

HITACHI

SERVICE MANUAL

NR

FN-0002E

19VR11B

R/C:CLU-362VR

NTSC

Z5 Chassis

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CAUTION : Before servicing this chassis, it is important that the service technician read the "Safety Precaution" and "Product Safety Notices" in this Service Manual.

This television receiver will display television Closed (☒ or ☐) in accordance with paragraph 15.119 of the FCC rules.

SAFETY NOTICE

USE ISOLATION TRANSFORMER WHEN SERVICING

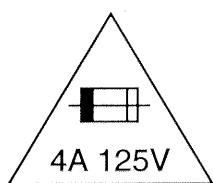
Component having special safety characteristics are identified by **▲** on schematics and on the parts list in this Service Data and its supplements and bulltins. Before servicing this chassis, it is important that the service technician read and follow the " Important Safety Precautions " and " Standard Note for Servicing " in this Service Manual.

for continued x-radiation protection, replace picture tube with original type of Hitachi approved equivalent type.

SPECIFICATIONS AND PARTS ARE SUBJECT TO CHANGE FOR IMPROVEMENT

TV/VCR COMBINATION TELEVISION

August 1996



CAUTION

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

ATTENTION : POUR UNE PROTECTION CONTINUE LES RISQUES
D'INCELE N'UTILISER QUE DES FUSIBLE DE MEMO TYPE.

RISK OF FIRE-REPLACE FUSE AS MARKED.



"This symbol means fast operating fuse."

"Ce symbole représente un fusible à fusion rapide."

SPECIFICATIONS

* Mode ----- SP mode

* Test input terminal

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

<Tuner> ----- Ant. input (80dBμV) Video: 87.5% MOD.
Audio: 50KHz dev (1KHz)

<DEFLECTION>

Description	Condition	Unit	Nominal	Limit
1. Over Scan	—	%	90	—
2. Linearity	Horizontal	%	—	15
	Vertical	%	—	12
3. High Voltage	—	KV	27	—

<VIDEO & CHROMA>

Description	Condition	Unit	Nominal	Limit
1. Misconvergence	Center	m/m	—	0.4
	Corner	m/m	—	2.1
	Side	m/m	—	1.4
2. Tint Control Range	—	deg	±25	—
3. Contrast Control Range	—	dB	6	4
4. Brightness	APL 100%	ft-L	35	24
5. Color Temperature	—	K	8000-20MPCD	—

<VCR>

Description	Condition	Unit	Nominal	Limit
1. Horizontal Resolution	(R/P)	Line	220	200
2. Jitter (Low)	(R/P)	μS	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	50	40

<NORMAL AUDIO>

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

Description	Condition	Unit	Nominal	Limit
1. Audio Output Power(10%DIST.)	(R/P)	W	1.0	0.7
2. Audio S/N (W/LPF)	(R/P)	dB	40	38
3. Audio Distortion (W/LPF)	(R/P)	%	3.0	5.0
4. Audio Freq. Response	200Hz (R/P)	dB	-2.0	-2.0 ± 5.0
	6KHz (R/P)	dB	0	0 ± 6.0

<Hi-Fi AUDIO>

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

Description	Condition	Unit	Nominal	Limit
1. Audio Distortion	(R/P)	%	0.5	1.0
2. Audio Freq. Response	20Hz (R/P)	dB	-2.0	-2.0 ± 2.0
	20kHz (R/P)	dB	-2.0	-2.0 ± 4.0
3. Separation	20% DEV.	dB	20	15
	300Hz, 3kHz			

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.

IMPORTANT SAFETY PRECAUTIONS

Prior to shipment from the factory, our products have been carefully inspected to conform 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.

Safety Precautions for TV Circuit

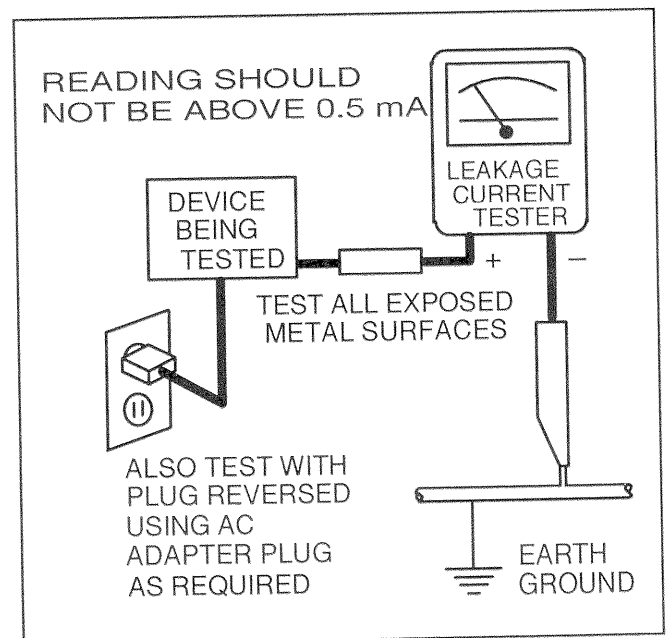
1. Before returning an instrument to the customer, always make a safety check of the entire instrument, including, but not limited to, the following items:

- 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 materials, 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 ohm-meter 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 leakage 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 servicing is performed that involves B+, horizontal deflection or high voltage. Correct operation of the X-radiation protection circuits also must be checked 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 may be 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(RS) 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 me-

chanical 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.

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 10-15 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 droplets. 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.

The Product's Safety is under review continuously and new instructions are issued whenever appropriate. Prior to shipment from the factory, our products are carefully inspected to conform 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.

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 check the specified values in order to verify compliance with safety standards.

1. Clearance Distance

When replacing primary circuit components, check 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	Region	Clearance Distance (d) (d')
110 to 130 V	USA or CANADA	≥ 3.2 mm (0.126 inches)

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

2. Leakage Current Test

Check 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.

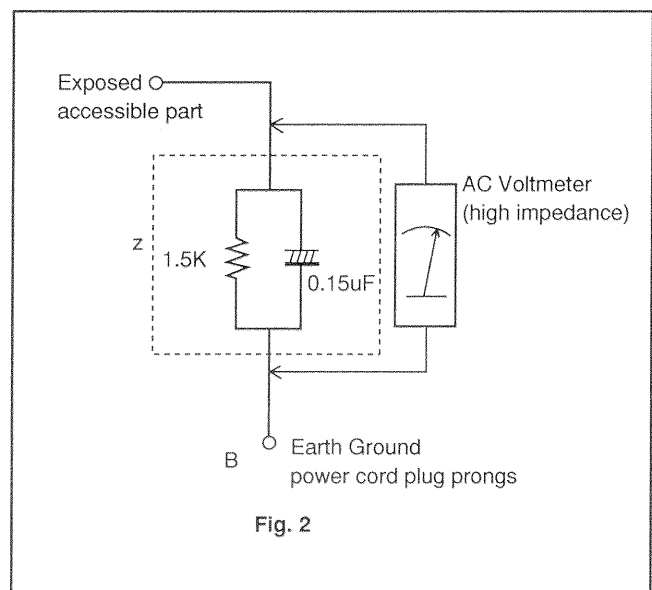
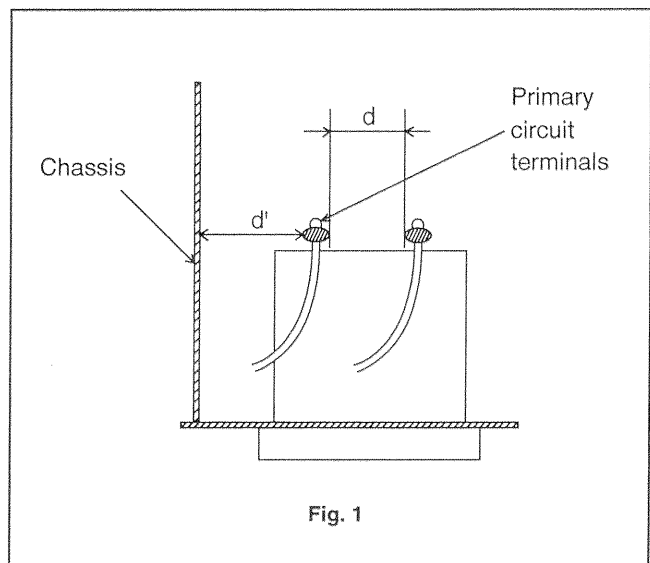


Table 2 : Leakage current ratings for selected areas

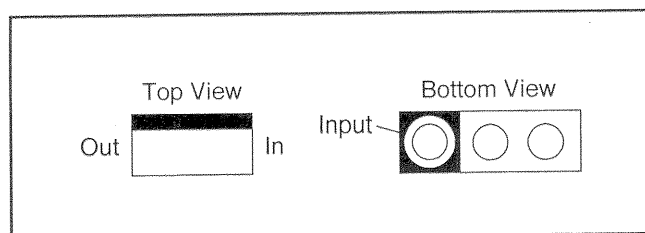
AC Line Voltage	Region	Load Z	Leakage Current (i)	Earth Ground (B) to:
110 to 130 V	USA	$0.15\mu F$ CAP. & $1.5k\Omega$ RES. connected in parallel	$i \leq 0.5$ mA rms	Exposed accessible parts

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

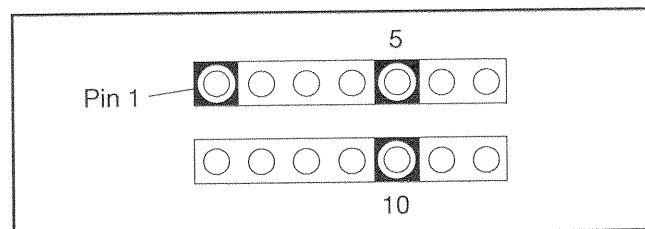
STANDARD NOTES FOR SERVICING

Circuit Board Indications

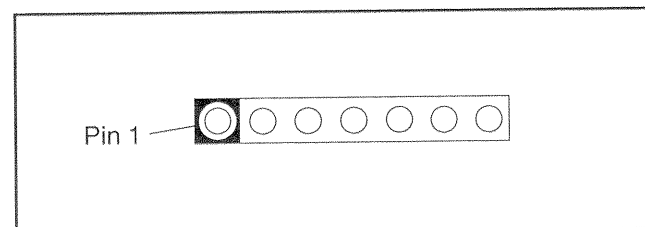
1. The output pin of the 3 pin Regulator ICs is indicated as shown:



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

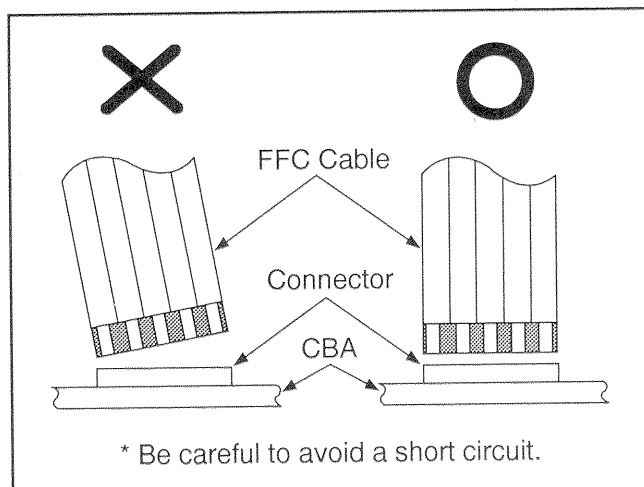


3. The 1st pin of every pin connector are indicated as shown:



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.

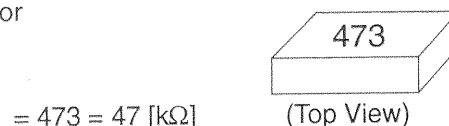


[CBA= Circuit Board Assembly]

How to Read the Values of the Rectangular Type Chip Components

Example:

- (a) Resistor



- (b) Capacitor



Caution:

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

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

- a. Soldering Iron
Use a pencil-type soldering iron (less than 30 watts).
- b. Solder
Eutectic solder (Tin 63%, Lead 37%) is recommended.
- 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.)

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:

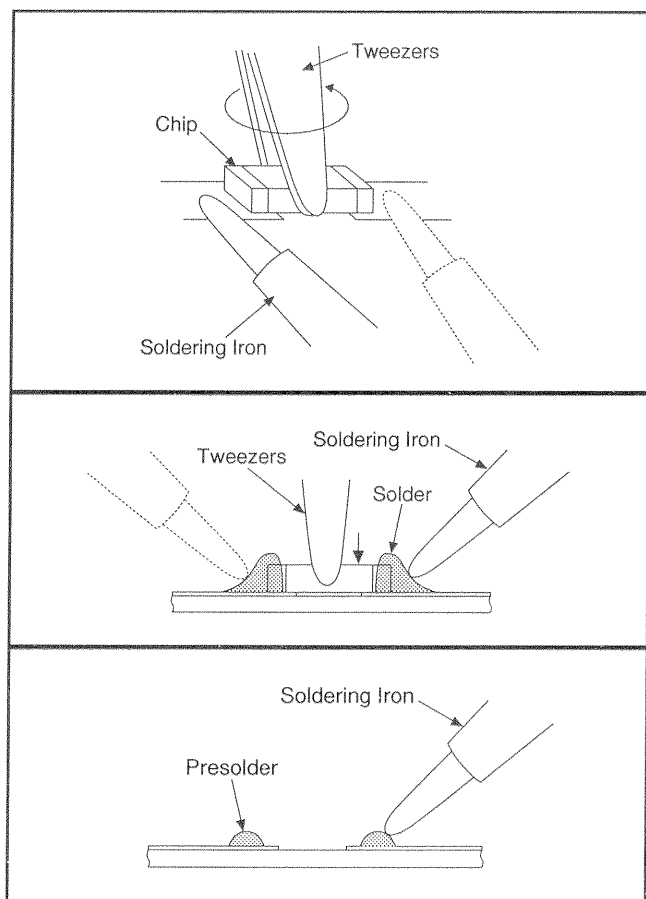
- a. Do not attempt to lift the component off the board until the component is completely disconnected from the board by the twisting action.
- b. Take care not to break the copper foil on the printed board.

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. 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)
2. 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:

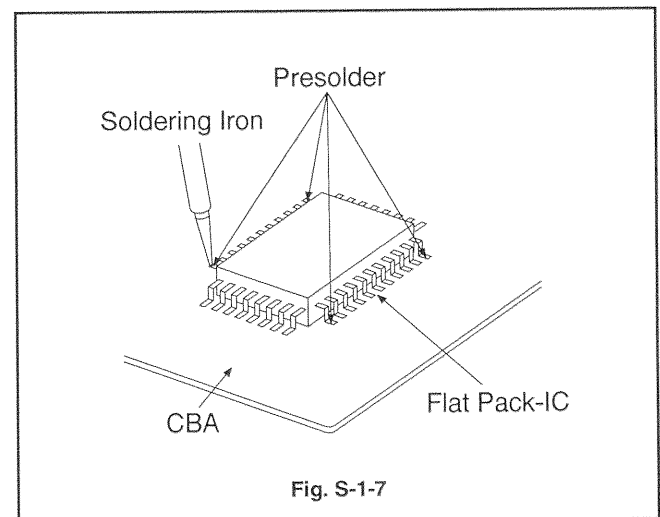
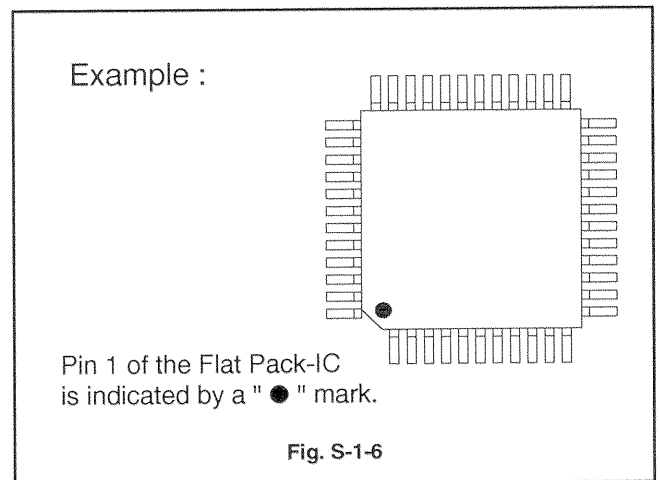
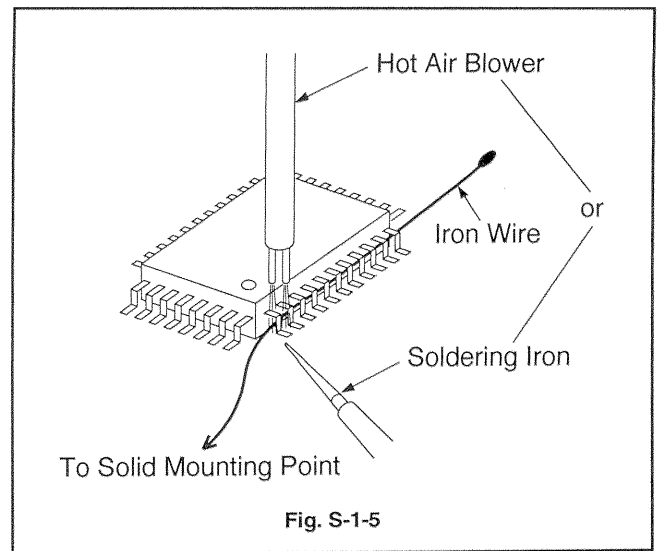
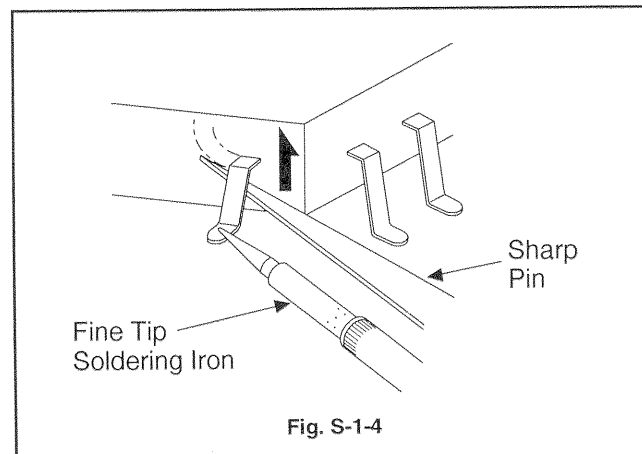
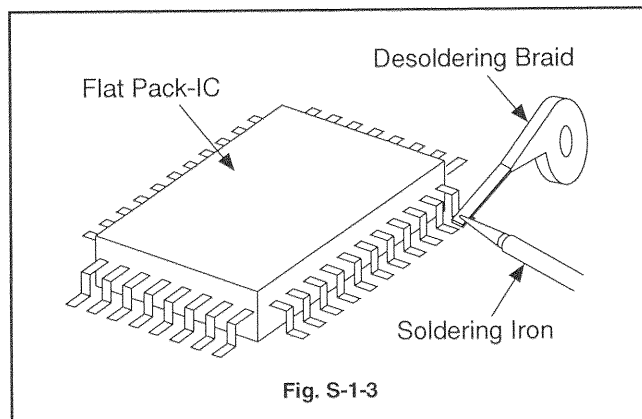
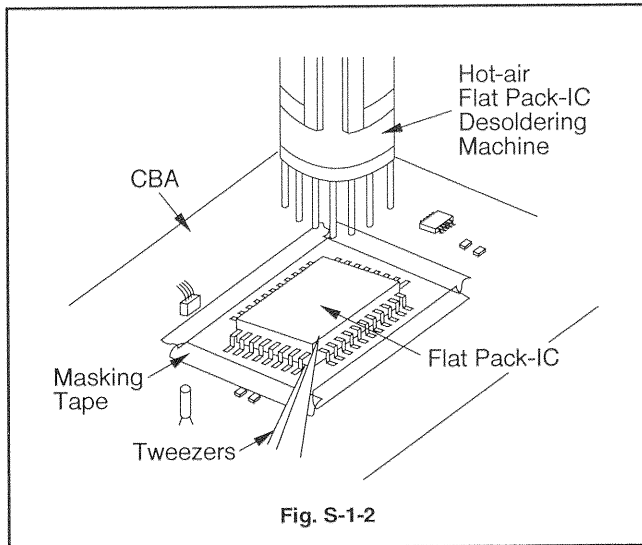
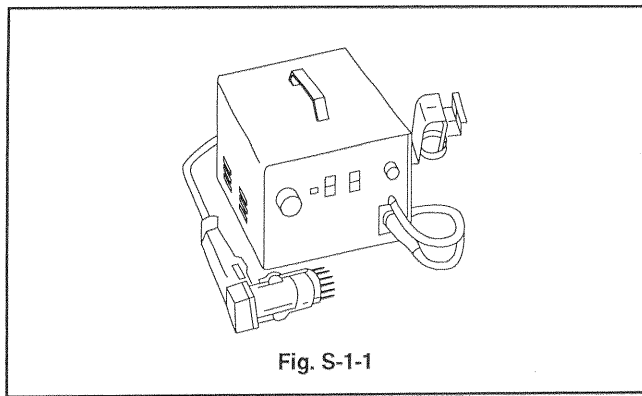
- a. Using desoldering braid, remove the solder from all pins of the Flat Pack - IC. When you use solder flux which is applied to all pins of the Flat Pack - IC, you can remove it easily. (Fig. S-1-3)
- b. Affix the wire to a workbench or solid mounting point, as shown in Fig. S-1-5.
- c. Pull up on 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.

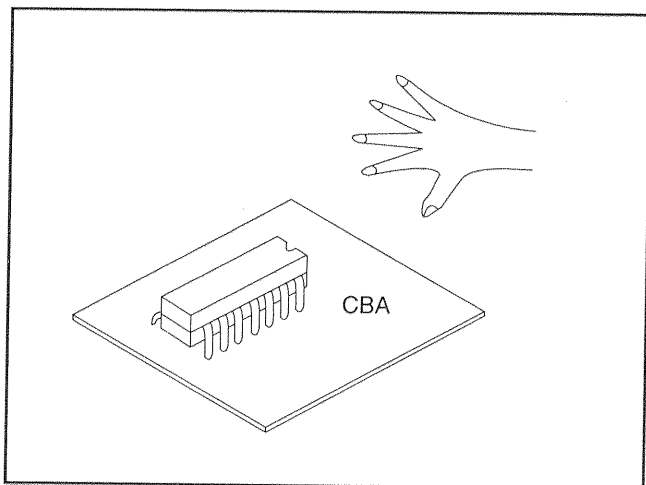
Ground for Human Body

Be sure to wear a grounding band ($1\text{M}\Omega$) that is properly grounded to remove any static electricity that may be charged on the body.

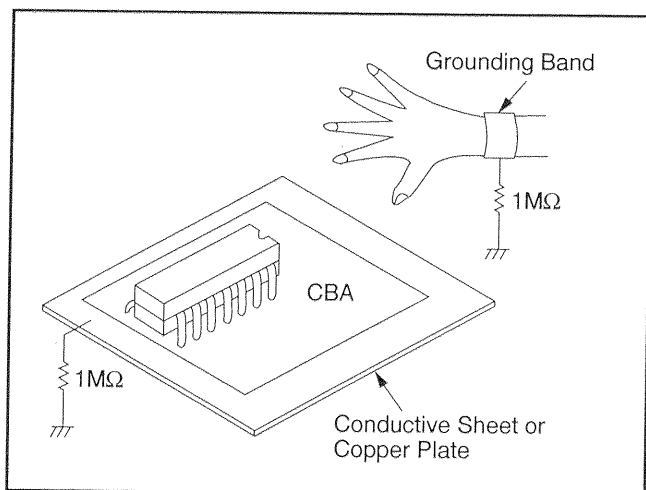
Ground for Work Bench

Be sure to place a conductive sheet or copper plate with proper grounding ($1\text{M}\Omega$) 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.

Incorrect



Correct



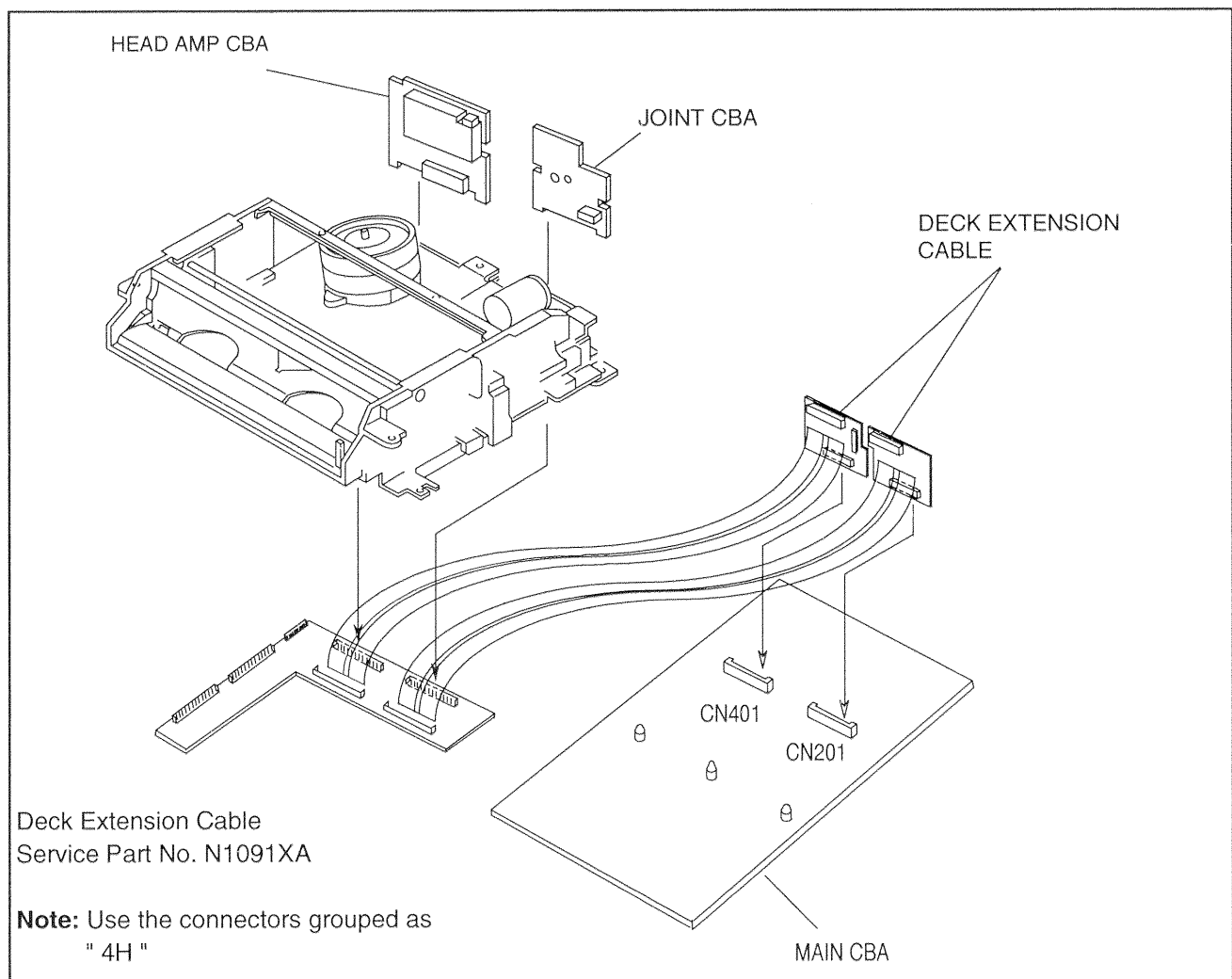
PREPARATION FOR SERVICING

How to Use Service Fixture

- (1) Remove Deck Mechanism Assembly.
If needed, remove VCR CBA from chassis.
- (2) Connect Deck Mechanism Assembly and VCR CBA by using the deck extension cable.

Note:

The deck extension cable can be used for both 4-head models and 2-head models.
Be sure to use correct connectors as specified.



How to Enter the Service Mode

Caution: 1

- Optical sensor system is 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 Q206 (START SENSOR) and Q205 (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

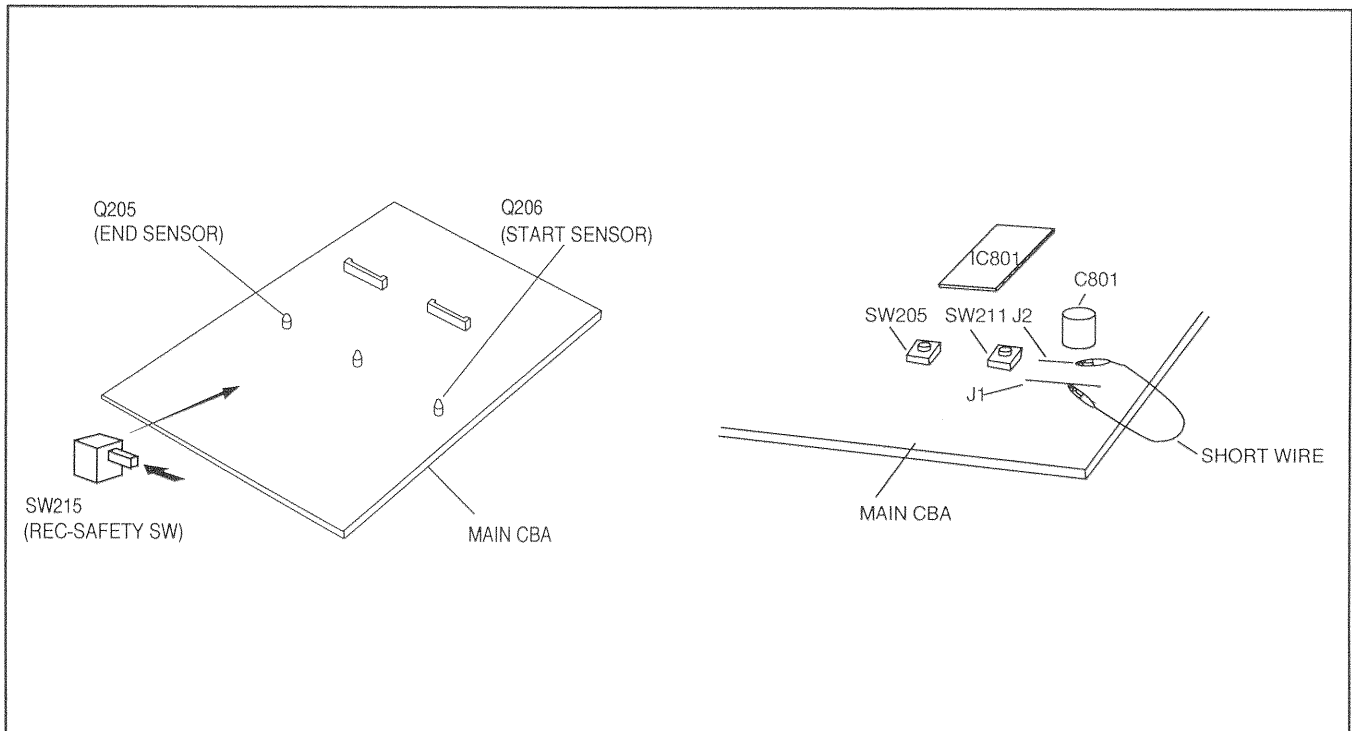
- Connect unit to an AC Outlet.
 - Turn Power On.
 - If - LANGUAGE SELECT - appears on the screen, Turn power off and on again.
 - Make a momentary connection (1/2 second) between J1 and J2. (Located on the Main CBA.)
 - Press No. 1 button on the Remote control unit for Cut-off adjustment.
- Note:** On this Service Mode, TV Screen shows only a Horizontal line.
- Press No. 2 button on the Remote control unit for AGC adjustment.

Caution: 2

- The deck mechanism assembly is mounted on the Main CBA directly, and SW215 (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.

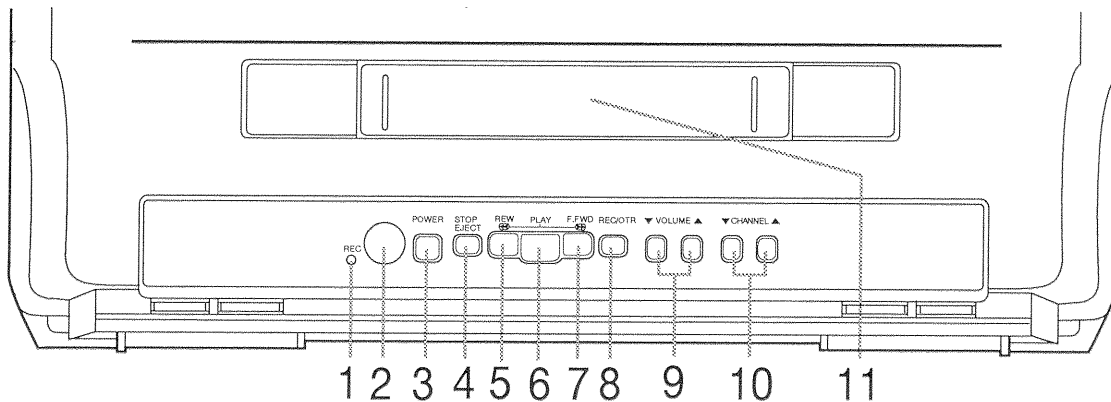
Preparing: 2

- 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 the SW215 (REC-SAFETY SW) on the Main CBA.

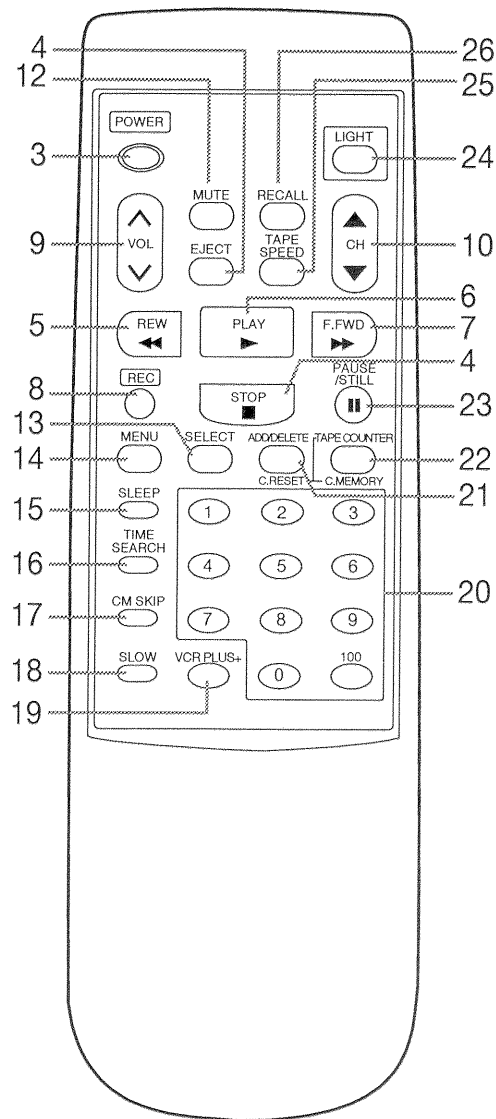


OPERATING CONTROLS AND FUNCTIONS

- FRONT VIEW -



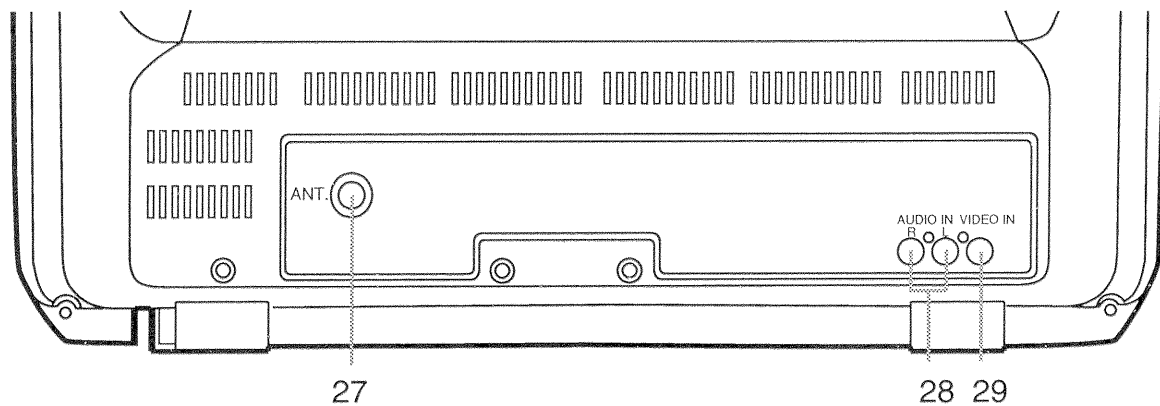
- REMOTE CONTROL VIEW -



- 1 **REC indicator**— Flashes during recording. Lights up in the Stand-by mode for Timer Recording.
- 2 **Remote sensor window**—Receives the infrared signals from the remote control.
- 3 **POWER button**— Press to turn TV/VCR on and off. Press to activate the automatic timer recording.
- 4 **STOP button** Press to stop the tape motion.
EJECT button— Press in the Stop mode to remove a tape from the TV/VCR.
- 5 **REW button**— Press to rewind the tape, or to view the picture rapidly in reverse during the Play mode. (Rewind Search)
- 6 **PLAY button**— Press to begin playback of a tape.
- 7 **F.FWD button**— Press to rapidly advance the tape, or to view the picture rapidly in forward during the Play mode. (Forward Search)
- 8 **REC button**— Press to begin manual recording.
OTR button— Press to activate One Touch Recording. (used on the TV/VCR only)
- 9 **VOLUME ▲/▼ buttons**— Press to adjust the volume level.
- 10 **CHANNEL ▲/▼ buttons**— Press to select the channel for viewing or recording.
PICTURE CONTROL function—They may also be used to adjust the picture control.
TRACKING +/- function— Press to minimize video 'noise' (lines or dots on screen) during the Play mode.
- 11 **Cassette compartment**

B7707IB

- REAR VIEW -



12 MUTE button— Press to mute sound. Press it again to resume sound.

13 SELECT button— When setting program (for example: setting clock or timer program), press to determine your selection and proceed to the next step you want to input.

Display function— Press to display the counter or the current channel number and current time on the TV screen.

14 MENU button— Press to display main menu on the TV screen.

15 SLEEP button— Press to set the Sleep Timer.

16 TIME SEARCH button— Press to activate Time Search mode.

17 CM SKIP button— Press to skip a commercial range of playing tape.

18 SLOW button— Press to reduce the playback speed.

19 VCR PLUS+ button— Press to activate the VCR Plus function.

20 Number buttons— Press to select desired channels, for viewing or recording. To select channels 1 to 9, first press the 0 button and then 1 to 9.

+100 button— Press to select cable channels which are equal or greater than number 100. (To select channel 125, first press "+100" button then press "2" and "5").

21 ADD/DELETE button— Press to delete or add channel numbers in the Channel Set Up mode (See page 14). Press to cancel a setting program (for example: setting clock or timer program)

(These functions are operative only when the menu is shown on the TV screen.)

TAPE COUNTER RESET button— Press to reset counter to 0:00:00.

22 TAPE COUNTER MEMORY button— Press to set counter memory on and off.

23 PAUSE/STILL button— Press to temporarily stop the tape during the recording or to view a still picture during playback.

Frame Advance Function— Press to advance the picture by one frame during the Still mode.

24 LIGHT button— Press to light up buttons. If it is dark, white buttons are lighted up to show these position.

25 TAPE SPEED button— Press to set desired recording speed. (SP/LP/SLP)

26 RECALL button— Press to go back to the previously viewed channel. For example, pressing this button once will change channel display from 3 (present channel) to 10 (previously viewed channel), and pressing it a second time will return from 10 to 3.

27 ANT. terminal— Connect to an antenna or CATV.

28 AUDIO input jack— Connect to audio output jack of your audio equipment or another VCR.

29 VIDEO input jack— Connect to video output jack of your video camera or another VCR.

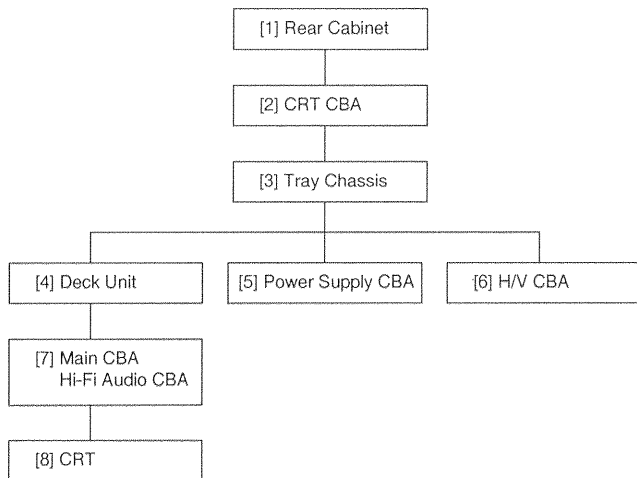
DISASSEMBLY INSTRUCTIONS

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

STEP/ LOC. NO.	PART	REMOVAL		
		FIG. NO.	REMOVE/*UNLOCK/ RELEASE/UNPLUG/ UNCLAMP/DESOLDER	NOTE
[1]	Rear Cabinet	1, 2	5(S-1), 3(S-2), (S-3)	1
[2]	CRT CBA	4, 5	CN503, CN575, CN602	2
[3]	Tray Chassis	3, 5	1(S-4), CN801	3
[4]	Deck Unit	3	5(S-5), 2(S-6)	4
[5]	Power Supply CBA	3, 5	CN601 2(S-7), 3(L-1)	5
[6]	H/V CBA	3	2(S-8), Anode Cap	6
[7]	Main CBA Hi-Fi Audio CBA	3, 5	2(S-9) CN403, CN906, CN904	7
[8]	CRT	4	4(S-10)	8

① ② ③ ④ ⑤

Note :

- 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.
- Parts to be removed or installed.
- Fig. No. showing Procedure of Part Location
- 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)
- Refer to the following "Reference Notes in the Table" following.

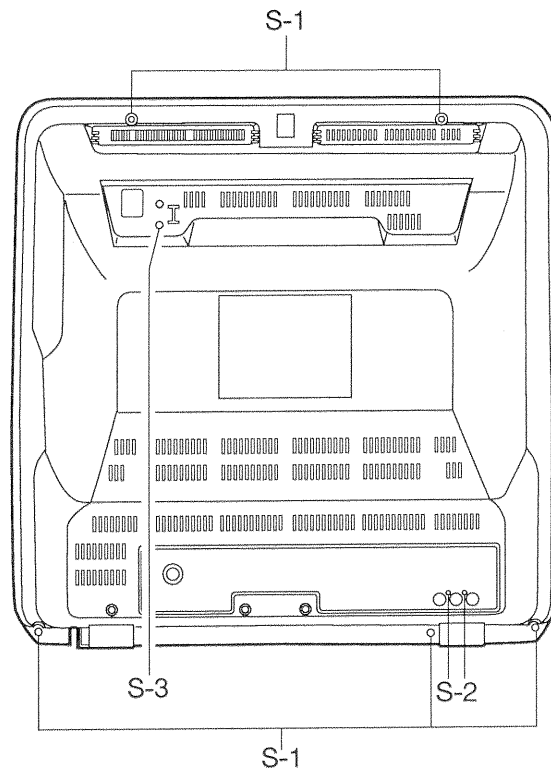
Reference Notes in the Table

- Remove Screws 5(S-1), 3(S-2) and 1(S-3).

Caution !!

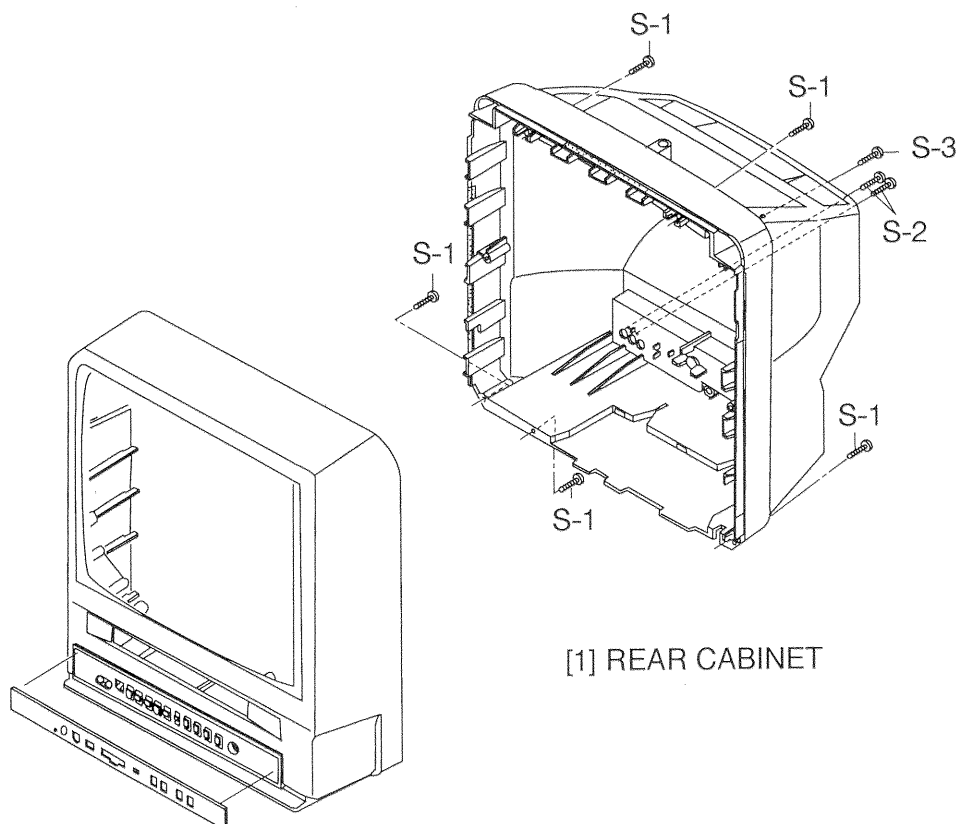
Discharge the Anode Lead of the CRT with the CRT Ground Wire before removing the Anode Cap.

- If not already removed, first remove the Rear Cabinet. Remove CRT Ground Wire CN503 on the CRT CBA, CN575, CN602 with coupling CBA. then pull the CRT CBA backward.
- If not already removed, first remove the Rear Cabinet. Remove Screw 1(S-4) and CN801. Pull the Tray Chassis backward.
- If not already removed, first remove the Rear Cabinet and remove Tray Chassis. Remove Screws 5(S-5), 2(S-6). Lift up the Deck unit. Careful for the clearance.
- If not already removed, first remove the Rear Cabinet. and remove Tray Chassis. Remove CN601. Remove Screw 2(S-7) . Release Locking Tab 3(L-1) and Pull the Power Supply CBA backward.
- If not already removed, first remove the Rear Cabinet. and remove Tray Chassis. Slide H/V CBA Holder backward. Remove Screws 2(S-8). If necessary Remove Anode Cap.
- If not already removed, first remove the Rear Cabinet. and remove Tray Chassis. Remove Screw (S-9) and Pull up the Main CBA. For Hi-Fi Audio CBA, Remove CN403, CN904 and CN906. Then Just pull it away from the cabinet.
- If not already removed, first remove the Rear Cabinet. and remove Tray Chassis. Remove Screws 4(S-10) and Pull the CRT backward.



[1] REAR CABINET

Fig. 1



[1] REAR CABINET

Fig. 2

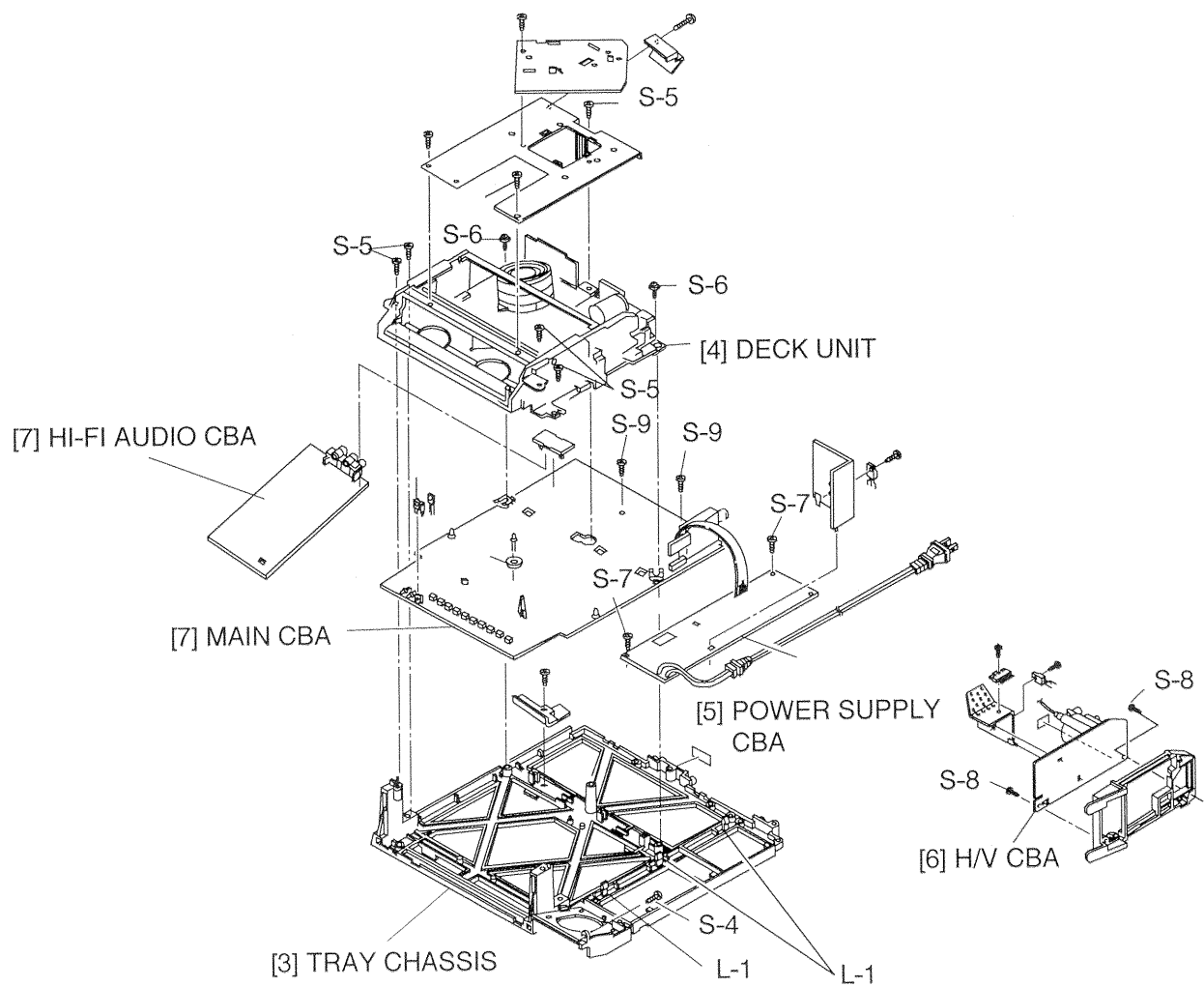


Fig. 3

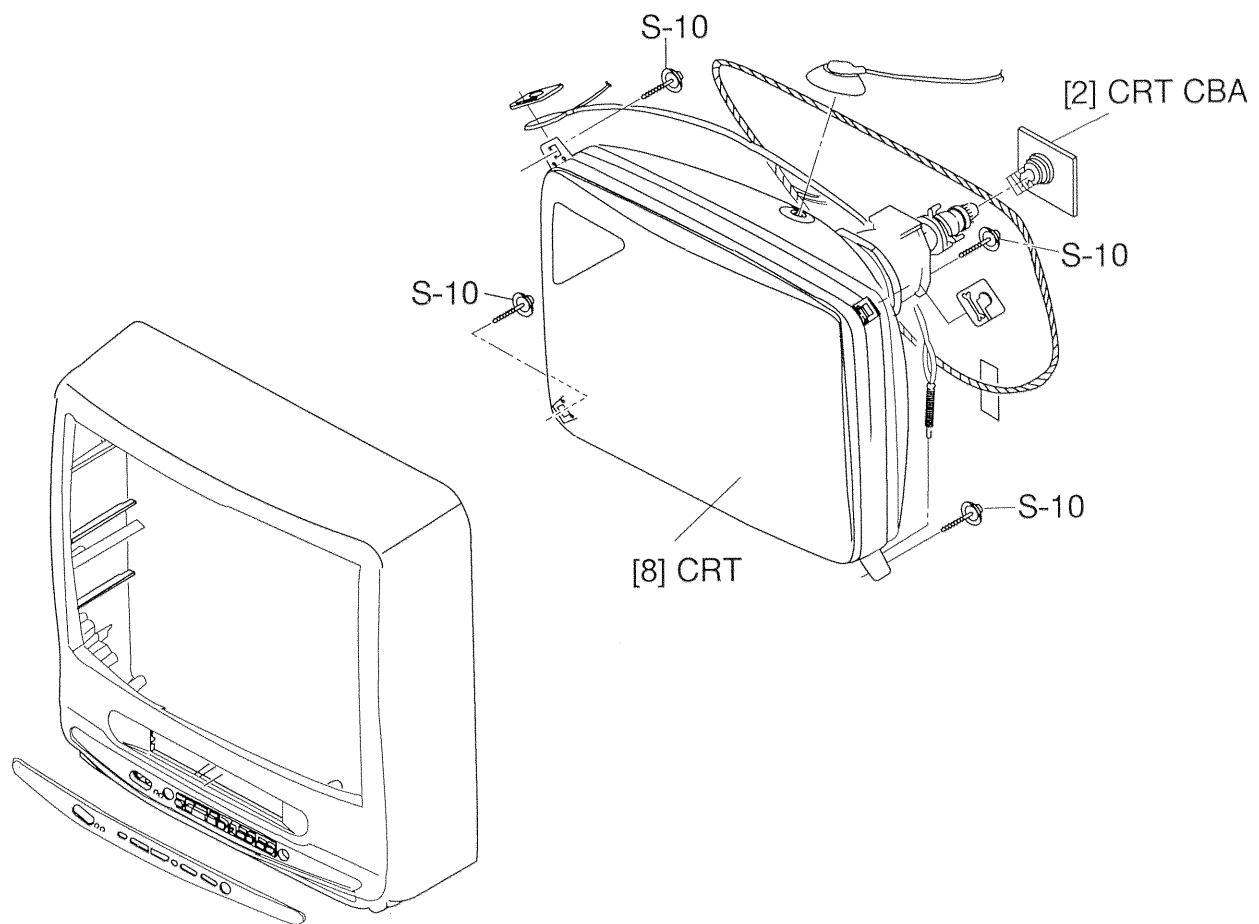


Fig. 4

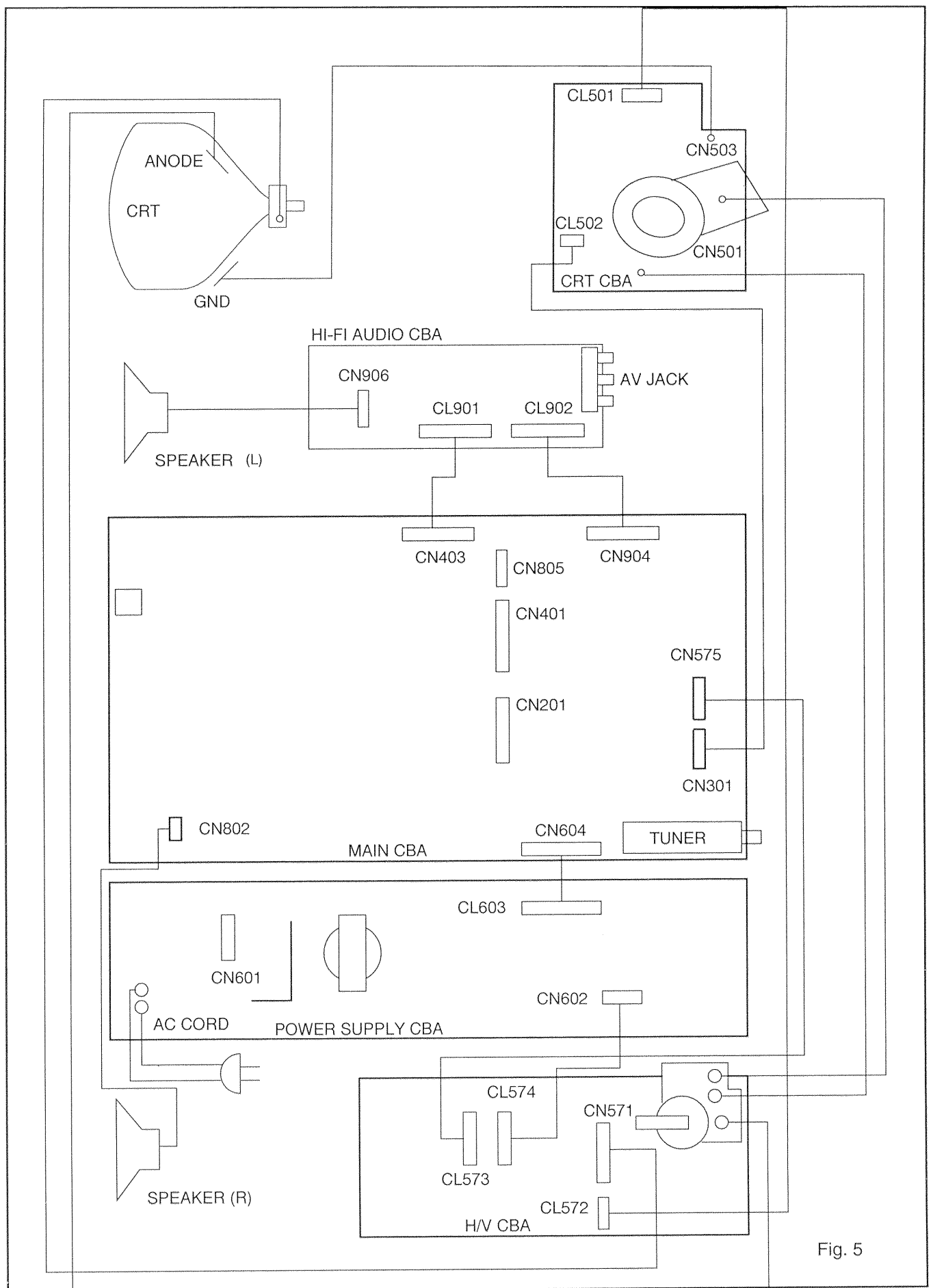


Fig. 5

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. NTSC Pattern Generator (Color Bar W/White Window, Red color, Dot Pattern, Gray Scale, Mnoscope Multi-Burst)
2. USA TV Multi Channel Sound Generator
3. Alignment Tape (FL8A, FL8N, F8-G/M), Blank Tape (Available Locally)
4. DC Voltmeter
5. Oscilloscope: Dual-trace with 10:1 probe, V-Range: 0.001~50V/Div, F-Range: DC~AC-60MHz
6. Frequency Counter
7. Plastic Tip Driver
8. TV Modulator
9. TV Up Converter

1. DC 112V Adjustment

Purpose: To obtain correct operation.

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

Test Point	Adjustment Point	Mode	Input
J608 (+112V) J607 (GND)	VR601	---	---
Tape	Measurement Equipment	Spec.	
---	DC Voltmeter	DC +112±0.5V	

Note: J608, J607(GND), VR601

--- Power Supply CBA

1. Connect DC Volt Meter to J608 and J607(GND).
2. Adjust VR601 so that the voltage of J608 becomes DC +112±0.5V.

2. AFT Adjustment

Purpose: To operate AFT correctly.

Symptom of Misadjustment: AFT does not work correctly and/or synchronization is faulty.

Test Point	Adjustment Point	Mode	Input
J252 (AFT) J213 (GND)	T301 (VCO)	---	See Direction
Tape	Measurement Equipment	Spec.	
---	Oscilloscope or DC Volt Meter	DC +4.2±0.1V	

Figure

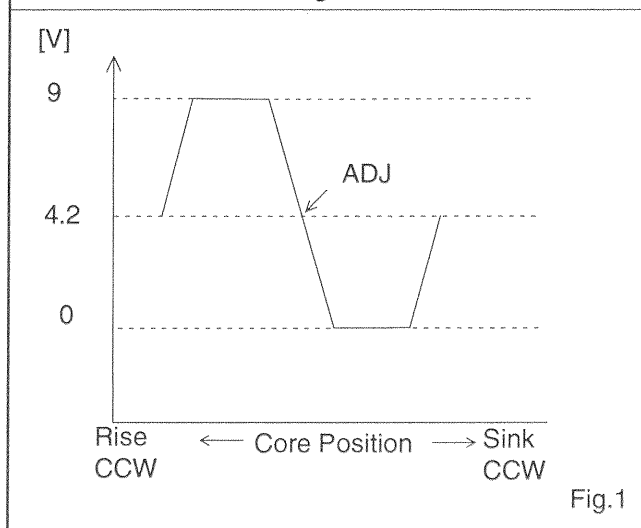


Fig.1

Note: J252, J213(GND), T301 --- Main CBA

1. Disconnect the RF input and Set the unit to Channel 4.
2. Reconnect the RF input. Input Color Bar signal.
3. Turn the core of T301 fully counterclockwise.
4. Turn the core of T301 clockwise and find the point where the voltage drops from approximately 9V to 0V immediately on the oscilloscope. (J252)
5. Turn the core of T301 little by little and find the point where DC +4.2±0.1V is obtained between the area mentioned in step 3.

3. AGC Adjustment

Purpose: Set AGC (Auto Gain Control) Level.

Symptom of Misadjustment: AGC does not synchronize correctly when RF input level is too weak and picture distortion may occur if it is too strong.

Test Point	Adjustment Point	Mode	Input
J269 (AGC) J213 (GND)	CH. Up/Down Button (Remote Control Unit)	---	Color Bar 67.25MHz 80dBμV
Tape	Measurement Equipment	Spec.	
---	Pattern Generator DC Volt Meter	DC +3.2(or 2.9)±0.1V By Tuner Type	

Note: J269, J213(GND) --- Main CBA

1. Enter the Service mode. (See Page 1-4-2) Then press number 2 button on the remote control unit.
2. Receive the Color Bar signal for channel 4 (67.25MHz). (RF Input Level: 80dBμV)
3. Press the CH. Up/Down button so that the voltage at J269 is as follows:

Installed Tuner Type in Unit	Adjusted DC Voltages
TELH9-009A/012A/013A	DC +3.2±0.1V.
B8015AP	DC +2.9±0.1V.

4. H. Shift 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	Adjustment Point	Mode	Input
---	Screen	play	Monoscope
Tape	Measurement Equipment	Spec.	
---	Pattern Generator	See below	

1. Input the Monoscope Pattern.
2. Enter the Service mode. (See page 1-4-2) Then press number 4 button on the remote control unit.
3. Press CH. UP/DOWN Button so that the picture will stay on center.

5. V. Size Adjustment

Purpose: To obtain correct vertical width 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	Adjustment Point	Mode	Input
---	VR541 (V. Size)	Play	Monoscope
Tape	Measurement Equipment	Spec.	
---	Pattern Generator	90±5%	

Note: VR541--- H/V CBA

1. Operate the unit for at least 20 minutes.
2. Input a Monoscope Pattern Signal.
3. Adjust VR541 so that the monoscope pattern will be 90±5% of display size and the circle is round.

Note: If you don't have Monoscope, play test tape (F8-G or F8-M)

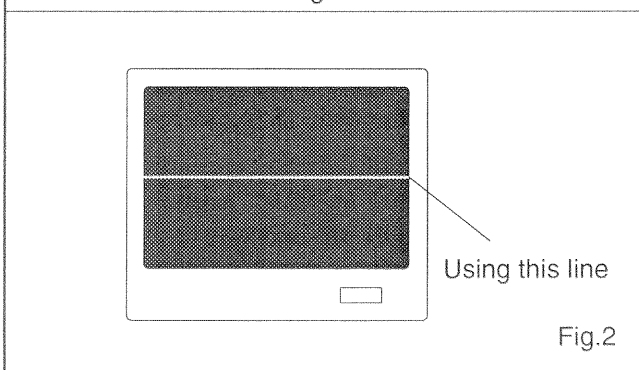
6. Cut-off Adjustment

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	Adjustment Point	Mode	Input
---	VR501 (R-Drive) VR502 (R-Cutoff) VR503 (G-Cutoff) VR504 (B-Drive) VR505 (B-Cutoff) Screen-Control	---	White Raster (APL 100%)
Tape	Measurement Equipment	Spec.	
---	Pattern Generator	See Reference below.	

Figure



Notes: VR501, VR502, VR503, VR504, VR505
--- CRT CBA

Screen Control --- H/V CBA

F.B.T= Fly Back Transformer

1. Degauss the CRT and allow CRT to operate for 20 minutes before starting the alignment.
2. Input a White Raster Test Signal (APL 100%).
3. Pre-set the Screen Control located on the FBT to minimum (Fully Counter Clock Wise).
4. Pre-set VR502 (R-Cutoff), VR503 (G-Cutoff), and VR505 (B-Cutoff) to the 10 o'clock position.
5. Pre-set VR504 (B-Drive) and VR501 (R-Drive) to their center positions.
6. Enter the Service Mode. (See page 1-4-2)
Then press the number 1 button on the Remote control unit.
7. Gradually turn the Screen Control (Clock Wise) until a horizontal line, of any color dimly appears.
8. Turn the Red, Blue or Green Cutoff controls up to achieve a "white" dim line.
9. Power off and power on again.

7. White Balance Adjustment

Note: The Cut-off Adjustment must be finished before making this adjustment.

Purpose:

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

Symptom of Misadjustment:

White becomes bluish or reddish.

Test Point	Adjustment Point	Mode	Input
---	VR501 (R.DRIVE) VR504 (B.DRIVE)	---	White Raster (APL 100%)
Tape	Measurement Equipment	Spec.	
---	Pattern Generator	See Reference Note below.	

Note: VR501, VR504 --- CRT CBA

1. Operate the unit for at least 20 minutes.
2. Face the unit to the east. Degauss the CRT using Degaussing Coil.
3. Input a White Raster signal (APL 100%)
4. Adjust VR501(R. DRIVE) and VR504(B. DRIVE) so that the White Raster is shown as Pure White.

Note:

Check that Cut Off Adj. is correct after this adjustment, and Repeat Cut Off Adj. if needed.

8. 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	Adjustment Point	Mode	Input
---	Screen Control	---	Gray Scale
Tape	Measurement Equipment	Spec.	
---	Pattern Generator	See Reference Note Below	

Figure

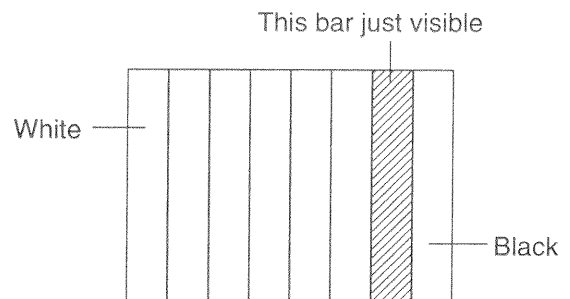


Fig.3

Note: Screen Control --- H/V CBA

1. Operate the unit for at least 20 minutes.
2. Input a 8-step Gray Scale Signal.
3. Adjust Screen Control so that the 2nd bar is just visible (See above figure).

9. Focus Adjustment

Purpose: Set the optimum Focus.

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

Test Point	Adjustment Point	Mode	Input
---	Focus Control	---	Monoscope
Tape	Measurement Equipment	Spec.	
---	Pattern Generator	See below.	

Note: Focus Control (FBT) --- H/V CBA

FBT= Fly Back Transformer

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

10. Head Switching Position Adjustment

Purpose: Determine the Head Switching Point during Play back.

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

Note: Unit reads Head Switching Position automatically and display it on the screen.

1. Play back test tape (FL8A) and Enter the Service Mode. (See page 1-4-2)
2. Press the number 5 button on the Remote Control Unit so that the value of Head Switching Position is displayed on the screen. If the test tape has 6.5H(412.7 μ s) Head Switching Point, Same number will display on the screen.
3. If the Adjustment is necessary, Follow Step 4.
4. Press CH UP or DOWN button on the Remote Control Unit if necessary then Value will be changed in 0.5H step up or down. Adjustable Range is up to 9.5H. If the values beyond adjustable range, display will change as:
Lower out of range; 0.0H
Upper out of range; -.H

11. SIF Adjustment

Purpose: To set the SIF (Sound Intermediate Frequency).

Symptom: Audio may not sound correctly.

Test Point	Adjustment Point	Mode	Input
J247 (SIF)	T302	---	Color Bar
Tape	Measurement Equipment	Spec.	
---	Pattern Generator Digital Volt Meter	See below.	

Note: J247, T302 --- Main CBA

1. Receive Color Bar signal at any channel.
2. Connect Digital Volt Meter to J247.
3. Adjust T302 so that the voltage of TP SIF becomes DC +3.1 $\pm$ 0.1V.

12-1. FM Audio Carrier Frequency (1.3MHz) Adjustment

Purpose: To set the FM audio carrier frequency to the optimum level.

Symptom of Misadjustment: Cannot playback Hi-Fi audio signal correctly which is recorded on the tape by another VCR, and vice versa.

Test Point	Adj. Point	Mode	Input
J23 (FM-A-REC) J74 (GND)	VR901 (CAR 1.3MHz) (Hi-Fi Audio CBA)	Rec	—
Tape	Measurement Equipment	Spec.	
Blank	Audio Analyzer	1300±10 kHz	

Figure

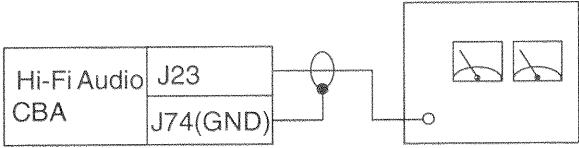


Fig.4

Note: J23, VR901, J74 (GND) : Hi-Fi Audio CBA

1. Connect the Audio Analyzer to J23 and J74(GND).
2. Adjust VR901 so that the frequency of the Lch becomes 1300 $\pm$ 10 kHz.

12-2. FM Audio Carrier Frequency (1.7MHz) Adjustment

Purpose: To set the FM audio carrier frequency to the optimum level.

Symptom of Misadjustment: Cannot playback Hi-Fi audio signal correctly which is recorded on the tape by another VCR, and vice versa.

Test Point	Adj. Point	Mode	Input
J23 (FM-A-REC) J74 (GND)	VR901 (CAR 1.7MHz) (Hi-Fi Audio CBA)	Rec	—
Tape	Measurement Equipment	Spec.	
Blank	Audio Analyzer	1700±10kHz	

Figure

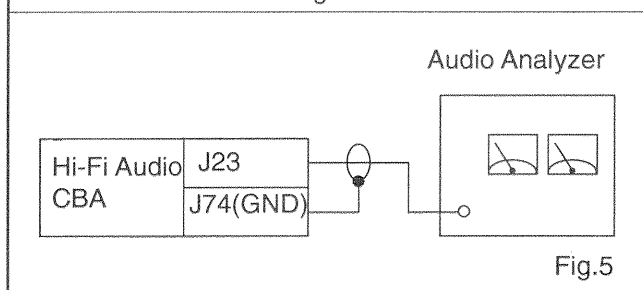


Fig.5

Note: J23, J74 (GND), VR901 : Hi-Fi Audio CBA

1. Connect the Audio Analyzer to J23 and J74 (GND).
2. Adjust VR901 so that the frequency of the R ch becomes 1700±10kHz.

13. Stereo/SAP Filter Adjustment

Purpose: To set the carrier of Stereo/SAP detection filter properly.

Symptom of Misadjustment: Can't receive Stereo and SAP broadcast.

Test Point	Adjustment Point	Mode	Input
J78(MPX) J72 (FILTER) J74 (GND)	VR752 (FILTER) (Hi-Fi Audio CBA)	E-E	22.9kHz 100mVrms (283mVp-p)
Tape	Measurement Equipment	Spec.	
—	Audio Generator Oscilloscope	—	

Figure

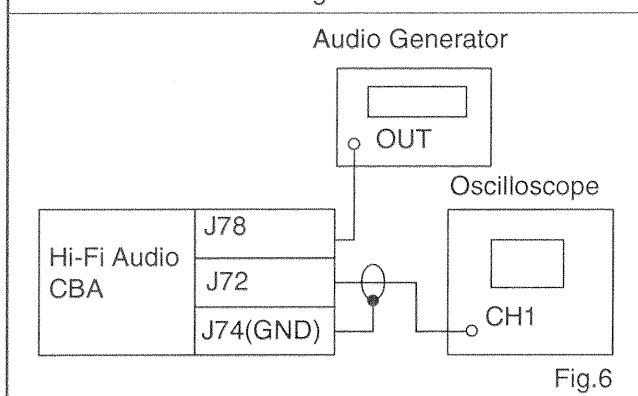


Fig.6

Note: J78, J72, J74(GND), VR752 : Hi-Fi Audio CBA

1. Receive a stereo broadcasting station by using the tuner.
2. Input a 22.9KHz, 100mVrms (283mVp-p) from the audio generator to J78.
3. Connect the Oscilloscope to J72 and J74(GND).
4. Adjust VR752 so that the output level becomes minimum.

Note:

After this adjustment, be sure to do the VCO and MTS Block Separation adjustment.

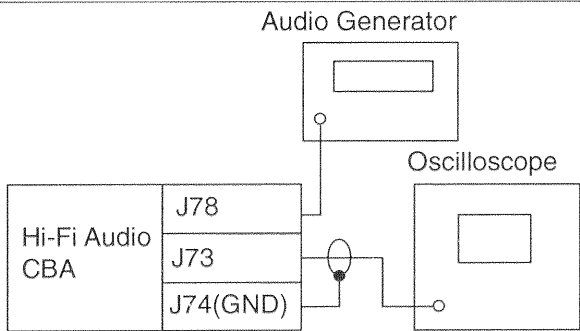
14. VCO Adjustment

Purpose: To adjust the reference signal of Stereo/SAP carrier properly.

Symptom of Misadjustment: Can't receive Stereo and SAP broadcast.

Test Point	Adjustment Point	Mode	Input
J78(MPX) J73(VCO) J77(ST-L) J74(GND)	VR753 (VCO) (Hi-Fi Audio CBA)	E-E	15.734kHz, 49mVrms (139mVp-p)
Tape	Measurement Equipment	Spec.	
—	Audio Generator Oscilloscope	—	

Figure



The diagram illustrates the test setup for the VCO adjustment. It features a 'Hi-Fi Audio CBA' block with three connection points: J78, J73, and J74(GND). An 'Audio Generator' is connected to J78. An 'Oscilloscope' is connected to J73. The ground connection J74(GND) is also shown. The entire setup is labeled 'Figure' and 'Fig.7'.

Note: J78, J73, J77, J74(GND) ,VR753:
-----Hi-Fi Audio CBA

1. Set the oscilloscope to DC input mode and set voltage range as high as possible so that the waveform is at the center of picture.
2. Input a 15.734kHz, 49mVrms (139mVp-p) signal to J78 using the audio generator.
3. Adjust VR753 so that the DC level of J77 becomes 0V.
4. Input no signal to J78 and check DC level of J73. Next input 15.734kHz, 49mVrms (139mVp-p) signal to J78 and check DC level of J73. Adjust VR753 so that the level become equal under both conditions.

Note :

Be sure to do the Stereo/SAP Filter and MTS Block Separation adjustments together with adjustment.

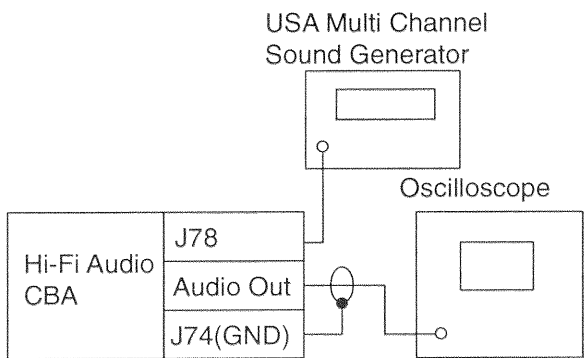
15. MTS Block Separation Adjustment

Purpose: To remove the Crosstalk between the Left and Right Channel audio outputs.

Symptom of Misadjustment: Voice signal of L ch and R ch may be mixed under E-E and/or REC mode.

Test Point	Adjustment Point	Mode	Input
J78 (MPX) Audio Out (R) J74(GND)	VR755 (SEP 300) (Hi-Fi Audio CBA) VR754 (SEP 3K) (Hi-Fi CBA)	Tuner (Stereo)	1kHz Mono 100%= 100mVr ms (283mVp -p)
Tape	Measurement Equipment	Spec.	
—	Oscilloscope USA TV Multi Channel Sound Generator	—	

Figure



The diagram illustrates the setup for MTS Block Separation Adjustment. It features a 'Hi-Fi Audio CBA' block with three terminals: 'J78', 'Audio Out', and 'J74(GND)'. A 'USA Multi Channel Sound Generator' is connected to the 'J78' terminal. The 'Audio Out' terminal is connected to an 'Oscilloscope'. The 'J74(GND)' terminal is also connected to the 'Oscilloscope' ground. The diagram is labeled 'Fig. 8'.

Note: J78, VR754, J74(GND), VR755 : Hi-Fi Audio CBA

1. Input a 1kHz Mono 100%= 100mVrms to J78. Next set the sound generator to; Tone: 300Hz, Modulation: 20% (-13.9dB), Pilot: ON, NR: ON, PRE-EN: IN, L only mode.
2. Adjust VR755 so that the output level becomes minimum.
3. Select Tone: 3kHz signal and adjust VR754 so that the output from the Rch becomes minimum.
4. Repeat steps 2 to 3 several times to achieve the best results.

Note:

Be sure to do the Stereo/SAP filter and VCO Adjustments before this adjustment.

16. Separation Adjustment

Caution: Do not attempt to do this adjustment without the equipment specified below.

Purpose: To set the audio output level of the tuner properly.

Symptom of Misadjustment: Audio signal of L ch and R ch may be mixed under E-E and/or REC mode.

Test Point	Adjustment Point	Mode	Input
Antenna In J61(Audio Out R) J74(GND)	VR305(MPX.) (MAIN CBA)	Tuner (Stereo)	Color Bar with 100% White, 87.5% 300Hz or 3kHz Stereo (L ch Only)20% (-13.9dB) modulation
Tape	Measurement Equipment	Spec.	
—	TV Monitor Oscilloscope USA TV Multi Channel Sound Generator Generator TV Modulator TV Up Converter Video Pattern Generator	—	

Figure

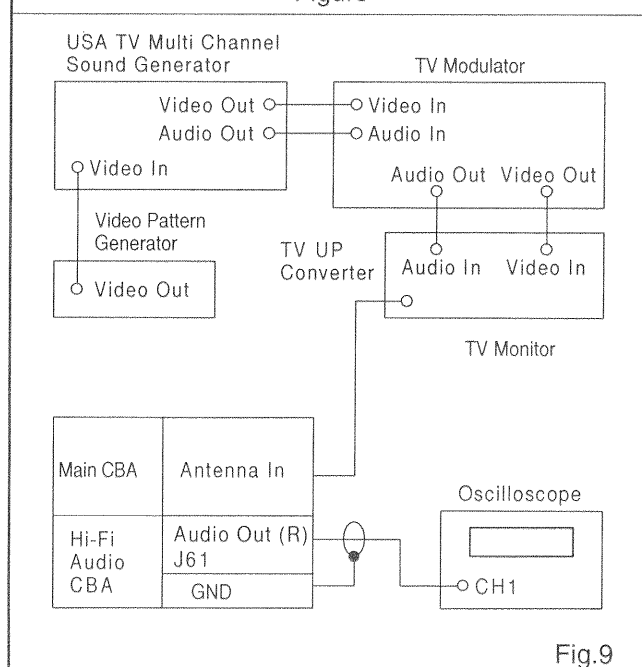


Fig.9

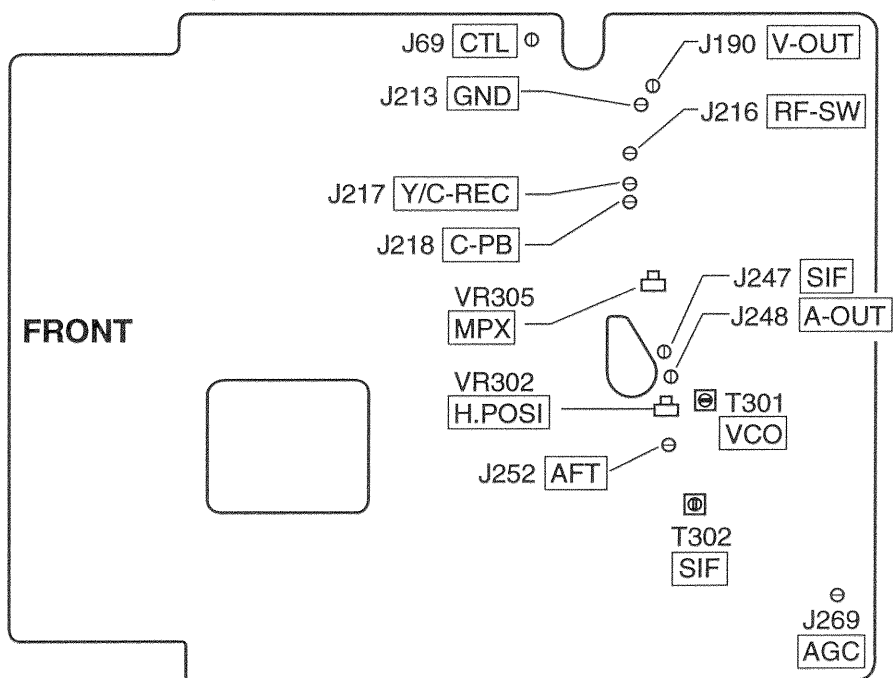
Notes: Antenna In, VR305: Main CBA

J61(Audio-Out R), J74(GND) : Hi-Fi Audio CBA

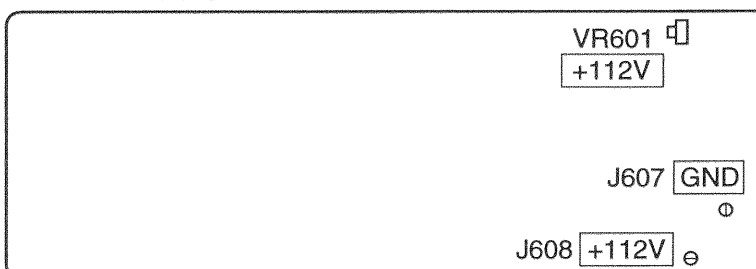
1. Output a color bar with 100% white from the video pattern generator, then make 87.5% modulation by the TV modulator.
2. Output a 1kHz Mono 100% signal from the sound generator, then set 25kHz deviation exactly by the sound generator.
3. Set the sound generator to;
Tone: 300Hz, Modulation: 20% (-13.9 dB), Pilot: ON, NR: IN, PRE-EN: IN, L only mode.
4. Set the TV up converter to 70 dB μ , ch 10 (193.25kHz), then set the channel of the VCR to ch10.
5. Confirm the word "STEREO" appears on the TV monitor. Adjust VR305 to obtain minimum level of R ch.
6. Select tone: 3kHz signal then check if signal leakage of R ch is less than the leakage under Tone: 300Hz signal. If not adjust VR305.

Adjustment Points and Test Points

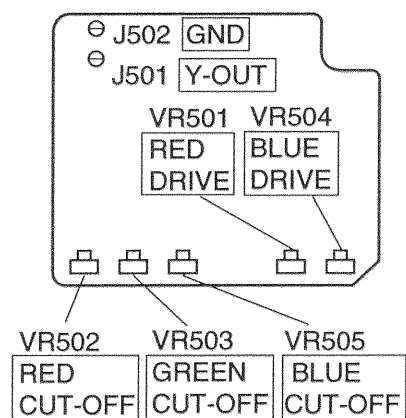
Main CBA Top View



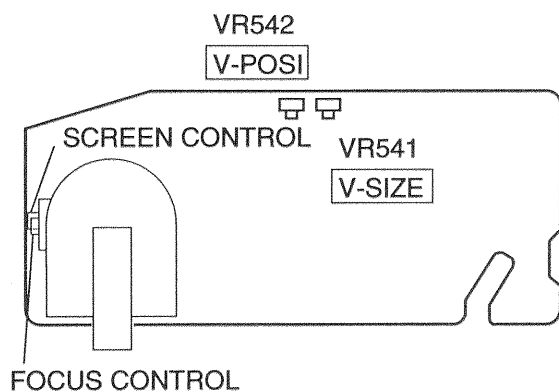
Power Supply CBA Top View



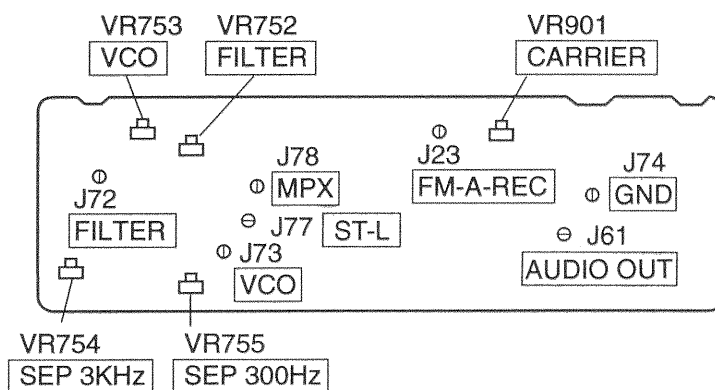
CRT CBA Top View



H/V CBA Top View



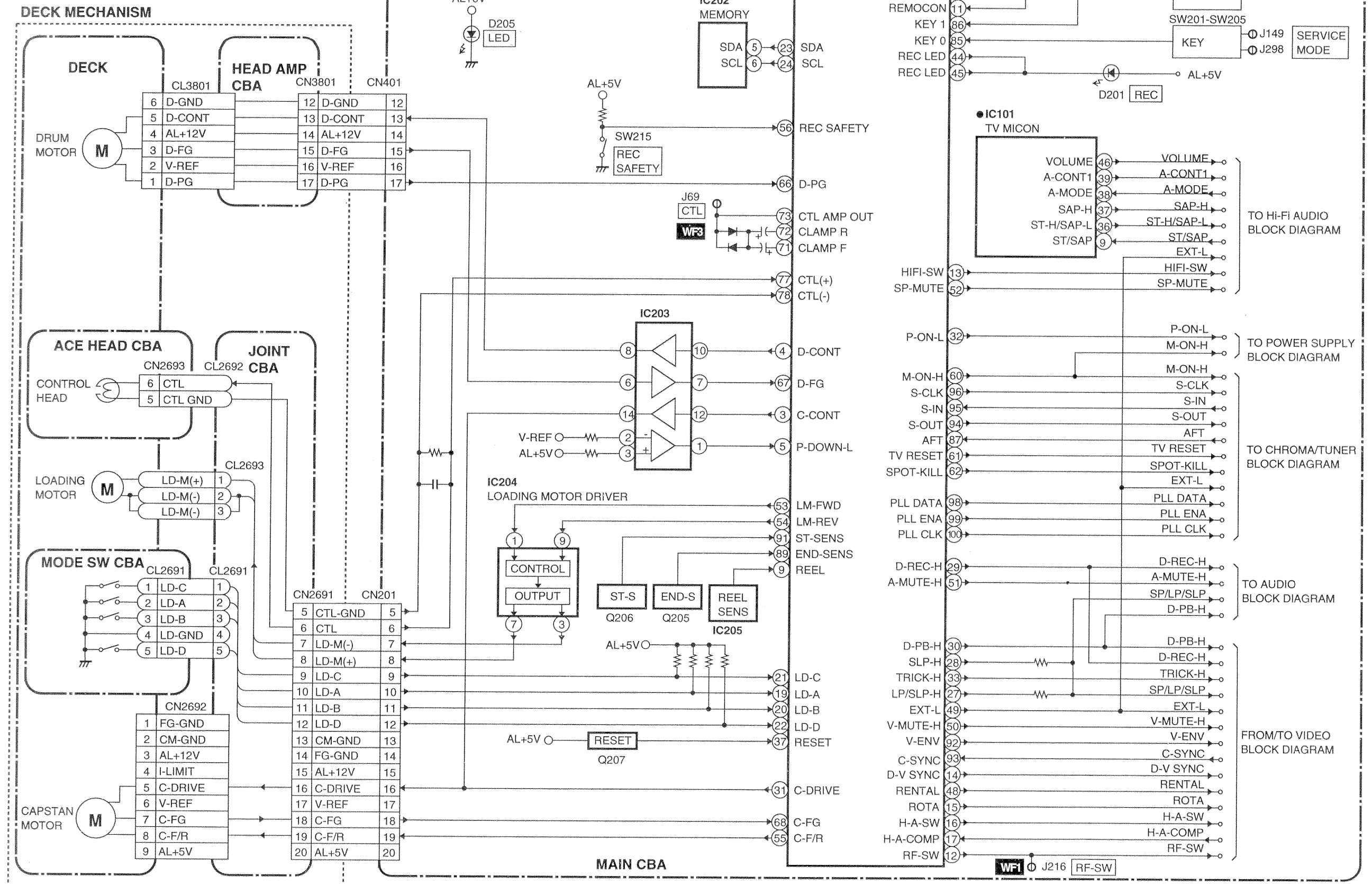
Hi-Fi Audio CBA Top View



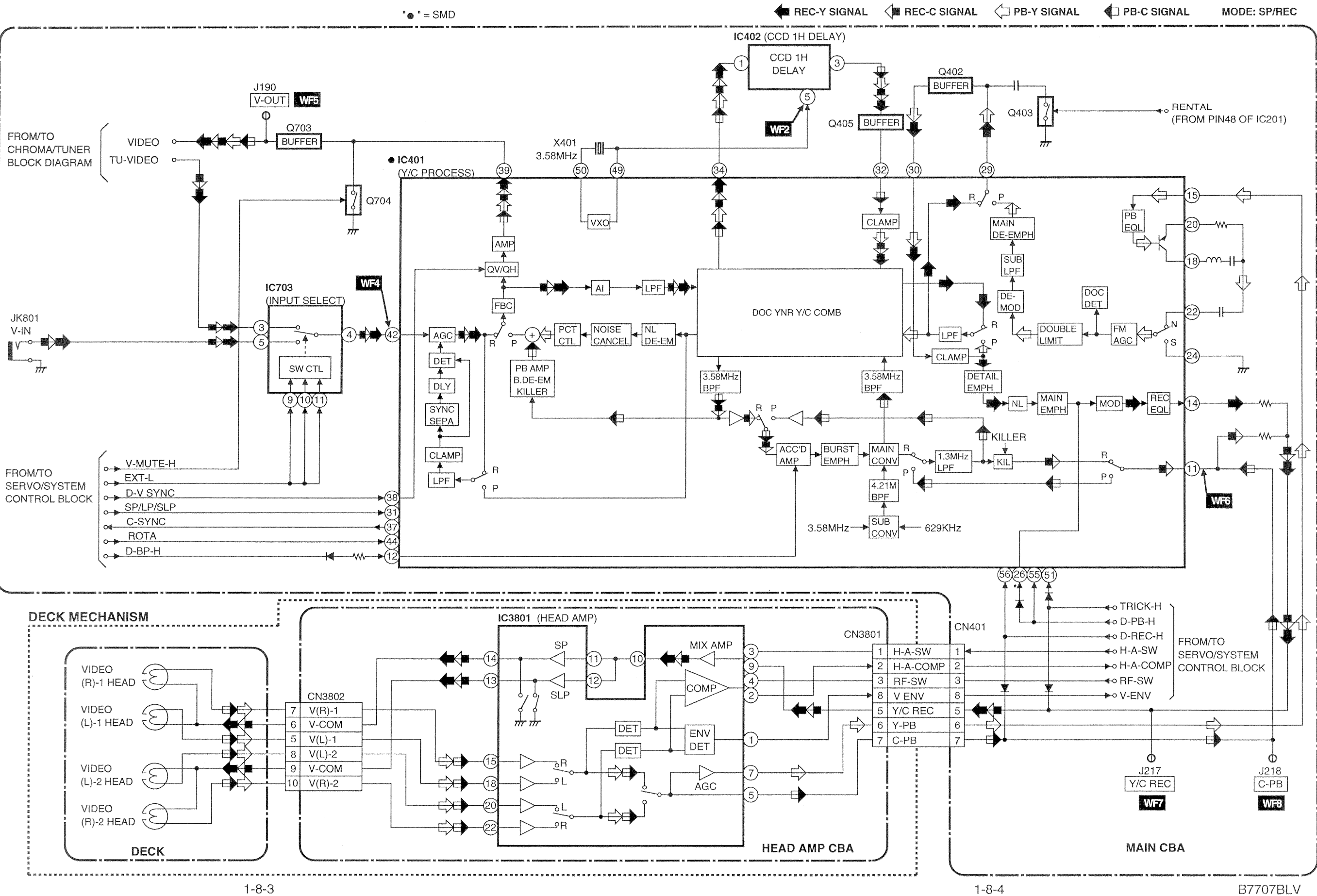
Servo/System Control Block Diagram

BLOCK DIAGRAMS

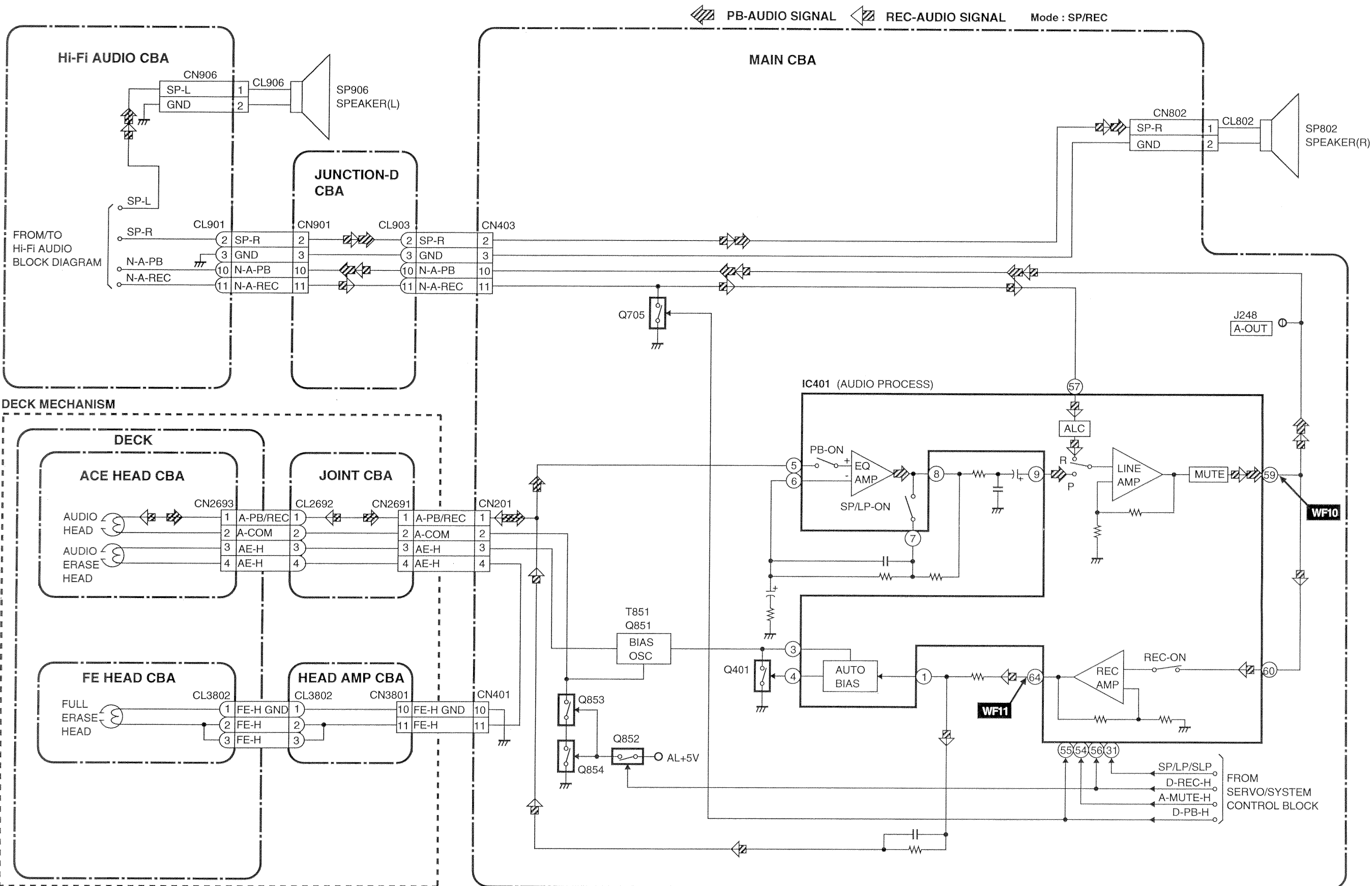
"•" = SMD



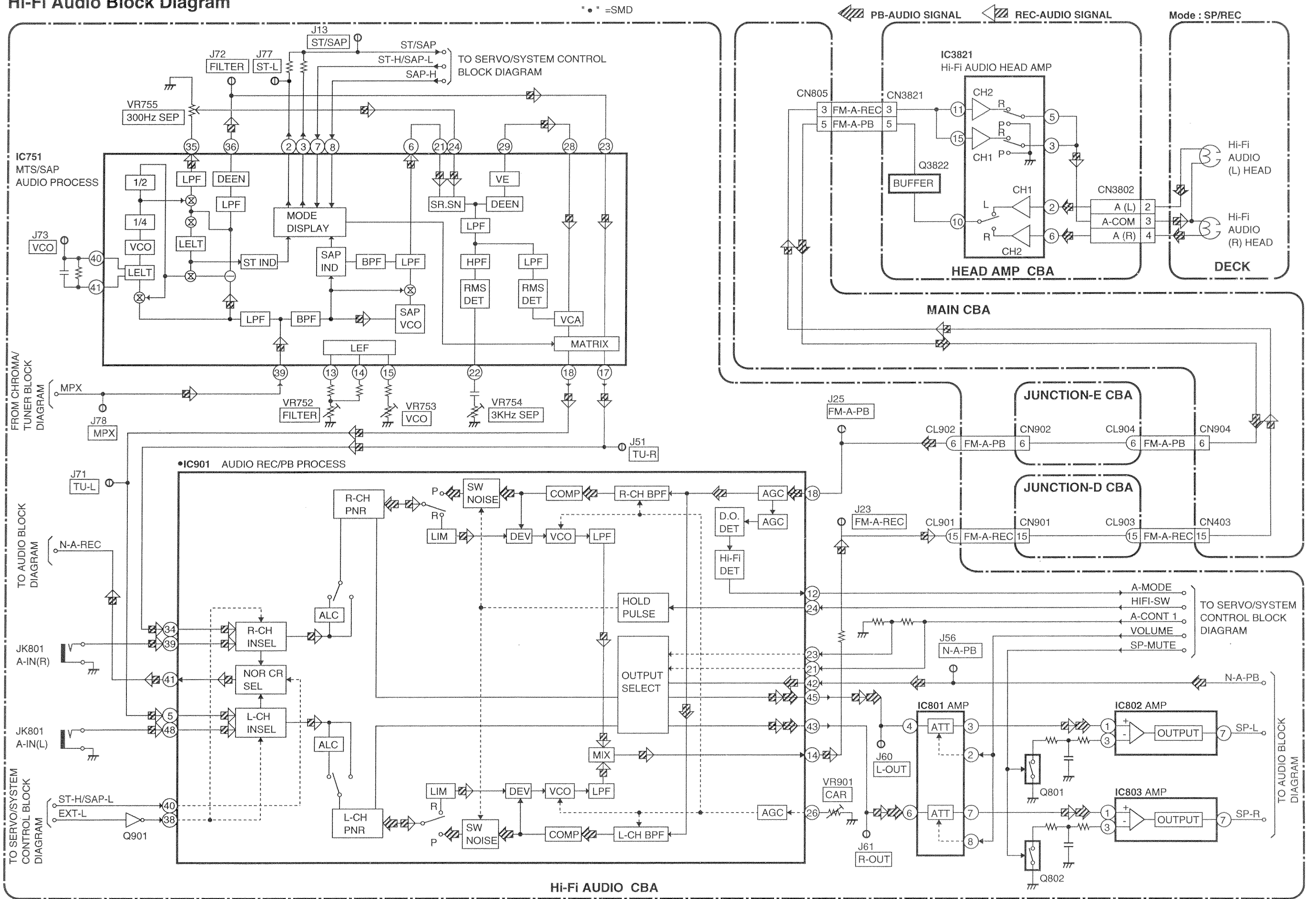
Video Block Diagram



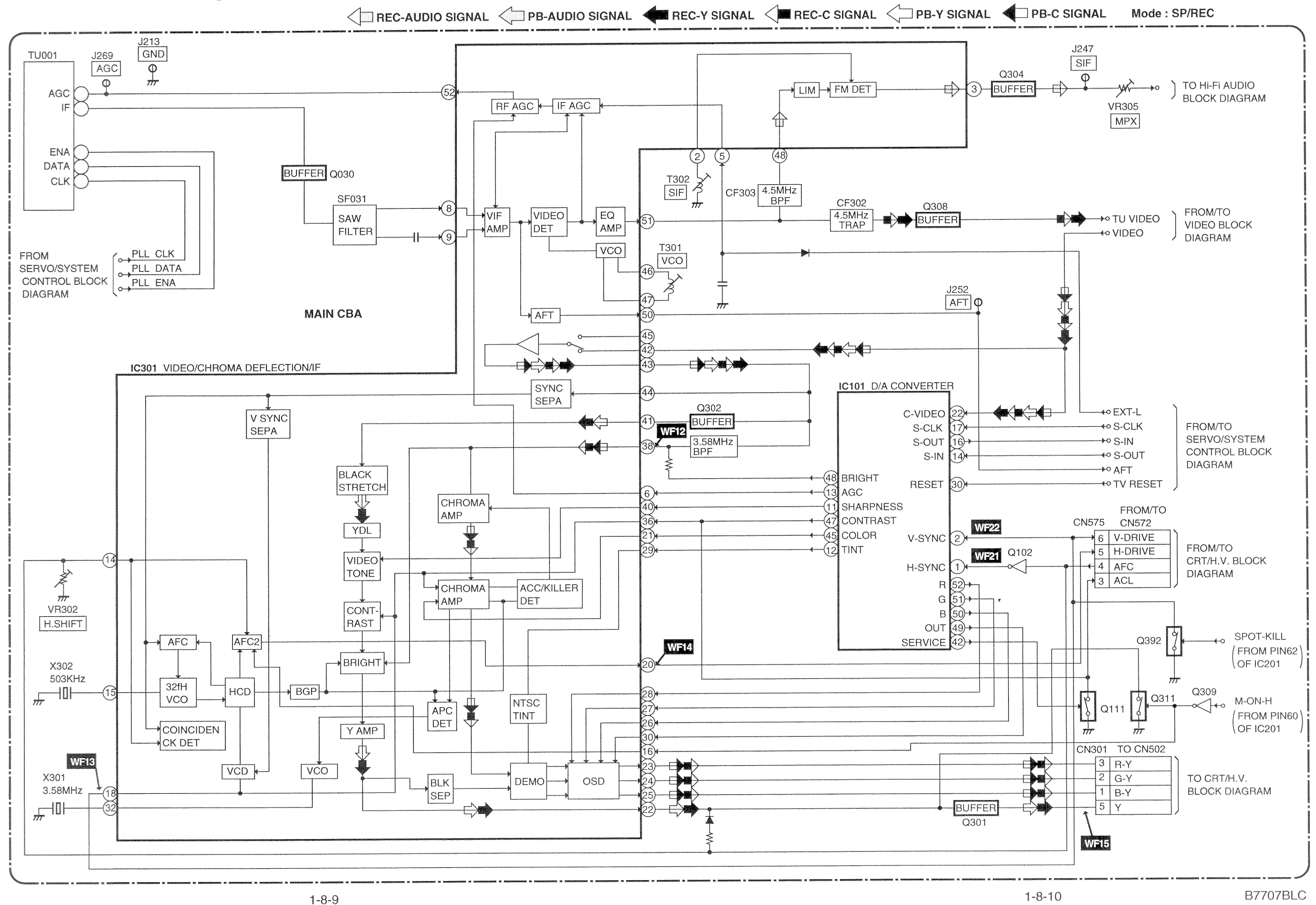
Audio Block Diagram



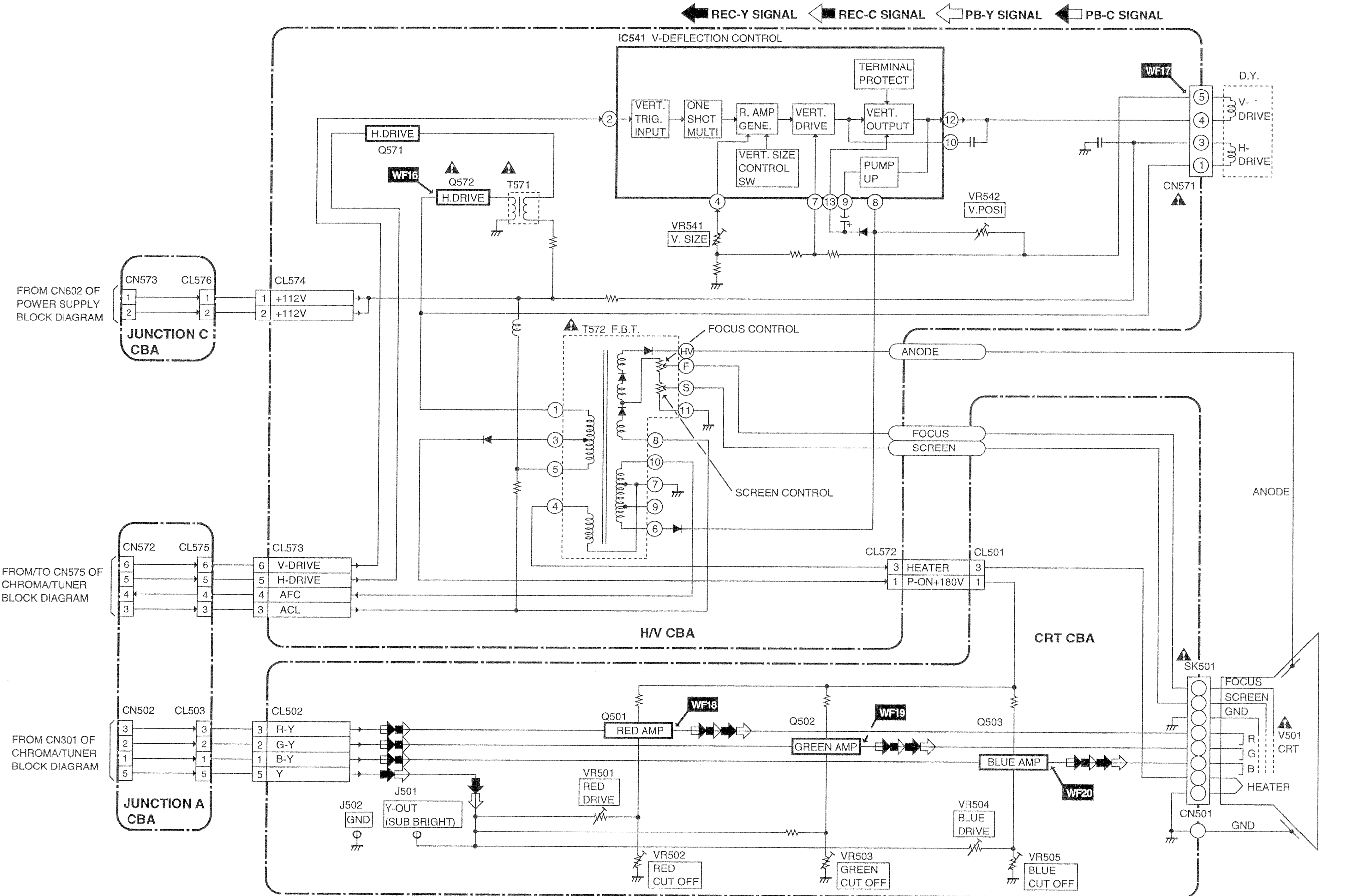
Hi-Fi Audio Block Diagram



Chroma/Tuner Block Diagram

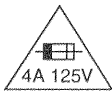


CRT/H.V. Block Diagram



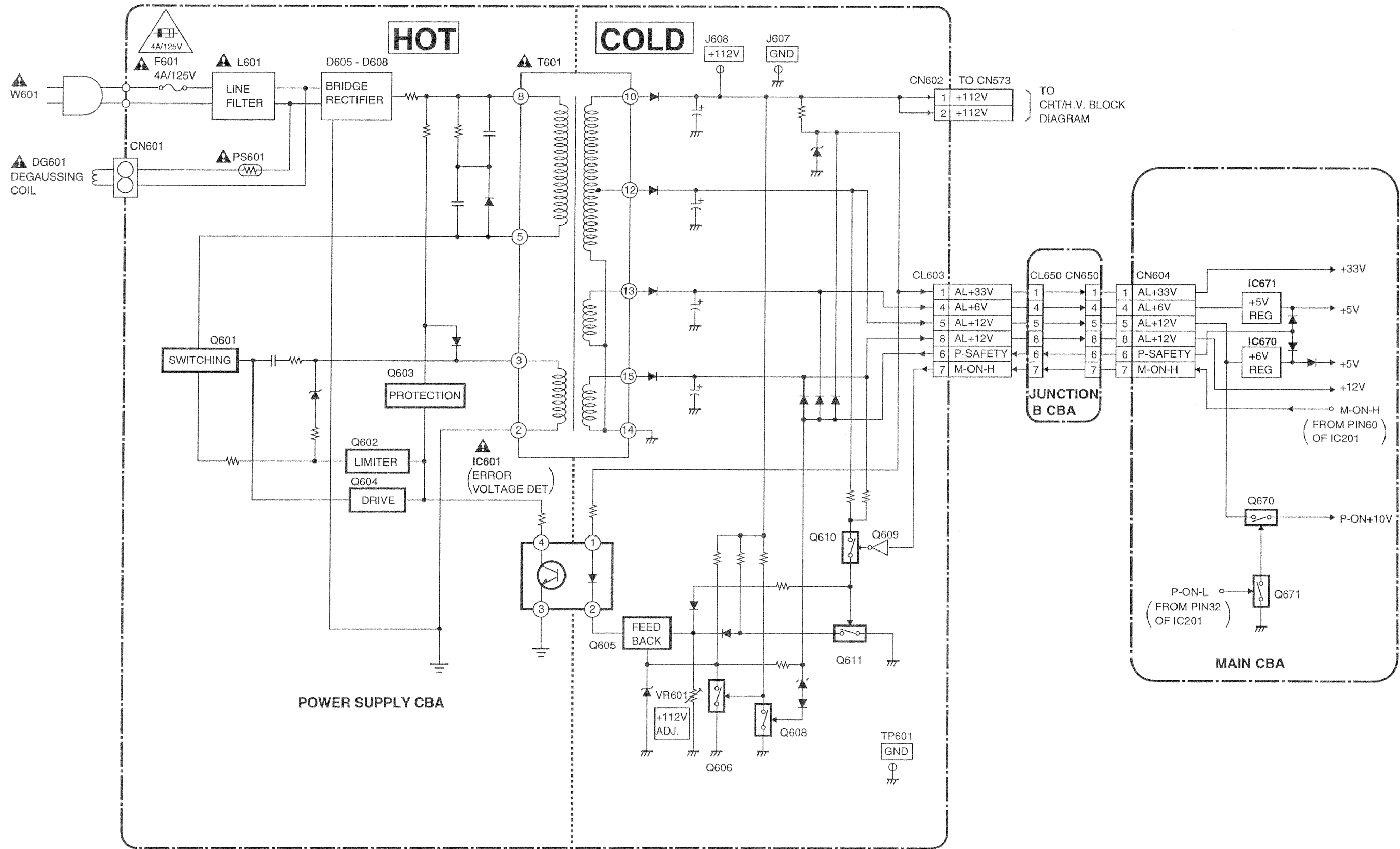
Power Supply Block Diagram

CAUTION !
Fixed voltage power supply circuit is used in this unit.
If Main Fuse (F01) 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.
ATTENTION : POUR UNE PROTECTION CONTINUE LES RISQUES
D'INCELE N'UTILISER QUE DES FUSIBLE DE MEMO TYPE.
RISK OF FIRE-REPLACE FUSE AS MARKED.
"This symbol means fast operating fuse."
"Ce symbole représente un fusible à fusion rapide."

NOTE :
THE VOLTAGE FOR PARTS IN HOT CIRCUIT IS MEASURED USING
HOT GND AS A COMMON TERMINAL.



Troubleshooting Guides TV Section
OPERATION CHECK

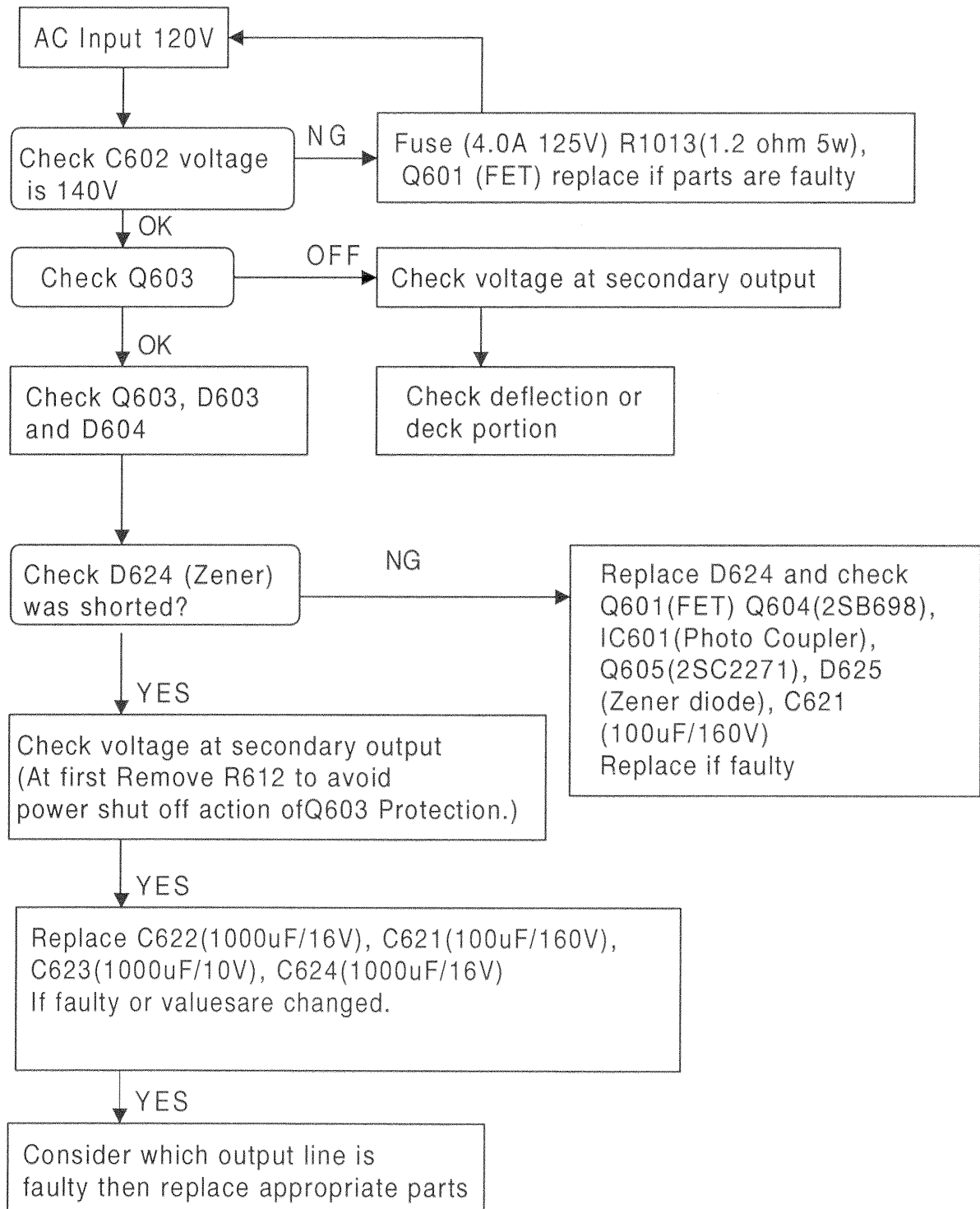
STEP 1	No Power	Page 1-8-17
STEP2	Power shut off after few seconds	Page1-8-18
STEP3(A)	No Video from Tuner	Page 1-8-19
STEP3(B)	No Luminance from Tuner	Page 1-8-20
STEP4	No color	Page 1-8-121
STEP5	No Vertical	Page 1-8-22
STEP6	No OSD Display	Page 1-8-23
STEP7	No Adj. Tint,Sharpness Etc.	Page 1-8-24
STEP8	No Audio (TV)	Page 1-8-25

Troubleshooting Guides VCR Section
OPERATION CHECK

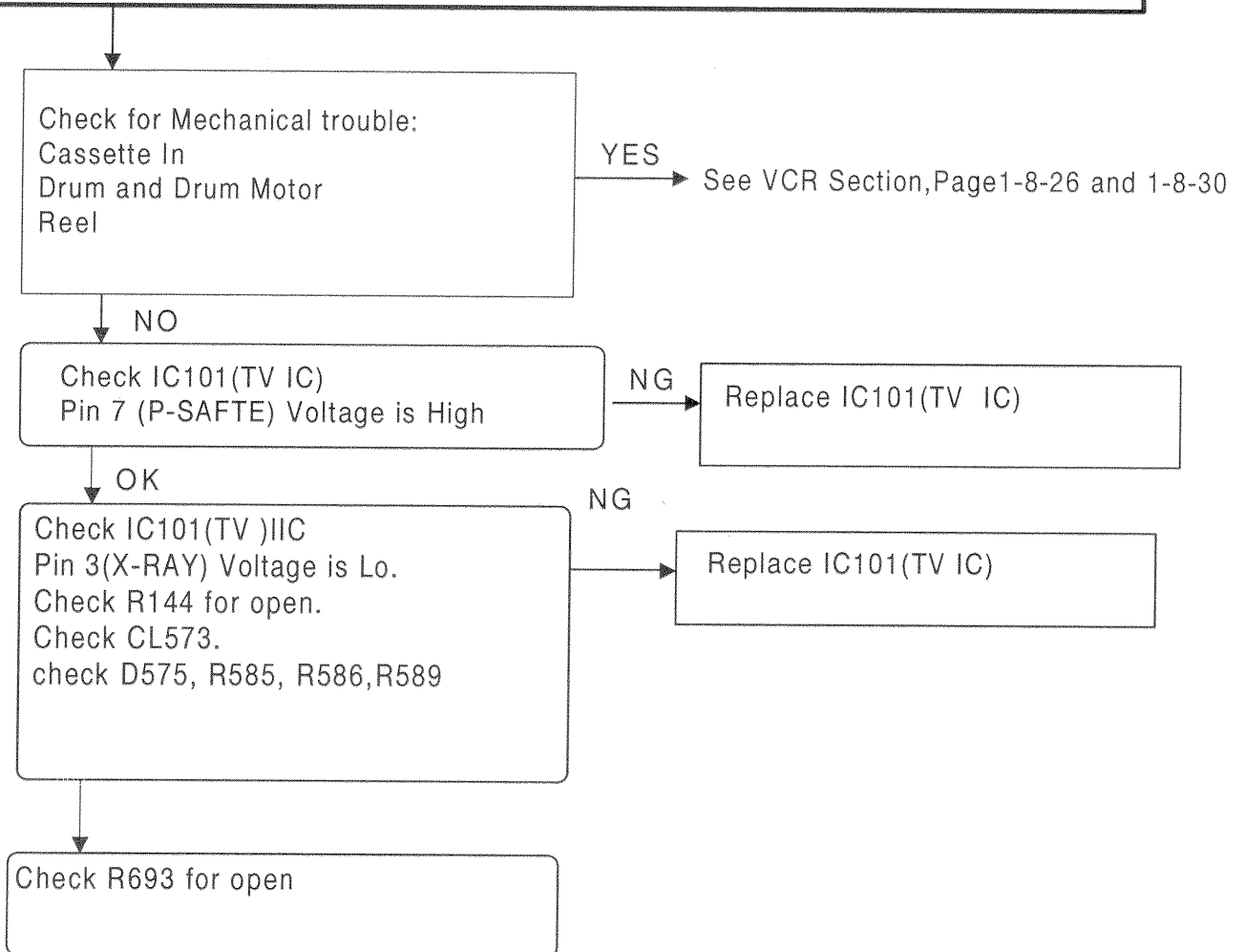
STEP9	No cassette in.	Page1-8-26	STEP18	No play back (Picture).	Page1-8-31
STEP10	No recording.	Page 1-8-27	STEP19	No audio during play back.	Page1-8-34
STEP11	Speed selection does not work.	Page 1-8-28	STEP20	No search (F.F. / Rewind).	Page1-8-34
STEP12	No rewind at Tape end (Auto rewind).	Page1-8-28	STEP21	Tape does not stop or Eject.	Page1-8-35
STEP13	Pause key does not work.	Page1-8-28	STEP22	No power off.	Page1-8-35
STEP14	Stop key does not work.	Page1-8-29	STEP23	System Control IC trouble.	Page1-8-36
STEP15	REW or F.F. key does not work.	Page1-8-29	STEP24	"On-screen" Display problems.	Page1-8-36
STEP16	Counter memory does not work.	Page1-8-30			
STEP17	No play back (Deck).	Page1-8-30			

* When the SYSTEM CONTROL IC has locked up, the SYSTEM CONTROL IC will not accept any mode.
At this time, disconnect AC power cord to reset the SYSTEM CONTROL IC. Few minutes later, re-connect AC power cord to avoid BACK-UP function.

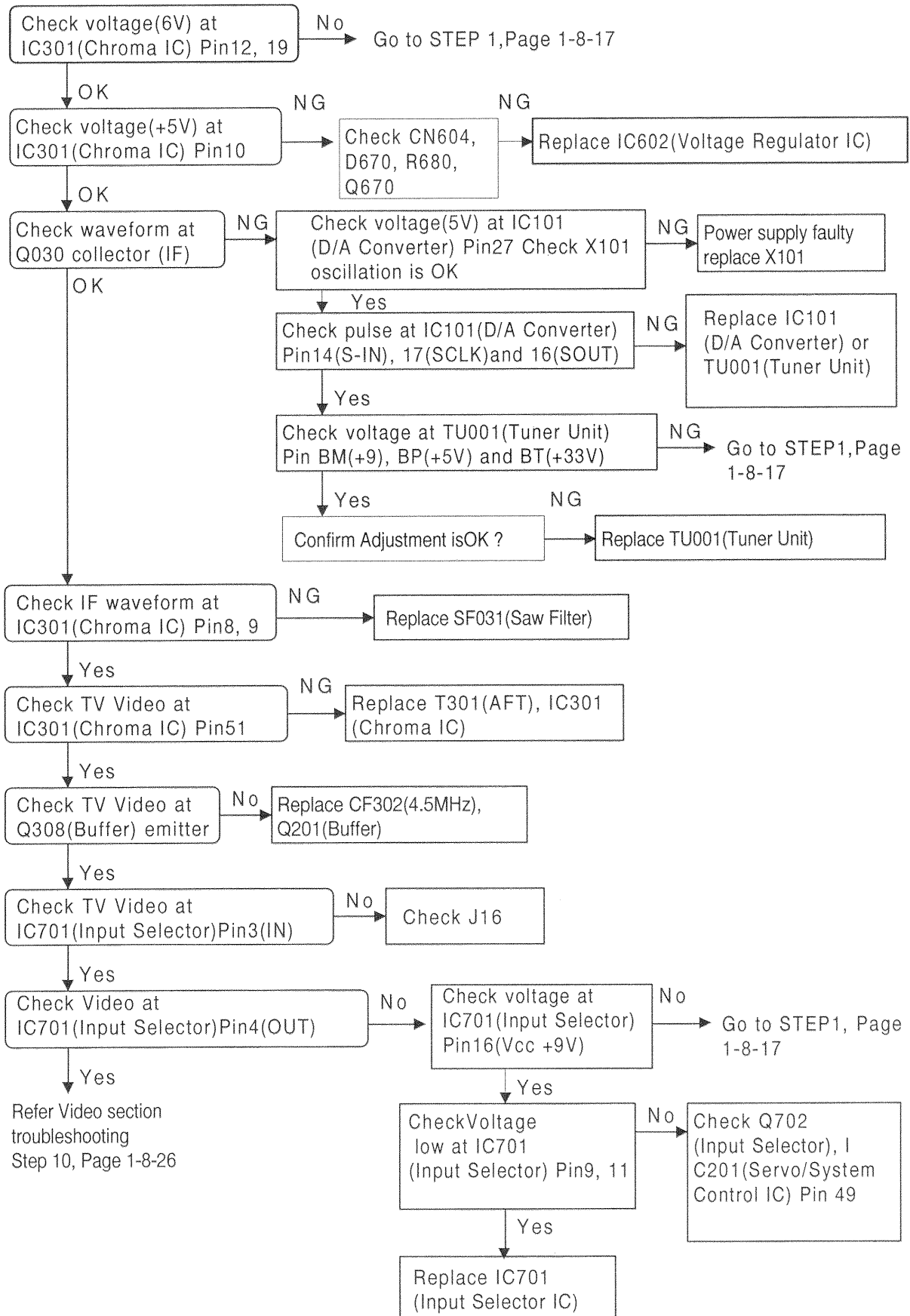
STEP 1 No power



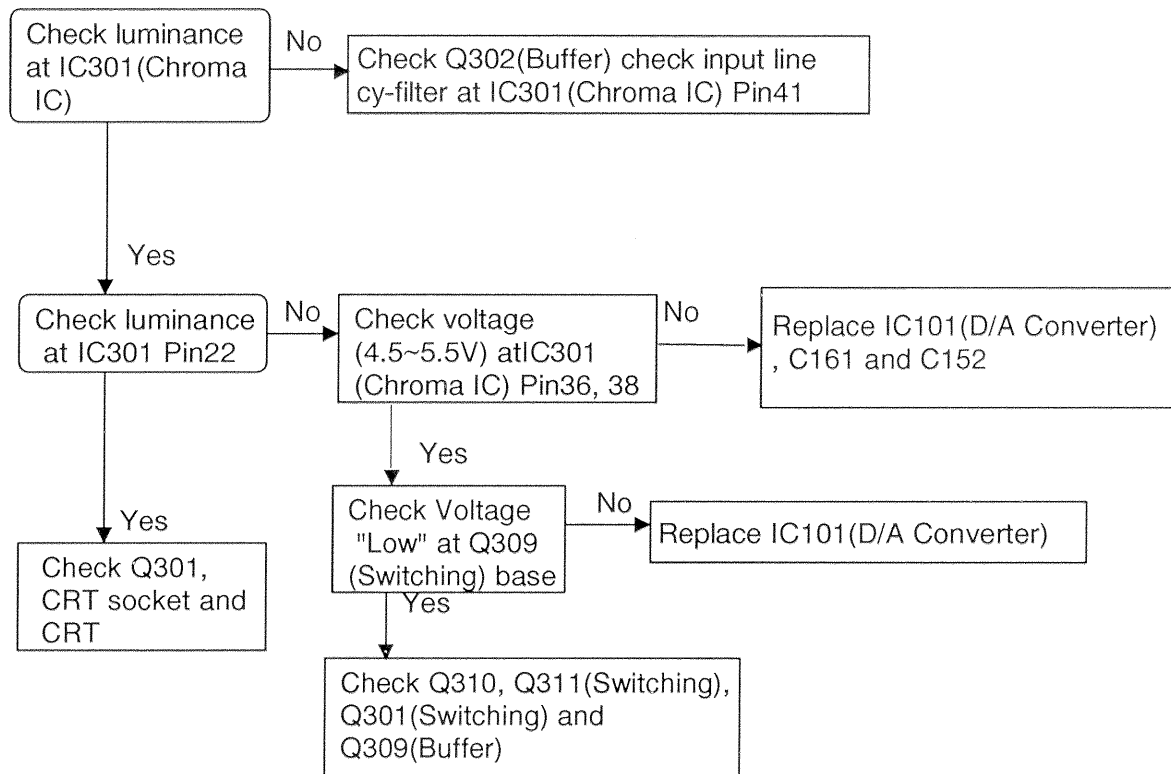
STEP 2 Power shut off after few seconds



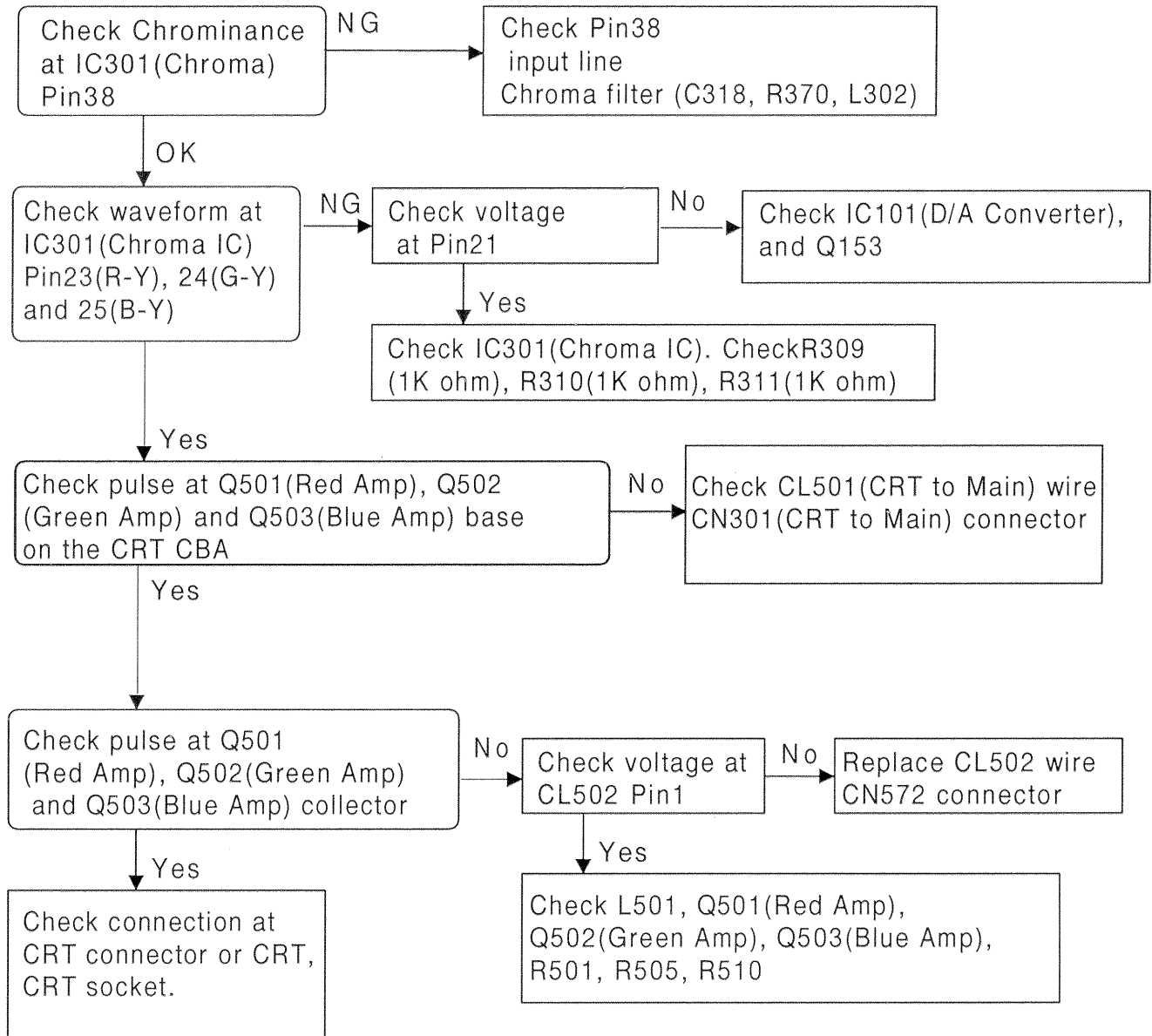
STEP3 (A) No Video from tuner (E-E mode)



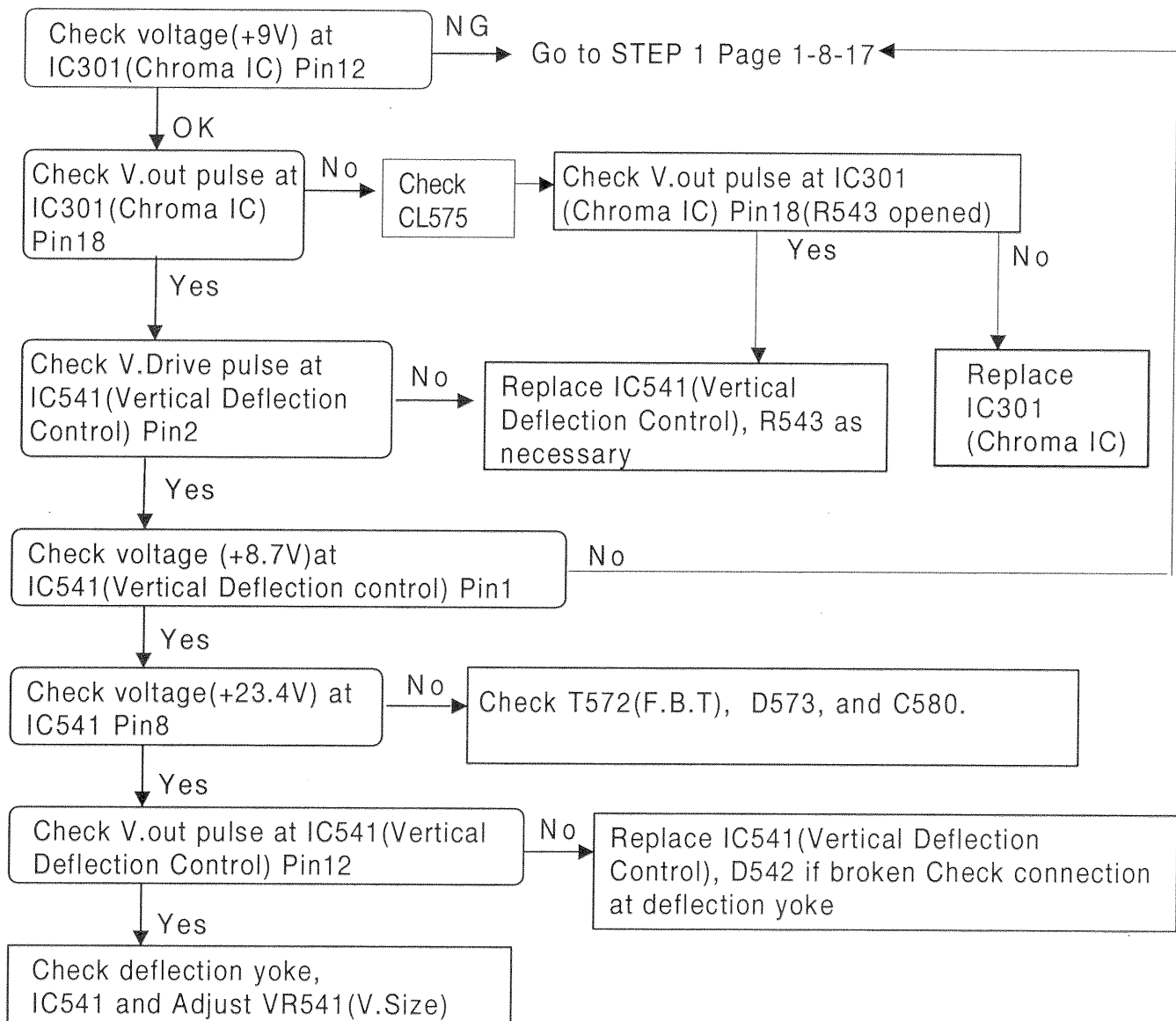
STEP3 (B) No luminance from tuner



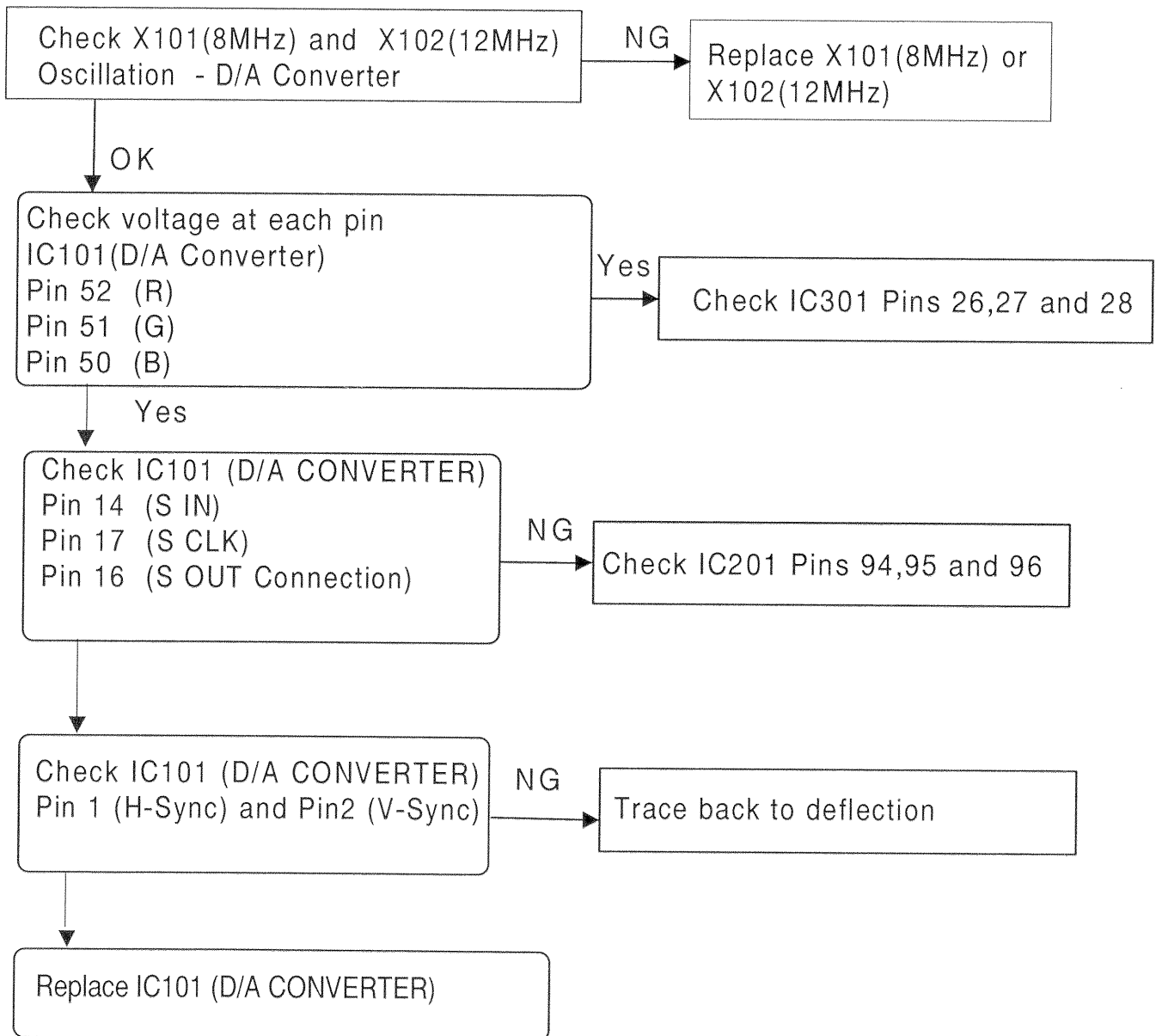
STEP4 No color



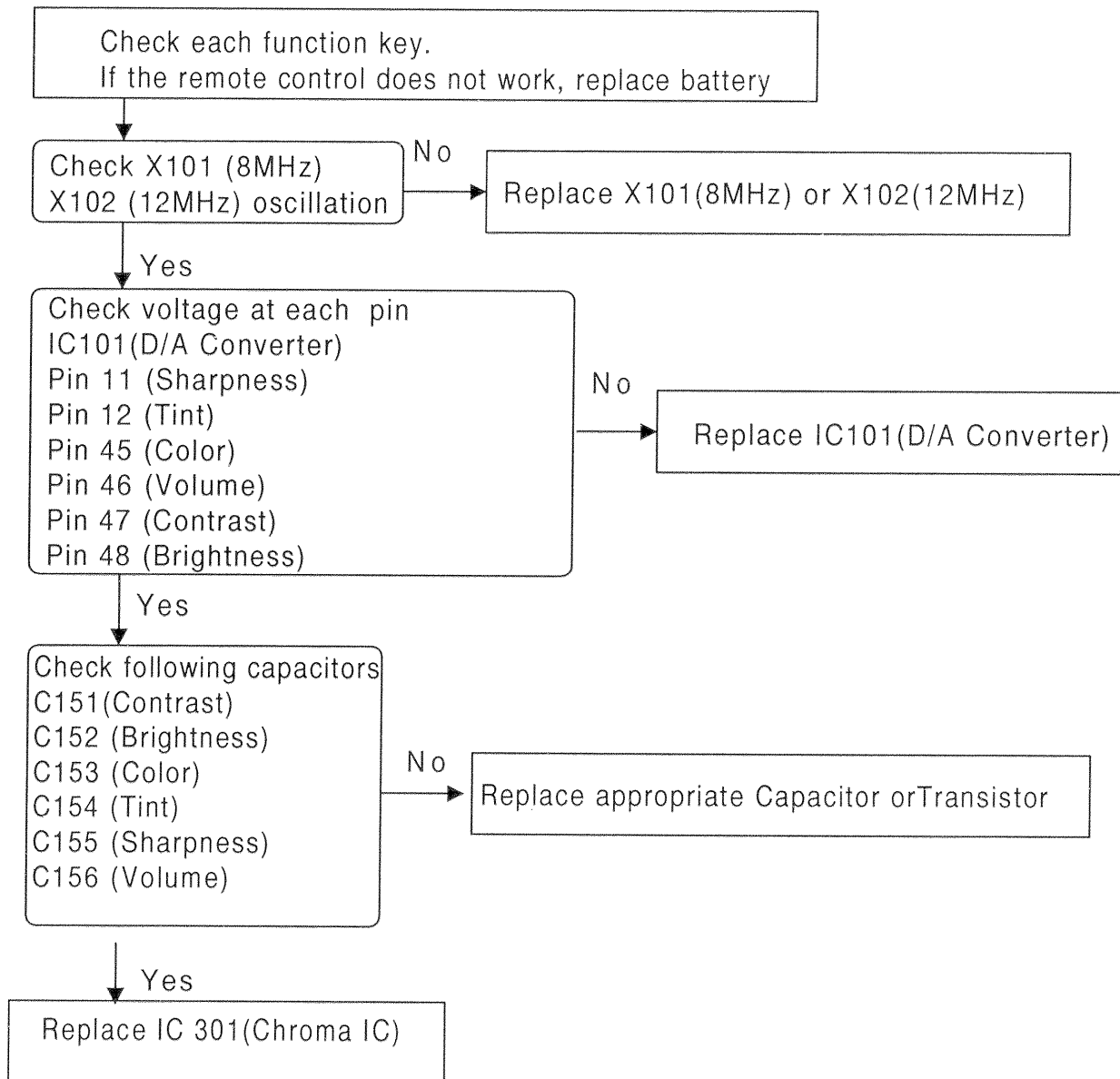
STEP 5 No Vertical



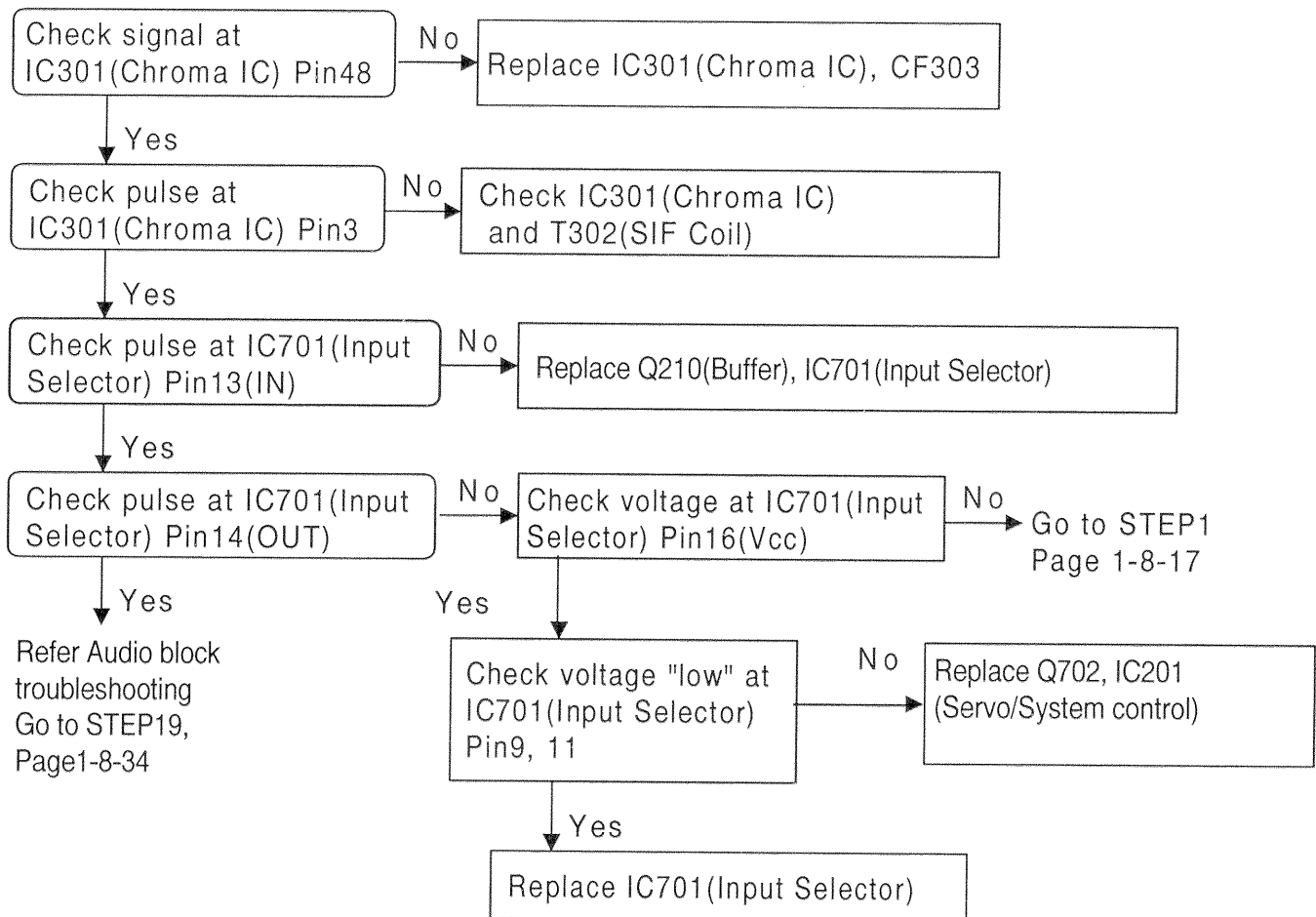
STEP 6 No OSD Display



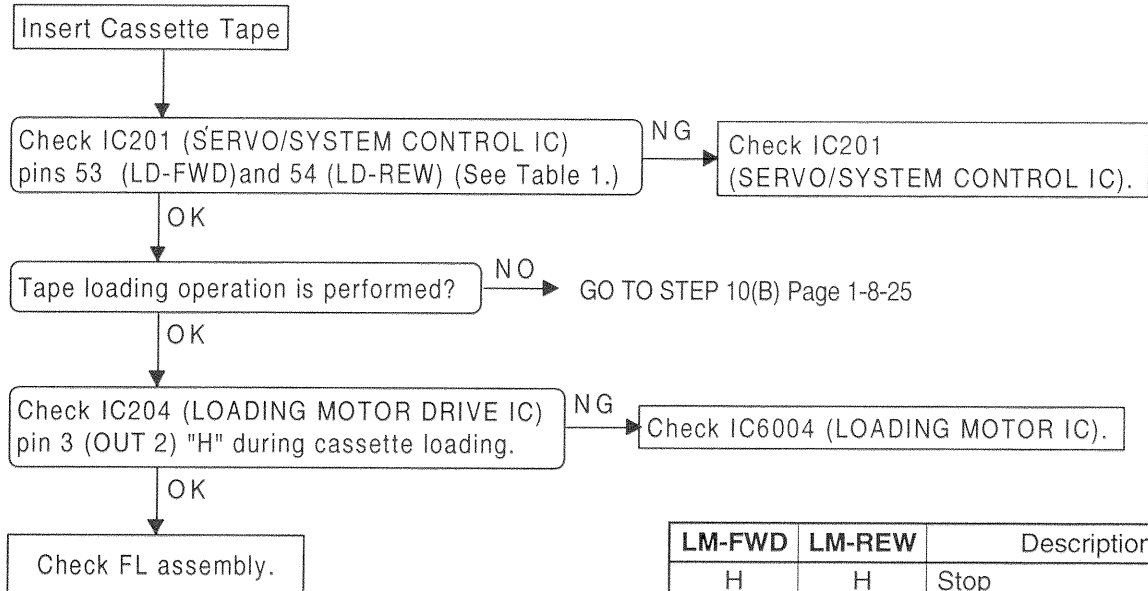
STEP 7 No Adj. Tint,Sharpness, etc.



STEP 8 No audio (TV)



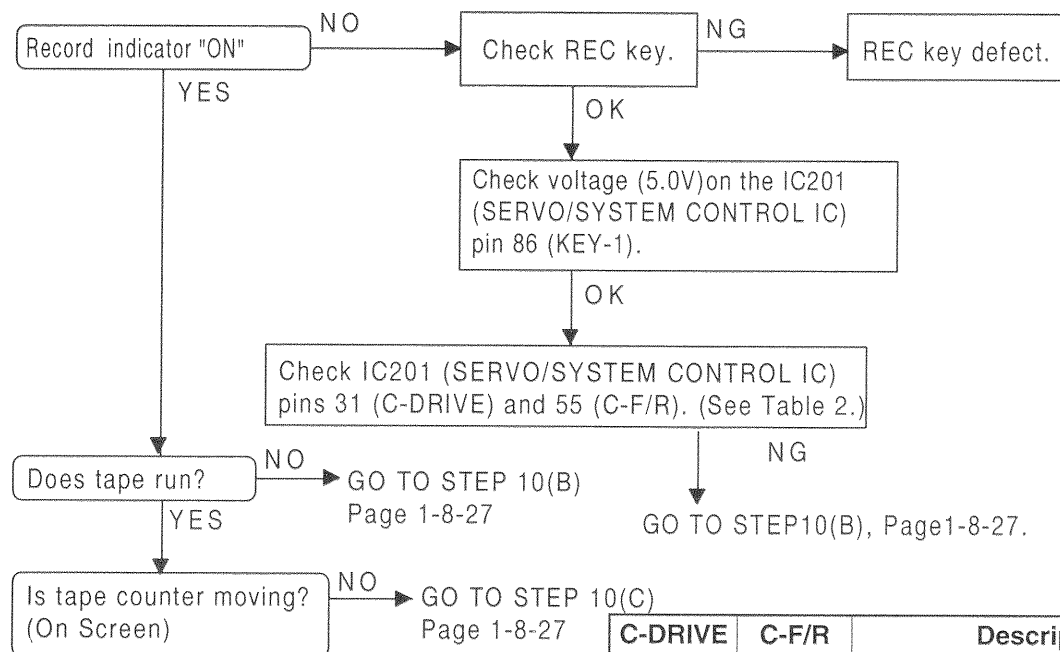
STEP 9 : No cassette in.



LM-FWD	LM-REW	Description
H	H	Stop
H	L	Loading Forward Rotation
L	H	Loading Reverse Rotation

Table 1

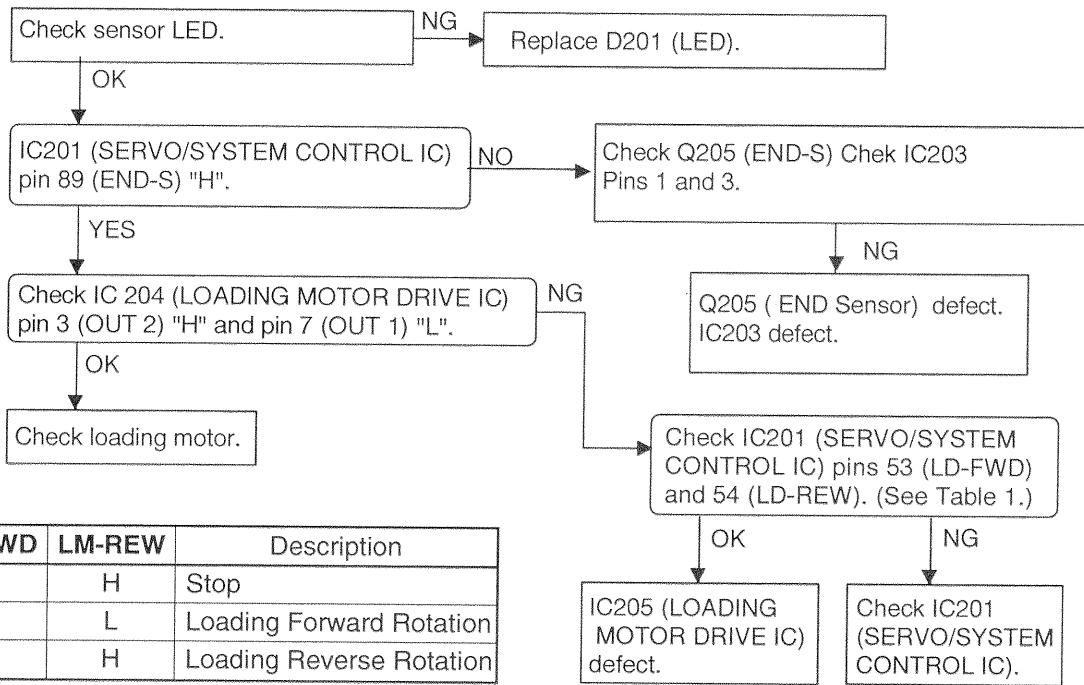
STEP 10 : No recording.



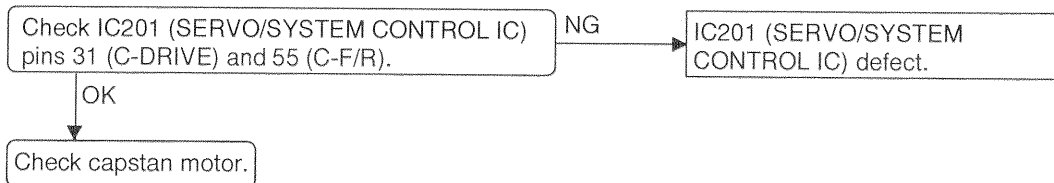
C-DRIVE	C-F/R	Description
L	L/H	Stop, The brake is not applied.
H	L	Capstan, Reel Forward Rotation
H	H	Capstan, Reel Reverse Rotation

Table 2

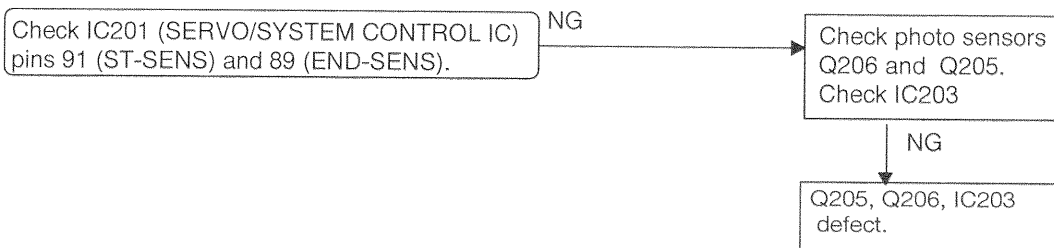
STEP 10(A) : CHECK END SENSOR and LOADING MOTOR.



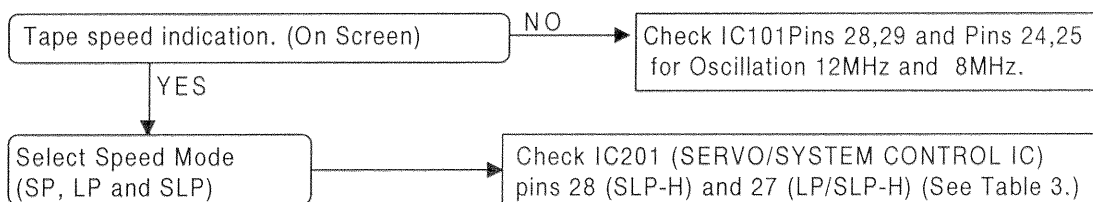
STEP 10(B): CHECK CAPSTAN MOTOR.



STEP 10(C): CHECK CAPSTAN MOTOR.



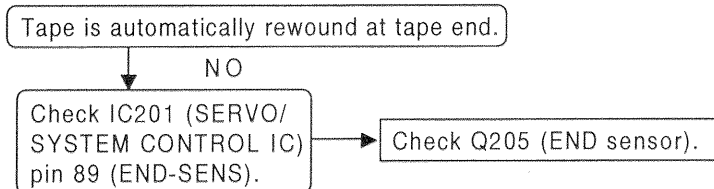
STEP 11 : SPEED Selection does not work.



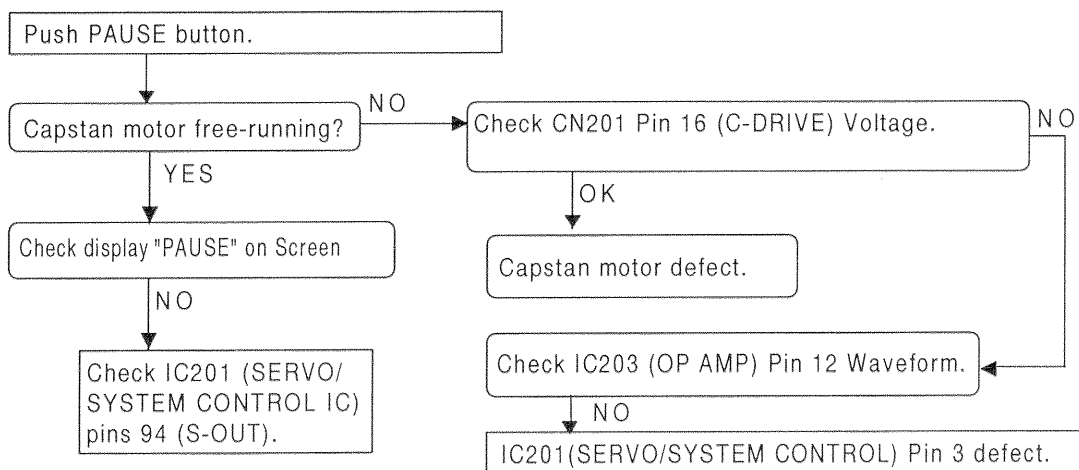
(10)	(9)	(13)VIDEO	(3)AUDIO
L	L	(12)TUN	(1)TUN
L	H	(14)NOT USED	(5)NOT USED
H	L	(15)(AUX 2)	(2)(AUX 2)
H	H	(11)AUX	(4)AUX

Table 3

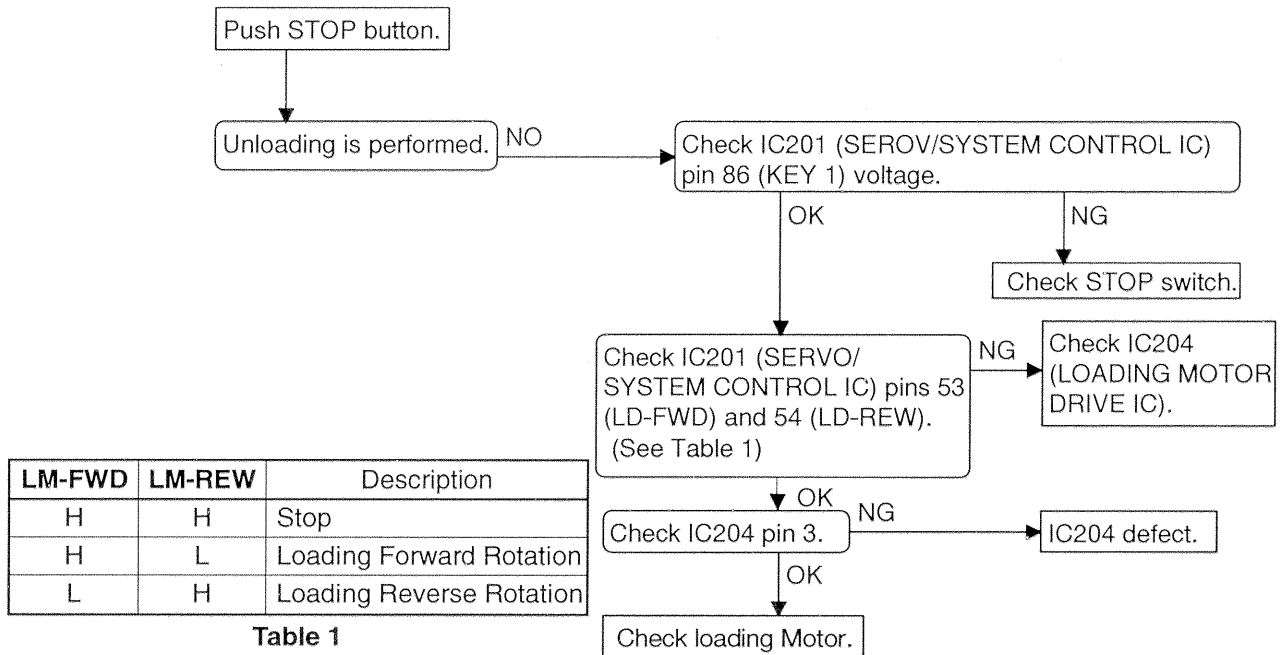
STEP 12 : No rewind at Tape end (Auto rewind).



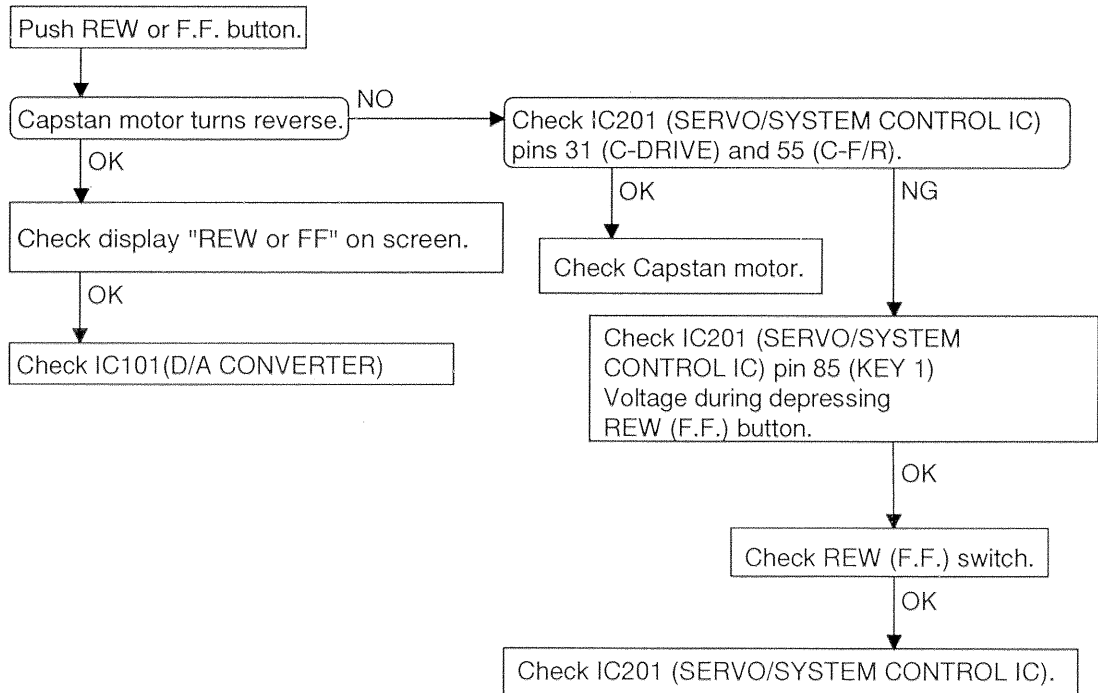
STEP 13 : Pause key does not work.



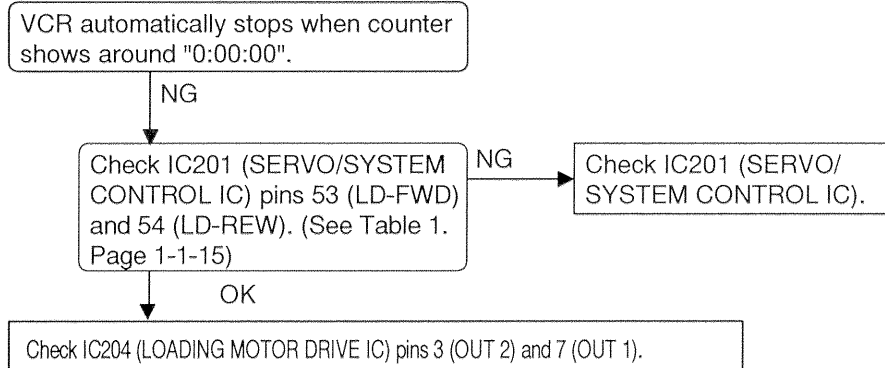
STEP 14 : STOP KEY does not work.



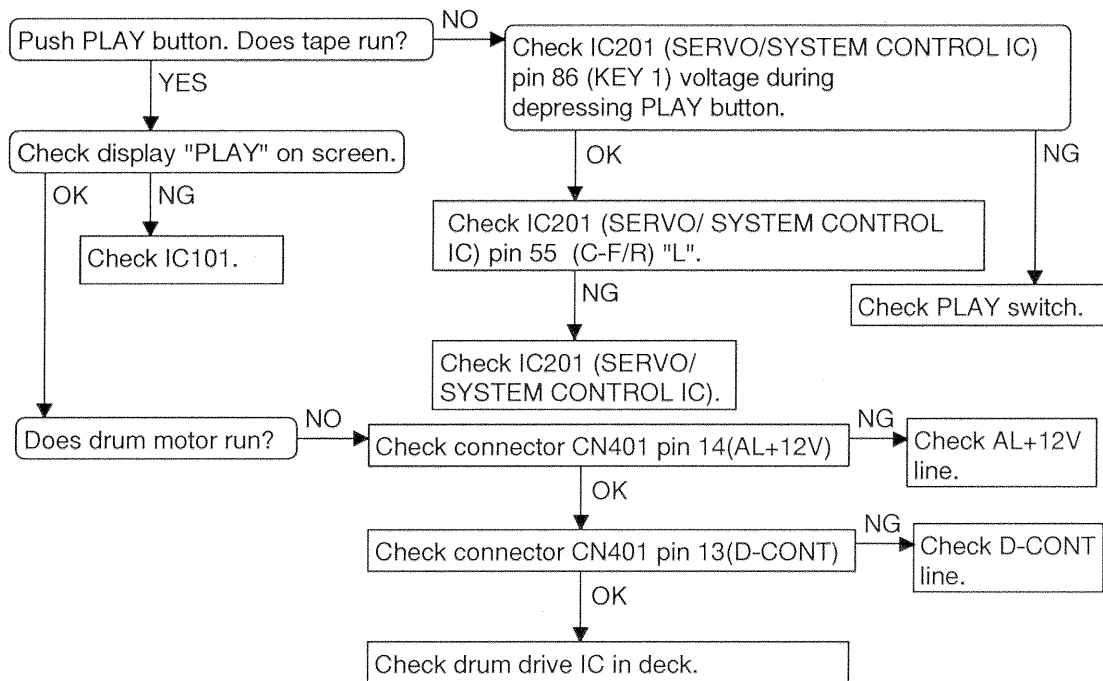
STEP 15 : REW or F.F. key does not work.



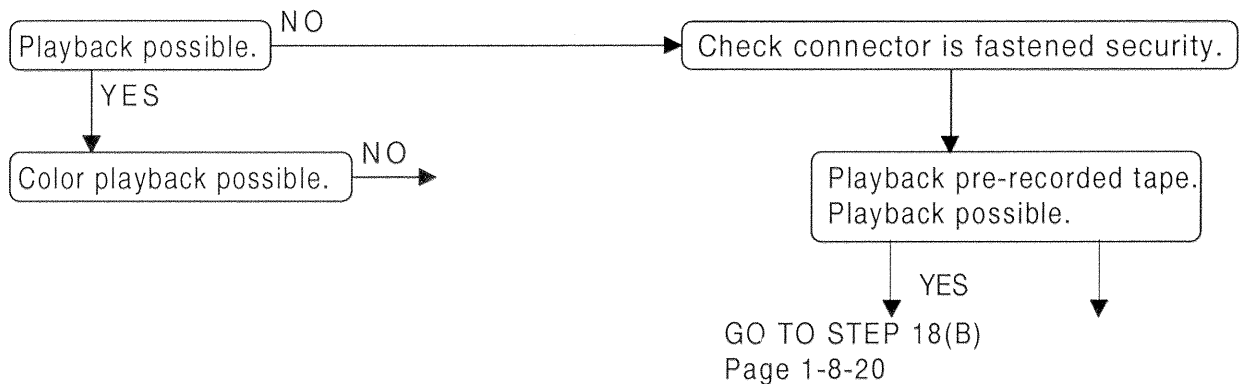
STEP 16 : Counter Memory button does not work.



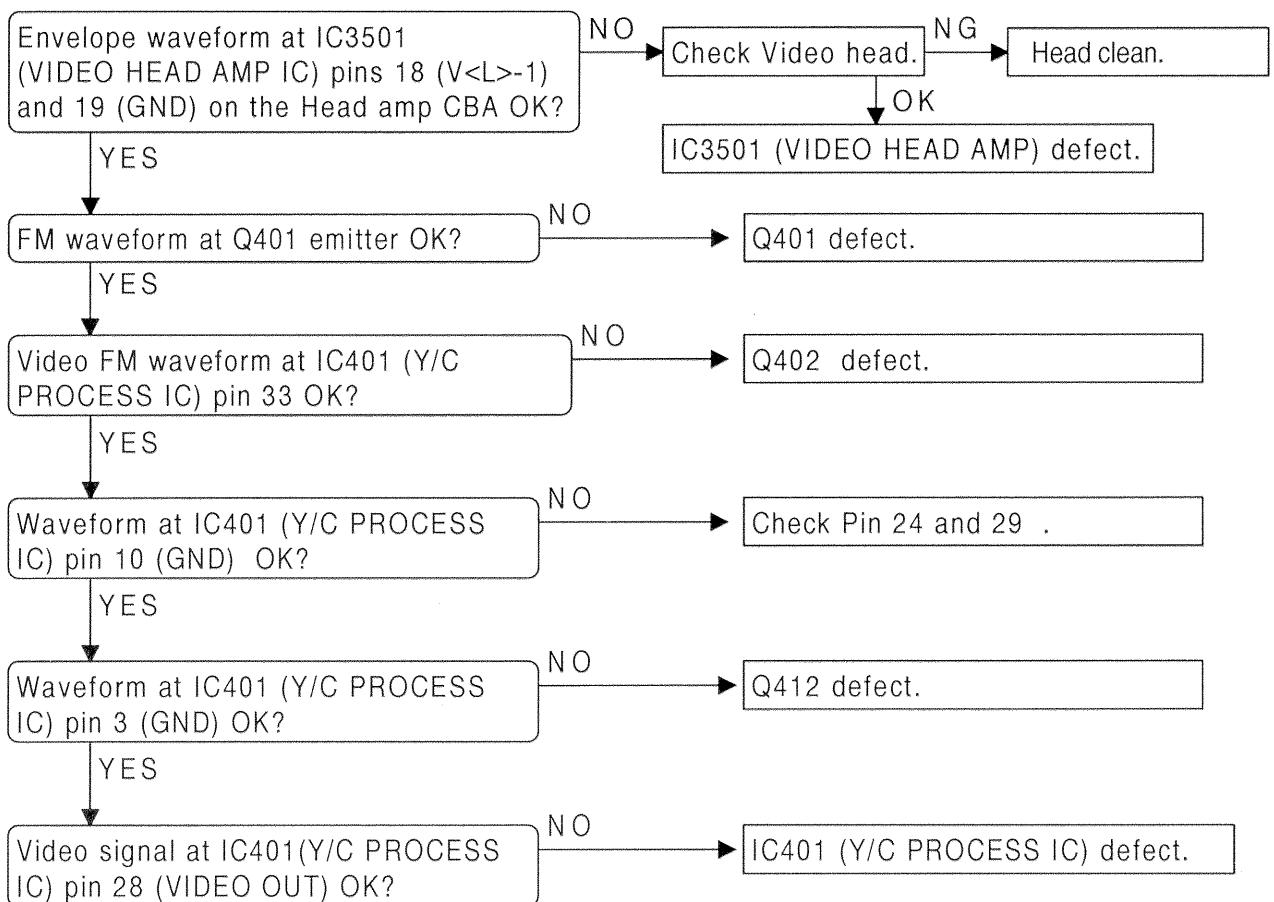
STEP 17 : No play back (Deck).



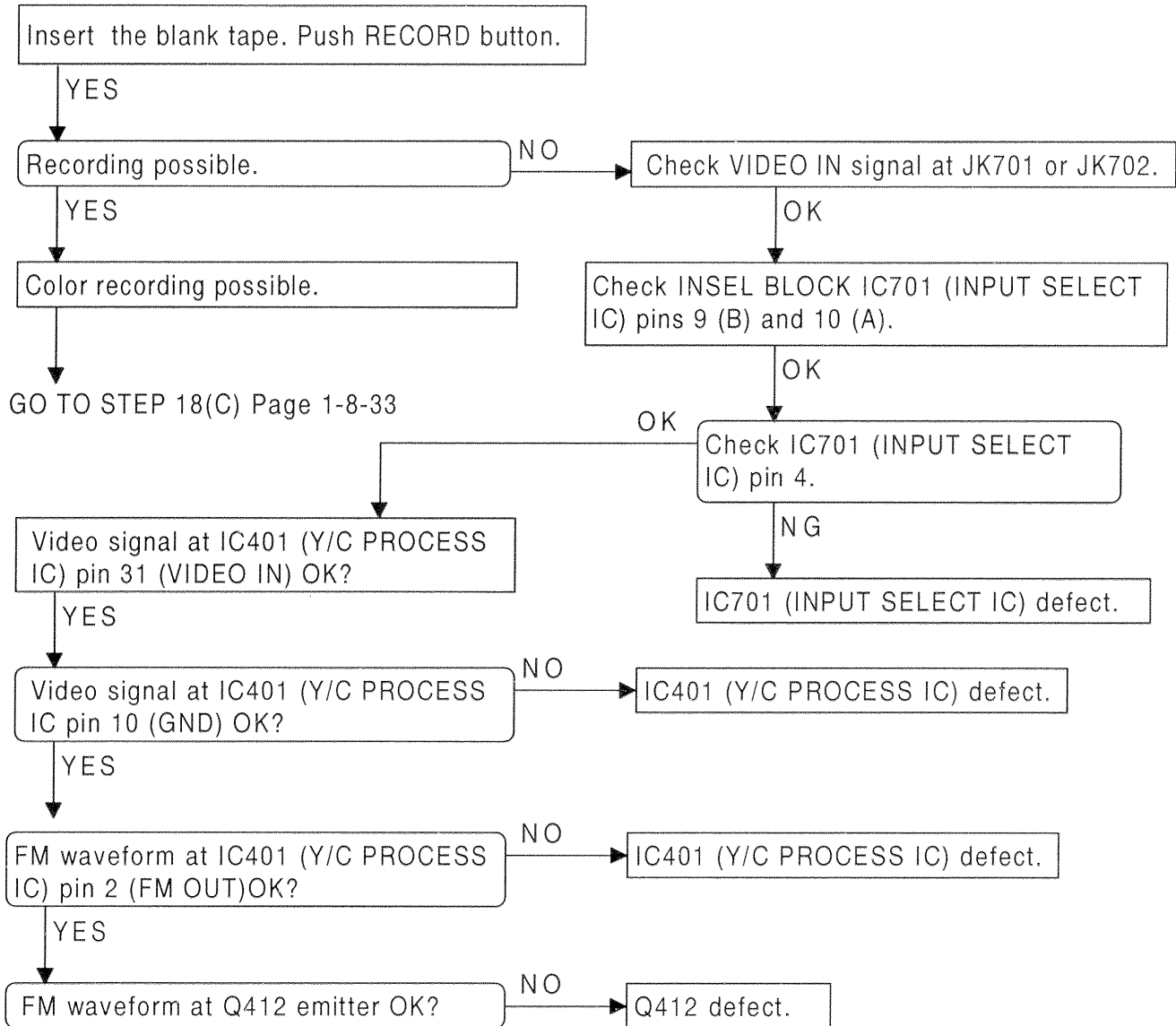
STEP 18 : No playback (Picture).



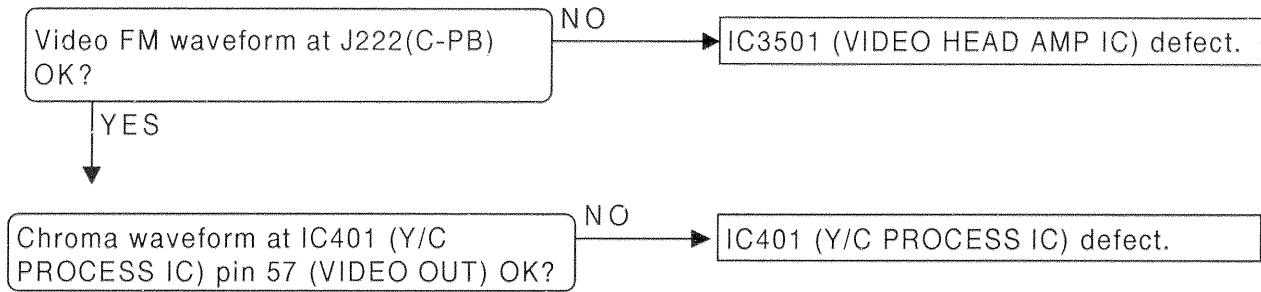
STEP 18(A) : CHECK Y/C PROCESS (VIDEO HEAD AMP) BLOCK.



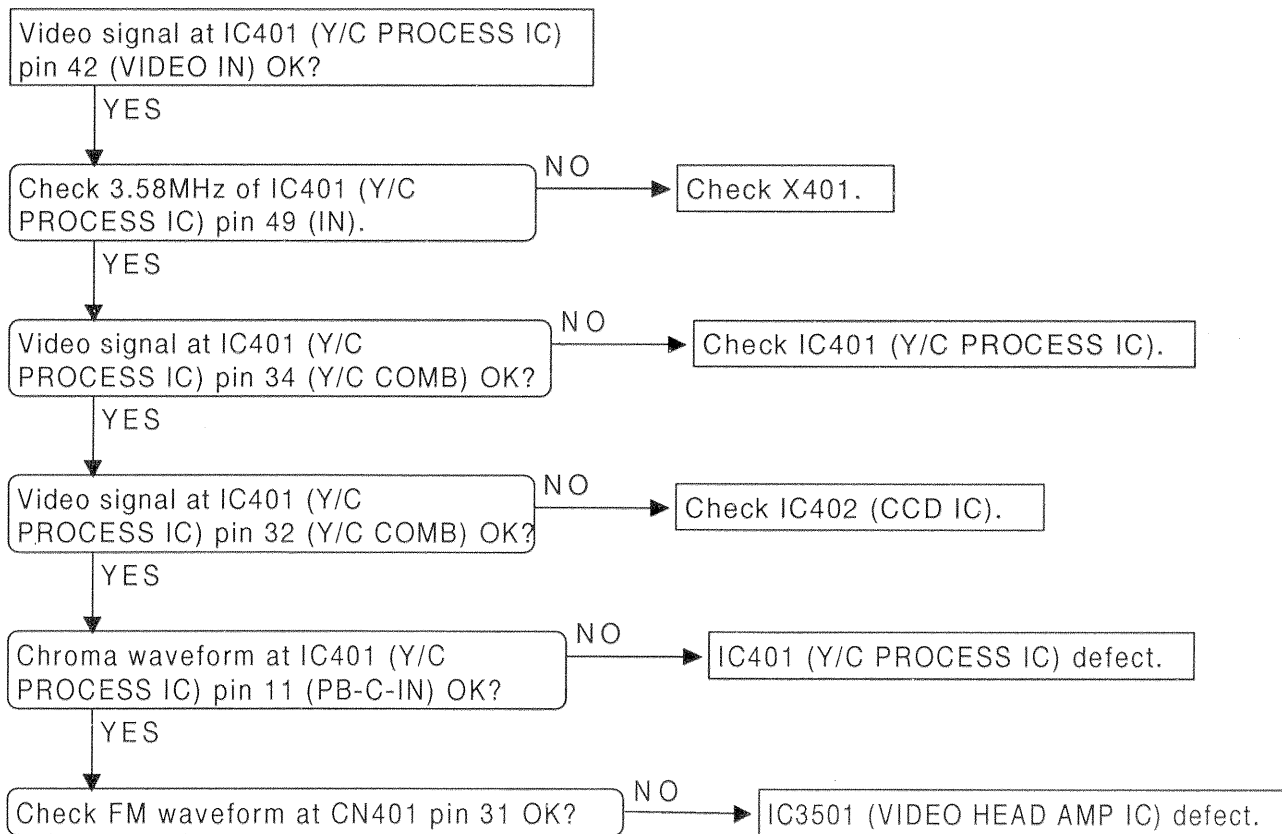
STEP 18 (B) : CHECK Y/C PROCESS (INPUT SELECTOR) BLOCK. Record mode.



STEP 18 (C) : CHECK Y/C PROCESS (CHROMA) BLOCK.



STEP 18 (D) : CHECK Y/C PROCESS (VIDEO) BLOCK.



STEP 19 (A) : CHECK CAPSTAN MOTOR BLOCK.

Check IC201 (SERVO/SYSTEM CONTROL IC) pins 31 (C-DRIVE) and 55. (C-F/R)

OK

Check IC203 (OP AMP IC) pin14 (OUT B).

NG

IC203 (OP AMP IC) defect.

OK

Check capstan motor.

STEP 19 (B) : CHECK AUDIO IC BLOCK.

Check IC201 (SERVO/SYSTEM IC) pin 51 (A-MUTE-H) "H".

NG

IC201 (SERVO/SYSTEM CONTROL IC) defect.

OK

Check IC851 (AUDIO IC) pin 22 (MUTE) "H".

OK

Check IC851 (AUDIO IC) pin 13. (LINE AMP OUT).

NG

IC851 (AUDIO IC) defect.

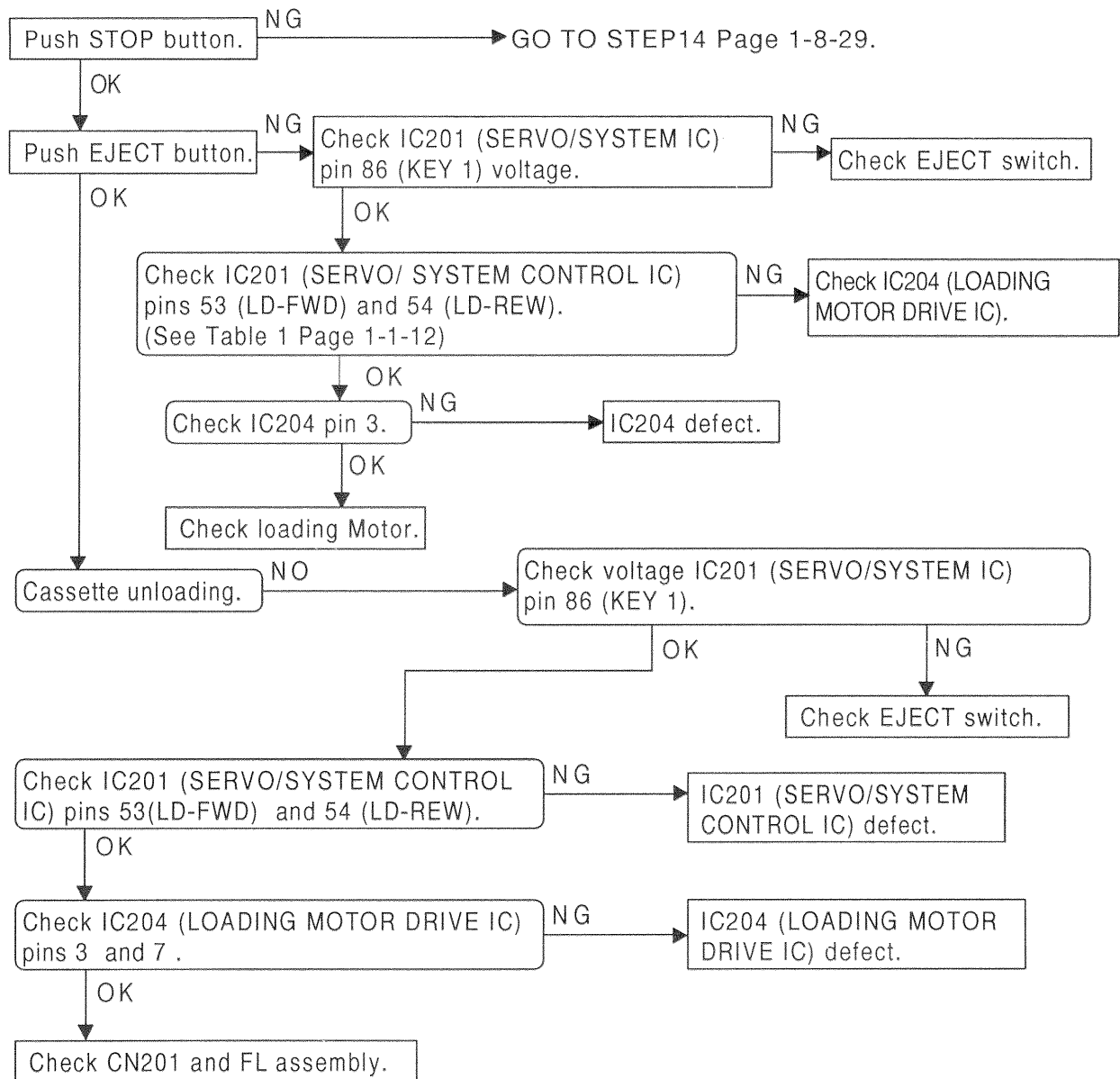
STEP 20 : CHECK CAPSTAN MOTOR BLOCK.

Check IC201 (SERVO/SYSTEM CONTROL IC) pins 31 (C-DRIVE) and 55. (C F/R)

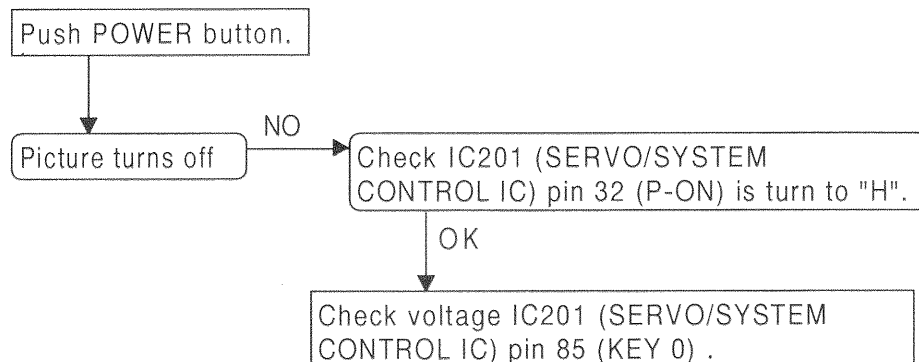
NG

IC203 (OP AMP IC) defect.

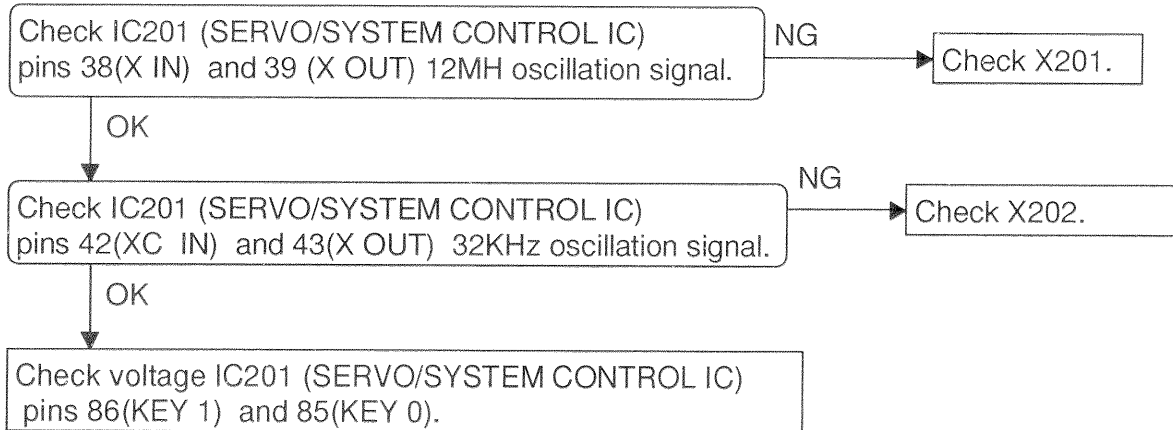
STEP 21 : Tape dos not stop or eject



STEP 22 : No power off.

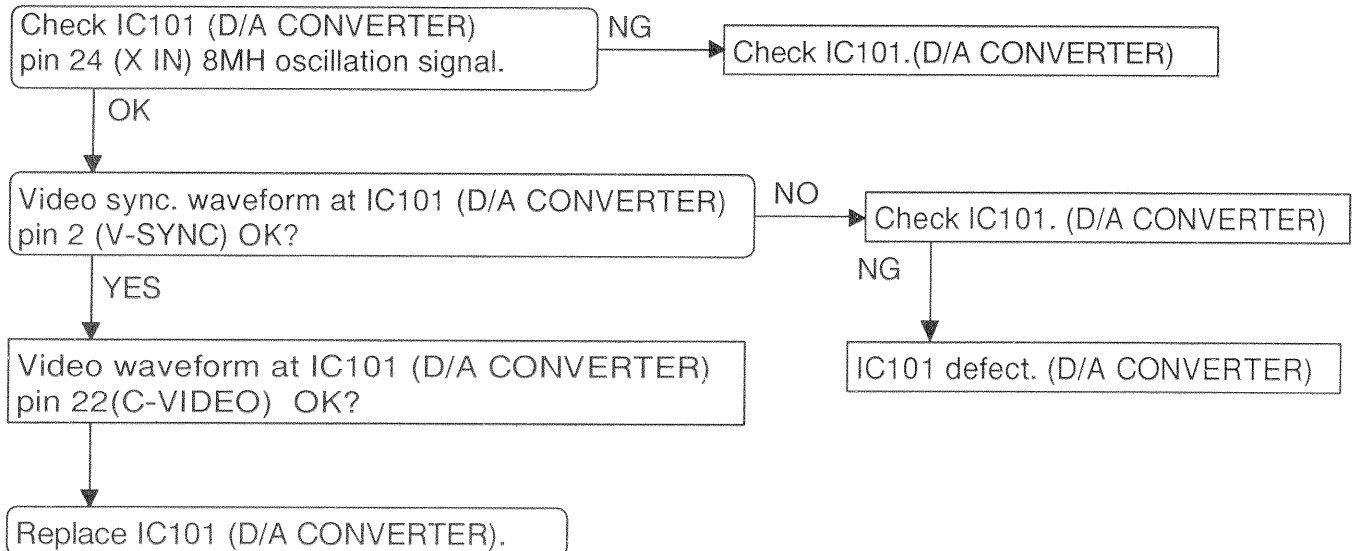


STEP 23 : System Control IC trouble.



STEP 24 : On-screen Display problems

On-screen is irregular



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.

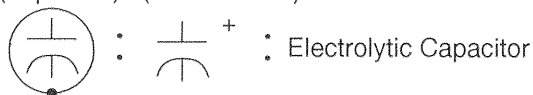
Capacitor Temperature Markings

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

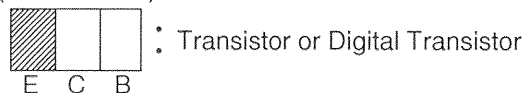
Capacitors and transistors are represented by the following symbols.

CBA Symbols

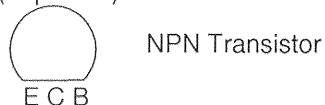
(Top View) (Bottom View)



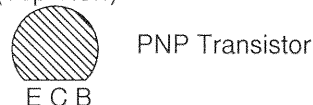
(Bottom View)



(Top View)



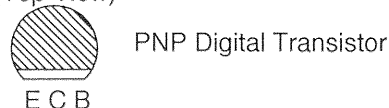
(Top View)



(Top View)

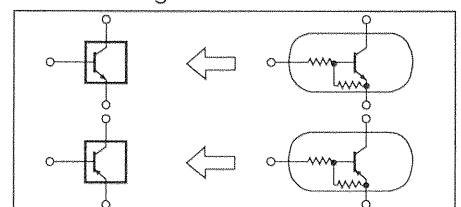


(Top View)



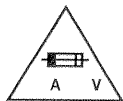
Schematic Diagram Symbols

Digital Transistor



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.

ATTENTION: POUR UNE PROTECTION CONTINUE LES RISQUES D'INCELE N'UTILISER QUE DES FUSIBLE DE MEMO TYPE.

RISK OF FIRE-REPLACE FUSE AS MARKED.

2. CAUTION:

Fixed voltage power supply circuit is used in this unit.

If Main Fuse (F01) 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

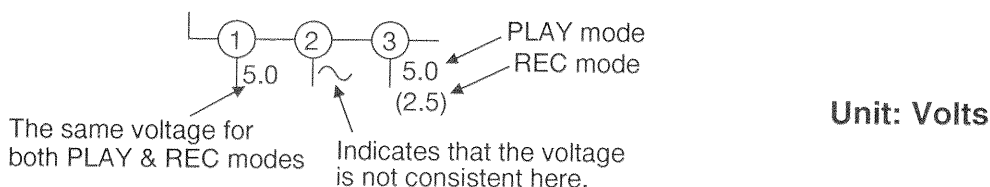
(1) Prefix symbol "CN" means "connector." (Can disconnect and reconnect)

(2) Prefix symbol "CL" means "wire-solder holes of the PCB." (Wire is soldered directly.)

5. Note: Mark "•" is a leadless (chip) component.

6. Mode: SP/REC

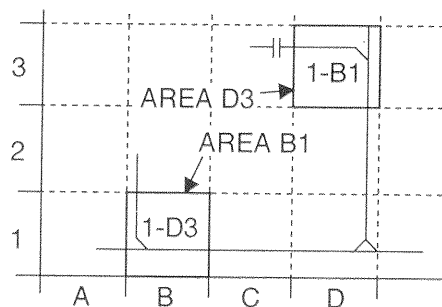
7. Voltage indications for PLAY and REC modes on the Schematics are as shown below:



8. How to read converged lines

1-D3
 Distinction Area
 Line Number
 (1 to 3 digits)
 Examples:

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



9. Test Point Information

⊙ : Indicates a test point with a jumper wire across a hole in the PCB.

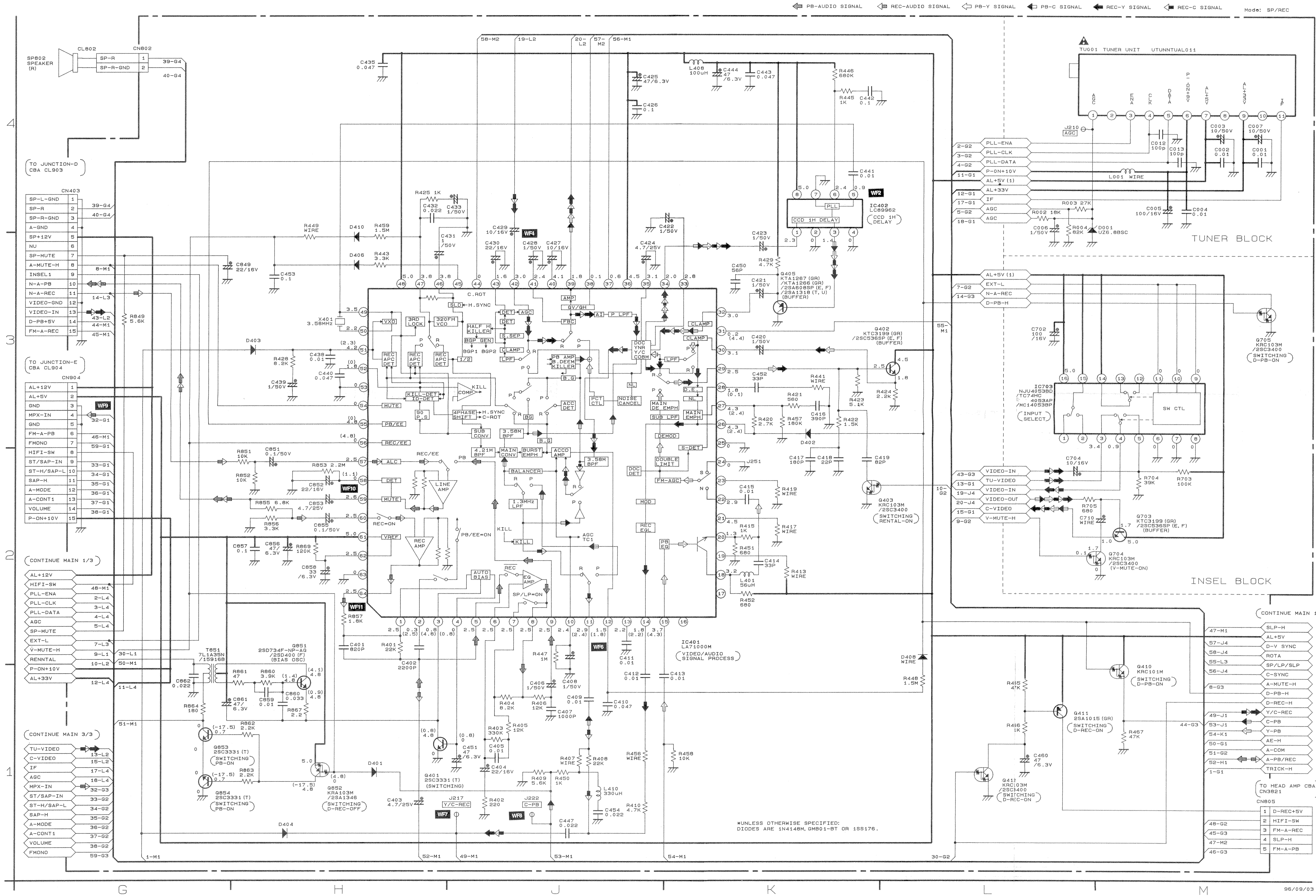
□→ : Used to indicate a test point with a component lead on foil side.

⊘ : Used to indicate a test point with no test pin.

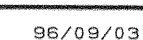
● : Used to indicate a test point with a test pin.

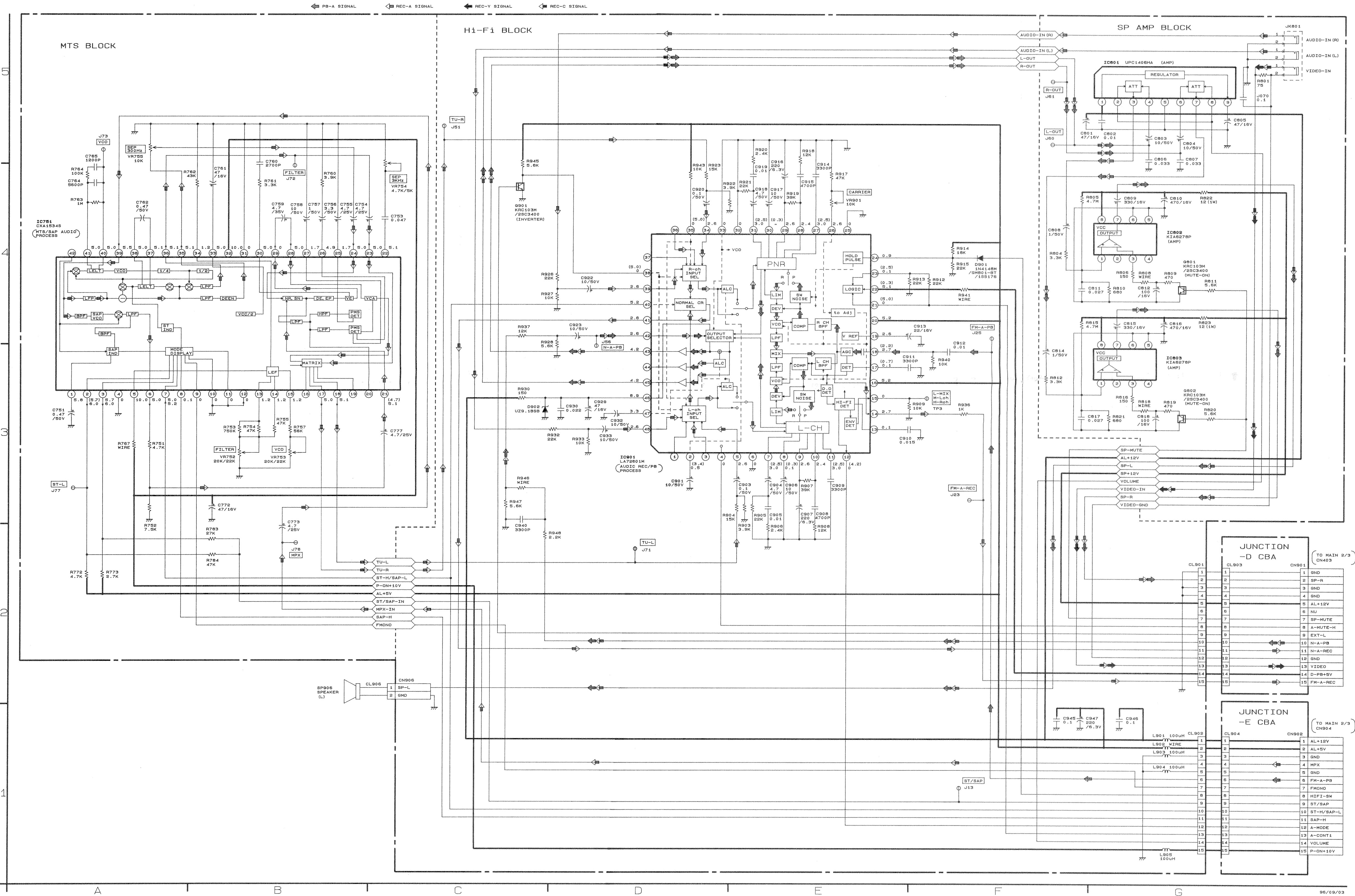
4



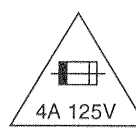


 PB-AUDIO SIGNAL
 REC-AUDIO SIGNAL
 PB-Y SIGNAL
 PB-C SIGNAL
 REC-Y SIGNAL
 REC-C SIGNAL



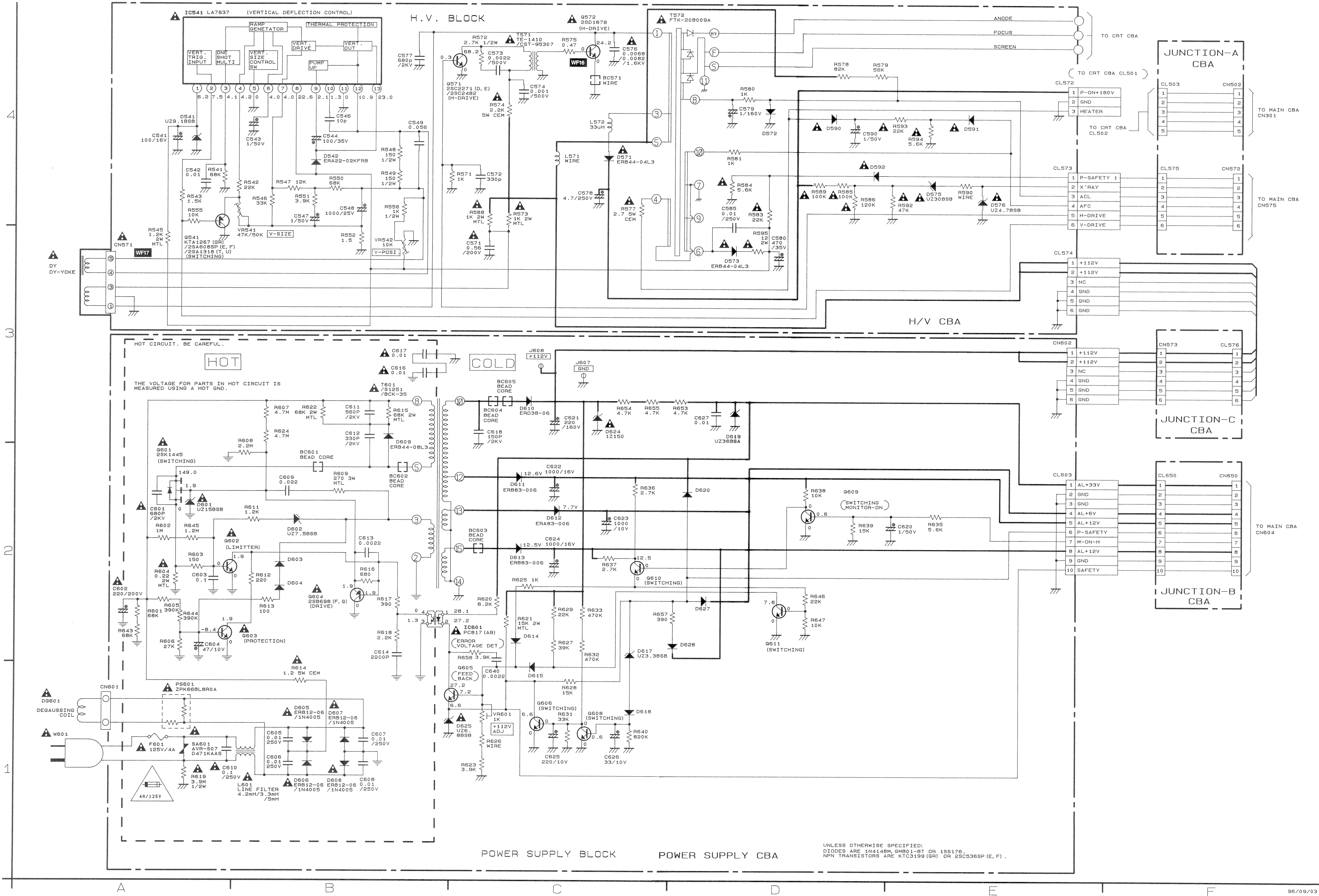


Power Supply & H/V Schematic Diagram

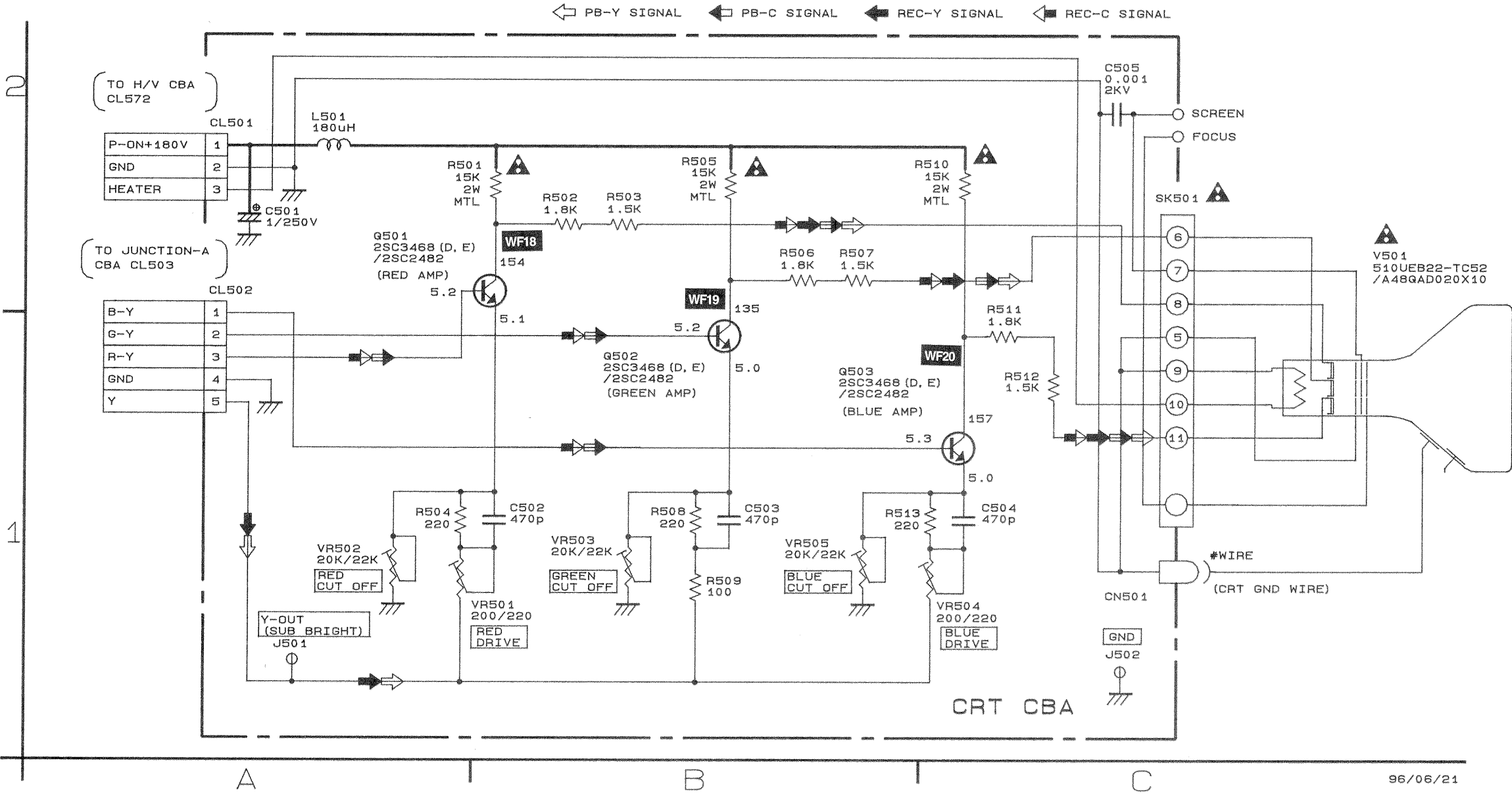


CAUTION
FOR CONTINUED PROTECTION AGAINST FIRE HAZARD,
REPLACE ONLY WITH THE SAME TYPE FUSE.
ATTENTION : POUR UNE PROTECTION CONTINUE LES RISQUES
D'INCENDIE UTILISER QUE DES FUSIBLE DE MEMO TYPE.
RISK OF FIRE-REPLACE FUSE AS MARKED.
This symbol means fast operating fuse.
Ce symbole représente un fusible à fusion rapide.

CAUTION !
Fixed voltage power supply circuit is used in this unit.
If Main Fuse (F01) 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.

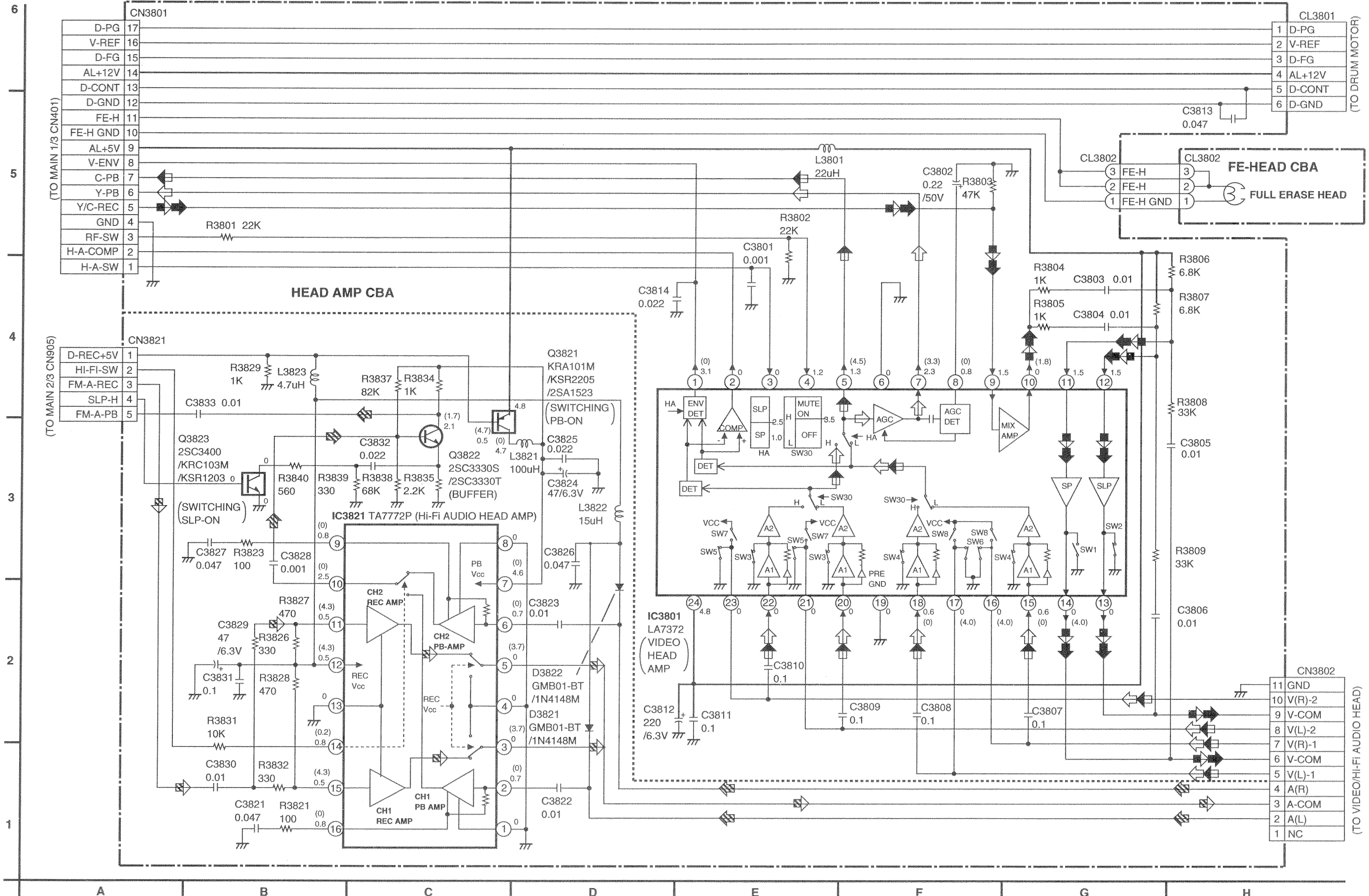


CRT Schematic Diagram

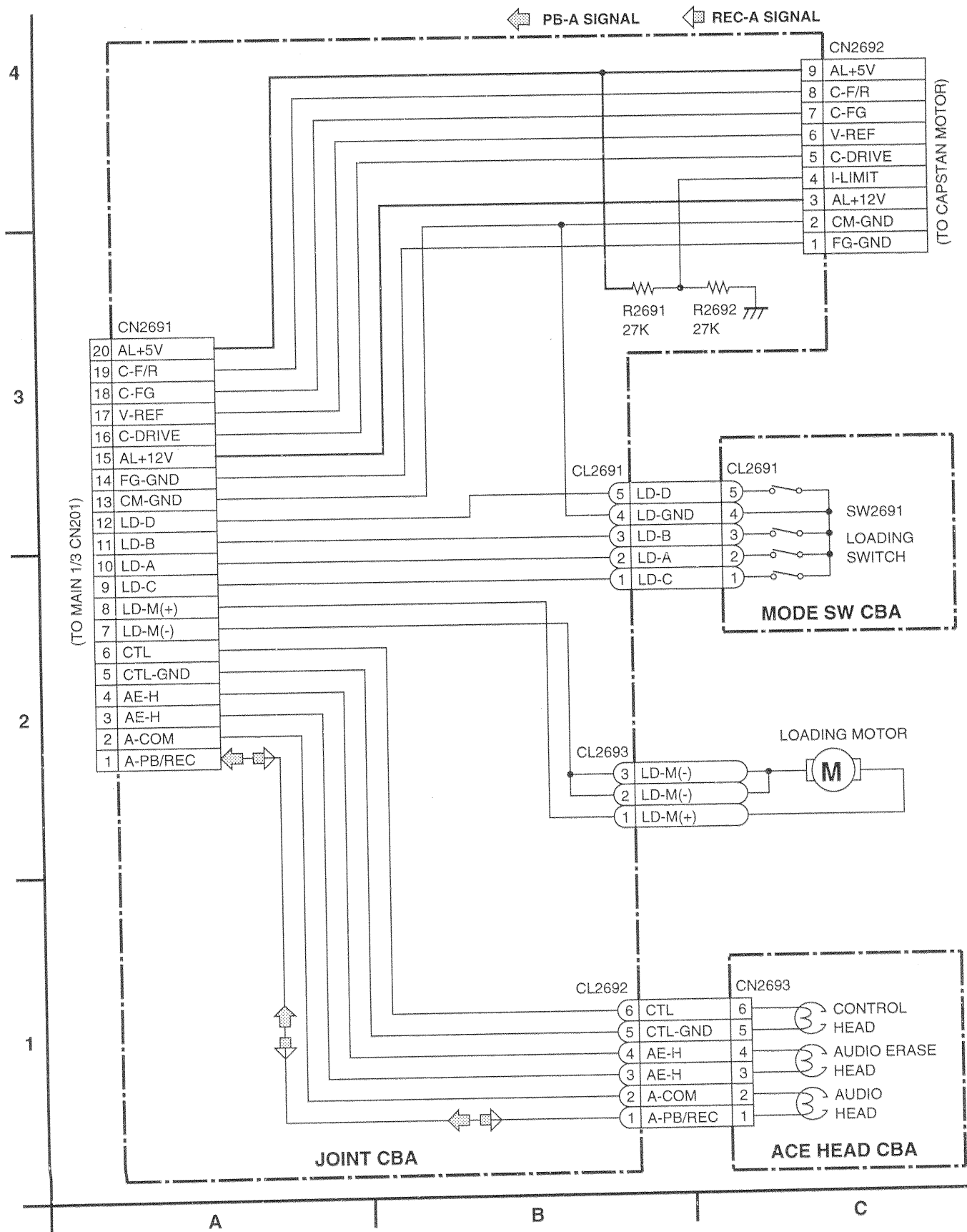


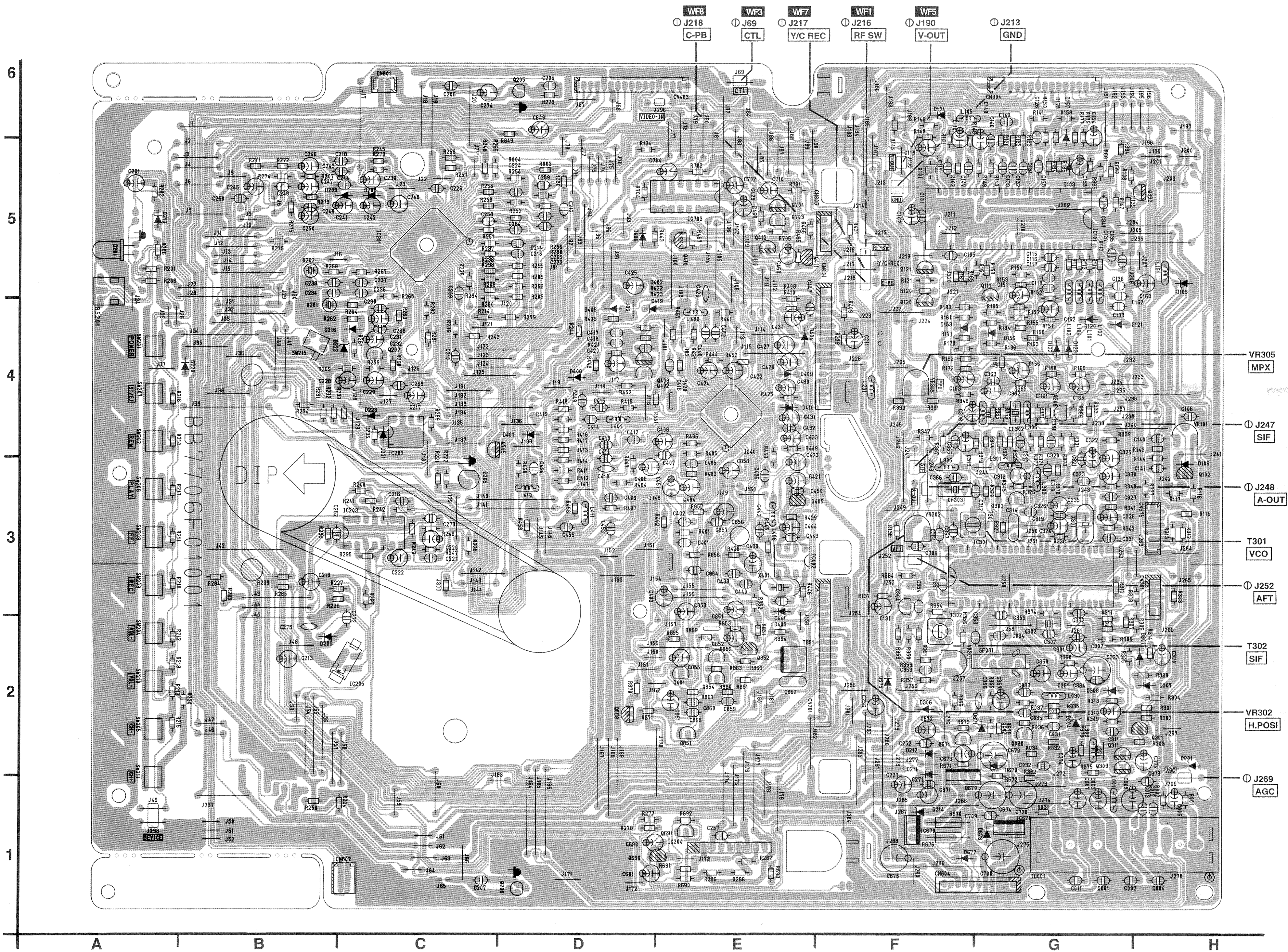
Head Amp/FE-Head Schematic Diagram

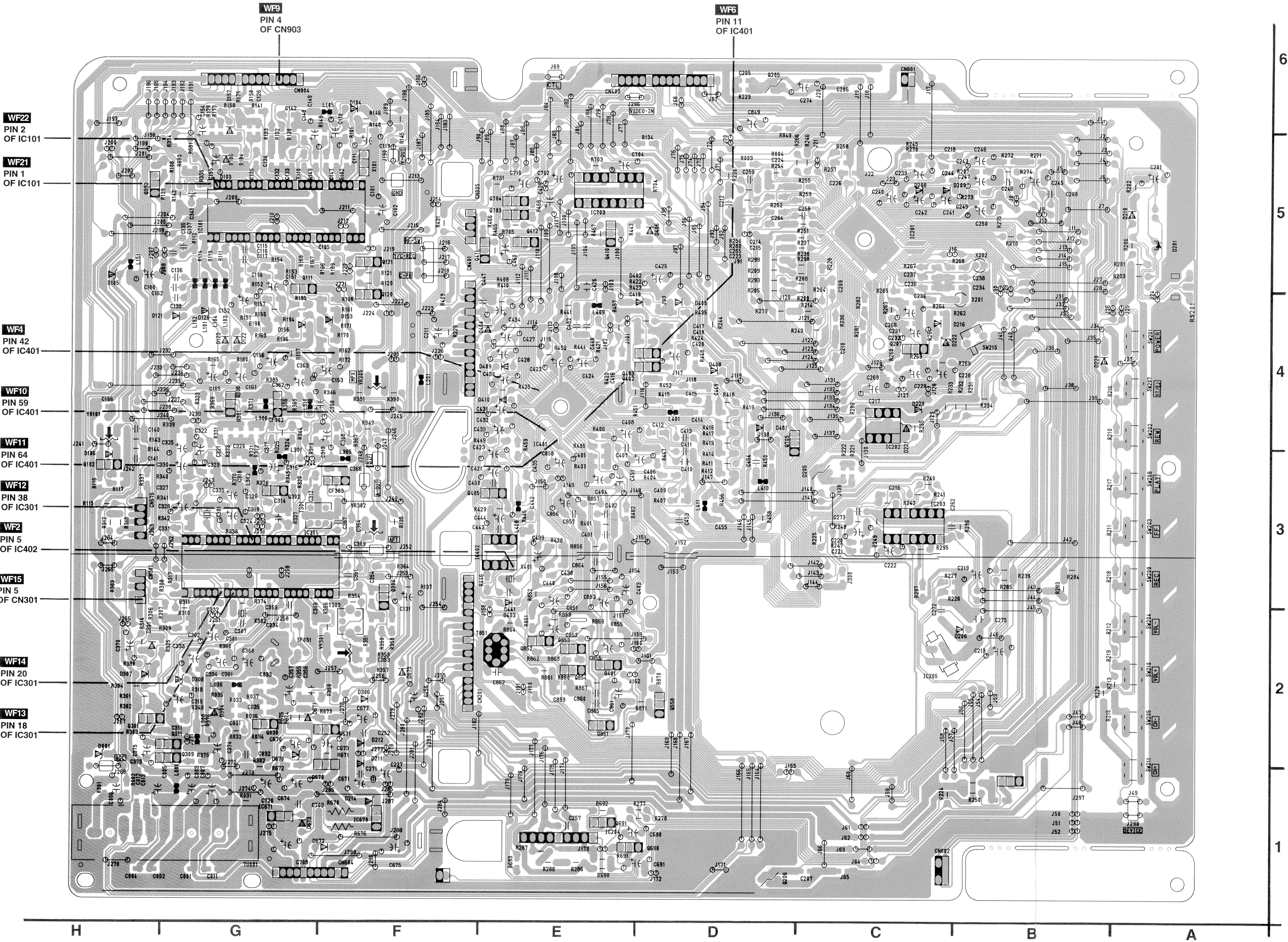
PB-A SIGNAL REC-A SIGNAL PB-Y SIGNAL PB-C SIGNAL REC-Y SIGNAL REC-C SIGNAL Mode : REC/SP



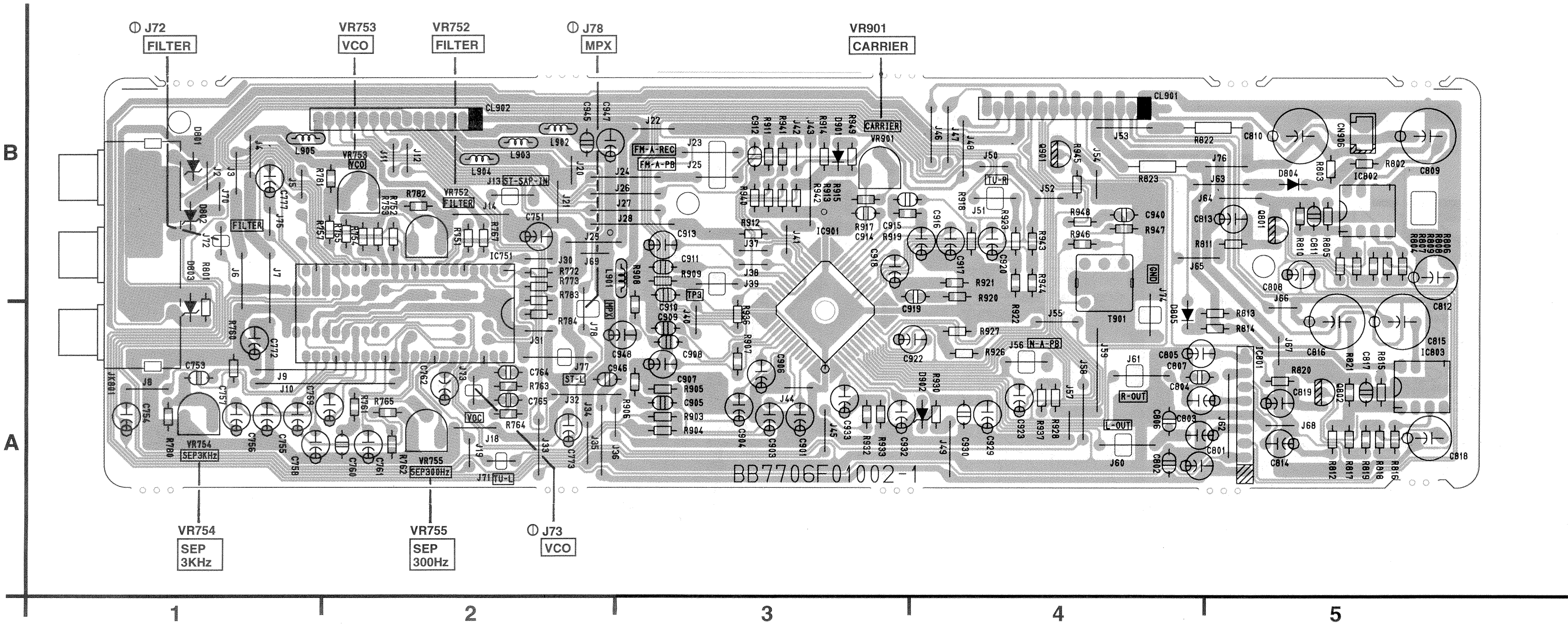
Joint/Mode Sw/Ace Head/Motor Schematic Diagram



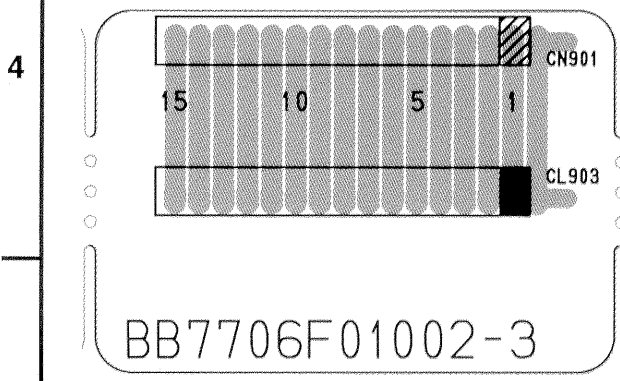




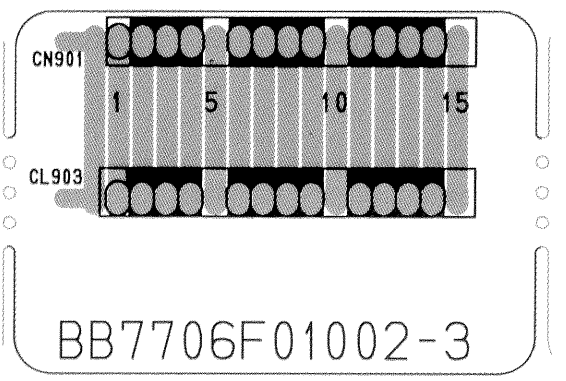
Hi-Fi Audio CBA Top View



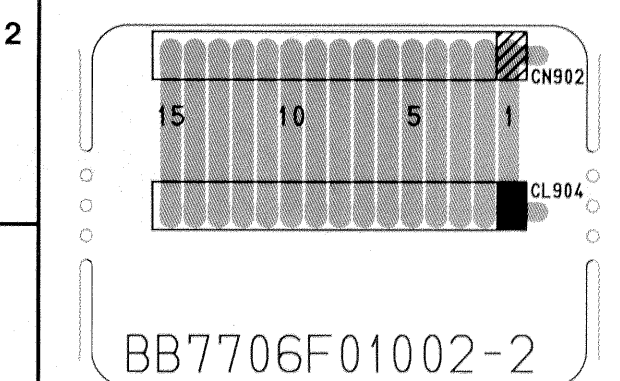
Junction D CBA Top View



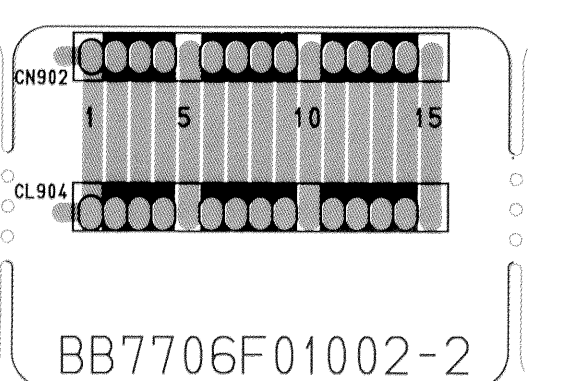
Junction D CBA Bottom View



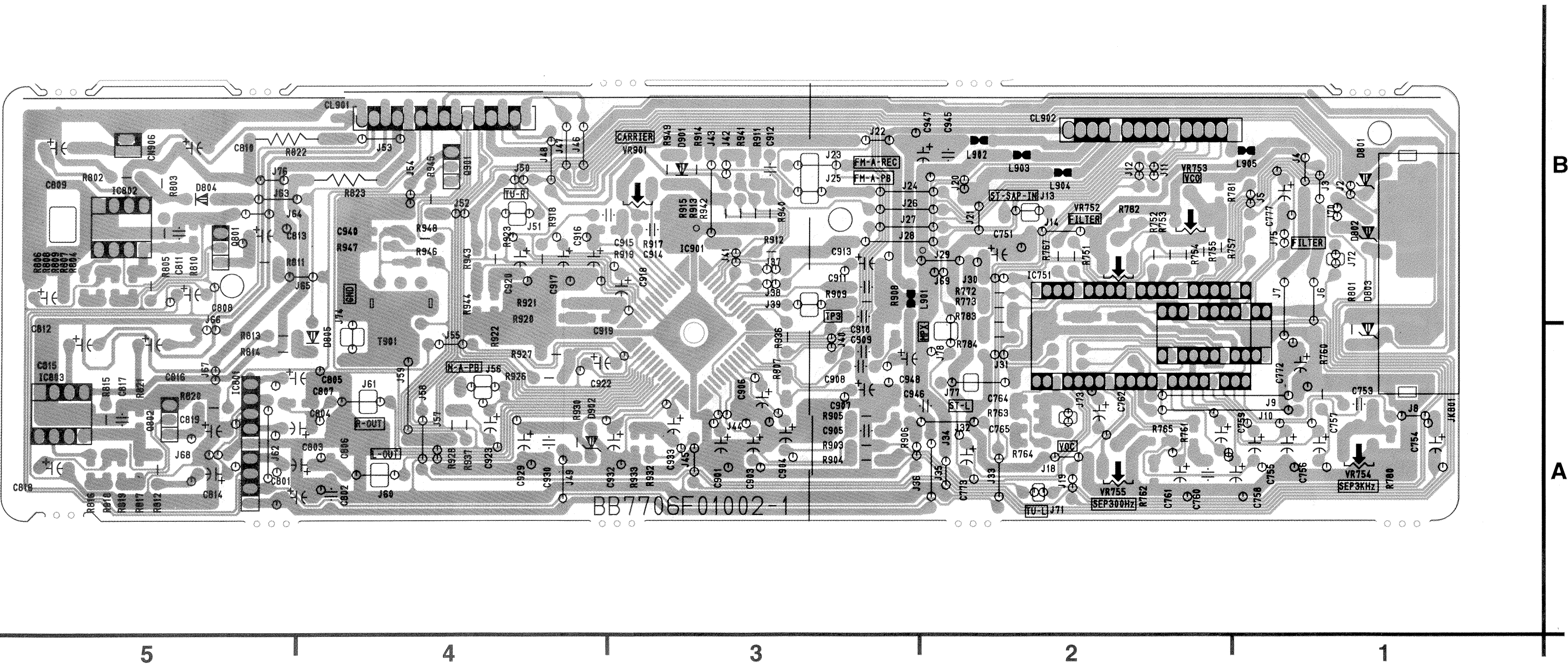
Junction E CBA Top View



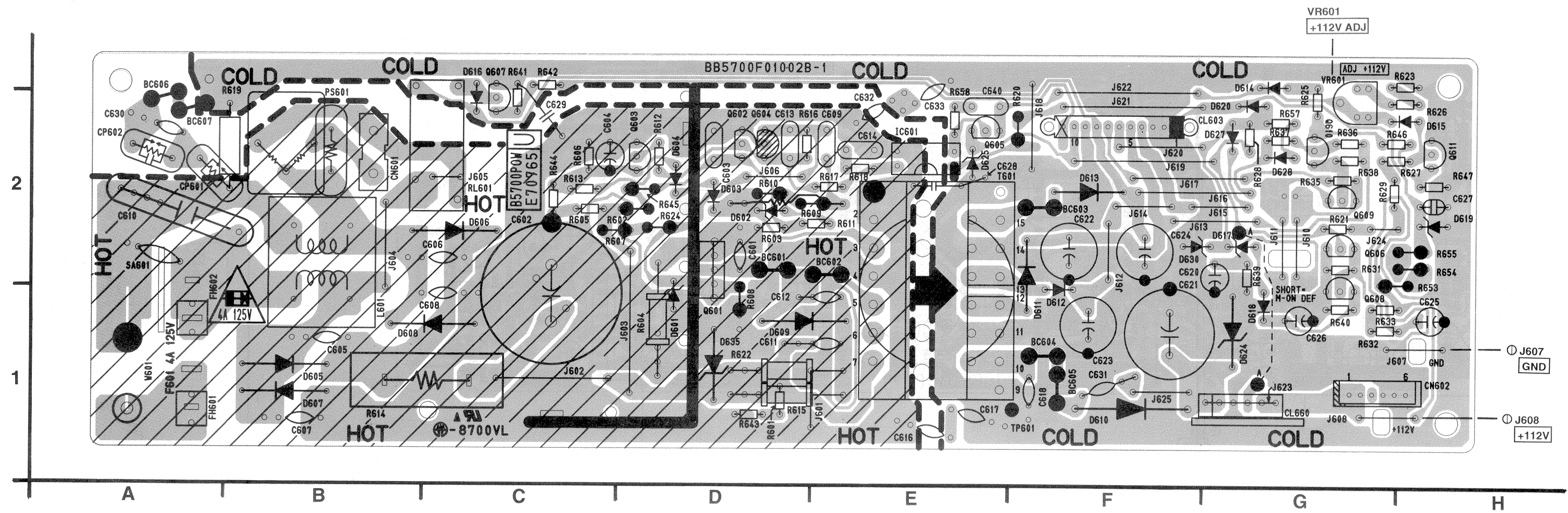
Junction E CBA Bottom View



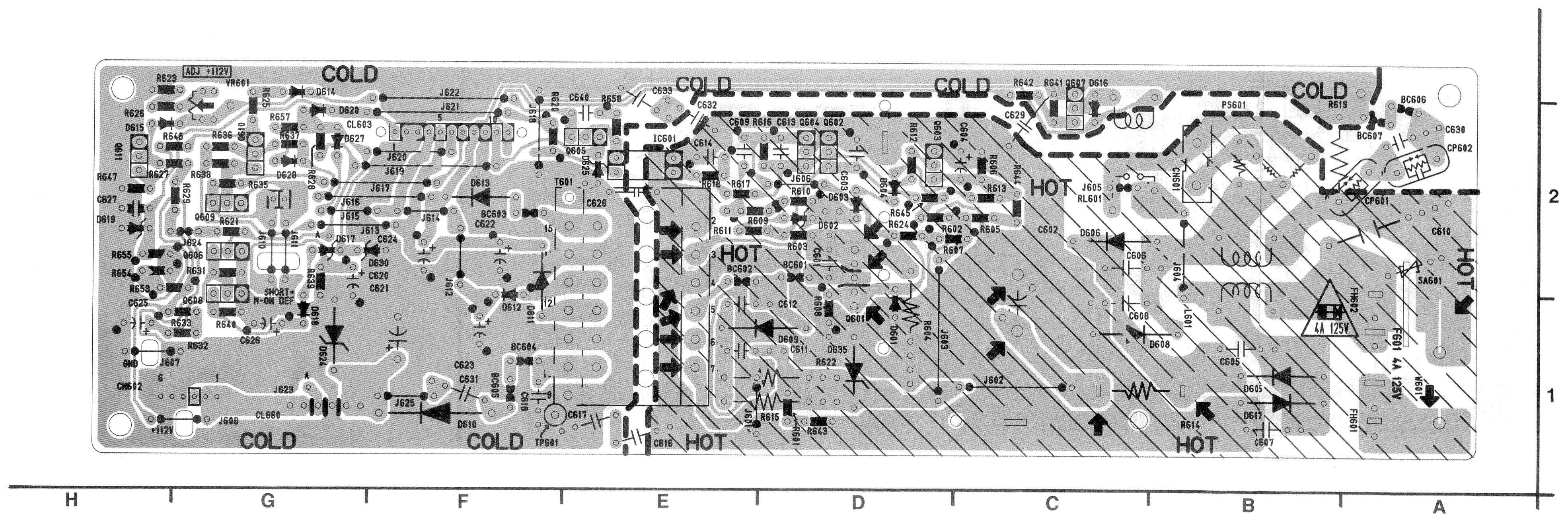
Hi-Fi Audio CBA Bottom View

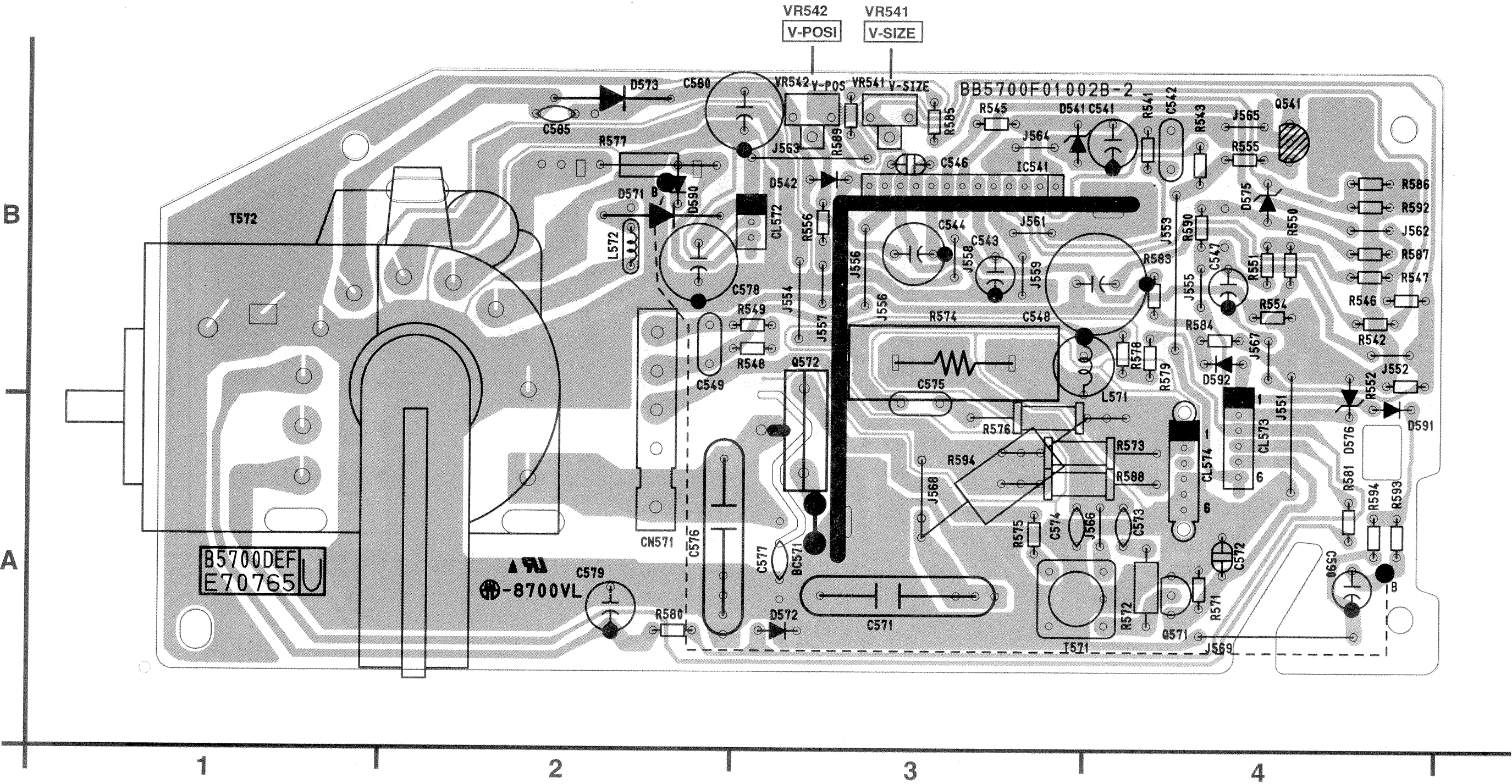


Power Supply CBA Top View

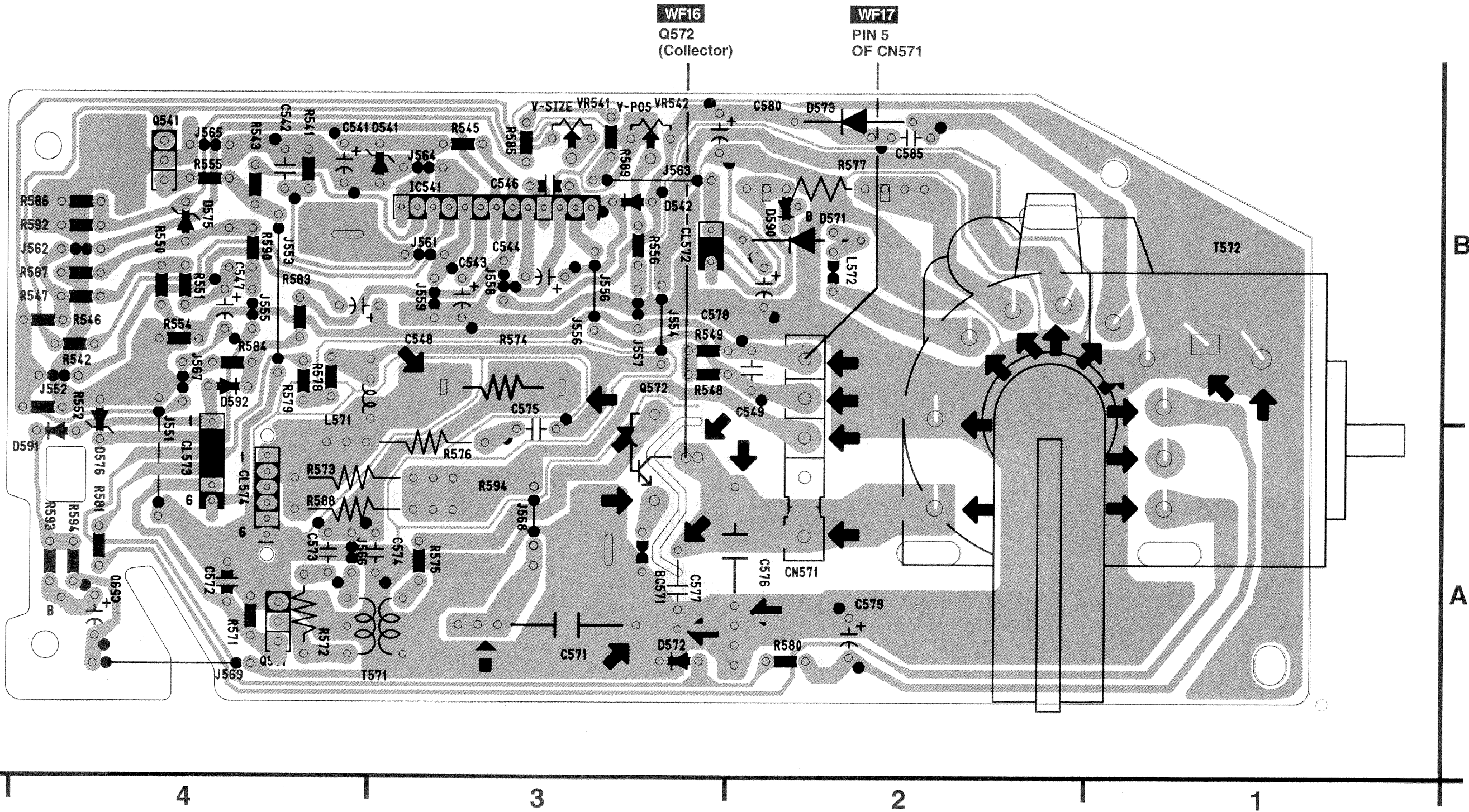


Power Supply CBA Bottom View

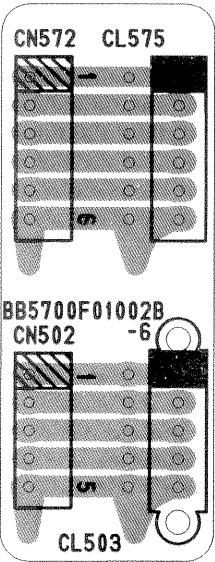




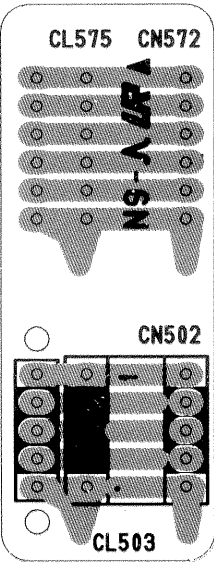
H/V CBA Bottom View



Junction A CBA Top View

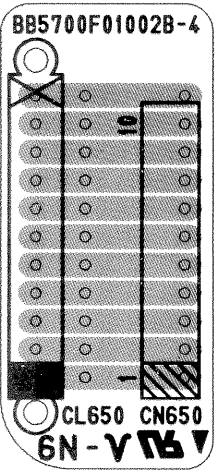


Junction A CBA Bottom View

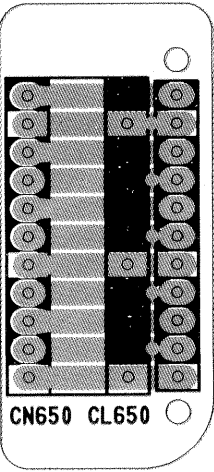


BB5700F01002B-6

Junction B CBA Top View

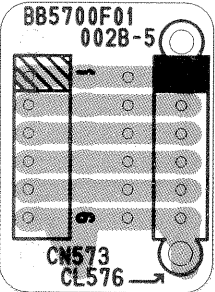


Junction B CBA Bottom View

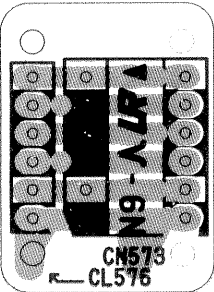


BB5700F01002B-4

Junction C CBA Top View

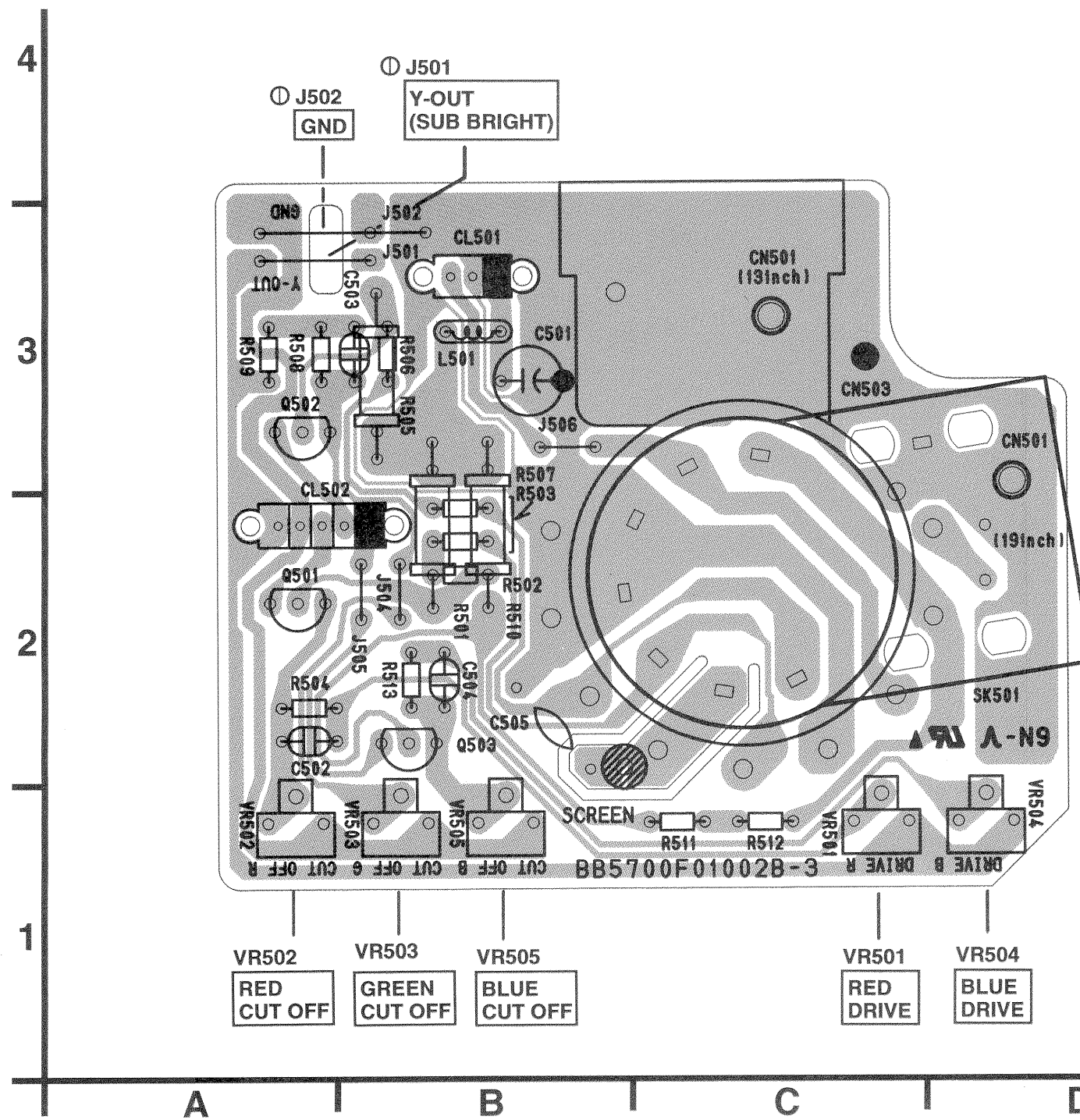


Junction C CBA Bottom View

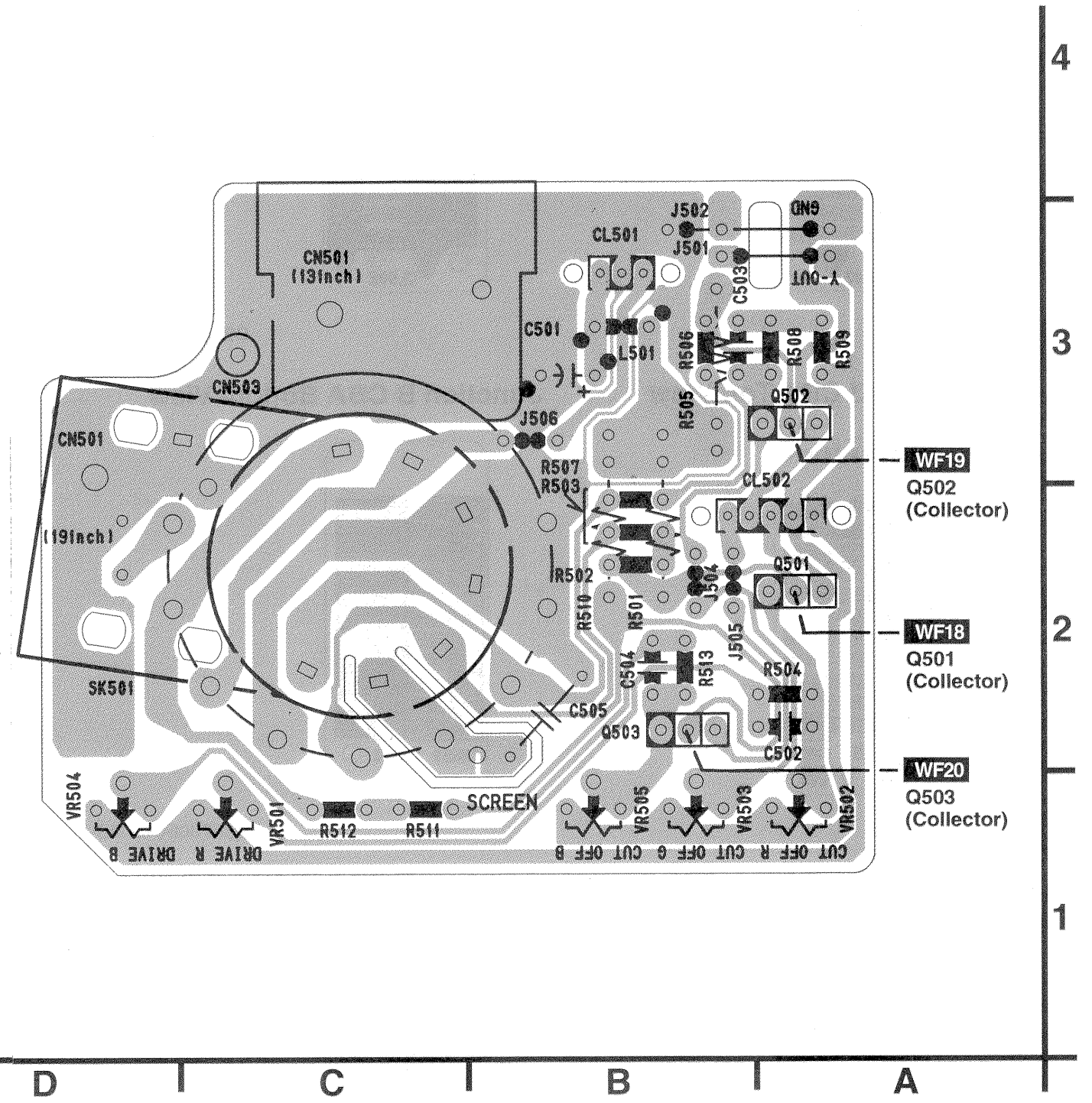


BB5700F01002B-5

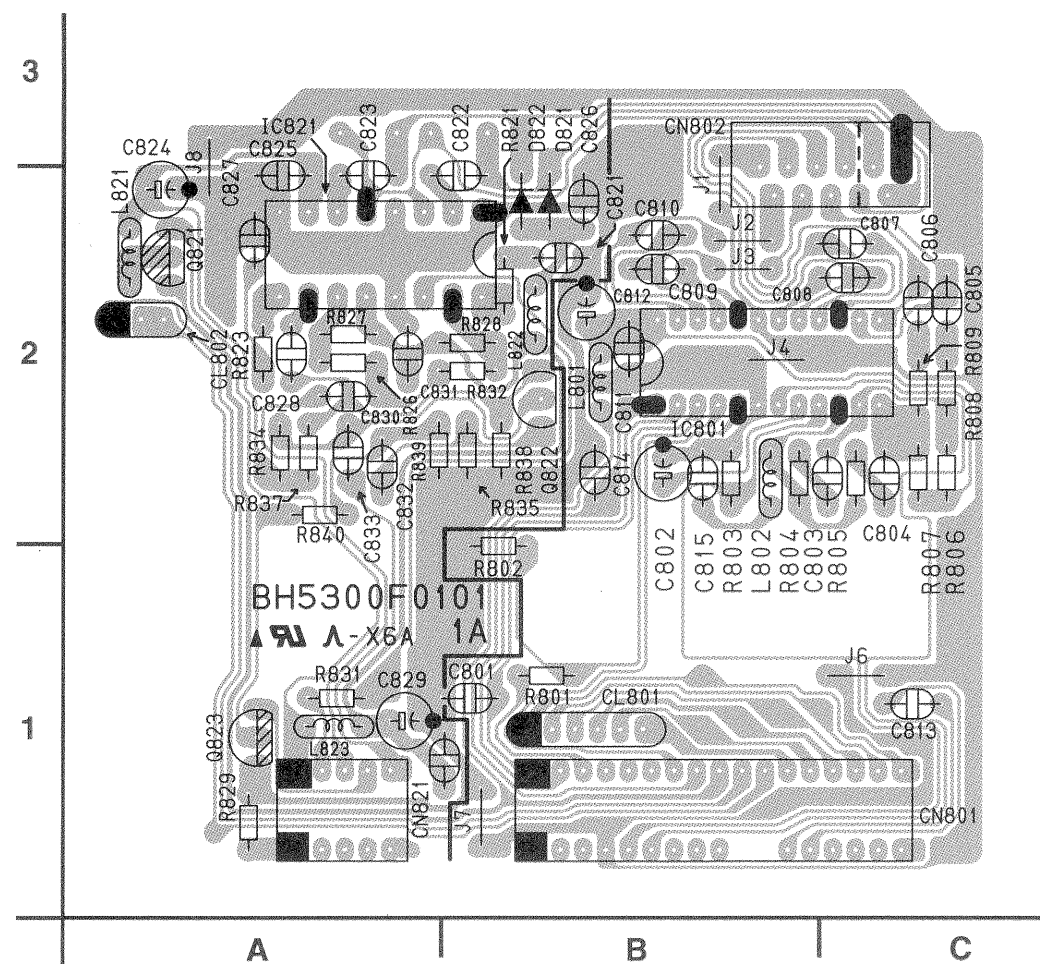
CRT CBA Top View



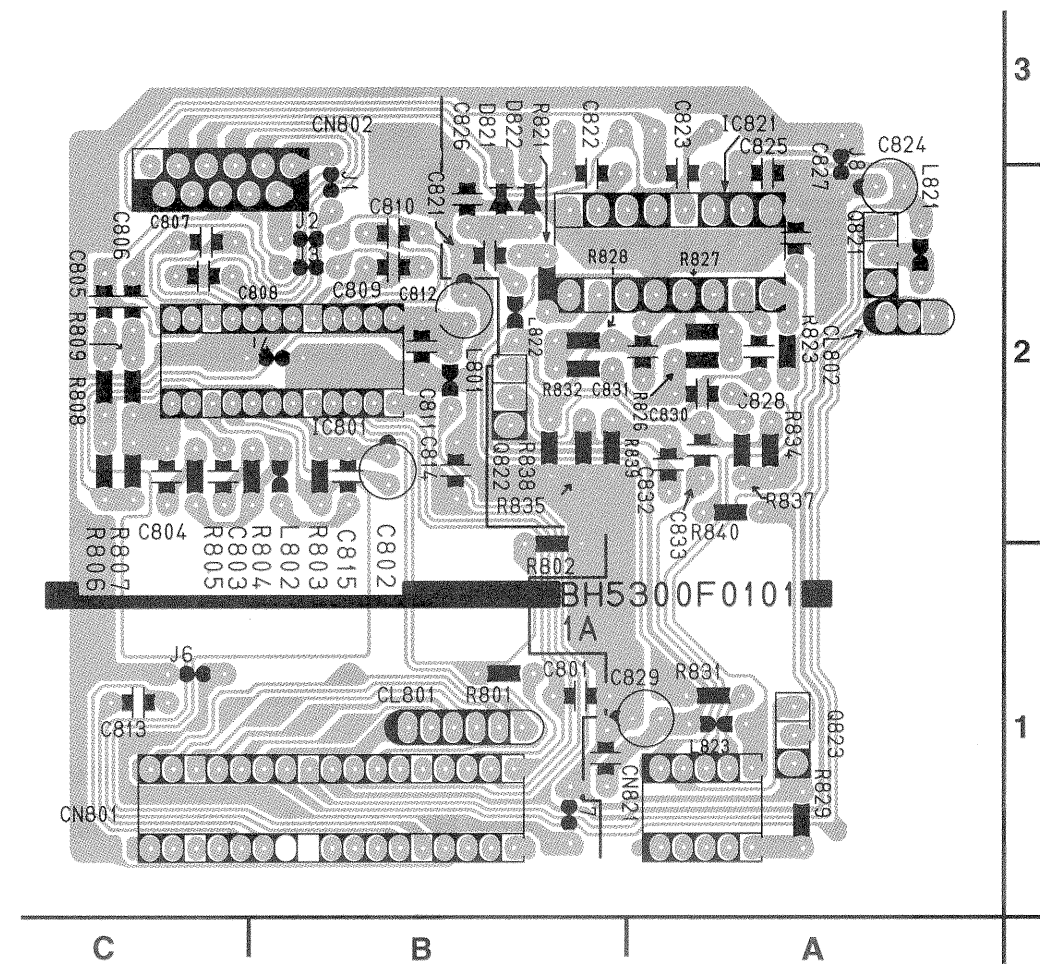
CRT CBA Bottom View



Head Amp CBA Top View



Head Amp CBA Bottom View



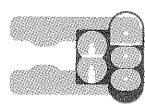
BH5300F0101-1A

Note: There are two types of FE head CBAs and three types of FE heads. Combinations are made clear in Deck electrical parts list. As long as the combination is correct, all the three types of FE heads are interchangeable. The digit "3" is abbreviated in a reference number screened on CBAs. For example, CL802 on CBA is in fact CL3802.

FE Head CBA Top View (TYPE B)



FE Head CBA Bottom View (TYPE B)



BH5300F0101-1B

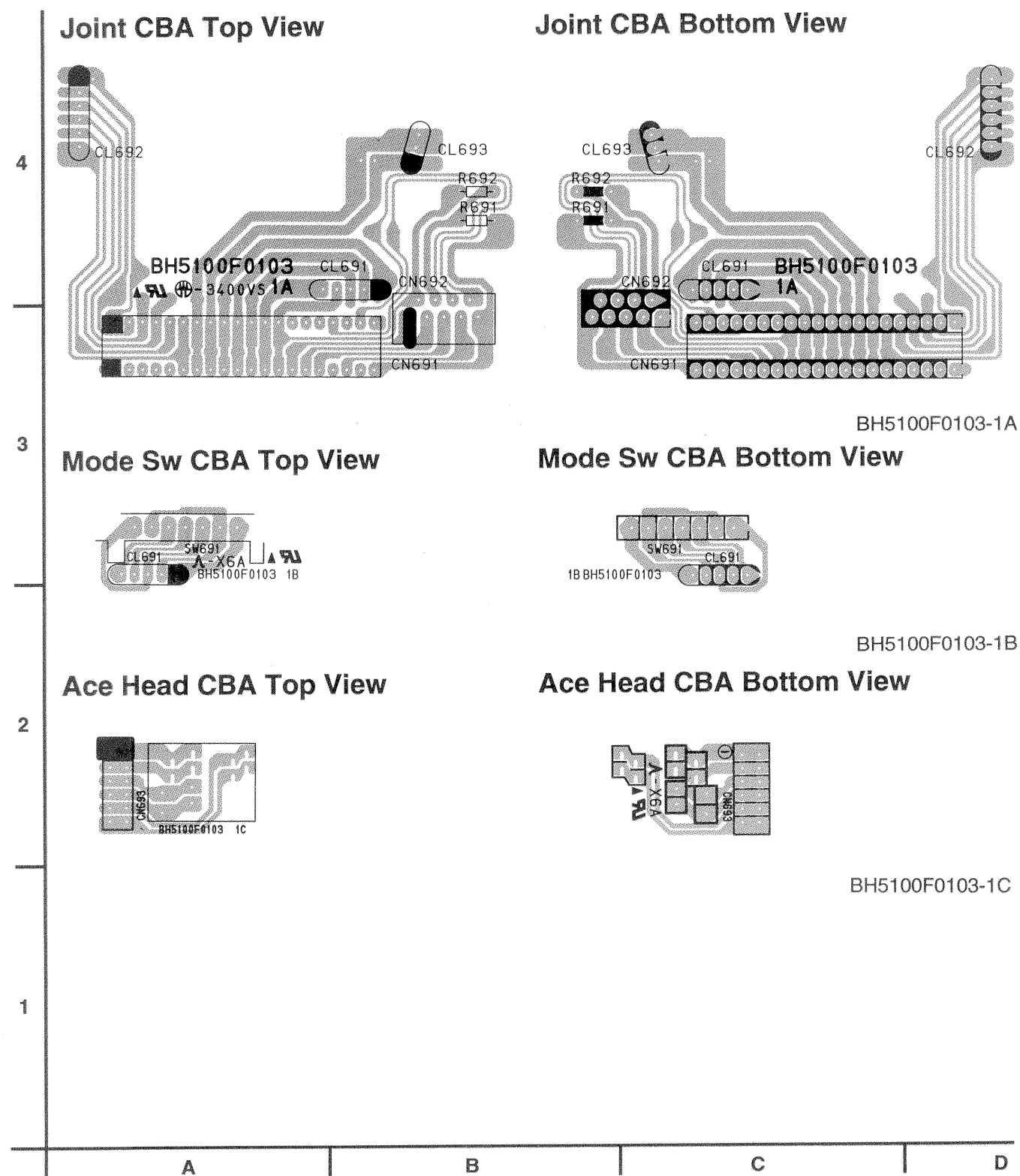
FE Head CBA Top View (TYPE C)



FE Head CBA Bottom View (TYPE C)



BH5300F0101-1C



BH5100F0103-1A

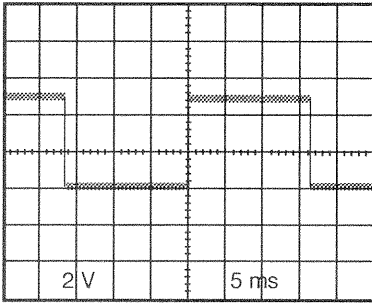
BH5100F0103-1B

BH5100F0103-1C

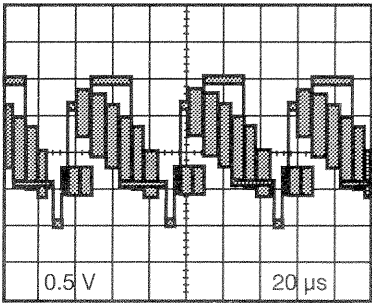
WAVEFORMS

WAVEFORM NOTES

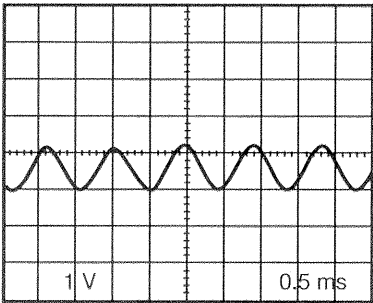
INPUT: NTSC COLOR BAR SIGNAL
OTHER CONTROLS : CENTER POSITION
SHOWING VOLTAGES ARE RANGE OF
OSCILLOSCOPE SETTING



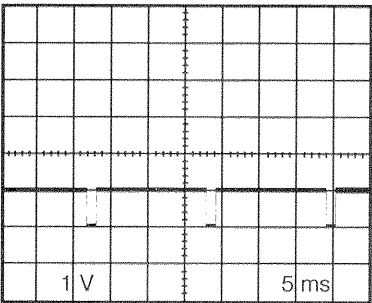
WF1 MAIN 1/3 SCHEMATIC DIAGRAM
J221 RF SW



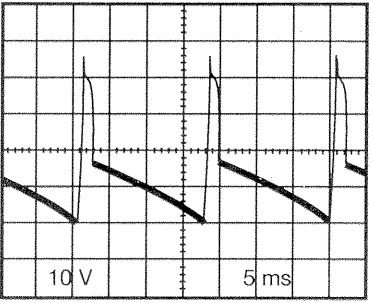
WF5 MAIN 2/3 SCHEMATIC DIAGRAM
J157 V-OUT



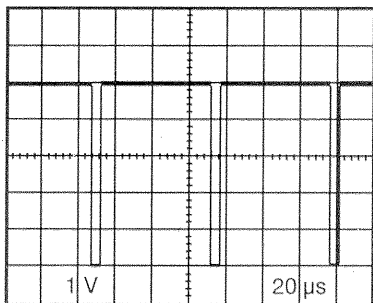
WF9 MAIN 2/3 SCHEMATIC DIAGRAM
IC701 PIN 13



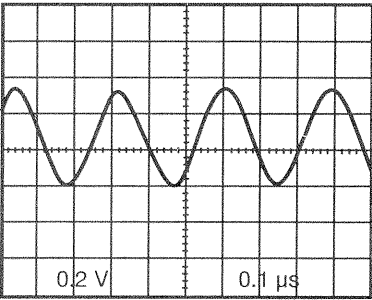
WF13 MAIN 3/3 SCHEMATIC DIAGRAM
IC301 PIN 18



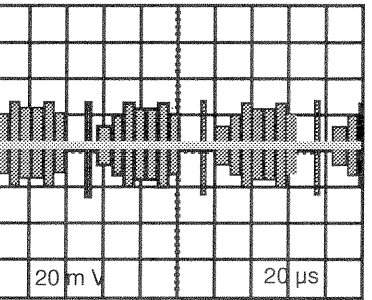
WF17 POWER SUPPLY/H/V
SCHEMATIC DIAGRAM CN571 PIN 5



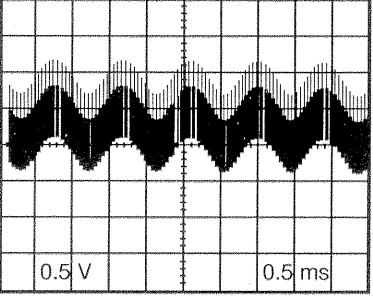
WF21 MAIN 3/3 SCHEMATIC DIAGRAM
IC101 PIN 1



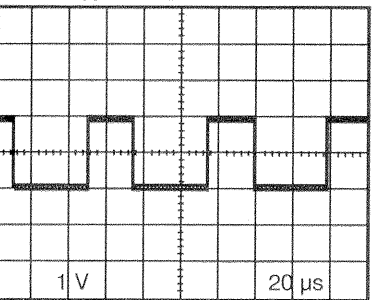
WF2 MAIN 2/3 SCHEMATIC DIAGRAM
IC402 PIN 5



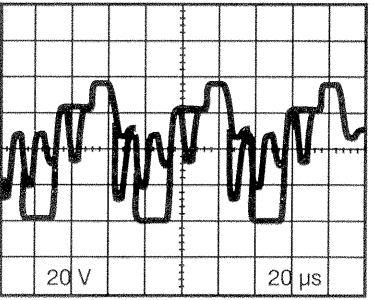
WF6 MAIN 2/3 SCHEMATIC DIAGRAM
IC401 PIN11



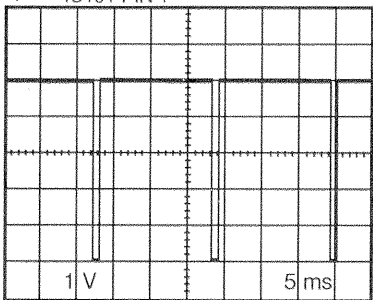
WF10 MAIN2/3 SCHEMATIC DIAGRAM
IC401 PIN 59



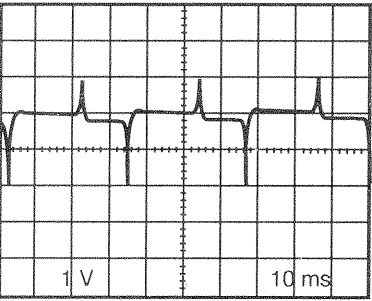
WF14 MAIN 3/3 SCHEMATIC DIAGRAM
IC301 PIN 20



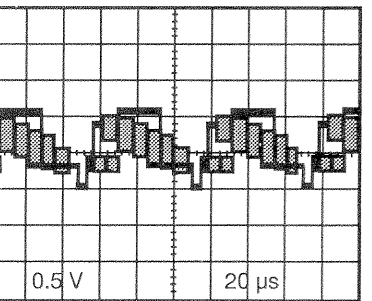
WF18 CRT SCHEMATIC DIAGRAM
Q501 COLLECTOR



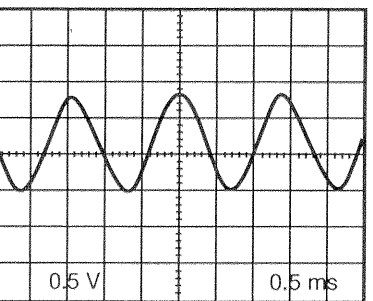
WF22 MAIN 3/3 SCHEMATIC DIAGRAM
IC101 PIN 2



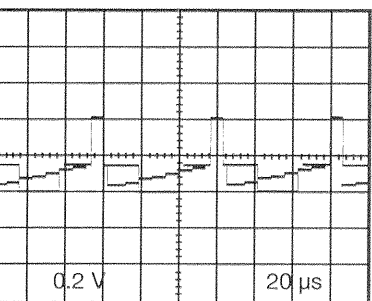
WF3 MAIN 1/3 SCHEMATIC DIAGRAM
J216 CTL



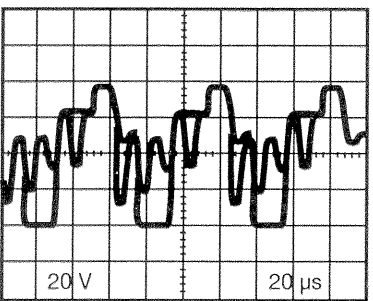
WF7 MAIN 2/3 SCHEMATIC DIAGRAM
J217 Y/C REC



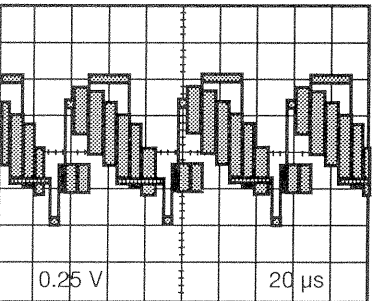
WF11 MAIN 2/3 SCHEMATIC DIAGRAM
IC401 PIN 64



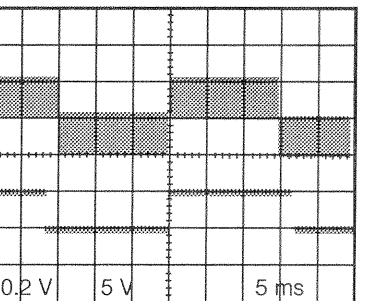
WF15 MAIN 3/3 SCHEMATIC DIAGRAM
CN301 PIN 5



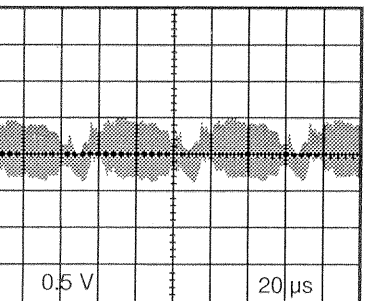
WF19 CRT SCHEMATIC DIAGRAM
Q502 COLLECTOR



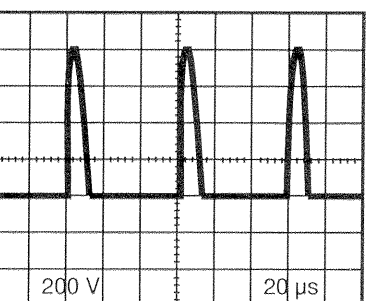
WF4 MAIN 2/3 SCHEMATIC DIAGRAM
IC401 PIN 42



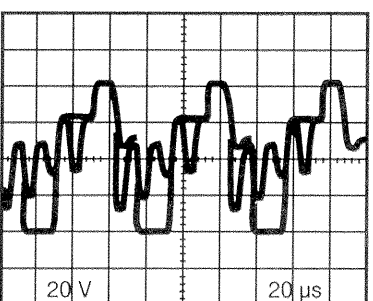
Upper: WF8 Lower: WF1
MAIN 2/3 SCHEMATIC DIAGRAM J222 C-PB



WF12 MAIN 3/3 SCHEMATIC DIAGRAM
IC301 PIN 38

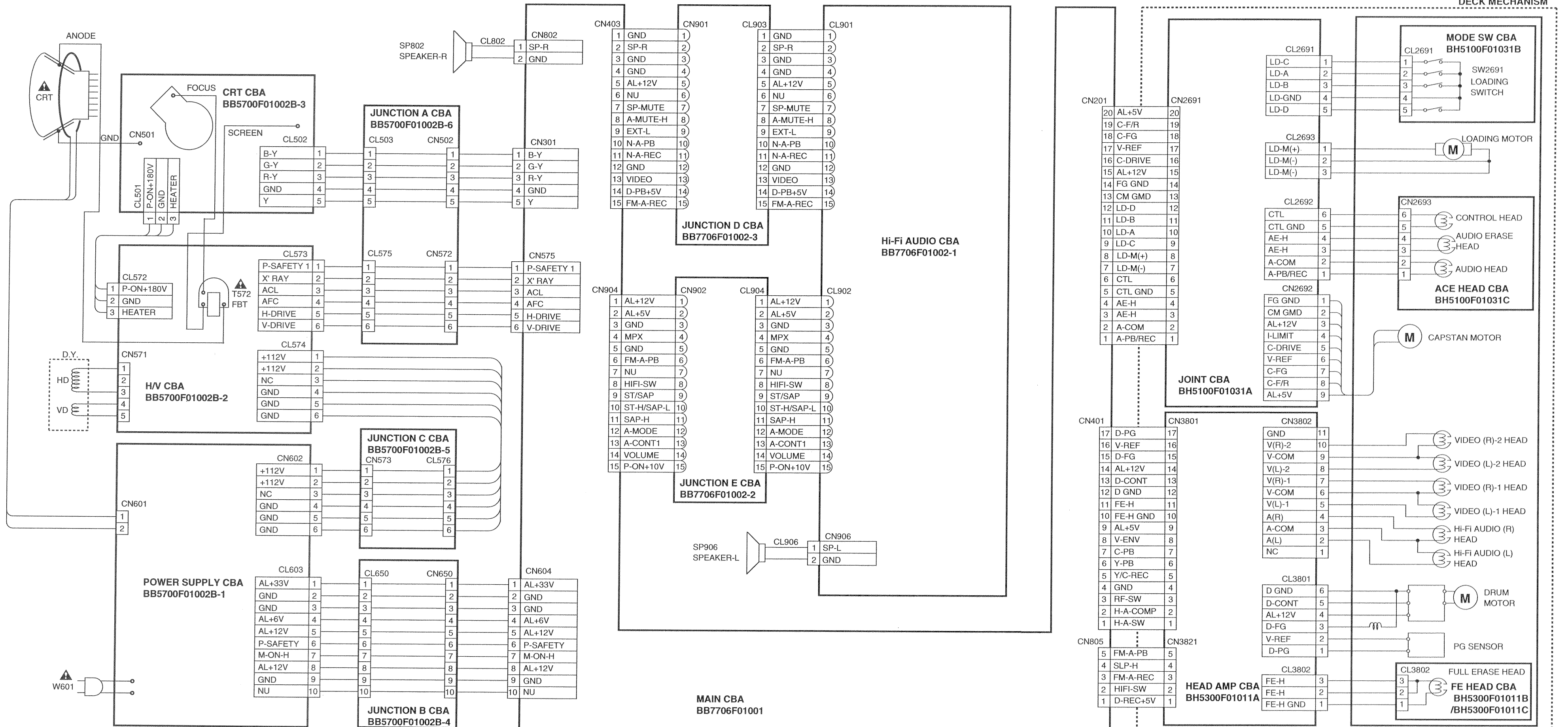


WF16 POWER SUPPLY/H/V
SCHEMATIC DIAGRAM Q572 COLLECTOR



WF20 CRT SCHEMATIC DIAGRAM
Q503 COLLECTOR

WIRING DIAGRAM



SYSTEM CONTROL TIMING CHARTS

CHART 1

1. EJECT → CASS. IN → STOP(B) → STOP(A) → PLAY → RS → FS → PLAY → STILL → PLAY → STOP(A)

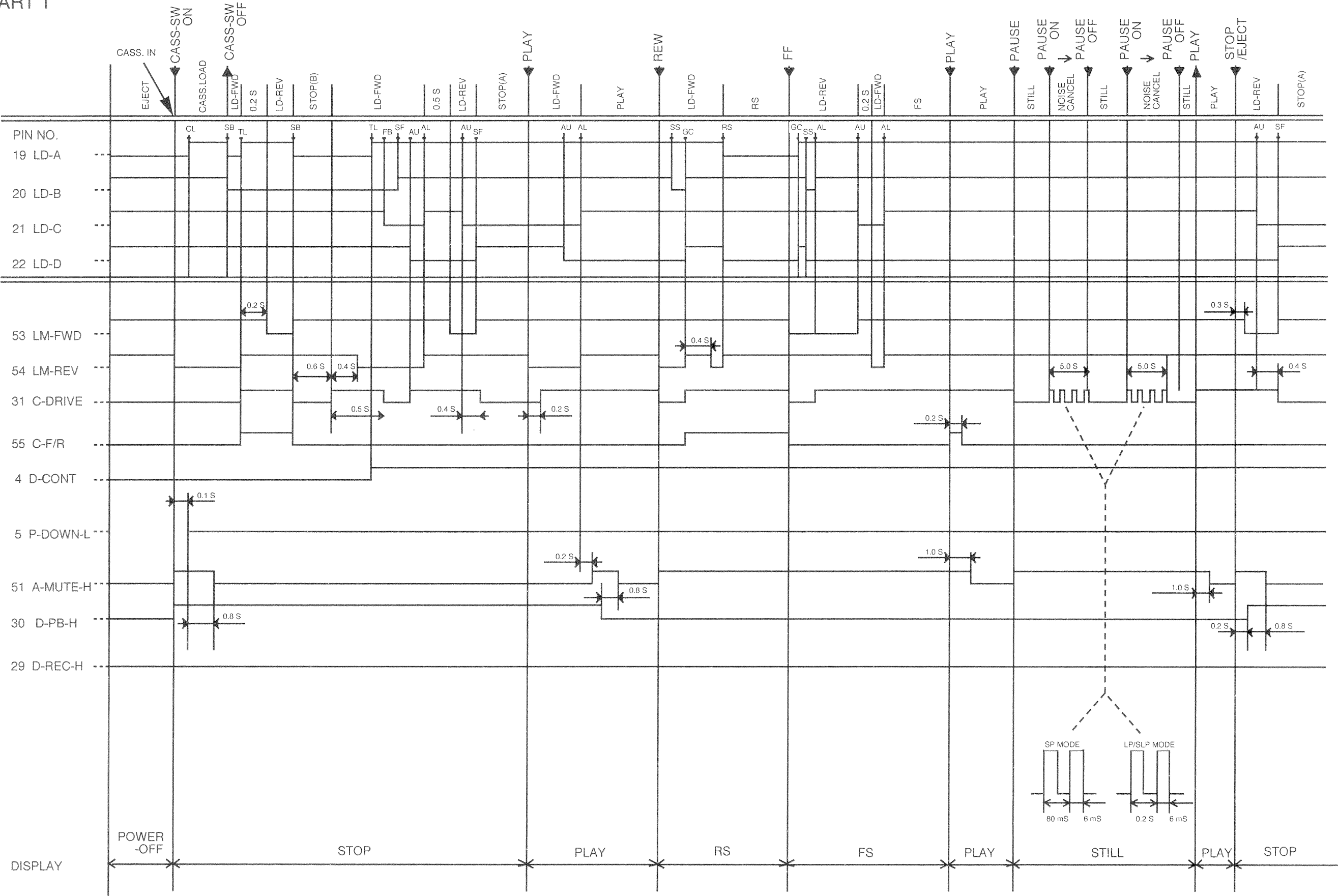
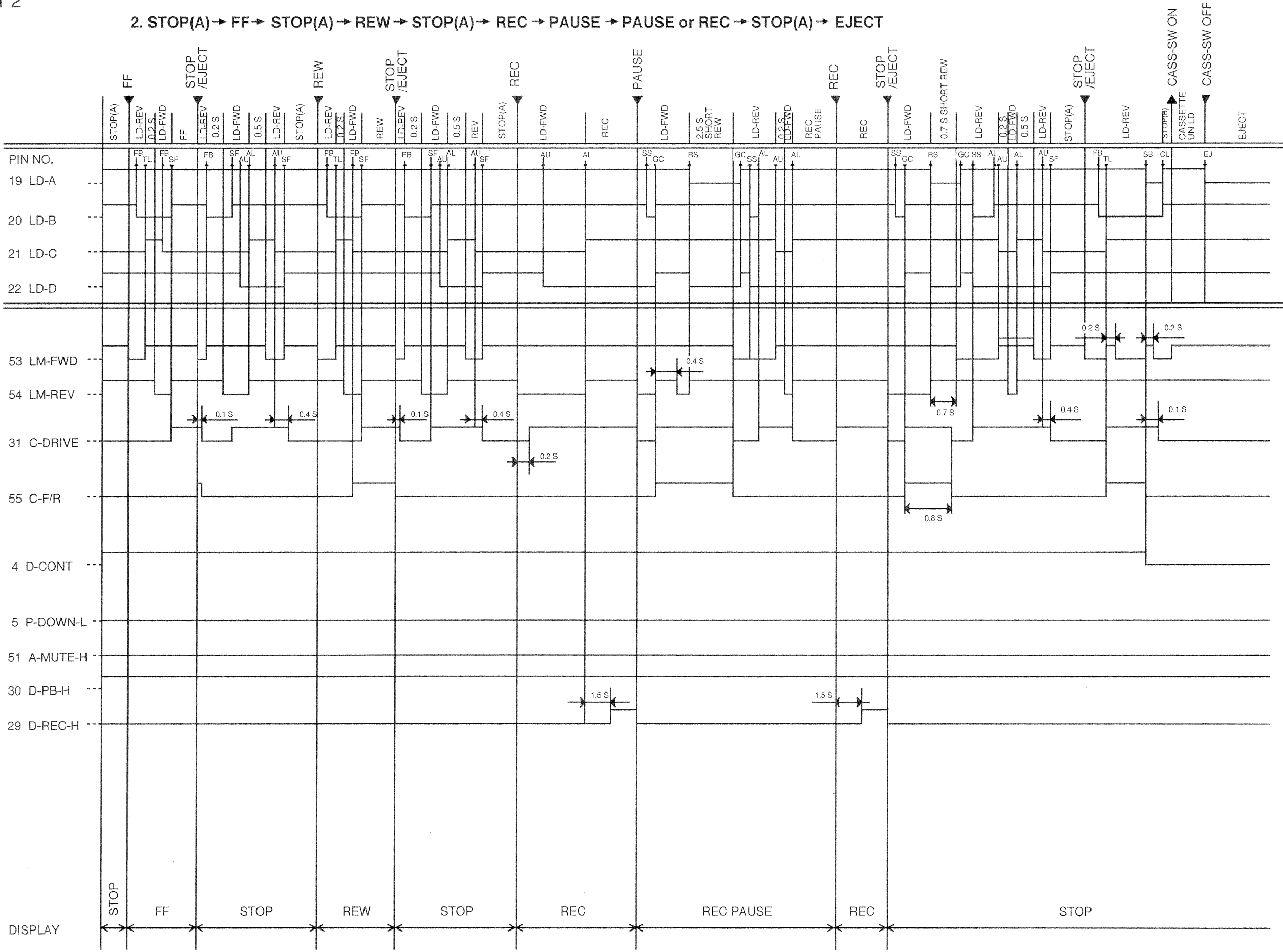


CHART 2

2. STOP(A) → FF → STOP(A) → REW → STOP(A) → REC → PAUSE → PAUSE or REC → STOP(A) → EJECT



IC PIN FUNCTIONS DESCRIPTION

IC101 (TV Micro Computer)

Pin No.	In/ Out	Signal Name	Function	Active Level
1	In	H-SYNC	Horizontal Synchronized Pulse Input	L
2	In	V-SYNC	Vertical Synchronized Pulse Input	L
3		X-RAY	X-Ray Protection	
4			Not Used	
5			Not Used	
6			Not Used	
7			Power Protection 1	
8			Power Protection 2	
9			Not Used	
10			Not Used	
11	Out	SHARP-NESS	Sharpness Control	
12	Out	TINT	Tint Control	
13	Out	AGCOUT	AGC Out for Adj.	
14	In	SIN	Serial Input	
15			Not Used	
16	Out	SOUT	Serial Out	
17	In	SCLK	Serial Clock	
18		All +5V	All 5V	
19		HLF	HLF	
20	In	RVC0	RVC0	—
21	Out	VHOLD	VHOLD	—
22	In	CVIN	Composite Video Sync	—
23		GND	Ground	
24	In	XIN	Oscillator Input	—
25	Out	XOUT	Oscillator Output	—
26		GND	Ground	—
27		All+5V	All 5V	—
28			Not Used	—
29			Not Used	—
30	In	RESET	System Reset Signal	
31			Not Used	
32			Not Used	
33			Not Used	
34		H-POS1 1	Horizontal Adj. 1	

Pin No.	In/ Out	Signal Name	Function	Active Level
35		H-POS1 2	Horizontal Adj. 2	
36			Not Used	
37			Not Used	
38			Not Used	
39			Not Used	
40			Not Used	
41			Not Used	
42			Service Output	
43			Not Used	
44			Not Used	
45	Out	COLOR	Color Control	PWM
46	Out	VOLUME	Volume Control	PWM
47	Out	CONTRAST	Contrast Control	PWM
48	Out	BRIGHT	Bright Control	PWM
49	Out	OUT	Picture Cut Signal	H
50	Out	B	Signal (Blue) Out	H
51	Out	G	Signal (Green) Out	H
52	Out	R	Signal (Red) Out	H

IC201 (VCR-MICRO COMPUTER)

Pin No.	In/ Out	Signal Name	Function	Active Level
1	In	PBS	Auto Clock Detection	H/L
2			Not Used	—
3	Out	C-CONT	Capstan Motor Control Signal	PWM
4	Out	D-CONT	Drum Motor Control Signal	PWM
5	In	P-DOWN	Power Down Detection Input	L
6			Not Used	—
7			Not Used	—
8		IS31	IS31 On/Off Detection	H/L
9	In	REEL	Reel Pulse Input	H/L
10		TUNER	Tuner Judgement	H/L
11	In	REMOCON	Remote Control Input	L
12	Out	RF-SW	RF-SW Output	H/L
13			Not Used	—
14	Out	D-V	Dummy V-sync Output	H

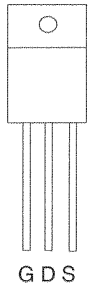
Pin No.	In/ Out	Signal Name	Function	Active Level
15	Out	ROTA	Rota Output	H/L
16			Not Used	—
17	In		Not Used	—
18			Not Used	—
19	In	LD-A	Loading Position Detector	H/L
20	In	LD-B	Loading Position Detector	H/L
21	In	LD-C	Loading Position Detector	H/L
22	In	LD-D	Loading Position Detector	H/L
23	Out	SDA	E2PROM DATA	L
24	Out	SCL	E2PROM CLOCK	L
25			Not Used	—
26		T+5V	T+5V In	—
27	Out	LP/SLP-H	Tape Speed LP or SLP mode="H" Output	H
28	Out	SLP-H	Tape speed SLP mode="H" Output	H
29	Out	D-REC-H	D-REC Output	H
30	Out	D-PB-H	D-PB Output	H
31	Out	C-DRIVE	Capstan Drive Output	—
32	Out	P-ON-H	P-ON Output	H
33	Out	SPL-PLAY	Special Playback at "H"	H
34			Not Used	—
35		GND		—
36		GND		—
37	In	RESET	System Reset Signal (Usually ="H" / Reset="L")	L
38	In	X in	Oscillator Input	—
39	Out	X-Out	Oscillator Output	—
40		CLKSEL	Clock Select	—
41		GND		—
42	In	Xcin	Oscillator C Input	—
43	Out	Xcout	Oscillator C Output	—
44	Out	REC-LED	REC-LED	L
45	Out	REC-LED	REC-LED	L
46	Out	IND-LED1	Trouble LED	H
47	Out	IND-LED2	Trouble LED	H
48	Out	RENTAL	Rental Position Output	H

Pin No.	In/ Out	Signal Name	Function	Active Level
49	Out	EXT-L	EXT-Selection Output	L
50	Out	V-MUTE	V-MUTE Output	H
51	Out	A-MUTE	Audio Mute Output (Mute="H")	H
52		SP-MUTE	Speaker Mute Output	H
53	Out	LD-FWD	LD-FWD Output	H
54	Out	LD-REW	LD-REW Output	H
55	Out	C-F/R	Capstan Direction Output	H/L
56	In	REC-SAFETY	Cass. Tab Detection	L
57	Out		Not Used	—
58	Out	DG -ON	DG-ON Output	H
59	Out	CTL-GND-SW	CTL (-) GND Output	H
60	In	MONITOR	Monitor On	H
61	In	TV-RESET	TV MICRO Reset	L
62	Out	SPOT-KILL		L
63			Not Used	—
64			Not Used	—
65		ALL +5V	AMP Power Supply	—
66	In	D-PG	Drum Pulse Generator Input	—
67	In	D-FG	Drum Frequency Generator Input	—
68	In	C-FG	Capstan Frequency Generator Input	—
69	Out	AMPVREF Out	AMPVREF Out	—
70	In	AMPVREF In	AMPVREF In	—
71	In	CLAMPF	CLAMPForward	—
72	In	CLAMPR	CLAMPReverse	—
73	Out	CTLAMP Out	CTLAMP Out	—
74		AMPC	AMPC	—
75	In	CTLAMP In	CTLAMP In	—
76	Out	CTL +SWOUT	CTL+SWOUT	L
77	In	CTL (+)	CTL (+)	—
78	In	CTL (-)	CTL (-)	—
79		GND		—
80		GND		—
81		T+5V	T+5V	—

Pin No.	In/ Out	Signal Name	Function	Active Level
82		ALL +5V	All +5V	—
83		C		—
84			Not Used	—
85	In	KEYO	KEYO Input	A/D
86	In	KEY1	KEY1 Input	A/D
87	In	AFT	AFT Input	A/D
88	In	AGCIN	AGC Input	
89	In	END-SENS	END-SENS Input	A/D
90	In	DEW	DEW Detection	A/D
91	In	ST-SENS	STS-SENS Input	A/D
92	In	V-ENV	V-ENV Input	A/D
93	In	V-SYNC	V-SYNC Input	H
94	Out	S-OUT	Serial Data Output	H
95	In	S-IN	Serial Date Input	L
96	Out	S-CLK	Serial Clock Output	L
97		A-MUTE-PB-L	A-Mute Output	L
98	Out	PLL-DATA	SCL/PLL-Data Output	H
99	Out	PLL-ENA	SDA/PLL-ENA Output	H
100	Out	PLL-CLK	PLL-CLK Output	H

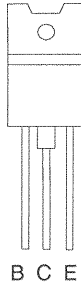
LEAD IDENTIFICATIONS

2SK1445



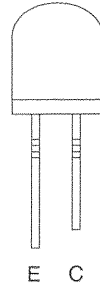
G: Gate
D: Drain
S: Source

2SD2331

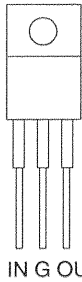


E: Emitter
C: Collector
B: Base

PT380FAB

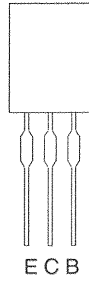


AN7806



IN G OUT

KRC101M
KRA103M
KRC103M
2SC2839

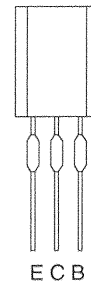


E C B

KTA1275



E C B



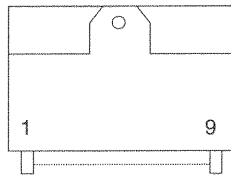
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KTC3199
KRA103M
2SB698

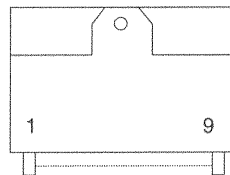
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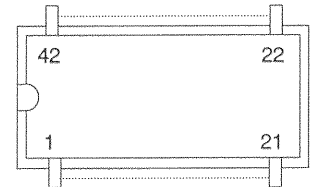
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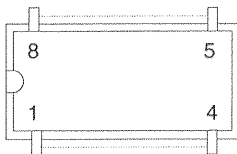
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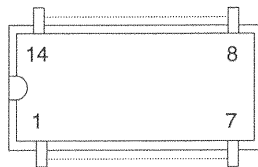
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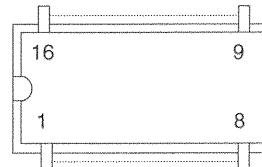
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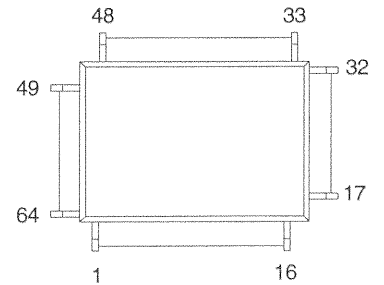
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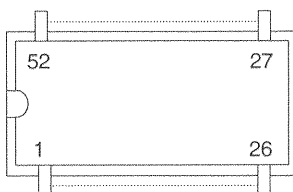
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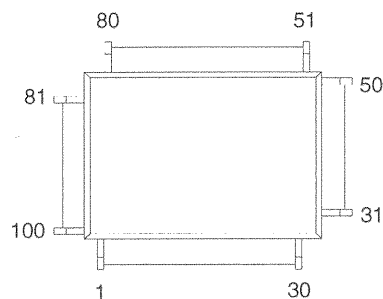
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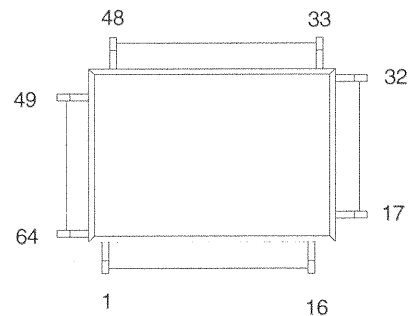
M37263M3
M52339SP



M37774MSA



LA71000M



DECK MECHANISM SECTION

19" COLOR TV / VCR COMBINATION

Model No. 19VR11B

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STANDARD MAINTENANCE

Service Schedule of Components

H: Hours O: 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	O	●	O	●
B3	Loading Motor			●	
B6	Pinch Roller Arm Assembly		●		●
B8	Pulley Assembly		●		●
B21	Loading Belt		●		●
B27	Band Brake Assembly		●		●
B28	Main Brake S Assembly		●		●
B29	Main Brake T Assembly		●		●
B30	T Brake Arm Assembly		●		●
B31	ACE Head Assembly			●	
B32, B339	Reel Base Assembly			●	
B37	Capstan Motor		●		●
B52	Capstan Belt		●		●
B54	Ground Brush Assembly			●	
B73	FE Head CBA (See Deck Electrical Parts List)				
B132	Clutch Assembly		●		●
B133	Arm Idler Assembly		●		●

Notes:

1. Clean all parts for the tape transport (Upper Drum with Video Head / Pinch Roller / Audio Control Head / Full Erase 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

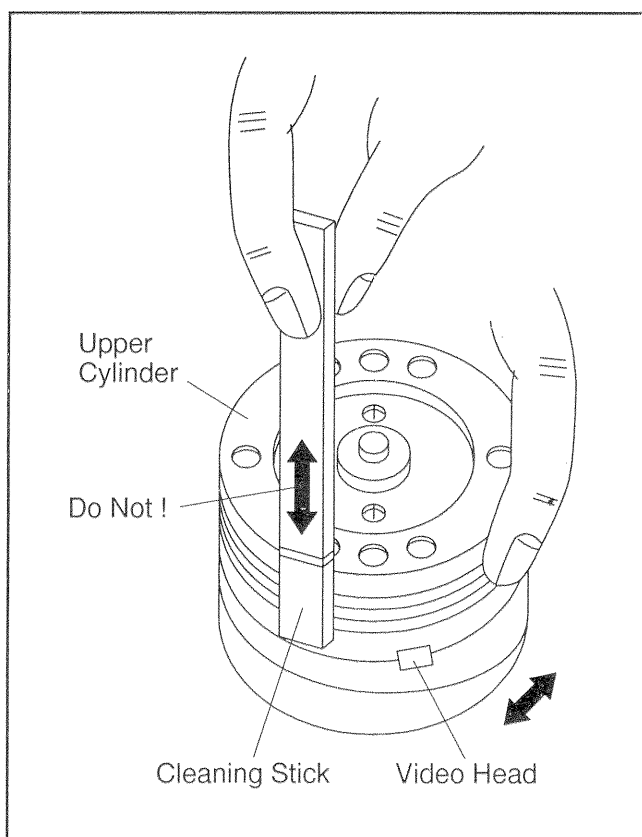
Clean the head with a head cleaning stick or chamois skin.

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 skin 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 skin.



Cleaning of Audio Control Head

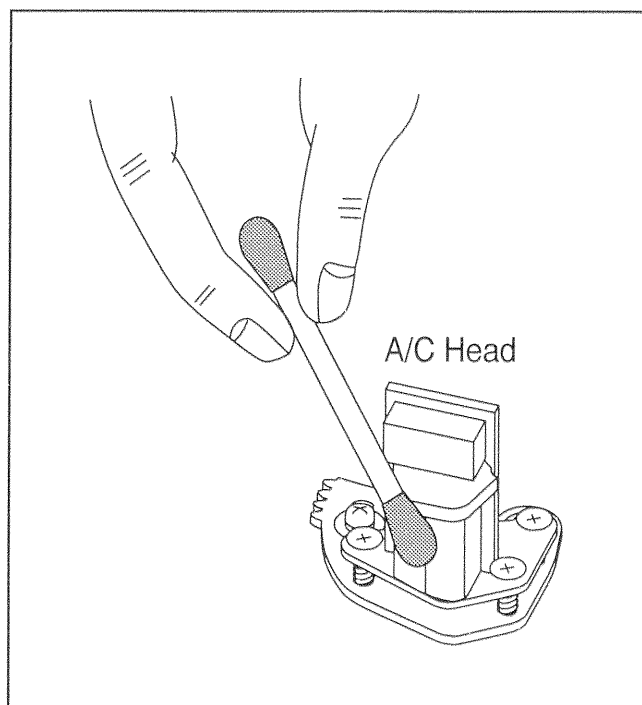
Clean the head with a cotton swab.

Procedure

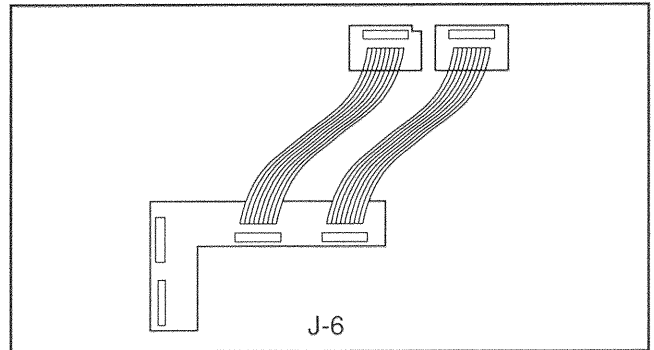
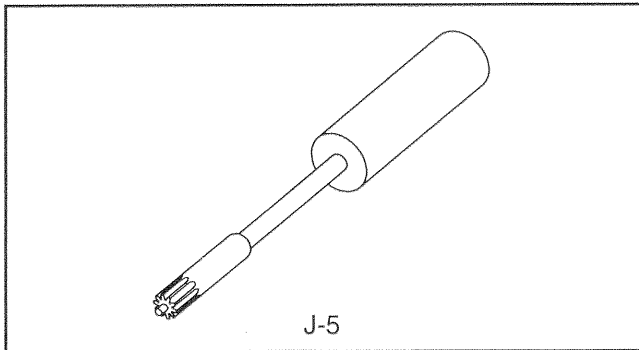
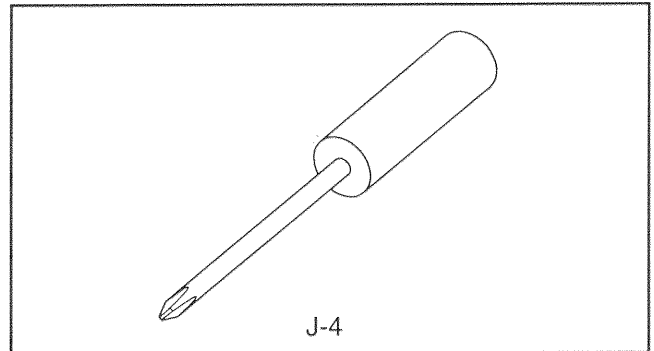
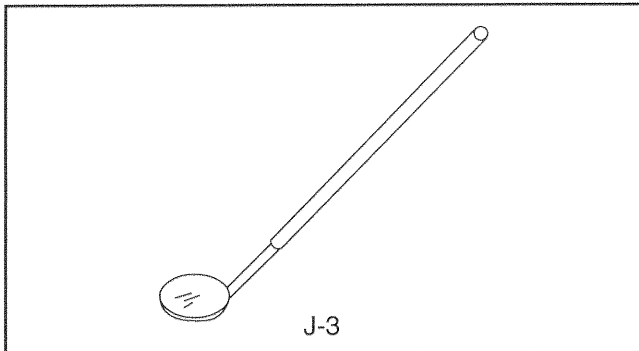
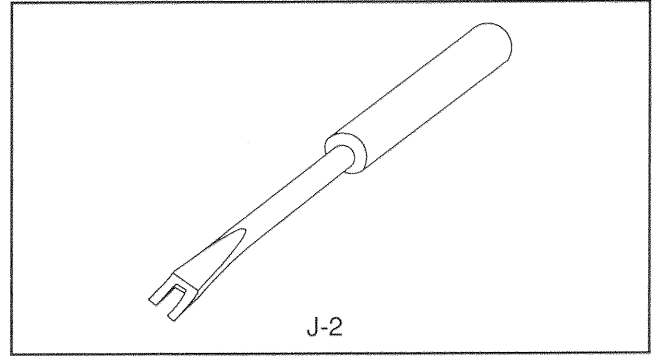
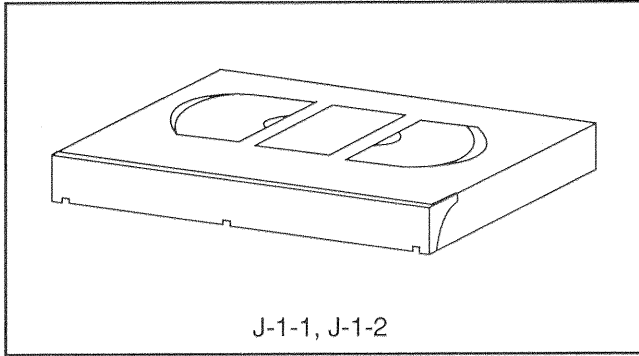
1. Remove the top cabinet.
2. Dip the cotton swab in 90% isopropyl alcohol and clean the audio control head. Be careful not to damage the upper drum and other tape running parts.

Notes:

1. Avoid cleaning the audio control 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	FL8A	Electrical Adjustments
J-1-2	Alignment Tape	FL8NW	Azimuth and X Value Adjustment of Audio Control Head / Adjustment of Envelope Waveform
J-2	Guide Roller Adj.Screwdriver	FSJ-0006	Guide Roller
J-3	Mirror	FSJ-0004	Tape Transportation Check
J-4	Azimuth Adj.Screwdriver	Available Locally	A/C Head Height
J-5	X Value Adj.Screwdriver	FSJ-0007	X Value
J-6	Deck Extention Cable	N1091XA	All Mechanical and Electrical Adjustments

Note:

Before starting any adjustment, take the Deck Assembly out of the cabinet and use J-6 to connect the Deck Assembly with the Main CBA.

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 Cover.
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 Pulley Assembly in the appropriate direction shown in Fig. M1 until the cassette tape is fully loaded. By turning the Pulley Assembly, you are turning the cam indicated in this figure. However, movement of the cam will be very slow. Allow a minute or two to complete this task.

To unload a cassette tape manually:

1. Disconnect the AC plug.
2. Remove the Top Cover.
3. Turn the Pulley Assembly in the appropriate direction shown in Fig. M1 to unload the cassette tape. When turning the Pulley Assembly, please be aware that this is a long process and the cassette will not start getting unloaded instantaneously. Within this long process, before the cassette actually starts getting unloaded, there is a time period during which the moving guide assemblies slide back to their original positions shown in Fig. M1. However, the tape will be left wound around the cylinder. To put the tape back into the cassette, gently turn the Capstan Motor in the direction shown in Fig. M2. Make sure that the tape is completely placed back in the cassette before the cassette starts getting unloaded. Otherwise the tape hanging out will be caught and damaged by the lid of the cassette when it closes. By turning the Pulley Assembly, you are turning the cam indicated in Fig. M1. As stated, movement of the cam will be very slow. 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 Cover.
3. Turn the Pulley Assembly in the appropriate direction shown in Fig. M1 until the Cassette Holder comes to the tape-loaded position. Allow a minute or two to complete this task.

Top View

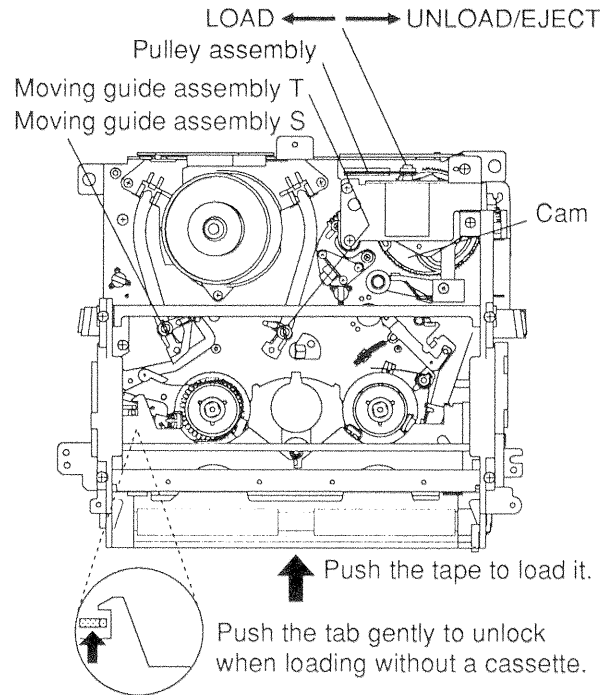


Fig. M1

Bottom View

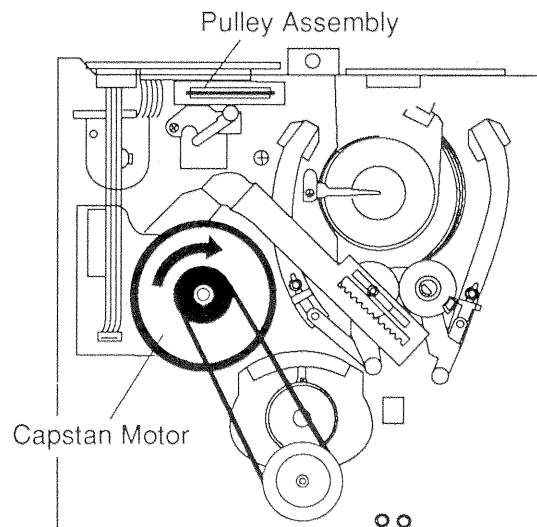


Fig. M2

1. Tape Interchangeability Alignment

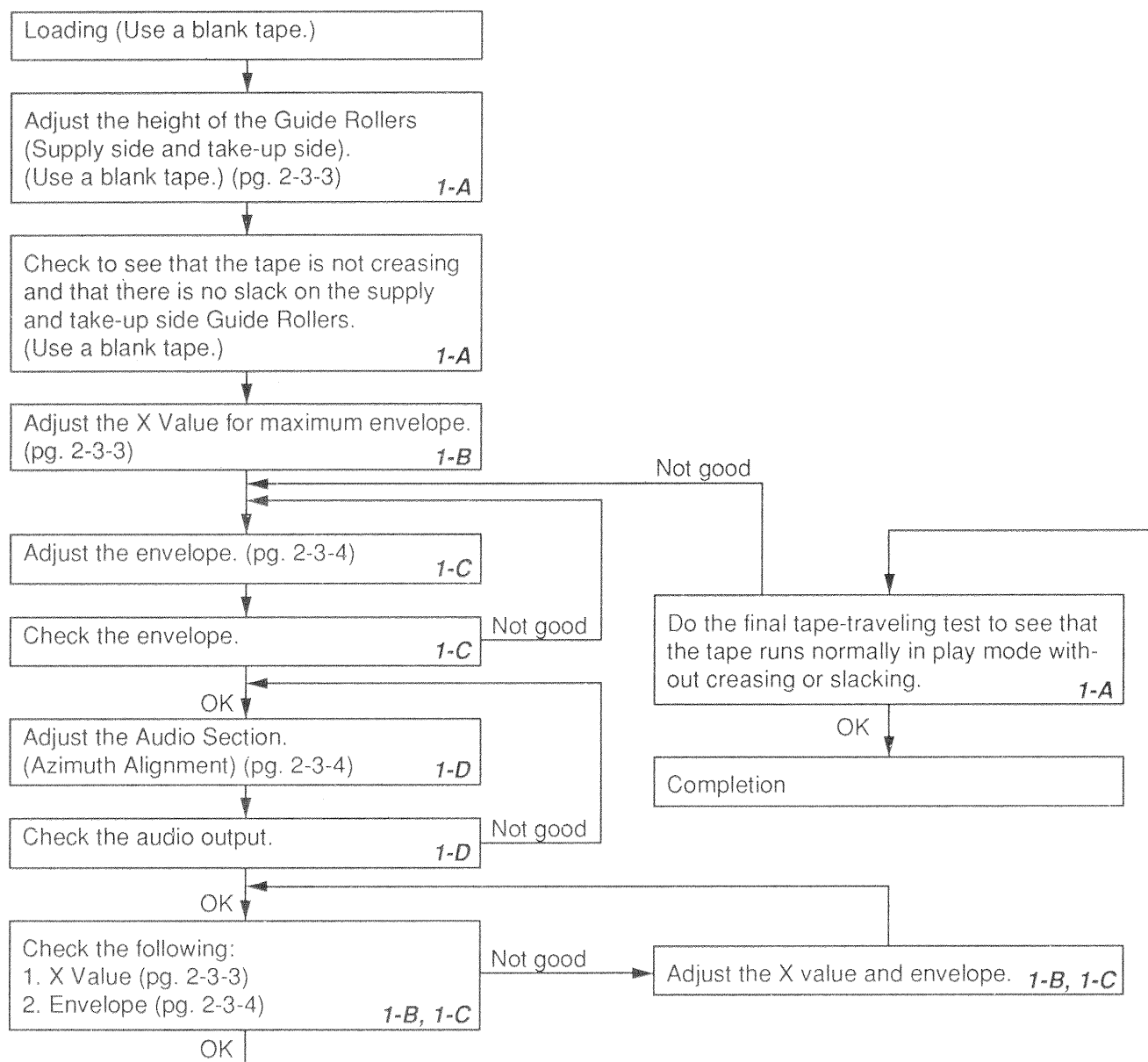
Note: To do these alignment procedures, make sure that the Tracking Control Circuit is set to the center position every time a tape is loaded or unloaded. (Refer to page 2-3-4, procedure 1-C, step 1.)

Equipment required:

Dual Trace Oscilloscope
VHS Alignment Tape (FL8NW)
Guide Roller Adj. Screwdriver
X-Value Adj. Screwdriver

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.

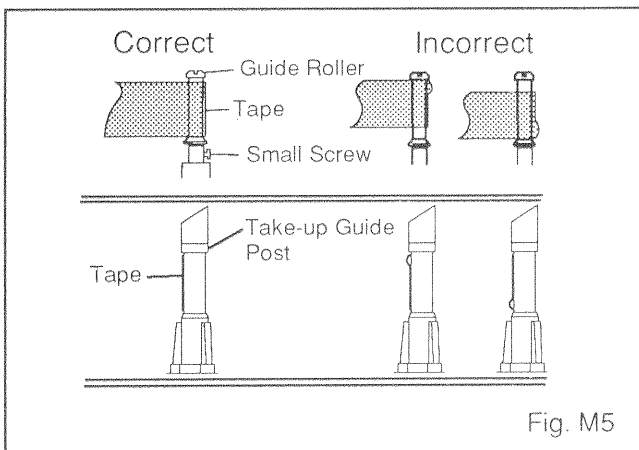
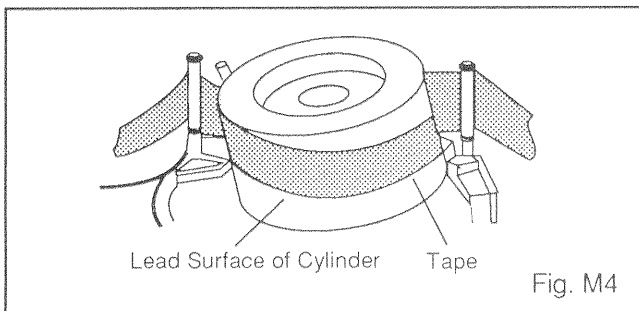
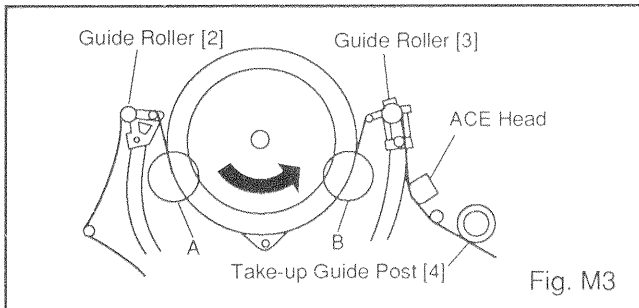
Symptom of Misalignment:

If the tape runs 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.

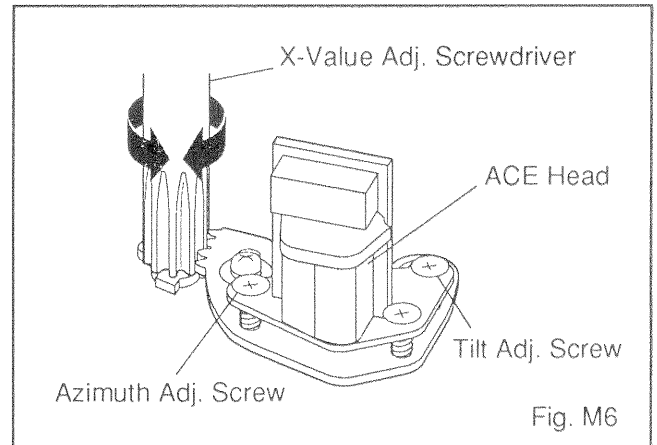
1. Play back a blank cassette tape and check to see that the tape runs without creasing at Guide Rollers [2] and [3], and at points A and B on the lead surface. (Refer to Fig. M3 and M4.)
2. If creasing is apparent, align the height of the guide rollers by turning the top of Guide Rollers [2] and [3]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

Note: Beneath each Guide Roller, there is a small screw. (Refer to Fig. M5.) This screw works to ap-



ply adequate torque to the shaft of each Guide Roller so that the Guide Roller turns properly. Even when adjusting the height of the Guide Roller(s), do not touch these two small screws.

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 align the Horizontal Position of the Audio/Control/Erase Head.

Symptom of Misalignment:

If the Horizontal Position of the Audio/Control/Erase Head is not properly aligned, maximum envelope cannot be obtained at the Neutral position of the Tracking Control Circuit.

1. Set the Tracking Control Circuit to the center position by pressing CH UP and DOWN buttons on VCR simultaneously. (Refer to note on page 2-3-4.)
2. Connect the oscilloscope to TP (C-PB) and TP (CTL) on the Main CBA. Use TP (RF-SW) as a trigger.
3. Play back the Gray Scale of the Alignment Tape (FL8NW) and confirm that the PB FM signal is present.
4. Use the X-Value Adj. Screwdriver so that the PB FM signal at TP (C-PB) or TP of AUDIO OUT is maximum. (Fig. M6)
5. Press CH UP button on VCR until CTL waveform is shifted by approx. +2msec. Make sure that the envelope is simply attenuated (shrinks in height) during this process so that you will know the envelope has been at its peak.
6. Press CH DOWN button on VCR until CTL waveform is shifted from its original position (not the po-

sition achieved in step 5 just above, but the position of CTL waveform until step 4) by approximately -2msec. Make sure that the envelope is simply attenuated (shrinks in height) once CTL waveform passes its original position and is further brought in the minus direction.

7. Set the Tracking Control Circuit to the center position by pressing CH UP and DOWN buttons on VCR simultaneously.

1-C. Checking/Adjustment of Envelope Waveform

Purpose:

To achieve a satisfactory picture and precise tracking.

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. Set the Tracking Control Circuit to the center position by pressing both CH UP and DOWN buttons on VCR simultaneously.
2. Connect the oscilloscope to TP (C-PB) on the Main CBA. Use TP (RF-SW) as a trigger.
3. Play back the Gray Scale on the Alignment Tape (FL8NW). Adjust the height of Guide Rollers [2] and [3] (Fig.M3) 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.
4. 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.
5. 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.
6. 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 Tracking Control Up or Down buttons alternately, to check the symmetry of the envelope. Check the number of pushes to ensure center position. The number of pushes UP to achieve 1/2 level of envelope should match the number of pushes DOWN 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. Play back the alignment tape (FL8NW) and confirm that the audio signal output level is 8 kHz.
3. Adjust Azimuth Adj. Screw so that the output level on the AC Voltmeter or the waveform of the oscilloscope is at maximum. (Fig. M6)

Dropping envelope level at the beginning of track.

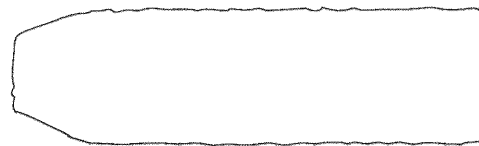


Fig. M7

Dropping envelope level at the end of track.

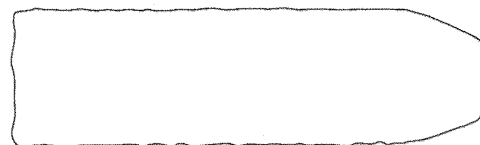


Fig. M8

Envelope is adjusted properly. (No envelope drop)



Fig. M9

DISASSEMBLY/ASSEMBLY PROCEDURES OF DECK MECHANISM

Main Mechanism

Before following the procedures described below, be sure to:

1. Remove the deck assembly from the cabinet.
(Refer to DISASSEMBLY INSTRUCTIONS in Main Section.)
2. Remove Front Loading Assembly from the main mechanism of the deck assembly. (See Fig. DM1.)

All the following procedures, including those for adjustment and replacement of parts, should be done in Eject mode; see the positions of [33] and [34] in Fig. DM3 on page 2-4-4. 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]	Shield Plate	T	DM1	2(S-3)	
[2]	[1]	Motor Holder Assembly	T	DM3 DM5 DM6	3(S-4), Loading Belt	(+) Refer to Alignment Sec. Pg. 2-4-12.
[3]	[1]	Loading Motor Assembly	T	DM2 DM3 DM5	2(S-5), CL2693	
[4]	[1]	Cassette Drive Lever Assembly	T	DM3 DM5		(+) Refer to Alignment Sec. Pg. 2-4-12.
[5]	[1]	Pinch Roller Arm Assembly	T	DM3 DM5	(C-1) Pinch Roller Spring	Refer to Alignment Sec. Pg. 2-4-12.
[6]	[1]	Pinch Arm Assembly	T	DM3 DM5		Refer to Alignment Sec. Pg. 2-4-12.
[7]	[7]	Mode SW CBA	B	DM4 DM8	Stopper Boss, *(L-1)	
[8]	[8]	Joint CBA	T/B	DM2 DM3 DM4 DM7 DM8	(S-6), CN2692, CL2693, *CL2691, CL2692	
[9]	[1]	Cam	T	DM3 DM5		(+) Refer to Alignment Sec. Pg. 2-4-12.
[10]	[1]	Pulley Assembly	T	DM3 DM6	(W-1), Loading Belt	(+)
[11]	[11]	Head Amp CBA	T/B	DM2 DM3 DM4 DM8	(S-7), (S-8), (S-22) CN3802, CL3801, CL3802	
[12]	[12]	Arm Idler Assembly	T	DM3 DM9	Clutch Shaft Cap, Clutch Bushing	(+)
[13]	[13]	Clutch Assembly	B	DM4 DM9	(C-2), (W-2) Capstan Belt	(+)
[14]	[13]	Capstan Motor Unit	B	DM4 DM10	3(S-9)	
[15]	[1]	M Lever Holder	T	DM3 DM11	(S-10)	(+) Oil, (+) Grease
[16]	[1]	Kick Arm Holder	B	DM4 DM11	Kick Arm Spring	
[17]	[16]	Kick Arm	B	DM4 DM11	Bushing	(+)
[18]	[18]	Mode Change Lever	T	DM3 DM12	*2(L-2)	(+)
[19]	[1]	Main Lever Assembly	T	DM3 DM12 DM15	*(L-3)	
[20]	[20]	Tape Guide Assembly	T	DM3 DM15	*(P-2), *(L-4)	Keep the distance specified in Fig. DM15.
[21]	[21]	ACE Head Assembly	T	DM3 DM14	2(S-11)	

STEP /LOC. No.	START-ING No.	PART		REMOVAL		INSTALLATION
				Fig. No.	REMOVE/*UNHOOK/ UNLOCK/RELEASE/ UNPLUG/DESOLDER	ADJUSTMENT CONDITION
[22]	[22]	Tension Lever Sub Assembly	T	DM3 DM13 DM22	*(L-5) *(P-6)	Refer to Alignment Sec. Pg. 2-4-14.
[23]	[22]	Band Brake Sub Assembly	T	DM3 DM13	(S-12), *(L-6)	
[24]	[18]	M Brake (S) Lever	T	DM3 DM12 DM16		(+)
[25]	[18]	M Brake (S)	T	DM3 DM16	*(P-3), *(L-7)	(+) When reassembling, hook the spring (P-3) after installation of Mode Change Lever.
[26]	[18]	S Brake Arm	T	DM3 DM16	*(P-4), *(L-8)	(+) When reassembling, hook the spring (P-4) after installation of Mode Change Lever.
[27]	[18]	M Brake (T) Assembly	T	DM3 DM16		(+)
[28]	[18]	T Brake Arm Assembly	T	DM3 DM16	*(P-5)	(+) When reassembling, hook the spring (P-5) after installation of Mode Change Lever.
[29]	[18]	Reel Base Assembly T	T	DM3 DM17	Poly Slider Washer	(+)
[30]	[18]	Reel Base Assembly S	T	DM3 DM17	Poly Slider Washer	(+) Base has slots.
[31]	[31]	Ground Brush Assembly	B	DM4 DM18 DM19	(S-13)	Refer to Alignment Sec. Pg. 2-4-12.
[32]	[11],[31] Only	Cylinder Assembly	T	DM3 DM18	3(S-14)	Refer to Alignment [31] Sec. Pg. 2-4-12.
[33]	[1]	Moving Guide S Assembly	T	DM3 DM20		
[34]	[1]	Moving Guide T Assembly	T	DM3 DM20		
[35]	[1] Only	FE Head	T	DM3 DM20	(S-15)	
[36]	[36]	Main Prism	T	DM3 DM20	(S-16)	
[37]	[1]	Loading Arm M Assembly	B	DM4 DM21	(C-3)	(+) Refer to Alignment Sec. Pg. 2-4-12.
[38]	[1]	Loading Gear A	B	DM4 DM21		(+) Refer to Alignment Sec. Pg. 2-4-12.
[39]	[1]	Loading Gear B	B	DM4 DM21		(+) Refer to Alignment Sec. Pg. 2-4-12.
[40]	[40]	Spring Supporter	B	DM4 DM22	(S-17)	
[41]	[40]	BT Drive Arm	B	DM4 DM12 DM22	(S-18), *(P-6), *(P-7)	
[42]	[42]	Rec Arm Assembly	B	DM4 DM22	(S-19)	
[43]	[42]	Reel Drive Arm	B	DM23	(S-20), (C-4), *(P-8) Drive Arm Roller	
[44]	[42]	Holder Kick Arm	B	DM23	*(P-9)	
[45]	[45]	F Brake (2)	B	DM4 DM10	CS Ring	
[46]	[45]	F Brake Guide	B	DM4 DM10	2(S-21) F Brake Spring	

①

②

③

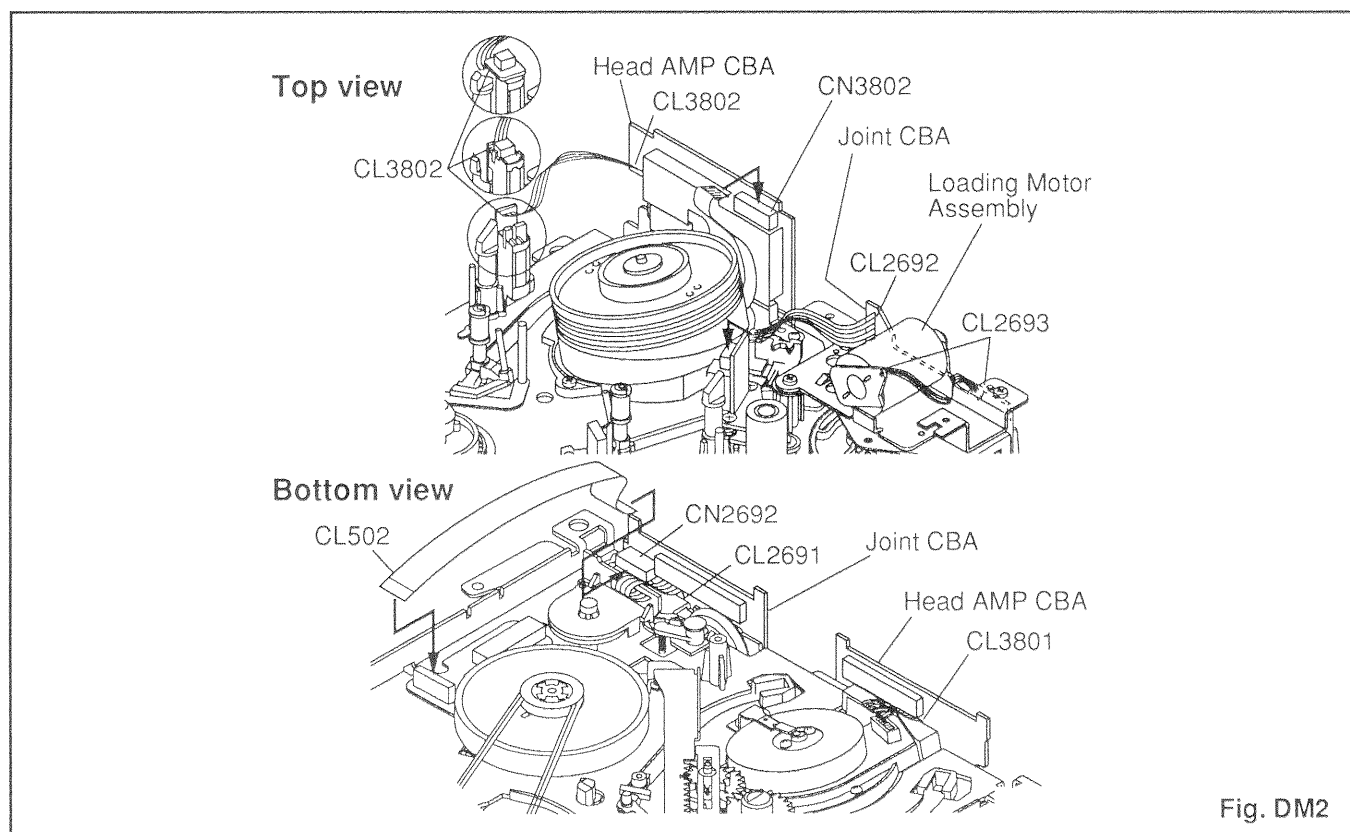
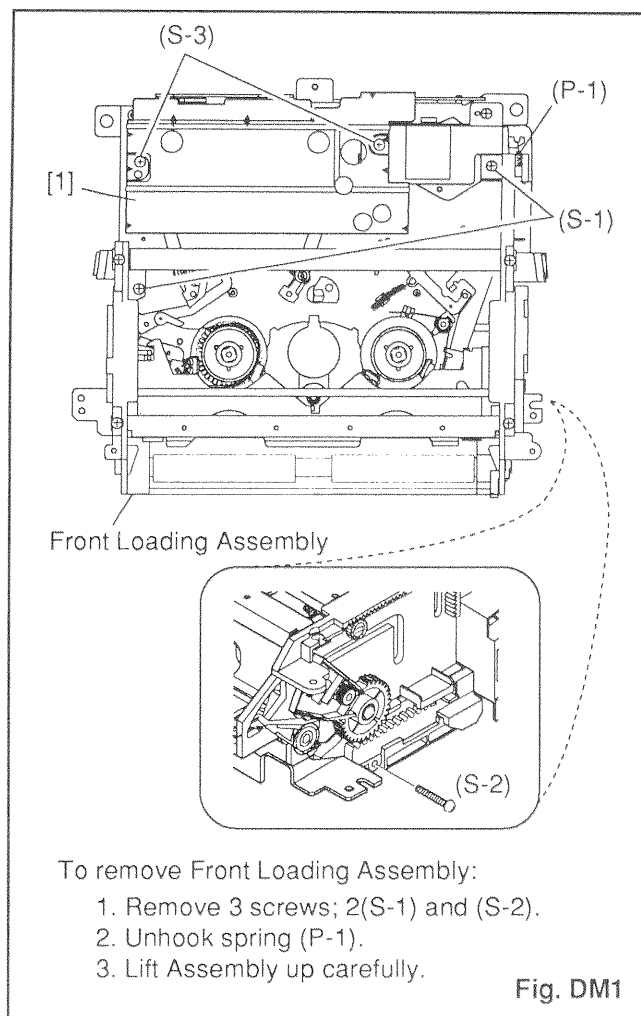
④

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 disassembly 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
L=Locking Tab
*=Unhook, Unlock, Release, Unplug, or Desolder
e.g. 2(C-2) = two Cut Washers (C-2)
2(L-2) = two Locking Tabs (L-2)
- ⑦: Adjustment Information for Installation
(+): Refer to Deck Exploded Views for lubrication information.



Top View

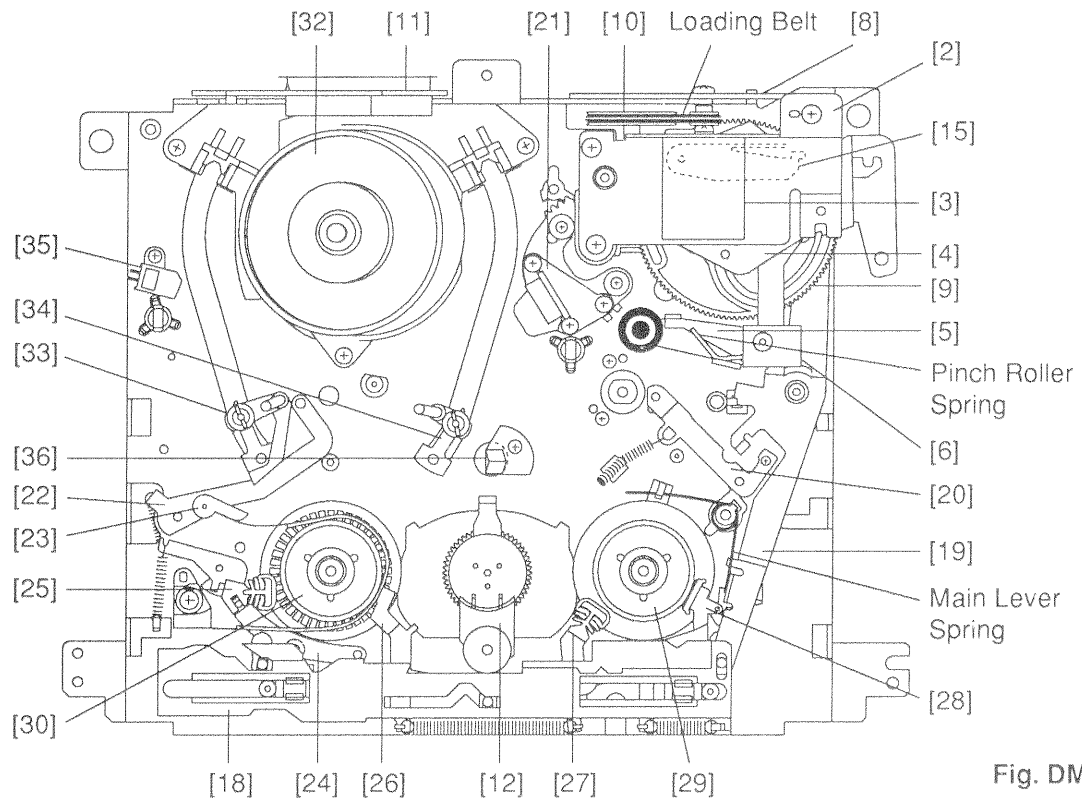


Fig. DM3

Bottom View

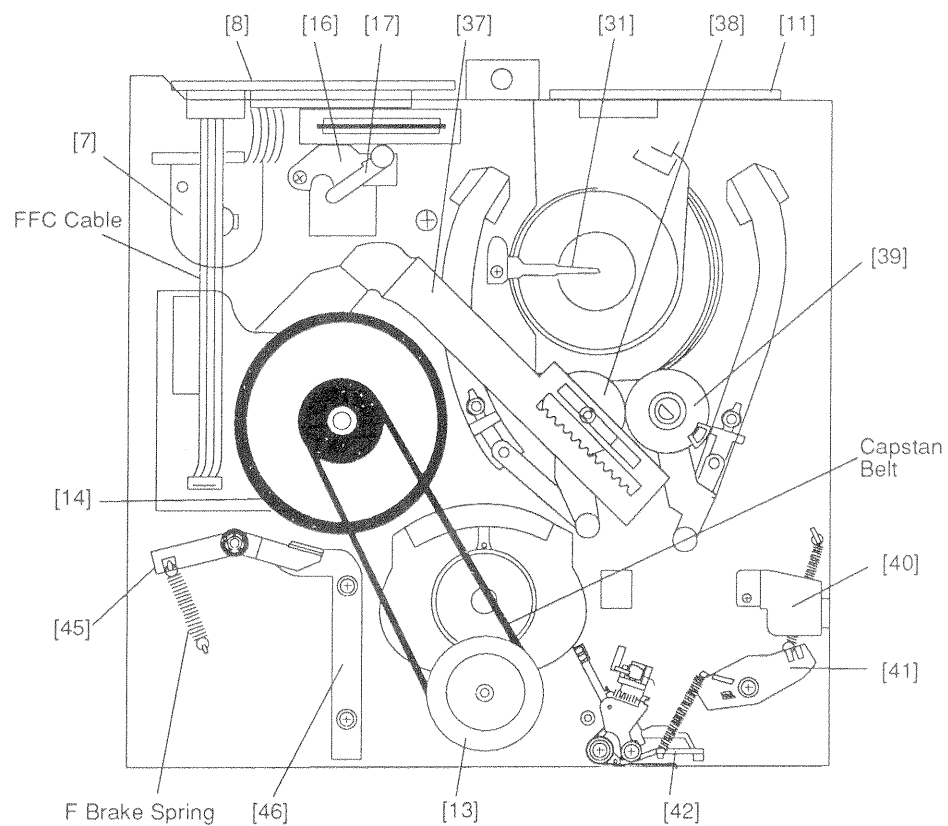


Fig. DM4

When disassembling, unhook Pinch Roller Spring as shown by the arrow. With this spring unhooked, [5] and [6] can be removed from the chassis more easily.

When reassembling [2] through [6] and [9], refer to the Alignment Section, Pg. 2-4-12.

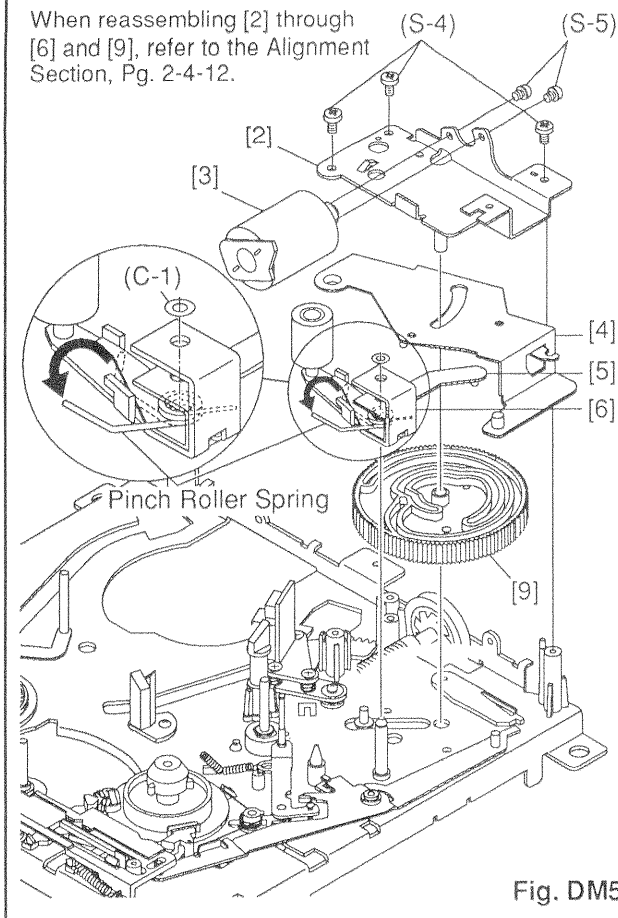


Fig. DM5

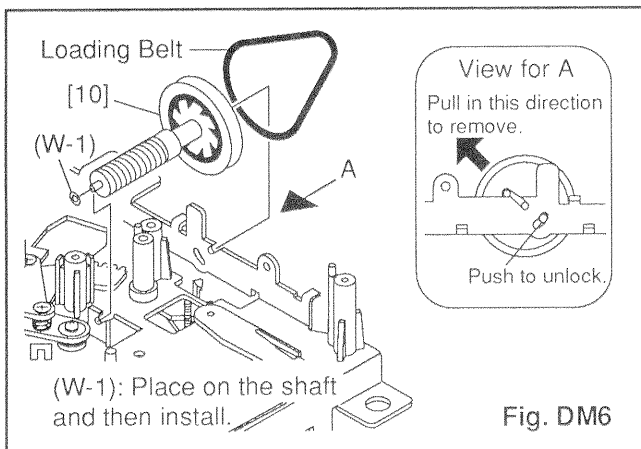


Fig. DM6

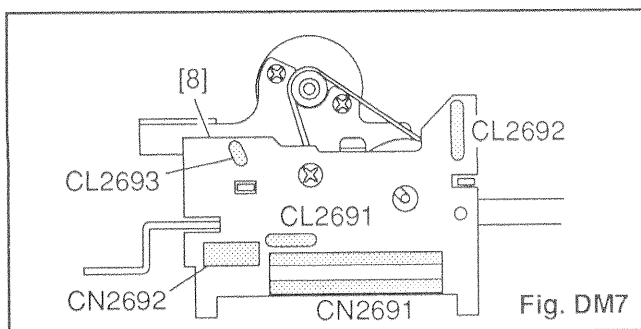


Fig. DM7

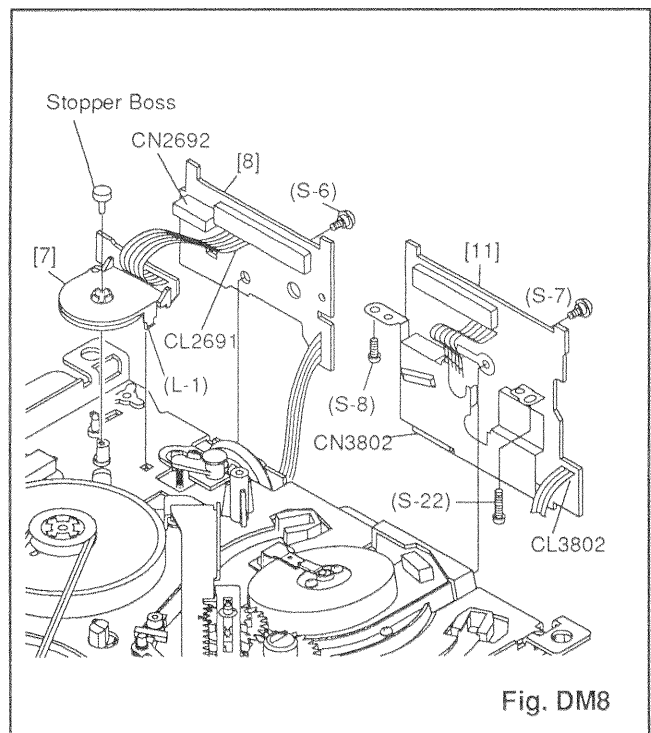


Fig. DM8

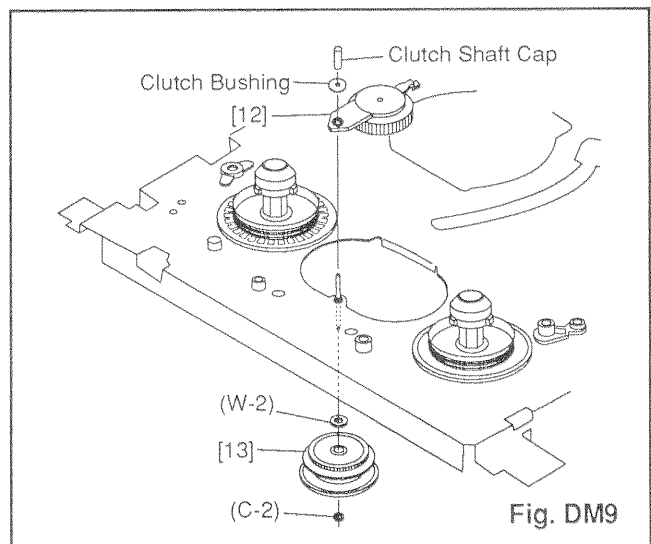


Fig. DM9

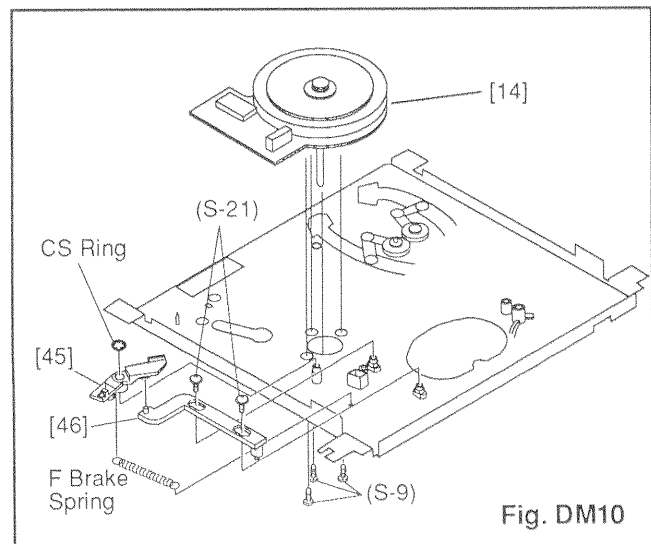
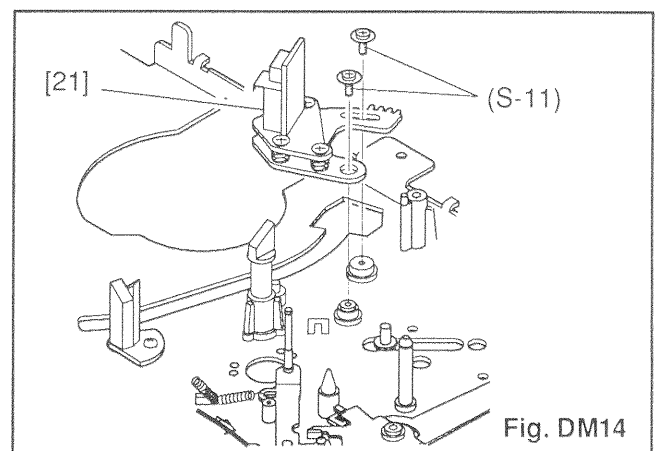
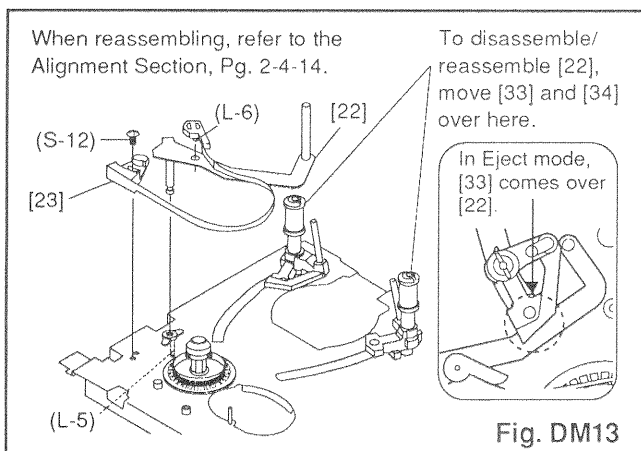
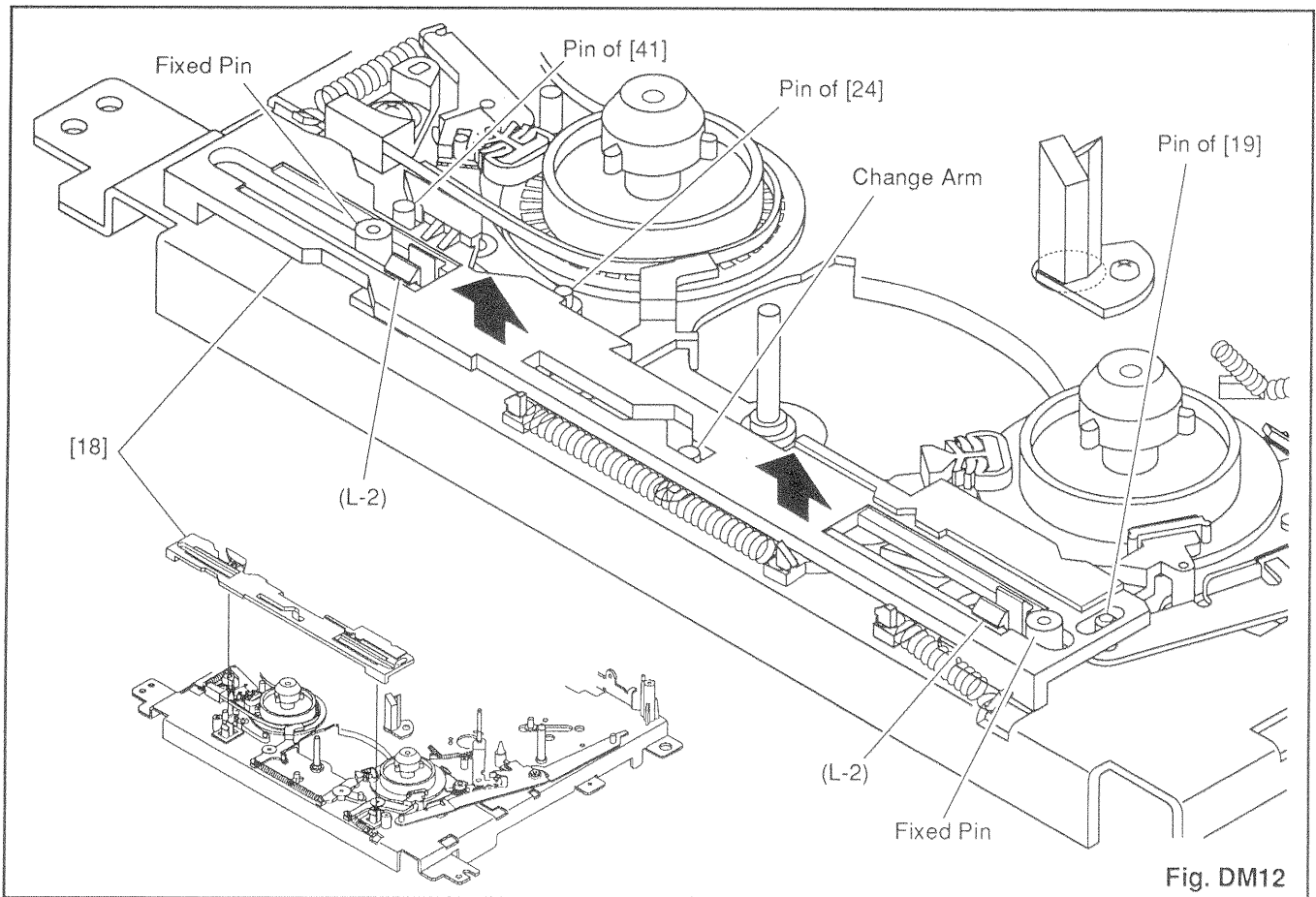
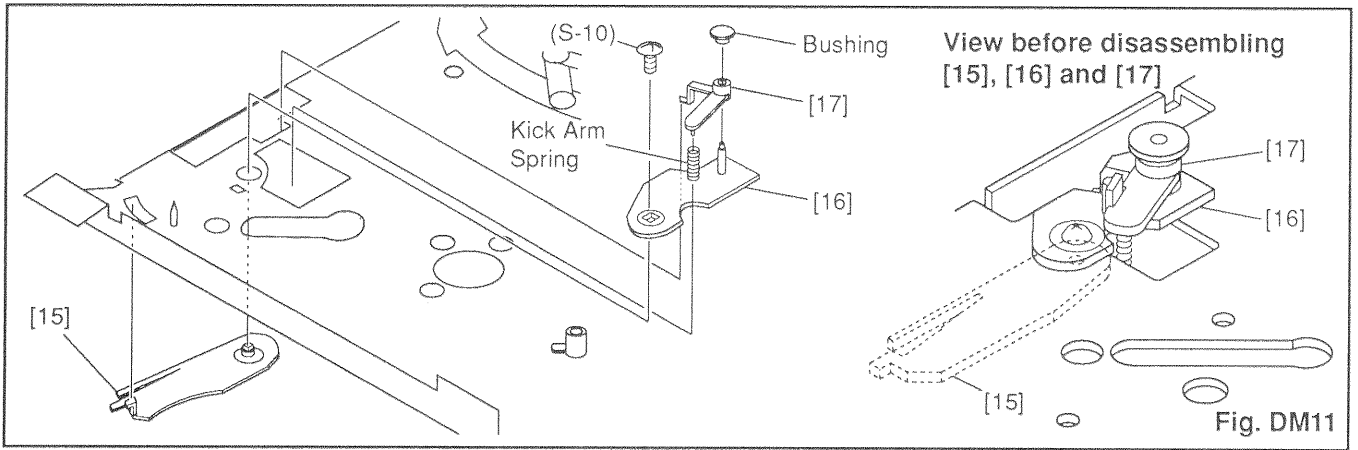


Fig. DM10



Refer to the Alignment
Section, Pg. 2-4-12.

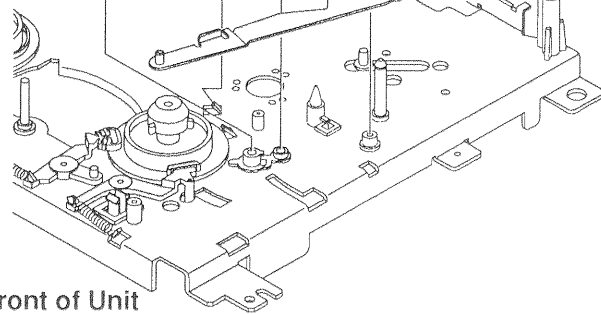
Tape Guide
Adjustment
 3.25 ± 0.1 mm
 0.128 ± 0.004 inch

Main Lever Spring

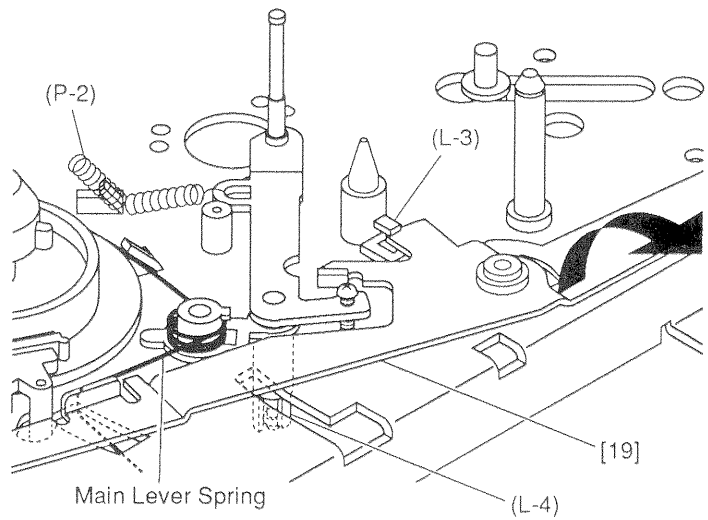
[20]

(P-2)

[19]



Front of Unit



To remove [19], first lift it up, then pull it
to the right side as shown by the arrow.

Fig. DM15

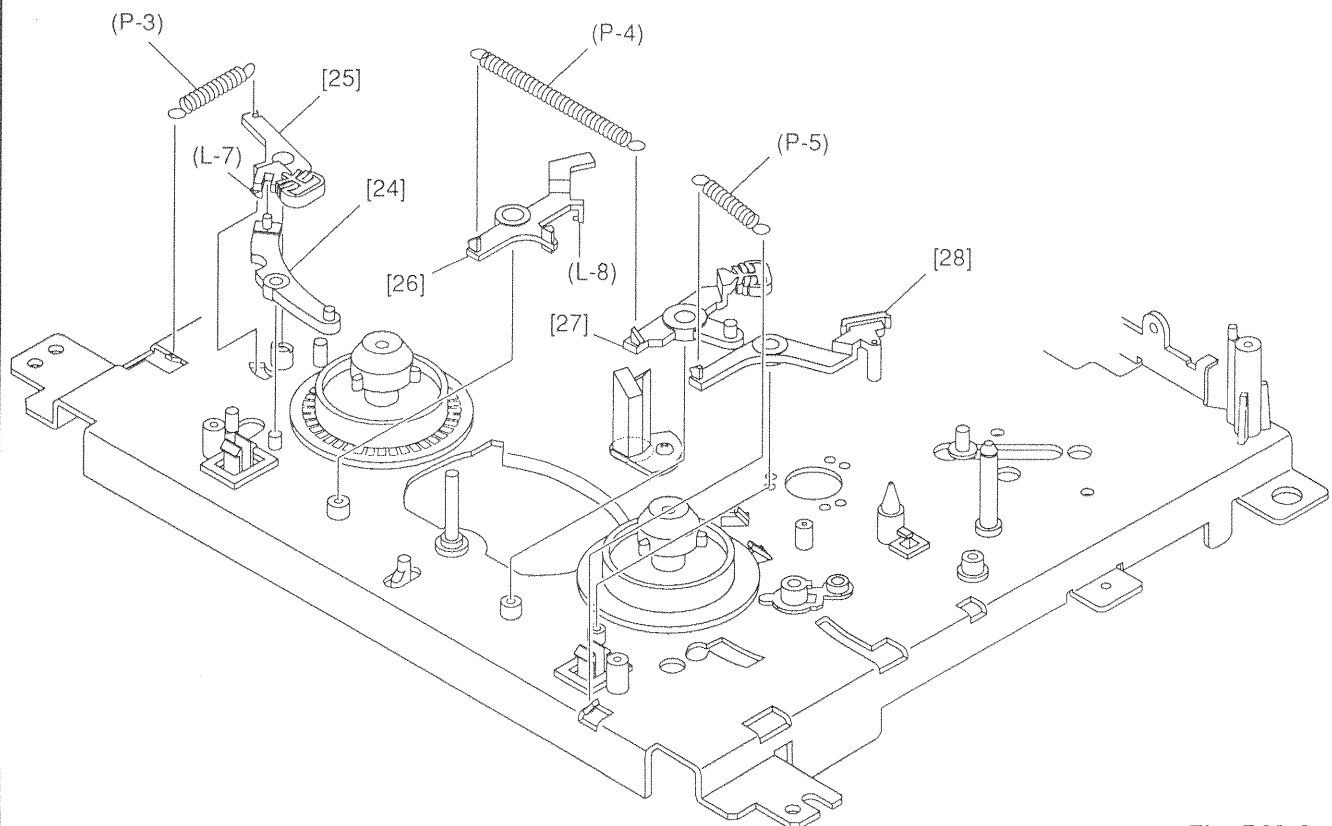
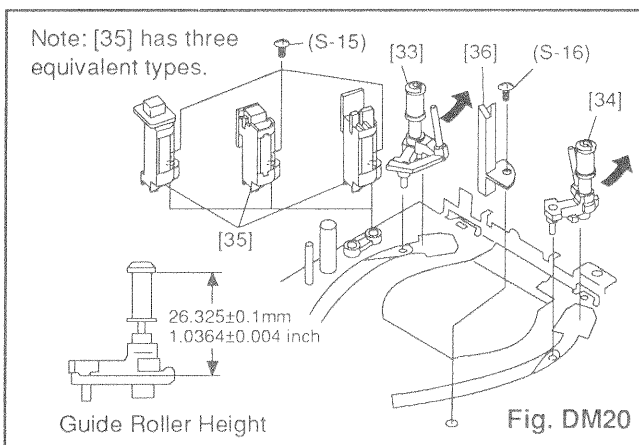
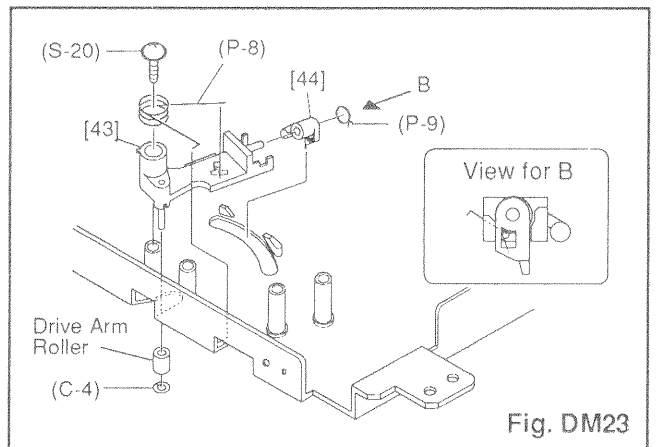
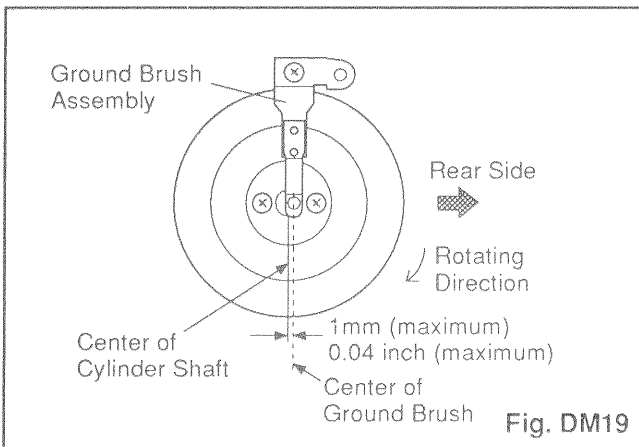
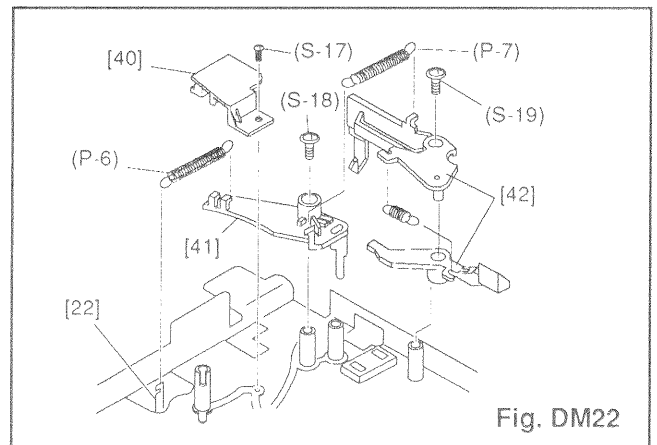
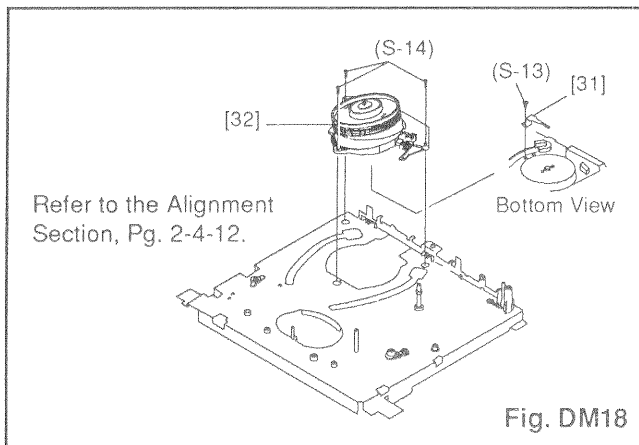
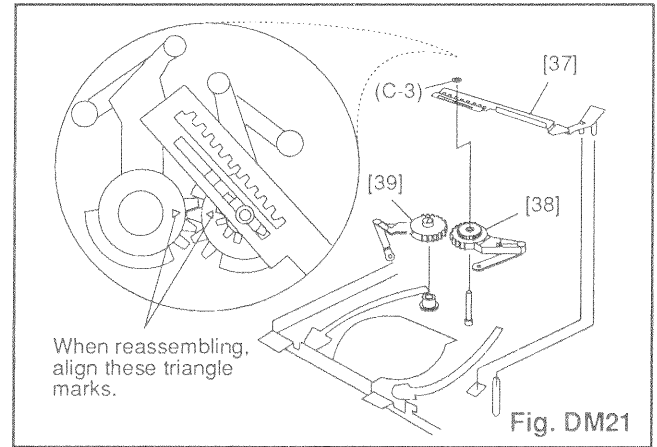
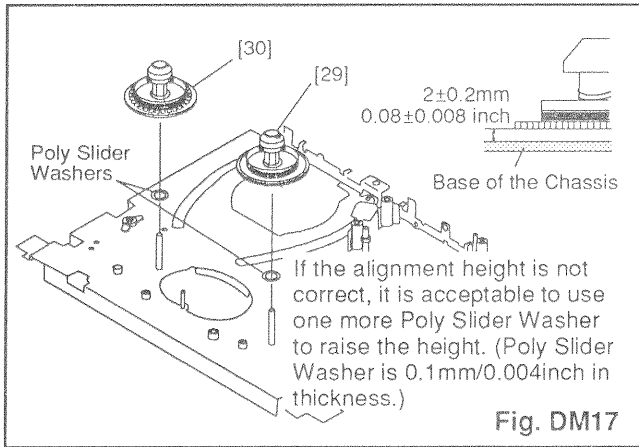


Fig. DM16



Front Loading Assembly

Before following the procedures described below, be sure to remove Front Loading Assembly from the main mechanism of the deck assembly. (See Fig. DM1.) When reassembling, start with the unit in Cassette-in mode and 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]	Door Opener	R	DM24 DM27	*(L-1) Door Opener Spring	(+)
*[2]	[2]	Slider Gear	R (or L)	DM28 DM30	(C-1)	(+)
*[3]	[2]	Slider Gear	L (or R)	DM28 DM30	(C-2)	(+)
		Slider Shaft	T			Install in Eject position.
[4]	[2]	Cassette Drive Gear	R	DM25 DM26 DM28	(S-1), (S-2), Cassette Drive Gear Spring	(+)
[5]	[2]	FL Rack	R	DM25 DM26 DM28		
[6]	[2]	F Door Opener R	R	DM25 DM28 DM29	*(L-2) F Door Opener R Spring	DM29
[7]	[2]	[7a] Front Guide	T	DM25 DM26 DM27 DM28	4(S-3), *2(L-3)	
		[7b] Cassette Holder Assembly				
		[7c] Deck Support B				
		[7d] Deck Support F				
		[7e] Cassette Guide R	R			(+)
		[7f] Cassette Guide L	L			(+)
[8]	[8]	Gear Supporter	L	DM28	(S-4)	
[9]	[9]	Mirror Holder R	R	DM28		
[10]	[10]	Mirror Holder L	L	DM28		

①

②

③

④

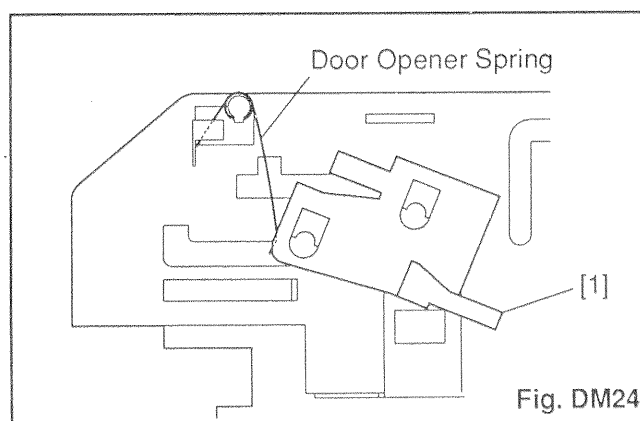
⑤

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.

*[2], *[3]: Slider Gear in Step [2] and that in Step [3] are identical. However, they are divided into two steps because, before reassembling Slider Shaft, one Slider Gear must be preinstalled at either end of Slider Shaft.



Before removing Parts [4], [5], [6] or [7], shift [7b] to
Cassette-in position.

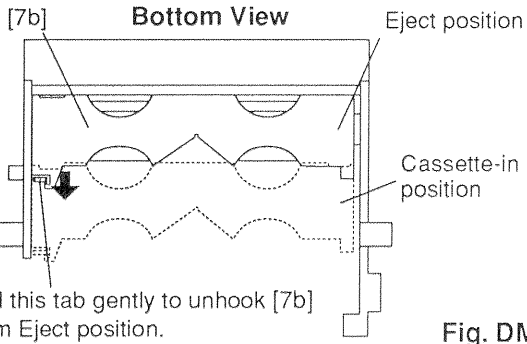


Fig. DM25

Install/remove in Cassette-in position
to ensure that [7b] is in locked
position.

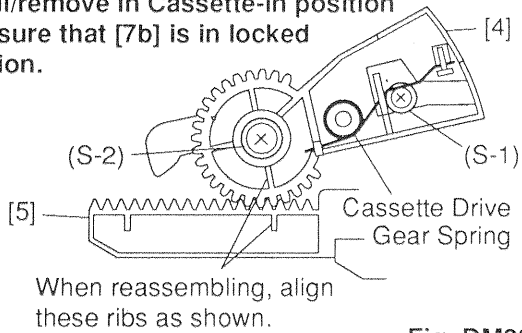


Fig. DM26

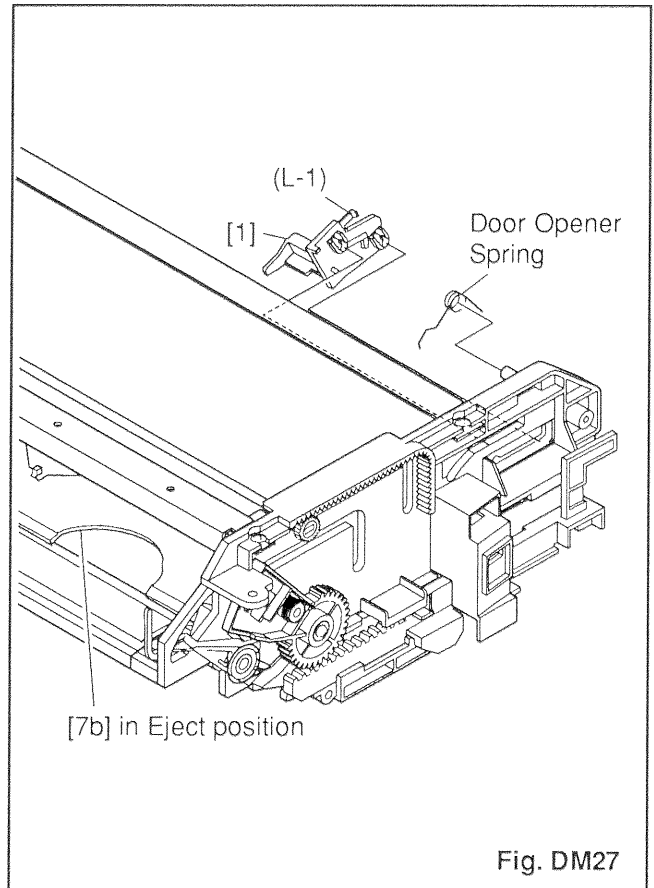


Fig. DM27

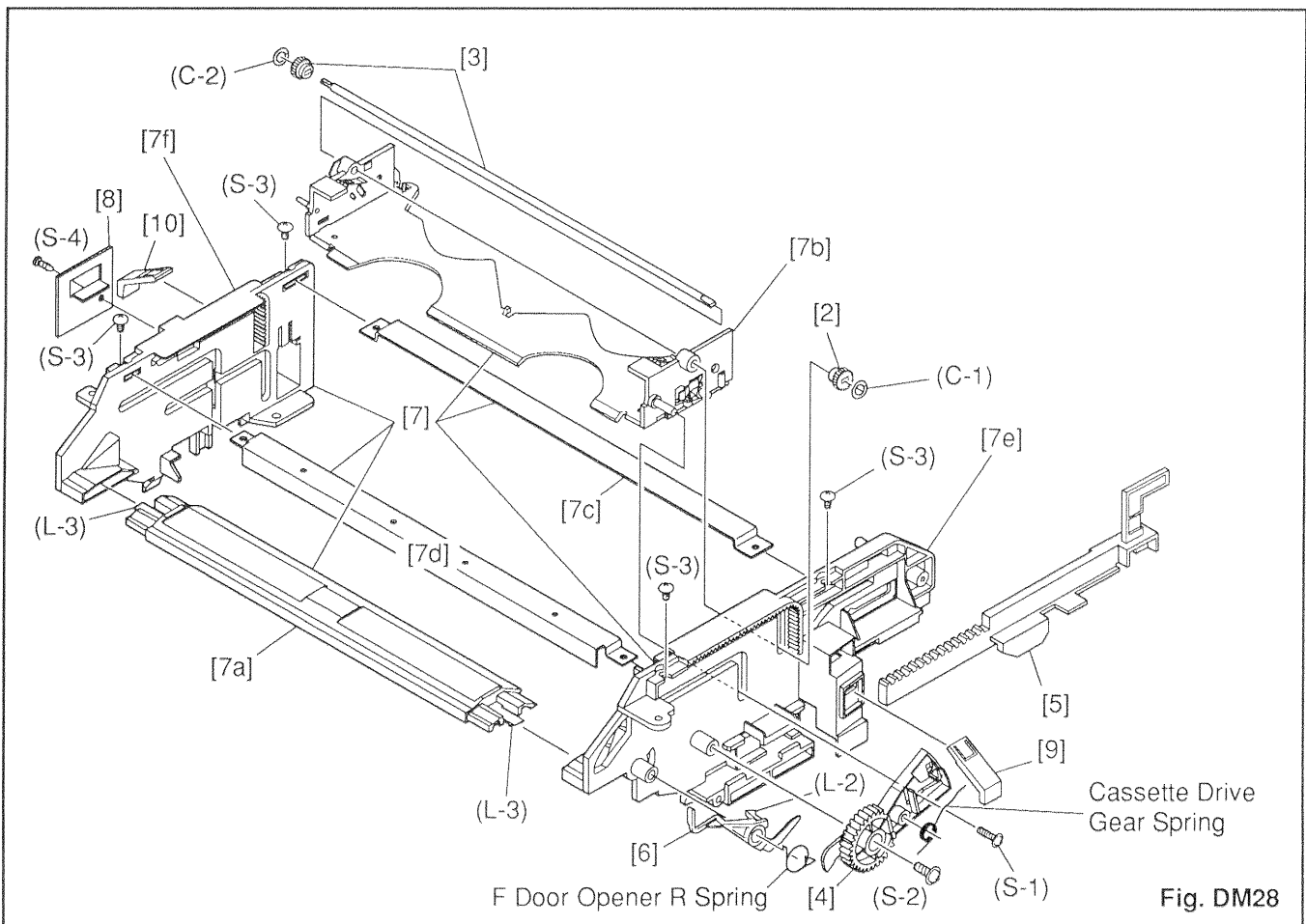
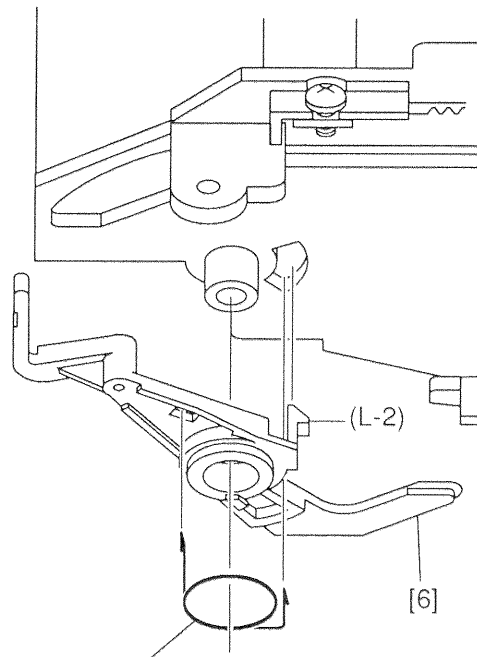
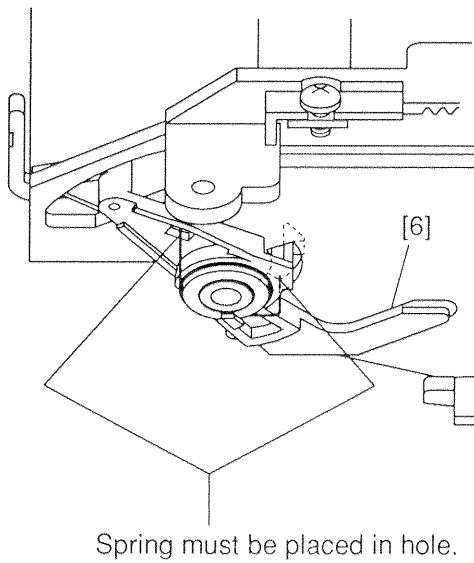


Fig. DM28

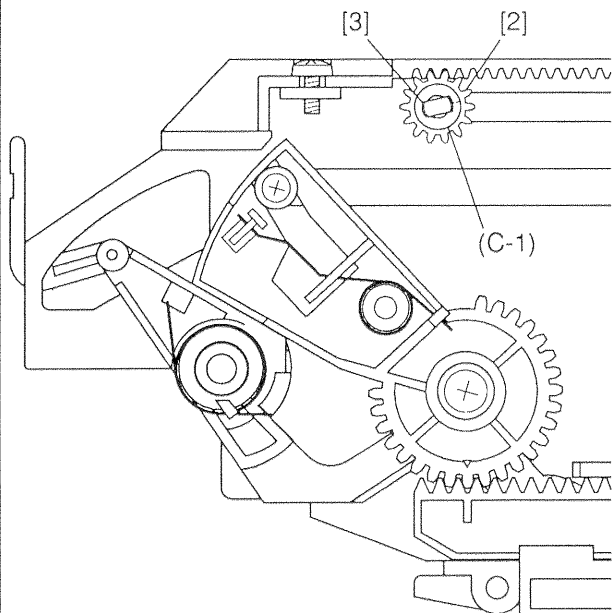
**View before disassembling [6]
(F Door Opener R Spring Installation)**



F Door Opener R Spring

Fig. DM29

**View before disassembling [2] and [3]
(Installation of Slider Shaft and Slider Gear)**



Install [2] and [3] in Eject position.

(When disassembling, [2] and [3] can be removed either in Eject position or Cassette-in position.)

- This figure shows where [2], [3] and other parts are in Eject position.

Fig. DM30

ALIGNMENT PROCEDURES OF MECHANISM

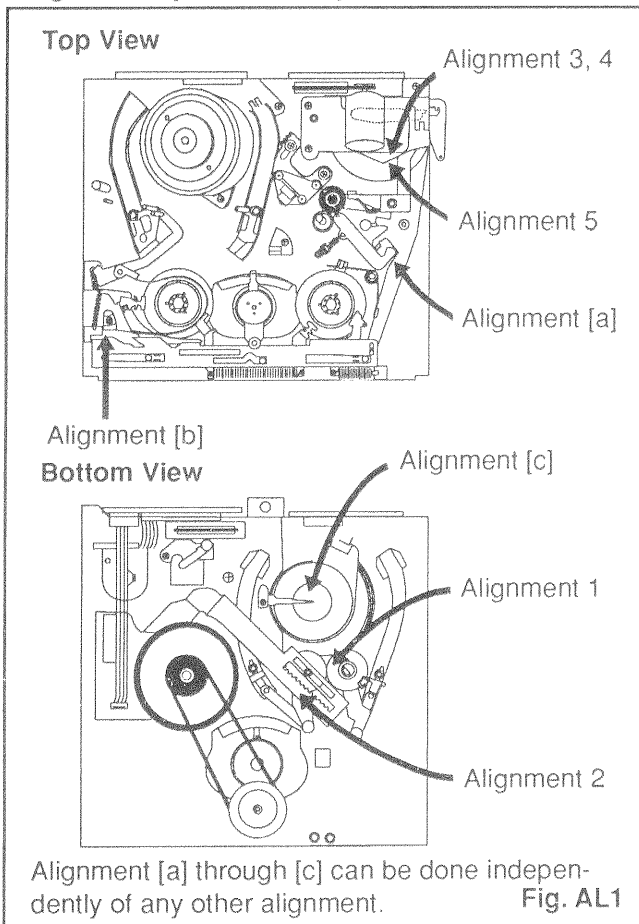
The following procedures describe how to align the individual gears and levers that make up the tape loading/unloading mechanism. Since information about the state of the mechanism is provided to the System Control Circuit only through the Mode Switch, it is essential that the correct relationship between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

Tape Guide Assembly

1. Measurement of the black screw must be as specified in Fig. AL3.

Alignment 1

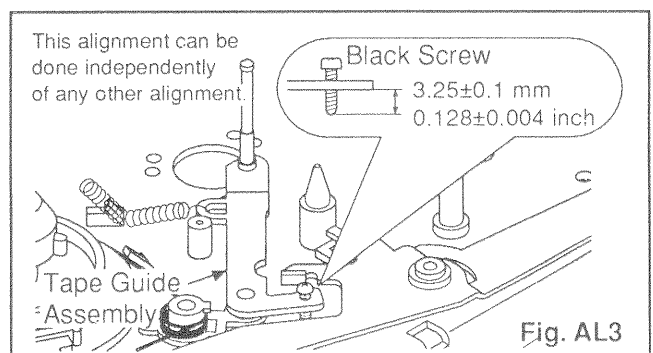
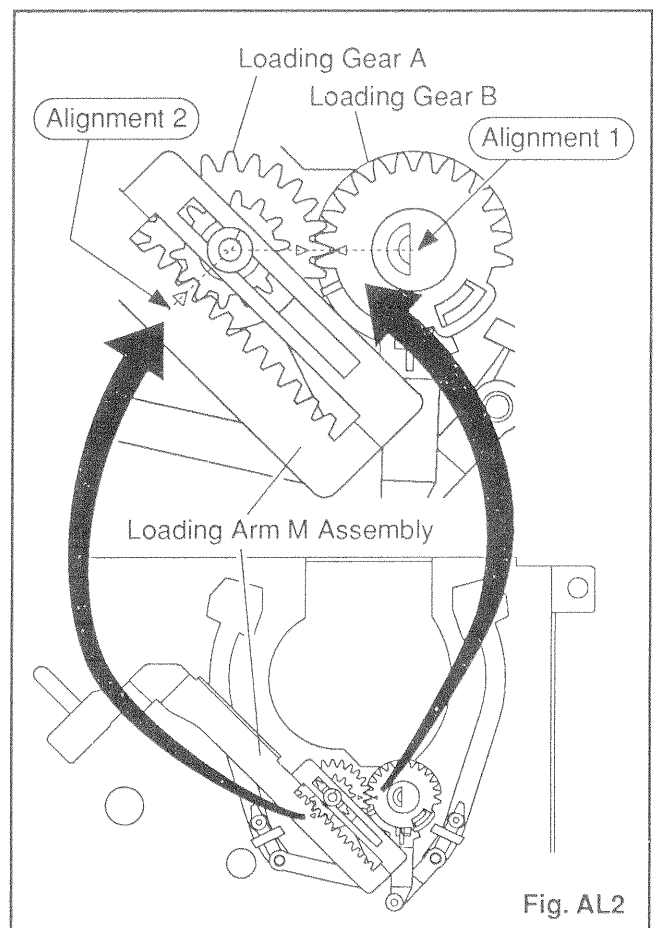
Loading Gears, A and B

1. Install Loading Gears A and B so that their triangle marks point to each other as shown in Fig. AL2.

Alignment 2

Loading Arm M Assembly

1. Keeping the two triangles pointing at each other, install Loading Arm M Assembly so that its tooth with yet another triangle mark is in the position to align with Loading Gear A and the center of the shaft. See Fig. AL2.



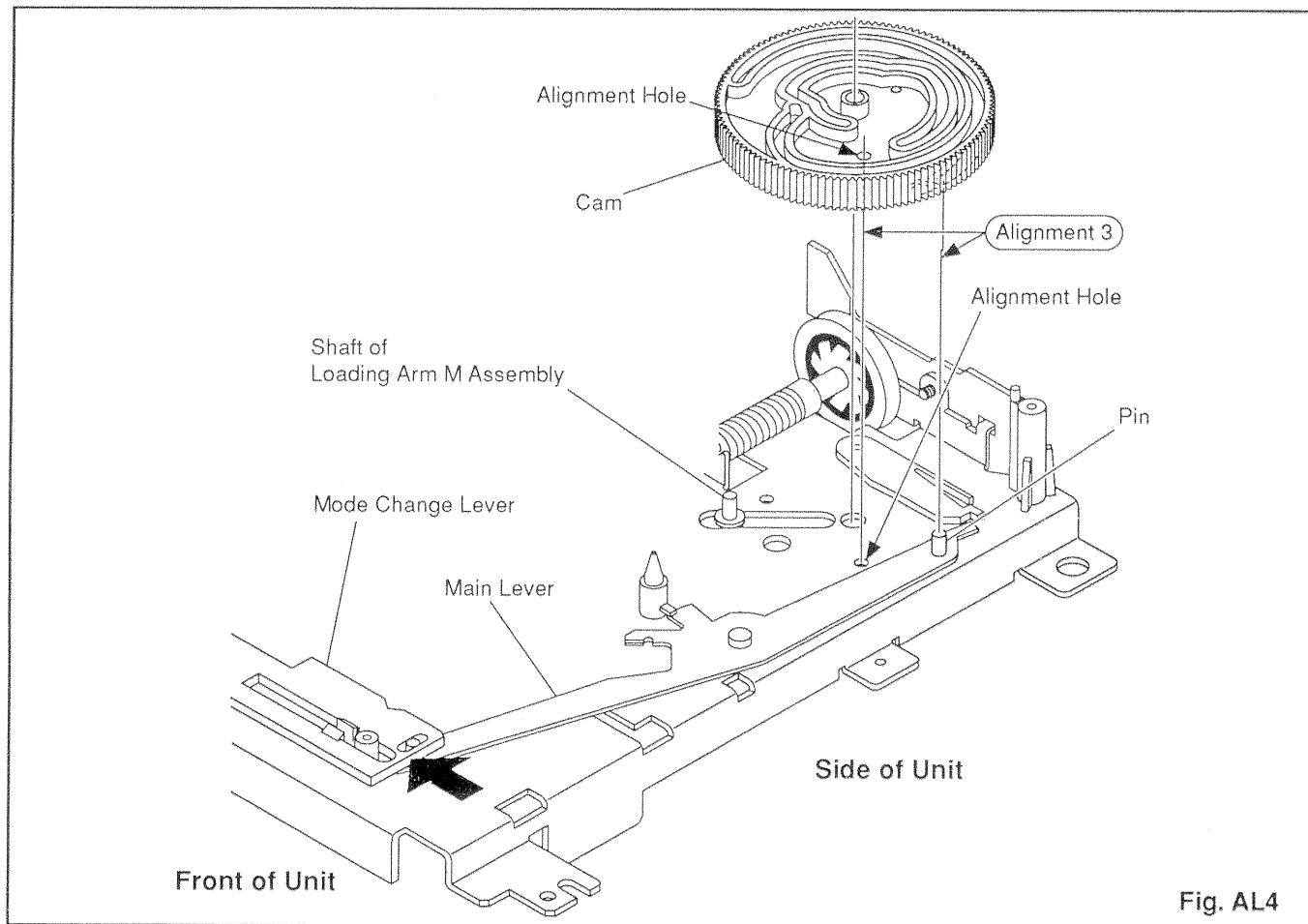


Fig. AL4

Alignment 3

Cam

1. Make sure that the mechanism is in Eject mode so that the shaft of Loading Arm M Assembly is in the position shown in Fig. AL4.
2. Align the alignment hole of the Cam with the alignment hole of the base, holding the Cam just above the base.
3. Carefully keeping these two holes aligned, install the Cam while pushing Mode Change Lever in the direction of the arrow. The Mode Change Lever must be pushed to make the pin on the Main Lever fit in the proper groove in the lower Cam.
4. After installing the Cam, make sure that the alignment hole of the Cam is still aligned with the base hole and that the pin on the Main Lever is inserted into the proper groove of the lower Cam as specified in Fig. AL4.

Alignment 4

Pinch Roller Arm Assembly

1. Ensure that the pin of the Pinch Roller Arm Assembly is positioned in the end of the groove of the upper Cam as shown in Fig. AL5.

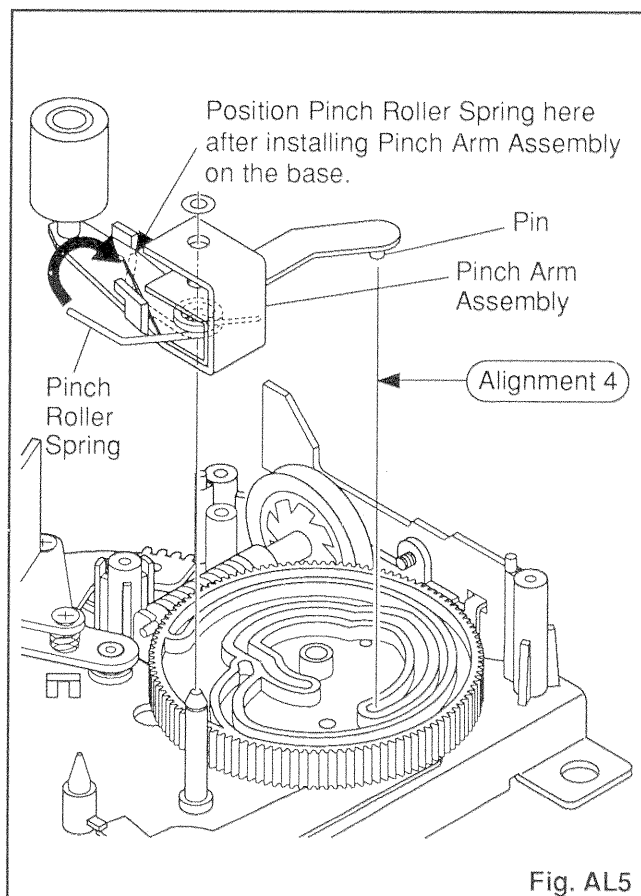
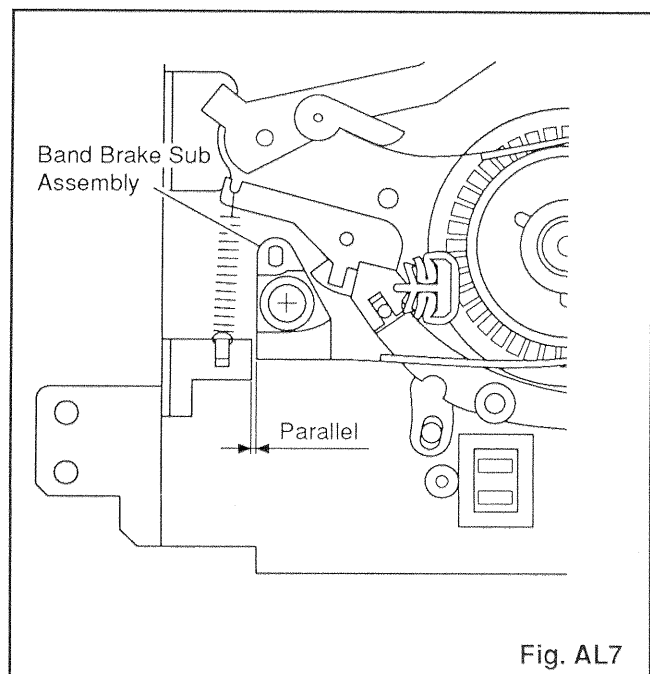
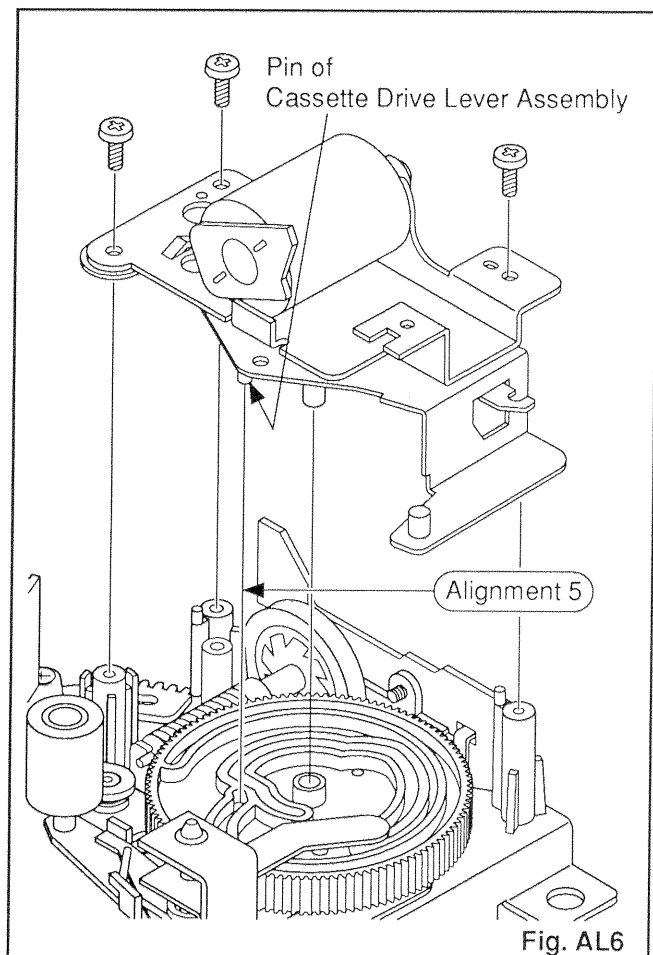


Fig. AL5

Alignment 5

Cassette Drive Lever Assembly

1. Ensure that the pin of the Cassette Drive Lever Assembly is positioned in the groove of the upper Cam as shown in Fig. AL6.



Alignment [b]

This alignment can be performed independently of any other alignment.

Band Brake Sub Assembly

1. Ensure that Band Brake Sub Assembly is positioned parallel to the chassis' notch as shown in Fig. AL7. This measurement can be made by eye.

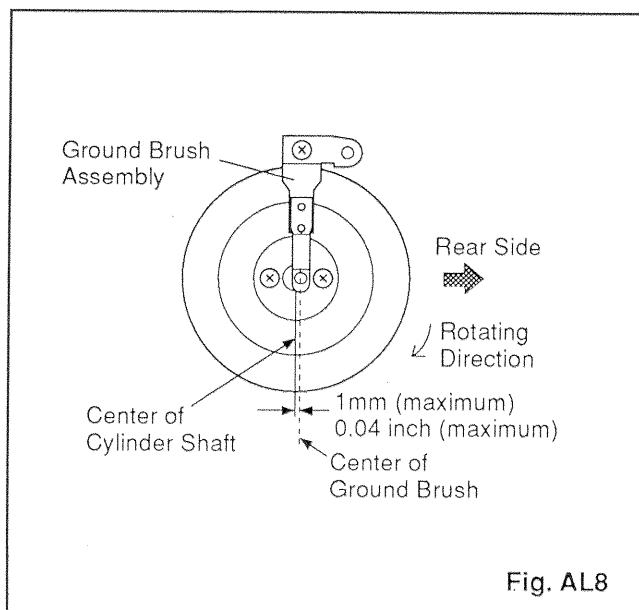
Alignment [c]

This alignment can be performed independently of any other alignment.

Ground Brush Assembly

1. Check to see if the Ground Brush Assembly is properly set in a position equal to or just less than 1mm (0.04 inch) (but never more than 1 mm or 0.04 inch), as measured from the center of the brush to the center of the Cylinder Shaft as shown in Fig. AL8.
2. If this measurement exceeds 1mm (0.04 inch), loosen and refasten the screw of the Ground Brush Assembly. If this is not enough and further adjustment is necessary, loosen and refasten the three screws of Cylinder Assembly. These three screws are shown in Fig. DM18 in DISASSEMBLY/ASSEMBLY PROCEDURES OF DECK MECHANISM.

Note: DO NOT install the Ground Brush Assembly in the opposite position (on the left side of the center of the Cylinder shaft), but always within a maximum of 1mm (0.04 inch) to the right side of the center of this shaft.



PARTS LIST AND EXPLODED VIEWS SECTION

19" COLOR TV / VCR COMBINATION

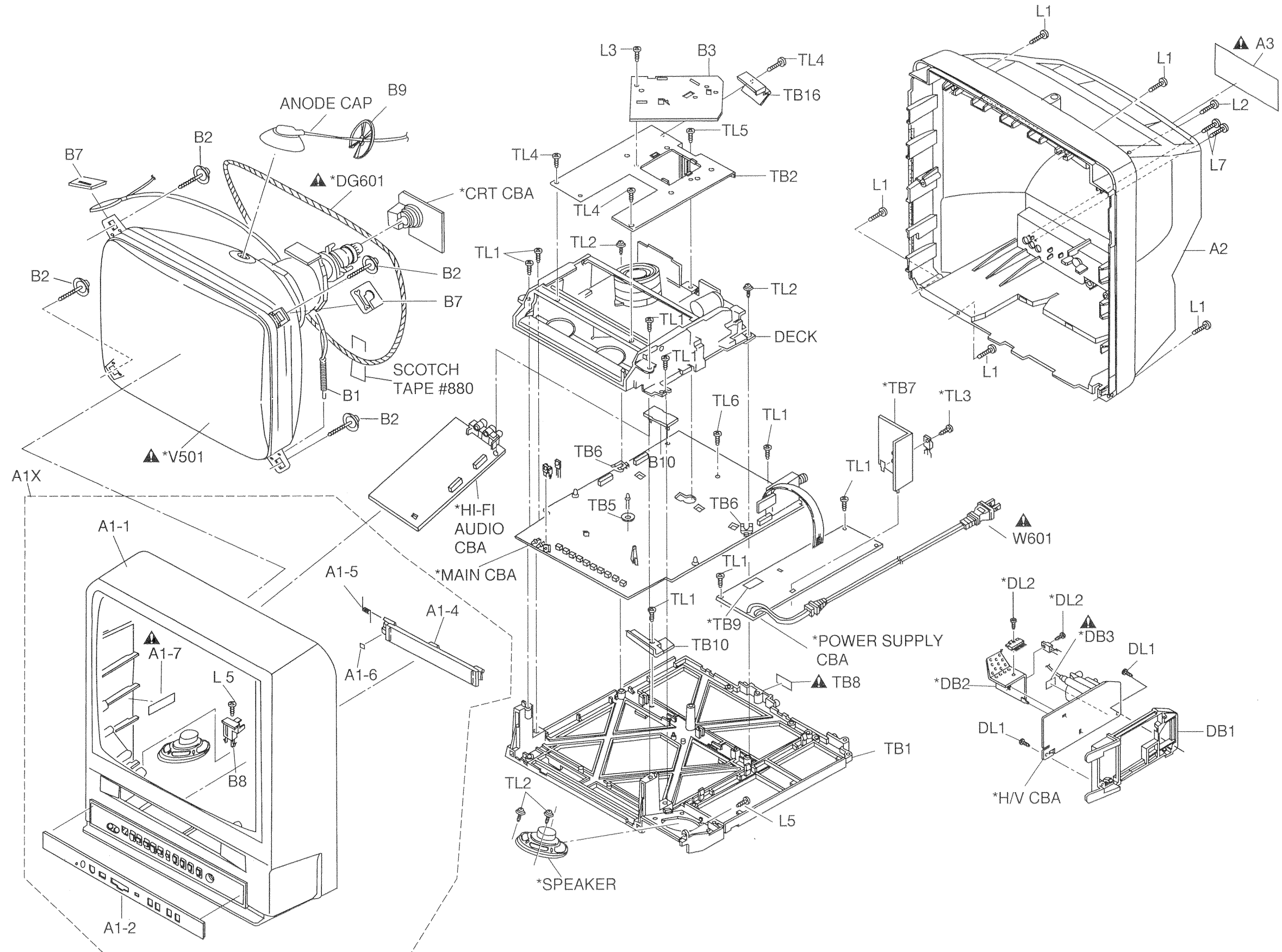
Model No. 19VR11B

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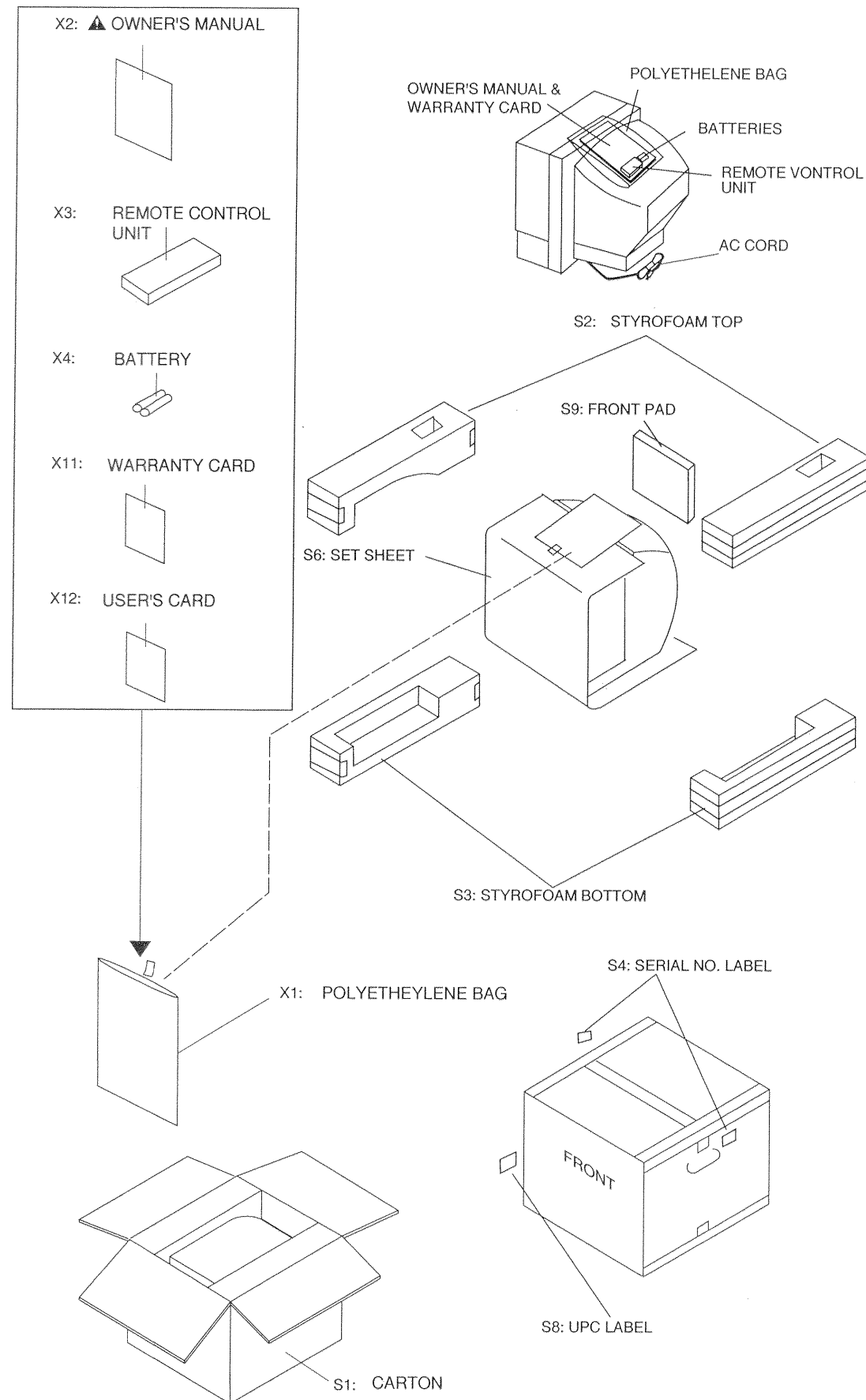
Exploded Views	3-1-1
Mechanical Parts List	3-2-1
Electrical Parts List	3-3-1
Deck Mechanical Parts List	3-4-1
Deck Electrical Parts List	3-5-1

CABINET EXPLODED VIEW

*Marked parts see the Electrical Parts List

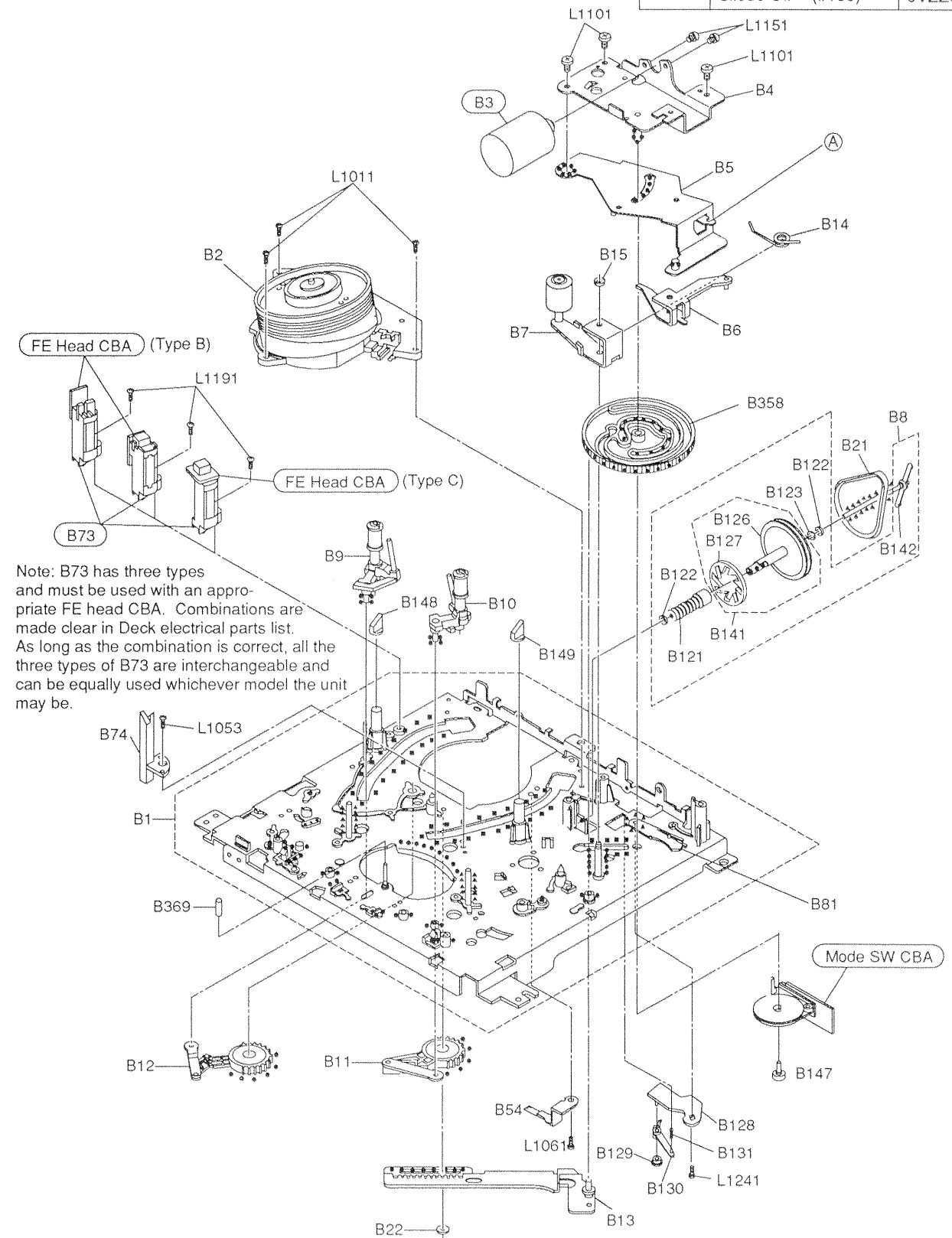


PACKING EXPLODED VIEW



Deck Mechanism View 1

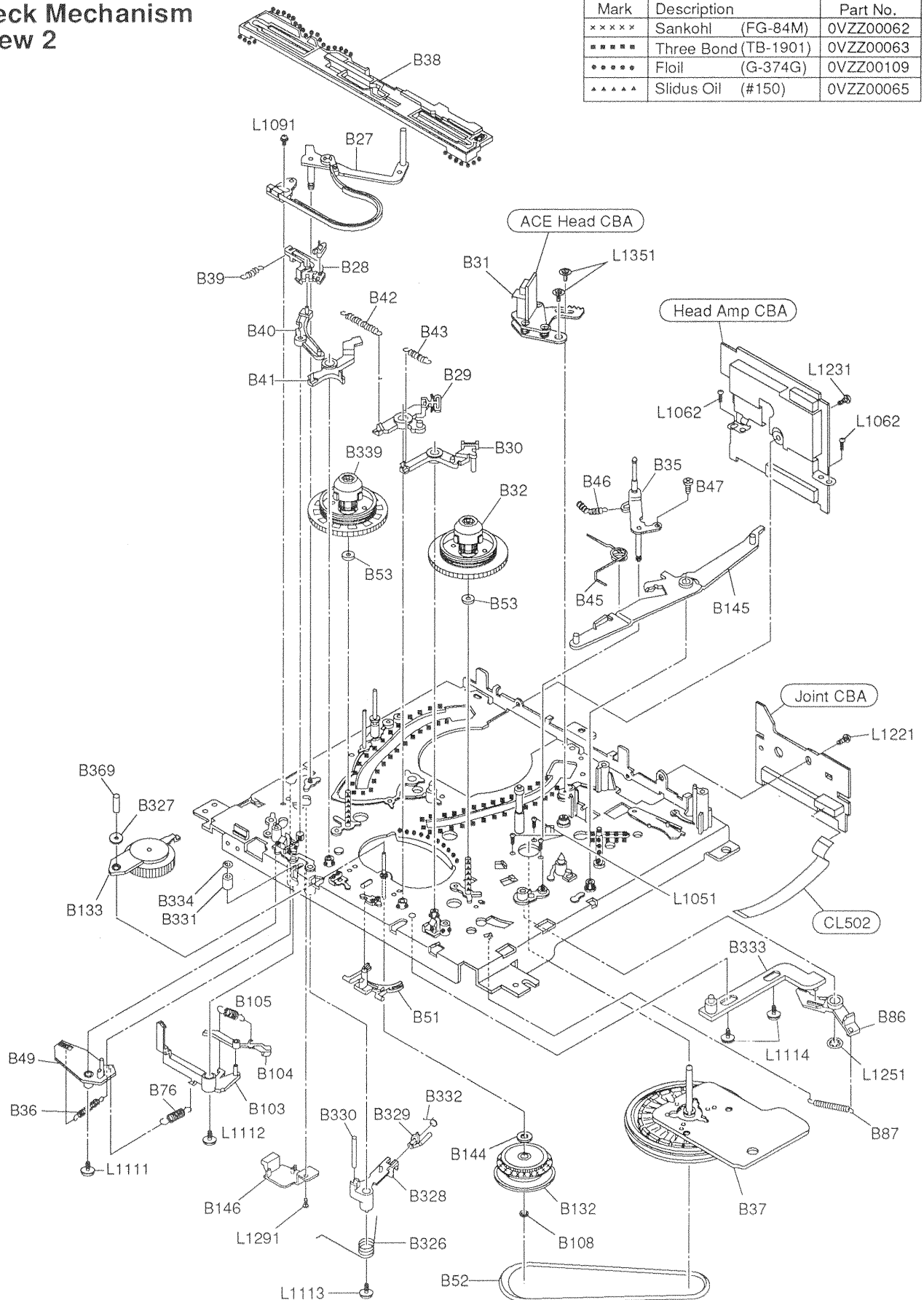
Mark	Description	Part No.
× × × × ×	Sankohl (FG-84M)	0VZZ00062
■ ■ ■ ■ ■	Three Bond (TB-1901)	0VZZ00063
● ● ● ● ●	Floil (G-374G)	0VZZ00109
▲ ▲ ▲ ▲ ▲	Slidus Oil (#150)	0VZZ00065



 See the Deck Electrical Parts List.

Deck Mechanism View 2

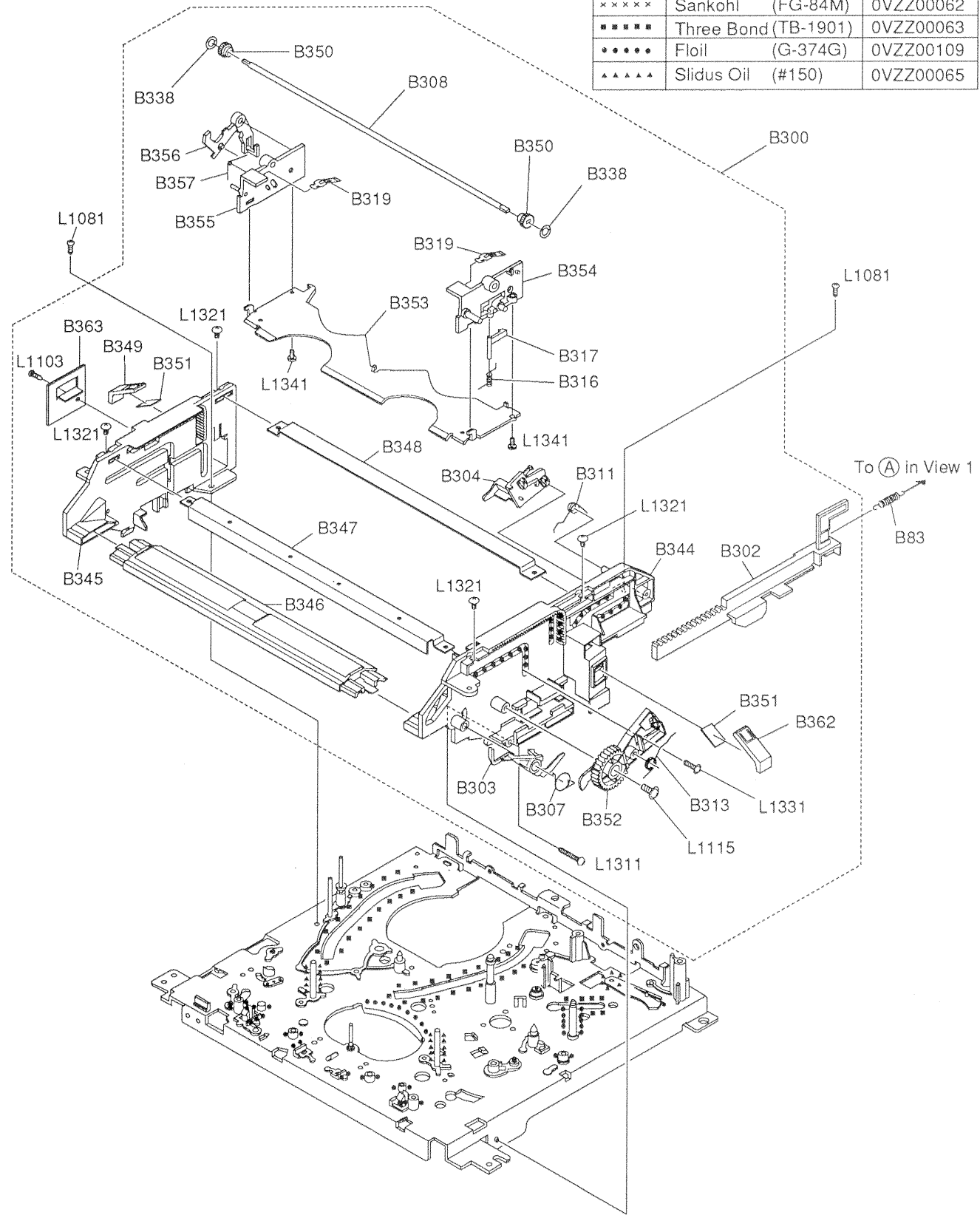
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xxxxx	Three Bond (TB-1901)	0VZZ00063
xxxxx	Foil (G-374G)	0VZZ00109
xxxxx	Slidus Oil (#150)	0VZZ00065



See the Deck Electrical Parts List.

Deck Mechanism View 3

Mark	Description	Part No.
× × × × ×	Sankohl (FG-84M)	0VZZ00062
■ ■ ■ ■ ■	Three Bond (TB-1901)	0VZZ00063
● ● ● ● ●	Floil (G-374G)	0VZZ00109
▲ ▲ ▲ ▲ ▲	Slidus Oil (#150)	0VZZ00065



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.

Ref. No.	Description	Part No.
A1X	DECK ASSEMBLY CZD001/VM5067	N5067FN
	FRONT CABINET ASSEMBLY	0EM100773
	Consists of the following	
A1- 1	FRONT CABINET	0EM100318
A1- 2	CONTROL PLATE	0EM200639
A1- 4	CASSETTE DOOR	0EM403403
A1- 5	DOOR SPRING	0VM403773
A1- 6	CLOTH(4X4)	0EM402404
A1- 7 	SERVICE CAUTION LABEL	24LH060
A 2	REAR CABINET	0EM100774
A 3	RATING LABEL	0EM403399
B 1	TENSION SPRING	26WH006
B 2	CRT MOUNTING SCREW	8A00083
B 3	SHILDE PLATE(9A)	0EM401635
B 7	DEGAUSS HOLDER	0EM402001
B 8	SPEAKER HOLDER	0EM300972
B 9	ARNORD SPACER	0EM400494
B 10	HIFI HOLDER	0EM301012
L 1	SCREW P-TIGHT 4X18 BIND HEAD	GBMP4180
L 2	SCREW TAPPING 4X14 BIND HEAD+	DBM14140
L 3	SCREW S-TIGHT 3X4 BIND HEAD+	GBMS3040
L 5	SCREW P-TIGHT 3X10 BIND HEAD	GBMP3100
L 7	SCREW P-TIGHT 3X10 BIND HEAD+	GBKP3100
HB 1	19INCH PCB HOLDER	0EM200602
TB 1	TRAY CHASSIS	0EM000219
TB 2	TOP SHIELD	0EM200513
TB 5	FIBER(8X4.5XT1.5)	0EM402525
TB 6	PLATEGROUND	0VM406991
	PLATEGROUND	0VM406158
TB 8 	19CHASSIS NO. LABEL(TV)	0EM403280
TB 10	TRAY HOLDER	0EM403362
TB 13	WIRE TAPE	0VM404993
TB 16	HIFI SHIELD	0EM301016
TL 1	SCREW P-TIGHT 3X10 BIND HEAD	GBMP3100
	SCREW P-TIGHT 3X10 BIND HEAD	GBMP3100
	SCREW P-TIGHT 3X10 BIND HEAD	GBMP3100
TL 2	ASSEMBLED SCREW M3X10	0EM401739
TL 3	SCREW B-TIGHT 3X8 BIND HEAD+	GBMB3080
TL 4	SCREW S-TIGHT 3X4 BIND HEAD+	GBMS3040
	SCREW S-TIGHT 3X4 BIND HEAD+	GBMS3040
TL 5	SCREW P-TIGHT 3X20 BIND HEAD	GBKP3200
TL 6	SCREW P-TIGHT 3X12 BIND HEAD+	GBKP3120

Ref. No.	Description	Part No.
S 1	CARTON	0EM403401
S 2	STYROFOAM TOP ASSY	0EM403331
S 3	STYROFOAM BOTTOM ASSY	0EM403456
S 4	SERIAL NO. LABEL	0EM401639
S 6	SET SHEET :1000X1700	0EM402178
S 8	UPC LABEL	0EM403402
S 9	FRONT PAD	0EM402456
X 1	POLYETHYLENE BAG	Z223380
X 2 	OWNER'S MANUAL	0EMN01153
X 3	REMOTE CONTROL UNIT HTR0149-011010	UREMT36HD009
X 4	DRY BATTERY R6M UM3 1015 M15P	XB0M451GW001
X 11	WARRANTY CARD	0EMN01146
X 12	USER'S CARD	0EMN01170

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.

NOTE: Parts that 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%

Main (MMA) CBA

Ref. No.	Description	Part No.
	Main CBA Assembly Consists of the following	0ESA01783
CAPACITORS		
C 001	CERAMIC CAP.(AX) F Z 0.01µF/25V	CDA1EZT0F103
C 002	CERAMIC CAP.(AX) F Z 0.01µF/25V	CDA1EZT0F103
C 003	ELECTROLYTIC CAP. 10µF/50V M	CE1JMASDL100
C 004	CERAMIC CAP.(AX) F Z 0.01µF/25V	CDA1EZT0F103
C 005	ELECTROLYTIC CAP. 100µF/16V M	CE1CMASDL101
C 006	ELECTROLYTIC CAP. 1µF/50V M	CE1JMASDL010
C 007	ELECTROLYTIC CAP. 10µF/50V M	CE1JMASDL100
C 012	CERAMIC CAP.(AX) B K 100pF/50V	CCA1JKT0B101
C 013	CERAMIC CAP.(AX) B K 100pF/50V	CCA1JKT0B101
C 031	CERAMIC CAP.(AX) F Z 0.01µF/25V	CDA1EZT0F103
C 032	CERAMIC CAP.(AX) F Z 0.01µF/25V	CDA1EZT0F103
C 033	CERAMIC CAP.(AX) F Z 0.01µF/25V	CDA1EZT0F103
C 034	CERAMIC CAP.(AX) F Z 0.01µF/25V	CDA1EZT0F103
C 101	CERAMIC CAP.(AX) F Z 0.01µF/25V	CDA1EZT0F103
C 102	ELECTROLYTIC CAP. 100µF/10V M	CE1AMASDL101
C 105	CERAMIC CAP.(AX) F Z 0.01µF/25V	CDA1EZT0F103
C 106	CERAMIC CAP.(AX) B K 120pF/50V	CCA1JKT0B121
C 110	FILM CAP. 0.1µF/50V J	122Z309S
C 111	CERAMIC CAP.(AX) B K 560pF/50V	CCA1JKT0B561
C 115	CERAMIC CAP.(AX) B K 82pF/50V	CCA1JKT0B820
C 116	CERAMIC CAP.(AX) B K 470pF/50V	CCA1JKT0B471
C 117	CERAMIC CAP.(AX) B K 220pF/50V	CCA1JKT0B221
C 118	CERAMIC CAP.(AX) B K 150pF/50V	CCA1JKT0B151
C 119	ELECTROLYTIC CAP. 1µF/50V M	CE1JMASDL010
C 125	CERAMIC CAP.(AX) B K 680pF/50V	CCA1JKT0B681
C 126	CERAMIC CAP.(AX) B K 330pF/50V	CCA1JKT0B331
C 131	ELECTROLYTIC CAP. 1µF/50V M L	CE1JMASDL010
C 132	CERAMIC CAP.(AX) B K 100pF/50V	CCA1JKT0B101
C 133	CERAMIC CAP.(AX) B K 100pF/50V	CCA1JKT0B101
C 134	CERAMIC CAP.(AX) B K 100pF/50V	CCA1JKT0B101
C 135	CERAMIC CAP.(AX) B K 220pF/50V	CCA1JKT0B221
C 136	CERAMIC CAP.(AX) B K 220pF/50V	CCA1JKT0B221
C 137	CERAMIC CAP.(AX) B K 220pF/50V	CCA1JKT0B221
C 138	CERAMIC CAP.(AX) B K 220pF/50V	CCA1JKT0B221
C 140	CERAMIC CAP.(AX) F Z 0.01µF/25V	CDA1EZT0F103
C 141	CERAMIC CAP.(AX) B K 220pF/50V	CCA1JKT0B221
C 142	CERAMIC CAP.(AX) B K 330pF/50V	CCA1JKT0B331
C 147	*MYLAR CAP. 0.001µF/50V K	2250102S
C 148	CERAMIC CAP.(AX) B K 220pF/50V	CCA1JKT0B221
C 149	ELECTROLYTIC CAP. 1µF/50V M	CE1JMASDL010
C 151	ELECTROLYTIC CAP. 10µF/50V M	CE1JMASDL100
C 152	ELECTROLYTIC CAP. 10µF/50V M	CE1JMASDL100
C 153	ELECTROLYTIC CAP. 10µF/50V M	CE1JMASDL100
C 154	ELECTROLYTIC CAP. 10µF/50V M	CE1JMASDL100
C 155	ELECTROLYTIC CAP. 2.2µF/50V M	CE1JMASDL2R2
C 156	ELECTROLYTIC CAP. 4.7µF/50V M	CE1JMASDL4R7

Ref. No.	Description	Part No.
C 160	ELECTROLYTIC CAP. 47µF/16V M	CE1CMASDL470
C 161	ELECTROLYTIC CAP. 10µF/50V M	CE1JMASDL100
C 162	CERAMIC CAP.(AX) B K 100pF/50V	CCA1JKT0B101
C 201	ELECTROLYTIC CAP. 47µF/6.3V M H7	CE0KMASSL470
C 206	CERAMIC CAP.(AX) F Z 0.047µF/50V	CCA1JZT0F473
C 207	CERAMIC CAP.(AX) F Z 0.01µF/25V	CDA1EZT0F103
C 209	CERAMIC CAP.(AX) B K 1000pF/50V	CDA1JKT0B102
C 210	CERAMIC CAP.(AX) B K 1000pF/50V	CDA1JKT0B102
C 211	ELECTROLYTIC CAP. 0.1µF/50V M H7	CE1JMASSL0R1
C 212	CERAMIC CAP.(AX) F Z 0.01µF/25V	CDA1EZT0F103
C 213	ELECTROLYTIC CAP. 10µF/16V M H7	CE1CMASSL100
C 214	CERAMIC CAP. X M 0.0068µF/16V	CDA1CMT0X682
C 215	CERAMIC CAP.(AX) F Z 0.047µF/50V	CCA1JZT0F473
C 216	CERAMIC CAP.(AX) F Z 0.047µF/50V	CCA1JZT0F473
C 217	ELECTROLYTIC CAP. 220µF/6.3V M H7	CE0KMASSL221
C 218	CERAMIC CAP.(AX) F Z 0.022µF/25V	CDA1EZT0F223
C 220	PCB JUMPER D0.6-P5.0	JW5.0T
C 221	CERAMIC CAP.(AX) B K 1000pF/50V	CDA1JKT0B102
C 222	ELECTROLYTIC CAP. 10µF/16V M H7	CE1CMASSL100
C 223	CERAMIC CAP.(AX) B K 220pF/50V	CCA1JKT0B221
C 224	CERAMIC CAP.(AX) B K 100pF/50V	CCA1JKT0B101
C 226	CERAMIC CAP. X M 0.0033µF/16V	CDA1CMT0X332
C 229	ELECTROLYTIC CAP. 22µF/16V M H7	CE1CMASSL220
C 230	CERAMIC CAP.(AX) F Z 0.01µF/25V	CDA1EZT0F103
C 231	CERAMIC CAP.(AX) B K 1000pF/50V	CDA1JKT0B102
C 232	ELECTROLYTIC CAP. 1µF/50V M H7	CE1JMASSL010
C 234	CERAMIC CAP.(AX) CH J 10pF/50V	CCA1JJTCH100
C 236	CERAMIC CAP.(AX) CH J 15pF/50V	CCA1JJTCH150
C 237	CERAMIC CAP.(AX) CH J 20pF/50V	CCA1JJTCH200
C 238	CERAMIC CAP.(AX) CH J 20pF/50V	CCA1JJTCH200
C 239	ELECTROLYTIC CAP. 22µF/16V M H7	CE1CMASSL220
C 240	ELECTROLYTIC CAP. 22µF/16V M LL H7	CE1CMASHL220
C 241	ELECTROLYTIC CAP. 1µF/50V M H7	CE1JMASSL010
C 242	ELECTROLYTIC CAP. 1µF/50V M H7	CE1JMASSL010
C 243	CERAMIC CAP.(AX) B K 1000pF/50V	CDA1JKT0B102
C 245	ELECTROLYTIC CAP. 10µF/16V M H7	CE1CMASSL100
C 246	ELECTROLYTIC CAP. 22µF/16V M H7	CE1CMASSL220
C 247	ELECTROLYTIC CAP. 22µF/16V M H7	CE1CMASSL220
C 248	CERAMIC CAP.(AX) X K 4700pF/16V	CDA1CKT0X472
C 249	CERAMIC CAP.(AX) F Z 0.01µF/25V	CDA1EZT0F103
C 250	ELECTROLYTIC CAP. 22µF/16V M H7	CE1CMASSL220
C 256	ELECTROLYTIC CAP. 100µF/16V M	CE1CMASDL101
C 257	CERAMIC CAP.(AX) F Z 0.1µF/50V	CCA1JZT0F104
C 258	CERAMIC CAP.(AX) B K 220pF/50V	CCA1JKT0B221
C 259	CERAMIC CAP.(AX) B K 220pF/50V	CCA1JKT0B221
C 264	CERAMIC CAP.(AX) B K 100pF/50V	CCA1JKT0B101
C 265	CERAMIC CAP.(AX) B K 100pF/50V	CCA1JKT0B101
C 266	ELECTROLYTIC CAP. 1µF/50V M H7	CE1JMASSL010
C 269	CERAMIC CAP.(AX) F Z 0.01µF/25V	CDA1EZT0F103
C 272	ELECTROLYTIC CAP. 10µF/16V M H7	CE1CMASSL100
C 301	CERAMIC CAP.(AX) F Z 0.01µF/25V	CDA1EZT0F103

*Mylar is a registered trademark of E. I. Du Pont de Nemours and Company.

Ref. No.	Description	Part No.
C 302	ELECTROLYTIC CAP. 330μF/16V M	CE1CMASDL331
C 307	CERAMIC CAP.(AX) F Z 0.047μF/50V	CCA1JZT0F473
C 308	ELECTROLYTIC CAP. 10μF/50V M	CE1JMASDL100
C 309	CERAMIC CAP.(AX) B K 82pF/50V	CCA1JKT0B820
C 310	ELECTROLYTIC CAP. 1μF/50V M	CE1JMASDL010
C 311	CERAMIC CAP.(AX) Y M 0.01μF/16V	CDA1CMT0Y103
C 312	CERAMIC CAP.(AX) X K 2200pF/16V	CDA1CKT0X222
C 313	ELECTROLYTIC CAP. 1μF/50V M	CE1JMASDL010
C 314	ELECTROLYTIC CAP. 0.1μF/50V M	CE1JMASDL0R1
C 316	CERAMIC CAP.(AX) B K 91pF/50V	CCA1JKT0B910
C 317	CERAMIC CAP.(AX) SL J 47pF/50V	CCA1JJTSL470
C 318	CERAMIC CAP.(AX) B K 120pF/50V	CCA1JKT0B121
C 319	CERAMIC CAP.(AX) F Z 0.01μF/25V	CDA1EZT0F103
C 320	CERAMIC CAP.(AX) F Z 0.01μF/25V	CDA1EZT0F103
C 321	CERAMIC CAP.(AX) F Z 0.01μF/25V	CDA1EZT0F103
C 322	ELECTROLYTIC CAP. 4.7μF/50V M	CE1JMASDL4R7
C 323	CERAMIC CAP.(AX) F Z 0.01μF/25V	CDA1EZT0F103
C 324	ELECTROLYTIC CAP. 0.22μF/50V M	CE1JMASDLR22
C 325	ELECTROLYTIC CAP. 1μF/50V M	CE1JMASDL010
C 326	CERAMIC CAP.(AX) CH J 15pF/50V	CCA1JJTCH150
C 327	CERAMIC CAP.(AX) Y M 0.01μF/16V	CDA1CMT0Y103
C 328	ELECTROLYTIC CAP. 1μF/50V M	CE1JMASDL010
C 330	ELECTROLYTIC CAP. 10μF/50V M	CE1JMASDL100
C 331	CERAMIC CAP.(AX) F Z 0.01μF/25V	CDA1EZT0F103
C 332	CERAMIC CAP.(AX) F Z 0.01μF/25V	CDA1EZT0F103
C 333	ELECTROLYTIC CAP. 220μF/16V M	CE1CMASDL221
C 334	CERAMIC CAP.(AX) F Z 0.01μF/25V	CDA1EZT0F103
C 335	ELECTROLYTIC CAP. 0.22μF/50V M	CE1JMASDLR22
C 341	CERAMIC CAP.(AX) B K 470pF/50V	CCA1JKT0B471
C 351	CERAMIC CAP.(AX) F Z 0.1μF/50V	CCA1JZT0F104
C 353	CERAMIC CAP.(AX) F Z 0.01μF/25V	CDA1EZT0F103
C 354	CERAMIC CAP.(AX) SL J 12pF/50V	CCA1JJTSL120
C 356	SEMICONDUCTOR CAP. SR M 0.22μF/12V	CDA1BMS0X224
C 358	CERAMIC CAP.(AX) F Z 0.01μF/25V	CDA1EZT0F103
C 359	CERAMIC CAP.(AX) F Z 0.01μF/25V	CDA1EZT0F103
C 360	ELECTROLYTIC CAP. 100μF/10V M	CE1AMASDL101
C 361	ELECTROLYTIC CAP. 0.47μF/50V M	CE1JMASDLR47
C 364	CERAMIC CAP.(AX) F Z 0.01μF/25V	CDA1EZT0F103
C 365	CERAMIC CAP.(AX) SL J 47pF/50V	CCA1JJTSL470
C 366	CERAMIC CAP.(AX) SL J 47pF/50V	CCA1JJTSL470
C 367	CERAMIC CAP.(AX) F Z 0.01μF/25V	CDA1EZT0F103
C 370	ELECTROLYTIC CAP. 1μF/50V M	CE1JMASDL010
C 373	CERAMIC CAP.(AX) F Z 0.01μF/25V	CDA1EZT0F103
C 375	ELECTROLYTIC CAP. 1μF/50V M	CE1JMASDL010
C 376	CERAMIC CAP. X M 0.0047μF/16V	CDA1CMP0X472
C 401	CERAMIC CAP.(AX) B K 820pF/50V	CCA1JKT0B821
C 402	CERAMIC CAP.(AX) X K 2200pF/16V	CDA1CKT0X222
C 403	ELECTROLYTIC CAP. 4.7μF/25V M H7	CE1EMASSL4R7
C 404	ELECTROLYTIC CAP. 22μF/16V M H7	CE1CMASSL220
C 405	CERAMIC CAP.(AX) Y M 0.01μF/16V	CDA1CMT0Y103
C 406	ELECTROLYTIC CAP. 1μF/50V M H7	CE1JMASSL010
C 407	CERAMIC CAP.(AX) B K 1000pF/50V	CDA1JKT0B102
C 408	ELECTROLYTIC CAP. 1μF/50V M H7	CE1JMASSL010
C 409	CERAMIC CAP.(AX) F Z 0.01μF/25V	CDA1EZT0F103
C 410	CERAMIC CAP.(AX) F Z 0.047μF/50V	CCA1JZT0F473
C 411	CERAMIC CAP.(AX) F Z 0.01μF/25V	CDA1EZT0F103
C 412	CERAMIC CAP.(AX) F Z 0.01μF/25V	CDA1EZT0F103
C 413	CERAMIC CAP.(AX) F Z 0.01μF/25V	CDA1EZT0F103
C 414	CERAMIC CAP.(AX) SL J 33pF/50V	CCA1JJTSL330
C 415	CERAMIC CAP.(AX) F Z 0.01μF/25V	CDA1EZT0F103
C 416	CERAMIC CAP.(AX) B K 390pF/50V	CCA1JKT0B391
C 417	CERAMIC CAP.(AX) B K 180pF/50V	CCA1JKT0B181
C 418	CERAMIC CAP.(AX) SL J 22pF/50V	CCA1JJTSL220
C 419	CERAMIC CAP.(AX) B K 82pF/50V	CCA1JKT0B820
C 420	ELECTROLYTIC CAP. 1μF/50V M H7	CE1JMASSL010
C 421	ELECTROLYTIC CAP. 1μF/50V M H7	CE1JMASSL010

Ref. No.	Description	Part No.
C 422	ELECTROLYTIC CAP. 1μF/50V M H7	CE1JMASSL010
C 423	ELECTROLYTIC CAP. 1μF/50V M H7	CE1JMASSL010
C 424	ELECTROLYTIC CAP. 4.7μF/25V M H7	CE1EMASSL4R7
C 425	ELECTROLYTIC CAP. 47μF/6.3V M H7	CE0KMASSL470
C 426	SEMICONDUCTOR CAP. SR K 0.1μF/25V	12Y2104S
C 427	ELECTROLYTIC CAP. 10μF/16V M H7 or	CE1CMASSL100
C 428	ELECTROLYTIC CAP. 1μF/50V M H7	CE1JMASSL010
C 429	ELECTROLYTIC CAP. 10μF/16V M H7	CE1CMASSL100
C 430	ELECTROLYTIC CAP. 22μF/16V M H7	CE1CMASSL220
C 431	ELECTROLYTIC CAP. 1μF/50V M H7	CE1JMASSL010
C 432	CERAMIC CAP.(AX) F Z 0.022μF/25V	CDA1EZT0F223
C 433	ELECTROLYTIC CAP. 1μF/50V M H7	CE1JMASSL010
C 435	CERAMIC CAP.(AX) F Z 0.047μF/50V	CCA1JZT0F473
C 438	CERAMIC CAP.(AX) F Z 0.01μF/25V	CDA1EZT0F103
C 439	ELECTROLYTIC CAP. 1μF/50V M H7	CE1JMASSL010
C 440	CERAMIC CAP.(AX) F Z 0.047μF/50V	CCA1JZT0F473
C 441	CERAMIC CAP.(AX) F Z 0.01μF/25V	CDA1EZT0F103
C 442	CERAMIC CAP.(AX) F Z 0.1μF/50V	CCA1JZT0F104
C 443	CERAMIC CAP.(AX) F Z 0.047μF/50V	CCA1JZT0F473
C 444	ELECTROLYTIC CAP. 47μF/6.3V M H7	CE0KMASSL470
C 447	CERAMIC CAP.(AX) F Z 0.022μF/25V	CDA1EZT0F223
C 450	CERAMIC CAP.(AX) SL J 56pF/50V	CCA1JJTSL560
C 451	ELECTROLYTIC CAP. 47μF/6.3V M H7	CE0KMASSL470
C 452	CERAMIC CAP.(AX) SL J 33pF/50V	CCA1JJTSL330
C 453	CERAMIC CAP.(AX) F Z 0.1μF/50V	CCA1JZT0F104
C 454	CERAMIC CAP.(AX) F Z 0.022μF/25V	CDA1EZT0F223
C 460	ELECTROLYTIC CAP. 47μF/6.3V M H7	CE0KMASSL470
C 670	ELECTROLYTIC CAP. 220μF/16V M	CE1CMASDL221
C 671	ELECTROLYTIC CAP. 10μF/50V M	CE1JMASDL100
C 673	ELECTROLYTIC CAP. 1μF/50V M	CE1JMASDL010
C 674	ELECTROLYTIC CAP. 220μF/16V M	CE1CMASDL221
C 702	ELECTROLYTIC CAP. 100μF/16V M H7	CE1CMASSL101
C 704	ELECTROLYTIC CAP. 10μF/16V M H7	CE1CMASSL100
C 708	ELECTROLYTIC CAP. 330μF/10V M	CE1AMASDL331
C 709	CERAMIC CAP.(AX) F Z 0.01μF/25V	CDA1EZT0F103
C 710	PCB JUMPER D0.6-P5.0	JW5.0T
C 720	ELECTROLYTIC CAP. 220μF/16V M	CE1CMASDL221
C 849	ELECTROLYTIC CAP. 22μF/16V M H7	CE1CMASSL220
C 851	ELECTROLYTIC CAP. 0.1μF/50V M H7	CE1JMASSL0R1
C 852	ELECTROLYTIC CAP. 22μF/16V M H7	CE1CMASSL220
C 853	ELECTROLYTIC CAP. 4.7μF/25V M H7	CE1EMASSL4R7
C 855	ELECTROLYTIC CAP. 0.1μF/50V M H7	CE1JMASSL0R1
C 856	ELECTROLYTIC CAP. 47μF/6.3V M H7	CE0KMASSL470
C 857	CERAMIC CAP.(AX) F Z 0.1μF/50V	CCA1JZT0F104
C 858	ELECTROLYTIC CAP. 33μF/6.3V M H7	CE0KMASSL330
C 859	CERAMIC CAP.(AX) Y M 0.01μF/16V	CDA1CMT0Y103
C 860	MYLAR CAP. K 0.033μF/12V or	2250333S
C 861	ELECTROLYTIC CAP. 47μF/6.3V M H7	CE0KMASSL470
C 862	MYLAR CAP. 0.022μF/100V J	1255223S
CONNECTORS		
CN 201	STRAIGHT PIN CONNECTOR 20P IL-SDA-20P-S2T2	1770640
CN 301	CONNECTOR BASE 5P TUC-P05P-B1	J3TUA05TG001
CN 401	STRAIGHT PIN CONNECTOR 17P IL-SDA-17P-S2T2	1770637
CN 403	CONNECTOR BASE 15P TUC-P15P-B1	J3TUA15TG001
CN 575	CONNECTOR BASE 6P TUC-P06P-B1	J3TUA06TG001
CN 604	CONNECTOR BASE 10P TUC-P10P-B1	J3TUA10TG001
CN 802	ANGLE PIN HEADER 2P 173979-2	1770247
CN 805	STRAIGHT PIN CONNECTOR 5P	1770625
CN 904	CONNECTOR BASE 15P TUC-P15P-B1	J3TUA15TG001
DIODES		
D 001	ZENER DIODE UZ-6.8BSC	QDTC0UZ6R8BS
D 103	SWITCHING DIODE 1N4148M	QDTZ01N4148M
D 104	SWITCHING DIODE 1N4148M	QDTZ01N4148M
D 105	ZENER DIODE UZ-6.2BSA	QDTA0UZ6R2BS

Ref. No.	Description	Part No.
D 106	SWITCHING DIODE 1N4148M	QDTZ01N4148M
D 107	ZENER DIODE UZ-6.2BSA	QDQA0UZ6R2BS
D 108	ZENER DIODE UZ-6.2BSA	QDQA0UZ6R2BS
D 120	PCB JUMPER D0.6-P5.0	JW5.0T
D 121	PCB JUMPER D0.6-P5.0	JW5.0T
D 122	PCB JUMPER D0.6-P5.0	JW5.0T
D 123	PCB JUMPER D0.6-P5.0	JW5.0T
D 153	SWITCHING DIODE 1N4148M	QDTZ01N4148M
D 156	SWITCHING DIODE 1N4148M	QDTZ01N4148M
D 157	SWITCHING DIODE 1N4148M	QDTZ01N4148M
D 201	LED(RED)L-FORMING CSL-501E6-MB	NP6ZCSL501E6
D 205	LED SLR-932C-20-AB	QP080SLR932C
D 208	SWITCHING DIODE 1N4148M	QDTZ01N4148M
D 209	SWITCHING DIODE 1N4148M	QDTZ01N4148M
D 211	SWITCHING DIODE 1N4148M	QDTZ01N4148M
D 212	SWITCHING DIODE 1N4148M	QDTZ01N4148M
D 216	SWITCHING DIODE 1N4148M	QDTZ01N4148M
D 219	SWITCHING DIODE 1N4148M	QDTZ01N4148M
D 220	SWITCHING DIODE 1N4148M	QDTZ01N4148M
D 221	ZENER DIODE UZ-6.8BSB	QDTB0UZ6R8BS
D 222	ZENER DIODE UZ-6.8BSB	QDTB0UZ6R8BS
D 223	SWITCHING DIODE 1N4148M	QDTZ01N4148M
D 301	SWITCHING DIODE 1N4148M	QDTZ01N4148M
D 306	SWITCHING DIODE 1N4148M	QDTZ01N4148M
D 307	SWITCHING DIODE 1N4148M	QDTZ01N4148M
D 401	SWITCHING DIODE 1N4148M	QDTZ01N4148M
D 402	SWITCHING DIODE 1N4148M	QDTZ01N4148M
D 403	SWITCHING DIODE 1N4148M	QDTZ01N4148M
D 404	SWITCHING DIODE 1N4148M	QDTZ01N4148M
D 406	SWITCHING DIODE 1N4148M	QDTZ01N4148M
D 408	PCB JUMPER D0.6-P5.0	JW5.0T
D 410	SWITCHING DIODE 1N4148M	QDTZ01N4148M
D 670	ZENER DIODE UZ-6.2BSA	QDQA0UZ6R2BS
D 671	SWITCHING DIODE 1N4148M	QDTZ01N4148M
D 672	SWITCHING DIODE 1N4148M	QDTZ01N4148M
D 673	SWITCHING DIODE 1N4148M	QDTZ01N4148M
ICS		
IC 101	IC:TV MICON M37267M4-106SP	QSMQB0SMB114
IC 201	IC:VCR MICON M37774M5H523GP	QSMQC0RMB112
IC 202	IC:MEMORY 24LC02B/P	NSMMA0SMH003
IC 203	IC:OP-AMP. KIA324P DIP-14	NSBLA0SJY002
IC 204	IC TA7291S	14LW342
IC 205	REEL SENSOR SG-231	PCZLAZZKK005
IC 301	IC:CHROMA/IF 1 CHIP M52339SP	QSBLA0SMB012
IC 401	IC:VIDEO LA71000M	QSBLA0RSY056
IC 402	IC:CCD LC89962	QSMILA0SSY018
IC 670	IC:VOLTAGE REGULATOR KIA7806PI	NSBLA0ZJY038
IC 671	IC:REGURATOR 5V KIA7805PI	NSBLA0ZJY020
IC 703	IC:SWITCHING NJU4053BD	14D0436
COILS		
L 001	PCB JUMPER D0.6-P5.0	JW5.0T
L 030	INDUCTOR 1.0μH K 26T	LLAXKATTU1R0
L 101	INDUCTOR 5.6μH K 26T	LLAXKATTU5R6
L 102	INDUCTOR 5.6μH K 26T	LLAXKATTU5R6
L 103	INDUCTOR 5.6μH K 26T	LLAXKATTU5R6
L 104	INDUCTOR 5.6μH K 26T	LLAXKATTU5R6
L 105	INDUCTOR 56μH K26T	LLAXKATTU560
L 151	INDUCTOR 22μH K 26T	LLAXKATTU220
L 201	INDUCTOR 100μH K 26T	LLAXKATTU101
L 301	INDUCTOR 22μH K 26T	LLAXKATTU220
L 302	INDUCTOR 10μH K 26T	LLAXKATTU100
L 305	INDUCTOR 18μH K 26T	LLAXKATTU180
L 306	INDUCTOR 15μH K 26T	LLAXKATTU150
L 308	INDUCTOR 100μH K 5FT	LLARKMSFS101
L 310	PCB JUMPER D0.6-P5.0	JW5.0T
L 401	INDUCTOR 56μH K 26T	LLAXKATTU560

Ref. No.	Description	Part No.
L 408	INDUCTOR 100μH K 26T	LLAXKATTU101
L 410	INDUCTOR 330μH K 26T	LLAXKATTU331
TRANSISTORS		
Q 030	TRANSISTOR 2SC3000E	2SC3000EZ
Q 102	TRANSISTOR KTA1267(GR)	NQS10KTA1267
Q 111	RES. BUILT-IN TRANSISTOR KRC104M	NQSZ0KRC104M
Q 205	PHOTO TRANSISTOR PT380FB	QP4B00PT380F
Q 206	PHOTO TRANSISTOR PT380FB	QP4B00PT380F
Q 207	TRANSISTOR KTC3199(GR)	NQS10KTC3199
Q 301	TRANSISTOR KTA1267(GR)	NQS10KTA1267
Q 302	TRANSISTOR KTC3199(GR)	NQS10KTC3199
Q 304	TRANSISTOR KTC3199(GR)	NQS10KTC3199
Q 308	TRANSISTOR KTC3199(GR)	NQS10KTC3199
Q 309	RES. BUILT-IN TRANSISTOR KRC103M	NQSZ0KRC103M
Q 311	RES. BUILT-IN TRANSISTOR KRC103M	NQSZ0KRC103M
Q 392	RES. BUILT-IN TRANSISTOR KRC103M	NQSZ0KRC103M
Q 401	TRANSISTOR 2SC3331(T)	QSC3331TNPAA
Q 402	TRANSISTOR KTC3199(GR)	NQS10KTC3199
Q 403	RES. BUILT-IN TRANSISTOR KRC103M	NQSZ0KRC103M
Q 405	TRANSISTOR KTA1267(GR)	NQS10KTA1267
Q 410	RES. BUILT-IN TRANSISTOR KRC101M	NQSZ0KRC101M
Q 411	TRANSISTOR 2SA1015-GR-TPE2	QQS102SA1015
Q 412	RES. BUILT-IN TRANSISTOR KRC103M	NQSZ0KRC103M
Q 670	TRANSISTOR KTB1366(Y)	NQQY0KTB1366
Q 671	TRANSISTOR 2SC3331(T)	QSC3331TNPAA
Q 703	TRANSISTOR KTC3199(GR)	NQS10KTC3199
Q 704	RES. BUILT-IN TRANSISTOR KRC103M	NQSZ0KRC103M
Q 705	RES. BUILT-IN TRANSISTOR KRC103M	NQSZ0KRC103M
Q 851	TRANSISTOR 2SD734F-NP-AQ	QQSF002SD734
Q 852	RES. BUILT-IN TRANSISTOR KRA103M	NQSZ0KRA103M
Q 853	TRANSISTOR 2SC3331(T)	QSC3331TNPAA
Q 854	TRANSISTOR 2SC3331(T)	QSC3331TNPAA
RESISTORS		
J 300	CARBON RES. 1/4W J 330k Ω	RCX4JATZ0334
R 002	CARBON RES. 1/4W J 18k Ω	RCX4JATZ0183
R 003	CARBON RES. 1/4W J 27k Ω	RCX4JATZ0273
R 004	CARBON RES. 1/4W J 82k Ω	RCX4JATZ0823
R 031	CARBON RES. 1/4W J 2.2k Ω	RCX4JATZ0222
R 032	CARBON RES. 1/4W J 100 Ω	RCX4JATZ0101
R 033	CARBON RES. 1/4W J 6.8k Ω	RCX4JATZ0682
R 034	CARBON RES. 1/4W J 1.5k Ω	RCX4JATZ0152
R 035	CARBON RES. 1/4W J 330 Ω	RCX4JATZ0331
R 036	CARBON RES. 1/4W J 33 Ω	RCX4JATZ0330
R 101	CARBON RES. 1/4W J 470k Ω	RCX4JATZ0474
R 102	CARBON RES. 1/4W J 470 Ω	RCX4JATZ0471
R 108	CARBON RES. 1/4W J 10k Ω	RCX4JATZ0103
R 110	CARBON RES. 1/4W J 4.7k Ω	RCX4JATZ0472
R 111	CARBON RES. 1/4W J 1k Ω	RCX4JATZ0102
R 112	CARBON RES. 1/4W J 1k Ω	RCX4JATZ0102
R 113	CARBON RES. 1/4W J 1k Ω	RCX4JATZ0102
R 114	CARBON RES. 1/4W J 1k Ω	RCX4JATZ0102
R 115	CARBON RES. 1/4W J 82k Ω	RCX4JATZ0823
R 116	CARBON RES. 1/4W J 47k Ω	RCX4JATZ0473
R 117	CARBON RES. 1/4W J 1.8k Ω	RCX4JATZ0182
R 132	CARBON RES. 1/4W J 1k Ω	RCX4JATZ0102
R 133	CARBON RES. 1/4W J 1k Ω	RCX4JATZ0102
R 134	CARBON RES. 1/4W J 1k Ω	RCX4JATZ0102
R 137	CARBON RES. 1/4W J 33k Ω	RCX4JATZ0333
R 138	CARBON RES. 1/4W J 22k Ω	RCX4JATZ0223
R 139	CARBON RES. 1/4W J 18k Ω	RCX4JATZ0183
R 140	CARBON RES. 1/4W J 2.7k Ω	RCX4JATZ0272
R 141	CARBON RES. 1/4W J 10k Ω	RCX4JATZ0103
R 142	CARBON RES. 1/4W J 22k Ω	RCX4JATZ0223
R 143	CARBON RES. 1/4W J 33k Ω	RCX4JATZ0333
R 144	CARBON RES. 1/4W J 100k Ω	RCX4JATZ0104
R 145	CARBON RES. 1/4W J 15k Ω	RCX4JATZ0153

Ref. No.	Description	Part No.
R 146	CARBON RES. 1/4W J 4.7k Ω	RCX4JATZ0472
R 148	CARBON RES. 1/4W J 15k Ω	RCX4JATZ0153
R 149	CARBON RES. 1/4W J 1k Ω	RCX4JATZ0102
R 150	CARBON RES. 1/4W J 10k Ω	RCX4JATZ0103
R 151	CARBON RES. 1/4W J 4.7k Ω	RCX4JATZ0472
R 152	CARBON RES. 1/4W J 15k Ω	RCX4JATZ0153
R 153	CARBON RES. 1/4W J 4.7k Ω	RCX4JATZ0472
R 154	CARBON RES. 1/4W J 15k Ω	RCX4JATZ0153
R 155	CARBON RES. 1/4W J 5.6k Ω	RCX4JATZ0562
R 157	CARBON RES. 1/4W J 2.2k Ω	RCX4JATZ0222
R 158	CARBON RES. 1/4W J 4.7k Ω	RCX4JATZ0472
R 161	CARBON RES. 1/4W J 10k Ω	RCX4JATZ0103
R 162	CARBON RES. 1/4W J 22k Ω	RCX4JATZ0223
R 163	CARBON RES. 1/4W J 6.8k Ω	RCX4JATZ0682
R 165	CARBON RES. 1/4W J 10k Ω	RCX4JATZ0103
R 166	CARBON RES. 1/4W J 2.2k Ω	RCX4JATZ0222
R 167	CARBON RES. 1/4W J 2.2k Ω	RCX4JATZ0222
R 169	CARBON RES. 1/4W J 2.2k Ω	RCX4JATZ0222
R 170	CARBON RES. 1/4W J 8.2k Ω	RCX4JATZ0822
R 171	CARBON RES. 1/4W J 22k Ω	RCX4JATZ0223
R 172	CARBON RES. 1/4W J 3.3k Ω	RCX4JATZ0332
R 175	CARBON RES. 1/4W J 3.3k Ω	RCX4JATZ0332
R 177	CARBON RES. 1/4W J 3.3k Ω	RCX4JATZ0332
R 179	CARBON RES. 1/4W J 22k Ω	RCX4JATZ0223
R 180	CARBON RES. 1/4W J 47k Ω	RCX4JATZ0473
R 184	CARBON RES. 1/4W J 2.2k Ω	RCX4JATZ0222
R 186	CARBON RES. 1/4W J 2.2k Ω	RCX4JATZ0222
R 190	CARBON RES. 1/4W J 22k Ω	RCX4JATZ0223
R 194	CARBON RES. 1/4W J 3.3k Ω	RCX4JATZ0682
R 195	CARBON RES. 1/4W J 22k Ω	RCX4JATZ0223
R 196	CARBON RES. 1/4W J 10k Ω	RCX4JATZ0103
R 197	CARBON RES. 1/4W J 10k Ω	RCX4JATZ0103
R 201	CARBON RES. 1/4W J 100 Ω	RCX4JATZ0101
R 203	CARBON RES. 1/4W J 330 Ω	RCX4JATZ0331
R 205	CARBON RES. 1/4W J 10k Ω	RCX4JATZ0103
R 206	CARBON RES. 1/4W J 1k Ω	RCX4JATZ0102
R 207	CARBON RES. 1/4W J 47k Ω	RCX4JATZ0473
R 209	PCB JUMPER D0.6-P5.0	JW5.0T
R 210	CARBON RES. 1/4W J 1.5k Ω	RCX4JATZ0152
R 211	CARBON RES. 1/4W J 1.5k Ω	RCX4JATZ0152
R 212	CARBON RES. 1/4W J 2.2k Ω	RCX4JATZ0222
R 213	CARBON RES. 1/4W J 2.7k Ω	RCX4JATZ0272
R 215	CARBON RES. 1/4W J 4.7k Ω	RCX4JATZ0472
R 216	CARBON RES. 1/4W J 1.5k Ω	RCX4JATZ0152
R 217	CARBON RES. 1/4W J 1.5k Ω	RCX4JATZ0152
R 218	CARBON RES. 1/4W J 2.2k Ω	RCX4JATZ0222
R 219	CARBON RES. 1/4W J 2.7k Ω	RCX4JATZ0272
R 220	CARBON RES. 1/4W J 4.7k Ω	RCX4JATZ0472
R 221	CARBON RES. 1/4W J 39 Ω	RCX4JATZ0390
R 222	CARBON RES. 1/4W J 39 Ω	RCX4JATZ0390
R 223	CARBON RES. 1/4W J 680k Ω	RCX4JATZ0684
R 224	CARBON RES. 1/4W J 680k Ω	RCX4JATZ0684
R 225	PCB JUMPER D0.6-P5.0	JW5.0T
R 226	CARBON RES. 1/4W J 47k Ω	RCX4JATZ0473
R 227	CARBON RES. 1/4W J 150 Ω	RCX4JATZ0151
R 228	CARBON RES. 1/4W J 560 Ω	RCX4JATZ0561
R 229	CARBON RES. 1/4W J 5.6k Ω	RCX4JATZ0562
R 230	CARBON RES. 1/4W J 560 Ω	RCX4JATZ0561
R 231	CARBON RES. 1/4W J 10k Ω	RCX4JATZ0103
R 232	CARBON RES. 1/4W J 10k Ω	RCX4JATZ0103
R 233	CARBON RES. 1/4W J 10k Ω	RCX4JATZ0103
R 234	CARBON RES. 1/4W J 10k Ω	RCX4JATZ0103
R 235	CARBON RES. 1/4W J 10k Ω	RCX4JATZ0103
R 236	CARBON RES. 1/4W J 22k Ω	RCX4JATZ0223
R 237	CARBON RES. 1/4W J 39k Ω	RCX4JATZ0393
R 238	CARBON RES. 1/4W J 220k Ω	RCX4JATZ0224

Ref. No.	Description	Part No.
R 239	CARBON RES. 1/4W J 4.7k Ω	RCX4JATZ0472
R 240	PCB JUMPER D0.6-P5.0	JW5.0T
R 241	PCB JUMPER D0.6-P5.0	JW5.0T
R 242	CARBON RES. 1/4W J 4.7k Ω	RCX4JATZ0472
R 243	CARBON RES. 1/4W J 4.7k Ω	RCX4JATZ0472
R 244	CARBON RES. 1/4W J 5.6k Ω	RCX4JATZ0562
R 245	CARBON RES. 1/4W J 2.7k Ω	RCX4JATZ0272
R 246	CARBON RES. 1/4W J 1k Ω	RCX4JATZ0102
R 247	CARBON RES. 1/4W J 56k Ω	RCX4JATZ0563
R 248	CARBON RES. 1/4W J 2.2k Ω	RCX4JATZ0222
R 249	CARBON RES. 1/4W J 56k Ω	RCX4JATZ0563
R 250	CARBON RES. 1/4W J 47k Ω	RCX4JATZ0473
R 251	CARBON RES. 1/4W J 1k Ω	RCX4JATZ0102
R 252	CARBON RES. 1/4W J 1k Ω	RCX4JATZ0102
R 253	CARBON RES. 1/4W J 1k Ω	RCX4JATZ0102
R 254	CARBON RES. 1/4W J 1k Ω	RCX4JATZ0102
R 255	CARBON RES. 1/4W J 1k Ω	RCX4JATZ0102
R 256	CARBON RES. 1/4W J 1k Ω	RCX4JATZ0102
R 257	CARBON RES. 1/4W J 10k Ω	RCX4JATZ0103
R 258	CARBON RES. 1/4W J 10k Ω	RCX4JATZ0103
R 259	CARBON RES. 1/4W J 2.2k Ω	RCX4JATZ0222
R 260	CARBON RES. 1/4W J 1.2k Ω	RCX4JATZ0122
R 261	CARBON RES. 1/4W J 47 Ω	RCX4JATZ0470
R 262	CARBON RES. 1/4W J 100k Ω	RCX4JATZ0104
R 263	CARBON RES. 1/4W J 1k Ω	RCX4JATZ0102
R 264	CARBON RES. 1/4W J 1M Ω	RCX4JATZ0105
R 265	CARBON RES. 1/4W J 1k Ω	RCX4JATZ0102
R 266	CARBON RES. 1/4W J 1k Ω	RCX4JATZ0102
R 267	CARBON RES. 1/4W J 10M Ω	RCX4JATZ0106
R 268	CARBON RES. 1/4W J 470k Ω	RCX4JATZ0474
R 270	CARBON RES. 1/4W J 680 Ω	RCX4JATZ0681
R 271	CARBON RES. 1/4W J 22k Ω	RCX4JATZ0223
R 272	CARBON RES. 1/4W J 22k Ω	RCX4JATZ0223
R 273	CARBON RES. 1/4W J 10k Ω	RCX4JATZ0103
R 274	CARBON RES. 1/4W J 1k Ω	RCX4JATZ0102
R 275	CARBON RES. 1/4W J 1M Ω	RCX4JATZ0105
R 276	CARBON RES. 1/4W J 47k Ω	RCX4JATZ0473
R 277	PCB JUMPER D0.6-P5.0	JW5.0T
R 278	PCB JUMPER D0.6-P5.0	JW5.0T
R 279	CARBON RES. 1/4W J 10k Ω	RCX4JATZ0103
R 280	CARBON RES. 1/4W J 47k Ω	RCX4JATZ0473
R 281	CARBON RES. 1/4W J 27k Ω	RCX4JATZ0273
R 282	CARBON RES. 1/4W J 27k Ω	RCX4JATZ0273
R 283	PCB JUMPER D0.6-P5.0	JW5.0T
R 286	CARBON RES. 1/4W J 1 Ω	RCX4JATZ01R0
R 287	CARBON RES. 1/4W J 1 Ω	RCX4JATZ01R0
R 288	CARBON RES. 1/4W J 1 Ω	RCX4JATZ01R0
R 289	PCB JUMPER D0.6-P5.0	JW5.0T
R 293	PCB JUMPER D0.6-P5.0	JW5.0T
R 295	CARBON RES. 1/4W J 22k Ω	RCX4JATZ0223
R 296	CARBON RES. 1/4W J 6.8k Ω	RCX4JATZ0682
R 297	CARBON RES. 1/4W J 5.6k Ω	RCX4JATZ0562
R 299	PCB JUMPER D0.6-P5.0	JW5.0T
R 301	CARBON RES. 1/4W J 680 Ω	RCX4JATZ0681
R 302	CARBON RES. 1/4W J 680 Ω	RCX4JATZ0681
R 303	CARBON RES. 1/4W J 2.2 Ω	RCX4JATZ02R2
R 304	CARBON RES. 1/4W J 2.2k Ω	RCX4JATZ0222
R 305	CARBON RES. 1/4W J 390 Ω	RCX4JATZ0391
R 306	CARBON RES. 1/4W J 100 Ω	RCX4JATZ0101
R 307	CARBON RES. 1/4W J 100 Ω	RCX4JATZ0101
R 308	CARBON RES. 1/4W J 100 Ω	RCX4JATZ0101
R 309	CARBON RES. 1/4W J 1k Ω	RCX4JATZ0102
R 310	CARBON RES. 1/4W J 1k Ω	RCX4JATZ0102
R 311	CARBON RES. 1/4W J 1k Ω	RCX4JATZ0102
R 312	CARBON RES. 1/4W J 820 Ω	RCX4JATZ0821
R 313	CARBON RES. 1/4W J 100 Ω	RCX4JATZ0101

Ref. No.	Description	Part No.
R 314	CARBON RES. 1/4W J 4.7k Ω	RCX4JATZ0472
R 317	CARBON RES. 1/4W J 120k Ω	RCX4JATZ0124
R 318	CARBON RES. 1/4W J 12k Ω	RCX4JATZ0123
R 319	CARBON RES. 1/4W J 180k Ω	RCX4JATZ0184
R 320	CARBON RES. 1/4W J 150 Ω	RCX4JATZ0151
R 321	CARBON RES. 1/4W J 390 Ω	RCX4JATZ0391
R 324	CARBON RES. 1/4W J 1k Ω	RCX4JATZ0102
R 325	CARBON RES. 1/4W J 2.2k Ω	RCX4JATZ0222
R 326	CARBON RES. 1/4W J 2.2k Ω	RCX4JATZ0222
R 327	CARBON RES. 1/4W J 470 Ω	RCX4JATZ0471
R 331	CARBON RES. 1/4W J 10k Ω	RCX4JATZ0103
R 333	CARBON RES. 1/4W J 22k Ω	RCX4JATZ0223
R 334	CARBON RES. 1/4W J 10k Ω	RCX4JATZ0103
R 335	CARBON RES. 1/4W J 33k Ω	RCX4JATZ0333
R 337	CARBON RES. 1/4W J 82k Ω	RCX4JATZ0823
R 338	CARBON RES. 1/4W J 4.7M Ω	RCX4JATZ0475
R 339	CARBON RES. 1/4W J 270k Ω	RCX4JATZ0274
R 340	CARBON RES. 1/4W J 220k Ω	RCX4JATZ0224
R 341	CARBON RES. 1/4W J 33k Ω	RCX4JATZ0333
R 342	CARBON RES. 1/4W J 33k Ω	RCX4JATZ0333
R 344	CARBON RES. 1/4W J 8.2k Ω	RCX4JATZ0822
R 345	CARBON RES. 1/4W J 3.3k Ω	RCX4JATZ0332
R 346	CARBON RES. 1/4W J 100 Ω	RCX4JATZ0101
R 347	CARBON RES. 1/4W J 100 Ω	RCX4JATZ0101
R 349	CARBON RES. 1/4W J 390k Ω	RCX4JATZ0394
R 350	CARBON RES. 1/4W J 4.7k Ω	RCX4JATZ0472
R 351	CARBON RES. 1/4W J 3.9k Ω	RCX4JATZ0392
R 353	CARBON RES. 1/4W J 10k Ω	RCX4JATZ0103
R 356	CARBON RES. 1/4W J 10k Ω	RCX4JATZ0103
R 358	CARBON RES. 1/4W J 1k Ω	RCX4JATZ0102
R 360	CARBON RES. 1/4W J 330 Ω	RCX4JATZ0331
R 364	CARBON RES. 1/4W J 56k Ω	RCX4JATZ0563
R 365	CARBON RES. 1/4W J 180 Ω	RCX4JATZ0181
R 366	CARBON RES. 1/4W J 820 Ω	RCX4JATZ0821
R 367	CARBON RES. 1/4W J 330 Ω	RCX4JATZ0331
R 369	CARBON RES. 1/4W J 1k Ω	RCX4JATZ0102
R 370	CARBON RES. 1/4W J 470 Ω	RCX4JATZ0471
R 371	CARBON RES. 1/4W J 2.7k Ω	RCX4JATZ0272
R 372	CARBON RES. 1/4W J 470 Ω	RCX4JATZ0471
R 373	CARBON RES. 1/4W J 39k Ω	RCX4JATZ0393
R 374	CARBON RES. 1/4W J 330 Ω	RCX4JATZ0331
R 375	CARBON RES. 1/4W J 10k Ω	RCX4JATZ0103
R 376	CARBON RES. 1/4W J 100 Ω	RCX4JATZ0101
R 380	CARBON RES. 1/4W J 6.8k Ω	RCX4JATZ0682
R 381	CARBON RES. 1/4W J 1k Ω	RCX4JATZ0102
R 382	PCB JUMPER D0.6-P5.0	JW5.0T
R 383	CARBON RES. 1/4W J 5.6k Ω	RCX4JATZ0562
R 385	CARBON RES. 1/4W J 10k Ω	RCX4JATZ0103
R 390	PCB JUMPER D0.6-P5.0	JW5.0T
R 391	PCB JUMPER D0.6-P5.0	JW5.0T
R 401	CARBON RES. 1/4W J 22k Ω	RCX4JATZ0223
R 402	CARBON RES. 1/4W J 220 Ω	RCX4JATZ0221
R 403	CARBON RES. 1/4W J 330k Ω	RCX4JATZ0334
R 404	CARBON RES. 1/4W J 8.2k Ω	RCX4JATZ0822
R 405	CARBON RES. 1/4W J 12k Ω	RCX4JATZ0123
R 406	CARBON RES. 1/4W J 12k Ω	RCX4JATZ0123
R 407	PCB JUMPER D0.6-P5.0	JW5.0T
R 408	CARBON RES. 1/4W J 22k Ω	RCX4JATZ0223
R 409	CARBON RES. 1/4W J 5.6k Ω	RCX4JATZ0562
R 410	CARBON RES. 1/4W J 4.7k Ω	RCX4JATZ0472
R 413	PCB JUMPER D0.6-P5.0	JW5.0T
R 415	CARBON RES. 1/4W J 1k Ω	RCX4JATZ0102
R 417	PCB JUMPER D0.6-P5.0	JW5.0T
R 419	PCB JUMPER D0.6-P5.0	JW5.0T
R 420	CARBON RES. 1/4W J 2.7k Ω	RCX4JATZ0272
R 421	CARBON RES. 1/4W J 560 Ω	RCX4JATZ0561

Ref. No.	Description	Part No.
R 422	CARBON RES. 1/4W J 1.5k Ω	RCX4JATZ0152
R 423	CARBON RES. 1/4W J 5.1k Ω	RCX4JATZ0512
R 424	CARBON RES. 1/4W J 2.2k Ω	RCX4JATZ0222
R 425	CARBON RES. 1/4W J 1k Ω	RCX4JATZ0102
R 428	CARBON RES. 1/4W J 8.2k Ω	RCX4JATZ0822
R 429	CARBON RES. 1/4W J 4.7k Ω	RCX4JATZ0472
R 441	PCB JUMPER D0.6-P5.0	JW5.0T
R 443	CARBON RES. 1/4W J 3.3k Ω	RCX4JATZ0332
R 445	CARBON RES. 1/4W J 1k Ω	RCX4JATZ0102
R 446	CARBON RES. 1/4W J 680k Ω	RCX4JATZ0684
R 447	CARBON RES. 1/4W J 1M Ω	RCX4JATZ0105
R 448	CARBON RES. 1/4W J 1.5M Ω	RCX4JATZ0155
R 449	PCB JUMPER D0.6-P5.0	JW5.0T
R 450	CARBON RES. 1/4W J 1k Ω	RCX4JATZ0102
R 451	CARBON RES. 1/4W J 680 Ω	RCX4JATZ0681
R 452	CARBON RES. 1/4W J 680 Ω	RCX4JATZ0681
R 456	PCB JUMPER D0.6-P5.0	JW5.0T
R 457	CARBON RES. 1/4W J 180k Ω	RCX4JATZ0184
R 458	CARBON RES. 1/4W J 10k Ω	RCX4JATZ0103
R 459	CARBON RES. 1/4W J 1.5M Ω	RCX4JATZ0155
R 465	CARBON RES. 1/4W J 47k Ω	RCX4JATZ0473
R 466	CARBON RES. 1/4W J 1k Ω	RCX4JATZ0102
R 467	CARBON RES. 1/4W J 47k Ω	RCX4JATZ0473
R 670	FUSE RES. 1/2W J 1 Ω	RFX21R0UB001
R 671	CARBON RES. 1/4W J 6.8k Ω	RCX4JATZ0682
R 672	CARBON RES. 1/4W J 6.8k Ω	RCX4JATZ0682
R 673	CARBON RES. 1/4W J 1k Ω	RCX4JATZ0102
R 674	CARBON RES. 1/4W J 6.8k Ω	RCX4JATZ0682
R 675	CARBON RES. 1/4W J 3.9k Ω	RCX4JATZ0392
R 676	CARBON RES. 1/2W J 15 Ω	RCX2150PY001
R 680	CARBON RES. 1/4W J 56k Ω	RCX4JATZ0563
R 681	CARBON RES. 1/4W J 56k Ω	RCX4JATZ0563
R 703	CARBON RES. 1/4W J 100k Ω	RCX4JATZ0104
R 704	CARBON RES. 1/4W J 39k Ω	RCX4JATZ0393
R 705	CARBON RES. 1/4W J 680 Ω	RCX4JATZ0681
R 849	CARBON RES. 1/4W J 5.6k Ω	RCX4JATZ0562
R 851	CARBON RES. 1/4W J 10k Ω	RCX4JATZ0103
R 852	CARBON RES. 1/4W J 10k Ω	RCX4JATZ0103
R 853	CARBON RES. 1/4W J 2.2M Ω	RCX4JATZ0225
R 855	CARBON RES. 1/4W J 6.8k Ω	RCX4JATZ0682
R 856	CARBON RES. 1/4W J 3.3k Ω	RCX4JATZ0332
R 857	CARBON RES. 1/4W J 1.8k Ω	RCX4JATZ0182
R 860	CARBON RES. 1/4W J 3.9k Ω	RCX4JATZ0392
R 861	CARBON RES. 1/4W J 47 Ω	RCX4JATZ0470
R 862	CARBON RES. 1/4W J 2.2k Ω	RCX4JATZ0222
R 863	CARBON RES. 1/4W J 2.2k Ω	RCX4JATZ0222
R 864	CARBON RES. 1/4W J 180 Ω	RCX4JATZ0181
R 867	CARBON RES. 1/4W J 2.2 Ω	RCX4JATZ02R2
R 869	CARBON RES. 1/4W J 120k Ω	RCX4JATZ0124
SWITCHES		
SW 201	PUSH SWITCH SKHVBEO20B KHV-902	5622160Y
SW 202	PUSH SWITCH SKHVBEO20B KHV-902	5622160Y
SW 203	PUSH SWITCH SKHVBEO20B KHV-902	5622160Y
SW 204	PUSH SWITCH SKHVBEO20B KHV-902	5622160Y
SW 205	PUSH SWITCH SKHVBEO20B KHV-902	5622160Y
SW 207	PUSH SWITCH SKHVBEO20B KHV-902	5622160Y
SW 208	PUSH SWITCH SKHVBEO20B KHV-902	5622160Y
SW 209	PUSH SWITCH SKHVBEO20B KHV-902	5622160Y
SW 210	PUSH SWITCH SKHVBEO20B KHV-902	5622160Y
SW 211	PUSH SWITCH SKHVBEO20B KHV-902	5622160Y
SW 215	PUSH SWITCH SPPB61	SSP0102AL001
TRANSFORMERS		
T 301	VCO COIL KHI-821023	LFA08V0KV002
T 302	SIF COIL KHI-821024	LFA08V0KV001
T 851	COIL OSC 7L1A35N	LFA07VOLH002

Ref. No.	Description	Part No.
VARIABLE RESISTORS		
VR 101	CARBON P.O.T. 50k Ω B	VRCB503HH007
VR 302	CARBON P.O.T. 100k Ω B	VRCB104HH007
VR 305	CARBON P.O.T. 50k Ω B	VRCB503HH007
CRYSTAL OSCILLATORS		
X 101	CERAMIC RESONATOR FCR8.0MC	FY0805PTE001
X 201	CRYSTAL OSCILLATOR 14.31818MHz	FXE146LCT001
X 202	CRYSTAL OSCILLATOR 32kHz(10PPM)	1811351
X 301	CRYSTAL OSCILLATOR 3.58MHz	FXD355LLN001
X 302	CERAMIC RESONATOR CSB503F18	FY0504PMR001
X 401	CRYSTAL OSCILLATOR 3.579545MHz	FXC355LGM001
MISCELLANEOUS		
CF 302	CERAMIC TRAP 4.5MHz	FBE455PMS001
CF 303	CERAMIC FILTER SFSH4.5MCB	FBB455PMR001
RS 201	REMOTE RECEIVER PIC-12042SRB	USESJRSKK016
SF 031	SAW FILTER M1958M	FBB456PEB001
TU 001	TUNER UNIT TELH9-008A/012A/013A	UTUNNTUAL011
LD 200	WIRE	WX3801A6FF04
	SENSOR TUBE	0EM402920

SUB CBA

Ref. No.	Description	Part No.
	SUB CBA Assembly	0ESA01699
	Consists of the following	
	Power Supply CBA	
	H/V CBA	
	CRT CBA	

Power Supply CBA

Ref. No.	Description	Part No.
	Power Supply CBA	
	Consists of the following	
CAPACITORS		
C 601	CERAMIC CAP. 680pF/2KV	CCD3DKP0B681
C 602	ELECTROLYTIC CAP. 220 μ F/200V	CA2D221NC008
C 603	FILM CAP. 0.1 μ F/50V J	122Z309S
C 604	ELECTROLYTIC CAP. 47 μ F/10V M	CE1AMASDL470
C 605	CERAMIC CAP. 0.01 μ F/AC250V	CCD2EZA0F103
C 606	CERAMIC CAP. 0.01 μ F/AC250V	CCD2EZA0F103
C 607	CERAMIC CAP. 0.01 μ F/AC250V	CCD2EZA0F103
C 608	CERAMIC CAP. 0.01 μ F/AC250V	CCD2EZA0F103
C 609	MYLAR CAP. 0.022 μ F/50V K	2250223S
C 610 Δ	METALLIZED FILM CAP. 0.1 μ F/250V K	CT2E104DC009
C 611	CERAMIC CAP. 560pF/2KV	CCD3DKP0B561
C 612	CERAMIC CAP. 330pF/2KV	CCD3DKP0B331
C 613	MYLAR CAP. 0.0022 μ F/50V K	2250222S
C 614	MYLAR CAP. 0.0022 μ F/50V K	2250222S
C 616 Δ	CERAMIC CAP. 0.01 μ F CS	CCG2HMN0F103
C 617 Δ	CERAMIC CAP. 0.01 μ F CS	CCG2HMN0F103
C 618	CERAMIC CAP. 150pF/2kv	CCD3DKP0B151
C 620	ELECTROLYTIC CAP. 1 μ F/50V M	CE1JMASDL010
C 621	ELECTROLYTIC CAP. 220 μ F/160V	CE2CMZDDL221
C 622	ELECTROLYTIC CAP. 1000 μ F/16V M	CE1CMZPDL102
C 623	ELECTROLYTIC CAP. 1000 μ F/10V M	CE1AMZPDL102
C 624	ELECTROLYTIC CAP. 1000 μ F/16V M	CE1CMZPDL102
C 625	ELECTROLYTIC CAP. 220 μ F/10V M	CE1AMASDL221
C 626	ELECTROLYTIC CAP. 33 μ F/10V M	CE1AMASDL330
C 627	CERAMIC CAP.(AX) F Z 0.01 μ F/25V	CDA1EZT0F103
C 640	MYLAR CAP. 0.0022 μ F/50V K	2250222S
CONNECTORS		
CN 601	CONNECTOR BASE 2P TV-S0P-02-V1	J3RTC02TG001
CN 602	CONNECTOR BASE 6P TUC-P06P-B1	J3TUA06TG001
CN 650	CONNECTOR 10P TUC-P10X-B1	JCTUS10TG001
DIODES		

Ref. No.	Description	Part No.
D 601	ZENER DIODE UZ-15BSB	QDTB00UZ15BS
D 602	ZENER DIODE UZ-7.5BSB	QDTB0UZ7R5BS
D 603	SWITCHING DIODE 1N4148M	QDTZ01N4148M
D 604	SWITCHING DIODE 1N4148M	QDTZ01N4148M
D 605	RECTIFIER DIODE 1N4005	NDQZ001N4005
D 606	RECTIFIER DIODE 1N4005	NDQZ001N4005
D 607	RECTIFIER DIODE 1N4005	NDQZ001N4005
D 608	RECTIFIER DIODE 1N4005	NDQZ001N4005
D 609	FAST RECOVERY DIODE ERB44-08L3	AERB4408L300
D 610	FAST RECOVERY DIODE ERD38-06L	AERD3806L000
D 611	SCHOTTKY BARRIER DIODE ERB83-006L6	QD5ZB83006L6
D 612	DIODE ERA83-006-KFRB	QDSZERA83006
D 613	SCHOTTKY BARRIER DIODE ERB83-006L6	QD5ZB83006L6
D 614	SWITCHING DIODE 1N4148M	QDTZ01N4148M
D 615	SWITCHING DIODE 1N4148M	QDTZ01N4148M
D 617	ZENER DIODE UZ-3.3BSB	QDTB0UZ3R3BS
D 618	SWITCHING DIODE 1N4148M	QDTZ01N4148M
D 619	ZENER DIODE UZ-36BSA	QDTA00UZ36BS
D 620	SWITCHING DIODE 1N4148M	QDTZ01N4148M
D 624	RECTIFIER DIODE 1Z150(LC6)	QD4Z0001Z150
D 625	ZENER DIODE UZ-6.8BSB	QDTB0UZ6R8BS
D 627	SWITCHING DIODE 1N4148M	QDTZ01N4148M
D 628	SWITCHING DIODE 1N4148M	QDTZ01N4148M
IC		
IC 601 Δ	PHOTO COUPLER PC817(AB)	QPP1000PC817
COIL		
L 601 Δ	LINE FILTER 4.2mH	LLBG002TZ001
TRANSISTORS		
Q 601	MOS FET 2SK1445	QF9Z02SK1445
Q 602	TRANSISTOR KTC3199(GR)	NQS10KTC3199
Q 603	TRANSISTOR KTC3199(GR)	NQS10KTC3199
Q 604	TRANSISTOR 2SB698(F)	QQS0F002SB698
Q 605	TRANSISTOR KTC3199(GR)	NQS10KTC3199
Q 606	TRANSISTOR KTC3199(GR)	NQS10KTC3199
Q 608	TRANSISTOR KTC3199(GR)	NQS10KTC3199
Q 609	TRANSISTOR KTC3199(GR)	NQS10KTC3199
Q 610	TRANSISTOR KTC3199(GR)	NQS10KTC3199
Q 611	TRANSISTOR KTC3199(GR)	NQS10KTC3199
RESISTORS		
R 601	CARBON RES. 1/4W J 68k Ω	RCX4JATZ0683
R 602	CARBON RES. RD 1/4W J 1M Ω	RCX4JAXZ0105
R 603	CARBON RES. 1/4W J 150 Ω	RCX4JATZ0151
R 604	METAL RES. 2W J 0.22 Ω	RN02R22UB001
R 605	CARBON RES. 1/4W J 390k Ω	RCX4JATZ0394
R 606	CARBON RES. 1/4W J 27k Ω	RCX4JATZ0273
R 607	CARBON RES. RD 1/4W J 4.7M Ω	RCX4JAXZ0475
R 608	CARBON RES. RD 1/4W J 2.2M Ω	RCX4JAXZ0225
R 609	METAL RES. 3W J 270 Ω	RN03271UB001
R 611	CARBON RES. 1/4W J 1.2k Ω	RCX4JATZ0122
R 612	CARBON RES. 1/4W J 220 Ω	RCX4JATZ0221
R 613	CARBON RES. 1/4W J 100 Ω	RCX4JATZ0101
R 614	CEMENT RESISTOR 5W K 1.2 Ω	RW051R2UB001
R 615	METAL RESISTOR 2W J 68k Ω	RN02683UB001
R 616	CARBON RES. 1/4W J 680 Ω	RCX4JATZ0681
R 617	CARBON RES. 1/4W J 390 Ω	RCX4JATZ0391
R 618	CARBON RES. 1/4W J 2.2k Ω	RCX4JATZ0222
R 619	CARBON RES. 1/2W J 3.9M Ω	1322395
R 620	CARBON RES. 1/4W J 8.2k Ω	1345822S
R 621	CARBON RES. 2W J 15k Ω	RN02153UB001
R 622	METAL RESISTOR 2W J 68k Ω	RN02683UB001
R 623	CARBON RES. 1/4W J 3.9k Ω	RCX4JATZ0392
R 624	CARBON RES. RD 1/4W J 4.7M Ω	RCX4JAXZ0475
R 625	CARBON RES. 1/4W J 1k Ω	RCX4JATZ0102
R 626	PCB JUMPER D0.6-P5.0	JW5.0T
R 627	CARBON RES. 1/4W J 39k Ω	RCX4JATZ0393
R 628	CARBON RES. 1/4W J 15k Ω	RCX4JATZ0153

Ref. No.	Description	Part No.
R 629	CARBON RES. 1/4W J 22k Ω	RCX4JATZ0223
R 631	CARBON RES. 1/4W J 33k Ω	RCX4JATZ0333
R 632	CARBON RES. 1/4W J 470k Ω	RCX4JATZ0474
R 633	CARBON RES. 1/4W J 470k Ω	RCX4JATZ0474
R 635	CARBON RES. 1/4W J 5.6k Ω	RCX4JATZ0562
R 636	CARBON RES. 1/4W J 2.7k Ω	RCX4JATZ0272
R 637	CARBON RES. 1/4W J 2.7k Ω	RCX4JATZ0272
R 638	CARBON RES. 1/4W J 10k Ω	RCX4JATZ0103
R 639	CARBON RES. 1/4W J 15k Ω	RCX4JATZ0153
R 640	CARBON RES. 1/4W J 820k Ω	RCX4JATZ0824
R 643	CARBON RES. 1/4W J 68k Ω	RCX4JATZ0683
R 644	CARBON RES. 1/4W J 390k Ω	RCX4JATZ0394
R 645	CARBON RES. RD 1/4W J 1.2M Ω	RCX4JAXZ0125
R 646	CARBON RES. 1/4W J 22k Ω	RCX4JATZ0223
R 647	CARBON RES. 1/4W J 10k Ω	RCX4JATZ0103
R 653	CARBON RES. 1/4W J 4.7k Ω	1345472S
R 654	CARBON RES. 1/4W J 4.7k Ω	1345472S
R 655	CARBON RES. 1/4W J 4.7k Ω	1345472S
R 657	CARBON RES. 1/4W J 390 Ω	RCX4JATZ0391
R 658	CARBON RES. 1/4W J 3.9k Ω	RCX4JATZ0392
MISCELLANEOUS		
F 601 Δ	FUSE 125V/4A 237004 TYPE	PAGJ20CAG402
FH 601	FUSE HOLDER EYF 52BC	XH03Z00MS001
FH 602	FUSE HOLDER EYF 52BC	XH03Z00MS001
PS 601 Δ	POSISTOR ZPK66BL8R0A	AZPK66BL8R0A
SA 601 Δ	SURGE ABSORBER AVR-S07D471KAAS	QVQZ0AVRS07D
BC 601	BEAD INDUCTORS B16RH3.5X10X1.3X2	LLBF00ZXMO01
BC 602	BEAD INDUCTORS B16RH3.5X10X1.3X2	LLBF00ZXMO01
BC 603	BEAD INDUCTORS B16RH3.5X10X1.3X2	LLBF00ZXMO01
BC 604	BEAD INDUCTORS B16RH3.5X10X1.3X2	LLBF00ZXMO01
BC 605	BEAD INDUCTORS B16RH3.5X10X1.3X2	LLBF00ZXMO01
T 601 Δ	SWITCHING TRANS S1251	LTT00CPSA011
VR 601	CARBON P.O.T. 1k Ω B	VRCB102HH007
W 601 Δ	AC CORD LA-1771	WAC0182LW005
	HEAT SINK ASSY(PBQ)	0ESA01376

H/V CBA

Ref. No.	Description	Part No.
	H/V CBA	
	Consists of the following	
CAPACITORS		
C 541	ELECTROLYTIC CAP. 100 μ F/16V M	CE1CMASDL101
C 542	MYLAR CAP. 0.01 μ F/50V K	2250103S
C 543	ELECTROLYTIC CAP. 1 μ F/50V M LL H7	CE1JMASHL010
C 544	ELECTROLYTIC CAP. 100 μ F/35V M	CE1GMASDL101
C 546	CERAMIC CAP.(AX) SL J 10pF/50V	CCA1J1TSL100
C 547	ELECTROLYTIC CAP. 1 μ F/50V M	CE1JMASDL010
C 548	ELECTROLYTIC CAP. 1000 μ F/25V M	CE1EMZPTL102
C 549	MYLAR CAP. 0.056 μ F/50V KT	2250563S
C 571	METALLIZED FILM CAP. 0.56 μ F/200V J	CT2D564F7001
C 572	CERAMIC CAP.(AX) B K 330pF/50V	CCA1JKTB331
C 573	CERAMIC CAP. B K 2200pF/500V	CCD2JKPB222
C 574	CERAMIC CAP. B K 1000pF/500V	CCD2JKPB102
C 576	METALLIZED FILM CAP. 0.0082 μ F/1.6KV J	CA3C822F7002
C 577	CERAMIC CAP. 680pF/2KV	CA3D681KG004
C 578	ELECTROLYTIC CAP. 4.7 μ F/250V	CE2EMASDL4R7
C 579	ELECTROLYTIC CAP. 1 μ F/160V	CE2CMASDL010
C 580	ELECTROLYTIC CAP. 470 μ F/35V M	CE1GMZPDL471
C 585	CERAMIC CAP. 0.01 μ F/250V	CCD2EZA0F103
C 590	ELECTROLYTIC CAP. 1 μ F/50V	CE1JMASDL010
CONNECTORS		
CN 571	CONNECTOR BASE 5P	1730813
CN 572	CONNECTOR 6P TUC-P06X-B1	JCTUS06TG001

Ref. No.	Description	Part No.
CN 573	CONNECTOR 6P TUC-P06X-B1	JCTUS06TG001
DIODES		
D 541	ZENER DIODE UZ-9.1BSB	QDTB0UZ9R1BS
D 542	RECTIFIER DIODE ERA22-02KFRB	QDSZ0ERA2202
D 571	FAST RECOVERY DIODE ERB44-04L3	QDQZ0ERB4404
D 572	SWITCHING DIODE 1N4148M	QDTZ01N4148M
D 573	FAST RECOVERY DIODE ERB44-04L3	QDQZ0ERB4404
D 575	ZENER DIODE UZ-30BSB	QDTB00UZ30BS
D 576	ZENER DIODE UZ-4.7BSB	QDTB0UZ4R7BS
D 590	SWITCHING DIODE 1N4148M	QDTZ01N4148M
D 591	SWITCHING DIODE 1N4148M	QDTZ01N4148M
D 592	SWITCHING DIODE 1N4148M	QDTZ01N4148M
IC		
IC 541	IC:VERTICAL OUT LA7837	QSBLA0ZSY003
COILS		
L 571	PCB JUMPER D0.6-P5.0	JW5.0T
L 572	INDUCTOR 33 μ H K 26T	LLAXKATTU330
TRANSISTORS		
Q 541	TRANSISTOR KTA1267(GR)	NQS10KTA1267
Q 571	TRANSISTOR 2SC2271(D)-AEMP	2SC2271DZ
Q 572	TRANSISTOR 2SD1878 <i>Here 2-00T</i>	QQSZ02SD1878
RESISTORS		
R 541	CARBON RES. 1/4W J 68k Ω	RCX4JATZ0683
R 542	CARBON RES. 1/4W J 22k Ω	RCX4JATZ0223
R 543	CARBON RES. 1/4W J 1.5k Ω	RCX4JATZ0152
R 545	METAL RES. 2W J 1.2k Ω	RN02122PY004
R 546	CARBON RES. 1/4W J 33k Ω	RCX4JATZ0333
R 547	CARBON RES. 1/4W J 12k Ω	RCX4JATZ0123
R 548	CARBON RES. 1/2W J 150 Ω	RCX2JZP0151
R 549	CARBON RES. 1/2W J 150 Ω	RCX2JZP0151
R 550	CARBON RES. 1/4W J 68k Ω	RCX4JATZ0683
R 551	CARBON RES. 1/4W J 3.9k Ω	RCX4JATZ0392
R 552	CARBON RES. 1/4W J 1.5 Ω	RCX4JATZ01R5
R 555	CARBON RES. 1/4W J 10k Ω	RCX4JATZ0103
R 556	CARBON RES. 1/2W J 1k Ω	RCX2JZP0102
R 571	CARBON RES. 1/4W J 1k Ω	RCX4JATZ0102
R 572	CARBON RES. 1/2W J 2.7k Ω	RCX2272PY001
R 573	METAL RES. 2W J 1k Ω	RN02102UB001
R 574	CEMENT RES. 5W K 2.2k Ω	RW05222UB004
R 575	CARBON RES. 1/4W J 0.47 Ω	RCX4JATZ0R47
R 577	CEMENT RES. 5W J 2.7 Ω or	RW052R7UB004
R 578	CARBON RES. 1/4W J 82k Ω	RCX4JATZ0823
R 579	CARBON RES. 1/4W J 56k Ω	RCX4JATZ0563
R 580	CARBON RES. 1/4W J 1k Ω	RCX4JATZ0102
R 581	CARBON RES. 1/4W J 1k Ω	RCX4JATZ0102
R 583	CARBON RES. 1/4W J 22k Ω	RCX4JATZ0223
R 584	CARBON RES. 1/4W J 5.6k Ω	RCX4JATZ0562
R 585	CARBON RES. 1/4W G 100k Ω	RCX4GATZ0104
R 586	CARBON RES. 1/4W J 120k Ω	RCX4JATZ0124
R 588	METAL RESISTOR 2W J 1k Ω	RN02102UB001
R 589	CARBON RES. 1/4W G 100k Ω	RCX4GATZ0104
R 590	PCB JUMPER D0.6-P5.0	JW5.0T
R 592	CARBON RES. 1/4W J 47k Ω	RCX4JATZ0473
R 593	CARBON RES. 1/4W J 22k Ω	RCX4JATZ0223
R 594	CARBON RES. 1/4W J 5.6k Ω	RCX4JATZ0562
R 595	METAL RES. 2W J 12k Ω	RN02120PY004
VARIABLE RESISTORS		
VR 541	CARBON P.O.T. 50k Ω B	VRCB503HH003
VR 542	CARBON P.O.T. 10k Ω B	VRCB103HH003
MISCELLANEOUS		
T 571 Δ	H. DRIVE TRANS CST-95307	LTH00CPVD001
T 572 Δ	FLYBACK TRANS FTK-20B009A	LTF00JPSM005
BC 571	PCB JUMPER D0.6-P5.0	JW5.0T
LD 590	WIRE	WX3801A6FF20
	LEAD WIRE 6P 510/BLA/AWG26#2651	WX3006S6FF51
	LEAD WIRE 6P 530/BLA/AWG26#2651	WX3006S6FF53

Ref. No.	Description	Part No.
	LEAD WIRE 3P 400/BLA/AWG26#2651	WX3003S6FF40
	LEAD WIRE 5P 360/BLA/AWG26#2651	WX3005S6FF36

CRT CBA

Ref. No.	Description	Part No.
	CRT CBA Consists of the following	
CAPACITORS		
C 501	ELECTROLYTIC CAP. 1 μ F/250V M PR	CE2EMASEH010
C 502	CERAMIC CAP.(AX) B K 470pF/50V	CCA1JKT0B471
C 503	CERAMIC CAP.(AX) B K 470pF/50V	CCA1JKT0B471
C 504	CERAMIC CAP.(AX) B K 470pF/50V	CCA1JKT0B471
C 505	CERAMIC CAP. 0.001 μ F/2KV	CCD3DKP0B102
CONNECTORS		
CN 501	CONNECTOR PIN 1P LV	1700576
CN 502	CONNECTOR 5P TUC-P05X-B1	JCTUS05TG001
COIL		
L 501	INDUCTOR 180 μ H-K-5FT	LLARKCSTU181
TRANSISTORS		
Q 501	TRANSISTOR 2SC3468(E)-AE	QQSE02SC3468
Q 502	TRANSISTOR 2SC3468(E)-AE	QQSE02SC3468
Q 503	TRANSISTOR 2SC3468(E)-AE	QQSE02SC3468
RESISTORS		
R 501	METAL RESISTOR 2W J 15k Ω	RN02153UB001
R 502	CARBON RES. 1/4W J 1.8k Ω	RCX4JATZ0182
R 503	CARBON RES. 1/4W J 1.5k Ω	RCX4JATZ0152
R 504	CARBON RES. 1/4W J 220 Ω	RCX4JATZ0221
R 505	METAL RESISTOR 2W J 15k Ω	RN02153UB001
R 506	CARBON RES. 1/4W J 1.8k Ω	RCX4JATZ0182
R 507	CARBON RES. 1/4W J 1.5k Ω	RCX4JATZ0152
R 508	CARBON RES. 1/4W J 220 Ω	RCX4JATZ0221
R 509	CARBON RES. 1/4W J 100 Ω	RCX4JATZ0101
R 510	METAL RESISTOR 2W J 15k Ω	RN02153UB001
R 511	CARBON RES. 1/4W J 1.8k Ω	RCX4JATZ0182
R 512	CARBON RES. 1/4W J 1.5k Ω	RCX4JATZ0152
R 513	CARBON RES. 1/4W J 220 Ω	RCX4JATZ0221
VARIABLE RESISTORS		
VR 501	CARBON P.O.T. 220 Ω B	VRCB201HH003
VR 502	CARBON P.O.T. 20k Ω B	VRCB203HH003
VR 503	CARBON P.O.T. 20k Ω B	VRCB203HH003
VR 504	CARBON P.O.T. 200 Ω B	VRCB201HH003
VR 505	CARBON P.O.T. 20k Ω B	VRCB203HH003
MISCELLANEOUS		
SK 501 	CRT SOCKET HPS0359-01-030	JSCC290HD004

Hi-Fi Audio CBA

Ref. No.	Description	Part No.
	Hi-Fi Audio CBA Assembly Consists of the following	OESA01702
CAPACITORS		
J 070	SEMI CONDUCTIVE CAP. 0.1 μ F/50V F Z	CDA1JZS0F104
C 751	ELECTROLYTIC CAP. 0.47 μ F/50V M	CE1JMASDLR47
C 753	MYLAR CAP. 0.047 μ F/50V K	2250473S
C 754	ELECTROLYTIC CAP. 4.7 μ F/25V M	CE1EMASDL4R7
C 755	ELECTROLYTIC CAP. 4.7 μ F/25V M	CE1EMASDL4R7
C 756	ELECTROLYTIC CAP. 3.3 μ F/50V M LL	CE1JMASHL3R3
C 757	ELECTROLYTIC CAP. 1 μ F/50V M	CE1JMASDL010
C 758	ELECTROLYTIC CAP. 10 μ F/50V M	CE1JMASDL100
C 759	ELECTROLYTIC CAP. 4.7 μ F/35V M LL	CE1GMASHL4R7
C 760	MYLAR CAP. 0.0027 μ F/50V K	2250272S
C 761	ELECTROLYTIC CAP. 47 μ F/16V M	CE1CMASDL470
C 762	ELECTROLYTIC CAP. 0.47 μ F/50V (VP)	CP1JMASNCR47
C 764	CERAMIC CAP.(AX) X K 5600pF/16V	CDA1CKT0X562
C 765	CERAMIC CAP.(AX) X K 1200pF/16V	CDA1CKT0X122

Ref. No.	Description	Part No.
C 772	ELECTROLYTIC CAP. 47 μ F/16V M	CE1CMASDL470
C 773	ELECTROLYTIC CAP. 4.7 μ F/25V M	CE1EMASDL4R7
C 777	ELECTROLYTIC CAP. 4.7 μ F/25V M	CE1EMASDL4R7
C 801	ELECTROLYTIC CAP. 47 μ F/16V M	CE1CMASDL470
C 802	CERAMIC CAP.(AX) F Z 0.01 μ F/25V	CDA1EZT0F103
C 803	ELECTROLYTIC CAP. 10 μ F/50V M	CE1JMASDL100
C 804	ELECTROLYTIC CAP. 10 μ F/50V M	CE1JMASDL100
C 805	ELECTROLYTIC CAP. 47 μ F/16V M	CE1CMASDL470
C 806	SEMICONDUCTOR CAP. SR K 0.033 μ F/16V	CDA1CKS0X333
C 807	SEMICONDUCTOR CAP. SR K 0.033 μ F/16V	CDA1CKS0X333
C 808	ELECTROLYTIC CAP. 1 μ F/50V M	CE1JMASDL010
C 809	ELECTROLYTIC CAP. 330 μ F/16V M	CE1CMASDL331
C 810	ELECTROLYTIC CAP. 470 μ F/16V M	CE1CMASDL471
C 811	SEMICONDUCTOR CAP. SR K 0.027 μ F/16V	CDA1CKS0X273
C 812	ELECTROLYTIC CAP. 100 μ F/16V M	CE1CMASDL101
C 814	ELECTROLYTIC CAP. 1 μ F/50V M	CE1JMASDL010
C 815	ELECTROLYTIC CAP. 330 μ F/16V M	CE1CMASDL331
C 816	ELECTROLYTIC CAP. 470 μ F/16V M	CE1CMASDL471
C 817	SEMICONDUCTOR CAP. SR K 0.027 μ F/16V	CDA1CKS0X273
C 818	ELECTROLYTIC CAP. 100 μ F/16V M	CE1CMASDL101
C 901	ELECTROLYTIC CAP. 10 μ F/50V M	CE1JMASDL100
C 903	ELECTROLYTIC CAP. 0.1 μ F/50V M	CE1JMASDLR10
C 904	ELECTROLYTIC CAP. 4.7 μ F/50V M	CE1JMASDL4R7
C 905	CERAMIC CAP. B K 0.01 μ F/50V	CCD1JKS0B103
C 906	ELECTROLYTIC CAP. 10 μ F/50V M	CE1JMASDL100
C 907	ELECTROLYTIC CAP. 220 μ F/6.3V M	CE0KMASDL221
C 908	CERAMIC CAP.(AX) X K 4700pF/16V	CDA1CKT0X472
C 909	CERAMIC CAP.(AX) X K 3300pF/16V	CDA1CKT0X332
C 910	SEMICONDUCTOR CAP. SR K 0.015 μ F/16V	CDA1CKS0X153
C 911	CERAMIC CAP.(AX) X K 3300pF/16V	CDA1CKT0X332
C 912	CERAMIC CAP.(AX) F Z 0.01 μ F/25V	CDA1EZT0F103
C 913	ELECTROLYTIC CAP. 22 μ F/16V M	CE1CMASDL220
C 914	CERAMIC CAP.(AX) X K 3300pF/16V	CDA1CKT0X332
C 915	CERAMIC CAP.(AX) X K 4700pF/16V	CDA1CKT0X472
C 916	ELECTROLYTIC CAP. 220 μ F/6.3V M	CE0KMASDL221
C 917	ELECTROLYTIC CAP. 10 μ F/50V M	CE1JMASDL100
C 918	ELECTROLYTIC CAP. 4.7 μ F/50V M	CE1JMASDL4R7
C 919	CERAMIC CAP. B K 0.01 μ F/50V	CCD1JKS0B103
C 920	ELECTROLYTIC CAP. 0.1 μ F/50V M	CE1JMASDLR10
C 922	ELECTROLYTIC CAP. 10 μ F/50V M	CE1JMASDL100
C 923	ELECTROLYTIC CAP. 10 μ F/50V M	CE1JMASDL100
C 929	ELECTROLYTIC CAP. 47 μ F/16V M	CE1CMASDL470
C 930	CERAMIC CAP.(AX) F Z 0.022 μ F/25V	CDA1EZT0F223
C 932	ELECTROLYTIC CAP. 10 μ F/50V M	CE1JMASDL100
C 933	ELECTROLYTIC CAP. 10 μ F/50V M	CE1JMASDL100
C 940	CERAMIC CAP.(AX) X K 3300pF/16V	CDA1CKT0X332
C 945	CERAMIC CAP.(AX) F Z 0.1 μ F/50V	CCA1JZT0F104
C 946	CERAMIC CAP.(AX) F Z 0.1 μ F/50V	CCA1JZT0F104
C 947	ELECTROLYTIC CAP. 220 μ F/6.3V M	CE0KMASDL221
CONNECTORS		
CN 901	CONNECTOR 15P	JCTUS15TG001
CN 902	CONNECTOR 15P	JCTUS15TG001
CN 906	STRAIGHT PIN HEADER 2P 173981-2	1770258
DIODES		
D 901	SWITCHING DIODE 1N4148M	QDTZ01N4148M
D 902	ZENER DIODE UZ-9.1BSB	QDTBOUZ9R1BS
COILS		
L 901	INDUCTOR 100 μ H K 26T	LLAXKATTU101
L 902	PCB JUMPER D0.6-P5.0	JW5.0T
L 903	INDUCTOR 100 μ H K 26T	LLAXKATTU101
L 904	INDUCTOR 100 μ H K 26T	LLAXKATTU101
L 905	INDUCTOR 100 μ H K 26T	LLAXKATTU101
ICS		
IC 751	IC CXA1534S	QSBLA0SSN016
IC 801	IC UPC1406HA	14LV233
IC 802	IC: AUDIO POWER AMP KIA6278P	NSBLA0SJY022

Ref. No.	Description	Part No.
IC 803	IC: AUDIO POWER AMP KIA6278P	NSBLA0SJY022
IC 901	IC: HIFI AUDIO LA72601M	QSMILA0RSY021
TRANSISTORS		
Q 801	RES. BUILT-IN TRANSISTOR KRC103M	NQSZ0KRC103M
Q 802	RES. BUILT-IN TRANSISTOR KRC103M	NQSZ0KRC103M
Q 901	RES. BUILT-IN TRANSISTOR KRC103M	NQSZ0KRC103M
RESISTORS		
R 751	CARBON RES. 1/4W J 4.7k Ω	RCX4JATZ0472
R 752	CARBON RES. 1/4W J 7.5k Ω	RCX4JATZ0752
R 753	CARBON RES. 1/4W J 750k Ω	RCX4JATZ0754
R 754	CARBON RES. 1/4W J 47k Ω	RCX4JATZ0473
R 755	CARBON RES. 1/4W J 47k Ω	RCX4JATZ0473
R 757	CARBON RES. 1/4W J 56k Ω	RCX4JATZ0563
R 760	CARBON RES. 1/4W J 3.9k Ω	RCX4JATZ0392
R 761	CARBON RES. 1/4W J 3.3k Ω	RCX4JATZ0332
R 762	CARBON RES. 1/4W J 43k Ω	RCX4JATZ0433
R 763	CARBON RES. 1/4W J 1M Ω	RCX4JATZ0105
R 764	CARBON RES. 1/4W J 100k Ω	RCX4JATZ0104
R 767	PCB JUMPER D0.6-P5.0	JW5.0T
R 772	CARBON RES. 1/4W J 4.7k Ω	RCX4JATZ0472
R 773	CARBON RES. 1/4W J 2.7k Ω	RCX4JATZ0272
R 783	CARBON RES. 1/4W J 27k Ω	RCX4JATZ0273
R 784	CARBON RES. 1/4W J 47k Ω	RCX4JATZ0473
R 801	CARBON RES. 1/4W J 75 Ω	RCX4JATZ0750
R 804	CARBON RES. 1/4W J 3.3k Ω	RCX4JATZ0332
R 805	CARBON RES. 1/4W J 4.7M Ω	RCX4JATZ0475
R 806	CARBON RES. 1/4W J 150 Ω	RCX4JATZ0151
R 808	PCB JUMPER D0.6-P5.0	JW5.0T
R 809	CARBON RES. 1/4W J 470 Ω	RCX4JATZ0471
R 810	CARBON RES. 1/4W J 680 Ω	RCX4JATZ0681
R 811	CARBON RES. 1/4W J 5.6k Ω	RCX4JATZ0562
R 812	CARBON RES. 1/4W J 3.3k Ω	RCX4JATZ0332
R 815	CARBON RES. 1/4W J 4.7M Ω	RCX4JATZ0475
R 816	CARBON RES. 1/4W J 150 Ω	RCX4JATZ0151
R 818	PCB JUMPER D0.6-P5.0	JW5.0T
R 819	CARBON RES. 1/4W J 470 Ω	RCX4JATZ0471
R 820	CARBON RES. 1/4W J 5.6k Ω	RCX4JATZ0562
R 821	CARBON RES. 1/4W J 680 Ω	RCX4JATZ0681
R 822	METAL RESISTOR 1W J 12 Ω	RN01120UB001
R 823	METAL RESISTOR 1W J 12 Ω	RN01120UB001
R 903	CARBON RES. 1/4W J 3.9k Ω	RCX4JATZ0392
R 904	CARBON RES. 1/4W J 15k Ω	RCX4JATZ0153
R 905	CARBON RES. 1/4W J 22k Ω	RCX4JATZ0223
R 906	CARBON RES. 1/4W J 2.4k Ω	RCX4JATZ0242
R 907	CARBON RES. 1/4W J 39k Ω	RCX4JATZ0393
R 908	CARBON RES. 1/4W J 12k Ω	RCX4JATZ0123
R 909	CARBON RES. 1/4W J 10k Ω	RCX4JATZ0103
R 912	CARBON RES. 1/4W J 22k Ω	RCX4JATZ0223
R 913	CARBON RES. 1/4W J 22k Ω	RCX4JATZ0223
R 914	CARBON RES. 1/4W J 18k Ω	RCX4JATZ0183
R 915	CARBON RES. 1/4W J 22k Ω	RCX4JATZ0223
R 917	METAL FILM RES. 1/4W F 47k Ω	RMX4FATG0473
R 918	CARBON RES. 1/4W J 12k Ω	RCX4JATZ0123
R 919	CARBON RES. 1/4W J 39k Ω	RCX4JATZ0393
R 920	CARBON RES. 1/4W J 2.4k Ω	RCX4JATZ0242
R 921	CARBON RES. 1/4W J 22k Ω	RCX4JATZ0223
R 922	CARBON RES. 1/4W J 3.9k Ω	RCX4JATZ0392
R 923	CARBON RES. 1/4W J 15k Ω	RCX4JATZ0153
R 926	CARBON RES. 1/4W J 22k Ω	RCX4JATZ0223
R 927	CARBON RES. 1/4W J 10k Ω	RCX4JATZ0103
R 928	CARBON RES. 1/4W J 5.6k Ω	RCX4JATZ0562
R 930	CARBON RES. 1/4W J 150 Ω	RCX4JATZ0151
R 932	CARBON RES. 1/4W J 22k Ω	RCX4JATZ0223
R 933	CARBON RES. 1/4W J 10k Ω	RCX4JATZ0103
R 936	CARBON RES. 1/4W J 1k Ω	RCX4JATZ0102

Ref. No.	Description	Part No.
R 937	CARBON RES. 1/4W J 12k Ω	RCX4JATZ0123
R 940	CARBON RES. 1/4W J 10k Ω	RCX4JATZ0103
R 941	PCB JUMPER D0.6-P5.0	JW5.0T
R 943	CARBON RES. 1/4W J 10k Ω	RCX4JATZ0103
R 945	CARBON RES. 1/4W J 5.6k Ω	RCX4JATZ0562
R 946	PCB JUMPER D0.6-P5.0	JW5.0T
R 947	CARBON RES. 1/4W J 5.6k Ω	RCX4JATZ0562
R 948	CARBON RES. 1/4W J 2.2k Ω	RCX4JATZ0222
VARIABLE RESISTORS		
VR 752	CARBON P.O.T. 20k Ω B	VRCB203HH007
VR 753	CARBON P.O.T. 20k Ω B	VRCB203HH007
VR 754	CARBON P.O.T. 5k Ω B	VRCB502HH007
VR 755	CARBON P.O.T. 10k Ω B	VRCB103HH007
VR 901	CARBON P.O.T. 10k Ω B	VRCB103HH007
MISCELLANEOUS		
CL901A	LEAD WIRE 5P 70/BLA/AWG26#2651	WX3005S6FF07
CL901B	LEAD WIRE 5P 70/BLA/AWG26#2651	WX3005S6FF07
CL901C	LEAD WIRE 5P 70/BLA/AWG26#2651	WX3005S6FF07
CL902A	LEAD WIRE 5P 70/BLA/AWG26#2651	WX3005S6FF07
CL902B	LEAD WIRE 5P 70/BLA/AWG26#2651	WX3005S6FF07
CL902C	LEAD WIRE 5P 70/BLA/AWG26#2651	WX3005S6FF07
	STRAIGHT PIN CONNECTOR BASE	J383C02UG002
LD 901	WIRE	WX3801A6FF06
JK 801	RCA JACK AV3-8.4-14	JXRL030RP009

Chassis Electrical Parts

Ref. No.	Description	Part No.
	CRT GND WIRE	WX1L7820-003
	LEAD CLAMPER	1790356
CL 802	WIRE ASSY 2P/120	WX1B5700-002
CL 906	WIRE ASSY 2P/120	WX1B5700-002
DG 601 	DEGAUSSING COIL AVDG015	LLBH002ZR015
SP 802	SPEAKER S08J77F2	DSD0808XQ003
SP 906	SPEAKER S08J77F2	DSD0808XQ003
V 501 	CRT 510UEB22-TC52(DY)	TCRT1C0CP006

DECK 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.

Ref. No.	Description	Part No.	Ref. No.	Description	Part No.
B 1	CHASSIS ASSEMBLY MK4	OVSA06769	B 108	P.S.W F	OVM402629
B 2	CYLINDER ASSEMBLY VCE NTSC 4HD HIFI	OVM302555	B 121	WORM	OVM402429E
B 3	LOADING MOTOR PREPARATION MK5	OVSA07425	B 122	P.S.W C	OVM402626
B 4	MOTOR HOLDER CALKING ASSEMBLY MK5	OVSA07421	B 123	P.S.W (WORM THRUST) 02130250	OVM403348
B 5	CASSETTE DRIVE LEVER ASSEMBLY MK4	OVSA06819	B 126	PULLEY U6/U7	OVM301718D
B 6	PINCH ROLLER ARM ASSEMBLY U6	OVSA05848	B 127	PULLEY FELT	OVM404952
B 7	PINCH ARM ASSEMBLY FUNAI	OVSA05924	B 128	KICK ARM HOLDER U6/U7	OVM301716
B 8	PULLEY ASSEMBLY U6 MK2	OVSA05505	B 129	PRESS FIT BUSH	OVM403652A
B 9	MOVING GUIDE S ASSEMBLY MK4 PLASTIC	OVSA06934	B 130	KICK ARM U6/U7	OVM404382F
B 10	MOVING GUIDE T ASSEMBLY MK4 PLASTIC	OVSA06935	B 131	KICK ARM SPRING U6/U7	OVM404424D
B 11	LOADING ARM T ASSEMBLY U6 MK2	OVSA05503	B 132	CLUTCH ASSEMBLY U6 MK2	OVSA05509
B 12	LOADING ARM B ASSEMBLY	OVSA04215	B 133	ARM IDLER ASSEMBLY U9 4HEAD	OVSA06334
B 13	LOADING ARM M ASSEMBLY or LOADING ARM M ASSEMBLY MK3	OVM404693 OVSA07350	B 141	PULLEY SUB ASSEMBLY U6/U7	OVSA05998
B 14	PINCH ROLLER SPRING(U5)	OVM403949C	B 142	SHAFT LOCK ASSY	OVSA04642
B 15	LUMIRROR WASHER 3.1X6X0.35	OVM403269	B 144	CLUTCH WASHER MK2	OVM404428
B 21	LOADING BELT U5 or LOADING BELT U6MK2	OVM403432 OVM403952	B 145	MAIN LEVER ASSEMBLY U9 4HEAD	OVSA06331
B 22	P.S.W(CUT)	OVM404679	B 146	SPRING SUPPORTER	OVM405084A
B 27	BAND BRAKE ASSY	OVSA04658	B 147	STOPPER BOSS	OVM405188
B 28	MAIN BRAKE S ASSEMBLY	OVSA04212	B 148	TG CAP(2) MK4 or TG CAP MK4	OVM406389B OVM406153A
B 29	MAIN BRAKE T ASSEMBLY	OVSA04213	B 300	FL ASSEMBLY MK4	OVDM06962
B 30	T BRAKE ARM ASSY	OVSA04641	B 302	RACK MK3	OVM201456B
B 31	AC HEAD ASSEMBLY MK4 R/P	OVSA06766	B 303	F DOOR OPENER(2) or F DOOR OPENER(3)	OVM302218A OVM302351B
B 32	REEL BASE ASSEMBLY U5	OVSA04759	B 304	DOOR OPENER MK3	OVM302019B
B 35	TAPE GUIDE ASSEMBLY	OVM402560	B 307	F DOOR OPENER R SPRING MK3	OVM405214E
B 36	TENSION LEVER SPRING ASSEMBLY	OVSA04550	B 308	SLIDER SHAFT MK3	OVM405222D
B 37	CAPSTAN MOTOR F2QKB92 or VA CAPSTAN MOTOR F2QQTB11	MMDDB5ZSJ002 MMDZB05SJ001	B 311	DOOR OPENER SPRING MK3	OVM405302D
B 38	MODE CHANGE LEVER JOG SHUTTLE MK3	OVM100511H	B 313	CASSETTE DRIVE GEAR R SPRING MK4	OVM406253
B 39	M BRAKE(S) SPRING	OVM402579A	B 316	DOOR LOCK RELEASE ARM SPRING	OVM402508C
B 40	M BRAKE(S) LEVER	OVM300753F	B 317	DOOR LOCK RELEASE ARM(3) MK3	OVM405034D
B 41	S BRAKE ARM U6/U7	OVM301759	B 319	CASSETTE SPRING STOPPER	OVM4025071
B 42	M BRAKE T ARM SPRING	OVM402582C	B 326	DRIVE ARM SP JOG SHUTTLE MK3	OVM405172B
B 43	T BRAKE SPRING(2) MK3 JOG	OVM405798	B 327	BUSH CLUTCH(2) JOG MK3	OVM405368
B 45	M LEVER SPRING(3)	OVM406664	B 328	REEL DRIVE ARM JOG SHUTTLE MK3	OVM301978E
B 46	TAPE GUIDE ARM SPRING	OVM402581	B 329	HOLDER KICK ARM JOG SHUTTLE MK3 or HOLDER KICK ARM(2) JOG SHUTTLE MK3	OVM301979D OVM302219B
B 47	TAPE GUIDE ARM ADJUST SCREW	OVM403242	B 330	DRIVE ARM SHAFT JOG SHUTTLE MK3	OVM405170
B 49	BT DRIVE ARM	OVM300756K	B 331	DRIVE ARM ROLLER JOG SHUTTLE MK3	OVM405171
B 51	CHANGE ARM 16030500 or CHANGE ARM A	OVM402441G OVM405857	B 332	HOLDER ARM SPRING JOG SHUTTLE MK3	OVM405174C
B 52	CAPSTAN BELT or CAPSTAN BELT	OVM402397A OVM403950B	B 333	GUIDE F BRAKE MK3	OVM301982E
B 53	P.S.W B	OVM402625	B 334	P.S.W 1.7X3.2X0.5T	OVM403678
B 54	GROUND BRUSH ASSEMBLY U5 or GROUND BRUSH ASSEMBLY U5	OVM404524 OVM404827	B 338	P.S.W CUT MK3(3.1X6X0.25)	OVM405809
B 74	LUMINESCENCE PRISM(B) U6/U7	OVM301764H	B 339	REEL BASE ASSEMBLY U9 4HEAD	OVSA06332
B 76	REC ARM SPRING	OVM402578A	B 344	CASSETTE GUIDE R MK4	OVM000074G
B 81	M LEVER HOLDER U6/U7	OVM301717E	B 345	CASSETTE GUIDE L MK4	OVM100544E
B 83	RACK SPRING B	OVM403894A	B 346	FRONT GUIDE MK4	OVM201618A
B 86	F BRAKE ASSEMBLY U9 4HEAD	OVSA06333	B 347	DECKANGLE F MK4	OVM302263D
B 87	F BRAKE SP(3) F=60	OVM406233	B 348	DECKANGLE B MK4	OVM302264D
B 103	REC ARM A	OVM301441J	B 349	MIRROR HOLDER L MK4	OVM302265D
B 104	REC ARM B	OVM301442I	B 350	SLIDER GEAR MK4	OVM406109A
B 105	REC SPRING	OVM403724	B 351	MIRROR(3)	OVM406638
			B 352	CASSETTE DRIVE GEAR MK4	OVM302260E
			B 353	CASSETTE PLATE MK4	OVM302261D
			B 354	SLIDER R MK4	OVM201616B

Ref. No.	Description	Part No.
B 355	SLIDER L MK4	0VM201617D
B 356	LOCK LEVER MK4	0VM302262F
B 357	LOCK LEVER SPRING MK4	0VM406152
B 358	CAM MK4	0VM100543A
B 362	MIRROR HOLDER R MK4	0VM302365B
B 363	GEAR SUPPORTER MK4	0VM406240
B 366	PRISM	0VM406950
B 367	PRISM COVER	0VM406951
B 369	CLUTCH SHAFT CAP	0VM406892
L1011	SCREW, C-TIGHT M3X9 PAN HEAD+	GPMS3090
L1051	SCREW, S-TIGHT M2.6X6 PAN HEAD+ or SCREW(CAPSTAN) M2.6X6 S-TIGHT	GPMS9060 0VM405901
L1053	SCREW, S-TIGHT M2.6X6 PAN HEAD+ or SCREW(CAPSTAN) M2.6X6 S-TIGHT	GPMS9060 0VM405901
L1061	SCREW, S-TIGHT M2.6X4 PAN HEAD+	GPMS9040
L1062	SCREW, S-TIGHT M2.6X8 PAN HEAD+	GPMS9080
L1081	SCREW, S-TIGHT 3X6 BIND HEAD+	GBMS3060
L1091	SCREW, S-TIGHT M3X6 CUP HEAD+	GCMS3060
L1101	SCREW, P-TIGHT 3X8 BIND HEAD+	GBMP3080
L1103	SCREW, P-TIGHT 3X8 BIND HEAD+	GBMP3080
L1111	SCREW, P-TIGHT 3X8 WASHER HEAD+	GCMP3080
L1112	SCREW, P-TIGHT 3X8 WASHER HEAD+	GCMP3080
L1113	SCREW, P-TIGHT 3X8 WASHER HEAD+	GCMP3080
L1114	SCREW, P-TIGHT 3X8 WASHER HEAD+	GCMP3080
L1115	SCREW, P-TIGHT 3X8 WASHER HEAD+	GCMP3080
L1151	SCREW, SEMS M3X4 PAN HEAD +	CPM33040
L1191	SCREW, P-TIGHT M2.6X12	GCMP9120
L1221	SCREW,SPECIAL	0VM403688
L1231	SPACER SCREW ASSEMBLY	0VM403752
L1241	P-TITE SCREW M2X6	GBMP2060
L1251	CS RING(D=5)	WTM5063
L1291	SCREW, P-TIGHT M2.6X6 PAN HEAD+	GPMP9060
L1311	SCREW, B-TIGHT M3X18 PAN HEAD+	GPMB3180
L1321	SCREW, S-TIGHT M3X5 BIND HEAD+	GBMS3050
L1331	SCREW, P-TIGHT M2.6X12	GCMP9120
L1341	P-TITE SCREW M2.6X8 BIND HEAD+	GBMP9080
L1342	P-TITE SCREW M2.6X8 BIND HEAD+	GBMP9080
L1351	SCREW, SEMS M2.6X6	0VM406255A

DECK ELECTRICAL PARTS LIST

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NOTE: Parts that 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%

JNT CBA

Ref. No.	Description	Part No.
	JNT CBA Consists of the following:	0VSA07380
	JOINT CBA (JNT-A)	-----
	MODE SW CBA (JNT-B)	-----
	ACE HEAD CBA (JNT-C)	-----
	LOADING MOTOR CBA (JNT-D)	-----

PRV CBA

Ref. No.	Description	Part No.
	PRV CBA Consists of the following:	0VSA07385
	HEAD AMP CBA (PRV-A)	-----
	FE HEAD CBA (PRV-B)	-----
	FE HEAD CBA (PRV-C)	-----

Joint CBA (JNT-A)

Ref. No.	Description	Part No.
	Joint CBA (JNT-A) Consists of the following:	-----
CONNECTORS		
CN2691	ANGLE SOCKET CONNECTOR, 20P	1770615
CN2692	FFC CONNECTOR BASE, TOP 9P or	JC2SJ09ERH0C
	FFC CONNECTOR BASE, TOP 9P or	1700915
	FFC CONNECTOR BASE, TOP 9P or	1700449
	FFC CONNECTOR BASE, TOP 9P or	1700515
	FFC CONNECTOR BASE, TOP 9P	1700986
RESISTORS		
R 2691	CARBON RES. 1/4W J 27k Ω or	RCX4JATZ0273
	CARBON RES. 1/6W J 27k Ω	RCX6JATZ0273
R 2692	CARBON RES. 1/4W J 27k Ω or	RCX4JATZ0273
	CARBON RES. 1/6W J 27k Ω	RCX6JATZ0273
MISCELLANEOUS		
CL2691	JUMPER WIRE, 5P AWG26#20080/P2.0/50	WX1K7010-003
CL2692	JUMPER WIRE, 6P AWG26#20080/P2.0/90	WX1N5007-001
CL2693	JUMPER WIRE, 3P AWG26#2651/P2.0/80	WX1H5100-001
	FFC CABLE, 9P FFC/P1.25/120	WX3909QZ4413

Head Amp CBA (PRV-A)

Ref. No.	Description	Part No.
	Head Amp CBA (PRV-A) Consists of the following:	-----
CAPACITORS		
C 3801	CERAMIC CAP.(AX) B J 1000pF/50V or CERAMIC CAP.(AX) B K 1000pF/50V or CERAMIC CAP. B J 0.001μF/50V or CERAMIC CAP. B K 0.001μF/50V	CDA1JJT0B102 CDA1JKT0B102 3B41102T 3B42102T
C 3802	ELECTROLYTIC CAP. 0.22μF/50V M H7 or ELECTROLYTIC CAP. 0.22μF/50V M H7	CE1JMZPSLR22 526W224
C 3803	CERAMIC CAP.(AX) Y M 0.01μF/16V or CERAMIC CAP. F Z 0.01μF/16V	CDA1CMT0Y103 1220842T
C 3804	CERAMIC CAP.(AX) Y M 0.01μF/16V or CERAMIC CAP. F Z 0.01μF/16V	CDA1CMT0Y103 1220842T
C 3805	CERAMIC CAP.(AX) Y M 0.01μF/16V or CERAMIC CAP. F Z 0.01μF/16V	CDA1CMT0Y103 1220842T
C 3806	CERAMIC CAP.(AX) Y M 0.01μF/16V or CERAMIC CAP. F Z 0.01μF/16V	CDA1CMT0Y103 1220842T
C 3807	CERAMIC CAP.(AX) F Z 0.1μF/50V	CCA1JZT0F104
C 3808	CERAMIC CAP.(AX) F Z 0.1μF/50V	CCA1JZT0F104
C 3809	CERAMIC CAP.(AX) F Z 0.1μF/50V	CCA1JZT0F104
C 3810	CERAMIC CAP.(AX) F Z 0.1μF/50V	CCA1JZT0F104
C 3811	CERAMIC CAP.(AX) F Z 0.1μF/50V	CCA1JZT0F104
C 3812	ELECTROLYTIC CAP. 220μF/6.3V M H7 or ELECTROLYTIC CAP. 220μF/6.3V M H7	CE0KMZPSL221 526R227
C 3813	CERAMIC CAP.(AX) F Z 0.047μF/50V	CCA1JZT0F473
C 3814	CERAMIC CAP.(AX) F Z 0.022μF/25V or CERAMIC CAP. F Z 0.022μF/25V	CDA1EZT0F223 1220843T
C 3821	CERAMIC CAP.(AX) F Z 0.047μF/50V	CCA1JZT0F473
C 3822	CERAMIC CAP.(AX) Y M 0.01μF/16V or CERAMIC CAP. F Z 0.01μF/16V	CDA1CMT0Y103 1220842T
C 3823	CERAMIC CAP.(AX) Y M 0.01μF/16V or CERAMIC CAP. F Z 0.01μF/16V	CDA1CMT0Y103 1220842T
C 3824	ELECTROLYTIC CAP. 47μF/6.3V M H7 or ELECTROLYTIC CAP. 47μF/6.3V M H7	CE0KMZPSL470 526R476
C 3825	CERAMIC CAP.(AX) F Z 0.022μF/25V or CERAMIC CAP. F Z 0.022μF/25V	CDA1EZT0F223 1220843T
C 3826	CERAMIC CAP.(AX) F Z 0.047μF/50V	CCA1JZT0F473
C 3827	CERAMIC CAP.(AX) F Z 0.047μF/50V	CCA1JZT0F473
C 3828	CERAMIC CAP.(AX) B J 1000pF/50V or CERAMIC CAP.(AX) B K 1000pF/50V or CERAMIC CAP. B J 0.001μF/50V or	CDA1JJT0B102 CDA1JKT0B102 3B41102T

Mode SW CBA (JNT-B)

Ref. No.	Description	Part No.
	Mode SW CBA (JNT-B) Consists of the following:	-----
SW2691	MODE SWITCH HMW0420-810010	SSR0104HD002

ACE Head CBA (JNT-C)

Ref. No.	Description	Part No.
	ACE Head CBA (JNT-C) Consists of the following:	-----
CN2693	FLAT CABLE CONNECTOR 6P or FLAT CABLE CONNECTOR 6P	JEHBJ06JE001 JC88J06NB001

Ref. No.	Description	Part No.
C 3829	CERAMIC CAP. B K 0.001 μ F/50V ELECTROLYTIC CAP. 47 μ F/6.3V M H7 or ELECTROLYTIC CAP. 47 μ F/6.3V M H7	3B42102T CE0KMZPSL470 526R476
C 3830	CERAMIC CAP.(AX) Y M 0.01 μ F/16V or CERAMIC CAP. F Z 0.01 μ F/16V	CDA1CMT0Y103 1220842T
C 3831	CERAMIC CAP.(AX) F Z 0.1 μ F/50V	CCA1JZT0F104
C 3832	CERAMIC CAP.(AX) F Z 0.022 μ F/25V or CERAMIC CAP. F Z 0.022 μ F/25V	CDA1EZT0F223 1220843T
C 3833	CERAMIC CAP.(AX) Y M 0.01 μ F/16V or CERAMIC CAP. F Z 0.01 μ F/16V	CDA1CMT0Y103 1220842T
CONNECTORS		
CN3801	ANGLE SOCKET CONNECTOR, 17P	1770612
CN3802	FFC CONNECTOR BASE, SIDE 11P or FFC CONNECTOR BASE, SIDE 11P	JC96J11ERC0C 1700477
CN3821	ANGLE SOCKET CONNECTOR, 5P	1770600
DIODES		
D 3821	SWITCHING DIODE 1N4148M or SWITCHING DIODE 1N4148M or SWITCHING DIODE GMB01-BT	NDTZ01N4148M QDTZ01N4148M GMB01BT
D 3822	SWITCHING DIODE 1N4148M or SWITCHING DIODE 1N4148M or SWITCHING DIODE GMB01-BT	NDTZ01N4148M QDTZ01N4148M GMB01BT
ICS		
IC3801	IC LA7372	QSBLA0SSY012
IC3821	IC, H-AMP TA7772P	QSBLA0STS034
COILS		
L 3801	INDUCTOR 22 μ H K 26T or INDUCTOR 22 μ H K 26T	LLAXKDTKA220 LLAXKATTU220
L 3821	INDUCTOR 100 μ H K 5FT or INDUCTOR 100 μ H K 5FT or INDUCTOR 100 μ H K 5FT	LLARKDSKA101 LLARKCSTU101 LLARKMSFS101
L 3822	INDUCTOR 15 μ H K 26T or INDUCTOR 15 μ H K 26T	LLAXKDTKA150 LLAXKATTU150
L 3823	INDUCTOR 4.7 μ H K 26T or INDUCTOR 4.7 μ H K 26T	LLAXKDTKA4R7 LLAXKATTU4R7
TRANSISTORS		
Q 3821	RES. BUILT-IN TRANSISTOR KRA101M or RES. BUILT-IN TRANSISTOR KSR2205 or RES. BUILT-IN TRANSISTOR 2SA1523	NQSZ0KRA101M NQSZ0KSR2205 QQSZ02SA1523
Q 3822	TRANSISTOR 2SC3330S-AC or TRANSISTOR 2SC3330T-AC	Q2SC3330SAC0 Q2SC3330TAC0
Q 3823	RES. BUILT-IN TRANSISTOR KRC103M or RES. BUILT-IN TRANSISTOR KSR1203 or RES. BUILT-IN TRANSISTOR 2SC3400	NQSZ0KRC103M NQSZ0KSR1203 C3400Z
RESISTORS		
R 3801	CARBON RES. 1/4W J 22k Ω or CARBON RES. 1/6W J 22k Ω	RCX4JATZ0223 RCX6JATZ0223
R 3802	CARBON RES. 1/4W J 22k Ω or CARBON RES. 1/6W J 22k Ω	RCX4JATZ0223 RCX6JATZ0223
R 3803	CARBON RES. 1/4W J 47k Ω or CARBON RES. 1/6W J 47k Ω	RCX4JATZ0473 RCX6JATZ0473
R 3804	CARBON RES. 1/4W J 1k Ω or CARBON RES. 1/6W J 1k Ω	RCX4JATZ0102 RCX6JATZ0102
R 3805	CARBON RES. 1/4W J 1k Ω or CARBON RES. 1/6W J 1k Ω	RCX4JATZ0102 RCX6JATZ0102
R 3806	CARBON RES. 1/4W J 6.8k Ω or CARBON RES. 1/6W J 6.8k Ω	RCX4JATZ0682 RCX6JATZ0682
R 3807	CARBON RES. 1/4W J 6.8k Ω or CARBON RES. 1/6W J 6.8k Ω	RCX4JATZ0682 RCX6JATZ0682
R 3808	CARBON RES. 1/4W J 33k Ω or	RCX4JATZ0333

Ref. No.	Description	Part No.
R 3809	CARBON RES. 1/6W J 33k Ω CARBON RES. 1/4W J 33k Ω or CARBON RES. 1/6W J 33k Ω	RCX6JATZ0333 RCX4JATZ0333 RCX6JATZ0333
R 3821	CARBON RES. 1/4W J 100 Ω or CARBON RES. 1/6W J 100 Ω	RCX4JATZ0101 RCX6JATZ0101
R 3823	CARBON RES. 1/4W J 100 Ω or CARBON RES. 1/6W J 100 Ω	RCX4JATZ0101 RCX6JATZ0101
R 3826	CARBON RES. 1/4W J 330 Ω or CARBON RES. 1/6W J 330 Ω	RCX4JATZ0331 RCX6JATZ0331
R 3827	CARBON RES. 1/4W J 470 Ω or CARBON RES. 1/6W J 470 Ω	RCX4JATZ0471 RCX6JATZ0471
R 3828	CARBON RES. 1/4W J 470 Ω or CARBON RES. 1/6W J 470 Ω	RCX4JATZ0471 RCX6JATZ0471
R 3829	CARBON RES. 1/4W J 1k Ω or CARBON RES. 1/6W J 1k Ω	RCX4JATZ0102 RCX6JATZ0102
R 3831	CARBON RES. 1/4W J 10k Ω or CARBON RES. 1/6W J 10k Ω	RCX4JATZ0103 RCX6JATZ0103
R 3832	CARBON RES. 1/4W J 330 Ω or CARBON RES. 1/6W J 330 Ω	RCX4JATZ0331 RCX6JATZ0331
R 3834	CARBON RES. 1/4W J 1k Ω or CARBON RES. 1/6W J 1k Ω	RCX4JATZ0102 RCX6JATZ0102
R 3835	CARBON RES. 1/4W J 2.2k Ω or CARBON RES. 1/6W J 2.2k Ω	RCX4JATZ0222 RCX6JATZ0222
R 3837	CARBON RES. 1/4W J 82k Ω or CARBON RES. 1/6W J 82k Ω	RCX4JATZ0823 RCX6JATZ0823
R 3838	CARBON RES. 1/4W J 68k Ω or CARBON RES. 1/6W J 68k Ω	RCX4JATZ0683 RCX6JATZ0683
R 3839	CARBON RES. 1/4W J 47 Ω or CARBON RES. 1/6W J 47 Ω	RCX4JATZ0470 RCX6JATZ0470
R 3840	CARBON RES. 1/4W J 47 Ω or CARBON RES. 1/6W J 47 Ω	RCX4JATZ0470 RCX6JATZ0470
MISCELLANEOUS		
2B 2	SHIELD, TOP(U13 4H)	0VM302523
2B 3	SHIELD, BOTTOM(U13 4H)	0VM302532
CL3801	JUMPER WIRE, 6P AWG26#20080/P2.0/35	WX1K7010-012
CL3802	JUMPER WIRE, 3P AWG26#2651/P2.0/80	WX1H5100-001
JW3801	WIRE 030/BLA/AWG28#1007	WX3001A83303

FE HEAD CBA (PRV-B)

Ref. No.	Description	Part No.
	FE HEAD CBA (PRV-B) Consists of the following:	
B 73	FEH ASSEMBLY MK5 SPACER;FE FE HEAD MH-131SF5/KM-1311550 or FE HEAD VTR-1X2ERS11-122	0VSA07426 0VM405209B DHVEC01LA004 DHVEC01TE003

FE HEAD CBA (PRV-C)

Ref. No.	Description	Part No.
	FE HEAD CBA (PRV-C) Consists of the following:	
B 73	FEH ASSEMBLY MK5 FE HEAD HVFHF0049A SPACER;FE	0VSA07427 DHVEC01AL002 0VM405209B

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