

FUNAI

SERVICE MANUAL

Sec. 1: Main Section

Specifications
Operating Instructions
Adjustment Procedures
Schematic Diagrams
CBAs
Cabinet Exploded Views
Cabinet & Electrical Parts List

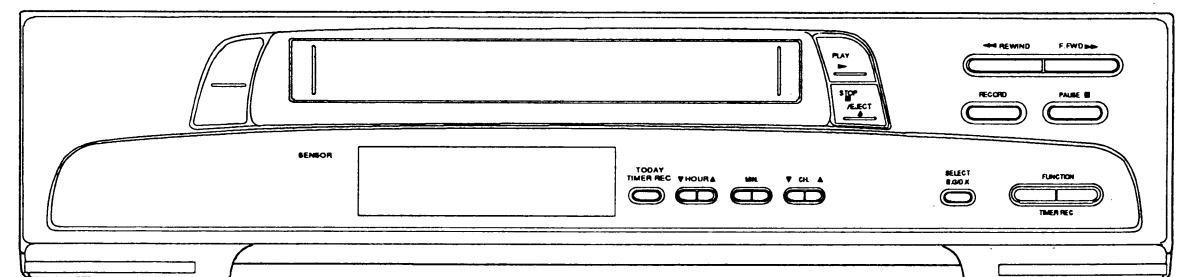
Sec. 2 : Deck Mechanism Section

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

VIDEO CASSETTE RECORDER

V-8008CM

VHS
HQ



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 advice 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

VIDEO CASSETTE RECORDER

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SPECIFICATIONS

Description	Unit	Minimum	Nominal	Maximum	Remark
1. Video					
1-1 Video Output (PB)	Vp-p	0.8	1.0	1.2	F6A
1-2 Video Output (R/P)	Vp-p	0.8	1.0	1.2	
1-3 Video S/N (R/P)	dB	40	44		
1-4 Video Color S/N AM (R/P)	dB	37	41		
1-5 Video Color S/N PM (R/P)	dB	30	36		
1-6 Resolution (R/P)	Line	230	245		
2. Servo					
2-1 Jitter at Low (PB)	μsec		0.07	0.12	F6N
2-2 Wow & Flutter (R/P)	%		0.3	0.5	
3. Audio					
3-1 Output (PB)	dBv	-11	-8	-5	F6A
3-2 Output (R/P)	dBv	-11	-8	-3.5	
3-3 S/N (R/P)	dB	36	41		
3-4 Distortion (R/P) input; -10dBv	%		1.0	4.0	
3-5 Frequency response (R/P) at 200Hz	dB	-4	-1		
input; -20dB 8KHz	dB	-10	-4		
4. Tuner	B/G		D/K		
4-1 Channel VHF Low	E2 – E4		R1 – R5		
VHF High	E5 – E12		R6 – R12		
UHF	E21 – E69		E21 – E69		
4-2 Video Output	Vp-p	0.8	1.0	1.2	
4-3 Video S/N (E45ch)	dB	39	42		
4-4 Audio Output	mV/rms	250	400	550	
4-5 Audio S/N	dB	40	46		

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

IMPORTANT SAFETY PRECAUTIONS

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 replace-

ment 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 carefully 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 edges or pointed parts.
- H.** When a power cord has been replaced, check that 4-5 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.** When connecting or disconnecting the internal connectors, first, disconnect the AC plug from the AC outlet.

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 their original positions. Afterwards, do the following tests and confirm the specified values 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')
220 to 240 V	Europe or Australia	$\geq 4\text{ mm(d)}$ $\geq 6\text{ mm(d')}$

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

2. Leakage Current Test

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

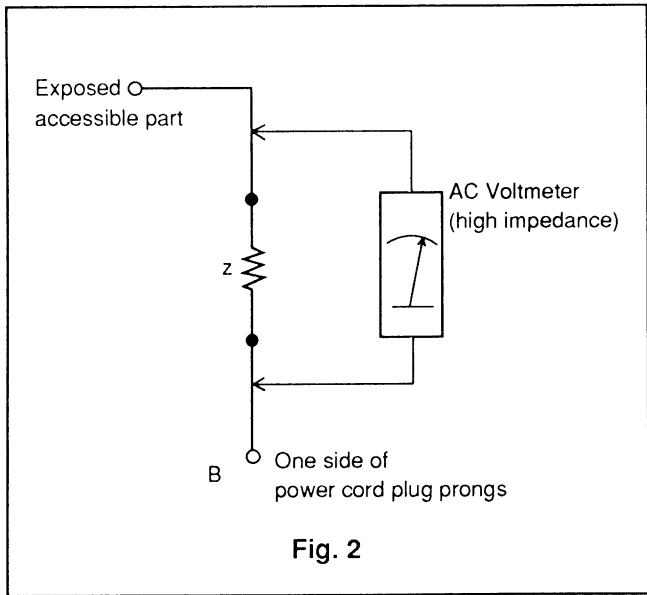
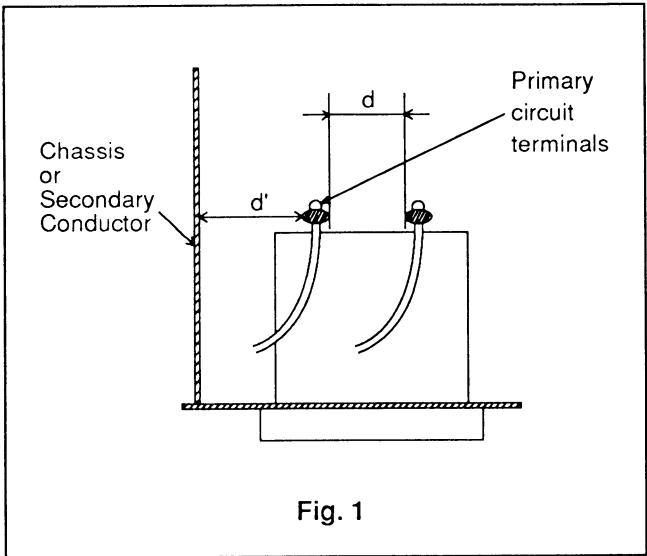
Measuring Method (Power ON) :

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

Table 2 : Leakage current ratings for selected areas

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

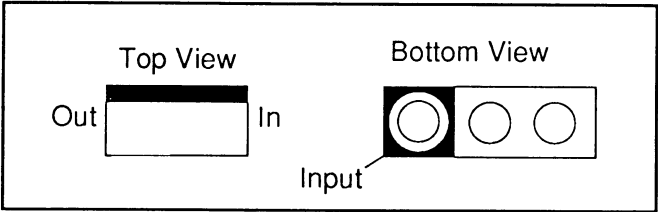
Note: This table is unofficial and for reference only. Be sure to confirm the precise values.



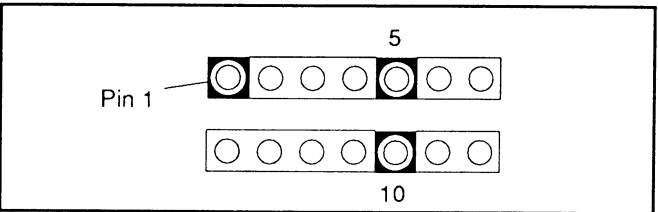
STANDARD NOTES FOR SERVICING

Circuit Board Indications

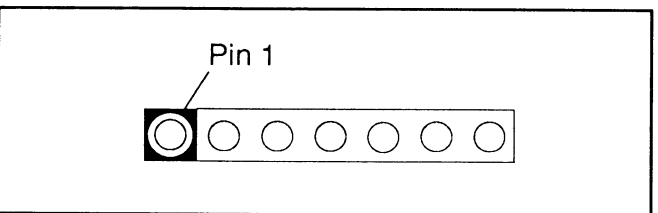
a. The output pin of the 3 pin Regulator ICs is indicated as shown.



b. For other ICs, pin 1 and every fifth pin are indicated as shown.

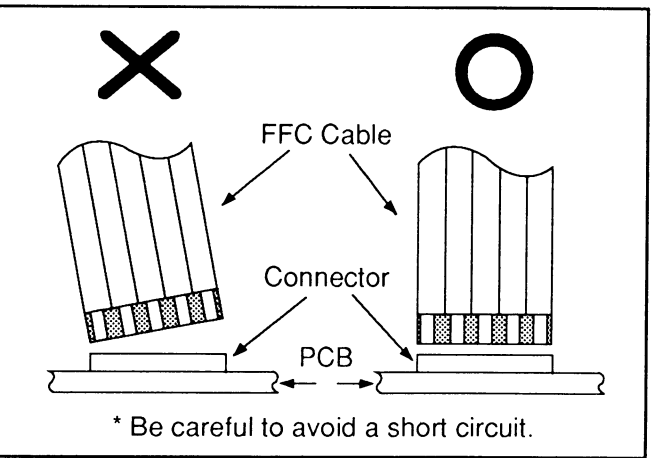


c. The 1st pin of every male connector is indicated as shown.



Instructions for Connectors

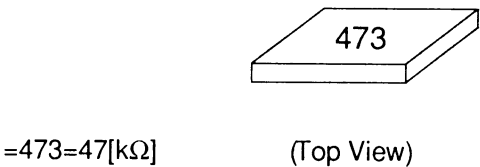
- 1. When you connect or disconnect the FFC (Flexible Foil Connector) cable, be sure to first disconnect the AC cord.
- 2. FFC (Flexible Foil Connector) cable should be inserted parallel into the connector, not at an angle.



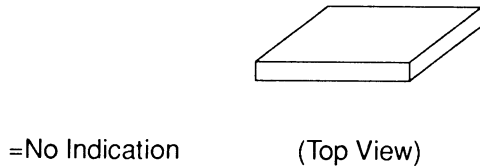
How to read the values of the Rectangular type chip components

Example:

(a) Resistor



(b) Capacitor



Caution:

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

Replacement Procedures for Leadless (Chip) Components

The following procedures are recommended for the replacement of the leadless components used in this unit.

1.Preparation for replacement

- a. Soldering iron
Use a pencil-type soldering iron (less than 30 watts).
- b. Solder
Eutectic solder (Tin 63%, Lead 37%) is recommended.
- c. Soldering time
Do not apply heat for more than 4 seconds.
- d. Preheating
Leadless capacitors must be preheated before installation. (266°F-302°F 130°C-150°C, for about two minutes.)

Note:

- a. Leadless components must not be reused after removal.
- b. Excessive mechanical stress and rubbing of 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 the leadless component with a twisting motion.

Note:

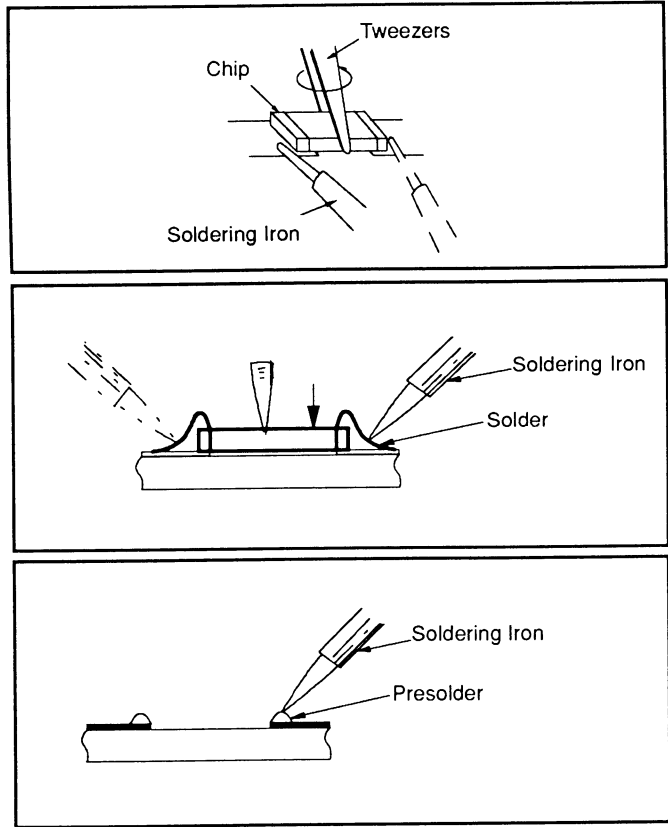
- a. Do not attempt to lift the component off the board until the component is completely disconnected from the board by the twisting action.
- b. Be careful not to break the copper foil on the printed circuit board.

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

1. Removal

With Hot-Air Flat Pack-IC Desoldering Machine:

- (1)Prepare the hot-air flat pack-IC desoldering machine, then apply hot air to the Flat Pack-IC (about 5 to 6 seconds). (Fig. S-1-1)

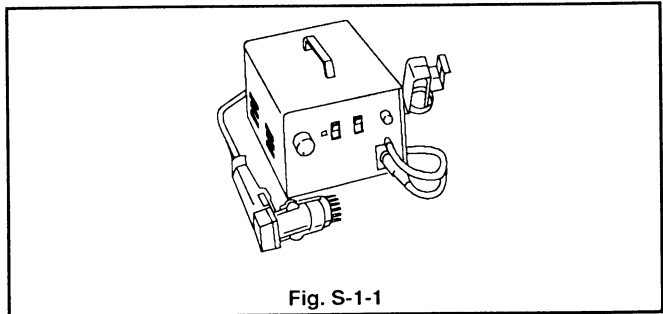


Fig. S-1-1

- (2)Remove the flat pack-IC with tweezers while applying the hot air.

Caution:

- 1. Do not supply hot air to the chip parts around the flat pack-IC for over 6 seconds because damage to the chip parts may occur. Put masking tape around the flat pack-IC to protect other parts from damage. (Fig. S-1-2)

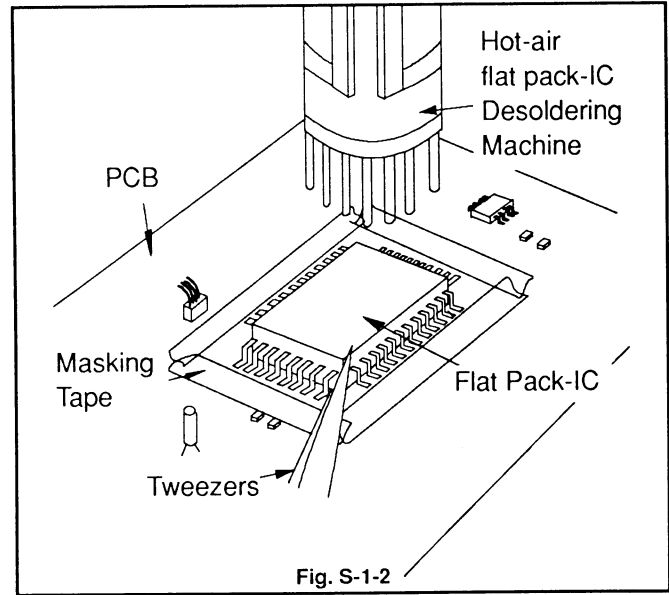


Fig. S-1-2

- 2. The flat pack-IC on the PCB is affixed with glue, so be careful not to break or damage the foil of each pin or the solder- lands under the IC when removing it.

With Soldering Iron:

- (1)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)

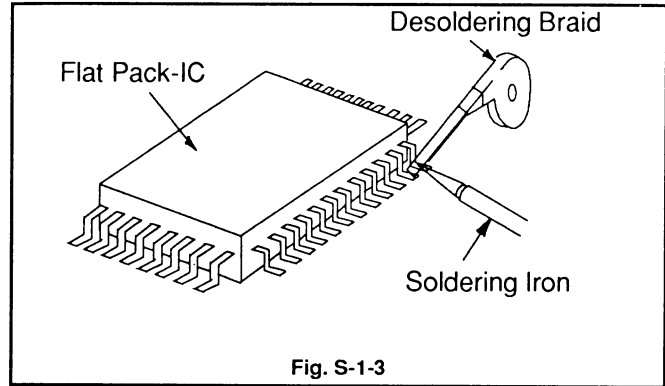


Fig. S-1-3

- (2)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)

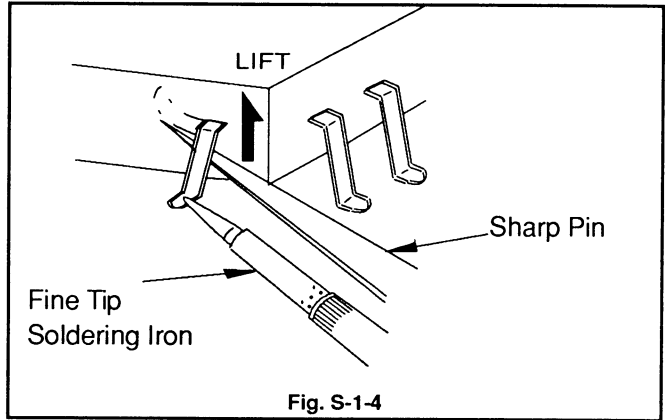


Fig. S-1-4

With Iron Wire:

- (1)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)
- (2)Affix the wire to a workbench or solid mounting point, as shown in Fig. S-1-5.

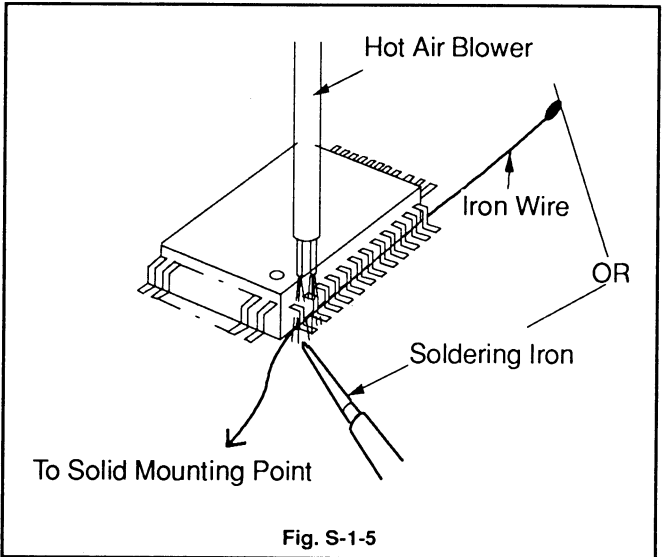


Fig. S-1-5

- (3)While heating the pins using a fine tip soldering iron or hot air blower, pull up the wire as the solder melts so as to lift the IC leads from the PCB contact pads as shown in Fig.S-1-5.

Note:

When using a soldering iron, care must be taken to ensure that the flat pack-IC is not being held by glue. When the flat pack-IC is removed from the PCB, handle it gently because it may be damaged if force is applied.

2. Installation

- (1)Using desoldering braid, remove the solder from the foil of each pin of the flat pack-IC on the PCB so you can install a replacement flat pack-IC more easily.
- (2)The " • " mark on the flat pack-IC indicates pin 1. (See Fig. S-1-6.) Be sure this mark matches the 1 on the PCB when positioning for installation. Then pre- solder the four corners of the flat pack-IC. (See Fig. S-1-7.)
- (3)Solder all pins of the flat pack-IC. Be sure that none of the pins have solder bridges.

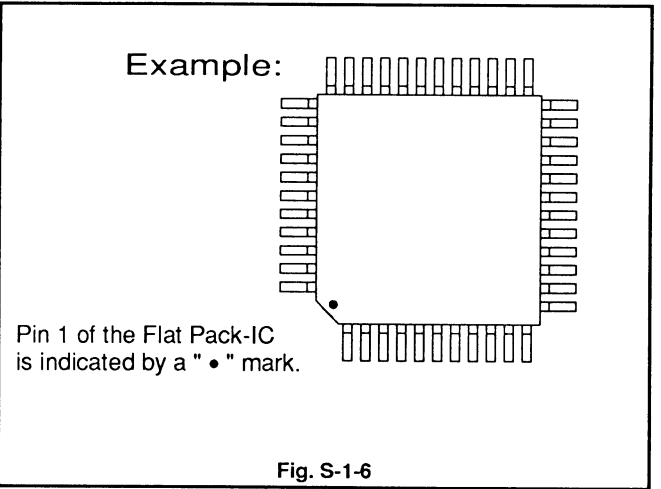


Fig. S-1-6

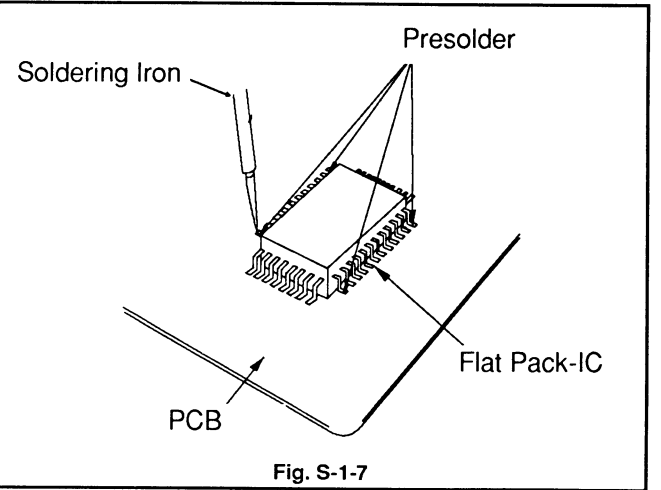


Fig. S-1-7

Instructions for Handling Semiconductors

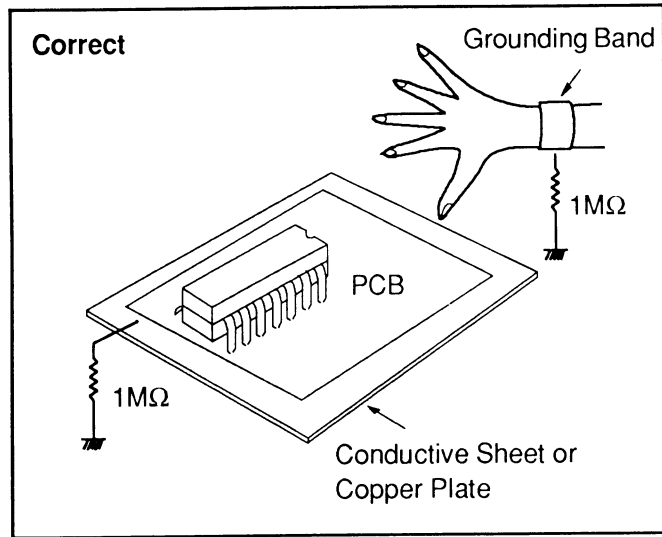
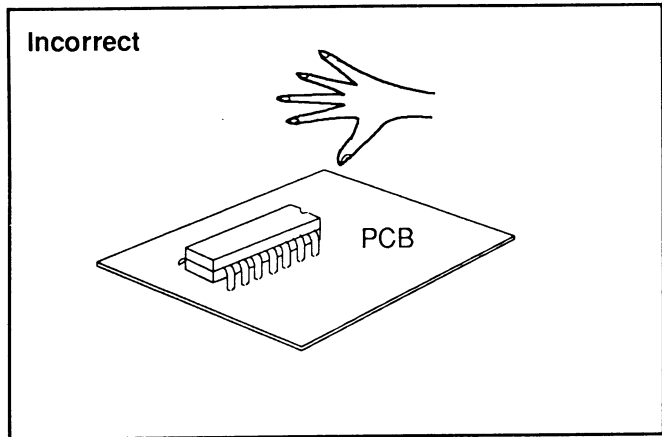
Electrostatic breakdown of the semiconductors may occur due to a potential difference caused by electrostatic charge during unpacking or repair work.

1. Ground for Human Body

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

2. Ground for Workbench

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



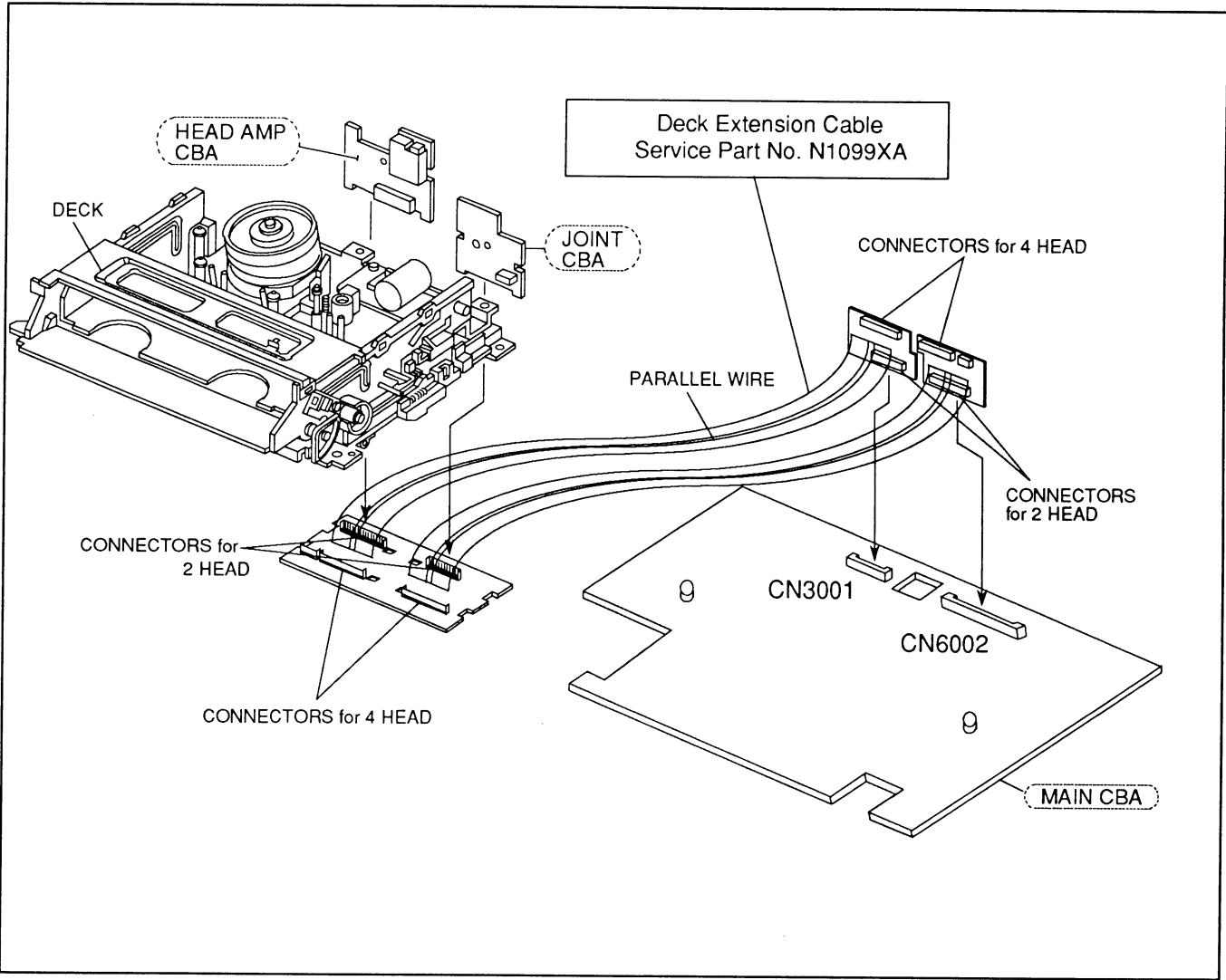
PREPARATION FOR SERVICING

How to Use Service Fixture

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

Note:

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



How to Enter The Service Mode

Caution: 1

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

Preparing: 1

- The service connector(CN6004) is initially provided in the unit as shown in the Fig.A.
Reconnect the Service connectors as shown in the Fig.B, so as to both tape sensors to be inactive.
Note: Do not run a tape all the way to the start or end of the tape to avoid tape damage due to inactive tape end sensor.

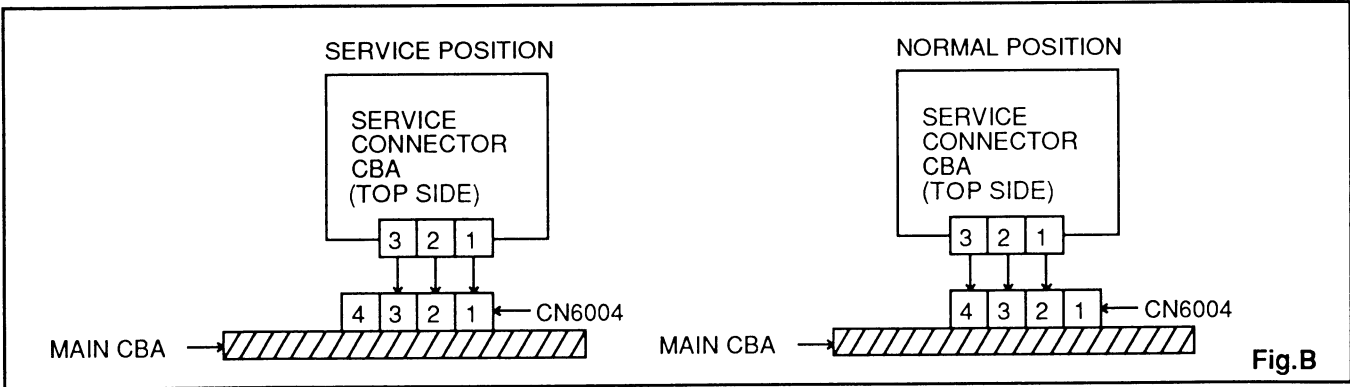
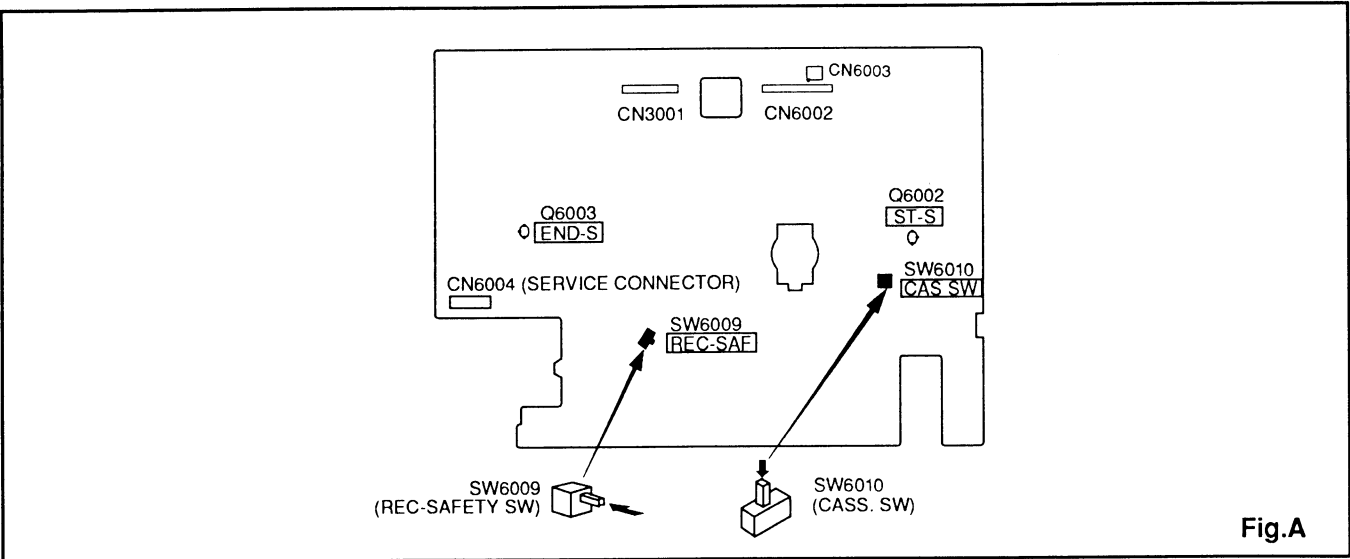
Caution: 2

- The Deck Mechanism Assembly is mounted on the Main CBA directly, and Cassette Loading Switch and REC-Safety Switch are mounted on the Main CBA. When The Deck Mechanism Assembly is removed from the Main CBA due to servicing, these switches can not operated automatically. The Reel Sensor is mounted on the Main CBA. When Deck Mechanism Assembly is removed from the Main CBA due to servicing, the Cylinder is forced to stop.

Preparing: 2

- When you insert or eject the tape, manually press the "CASS. SW" on the Main CBA.
- When you want to record, press the Rec Button while pushing the "REC-SAFETY SW" on the Main CBA.

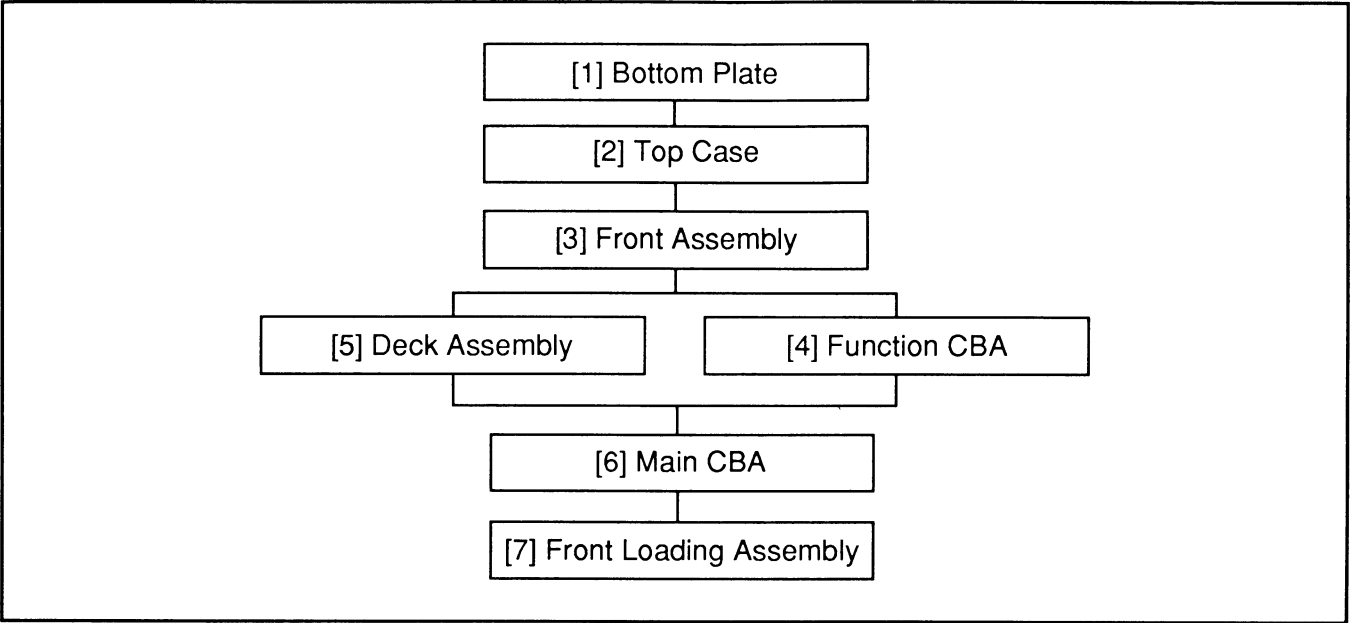
MAIN CBA TOP VIEW



CABINET 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.



2. Disassembly Method

STEP / LOC. No.	PART	REMOVAL		
		Fig. No.	REMOVE/ *UNLOCK/RELEASE/UNPLUG/UNCLAMP/DESOLDER	Note
[1]	Bottom Plate	Fig. 1	4(S-1), *2(L-1)	1
[2]	Top Case	Fig. 2	(S-2)	-
[3]	Front Assembly	Fig. 3, 4	*10(L-2), Deck Holder	2
[4]	Function CBA	Fig. 5	*2(L-3), (CN6001)	3
[5]	Deck Assembly	Fig. 6	3(S-3), (CN2901, CN3501)	4
[6]	Main CBA	Fig. 7	*4(L-4)	-
[7]	Front Loading Assembly	Fig. 8	2(S-4), *(P-1)	-

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

Reference Notes in the Table

- 1. Remove 4 Screws (S-1), and slide the Bottom Plate in the direction of arrow while pushing down 2 Locking Tabs (L-1). (Fig. 1)
- 2. **CAUTION** Locking Tabs (L-2) are fragile. Be careful not to break them. Release 10 Locking Tabs (L-2), then remove the Deck Holder. (Fig. 3) When releasing (L-2), first release the tab (A) on each side of the Front Assembly, then the four tabs (B) at the bottom, and then the four tabs (C) at the top. (Fig. 3, Fig. 4)
- 3. **CAUTION** Locking Tabs (L-3) are fragile. Be careful not to break them. Turn the Function CBA to the front side while pushing up Locking Tabs (L-3). Connector (CN6001) works like a hinge and allows the Function CBA to turn. Be extremely careful not break these Locking Tabs (L-3). Then lift the Function CBA up to remove Connector (CN6001). (Fig. 5)
- 4. Remove 3 Screws (S-3). Then slowly lift the Deck Assembly up. Lifting this Deck Assembly will disconnect 2 Connectors (CN2901, CN3501, CN6003) at the rear side. (Fig. 6)

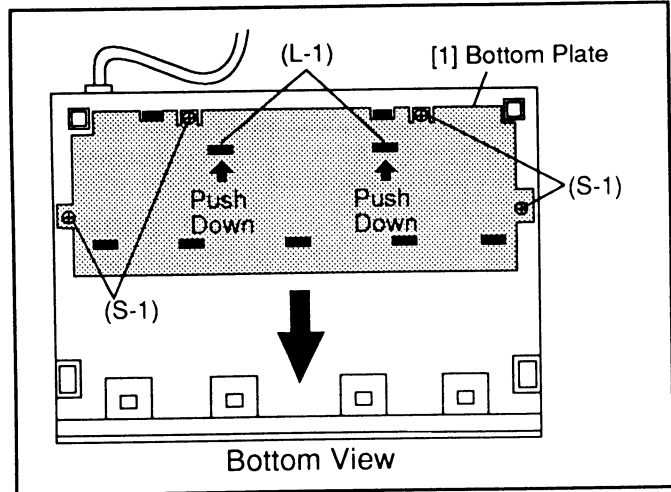


Fig. 1

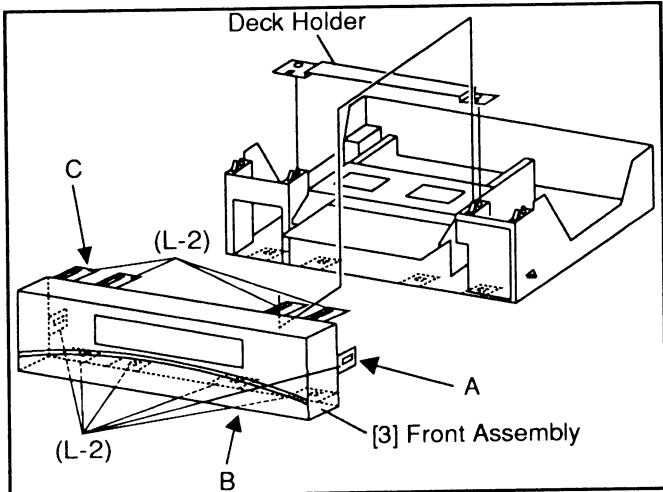


Fig. 3

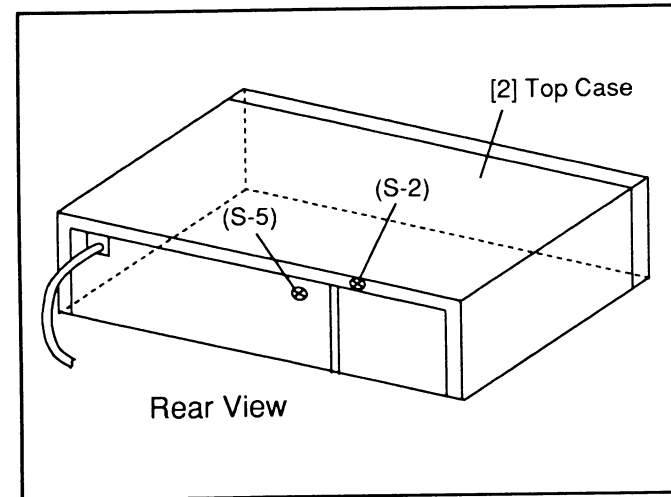


Fig. 2

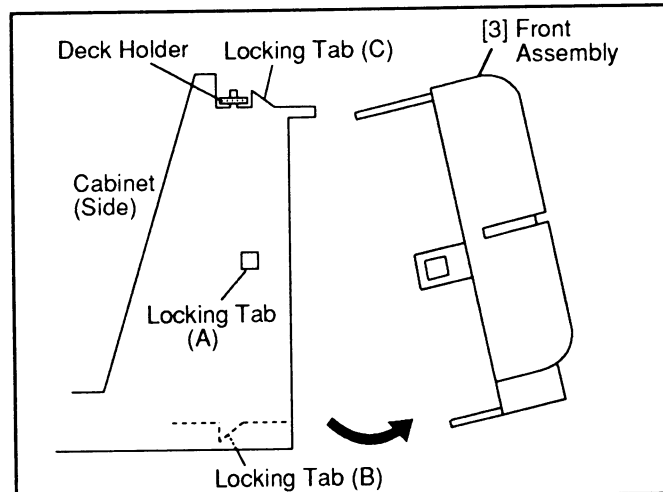


Fig. 4

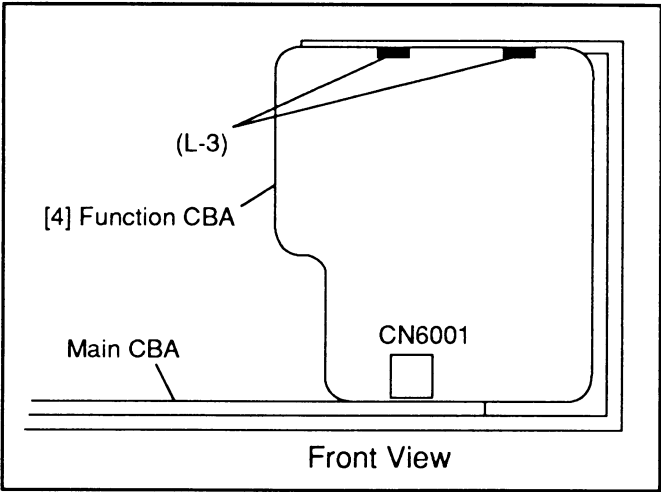


Fig. 5

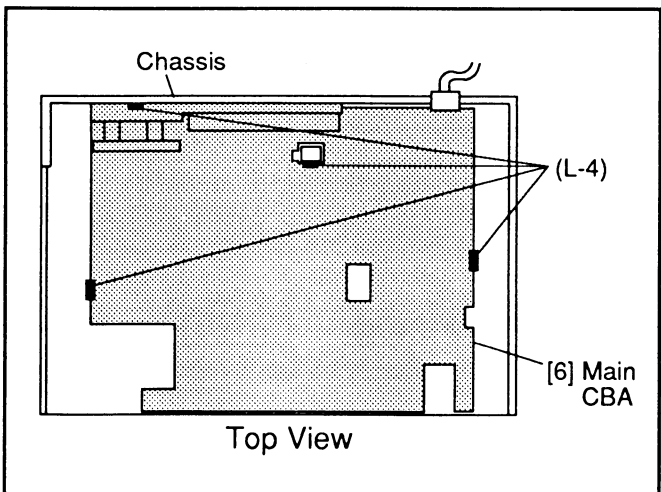


Fig. 7

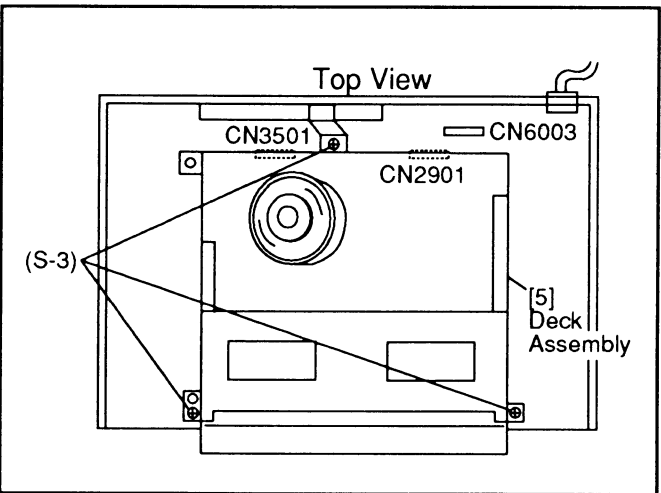


Fig. 6

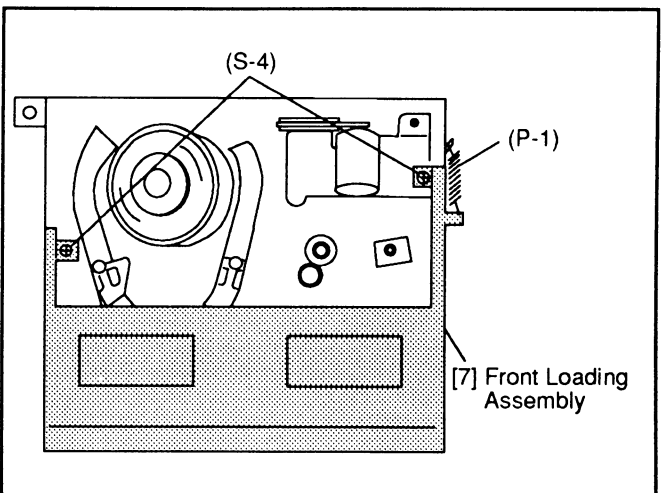
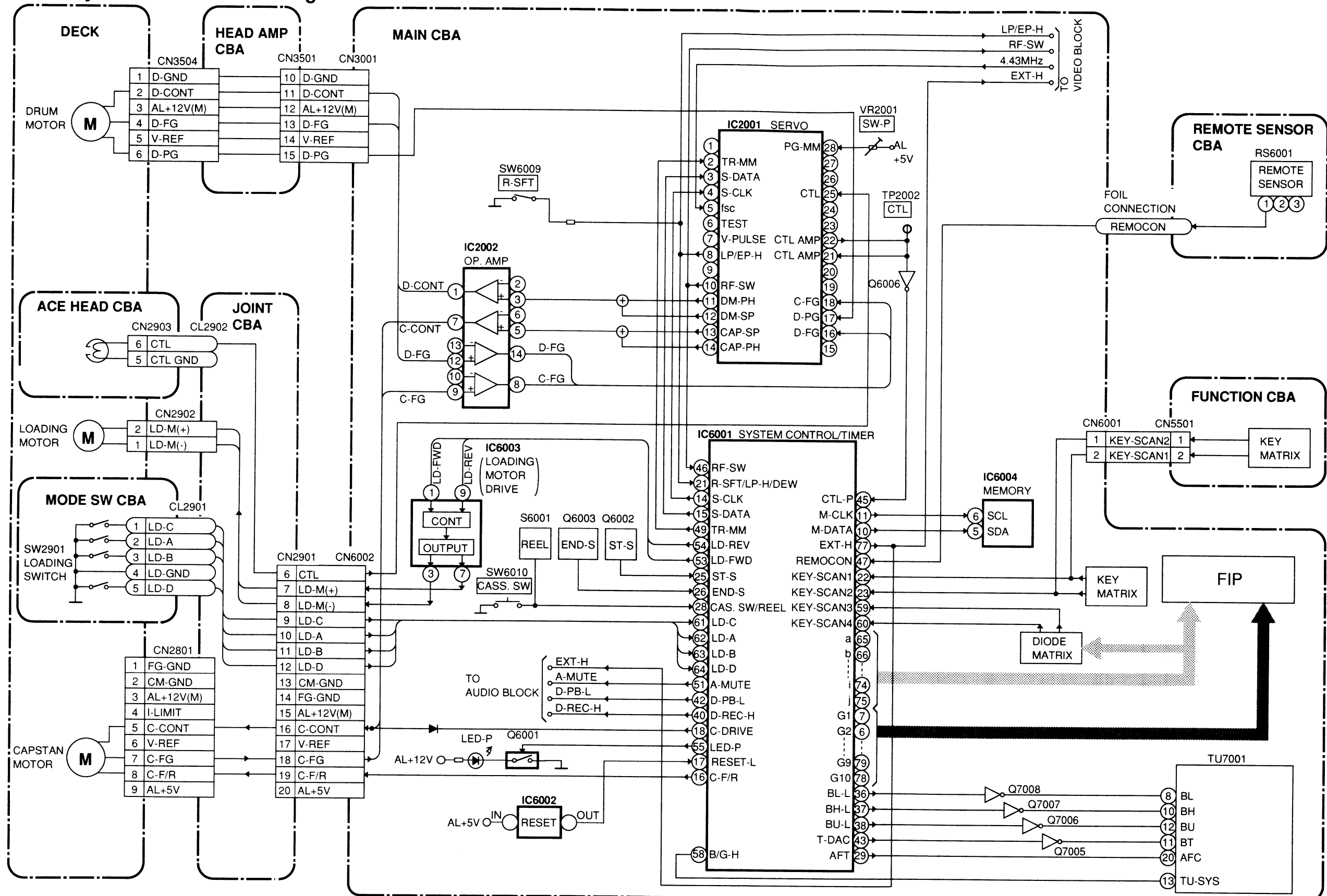


Fig. 8

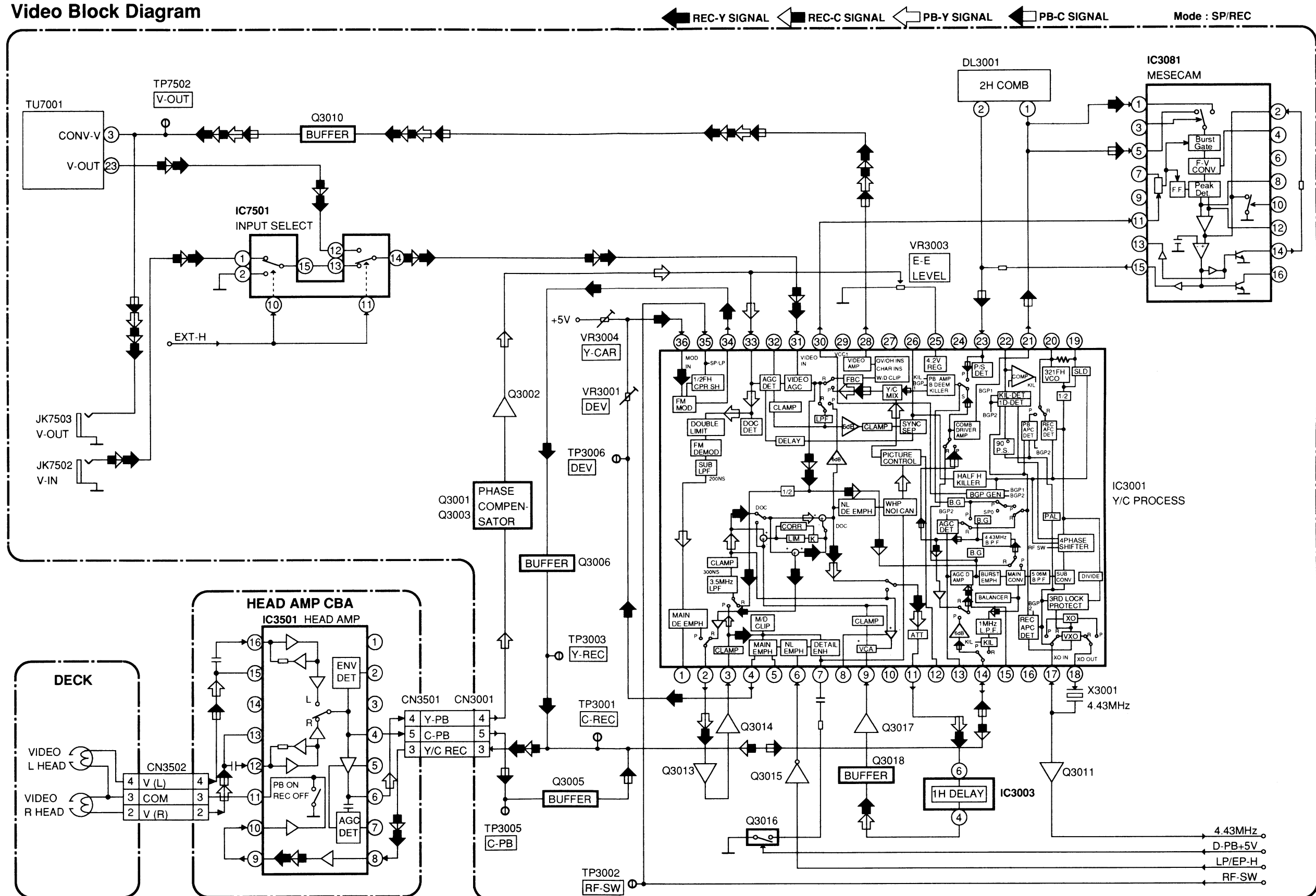
BLOCK DIAGRAMS

Servo/System Control Block Diagram



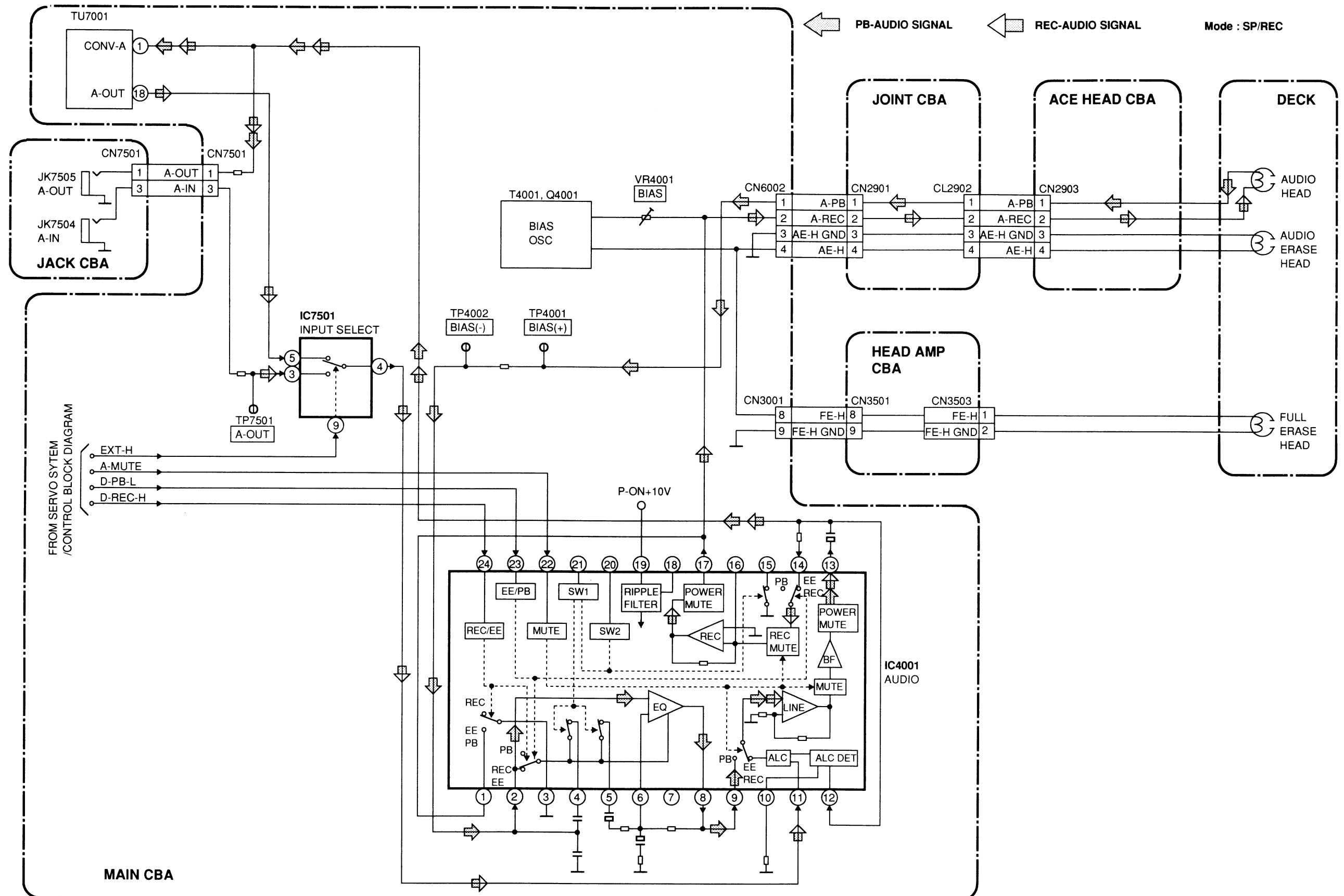
K4500BLS

Video Block Diagram



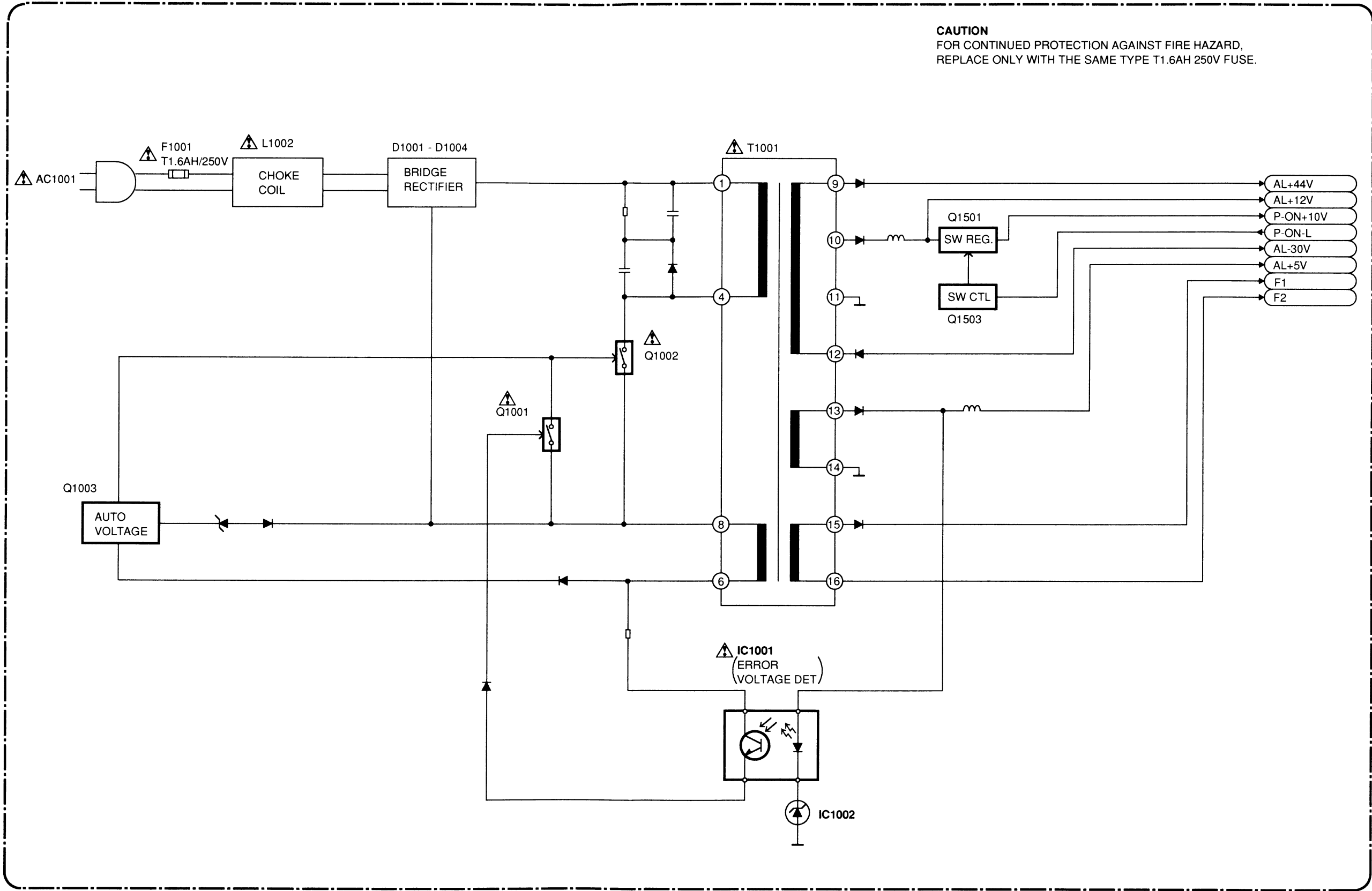
K4500BLV

Audio Block Diagram



K4500BLA

Power Supply Block Diagram



ELECTRICAL ADJUSTMENT INSTRUCTIONS

General Note: "CBA" is an abbreviation for "Circuit Board Assembly".

NOTE: Electrical adjustments are required after replacing circuit components and certain mechanical parts. It is important to do 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. Oscilloscope: Dual-trace with 10:1 probe, V-Range: 0.001~50V/Div., F-Frange: AC~DC-20MHz
2. PAL Pattern Generator (color bar with 100% white)
3. AC Voltmeter (RMS)
4. Alignment Tape (F6-A, Blank Tape)
5. Spectrum Analyzer

Head Switching Position Adjustment

Purpose:

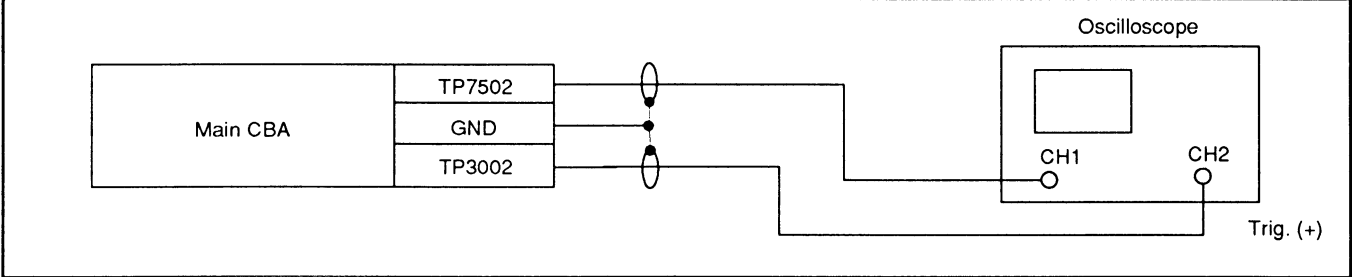
Determine the Head Switching point during playback.

Symptom of Misadjustment:

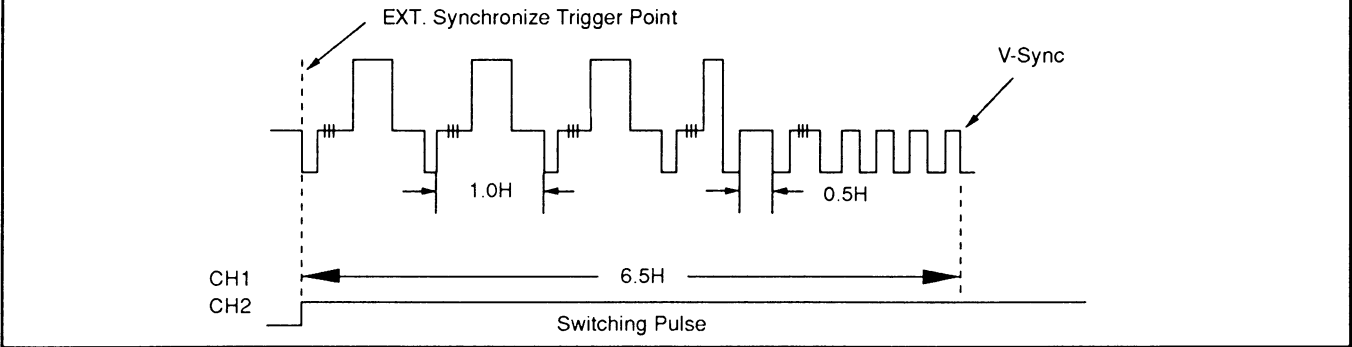
May cause Head Switching noise or vertical jitter in the picture.

Test Point	Adjustment Point	Mode	Input
TP7502 (V-OUT) TP3002 (RF-SW) GND	VR2001 (Switching Point) (Main CBA)	PLAY (SP)	----
Tape	M. EQ.	Spec.	
F6-A	Oscilloscope	6.5H±1H	

Connections of M. EQ.



Figure



Reference Notes:

1. Connect the equipment as shown in the above table.
2. Play back the test tape and adjust VR2001 so that the V-sync front edge of the CH1 video output waveform is out the 6.5H(412.7μs) delayed position from the rising edge of the CH2 head switching pulse waveform.

Audio Rec. Bias Current Adjustment

Purpose:
Set optimum record audio bias level.

Sympton of Misadjustment:
If audio bias level is too high, the frequency response deteriorates. If the level is too low, sound distortion may occur.

Test Point	Adjustment Point	Mode	Input
TP4001 (Bias +) TP4002 (Bias -) GND	VR4001 (Bias) (Main CBA)	REC (SP)	----
Tape	M. EQ.	Spec.	
Blank Tape	AC milivoltmeter or Oscilloscope	25.0mV RMS or 70.7mVp-p	

Connections of M. EQ.

Main CBA

TP4001

TP4002

AC Voltmeter (RMS)

(+)(-)

- * Do not enter Input Signal.
- Reference Notes:**
1. Connect the equipment as shown in the above table.
 2. Insert a blank tape and set the VCR to REC (SP) mode.
 3. Adjust VR4001 so that the voltage becomes 25.0mV RMS on the AC milivoltmeter or 70.7mVp-p on the oscilloscope.

V-Out Level Adjustment

Purpose:
Set optimum luminance v-out level.

Sympton of Misadjustment:
If the v-out level is too high, TV may overload. If the level is too low, the S/N ratio deteriorates.

Test Point	Adjustment Point	Mode	Input
TP7502 (V-Out) GND	VR3003 (E-E Level) (Main CBA)	E-E	Color Bar Signal with 100% white
Tape	M. EQ.	Spec.	
-----	Pattern Generator Oscilloscope	2±0.4Vp-p	

Connections of M. EQ.

Figure

- Reference Notes:**
1. Connect the equipment as shown in the above table.
 2. Input the color bar signal with 100% white to video input.
 3. Adjust VR3003 so that the video level becomes 2±0.4Vp-p. (Connected to TV)

FM Carrier Deviation Adjustment

Purpose:

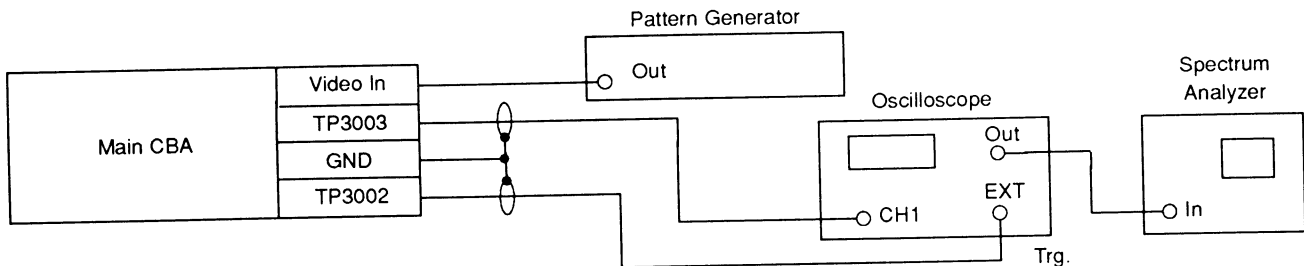
To align FM carrier deviation.

Sympton of Misadjustment:

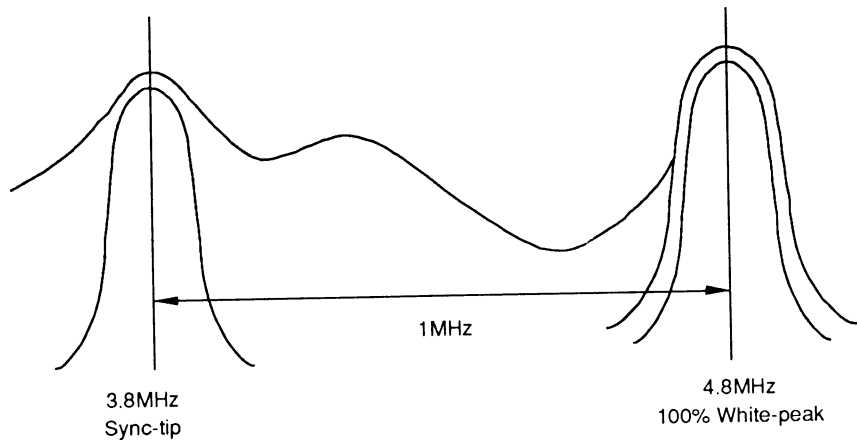
- If the deviation is not correct, abnormal contrast of light and dark on the picture may be seen.
- If the carrier deviation is not correct, beats apper on the picture.

Test Point	Adjustment Point	Mode	Input
TP3003 (Y-REC) TP3002 (RF-SW)	VR3001 (Deviation) (Main CBA) VR3004 (Carrier) (Main CBA)	REC (SP)	Color Bar signal with 100% white
Tape	M. EQ.	Spec.	
Blank Tape	Pattern Generator Spectrum Analyzer Oscilloscope	Sync-tip 3.8MHz±0.1MHz 100% white peak 4.8MHz±0.1MHz	

Connections of M. EQ.



Figure



Reference Notes:

1. Connect the equipment as shown in the above table.
2. Input color bar signal with 100% white to video input.
3. Adjust Sync-tip to 3.8MHz± 0.1MHz by VR3004, White-peak for 4.8MHz±0.1MHz by VR3001.

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:

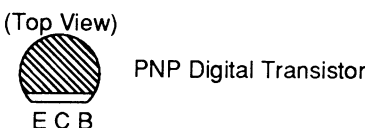
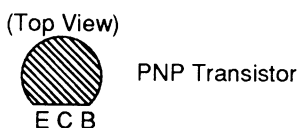
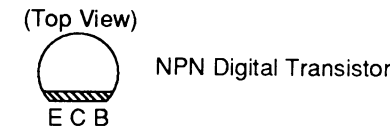
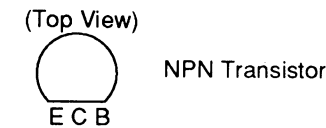
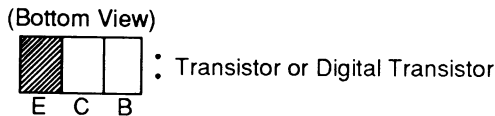
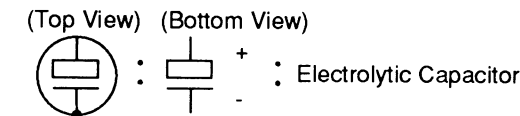
1. All resistance values are indicated in ohms (K=10³, M=10⁶).
2. Resistor wattages are 1/5W or 1/6W unless otherwise specified.
3. All capacitance values are indicated in μF (P=10⁻⁶μF).
4. All voltages are DC voltages unless otherwise specified.

Capacitor Temperature Markings

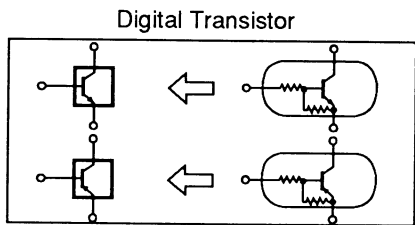
Mark	Capacity change rate	Standard temperature	Temperature range
(B)	±10%	20°C	-25~+85°C
(F)	+30 -80%	20°C	-25~+85°C
(SR)	±15%	20°C	-25~+85°C
(Z)	+30 -80%	20°C	-10~+70°C

Capacitors and transistors are represented by the following symbols.

PCB 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 HIGH BREAKING CAPACITY FUSE, RATING T 1.6A 250V.

FUSE MARKING ON THE SURFACE OF P.C. BOARD : T 1.6AH 250V.

2. CAUTION

Voltage selectable power supply circuit is used in this unit.

If Main Fuse (F01) is blown, first check to see that all components in the power supply circuit are not defective before you connect the AC plug to the AC power supply. Otherwise it may cause some components in the power supply circuit to fail.

3. Note:

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

4. Wire Connectors

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

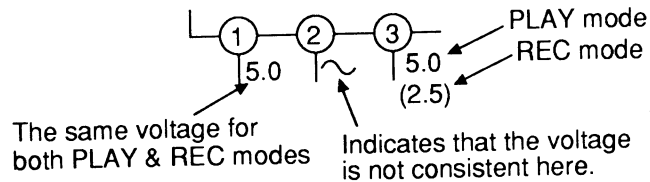
5. Note: Mark "•" is a leadless (chip) component.

6. Mode: SP/REC

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

8. How to read converged lines

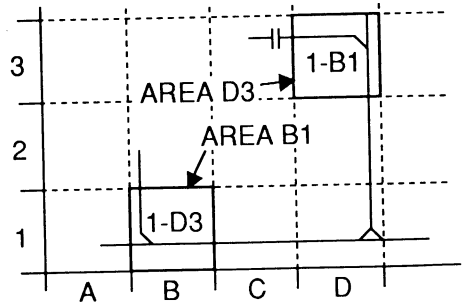
1-D3



Distinction Area
Line Number
(1 to 3 digits)

Examples:

- 1. "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.

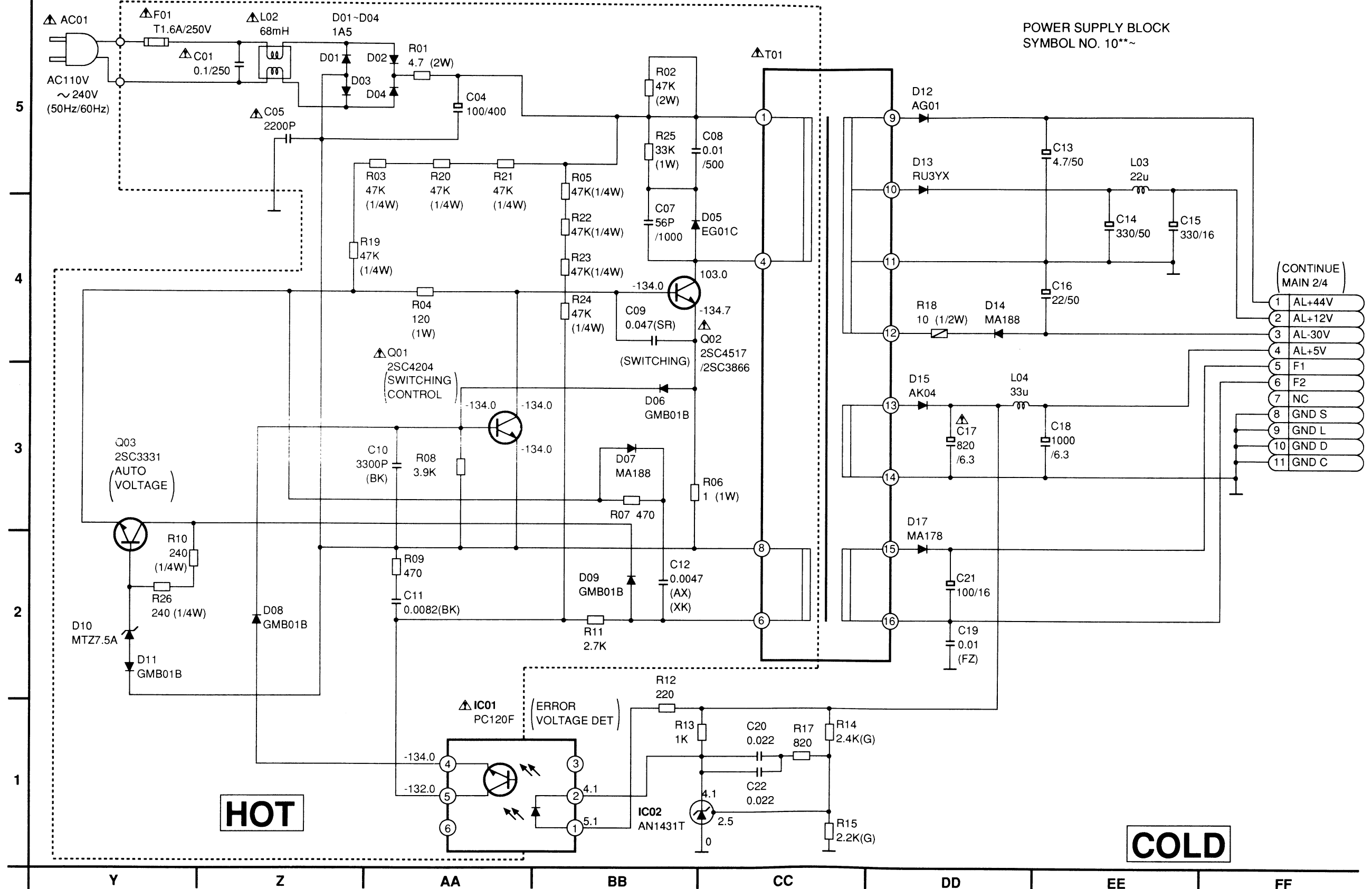
⊗ : Used to indicate a test point with no test pin.

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

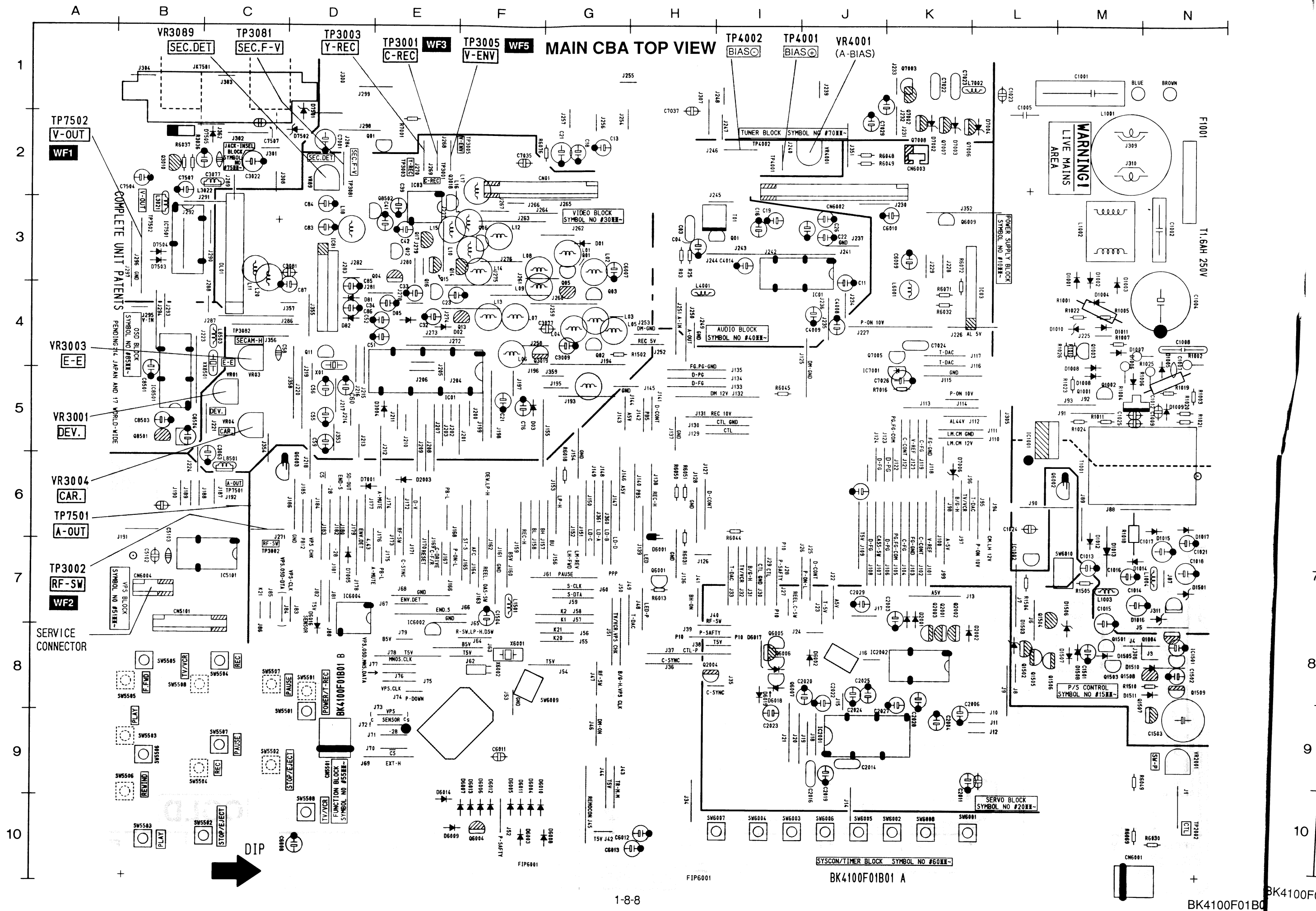
Main 4/4 Schematic Diagram

HOT CIRCUIT. BE CAREFUL AND USE A ISOLATION TRANSFORMER WHEN SERVICING.

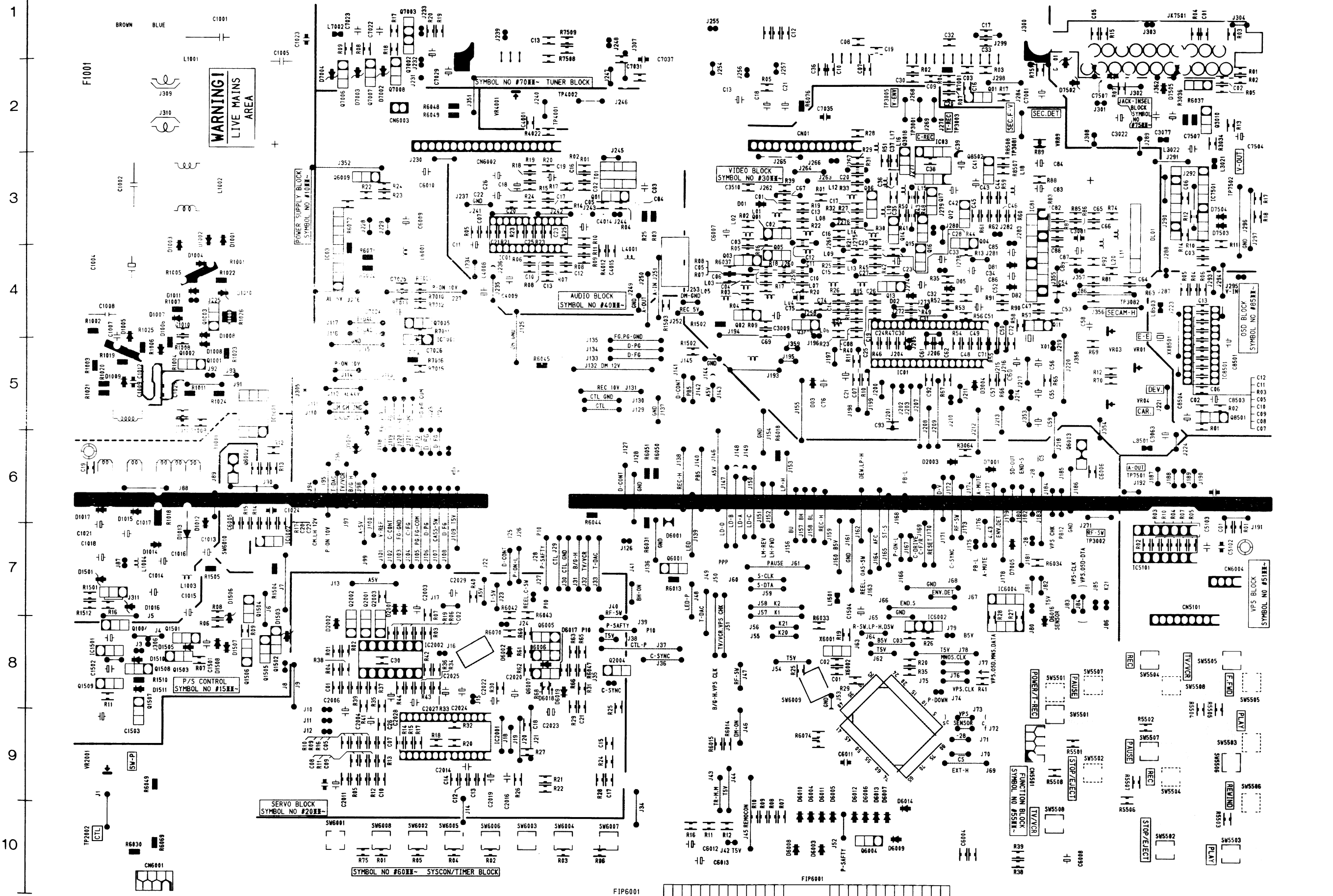
POWER SUPPLY BLOCK
SYMBOL NO. 10**~



K4500SCM4

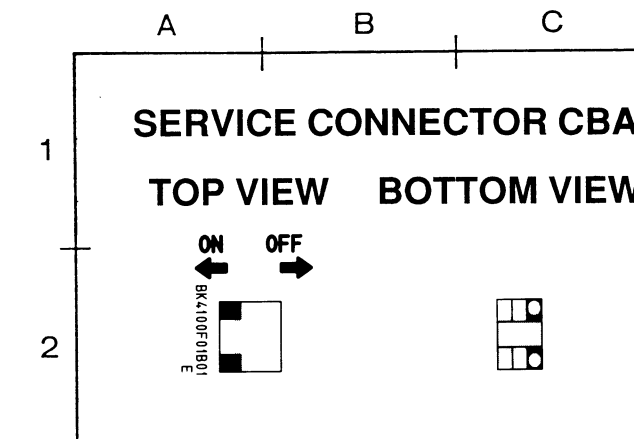
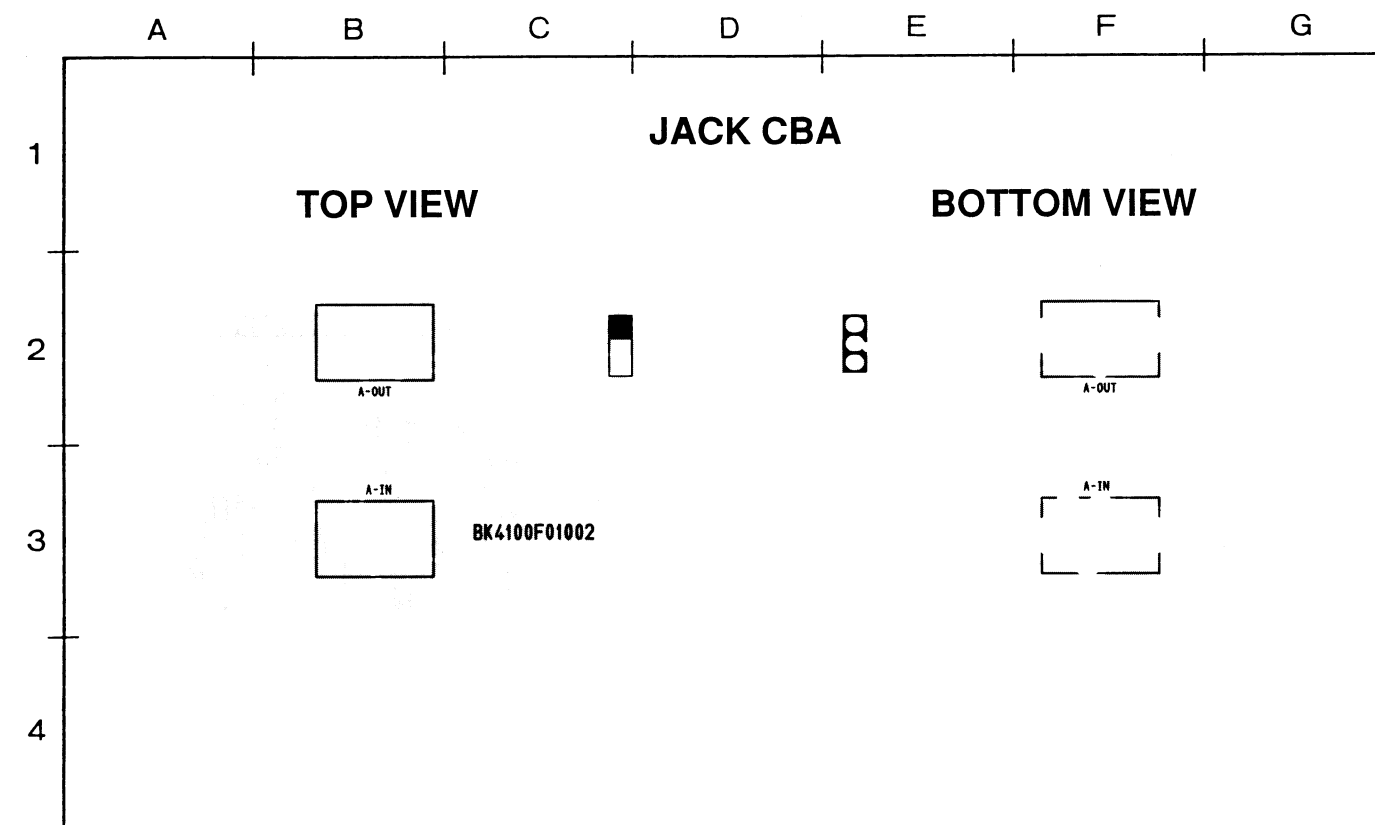
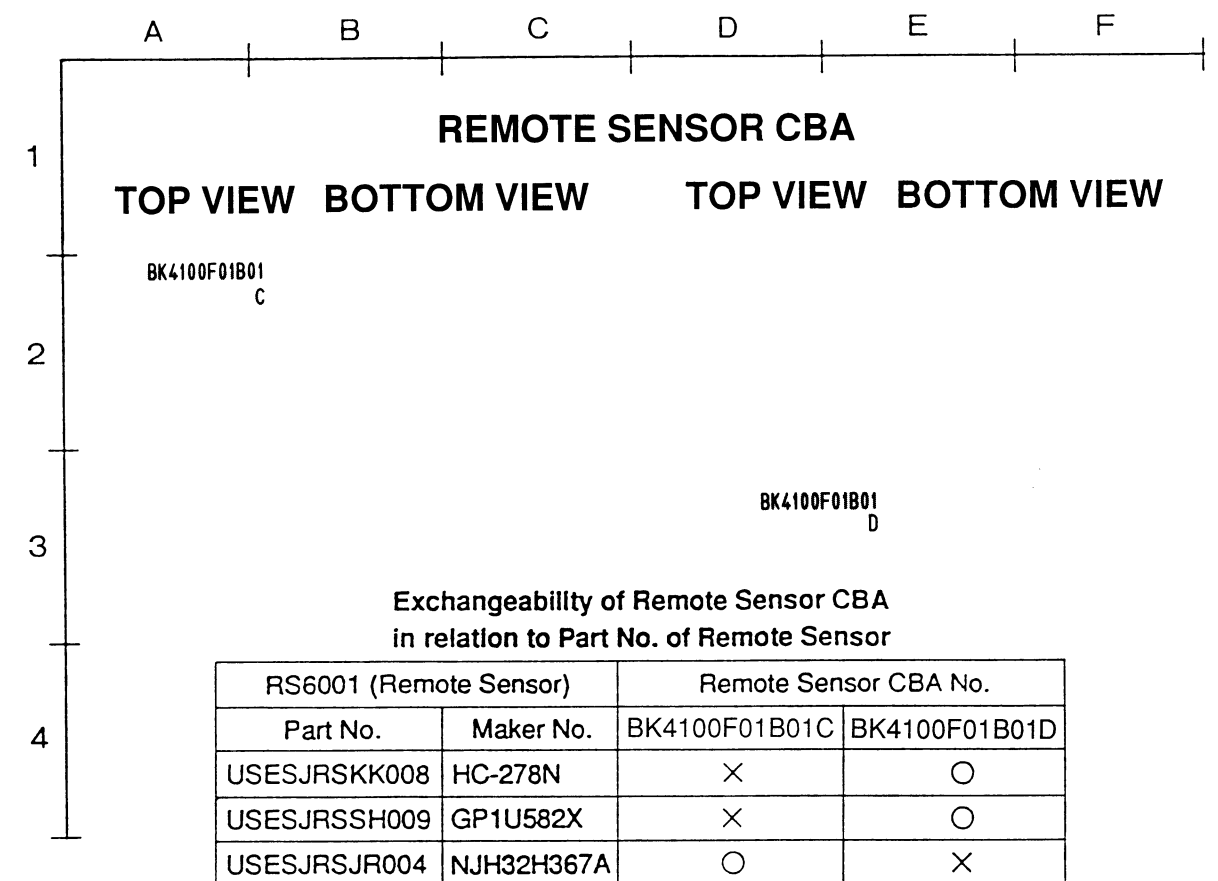
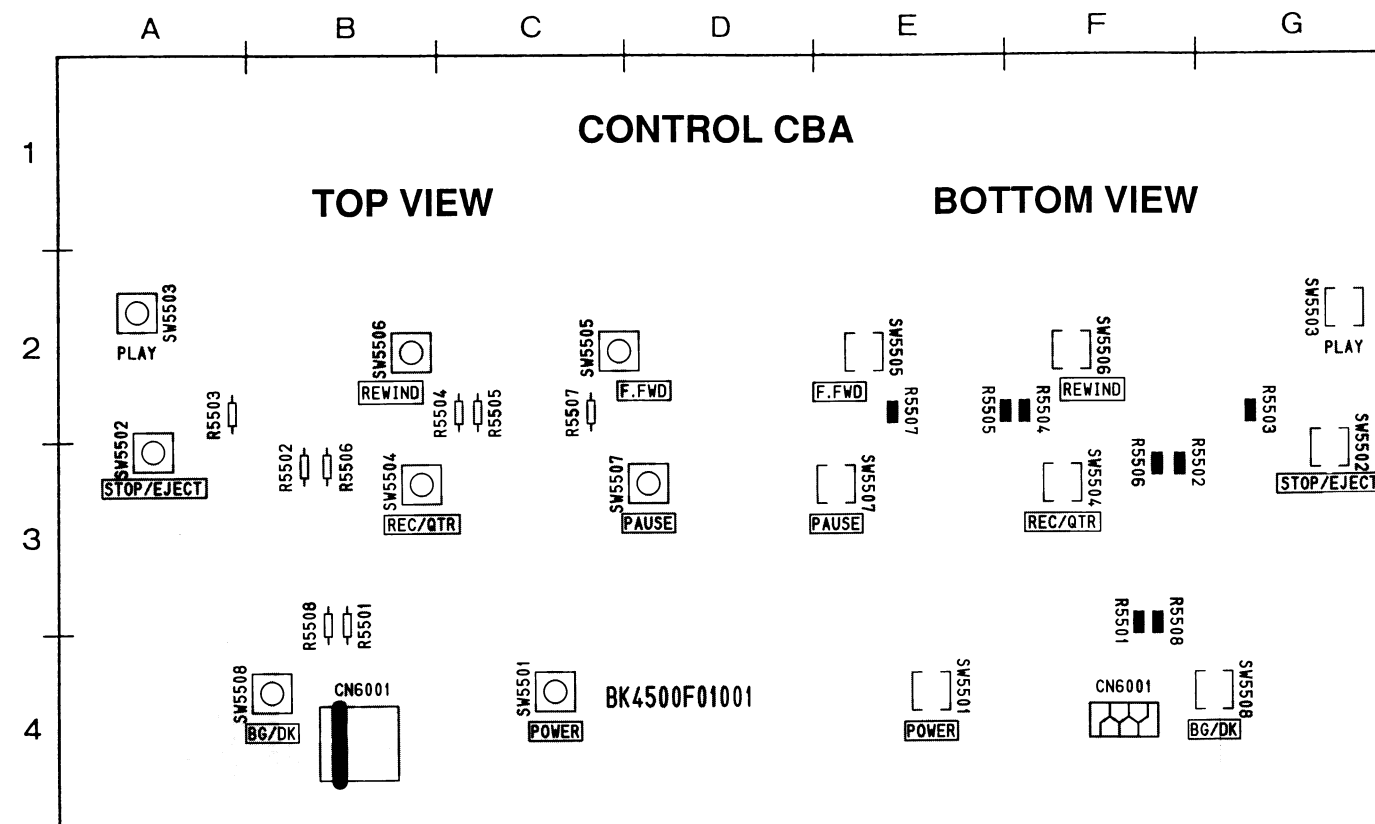


MAIN CBA BOTTOM VIEW

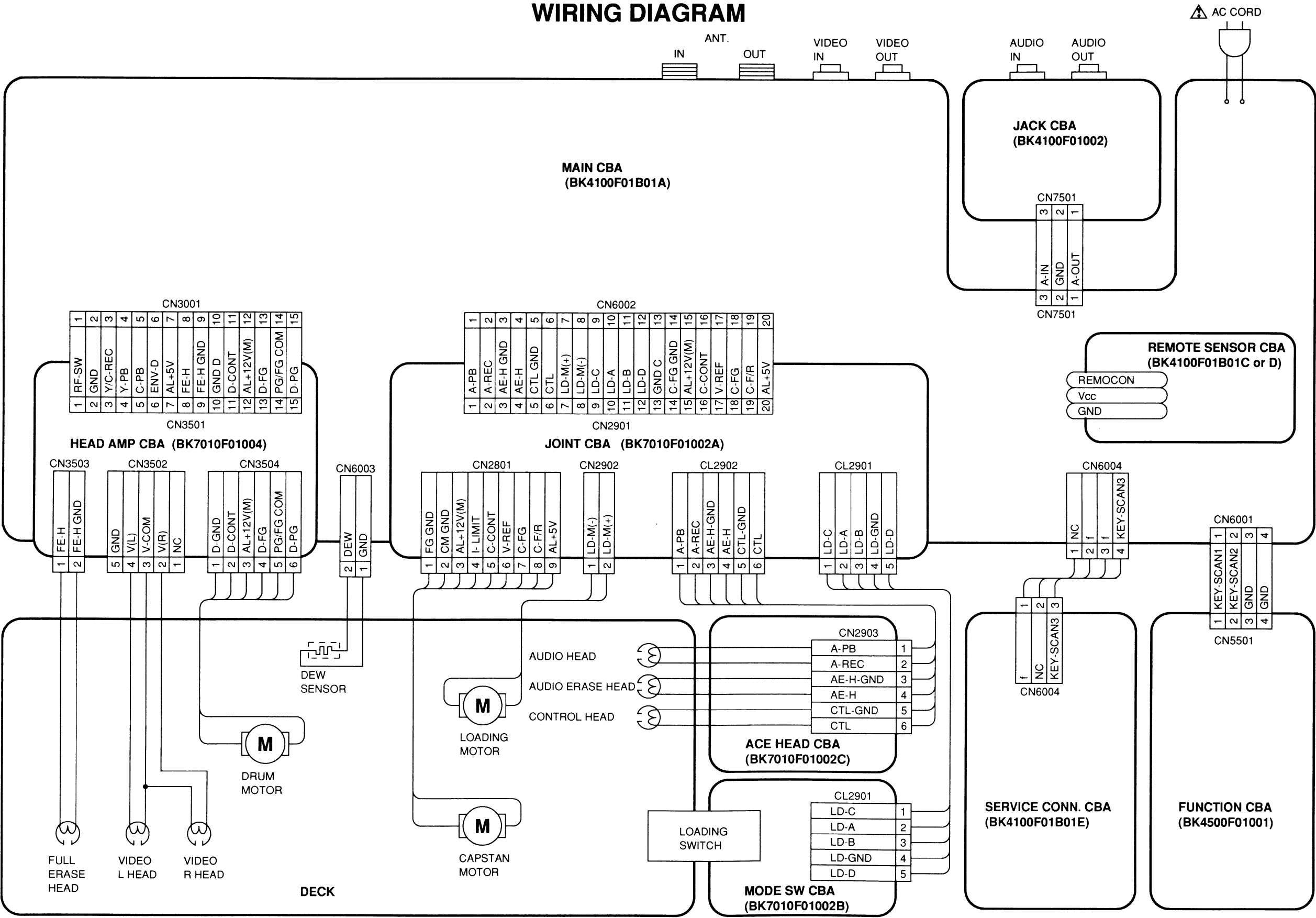


FIP6001

FIP6010



WIRING DIAGRAM



SYSTEM CONTROL TIMING CHARTS

Loading SW : LD-A / LD-B / LD-C / LD-D

LD-SW				Symbol	Stop Position (Stop Pattern)
LD-A	LD-B	LD-C	LD-D		
L	H	H	H	EJ	
H	H	H	H	CL	
L	L	H	H	SB	
H	L	H	H	TL	
H	L	L	H	FB	
H	H	L	H	SF	
H	H	L	L	AU	
H	H	H	L	AL	
H	L	H	L	SS	
H	H	H	H	GC	
L	H	H	L	RS	

Note :
EJ → RS : Loading FWD (LD-FWD "H", LD-REV "L")
RS → EJ : Loading REV (LD-FWD "L", LD-REV "H")
Stop (A) = Loading
Stop (B) = Unloading

Note :

Symbol	Loading Status
EJ	Eject
CL	Eject ~ Loading Completion
SB	REW ~ Stop (B)
TL	Stop (B) ~ Brake Cancel
FB	Brake Cancel ~ FF/REW
SF	FF/REW ~ Stop (A)
AU	Stop (A) ~ Play/Rec
AL	Play/REC ~ 4 Head STILL/Slow
SS	4 Head Still/Slow ~ Capstan Reversal
GC	Capstan Reversal ~ REW Reel
RS	REW

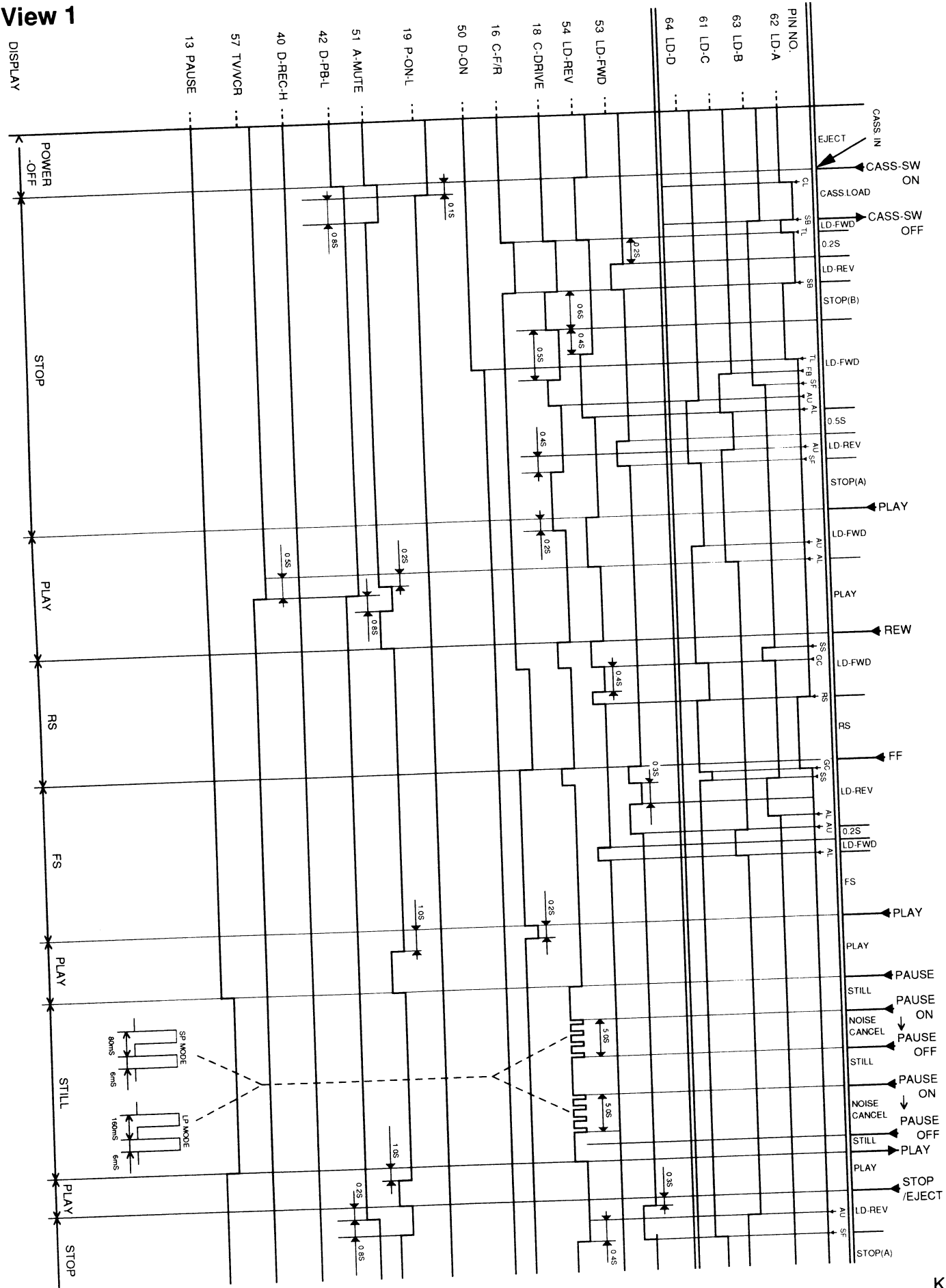
Loading Motor Control

LD-FWD	LD-REV	Description
H	H	Stop
H	L	Loading Forward Rotation
L	H	Loading Reverse Rotation

Capstan Motor Control

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

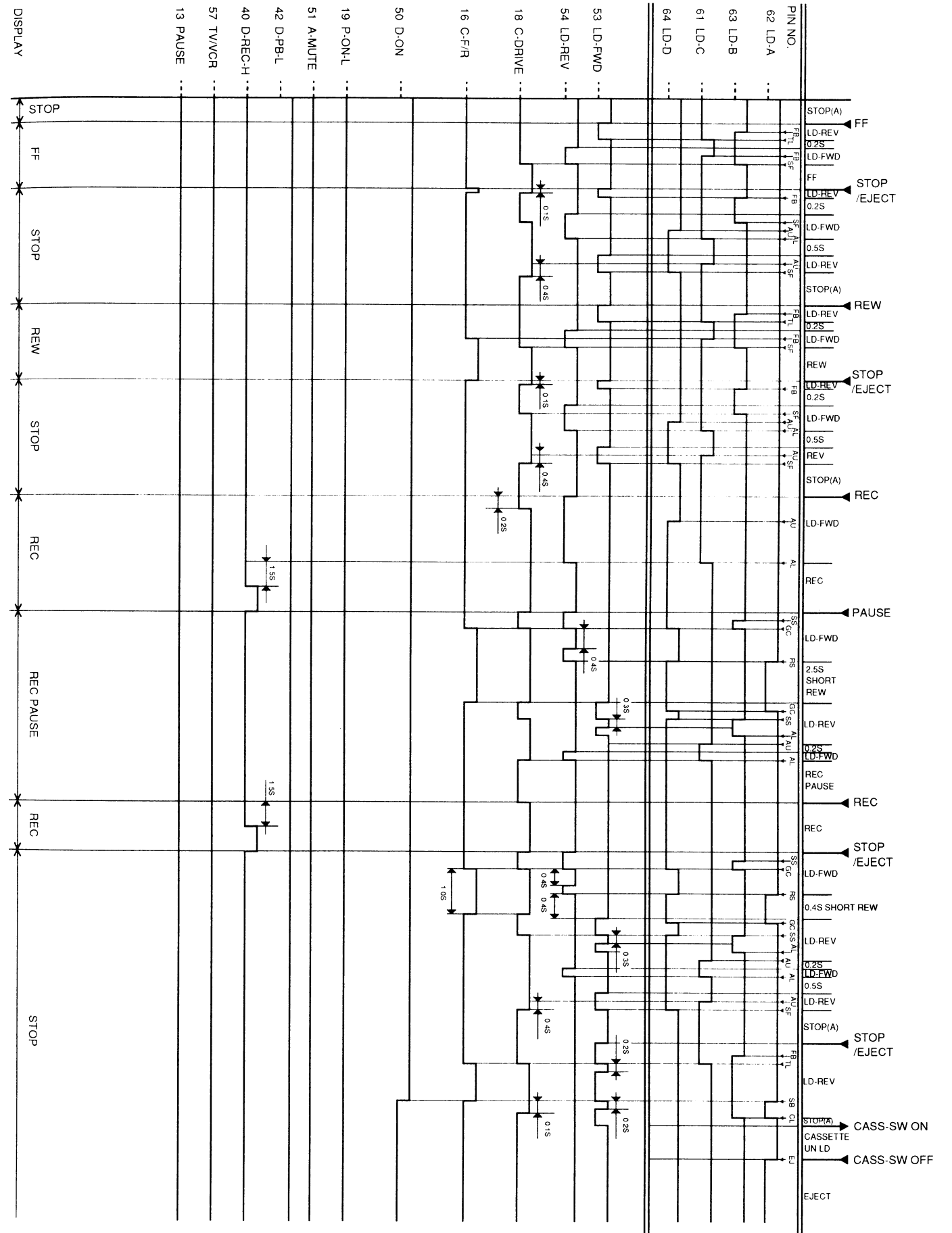
View 1



1-10-2

K4110T

View 2



1-10-3

K4110T

IC PIN FUNCTION DESCRIPTIONS

IC6001 SYSTEM CONTROL/TIMER IC (QSMQAORNE033)

*VCR9602 model only

Pin No.	In/Out	Signal Name	Function	Active Level
1	OUT	G7	Display Digit Output	H
2	OUT	G6	Display Digit Output	H
3	OUT	G5	Display Digit Output	H
4	OUT	G4	Display Digit Output	H
5	OUT	G3	Display Digit Output	H
6	OUT	G2	Display Digit Output	H
7	OUT	G1	Display Digit Output	H
8	IN	VDD	+5V(Back up +5V)	—
9	—	NU	Not used	—
10	IN/OUT	M-DATA	Memory IC Data	—
11	OUT	M-CLK	Memory IC Timing Clock	—
12	IN	P-DOWN	Power down detected input	L
13	OUT	PAUSE	Pause Control	H
14	OUT	S-CLK	Servo IC Timing Clock	—
15	OUT	S-DATA	Servo IC Data	—
16	OUT	C-F/R	Capstan Motor FWD/REV Control Signal	H/L
17	IN	RESET-L	Reset Signal Input "L", Normal at "H"	L
18	OUT	C-DRIVE	Capstan Motor Drive Signal (Stop="L")	—
19	OUT	P-ON-L	Power-ON Instruction Signal	L
20	—	VSS	GND	—
21	IN	R-SFT/LP-H	Erase Prevention Switch/Tape Speed LP Mode="H" Input	—
22	IN	KEY-SCAN 1	Key Scan Signal Input 1	—
23	IN	KEY-SCAN 2	Key Scan Signal Input 2	—
24	IN	ENV-D	Video Head Amp ENV Comparison Data Input	—
25	IN	ST-S	Tape Start Position Detection	L
26	IN	END-S	Tape End Position Detection	L
27	IN	AFT	AFT Signal Input	—
28	IN	REEL/CAS-SW	Reel Rotation Signal Input/Cassette IN/OUT Detector (IN/OUT Rotation = "H")	—
29	IN	VDD	+5V (Back up +5V)	—
30	IN	VDD	+5V (ALL +5V)	—
31	IN	OSC 1 IN	Crystal Oscillator 32 KHz Input	—
32	OUT	OSC 1 OUT	Crystal Oscillator 32 KHz Output	—
33	IN	VSS	GND	—
34	IN	OSC 2 IN	Seramic Rezonator 4.19MHz Input	—
35	OUT	OSC 2 OUT	Seramic Rezonator 4.19MHz Output	—
*36	OUT	BL-L	Tuner Band Set Signal (VHF Low = "L")	L
*37	OUT	BH-L	Tuner Band Set Signal (VHF High = "L")	L
*38	OUT	BU-L	Tuner Band Set Signal (UHF = "L")	L
39	—	NU	Not used	—
40	OUT	D-REC-H	Video/Audio Recording Instruction Signal	H
41	—	NU	Not used	—
42	—	D-PB-L	Video/Audio Playback Instruction Signal	L
43	—	T-DAC	Tuner Tuning Voltage Control Signal	—
44	IN	C-SYNC	Composit Sync. Signal Input	—

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 number (-----) are not available.

C.....±0.25%	J.....±5%	Z.....+80/-20%
D.....±0.5%	K.....±10%	X.....+40/-20%
F.....±1%	M.....±20%	P.....+100%
G.....±2%	N.....±30%	

MCV CBA....0VSA05981
MAIN (MCV-A) CBANot Available
REMOTE SENSOR (MCV-C) CBANot Available
REMOTE SENSOR (MCV-D) CBANot Available
JACK (MCV-E) CBANot Available

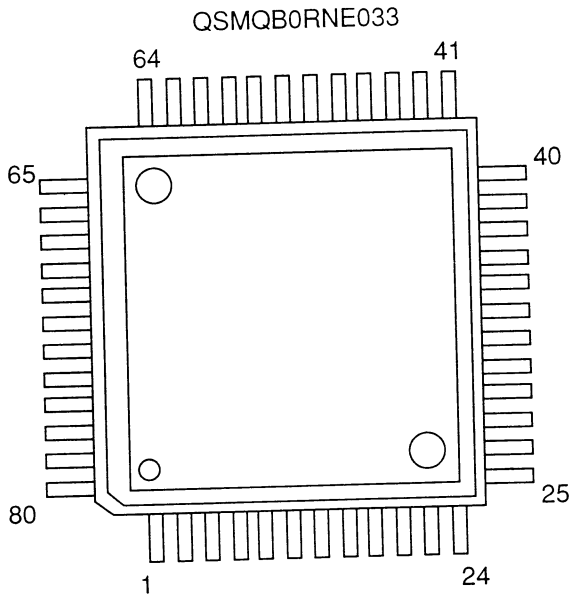
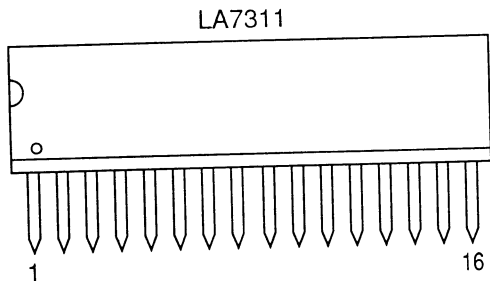
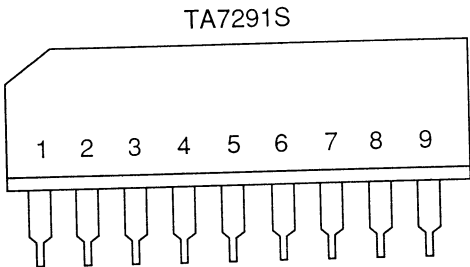
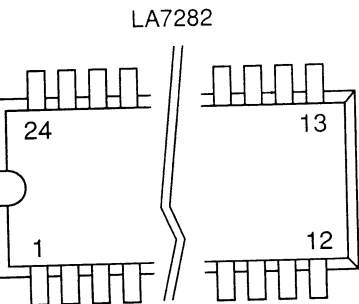
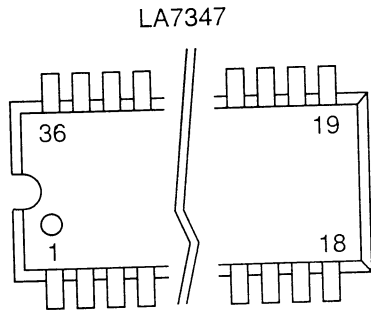
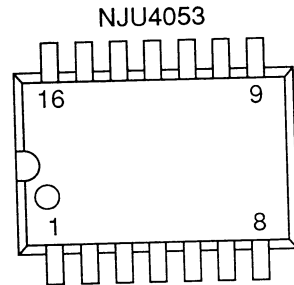
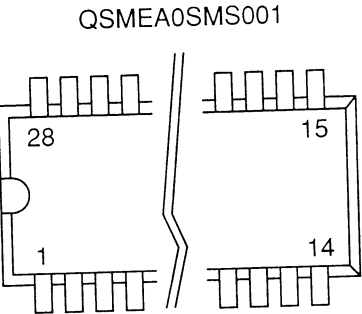
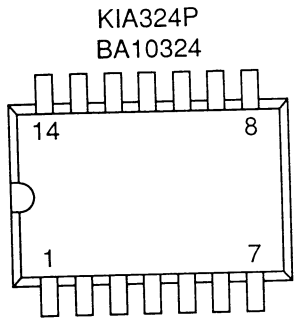
FNT (FUNCTION) CBA0VSA05984
JACK (JD) CBA0VSA05986

MAIN (MCV-A) CBA

Ref.No.	Description	Part No.
	MAIN (MCV-A) CBA CONSISTS OF THE FOLLOWING:	-----
	CAPACITORS	
C 1001 	METALLIZED FILM CAP. 0.047µF/250V K or METALIZED FILM CAP. 0.047µF/250V M	CT2E473NC004 CT2E473MS001
C 1004	ELECTROLYTIC CAP. 100µF/400V M or ELECTROLYTIC CAP. 100µF/400V M or ELECTROLYTIC CAP. 100µF/400V M	CA2H101NC008 CA2H101EA008 CA2H101MS002
C 1005 	CERAMIC CAP./SAFETY 0.0022µF or CERAMIC CAP./SAFETY E M 2200pF	1220621 CCG2HMP0E222
C 1007	CERAMIC CAP. SL J 56pF/1KV or CERAMIC CAP. SL K 56pF/1KV	CA3A560MR506 CCD3AKPSL560
C 1008	CERAMIC CAP. 0.01µF/500V or CERAMIC CAP. B K 0.01µF/500V	CA2J103TU001 CCD2JKP0B103
C 1009	SEMICONDUCTOR CAP. YR K 0.047µF/25V	CDA1EKU0X473
C 1010	CHIP CERAMIC CAP. B K 0.0033µF/50V	CHE1JKB0B332
C 1011	CHIP CERAMIC CAP. B K 0.0082µF/50V	CHE1JKB0B822
C 1012	CERAMIC CAP. F Z 0.0047µF/50V	12F3472U
C 1013	ELECTROLYTIC CAP. 33µF/50V M	126F336S
C 1014	ELECTROLYTIC CAP. 330µF/50V M	126F337
C 1015	ELECTROLYTIC CAP. 330µF/16V M	126C337S
C 1016	ELECTROLYTIC CAP. 22µF/50V M H7	526W226S
C 1017	ELECTROLYTIC CAP. 820µF/6.3V M or ELECTROLYTIC CAP. 820µF/6.3V	121D827S CA0K827NC505
C 1018	ELECTROLYTIC CAP. 1000µF/6.3V M	126A108S
C 1019	CHIP CERAMIC CAP. F Z 0.01µF/50V	CHE1JZB0F103
C 1020	CHIP CERAMIC CAP. B K 0.022µF/16V	CHE1CKB0B223
C 1021	ELECTROLYTIC CAP. 100µF/16V M H7	526T107S
C 1022	CHIP CERAMIC CAP. B K 0.022µF/16V	CHE1CKB0B223
C 1501	ELECTROLYTIC CAP. 0.47µF/50V M H7	526W474S
C 1504	ELECTROLYTIC CAP. 330µF/6.3V M H7	526R337S
C 2001	CHIP CERAMIC CAP. F Z 0.047µF/25V	CHE1EZB0F473
C 2002	CHIP CERAMIC CAP. B K 0.022µF/16V	CHE1CKB0B223
C 2003	ELECTROLYTIC CAP. 0.22µF/50V M H7	526W224S
C 2004	ELECTROLYTIC CAP. 100µF/16V M H7	526T107S
C 2005	CHIP CERAMIC CAP. B K 0.01µF/25V	CHE1EKB0B103
C 2006	SEMICONDUCTOR CAP. SR K 0.1µF/16V	12Y6104S
C 2007	CHIP CERAMIC CAP. B K 0.01µF/25V	CHE1EKB0B103
C 2008	CHIP CERAMIC CAP. B K 0.027µF/16V	CHE1CKB0B273
C 2009	CHIP CERAMIC CAP. F Z 0.022µF/50V	CHE1JZB0F223

Ref.No.	Description	Part No.
C 2010	CHIP CERAMIC CAP. B K 0.01µF/25V	CHE1EKB0B103
C 2011	ELECTROLYTIC CAP. 100µF/16V M H7	526T107S
C 2012	CHIP CERAMIC CAP. SL J 100pF/50V	CHE1JJB0B101
C 2013	CHIP CERAMIC CAP. SL J 100pF/50V	CHE1JJB0B101
C 2014	*MYLAR CAP. 0.033µF/50V J	2254333S
C 2015	CHIP CERAMIC CAP. F Z 0.1µF/16V	CHE1CZB0F104
C 2016	MYLAR CAP. 0.068µF/50V J	2254683S
C 2017	CHIP CERAMIC CAP. B K 0.0047µF/50V	CHE1JKB0B472
C 2018	CHIP CERAMIC CAP. B K 0.0047µF/50V	CHE1JKB0B472
C 2019	ELECTROLYTIC CAP. 47µF/6.3V M H7	526R476S
C 2020	ELECTROLYTIC CAP. 47µF/6.3V M H7	526R476S
C 2021	CHIP CERAMIC CAP. F Z 0.022µF/50V	CHE1JZB0F223
C 2022	ELECTROLYTIC CAP. 10µF/16V M H7	526T106S
C 2023	ELECTROLYTIC CAP. 2.2µF/50V M NP H7	524X225S
C 2024	ELECTROLYTIC CAP. 10µF/16V M H7	526T106S
C 2025	ELECTROLYTIC CAP. 10µF/16V M H7	526T106S
C 2026	CHIP CERAMIC CAP. B K 0.01µF/25V	CHE1EKB0B103
C 2027	ELECTROLYTIC CAP. 10µF/16V M H7	526T106S
C 2028	ELECTROLYTIC CAP. 10µF/16V M H7	526T106S
C 2029	ELECTROLYTIC CAP. 1µF/50V M H7	526W105S
C 2031	CHIP CERAMIC CAP. B K 0.001µF/50V	CHE1JKB0B102
C 3001	CHIP CERAMIC CAP. SL J 18pF/50V	CHE1JJB0B180
C 3002	CHIP CERAMIC CAP. SL J 18pF/50V	CHE1JJB0B180
C 3003	CHIP CERAMIC CAP. SL J 39pF/50V	CHE1JJB0B390
C 3004	CHIP CERAMIC CAP. SL J 27pF/50V	CHE1JJB0B270
C 3005	CHIP CERAMIC CAP. SL J 27pF/50V	CHE1JJB0B270
C 3006	CHIP CERAMIC CAP. F Z 0.022µF/50V	CHE1JZB0F223
C 3007	CHIP CERAMIC CAP. F Z 0.01µF/50V	CHE1JZB0F103
C 3009	ELECTROLYTIC CAP. 47µF/6.3V M H7	526R476S
C 3010	CHIP CERAMIC CAP. SL J 120pF/50V	CHE1JJB0B121
C 3012	CHIP CERAMIC CAP. SL J 220pF/50V	CHE1JJB0B221
C 3013	CHIP CERAMIC CAP. B K 0.022µF/16V	CHE1CKB0B223
C 3014	CHIP CERAMIC CAP. SL J 68pF/50V	CHE1JJB0B680
C 3015	CHIP CERAMIC CAP. SL J 150pF/50V	CHE1JJB0B151
C 3016	CHIP CERAMIC CAP. SL J 39pF/50V	CHE1JJB0B390
C 3017	CHIP CERAMIC CAP. F Z 0.047µF/25V	CHE1EZB0F473
C 3019	CHIP CERAMIC CAP. B K 0.022µF/16V	CHE1CKB0B223
C 3020	CHIP CERAMIC CAP. SL J 47pF/50V	CHE1JJB0B470
C 3021	ELECTROLYTIC CAP. 4.7µF/50V M H7	526W475S
C 3022	ELECTROLYTIC CAP. 470µF/6.3V M	126A477S

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



NOTE:
A: Anode
B: Cathode
E: Emitter
C: Collector
B: Base
R: Reference

Ref.No.	Description	Part No.
C 3023	ELECTROLYTIC CAP. 1μF/50V M H7	526W105S
C 3024	CHIP CERAMIC CAP. SL J 390pF/50V	CHE1JJBLSL391
C 3025	CHIP CERAMIC CAP. SL J 180pF/50V	CHE1JJBLSL181
C 3026	CHIP CERAMIC CAP. SL D 10pF/50V	CHE1JDBSL100
C 3027	CHIP CERAMIC CAP. SL J 22pF/50V	CHE1JJBLSL220
C 3028	CHIP CERAMIC CAP. SL J 47pF/50V	CHE1JJBLSL470
C 3029	CHIP CERAMIC CAP. SL J 56pF/50V	CHE1JJBLSL560
C 3030	CHIP CERAMIC CAP. SL J 18pF/50V	CHE1JJBLSL180
C 3031	CHIP CERAMIC CAP. SL J 100pF/50V	CHE1JJBLSL101
C 3032	ELECTROLYTIC CAP. 10μF/16V M H7	526T106S
C 3033	ELECTROLYTIC CAP. 10μF/16V M H7	526T106S
C 3034	ELECTROLYTIC CAP. 0.47μF/50V M H7	526W474S
C 3035	CHIP CERAMIC CAP. SL J 82pF/50V	CHE1JJBLSL820
C 3036	CHIP CERAMIC CAP. SL D 6pF/50V	CHE1JDBSL6R0
C 3037	CHIP CERAMIC CAP. SL J 39pF/50V	CHE1JJBLSL390
C 3038	CHIP CERAMIC CAP. F Z 0.022μF/50V	CHE1JZB0F223
C 3039	ELECTROLYTIC CAP. 10μF/16V M H7	526T106S
C 3041	ELECTROLYTIC CAP. 1μF/50V M H7	526W105S
C 3042	ELECTROLYTIC CAP. 1μF/50V M H7	526W105S
C 3043	CHIP CERAMIC CAP. B K 0.01μF/25V	CHE1EKB0B103
C 3044	CHIP CERAMIC CAP. SL J 22pF/50V	CHE1JJBLSL220
C 3045	CHIP CERAMIC CAP. SL J 220pF/50V	CHE1JJBLSL221
C 3046	CHIP CERAMIC CAP. F Z 0.01μF/50V	CHE1JZB0F103
C 3047	CHIP CERAMIC CAP. F Z 0.022μF/50V	CHE1JZB0F223
C 3048	CHIP CERAMIC CAP. F Z 0.01μF/50V	CHE1JZB0F103
C 3049	CHIP CERAMIC CAP. B K 0.022μF/16V	CHE1CKB0B223
C 3050	CHIP CERAMIC CAP. B K 0.022μF/16V	CHE1CKB0B223
C 3051	ELECTROLYTIC CAP. 1μF/50V M H7	526W105S
C 3052	ELECTROLYTIC CAP. 1μF/50V M H7	526W105S
C 3053	CHIP CERAMIC CAP. B K 0.01μF/25V	CHE1EKB0B103
C 3054	CHIP CERAMIC CAP. F Z 0.01μF/50V	CHE1JZB0F103
C 3055	ELECTROLYTIC CAP. 4.7μF/50V M H7	526W475S
C 3056	ELECTROLYTIC CAP. 1μF/50V M H7	526W105S
C 3057	CHIP CERAMIC CAP. B K 0.022μF/16V	CHE1CKB0B223
C 3058	SEMICONDUCTOR CAP. SR K 0.1μF/16V	12Y6104S
C 3059	ELECTROLYTIC CAP. 10μF/16V M H7	526T106S
C 3060	ELECTROLYTIC CAP. 220μF/6.3V M H7	526R227S
C 3061	CHIP CERAMIC CAP. F Z 0.1μF/16V	CHE1CZB0F104
C 3062	CHIP CERAMIC CAP. F Z 0.1μF/16V	CHE1CZB0F104
C 3063	ELECTROLYTIC CAP. 10μF/16V M H7	526T106S
C 3064	CHIP CERAMIC CAP. F Z 0.01μF/50V	CHE1JZB0F103
C 3065	CHIP CERAMIC CAP. SL J 27pF/50V	CHE1JJBLSL270
C 3066	CHIP CERAMIC CAP. SL J 27pF/50V	CHE1JJBLSL270
C 3067	CHIP CERAMIC CAP. F Z 0.022μF/50V	CHE1JZB0F223
C 3069	CHIP CERAMIC CAP. F Z 0.01μF/50V	CHE1JZB0F103
C 3071	CHIP CERAMIC CAP. B K 0.022μF/16V	CHE1CKB0B223
C 3072	CHIP CERAMIC CAP. B K 0.022μF/16V	CHE1CKB0B223
C 3073	ELECTROLYTIC CAP. 10μF/16V M H7	526T106S
C 3076	ELECTROLYTIC CAP. 4.7μF/50V M H7	526W475S
C 3077	CERAMIC CAP. SL J 56pF/50V	3S41560T
C 3081	CERAMIC CAP. Y M 0.01μF/16V	3Y4D103T
C 3082	CHIP CERAMIC CAP. F Z 0.01μF/50V	CHE1JZB0F103
C 3083	ELECTROLYTIC CAP. 100μF/6.3V M H7	526R107S
C 3084	ELECTROLYTIC CAP. 2.2μF/50V M H7	526W225S
C 3085	ELECTROLYTIC CAP. 3.3μF/50V M H7	526W335S
C 3086	ELECTROLYTIC CAP. 3.3μF/50V M H7	526W335S
C 3510	CHIP CERAMIC CAP. F Z 0.047μF/25V	CHE1EZB0F473
C 4001	CHIP CERAMIC CAP. SL J 220pF/50V	CHE1JJBLSL221
C 4002	CHIP CERAMIC CAP. B K 0.01μF/25V	CHE1EKB0B103
C 4003	TF CAP. 0.047μF/100V J	CT2A473MS001

Ref.No.	Description	Part No.
C 4004	ELECTROLYTIC CAP. 100μF/16V M H7	526T107S
C 4005	CHIP CERAMIC CAP. B K 0.01μF/25V	CHE1EKB0B103
C 4009	ELECTROLYTIC CAP. 22μF/16V M H7	526T226S
C 4011	ELECTROLYTIC CAP. 4.7μF/50V M H7	526W475S
C 4013	CHIP CERAMIC CAP. B K 0.0012μF/25V	CHE1EKB0B123
C 4014	ELECTROLYTIC CAP. 10μF/16V M H7	526T106S
C 4015	CHIP CERAMIC CAP. B K 0.0068μF/50V	CHE1JKB0B682
C 4016	ELECTROLYTIC CAP. 22μF/16V M H7	526T226S
C 4017	CHIP CERAMIC CAP. F Z 0.1μF/16V	CHE1CZB0F104
C 4018	CHIP CERAMIC CAP. B K 0.01μF/25V	CHE1EKB0B103
C 4019	ELECTROLYTIC CAP. 22μF/16V M H7	526T226S
C 4021	CHIP CERAMIC CAP. B K 0.0015μF/50V	CHE1JKB0B152
C 4023	CHIP CERAMIC CAP. F Z 0.1μF/16V	CHE1CZB0F104
C 4025	CHIP CERAMIC CAP. B K 0.0027μF/50V	CHE1JKB0B272
C 6001	CHIP CERAMIC CAP. CH J 33pF/50V	CHE1JJBCH330
C 6002	CHIP CERAMIC CAP. CH J 22pF/50V	CHE1JJBCH220
C 6003	CHIP CERAMIC CAP. F Z 0.01μF/50V	CHE1JZB0F103
C 6005	CHIP CERAMIC CAP. F Z 0.001μF/50V	CHE1JZB0F102
C 6006	CHIP CERAMIC CAP. F Z 0.001μF/50V	CHE1JZB0F102
C 6007	ELECTROLYTIC CAP. 1μF/50V M H7	526W105S
C 6008	ELECTROLYTIC CAP. 47μF/6.3V M H7	526R476S
C 6009	ELECTROLYTIC CAP. 10μF/16V M H7	526T106S
C 6010	CHIP CERAMIC CAP. F Z 0.1μF/16V	CHE1CZB0F104
C 6011	CERAMIC CAP. Y M 0.01μF/16V or CERAMIC CAP. F Z 0.01μF/16V	3Y4D103T 1220842T
C 7001	ELECTROLYTIC CAP. 470μF/6.3V M	126A477S
C 7007	CHIP CERAMIC CAP. B K 0.022μF/16V	CHE1CKB0B223
C 7008	CHIP CERAMIC CAP. B K 0.0022μF/50V	CHE1JKB0B222
C 7012	CHIP CERAMIC CAP. B K 0.001μF/50V	CHE1JKB0F102
C 7013	CHIP CERAMIC CAP. F Z 0.047μF/25V	CHE1EZB0F473
C 7016	CHIP CERAMIC CAP. F Z 0.1μF/16V	CHE1CZB0F104
C 7019	CHIP CERAMIC CAP. B K 0.0022μF/50V	CHE1JKB0B222
C 7020	CHIP CERAMIC CAP. B K 0.0068μF/50V	CHE1JKB0B682
C 7021	ELECTROLYTIC CAP. 100μF/16V M H7	526T107S
C 7022	MYLAR CAP. 0.1μF/50V J	2254104S
C 7023	MYLAR CAP. 0.047μF/50V J	2254473S
C 7024	STACKED FILM CAP. 0.047μF/50V J	125U473S
C 7025	CHIP CERAMIC CAP. SL J 56pF/50V	CHE1JJBLSL560
C 7026	ELECTROLYTIC CAP. 47μF/35V M H7	526V476S
C 7028	CHIP CERAMIC CAP. F Z 0.047μF/25V	CHE1EZB0F473
C 7029	ELECTROLYTIC CAP. 10μF/16V M H7	526T106S
C 7030	CHIP CERAMIC CAP. B K 0.0022μF/50V	CHE1JKB0B222
C 7501	CHIP CERAMIC CAP. B K 470pF/50V	CHE1JKB0B471
C 7502	CHIP CERAMIC CAP. B K 0.0033μF/50V	CHE1JKB0B332
C 7503	CHIP CERAMIC CAP. F Z 0.01μF/50V	CHE1JZB0F103
C 7504	ELECTROLYTIC CAP. 10μF/16V M H7	526T106S
CONNECTORS		
CN3001	STRAIGHT PIN CONNECTOR 15P	1770635
CN6001	HINGED PIN CONNECTOR 4P	J3TRJ04TG003
CN6002	STRAIGHT PIN CONNECTOR 20P	1770640
CN6003	STRAIGHT PIN HEADER	1740764
CN6004	STRAIGHT PIN CONNECTOR 4P	1770624
DIODES		
D 1001	RECTIFIER DIODE 1A5-E	NDTZ000001A5
D 1002	RECTIFIER DIODE 1A5-E	NDTZ000001A5
D 1003	RECTIFIER DIODE 1A5-E	NDTZ000001A5
D 1004	RECTIFIER DIODE 1A5-E	NDTZ000001A5
D 1005	RECTIFIER DIODE EG01C or RECTIFIER DIODE ERA22-10Y2(TYPE I)	QDPZ000EG01C QDQZ0ERA2210

Ref.No.	Description	Part No.
D 1006	SWITCHING DIODE GMB01-BT or SWITCHING DIODE 1N4148M	GMB01BT QDTZ01N4148M
D 1007	SWITCHING DIODE MA188	QDTZ000MA188
D 1008	SWITCHING DIODE GMB01-BT or SWITCHING DIODE 1N4148M	GMB01BT QDTZ01N4148M
D 1010	ZENER DIODE UZ-7.5BSA	QDTA0UZ7R5BS
D 1011	SWITCHING DIODE GMB01-BT or SWITCHING DIODE 1N4148M	GMB01BT QDTZ01N4148M
D 1012	FAST RECOVERY DIODE AG01 or FAST RECOVERY DIODE ERA38-04	QD4Z0000AG01 QD6Z000ERA38
D 1013	RECTIFIER DIODE RU3YX LF-C4	QD7Z000RU3YX
D 1014	SWITCHING DIODE MA188	QDTZ000MA188
D 1015	SCHOTTKY BARRIER DIODE AK04 WK	QDSZ0000AK04
D 1017	SWITCHING DIODE MA178	QDTZ000MA178
D 1501	ZENER DIODE UZ-3.0BS or ZENER DIODE UZ-3.0BSB	QDTZ0UZ3R0BS QDTB0UZ3R0BS
D 1505	SWITCHING DIODE GMB01-BT or SWITCHING DIODE 1N4148M	GMB01BT QDTZ01N4148M
D 1506	ZENER DIODE UZ-9.1BSC	QDTC0UZ9R1BS
D 1507	SWITCHING DIODE GMB01-BT or SWITCHING DIODE 1N4148M	GMB01BT QDTZ01N4148M
D 2001	SWITCHING DIODE GMB01-BT or SWITCHING DIODE 1N4148M	GMB01BT QDTZ01N4148M
D 2002	SWITCHING DIODE GMB01-BT or SWITCHING DIODE 1N4148M	GMB01BT QDTZ01N4148M
D 2003	SWITCHING DIODE GMB01-BT or SWITCHING DIODE 1N4148M	GMB01BT QDTZ01N4148M
D 3001	SWITCHING DIODE GMB01-BT or SWITCHING DIODE 1N4148M	GMB01BT QDTZ01N4148M
D 3002	SWITCHING DIODE GMB01-BT or SWITCHING DIODE 1N4148M	GMB01BT QDTZ01N4148M
D 3005	SWITCHING DIODE GMB01-BT or SWITCHING DIODE 1N4148M	GMB01BT QDTZ01N4148M
D 3081	SWITCHING DIODE GMB01-BT or SWITCHING DIODE 1N4148M	GMB01BT QDTZ01N4148M
D 3082	SWITCHING DIODE GMB01-BT or SWITCHING DIODE 1N4148M	GMB01BT QDTZ01N4148M
D 6001	LED SIR-481ST3F or LED SID1K10CXM	QPPZSIR4813F QP4ZD1K10CXM
D 6002	SWITCHING DIODE GMB01-BT or SWITCHING DIODE 1N4148M	GMB01BT QDTZ01N4148M
D 6004	SWITCHING DIODE GMB01-BT or SWITCHING DIODE 1N4148M	GMB01BT QDTZ01N4148M
D 6008	SWITCHING DIODE GMB01-BT or SWITCHING DIODE 1N4148M	GMB01BT QDTZ01N4148M
D 6016	SWITCHING DIODE GMB01-BT or SWITCHING DIODE 1N4148M	GMB01BT QDTZ01N4148M
D 6017	SWITCHING DIODE GMB01-BT or SWITCHING DIODE 1N4148M	GMB01BT QDTZ01N4148M
D 6018	SWITCHING DIODE GMB01-BT or SWITCHING DIODE 1N4148M	GMB01BT QDTZ01N4148M
D 6019	SWITCHING DIODE GMB01-BT or SWITCHING DIODE 1N4148M	GMB01BT QDTZ01N4148M
D 7002	ZENER DIODE UZ-8.2BSB	QDTB0UZ8R2BS
D 7003	ZENER DIODE UZ-8.2BSB	QDTB0UZ8R2BS
D 7004	ZENER DIODE UZ-8.2BSB	QDTB0UZ8R2BS

Ref.No.	Description	Part No.
ICS		
IC1001	PHOTO COUPLER PC120F	QPEZ00PC120F
IC1002	IC AN1431T-(NSC) or IC L5431	QSBLA0ZMS001 QSZLA0ZSY004
IC2001	IC SERVO MN6748FVDP	QSMEA0SMS001
IC2002	IC OP-AMP. KIA324P DIP-14	NSBLA0SJY002
IC3001	IC VIDEO LA7347	QSZLA0SSY006
IC3003	IC CCD LC89925	QSMLA0SSY004
IC3081	IC LA7311	14LQ528
IC4001	IC AUDIO LA7282	QSZLA0SSY003
IC6001	MICROCONTROLLER 8BIT	QSMQB0RNE033
IC6002	IC RESET PST529D-2 or IC RESET 4.2V KIA7042P(T0-92)	14DM763Z NSBLA0TJY016
IC6003	IC TA7291S	14LW342
IC6004	IC X24C01AP	NSMMA0SXC002
IC7001	ZENER DIODE UZT33MTA	QCTZ00UZT33M
IC7501	IC:SWITCHING NJU4053BD	14D0436
COILS		
L 1002	LINE FILTER 3.3MH LF-4D-333	LLBG00ZKQ004
L 1003	LEAD INDUCTOR 22μH K	LLBD00PTU013
L 1004	INDUCTOR 33μH-K	LLARKLUTU330
L 1501	INDUCTOR 100μH-K-26T or INDUCTOR 100μH-K-26T	LLAXKDTKA101 LLAXKATTU101
L 3001	INDUCTOR 22μH-K-26T or INDUCTOR 22μH-K-26T	LLAXKDTKA220 LLAXKATTU220
L 3002	INDUCTOR 47μH-K-26T or INDUCTOR 47μH-K-26T	LLAXKDTKA470 LLAXKATTU470
L 3003	INDUCTOR 33μH-K-26T or INDUCTOR 33μH-K-26T	LLAXKDTKA330 LLAXKATTU330
L 3004	INDUCTOR 22μH-K-26T or INDUCTOR 22μH-K-26T	LLAXKDTKA220 LLAXKATTU220
L 3005	INDUCTOR 100μH-K-26T or INDUCTOR 100μH-K-26T	LLAXKDTKA101 LLAXKATTU101
L 3006	INDUCTOR 82μH-K-26T or INDUCTOR 82μH-K-26T	LLAXKDTKA820 LLAXKATTU820
L 3007	INDUCTOR 180μH-K-26T or INDUCTOR 180μH-K-26T	LLAXKDTKA181 LLAXKATTU181
L 3008	INDUCTOR 330μH-K-26T	LLAXKDTKA331
L 3009	INDUCTOR 330μH-K-26T	LLAXKDTKA331
L 3010	INDUCTOR 330μH-K-26T	LLAXKDTKA331
L 3011	INDUCTOR 15μH-K-26T or INDUCTOR 15μH-K-26T	LLAXKDTKA150 LLAXKATTU150
L 3012	INDUCTOR 56μH-K-26T or INDUCTOR 56μH-K-26T	LLAXKDTKA560 LLAXKATTU560
L 3013	INDUCTOR 68μH-K-26T or INDUCTOR 68μH-K-26T	LLAXKDTKA680 LLAXKATTU680
L 3014	INDUCTOR 27μH-K-26T or INDUCTOR 27μH-K-26T	LLAXKDTKA270 LLAXKATTU270
L 3015	INDUCTOR 39μH-K-26T or INDUCTOR 39μH-K-26T	LLAXKDTKA390 LLAXKATTU390
L 3016	INDUCTOR 47μH-K-26T or INDUCTOR 47μH-K-26T	LLAXKDTKA470 LLAXKATTU470
L 3017	INDUCTOR 100μH-K-26T or INDUCTOR 100μH-K-26T	LLAXKDTKA101 LLAXKATTU101
L 3018	INDUCTOR 10μH-K-26T or INDUCTOR 10μH-K-26T	LLAXKDTKA100 LLAXKATTU100
L 3020	INDUCTOR 15μH-K-26T or	LLAXKDTKA150
L 4001	INDUCTOR 15MH-J	LLARJNSTE153

Ref.No.	Description	Part No.
TRANSISTORS		
Q 1001▲	TRANSISTOR 2SC4204	QQSZ02SC4204
Q 1002▲	TRANSISTOR 2SC4517 or TRANSISTOR 2SC3866	QQPZ02SC4517 QQPZ02SC3866
Q 1003	TRANSISTOR 2SC3331(T)	QSC3331TNPAA
Q 1501	TRANSISTOR 2SC3246(K)	QQS02SC3246
Q 1503	TRANSISTOR 2SC536SP(E) or TRANSISTOR 2SC536SP(F) or TRANSISTOR 2SC3199(GR)	C536SEZ C536SFZ NQS402SC3199
Q 1504	TRANSISTOR 2SA608SP(E) or TRANSISTOR 2SA608SP(F) or TRANSISTOR 2SA1267(GR)	A608SEZ A608SFZ NQS402SA1267
Q 1506	RES. BUILT-IN TRANSISTOR 2SC3400 or RES. BUILT-IN TRANSISTOR KRC103M	C3400Z NQSZ0KRC103M
Q 1507	RES. BUILT-IN TRANSISTOR DTA143XS	A143XSZ
Q 2001	RES. BUILT-IN TRANSISTOR 2SA1346 or RES. BUILT-IN TRANSISTOR KRA103M	A1346Z NQSZ0KRA103M
Q 2002	RES. BUILT-IN TRANSISTOR 2SA1346 or RES. BUILT-IN TRANSISTOR KRA103M	A1346Z NQSZ0KRA103M
Q 2004	RES. BUILT-IN TRANSISTOR 2SC3400 or RES. BUILT-IN TRANSISTOR KRC103M	C3400Z NQSZ0KRC103M
Q 3001	TRANSISTOR 2SC2839(E) or TRANSISTOR 2SC2839(F) or TRANSISTOR 2SC3193(Y)	C2839EZ C2839FZ NQSY02SC3193
Q 3002	TRANSISTOR 2SC2839(E) or TRANSISTOR 2SC2839(F) or TRANSISTOR 2SC3193(Y)	C2839EZ C2839FZ NQSY02SC3193
Q 3003	TRANSISTOR 2SC2839(E) or TRANSISTOR 2SC2839(F) or TRANSISTOR 2SC3193(Y)	C2839EZ C2839FZ NQSY02SC3193
Q 3004	RES. BUILT-IN TRANSISTOR KRA109M or RES. BUILT-IN TRANSISTOR DTA144WS	NQSZ0KRA109M A144WSZ
Q 3005	TRANSISTOR 2SA608SP(E) or TRANSISTOR 2SA608SP(F) or TRANSISTOR 2SA1267(GR)	A608SEZ A608SFZ NQS402SA1267
Q 3006	TRANSISTOR 2SC536SP(E) or TRANSISTOR 2SC536SP(F) or TRANSISTOR 2SC3199(GR)	C536SEZ C536SFZ NQS402SC3199
Q 3010	TRANSISTOR 2SA608SP(E) or TRANSISTOR 2SA608SP(F) or TRANSISTOR 2SA1267(GR)	A608SEZ A608SFZ NQS402SA1267
Q 3011	TRANSISTOR 2SC536SP(E) or TRANSISTOR 2SC536SP(F) or TRANSISTOR 2SC3199(GR)	C536SEZ C536SFZ NQS402SC3199
Q 3012	TRANSISTOR 2SC2839(E) or TRANSISTOR 2SC2839(F) or TRANSISTOR 2SC3193(Y)	C2839EZ C2839FZ NQSY02SC3193
Q 3013	TRANSISTOR 2SA608SP(E) or TRANSISTOR 2SA608SP(F) or TRANSISTOR 2SA1267(GR)	A608SEZ A608SFZ NQS402SA1267
Q 3014	TRANSISTOR 2SA608SP(E) or TRANSISTOR 2SA608SP(F) or TRANSISTOR 2SA1267(GR)	A608SEZ A608SFZ NQS402SA1267
Q 3015	RES. BUILT-IN TRANSISTOR KRA109M or RES. BUILT-IN TRANSISTOR DTA144WS	NQSZ0KRA109M A144WSZ
Q 3016	RES. BUILT-IN TRANSISTOR 2SC3400 or RES. BUILT-IN TRANSISTOR KRC103M	C3400Z NQSZ0KRC103M
Q 3017	TRANSISTOR 2SA608SP(E) or TRANSISTOR 2SA608SP(F) or TRANSISTOR 2SA1267(GR)	A608SEZ A608SFZ NQS402SA1267

Ref.No.	Description	Part No.
Q 3018	TRANSISTOR 2SC536SP(E) or TRANSISTOR 2SC536SP(F) or TRANSISTOR 2SC3199(GR)	C536SEZ C536SFZ NQS402SC3199
Q 3019	RES. BUILT-IN TRANSISTOR 2SC3400 or RES. BUILT-IN TRANSISTOR KRC103M	C3400Z NQSZ0KRC103M
Q 4001	TRANSISTOR 2SC536SP(E) or TRANSISTOR 2SC536SP(F) or TRANSISTOR 2SC3199(GR)	C536SEZ C536SFZ NQS402SC3199
Q 6001	TRANSISTOR 2SD400(F)	D400FZ
Q 6002	PHOTO TRANSISTOR RPT-38PB3F	QRPT38PB0000
Q 6003	PHOTO TRANSISTOR RPT-38PB3F	QRPT38PB0000
Q 6006	RES. BUILT-IN TRANSISTOR DTA143XS	A143XSZ
Q 6009	TRANSISTOR 2SC536SP(E) or TRANSISTOR 2SC536SP(F) or TRANSISTOR 2SC3199(GR)	C536SEZ C536SFZ NQS402SC3199
Q 7003	TRANSISTOR 2SC536SP(E) or TRANSISTOR 2SC536SP(F) or TRANSISTOR 2SC3199(GR)	C536SEZ C536SFZ NQS402SC3199
Q 7005	TRANSISTOR 2SC3330S-AC or TRANSISTOR 2SC3330T-AC or TRANSISTOR 2SC3199(GR)	Q2SC3330SAC0 Q2SC3330TAC0 NQS402SC3199
Q 7006	RES. BUILT-IN TRANSISTOR DTA143XS	A143XSZ
Q 7007	RES. BUILT-IN TRANSISTOR DTA143XS	A143XSZ
Q 7008	RES. BUILT-IN TRANSISTOR DTA143XS	A143XSZ
RESISTORS		
J 201	CARBON RES. 1/4W J 100Ω or CARBON RES. 1/6W J 100Ω	RCX4JZPZ0101 132A101
R 1001	METAL RES.(NO CUT) 2W J 4.7Ω	RN024R7KE005
R 1002	FIXED METAL OXIDE FILM RES. 2W J 47KΩ	RN02JASK0473
R 1003	CARBON RES. 1/4W J 47KΩ	RCX4JATZ0473
R 1004	FIXED METAL OXIDE FILM RES. 1W J 120Ω	RN01JASK0121
R 1005	CARBON RES. 1/4W J 47KΩ	RCX4JATZ0473
R 1006	FIXED METAL FILM RES. 1W J 1Ω	RM01JASK01R0
R 1007	CARBON RES. 1/2W J 470Ω	RCX2471KA003
R 1008	CHIP RES. 1/10W J 3.9KΩ	RRXAJBBZ0392
R 1009	CHIP RES. 1/10W J 470Ω	RRXAJBBZ0471
R 1010	CARBON RES. 1/4W J 240Ω	RCX4JATZ0241
R 1011	CARBON RES. 1/4W J 2.7KΩ	RCX4JATZ0272
R 1012	CHIP RES. 1/10W J 220Ω	RRXAJBBZ0221
R 1013	CHIP RES. 1/10W J 1KΩ	RRXAJBBZ0102
R 1014	CHIP RES. 1/10W G 2.4KΩ	RRXAGBBZ0242
R 1015	CHIP RES. 1/10W G 2.2KΩ	RRXAGBBZ0222
R 1017	CHIP RES. 1/10W J 820Ω	RRXAJBBZ0821
R 1018	FUSE RES. 1/2W J 10Ω or FUSE RES. 1/2W J 10Ω	5362100 RFX2100KA007
R 1019	CARBON RES. 1/4W J 47KΩ	RCX4JATZ0473
R 1020	CARBON RES. 1/4W J 47KΩ	RCX4JATZ0473
R 1021	CARBON RES. 1/4W J 47KΩ	RCX4JATZ0473
R 1022	CARBON RES. 1/4W J 47KΩ	RCX4JATZ0473
R 1023	CARBON RES. 1/4W J 47KΩ	RCX4JATZ0473
R 1024	CARBON RES. 1/4W J 47KΩ	RCX4JATZ0473
R 1025	FIXED METAL OXIDE FILM RES. 1W J 33KΩ	RN01JASK0333
R 1026	CARBON RES. 1/4W J 240Ω	RCX4JATZ0241
R 1501	CHIP RES. 1/10W J 10KΩ	RRXAJBBZ0103
R 1502	CARBON RES. 1/4W J 750Ω or CARBON RES. 1/6W J 750Ω	RCX4JATZ0751 132A751T
R 1503	CHIP RES. 1/10W J 560Ω	RRXAJBBZ0561

Ref.No.	Description	Part No.
R 1505	CARBON RES. 1/4W J 12KΩ or CARBON RES. 1/6W J 12KΩ	RCX4JATZ0123 132A123T
R 1506	CHIP RES. 1/10W J 4.7KΩ	RRXAJBBZ0472
R 1507	CHIP RES. 1/10W J 4.7KΩ	RRXAJBBZ0472
R 1508	CHIP RES. 1/10W J 47KΩ	RRXAJBBZ0473
R 1509	CHIP RES. 1/10W J 4.7KΩ	RRXAJBBZ0472
R 1512	CHIP RES. 1/10W J 10KΩ	RRXAJBBZ0103
R 2001	CHIP RES. 1/10W J 22KΩ	RRXAJBBZ0223
R 2002	CHIP RES. 1/10W J 39KΩ	RRXAJBBZ0393
R 2003	CHIP RES. 1/10W J 10KΩ	RRXAJBBZ0103
R 2004	CHIP RES. 1/10W J 4.7KΩ	RRXAJBBZ0472
R 2005	CHIP RES. 1/10W J 100KΩ	RRXAJBBZ0104
R 2006	CHIP RES. 1/10W J 56KΩ	RRXAJBBZ0563
R 2007	CHIP RES. 1/10W J 56KΩ	RRXAJBBZ0563
R 2009	CHIP RES. 1/10W J 2.7KΩ	RRXAJBBZ0272
R 2010	CHIP RES. 1/10W J 150KΩ	RRXAJBBZ0154
R 2011	CHIP RES. 1/10W J 150KΩ	RRXAJBBZ0154
R 2012	CHIP RES. 1/10W J 10KΩ	RRXAJBBZ0103
R 2013	CHIP RES. 1/10W J 47KΩ	RRXAJBBZ0473
R 2014	CHIP RES. 1/10W J 56KΩ	RRXAJBBZ0563
R 2015	CHIP RES. 1/10W J 56KΩ	RRXAJBBZ0563
R 2016	CHIP RES. 1/10W J 180KΩ	RRXAJBBZ0184
R 2017	CHIP RES. 1/10W J 56KΩ	RRXAJBBZ0563
R 2018	CHIP RES. 1/10W J 47KΩ	RRXAJBBZ0473
R 2020	CHIP RES. 1/10W J 4.7KΩ	RRXAJBBZ0472
R 2021	CHIP RES. 1/10W J 1KΩ	RRXAJBBZ0102
R 2022	CHIP RES. 1/10W J 1KΩ	RRXAJBBZ0102
R 2024	CHIP RES. 1/10W J 10KΩ	RRXAJBBZ0103
R 2025	CHIP RES. 1/10W J 8.2KΩ	RRXAJBBZ0822
R 2026	CHIP RES. 1/10W J 22KΩ	RRXAJBBZ0223
R 2027	CHIP RES. 1/10W J 150Ω	RRXAJBBZ0151
R 2028	CHIP RES. 1/10W J 10KΩ	RRXAJBBZ0103
R 2029	CHIP RES. 1/10W J 220Ω	RRXAJBBZ0221
R 2030	CHIP RES. 1/10W J 100Ω	RRXAJBBZ0101
R 2031	CHIP RES. 1/10W J 2.2KΩ	RRXAJBBZ0222
R 2032	CHIP RES. 1/10W J 10KΩ	RRXAJBBZ0103
R 2033	CHIP RES. 1/10W J 10KΩ	RRXAJBBZ0103
R 2034	CHIP RES. 1/10W J 10KΩ	RRXAJBBZ0103
R 2035	CHIP RES. 1/10W J 1KΩ	RRXAJBBZ0102
R 2036	CHIP RES. 1/10W J 47KΩ	RRXAJBBZ0473
R 2037	CHIP RES. 1/10W J 47KΩ	RRXAJBBZ0473
R 2038	CHIP RES. 1/10W J 2.2KΩ	RRXAJBBZ0222
R 2039	CHIP RES. 1/10W J 56KΩ	RRXAJBBZ0563
R 2040	CHIP RES. 1/10W J 2.2KΩ	RRXAJBBZ0222
R 2043	CHIP RES. 1/10W J 0Ω	RRXAJBBZ0000
R 2044	CHIP RES. 1/10W J 4.7MΩ	RRXAJBBZ0475
R 3001	CHIP RES. 1/10W J 1.8KΩ	RRXAJBBZ0182
R 3002	CHIP RES. 1/10W J 390Ω	RRXAJBBZ0391
R 3003	CHIP RES. 1/10W J 1.5KΩ	RRXAJBBZ0152
R 3004	CHIP RES. 1/10W J 820Ω	RRXAJBBZ0821
R 3005	CHIP RES. 1/10W J 680Ω	RRXAJBBZ0681
R 3006	CHIP RES. 1/10W J 390Ω	RRXAJBBZ0391
R 3007	CHIP RES. 1/10W J 2.2KΩ	RRXAJBBZ0222
R 3008	CHIP RES. 1/10W J 1KΩ	RRXAJBBZ0102
R 3009	CHIP RES. 1/10W J 3.9KΩ	RRXAJBBZ0392
R 3010	CHIP RES. 1/10W J 2.2KΩ	RRXAJBBZ0222
R 3011	CHIP RES. 1/10W J 8.2KΩ	RRXAJBBZ0822
R 3012	CHIP RES. 1/10W J 5.6KΩ	RRXAJBBZ0562
R 3013	CHIP RES. 1/10W J 27KΩ	RRXAJBBZ0273
R 3015	CHIP RES. 1/10W J 2.2KΩ	RRXAJBBZ0222

Ref.No.	Description	Part No.
R 3016	CHIP RES. 1/10W J 470Ω	RRXAJBBZ0471
R 3017	CHIP RES. 1/10W J 680Ω	RRXAJBBZ0681
R 3018	CHIP RES. 1/10W J 10KΩ	RRXAJBBZ0103
R 3019	CHIP RES. 1/10W J 2.2KΩ	RRXAJBBZ0222
R 3020	CHIP RES. 1/10W J 2.7KΩ	RRXAJBBZ0272
R 3021	CHIP RES. 1/10W J 560Ω	RRXAJBBZ0561
R 3022	CHIP RES. 1/10W J 470Ω	RRXAJBBZ0471
R 3023	CHIP RES. 1/10W J 680Ω	RRXAJBBZ0681
R 3024	CHIP RES. 1/10W J 3.9KΩ	RRXAJBBZ0392
R 3025	CHIP RES. 1/10W J 3.9KΩ	RRXAJBBZ0392
R 3026	CHIP RES. 1/10W J 1.5KΩ	RRXAJBBZ0152
R 3027	CHIP RES. 1/10W J 8.2KΩ	RRXAJBBZ0822
R 3028	CHIP RES. 1/10W J 1KΩ	RRXAJBBZ0102
R 3029	CHIP RES. 1/10W J 1.5KΩ	RRXAJBBZ0152
R 3030	CHIP RES. 1/10W J 1.5KΩ	RRXAJBBZ0152
R 3031	CHIP RES. 1/10W J 2.7KΩ	RRXAJBBZ0272
R 3032	CHIP RES. 1/10W J 470Ω	RRXAJBBZ0471
R 3033	CHIP RES. 1/10W J 1.2KΩ	RRXAJBBZ0122
R 3034	CHIP RES. 1/10W J 220Ω	RRXAJBBZ0221
R 3035	CHIP RES. 1/10W J 820Ω	RRXAJBBZ0821
R 3036	CARBON RES. 1/4W J 560Ω	RCX4JATZ0561
R 3037	CARBON RES. 1/4W J 560Ω	RCX4JATZ0561
R 3039	CHIP RES. 1/10W J 1.8KΩ	RRXAJBBZ0182
R 3040	CHIP RES. 1/10W J 4.7KΩ	RRXAJBBZ0472
R 3041	CHIP RES. 1/10W J 2.7KΩ	RRXAJBBZ0272
R 3042	CHIP RES. 1/10W J 1.8KΩ	RRXAJBBZ0182
R 3043	CHIP RES. 1/10W J 2.7KΩ	RRXAJBBZ0272
R 3044	CHIP RES. 1/10W J 470Ω	RRXAJBBZ0471
R 3045	CHIP RES. 1/10W J 470Ω	RRXAJBBZ0471
R 3046	CHIP RES. 1/10W J 2.7KΩ	RRXAJBBZ0272
R 3047	CHIP RES. 1/10W J 560Ω	RRXAJBBZ0561
R 3048	CHIP RES. 1/10W J 2.2KΩ	RRXAJBBZ0222
R 3049	CHIP RES. 1/10W J 390Ω	RRXAJBBZ0391
R 3050	CHIP RES. 1/10W J 1KΩ	RRXAJBBZ0102
R 3051	CHIP RES. 1/10W J 1KΩ	RRXAJBBZ0102
R 3052	CHIP RES. 1/10W J 2.7KΩ	RRXAJBBZ0272
R 3053	CHIP RES. 1/10W J 10KΩ	RRXAJBBZ0103
R 3054	CHIP RES. 1/10W J 10KΩ	RRXAJBBZ0103
R 3055	CHIP RES. 1/10W J 1MΩ	RRXAJBBZ0105
R 3056	CHIP RES. 1/10W J 8.2KΩ	RRXAJBBZ0822
R 3057	CHIP RES. 1/10W J 4.7KΩ	RRXAJBBZ0472
R 3058	CHIP RES. 1/10W J 8.2KΩ	RRXAJBBZ0822
R 3059	CHIP RES. 1/10W J 2.2KΩ	RRXAJBBZ0222
R 3060	CHIP RES. 1/10W J 18KΩ	RRXAJBBZ0183
R 3061	CHIP RES. 1/10W J 1KΩ	RRXAJBBZ0102
R 3062	CHIP RES. 1/10W J 10KΩ	RRXAJBBZ0103
R 3063	CHIP RES. 1/10W J 1.2KΩ	RRXAJBBZ0122
R 3065	CHIP RES. 1/10W J 820Ω	RRXAJBBZ0821
R 3066	CHIP RES. 1/10W J 22KΩ	RRXAJBBZ0223
R 3067	CHIP RES. 1/10W J 3.9KΩ	RRXAJBBZ0392
R 3069	CHIP RES. 1/10W J 22KΩ	RRXAJBBZ0223
R 3070	CHIP RES. 1/10W J 8.2KΩ	RRXAJBBZ0822
R 3074	CHIP RES. 1/10W J 270Ω	RRXAJBBZ0271
R 3081	CHIP RES. 1/4W J 2.7KΩ	RCX4JZPZ0272
R 3083	CHIP RES. 1/10W J 1MΩ	RRXAJBBZ0105
R 3085	CHIP RES. 1/10W J 820Ω	RRXAJBBZ0821
R 3087	CHIP RES. 1/10W J 1MΩ	RRXAJBBZ0105
R 3088	CHIP RES. 1/10W J 22KΩ	RRXAJBBZ0223
R 3089	CHIP RES. 1/10W J 820Ω	RRXAJBBZ0821
R 3090	CHIP RES. 1/10W J 2.7KΩ	RRXAJBBZ0272

Ref.No.	Description	Part No.
R 3091	CHIP RES. 1/10W J 2.2KΩ	RRXAJBBZ0222
R 4001	CHIP RES. 1/10W J 47Ω	RRXAJBBZ0470
R 4002	CHIP RES. 1/10W J 6.8KΩ	RRXAJBBZ0682
R 4003	CARBON RES. 1/4W J 22Ω or CARBON RES. 1/6W J 22Ω	RCX4JATZ0220 132A220T
R 4004	CHIP RES. 1/10W J 4.7Ω	RRXAJBBZ04R7
R 4005	CHIP RES. 1/10W J 22KΩ	RRXAJBBZ0223
R 4006	CHIP RES. 1/10W J 10KΩ	RRXAJBBZ0103
R 4007	CHIP RES. 1/10W J 1KΩ	RRXAJBBZ0102
R 4008	CHIP RES. 1/10W J 1KΩ	RRXAJBBZ0102
R 4009	CHIP RES. 1/10W J 1KΩ	RRXAJBBZ0102
R 4010	CHIP RES. 1/10W J 1.2KΩ	RRXAJBBZ0122
R 4011	CHIP RES. 1/10W J 2.7KΩ	RRXAJBBZ0272
R 4012	CHIP RES. 1/10W J 150Ω	RRXAJBBZ0151
R 4014	CHIP RES. 1/10W J 15KΩ	RRXAJBBZ0153
R 4015	CHIP RES. 1/10W J 6.8KΩ	RRXAJBBZ0682
R 4017	CHIP RES. 1/10W J 2.2MΩ	RRXAJBBZ0225
R 4018	CHIP RES. 1/10W J 330KΩ	RRXAJBBZ0334
R 4020	CHIP RES. 1/10W J 100Ω	RRXAJBBZ0101
R 4021	CHIP RES. 1/10W J 33KΩ	RRXAJBBZ0333
R 4022	CHIP RES. 1/10W J 100Ω	RRXAJBBZ0101
R 4023	CHIP RES. 1/10W J 3.9KΩ	RRXAJBBZ0392
R 4024	CHIP RES. 1/10W J 10KΩ	RRXAJBBZ0103
R 6001	CHIP RES. 1/10W J 2.7KΩ	RRXAJBBZ0272
R 6002	CHIP RES. 1/10W J 1KΩ	RRXAJBBZ0102
R 6003	CHIP RES. 1/10W J 1.5KΩ	RRXAJBBZ0152
R 6004	CHIP RES. 1/10W J 2.2KΩ	RRXAJBBZ0222
R 6005	CHIP RES. 1/10W J 3.9KΩ	RRXAJBBZ0392
R 6006	CHIP RES. 1/10W J 8.2KΩ	RRXAJBBZ0822
R 6007	CHIP RES. 1/10W J 10KΩ	RRXAJBBZ0103
R 6008	CHIP RES. 1/10W J 10KΩ	RRXAJBBZ0103
R 6009	CHIP RES. 1/10W J 10KΩ	RRXAJBBZ0103
R 6010	CHIP RES. 1/10W J 10KΩ	RRXAJBBZ0103
R 6011	CHIP RES. 1/10W J 10KΩ	RRXAJBBZ0103
R 6012	CHIP RES. 1/10W J 10KΩ	RRXAJBBZ0103
R 6013	CARBON RES. 1/4W J 2.2KΩ or CARBON RES. 1/6W J 2.2KΩ	RCX4JATZ0222 132A222T
R 6014	CHIP RES. 1/10W J 10KΩ	RRXAJBBZ0103
R 6015	CHIP RES. 1/10W J 1KΩ	RRXAJBBZ0102
R 6016	CHIP RES. 1/10W J 10KΩ	RRXAJBBZ0103
R 6018	CARBON RES. 1/4W J 10KΩ or CARBON RES. 1/6W J 10KΩ	RCX4JATZ0103 132A103T
R 6019	CHIP RES. 1/10W J 10KΩ	RRXAJBBZ0103
R 6020	CHIP RES. 1/10W J 10KΩ	RRXAJBBZ0103
R 6022	CHIP RES. 1/10W J 82KΩ	RRXAJBBZ0823
R 6023	CHIP RES. 1/10W J 4.7KΩ	RRXAJBBZ0472
R 6024	CHIP RES. 1/10W J 4.7KΩ	RRXAJBBZ0472
R 6025	CHIP RES. 1/10W J 10KΩ	RRXAJBBZ0103
R 6026	CHIP RES. 1/10W J 47KΩ	RRXAJBBZ0473
R 6027	CHIP RES. 1/10W J 1.5KΩ	RRXAJBBZ0152
R 6028	CHIP RES. 1/10W J 10KΩ	RRXAJBBZ0103
R 6029	CHIP RES. 1/10W J 330KΩ	RRXAJBBZ0334
R 6031	CARBON RES. 1/4W J 10Ω	RCX4JATZ0100
R 6032	CARBON RES. 1/4W J 1Ω	RCX4JATZ0010
R 6033	CHIP RES. 1/10W J 470KΩ	RRXAJBBZ0474
R 6034	CHIP RES. 1/10W J 470KΩ	RRXAJBBZ0474
R 6035	CHIP RES. 1/10W J 10KΩ	RRXAJBBZ0103
R 6037	CHIP RES. 1/10W J 7.5KΩ	RRXAJBBZ0752
R 6039	CHIP RES. 1/10W J 100Ω	RRXAJBBZ0101
R 6041	CHIP RES. 1/10W J 10KΩ	RRXAJBBZ0103

Ref.No.	Description	Part No.
R 6042	CHIP RES. 1/10W J 180Ω	RRXAJBBZ0181
R 6043	CHIP RES. 1/10W J 8.2KΩ	RRXAJBBZ0822
R 6044	CARBON RES. 1/4W J 10Ω	RCX4JATZ0100
R 6045	CARBON RES. 1/4W J 10Ω	RCX4JATZ0100
R 6047	CHIP RES. 1/10W J 10KΩ	RRXAJBBZ0103
R 6049	CARBON RES. 1/4W J 6.2Ω	RCX4JATZ06R2
R 6061	CHIP RES. 1/10W J 0Ω	RRXAJBBZ0000
R 6063	CHIP RES. 1/10W J 0Ω	RRXAJBBZ0000
R 6069	CARBON RES. 1/4W J 6.2Ω	RCX4JATZ06R2
R 6070	CHIP RES. 1/10W J 5.6KΩ	RRXAJBBZ0562
R 6071	CARBON RES. 1/4W J 1Ω	RCX4JATZ0010
R 6072	CARBON RES. 1/4W J 1Ω	RCX4JATZ0010
R 6073	CHIP RES. 1/10W J 10KΩ	RRXAJBBZ0103
R 6074	CHIP RES. 1/10W J 1KΩ	RRXAJBBZ0102
R 7001	CARBON RES. 1/4W J 560KΩ or CARBON RES. 1/6W J 560KΩ	RCX4JATZ0564 132A564T
R 7002	CHIP RES. 1/10W J 560KΩ	RRXAJBBZ0564
R 7004	CHIP RES. 1/10W J 10KΩ	RRXAJBBZ0103
R 7007	CHIP RES. 1/10W J 47KΩ	RRXAJBBZ0473
R 7008	CHIP RES. 1/10W J 27KΩ	RRXAJBBZ0273
R 7009	CHIP RES. 1/10W J 27KΩ	RRXAJBBZ0273
R 7010	CHIP RES. 1/10W J 15KΩ	RRXAJBBZ0153
R 7011	CHIP RES. 1/10W J 10KΩ	RRXAJBBZ0103
R 7012	CHIP RES. 1/10W J 33KΩ	RRXAJBBZ0333
R 7013	CHIP RES. 1/10W J 47KΩ	RRXAJBBZ0473
R 7016	CARBON RES. 1/4W J 1.5KΩ	RCX4JATZ0152
R 7019	CHIP RES. 1/10W J 100KΩ	RRXAJBBZ0104
R 7520	CHIP RES. 1/10W J 10KΩ	RRXAJBBZ0103
R 7504	CHIP RES. 1/10W J 10KΩ	RRXAJBBZ0821
R 7505	CHIP RES. 1/10W J 820Ω	RRXAJBBZ0680
R 7507	CHIP RES. 1/10W J 68Ω	RRXAJBBZ0151
R 7508	CHIP RES. 1/10W J 150Ω	RRXAJBBZ0151
R 7509	CHIP RES. 1/10W J 150Ω	RRXAJBBZ0151
R 7510	CHIP RES. 1/10W J 10KΩ	RRXAJBBZ0103
R 7511	CHIP RES. 1/10W J 22KΩ	RRXAJBBZ0223
R 7512	CHIP RES. 1/10W J 10KΩ	RRXAJBBZ0103
R 7513	CHIP RES. 1/10W J 100KΩ	RRXAJBBZ0104
R 7514	CHIP RES. 1/10W J 5.6KΩ	RRXAJBBZ0562
R 7515	CHIP RES. 1/10W J 75Ω	RRXAJBBZ0750
R 7516	CHIP RES. 1/10W J 75Ω	RRXAJBBZ0750
SWITCHES		
SW6002	PUSH SWITCH EVQ-21509K or PUSH SWITCH SKHVBH or PUSH SWITCH SOR-142HS R66-4519	SST0101MS011 SST0101AL011 SST0101MM011
SW6003	PUSH SWITCH EVQ-21509K or PUSH SWITCH SKHVBH or PUSH SWITCH SOR-142HS R66-4519	SST0101MS011 SST0101AL011 SST0101MM011
SW6004	PUSH SWITCH EVQ-21509K or PUSH SWITCH SKHVBH or PUSH SWITCH SOR-142HS R66-4519	SST0101MS011 SST0101AL011 SST0101MM011
SW6005	PUSH SWITCH EVQ-21509K or PUSH SWITCH SKHVBH or PUSH SWITCH SOR-142HS R66-4519	SST0101MS011 SST0101AL011 SST0101MM011
SW6006	PUSH SWITCH EVQ-21509K or PUSH SWITCH SKHVBH or PUSH SWITCH SOR-142HS R66-4519	SST0101MS011 SST0101AL011 SST0101MM011
SW6007	PUSH SWITCH EVQ-21509K or PUSH SWITCH SKHVBH or PUSH SWITCH SOR-142HS R66-4519	SST0101MS011 SST0101AL011 SST0101MM011

Ref.No.	Description	Part No.
SW6008	PUSH SWITCH EVQ-21509K or PUSH SWITCH SKHVBH or PUSH SWITCH SOR-142HS R66-4519	SST0101MS011 SST0101AL011 SST0101MM011
SW6009	PUSH SWITCH SPPB61	SSP0102AL001
SW6010	PUSH SWITCH SW-112-3	SSP0101KB001
TRANSFORMERS		
T 1001	PULSE TRANS S0959B or PULSE TRANS FT-28C77	LTT00ZPSA004 LTT00ZPKM001
T 4001	COIL OSC AUDIO or COIL OSC AUDIO or COIL OSC AUDIO	1130686 113M686 113D686
VARIABLE RESISTORS		
VR2001	CARBON POTENTIOMETER 100KΩ or CARBON POTENTIOMETER 100KΩ or CARBON POTENTIOMETER 100KΩ or CARBON POTENTIOMETER 100KΩ B	238A402Y 238A427Y 238N497Y VRCB104KA010
VR3001	CARBON POTENTIOMETER 4.7KΩ or CARBON POTENTIOMETER 5KΩ or CARBON POTENTIOMETER 5KΩ or CARBON POTENTIOMETER 5KΩ B	238A394Y 238A422Y 238N492Y VRCB502KA010
VR3003	CARBON POTENTIOMETER 4.7KΩ or CARBON POTENTIOMETER 5KΩ or CARBON POTENTIOMETER 5KΩ or CARBON POTENTIOMETER 5KΩ B	238A394Y 238A422Y 238N492Y VRCB502KA010
VR3004	CARBON POTENTIOMETER 4.7KΩ or CARBON POTENTIOMETER 5KΩ or CARBON POTENTIOMETER 5KΩ or CARBON POTENTIOMETER 5KΩ B	238A394Y 238A422Y 238N492Y VRCB502KA010
VR4001	CARBON POTENTIOMETER 100KΩ or CARBON POTENTIOMETER 100KΩ or CARBON POTENTIOMETER 100KΩ or CARBON POTENTIOMETER 100KΩ B	238A402Y 238A427Y 238N497Y VRCB104KA010
MISCELLANEOUS		
2B 4	HOLDER F.I.P.(L)	0VM301820
2B 5	HOLDER F.I.P.(R)	0VM301821
2B 6	HOLDER REEL SENSOR	0VM200965B
2B 8	BUSH LED	6N50114
2B 10	HEATSINK	0VM405072
2L 034	SCREW TAPPING BIND HEAD M3X10	DBM13100
2L 071	SCREW S-TIGHT BIND HEAD M3X5	GBMS3050
A 17	JACK BOARD	0VM201361
AC1001	AC CORD EP-631-E01 or AC CORD LA-1296-2	WAE0202NW008 WAE0202LW006
DL3001	COMB FILTER 4.433619MHZ or COMB FILTER 4.433619MHZ	1813274 1813522
F 1001	FUSE T1.60A/250V or FUSE T1.60A/250V	1790483 1790994
FH1001	FUSE HOLDER PFC5000-0202 or FUSE HOLDER CNT47-0003	XH01Z00SR001 XH03Z00JC001
FH1002	FUSE HOLDER PFC5000-0202 or FUSE HOLDER CNT47-0003	XH01Z00SR001 XH03Z00JC001
FP6001	F.I.P. 10-BT-121G	TVFD1C0FT025
JK7502	BNC JACK	JXNL010HD002
JK7503	BNC JACK	JXNL010HD002
S 6001	REEL SENSOR SG-211L	PCZLAZZKK003
S 6002	DEW SENSOR EYHS-10R4	PCZHUMZMS004
TU7001	TUNER/IF/CONV. UNIT EC-RB-0164	UTUNPSDNE002
X 3001	X'TAL 4.433619MHZ or X'TAL 4.433619MHZ	1811366 1811388
X 6001	CERAMIC RESONATOR 4.19MHZ	FY0415TMS002

Ref.No.	Description	Part No.
X 6002	X'TAL 32KHZ (10PPM) LABEL FUSE LEAD CLAMPER P.C.B.	1811350 0VM404999 1790356 BK4100F01B01

REMOTE SENSOR (MCV-C/D) CBA

Ref.No.	Description	Part No.
	REMOTE SENSOR (MCV-C) CBA CONSISTS OF THE FOLLOWING:	-----
RS6001	REMOTE CONTROL UNIT NJH32H367A or REMOTE CONTROL UNIT CMXX920E-L	USESJRJR004 USESJRSSN003

Ref.No.	Description	Part No.
	REMOTE SENSOR (MCV-D) CBA CONSISTS OF THE FOLLOWING:	-----
RS6001	REMOTE CONTROL UNIT HC-278N or REMOTE CONTROL UNIT GP1U582X	USESJRSKK008 USESJRSSH009

SERVICE CONNECTOR (MCV-E) CBA

Ref.No.	Description	Part No.
	SERVICE CONNECTOR (MCV-E) CBA CONSISTS OF THE FOLLOWING:	-----
CN6004	ANGLE SOCKET CONNECTOR 3P	1770598

FUNCTION (FNT) CBA

Ref.No.	Description	Part No.
	FUNCTION (FNT) CBA CONSISTS OF THE FOLLOWING:	0VSA05984
RESISTORS		
R 5501	CARBON RES. 1/4W J 2.7KΩ or CARBON RES. 1/6W J 2.7KΩ	RCX4JATZ0272 132A272T
R 5502	CARBON RES. 1/4W J 3.9KΩ or CARBON RES. 1/6W J 3.9KΩ	RCX4JATZ0392 132A392T
R 5503	CARBON RES. 1/4W J 8.2KΩ or CARBON RES. 1/6W J 8.2KΩ	RCX4JATZ0822 132A822T
R 5504	CARBON RES. 1/4W J 2.2KΩ or CARBON RES. 1/6W J 2.2KΩ	RCX4JATZ0222 132A222T
R 5505	CARBON RES. 1/4W J 1.5KΩ or CARBON RES. 1/6W J 1.5KΩ	RCX4JATZ0152 132A152T
R 5506	CARBON RES. 1/4W J 1KΩ or CARBON RES. 1/6W J 1KΩ	RCX4JATZ0102 132A102T
R 5507	CARBON RES. 1/4W J 27KΩ or CARBON RES. 1/6W J 27KΩ	RCX4JATZ0273 132A273T
R 5508	CARBON RES. 1/4W J 27KΩ or CARBON RES. 1/6W J 27KΩ	RCX4JATZ0273 132A273T
SWITCHES		
SW5501	PUSH SWITCH EVQ-21509K or PUSH SWITCH SKHVBH or PUSH SWITCH SOR-142HS R66-4519	SST0101MS011 SST0101AL011 SST0101MM011
SW5502	PUSH SWITCH EVQ-21509K or PUSH SWITCH SKHVBH or PUSH SWITCH SOR-142HS R66-4519	SST0101MS011 SST0101AL011 SST0101MM011

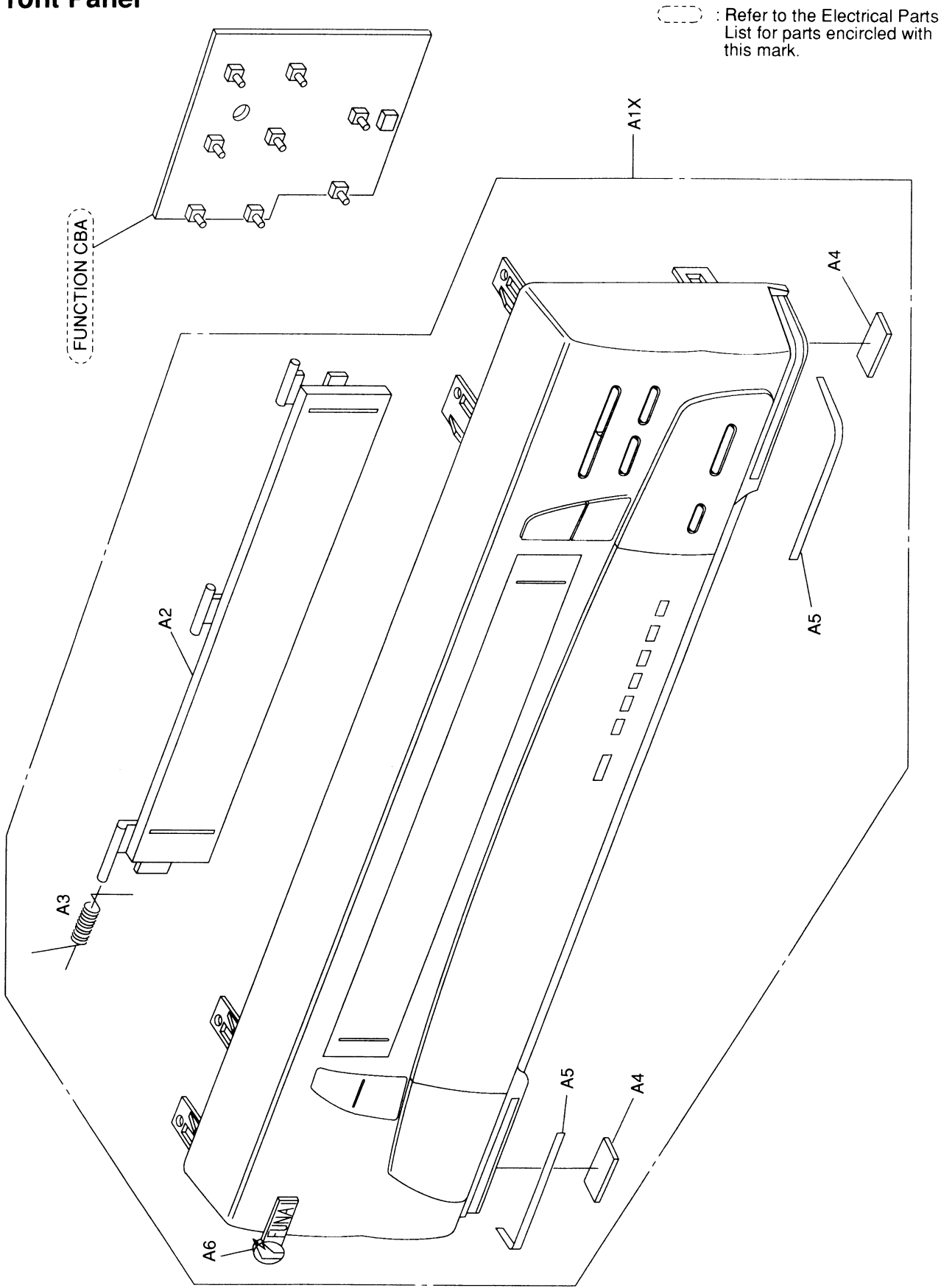
Ref.No.	Description	Part No.
SW5503	PUSH SWITCH EVQ-21509K or	SST0101MS011
	PUSH SWITCH SKHVBH or	SST0101AL011
	PUSH SWITCH SOR-142HS R66-4519	SST0101MM011
SW5504	PUSH SWITCH EVQ-21509K or	SST0101MS011
	PUSH SWITCH SKHVBH or	SST0101AL011
	PUSH SWITCH SOR-142HS R66-4519	SST0101MM011
SW5505	PUSH SWITCH EVQ-21509K or	SST0101MS011
	PUSH SWITCH SKHVBH or	SST0101AL011
	PUSH SWITCH SOR-142HS R66-4519	SST0101MM011
SW5506	PUSH SWITCH EVQ-21509K or	SST0101MS011
	PUSH SWITCH SKHVBH or	SST0101AL011
	PUSH SWITCH SOR-142HS R66-4519	SST0101MM011
SW5507	PUSH SWITCH EVQ-21509K or	SST0101MS011
	PUSH SWITCH SKHVBH or	SST0101AL011
	PUSH SWITCH SOR-142HS R66-4519	SST0101MM011
SW5508	PUSH SWITCH EVQ-21509K or	SST0101MS011
	PUSH SWITCH SKHVBH or	SST0101AL011
	PUSH SWITCH SOR-142HS R66-4519	SST0101MM011
MISCELLANEOUS		
CN5501	HINGED SOCKET CONNECTOR 4P P.C.B.	JCTRG04TG002 BK4500F01001

JACK (JD) CBA

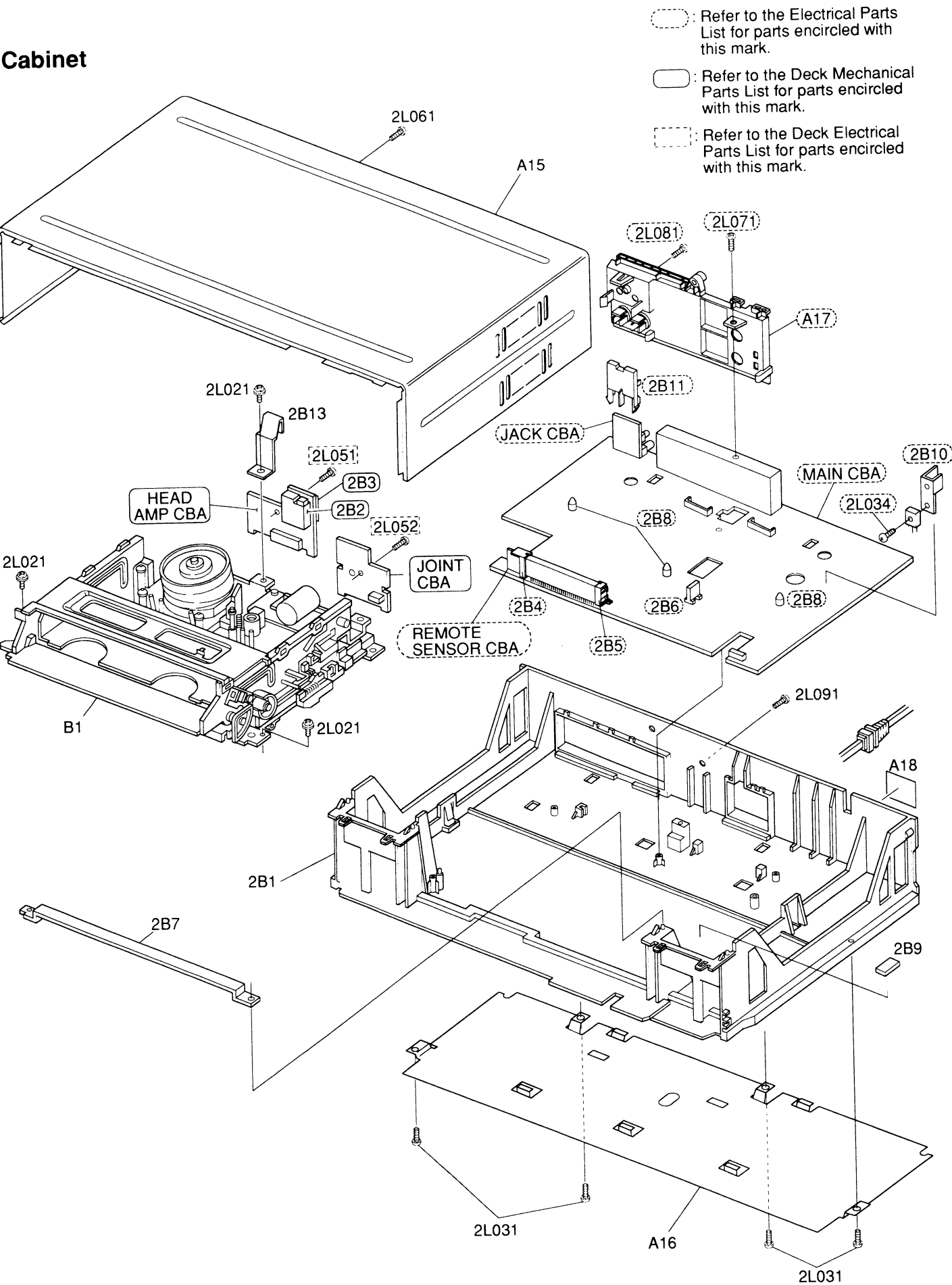
Ref.No.	Description	Part No.
	JACK (JD) CBA CONSISTS OF THE FOLLOWING:	0VSA05986
2B 11	HOLDER JACK P.C.B.	0VM301831
2L 081	SCREW P-TIGHT BIND HEAD 3X10	GBKP3100
CN7501	PIN HEADER ANGLE 3P	5700429
JK7504	RCA JACK YKB11-0265	JXRJ030JC001
JK7505	RCA JACK YKB11-0265	JXRJ030JC001
	P.C.B.	BK4100F01002

EXPLODED VIEWS

Front Panel



Cabinet



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.
A 1X	FRONT ASS'Y	0VM201365
A 2	DOOR CASSETTE	0VM404947
A 3	SPRING DOOR	0VM403265
A 4	FOOT	0VM404991
A 5	FOOT PLATE	0VM404901
A 6	EMBLEM	6D52254
A 15	CASE TOP	0VM100491
A 16	PANEL BOTTOM	0VM201359
A 17	SEE ELECTRICAL PARTS	
A 18	LABEL RATING	0VM404957
B 1	DECK ASS'Y or DECK ASS'Y	N2102XA N2102XN
2B 1	VIDEO TRAY	0VM000052
2B 2	SEE DECK ELECTRICAL PARTS	
2B 3	SEE DECK ELECTRICAL PARTS	
2B 4	SEE ELECTRICAL PARTS	
2B 5	SEE ELECTRICAL PARTS	
2B 6	SEE ELECTRICAL PARTS	
2B 7	HOLDER DECK	0VM301883
2B 8	SEE ELECTRICAL PARTS	
2B 9	SPACER(CASSETTE IN SW)	0VM404984
2B 10	SEE ELECTRICAL PARTS	
2B 11	SEE ELECTRICAL PARTS	
2B 13	DECK SUPPORTER	0VM404958
2L 021	SCREW P-TIGHT WASHER HEAD M3X10	GCMP3100
2L 031	SCREW RAMI-TIGHT BIND HEAD M3X10	DZM23100
2L 034	SEE ELECTRICAL PARTS	
2L 061	SCREW P-TIGHT BIND HEAD 4X12	GBKP4120
2L 071	SEE ELECTRICAL PARTS	
2L 081	SEE ELECTRICAL PARTS	
2L 091	SCREW A-TIGHT 3X8	DBK13080
ACCESSORY KIT		
X 1	REMOCON BOX	UREMT28XW051
X 2	OWNER'S MANUAL	0VMN01261
X 3	RF CORD PAL 1.2M	WPZ0122TM001
	DRY BATTERY UM-3(M) 2PCS PACK or	1790849
	DRY BATTERY UM3/RS6 2PCS PACK	579W099

DECK MECHANISM SECTION

VIDEO CASSETTE RECORDER

V-8008CM

Sec. 2 : Deck Mechanism Section

Standard Maintenance

Alignment for Mechanism

Disassembly / Assembly of Mechanism

Deck CBAs

Deck Exploded Views

Deck Parts List

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Mechanical Alignment Procedures	2-3-1	Deck Mechanical Parts List	2-7-1
Disassembly/Assembly Procedures of Deck Mechanism	2-4-1	Deck Electrical Parts List	2-8-1

STANDARD MAINTENANCE

Service Schedule of Components

H: Hours ○: Check ●: Change

Deck		Periodic Service Schedule			
Ref. No.	Parts Name	1,000 H	2,000 H	3,000 H	4,000 H
B2	Cylinder Assembly	○	●	○	●
B3	Loading Motor			●	
B6	Pinch Roller Arm Assembly		●		●
B8	Pulley Assembly		●		●
B21	Loading Belt		●		●
B27	Band Brake Assembly		●		●
B28	Main Brake S Assembly		●		●
B29	Main Brake T Assembly		●		●
B30	T Brake Arm Assembly		●		●
B31	ACE Head Assembly			●	
B32	Reel Assembly			●	
B37	Capstan Motor		●		●
B52	Capstan Belt		●		●
B54	Ground Brush Assembly			●	
B73	Full Erase Head			●	
B132	Clutch Assembly		●		
B133	Arm Idler Assembly		●		

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

Cleaning

Cleaning of Video Head

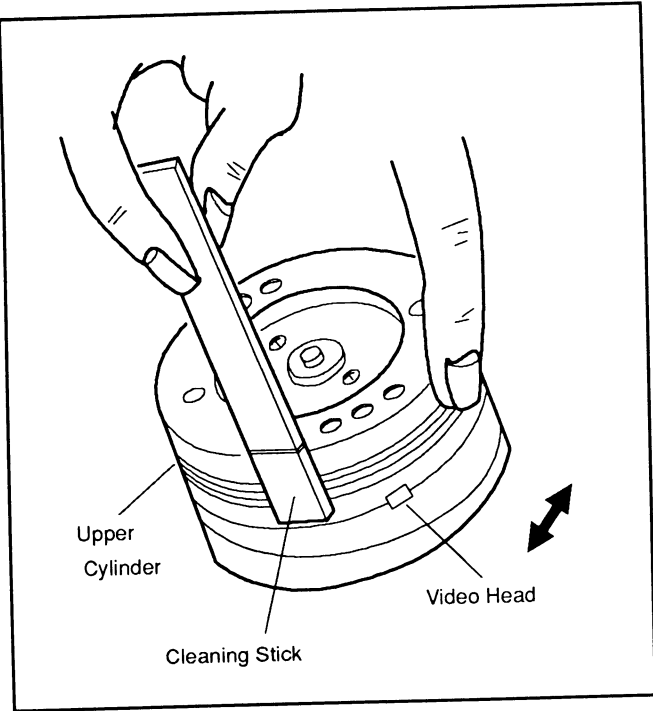
Clean the head with a head cleaning stick or chamois skin.

Procedure

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

Notes:

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



Cleaning of Audio Control Head

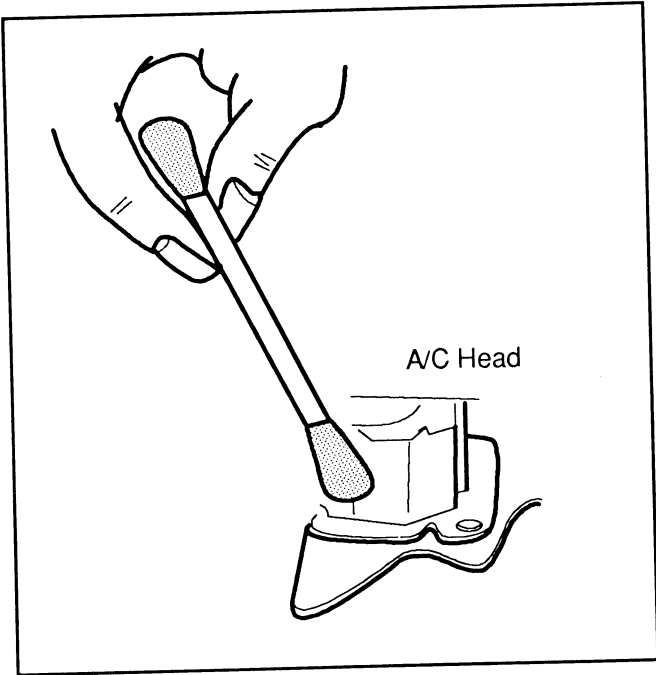
Clean the head with a cotton swab.

Procedure

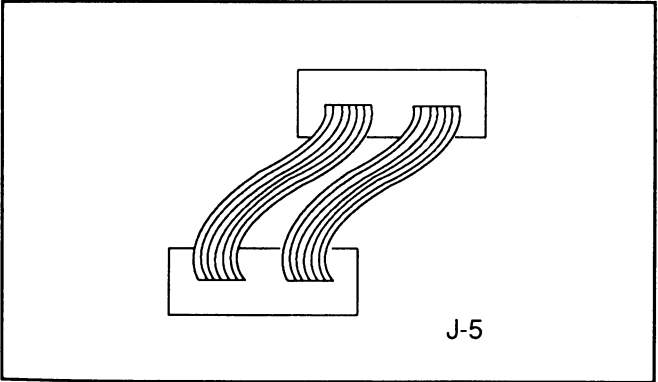
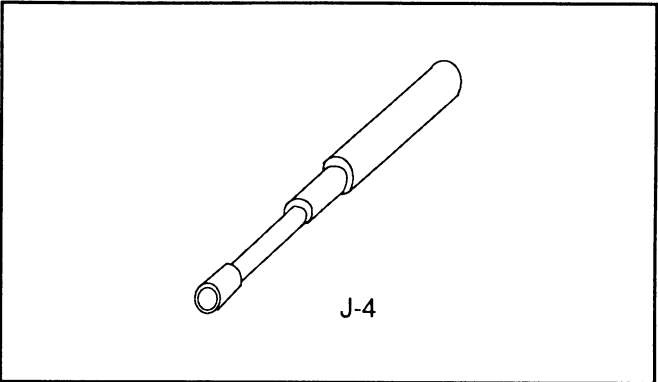
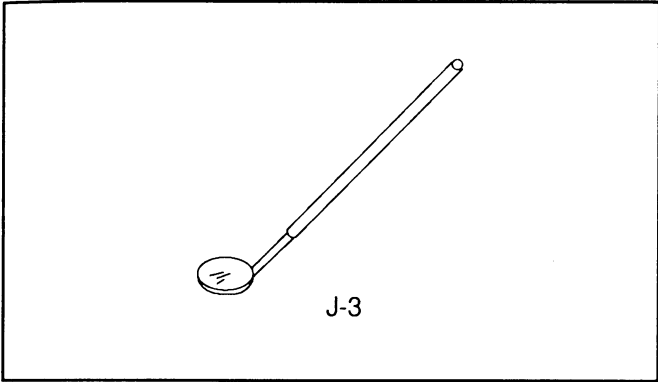
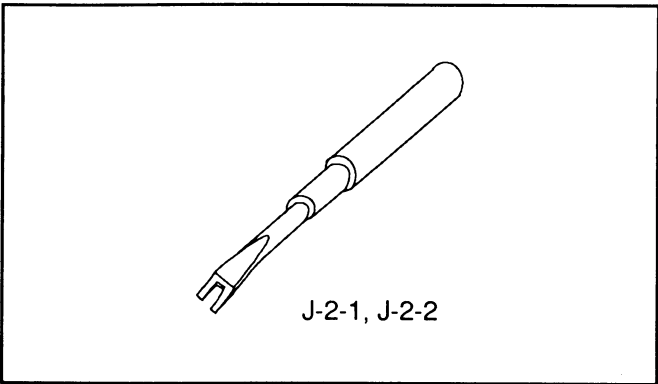
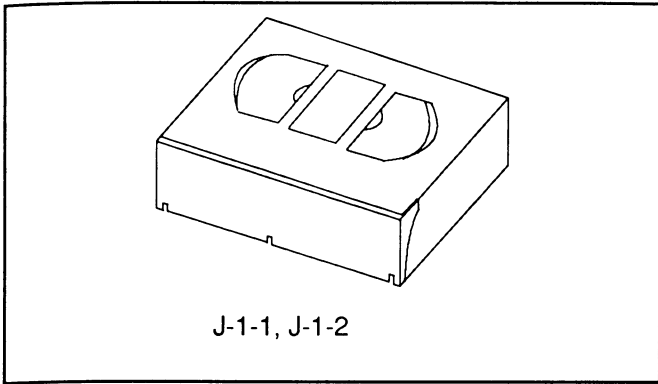
- 1. Remove the top cabinet.
- 2. Dip the cotton swab in 90% isopropyl alcohol and clean the audio control head. Be careful not to damage the upper drum and other tape running parts.

Notes:

- 1. Avoid cleaning the audio control head vertically.
- 2. Wait for the cleaned part to dry thoroughly before operating the unit or damage may occur.



SERVICE FIXTURES AND TOOLS



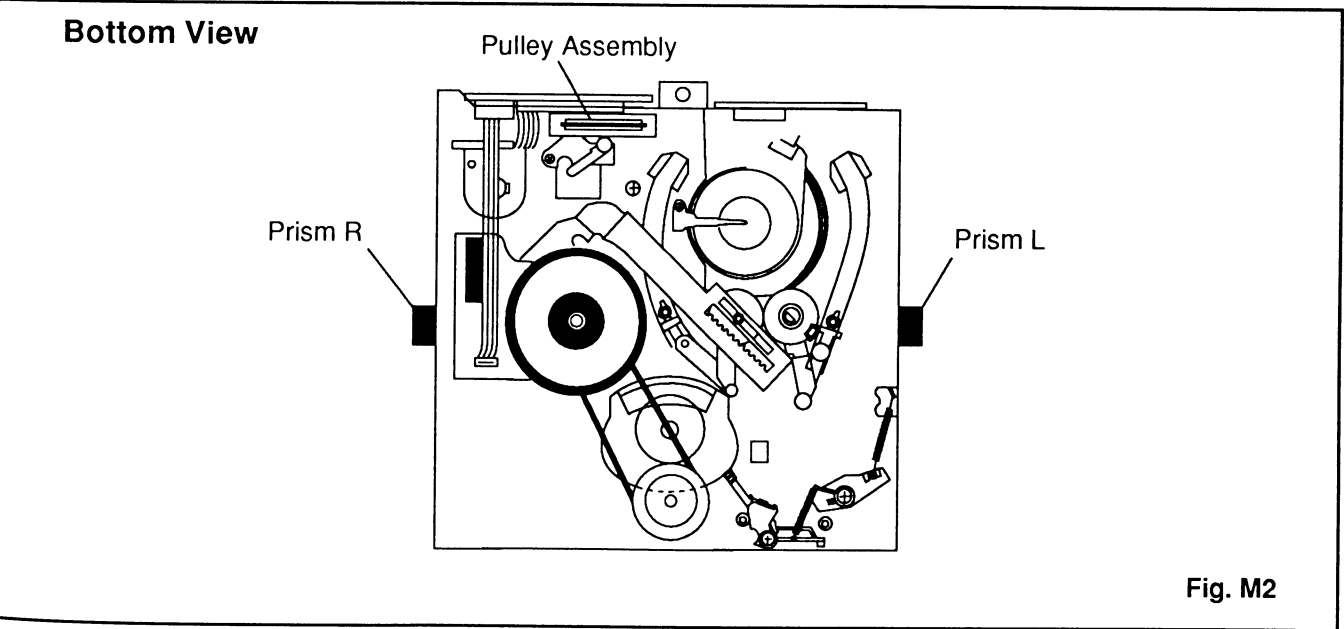
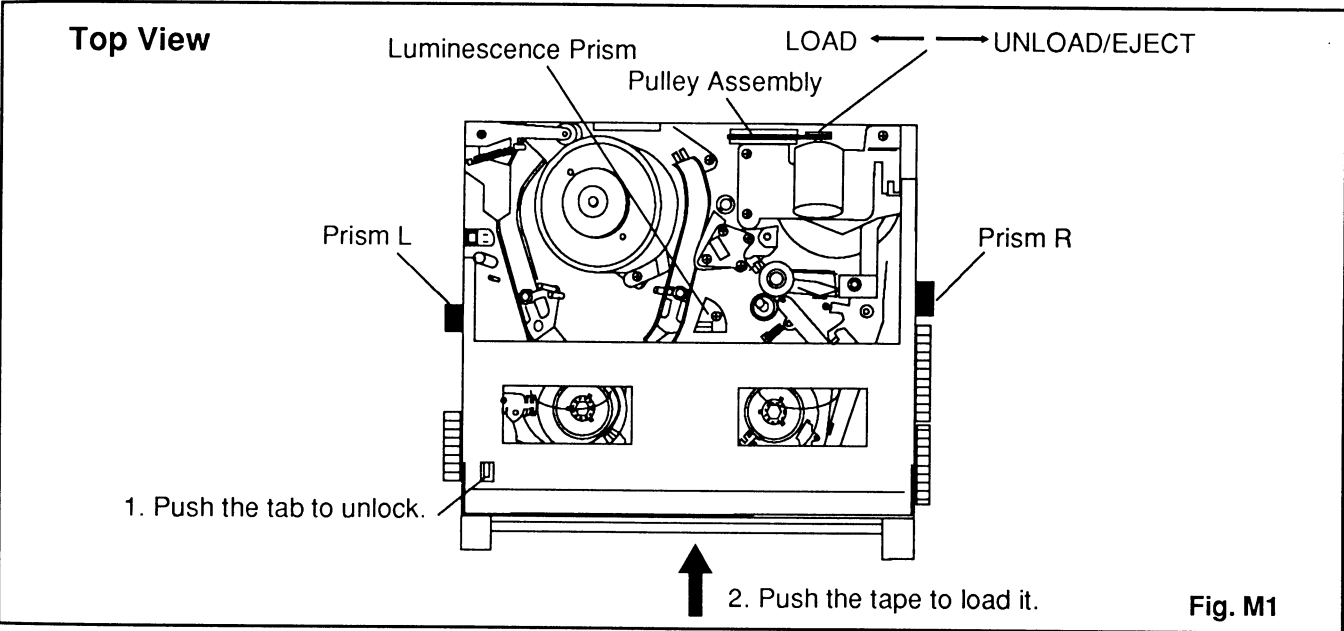
Ref. No.	Name	Part No.	Adjustment
J-1-1	Alignment Tape	F6-A	Head Adjustment of Audio Control Head
J-1-2	Alignment Tape	F6-N	Azimuth and X Value Adjustment of Audio Control Head / Adjustment of Envelope Waveform
J-2-1	Special Driver, Large	FSJ-0001	X Value
J-2-2	Special Driver, Small	FSJ-0006	Guide Roller
J-3	Mirror	FSJ-0004	Tape Transportation Check
J-4	Box Driver, Mx3	FSJ-0005	A/C Head Height
J-5	Deck Extension Cable	N1099XA	All Mechanical and Electrical Adjustments

Note: Before starting any adjustment, take the Deck Assembly out of the cabinet and use J-5 to connect the Deck Assembly with the Main CBA.

MECHANICAL ALIGNMENT PROCEDURES

Service Information

- A. Method for Manual Tape Loading/Unloading of VCR.
To place the Cassette Holder in the down position, turn the Pulley Assembly clockwise as viewed from the back of Deck. To place the Cassette Holder in the up position, turn the Pulley Assembly counterclockwise as viewed from the back of the Deck.
- B. How to place the Cassette Holder in the down position without a cassette tape.
- METHOD
1. Disconnect the AC Plug and remove the Top Cover.
 2. Cover the LED Sensors located below Prism L and Prism R.
- Note:** The tape sensor is extremely susceptible to damage from static electricity. When handling the tape sensor use a conductive mat, a grounded soldering iron, and so on, to protect the tape sensor from static damage.
3. Turn the Pulley Assembly clockwise as viewed from the back of the Deck.



1. Tape Interchangeability Alignment (Final Alignment)

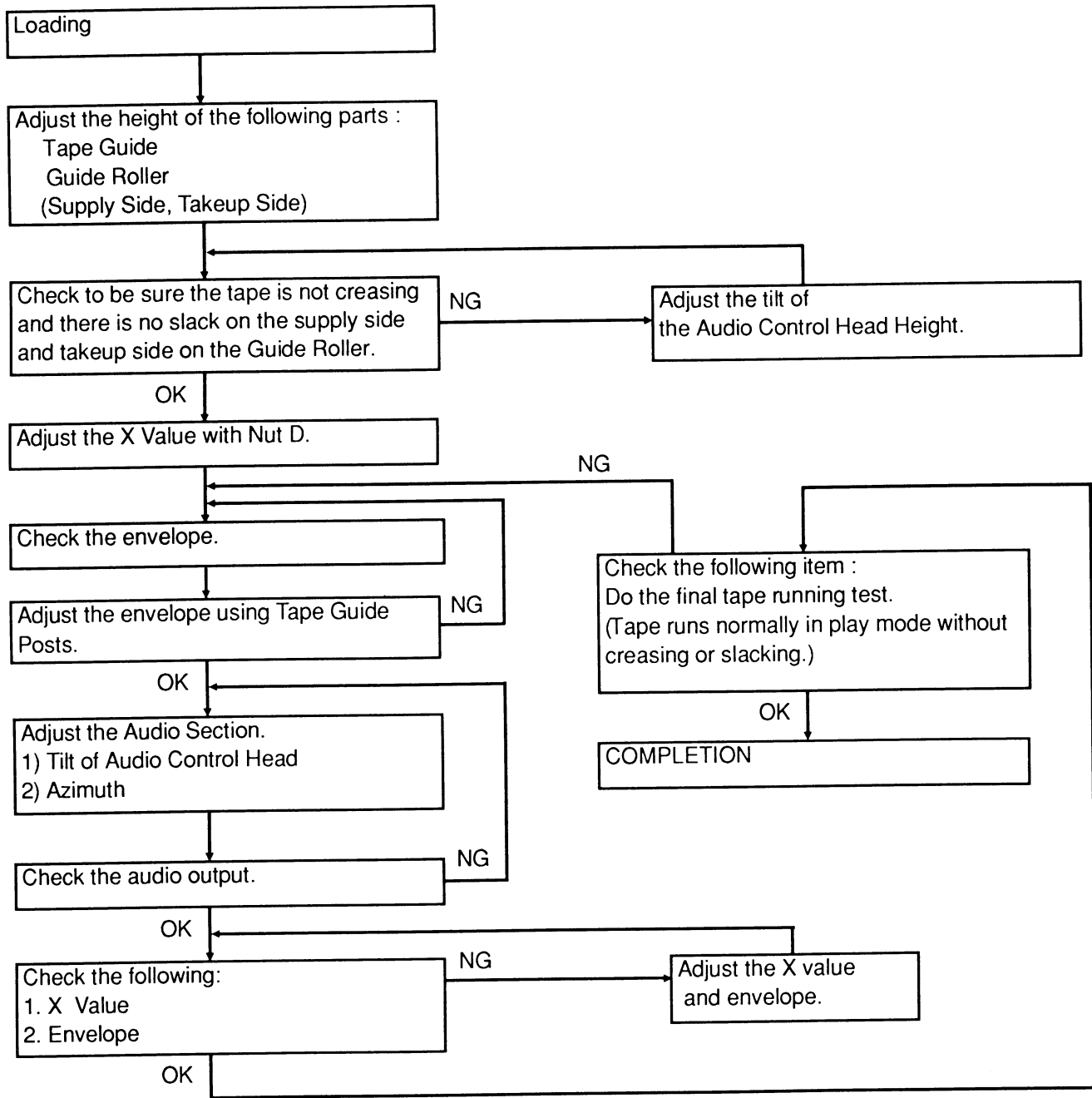
Note: To do these alignment procedures, be sure that the Tracking Control Circuit is set to the Neutral mode.

Equipment required :

- Dual Trace Oscilloscope
- VHS Alignment Tape (F6-A, F6-N)
- Post Alignment Screwdriver
- X-Position Alignment Fixture
- Screwdriver (For the Tape Guide Rollers)
- Box Driver M3

Note: After this Mechanical Alignment is completed, secure screw [C] shown in Fig.M6 with lock paint and do all the procedures in the Electrical Adjustment.

Tape Running Alignment Flowchart



1-A. Preliminary Checking and Alignment of Tape Running

Purpose:

To be sure that the tape running is well stabilized.

Symptom of Misalignment:

If the tape runs with unstability, the tape will be damaged.

1. Play back a cassette tape and check 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 Post Adjustment Screwdriver. (Refer to Fig. M3 and M5)

Note: Before turning the Guide Rollers, loosen the Lock Screw using a lock screwdriver.

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

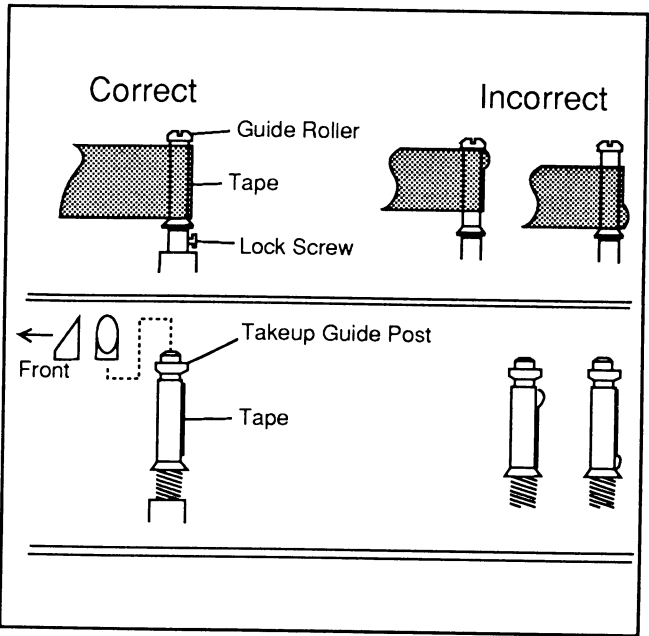


Fig. M5

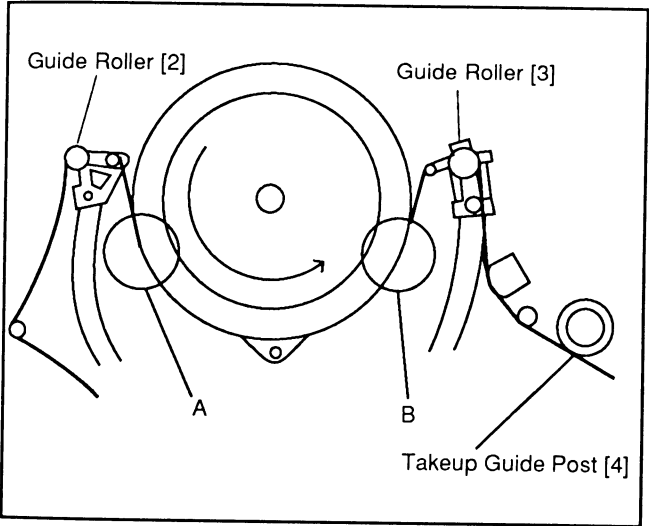


Fig. M3

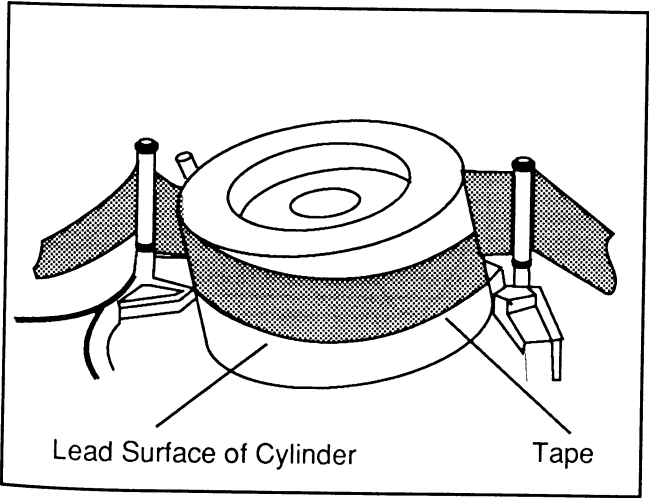


Fig. M4

1-B. Preliminary Checking of Audio/Control Head Height

Purpose :

To be sure that the tape runs properly along the Control Head.

Symptom of Misalignment:

If the control signal is not properly picked up, proper Servo Operation cannot be achieved.

The head height adjustment is required when the Audio/Control Head is replaced. For final alignment, do the adjustments described in 1-C and 1-D.

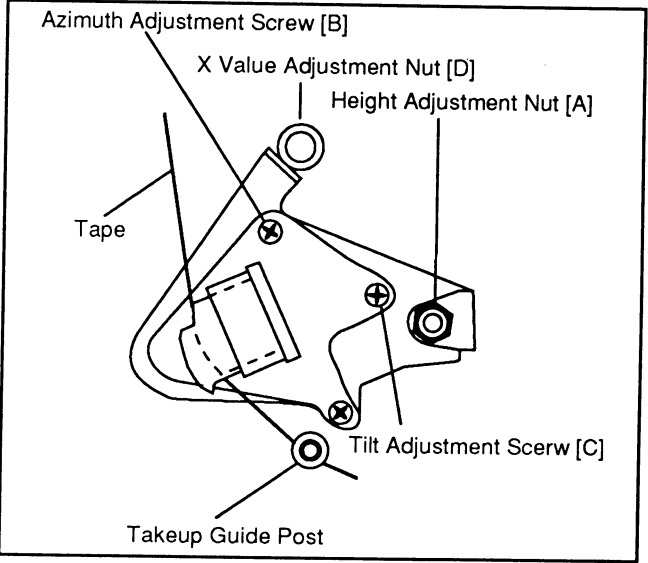


Fig. M6

Note: Play back a cassette tape. Looking at the lower edge of the Control Head with the tape in motion, ensure that the lower edge of the tape runs 0.15~0.25mm above the lower edge of the Control Head. If it does not run properly, turn Height Adjustment Nut [A] slightly in either direction as necessary to correct it. Turn clockwise, as viewed from the top, to lower the head and counterclockwise to raise it. (Refer to Fig. M6 and M7.)

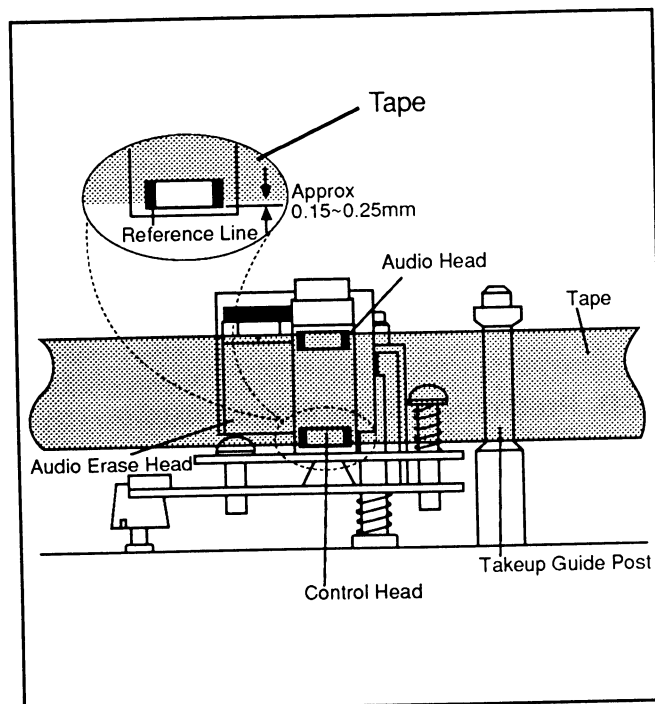


Fig. M7

1-C. Preliminary Checking of Tilt of Audio/Control Head

Purpose:

To check that the tape running is well stabilized. In particular, check that the signals on the tape are properly picked up by the Audio Head at the upper part and by the Control Head at the lower part.

Symptom of Misalignment:

If the tilt of the Audio/Control Head is poorly aligned, the tape will eventually be damaged. Play back a cassette tape and check that there is no tape slack between Takeup Guide Post [4] in Fig. M3 and the Audio/Control Head. If there is any slack, align the Audio/Control Head by turning tilt adjustment screw [C] in Fig. M6 so that the tape has no slack.

1-D. Final Alignment of Audio/Control Head Height

Purpose:

To align the position and height of the Audio/Control Head so that it meets the tape tracks properly.

Symptom of Misalignment:

If the position of the Audio/Control 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. Check that there is no tape slack between the Takeup Guide Roller and the Audio/Control Head. If there is any tape slack, remove it by turning Tilt Adjustment screw [C]. Then realign the height of the Guide Rollers (Refer to 1-A).
3. Play back the Color Bar (1kHz, Audio) on the alignment tape (F6-A) and check that the audio signal output level is 1kHz. Finally, adjust Height Adjustment Nut [A] so that the output level is at maximum. (Fig. M6, Fig. M8[b])
4. Adjust Azimuth Adjustment Nut [B] so that the output level on the AC Voltmeter is at maximum. (Fig. M6)

Note: Secure screw [C] with lock paint after realignment.

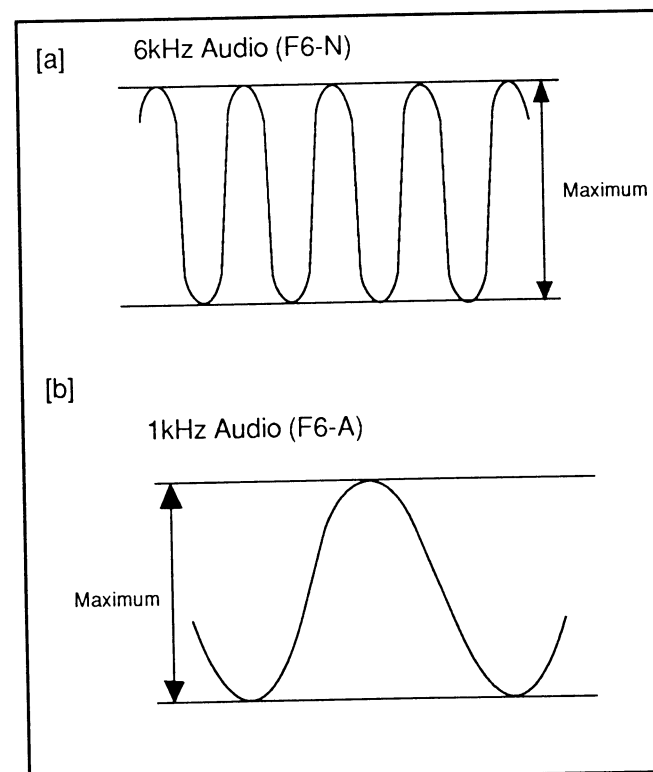


Fig. M8

Azimuth Alignment of Audio/Control Head

Purpose:

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

Symptom of Misalignment:

If the position of the Audio/Control 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 Gray Scale (6kHz, audio) on the alignment tape (F6-N), and adjust Height Adjustment Nut [A] so that the output level on the AC Voltmeter or the waveform of the oscilloscope is at maximum. (Fig. M6, Fig. M8[a])

1-E. X Value Alignment

Purpose:

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

Symptom of Misalignment:

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

1. Set the Tracking Control Circuit to the Neutral mode by pressing CH UP and DOWN buttons on VCR simultaneously.
2. Connect the oscilloscope to TP of C-PB on the Main CBA. Use TP of RF-SW as a trigger.
3. Play back the Gray Scale of the Alignment Tape (F6-N) and confirm that the PB FM signal is present.
4. Adjust X Value adjustment Nut [D] with the X Position Adj-Fixture so that the PB FM signal at the TP of C-PB or at the TP of A-OUT is maximum. (Fig. M9)

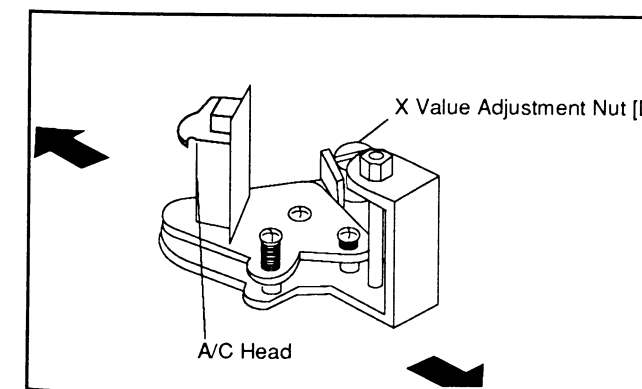


Fig. M9

1-F. Final 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.

1. Set the Tracking Control Circuit to the Neutral mode by pressing both CH UP and DOWN buttons on VCR simultaneously.
2. Connect the oscilloscope to TP of C-PB on the Main CBA. Use TP of RF-SW as a trigger.
3. Play back the Gray Scale on the Alignment Tape (F6-N). Adjust the height of Guide Rollers [2] and [3] (Fig. M3) watching the oscilloscope display so that the envelope becomes as flat as possible. If adjustment is required, turn the top of the Guide Roller with the Post Adjustment Screwdriver.

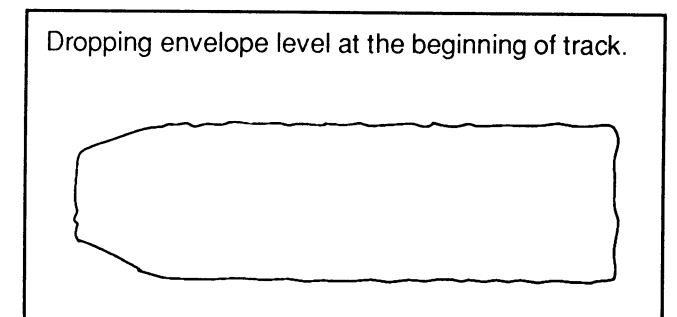


Fig. M10

4. When the envelope is as shown in Fig. M10, adjust the height of Guide Roller [2] (Refer to Fig. M3) so that the waveform looks like the one shown in Fig. M12.

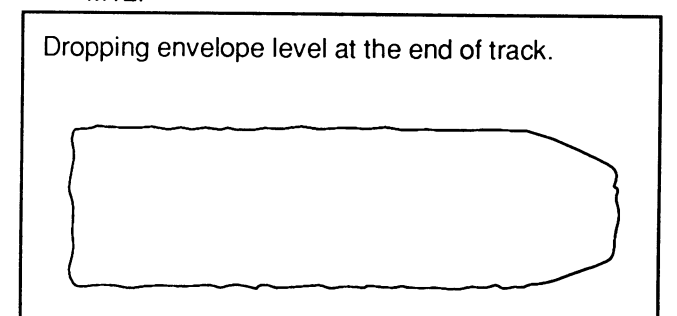


Fig. M11

5. When the envelope is as shown in Fig. M11, adjust the height of Guide Roller [3] (Refer to Fig. M3) so that the waveform looks like the one shown in Fig. M12.

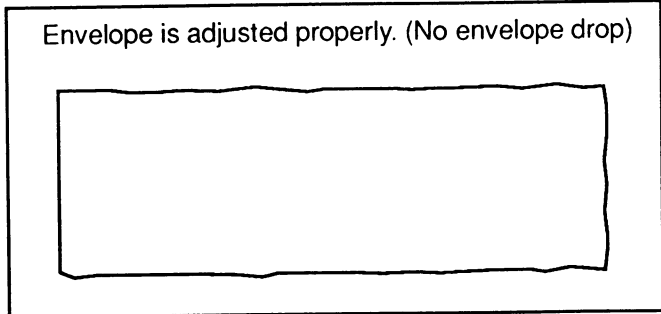


Fig. M12

6. When Guide Rollers [2] and [3] (Refer to Fig.M3) are aligned properly, there is no envelope drop either at the beginning or end of track as shown in Fig. M12.

Note: Upon completion of the adjustment of Guide Rollers [2] and [3] (Refer to Fig.M3), tighten the Lock Screws on these Guide Rollers [2] and [3], using a lock screw wrench. Then check the X VALUE by pushing the Tracking Control Up or Down buttons alternately, to check the symmetry of the envelope. If required, redo the "X VALUE ALIGNMENT." Secure screw [C] shown in Fig.M6 with lock paint.

DISASSEMBLY/ASSEMBLY PROCEDURES OF DECK MECHANISM

Main Mechanism

This procedure starts with the condition that the Cabinet Parts and Front Loading Assembly have been removed. (Refer to the Cabinet Disassembly Instructions of Section 1.) Also, all the following procedures for adjustment and parts replacement should be done in Stop mode. When reassembling, follow the steps in reverse order.

STEP /LOC. No.	START- ING No.	PART		REMOVAL		INSTALLATION ADJUSTMENT CONDITION
				Fig. No.	REMOVE/*UNHOOK/ UNLOCK/RELEASE/ UNPLUG/DESOLDER	
[1]	[1]	Motor Holder Assembly	T	DM1 DM4 DM5	3(S-1), (P-7) Loading Belt	(+)
[2]	[1]	Loading Motor Assembly	T	DM1 DM3 DM4	2(S-2), CN2902	
[3]	[1]	Cassette Drive Lever Assembly	T	DM1 DM4		(+)
[4]	[1]	Pinch Roller Arm Assembly	T	DM1 DM4	(C-1) Pinch Roller Spring	
[5]	[1]	Pinch Arm Assembly	T	DM1 DM4		
[6]	[1]	Cam	T	DM1 DM4		(+) See Fig. DM4
[7]	[1]	Pulley Assembly	T	DM1 DM5	Loading Belt (W-1)	(+)
[8]	[8]	Joint CBA	T/B	DM1 DM2 DM3 DM6 DM7	(S-3), CN2801, CN2902, CL2902, CL2901	For Connecting, Refer to Connectors' Points
[9]	[9]	Head Amp CBA	T/B	DM1 DM2 DM3 DM7	(S-4), CN02, CN03 CL02	For Connecting, Refer to Connectors' Points.
[10]	[8]	Mode SW CBA	B	DM2 DM7	*(L-1)	
[11]	[11]	Arm Idler Assembly	T	DM1 DM8	Clutch Bushing	
[12]	[12]	Clutch Assembly	B	DM2 DM8	(C-2), (W-2) Capstan Belt	
[13]	[9]	Capstan Motor Unit	B	DM2 DM9	3(S-5)	
[14]	[1]	M Lever Holder	T	DM1 DM10	(S-6)	
[15]	[1]	Kick Arm Holder	B	DM2 DM10		
[16]	[15]	Kick Arm	B	DM2 DM10	Bush	
[17]	[17]	Mode Change Lever	T	DM1 DM11	*2(L-2)	(+)
[18]	[1]	Main Lever Assembly	T	DM1 DM12	*(L-3)	
[19]	[19]	Tape Guide Assembly	T	DM1 DM12	*(P-1), *(L-4)	See Fig. DM12
[20]	[20]	A/C Head Assembly	T	DM1 DM13	Nylon Nut, Head Height Adjustment Spring	See Fig. DM13
[21]	[21]	Tension Lever Sub Assembly	T	DM1 DM14	*(L-5)	
[22]	[21]	Band Brake Sub Assembly	T	DM1 DM14	(S-7), *(L-6)	
[23]	[17]	M Brake (S)	T	DM1 DM15	*(P-2), *(L-7)	When reassembling, hook the Spring after installation of Mode Change Lever.
[24]	[17]	M Brake (S) Lever	T	DM1 DM15		
[25]	[17]	S Brake Arm	T	DM1 DM15	*(P-3)	When reassembling, hook the Spring after installation of Mode Change Lever.

STEP /LOC. No.	START- ING No.	PART		REMOVAL		INSTALLATION ADJUSTMENT CONDITION
				Fig. No.	REMOVE/*UNHOOK/ UNLOCK/RELEASE/ UNPLUG/DESOLDER	
[26]	[9]	M Brake (T) Assembly	T	DM1 DM15		
[27]	[17]	T Brake Arm Assembly	T	DM1 DM15	*(P-4)	When reassembling, hook the Spring after installation of Mode Change Lever
[28]	[17]	Reel Base Assemblies (S+T)	T	DM1 DM16	2 Poly Slider Washers	
[29]	[29]	Earth Brush Assembly	B	DM2 DM17 DM18	(S-8)	When reassembling, check that the brush is within 1 mm of center of shaft.
[30]	[9]	Cylinder Drum Assembly	T	DM1 DM17	3(S-9)	
[31]	[1]	Moving Guide Assembly	T	DM1 DM19		(+)
[32]	[1]	Moving Guide T Assembly	T	DM1 DM19		(+)
[33]	[33]	FE Head	T	DM1 DM19	(S-10)	
[34]	[34]	Main Prism	T	DM1 DM19	(S-11)	
[35]	[1]	Loading Arm M Assembly	B	DM2 DM20	(C-3)	(+)When installing, match the marks.
[36]	[1]	Loading Gear A	B	DM2 DM20		(+)
[37]	[1]	Loading Gear B	B	DM2 DM20		(+)
[38]	[38]	Rec Arm	B	DM2 DM21	(S-12),*(P-5)	
[39]	[38]	BT Drive Arm	B	DM2 DM21	(S-13), (P-6)	
*[40]	[40]	Cleaning Head	T	DM1	(C-4)	

- ①

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- 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: The start No. followed by corresponding part to be removed at this stage. For example, Arm Idler Assembly [11] can be removed without removing any other parts. But BT Drive Arm [39] can be removed only after removing Rec Arm [38].

③: Parts to be removed or installed.

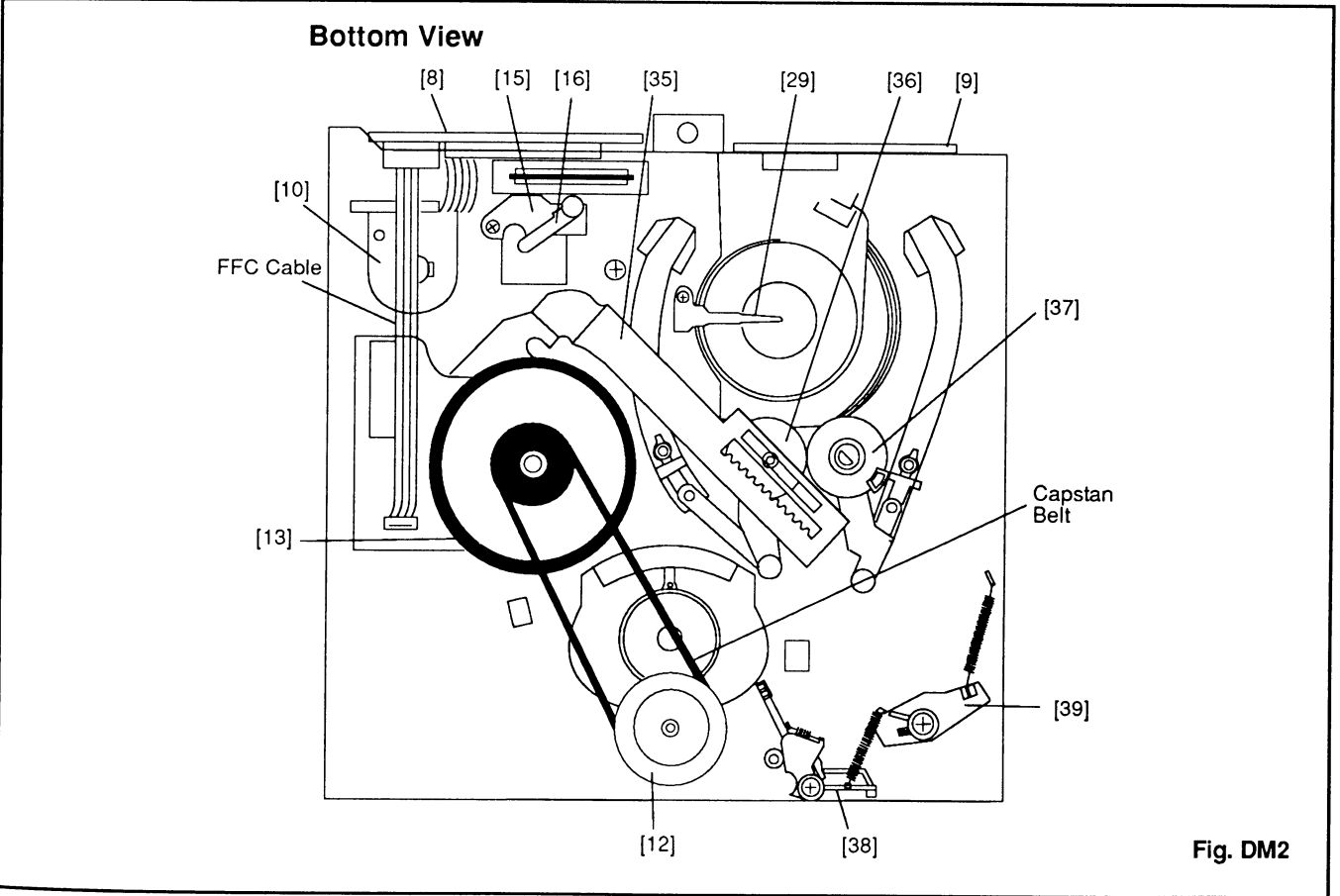
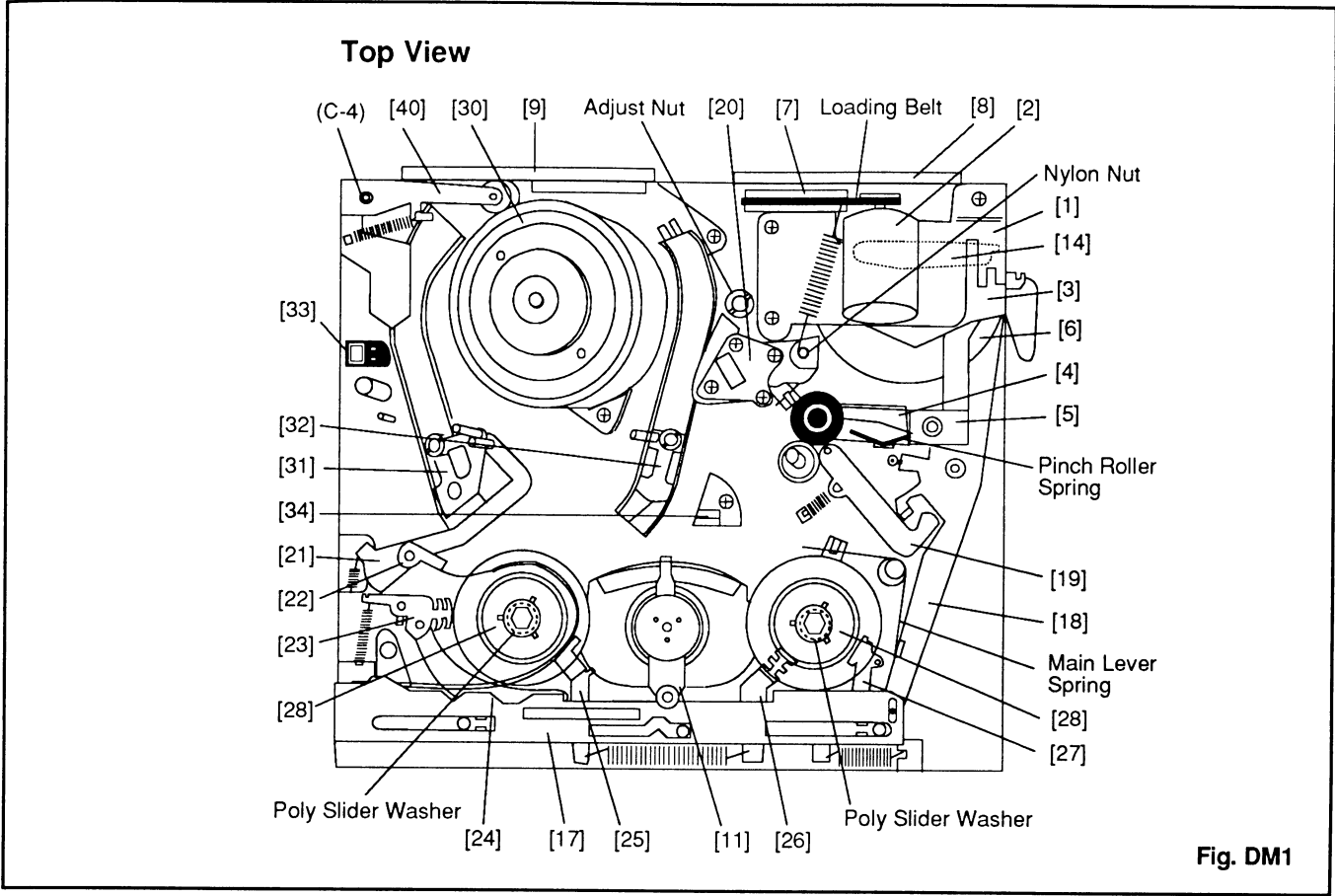
④: Location of part
T=Top B=Bottom R=Right L=Left

⑤: Fig. No. shows Procedure or Part Location

⑥: Identification of part to be removed, unhooked, unlocked, released, unplugged, unclamped or desoldered.
S=Screw, W=Washer, C=Cut Washer, P=Spring, *=Unhook, Unlock, Release, Unplug or Desolder
2(C-2) = two Cut Washers(C-2), 2(L-2) = two Locking Tabs(L-2)

⑦: Adjustment Information for Installation
(+) :Refer to Deck Exploded Views for lubrication information.

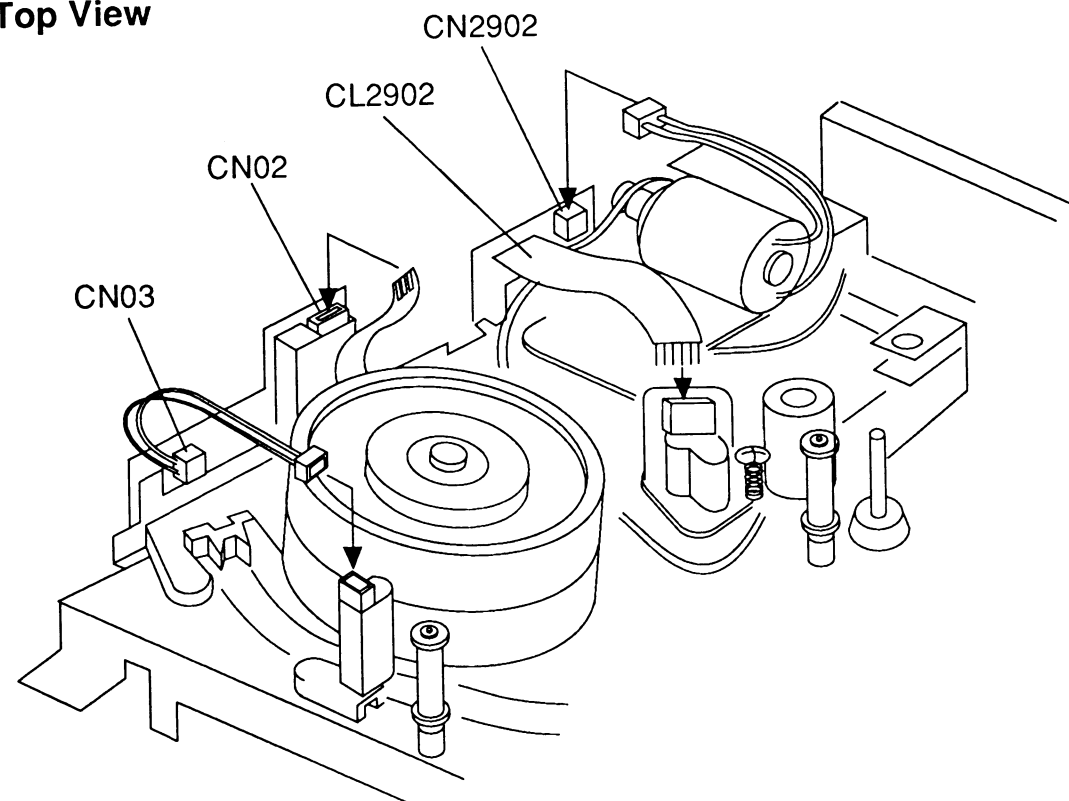
*[40] For Head Cleaner models only



Deck Connectors

Note: Disconnect Connectors shown below before disassembling the Deck.

Top View



Bottom View

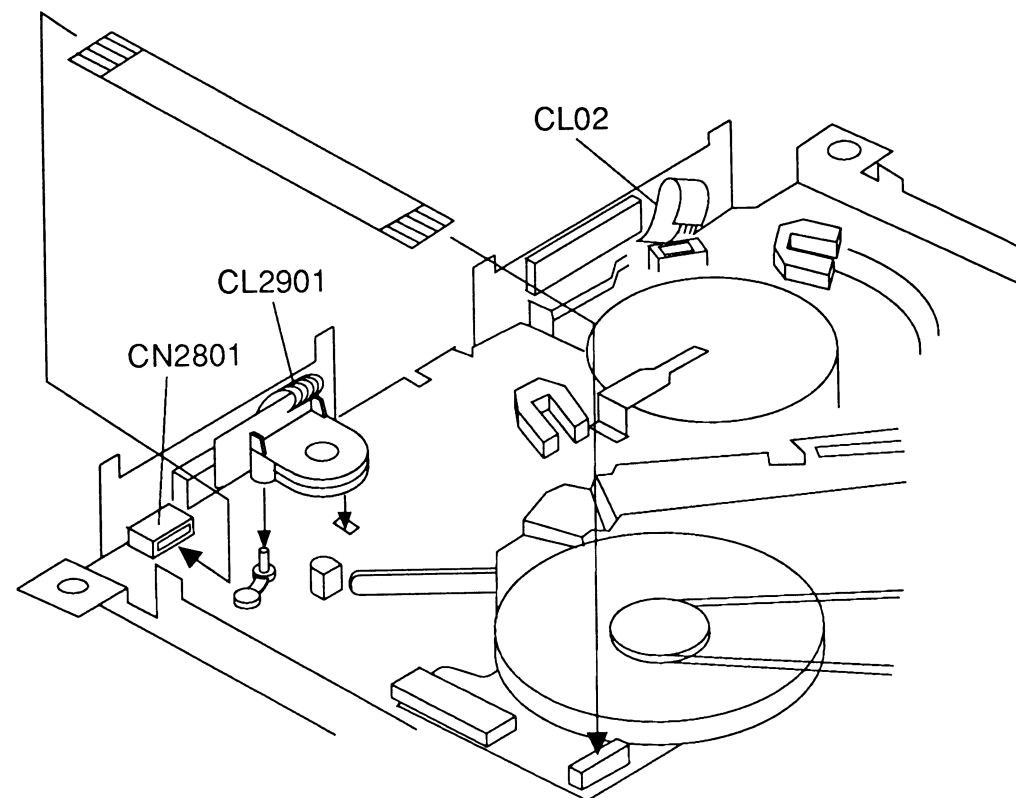


Fig. DM3

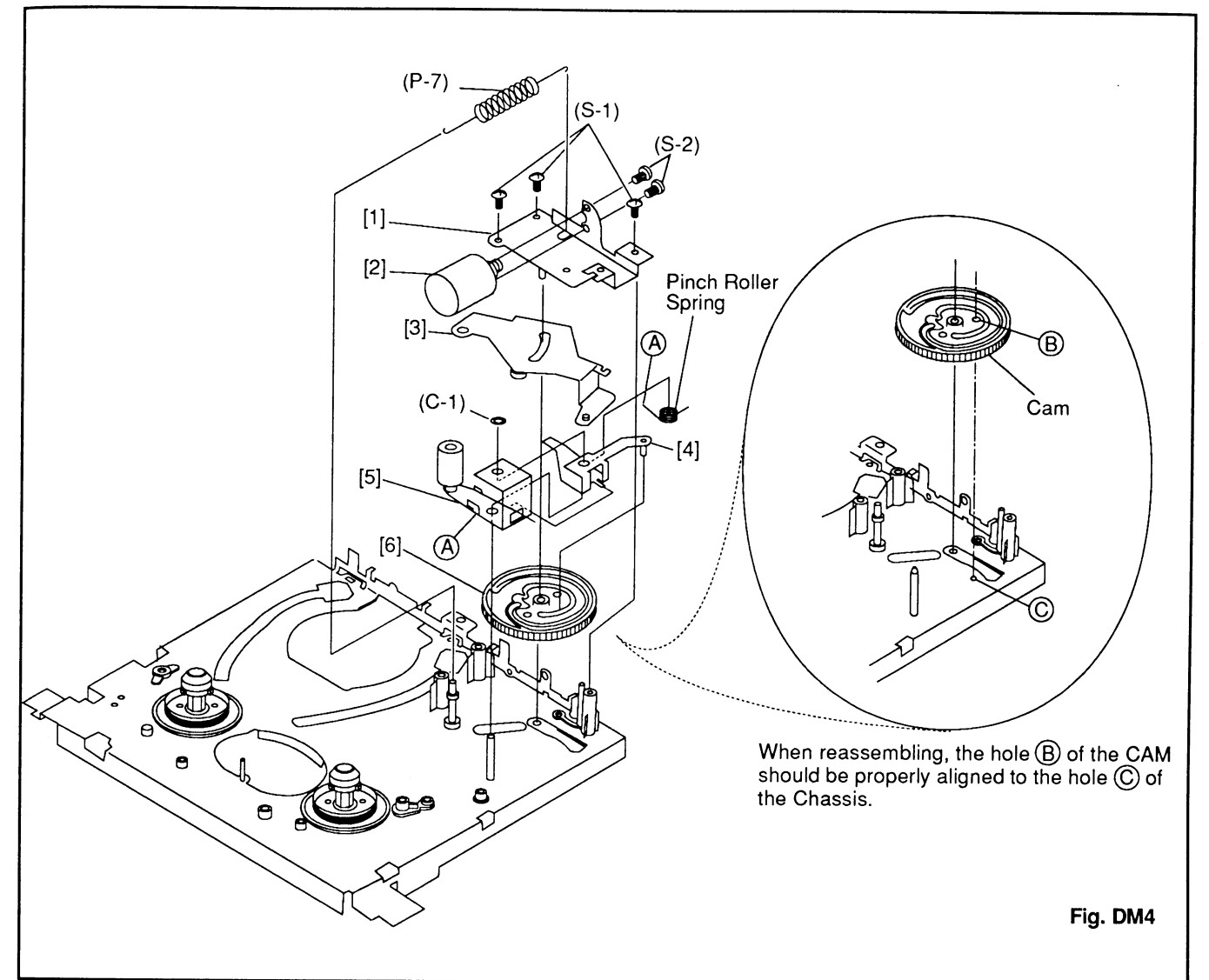


Fig. DM4

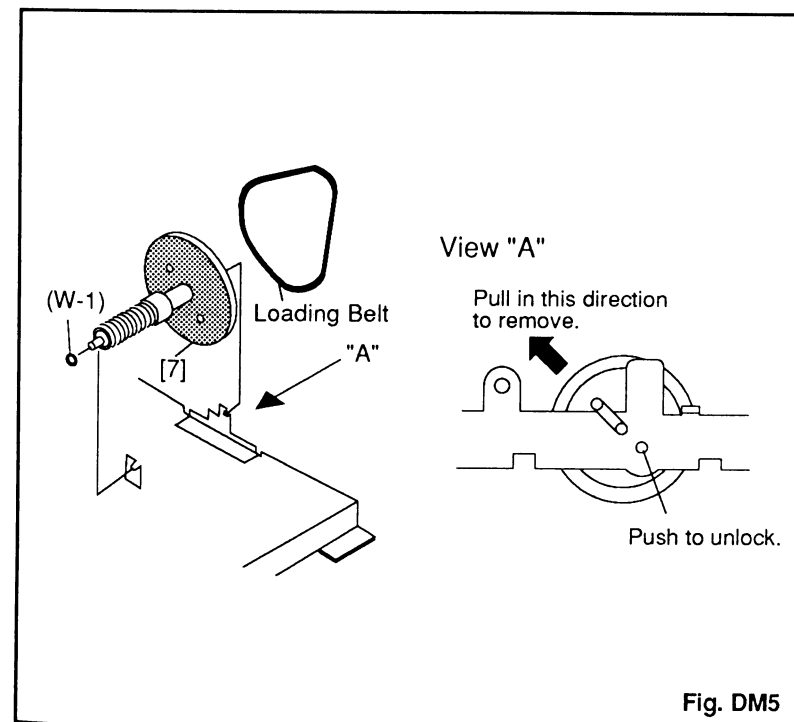


Fig. DM5

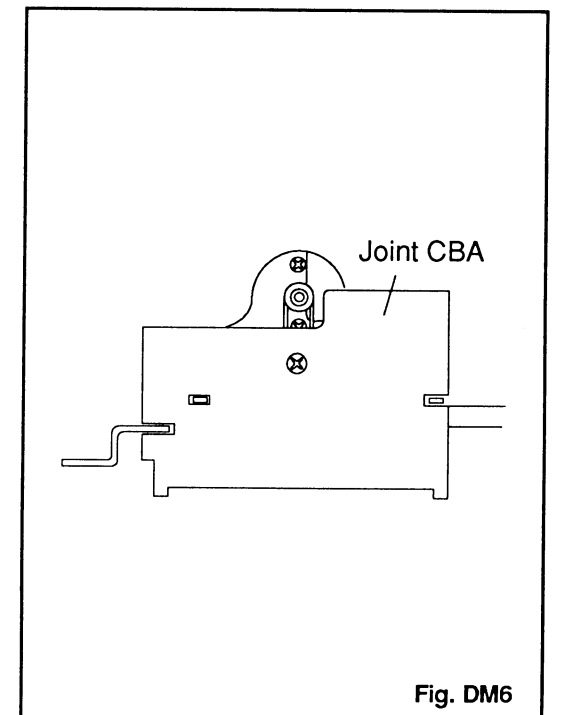


Fig. DM6

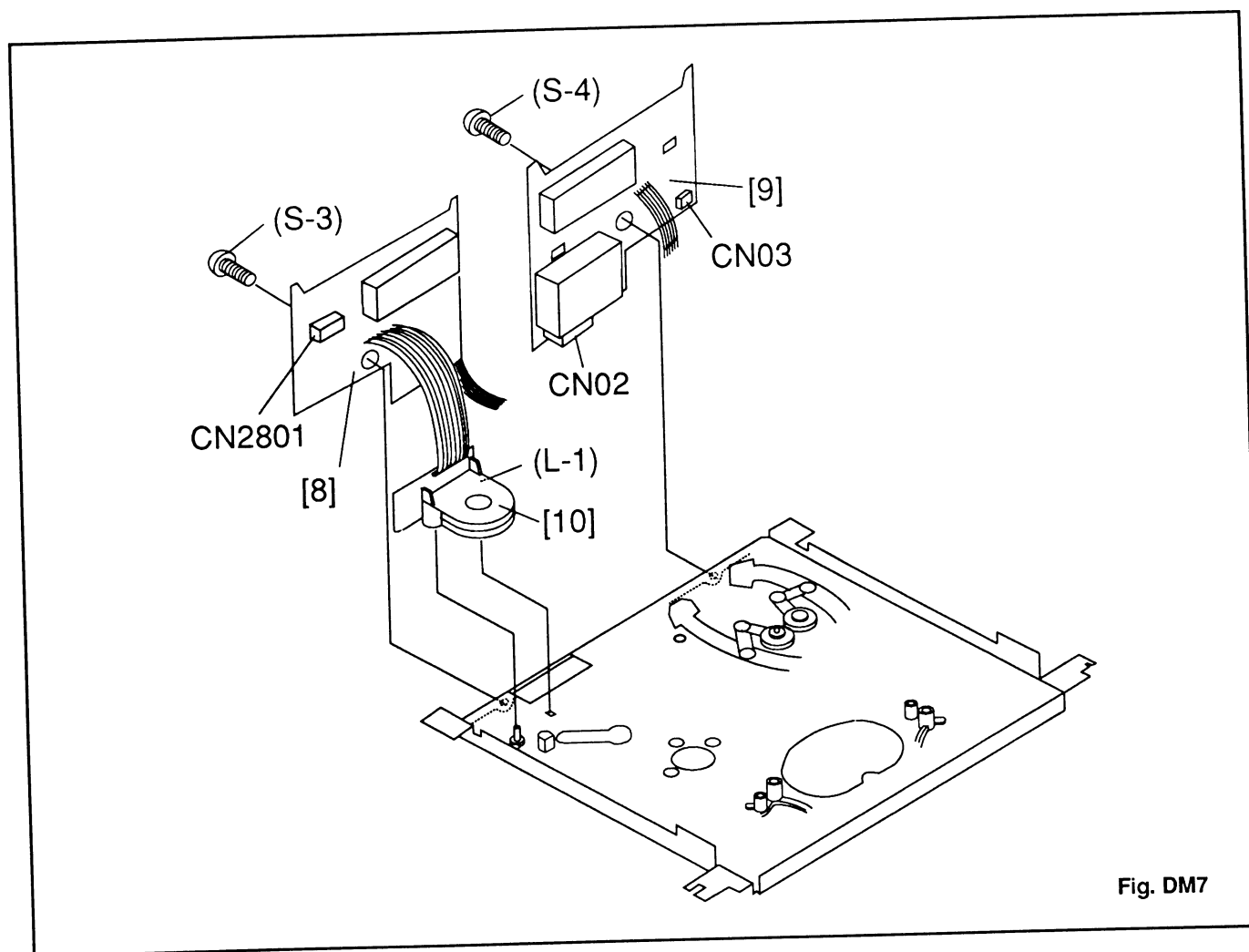


Fig. DM7

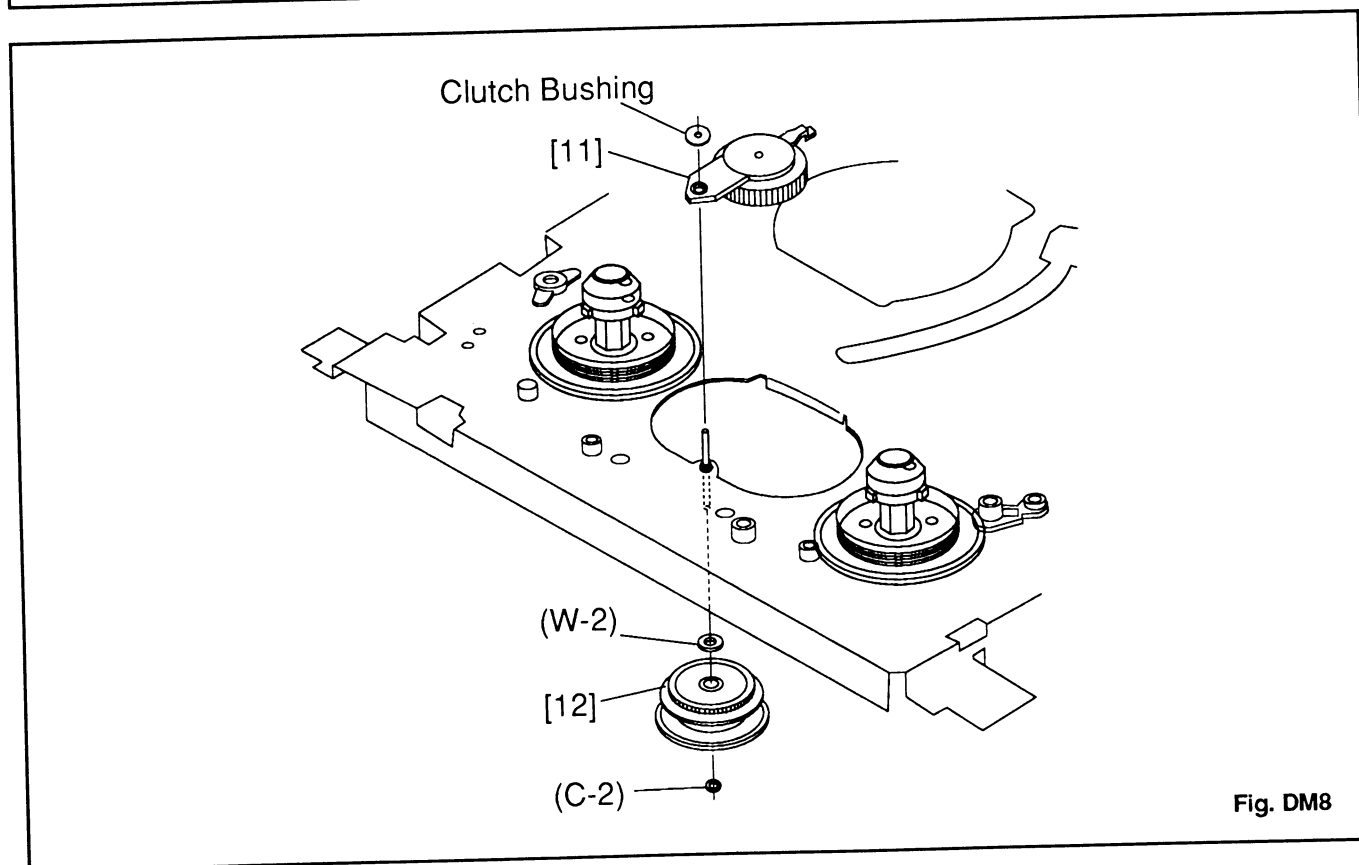


Fig. DM8

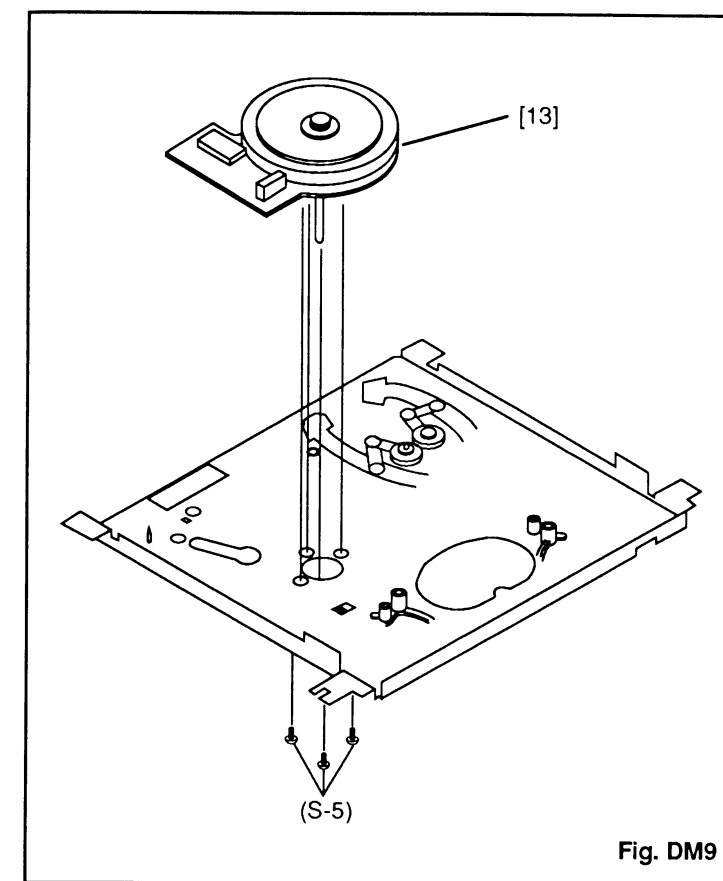


Fig. DM9

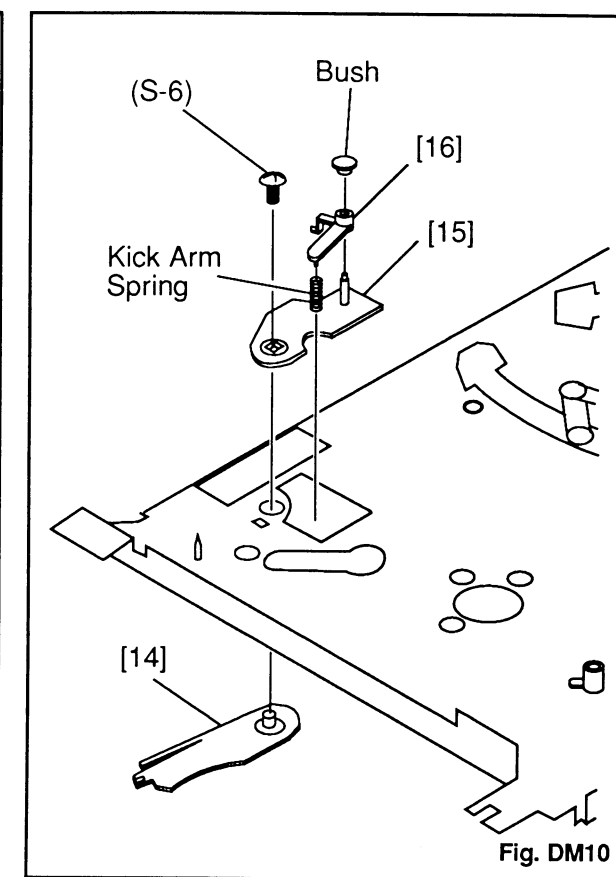


Fig. DM10

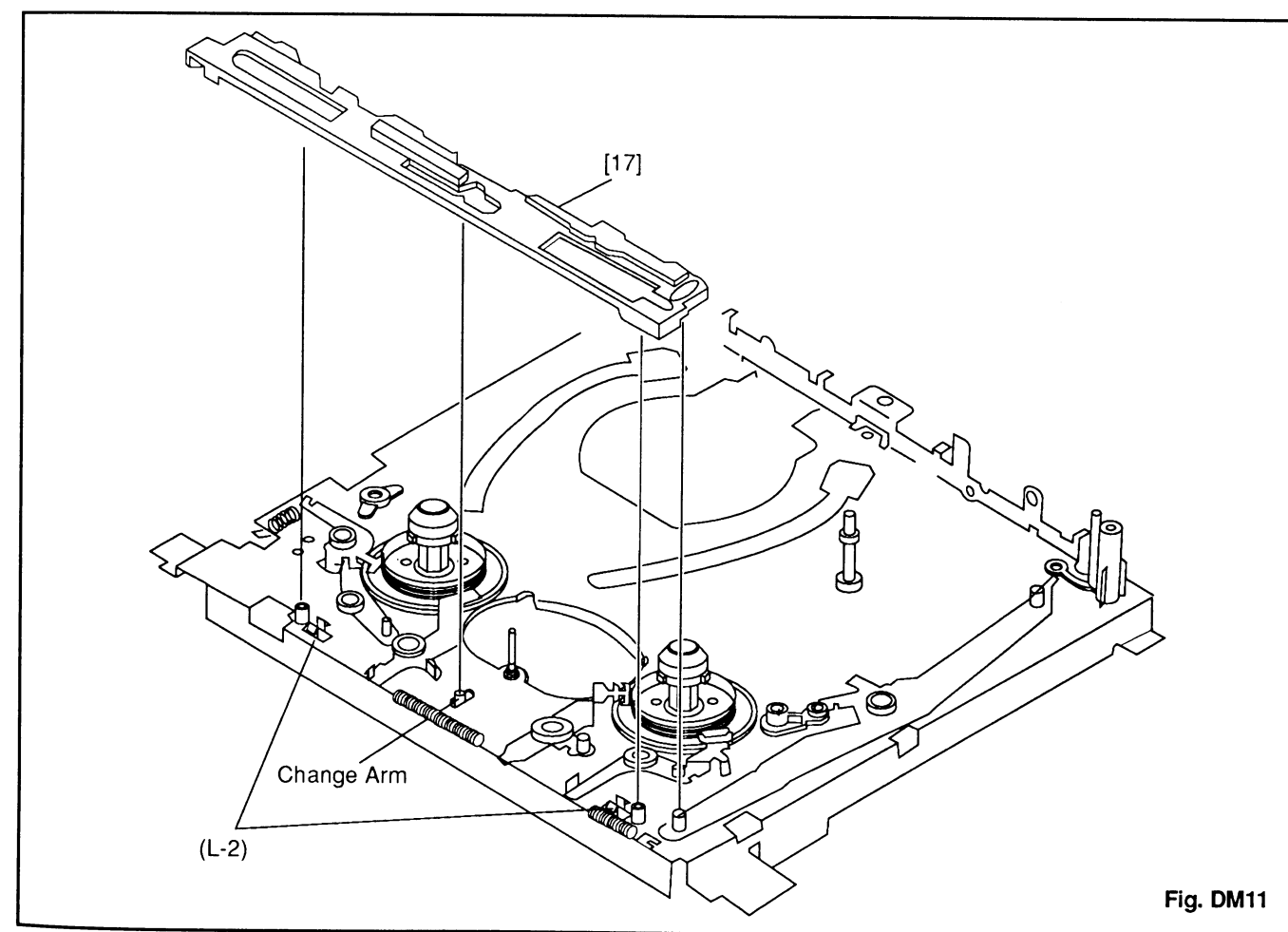


Fig. DM11

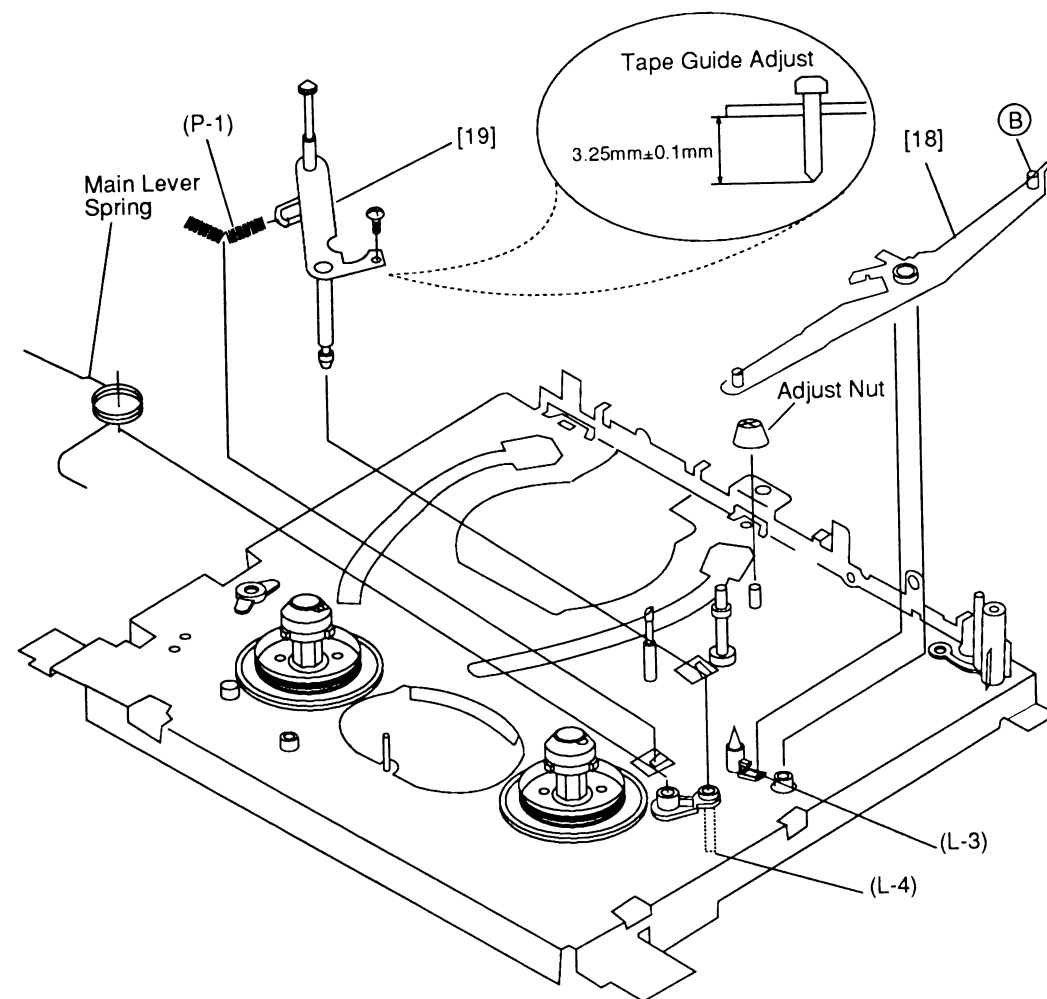


Fig. DM12

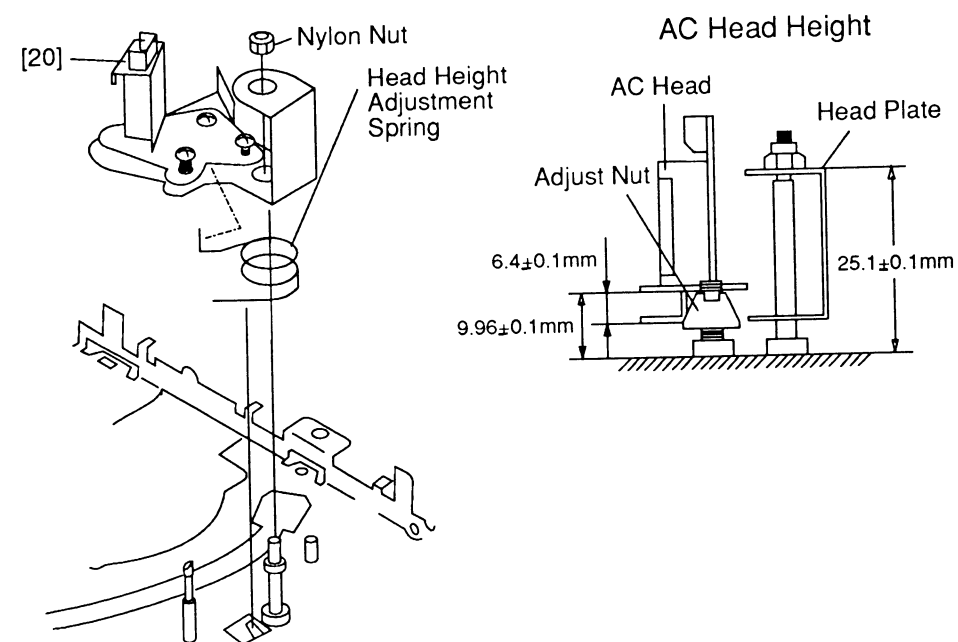


Fig. DM13

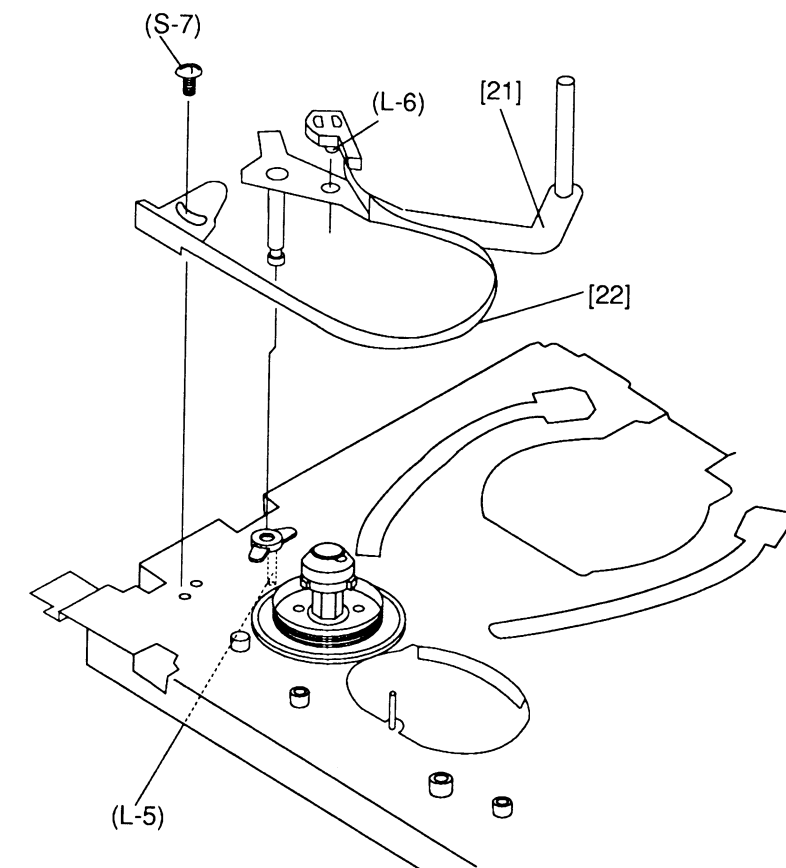


Fig. DM14

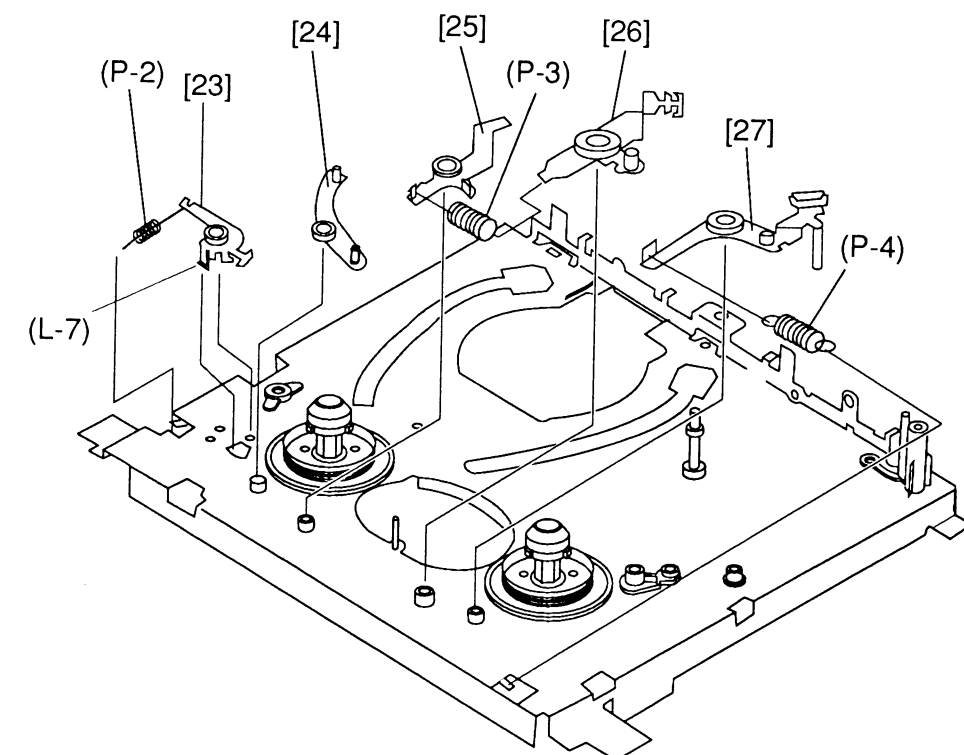


Fig. DM15

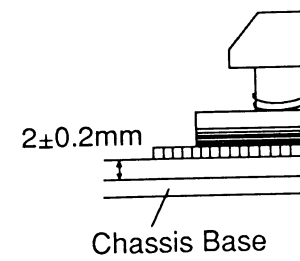
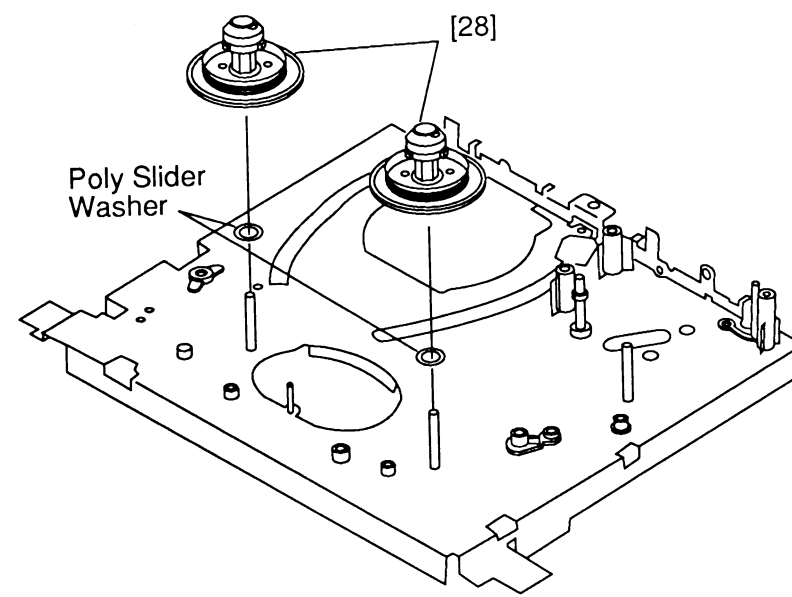


Fig. DM16

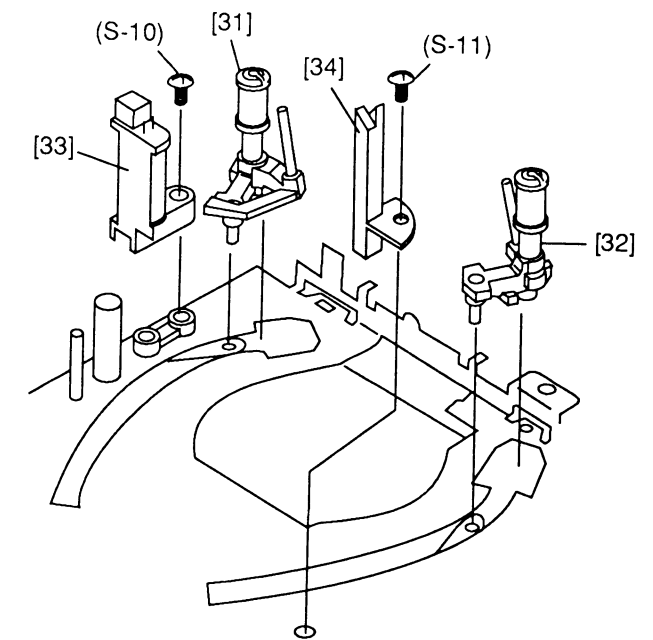
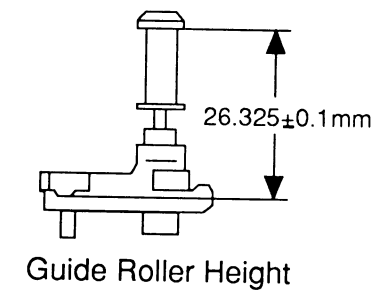


Fig. DM19

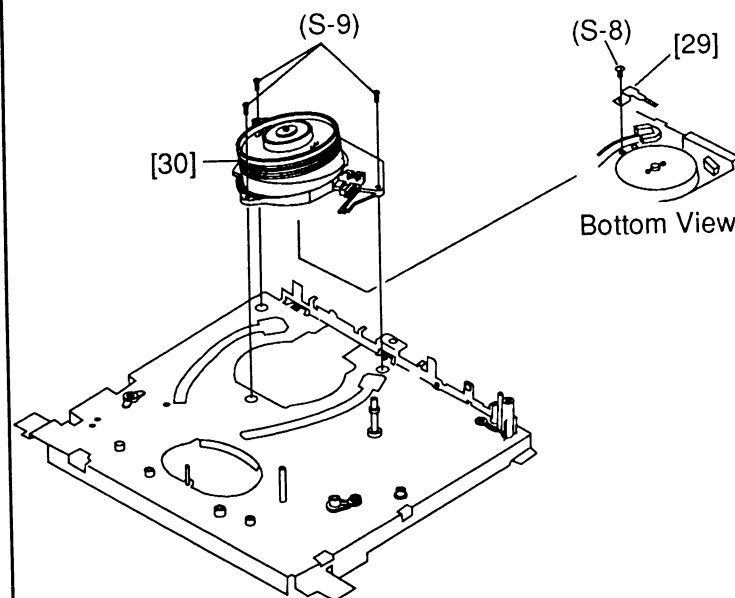


Fig. DM17

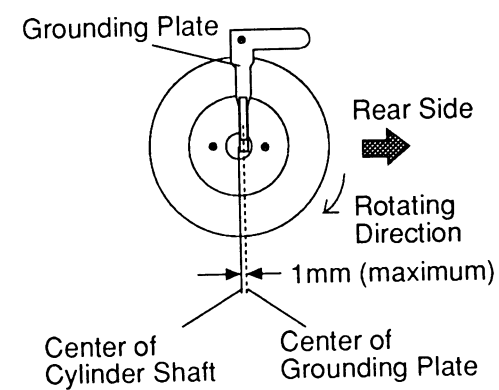


Fig. DM18

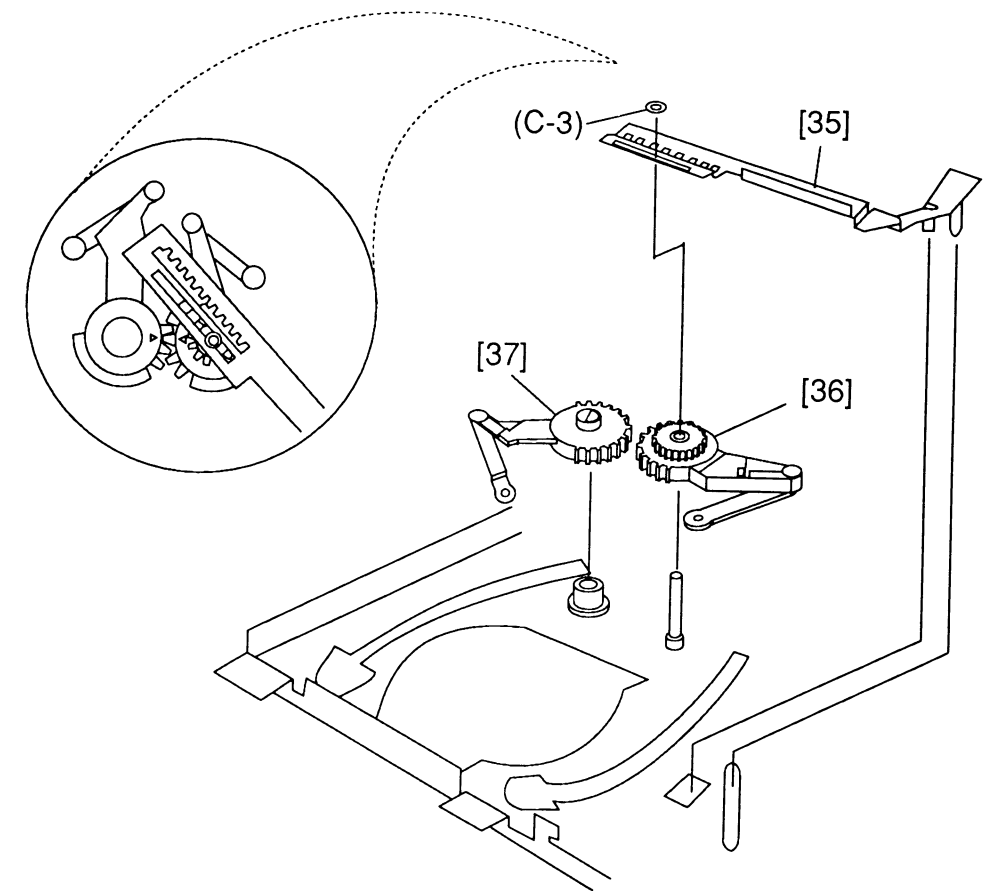


Fig. DM20

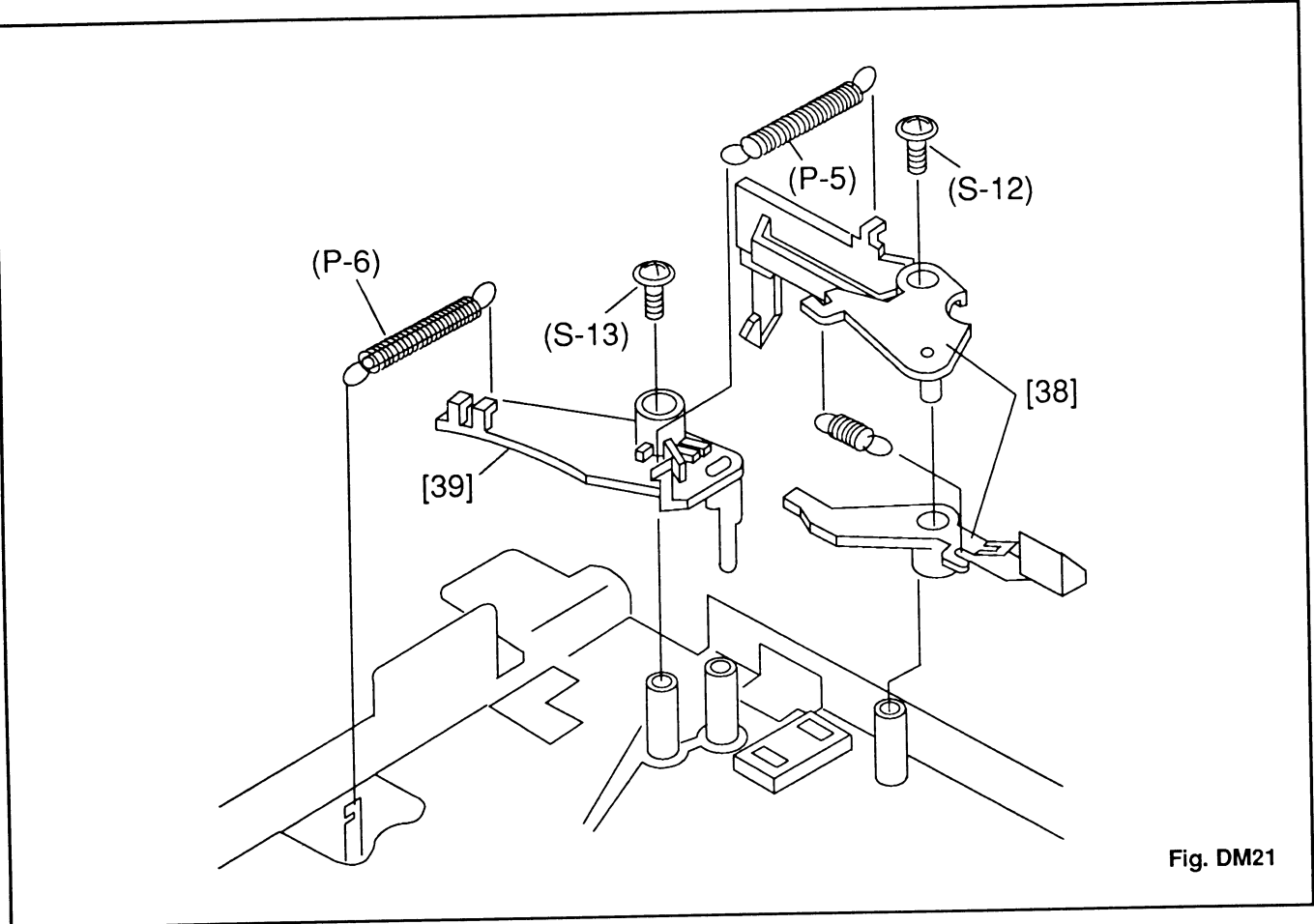


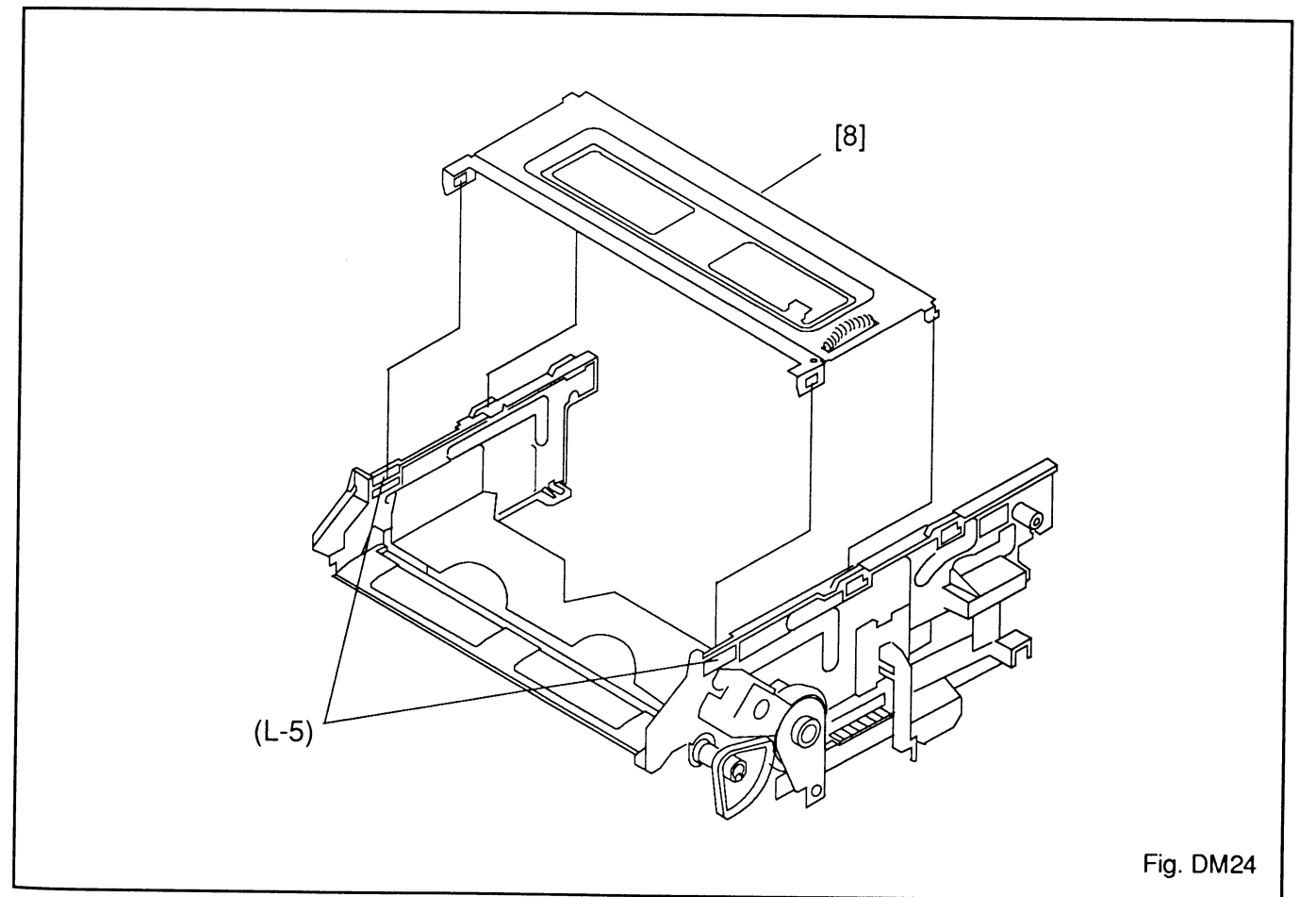
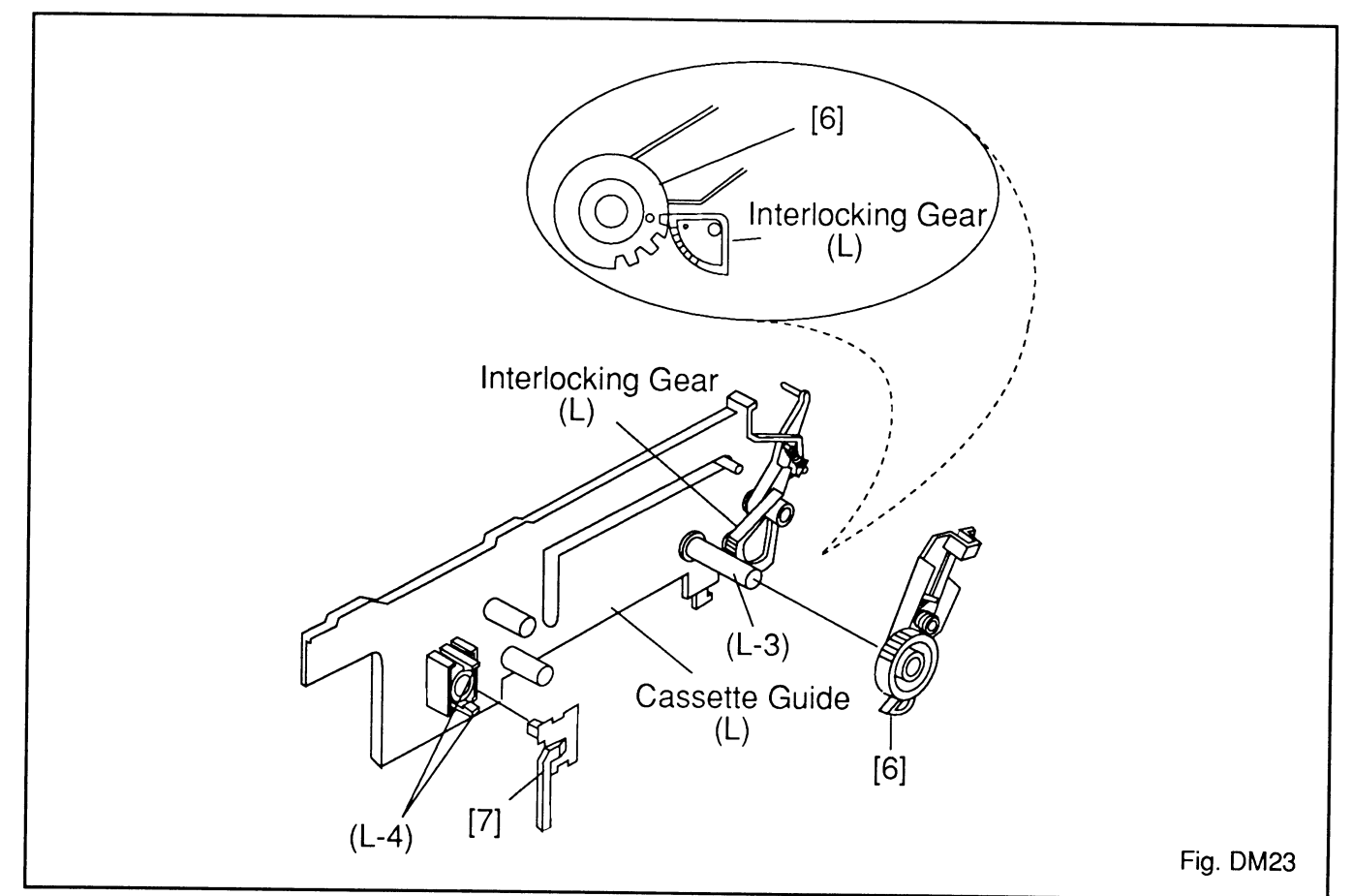
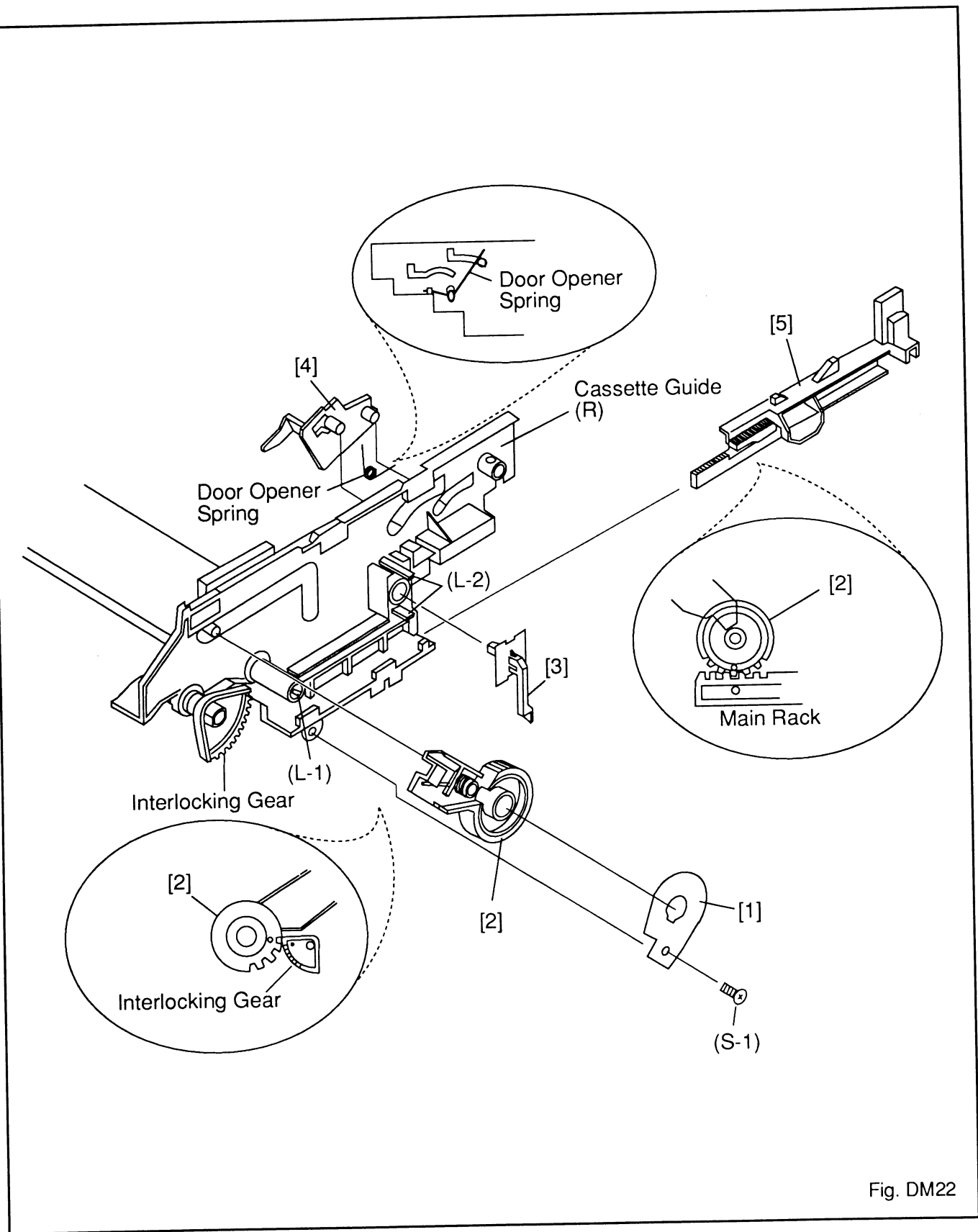
Fig. DM21

Front Loading Assembly

This procedure starts with the condition that the Front Loading Assembly has been removed from the chassis. When reassembling, follow the steps in reverse order.

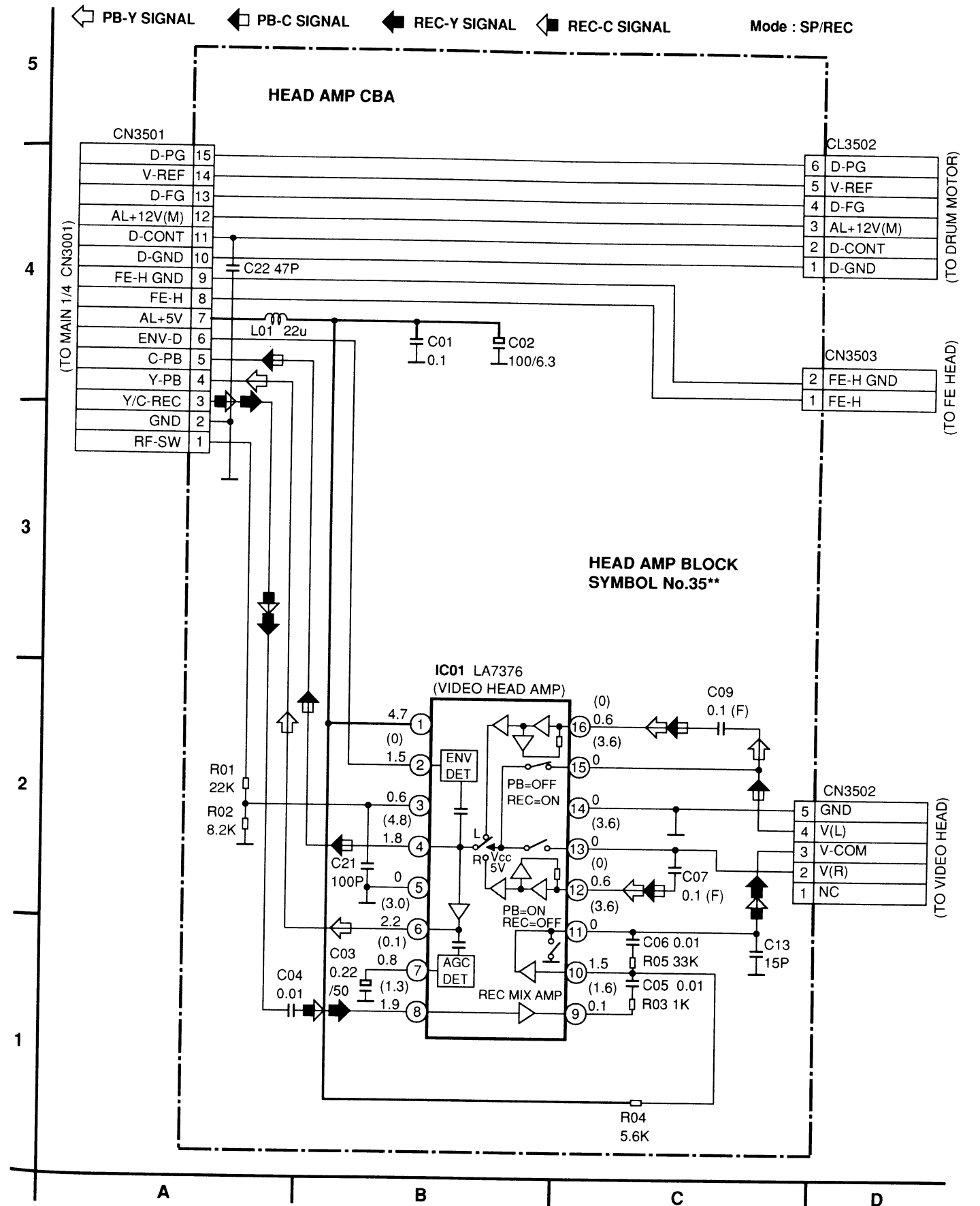
STEP /LOC. No.	START-ING No.	PART		REMOVAL		INSTALLATION ADJUSTMENT CONDITION
				Fig. No.	REMOVE *UNHOOK/ UNLOCK/RELEASE/ UNPLUG/DESOLDER	
[1]	[1]	Drive Gear Reinforcement	R	DM22	(S-1)	
[2]	[1]	Cassette Drive Gear (R)	R	DM22	*(L-1)	Refer to the setting condition in Fig. DM22.
[3]	[3]	Prism (R)	R	DM22	*2(L-2)	
[4]	[4]	Door Opener	R	DM22	Door Opener Spring	When installing the Door Opener Spring, refer to the setting condition in Fig. DM22.
[5]	[1]	Rack Assembly	R	DM22		
[6]	[6]	Cassette Drive Gear (L)	L	DM23	*(L-3)	When installing, refer to the setting condition in Fig. DM23.
[7]	[7]	Prism (L)	L	DM23	*2(L-4)	
[8]	[8]	Cassette Holder Plate	T	DM24	*2(L-5)	
①	②	③	④	⑤	⑥	⑦

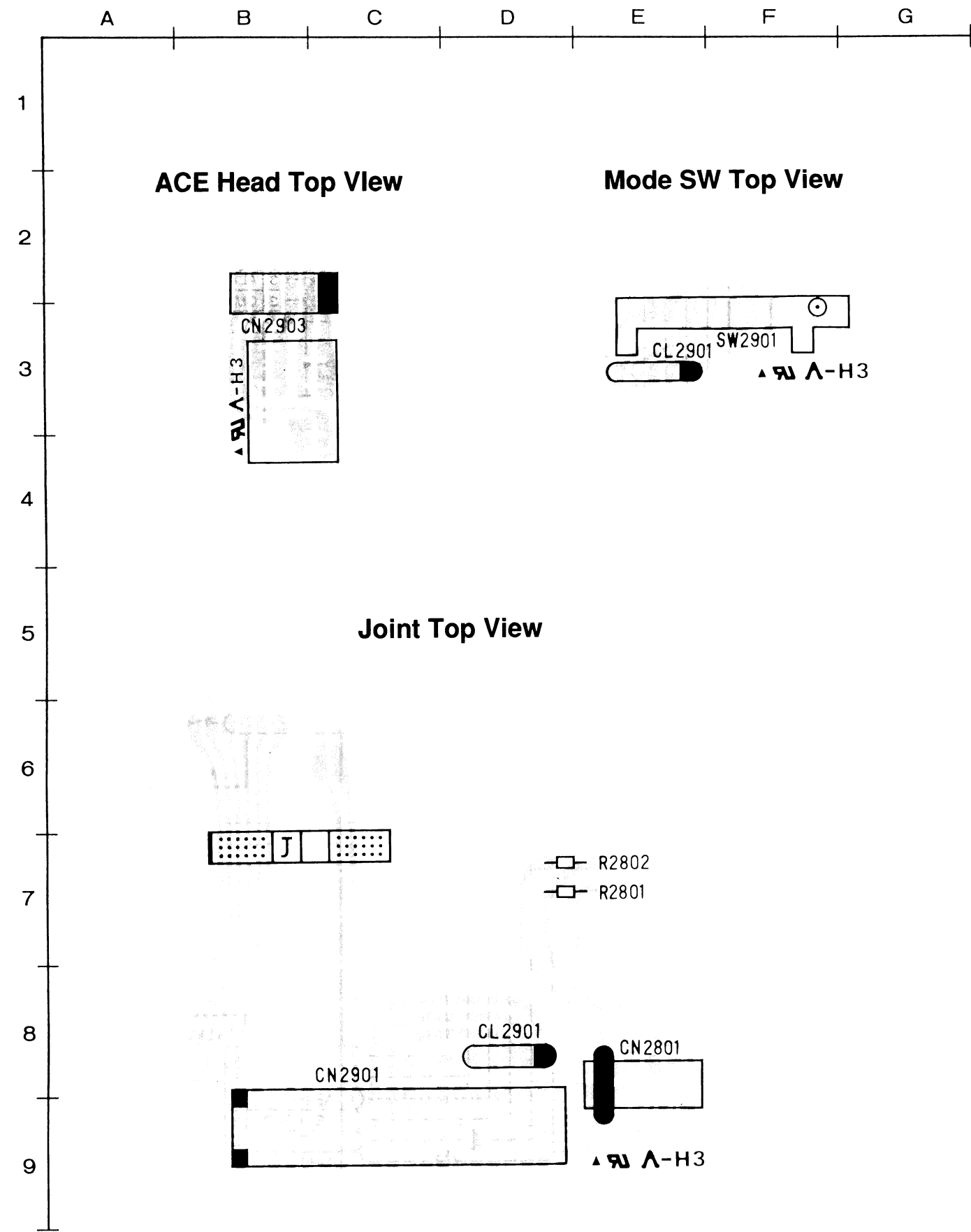
- Order of steps in Procedure. When reassembling, follow the steps in reverse order. These numbers are also used as the identification (Location) No. of parts in Figures.
- The start No. followed by corresponding part to be removed at this stage. For example, Prism (R) [3] can be removed without removing any other parts. But Cassette Drive Gear (R) [2] can be removed only after removing Drive Gear Reinforcement [1].
- Parts to be removed or installed.
- Location of part
T=Top B=Bottom R=Right L=Left
- Fig. No. shows Procedure or Part Location
- Identification of part 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
2(C-2) = 2 Cut Washer(C-2), 2(L-2) = 2 Locking Clips(L-2), (N-1) = 1 Locking Pin(N-1)
- Adjustment Information for Installation
(+): Refer to Deck Exploded Views for lubrication information.



SCHEMATIC DIAGRAMS AND CBA'S

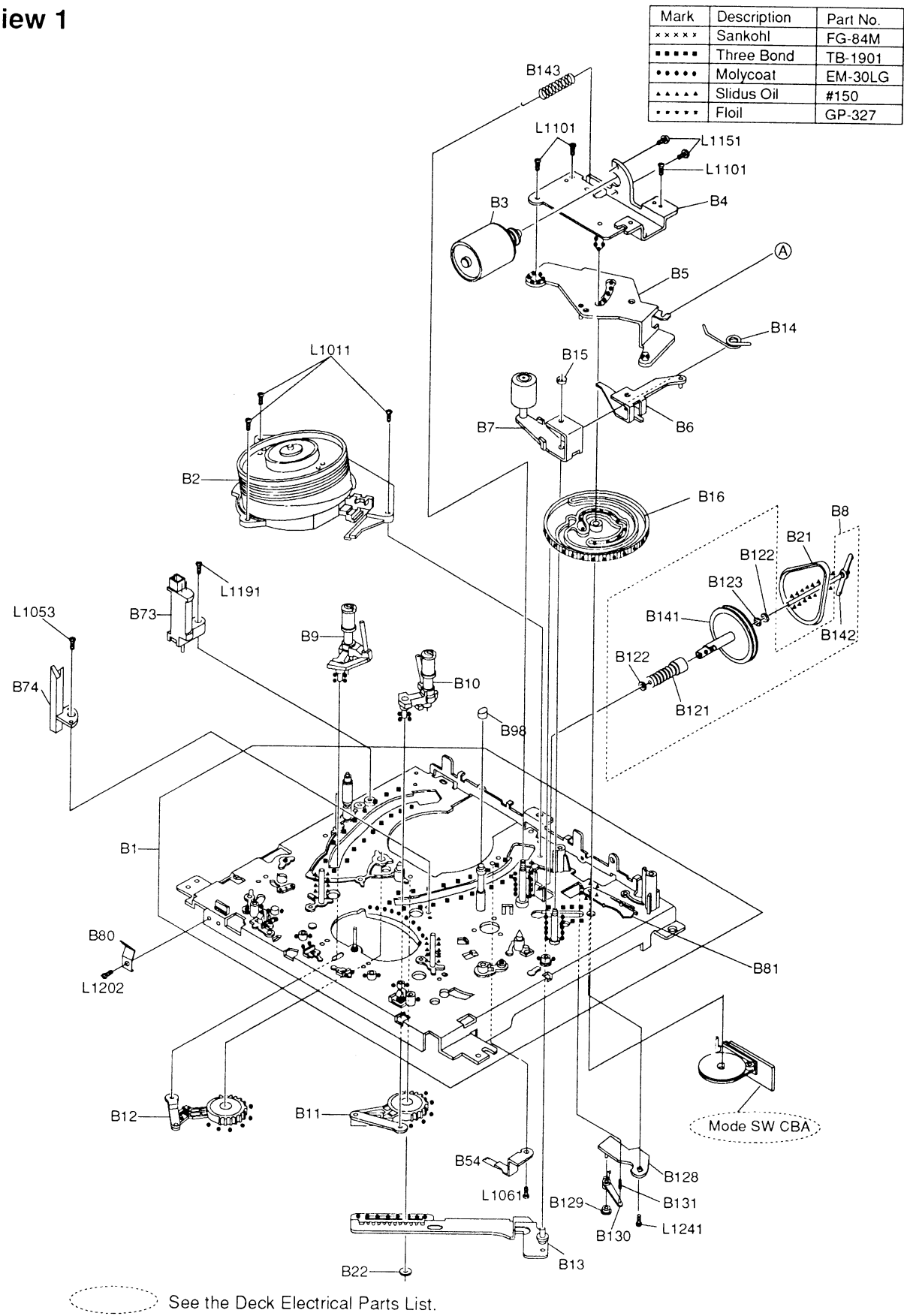
Head Amp





DECK EXPLODED VIEWS

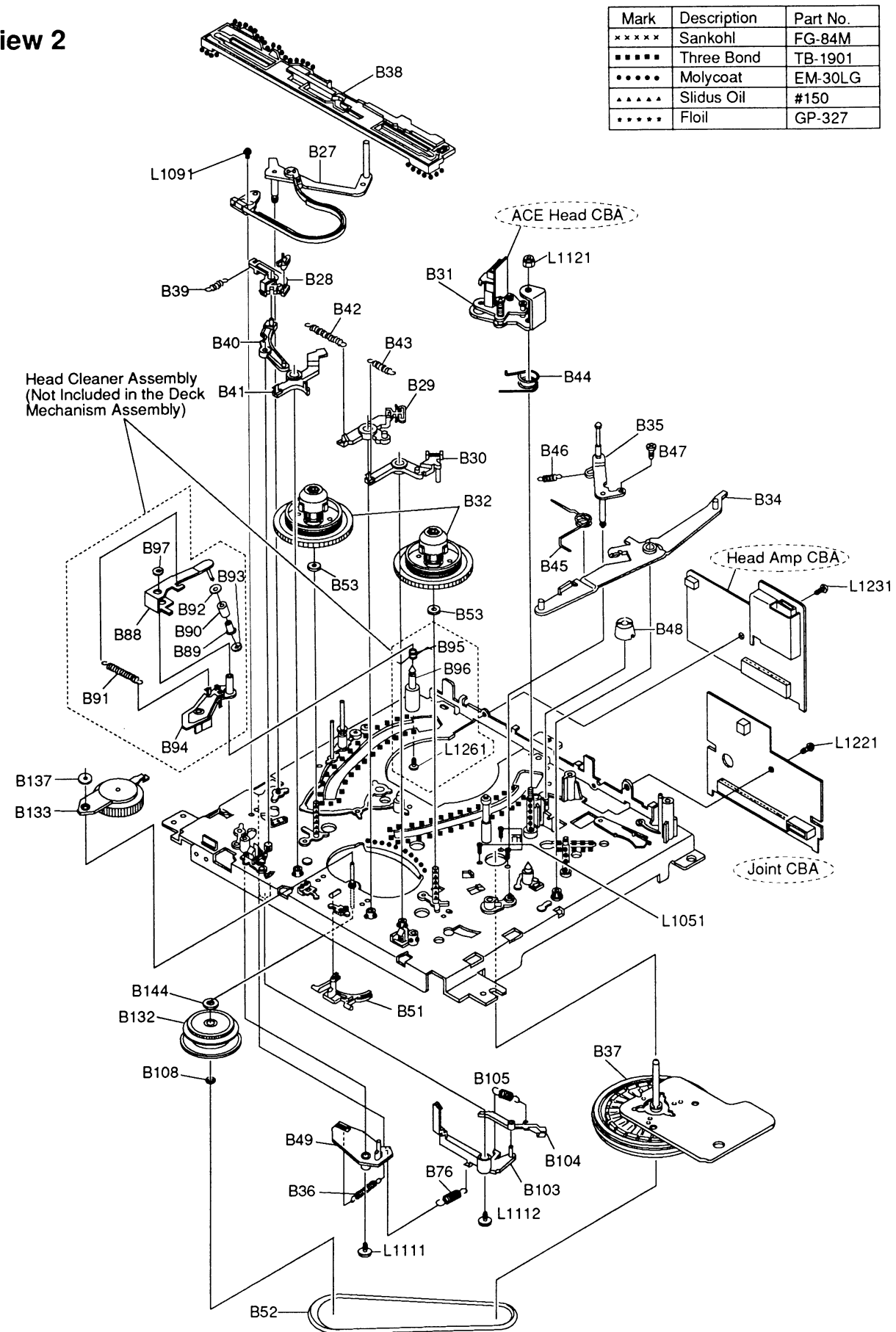
View 1



Mark	Description	Part No.
xxxxx	Sankohl	FG-84M
.....	Three Bond	TB-1901
.....	Molycoat	EM-30LG
.....	Slidus Oil	#150
.....	Floil	GP-327

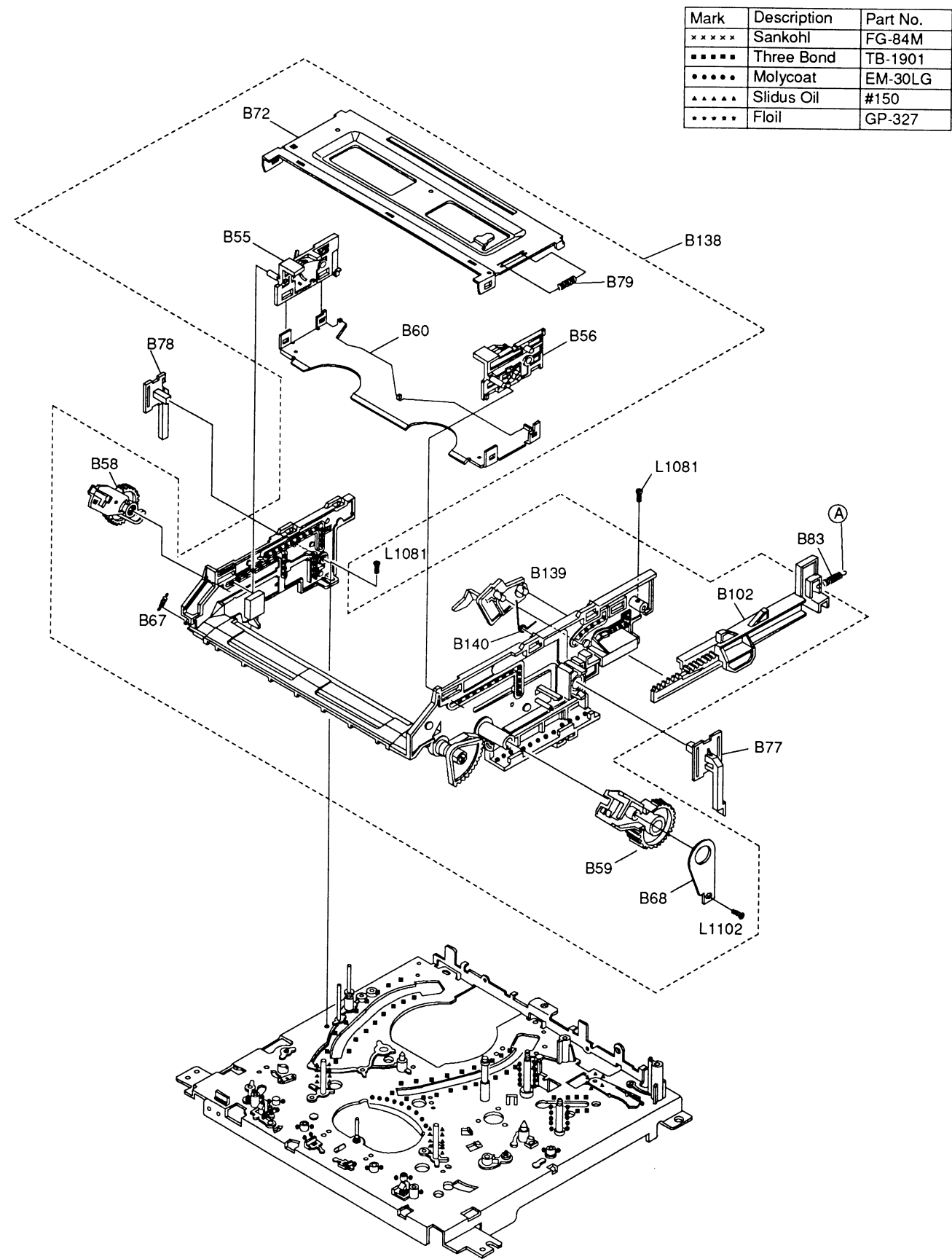
See the Deck Electrical Parts List.

View 2



Mark	Description	Part No.
*****	Sankohl	FG-84M
*****	Three Bond	TB-1901
*****	Molycoat	EM-30LG
*****	Slidus Oil	#150
*****	Floil	GP-327

View 3



Mark	Description	Part No.
*****	Sankohl	FG-84M
*****	Three Bond	TB-1901
*****	Molycoat	EM-30LG
*****	Slidus Oil	#150
*****	Floil	GP-327

DECK MECHANICAL PARTS LIST

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

Ref.No.	Description	Part No.
B 1	CHASSIS ASSEMBLY	0VSA05627
B 2	SYLINDER ASSEMBLY	0VM301796
B 3	LDG MOTOR PREPARATION	0VSA04781
B 4	MOTOR HOLDER CALKING ASSEMBLY	0VM403364
B 5	CASSETTE DRIVE LEVER ASSEMBLY	0VM403507I
B 6	PINCH ROLLER ARM ASSEMBLY	0VSA05848
B 7	PINCH ARM ASSEMBLY	0VM402387
B 8	PULLEY ASSEMBLY	0VSA05505
B 9	MOVING GUIDE S ASSEMBLY	0VSA05722
B 10	MOVING GUIDE T ASSEMBLY	0VSA05723
B 11	LOADING ARM T ASSEMBLY	0VSA05503
B 12	LOADING ARM B ASSEMBLY	0VSA04215
B 13	LOADING ARM M ASSEMBLY	0VM404693
B 14	PINCH ROLLER SP	0VM403949
B 15	LUMIRROR WASHER 3.1X6X0.35	0VM403269
B 16	CAM	0VM100453
B 21	LDG BELT or	0VM403432
	LDG BELT	0VM403952
B 22	P.S.W(CUT)	0VM404679
B 27	BAND BRAKE ASSEMBLY	0VSA04658
B 28	MAIN BRAKE S ASSEMBLY	0VSA04212
B 29	MAIN BRAKE T ASSEMBLY	0VSA04213
B 30	T BRAKE ARM ASSEMBLY	0VSA04641
B 31	AC HEAD ASSEMBLY	0VSA04756
B 32	REEL BASE ASSEMBLY	0VSA04759
B 34	MAIN LEVER ASSEMBLY	0VM402558
B 35	TAPE GUIDE ASSEMBLY	0VM402560
B 36	TENSION LEVER SP ASSEMBLY	0VSA04550
B 37	CAPSTAN MOTOR	MMDDB5ZSJ002
B 38	MODE CHANGE LEVER	0VM201234G
B 39	M BRAKE(S)SPRING	0VM402579
B 40	M BRAKE(S)LEVER	0VM300753
B 41	S BREAK E ARM	0VM301759
B 42	M BRAKE T ARM SPRING	0VM402582
B 43	T BRAKE SPRING	0VM402580
B 44	HEAD ADJUST SPRING	0VM402567A
B 45	M LEVER SPRING	0VM402570
B 46	TAPE GUIDE ARM SPRING	0VM402581
B 47	TAPE GUIDE ARM ADJUST SCREW	0VM403242
B 48	ADJUST NUT (B)	0VM404678A
B 49	BT DRIVE ARM	0VM300756K
B 51	CHANGE ARM	0VM402441E
B 52	BELT FWD or	0VM402397
	BELT FWD	0VM403950
B 53	P.S.W B or	0VM402625
	P.S.W 3.1X6X0.3T or	0VM403737
	P.S.W 3.1X6X0.4T	0VM403738
B 54	GROUND BRUSH ASSEMBLY	0VM404524
B 55	C.SLIDER L ASSEMBLY	0VSA04487
B 56	C.SLIDER R ASSEMBLY	0VSA04488
B 57	CASSETTE GUIDE R	0VM200688O

Ref.No.	Description	Part No.
B 58	C.D. GEAR L ASSEMBLY	0VSA04494
B 59	C.D. GEAR R ASSEMBLY	0VSA04495
B 60	CASSETTE PLATE	0VM300779E
B 61	FRONT GUIDE	0VM300776H
B 62	GEAR CONNECT SHAFT	0VM402506
B 63	CASSETTE GUIDE L	0VM200689Q
B 64	INTERLOCKING GEAR R	0VM300786B
B 65	FRONT DOOR OPENER	0VM300781
B 66	INTERLOCKING GEAR L	0VM300787C
B 67	FRONT DOOR OPENER SPRING	0VM403962
B 68	DRIVING GEAR REINFORCEMENT	0VM402961
B 72	UPPER PLATE	0VM201033
B 73	FE HEAD HVFHF0002A or	DHVEC01AL001
	FE HEAD VTR-1X2ERS11-109	DHVEC01TE001
B 74	LUMINESCENCE PRISM or	0VM301291C
	LUMINESCENCE PRISM(B)	0VM301764F
B 76	REC ARM SPRING	0VM402578
B 77	PRISM R	0VM301292
B 78	PRISM L	0VM301293D
B 79	EARTH SPRING	0VM403524D
B 80	SPRING FOR PRESSING PACK	0VM403674
B 81	M LEVER HOLDER	0VM301717
B 83	RACK SPRING	0VM403894
B 98	TG CAP or	0VM403733
	T G CAP (2)	0VM404937
B 102	FL RACK	0VM201022J
B 103	REC ARM A	0VM301441G
B 104	REC ARM B	0VM301442G
B 105	REC SPRING	0VM403724
B 108	P.S.W F	0VM402629
B 121	WORM	0VM402429
B 122	P.S.W C	0VM402626
B 123	P.S.W (WORM THRUST)	0VM403348
B 126	PULLEY	0VM301718D
B 127	PULLEY FELT	0VM404952
B 128	KICK ARM HOLDER	0VM301716
B 129	PRESS FIT BUSH	0VM403652
B 130	KICK ARM	0VM404382
B 131	KICK ARM SPRING	0VM404424
B 132	CLUTCH ASSEMBLY	0VSA05509
B 133	ARM IDLER ASSEMBLY	0VSA05512
B 137	BUSH CLUTCH	0VM404513
B 138	FL ASSEMBLY	0VDM05358
B 139	DOOR OPENER	0VM300780H
B 140	DOOR OPENER SPRING	0VM402510
B 141	PULLEY SUB ASSEMBLY	0VSA05998
B 142	SHAFT LOCK ASSEMBLY	0VSA04642
B 143	GROUND SPRING	0VM404920A
L1011	SCREW C-TIGHT M3X9 PAN HEAD +	GPMS3090
L1051	SCREW S-TIGHT M2.6X6 PAN HEAD +	GPMS9060

Ref.No.	Description	Part No.
L1053	SCREW S-TIGHT M2.6X6 PAN HEAD +	GPMS9060
L1061	SCREW S-TIGHT M2.6X4 PAN HEAD +	GPMS9040
L1062	SCREW S-TIGHT M2.6X4 PAN HEAD +	GPMS9040
L1081	SCREW S-TIGHT M3X6 BIND HEAD +	GBMS3060
L1091	SCREW S-TIGHT M3X6 CUP HEAD +	GCMS3060
L1101	SCREW P-TIGHT 3X8 BIND HEAD +	GBMP3080
L1102	SCREW P-TIGHT 3X8 BIND HEAD +	GBMP3080
L1111	SCREW P-TIGHT M3X8 WASHER HEAD +	GCMP3080
L1112	SCREW P-TIGHT M3X8 WASHER HEAD +	GCMP3080
L1121	HEXAGON NUT	NHMN030
L1151	SCREW SEMS M3X4 PAN HEAD +	CPM33040
L1161	ACCURATE SCREW M2X2.8	MPNE2028
L1162	ACCURATE SCREW M2X2.8	MPNE2028
L1191	SCREW P-TIGHT 2.6X10 PAN HEAD +	GPMP9100
L1202	SCREW B-TIGHT 3X6 PAN HEAD +	GPMB3060
L1221	SCREW SPECIAL	0VM403688
L1231	SPACER SCREW ASSEMBLY	0VM403752
L1241	SCREW P-TIGHT 2X6 BIND HEAD +	GBMP2060

DECK 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 number (-----) are not available.

C.....±0.25%	J.....±5%	Z.....+80/-20%
D.....±0.5%	K.....±10%	X.....+40/-20%
F.....±1%	M.....±20%	P.....+100%
G.....±2%	N.....±30%	

JOINT CBA

Ref.No.	Description	Part No.
	JOINT (JOINT-A/B/C) CBA CONSISTS OF THE FOLLOWING:	0VSA05796
	JOINT (JOINT-A) CBA	-----
	MODE SW (JOINT-B) CBA	-----
	ACE HEAD (JOINT-C) CBA	-----
	P.C.B.	BK7010F01002

JOINT (JOINT-A) CBA

Ref.No.	Description	Part No.
	JOINT (JOINT-A) CBA CONSISTS OF THE FOLLOWING:	-----
CONNECTORS		
CN2801	FFC CONNECTOR BASE TOP 9P or FFC CONNECTOR BASE TOP 9P or FFC CONNECTOR BASE TOP 9P or FFC CONNECTOR BASE TOP 9P or FFC CONNECTOR BASE TOP 9P	JC2SJ09ERH0C 1700915 1700449 1700515 1700986
CN2901	ANGLE SOCKET CONNECTOR 20P	1770615
CN2902	ANGLE PIN HEADER 2P	1740775
RESISTORS		
R 2801	CARBON RES. 1/4W J 27KΩ or CARBON RES. 1/6W J 27KΩ	RCX4JATZ0273 132A273T
R 2802	CARBON RES. 1/4W J 27KΩ or CARBON RES. 1/6W J 27KΩ	RCX4JATZ0273 132A273T
MISCELLANEOUS		
CL2901	JUMPER WIRE 5P	WX1K7010-003
CL2902	JUMPER WIRE 6P	WX1K7010-001
	FFC CABLE 9P	WX3909QZ4413

MODE SW (JOINT-B) CBA

Ref.No.	Description	Part No.
	MODE SW (JOINT-B) CBA CONSISTS OF THE FOLLOWING:	-----
SW2901	MODE SWITCH HMW0420-710010	SSR0104HD001

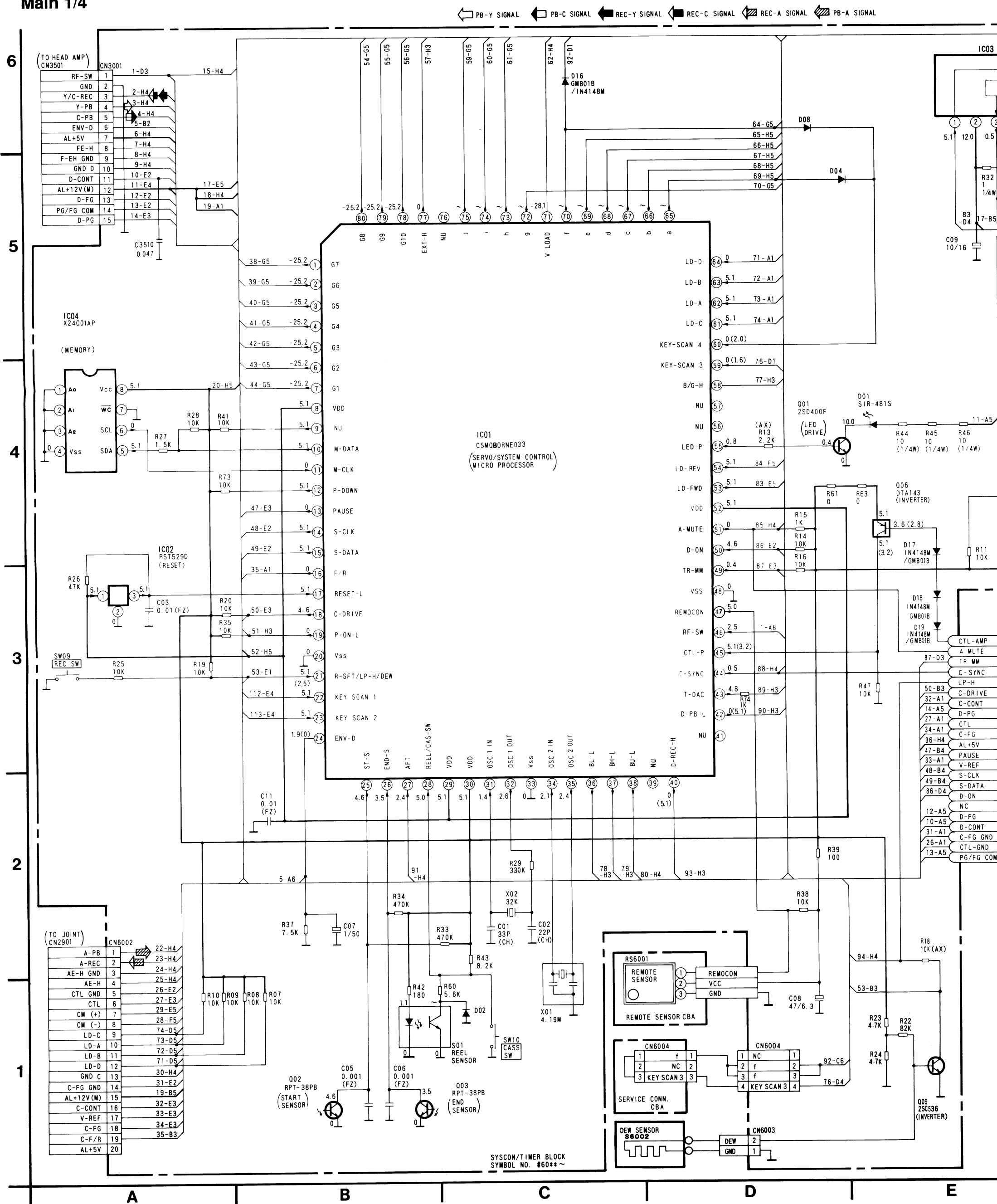
ACE HEAD (JOINT-C) CBA

Ref.No.	Description	Part No.
	ACE HEAD (JOINT-C) CBA CONSISTS OF THE FOLLOWING:	-----
CN2903	FLAT CABLE CONNECTOR 6P	JEHBJ06JE001

HEAD AMP (PRV) CBA

Ref.No.	Description	Part No.
	HEAD AMP (PRV) CBA CONSISTS OF THE FOLLOWING:	0VSA05794
CAPACITORS		
C 3501	CERAMIC CAP. F Z 0.1μF/50V	3F40104T
C 3502	ELECTROLYTIC CAP. 100μF/6.3V M H7	526R107S
C 3503	ELECTROLYTIC CAP. 0.22μF/50V M H7	526W224S
C 3504	CERAMIC CAP. Y M 0.01μF/16V or CERAMIC CAP. F Z 0.01μF/16V	3Y4D103T 1220842T
C 3505	CERAMIC CAP. Y M 0.01μF/16V or CERAMIC CAP. F Z 0.01μF/16V	3Y4D103T 1220842T
C 3506	CERAMIC CAP. Y M 0.01μF/16V or CERAMIC CAP. F Z 0.01μF/16V	3Y4D103T 1220842T
C 3507	CERAMIC CAP. F Z 0.1μF/50V	3F40104T
C 3509	CERAMIC CAP. F Z 0.1μF/50V	3F40104T
C 3513	CERAMIC CAP. SL J 15pF/50V	3S41150T
C 3521	CERAMIC CAP. B J 100pF/50V	3B41101T
C 3522	CERAMIC CAP. SL J 47pF/50V	3S41470T
CONNECTORS		
CN3501	ANGLE SOCKET CONNECTOR 15P	1770610
CN3502	FFC CONNECTOR BASE SIDE 5P or FFC CONNECTOR BASE SIDE 5P	JC96J05ERC0C 1700471
CN3503	CONNECTOR ASS'Y 2P	WX1K7010-007
IC		
IC3501	IC VIDEO H-AMP	QSBLa0SSy035
COIL		
L 3501	INDUCTOR 22μH-K-26T or INDUCTOR 22μH-K-26T	LLAXKDTKA220 LLAXKATTU220
RESISTORS		
R 3501	CARBON RES. 1/4W J 22KΩ CARBON RES. 1/6W J 22KΩ	RCX4JATZ0223 132A223T
R 3502	CARBON RES. 1/4W J 8.2KΩ or CARBON RES. 1/6W J 8.2KΩ	RCX4JATZ0822 132A822T
R 3503	CARBON RES. 1/4W J 1KΩ or CARBON RES. 1/6W J 1KΩ	RCX4JATZ0102 132A102T
R 3504	CARBON RES. 1/4W J 5.6KΩ or CARBON RES. 1/6W J 5.6KΩ	RCX4JATZ0562 132A562T
R 3505	CARBON RES. 1/4W J 33KΩ or CARBON RES. 1/6W J 33KΩ	RCX4JATZ0333 132A333T
MISCELLANEOUS		
2B 2	SHIELD TOP	0VM301927
2B 3	SHIELD BOTTOM	0VM301928
CL3502	JUMPER WIRE 6P	WX1K7010-002
	P.C.B.	BK7010F01004

Main 1/4



Main 2/4

← PB-Y SIGNAL ← PB-C SIGNAL ← REC-Y SIGNAL ← REC-C SIGNAL ← REC-A SIGNAL ← PB-A SIGNAL

6

(CONTINUE MAIN 3/4)

V-IN	1	1-14
C-SYNC	2	2-13
A-MUTE	3	3-13
Y-PB	4	4-13
RF-SW	5	5-13
D-V	6	6-13
LP/EP-H	7	7-13
D-PB+5V	8	8-13
AL+5V	9	9-12
D-REC+5V	10	10-13
C-PB	11	11-13
Y/C-REC	12	12-13
P-ON+10V	13	13-13
V-OUT	14	14-13
4.43MHz	15	15-13
AL+5V	16	16-12
GND S	17	

5

(CONTINUE MAIN 4/4)

AL+44V	1	56-J1
AL+12V	2	57-J1
AL-30V	3	58-J1
AL+5V	4	59-J1
F1	5	60-J1
F2	6	61-J1
NC	7	62-J1
GND S	8	63-J1
GND L	9	64-J1
GND D	10	65-J1
GND C	11	66-J1

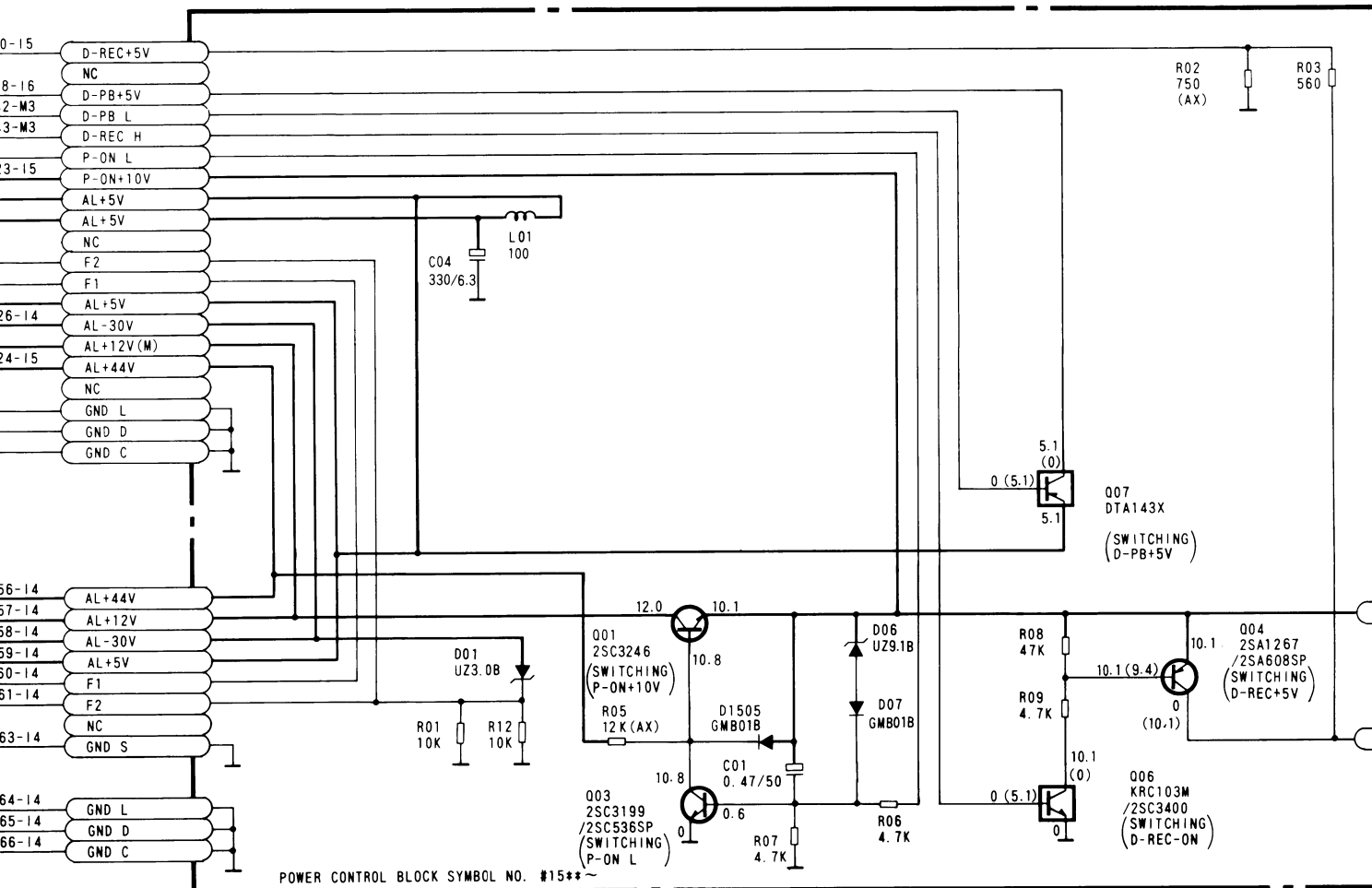
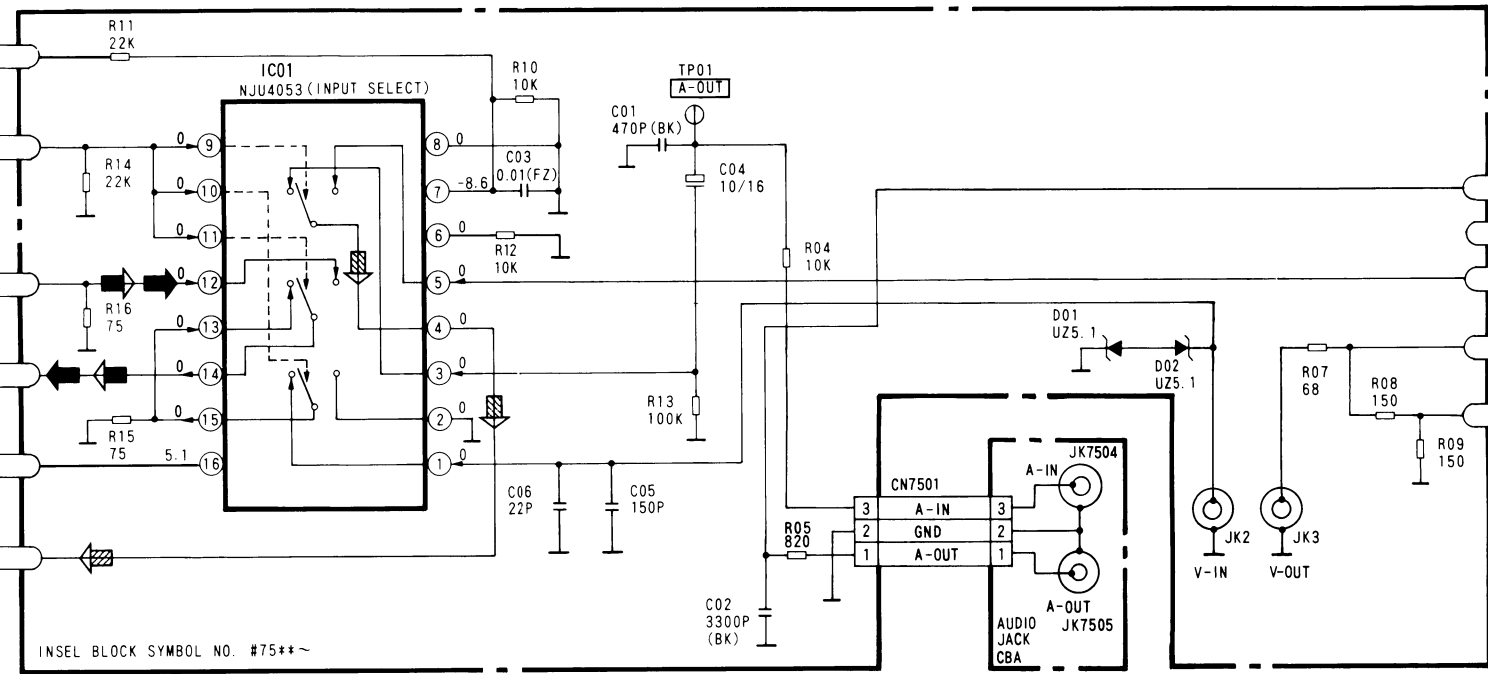
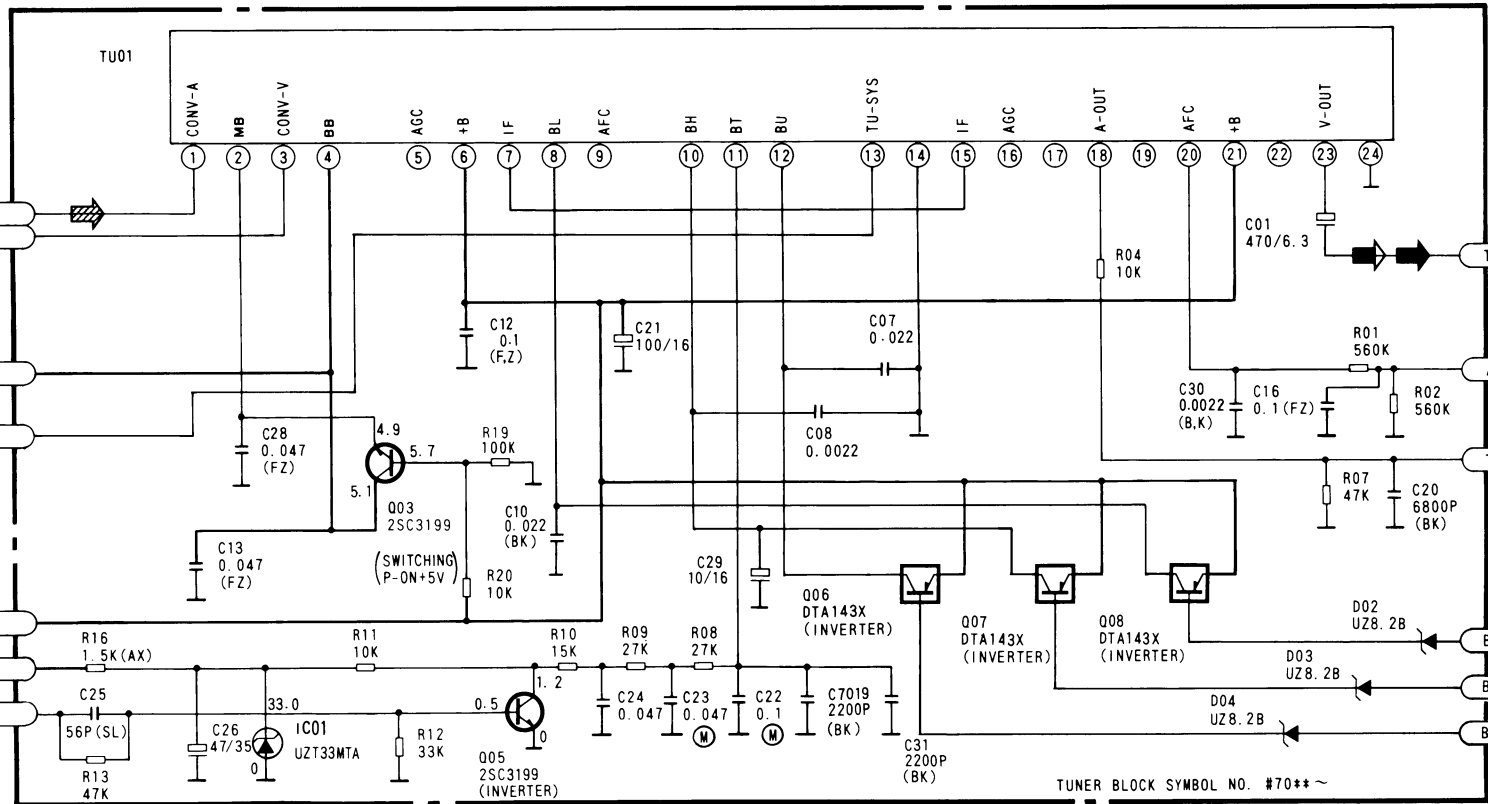
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(CONTINUE MAIN 1/4)

C-SYNC	1	2-16
Y-PB	2	4-16
RF-SW	3	5-16
D-V	4	6-16
C-PB	5	11-15
Y/C-REC	6	12-15
NC	7	
A-MUTE	8	3-16
LP-H	9	7-16
4.43 MHz	10	15-15
T-DAC	11	25-15
D-PB L	12	
D-REC H	13	
P-ON L	14	
EXT-H	15	27-14
AL+5V	16	
AL+5V	17	
NC	18	
F2	19	
F1	20	
AL+5V	21	9-15
AL-30V	22	
AL+12V(M)	23	
ATF	24	32-M5
AL+5V	25	16-15
GND L	26	
GND D	27	
GND C	28	
A-REC	29	45-M2
A-PB	30	46-M2
AE-H	31	47-M2
FE-H	32	50-M2
FE-H GND	33	48-M2
NC	34	49-M2
NC	35	
NC	36	
NC	37	
BU-L	38	36-M5
BH-L	39	35-M5
BL-L	40	34-M5
NC	41	
B/G-H	42	19-15

2

1



P

Main 3/4

PB-Y SIGNAL ← PB-C SIGNAL ← REC-Y SIGNAL ← REC-C SIGNAL

(CONTINUE MAIN 2/4)

V-IN	1	V-IN	4-T6
C-SYNC	2	C-SYNC	5-U6
A-MUTE	3	A-MUTE	6-V6
Y-PB	4	Y-PB	7-U6
RF-SW	5	RF-SW	8-V1
D-V	6	D-V	9-V1
LP/EP-H	7	LP/EP-H	10-V1
D-PB+5V	8	D-PB+5V	
AL+5V	9	AL+5V	
D-REC+5V	10	D-REC+5V	
C-PB	11	C-PB	
Y/C-REC	12	Y/C-REC	
P-ON+10V	13	P-ON+10V	
V-OUT	14	V-OUT	
4.43MHz	15	4.43MHz	
AL+5V	16	AL+5V	
GND S	17	GND S	

