

FUNAI

SERVICE MANUAL

Sec. 1: Main Section

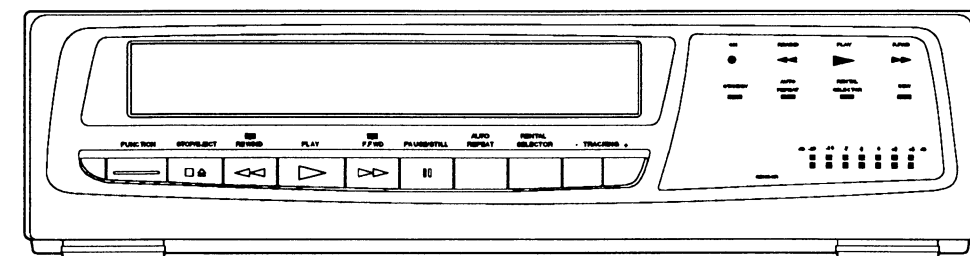
Specifications
Preparation for Servicing
Adjustment Procedures
Schematic Diagrams
CBAs
Exploded Views
Parts List

Sec. 2: Deck Mechanism Section

Standard Maintenance
Alignment for Mechanism
Disassembly / Assembly of Mechanism
Deck Schematic Diagram
Deck CBAs
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Deck Parts List

VIDEO CASSETTE PLAYER

VIP-5000HC / VIP-5000A



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 PLAYER

VIP-5000HC / VIP-5000A

- Sec. 1: Main Section
- Specifications
- Preparation for Servicing
- Adjustment Procedures
- Schematic Diagrams
- CBAs
- Exploded Views
- Cabinet & Electrical Parts List

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SPECIFICATIONS

Description	Unit	Minimum	Nominal	Maximum	Condition
1. Video					
1-1. Video Output	Vp-p	0.8	1.0	1.2	
1-2. Video S/N Y	dB	40	45		
1-3. Video Color S/N AM	dB	35	44		
1-4. Video Color S/N PM	dB	31	38		
1-5. resolution	Line	230	240		
2. Servo					
2-1. Jitter Low	μsec		0.04	0.12	
2-2. Wow & Flutter	%		0.2	0.6	
3. Normal Audio					
3-1. Output	dBv	-10	-6	-2	
3-2. S/N	dB	36	40		
3-3. Distortion	%		1.5	4.0	
3-4. Freq. response (R/P) 200Hz	dB	-6	-3		
(-20dB ref. 1kHz) 8kHz	dB	-6	-2		

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 symbol on schematics and in parts lists. Use of a substitute replacement that does not have the same safety characteristics as the recommended replacement part might create shock, fire, and/or other hazards.

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

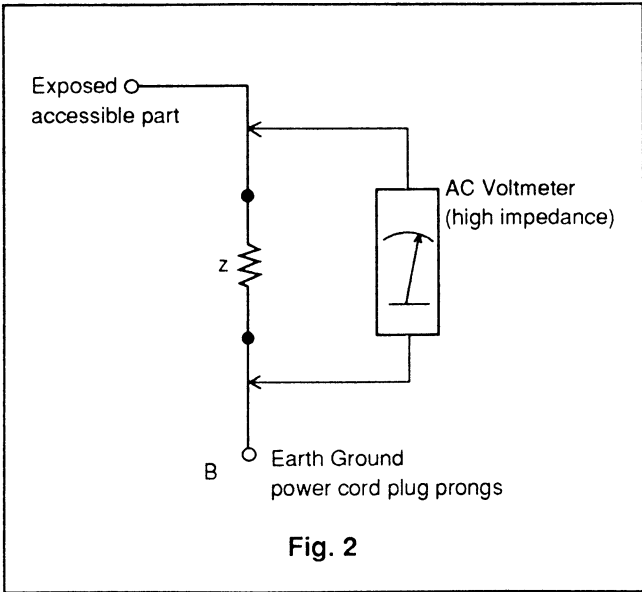
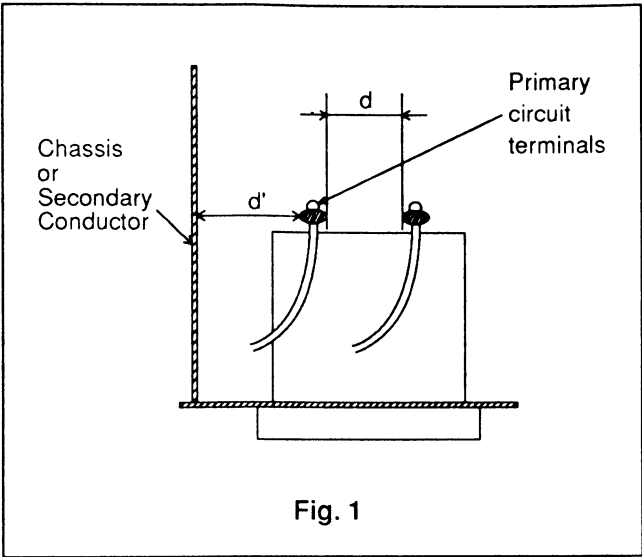
Measuring Method (Power ON) :

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)	Earth Ground (B) to:
220 to 240 V	Europe or Australia	2kΩ RES. Connected in parallel	$i \leq 0.7\text{mA AC Peak}$ $i \leq 2\text{mA AC}$	RF or Antenna terminals
		50kΩ RES. Connected in parallel	$i \leq 0.7\text{mA AC Peak}$ $i \leq 2\text{mA AC}$	A/V Input, Output

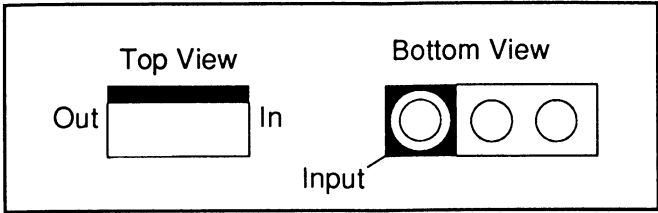
Note: This table is unofficial and for reference only. Be sure to confirm the precise values.



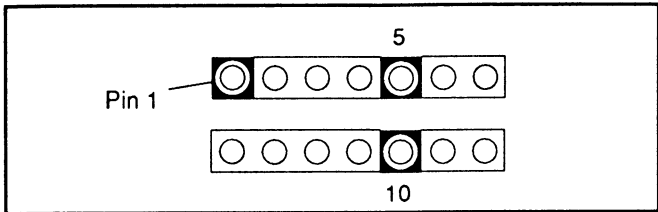
STANDARD NOTES FOR SERVICING

Circuit Board Indications

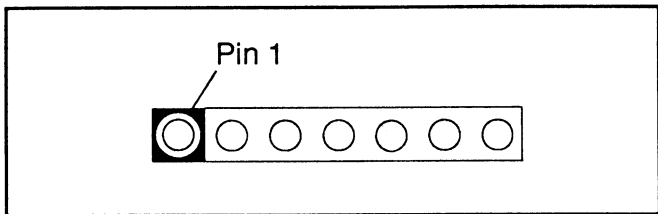
a. The output pin of the 3 pin Regulator ICs is indicated as shown.



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

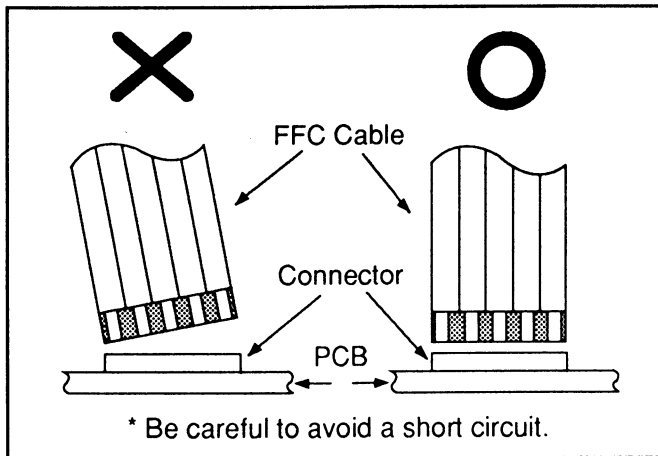


c. The 1st pin of every male connector is indicated as shown.



Instructions for Connectors

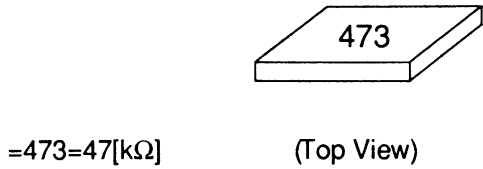
- 1. When you connect or disconnect the FFC (Flexible Foil Connector) cable, be sure to first disconnect the AC cord.
- 2. FFC (Flexible Foil Connector) cable should be inserted parallel into the connector, not at an angle.



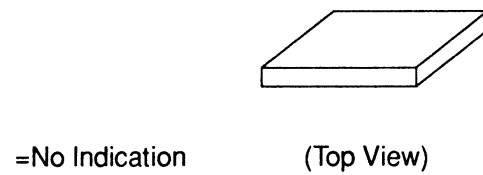
How to read the values of the Rectangular type chip components

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:

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

3. Installing the leadless component

- Presolder the contact points of the circuit board.
- 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.

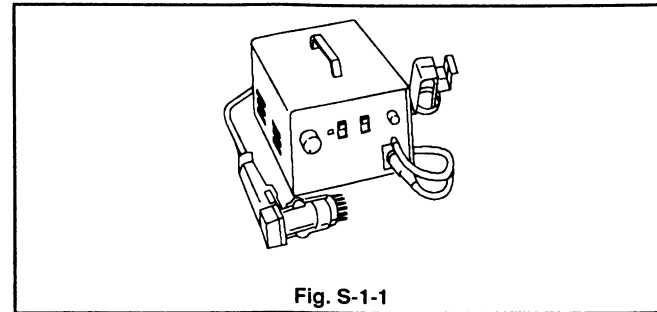


Fig. S-1-1

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

Caution:

- 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)

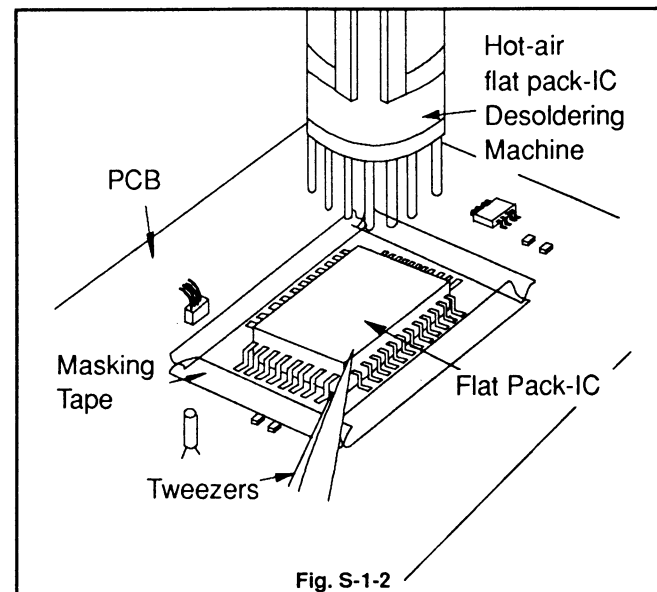


Fig. S-1-2

- 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)

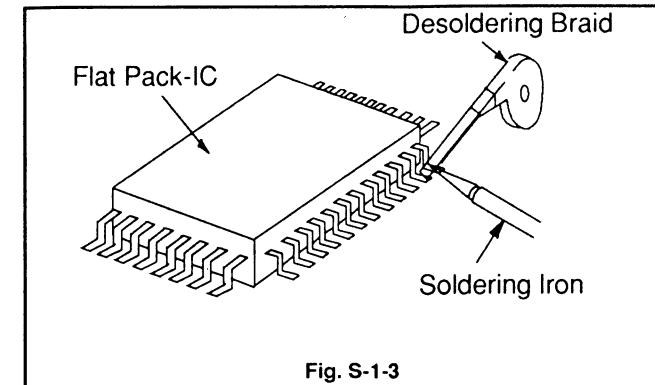


Fig. S-1-3

- (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)

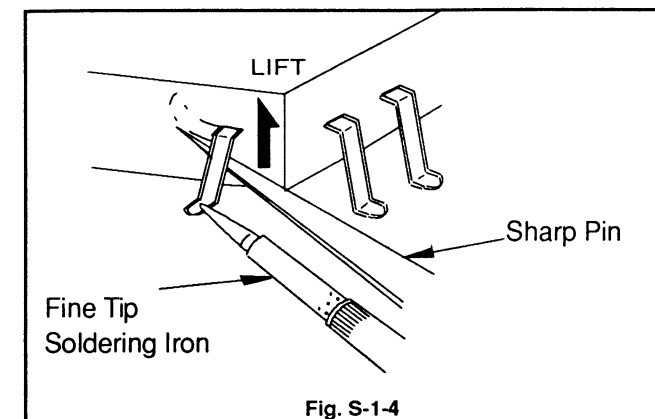


Fig. S-1-4

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.

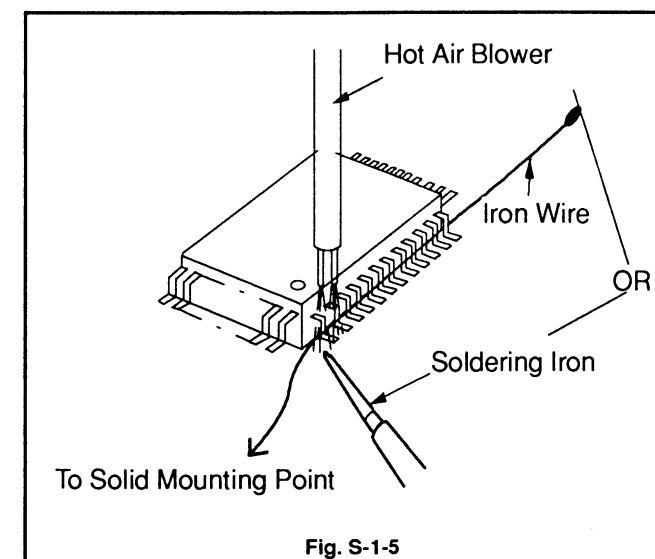


Fig. S-1-5

- (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.

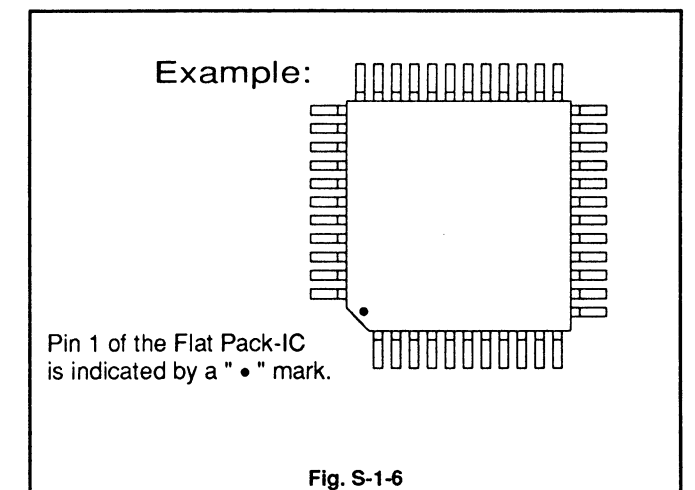


Fig. S-1-6

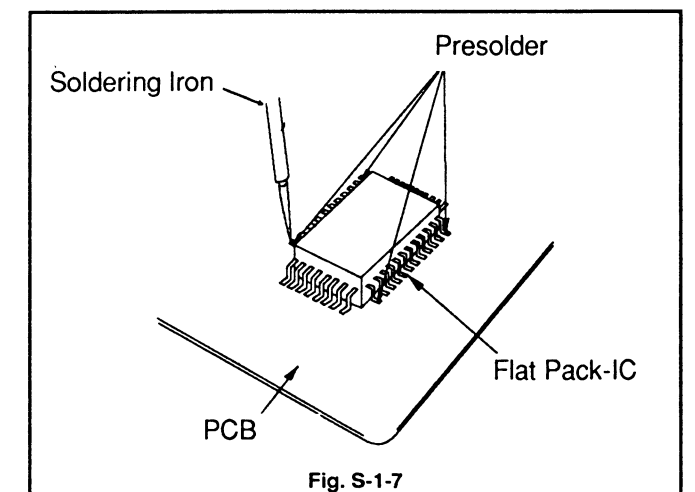


Fig. S-1-7

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)

Instructions for Handling Semiconductors

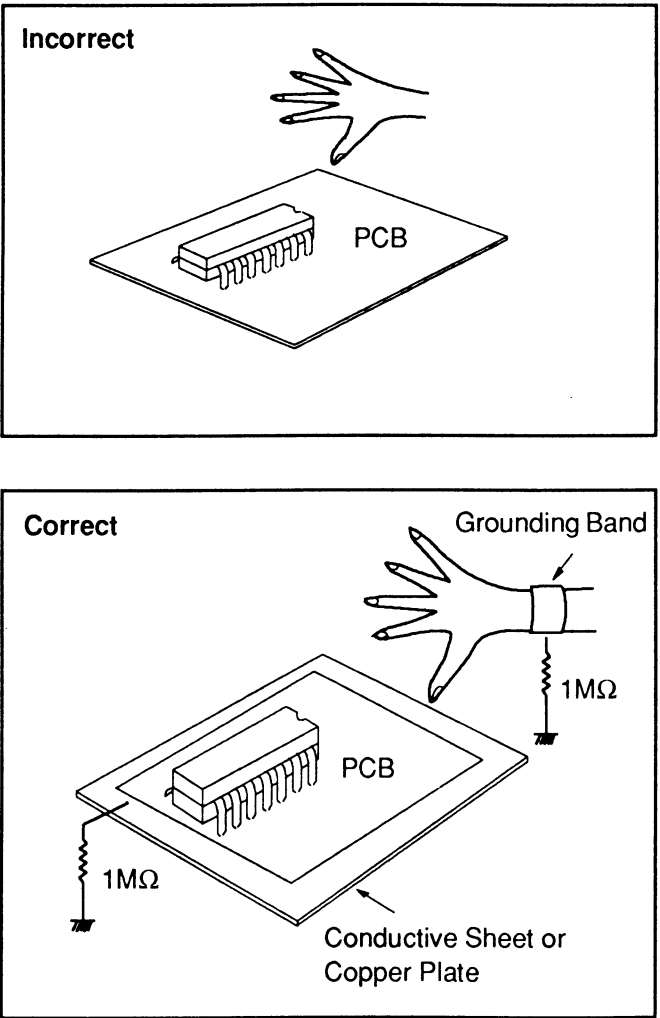
Electrostatic breakdown of the semiconductors may occur due to a potential difference caused by electrostatic charge during unpacking or repair work.

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 Deck Extension Cable

- (1) Remove deck mechanism assembly.
If needed, remove Main CBA from chassis.
- (2) Connect deck mechanism assembly and Main CBA by using the Deck Extension Cable as shown in the Fig. 1.

Note:
Deck Extension Cable can be used for 2-head models and 4-head models. This unit is a 2-head model. Make sure to use correct connectors as specified in the Fig. 1.

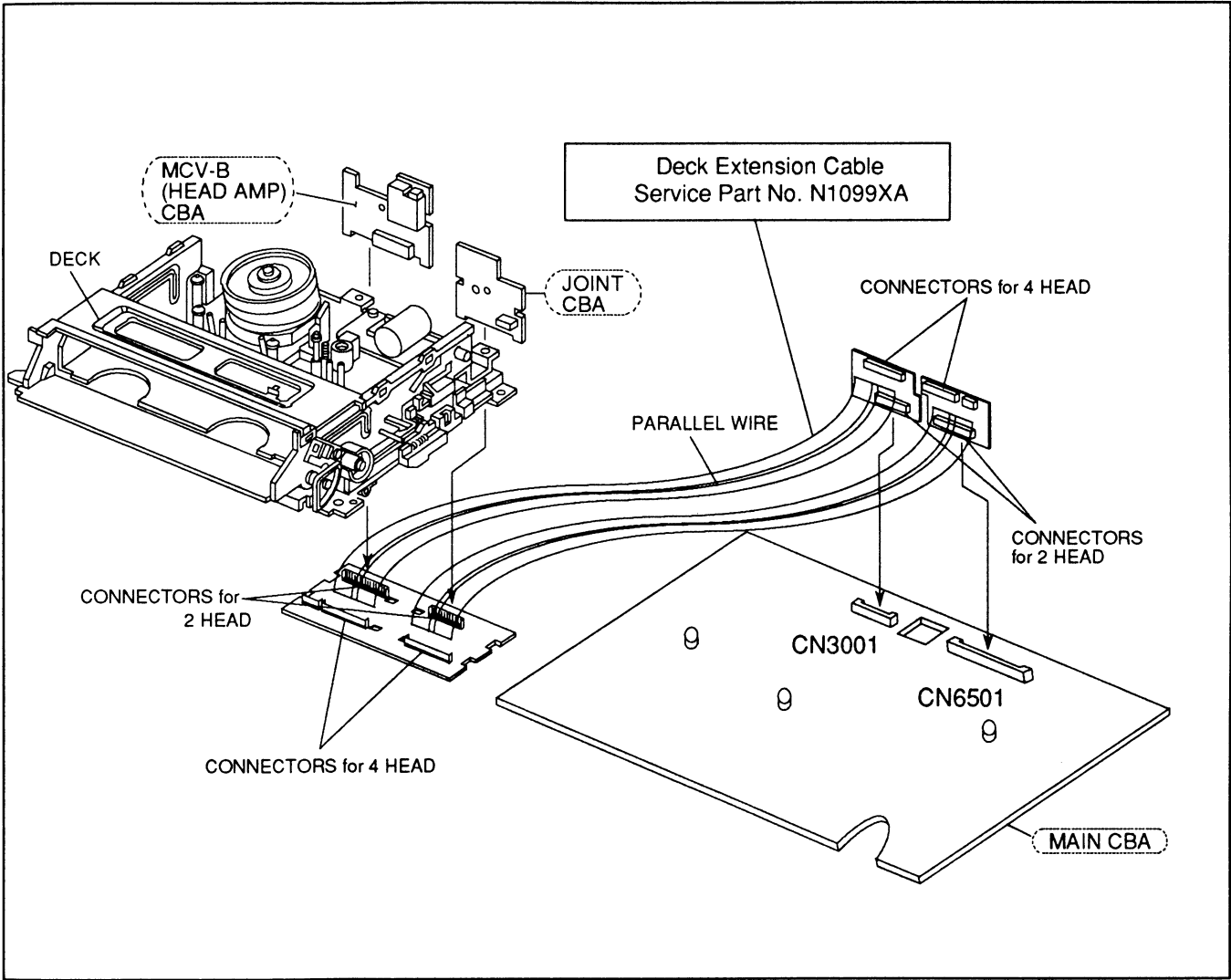


Fig. 1

How to Enter The Service Mode

- Caution: 1**
- Optical sensor system is used for Tape Start and End Sensor on this equipment. Read this page carefully and prepare as described on this page before starting to service: otherwise, the unit may operate unexpectedly.

- Preparing: 1**
- Cover Tape Start and End Sensor with Insulation Tape, or circuitly short (SENS INH) as shown in the Fig. 2.
- Note:** Do not run a tape all the way to the start or the end of the tape to avoid tape damage due to inactive Tape End Sensors.

- Caution: 2**
- The deck mechanism assembly is mounted on the Main CBA directly, and Cassette Loading Switch and Reel Sensor are mounted on the Main CBA. When the Deck Mechanism Assembly is removed from the Main CBA due to servicing, this switch will not operate 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, press the "CASS. SW" manually on the Main CBA.
 - To avoid the Cylinder is forced to stop, connect (SENS INH).

MAIN CBA TOP VIEW

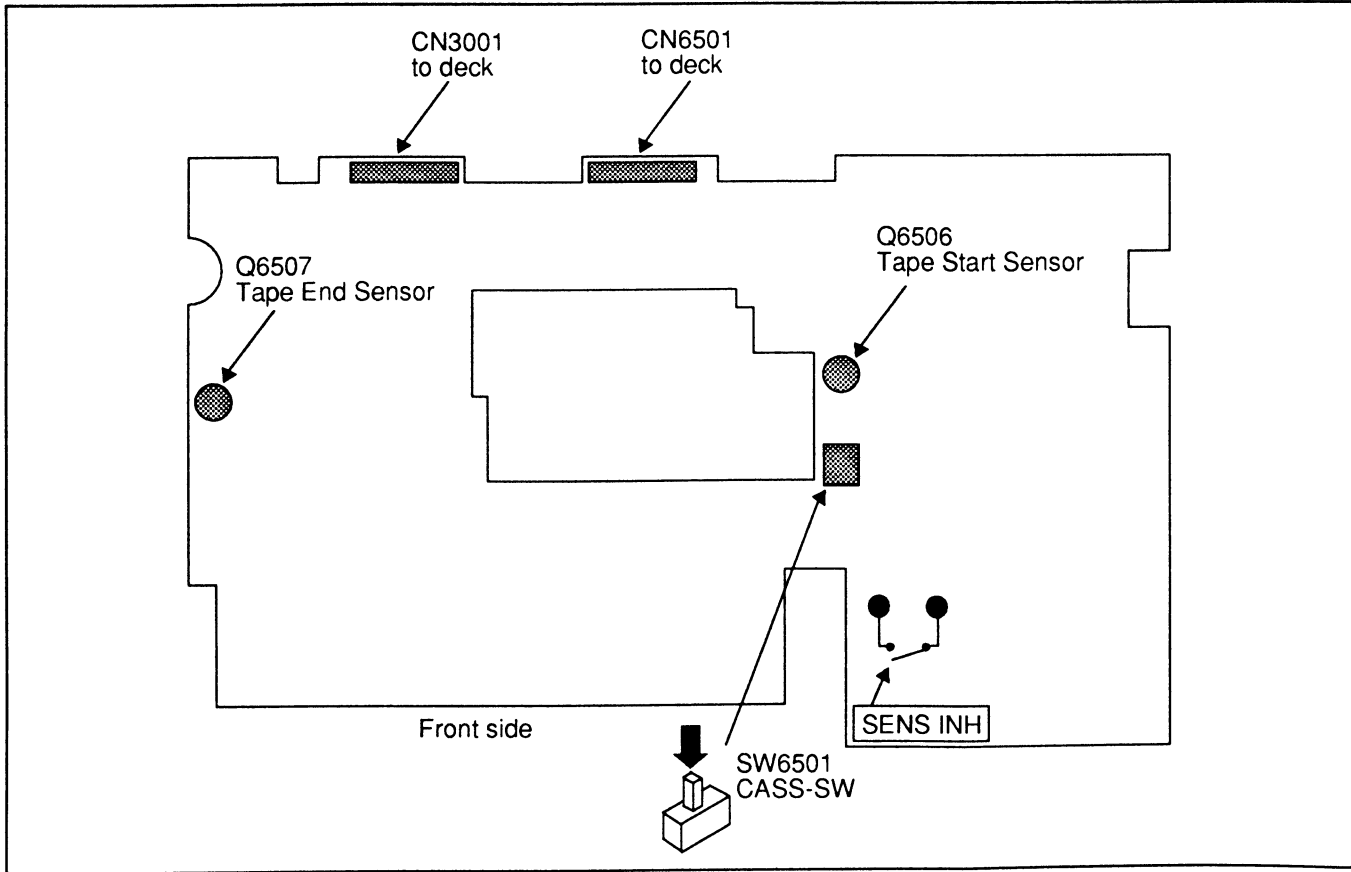
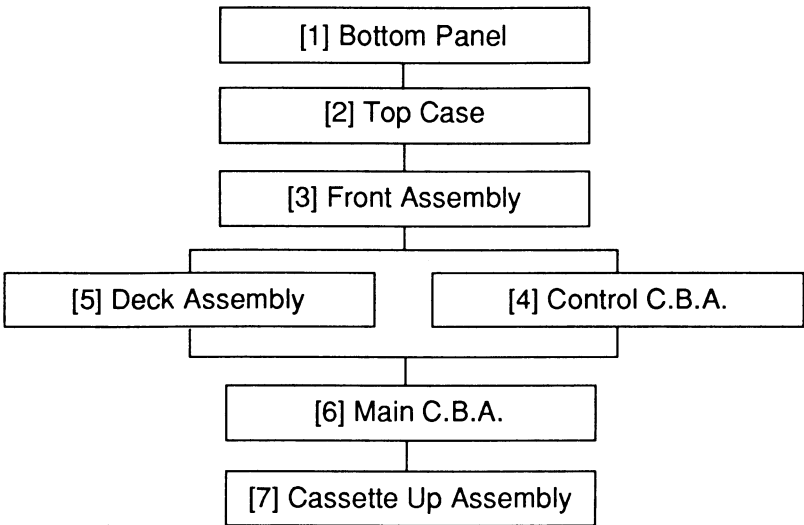


Fig. 2

DISASSEMBLY INSTRUCTIONS [CABINET]

Disassembly Flow Chart

This flow chart indicates the disassembly steps of the cabinet parts and the C.B.A. in order to gain access to item(s) to be serviced. When reassembling, perform the step(s) in the reverse order. Bend, route and dress the Cabinet as they were originally.



Disassembly Method

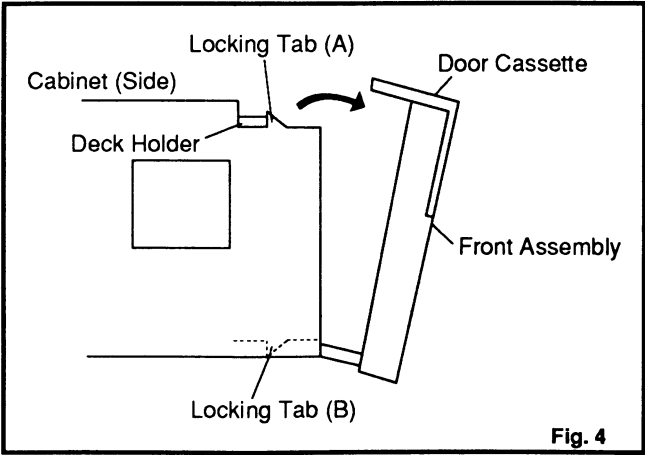
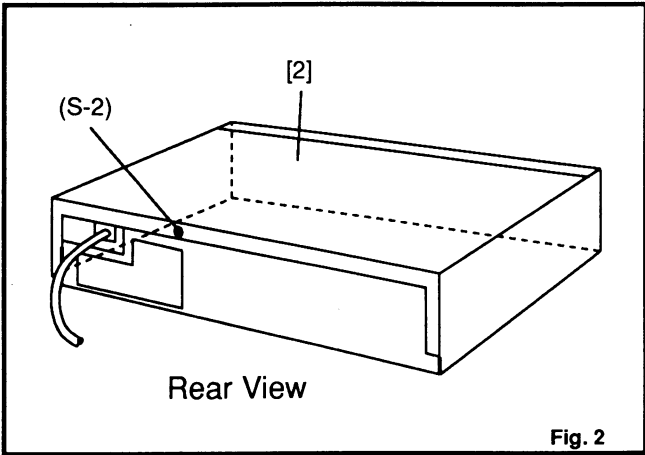
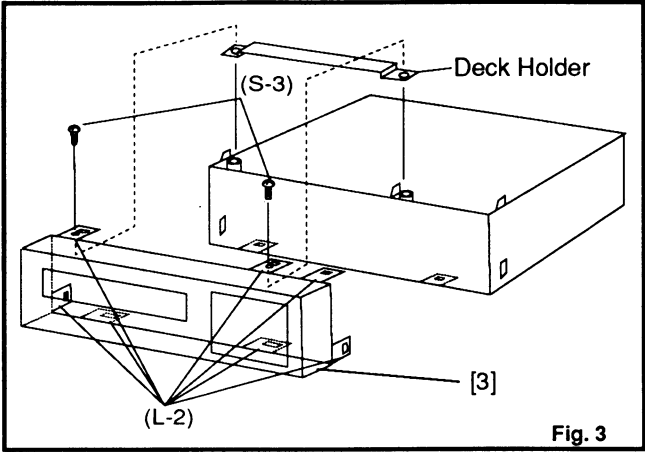
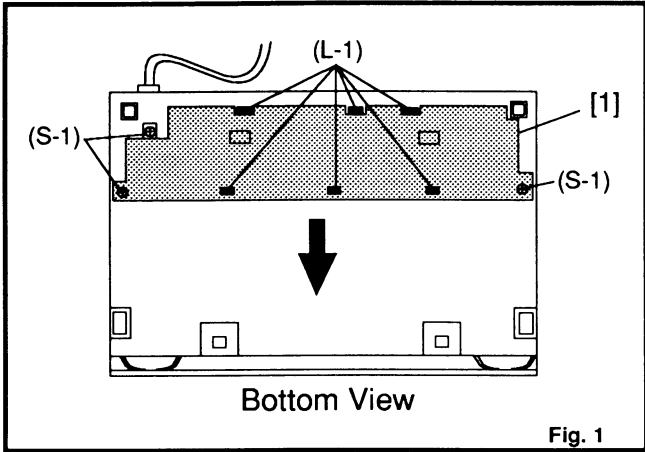
STEP / LOC. No.	PART	REMOVAL		
		Fig. No.	REMOVE/*UNLOCK/RELEASE/UNPLUG/UNCLAMP /DESOLDER	NOTE
[1]	Bottom Plate	Fig. 1	3(S-1), *6(L-1)	1
[2]	Top Case	Fig. 2	(S-2)	-
[3]	Front Assembly	Fig. 3, 4	*7(L-2), 2(S-3), Deck Holder	2
[4]	Control C.B.A.	Fig. 5	*2(L-3), Connector (A)	-
[5]	Deck Assembly	Fig. 6	4(S-4), 2 Connectors (B)	3
[6]	Main C.B.A.	Fig. 6, 7	*(L-4), (S-5), (S-6), 2(S-7)	-
[7]	Cassette Up Assembly	Fig. 8	2(S-8), *(P-1)	-

- ①: Order of steps in Procedure
When reassembling, perform step (s) in the reverse order.
These numbers are also used as the identification (location) number of parts in Figures.
- ②: Part to be removed or installed.
- ③: Identification of part to be removed, unhooked, unlocked, released, unplugged, unclamped or desoldered.
P= Spring W= Washer C= Cut Washer R= Retaining Ring L= Locking Tab
N= Nut S= Screw *= unhook, unlock, release, unplug or desolder
2 (C-2) = 2 Cut Washers (C-2)

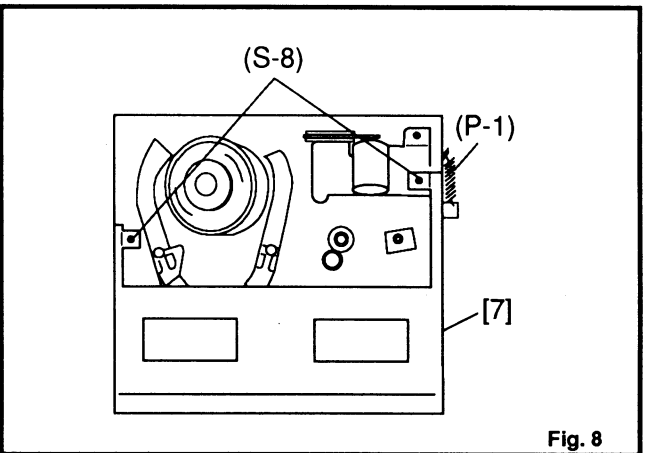
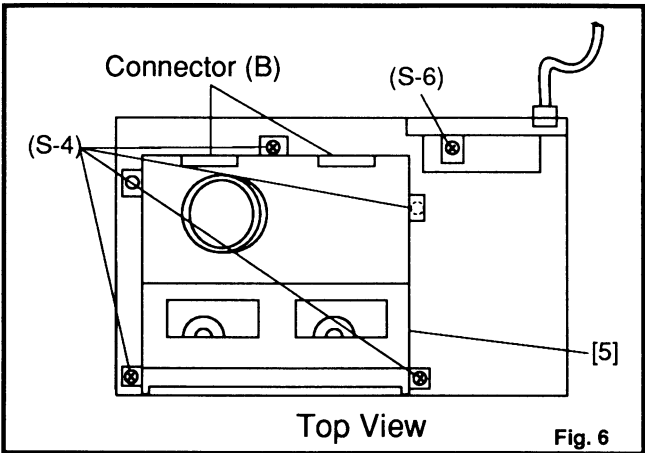
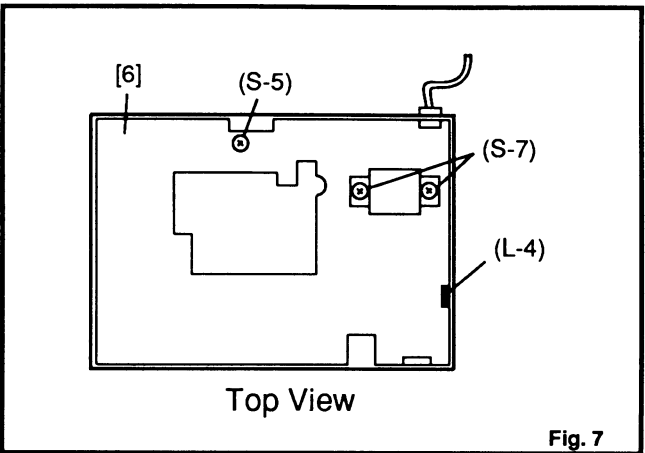
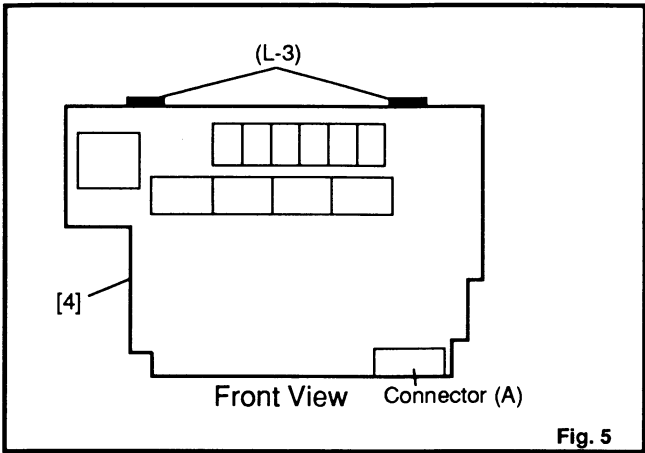
DISASSEMBLY INSTRUCTIONS [CABINET] (Continued)

Reference Notes:

- 1. Remove 3 Screws (S-1), and release 6 Locking Tabs (L-1), then slide the Bottom Plate in the direction of arrow.
- 2. Remove 2 Screws (S-3) and release 7 Locking Tabs (L-2) (Bottom Tabs, Side Tabs and then Top Tabs). Then Deck Holder can be removed.
- Note:** When you reinstall the Front Assembly, take care not to break the Locking Tabs. First install Deck Holder Tabs in the holes of Cassette Holder Plate, the Locking Tabs (A) and then Locking Tabs (B). See Fig.4.
- 3. Remove 4 Screws (S-4), then slowly lift the Deck Assembly up disconnecting the 2 Connectors (B).

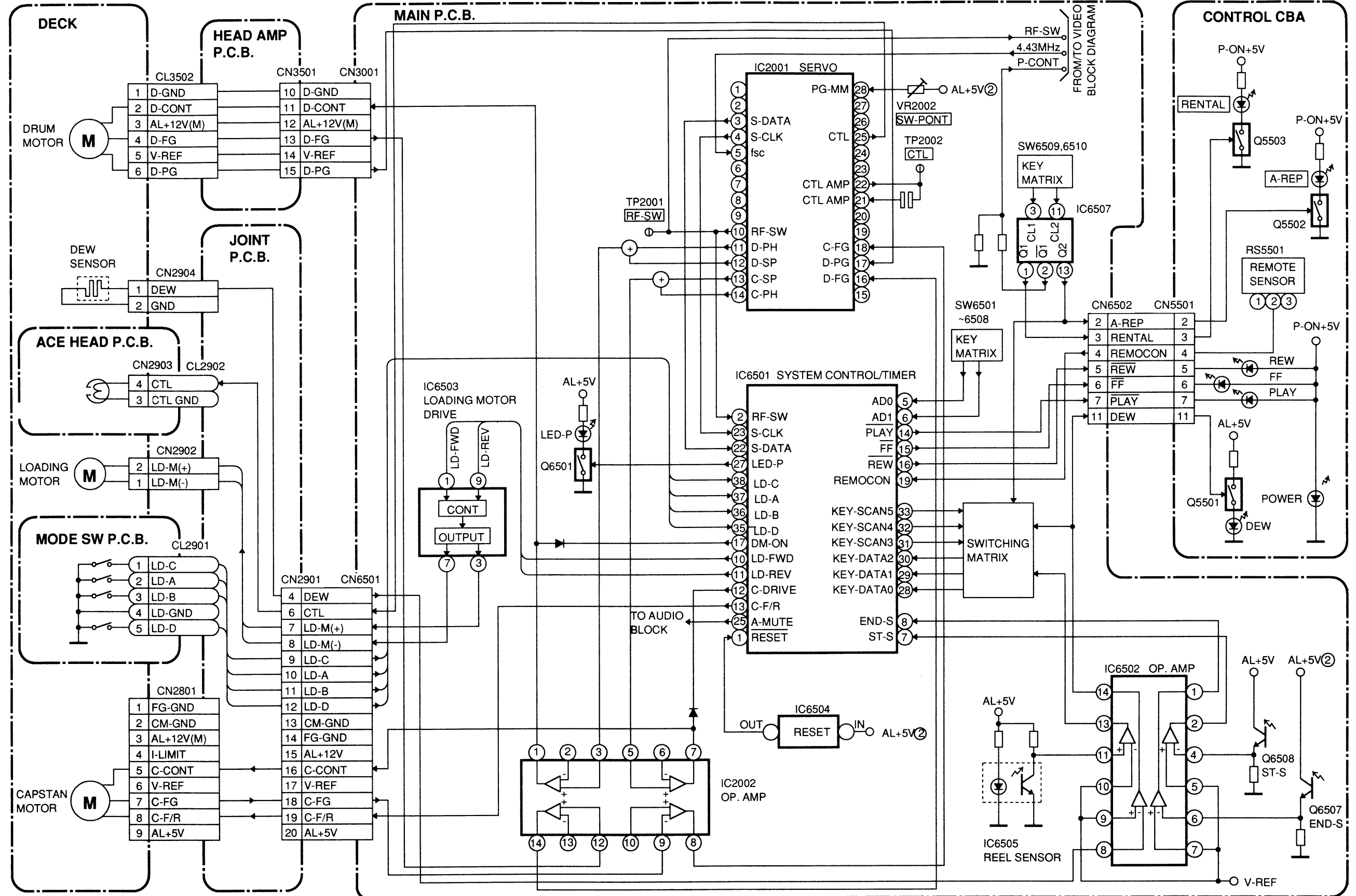


DISASSEMBLY INSTRUCTIONS [CABINET] (Continued)



BLOCK DIAGRAMS

Servo/System Control

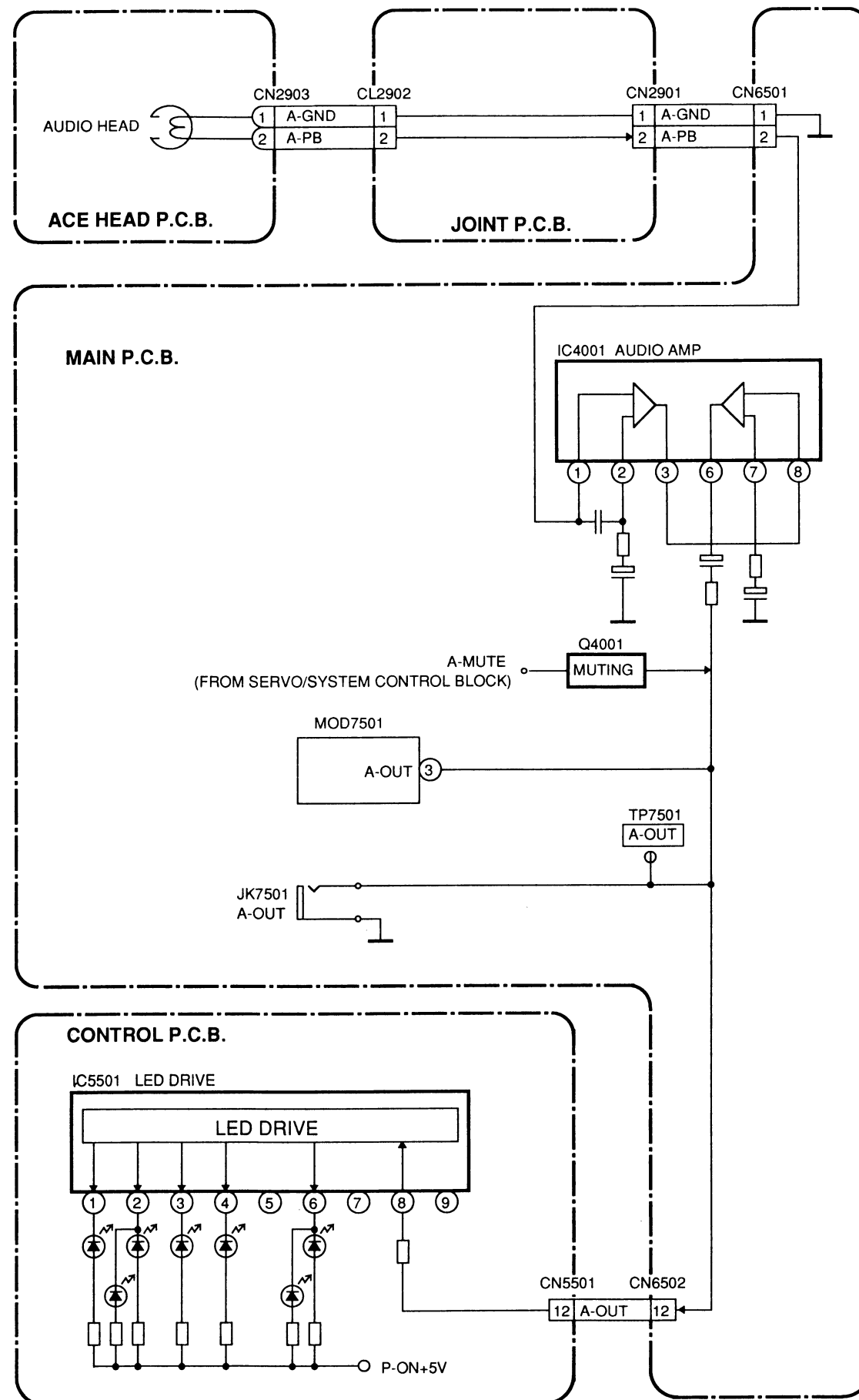


The diagram illustrates the internal circuitry of a VCR, divided into several main functional blocks:

- DECK:** Contains the video heads (L and R) and the connection to the Head Amp C.B.A. via connector CN3502.
- HEAD AMP C.B.A. (IC3501):** Processes the video signals from the heads, including envelope detection (ENV DET) and automatic gain control (AGC DET).
- MAIN C.B.A. (IC3001):** The central processing unit for video and control signals. It includes functions like Y/C separation, video amplification, and various detection circuits (e.g., KIL-DET, REC AFC DET).
- SERVO/CONTROL BLOCK:** Manages the mechanical aspects of the VCR, including the motor (P-ON+5V) and the servo system (MOD, SP/LP, P-CONT).
- Other Components:** Includes a 4.43MHz oscillator (X3001), a 1H delay circuit (IC3002), and various buffers (Q3003, Q3004, Q3005) and transistors (Q3015, Q3016, Q3020, Q3022).

The schematic shows the flow of signals from the video heads through the head amp and main C.B.A. to the output, as well as the control signals that coordinate the VCR's operation.

Audio



ELECTRICAL ADJUSTMENT INSTRUCTIONS

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

Note Electrical adjustment are required after replacing circuit components and certain mechanical parts. It is important to perform these adjustments only after all repairs and replacements have been completed. Also, do not attempt these adjustments unless the proper equipment is available.

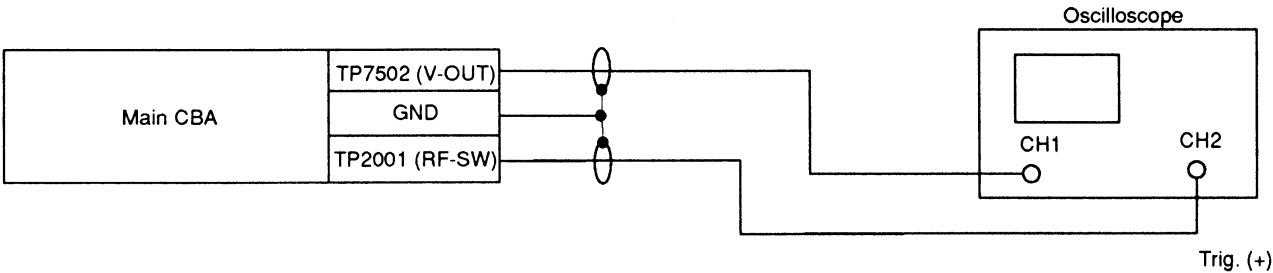
Test Equipment Required

- 1. Oscilloscope: Dual-trace with 10:1 probe.
- 2. TV Monitor
- 3. Test Tape; F6-A

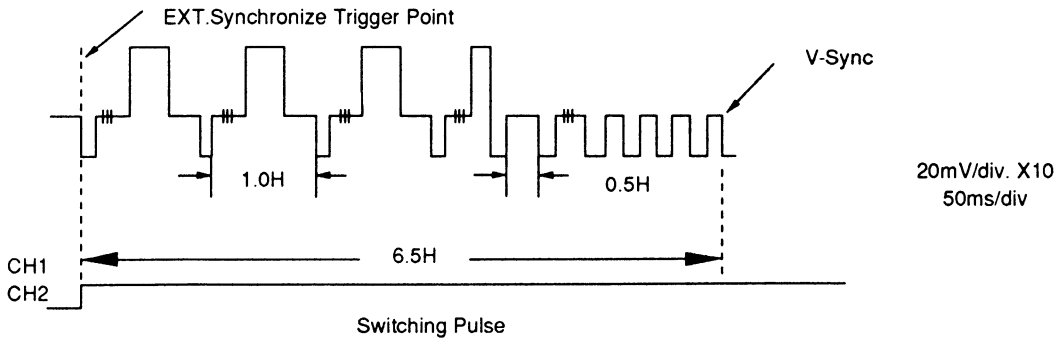
Head Switching Point Adjustment

Test Point	Adj. Point	Mode	Input
TP7502 (V-OUT) TP2001 (RF-SW) GND	VR2001 (Switching Point) (Main CBA)	PLAY	---
Tape	M. EQ.	Spec.	
F6-A	Oscilloscope	6.5H(412.7μs)	

Connections of M. EQ.



Figure



Reference Notes:

- 1. Connect equipments as shown in the above table.
- 2. Set the "PAL/MESECAM" select switch to "PAL" side.
- 3. Playback the test tape and adjust VR2001 so that the V-sync front edge of CH1 video output waveform is delayed 6.5H (412.7μs) from the rising of CH2 Head Switching Pulse waveform.

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:

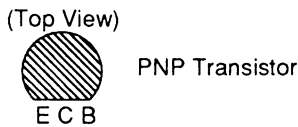
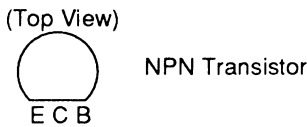
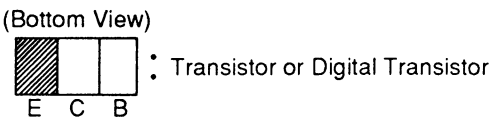
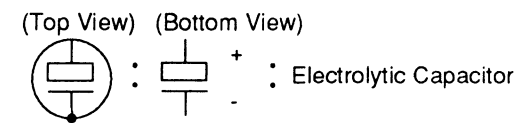
1. All resistance values are indicated in ohms ($K=10^3$, $M=10^6$).
2. Resistor wattages are 1/5W or 1/6W unless otherwise specified.
3. All capacitance values are indicated in μF ($P=10^{-6}\mu F$).
4. All voltages are DC voltages unless otherwise specified.

Capacitor Temperature Markings

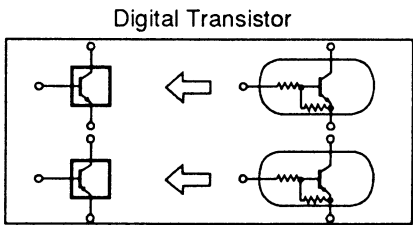
Mark	Capacity change rate	Standard temperature	Temperature range
(B)	$\pm 10\%$	20°C	-25~+85°C
(F)	+30 -80%	20°C	-25~+85°C
(SR)	$\pm 15\%$	20°C	-25~+85°C
(Z)	+30 -80%	20°C	-10~+70°C

Capacitors and transistors are represented by the following symbols.

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 T1.6A 250V FUSE.

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.

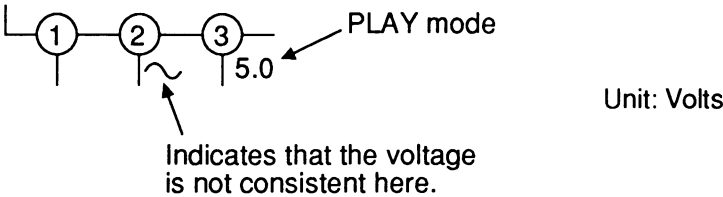
4. Wire Connectors

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

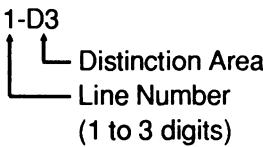
5. Note: Mark "•" is a leadless (chip) component.

6. Mode: SP/REC

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

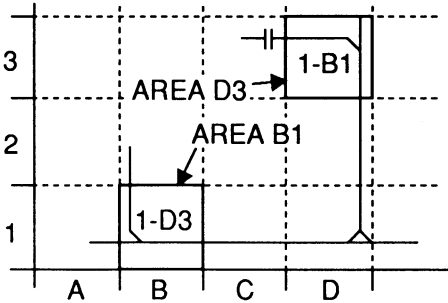


8. How to read converged lines



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.

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A B C D E F G H I J K L M N

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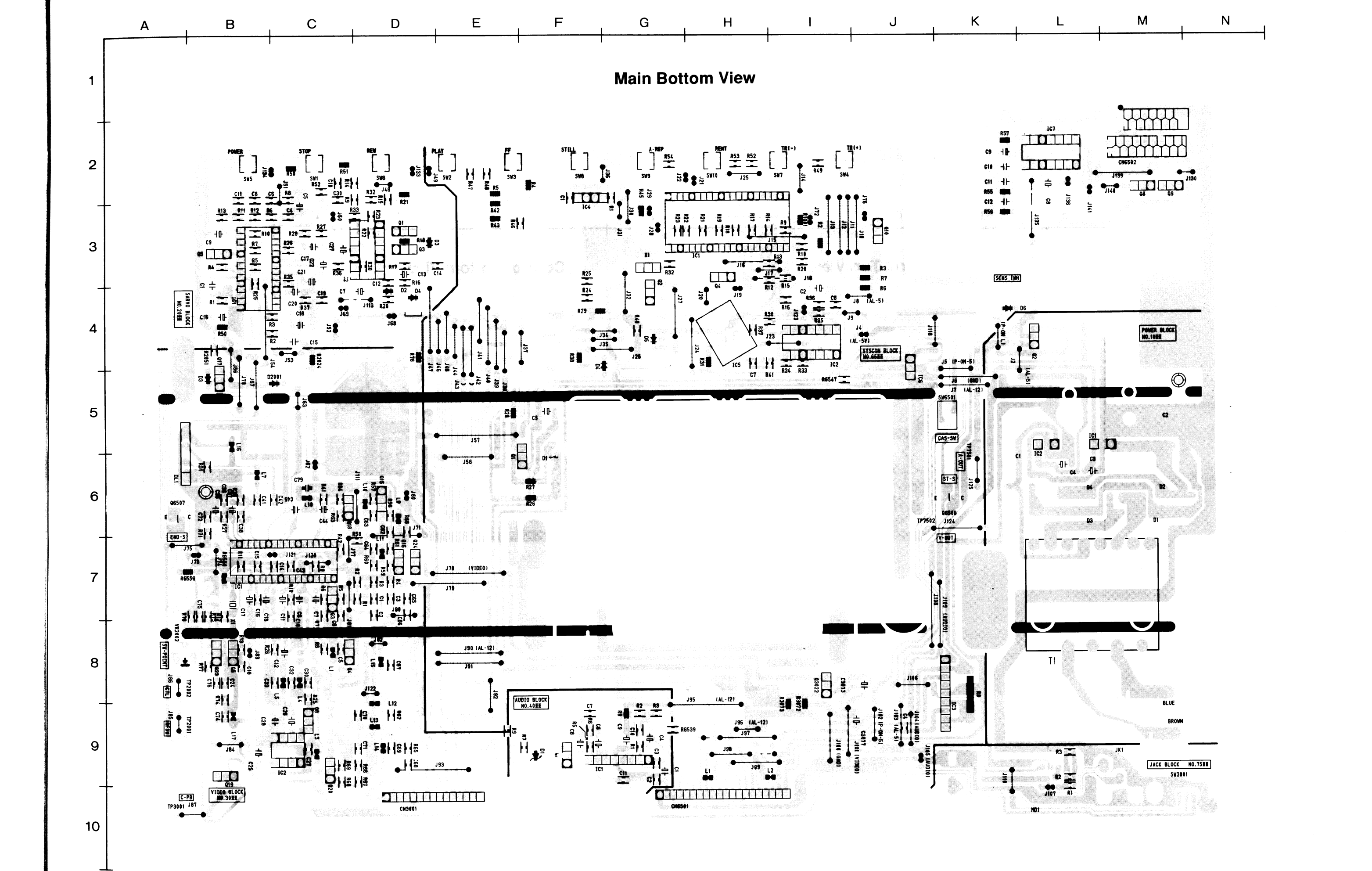
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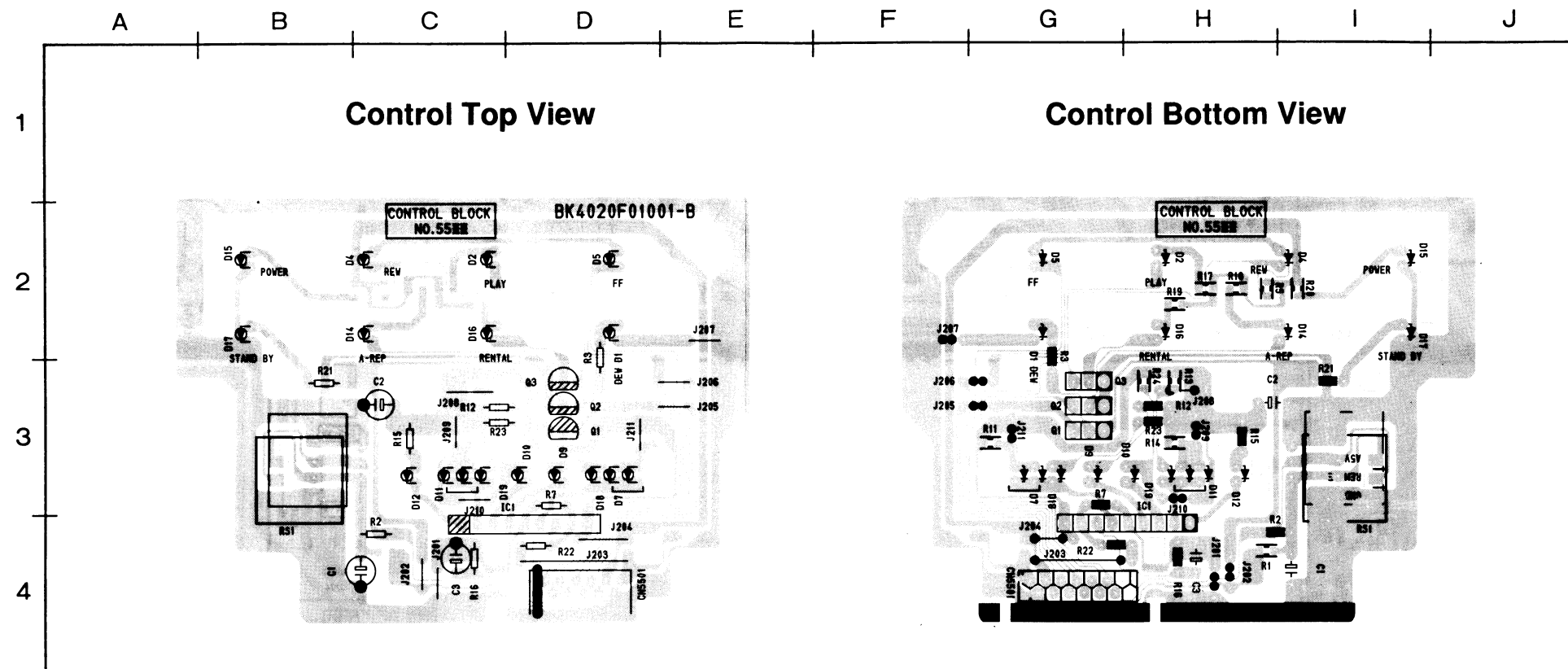
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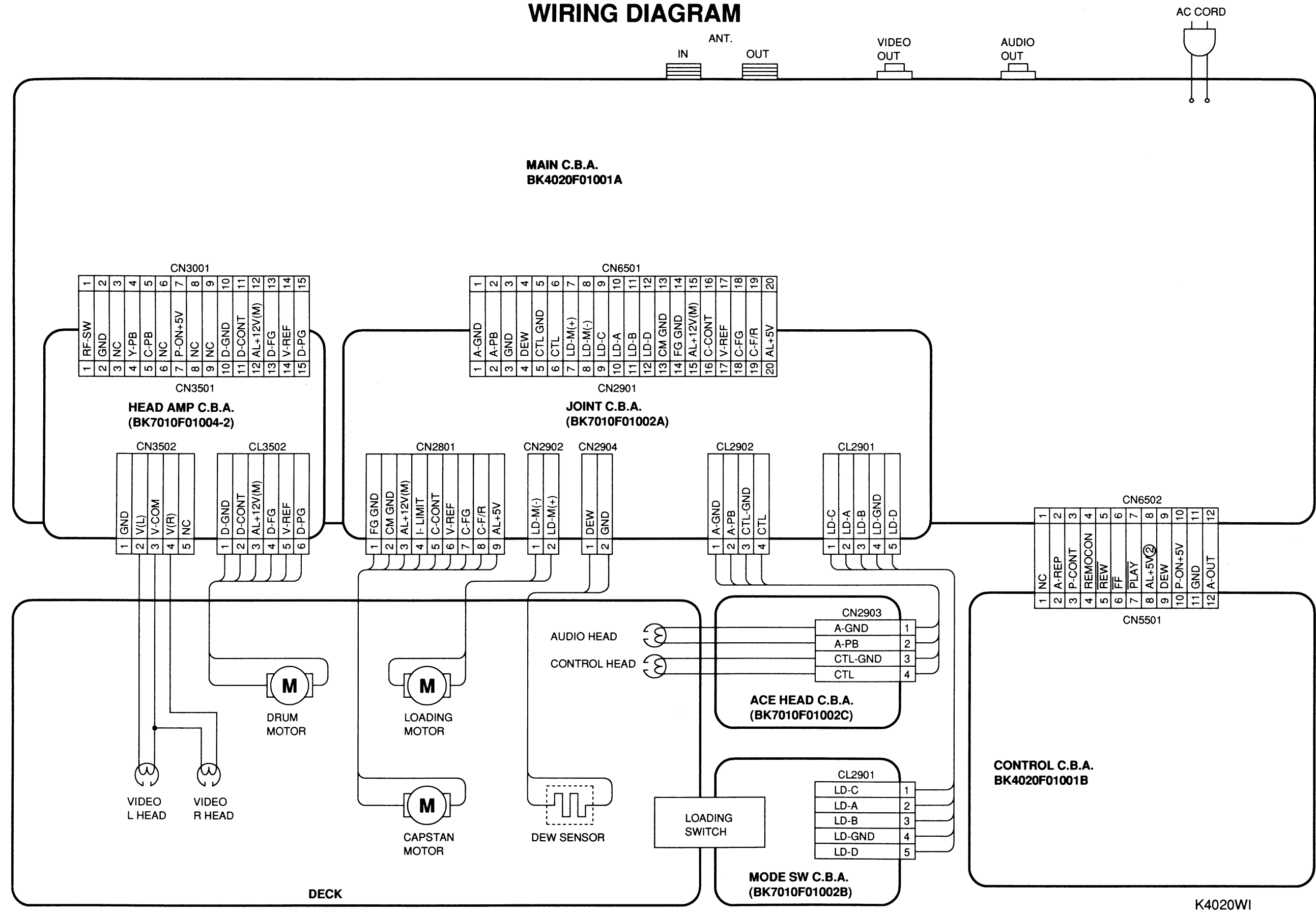
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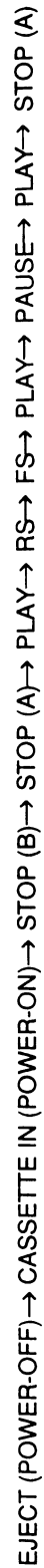




WIRING DIAGRAM



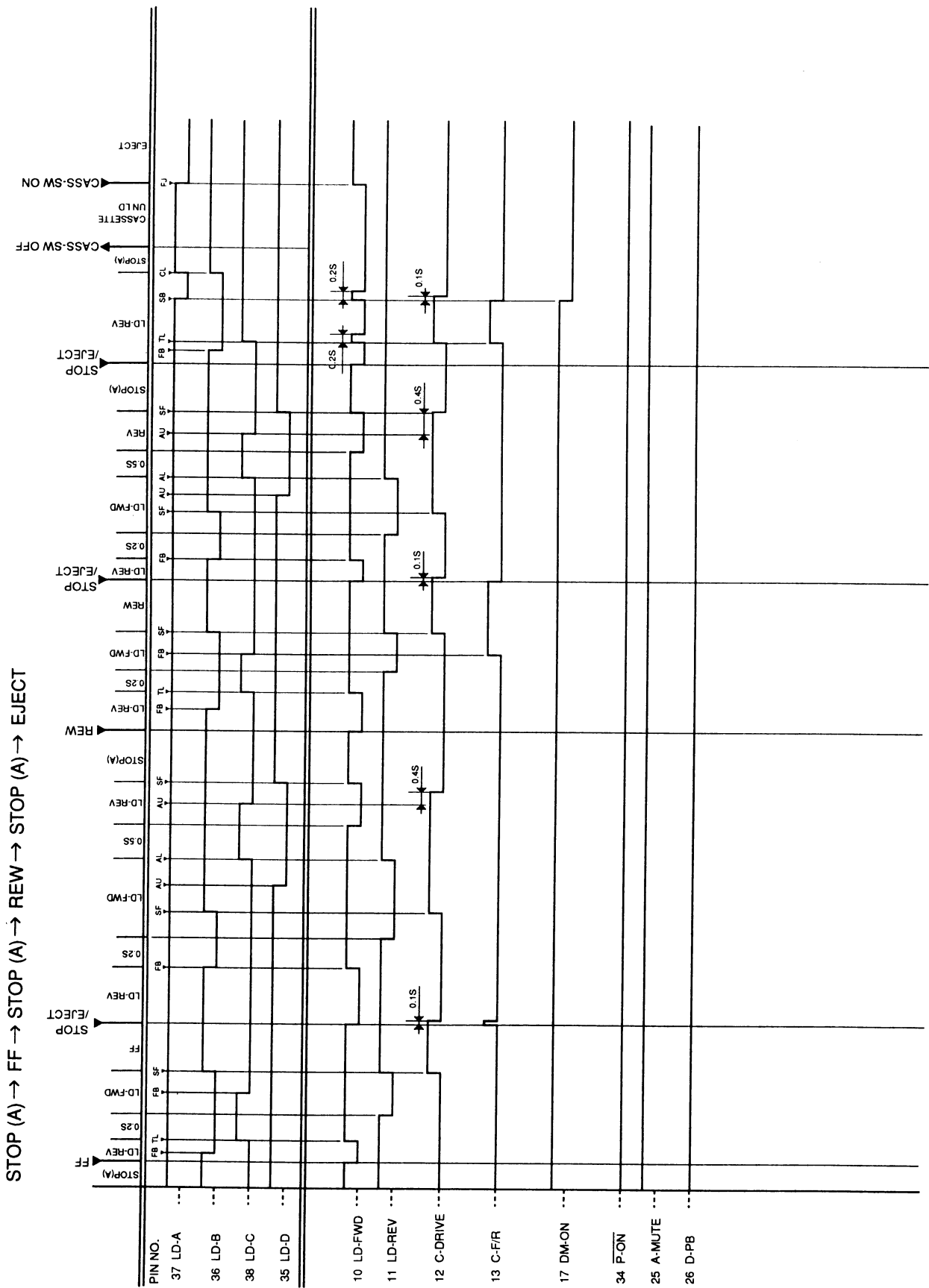
SYSTEM CONTROL TIMING CHARTS



IC PIN FUNCTION DESCRIPTION

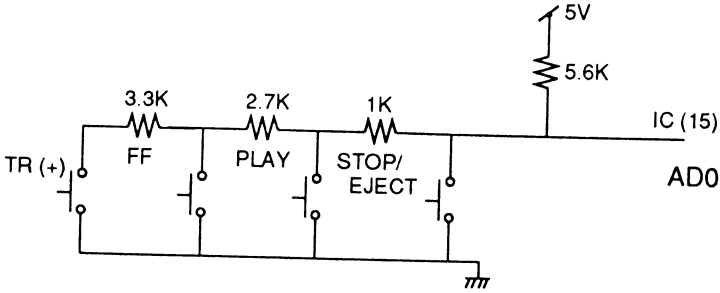
SYSTEM CONTROL/TIMER IC
(M50727-624SP)

Pin No.	Signal Name	Function	I/O	Level
1	RESET	Reset at Reset Signal Input 'L' Normal at 'H'	I	L
2	RF-SW	Head Switching Pulse	I	H/L
3	AVSS	Analog Power GND	—	GND
4	V REF	A/D reference Voltage Input	I	
5	AD 0	Key Data A/D Input Port	I	
6	AD 1	Key Data A/D Input Port	I	
7	ST-S	Tape Start Sensor Signal Input	I	L
8	END-S	Tape End Sensor Signal Input	I	L
9	A-VDD	Analog Power Source (+5V)		5V
10	LD-FWD	Loading Motor Control Output (FWD)	O	H
11	LD-RWD	Loading Motor Control Output (REW)	O	H
12	C-DRIVE	Capstan Forward/Reverse Signal	O	H
13	C-F/R	Capstan Drive Signal	O	H/L
14	PLAY	Play Mode Display Output	O	L
15	FF	FF Mode Display Output	O	L
16	REW	Rew Mode Display Output	O	L
17	DM-ON	Drum Rotate Instruction	O	H
18	PAUSE	Still Mode Output	O	H
19	REMOCON	Remote Control Signal Input	I	—
20	CNVSS	—	—	—
21	VSS	Digital Power GND	—	GND
22	S-DATA	Servo IC Signal (Data)	O	—
23	S-CLK	Servo IC Timing Clock	O	—
24	TR-MM	Tracking Control Signal Output	O	L
25	A-MUTE	Tracking Mute Signal	O	H
26	D-PB	Video/Audio Playback Instruction	O	L
27	LED-P	Pulse Output Signal for Sensor (for St/END Sensor Signal)	O	H/L
28	KEY-SCAN0	Key Scan Signal Input	I	—
29	KEY-SCAN1	Key Scan Signal Input	I	—
30	KEY-SCAN2	Key Scan Signal Input	I	—
31	KEY-SCAN3	Key Scan Signal Output	O	—
32	KEY-SCAN4	Key Scan Signal Output	O	—
33	KEY-SCAN5	Key Scan Signal Output	O	—
34	P-ON	Power On Signal	O	L
35	LD-D	Tape Loading Position Detector	I	H/L
36	LD-B	Tape Loading Position Detector	I	H/L
37	LD-A	Tape Loading Position Detector	I	H/L
38	LD-C	Tape Loading Position Detector	I	H/L
39	OSC OUT	Seramic Resonator 4MHz Output	O	~
40	OSC IN	Seramic Resonator 4MHz Input	I	~
41	CNTR	—	—	—
42	VDD	Digital Power Source (+5V)	—	5V



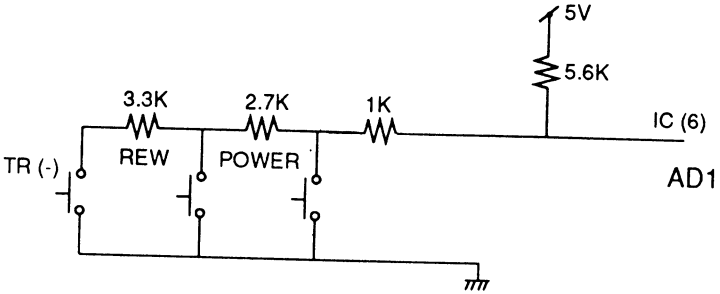
AD 0 Level

SW	INPUT	LEVEL
Stop/Eject	0 ~ 1.3V	5.6kΩ
Play	1.3V ~ 2.6V	1.0kΩ
FF	2.6V ~ 3.9V	2.7kΩ
TR (+)	3.9V ~ 5.0V	3.3kΩ

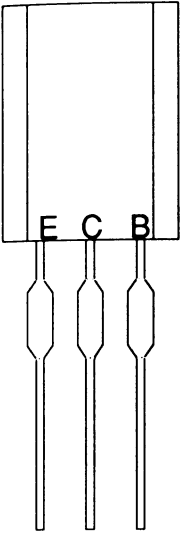


AD 1 Level

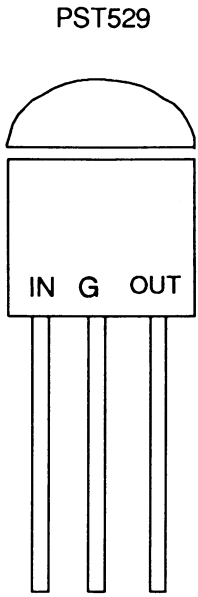
SW	INPUT	LEVEL
Power	0 ~ 2.6V	5.6 + 1kΩ
Rew	2.6V ~ 3.9V	2.7kΩ
TR (-)	3.9V ~ 5.0V	3.3kΩ



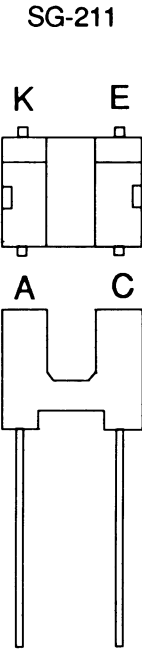
LEAD IDENTIFICATION



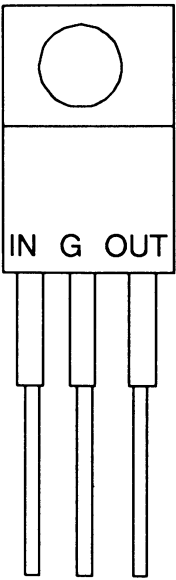
- 2SA608
- 2SA933
- 2SA1317
- 2SA1346
- 2SB892
- 2SB1010
- 2SC536
- 2SC1740
- 2SC2058
- 2SC2839
- 2SC3400
- 2SD400
- 2SD1468
- DTA124
- DTA144
- DTC124



PST529

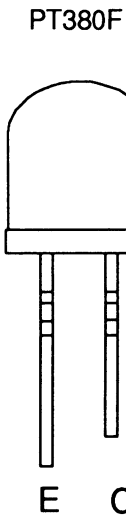
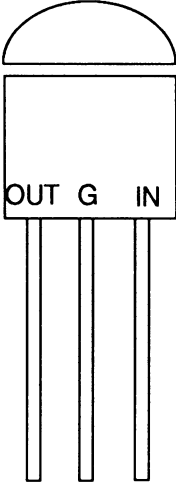


SG-211

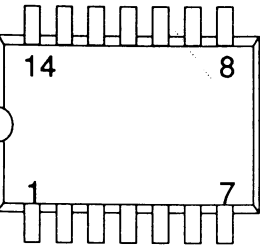


- AN7812
- NJM7812
- NJM7805

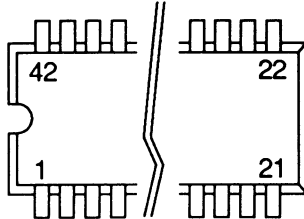
AN78L05
NJM78L05



PT380F

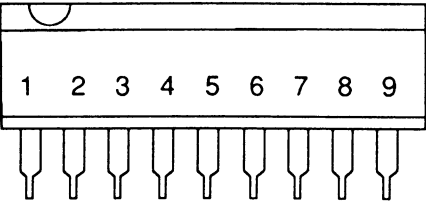


- BA10324A
- NJM324D
- LA6339
- NJM2901N
- BA10339
- BU4013B

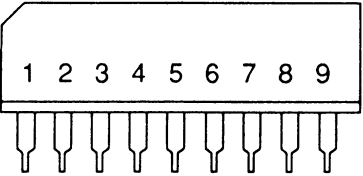


QSMQA0SMB011

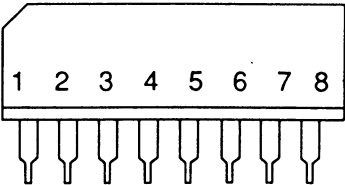
LB1403N
BA6154



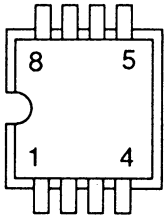
TA7291S



LA3161

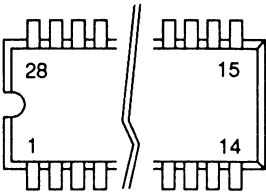


LC8992

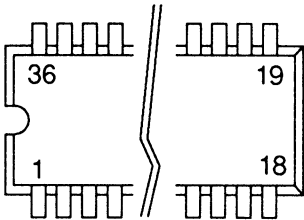


Note:
A: Anode
K: Cathode
E: Emitter
C: Collector
B: Base

QSMEA0SMS001



LA7390



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

Ref.No.	Description	Part No.
	MCV (MCV-A/B) CBA CONSISTS OF THE FOLLOWING: (VIP-5000HC Only)	0VSA05762
	MCV (MCV-A/B) CBA CONSISTS OF THE FOLLOWING: (VIP-5000A Only)	0VSA05945
	MCV (MCV-A/B) CBA CONSISTS OF THE FOLLOWING: (VCP-300 Only)	0VSA05989
	MCV (MCV-A/B) CBA CONSISTS OF THE FOLLOWING: (VCP-300D Only)	0VSA05992
	MAIN (MCV-A) CBA	-----
	REMOTE SENSOR (MCV-B) CBA	-----
	P.C.B. (VIP-5000HC/VIP-5000A Only)	BK4020F01001
	P.C.B. (VCP-300/VCP-300D Only)	BK4022F01001

MAIN (MCV-A) CBA

Ref.No.	Description	Part No.
	MAIN (MCV-A) CBA CONSISTS OF THE FOLLOWING:	-----
CAPACITORS		
C 1001	ELECTROLYTIC CAP. 2200µF/16V M W/F (VIP-5000HC/VIP-5000A Only)	626C228
C 1001 	METALLIZED FILM CAP. 0.047µF/250V K (VCP-300/VCP-300D Only) or METALLIZED FILM CAP. 0.047µF/250V M (VCP-300/VCP-300D Only)	CT2E473NC004
C 1002	ELECTROLYTIC CAP. 2200µF/25V M W/F (VIP-5000HC/VIP-5000A Only)	CA2E473MS005
C 1003	ELECTROLYTIC CAP. 10µF/16V M (VIP-5000HC/VIP-5000A Only)	626D228
C 1004	ELECTROLYTIC CAP. 10µF/16V M (VIP-5000HC/VIP-5000A Only)	126C106
C 1005 	CERAMIC CAP. SAFETY 4700pF (VCP-300/VCP-300D Only) or CERAMIC CAP. SAFETY 4700pF (VCP-300/VCP-300D Only)	126C106
C 1006 	CERAMIC CAP. SAFETY 4700pF (VCP-300/VCP-300D Only) or CERAMIC CAP. SAFETY 4700pF (VCP-300/VCP-300D Only)	1220885
C 1007	ELECTROLYTIC CAP. 100µF/400V M (VCP-300/VCP-300D Only) or ELECTROLYTIC CAP. 100µF/400V M (VCP-300/VCP-300D Only) or ELECTROLYTIC CAP. 100µF/400V M (VCP-300/VCP-300D Only)	CA2H472MS001
		1220885
		CA2H472MS001
		CA2H101NC008
		CA2H101EA008
		CA2H101MS002

Ref.No.	Description	Part No.
C 1008	CERAMIC CAP. 0.01µF/500V (VCP-300/VCP-300D Only) or CERAMIC CAP. B K 0.01µF/500V (VCP-300/VCP-300D Only)	CA2J103TU001
C 1009	CERAMIC CAP. SL J 56pF/1KV (VCP-300/VCP-300D Only) or CERAMIC CAP. SL K 56pF/1KV (VCP-300/VCP-300D Only)	CCD2JKP0B103
		CA3A560MR506
		CCD3AKPSL560
C 1010	SEMICONDUCTOR CAP. SR K 0.027µF/25V (VCP-300/VCP-300D Only)	12Y2273S
C 1011	CERAMIC CAP. X K 0.0033µF/16V (VCP-300/VCP-300D Only)	3X4C332T
C 1012	CERAMIC CAP. X K 0.0047µF/16V (VCP-300/VCP-300D Only)	3X4C472T
C 1013	SEMICONDUCTOR CAP. SR K 0.018µF/25V (VCP-300/VCP-300D Only)	12Y2183S
C 1014	ELECTROLYTIC CAP. 330µF/50V M (VCP-300/VCP-300D Only) or ELECTROLYTIC CAP. 330µF/50V (VCP-300/VCP-300D Only)	121H337
		CA1J331SP007
C 1015	ELECTROLYTIC CAP. 330µF/16V M (VCP-300/VCP-300D Only)	126C337S
C 1016	ELECTROLYTIC CAP. 330µF/16V M (VCP-300/VCP-300D Only) or ELECTROLYTIC CAP. 330µF/16V (VCP-300/VCP-300D Only)	121D337S
		CA1C331SP008
C 1017	ELECTROLYTIC CAP. 1000µF/6.3V M (VCP-300/VCP-300D Only)	126A108S
C 1018	SEMICONDUCTOR CAP. SR K 0.022µF/25V (VCP-300/VCP-300D Only)	12Y2223S
C 2001	MYLAR CAP. 0.033µF/50V J	2254333S
C 2003	CHIP CERAMIC CAP. SL J 100pF/50V	CHE1JBSL101
C 2004	CHIP CERAMIC CAP. B K 0.01µF/25V	CHE1EKB0B103
C 2005	ELECTROLYTIC CAP. 100µF/6.3V M H7	526R107S
C 2006	CHIP CERAMIC CAP. B K 0.01µF/25V	CHE1EKB0B103
C 2007	SEMICONDUCTOR CAP. SR K 0.15µF/16V	12Y6154S
C 2008	CHIP CERAMIC CAP. B K 0.022µF/16V	CHE1CKB0B223
C 2009	ELECTROLYTIC CAP. 100µF/6.3V M H7	526R107S
C 2010	CHIP CERAMIC CAP. B K 0.027µF/16V	CHE1CKB0B273
C 2011	CHIP CERAMIC CAP. B K 0.01µF/25V	CHE1EKB0B103
C 2012	CHIP CERAMIC CAP. B K 0.022µF/16V	CHE1CKB0B223
C 2013	ELECTROLYTIC CAP. 0.22µF/50V M H7	526W224S
C 2014	CHIP CERAMIC CAP. F Z 0.047µF/25V	CHE1EZB0F473
C 2015	MYLAR CAP. 0.068µF/50V J	2254683S
C 2016	ELECTROLYTIC CAP. 47µF/6.3V M H7	526R476S
C 2017	ELECTROLYTIC CAP. 10µF/16V M H7	526T106S

Ref.No.	Description	Part No.
C 2018	ELECTROLYTIC CAP. 47μF/6.3V M H7	526R476S
C 2019	CHIP CERAMIC CAP. F Z 0.022μF/50V	CHE1JZB0F223
C 2020	ELECTROLYTIC CAP. 10μF/16V M H7	526T106S
C 2021	ELECTROLYTIC CAP. 1μF/50V M NP H7	524X105S
C 2022	ELECTROLYTIC CAP. 10μF/16V M H7	526T106S
C 2027	ELECTROLYTIC CAP. 10μF/16V M H7	526T106S
C 2030	CHIP CERAMIC CAP. B K 0.01μF/25V	CHE1EKB0B103
C 3001	CHIP CERAMIC CAP. SL J 33pF/50V	CHE1JJBLSL330
C 3002	CHIP CERAMIC CAP. SL J 33pF/50V	CHE1JJBLSL330
C 3003	CHIP CERAMIC CAP. SL J 180pF/50V	CHE1JJBLSL181
C 3005	CHIP CERAMIC CAP. SL J 47pF/50V	CHE1JJBLSL470
C 3006	CHIP CERAMIC CAP. SL J 47pF/50V	CHE1JJBLSL470
C 3007	ELECTROLYTIC CAP. 1μF/50V M H7	526W105S
C 3008	ELECTROLYTIC CAP. 47μF/6.3V M H7	526R476S
C 3010	CHIP CERAMIC CAP. SL J 100pF/50V	CHE1JJBLSL101
C 3011	ELECTROLYTIC CAP. 10μF/16V M H7	526T106S
C 3012	ELECTROLYTIC CAP. 10μF/16V M H7	526T106S
C 3013	ELECTROLYTIC CAP. 1μF/50V M H7	526W105S
C 3014	CHIP CERAMIC CAP. F Z 0.01μF/50V	CHE1JZB0F103
C 3015	CHIP CERAMIC CAP. B K 0.01μF/25V	CHE1EKB0B103
C 3016	CHIP CERAMIC CAP. F Z 0.022μF/50V	CHE1JZB0F223
C 3017	ELECTROLYTIC CAP. 1μF/50V M H7	526W105S
C 3018	CHIP CERAMIC CAP. F Z 0.01μF/50V	CHE1JZB0F103
C 3024	CHIP CERAMIC CAP. F Z 0.01μF/50V	CHE1JZB0F103
C 3025	ELECTROLYTIC CAP. 1μF/50V M H7	526W105S
C 3026	ELECTROLYTIC CAP. 47μF/6.3V M H7	526R476S
C 3027	CHIP CERAMIC CAP. F Z 0.022μF/50V	CHE1JZB0F223
C 3028	ELECTROLYTIC CAP. 1μF/50V M H7	526W105S
C 3030	CHIP CERAMIC CAP. SL J 39pF/50V	CHE1JJBLSL390
C 3032	CHIP CERAMIC CAP. SL D 6pF/50V	CHE1JDBSL6R0
C 3033	CHIP CERAMIC CAP. SL J 82pF/50V	CHE1JJBLSL820
C 3035	ELECTROLYTIC CAP. 1μF/50V M H7	526W105S
C 3036	CHIP CERAMIC CAP. B K 0.022μF/16V	CHE1CKB0B223
C 3037	ELECTROLYTIC CAP. 1μF/50V M H7	526W105S
C 3038	CHIP CERAMIC CAP. F Z 0.1μF/16V	CHE1CZB0F104
C 3041	CHIP CERAMIC CAP. SL J 15pF/50V	CHE1JJBLSL150
C 3042	CHIP CERAMIC CAP. F Z 0.01μF/50V	CHE1JZB0F103
C 3043	CHIP CERAMIC CAP. F Z 0.1μF/16V	CHE1CZB0F104
C 3044	ELECTROLYTIC CAP. 47μF/6.3V M H7	526R476S
C 3045	ELECTROLYTIC CAP. 1μF/50V M H7	526W105S
C 3062	CHIP CERAMIC CAP. SL J 22pF/50V	CHE1JJBLSL220
C 3063	CHIP CERAMIC CAP. SL J 33pF/50V	CHE1JJBLSL330
C 3064	CHIP CERAMIC CAP. SL J 56pF/50V	CHE1JJBLSL560
C 3065	CHIP CERAMIC CAP. F Z 0.1μF/16V	CHE1CZB0F104
C 3066	CHIP CERAMIC CAP. SL J 22pF/50V	CHE1JJBLSL220
C 3067	CHIP CERAMIC CAP. SL J 22pF/50V	CHE1JJBLSL220
C 3068	CHIP CERAMIC CAP. F Z 0.022μF/50V	CHE1JZB0F223
C 3069	CHIP CERAMIC CAP. SL J 220pF/50V	CHE1JJBLSL221
C 3070	CHIP CERAMIC CAP. SL J 56pF/50V	CHE1JJBLSL560
C 3071	CHIP CERAMIC CAP. SL J 220pF/50V	CHE1JJBLSL221
C 3072	CHIP CERAMIC CAP. F Z 0.01μF/50V	CHE1JZB0F103
C 3073	ELECTROLYTIC CAP. 1000μF/6.3V M	126A108S
C 3074	CHIP CERAMIC CAP. SL J 22pF/50V	CHE1JJBLSL220
C 3075	CHIP CERAMIC CAP. F Z 0.01μF/50V	CHE1JZB0F103
C 3076	CHIP CERAMIC CAP. SL J 220pF/50V	CHE1JJBLSL221
C 3077	ELECTROLYTIC CAP. 100μF/16V M	126C107S
C 4001	ELECTROLYTIC CAP. 10μF/16V M H7	526T106S
C 4002	CHIP CERAMIC CAP. B K 0.0018μF/50V	CHE1JKB0B182
C 4003	CHIP CERAMIC CAP. SL J 100pF/50V	CHE1JJBLSL101
C 4004	ELECTROLYTIC CAP. 10μF/16V M H7	526T106S

Ref.No.	Description	Part No.
C 4006	ELECTROLYTIC CAP. 10μF/16V M H7	526T106S
C 4007	CHIP CERAMIC CAP. F Z 0.1μF/16V	CHE1CZB0F104
C 4008	ELECTROLYTIC CAP. 10μF/16V M H7	526T106S
C 4009	ELECTROLYTIC CAP. 47μF/16V M H7	526T476S
C 4010	CHIP CERAMIC CAP. B K 0.027μF/16V	CHE1CKB0B273
C 4011	CHIP CERAMIC CAP. B K 0.0056μF/50V	CHE1JKB0B562
C 6501	CHIP CERAMIC CAP. F Z 0.01μF/50V	CHE1JZB0F103
C 6502	ELECTROLYTIC CAP. 47μF/6.3V M H7	526R476S
C 6504	CHIP CERAMIC CAP. F Z 0.1μF/16V	CHE1CZB0F104
C 6505	ELECTROLYTIC CAP. 220μF/6.3V M H7	526R227S
C 6506	CHIP CERAMIC CAP. B K 0.022μF/16V	CHE1CKB0B223
C 6507	CHIP CERAMIC CAP. B K 0.022μF/16V	CHE1CKB0B223
C 6508	ELECTROLYTIC CAP. 0.47μF/50V M	126F474S
C 6509	ELECTROLYTIC CAP. 47μF/63V M	126A476S
C 6510	SEMICONDUCTOR CAP. F Z 0.22μF/16V	1220524S
C 6511	CERAMIC CAP. F Z 0.047μF/50V	12F3473S
C 6512	CERAMIC CAP. F Z 0.047μF/50V	12F3473S
CONNECTORS		
CN3001	STRAIGHT PIN CONNECTOR 15P	1770635
CN6501	STRAIGHT PIN CONNECTOR 20P	1770640
CN6502	HINGED PIN CONNECTOR 12P	J3TRJ12TG003
DIODES		
D 1001	SCHOTTKY BARRIER DIODE AK03 WK (VIP-5000HC/VIP-5000A Only)	
D 1002	DIODE 1N4003F2 (VIP-5000HC/VIP-5000A Only)	1N4003F2
D 1002	RECTIFIER DIODE EG01C LF-G1 (VCP-300/VCP-300D Only)	QDQZ000EG01C
D 1003	SCHOTTKY BARRIER DIODE AK03 WK (VIP-5000HC/VIP-5000A Only)	
D 1003	ZENER DIODE UZ-7.5BSA (VCP-300/VCP-300D Only) or ZENER DIODE MTZ J7.5A (VCP-300/VCP-300D Only)	QDTA0UZ7R5BS AMTZJ7R5AT77
D 1004	DIODE 1N4003F2 (VIP-5000HC/VIP-5000A Only)	1N4003F2
D 1004	SWITCHING DIODE GMB01-BT (VCP-300/VCP-300D Only) or SWITCHING DIODE 1N4148M (VCP-300/VCP-300D Only)	GMB01BT QDTZ01N4148M
D 1005	SWITCHING DIODE GMB01-BT (VCP-300/VCP-300D Only) or SWITCHING DIODE 1N4148M (VCP-300/VCP-300D Only)	GMB01BT QDTZ01N4148M
D 1006	RECTIFIER DIODE RU2YX LF-C4 (VCP-300/VCP-300D Only)	QDQZ000RU2YX
D 1007	SCHOTTKY BARRIER DIODE AK04 (VCP-300/VCP-300D Only) or SCHOTTKY BARRIER DIODE ERA81-004 (VCP-300/VCP-300D Only)	QDQZ000AK04 QDQZERA81004
D 1008	SWITCHING DIODE MA188 (VCP-300/VCP-300D Only)	QDTZ000MA188
D 1009	SWITCHING DIODE GMB01-BT (VCP-300/VCP-300D Only) or SWITCHING DIODE 1N4148M (VCP-300/VCP-300D Only)	GMB01BT QDTZ01N4148M
D 1011	RECTIFIER DIODE 1A5-E (VCP-300/VCP-300D Only)	NDTZ000001A5
D 1012	RECTIFIER DIODE 1A5-E (VCP-300/VCP-300D Only)	NDTZ000001A5
D 1013	RECTIFIER DIODE 1A5-E (VCP-300/VCP-300D Only)	NDTZ000001A5

Ref.No.	Description	Part No.
D 1014	RECTIFIER DIODE 1A5-E (VCP-300/VCP-300D Only)	NDTZ000001A5
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 2004	SWITCHING DIODE GMB01-BT or SWITCHING DIODE 1N4148M	GMB01BT QDTZ01N4148M
D 3003	SWITCHING DIODE GMB01-BT or SWITCHING DIODE 1N4148M	GMB01BT QDTZ01N4148M
D 4001	ZENER DIODE UZ-3.3BSA or ZENER DIODE MTZ J3.3A	QDTA0UZ3R3BS AMTZJ3R3AT77
D 6501	LED SID1K10CXM	QP4ZD1K10CXM
D 6504	SWITCHING DIODE GMB01-BT or SWITCHING DIODE 1N4148M	GMB01BT QDTZ01N4148M
D 6505	SWITCHING DIODE GMB01-BT or SWITCHING DIODE 1N4148M	GMB01BT QDTZ01N4148M
D 6506	SWITCHING DIODE GMB01-BT or SWITCHING DIODE 1N4148M	GMB01BT QDTZ01N4148M
DL3001	COMB FILTER 4.433619MHZ or COMB FILTER 4.433619MHZ	1813522 1813274
ICS		
IC1001	VOLTAGE REGULATOR IC AN7812F (VIP-5000HC/VIP-5000A Only)	AN7812F
IC1001	PHOTO COUPLER PC120F (VCP-300/VCP-300D Only)	QPEZ00PC120F
IC1002	VOLTAGE REGULATOR IC NJM7805F (VIP-5000HC/VIP-5000A Only)	J7805FA
IC1002	IC AN1431T-(NSC) (VCP-300/VCP-300D Only) or IC L5431 (VCP-300/VCP-300D Only)	QSBLA0ZMS001 QSZLA0ZSY004
IC2001	IC SERVO MN6748FVDP	QSMEA0SMS001
IC2002	IC OP.AMP NJM324D or IC OP.AMP. BA10324A	QSBLA0SJR039 QSBLA0SRM002
IC3001	IC VIDEO LA7390L	QSBLA0SSY022
IC3002	IC CCD LC89925	QSMILA0SSY004
IC4001	IC AUDIO LA3161	QSBLA0SSY023
IC6501	MICROCONTROLLER 4BIT	QSMQA0SMB011
IC6502	IC COMPARATOR LA6339 or IC COMPARATOR NJM2901N or IC BA10339	QSBLA0SSY024 QSBLA0SJR040 BA10339
IC6503	IC TA7291S	14LW342
IC6504	IC RESET PST529D-2	14DM763Z
IC6505	REEL SENSOR SG-211L	PCZLAZZKK003
IC6506	VOLTAGE REGULATOR IC AN78L05 or VOLTAGE REGULATOR IC NJM78L05A	AN78L05 J78L05A
IC6507	IC BU4013B	14DF568
COILS		
L 1001	LINE FILTER 47MH ELF-18D235F (VCP-300/VCP-300D Only)	LLBG00ZMS007
L 1002	LEAD INDUCTOR 22UH K (VCP-300/VCP-300D Only)	LLBD00PTU013
L 1003	LEAD INDUCTOR 22UH K (VCP-300/VCP-300D Only)	LLBD00PTU013
L 1004	LEAD INDUCTOR 22UH K (VCP-300/VCP-300D Only)	LLBD00PTU013
L 3001	INDUCTOR 27UH-K-26T or INDUCTOR 27UH-K-26T	LLAXKDTKA270 LLAXKATTU270

Ref.No.	Description	Part No.
L 3003	INDUCTOR 100UH-K-26T or INDUCTOR 100UH-K-26T	LLAXKDTKA101 LLAXKATTU101
L 3004	INDUCTOR 47UH-K-26T or INDUCTOR 47UH-K-26T	LLAXKDTKA470 LLAXKATTU470
L 3005	INDUCTOR 39UH-K-26T or INDUCTOR 39UH-K-26T	LLAXKDTKA390 LLAXKATTU390
L 3007	INDUCTOR 47UH-K-26T or INDUCTOR 47UH-K-26T	LLAXKDTKA470 LLAXKATTU470
L 3009	INDUCTOR 33UH-K-26T or INDUCTOR 33UH-K-26T	LLAXKDTKA330 LLAXKATTU330
L 3010	INDUCTOR 22UH-K-26T or INDUCTOR 22UH-K-26T	LLAXKDTKA220 LLAXKATTU220
L 3011	INDUCTOR 68UH-K-26T or INDUCTOR 68UH-K-26T	LLAXKDTKA680 LLAXKATTU680
L 3012	INDUCTOR 100UH-K-26T or INDUCTOR 100UH-K-26T	LLAXKDTKA101 LLAXKATTU101
L 3013	INDUCTOR 330UH-K-26T	LLAXKDTKA331
L 3014	INDUCTOR 330UH-K-26T	LLAXKDTKA331
L 3015	INDUCTOR 18UH-K-26T or INDUCTOR 18UH-K-26T	LLAXKDTKA180 LLAXKATTU180
L 3016	INDUCTOR 15UH-K-26T or INDUCTOR 15UH-K-26T	LLAXKDTKA150 LLAXKATTU150
L 3017	INDUCTOR 10UH-K-26T or INDUCTOR 10UH-K-26T	LLAXKDTKA100 LLAXKATTU100
L 6501	INDUCTOR 1.0UH-K-5FT or INDUCTOR 1.0UH-K-5FT	LLARKBSFS1R0 LLARKBSTU1R0
L 6502	INDUCTOR 1.0UH-K-5FT or INDUCTOR 1.0UH-K-5FT	LLARKBSFS1R0 LLARKBSTU1R0
TRANSISTORS		
Q 1001	TRANSISTOR 2SB893(F) (VCP-300/VCP-300D Only) or TRANSISTOR 2SB893(G) (VCP-300/VCP-300D Only)	QQSF002SB893 QQSG002SB893
Q 1002	TRANSISTOR 2SB893(F) (VIP-5000HC/VIP-5000A Only) or TRANSISTOR 2SC2839(F) (VIP-5000HC/VIP-5000A Only)	QQSF002SB893 QQSG002SB893
Q 1003	TRANSISTOR 2SC4517 (VCP-300/VCP-300D Only) or TRANSISTOR 2SC3866 (VCP-300/VCP-300D Only)	QQPZ02SC4517 QQPZ02SC3866
Q 1004	TRANSISTOR 2SC4204 (VCP-300/VCP-300D Only)	QQSZ02SC4204
Q 1005	TRANSISTOR 2SC3331(T) (VCP-300/VCP-300D Only) or TRANSISTOR 2SC3331(U) (VCP-300/VCP-300D Only)	QSC3331TNPAA QSC3331UNPAA
Q 2001	RES. BUILT-IN TRANSISTOR 2SA1346 or RES. BUILT-IN TRANSISTOR DTA124ES or RES. BUILT-IN TRANSISTOR KRA103M	A1346Z A124ESZ NQSZ0KRA103M
Q 2003	RES. BUILT-IN TRANSISTOR 2SA1346 or RES. BUILT-IN TRANSISTOR DTA124ES or RES. BUILT-IN TRANSISTOR KRA103M	A1346Z A124ESZ NQSZ0KRA103M
Q 2005	RES. BUILT-IN TRANSISTOR 2SC3400 or RES. BUILT-IN TRANSISTOR DTC124ES or RES. BUILT-IN TRANSISTOR KRC103M	C3400Z C124ESZ NQSZ0KRC103M
Q 3003	TRANSISTOR 2SA608SP(E) or TRANSISTOR 2SA608SP(F) or TRANSISTOR 2SA933(Q) or TRANSISTOR 2SA933(R) or TRANSISTOR 2SA1267(GR)	A608SEZ A608SFZ A933QZ A933RZ NQS402SA1267

Ref.No.	Description	Part No.
Q 3004	TRANSISTOR 2SA608SP(E) or TRANSISTOR 2SA608SP(F) or TRANSISTOR 2SA933(Q) or TRANSISTOR 2SA933(R) or TRANSISTOR 2SA1267(GR)	A608SEZ A608SFZ A933QZ A933RZ NQS402SA1267
Q 3005	TRANSISTOR 2SC536SP(E) or TRANSISTOR 2SC536SP(F) or TRANSISTOR 2SC1740(Q) or TRANSISTOR 2SC1740(R) or TRANSISTOR 2SC3199(GR)	C536SEZ C536SFZ C1740QZ C1740RZ NQS402SC3199
Q 3008	TRANSISTOR 2SC536SP(E) or TRANSISTOR 2SC536SP(F) or TRANSISTOR 2SC1740(Q) or TRANSISTOR 2SC1740(R) or TRANSISTOR 2SC3199(GR)	C536SEZ C536SFZ C1740QZ C1740RZ NQS402SC3199
Q 3015	TRANSISTOR 2SC2839(E) or TRANSISTOR 2SC2839(F) or TRANSISTOR 2SC2058(P) or TRANSISTOR 2SC2058(Q) or TRANSISTOR 2SC3193(Y)	C2839EZ C2839FZ C2058PZ C2058QZ NQSY02SC3193
Q 3016	TRANSISTOR 2SC2839(E) or TRANSISTOR 2SC2839(F) or TRANSISTOR 2SC2058(P) or TRANSISTOR 2SC2058(Q) or TRANSISTOR 2SC3193(Y)	C2839EZ C2839FZ C2058PZ C2058QZ NQSY02SC3193
Q 3017	RES. BUILT-IN TRANSISTOR 2SA1346 or RES. BUILT-IN TRANSISTOR DTA124ES or RES. BUILT-IN TRANSISTOR KRA103M	A1346Z A124ESZ NQSZ0KRA103M
Q 3018	RES. BUILT-IN TRANSISTOR DTA144WS or RES. BUILT-IN TRANSISTOR KRA109M	A144WSZ NQSZ0KRA109M
Q 3019	RES. BUILT-IN TRANSISTOR 2SC3400 or RES. BUILT-IN TRANSISTOR DTC124ES or RES. BUILT-IN TRANSISTOR KRC103M	C3400Z C124ESZ NQSZ0KRC103M
Q 3020	TRANSISTOR 2SC536SP(E) or TRANSISTOR 2SC536SP(F) or TRANSISTOR 2SC1740(Q) or TRANSISTOR 2SC1740(R) or TRANSISTOR 2SC3199(GR)	C536SEZ C536SFZ C1740QZ C1740RZ NQS402SC3199
Q 3022	TRANSISTOR 2SA1317(S) or TRANSISTOR 2SA1317(T)	A1317SZ A1317TZ
Q 3023	TRANSISTOR 2SC536SP(E) or TRANSISTOR 2SC536SP(F) or TRANSISTOR 2SC1740(Q) or TRANSISTOR 2SC1740(R) or TRANSISTOR 2SC3199(GR)	C536SEZ C536SFZ C1740QZ C1740RZ NQS402SC3199
Q 3024	TRANSISTOR 2SC536SP(E) or TRANSISTOR 2SC536SP(F) or TRANSISTOR 2SC1740(Q) or TRANSISTOR 2SC1740(R) or TRANSISTOR 2SC3199(GR)	C536SEZ C536SFZ C1740QZ C1740RZ NQS402SC3199
Q 4001	TRANSISTOR 2SD1468(R) or TRANSISTOR 2SD1468(S) or TRANSISTOR 2SD545(F) or TRANSISTOR 2SD545(G) or TRANSISTOR 2SD1012(F) or TRANSISTOR 2SD1012(G)	D1468RZ D1468SZ QQSF2SD545NP QQSG2SD545NP D1012FZ D1012GZ
Q 6501	TRANSISTOR 2SD400(F)	D400FZ
Q 6502	RES. BUILT-IN TRANSISTOR DTA144TS	QDTA144TSTP0
Q 6504	RES. BUILT-IN TRANSISTOR DTA144TS	QDTA144TSTP0
Q 6506	PHOTO TRANSISTOR PT380F	QP4Z00PT380F

Ref.No.	Description	Part No.
Q 6507	PHOTO TRANSISTOR PT380F	QP4Z00PT380F
Q 6508	RES. BUILT-IN TRANSISTOR 2SC3400 or RES. BUILT-IN TRANSISTOR DTC124ES or RES. BUILT-IN TRANSISTOR KRC103M	C3400Z C124ESZ NQSZ0KRC103M
Q 6509	RES. BUILT-IN TRANSISTOR DTA144TS	QDTA144TSTP0
RESISTORS		
R 1001	CARBON RES. 1/4W J 1KΩ or CARBON RES. 1/6W J 1KΩ	RCX4JATZ0102 132A102T
R 1003	METAL RES.(NO CUT) 2W J 4.7Ω (VCP-300/VCP-300D Only)	RN024R7KE005
R 1004	METAL RES. 2W J 82KΩ (VCP-300/VCP-300D Only)	1330513
R 1005	METAL RES. 2W J 180KΩ (VCP-300/VCP-300D Only)	RN02184KA006
R 1006	METAL RES. 2W J 180KΩ (VCP-300/VCP-300D Only)	RN02184KA006
R 1007	METAL RES. 1W J 82Ω (VCP-300/VCP-300D Only)	1330412
R 1008	METAL RES. 1W J 1Ω (VCP-300/VCP-300D Only)	1330389
R 1009	CARBON RES. 1/2W J 390Ω (VCP-300/VCP-300D Only)	RCX2391KA003
R 1010	CARBON RES. 1/4W J 3.9KΩ (VCP-300/VCP-300D Only) or CARBON RES. 1/6W J 3.9KΩ (VCP-300/VCP-300D Only)	RCX4JATZ0392 132A392T
R 1011	CARBON RES. 1/4W J 220Ω (VCP-300/VCP-300D Only) or CARBON RES. 1/6W J 220Ω (VCP-300/VCP-300D Only)	RCX4JATZ0221 132A221T
R 1012	CARBON RES. 1/2W J 470Ω (VCP-300/VCP-300D Only)	RCX2471KA003
R 1013	CARBON RES. 1/4W J 2.7KΩ (VCP-300/VCP-300D Only) or CARBON RES. 1/6W J 2.7KΩ (VCP-300/VCP-300D Only)	RCX4JATZ0272 132A272T
R 1014	CARBON RES. 1/4W J 1KΩ (VCP-300/VCP-300D Only) or CARBON RES. 1/6W J 1KΩ (VCP-300/VCP-300D Only)	RCX4JATZ0102 132A102T
R 1015	CARBON RES. 1/4W G 2.4KΩ (VCP-300/VCP-300D Only)	RCX4GATZ0242
R 1017	CARBON RES. 1/4W G 2.2KΩ (VCP-300/VCP-300D Only)	RCX4GATZ0222
R 1018	CARBON RES. 1/4W J 1KΩ (VCP-300/VCP-300D Only) or CARBON RES. 1/6W J 1KΩ (VCP-300/VCP-300D Only)	RCX4JATZ0102 132A102T
R 2001	CHIP RES. 1/10W J 18KΩ	RRXAJBBZ0183
R 2002	CHIP RES. 1/10W J 0Ω	RRXAJBBZ0000
R 2003	CHIP RES. 1/10W J 0Ω	RRXAJBBZ0000
R 2004	CHIP RES. 1/10W J 4.7KΩ	RRXAJBBZ0472
R 2005	CHIP RES. 1/10W J 47KΩ	RRXAJBBZ0473
R 2006	CHIP RES. 1/10W J 180KΩ	RRXAJBBZ0184
R 2007	CHIP RES. 1/10W J 56KΩ	RRXAJBBZ0563
R 2008	CHIP RES. 1/10W J 1.8KΩ	RRXAJBBZ0182
R 2009	CHIP RES. 1/10W J 150KΩ	RRXAJBBZ0154
R 2010	CHIP RES. 1/10W J 56KΩ	RRXAJBBZ0563
R 2011	CHIP RES. 1/10W J 47KΩ	RRXAJBBZ0473
R 2012	CHIP RES. 1/10W J 56KΩ	RRXAJBBZ0563
R 2013	CHIP RES. 1/10W J 10KΩ	RRXAJBBZ0103
R 2014	CHIP RES. 1/10W J 150KΩ	RRXAJBBZ0154

Ref.No.	Description	Part No.
R 2015	CHIP RES. 1/10W J 100KΩ	RRXAJBBZ0104
R 2016	CHIP RES. 1/10W J 56KΩ	RRXAJBBZ0563
R 2017	CHIP RES. 1/10W J 56KΩ	RRXAJBBZ0563
R 2018	CARBON RES. 1/4W J 22KΩ or CARBON RES. 1/6W J 22KΩ	RCX4JATZ0223 132A223T
R 2020	CHIP RES. 1/10W J 10KΩ	RRXAJBBZ0103
R 2021	CARBON RES. 1/4W J 4.7KΩ or CARBON RES. 1/6W J 4.7KΩ	RCX4JATZ0472 132A472T
R 2022	CHIP RES. 1/10W J 39KΩ	RRXAJBBZ0393
R 2023	CHIP RES. 1/10W J 4.7KΩ	RRXAJBBZ0472
R 2024	CARBON RES. 1/4W J 22KΩ or CARBON RES. 1/6W J 22KΩ	RCX4JATZ0223 132A223T
R 2025	CHIP RES. 1/10W J 10KΩ	RRXAJBBZ0103
R 2026	CHIP RES. 1/10W J 10KΩ	RRXAJBBZ0103
R 2027	CHIP RES. 1/10W J 22KΩ	RRXAJBBZ0223
R 2028	CHIP RES. 1/10W J 0Ω	RRXAJBBZ0000
R 2030	CHIP RES. 1/10W J 47KΩ	RRXAJBBZ0473
R 2032	CHIP RES. 1/10W J 2.2KΩ	RRXAJBBZ0222
R 2033	CHIP RES. 1/10W J 56KΩ	RRXAJBBZ0563
R 2035	CHIP RES. 1/10W J 100Ω	RRXAJBBZ0101
R 2036	CHIP RES. 1/10W J 4.7MΩ	RRXAJBBZ0475
R 2037	CHIP RES. 1/10W J 2.2KΩ	RRXAJBBZ0222
R 2050	CARBON RES. 1/4W J 150Ω or CARBON RES. 1/6W J 150Ω	RCX4JATZ0151 132A151T
R 2051	CHIP RES. 1/10W J 13KΩ	RRXAJBBZ0133
R 2052	CHIP RES. 1/10W J 56KΩ	RRXAJBBZ0563
R 3001	CHIP RES. 1/10W J 330Ω	RRXAJBBZ0331
R 3002	CHIP RES. 1/10W J 2.2KΩ	RRXAJBBZ0222
R 3003	CHIP RES. 1/10W J 22KΩ	RRXAJBBZ0223
R 3004	CHIP RES. 1/10W J 1.5KΩ	RRXAJBBZ0152
R 3005	CHIP RES. 1/10W J 4.7KΩ	RRXAJBBZ0472
R 3006	CHIP RES. 1/10W J 2.7KΩ	RRXAJBBZ0272
R 3007	CHIP RES. 1/10W J 1KΩ	RRXAJBBZ0102
R 3008	CHIP RES. 1/10W J 2.7KΩ	RRXAJBBZ0272
R 3009	CHIP RES. 1/10W J 2.7KΩ	RRXAJBBZ0272
R 3010	CHIP RES. 1/10W J 390Ω	RRXAJBBZ0391
R 3011	CHIP RES. 1/10W J 1MΩ	RRXAJBBZ0105
R 3012	CHIP RES. 1/10W J 8.2KΩ	RRXAJBBZ0822
R 3013	CHIP RES. 1/10W J 4.7KΩ	RRXAJBBZ0472
R 3025	CHIP RES. 1/10W J 1KΩ	RRXAJBBZ0102
R 3026	CHIP RES. 1/10W J 1KΩ	RRXAJBBZ0102
R 3027	CHIP RES. 1/10W J 22KΩ	RRXAJBBZ0223
R 3028	CHIP RES. 1/10W J 1KΩ	RRXAJBBZ0102
R 3031	CHIP RES. 1/10W J 270Ω	RRXAJBBZ0271
R 3041	CHIP RES. 1/10W J 2.2KΩ	RRXAJBBZ0222
R 3042	CHIP RES. 1/10W J 10KΩ	RRXAJBBZ0103
R 3055	CHIP RES. 1/10W J 3.3KΩ	RRXAJBBZ0332
R 3056	CHIP RES. 1/10W J 330Ω	RRXAJBBZ0331
R 3057	CHIP RES. 1/10W J 1KΩ	RRXAJBBZ0102
R 3058	CHIP RES. 1/10W J 2.2KΩ	RRXAJBBZ0222
R 3059	CHIP RES. 1/10W J 390Ω	RRXAJBBZ0391
R 3060	CHIP RES. 1/10W J 1KΩ	RRXAJBBZ0102
R 3061	CHIP RES. 1/10W J 390Ω	RRXAJBBZ0391
R 3062	CHIP RES. 1/10W J 1.8KΩ	RRXAJBBZ0182
R 3063	CHIP RES. 1/10W J 27KΩ	RRXAJBBZ0273
R 3064	CHIP RES. 1/10W J 8.2KΩ	RRXAJBBZ0822
R 3065	CHIP RES. 1/10W J 470Ω	RRXAJBBZ0471
R 3066	CHIP RES. 1/10W J 10KΩ	RRXAJBBZ0103
R 3067	CHIP RES. 1/10W J 2.7KΩ	RRXAJBBZ0272
R 3068	CHIP RES. 1/10W J 390Ω	RRXAJBBZ0391

Ref.No.	Description	Part No.
R 3069	CHIP RES. 1/10W J 1KΩ	RRXAJBBZ0102
R 3071	CHIP RES. 1/10W J 1.2KΩ	RRXAJBBZ0122
R 3072	CARBON RES. 1/4W J 680Ω or CARBON RES. 1/6W J 680Ω	RCX4JATZ0681 132A681T
R 3073	CARBON RES. 1/4W J 680Ω or CARBON RES. 1/6W J 680Ω	RCX4JATZ0681 132A681T
R 3074	CHIP RES. 1/10W J 2.2KΩ	RRXAJBBZ0222
R 3075	CHIP RES. 1/10W J 18KΩ	RRXAJBBZ0183
R 3076	CHIP RES. 1/10W J 10KΩ	RRXAJBBZ0103
R 3077	CHIP RES. 1/10W J 1KΩ	RRXAJBBZ0102
R 3078	CARBON RES. 1/4W J 22KΩ or CARBON RES. 1/6W J 22KΩ	RCX4JATZ0223 132A223T
R 4001	CHIP RES. 1/10W J 100Ω	RRXAJBBZ0101
R 4002	CHIP RES. 1/10W J 120KΩ	RRXAJBBZ0124
R 4003	CHIP RES. 1/10W J 3.9KΩ	RRXAJBBZ0392
R 4005	CHIP RES. 1/10W J 100KΩ	RRXAJBBZ0104
R 4006	CHIP RES. 1/10W J 2.2KΩ	RRXAJBBZ0222
R 4007	CHIP RES. 1/10W J 4.7KΩ	RRXAJBBZ0472
R 4008	CARBON RES. 1/4W J 330Ω or CARBON RES. 1/6W J 330Ω	RCX4JATZ0331 132A331T
R 4009	CHIP RES. 1/10W J 4.7KΩ	RRXAJBBZ0472
R 6501	CHIP RES. 1/10W J 47KΩ	RRXAJBBZ0473
R 6502	CARBON RES. 1/4W J 15KΩ or CARBON RES. 1/6W J 15KΩ	RCX4JATZ0153 132A153T
R 6503	CARBON RES. 1/4W J 15KΩ or CARBON RES. 1/6W J 15KΩ	RCX4JATZ0153 132A153T
R 6504	CARBON RES. 1/4W J 5.6KΩ or CARBON RES. 1/6W J 5.6KΩ	RCX4JATZ0562 132A562T
R 6505	CARBON RES. 1/4W J 5.6KΩ or CARBON RES. 1/6W J 5.6KΩ	RCX4JATZ0562 132A562T
R 6506	CARBON RES. 1/4W J 4.7KΩ or CARBON RES. 1/6W J 4.7KΩ	RCX4JATZ0472 132A472T
R 6507	CARBON RES. 1/4W J 4.7KΩ or CARBON RES. 1/6W J 4.7KΩ	RCX4JATZ0472 132A472T
R 6508	METAL RES. 2W J 3.3Ω or METAL RES. 2W J 3.3Ω	1330460 1330318
R 6509	CHIP RES. 1/10W J 4.7KΩ	RRXAJBBZ0472
R 6510	CHIP RES. 1/10W J 4.7KΩ (VIP-5000HC/VIP-5000A Only)	RRXAJBBZ0472
R 6512	CHIP RES. 1/10W J 2.2KΩ	RRXAJBBZ0222
R 6513	CHIP RES. 1/10W J 4.7KΩ	RRXAJBBZ0472
R 6514	CHIP RES. 1/10W J 1KΩ	RRXAJBBZ0102
R 6515	CHIP RES. 1/10W J 47KΩ	RRXAJBBZ0473
R 6516	CHIP RES. 1/10W J 47KΩ	RRXAJBBZ0473
R 6517	CHIP RES. 1/10W J 47KΩ	RRXAJBBZ0473
R 6518	CHIP RES. 1/10W J 4.7KΩ	RRXAJBBZ0472
R 6519	CHIP RES. 1/10W J 4.7KΩ	RRXAJBBZ0472
R 6520	CHIP RES. 1/10W J 4.7KΩ	RRXAJBBZ0472
R 6521	CHIP RES. 1/10W J 4.7KΩ	RRXAJBBZ0472
R 6522	CHIP RES. 1/10W J 2.2KΩ	RRXAJBBZ0222
R 6523	CHIP RES. 1/10W J 2.2KΩ	RRXAJBBZ0222
R 6524	CHIP RES. 1/10W J 2.2KΩ	RRXAJBBZ0222
R 6525	CHIP RES. 1/10W J 2.2KΩ	RRXAJBBZ0222
R 6526	CARBON RES. 1/4W J 47Ω or CARBON RES. 1/6W J 47Ω	RCX4JATZ0470 132A470T
R 6527	CARBON RES. 1/4W J 4.7Ω or CARBON RES. 1/6W J 4.7Ω	RCX4JATZ0470 132A479T
R 6528	CARBON RES. 1/4W J 1KΩ or CARBON RES. 1/6W J 1KΩ	RCX4JATZ0102 132A102T

Ref.No.	Description	Part No.
R 6529	CARBON RES. 1/4W J 4.7KΩ or CARBON RES. 1/6W J 4.7KΩ	RCX4JATZ0472 132A472T
R 6530	CHIP RES. 1/10W J 10KΩ	RRXAJBBZ0103
R 6531	CARBON RES. 1/4W J 180Ω or CARBON RES. 1/6W J 180Ω	RCX4JATZ0181 132A181T
R 6532	CHIP RES. 1/10W J 1MΩ	RRXAJBBZ0105
R 6533	CHIP RES. 1/10W J 6.8KΩ	RRXAJBBZ0682
R 6534	CHIP RES. 1/10W J 6.8KΩ	RRXAJBBZ0682
R 6535	CHIP RES. 1/10W J 1.5MΩ	RRXAJBBZ0155
R 6536	CHIP RES. 1/10W J 2.7KΩ	RRXAJBBZ0272
R 6537	CHIP RES. 1/10W J 100KΩ	RRXAJBBZ0104
R 6538	CARBON RES. 1/4W J 75KΩ or CARBON RES. 1/6W J 75KΩ	RCX4JATZ0753 132A753T
R 6539	CHIP RES. 1/10W J 33KΩ	RRXAJBBZ0333
R 6540	CHIP RES. 1/10W J 2.7KΩ	RRXAJBBZ0272
R 6541	CHIP RES. 1/10W J 1.5MΩ	RRXAJBBZ0155
R 6542	CARBON RES. 1/4W J 4.7KΩ or CARBON RES. 1/6W J 4.7KΩ	RCX4JATZ0472 132A472T
R 6543	CARBON RES. 1/4W J 4.7KΩ or CARBON RES. 1/6W J 4.7KΩ	RCX4JATZ0472 132A472T
R 6545	CARBON RES. 1/4W J 4.7KΩ or CARBON RES. 1/6W J 4.7KΩ	RCX4JATZ0472 132A472T
R 6546	CHIP RES. 1/10W J 47KΩ	RRXAJBBZ0473
R 6547	CHIP RES. 1/10W J 1KΩ	RRXAJBBZ0102
R 6548	CHIP RES. 1/10W J 2.7KΩ	RRXAJBBZ0272
R 6549	CHIP RES. 1/10W J 3.3KΩ	RRXAJBBZ0332
R 6550	CARBON RES. 1/4W J 1KΩ or CARBON RES. 1/6W J 1KΩ	RCX4JATZ0102 132A102T
R 6551	CARBON RES. 1/4W J 2.7KΩ or CARBON RES. 1/6W J 2.7KΩ	RCX4JATZ0272 132A272T
R 6552	CHIP RES. 1/10W J 3.3KΩ	RRXAJBBZ0332
R 6553	CHIP RES. 1/10W J 100Ω	RRXAJBBZ0101
R 6554	CHIP RES. 1/10W J 100Ω	RRXAJBBZ0101
R 6555	CARBON RES. 1/4W J 47KΩ or CARBON RES. 1/6W J 47KΩ	RCX4JATZ0473 132A473T
R 6556	CARBON RES. 1/4W J 47KΩ or CARBON RES. 1/6W J 47KΩ	RCX4JATZ0473 132A473T
R 6557	CARBON RES. 1/4W J 47KΩ or CARBON RES. 1/6W J 47KΩ	RCX4JATZ0473 132A473T
R 6559	CARBON RES. 1/4W J 160KΩ or CARBON RES. 1/6W J 160KΩ	RCX4JATZ0164 132A164T
R 6560	CARBON RES. 1/4W J 160KΩ or CARBON RES. 1/6W J 160KΩ	RCX4JATZ0164 132A164T
R 7501	CHIP RES. 1/10W J 68Ω	RRXAJBBZ0680
R 7502	CHIP RES. 1/10W J 150Ω	RRXAJBBZ0151
R 7503	CHIP RES. 1/10W J 180Ω	RRXAJBBZ0181
SWITCHES		
SW3001	SLIDE SWITCH SLD-12-594	SSS0102KB013
SW6501	PUSH SWITCH SW-112-3 or PUSH SWITCH EVQ-21509K or PUSH SWITCH SKHVBH or PUSH SWITCH SOR-142HS R66-4519	SSP0101KB001 SST0101MS011 SST0101AL011 SST0101MM011
SW6502	PUSH SWITCH EVQ-21509K or PUSH SWITCH SKHVBH or PUSH SWITCH SOR-142HS R66-4519	SST0101MS011 SST0101AL011 SST0101MM011
SW6503	PUSH SWITCH EVQ-21509K or PUSH SWITCH SKHVBH or PUSH SWITCH SOR-142HS R66-4519	SST0101MS011 SST0101AL011 SST0101MM011

Ref.No.	Description	Part No.
SW6504	PUSH SWITCH EVQ-21509K or PUSH SWITCH SKHVBH or PUSH SWITCH SOR-142HS R66-4519	SST0101MS011 SST0101AL011 SST0101MM011
SW6505	PUSH SWITCH EVQ-21509K or PUSH SWITCH SKHVBH or PUSH SWITCH SOR-142HS R66-4519	SST0101MS011 SST0101AL011 SST0101MM011
SW6506	PUSH SWITCH EVQ-21509K or PUSH SWITCH SKHVBH or PUSH SWITCH SOR-142HS R66-4519	SST0101MS011 SST0101AL011 SST0101MM011
SW6507	PUSH SWITCH EVQ-21509K or PUSH SWITCH SKHVBH or PUSH SWITCH SOR-142HS R66-4519	SST0101MS011 SST0101AL011 SST0101MM011
SW6508	PUSH SWITCH EVQ-21509K or PUSH SWITCH SKHVBH or PUSH SWITCH SOR-142HS R66-4519	SST0101MS011 SST0101AL011 SST0101MM011
SW6509	PUSH SWITCH EVQ-21509K or PUSH SWITCH SKHVBH or PUSH SWITCH SOR-142HS R66-4519	SST0101MS011 SST0101AL011 SST0101MM011
SW6510	PUSH SWITCH EVQ-21509K or PUSH SWITCH SKHVBH or PUSH SWITCH SOR-142HS R66-4519	SST0101MS011 SST0101AL011 SST0101MM011
VARIABLE RESISTORS		
VR2002	CARBON P.O.T. 100KΩ or CARBON P.O.T. 100KΩ or CARBON P.O.T. 100KΩ or CARBON P.O.T. 100KΩ B	238A402Y 238A427Y 238N497Y VRCB104KA010
MISCELLANEOUS		
2B 4	HEATSINK (VIP-5000A/VCP-300 Only)	0VM404624
2B 5	BUSH LED	6N50114
2B 8	SPACER TRANS	0VM404498
2B 9	SPACER CONVERTER	0VM404631
2B 11	HOLDER REEL SENSOR	0VM200965B
2L 041	SCREW P-TIGHT BIND HEAD 4X12 (VIP-5000A/VCP-300 Only)	GBMP4120
2L 071	SCREW S-TIGHT BIND HEAD M3X5	GBMS3050
2L 081	SCREW P-TIGHT BIND HEAD 3X10 (VIP-5000A/VCP-300 Only)	GBMP3100
A 9	JACK BOARD(B) (VIP-5000A/VCP-300 Only)	0VM201242
A 9	JACK BOARD (VCP-300D Only)	0VM201269
AC1001	AC CORD LA-1296-2 or AC CORD EP-631-E01	WAE0202LW006 WAE0202NW008
F 1001	FUSE T1.60A/250V (VCP-300/VCP-300D Only) or FUSE T1.60A/250V (VCP-300/VCP-300D Only)	1790483 1790994
JK7501	RCAJACK(YELLOW/WHITE)	JXRL030HD002
MD7501	RF CONVERTOR MDLK5D609A (VIP-5000A/VCP-300 Only) or RF CONVERTOR MDLK5D624A (VIP-5000A/VCP-300 Only)	URFCPLBAL002 URFCPLBAL003
MD7501	RF CONVERTOR 6E303A (VIP-5000HC/VCP-300D Only) or RF CONVERTOR ENC-47975 (VIP-5000HC/VCP-300D Only) or RF CONVERTOR E1653GF (VIP-5000HC/VCP-300D Only)	1813510 URFCPLSMS007 URFCPLSSH001
T 1001	POWER TRANS 200V 50HZ (VIP-5000HC/VIP-5000A Only) or POWER TRANS 200V 50HZ (VIP-5000HC/VIP-5000A Only)	LLT48EPSA003 LLT48EPSB003

Ref.No.	Description	Part No.
T 1001	SWITCHING TRANS ETE27K14AY (VCP-300/VCP-300D Only) or SWITCHING TRANS S0907 A0507 (VCP-300/VCP-300D Only) or SWITCHING TRANS SRW2929ED-562V015 (VCP-300/VCP-300D Only)	LTT00ZPMS003 LTT00ZPSA003 LTT00ZPTE003
X 3001	X'TAL 4.433619MHZ or X'TAL 4.433619MHZ	1811366 1811388
X 6501	CERAMIC RESONATOR 4MHZ or CERAMIC RESONATOR 4MHZ HOLDER JACK or SPACER DECK or LEAD CLAMPER	FY0405TMR001 FY0405TMS002 0VM301867 0VM401389 1790356

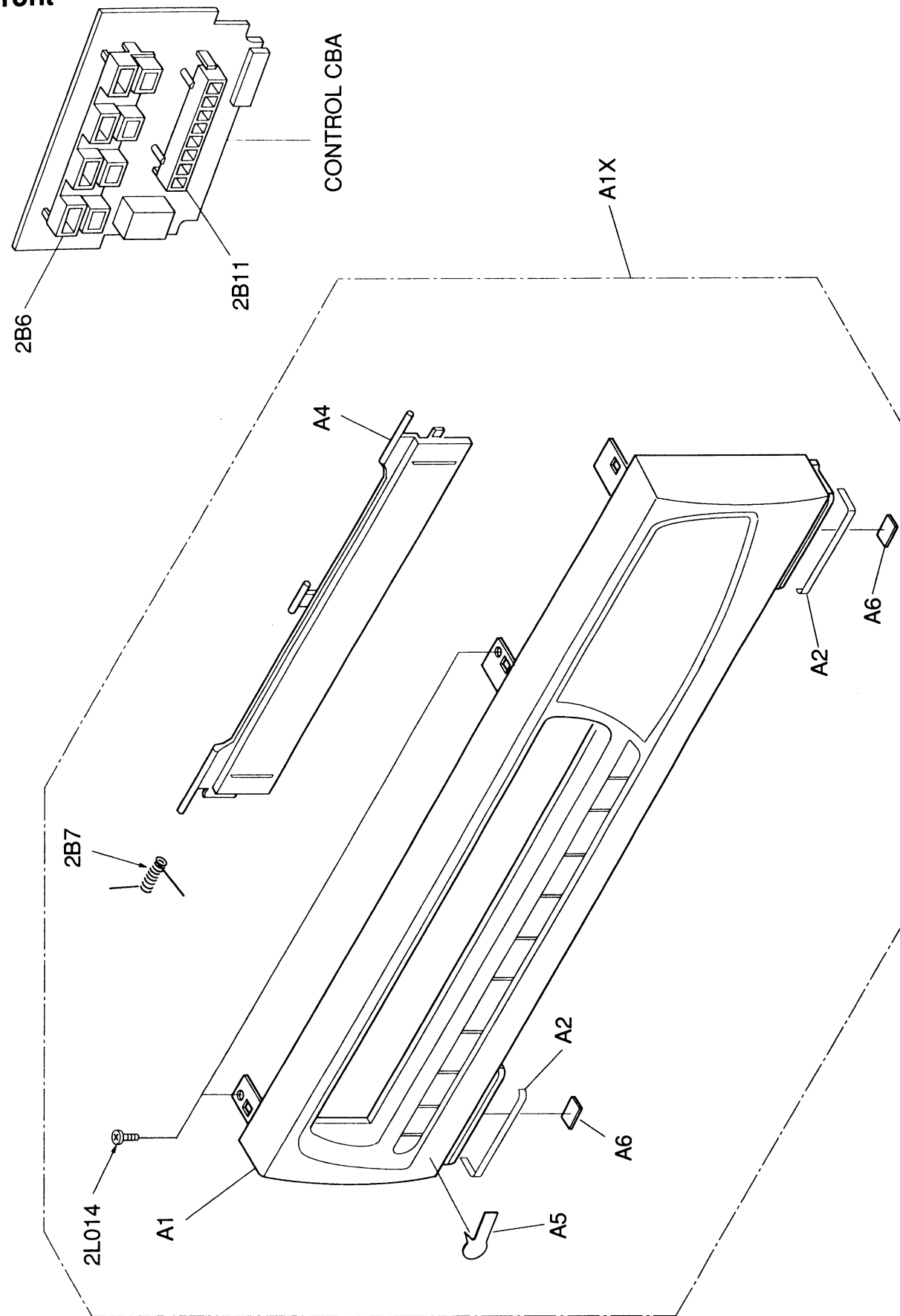
CONTROL (MCV-B) CBA

Ref.No.	Description	Part No.
	CONTROL (MCV-B) CBA CONSISTS OF THE FOLLOWING:	-----
CAPACITORS		
C 5501	ELECTROLYTIC CAP. 47μF/63V M	126A476S
C 5502	ELECTROLYTIC CAP. 47μF/63V M	126A476S
C 5503	ELECTROLYTIC CAP. 10μF/16V M	126C106S
CONNECTOR		
CN5501	HINGED SOCKET CONNECTOR 12P	JCTRG12TG002
DIODES		
D 5501	LED(RED) SEL2115RMEX	QP4Z2115RMEX
D 5502	LED(GREEN) SEL2315GMEX	QP5Z2315GMEX
D 5504	LED(GREEN) SEL2315GMEX	QP5Z2315GMEX
D 5505	LED(GREEN) SEL2315GMEX	QP5Z2315GMEX
D 5507	LED(RED) SEL2115RMEX	QP4Z2115RMEX
D 5509	LED(RED) SEL2115RMEX	QP4Z2115RMEX
D 5510	LED(GREEN) SEL2315GMEX	QP5Z2315GMEX
D 5511	LED(GREEN) SEL2315GMEX	QP5Z2315GMEX
D 5512	LED(GREEN) SEL2315GMEX	QP5Z2315GMEX
D 5514	LED(GREEN) SEL2315GMEX	QP5Z2315GMEX
D 5515	LED(RED) SEL2115RMEX	QP4Z2115RMEX
D 5516	LED(GREEN) SEL2315GMEX	QP5Z2315GMEX
D 5517	LED(RED) SEL2115RMEX	QP4Z2115RMEX
D 5518	LED(RED) SEL2115RMEX	QP4Z2115RMEX
D 5519	LED(GREEN) SEL2315GMEX	QP5Z2315GMEX
IC		
IC5501	IC LEVEL METER LB1403N	GLB1403N****
TRANSISTORS		
Q 5501	RES. BUILT-IN TRANSISTOR 2SA1346 or RES. BUILT-IN TRANSISTOR DTA124ES or RES. BUILT-IN TRANSISTOR KRA103M	A1346Z A124ESZ NQSZ0KRA103M
Q 5502	RES. BUILT-IN TRANSISTOR 2SC3400 or RES. BUILT-IN TRANSISTOR DTC124ES or RES. BUILT-IN TRANSISTOR KRC103M	C3400Z C124ESZ NQSZ0KRC103M
Q 5503	RES. BUILT-IN TRANSISTOR 2SC3400 or RES. BUILT-IN TRANSISTOR DTC124ES or RES. BUILT-IN TRANSISTOR KRC103M	C3400Z C124ESZ NQSZ0KRC103M
RESISTORS		
R 5501	CHIP RES. 1/10W J 100Ω	RRXAJBBZ0101
R 5502	CARBON RES. 1/4W J 47KΩ or CARBON RES. 1/6W J 47KΩ	RCX4JATZ0473 132A473T

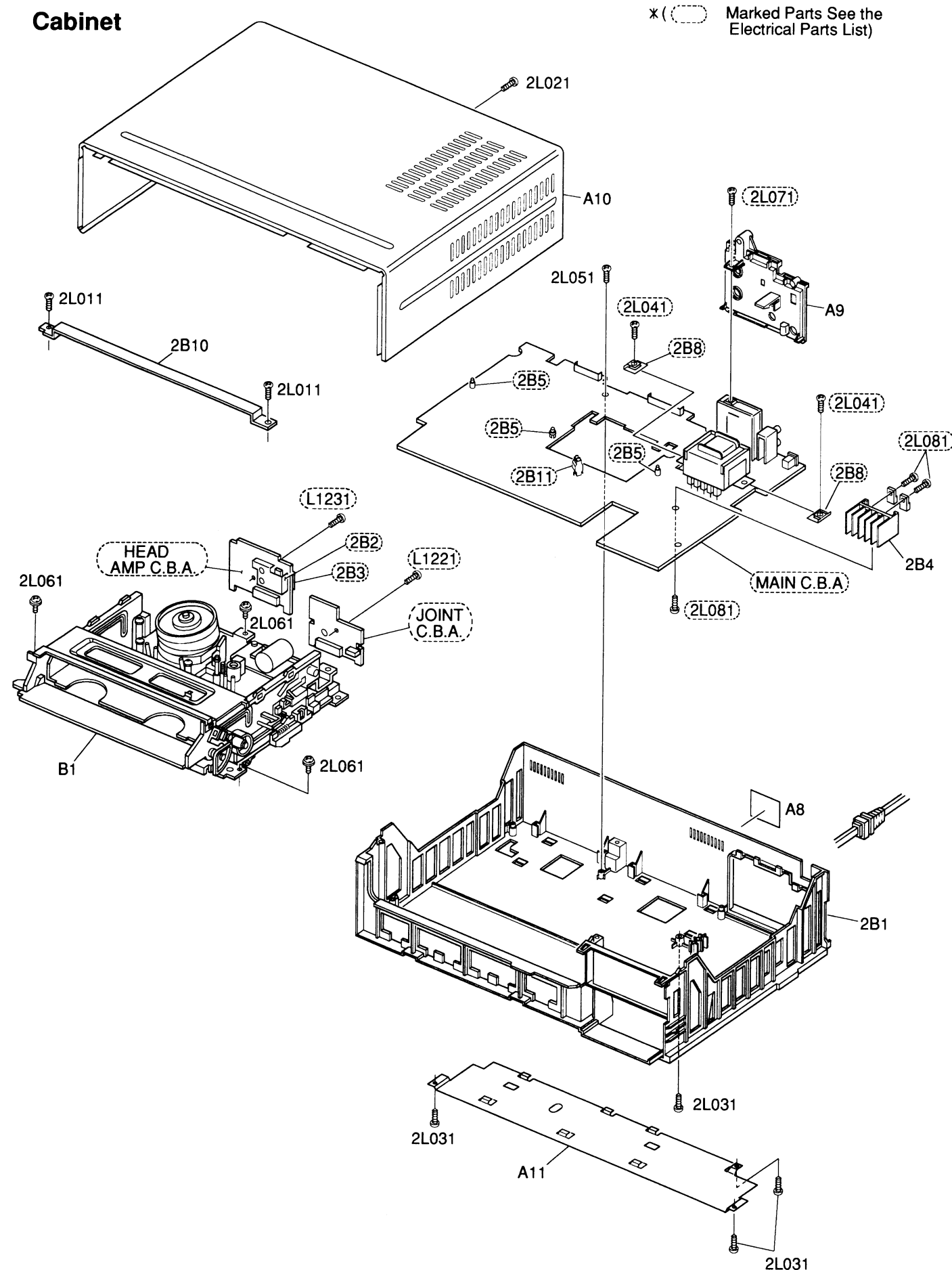
Ref.No.	Description	Part No.
R 5503	CARBON RES. 1/4W J 1KΩ or CARBON RES. 1/6W J 1KΩ	RCX4JATZ0102 132A102T
R 5505	CHIP RES. 1/10W J 220Ω	RRXAJBBZ0221
R 5507	CARBON RES. 1/4W J 2.7KΩ or CARBON RES. 1/6W J 2.7KΩ	RCX4JATZ0272 132A272T
R 5512	CARBON RES. 1/4W J 390Ω or CARBON RES. 1/6W J 390Ω	RCX4JATZ0391 132A391T
R 5515	CARBON RES. 1/4W J 270Ω or CARBON RES. 1/6W J 270Ω	RCX4JATZ0271 132A271T
R 5516	CARBON RES. 1/4W J 10KΩ or CARBON RES. 1/6W J 10KΩ	RCX4JATZ0103 132A103T
R 5517	CHIP RES. 1/10W J 220Ω	RRXAJBBZ0221
R 5518	CHIP RES. 1/10W J 220Ω	RRXAJBBZ0221
R 5519	CHIP RES. 1/10W J 220Ω	RRXAJBBZ0221
R 5520	CHIP RES. 1/10W J 330Ω	RRXAJBBZ0331
R 5521	CARBON RES. 1/4W J 330Ω or CARBON RES. 1/6W J 330Ω	RCX4JATZ0331 132A331T
R 5522	CARBON RES. 1/4W J 8.2KΩ or CARBON RES. 1/6W J 8.2KΩ	RCX4JATZ0822 132A822T
R 5524	CHIP RES. 1/10W J 270Ω	RRXAJBBZ0271
MISCELLANEOUS		
2B 6	HOLDER L.E.D.	0VM301730
2B 11	HOLDER L.E.D.(L)	0VM301825
RS5501	REMOTE CONTROL UNIT HC-278N or REMOTE CONTROL UNIT NJH32H367A or REMOTE SENSOR UNIT SFN-R0011	USESJSRSKK008 USESJSRSJR004 1812501

EXPLODED VIEWS

Front



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 (VIP-5000HC Only)	0VM201347
A 1X	FRONT ASS'Y (VIP-5000A Only)	0VM201377
A 1X	FRONT ASS'Y (VCP-300 Only)	0VM201378
A 1X	FRONT ASS'Y (VCP-300D Only)	0VM201379
A 1	FRONT PANEL ASS'Y (VIP-5000HC Only)	0VM201347X
A 1	FRONT PANEL ASS'Y (VIP-5000A Only)	0VM201377X
A 1	FRONT PANEL ASS'Y (VCP-300 Only)	0VM201378X
A 1	FRONT PANEL ASS'Y (VCP-300D Only)	0VM201379X
A 2	PLATE FOOT	0VM404836
A 4	DOOR CASSETTE	0VM404905
A 5	BADGE	6D52254
A 6	FOOT	0VM403657
A 8▲	LABEL RATING (VIP-5000HC Only)	0VM404935
A 8▲	LABEL RATING (VIP-5000A Only)	0VM404939
A 8▲	LABEL RATING (VCP-300 Only)	0VM404939
A 8▲	LABEL RATING (VCP-300D Only)	0VM404940
A 9	SEE ELECTRICAL PARTS	
A 10	CASE TOP	0VM100442
A 11	PANEL BOTTOM	0VM201214
B 1	DECK ASS'Y	N2116XN
B 1	DECK ASS'Y	N2116AN
2B 1	CHASSIS	0VM000042
2B 5	SEE ELECTRICAL PARTS	
2B 6	SEE ELECTRICAL PARTS	
2B 7	SPRING DOOR	0VM403265
2B 8	SEE ELECTRICAL PARTS	
2B 9	SEE ELECTRICAL PARTS	
2B 10	HOLDER DECK	0VM301682
2B 11	SEE ELECTRICAL PARTS	
2L 011	SCREW P-TIGHT 3X10 BIND HEAD	GBMP3100
2L 021	SCREW P-TIGHT 4X12 BIND HEAD	GBKP4120
2L 031	SCREW RAMI-TIGHT M3X10 BIND HEAD	DZM23100
2L 041	SEE ELECTRICAL PARTS	
2L 051	SCREW P-TIGHT M3X8 WASHER HEAD	GCMP3080
2L 061	SCREW P-TIGHT M3X8 WASHER HEAD (VIP-5000HC/VIP-5000A Only)	GCMP3080
2L 061	SCREW P-TIGHT M3X10 WASHER HEAD (VCP-300/VCP-300D Only)	GCMP3100
2L 081	SEE ELECTRICAL PARTS	

Ref.No.	Description	Part No.
ACCESSORY KIT		
X 1	REMOCON BOX	UREMT12SR011
X 2 	OWNER'S MANUAL (VIP-5000HC Only)	0VMN01245
X 2 	OWNER'S MANUAL (VIP-5000A Only)	0VMN01254
X 2 	OWNER'S MANUAL (VCP-300 Only)	0VMN01273
X 2 	OWNER'S MANUAL (VCP-300D Only)	0VMN01274
X 3	RF CORD	WPZ0122TM001
	DRY BATTERY UM-3(M) 2PCS PACK or	1790849
	DRY BATTERY UM3/RS6 2PCS PACK	579W099
HEAD CLEANING BLOCK		
B 88	CLEANING CALKING ASS'Y	0VM403982
B 89	CLEANING BEARING	0VM403208
B 90	CLEANING ROLLER	0VM403613
B 91	CLEANING SPRING	0VM403614
B 92	P.S.W 7.5X2.1X0.5T	0VM403615
B 93	CUT P.S.W 6.1X1.6X0.5T	0VM403616
B 94	IR ARM	0VM301195
B 95	SPRING IR	0VM403211
B 96	SHAFT CIR	0VM403214D
B 97	P.S.W A	0VM402624
L1261	SCREW SEMS M3X5 PAN HEAD	CPM33050

DECK MECHANISM SECTION

VIDEO CASSETTE PLAYER

VIP-5000HC / 5000A

Sec. 2: Deck Mechanism Section

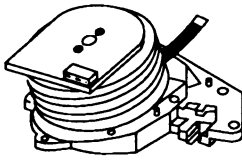
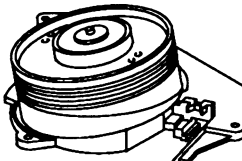
Standard Maintenance
Alignment for Mechanism
Disassembly / Assembly of Mechanism
Deck Schematic Diagram
Deck CBAs
Deck Exploded Views
Deck Parts List

DECK MECHANISM SECTION

TABLE OF CONTENTS

Standard Maintenance	2-1-1	Schematic Diagram and C.B.A.	2-5-1
Service Fixtures and Tools	2-2-1	Deck Exploded Views	2-6-1
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

Applicability of Parts on Deck Assembly N2116AN and N2116XN

Ref. No.	Part Name	Part No.	N2116AN	N2116XN
B 2	Cylinder Assembly	→	0VM301585 	0VM201335 
B54	Ground Brush Assembly	0VM404524	Not Used	Used
L1061	Screw, S-Tight M2.6X4	GPMS9040	Not Used	Used
	Head AMP CBA	→	0VSA05936	0VSA05559
CL3520	Jumper Wire, 6P	WX1K7010-002	Not Used	Used
CN3504	FFC Connector Base(6P)	JC96J06ERC0C	Used	Not Used
	FFC Cable, 6P	WX3906QZ4405	Used	Not Used

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	AC Head Assembly			●	
B32	Reel Assembly			●	
B37	Capstan Motor		●		●
B52	Capstan Belt		●		●
B54	Ground Brush Assembly			●	
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) 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

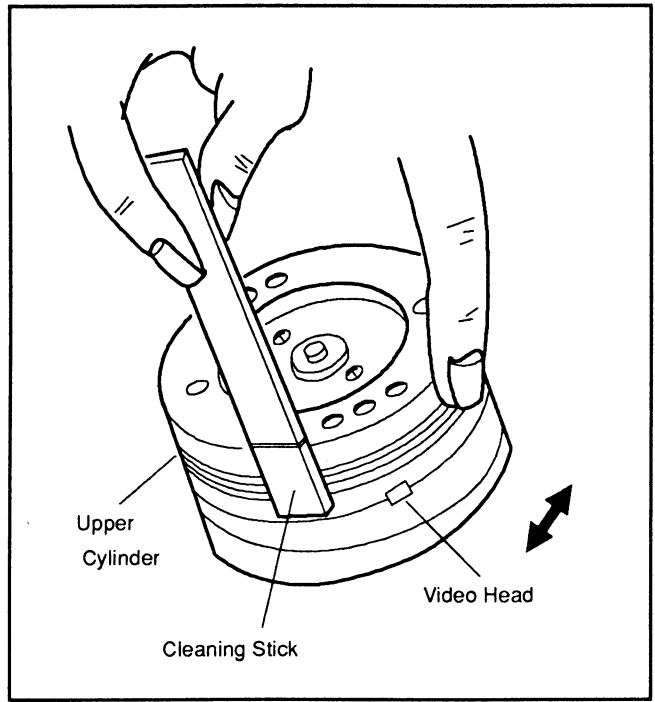
Clean the head with a head cleaning stick or chamois skin.

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

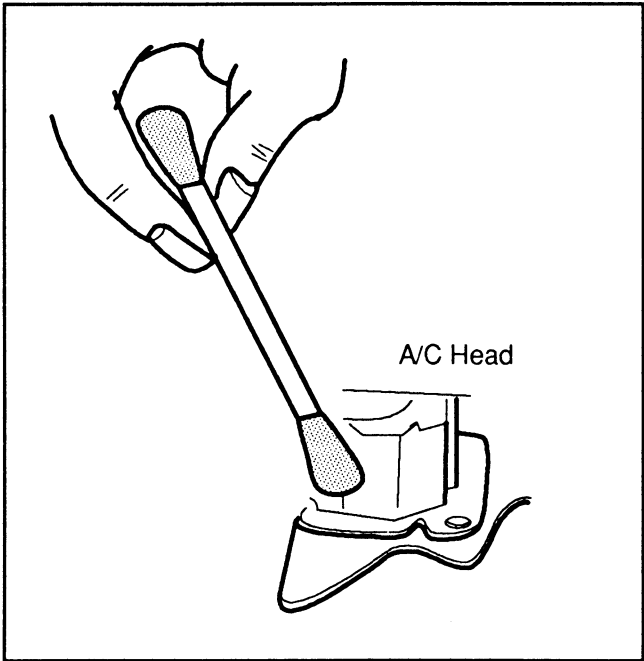
Clean the head with a cotton swab.

Procedure

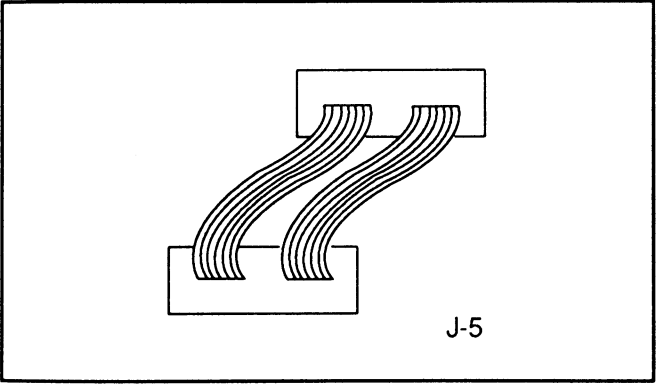
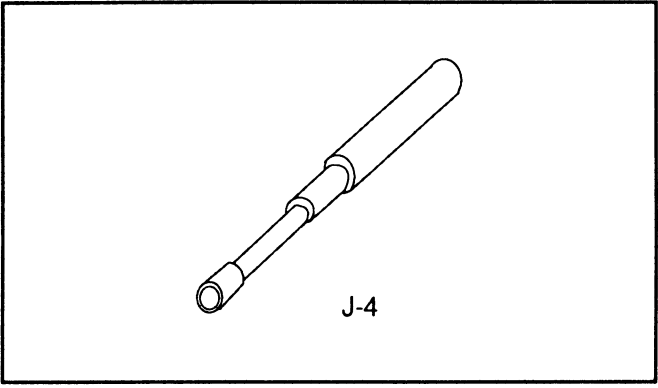
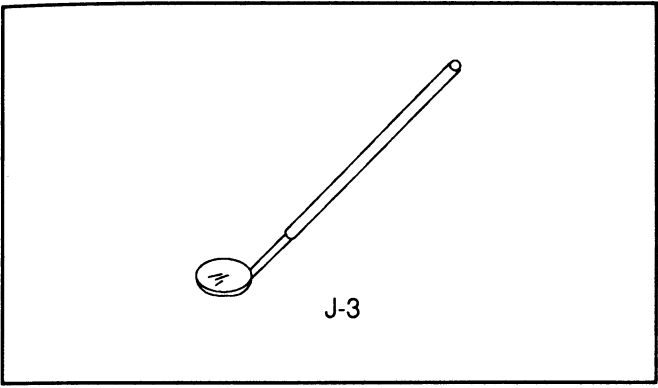
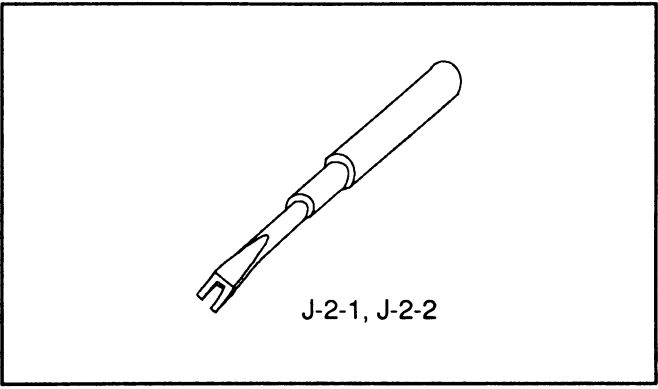
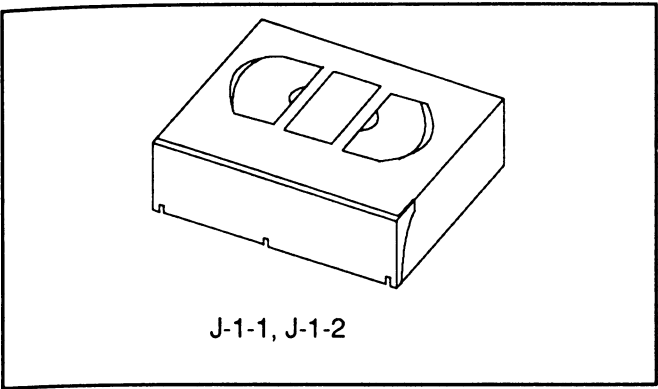
- 1. Remove the top cabinet.
- 2. Dip the cotton swab in 90% isopropyl alcohol and clean the audio control head. Be careful not to damage the upper drum and other tape running parts.

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



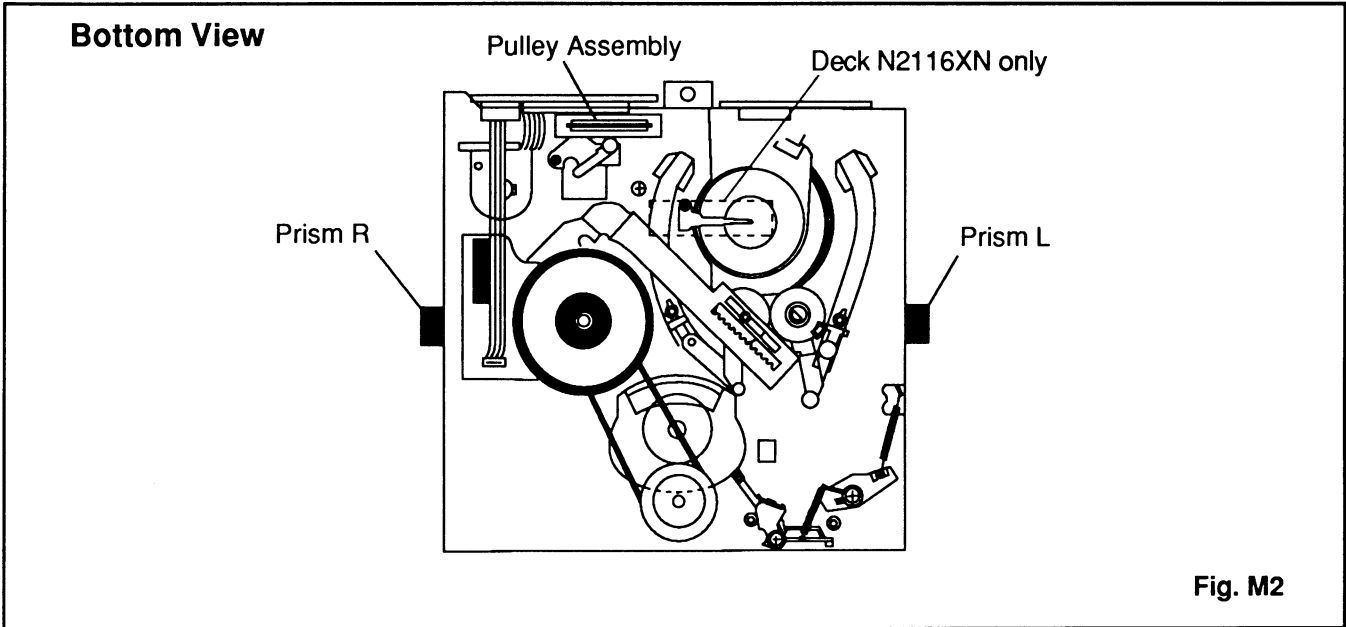
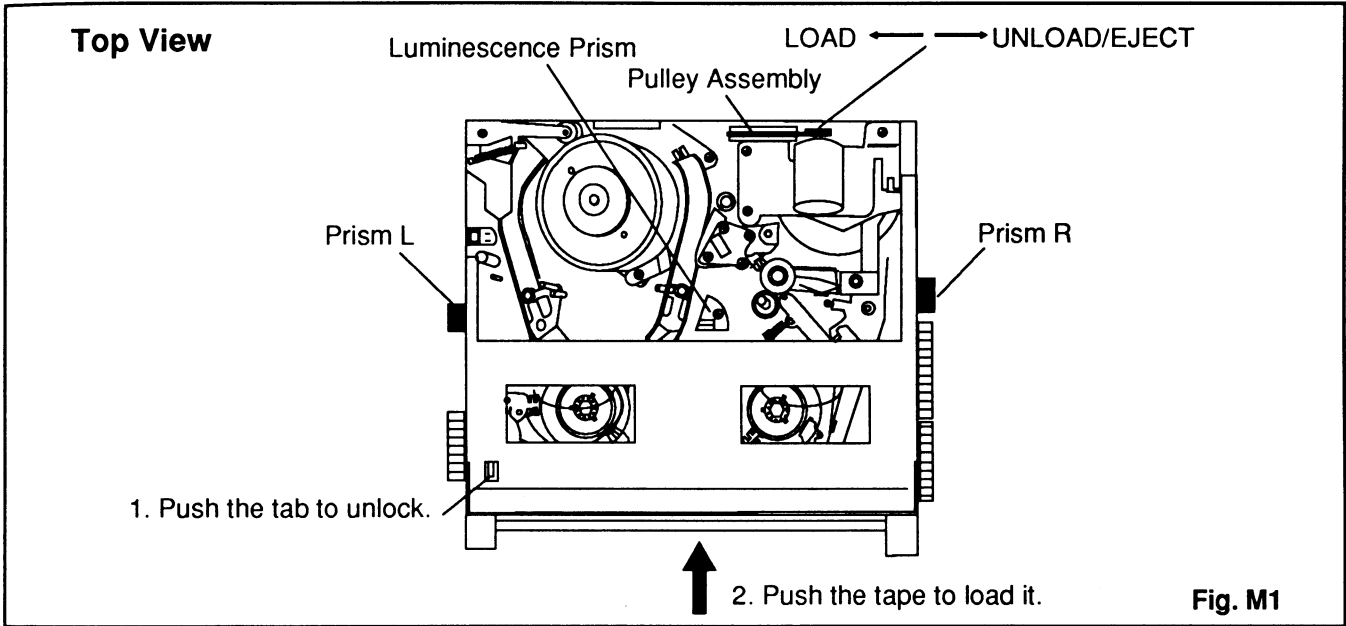
Ref. No.	Name	Part No.	Adjustment
J-1-1	Alignment Tape	F6-A	Head Adjustment of Audio Control Head
J-1-2	Alignment Tape	F6-N	Azimuth and X Value Adjustment of Audio Control Head / Adjustment of Envelope Waveform
J-2-1	Special Driver, Large	FSJ-0001	X Value
J-2-2	Special Driver, Small	FSJ-0006	Guide Roller
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)

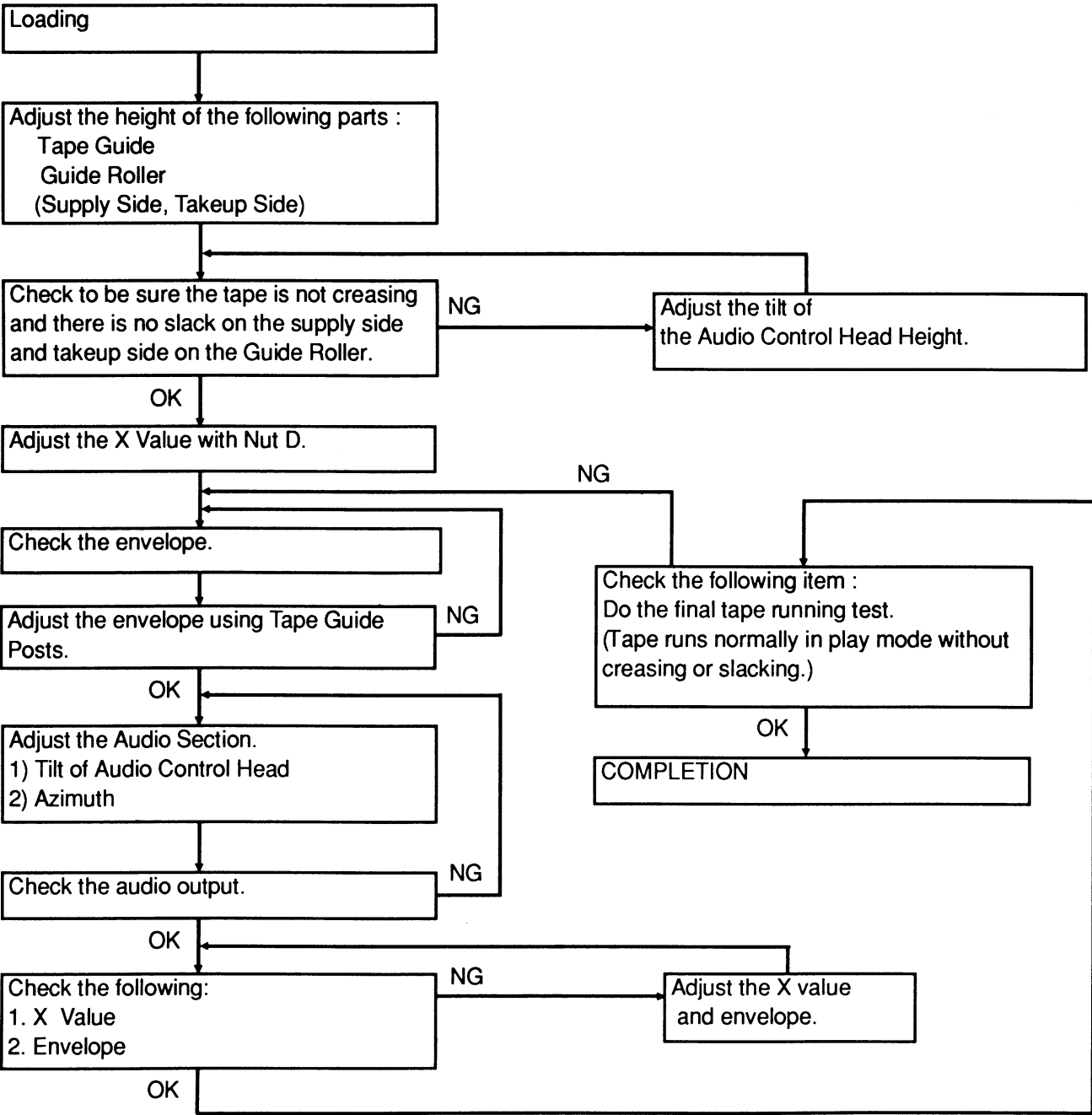
Note: To do these alignment procedures, be sure that the Tracking Control Circuit is set to the Neutral mode.

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 make 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.

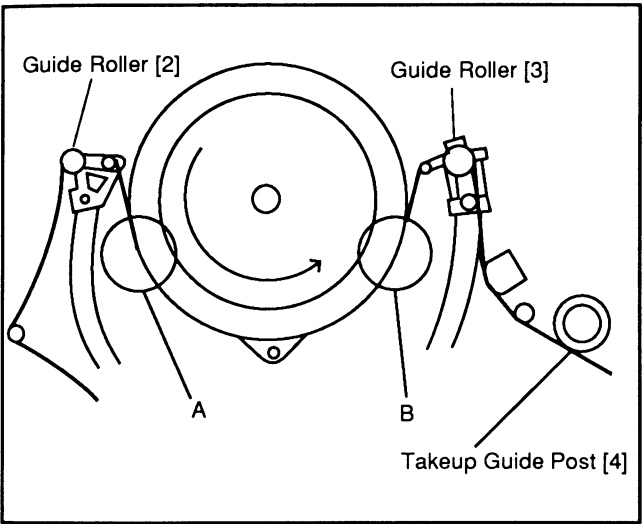


Fig. M3

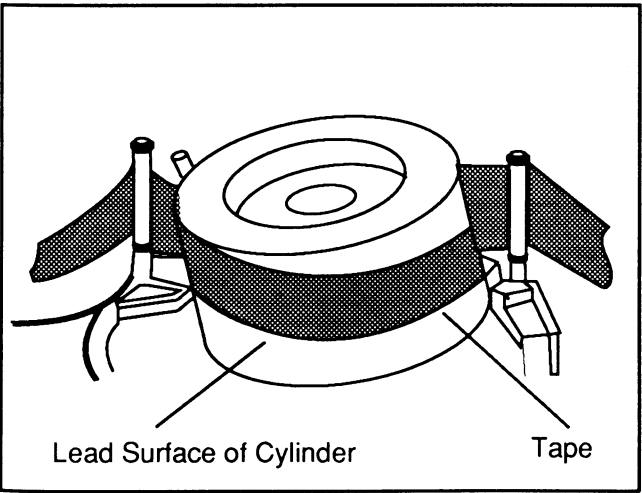


Fig. M4

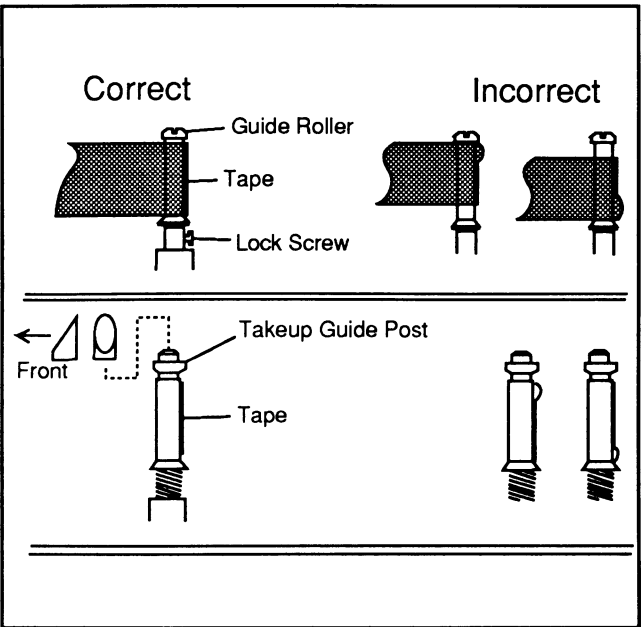


Fig. M5

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

Purpose :

To make 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.

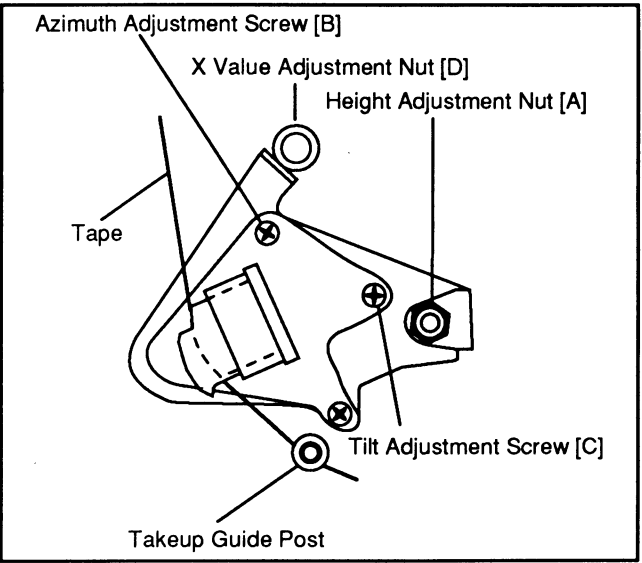


Fig. M6

Note: Play back a cassette tape. Looking at the lower edge of the Control Head with the tape in motion, make sure 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.)

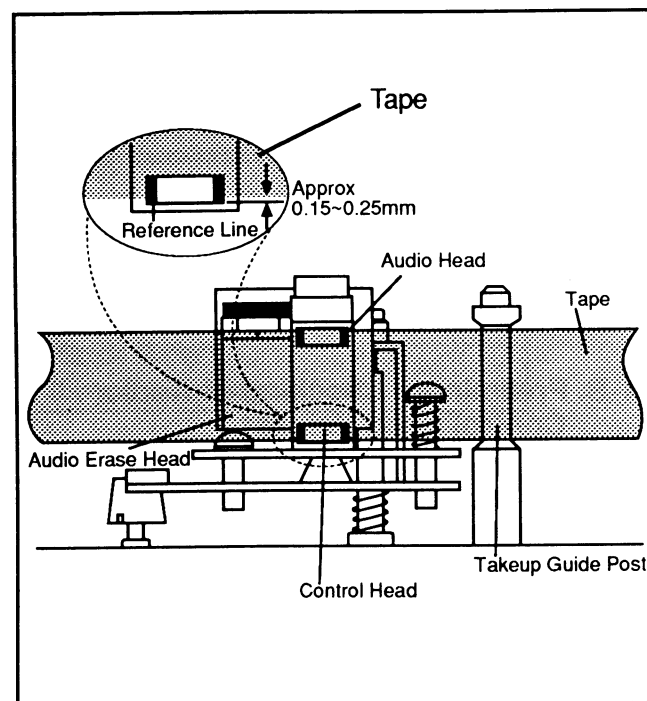


Fig. M7

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.

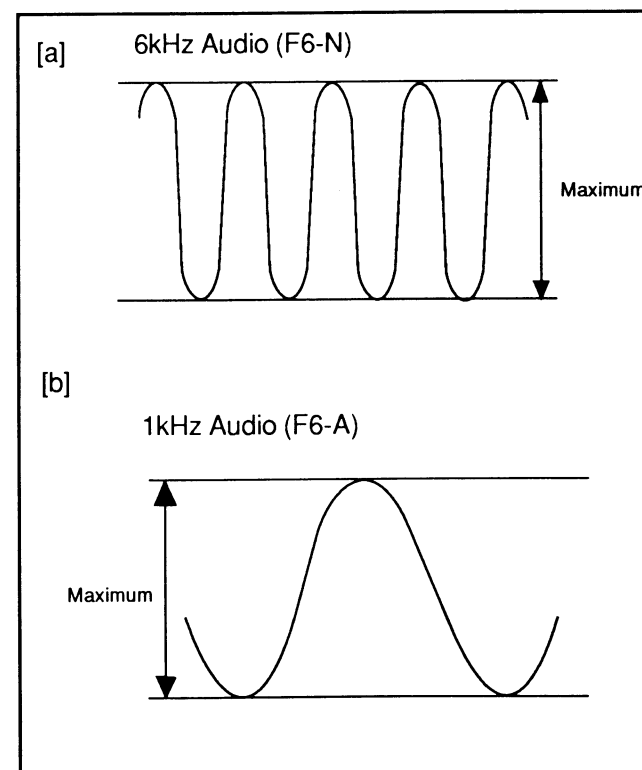


Fig. M8

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)

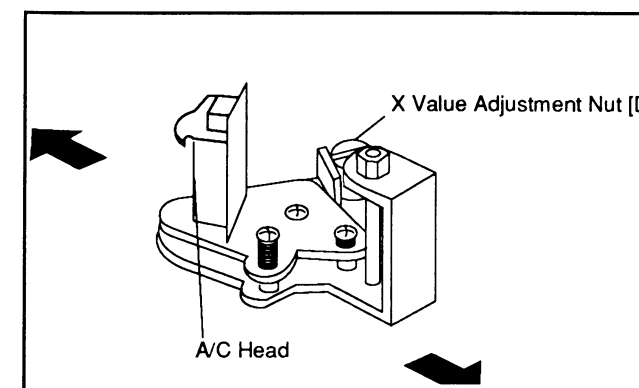


Fig. M9

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.

Dropping envelope level at the beginning of track.

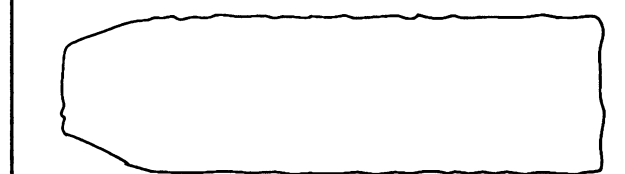


Fig. M10

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.

Dropping envelope level at the end of track.



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.

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		Fig. No.	REMOVAL	INSTALLATION ADJUSTMENT CONDITION
					REMOVE/*UNHOOK/ UNLOCK/RELEASE/ UNPLUG/DESOLDER	
[1]	[1]	Motor Holder Assembly	T	DM1 DM4 DM5	3(S-1), 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.

Envelope is adjusted properly. (No envelope drop)

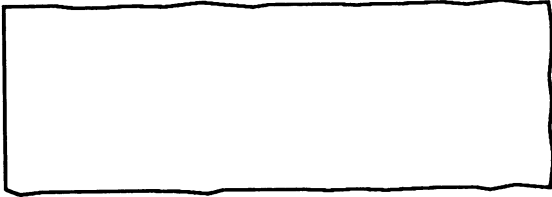


Fig. M12

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.

STEP /LOC. No.	START- ING No.	PART		REMOVAL		INSTALLATION
				Fig. No.	REMOVE/*UNHOOK/ UNLOCK/RELEASE/ UNPLUG/DESOLDER	ADJUSTMENT CONDITION
[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]	Main Prism	T	DM1 DM19	(S-11)	
[34]	[1]	Loading Arm M Assembly	B	DM2 DM20	(C-3)	(+)When installing, match the marks.
[35]	[1]	Loading Gear A	B	DM2 DM20		(+)
[36]	[1]	Loading Gear B	B	DM2 DM20		(+)
[37]	[37]	BT Drive Arm	B	DM2 DM21	(S-13), (P-5), (P-6)	
**[38]	[38]	Cleaning Head	T	DM1	(C-4)	

①

②

③

④

⑤

⑥

⑦

- 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 Cassete Drive Lever Asembly [3] can be removed only after removing Motor Holder Assembly [1].
- 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.

*[29] Deck N2116XN only

**[38] Head Cleaner models only

Top View

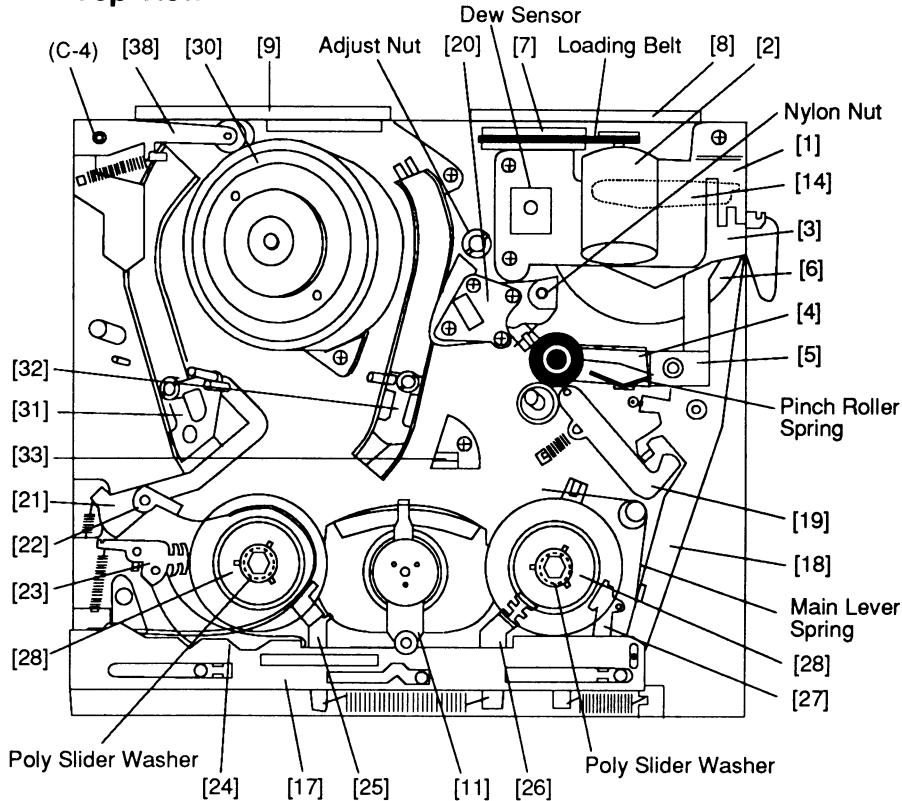


Fig. DM1

Bottom View

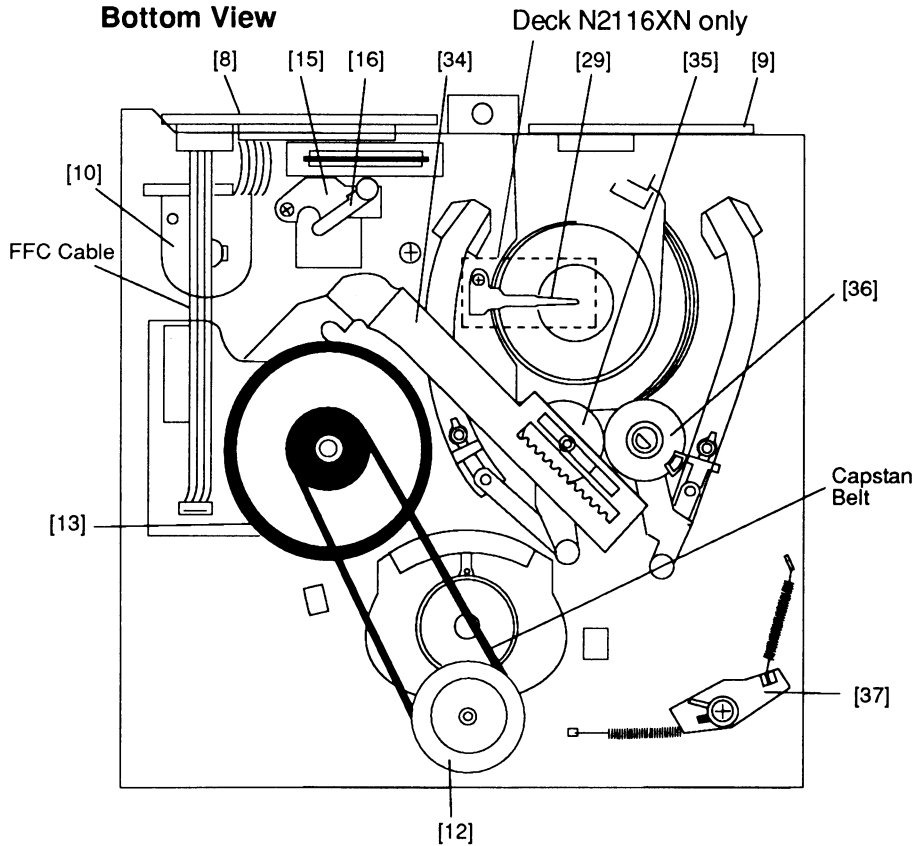
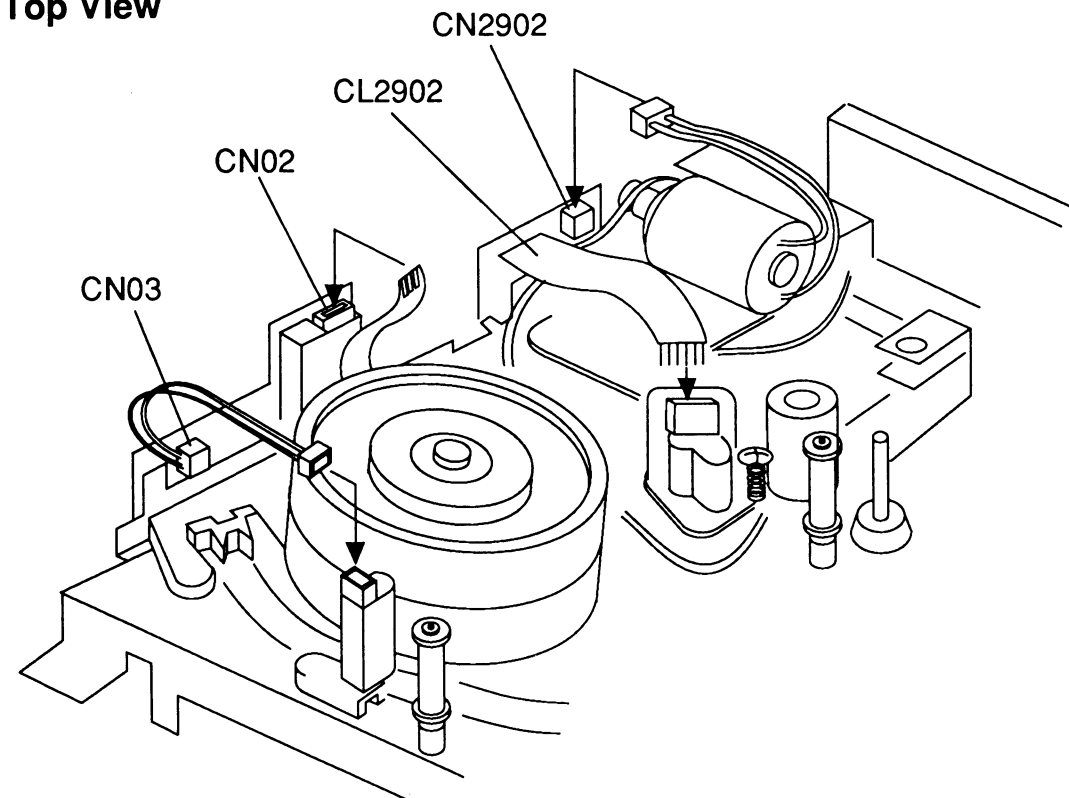


Fig. DM2

Deck Connectors

Note: Disconnect Connectors shown below before disassembling the Deck.

Top View



Bottom View

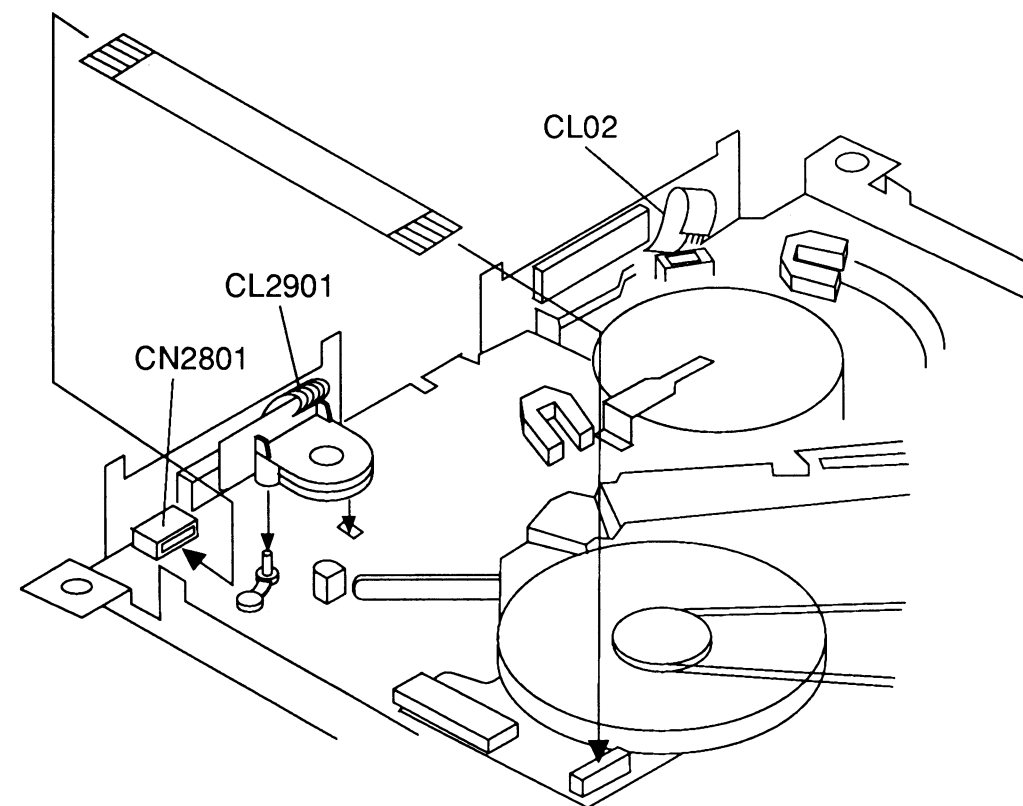
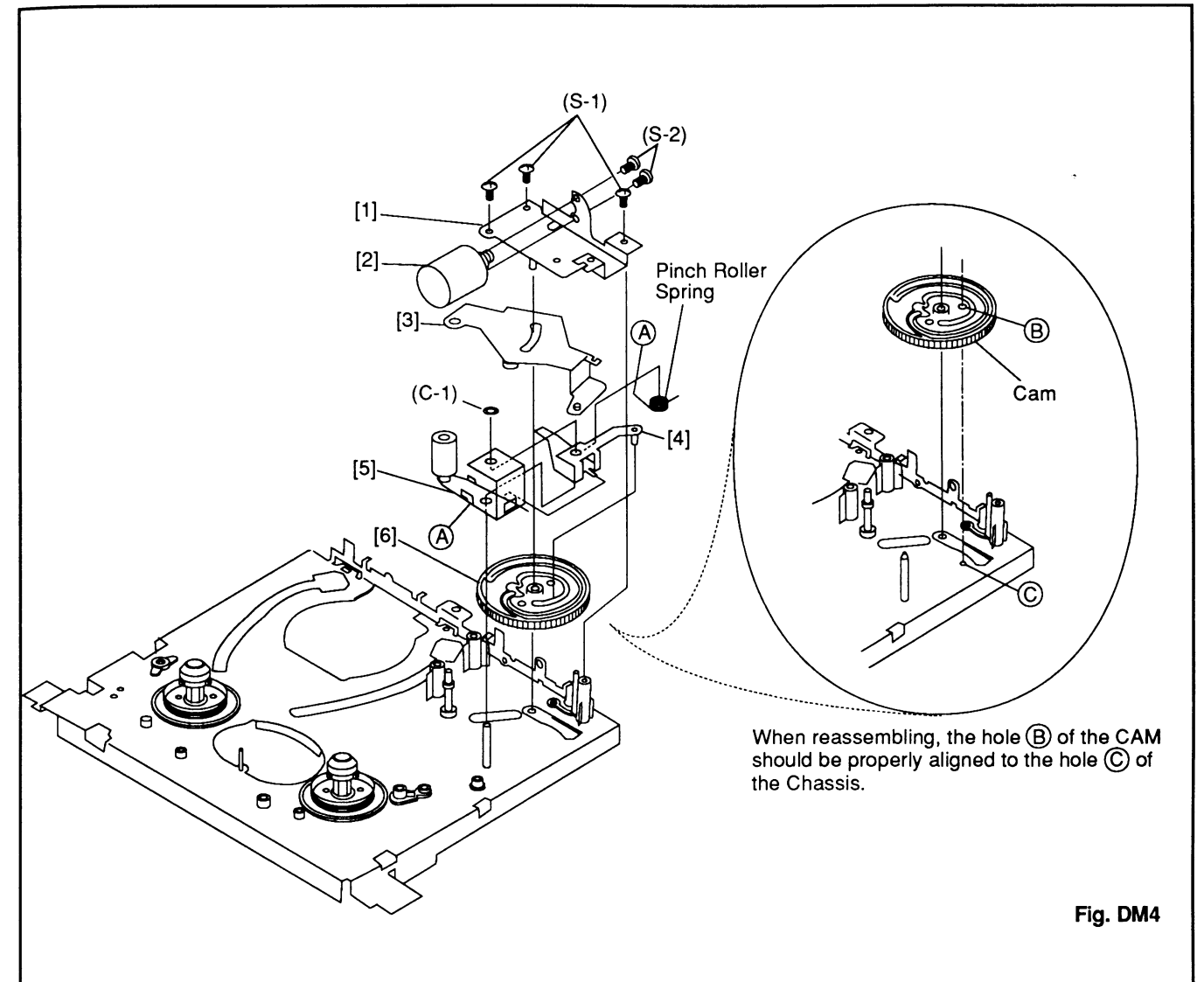


Fig. DM3



When reassembling, the hole (B) of the CAM should be properly aligned to the hole (C) of the Chassis.

Fig. DM4

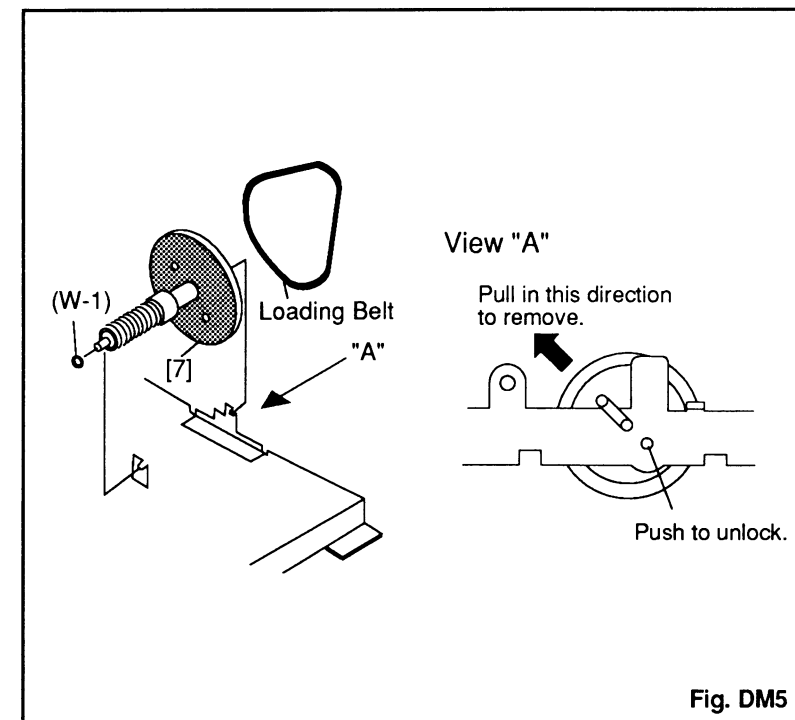


Fig. DM5

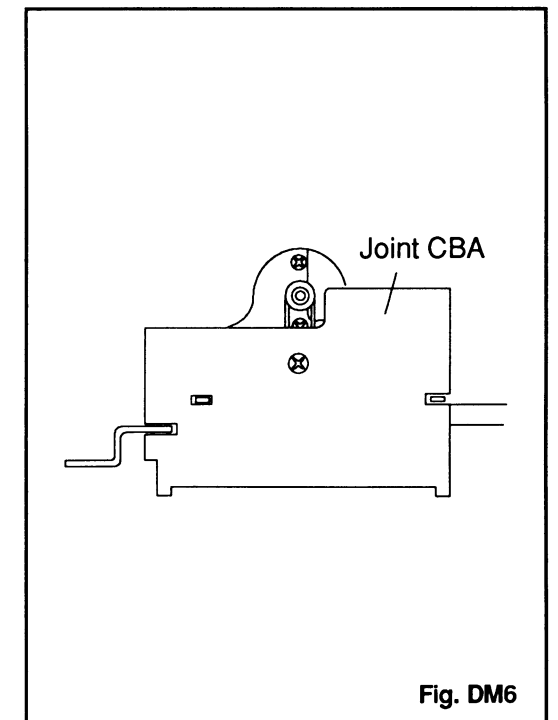


Fig. DM6

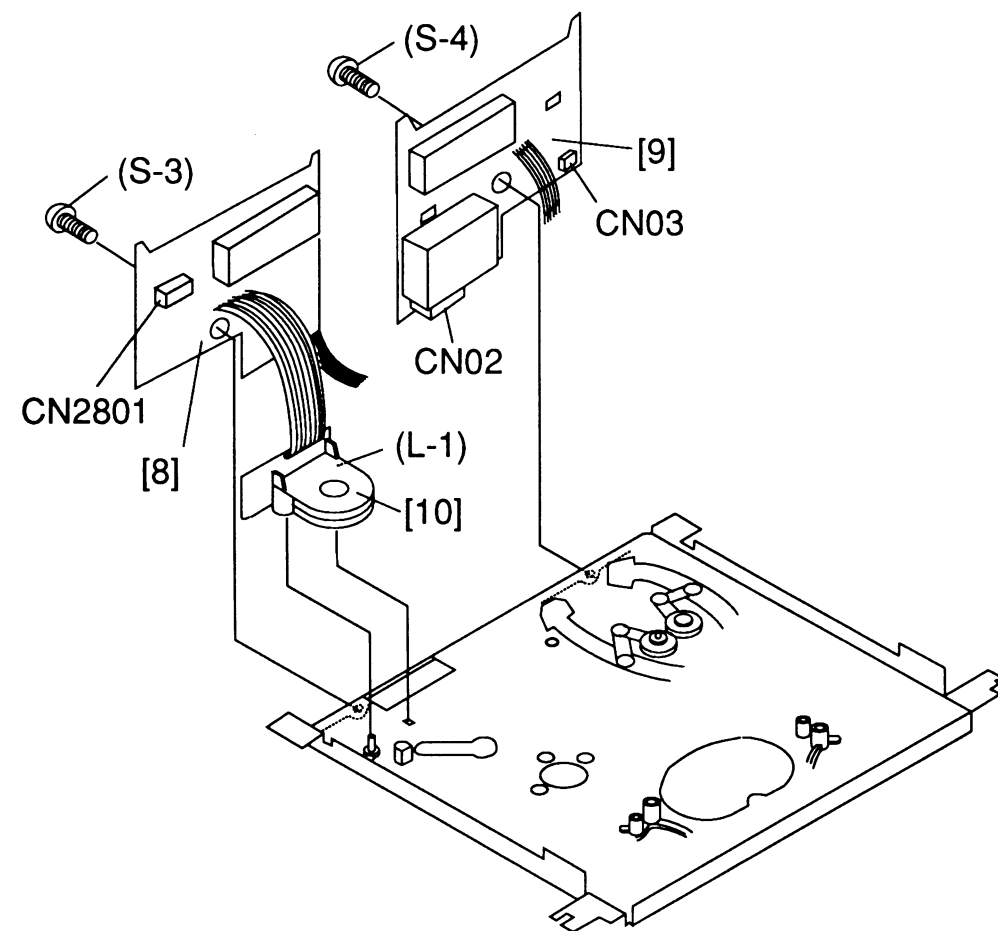


Fig. DM7

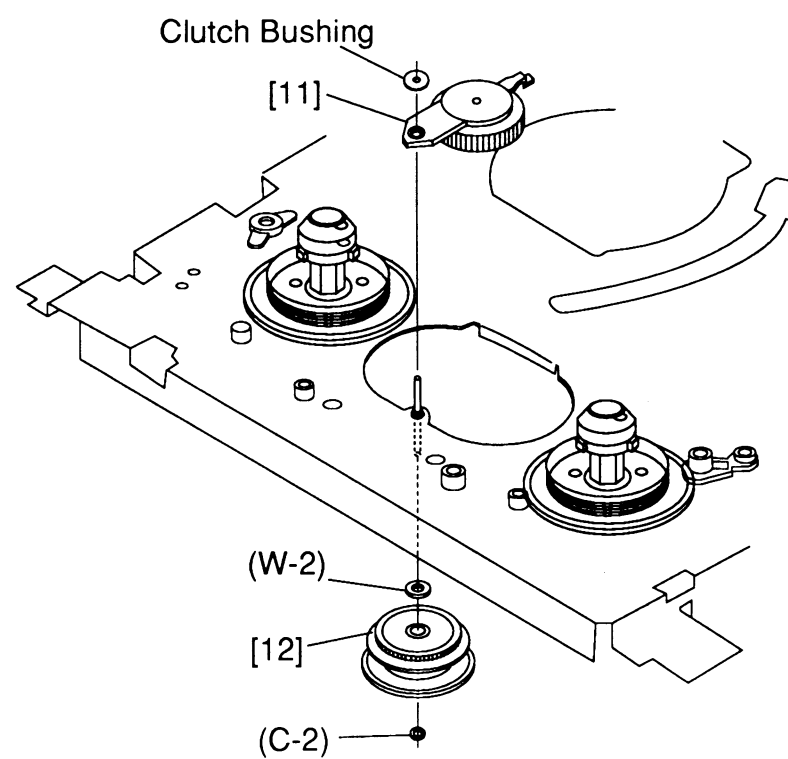


Fig. DM8

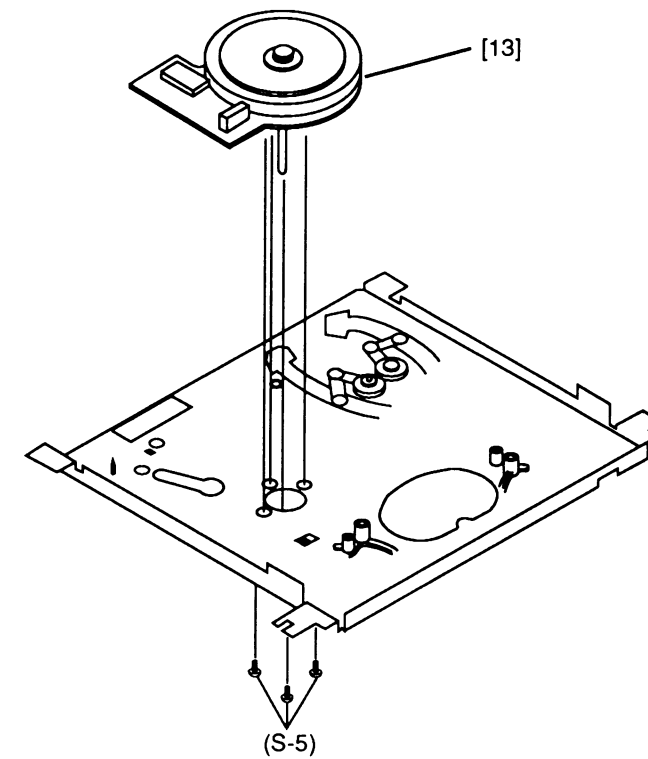


Fig. DM9

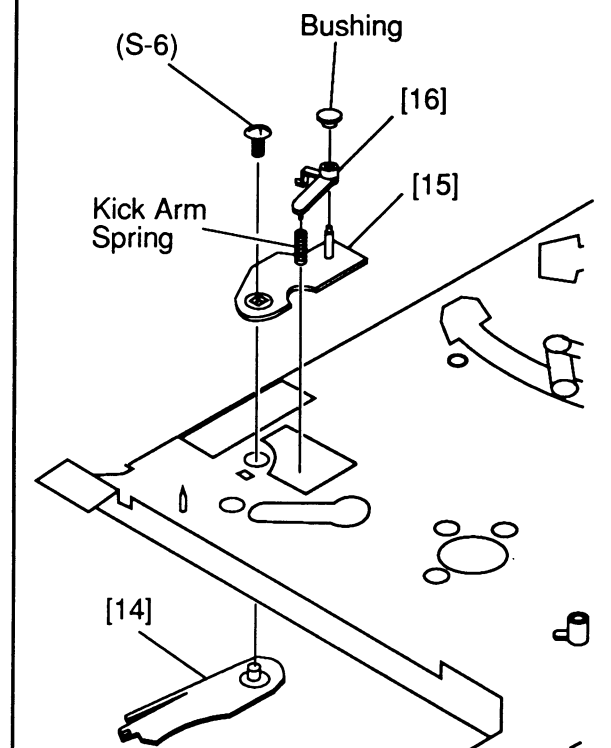


Fig. DM10

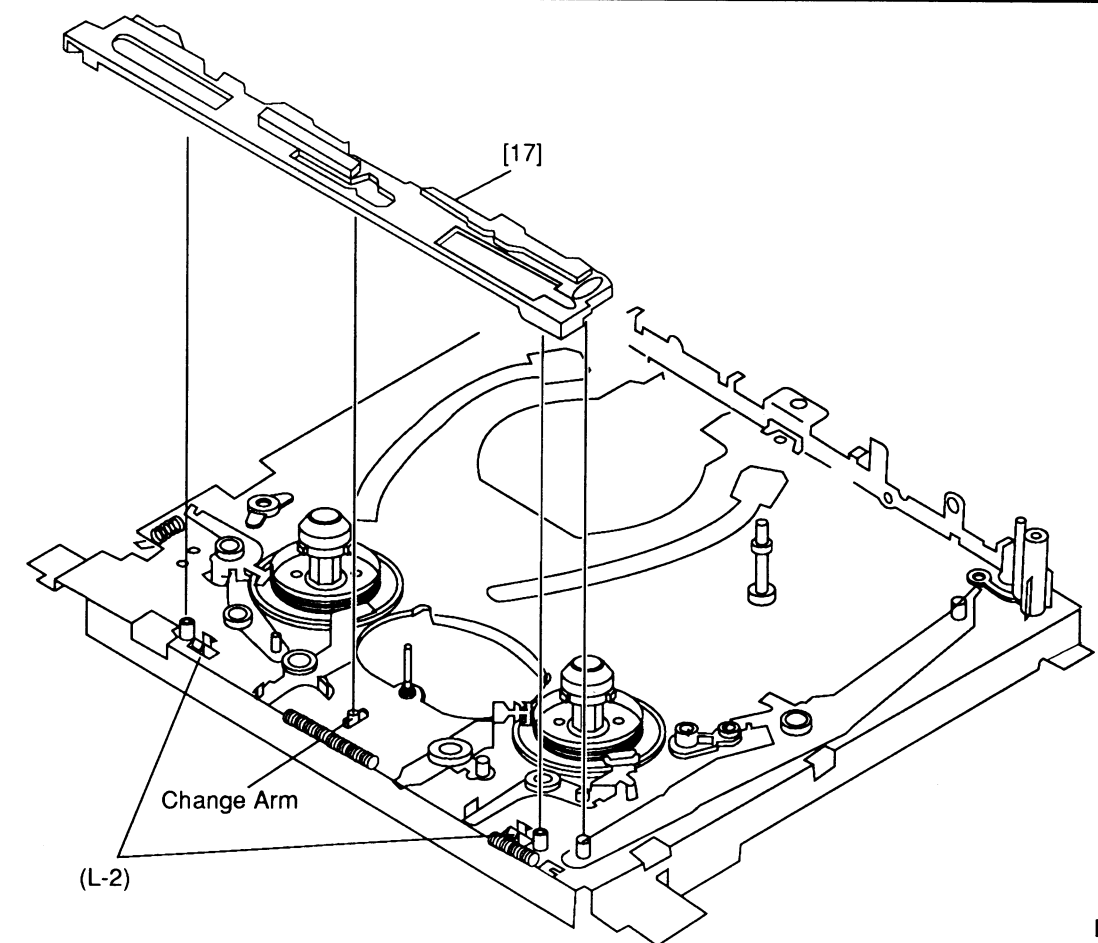
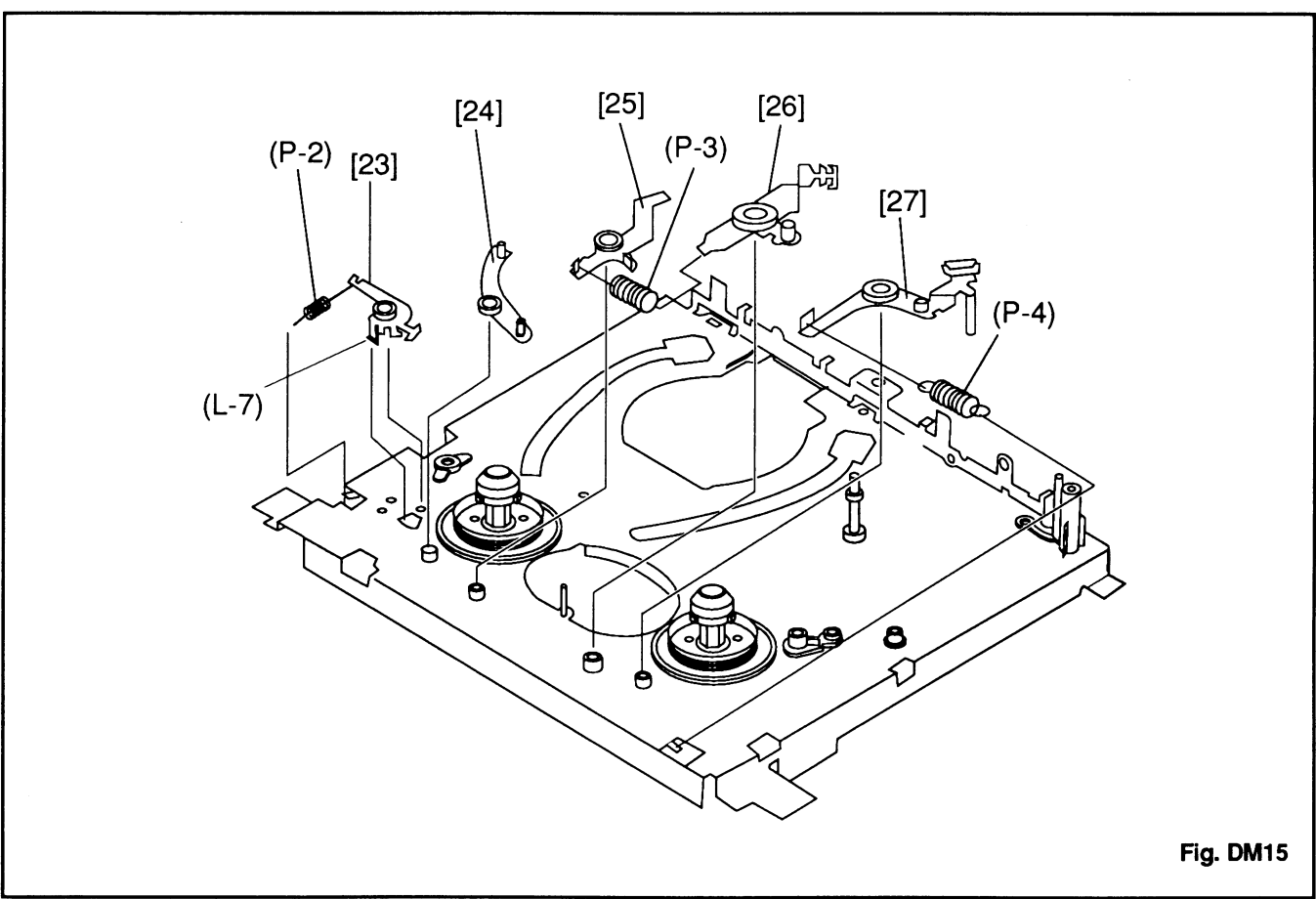
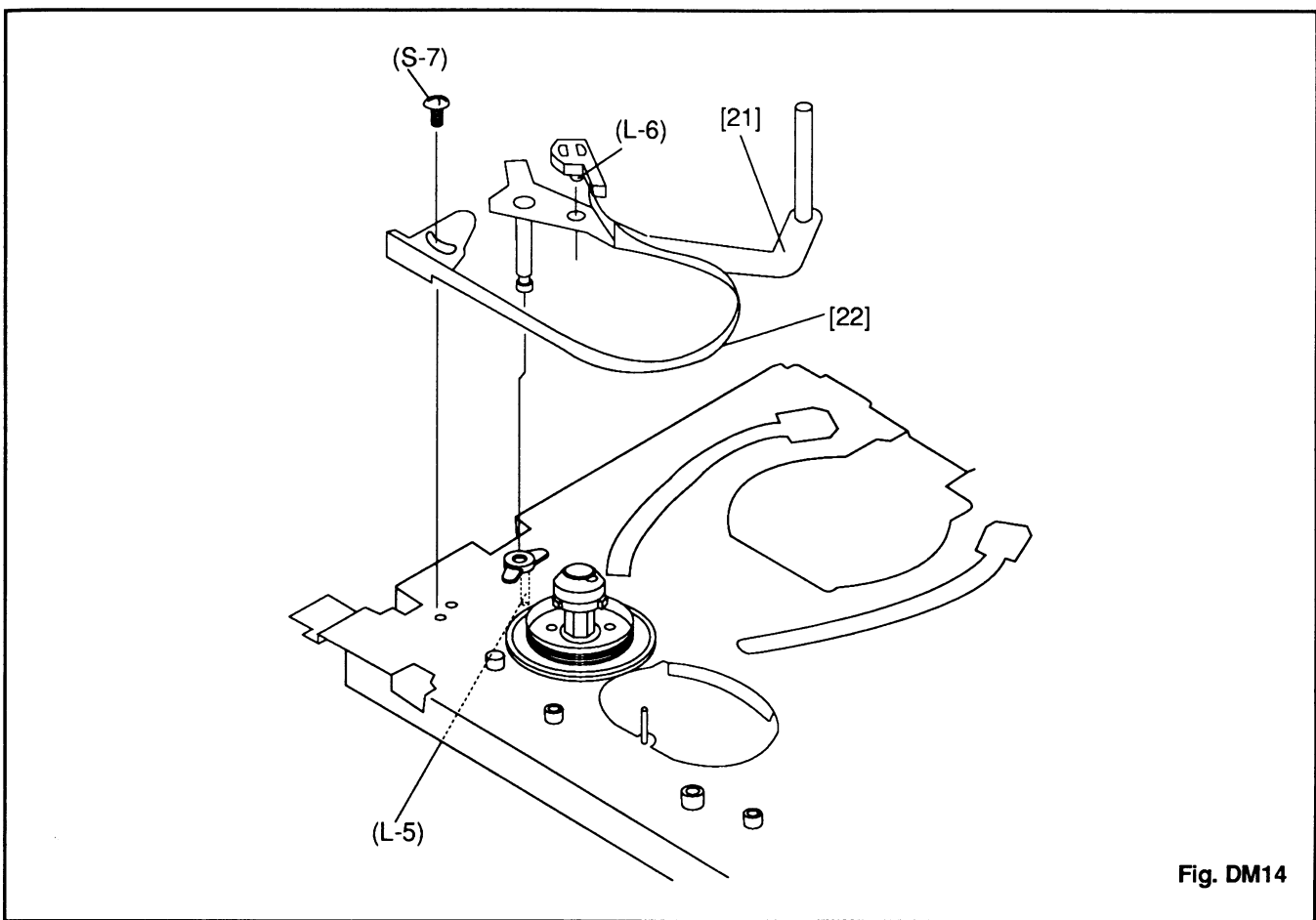
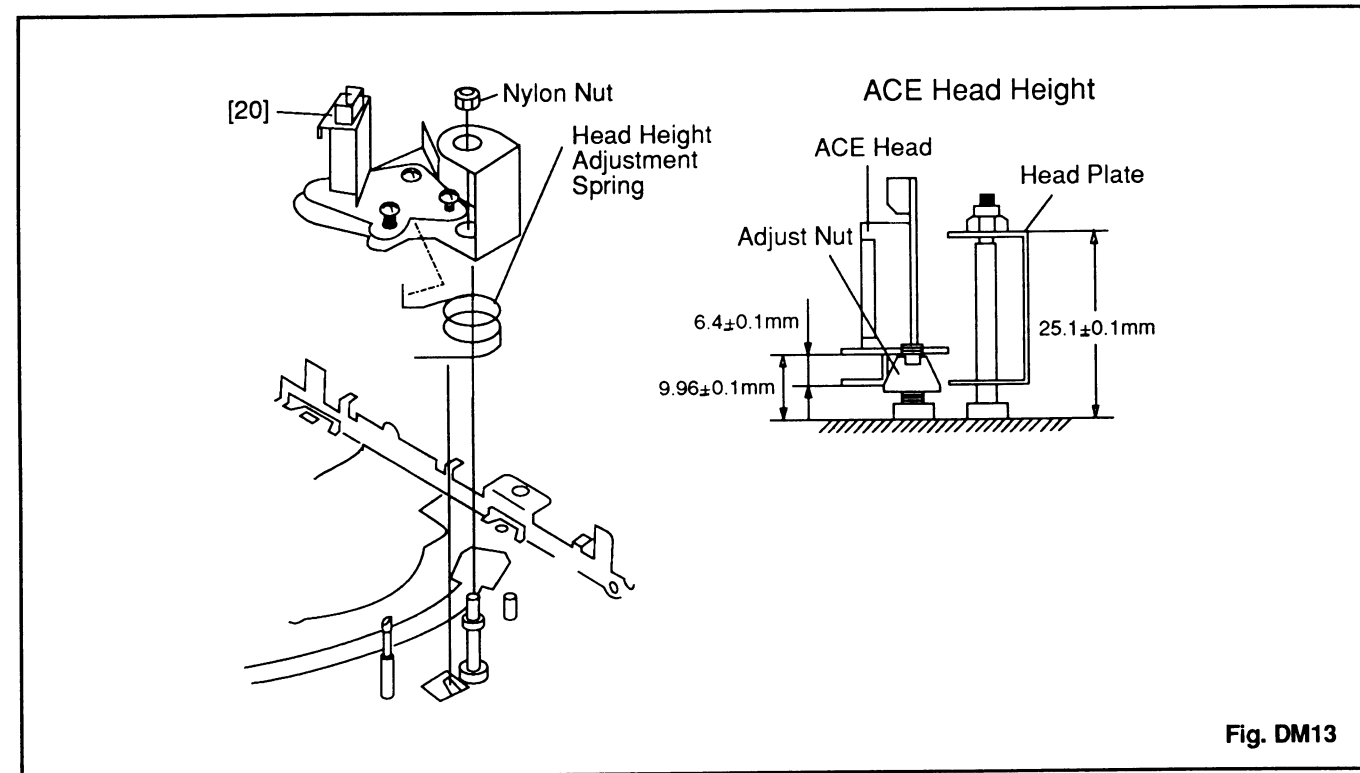
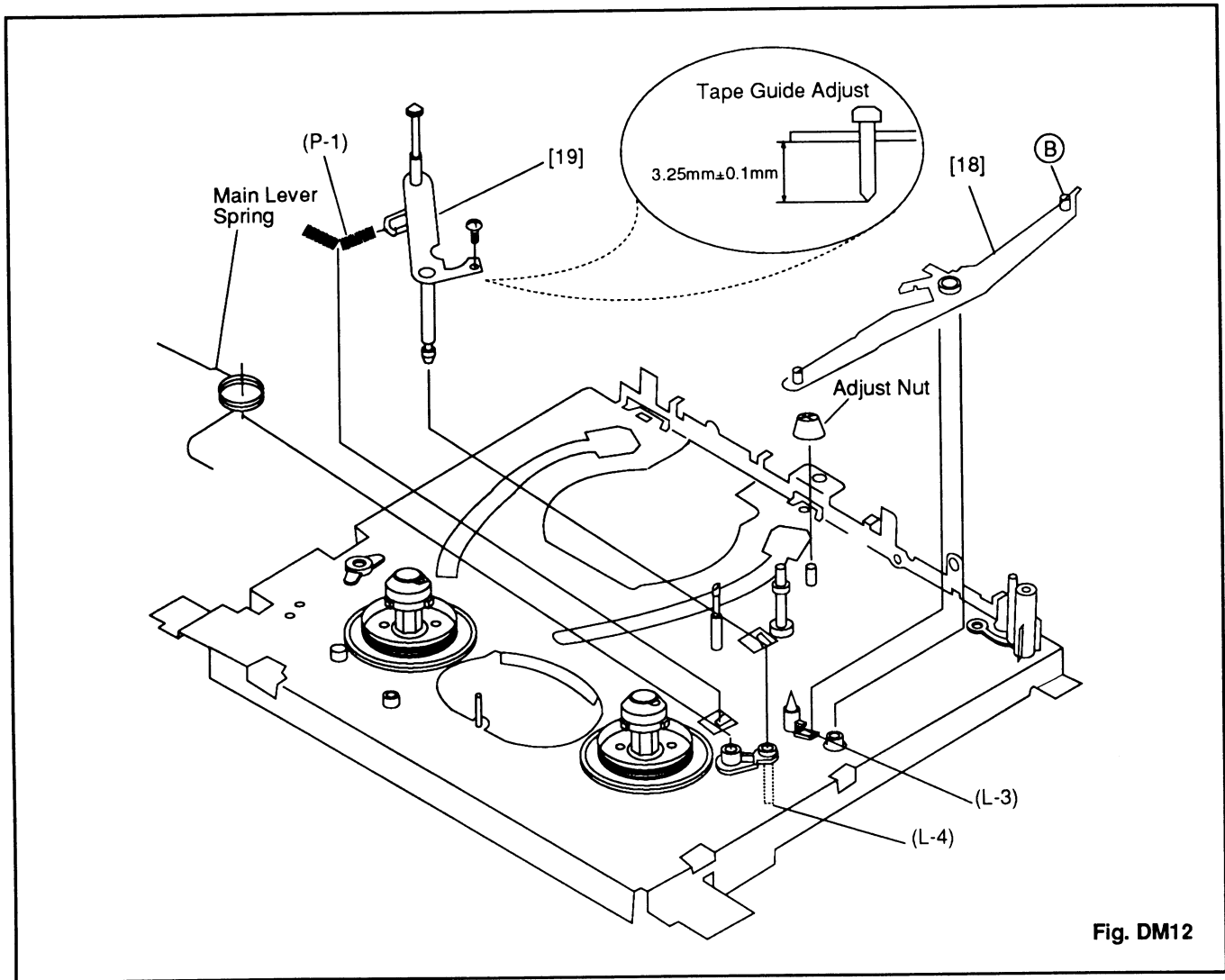
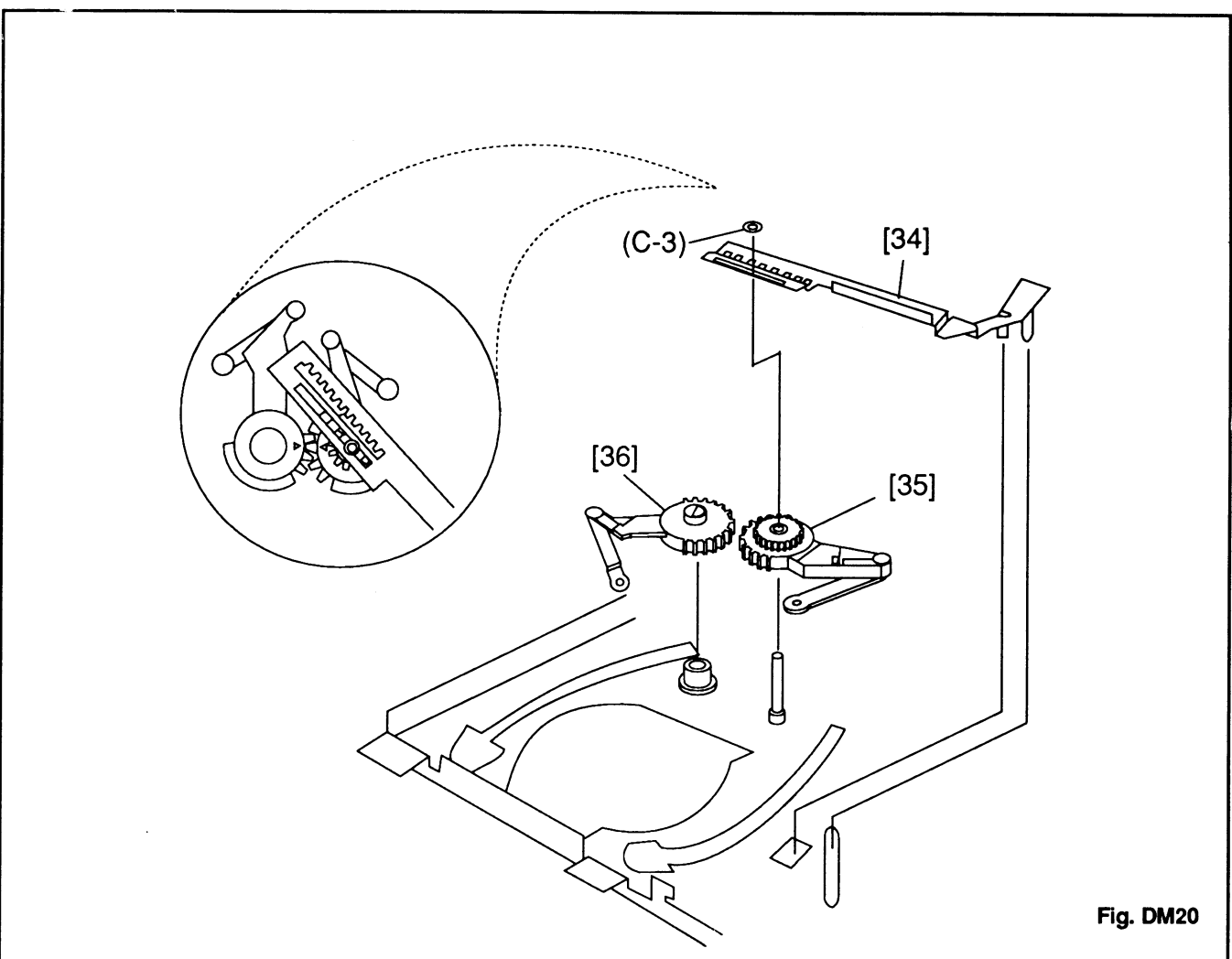
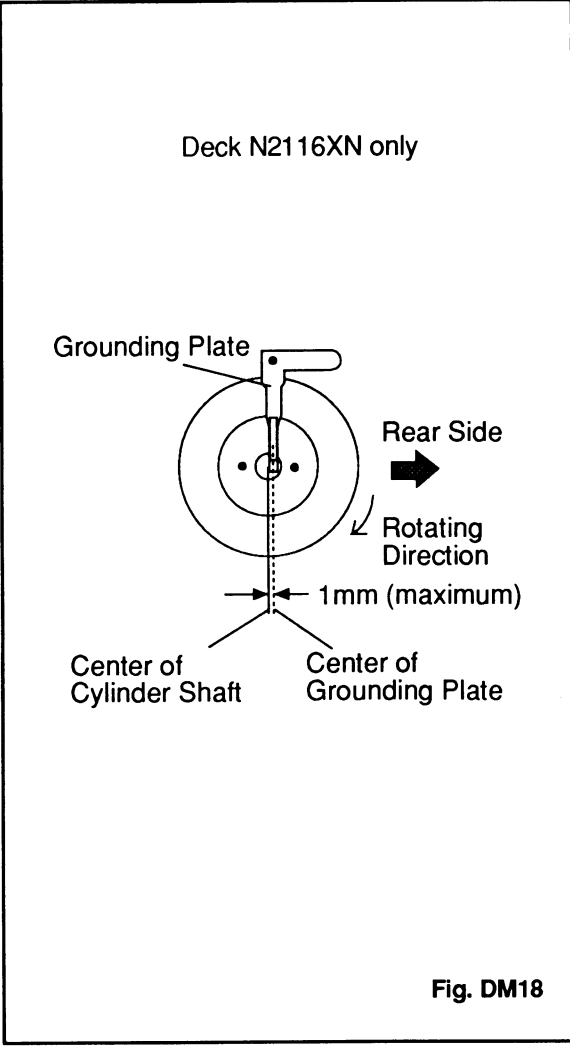
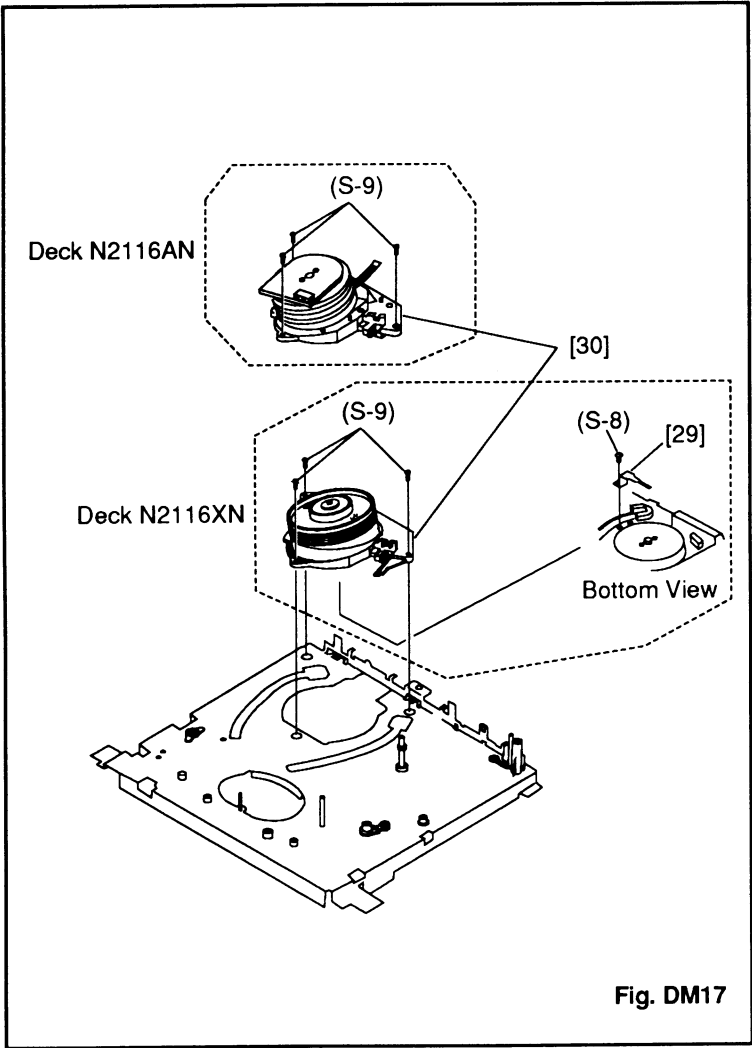
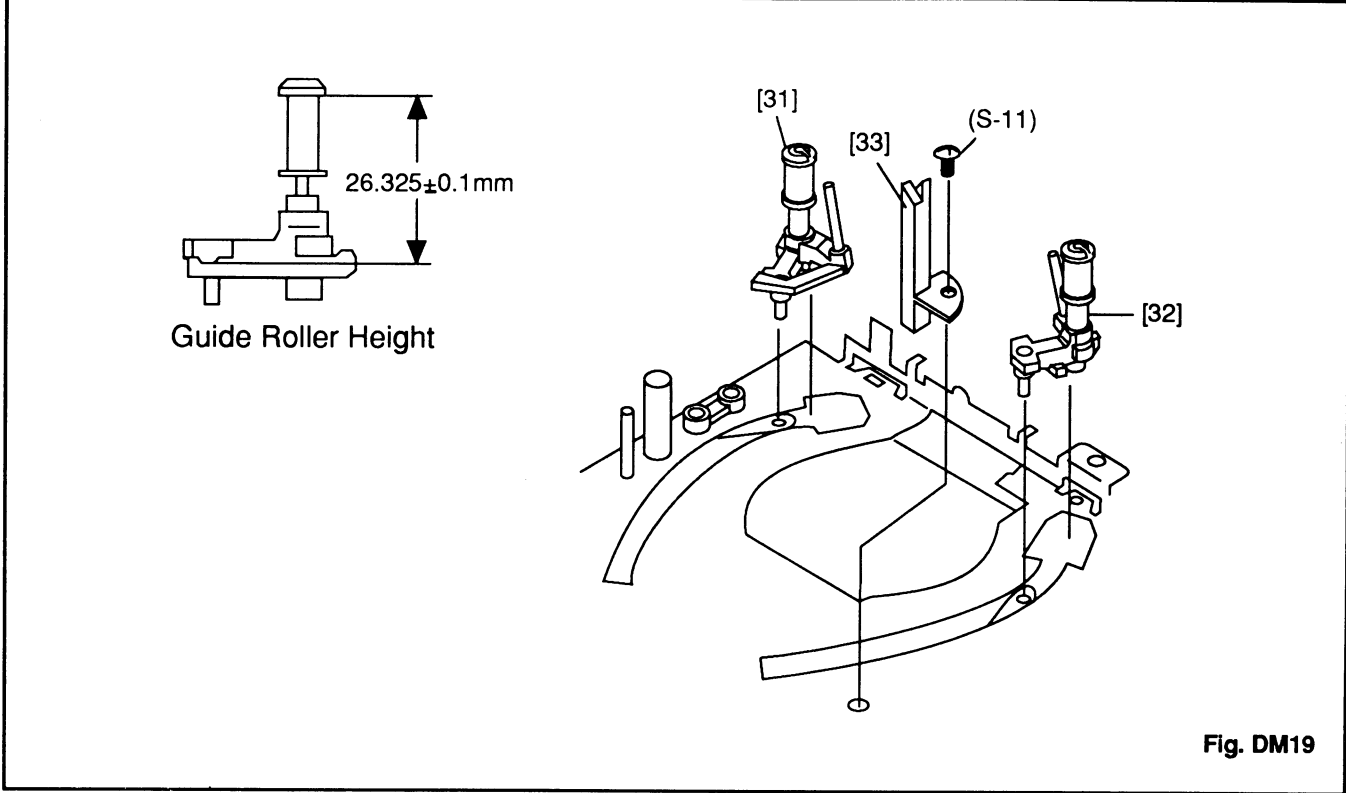
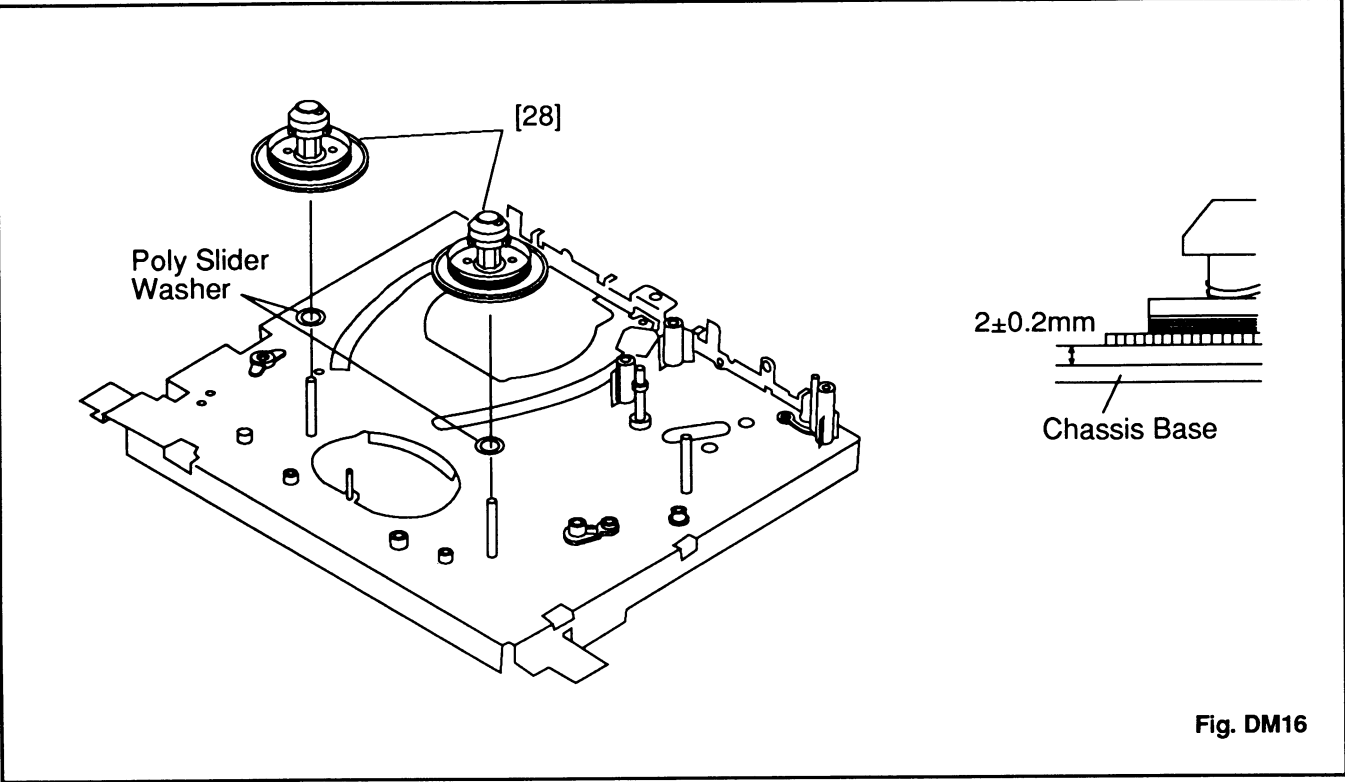
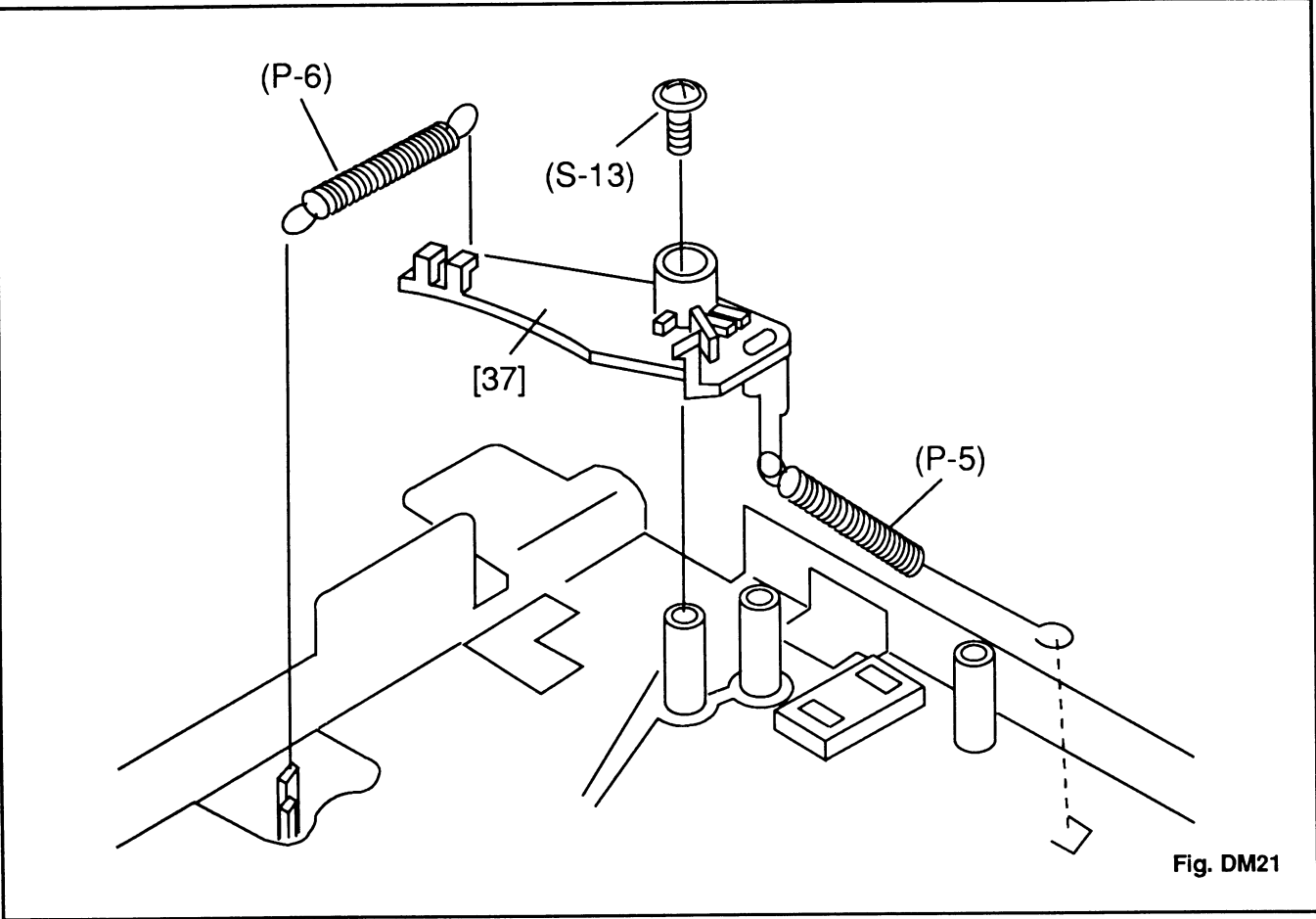


Fig. DM11







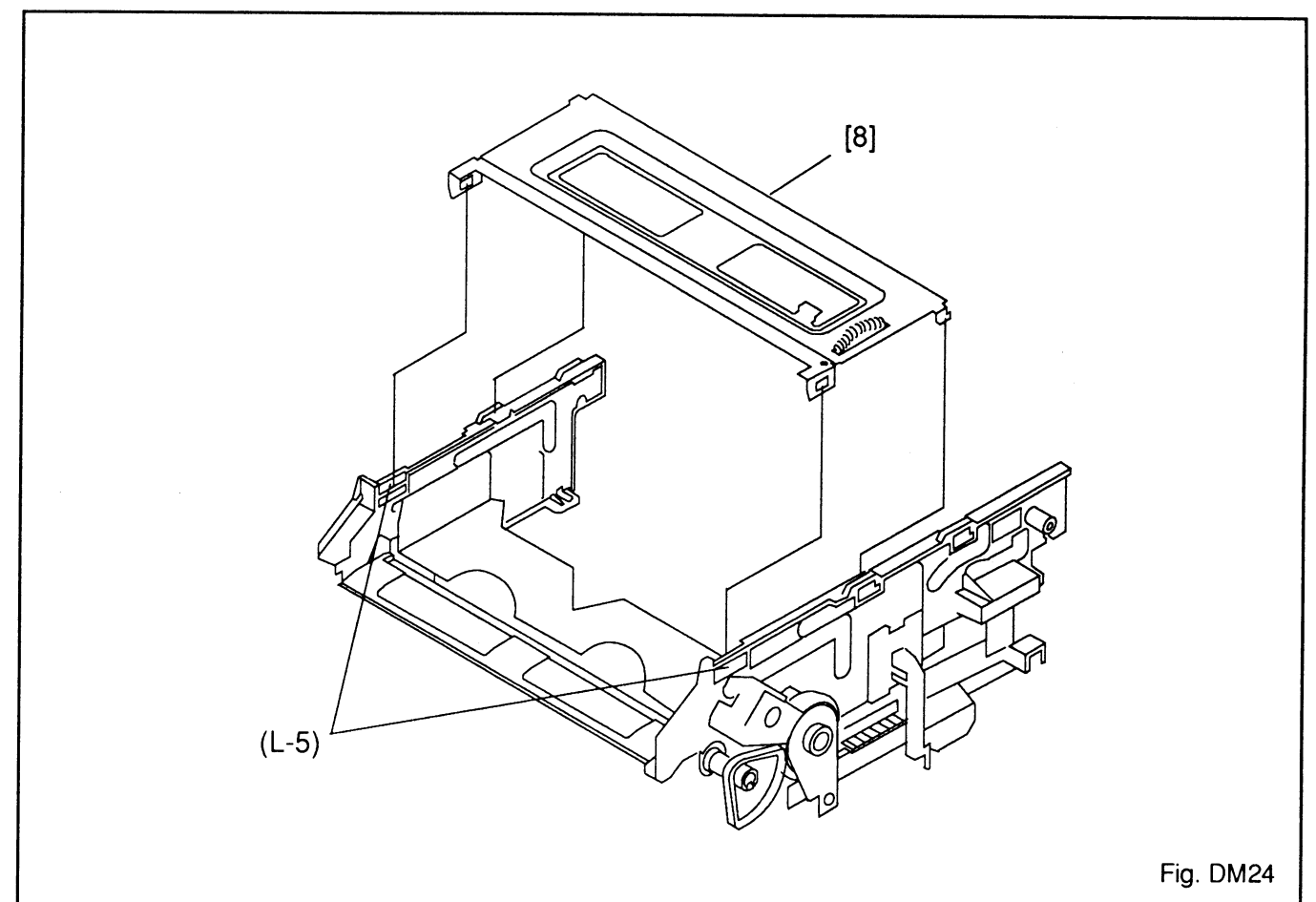
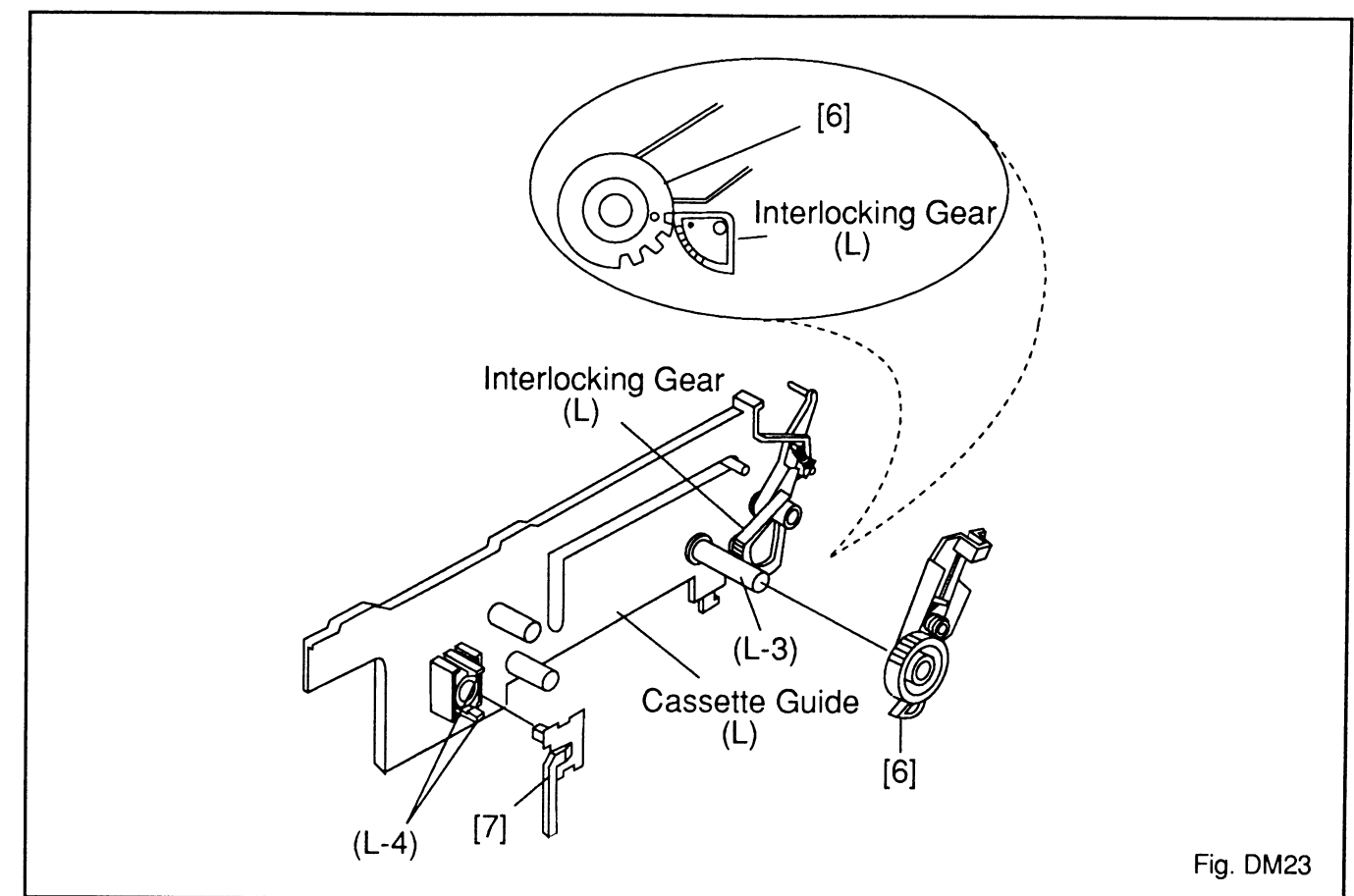
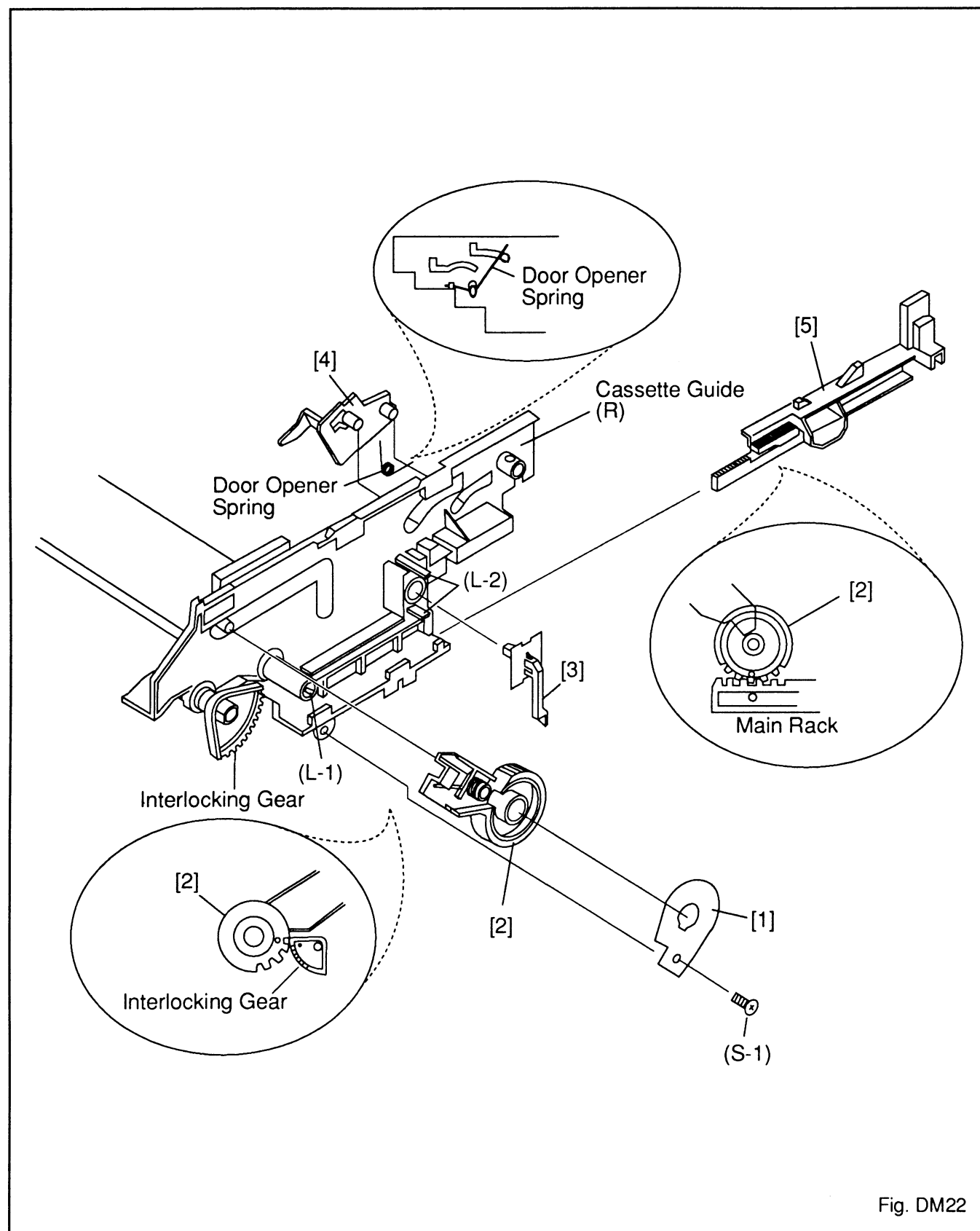
Front Loading Assembly

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.

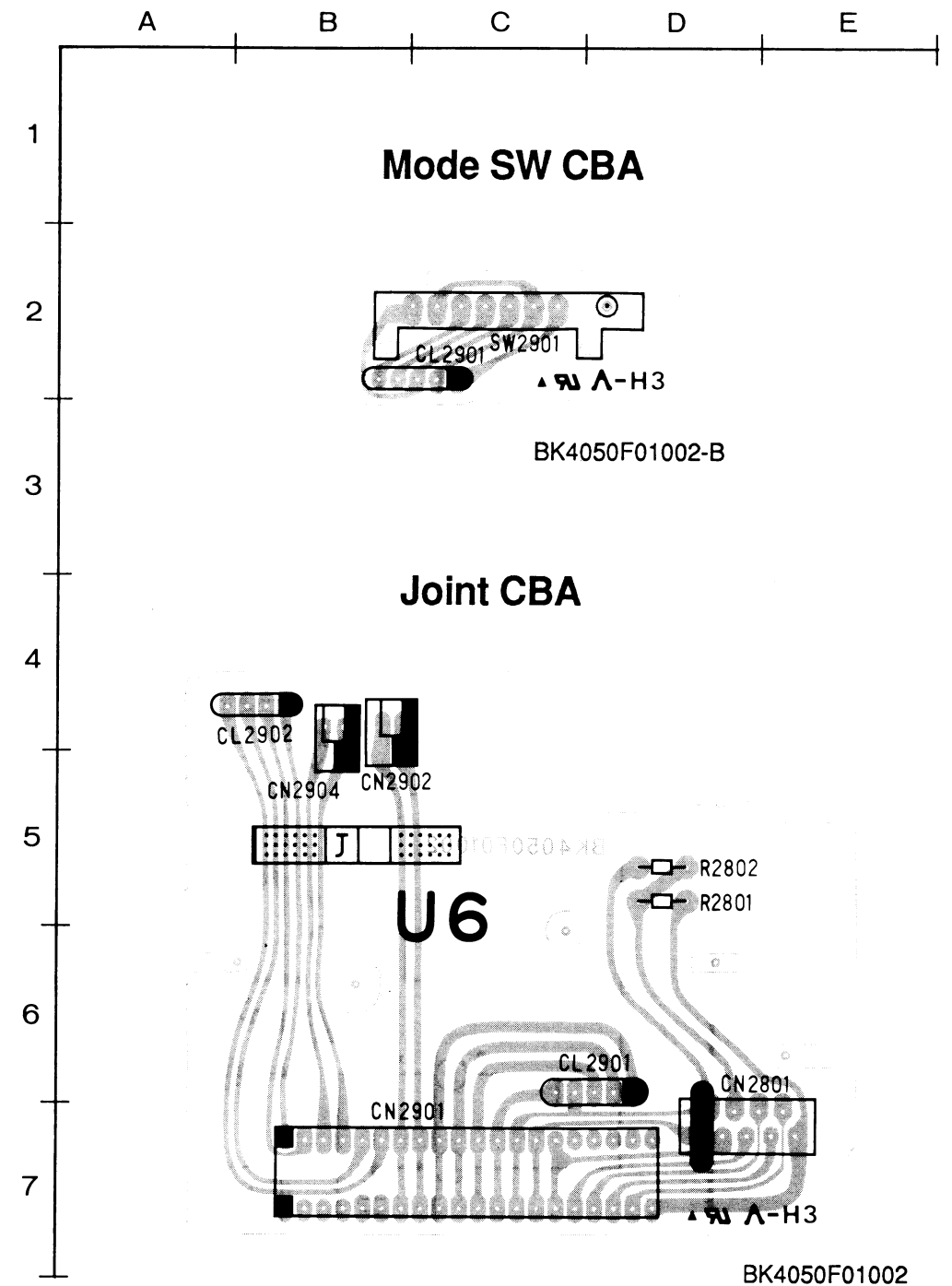
STEP /LOC. No.	START-ING No.	PART		REMOVAL		INSTALLATION ADJUSTMENT CONDITION
				Fig. No.	REMOVE *UNHOOK/ UNLOCK/RELEASE/ UNPLUG/DESOLDER	
[1]	[1]	Drive Gear Reinforcement	R	DM22	(S-1)	
[2]	[1]	Cassette Drive Gear (R)	R	DM22	*(L-1)	Refer to the setting condition in Fig. DM22.
[3]	[3]	Prism (R)	R	DM22	*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

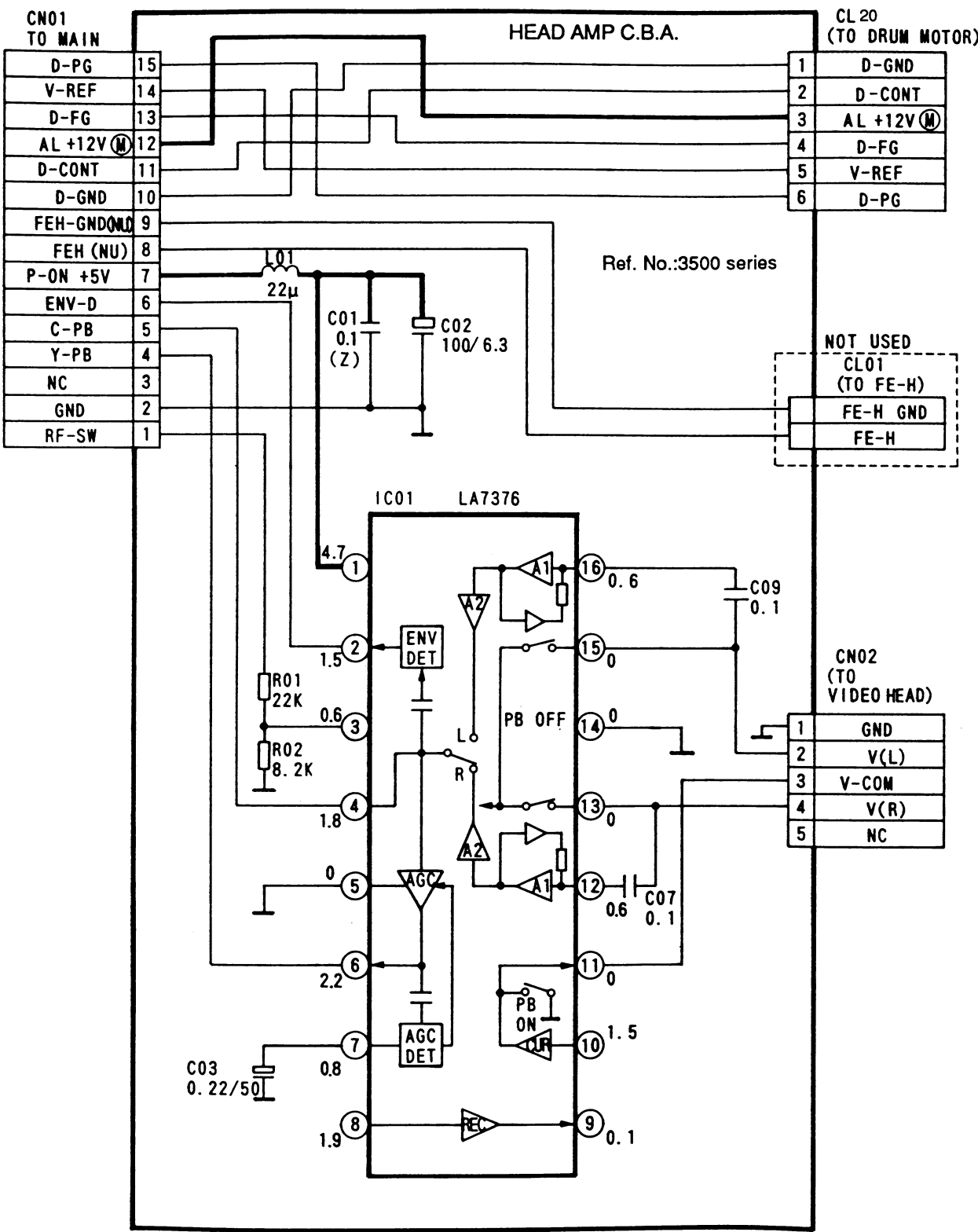
1. Order of steps in Procedure. When reassembling, follow the steps in reverse order.
These numbers are also used as the identification (Location) No. of parts in Figures.
2. The start No. followed by corresponding part to be removed at this stage. For example, Prism (R) [3] can be removed without removing any other parts. But Cassette Drive Gear (R) [2] can be removed only after removing Drive Gear Reinforcement [1].
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.
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)
7. Adjustment Information for Installation
(+): Refer to Deck Exploded Views for lubrication information.



Joint/Mode SW /Ace Head Schematic Diagrams

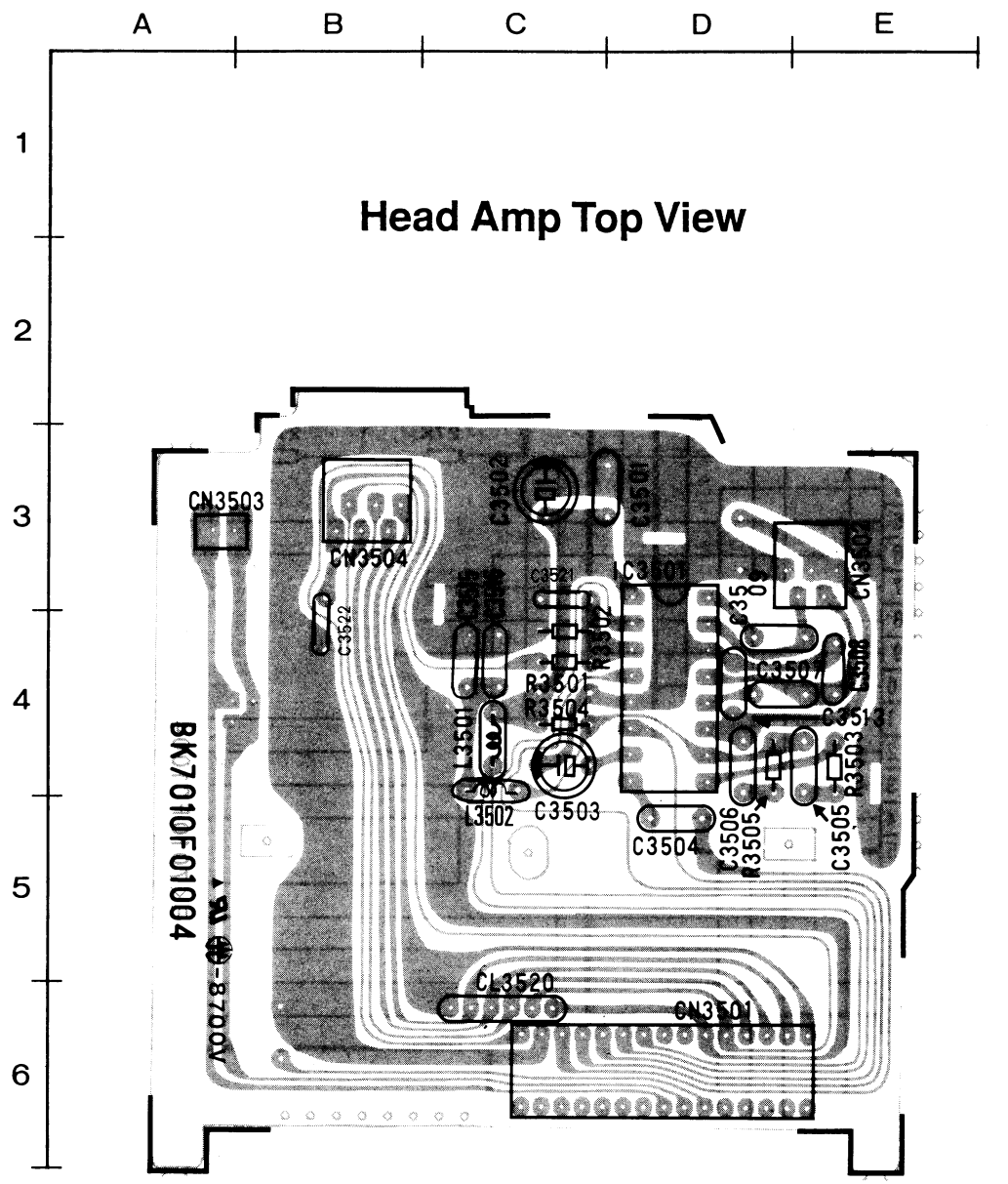


Head Amp



All voltage are DC voltage
PLAY mode with test tape F6-A.

Head Amp Top View

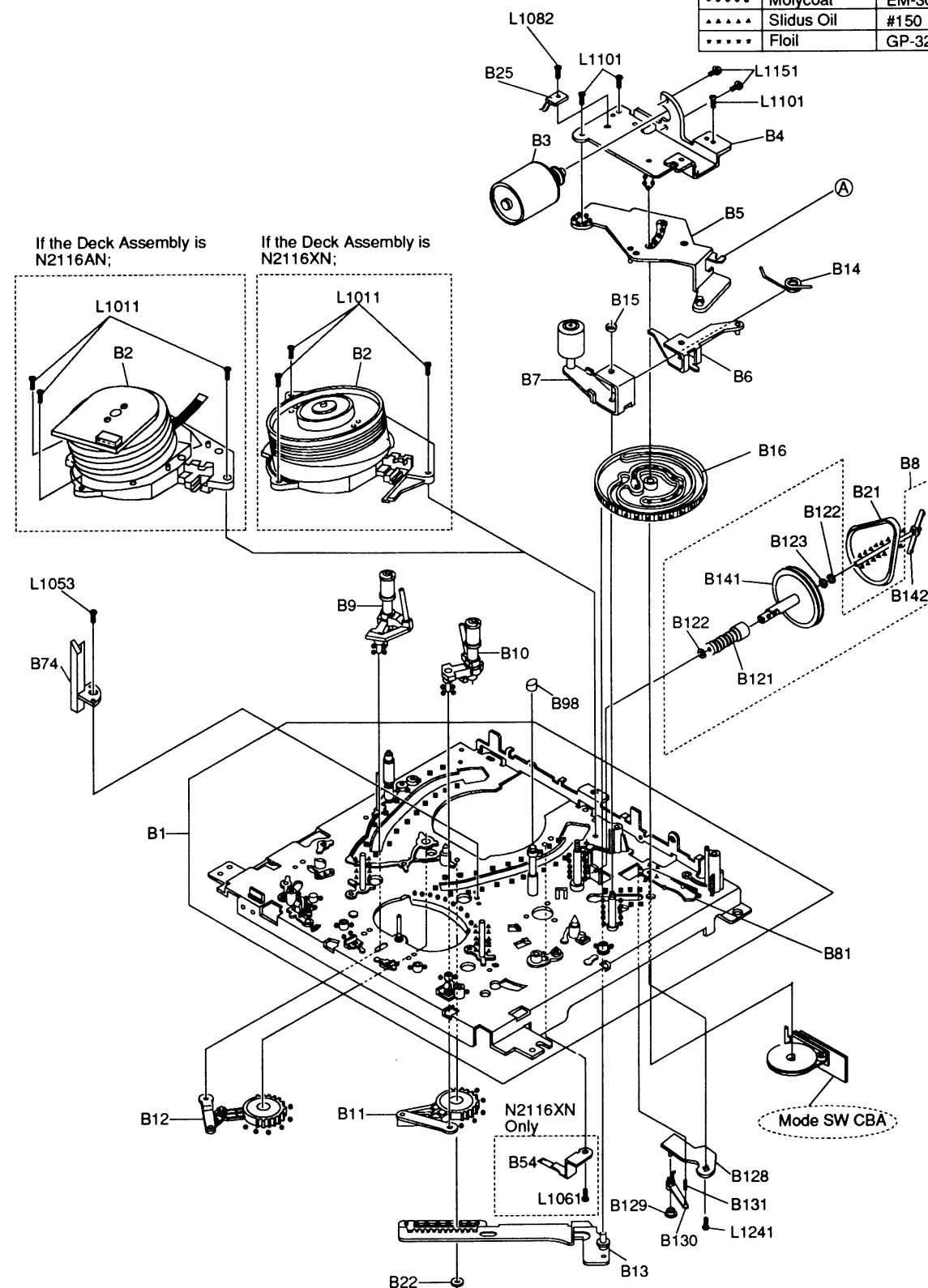


BK7010F01004-2

EXPLODED VIEWS

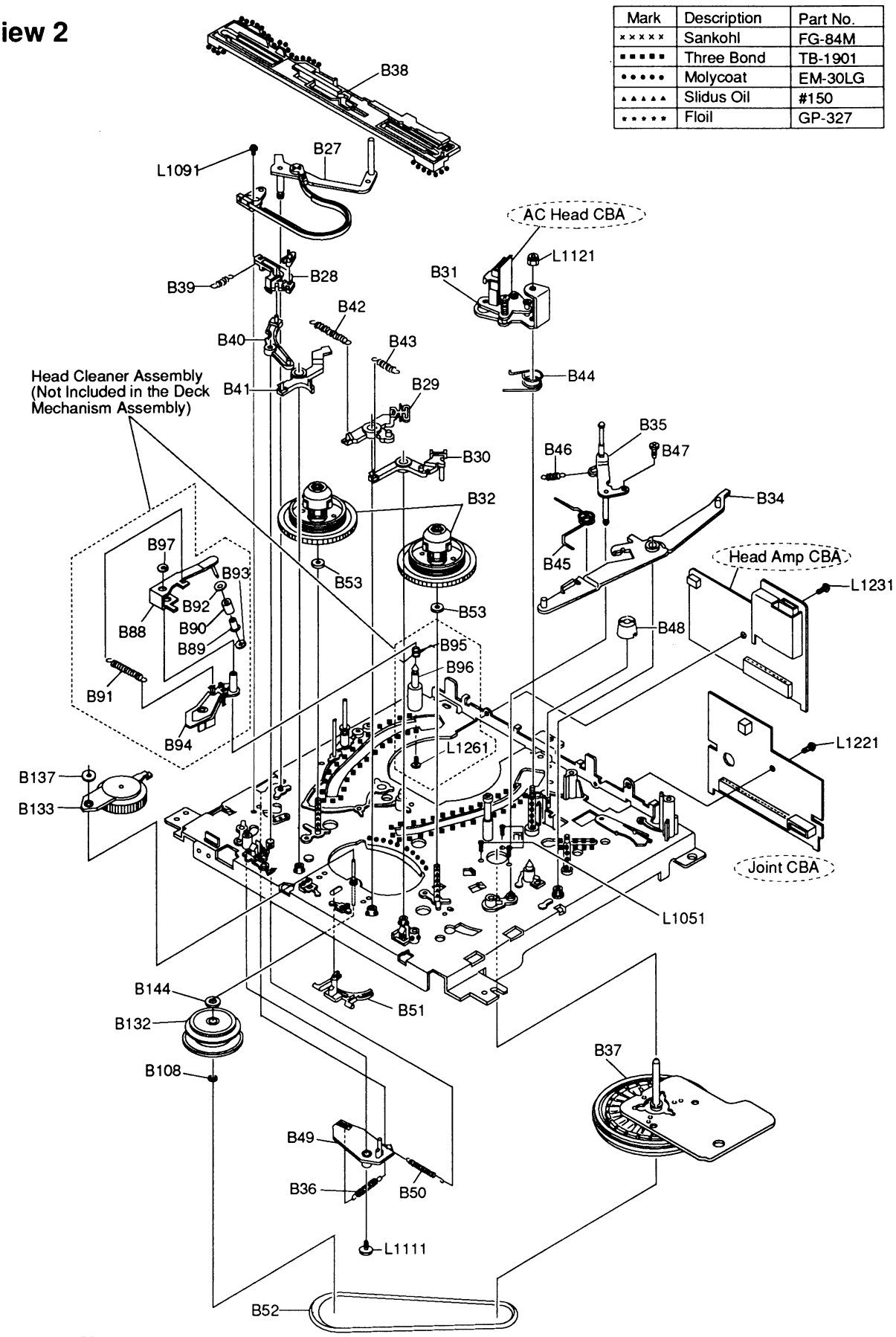
View 1

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



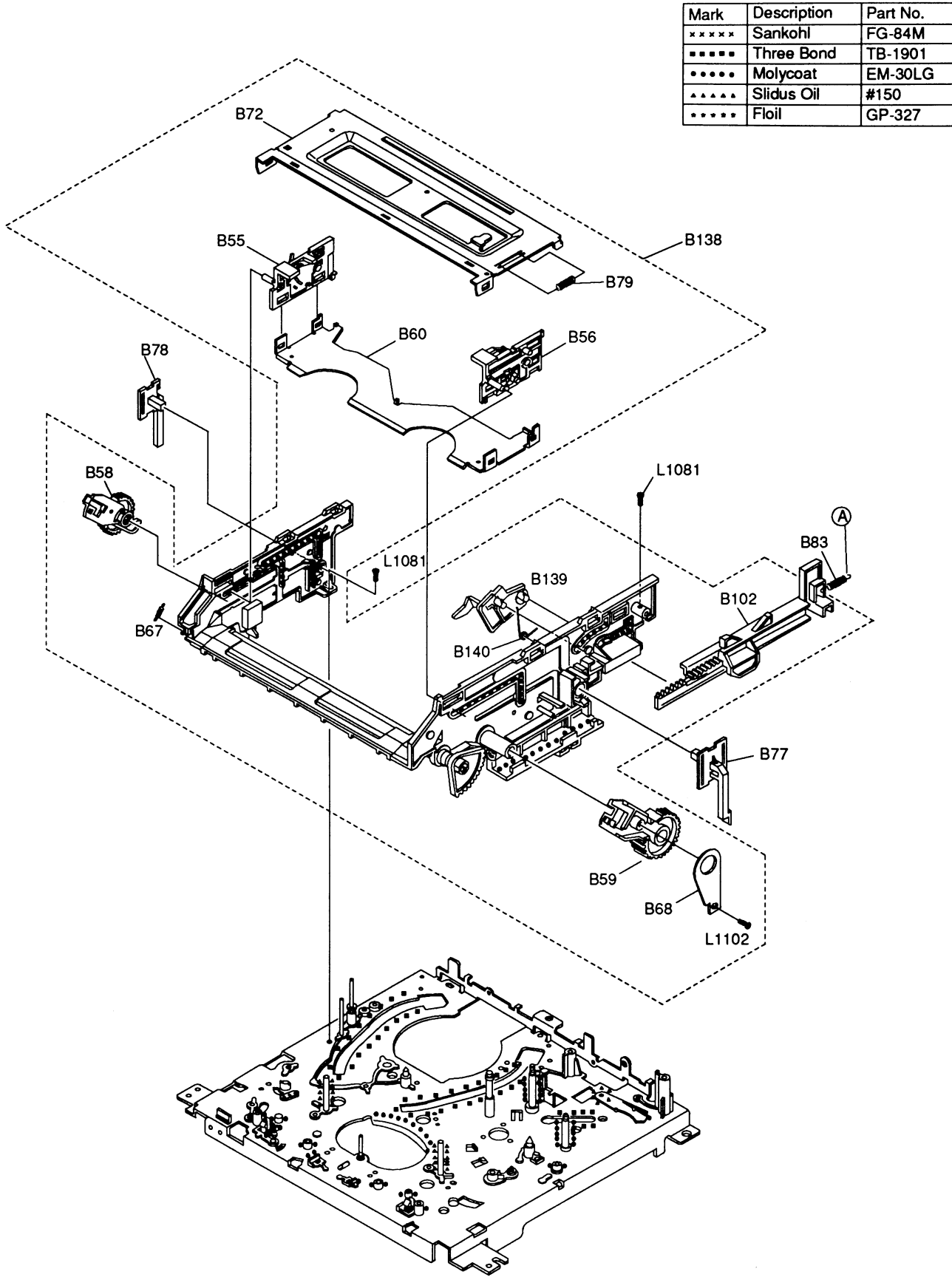
• See the Deck Electrical Parts List.

View 2



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

View 3



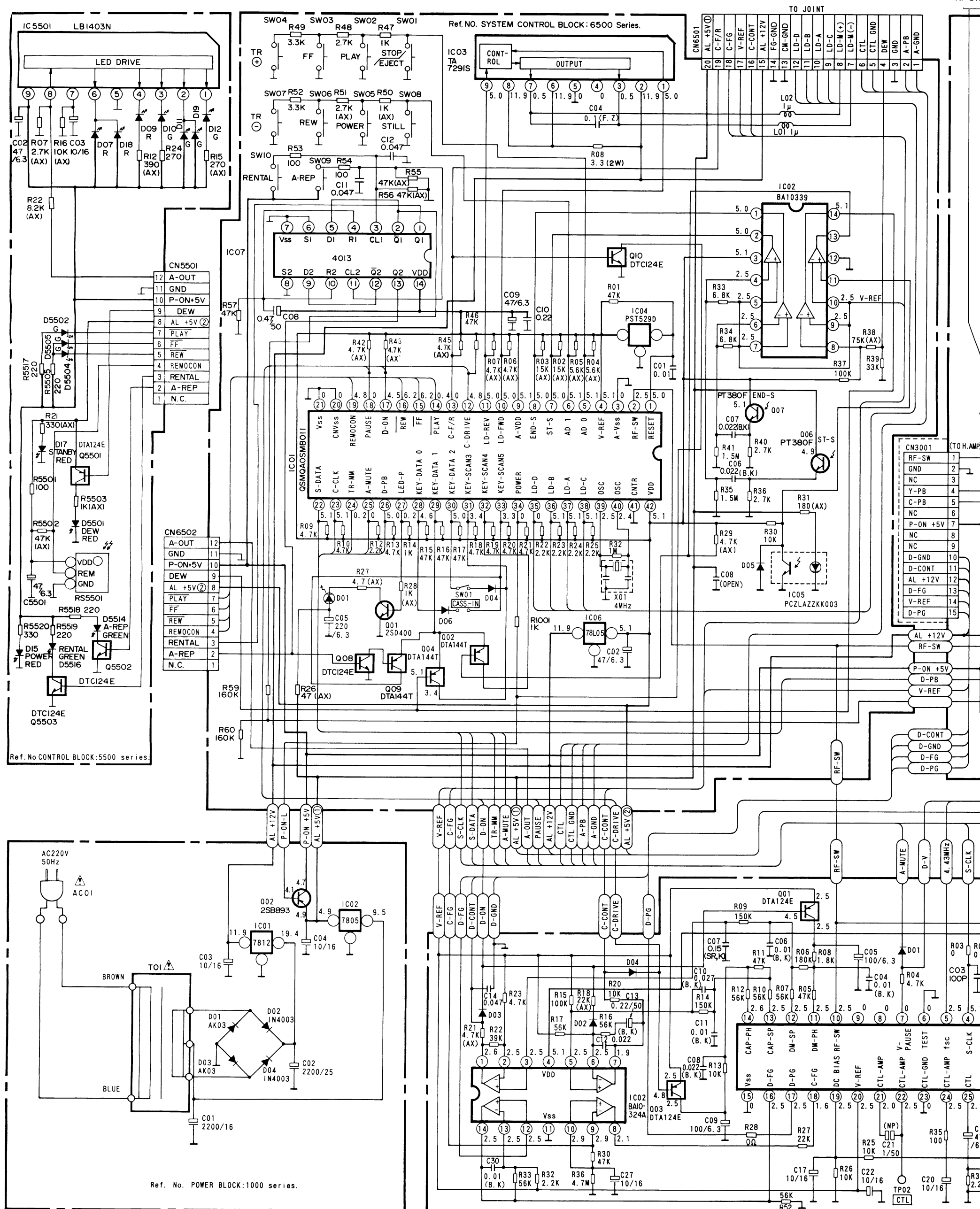
Mark	Description	Part No.
*****	Sankohi	FG-84M
*****	Three Bond	TB-1901
*****	Molycoat	EM-30LG
*****	Slidus Oil	#150
*****	Floil	GP-327

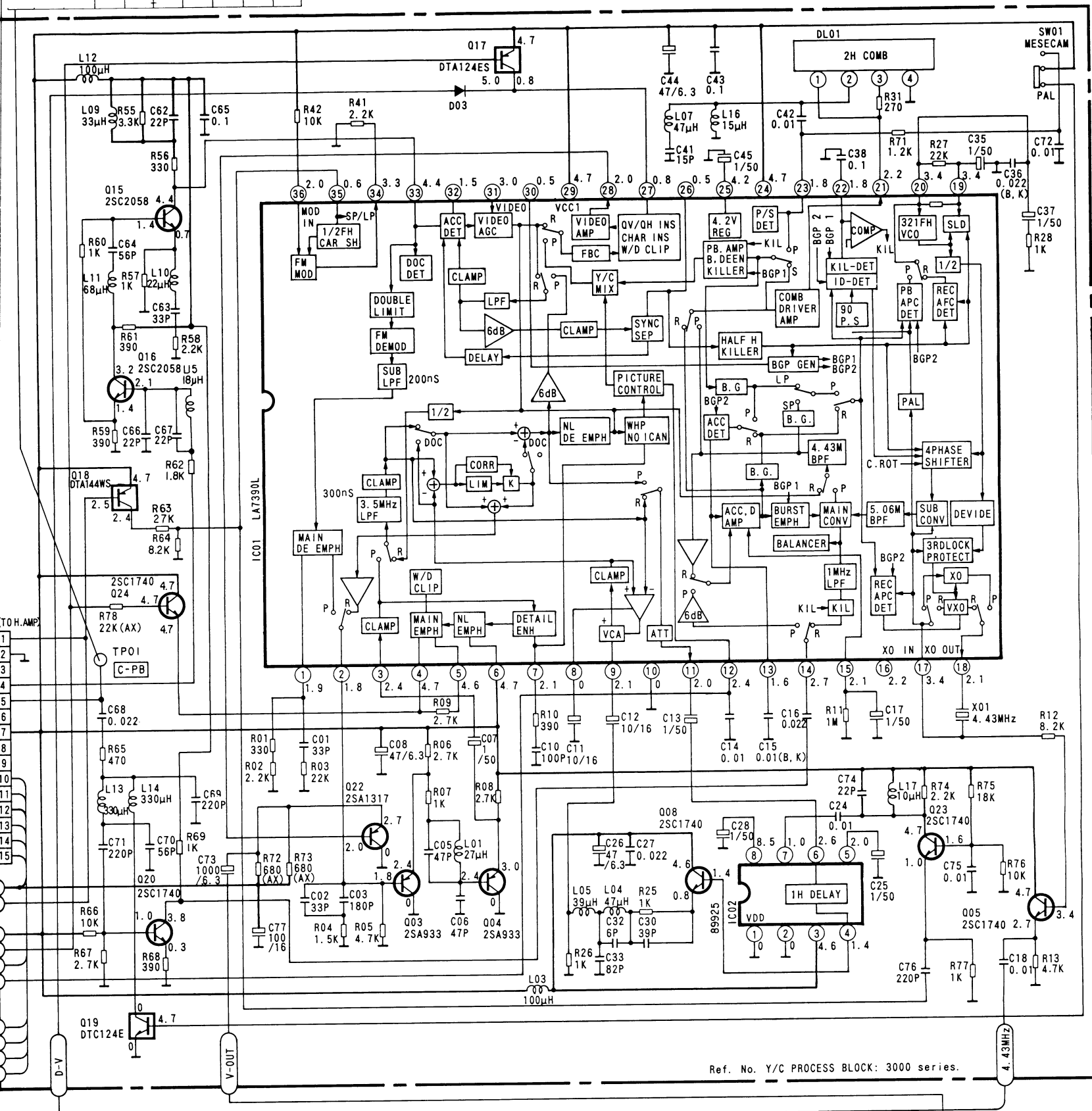
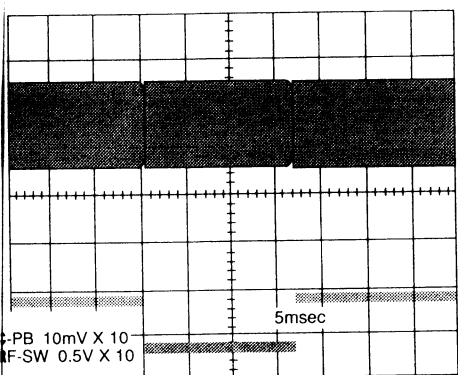
DECK MECHANICAL PARTS LIST

Ref.No.	Description	Part No.
B 1	CHASSIS ASSEMBLY	OVSA05627
B 2	CYLINDER ASSEMBLY (N2116AN only)	OVM301585
B 2	CYLINDER ASSEMBLY (N2116XN only)	OVM201335
B 3	LDG MOTOR ASSEMBLY	OVSA04781
B 4	MOTOR HOLDER CALKING ASSEMBLY	OVM403364
B 5	CASSETTE DRIVE LEVER ASSEMBLY	OVM403507
B 6	PINCH ROLLER ARM ASSEMBLY	OVSA05848
B 7	PINCH ARM ASSEMBLY	OVM402387
B 8	PULLEY ASSEMBLY	OVSA05505
B 9	MOVING GUIDE S ASSEMBLY	OVSA05722
B 10	MOVING GUIDE T ASSEMBLY	OVSA05723
B 11	LOADING ARM T ASSEMBLY	OVSA05503
B 12	LOADING ARM B ASSEMBLY	OVSA04215
B 13	LOADING ARM M ASSEMBLY	OVM404693
B 14	PINCH ROLLER SPRING (U5)	OVM403949
B 15	LUMIRROR WASHER 3.1X6X0.35	OVM403269
B 16	CAM	OVM100453
B 21	LOADING BELT	OVM403432
B 22	P.S.W(CUT)	OVM404679
B 25	DEW SENSOR or	PCZHUMZHH003
	DEW SENSOR	PCZHUMZMS004
B 27	BAND BRAKE ASSEMBLY	OVSA04658
B 28	MAIN BRAKE S ASSEMBLY	OVSA04212
B 29	MAIN BRAKE T ASSEMBLY	OVSA04213
B 30	T BRAKE ARM ASSEMBLY	OVSA04641
B 32	REEL BASE ASSEMBLY	OVSA04759
B 34	MAIN LEVER ASSEMBLY	OVM402558
B 35	TAPE GUIDE ASSEMBLY	OVM402560
B 36	TENSION LEVER SP ASSEMBLY	OVSA04550
B 37	CAPSTAN MOTOR F2QKB92 or	MMDDDB5ZSJ002
	CAPSTAN MOTOR DFX67B5VWA1	MMDCB12MS001
B 38	MODE CHANGE LEVER	OVM201234
B 39	M BRAKE(S) SPRING	OVM402579
B 40	M BRAKE(S) LEVER	OVM300753
B 41	S BRAKE ARM	OVM301759
B 42	M BRAKE T ARM SPRING	OVM402582
B 43	T BRAKE SPRING	OVM402580
B 44	HEAD ADJUST SPRING	OVM402567A
B 45	M LEVER SPRING	OVM402570
B 46	TAPE GUIDE ARM SPRING	OVM402581
B 47	TAPE GUIDE ARM ADJUST SCREW	OVM403242
B 48	ADJUST NUT (B)	OVM404678A
B 49	BT DRIVE ARM	OVM300756K
B 50	BT DRIVE ARM SPRING	OVM402960
B 51	CHANGE ARM	OVM402441E
B 52	CAPSTAN BELT or	OVM402397
	CAPSTAN BELT	OVM403950
B 53	P.S.W 3.1X6X0.3T or	OVM403737
	P.S.W 3.1X6X0.4T or	OVM403738
	P.S.W 3.1X6X0.5T	OVM402625
B 54	GROUND BRUSH ASSEMBLY	OVM404524
	(N2116XN only)or	
	GROUND BRUSH ASSEMBLY or	OVM404534
	GROUND BRUSH ASSEMBLY	OVM404827
B 55	CASSETTE SLIDER L ASSEMBLY	OVSA04487

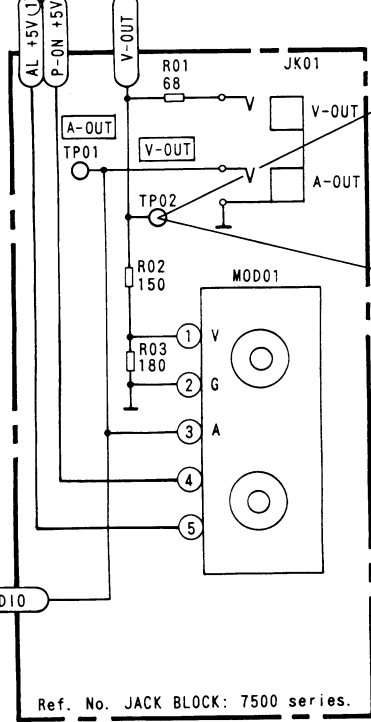
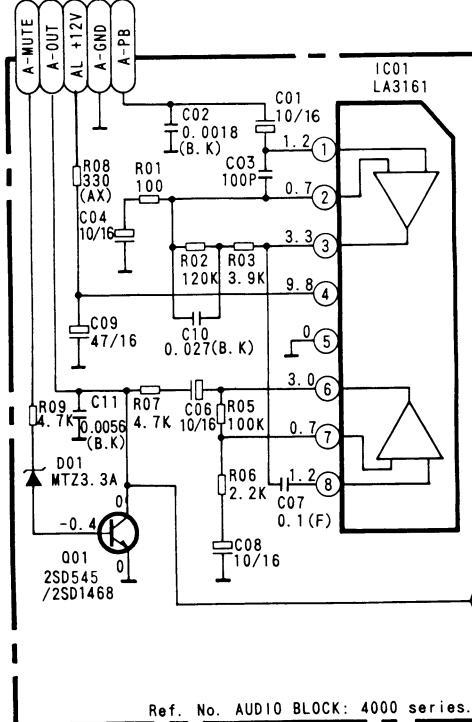
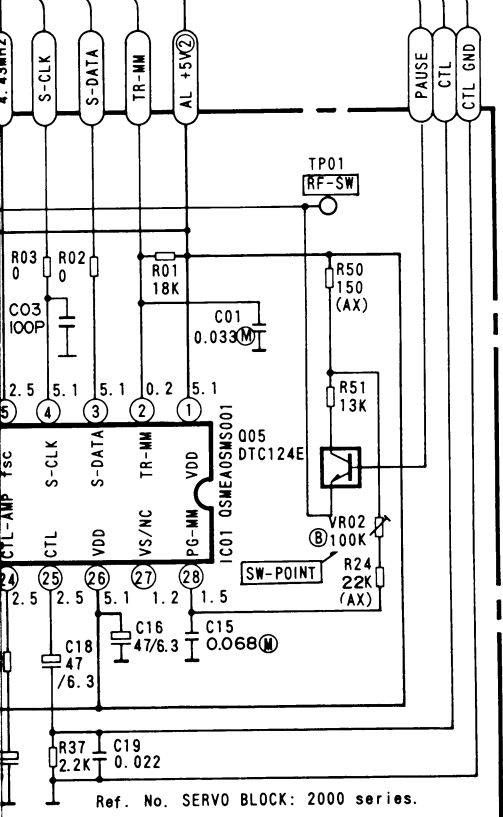
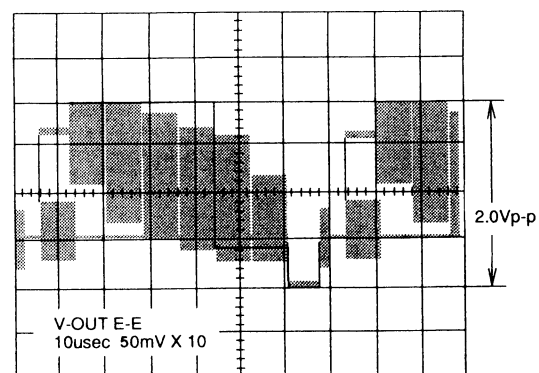
Ref.No.	Description	Part No.
B 56	CASSETTE SLIDER R ASSEMBLY	OVSA04488
B 58	CASSETTE DRIVE GEAR L ASSEMBLY	OVSA04494
B 59	CASSETTE DRIVE GEAR R ASSEMBLY	OVSA04495
B 60	CASSETTE PLATE	OVM300779E
B 67	FRONT DOOR OPENER SPRING	OVM403962
B 68	DRIVING GEAR REINFORCEMENT	OVM402961
B 72	UPPER PLATE	OVM201033
B 74	LUMINESCENCE PRISM or	OVM301291C
	LUMINESCENCE PRISM(B)	OVM301764F
B 77	PRISM R	OVM301292
B 78	PRISM L	OVM301293D
B 79	EARTH SPRING	OVM403524
B 81	M LEVER HOLDER	OVM301717
B 83	RACK SPRING	OVM403894
B 98	TG CAP or	OVM403733
B 102	FL RACK	OVM201022G
B 108	P.S.W F	OVM402629
B 121	WORM	OVM402429
B 122	P.S.W C	OVM402626
B 123	P.S.W (WORM THRUST)	OVM403348
B 128	KICK ARM HOLDER	OVM301716
B 129	PRESS FIT BUSHING	OVM403652
B 130	KICK ARM	OVM404382
B 131	KICK ARM SPRING	OVM404424
B 132	CLUTCH ASSEMBLY	OVSA05509
B 133	ARM IDLER ASSEMBLY	OVSA05512
B 137	CLUTCH BUSHING	OVM404513
B 138	FRONT LOADING ASSEMBLY	OVDM05358
B 139	DOOR OPENER	OVM300780E
B 140	DOOR OPENER SPRING	OVM402510
B 141	PULLEY SUB ASSEMBLY	OVSA05612
B 142	SHAFT LOCK ASSEMBLY	OVSA04642
B 144	CLUTCH WASHER	OVM404428
L1011	SCREW, C-TIGHT M3X9	GPMC3090
L1051	SCREW, S-TIGHT M2.6X6	GPMS9060
L1053	SCREW, S-TIGHT M2.6X6	GPMS9060
L1061	SCREW, S-TIGHT M2.6X4 (N2116XN only)	GPMS9040
L1081	SCREW, S-TIGHT 3X6	GBMS3060
L1082	SCREW, S-TIGHT 3X6	GBMS3060
L1091	SCREW, S-TIGHT M3X6	GCMS3060
L1101	SCREW, P-TIGHT 3X8	GBMP3080
L1102	SCREW, P-TIGHT 3X8	GBMP3080
L1111	SCREW, P-TIGHT M3X8	GCMP3080
L1121	HEXAGON NUT M3	NHMN030
L1151	SCREW, SEMS M3X4	CPM33040
L1221	SCREW, SPECIAL	OVM403688
L1231	SPACER SCREW ASSEMBLY	OVM403752
L1241	SCREW, P-TIGHT M2X6	GBMP2060

Main (MCV-A) Model VIP-5000HC / VIP-5000A Only

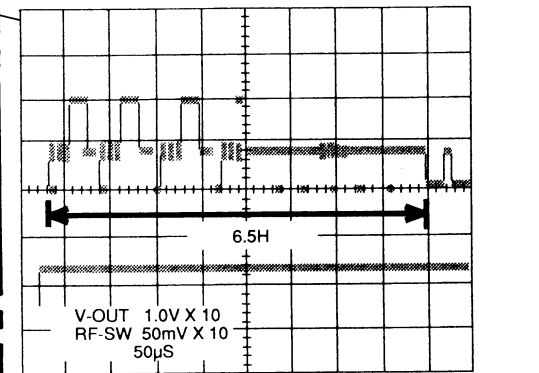




WF 1



WF 2



All voltage are DC voltage:
PLAY mode with test tape F6-A.