT85		C691	87-015-698-080		CAP, E 4.7MF-50V
	SD-1SS-85T-A00	DIODE, 1SS85TA		C770	87-010-247-040		CAP, E 100MF-25V
	SD-BYW-360-000	DIODE, BYW36		▲C801	SC-L1S-C34-74M		CAP, LINE ACROSS 0.47MF-275V
	SD-TZX-12C-000	ZENER, TZX12C		C803	SC-CXF-3A4-72Z		CAP, CER 4700PF-1KV
	SD-TZX-22C-000	ZENER, TZX22C		C804	SC-CXF-3A4-72Z		CAP, CER 4700PF-1KV
	SD-UZ3-3B0-000	ZENER, UZ-33B		C805	SC-EYN-2G1-21P		CAP, E 120MF-400V
	SD-BY2-280-000	DIODE, BY228		C806	87-010-407-040		CAP, E 33MF-50V
	87-A40-246-080	DIODE, 1N4148		C808	87-015-698-080		CAP, E 4.7MF-50V
	SD-TZX-2V4-A00	ZENER, TZX2V4A		C810	87-012-397-090		CAP, CER 1000PF-2KV
	SD-TZX-5V1-B00	ZENER, TZX5V1B		▲C812	87-A10-519-010		CAP, CER 4700PF-4KV
	SD-BYT-51J-000	DIODE, BYT51J		C813	87-016-648-090		CAP, E 100MF-160V
	SD-TZX-5V6-B00	ZENER, TZX5V6B		C814	87-016-648-090		CAP, E 100MF-160V
	SD-BYW-760-000	DIODE, BYW76		C820	SC-CYR-3A4-71K		CAP, CER 470PF-1KV
	SD-TZX-9V1-B00	ZENER, TZX9V1B		C823	87-A10-493-080		CAP, E 1000MF-25V
	SD-BAV-210-000	DIODE, BAV21		C824	SC-CYR-3A4-71K		CAP, CER 470PF-1KV
				C831	SC-CYR-3A4-71K		CAP, CER 470PF-1KV
				C832	87-A10-493-080		CAP, E 1000MF-25V
				C835	87-010-408-040		CAP, E 47MF-50V
				C840	87-010-285-010		CAP, E 2200MF-16V
MAIN C.B				C841	87-010-285-010		CAP, E 2200MF-16V
C101	87-010-405-040	CAP, E 10MF-50V		C844	87-010-247-040		CAP, E 100MF-25V
C102	87-010-408-040	CAP, E 47MF-50V		C861	87-A10-493-080		CAP, E 1000MF-25V
C106	87-010-409-090	CAP, E 220MF-50V		C863	87-010-247-040		CAP, E 100MF-25V
C121	87-010-405-040	CAP, E 10MF-50V		C866	SC-CYR-3A4-71K		CAP, CER 470PF-1KV
C305	87-016-584-080	CAP, E 220MF-25V		C888	87-010-553-080		CAP, E 47MF-16V
C315	87-016-647-010	CAP, E 47MF-160V		D707	SD-SML-121-6W0		LED, SML1216W
C401	87-010-408-040	CAP, E 47MF-50V		▲F801	S5-FSC-B40-22R		FUSE CERA 250V
C404	SC-MYT-3C7-52J	CAP, M 7500PF-1.6KV		HP01	S4-859-102-130		JACK EARPHONE
C408	SC-MYT-2D3-04J	CAP, M 0.3MF-250V<14KY, 14EZY>		JPA01	S4-859-200-401		SOCKET RGB
C408	SC-MYE-2D2-74J	CAP, M 0.27MF-200V<21KY, 21EZY>		JPA02	S4-859-200-401		SOCKET RGB
C412	S0-E7T-B3R-3M0	CAP, E 3.3MF-160V		JPA03	S4-859-108-450		JACK PIN BOARD
C415	87-016-217-080	CAP, E 4.7MF-250V		L101	S5-CPZ-100-K02		COIL PEAKING 10UH 3.5MM
C417	SC-MXL-2E1-04K	CAP, M 0.1MF-250V		L350	S5-CPZ-109-M04		COIL PEAKING 1UH 10.5MM
C420	87-A10-469-080	CAP, CER 2200PF-500V		L380	S5-CPZ-109-M04		COIL PEAKING 1UH 10.5MM
C500	87-015-694-080	CAP, E 0.47MF-50V		L401	S5-8H0-000-016		COIL H-LINEARITY L-102<14KY, 14EZY>
C501	87-010-405-040	CAP, E 10MF-50V		L401	S5-8H0-000-040		COIL H-LINEARITY TRL-341G<21KY, 21EZY>
C509	87-A10-216-080	CAP, E 47MF-25V		L500	S5-CPZ-120-K02		COIL PEAKING 12UH 3.5MM
C514	87-010-247-040	CAP, E 100MF-25V		L501	S5-CPZ-100-K02		COIL PEAKING 10UH 3.5MM
C517	87-015-695-010	CAP, E 1MF-50V		L502	S5-CPZ-100-K02		COIL PEAKING 10UH 3.5MM
C519	87-015-695-010	CAP, E 1MF-50V		L510	S5-CPZ-100-K02		COIL PEAKING 10UH 3.5MM
C522	87-015-698-080	CAP, E 4.7MF-50V		L511	S5-CPZ-100-K02		COIL PEAKING 10UH 3.5MM
C528	87-010-247-040	CAP, E 100MF-25V		L512	S5-CPZ-100-K02		COIL PEAKING 10UH 3.5MM
C530	87-010-247-040	CAP, E 100MF-25V		L601	S5-CPZ-479-K02		COIL PEAKING 4.7UH 3.5MM
C532	87-010-405-040	CAP, E 10MF-50V		L602	S5-CPZ-479-K02		COIL PEAKING 4.7UH 3.5MM
C540	87-A12-092-080	CAP, E 22MF-50V					

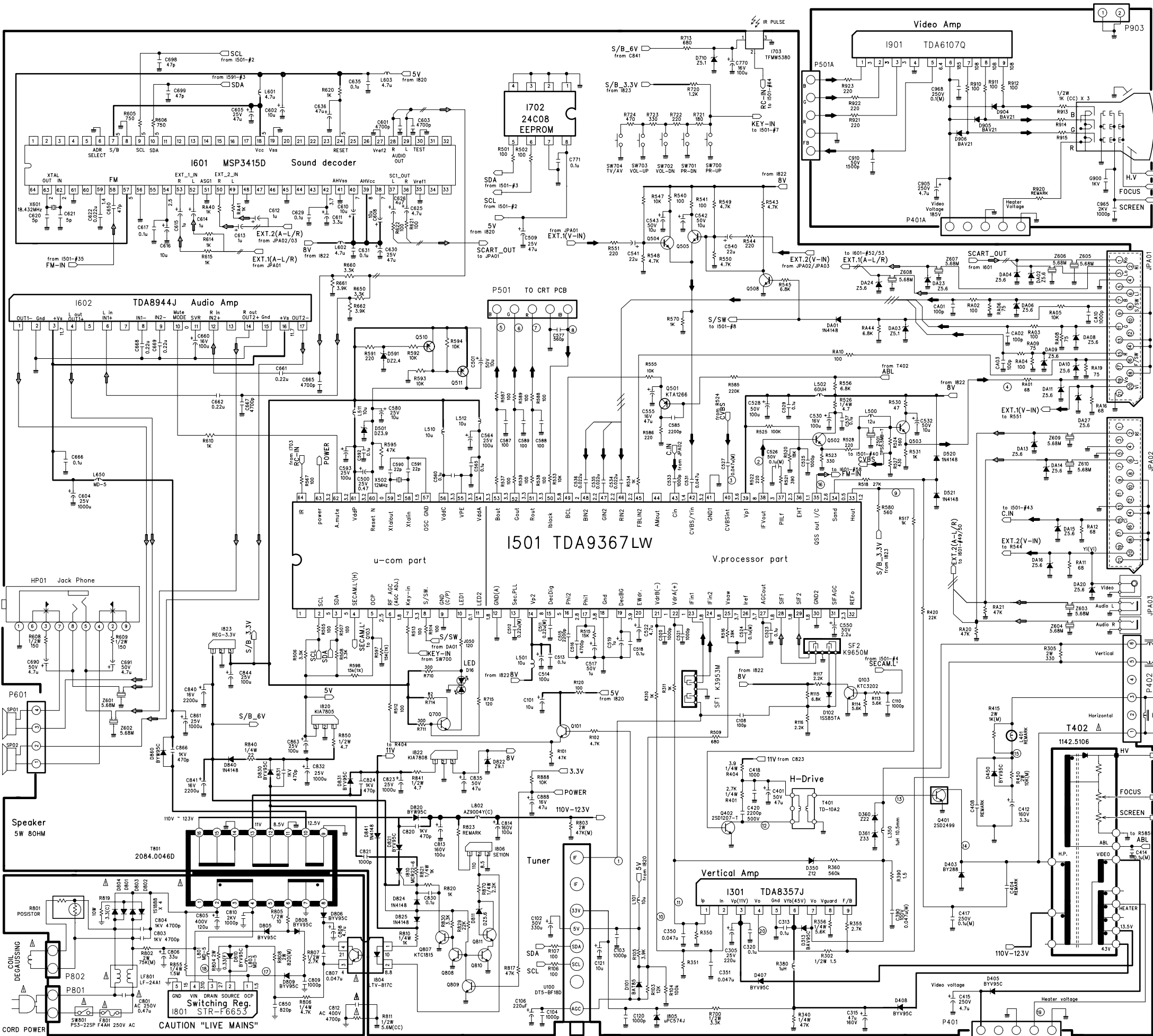


SCHEMATIC DIAGRAM MAP

LINE NAME	Connect ①	MAP	Connect ②	MAP	Connect ③	MAP	Connect ④	MAP	Connect ⑤	MAP	Connect ⑥	MAP
SCL	I601	27-B	I501	26-N	U100	21-U	I702	22-D				
SDA	I601	27-C	I501	25-N	U100	21-T	I702	22-D				
S/B 3.3V	I823	27-N	R720	19-B	R888	20-Q	R580	14-L				
S/B 6V	I823	27-P	R713	19-A								
FM-IN	I601	31-F	I501	15-J								
RC-IN	I501	26-J	I703	16-C								
KEY-IN	I501	23-N	SW700	16-C								
SECAM L	I501	25-N	Q103	14-N								
POWER	I501	26-J	R817	20-Q								
S/SW	I501	23-N	DA01	17-G								
EXT 1(A-L/R)	I601	27-F	JPA01	15-F								
EXT 2(A-L/R)	I601	26-E	JPA02/03	12-L								
EXT 1(V-IN)	R551	20-F	JPA01	10-I								
EXT 2(V-IN)	R554	15-F	JPA02	11-L								
C. IN	I501	18-J	JPA02	11-K								
CVBS	I501	17-I	R524	14-J								
ABL	R585	14-H	T402	8-R								
SCART OUT	I601	22-F	JPA01	12-F								
11V	C823	24-P	R404	16-P								
5V	I820	25-O	R120	20-O	L101	19-S	L603	24-B	1702	22-E		
8V	I822	22-P	L501	22-N	R117	17-O	L502	12-I	L602	26-F	R543	16-D
110V-123V	T801	20-R	T402	11-T								
HV	T402	8-P	V901	8-D								
FOCUS	T402	8-Q	V901	8-D								
SCREEN	T402	8-R	V901	8-E								

SCHEMATIC DIAGRAM - 1 (MAIN C.B)

32 31 30 29 28 27 26 25 24 23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1



NOTE:
 1. RESISTANCE IS SHOWN IN OHM. K=1000, M=1000000
 2. UNLESS OTHERWISE NOTED IN SCHEMATIC ALL CAPACITOR VALUES ARE EXPRESSED IN uF
 3. VOLTAGES READ WITH "VTVM" FROM POINT INDICATED TO CHASSIS GROUND USING A COLOR BAR SIGNAL WITH ALL CONTROLS AT NORMAL LINE 230V AC VOLTAGE READINGS SHOWN ARE NORMAL VALUES AND MAY VARY +20% EXCEPT H.V
 4. THIS CIRCUIT DIAGRAM IS A STANDARD ONE CIRCUIT PRINTED MAY BE SUBJECT TO CHANGE FOR PRODUCT IMPROVEMENT WITHOUT PRIOR NOTICE

PRODUCT SAFETY NOTE :
 THE COMPONENTS MARKED WITH ⚠ ARE IMPORTANT FOR MAINTAINING THE SAFETY OF THE SET AND SHOULD BE REPLACED ONLY WITH TYPES IDENTICAL TO THOSE IN THE ORIGINAL OR SPECIFIED ONE IN THE PART LIST. DON'T DEGRADE THE SAFETY OF THE SET THROUGH IMPROPER SERVICING.

WARNING:
 BEFORE SERVICING THE CHASSIS, READ "X-RAY RADIATION", "SAFETY PRECAUTION", AND "PRODUCT SAFETY NOTICE" IN SERVICE MANUAL

CAUTION TO SERVICE TECHNICIANS:
 BEFORE RETURNING THE RECEIVER TO CUSTOMER, LEAKAGE CURRENT OR RESISTANCE MEASUREMENTS SHOULD BE PERFORMED TO DETERMINE THAT EXPOSED PARTS ARE PROPERLY INSULATED FROM THE SUPPLY CIRCUIT.

RESISTOR	CAPACITOR	COIL
CARBON FILM	ELECTRO	FEMING
R M-OXIDE	CERAMIC	CHOKE
CARBON COMP	CERAMIC CH	BEAD
FUSIBLE	ELECTRO NONPOLAR	
CEMENT	MYLAR	

➡ Audio Contents
 ➡ Video Contents

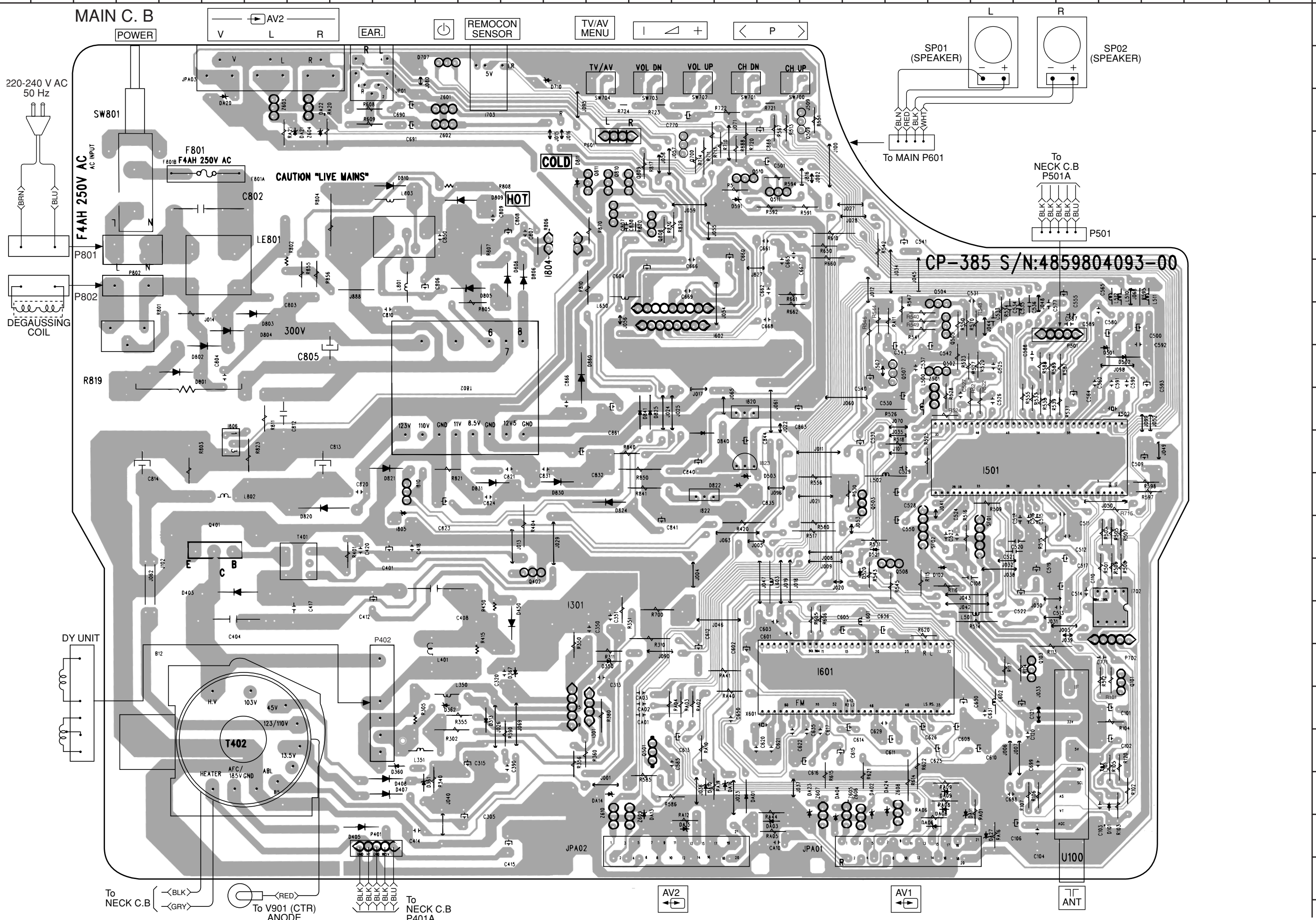
THE DIFFERENT PARTS FOR CRT

Ref. No.	TV-SE2130	TV-SE1430
V901	A51EBV13X081	A34JLL90X01
SCT1	PCS629-03C	PCS633A
C408	0.27/200V	0.3/250V
L401	TRL-341G	L-102
R302	1.5 1/2W	3.9 1/2W
R350	1.5k	3k
R351	1.5k	3k
R556	6.8k	8.2k
R823	5.1k	3.9k
R920	1 1W	1.2 1W

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WIRING - 1 (MAIN C.B)

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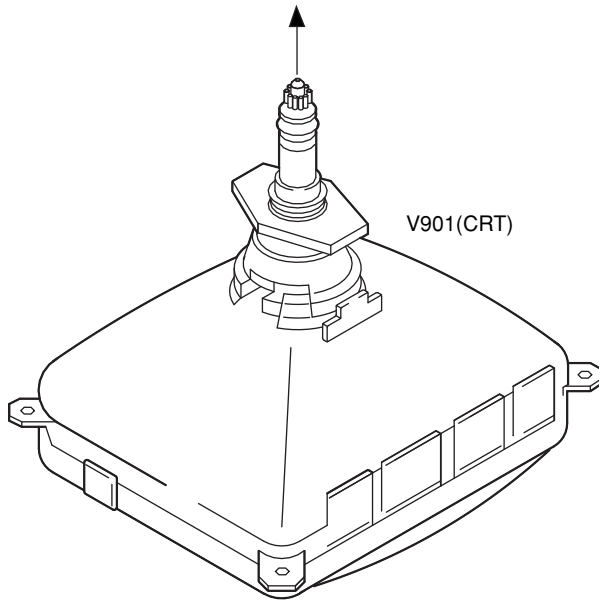
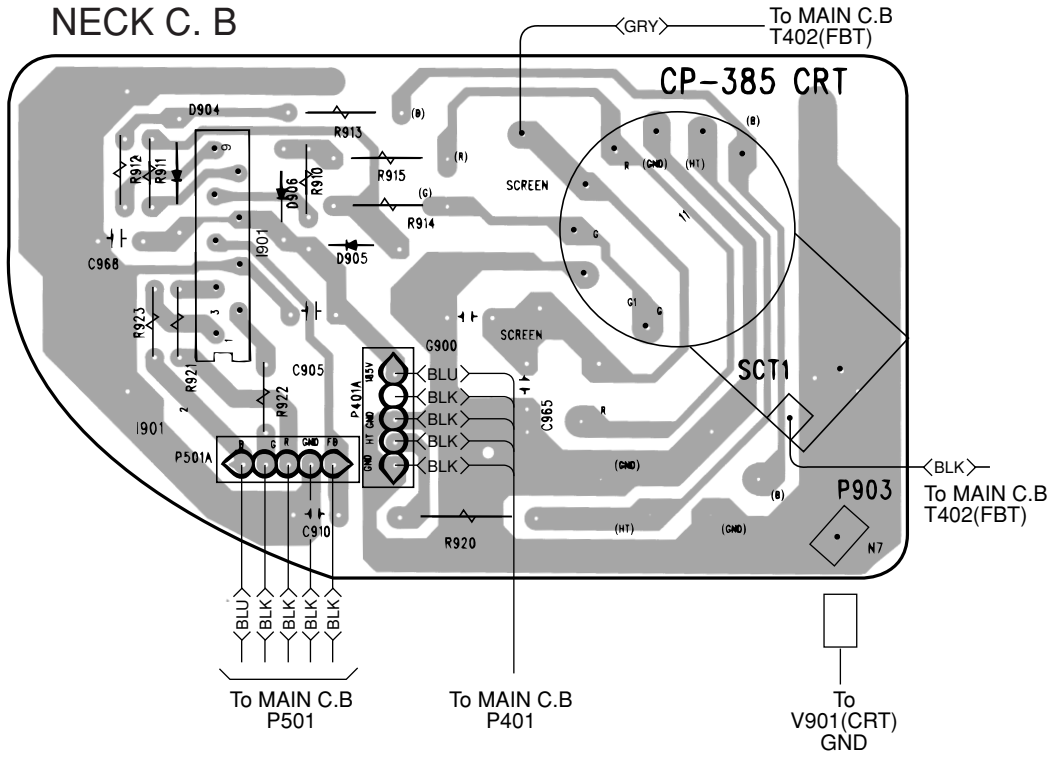


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WIRING - 2 (NECK C.B)

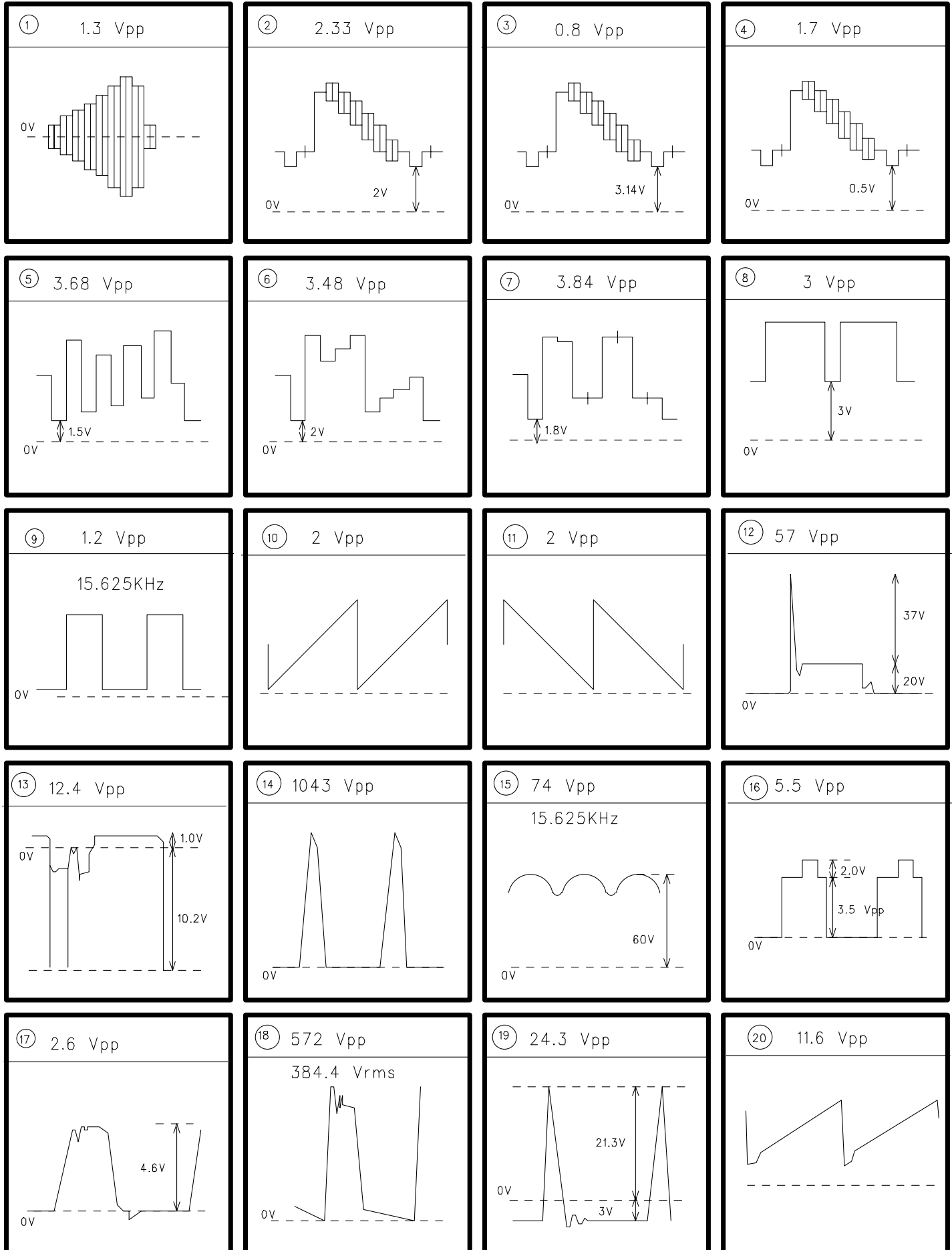
15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
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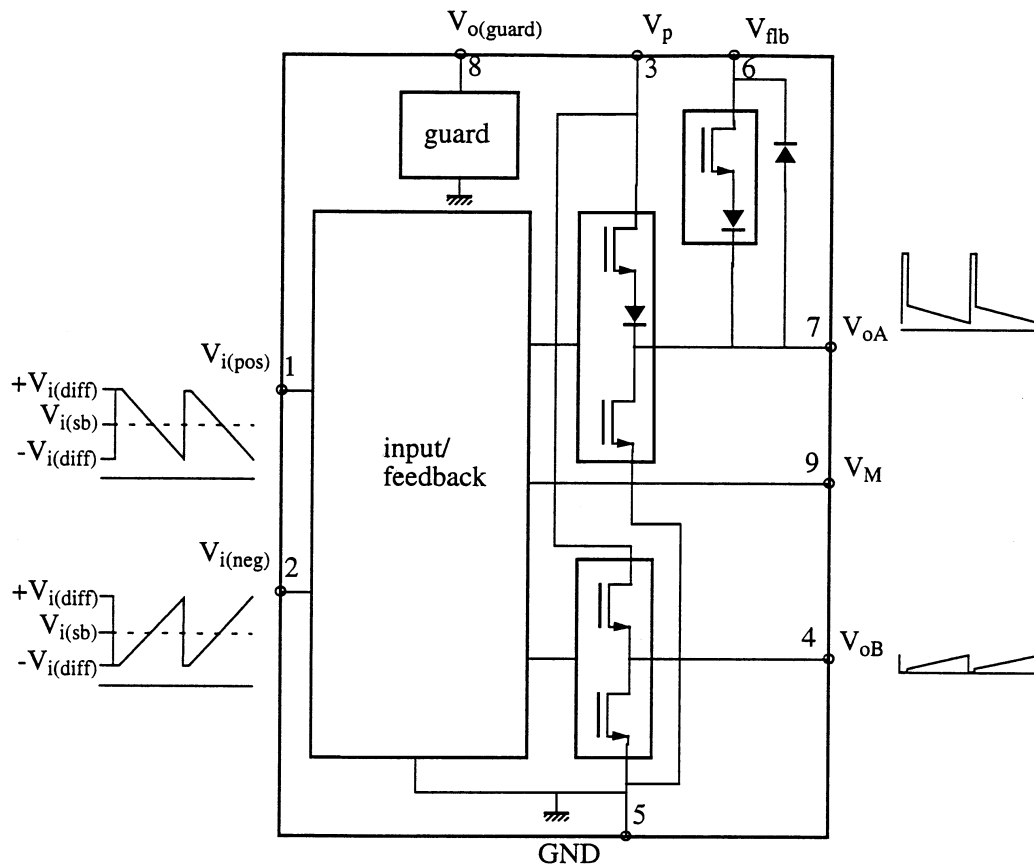
WAVEFORMS

TEST CONDITIONS : PAL-B/G COLOR BAR (NOR.1)

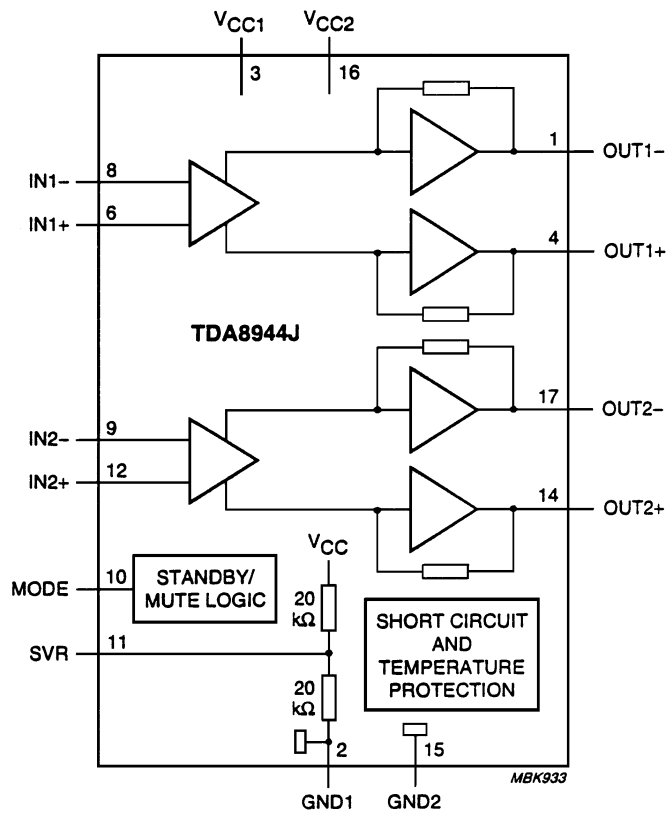


IC BLOCK DIAGRAMS

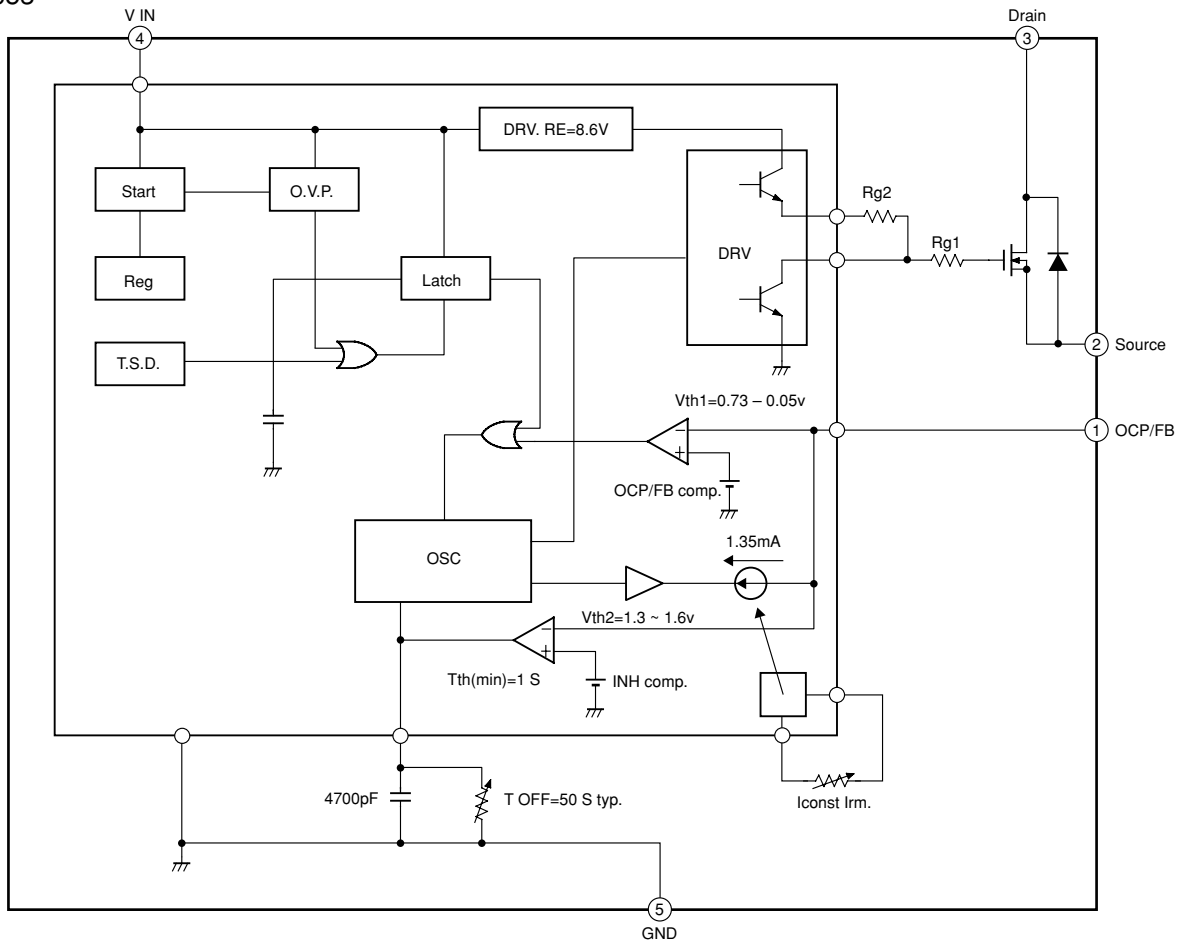
IC, TDA8357J



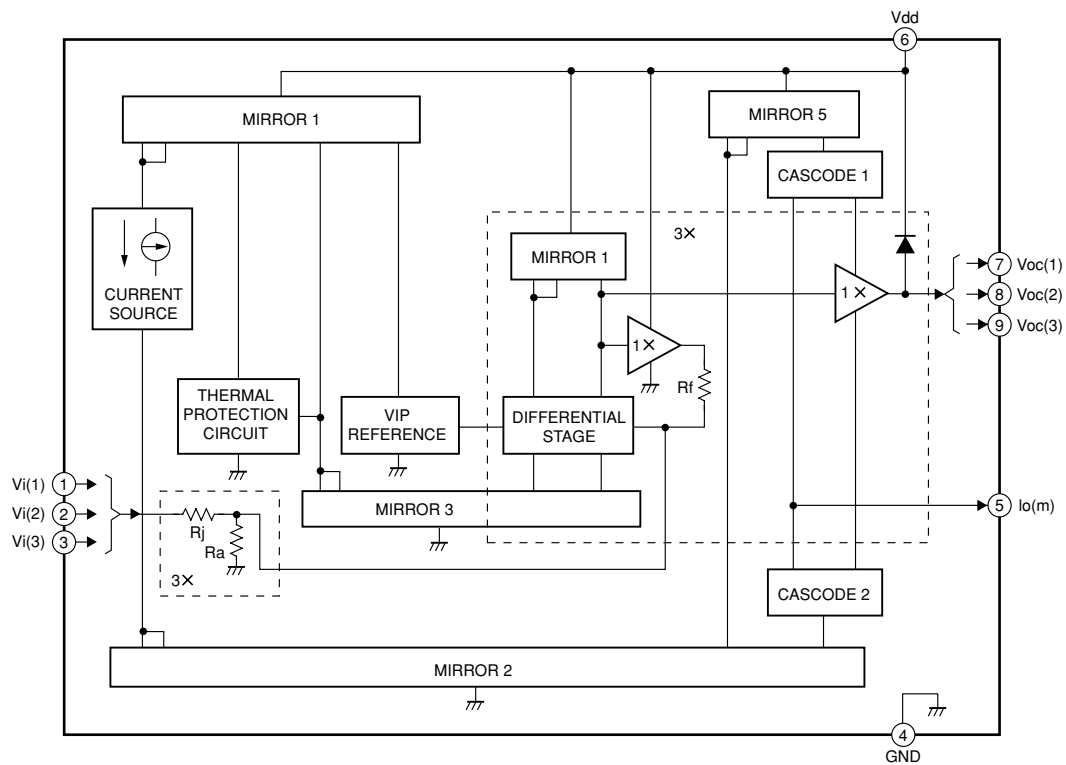
IC, TDA8944J



IC, STR-F6653



IC, TDA6107Q



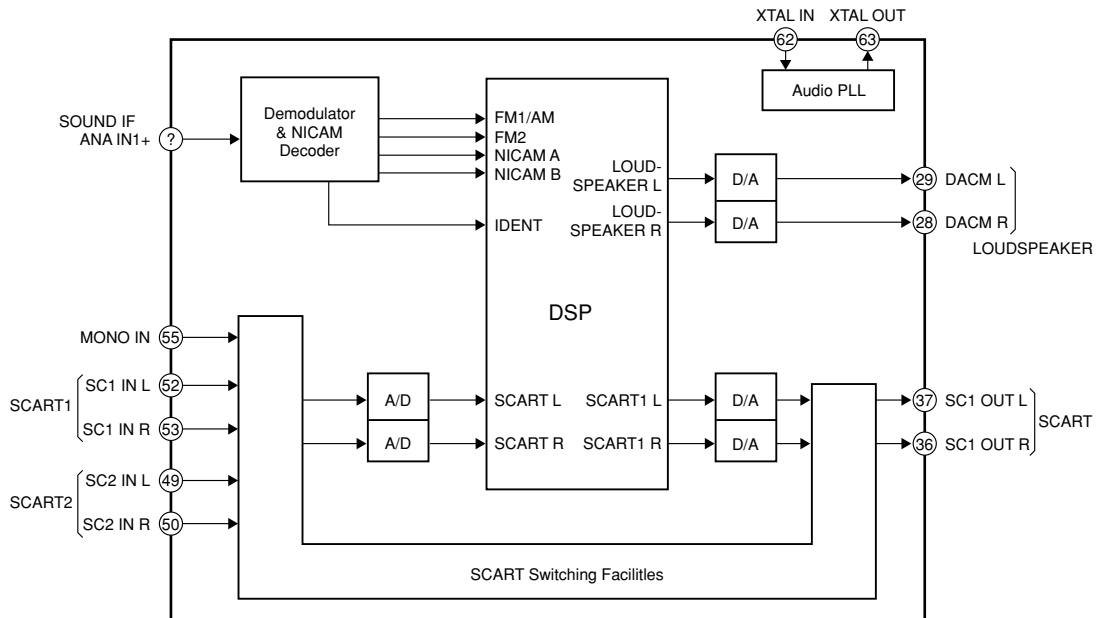
IC DESCRIPTIONS

IC, AT24C08-10PC

Pin No.	Pin Name	I/O	Description
1	E0	-	Device address
2	E1	-	
3	E2	-	
4	VSS	-	Ground
5	SDA	I/O	Serial data/address input/output
6	SCL	-	Serial clock
7	WC		Write control
8	VCC	-	Supply voltage

IC, MSP3415D

• Block Diagram

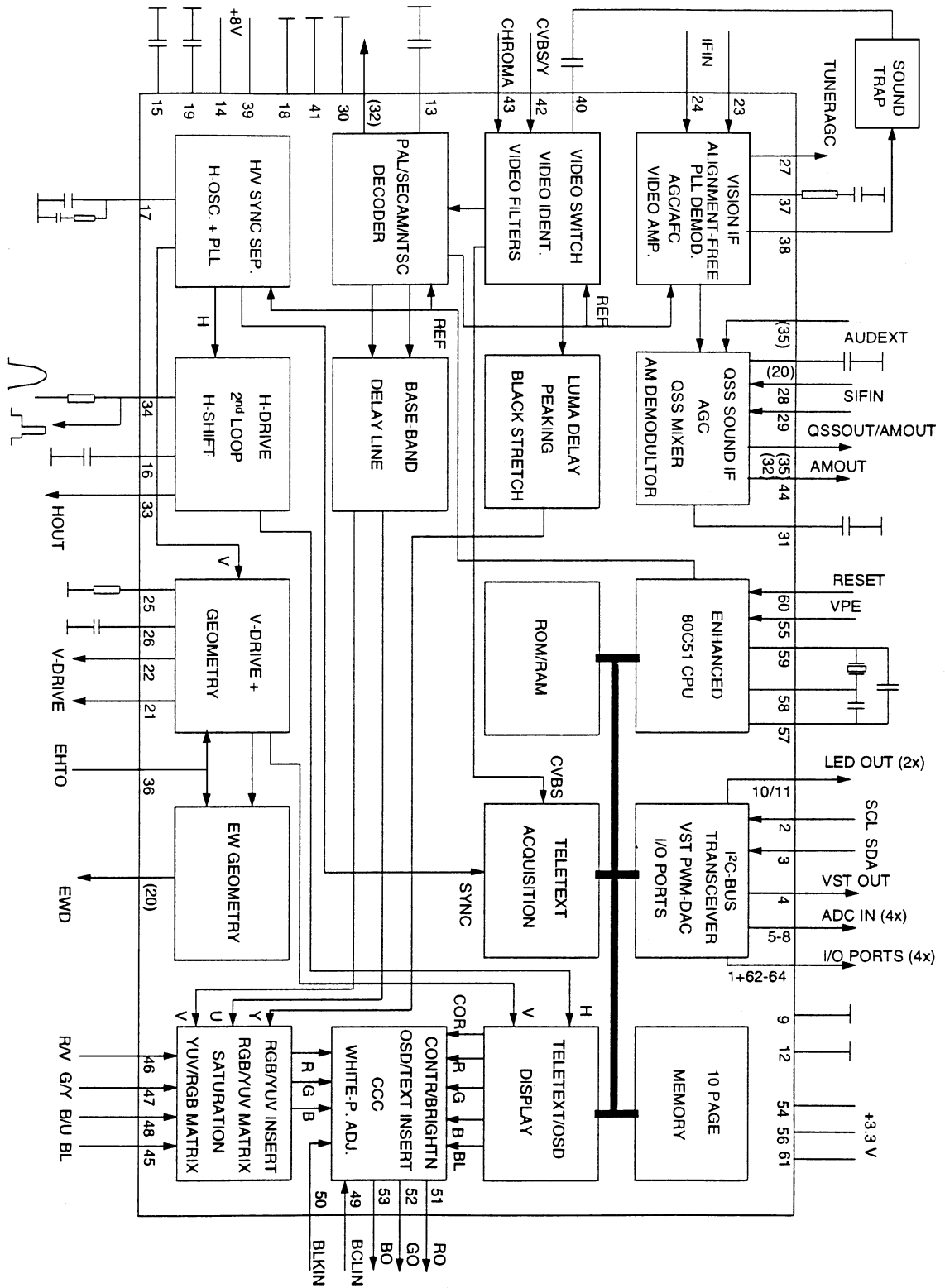


• Description

Pin No.	Pin Name	I/O	Description
1	TP	O	Test pin
2, 3	NC	-	Not conncted
4, 5	TP	O	Test pin
6	ADR SEL	I	I2C bus address select
7	STANDBYQ	I	Standby (low-active)
8	NC	-	Not conncted
9	I2C CL	I/O	I2C clock
10	I2C DA	I/O	I2C data

Pin No.	Pin Name	I/O	Description
11, 12	TP	I/O	Test pin
13	TP	O	Test pin
14	NC	–	Not conncted
15 ~ 17	TP	O	Test pin
18	DVSUP	–	Digital power supply +5V
19	DVSS	–	Digital ground
20 ~ 23	NC	–	Not conncted
24	RESETQ	–	Power-on-reset
25, 26	NC	–	Not conncted
27	VREF2	–	Referecne ground 2 high voltage part
28	DACM R	O	Loudspeaker out right
29	DACM L	O	Loudspeaker out left
30	NC	–	Not conncted
31	TP	–	Test pin
32 ~ 34	NC	–	Not conncted
35	VREF1	–	Reference gound 1 high voltage part
36	SC1 OUT R	O	Scart output 1 in, right
37	SC1 OUT L	O	Scart output 1 in,left
38	NC	–	Not conncted
39	AHVSUP	–	Analog power supply 8.0 V
40	CAPL M	–	Volune capacitor MAIN
41	AHVSS	–	Analog ground
42	AGNDC	–	Analog reference voltage high voltage part
43 ~ 47	NC	–	Not conncted
48	ASG2	–	Analog shield ground 2
49	SC2 IN L	I	Scart input 2 in, left
50	SC2 IN R	I	Scart input 2 in, right
51	ASG1	–	Analog shield ground 1
52	SC1 IN L	I	Scart input 1 in, left
53	SC1 IN R	I	Scart input 1 in, right
54	VREFTOP	–	Reference voltage IF A/D converter
55	MONO IN	I	Mono input
56	AVSS	–	Analog ground
57	AVSUP	–	Analog power supply
58	ANA IN1+	I	IF input 1
59	ANA IN1-	I	IF common
60	NC	–	Not connected
61	TESTEN	I	Test pin
62	XTAL IN	I	Crystal oscillator
63	XTAL OUT	O	Crystal oscillator
64	NC	–	Test pin

IC, TDA9367
 • Block Diagram



• Description

Pin No.	Pin Name	I/O	Description
1	NC	–	Port 1.3 Not used.
2	SCL	I	I2C bus clock line
3	SDA	I	I2C data line
4	SECAM L OUT	O	Port 2.0: high when L' selected (PushPull)
5	OCP	O	Port 3.0: over current protection
6	RF AGC IN	I	ADC1: for factory use only (high impedance)
7	KEY-IN	I	ADC2: local key input (high impedance)
8	S/SW	I	ADC3: scart slow switching input
9	VSS C/P	–	Digital ground for μ -controller core and peripheral
10	LED1	O	Port 0.5 (8 mA current sinking capability)
11	LED2	O	Port 0.6 (8 mA current sinking capability)
12	VSSA	–	Analog ground of teletext decoder and digital ground of TV processor
13	SEC PLL	–	SECAM PLL decoupling
14	VP2	–	2nd supply voltage TV-processor
15	DECDIG	–	Decoupling digital supply of TV-processor
16	PH2LF	–	Phase-2 filter
17	PH1LF	–	Phase-1 filter
18	GND3	–	Ground 3 for TV-processor
19	DECBG	–	Bandgap decoupling
20	AVL/EWD	O	East/West drive output
21	VDRB	O	Vertical drive B output
22	VDRA	O	Vertical drive A output
23	IFIN1	I	IF input 1
24	IFIN2	I	IF input 2
25	IREF	I	Reference current input
26	VSC	–	Vertical sawtooth capacitor
27	TUNERAGC	O	Tuner AGC output
28	SIFIN1	I	SIF input 1
29	SIFIN2	I	SIF input 2
30	GND2	–	Ground 2 for TV processor
31	SIF AGC	–	AGC sound IF
32	REF0	–	Not used.
33	HOUT	O	Horizontal output
34	FBISO	I/O	Flyback input/sandcastle output
35	OSS OUT	O	QSS intercarrier output
36	EHT0	–	EHT/overvoltage protection
37	PLLIF	–	IF PLL loop filter
38	IFVO	O	IF video output
39	VP1	–	Main supply voltage TV-processor
40	CVBSINT	I	Internal CVBS input
41	GND1	–	Ground 1 for TV-processor

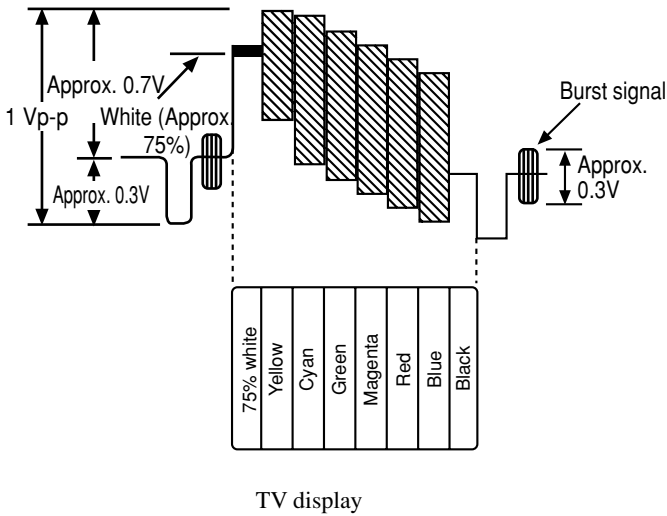
Pin No.	Pin Name	I/O	Description
42	CVBS/Y	I	External CVBS/Y input
43	CHROMA	I	Chrominance input (SVHS)
44	AMOUT	–	Not used.
45	INSSW2	I	2nd RGB onsertion input
46	R2IN	I	2nd R input
47	G2IN	I	2nd G input
48	B2IN	I	2nd B input
49	BCLIN	I	Beam current limiter input
50	BLKIN	O	Black current output
51	R0	O	RED output
52	G0	O	GREEN output
53	B0	O	BLUE output
54	VDDA	–	Analog supply of teletext decoder and digital supply of TV-Processore (3.3 V)
55	VPE	–	OTP programming supply
56	VDDC	–	Digital supply to core (3.3 V)
57	OSCGND	–	Oscillator ground supply
58	XTALIN	I	Crystal oscillator input
59	XTALOUT	O	Crystal oscillator output
60	RESET	–	Reset
61	VDDP	–	Digital supply to periphery (3.3 V)
62	AUDIO MUTE	O	Port 1.0: audio mute output (PushPull)
63	POWER	O	Port 1.1: power output (PushPull)
64	IR IN	I	Interrupt input 0: R/C infrared input

ADJUSTMENT

SET-UP FOR ADJUSTMENT

Because the video signal output from a pattern generator is used as the adjustment signal input during adjustment, the video signal output from the pattern generator must conform with the specifications. Measure the output waveform across 75 Ω load. Confirm that the synchronizing signal has an amplitude of about 0.3 V, the video signal portion has an amplitude of about 0.7 V and the burst signal has an amplitude of about 0.3 V with flat envelope. Confirm that ratio of the burst signal amplitude and the red signal amplitude is 0.30 : 0.66. If the output signal does not conform with the specifications, calibrate the pattern generator. (Refer to pattern generator operation manual.)

Use the LEADER: LCG 404 for the pattern generator.



Color bar signal of a pattern generator

PRECAUTIONS BEFORE STARTING ADJUSTMENT

Satisfy the following setting conditions before starting adjustment.

- Allow warm-up of 20 minutes or longer. (Do not turn off during warm-up.)
- Set all picture quality controls of users' setting to initial set-up, unless otherwise specified.
- Picture quality reset
 1. Select "Picture" on the screen menu and press enter button.
 2. Select "Normal" and press enter button.
 3. Select "Reset" and press enter button.
- Set the pattern generator's output level to 1.0Vp-p (across 75Ω load).

1. CRT ADJUSTMENT

1-1. Precautions

- (1) Receive the white raster signal, and then perform aging for at least 20 minutes.
- (2) Demagnetize the area surrounding the CRT with a degausser before making adjustments.
- (3) Set the picture quality for each mode to the factory setting.
- (4) Position the front screen facing the east as much as possible.

1-2. Purpose

- (1) Beam landing adjustment (purity magnet)

Set the left/right balance of beam landing. If there is a discrepancy in this adjustment, a color irregularity will occur. After completion of the landing adjustment, it is necessary to perform convergence adjustment.

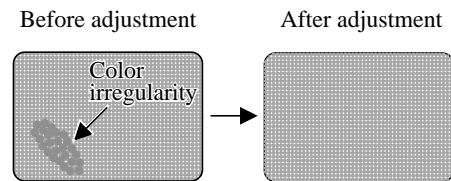
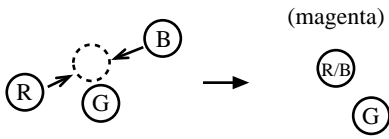


Fig. 1-1

(2) Beam convergence adjustment (4-pole magnet)

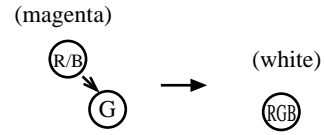
Align the R beam with the B beam. The G beam does not move with this adjustment.



Align the R beam with the B beam
Fig. 1-2

(3) Beam convergence adjustment (6-pole magnet)

With a 4-pole magnet align the G beam with the already aligned R/B beam.



Align the G beam with the R/B beam
Fig. 1-3

(4) The composition of each magnet is as shown in Fig. 1-4.

In making adjustments, rotate the lock ring clockwise (looking from the CRT's back screen) and disengage.
Be careful not to loose the lock ring too much. If the magnet assembly has become shifted during adjustments, secure it to the position in Fig. 1-4.

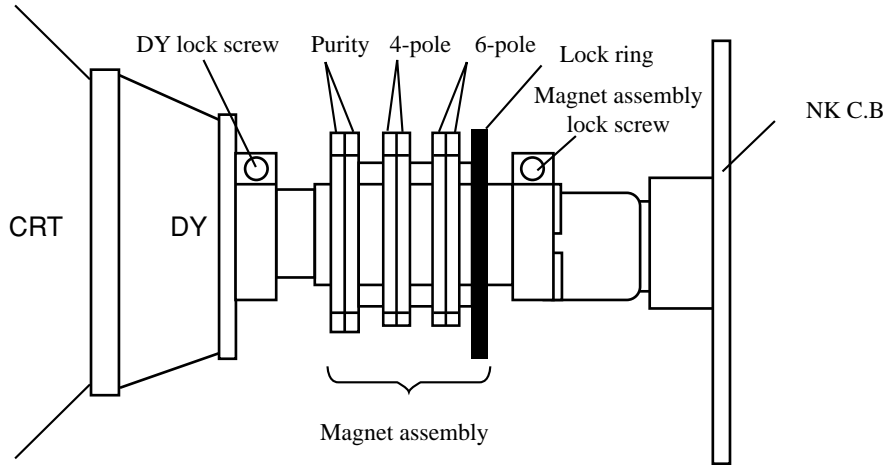


Fig 1-4

1-3. Beam Landing Adjustment

- (1) Receive the green raster signal from the pattern generator.
- (2) Loosen the magnet lock screw, and shift the magnet assembly backward (toward the neck).
- (3) Loosen the DY lock screw, and shift the DY deflecting yoke backward (toward the neck).
- (4) After opening the two purity magnets to the same angle, adjust the color width of the bands on both sides of the screen so that they are equal. (refer to Fig. 1-5 (a)).

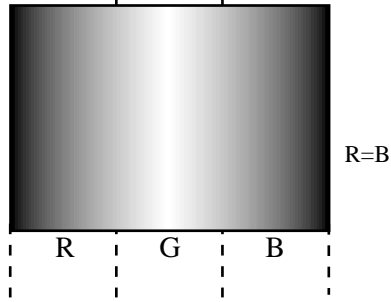


Fig 1-5 (a)

As shown in Fig. 1-5 (b), the purity magnet functions in relation to the electron beam.

- (5) Gradually shift the deflecting yoke toward the front (toward the CRT funnel). Stop movement at the point when the screen has become completely green.

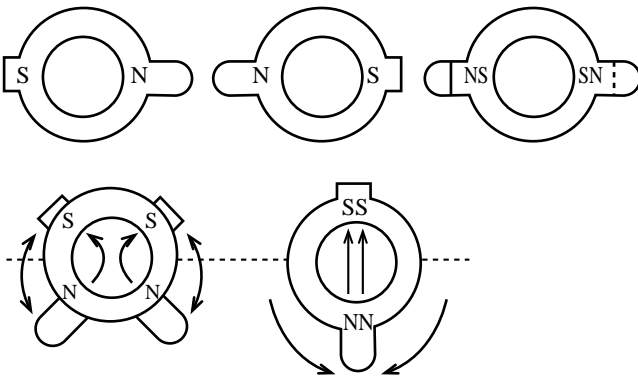


Fig 1-5 (b)

- (6) Also, verify the respective monochromatics of red and blue.
- (7) While looking at the screen, adjust the tilt of the deflecting yoke and tighten the DY lock screw.
- (8) Shift the magnet assembly to the front (toward the CRT funnel), stop movement before the adjustment position and then tighten the magnet lock screw.
At this time, be careful not to shift the position of the purity magnet.

As there is occurrence of convergence distortion after completing the landing adjustments, be sure to carry out convergence adjustments.

If the color irregularities in the screen's corner section are not improved, correct them with the landing magnet. After using the landing magnet, be sure to demagnetize the CRT with degausser and verify that there is no occurrence of color irregularity. (refer to Fig. 1-6)

Landing magnet: 81-JTI-710-010
(two-sided adhesive tape) : 80-XVI-218-010 Cushion

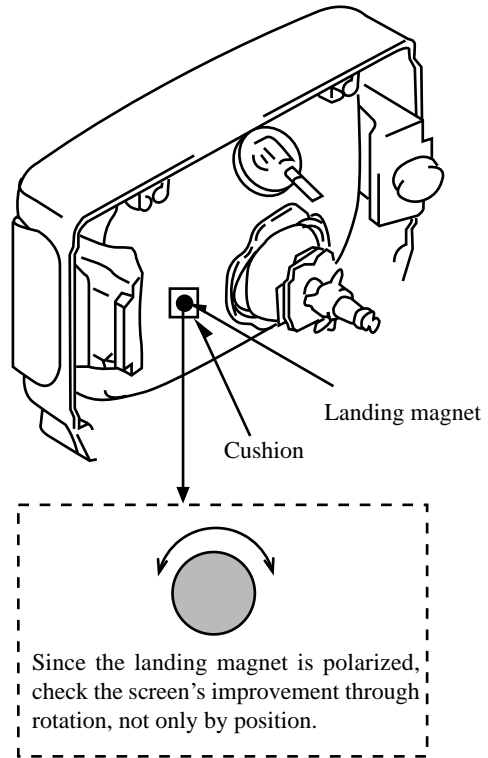


Fig 1-6

1-4. Beam Center Convergence Adjustment

Make adjustments on the convergence with 4-pole and 6-pole magnets. Operate each magnet in relation to the electron beam as shown in Figs. 1-7 and 1-8. When performing this adjustment, verify whether there is distortion in the focus adjustment. If necessary, carry out adjustments again.

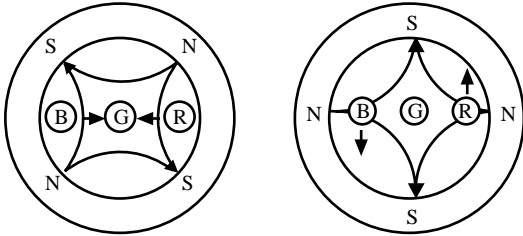


Fig 1-7

In Fig. 1-7, two 4-pole magnets are stacked together so as to be of the same polarity. Move the B and R beams to their respective direction, by rotating the two 4-pole magnets together. By adjusting the opening of the two magnets, it is possible to adjust the amount of the beam's movement.

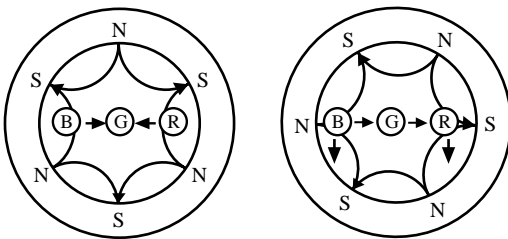


Fig 1-8

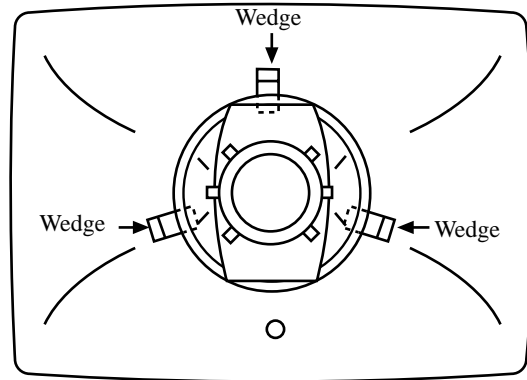
In Fig. 1-8, the two 6-pole magnets are stacked together so as to be of the same polarity. Move the B and R beams to their respective direction, by rotating the two 6-pole magnets together. By adjusting the opening of the two magnets, it is possible to adjust the amount of the beam's movement.

- (1) Receive the dot pattern signal from the pattern generator.
- (2) Pay attention to the center of the screen, and perform adjustments with two 4-pole magnets so that the R beam and B beam are perfectly aligned and become a magenta color. (Refer to Fig. 1-2)
- (3) In the same way, pay attention to the screen, and perform adjustments with a 6-pole magnet so that the magenta beam and G beam are aligned and become a white dot. (Refer to Fig. 1-3)
- (4) After adjustments are completed, secure all magnets with the lock link. (Refer to Fig. 1-4)

1-5. The Surrounding Convergence Adjustment

Perform this adjustment after completion of adjustment 1-4.

- (1) Shake the deflecting yoke up, down to the right and left, and adjust any discrepancies in the screen's surroundings.
- (2) Insert wedges in three locations in the gap between the deflecting yoke and the surface of the CRT funnel in order to secure the deflecting yoke. (Refer to Fig. 1-9)



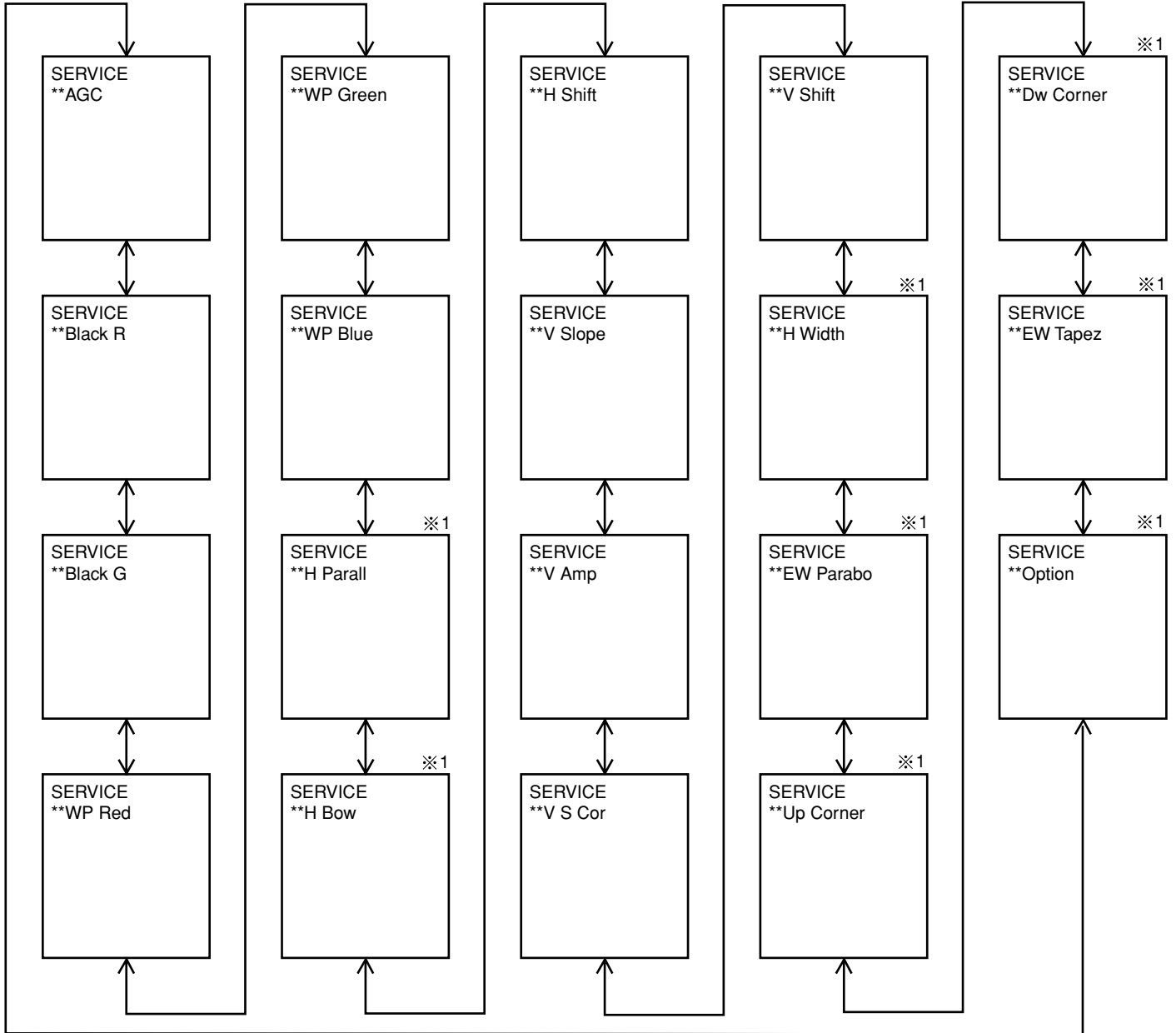
Position of wedge

Fig. 1-9

2. ELECTRICAL ADJUSTMENT

1. Use the numeric keys on the remote control to set the receiving channel to Pr91.
2. Set Sharpness on the Picture Menu screen to 0.
3. Press the buttons on remote control in the following order:
Skip (R) → Move (G) → Menu

The following menu will appear on the TV screen (the menu can be switched by the "P ^/v" button on the remote control):



4. To terminate the menu screen, press the MENU button on the remote control, or the power button on the TV or remote control.

※ It is not necessary to adjust the above items marked ※ 1.

5. G2 Alignment (SCREEN)

Input signal: Black signal

Adjustment point: SFR located at lower part of FBT (T402)

Measuring instrument: Pattern generator/PAL

Test point: R cathode (NECK C.B)

5-1. Set the TV to the "Normal I" mode.

5-2. Set the Black R and Black G data values on the menu screen to 8.

5-3. Set the WP Red, WP Green and WP Blue data values on the menu screen to 32.

5-4. Connect an oscilloscope to the test point.

5-5. Adjust the lower SFR of FBT (T402) so that the voltage at the test point is 125 ± 5 V.

6. White Balance

* Perform aging before adjustment for at least 20 minutes.

* Perform all adjustment steps several times.

Set the TV to the "Normal I" mode when performing adjustment steps 6-1 _ 6-10.

Cutoff Adjustment:

Input signal: Stairstep (chroma OFF)

Measuring instrument: Pattern generator/PAL

6-1. Supply a stairstep signal from the pattern generator.

6-2. Use the "Vol +/-" buttons on the remote control to adjust the Black R and Black G values on the menu screen so that the color of scales A is gray.

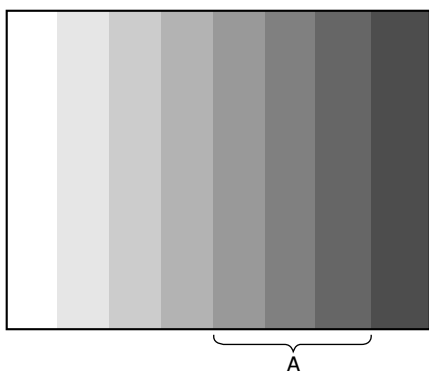


Fig. 6-1

Drive Adjustment:

Input signal: White raster

Measuring instrument: Pattern generator/PAL

6-3. Supply white raster from the pattern generator.

6-4. Use the Vol +/- buttons on the remote control to set the **WP Red** value to 63 so that the picture is reddish.

6-5. Lower the value until red disappears.

6-6. Use the Vol +/- buttons on the remote control to set the **WP Green** value to 63 so that the picture is greenish.

6-7. Lower the value until green disappears.

6-8. Use the Vol +/- buttons on the remote control to set the **WP Blue** value to 63 so that the picture is bluish.

6-9. Lower the value until blue disappears.

6-10. Perform steps 2-1 _ 2-9 several times so that the picture is seen more white.

7. Focus

Input signal: Dot pattern

Adjustment point: SFR located at upper part of FBT (T402)

Measuring instrument: Pattern generator/PAL

Adjust SFR which B located at upper part of FBT (T402) in order to get the best focus for the dot.

8. Horizontal Center

Input signal: Crosshatch

Measuring instrument: Pattern generator/PAL

8-1. Set the TV to the "Normal I" mode.

8-2. Choose H. Shift from the menu screen.

8-3. Adjust the "Vol +/-" buttons on the remote control so that the dot mark at the center of crosshatch is positioned at the center of screen, and the number of squares on the left and right is the equal.

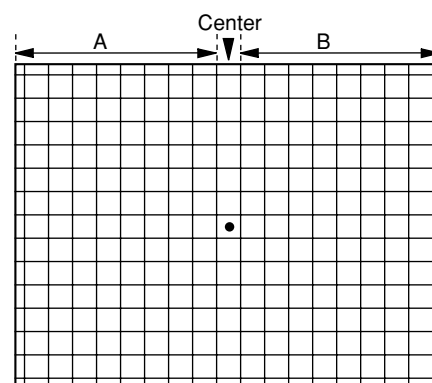


Fig.8-1

9. Vertical Center

Input signal: Crosshatch

Measuring instrument: Pattern generator/PAL

9-1. Set the TV to the "Normal I" mode.

9-2. Choose V. Shift from the menu screen.

9-3. Adjust the "Vol +/-" buttons on the remote control so that the dot mark at the center of crosshatch is positioned at the vertical center of screen.

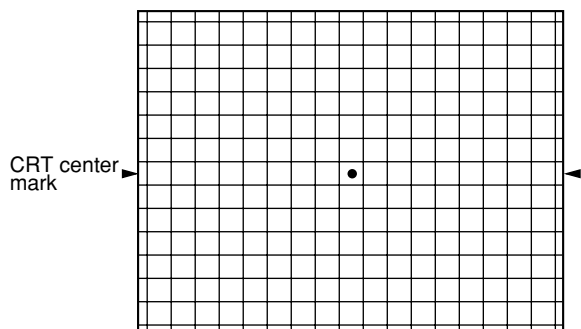


Fig.9-1

10. Vertical Size

Input signal: Crosshatch (with circle)

Measuring instrument: Pattern generator/PAL

Set the TV to the "Normal I" mode for adjustment items 10-1 _ 10-3.

10-1. Slope

1) Choose V. Slope from the menu screen.

2) Adjust the "Vol +/-" buttons on the remote control so that the vertical length of each square is equal ($A=B=C$).

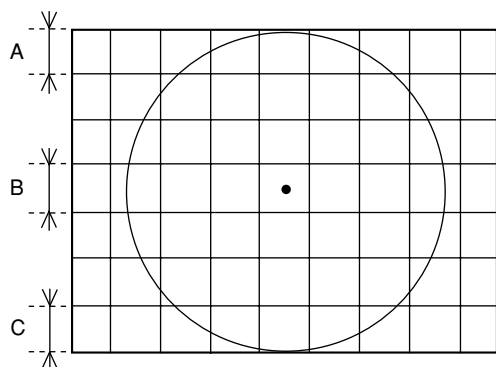


Fig.10-2

10-2. S-Correction

1) Choose V. S Cor from the menu screen.

2) Perform adjustment in the same way as with 6-1 Slope.

* Repeat adjustments 10-1 and 10-2 so that $A=B=C$ is available.

10-3. Amp

1) Choose V. Amp from the menu screen.

2) Adjust the "Vol +/-" buttons on the remote control so that the dot mark at the center of crosshatch is positioned at the vertical center of screen, the circle is a perfect circle, and each crosshatch is square.

* If vertical center is not correct, perform adjustment in 5. Vertical Center again.

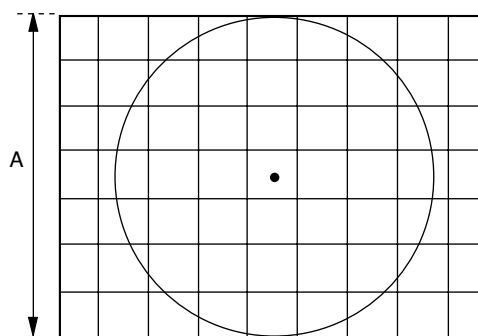


Fig.10-2

11. AGC

Input signal: Color bar (ANT RF=Input)

Measuring instrument: Pattern generator/PAL

Test point: 1501 6 pin RF AGC

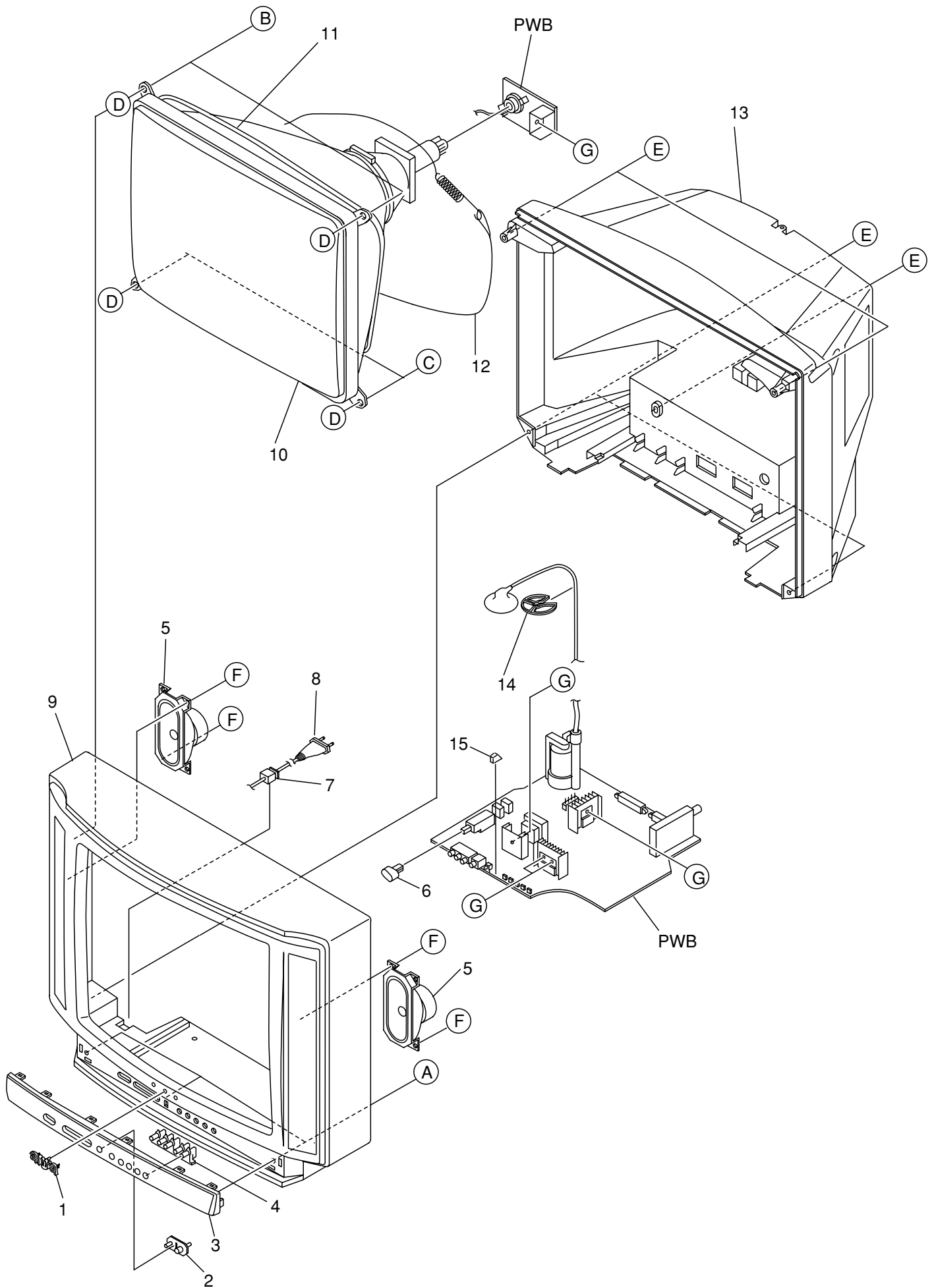
11-1. Receive the pattern generator frequency at Pr91.

11-2. Connect an oscilloscope to the test point.

11-3. Choose AGC from the menu screen.

11-4. Use the "P \wedge / \vee " button on the remote control so that the voltage at the test point is 2.5 VDC.

MECHANICAL EXPLODED VIEW 1/1



MECHANICAL MAIN PARTS LIST 1/1

DESCRIPTIONで判断できない物は "REFERENCE NAME LIST" を参照してください。
 If can't understand for Description please kindly refer to "REFERENCE NAME LIST".

REF. NO	PART NO.	KANRI NO.	DESCRIPTION
1	87-054-087-010		BADGE,AIWA 40<1430KY,1430EZY>
1	87-054-086-010		BADGE,AIWA 52.5<2130KY,2130EZY>
2	8A-JB7-004-010		LENS,SENSOR<1430KY,1430EZY>
2	8A-JB4-004-010		LENS,LED<2130KY,2130EZY>
3	8A-JB7-002-010		PANEL,FRONT<1430KY,1430EZY>
3	8A-JB4-002-010		PANEL,FRONT<2130KY,2130EZY>
4	8A-JB7-003-010		BTN,CHANNEL<1430KY,1430EZY>
4	8A-JB4-003-010		BTN,CHANNEL<2130KY,2130EZY>
5	S4-858-314-610		SPEAKER SP-50120F01 5W 8 OHM<1430KY,1430EZY>
5	S4-858-310-810		SPEAKER F2250C-2141<2130KY,2130EZY>
6	8A-JB7-005-010		BTN,POWER<1430KY,1430EZY>
6	8A-JB4-005-010		BTN,POWER<2130KY,2130EZY>
7	S9-7P2-316-600		HOLDER AC CORD
8	S4-859-906-310		CORD POWER 5A<1430KY,1430EZY>
8	S4-859-906-210		CORD POWER<2130KY,2130EZY>
9	8A-JB7-001-010		CABI,FRONT<1430KY,1430EZY>
9	8A-JB4-001-010		CABI,FRONT<2130KY,2130EZY>
10	S4-859-607-140		CRT 14" OEC A34JLL90X01<1430KY,1430EZY>
10	S4-859-621-760		CRT A51EBV13X081<2130KY,2130EZY>
11	S5-8G0-000-084		COIL DEGAUSSING DC-1450<1430KY,1430EZY>
11	S5-8G0-000-123		COIL DEGAUSSING DC-2072F<2130KY,2130EZY>
12	S4-851-9A4-710		CRT GROUND AS 14A3<1430KY,1430EZY>
12	S4-851-9A5-210		CRT GROUND AS 21A5<2130KY,2130EZY>
13	8A-JB7-006-010		CABI,BACK<1430KY,1430EZY>
13	8A-JB4-006-010		CABI,BACK<2130KY,2130EZY>
14	S4-856-818-300		CLAMP WIRE PH-WL-5034
15	S4-853-533-600		HOLDER LED P. P BK
A	S7-172-401-011		SCREW TAPPING 4-10
B	S4-856-013-300		SCREW CRT FIXING AS L-80
C	S4-856-013-301		SCREW CRT FIXING AS L-140<1430KY,1430EZY>
C	S4-856-013-303		SCREW CRT FIXING AS L-240<2130KY,2130EZY>
D	S4-856-215-402		WASHER RUBBER
E	S7-172-401-412		SCREW TAPPING 4-14<1430KY,1430EZY>
E	S7-172-401-612		SCREW TAPPING 4-16<2130KY,2130EZY>
F	87-741-096-410		SCREW TAPPTITE 3-10
G	87-741-095-410		SCREW TAPPTITE 3-8

COLOR NAME TABLE

Basic color symbol	Color	Basic color symbol	Color	Basic color symbol	Color
B	Black	C	Cream	D	Orange
G	Green	H	Gray	L	Blue
LT	Transparent Blue	N	Gold	P	Pink
R	Red	S	Silver	ST	Titan Silver
T	Brown	V	Violet	W	White
WT	Transparent White	Y	Yellow	YT	Transparent Yellow
LM	Metallic Blue	LL	Light Blue	GT	Transparent Green
LD	Dark Blue	DT	Transparent Orange	GM	Metallic Green
YM	Metallic Yellow	DM	Metallic Orange	PT	Transparent Pink
LA	Aqua Blue				

アイワ株式会社 〒110-8710 東京都台東区池之端1-2-11 ☎03(3827)3111 (代表)
AIWA CO.,LTD. 2-11, IKENOHATA 1-CHOME, TAITO-KU, TOKYO 110-8710, JAPAN TEL:03 (3827) 3111