

FUNAI

SERVICE MANUAL

Sec. 1: Main Section

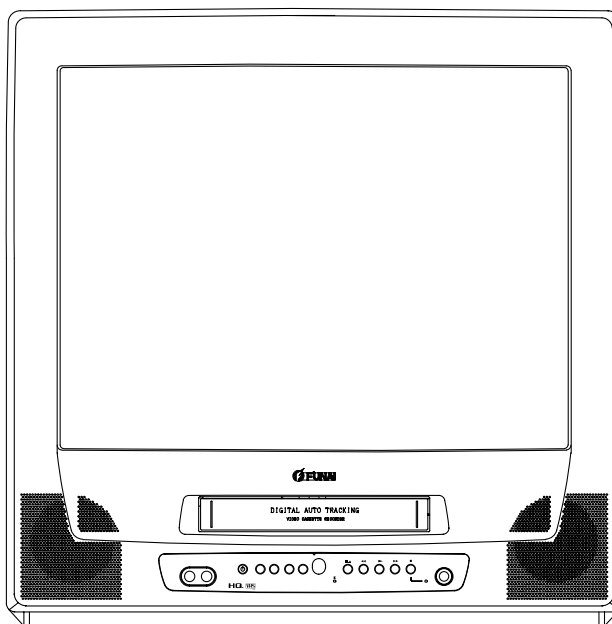
- Specifications
- Preparation for Servicing
- Adjustment Procedures
- Schematic Diagrams
- CBA's
- Exploded views
- Parts List

Sec. 2: Deck Mechanism Section

- Standard Maintenance
- Alignment for Mechanism
- Disassembly/Assembly of Mechanism
- Alignment Procedures of Mechanism
- Deck Exploded Views
- Deck Parts List

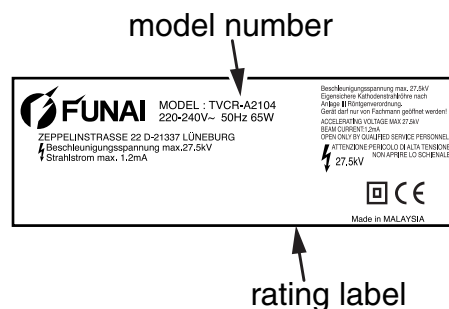
21" COLOR TV/VCR COMBINATION

TVCR-2104



This service manual is for TVCR-2104 series. When servicing these models, please confirm a model number on the rating label located on the backside of the cabinet.

Refer to the rating label illustration at right (example: TVCR-A2104).



MAIN SECTION

21" COLOR TV/VCR COMBINATION

**TVCR-A2104/TVCR-B2104/
TVCR-C2104/TVCR-D2104/
TVCR-A2104T/TVCR-B2104T/
TVCR-C2104T/TVCR-D2104T/
TVCR-A2104TG**

Sec. 1: Main Section

- Specifications
- Preparation for Servicing
- Adjustment Procedures
- Schematic Diagrams
- CBA's
- Exploded Views
- Parts List

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SPECIFICATIONS

✖Mode-----SP mode unless otherwise specified

✖Test input terminal

<Except Tuner>-----Video input (1Vp-p)
Audio input (-10dB)

<Tuner>-----Ant. input (80dB μ V) Video: 87.5% mod.(BG/DK), 80.0% mod.(I)
Audio: 30kHz div (1kHz Sin)

<DEFLECTION>

Description	Condition	Unit	Nominal	Limit
1. Over Scan	—	%	90	85/95
2. Linearity	Horizontal	%	—	± 15
	Vertical	%	—	± 10
3. High Voltage	—	kV	25	—

<VIDEO & CHROMA>

Description	Condition	Unit	Nominal	Limit
1. Misconvergence	Center	m/m	—	0.6
	Corner	m/m	—	2.5
	Side	m/m	—	1.8
2. Contrast Control Range	—	dB	—	6
3. Brightness	APL 100%	ft-L	35	24
4. Color Temperature	—	K	8500	—

<VCR>

Description	Condition	Unit	Nominal	Limit
1. Horizontal Resolution	(R/P)	Line	230	200
2. Jitter (Low)	(R/P)	μ S	0.05	0.2
3. S/N Chroma	AM(SP)	dB	38	33
	PM(SP)	dB	36	33
4. Wow & Flutter (RMS)	(R/P)	%	0.25	0.5

<TUNER>

Description	Condition	Unit	Nominal	Limit
1. Video S/N	—	dB	45	40
2. Audio S/N (W/LPF)	—	dB	43	40

<AUDIO>

All items are measured across 8Ω resistor at speaker output terminal.

Description	Condition	Unit	Nominal	Limit
1. Audio Output Power (Max.)	(R/P)	W	1.0	0.8
2. Audio S/N (W/LPF)	(R/P)	dB	40	36
3. Audio Distortion (W/LPF)	(R/P)	%	3.0	5.0
4. Audio Freq. Response (-20dB Ref. 1kHz)	200Hz (R/P)	dB	—	5.0/-10
	6kHz (R/P)	dB	—	5.0/-10

Note: Nominal specifications represent the design specifications. All units should be able to approximate these. Some will exceed and some may drop slightly below these specifications. Limit specifications represent the absolute worst condition that still might be considered acceptable. In no case should a unit fail to meet limit specifications.

<TV NORM, TUNER SENSIVITY, RECEPTIVE TV CHANNELS>

Model	TV Norm	Tuner Sensivity	Receptive TV Channels
TVCR-A2104 TVCR-A2104T TVCR-A2104TG	PAL-B/G	NOM: VHF 46dBμV / UHF 47dBμV MAX: VHF 53dBμV / UHF 56dBμV	E2 - E12, IA - IH, E21 - E69, S01 - S03, Z+1, Z+2, S1 - S41, gap2
TVCR-B2104 TVCR-B2104T	PAL-I	NOM: VHF 46dBμV / UHF 47dBμV MAX: VHF 53dBμV / UHF 56dBμV	IRA - IRJ, gapC, E21 - E69, S01 - S03, Z+1, Z+2, S1 - S41
TVCR-C2104 TVCR-C2104T	SECAM-L/L'	NOM: VHF 47dBμV / UHF 47dBμV MAX: VHF 54dBμV / UHF 57dBμV	F1 - F10, E21 - E69, FB - FQ, S4 - S41
	PAL-B/G	NOM: VHF 46dBμV / UHF 47dBμV MAX: VHF 53dBμV / UHF 56dBμV	E2 - E12, IA - IH, E21 - E69, S01 - S03, Z+1, Z+2, S1 - S41, gap2
TVCR-D2104 TVCR-D2104T	PAL/SECAM-BG/DK	PAL NOM: VHF 46dBμV / UHF 47dBμV MAX: VHF 53dBμV / UHF 56dBμV SECAM NOM: VHF 47dBμV / UHF 47dBμV MAX: VHF 54dBμV / UHF 57dBμV	E2 - E12, E21 - E69, S01 - S03, Z+1, Z+2, S1 - S41, gap2, R1 - R12

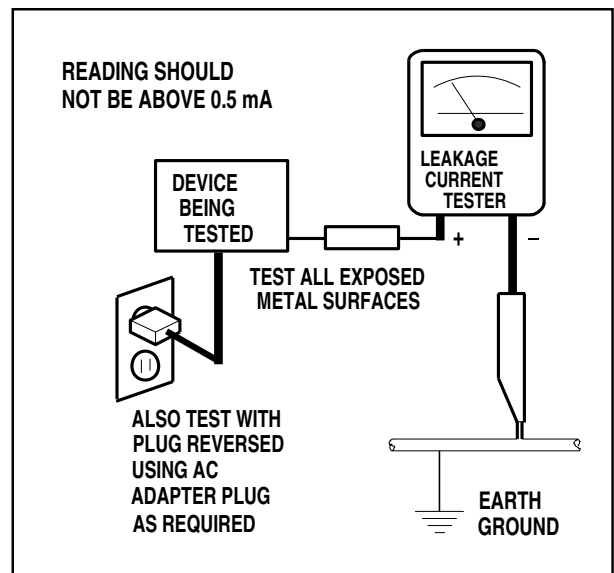
IMPORTANT SAFETY PRECAUTIONS

Prior to shipment from the factory, our products are strictly inspected for recognized product safety and electrical codes of the countries in which they are to be sold. However, in order to maintain such compliance, it is equally important to implement the following precautions when a set is being serviced.

Safety Precautions for TV Circuit

1. **Before returning an instrument to the customer**, always make a safety check of the entire instrument, including, but not limited to, the following items:
 - a. Be sure that no built-in protective devices are defective and have been defeated during servicing.
 - (1) Protective shields are provided on this chassis to protect both the technician and the customer. Correctly replace all missing protective shields, including any removed for servicing convenience.
 - (2) When reinstalling the chassis and/or other assembly in the cabinet, be sure to put back in place all protective devices, including but not limited to, nonmetallic control knobs, insulating fishpapers, adjustment and compartment covers/shields, and isolation resistor/capacitor networks. **Do not operate this instrument or permit it to be operated without all protective devices correctly installed and functioning. Servicers who defeat safety features or fail to perform safety checks may be liable for any resulting damage.**
 - b. Be sure that there are no cabinet openings through which an adult or child might be able to insert their fingers and contact a hazardous voltage. Such openings include, but are not limited to, (1) spacing between the picture tube and the cabinet mask, (2) excessively wide cabinet ventilation slots, and (3) an improperly fitted and/or incorrectly secured cabinet back cover.
 - c. **Antenna Cold Check** - With the instrument AC plug removed from any AC source, connect an electrical jumper across the two AC plug prongs. Place the instrument AC switch in the on position. Connect one lead of an ohmmeter to the AC plug prongs tied together and touch the other ohmmeter lead in turn to each tuner antenna input exposed terminal screw and, if applicable, to the coaxial connector. If the measured resistance is less than 1.0 megohm or greater than 5.2 megohm, an abnormality exists that must be corrected before the instrument is returned to the customer. Repeat this test with the instrument AC switch in the off position.
 - d. **Leakage Current Hot Check** - With the instrument completely reassembled, plug the AC line cord directly into a 120V AC outlet. (Do not use an isolation transformer during this test.) Use a leak-

age current tester or a metering system that complies with American National Standards Institute (ANSI) C101.1 Leakage Current for Appliances and Underwriters Laboratories (UL) 1410, (50.7). With the instrument AC switch first in the on position and then in the off position, measure from a known earth ground (metal water pipe, conduit, etc.) to all exposed metal parts of the instrument (antennas, handle brackets, metal cabinet, screw heads, metallic overlays, control shafts, etc.), especially any exposed metal parts that offer an electrical return path to the chassis. Any current measured must not exceed 0.5 milli-ampere. Reverse the instrument power cord plug in the outlet and repeat the test.



ANY MEASUREMENTS NOT WITHIN THE LIMITS SPECIFIED HEREIN INDICATE A POTENTIAL SHOCK HAZARD THAT MUST BE ELIMINATED BEFORE RETURNING THE INSTRUMENT TO THE CUSTOMER OR BEFORE CONNECTING THE ANTENNA OR ACCESSORIES.

- e. **X-Radiation and High Voltage Limits** - Because the picture tube is the primary potential source of X-radiation in solid-state TV receivers, it is specially constructed to prohibit X-radiation emissions. For continued X-radiation protection, the replacement picture tube must be the same type as the original. Also, because the picture tube shields and mounting hardware perform an X-radiation protection function, they must be correctly in place. High voltage must be measured each time servic-

ing is performed that involves B+, horizontal deflection or high voltage. Correct operation of the X-radiation protection circuits also must be reconfirmed each time they are serviced. (X-radiation protection circuits also may be called "horizontal disable" or "hold down.") Read and apply the high voltage limits and, if the chassis is so equipped, the X-radiation protection circuit specifications given on instrument labels and in the Product Safety & X-Radiation Warning note on the service data chassis schematic. High voltage is maintained within specified limits by close tolerance safety-related components/adjustments in the high-voltage circuit. If high voltage exceeds specified limits, check each component specified on the chassis schematic and take corrective action.

2. Read and comply with all caution and safety-related notes on or inside the receiver cabinet, on the receiver chassis, or on the picture tube.
3. **Design Alteration Warning** - Do not alter or add to the mechanical or electrical design of this TV receiver. Design alterations and additions, including, but not limited to circuit modifications and the addition of items such as auxiliary audio and/or video output connections, might alter the safety characteristics of this receiver and create a hazard to the user. Any design alterations or additions will void the manufacturer's warranty and may make you, the servicer, responsible for personal injury or property damage resulting therefrom.
4. **Picture Tube Implosion Protection Warning** - The picture tube in this receiver employs integral implosion protection. For continued implosion protection, replace the picture tube only with one of the same type number. Do not remove, install, or otherwise handle the picture tube in any manner without first putting on shatterproof goggles equipped with side shields. People not so equipped must be kept safely away while picture tubes are handled. Keep the picture tube away from your body. Do not handle the picture tube by its neck. Some "in-line" picture tubes are equipped with a permanently attached deflection yoke; because of potential hazard, do not try to remove such "permanently attached" yokes from the picture tube.
5. **Hot Chassis Warning** -
 - a. Some TV receiver chassis are electrically connected directly to one conductor of the AC power cord and maybe safety-serviced without an isolation transformer only if the AC power plug is inserted so that the chassis is connected to the ground side of the AC power source. To confirm that the AC power plug is inserted correctly, with an AC voltmeter, measure between the chassis and a known

earth ground. If a voltage reading in excess of 1.0V is obtained, remove and reinsert the AC power plug in the opposite polarity and again measure the voltage potential between the chassis and a known earth ground.

- b. Some TV receiver chassis normally have 85V AC(RMS) between chassis and earth ground regardless of the AC plug polarity. This chassis can be safety-serviced only with an isolation transformer inserted in the power line between the receiver and the AC power source, for both personnel and test equipment protection.
 - c. Some TV receiver chassis have a secondary ground system in addition to the main chassis ground. This secondary ground system is not isolated from the AC power line. The two ground systems are electrically separated by insulation material that must not be defeated or altered.
6. Observe original lead dress. Take extra care to assure correct lead dress in the following areas: a. near sharp edges, b. near thermally hot parts-be sure that leads and components do not touch thermally hot parts, c. the AC supply, d. high voltage, and e. antenna wiring. Always inspect in all areas for pinched, out of place, or frayed wiring. Check AC power cord for damage.
 7. Components, parts, and/or wiring that appear to have overheated or are otherwise damaged should be replaced with components, parts, or wiring that meet original specifications. Additionally, determine the cause of overheating and/or damage and, if necessary, take corrective action to remove any potential safety hazard.
 8. **Product Safety Notice** - Some electrical and mechanical parts have special safety-related characteristics which are often not evident from visual inspection, nor can the protection they give necessarily be obtained by replacing them with components rated for higher voltage, wattage, etc.. Parts that have special safety characteristics are identified by a () on schematics and in parts lists. Use of a substitute replacement that does not have the same safety characteristics as the recommended replacement part might create shock, fire, and/or other hazards. The Product's Safety is under review continuously and new instructions are issued whenever appropriate. Prior to shipment from the factory, our products are strictly inspected to confirm with the recognized product safety and electrical codes of the countries in which they are to be sold. However, in order to maintain such compliance, it is equally important to implement the following precautions when a set is being serviced.

Precautions during Servicing

- A.** Parts identified by the (⚠) symbol are critical for safety.

Replace only with part number specified.

- B.** In addition to safety, other parts and assemblies are specified for conformance with regulations applying to spurious radiation. These must also be replaced only with specified replacements.

Examples: RF converters, RF cables, noise blocking capacitors, and noise blocking filters, etc.

- C.** Use specified internal wiring. Note especially:

- 1) Wires covered with PVC tubing
- 2) Double insulated wires
- 3) High voltage leads

- D.** Use specified insulating materials for hazardous live parts. Note especially:

- 1) Insulation Tape
- 2) PVC tubing
- 3) Spacers
- 4) Insulators for transistors.

- E.** When replacing AC primary side components (transformers, power cord, etc.), wrap ends of wires securely about the terminals before soldering.

- F.** Observe that the wires do not contact heat producing parts (heatsinks, oxide metal film resistors, fusible resistors, etc.)

- G.** Check that replaced wires do not contact sharp edged or pointed parts.

- H.** When a power cord has been replaced, check that 5~6 kg of force in any direction will not loosen it.

- I.** Also check areas surrounding repaired locations.

- J.** Use care that foreign objects (screws, solder drop-lets, etc.) do not remain inside the set.

- K.** Crimp type wire connector

When replacing the power transformer in sets where the connections between the power cord and power transformer primary lead wires are performed using crimp type connectors, in order to prevent shock hazards, perform carefully and precisely the following steps.

Replacement procedure

- 1) Remove the old connector by cutting the wires at a point close to the connector.

Important: Do not re-use a connector (discard it).

- 2) Strip about 15 mm of the insulation from the ends of the wires. If the wires are stranded, twist the strands to avoid frayed conductors.
- 3) Align the lengths of the wires to be connected. Insert the wires fully into the connector.
- 4) Use the crimping tool to crimp the metal sleeve at the center position. Be sure to crimp fully to the complete closure of the tool.

- L.** When connecting or disconnecting the VCR connectors, first, disconnect the AC plug from AC supply socket.

Safety Check after Servicing

Examine the area surrounding the repaired location for damage or deterioration. Observe that screws, parts and wires have been returned to original positions. Afterwards, perform the following tests and confirm the specified values in order to verify compliance with safety standards.

1. Clearance Distance

When replacing primary circuit components, confirm specified clearance distance (d) and (d') between soldered terminals, and between terminals and surrounding metallic parts. (See Fig. 1)

Table 1 : Ratings for selected area

AC Line Voltage	Clearance Distance (d) (d')
220 to 240 V	$\geq 3\text{mm}(d)$ $\geq 6\text{ mm}(d')$

Note: This table is unofficial and for reference only. Be sure to confirm the precise values.

2. Leakage Current Test

Confirm the specified (or lower) leakage current between B (earth ground, power cord plug prongs) and externally exposed accessible parts (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.).

Measuring Method : (Power ON)

Insert load Z between B (earth ground, power cord plug prongs) and exposed accessible parts. Use an AC voltmeter to measure across both terminals of load Z. See Fig. 2 and following table.

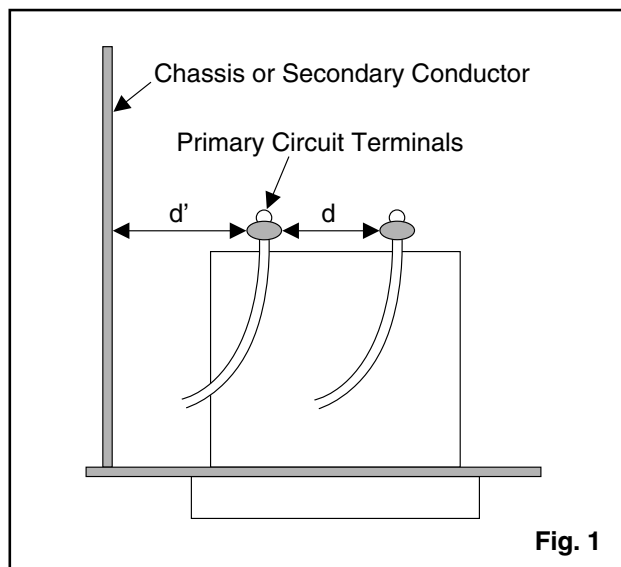


Fig. 1

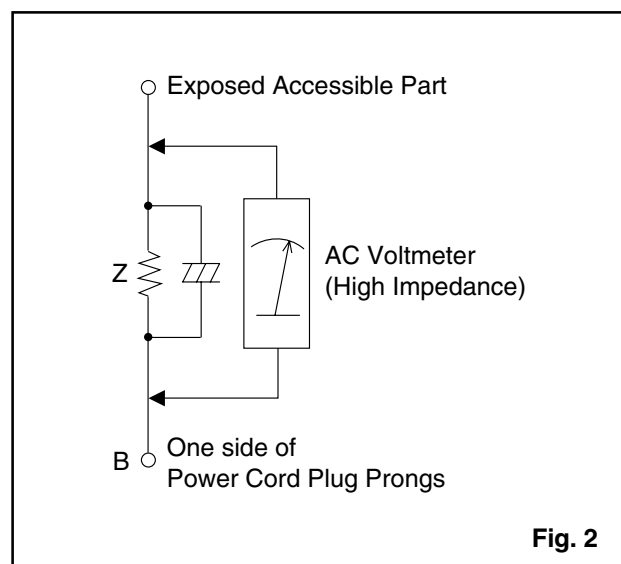


Fig. 2

Table 2: Leakage current ratings for selected areas

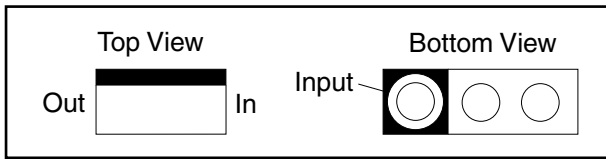
AC Line Voltage	Load Z	Leakage Current (i)	One side of power cord plug prongs (B) to:
220 to 240 V	2k Ω RES. Connected in parallel	$i \leq 0.7\text{mA AC Peak}$ $i \leq 2\text{mA DC}$	RF or Antenna terminals
	50k Ω RES. Connected in parallel	$i \leq 0.7\text{mA AC Peak}$ $i \leq 2\text{mA DC}$	A/V Input, Output

Note: This table is unofficial and for reference only. Be sure to confirm the precise values.

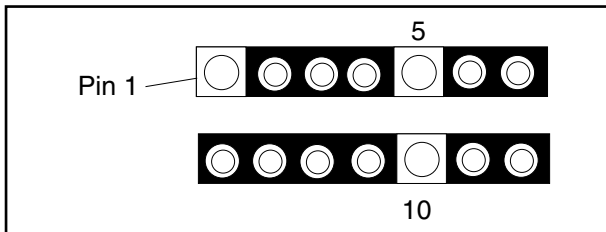
STANDARD NOTES FOR SERVICING

Circuit Board Indications

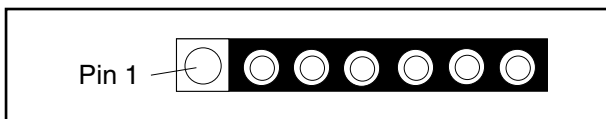
1. The output pin of the 3 pin Regulator ICs is indicated as shown:



2. For other ICs, pin 1 and every 5th pin is indicated as shown:

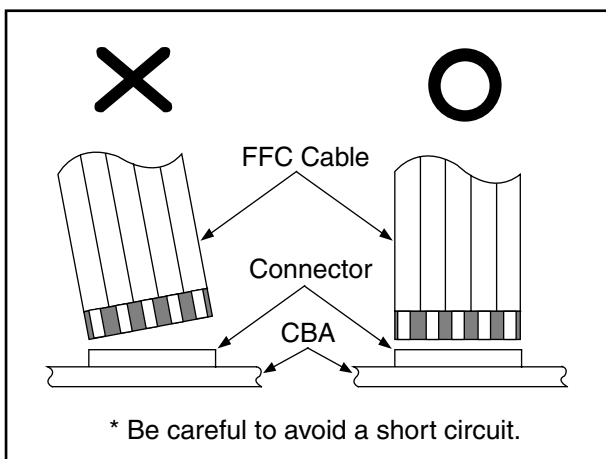


3. The 1st pin of every pin connector are indicated as shown:



Instructions for Connectors

1. When you connect or disconnect FFC cable (connector), be sure to disconnect the AC cord.
2. FFC cable (connector) should be inserted parallel into the connector, not at an angle.



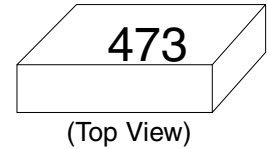
[CBA= Circuit Board Assembly]

How to Read the Values of the Rectangular Type Chip Components

Example:

(a) Resistor

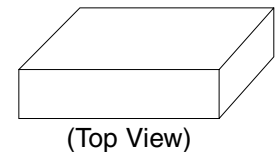
$$= 473 = 47 \text{ [k}\Omega\text{]}$$



(Top View)

(b) Capacitor

= Not Shown



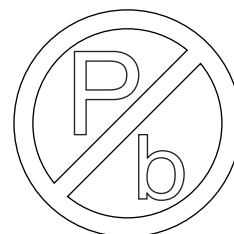
(Top View)

Caution:

Once chip parts (Resistors, Capacitors, Transistors, etc.) are removed, they must not be reused. Always use a new part.

Pb (Lead) Free Solder

Pb free mark will be found on PCBs used Pb free solder. (Refer to figure.) For PCBs with Pb free mark, be sure to use Pb free solder. For PCBs without Pb free mark, use standard solder.



Pb free mark

Replacement Procedures for Leadless (Chip) Components

The Following Procedures are Recommended for the Replacement of the Leadless Components Used in this Unit.

1. Preparation for replacement

1.1. Pb free solder

- a. Soldering Iron
Use a soldering iron for Pb free solder.
- b. Solder
Be sure to use Pb free solder.
- c. Soldering time
Do not apply heat for more than 4 seconds.
- d. Preheating
Leadless capacitor must be preheated before installation. (130°C~150°C, for about two minutes.)

1.2. Standard solder

- e. Soldering Iron
Use a pencil-type soldering iron (less than 30 watts).
- f. Solder
Eutectic solder (Tin 63%, Lead 37%) is recommended.
- g. Soldering time
Do not apply heat for more than 4 seconds.
- h. Preheating
Leadless capacitor must be preheated before installation. (130°C~150°C, for about two minutes.)

Notes:

- a. Leadless components must not be reused after removal.
- b. Excessive mechanical stress and rubbing for the component electrode must be avoided.

2. Removing the leadless component

Grasp the leadless component body with tweezers and alternately apply heat to both electrodes. When the solder on both electrodes has melted, remove leadless component with a twisting motion.

Notes:

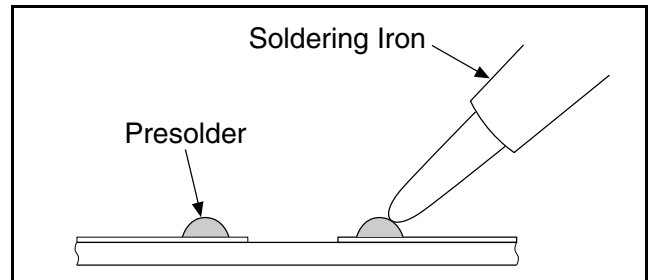
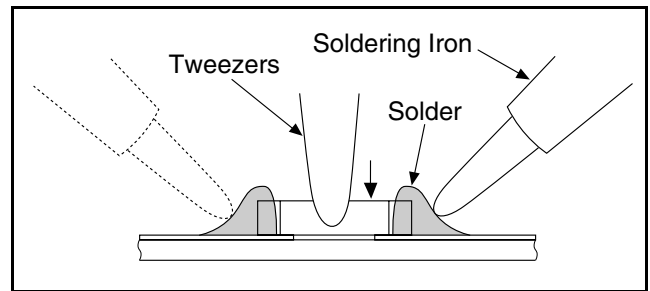
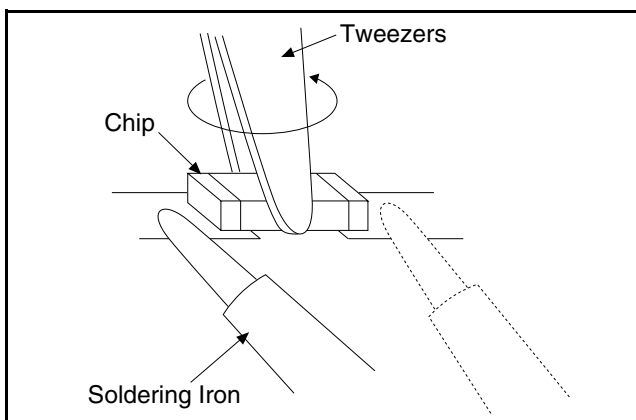
- a. Do not attempt to lift the component off the board until the component is completely disconnected from the board by the twisting action.
- b. Take care not to break the copper foil on the printed board

3. Installing the leadless component

- a. Presolder the contact points of the circuit board.
- b. Press the part downward with tweezers and solder both electrodes as shown below.

Note:

Do not glue the replacement leadless component to the circuit board.



How to Remove / Install Flat Pack IC

Caution:

1. The Flat Pack-IC shape may differ by models. Use an appropriate hot-air flat pack-IC desoldering machine, whose shape matches that of the Flat Pack-IC.
2. Do not apply the hot air to the chip parts around the Flat Pack-IC for over 6 seconds as damage may occur to the chip parts. Put Masking Tape around the Flat Pack-IC to protect other parts from damage. (Fig. S-1-2)
3. The Flat Pack-IC on the CBA is affixed with glue, so be careful not to break or damage the foil of each pin or solder lands under the IC when removing it.

1. Removal

With Hot - Air Flat Pack - IC Desoldering Machine:

- a. Prepare the Hot - Air Flat Pack - IC Desoldering Machine, then apply hot air to Flat Pack - IC (about 5~6 seconds). (Fig. S-1-1)
- b. Remove the Flat Pack- IC with tweezers while applying the hot air.

With Soldering Iron:

- a. Using desoldering braid, remove the solder from all pins of the Flat Pack - IC. When you use solder flux which is applied to all pins of the Flat Pack - IC, you can remove it easily. (Fig. S-1-3)
- b. Lift each lead of the Flat Pack - IC upward one by one, using a sharp pin or wire to which solder will not adhere (iron wire). When heating the pins, use a fine tip soldering iron or a hot air Desoldering Machine. (Fig. S-1-4)

With Iron Wire:

- a. Using desoldering braid, remove the solder from all pins of the Flat Pack - IC. When you use solder flux which is applied to all pins of the Flat Pack - IC, you can remove it easily. (Fig. S-1-3)

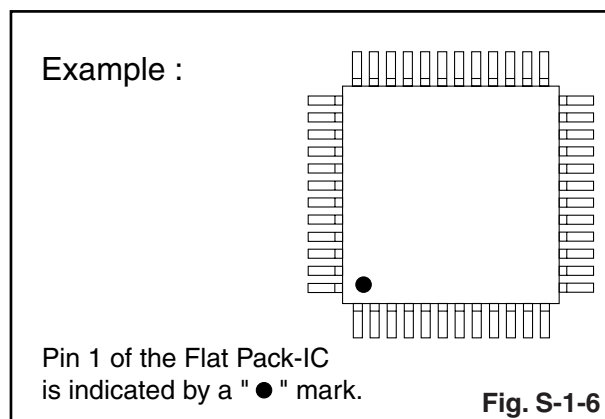
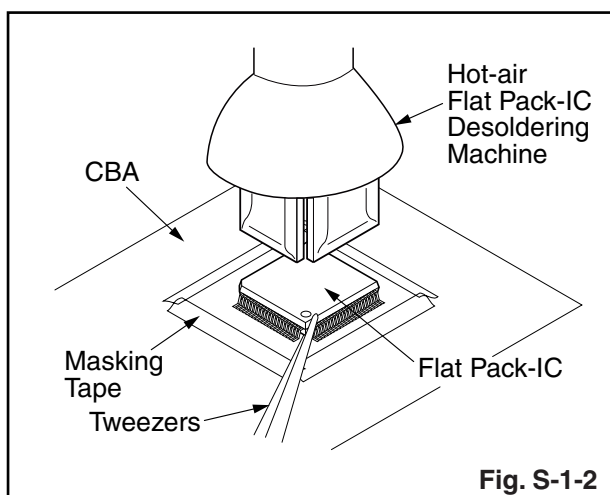
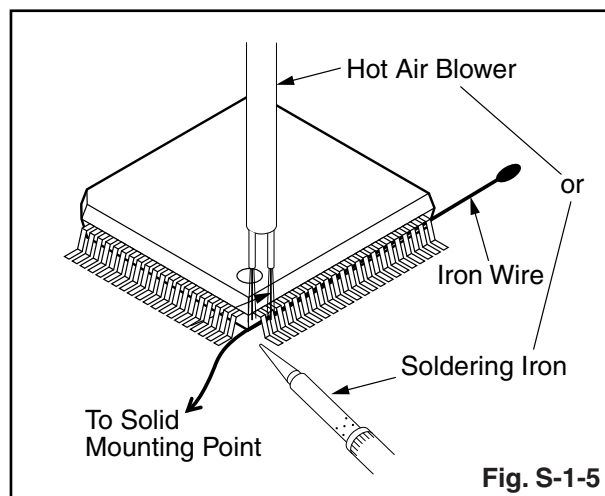
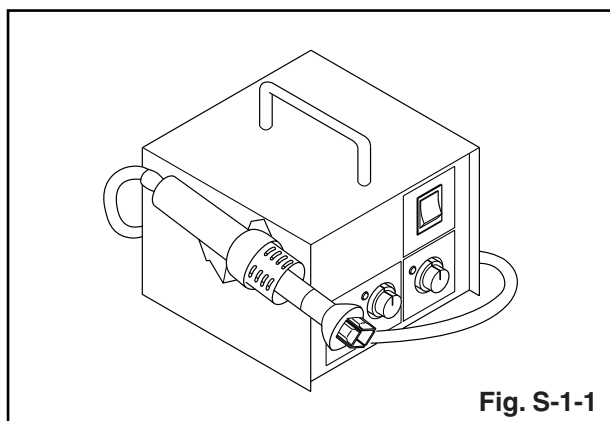
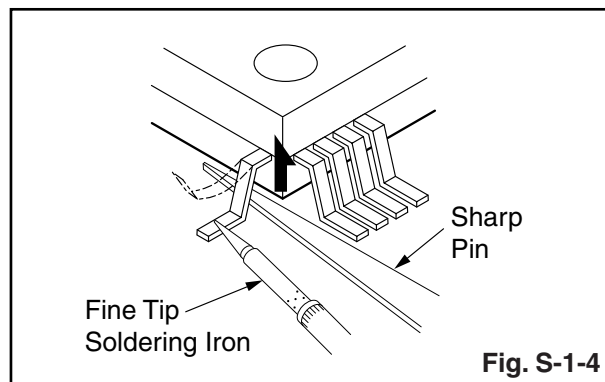
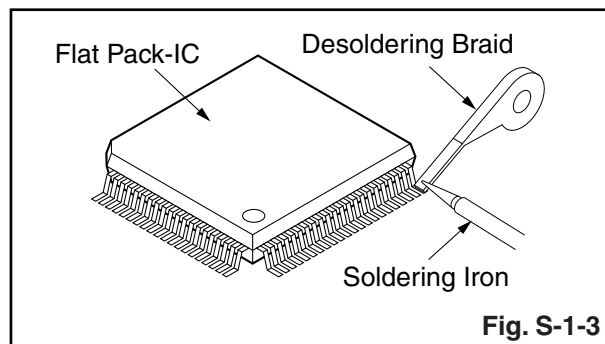
- b. Affix the wire to a workbench or solid mounting point, as shown in Fig. S-1-5.
- c. Pull up on the wire as the solder melts so as to lift the IC leads from the CBA contact pads, while heating the pins using a fine tip soldering iron or hot air blower.

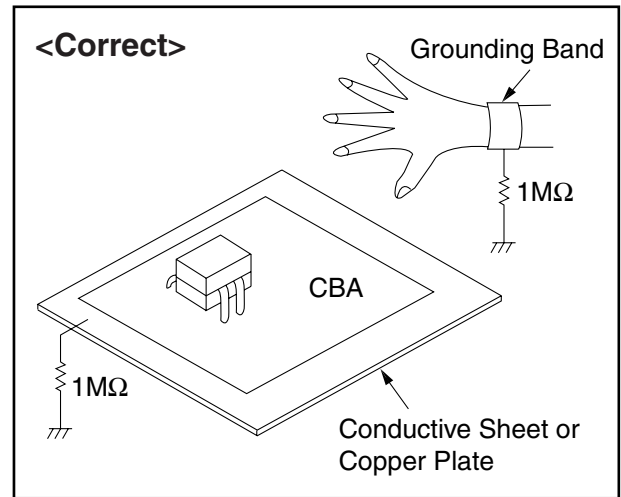
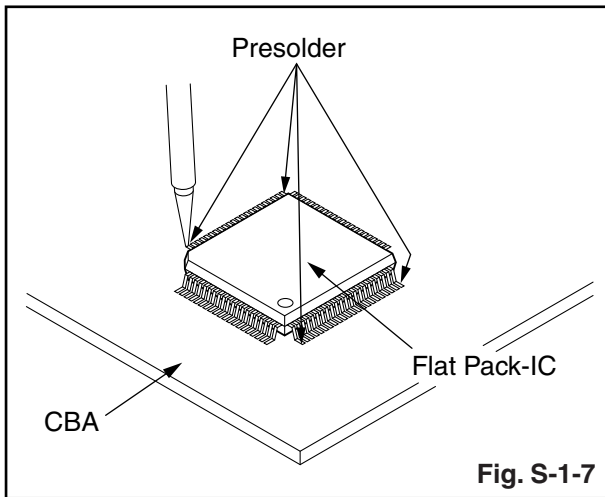
Note:

When using a soldering iron, care must be taken to ensure that the Flat Pack - IC is not being held by glue, or when it is removed from the CBA, it may be damaged if force is used.

2. Installation

- a. Using desoldering braid, remove the solder from the foil of each pin of the Flat Pack - IC on the CBA, so you can install a replacement Flat Pack - IC more easily.
- b. The "●" mark on the Flat Pack - IC indicates pin 1 (See Fig. S-1-6). Make sure this mark matches the 1 on the CBA when positioning for installation. Then pre - solder the four corners of the Flat Pack - IC (See Fig. S-1-7).
- c. Solder all pins of the Flat Pack - IC. Make sure that none of the pins have solder bridges.





Instructions for Handling Semiconductors

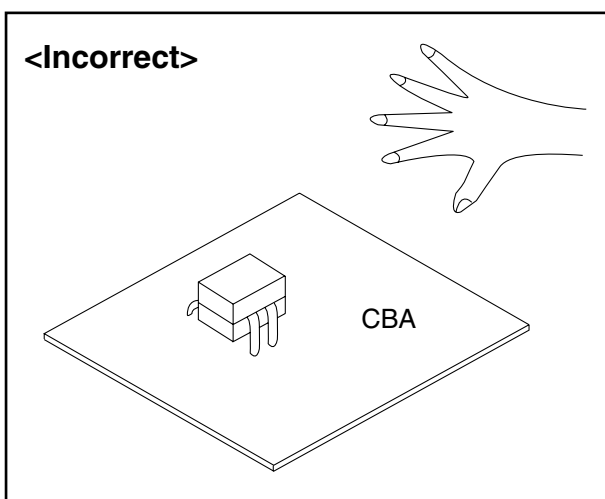
Electrostatic breakdown of the semiconductors may occur due to a potential difference caused by electrostatic charge during unpacking or repair work.

Ground for Human Body

Be sure to wear a grounding band (1MΩ) that is properly grounded to remove any static electricity that may be charged on the body.

Ground for Work Bench

Be sure to place a conductive sheet or copper plate with proper grounding (1MΩ) on the work bench or other surface, where the semiconductors are to be placed. Because the static electricity charge on the clothing will not escape through the body grounding band, be careful to avoid contacting semiconductors to clothing.



PREPARATION FOR SERVICING

How to Enter the Service Mode

Caution: 1

- Optical sensors system are used for Tape Start and End Sensor on this equipment. Read this page carefully and prepare as described on this page before starting to service; otherwise, the unit may operate unexpectedly.

Preparing: 1

- Cover Q202 (START SENSOR) and Q201 (END SENSOR) with Insulation Tape or enter the service mode to activate Sensor Inhibition automatically.

Note: Avoid playing, rewinding or fast forwarding the tape to its beginning or end, because both Tape End Sensors are not active.

How to Enter the Service Mode

- Turn the power on. (Use main power on the TV unit.)
- Press [STANDBY/ON], [2], [7], [1], and [MUTE] buttons on the remote control unit in that order within 5 seconds. When entering the service mode, "4" will display at corners of the screen.
- During the service mode, electrical adjustment mode can be selected by remote control key.

Details are as follows.

Key	Adjustment Mode
MENU	Picture adjustment mode: Press the MENU button to change from BRT (Bright), *CNT (Contrast), *COL (Color), *TNT (Tint) and SHP (SHARP). Press PROG+/PROG- key to adjust Initial Value. *Marked items are not necessary to adjust normally.
VOL-	SECAM Black Level adjustment mode: See adjustment instructions page 1-6-3. Cut-Off adjustment mode: See adjustment instructions page 1-6-4. White Balance adjustment mode: See adjustment instructions page 1-6-5.
0	C-Trap adjustment mode: See adjustment instructions page 1-6-3.
1	No need to use.
2	H adjustment mode: See adjustment instructions page 1-6-2.
3	Head switching point adjustment mode (Auto adjustment): See adjustment instructions page 1-6-7.
4	Auto record mode: Perform recording (15 Sec.)-->Stop-->Rewind (Zero return) automatically.
5	Head switching point adjustment mode (Manual adjustment): See adjustment instructions page 1-6-7.

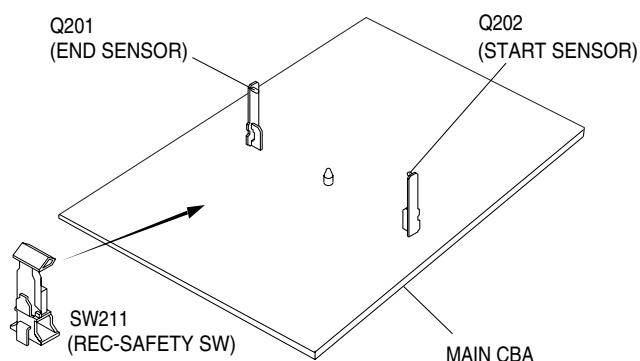
Key	Adjustment Mode
6	No need to use.
7	No need to use.
8	H. Shift adjustment mode: See adjustment instructions page 1-6-4.
9	V.size/V. shift adjustment: See adjustment instructions page 1-6-4.

Caution: 2

- The deck mechanism assembly is mounted on the Main CBA directly, and SW211 (REC-SAFETY SW) is mounted on the Main CBA. When deck mechanism assembly is removed from the Main CBA due to servicing, this switch can not be operated automatically.

Preparing: 2

- To eject the tape, press the STOP/EJECT button on the unit (or Remote Control).
- When you want to record during the Service mode, press the Rec button while depressing SW211 (REC-SAFETY SW) on the Main CBA.



CABINET DISASSEMBLY INSTRUCTIONS

Comparison Chart of Models and Marks

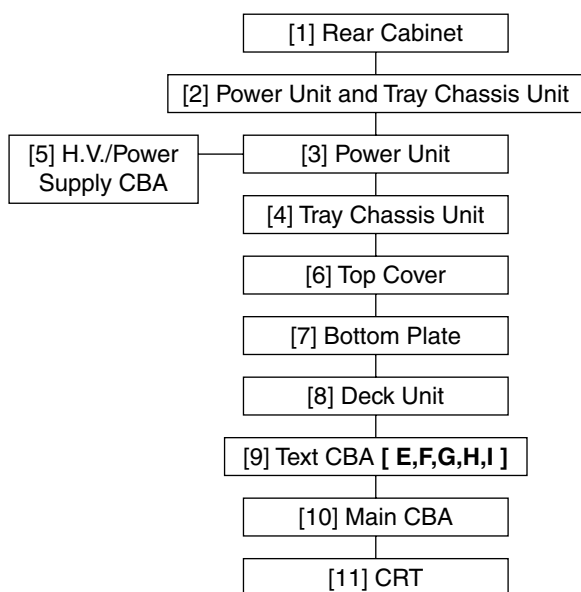
Model	Mark
TVCR-A2104	A
TVCR-B2104	B
TVCR-C2104	C
TVCR-D2104	D
TVCR-A2104T	E
TVCR-B2104T	F
TVCR-C2104T	G
TVCR-D2104T	H
TVCR-A2104TG	I

1. Disassembly Flowchart

This flowchart indicates the disassembly steps for the cabinet parts, and the CBA in order to gain access to item(s) to be serviced. When reassembling, follow the steps in reverse order. Bend, route and dress the cables as they were.

Caution !!

When removing the CRT, be sure to discharge the Anode Lead of the CRT with the CRT Ground Wire before removing the Anode Cap.



2. Disassembly Method

ID/ LOC. No.	PART	REMOVAL		
		Fig. No.	REMOVE/ *UNHOOK/ UNLOCK/RELEASE/ UNPLUG/ DESOLDER	Note
[1]	Rear Cabinet	1,2,5	6(S-1), 2(S-2), *CN151	1
[2]	Power Unit and Tray Chassis Unit	3,4,5	Anode Cap, *CN501, *CN551, *CN601, CRT CBA, Power Knob	2

ID/ LOC. No.	PART	REMOVAL		
		Fig. No.	REMOVE/ *UNHOOK/ UNLOCK/RELEASE/ UNPLUG/ DESOLDER	Note
[3]	Power Unit	3,5	*CN502, *CN552, *CN602	3
[4]	Tray Chassis Unit	3	-----	-
[5]	H.V./Power Supply CBA	3	6(S-3)	4
[6]	Top Cover	3	5(S-4), CL604	5
[7]	Bottom Plate	3	(S-5)	6
[8]	Deck Unit	3, 5	7(S-6), (S-7), (S-8), Desolder *(CN201, CL401, CL402, CL403)	7
[9]	Text CBA -- [E,F,G,H,I]	3, 5	(S-9), TE Holder, *CN751, *CN752	8
[10]	Main CBA	3	4(S-10)	9
[11]	CRT	4	4(S-11)	10

(1): Order of steps in Procedure. When reassembling, follow the steps in reverse order. These numbers are also used as the identification (location) No. of parts in Figures.

(2): Parts to be removed or installed.

(3): Fig. No. showing Procedure of Part Location.

(4): Identification of part to be removed, unhooked, unlocked, released, unplugged, unclamped, or desoldered.

S=Screw, P=Spring, L=Locking Tab, CN=Connector, *=Unhook, Unlock, Release, Unplug, or Desolder

2(S-2) = two Screw (S-2)

(5): Refer to the following "Reference Notes in the Table."

Reference Notes in the Table

1. Removal of the Rear Cabinet.

Remove six screws (S-1) and two screws (S-2). Disconnect connector CN151 and remove the Rear Cabinet.

Caution !!

Discharge the Anode Lead of the CRT with the CRT Ground Wire before removing the Anode Cap.

2. Removal of the Power Unit and Tray Chassis Unit.

Discharge the Anode Lead of the CRT with the

CRT Ground before removing the Anode Cap.
Disconnect the following: Anode Cap, CN501, CN551, CN601, CRT CBA, and Power Button. Then pull the Power Unit and Tray Chassis Unit out backward.

3. Removal of the Power Unit.
Disconnect connectors CN502, CN552, and CN602. Then slide the Power Unit out.
4. Removal of the H.V./Power Supply CBA.
Remove six screws (S-3) and pull up the H.V./Power Supply CBA.
5. Removal of the Top Cover.
Remove five screws (S-4) and CL604, and remove the Top Cover.
6. Removal of the Bottom Plate.
Remove a screw (S-5). Then slide the Bottom Plate out front.

7. Removal of the Deck Unit.
Remove seven screws (S-6), screw (S-7) and screw (S-8). Then, desolder connectors (CN201, CL401, CL402, CL403) and lift up the Deck Unit.
8. Removal of the Text CBA. [E,F,G,H,I]
Remove a screw (S-9) and TE Hplder, and disconnect connectors CN751 and CN752. Then, lift the Text CBA up.
9. Removal of the Main CBA.
Remove four screws (S-10) and pull up the Main CBA.
10. Removal of the CRT.
Remove four screws (S-11) and pull the CRT backward.

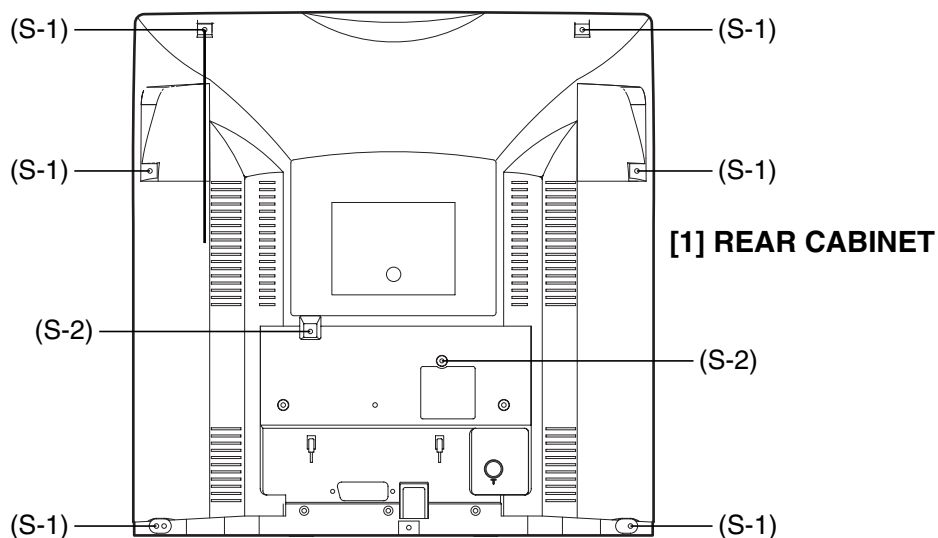


Fig. 1

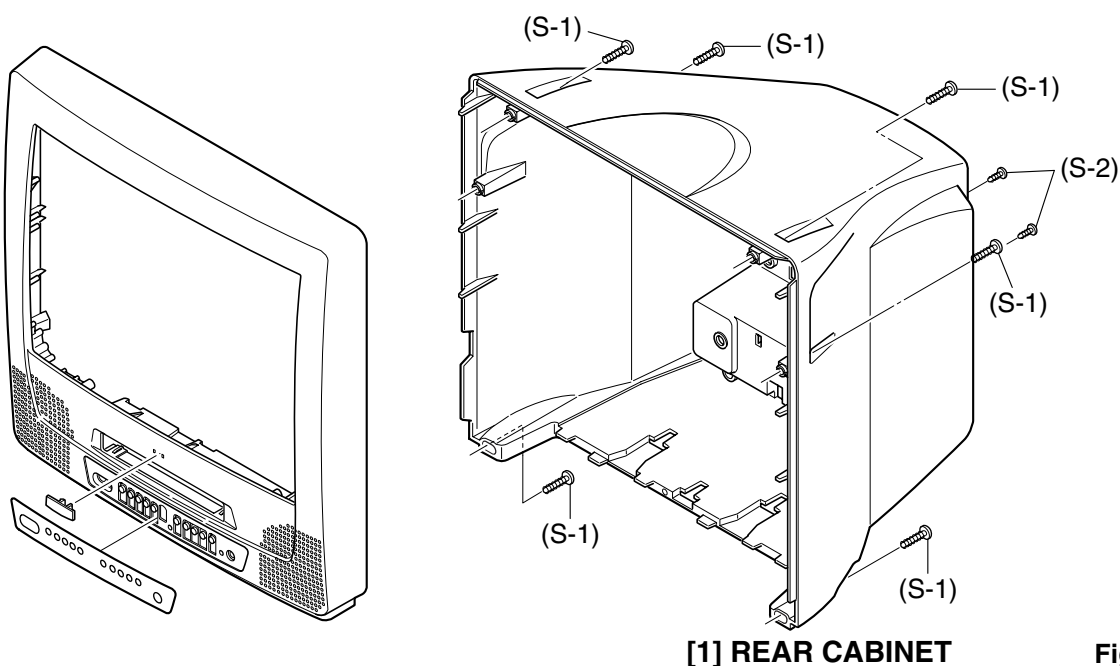


Fig. 2

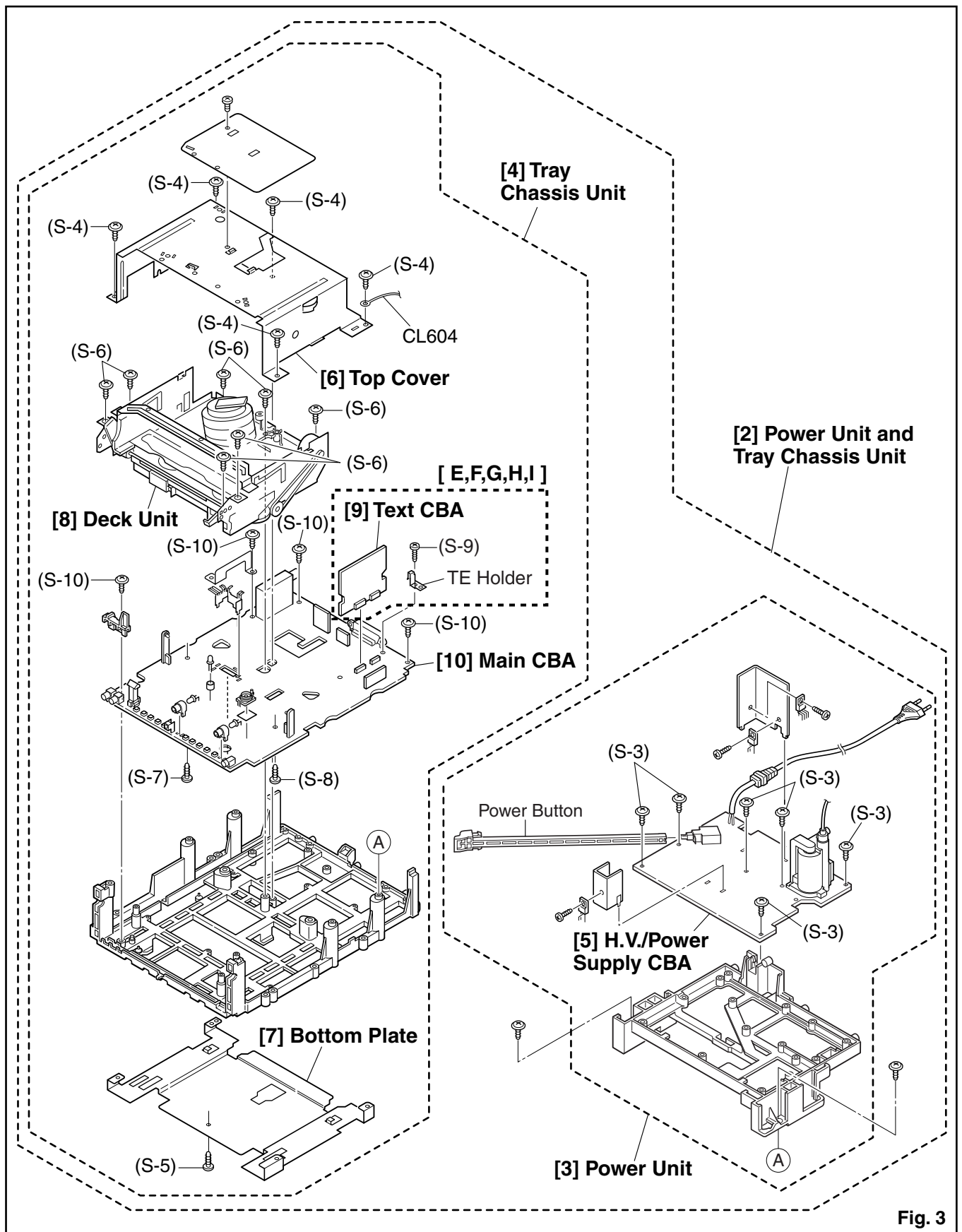


Fig. 3

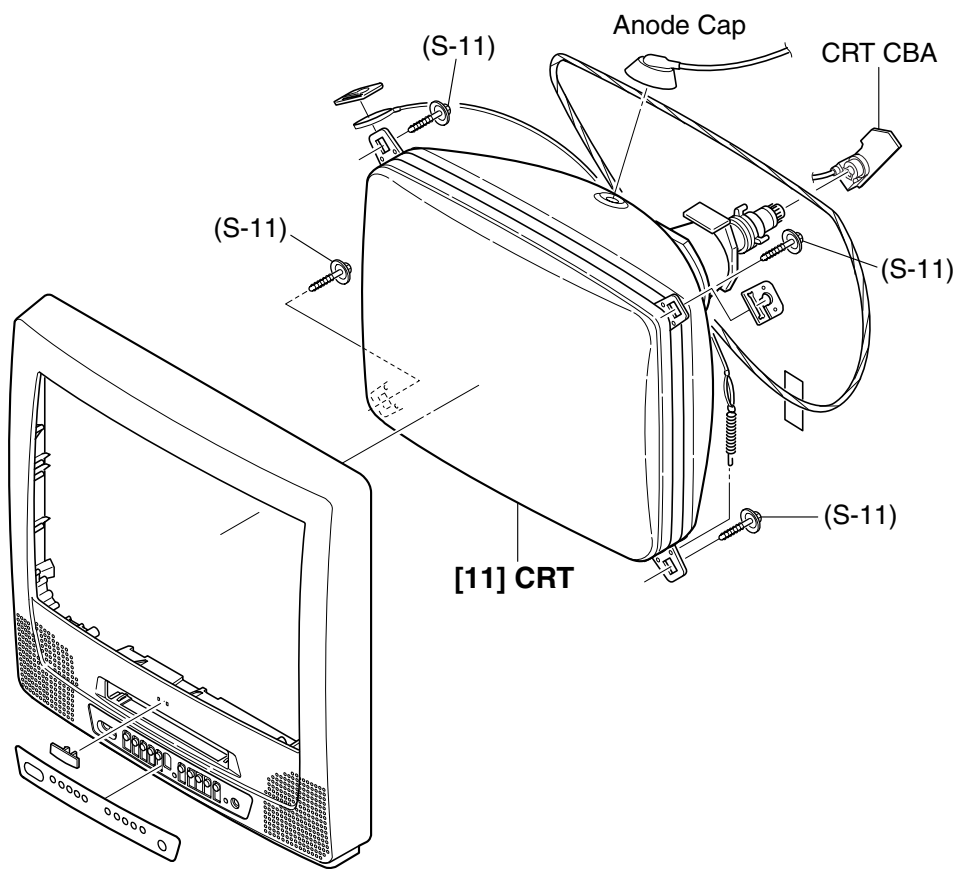


Fig. 4

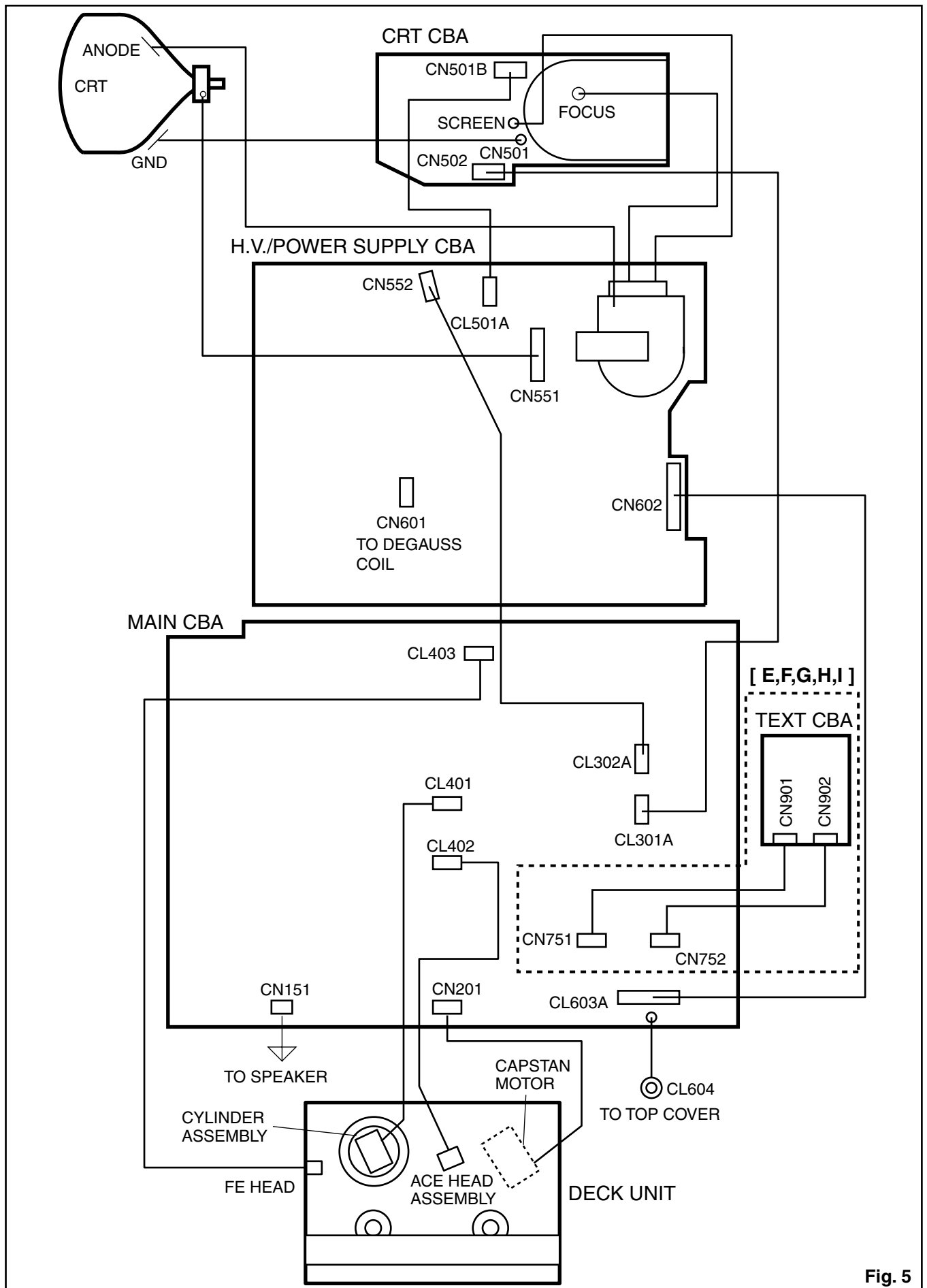


Fig. 5

ELECTRICAL ADJUSTMENT INSTRUCTIONS

General Note:

"CBA" is abbreviation for "Circuit Board Assembly."

NOTE:

Electrical adjustments are required after replacing circuit components and certain mechanical parts. It is important to perform these adjustments only after all repairs and replacements have been completed.

Also, do not attempt these adjustments unless the proper equipment is available.

Test Equipment Required

1. PAL Pattern Generator (Color Bar, Monoscope, Black Raster, White Raster, Sympte)
2. SECAM Pattern Generator (Gray Scale)
3. AC Milli Voltmeter (RMS)
4. Alignment Tape (FL6A), Blank Tape (E180)
5. DC Voltmeter
6. Oscilloscope: Dual-trace with 10:1 probe,
V-Range: 0.001~50V/Div,
F-Range: DC~AC-60MHz
7. Frequency Counter
8. Plastic Tip Driver
9. RF input (at each broadcasting system)
Receiving Channel : VHF Low
Input level : 80dB μ V
10. Ext.input
FRONT VIDEO-IN JACK or REAR SCART JACK

How to Set up the Service mode:

NOTE:

After replacing the IC202 (Memory) or Main CBA, the set value in IC202 (Memory) will be lost. So it is necessary to set up or adjust in the Service mode after its replacement.

Service Mode:

1. Turn the power on. (Use main power on the TV unit.)
2. Press [STANDBY/ON], [2], [7], [1], and [MUTE] buttons on the remote control unit in that order within 5 seconds.
- To cancel the service mode, press [STANDBY/ON] button on the remote control.

How to set up the option code

1. Enter the Service mode.
2. Press the [STATUS] button on the remote control unit. The option code appears on the display.
3. If needed, input the option code as shown below using number buttons on the remote control unit.

Model	Option Code
TVCR-A2104	0130
TVCR-A2104T	0178
TVCR-A2104TG	0242
TVCR-B2104	0128
TVCR-B2104T	0176
TVCR-C2104	0129
TVCR-C2104T	0177
TVCR-D2104	0131
TVCR-D2104T	0179

4. To reset the software, press [PAUSE] and [5] buttons on the remote control unit.
The option code is changed.

1. DC 114V (+B) Adjustment

Purpose: To obtain correct operation.

Symptom of Misadjustment: The picture is dark and unit does not operate correctly.

Test point	Adj. Point	Mode	Input
TP503 (+B), TP504 (GND)	VR601	RF (or Ext.)	Color Bar
Tape	M. EQ.	Spec.	
---	DC Voltmeter, Plastic Tip Driver	+114±0.5V DC	

Note: TP503(+B), TP504(GND), VR601 --- H.V./Power Supply CBA

1. Connect the unit to AC Power Outlet. (exact AC230V)
2. Input a color bar signal from RF (or Ext.) input and leave it for at least 20 minutes.
3. Connect DC Volt Meter to TP503(+B) and TP504(GND).
4. Adjust VR601 so that the voltage of TP503(+B) becomes +114±0.5V DC.

2. H Adjustment

Purpose: To get correct horizontal position and size of screen image.

Symptom of Misadjustment: Horizontal position and size of screen image may not be properly displayed.

Test point	Adj. Point	Mode	Input
R590	PROG+/PROG- buttons	Ext.	---
Tape	M. EQ.	Spec.	
---	Frequency Counter	15.625kHz±75Hz	

Note: R590 --- H.V./Power Supply CBA

1. Connect Frequency Counter to R590.
2. Set the unit to the Ext. mode and no input is necessary. Enter the Service mode.
(See page 1-6-1.)
3. Operate the unit for at least 20 minutes.
4. Press [2] button on the remote control unit and select H-Adj mode.
5. Press [PROG+/PROG-] buttons on the remote control unit so that the display will change [0] to [7.]
At this moment, choose display [0] to [7] when the Frequency counter display is closest to 15.625kHz±75Hz.
6. Turn the power off and on again.

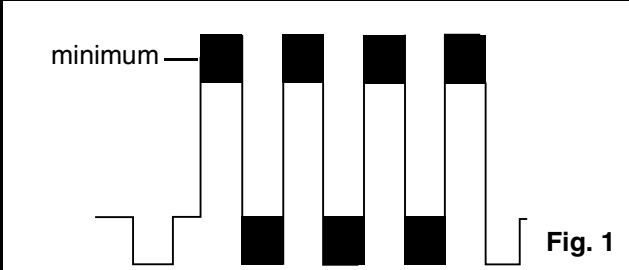
3. C-Trap Adjustment

Purpose: To get minimum leakage of the color signal carrier.

Symptom of Misadjustment: If C-Trap Adjustment is incorrect, stripes will appear on the screen.

Test point	Adj. Point	Mode	Input
J349F3 (B-OUT)	PROG+/PROG- buttons	RF (or Ext.)	Color Bar
Tape	M. EQ.	Spec.	
---	Oscilloscope, Pattern Generator	200mVp-p Max.	

Figure



The diagram shows a series of four pulses. The first pulse is labeled 'minimum' and is the lowest in amplitude. The subsequent three pulses are higher and have black bars at their peaks. The waveform is labeled 'Fig. 1'.

Note: J349F3 (B-Out)--- Main CBA

1. Connect Oscilloscope to J349F3.
2. Input a color bar signal from RF (or Ext.) input. Enter the Service mode. (See page 1-6-1.)
3. Press [0] button on the remote control unit and select C-TRAP mode.
4. Press [PROG+/PROG-] buttons on the remote control unit so that the carrier leakage B-Out (4.43MHz) value becomes minimum on the oscilloscope.
5. Turn the power off and on again.

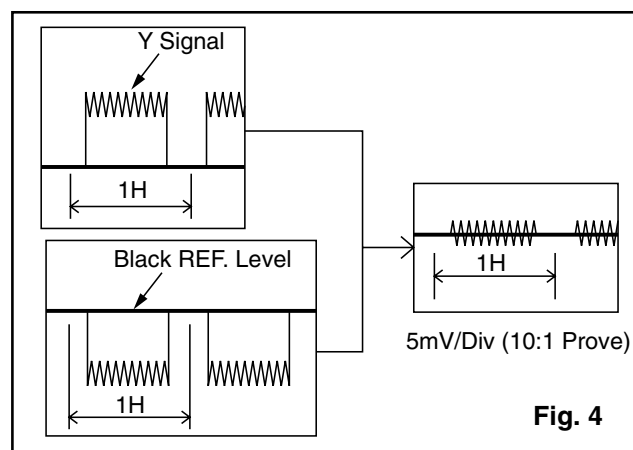
4. SECAM Black Level Adjustment

Purpose: To set Black Level of the SECAM signal R-Y/B-Y to Ref. level.

Symptom of Misadjustment: If Black Level of the SECAM signal R-Y/B-Y is incorrect, the picture is bluish or reddish in grayscale compared with PAL signal.

Test point	Adj. Point	Mode	Input
J361G4	PROG+/PROG- buttons	Ext.	SECAM Gray Scale
Tape	M. EQ.	Spec.	
---	Pattern Generator, Analog Oscilloscope (unusable Digital Oscilloscope)	---	

1. Degauss the CRT and allow CRT to operate for 20 minutes before starting the alignment.
2. Input the SECAM Gray Scale signal from Ext. input.
3. Enter the service mode. (See page 1-6-1.)
4. To enter the C/D/S mode, press [VOL-] on the remote control unit.
5. To select SBR (SECAM Black Level R-Y), press [6] button on the remote control unit.
6. Press [PROG+/PROG-] buttons to adjust Y signal to the black ref. level.
7. To select SBB (SECAM Black Level B-Y), press [7] button on the remote control unit.
8. Press [PROG+/PROG-] buttons to adjust Y signal to the black ref. level.



5. V. Size Adjustment

Purpose: To obtain correct vertical height of screen image.

Symptom of Misadjustment: If V. Size is incorrect, vertical height of image on the screen may not be properly displayed.

Test point	Adj. Point	Mode	Input
Screen	PROG+/PROG- buttons	RF (or Ext.)	Monoscope
Tape	M. EQ.	Spec.	
---	Pattern Generator	90±5%	

1. Enter the Service mode. (See page 1-6-1.)
Press [9] button on the remote control unit and select V-S mode. (Press [9] button then display will change to V-P and V-S).
2. Input monoscope pattern and leave it for at least 20 minutes.
3. Press [PROG+/PROG-] buttons on the remote control unit so that the monoscope pattern is 90±5% of display size and the circle is round.

6. V. Shift Adjustment

Purpose: To obtain correct vertical position of screen image.

Symptom of Misadjustment: If V. position is incorrect, vertical position of image on the screen may not be properly displayed.

Test point	Adj. Point	Mode	Input
Screen	PROG+/PROG- buttons	RF (or Ext.)	Monoscope
Tape	M. EQ.	Spec.	
---	Pattern Generator	90±5%	

1. Enter the Service mode. (See page 1-6-1.)
Press [9] button on the remote control unit and select V-P mode. (Press [9] button then display will change to V-P and V-S).
2. Input monoscope pattern and leave it for at least 20 minutes.
3. Press [PROG+/PROG-] buttons on the remote control unit so that the top and bottom of the monoscope pattern are equal to each other.

7. H. Shift Adjustment

Purpose: To obtain correct horizontal position and size of screen image.

Symptom of Misadjustment: Horizontal position and size of screen image may not be properly displayed.

Test point	Adj. Point	Mode	Input
Screen	PROG+/PROG- buttons	RF (or Ext.)	Monoscope
Tape	M. EQ.	Spec.	
---	Pattern Generator	90±5%	

1. Enter the Service mode. (See page 1-6-1.)
Press [8] button on the remote control unit and select H-P mode.
2. Input monoscope pattern and leave it for at least 20 minutes.
3. Press [PROG+/PROG-] buttons on the remote control unit so that the left and right side of the monoscope pattern are equal to each other.
4. Turn the power off and on again.

8. Cut-off Adjustment

Purpose: To adjust the beam current of R, G, B, and screen voltage.

Symptom of Misadjustment: White color may be reddish, greenish or bluish.

Test point	Adj. Point	Mode	Input
Screen	Screen-Control, PROG+/PROG- buttons	RF (or Ext.)	Black Raster
Tape	M. EQ.	Spec.	
---	Pattern Generator	See Reference Notes below	

Notes:

Screen Control (FBT) --- H.V./Power Supply CBA
FBT= Fly Back Transformer
Use the Remote Control Unit

1. Degauss the CRT and allow CRT to operate for 20 minutes before starting the alignment.
2. Set the screen control to minimum position. Input the Black raster signal from RF (or Ext.) input.
3. Enter the service mode. (See page 1-6-1.)
Dimmed horizontal line appears on the CRT.
4. To enter the C/D/S mode, press the [VOL-] button on the remote control unit.
5. To enter the CUT OFF (R) mode, press [1] button on the remote control unit.
6. Turn the screen control up until dimmed horizontal line appears.

7. Press the [PROG+/PROG-] buttons until the horizontal line becomes white.
8. To enter the CUT OFF (G) mode, press [2] button on the remote control unit.
9. Press the [PROG+/PROG-] buttons until the horizontal line becomes white.
10. To enter the CUT OFF (B) mode, press [3] button on the remote control unit.
11. Press the [PROG+/PROG-] buttons until the horizontal line becomes white.
12. Turn the screen control so that the horizontal line adjusted white looks lightly.
13. Turn the power off and on again.

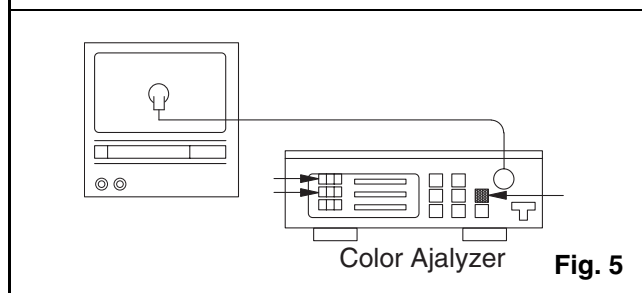
9. White Balance Adjustment

Purpose: To mix red, green and blue beams correctly for pure white.

Symptom of Misadjustment: White becomes bluish or reddish.

Test point	Adj. Point	Mode	Input
Screen	Screen-Control, PROG+/PROG- buttons	RF (or Ext.)	White Raster (APL 100%)
Tape	M. EQ.	Spec.	
---	Pattern Generator, Color analyzer	See below	

Figure



Note: Use remote control unit

1. Operate the unit more than 20 minutes.
2. Face the unit to east. Degauss the CRT using De-gaussing Coil.
3. Input the White Raster (APL 100%).
4. Set the color analyzer to the CHROMA mode and after zero point calibration, bring the optical receptor to the center on the tube surface (CRT).
5. Enter the Service mode. Press [VOL-] button on the remote control.
6. Press [4] button on the remote control unit for Red adjustment. Press [5] button on the remote control unit for Blue adjustment.
7. In each color mode, Press [PROG+/PROG-] buttons to adjust the values of color.
8. Adjusting Red and Blue color so that the temperature becomes 8500K ($x : 290 / y : 300$) $\pm 3\%$.
9. At this time, Re-check that Horizontal line is white. If not, Re-adjust Cut-off Adjustment until the Horizontal Line becomes pure white.
10. Turn off and on again to return to normal mode. Receive APL 100% white signal and Check Chroma temperatures become 8500K ($x : 290 / y : 300$) $\pm 3\%$.

Note: Confirm that Cut Off Adj. is correct after this adjustment, and attempt Cut Off Adj. if needed.

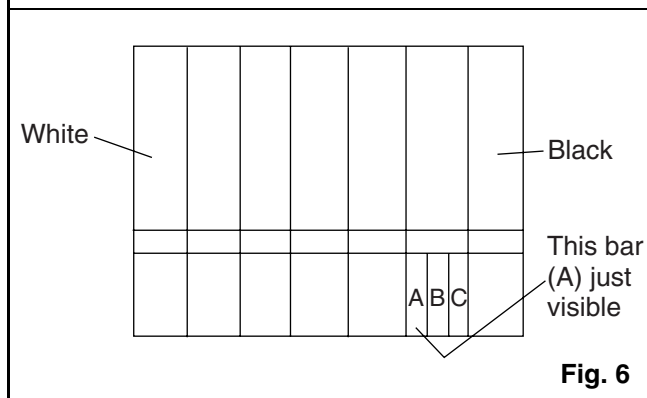
10. Sub-Brightness Adjustment

Purpose: To get proper brightness.

Symptom of Misadjustment: If Sub-Brightness is incorrect, proper brightness cannot be obtained by adjusting the Brightness Control.

Test point	Adj. Point	Mode	Input
Screen	PROG+/PROG- buttons	RF (or Ext.)	SYMPTE
Tape	M. EQ.	Spec.	
---	Pattern Generator	See below	

Figure



Note: Bar (A) in Fig. 7 --- 0 IRE

1. Enter the service mode. (See page 1-6-1.)
Then input SYMPTE signal from RF (or Ext.) input and leave it for at least 20 minutes.
2. Press [MENU] button. (Each time [MENU] button is pressed, display will change BRT, CNT, COL, TNT, and SHP in that order.) Select BRT and press [PROG+/PROG-] buttons so that the bar (A) in Fig. 6 is just visible.
3. Turn the power off and on again.

11. Setting for CONTRAST, COLOR, TINT and SHARP Data Values

General

1. Enter the Service mode. (See page 1-6-1)
2. Press [MENU] button. (Each time [MENU] button is pressed, display will change BRT, CNT, COL, TNT, and SHP in that order.)

CONTRAST (CNT)

1. Press [MENU] button on the remote control unit. Then select CNT display.
2. Press [PROG+/PROG-] buttons on the remote control unit so that the value of "CONTRAST" (CNT) becomes 83.

COLOR (COL)

1. Press [MENU] button on the remote control unit. Then select "COLOR" (COL) display.
2. Press [PROG+/PROG-] buttons on the remote control unit so that the value of "COLOR" (COL) becomes 65.

TINT (TNT)

1. Press [MENU] button on the remote control unit. Then select "TINT" (TNT) display.
2. Press [PROG+/PROG-] buttons on the remote control unit so that the value of "TINT" (TNT) becomes 68.

SHARP (SHP)

1. Press [MENU] button on the remote control unit. Then select "SHARP" (SHP) display.
2. Press [PROG+/PROG-] buttons on the remote control unit and select "0."

12. Focus Adjustment

Purpose: Set the optimum Focus.

Symptom of Misadjustment: If Focus Adjustment is incorrect, blurred images are shown on the display.

Test point	Adj. Point	Mode	Input
Screen	Focus Control	RF (or Ext.)	Monoscope
Tape	M. EQ.	Spec.	
---	Pattern Generator	See below.	

Note: Focus VR (FBT) --- H.V./Power Supply CBA

FBT= Fly Back Transformer

1. Operate the unit more than 30 minutes.
2. Face the unit to the East and degauss the CRT using a Degaussing Coil.
3. Input the monoscope pattern.
4. Adjust the Focus Control on the FBT to obtain clear picture.

13. Head Switching Position Adjustment

Purpose: Determine the Head Switching Position during Playback.

Symptom of Misadjustment: May cause Head Switching Noise or Vertical Jitter in the picture.

Note: Unit reads Head Switching Position automatically and displays it on the screen (Upper Left Corner).

Manual Adjustment

1. Enter the service mode. (See page 1-6-1.)
2. Playback the test tape (FL6A).
3. Press the number [5] button on the remote control unit.
4. The Head Switching position will display on the screen; if adjustment is necessary follow step 4. 7.0H (448μs) is preferable.
5. Press [PROG+/PROG-] buttons on the remote control unit if necessary. The value will be changed in 0.5H steps up or down. Adjustable range is up to 9.5H. If the value is beyond adjustable range, the display will change as:
Lower out of range: 0.0H
Upper out of range: -.H
6. Turn the power off and on again.

Auto Adjustment

1. Load the test tape (FL6A) that have been recorded the Head Switching Position Value.
2. Enter the service mode.
3. Press [3] button on the remote control unit in the tape stop mode. The unit playback and adjust the Head Switching Position automatically.
4. The adjusting report appears on upper left corner of the screen with blueback.
In case of adjusting correctly: the Head Switching Position Value recorded in the test tape (FL6A) is indicated with green.
In case of adjusting incorrectly: "NG" (red) is indicated with ejecting tape.

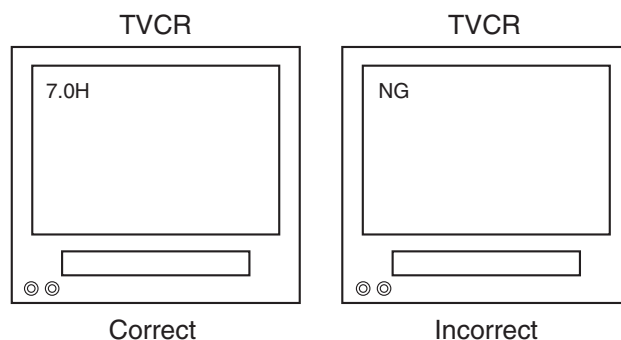
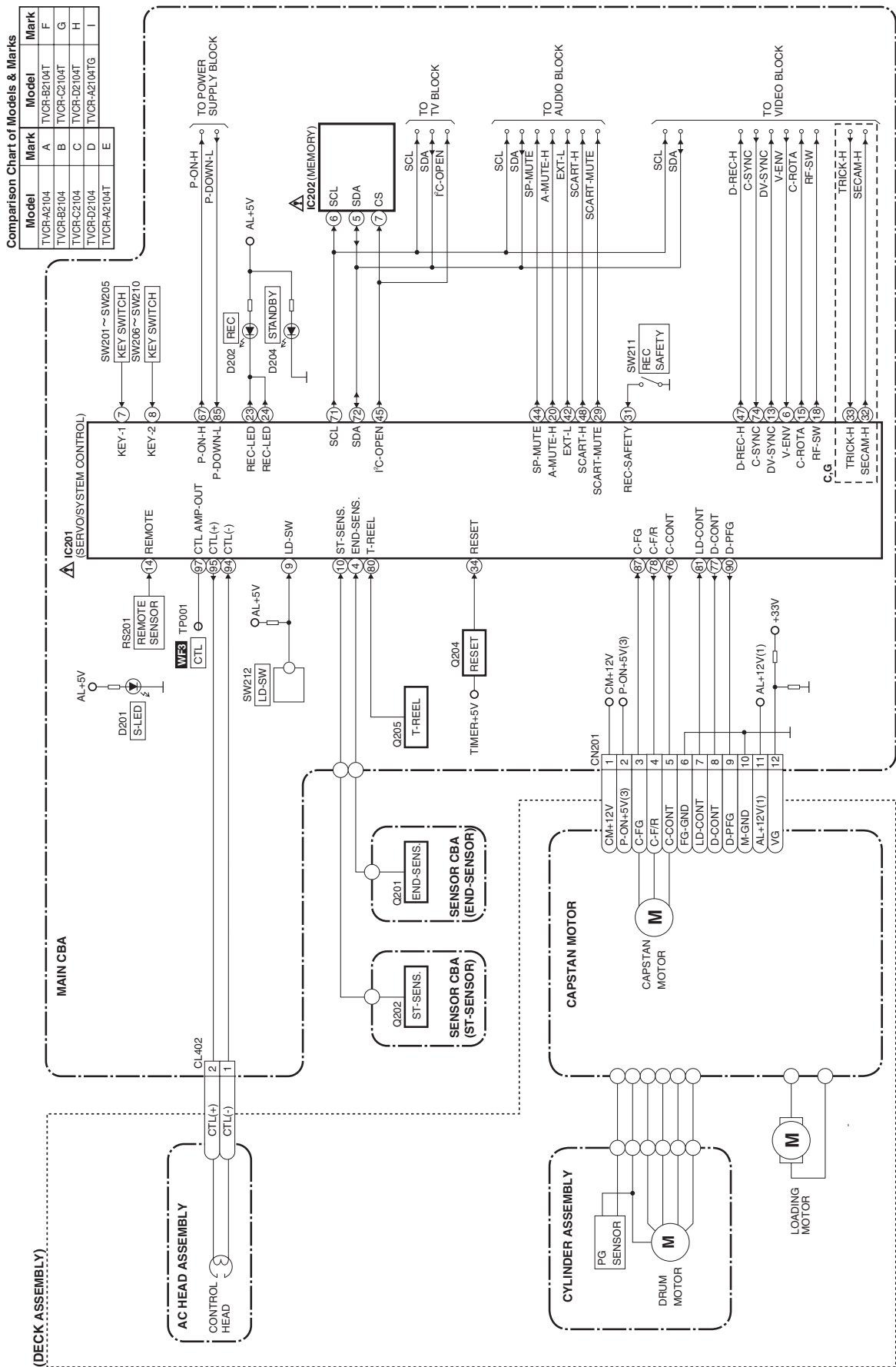


Fig. 7

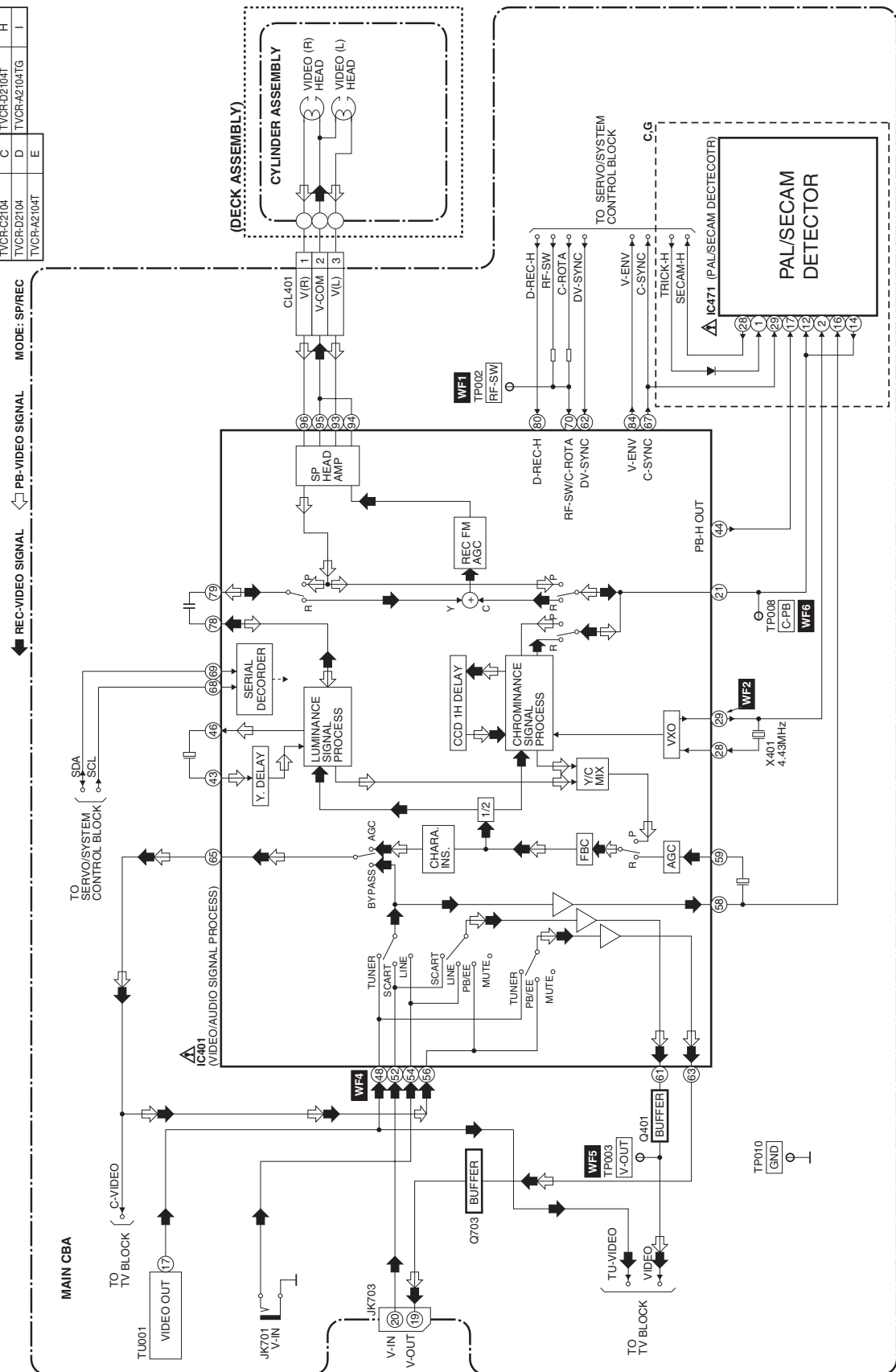
BLOCK DIAGRAMS

Servo/System Control Block Diagram

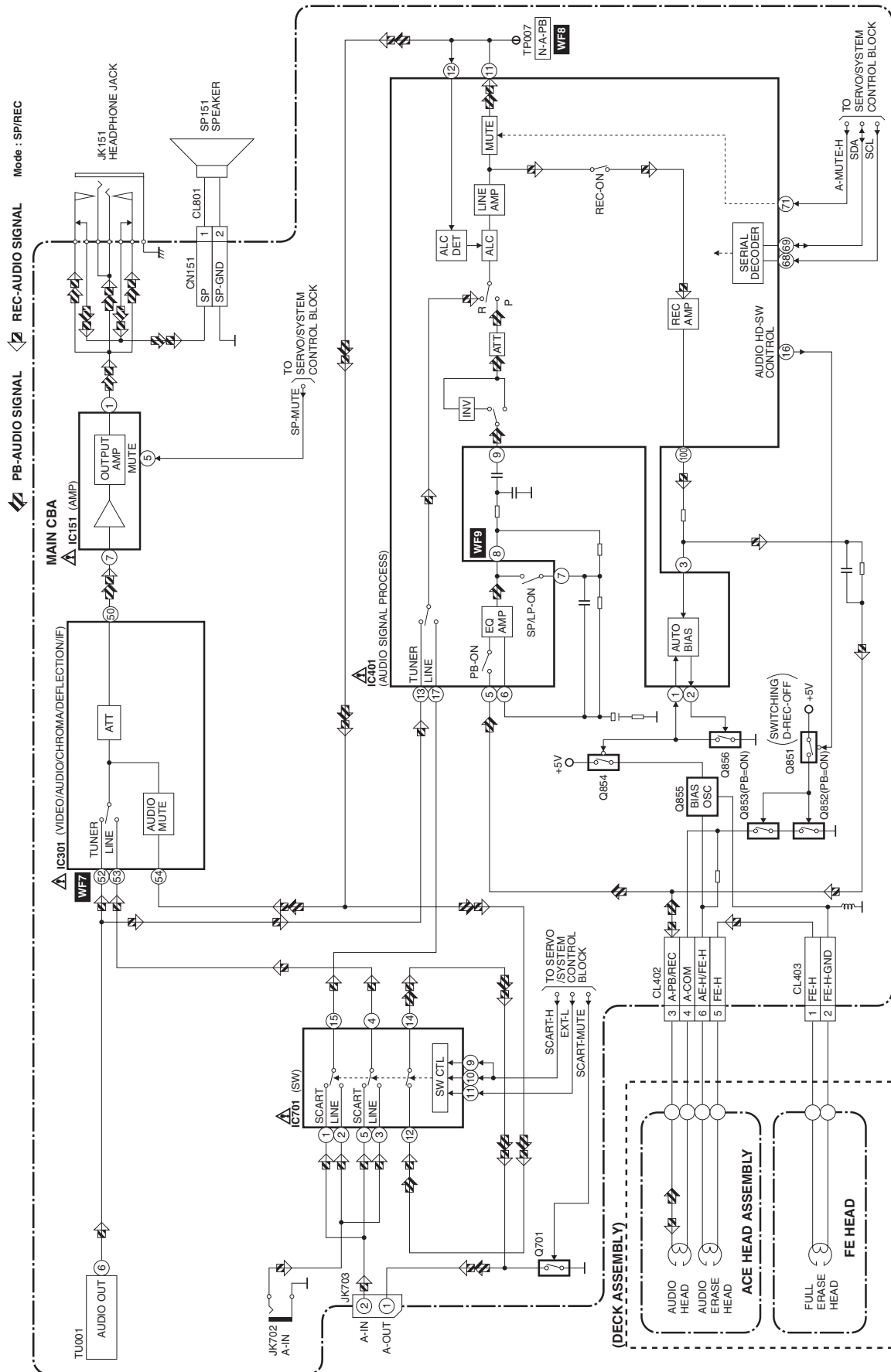


Video Block Diagram

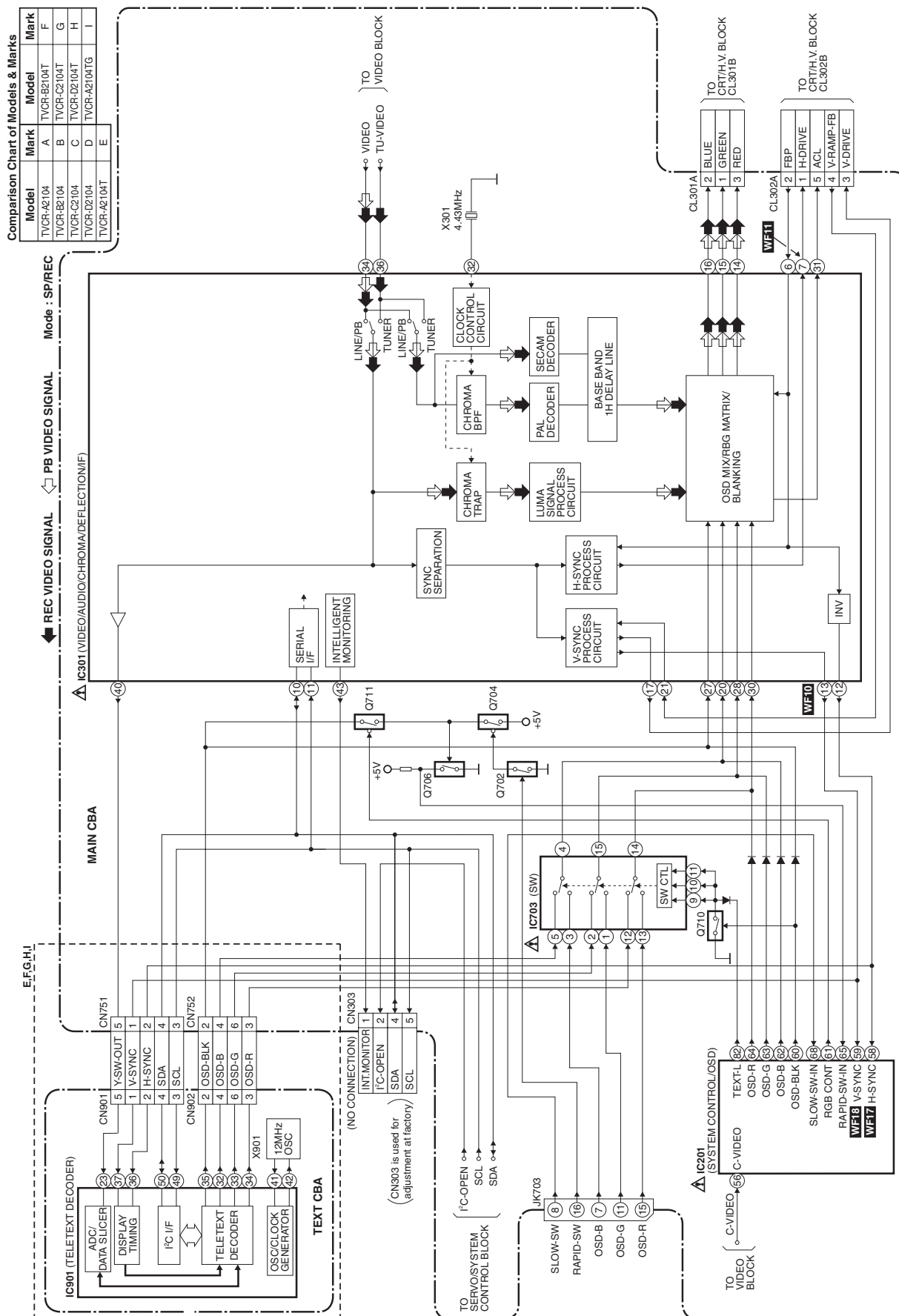
Model	Mark	Model	Mark
TVCR-A2104	A	TVCR-B2104T	F
TVCR-B2104	B	TVCR-C2104T	G
TVCR-C2104	C	TVCR-D2104T	H
TVCR-D2104	D	TVCR-A2104TG	I
TVCR-A2104T	E		



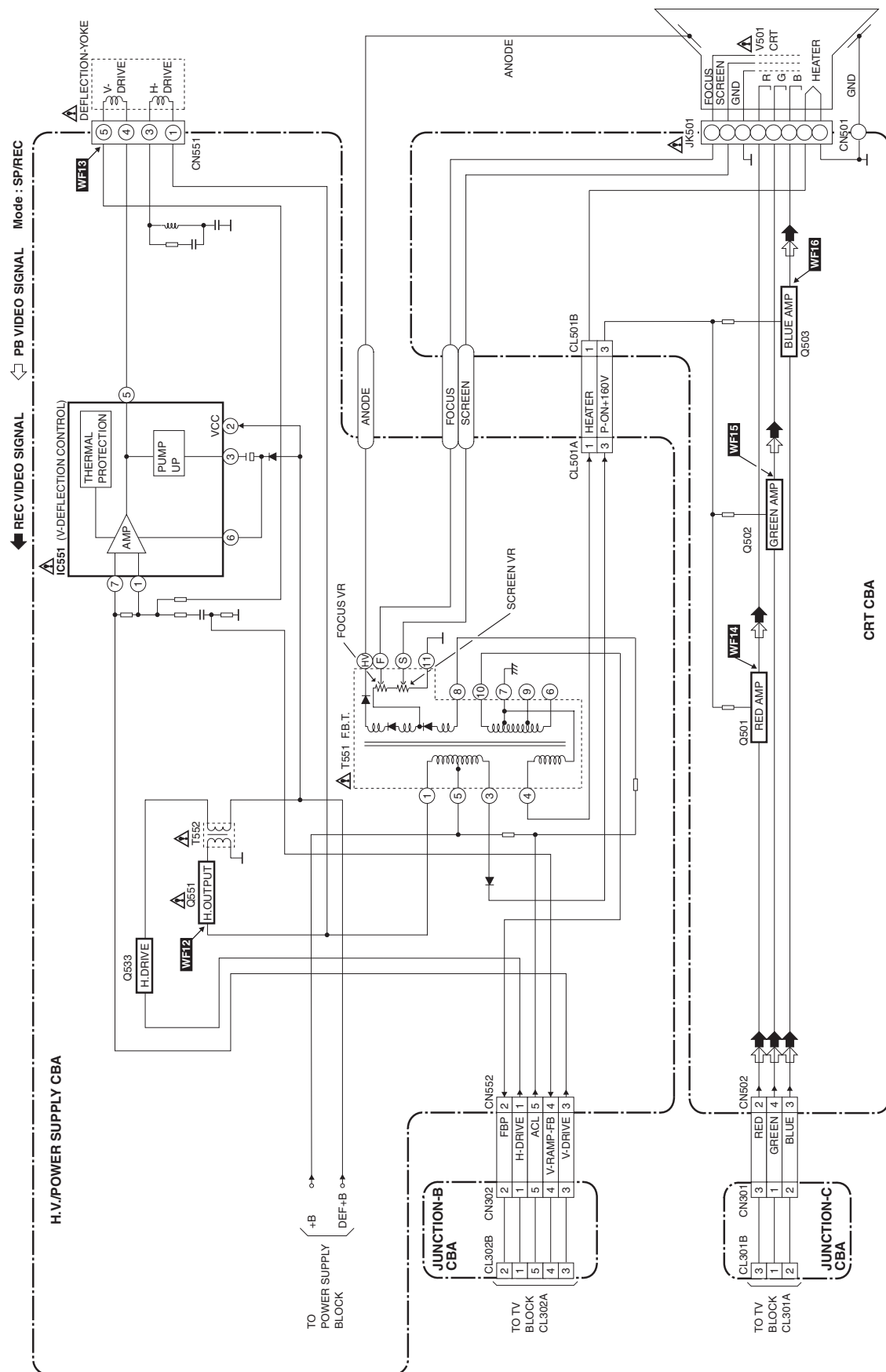
Audio Block Diagram



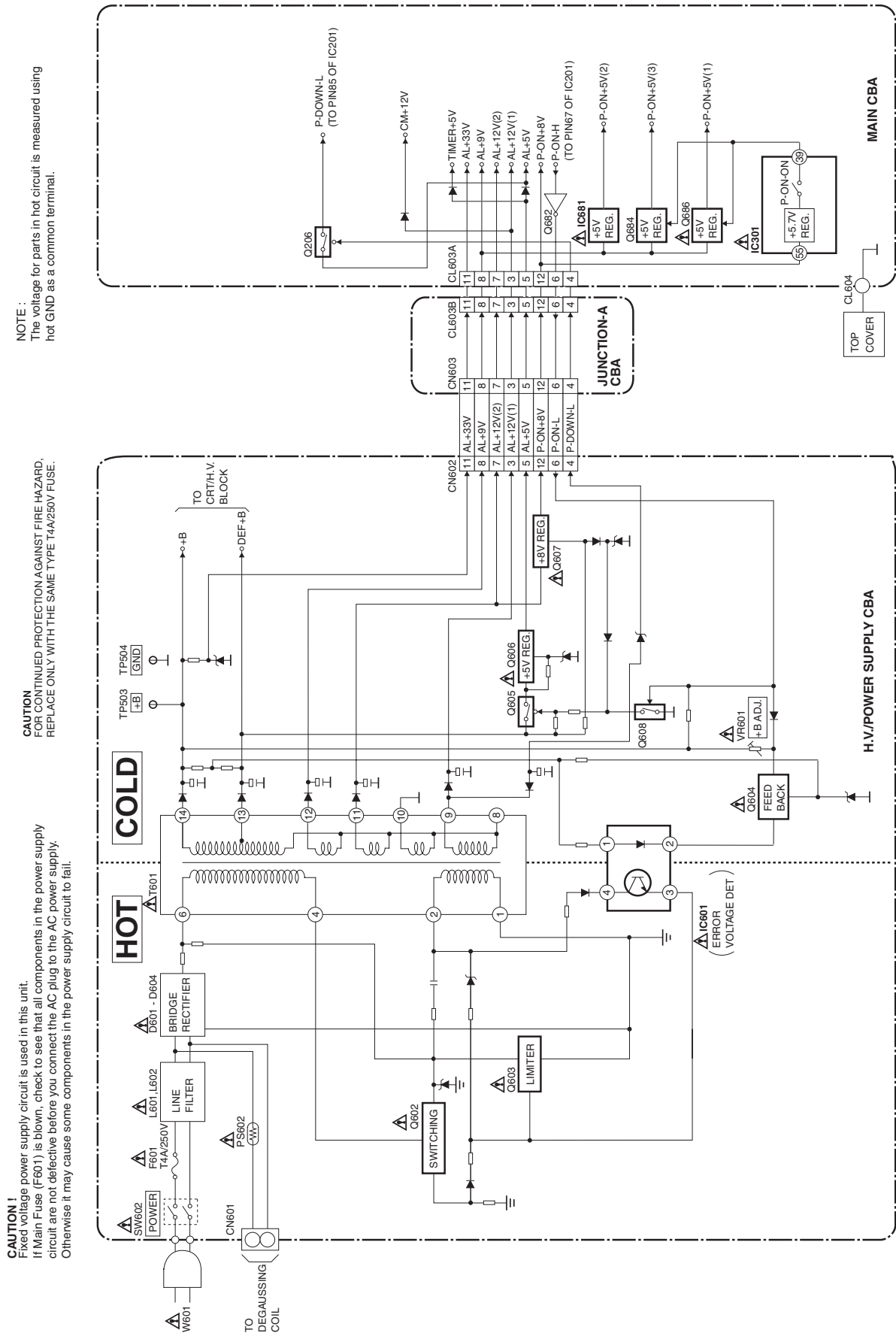
TV Block Diagram



CRT/H.V. Block Diagram



Power Supply Block Diagram



MECHANICAL TROUBLE INDICATOR

1, Each Malfunction Indication

If the MONITOR is turned ON right after the Mechanical Malfunction occurs or POWER SAFETY/X-RAY is turned ON, display the following character to show Malfunction after the EJECT display.

Immediately preceding Malfunction	Display character
REEL Malfunction	R
DRUM Malfunction	D
CASSETTE LOADING Malfunction	C
TAPE LOADING Malfunction	T
P-SAFETY 1	1
P-SAFETY 2	2
X-RAY	X

Example: If REEL Malfunction

EJECT R

2, Each Malfunction evaluation method

X-RAY protect

If X-RAY port becomes continuously 2.5V or more for 120 msec. (4 times 40 msec. interval), the unit shall immediately turn OFF the POWER/MONITOR and switch over to the Mechanical Malfunction mode with POWER OFF.

(To return from this mode shall become possible only by POWER Key as in the case of the Mechanical Malfunction).

POWER SAFETY

1) POWER SAFETY 1

If P-SAFETY 1 port becomes continuously 2.5V or less for 120 msec. (4 times 40 msec. interval) when MONITOR is ON, the unit shall be assumed to be the Power Malfunction 1 and immediately turn OFF the POWER/MONITOR and switch over the Mechanical Malfunction mode with POWER OFF.

(To return from this mode shall become possible only by POWER Key as in the case of the Mechanical Malfunction).

* However the POWER SAFETY 1 function shall be disabled during 500 msec. right after the MONITOR turns ON.

2) POWER SAFETY 2

If P-SAFETY 2 port becomes continuously 2.5V or less for 120 msec. (4 times 40 msec. interval) when P-ON-H port is ON, the unit shall be assumed to be the Power Malfunction 2 and immediately turn OFF the POWER/MONITOR and switch over the Mechanical Malfunction mode with POWER OFF.

(To return from this mode shall become possible only by POWER Key as in the case of the Mechanical Malfunction).

* However the POWER SAFETY 2 function shall be disabled during 500 msec. right after the P-ON-H port turns ON.

Mechanical Malfunction determination

1) REEL Malfunction detection

Countermeasure for REEL and CAPSTAN motor rotation malfunction (Except CASSETTE LOADING function)

After the Malfunction detection with REEL/CAPSTAN sensor, the unit shall switch over to STOP (B) and be REEL Mechanical Malfunction.

- a) If the T-REEL pulse is not impressed after a lapse of 7 sec. at SP, 14 sec. at LP, or more in the REEL Rotation Mode like PLAY/REC, FS/RS Mode, and the T-REEL or S-REEL pulse is not impress after a lapse of 4 sec. or more in REEL Rotation Mode of FF/REW, it shall be assumed to stop the rotation and switch over to STOP (B) position, then POWER be turned OFF and the unit be REEL Mechanical Malfunction. (T-REEL and S-REEL for the models on S-REEL and only T-REEL for other models)
- b) If the C-FG pulse is not impressed for a lapse of 1 sec. or more during the CAPSTAN MOTOR rotation, it shall be MOTOR Rotation Malfunction (REEL Malfunction).

2) DRUM Malfunction detection

Detect the DRUM rotation at the D-FG input terminal.

If the variation of D-FG input level is not detected for a lapse of 1 sec. or more when D-CONT is "H", it shall be assumed to be Rotation Malfunction and be DRUM Malfunction.

When detect Drum Malfunction, POWER shall be turned OFF after the unit switches over to STOP (B) Mode.

3) Countermeasure for TAPE LOADING Malfunction

Detect the Malfunction with the LOADING Switch.

a) TAPE LOADING Malfunction

If LD-SW does not go to the established position after a lapse of 7 sec. or more from TAPE LOADING or TAPE UNLOADING start, the LOADING function shall immediately be stopped and POWER be turned OFF, and inform the Timer about the LOADING Mechanical Malfunction.

b) LD-SW Position Malfunction at each mode

When the unit operates at each mode, even if the LD-SW position changes from the established one in its mode, it keeps the function according to its mode.

4) Countermeasure for CASSETTE LOADING Malfunction

a) CASSETTE IN operating Malfunction

If LD-SW does not go to SB position after a lapse of 5 sec. or more from the CASSETTE insertion start, the unit starts the CASSETTE OUT operation.

After switch over to CASSETTE OUT operation and then a lapse of 5 sec. or more from the CASSETTE OUT operation start, if LD-SW does not go to the EJ position or if START Sensor and END Sensor does not turn "ON" at the EJ position, the unit starts again to insert CASSETTE.

(However in S-INH state, the START/END Sensor shall be disabled).

b) CASSETTE OUT operating Malfunction

After a lapse of 5 sec. or more from CASSETTE OUT operation start, if LD-SW does not go to the EJ position or if START Sensor and END Sensor does not turn "ON" at the EJ position, the unit starts to insert CASSETTE.

(However in S-INH state, the START/END Sensor shall be disabled).



When the unit switches over to CASSETTE insertion at CASSETTE IN or CASSETTE OUT Malfunction, if LD-SW does not go to the SB position after a lapse of 5 sec. or more from CASSETTE insertion start, the function shall immediately be stopped and POWER be turned OFF, and the unit be CASSETTE LOADING Malfunction.

- c) When POWER is turned ON, if the CL position or GC position cannot be detected after 5 sec. LD-REV operation and 5 sec. LD-FWD operation, the function shall immediately be stopped and POWER be turned OFF, and the unit be CASSETTE LOADING Malfunction.

- d) When POWER is turned ON without CASSETTE (EJ position) and LD-SW is monitored all the time, if the CL or GC position is detected continuously for 1 sec. or more, the POWER shall be turned OFF and the unit be CASSETTE LOADING Malfunction.

Countermeasure for Mechanical Malfunction

If the unit detects Mechanical Malfunction, turn the POWER OFF. If the unit is Mechanical Malfunction, Key input except POWER key shall be disabled and CASSETTE insertion disabled. When POWER Key is entered, the POWER is turned ON and the unit switches over the EJECT Mode. (Return with POWER ON)

SCHEMATIC DIAGRAMS / CBA'S AND TEST POINTS

Standard Notes

Warning

Many electrical and mechanical parts in this chassis have special characteristics. These characteristics often pass unnoticed and the protection afforded by them cannot necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts that have these special safety characteristics are identified in this manual and its supplements; electrical components having such features are identified by the mark " ⚠ " in the schematic diagram and the parts list. Before replacing any of these components, read the parts list in this manual carefully. The use of substitute replacement parts that do not have the same safety characteristics as specified in the parts list may create shock, fire, or other hazards.

Note:

1. Do not use the part number shown on these drawings for ordering. The correct part number is shown in the parts list, and may be slightly different or amended since these drawings were prepared.
2. All resistance values are indicated in ohms ($K=10^3$, $M=10^6$).
3. Resistor wattages are 1/4W or 1/6W unless otherwise specified.
4. All capacitance values are indicated in μF ($P=10^{-6}\mu F$).
5. All voltages are DC voltages unless otherwise specified.

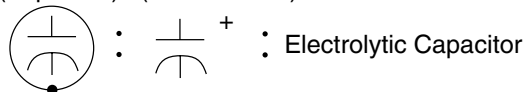
Capacitor Temperature Markings

Mark	Capacity change rate	Standard temperature	Temperature range
(B)	$\pm 10\%$	20°C	-25~+85°C
(F)	+30 -80%	20°C	-25~+85°C
(SR)	$\pm 15\%$	20°C	-25~+85°C
(Z)	+30 -80%	20°C	-10~+70°C

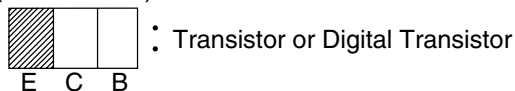
Capacitors and transistors are represented by the following symbols.

CBA Symbols

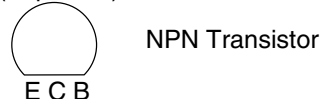
(Top View) (Bottom View)



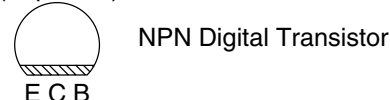
(Bottom View)



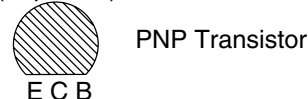
(Top View)



(Top View)



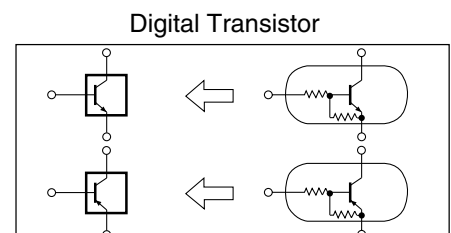
(Top View)



(Top View)



Schematic Diagram Symbols



LIST OF CAUTION, NOTES, AND SYMBOLS USED IN THE SCHEMATIC DIAGRAMS ON THE FOLLOWING PAGES:

1. CAUTION:

FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH THE SAME TYPE FUSE.

2. CAUTION:

Fixed Voltage (or Auto voltage selectable) power supply circuit is used in this unit.

If Main Fuse (F601) is blown, first check to see that all components in the power supply circuit are not defective before you connect the AC plug to the AC power supply. Otherwise it may cause some components in the power supply circuit to fail.

3. Note:

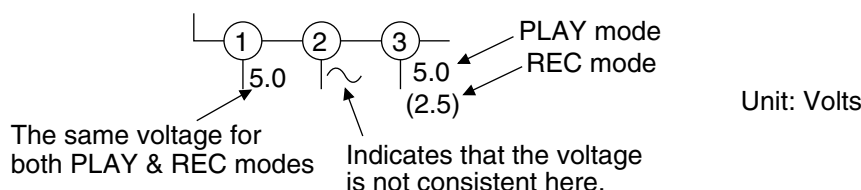
- (1) Do not use the part number shown on the drawings for ordering. The correct part number is shown in the parts list, and may be slightly different or amended since the drawings were prepared.
- (2) To maintain original function and reliability of repaired units, use only original replacement parts which are listed with their part numbers in the parts list section of the service manual.

4. Wire Connectors

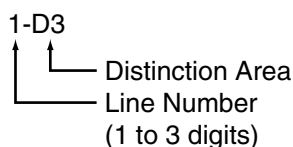
- (1) Prefix symbol "CN" means "connector" (can disconnect and reconnect).
- (2) Prefix symbol "CL" means "wire-solder holes of the PCB" (wire is soldered directly).

5. Mode: SP/REC

6. Voltage indications for PLAY and REC modes on the schematics are as shown below:

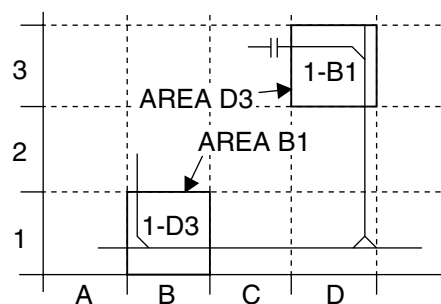


7. How to read converged lines



Examples:

1. "1-D3" means that line number "1" goes to area "D3".
2. "1-B1" means that line number "1" goes to area "B1".



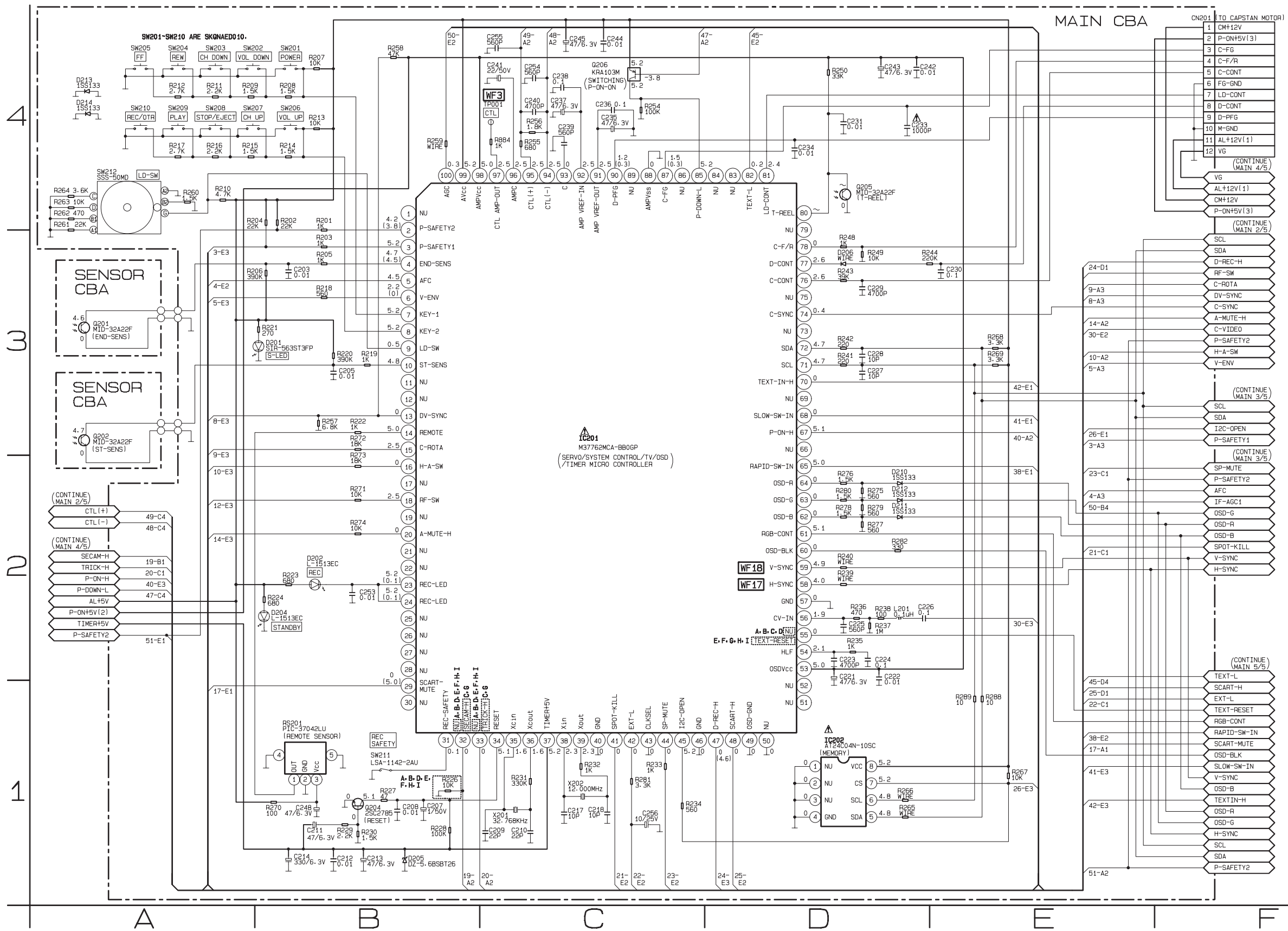
8. Test Point Information

- ⊙ : Indicates a test point with a jumper wire across a hole in the PCB.
- : Used to indicate a test point with a component lead on foil side.
- ⊘ : Used to indicate a test point with no test pin.
- : Used to indicate a test point with a test pin.

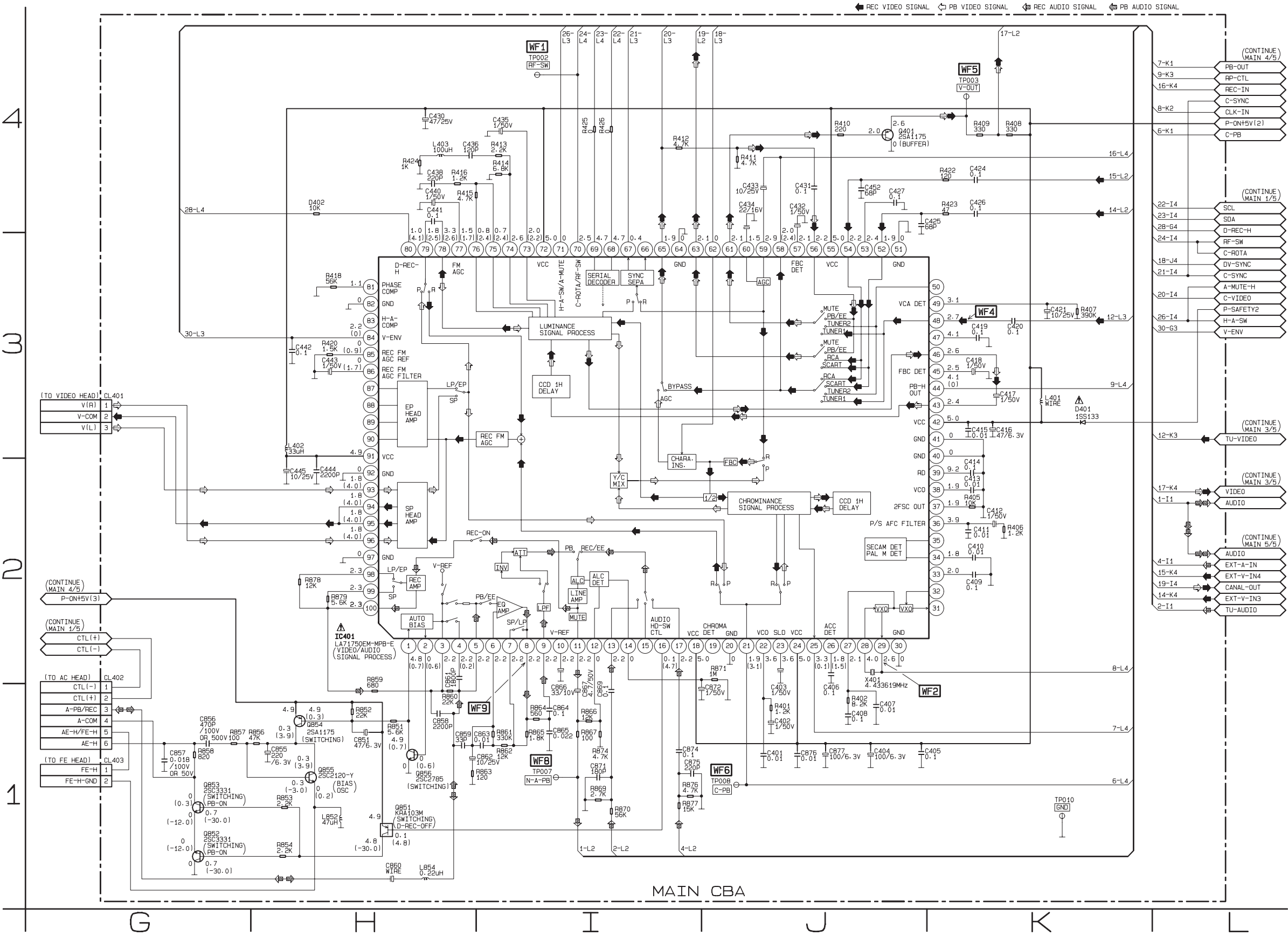
Main 1/5 Schematic Diagram

Comparison Chart of Models and Marks

MODEL	MARK	MODEL	MARK
TVCR-A2104	A	TVCR-B2104T	F
TVCR-B2104	B	TVCR-C2104T	G
TVCR-C2104	C	TVCR-D2104T	H
TVCR-D2104	D	TVCR-A2104TG	I
TVCR-A2104T	E		



Main 2/5 Schematic Diagram

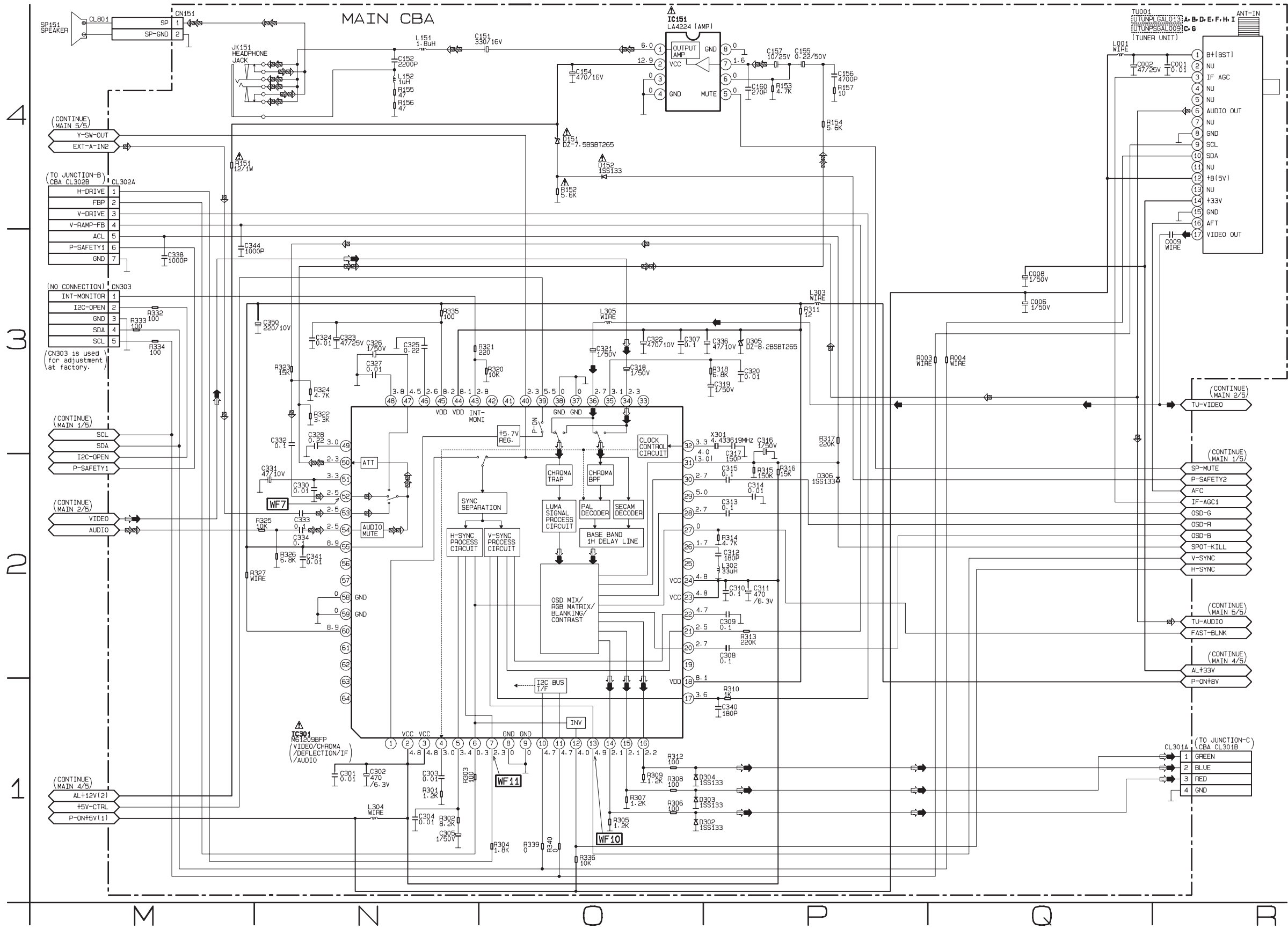


Main 3/5 Schematic Diagram

Comparison Chart of Models and Marks

MODEL	MARK	MODEL	MARK
TVCR-A2104	A	TVCR-B2104T	F
TVCR-B2104	B	TVCR-C2104T	G
TVCR-C2104	C	TVCR-D2104T	H
TVCR-D2104	D	TVCR-A2104TG	I
TVCR-A2104T	E		

REC VIDEO SIGNAL PB VIDEO SIGNAL REC AUDIO SIGNAL PB AUDIO SIGNAL

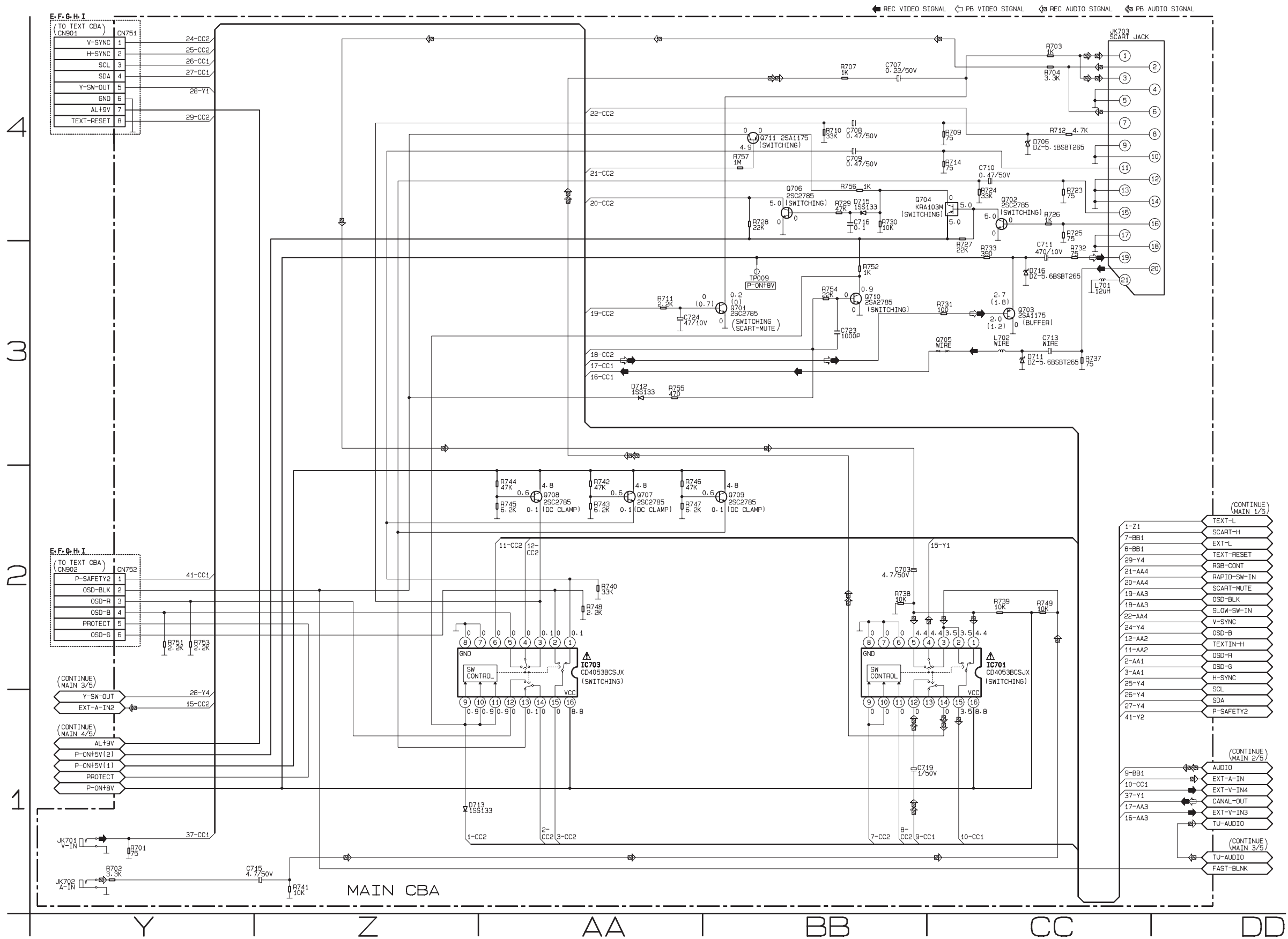


MODEL	MARK	MODEL	MARK
TVCR-A2104	A	TVCR-B2104T	F
TVCR-B2104	B	TVCR-C2104T	G
TVCR-C2104	C	TVCR-D2104T	H
TVCR-D2104	D	TVCR-A2104TG	I
TVCR-A2104T	E		

Main 5/5 Schematic Diagram

Comparison Chart of Models and Marks

MODEL	MARK	MODEL	MARK
TVCR-A2104	A	TVCR-B2104T	F
TVCR-B2104	B	TVCR-C2104T	G
TVCR-C2104	C	TVCR-D2104T	H
TVCR-D2104	D	TVCR-A2104TG	I
TVCR-A2104T	E		



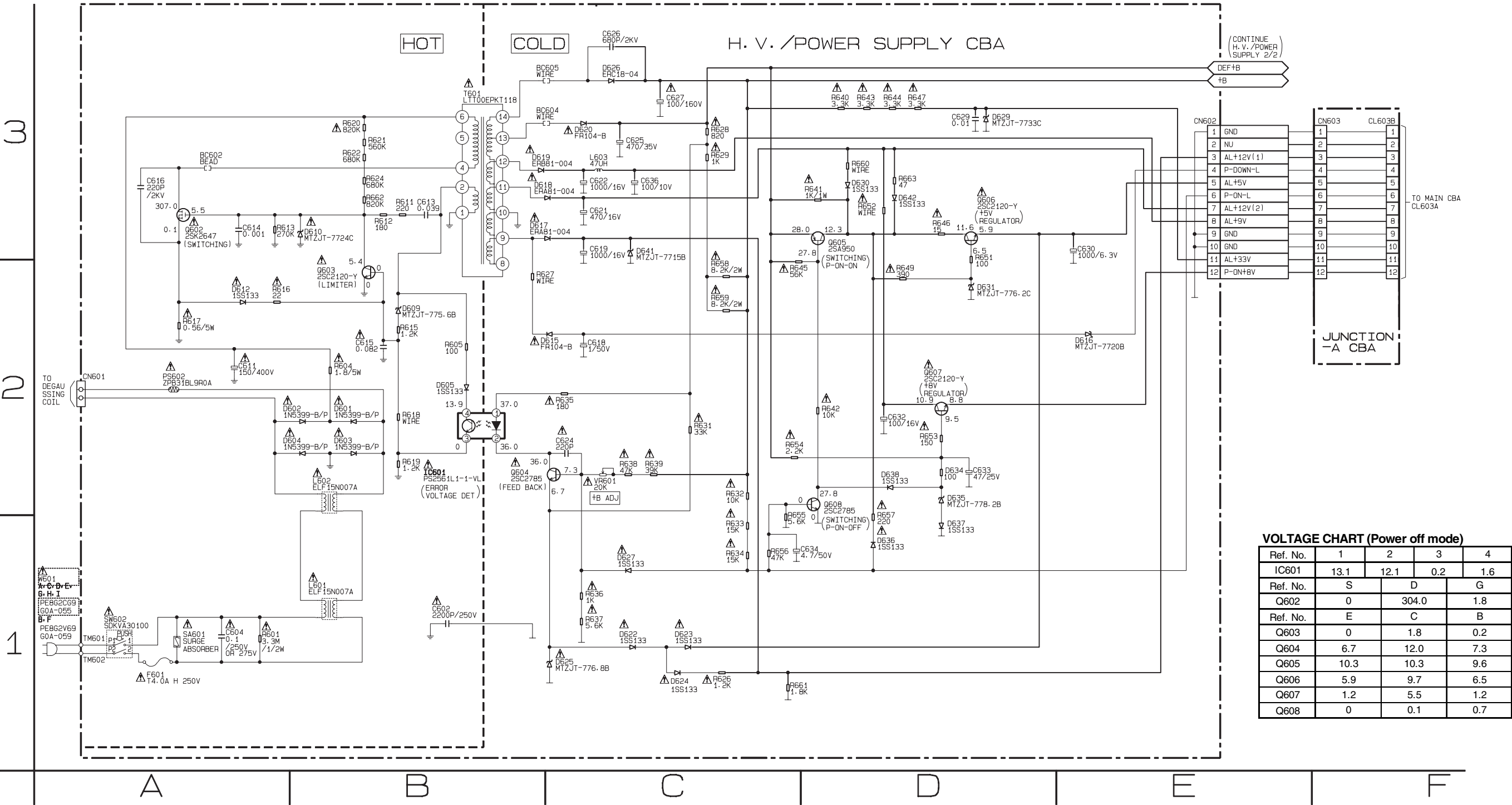
H.V./Power Supply 1/2 Schematic Diagram

CAUTION !
Fixed voltage (or Auto voltage selectable) power supply circuit is used in this unit.
If Main Fuse (F601) is blown, check to see that all components in the power supply circuit are not defective before you connect the AC plug to the AC power supply.
Otherwise it may cause some components in the power supply circuit to fail.

CAUTION
FOR CONTINUED PROTECTION AGAINST FIRE HAZARD,
REPLACE ONLY WITH THE SAME TYPE FUSE.

NOTE :
The voltage for parts in hot circuit is measured
using hot GND as a common terminal.

Comparison Chart of Models and Marks			
MODEL	MARK	MODEL	MARK
TVCR-A2104	A	TVCR-B2104T	F
TVCR-B2104	B	TVCR-C2104T	G
TVCR-C2104	C	TVCR-D2104T	H
TVCR-D2104	D	TVCR-A2104TG	I
TVCR-A2104T	E		

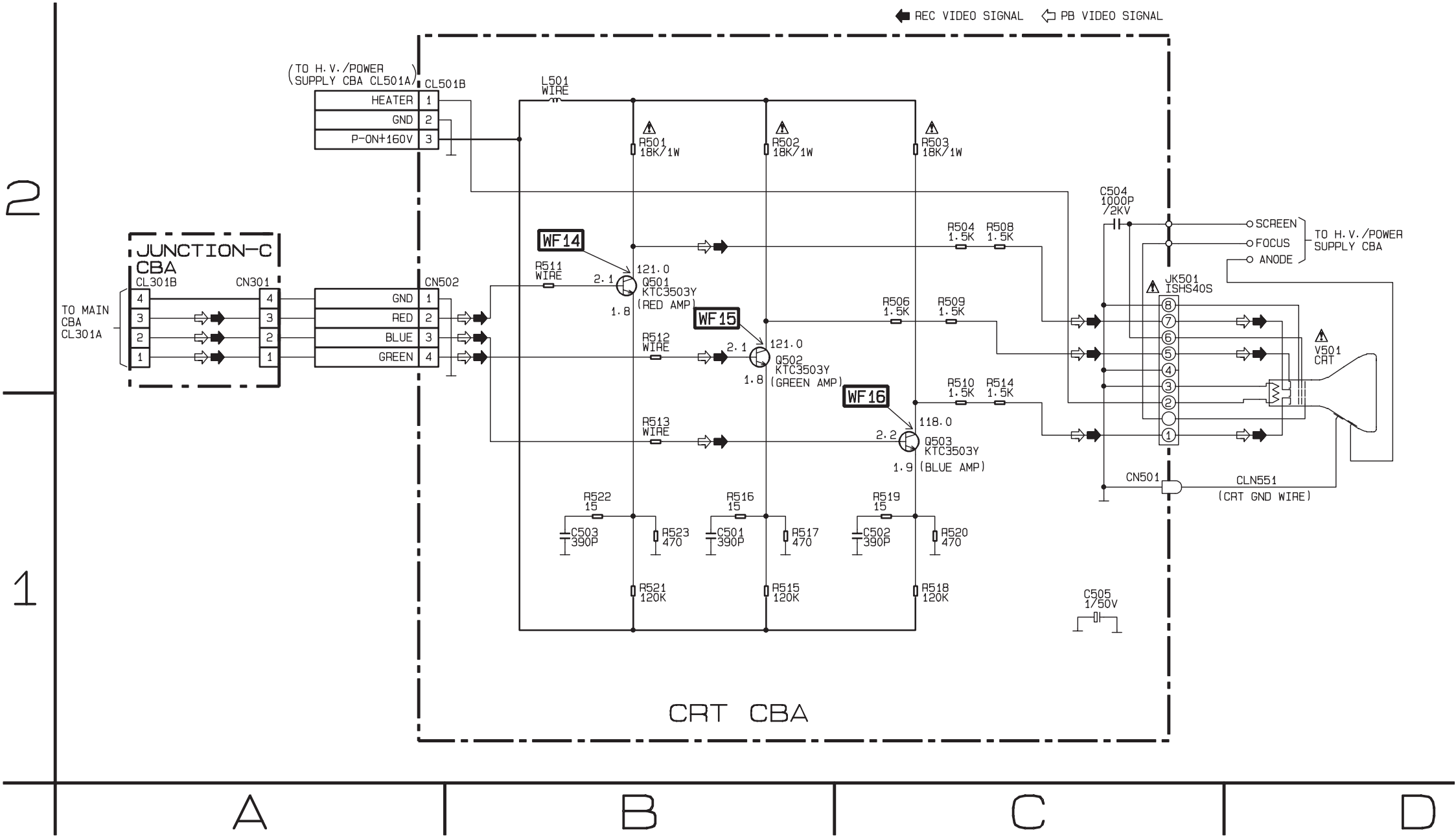


VOLTAGE CHART (Power off mode)				
Ref. No.	1	2	3	4
IC601	13.1	12.1	0.2	1.6
Ref. No.	S	D		G
Q602	0	304.0		1.8
Ref. No.	E	C		B
Q603	0	1.8		0.2
Q604	6.7	12.0		7.3
Q605	10.3	10.3		9.6
Q606	5.9	9.7		6.5
Q607	1.2	5.5		1.2
Q608	0	0.1		0.7

3

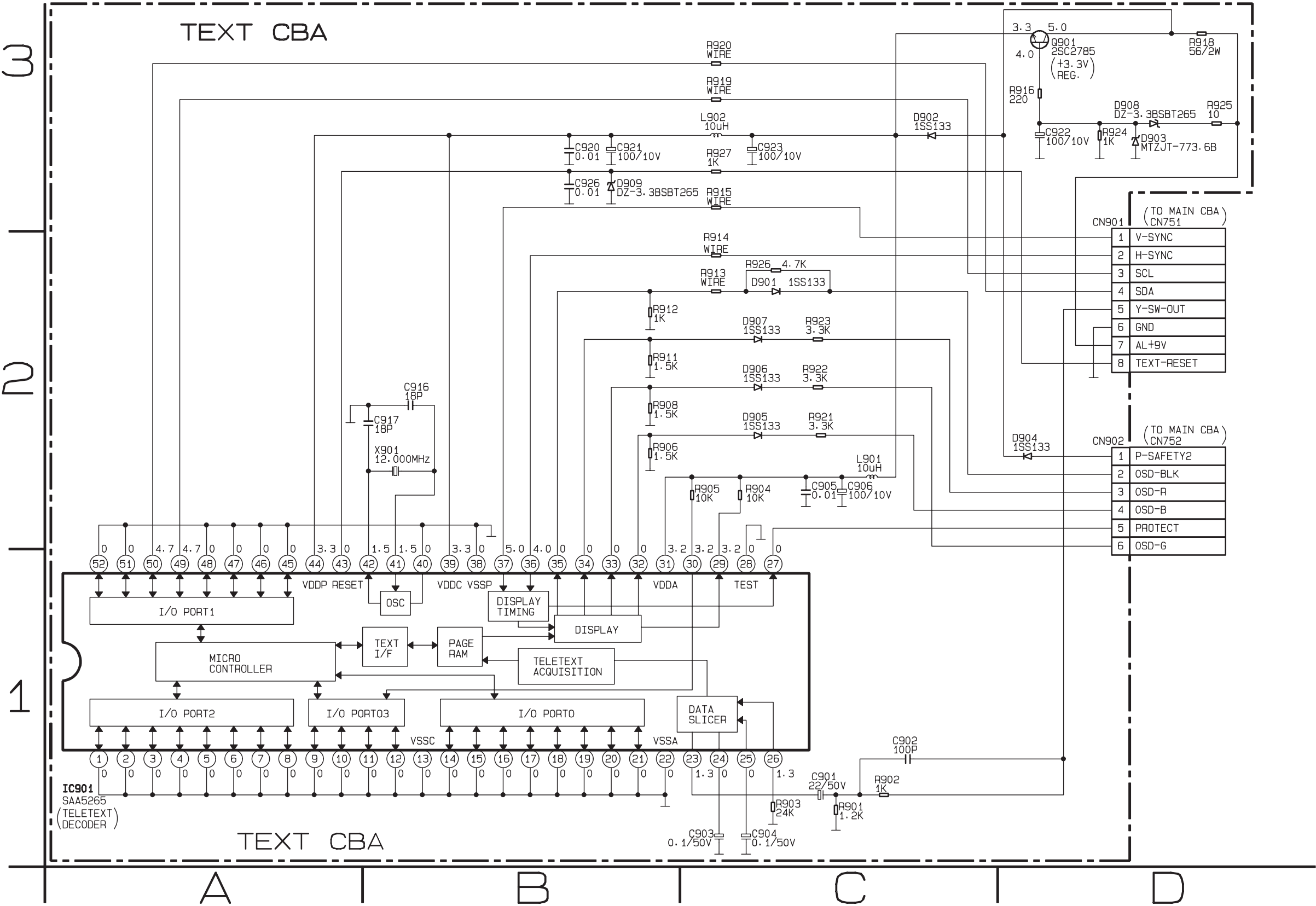


CRT Schematic Diagram



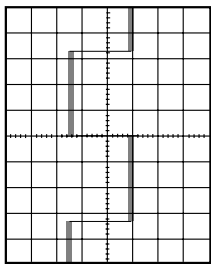
Text Schematic Diagram (E,F,G,H,I)

Comparison Chart of Models and Marks			
MODEL	MARK	MODEL	MARK
TVCR-A2104	A	TVCR-B2104T	F
TVCR-B2104	B	TVCR-C2104T	G
TVCR-C2104	C	TVCR-D2104T	H
TVCR-D2104	D	TVCR-A2104TG	I
TVCR-A2104T	E		

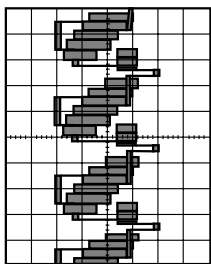


WAVEFORMS

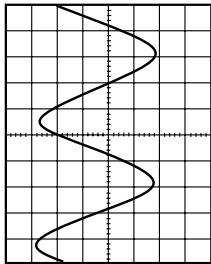
WAVEFORM NOTES
 INPUT: COLOR BAR SIGNAL
 OTHER CONTROLS: CENTER POSITION
 VOLTAGES SHOWN ARE RANGE OF
 OSCILLOSCOPE SETTING



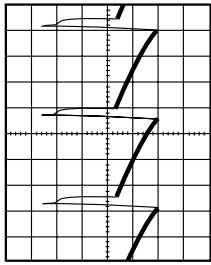
WF1 1DIV: 2V 5ms
 TP002 RF-SW



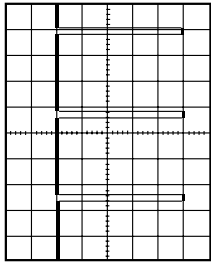
WF5 1DIV: 0.5V 20μs
 TP003 V-OUT



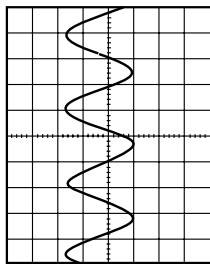
WF9 1DIV: 0.5V 0.5ms
 IC401 PIN 8



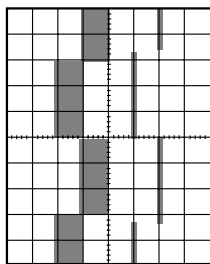
WF13 1DIV: 10V 5ms
 CN551 PIN 5



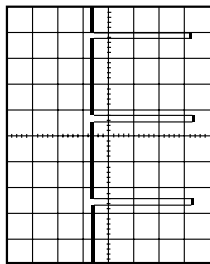
WF17 1DIV: 1V 20μs
 IC201 PIN 58



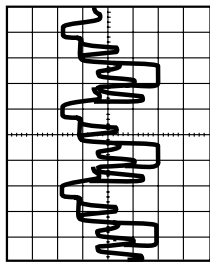
WF2 1DIV: 0.2V 0.1μs
 IC401 PIN 29



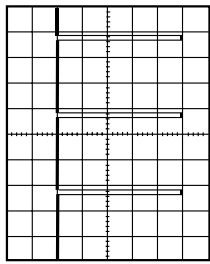
Upper: WF6 Lower: WF1
 1DIV: 0.2V 2DIV: 5V 5ms
 TP008 C-PB



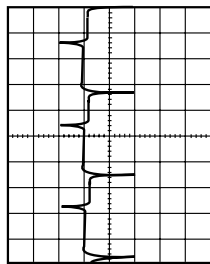
WF10 1DIV: 2V 5ms
 IC301 PIN 13



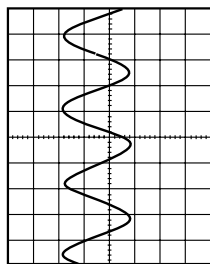
WF14 1DIV: 20V 20μs
 Q501 COLLECTOR



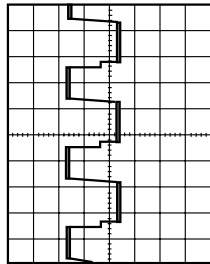
WF18 1DIV: 1V 5ms
 IC201 PIN 59



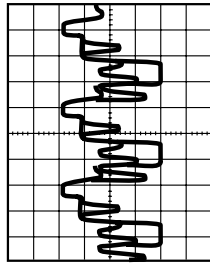
WF3 1DIV: 1V 10ms
 TP001 CTL



WF7 1DIV: 0.2V 0.5ms
 IC301 PIN 52



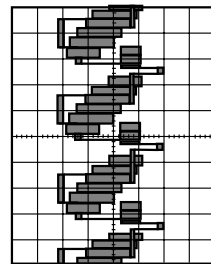
WF11 1DIV: 1V 20μs
 IC301 PIN 7



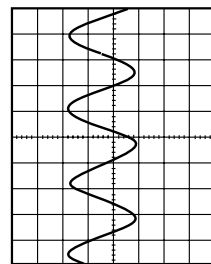
WF15 1DIV: 20V 20μs
 Q502 COLLECTOR



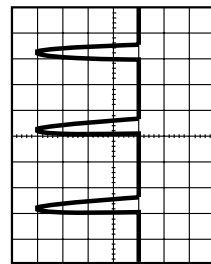
WF19 1DIV: 1V 5ms
 IC201 PIN 58



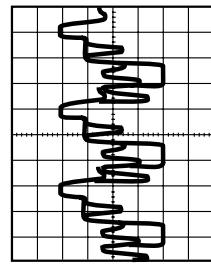
WF4 1DIV: 0.25V 20μs
 IC401 PIN 48



WF8 1DIV: 0.5V 0.5ms
 TP007 N-A-PB

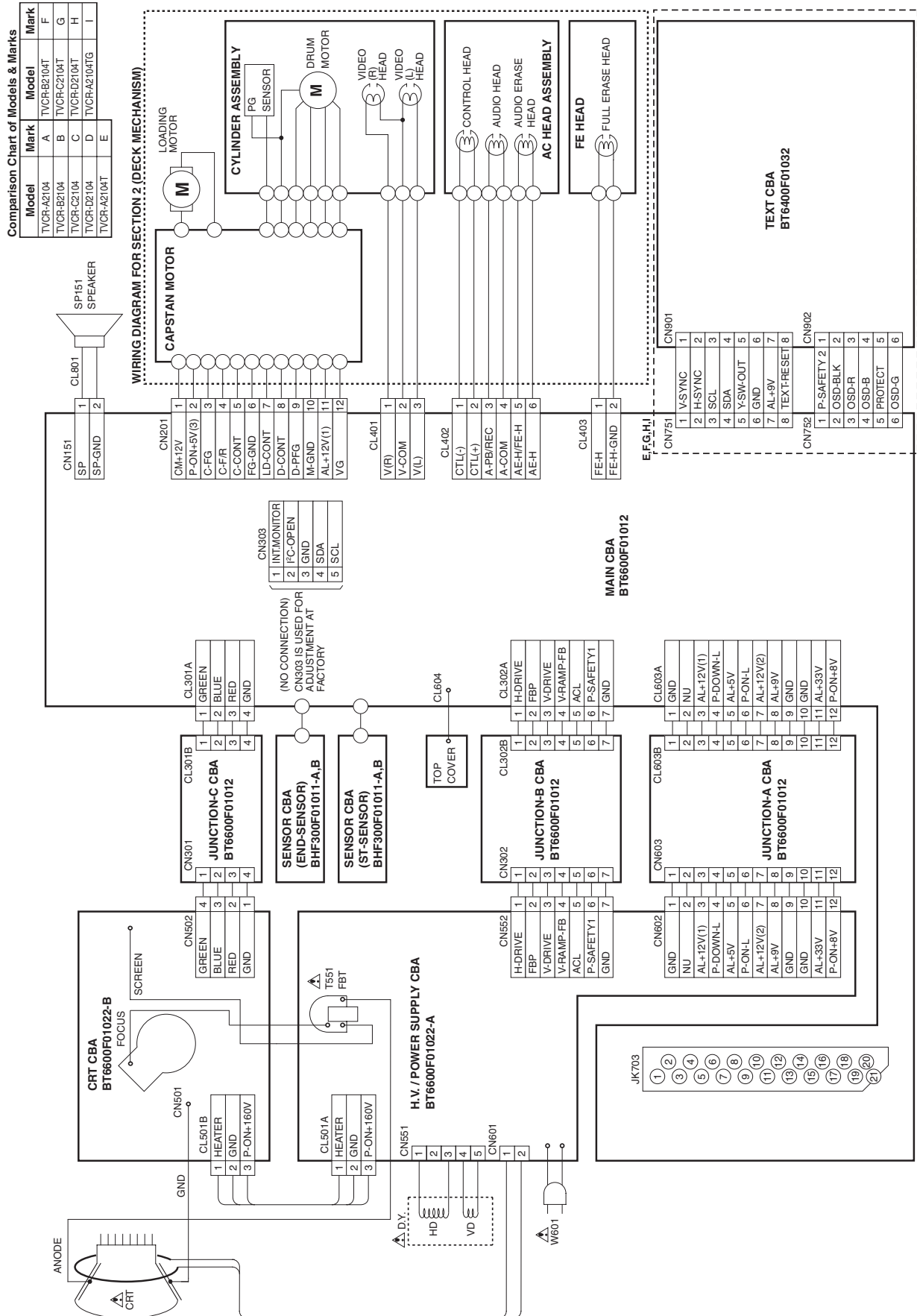


WF12 1DIV: 200V 20μs
 Q551 COLLECTOR



WF16 1DIV: 20V 20μs
 Q503 COLLECTOR

WIRING DIAGRAM



SYSTEM CONTROL TIMING CHARTS

Chart 1

1. EJECT (POWER OFF) -> CASSETTE IN (POWER ON) -> STOP(B) -> STOP(A) -> PLAY -> RS -> FS -> PLAY -> STILL(N-CANCEL) -> PLAY -> STOP(A)

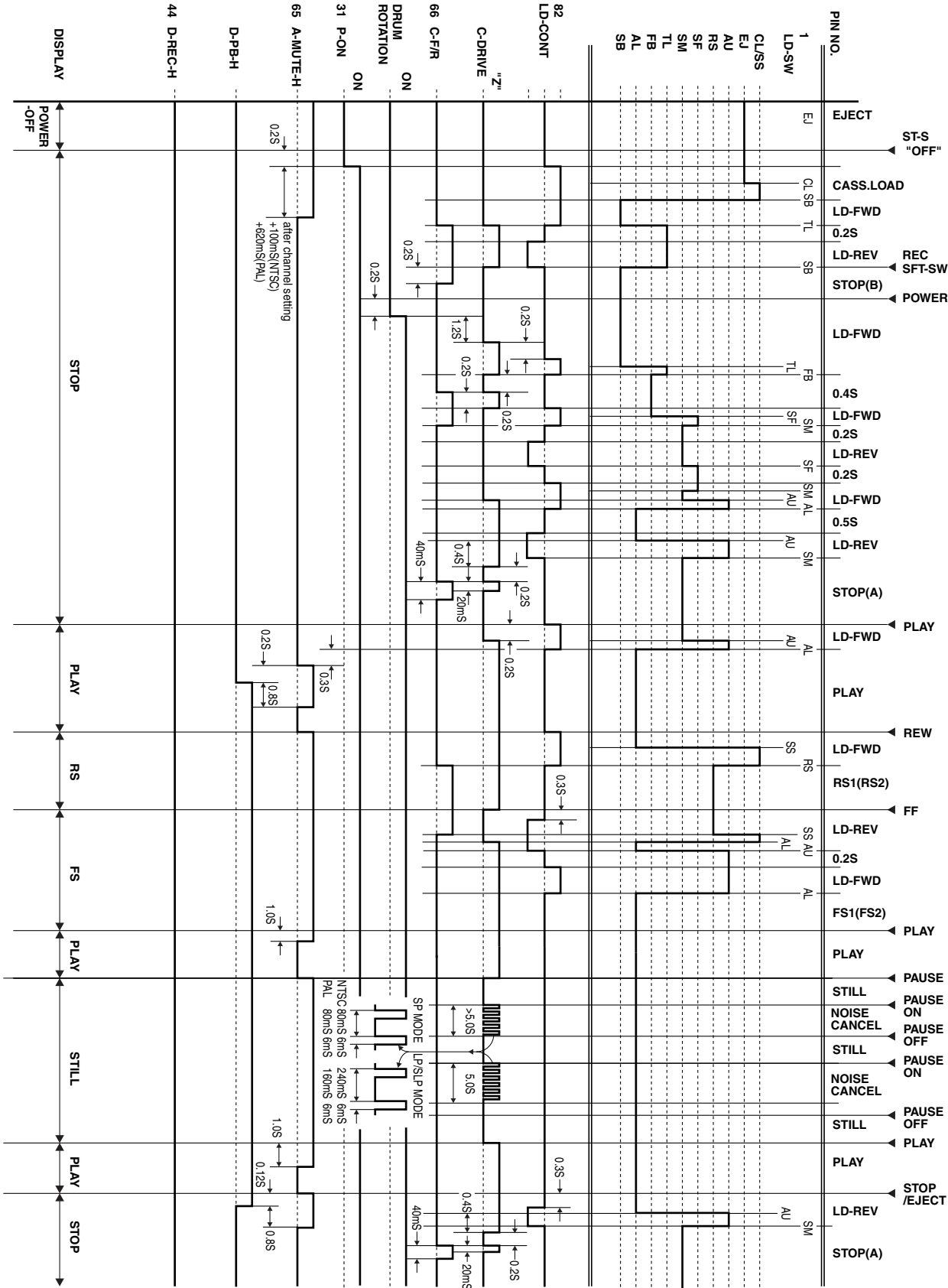
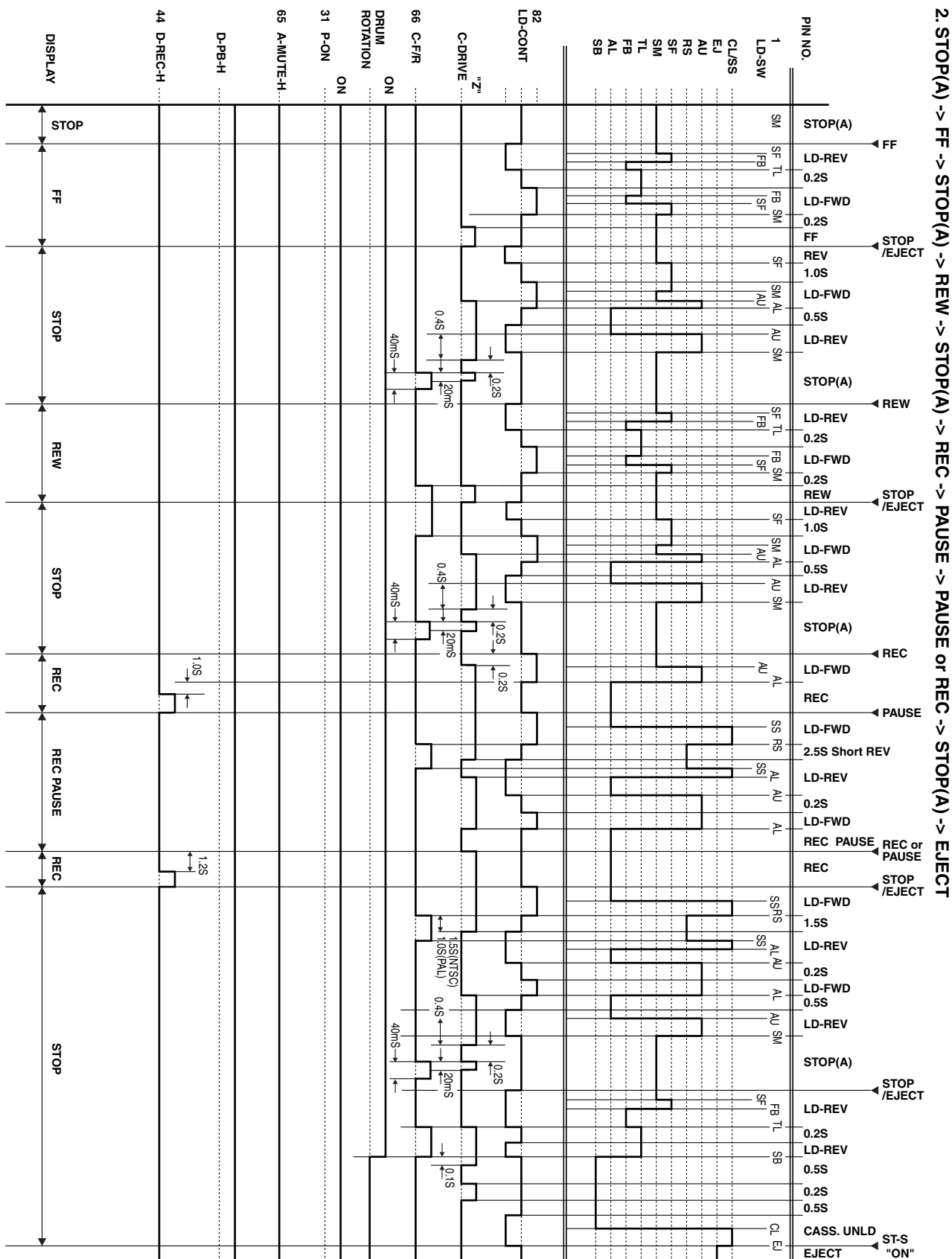


Chart 2



IC PIN FUNCTION DESCRIPTIONS

Comparison Chart of Models and Marks

Model	Mark
TVCR-A2104	A
TVCR-B2104	B
TVCR-C2104	C
TVCR-D2104	D
TVCR-A2104T	E
TVCR-B2104T	F
TVCR-C2104T	G
TVCR-D2104T	H
TVCR-A2104TG	I

IC 201 (TV/VCR Micro Controller)

“H” ≥ 4.5V, “L” ≤ 1.0V

Pin No.	Mark	IN/ OUT	Signal Name	Function
1		-	NU	Not Used
2		IN	P-SAFETY 2	Power Supply Failure Detection 2
3		IN	P-SAFETY 1	Power Supply Failure Detection 1
4		IN	END-SENS	End-Sensor
5		IN	AFC	Automatic Frequency Control Signal
6		IN	V-ENV	Video Envelope Input
7		IN	KEY-1	Key 1 Input
8		IN	KEY-2	Key 2 Input
9		IN	LD-SW	Loading Switch Input
10		IN	ST-SENS	Start-Sensor
11		-	NU	Not Used
12		-	NU	Not Used
13		IN/ OUT	DV SYNC	Artificial V-Sync Output
14		IN	REMOTE	Remote Signal Input
15		OUT	C-ROTA	Color Phase Rotary Changeover Signal
16		OUT	H-A-SW	Video Head Amp Switching Pulse
17		-	NU	Not Used
18		OUT	RF-SW	Video Head Switching Pulse
19		-	NU	Not Used
20		OUT	A-MUTE-H	Audio Mute Control Signal (Mute = “H”)
21		-	NU	Not Used

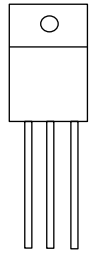
Pin No.	Mark	IN/ OUT	Signal Name	Function
22		-	NU	Not Used
23		OUT	REC-LED	Recording LED Control Signal
24		OUT	REC-LED	Recording LED Control Signal
25		-	NU	Not Used
26		-	NU	Not Used
27		-	NU	Not Used
28		-	NU	Not Used
29		OUT	SCART-MUTE	RAPID-Switch Input Signal from Scart Jack
30		-	NU	Not Used
31		IN	REC-SAFETY	Record Protection Tab Detection
32	A,B, D,E,F ,H,I	-	NU	Not Used
		C,G	SECAM-H	SECAM Mode at High
33	A,B, D,E,F ,H,I	-	NU	Not Used
		C,G	TRICK-H	Special Playback = “H” in SECAM Mode
34		IN	RESET	System Reset Signal (Reset=“L”)
35		IN	XCIN	Sub Clock 32 kHz
36		OUT	XCOUT	Sub Clock 32 kHz
37		-	TIMER+5V	Vcc
38		IN	XIN	Main Clock Input
39		OUT	XOUT	Main Clock Output
40		-	GND	GND
41		OUT	SPOT-KILL	Counter-measure for Spot
42		OUT	EXT-L	External Input or Playback = Output
43		IN	CLKSEL	Clock Select (GND)
44		OUT	SP-MUTE	Speaker Mute Signal
45		IN	I2C-OPEN	White Balance Adjust Mode Judgment
46		-	GND	GND
47		OUT	D-REC-H	Delayed Record Signal

Pin No.	Mark	IN/ OUT	Signal Name	Function
48		OUT	SCART-H	Switching Signal of Scart Jack and RCA Jack
49		-	OSD-GND	OSD GND
50		-	NU	Not Used
51		-	NU	Not Used
52		-	NU	Not Used
53		-	OSDVcc	OSDVcc
54		-	HLF	HLF
55	A,B,C,D	-	NU	Not Used
	E,F,G,H,I	OUT	TEXT-RESET	Tele Text Reset
56		IN	CV-IN	Video Signal Input
57		-	GND	GND
58		IN	H-SYNC	H-SYNC Input
59		IN	V-SYNC	V-SYNC Input
60		OUT	OSD-BLK	Output for Picture Cut off
61		OUT	RGB-CONT	RGB Control Signal
62		OUT	OSD-B	Blue Output
63		OUT	OSD-G	Green Output
64		OUT	OSD-R	Red Output
65		IN	RAPIT-SW-IN	RAPID-Switch Input Signal
66		-	NU	Not Used
67		OUT	P-ON-H	Power On Signal at High
68		IN	SLOW-SW-IN	Slow Switch Input Signal
69		-	NU	Not Used
70		OUT	TEXT-IN-H	Tele Text Input Signal at High
71		OUT	SCL	E2PROM/ CHROMA IC Tuner Communication Clock
72		IN/ OUT	SDA	E2PROM/ CHROMA IC Tuner Communication Data
73		-	NU	Not Used
74		IN	C-SYNC	C-Sync Input
75		-	NU	Not Used
76		OUT	C-CONT	Capstan Motor Control Signal
77		OUT	D-CONT	Drum Motor Control Signal

Pin No.	Mark	IN/ OUT	Signal Name	Function
78		OUT	C-F/R	Capstan Motor FWD/REV Control Signal (FWD="L"/ REV="H")
79		-	NU	Not Used
80		IN	T-REEL	Take Up Reel Rotation Signal
81		OUT	LD-CONT	Loading Motor Control Signal
82		OUT	TEXT-L	Teletext Control Signal
83		-	NU	Not Used
84		-	NU	Not Used
85		IN	P-DOWN-L	Power Voltage Down Detector Signal at Low
86		-	NU	Not Used
87		IN	C-FG	Capstan Motor Rotation Detection Pulse
88		-	AMPVss	AMPVss (GND)
89		-	NU	Not Used
90		IN	D-PFG	Drum Motor Phase/ Frequency Generator
91		OUT	AMP VREF-OUT	Standard Voltage Output
92		IN	AMP VREF-IN	Standard Voltage Input
93		-	C	C Terminal
94		IN/ OUT	CTL (-)	CTL (-)
95		IN/ OUT	CTL (+)	CTL (+)
96		-	AMPC	AMPC
97		OUT	CTL AMP-OUT	Control Amp Output
98		-	AMPVcc	AMPVcc
99		-	AVcc	A/D Converter Power Input/ Standard Voltage Input
100		IN	AGC	Tuner IF Output Signal

LEAD IDENTIFICATIONS

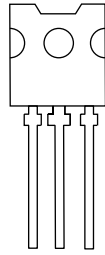
2SK2647



S D G

S: Source
D: Drain
G: Gate

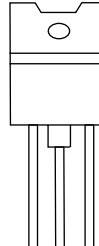
2SC3619
KTC3503Y



E C B

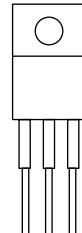
E: Emitter
C: Collector
B: Base

2SC5885000RF
TT2140LS-YB11



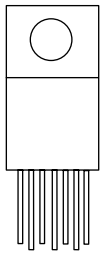
B C E

2SD1913(R)
KTC2026Y
2SD2627LS-FEC-YB11

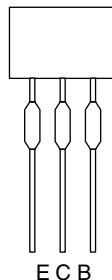


B C E

LA78040A

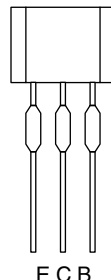


IN G OUT



E C B

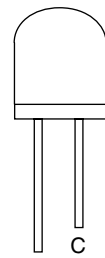
2SA1346
2SC1815-GR(TPE2)
2SC2120-O(TPE2)
2SC2120-Y(TPE2)
2SC3331(T,U)
KRA103M
KTA1266(GR)
KTC3203(Y)



E C B

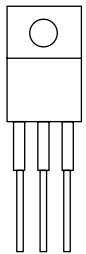
2SA1015-GR(TPE2)
2SA1175(F)
2SA950(Y,O)
2SC1627Y-TPE2
2SC2785(F,H,J)
BN1F4M-T
KTA1267(GR)
KTA1271(Y)
KTC3198(GR)
KTC3199(GR)

MID-32A22F
PT204-6B-12



E

KA7805A
KIA7805API



IN G OUT

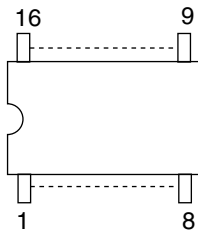
PS2561L1-1-VL
PS2561L1-1-VW



A
K

C
E

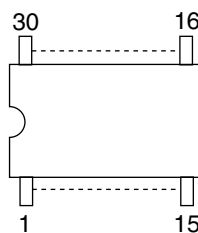
CD4053BCSJX
CD4053BNSR
TC4053BF(N)



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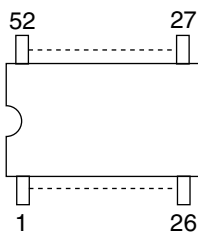
LA70100M-MPB



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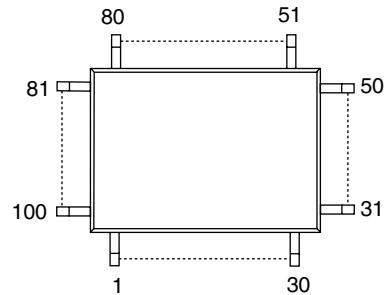
SAA5265



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26

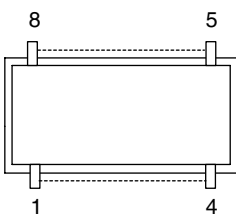
LA71750EM-MPB-E
M37762MCA-BB0GP



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30

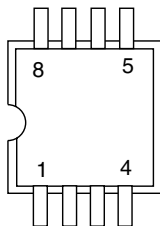
LA4224



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4

AT24C04N-10SC
BR24C04F
BR24C04F-W
BR24L04F-WE2
CAT24WC04JI
M24C04-MN6
M24C04-WMN6



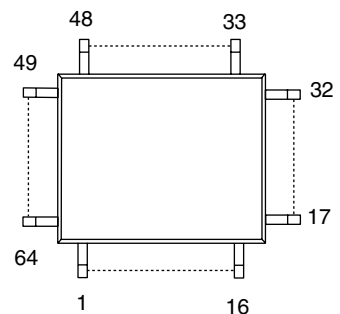
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M61209BFP



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16

Cabinet

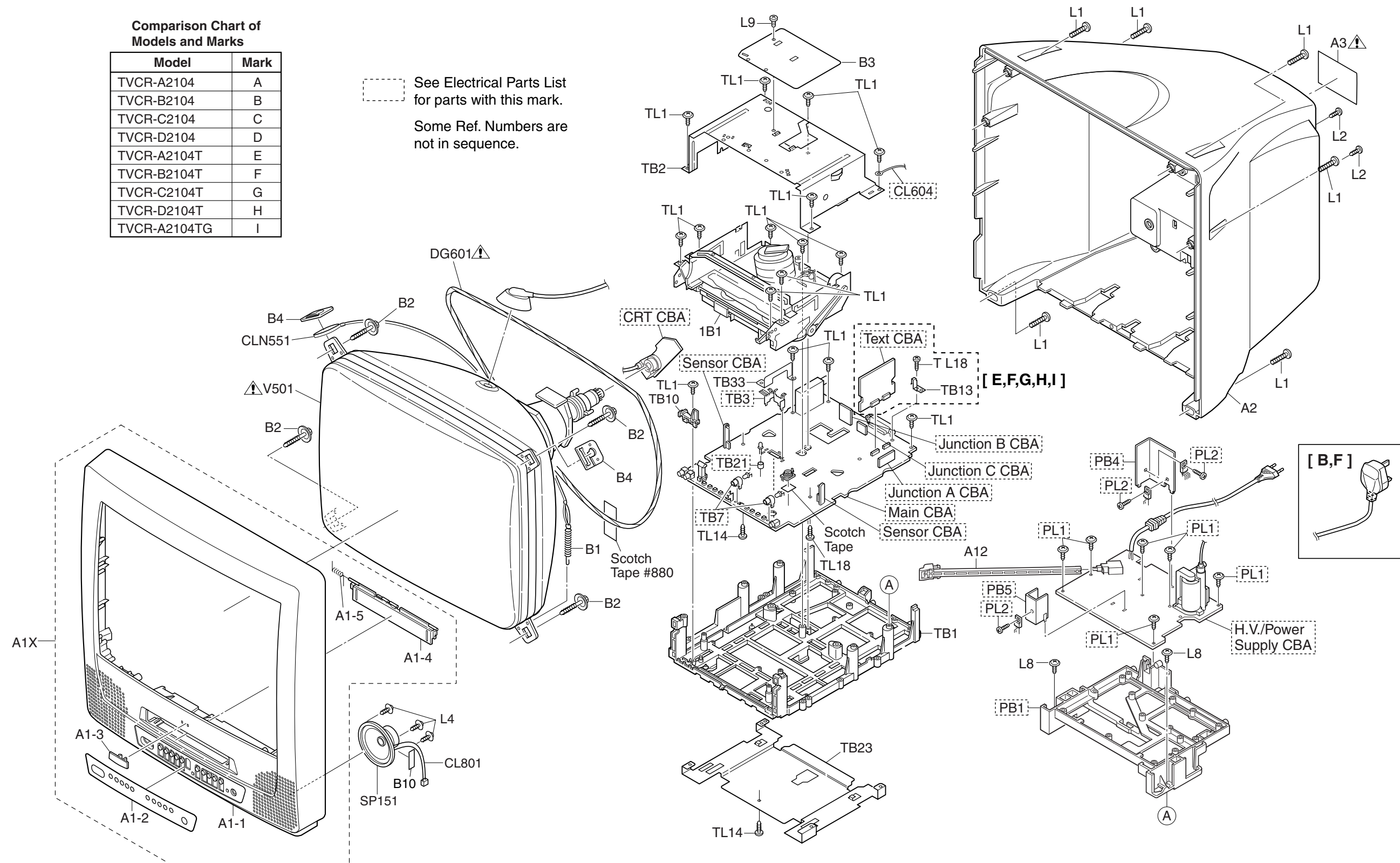
EXPLODED VIEWS

Comparison Chart of Models and Marks

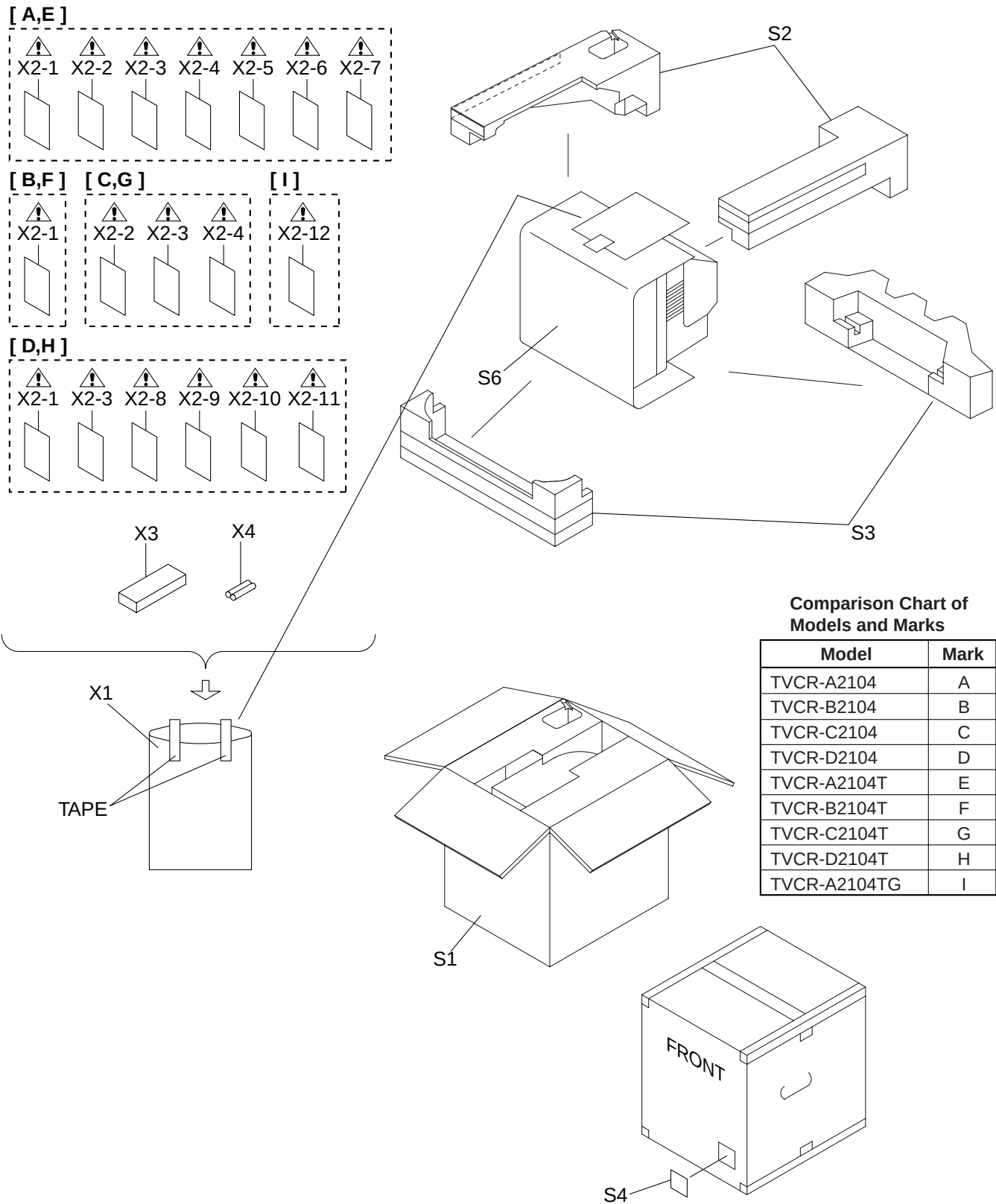
Model	Mark
TVCR-A2104	A
TVCR-B2104	B
TVCR-C2104	C
TVCR-D2104	D
TVCR-A2104T	E
TVCR-B2104T	F
TVCR-C2104T	G
TVCR-D2104T	H
TVCR-A2104TG	I

See Electrical Parts List
for parts with this mark.

Some Ref. Numbers are
not in sequence.



Packing



MECHANICAL PARTS LIST

PRODUCT SAFETY NOTE: Products marked with a  have special characteristics important to safety. Before replacing any of these components, read carefully the product safety notice in this service manual. Don't degrade the safety of the product through improper servicing.

NOTE:

Parts that are not assigned part numbers (-----) are not available.

Comparison Chart of Models and Marks

Model	Mark
TVCR-A2104	A
TVCR-B2104	B
TVCR-C2104	C
TVCR-D2104	D
TVCR-A2104T	E
TVCR-B2104T	F
TVCR-C2104T	G
TVCR-D2104T	H
TVCR-A2104TG	I

Ref. No.	Mark	Description	Part No.
A1X	A,B,D, E,F,H,I	FRONT CABINET ASSEMBLY T6700EA	0EM201814
A1X	C,G	FRONT CABINET ASSEMBLY T6702FC	0EM201863
A1-1		FRONT CABINET T6700EA	0EM000871
A1-2	A,B,D, E,F,H,I	CONTROL PLATE T6700EA	0EM201828
A1-2	C,G	CONTROL PLATE T6702FC	0EM302119
A1-3		BRAND BADGE T6600EAFUNAI	0EM408807
A1-4		CASSETTE DOOR T6600EA	0EM408804
A1-5		SPRING DOOR(Z10) T5200UA	0EM406687
A2	A,B,E, F,I	REAR CABINET	0EM000956
A2	C,D,G, H	REAR CABINET T6700EA	0EM000868
A3, 	A	RATING LABEL T6700EA	-----
A3, 	B	RATING LABEL T6701BB	-----
A3, 	C	RATING LABEL T6702FC	-----
A3, 	D	RATING LABEL T6703RD	-----
A3, 	E	RATING LABEL T6720EA	-----
A3, 	F	RATING LABEL T6721BB	-----
A3, 	G	RATING LABEL T6722FC	-----
A3, 	H	RATING LABEL T6723RD	-----
A3, 	I	RATING LABEL T6724EE	-----
A12	A,B,E, F,I	POWER BUTTON	0EM302130
A12	C,D,G, H	POWER BUTTON T6700EA	0EM201823
1B1		DECK ASSEMBLY CZD013/VM2326	N2326FT
B1		SPRING TENSION B0080B0:EM40808	26VH006
B2		SCREW M7 CRT(D22) T7205UF	0EM406573
B3		SHIELD PLATE (PAL 21V) T6500RA	0EM407921
B4		DEGAUSS HOLDER T7100UA	0EM405476
B10		CLOTH(10X30XT0.5) B5900UA	0EM404486
CL801		WIRE ASSEMBLY (SPEAKER) 2P/200	WX1T6300-002

Ref. No.	Mark	Description	Part No.
CLN551		CRT WIRE WX1T7180-005	WX1T7180-005
L1		SCREW, P-TIGHT 4X18 BIND HEAD +	GBMP4180
L2		SCREW, P-TIGHT M4X12 BIND HEAD+	GBMP4120
L4		SCREW, ASSEMBLED 12:M3X12	0EM406746
L8		FLAT HEAD SCREW T4000UA	0EM404793
L9		SCREW, S-TIGHT 3X4 BIND HEAD+	GBMS3040
SP151		SPEAKER S08F02B or	DSD0808XQ010
		SPEAKER J-F097-C5	DSD0808DCP01
TB1		TRAY CHASSIS T6400RA	0EM000697
TB2		TOP COVER T6300RA	0EM101155
TB10		RCA HOLDER(B) T6500RA	0EM407833
TB13	E,F,G, H,I	TE HOLDER T6720EA	0EM408837
TB23		BOTTOM PLATE T6300RA	0EM101156
TB33		EARTH HOLDER(TU) T6310EZ	0EM406959
TL1		SCREW, P-TIGHT 3X12 WASHER HEAD+	GCMP3120
TL14		SCREW, B-TIGHT M3X8 BIND HEAD+	GBMB3080
TL18		SCREW, P-TIGHT M3X8 BIND HEAD+	GBCP3080
V501, 		CRT A51AEZ90X25 K	TCRT190CP047
PACKING			
S1	A	CARTON T6700EA	0EM408954
S1	B	CARTON T6701BB	0EM409033
S1	C	CARTON T6702FC	0EM409036
S1	D	CARTON T6703RD	0EM409039
S1	E	CARTON T6720EA	0EM409042
S1	F	CARTON T6721BB	0EM409045
S1	G	CARTON T6722FC	0EM409048
S1	H	CARTON T6723RD	0EM409051
S1	I	CARTON T6724EE	0EM409054
S2		STYROFOAM TOP ASSEMBLY T6700EA	0EM409187
S3		STYROFOAM BOTTOM ASSEMBLY T6700EA	0EM409188
S4	A	SERIAL NO. LABEL T6700EA	-----
S4	B	SERIAL NO. LABEL T6701BB	-----
S4	C	SERIAL NO. LABEL T6702FC	-----
S4	D	SERIAL NO. LABEL T6703RD	-----
S4	E	SERIAL NO. LABEL T6720EA	-----
S4	F	SERIAL NO. LABEL T6721BB	-----
S4	G	SERIAL NO. LABEL T6722FC	-----
S4	H	SERIAL NO. LABEL T6723RD	-----
S4	I	SERIAL NO. LABEL T6724EE	-----
S6		SET SHEET B7500UA:1000X1700	0EM402178
ACCESSORIES			
X1		BAG POLYETHYLENE 235X365XT0.03	0EM408420
X2-1, 	A,E	OWNER'S MANUAL TVCR-A1404:EN	0EMN02345
X2-1, 	B,F	OWNER'S MANUAL TVCR-B1404:EN	0EMN02384
X2-1, 	D,H	OWNER'S MANUAL TVCR-D1404:EN	0EMN02386
X2-2, 	A,E	OWNER'S MANUAL TVCR-A1404:FR	0EMN02417
X2-2, 	C,G	OWNER'S MANUAL TVCR-C1404:FR	0EMN02385
X2-3, 	A,E	OWNER'S MANUAL TVCR-A1404:GE	0EMN02418
X2-3, 	C,G	OWNER'S MANUAL TVCR-C1404:GE	0EMN02423
X2-3, 	D,H	OWNER'S MANUAL TVCR-D1404:GE	0EMN02481
X2-4, 	A,E	OWNER'S MANUAL TVCR-A1404:IT	0EMN02419
X2-4, 	C,G	OWNER'S MANUAL TVCR-C1404:IT	0EMN02424
X2-5, 	A,E	OWNER'S MANUAL TVCR-A1404:SP	0EMN02420
X2-6, 	A,E	OWNER'S MANUAL TVCR-A1404:DU	0EMN02421
X2-7, 	A,E	OWNER'S MANUAL TVCR-A1404:SW	0EMN02422

Ref. No.	Mark	Description	Part No.
X2-8/△	D,H	OWNER'S MANUAL TVCR-D1404:RU	0EMN02425
X2-9/△	D,H	OWNER'S MANUAL TVCR-D1404:PL	0EMN02426
X2-10/△	D,H	OWNER'S MANUAL TVCR-D1404:HU	0EMN02427
X2-11/△	D,H	OWNER'S MANUAL TVCR-D1404:CZ	0EMN02428
X2-12/△	I	OWNER'S MANUAL TVCR-A1404TG:GR	0EMN02388
X3	A,B,C, D	REMOTE CONTROL 512/ERC001/ NE136RD	NE136RD
X3	E,F,G, H,I	REMOTE CONTROL 512/ERC001/ NE135RD	NE135RD
X4		DRY BATTERY R6P UM3 or	XB0M451GH001
		DRY BATTERY R6P(AR)2PX or	XB0M451HU002
		DRY BATTERY R6P(AR)2P X ICI or	XB0M451HU003
		DRY BATTERY(SUNRISE) R6SSE/2S or	XB0M451MS002
		DRY BATTERY R6P/2S	XB0M451T0001

ELECTRICAL PARTS LIST

PRODUCT SAFETY NOTE: Products marked with a  have special characteristics important to safety. Before replacing any of these components, read carefully the product safety notice in this service manual. Don't degrade the safety of the product through improper servicing.

NOTES:

- Parts that are not assigned part numbers (-----) are not available.
- Tolerance of Capacitors and Resistors are noted with the following symbols.

C.....±0.25% D.....±0.5% F.....±1%
 G.....±2% J.....±5% K.....±10%
 M.....±20% N.....±30% Z.....+80/-20%

Comparison Chart of Models and Marks

Model	Mark
TVCR-A2104	A
TVCR-B2104	B
TVCR-C2104	C
TVCR-D2104	D
TVCR-A2104T	E
TVCR-B2104T	F
TVCR-C2104T	G
TVCR-D2104T	H
TVCR-A2104TG	I

MMA CBA

Ref. No.	Mark	Description	Part No.
	A,B,D	MMA CBA	0ESA06027
	C	MMA CBA	0ESA06021
	E,F,H,I	MMA CBA	0ESA06066
	G	MMA CBA	0ESA06069
		Consists of the following	
		MAIN CBA	-----
		JUNCTION A CBA	-----
		JUNCTION B CBA	-----
		JUNCTION C CBA	-----
		SENSOR CBA	0ESA06133

MAIN CBA

Ref. No.	Mark	Description	Part No.
		MAIN CBA	-----
		Consists of the following	
CAPACITORS			
C001		CHIP CERAMIC CAP.(MELF) F Z 0.01μF/16V	CZM1CZB0F103
C002		ELECTROLYTIC CAP. 47μF/25V M or	CE1EMASDL470
		ELECTROLYTIC CAP. 47μF/25V M	CE1EMASTL470
C006		ELECTROLYTIC CAP. 1μF/50V M or	CE1JMASDL010
		ELECTROLYTIC CAP. 1μF/50V M or	CE1JMASDL1R0
		ELECTROLYTIC CAP. 1μF/50V M	CE1JMASTL1R0

Ref. No.	Mark	Description	Part No.
C008		ELECTROLYTIC CAP. 1μF/50V M or	CE1JMASDL010
		ELECTROLYTIC CAP. 1μF/50V M or	CE1JMASDL1R0
		ELECTROLYTIC CAP. 1μF/50V M	CE1JMASTL1R0
C009		PCB JUMPER D0.6-P5.0	JW5.0T
C151		ELECTROLYTIC CAP. 330μF/16V M or	CE1CMASDL331
		ELECTROLYTIC CAP. 330μF/16V M	CE1CMASTL331
C152		CERAMIC CAP.(AX) X M 2200pF/16V	CCA1CMT0X222
C154		ELECTROLYTIC CAP. 470μF/16V M or	CE1CMASDL471
		ELECTROLYTIC CAP. 470μF/16V M	CE1CMASTL471
C155		ELECTROLYTIC CAP. 0.22μF/50V M H7	CE1JMAVSLR22
C156		CHIP CERAMIC CAP. B K 4700pF/50V	CHD1JKB0B472
C157		ELECTROLYTIC CAP. 10μF/25V M H7	CE1EMAVSL100
C160		CHIP CERAMIC CAP. CH J 270pF/50V	CHD1JJBCH271
C203		CHIP CERAMIC CAP.(MELF) F Z 0.01μF/16V	CZM1CZB0F103
C205		CHIP CERAMIC CAP.(MELF) F Z 0.01μF/16V	CZM1CZB0F103
C207		ELECTROLYTIC CAP. 1μF/50V M H7	CE1JMAVSL1R0
C208		CHIP CERAMIC CAP.(MELF) F Z 0.01μF/16V	CZM1CZB0F103
C209		CHIP CERAMIC CAP. CH J 22pF/50V	CHD1JJBCH220
C210		CHIP CERAMIC CAP. CH J 22pF/50V	CHD1JJBCH220
C211		ELECTROLYTIC CAP. 47μF/6.3V M H7	CE0KMAVSL470
C212		CHIP CERAMIC CAP.(MELF) F Z 0.01μF/16V	CZM1CZB0F103
C213		ELECTROLYTIC CAP. 47μF/6.3V M H7	CE0KMAVSL470
C214		ELECTROLYTIC CAP. 330μF/6.3V M or	CE0KMASDL331
		ELECTROLYTIC CAP. 330μF/6.3V M	CE0KMASTL331
C217		CHIP CERAMIC CAP. CH D 10pF/50V	CHD1JDBCH100
C218		CHIP CERAMIC CAP. CH D 10pF/50V	CHD1JDBCH100
C221		ELECTROLYTIC CAP. 47μF/6.3V M H7	CE0KMAVSL470
C222		CHIP CERAMIC CAP.(MELF) F Z 0.01μF/16V	CZM1CZB0F103
C223		CHIP CERAMIC CAP.(MELF) Y K 4700pF/16V	CZM1CKB0Y472
C224		CHIP CERAMIC CAP. F Z 0.1μF/50V or	CHD1JZB0F104
		CHIP CERAMIC CAP. F Z 0.1μF/25V	CHD1EZB0F104
C225		CHIP CERAMIC CAP. CH J 560pF/50V	CHD1JJBCH561
C226		CHIP CERAMIC CAP. F Z 0.1μF/50V or	CHD1JZB0F104
		CHIP CERAMIC CAP. F Z 0.1μF/25V	CHD1EZB0F104
C227		CHIP CERAMIC CAP. CH D 10pF/50V	CHD1JDBCH100
C228		CHIP CERAMIC CAP. CH D 10pF/50V	CHD1JDBCH100
C229		CHIP CERAMIC CAP.(MELF) Y K 4700pF/16V	CZM1CKB0Y472
C230		CHIP CERAMIC CAP. F Z 0.1μF/50V or	CHD1JZB0F104
		CHIP CERAMIC CAP. F Z 0.1μF/25V	CHD1EZB0F104
C231		CHIP CERAMIC CAP.(MELF) F Z 0.01μF/16V	CZM1CZB0F103
C233,△		CHIP CERAMIC CAP.(MELF) Y K 1000pF/35V	CZM1GKB0Y102
C234		CHIP CERAMIC CAP. B K 0.01μF/50V	CHD1JKB0B103
C235		ELECTROLYTIC CAP. 47μF/6.3V M H7	CE0KMAVSL470
C236		CHIP CERAMIC CAP. F Z 0.1μF/50V or	CHD1JZB0F104
		CHIP CERAMIC CAP. F Z 0.1μF/25V	CHD1EZB0F104
C237		ELECTROLYTIC CAP. 47μF/6.3V M H7	CE0KMAVSL470
C238		CHIP CERAMIC CAP. F Z 0.1μF/50V or	CHD1JZB0F104
		CHIP CERAMIC CAP. F Z 0.1μF/25V	CHD1EZB0F104
C239		CHIP CERAMIC CAP. CH J 560pF/50V	CHD1JJBCH561
C240		CHIP CERAMIC CAP.(MELF) Y K 4700pF/16V	CZM1CKB0Y472
C241		ELECTROLYTIC CAP. 22μF/50V M or	CE1JMASDL220

Ref. No.	Mark	Description	Part No.
		ELECTROLYTIC CAP. 22μF/50V M	CE1JMASTL220
C242		CHIP CERAMIC CAP.(MELF) F Z 0.01μF/16V	CZM1CZB0F103
C243		ELECTROLYTIC CAP. 47μF/6.3V M H7	CE0KMAVSL470
C244		CHIP CERAMIC CAP.(MELF) F Z 0.01μF/16V	CZM1CZB0F103
C245		ELECTROLYTIC CAP. 47μF/6.3V M H7	CE0KMAVSL470
C248		ELECTROLYTIC CAP. 47μF/6.3V M H7	CE0KMAVSL470
C253		CHIP CERAMIC CAP. B K 0.01μF/50V	CHD1JKB0B103
C254		CHIP CERAMIC CAP. CH J 560pF/50V	CHD1JJBCH561
C255		CHIP CERAMIC CAP. CH J 560pF/50V	CHD1JJBCH561
C256		ELECTROLYTIC CAP. 10μF/25V M H7	CE1EMAVSL100
C301		CHIP CERAMIC CAP.(MELF) F Z 0.01μF/16V	CZM1CZB0F103
C302		ELECTROLYTIC CAP. 470μF/6.3V M or	CE0KMASDL471
		ELECTROLYTIC CAP. 470μF/6.3V M	CE0KMASTL471
C303		CHIP CERAMIC CAP. B K 0.01μF/50V	CHD1JKB0B103
C304		CHIP CERAMIC CAP. B K 0.01μF/50V	CHD1JKB0B103
C305		ELECTROLYTIC CAP. 1μF/50V M or	CE1JMASDL010
		ELECTROLYTIC CAP. 1μF/50V M or	CE1JMASTL1R0
		ELECTROLYTIC CAP. 1μF/50V M	CE1JMASTL1R0
C307		CHIP CERAMIC CAP. F Z 0.1μF/50V or	CHD1JZB0F104
		CHIP CERAMIC CAP. F Z 0.1μF/25V	CHD1EZB0F104
C308		CHIP CERAMIC CAP. F Z 0.1μF/50V or	CHD1JZB0F104
		CHIP CERAMIC CAP. F Z 0.1μF/25V	CHD1EZB0F104
C309		FILM CAP.(P) 0.1μF/50V J or	CMA1JJS00104
		FILM CAP.(P) 0.1μF/50V J	CA1J104MS029
C310		CHIP CERAMIC CAP. F Z 0.1μF/50V or	CHD1JZB0F104
		CHIP CERAMIC CAP. F Z 0.1μF/25V	CHD1EZB0F104
C311		ELECTROLYTIC CAP. 470μF/6.3V M or	CE0KMASDL471
		ELECTROLYTIC CAP. 470μF/6.3V M	CE0KMASTL471
C312		CHIP CERAMIC CAP.(MELF) B K 180pF/50V	CZM1JKB0B181
C313		CHIP CERAMIC CAP. F Z 0.1μF/50V or	CHD1JZB0F104
		CHIP CERAMIC CAP. F Z 0.1μF/25V	CHD1EZB0F104
C314		CHIP CERAMIC CAP. B K 0.01μF/50V	CHD1JKB0B103
C315		CHIP CERAMIC CAP. F Z 0.1μF/50V or	CHD1JZB0F104
		CHIP CERAMIC CAP. F Z 0.1μF/25V	CHD1EZB0F104
C316		ELECTROLYTIC CAP. 1μF/50V M or	CE1JMASDL010
		ELECTROLYTIC CAP. 1μF/50V M or	CE1JMASDL1R0
		ELECTROLYTIC CAP. 1μF/50V M	CE1JMASTL1R0
C317		CHIP CERAMIC CAP. CH J 150pF/50V	CHD1JJBCH151
C318		ELECTROLYTIC CAP. 1μF/50V M or	CE1JMASDL010
		ELECTROLYTIC CAP. 1μF/50V M or	CE1JMASDL1R0
		ELECTROLYTIC CAP. 1μF/50V M	CE1JMASTL1R0
C319		ELECTROLYTIC CAP. 1μF/50V M or	CE1JMASDL010
		ELECTROLYTIC CAP. 1μF/50V M or	CE1JMASDL1R0
		ELECTROLYTIC CAP. 1μF/50V M	CE1JMASTL1R0
C320		CHIP CERAMIC CAP. B K 0.01μF/50V	CHD1JKB0B103
C321		ELECTROLYTIC CAP. 1μF/50V M or	CE1JMASDL010
		ELECTROLYTIC CAP. 1μF/50V M or	CE1JMASDL1R0
		ELECTROLYTIC CAP. 1μF/50V M	CE1JMASTL1R0
C322		ELECTROLYTIC CAP. 470μF/10V M or	CE1AMASDL471
		ELECTROLYTIC CAP. 470μF/10V M	CE1AMASTL471
C323		ELECTROLYTIC CAP. 47μF/25V M or	CE1EMASDL470
		ELECTROLYTIC CAP. 47μF/25V M	CE1EMASTL470
C324		CHIP CERAMIC CAP.(MELF) F Z 0.01μF/16V	CZM1CZB0F103
C325		MYLAR CAP. 0.22μF/50V J or	CMA1JJS00224
		FILM CAP.(P) 0.22μF/50V J or	CA1J224MS029
		TF CAP. 0.22μF/50V J	CT1J224MS045
C326		ELECTROLYTIC CAP. 1μF/50V M or	CE1JMASDL010

Ref. No.	Mark	Description	Part No.
		ELECTROLYTIC CAP. 1μF/50V M or	CE1JMASDL1R0
		ELECTROLYTIC CAP. 1μF/50V M	CE1JMASTL1R0
C327		CHIP CERAMIC CAP. B K 0.01μF/50V	CHD1JKB0B103
C328		MYLAR CAP. 0.22μF/50V J or	CMA1JJS00224
		FILM CAP.(P) 0.22μF/50V J or	CA1J224MS029
		TF CAP. 0.22μF/50V J	CT1J224MS045
C330		CHIP CERAMIC CAP.(MELF) F Z 0.01μF/16V	CZM1CZB0F103
C331		ELECTROLYTIC CAP. 47μF/10V M or	CE1AMASDL470
		ELECTROLYTIC CAP. 47μF/10V M	CE1AMASTL470
C332		CHIP CERAMIC CAP. F Z 0.1μF/50V or	CHD1JZB0F104
		CHIP CERAMIC CAP. F Z 0.1μF/25V	CHD1EZB0F104
C333		CHIP CERAMIC CAP. F Z 0.1μF/50V or	CHD1JZB0F104
		CHIP CERAMIC CAP. F Z 0.1μF/25V	CHD1EZB0F104
C334		CHIP CERAMIC CAP. F Z 0.1μF/50V or	CHD1JZB0F104
		CHIP CERAMIC CAP. F Z 0.1μF/25V	CHD1EZB0F104
C336		ELECTROLYTIC CAP. 47μF/10V M or	CE1AMASDL470
		ELECTROLYTIC CAP. 47μF/10V M	CE1AMASTL470
C338		CHIP CERAMIC CAP.(MELF) Y K 1000pF/35V	CZM1GKB0Y102
C340		CHIP CERAMIC CAP.(MELF) B K 180pF/50V	CZM1JKB0B181
C341		CHIP CERAMIC CAP.(MELF) F Z 0.01μF/16V	CZM1CZB0F103
C344		CHIP CERAMIC CAP.(MELF) Y K 1000pF/35V	CZM1GKB0Y102
C350		ELECTROLYTIC CAP. 220μF/10V M or	CE1AMASDL221
		ELECTROLYTIC CAP. 220μF/10V M	CE1AMASTL221
C401		CHIP CERAMIC CAP. B K 0.01μF/50V	CHD1JKB0B103
C402		ELECTROLYTIC CAP. 1μF/50V M H7	CE1JMAVSL1R0
C403		ELECTROLYTIC CAP. 1μF/50V M H7	CE1JMAVSL1R0
C404		ELECTROLYTIC CAP. 100μF/6.3V H7	CE0KMAVSL101
C405		CHIP CERAMIC CAP. F Z 0.1μF/50V or	CHD1JZB0F104
		CHIP CERAMIC CAP. F Z 0.1μF/25V	CHD1EZB0F104
C406		CHIP CERAMIC CAP. F Z 0.1μF/50V or	CHD1JZB0F104
		CHIP CERAMIC CAP. F Z 0.1μF/25V	CHD1EZB0F104
C407		CHIP CERAMIC CAP. B K 0.01μF/50V	CHD1JKB0B103
C408		CHIP CERAMIC CAP. F Z 0.1μF/50V or	CHD1JZB0F104
		CHIP CERAMIC CAP. F Z 0.1μF/25V	CHD1EZB0F104
C409		CHIP CERAMIC CAP. F Z 0.1μF/50V or	CHD1JZB0F104
		CHIP CERAMIC CAP. F Z 0.1μF/25V	CHD1EZB0F104
C410		CHIP CERAMIC CAP. B K 0.01μF/50V	CHD1JKB0B103
C411		CHIP CERAMIC CAP. B K 0.01μF/50V	CHD1JKB0B103
C412		ELECTROLYTIC CAP. 1μF/50V M H7	CE1JMAVSL1R0
C413		CHIP CERAMIC CAP. B K 0.01μF/50V	CHD1JKB0B103
C414		CHIP CERAMIC CAP. F Z 0.1μF/50V or	CHD1JZB0F104
		CHIP CERAMIC CAP. F Z 0.1μF/25V	CHD1EZB0F104
C415		CHIP CERAMIC CAP. B K 0.01μF/50V	CHD1JKB0B103
C416		ELECTROLYTIC CAP. 47μF/6.3V M H7	CE0KMAVSL470
C417		ELECTROLYTIC CAP. 1μF/50V M H7	CE1JMAVSL1R0
C418		ELECTROLYTIC CAP. 1μF/50V M H7	CE1JMAVSL1R0
C419		CHIP CERAMIC CAP. F Z 0.1μF/50V or	CHD1JZB0F104
		CHIP CERAMIC CAP. F Z 0.1μF/25V	CHD1EZB0F104
C420		CHIP CERAMIC CAP. F Z 0.1μF/50V or	CHD1JZB0F104
		CHIP CERAMIC CAP. F Z 0.1μF/25V	CHD1EZB0F104
C421		ELECTROLYTIC CAP. 10μF/25V M H7	CE1EMAVSL100
C424		CHIP CERAMIC CAP. F Z 0.1μF/50V or	CHD1JZB0F104
		CHIP CERAMIC CAP. F Z 0.1μF/25V	CHD1EZB0F104
C425		CHIP CERAMIC CAP. CH J 68pF/50V	CHD1JJBCH680
C426		CHIP CERAMIC CAP. F Z 0.1μF/50V or	CHD1JZB0F104
		CHIP CERAMIC CAP. F Z 0.1μF/25V	CHD1EZB0F104
C427		CHIP CERAMIC CAP. F Z 0.1μF/50V or	CHD1JZB0F104

Ref. No.	Mark	Description	Part No.
		CHIP CERAMIC CAP. F Z 0.1µF/25V	CHD1EZB0F104
C430		ELECTROLYTIC CAP. 47µF/25V M or	CE1EMASDL470
		ELECTROLYTIC CAP. 47µF/25V M	CE1EMASTL470
C431		CHIP CERAMIC CAP. F Z 0.1µF/50V or	CHD1JZB0F104
		CHIP CERAMIC CAP. F Z 0.1µF/25V	CHD1EZB0F104
C432		ELECTROLYTIC CAP. 1µF/50V M H7	CE1JMAVSL1R0
C433		ELECTROLYTIC CAP. 10µF/25V M H7	CE1EMAVSL100
C434		ELECTROLYTIC CAP. 22µF/16V M H7	CE1CMAVSL220
C435		ELECTROLYTIC CAP. 1µF/50V M H7	CE1JMAVSL1R0
C436		CHIP CERAMIC CAP. CH J 120pF/50V	CHD1JJBCH121
C438		CHIP CERAMIC CAP. CH J 220pF/50V	CHD1JJBCH221
C440		ELECTROLYTIC CAP. 1µF/50V M H7	CE1JMAVSL1R0
C441		CHIP CERAMIC CAP. F Z 0.1µF/50V or	CHD1JZB0F104
		CHIP CERAMIC CAP. F Z 0.1µF/25V	CHD1EZB0F104
C442		CHIP CERAMIC CAP. F Z 0.1µF/50V or	CHD1JZB0F104
		CHIP CERAMIC CAP. F Z 0.1µF/25V	CHD1EZB0F104
C443		ELECTROLYTIC CAP. 1µF/50V M H7	CE1JMAVSL1R0
C444		CHIP CERAMIC CAP. B K 2200pF/50V	CHD1JKB0B222
C445		ELECTROLYTIC CAP. 10µF/25V M H7	CE1EMAVSL100
C452		CHIP CERAMIC CAP. CH J 68pF/50V	CHD1JJBCH680
C471	C,G	CHIP CERAMIC CAP. B K 0.01µF/50V	CHD1JKB0B103
C472	C,G	CHIP CERAMIC CAP. B K 0.01µF/50V	CHD1JKB0B103
C473	C,G	CHIP CERAMIC CAP. F Z 0.1µF/50V or	CHD1JZB0F104
	C,G	CHIP CERAMIC CAP. F Z 0.1µF/25V	CHD1EZB0F104
C474	C,G	CHIP CERAMIC CAP. F Z 0.1µF/50V or	CHD1JZB0F104
	C,G	CHIP CERAMIC CAP. F Z 0.1µF/25V	CHD1EZB0F104
C475	C,G	CHIP CERAMIC CAP. F Z 0.1µF/50V or	CHD1JZB0F104
	C,G	CHIP CERAMIC CAP. F Z 0.1µF/25V	CHD1EZB0F104
C476	C,G	CHIP CERAMIC CAP. B K 0.01µF/50V	CHD1JKB0B103
C478	C,G	CHIP CERAMIC CAP. F Z 0.1µF/50V or	CHD1JZB0F104
	C,G	CHIP CERAMIC CAP. F Z 0.1µF/25V	CHD1EZB0F104
C479	C,G	CHIP CERAMIC CAP. B K 0.01µF/50V	CHD1JKB0B103
C480	C,G	CHIP CERAMIC CAP. B K 0.01µF/50V	CHD1JKB0B103
C481	C,G	ELECTROLYTIC CAP. 0.47µF/50V M H7	CE1JMAVSLR47
C483	C,G	CHIP CERAMIC CAP. F Z 0.1µF/50V or	CHD1JZB0F104
	C,G	CHIP CERAMIC CAP. F Z 0.1µF/25V	CHD1EZB0F104
C484	C,G	CHIP CERAMIC CAP. CH J 820pF/50V or	CHD1JJBCH821
	C,G	CHIP CERAMIC CAP. CH J 820pF/25V	CHD1EJBCH821
C485	C,G	CHIP CERAMIC CAP. CH J 820pF/50V or	CHD1JJBCH821
	C,G	CHIP CERAMIC CAP. CH J 820pF/25V	CHD1EJBCH821
C486	C,G	ELECTROLYTIC CAP. 2.2µF/50V M H7	CE1JMAVSL2R2
C681		ELECTROLYTIC CAP. 220µF/16V M or	CE1CMASDL221
		ELECTROLYTIC CAP. 220µF/16V M	CE1CMASTL221
C682		ELECTROLYTIC CAP. 220µF/16V M or	CE1CMASDL221
		ELECTROLYTIC CAP. 220µF/16V M	CE1CMASTL221
C683		ELECTROLYTIC CAP. 10µF/50V M or	CE1JMASDL100
		ELECTROLYTIC CAP. 10µF/50V M	CE1JMASTL100
C684△		CHIP CERAMIC CAP.(MELF) B K 180pF/50V	CZM1JKB0B181
C687		ELECTROLYTIC CAP. 47µF/25V M or	CE1EMASDL470
		ELECTROLYTIC CAP. 47µF/25V M	CE1EMASTL470
C688		ELECTROLYTIC CAP. 47µF/25V M or	CE1EMASDL470
		ELECTROLYTIC CAP. 47µF/25V M	CE1EMASTL470
C689		ELECTROLYTIC CAP. 470µF/10V M or	CE1AMASDL471
		ELECTROLYTIC CAP. 470µF/10V M	CE1AMASTL471
C691		ELECTROLYTIC CAP. 2.2µF/50V M or	CE1JMASDL2R2
		ELECTROLYTIC CAP. 2.2µF/50V M	CE1JMASTL2R2
C694		ELECTROLYTIC CAP. 100µF/10V M or	CE1AMASDL101
		ELECTROLYTIC CAP. 100µF/10V M	CE1AMASTL101
C703		ELECTROLYTIC CAP. 4.7µF/50V M or	CE1JMASDL4R7
		ELECTROLYTIC CAP. 4.7µF/50V M	CE1JMASTL4R7

Ref. No.	Mark	Description	Part No.
C707		ELECTROLYTIC CAP. 0.22µF/50V M or	CE1JMASDLR22
		ELECTROLYTIC CAP. 0.22µF/50V M	CE1JMASTLR22
C708		ELECTROLYTIC CAP. 0.47µF/50V M or	CE1JMASDLR47
		ELECTROLYTIC CAP. 0.47µF/50V M	CE1JMASTLR47
C709		ELECTROLYTIC CAP. 0.47µF/50V M or	CE1JMASDLR47
		ELECTROLYTIC CAP. 0.47µF/50V M	CE1JMASTLR47
C710		ELECTROLYTIC CAP. 0.47µF/50V M or	CE1JMASDLR47
		ELECTROLYTIC CAP. 0.47µF/50V M	CE1JMASTLR47
C711		ELECTROLYTIC CAP. 470µF/10V M or	CE1AMASDL471
		ELECTROLYTIC CAP. 470µF/10V M	CE1AMASTL471
C713		PCB JUMPER D0.6-P5.0	JW5.0T
C715		ELECTROLYTIC CAP. 4.7µF/50V M or	CE1JMASDL4R7
		ELECTROLYTIC CAP. 4.7µF/50V M	CE1JMASTL4R7
C716		CHIP CERAMIC CAP. F Z 0.1µF/50V or	CHD1JZB0F104
		CHIP CERAMIC CAP. F Z 0.1µF/25V	CHD1EZB0F104
C719		ELECTROLYTIC CAP. 1µF/50V M or	CE1JMASDL010
		ELECTROLYTIC CAP. 1µF/50V M or	CE1JMASDL1R0
		ELECTROLYTIC CAP. 1µF/50V M	CE1JMASTL1R0
C723		CHIP CERAMIC CAP.(MELF) Y K 1000pF/35V	CZM1GKB0Y102
C724		ELECTROLYTIC CAP. 47µF/10V M or	CE1AMASDL470
		ELECTROLYTIC CAP. 47µF/10V M	CE1AMASTL470
C851		ELECTROLYTIC CAP. 47µF/6.3V M H7	CE0KMAVSL470
C855		ELECTROLYTIC CAP. 220µF/6.3V M H7	CE0KMAVSL221
C856		CERAMIC CAP. B K 470pF/100V or	CCD2AKS0B471
		CERAMIC CAP. B K 470pF/500V	CCD2JKS0B471
C857		FILM CAP.(P) 0.018µF/100V J or	CMA2AJS00183
		FILM CAP.(P) 0.018µF/50V J	CA1J183MS029
C858		CHIP CERAMIC CAP. B K 2200pF/50V	CHD1JKB0B222
C859		CHIP CERAMIC CAP.(MELF) SL J 33pF/50V	CZM1JJBLS330
C860		PCB JUMPER D0.6-P5.0	JW5.0T
C861		CERAMIC CAP.(AX) X M 1800pF/16V	CCA1CMT0X182
C862		ELECTROLYTIC CAP. 10µF/25V M H7	CE1EMAVSL100
C863		CHIP CERAMIC CAP. B K 0.01µF/50V	CHD1JKB0B103
C864		CHIP CERAMIC CAP. F Z 0.1µF/50V or	CHD1JZB0F104
		CHIP CERAMIC CAP. F Z 0.1µF/25V	CHD1EZB0F104
C865		CHIP CERAMIC CAP. B K 0.022µF/50V or	CHD1JKB0B223
		CHIP CERAMIC CAP. B K 0.022µF/25V	CHD1EKB0B223
C866		ELECTROLYTIC CAP. 33µF/10V H7	CE1AMAVSL330
C867		ELECTROLYTIC CAP. 4.7µF/50V M H7	CE1JMAVSL4R7
C869		CHIP CERAMIC CAP. F Z 0.1µF/50V or	CHD1JZB0F104
		CHIP CERAMIC CAP. F Z 0.1µF/25V	CHD1EZB0F104
C871		CHIP CERAMIC CAP.(MELF) B K 180pF/50V	CZM1JKB0B181
C872		ELECTROLYTIC CAP. 1µF/50V M H7	CE1JMAVSL1R0
C874		CHIP CERAMIC CAP. F Z 0.1µF/50V or	CHD1JZB0F104
		CHIP CERAMIC CAP. F Z 0.1µF/25V	CHD1EZB0F104
C875		CHIP CERAMIC CAP. CH J 220pF/50V	CHD1JJBCH221
C876		CHIP CERAMIC CAP. B K 0.01µF/50V	CHD1JKB0B103
C877		ELECTROLYTIC CAP. 100µF/6.3V H7	CE0KMAVSL101
CONNECTORS			
CN151		STRAIGHT CONNECTOR BASE 00 8283 0212 00 000 or	J383C02UG002
		STRAIGHT PIN HEADER, 2P 173981-2	1770258
CN201		FFC/FPC CONNECTOR, 12P 04 6232 112 103 800	JC62D12TM003
CN303		CONNECTOR BASE, 5P TUC-P05P-B1	J3TUA05TG001
CN751	E,F,H,I ,G	CONNECTOR BASE, 8P TUC-P08P-B1	J3TUA08TG001
CN752	E,F,H,I ,G	CONNECTOR BASE, 6P TUC-P06P-B1	J3TUA06TG001
DIODES			

Ref. No.	Mark	Description	Part No.
D151△		ZENER DIODE MTZJT-777.5B or	QDTB0MTZJ7R5
△		ZENER DIODE DZ-7.5BSBT265	NDTB0DZ7R5BS
D152△		SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
△		SWITCHING DIODE 1N4148	NDTZ001N4148
D201		LED SIR-563ST3F P or	QPQPS1R563ST
		LED SIR-563ST3F Q	QPQQS1R563ST
D202		LED(RED) L-1513EC	NPQZ0L1513EC
D204		LED(RED) L-1513EC	NPQZ0L1513EC
D205		ZENER DIODE MTZJT-775.6B or	QDTB0MTZJ5R6
		ZENER DIODE DZ-5.6BSBT265	NDTB0DZ5R6BS
D206		PCB JUMPER D0.6-P5.0	JW5.0T
D210		SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
		SWITCHING DIODE 1N4148	NDTZ001N4148
D211		SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
		SWITCHING DIODE 1N4148	NDTZ001N4148
D212		SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
		SWITCHING DIODE 1N4148	NDTZ001N4148
D213		SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
		SWITCHING DIODE 1N4148	NDTZ001N4148
D214		SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
		SWITCHING DIODE 1N4148	NDTZ001N4148
D302		SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
		SWITCHING DIODE 1N4148	NDTZ001N4148
D303		SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
		SWITCHING DIODE 1N4148	NDTZ001N4148
D304		SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
		SWITCHING DIODE 1N4148	NDTZ001N4148
D305		ZENER DIODE MTZJT-778.2B or	QDTB0MTZJ8R2
		ZENER DIODE DZ-8.2BSBT265	NDTB0DZ8R2BS
D306		SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
		SWITCHING DIODE 1N4148	NDTZ001N4148
D401△		SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
△		SWITCHING DIODE 1N4148	NDTZ001N4148
D402		CARBON RES. 1/4W J 10k Ω	RCX4JATZ0103
D471	C,G	PCB JUMPER D0.6-P5.0	JW5.0T
D682		PCB JUMPER D0.6-P10.0	JW10.0T
D686		SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
		SWITCHING DIODE 1N4148	NDTZ001N4148
D687		SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
		SWITCHING DIODE 1N4148	NDTZ001N4148
D688△		SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
△		SWITCHING DIODE 1N4148	NDTZ001N4148
D691△		SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
△		SWITCHING DIODE 1N4148	NDTZ001N4148
D694		ZENER DIODE MTZJT-7715B or	QDTB00MTZJ15
		ZENER DIODE DZ-15BSBT265	NDTB00DZ15BS
D695		ZENER DIODE MTZJT-776.8B or	QDTB0MTZJ6R8
		ZENER DIODE DZ-6.8BSBT265	NDTB0DZ6R8BS
D696		ZENER DIODE MTZJT-7718B or	QDTB00MTZJ18
		ZENER DIODE DZ-18BSBT265	NDTB00DZ18BS
D697		ZENER DIODE MTZJT-779.1B or	QDTB0MTZJ9R1
		ZENER DIODE DZ-9.1BSBT265	NDTB0DZ9R1BS
D706		ZENER DIODE MTZJT-775.1B or	QDTB0MTZJ5R1
		ZENER DIODE DZ-5.1BSBT265	NDTB0DZ5R1BS
D711		ZENER DIODE MTZJT-775.6B or	QDTB0MTZJ5R6
		ZENER DIODE DZ-5.6BSBT265	NDTB0DZ5R6BS
D712		SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
		SWITCHING DIODE 1N4148	NDTZ001N4148
D713		SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
		SWITCHING DIODE 1N4148	NDTZ001N4148
D715		SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133

Ref. No.	Mark	Description	Part No.
		SWITCHING DIODE 1N4148	NDTZ001N4148
D716		ZENER DIODE MTZJT-775.6B or	QDTB0MTZJ5R6
		ZENER DIODE DZ-5.6BSBT265	NDTB0DZ5R6BS
ICS			
IC151△		AUDIO AMP LA4224	QSZA00SSY005
IC201△		MICRO COMPUTER M37762MCA-BB0GP	QSZA00RHT016
IC202△		IC:MEMORY BR24C04F-W or	QSMBA0SRM004
△		IC:MEMORY AT24C04N-10SC or	NSMMA0SAZ013
△		IC(EEPROM) M24C04-MN6 or	NSMMA0SSS029
△		IC:MEMORY BR24C04F or	QSMMA0SRM004
△		IC(EEP-ROM) M24C04-WMN6 or	NSZAA0SSS005
△		IC:EEPROM CAT24WC04JI or	NSZBA0SBG002
△		IC:EEPROM(4K) BR24L04F-WE2	QSZBA0TRM066
IC301△		IC:CHROMA/IF 1 CHIP M61209BFP	QSZBA0RMB017
IC401△		IC:Y/C/A LA71750EM-MPB-E	QSZBA0RSY020
IC471△	C,G	IC:SECAM LA70100M-MPB	QSZBA0SSY019
IC681△		VOLTAGE REGULATOR KIA7805API or	NSBBA0SJY011
△		VOLTAGE REGULATOR KA7805A	NSZBA0SF3052
IC701△		IC:SWITCH TC4053BF(N) or	QSMBA0STS002
△		IC:ANALOG MULTIPLEXERS CD4053BCSJX or	NSZBA0TF3071
△		IC:ANALOG MULTIPLEXER CD4053BNSR	NSZBA0TTY093
IC703△		IC:SWITCH TC4053BF(N) or	QSMBA0STS002
△		IC:ANALOG MULTIPLEXERS CD4053BCSJX or	NSZBA0TF3071
△		IC:ANALOG MULTIPLEXER CD4053BNSR	NSZBA0TTY093
COILS			
L001		PCB JUMPER D0.6-P5.0	JW5.0T
L151		INDUCTOR 1.8μH-J-26T or	LLAXJATTU1R8
		INDUCTOR 1.8μH-K-26T	LLAXKDTKA1R8
L152		INDUCTOR 1.0μH-J-26T or	LLAXJATTU010
		INDUCTOR 1.0μH-K-26T	LLAXKDTKA1R0
L201		INDUCTOR 0.10μH-K-26T or	LLAXKATTUR10
		INDUCTOR 0.1μH-M-26T	LLAXMDTKAR10
L302		INDUCTOR 33μH-J-26T or	LLAXJATTU330
		INDUCTOR 33μH-K-26T	LLAXKDTKA330
L303		PCB JUMPER D0.6-P7.5	JW7.5T
L304		PCB JUMPER D0.6-P7.5	JW7.5T
L305		PCB JUMPER D0.6-P5.0	JW5.0T
L401		PCB JUMPER D0.6-P5.0	JW5.0T
L402		INDUCTOR 33μH-J-26T or	LLAXJATTU330
		INDUCTOR 33μH-K-26T	LLAXKDTKA330
L403		INDUCTOR 100μH-J-26T or	LLAXJATTU101
		INDUCTOR 100μH-K-26T	LLAXKDTKA101
L681		PCB JUMPER D0.6-P7.5	JW7.5T
L682		PCB JUMPER D0.6-P7.5	JW7.5T
L701		INDUCTOR 12μH-J-26T or	LLAXJATTU120
		INDUCTOR 12μH-K-26T	LLAXKDTKA120
L702		PCB JUMPER D0.6-P5.0	JW5.0T
L852		INDUCTOR 47μH-K-5FT or	LLARKBSTU470
		INDUCTOR 47μH-K-5FT	LLARKDSKA470
L854		INDUCTOR 0.22μH-K-26T or	LLAXKATTUR22
		INDUCTOR 0.22μH-M-26T	LLAXMDTKAR22
TRANSISTORS			
Q204		TRANSISTOR 2SC2785(F) or	QQSF02SC2785
		TRANSISTOR 2SC2785(H) or	QQSH02SC2785
		TRANSISTOR 2SC2785(J) or	QQSJ02SC2785
		TRANSISTOR KTC3199(GR) or	NQS10KTC3199
		TRANSISTOR KTC3198(GR) or	NQS40KTC3198

Ref. No.	Mark	Description	Part No.
		TRANSISTOR 2SC1815-GR(TPE2)	QQS102SC1815
Q205		PHOTO TRANSISTOR MID-32A22F or	NPWZ1D32A22F
		PHOTO TRANSISTOR PT204-6B-12	NPWZT2046B12
Q206		RES. BUILT-IN TRANSISTOR KRA103M or	NQSZ0KRA103M
		RES. BUILT-IN TRANSISTOR 2SA1346 or	2SA1346Z
		RES. BUILT-IN TRANSISTOR BN1F4M-T	QQSZ00BN1F4M
Q401		TRANSISTOR 2SA1175(F) or	QQSF02SA1175
		TRANSISTOR KTA1267(GR) or	NQS10KTA1267
		TRANSISTOR KTA1266(GR) or	NQS40KTA1266
		TRANSISTOR 2SA1015-GR(TPE2)	QQS102SA1015
Q682		TRANSISTOR 2SC2785(F) or	QQSF02SC2785
		TRANSISTOR 2SC2785(H) or	QQSH02SC2785
		TRANSISTOR 2SC2785(J) or	QQSJ02SC2785
		TRANSISTOR KTC3199(GR) or	NQS10KTC3199
		TRANSISTOR KTC3198(GR) or	NQS40KTC3198
		TRANSISTOR 2SC1815-GR(TPE2)	QQS102SC1815
Q684		TRANSISTOR 2SC2120-Y(TPE2) or	QQSY02SC2120
		TRANSISTOR 2SC2120-O-TPE2 or	QQS002SC2120
		TRANSISTOR KTC3203(Y)	NQSY0KTC3203
Q685△		TRANSISTOR 2SC2785(F) or	QQSF02SC2785
△		TRANSISTOR 2SC2785(H) or	QQSH02SC2785
△		TRANSISTOR 2SC2785(J) or	QQSJ02SC2785
△		TRANSISTOR KTC3199(GR) or	NQS10KTC3199
△		TRANSISTOR KTC3198(GR) or	NQS40KTC3198
△		TRANSISTOR 2SC1815-GR(TPE2)	QQS102SC1815
Q686△		TRANSISTOR 2SD1913(R) or	Q2SD1913R***
△		TRANSISTOR KTC2026Y	NQWY0KTC2026
Q701		TRANSISTOR 2SC2785(F) or	QQSF02SC2785
		TRANSISTOR 2SC2785(H) or	QQSH02SC2785
		TRANSISTOR 2SC2785(J) or	QQSJ02SC2785
		TRANSISTOR KTC3199(GR) or	NQS10KTC3199
		TRANSISTOR KTC3198(GR) or	NQS40KTC3198
		TRANSISTOR 2SC1815-GR(TPE2)	QQS102SC1815
Q702		TRANSISTOR 2SC2785(F) or	QQSF02SC2785
		TRANSISTOR 2SC2785(H) or	QQSH02SC2785
		TRANSISTOR 2SC2785(J) or	QQSJ02SC2785
		TRANSISTOR KTC3199(GR) or	NQS10KTC3199
		TRANSISTOR KTC3198(GR) or	NQS40KTC3198
		TRANSISTOR 2SC1815-GR(TPE2)	QQS102SC1815
Q703		TRANSISTOR 2SA1175(F) or	QQSF02SA1175
		TRANSISTOR KTA1267(GR) or	NQS10KTA1267
		TRANSISTOR KTA1266(GR) or	NQS40KTA1266
		TRANSISTOR 2SA1015-GR(TPE2)	QQS102SA1015
Q704		RES. BUILT-IN TRANSISTOR KRA103M or	NQSZ0KRA103M
		RES. BUILT-IN TRANSISTOR 2SA1346 or	2SA1346Z
		RES. BUILT-IN TRANSISTOR BN1F4M-T	QQSZ00BN1F4M
Q705		PCB JUMPER D0.6-P5.0	JW5.0T
Q706		TRANSISTOR 2SC2785(F) or	QQSF02SC2785
		TRANSISTOR 2SC2785(H) or	QQSH02SC2785
		TRANSISTOR 2SC2785(J) or	QQSJ02SC2785
		TRANSISTOR KTC3199(GR) or	NQS10KTC3199
		TRANSISTOR KTC3198(GR) or	NQS40KTC3198
		TRANSISTOR 2SC1815-GR(TPE2)	QQS102SC1815
Q707		TRANSISTOR 2SC2785(F) or	QQSF02SC2785
		TRANSISTOR 2SC2785(H) or	QQSH02SC2785
		TRANSISTOR 2SC2785(J) or	QQSJ02SC2785
		TRANSISTOR KTC3199(GR) or	NQS10KTC3199
		TRANSISTOR KTC3198(GR) or	NQS40KTC3198
		TRANSISTOR 2SC1815-GR(TPE2)	QQS102SC1815

Ref. No.	Mark	Description	Part No.
Q708		TRANSISTOR 2SC2785(F) or	QQSF02SC2785
		TRANSISTOR 2SC2785(H) or	QQSH02SC2785
		TRANSISTOR 2SC2785(J) or	QQSJ02SC2785
		TRANSISTOR KTC3199(GR) or	NQS10KTC3199
		TRANSISTOR KTC3198(GR) or	NQS40KTC3198
		TRANSISTOR 2SC1815-GR(TPE2)	QQS102SC1815
Q709		TRANSISTOR 2SC2785(F) or	QQSF02SC2785
		TRANSISTOR 2SC2785(H) or	QQSH02SC2785
		TRANSISTOR 2SC2785(J) or	QQSJ02SC2785
		TRANSISTOR KTC3199(GR) or	NQS10KTC3199
		TRANSISTOR KTC3198(GR) or	NQS40KTC3198
		TRANSISTOR 2SC1815-GR(TPE2)	QQS102SC1815
Q710		TRANSISTOR 2SC2785(F) or	QQSF02SC2785
		TRANSISTOR 2SC2785(H) or	QQSH02SC2785
		TRANSISTOR 2SC2785(J) or	QQSJ02SC2785
		TRANSISTOR KTC3199(GR) or	NQS10KTC3199
		TRANSISTOR KTC3198(GR) or	NQS40KTC3198
		TRANSISTOR 2SC1815-GR(TPE2)	QQS102SC1815
Q711		TRANSISTOR 2SA1175(F) or	QQSF02SA1175
		TRANSISTOR KTA1267(GR) or	NQS10KTA1267
		TRANSISTOR KTA1266(GR) or	NQS40KTA1266
		TRANSISTOR 2SA1015-GR(TPE2)	QQS102SA1015
Q851		RES. BUILT-IN TRANSISTOR KRA103M or	NQSZ0KRA103M
		RES. BUILT-IN TRANSISTOR 2SA1346 or	2SA1346Z
		RES. BUILT-IN TRANSISTOR BN1F4M-T	QQSZ00BN1F4M
Q852		TRANSISTOR 2SC3331(T) or	QSC3331TNPAA
		TRANSISTOR 2SC3331(U) or	QSC3331UNPAA
		TRANSISTOR 2SC1815-GR(TPE2)	QQS102SC1815
Q853		TRANSISTOR 2SC3331(T) or	QSC3331TNPAA
		TRANSISTOR 2SC3331(U) or	QSC3331UNPAA
		TRANSISTOR 2SC1815-GR(TPE2)	QQS102SC1815
Q854		TRANSISTOR 2SA1175(F) or	QQSF02SA1175
		TRANSISTOR KTA1267(GR) or	NQS10KTA1267
		TRANSISTOR KTA1266(GR) or	NQS40KTA1266
		TRANSISTOR 2SA1015-GR(TPE2)	QQS102SA1015
Q855		TRANSISTOR 2SC2120-Y(TPE2) or	QQSY02SC2120
		TRANSISTOR 2SC2120-O-TPE2 or	QQS002SC2120
		TRANSISTOR KTC3203(Y)	NQSY0KTC3203
Q856		TRANSISTOR 2SC2785(F) or	QQSF02SC2785
		TRANSISTOR 2SC2785(H) or	QQSH02SC2785
		TRANSISTOR 2SC2785(J) or	QQSJ02SC2785
		TRANSISTOR KTC3199(GR) or	NQS10KTC3199
		TRANSISTOR KTC3198(GR) or	NQS40KTC3198
		TRANSISTOR 2SC1815-GR(TPE2)	QQS102SC1815
RESISTORS			
R003		PCB JUMPER D0.6-P5.0	JW5.0T
R004		PCB JUMPER D0.6-P5.0	JW5.0T
R151△		METAL OXIDE FILM RES. 1W J 12 Ω or	RN01JZLZ0120
△		FIXED METAL OXIDE FILM RES. 1W J 12 Ω	RN01JZPZ0120
R152△		CHIP RES.(1608) 1/10W J 5.6k Ω	RRXAJB5Z0562
R153		CHIP RES.(1608) 1/10W J 4.7k Ω	RRXAJB5Z0472
R154		CHIP RES.(1608) 1/10W J 5.6k Ω	RRXAJB5Z0562
R155		CARBON RES. 1/4W J 47 Ω	RCX4JATZ0470
R156		CARBON RES. 1/4W J 47 Ω	RCX4JATZ0470
R157		CARBON RES. 1/4W J 10 Ω	RCX4JATZ0100
R201		CARBON RES. 1/4W J 1k Ω	RCX4JATZ0102
R202		CHIP RES.(1608) 1/10W J 22k Ω	RRXAJB5Z0223
R203		CARBON RES. 1/4W J 1k Ω	RCX4JATZ0102
R204		CHIP RES.(1608) 1/10W J 22k Ω	RRXAJB5Z0223

Ref. No.	Mark	Description	Part No.
R205		CARBON RES. 1/4W J 1k Ω	RCX4JATZ0102
R206		CHIP RES.(1608) 1/10W J 390k Ω	RRXAJB5Z0394
R207		CHIP RES.(1608) 1/10W J 10k Ω	RRXAJB5Z0103
R208		CHIP RES.(1608) 1/10W J 1.5k Ω	RRXAJB5Z0152
R209		CHIP RES.(1608) 1/10W J 1.5k Ω	RRXAJB5Z0152
R210		CARBON RES. 1/4W G 4.7k Ω or	RCX4GATZ0472
		CARBON RES. 1/6W G 4.7k Ω	RCX6GATZ0472
R211		CHIP RES.(1608) 1/10W J 2.2k Ω	RRXAJB5Z0222
R212		CHIP RES.(1608) 1/10W J 2.7k Ω	RRXAJB5Z0272
R213		CHIP RES.(1608) 1/10W J 10k Ω	RRXAJB5Z0103
R214		CHIP RES.(1608) 1/10W J 1.5k Ω	RRXAJB5Z0152
R215		CHIP RES.(1608) 1/10W J 1.5k Ω	RRXAJB5Z0152
R216		CHIP RES.(1608) 1/10W J 2.2k Ω	RRXAJB5Z0222
R217		CHIP RES.(1608) 1/10W J 2.7k Ω	RRXAJB5Z0272
R218		CHIP RES.(1608) 1/10W J 560 Ω	RRXAJB5Z0561
R219		CARBON RES. 1/4W J 1k Ω	RCX4JATZ0102
R220		CHIP RES.(1608) 1/10W J 390k Ω	RRXAJB5Z0394
R221		CARBON RES. 1/4W J 270 Ω	RCX4JATZ0271
R222		CARBON RES. 1/4W J 1k Ω	RCX4JATZ0102
R223		CHIP RES.(1608) 1/10W J 680 Ω	RRXAJB5Z0681
R224		CHIP RES.(1608) 1/10W J 680 Ω	RRXAJB5Z0681
R226	A,B,D, E,F,H,I	CHIP RES.(1608) 1/10W J 10k Ω	RRXAJB5Z0103
R227		CHIP RES.(1608) 1/10W J 47 Ω	RRXAJB5Z0470
R228		CHIP RES.(1608) 1/10W J 100k Ω	RRXAJB5Z0104
R229		CHIP RES.(1608) 1/10W J 2.2k Ω	RRXAJB5Z0222
R230		CHIP RES.(1608) 1/10W J 1.5k Ω	RRXAJB5Z0152
R231		CHIP RES.(1608) 1/10W J 330k Ω	RRXAJB5Z0334
R232		CHIP RES.(1608) 1/10W J 1k Ω	RRXAJB5Z0102
R233		CHIP RES.(1608) 1/10W J 1k Ω	RRXAJB5Z0102
R234		CHIP RES.(1608) 1/10W J 560 Ω	RRXAJB5Z0561
R235		CHIP RES.(1608) 1/10W J 1k Ω	RRXAJB5Z0102
R236		CHIP RES.(1608) 1/10W J 470 Ω	RRXAJB5Z0471
R237		CHIP RES.(1608) 1/10W J 1M Ω	RRXAJB5Z0105
R238		CHIP RES.(1608) 1/10W J 100 Ω	RRXAJB5Z0101
R239		PCB JUMPER D0.6-P5.0	JW5.0T
R240		PCB JUMPER D0.6-P5.0	JW5.0T
R241		CHIP RES.(1608) 1/10W J 220 Ω	RRXAJB5Z0221
R242		CHIP RES.(1608) 1/10W J 220 Ω	RRXAJB5Z0221
R243		CHIP RES.(1608) 1/10W J 39k Ω	RRXAJB5Z0393
R244		CHIP RES.(1608) 1/10W J 220k Ω	RRXAJB5Z0224
R248		CARBON RES. 1/4W J 1k Ω	RCX4JATZ0102
R249		CHIP RES.(1608) 1/10W J 10k Ω	RRXAJB5Z0103
R250		CHIP RES.(1608) 1/10W J 33k Ω	RRXAJB5Z0333
R254		CHIP RES.(1608) 1/10W J 100k Ω	RRXAJB5Z0104
R255		CHIP RES.(1608) 1/10W J 680 Ω	RRXAJB5Z0681
R256		CHIP RES.(1608) 1/10W J 1.8k Ω	RRXAJB5Z0182
R257		CARBON RES. 1/4W J 6.8k Ω	RCX4JATZ0682
R258		CARBON RES. 1/4W J 47k Ω	RCX4JATZ0473
R259		PCB JUMPER D0.6-P5.0	JW5.0T
R260		CARBON RES. 1/4W G 1.5k Ω or	RCX4GATZ0152
		CARBON RES. 1/6W G 1.5k Ω	RCX6GATZ0152
R261		CARBON RES. 1/4W G 22k Ω or	RCX4GATZ0223
		CARBON RES. 1/6W G 22k Ω	RCX6GATZ0223
R262		CARBON RES. 1/4W G 470 Ω or	RCX4GATZ0471
		CARBON RES. 1/6W G 470 Ω	RCX6GATZ0471
R263		CARBON RES. 1/4W G 10k Ω or	RCX4GATZ0103
		CARBON RES. 1/6W G 10k Ω	RCX6GATZ0103
R264		CARBON RES. 1/4W G 3.6k Ω or	RCX4GATZ0362
		CARBON RES. 1/6W G 3.6k Ω	RCX6GATZ0362
R265		PCB JUMPER D0.6-P5.0	JW5.0T

Ref. No.	Mark	Description	Part No.
R266		PCB JUMPER D0.6-P5.0	JW5.0T
R267		CHIP RES.(1608) 1/10W J 10k Ω	RRXAJB5Z0103
R268		CHIP RES.(1608) 1/10W J 3.3k Ω	RRXAJB5Z0332
R269		CHIP RES.(1608) 1/10W J 3.3k Ω	RRXAJB5Z0332
R270		CHIP RES.(1608) 1/10W J 100 Ω	RRXAJB5Z0101
R271		CHIP RES.(1608) 1/10W J 10k Ω	RRXAJB5Z0103
R272		CHIP RES.(1608) 1/10W J 18k Ω	RRXAJB5Z0183
R273		CHIP RES.(1608) 1/10W J 18k Ω	RRXAJB5Z0183
R274		CHIP RES.(1608) 1/10W J 10k Ω	RRXAJB5Z0103
R275		CHIP RES.(1608) 1/10W J 560 Ω	RRXAJB5Z0561
R276		CHIP RES.(1608) 1/10W J 1.5k Ω	RRXAJB5Z0152
R277		CHIP RES.(1608) 1/10W J 560 Ω	RRXAJB5Z0561
R278		CHIP RES.(1608) 1/10W J 1.5k Ω	RRXAJB5Z0152
R279		CHIP RES.(1608) 1/10W J 560 Ω	RRXAJB5Z0561
R280		CHIP RES.(1608) 1/10W J 1.5k Ω	RRXAJB5Z0152
R281		CHIP RES.(1608) 1/10W J 3.3k Ω	RRXAJB5Z0332
R282		CARBON RES. 1/4W J 330 Ω	RCX4JATZ0331
R288		CHIP RES.(1608) 1/10W J 10 Ω	RRXAJB5Z0100
R289		CHIP RES.(1608) 1/10W J 10 Ω	RRXAJB5Z0100
R301		CHIP RES.(1608) 1/10W J 1.2k Ω	RRXAJB5Z0122
R302		CHIP RES.(1608) 1/10W J 8.2k Ω	RRXAJB5Z0822
R303		CHIP RES.(1608) 1/10W J 100 Ω	RRXAJB5Z0101
R304		CHIP RES.(1608) 1/10W J 1.8k Ω	RRXAJB5Z0182
R305		CHIP RES.(1608) 1/10W J 1.2k Ω	RRXAJB5Z0122
R306		CHIP RES.(1608) 1/10W J 100 Ω	RRXAJB5Z0101
R307		CHIP RES.(1608) 1/10W J 1.2k Ω	RRXAJB5Z0122
R308		CHIP RES.(1608) 1/10W J 100 Ω	RRXAJB5Z0101
R309		CHIP RES.(1608) 1/10W J 1.2k Ω	RRXAJB5Z0122
R310		CHIP RES.(1608) 1/10W J 1k Ω	RRXAJB5Z0102
R311		CARBON RES. 1/4W J 12 Ω	RCX4JATZ0120
R312		CHIP RES.(1608) 1/10W J 100 Ω	RRXAJB5Z0101
R313		CHIP RES.(1608) 1/10W J 220k Ω	RRXAJB5Z0224
R314		CHIP RES.(1608) 1/10W J 4.7k Ω	RRXAJB5Z0472
R315		CHIP RES.(1608) 1/10W J 150k Ω	RRXAJB5Z0154
R316		CARBON RES. 1/4W J 15k Ω	RCX4JATZ0153
R317		CARBON RES. 1/4W J 220k Ω	RCX4JATZ0224
R318		CHIP RES.(1608) 1/10W J 6.8k Ω	RRXAJB5Z0682
R320		CHIP RES.(1608) 1/10W J 10k Ω	RRXAJB5Z0103
R321		CHIP RES.(1608) 1/10W J 220 Ω	RRXAJB5Z0221
R322		CHIP RES.(1608) 1/10W J 3.3k Ω	RRXAJB5Z0332
R323		CHIP RES.(1608) 1/10W J 15k Ω	RRXAJB5Z0153
R324		CHIP RES.(1608) 1/10W J 4.7k Ω	RRXAJB5Z0472
R325		CHIP RES.(1608) 1/10W J 10k Ω	RRXAJB5Z0103
R326		CHIP RES.(1608) 1/10W J 6.8k Ω	RRXAJB5Z0682
R327		PCB JUMPER D0.6-P5.0	JW5.0T
R332		CHIP RES.(1608) 1/10W J 100 Ω	RRXAJB5Z0101
R333		CHIP RES.(1608) 1/10W J 100 Ω	RRXAJB5Z0101
R334		CHIP RES.(1608) 1/10W J 100 Ω	RRXAJB5Z0101
R335		CARBON RES. 1/4W J 100 Ω	RCX4JATZ0101
R336		CHIP RES.(1608) 1/10W J 10k Ω	RRXAJB5Z0103
R339		CHIP RES.(1608) 1/10W 0 Ω	RRXAZB5Z0000
R340		CHIP RES.(1608) 1/10W 0 Ω	RRXAZB5Z0000
R401		CHIP RES.(1608) 1/10W J 1.2k Ω	RRXAJB5Z0122
R402		CHIP RES.(1608) 1/10W J 8.2k Ω	RRXAJB5Z0822
R405		CHIP RES.(1608) 1/10W J 10k Ω	RRXAJB5Z0103
R406		CHIP RES.(1608) 1/10W J 1.2k Ω	RRXAJB5Z0122
R407		CHIP RES.(1608) 1/10W J 390k Ω	RRXAJB5Z0394
R408		CHIP RES.(1608) 1/10W J 330 Ω	RRXAJB5Z0331
R409		CHIP RES.(1608) 1/10W J 330 Ω	RRXAJB5Z0331
R410		CHIP RES.(1608) 1/10W J 220 Ω	RRXAJB5Z0221
R411		CHIP RES.(1608) 1/10W J 4.7k Ω	RRXAJB5Z0472

Ref. No.	Mark	Description	Part No.
R412		CHIP RES.(1608) 1/10W J 4.7k Ω	RRXAJB5Z0472
R413		CHIP RES.(1608) 1/10W J 2.2k Ω	RRXAJB5Z0222
R414		CHIP RES.(1608) 1/10W J 6.8k Ω	RRXAJB5Z0682
R415		CHIP RES.(1608) 1/10W J 4.7k Ω	RRXAJB5Z0472
R416		CHIP RES.(1608) 1/10W J 1.2k Ω	RRXAJB5Z0122
R418		CHIP RES.(1608) 1/10W J 56k Ω	RRXAJB5Z0563
R420		CHIP RES.(1608) 1/10W J 1.5k Ω	RRXAJB5Z0152
R422		CHIP RES.(1608) 1/10W J 120 Ω	RRXAJB5Z0121
R423		CHIP RES.(1608) 1/10W J 47 Ω	RRXAJB5Z0470
R424		CHIP RES.(1608) 1/10W J 1k Ω	RRXAJB5Z0102
R425		CHIP RES.(1608) 1/10W 0 Ω	RRXAZB5Z0000
R426		CHIP RES.(1608) 1/10W 0 Ω	RRXAZB5Z0000
R471	C,G	CHIP RES.(1608) 1/10W J 2.2k Ω	RRXAJB5Z0222
R683		METAL OXIDE FILM RES. 1W J 2.2 Ω or	RN012R2ZU001
		METAL OXIDE FILM RES. 1W J 2.2 Ω	RN012R2DP003
R684		CHIP RES.(1608) 1/10W J 10 Ω	RRXAJB5Z0100
R685		CARBON RES. 1/4W J 6.8k Ω	RCX4JATZ0682
R686		CHIP RES.(1608) 1/10W J 10k Ω	RRXAJB5Z0103
R689△		CARBON RES. 1/4W J 82 Ω	RCX4JATZ0820
R690△		CARBON RES. 1/4W J 82 Ω	RCX4JATZ0820
R691△		CARBON RES. 1/4W J 2.7 Ω	RCX4JATZ02R7
R692		CHIP RES.(1608) 1/10W J 10k Ω	RRXAJB5Z0103
R693△		CHIP RES.(1608) 1/10W J 22k Ω	RRXAJB5Z0223
R694		CHIP RES.(1608) 1/10W J 100 Ω	RRXAJB5Z0101
R695△		CARBON RES. 1/4W J 2.7 Ω	RCX4JATZ02R7
R696		METAL OXIDE FILM RES. 1W J 2.2 Ω or	RN012R2ZU001
		METAL OXIDE FILM RES. 1W J 2.2 Ω	RN012R2DP003
R697		CHIP RES.(1608) 1/10W J 10k Ω	RRXAJB5Z0103
R698		CHIP RES.(1608) 1/10W J 8.2k Ω	RRXAJB5Z0822
R701		CHIP RES.(1608) 1/10W J 75 Ω	RRXAJB5Z0750
R702		CHIP RES.(1608) 1/10W J 3.3k Ω	RRXAJB5Z0332
R703		CARBON RES. 1/4W J 1k Ω	RCX4JATZ0102
R704		CARBON RES. 1/4W J 3.3k Ω	RCX4JATZ0332
R707		CHIP RES.(1608) 1/10W J 1k Ω	RRXAJB5Z0102
R709		CHIP RES.(1608) 1/10W J 75 Ω	RRXAJB5Z0750
R710		CHIP RES.(1608) 1/10W J 33k Ω	RRXAJB5Z0333
R711		CHIP RES.(1608) 1/10W J 2.2k Ω	RRXAJB5Z0222
R712		CARBON RES. 1/4W J 4.7k Ω	RCX4JATZ0472
R714		CHIP RES.(1608) 1/10W J 75 Ω	RRXAJB5Z0750
R723		CHIP RES.(1608) 1/10W J 75 Ω	RRXAJB5Z0750
R724		CHIP RES.(1608) 1/10W J 33k Ω	RRXAJB5Z0333
R725		CARBON RES. 1/4W J 75 Ω	RCX4JATZ0750
R726		CHIP RES.(1608) 1/10W J 1k Ω	RRXAJB5Z0102
R727		CHIP RES.(1608) 1/10W J 22k Ω	RRXAJB5Z0223
R728		CHIP RES.(1608) 1/10W J 22k Ω	RRXAJB5Z0223
R729		CHIP RES.(1608) 1/10W J 47k Ω	RRXAJB5Z0473
R730		CHIP RES.(1608) 1/10W J 10k Ω	RRXAJB5Z0103
R731		CHIP RES.(1608) 1/10W J 100 Ω	RRXAJB5Z0101
R732		CARBON RES. 1/4W J 75 Ω	RCX4JATZ0750
R733		CARBON RES. 1/4W J 390 Ω	RCX4JATZ0391
R737		CHIP RES.(1608) 1/10W J 75 Ω	RRXAJB5Z0750
R738		CHIP RES.(1608) 1/10W J 10k Ω	RRXAJB5Z0103
R739		CHIP RES.(1608) 1/10W J 10k Ω	RRXAJB5Z0103
R740		CHIP RES.(1608) 1/10W J 33k Ω	RRXAJB5Z0333
R741		CHIP RES.(1608) 1/10W J 10k Ω	RRXAJB5Z0103
R742		CHIP RES.(1608) 1/10W J 47k Ω	RRXAJB5Z0473
R743		CHIP RES.(1608) 1/10W J 6.2k Ω	RRXAJB5Z0622
R744		CHIP RES.(1608) 1/10W J 47k Ω	RRXAJB5Z0473
R745		CHIP RES.(1608) 1/10W J 6.2k Ω	RRXAJB5Z0622
R746		CHIP RES.(1608) 1/10W J 47k Ω	RRXAJB5Z0473
R747		CHIP RES.(1608) 1/10W J 6.2k Ω	RRXAJB5Z0622

Ref. No.	Mark	Description	Part No.
R748		CHIP RES.(1608) 1/10W J 2.2k Ω	RRXAJB5Z0222
R749		CHIP RES.(1608) 1/10W J 10k Ω	RRXAJB5Z0103
R751		CHIP RES.(1608) 1/10W J 2.2k Ω	RRXAJB5Z0222
R752		CHIP RES.(1608) 1/10W J 1k Ω	RRXAJB5Z0102
R753		CARBON RES. 1/4W J 2.2k Ω	RCX4JATZ0222
R754		CHIP RES.(1608) 1/10W J 22k Ω	RRXAJB5Z0223
R755		CHIP RES.(1608) 1/10W J 470 Ω	RRXAJB5Z0471
R756		CHIP RES.(1608) 1/10W J 1k Ω	RRXAJB5Z0102
R757		CHIP RES.(1608) 1/10W J 1M Ω	RRXAJB5Z0105
R851		CHIP RES.(1608) 1/10W J 5.6k Ω	RRXAJB5Z0562
R852		CHIP RES.(1608) 1/10W J 22k Ω	RRXAJB5Z0223
R853		CHIP RES.(1608) 1/10W J 2.2k Ω	RRXAJB5Z0222
R854		CHIP RES.(1608) 1/10W J 2.2k Ω	RRXAJB5Z0222
R856		CARBON RES. 1/4W J 47k Ω	RCX4JATZ0473
R857		CARBON RES. 1/4W J 100 Ω	RCX4JATZ0101
R858		CARBON RES. 1/4W J 820 Ω	RCX4JATZ0821
R859		CHIP RES.(1608) 1/10W J 680 Ω	RRXAJB5Z0681
R860		CHIP RES.(1608) 1/10W J 22k Ω	RRXAJB5Z0223
R861		CHIP RES.(1608) 1/10W J 330k Ω	RRXAJB5Z0334
R862		CHIP RES.(1608) 1/10W J 12k Ω	RRXAJB5Z0123
R863		CHIP RES.(1608) 1/10W J 120 Ω	RRXAJB5Z0121
R864		CHIP RES.(1608) 1/10W J 560 Ω	RRXAJB5Z0561
R865		CHIP RES.(1608) 1/10W J 1.8k Ω	RRXAJB5Z0182
R866		CHIP RES.(1608) 1/10W J 12k Ω	RRXAJB5Z0123
R867		CHIP RES.(1608) 1/10W J 100 Ω	RRXAJB5Z0101
R869		CHIP RES.(1608) 1/10W J 2.7k Ω	RRXAJB5Z0272
R870		CHIP RES.(1608) 1/10W J 56k Ω	RRXAJB5Z0563
R871		CHIP RES.(1608) 1/10W J 1M Ω	RRXAJB5Z0105
R874		CHIP RES.(1608) 1/10W J 4.7k Ω	RRXAJB5Z0472
R876		CHIP RES.(1608) 1/10W J 4.7k Ω	RRXAJB5Z0472
R877		CHIP RES.(1608) 1/10W J 15k Ω	RRXAJB5Z0153
R878		CHIP RES.(1608) 1/10W J 12k Ω	RRXAJB5Z0123
R879		CHIP RES.(1608) 1/10W J 5.6k Ω	RRXAJB5Z0562
R884		CARBON RES. 1/4W J 1k Ω	RCX4JATZ0102
SWITCHES			
SW201		TACT SWITCH SKQNAED010 or	SST0101AL055
		TACTILE SWITCH KSHG612BT	SST0101HH027
SW202		TACT SWITCH SKQNAED010 or	SST0101AL055
		TACTILE SWITCH KSHG612BT	SST0101HH027
SW203		TACT SWITCH SKQNAED010 or	SST0101AL055
		TACTILE SWITCH KSHG612BT	SST0101HH027
SW204		TACT SWITCH SKQNAED010 or	SST0101AL055
		TACTILE SWITCH KSHG612BT	SST0101HH027
SW205		TACT SWITCH SKQNAED010 or	SST0101AL055
		TACTILE SWITCH KSHG612BT	SST0101HH027
SW206		TACT SWITCH SKQNAED010 or	SST0101AL055
		TACTILE SWITCH KSHG612BT	SST0101HH027
SW207		TACT SWITCH SKQNAED010 or	SST0101AL055
		TACTILE SWITCH KSHG612BT	SST0101HH027
SW208		TACT SWITCH SKQNAED010 or	SST0101AL055
		TACTILE SWITCH KSHG612BT	SST0101HH027
SW209		TACT SWITCH SKQNAED010 or	SST0101AL055
		TACTILE SWITCH KSHG612BT	SST0101HH027
SW210		TACT SWITCH SKQNAED010 or	SST0101AL055
		TACTILE SWITCH KSHG612BT	SST0101HH027
SW211		LEAF SWITCH LSA-1142-2AU or	SSC0101KB014
		LEAF SWITCH MXS00052MPP0 or	SSC0101MCE01
		LEAF SWITCH MXS000981MPP0	SSC0101MCE02
SW212		ROTARY MODE SWITCH SSS-50MD or	SSR0106KB002
		ROTARY MODE SWITCH R8100245	SSR0106U3002

Ref. No.	Mark	Description	Part No.
MISCELLANEOUS			
CL301A		LEAD WIRE 4P/450	WX1T6500-104
CL302A		LEAD WIRE 7P/280	WX1T6700-102
CL603A		LEAD WIRE 12P/190	WX1T6450-102
CL604		WIRE ASSEMBLY 1P/45	WX1T6400-001
JK151		HEADPHONE JACK MSJ-035-10A B or	JYSL020LY002
		HEADPHONE JACK DP3-26-7-001	JYSL020RP001
JK701		RCA JACK(YELLOW) MTJ-032-05B-20 or	JXRL010LY038
		RCA JACK 1P:YELLOW DA1-05A3N0S001	JXRL010RP036
JK702		RCA JACK(WHITE) MTJ-032-05B-22 or	JXRL010LY039
		RCA JACK 1P : WHITE DA1-05A4N0S001	JXRL010RP037
JK703		SKIRT JACK 21P HRC-21V-02P or	JXGL210RP001
		SKIRT JACK 21P MRC-021-02 or	JXGL210LY001
		SKIRT JACK 21P MRC-021V-02 3.4 ABS or	JXGL210LY005
		SKIRT JACK 21P DSS1020NPC001	JXGL210RP002
RS201		REMOTE RECEIVER PIC-37042LU	USESJRSKK033
TB3		HEAD SHIELD S T6400RA	OEM301753
TB7		LED HOLDER T6400RA	OEM407754
TB21		BUSH, LED(F) H3700UD	OVM409508
TP001		PCB JUMPER D0.6-P12.5	JW12.5T
TP002		PCB JUMPER D0.6-P12.5	JW12.5T
TP003		PCB JUMPER D0.6-P12.5	JW12.5T
TP007		PCB JUMPER D0.6-P10.0	JW10.0T
TP008		PCB JUMPER D0.6-P12.5	JW12.5T
TP009		PCB JUMPER D0.6-P12.5	JW12.5T
TP010		PCB JUMPER D0.6-P22.5	JW22.5T
TU001	A,B,D, E,F,H,I	TUNER UNIT TMQZ2-303A	UTUNPLGAL013
TU001	C,G	TUNER UNIT TMQZ2-413A	UTUNPSGAL009
X201		X*TAL 32.768kHz(20PPM) or	FXC323LJNY01
		X*TAL 32.768kHz(20PPM) or	FXC323LCT001
		X*TAL 32.768kHz(20PPM) or	FXC323LDS002
		X*TAL 32.768kHz(20PPM)	FXC323LQUA01
X202		X*TAL 12.000MHz	FXD126LDS001
X301		X*TAL 4.433619MHz or	FXB445LNL001
		X*TAL 4.433619MHz or	FXB445LDS002
		X*TAL 4.433619MHz	FXB445LCHE01
X401		X*TAL 4.433619MHz or	FXC445LLN001
		X*TAL 4.433619MHz	1811388

JUNCTION A CBA

Ref. No.	Mark	Description	Part No.
		JUNCTION A CBA Consists of the following	-----
CONNECTOR			
CN603		CONNECTOR 12P TUC-P12X-B1	JCTUS12TG001

JUNCTION B CBA

Ref. No.	Mark	Description	Part No.
		JUNCTION B CBA Consists of the following	-----
CONNECTOR			
CN302		CONNECTOR, 7P TUC-P07X-B1	JCTUS07TG001

JUNCTION C CBA

Ref. No.	Mark	Description	Part No.
		JUNCTION C CBA Consists of the following	-----
CONNECTOR			
CN301		CONNECTOR 4P TUC-P04X-B1	JCTUS04TG001

SENSOR CBA

Ref. No.	Mark	Description	Part No.
		SENSOR CBA Consists of the following	0ESA06133
TRANSISTORS			
Q201		PHOTO TRANSISTOR MID-32A22F or	NPWZ1D32A22F
		PHOTO TRANSISTOR PT204-6B-12	NPWZT2046B12
Q202		PHOTO TRANSISTOR MID-32A22F or	NPWZ1D32A22F
		PHOTO TRANSISTOR PT204-6B-12	NPWZT2046B12

POWER CBA

Ref. No.	Mark	Description	Part No.
	A,C,D E,G,H J	POWER CBA	0ESA06024
	B,F	POWER CBA	0ESA06030
		Consists of the following	
		H.V./POWER SUPPLY CBA	-----
		CRT CBA	-----

H.V./POWER SUPPLY CBA

Ref. No.	Mark	Description	Part No.
		H.V./POWER SUPPLY CBA Consists of the following	-----
CAPACITORS			
C551		ELECTROLYTIC CAP. 1.5μF/50V M LL or	CE1JMASLL1R5
		ELECTROLYTIC CAP. 1.5μF/50V LL	CE1JMASLH1R5
C552		ELECTROLYTIC CAP. 1000μF/25V M or	CE1EMZPDL102
		ELECTROLYTIC CAP. 1000μF/25V M	CE1EMZPTL102
C553		CERAMIC CAP.(AX) B K 0.01μF/50V	CA1J103TU011
C554		ELECTROLYTIC CAP. 330μF/25V M or	CE1EMASDL331
		ELECTROLYTIC CAP. 330μF/25V M	CE1EMASTL331
C555		ELECTROLYTIC CAP. 47μF/25V M or	CE1EMASDL470
		ELECTROLYTIC CAP. 47μF/25V M	CE1EMASTL470
C556		ELECTROLYTIC CAP. 2.2μF/50V M or	CE1JMASDL2R2
		ELECTROLYTIC CAP. 2.2μF/50V M	CE1JMASTL2R2
C558		FILM CAP.(P) 0.047μF/50V J or	CMA1JJS00473
		FILM CAP.(P) 0.047μF/50V J	CA1J473MS029
C559△		CERAMIC CAP. R K 1000pF/2KV or	CCD3DKA0R102
△		CERAMIC CAP. BN 1000pF/2KV or	CCD3DKA0B102
△		CERAMIC CAP. 1000pF/2KV or	CA3D102PAN04
△		CERAMIC CAP RB 1000pF/2KV	CA3D102TE006
C560△		P.P. CAP 0.01μF/1.6K J or	CA3C103VC010
△		PP CAP. 0.01μF/1.6KV J or	CT3C103MS039
△		PP CAP. 0.01μF/1.6KV J or	CBH3CJQ00103
△		METALLIZED FILM CAP. 0.01μF/1.6KV J	CT3C103F7004
C561		FILM CAP.(P) 0.01μF/50V J or	CMA1JJS00103
		FILM CAP.(P) 0.01μF/50V J	CA1J103MS029
C562		ELECTROLYTIC CAP. 47μF/25V M or	CE1EMASDL470
		ELECTROLYTIC CAP. 47μF/25V M	CE1EMASTL470
C565△		ELECTROLYTIC CAP. 100μF/160V M or	CE2CMZPDL101
△		ELECTROLYTIC CAP. 100μF/160V M	CE2CMZPTL101
C566△		PCB JUMPER D0.6-P10.0	JW10.0T
C567		ELECTROLYTIC CAP. 1μF/160V M or	CE2CMASDL1R0
		ELECTROLYTIC CAP. 1μF/160V M	CE2CMASTL010
C569△		ELECTROLYTIC CAP. 4.7μF/250V M	CE2EMASDL4R7
C570△		ELECTROLYTIC CAP. 1μF/50V M or	CE1JMASDL010
△		ELECTROLYTIC CAP. 1μF/50V M or	CE1JMASDL1R0
△		ELECTROLYTIC CAP. 1μF/50V M	CE1JMASTL1R0
C572△		ELECTROLYTIC CAP. 10μF/50V M or	CE1JMASDL100
△		ELECTROLYTIC CAP. 10μF/50V M	CE1JMASTL100
C575△		P.P. CAP 0.56μF/200V J or	CA2D564VC013
△		PP CAP. 0.56μF/250V J or	CT2E564MS041
△		METALLIZED FILM CAP. 0.56μF/200V J	CT2D564F7003
C602△		SAFETY CAP. 2200pF/250V KX	CA2E222MR050
C604△		METALLIZED FILM CAP. 0.1μF/250V or	CT2E104MS037
△		FILM CAP.(MP) 0.1μF/250V K or	CT2E104DC011
△		METALLIZED FILM CAP. 0.1μF/275V K or	CT2E104HJE06
△		LINE ACROSS CAP. 0.1U/275V	CT2E104DC016
C611△		ELECTROLYTIC CAP. 150μF/400V(LQ TYPE)	CA2H151NC050

Ref. No.	Mark	Description	Part No.
C613		FILM CAP.(P) 0.039μF/50V J or	CMA1JJS00393
		FILM CAP.(P) 0.039μF/50V J	CA1J393MS029
C614		FILM CAP.(P) 0.001μF/50V J or	CMA1JJS00102
		FILM CAP.(P) 0.001μF/50V J	CA1J102MS029
C615△		FILM CAP.(P) 0.082μF/50V J or	CMA1JJS00823
△		FILM CAP.(P) 0.082μF/50V J	CA1J823MS029
C616		CERAMIC CAP. R K 220pF/2KV(HR) or	CCD3DKA0R221
		CERAMIC CAP. BN J 220pF/2KV or	CCD3DKA0B221
		CERAMIC CAP. 220pF/2KV or	CA3D221PAN04
		CERAMIC CAP. RB 220pF/2KV	CA3D221TE006
C618		ELECTROLYTIC CAP. 1μF/50V M or	CE1JMASDL010
		ELECTROLYTIC CAP. 1μF/50V M or	CE1JMASDL1R0
		ELECTROLYTIC CAP. 1μF/50V M	CE1JMASTL1R0
C619		ELECTROLYTIC CAP. 1000μF/16V M or	CE1CMZPDL102
		ELECTROLYTIC CAP. 1000μF/16V M	CE1CMZPTL102
C621		ELECTROLYTIC CAP. 470μF/16V M or	CE1CMASDL471
		ELECTROLYTIC CAP. 470μF/16V M	CE1CMASTL471
C622		ELECTROLYTIC CAP. 1000μF/16V M or	CE1CMZPDL102
		ELECTROLYTIC CAP. 1000μF/16V M	CE1CMZPTL102
C624△		CERAMIC CAP.(AX) B J 220pF/50V	CCA1JJT0B221
C625		ELECTROLYTIC CAP. 470μF/35V M or	CE1GMZPDL471
		ELECTROLYTIC CAP. 470μF/35V M	CE1GMZPTL471
C626		CERAMIC CAP. R K 680pF/2KV(HR) or	CCD3DKA0R681
		CERAMIC CAP. BN 680pF/2KV or	CCD3DKA0B681
		CERAMIC CAP. 680pF/2KV or	CA3D681PAN04
		CERAMIC CAP. RB 680pF/2KV	CA3D681TE006
C627△		ELECTROLYTIC CAP. 100μF/160V M or	CE2CMZPDL101
△		ELECTROLYTIC CAP. 100μF/160V M	CE2CMZPTL101
C629		CERAMIC CAP.(AX) B K 0.01μF/50V	CA1J103TU011
C630		ELECTROLYTIC CAP. 1000μF/6.3V M or	CE0KMASDL102
		ELECTROLYTIC CAP. 1000μF/6.3V M	CE0KMASTL102
C632		ELECTROLYTIC CAP. 100μF/16V M or	CE1CMASDL101
		ELECTROLYTIC CAP. 100μF/16V M	CE1CMASTL101
C633		ELECTROLYTIC CAP. 47μF/25V M or	CE1EMASDL470
		ELECTROLYTIC CAP. 47μF/25V M	CE1EMASTL470
C634		ELECTROLYTIC CAP. 4.7μF/50V M or	CE1JMASDL4R7
		ELECTROLYTIC CAP. 4.7μF/50V M	CE1JMASTL4R7
C636		ELECTROLYTIC CAP. 100μF/10V M or	CE1AMASDL101
		ELECTROLYTIC CAP. 100μF/10V M	CE1AMASTL101
CONNECTORS			
CN551		CONNECTOR BASE, 5P TV-50P-05-V3 or	J3TVCO5TG002
		CONNECTOR BASE, 5P RTB-1.5-5P	J3RTC05JG001
CN552		CONNECTOR BASE, 7P TUC-P07P-B1	J3TUA07TG001
CN601		CONNECTOR BASE, 2P TV-50P-02-V3 or	J3TVCO2TG002
		CONNECTOR BASE, 2P RTB-1.5-2P	J3RTC02JG001
CN602		CONNECTOR BASE 12P TUC-P12P-B1	J3TUA12TG001
DIODES			
D551		DIODE 1N5397-B or	NDLZ001N5397
		RECTIFIER DIODE ERB12-06	QDQZ0ERB1206
D553△		ZENER DIODE MTZJT-7718C or	QDTC00MTZJ18
△		ZENER DIODE DZ-18BSC265	NDTC00DZ18BS
D554△		SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
△		SWITCHING DIODE 1N4148	NDTZ001N4148
D556△		SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
△		SWITCHING DIODE 1N4148	NDTZ001N4148
D557△		DIODE FR104-B or	NDLZ000FR104
△		RECTIFIER DIODE 10ELS2 or	QDQZ0010ELS2
△		RECTIFIER DIODE ERA22-02	QDPZ0ERA2202
D558△		DIODE FR104-B or	NDLZ000FR104
△		RECTIFIER DIODE 10ELS2 or	QDQZ0010ELS2

Ref. No.	Mark	Description	Part No.
△		RECTIFIER DIODE ERA22-02	QDPZ0ERA2202
D560△		ZENER DIODE MTZJT-7736B or	QDTB00MTZJ36
△		ZENER DIODE DZ-36BSBT265	NDTB00DZ36BS
D562		SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
		SWITCHING DIODE 1N4148	NDTZ001N4148
D563		ZENER DIODE MTZJT-775.1B or	QDTB00MTZJ5R1
		ZENER DIODE DZ-5.1BSBT265	NDTB00DZ5R1BS
D601△		DIODE 1N5399-B/P	NDLZ001N5399
D602△		DIODE 1N5399-B/P	NDLZ001N5399
D603△		DIODE 1N5399-B/P	NDLZ001N5399
D604△		DIODE 1N5399-B/P	NDLZ001N5399
D605		SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
		SWITCHING DIODE 1N4148	NDTZ001N4148
D609		ZENER DIODE MTZJT-775.6B or	QDTB00MTZJ5R6
		ZENER DIODE DZ-5.6BSBT265	NDTB00DZ5R6BS
D610△		ZENER DIODE MTZJT-7724C or	QDTC00MTZJ24
△		ZENER DIODE DZ-24BSCT265	NDTC00DZ24BS
D612△		SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
△		SWITCHING DIODE 1N4148	NDTZ001N4148
D615△		DIODE FR104-B or	NDLZ000FR104
△		RECTIFIER DIODE 10ELS2 or	QDQZ0010ELS2
△		RECTIFIER DIODE ERA22-02	QDPZ0ERA2202
D616		ZENER DIODE MTZJT-7720B or	QDTB00MTZJ20
		ZENER DIODE DZ-20BSBT265	NDTB00DZ20BS
D617△		SCHOTTKY BARRIER DIODE 11EQS04 or	QD4Z011EQS04
△		SCHOTTKY BARRIER DIODE ERA81-004	QDPZERA81004
D618△		SCHOTTKY BARRIER DIODE 11EQS04 or	QD4Z011EQS04
△		SCHOTTKY BARRIER DIODE ERA81-004	QDPZERA81004
D619△		SCHOTTKY BARRIER DIODE 21DQ04 or	QDQZ0021DQ04
△		SCHOTTKY BARRIER DIODE ERB81-004	AERB81004***
D620△		DIODE FR104-B or	NDLZ000FR104
△		RECTIFIER DIODE 10ELS2 or	QDQZ0010ELS2
△		RECTIFIER DIODE ERA22-02	QDPZ0ERA2202
D622△		SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
△		SWITCHING DIODE 1N4148	NDTZ001N4148
D623△		SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
△		SWITCHING DIODE 1N4148	NDTZ001N4148
D624△		SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
△		SWITCHING DIODE 1N4148	NDTZ001N4148
D625△		ZENER DIODE MTZJT-776.8B or	QDTB00MTZJ6R8
△		ZENER DIODE DZ-6.8BSBT265	NDTB00DZ6R8BS
D626		FAST RECOVERY DIODE CA201-4 or	QDWZ00CA2014
		RECOVERY DIODE ERC18-04	QDZZ0ERC1804
D627△		SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
△		SWITCHING DIODE 1N4148	NDTZ001N4148
D629		ZENER DIODE MTZJT-7733C or	QDTC00MTZJ33
		ZENER DIODE DZ-33BSCT265	NDTC00DZ33BS
D630		SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
		SWITCHING DIODE 1N4148	NDTZ001N4148
D631		ZENER DIODE MTZJT-776.2C or	QDTC00MTZJ6R2
		ZENER DIODE DZ-6.2BSCT265	NDTC00DZ6R2BS
D634		CARBON RES. 1/4W J 100 Ω	RCX4JATZ0101
D635		ZENER DIODE MTZJT-778.2B or	QDTB00MTZJ8R2
		ZENER DIODE DZ-8.2BSBT265	NDTB00DZ8R2BS
D636△		SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
△		SWITCHING DIODE 1N4148	NDTZ001N4148
D637		SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
		SWITCHING DIODE 1N4148	NDTZ001N4148
D638		SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133

Ref. No.	Mark	Description	Part No.
		SWITCHING DIODE 1N4148	NDTZ001N4148
D641		ZENER DIODE MTZJT-7715B or	QDTB00MTZJ15
		ZENER DIODE DZ-15BSBT265	NDTB00DZ15BS
D642		SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
		SWITCHING DIODE 1N4148	NDTZ001N4148
ICS			
IC551△		VERTICAL OUTPUT IC LA78040A	QSBBA0SSY003
IC601△		PHOTOCOUPLER PS2561L1-1-VL or	QPEL2561L11V
△		PHOTOCOUPLER PS2561L1-1-VW	QPEW2561L11V
COILS			
L552		LINEALITY COIL ELH5J6137N	LLBD00PMS009
L553		CHOKE COIL 22μH-K	LLBD00PKV006
L554△		PCB JUMPER D0.6-P7.5	JW7.5T
L601△		LINE FILTER ELF15N007A or	LLBG00ZMS041
△		LINE FILTER 10MH LF-046	LLBG00ZKV006
L602△		LINE FILTER ELF15N007A or	LLBG00ZMS041
△		LINE FILTER 10MH LF-046	LLBG00ZKV006
L603		CHOKE COIL 47μH-K or	LLBD00PKV007
		CHOKE COIL 47μH-K	LLBD00PKV005
TRANSISTORS			
Q551△		TRANSISTOR TT2140LS-YB11 or	QQZZ00TT2140
△		TRANSISTOR 2SD2627LS-FEC-YB11 or	QQZZ02SD2627
△		TRANSISTOR 2SC5885000RF	QQZZ02SC5885
Q553		TRANSISTOR 2SC1627Y-TPE2	QQSY02SC1627
Q554△		TRANSISTOR 2SC2785(F) or	QQSF02SC2785
△		TRANSISTOR 2SC2785(H) or	QQSH02SC2785
△		TRANSISTOR 2SC2785(J) or	QQSJ02SC2785
△		TRANSISTOR KTC3199(GR) or	NQS10KTC3199
△		TRANSISTOR KTC3198(GR) or	NQS40KTC3198
△		TRANSISTOR 2SC1815-GR(TPE2)	QQS102SC1815
Q602△		MOS FET 2SK2647	QFWZ02SK2647
Q603△		TRANSISTOR 2SC2120-Y(TPE2) or	QQSY02SC2120
△		TRANSISTOR 2SC2120-O-TPE2 or	QQS002SC2120
△		TRANSISTOR KTC3203(Y)	NQSY0KTC3203
Q604△		TRANSISTOR 2SC2785(F) or	QQSF02SC2785
△		TRANSISTOR 2SC2785(H) or	QQSH02SC2785
△		TRANSISTOR 2SC2785(J) or	QQSJ02SC2785
△		TRANSISTOR KTC3199(GR) or	NQS10KTC3199
△		TRANSISTOR KTC3198(GR) or	NQS40KTC3198
△		TRANSISTOR 2SC1815-GR(TPE2)	QQS102SC1815
Q605		TRANSISTOR 2SA950(O) or	Q2SA950TPE2
		TRANSISTOR 2SA950(Y) or	Q2SA950YTPE2
		TRANSISTOR KTA1271(Y)	NQSY0KTA1271
Q606△		TRANSISTOR 2SC2120-Y(TPE2) or	QQSY02SC2120
△		TRANSISTOR 2SC2120-O-TPE2 or	QQS002SC2120
△		TRANSISTOR KTC3203(Y)	NQSY0KTC3203
Q607△		TRANSISTOR 2SC2120-Y(TPE2) or	QQSY02SC2120
△		TRANSISTOR 2SC2120-O-TPE2 or	QQS002SC2120
△		TRANSISTOR KTC3203(Y)	NQSY0KTC3203
Q608		TRANSISTOR 2SC2785(F) or	QQSF02SC2785
		TRANSISTOR 2SC2785(H) or	QQSH02SC2785
		TRANSISTOR 2SC2785(J) or	QQSJ02SC2785
		TRANSISTOR KTC3199(GR) or	NQS10KTC3199
		TRANSISTOR KTC3198(GR) or	NQS40KTC3198
		TRANSISTOR 2SC1815-GR(TPE2)	QQS102SC1815
RESISTORS			
R550△		CARBON RES. 1/4W J 680k Ω	RCX4JATZ0684
R551		CARBON RES. 1/4W J 18k Ω	RCX4JATZ0183
R552		CARBON RES. 1/4W J 1.8k Ω	RCX4JATZ0182
R553		CARBON RES. 1/4W J 39k Ω	RCX4JATZ0393

Ref. No.	Mark	Description	Part No.
R554		PCB JUMPER D0.6-P5.0	JW5.0T
R555		CARBON RES. 1/4W J 4.7 Ω	RCX4JATZ04R7
R556		CARBON RES. 1/4W J 4.7 Ω	RCX4JATZ04R7
R558		PCB JUMPER D0.6-P5.0	JW5.0T
R559		PCB JUMPER D0.6-P5.0	JW5.0T
R560		CARBON RES. 1/4W J 1 Ω	RCX4JATZ01R0
R561		CARBON RES. 1/4W J 3.3 Ω	RCX4JATZ03R3
R564		CARBON RES. 1/4W J 1.5k Ω	RCX4JATZ0152
R565		PCB JUMPER D0.6-P5.0	JW5.0T
R566		CARBON RES. 1/4W J 1k Ω	RCX4JATZ0102
R567		CARBON RES. 1/4W J 1k Ω	RCX4JATZ0102
R568		CARBON RES. 1/4W J 1.5k Ω	RCX4JATZ0152
R569		CARBON RES. 1/4W J 470 Ω	RCX4JATZ0471
R572		CARBON RES. 1/4W J 560 Ω	RCX4JATZ0561
R574		CARBON RES. 1/4W J 1k Ω	RCX4JATZ0102
R575		METAL OXIDE FILM RES. 1W J 1k Ω or	RN01102ZU001
		METAL OXIDE FILM RES. 1W J 1k Ω	RN01102DP003
R576		CARBON RES. 1/4W J 47 Ω	RCX4JATZ0470
R578		CARBON RES. 1/4W J 47 Ω	RCX4JATZ0470
R579		CARBON RES. 1/4W J 100k Ω	RCX4JATZ0104
R580		CARBON RES. 1/4W J 47 Ω	RCX4JATZ0470
R581		CARBON RES. 1/4W J 82k Ω	RCX4JATZ0823
R583		PCB JUMPER D0.6-P5.0	JW5.0T
R584		CARBON RES. 1/4W J 1k Ω	RCX4JATZ0102
R585		CARBON RES. 1/4W J 150k Ω	RCX4JATZ0154
R586		CARBON RES. 1/4W J 56k Ω	RCX4JATZ0563
R587		CARBON RES. 1/4W J 47k Ω	RCX4JATZ0473
R588		CARBON RES. 1/4W J 22k Ω	RCX4JATZ0223
R589		CARBON RES. 1/4W J 10k Ω	RCX4JATZ0103
R590		METAL OXIDE FILM RES. 2W J 1.8 Ω or	RN021R8ZU001
		METAL OXIDE FILM RES. 2W J 1.8 Ω	RN021R8DP004
R591		CARBON RES. 1/4W J 22k Ω	RCX4JATZ0223
R592		CARBON RES. 1/4W J 10k Ω	RCX4JATZ0103
R593		CARBON RES. 1/4W J 8.2k Ω	RCX4JATZ0822
R594		CARBON RES. 1/4W J 10k Ω	RCX4JATZ0103
R595		PCB JUMPER D0.6-P5.0	JW5.0T
R596		CARBON RES. 1/4W J 4.7 Ω	RCX4JATZ04R7
R601		ANTI-SURGE RESISTOR 1/2W J 3.3M Ω or	RMX2335KA011
		CARBON RES. 1/2W J 3.3M Ω or	RCX2335DP001
		CARBON RES. 1/2W K 3.3M Ω or	RCX2335FS001
		GLASS GLAZE RES. 1/2W J 3.3M Ω	RXX2JZLZ0335
R604		CEMENT RESISTOR 5W J 1.8 Ω or	RW051R8PAK10
		CEMENT RESISTOR 5W K 1.8 Ω or	RW051R8PG001
		CEMENT RES. 5W K 1.8 Ω	RW051R8DP005
R605		CARBON RES. 1/4W J 100 Ω	RCX4JATZ0101
R611		CARBON RES. 1/4W J 220 Ω	RCX4JATZ0221
R612		CARBON RES. 1/4W J 180 Ω	RCX4JATZ0181
R613		CARBON RES. 1/4W J 270k Ω	RCX4JATZ0274
R615		CARBON RES. 1/4W J 1.2k Ω	RCX4JATZ0122
R616		CARBON RES. 1/4W J 22 Ω	RCX4JATZ0220
R617		CEMENT RESISTOR 5W J 0.56 Ω or	RW05R56PAK10
		CEMENT RES. 5W K 0.56 Ω or	RW05R56PG001
		CEMENT RES. 5W K 0.56 Ω	RW05R56DP005
R618		PCB JUMPER D0.6-P5.0	JW5.0T
R619		CARBON RES. 1/4W J 1.2k Ω	RCX4JATZ0122
R620		CARBON RES. 1/4W J 820k Ω	RCX4JATZ0824
R621		CARBON RES. 1/4W J 560k Ω	RCX4JATZ0564
R622		CARBON RES. 1/4W J 680k Ω	RCX4JATZ0684
R624		CARBON RES. 1/4W J 680k Ω	RCX4JATZ0684
R626		CARBON RES. 1/4W J 1.2k Ω	RCX4JATZ0122

Ref. No.	Mark	Description	Part No.
R627		PCB JUMPER D0.6-P5.0	JW5.0T
R628		CARBON RES. 1/4W J 820 Ω	RCX4JATZ0821
R629		CARBON RES. 1/2W J 1k Ω or	RCX2JZQZ0102
		CARBON RES. 1/2W J 1k Ω	RCX2102KA013
R631		CARBON RES. 1/4W J 33k Ω	RCX4JATZ0333
R632		CARBON RES. 1/4W J 10k Ω	RCX4JATZ0103
R633		CARBON RES. 1/4W J 15k Ω	RCX4JATZ0153
R634		CARBON RES. 1/4W J 15k Ω	RCX4JATZ0153
R635		CARBON RES. 1/4W J 180 Ω	RCX4JATZ0181
R636		CARBON RES. 1/4W G 1k Ω or	RCX4GATZ0102
		CARBON RES. 1/6W G 1k Ω	RCX6GATZ0102
R637		CARBON RES. 1/4W G 5.6k Ω or	RCX4GATZ0562
		CARBON RES. 1/6W G 5.6k Ω	RCX6GATZ0562
R638		CARBON RES. 1/4W G 47k Ω or	RCX4GATZ0473
		CARBON RES. 1/6W G 47k Ω	RCX6GATZ0473
R639		CARBON RES. 1/4W G 39k Ω or	RCX4GATZ0393
		CARBON RES. 1/6W G 39k Ω	RCX6GATZ0393
R640		CARBON RES. 1/4W J 3.3k Ω	RCX4JATZ0332
R641		METAL OXIDE FILM RES. 1W J 1k Ω or	RN01102ZU001
		METAL OXIDE FILM RES. 1W J 1k Ω	RN01102DP003
R642		CARBON RES. 1/4W J 10k Ω	RCX4JATZ0103
R643		CARBON RES. 1/4W J 3.3k Ω	RCX4JATZ0332
R644		CARBON RES. 1/4W J 3.3k Ω	RCX4JATZ0332
R645		CARBON RES. 1/4W J 56k Ω	RCX4JATZ0563
R646		CARBON RES. 1/4W J 15 Ω	RCX4JATZ0150
R647		CARBON RES. 1/4W J 3.3k Ω	RCX4JATZ0332
R649		CARBON RES. 1/4W J 390 Ω	RCX4JATZ0391
R651		CARBON RES. 1/4W J 100 Ω	RCX4JATZ0101
R652		PCB JUMPER D0.6-P15.0	JW15.0T
R653		CARBON RES. 1/4W J 150 Ω	RCX4JATZ0151
R654		CARBON RES. 1/4W J 2.2k Ω	RCX4JATZ0222
R655		CARBON RES. 1/4W J 5.6k Ω	RCX4JATZ0562
R656		CARBON RES. 1/4W J 47k Ω	RCX4JATZ0473
R657		CARBON RES. 1/4W J 220 Ω	RCX4JATZ0221
R658		METAL OXIDE FILM RES. 2W J 8.2k Ω or	RN02822ZU001
		METAL OXIDE FILM RES. 2W J 8.2k Ω	RN02822DP004
R659		METAL OXIDE FILM RES. 2W J 8.2k Ω or	RN02822ZU001
		METAL OXIDE FILM RES. 2W J 8.2k Ω	RN02822DP004
R660		PCB JUMPER D0.6-P5.0	JW5.0T
R661		CARBON RES. 1/4W J 1.8k Ω	RCX4JATZ0182
R662		CARBON RES. 1/4W J 820k Ω	RCX4JATZ0824
R663		CARBON RES. 1/4W J 47 Ω	RCX4JATZ0470
SWITCHES			
SW602		POWER SWITCH SDKVA30100 or	SPP0AZZAL001
		POWER SWITCH AAPY2211	SPP0AAZMS003
MISCELLANEOUS			
BC551		BEAD INDUCTORS FBA04HA600VB-00	LLBF00STU026
BC602		BEAD INDUCTORS FBR07HA121TB-00	LLBF00ZTU021
BC604		PCB JUMPER D0.6-P5.0	JW5.0T
BC605		PCB JUMPER D0.6-P5.0	JW5.0T
CL501A		LEAD WIRE 3P/260	WX1T6500-103
F601		FUSE 4A/250V 215004	PAGF20BAG402
FH601		FUSE HOLDER MSF-015 or	XH01Z00LY001
		FUSE HOLDER FH-V-03078	XH01Z00DK001
FH602		FUSE HOLDER MSF-015 or	XH01Z00LY001
		FUSE HOLDER FH-V-03078	XH01Z00DK001
PB1		POWER PCB HOLDER T6500RA	OEM000722
PB4		21V POW HEAT SINK PAL PHLT6500RA	OEM407688
PB5		13V P H/S PAL PHM ASSEMBLY T6400RA	OEM407691
PL1		SCREW, P-TIGHT 3X12 WASHER HEAD+	GCMP3120

Ref. No.	Mark	Description	Part No.
PL2		SCREW, B-TIGHT M3X8 BIND HEAD+	GBMB3080
PS602 [△]		THERMISTOR ZPB31BL9R0A	QNWZ31BL9R0A
SA601 [△]		SURGE ABSORBER 470V+-10PER	NVQZ10D471KB
T551 [△]		FLYBACK TRANS BSC23-2639S or	LTF00CPS2058
[△]		FLYBACK TRANSFORMER JF0501-19198A or	LTF00CPXB043
[△]		FLYBACK TRANSFORMER JF0501-3240	LTF00CPXB045
T552 [△]		HORIZONTAL DRIVE TRANS LP2-004	LTH00CPA5004
T601 [△]		SWITCHING TRANS 04704	LTT00EPKT118
TP501		PCB JUMPER D0.6-P7.5	JW7.5T
TP502		PCB JUMPER D0.6-P7.5	JW7.5T
TP503		PCB JUMPER D0.6-P15.0	JW15.0T
TP504		PCB JUMPER D0.6-P15.0	JW15.0T
VR601 [△]		CARBON P.O.T. 20k Ω B or	VRCB203KA011
[△]		CARBON P.O.T. 20k Ω B	VRCB203HH014
W601 [△]	A,C,D E,G,H J	AC CORD PE8G2CG9G0A-055	WAE0162LW001
W601 [△]	B,F	AC CORD PE8G2V69G0A-059	WAB0172LW003

CRT CBA

Ref. No.	Mark	Description	Part No.
		CRT CBA Consists of the following	-----
CAPACITORS			
C501		CERAMIC CAP.(AX) B K 390pF/50V	CCA1JKT0B391
C502		CERAMIC CAP.(AX) B K 390pF/50V	CCA1JKT0B391
C503		CERAMIC CAP.(AX) B K 390pF/50V	CCA1JKT0B391
C504		CERAMIC CAP. B K 1000pF/2KV or	CCD3DKP0B102
		CERAMIC CAP. B K 1000pF/2KV or	CA3D102MR030
		CERAMIC CAP. B K 1000pF/2KV	CCD3DKD0B102
C505		ELECTROLYTIC CAP. 1μF/50V M H7	CE1JMAVSL1R0
CONNECTORS			
CN501		PIN CONNECTOR 005P-5100 or	JTEA001TG001
		CONNECTOR PIN, 1P LV or	1700576
		CONNECTOR PIN, 1P RT-01N-2.3A	1730688
CN502		CONNECTOR BASE, 4P TUC-P04P-B1	J3TUA04TG001
COIL			
L501		PCB JUMPER D0.6-P5.0	JW5.0T
TRANSISTORS			
Q501		TRANSISTOR KTC3503Y or	NQWY0KTC3503
		TRANSISTOR 2SC3619	QQ9Z02SC3619
Q502		TRANSISTOR KTC3503Y or	NQWY0KTC3503
		TRANSISTOR 2SC3619	QQ9Z02SC3619
Q503		TRANSISTOR KTC3503Y or	NQWY0KTC3503
		TRANSISTOR 2SC3619	QQ9Z02SC3619
RESISTORS			
R501 [△]		METAL OXIDE FILM RES. 1W J 18k Ω or	RN01183ZU001
[△]		METAL OXIDE FILM RES. 1W J 18k Ω	RN01183DP003
R502 [△]		METAL OXIDE FILM RES. 1W J 18k Ω or	RN01183ZU001
[△]		METAL OXIDE FILM RES. 1W J 18k Ω	RN01183DP003
R503 [△]		METAL OXIDE FILM RES. 1W J 18k Ω or	RN01183ZU001
[△]		METAL OXIDE FILM RES. 1W J 18k Ω	RN01183DP003
R504		CARBON RES. 1/4W J 1.5k Ω	RCX4JATZ0152
R506		CARBON RES. 1/4W J 1.5k Ω	RCX4JATZ0152
R508		CARBON RES. 1/4W J 1.5k Ω	RCX4JATZ0152
R509		CARBON RES. 1/4W J 1.5k Ω	RCX4JATZ0152
R510		CARBON RES. 1/4W J 1.5k Ω	RCX4JATZ0152
R511		PCB JUMPER D0.6-P5.0	JW5.0T
R512		PCB JUMPER D0.6-P5.0	JW5.0T

Ref. No.	Mark	Description	Part No.
R513		PCB JUMPER D0.6-P5.0	JW5.0T
R514		CARBON RES. 1/4W J 1.5k Ω	RCX4JATZ0152
R515		CARBON RES. 1/4W J 120k Ω	RCX4JATZ0124
R516		CARBON RES. 1/4W J 15 Ω	RCX4JATZ0150
R517		CARBON RES. 1/4W J 470 Ω	RCX4JATZ0471
R518		CARBON RES. 1/4W J 120k Ω	RCX4JATZ0124
R519		CARBON RES. 1/4W J 15 Ω	RCX4JATZ0150
R520		CARBON RES. 1/4W J 470 Ω	RCX4JATZ0471
R521		CARBON RES. 1/4W J 120k Ω	RCX4JATZ0124
R522		CARBON RES. 1/4W J 15 Ω	RCX4JATZ0150
R523		CARBON RES. 1/4W J 470 Ω	RCX4JATZ0471
MISCELLANEOUS			
JK501 [△]		CRT SOCKET ISHS40S	JSCC290PK004

TEXT CBA

Ref. No.	Mark	Description	Part No.
	E,F,G,H,I	TEXT CBA Consists of the following	0ESA06038
CAPACITORS			
C901	E,F,G,H,I	ELECTROLYTIC CAP. 22μF/50V M or	CE1JMASDL220
	E,F,G,H,I	ELECTROLYTIC CAP. 22μF/50V M	CE1JMASTL220
C902	E,F,G,H,I	CERAMIC CAP.(AX) B K 100pF/50V	CCA1JKTOB101
C903	E,F,G,H,I	ELECTROLYTIC CAP. 0.1μF/50V M or	CE1JMASDLR10
	E,F,G,H,I	ELECTROLYTIC CAP. 0.1μF/50V M or	CE1JMASDL0R1
	E,F,G,H,I	ELECTROLYTIC CAP. 0.1μF/50V M	CE1JMASTL0R1
C904	E,F,G,H,I	ELECTROLYTIC CAP. 0.1μF/50V M or	CE1JMASDLR10
	E,F,G,H,I	ELECTROLYTIC CAP. 0.1μF/50V M or	CE1JMASDL0R1
	E,F,G,H,I	ELECTROLYTIC CAP. 0.1μF/50V M	CE1JMASTL0R1
C905	E,F,G,H,I	CERAMIC CAP.(AX) Y M 0.01μF/16V	CCA1CMT0Y103
C906	E,F,G,H,I	ELECTROLYTIC CAP. 100μF/10V M or	CE1AMASDL101
	E,F,G,H,I	ELECTROLYTIC CAP. 100μF/10V M	CE1AMASTL101
C916	E,F,G,H,I	CERAMIC CAP.(AX) CH J 18pF/50V	CCA1JJTCH180
C917	E,F,G,H,I	CERAMIC CAP.(AX) CH J 18pF/50V	CCA1JJTCH180
C920	E,F,G,H,I	CERAMIC CAP.(AX) Y M 0.01μF/16V	CCA1CMT0Y103
C921	E,F,G,H,I	ELECTROLYTIC CAP. 100μF/10V M or	CE1AMASDL101
	E,F,G,H,I	ELECTROLYTIC CAP. 100μF/10V M	CE1AMASTL101
C922	E,F,G,H,I	ELECTROLYTIC CAP. 100μF/10V M or	CE1AMASDL101
	E,F,G,H,I	ELECTROLYTIC CAP. 100μF/10V M	CE1AMASTL101
C923	E,F,G,H,I	ELECTROLYTIC CAP. 100μF/10V M or	CE1AMASDL101
	E,F,G,H,I	ELECTROLYTIC CAP. 100μF/10V M	CE1AMASTL101
C926	E,F,G,H,I	CERAMIC CAP.(AX) Y M 0.01μF/16V	CCA1CMT0Y103
CONNECTORS			
CN901	E,F,G,H,I	CONNECTOR, 8P TUC-P08X-B1	JCTUS08TG001
CN902	E,F,G,H,I	CONNECTOR, 6P TUC-P06X-B1	JCTUS06TG001
DIODES			
D901	E,F,G,H,I	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
	E,F,G,H,I	SWITCHING DIODE 1N4148	NDTZ001N4148
D902	E,F,G,H,I	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
	E,F,G,H,I	SWITCHING DIODE 1N4148	NDTZ001N4148
D903	E,F,G,H,I	ZENER DIODE MTZJT-773.6B or	QDTB0MTZJ3R6
	E,F,G,H,I	ZENER DIODE DZ-3.6BSBT265	NDTB0DZ3R6BS
D904	E,F,G,H,I	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
	E,F,G,H,I	SWITCHING DIODE 1N4148	NDTZ001N4148
D905	E,F,G,H,I	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
	E,F,G,H,I	SWITCHING DIODE 1N4148	NDTZ001N4148
D906	E,F,G,H,I	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
	E,F,G,H,I	SWITCHING DIODE 1N4148	NDTZ001N4148
D907	E,F,G,H,I	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
	E,F,G,H,I	SWITCHING DIODE 1N4148	NDTZ001N4148

Ref. No.	Mark	Description	Part No.
D908	E,F,G,H,I	ZENER DIODE DZ-3.3BSBT265	NDTB0DZ3R3BS
D909	E,F,G,H,I	ZENER DIODE DZ-3.3BSBT265	NDTB0DZ3R3BS
IC			
IC901	E,F,G,H,I	IC:TEXT SAA5265	NSZBA0SPH017
COILS			
L901	E,F,G,H,I	INDUCTOR 10 μ H-J-26T or	LLAXJATTU100
	E,F,G,H,I	INDUCTOR 10 μ H-K-26T	LLAXKDTKA100
L902	E,F,G,H,I	INDUCTOR 10 μ H-J-26T or	LLAXJATTU100
	E,F,G,H,I	INDUCTOR 10 μ H-K-26T	LLAXKDTKA100
TRANSISTORS			
Q901	E,F,G,H,I	TRANSISTOR 2SC2785(F) or	QQSF02SC2785
	E,F,G,H,I	TRANSISTOR 2SC2785(H) or	QQSH02SC2785
	E,F,G,H,I	TRANSISTOR 2SC2785(J) or	QQSJ02SC2785
	E,F,G,H,I	TRANSISTOR KTC3199(GR) or	NQS10KTC3199
	E,F,G,H,I	TRANSISTOR KTC3198(GR) or	NQS40KTC3198
	E,F,G,H,I	TRANSISTOR 2SC1815-GR(TPE2)	QQS102SC1815
RESISTORS			
R901	E,F,G,H,I	CARBON RES. 1/4W J 1.2k Ω	RCX4JATZ0122
R902	E,F,G,H,I	CARBON RES. 1/4W J 1k Ω	RCX4JATZ0102
R903	E,F,G,H,I	CARBON RES. 1/4W J 24k Ω	RCX4JATZ0243
R904	E,F,G,H,I	CARBON RES. 1/4W J 10k Ω	RCX4JATZ0103
R905	E,F,G,H,I	CARBON RES. 1/4W J 10k Ω	RCX4JATZ0103
R906	E,F,G,H,I	CARBON RES. 1/4W J 1.5k Ω	RCX4JATZ0152
R908	E,F,G,H,I	CARBON RES. 1/4W J 1.5k Ω	RCX4JATZ0152
R911	E,F,G,H,I	CARBON RES. 1/4W J 1.5k Ω	RCX4JATZ0152
R912	E,F,G,H,I	CARBON RES. 1/4W J 1k Ω	RCX4JATZ0102
R913	E,F,G,H,I	PCB JUMPER D0.6-P5.0	JW5.0T
R914	E,F,G,H,I	PCB JUMPER D0.6-P5.0	JW5.0T
R915	E,F,G,H,I	PCB JUMPER D0.6-P5.0	JW5.0T
R916	E,F,G,H,I	CARBON RES. 1/4W J 220 Ω	RCX4JATZ0221
R918	E,F,G,H,I	METAL OXIDE FILM RES. 2W J 56 Ω or	RN02560ZU001
	E,F,G,H,I	METAL OXIDE FILM RES. 2W J 56 Ω	RN02560DP004
R919	E,F,G,H,I	PCB JUMPER D0.6-P5.0	JW5.0T
R920	E,F,G,H,I	PCB JUMPER D0.6-P5.0	JW5.0T
R921	E,F,G,H,I	CARBON RES. 1/4W J 3.3k Ω	RCX4JATZ0332
R922	E,F,G,H,I	CARBON RES. 1/4W J 3.3k Ω	RCX4JATZ0332
R923	E,F,G,H,I	CARBON RES. 1/4W J 3.3k Ω	RCX4JATZ0332
R924	E,F,G,H,I	CARBON RES. 1/4W J 1k Ω	RCX4JATZ0102
R925	E,F,G,H,I	CARBON RES. 1/4W J 10 Ω	RCX4JATZ0100
R926	E,F,G,H,I	CARBON RES. 1/4W J 4.7k Ω	RCX4JATZ0472
R927	E,F,G,H,I	CARBON RES. 1/4W J 1k Ω	RCX4JATZ0102
MISCELLANEOUS			
X901	E,F,G,H,I	X'TAL 12.000MHz or	FXD126LDS001
	E,F,G,H,I	X'TAL 12.000MHz	FXD126LLN001

DECK MECHANISM SECTION

21" COLOR TV/VCR COMBINATION

TVCR-A2104/TVCR-B2104/
TVCR-C2104/TVCR-D2104/
TVCR-A2104T/TVCR-B2104T/
TVCR-C2104T/TVCR-D2104T/
TVCR-A2104TG

Sec. 2: Deck Mechanism Section
● Standard Maintenance
● Mechanism Alignment Procedures
● Disassembly / Assembly of Mechanism
● Deck Exploded Views
● Deck Parts List

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STANDARD MAINTENANCE

Service Schedule of Components

H: Hours ○: Check ●: Change

Deck		Periodic Service Schedule			
Ref.No.	Part Name	1,000 H	2,000 H	3,000 H	4,000 H
B2	Cylinder Assembly	○	●	○	●
B3	Loading Motor Assembly			●	
B8	Pulley Assembly		●		●
B587	Tension Lever Assembly		●		●
B31	ACE Head Assembly			●	
B573, B574	Reel (SP)(D2), Reel (TU)(D2)			●	
B37	Capstan Motor		●		●
B52	Cap Belt		●		●
B73	FE Head			●	
B133, B134	Idler Gear, Idler Arm		●		●
B410	Pinch Arm(A) Assembly		●		●
B414	M Brake (SP) Assembly		●		●
B416	M Brake (TU) Assembly		●		●
B525	LDG Belt		●		●
B569 (2 head only)	Cam Holder		●		●
B593 (4 head, 4 head HiFi only)	Cam Holder Assembly		●		●

Notes:

- 1.Clean all parts for the tape transport (Upper Drum with Video Head / Pinch Roller / ACE Head / FE Head) using 90% Isopropyl Alcohol.
- 2.After cleaning the parts, do all DECK ADJUSTMENTS.
- 3.For the reference numbers listed above, refer to Deck Exploded Views.

Cleaning

Cleaning of Video Head

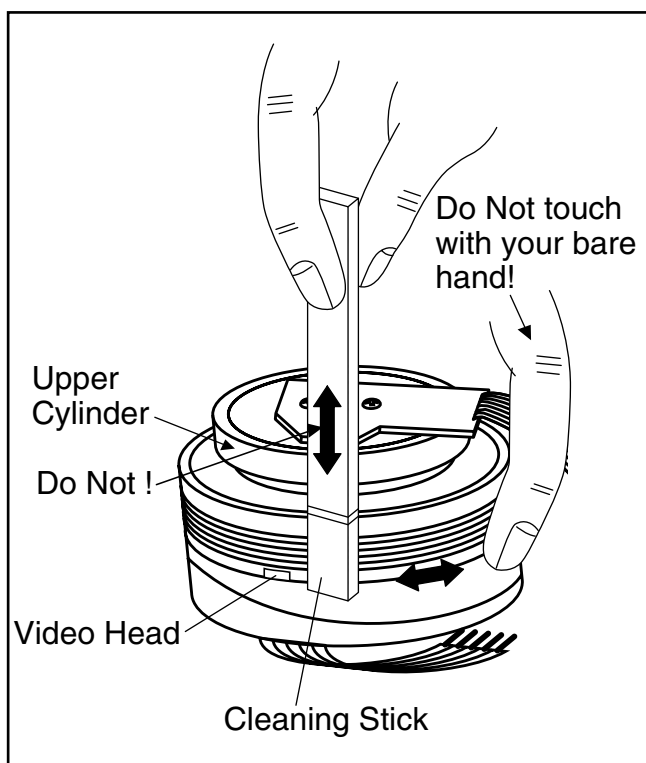
Clean the head with a head cleaning stick or chamois cloth.

Procedure

1. Remove the top cabinet.
2. Put on a glove (thin type) to avoid touching the upper and lower drum with your bare hand.
3. Put a few drops of 90% Isopropyl alcohol on the head cleaning stick or on the chamois cloth and, by slightly pressing it against the head tip, turn the upper drum to the right and to the left.

Notes:

1. The video head surface is made of very hard material, but since it is very thin, avoid cleaning it vertically.
2. Wait for the cleaned part to dry thoroughly before operating the unit.
3. Do not reuse a stained head cleaning stick or a stained chamois cloth.



Cleaning of ACE Head

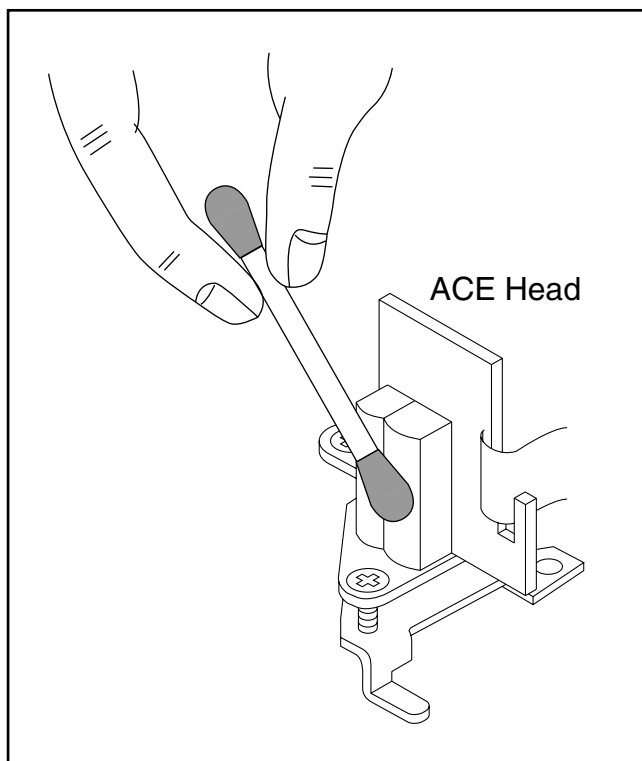
Clean the head with a cotton swab.

Procedure

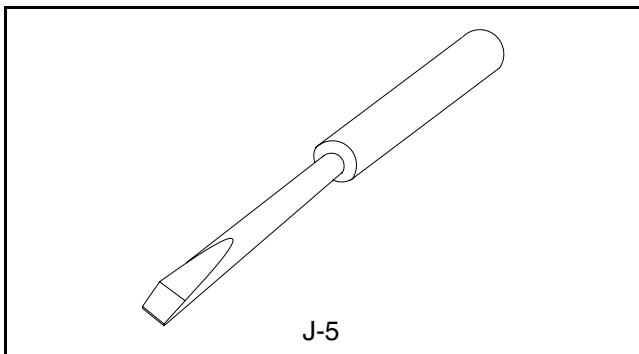
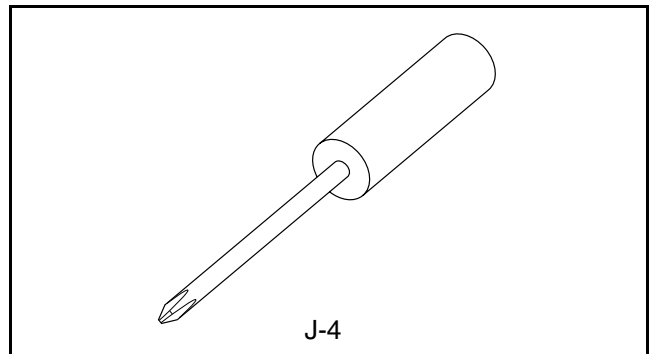
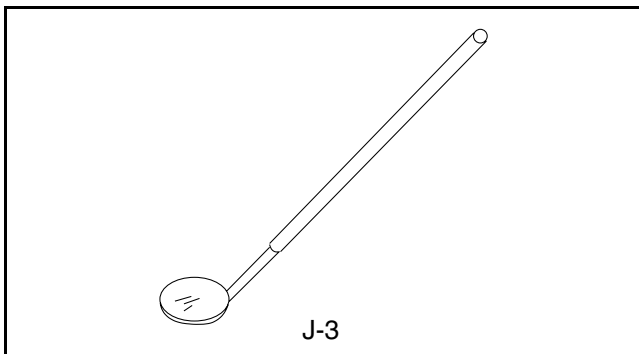
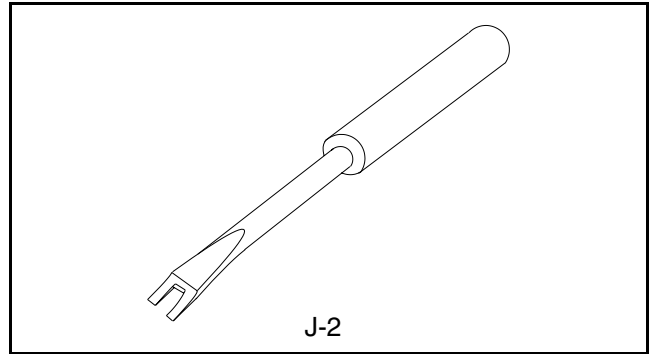
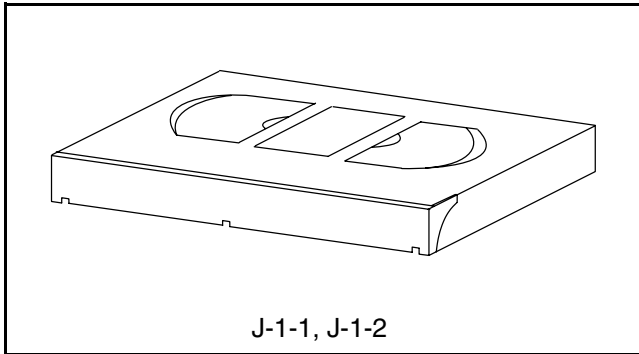
1. Remove the top cabinet.
2. Dip the cotton swab in 90% isopropyl alcohol and clean the ACE Head. Be careful not to damage the upper drum and other tape running parts.

Notes:

1. Avoid cleaning the ACE Head vertically.
2. Wait for the cleaned part to dry thoroughly before operating the unit or damage may occur.



SERVICE FIXTURE AND TOOLS



Ref. No.	Name	Part No.	Adjustment
J-1-1	Alignment Tape	FL6A	Head Adjustment of ACE Head
J-1-2	Alignment Tape	FL6N8 (2 Head model) FL6NS8 (4 Head model)	Azimuth and X Value Adjustment of ACE Head / Adjustment of Envelope Waveform
J-2	Guide Roller Adj. Screwdriver	Available Locally	Guide Roller
J-3	Mirror	Available Locally	Tape Transportation Check
J-4	Azimuth Adj. Screwdriver +	Available Locally	ACE Head Height
J-5	Flat Screwdriver -	Available Locally	X Value

MECHANICAL ALIGNMENT PROCEDURES

Explanation of alignment for the tape to correctly run starts on the next page. Refer to the information below on this page if a tape gets stuck, for example, in the mechanism due to some electrical trouble of the unit.

Service Information

A. Method for Manual Tape Loading/Unloading

To load a cassette tape manually:

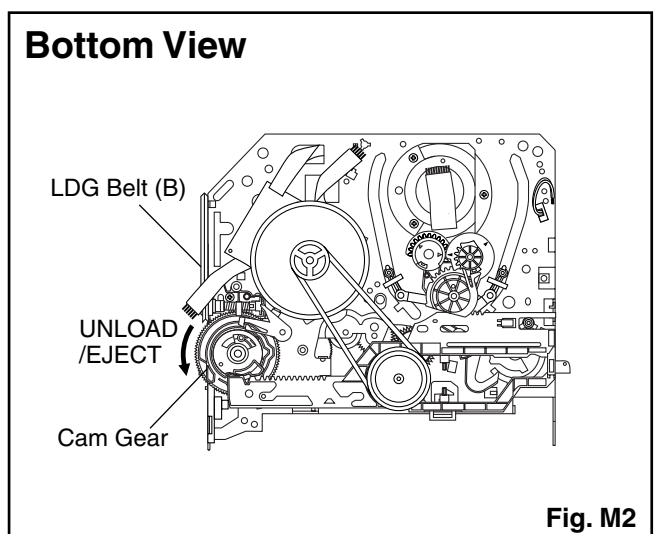
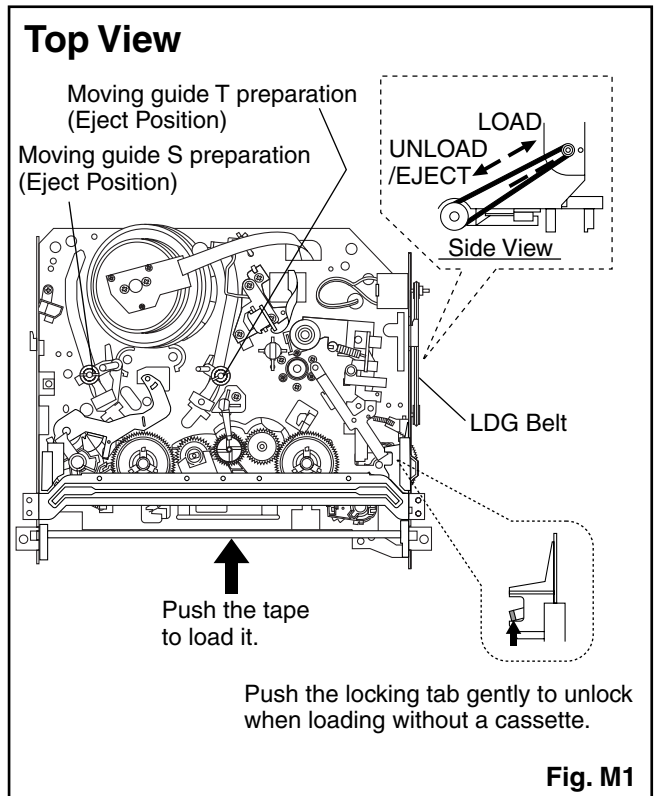
1. Disconnect the AC plug.
2. Remove the Top Case and Front Assembly.
3. Insert a cassette tape. Though the tape will not be automatically loaded, make sure that the cassette tape is all the way in at the inlet of the Cassette Holder. To confirm this, lightly push the cassette tape further in and see if the tape comes back out, by a spring motion, just as much as you have pushed in.
4. Turn the LDG Belt in the appropriate direction shown in Fig. M1 for a minute or two to complete this task.

To unload a cassette tape manually:

1. Disconnect the AC plug.
2. Remove the Top Case and Front Assembly.
3. Make sure that the Moving guide preparations are in the Eject Position.
4. Turn the LDG Belt in the appropriate direction shown in Fig. M1 until the Moving guide preparations come to the Eject Position. Stop turning when the preparations begin clicking or can not be moved further. However, the tape will be left wound around the cylinder.
5. Turn the LDG Belt in the appropriate direction continuously, and the cassette tape will be ejected. Allow a minute or two to complete this task.

B. Method to place the Cassette Holder in the tape-loaded position without a cassette tape

1. Disconnect the AC Plug.
2. Remove the Top Case and Front Assembly.
3. Turn the LDG Belt in the appropriate direction shown in Fig. M1. Release the locking tabs shown in Fig. M1 and continue turning the LDG Belt until the Cassette Holder comes to the tape-loaded position. Allow a minute or two to complete this task.



1. Tape Interchangeability Alignment

Note:

To do these alignment procedures, make sure that the Tracking Control Circuit is set to the preset position every time a tape is loaded or unloaded. (Refer to page 2-3-4, procedure 1-C, step 2.)

Equipment required:

Dual Trace Oscilloscope

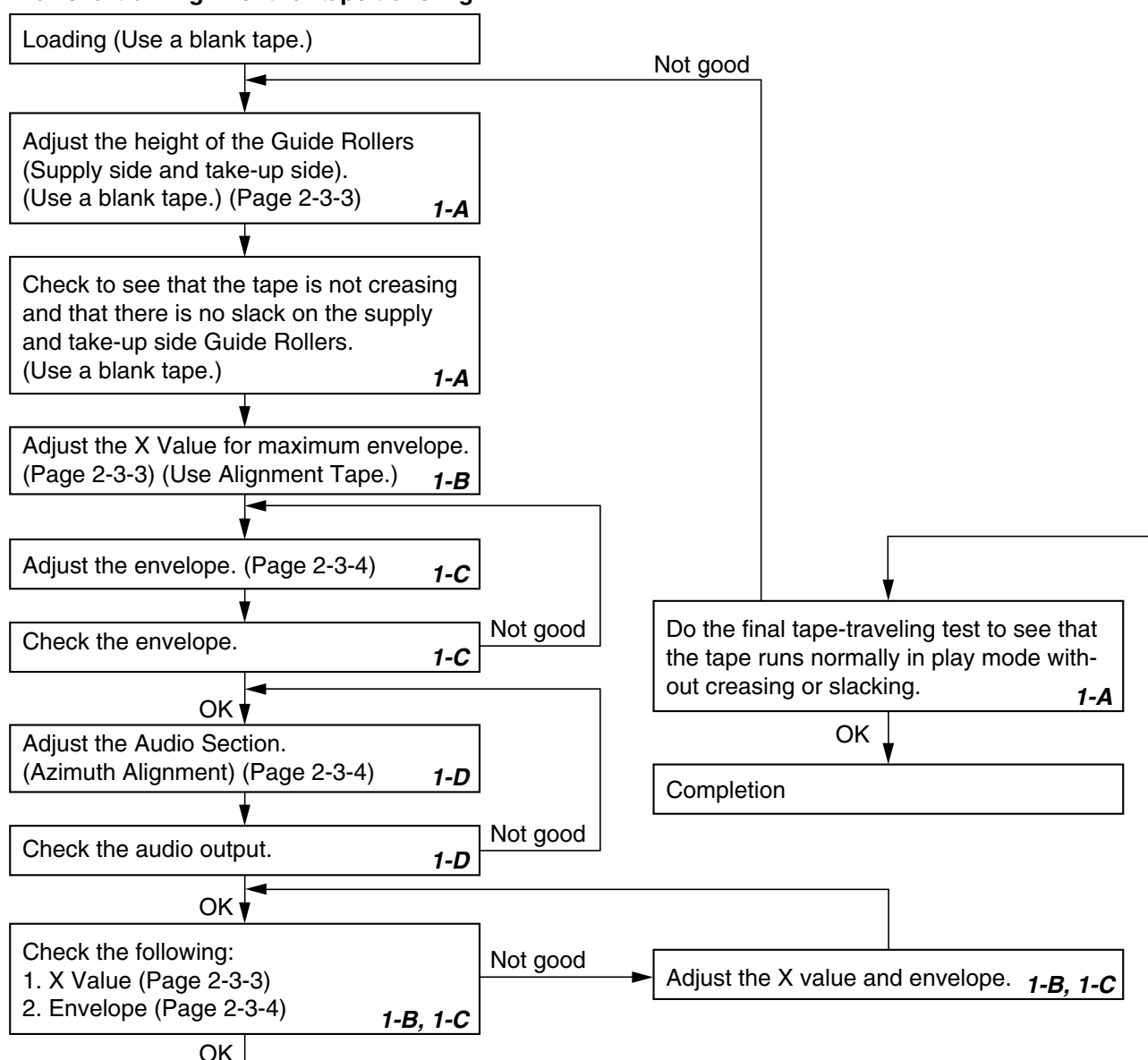
VHS Alignment Tape (FL6N8)

Guide Roller Adj. Screwdriver

Flat Screwdriver (Purchase Locally)

Note: Before starting this Mechanical Alignment, do all Electrical Adjustment procedures.

Flowchart of Alignment for tape traveling



1-A. Preliminary/Final Checking and Alignment of Tape Path

Purpose:

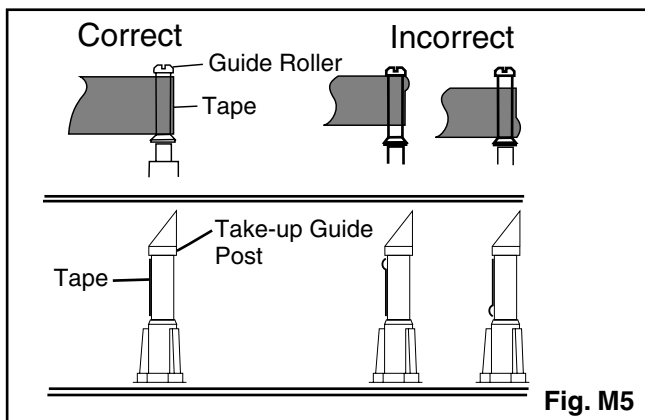
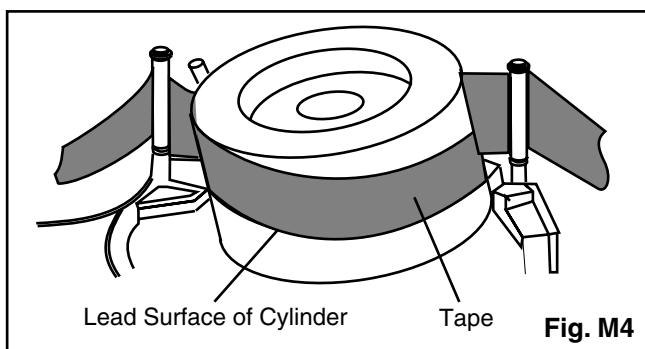
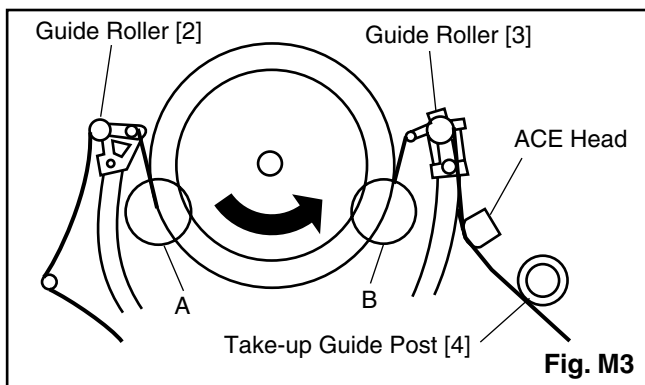
To make sure that the tape path is well stabilized.

Symptom of Misalignment:

If the tape path is unstable, the tape will be damaged.

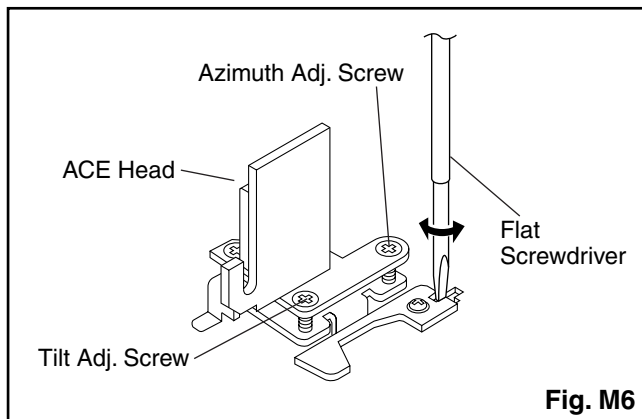
Note: Do not use an Alignment Tape for this procedure. If the unit is not correctly aligned, the tape may be damaged.

1. Playback a blank cassette tape and check to see that the tape runs without creasing at Guide Rollers [2] and [3], and at points A and B on the lead surface. (Refer to Fig. M3 and M4.)
2. If creasing is apparent, align the height of the guide rollers by turning the top of Guide Rollers [2] and [3] with a Guide Roller Adj. Screwdriver. (Refer to Fig. M3 and M5.)



3. Check to see that the tape runs without creasing at Take-up Guide Post [4] or without snaking between Guide Roller [3] and ACE Head. (Fig. M3 and M5)

4. If creasing or snaking is apparent, adjust the Tilt Adj. Screw of the ACE Head. (Fig. M6)



1-B. X Value Alignment

Purpose:

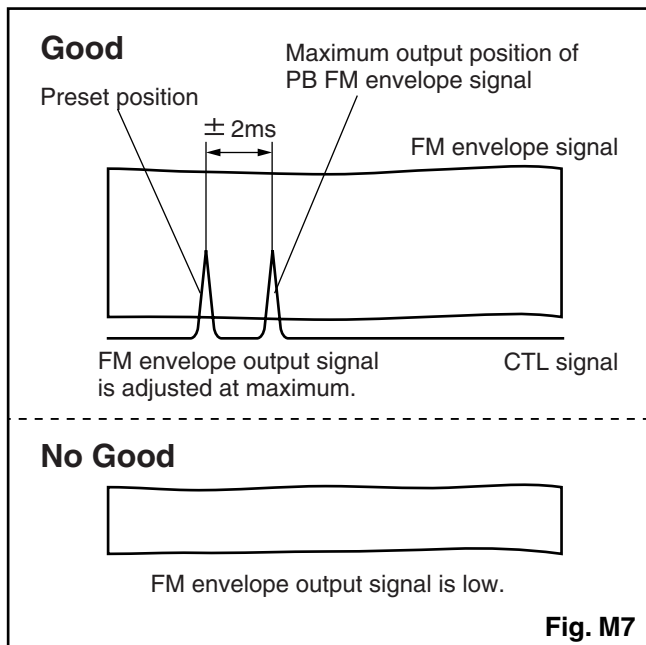
To obtain maximum PB FM envelope signal at the preset position of the Tracking Control Circuit, align the Horizontal Position of the ACE Head.

Symptom of Misalignment:

If the Horizontal Position of the ACE Head is not properly aligned, maximum PB FM envelope cannot be obtained at the preset position of the Tracking Control Circuit.

1. Connect the oscilloscope to TP008 (C-PB) and TP001 (CTL) on the Main CBA. Use TP002 (RF-SW) as a trigger.
2. Playback the Gray Scale of the Alignment Tape (FL6N8) and confirm that the PB FM signal is present.
3. Set the Tracking Control Circuit to the preset position by pressing CH UP button on the remote control unit then "PLAY" button on the unit. (Refer to note on bottom of page 2-3-4.)
4. Use the Flat Screwdriver so that the PB FM signal at TP008 (C-PB) is maximum. (Fig. M6)

5. To shift the CTL waveform, press CH UP or CH DOWN button on the remote control unit. Then make sure that the maximum output position of PB FM envelope signal become within $\pm 2\text{ms}$ from preset position.



6. Set the Tracking Control Circuit to the preset position by pressing CH UP button on the remote control unit. and then "PLAY" button.

1-C. Checking/Adjustment of Envelope Waveform

Purpose:

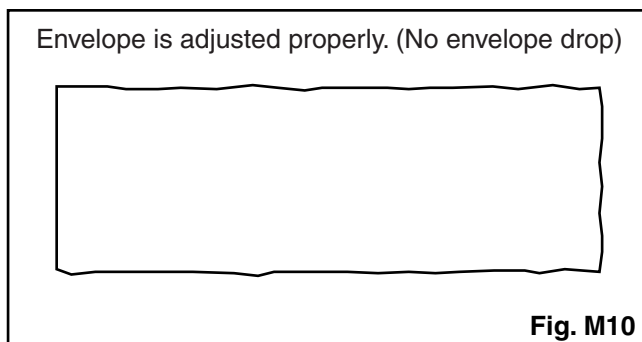
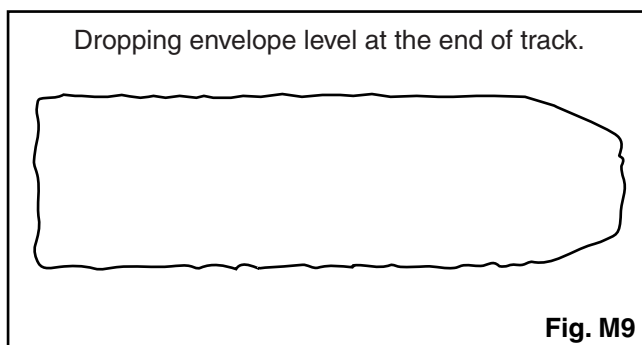
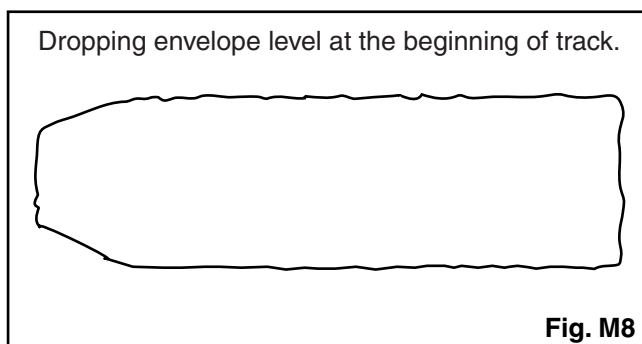
To achieve a satisfactory picture, adjust the PB FM envelope becomes as flat as possible.

Symptom of Misalignment:

If the envelope output is poor, noise will appear in the picture. The tracking will then lose precision and the playback picture will be distorted by any slight variation of the Tracking Control Circuit.

1. Connect the oscilloscope to TP008 (C-PB) on the Main CBA. Use TP002 (RF-SW) as a trigger.
2. Playback the Gray Scale on the Alignment Tape (FL6N8). Set the Tracking Control Circuit to the preset position by pressing CH UP button and then "PLAY" button on the unit. Adjust the height of Guide Rollers [2] and [3] (Fig. M3, Page 2-3-3) watching the oscilloscope display so that the envelope becomes as flat as possible. To do this adjustment, turn the top of the Guide Roller with the Guide Roller Adj. Screwdriver.
3. If the envelope is as shown in Fig. M7, adjust the height of Guide Roller [2] (Refer to Fig. M3) so that the waveform looks like the one shown in Fig. M9.
4. If the envelope is as shown in Fig. M8, adjust the height of Guide Roller [3] (Refer to Fig. M3) so that the waveform looks like the one shown in Fig. M9.

5. When Guide Rollers [2] and [3] (Refer to Fig. M3) are aligned properly, there is no envelope drop either at the beginning or end of track as shown in Fig. M9.



Note: Upon completion of the adjustment of Guide Rollers [2] and [3] (Refer to Fig. M3), check the X Value by pushing the CH UP or DOWN buttons alternately, to check the symmetry of the envelope. Check the number of pushes to ensure preset position. The number of pushes CH UP button to achieve 1/2 level of envelope should match the number of pushes CH DOWN button from center. If required, redo the "X Value Alignment."

1-D. Azimuth Alignment of Audio/Control/ Erase Head

Purpose:

To correct the Azimuth alignment so that the Audio/Control/Erase Head meets tape tracks properly.

Symptom of Misalignment:

If the position of the Audio/Control/Erase Head is not properly aligned, the Audio S/N Ratio or Frequency Response will be poor.

1. Connect the oscilloscope to the audio output jack on the rear side of the deck.
2. Playback the alignment tape (FL6N8) and confirm that the audio signal output level is 8kHz.
3. Adjust Azimuth Adj. Screw so that the output level on the AC Voltmeter or the waveform on the oscilloscope is at maximum. (Fig. M6)

DISASSEMBLY/ASSEMBLY PROCEDURES OF DECK MECHANISM

Before following the procedures described below, be sure to remove the deck assembly from the cabinet. (Refer to CABINET DISASSEMBLY INSTRUCTIONS on page 1-5-1 of Main Section.)

All the following procedures, including those for adjustment and replacement of parts, should be done in Eject mode; see the positions of [41] and [42] in Fig. DM1 on page 2-4-3. When reassembling, follow the steps in reverse order.

STEP /LOC. No.	START- ING No.	PART		REMOVAL		INSTALLATION
				Fig. No.	REMOVE/*UNHOOK/ UNLOCK/RELEASE/ UNPLUG/DESOLDER	ADJUSTMENT CONDITION
[1]	[1]	Guide Holder A	T	DM3	2(S-1)	
[2]	[1]	Cassette Holder Assembly	T	DM4	(S-10)	
[3]	[2]	Slider (SP)	T	DM5	(S-1A), *(L-1)	
[4]	[2]	Slider (TU)	T	DM5	*(L-2)	
[5]	[4]	Lock Lever	T	DM5	*(L-3), *(P-1)	
[6]	[2]	Cassette Plate	T	DM5		
[7]	[7]	Cylinder Assembly	T	DM1, DM6	Desolder, 3(S-2)	
[8]	[8]	Loading Motor Assembly	T	DM1, DM7	Desolder, LDG Belt, 2(S-3)	
[9]	[9]	ACE Head Assembly	T	DM1, DM7	(S-4)	
[10]	[2]	Tape Guide Arm Assembly	T	DM1, DM8-1	*(P-2)	
[11]	[10]	C Door Opener	T	DM1, DM8-1	(S-4A), *(L-4)	
[12]	[11]	Pinch Arm (B)	T	DM1, DM8-1, DM8-2	*(P-3)	
[13]	[12]	Pinch Arm (A) Assembly	T	DM1, DM8-1, DM8-2		
[14]	[14]	FE Head	T	DM1, DM9	(S-5)	
[15]	[15]	Prism	T	DM1, DM9	(S-6)	
[16]	[2],[15]	Sensor Gear	T	DM1, DM9		
[17]	[2]	Slider Shaft	T	DM10	*(L-5)	
[18]	[17]	C Drive Lever (SP)	T	DM10		
[19]	[17]	C Drive Lever (TU)	T	DM10	(S-7), *(P-4)	
[20]	[7],[8],[10]	Capstan Motor	B	DM2, DM11	3(S-8), Cap Belt	
[21]	[21]	Clutch Assembly	B	DM2, DM12	(C-1)	
[22]	[22]	Cam Holder Assembly	B	DM2, DM12	*(L-6)	
[23]	[23]	Cam Gear (B)	B	DM2, DM12	(C-2), *(P-5)	
[24]	[24]	Mode Gear	B	DM2, DM13-1	(C-3)	
[25]	[21],[23],[24]	Mode Lever	B	DM2, DM13-1, DM13-2	(C-4), *(L-8)	
[26]	[22]	Worm Holder	B	DM2, DM13-1	(S-9), *(L-9), *(L-10)	
[27]	[26]	Pulley Assembly	B	DM2, DM13-1		
[28]	[25],[26]	Cam Gear (A)	B	DM2, DM13-1, DM13-2		
[29]	[25]	Idler Gear	B	DM1, DM14		
[30]	[29]	Idler Arm	B	DM1, DM14	*(L-11)	
[31]	[25]	BT Arm	B	DM2, DM14	*(P-6)	

STEP /LOC. No.	START-ING No.	PART		REMOVAL		INSTALLATION
				Fig. No.	REMOVE/*UNHOOK/ UNLOCK/RELEASE/ UNPLUG/DESOLDER	ADJUSTMENT CONDITION
[32]	[25]	Loading Arm (SP) Assembly	B	DM2, DM14		(+)Refer to Alignment Sec.Page 2-5-1
[33]	[32]	Loading Arm (TU) Assembly	B	DM2, DM14		(+)Refer to Alignment Sec.Page 2-5-1
[34]	[2],[25]	M Brake (TU) Assembly	T	DM1, DM15	*(P-7), Brake Belt	
[35]	[2],[25]	M Brake (SP) Assembly	T	DM1, DM15	*(P-8)	
[36]	[35]	Tension Lever Assembly	T	DM1, DM15		
[37]	[36]	T Lever Holder	T	DM15	*(L-12)	
[38]	[34]	Reel (TU)(D2)	T	DM1, DM15		
[39]	[38]	M Gear	T	DM1, DM15		
[40]	[36]	Reel (SP)(D2)	T	DM1, DM15		
[41]	[32],[36]	Moving Guide S Preparation	T	DM1, DM16		
[42]	[33]	Moving Guide T Preparation	T	DM1, DM16		
[43]	[19]	TG Post Assembly	T	DM1, DM16	*(L-13)	
[44]	[28]	Rack Assembly	R	DM17	*(P-9)	(+)Refer to Alignment Sec.Page 2-5-1
[45]	[44]	F Door Opener	R	DM17		
[46]	[46]	Cleaner Assembly	T	DM1, DM6		
[47]	[46]	CL Post	T	DM6	*(L-14)	
↓ (1)	↓ (2)	↓ (3)	↓ (4)	↓ (5)	↓ (6)	↓ (7)

(1): Follow steps in sequence. When reassembling, follow the steps in reverse order.

These numbers are also used as identification (location) No. of parts in the figures.

(2): Indicates the part to start disassembling with in order to disassemble the part in column (1).

(3): Name of the part

(4): Location of the part: T=Top B=Bottom R=Right L=Left

(5): Figure Number

(6): Identification of parts to be removed, unhooked, unlocked, released, unplugged, unclamped, or desoldered.

P=Spring, W=Washer, C=Cut Washer, S=Screw, *=Unhook, Unlock, Release, Unplug, or Desolder

e.g., 2(L-2) = two Locking Tabs (L-2).

(7): Adjustment Information for Installation

(+):Refer to Deck Exploded Views for lubrication.

Top View

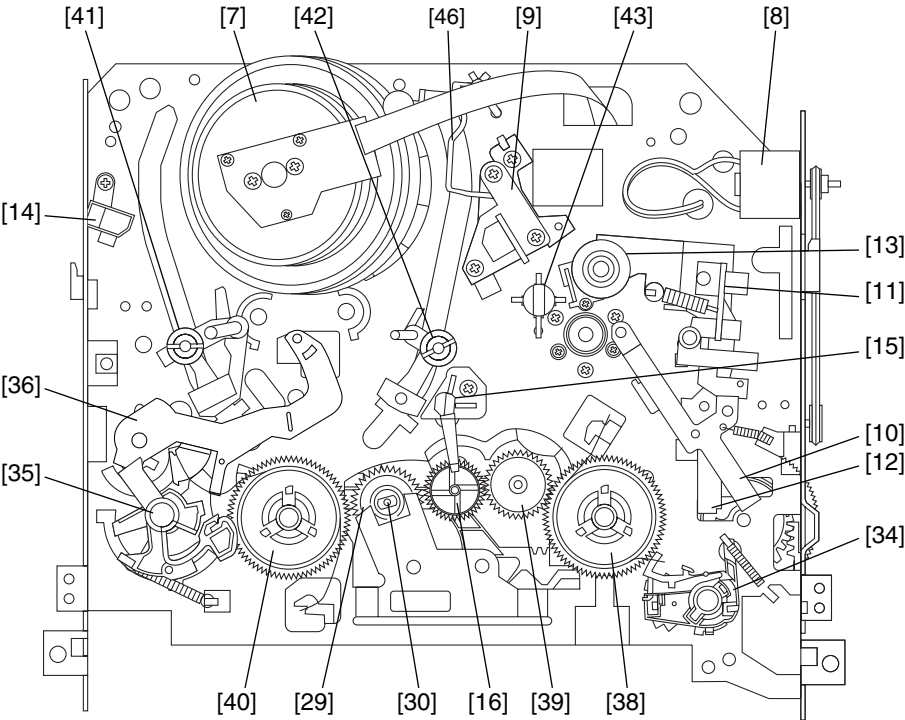


Fig. DM1

Bottom View

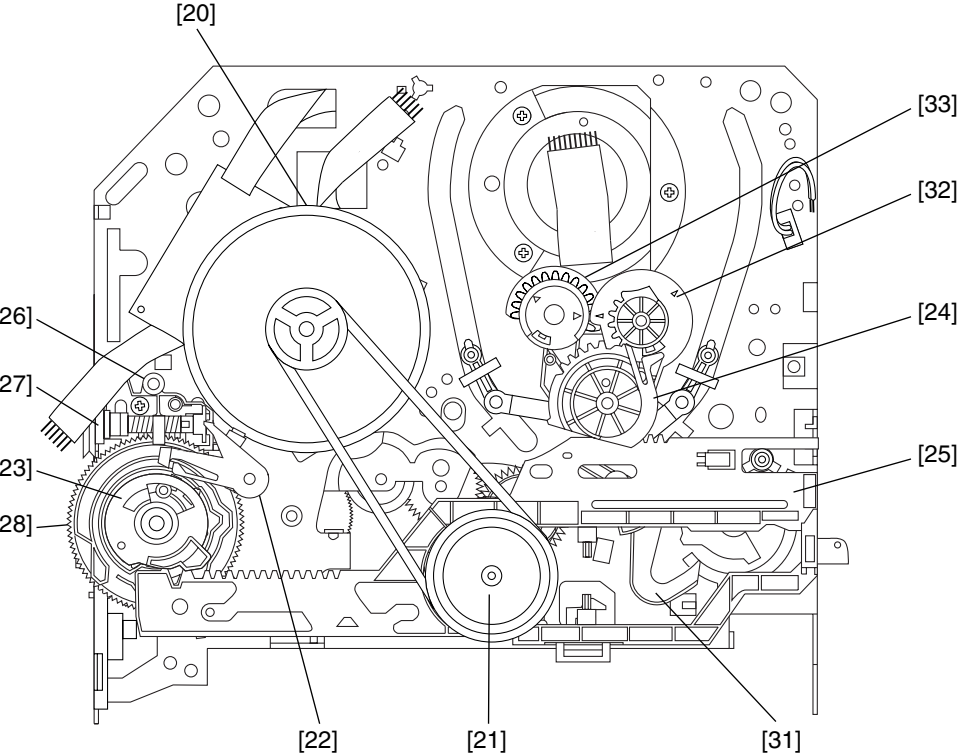
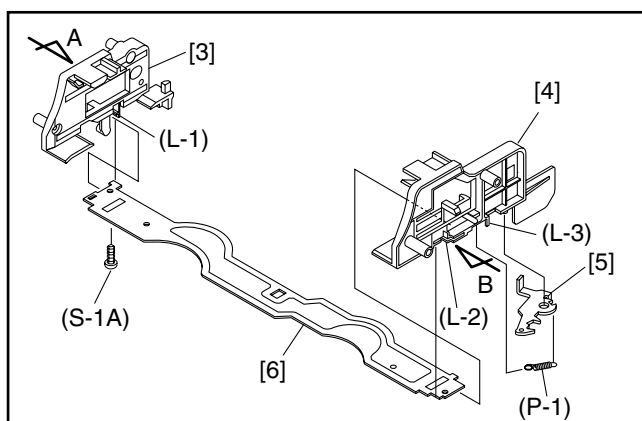
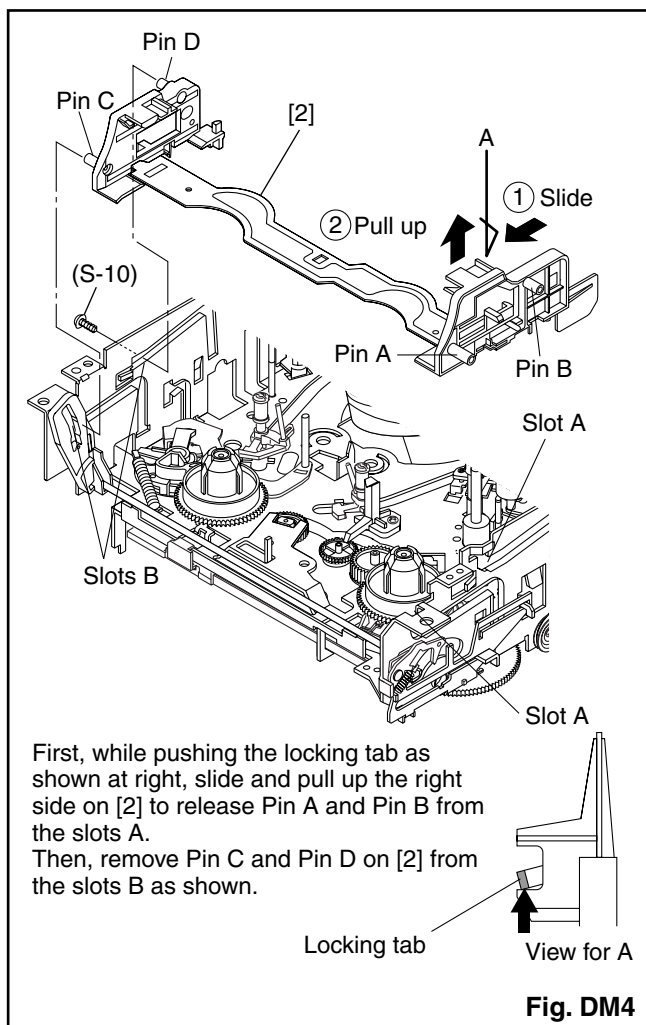
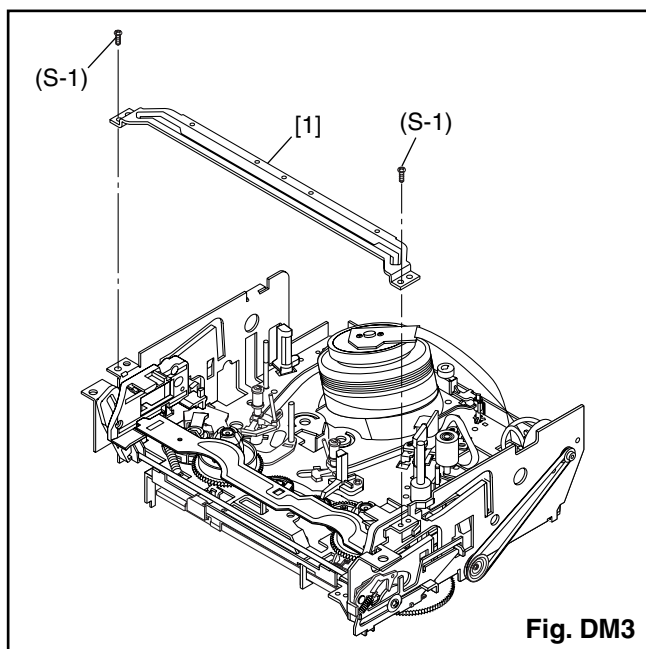
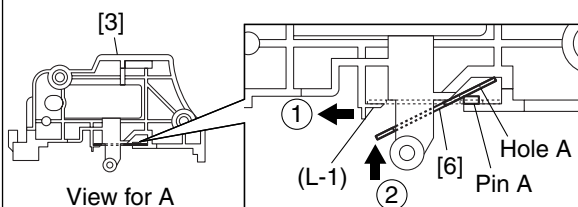


Fig. DM2



Installation of [3] and [6]

First, insert [6] diagonally in [3] as shown below. Then, install [6] in [3] while pushing (L-1) in a direction of arrow. After installing [6] in [3], confirm that pin A of [3] enters hole A of [6] properly.



Installation of [4] and [6]

Install [6] in [4] while pulling (L-2) in a direction of arrow. After installing [6] in [4], confirm that pin B of [4] enters hole B of [6] properly.

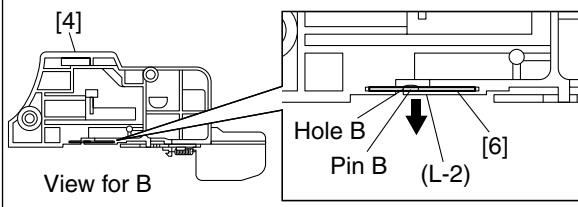
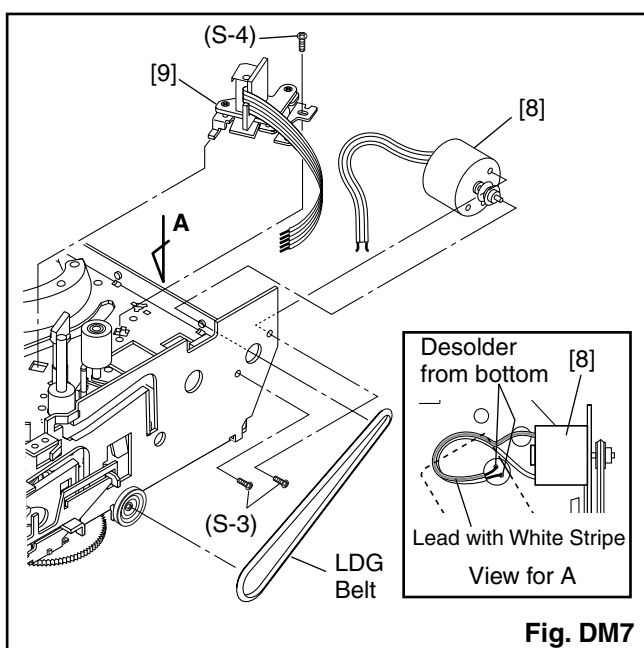
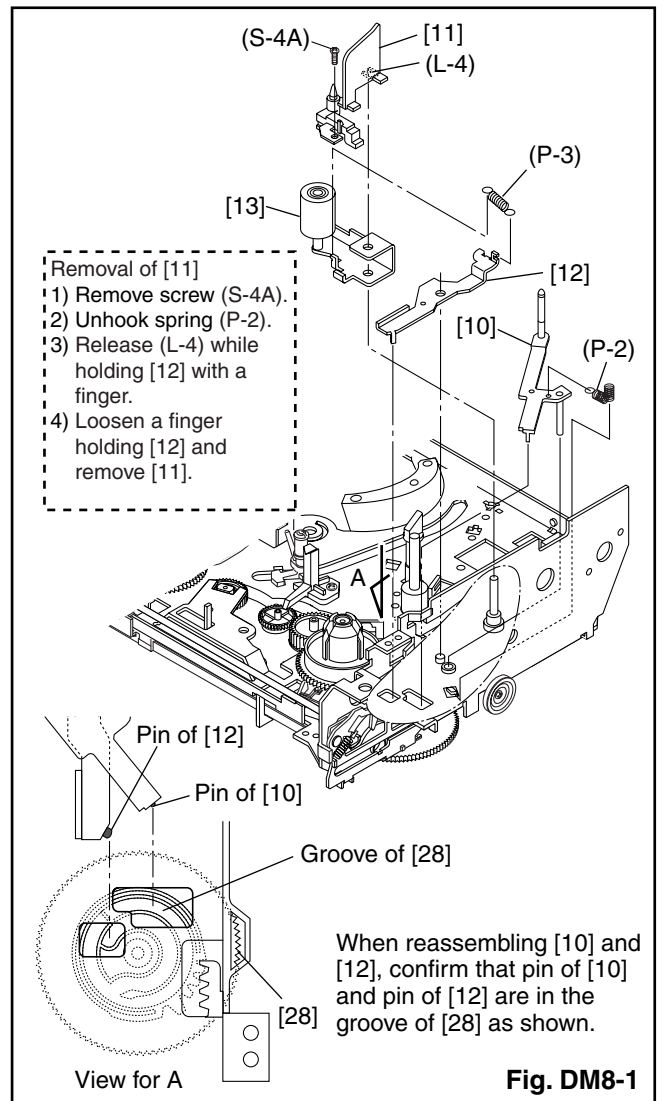
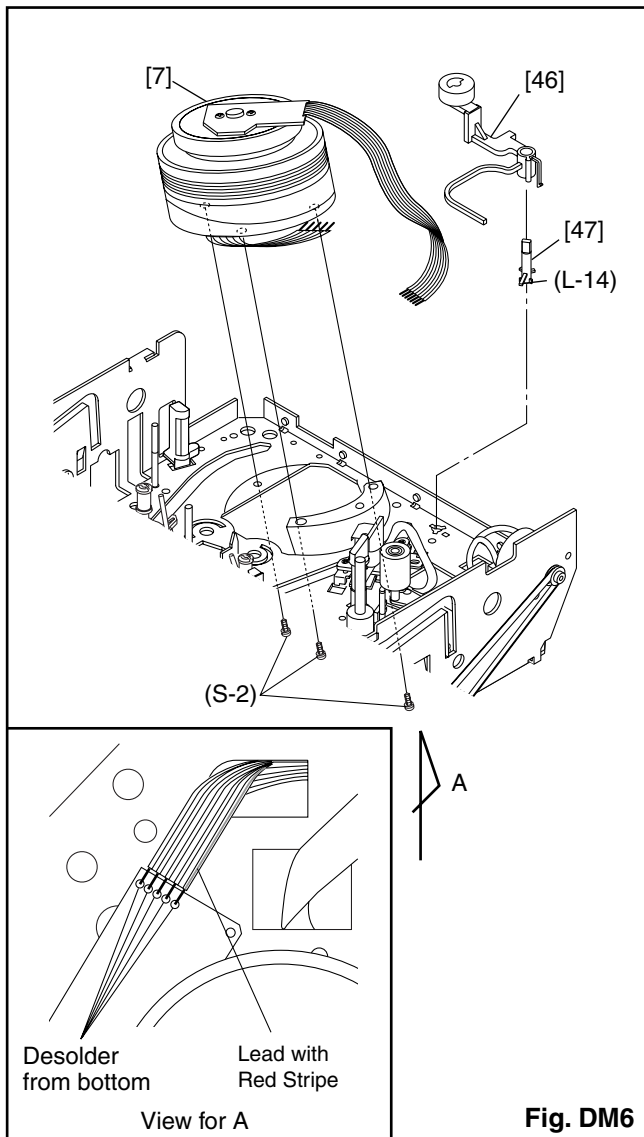


Fig. DM5



Installation of [13] and [12]

Hook spring (P-3) up to [12] and [13], then install then to the specified position so that [12] will be floated slightly while holding [12] and [13]. (Refer to Fig. A.)

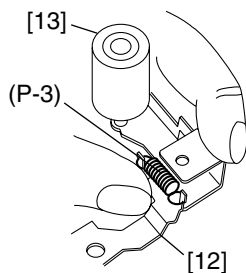


Fig. A

Install pin of [12] in groove of [28]. (Refer to Fig. B.)

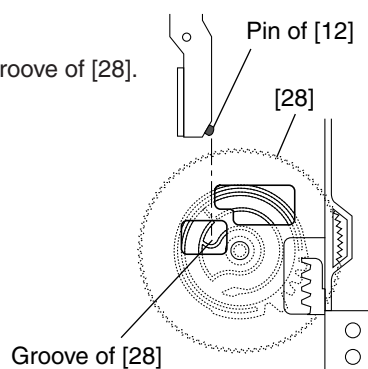


Fig. B (Top view)

Hold [12] and [13] till groove of pin of chassis looks and fit [13] in notch of chassis. Then, turn a few [13] while holding [12]. (Refer to Fig. C.)

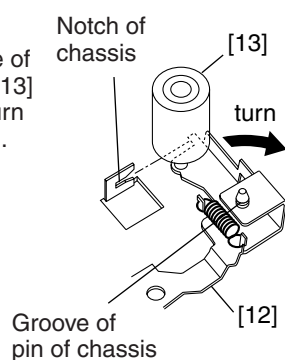


Fig. C

Install [11] and [10] while holding [12]. (Refer to Fig. DM8-1.)

Fig. DM8-2

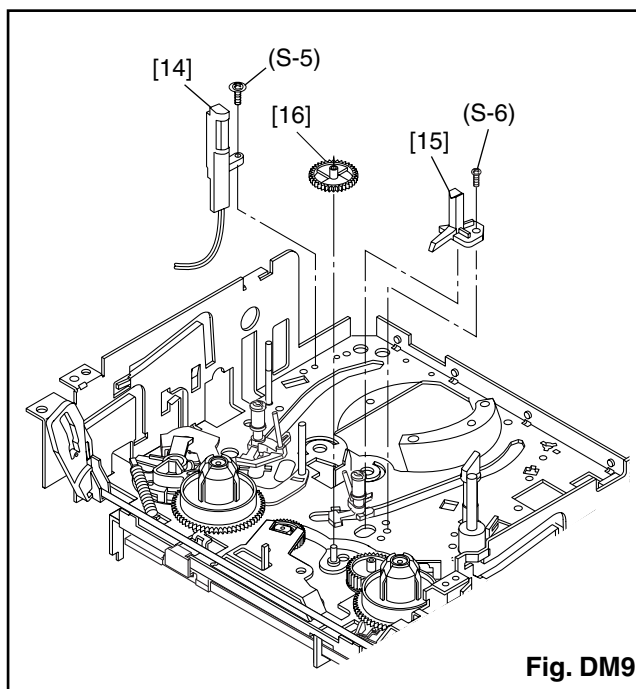


Fig. DM9

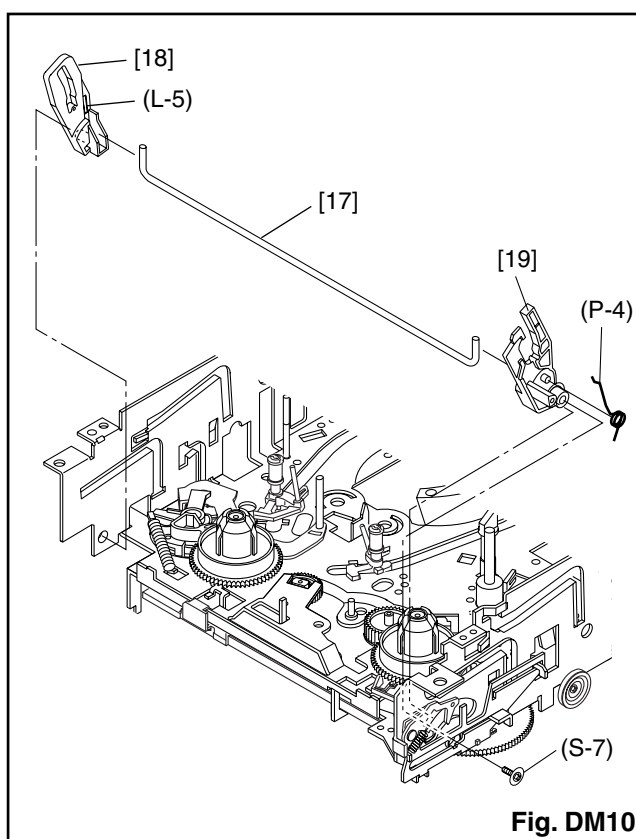
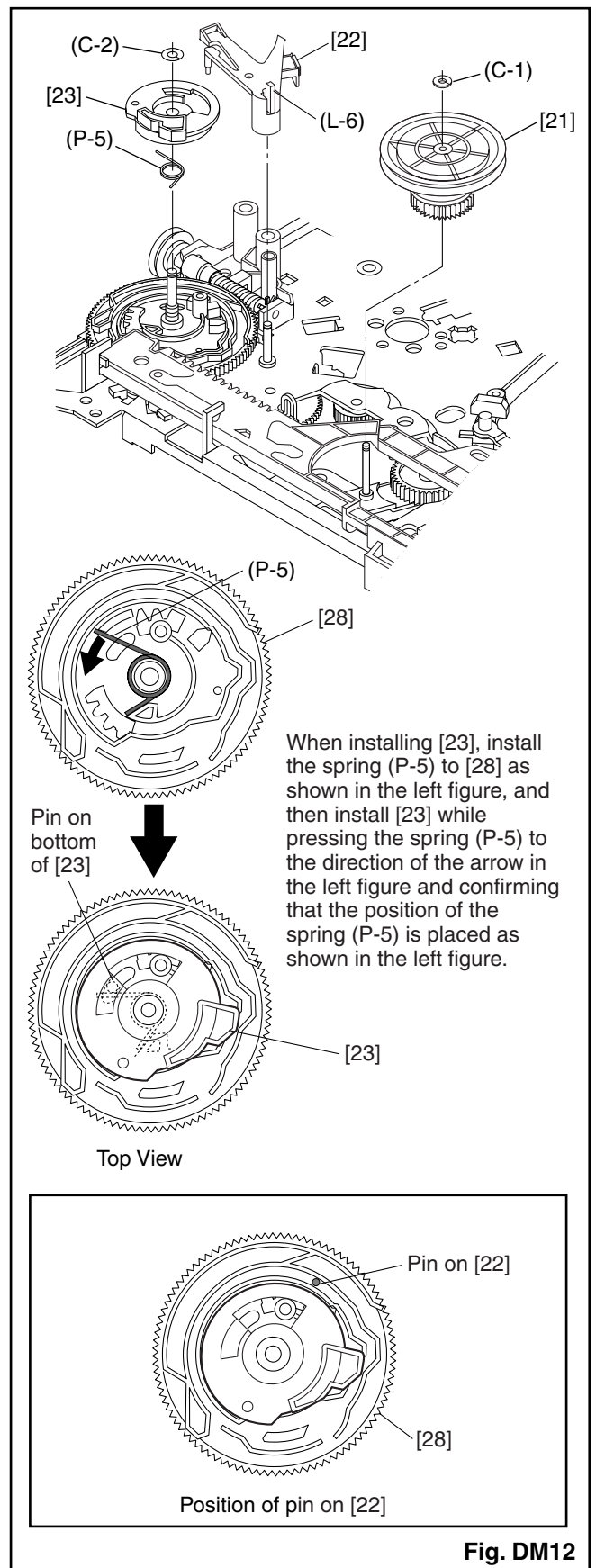
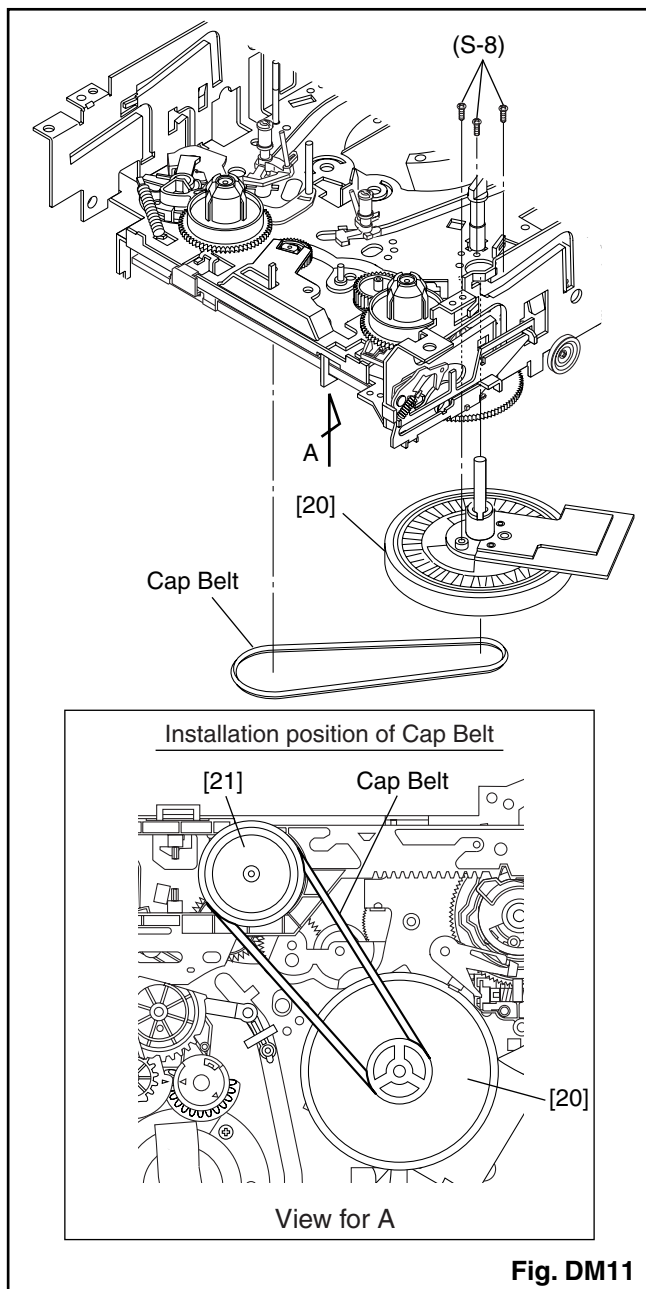
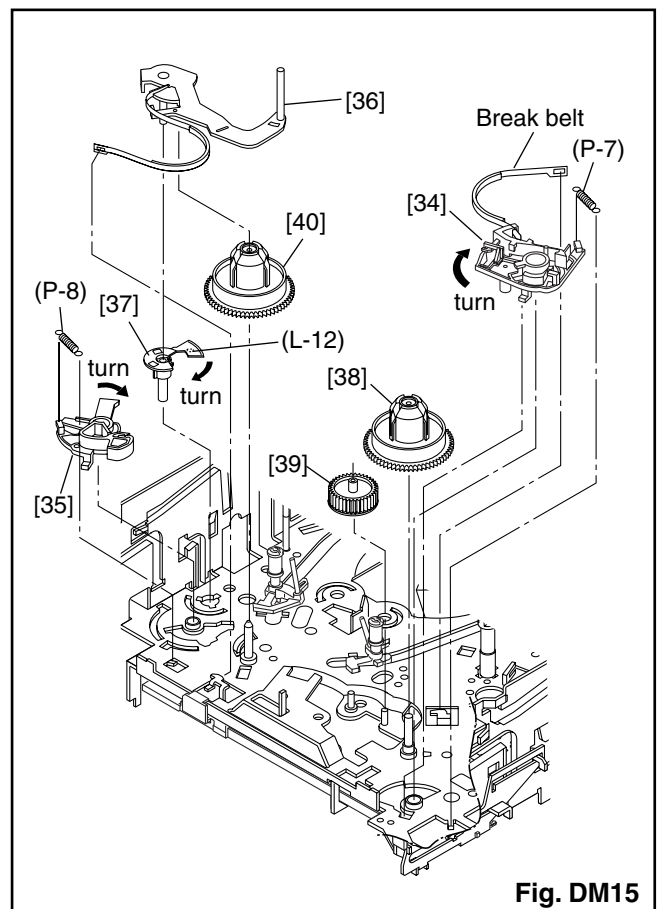
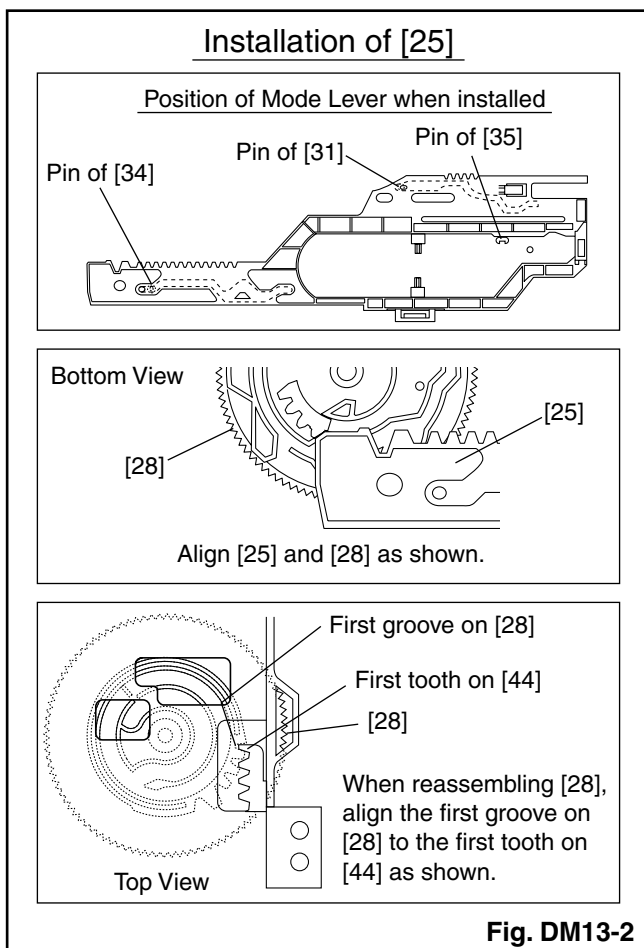
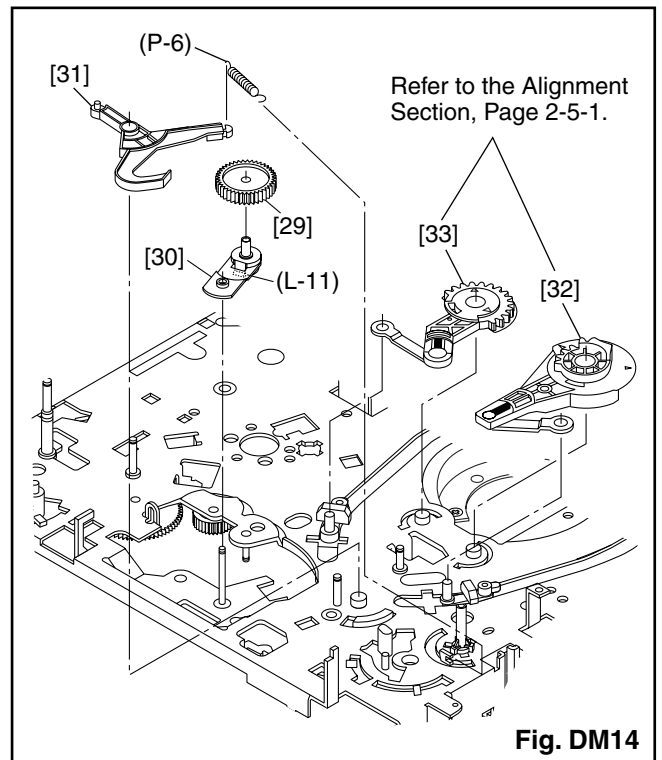
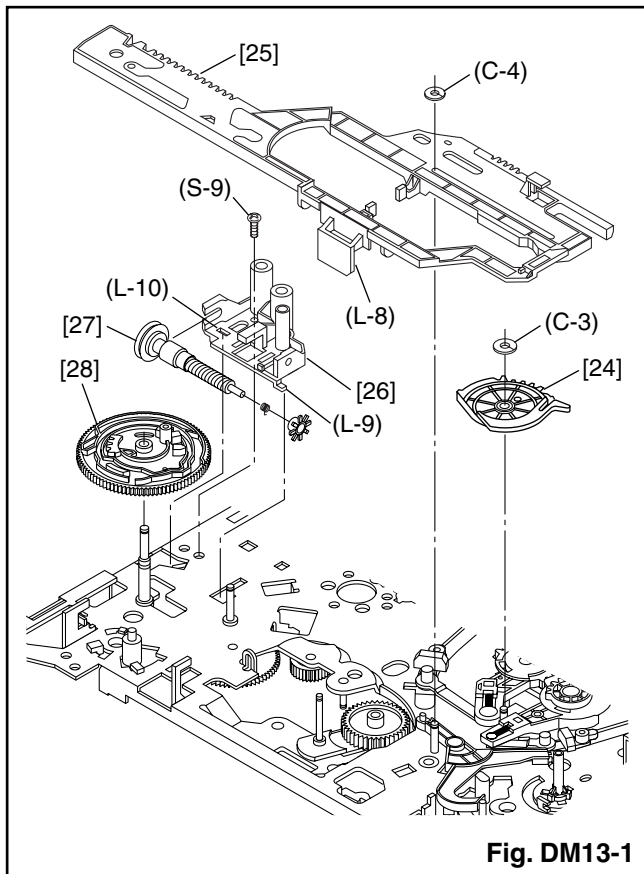
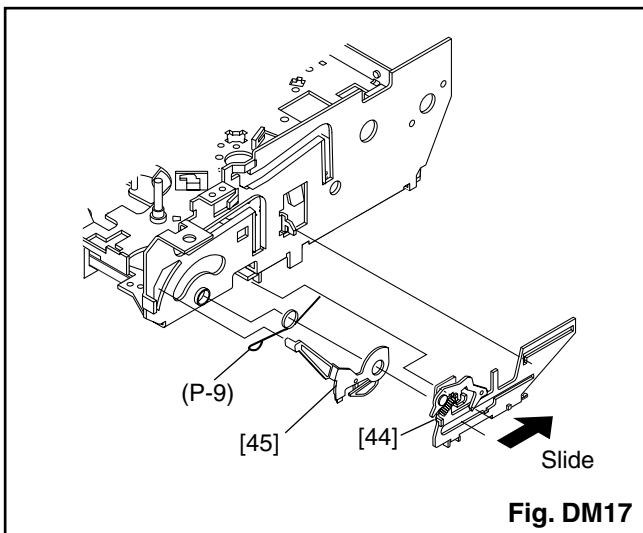
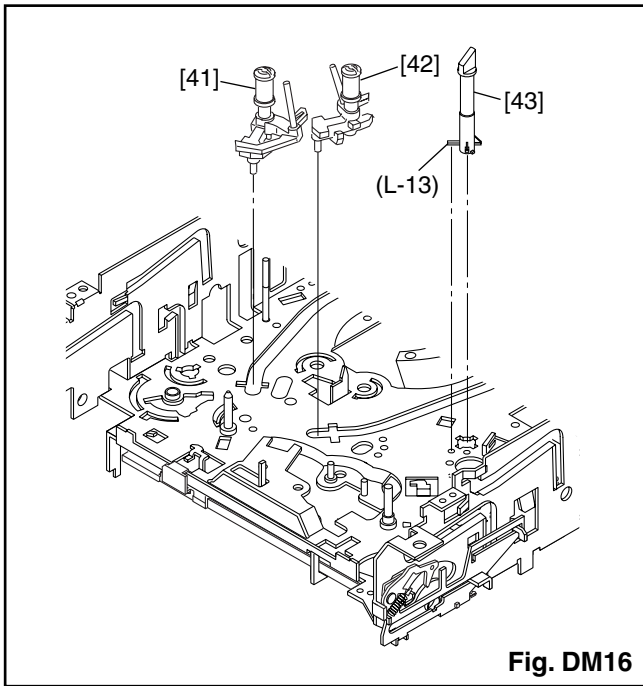


Fig. DM10







ALIGNMENT PROCEDURES OF MECHANISM

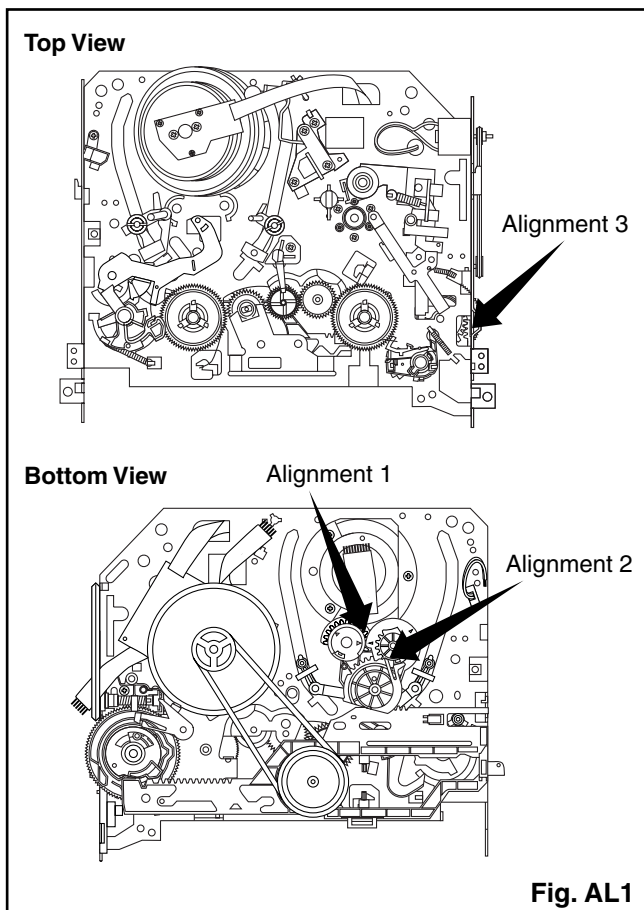
The following procedures describe how to align the individual gears and levers that make up the tape loading/unloading mechanism. Since information about the state of the mechanism is provided to the System Control Circuit only through the Mode Switch, it is essential that the correct relationship between individual gears and levers be maintained.

All alignments are to be performed with the mechanism in Eject mode, in the sequence given. Each procedure assumes that all previous procedures have been completed.

IMPORTANT:

If any one of these alignments is not performed properly, even if off by only one tooth, the unit will unload or stop and it may result in damage to the mechanical or electrical parts.

Alignment points in Eject Position



Alignment 1

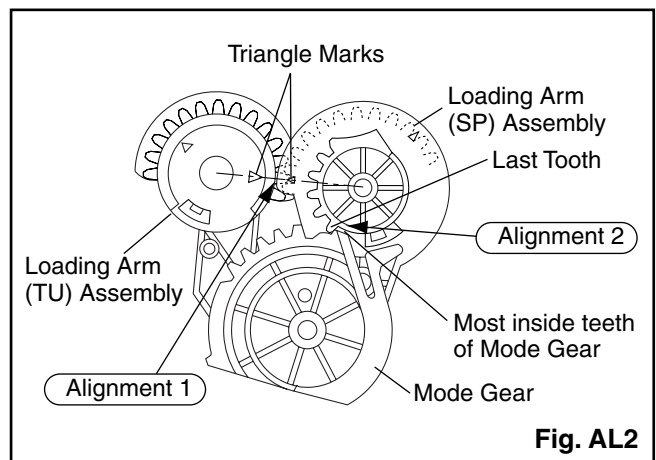
Loading Arm (SP) and (TU) Assembly

Install Loading Arm (SP) and (TU) Assembly so that their triangle marks point to each other as shown in Fig. AL2.

Alignment 2

Mode Gear

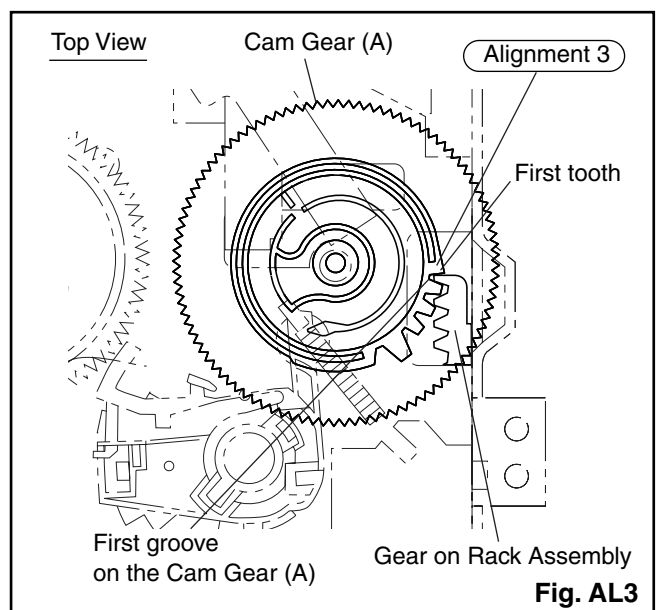
Keeping the two triangles pointing at each other, install the Loading Arm (SP) Assembly so that the last tooth of the gear meets the most inside teeth of the Mode Gear. See Fig. AL2.



Alignment 3

Cam Gear (A), Rack Assembly

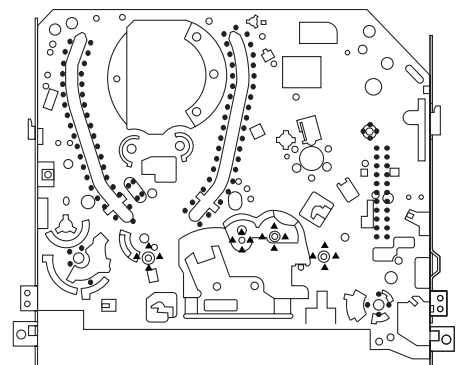
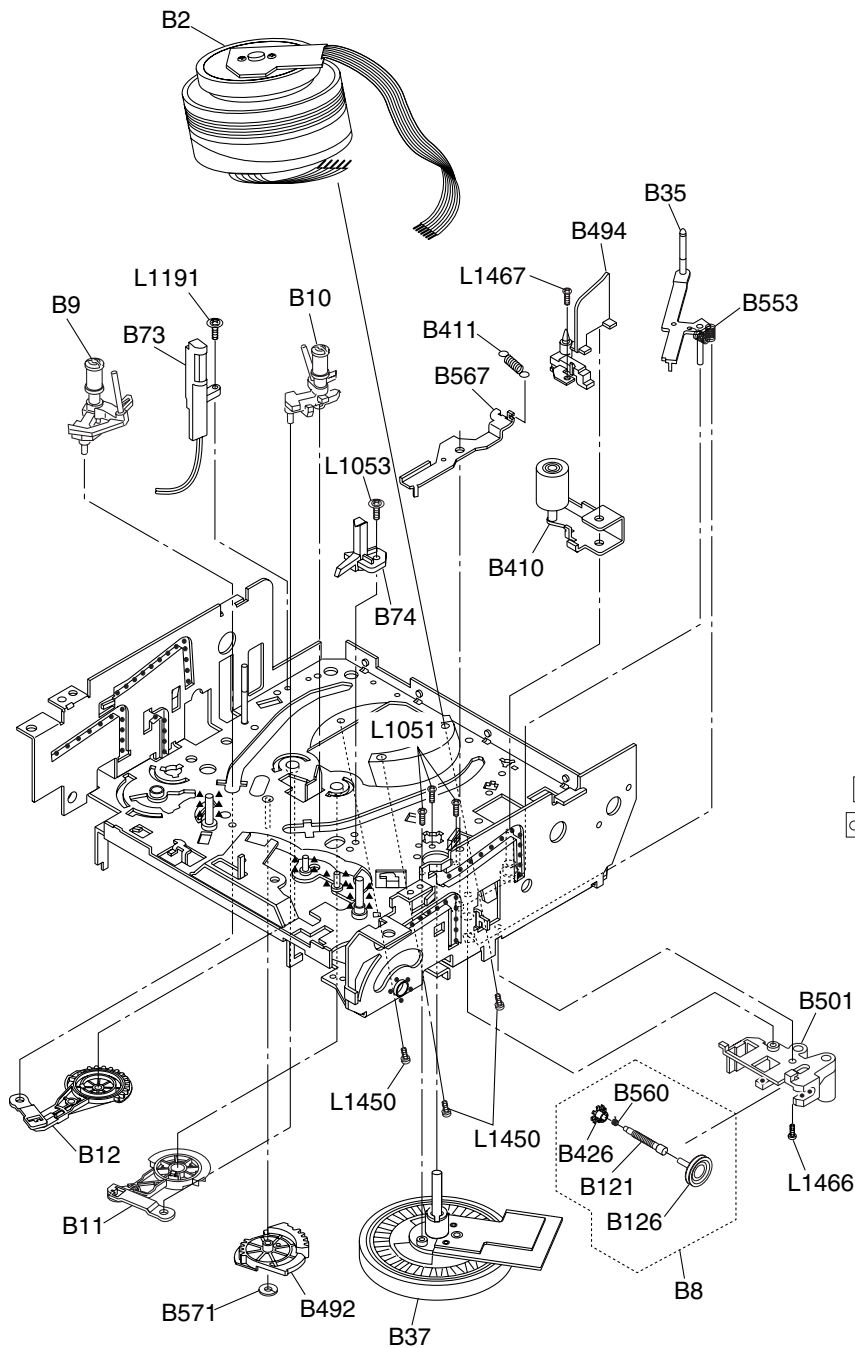
Install the Rack Assembly so that the first tooth on the gear of the Rack Assembly meets the first groove on the Cam Gear (A) as shown in Fig. AL3.



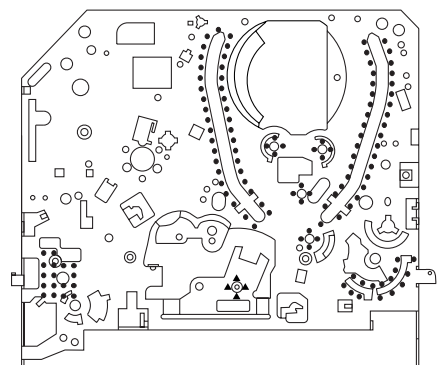
DECK EXPLODED VIEWS

Deck Mechanism View 1

Mark	Description
•••••	Floil G-684G or Multemp MH-D (Blue grease)
▲▲▲▲▲	SLIDUS OIL #150



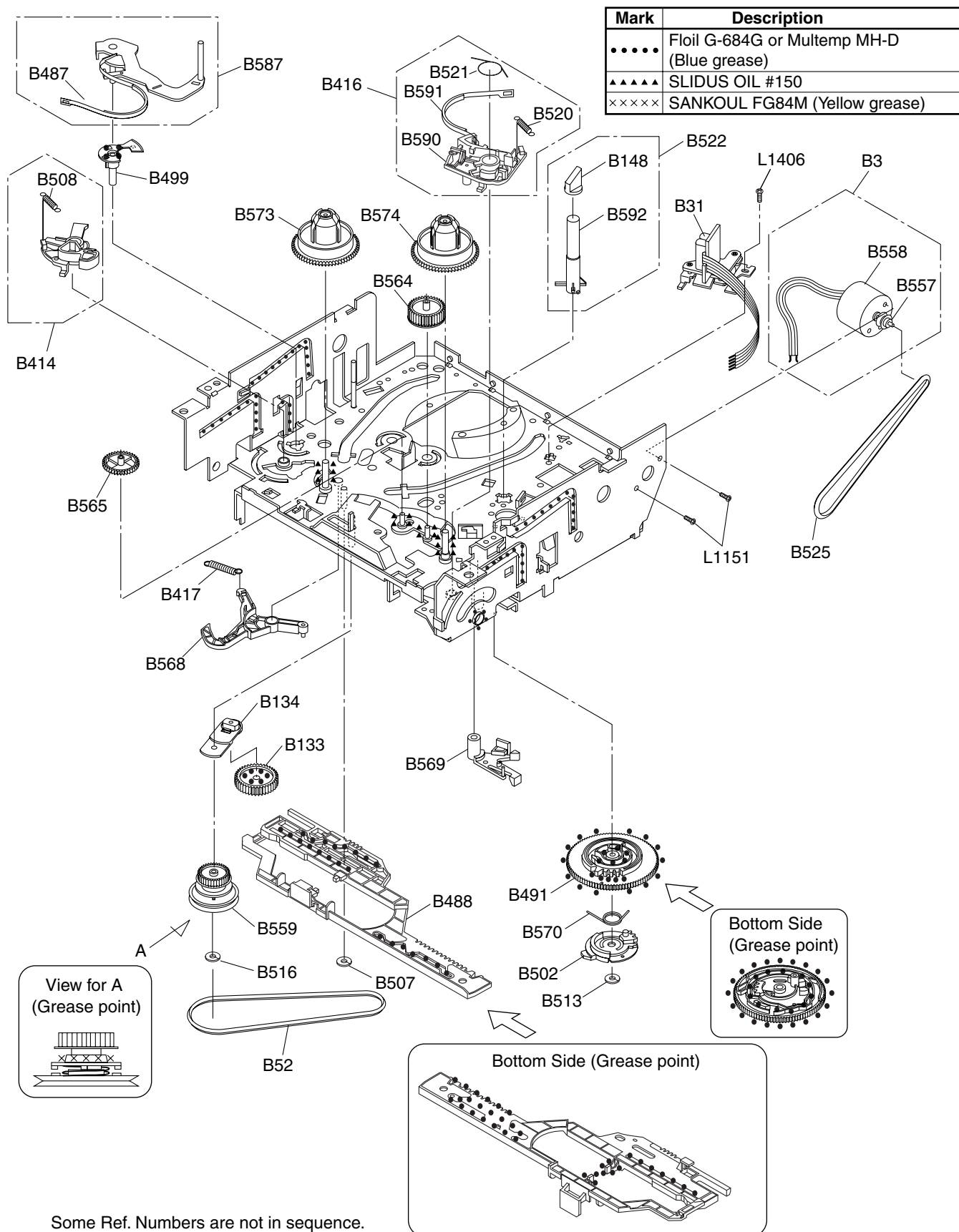
Chassis Assembly
Top View (Lubricating Point)



Chassis Assembly
Bottom View (Lubricating Point)

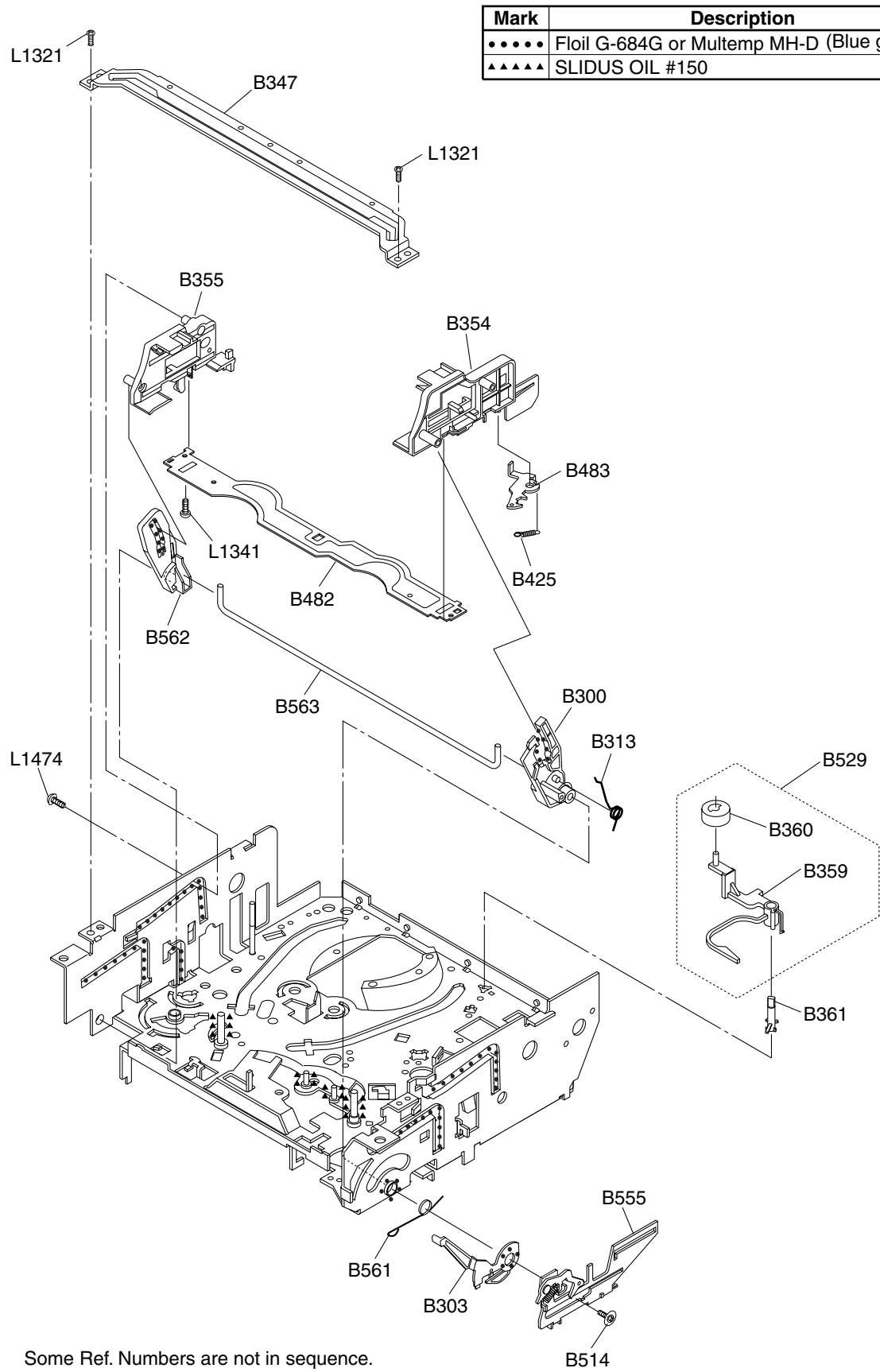
Some Ref. Numbers are not in sequence.

Deck Mechanism View 2



Some Ref. Numbers are not in sequence.

Deck Mechanism View 3



DECK PARTS LIST

NOTE:

Five different, but interchangeable, types of B558 (LOADING MOTOR) may be installed in these models. Please confirm B558 (LOADING MOTOR) type by a part number on it. B558 (LOADING MOTOR) type varies in combination with L1151. Please see Table 1 for details and combination.

Table 1 (B558 and L1151 Combination)

LOADING MOTOR (B558)		SCREW (L1151)	
Description	Parts No.	Description	Parts No.
LOADING MOTOR M31E-1 R-14 7376	MMDZB12MM003	SCREW, SEMS M2.6X4 PAN HEAD+	CPM39040
LOADING MOTOR M31E-1 R-14 7391	MMDZB12MM004		
LOADING MOTOR M31E-1 R-14 7377	MMDZB12MM006		
LOADING MOTOR MDB2B80	MMDZB12SJ008	SCREW, SEMS M3X4 PAN HEAD+	CPM33040
LOADING MOTOR MDB2B82	MMDZB10SJ001		

Comparison Chart of Models and Marks

Model	Mark
TVCR-A2104	A
TVCR-B2104	B
TVCR-C2104	C
TVCR-D2104	D
TVCR-A2104T	E
TVCR-B2104T	F
TVCR-C2104T	G
TVCR-D2104T	H
TVCR-A2104TG	I

Ref. No.	Description	Part No.
B2	CYLINDER ASSEMBLY MK12.5 PAL 2HD 2SP	N2328CYL
B3	LOADING MOTOR ASSEMBLY MK11 TVCR	0VSA13465
B8	PULLEY ASSEMBLY MK12	0VSA13500
B9	MOVING GUIDE S PREPARATION MK12	0VSA13560
B10	MOVING GUIDE T PREPARATION MK12	0VSA13562
B11	LOADING ARM(TU) ASSEMBLY MK12	0VSA13300
B12	LOADING ARM(SP) ASSEMBLY MK12	0VSA13299
B31	AC HEAD ASSEMBLY(PB FREE) MK12(TVCR)	0VSA14902
B35	TAPE GUIDE ARM ASSEMBLY MK12.5	0VSA15014
B37	CAPSTAN MOTOR 288/VCZC1303	N9683CML
B52	CAP BELT MK10	0VM411138
B73	FE HEAD ASSEMBLY MK11 or	N9742FEL
	FE HEAD ASSEMBLY MK11 or	N9743FEL
	FE HEAD(MK11) MH-131SF11 or	DHVEC01Z0005
	FE HEAD(MK11) VTR-1X2ERS11-148 or	DHVEC01TE004
	FE HEAD(MK12) VTR-1X2ERS11-155 or	DHVEC01TE005
	FE HEAD(MK12) HVFHP0047A	DHVEC01AL007
B74	PRISM MK10	0VM202870
B121	WORM MK12	0VM414091
B126	PULLEY MK12	0VM414330B

Ref. No.	Description	Part No.
B133	IDLER GEAR MK12	0VM305738
B134	IDLER ARM MK12	0VM305739
B148	TG CAP MK11	0VM412972
B300	C DRIVE LEVER(TU) MK12	0VM203773
B303	F DOOR OPENER MK12	0VM203751C
B313	C DRIVE SPRING MK12	0VM414145
B347	GUIDE HOLDER A MK10	0VM304920
B354	SLIDER(TU) MK12	0VM101172F
B355	SLIDER(SP) MK12	0VM101182K
B359	CLEANER LEVER MK10	0VM304413
B360	CLEANER ROLLER MK9	0VM410032C
B361	CL POST MK10	0VM411114
B410	PINCH ARM(A) ASSEMBLY(4) MK12 or	0VSA13572
	PINCH ARM(A) ASSEMBLY(5) MK12	0VSA13788
B411	PINCH SPRING MK12	0VM414644
B414	M BRAKE(SP) ASSEMBLY MK12.5	0VSA14994
B416	M BRAKE(TU) ASSEMBLY MK12	0VSA13283
B417	TENSION SPG(3002645) MK12	0VM414221F
B425	LOCK LEVER SPRING MK10	0VM411110
B426	KICK PULLEY MK10	0VM411095
B482	CASSETTE PLATE MK12	0VM203749
B483	LOCK LEVER MK12	0VM414095
B487	BAND BRAKE(SP) MK12	0VM305723
B488	MODE LEVER MK12.5	0VM101351
B491	CAM GEAR(A) MK12	0VM101174
B492	MODE GEAR MK12	0VM203769
B494	C DOOR OPENER MK12	0VM305719
B499	T LEVER HOLDER MK12	0VM305729
B501	WORM HOLDER MK12	0VM203767
B502	CAM GEAR(B) MK12	0VM305721
B507	REEL WASHER MK9 5*2.1*0.5	0VM410058
B508	S BRAKE SPRING MK10	0VM411121
B513	CAM WASHER MK12	0VM414741
B514	SCREW RACK MK10	0VM411535
B516	REEL WASHER MK9 5*2.1*0.5	0VM410058
B520	TU BRAKE SPRING MK12	0VM414285
B521	REV BRAKE SPRING MK12	0VM414222
B522	TG POST ASSEMBLY MK11	0VSA12080
B525	LDG BELT MK11	0VM412804
B529	CLEANER ASSEMBLY MK10	0VSA11161
B553	REV SPRING MK11	0VM412555
B555	RACK ASSEMBLY MK12	0VSA13289
B557	MOTOR PULLEY U5	0VM403205A
B558	LOADING MOTOR MDB2B82 or	MMDZB10SJ001
	LOADING MOTOR MDB2B80 or	MMDZB12SJ008
	LOADING MOTOR M31E-1 R-14 7376 or	MMDZB12MM003
	LOADING MOTOR M31E-1 R14 7391 or	MMDZB12MM004
	LOADING MOTOR M31E-1 R-14 7377	MMDZB12MM006
B559	CLUTCH ASSEMBLY MK12 or	0VSA13284
	CLUTCH ASSEMBLY(64) MK12	0VSA14459
B560	KICK SPRING MK10	0VM411475A
B561	F DOOR SPRING MK10	0VM411430
B562	C DRIVE LEVER(SP) MK12	0VM203772
B563	SLIDER SHAFT MK12	0VM305762
B564	M GEAR MK12	0VM305735
B565	SENSOR GEAR MK12	0VM305736
B567	PINCH ARM(B) MK12	0VM305718

Ref. No.	Description	Part No.
B568	BT ARM MK12	0VM305728
B569	CAM HOLDER(F) MK12	0VM305722
B570	CAM RACK SPRING(HI) MK11	0VM412923
B571	P.S.W CUT 1.6X4.0X0.5T	0VM408485A
B573	REEL(SP)(D2) MK12	0VM203755
B574	REEL(TU)(D2) MK12	0VM203756
B587	TENSION LEVER ASSEMBLY MK12	0VSA13279
B590	BRAKE ARM(TU) MK12	0VM203752E
B591	BAND BRAKE(TU) MK12	0VM305724C
B592	TG POST MK11	0VM412550
L1051	SCREW, B-TIGHT M2.6X6 PAN HEAD+	GPMB9060
L1053	SCREW, S-TIGHT M2.6X8 WASHER HEAD+	GCMS9080
L1151	SCREW, SEMS M3X4 PAN HEAD + or	CPM33040
	SCREW, SEMS M2.6X4 PAN HEAD+	CPM39040
L1191	SCREW, S-TIGHT M2.6X8 WASHER HEAD+	GCMS9080
L1321	SCREW, S-TIGHT M3X6 BIND HEAD+	GBMS3060
L1341	SCREW, P-TIGHT M2X6 PAN HEAD+	GPMP2060
L1406	AC HEAD SCREW MK9	0VM410964
L1450	SCREW, SEMS M2.6X5 PAN HEAD+	CPM39050
L1466	SCREW, S-TIGHT M2.6X6 BIND HEAD+	GBMS9060
L1467	SCREW M2.6X5 WASHER HEAD+	SCM39050
L1474	SCREW, P-TIGHT M2.6X12 WASHER HEAD+	GCMP9120

