

# **SYLVANIA**

# **SERVICE MANUAL**

## **Sec. 1: Main Section**

- Specifications
- Preparation for Servicing
- Adjustment Procedures
- Schematic Diagrams
- CBA' s

## **Sec. 2: Deck Mechanism Section**

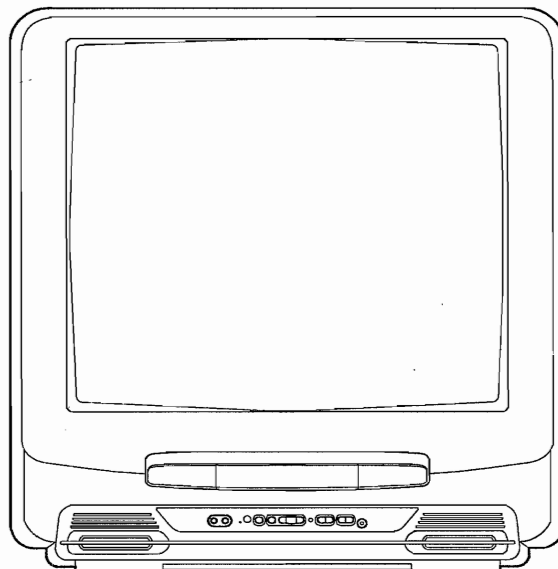
- Standard Maintenance
- Alignment for Mechanism
- Disassembly/Assembly of Mechanism

## **Sec. 3: Exploded Views and Parts List Section**

- Exploded Views
- Parts List

## **25" COLOR TV/VCR COMBINATION**

## **3925LC**



AUG. - 9. 1999

## **IMPORTANT SAFETY NOTICE**

Proper service and repair is important to the safe, reliable operation of all Funai Equipment. The service procedures recommended by Funai and described in this service manual are effective methods of performing service operations. Some of these service special tools should be used when and as recommended.

It is important to note that this service manual contains various **CAUTIONS** and **NOTICES** which should be carefully read in order to minimize the risk of personal injury to service personnel. The possibility exists that improper service methods may damage the equipment. It also is important to understand that these **CAUTIONS** and **NOTICES ARE NOT EXHAUSTIVE**. Funai could not possibly know, evaluate and advise the service trade of all conceivable ways in which service might be done or of the possible hazardous consequences of each way. Consequently, Funai has not undertaken any such broad evaluation. Accordingly, a servicer who uses a service procedure or tool which is not recommended by Funai must first use all precautions thoroughly so that neither his safety nor the safe operation of the equipment will be jeopardized by the service method selected.

# MAIN SECTION

## 25" COLOR TV/VCR COMBINATION

### 3925LC

#### Sec. 1: Main Section

- Specifications
- Preparation for Servicing
- Adjustment Procedures
- Schematic Diagrams
- CBA' s

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# SPECIFICATIONS

\* Mode -----SP mode unless otherwise specified

\* Test input terminal

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

Audio input (-10dB)

<Tuner> -----Ant. input (80dB $\mu$ V) Video: 87.5%

Audio: 25kHz dev (1kHz Sin)

## <DEFLECTION>

Description	Condition	Unit	Nominal	Limit
1. Over Scan	—	%	90	—
2. Linearity	Horizontal	%	—	15
	Vertical	%	—	15
3. High Voltage	—	kV	29	—

## <VIDEO & CHROMA>

Description	Condition	Unit	Nominal	Limit
1. Misconvergence	Center	m/m	—	0.4
	Corner	m/m	—	2.5
	Side	m/m	—	1.5
2. Tint Control Range	—	deg	$\pm 30$	—
3. Contrast Control Range	—	dB	6	—
4. Brightness	APL 100%	ft-L	30	20
5. Color Temperature	—	K	8500-20MPCD	—

## <VCR>

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

## <TUNER>

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



## <AUDIO>

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

Description	Condition	Unit	Nominal	Limit
1. Audio Output Power (Max.)	(R/P)	W	1.0	0.8
2. Audio S/N (W/LPF)	(R/P)	dB	40	36
3. Audio Distortion (W/LPF)	(R/P)	%	3.0	5.0
4. Audio Freq. Response (-10dB Ref. 1KHz)	200Hz (R/P) 8kHz (R/P)	dB dB	-2.0 0	-2.0 ± 5.0 0 ± 6.0

**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.

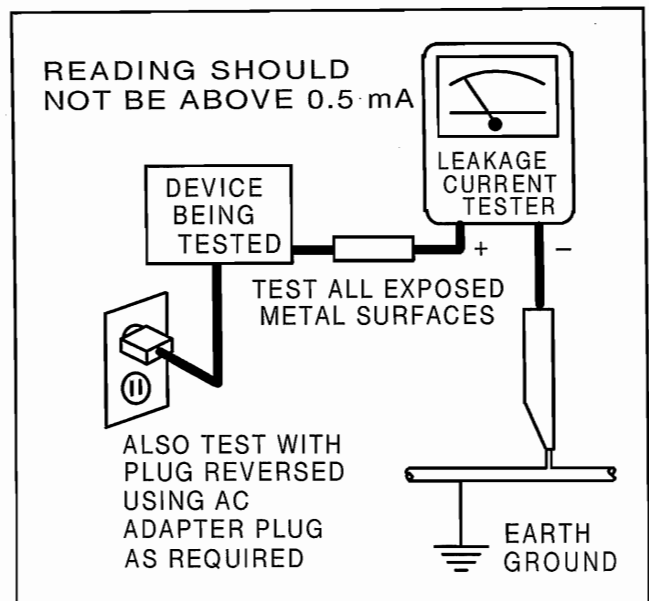
# IMPORTANT SAFETY PRECAUTIONS

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

## Safety Precautions for TV Circuit

1. **Before returning an instrument to the customer**, always make a safety check of the entire instrument, including, but not limited to, the following items:
  - a. Be sure that no built-in protective devices are defective and have been defeated during servicing. (1) Protective shields are provided on this chassis to protect both the technician and the customer. Correctly replace all missing protective shields, including any removed for servicing convenience. (2) When reinstalling the chassis and/or other assembly in the cabinet, be sure to put back in place all protective devices, including but not limited to, non-metallic control knobs, insulating fishpapers, adjustment and compartment covers/shields, and isolation resistor/capacitor networks. **Do not operate this instrument or permit it to be operated without all protective devices correctly installed and functioning. Servicers who defeat safety features or fail to perform safety checks may be liable for any resulting damage.**
  - b. Be sure that there are no cabinet openings through which an adult or child might be able to insert their fingers and contact a hazardous voltage. Such openings include, but are not limited to, (1) spacing between the picture tube and the cabinet mask, (2) excessively wide cabinet ventilation slots, and (3) an improperly fitted and/or incorrectly secured cabinet back cover.
  - c. **Antenna Cold Check** - With the instrument AC plug removed from any AC source, connect an electrical jumper across the two AC plug prongs. Place the instrument AC switch in the on position. Connect one lead of an ohmmeter to the AC plug prongs tied together and touch the other ohmmeter lead in turn to each tuner antenna input exposed terminal screw and, if applicable, to the coaxial connector. If the measured resistance is less than 1.0 megohm or greater than 5.2 megohm, an abnormality exists that must be corrected before the instrument is returned to the customer. Repeat this test with the instrument AC switch in the off position.
  - d. **Leakage Current Hot Check** - With the instrument completely reassembled, plug the AC line cord directly into a 120V AC outlet. (Do not use an isolation transformer during this test.) Use a 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 reconfirmed each time they are serviced. (X-radiation protection circuits also may be called "horizontal disable" or "hold down.") Read and apply the high voltage limits and, if the chassis is so equipped, the X-radiation protection circuit specifications given on instrument labels and in the Product Safety & X-Radiation Warning note on the service data chassis schematic. High voltage is maintained within specified limits by close tolerance safety-related components/adjustments in the high-voltage circuit. If high voltage exceeds specified limits, check each component specified on the chassis schematic and take corrective action.

2. Read and comply with all caution and safety-related notes on or inside the receiver cabinet, on the receiver chassis, or on the picture tube.

**3. Design Alteration Warning** - Do not alter or add to the mechanical or electrical design of this TV receiver. Design alterations and additions, including, but not limited to circuit modifications and the addition of items such as auxiliary audio and/or video output connections, might alter the safety characteristics of this receiver and create a hazard to the user. Any design alterations or additions will void the manufacturer's warranty and may make you, the servicer, responsible for personal injury or property damage resulting therefrom.

#### **4. Picture Tube Implosion Protection Warning**

- The picture tube in this receiver employs integral implosion protection. For continued implosion protection, replace the picture tube only with one of the same type number. Do not remove, install, or otherwise handle the picture tube in any manner without first putting on shatterproof goggles equipped with side shields. People not so equipped must be kept safely away while picture tubes are handled. Keep the picture tube away from your body. Do not handle the picture tube by its neck. Some "in-line" picture tubes are equipped with a permanently attached deflection yoke; because of potential hazard, do not try to remove such "permanently attached" yokes from the picture tube.

#### **5. Hot Chassis Warning -**

a. Some TV receiver chassis are electrically connected directly to one conductor of the AC power cord and 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 mechanical parts have special safety-related characteristics which are often not evident from visual inspection, nor can the protection they give necessarily be obtained by replacing them with components rated for higher voltage, wattage, etc.. Parts that have special safety characteristics are identified by a ( ▲ ) on schematics and in parts lists. Use of a substitute replacement that does not have the same safety characteristics as the recommended replacement part might create shock, fire, and/or other hazards. The Product's Safety is under review continuously and new instructions are issued whenever appropriate. Prior to shipment from the factory, our products are strictly inspected to confirm with the recognized product safety and electrical codes of the countries in which they are to be sold. However, in order to maintain such compliance, it is equally important to implement the following precautions when a set is being serviced.

## Precautions during Servicing

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

Replace only with part number specified.

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

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

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

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

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

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

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

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

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

**H.** When a power cord has been replaced, check that 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.

## Safety Check after Servicing

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

### 1. Clearance Distance

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

**Table 1 : Ratings for selected area**

AC Line Voltage	Region	Clearance Distance ( $d$ ) ( $d'$ )
110 to 130 V	USA or CANADA	$\geq 3.2$ mm (0.126 inches)

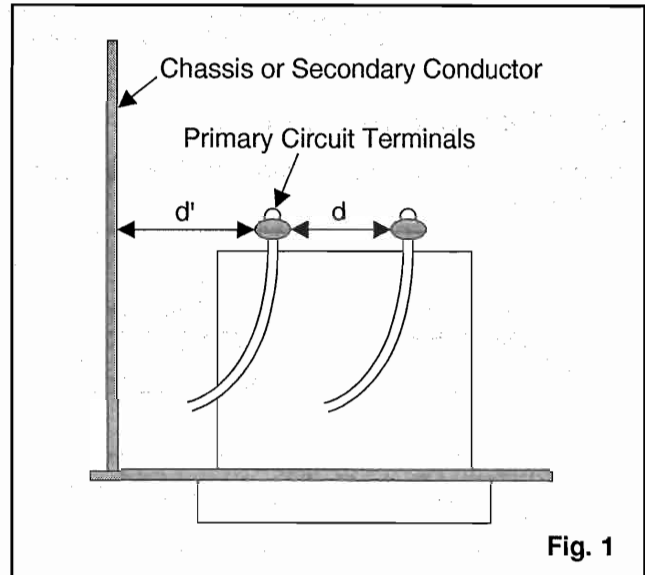
**Note:** This table is unofficial and for reference only. Be sure to confirm the precise values.

### 2. Leakage Current Test

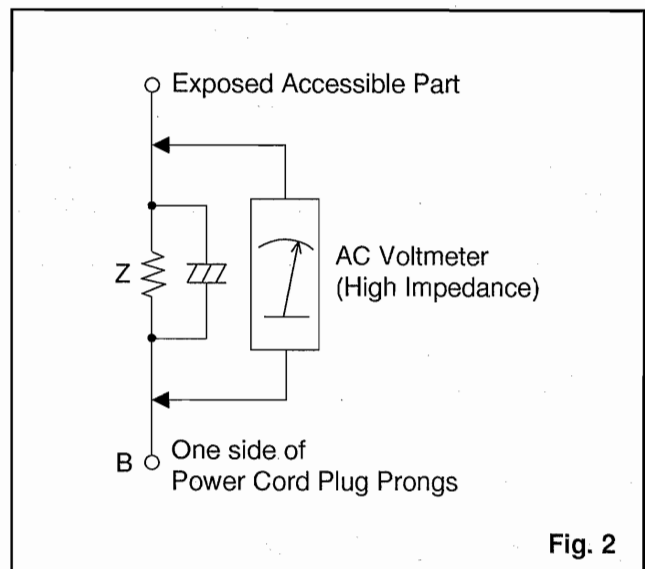
Confirm specified (or lower) leakage current between B (earth ground, power cord plug prongs) and externally exposed accessible parts (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.).

#### Measuring Method : (Power ON)

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



**Fig. 1**



**Fig. 2**

**Table 2 : Leakage current ratings for selected areas**

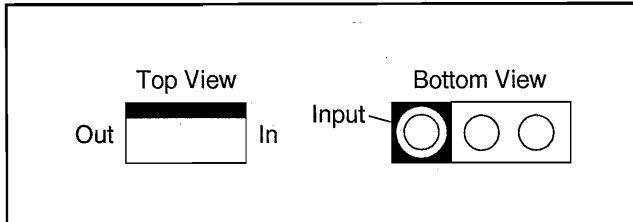
AC Line Voltage	Region	Load $Z$	Leakage Current ( $i$ )	Earth Ground (B) to:
110 to 130 V	USA or CANADA	0.15 $\mu$ F CAP. & 1.5k $\Omega$ RES. connected in parallel	$i \leq 0.5$ mA rms	Exposed accessible parts

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

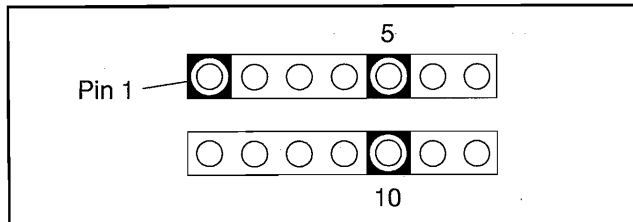
# STANDARD NOTES FOR SERVICING

## Circuit Board Indications

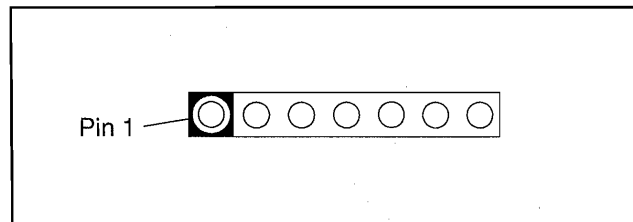
1. The output pin of the 3 pin Regulator ICs is indicated as shown:



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

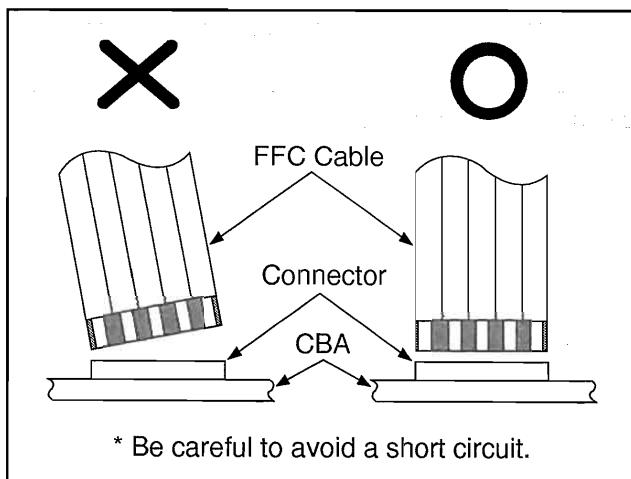


3. The 1st pin of every pin connector are indicated as shown:



## Instructions for Connectors

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



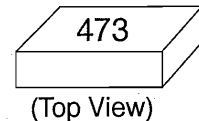
[ CBA= Circuit Board Assembly ]

## How to Read the Values of the Rectangular Type Chip Components

Example:

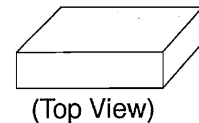
- (a) Resistor

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



- (b) Capacitor

= Not Shown



**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:

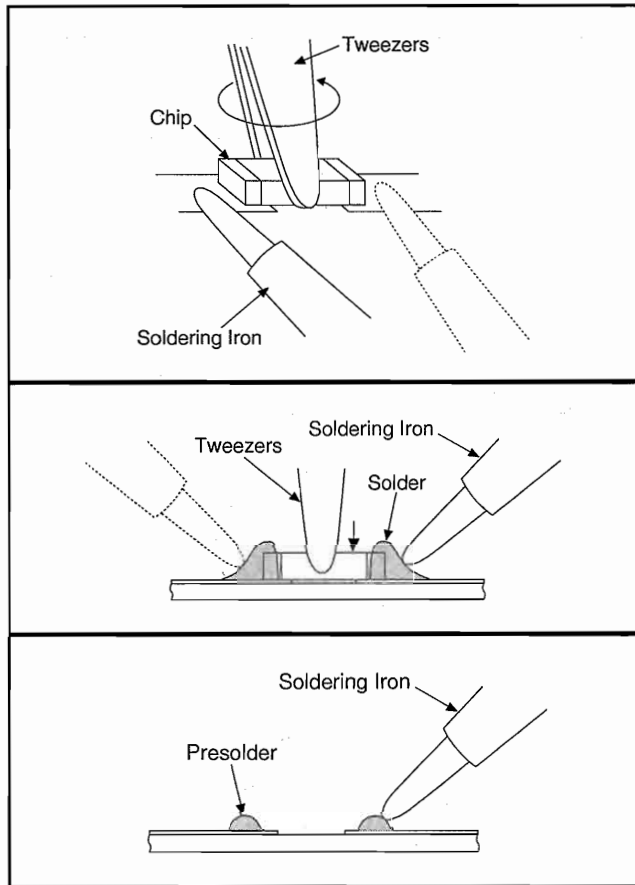
- a. Do not attempt to lift the component off the board until the component is completely disconnected from the board by the twisting action.
- b. Take care not to break the copper foil on the printed board.

### 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.

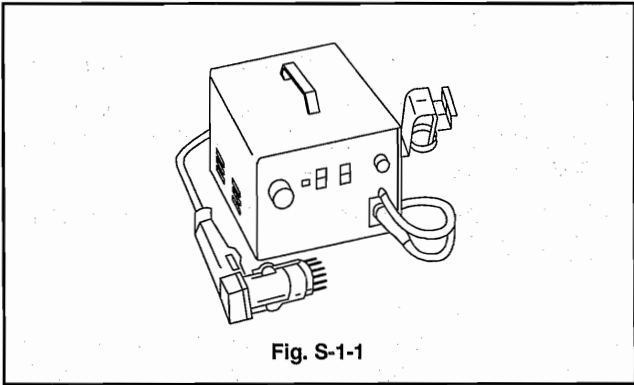


Fig. S-1-1

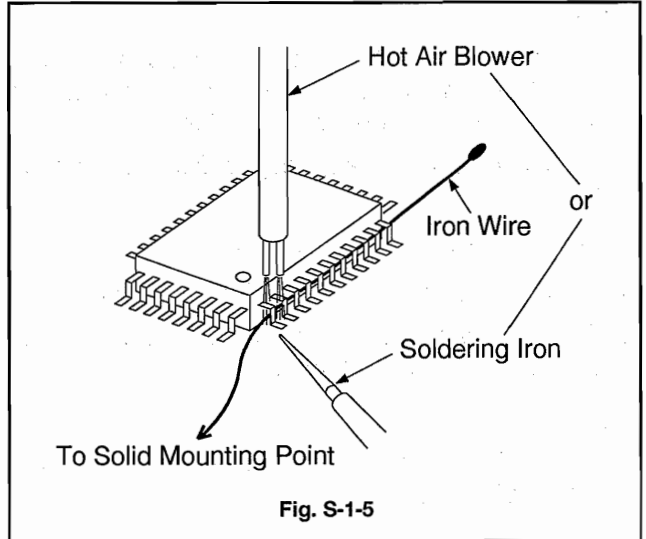


Fig. S-1-5

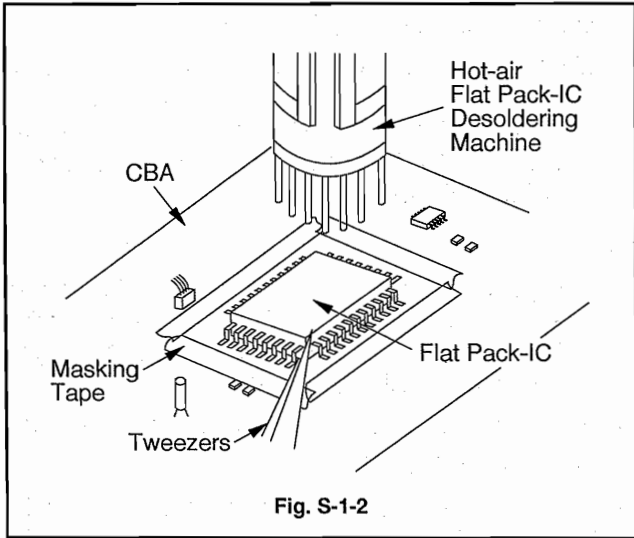


Fig. S-1-2

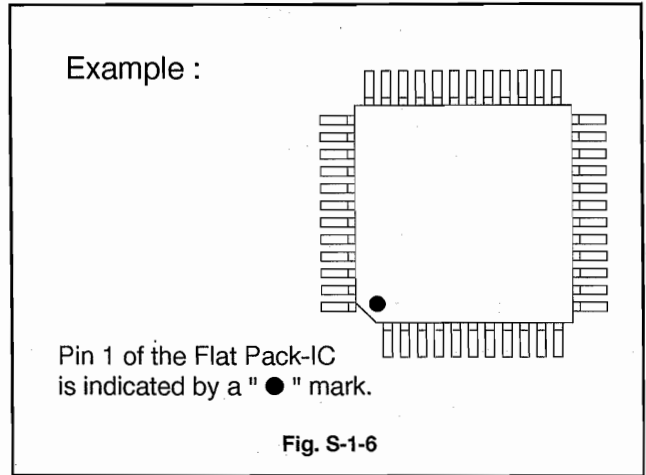


Fig. S-1-6

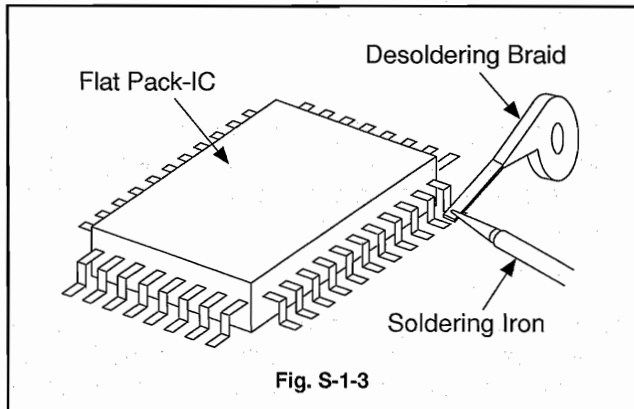


Fig. S-1-3

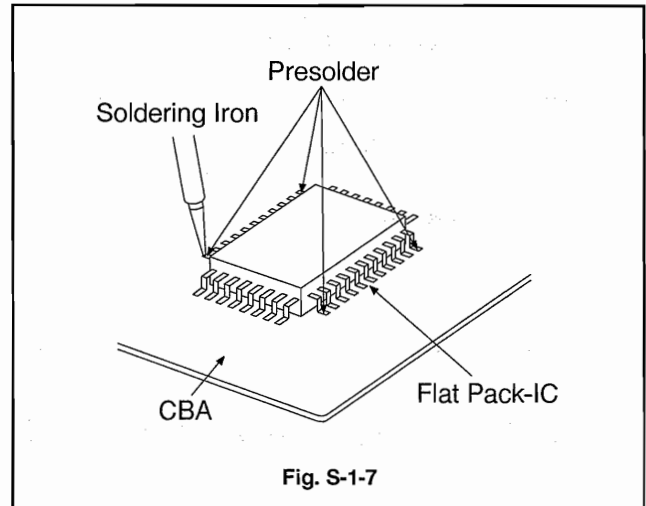


Fig. S-1-7

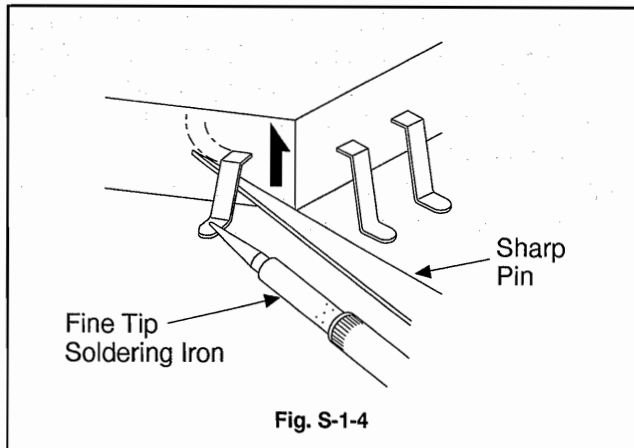


Fig. S-1-4



## 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.

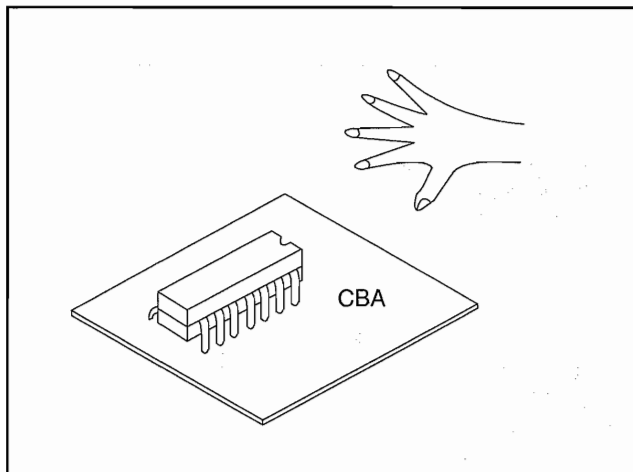
### Ground for Human Body

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.

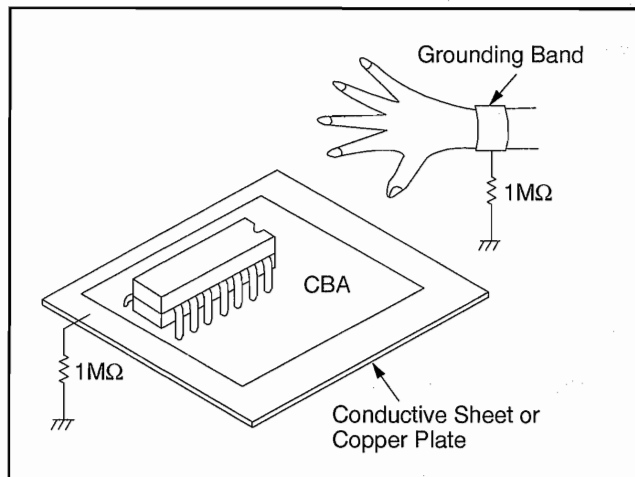
### Ground for Work Bench

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 U19 Deck Extension Cable

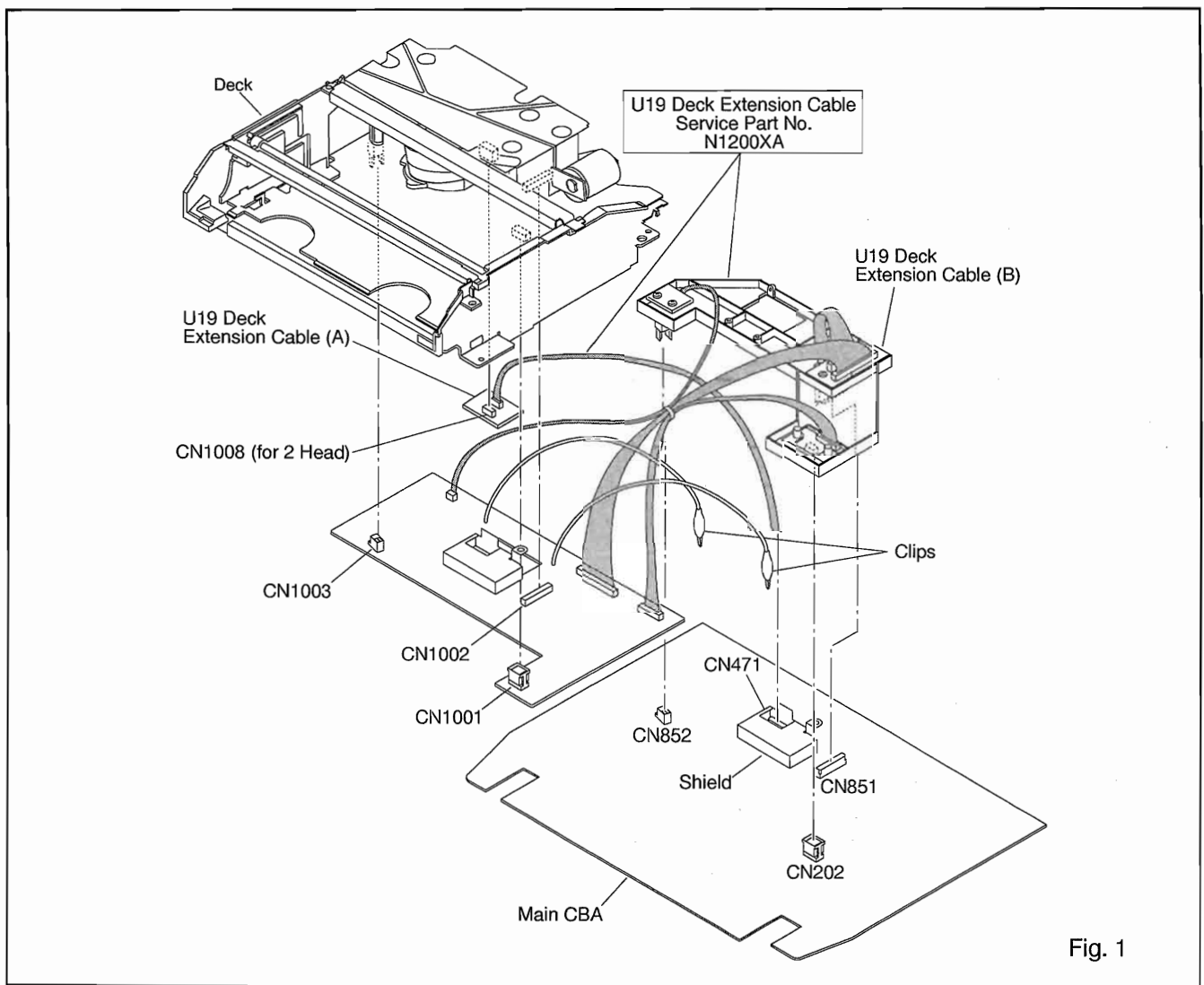
(1) Remove Deck Mechanism Assembly. If needed, remove the Main CBA from Tray Chassis. Refer to "Disassembly Instructions" on page 1-6-1.

(2) Connect Main CBA and Deck with the U19 Deck Extension Cable (A) as shown in Fig. 1. And connect Main CBA and Deck with U19 Deck Extension cable (B) as shown in Fig. 1. Connect the 2 clips to the Shield plate on the Main CBA.

(U19 Deck Extension Cable : N1200XA)

**Note 1:** There are 3 types of U19 Deck Extension Cable (A). They are for 2 Head, 4 Head, and Hi-Fi. Use a connector indicated as shown. Be careful not to let the unused connector contact other parts.

**Note 2:** Some noise will be present in the playback picture when the extension cable is used.



## How to Enter the Service Mode

### Caution: 1

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

### Preparing: 1

1. Cover Q203 (START SENSOR) and Q202 (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

1. Turn Power On.
2. Press Remote Control keys as following order.  
MENU-->MUTE-->PAUSE-->MUTE
3. When enter the Service Mode, One of the Number (1 , 2 or 4) will display at corners of the Screen.
4. During the Service mode, Electrical Adjustment Mode can be selected by Remote Control key.  
Details are as follows.

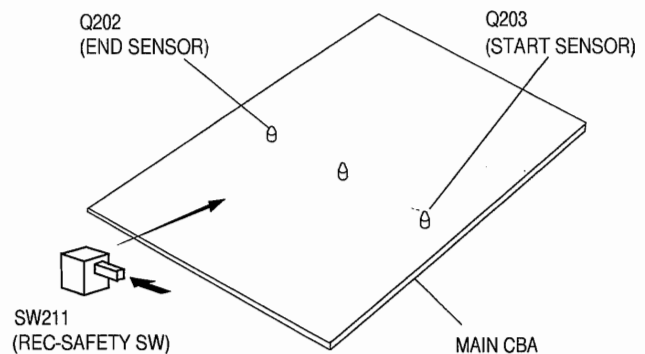
Key	Adjustment Mode
MENU	Picture Adjustment Mode : Press the MENU button to change from BRT (Bright), CNT (Contrast),and TNT(Tint). and Press CH UP/DOWN key to display Initial Value, Maximum and Minimum cyclically.
0	Hf <sub>0</sub> /C-Trap Adjustment Mode: See Adjustment Instructions Page 1-7-2 .
1	V-Size, V-Shift and H.Shift Adjustment Mode. See Adjustment Instructions Page 1-7-2~3.
2	AGC Adjustment Mode: See Adjustment Instructions Page 1-7-2.
3	AFT Adjustment Mode: See Adjustment Instructions Page 1-7-1.
4	Auto Record Mode: Perform Recording (15 Sec.)-->Stop-->Rewind (Zero Return) automatically.
5	Head Switching Point Adjustment Mode: See Adjustment Instructions Page 1-7-4.
6	Static Convergence Adjustment Mode: Shows 1 dot color on the center of the screen. Press CH UP/DOWN key to change the color White and Magenta.
7	Purity Check Mode: Shows Red, Green or Blue on the screen when the CH UP/DOWN keys are pressed.
8	Cut-off Adjustment Mode: Shows only Horizontal Line. See Adjustment Instructions Page 1-7-3.

### Caution: 2

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

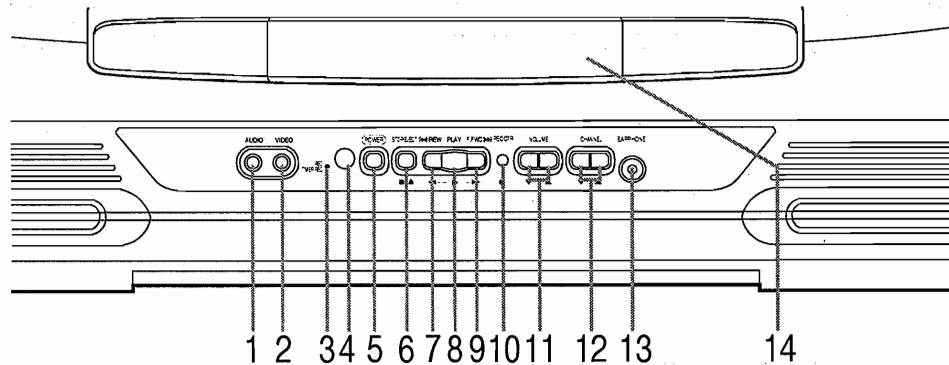
### Preparing: 2

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

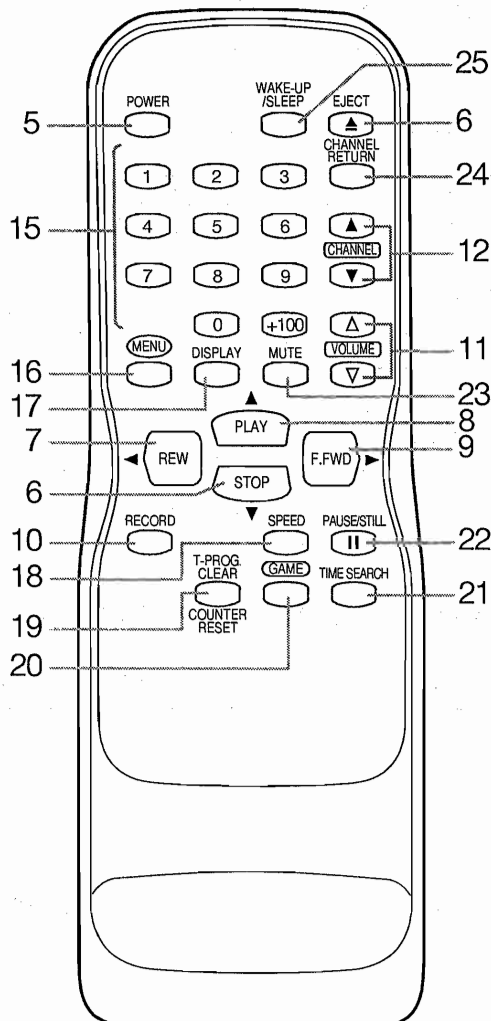


# OPERATING CONTROLS AND FUNCTIONS

- TV/VCR FRONT PANEL - [Fig.1]



- REMOTE CONTROL - [Fig.2]

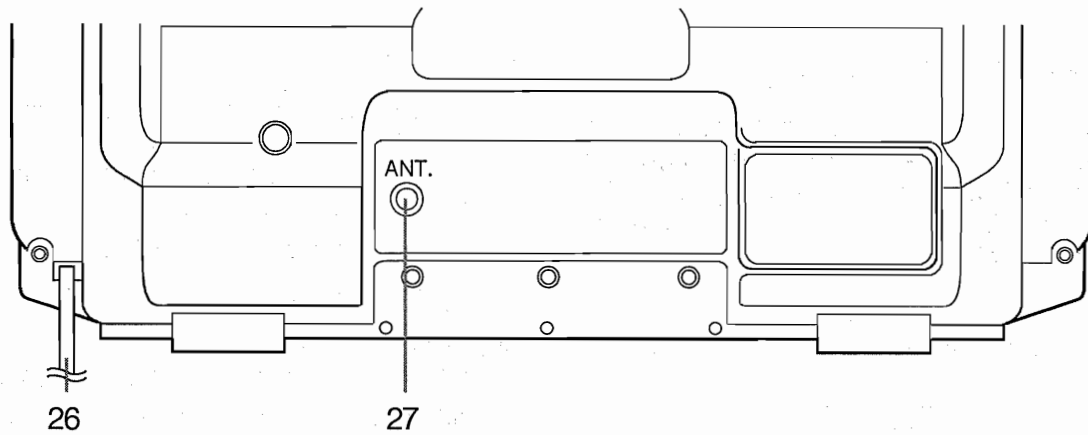


## NOTE:

We do not recommend the use of universal remote controls. Not all of the functions may be controlled with a universal remote control. If you decide to use a universal remote control with this unit, please be aware that the code number given may not operate this unit. In this case, please call the manufacturer of the universal remote control.

1. **AUDIO input jack**— Connect to the audio output jack of your audio equipment, video camera or another VCR.
2. **VIDEO input jack**— Connect to the video output jack of your video camera or another VCR.
3. **REC/TIMER REC indicator**— Flashes during recording. Lights up in the Stand-by mode for Timer Recording.
4. **Remote Sensor Window**— Receives the infrared signals from the remote control.
5. **POWER button**— Press to turn TV/VCR on and off. Press to activate timer recording.
6. **STOP button** — Press to stop the tape motion.  
**EJECT button**— Press in the Stop mode to remove tape from TV/VCR.
- ▼ **button**— Press to select setting modes from the on screen menu. Press to enter digits when setting program. (for example: setting clock or timer program)
7. **REW button**— Press to rewind the tape, or to view the picture rapidly in reverse during playback mode. (Rewind Search)
- ◀ **button**— Press to select a mode from a particular menu. (for example: LANGUAGE or USER'S SET UP)

**- REAR VIEW - [Fig.3]**



- 8. PLAY button**– Press to begin playback.
- ▲ button**– Press to select setting modes from the on screen menu. Press to enter digits when setting program. (for example: setting clock or timer program)
- 9. F.FWD button**– Press to rapidly advance the tape, or to view the picture rapidly in forward during playback mode. (Forward Search)
- ▶ 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. Press to determine setting modes from on screen menu. Press to select a mode from a particular menu. (for example: LANGUAGE or USER'S SET UP)
- 10. REC button**– Press for manual recording.  
OTR button– Activates One Touch Recording. (only on the TV/VCR)
- 11. VOLUME ▲ / ▼ buttons**– Adjust the volume level.
- 12. CHANNEL ▲ / ▼ buttons**– Press to select the desired channels for viewing or recording.  
TRACKING function– Press to minimize video 'noise' (lines or dots on screen) during playback mode.
- 13. EARPHONE jack**– Connects to earphones (not supplied) for personal listening. The size of jack is 1/8" monaural (3.5mm).
- 14. Cassette compartment**
- 15. Number buttons**– Press to select desired channels for viewing or recording. To select channels from 1 to 9, first press the 0 button and then 1 to 9.  
+100 button– When selecting cable channels which are higher than 99, press this button first, then press the last two digits. (To select channel 125, first press the "+100" button then press "2" and "5").
- 16. MENU button**– Press to display the main menu on the TV screen.
- 17. DISPLAY button**– Display the counter or the current channel number and current time on the TV screen.
- 18. SPEED button**– Press to choose the desired recording speed:SP/SLP.
- 19. T-PROG. CLEAR button**– Press to cancel a setting of timer program  
COUNTER RESET button– Press to reset counter to 0:00:00.
- 20. GAME button**– Sets the game mode and external input mode at the same time.
- 21. TIME SEARCH button**– channel display from 3 (present channel) to 10 (previously viewed channel), and pressing it a second time will return from 10 to 3.Press to activate Time Search mode.
- 22. PAUSE/STILL button**– Press to temporarily stop the tape during the recording or to view a still picture during playback.
- 23. MUTE button**– Mutes the sound. Press it again to resume sound.
- 24. CHANNEL RETURN button**–
- 25. WAKE UP/SLEEP button**– Sets the Wake up or Sleep Timer
- 26. Power cord**– Connect to a standard AC outlet (120V/60Hz).
- 27. ANT. terminal**– Connect to an antenna or cable system.

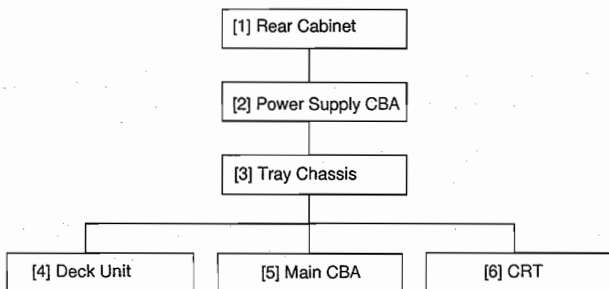
# DISASSEMBLY INSTRUCTIONS

## 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 originally.

### 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	6(S-1), 1(S-2)	1
[2]	Power Supply CBA	3,5	1(S-3) Anode Cap, CRT CBA, CN303, CN571, CN603	2
[3]	Tray Chassis	3	CN801	3
[4]	Deck Unit	3	6(S-4), 1(S-5), 1(S-6)	4
[5]	Main CBA	3,5	2(S-7), 1(S-8)	5
[6]	CRT	4	4(S-9)	6

↓                      ↓                      ↓                      ↓                      ↓  
 ①                      ②                      ③                      ④                      ⑤

### Note:

- ①. Order of steps in Procedure. When reassembling, follow the steps in reverse order. These numbers are also used as the Identification (location) No. of parts in figures.
- ②. Parts to be removed or installed.
- ③. Fig. No. showing Procedure or Part Location
- ④. Identification of part to be removed, unhooked, unlocked, released, unplugged, unclamped, or desoldered.  
S=Screw, P=Spring, L=Locking Tab, CN=Connector, \*=Unhook, Unlock, Release, Unplug, or Desolder e.g., 2(S-2) = two Screws (S-2)
- ⑤. Refer to the following "Reference Notes in the Table."

### Reference Notes in the Table

1. Removal of the Rear Cabinet. Remove screws 6(S-1) and 1(S-2).

### Caution !

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

2. Removal of the Power Supply CBA. Discharge the Anode Lead of the CRT with the CRT Ground wire before removing the Anode Cap. Disconnect the following: Anode Cap, CRT CBA, CN303, CN571, CN602. Remove 1(S-3).
3. Removal of the Tray chassis. Disconnect CN801. Pull the Tray chassis backward.
4. Removal of the Deck Unit. Remove 6(S-4), 1(S-5) and 1(S-6). Lift up the Deck Unit.
5. Removal of the Main CBA. Remove 2(S-7) and 1(S-8). Pull the Main CBA.
6. Removal of the CRT. Remove 4(S-9) and pull the CRT backward.

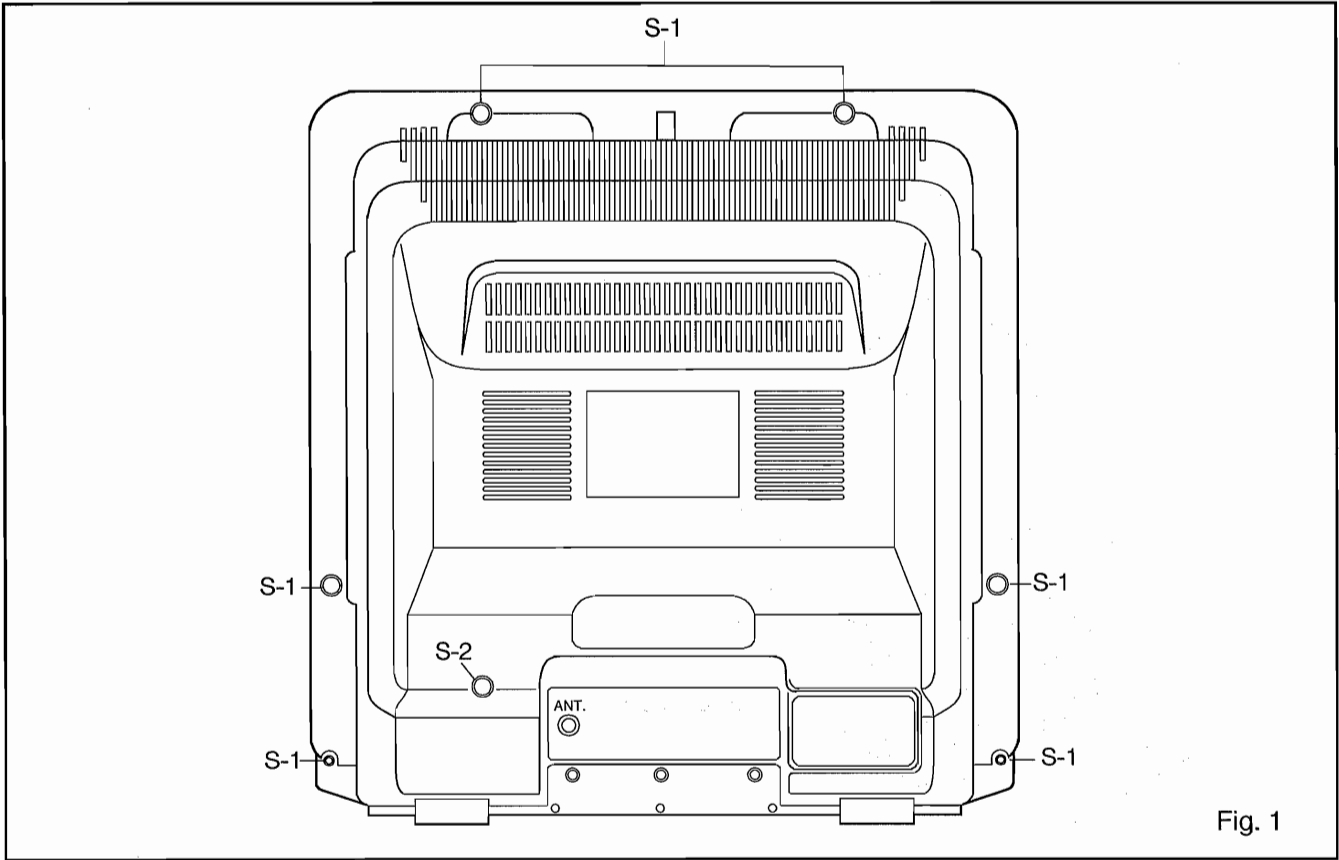


Fig. 1

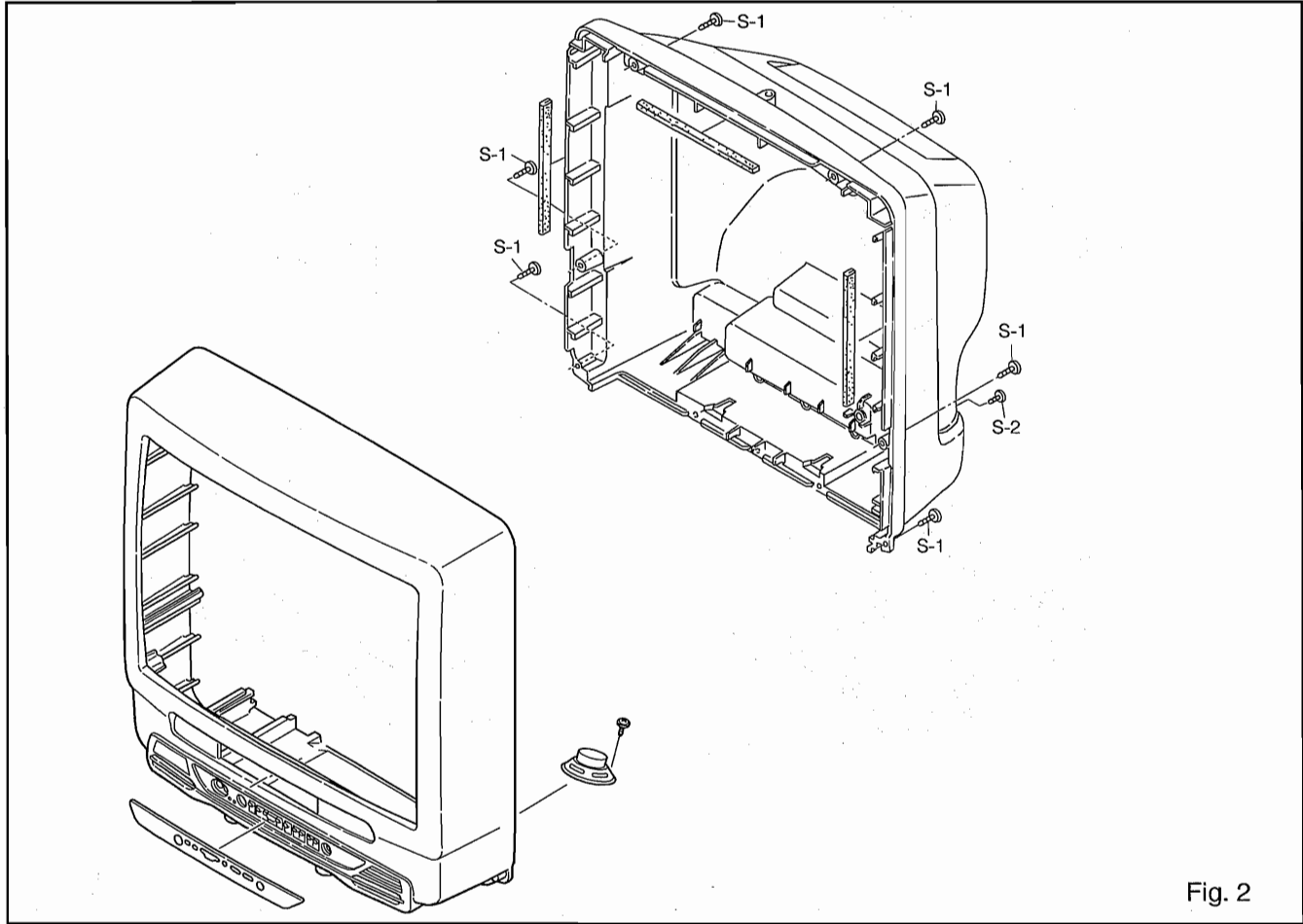


Fig. 2

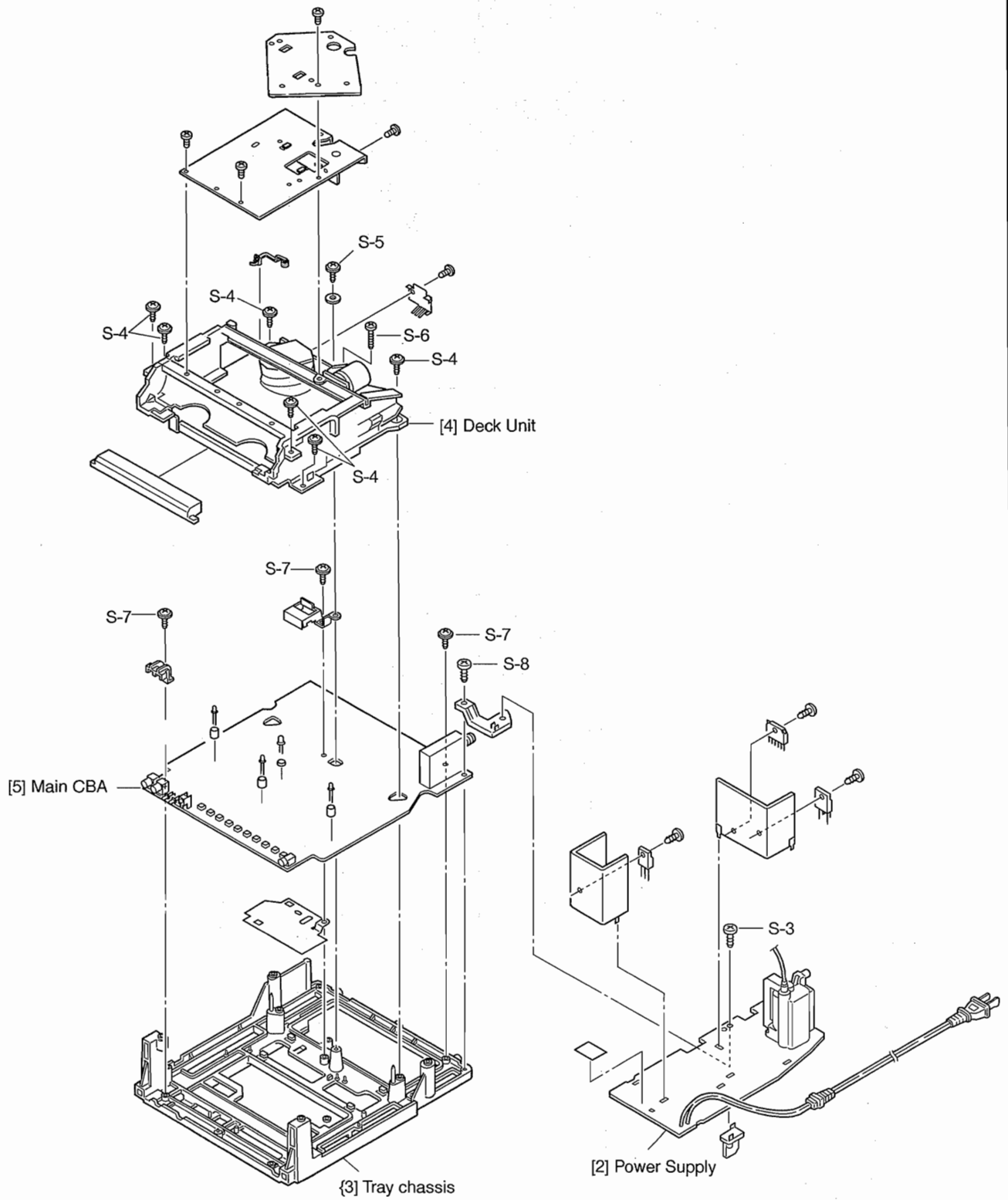


Fig. 3



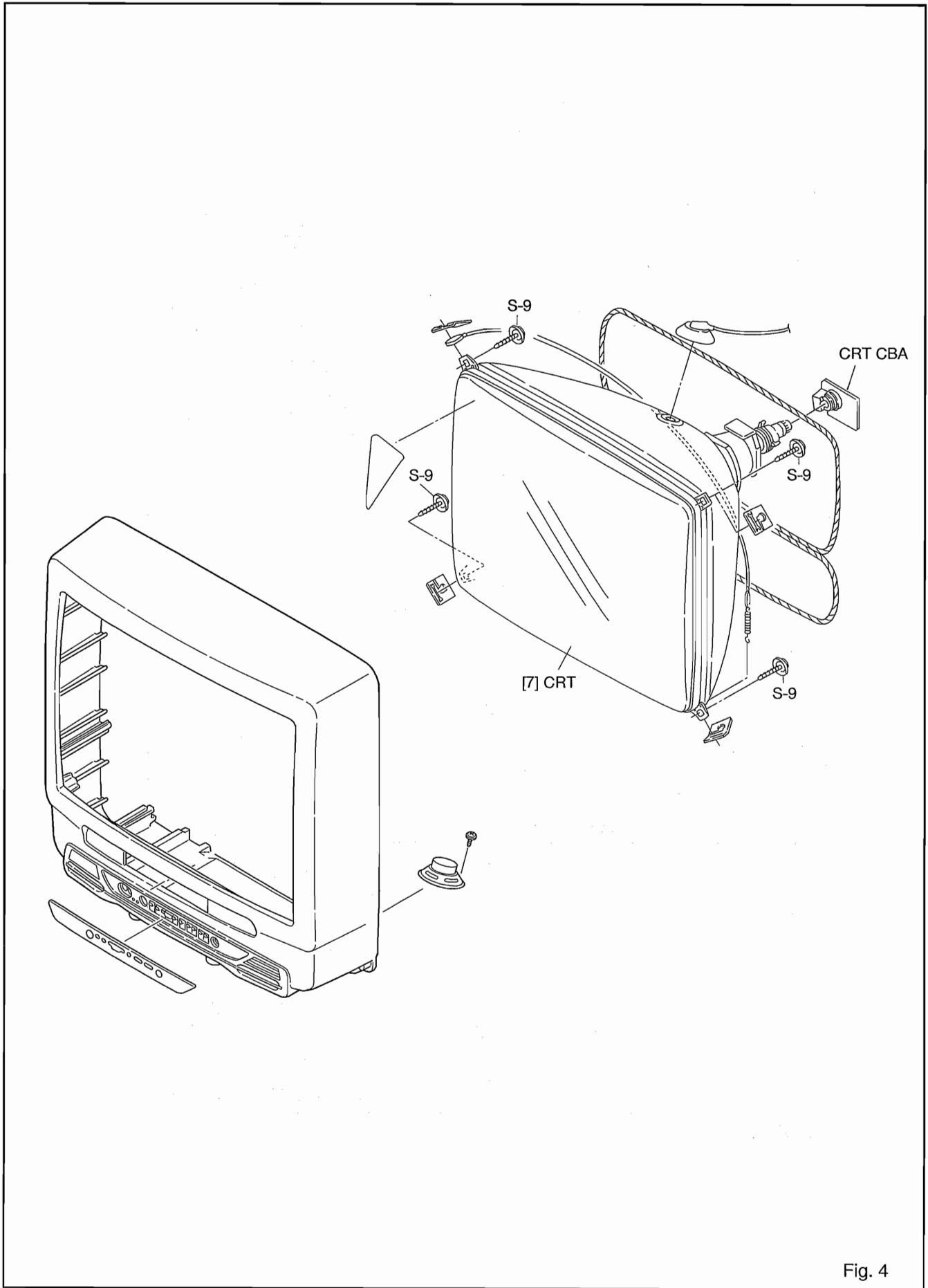
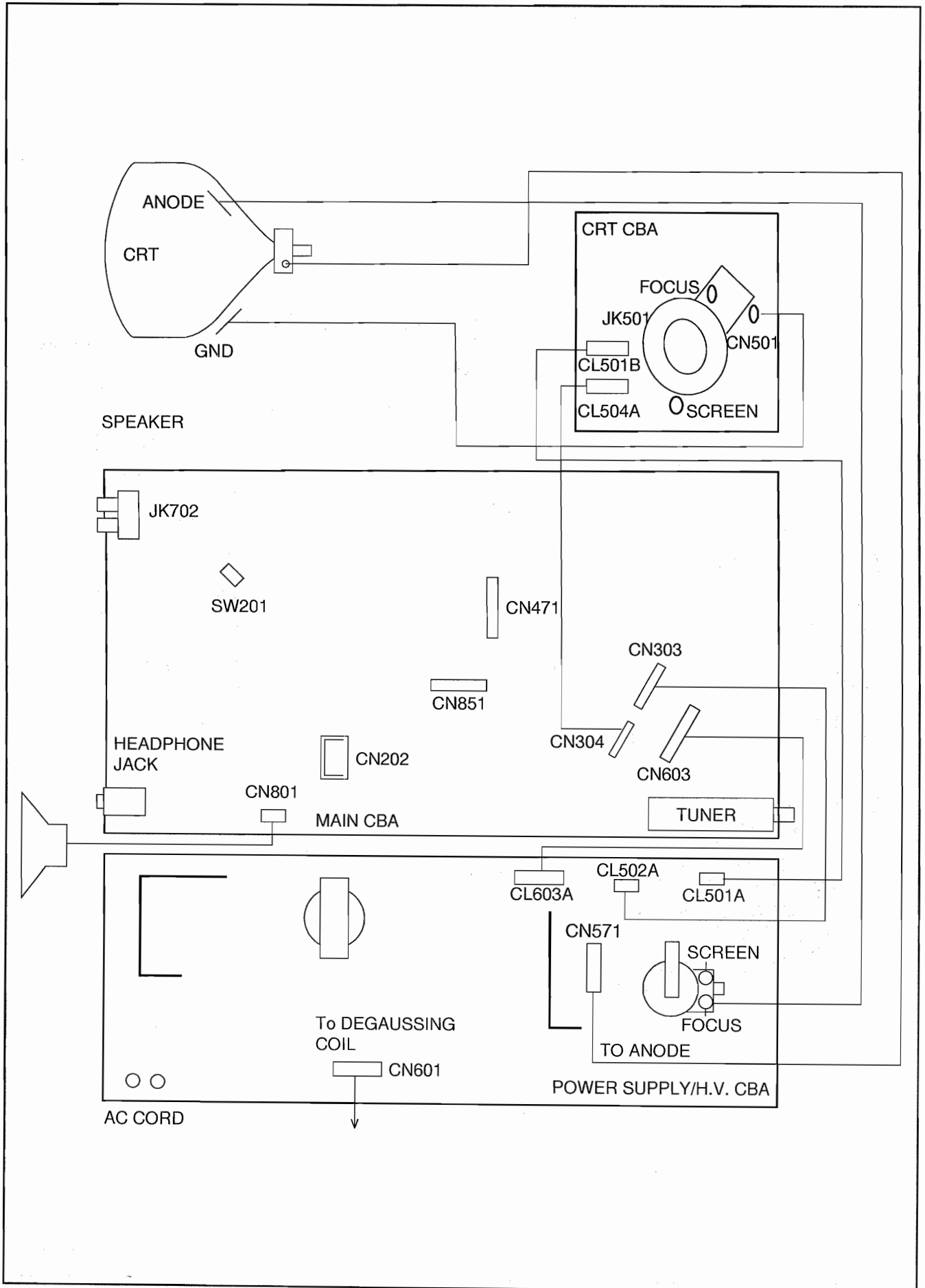


Fig. 4



# 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, Monoscope, Multi-Burst)
2. AC Milli Voltmeter (RMS)
3. Alignment Tape (VFMS0001H6), Blank Tape
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

## 1. DC 128V 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
TP601 (+128V) TP602 (GND)	VR601	---	---
Tape	M. EQ.	Spec.	
---	DC Voltmeter	+128±0.5V DC.	

**Note:** TP601, TP602(GND), VR601

--- Power Supply/H.V. CBA

1. Connect DC Volt Meter to TP601 and TP602(GND).
2. Adjust VR601 so that the voltage of TP601 becomes +128±0.5V DC.

## 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
J236 (AFT) J323 (GND)	T301 (VCO)	---	See Directions
Tape	M. EQ.	Spec.	
---	Oscilloscope or DC Volt Meter	+4.0±0.1V DC	

Figure

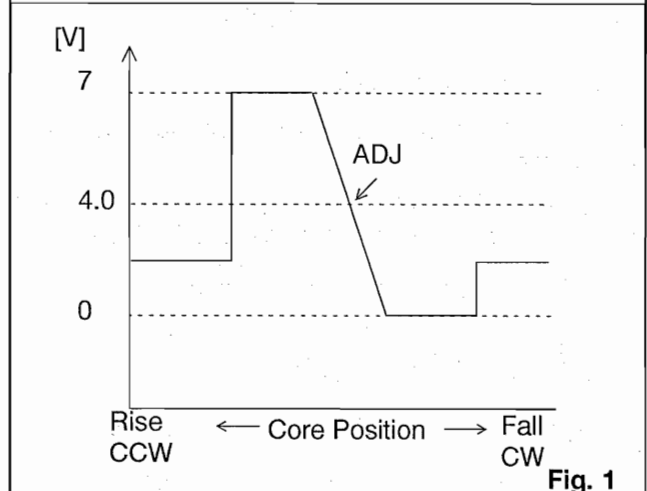


Fig. 1

**Note:** J263, J323 (GND), T301 --- Main CBA

1. Enter the Service Mode. (See page 1-4-2) Then press number 3 button on the remote control unit.
2. 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 7V to 0V immediately on the oscilloscope. (J236)
5. Turn the core of T301 little by little and find the point where  $+4.0 \pm 0.1V$  DC is obtained between the areas mentioned in step 4.
6. Turn the power off and on again.

### 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
J223 (AGC) J323 (GND)	CH ▲ / ▼ button (Remote Control Unit)	---	Color Bar 67.25MHz 60dB $\mu$ V
Tape	M. EQ.	Spec.	
---	Pattern Generator DC Volt Meter	$+2.3 \pm 0.1VDC$	

**Notes:** J223, J323 (GND) --- Main CBA

Use remote control unit.

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: 60dB $\mu$ V)
3. Press CH ▲ / ▼ button so that the voltage of J223 becomes  $+2.3 \pm 0.1V$  DC.
4. Turn the power off and on again.

#### 4-1. H f<sub>0</sub> 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
INT. MONITOR	CH ▲ / ▼ buttons (Remote Control Unit)	---	---
Tape	M. EQ.	Spec.	
---	Frequency Counter	See below	

**Note:** INT. MONITOR--- Main CBA

1. Connect Frequency Counter to INT MONITOR.

2. Set to AUX Mode (no input necessary). Enter the Service Mode. (See page 1-4-2)
3. Operate the unit for at least 20 minutes.
4. Press "0" button on the remote control unit and select H-Adj Mode. (Press "0" button, then display will change to H-ADJ and C-TRAP.)
5. Press CH ▲ / ▼ button on the remote control unit so that the display changes to "0" and "1."  
At this moment, choose display "0" or "1" when the Frequency Counter display is closest to 15.734kHz.

#### 4-2. C-Trap 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
TP501 (Red Out)	CH ▲ / ▼ button (Remote Control Unit)	---	Color Bar
Tape	M. EQ.	Spec.	
---	Oscilloscope	Minimum	

**Note:** TP501 --- CRT CBA

1. Connect oscilloscope to TP501.
2. Set to AUX Mode and input Color Bar. Enter the Service Mode. (See page 1-4-2)
3. Press "0" button on the remote control unit and select C-TRAP Mode. (Press "0" button then display will change to H-ADJ and C-TRAP.)
4. Press CH ▲ / ▼ button on the remote control unit so that the display changes to "0," "1," "2" and "3." Choose display "0," "1," "2," or "3" when B-Out (3.58MHz) value becomes minimum on the oscilloscope.

#### 5. V. Size Adjustment

**Purpose:** To obtain correct vertical height of screen image.

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

Test Point	Adjustment Point	Mode	Input
---	CH ▲ / ▼ button (Remote Control Unit)	---	Monoscope
Tape	M. EQ.	Spec.	
---	Pattern Generator	90 $\pm$ 5%	

1. Enter the Service Mode. (See page 1-4-2)

2. Press "1" button on the remote control unit and select V-S Mode. (Press "0" button then display will change to H-P, V-P and V-S.)
3. Input Monoscope Pattern.
4. Press CH ▲ / ▼ button on the remote control unit so that the monoscope pattern is 90±5% of display size and the circle is round.

## 6. V. Position Adjustment

**Purpose:** To obtain correct vertical position of screen image.

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

Test Point	Adjustment Point	Mode	Input
---	CH ▲ / ▼ button (Remote Control Unit)	---	Monoscope
Tape	M. EQ.		Spec.
---	Pattern Generator		See below

**Note:**

1. Enter the Service Mode. (See page 1-4-2)
2. Press "1" button on the remote control unit and select V-P Mode. (Press "0" button then display will change to H-P, V-P and V-S.)
3. Input Monoscope Pattern.
4. Press CH ▲ / ▼ button on the remote control unit so that the top and bottom of the Monoscope Pattern are equal to each other.

## 7. H. Shift Adjustment

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

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

Test Point	Adjustment Point	Mode	Input
---	CH ▲ / ▼ button (Remote Control Unit)	---	Monoscope
Tape	M. EQ.		Spec.
---	Pattern Generator		See below

**Note:**

1. Enter the Service Mode. (See page 1-4-2)
2. Press "1" button on the remote control unit and select H-P Mode. (Press "0" button then display will change to H-P, V-P and V-S.)
3. Input Monoscope Pattern.

4. Press CH ▲ / ▼ button on the remote control unit so that the top and bottom of the Monoscope Pattern are equal to each other.

## 8. Cut-off Adjustment

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

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

Test Point	Adjustment Point	Mode	Input
---	Screen-Control	Ext.	Black Raster / White Raster
Tape	M. EQ.		Spec.
---	Pattern Generator		See Reference Notes below.

Figure

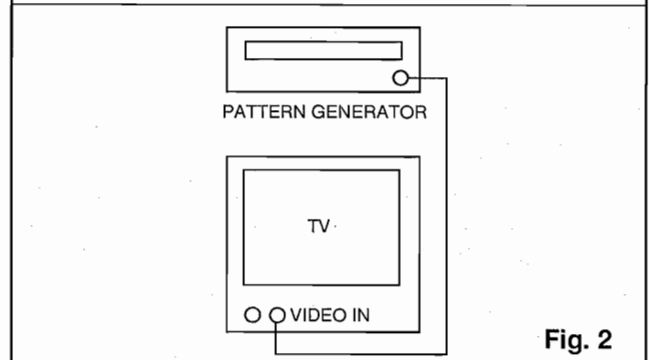


Fig. 2

**Note:** Screen Control FBT --- H/V CBA

F.B.T= Fly Back Transformer

Use the remote control unit

1. Degauss the CRT and allow CRT to operate for 20 minutes before starting the alignment.
2. Input the Black Raster Signal.
3. Enter the Service Mode. (See page 1-4-2)
4. Press "MENU" button. (Display changes to BRT, CNT, TNT cyclically when "MENU" button is pressed). Select BRT and press CH ▲ / ▼ button then set in initial value. (Display changes to MAX, INITIAL and MIN cyclically when CH ▲ / ▼ button is pressed).
5. Follow above procedure to set CNT and TNT in initial value.
6. Press "8" button (C/D display momentarily) then press "1." Display momentarily shows COR (R=Red). Now there is a horizontal line across the center of screen. If needed, gradually turn screen control on the flyback transformer clockwise until the horizontal line appears. If a pure white line appears then go to step 9, otherwise read on. Adjust the Red

Cut Off by pressing the CH ▲ / ▼ buttons. Proceed to step 7 when the Red Cut Off adjustment is done.

7. Press the "2" button. The display will momentarily show "COG" (G=Green). Adjust the Green Cut Off by pressing the CH ▲ / ▼ buttons. Proceed to step 8 when the Green Cut Off adjustment is done.
8. Press the "3" button. The display will momentarily show "COB" (B=Blue). Adjust the Blue Cut Off by pressing the CH ▲ / ▼ buttons. When done with steps 6, 7 and 8 the horizontal line should be pure white. If not, then attempt the Cut Off adjustments again.
9. Input the White Raster Signal.
10. Press the "1" button. The display will momentarily show "DR" (R=Red). Adjust the Red Drive as needed with the CH ▲ / ▼ buttons.
11. Press the "5" button. The display will momentarily show "DB" (B=Blue). Adjust the Blue Drive as needed with the CH ▲ / ▼ buttons.
12. Turn the power off and on again.

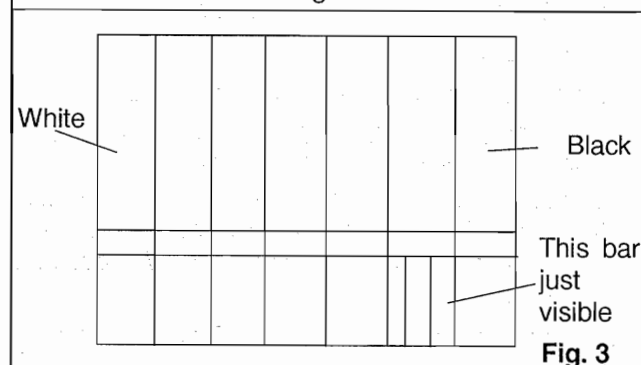
## 9. Sub-Brightness Adjustment

**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
---	CH ▲ / ▼ button (Remote Control Unit)	EXT	IQW
Tape	M. EQ.	Spec.	
---	Pattern Generator	See below	

Figure



**Note:** IQW Setup level --- 10 IRE

1. Enter the Service Mode. (See page 1-4-2) Then input IQW signal.
2. Press MENU button. (Display changes to BRT, CNT, and TNT cyclically when MENU button is pressed). Select BRT and press CH ▲ / ▼ button so that the bar is just visible (see above figure).
3. Turn the power off and on again.

## 10. 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	M. EQ.	Spec.	
---	Pattern Generator	See below.	

**Note:** Focus VR (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 the Monoscope Pattern.
4. Adjust the Focus Control on the FBT to obtain a clear picture.

## 11. Head Switching Position Adjustment

**Purpose:** Determine the Head Switching Point during Playback.

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

**Note:** Unit reads Head Switching Position automatically and displays it on the screen (upper left corner).

1. Playback test tape (VFMS0001H6).
2. Enter the Service Mode. (See page 1-4-2) Then press the number 5 button on the remote control unit.
3. The Head Switching position will display on the screen. If adjustment is necessary, follow Step 4. 6.5H(412.7μs) is preferable.
4. Press "CH ▲ / ▼" button on the remote control unit if necessary, then value will be changed in 0.5H steps up or down. Adjustable Range is up to 9.5H. If the values are beyond adjustable range, display will change as shown:  
Lower out of range; 0.0H  
Upper out of range; --H

## 12. SIF Adjustment

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

**Symptom of Misadjustment:** Audio may not sound correctly.

**Note:** This adjustment automatically done by micro computer.

### 13. CCS Text Box Location

When replacing the CRT, the CCS Box might not stay in appropriate position. In that case, replace micro computer.

**Note:** This adjustment automatically done by micro computer.

**The following 2 adjustments normally are not attempted in the field and should be done only when replacing the CRT.**

### 14. Purity Adjustment

**Purpose:** To obtain pure color.

**Symptom of Misadjustment:** If Color Purity Adjustment is incorrect, large areas of color may not be properly displayed.

Test Point	Adjustment Point	Mode	Input
---	Deflection Yoke Purity Magnet	---	Red Color
Tape	M. EQ.	Spec.	
---	Pattern Generator	See below.	
Figure			

**Fig. 4**

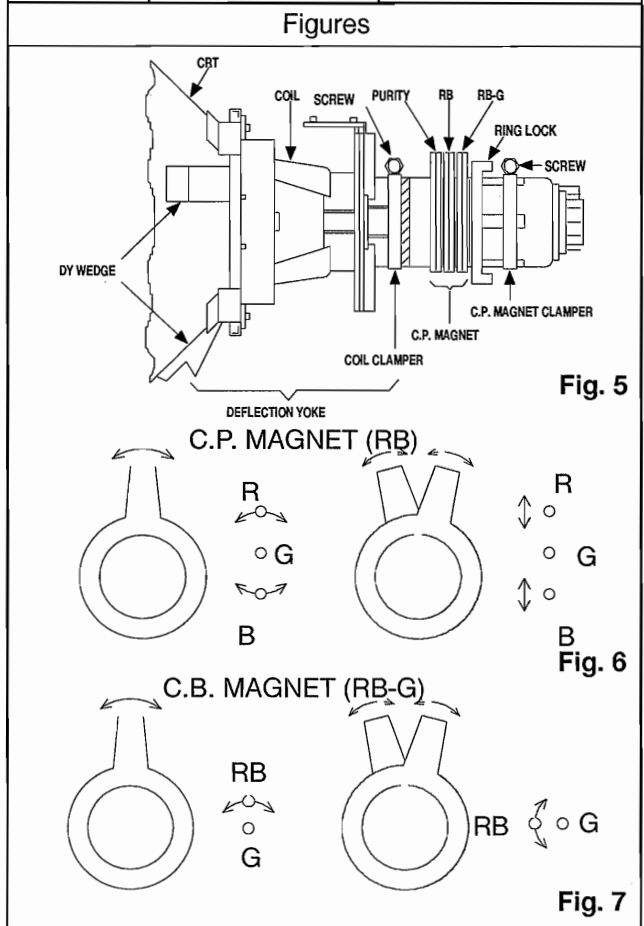
1. Set the unit facing east.
2. Operate the unit for over 30 minutes before adjusting.
3. Fully degauss the unit using an external degaussing coil.
4. Loosen screw on the Deflection Yoke Clamper and pull the Deflection Yoke back away from the screen. (See Fig. 5)
5. Loosen Ring Lock and adjust the Purity Magnets so that a red field is obtained at the center of the screen. Tighten Ring Lock. (See Fig. 4,5)
6. Slowly push the Deflection Yoke toward bell of CRT and set it where a uniform red field is obtained.
7. Tighten the clamp screw on the Deflection Yoke.

### 15. Convergence Adjustment

**Purpose:** To obtain proper convergence of red, green and blue beams.

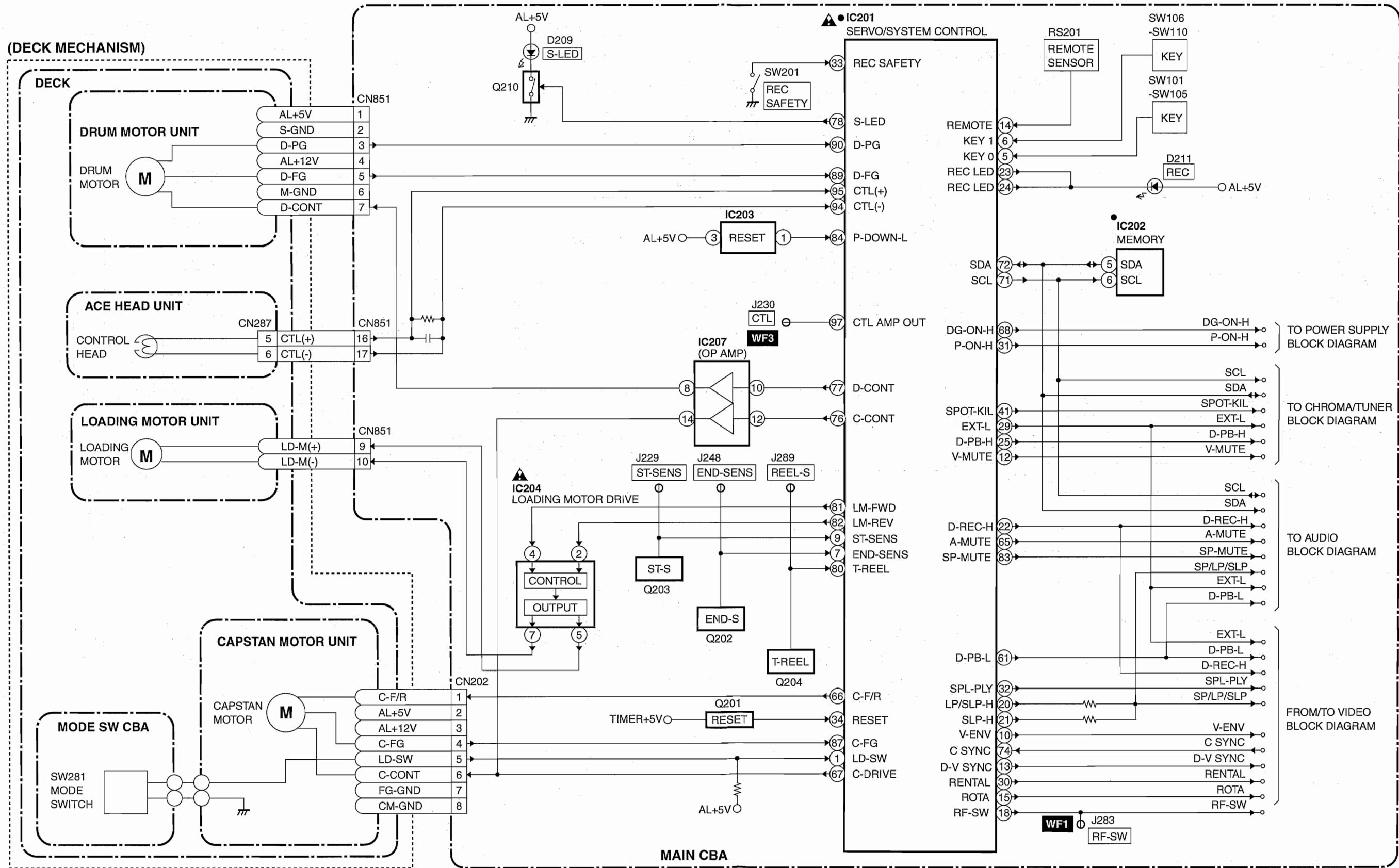
**Symptom of Misadjustment:** If Convergence Adjustment is incorrect, the edge of white letters may have color edges.

Test Point	Adjustment Point	Mode	Input
---	C.P. Magnet (RB), C.P. Magnet (RB-G), Deflection Yoke	---	Dot Pattern or Crosshatch
Tape	M. EQ.	Spec.	
---	Pattern Generator	See below.	



1. Loosen the Ring Lock and align red with blue dots or Crosshatch at the center of the screen by rotating (RB) C.P. Magnets. (See Fig. 6)
2. Align red / blue with green dots at the center of the screen by rotating (RB-G) C.P. Magnet. (See Fig. 7)
3. Fix the C.P. Magnets by tightening the Ring Lock.
4. Remove the DY Wedges and slightly tilt the Deflection Yoke horizontally and vertically to obtain the best overall convergence.
5. Fix the Deflection Yoke by carefully inserting the DY Wedges between CRT and Deflection Yoke.

"•" = SMD



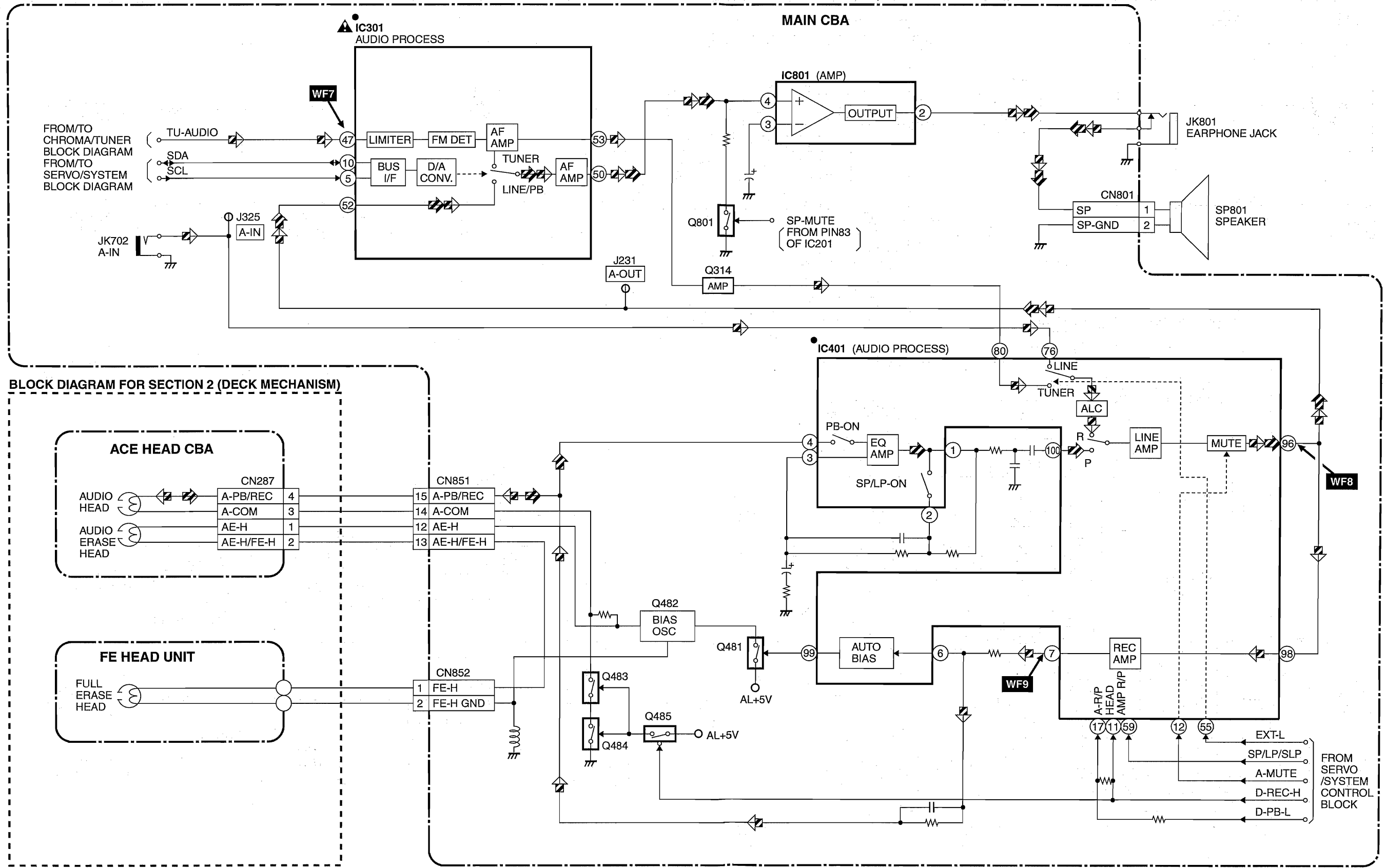




# Audio Block Diagram

"•" = SMD

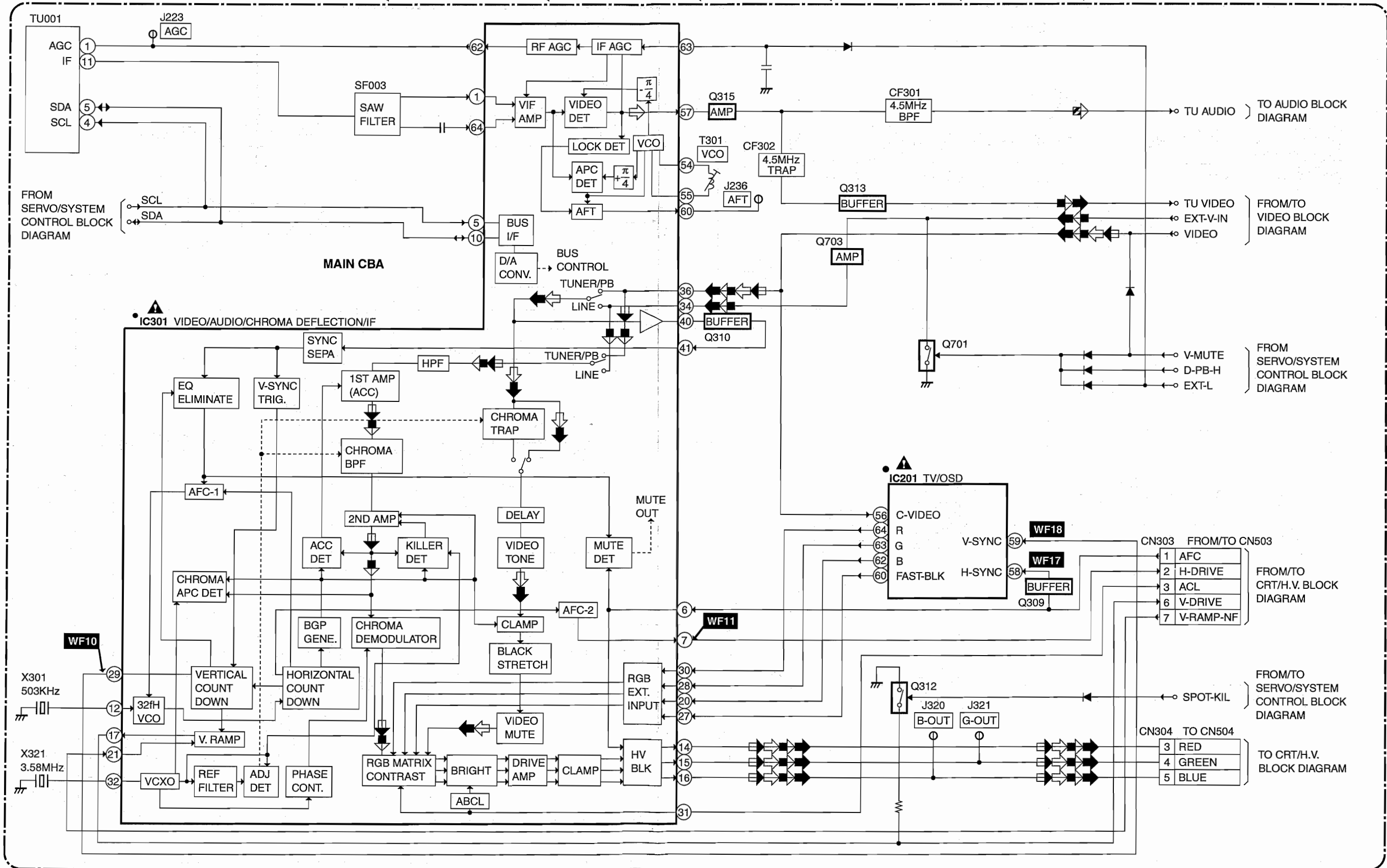
PB-AUDIO SIGNAL    
 REC-AUDIO SIGNAL    
 Mode : SP/REC



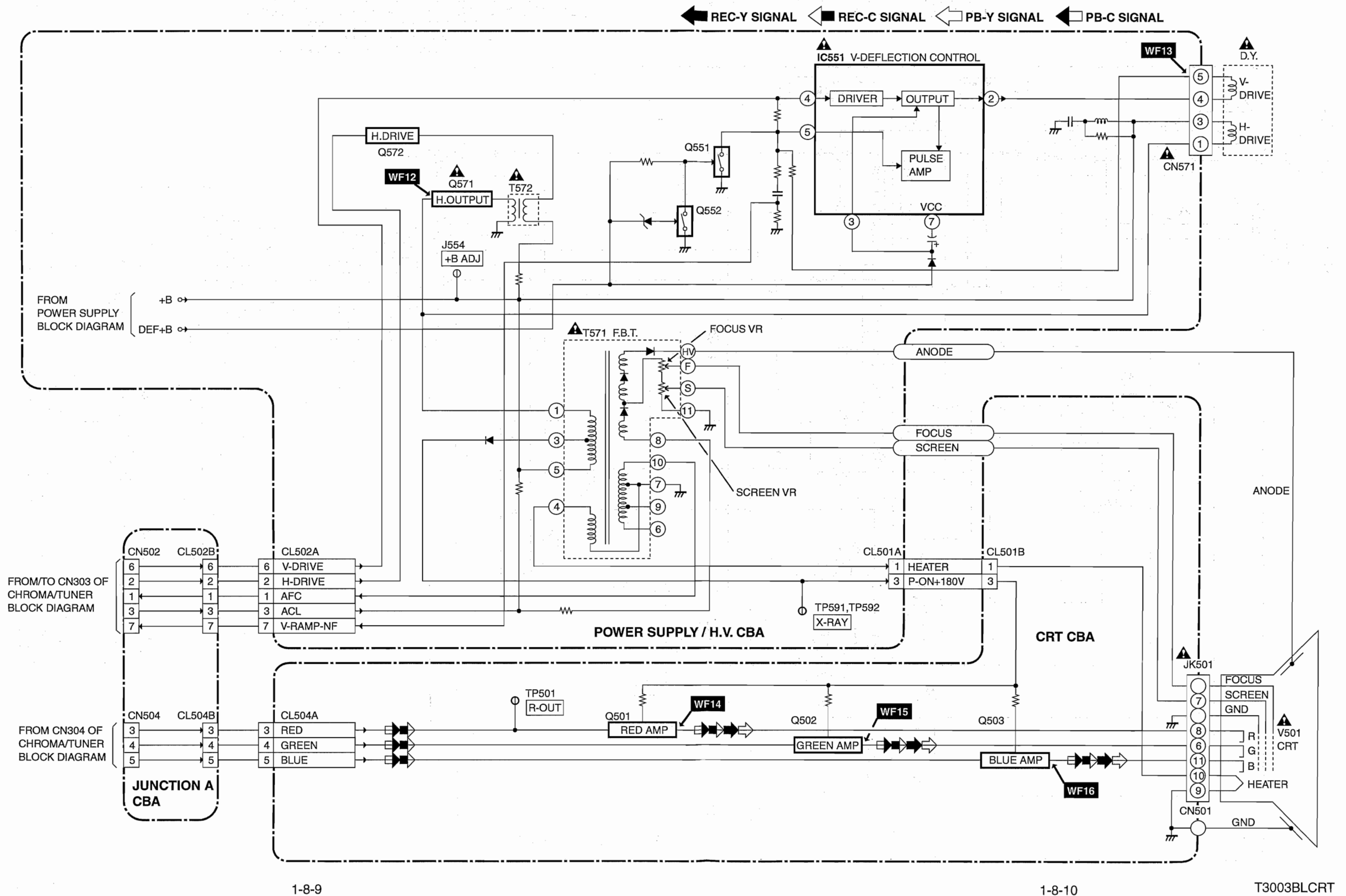
# Chroma/Tuner Block Diagram

"•" = SMD

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

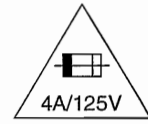


# CRT/H.V. Block Diagram

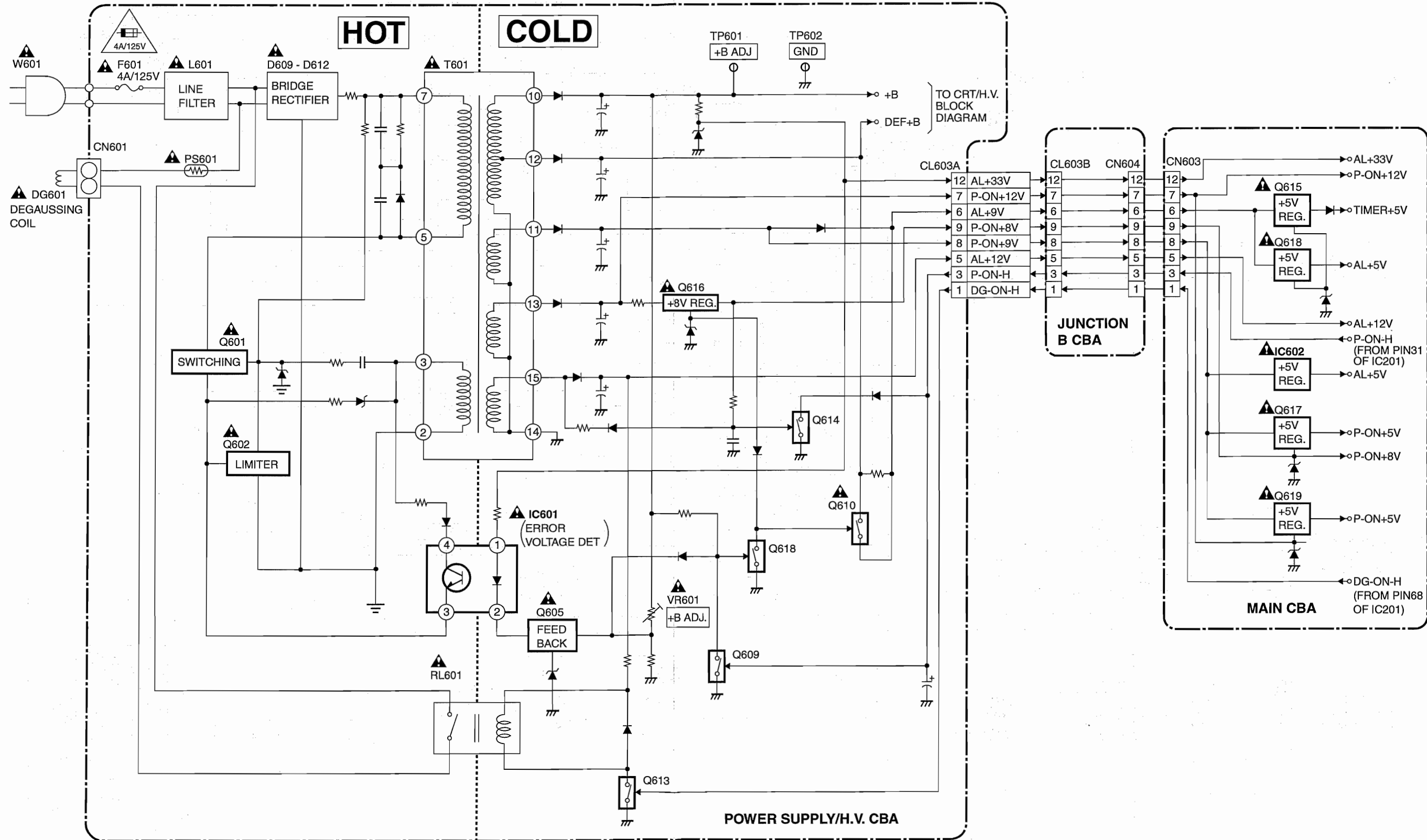


# Power Supply Block Diagram

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

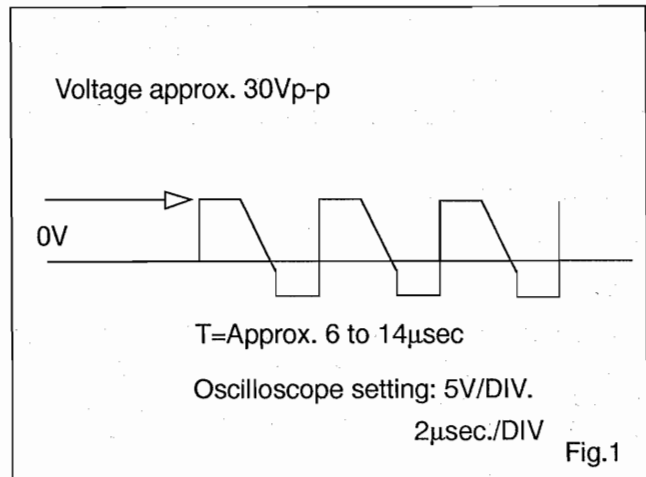
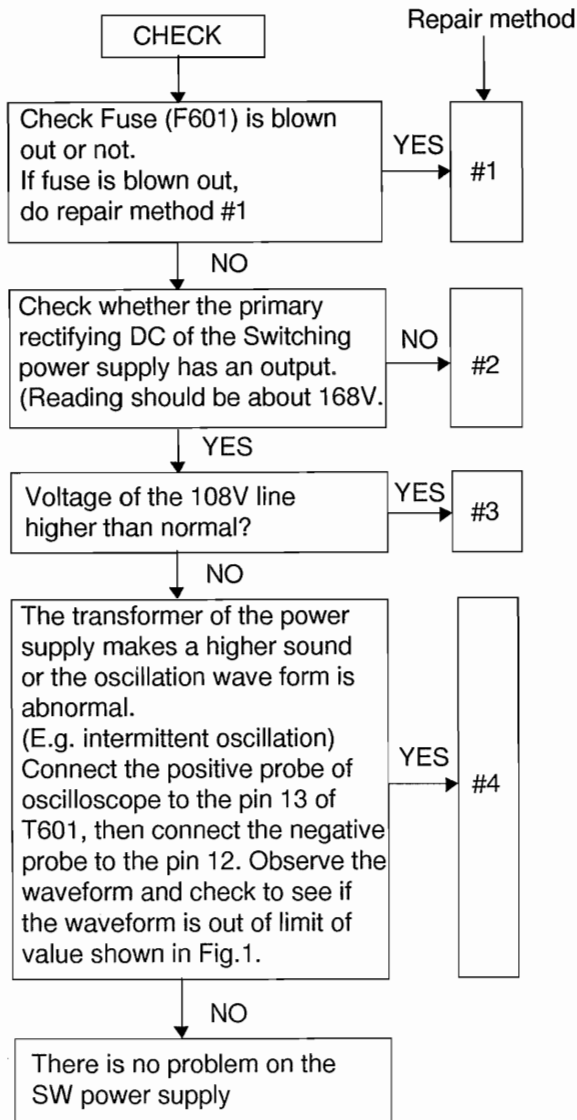


**CAUTION**  
FOR CONTINUED PROTECTION AGAINST FIRE HAZARD,  
REPLACE ONLY WITH THE SAME TYPE FUSE.  
ATTENTION : POUR UNE PROTECTION CONTINUE LES RISQUES  
D'INCELE N'UTILISER QUE DES FUSIBLE DE MEMO TYPE.  
**RISK OF FIRE-REPLACE FUSE AS MARKED.**  
"This symbol means fast operating fuse."  
"Ce symbole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



# Power Supply Trouble Shooting Guide

It is highly recommended that a variable isolation transformer which can monitor current be used. (Alternatively a variable AC source which monitors current will do). Read directions below before power is added!



## Repair method #1

(Power must be off)

Short circuit in the secondary side. check diode D615, D617, D618, D619 and D621, switching transistor (Q601), control transistor (Q602), diode and resistor replace as necessary.

Disconnect 108V diode (D621), 25V diode (D615), 8V diode (D618), 12V diode (D617, 12V diode (D619)) and Check the load continuity of 108V line, 25V line, 8V line, 12V line through a tester (resistance range).

If the tester indicates a lower resistance value around 0 ohm, the line is short-circuited.

Before repairing the switching power supply, find out the short-circuited area of such line and repair it.

If the tester does not indicate any low resistance value (around 0 ohm), no load is short-circuited and there is no problem.

2] Check for any defective parts while the secondary rectifying diodes are disconnected (D615, D617, D618, D619 and D621) perform a diode check in both forward and reverse directions through a tester.

## **Repair method #2**

Check the primary rectifying diodes (D609-D612) as possible problems. Remove the above mentioned parts and check them. Perform check according to the step 1 and 2 of repair method #1 and check for defects following parts, then if necessary replace with factory originals..

R605 is open or not.

Q601 and D606 are short or not.

## **Repair method #3**

The feedback circuit which is monitored by the output of D621 108V may not work and this may be regarded as a possible cause, remove IC601 (Photo Coupler), diode (D614) and transistor (Q605) check for defects.

## **Repair method #4**

Check control circuitly which is connecting to Pin 2 and 1 of Switching Transformer T601.

# 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:

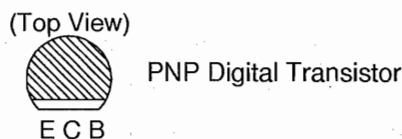
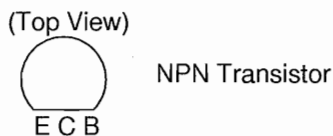
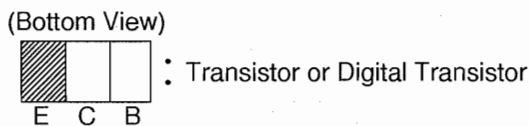
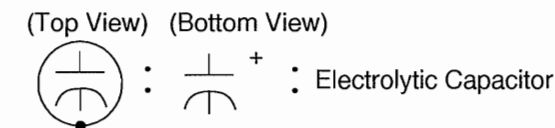
1. Do not use the part number shown on these drawings for ordering. The correct part number is shown in the parts list, and may be slightly different or amended since these drawings were prepared.
2. All resistance values are indicated in ohms ( $K=10^3$ ,  $M=10^6$ ).
3. Resistor wattages are 1/4W or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

## Capacitor Temperature Markings

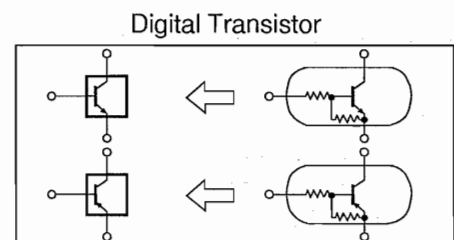
Mark	Capacity change rate	Standard temperature	Temperature range
(B)	$\pm 10\%$	20°C	-25~+85°C
(F)	+30 -80%	20°C	-25~+85°C
(SR)	$\pm 15\%$	20°C	-25~+85°C
(Z)	+30 -80%	20°C	-10~+70°C

Capacitors and transistors are represented by the following symbols.

### CBA Symbols



### Schematic Diagram Symbols





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

**1. CAUTION:**

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

**2. CAUTION:**

Fixed Voltage (or Auto voltage selectable) power supply circuit is used in this unit.  
If Main Fuse (F001) 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.

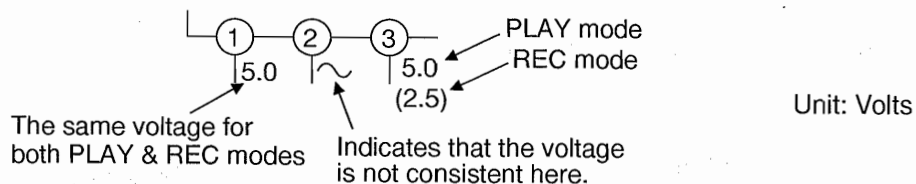
**4. Wire Connectors**

- (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:

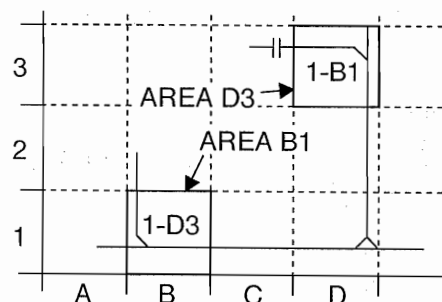


**8. How to read converged lines**

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

Examples:

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

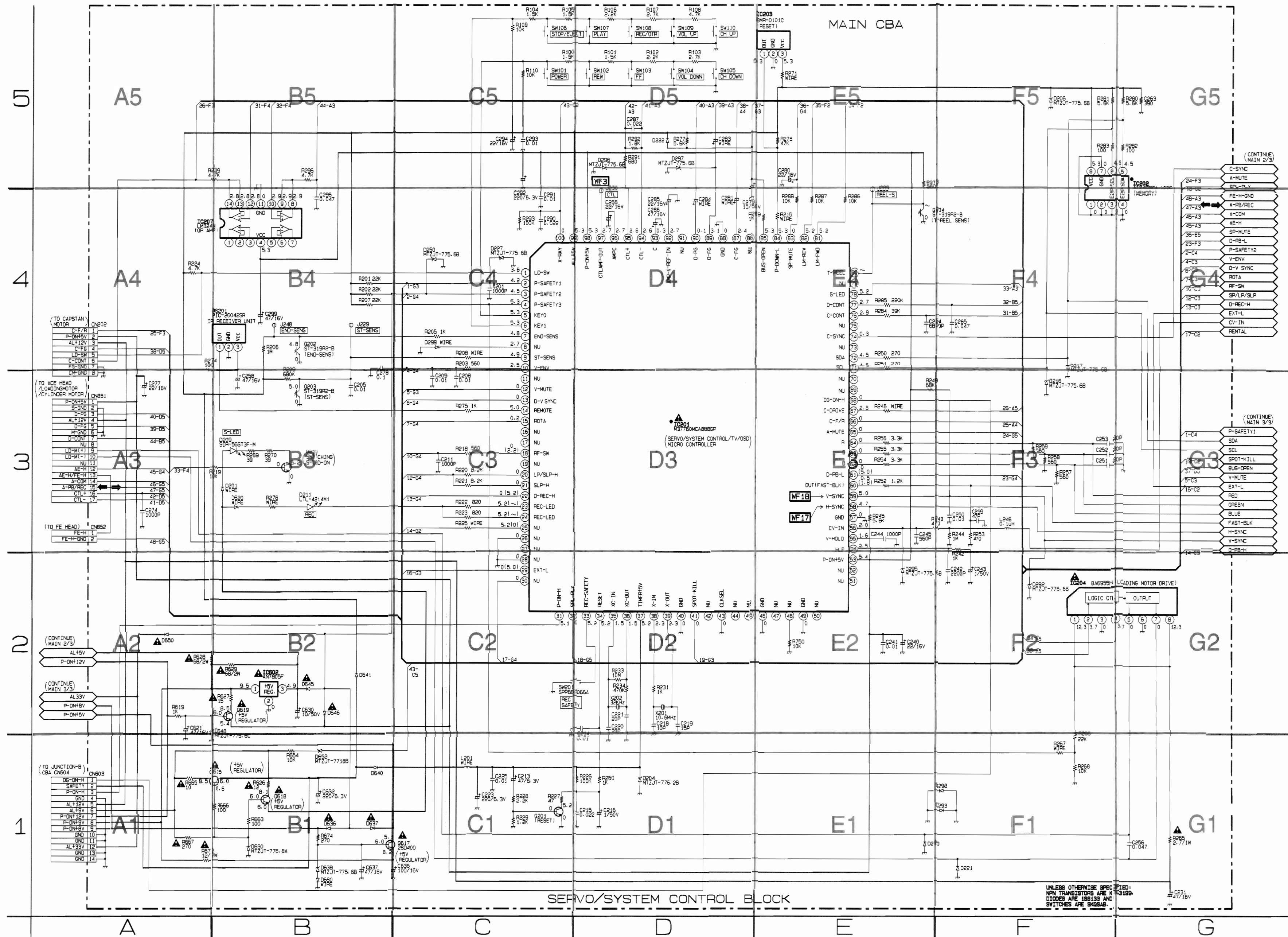


**9. Test Point Information**

- ⊙ : 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.

Main 1/3 Schematic Diagram

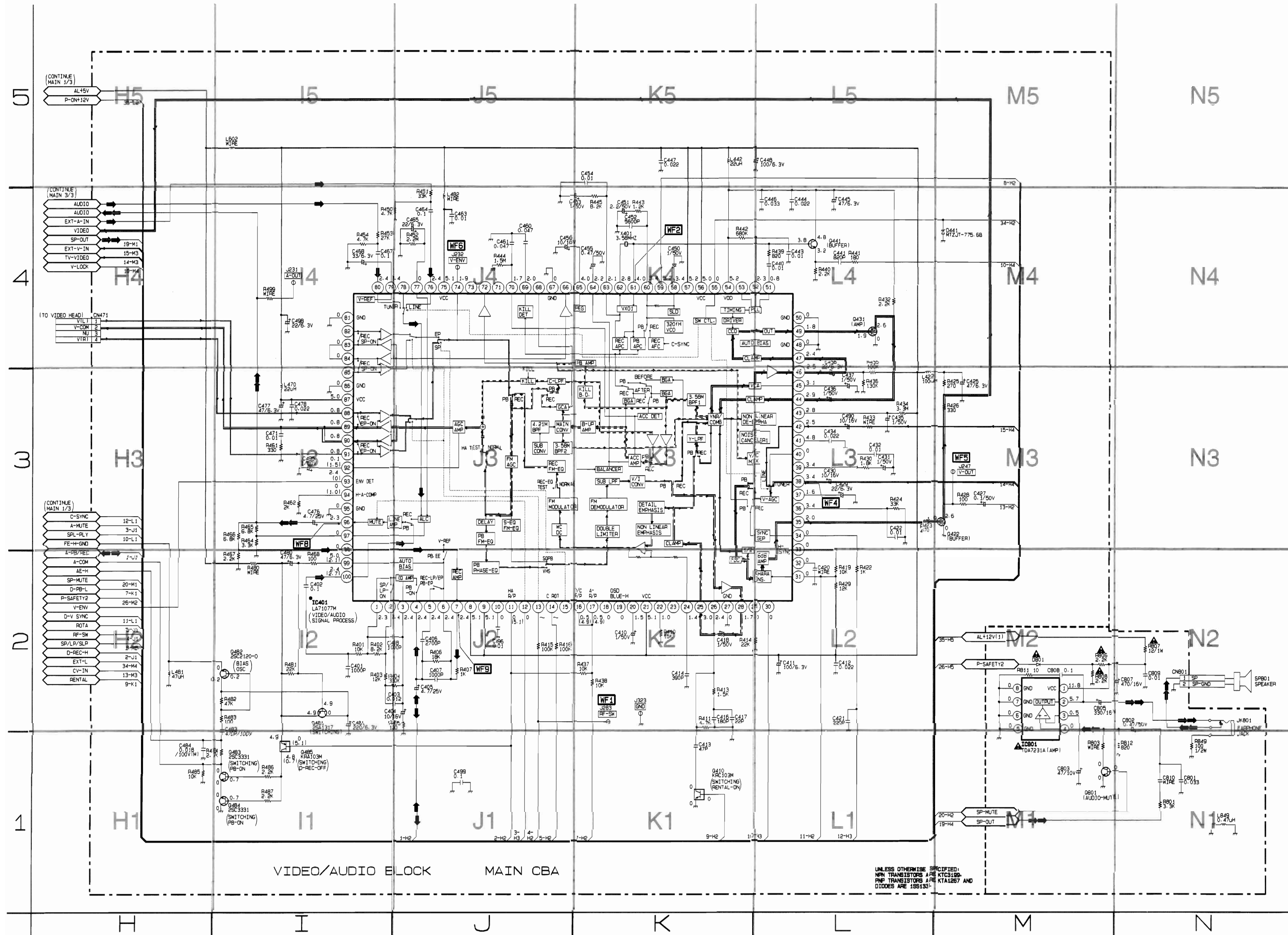
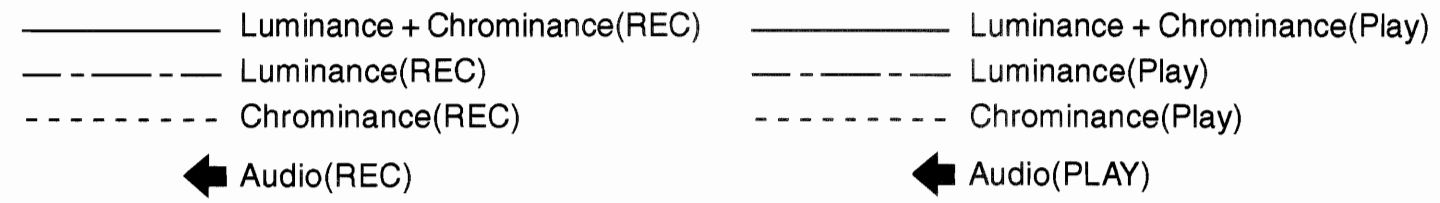
← Audio(REC) ← Audio(PLAY)



Ref No.	Position
IC201	D-3
IC202	G-5
IC203	E-5
IC204	F-2
IC207	A-4
IC602	B-2
TRANSISTORS	
Q201	C-1
Q202	B-4
Q203	B-3
Q204	F-4
Q210	B-3
Q615	A-1
Q617	C-1
Q618	B-1
Q619	B-2
TEST POINTS	
J229	B-4
J230	D-5
J248	B-4
J289	E-4
CONNECTORS	
CN202	A-4
CN603	A-1
CN851	A-3
CN852	A-3

29.003 01 F/R

Main 2/3 Schematic Diagram

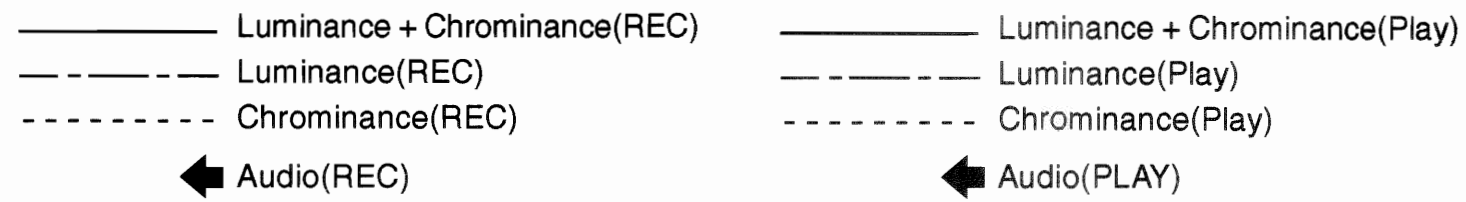


MAIN 2/3

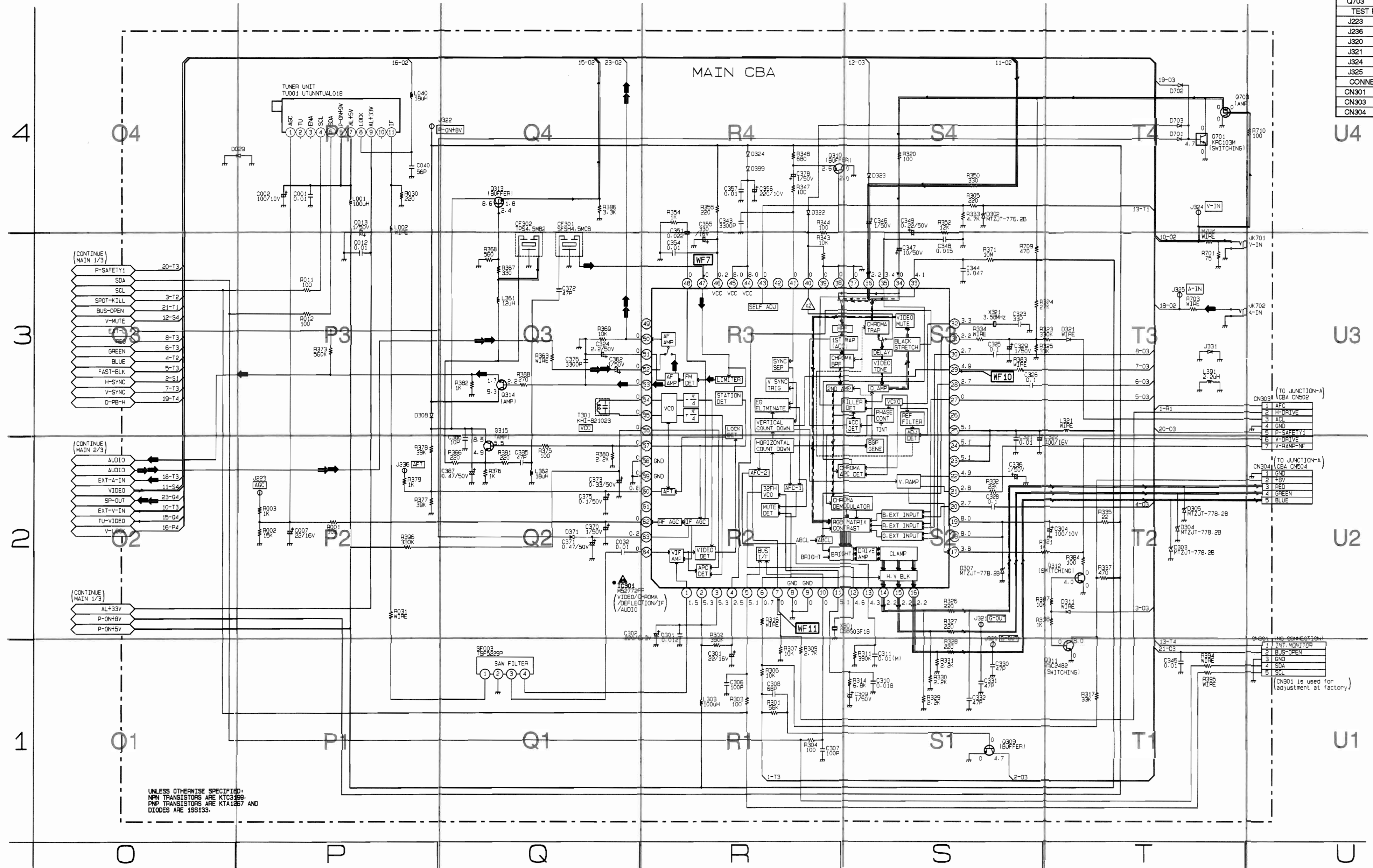
Ref No.	Position
ICS	
IC401	I-2
IC801	M-1
TRANSISTORS	
Q410	K-3
Q422	M-3
Q431	L-4
Q441	L-4
Q481	I-2
Q482	I-2
Q483	I-2
Q484	I-1
Q485	I-1
Q801	M-1
TEST POINTS	
J231	I-4
J232	J-4
J247	M-3
J283	K-2
J323	K-2
CONNECTORS	
CN471	H-4
CN902	N-2



Main 3/3 Schematic Diagram



MAIN 3/3		
Ref No.	Position	ICS
IC301	Q-2	TRANSISTORS
Q309	S-1	
Q310	R-4	
Q311	T-1	
Q312	T-2	
Q313	Q-4	
Q314	Q-3	
Q315	Q-2	
Q701	T-4	
Q703	T-4	
TEST POINTS		
J223	P-2	
J236	P-2	
J320	S-1	
J321	S-2	
J324	T-4	
J325	T-3	
CONNECTORS		
CN301	U-1	
CN303	U-3	
CN304	U-2	



UNLESS OTHERWISE SPECIFIED:  
 NPN TRANSISTORS ARE KTC369.  
 PNP TRANSISTORS ARE KTA1267 AND  
 DIODES ARE 1S8133.

29 003 02 T/R

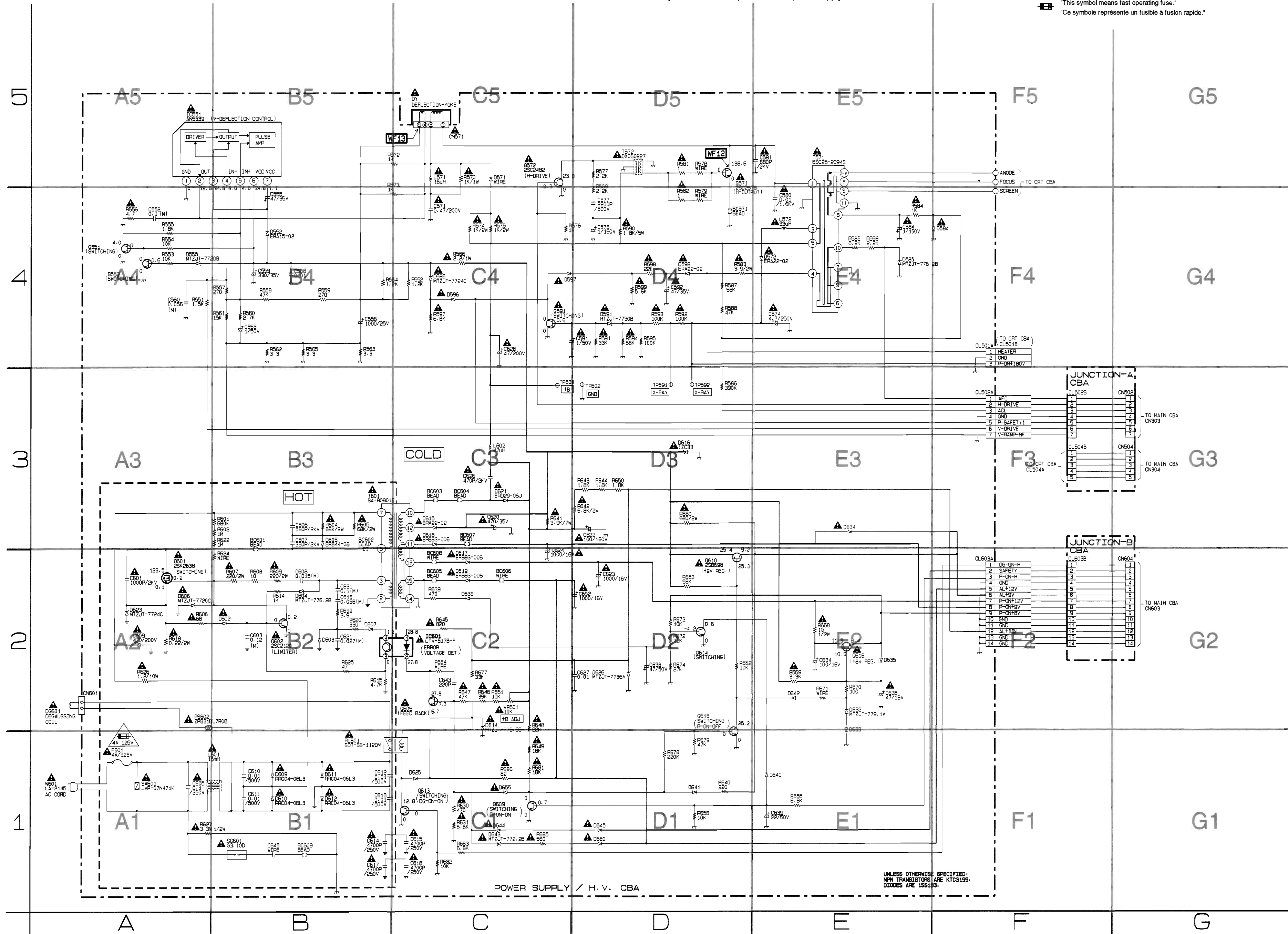
**Power Supply/H.V. Schematic Diagram**

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

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



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



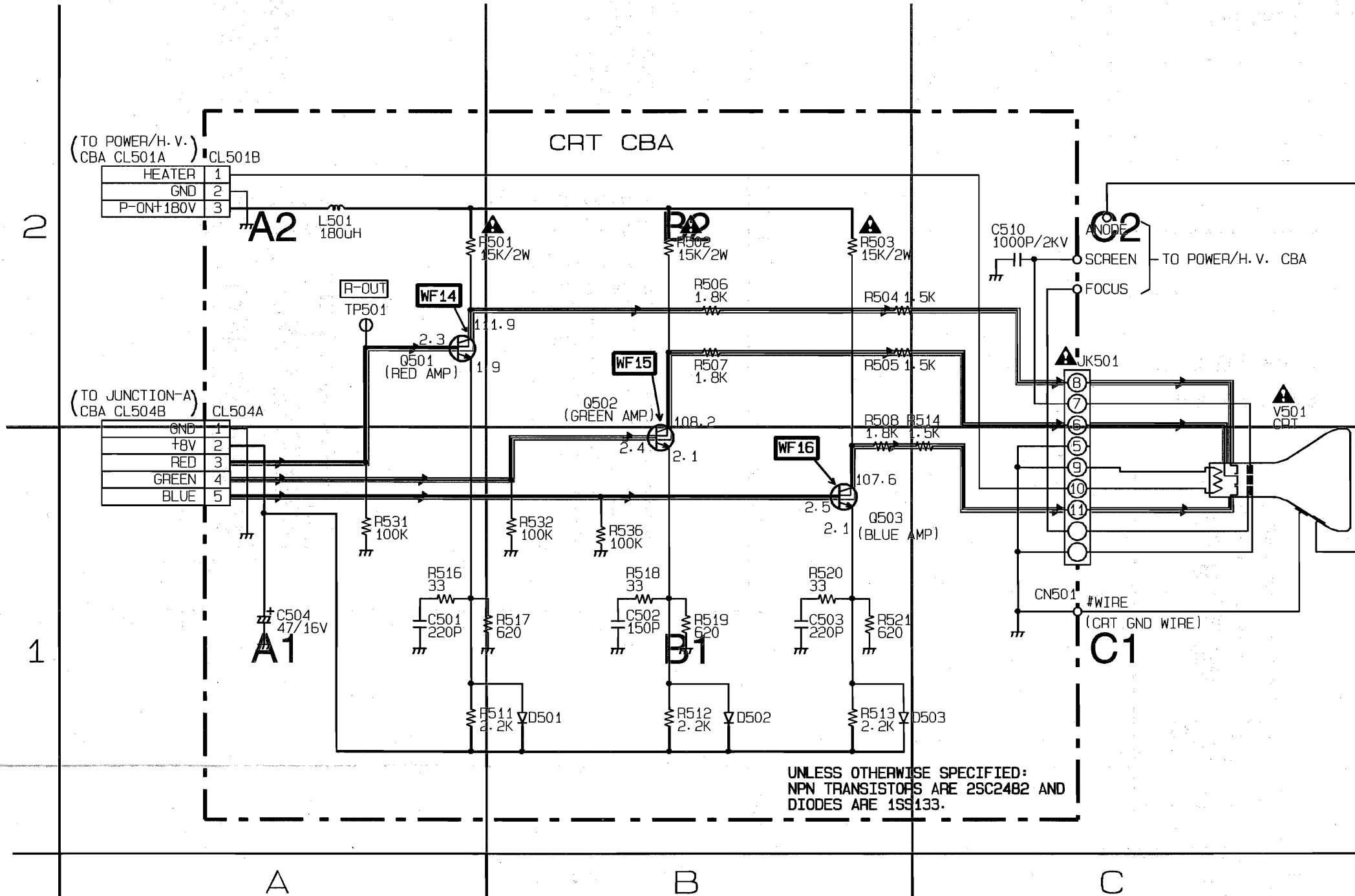
**POWER SUPPLY/H.V.**

Ref No.	Position
<b>ICS</b>	
IC501	A-5
IC601	C-2
<b>TRANSISTORS</b>	
Q501	A-4
Q502	A-4
Q571	D-5
Q572	C-5
Q591	C-4
Q601	A-2
Q602	B-2
Q605	C-2
Q609	C-1
Q610	D-2
Q613	C-1
Q614	D-2
Q616	E-2
Q618	D-2
<b>TEST POINTS</b>	
TP591	D-3
TP592	D-3
TP601	C-3
TP602	D-3
<b>CONNECTORS</b>	
CL501A	F-4
CL502A	F-3
CN571	C-5
CL603A	F-2
CN601	A-2
<b>ADJUSTMENT</b>	
VR601	C-2

# CRT Schematic Diagram

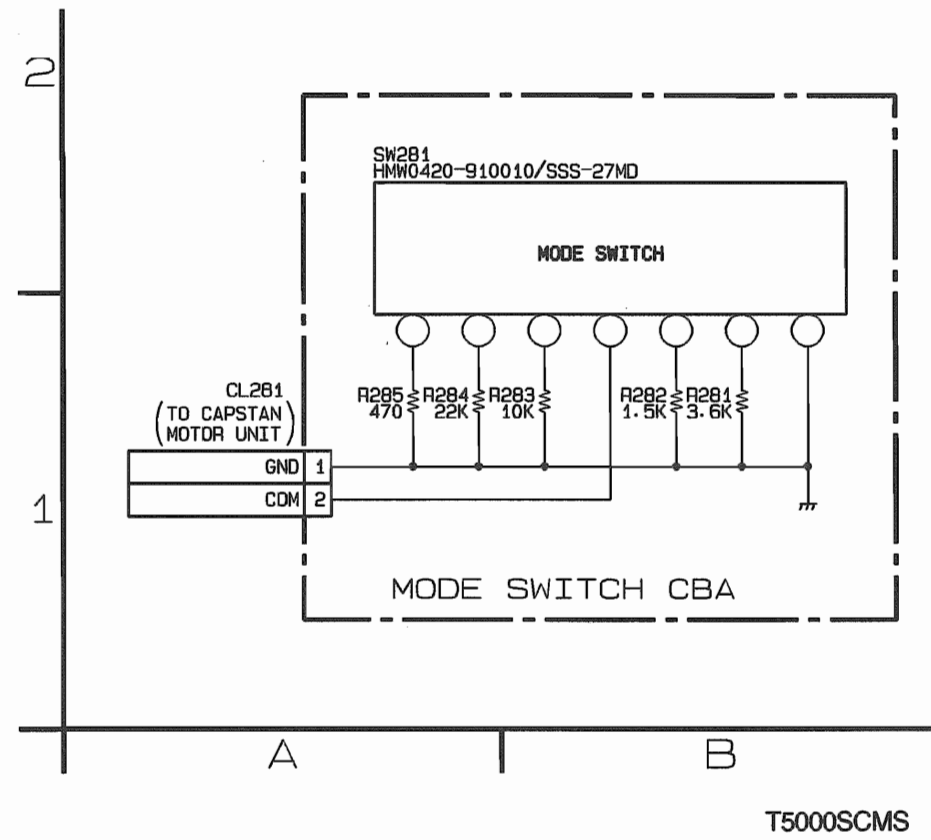
————— Luminance + Chrominance(Rec)  
 ————— Luminance + Chrominance(PLAY)

CRT	
Ref No.	Position
TRANSISTORS	
Q501	A-2
Q502	B-2
Q503	B-2
TEST POINTS	
TP501	A-2
CONNECTORS	
CN501	C-1
CL501B	A-2
CL504A	A-2

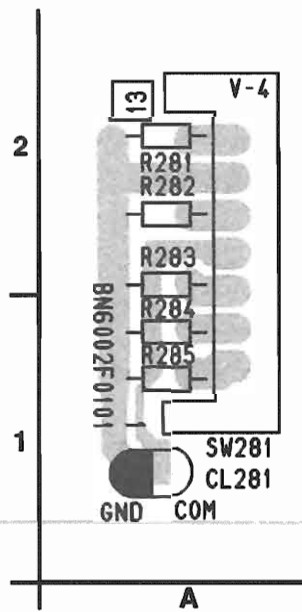


29 003 03

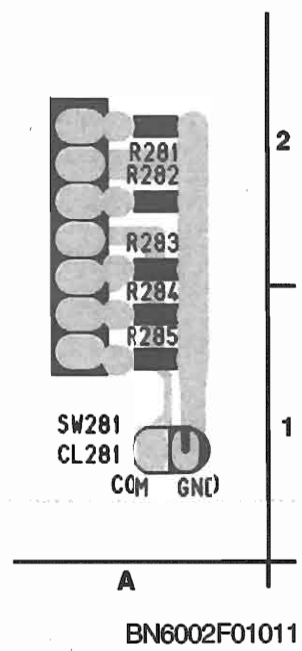
### Mode SW Schematic Diagram



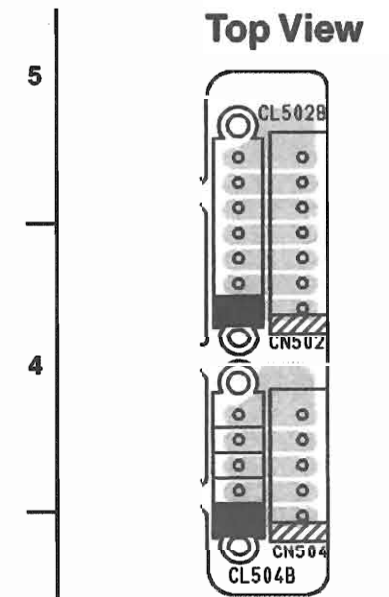
### Mode SW CBA Top View



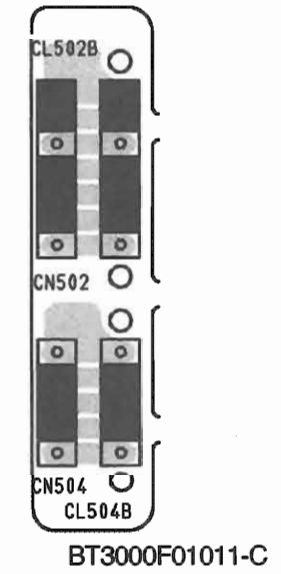
### Mode SW CBA Bottom View



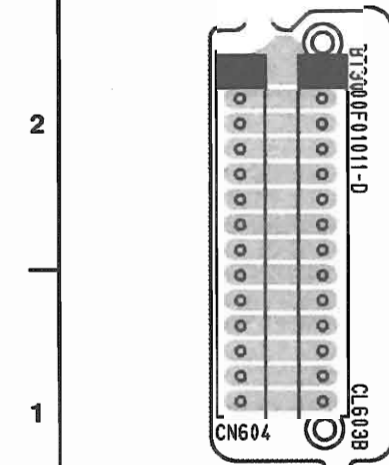
### Junction A CBA Top View



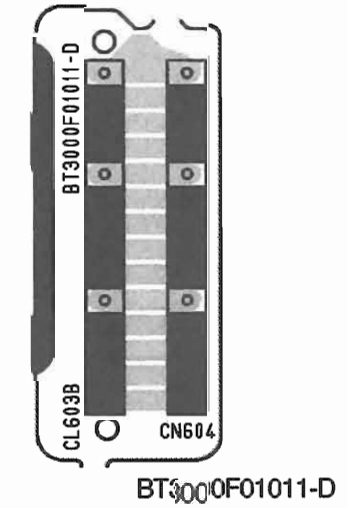
### Junction A CBA Bottom View



### Junction B CBA Top View



### Junction B CBA Bottom View

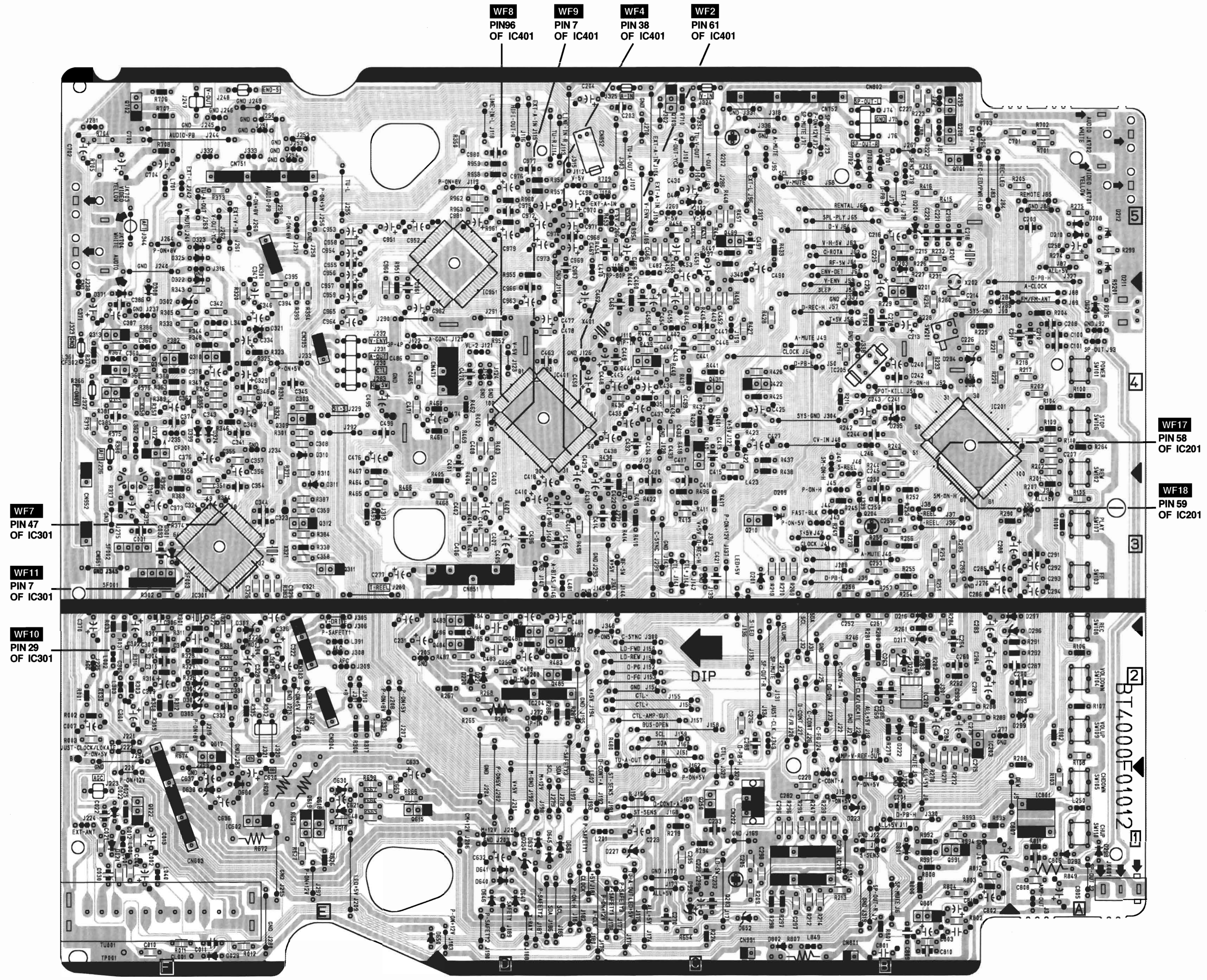


A B C D



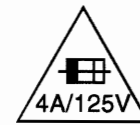






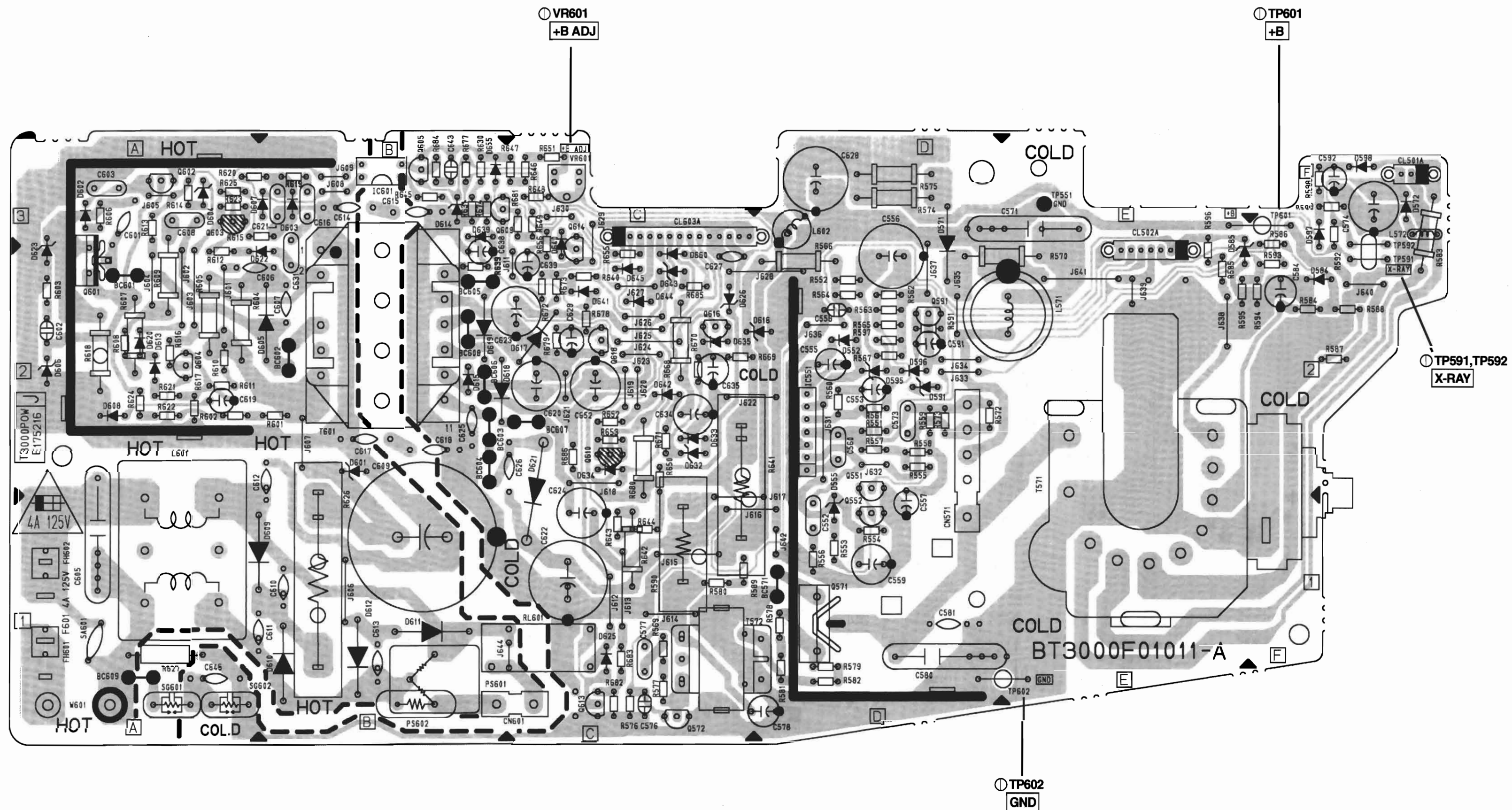


**CAUTION !**  
 Fixed voltage power supply circuit is used in this unit.  
 If Main Fuse (F601) is blown, check to see that all components in the power supply circuit are not defective before you connect the AC plug to the AC power supply.  
 Otherwise it may cause some components in the power supply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



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

**BECAUSE A HOT CHASSIS GROUND IS PRESENT IN THE POWER SUPPLY CIRCUIT, AN ISOLATION TRANSFORMER MUST BE USED. ALSO, IN ORDER TO HAVE THE ABILITY TO INCREASE THE INPUT SLOWLY, WHEN TROUBLESHOOTING THIS TYPE POWER SUPPLY CIRCUIT, A VARIABLE ISOLATION TRANSFORMER IS REQUIRED.**



POWER	
Ref No.	Position
ICS	
IC551	D-2
IC801	B-3
TRANSISTORS	
Q551	D-2
Q552	D-1
Q571	D-1
Q572	C-1
Q591	D-2
Q601	A-2
Q602	A-3
Q605	B-3
Q609	B-3
Q610	C-2
Q613	C-1
Q614	C-3
Q616	C-2
Q618	C-2
TEST POINTS	
TP591	F-2
TP592	F-2
TP601	F-3
TP602	E-1
CONNECTORS	
CL501A	F-3
CL502A	E-3
CL571	D-1
CL603A	C-3
CN601	B-1
ADJUSTMENT	
VR601	C-3

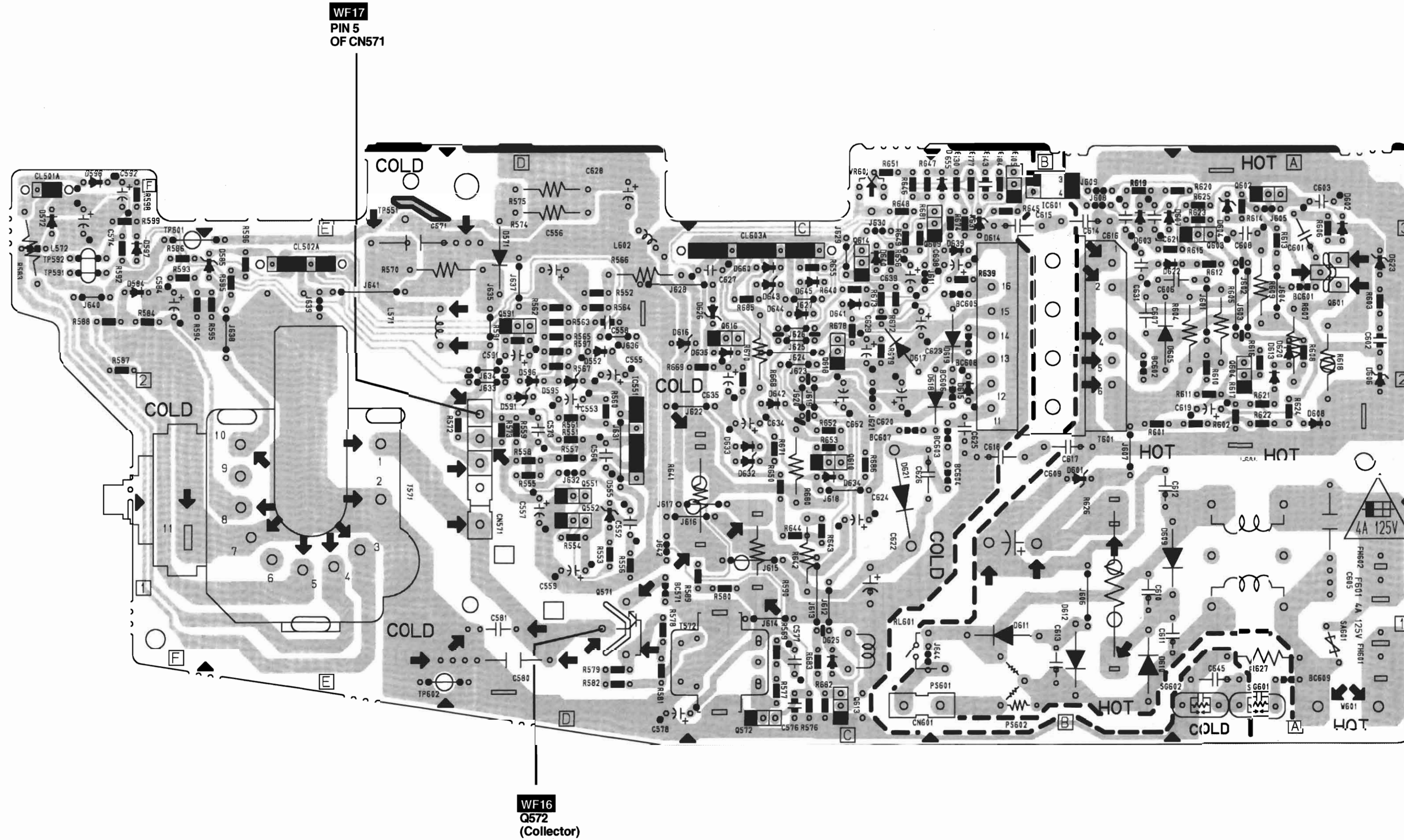
29 003 05 F/R

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



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

**BECAUSE A HOT CHASSIS GROUND IS PRESENT IN THE POWER SUPPLY CIRCUIT, AN ISOLATION TRANSFORMER MUST BE USED. ALSO, IN ORDER TO HAVE THE ABILITY TO INCREASE THE INPUT SLOWLY, WHEN TROUBLESHOOTING THIS TYPE POWER SUPPLY CIRCUIT, A VARIABLE ISOLATION TRANSFORMER IS REQUIRED.**





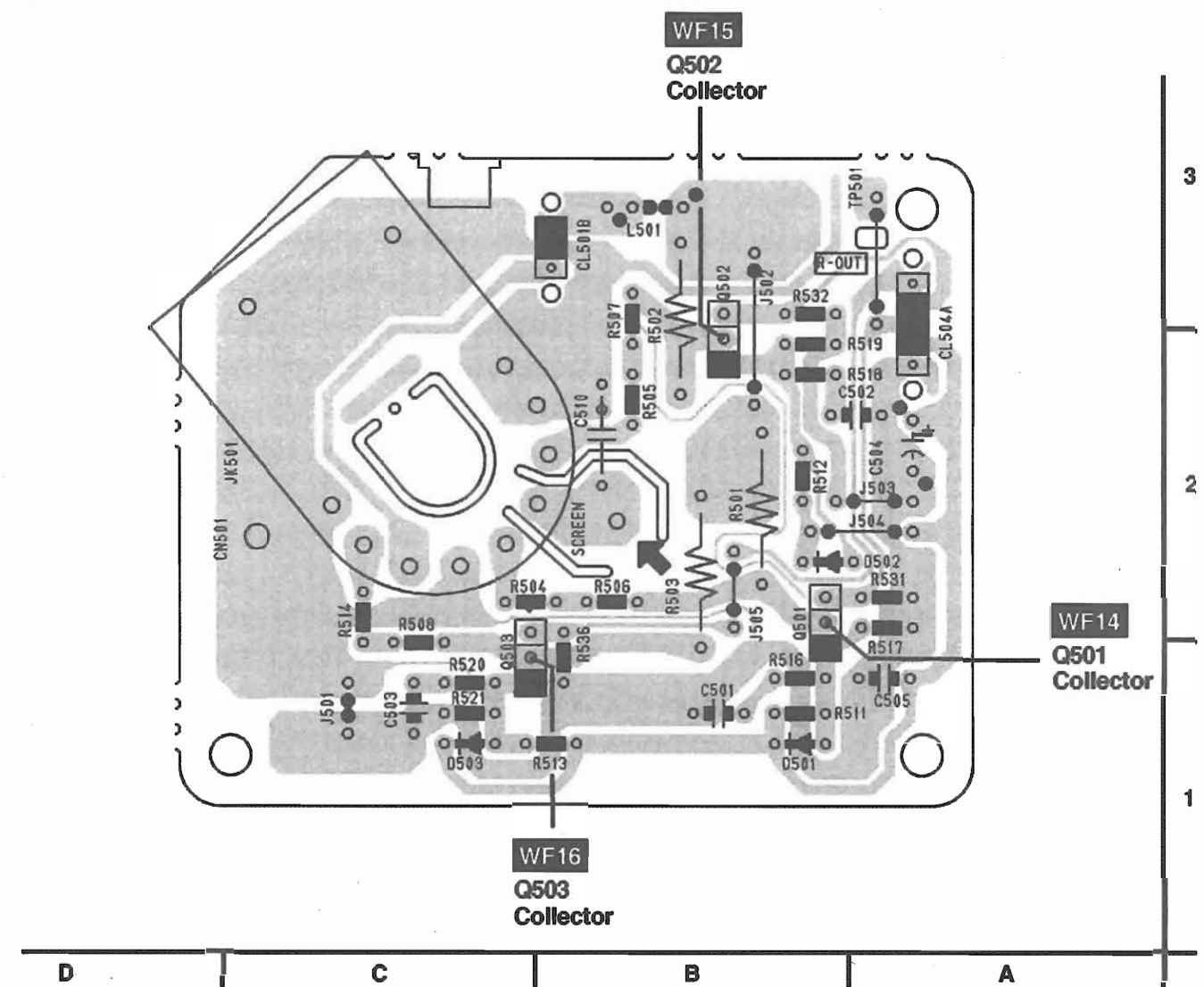
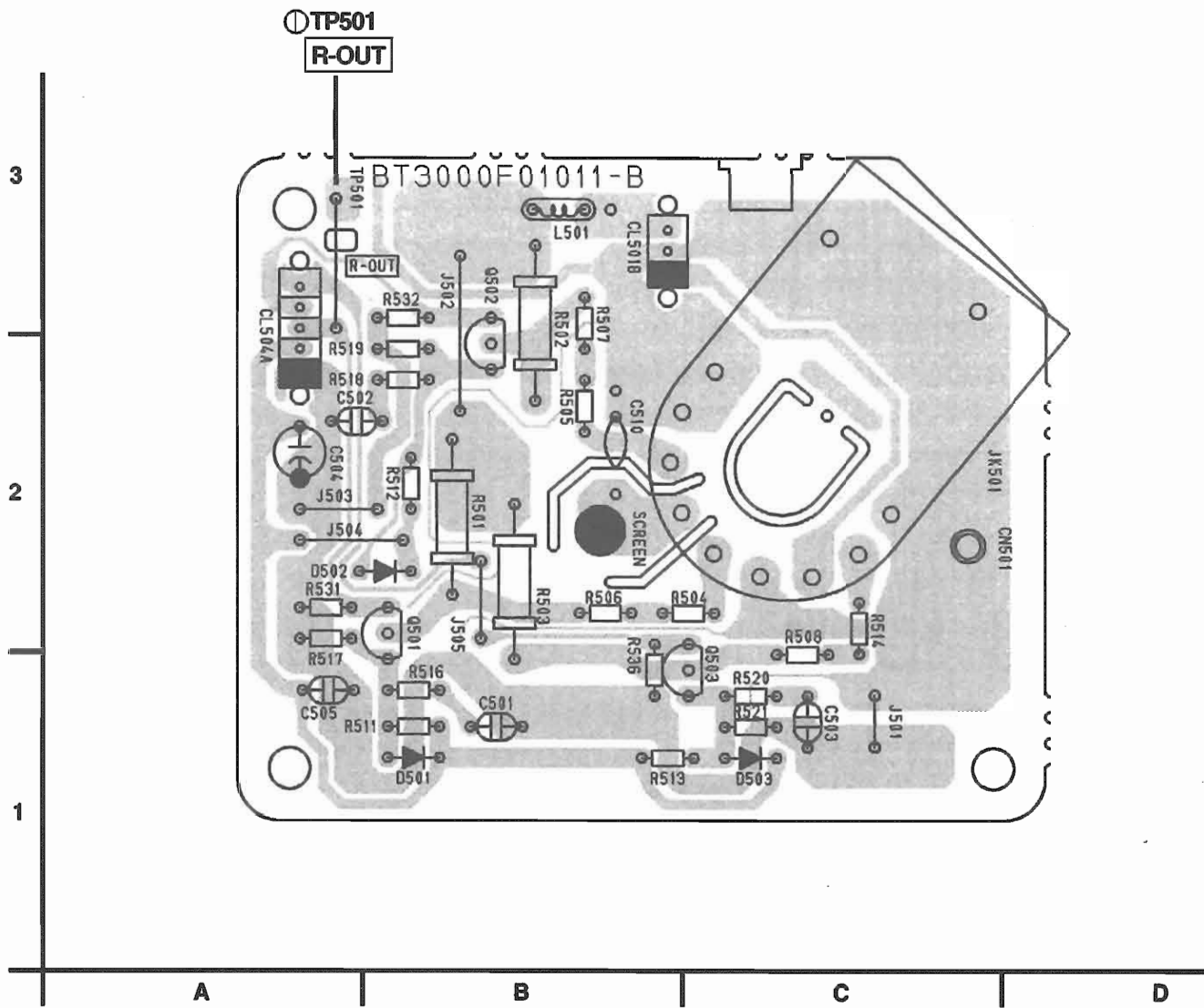
CRT CBA Top View

CRT CBA Bottom View

CRT CBA

Ref No.	Position
TRANSISTORS	
Q501	A-2
Q502	B-2
Q503	B-2
TEST POINTS	
TP501	A-3
CONNECTORS	
CL501B	A-2
CL504A	A-2
CN501	C-1

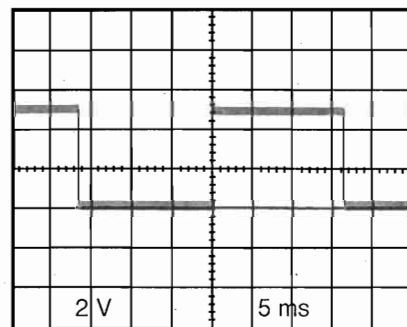
2900306 F/R



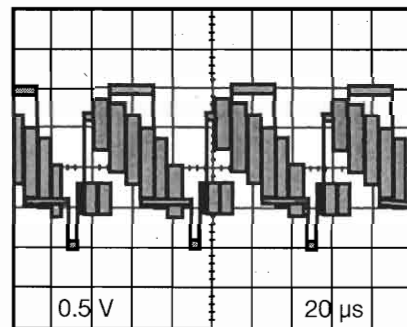
# WAVEFORMS

## WAVEFORM NOTES

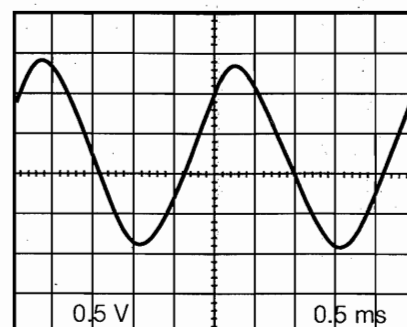
INPUT: NTSC COLOR BAR SIGNAL  
 ALL CONTROLS : CENTER POSITION  
 VOLTAGES SHOWN ARE RANGE OF  
 OSCILLOSCOPE SETTING



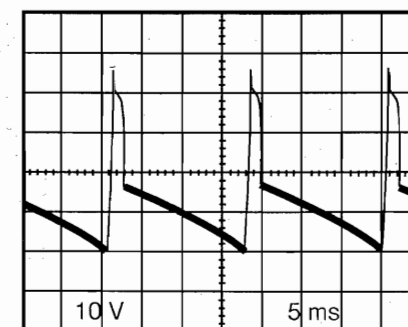
WF1 MAIN 2/3 SCHEMATIC DIAGRAM  
J283 RF SW



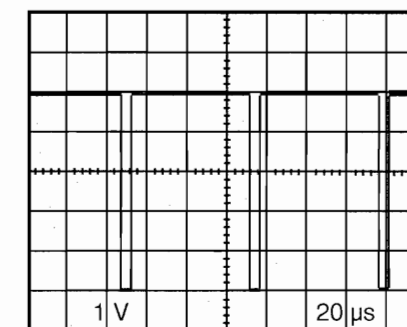
WF5 MAIN 2/3 SCHEMATIC DIAGRAM  
J247 V-OUT



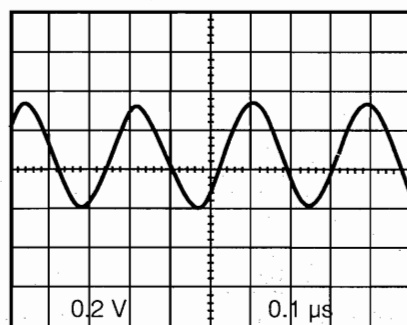
WF9 MAIN 2/3 SCHEMATIC DIAGRAM  
IC401 PIN 7



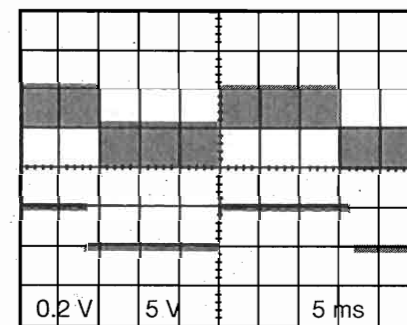
WF13 H/V SCHEMATIC DIAGRAM  
CN571 PIN 5



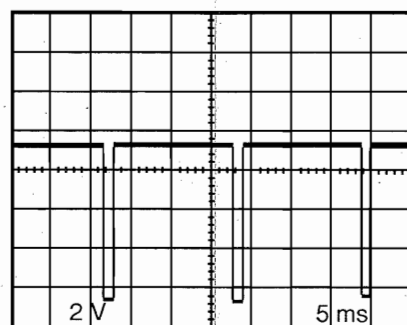
WF17 MAIN 1/3 SCHEMATIC DIAGRAM  
IC201 PIN 58



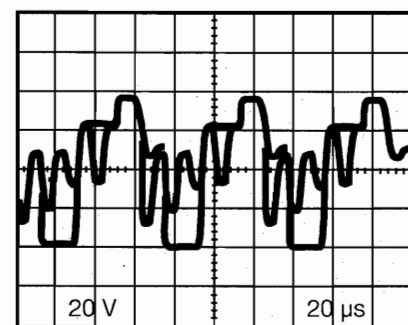
WF2 MAIN 2/3 SCHEMATIC DIAGRAM  
IC401 PIN 61



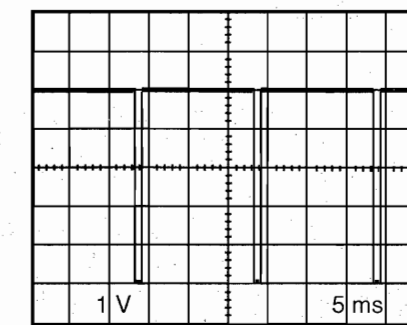
Upper: WF6 Lower: WF1  
MAIN 2/3 SCHEMATIC DIAGRAM J232 V-ENV



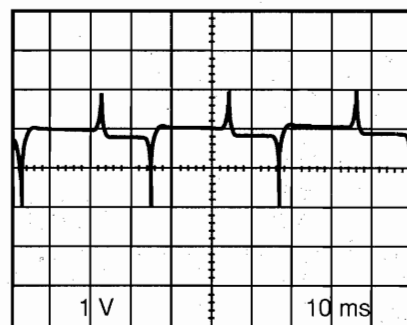
WF10 MAIN 3/3 SCHEMATIC DIAGRAM  
IC301 PIN 29



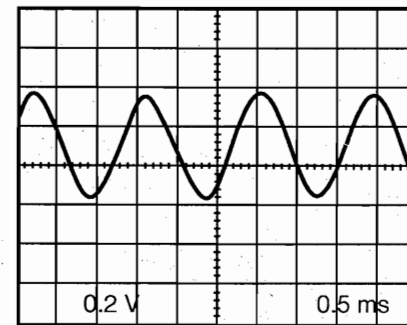
WF14 CRT SCHEMATIC DIAGRAM  
Q501 COLLECTOR



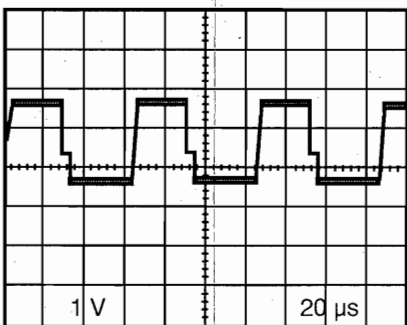
WF18 MAIN 1/3 SCHEMATIC DIAGRAM  
IC201 PIN 59



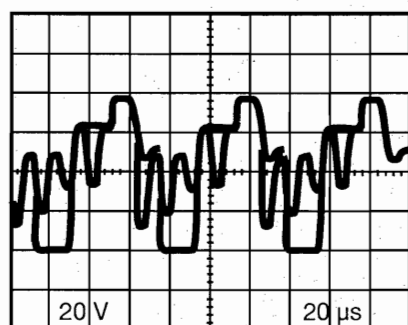
WF3 MAIN 1/3 SCHEMATIC DIAGRAM  
J230 CTL



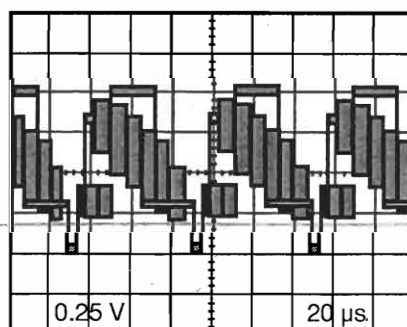
WF7 MAIN 3/3 SCHEMATIC DIAGRAM  
IC301 PIN 47



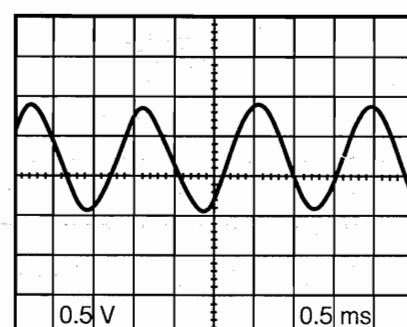
WF11 MAIN 3/3 SCHEMATIC DIAGRAM  
IC301 PIN 7



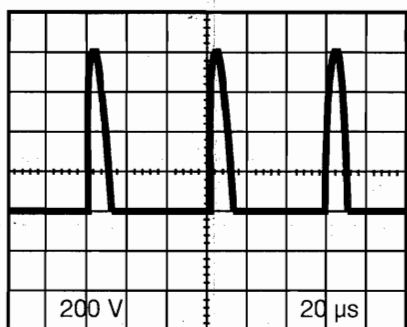
WF15 CRT SCHEMATIC DIAGRAM  
Q502 COLLECTOR



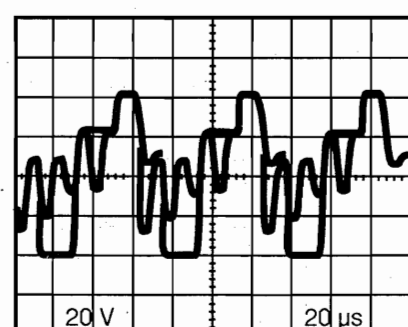
WF4 MAIN 2/3 SCHEMATIC DIAGRAM  
IC401 PIN 38



WF8 MAIN 2/3 SCHEMATIC DIAGRAM  
IC401 PIN 96

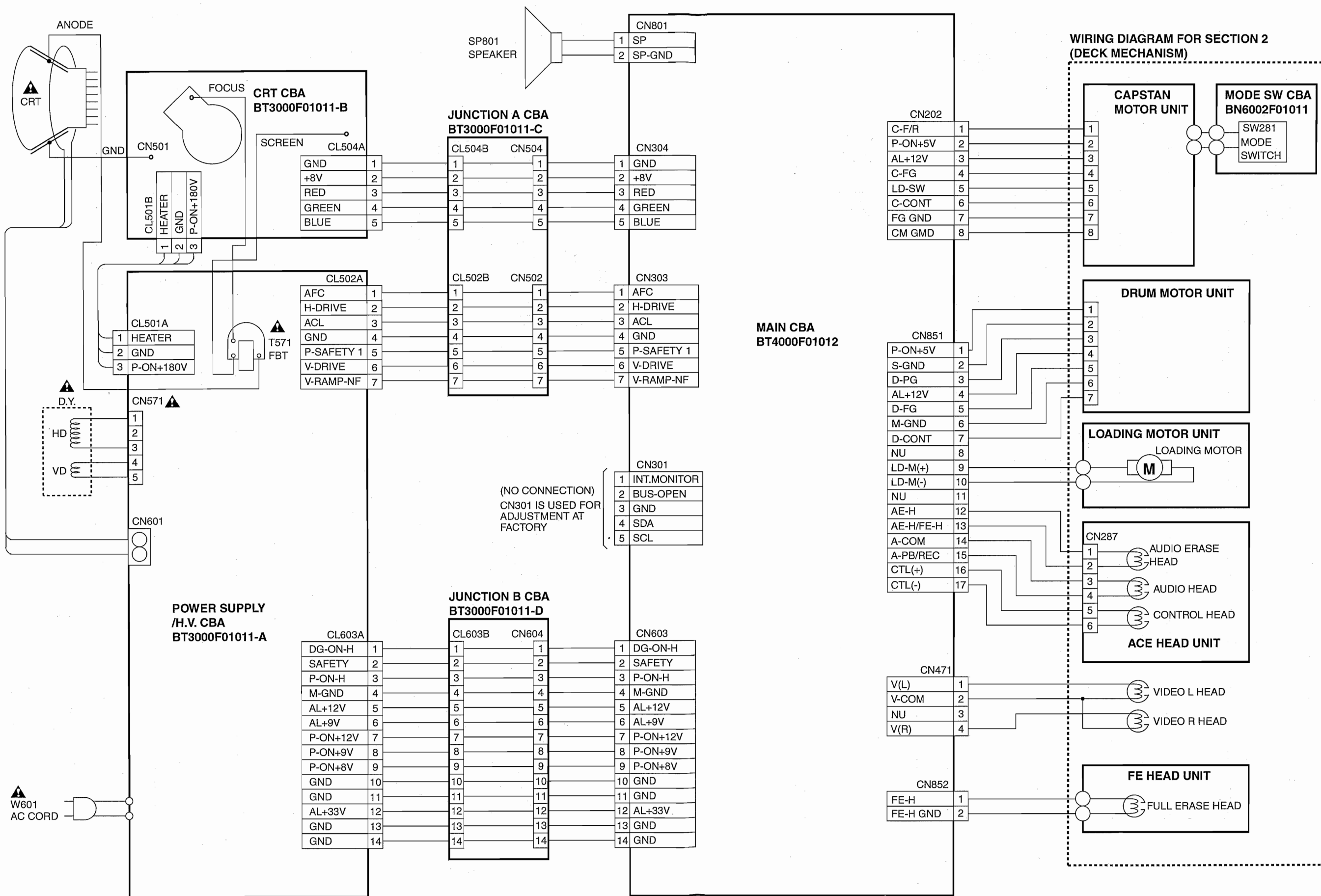


WF12 H/V SCHEMATIC DIAGRAM  
Q571 COLLECTOR



WF16 CRT SCHEMATIC DIAGRAM  
Q503 COLLECTOR

# WIRING DIAGRAM



# SYSTEM CONTROL TIMING CHARTS

Chart 1

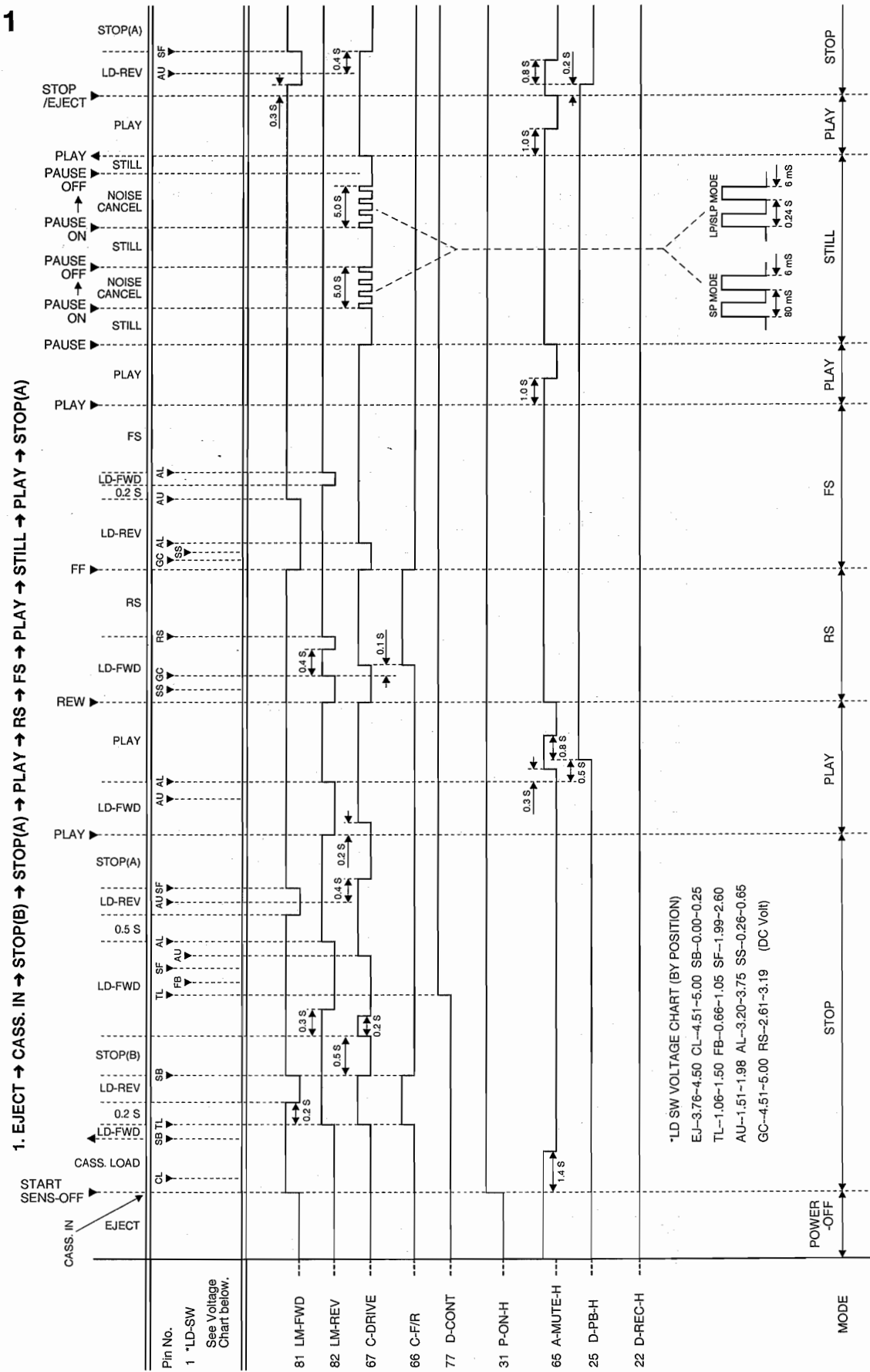
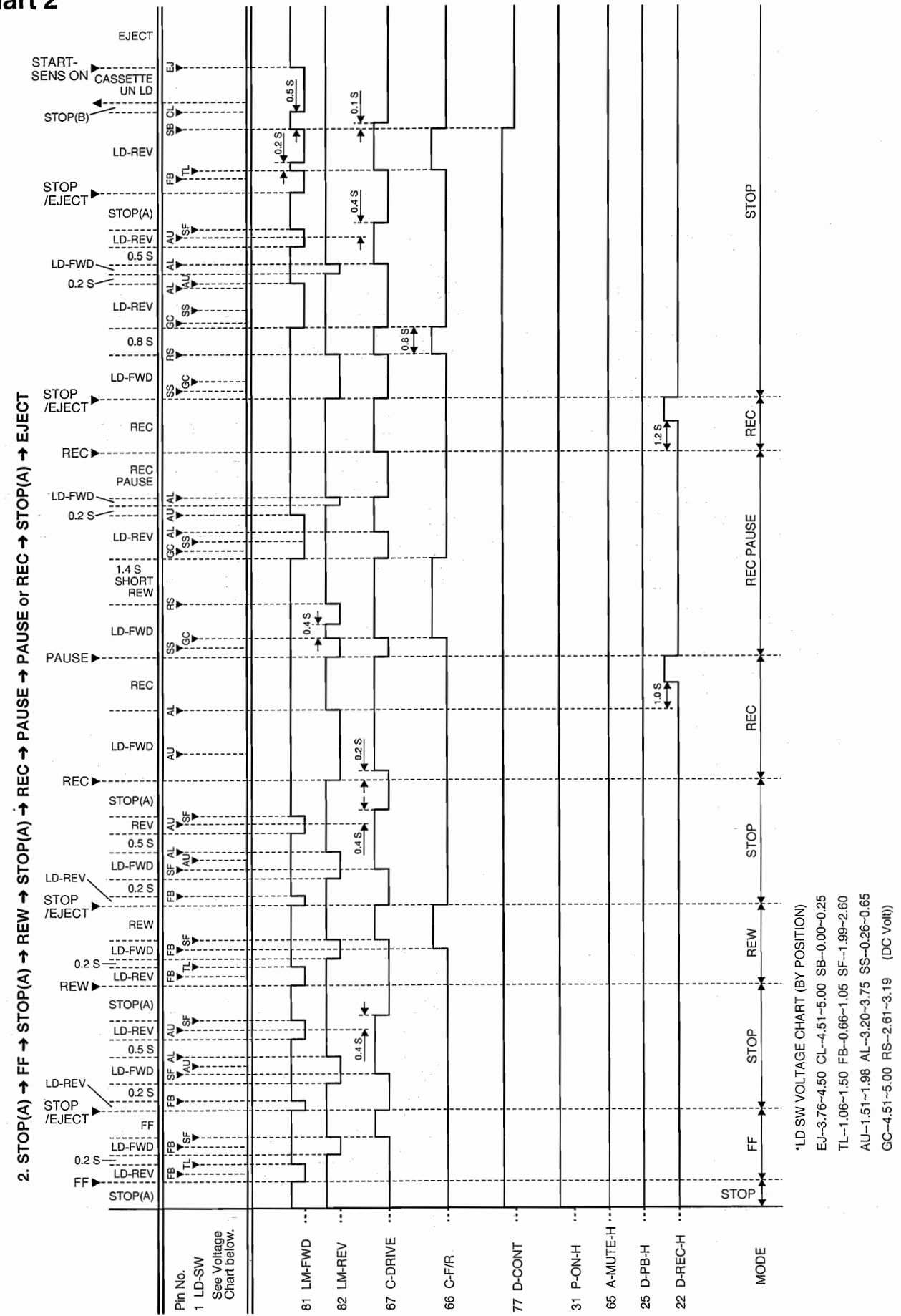


Chart 2



# IC PIN FUNCTION DESCRIPTIONS

## IC 201 (TV/VCR Micro Computer)

Pin No.	In/Out	Signal Name	Function
1	In	LD-SW	Loading Switch Input
2	In	P-SAFETY 1	Power Supply Failure Detection 1
3	In	P-SAFETY 2	Power Supply Failure Detection 2
4	In	P-SAFETY 3	Power Supply Failure Detection 3
5	In	KEY0	Key 0 Input
6	In	KEY1	Key 1 Input
7	In	END-SENS	End-Sensor
8			Not Used
9	In	ST-SENS	Start-Sensor
10	In	V-ENV	Video Envelope Input
11			Not used
12	Out	V-MUTE	Video Mute Output
13	Out	D-V SYNC	Artificial V-Sync Output
14	In	REMOTE	Remote signal Input
15	Out	ROTA	ROTA Output
16			Not Used
17			Not Used
18	Out	RF-SW	RF-SW Output
19			Not Used
20	Out	LP/SLP-H	Tape Speed Output
21	Out	SLP-H	Tape Speed Output
22	Out	D-REC-H	Recording Output
23	Out	REC-LED	Recording LED
24	Out	REC-LED	Recording LED
25			Not Used
26			Not Used
27			Not Used
28			Not Used
29	Out	EXT-L	External Input Selection
30			Not Used
31	Out	P-ON-H	P-ON Output

Pin No.	In/Out	Signal Name	Function
32	I/O	SPL-PLY	Special Play back Output
33	In	REC SAFETY	Record Protection Tab Detection
34	In	RESET	Reset
35	In	Xc-in	Oscillator C Input
36	Out	Xc-out	Oscillator C Output
37		TIMER+5	Timer+5V In
38	In	X-in	Oscillator Input
39	Out	X-out	Oscillator Output
40		GND	GND
41	Out	SPOT-KILL	Counter-measure for Spot
42			Not used
43	In	CLKSEL	Clock Select
44			Not used
45			Not used
46		GND	GND
47			Not used
48			Not used
49		GND	OSD GND
50			Not used
51			Not used
52			Not used
53	--	P-ON +5V	OSD Vcc
54	--	HLF	HLF
55	In	VHOLD	VHOLD
56	In	CVIN	Video Signal Input
57		GND	GND
58	In	H-SYNC	H-Sync Input
59	In	V-SYNC	V-Sync Input
60	Out	OUT	Output for Picture Cut off
61	Out	D-PB-L	Playback Output
62	Out	B	Blue Output
63	Out	G	Green Output
64	Out	R	Red Output
65	Out	A-MUTE	Audio Mute Output
66	Out	C-F/R	Capstan Direction Output

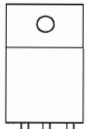


Pin No.	In/ Out	Signal Name	Function
67	I/O	C-DRIVE	Capstan Drive Output
68		DG-ON-H	Degauss on
69			Not used
70			Not used
71	Out	SCL	E2PROM/CHROMA IC Tuner Communication Clock
72	I/O	SDA	E2PROM/CHROMA IC Tuner Communication Data
73			Not used
74		C-SYNC	C-SYNC out
75			Not used
76	Out	C-CONT	Capstan Control Output
77	Out	D-CONT	Drum Control Output
78	Out	S-LED	Sensor LED
79			Not used
80	In	T-REEL	Take up Reel Pulse in
81	Out	LM-FWD	LD-FWD Output
82	Out	LM-REW	LD-REW Output
83	Out	SP-MUTE	Speaker Mute Output
84	Out	P-DOWN-L	Power Down Detection
85	In	BUS-OPEN	White Balance Adjustment Mode
86			Not used
87	In	C-FG	Capstan-FG Input
88		GND	GND (AMP)
89	In	D-FG	Drum-FG Input
90	In	D-PG	Drum-PG Input
91			Not used
92	In	AMP Vref in	Standard Voltage Input
93		C	Ext. Capacitor Connection Port for Analog Amp
94	I/O	CTL (-)	CTL (-)
95	I/O	CTL (+)	CTL (+)
96		AMPC	AMPC
97	Out	CTL AMPout	CTL Amp Output

Pin No.	In/ Out	Signal Name	Function
98	--	P-ON+5V	Power Supply for AMP
99	--	ALL+5V	A/D, D/A Standard Voltage
100	In	X-RAY	X-Ray Protection

# LEAD IDENTIFICATIONS

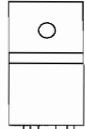
2SK2638



G: Gate  
D: Drain  
S: Source

G D S

2SD2578



E: Emitter  
C: Collector  
B: Base

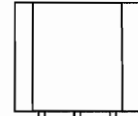
B C E

SIR-56ST3F  
ST319R2-B



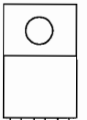
E C

BMR-0101C



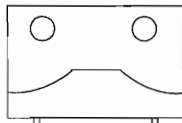
OUT G IN

KIA7805

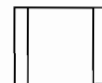


IN G OUT

AN5539



1 7



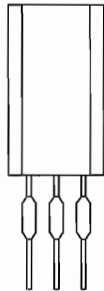
KRA103M  
KRC103M  
2SC2839  
KTC3199  
2SA1267

E C B



2SA1317  
2SD734  
2SA3468  
2SC3331  
2SC2271  
2SC2120  
2SB698

E C B

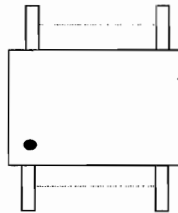


2SC2482  
2SD400

LTV-817B-F

BR24C04F  
M24C04-MN6

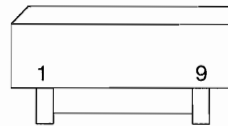
8 5



1 4

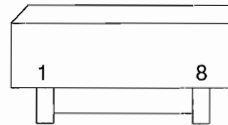
LM324N

TA7291S



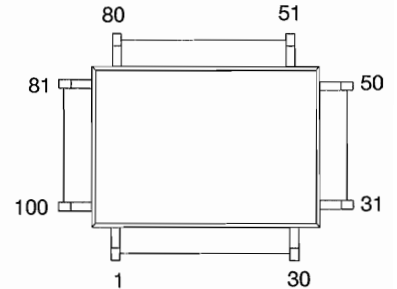
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BA6955N



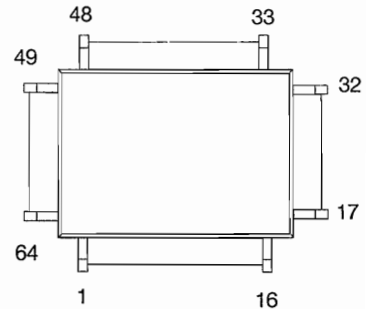
1 8

LA7107\*M  
M37760MCA\*\*\*GP



1 30

M5277\*FP



1 16



A 1 4 C  
K 2 3 E

TDA7231A



8 5  
1 4

# DECK MECHANISM SECTION

## 25" COLOR TV/VCR COMBINATION

### 3925LC

**Sec. 2: Deck Mechanism Section**

- Standard Maintenance
- Alignment for Mechanism
- Disassembly/Assembly of Mechanism

#### TABLE OF CONTENTS

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Service Fixtures and Tools.....	2-2-1
Mechanical Alignment Procedures .....	2-3-1
Disassembly/Assembly Procedures of Deck Mechanism.....	2-4-1
Front Loading Assembly .....	2-4-8
Alignment Procedure of Mechanism.....	2-4-10

# STANDARD MAINTENANCE

## Service Schedule of Components

H: Hours    ○: Check    ●: Change

Deck		Periodic Service Schedule			
Ref. No.	Part Name	1,000 H	2,000 H	3,000 H	4,000 H
B2	Cylinder Assembly	○	●	○	●
B3	Loading Motor Assembly			●	
B8	Pulley Assembly		●		●
B21	Loading Belt		●		●
B27	Tension Lever Assembly		●		●
B31	AC Head Assembly			●	
B32, B339	Reel (T), Reel (S)			●	
B37	Capstan Motor		●		●
B52	Capstan Belt		●		●
*B73	FE Head CBA			●	
B132	Clutch Assembly		●		●
B133	Idler Assembly		●		●
B410	Pinch Roller Assembly		●		●
B413	Main Brake T Sub Assembly		●		●
B414	Main Brake S 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.
- \* B73 ----- VCR Model only

## Cleaning

### Cleaning of Video Head

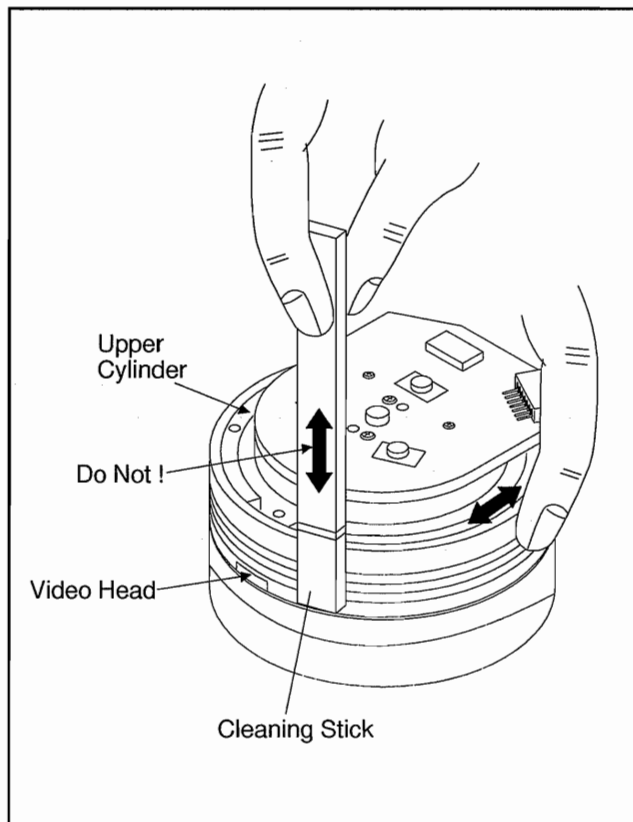
Clean the head with a head cleaning stick or chamois cloth.

#### Procedure

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

#### Notes:

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



### Cleaning of Audio Control Head

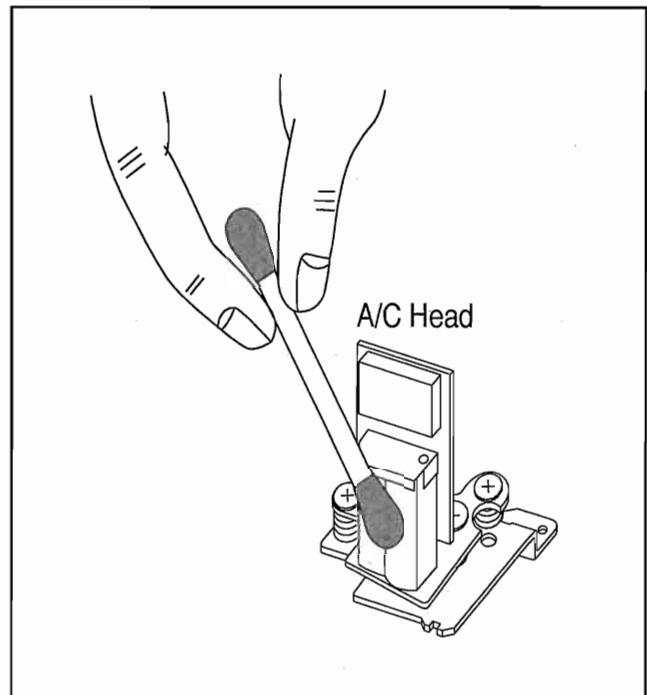
Clean the head with a cotton swab.

#### Procedure

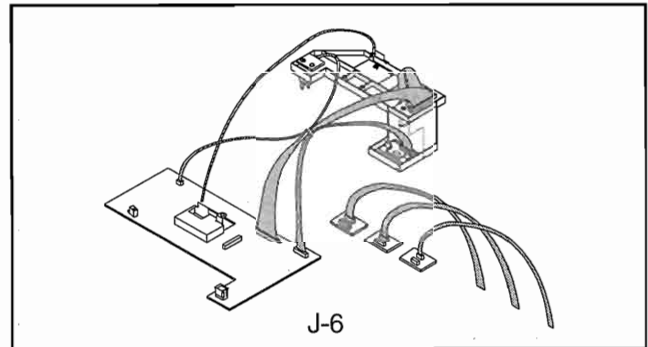
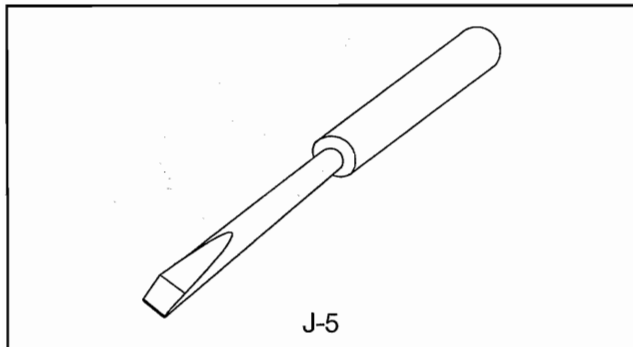
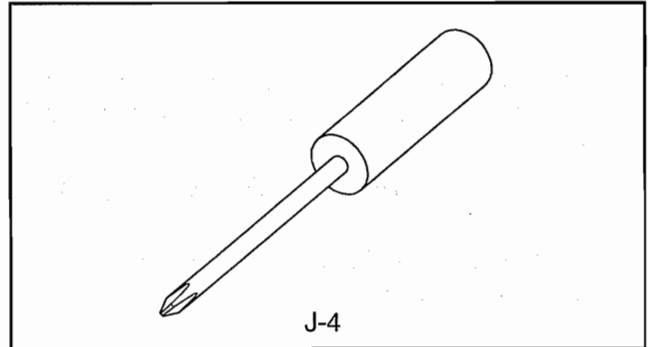
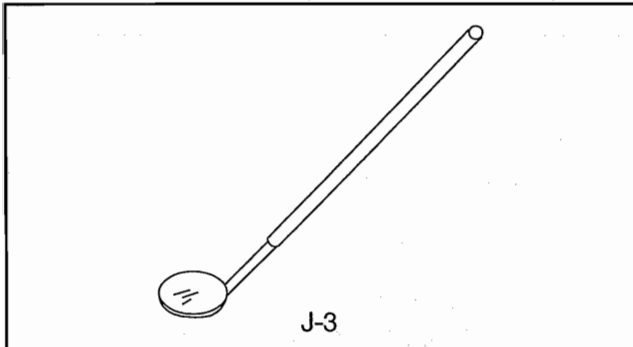
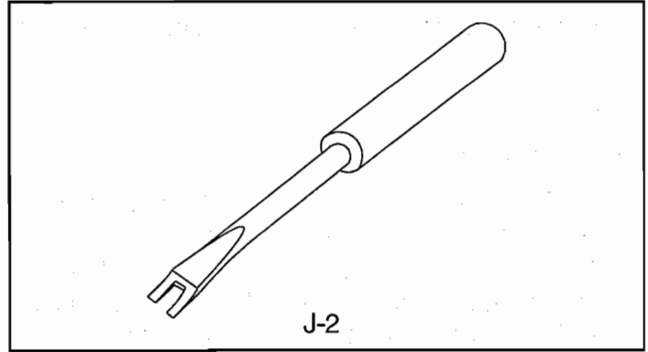
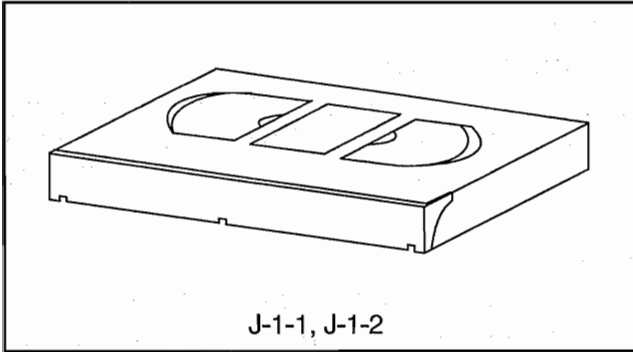
1. Remove the top cabinet.
2. Dip the cotton swab in 90% isopropyl alcohol and clean the audio control head. Be careful not to damage the upper drum and other tape running parts.

#### 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	Head Adjustment of Audio Control Head
J-1-2	Alignment Tape	FL8N (2Head only) FL8NW (4Head only)	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 -	Available Locally	X Value
J-6	U19 Deck Extension Cable	N1200XA	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.

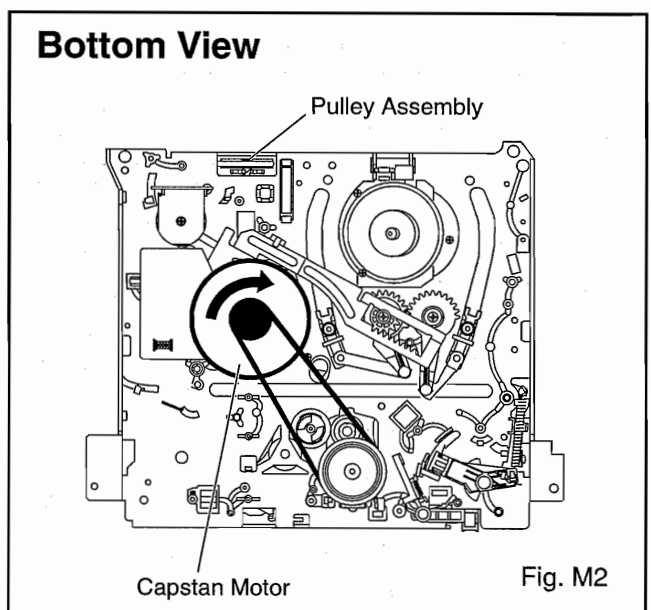
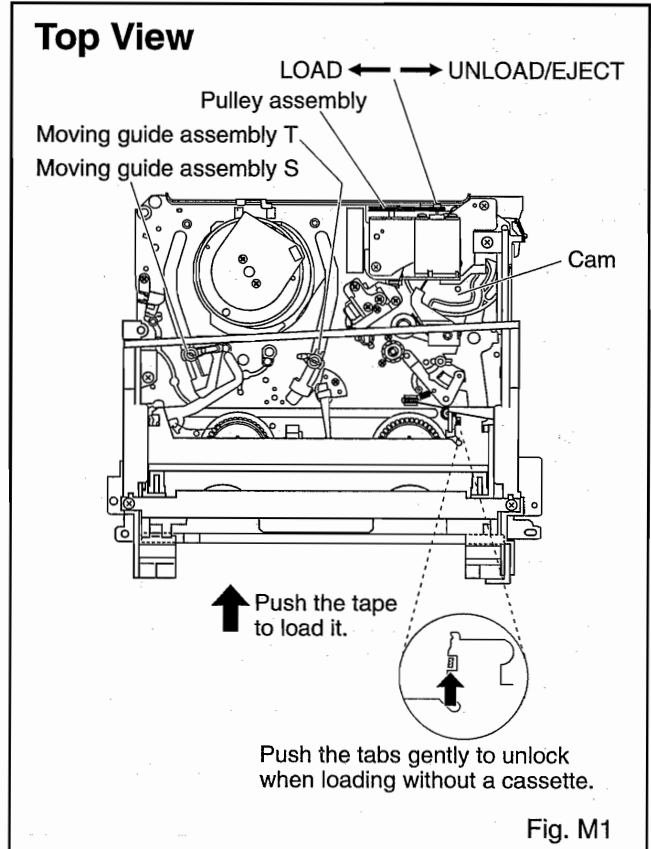
To unload a cassette tape manually:

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. Release the locking tabs shown in Fig. M1 and continue turning the Pulley Assembly until the Cassette Holder comes to the tape-loaded position. Allow a minute or two to complete this task.



# 1. Tape Interchangeability Alignment

## Notes:

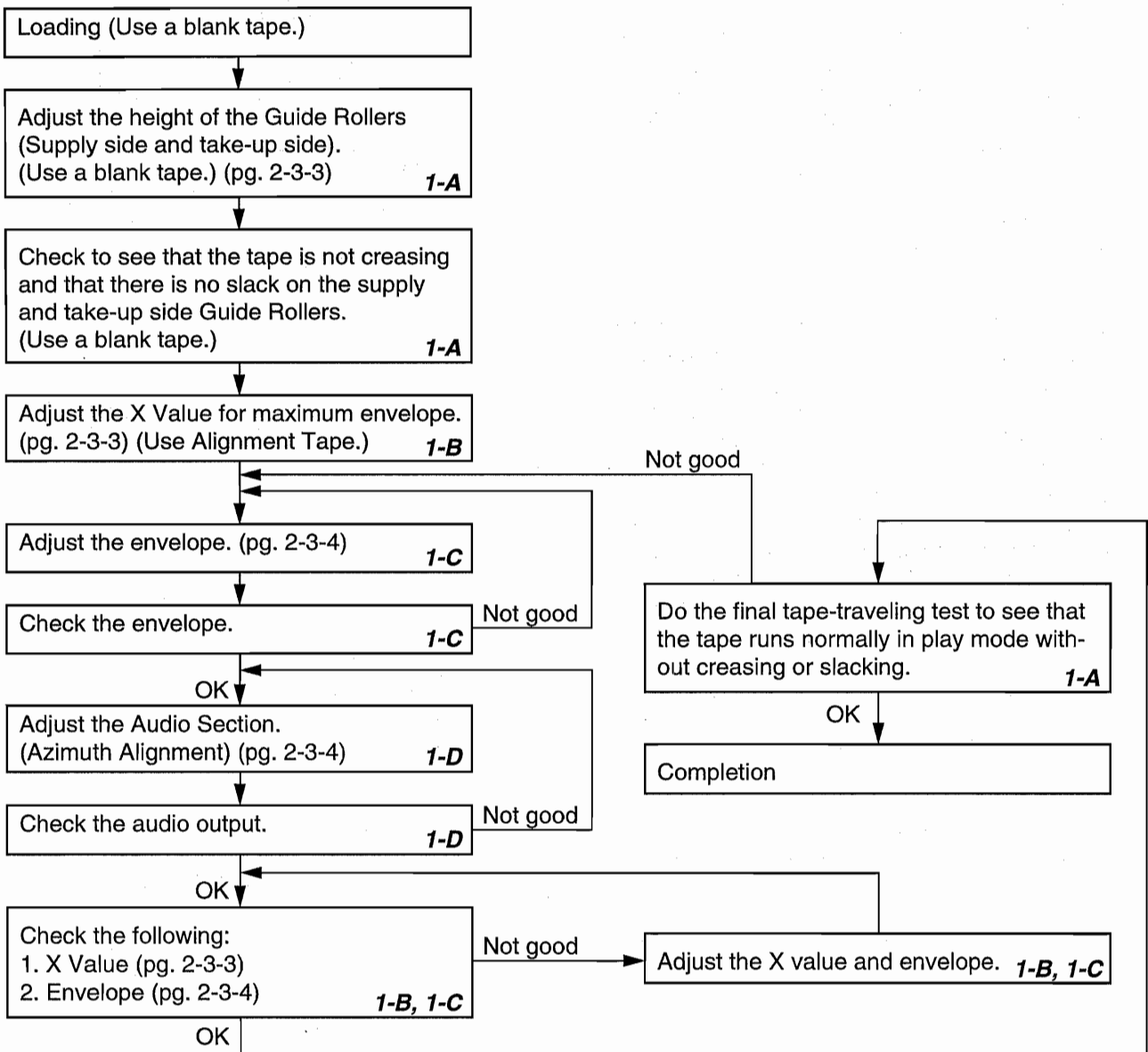
1. To do these alignment procedures, make sure that the Tracking Control Circuit is set to the center position every time a tape is loaded or unloaded. (Refer to page 2-3-4, procedure 1-C, step 2.)
2. Remove the Guide Holder R before beginning alignment procedures. (Refer to page 2-4-9. Fig: DM22).

## Equipment required:

- Dual Trace Oscilloscope
- VHS Alignment Tape (FL8N)
- 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.

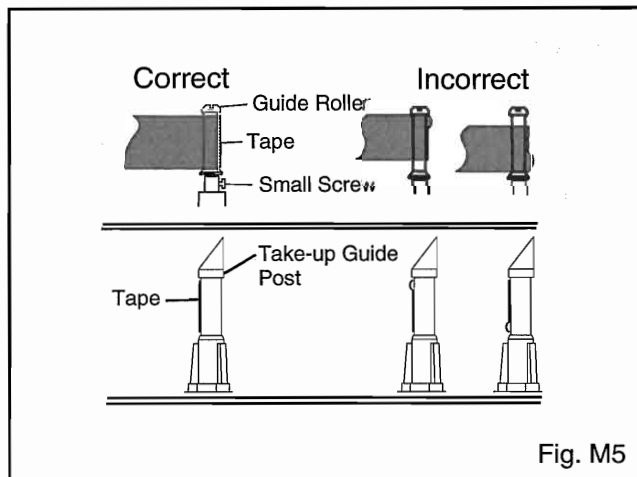
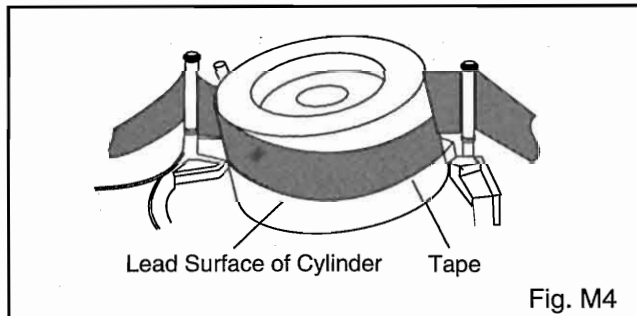
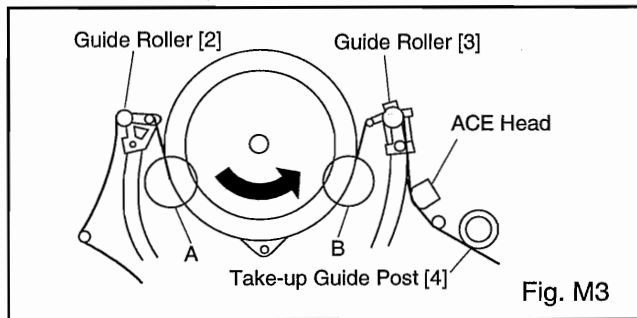
### Symptom of Misalignment:

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

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

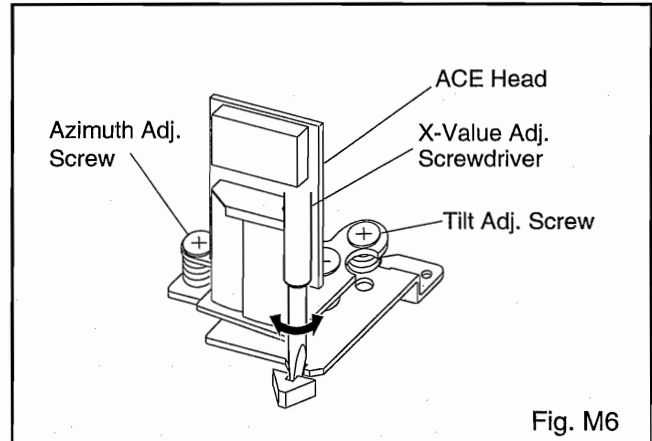
1. Play back a blank cassette tape and check to see that the tape runs without creasing at Guide Rollers [2] and [3], and at points A and B on the lead surface. (Refer to Fig M3 and M4.)
2. If creasing is apparent, align the height of the guide rollers by turning the top of Guide Rollers [2] and [3] 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 apply 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. Connect the oscilloscope to J232 (V-ENV) and J230 (CTL) on the Main CBA. Use J283 (RF-SW) as a trigger.
2. Play back the Gray Scale of the Alignment Tape (FL8N) and confirm that the PB FM signal is present.
3. Set the Tracking Control Circuit to the center position by pressing the CH UP button then the PLAY button on the VCR. (Refer to note on bottom of page 2-3-4.)
4. Use the X-Value Adj. Screwdriver so that the PB FM signal at J232 (V-ENV) is maximum. (Fig. M6)
5. Press the CH UP button on VCR until the CTL waveform has 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 the CH DOWN button on the VCR until the CTL waveform has shifted from its original position (not the position achieved in step 5, but the position of CTL waveform in 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 the CH UP button and then the PLAY button on the VCR.

### 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. Connect the oscilloscope to J232 (V-ENV) on the Main CBA. Use J283 (RF-SW) as a trigger.
2. Play back the Gray Scale on the Alignment Tape (FL8N). Set the Tracking Control Circuit to the center position by pressing the CH UP and then the PLAY button on the VCR. Adjust the height of Guide Rollers [2] and [3] (Fig. M3, Page 2-3-3) watching the oscilloscope display so that the envelope becomes as flat as possible. To do this adjustment, turn the top of the Guide Roller with the Guide Roller Adj. Screwdriver.
3. If the envelope is as shown in Fig. M7, adjust the height of Guide Roller [2] (Refer to Fig. M3) so that the waveform looks like the one shown in Fig. M9.
4. If the envelope is as shown in Fig. M8, adjust the height of Guide Roller [3] (Refer to Fig. M3) so that the waveform looks like the one shown in Fig. M9.
5. When Guide Rollers [2] and [3] (Refer to Fig. M3) are aligned properly, there is no envelope drop either at the beginning or end of track as shown in Fig. M9.

**Note:** Upon completion of the adjustment of Guide Rollers [2] and [3] (Refer to Fig. M3), check the X Value by pushing the CH UP or DOWN buttons alternately, to check the symmetry of the envelope. Check the number of pushes to ensure 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

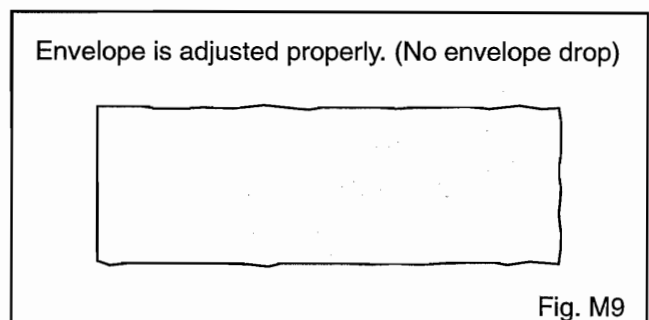
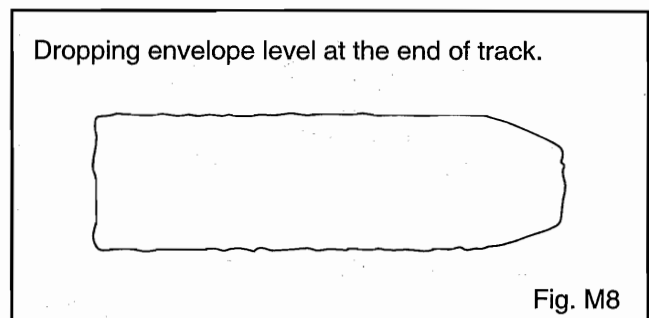
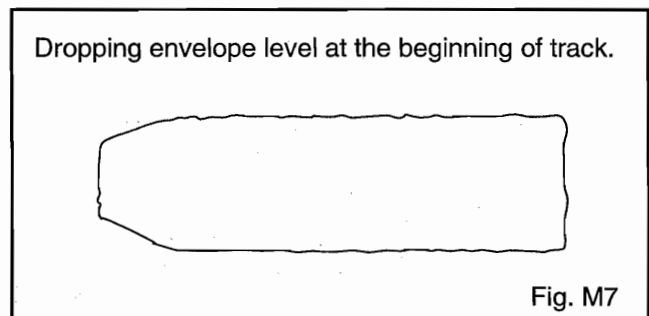
#### Purpose:

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 (FL8N) and confirm that the audio signal output level is 6 kHz.
3. Adjust Azimuth Adj. Screw so that the output level on the AC Voltmeter or the waveform on the oscilloscope is at maximum. (Fig. M6)



# DISASSEMBLY/ASSEMBLY PROCEDURES OF DECK MECHANISM

## Main Mechanism

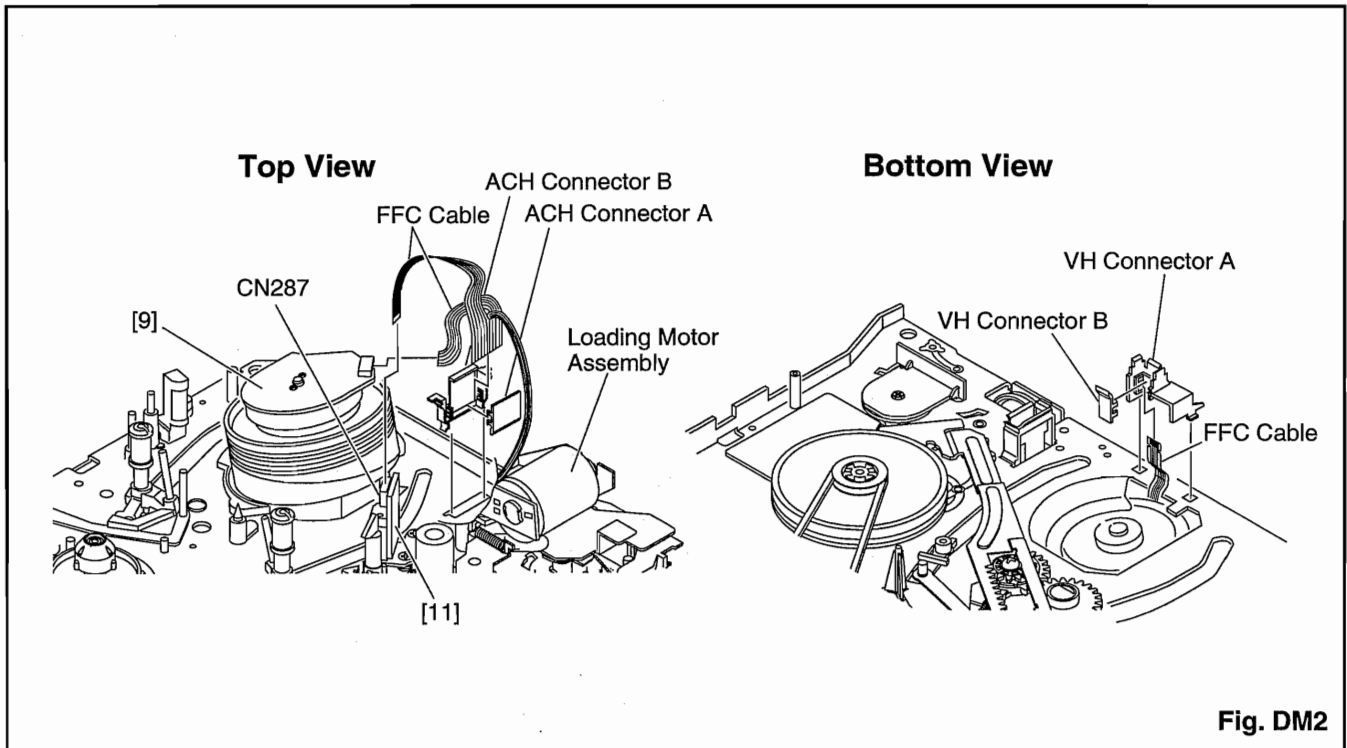
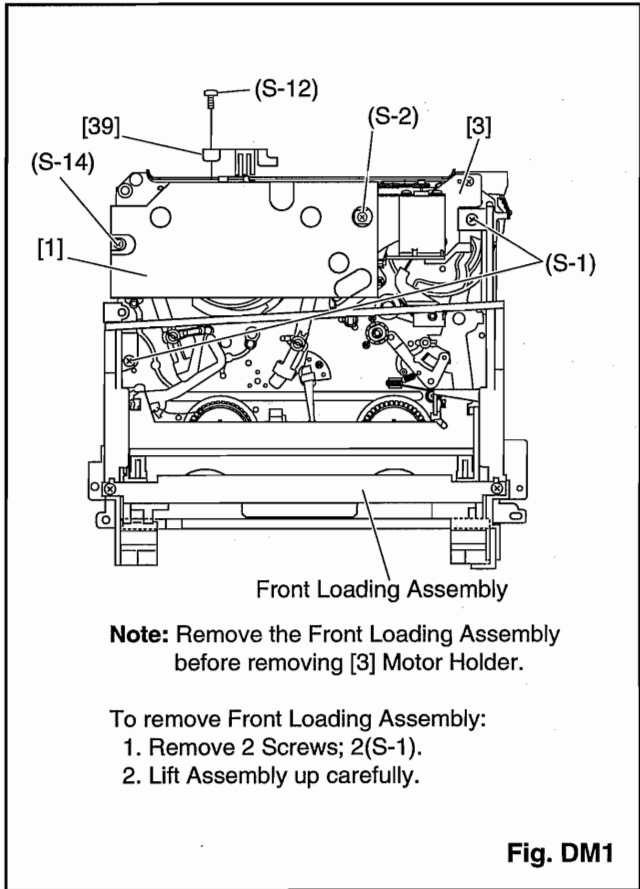
Before following the procedures described below, be sure to:

1. Remove the deck assembly from the cabinet.  
(Refer to CABINET DISASSEMBLY INSTRUCTIONS on page 1-6-1.)
2. Remove Front Loading Assembly from the main mechanism of the deck assembly. (See Fig. DM1.)
3. First remove Step/Loc. No. [39], and start to remove other parts. (See Fig. DM1.)
4. Before Step/Loc. No. [2] and [9] first remove ACH Connector A, ACH Connector B, VH Connector A, and VH Connector B. (See Fig. DM2.)

All the following procedures, including those for adjustment and replacement of parts, should be done in Eject mode; see the positions of [37] and [38] 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]	Cylinder Shield	T	DM1	(S-2), (S-14)	
[2]	[2]	Loading Motor Assembly	T	DM2 DM3 DM5 DM6	(S-3), Loading Belt ACH Connectors A and B, FFC Cable	
[3]	[2]	Motor Holder	T	DM1 DM3 DM5	2(S-4)	
[4]	[2]	Cassette Drive Lever Sub Assembly	T	DM3 DM5		(+) Refer to Alignment Sec. Pg. 2-4-10
[5]	[2]	Pinch Roller Assembly	T	DM3 DM5	(C-1)	Refer to Alignment Sec. Pg. 2-4-10
[6]	[6]	Mode SW CBA	B	DM4 DM5	(S-5), Desolder	
[7]	[2]	Cam	T	DM3 DM5		(+) Refer to Alignment Sec. Pg. 2-4-10
[8]	[2]	Pulley Assembly	T	DM3 DM6	(W-1), Loading Belt	(+)
[9]	[9]	Cylinder Assembly	T B	DM2 DM3 DM7	3(S-6), *VH Connectors A and B, FFC Cable	
[10]	[10]	FE Head	T	DM3 DM7	(S-7)	
[11]	[11]	ACE Head Assembly	T	DM2 DM3 DM8	(S-8), (S-16), FFC Cable	
[12]	[12]	Tape Guide Arm Assembly	T	DM3 DM8	*(P-0), *(L-1)	
[13]	[12]	Capstan Motor	B T	DM4 DM5 DM9 DM16	4(S-9), Capstan Belt, Radiator Plate, Desolder	
[14]	[14]	M Brake S Assembly	T	DM3 DM10	*(L-4)	
[15]	[15]	Tension Lever Assembly	T	DM3 DM10	*(L-2), *(L-3), *(P-1), *(P-2)	
[16]	[16]	Rec Arm	B	DM4 DM11	*(L-5)	
[17]	[17]	BT Arm	B	DM4 DM10 DM11	*(L-6), *(P-2)	
[18]	[17]	Holder Kick Arm	B	DM4 DM11	*(P-3)	
[19]	[17]	Tension Plate	B	DM4 DM11		
[20]	[17]	Mode Lever	T	DM3 DM12	*4(L-7), *(L-8), *Locking Tab	





### Top View

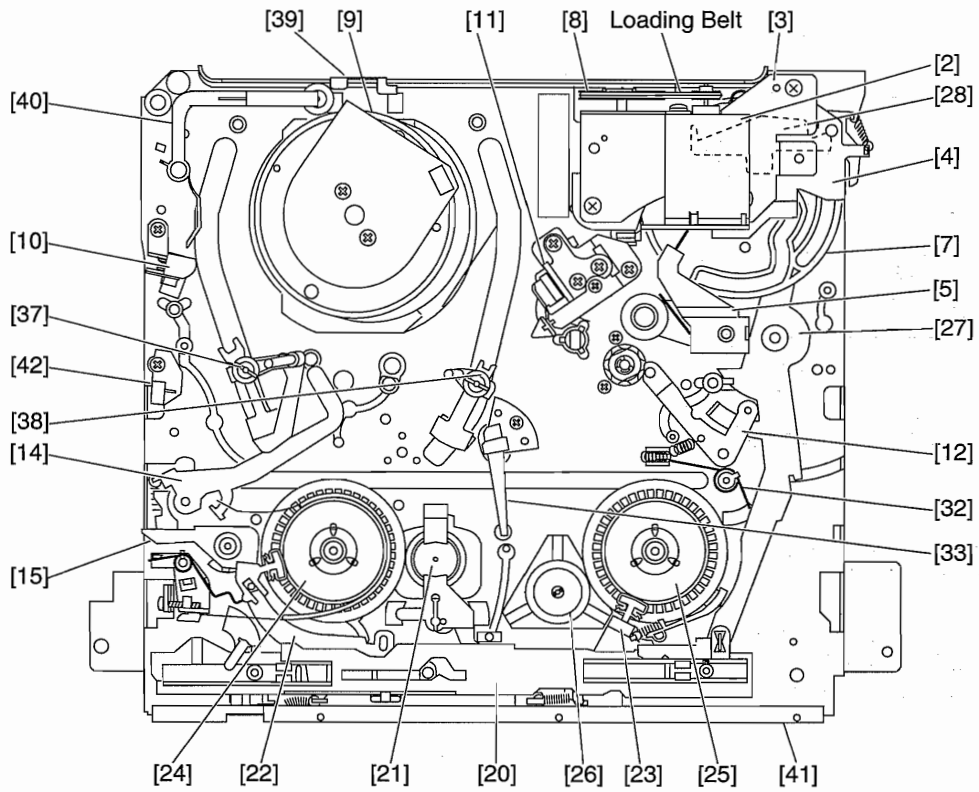


Fig. DM3

### Bottom View

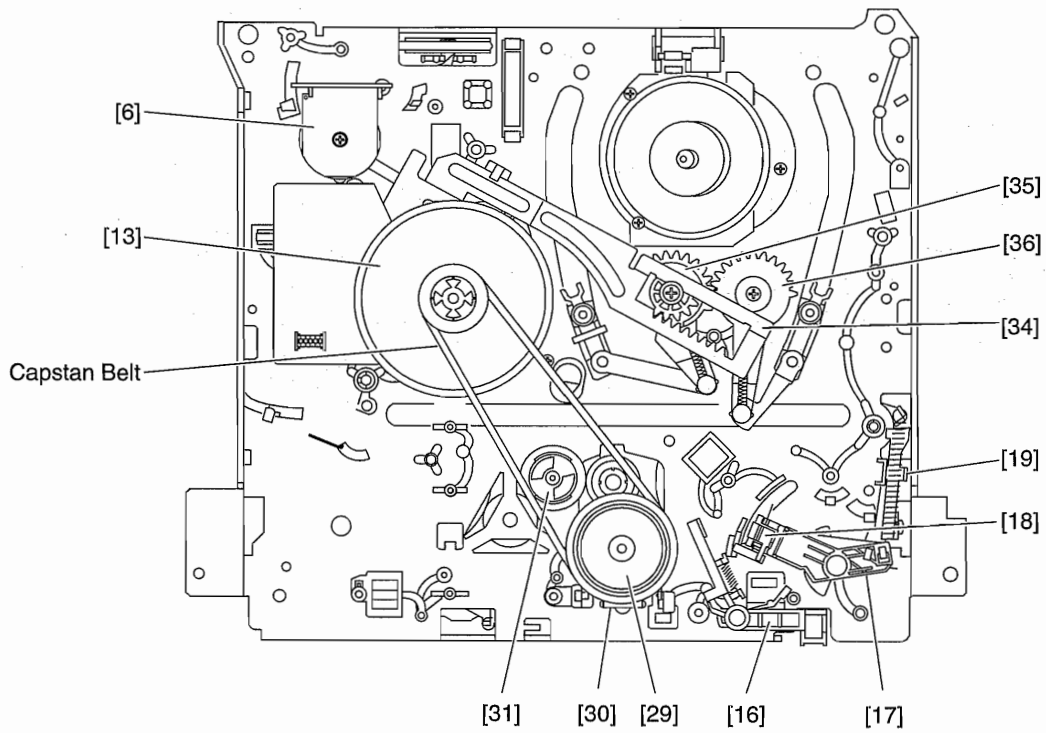
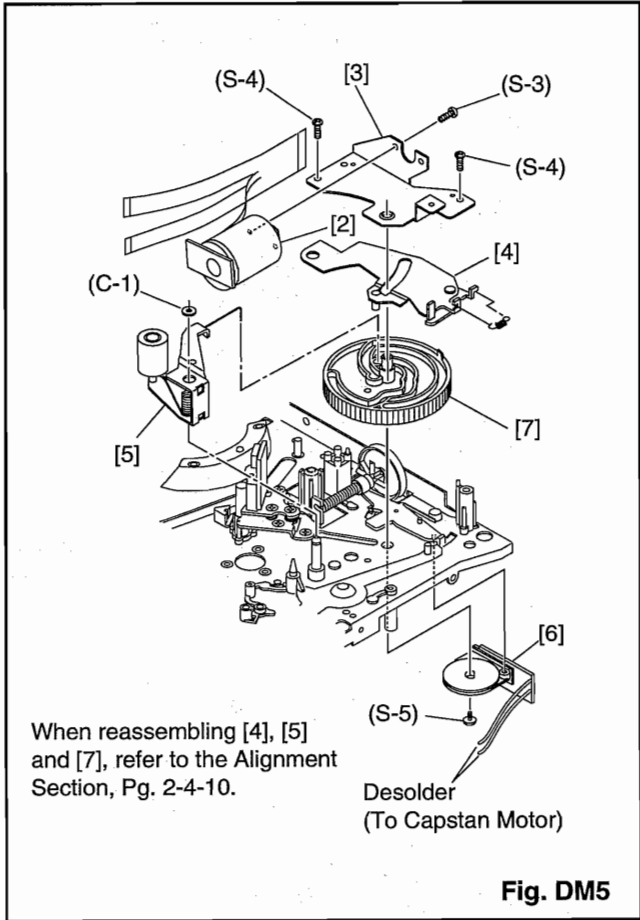
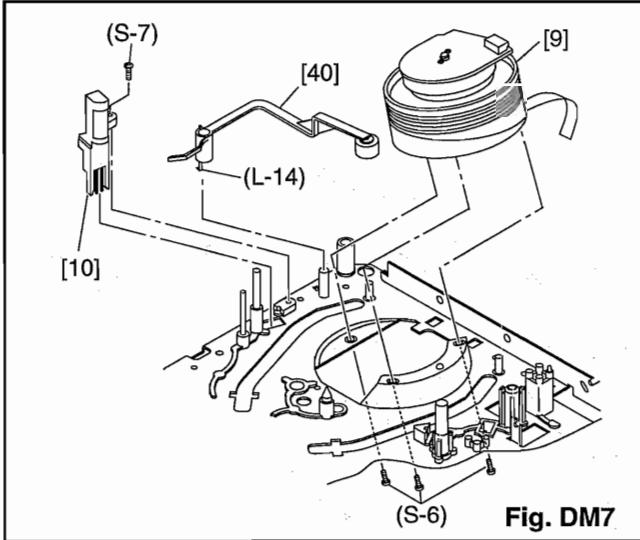


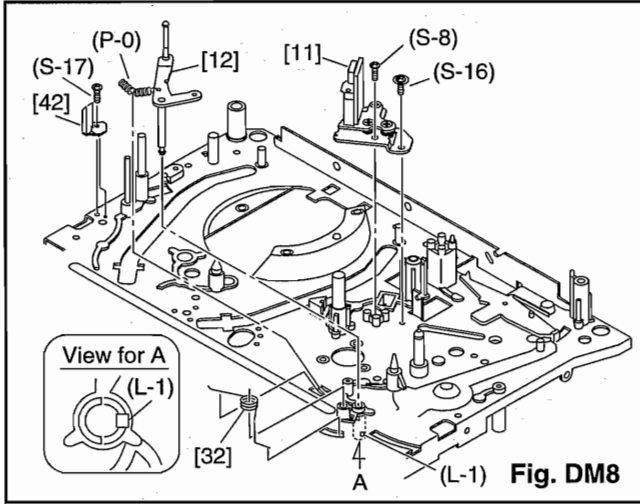
Fig. DM4



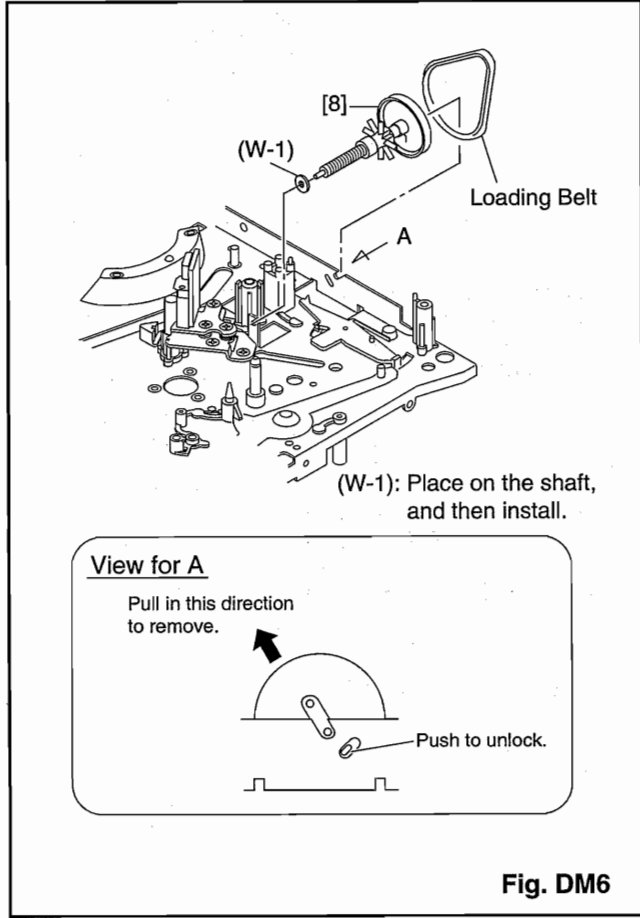
**Fig. DM5**



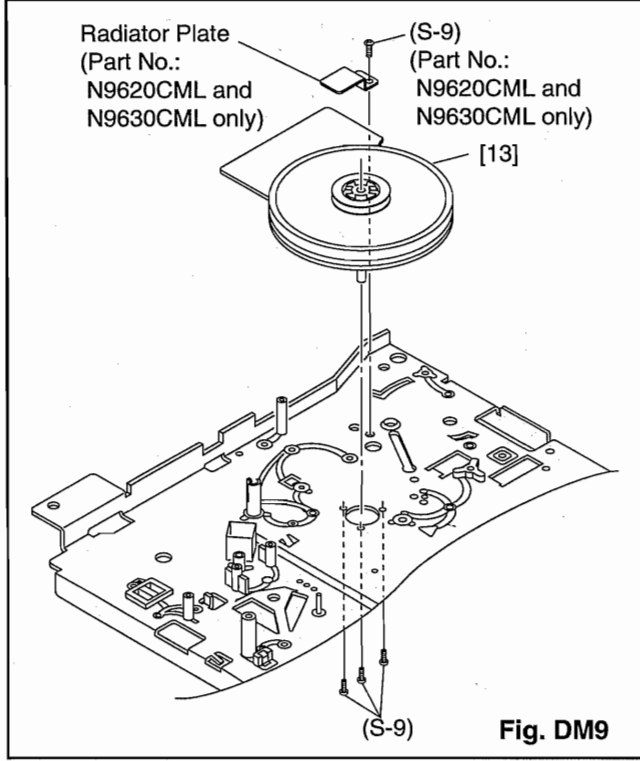
**Fig. DM7**



**Fig. DM8**



**Fig. DM6**



**Fig. DM9**

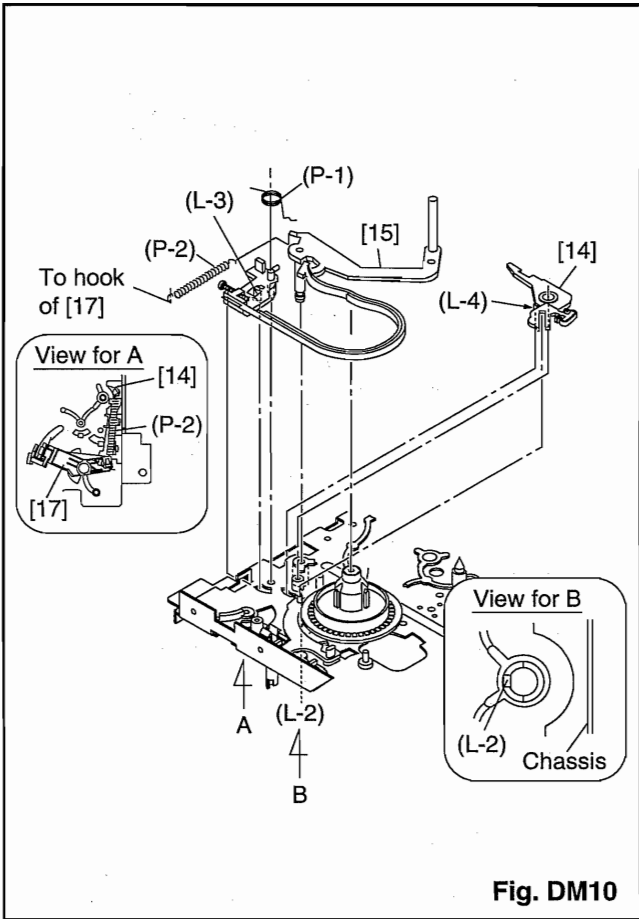


Fig. DM10

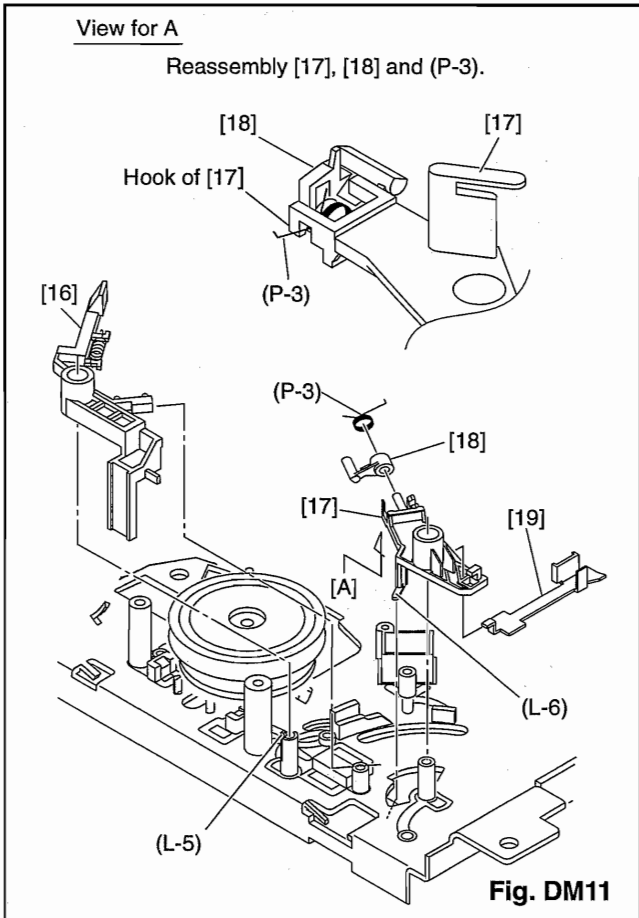


Fig. DM11

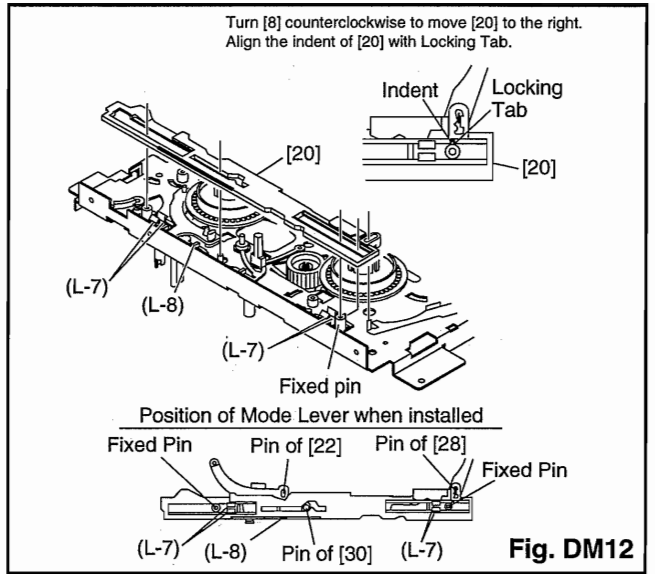


Fig. DM12

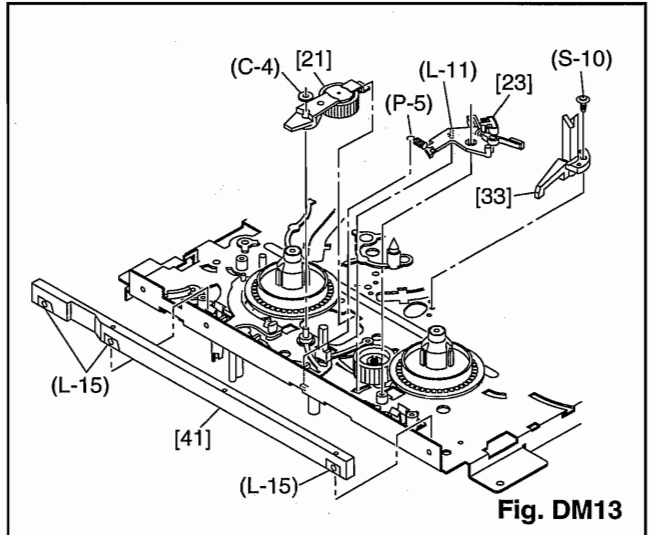


Fig. DM13

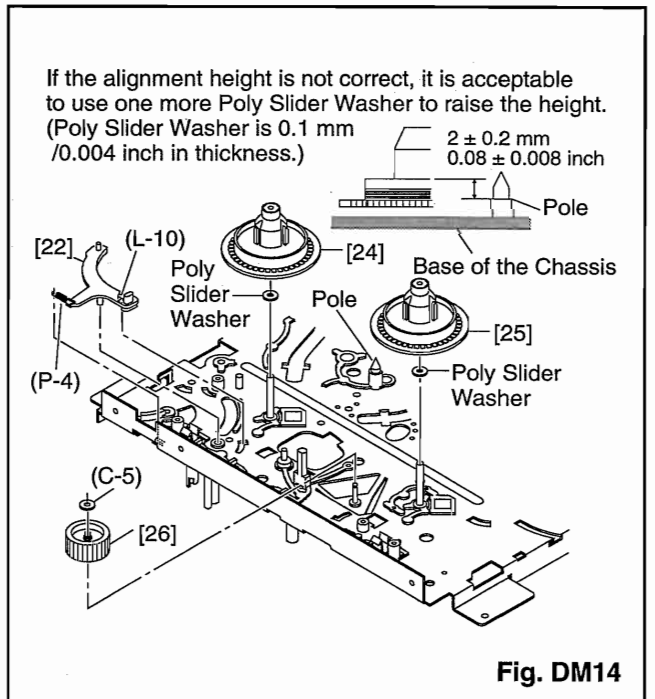
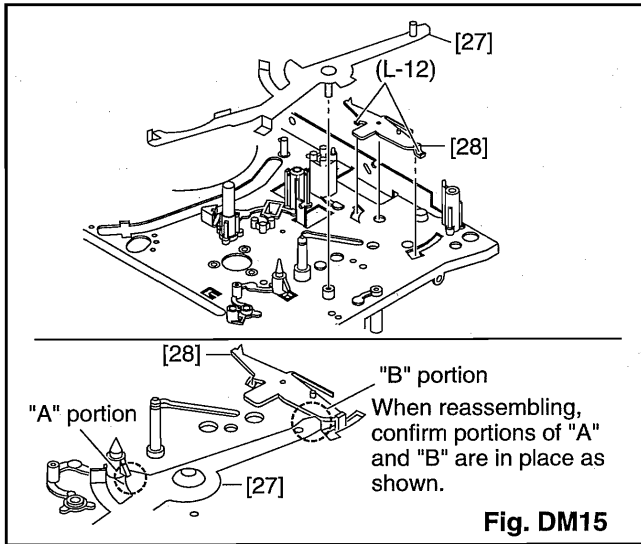
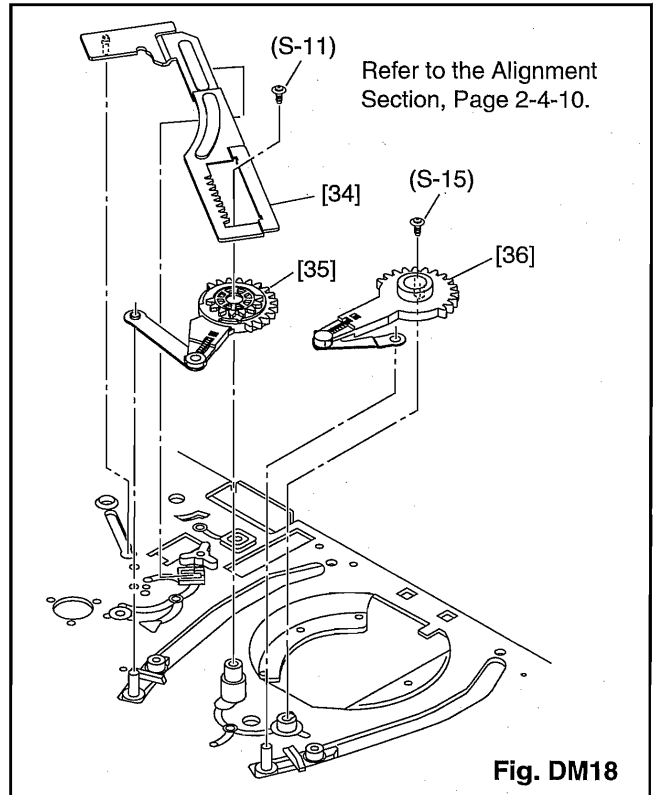


Fig. DM14

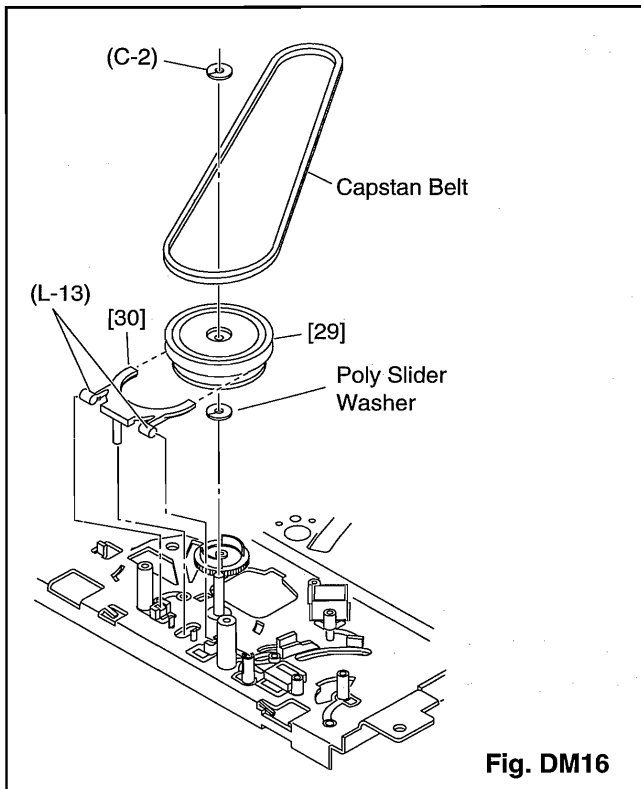




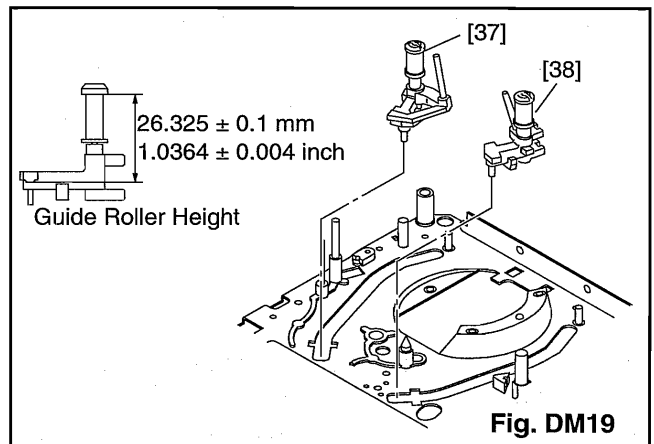
**Fig. DM15**



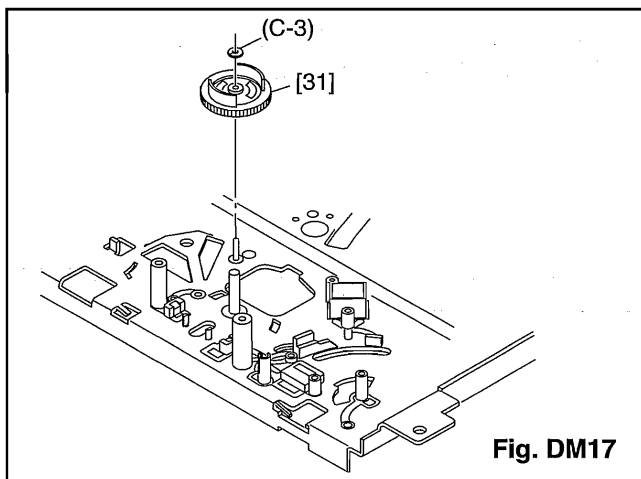
**Fig. DM18**



**Fig. DM16**



**Fig. DM19**



**Fig. DM17**

## 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]	Guide Holder (F)	T	DM22	2(S-1)	
[2]	[1]	Guide Holder (R)	T	DM22	(L-1)	
*[3]	[3]	Slider Gear	R	DM22 DM23	2(L-2)	Eject Position
*[4]	[3]	Slider Gear	L	DM22 DM23	2(L-3)	Eject Position
		Slider Shaft	T	DM22 DM23		Eject Position
[5]	[1]	Cassette Plate sub Assembly	T	DM20 DM21 DM22	(S-2)	
[6]	[1]	Cassette Guide R	R	DM20 DM21 DM22		
[7]	[1]	Cassette Guide L	L	DM22		
[8]	[8]	Front Door Opener	R	DM22 DM23	(L-4)	Eject Position
[9]	[9]	Rack	R	DM20 DM21 DM22	(L-5)	Cassette in Position
[10]	[9]	Cassette Drive Gear (N)	R	DM20 DM21 DM22	(L-6), Cassette Drive Gear Spring	Cassette in Position

↓ 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.

\*[3], \*[4]: Slider Gear in Step [3] and that in Step [4] 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 [6], [9], or [10], shift [5] to Cassette-in position.

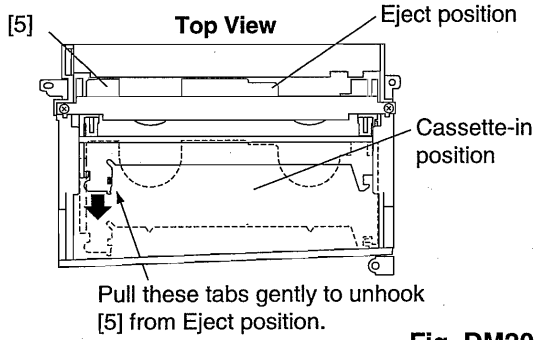


Fig. DM20

Install/remove in Cassette-in position to ensure that [5] is in locked position.

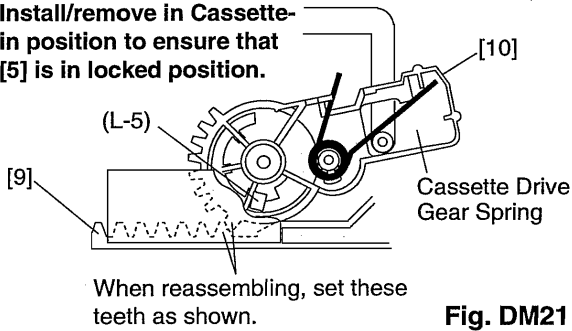
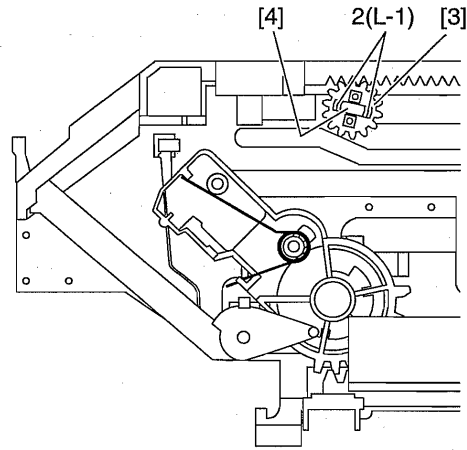


Fig. DM21

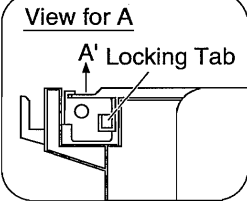
View before disassembling [3] and [4]  
(Installation of Slider Shaft and Slider Gear)



Install [3] and [4] in Eject position.  
(When disassembling, [3] and [4] can be removed either in Eject position or Cassette-in position.)

- This figure shows where [3], [4] and other parts are in Eject position.

Fig. DM23



Guide Holder R

1. Unhook the Locking Tab.
2. Lift up the Guide Holder R in the direction of A', and remove.

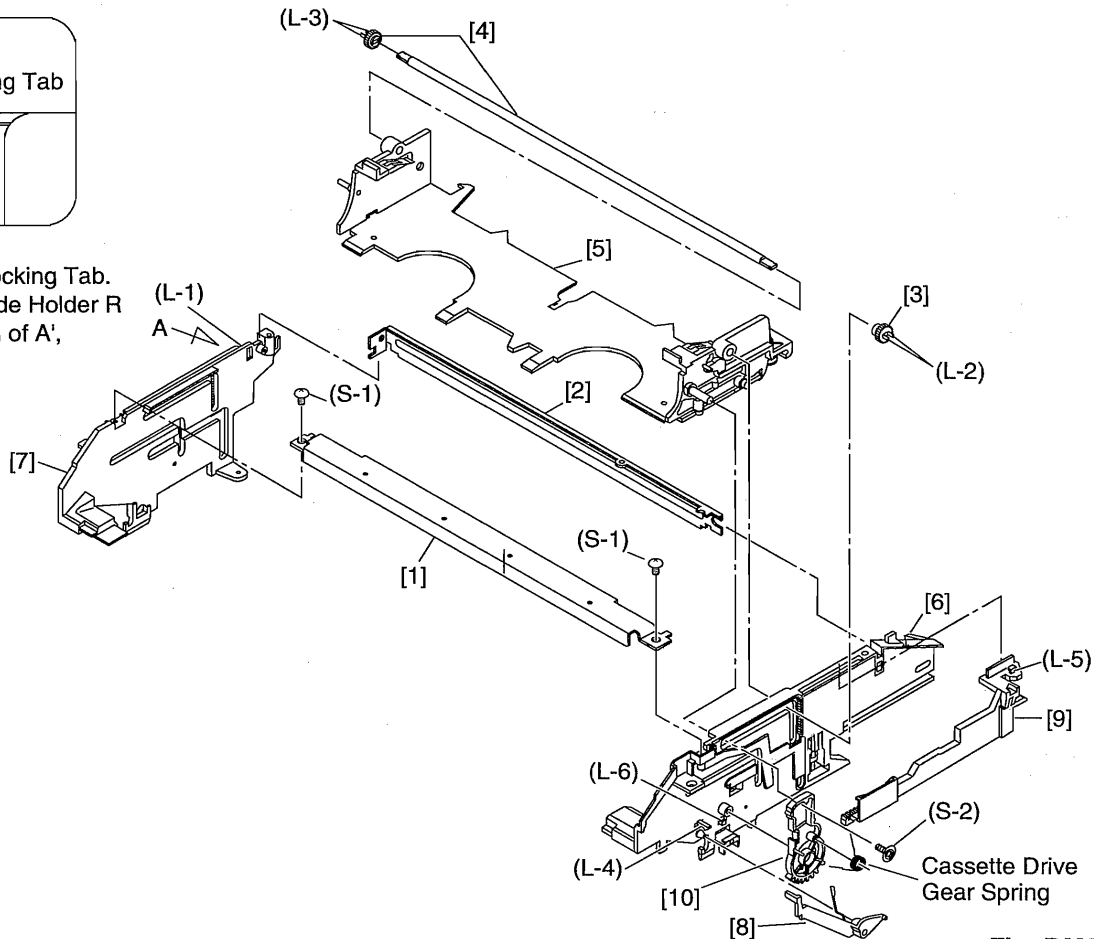


Fig. DM22

# ALIGNMENT PROCEDURES OF MECHANISM

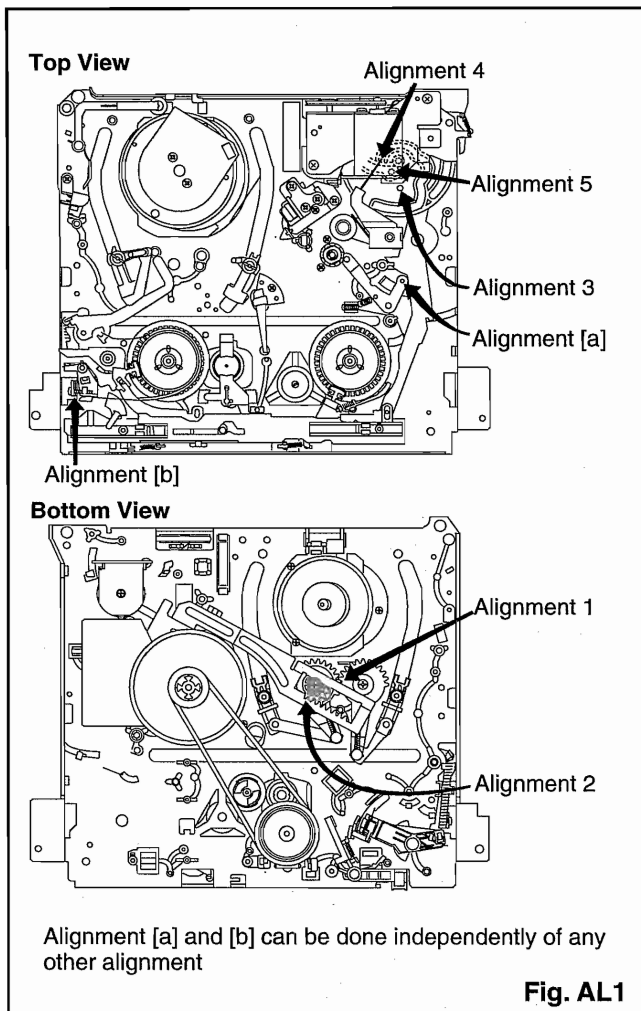
The following procedures describe how to align the individual gears and levers that make up the tape loading/unloading mechanism. Since information about the state of the mechanism is provided to the System Control Circuit only through the Mode Switch, it is essential that the correct relationship between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

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

## IMPORTANT:

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

## Alignment points in Eject Position



## Alignment 1

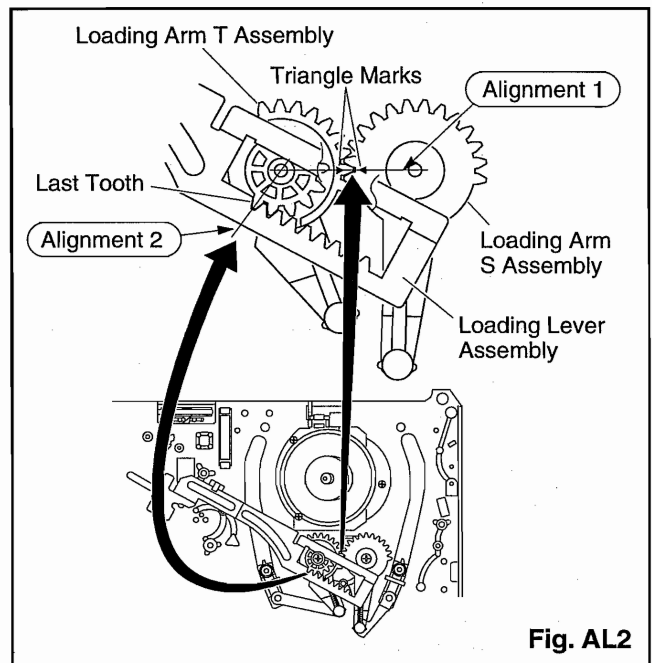
### Loading Arm, S and T Assembly

1. Install Loading Arm S and T Assembly so that their triangle marks point to each other as shown in Fig. AL2.

## Alignment 2

### Loading Lever Assembly

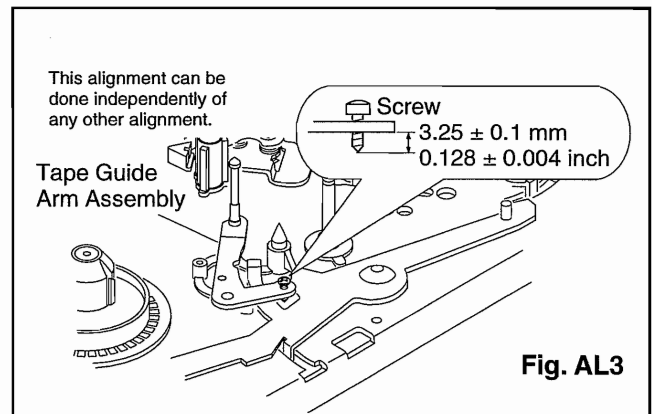
1. Keeping the two triangles pointing at each other, install the Loading Arm T Assembly so that the last tooth of the gear meets the most inside teeth of the Loading Lever Assembly. See Fig. AL2.

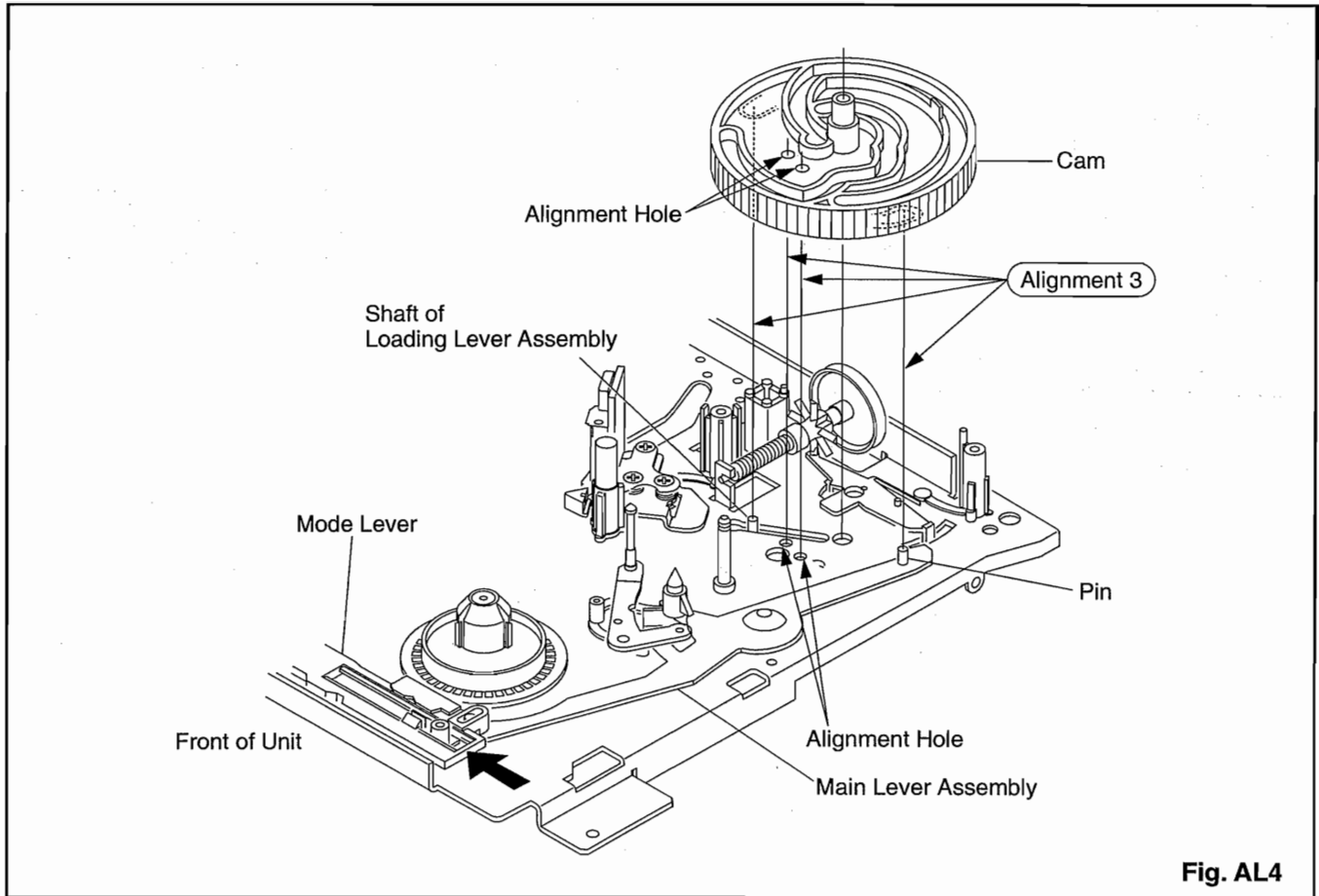


## Alignment [a]

### Tape Guide Arm Assembly

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





**Fig. AL4**

**Alignment 3**

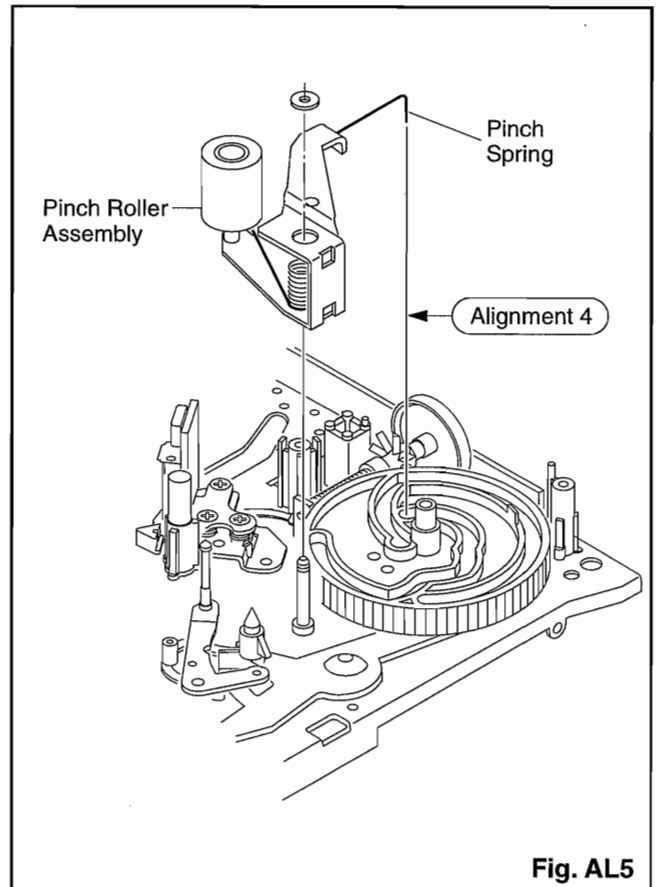
**Cam**

1. Make sure that the mechanism is in Eject mode so that the shaft of Loading Lever 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, push Mode Lever in the direction of the arrow to install the Cam. The Mode Lever must be pushed to make the pin on the Main Lever Assembly 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 Assembly and the shaft of the Loading Lever Assembly are inserted into the proper grooves of the lower Cam as specified in Fig. AL4.

**Alignment 4**

**Pinch Roller Assembly**

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

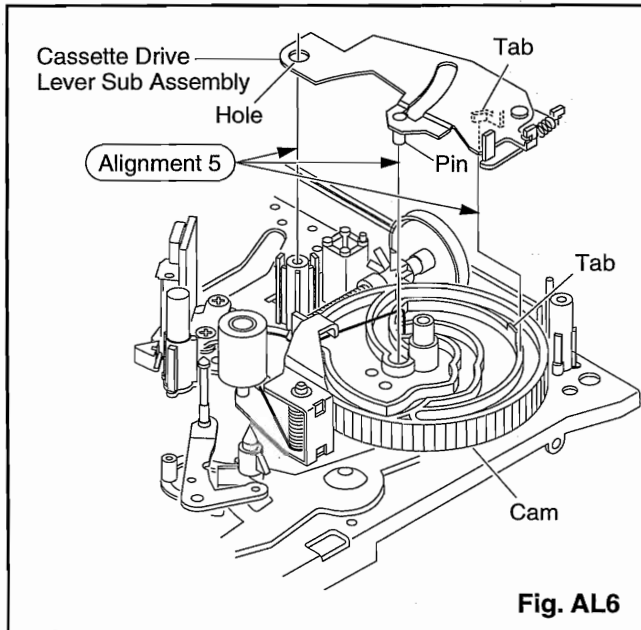


**Fig. AL5**

## Alignment 5

### **Cassette Drive Lever Sub Assembly**

1. Ensure that the pin of the Cassette Drive Lever Sub Assembly is positioned in the groove of the upper Cam and that the hole is positioned as shown in Fig. AL6. Then, make sure that the tab of the Cassette Drive Lever Sub Assembly is outside of the tab of the Cam.

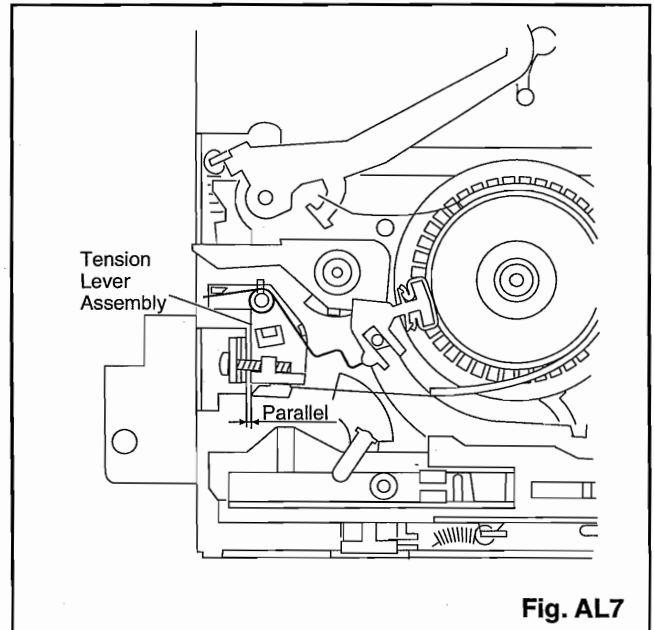


## Alignment [b]

This alignment can be performed independently of any other alignment.

### **Tension Lever Assembly**

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



# EXPLODED VIEWS AND PARTS LIST SECTION

## 25" COLOR TV/VCR COMBINATION

### 3925LC

**Sec. 3: Exploded views  
and Parts List Section**

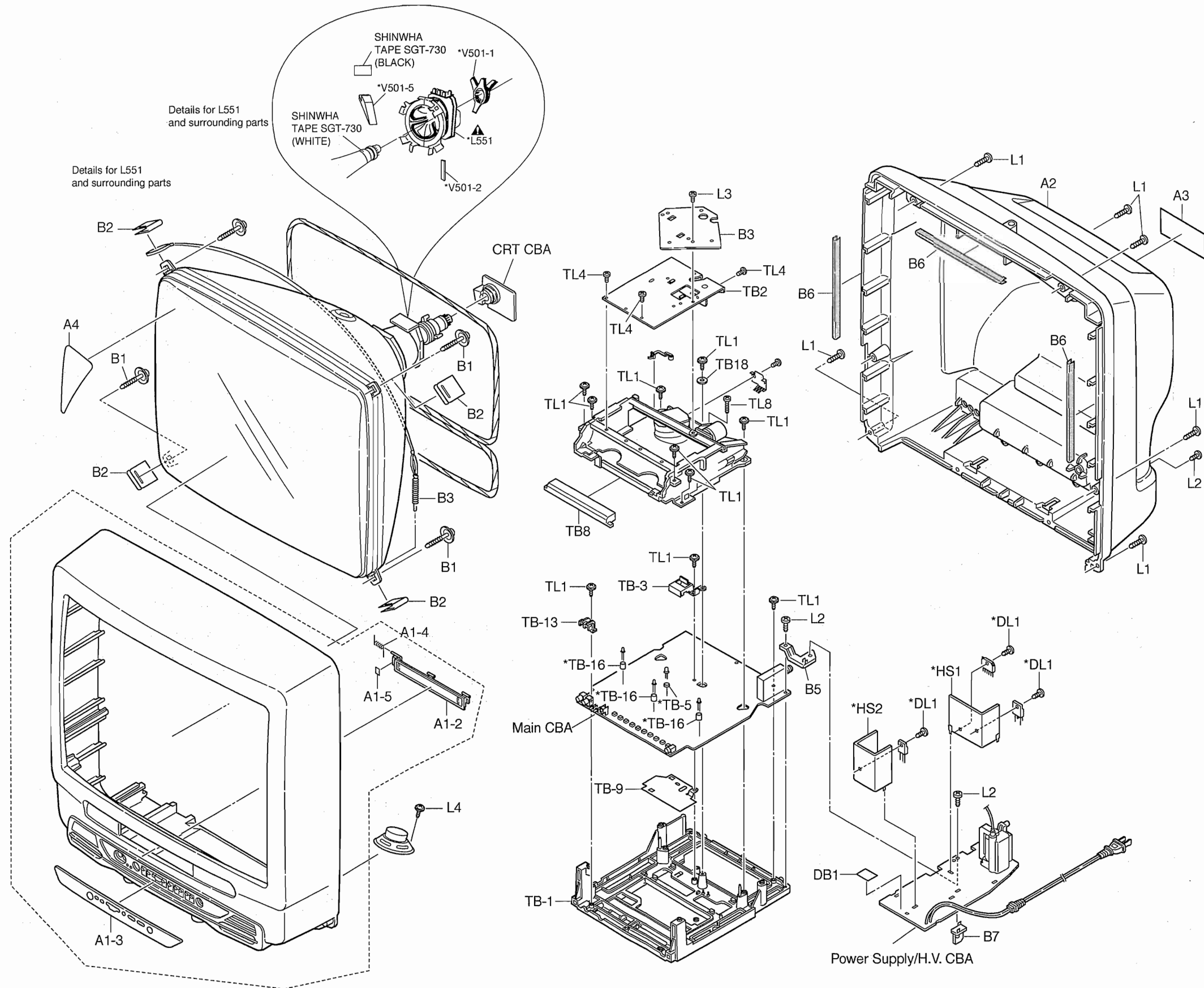
- Exploded views
- Parts List

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

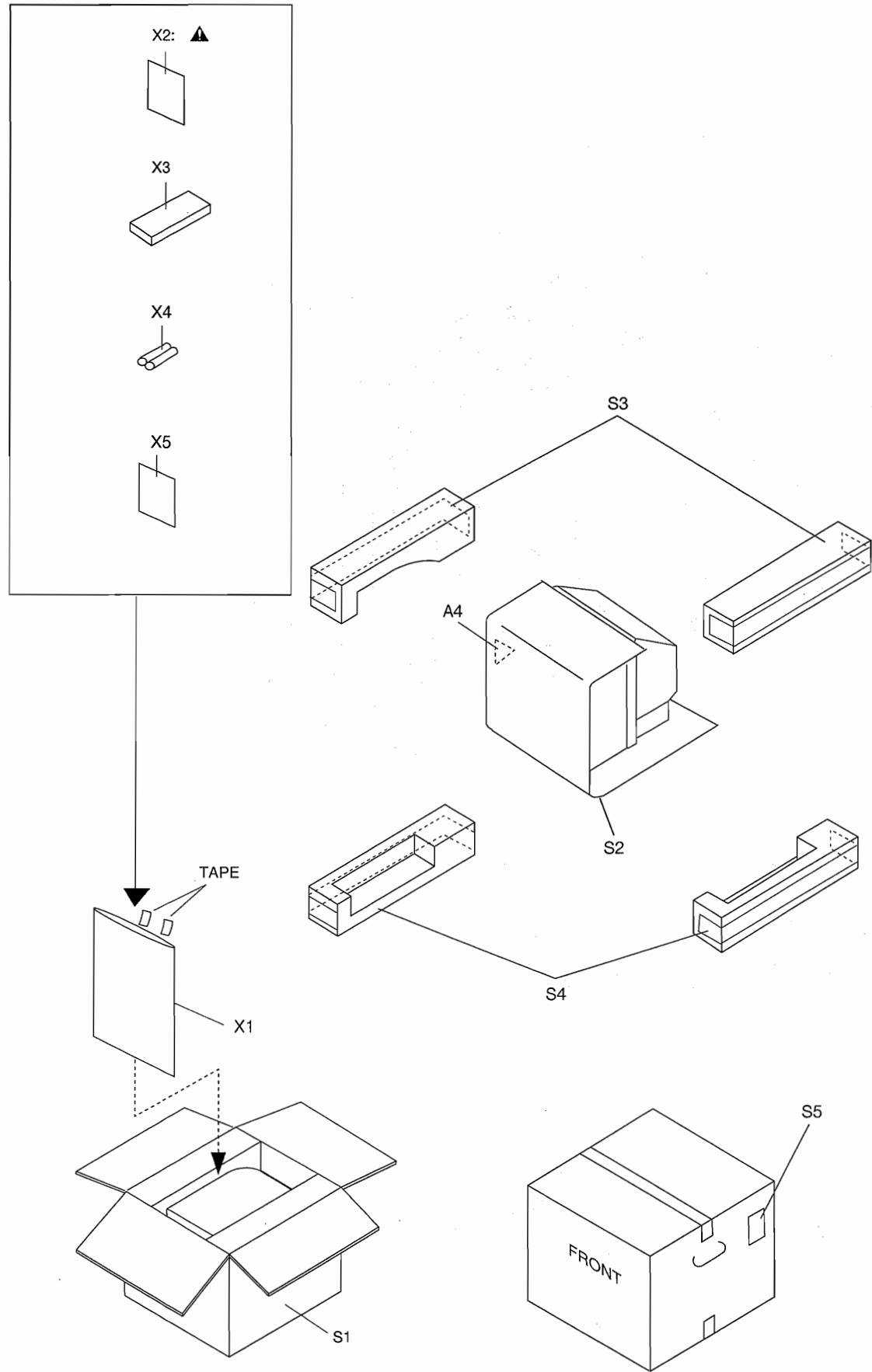
# CABINET EXPLODED VIEW

\*Marked parts see the Electrical Parts List





# PACKING EXPLODED VIEW

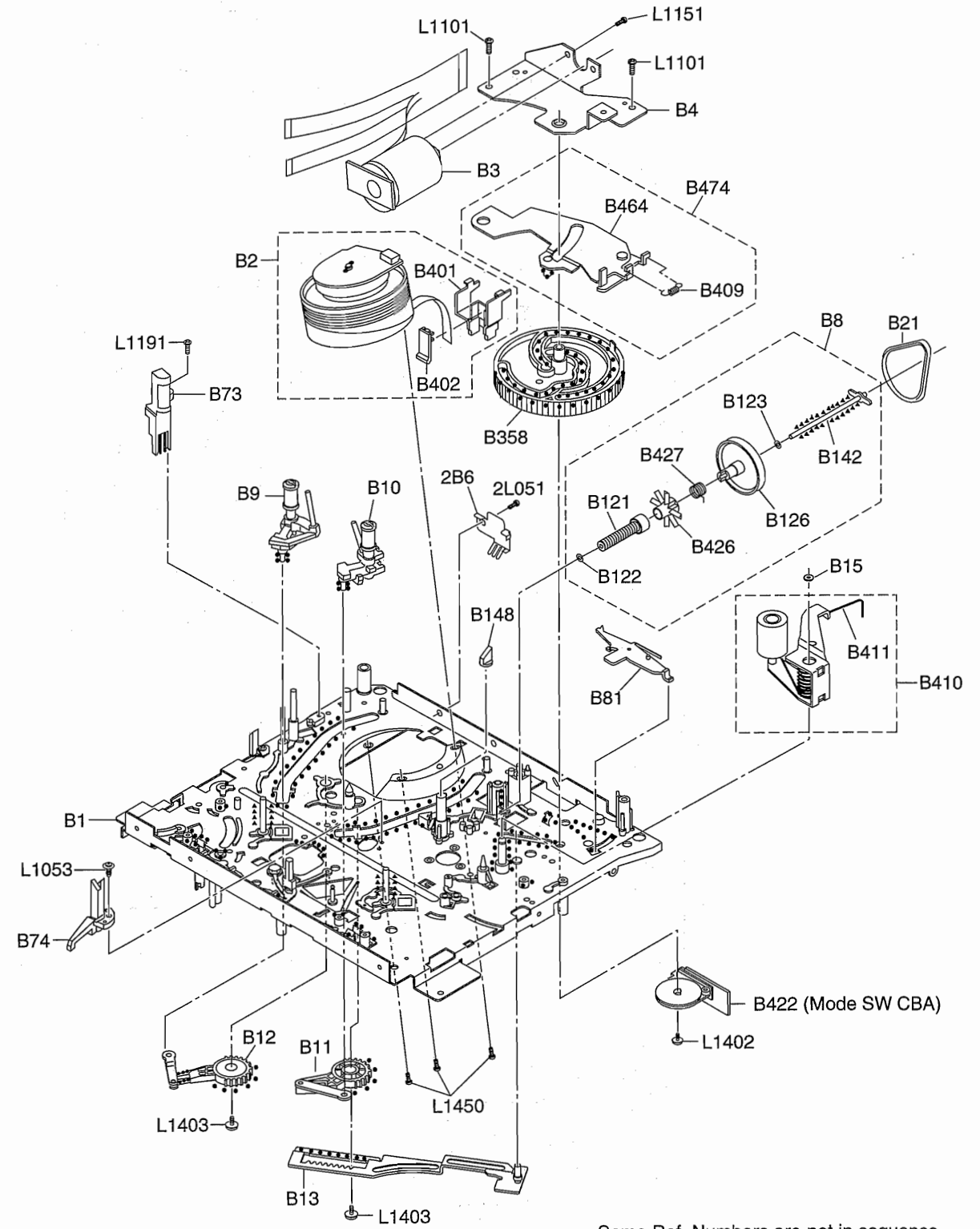


3-1-3

T3003PAC

# Deck Mechanism View 1

Mark	Description	Part No.
•••••	Floil G-374G (Blue grease)	0VZZ00109
▲▲▲▲▲	Hydro-Fluid EP56 (Spindle oil)	0VZZ00068



Some Ref. Numbers are not in sequence.

3-1-4

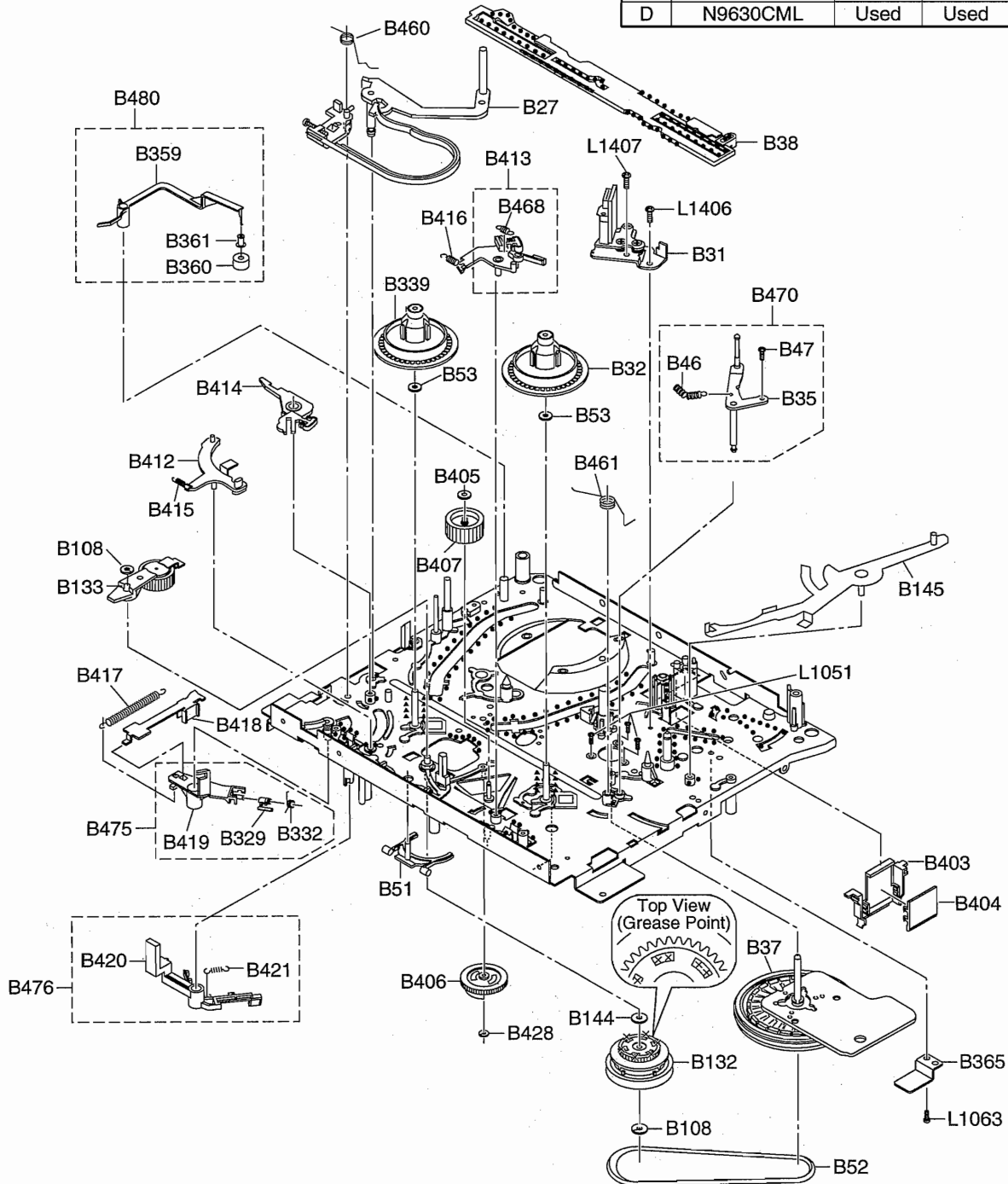
U19DEX2HC

# Deck Mechanism View 2

Mark	Description	Part No.
xxxxx	Sankol FG-84M (White grease)	0VZZ00062
.....	Floil G-374G (Blue grease)	0VZZ00109
.....	Hydro-Fluid EP56 (Spindle oil)	0VZZ00068

**Note:** Four different, but interchangeable, types of Capstan Motor (B37) may be installed in these models. Based on the type of capstan motor, items B365 and L1063 will be used/not used as shown in the table below.

Type	ID No.	B365	L1063
A	MMDZB12SJ007	Not used	Not used
B	MMDZB12SJ006	Not used	Not used
C	N9620CML	Used	Used
D	N9630CML	Used	Used

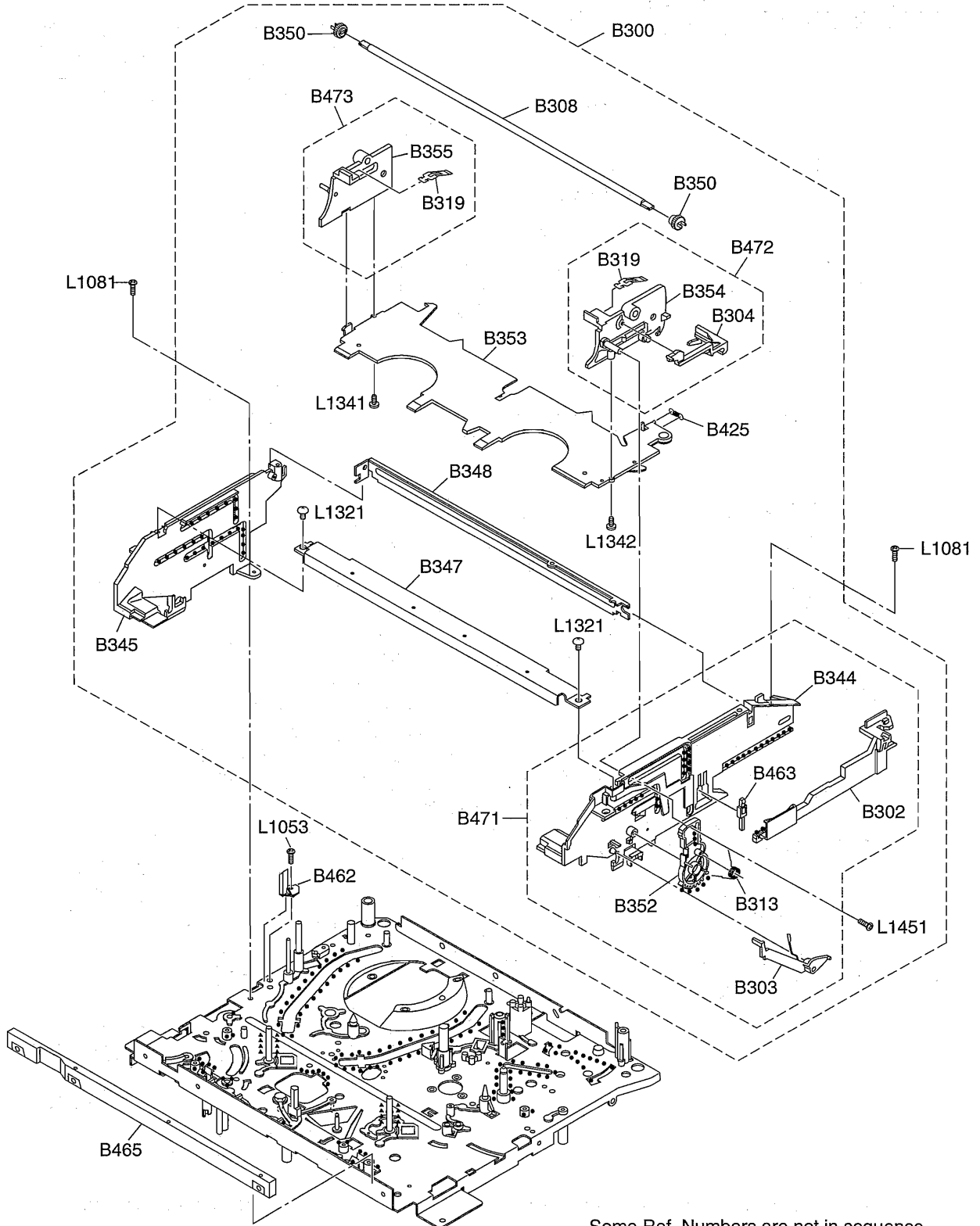


B359, B360, B361 and B480: See the Mechanical Parts List.

Some Ref. Numbers are not in sequence.

# Deck Mechanism View 3

Mark	Description	Part No.
●●●●	Foil G-374G (Blue grease)	0VZZ00109
▲▲▲▲	Hydro-Fluid EP56 (Spindle oil)	0VZZ00068



Some Ref. Numbers are not in sequence.

# 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.
A1-1	FRONT CABINET	0EM000278
A1-2	CASSETTE DOOR	0EM405201
A1-3	CONTROL PLATE	0EM301304
A1-4	DOOR SPRING	0VM403773
A1-5	CLOTH(4X7XT0.7)	0EM404974
A2	REAR CABINET	0EM000275
A3 ▲	RATING LABEL	0EM405202
A4	POP LABEL	0EM404761
B1	CRT MOUNTING SCREW	0EMN01296
B2	DEGAUSS HOLDER	0EMN01294
B3	TENSION SPRING B0080B0:EM40808	26WH006
B4	SHIELD PLATE	0EM404783
B5	PCB HOLDER(A)	0EM301107
B6	CLOTH 190X15XT0.5	TS7623
B7	POW PCB HOLDER	0EM403992
B8	CLOTH(10X15XT1.0)	0EM403762
L1	SCREW M4X18	0EMN01297
L2	SCREW TAPPING M4X14	DBU14140
L3	SCREW C-TIGHT M3X4 BIND HEAD+	GBMC3040
L4	ASSEMBLED SCREW M3X10	0EM401739
L5	SCREW P-TIGHT 3X12 BIND HEAD+	GBMP3120
S1	CARTON	0EM405204
S2	SET SHEET	0EM403887
S3	STYROFOAM TOP	0EM000288
S4	STYROFOAM BOTTOM	0EM000289
S5	SERIAL NO. LABEL(F)	0EM405199
X1	POLYETHYLENE BAG	0EMN01300
X2 ▲	OWNER'S MANUAL	0EMN01557
X4	DRY BATTERY R6P UM3 or DRY BATTERY(SUNRISE) R6SSE/2S	XBOM451GH001 XBOM451MS002
X10	RETURN STOP SHEET	0VM408870A
TB1	TRAY CHASSIS	0EM000353
TB2	TOP SHIELD or TOP SHIELD	0EM200995 0EM200995A
TB3	BOTTOM SHIELD or HEAD SHIELD	0EM301132 0EM301241
TB8	FRONT GUIDE MK7	0VM303239B
TB13	RCA HOLDER	0EM403474E
TB18	WASHER(D8)	0VM408931
TL1	SCREW P-TIGHT 3X12 WASHER HEAD+	GCMP3120
TL3	SCREW S-TIGHT 3X4 BIND HEAD+	GBMS3040
TL5	SCREW B-TIGHT M3X25 BIND HEAD+	GBMB3250
	CLEANER ASSEMBLY MK7 Consists of the following	OVSA09032
	CLEANER LEVER MK7	0VM303350
	CLEAN ROLLER MK4	0VM406123
	CLEAN BEARING MK4	0VM406124

# 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 Consists of the following	0ESA03186
<b>CAPACITORS</b>		
C 001	CERAMIC CAP.(AX) F Z 0.01µF/25V	CDA1EZT0F103
C 002	ELECTROLYTIC CAP. 100µF/10V M	CE1AMASDL101
C 007	ELECTROLYTIC CAP. 22µF/16V M	CE1CMASDL220
C 012	CERAMIC CAP.(AX) B K 0.01µF/50V	CCA1JKTOB103
C 013	ELECTROLYTIC CAP. 1µF/50V M	CE1JMASDL010
C 032	CERAMIC CAP.(AX) F Z 0.01µF/25V	CDA1EZT0F103
C 040	CERAMIC CAP.(AX) SL J 56pF/50V	CCA1JJTSL560
C 201	CERAMIC CAP.(AX) B K 1000pF/50V	CDA1JKTOB102
C 205	CERAMIC CAP.(AX) Y K 0.01µF/16V	CDA1CKTOY103
C 208	CERAMIC CAP.(AX) Y K 0.01µF/16V	CDA1CKTOY103
C 209	CERAMIC CAP.(AX) F Z 0.01µF/25V	CDA1EZT0F103
C 211	CERAMIC CAP.(AX) B K 1000pF/50V	CDA1JKTOB102
C 213	ELECTROLYTIC CAP. 47µF/6.3V M H7	CE0KMASDL470
C 214	CERAMIC CAP.(AX) Y K 0.01µF/16V	CDA1CKTOY103
C 215	CERAMIC CAP.(AX) F Z 0.022µF/25V	CDA1EZT0F223
C 216	ELECTROLYTIC CAP. 1µF/50V M H7 or ELECTROLYTIC CAP. 1.0µF/50V M H7	CE1JMASSL010 CE1JMASSL1R0
C 218	CERAMIC CAP.(AX) CH J 10pF/50V	CCA1JJTCH100
C 219	CERAMIC CAP.(AX) CH J 15pF/50V	CCA1JJTCH150
C 220	CERAMIC CAP.(AX) CH J 20pF/50V	CCA1JJTCH200
C 221	CERAMIC CAP.(AX) CH J 20pF/50V	CCA1JJTCH200
C 223	ELECTROLYTIC CAP. 220µF/6.3V M H7	CE0KMASDL221
C 225	CERAMIC CAP.(AX) Y K 0.01µF/16V	CDA1CKTOY103
C 231	ELECTROLYTIC CAP. 47µF/16V M H7	CE1CMASDL470
C 240	ELECTROLYTIC CAP. 22µF/16V M H7	CE1CMASDL220
C 241	CERAMIC CAP.(AX) F Z 0.01µF/25V	CDA1EZT0F103
C 242	CERAMIC CAP.(AX) X K 2200pF/16V	CDA1CKTOX222
C 243	ELECTROLYTIC CAP. 1µF/50V M H7 or ELECTROLYTIC CAP. 1.0µF/50V M H7	CE1JMASSL010 CE1JMASSL1R0
C 244	CERAMIC CAP.(AX) B K 1000pF/50V	CDA1JKTOB102
C 245	CERAMIC CAP.(AX) B K 560pF/50V	CCA1JKTOB561
C 250	CERAMIC CAP.(AX) Y K 0.01µF/16V	CDA1CKTOY103
C 251	CERAMIC CAP.(AX) CH J 20pF/50V	CCA1JJTCH200
C 252	CERAMIC CAP.(AX) CH J 20pF/50V	CCA1JJTCH200
C 253	CERAMIC CAP.(AX) CH J 20pF/50V	CCA1JJTCH200
C 256	CERAMIC CAP.(AX) F Z 0.047µF/16V	CDA1CZT0F473
C 258	ELECTROLYTIC CAP. 47µF/16V M H7	CE1CMASDL470
C 259	CERAMIC CAP.(AX) SL J 47pF/50V	CCA1JJTSL470
C 263	CARBON RES. 1/4W J 390 Ω or CARBON RES. 1/6W J 390 Ω	RCX4JATZ0391 RCX6JATZ0391
C 264	CERAMIC CAP.(AX) X K 6800pF/16V	CDA1CKTOX682
C 265	CERAMIC CAP.(AX) F Z 0.047µF/16V	CDA1CZT0F473
C 274	CERAMIC CAP.(AX) B K 1000pF/50V	CDA1JKTOB102
C 277	ELECTROLYTIC CAP. 22µF/16V M	CE1CMASDL220
C 278	CERAMIC CAP.(AX) F Z 0.1µF/50V	CCA1JZT0F104
C 279	ELECTROLYTIC CAP. 10µF/50V M	CE1JMASDL100

Ref. No.	Description	Part No.
C 280	ELECTROLYTIC CAP. 22µF/16V M	CE1CMASDL220
C 281	PCB JUMPER D0.6-P5.0	JW5.0T
C 283	PCB JUMPER D0.6-P5.0	JW5.0T
C 284	PCB JUMPER D0.6-P5.0	JW5.0T
C 285	ELECTROLYTIC CAP. 22µF/16V M H7	CE1CMASDL220
C 286	ELECTROLYTIC CAP. 47µF/16V M H7	CE1CMASDL470
C 287	CERAMIC CAP.(AX) F Z 0.022µF/25V	CDA1EZT0F223
C 288	ELECTROLYTIC CAP. 22µF/16V M LL H7	CA1C220SP018
C 290	CERAMIC CAP.(AX) F Z 0.022µF/25V	CDA1EZT0F223
C 291	CERAMIC CAP.(AX) Y K 0.01µF/16V	CDA1CKTOY103
C 292	ELECTROLYTIC CAP. 220µF/6.3V M H7	CE0KMASDL221
C 293	CERAMIC CAP.(AX) F Z 0.01µF/25V	CDA1EZT0F103
C 294	ELECTROLYTIC CAP. 22µF/16V M H7	CE1CMASDL220
C 296	CERAMIC CAP.(AX) F Z 0.047µF/16V	CDA1CZT0F473
C 299	ELECTROLYTIC CAP. 47µF/16V M H7	CE1CMASDL470
C 301	ELECTROLYTIC CAP. 22µF/16V M	CE1CMASDL220
C 302	ELECTROLYTIC CAP. 220µF/6.3V M	CE0KMASDL221
C 304	ELECTROLYTIC CAP. 100µF/10V M	CE1AMASDL101
C 306	CERAMIC CAP.(AX) B K 100pF/50V	CCA1JKTOB101
C 307	CERAMIC CAP.(AX) B K 100pF/50V	CCA1JKTOB101
C 308	CERAMIC CAP.(AX) SL J 68pF/50V	CCA1JJTSL680
C 309	ELECTROLYTIC CAP. 1µF/50V M	CE1JMASDL010
C 310	CERAMIC CAP.(AX) Y M 0.018µF/6V	CDA0KMT0Y183
C 311	FILM CAP.(P) 0.01µF/50V J or FILM CAP.(P) 0.01µF/50V J or *MYLAR CAP. 0.01µF/50V J TV or MYLAR CAP. 0.01µF/50V K	CMA1JJS00103 CA1J103MS029 CMB1JJS00103 2250103S
C 321	CERAMIC CAP.(AX) F Z 0.01µF/25V	CDA1EZT0F103
C 322	ELECTROLYTIC CAP. 100µF/16V M H7	CE1CMASDL101
C 323	CERAMIC CAP.(AX) SL J 33pF/50V	CCA1JJTSL330
C 324	ELECTROLYTIC CAP. 2.2µF/50V M	CE1JMASDL2R2
C 325	CERAMIC CAP.(AX) F Z 0.1µF/50V	CCA1JZT0F104
C 326	CERAMIC CAP.(AX) F Z 0.1µF/50V	CCA1JZT0F104
C 328	CERAMIC CAP.(AX) F Z 0.1µF/50V	CCA1JZT0F104
C 329	ELECTROLYTIC CAP. 1µF/50V M	CE1JMASDL010
C 330	CERAMIC CAP.(AX) SL J 47pF/50V	CCA1JJTSL470
C 331	CERAMIC CAP.(AX) SL J 47pF/50V	CCA1JJTSL470
C 332	CERAMIC CAP.(AX) SL J 47pF/50V	CCA1JJTSL470
C 336	STACKED METALLIZED FILM CAP. 1µF/50V J or STACKED FILM CAP. 1.0µF/50 J	122Z321S CMA1JJS00105
C 343	CERAMIC CAP.(AX) X K 3300pF/16V	CDA1CKTOX332
C 344	CERAMIC CAP.(AX) F Z 0.047µF/16V	CDA1CZT0F473
C 345	CERAMIC CAP.(AX) F Z 0.01µF/25V	CDA1EZT0F103
C 346	ELECTROLYTIC CAP. 1µF/50V M	CE1JMASDL010
C 347	ELECTROLYTIC CAP. 10µF/50V M H7	CE1JMASSL100
C 348	CERAMIC CAP.(AX) Y M 0.015µF/6V	CDA0KMT0Y153
C 349	ELECTROLYTIC CAP. 0.22µF/50V M H7	CE1JMASSLR22
C 351	CERAMIC CAP.(AX) Y N 0.022µF/6V	CDA0KNT0Y223
C 354	CERAMIC CAP.(AX) F Z 0.01µF/25V	CDA1EZT0F103
C 355	ELECTROLYTIC CAP. 330µF/16V M	CE1CMASDL331
C 356	ELECTROLYTIC CAP. 220µF/10V M	CE1AMASDL221

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

Ref. No.	Description	Part No.
C 357	CERAMIC CAP.(AX) F Z 0.01µF/25V	CDA1EZT0F103
C 362	ELECTROLYTIC CAP. 1µF/50V M H7 or ELECTROLYTIC CAP. 1.0µF/50V M H7	CE1JMASSL010 CE1JMASSL1R0
C 370	ELECTROLYTIC CAP. 1µF/50V M	CE1JMASDL010
C 371	ELECTROLYTIC CAP. 0.47µF/50V M	CE1JMASDLR47
C 372	CERAMIC CAP.(AX) SL J 47pF/50V	CCA1JJTSL470
C 373	ELECTROLYTIC CAP. 0.33µF/50V M	CE1JMASDLR33
C 375	ELECTROLYTIC CAP. 0.1µF/50V M	CE1JMASDL0R1
C 376	CERAMIC CAP.(AX) X K 3300pF/16V	CDA1CKT0X332
C 378	ELECTROLYTIC CAP. 1µF/50V M H7 or ELECTROLYTIC CAP. 1.0µF/50V M H7	CE1JMASSL010 CE1JMASSL1R0
C 385	CERAMIC CAP.(AX) SL J 47pF/50V	CCA1JJTSL470
C 386	CERAMIC CAP.(AX) SL J 10pF/50V	CCA1JJTSL100
C 387	ELECTROLYTIC CAP. 0.47µF/50V M	CE1JMASDLR47
C 401	CERAMIC CAP.(AX) B K 1000pF/50V	CDA1JKT0B102
C 402	CERAMIC CAP.(AX) F Z 0.1µF/50V	CCA1JZT0F104
C 403	CERAMIC CAP.(AX) Y M 0.012µF/6V	CDA0KMT0Y123
C 404	ELECTROLYTIC CAP. 10µF/16V M H7	CE1CMASL100
C 405	ELECTROLYTIC CAP. 4.7µF/25V M H7	CE1EMASL4R7
C 406	CERAMIC CAP.(AX) X K 2700pF/16V	CDA1CKT0X272
C 407	CERAMIC CAP.(AX) B K 1000pF/50V	CDA1JKT0B102
C 408	CERAMIC CAP.(AX) B K 1000pF/50V	CDA1JKT0B102
C 410	ELECTROLYTIC CAP. 1µF/50V M H7 or ELECTROLYTIC CAP. 1.0µF/50V M H7	CE1JMASSL010 CE1JMASSL1R0
C 411	ELECTROLYTIC CAP. 100µF/6.3V M H7	CE0KMASSL101
C 412	CERAMIC CAP.(AX) F Z 0.022µF/25V	CDA1EZT0F223
C 413	CERAMIC CAP.(AX) SL J 47pF/50V	CCA1JJTSL470
C 414	CERAMIC CAP.(AX) B K 390pF/50V	CCA1JKT0B391
C 416	CERAMIC CAP.(AX) B K 180pF/50V	CCA1JKT0B181
C 417	CERAMIC CAP.(AX) SL J 22pF/50V	CCA1JJTSL220
C 418	ELECTROLYTIC CAP. 1µF/50V M H7 or ELECTROLYTIC CAP. 1.0µF/50V M H7	CE1JMASSL010 CE1JMASSL1R0
C 420	PCB JUMPER D0.6-P5.0	JW5.0T
C 421	CERAMIC CAP.(AX) B K 220pF/50V	CCA1JKT0B221
C 422	CERAMIC CAP.(AX) F Z 0.01µF/25V	CDA1EZT0F103
C 425	ELECTROLYTIC CAP. 47µF/6.3V M H7	CE0KMASSL470
C 427	ELECTROLYTIC CAP. 0.1µF/50V M H7 or ELECTROLYTIC CAP. 0.1µF/50V M H7	CE1JMASSL0R1 CE1JMASSLR10
C 429	ELECTROLYTIC CAP. 22µF/6.3V M H7	CE0KMASSL220
C 430	ELECTROLYTIC CAP. 10µF/16V M H7	CE1CMASL100
C 431	ELECTROLYTIC CAP. 1µF/50V M H7 or ELECTROLYTIC CAP. 1.0µF/50V M H7	CE1JMASSL010 CE1JMASSL1R0
C 432	CERAMIC CAP.(AX) F Z 0.01µF/25V	CDA1EZT0F103
C 434	CERAMIC CAP.(AX) F Z 0.022µF/25V	CDA1EZT0F223
C 435	ELECTROLYTIC CAP. 1µF/50V M H7 or ELECTROLYTIC CAP. 1.0µF/50V M H7	CE1JMASSL010 CE1JMASSL1R0
C 436	ELECTROLYTIC CAP. 1µF/50V M H7 or ELECTROLYTIC CAP. 1.0µF/50V M H7	CE1JMASSL010 CE1JMASSL1R0
C 437	ELECTROLYTIC CAP. 1µF/50V M H7 or ELECTROLYTIC CAP. 1.0µF/50V M H7	CE1JMASSL010 CE1JMASSL1R0
C 438	ELECTROLYTIC CAP. 22µF/6.3V M	CE0KMASDL220
C 440	CERAMIC CAP.(AX) F Z 0.01µF/25V	CDA1EZT0F103
C 441	CERAMIC CAP.(AX) B K 820pF/50V	CDA1JKT0B821
C 443	CERAMIC CAP.(AX) F Z 0.01µF/25V	CDA1EZT0F103
C 444	CERAMIC CAP.(AX) F Z 0.022µF/25V	CDA1EZT0F223
C 445	ELECTROLYTIC CAP. 47µF/6.3V M	CE0KMASDL470
C 446	CERAMIC CAP.(AX) F Z 0.033µF/16V	CDA1CZT0F333
C 447	CERAMIC CAP.(AX) F Z 0.022µF/25V	CDA1EZT0F223
C 448	ELECTROLYTIC CAP. 100µF/6.3V M H7	CE0KMASSL101
C 450	ELECTROLYTIC CAP. 1µF/50V M H7 or ELECTROLYTIC CAP. 1.0µF/50V M H7	CE1JMASSL010 CE1JMASSL1R0
C 451	ELECTROLYTIC CAP. 2.2µF/50V M H7	CE1JMASSL2R2
C 452	CERAMIC CAP.(AX) X K 5600pF/16V	CDA1CKT0X562
C 453	ELECTROLYTIC CAP. 1µF/50V M H7 or ELECTROLYTIC CAP. 1.0µF/50V M H7	CE1JMASSL010 CE1JMASSL1R0
C 454	CERAMIC CAP.(AX) F Z 0.01µF/25V	CDA1EZT0F103

Ref. No.	Description	Part No.
C 455	ELECTROLYTIC CAP. 0.47µF/50V M H7	CE1JMASSLR47
C 456	ELECTROLYTIC CAP. 10µF/16V M H7	CE1CMASL100
C 460	CERAMIC CAP.(AX) F Z 0.047µF/16V	CDA1CZT0F473
C 461	CERAMIC CAP.(AX) F Z 0.047µF/16V	CDA1CZT0F473
C 463	CERAMIC CAP.(AX) F Z 0.01µF/25V	CDA1EZT0F103
C 464	CERAMIC CAP.(AX) F Z 0.1µF/50V	CCA1JZT0F104
C 465	ELECTROLYTIC CAP. 22µF/6.3V M H7	CE0KMASSL220
C 467	CERAMIC CAP.(AX) F Z 0.1µF/50V	CCA1JZT0F104
C 468	ELECTROLYTIC CAP. 33µF/6.3V M H7	CE0KMASSL330
C 471	CERAMIC CAP.(AX) F Z 0.01µF/25V	CDA1EZT0F103
C 476	ELECTROLYTIC CAP. 4.7µF/25V M H7	CE1EMASL4R7
C 477	ELECTROLYTIC CAP. 47µF/6.3V M H7	CE0KMASSL470
C 478	CERAMIC CAP.(AX) F Z 0.022µF/25V	CDA1EZT0F223
C 480	ELECTROLYTIC CAP. 47µF/6.3V M H7	CE0KMASSL470
C 481	ELECTROLYTIC CAP. 220µF/6.3V M H7	CE0KMASSL221
C 483	CERAMIC CAP. B K 470pF/100V or CERAMIC CAP. B K 470pF/500V	CCD2AKS0B471 CCD2JKS0B471
C 484	FILM CAP.(P) 0.018µF/100V J or FILM CAP.(P) 0.018µF/50V J or FILM CAP.(P) 0.018µF/100V J TV or MYLAR CAP. 0.018µF/100V K	CMA2AJS00183 CA1J183MS029 CMB2AJS00183 1251183S
C 490	ELECTROLYTIC CAP. 10µF/16V M H7	CE1CMASL100
C 495	ELECTROLYTIC CAP. 1µF/50V M H7 or ELECTROLYTIC CAP. 1.0µF/50V M H7	CE1JMASSL010 CE1JMASSL1R0
C 496	CERAMIC CAP.(AX) Y K 0.01µF/16V	CDA1CKT0Y103
C 498	ELECTROLYTIC CAP. 22µF/6.3V M H7	CE0KMASSL220
C 499	CERAMIC CAP.(AX) F Z 0.1µF/50V	CCA1JZT0F104
C 621	ELECTROLYTIC CAP. 47µF/16V M	CE1CMASDL470
C 630	ELECTROLYTIC CAP. 10µF/50V M	CE1JMASDL100
C 632	ELECTROLYTIC CAP. 220µF/6.3V M	CE0KMASDL221
C 636	ELECTROLYTIC CAP. 100µF/16V M	CE1CMASDL101
C 637	ELECTROLYTIC CAP. 47µF/16V M H7	CE1CMASL470
C 801	SEMICONDUCTOR CAP. YR K 0.033µF/25V	CDA1EKU0X333
C 802	ELECTROLYTIC CAP. 0.47µF/50V M H7	CE1JMASSLR47
C 803	ELECTROLYTIC CAP. 47µF/10V M H7	CE1AMASL470
C 805	ELECTROLYTIC CAP. 330µF/16V M	CE1CMASDL331
C 807	ELECTROLYTIC CAP. 470µF/16V M	CE1CMASDL471
C 808	CERAMIC CAP.(AX) F Z 0.1µF/50V	CCA1JZT0F104
C 809	CERAMIC CAP.(AX) F Z 0.01µF/25V	CDA1EZT0F103
C 810	PCB JUMPER D0.6-P5.0	JW5.0T
<b>CONNECTORS</b>		
CN 202	CONNECTOR 8P TMC-J08P-A1	J3TMA08TG002
CN 301	CONNECTOR BASE 5P TUC-P05P-B1	J3TUA05TG001
CN 303	CONNECTOR BASE 7P TUC-P07P-B1	J3TUA07TG001
CN 304	CONNECTOR BASE 5P TUC-P05P-B1	J3TUA05TG001
CN 471	FFC CONNECTOR BASE TOP 4P 9604S-04C	JC04J04ER002
CN 603	CONNECTOR BASE 14P TUC-P14P-B1	J3TUA14TG001
CN 801	STRAIGHT CONNECTOR BASE or STRAIGHT PIN HEADER 2P 173981-2	J383C02UG002 1770258
CN 851	FFC CONNECTOR BASE TOP 17P 9604S-17C	JC04J17ER002
CN 852	CABLE CONNECTOR 2P TMC-E02X-A1	JCTMC02TG001
<b>DIODES</b>		
D 029	SWITCHING DIODE 1SS133(T-77) or SWITCHING DIODE 1N4148 or DIODE 1SS176TPA7	QDTZ001SS133 NDTZ001N4148 1SS176T
D 201	PCB JUMPER D0.6-P5.0	JW5.0T
D 204	ZENER DIODE MTZJT-776.2B	QDTB0MTZJ6R2
D 206	ZENER DIODE MTZJT-775.6B	QDTB0MTZJ5R6
D 209	LED SIR-56ST3F-M or LED SIR-56ST3F-N or LED SLR-932AV-7K-AB	QPQMS01R56ST QPQNS01R56ST QPQ8SLR932AV
D 211	LED LTL-4214M1 or LED(RED)L-FORMING LT1814G-81-FL or LED L-53HT	NPQZLTL4214M NP4Z0LT1814G NP4Z000L53HT
D 216	ZENER DIODE MTZJT-775.6B	QDTB0MTZJ5R6
D 217	ZENER DIODE MTZJT-775.6B	QDTB0MTZJ5R6

Ref. No.	Description	Part No.
D 220	SWITCHING DIODE 1SS133(T-77) or SWITCHING DIODE 1N4148 or DIODE 1SS176TPA7	QDTZ001SS133 NDTZ001N4148 1SS176T
D 221	SWITCHING DIODE 1SS133(T-77) or SWITCHING DIODE 1N4148 or DIODE 1SS176TPA7	QDTZ001SS133 NDTZ001N4148 1SS176T
D 222	SWITCHING DIODE 1SS133(T-77) or SWITCHING DIODE 1N4148 or DIODE 1SS176TPA7	QDTZ001SS133 NDTZ001N4148 1SS176T
D 227	ZENER DIODE MTZJT-775.6B	QDTB0MTZJ5R6
D 250	ZENER DIODE MTZJT-775.6B	QDTB0MTZJ5R6
D 292	ZENER DIODE MTZJT-776.8B	QDTB0MTZJ6R8
D 293	SWITCHING DIODE 1SS133(T-77) or SWITCHING DIODE 1N4148 or DIODE 1SS176TPA7	QDTZ001SS133 NDTZ001N4148 1SS176T
D 295	ZENER DIODE MTZJT-775.6B	QDTB0MTZJ5R6
D 296	ZENER DIODE MTZJT-775.6B	QDTB0MTZJ5R6
D 297	ZENER DIODE MTZJT-775.6B	QDTB0MTZJ5R6
D 298	SWITCHING DIODE 1SS133(T-77) or SWITCHING DIODE 1N4148 or DIODE 1SS176TPA7	QDTZ001SS133 NDTZ001N4148 1SS176T
D 299	PCB JUMPER D0.6-P5.0	JW5.0T
D 301	CERAMIC CAP.(AX) Y M 0.012μF/16V	CDAOKMT0Y123
D 302	ZENER DIODE MTZJT-776.2B	QDTB0MTZJ6R2
D 303	ZENER DIODE MTZJT-778.2B	QDTB0MTZJ8R2
D 304	ZENER DIODE MTZJT-778.2B	QDTB0MTZJ8R2
D 305	ZENER DIODE MTZJT-778.2B	QDTB0MTZJ8R2
D 307	ZENER DIODE MTZJT-778.2B	QDTB0MTZJ8R2
D 308	SWITCHING DIODE 1SS133(T-77) or SWITCHING DIODE 1N4148 or DIODE 1SS176TPA7	QDTZ001SS133 NDTZ001N4148 1SS176T
D 311	PCB JUMPER D0.6-P5.0	JW5.0T
D 321	PCB JUMPER D0.6-P5.0	JW5.0T
D 322	SWITCHING DIODE 1SS133(T-77) or SWITCHING DIODE 1N4148 or DIODE 1SS176TPA7	QDTZ001SS133 NDTZ001N4148 1SS176T
D 323	SWITCHING DIODE 1SS133(T-77) or SWITCHING DIODE 1N4148 or DIODE 1SS176TPA7	QDTZ001SS133 NDTZ001N4148 1SS176T
D 324	SWITCHING DIODE 1SS133(T-77) or SWITCHING DIODE 1N4148 or DIODE 1SS176TPA7	QDTZ001SS133 NDTZ001N4148 1SS176T
D 371	SWITCHING DIODE 1SS133(T-77) or SWITCHING DIODE 1N4148 or DIODE 1SS176TPA7	QDTZ001SS133 NDTZ001N4148 1SS176T
D 399	SWITCHING DIODE 1SS133(T-77) or SWITCHING DIODE 1N4148 or DIODE 1SS176TPA7	QDTZ001SS133 NDTZ001N4148 1SS176T
D 441	ZENER DIODE MTZJT-775.6B	QDTB0MTZJ5R6
D 620	PCB JUMPER D0.6-P5.0	JW5.0T
D 630	ZENER DIODE MTZJT-776.8A	QDTA0MTZJ6R8
D 636 ▲	SWITCHING DIODE 1SS133(T-77) or SWITCHING DIODE 1N4148 or DIODE 1SS176TPA7	QDTZ001SS133 NDTZ001N4148 1SS176T
D 637 ▲	SWITCHING DIODE 1SS133(T-77) or SWITCHING DIODE 1N4148 or DIODE 1SS176TPA7	QDTZ001SS133 NDTZ001N4148 1SS176T
D 638	ZENER DIODE MTZJT-775.6B	QDTB0MTZJ5R6
D 640	SWITCHING DIODE 1SS133(T-77) or SWITCHING DIODE 1N4148 or DIODE 1SS176TPA7	QDTZ001SS133 NDTZ001N4148 1SS176T
D 641	SWITCHING DIODE 1SS133(T-77) or SWITCHING DIODE 1N4148 or DIODE 1SS176TPA7	QDTZ001SS133 NDTZ001N4148 1SS176T
D 645 ▲	SWITCHING DIODE 1SS133(T-77) or SWITCHING DIODE 1N4148 or	QDTZ001SS133 NDTZ001N4148

Ref. No.	Description	Part No.
D 646 ▲	DIODE 1SS176TPA7 SWITCHING DIODE 1SS133(T-77) or SWITCHING DIODE 1N4148 or DIODE 1SS176TPA7	1SS176T QDTZ001SS133 NDTZ001N4148 1SS176T
D 648	ZENER DIODE MTZJT-775.6C	QDTC0MTZJ5R6
D 650 ▲	SWITCHING DIODE 1SS133(T-77) or SWITCHING DIODE 1N4148 or DIODE 1SS176TPA7	QDTZ001SS133 NDTZ001N4148 1SS176T
D 652	ZENER DIODE MTZJT-7718B	QDTB00MTZJ18
D 680	PCB JUMPER D0.6-P5.0	JW5.0T
D 701	SWITCHING DIODE 1SS133(T-77) or SWITCHING DIODE 1N4148 or DIODE 1SS176TPA7	QDTZ001SS133 NDTZ001N4148 1SS176T
D 702	SWITCHING DIODE 1SS133(T-77) or SWITCHING DIODE 1N4148 or DIODE 1SS176TPA7	QDTZ001SS133 NDTZ001N4148 1SS176T
D 703	SWITCHING DIODE 1SS133(T-77) or SWITCHING DIODE 1N4148 or DIODE 1SS176TPA7	QDTZ001SS133 NDTZ001N4148 1SS176T
D 801 ▲	SWITCHING DIODE 1SS133(T-77) or SWITCHING DIODE 1N4148 or DIODE 1SS176TPA7	QDTZ001SS133 NDTZ001N4148 1SS176T
J 331	SWITCHING DIODE 1SS133(T-77) or SWITCHING DIODE 1N4148 or DIODE 1SS176TPA7	QDTZ001SS133 NDTZ001N4148 1SS176T
<b>ICS</b>		
IC 201 ▲	MICROCOMPUTER 16BIT M37760MCA8B8GP	QSMQA0RMB258
IC 202	IC:MEMORY AT24C02N-10SC or IC:(EEPROM) M24C02-MN6	NSMMA0SAZ012 NSMMA0SSS028
IC 203	IC:RESET BMR-0101C or IC:(RESET IC) PST994C-T	QSBLA0TKK001 QSBLA0TMM099
IC 204 ▲	IC BA6955N	QSBLA0SRM024
IC 207	IC:OP-AMP. LM324N	NSBLA0SSS007
IC 301 ▲	IC:CHROMA/IF 1 CHIP M52772FP B	QSBLC0RMB024
IC 401	IC:Y/C/A LA71077M	QSBLA0RSY084
IC 551 ▲	VERTICAL OUTPUT IC AN5539	QSBLA0SMS057
IC 602 ▲	IC:VOLTAGE REGULATOR 5V KIA7805PI or IC:VOLTAGE REGULATOR AN7805F	NSBLA0ZJY020 AN7805F
IC 801 ▲	IC TDA7231A	NSBLA0SSS001
<b>COILS</b>		
L 001	INDUCTOR 100μH-J-5FT or INDUCTOR 100μH-K-5FT	LLARJCASTU101 LLARKDASKA101
L 002	PCB JUMPER D0.6-P5.0	JW5.0T
L 040	INDUCTOR 18μH-J-26T or INDUCTOR 18μH-K-26T	LLAXJATTU180 LLAXKDTKA180
L 201	PCB JUMPER D0.6-P5.0	JW5.0T
L 246	INDUCTOR 0.10μH-K-26T or INDUCTOR 0.1μH-M-26T	LLAXKATTUR10 LLAXMDTKAR10
L 303	INDUCTOR 100μH-J-5FT or INDUCTOR 100μH-K-5FT	LLARJCASTU101 LLARKDASKA101
L 321	PCB JUMPER D0.6-P5.0	JW5.0T
L 361	INDUCTOR 12μH-J-26T or INDUCTOR 12μH-K-26T	LLAXJATTU120 LLAXKDTKA120
L 362	INDUCTOR 18μH-J-26T or INDUCTOR 18μH-K-26T	LLAXJATTU180 LLAXKDTKA180
L 391	INDUCTOR 2.2μH-J-26T or INDUCTOR 2.2μH-K-26T	LLAXJATTU2R2 LLAXKDTKA2R2
L 422	INDUCTOR 100μH-J-26T or INDUCTOR 100μH-K-26T	LLAXJATTU101 LLAXKDTKA101
L 442	INDUCTOR 22μH-J-26T or INDUCTOR 22μH-K-26T	LLAXJATTU220 LLAXKDTKA220
L 470	INDUCTOR 22μH-J-26T or INDUCTOR 22μH-K-26T	LLAXJATTU220 LLAXKDTKA220
L 481	INDUCTOR 47μH-K-5FT or INDUCTOR 47μH-K-5FT	LLARKBSTU470 LLARKDASKA470
L 482	PCB JUMPER D0.6-P5.0	JW5.0T

Ref. No.	Description	Part No.
L 602	PCB JUMPER D0.6-P5.0	JW5.0T
L 849	INDUCTOR 0.47 $\mu$ H-J-26T or INDUCTOR 0.47 $\mu$ H-K-26T	LLAXJATTUR47 LLAXKDKTKAR47
<b>TRANSISTORS</b>		
Q 201	TRANSISTOR KTC3199(GR) or TRANSISTOR KTC3198GR TO-92 or TRANSISTOR 2SC3331(T) or TRANSISTOR 2SC3331(U) or TRANSISTOR 2SC1815GR-TPE2	NQS10KTC3199 NQS40KTC3198 QSC3331TNPAA QSC3331UNPAA 2SC1815GRTPPE
Q 202	PHOTO TRANSISTOR ST-319R2-B or PHOTO TRANSISTOR PT380FB	QP4B0ST319R2 QP4B00PT380F
Q 203	PHOTO TRANSISTOR ST-319R2-B or PHOTO TRANSISTOR PT380FB	QP4B0ST319R2 QP4B00PT380F
Q 204	PHOTO TRANSISTOR ST-319R2-B or PHOTO TRANSISTOR PT380FB	QP4B0ST319R2 QP4B00PT380F
Q 210	TRANSISTOR KTC3199(GR) or TRANSISTOR KTC3198GR TO-92 or TRANSISTOR 2SC3331(T) or TRANSISTOR 2SC3331(U) or TRANSISTOR 2SC1815GR-TPE2	NQS10KTC3199 NQS40KTC3198 QSC3331TNPAA QSC3331UNPAA 2SC1815GRTPPE
Q 309	TRANSISTOR KTC3199(GR) or TRANSISTOR KTC3198GR TO-92 or TRANSISTOR 2SC3331(T) or TRANSISTOR 2SC3331(U) or TRANSISTOR 2SC1815GR-TPE2	NQS10KTC3199 NQS40KTC3198 QSC3331TNPAA QSC3331UNPAA 2SC1815GRTPPE
Q 310	TRANSISTOR KTA1267(GR) or TRANSISTOR KTA1266(GR) or TRANSISTOR 2SA1318(T)-AANP or TRANSISTOR 2SA1318(U)-AANP or TRANSISTOR 2SA1015-GR(TPE2)	NQS10KTA1267 NQS40KTA1266 2SA1318TZ 2SA1318UZ QQS102SA1015
Q 311	TRANSISTOR 2SC2482 TPE6 or TRANSISTOR 2SC3468(E)-AE or TRANSISTOR 2SC3468(D)-AE or TRANSISTOR 2SC2271(D)-AEMP or TRANSISTOR 2SC2271(E)-AE	QQS202SC2482 QQSE02SC3468 QQSD02SC3468 2SC2271DZ QQSE02SC2271
Q 312	TRANSISTOR KTC3199(GR) or TRANSISTOR KTC3198GR TO-92 or TRANSISTOR 2SC3331(T) or TRANSISTOR 2SC3331(U) or TRANSISTOR 2SC1815GR-TPE2	NQS10KTC3199 NQS40KTC3198 QSC3331TNPAA QSC3331UNPAA 2SC1815GRTPPE
Q 313	TRANSISTOR KTC3199(GR) or TRANSISTOR KTC3198GR TO-92 or TRANSISTOR 2SC3331(T) or TRANSISTOR 2SC3331(U) or TRANSISTOR 2SC1815GR-TPE2	NQS10KTC3199 NQS40KTC3198 QSC3331TNPAA QSC3331UNPAA 2SC1815GRTPPE
Q 314	TRANSISTOR KTC3199(GR) or TRANSISTOR KTC3198GR TO-92 or TRANSISTOR 2SC3331(T) or TRANSISTOR 2SC3331(U) or TRANSISTOR 2SC1815GR-TPE2	NQS10KTC3199 NQS40KTC3198 QSC3331TNPAA QSC3331UNPAA 2SC1815GRTPPE
Q 315	TRANSISTOR KTC3199(GR) or TRANSISTOR KTC3198GR TO-92 or TRANSISTOR 2SC3331(T) or TRANSISTOR 2SC3331(U) or TRANSISTOR 2SC1815GR-TPE2	NQS10KTC3199 NQS40KTC3198 QSC3331TNPAA QSC3331UNPAA 2SC1815GRTPPE
Q 410	RES. BUILT-IN TRANSISTOR KRC103M or RES. BUILT-IN TRANSISTOR 2SC3400	NQS20KRC103M 2SC3400Z
Q 422	TRANSISTOR KTA1267(GR) or TRANSISTOR KTA1266(GR) or TRANSISTOR 2SA1318(T)-AANP or TRANSISTOR 2SA1318(U)-AANP or TRANSISTOR 2SA1015-GR(TPE2)	NQS10KTA1267 NQS40KTA1266 2SA1318TZ 2SA1318UZ QQS102SA1015
Q 431	TRANSISTOR KTA1267(GR) or TRANSISTOR KTA1266(GR) or TRANSISTOR 2SA1318(T)-AANP or TRANSISTOR 2SA1318(U)-AANP or	NQS10KTA1267 NQS40KTA1266 2SA1318TZ 2SA1318UZ

Ref. No.	Description	Part No.
Q 441	TRANSISTOR 2SA1015-GR(TPE2) TRANSISTOR KTC3199(GR) or TRANSISTOR KTC3198GR TO-92 or TRANSISTOR 2SC3331(T) or TRANSISTOR 2SC3331(U) or TRANSISTOR 2SC1815GR-TPE2	QQS102SA1015 NQS10KTC3199 NQS40KTC3198 QSC3331TNPAA QSC3331UNPAA 2SC1815GRTPPE
Q 481	TRANSISTOR 2SA1317(U) or TRANSISTOR 2SA1317(T)	QQSU02SA1317 QQST02SA1317
Q 482	TRANSISTOR 2SC2120-O(TPE2) or TRANSISTOR 2SC2120(Y)	QQS002SC2120 QQSY02SC2120
Q 483	TRANSISTOR 2SC3331(T) or TRANSISTOR 2SC3331(U) or TRANSISTOR 2SC1815GR-TPE2	QSC3331TNPAA QSC3331UNPAA 2SC1815GRTPPE
Q 484	TRANSISTOR 2SC3331(T) or TRANSISTOR 2SC3331(U) or TRANSISTOR 2SC1815GR-TPE2	QSC3331TNPAA QSC3331UNPAA 2SC1815GRTPPE
Q 485	RES. BUILT-IN TRANSISTOR KRA103M or RES. BUILT-IN TRANSISTOR 2SA1346	NQS20KRA103M 2SA1346Z
Q 571 ▲	TRANSISTOR 2SD2578	QQZZ02SD2578
Q 601 ▲	FET 2SK2638-01MR	QFZZ02SK2638
Q 615 ▲	TRANSISTOR KTC3199(GR) or TRANSISTOR KTC3198GR TO-92 or TRANSISTOR 2SC3331(T) or TRANSISTOR 2SC3331(U) or TRANSISTOR 2SC1815GR-TPE2	NQS10KTC3199 NQS40KTC3198 QSC3331TNPAA QSC3331UNPAA 2SC1815GRTPPE
Q 617 ▲	TRANSISTOR 2SD400(F)	QQUF002SD400
Q 618 ▲	TRANSISTOR KTC3199(GR) or TRANSISTOR KTC3198GR TO-92 or TRANSISTOR 2SC3331(T) or TRANSISTOR 2SC3331(U) or TRANSISTOR 2SC1815GR-TPE2	NQS10KTC3199 NQS40KTC3198 QSC3331TNPAA QSC3331UNPAA 2SC1815GRTPPE
Q 619 ▲	TRANSISTOR KTC3199(GR) or TRANSISTOR KTC3198GR TO-92 or TRANSISTOR 2SC3331(T) or TRANSISTOR 2SC3331(U) or TRANSISTOR 2SC1815GR-TPE2	NQS10KTC3199 NQS40KTC3198 QSC3331TNPAA QSC3331UNPAA 2SC1815GRTPPE
Q 701	RES. BUILT-IN TRANSISTOR KRC103M or RES. BUILT-IN TRANSISTOR 2SC3400	NQS20KRC103M 2SC3400Z
Q 703	TRANSISTOR KTA1267(GR) or TRANSISTOR KTA1266(GR) or TRANSISTOR 2SA1318(T)-AANP or TRANSISTOR 2SA1318(U)-AANP or TRANSISTOR 2SA1015-GR(TPE2)	NQS10KTA1267 NQS40KTA1266 2SA1318TZ 2SA1318UZ QQS102SA1015
Q 801	TRANSISTOR KTC3199(GR) or TRANSISTOR KTC3198GR TO-92 or TRANSISTOR 2SC3331(T) or TRANSISTOR 2SC3331(U) or TRANSISTOR 2SC1815GR-TPE2	NQS10KTC3199 NQS40KTC3198 QSC3331TNPAA QSC3331UNPAA 2SC1815GRTPPE
<b>RESISTORS</b>		
R 001	CARBON RES. 1/4W J 10k $\Omega$ or CARBON RES. 1/6W J 10k $\Omega$	RCX4JATZ0103 RCX6JATZ0103
R 002	CARBON RES. 1/4W J 15k $\Omega$ or CARBON RES. 1/6W J 15k $\Omega$	RCX4JATZ0153 RCX6JATZ0153
R 003	CARBON RES. 1/4W J 1k $\Omega$ or CARBON RES. 1/6W J 1k $\Omega$	RCX4JATZ0102 RCX6JATZ0102
R 011	CARBON RES. 1/4W J 100 $\Omega$ or CARBON RES. 1/6W J 100 $\Omega$	RCX4JATZ0101 RCX6JATZ0101
R 012	CARBON RES. 1/4W J 100 $\Omega$ or CARBON RES. 1/6W J 100 $\Omega$	RCX4JATZ0101 RCX6JATZ0101
R 030	CARBON RES. 1/4W J 220 $\Omega$ or CARBON RES. 1/6W J 220 $\Omega$	RCX4JATZ0221 RCX6JATZ0221
R 031	PCB JUMPER D0.6-P5.0	JW5.0T
R 100	CARBON RES. 1/4W J 1.5k $\Omega$ or CARBON RES. 1/6W J 1.5k $\Omega$	RCX4JATZ0152 RCX6JATZ0152
R 101	CARBON RES. 1/4W J 1.5k $\Omega$ or CARBON RES. 1/6W J 1.5k $\Omega$	RCX4JATZ0152 RCX6JATZ0152



Ref. No.	Description	Part No.
R 102	CARBON RES. 1/4W J 2.2k $\Omega$ or CARBON RES. 1/6W J 2.2k $\Omega$	RCX4JATZ0222 RCX6JATZ0222
R 103	CARBON RES. 1/4W J 2.7k $\Omega$ or CARBON RES. 1/6W J 2.7k $\Omega$	RCX4JATZ0272 RCX6JATZ0272
R 104	CARBON RES. 1/4W J 1.5k $\Omega$ or CARBON RES. 1/6W J 1.5k $\Omega$	RCX4JATZ0152 RCX6JATZ0152
R 105	CARBON RES. 1/4W J 1.5k $\Omega$ or CARBON RES. 1/6W J 1.5k $\Omega$	RCX4JATZ0152 RCX6JATZ0152
R 106	CARBON RES. 1/4W J 2.2k $\Omega$ or CARBON RES. 1/6W J 2.2k $\Omega$	RCX4JATZ0222 RCX6JATZ0222
R 107	CARBON RES. 1/4W J 2.7k $\Omega$ or CARBON RES. 1/6W J 2.7k $\Omega$	RCX4JATZ0272 RCX6JATZ0272
R 108	CARBON RES. 1/4W J 4.7k $\Omega$ or CARBON RES. 1/6W J 4.7k $\Omega$	RCX4JATZ0472 RCX6JATZ0472
R 109	CARBON RES. 1/4W J 10k $\Omega$ or CARBON RES. 1/6W J 10k $\Omega$	RCX4JATZ0103 RCX6JATZ0103
R 110	CARBON RES. 1/4W J 10k $\Omega$ or CARBON RES. 1/6W J 10k $\Omega$	RCX4JATZ0103 RCX6JATZ0103
R 201	CARBON RES. 1/4W J 22k $\Omega$ or CARBON RES. 1/6W J 22k $\Omega$	RCX4JATZ0223 RCX6JATZ0223
R 202	CARBON RES. 1/4W J 22k $\Omega$ or CARBON RES. 1/6W J 22k $\Omega$	RCX4JATZ0223 RCX6JATZ0223
R 203	CARBON RES. 1/4W J 560 $\Omega$ or CARBON RES. 1/6W J 560 $\Omega$	RCX4JATZ0561 RCX6JATZ0561
R 205	CARBON RES. 1/4W J 1k $\Omega$ or CARBON RES. 1/6W J 1k $\Omega$	RCX4JATZ0102 RCX6JATZ0102
R 206	CARBON RES. 1/4W J 1M $\Omega$ or CARBON RES. 1/6W J 1M $\Omega$	RCX4JATZ0105 RCX6JATZ0105
R 207	CARBON RES. 1/4W J 22k $\Omega$ or CARBON RES. 1/6W J 22k $\Omega$	RCX4JATZ0223 RCX6JATZ0223
R 208	PCB JUMPER D0.6-P5.0	JW5.0T
R 209	CARBON RES. 1/4W J 680k $\Omega$ or CARBON RES. 1/6W J 680k $\Omega$	RCX4JATZ0684 RCX6JATZ0684
R 215	PCB JUMPER D0.6-P5.0	JW5.0T
R 218	CARBON RES. 1/4W J 560 $\Omega$ or CARBON RES. 1/6W J 560 $\Omega$	RCX4JATZ0561 RCX6JATZ0561
R 219	CARBON RES. 1/4W J 10k $\Omega$ or CARBON RES. 1/6W J 10k $\Omega$	RCX4JATZ0103 RCX6JATZ0103
R 220	CARBON RES. 1/4W J 8.2k $\Omega$ or CARBON RES. 1/6W J 8.2k $\Omega$	RCX4JATZ0822 RCX6JATZ0822
R 221	CARBON RES. 1/4W J 8.2k $\Omega$ or CARBON RES. 1/6W J 8.2k $\Omega$	RCX4JATZ0822 RCX6JATZ0822
R 222	CARBON RES. 1/4W J 820 $\Omega$ or CARBON RES. 1/6W J 820 $\Omega$	RCX4JATZ0821 RCX6JATZ0821
R 223	CARBON RES. 1/4W J 820 $\Omega$ or CARBON RES. 1/6W J 820 $\Omega$	RCX4JATZ0821 RCX6JATZ0821
R 224	CARBON RES. 1/4W J 4.7k $\Omega$ or CARBON RES. 1/6W J 4.7k $\Omega$	RCX4JATZ0472 RCX6JATZ0472
R 225	PCB JUMPER D0.6-P5.0	JW5.0T
R 226	CARBON RES. 1/4W J 100k $\Omega$ or CARBON RES. 1/6W J 100k $\Omega$	RCX4JATZ0104 RCX6JATZ0104
R 227	CARBON RES. 1/4W J 47 $\Omega$ or CARBON RES. 1/6W J 47 $\Omega$	RCX4JATZ0470 RCX6JATZ0470
R 228	CARBON RES. 1/4W J 2.2k $\Omega$ or CARBON RES. 1/6W J 2.2k $\Omega$	RCX4JATZ0222 RCX6JATZ0222
R 229	CARBON RES. 1/4W J 1.2k $\Omega$ or CARBON RES. 1/6W J 1.2k $\Omega$	RCX4JATZ0122 RCX6JATZ0122
R 231	CARBON RES. 1/4W J 1k $\Omega$ or CARBON RES. 1/6W J 1k $\Omega$	RCX4JATZ0102 RCX6JATZ0102
R 233	CARBON RES. 1/4W J 10M $\Omega$	RCX4JATZ0106
R 234	CARBON RES. 1/4W J 470k $\Omega$ or CARBON RES. 1/6W J 470k $\Omega$	RCX4JATZ0474 RCX6JATZ0474
R 239	CARBON RES. 1/4W J 4.7k $\Omega$ or CARBON RES. 1/6W J 4.7k $\Omega$	RCX4JATZ0472 RCX6JATZ0472
R 242	CARBON RES. 1/4W J 1k $\Omega$ or CARBON RES. 1/6W J 1k $\Omega$	RCX4JATZ0102 RCX6JATZ0102

Ref. No.	Description	Part No.
R 243	CARBON RES. 1/4W J 470 $\Omega$ or CARBON RES. 1/6W J 470 $\Omega$	RCX4JATZ0471 RCX6JATZ0471
R 244	CARBON RES. 1/4W J 1M $\Omega$ or CARBON RES. 1/6W J 1M $\Omega$	RCX4JATZ0105 RCX6JATZ0105
R 245	CARBON RES. 1/4W J 5.6k $\Omega$ or CARBON RES. 1/6W J 5.6k $\Omega$	RCX4JATZ0562 RCX6JATZ0562
R 246	PCB JUMPER D0.6-P5.0	JW5.0T
R 249	CARBON RES. 1/4W J 68k $\Omega$ or CARBON RES. 1/6W J 68k $\Omega$	RCX4JATZ0683 RCX6JATZ0683
R 250	CARBON RES. 1/4W J 270 $\Omega$ or CARBON RES. 1/6W J 270 $\Omega$	RCX4JATZ0271 RCX6JATZ0271
R 251	CARBON RES. 1/4W J 270 $\Omega$ or CARBON RES. 1/6W J 270 $\Omega$	RCX4JATZ0271 RCX6JATZ0271
R 252	CARBON RES. 1/4W J 1.2k $\Omega$ or CARBON RES. 1/6W J 1.2k $\Omega$	RCX4JATZ0122 RCX6JATZ0122
R 253	CARBON RES. 1/4W J 470 $\Omega$ or CARBON RES. 1/6W J 470 $\Omega$	RCX4JATZ0471 RCX6JATZ0471
R 254	CARBON RES. 1/4W J 3.3k $\Omega$ or CARBON RES. 1/6W J 3.3k $\Omega$	RCX4JATZ0332 RCX6JATZ0332
R 255	CARBON RES. 1/4W J 3.3k $\Omega$ or CARBON RES. 1/6W J 3.3k $\Omega$	RCX4JATZ0332 RCX6JATZ0332
R 256	CARBON RES. 1/4W J 3.3k $\Omega$ or CARBON RES. 1/6W J 3.3k $\Omega$	RCX4JATZ0332 RCX6JATZ0332
R 257	CARBON RES. 1/4W J 560 $\Omega$ or CARBON RES. 1/6W J 560 $\Omega$	RCX4JATZ0561 RCX6JATZ0561
R 258	CARBON RES. 1/4W J 560 $\Omega$ or CARBON RES. 1/6W J 560 $\Omega$	RCX4JATZ0561 RCX6JATZ0561
R 259	CARBON RES. 1/4W J 560 $\Omega$ or CARBON RES. 1/6W J 560 $\Omega$	RCX4JATZ0561 RCX6JATZ0561
R 260	CARBON RES. 1/4W J 1k $\Omega$ or CARBON RES. 1/6W J 1k $\Omega$	RCX4JATZ0102 RCX6JATZ0102
R 265 $\triangle$	METAL RESISTOR 1W J 2.7 $\Omega$ or FIXED METAL OXIDE FILM RES. 1W J 2.7 $\Omega$ or METAL RESISTOR 1W J 2.7 $\Omega$	RN012R7ZU001 RN012R7KE009 RN012R7UB001
R 266	CARBON RES. 1/4W J 22k $\Omega$ or CARBON RES. 1/6W J 22k $\Omega$	RCX4JATZ0223 RCX6JATZ0223
R 267	PCB JUMPER D0.6-P5.0	JW5.0T
R 268	CARBON RES. 1/4W J 10k $\Omega$ or CARBON RES. 1/6W J 10k $\Omega$	RCX4JATZ0103 RCX6JATZ0103
R 269	CARBON RES. 1/4W J 39 $\Omega$ or CARBON RES. 1/6W J 39 $\Omega$	RCX4JATZ0390 RCX6JATZ0390
R 270	CARBON RES. 1/4W J 39 $\Omega$ or CARBON RES. 1/6W J 39 $\Omega$	RCX4JATZ0390 RCX6JATZ0390
R 271	PCB JUMPER D0.6-P5.0	JW5.0T
R 273	CARBON RES. 1/4W J 560k $\Omega$ or CARBON RES. 1/6W J 560k $\Omega$	RCX4JATZ0564 RCX6JATZ0564
R 274	CARBON RES. 1/4W J 100 $\Omega$ or CARBON RES. 1/6W J 100 $\Omega$	RCX4JATZ0101 RCX6JATZ0101
R 275	CARBON RES. 1/4W J 1k $\Omega$ or CARBON RES. 1/6W J 1k $\Omega$	RCX4JATZ0102 RCX6JATZ0102
R 276	PCB JUMPER D0.6-P5.0	JW5.0T
R 277	CARBON RES. 1/4W J 5.6k $\Omega$ or CARBON RES. 1/6W J 5.6k $\Omega$	RCX4JATZ0562 RCX6JATZ0562
R 278	CARBON RES. 1/4W J 47k $\Omega$ or CARBON RES. 1/6W J 47k $\Omega$	RCX4JATZ0473 RCX6JATZ0473
R 280	CARBON RES. 1/4W J 5.6k $\Omega$ or CARBON RES. 1/6W J 5.6k $\Omega$	RCX4JATZ0562 RCX6JATZ0562
R 281	CARBON RES. 1/4W J 5.6k $\Omega$ or CARBON RES. 1/6W J 5.6k $\Omega$	RCX4JATZ0562 RCX6JATZ0562
R 282	CARBON RES. 1/4W J 100 $\Omega$ or CARBON RES. 1/6W J 100 $\Omega$	RCX4JATZ0101 RCX6JATZ0101
R 283	CARBON RES. 1/4W J 100 $\Omega$ or CARBON RES. 1/6W J 100 $\Omega$	RCX4JATZ0101 RCX6JATZ0101
R 284	CARBON RES. 1/4W J 39k $\Omega$ or CARBON RES. 1/6W J 39k $\Omega$	RCX4JATZ0393 RCX6JATZ0393
R 285	CARBON RES. 1/4W J 220k $\Omega$ or	RCX4JATZ0224

Ref. No.	Description	Part No.
R 286	CARBON RES. 1/6W J 220k $\Omega$	RCX6JATZ0224
	CARBON RES. 1/4W J 10k $\Omega$ or	RCX4JATZ0103
	CARBON RES. 1/6W J 10k $\Omega$	RCX6JATZ0103
R 287	CARBON RES. 1/4W J 10k $\Omega$ or	RCX4JATZ0103
	CARBON RES. 1/6W J 10k $\Omega$	RCX6JATZ0103
R 288	CARBON RES. 1/4W J 10k $\Omega$ or	RCX4JATZ0103
	CARBON RES. 1/6W J 10k $\Omega$	RCX6JATZ0103
R 289	CARBON RES. 1/4W J 1k $\Omega$ or	RCX4JATZ0102
	CARBON RES. 1/6W J 1k $\Omega$	RCX6JATZ0102
R 291	CARBON RES. 1/4W J 680 $\Omega$ or	RCX4JATZ0681
	CARBON RES. 1/6W J 680 $\Omega$	RCX6JATZ0681
R 292	CARBON RES. 1/4W J 1.8k $\Omega$ or	RCX4JATZ0182
	CARBON RES. 1/6W J 1.8k $\Omega$	RCX6JATZ0182
R 293	CARBON RES. 1/4W J 100k $\Omega$ or	RCX4JATZ0104
	CARBON RES. 1/6W J 100k $\Omega$	RCX6JATZ0104
R 296	CARBON RES. 1/4W J 4.7k $\Omega$ or	RCX4JATZ0472
	CARBON RES. 1/6W J 4.7k $\Omega$	RCX6JATZ0472
R 301	CARBON RES. 1/4W J 56k $\Omega$ or	RCX4JATZ0563
	CARBON RES. 1/6W J 56k $\Omega$	RCX6JATZ0563
R 302	CARBON RES. 1/4W J 390k $\Omega$ or	RCX4JATZ0394
	CARBON RES. 1/6W J 390k $\Omega$	RCX6JATZ0394
R 303	CARBON RES. 1/4W J 100 $\Omega$ or	RCX4JATZ0101
	CARBON RES. 1/6W J 100 $\Omega$	RCX6JATZ0101
R 304	CARBON RES. 1/4W J 100 $\Omega$ or	RCX4JATZ0101
	CARBON RES. 1/6W J 100 $\Omega$	RCX6JATZ0101
R 305	CARBON RES. 1/4W J 220 $\Omega$ or	RCX4JATZ0221
	CARBON RES. 1/6W J 220 $\Omega$	RCX6JATZ0221
R 306	CARBON RES. 1/4W J 10k $\Omega$ or	RCX4JATZ0103
	CARBON RES. 1/6W J 10k $\Omega$	RCX6JATZ0103
R 307	CARBON RES. 1/4W J 10k $\Omega$ or	RCX4JATZ0103
	CARBON RES. 1/6W J 10k $\Omega$	RCX6JATZ0103
R 309	CARBON RES. 1/4W J 2.7k $\Omega$ or	RCX4JATZ0272
	CARBON RES. 1/6W J 2.7k $\Omega$	RCX6JATZ0272
R 311	CARBON RES. 1/4W J 390k $\Omega$ or	RCX4JATZ0394
	CARBON RES. 1/6W J 390k $\Omega$	RCX6JATZ0394
R 314	CARBON RES. 1/4W J 6.8k $\Omega$ or	RCX4JATZ0682
	CARBON RES. 1/6W J 6.8k $\Omega$	RCX6JATZ0682
R 316	PCB JUMPER D0.6-P5.0	JW5.0T
R 317	CARBON RES. 1/4W J 33k $\Omega$ or	RCX4JATZ0333
	CARBON RES. 1/6W J 33k $\Omega$	RCX6JATZ0333
R 320	CARBON RES. 1/4W J 100 $\Omega$ or	RCX4JATZ0101
	CARBON RES. 1/6W J 100 $\Omega$	RCX6JATZ0101
R 321	CARBON RES. 1/4W J 1k $\Omega$ or	RCX4JATZ0102
	CARBON RES. 1/6W J 1k $\Omega$	RCX6JATZ0102
R 323	CARBON RES. 1/4W J 330k $\Omega$ or	RCX4JATZ0334
	CARBON RES. 1/6W J 330k $\Omega$	RCX6JATZ0334
R 324	CARBON RES. 1/4W J 27k $\Omega$ or	RCX4JATZ0273
	CARBON RES. 1/6W J 27k $\Omega$	RCX6JATZ0273
R 325	CARBON RES. 1/4W J 33k $\Omega$ or	RCX4JATZ0333
	CARBON RES. 1/6W J 33k $\Omega$	RCX6JATZ0333
R 326	CARBON RES. 1/4W J 220 $\Omega$ or	RCX4JATZ0221
	CARBON RES. 1/6W J 220 $\Omega$	RCX6JATZ0221
R 327	CARBON RES. 1/4W J 220 $\Omega$ or	RCX4JATZ0221
	CARBON RES. 1/6W J 220 $\Omega$	RCX6JATZ0221
R 328	CARBON RES. 1/4W J 220 $\Omega$ or	RCX4JATZ0221
	CARBON RES. 1/6W J 220 $\Omega$	RCX6JATZ0221
R 329	CARBON RES. 1/4W J 2.2k $\Omega$ or	RCX4JATZ0222
	CARBON RES. 1/6W J 2.2k $\Omega$	RCX6JATZ0222
R 330	CARBON RES. 1/4W J 2.2k $\Omega$ or	RCX4JATZ0222
	CARBON RES. 1/6W J 2.2k $\Omega$	RCX6JATZ0222
R 331	CARBON RES. 1/4W J 2.2k $\Omega$ or	RCX4JATZ0222
	CARBON RES. 1/6W J 2.2k $\Omega$	RCX6JATZ0222
R 332	CARBON RES. 1/4W J 22k $\Omega$ or	RCX4JATZ0223
	CARBON RES. 1/6W J 22k $\Omega$	RCX6JATZ0223
R 333	CARBON RES. 1/4W J 4.7k $\Omega$ or	RCX4JATZ0472
	CARBON RES. 1/6W J 4.7k $\Omega$	RCX6JATZ0472

Ref. No.	Description	Part No.
R 334	PCB JUMPER D0.6-P5.0	JW5.0T
R 335	CARBON RES. 1/4W J 22 $\Omega$ or	RCX4JATZ0220
	CARBON RES. 1/6W J 22 $\Omega$	RCX6JATZ0220
R 337	CARBON RES. 1/4W J 470 $\Omega$ or	RCX4JATZ0471
	CARBON RES. 1/6W J 470 $\Omega$	RCX6JATZ0471
R 338	CARBON RES. 1/4W J 1k $\Omega$ or	RCX4JATZ0102
	CARBON RES. 1/6W J 1k $\Omega$	RCX6JATZ0102
R 343	CARBON RES. 1/4W J 10k $\Omega$ or	RCX4JATZ0103
	CARBON RES. 1/6W J 10k $\Omega$	RCX6JATZ0103
R 344	CARBON RES. 1/4W J 100 $\Omega$ or	RCX4JATZ0101
	CARBON RES. 1/6W J 100 $\Omega$	RCX6JATZ0101
R 347	CARBON RES. 1/4W J 100 $\Omega$ or	RCX4JATZ0101
	CARBON RES. 1/6W J 100 $\Omega$	RCX6JATZ0101
R 348	CARBON RES. 1/4W J 680 $\Omega$ or	RCX4JATZ0681
	CARBON RES. 1/6W J 680 $\Omega$	RCX6JATZ0681
R 350	CARBON RES. 1/4W J 330 $\Omega$ or	RCX4JATZ0331
	CARBON RES. 1/6W J 330 $\Omega$	RCX6JATZ0331
R 352	CARBON RES. 1/4W J 12k $\Omega$ or	RCX4JATZ0123
	CARBON RES. 1/6W J 12k $\Omega$	RCX6JATZ0123
R 354	CARBON RES. 1/4W J 1k $\Omega$ or	RCX4JATZ0102
	CARBON RES. 1/6W J 1k $\Omega$	RCX6JATZ0102
R 355	CARBON RES. 1/4W J 220 $\Omega$ or	RCX4JATZ0221
	CARBON RES. 1/6W J 220 $\Omega$	RCX6JATZ0221
R 363	PCB JUMPER D0.6-P5.0	JW5.0T
R 366	CARBON RES. 1/4W J 220 $\Omega$ or	RCX4JATZ0221
	CARBON RES. 1/6W J 220 $\Omega$	RCX6JATZ0221
R 367	CARBON RES. 1/4W J 330 $\Omega$ or	RCX4JATZ0331
	CARBON RES. 1/6W J 330 $\Omega$	RCX6JATZ0331
R 368	CARBON RES. 1/4W J 560 $\Omega$ or	RCX4JATZ0561
	CARBON RES. 1/6W J 560 $\Omega$	RCX6JATZ0561
R 369	CARBON RES. 1/4W J 10k $\Omega$ or	RCX4JATZ0103
	CARBON RES. 1/6W J 10k $\Omega$	RCX6JATZ0103
R 371	CARBON RES. 1/4W J 10M $\Omega$	RCX4JATZ0106
R 373	CARBON RES. 1/4W J 560k $\Omega$ or	RCX4JATZ0564
	CARBON RES. 1/6W J 560k $\Omega$	RCX6JATZ0564
R 375	CARBON RES. 1/4W J 100 $\Omega$ or	RCX4JATZ0101
	CARBON RES. 1/6W J 100 $\Omega$	RCX6JATZ0101
R 376	CARBON RES. 1/4W J 1k $\Omega$ or	RCX4JATZ0102
	CARBON RES. 1/6W J 1k $\Omega$	RCX6JATZ0102
R 377	CARBON RES. 1/4W J 39k $\Omega$ or	RCX4JATZ0393
	CARBON RES. 1/6W J 39k $\Omega$	RCX6JATZ0393
R 378	CARBON RES. 1/4W J 39k $\Omega$ or	RCX4JATZ0393
	CARBON RES. 1/6W J 39k $\Omega$	RCX6JATZ0393
R 379	CARBON RES. 1/4W J 1k $\Omega$ or	RCX4JATZ0102
	CARBON RES. 1/6W J 1k $\Omega$	RCX6JATZ0102
R 380	CARBON RES. 1/4W J 2.2k $\Omega$ or	RCX4JATZ0222
	CARBON RES. 1/6W J 2.2k $\Omega$	RCX6JATZ0222
R 381	CARBON RES. 1/4W J 220 $\Omega$ or	RCX4JATZ0221
	CARBON RES. 1/6W J 220 $\Omega$	RCX6JATZ0221
R 382	CARBON RES. 1/4W J 1k $\Omega$ or	RCX4JATZ0102
	CARBON RES. 1/6W J 1k $\Omega$	RCX6JATZ0102
R 383	PCB JUMPER D0.6-P5.0	JW5.0T
R 384	CARBON RES. 1/4W J 100 $\Omega$ or	RCX4JATZ0101
	CARBON RES. 1/6W J 100 $\Omega$	RCX6JATZ0101
R 386	CARBON RES. 1/4W J 3.3k $\Omega$ or	RCX4JATZ0332
	CARBON RES. 1/6W J 3.3k $\Omega$	RCX6JATZ0332
R 387	CARBON RES. 1/4W J 10k $\Omega$ or	RCX4JATZ0103
	CARBON RES. 1/6W J 10k $\Omega$	RCX6JATZ0103
R 388	CARBON RES. 1/4W J 270 $\Omega$ or	RCX4JATZ0271
	CARBON RES. 1/6W J 270 $\Omega$	RCX6JATZ0271
R 394	PCB JUMPER D0.6-P5.0	JW5.0T
R 395	PCB JUMPER D0.6-P5.0	JW5.0T
R 396	CARBON RES. 1/4W J 330k $\Omega$ or	RCX4JATZ0334
	CARBON RES. 1/6W J 330k $\Omega$	RCX6JATZ0334
R 401	CARBON RES. 1/4W J 10k $\Omega$ or	RCX4JATZ0103
	CARBON RES. 1/6W J 10k $\Omega$	RCX6JATZ0103

Ref. No.	Description	Part No.
R 402	CARBON RES. 1/4W J 8.2k $\Omega$ or CARBON RES. 1/6W J 8.2k $\Omega$	RCX4JATZ0822 RCX6JATZ0822
R 403	CARBON RES. 1/4W J 12k $\Omega$ or CARBON RES. 1/6W J 12k $\Omega$	RCX4JATZ0123 RCX6JATZ0123
R 404	CARBON RES. 1/4W J 330k $\Omega$ or CARBON RES. 1/6W J 330k $\Omega$	RCX4JATZ0334 RCX6JATZ0334
R 405	CARBON RES. 1/4W J 120 $\Omega$ or CARBON RES. 1/6W J 120 $\Omega$	RCX4JATZ0121 RCX6JATZ0121
R 406	CARBON RES. 1/4W J 18k $\Omega$ or CARBON RES. 1/6W J 18k $\Omega$	RCX4JATZ0183 RCX6JATZ0183
R 407	CARBON RES. 1/4W J 1k $\Omega$ or CARBON RES. 1/6W J 1k $\Omega$	RCX4JATZ0102 RCX6JATZ0102
R 410	CARBON RES. 1/4W J 15k $\Omega$ or CARBON RES. 1/6W J 15k $\Omega$	RCX4JATZ0153 RCX6JATZ0153
R 411	CARBON RES. 1/4W J 4.7k $\Omega$ or CARBON RES. 1/6W J 4.7k $\Omega$	RCX4JATZ0472 RCX6JATZ0472
R 413	CARBON RES. 1/4W J 1.5k $\Omega$ or CARBON RES. 1/6W J 1.5k $\Omega$	RCX4JATZ0152 RCX6JATZ0152
R 414	CARBON RES. 1/4W J 22k $\Omega$ or CARBON RES. 1/6W J 22k $\Omega$	RCX4JATZ0223 RCX6JATZ0223
R 415	CARBON RES. 1/4W J 100k $\Omega$ or CARBON RES. 1/6W J 100k $\Omega$	RCX4JATZ0104 RCX6JATZ0104
R 416	CARBON RES. 1/4W J 100k $\Omega$ or CARBON RES. 1/6W J 100k $\Omega$	RCX4JATZ0104 RCX6JATZ0104
R 419	CARBON RES. 1/4W J 10k $\Omega$ or CARBON RES. 1/6W J 10k $\Omega$	RCX4JATZ0103 RCX6JATZ0103
R 422	CARBON RES. 1/4W J 1k $\Omega$ or CARBON RES. 1/6W J 1k $\Omega$	RCX4JATZ0102 RCX6JATZ0102
R 423	CARBON RES. 1/4W J 470 $\Omega$ or CARBON RES. 1/6W J 470 $\Omega$	RCX4JATZ0471 RCX6JATZ0471
R 424	CARBON RES. 1/4W J 33k $\Omega$ or CARBON RES. 1/6W J 33k $\Omega$	RCX4JATZ0333 RCX6JATZ0333
R 425	CARBON RES. 1/4W J 270 $\Omega$ or CARBON RES. 1/6W J 270 $\Omega$	RCX4JATZ0271 RCX6JATZ0271
R 426	CARBON RES. 1/4W J 330 $\Omega$ or CARBON RES. 1/6W J 330 $\Omega$	RCX4JATZ0331 RCX6JATZ0331
R 428	CARBON RES. 1/4W J 100 $\Omega$ or CARBON RES. 1/6W J 100 $\Omega$	RCX4JATZ0101 RCX6JATZ0101
R 429	CARBON RES. 1/4W J 12k $\Omega$ or CARBON RES. 1/6W J 12k $\Omega$	RCX4JATZ0123 RCX6JATZ0123
R 430	CARBON RES. 1/4W J 1.8k $\Omega$ or CARBON RES. 1/6W J 1.8k $\Omega$	RCX4JATZ0182 RCX6JATZ0182
R 432	CARBON RES. 1/4W J 2.2k $\Omega$ or CARBON RES. 1/6W J 2.2k $\Omega$	RCX4JATZ0222 RCX6JATZ0222
R 433	PCB JUMPER D0.6-P5.0	JW5.0T
R 434	CARBON RES. 1/4W J 3.3M $\Omega$ or CARBON RES. 1/6W J 3.3M $\Omega$	RCX4JATZ0335 RCX6JATZ0335
R 435	CARBON RES. 1/4W J 100k $\Omega$ or CARBON RES. 1/6W J 100k $\Omega$	RCX4JATZ0104 RCX6JATZ0104
R 436	CARBON RES. 1/4W J 130k $\Omega$ or CARBON RES. 1/6W J 130k $\Omega$	RCX4JATZ0134 RCX6JATZ0134
R 437	CARBON RES. 1/4W J 10k $\Omega$ or CARBON RES. 1/6W J 10k $\Omega$	RCX4JATZ0103 RCX6JATZ0103
R 438	CARBON RES. 1/4W J 10k $\Omega$ or CARBON RES. 1/6W J 10k $\Omega$	RCX4JATZ0103 RCX6JATZ0103
R 439	CARBON RES. 1/4W J 820 $\Omega$ or CARBON RES. 1/6W J 820 $\Omega$	RCX4JATZ0821 RCX6JATZ0821
R 440	CARBON RES. 1/4W J 2.2k $\Omega$ or CARBON RES. 1/6W J 2.2k $\Omega$	RCX4JATZ0222 RCX6JATZ0222
R 441	CARBON RES. 1/4W J 180 $\Omega$ or CARBON RES. 1/6W J 180 $\Omega$	RCX4JATZ0181 RCX6JATZ0181
R 442	CARBON RES. 1/4W J 680k $\Omega$ or CARBON RES. 1/6W J 680k $\Omega$	RCX4JATZ0684 RCX6JATZ0684
R 443	CARBON RES. 1/4W J 1.2k $\Omega$ or CARBON RES. 1/6W J 1.2k $\Omega$	RCX4JATZ0122 RCX6JATZ0122
R 444	CARBON RES. 1/4W J 1.5M $\Omega$ or	RCX4JATZ0155

Ref. No.	Description	Part No.
R 445	CARBON RES. 1/6W J 1.5M $\Omega$ CARBON RES. 1/4W J 8.2k $\Omega$ or CARBON RES. 1/6W J 8.2k $\Omega$	RCX6JATZ0155 RCX4JATZ0822 RCX6JATZ0822
R 450	CARBON RES. 1/4W J 4.7k $\Omega$ or CARBON RES. 1/6W J 4.7k $\Omega$	RCX4JATZ0472 RCX6JATZ0472
R 451	CARBON RES. 1/4W J 33k $\Omega$ or CARBON RES. 1/6W J 33k $\Omega$	RCX4JATZ0333 RCX6JATZ0333
R 452	CARBON RES. 1/4W J 2.2M $\Omega$ or CARBON RES. 1/6W J 2.2M $\Omega$	RCX4JATZ0225 RCX6JATZ0225
R 453	CARBON RES. 1/4W J 27k $\Omega$ or CARBON RES. 1/6W J 27k $\Omega$	RCX4JATZ0273 RCX6JATZ0273
R 454	CARBON RES. 1/4W J 4.7k $\Omega$ or CARBON RES. 1/6W J 4.7k $\Omega$	RCX4JATZ0472 RCX6JATZ0472
R 461	CARBON RES. 1/4W J 330 $\Omega$ or CARBON RES. 1/6W J 330 $\Omega$	RCX4JATZ0331 RCX6JATZ0331
R 462	CARBON RES. 1/4W J 2k $\Omega$ or CARBON RES. 1/6W J 2k $\Omega$	RCX4JATZ0202 RCX6JATZ0202
R 464	CARBON RES. 1/4W J 3.3k $\Omega$ or CARBON RES. 1/6W J 3.3k $\Omega$	RCX4JATZ0332 RCX6JATZ0332
R 465	CARBON RES. 1/4W J 6.8k $\Omega$ or CARBON RES. 1/6W J 6.8k $\Omega$	RCX4JATZ0682 RCX6JATZ0682
R 466	CARBON RES. 1/4W J 6.8k $\Omega$ or CARBON RES. 1/6W J 6.8k $\Omega$	RCX4JATZ0682 RCX6JATZ0682
R 467	CARBON RES. 1/4W J 2.2k $\Omega$ or CARBON RES. 1/6W J 2.2k $\Omega$	RCX4JATZ0222 RCX6JATZ0222
R 468	CARBON RES. 1/4W J 100 $\Omega$ or CARBON RES. 1/6W J 100 $\Omega$	RCX4JATZ0101 RCX6JATZ0101
R 480	PCB JUMPER D0.6-P5.0	JW5.0T
R 481	CARBON RES. 1/4W J 22k $\Omega$ or CARBON RES. 1/6W J 22k $\Omega$	RCX4JATZ0223 RCX6JATZ0223
R 482	CARBON RES. 1/4W J 47k $\Omega$ or CARBON RES. 1/6W J 47k $\Omega$	RCX4JATZ0473 RCX6JATZ0473
R 483	CARBON RES. 1/4W J 100 $\Omega$ or CARBON RES. 1/6W J 100 $\Omega$	RCX4JATZ0101 RCX6JATZ0101
R 484	CARBON RES. 1/4W J 2.7k $\Omega$ or CARBON RES. 1/6W J 2.7k $\Omega$	RCX4JATZ0272 RCX6JATZ0272
R 485	CARBON RES. 1/4W J 10k $\Omega$ or CARBON RES. 1/6W J 10k $\Omega$	RCX4JATZ0103 RCX6JATZ0103
R 486	CARBON RES. 1/4W J 2.2k $\Omega$ or CARBON RES. 1/6W J 2.2k $\Omega$	RCX4JATZ0222 RCX6JATZ0222
R 487	CARBON RES. 1/4W J 2.2k $\Omega$ or CARBON RES. 1/6W J 2.2k $\Omega$	RCX4JATZ0222 RCX6JATZ0222
R 499	PCB JUMPER D0.6-P5.0	JW5.0T
R 619	CARBON RES. 1/4W J 1k $\Omega$ or CARBON RES. 1/6W J 1k $\Omega$	RCX4JATZ0102 RCX6JATZ0102
R 626 $\blacktriangle$	CARBON RES. 1/4W J 12 $\Omega$ or CARBON RES. 1/6W J 12 $\Omega$	RCX4JATZ0120 RCX6JATZ0120
R 627 $\blacktriangle$	CARBON RES. 1/4W J 15 $\Omega$ or CARBON RES. 1/6W J 15 $\Omega$	RCX4JATZ0150 RCX6JATZ0150
R 628 $\blacktriangle$	METAL RESISTOR 2W J 68 $\Omega$ or FIXED METAL OXIDE FILM RES. 2W J 68 $\Omega$ or	RN02680ZU001 RN02680KE007
R 629 $\blacktriangle$	METAL RESISTOR 2W J 68 $\Omega$ or FIXED METAL OXIDE FILM RES. 2W J 68 $\Omega$ or	RN02680UB001 RN02680ZU001 RN02680KE007
R 654	METAL RESISTOR 2W J 68 $\Omega$	RN02680UB001
R 663	CARBON RES. 1/4W J 10k $\Omega$ or CARBON RES. 1/6W J 10k $\Omega$	RCX4JATZ0103 RCX6JATZ0103
R 665 $\blacktriangle$	CARBON RES. 1/4W J 10 $\Omega$ or CARBON RES. 1/6W J 10 $\Omega$	RCX4JATZ0100 RCX6JATZ0100
R 666	CARBON RES. 1/4W J 100 $\Omega$ or CARBON RES. 1/6W J 100 $\Omega$	RCX4JATZ0101 RCX6JATZ0101
R 667 $\blacktriangle$	CARBON RES. 1/4W J 270 $\Omega$ or CARBON RES. 1/6W J 270 $\Omega$	RCX4JATZ0271 RCX6JATZ0271
R 672	METAL RES. 2W J 12 $\Omega$ or	RN02120ZU001

Ref. No.	Description	Part No.
R 674	FIXED METAL OXIDE FILM RES. 2W J 12 Ω or METAL RESISTOR 2W J 12 Ω	RN02120KE007 RN02120UB001
R 701	CARBON RES. 1/4W J 270 Ω or CARBON RES. 1/6W J 270 Ω	RCX4JATZ0271 RCX6JATZ0271
R 702	CARBON RES. 1/4W J 75 Ω or CARBON RES. 1/6W J 75 Ω	RCX4JATZ0750 RCX6JATZ0750
R 703	PCB JUMPER D0.6-P5.0	JW5.0T
R 709	PCB JUMPER D0.6-P5.0	JW5.0T
R 710	CARBON RES. 1/4W J 470 Ω or CARBON RES. 1/6W J 470 Ω	RCX4JATZ0471 RCX6JATZ0471
R 750	CARBON RES. 1/4W J 100 Ω or CARBON RES. 1/6W J 100 Ω	RCX4JATZ0101 RCX6JATZ0101
R 801	CARBON RES. 1/4W J 10k Ω or CARBON RES. 1/6W J 10k Ω	RCX4JATZ0103 RCX6JATZ0103
R 803	CARBON RES. 1/4W J 3.3k Ω or CARBON RES. 1/6W J 3.3k Ω	RCX4JATZ0332 RCX6JATZ0332
R 806 ▲	PCB JUMPER D0.6-P5.0	JW5.0T
R 807 ▲	CARBON RES. 1/4W J 2.2k Ω or CARBON RES. 1/6W J 2.2k Ω	RCX4JATZ0222 RCX6JATZ0222
R 808 ▲	FIXED METAL OXIDE FILM RES. 1W J 12 Ω or METAL FILM RES.(STRAIGHT)1W J 12 Ω	RN01JZPZ0120 RN01JZQZ0120
R 811	CARBON RES. 1/4W J 2.2k Ω or CARBON RES. 1/6W J 2.2k Ω	RCX4JATZ0222 RCX6JATZ0222
R 812	CARBON RES. 1/4W J 10 Ω or CARBON RES. 1/6W J 10 Ω	RCX4JATZ0100 RCX6JATZ0100
R 849	CARBON RES. 1/4W J 820 Ω or CARBON RES. 1/6W J 820 Ω	RCX4JATZ0821 RCX6JATZ0821
R 849	CARBON RES. 1/2W J 100 Ω or CARBON RES. 1/2W J 100 Ω	RCX2JZQZ0101 RCX2101KA013
<b>SWITCHES</b>		
SW 101	TACT SWITCH SKQSAB or PUSH SWITCH KSM0612B	SST0101AL038 SST0101HH003
SW 102	TACT SWITCH SKQSAB or PUSH SWITCH KSM0612B	SST0101AL038 SST0101HH003
SW 103	TACT SWITCH SKQSAB or PUSH SWITCH KSM0612B	SST0101AL038 SST0101HH003
SW 104	TACT SWITCH SKQSAB or PUSH SWITCH KSM0612B	SST0101AL038 SST0101HH003
SW 105	TACT SWITCH SKQSAB or PUSH SWITCH KSM0612B	SST0101AL038 SST0101HH003
SW 106	TACT SWITCH SKQSAB or PUSH SWITCH KSM0612B	SST0101AL038 SST0101HH003
SW 107	TACT SWITCH SKQSAB or PUSH SWITCH KSM0612B	SST0101AL038 SST0101HH003
SW 108	TACT SWITCH SKQSAB or PUSH SWITCH KSM0612B	SST0101AL038 SST0101HH003
SW 109	TACT SWITCH SKQSAB or PUSH SWITCH KSM0612B	SST0101AL038 SST0101HH003
SW 110	TACT SWITCH SKQSAB or PUSH SWITCH KSM0612B	SST0101AL038 SST0101HH003
SW 201	PUSH SWITCH SPPB61066A or PUSH SWITCH JPS1120-0601H	SSP0102AL001 SSP0102SR001
<b>TRANSFORMER</b>		
T 301	VCO COIL KHI-821023 or VCO COIL KS1252NC	LFA08V0KV002 LFA08V0LH002
<b>CRYSTAL OSCILLATORS</b>		
X 201	CRYSTAL OSCILLATOR HC-49/U or CRYSTAL OSCILLATOR AT49-10.6 or CRYSTAL OSCILLATOR :10.6MHz S8562	FXD106LLN001 FXD106LDS002 FXD106LCT001
X 202	CRYSTAL OSCILLATOR 32kHz(10PPM) or CRYSTAL OSCILLATOR 32.768kHz or CRYSTAL OSCILLATOR 32kHz(10PPM)	1811351 FXB323LDS002 1811350
X 301	CERAMIC RESONATOR CSB503F18	FY0504PMR001
X 321	CRYSTAL OSCILLATOR 3.579545 MHz	FXD355LLN001
X 401	CRYSTAL OSCILLATOR 3.579545MHz or CRYSTAL OSCILLATOR 3.579545MHz	FXC355LLN001 1811389

Ref. No.	Description	Part No.
<b>MISCELLANEOUS</b>		
CF 301	CERAMIC FILTER SFSH4.5MCB	FBB455PMR001
CF 302	CERAMIC TRAP TPS4.5MB2	FBE455PMR001
DL 2	B-TITE SCREW 3X8 BIND + CHROME	GBMB3080
DL 3	B-TITE SCREW 3X8 BIND + CHROME	GBMB3080
DS 1	SHEET POLYETHYLENE	0VM301906
JK 701	RCA JACK 1P AV-8.4-9Y	JXRL010RP010
JK 702	RCA JACK 1P AV-8.4-9W	JXRL010RP011
JK 801	EARPHONE JACK HSJ1403-01-010 or EARPHONE JACK HTJ-035-1ZEBTZ or EARPHONE JACK MSJ-035-12APC	JYSL030HD002 JYSL030GE001 JYSL030LY001
RS 201	REMOCON RECEIVE UNIT PIC-26042SR	USESJRSKK023
SF 003	SAW FILTER TSF5229P	FBB456PSY008
TB 5	BUSH LED(E) H1600UD	0VM408832
TB 16	BUSH LED(D) H1600UD	0VM408655
TU 001	TUNER UNIT TEDH9-002A or TUNER UNIT B8055AP	UTUNNTUAL018 UTUNNTUSP012

### MPS/MUT CBA

Ref. No.	Description	Part No.
	MPS/MUT PCB Assembly Consists of the following or Power Supply/H.V. CBA CRT CBA	0ESA03189 _____ _____

### Power Supply/H.V. CBA

Ref. No.	Description	Part No.
	Power Supply/H.V. CBA Consists of the following	_____
<b>CAPACITORS</b>		
C 552	FILM CAP.(P) 0.1μF/50V J or FILM CAP.(P) 0.1μF/50V J or FILM CAP.(P) 0.1μF/50V J TV or MYLAR CAP. 0.1μF/50V K	CMA1JJS00104 CA1J104MS029 CMB1JJS00104 2250104S
C 553	ELECTROLYTIC CAP. 1μF/50V M LL	CE1JMASLL1R0
C 555	ELECTROLYTIC CAP. 47μF/35V M	CE1GMASDL470
C 556	ELECTROLYTIC CAP. 1000μF/25V M	CE1EMZPDL102
C 558	CERAMIC CAP.(AX) B K 0.01μF/50V	CCA1JKT0B103
C 559	ELE. CAP. 330μF/35V M	CE1GMASDL331
C 560	FILM CAP.(P) 0.056μF/50V J or FILM CAP.(P) 0.056μF/50V J or MYLAR CAP. 0.056μF/50V J TV or MYLAR CAP. 0.056μF/50V J TV	CMA1JJS00563 CA1J563MS029 CMB1JJS00563 2250563S
C 571 ▲	METALLIZED FILM CAP. 0.47μF/200V J or METALLIZED FILM CAP. 0.47μF/200V J or P.P. CAP. 0.47μF/200V J	CT2D474F7001 1220511 CA2D474KF002
C 574 ▲	ELECTROLYTIC CAP. 4.7μF/250V	CE2EMASDL4R7
C 577	CERAMIC CAP. B K 2200pF/500V or CERAMIC CAP. B K 2200pF/500V	CCD2JKD0B222 CCD2JKP0B222
C 578	ELECTROLYTIC CAP. 1μF/160V or ELECTROLYTIC CAP. 1μF/160V M or ELECTROLYTIC CAP. 1μF/160V M	CE2CMASDL010 CE2CMASDL010 CE2CMASDL1R0
C 580 ▲	METALLIZED FILM CAP. 0.01μF/1.6kV J or METALLIZED FILM CAP. 0.01μF/1.6kV J	1220500 CT3C103F7002
C 581 ▲	CERAMIC CAP. LB 680pF/2kV or CERAMIC CAP. BN 680pF/2kV	CA3D681KG004 CCD3DKA0B681
C 584	ELECTROLYTIC CAP. 1μF/160V or ELECTROLYTIC CAP. 1μF/160V M or ELECTROLYTIC CAP. 1μF/160V M	CE2CMASDL010 CE2CMASDL010 CE2CMASDL1R0
C 591 ▲	ELECTROLYTIC CAP. 1μF/50V M	CE1JMASDL1R0
C 592 ▲	ELECTROLYTIC CAP. 47μF/35V M	CE1GMASDL470
C 601	CERAMIC CAP. LB 1000pF/2kV or CERAMIC CAP. BN 1000pF/2kV	CA3D102KG004 CCD3DKA0B102
C 603	STACKED FILM CAP. 0.12μF/50V J or	CMA1JJS00124

Ref. No.	Description	Part No.
	FILM CAP.(P) 0.12μF/50V J or MYLAR CAP. 0.12μF/50V J TV or FILM CAP. 0.12μF/50V J	CA1J124MS029 CMB1JJS00124 122Z310S
C 605 ▲	FILM CAP.(MP) 0.1μF/250V M	CT2E104DC009
C 606	CERAMIC CAP. LB 560pF/2kV or CERAMIC CAP. BN 560pF/2kV	CA3D561KG004 CCD3DKA0B561
C 607	CERAMIC CAP. LB 330pF/2kV or CERAMIC CAP. BN 330pF/2kV	CA3D331KG004 CCD3DKA0B331
C 608	FILM CAP.(P) 0.015μF/50V J or FILM CAP.(P) 0.015μF/50V J or MYLAR CAP. 0.015μF/50V J TV or MYLAR CAP. 0.015μF/50V K	CMA1JJS00153 CA1J153MS029 CMB1JJS00153 2250153S
C 609 ▲	ELECTROLYTIC CAP. 470μF/200V M W/F or ELECTROLYTIC CAP. 470μF/200V	CA2D471EA029
C 610	CERAMIC CAP. F Z 0.01μF/500V or CERAMIC CAP. 0.01μF/AC250V	CA2D471NC013 CCD2JZD0F103 CCD2EZA0F103
C 611	CERAMIC CAP. F Z 0.01μF/500V or CERAMIC CAP. 0.01μF/AC250V	CCD2JZD0F103 CCD2EZA0F103
C 612	CERAMIC CAP. F Z 0.01μF/500V or CERAMIC CAP. 0.01μF/AC250V	CCD2JZD0F103 CCD2EZA0F103
C 613	CERAMIC CAP. F Z 0.01μF/500V or CERAMIC CAP. 0.01μF/AC250V	CCD2JZD0F103 CCD2EZA0F103
C 614 ▲	CERAMIC CAP. SAFETY 4700pF CS or SAFETY CAP. E M 4700pF/250V	CCG2HMP0E472 CCG2EMP0E472
C 615 ▲	CERAMIC CAP. SAFETY 4700pF CS or SAFETY CAP. E M 4700pF/250V	CCG2HMP0E472 CCG2EMP0E472
C 616	FILM CAP.(P) 0.056μF/50V J or FILM CAP.(P) 0.056μF/50V J or MYLAR CAP. 0.056μF/50V J TV or MYLAR CAP. 0.056μF/50V KT	CMA1JJS00563 CA1J563MS029 CMB1JJS00563 2250563S
C 617 ▲	CERAMIC CAP. SAFETY 4700pF CS or SAFETY CAP. E M 4700pF/250V	CCG2HMP0E472 CCG2EMP0E472
C 618 ▲	CERAMIC CAP. SAFETY 4700pF CS or SAFETY CAP. E M 4700pF/250V	CCG2HMP0E472 CCG2EMP0E472
C 620 ▲	ELECTROLYTIC CAP. 470μF/35V M or ELECTROLYTIC CAP. 470μF/35V M	CE1GMZPDL471 CE1GMZNDL471
C 621	FILM CAP.(P) 0.027μF/50V J or FILM CAP.(P) 0.027μF/50V J or FILM CAP.(P) 0.027μF/50V J TV or MYLAR CAP. 0.027μF/50V K	CMA1JJS00273 CA1J273MS029 CMB1JJS00273 2250273S
C 622 ▲	ELECTROLYTIC CAP. 100μF/160V M or ELECTROLYTIC CAP. 100μF/160V M	CE2CMZNDL101 CE2CMZPDL101
C 623 ▲	ELECTROLYTIC CAP. 1000μF/16V M or ELECTROLYTIC CAP. 1000μF/16V M(VR/HC)	CE1CMZPDL102 CE1CMZNTL102
C 624 ▲	ELECTROLYTIC CAP. 1000μF/16V M or ELECTROLYTIC CAP. 1000μF/16V M(VR/HC)	CE1CMZPDL102 CE1CMZNTL102
C 626 ▲	CERAMIC CAP. LB 470pF/2kV or CERAMIC CAP. BN 470pF/2kV	CA3D471KG004 CCD3DKA0B471
C 627	CERAMIC CAP. F Z 0.01μF/50V	CCD1JZS0F103
C 628 ▲	ELECTROLYTIC CAP. 47μF/200V M(105C) or ELECTROLYTIC CAP. 47μF/200V M KC or ELECTROLYTIC CAP. 47μF/200V M(LN̄Z)	CE2DMZNA470 CE2DMZNT470 CA2D470NC009
C 631	FILM CAP.(P) 0.1μF/50V J or FILM CAP.(P) 0.1μF/50V J or FILM CAP.(P) 0.1μF/50V J TV or MYLAR CAP. 0.1μF/50V K	CMA1JJS00104 CA1J104MS029 CMB1JJS00104 2250104S
C 634	ELECTROLYTIC CAP. 100μF/16V M	CE1CMASDL101
C 635 ▲	ELECTROLYTIC CAP. 47μF/16V M	CE1CMASDL470
C 638	ELECTROLYTIC CAP. 47μF/50V M	CE1JMASDL470
C 639	ELECTROLYTIC CAP. 22μF/50V M	CE1JMASDL220
C 643	CERAMIC CAP.(AX) B K 220pF/50V	CCA1JKT0B221
C 645	PCB JUMPER D0.6-P10.0	JW10.0T
C 652 ▲	ELECTROLYTIC CAP. 1000μF/16V M or ELECTROLYTIC CAP. 1000μF/16V M(VR/HC)	CE1CMZPDL102 CE1CMZNTL102

Ref. No.	Description	Part No.
<b>CONNECTORS</b>		
CN 502	CONNECTOR 7P TUC-P07X-B1	JCTUS07TG001
CN 504	CONNECTOR 5P TUC-P05X-B1	JCTUS05TG001
CN 571	CONNECTOR BASE 5P TV-50P-05-V2 or CONNECTOR BASE 5P RTB-1.5-5P	J3TVC05TG002 J3RTC05JG001
CN 601	CONNECTOR BASE 2P TV-50P-02-V2 or CONNECTOR BASE 2P RTB-1.5-2P	J3TVC02TG002 J3RTC02JG001
CN 604	CONNECTOR 14P TUC-P14X-B1	JCTUS14TG001
<b>DIODES</b>		
D 552	RECTIFIER DIODE ERA15-02	AERA1502****
D 555	ZENER DIODE MTZJT-7720B	QDTB00MTZJ20
D 571	PCB JUMPER D0.6-P15.0	JW15.0T
D 572 ▲	RECTIFIER DIODE ERA22-02	QDPZ0ERA2202
D 584 ▲	SWITCHING DIODE 1SS133(T-77) or SWITCHING DIODE 1N4148 or DIODE 1SS176TPA7	QDTZ001SS133 NDTZ001N4148 1SS176T
D 585 ▲	ZENER DIODE MTZJT-776.2B	QDTB0MTZJ6R2
D 591 ▲	ZENER DIODE MTZJT-7730B	QDTB00MTZJ30
D 595 ▲	ZENER DIODE MTZJT-7724C	QDTC00MTZJ24
D 596 ▲	SWITCHING DIODE 1SS133(T-77) or SWITCHING DIODE 1N4148 or DIODE 1SS176TPA7	QDTZ001SS133 NDTZ001N4148 1SS176T
D 597 ▲	SWITCHING DIODE 1SS133(T-77) or SWITCHING DIODE 1N4148 or DIODE 1SS176TPA7	QDTZ001SS133 NDTZ001N4148 1SS176T
D 598 ▲	RECTIFIER DIODE ERA22-02	QDPZ0ERA2202
D 602 ▲	SWITCHING DIODE 1SS133(T-77) or SWITCHING DIODE 1N4148 or DIODE 1SS176TPA7	QDTZ001SS133 NDTZ001N4148 1SS176T
D 603	SWITCHING DIODE 1SS133(T-77) or SWITCHING DIODE 1N4148 or DIODE 1SS176TPA7	QDTZ001SS133 NDTZ001N4148 1SS176T
D 604	ZENER DIODE MTZJT-776.2B	QDTB0MTZJ6R2
D 605	FAST RECOVERY DIODE ERB44-08	QDPZ0ERB4408
D 606 ▲	ZENER DIODE MTZJT-7720C	QDTC00MTZJ20
D 607	SWITCHING DIODE 1SS133(T-77) or SWITCHING DIODE 1N4148 or DIODE 1SS176TPA7	QDTZ001SS133 NDTZ001N4148 1SS176T
D 609 ▲	DIODE RRC04-06L3	QD4Z0ERC0406
D 610 ▲	DIODE RRC04-06L3	QD4Z0ERC0406
D 611 ▲	DIODE RRC04-06L3	QD4Z0ERC0406
D 612 ▲	DIODE RRC04-06L3	QD4Z0ERC0406
D 614 ▲	ZENER DIODE MTZJT-776.8B	QDTB0MTZJ6R8
D 615 ▲	RECTIFIER DIODE ERA22-02	QDPZ0ERA2202
D 616 ▲	DIODE 1ZC33 or ZENER DIODE RD33FB	QDQZ0001ZC33 QDQZ000RD33F
D 617 ▲	SCHOTTKY BARRIER DIODE ERB83-006	QDQZERB83006
D 618 ▲	SCHOTTKY BARRIER DIODE ERB83-006	QDQZERB83006
D 619 ▲	SCHOTTKY BARRIER DIODE ERB83-006	QDQZERB83006
D 621 ▲	DIODE ERD29-06J	QD4Z0ERD2906
D 623	ZENER DIODE MTZJT-7724C	QDTC00MTZJ24
D 625	SWITCHING DIODE 1SS133(T-77) or SWITCHING DIODE 1N4148 or DIODE 1SS176TPA7	QDTZ001SS133 NDTZ001N4148 1SS176T
D 626	ZENER DIODE MTZJT-7736A	QDTA00MTZJ36
D 632	ZENER DIODE MTZJT-779.1A	QDTA0MTZJ9R1
D 633	SWITCHING DIODE 1SS133(T-77) or SWITCHING DIODE 1N4148 or DIODE 1SS176TPA7	QDTZ001SS133 NDTZ001N4148 1SS176T
D 634 ▲	SWITCHING DIODE 1SS133(T-77) or SWITCHING DIODE 1N4148 or DIODE 1SS176TPA7	QDTZ001SS133 NDTZ001N4148 1SS176T
D 635	SWITCHING DIODE 1SS133(T-77) or SWITCHING DIODE 1N4148 or DIODE 1SS176TPA7	QDTZ001SS133 NDTZ001N4148 1SS176T
D 639	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133



Ref. No.	Description	Part No.
D 640	SWITCHING DIODE 1N4148 or DIODE 1SS176TPA7	NDTZ001N4148 1SS176T
D 641	SWITCHING DIODE 1SS133(T-77) or SWITCHING DIODE 1N4148 or DIODE 1SS176TPA7	QDTZ001SS133 NDTZ001N4148 1SS176T
D 642	SWITCHING DIODE 1SS133(T-77) or SWITCHING DIODE 1N4148 or DIODE 1SS176TPA7	QDTZ001SS133 NDTZ001N4148 1SS176T
D 643 ▲	ZENER DIODE MTZJT-772.2B	QDTB0MTZJ2R2
D 644 ▲	SWITCHING DIODE 1SS133(T-77) or SWITCHING DIODE 1N4148 or DIODE 1SS176TPA7	QDTZ001SS133 NDTZ001N4148 1SS176T
D 645 ▲	SWITCHING DIODE 1SS133(T-77) or SWITCHING DIODE 1N4148 or DIODE 1SS176TPA7	QDTZ001SS133 NDTZ001N4148 1SS176T
D 655 ▲	SWITCHING DIODE 1SS133(T-77) or SWITCHING DIODE 1N4148 or DIODE 1SS176TPA7	QDTZ001SS133 NDTZ001N4148 1SS176T
D 660	SWITCHING DIODE 1SS133(T-77) or SWITCHING DIODE 1N4148 or DIODE 1SS176TPA7	QDTZ001SS133 NDTZ001N4148 1SS176T
<b>IC</b>		
IC 601 ▲	PHOTOCOUPLER LTV-817B-F or PHOTOCOUPLER LTV-817C-F	NPEB0LTV817F NPEC0LTV817F
<b>COILS</b>		
L 571 ▲	LINEARITY COIL SCCT-16μH or LINEARITY COIL LC01	LLBD00PU6001 LLBG00ZY2002
L 572 ▲	INDUCTOR 33μH-K-26T or INDUCTOR 33μH-K-26T	LLAXKATTU330 LLAXKDTKA330
L 601 ▲	LINE FILTER 15mH	LLBG00ZXB002
L 602	CHOKE COIL 47μH-K	LLBD00PKV004
<b>TRANSISTORS</b>		
Q 551	TRANSISTOR KTC3199(GR) or TRANSISTOR KTC3198GR TO-92 or TRANSISTOR 2SC3331(T) or TRANSISTOR 2SC3331(U) or TRANSISTOR 2SC1815GR-TPE2	NQS10KTC3199 NQS40KTC3198 QSC3331TNPAA QSC3331UNPAA 2SC1815GRTPE
Q 552	TRANSISTOR KTC3199(GR) or TRANSISTOR KTC3198GR TO-92 or TRANSISTOR 2SC3331(T) or TRANSISTOR 2SC3331(U) or TRANSISTOR 2SC1815GR-TPE2	NQS10KTC3199 NQS40KTC3198 QSC3331TNPAA QSC3331UNPAA 2SC1815GRTPE
Q 572 ▲	TRANSISTOR 2SC2482 TPE6	QQS02SC2482
Q 591 ▲	TRANSISTOR KTC3199(GR) or TRANSISTOR KTC3198GR TO-92 or TRANSISTOR 2SC3331(T) or TRANSISTOR 2SC3331(U) or TRANSISTOR 2SC1815GR-TPE2	NQS10KTC3199 NQS40KTC3198 QSC3331TNPAA QSC3331UNPAA 2SC1815GRTPE
Q 602 ▲	TRANSISTOR 2SC2120-O(TPE2) or TRANSISTOR 2SC2120(Y)	QQS002SC2120 QQSY02SC2120
Q 605 ▲	TRANSISTOR KTC3199(GR) or TRANSISTOR KTC3198GR TO-92 or TRANSISTOR 2SC3331(T) or TRANSISTOR 2SC3331(U) or TRANSISTOR 2SC1815GR-TPE2	NQS10KTC3199 NQS40KTC3198 QSC3331TNPAA QSC3331UNPAA 2SC1815GRTPE
Q 609	TRANSISTOR KTC3199(GR) or TRANSISTOR KTC3198GR TO-92 or TRANSISTOR 2SC3331(T) or TRANSISTOR 2SC3331(U) or TRANSISTOR 2SC1815GR-TPE2	NQS10KTC3199 NQS40KTC3198 QSC3331TNPAA QSC3331UNPAA 2SC1815GRTPE
Q 610 ▲	TRANSISTOR 2SB698(G) or TRANSISTOR 2SB698(F)	QQSG002SB698 QQSF002SB698
Q 613	TRANSISTOR KTC3199(GR) or	NQS10KTC3199

Ref. No.	Description	Part No.
Q 614	TRANSISTOR KTC3198GR TO-92 or TRANSISTOR 2SC3331(T) or TRANSISTOR 2SC3331(U) or TRANSISTOR 2SC1815GR-TPE2	NQS40KTC3198 QSC3331TNPAA QSC3331UNPAA 2SC1815GRTPE
Q 616 ▲	TRANSISTOR KTC3199(GR) or TRANSISTOR KTC3198GR TO-92 or TRANSISTOR 2SC3331(T) or TRANSISTOR 2SC3331(U) or TRANSISTOR 2SC1815GR-TPE2	NQS10KTC3199 NQS40KTC3198 QSC3331TNPAA QSC3331UNPAA 2SC1815GRTPE
Q 618	TRANSISTOR KTC3199(GR) or TRANSISTOR KTC3198GR TO-92 or TRANSISTOR 2SC3331(T) or TRANSISTOR 2SC3331(U) or TRANSISTOR 2SC1815GR-TPE2	NQS10KTC3199 NQS40KTC3198 QSC3331TNPAA QSC3331UNPAA 2SC1815GRTPE
<b>RESISTORS</b>		
R 551	CARBON RES. 1/4W J 1.5k Ω or CARBON RES. 1/6W J 1.5k Ω	RCX4JATZ0152 RCX6JATZ0152
R 552	CARBON RES. 1/4W J 1.2k Ω or CARBON RES. 1/6W J 1.2k Ω	RCX4JATZ0122 RCX6JATZ0122
R 553	CARBON RES. 1/4W J 10k Ω or CARBON RES. 1/6W J 10k Ω	RCX4JATZ0103 RCX6JATZ0103
R 554	CARBON RES. 1/4W J 10k Ω or CARBON RES. 1/6W J 10k Ω	RCX4JATZ0103 RCX6JATZ0103
R 555	CARBON RES. 1/4W J 1.8k Ω or CARBON RES. 1/6W J 1.8k Ω	RCX4JATZ0182 RCX6JATZ0182
R 556 ▲	CARBON RES. 1/4W J 4.7 Ω or CARBON RES. 1/6W J 4.7 Ω	RCX4JATZ04R7 RCX6JATZ04R7
R 557	CARBON RES. 1/4W J 270 Ω or CARBON RES. 1/6W J 270 Ω	RCX4JATZ0271 RCX6JATZ0271
R 558	CARBON RES. 1/4W J 47k Ω or CARBON RES. 1/6W J 47k Ω	RCX4JATZ0473 RCX6JATZ0473
R 559	CARBON RES. 1/4W J 270 Ω or CARBON RES. 1/6W J 270 Ω	RCX4JATZ0271 RCX6JATZ0271
R 560	CARBON RES. 1/4W J 2.7k Ω or CARBON RES. 1/6W J 2.7k Ω	RCX4JATZ0272 RCX6JATZ0272
R 561	CARBON RES. 1/4W J 15k Ω or CARBON RES. 1/6W J 15k Ω	RCX4JATZ0153 RCX6JATZ0153
R 562	CARBON RES. 1/4W J 3.3 Ω or CARBON RES. 1/6W J 3.3 Ω	RCX4JATZ03R3 RCX6JATZ03R3
R 563	CARBON RES. 1/4W J 3.3 Ω or CARBON RES. 1/6W J 3.3 Ω	RCX4JATZ03R3 RCX6JATZ03R3
R 564	CARBON RES. 1/4W J 1.2k Ω or CARBON RES. 1/6W J 1.2k Ω	RCX4JATZ0122 RCX6JATZ0122
R 565	CARBON RES. 1/4W J 3.3 Ω or CARBON RES. 1/6W J 3.3 Ω	RCX4JATZ03R3 RCX6JATZ03R3
R 566 ▲	FIXED METAL OXIDE FILM RES. 1W J 2.2 Ω or METAL RESISTOR 1W J 2.2 Ω or FIXED METAL OXIDE FILM RES. 1W J 2.2 Ω	RN012R2DP003 RN012R2ZU001 RN012R2KE009
R 569	CARBON RES. 1/4W J 2.2k Ω or CARBON RES. 1/6W J 2.2k Ω	RCX4JATZ0222 RCX6JATZ0222
R 570	METAL RESISTOR 1W J 1k Ω or FIXED METAL OXIDE FILM RES. 1W J 1k Ω or METAL RESISTOR 1W J 1k Ω	RN01102ZU001 RN01102KE007 RN01102UB001
R 572	CARBON RES. 1/4W J 1k Ω or CARBON RES. 1/6W J 1k Ω	RCX4JATZ0102 RCX6JATZ0102
R 573	CARBON RES. 1/4W J 1k Ω or CARBON RES. 1/6W J 1k Ω	RCX4JATZ0102 RCX6JATZ0102
R 574 ▲	METAL RESISTOR 2W J 1k Ω or FIXED METAL OXIDE FILM RES. 2W J 1k Ω or METAL RESISTOR 2W J 1k Ω	RN02102ZU001 RN02102KE007 RN02102UB001
R 575 ▲	METAL RESISTOR 2W J 1k Ω or	RN02102ZU001

Ref. No.	Description	Part No.
	FIXED METAL OXIDE FILM RES. 2W J 1k $\Omega$ or	RN02102KE007
	METAL RESISTOR 2W J 1k $\Omega$	RN02102UB001
R 576	CARBON RES. 1/4W J 1k $\Omega$ or	RCX4JATZ0102
	CARBON RES. 1/6W J 1k $\Omega$	RCX6JATZ0102
R 577	CARBON RES. 1/4W J 2.2k $\Omega$ or	RCX4JATZ0222
	CARBON RES. 1/6W J 2.2k $\Omega$	RCX6JATZ0222
R 578	PCB JUMPER D0.6-P5.0	JW5.0T
R 579	PCB JUMPER D0.6-P5.0	JW5.0T
R 581 ▲	CARBON RES. 1/4W J 1 $\Omega$	RCX4JATZ01R0
R 582 ▲	CARBON RES. 1/4W J 1 $\Omega$	RCX4JATZ01R0
R 583 ▲	METAL RESISTOR 2W J 3.9 $\Omega$ or	RN023R9ZU001
	METAL RESISTOR 2W J 3.9 $\Omega$ or	RN023R9KE010
	METAL RESISTOR 2W J 3.9 $\Omega$	RN023R9UB001
R 584 ▲	CARBON RES. 1/4W J 1k $\Omega$ or	RCX4JATZ0102
	CARBON RES. 1/6W J 1k $\Omega$	RCX6JATZ0102
R 585	CARBON RES. 1/4W J 8.2k $\Omega$ or	RCX4JATZ0822
	CARBON RES. 1/6W J 8.2k $\Omega$	RCX6JATZ0822
R 586	CARBON RES. 1/4W J 390k $\Omega$ or	RCX4JATZ0394
	CARBON RES. 1/6W J 390k $\Omega$	RCX6JATZ0394
R 587	CARBON RES. 1/4W J 56k $\Omega$ or	RCX4JATZ0563
	CARBON RES. 1/6W J 56k $\Omega$	RCX6JATZ0563
R 588	CARBON RES. 1/4W J 47k $\Omega$ or	RCX4JATZ0473
	CARBON RES. 1/6W J 47k $\Omega$	RCX6JATZ0473
R 590	CEMENT RESISTOR 5W 1.8k $\Omega$ J or	RW05182DP008
	CEMENT RESISTOR 5W K 1.8k $\Omega$ H=25MM or	RW05182PG004
	CEMENT RESISTOR RS-SQZ05182J	RW05182Y4004
R 591 ▲	CARBON RES. 1/4W J 33k $\Omega$ or	RCX4JATZ0333
	CARBON RES. 1/6W J 33k $\Omega$	RCX6JATZ0333
R 592 ▲	CARBON RES. 1/4W J 100k $\Omega$ or	RCX4JATZ0104
	CARBON RES. 1/6W J 100k $\Omega$	RCX6JATZ0104
R 593 ▲	CARBON RES. 1/4W J 100k $\Omega$ or	RCX4JATZ0104
	CARBON RES. 1/6W J 100k $\Omega$	RCX6JATZ0104
R 594 ▲	CARBON RES. 1/4W J 56k $\Omega$ or	RCX4JATZ0563
	CARBON RES. 1/6W J 56k $\Omega$	RCX6JATZ0563
R 595	CARBON RES. 1/4W J 100k $\Omega$ or	RCX4JATZ0104
	CARBON RES. 1/6W J 100k $\Omega$	RCX6JATZ0104
R 596	CARBON RES. 1/4W J 2.2k $\Omega$ or	RCX4JATZ0222
	CARBON RES. 1/6W J 2.2k $\Omega$	RCX6JATZ0222
R 597 ▲	CARBON RES. 1/4W J 6.8k $\Omega$ or	RCX4JATZ0682
	CARBON RES. 1/6W J 6.8k $\Omega$	RCX6JATZ0682
R 598 ▲	CARBON RES. 1/4W J 22k $\Omega$ or	RCX4JATZ0223
	CARBON RES. 1/6W J 22k $\Omega$	RCX6JATZ0223
R 599 ▲	CARBON RES. 1/4W J 5.6k $\Omega$ or	RCX4JATZ0562
	CARBON RES. 1/6W J 5.6k $\Omega$	RCX6JATZ0562
R 601	CARBON RES. 1/4W J 680k $\Omega$ or	RCX4JATZ0684
	CARBON RES. 1/6W J 680k $\Omega$	RCX6JATZ0684
R 602	CARBON RES. 1/4W J 1M $\Omega$ or	RCX4JATZ0105
	CARBON RES. 1/6W J 1M $\Omega$	RCX6JATZ0105
R 604 ▲	METAL RESISTOR 2W J 68k $\Omega$ or	RN02683ZU001
	METAL RESISTOR 2W J 68k $\Omega$ or	RN02683KE007
	METAL RESISTOR 2W J 68k $\Omega$	RN02683UB001
R 605 ▲	METAL RESISTOR 2W J 68k $\Omega$ or	RN02683ZU001
	METAL RESISTOR 2W J 68k $\Omega$ or	RN02683KE007
	METAL RESISTOR 2W J 68k $\Omega$	RN02683UB001
R 606 ▲	CARBON RES. 1/4W J 68 $\Omega$ or	RCX4JATZ0680
	CARBON RES. 1/6W J 68 $\Omega$	RCX6JATZ0680
R 607 ▲	METAL RESISTOR 2W J 220 $\Omega$ or	RN02221ZU001
	FIXED METAL OXIDE FILM RES. 2W J 220 $\Omega$ or	RN02221KE007
	METAL RES. 2W J 220 $\Omega$	RN02221UB001
R 608	CARBON RES. 1/4W J 10 $\Omega$ or	RCX4JATZ0100
	CARBON RES. 1/6W J 10 $\Omega$	RCX6JATZ0100
R 609 ▲	METAL RESISTOR 2W J 220 $\Omega$ or	RN02221ZU001
	FIXED METAL OXIDE FILM RES. 2W J 220 $\Omega$ or	RN02221KE007
	METAL RES. 2W J 220 $\Omega$	RN02221UB001
R 614	CARBON RES. 1/4W J 1k $\Omega$ or	RCX4JATZ0102
	CARBON RES. 1/6W J 1k $\Omega$	RCX6JATZ0102

Ref. No.	Description	Part No.
R 615	CARBON RES. 1/4W J 4.7k $\Omega$ or	RCX4JATZ0472
	CARBON RES. 1/6W J 4.7k $\Omega$	RCX6JATZ0472
R 618 ▲	FIXED METAL OXIDE FILM RES. 2W J 0.22 $\Omega$ or	RN02R22DP004
	METAL RES. 2W J 0.22 $\Omega$ or	RN02R22KE010
	METAL RES. 2W J 0.22 $\Omega$	RN02R22UB001
R 619	CARBON RES. 1/4W J 3.9 $\Omega$ or	RCX4JATZ03R9
	CARBON RES. 1/6W J 3.9 $\Omega$	RCX6JATZ03R9
R 620	CARBON RES. 1/4W J 330 $\Omega$ or	RCX4JATZ0331
	CARBON RES. 1/6W J 330 $\Omega$	RCX6JATZ0331
R 622	CARBON RES. 1/4W J 1M $\Omega$ or	RCX4JATZ0105
	CARBON RES. 1/6W J 1M $\Omega$	RCX6JATZ0105
R 624	PCB JUMPER D0.6-P5.0	JW5.0T
R 625	CARBON RES. 1/4W J 47 $\Omega$ or	RCX4JATZ0470
	CARBON RES. 1/6W J 47 $\Omega$	RCX6JATZ0470
R 626 ▲	CEMENT RESISTOR 10W J 1.2 $\Omega$ H=10MM or	RW101R2PG001
	CEMENT RESISTOR SQZ10S1R2J	RW101R2Y4001
R 627 ▲	CARBON RES. 1/2W J 3.3M $\Omega$ or	RCX2335A4001
	ANTI-SURGE RESISTOR 1/2W J 3.3M $\Omega$	RMX2335KA011
R 630 ▲	CARBON RES. 1/4W J 470 $\Omega$ or	RCX4JATZ0471
	CARBON RES. 1/6W J 470 $\Omega$	RCX6JATZ0471
R 631 ▲	CARBON RES. 1/4W J 5.6k $\Omega$ or	RCX4JATZ0562
	CARBON RES. 1/6W J 5.6k $\Omega$	RCX6JATZ0562
R 639	CARBON RES. 1/4W J 470 $\Omega$ or	RCX4JATZ0471
	CARBON RES. 1/6W J 470 $\Omega$	RCX6JATZ0471
R 640	CARBON RES. 1/4W J 220 $\Omega$ or	RCX4JATZ0221
	CARBON RES. 1/6W J 220 $\Omega$	RCX6JATZ0221
R 641 ▲	CEMENT RES. 7W J 3.9k $\Omega$ or	RW07392DP008
	CEMENT RESISTOR 7W K 3.9k $\Omega$ or	RW07392PG004
	CEMENT RESISTOR RS-SQZ07392J	RW07392Y4004
R 642 ▲	METAL RESISTOR 2W J 6.8k $\Omega$ or	RN02682ZU001
	METAL RES. 2W J 6.8k $\Omega$ or	RN02682KE007
	METAL RESISTOR 2W J 6.8k $\Omega$	RN02682UB001
R 643	CARBON RES. 1/4W J 1.8k $\Omega$ or	RCX4JATZ0182
	CARBON RES. 1/6W J 1.8k $\Omega$	RCX6JATZ0182
R 644	CARBON RES. 1/4W J 1.8k $\Omega$ or	RCX4JATZ0182
	CARBON RES. 1/6W J 1.8k $\Omega$	RCX6JATZ0182
R 645 ▲	CARBON RES. 1/4W J 820 $\Omega$ or	RCX4JATZ0821
	CARBON RES. 1/6W J 820 $\Omega$	RCX6JATZ0821
R 646 ▲	CARBON RES. 1/4W J 39k $\Omega$ or	RCX4JATZ0393
	CARBON RES. 1/6W J 39k $\Omega$	RCX6JATZ0393
R 647 ▲	CARBON RES. 1/4W J 47k $\Omega$ or	RCX4JATZ0473
	CARBON RES. 1/6W J 47k $\Omega$	RCX6JATZ0473
R 648 ▲	CARBON RES. 1/4W J 22k $\Omega$ or	RCX4JATZ0223
	CARBON RES. 1/6W J 22k $\Omega$	RCX6JATZ0223
R 649 ▲	CARBON RES. 1/4W J 18k $\Omega$ or	RCX4JATZ0183
	CARBON RES. 1/6W J 18k $\Omega$	RCX6JATZ0183
R 650	CARBON RES. 1/4W J 1.8k $\Omega$ or	RCX4JATZ0182
	CARBON RES. 1/6W J 1.8k $\Omega$	RCX6JATZ0182
R 651 ▲	CARBON RES. 1/4W J 10k $\Omega$ or	RCX4JATZ0103
	CARBON RES. 1/6W J 10k $\Omega$	RCX6JATZ0103
R 652	CARBON RES. 1/4W J 10k $\Omega$ or	RCX4JATZ0103
	CARBON RES. 1/6W J 10k $\Omega$	RCX6JATZ0103
R 653	CARBON RES. 1/4W J 56k $\Omega$ or	RCX4JATZ0563
	CARBON RES. 1/6W J 56k $\Omega$	RCX6JATZ0563
R 655	CARBON RES. 1/4W J 6.8k $\Omega$ or	RCX4JATZ0682
	CARBON RES. 1/6W J 6.8k $\Omega$	RCX6JATZ0682
R 656	CARBON RES. 1/4W J 10k $\Omega$ or	RCX4JATZ0103
	CARBON RES. 1/6W J 10k $\Omega$	RCX6JATZ0103
R 668 ▲	CARBON RES. 1/2W J 10 $\Omega$ or	RCX2JZPZ0100
	CARBON RES. 1/2W J 10 $\Omega$ or	RCX2100KA013
	CARBON RES. 1/2W J 10 $\Omega$	RCX2JZQZ0100
R 669 ▲	CARBON RES. 1/4W J 3.3k $\Omega$ or	RCX4JATZ0332
	CARBON RES. 1/6W J 3.3k $\Omega$	RCX6JATZ0332
R 670	CARBON RES. 1/4W J 100 $\Omega$ or	RCX4JATZ0101
	CARBON RES. 1/6W J 100 $\Omega$	RCX6JATZ0101
R 671	PCB JUMPER D0.6-P5.0	JW5.0T

Ref. No.	Description	Part No.
R 672	CARBON RES. 1/4W J 12k Ω or CARBON RES. 1/6W J 12k Ω	RCX4JATZ0123 RCX6JATZ0123
R 673	CARBON RES. 1/4W J 10k Ω or CARBON RES. 1/6W J 10k Ω	RCX4JATZ0103 RCX6JATZ0103
R 674	CARBON RES. 1/4W J 27k Ω or CARBON RES. 1/6W J 27k Ω	RCX4JATZ0273 RCX6JATZ0273
R 677	CARBON RES. 1/4W J 33k Ω or CARBON RES. 1/6W J 33k Ω	RCX4JATZ0333 RCX6JATZ0333
R 678	CARBON RES. 1/4W J 220k Ω or CARBON RES. 1/6W J 220k Ω	RCX4JATZ0224 RCX6JATZ0224
R 679	CARBON RES. 1/4W J 47k Ω or CARBON RES. 1/6W J 47k Ω	RCX4JATZ0473 RCX6JATZ0473
R 680 ▲	METAL RESISTOR 2W J 680 Ω or FIXED METAL OXIDE FILM RES. 2W J 680 Ω or METAL RESISTOR 2W J 680 Ω	RN02681ZU001 RN02681KE007 RN02681UB001
R 681 ▲	CARBON RES. 1/4W J 18k Ω or CARBON RES. 1/6W J 18k Ω	RCX4JATZ0183 RCX6JATZ0183
R 682	CARBON RES. 1/4W J 10k Ω or CARBON RES. 1/6W J 10k Ω	RCX4JATZ0103 RCX6JATZ0103
R 683	CARBON RES. 1/4W J 6.8k Ω or CARBON RES. 1/6W J 6.8k Ω	RCX4JATZ0682 RCX6JATZ0682
R 684	PCB JUMPER D0.6-P5.0	JW5.0T
R 685 ▲	CARBON RES. 1/4W J 560 Ω or CARBON RES. 1/6W J 560 Ω	RCX4JATZ0561 RCX6JATZ0561
R 686 ▲	CARBON RES. 1/4W J 82 Ω or CARBON RES. 1/6W J 82 Ω	RCX4JATZ0820 RCX6JATZ0820
<b>TRANSFORMERS</b>		
T 571 ▲	FLYBACK TRANS BSC25-2094S	LTF00CPS2007
T 572 ▲	H. DRIVE TRANS OX060927	LTH00CPT001
T 601 ▲	SWITCHING TRANS SA-80801E	LTT00CPSA058
<b>VARIABLE RESISTOR</b>		
VR 601 ▲	CARBON P.O.T. 10k Ω B or CARBON P.O.T. 10k Ω B	VRCB103KA011 VRCB103HH005
<b>MISCELLANEOUS</b>		
BC 571	BEAD INDUCTORS FBA04HA600VB-00	LLBF00STU026
BC 601	BEAD INDUCTORS FBR07HA121TB-00	LLBF00ZTU021
BC 602	BEAD INDUCTORS FBR07HA121TB-00	LLBF00ZTU021
BC 603	BEAD INDUCTORS FBR07HA121TB-00	LLBF00ZTU021
BC 604	BEAD INDUCTORS FBR07HA121TB-00	LLBF00ZTU021
BC 605	BEAD INDUCTORS FBR07HA121TB-00	LLBF00ZTU021
BC 606	PCB JUMPER D0.6-P5.0	JW5.0T
BC 607	BEAD INDUCTORS FBR07HA121TB-00	LLBF00ZTU021
BC 608	PCB JUMPER D0.6-P5.0	JW5.0T
BC 609	BEAD INDUCTORS FBR07HA121TB-00	LLBF00ZTU021
CL 601	/- UL1007 AWG24 70MM	WX3001A4FF07
CL502A	LEAD WIRE 7P 320/BLA/AWG26#2468	WX3007J65532
CL603A	LEAD WIRE 7P 160/BLA/AWG26#2468	WX3007J65516
CL603B	LEAD WIRE 7P 160/BLA/AWG26#2468	WX3007J65516
F 601 ▲	FUSE 4A/125V 237 TYPE or FUSE TDS4A125VU/C	PAGJ20CAG402 PAGD20CW3402
FH 601	FUSE HOLDER MSF-015 or FUSE HOLDER FH-V-03078	XH01Z00LY001 XH01Z00DK001
FH 602	FUSE HOLDER MSF-015 or FUSE HOLDER FH-V-03078	XH01Z00LY001 XH01Z00DK001
PS 602	POSISTER PTCD14K2-7R0M141	QNZQ07R0M141
PS 602 ▲	POSISTOR ZPB58BL7R0F or POSISTOR ZPB31BL7R0B	QNZQ58BL7R0F 5790124
RL 601 ▲	POWER RELAY SDT-SS-112DM or POWER RELAY RPEF-12-901	MRNDC12QN008 MRNDC12KB002
SA 601 ▲	SURGE ABSORBER JVR-07N471K or SURGE ABSORBER AVR-S07D471KAAS	NVQZVR07N471 VQZQ0AVRS07D
SG 601 ▲	GAP. G3.10D or GAP. WSG-R-3.10	FAZ000LD6004 FAZ000LW1002
TP 591	PCB JUMPER D0.6-P7.5	JW7.5T
TP 592	PCB JUMPER D0.6-P7.5	JW7.5T
TP 601	PCB JUMPER D0.6-P12.5	JW12.5T

Ref. No.	Description	Part No.
TP 602	PCB JUMPER D0.6-P10.0	JW10.0T
W 601 ▲	AC CORD 9806190 or AC CORD LA-2145	WAC0172AS004 WAC0172LW005
WH501A	WIRE HOLDER 3P HWT0200-03 or WIRE HOLDER 3P 51048-0300	XW0HT03C7001 XW01D03NF001
WH502A	WIRE HOLDER 7P HWT0200-07 or WIRE HOLDER 7P 51048-0700	XW0HT07C7001 XW01D07NF001
WH502B	WIRE HOLDER 7P HWT0200-07 or WIRE HOLDER 7P 51048-0700	XW0HT07C7001 XW01D07NF001
WH504B	WIRE HOLDER 5P HWT0200-05 or WIRE HOLDER 5P 51048-0500	XW0HT05C7001 XW01D05NF001
WH603A	WIRE HOLDER 14P HWT0200-14 or WIRE HOLDER 14P 51048-1400	XW0HT14C7001 XW01D14NF001
WH603B	WIRE HOLDER 14P HWT0200-14 or WIRE HOLDER 14P 51048-1400	XW0HT14C7001 XW01D14NF001

## CRT CBA

Ref. No.	Description	Part No.
	CRT CBA Consists of the following	
<b>CAPACITORS</b>		
C 501	CERAMIC CAP.(AX) B K 220pF/50V	CCA1JKT0B221
C 502	CERAMIC CAP.(AX) B K 150pF/50V	CCA1JKT0B151
C 503	CERAMIC CAP.(AX) B K 220pF/50V	CCA1JKT0B221
C 504	ELECTROLYTIC CAP. 47μF/16V M	CE1CMASDL470
C 510	CERAMIC CAP. 0.001μF/2kV or CERAMIC CAP. B K 1000pF/2kV	CCD3DKP0B102 CA3D102MR030
<b>CONNECTOR</b>		
CN 501	PIN CONNECTOR 005P-5100 or CONNECTOR PIN 1P LV or CONNECTOR PIN 1P RT-01N-2.3A	JTEA001TG001 1700576 1730688
<b>DIODES</b>		
D 501	SWITCHING DIODE 1SS133(T-77) or SWITCHING DIODE 1N4148 or DIODE 1SS176TPA7	QDTZ001SS133 NDTZ001N4148 1SS176T
D 502	SWITCHING DIODE 1SS133(T-77) or SWITCHING DIODE 1N4148 or DIODE 1SS176TPA7	QDTZ001SS133 NDTZ001N4148 1SS176T
D 503	SWITCHING DIODE 1SS133(T-77) or SWITCHING DIODE 1N4148 or DIODE 1SS176TPA7	QDTZ001SS133 NDTZ001N4148 1SS176T
<b>COIL</b>		
L 501	INDUCTOR 180μH-K-5FT or INDUCTOR 180μH-K-5FT	LLARKCSTU181 LLARKDSKA181
<b>TRANSISTORS</b>		
Q 501	TRANSISTOR 2SC2482 TPE6 or TRANSISTOR 2SC2271(D)-AEMP or TRANSISTOR 2SC2271(E)-AEMP	QQSZ02SC2482 2SC2271DZ 2SC2271EZ
Q 502	TRANSISTOR 2SC2482 TPE6 or TRANSISTOR 2SC2271(D)-AEMP or TRANSISTOR 2SC2271(E)-AEMP	QQSZ02SC2482 2SC2271DZ 2SC2271EZ
Q 503	TRANSISTOR 2SC2482 TPE6 or TRANSISTOR 2SC2271(D)-AEMP or TRANSISTOR 2SC2271(E)-AEMP	QQSZ02SC2482 2SC2271DZ 2SC2271EZ
<b>RESISTORS</b>		
R 501 ▲	METAL RESISTOR 2W J 15k Ω or FIXED METAL OXIDE FILM RES. 2W J 15k Ω or METAL RESISTOR 2W J 15k Ω	RN02153ZU001 RN02153KE007 RN02153UB001
R 502 ▲	METAL RESISTOR 2W J 15k Ω or FIXED METAL OXIDE FILM RES. 2W J 15k Ω or METAL RESISTOR 2W J 15k Ω	RN02153ZU001 RN02153KE007 RN02153UB001
R 503 ▲	METAL RESISTOR 2W J 15k Ω or FIXED METAL OXIDE FILM RES. 2W J 15k Ω or METAL RESISTOR 2W J 15k Ω	RN02153ZU001 RN02153KE007 RN02153UB001
R 504	CARBON RES. 1/4W J 1.5k Ω or CARBON RES. 1/6W J 1.5k Ω	RCX4JATZ0152 RCX6JATZ0152



Ref. No.	Description	Part No.
R 505	CARBON RES. 1/4W J 1.5k $\Omega$ or CARBON RES. 1/6W J 1.5k $\Omega$	RCX4JATZ0152 RCX6JATZ0152
R 506	CARBON RES. 1/4W J 1.8k $\Omega$ or CARBON RES. 1/6W J 1.8k $\Omega$	RCX4JATZ0182 RCX6JATZ0182
R 507	CARBON RES. 1/4W J 1.8k $\Omega$ or CARBON RES. 1/6W J 1.8k $\Omega$	RCX4JATZ0182 RCX6JATZ0182
R 508	CARBON RES. 1/4W J 1.8k $\Omega$ or CARBON RES. 1/6W J 1.8k $\Omega$	RCX4JATZ0182 RCX6JATZ0182
R 511	CARBON RES. 1/4W J 2.2k $\Omega$ or CARBON RES. 1/6W J 2.2k $\Omega$	RCX4JATZ0222 RCX6JATZ0222
R 512	CARBON RES. 1/4W J 2.2k $\Omega$ or CARBON RES. 1/6W J 2.2k $\Omega$	RCX4JATZ0222 RCX6JATZ0222
R 513	CARBON RES. 1/4W J 2.2k $\Omega$ or CARBON RES. 1/6W J 2.2k $\Omega$	RCX4JATZ0222 RCX6JATZ0222
R 514	CARBON RES. 1/4W J 1.5k $\Omega$ or CARBON RES. 1/6W J 1.5k $\Omega$	RCX4JATZ0152 RCX6JATZ0152
R 516	CARBON RES. 1/4W J 33 $\Omega$ or CARBON RES. 1/6W J 33 $\Omega$	RCX4JATZ0330 RCX6JATZ0330
R 517	CARBON RES. 1/4W J 620 $\Omega$ or CARBON RES. 1/6W J 620 $\Omega$	RCX4JATZ0621 RCX6JATZ0621
R 518	CARBON RES. 1/4W J 33 $\Omega$ or CARBON RES. 1/6W J 33 $\Omega$	RCX4JATZ0330 RCX6JATZ0330
R 519	CARBON RES. 1/4W J 620 $\Omega$ or CARBON RES. 1/6W J 620 $\Omega$	RCX4JATZ0621 RCX6JATZ0621
R 520	CARBON RES. 1/4W J 33 $\Omega$ or CARBON RES. 1/6W J 33 $\Omega$	RCX4JATZ0330 RCX6JATZ0330
R 521	CARBON RES. 1/4W J 620 $\Omega$ or CARBON RES. 1/6W J 620 $\Omega$	RCX4JATZ0621 RCX6JATZ0621
R 531	CARBON RES. 1/4W J 100k $\Omega$ or CARBON RES. 1/6W J 100k $\Omega$	RCX4JATZ0104 RCX6JATZ0104
R 532	CARBON RES. 1/4W J 100k $\Omega$ or CARBON RES. 1/6W J 100k $\Omega$	RCX4JATZ0104 RCX6JATZ0104
R 536	CARBON RES. 1/4W J 100k $\Omega$ or CARBON RES. 1/6W J 100k $\Omega$	RCX4JATZ0104 RCX6JATZ0104
<b>MISCELLANEOUS</b>		
CL501A	LEAD WIRE 3P 500/BLA/AWG26#2468	WX3003J65550
CL504A	LEAD WIRE 5P 400/BLA/AWG26#2468	WX3005J65540
JK 501 ▲	CRT SOCKET ISHS40ST or CRT SOCKET HPS0521-012212	JSCC290PK006 JSCC290HD012
TP 501	PCB JUMPER D0.6-P12.5	JW12.5T
WH501B	WIRE HOLDER 3P HWT0200-03 or WIRE HOLDER 3P 51048-0300	XW0HT03C7001 XW01D03NF001
WH504A	WIRE HOLDER 5P HWT0200-05 or WIRE HOLDER 5P 51048-0500 LEAD CLAMPER 100MM or LEAD CLAMPER	XW0HT05C7001 XW01D05NF001 1790356 1790256

## Chassis Electrical Parts

Ref. No.	Description	Part No.
CL 801	WIRE ASSEMBLY 2P UL1061 AWG26 -F-	WX1L9500-003
DG 601 ▲	DEGAUSSING COIL 368019-0002	LLBH00ZPH001
SP 801	SPEAKER S08F02B CRT GND WIRE CRT GND LEAD CLAMPER 100MM or LEAD CLAMPER	DSD0808XQ010 WX1B3800-001 1790356 1790256
V 501 ▲	CRT A63QDB891X 01 (WITH DEFLECTION YOKE)	TCRT190SM021
V 501-1	C.P. MAGNET 6A062704	XM04000B8001
V 501-2	RUBBER MAGNET 20X10X1.2	XM05000BV001
V 501-5	WEDGE FT-00110W	XV10000T4001

# DECK PARTS LIST

**Note:**

Three different, but interchangeable, types of Capstan Motor (B37) may be installed in these models. Based on the type of capstan motor, items B365 and L1063 will be used/not used as shown in the table below.

Type	Part No.	B365	L1063
A	MMDZB12SJ007	Not used	Not used
B	MMDZB12SJ006	Not used	Not used
C	N9630CML	Used	Used

Ref. No.	Description	Part No.
	DECK ASSEMBLY	N8002FT
2B 6	DECK EARTH PLATE U17	OVM408662
2L 051	SCREW, S-TIGHT M3X5 BIND HEAD+	GBMS3050
B 1	CHASSIS ASSEMBLY MK8	OVSA09370
B 2	CYLINDER ASSEMBLY(MK8) NTSC 2HD SQPB	N8008CYL
B 3	LOADING MOTOR ASSEMBLY MK7	OVSA08840
B 4	MOTOR HOLDER MK8	OVM409330
B 8	PULLEY ASSEMBLY MK6	OVSA08132
B 9	MOVING GUIDE S PREPARATION MK7	OVSA09220
B 10	MOVING GUIDE T PREPARATION MK7	OVSA09221
B 11	LOADING ARM T ASSEMBLY MK7	OVSA08858
B 12	LOADING ARM S ASSEMBLY MK8	OVSA09410
B 13	LOADING LEVER ASSEMBLY MK7	OVSA08821
B 15	LUMIRROR WASHER 3.1X6X0.35	OVM403269
B 21	LOADING BELT MK6	OVM407712
B 27	TENSION LEVER ASSEMBLY MK8	OVSA09374
B 31	AC HEAD ASSEMBLY MK7	OVSA08825
B 32	REEL(T) MK8	OVM303516
B 35	TAPE GUIDE ASSEMBLY MK8	OVSA09359
B 37	CAPSTAN MOTOR F2QTB36 or CAPSTAN MOTOR 288/CCM001 or CAPSTAN MOTOR F2QTB35	MMDZB12SJ007 N9630CML MMDZB12SJ006
B 38	MODE LEVER MK8	OVM202450
B 46	TAPE GUIDE ARM SPRING MK6	OVM407704C
B 47	ADJUST SCREW M2.6X7 S-TIGHT	OVM409436
B 51	FF ARM MK8	OVM303504
B 52	CAPSTAN BELT(2) MK6	OVM408223
B 53	REEL P.S.W MK8	OVM409410
B 73	FE HEAD(MK7) HVFHP0019A or FE HEAD(MK7) MH-131SF7	DHVEC01AL004 DHVEC01Z0001
B 74	PRISM MK8	OVM303518
B 81	M LEVER HOLDER MK7	OVM303171
B 108	P.S.W F	OVM402629A
B 121	WORM MK6	OVM407662
B 122	P.S.W C	OVM402626
B 123	P.S.W (WORM THRUST)	OVM403348
B 126	PULLEY MK6	OVM407661
B 132	CLUTCH ASSEMBLY MK8	OVSA09379A
B 133	IDLER ASSEMBLY MK8	OVSA09377
B 142	SHAFT LOCK ASSEMBLY	OVSA04642
B 144	CLUTCH WASHER MK2	OVM404428
B 145	MAIN LEVER ASSEMBLY MK7	OVSA08822
B 148	TG CAP MK6	OVM407664C
B 300	FL ASSEMBLY MK8	OVSA09361
B 302	RACK MK8	OVM202451
B 303	FRONT DOOR OPENER MK7	OVM303185G
B 304	DOOR OPENER MK7	OVM303148H
B 308	SLIDER SHAFT MK8	OVM409335
B 313	DRIVE GEAR SPRING MK7	OVM408557A

Ref. No.	Description	Part No.
B 319	CASSETTE SPRING MK8	OVM409333
B 329	HOLDER KICK ARM	OVM302956B
B 332	HOLDER ARM SPRING	OVM408062B
B 339	REEL(S) MK8	OVM303515
B 344	CASSETTE GUIDE R MK8	OVM100786D
B 345	CASSETTE GUIDE L MK8	OVM100785
B 347	GUIDE HOLDER(F) MK8	OVM303522
B 348	GUIDE HOLDER R MK8	OVM303502
B 350	SLIDER GEAR MK8	OVM409329
B 352	CASSETTE DRIVE GEAR(N) MK6	OVM302969A
B 353	CASSETTE PLATE SUB ASSEMBLY MK8	OVSA09368
B 354	SLIDER(R) MK8	OVM202454
B 355	SLIDER(L) MK8	OVM202453
B 358	CAM MK7	OVM100724
B 359	CLEANER LEVER MK7 (See Mechanical Parts List)	
B 360	CLEAN ROLLER MK4 (See Mechanical Parts List)	
B 361	CLEAN BEARING MK4 (See Mechanical Parts List)	
B 365	RADIATOR PLATE MK7	OVM408563
B 401	VH CONNECTOR 4A MK7	OVM303174
B 402	VH CONNECTOR 4B MK6	OVM407671
B 403	ACH CONNECTOR A MK7	OVM303177J
B 404	ACH CONNECTOR B MK7	OVM408582
B 405	P.S.W CUT 1.6X4.0X0.5T	OVM408485A
B 406	SENSOR GEAR MK7	OVM408575
B 407	M GEAR MK6	OVM407666A
B 409	EJECT SPRING MK7	OVM408716
B 410	PINCH ROLLER ASSEMBLY MK7	OVSA08809
B 411	PINCH SPRING MK7	OVM408550
B 412	S BRAKE LEVER MK7	OVM303150
B 413	M BRAKE T SUB ASSEMBLY MK7	OVM409222
B 414	M BRAKE S ASSEMBLY MK7	OVSA08814
B 415	S BRAKE L SPRING MK7	OVM408556
B 416	M BRAKE T SPRING MK7	OVM408588
B 417	TENSION SPRING MK8	OVM409452
B 418	TENSION PLATE MK6	OVM409451
B 419	BT ARM MK7	OVM303182
B 420	REC ARM MK7	OVM303188
B 421	REC ARM SPRING MK6	OVM407708D
B 425	LOCK LEVER SPRING MK7	OVM408555
B 426	KICK PULLEY MK6	OVM407663B
B 427	KICK SPRING MK6	OVM407701
B 428	P.S.W CUT 1.6X4.0X0.5T	OVM408485A
B 460	BT SPRING MK7	OVM408551
B 461	MAIN LEVER SPRING MK8	OVM409494
B 462	PRISM(L2) MK8	OVM409371
B 463	PRISM(R2) MK7	OVM409176B
B 464	CASSETTE DRIVE LEVER SUB ASSEMBLY MK7	OVSA08827A
B 465	INSULATION COVER MK8	OVM303517
B 468	SOFT SPRING A MK7	OVM409214
B 470	TAPE GUIDE ARM ASSEMBLY MK8	OVSA09358
B 471	CASSETTE GUIDE R ASSEMBLY MK8	OVSA09363
B 472	SLIDER R ASSEMBLY MK8	OVSA09365
B 473	SLIDER L ASSEMBLY MK8	OVSA09366
B 474	CASSETTE DRIVE LEVER ASSEMBLY MK7	OVSA08813A
B 475	BT ARM MK7	OVM303182
B 476	REC ARM ASSEMBLY MK7	OVSA08819
B 480	CLEANER ASSEMBLY MK7 (See Mechanical Parts List)	
L 1051	SCREW, S-TIGHT M2.6X6 PAN HEAD +	GPMS9060
L 1053	SCREW PRISM MK7	OVM409038

Ref. No.	Description	Part No.
L 1063	SCREW, S-TIGHT M2.6X4 PAN HEAD +	GPMS9040
L 1081	SCREW, S-TIGHT M3X6 BIND HEAD+	GBMS3060
L 1101	SCREW, P-TIGHT 3X10 BIND HEAD+	GBMP3100
L 1151	SCREW, SEMS M3X4 PAN HEAD +	CPM33040
L 1191	SCREW, P-TIGHT M2.6X12 WASHER HEAD+	GCMP9120
L 1321	SCREW, P-TIGHT 3X8 BIND HEAD+	GBMP3080
L 1341	SCREW, P-TIGHT M2.6X8 BIND HEAD+	GBMP9080
L 1342	SCREW, P-TIGHT M2.6X6 BIND HEAD+	GBMP9060
L 1402	SCREW, P-TIGHT M2X6 WASHER HEAD+	GCMP2060
L 1403	SCREW, P-TIGHT M3X10 WASHER HEAD+	GCMP3100
L 1406	SCREW, S-TIGHT M2.6X4 CUP HEAD+	GCMS9040
L 1407	SCREW, S-TIGHT M2.6X8 PAN HEAD +	GPMS9080
L 1450	SCREW, SEMS M2.6X5 PAN HEAD+	CPM39050
L 1451	SCREW:SLIDER R MK7	OVM408853

### Mode SW CBA (SWV)

Ref. No.	Description	Part No.
B 422	MODE SW CBA (SWV)	OVSA09408
CL 281	PARALLEL WIRE 2P AWG26/GREY/UL2651	WX1N8002-001
R 281	CARBON RES. 1/4W G 3.6k $\Omega$ or CARBON RES. 1/6W G 3.6k $\Omega$	RCX4GATZ0362 RCX6GATZ0362
R 282	CARBON RES. 1/4W G 1.5k $\Omega$ or CARBON RES. 1/6W G 1.5k $\Omega$	RCX4GATZ0152 RCX6GATZ0152
R 283	CARBON RES. 1/4W G 10k $\Omega$ or CARBON RES. 1/6W G 10k $\Omega$	RCX4GATZ0103 RCX6GATZ0103
R 284	CARBON RES. 1/4W G 22k $\Omega$ or CARBON RES. 1/6W G 22k $\Omega$	RCX4GATZ0223 RCX6GATZ0223
R 285	CARBON RES. 1/4W G 470 $\Omega$ or CARBON RES. 1/6W G 470 $\Omega$	RCX4GATZ0471 RCX6GATZ0471
SW 281	MODE SWITCH HMW0420-910010 or MODE SWITCH SSS-27MD	SSR0104HD004 SSR0104KB002

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