Video Cassette Recorder

Service
Service
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VR550/02/07/16

Service Manual

Contents

Survey of versions:

/02	PAL B/G
/07	PAL I, UK/IRELAND
/16	PAL B/G, Spain
/39	PAL/SECAM-BG+PAL/SECAM-L/L',FRANCE
/58	PAL-BG/DK+SECAM-BG/DK,EAST-EURO

Safety regulations require that the set be restored to its original condition and that parts which are identical with those specified be used.

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MAIN SECTION

VIDEO CASSETTE RECORDER

Sec. 1: Main Section

- **Adjustment Procedures**
- **Schematic Diagrams and CBA's**
- **Exploded Views**
- **Mechanical and Electrical Parts List**

TABLE OF CONTENTS

IMPORTANT SAFETY PRECAUTIONS

Product Safety Notice

Some electrical and mechanical parts have special safety-related characteristics which are often not evident from visual inspection, nor can the protection they give necessarily be obtained by replacing them with components rated for higher voltage, wattage, etc. Parts that have special safety characteristics are identified by a ⚠ on schematics and in parts lists. Use of a substitute replacement that does not have the same safety characteristics as the recommended 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 5 - 6 kg of force in any direction will not loosen it.

I. Also check areas surrounding repaired locations.

J. Use care that foreign objects (screws, solder droplets, etc.) do not remain inside the set.

K. Crimp type wire connector
The power transformer uses crimp type connectors which connect the power cord and the primary side of the transformer. When replacing the transformer, follow these steps carefully and precisely to prevent shock hazards.
Replacement procedure

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

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

2)Strip about 15 mm of the insulation from the ends of the wires. If the wires are stranded, twist the strands to avoid frayed conductors.

3)Align the lengths of the wires to be connected. Insert the wires fully into the connector.

4)Use a crimping tool to crimp the metal sleeve at its center. Be sure to crimp fully to the complete closure of the tool.

L. 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	Clearance Distance (d) (d')
110 to 240 V	≥ 3mm(d) ≥ 6 mm(d')

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

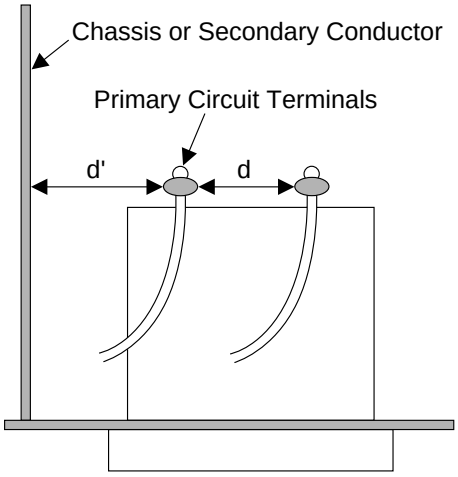


Fig. 1

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.

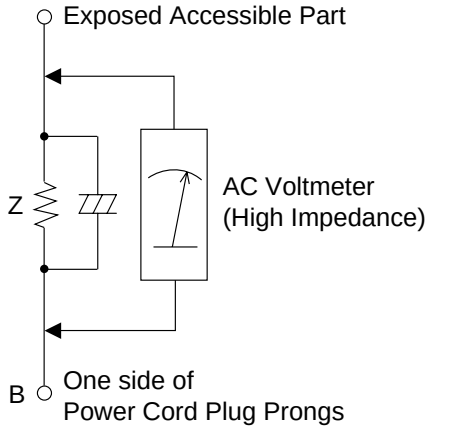


Fig. 2

Table 2: Leakage current ratings for selected areas

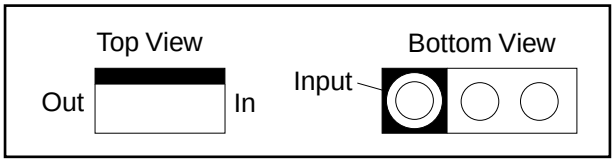
AC Line Voltage	Load Z	Leakage Current (i)	One side of power cord plug prongs (B) to:
110 to 240 V	2kΩ RES. Connected in parallel	i≤0.7mA AC Peak i≤2mA DC	RF or Antenna terminals
	50kΩ RES. Connected in parallel	i≤0.7mA AC Peak i≤2mA DC	A/V Input, Output

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

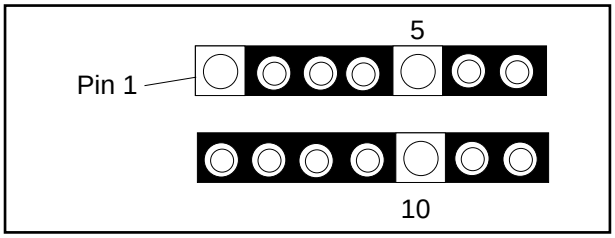
STANDARD NOTES FOR SERVICING

Circuit Board Indications

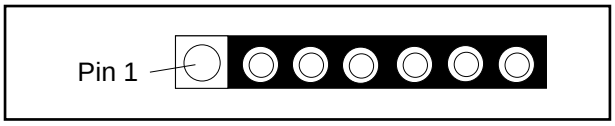
a. The output pin of the 3 pin Regulator ICs is indicated as shown.



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

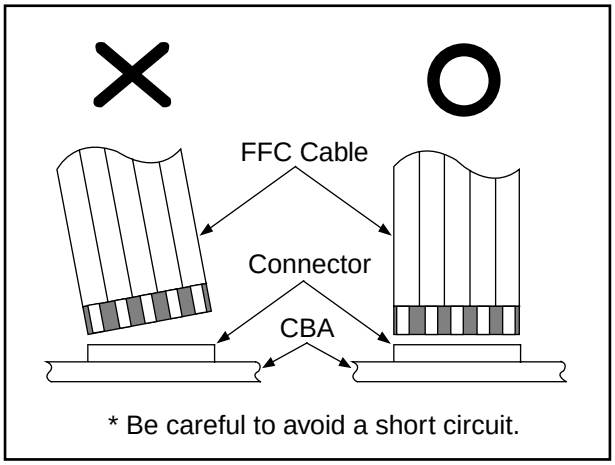


c. The 1st pin of every male connector is indicated as shown.



Instructions for Connectors

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



Pb (Lead) Free Solder

When soldering, be sure to use the Pb free solder.

How to Remove / Install Flat Pack-IC

1. Removal

With Hot-Air Flat Pack-IC Desoldering Machine:.

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

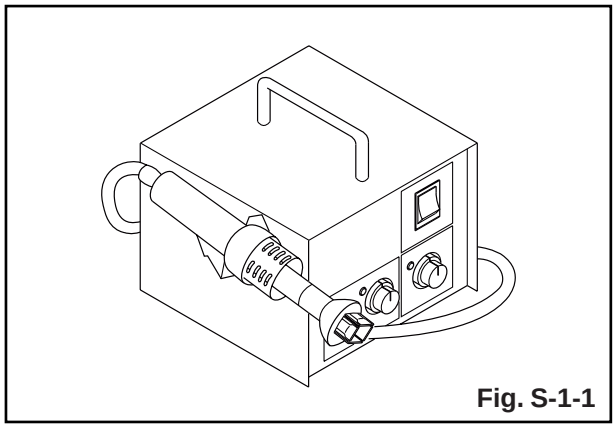


Fig. S-1-1

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

(3) Bottom of the flat pack-IC is fixed with glue to the CBA; when removing entire flat pack-IC, first apply soldering iron to center of the flat pack-IC and heat up. Then remove (glue will be melted). (Fig. S-1-6)

(4) Release the flat pack-IC from the CBA using tweezers. (Fig. S-1-6)

Caution:

1. The Flat Pack-IC shape may differ by models. Use an appropriate hot-air flat pack-IC desoldering machine, whose shape matches that of the Flat Pack-IC.
2. Do not 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)

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

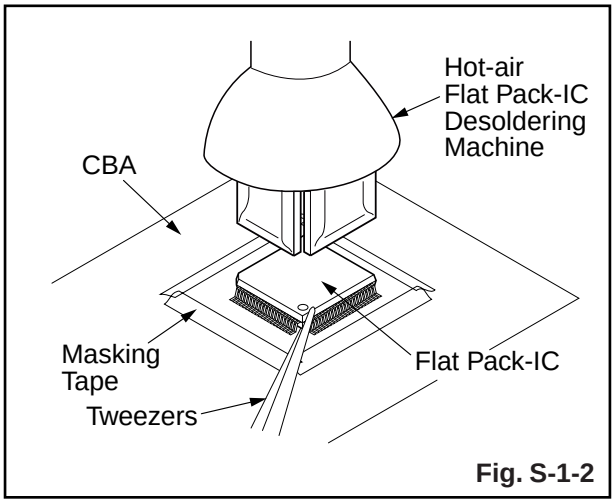


Fig. S-1-2

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)

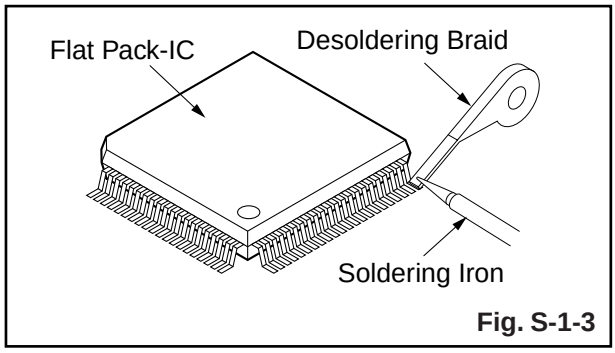


Fig. S-1-3

(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)

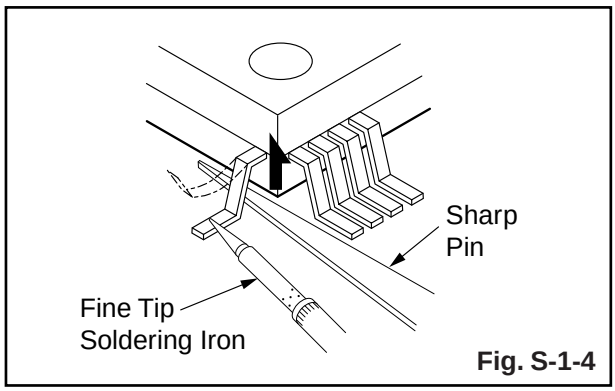


Fig. S-1-4

(3) Bottom of the flat pack-IC is fixed with glue to the CBA; when removing entire flat pack-IC, first apply soldering iron to center of the flat pack-IC and heat up. Then remove (glue will be melted). (Fig. S-1-6)

(4) Release the flat pack-IC from the CBA using tweezers. (Fig. S-1-6)

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.

(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 CBA contact pads as shown in Fig. S-1-5

(4) Bottom of the flat pack-IC is fixed with glue to the CBA; when removing entire flat pack-IC, first apply soldering iron to center of the flat pack-IC and heat up. Then remove (glue will be melted). (Fig. S-1-6)

(5) Release the flat pack-IC from the CBA using tweezers. (Fig. S-1-6)

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 CBA, handle it gently because it may be damaged if force is applied.

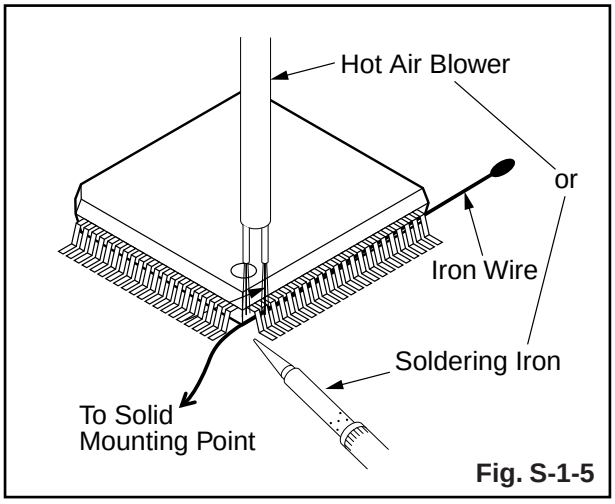


Fig. S-1-5

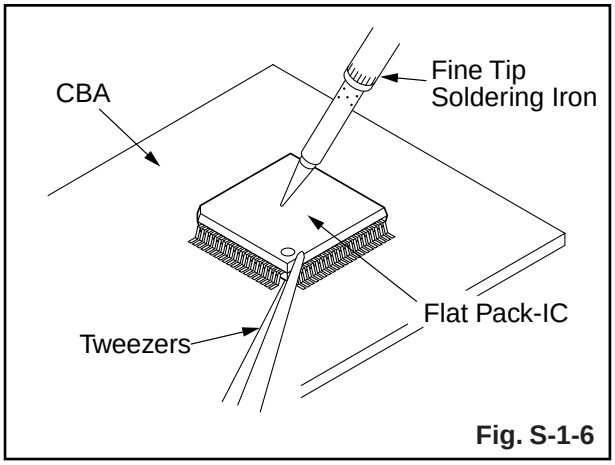


Fig. S-1-6

2. Installation

(1) Using desoldering braid, remove the solder from the foil of each pin of the flat pack-IC on the CBA so you can install a replacement flat pack-IC more easily.

(2) The " ● " mark on the flat pack-IC indicates pin 1. (See Fig. S-1-7.) Be sure this mark matches the 1 on the PCB when positioning for installation. Then presolder the four corners of the flat pack-IC. (See Fig. S-1-8.)

(3) Solder all pins of the flat pack-IC. Be sure that none of the pins have solder bridges.

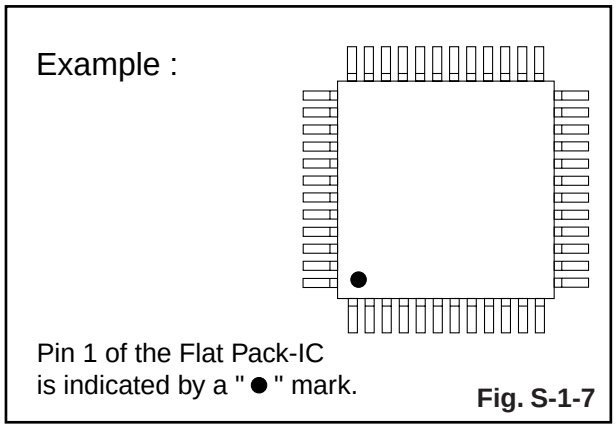


Fig. S-1-7

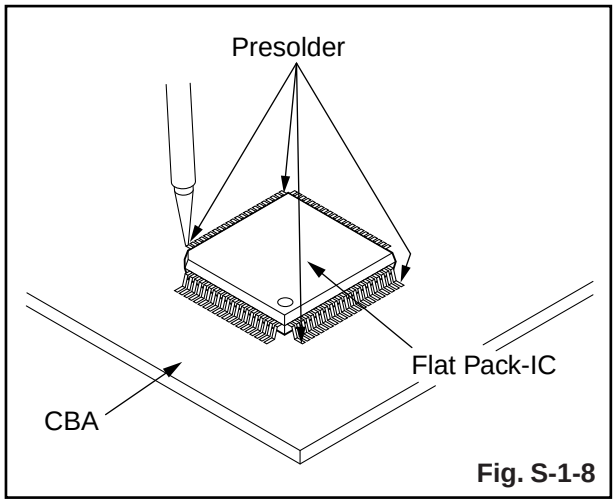


Fig. S-1-8

Instructions for Handling Semi-conductors

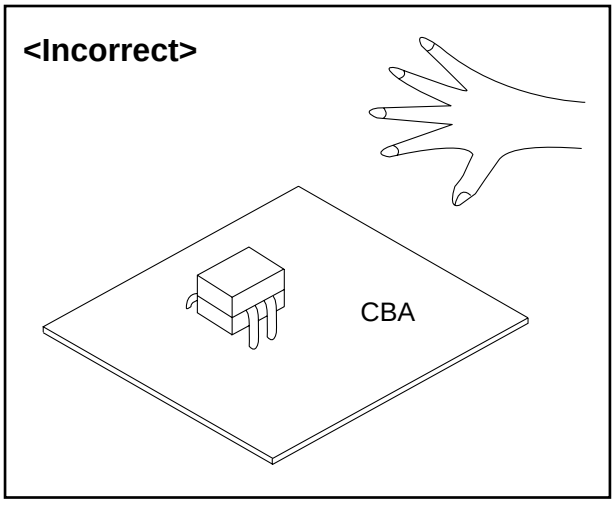
Electrostatic breakdown of the semi-conductors may occur due to a potential difference caused by electro-static charge during unpacking or repair work.

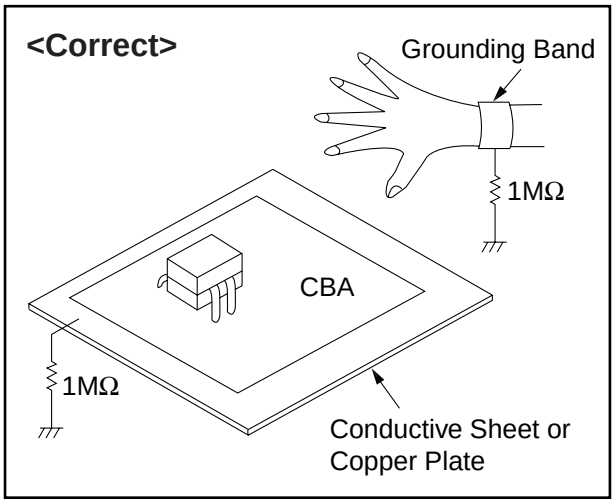
1. Ground for Human Body

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

2. Ground for Workbench

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



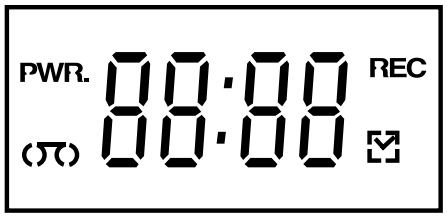


FUNCTION INDICATOR SYMBOLS

Note:

The following symbols will appear on the indicator panel to indicate the current mode or operation of the VCR. On-screen modes will also be momentarily displayed on the tv screen when you press the operation buttons.

Display panel



MODE	INDICATOR ACTIVE	
POWER ON	" PWR."	ON
CASSETTE "IN" CASSETTE "OUT"	" ⟲ " " ⟲ "	ON OFF
CLOCK	" 88:88 "	ON
REC	" REC "	ON
REC PAUSE	" REC "	Blinks at 0.8Hz interval
PLAY	" PLAY " is displayed on the indicator panel.	
FF	" FF " is displayed on the indicator panel.	
REW	" Fr " is displayed on the indicator panel.	
RESIDUAL QUANTITY	A residual quantity value of tape is displayed on the indicator panel. (in a FF/REW mode)	
REMAIN	A remain value of tape is displayed on a display panel by 7 segment indication.	
T-REC,OTR	" ⊠ "	ON (T-REC OFF,T-REC incomplete Blinks at 0.8Hz interval)
RF OUT	RF out channel number is displayed on the indicator panel.	
S-INH condition	All modes	Blinks at 0.8Hz interval
All lighting mode	All characters	ON
When reel and capstan mechanism is not functioning correctly	“EJECT R” is displayed on a TV screen. (Refer to Fig. 1.)	
When tape loading mechanism is not functioning correctly	“EJECT T” is displayed on a TV screen. (Refer to Fig. 2.)	
When cassette loading mechanism is not functioning correctly	“EJECT C” is displayed on a TV screen. (Refer to Fig. 3.)	
When the drum is not working properly	“EJECT D” is displayed on a TV screen. (Refer to Fig. 4.)	
P-ON Power safety detection	“EJECT P” is displayed on a TV screen. (Refer to Fig. 5.)	

TV screen

Note:

OSD for mechanical error will be displayed for 5 sec. after the mechanical error occurs.

When reel and capstan mechanism is not functioning correctly

Fig. 1

When tape loading mechanism is not functioning correctly

Fig. 2

When cassette loading mechanism is not functioning correctly

Fig. 3

When the drum is not working properly

Fig. 4

P-ON Power safety detection

Fig. 5

PREPARATION FOR SERVICING

How to Enter the Service Mode

About Optical Sensors

Caution:

An optical sensor system is used for the Tape Start and End Sensors on this equipment. Carefully read and follow the instructions below. Otherwise the unit may operate erratically.

What to do for preparation

Insert a tape into the Deck Mechanism Assembly and press the PLAY button. The tape will be loaded into the Deck Mechanism Assembly. Make sure the power is on, connect TP507 (S-INH) to GND. This will stop the function of Tape Start Sensor, Tape End Sensor and Reel Sensors. (If these TPs are connected before plugging in the unit, the function of the sensors will stay valid.) See Fig. 1.

Note: Because the Tape End Sensors are inactive, do not run a tape all the way to the start or the end of the tape to avoid tape damage.

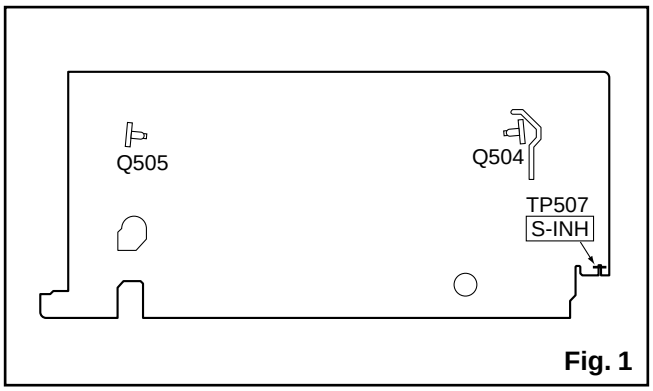
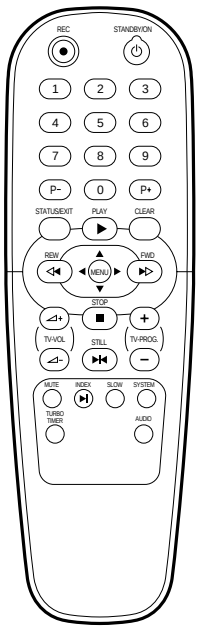


Fig. 1

OPERATING CONTROLS AND FUNCTIONS

The remote control



Buttons for VCR feature only

REC ● To record the TV channel selected at this moment.

STANDBY/ON ⏻ To switch off or on, interrupt menu function.

0..9 Press to select channels at VCR.

P+ **P–** To select the programme number. During normal or slow motion playback, press to adjust the tracking.

STATUS/EXIT To access or remove the VCR's on-screen status display. To exit on-screen menus.

CLEAR To delete last entry. To clear a programmed recording (TIMER). To reset the elapsed time counter in the playback, recording or stop mode.

STILL ▶I◀ To stop the tape and play back a picture step by step. (except for during fast forwarding and fast rewinding)

INDEX ▶I In combination with ◁◀/▶▷: to search for previous or next recording on the cassette.

SLOW To view the picture in slow motion.

AUDIO To change stereo sound and 2nd language.

TURBO TIMER To programme a recording with the function TURBO TIMER.

SYSTEM Doesn't work on this model.

MENU To call up main menu of VCR.

FWD ▶▷- ▶ When tape playback is stopped, press to fast forward the tape at high speed. During playback, press to fast forward the tape while the picture stays on the screen. To store or confirm entry in the menu.

REW ◁◀- ◀ When tape playback is stopped, press to rewind the tape at high speed. During playback, press to rewind the tape while the picture stays on the screen.To return the cursor in the menu.

PLAY ▶- ▲ To play back a tape, select an item in the menu of VCR.

STOP ■- ▼ To stop the tape, select an item in the menu of VCR.

Buttons with TV feature

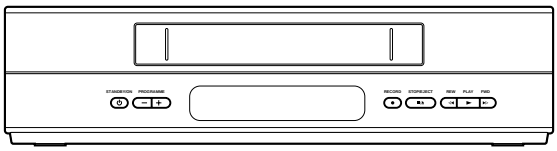
MUTE To eliminate the TV's sound. Press again to restore the volume.

TV-VOL ◿+ **TV-VOL ◿–** To adjust the TV's volume.

TV-PROG.+ **TV-PROG.–** To select a programme number on the TV.

You can use this remote control to operate some functions of Philips TVs.

Front of your VCR



STANDBY/ON To switch off or on, interrupt menu function.

PROGRAMME+ **PROGRAMME-** To select the programme number. During normal or slow motion playback, press to adjust the tracking.

RECORD To record the TV channel selected at this moment.

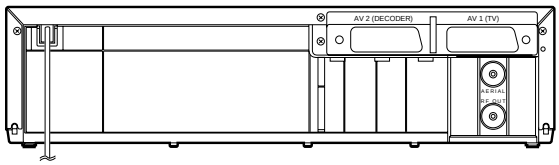
FWD.
When tape playback is stopped, press to fast forward the tape at high speed. During playback, press to fast forward the tape while the picture stays on the screen.

REW.
When tape playback is stopped, press to rewind the tape at high speed. During playback, press to rewind the tape while the picture stays on the screen.

PLAY To play back a tape.

STOP/EJECT To stop the tape and eject the cassette.

Back of your VCR



AV2(DECODER) To connect a satellite receiver, decoder, video recorder, etc.

AV1(TV) To connect the TV.

AERIAL To connect the aerial cable.

RF OUT To connect the TV.

SIGNAL NAME ABBREVIATIONS

Signal Name	Function
16P	SCART 16Pin Control Signal
8POUT-1	SCART 1 8Pin Output Control Signal
8POUT-2	SCART 2 8Pin Output Control Signal
A-COM	Audio Head Common
A-IN	Audio Signal Input
A-MODE	Hi-Fi Tape Detection Signal
A-MUTE-H	Audio Mute Control Signal (Mute = “H”)
A-OUT	Audio Signal Output
A-PB/REC	Normal Audio Play Back/Record Signal
AE-H	Audio Erase Head
AFC	Automatic Frequency Control Signal
AGC	IF AGC Comparator Signal
AL+12V	Always +12V with AC Plug Connected
AL+12V/+20.5V	Always +12V/+20.5V with AC Plug Connected
AL+15V	Always +15V with AC Plug Connected
AL+44V	Always +9V with AC Plug Connected
AL+5V	Always +5V with AC Plug Connected
AL+9V	Always +9V with AC Plug Connected
AMPC	CTL AMP Connected Terminal
AMPVcc	AMPVcc
AMPVREF IN	V-Ref for CTL AMP
AMPVREF OUT	V-Ref for CTL AMP
AVcc	A/D Converter Power Input/ Standard Voltage Input
C-CONT	Capstan Motor Control Signal
C-F/R	Capstan Motor FWD/REV Control Signal (FWD=”L”/ REV=”H”)
C-FG	Capstan Motor Rotation Detection Pulse
C-POW-SW	Capstan Power Switching Pulse
C-ROTA	Color Phase Rotary Changeover SIgnal
C-SYNC	Composite Synchronized Pulse

Signal Name	Function
CLKSEL	Clock Select (GND)
CTL (+)	Playback/Record Control Signal (+)
CTL (-)	Playback/Record Control Signal (-)
CTLAMPout	To Monitor for CTL AMP Output
D-CONT	Drum Motor Control Signal
D-PFG	Drum Motor Pulse Generator
D-REC-H	Delayed Record Signal
D-V-SYNC	Dummy V-sync Output
DRV-CLK	LED Clock Driver IC Control Clock
DRV-DATA	LED Clock Driver IC Control Data
DRV-STB	LED Clock Driver IC Chip Select Signal
END-S	Tape End Position Detect Signal
FE-H	Full Erase Head
FF/REW-L	CTL Frequency Characteristics Switching Signal (FF/REW=”L”)
FSC-IN [4.43MHz]	4.43MHz Clock Input
FTV-IN	Comparator Input of Video Signal for Follow TV
H-A-COMP	Head Amp Comparator Signal
H-A-SW	Video Head Amp Switching Pulse
Hi-Fi-A	Hi-Fi Audio Head
Hi-Fi-COM	Hi-Fi Audio Head Common
Hi-Fi-H-SW	Hi-Fi Audio Head Switching Pulse
HLF	LPF Connected Terminal (Slicer)
IIC-BUS SCL	I^2C BUS Control Clock
IIC-BUS SDA	I^2C BUS Control Data
JK1-8P-OUT	SCART 8Pin Output Control Signal
KEY-1	Key Scan Input Signal 1
KEY-2	Key Scan Input Signal 2
LD-SW	Deck Mode Position Detector Signal
LINE-MUTE	Audio Mute Control Signal
LM-FWD/REV	Loading Motor Control Signal
LP	LP

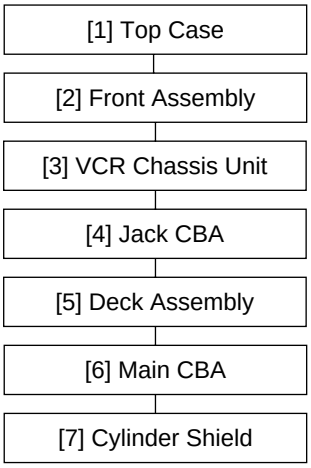
Signal Name	Function
MOD-A	Modulator Audio Output Signal
N-A-PB	Normal Audio Playback
N-A-REC	Normal Audio Recording
OSCin	Clock Input for letter size
OSCout	Clock Output for letter size
OSD-V-IN	OSD Video Signal Input
OSD-V-OUT	OSD Video Signal Output
OSDVcc	OSDVcc
OSDVss	OSDVss
P-DOWN-L	Power Voltage Down Detector Signal
P-ON+15V	+15V at Power-On Signal
P-ON+44V	+44V at Power-On Signal
P-ON+5V	+5V at Power-On Signal
P-ON-H	Power On Signal at High
P80/C	P80/C Terminal
PG-DELAY	Video Head Switching Pulse Signal Adjusted Voltage
POW-SAF	P-ON Power Detection Input Signal
REC-SAF-SW	Recording Safety SW Detect (With Record tab="L"/With out Record tab="H")
REMOCON-IN	Remote Control Sensor
RESET	System Reset Signal (Reset=”L”)
RESET+5V	+5V at System Reset Signal
RF-SW	Video Head Switching Pulse
RGB-THROUGH	SCART 2 RGB Through Control Signal
S-REEL	Supply Reel Rotation Signal
SC2-IN	Input Signal from Pin 8 of SCART2
SECAM-H	SECAM Mode at High
SIF	Tuner Audio Intermediate Frequency Signal
ST-S	Tape Start Position Detector Signal
T-REEL	Take Up Reel Rotation Signal
TIMER+5V	+5V at Timer
TU-AUDIO	Tuner Audio Input Signal
TU-VIDEO	Tuner Video Input Signal
V(L)	Video L Head
V(R)	Video R Head
V-COM	Video Head Common

Signal Name	Function
V-ENV	Video Envelope Comparator Signal
V-IN	Video Signal Input
V-OUT	Video Signal Output
Vcc	Vcc
VIDEO	Video Signal
Vss	Vss(GND)
X-IN	Main Clock Input
X-OUT	Main Clock Input
XC-IN	Sub Clock
XC-OUT	Sub Clock

CABINET DISASSEMBLY INSTRUCTIONS

1. Disassembly Flowchart

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



2. Disassembly Method

ID/ LOC. No.	PART	REMOVAL		
		Fig. No.	REMOVE/*UNHOOK/ UNLOCK/RELEASE/ UNPLUG/DESOLDER	Note
[1]	Top Case	D1	7(S-1)	-
[2]	Front Assembly	D2	*3(L-1),*4(L-2)	-
[3]	VCR Chassis Unit	D3	5(S-2), 2(S-3), (S-4),	1
[4]	Jack CBA	D4	Desolder, (S-5)	-
[5]	Deck Assembly	D5, D6	2(S-6), Desolder	2,3
[6]	Main CBA	D5	----------	-
[7]	Cylinder Shield	D5	(S-7)	-
↓ (1)	↓ (2)	↓ (3)	↓ (4)	↓ (5)

(1): Identification (location) No. of parts in the figures

(2): Name of the part

(3): Figure Number for reference

(4): Identification of parts to be removed, unhooked, unlocked, released, unplugged, unclamped, or desoldered.
P=Spring, L=Locking Tab, S=Screw,
CN=Connector
*=Unhook, Unlock, Release, Unplug, or Desolder
e.g. 2(S-2) = two Screws (S-2),
2(L-2) = two Locking Tabs (L-2)

(5): Refer to “Reference Notes.”

Reference Notes

CAUTION: Locking Tabs (L-1) and (L-2) are fragile. Be careful not to break them.

1. Remove five Screws (S-2), two Screws (S-3) and Screw (S-4). Then, slowly lift the VCR Chassis Unit (Deck Assembly, Jack CBA and Main CBA) up.
2. When reassembling, solder wire jumpers as shown in Fig. D5.
3. Before installing the Deck Assembly, be sure to place the pin of LD-SW on Main CBA as shown in Fig. D6. Then, install the Deck Assembly while aligning the hole of Cam Gear with the pin of LD-SW, the shaft of Cam Gear with the hole of LD-SW as shown in Fig. D6.

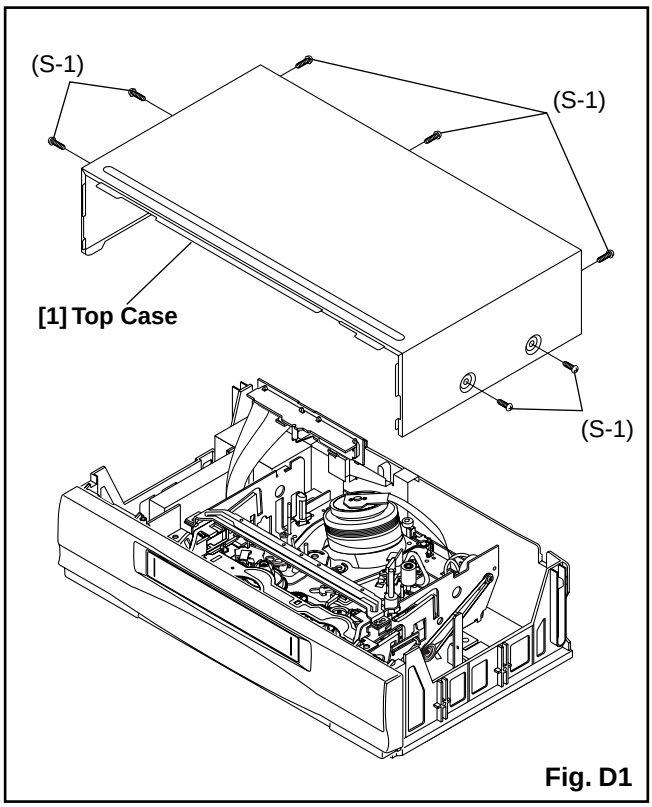


Fig. D1

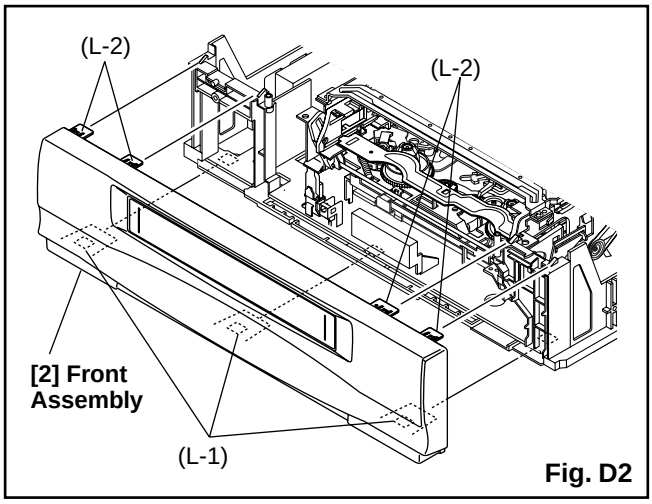


Fig. D2

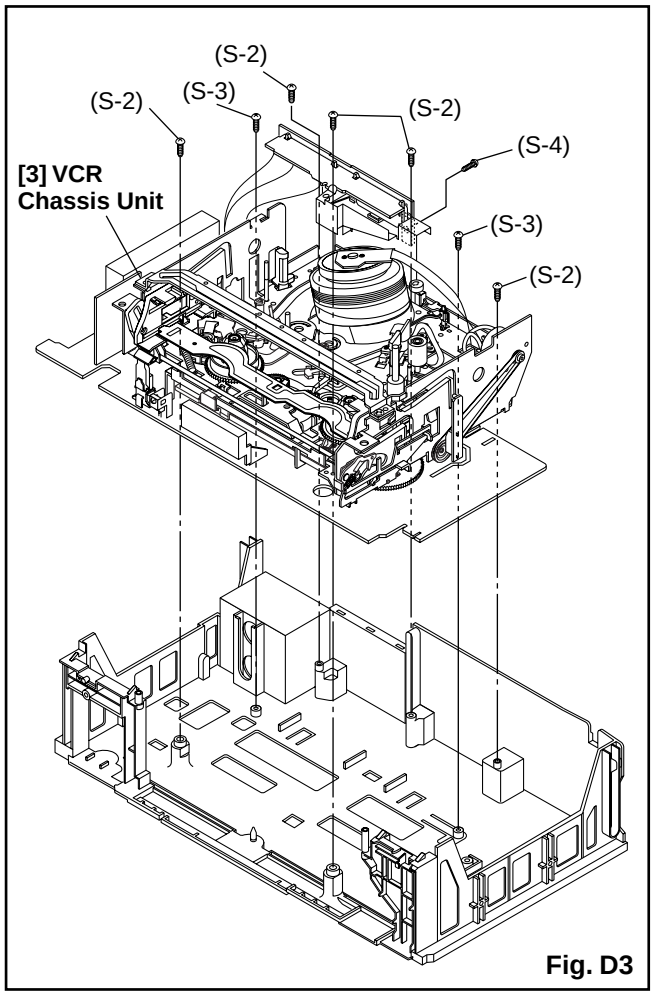


Fig. D3

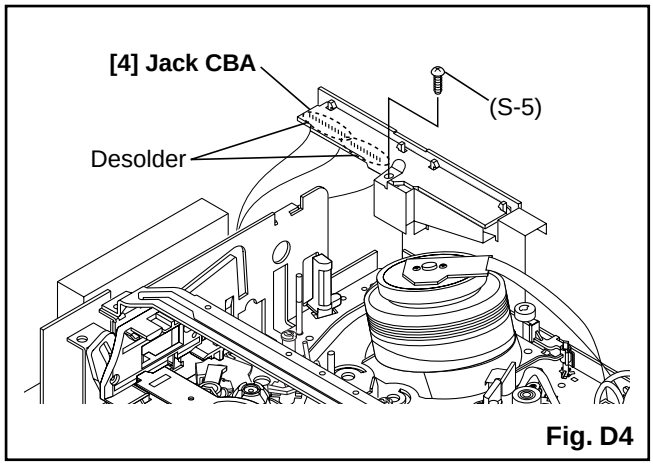
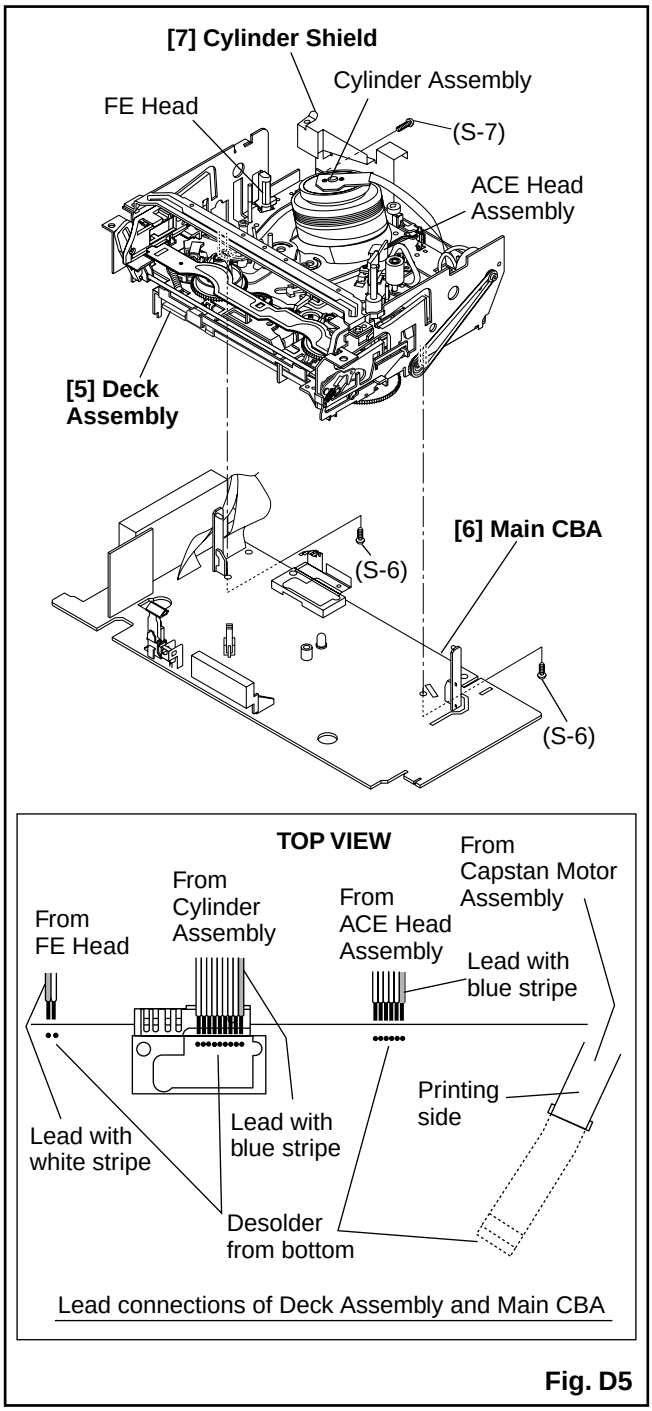


Fig. D4



Lead connections of Deck Assembly and Main CBA

Fig. D5

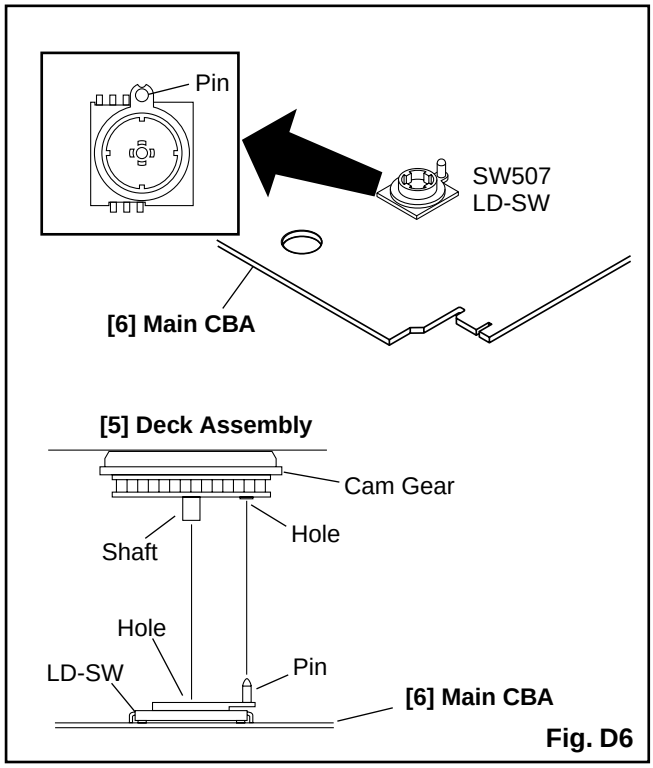


Fig. D6

ELECTRICAL ADJUSTMENT INSTRUCTIONS

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

NOTE:

1. Electrical adjustments are required after replacing circuit components and certain mechanical parts. It is important to do these adjustments only after all repairs and replacements have been completed. Also, do not attempt these adjustments unless the proper equipment is available.
2. To perform these alignment / confirmation procedures, make sure that the tracking control is set in the center position: Press either "▼" or "▲" button on the remote control unit first, then the "PLAY" button (Front Panel only).

Test Equipment Required

1. Oscilloscope: Dual-trace with 10:1 probe,
   V-Range: 0.001~50V/Div.,
   F-Range: DC~AC-20MHz
2. Alignment Tape (9965 000 14514)

Head Switching Position Adjustment

Purpose:

To determine the Head Switching point during playback.

Symptom of Misadjustment:

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

Test point	Adj.Point	Mode	Input
J23(V-OUT) TP502(RF-SW) GND	VR501 (Switching Point) (MAIN CBA)	PLAY (SP)	-----
Tape	**Measurement Equipment**	**Spec.**	
9965 000 14514	Oscilloscope	6.5H±1H (412.7µs±60µs)	

Connections of Measurement Equipment

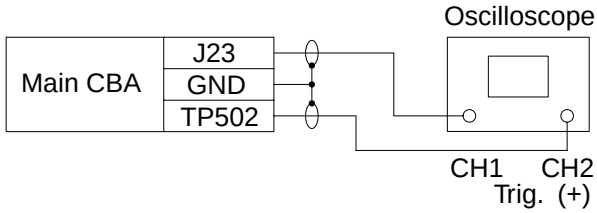
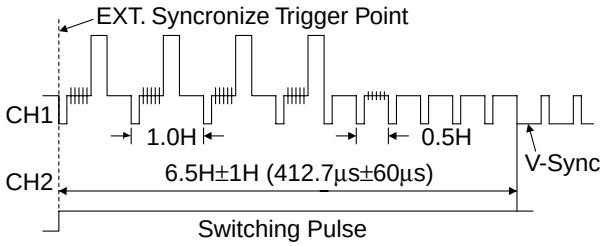


Figure 1

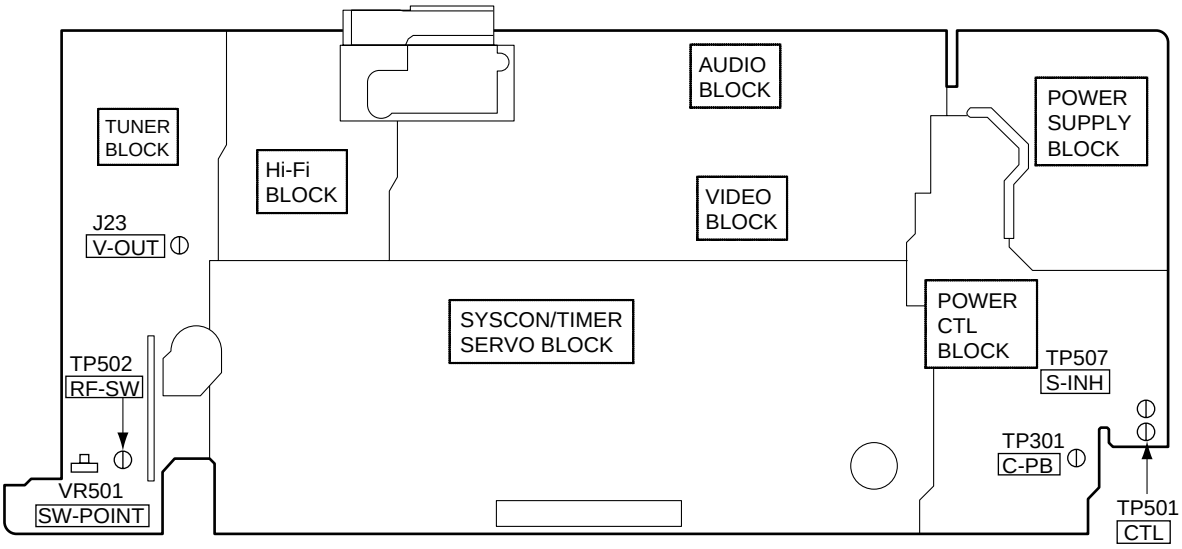


Reference Notes:

Playback the Alignment tape and adjust VR501 so that the V-sync front edge of the CH1 video output waveform is at the 6.5H(412.7µs) delayed position from the rising edge of the CH2 head switching pulse waveform.

Adjustment Points and Test Points

Main CBA Top View

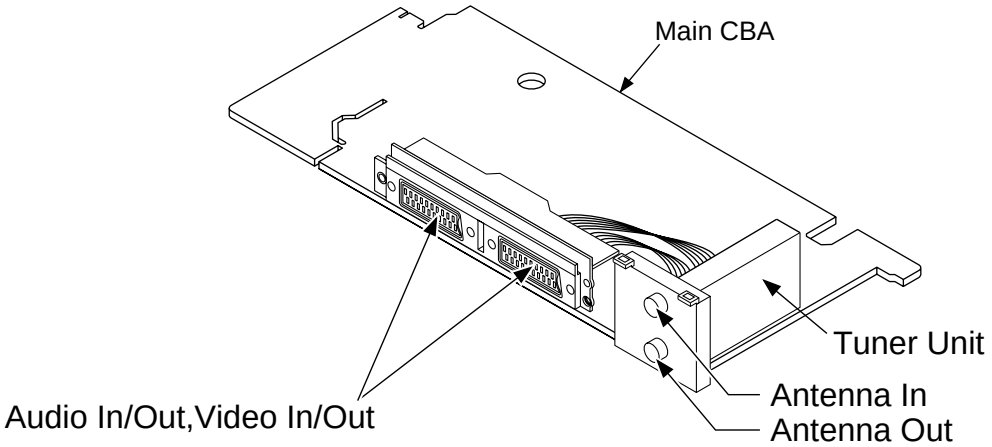


TEST POINT INFORMATION

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

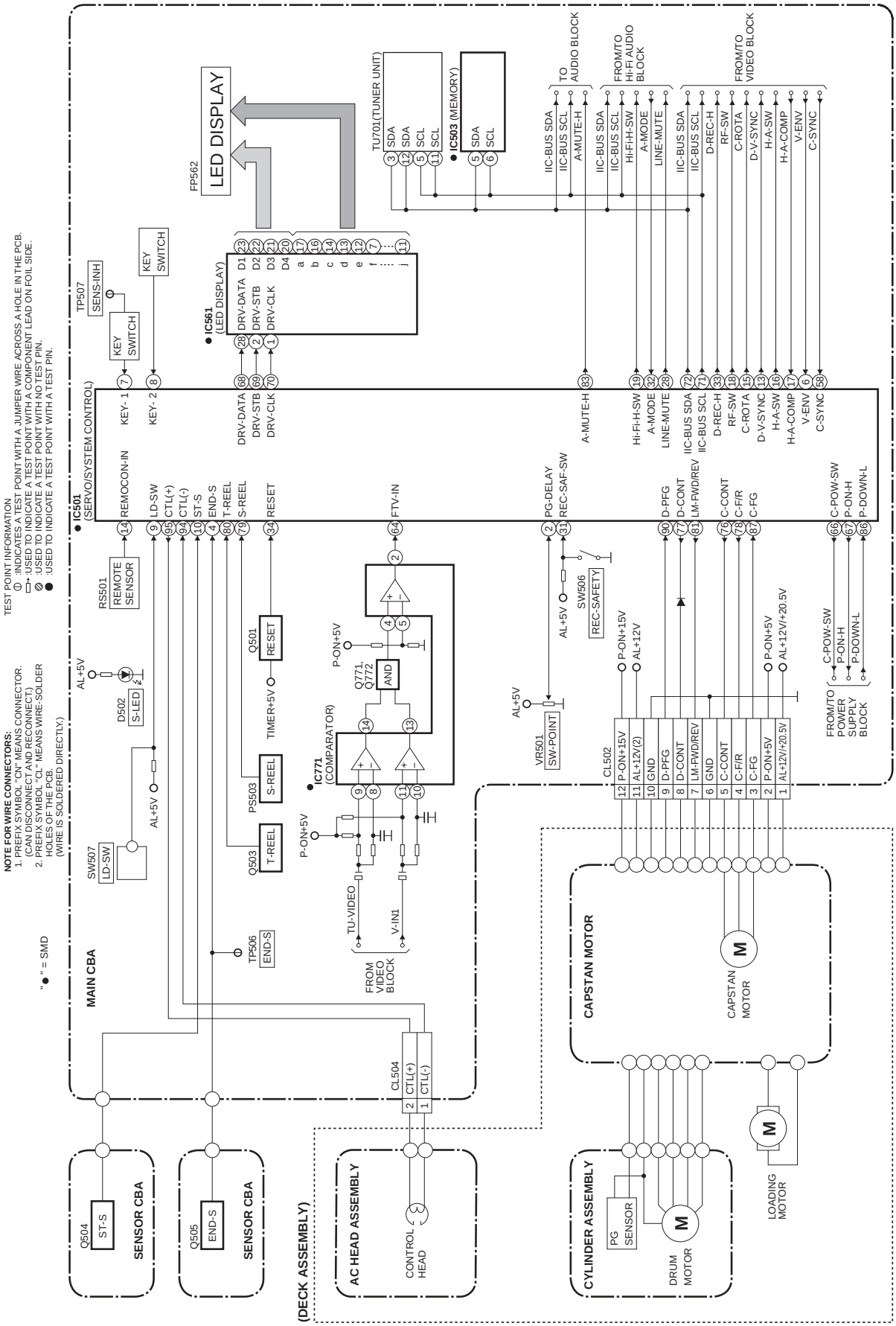
TEST POINTS NOT USED IN ELECTRICAL ADJUSTMENTS

Test Point	Used in:	Page No.
TP301	Mechanical Alignment Procedures	2-3-3, 2-3-4
TP502	Mechanical Alignment Procedures	2-3-3, 2-3-4
TP501	Mechanical Alignment Procedures	2-3-3
TP507	Preparation for Servicing	1-4-1

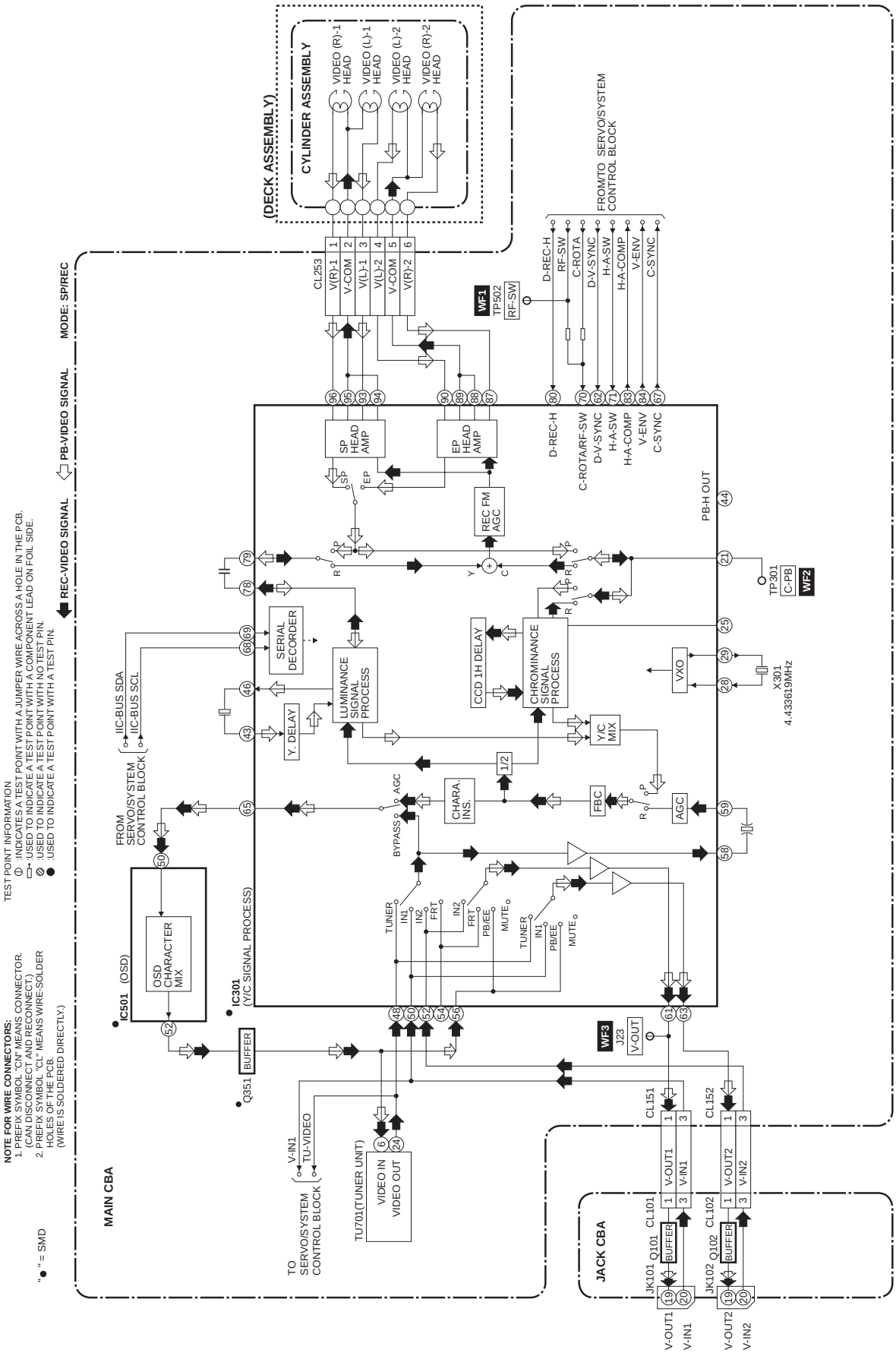


BLOCK DIAGRAMS

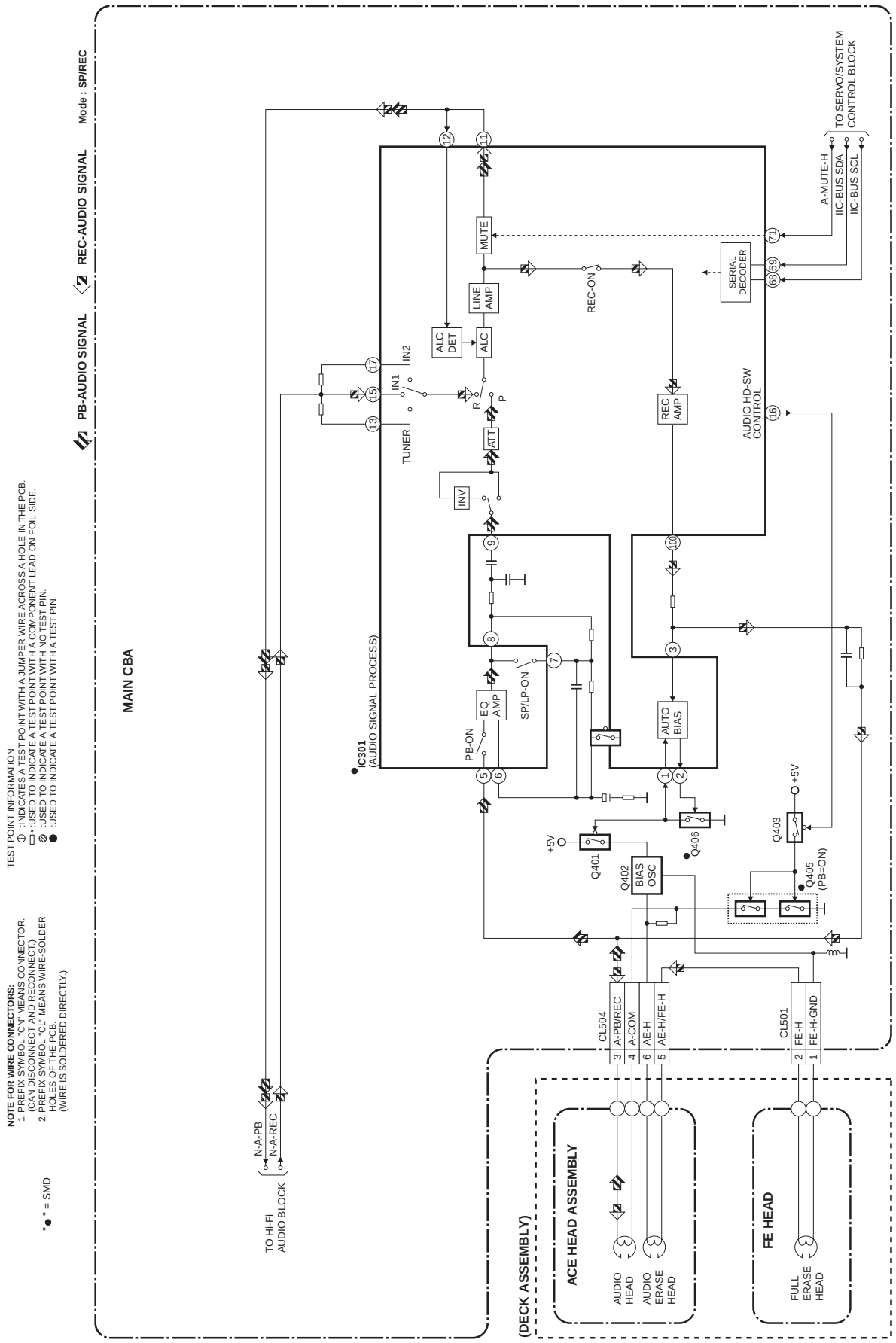
Servo/System Control Block Diagram



Video Block Diagram



Audio Block Diagram

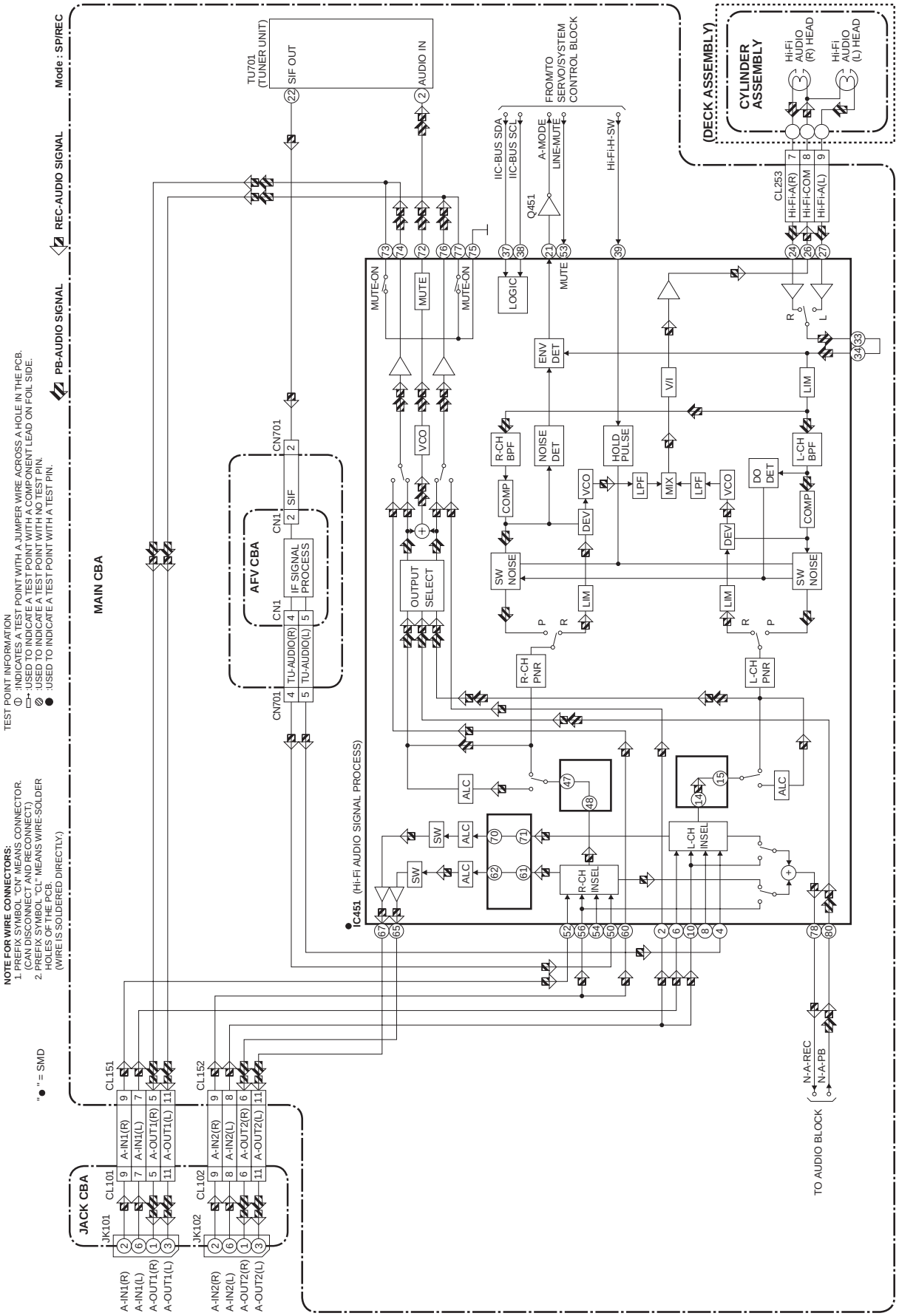


NOTE FOR WIRE CONNECTORS:
1. PREFIX SYMBOL "CN" MEANS CONNECTOR. (CAN DISCONNECT AND RECONNECT.)
2. PREFIX SYMBOL "CL" MEANS WIRE-SOLDER HOLES OF THE PCB. (WIRE IS SOLDERED DIRECTLY.)

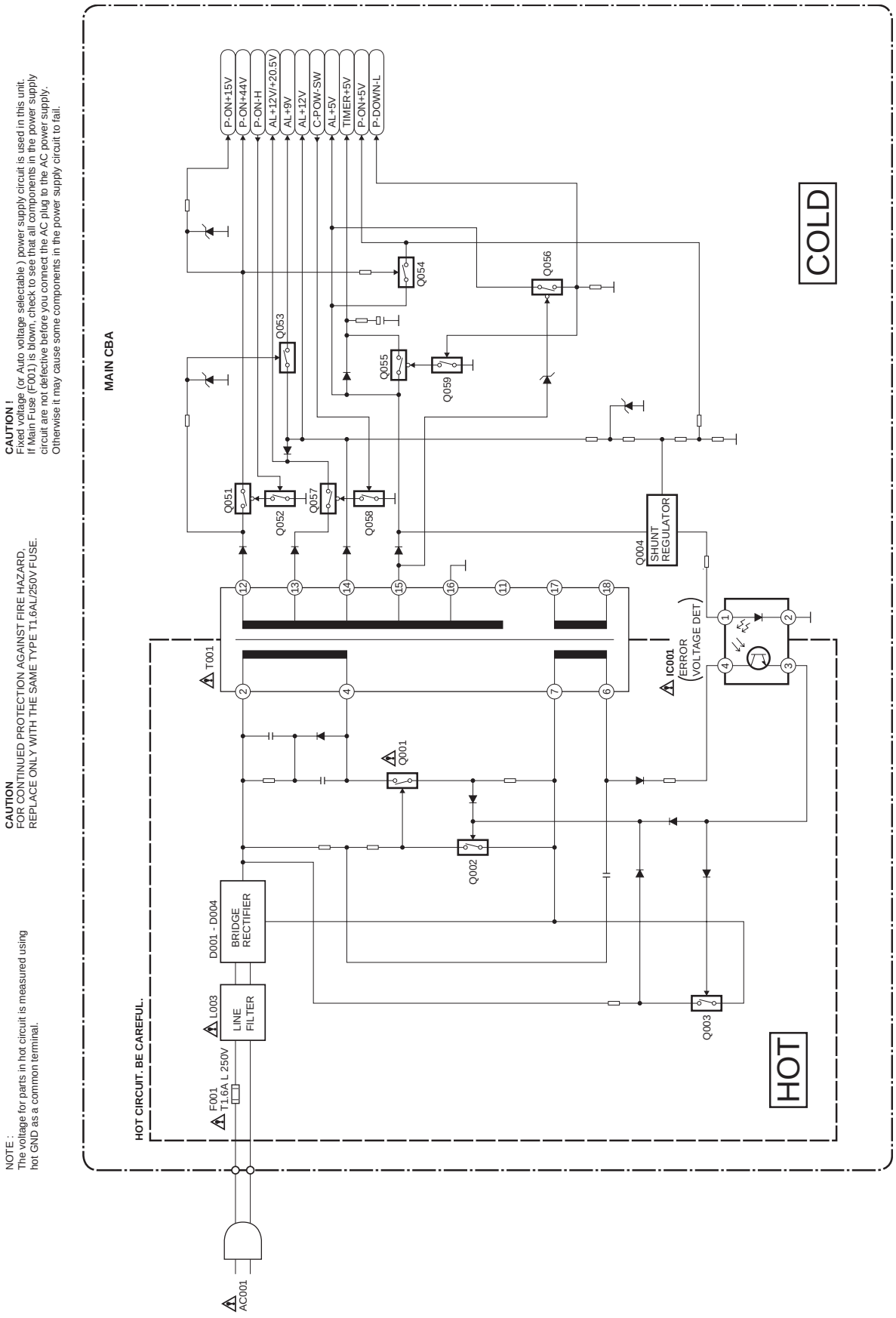
"● " = SMD

TEST POINT INFORMATION
⓪ :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.

Hi-Fi Audio Block Diagram



Power Supply Block Diagram



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.

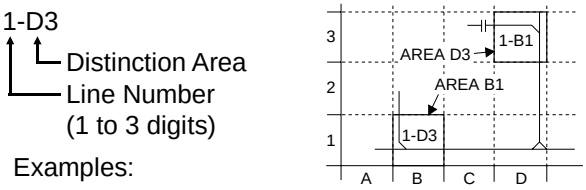
Capacitor Temperature Markings

Mark	Capacity change rate	Standard temperature	Temperature range
(B)	±10%	20°C	-25~+85°C
(F)	+30 - 80%	20°C	–25~+85°C
(SR)	±15%	20°C	–25~+85°C
(Y)	±22.5%	20°C	–25~+85°C

Capacitors and transistors are represented by the following symbols.

Notes:

1. Do not use the part number shown on these drawings for ordering. The correct part number is shown in the parts list, and may be slightly different or amended since these drawings were prepared.
2. 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.
3. Prefix symbol "CN" means "connector" (can disconnect and reconnect).
   Prefix symbol "CL" means "wire-solder holes of the PCB" (wire is soldered directly).
4. How to read converged lines.

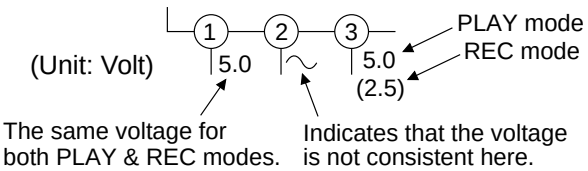


Examples:

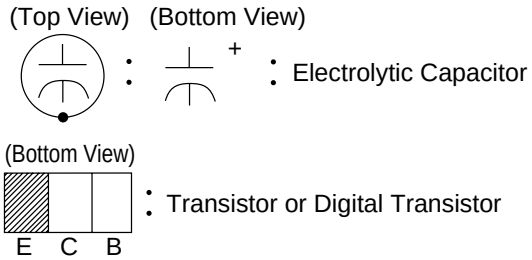
(1). "1-D3" means that line number "1" goes to area "D3."

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

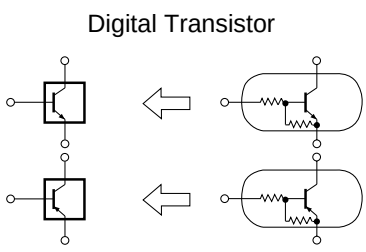
5. All resistance values are indicated in ohms ($K=10^3$, $M=10^6$).
6. Resistor wattages are 1/4W or 1/6W unless otherwise specified.
7. All capacitance values are indicated in μF ($P=10^{-6}$ μF).
8. All voltages are DC voltages unless otherwise specified.
9. Voltage indications for PLAY and REC modes on the schematics are as shown below.



< PCB Symbols >



< Schematic Diagram Symbols >



Main 1/6 Schematic Diagram Parts Location Guide

Ref No.	Position	Ref No.	Position	Ref No.	Position
CAPACITORS		CONNECTORS		RESISTORS	
C501	B-1	C862	D-3	R522	E-4
C502	B-1	CL501	A-2	R523	B-4
C506	C-1	CL502	F-4	R524	B-4
C508	E-2	CL504	A-2	R525	B-3
C510	E-2	DIODES		R526	A-2
C511	E-2	D501	E-4	R527	A-2
C512	E-2	D502	A-1	R528	B-1
C513	E-2	D552	E-3	R529	A-1
C514	E-2	D553	E-2	R530	E-1
C515	E-2	ICS		R531	E-1
C516	E-2	IC501	C-3	R533	D-1
C517	E-4	IC503	A-4	R551	E-3
C518	E-4	COILS		R552	E-3
C519	B-4	L501	A-1	R553	F-2
C520	A-3	L851	D-3	R556	C-1
C521	A-2	TRANSISTORS		R557	C-1
C522	A-2	Q501	E-2	R558	C-1
C523	A-2	Q503	D-1	R615	D-1
C524	A-2	Q551	E-3	R621	A-3
C526	A-2	Q552	E-3	R622	A-3
C527	B-2	RESISTORS		R851	D-3
C528	A-2	R501	B-1	R852	D-3
C530	B-2	R502	B-2	R853	D-4
C531	B-1	R503	C-2	SWITCH	
C532	A-3	R504	B-1	SW506	D-1
C533	A-3	R505	B-1	VARIABLE RESISTOR	
C535	E-1	R506	C-1	VR501	B-1
C563	E-4	R509	D-1	CRYSTAL OSCILLATORS	
C564	E-4	R510	C-4	X501	D-2
C567	F-3	E511	E-2	X502	D-2
C851	E-3	R513	E-2	MISCELLANEOUS	
C852	E-3	R514	E-2	PS503	E-1
C853	D-3	R516	D-2	RS501	B-2
C854	E-3	R517	D-3	TEST POINTS	
C855	D-3	R518	F-3	TP501	A-2
C856	D-4	R520	E-4	TP502	C-1
C859	D-4	R521	E-4		

Main 1/6 Schematic Diagram

"●" = SMD

MODE: SP/REC

1 (5.0) 2 (~) 3 (5.0 / (2.5))

PLAY MODE

REC MODE

THE SAME VOLTAGE FOR BOTH PLAY & REC MODES.

INDICATES THAT THE VOLTAGE IS NOT CONSISTENT HERE.

Comparison Chart of Models and Marks

MODEL	MARK
VR550/02	A
VR550/07	B
VR550/16	C

IC501 KEY VOLTAGE CHART

Voltage \ Pin No.	KEY 1 (7 PIN)	KEY 2 (8 PIN)
0.00 ~ 0.51V	POWER	STOP/EJECT
0.51 ~ 0.92V	CH DOWN	REW
0.92 ~ 1.27V	CH UP	PLAY
1.27 ~ 1.61V	----------	FF
1.61 ~ 1.98V	----------	----------
1.98 ~ 2.39V	REC/OTR	----------
2.39 ~ 2.90V	----------	----------
2.90 ~ 3.60V	SENS-INH	----------
3.60 ~ 4.30V	----------	----------
4.30 ~ 5.00V	KEY OFF	KEY OFF

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

MAIN CBA SYSCON/TIMER/SERVO BLOCK

IC503 CAT24WC02JI /BR24L02F-WE2 (MEMORY)

IC501 QSZACORMB188 (MICROCONTROLLER 8BIT SERVO/SYSTEM CONTROL)

RS501 MIM-93M5DKF /PIC-3704ZLQ (REMOTE SENSOR)

SW506 MXS01830MVP0 REC-SAFETY

Q503 PT204-6B-12 /MID-32A22F (TAKEUP REEL SENSOR)

Q503 API-302C70 (SUPPLY REEL SENSOR)

CL502 (TO CAPSTAN MOTOR): 1 AL+12V/+20.5V, 2 P-ON+5V, 3 C-FG, 4 C-F/R, 5 C-CONT, 6 GND, 7 LM-FWD/REV, 8 D-CONT, 9 D-PFG, 10 GND, 11 AL+12V(2), 12 P-ON+15V

CL504 (TO ACE HEAD): CTL(-) 1, CTL(+) 2, A-PB/REC 3, A-COM 4, AE-H/FE-H 5, AE-H 6

CL501 (TO FE HEAD): FE-H-GND 1, FE-H 2

Main 2/6 & Sensor Schematic Diagrams

"●" = SMD

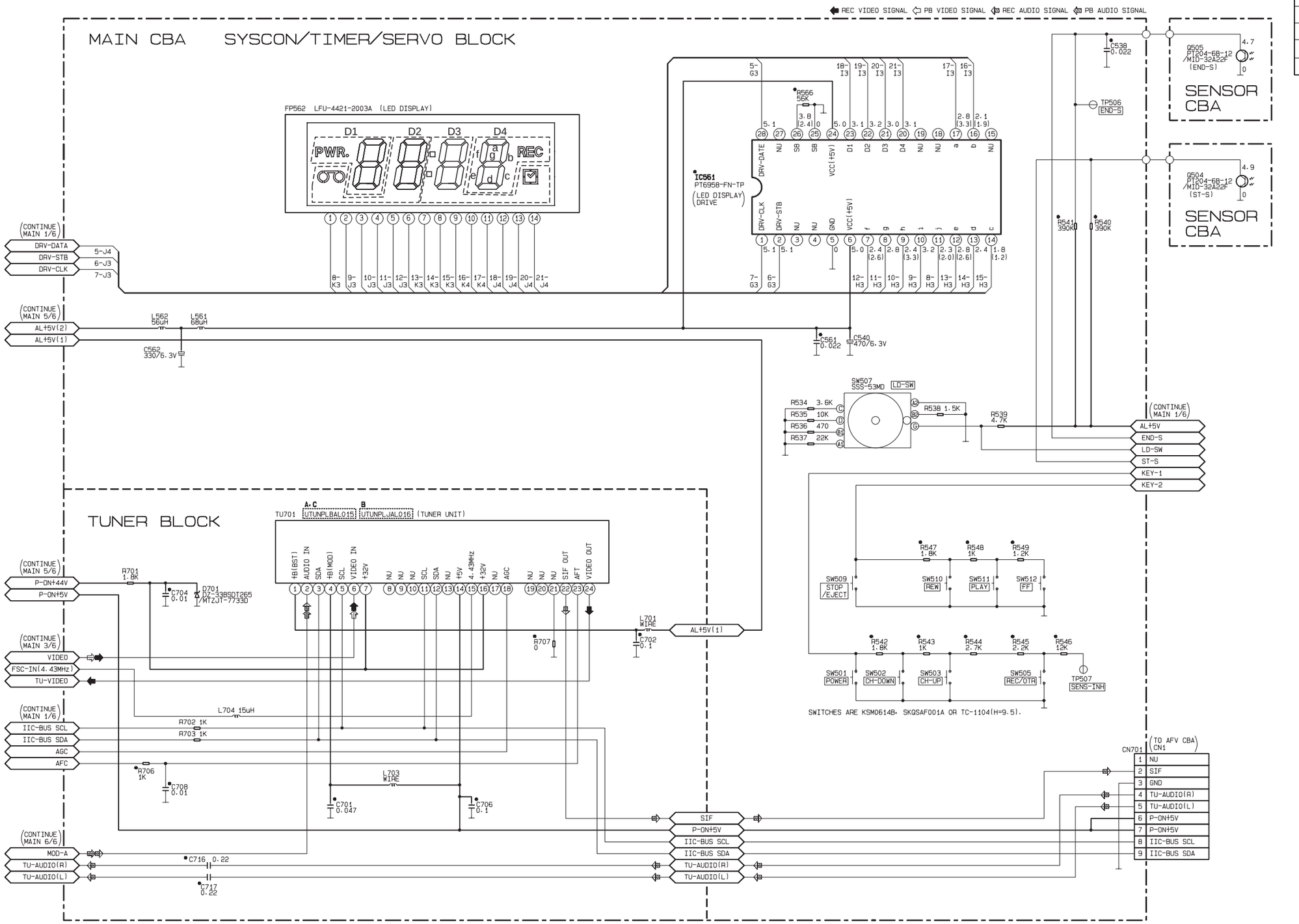
MODE: SP/REC

Comparison Chart of Models and Marks

MODEL	MARK
VR550/02	A
VR550/07	B
VR550/16	C

FP562 MATRIX CHART

	D1	D2	D3	D4
a	a	a	a	a
b	b	b	b	b
c	c	c	c	c
d	d	d	d	d
e	e	e	e	e
f	f	f	f	f
g	g	g	g	g
h	——	——	——	REC
i	PWR.	◎◎	——	——
j	——	☑	▫	——



MAIN 2/6 Schematic Diagram Parts Location Guide

Ref No.	Position
CAPACITORS	
C538	K-4
C540	J-3
C561	J-3
C562	G-3
C564	
C701	H-2
C702	I-2
C704	G-2
C706	H-1
C708	G-1
C716	G-1
C717	G-1
CONNECTORS	
CL505	K-2
CN701	K-1
DIODE	
D701	G-2
IC	
IC561	J-4
COILS	
L561	G-3
L562	G-3
L701	I-2
L703	H-1
L704	H-1
TRANSISTORS	
Q504	L-4
Q505	L-4
RESISTORS	
R534	J-3
R535	J-3
R536	J-3
R537	J-3
R538	K-3

Ref No.	Position
RESISTORS	
R539	K-3
R540	K-4
R541	K-4
R542	J-2
R543	J-2
R544	K-2
R545	K-2
R546	K-2
R547	J-2
R548	K-2
R549	K-2
R566	J-4
R701	G-2
R702	G-1
R703	G-1
R706	G-1
R707	I-2
SWITCHES	
SW501	J-2
SW502	J-2
SW503	K-2
SW505	K-2
SW507	J-3
SW509	J-2
SW510	K-2
SW511	K-2
SW512	K-2
MISCELLANEOUS	
FP562	H-4
TU701	H-2
TEST POINTS	
TP506	K-4
TP507	K-2

MAIN 3/6 Schematic Diagram Parts Location Guide

Ref No.	Position	Ref No.	Position	Ref No.	Position	Ref No.	Position
CAPACITORS		CAPACITORS		TRANSISTORS		RESISTORS	
C251	N-3	C347	O-4	Q401	N-2	R402	N-2
C252	N-3	C351	N-4	Q402	N-1	R403	N-2
C253	N-3	C352	M-4	Q403	N-1	R404	M-2
C254	N-3	C401	N-2	Q405	M-1	R407	M-1
C302	P-1	C402	N-1	Q406	N-1	R408	N-2
C303	P-1	C403	M-2	Q771	R-1	R409	N-2
C304	P-2	C404	M-1	Q772	R-1	R411	N-2
C305	P-1	C411	O-1	RESISTORS		R412	O-2
C307	P-2	C412	O-2	R251	N-3	R413	O-2
C308	P-1	C414	O-1	R252	N-3	R414	O-1
C309	P-1	C415	O-1	R301	P-1	R415	O-1
C310	Q-2	C416	O-2	R302	P-1	R416	O-1
C312	Q-2	C417	O-1	R305	Q-2	R417	O-1
C313	Q-2	C418	O-1	R307	P-4	R418	N-1
C314	Q-3	C419	O-1	R308	P-4	R421	O-1
C315	Q-3	C421	O-2	R309	P-4	R422	O-1
C316	Q-3	C422	O-1	R310	O-4	R425	O-1
C317	Q-3	C424	O-2	R311	O-4	R426	O-1
C318	Q-3	C425	O-1	R312	N-4	R429	O-1
C319	Q-3	C428	O-1	R313	N-4	R430	O-1
C320	Q-3	C430	P-1	R315	O-4	R431	P-1
C321	Q-3	C771	Q-2	R316	O-4	R771	Q-1
C322	Q-3	C772	R-1	R317	O-4	R772	Q-1
C323	Q-3	C773	R-2	R318	O-4	R773	Q-1
C324	Q-3	C774	R-2	R319	N-4	R774	Q-1
C325	Q-4	C775	Q-2	R320	O-4	R775	Q-1
C326	Q-4	C776	Q-2	R321	Q-4	R776	R-1
C327	P-4	C777	Q-2	R323	Q-3	R777	R-1
C330	P-4	C778	Q-2	R324	N-3	R778	Q-2
C332	P-4	CONNECTOR		R325	Q-3	R779	Q-2
C333	P-4	CL253	M-3	R326	Q-3	R780	Q-2
C334	P-4	DIODE		R330	Q-3	R781	Q-2
C335	P-4	D301	N-4	R331	Q-2	R782	R-2
C336	O-4	ICS		R332	P-4	R783	Q-2
C337	O-4	IC301	N-2	R334	Q-3	R784	Q-2
C338	O-4	IC771	Q-1	R351	N-4	R785	Q-2
C339	O-4	COILS		R352	N-4	R786	Q-2
C340	O-4	L251	N-3	R355	N-4	R787	Q-1
C341	O-4	L301	O-4	R357	M-4	CRYSTAL OSCILLATOR	
C342	O-4	L403	N-1	R358	N-4	X301	P-2
C343	O-4	TRANSISTORS		R360	M-4	TEST POINT	
C345	Q-3	Q351	N-4	R361	N-3	TP301	P-1
C346	P-4	Q352	N-3	R401	N-2		

Main 3/6 Schematic Diagram

"●" = SMD

MODE: SP/REC

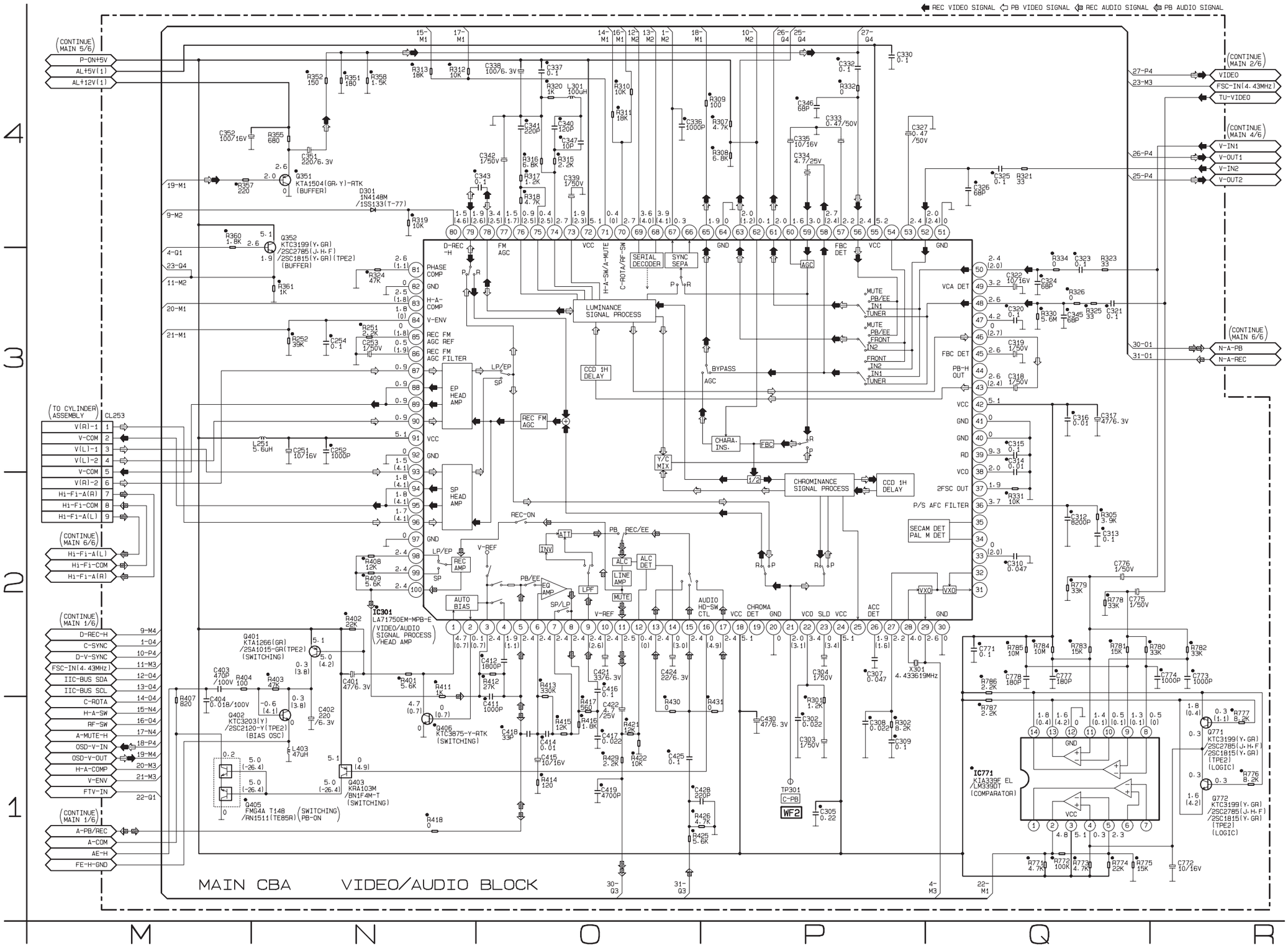
1 5.0 — 2 ~ — 3 5.0 (2.5)

PLAY MODE

REC MODE

THE SAME VOLTAGE FOR BOTH PLAY & REC MODES.

INDICATES THAT THE VOLTAGE IS NOT CONSISTENT HERE.



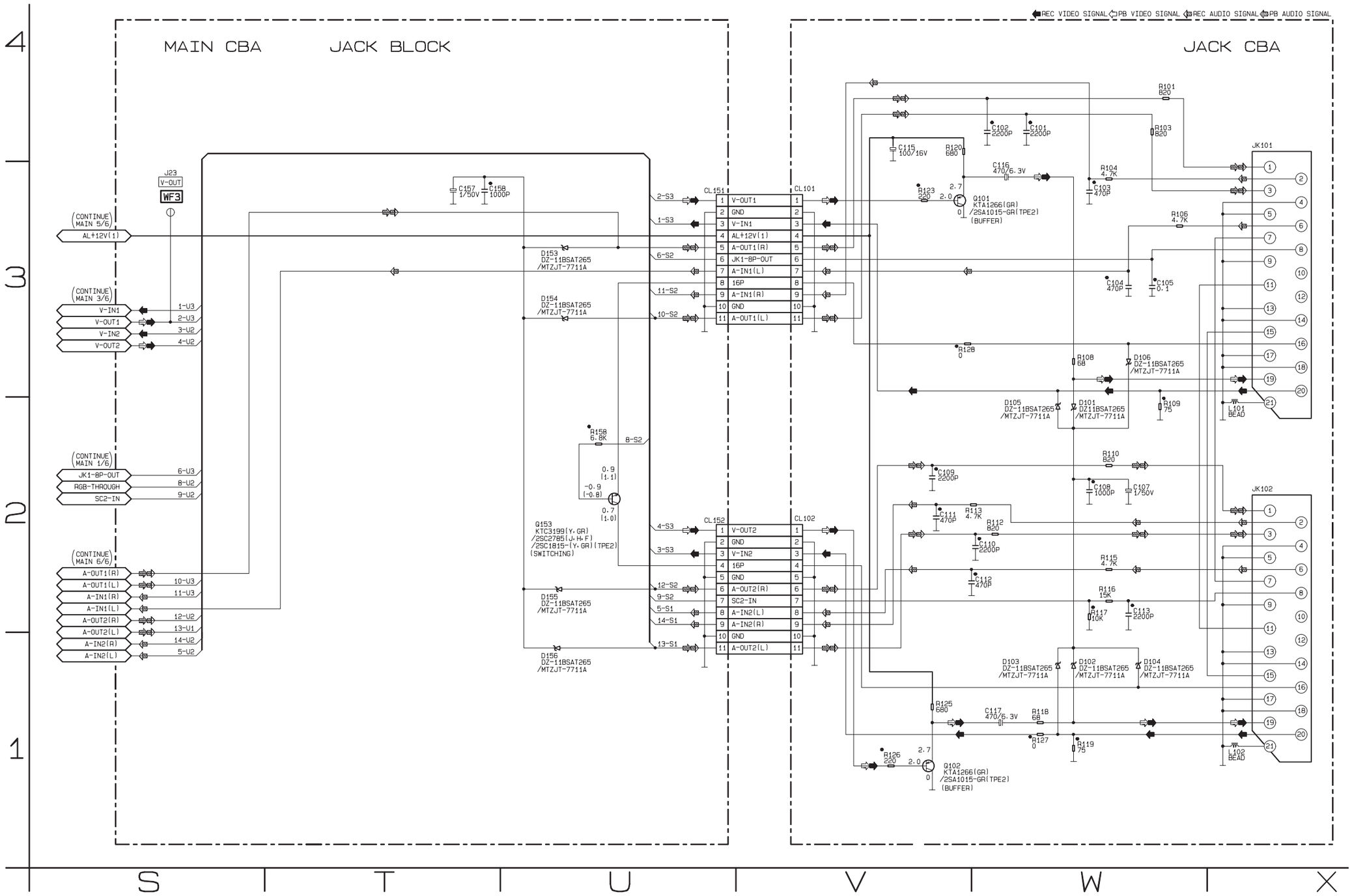
Main 4/6 & Jack Schematic Diagrams

"●" = SMD

MODE: SP/REC — 1 (5.0) — 2 (~) — 3 (5.0 / (2.5)) — PLAY MODE / REC MODE

THE SAME VOLTAGE FOR BOTH PLAY & REC MODES.

INDICATES THAT THE VOLTAGE IS NOT CONSISTENT HERE.



MAIN 4/6 Schematic Diagram Parts Location Guide

Ref No.	Position
CAPACITORS	
C157	T-3
C158	U-3
CONNECTORS	
CL151	U-3
CL152	U-2
DIODES	
D153	U-3
D154	U-3
D155	U-2
D156	U-1
TRANSISTOR	
Q153	U-2
RESISTOR	
R158	U-2
TEST POINT	
J23	S-3

JACK Schematic Diagram Parts Location Guide

Ref No.	Position	Ref No.	Position
CAPACITORS		TRANSISTORS	
C101	W-4	Q101	V-3
C102	W-4	Q102	V-1
C103	W-3	RESISTORS	
C104	W-3	R101	W-4
C105	W-3	R103	W-4
C107	W-2	R104	W-3
C108	W-2	R106	W-3
C109	V-2	R108	W-3
C110	W-2	R109	W-2
C111	V-2	R110	W-2
C112	W-2	R112	W-2
C113	W-2	R113	V-2
C115	V-4	R115	W-2
C116	W-3	R116	W-2
C117	W-1	R117	W-2
CONNECTORS		R118	W-1
CL101	V-3	R119	W-1
CL102	V-2	R120	V-4
DIODES		R123	V-3
D101	W-2	R125	V-1
D102	W-1	R126	V-1
D103	W-1	R127	W-1
D104	W-1	R128	V-3
D105	W-2	MISCELLANEOUS	
D106	W-3	JK101	X-4
COILS		JK102	X-2
L101	X-2		
L102	X-1		

MAIN 5/6 Schematic Diagram Parts Location Guide

Ref No.	Position
CAPACITORS	
C002	Y-3
C003	Y-2
C004	Z-3
C005	Z-3
C006	Z-2
C007	Z-2
C008	Y-1
C010	Y-1
C011	Y-1
C012	AA-3
C014	AA-2
C015	CC-3
C017	AA-2
C018	AA-2
C020	AA-2
C021	AA-2
C025	AA-1
C026	BB-2
C053	BB-1
C056	BB-1
C057	BB-1
C060	BB-2
C061	CC-2
DIODES	
D001	Y-3
D002	Z-3
D003	Y-3
D004	Z-3
D005	Z-2
D006	Z-2
D007	Z-1
D008	Z-1
D009	Z-1
D011	AA-3
D012	AA-3
D013	AA-2
D014	AA-2
D015	AA-2
D018	Z-2
D019	AA-1
D021	Z-1

Ref No.	Position
DIODES	
D023	AA-1
D051	BB-2
D052	CC-3
D053	BB-2
D055	BB-2
D056	AA-2
D057	BB-2
D058	CC-2
IC	
IC001	Z-1
COILS	
J902	AA-1
L001	Y-3
L002	Y-3
L003	Y-3
L009	AA-2
L010	AA-2
L012	BB-2
TRANSISTORS	
Q001	Z-2
Q002	Z-2
Q003	Y-1
Q004	AA-1
Q051	BB-3
Q052	BB-3
Q053	BB-2
Q054	CC-2
Q055	BB-2
Q056	BB-1
Q057	BB-3
Q058	CC-3
Q059	BB-1
RESISTORS	
R001	Y-2
R002	Z-3
R003	Z-3
R004	Z-3
R005	Z-2
R006	Z-2
R007	Z-2

Ref No.	Position
RESISTORS	
R008	Y-2
R009	Z-1
R011	Y-1
R012	Y-1
R013	Z-1
R014	Y-1
R015	Z-1
R016	Z-1
R017	AA-3
R018	AA-2
R021	AA-1
R022	AA-1
R023	AA-1
R024	AA-1
R025	AA-1
R026	AA-2
R027	Z-1
R028	Z-2
R030	AA-1
R031	AA-1
R032	AA-1
R053	CC-2
R054	BB-2
R058	BB-2
R060	BB-1
R061	BB-1
R062	BB-2
R063	BB-2
R064	BB-2
R065	BB-2
R066	BB-3
R067	BB-3
R068	BB-3
R071	CC-3
R073	BB-1
MISCELLANEOUS	
AC001	Y-3
F001	Y-3
SA001	Y-3
T001	Z-3

Main 5/6 Schematic Diagram

CAUTION !
For continued protection against fire hazard, replace only with the same type fuse.

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

CAUTION !
Fixed voltage (or Auto voltage selectable) power supply circuit is used in this unit. If Main Fuse (F001) is blown, check to see that all components in the power supply circuit are not defective before you connect the AC plug to the AC power supply. Otherwise it may cause some components in the power supply circuit to fail.

MODE: SP/REC — 1 (5.0) — 2 (~) — 3 (5.0 / (2.5)) — PLAY MODE / REC MODE

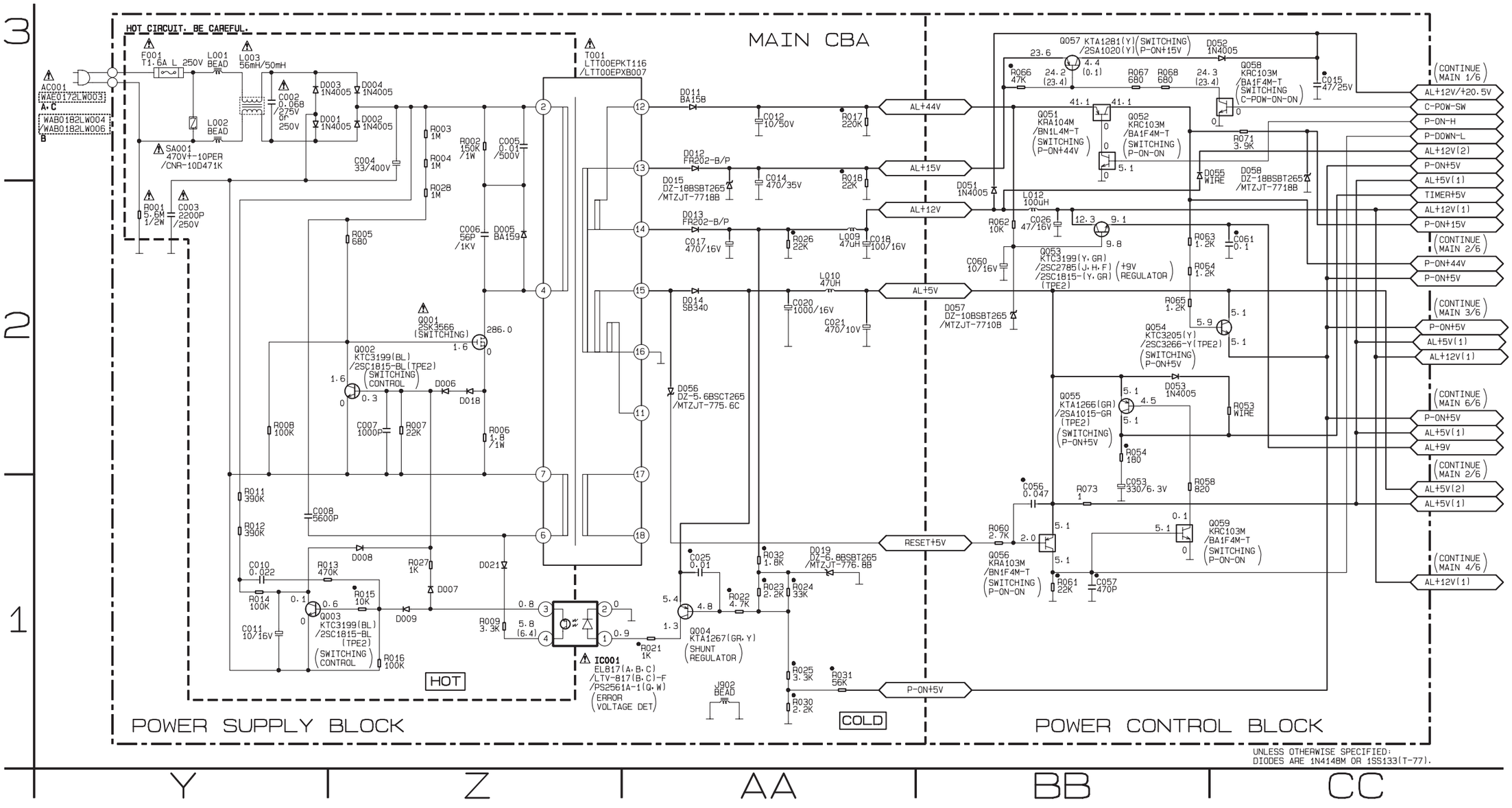
THE SAME VOLTAGE FOR BOTH PLAY & REC MODES.

INDICATES THAT THE VOLTAGE IS NOT CONSISTENT HERE.

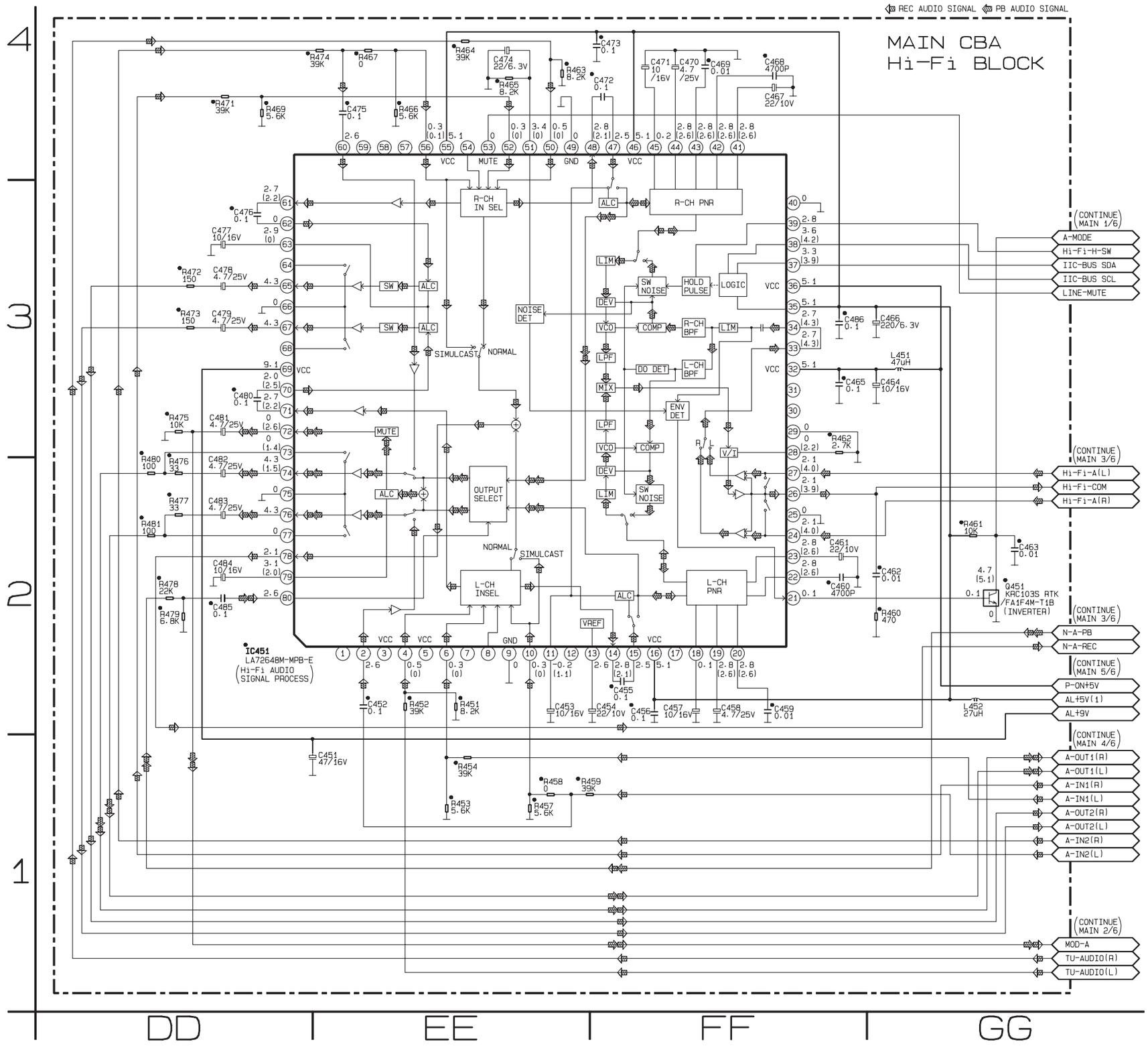
"●" = SMD

Comparison Chart of Models and Marks

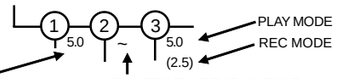
MODEL	MARK
VR550/02	A
VR550/07	B
VR550/16	C



Main 6/6 Schematic Diagram



MODE: SP/REC



"●" = SMD

Main CBA Top View

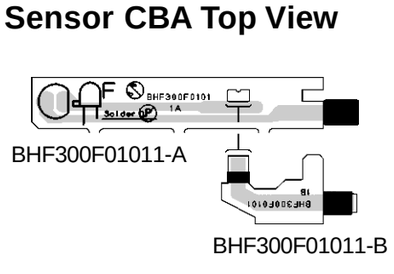
CAUTION !
For continued protection against fire hazard, replace only with the same type fuse.

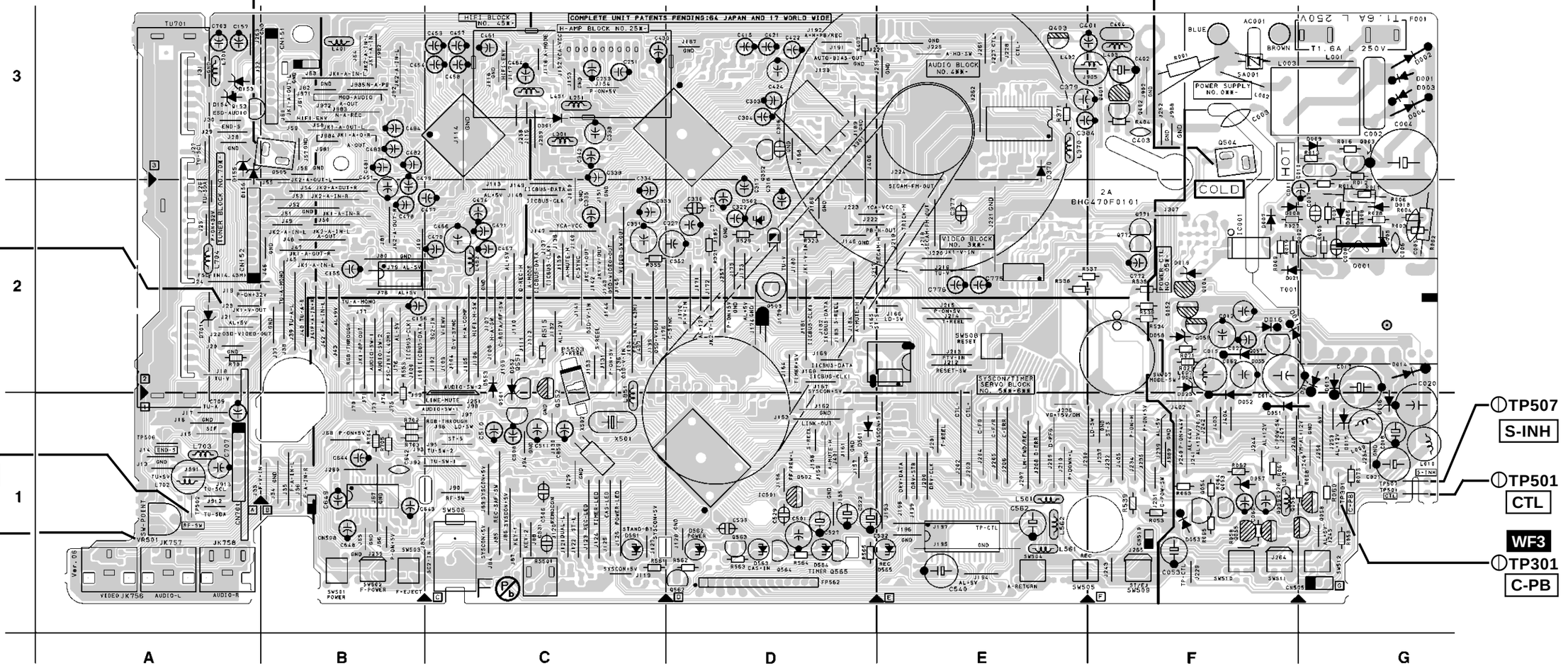
NOTE :
The voltage for parts in hot circuit is measured using hot GND as a common terminal.

CAUTION !
Fixed voltage (or Auto voltage selectable) power supply circuit is used in this unit. If Main Fuse (F001) is blown, check to see that all components in the power supply circuit are not defective before you connect the AC plug to the AC power supply. Otherwise it may cause some components in the power supply circuit to fail.

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

Sensor CBA Top View





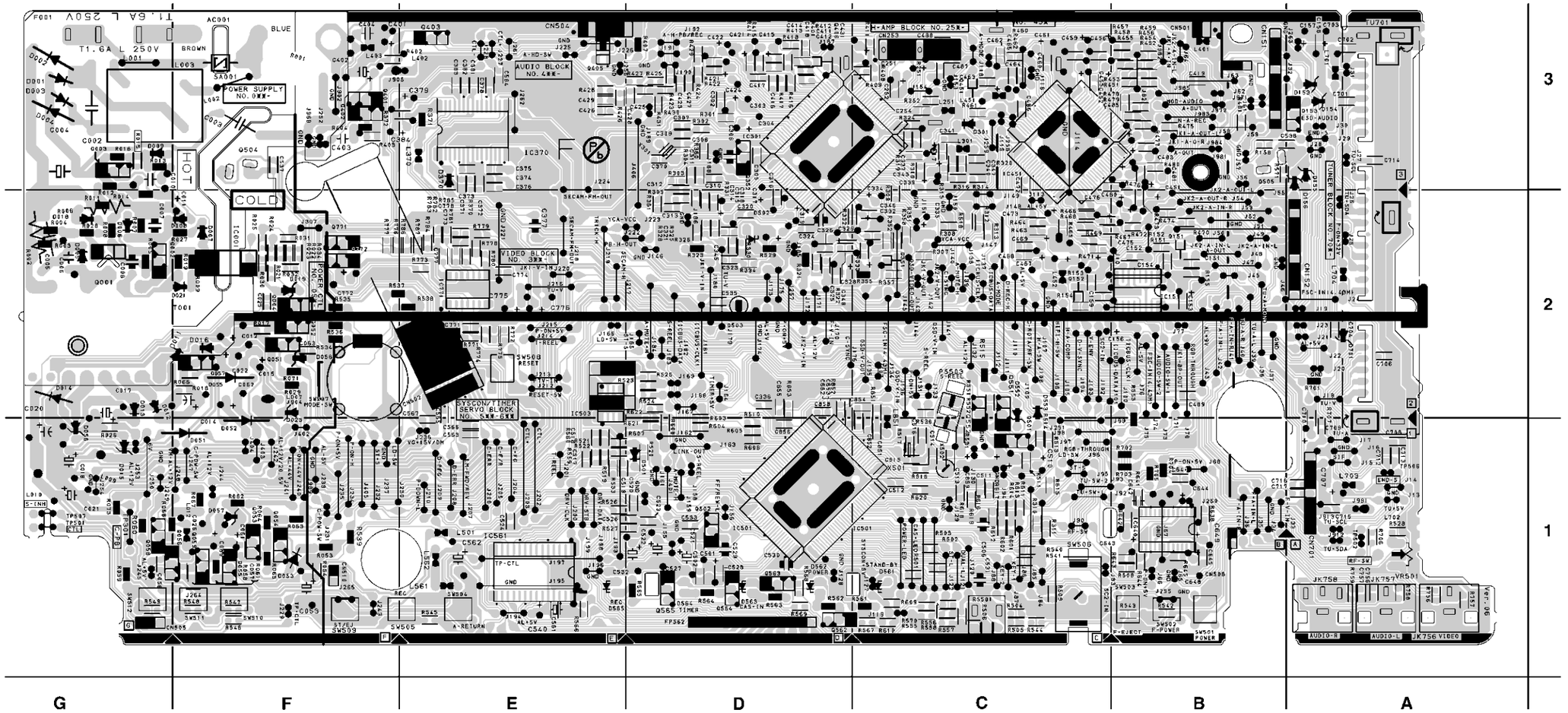
Main CBA Bottom View

CAUTION !
For continued protection against fire hazard, replace only with the same type fuse.

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

CAUTION !
Fixed voltage (or Auto voltage selectable) power supply circuit is used in this unit. If Main Fuse (F001) is blown, check to see that all components in the power supply circuit are not defective before you connect the AC plug to the AC power supply. Otherwise it may cause some components in the power supply circuit to fail.

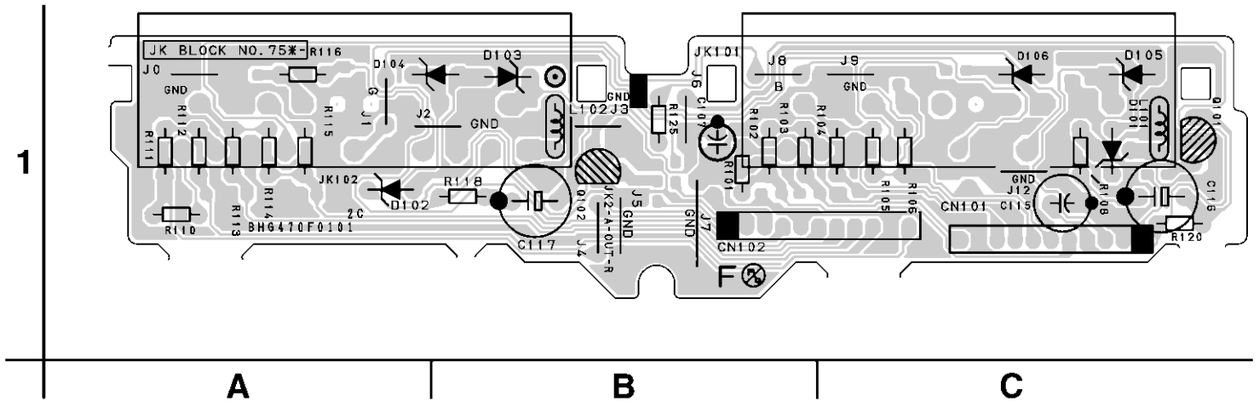
BECAUSE A HOT CHASSIS GROUND IS PRESENT IN THE POWER SUPPLY CIRCUIT , AN ISOLATION TRANSFORMER MUST BE USED. ALSO , IN ORDER TO HAVE THE ABILITY TO INCREASE THE INPUT SLOWLY , WHEN TROUBLESHOOTING THIS TYPE POWER SUPPLY CIRCUIT , A VARIABLE ISOLATION TRANSFORMER IS REQUIRED.



Main CBA Parts Location Guide

Ref No.	Position	Ref No.	Position	Ref No.	Position	Ref No.	Position	Ref No.	Position	Ref No.	Position	Ref No.	Position	Ref No.	Position	Ref No.	Position
CAPACITORS		CAPACITORS		CAPACITORS		CAPACITORS		ICS		RESISTORS		RESISTORS		RESISTORS		RESISTORS	
C002	G-3	C337	C-3	C479	B-2	C852	C-1	IC561	E-1	R006	G-2	R324	C-3	R477	B-3	R701	A-2
C003	F-3	C338	C-3	C480	C-2	C853	D-2	IC771	E-2	R007	G-2	R325	D-2	R478	C-3	R702	B-1
C004	G-3	C339	C-3	C481	B-3	C854	C-2	COILS		R008	G-2	R326	D-2	R479	C-3	R703	B-1
C005	G-2	C340	C-3	C482	B-3	C855	D-2	J902	F-3	R009	F-2	R330	D-2	R480	B-3	R706	A-1
C006	G-2	C341	C-3	C483	B-3	C856	D-1	L001	G-3	R011	G-2	R331	D-2	R481	B-3	R707	A-2
C007	G-2	C342	C-3	C484	B-3	C859	C-1	L002	F-3	R012	G-3	R332	D-2	R501	C-1	R771	E-2
C008	G-2	C343	C-3	C485	C-3	C862	D-2	L003	F-3	R013	G-3	R334	D-2	R502	C-1	R772	E-2
C010	G-3	C345	D-2	C486	C-3	CONNECTORS		L009	G-1	R014	G-2	R351	C-2	R503	C-1	R773	E-2
C011	F-2	C346	C-2	C501	D-1	CL151	B-3	L010	G-1	R015	G-3	R352	C-2	R504	C-1	R774	E-2
C012	F-2	C347	C-3	C502	D-1	CL152	A-2	L012	F-1	R016	G-3	R355	C-2	R505	C-1	R775	E-2
C014	F-1	C351	C-2	C506	C-1	CL253	C-3	L251	C-3	R017	F-2	R357	C-2	R506	C-1	R776	F-2
C017	G-2	C352	D-2	C508	C-1	CL501	B-3	L301	C-3	R018	F-2	R358	C-2	R509	C-1	R777	F-2
C018	G-1	C401	E-3	C510	C-1	CL502	E-2	L403	F-3	R021	F-2	R360	D-3	R510	D-2	R778	E-2
C020	G-2	C402	F-3	C511	C-1	CL504	E-3	L451	C-3	R022	F-2	R361	D-2	E511	C-1	R779	E-2
C021	G-1	C403	F-3	C512	C-1	CL505	G-1	L452	C-2	R023	F-2	R401	D-3	R513	C-1	R780	E-2
C025	F-2	C404	F-3	C513	C-1	CN701	A-1	L501	E-1	R024	F-2	R402	F-3	R514	C-1	R781	E-2
C026	F-1	C411	D-3	C514	C-1	DIODES		L561	E-1	R025	F-2	R403	F-3	R516	C-1	R782	E-2
C053	F-1	C412	D-3	C515	C-1	D001	G-3	L562	E-1	R026	G-1	R404	F-3	R517	C-1	R783	E-2
C056	G-1	C414	D-3	C516	C-1	D002	G-3	L701	A-3	R027	F-2	R407	D-3	R518	C-2	R784	E-2
C057	G-1	C415	D-3	C517	E-1	D003	G-3	L704	A-2	R028	G-2	R408	C-3	R520	E-1	R785	E-2
C060	F-1	C416	D-3	C518	E-1	D004	G-3	L851	C-1	R030	F-2	R409	C-3	R521	E-1	R786	E-2
C061	F-1	C417	D-3	C519	E-1	D005	G-2	TRANSISTORS		R031	F-2	R411	C-3	R522	E-1	R787	E-2
C157	A-3	C418	D-3	C520	D-1	D006	G-2	Q001	G-2	R032	F-2	R412	D-3	R523	D-2	R851	C-2
C158	A-3	C419	B-3	C521	D-1	D007	F-2	Q002	G-2	R053	F-1	R413	D-3	R524	E-2	R852	D-2
C251	C-3	C421	D-3	C522	D-1	D008	F-2	Q003	G-2	R054	F-1	R414	D-3	R525	D-2	R853	D-2
C252	C-3	C422	D-3	C523	D-1	D009	G-3	Q004	F-2	R058	F-1	R415	D-3	R526	E-1	SWITCHES	
C253	C-3	C424	D-3	C524	D-1	D011	F-2	Q051	F-2	R060	G-1	R416	D-3	R527	E-1	SW501	B-1
C254	C-3	C425	E-3	C526	E-1	D012	G-2	Q052	F-2	R061	F-1	R417	D-3	R528	A-1	SW502	B-1
C302	D-3	C428	D-3	C527	D-1	D013	G-2	Q053	F-1	R062	F-1	R418	D-3	R529	D-2	SW503	B-1
C303	D-3	C430	C-3	C528	D-1	D014	G-2	Q054	F-1	R063	F-1	R421	D-3	R530	C-2	SW505	E-1
C304	D-3	C451	B-2	C530	D-1	D015	G-1	Q055	F-1	R064	F-1	R422	D-3	R531	C-1	SW506	C-1
C305	D-3	C452	C-3	C531	C-1	D018	G-2	Q056	G-1	R065	F-1	R425	E-3	R533	E-1	SW507	F-2
C307	D-3	C453	C-3	C532	E-1	D019	F-2	Q057	F-2	R066	F-2	R426	E-3	R534	F-2	SW509	F-1
C308	D-3	C454	C-3	C533	D-1	D021	F-2	Q058	G-1	R067	F-1	R429	D-3	R535	F-2	SW510	F-1
C309	D-3	C455	C-3	C535	D-2	D023	F-2	Q059	F-1	R068	F-1	R430	D-3	R536	F-2	SW511	F-1
C310	D-3	C456	C-3	C538	B-3	D051	F-1	Q153	A-3	R071	F-2	R431	D-3	R537	F-2	SW512	G-1
C312	D-3	C457	C-3	C540	E-1	D052	F-1	Q351	C-2	R073	G-1	R451	C-3	R538	E-2	VARIABLE RESISTOR	
C313	D-2	C458	C-3	C561	E-1	D053	F-1	Q352	D-3	R158	B-3	R452	B-3	R539	F-1	VR501	A-1
C314	D-2	C459	C-3	C562	E-1	D055	F-2	Q401	F-3	R251	C-3	R453	C-3	R540	C-1	CRYSTAL OSCILLATORS	
C315	D-2	C460	C-3	C563	E-1	D056	G-2	Q402	F-3	R252	C-3	R454	B-3	R541	C-1	X301	D-3
C316	D-3	C461	C-3	C564	E-3	D057	F-1	Q403	E-3	R301	D-3	R457	B-3	R542	B-1	X501	C-1
C317	D-2	C462	C-3	C567	E-2	D058	F-2	Q405	E-3	R302	D-3	R458	B-3	R543	B-1	X502	C-1
C318	D-2	C463	C-3	C701	A-3	D153	A-3	Q406	D-3	R305	D-2	R459	B-3	R544	C-1	MISCELLANEOUS	
C319	D-2	C464	C-3	C702	A-3	D154	A-3	Q451	C-3	R307	C-2	R460	C-3	R545	E-1	AC001	F-3
C320	D-2	C465	C-3	C704	A-2	D155	A-3	Q501	C-1	R308	C-2	R461	C-3	R546	F-1	F001	G-3
C321	D-2	C466	C-2	C706	A-2	D156	A-2	Q503	D-2	R309	C-3	R462	C-3	R547	F-1	FP562	D-1
C322	D-2	C467	C-2	C708	A-1	D301	C-3	Q504	F-3	R310	C-1	R463	C-2	R548	F-1	PS503	C-2
C323	D-2	C468	C-2	C716	A-1	D501	D-1	Q505	B-3	R311	C-1	R464	C-2	R549	G-1	RS501	C-1
C324	D-2	C469	C-2	C717	A-1	D502	D-2	Q551	C-2	R312	C-2	R465	C-2	R551	C-2	SA001	F-3
C325	D-2	C470	C-2	C771	E-2	D552	C-2	Q552	C-1	R313	C-2	R466	C-2	R552	C-2	T001	F-2
C326	D-2	C471	C-2	C772	F-2	D553	C-2	Q771	F-2	R315	C-3	R467	B-2	R553	B-2	TU701	A-3
C327	D-2	C472	C-3	C773	E-2	D701	A-2	Q772	F-2	R316	C-3	R469	C-2	R556	C-1	TEST POINTS	
C330	D-2	C473	C-2	C774	E-2	ICS		RESISTORS		R317	C-3	R471	C-2	R557	C-1	J23	A-2
C332	C-2	C474	C-2	C775	E-2	IC001	F-2	R001	F-3	R318	C-3	R472	B-2	R558	C-1	TP301	G-1
C333	C-2	C475	B-2	C776	E-2	IC301	D-3	R002	G-2	R319	C-3	R473	B-2	R566	E-1	TP501	G-1
C334	C-3	C476	C-2	C777	E-2	IC451	C-3	R003	G-2	R320	C-3	R474	B-2	R615	C-1	TP502	A-1
C335	C-2	C477	B-2	C778	E-2	IC501	D-1	R004	G-2	R321	D-2	R475	B-3	R621	D-1	TP506	A-1
C336	D-2	C478	B-2	C851	C-1	IC503	E-2	R005	G-2	R323	D-2	R476	B-3	R622	D-2	TP507	G-1

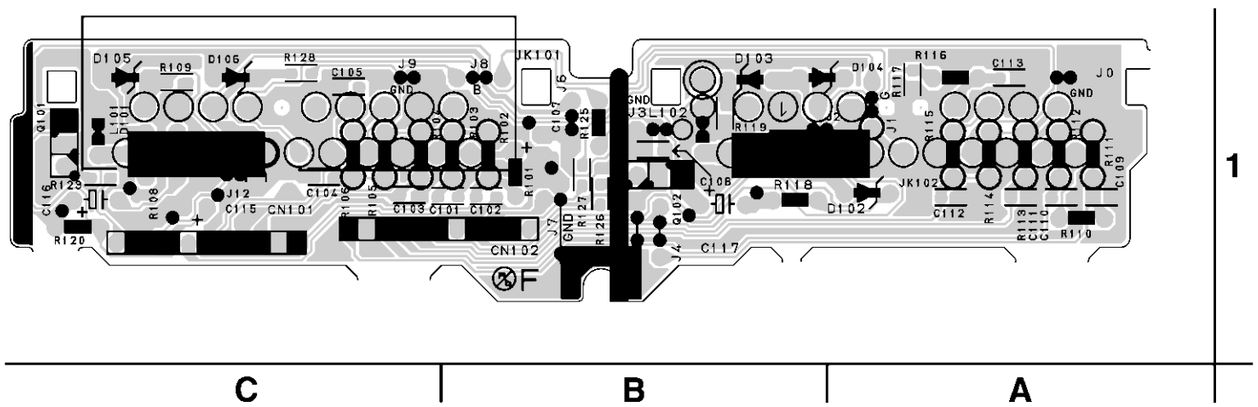
Jack CBA Top View



Jack CBA Parts Location Guide

Ref No.	Position	Ref No.	Position
CAPACITORS		TRANSISTORS	
C101	B-1	Q101	C-1
C102	B-1	Q102	B-1
C103	C-1	RESISTORS	
C104	C-1	R101	B-1
C105	C-1	R103	B-1
C107	B-1	R104	B-1
C108	B-1	R106	C-1
C109	A-1	R108	C-1
C110	A-1	R109	C-1
C111	A-1	R110	A-1
C112	A-1	R112	A-1
C113	A-1	R113	A-1
C115	C-1	R115	A-1
C116	C-1	R116	A-1
C117	B-1	R117	A-1
CONNECTORS		R118	B-1
CL101	C-1	R119	B-1
CL102	B-1	R120	C-1
DIODES		R123	C-1
D101	C-1	R125	B-1
D102	A-1	R126	B-1
D103	B-1	R127	B-1
D104	A-1	R128	C-1
D105	C-1	MISCELLANEOUS	
D106	C-1	JK101	B-1
COILS		JK102	A-1
L101	C-1		
L102	B-1		

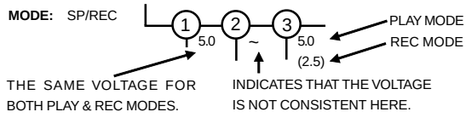
Jack CBA Bottom View



AFV Schematic Diagram

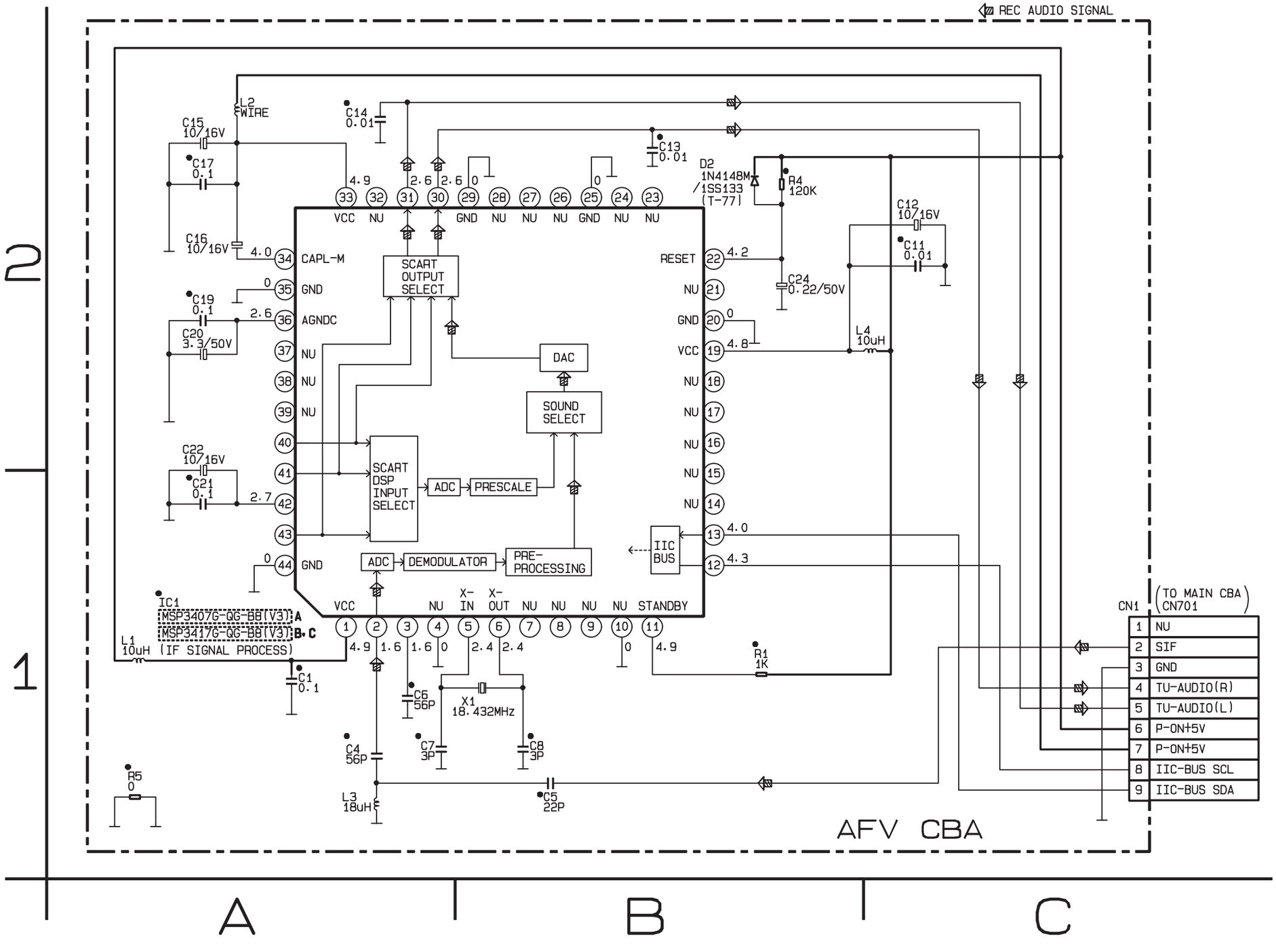
"●" = SMD

MODE: SP/REC



Comparison Chart of Models and Marks

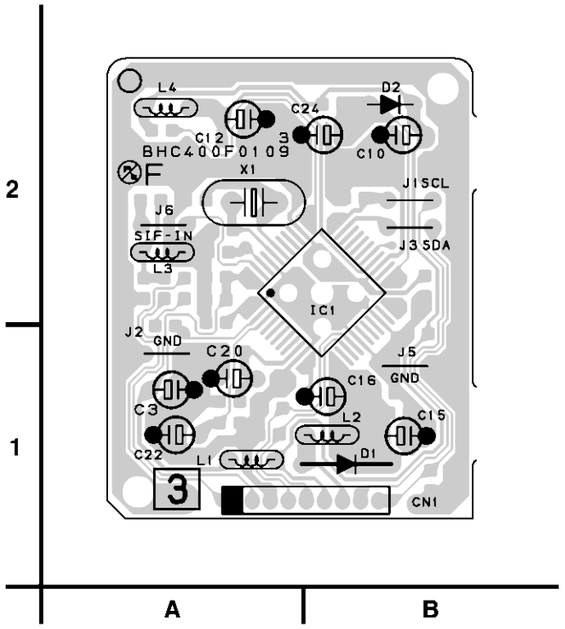
MODEL	MARK
VR550/02	A
VR550/07	B
VR550/16	C



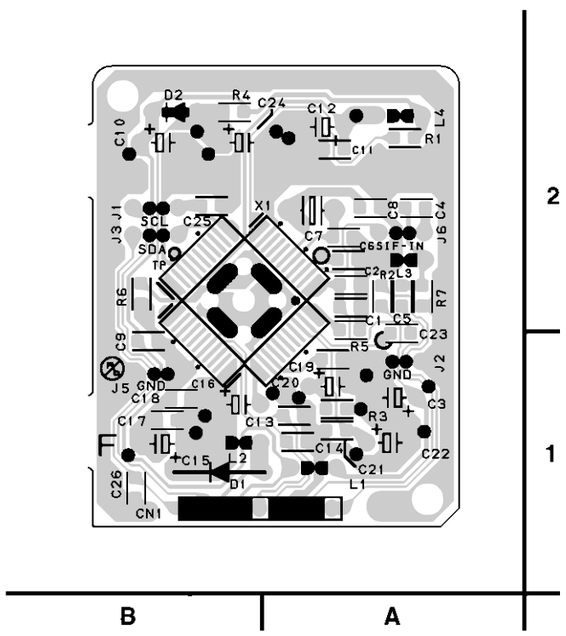
AFV Schematic Diagram
Parts Location Guide

Ref No.	Position
CAPACITORS	
C1	A-1
C4	A-1
C5	B-1
C6	A-1
C7	A-1
C8	B-1
C11	C-2
C12	C-2
C13	B-2
C14	A-2
C15	A-2
C16	A-2
C17	A-2
C19	A-2
C20	A-2
C21	A-1
C22	A-2
C24	B-2
CN1	C-1
DIODE	
D2	B-2
IC	
IC1	A-1
COILS	
L1	A-1
L2	A-2
L3	A-1
L4	C-2
RESISTORS	
R1	B-1
R4	B-2
R5	A-1
CRYSTAL OSCILLATOR	
X1	B-1

AFV CBA Top View



AFV CBA Bottom View



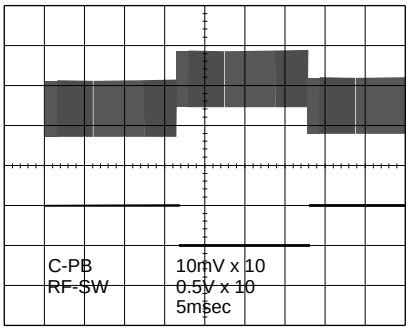
AFV CBA Parts Location Guide

Ref No.	Position
CAPACITORS	
C1	A-2
C4	A-2
C5	A-2
C6	A-2
C7	A-2
C8	A-2
C11	A-2
C12	A-2
C13	B-1
C14	A-1
C15	B-1
C16	B-1
C17	B-1
C19	A-1
C20	A-1
C21	A-1
C22	A-1
C24	B-2
CN1	B-1
DIODE	
D2	B-2
IC	
IC1	B-2
COILS	
L1	A-1
L2	B-1
L3	A-2
L4	A-2
RESISTORS	
R1	A-2
R4	B-2
R5	A-1
CRYSTAL OSCILLATOR	
X1	B-2

WAVEFORMS

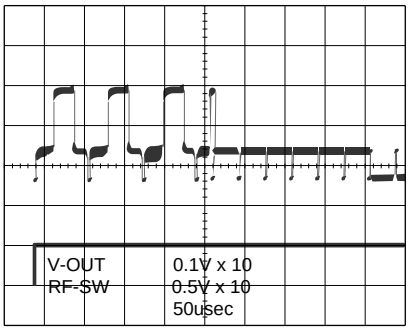
WF2 UPPER (TP301 of Main CBA)

WF1 LOWER (TP502 of Main CBA)

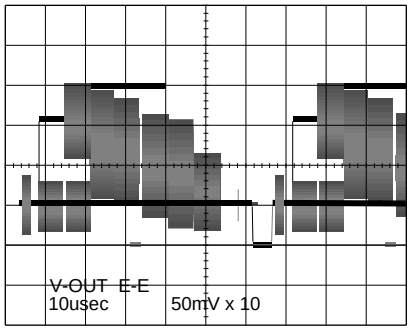


WF3 UPPER (J23 of Main CBA)

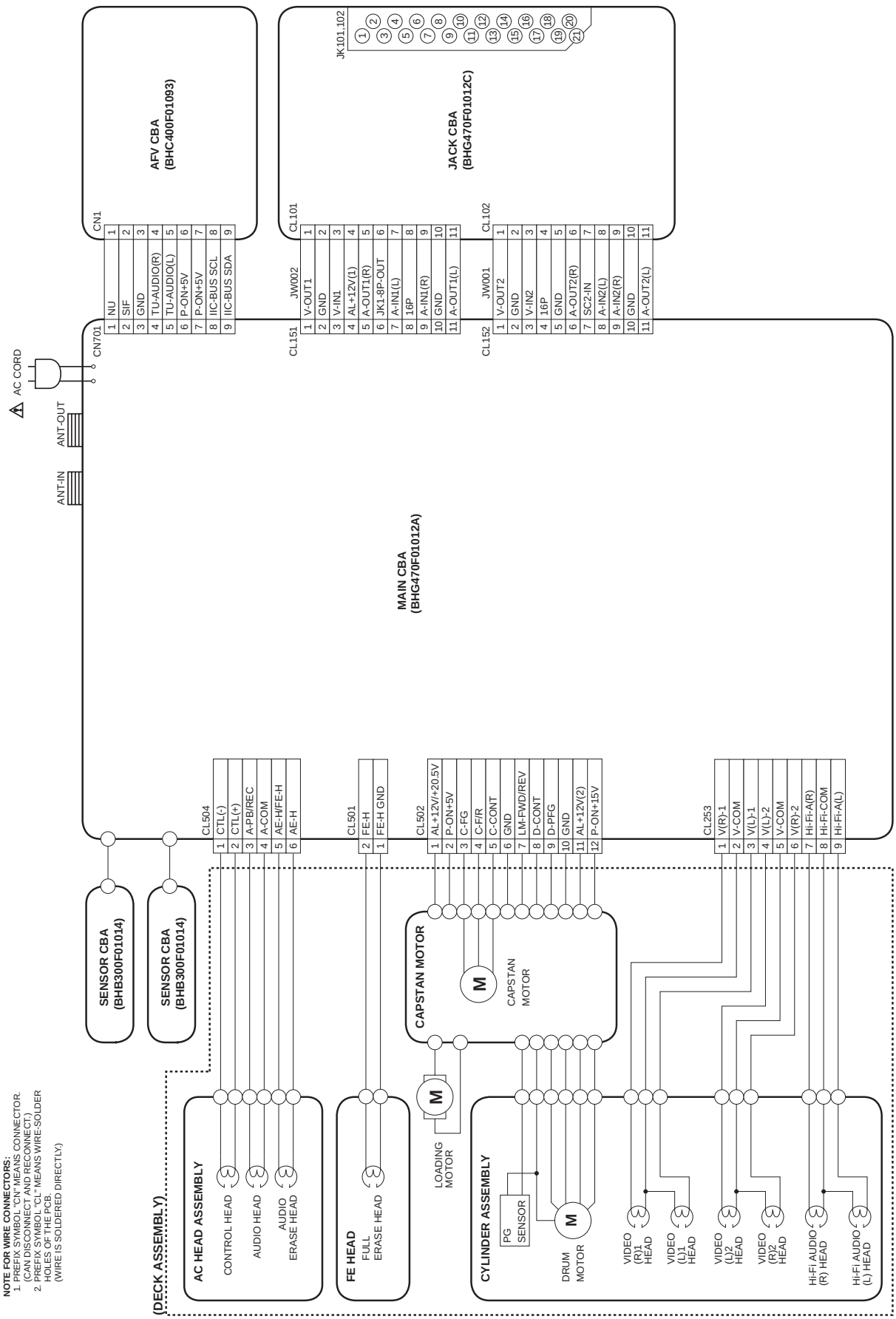
WF1 LOWER (TP502 of Main CBA)



WF3 (J23 of Main CBA)



WIRING DIAGRAM



SYSTEM CONTROL TIMING CHARTS

Mode SW : LD-SW

LD-SW Position detection A/D Input voltage Limit (Calculated voltage)	Symbol
3.76V~4.50V (4.12V)	EJ
4.51V~5.00V (5.00V)	CL
0.00V~0.25V (0.00V)	SB
1.06V~1.50V (1.21V)	TL
0.66V~1.05V (0.91V)	FB
1.99V~2.60V (2.17V)	SF
1.51V~1.98V (1.80V)	SM
3.20V~3.75V (3.40V)	AU
0.26V~0.65V (0.44V)	AL
4.51V~5.00V (5.00V)	SS
2.61V~3.19V (2.97V)	RS

Note:

Note :

EJ → RS: Loading FWD (LM-FWD “H”, LM-REV “L”)

RS → EJ: Loading REV (LM-FWD “L”, LM-REV “H”)

Stop (A) = Loading

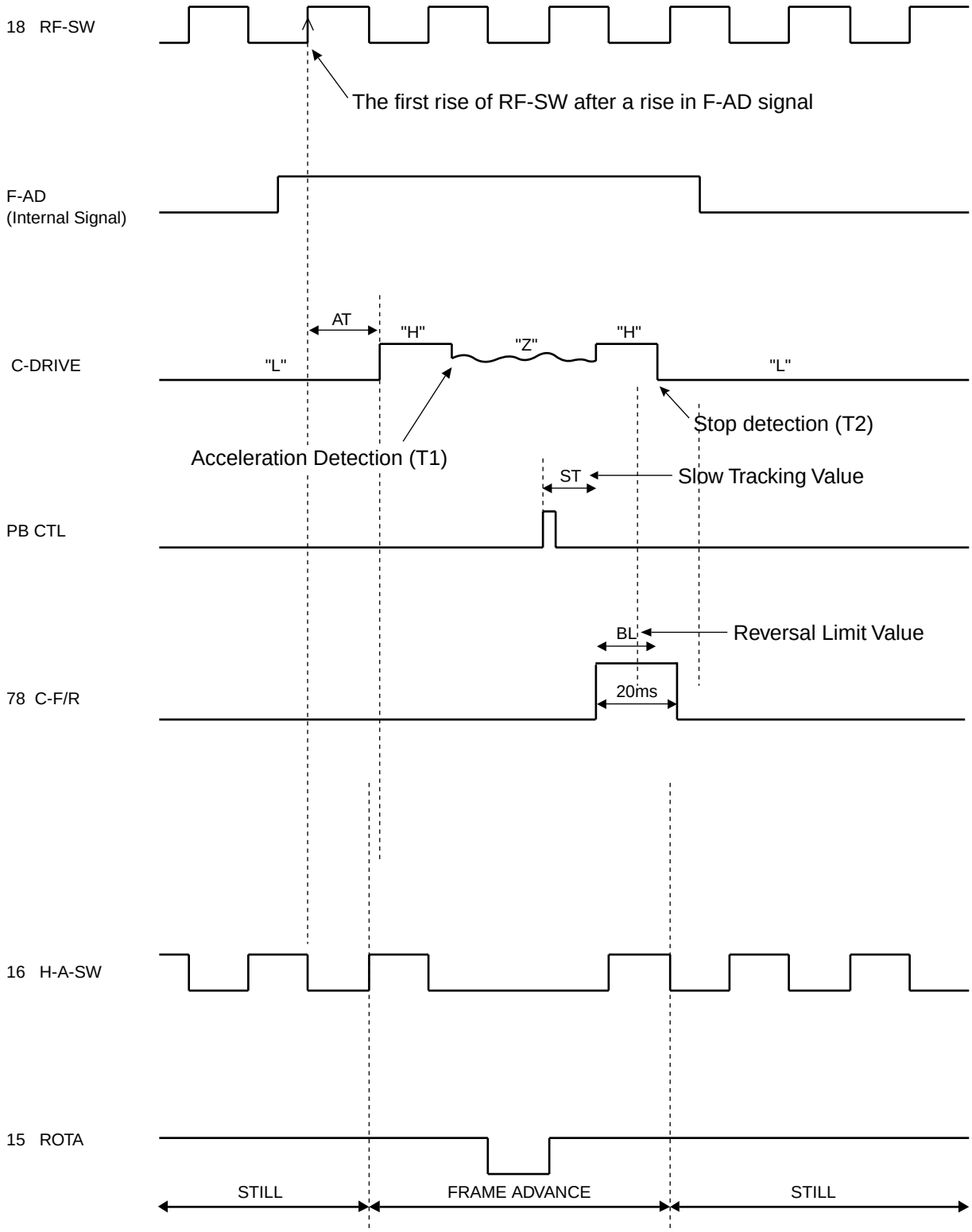
Stop (B) = Unloading

Note:

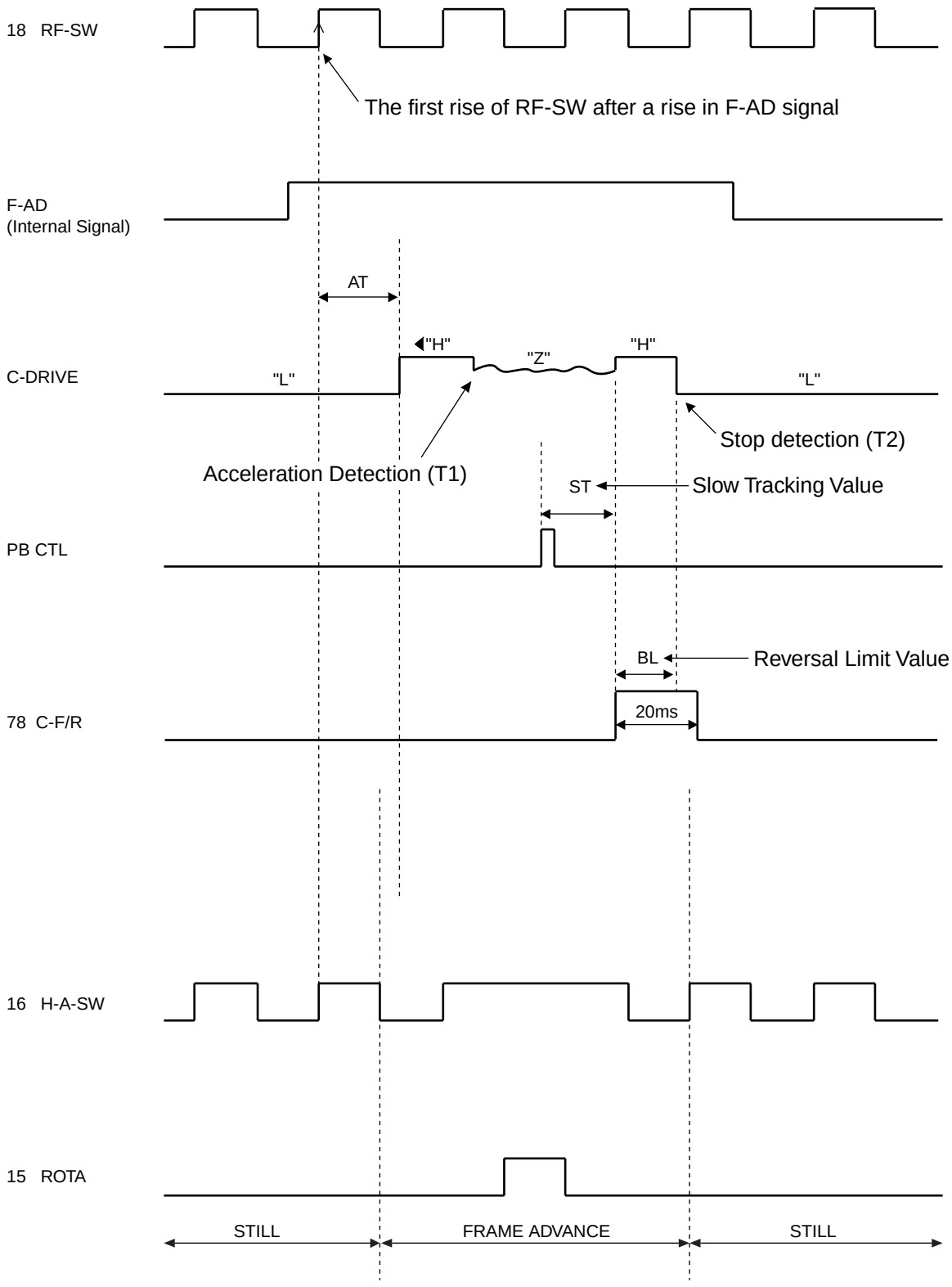
Symbol	Loading Status
EJ	Eject
CL	Eject ~ REW Reel
SB	REW Reel ~ Stop(B)
TL	Stop(B) ~ Brake Cancel
FB	Brake Cancel ~ FF / REW
SF	FF / REW ~ Stop(M), (FF / REW)
SM	Stop(M), (FF / REW) ~ Stop(A)
AU	Stop(A) ~ Play / REC
AL	Play / REC ~ Still / Slow
SS	Still / Slow ~ RS (REW Search)
RS	RS (REW Search)

Still/Slow Control
Frame Advance Timing Chart

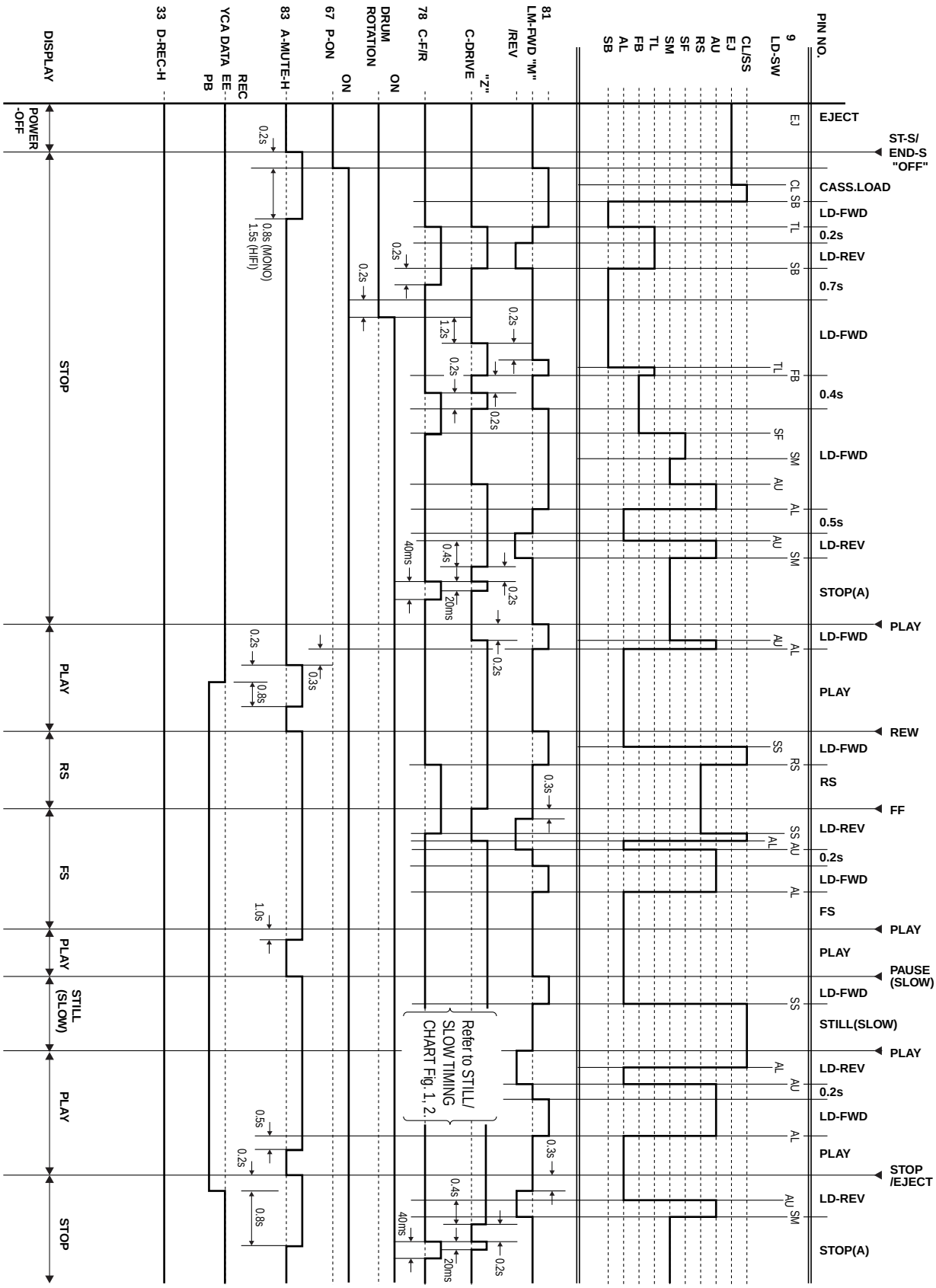
1) SP Mode



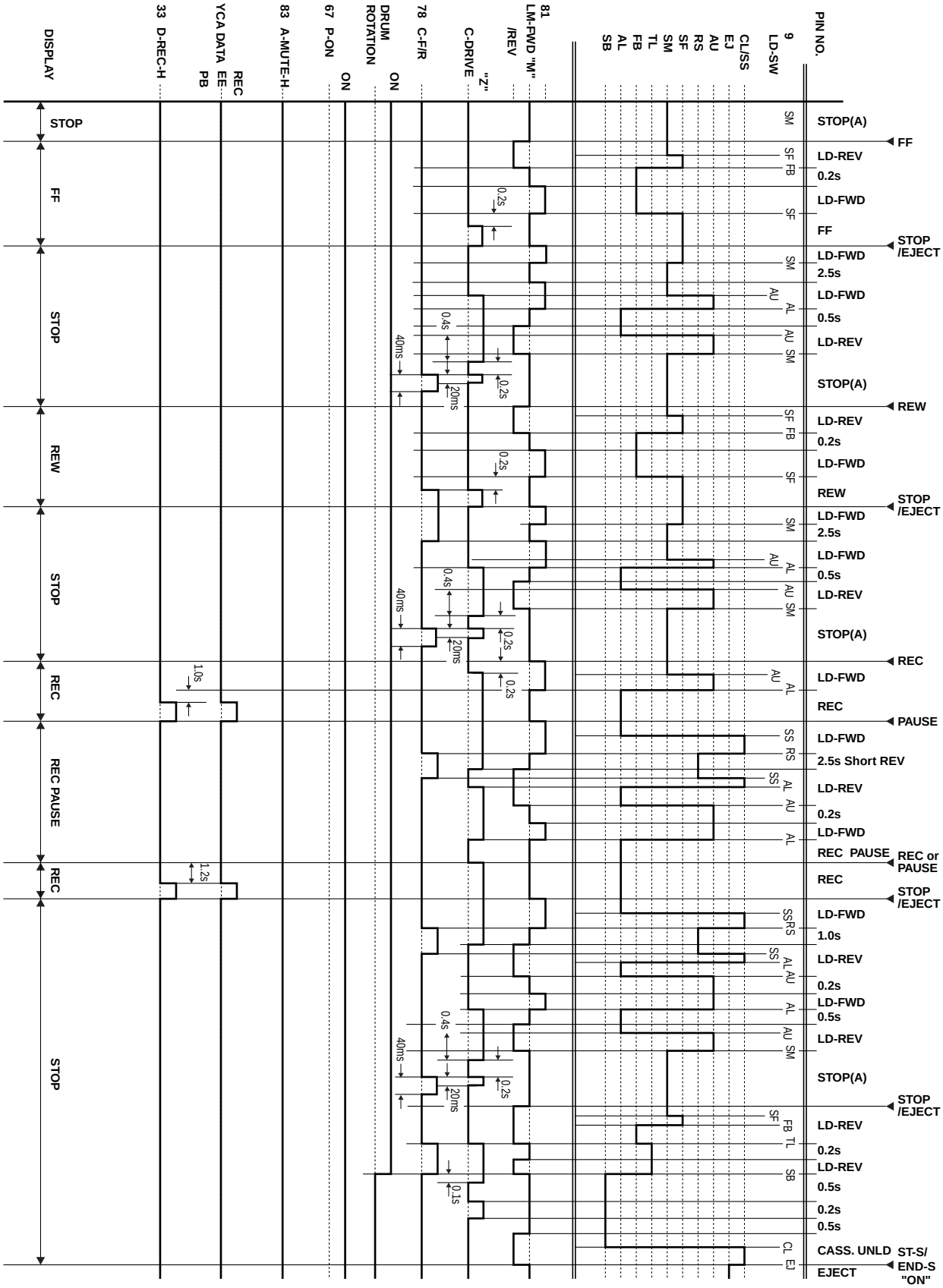
2) LP/SLP Mode


18 RF-SW
The first rise of RF-SW after a rise in F-AD signal
F-AD
(Internal Signal)
AT
"H"
"Z"
"H"
C-DRIVE
"L"
"L"
Stop detection (T2)
Acceleration Detection (T1)
ST
Slow Tracking Value
PB CTL
BL
Reversal Limit Value
20ms
78 C-F/R
16 H-A-SW
15 ROTA
STILL
FRAME ADVANCE
STILL

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



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



IC PIN FUNCTION DESCRIPTIONS

IC501(SERVO / SYSTEM CONTROL IC)

"H" ≥ 4.5V, "L" ≤ 1.0V

Pin No.	IN/ OUT	Signal Name	Function	Active Level
1	IN	SC2-IN	Input Signal from Pin 8 of SCART2	A/D
2	IN	PG-DELAY	Video Head Switching Pulse Signal Adjusted Voltage	A/D
3	IN	POW-SAF	P-ON Power Detection Input Signal	A/D
4	IN	END-S	Tape End Position Detect Signal	A/D
5	IN	AFC	Automatic Frequency Control Signal	A/D
6	IN	V-ENV	Video Envelope Comparator Signal	A/D
7	IN	KEY-1	Key Scan Input Signal 1	A/D
8	IN	KEY-2	Key Scan Input Signal 2	A/D
9	IN	LD-SW	Deck Mode Position Detector Signal	A/D
10	IN	ST-S	Tape Start Position Detector Signal	A/D
11	-	N.U.	Not Used	-
12	-	N.U.	Not Used	-
13	OUT	D-V-SYNC	Dummy V-sync Output	H/Hi-z
14	IN	REMOCON-IN	Remote Control Sensor	L
15	OUT	C-ROTA	Color Phase Rotary Changeover SIgnal	H/L
16	OUT	H-A-SW	Video Head Amp Switching Pulse	H/L
17	IN	H-A-COMP	Head Amp Comparator Signal	H/L
18	OUT	RF-SW	Video Head Switching Pulse	H/L
19	OUT	Hi-Fi-H-SW	Hi-Fi Audio Head Switching Pulse	H/L
20	-	N.U.	Not Used	-
21	-	N.U.	Not Used	-
22	-	N.U.	Not Used	-
23	-	N.U.	Not Used	-
24	-	N.U.	Not Used	-
25	-	N.U.	Not Used	-
26	-	N.U.	Not Used	-
27	OUT	RGB-THROUGH	SCART 2 RGB Through Control Signal	L/H
28	OUT	LINE-MUTE	Audio Mute Control Signal	H
29	-	N.U.	Not Used	-
30	-	N.U.	Not Used	-
31	IN	REC-SAF-SW	Recording Safety SW Detect (With Record tab="L"/Without Record tab="H")	H
32	IN	A-MODE	Hi-Fi Tape Detection Signal	L
33	OUT	D-REC-H	Delayed Record Signal	H
34	IN	RESET	System Reset Signal (Reset="L")	L
35	IN	XC-IN	Sub Clock	-
36	OUT	XC-OUT	Sub Clock	-
37	-	Vcc	Vcc	-
38	IN	X-IN	Main Clock Input	-
39	OUT	X-OUT	Main Clock Input	-
40	-	Vss	Vss(GND)	-
41	-	N.U.	Not Used	-
42	-	N.U.	Not Used	-
43	IN	CLKSEL	Clock Select (GND)	-
44	IN	OSCin	Clock Input for letter size	-
45	OUT	OSCout	Clock Output for letter size	-
46	-	N.U.	Not Used	-
47	-	LP	LP	-
48	IN	FSC-IN [4.43MHz]	4.43MHz Clock Input	-
49	-	OSDVss	OSDVss	-
50	IN	OSD-V-IN	OSD Video Signal Input	-
51	-	N.U.	Not Used	-
52	OUT	OSD-V-OUT	OSD Video Signal Output	-
53	-	OSDVcc	OSDVcc	-
54	-	HLF	LPF Connected Terminal (Slicer)	-
55	-	N.U.	Not Used	-
56	-	N.U.	Not Used	-
57	-	N.U.	Not Used	-

Pin No.	IN/ OUT	Signal Name	Function	Active Level
58	IN	C-SYNC	Composite Synchronized Pulse	PULSE
59	OUT	8POUT-1	SCART 1 8Pin Output Control Signal	H/L
60	OUT	8POUT-2	SCART 2 8Pin Output Control Signal	H/L
61	-	N.U.	Not Used	-
62	-	N.U.	Not Used	-
63	-	N.U.	Not Used	-
64	IN	FTV-IN	Comparator Input of Video Signal for Follow TV	L/H
65	-	N.U.	Not Used	-
66	OUT	C-POW-SW	Capstan Power Switching Pulse	L/H
67	OUT	P-ON-H	Power On Signal at High	H
68	OUT	DRV-DATA	LED Clock Driver IC Control Data	H/L
69	OUT	DRV-STB	LED Clock Driver IC Chip Select Signal	H/L
70	OUT	DRV-CLK	LED Clock Driver IC Control Clock	H/L
71	OUT	IIC-BUS SCL	I^2C BUS Control Clock	H/L
72	IN/ OUT	IIC-BUS SDA	I^2C BUS Control Data	H/L
73	-	N.U.	Not Used	-
74	-	N.U.	Not Used	-
75	-	N.U.	Not Used	-
76	OUT	C-CONT	Capstan Motor Control Signal	PWM
77	OUT	D-CONT	Drum Motor Control Signal	PWM
78	OUT	C-F/R	Capstan Motor FWD/ REV Control Signal (FWD="L"/REV="H")	H/L
79	IN	S-REEL	Supply Reel Rotation Signal	PULSE
80	IN	T-REEL	Take Up Reel Rotation Signal	PULSE
81	OUT	LM-FWD/ REV	Loading Motor Control Signal	H/L/ Hi-z
82	-	N.U.	Not Used	-
83	OUT	A-MUTE	Audio Mute Control Signal	H
84	OUT	FF/REW-L	CTL Frequency Characteristics Switching Signal (FF/ REW="L")	L
85	-	N.U.	Not Used	-

Pin No.	IN/ OUT	Signal Name	Function	Active Level
86	IN	P-DOWN-L	Power Voltage Down Detector Signal	L
87	IN	C-FG	Capstan Motor Rotation Detection Pulse	PULSE
88	-	N.U.	Not Used	-
89	-	N.U.	Not Used	-
90	IN	D-PFG	Drum Motor Pulse Generator	PULSE
91	-	AMPVREF OUT	V-Ref for CTL AMP	-
92	-	AMPVREF IN	V-Ref for CTL AMP	-
93	-	P80/C	P80/C Terminal	-
94	IN/ OUT	CTL (-)	Playback/Record Control Signal (-)	H/L
95	IN/ OUT	CTL (+)	Playback/Record Control Signal (+)	H/L
96	-	AMPC	CTL AMP Connected Terminal	-
97	-	CTLAMP out	To Monitor for CTL AMP Output	PULSE
98	-	AMPVcc	AMPVcc	-
99	-	AVcc	A/D Converter Power Input/ Standard Voltage Input	-
100	IN	AGC	IF AGC Comparator Signal	A/D

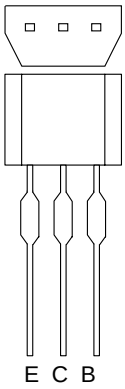
Notes:

Abbreviation for Active Level:

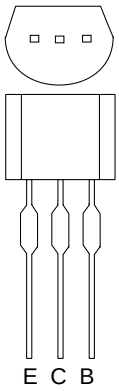
PWM -----Pulse Wide Modulation

A/D--------Analog - Digital Converter

LEAD IDENTIFICATIONS

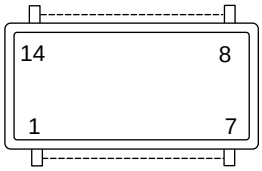


2SC2785(F,H,J)
BA1F4M-T
BN1F4M-T
BN1L4M-T
KRA103M
KRA104M
KRC103M
KTA1266(GR)
KTA1281(Y)
KTC3199(BL,GR,Y)

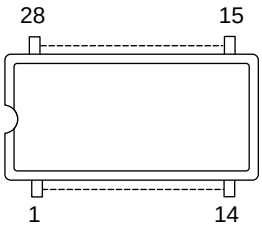


2SA1015-GR(TPE2)
2SA1020(Y)
2SC1815-BL(TPE2)
2SC1815-GR(TPE2)
2SC1815-Y(TPE2)
2SC2120-Y(TPE2)
2SC3266-Y(TPE2)
KTA1267(GR,Y)
KTC3203(Y)
KTC3205(Y)

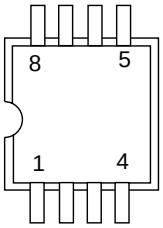
KIA339F EL
LM339DT



PT6958-FN-TP

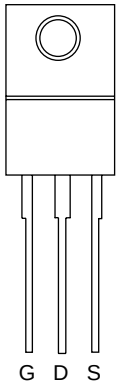


BR24L02F-WE2
CAT24WC02JI

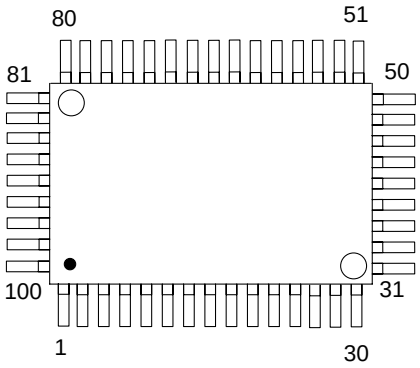


EL817A
EL817B
EL817C
LTV-817B-F
LTV-817C-F
PS2561A-1(Q,W)

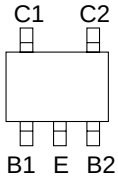
2SK3566



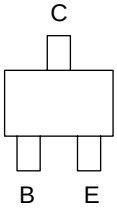
LA71750EM-MPB-E
QSZAC0RMB188



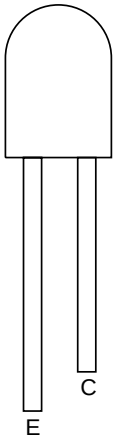
RN1511(TE85R)
FMG4A T148



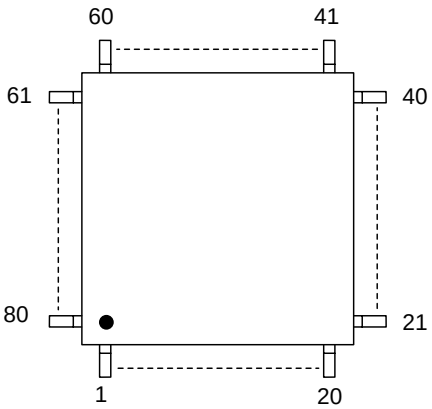
FA1F4M-T1B
KRC103S RTK
KTA1504GR-RTK
KTA1504Y-RTK
KTC3875Y-RTK



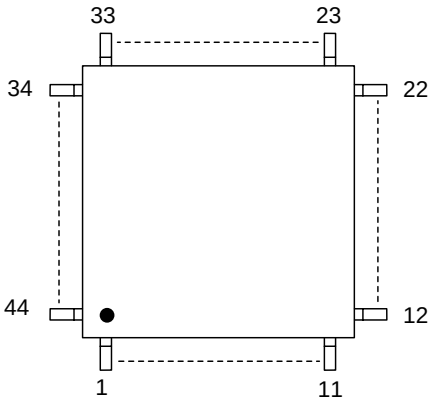
MID-32A22F
PT204-6B-12



LA72648M-MPB-E



MSP3407G-QG-B8
MSP3407G-QG-B8-V3
MSP3417G-QG-B8
MSP3417G-QG-B8-V3



Note:
A: Anode
K: Cathode
E: Emitter
C: Collector
B: Base
R: Reference
S: Source
G: Gate
D: Drain

PRODUCT SAFETY NOTE: Products marked with a ▲

have special characteristics important to safety.
Before replacing any of these components, read carefully
the product safety notice in this service manual.
Don't degrade the safety of the product through improper servicing.

NOTES:

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

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

ELECTRICAL PARTS LIST

Pos.	▲	12 NC	Description	VR550/02	VR550/07	VR550/16
			MCV CBA	**1**	**1**	**1**
			Consists of the following			
			MAIN CBA (MCV-A)	**1**	**1**	**1**
			JACK CBA (MCV-C)	**1**	**1**	**1**
			SENSOR CBA	**1**	**1**	**1**
			SENSOR CBA	**1**	**1**	**1**
			MAIN CBA (MCV-A)			
2B7		9965 000 23353	SHIELD ASSEMBLY HG470ED	1	1	1
2B8		9965 000 08566	BUSH, LED(F) H3700UD	1	1	1
2B46		9965 000 12173	ROHM HOLDER H7770JD	1	1	1
AC001	▲	9965 000 08666	AC CORD PE8B2CG1H0A-057	1		1
AC001	▲	9965 000 12174	AC CORD PQ8B1V51H0A-05B		1	
			CAPACITORS			
C002	▲	9965 000 06521	METALLIZED FILM CAP. 0.068UF/250V K	1	1	1
C003	▲	9965 000 23354	SAFTY CAP. 2200PF/250V	1	1	1
C004		4822 124 80025	ELECTROLYTIC CAP. 33UF/400V M(L.Z)	1	1	1
C005		4822 126 14142	CERAMIC CAP. B K 0.01UF/500V	1	1	1
C006		4822 126 14141	CERAMIC CAP. SL K 56PF/1KV	1	1	1
C007			CERAMIC CAP.(AX) B K 1000PF/50V	1	1	1
C008			CERAMIC CAP.(AX) X K 5600PF/16V	1	1	1
C010			FILM CAP.(P) 0.022UF/50V J	1	1	1
C011			ELECTROLYTIC CAP. 10UF/16V M H7	1	1	1
C012			ELECTROLYTIC CAP. 10UF/50V M H7	1	1	1
C014			ELECTROLYTIC CAP. 470UF/35V M	1	1	1
C017			ELECTROLYTIC CAP. 470UF/16V M	1	1	1
C018			ELECTROLYTIC CAP. 100UF/16V M	1	1	1
C020			ELECTROLYTIC CAP. 1000UF/16V M	1	1	1
C021			ELECTROLYTIC CAP. 470UF/10V M	1	1	1
C025			CHIP CERAMIC CAP.(1608) B K 0.01UF/50V	1	1	1
C026			ELECTROLYTIC CAP. 47UF/16V M H7	1	1	1
C053			ELECTROLYTIC CAP. 330UF/6.3V M H7	1	1	1
C056			CHIP CERAMIC CAP.(1608) B K 0.047UF/50V	1	1	1
C057			CHIP CERAMIC CAP.(1608) CH J 470PF/50V	1	1	1
C060			ELECTROLYTIC CAP. 10UF/16V M H7	1	1	1
C061			CHIP CERAMIC CAP.(1608) F Z 0.1UF/50V	1	1	1
C157			ELECTROLYTIC CAP. 1UF/50V M H7	1	1	1
C158			CHIP CERAMIC CAP. B K 1000PF/50V	1	1	1
C251			ELECTROLYTIC CAP. 10UF/16V M H7	1	1	1
C252			CHIP CERAMIC CAP. B K 1000PF/50V	1	1	1
C253			ELECTROLYTIC CAP. 1UF/50V M H7	1	1	1
C254			CHIP CERAMIC CAP.(1608) F Z 0.1UF/50V	1	1	1
C302			CHIP CERAMIC CAP.(1608) B K 0.022UF/50V	1	1	1

ELECTRICAL PARTS LIST

Pos.	▲	12 NC	Description	VR550/02	VR550/07	VR550/16
C303			ELECTROLYTIC CAP. 1UF/50V M H7	1	1	1
C304			ELECTROLYTIC CAP. 1UF/50V M H7	1	1	1
C305			CHIP CERAMIC CAP. F Z 0.22UF/16V	1	1	1
C307			CHIP CERAMIC CAP.(1608) B K 0.047UF/50V	1	1	1
C308			CHIP CERAMIC CAP.(1608) B K 0.022UF/50V	1	1	1
C309			CHIP CERAMIC CAP.(1608) F Z 0.1UF/50V	1	1	1
C310			CHIP CERAMIC CAP.(1608) B K 0.047UF/50V	1	1	1
C312			CHIP CERAMIC CAP. B K 8200PF/50V	1	1	1
C313			CHIP CERAMIC CAP.(1608) F Z 0.1UF/50V	1	1	1
C314			CHIP CERAMIC CAP.(1608) B K 0.01UF/50V	1	1	1
C315			CHIP CERAMIC CAP.(1608) F Z 0.1UF/50V	1	1	1
C316			CHIP CERAMIC CAP.(1608) B K 0.01UF/50V	1	1	1
C317			ELECTROLYTIC CAP. 47UF/6.3V M H7	1	1	1
C318			ELECTROLYTIC CAP. 1UF/50V M H7	1	1	1
C319			ELECTROLYTIC CAP. 1UF/50V M H7	1	1	1
C320			CHIP CERAMIC CAP.(1608) F Z 0.1UF/50V	1	1	1
C321			CHIP CERAMIC CAP.(1608) F Z 0.1UF/50V	1	1	1
C322			ELECTROLYTIC CAP. 10UF/16V M H7	1	1	1
C323			CHIP CERAMIC CAP.(1608) F Z 0.1UF/50V	1	1	1
C324			CHIP CERAMIC CAP. CH J 68PF/50V	1	1	1
C325			CHIP CERAMIC CAP.(1608) F Z 0.1UF/50V	1	1	1
C326			CHIP CERAMIC CAP. CH J 68PF/50V	1	1	1
C327			ELECTROLYTIC CAP. 0.47UF/50V M H7	1	1	1
C330			CERAMIC CAP.(AX) F Z 0.1UF/50V	1	1	1
C332			CHIP CERAMIC CAP.(1608) F Z 0.1UF/50V	1	1	1
C333			ELECTROLYTIC CAP. 0.47UF/50V M H7	1	1	1
C334			ELECTROLYTIC CAP. 4.7UF/25V M NP H7	1	1	1
C335			ELECTROLYTIC CAP. 10UF/16V M H7	1	1	1
C336			CHIP CERAMIC CAP.(1608) CH J 1000PF/50V	1	1	1
C337			CHIP CERAMIC CAP.(1608) F Z 0.1UF/50V	1	1	1
C338			ELECTROLYTIC CAP. 100UF/6.3V H7	1	1	1
C339			ELECTROLYTIC CAP. 1UF/50V M H7	1	1	1
C340			CHIP CERAMIC CAP. CH J 120PF/50V	1	1	1
C341			CHIP CERAMIC CAP. CH J 220PF/50V	1	1	1
C342			ELECTROLYTIC CAP. 1UF/50V M H7	1	1	1
C343			CHIP CERAMIC CAP.(1608) F Z 0.1UF/50V	1	1	1
C345			CHIP CERAMIC CAP. CH J 68PF/50V	1	1	1
C346			CHIP CERAMIC CAP. CH J 68PF/50V	1	1	1
C347			CHIP CERAMIC CAP. CH D 10PF/50V	1	1	1
C351			ELECTROLYTIC CAP. 220UF/6.3V M H7	1	1	1
C352			ELECTROLYTIC CAP. 100UF/16V M H7	1	1	1
C401			ELECTROLYTIC CAP. 47UF/6.3V M H7	1	1	1
C402			ELECTROLYTIC CAP. 220UF/6.3V M H7	1	1	1
C403			CERAMIC CAP. B K 470PF/100V	1	1	1
C404			FILM CAP.(P) 0.018UF/100V J	1	1	1
C411			CHIP CERAMIC CAP. B K 1000PF/50V	1	1	1
C412			CHIP CERAMIC CAP. B K 1800PF/50V	1	1	1
C414			CHIP CERAMIC CAP.(1608) B K 0.01UF/50V	1	1	1
C415			ELECTROLYTIC CAP. 10UF/16V M H7	1	1	1
C416			CHIP CERAMIC CAP.(1608) F Z 0.1UF/50V	1	1	1
C417			CHIP CERAMIC CAP.(1608) B K 0.022UF/50V	1	1	1
C418			CHIP CERAMIC CAP.(1608) CH J 33PF/50V	1	1	1
C419			CHIP CERAMIC CAP.(1608) B K 4700PF/50V	1	1	1
C421			ELECTROLYTIC CAP. 33UF/6.3V M H7	1	1	1
C422			ELECTROLYTIC CAP. 4.7UF/25V M H7	1	1	1
C424			ELECTROLYTIC CAP. 22UF/6.3V M H7	1	1	1
C425			CHIP CERAMIC CAP.(1608) F Z 0.1UF/50V	1	1	1
C428			CHIP CERAMIC CAP. CH J 220PF/50V	1	1	1
C430			ELECTROLYTIC CAP. 47UF/6.3V M H7	1	1	1
C451			ELECTROLYTIC CAP. 47UF/16V M H7	1	1	1
C452			CHIP CERAMIC CAP.(1608) F Z 0.1UF/50V	1	1	1
C453			ELECTROLYTIC CAP. 10UF/16V M H7	1	1	1
C454			ELECTROLYTIC CAP. 22UF/10V M H7	1	1	1
C455			CHIP CERAMIC CAP.(1608) F Z 0.1UF/50V	1	1	1
C456			CHIP CERAMIC CAP.(1608) F Z 0.1UF/50V	1	1	1

ELECTRICAL PARTS LIST

Pos.	▲	12 NC	Description	VR550/02	VR550/07	VR550/16
C457			ELECTROLYTIC CAP. 10UF/16V M H7	1	1	1
C458			ELECTROLYTIC CAP. 4.7UF/25V M H7	1	1	1
C459			CHIP CERAMIC CAP.(1608) B K 0.01UF/50V	1	1	1
C460			CHIP CERAMIC CAP.(1608) B K 4700PF/50V	1	1	1
C461			ELECTROLYTIC CAP. 22UF/10V M H7	1	1	1
C462			CHIP CERAMIC CAP.(1608) B K 0.01UF/50V	1	1	1
C463			CHIP CERAMIC CAP.(1608) B K 0.01UF/50V	1	1	1
C464			ELECTROLYTIC CAP. 10UF/16V M H7	1	1	1
C465			CHIP CERAMIC CAP.(1608) F Z 0.1UF/50V	1	1	1
C466			ELECTROLYTIC CAP. 220UF/6.3V M H7	1	1	1
C467			ELECTROLYTIC CAP. 22UF/10V M H7	1	1	1
C468			CHIP CERAMIC CAP.(1608) B K 4700PF/50V	1	1	1
C469			CHIP CERAMIC CAP.(1608) B K 0.01UF/50V	1	1	1
C470			ELECTROLYTIC CAP. 4.7UF/25V M H7	1	1	1
C471			ELECTROLYTIC CAP. 10UF/16V M H7	1	1	1
C472			CHIP CERAMIC CAP.(1608) F Z 0.1UF/50V	1	1	1
C473			CHIP CERAMIC CAP.(1608) F Z 0.1UF/50V	1	1	1
C474			ELECTROLYTIC CAP. 22UF/6.3V M H7	1	1	1
C475			CHIP CERAMIC CAP.(1608) F Z 0.1UF/50V	1	1	1
C476			CHIP CERAMIC CAP.(1608) F Z 0.1UF/50V	1	1	1
C477			ELECTROLYTIC CAP. 10UF/16V M H7	1	1	1
C478			ELECTROLYTIC CAP. 4.7UF/25V M H7	1	1	1
C479			ELECTROLYTIC CAP. 4.7UF/25V M H7	1	1	1
C480			CHIP CERAMIC CAP.(1608) F Z 0.1UF/50V	1	1	1
C481			ELECTROLYTIC CAP. 4.7UF/25V M H7	1	1	1
C482			ELECTROLYTIC CAP. 4.7UF/25V M H7	1	1	1
C483			ELECTROLYTIC CAP. 4.7UF/25V M H7	1	1	1
C484			ELECTROLYTIC CAP. 10UF/16V M H7	1	1	1
C485			CHIP CERAMIC CAP.(1608) F Z 0.1UF/50V	1	1	1
C486			CHIP CERAMIC CAP.(1608) F Z 0.1UF/50V	1	1	1
C501			ELECTROLYTIC CAP. 220UF/6.3V M H7	1	1	1
C502			CHIP CERAMIC CAP.(1608) F Z 0.1UF/50V	1	1	1
C506			CERAMIC CAP.(AX) B K 100PF/50V	1	1	1
C508			ELECTROLYTIC CAP. 1UF/50V M H7	1	1	1
C510			ELECTROLYTIC CAP. 22UF/10V M H7	1	1	1
C511			ELECTROLYTIC CAP. 100UF/6.3V H7	1	1	1
C512			CHIP CERAMIC CAP.(1608) F Z 0.1UF/50V	1	1	1
C513			CHIP CERAMIC CAP.(1608) CH J 22PF/50V	1	1	1
C514			CHIP CERAMIC CAP.(1608) CH J 22PF/50V	1	1	1
C515			CHIP CERAMIC CAP. CH J 18PF/50V	1	1	1
C516			CHIP CERAMIC CAP. CH J 18PF/50V	1	1	1
C517			CHIP CERAMIC CAP.(1608) B K 4700PF/50V	1	1	1
C518			CHIP CERAMIC CAP.(1608) B K 0.047UF/50V	1	1	1
C519			CHIP CERAMIC CAP.(1608) B K 0.01UF/50V	1	1	1
C520			CHIP CERAMIC CAP.(1608) CH J 100PF/50V	1	1	1
C521			CHIP CERAMIC CAP. CH J 560PF/50V	1	1	1
C522			ELECTROLYTIC CAP. 22UF/6.3V M H7	1	1	1
C523			CHIP CERAMIC CAP. B K 1000PF/50V	1	1	1
C524			CHIP CERAMIC CAP. CH J 330PF/50V	1	1	1
C526			CHIP CERAMIC CAP.(1608) B K 4700PF/50V	1	1	1
C527			ELECTROLYTIC CAP. 22UF/6.3V M H7	1	1	1
C528			CHIP CERAMIC CAP.(1608) B K 0.01UF/50V	1	1	1
C530			CERAMIC CAP.(AX) F Z 0.022UF/25V	1	1	1
C531			CERAMIC CAP.(AX) Y M 0.01UF/16V	1	1	1
C532			ELECTROLYTIC CAP. 22UF/6.3V M H7	1	1	1
C533			CHIP CERAMIC CAP.(1608) F Z 0.1UF/50V	1	1	1
C535			CHIP CERAMIC CAP.(1608) B K 0.01UF/50V	1	1	1
C538			CHIP CERAMIC CAP.(1608) B K 0.022UF/50V	1	1	1
C540			ELECTROLYTIC CAP. 470UF/6.3V M	1	1	1
C561			CHIP CERAMIC CAP.(1608) B K 0.022UF/50V	1	1	1
C562			ELECTROLYTIC CAP. 330UF/6.3V M H7	1	1	1
C563			CHIP CERAMIC CAP.(1608) B K 0.1UF/25V	1	1	1
C564			CHIP CERAMIC CAP.(1608) CH J 100PF/50V	1	1	1
C701			CHIP CERAMIC CAP.(1608) B K 0.047UF/50V	1	1	1
C702			CHIP CERAMIC CAP.(1608) F Z 0.1UF/50V	1	1	1

ELECTRICAL PARTS LIST

Pos.	▲	12 NC	Description	VR550/02	VR550/07	VR550/16
C704			CHIP CERAMIC CAP.(1608) B K 0.01UF/50V	1	1	1
C706			CHIP CERAMIC CAP.(1608) F Z 0.1UF/50V	1	1	1
C708			CHIP CERAMIC CAP.(1608) B K 0.01UF/50V	1	1	1
C716			CHIP CERAMIC CAP. F Z 0.22UF/16V	1	1	1
C717			CHIP CERAMIC CAP. F Z 0.22UF/16V	1	1	1
C771			CHIP CERAMIC CAP.(1608) F Z 0.1UF/50V	1	1	1
C772			ELECTROLYTIC CAP. 10UF/16V M H7	1	1	1
C773			CHIP CERAMIC CAP. B K 1000PF/50V	1	1	1
C774			CHIP CERAMIC CAP. B K 1000PF/50V	1	1	1
C775			ELECTROLYTIC CAP. 1UF/50V M H7	1	1	1
C776			ELECTROLYTIC CAP. 1UF/50V M H7	1	1	1
C777			CHIP CERAMIC CAP. CH J 180PF/50V	1	1	1
C778			CHIP CERAMIC CAP. CH J 180PF/50V	1	1	1
C851			CHIP CERAMIC CAP.(1608) CH J 22PF/50V	1	1	1
C852			CHIP CERAMIC CAP.(1608) CH J 22PF/50V	1	1	1
C853			CHIP CERAMIC CAP.(1608) B K 4700PF/50V	1	1	1
C854			CHIP CERAMIC CAP.(1608) B K 0.01UF/50V	1	1	1
C855			CHIP CERAMIC CAP.(1608) F Z 0.1UF/50V	1	1	1
C856			CHIP CERAMIC CAP. CH J 180PF/50V	1	1	1
C859			ELECTROLYTIC CAP. 47UF/6.3V M H7	1	1	1
C862			CHIP CERAMIC CAP.(1608) B K 0.01UF/50V	1	1	1
			CONNECTORS			
CN701		9965 000 23355	AFV PCB ASSEMBLY CPU2900/G470	1		
CN701		9965 000 23385	AFV PCB ASSEMBLY CPU2900/G471		1	1
			DIODES			
D001		4822 130 31933	RECTIFIER DIODE 1N4005	1	1	1
D002		4822 130 31933	RECTIFIER DIODE 1N4005	1	1	1
D003		4822 130 31933	RECTIFIER DIODE 1N4005	1	1	1
D004		4822 130 31933	RECTIFIER DIODE 1N4005	1	1	1
D005		5322 130 34979	RECTIFIER DIODE BA159	1	1	1
D006		4822 130 30621	SWITCHING DIODE 1N4148M	1	1	1
D007		4822 130 30621	SWITCHING DIODE 1N4148M	1	1	1
D008		4822 130 30621	SWITCHING DIODE 1N4148M	1	1	1
D009		4822 130 30621	SWITCHING DIODE 1N4148M	1	1	1
D011		4822 130 11654	RECTIFIER DIODE BA158	1	1	1
D012		4822 130 83883	RECTIFIER DIODE FR202-B/P	1	1	1
D013		4822 130 83883	RECTIFIER DIODE FR202-B/P	1	1	1
D014		4822 130 32715	SCHOTTKY BARRIER DIODE SB340	1	1	1
D015		9965 000 23356	ZENER DIODE DZ-18BSBT265	1	1	1
D018		4822 130 30621	SWITCHING DIODE 1N4148M	1	1	1
D018		4822 130 32778	SWITCHING DIODE 1SS133(T-77)	1	1	1
D019		9965 000 14881	ZENER DIODE DZ-6.8BSBT265	1	1	1
D021		4822 130 30621	SWITCHING DIODE 1N4148M	1	1	1
D021		4822 130 32778	SWITCHING DIODE 1SS133(T-77)	1	1	1
D051		4822 130 31933	RECTIFIER DIODE 1N4005	1	1	1
D052		4822 130 31933	RECTIFIER DIODE 1N4005	1	1	1
D053		4822 130 31933	RECTIFIER DIODE 1N4005	1	1	1
D055			PCB JUMPER D0.6-P10.0	1	1	1
D056		9965 000 08649	ZENER DIODE DZ-5.6BSCT265	1	1	1
D057		9965 000 09283	ZENER DIODE DZ-10BSBT265	1	1	1
D058		9965 000 23356	ZENER DIODE DZ-18BSBT265	1	1	1
D153		9965 000 12178	ZENER DIODE DZ-11BSAT265	1	1	1
D154		9965 000 12178	ZENER DIODE DZ-11BSAT265	1	1	1
D155		9965 000 12178	ZENER DIODE DZ-11BSAT265	1	1	1
D156		9965 000 12178	ZENER DIODE DZ-11BSAT265	1	1	1
D301		4822 130 30621	SWITCHING DIODE 1N4148M	1	1	1
D501		4822 130 30621	SWITCHING DIODE 1N4148M	1	1	1
D502		9965 000 05250	LED SIR-563ST3F P	1	1	1
D552		4822 130 10094	ZENER DIODE MTZJT-777.5A	1	1	1
D553		4822 130 30621	SWITCHING DIODE 1N4148M	1	1	1
D701		9965 000 09183	ZENER DIODE DZ-33BSDT265	1	1	1
			MISCELLANEOUS			
F001	▲	4822 070 31602	FUSE T1.6AL/250V	1	1	1
FH001		4822 256 10461	FUSE HOLDER MSF-015	1	1	1
FH002		4822 256 10461	FUSE HOLDER MSF-015	1	1	1

ELECTRICAL PARTS LIST

Pos.	▲	12 NC	Description	VR550/02	VR550/07	VR550/16
FP562		9965 000 23357	LED DISPLAY LFU-4421-2003A	1	1	1
			IC's			
IC001	▲	4822 130 11655	PHOTOCOUPLER LTV-817B-F	1	1	1
IC301		9965 000 12180	IC:Y/C/A LA71750EM-MPB-E	1	1	1
IC451		9965 000 16618	IC:HIFI LA72648M-MPB-E	1	1	1
IC501		9965 000 23358	SYSCON IC M3776AMCA-AB4GP	1	1	1
IC503		9965 000 16620	IC:EEPROM CAT24WC02JI	1	1	1
IC561		9965 000 12183	IC:LED DRIVER PT6958-FN-TP	1	1	1
IC771		9965 000 12184	IC:COMPARATOR KIA339F EL	1	1	1
			COILS			
J902		4822 526 10685	BEAD CORE B16 RH 3.5X10X1.3	1	1	1
JW001		9965 000 13795	FLAT CABLE, 11P AWG26#2651/P1.25/150	1	1	1
JW002		9965 000 13795	FLAT CABLE, 11P AWG26#2651/P1.25/150	1	1	1
L001		4822 526 10685	BEAD CORE B16 RH 3.5X10X1.3	1	1	1
L002		4822 526 10685	BEAD CORE B16 RH 3.5X10X1.3	1	1	1
L003	▲	9965 000 13005	LINE FILTER 56MH TLF14CB5630R2	1	1	1
L009		9965 000 05627	CHOKE COIL 47UH-K	1	1	1
L010		9965 000 05627	CHOKE COIL 47UH-K	1	1	1
L012		9965 000 13681	INDUCTOR 100UH-J-5FT	1	1	1
L251		9965 000 08652	INDUCTOR 5.6UH-K-26T	1	1	1
L301		4822 157 10649	INDUCTOR(100UH K) LAP02TA101K	1	1	1
L403		9965 000 05705	INDUCTOR 47UH-K-5FT	1	1	1
L451		9965 000 05705	INDUCTOR 47UH-K-5FT	1	1	1
L452		9965 000 16621	INDUCTOR 27UH-K-5FT	1	1	1
L501		4822 157 10649	INDUCTOR(100UH K) LAP02TA101K	1	1	1
L561		9965 000 05704	INDUCTOR 68UH-K-26T	1	1	1
L562		4822 157 63316	INDUCTOR 56UH-K-26T	1	1	1
L701		4822 157 10332	PCB JUMPER D0.6-P5.0	1	1	1
L704		4822 157 11511	INDUCTOR 15UH-K-26T	1	1	1
L851		9965 000 08629	INDUCTOR 1.8UH-K-26T	1	1	1
PS503		9965 000 12189	PHOTO INTERRUPTER RPI-302C70	1	1	1
			TRANSISTORS			
Q001		9965 000 17186	FET 2SK3566	1	1	1
Q002		4822 130 10923	TRANSISTOR KTC3199(BL)	1	1	1
Q003		4822 130 10923	TRANSISTOR KTC3199(BL)	1	1	1
Q004		4822 130 10462	TRANSISTOR KTA1267(GR)	1	1	1
Q051		4822 130 42292	RES. BUILT-IN TRANSISTOR KRA104M	1	1	1
Q052		9965 000 23377	RES. BUILT-IN TRANSISTOR KRC103M	1	1	1
Q053		4822 130 10103	TRANSISTOR KTC3199(Y)	1	1	1
Q054		9965 000 11122	TRANSISTOR KTC3205(Y)	1	1	1
Q055		4822 130 42959	TRANSISTOR KTA1266(GR)	1	1	1
Q056		4822 130 10145	RES. BUILT-IN TRANSISTOR KRA103M	1	1	1
Q057		9965 000 12190	TRANSISTOR KTA1281(Y)	1	1	1
Q058		9965 000 23377	RES. BUILT-IN TRANSISTOR KRC103M	1	1	1
Q059		9965 000 23377	RES. BUILT-IN TRANSISTOR KRC103M	1	1	1
Q153		4822 130 10103	TRANSISTOR KTC3199(Y)	1	1	1
Q351		9965 000 16622	CHIP TRANSISTOR KTA1504GR-RTK	1	1	1
Q352		4822 130 10103	TRANSISTOR KTC3199(Y)	1	1	1
Q401		4822 130 42959	TRANSISTOR KTA1266(GR)	1	1	1
Q402		4822 130 42292	TRANSISTOR KTC3203(Y)	1	1	1
Q403		4822 130 10145	RES. BUILT-IN TRANSISTOR KRA103M	1	1	1
Q405		9965 000 16623	CHIP TRANSISTOR FMG4A T148	1	1	1
Q406		9965 000 13683	CHIP TRANSISTOR KTC3875Y-RTK	1	1	1
Q451		9965 000 16624	CHIP TRANSISTOR KRC103S RTK	1	1	1
Q501		4822 130 10923	TRANSISTOR KTC3199(BL)	1	1	1
Q503		9965 000 08630	PHOTO TRANSISTOR PT204-6B-12	1	1	1
Q551		4822 130 10923	TRANSISTOR KTC3199(BL)	1	1	1
Q552		9965 000 23377	RES. BUILT-IN TRANSISTOR KRC103M	1	1	1
Q771		4822 130 10103	TRANSISTOR KTC3199(Y)	1	1	1
Q772		4822 130 10103	TRANSISTOR KTC3199(Y)	1	1	1
			RESISTORS			
R001		9965 000 08653	CARBON RES. 1/2W K 5.6M OHM	1	1	1
R002		9965 000 08635	METAL OXIDE FILM RES. 1W J 150K OHM	1	1	1
R003			CARBON RES. 1/4W J 1M OHM	1	1	1
R004			CARBON RES. 1/4W J 1M OHM	1	1	1

ELECTRICAL PARTS LIST

Pos.	▲	12 NC	Description	VR550/02	VR550/07	VR550/16
R005			CARBON RES. 1/6W G 680 OHM	1	1	1
R006			METAL OXIDE FILM RES. 1W J 1.8 OHM	1	1	1
R007			CARBON RES. 1/6W J 22K OHM	1	1	1
R008			CARBON RES. 1/6W J 100K OHM	1	1	1
R009			CARBON RES. 1/6W G 3.3K OHM	1	1	1
R011			CARBON RES. 1/4W J 390K OHM	1	1	1
R012			CARBON RES. 1/4W J 390K OHM	1	1	1
R013			CARBON RES. 1/6W J 470K OHM	1	1	1
R014			CARBON RES. 1/6W J 100K OHM	1	1	1
R015			CHIP RES.(1608) 1/10W J 10K OHM	1	1	1
R016			CARBON RES. 1/6W J 100K OHM	1	1	1
R017			CHIP RES.(1608) 1/10W J 220K OHM	1	1	1
R018			CHIP RES.(1608) 1/10W J 22K OHM	1	1	1
R021			CHIP RES.(1608) 1/10W J 1K OHM	1	1	1
R022			CHIP RES.(1608) 1/10W J 4.7K OHM	1	1	1
R023			CHIP RES.(1608) 1/10W F 2.2K OHM	1	1	1
R024			CHIP RES.(1608) 1/10W J 33K OHM	1	1	1
R025			CHIP RES.(1608) 1/10W F 3.3K OHM	1	1	1
R026			CHIP RES.(1608) 1/10W J 22K OHM	1	1	1
R027			CARBON RES. 1/6W J 1K OHM	1	1	1
R028			CARBON RES. 1/4W J 1M OHM	1	1	1
R030			CHIP RES.(1608) 1/10W F 2.2K OHM	1	1	1
R031			CHIP RES.(1608) 1/10W J 56K OHM	1	1	1
R032			CHIP RES.(1608) 1/10W J 1.8K OHM	1	1	1
R053			PCB JUMPER D0.6-P5.0	1	1	1
R054			CHIP RES.(1608) 1/10W J 180 OHM	1	1	1
R058			CARBON RES. 1/6W J 820 OHM	1	1	1
R060			CARBON RES. 1/6W J 2.7K OHM	1	1	1
R061			CHIP RES.(1608) 1/10W J 22K OHM	1	1	1
R062			CARBON RES. 1/6W J 10K OHM	1	1	1
R063			CARBON RES. 1/4W J 1.2K OHM	1	1	1
R064			CARBON RES. 1/4W J 1.2K OHM	1	1	1
R065			CARBON RES. 1/4W J 1.2K OHM	1	1	1
R066			CHIP RES.(1608) 1/10W J 47K OHM	1	1	1
R067			CARBON RES. 1/4W J 680 OHM	1	1	1
R068			CARBON RES. 1/4W J 680 OHM	1	1	1
R071			CARBON RES. 1/6W J 3.9K OHM	1	1	1
R073			CARBON RES. 1/6W J 1 OHM	1	1	1
R158			CHIP RES.(1608) 1/10W J 6.8K OHM	1	1	1
R251			CHIP RES.(1608) 1/10W J 2.7K OHM	1	1	1
R252			CHIP RES.(1608) 1/10W J 39K OHM	1	1	1
R301			CHIP RES.(1608) 1/10W J 1.2K OHM	1	1	1
R302			CHIP RES.(1608) 1/10W J 8.2K OHM	1	1	1
R305			CHIP RES.(1608) 1/10W J 3.9K OHM	1	1	1
R307			CHIP RES.(1608) 1/10W J 4.7K OHM	1	1	1
R308			CHIP RES.(1608) 1/10W J 6.8K OHM	1	1	1
R309			CHIP RES.(1608) 1/10W J 100 OHM	1	1	1
R310			CHIP RES.(1608) 1/10W J 10K OHM	1	1	1
R311			CHIP RES.(1608) 1/10W J 18K OHM	1	1	1
R312			CHIP RES.(1608) 1/10W J 10K OHM	1	1	1
R313			CHIP RES.(1608) 1/10W J 18K OHM	1	1	1
R315			CHIP RES.(1608) 1/10W J 2.2K OHM	1	1	1
R316			CHIP RES.(1608) 1/10W J 6.8K OHM	1	1	1
R317			CHIP RES.(1608) 1/10W J 1.2K OHM	1	1	1
R318			CHIP RES.(1608) 1/10W J 4.7K OHM	1	1	1
R319			CHIP RES.(1608) 1/10W J 10K OHM	1	1	1
R320			CHIP RES.(1608) 1/10W J 1K OHM	1	1	1
R321			CARBON RES. 1/6W J 33 OHM	1	1	1
R323			CARBON RES. 1/6W J 33 OHM	1	1	1
R324			CHIP RES.(1608) 1/10W J 47K OHM	1	1	1
R325			CHIP RES.(1608) 1/10W J 33 OHM	1	1	1
R326			CHIP RES.(1608) 1/10W 0 OHM	1	1	1
R330			CHIP RES.(1608) 1/10W J 5.6M OHM	1	1	1
R331			CHIP RES.(1608) 1/10W J 10K OHM	1	1	1
R332			CHIP RES.(1608) 1/10W 0 OHM	1	1	1

ELECTRICAL PARTS LIST

Pos.	▲	12 NC	Description	VR550/02	VR550/07	VR550/16
R334			CHIP RES.(1608) 1/10W 0 OHM	1	1	1
R351			CHIP RES.(1608) 1/10W J 180 OHM	1	1	1
R352			CHIP RES.(1608) 1/10W J 150 OHM	1	1	1
R355			CARBON RES. 1/4W J 680 OHM	1	1	1
R357			CHIP RES.(1608) 1/10W J 220 OHM	1	1	1
R358			CHIP RES.(1608) 1/10W J 1.5K OHM	1	1	1
R360			CHIP RES.(1608) 1/10W J 1.8K OHM	1	1	1
R361			CHIP RES.(1608) 1/10W J 1K OHM	1	1	1
R401			CHIP RES.(1608) 1/10W J 5.6K OHM	1	1	1
R402			CHIP RES.(1608) 1/10W J 22K OHM	1	1	1
R403			CHIP RES.(1608) 1/10W J 47K OHM	1	1	1
R404			CARBON RES. 1/6W J 100 OHM	1	1	1
R407			CARBON RES. 1/4W J 820 OHM	1	1	1
R408			CHIP RES.(1608) 1/10W J 12K OHM	1	1	1
R409			CHIP RES.(1608) 1/10W J 5.6K OHM	1	1	1
R411			CHIP RES.(1608) 1/10W J 1K OHM	1	1	1
R412			CHIP RES.(1608) 1/10W J 27K OHM	1	1	1
R413			CHIP RES.(1608) 1/10W J 330K OHM	1	1	1
R414			CHIP RES.(1608) 1/10W J 120 OHM	1	1	1
R415			CHIP RES.(1608) 1/10W J 12K OHM	1	1	1
R416			CHIP RES.(1608) 1/10W J 1.8K OHM	1	1	1
R417			CHIP RES.(1608) 1/10W J 560 OHM	1	1	1
R418			CHIP RES.(1608) 1/10W 0 OHM	1	1	1
R421			CHIP RES.(1608) 1/10W J 12K OHM	1	1	1
R422			CHIP RES.(1608) 1/10W J 10K OHM	1	1	1
R425			CHIP RES.(1608) 1/10W J 5.6K OHM	1	1	1
R426			CHIP RES.(1608) 1/10W J 4.7K OHM	1	1	1
R429			CHIP RES.(1608) 1/10W J 2.2K OHM	1	1	1
R430			CHIP RES.(1608) 1/10W 0 OHM	1	1	1
R431			CHIP RES.(1608) 1/10W 0 OHM	1	1	1
R451			CHIP RES.(1608) 1/10W J 8.2K OHM	1	1	1
R452			CHIP RES.(1608) 1/10W J 39K OHM	1	1	1
R453			CHIP RES.(1608) 1/10W J 5.6K OHM	1	1	1
R454			CHIP RES.(1608) 1/10W J 39K OHM	1	1	1
R457			CHIP RES.(1608) 1/10W J 5.6K OHM	1	1	1
R458			CHIP RES.(1608) 1/10W 0 OHM	1	1	1
R459			CHIP RES.(1608) 1/10W J 39K OHM	1	1	1
R460			CHIP RES.(1608) 1/10W J 470 OHM	1	1	1
R461			CHIP RES.(1608) 1/10W J 10K OHM	1	1	1
R462			CHIP RES.(1608) 1/10W J 2.7K OHM	1	1	1
R463			CHIP RES.(1608) 1/10W J 8.2K OHM	1	1	1
R464			CHIP RES.(1608) 1/10W J 39K OHM	1	1	1
R465			CHIP RES.(1608) 1/10W J 8.2K OHM	1	1	1
R466			CHIP RES.(1608) 1/10W J 5.6K OHM	1	1	1
R467			CHIP RES.(1608) 1/10W 0 OHM	1	1	1
R469			CHIP RES.(1608) 1/10W J 5.6K OHM	1	1	1
R471			CHIP RES.(1608) 1/10W J 39K OHM	1	1	1
R472			CHIP RES.(1608) 1/10W J 150 OHM	1	1	1
R473			CHIP RES.(1608) 1/10W J 150 OHM	1	1	1
R474			CHIP RES.(1608) 1/10W J 39K OHM	1	1	1
R475			CHIP RES.(1608) 1/10W J 10K OHM	1	1	1
R476			CHIP RES.(1608) 1/10W J 33 OHM	1	1	1
R477			CHIP RES.(1608) 1/10W J 33 OHM	1	1	1
R478			CHIP RES.(1608) 1/10W J 22K OHM	1	1	1
R479			CHIP RES.(1608) 1/10W J 6.8K OHM	1	1	1
R480			CHIP RES.(1608) 1/10W J 100 OHM	1	1	1
R481			CHIP RES.(1608) 1/10W J 100 OHM	1	1	1
R501			CHIP RES.(1608) 1/10W J 1K OHM	1	1	1
R502			CHIP RES.(1608) 1/10W J 1K OHM	1	1	1
R503			CHIP RES.(1608) 1/10W J 1K OHM	1	1	1
R504			CHIP RES.(1608) 1/10W J 10K OHM	1	1	1
R505			CHIP RES.(1608) 1/10W J 10K OHM	1	1	1
R506			CHIP RES.(1608) 1/10W J 10K OHM	1	1	1
R509			CHIP RES.(1608) 1/10W J 4.7K OHM	1	1	1
R510			CHIP RES.(1608) 1/10W J 10K OHM	1	1	1

ELECTRICAL PARTS LIST

Pos.	▲	12 NC	Description	VR550/02	VR550/07	VR550/16
R511			CHIP RES.(1608) 1/10W J 100K OHM	1	1	1
R513			CHIP RES.(1608) 1/10W J 2.2K OHM	1	1	1
R514			CHIP RES.(1608) 1/10W J 820 OHM	1	1	1
R516			CHIP RES.(1608) 1/10W J 330K OHM	1	1	1
R517			CHIP RES.(1608) 1/10W J 560 OHM	1	1	1
R518			CHIP RES.(1608) 1/10W J 470 OHM	1	1	1
R520			CHIP RES.(1608) 1/10W J 10K OHM	1	1	1
R521			CHIP RES.(1608) 1/10W J 220K OHM	1	1	1
R522			CHIP RES.(1608) 1/10W J 39K OHM	1	1	1
R523			CHIP RES.(1608) 1/10W J 10K OHM	1	1	1
R524			CHIP RES.(1608) 1/10W J 5.6K OHM	1	1	1
R525			CHIP RES.(1608) 1/10W J 1.5K OHM	1	1	1
R526			CHIP RES.(1608) 1/10W J 1.8K OHM	1	1	1
R527			CHIP RES.(1608) 1/10W J 680 OHM	1	1	1
R528			CHIP RES.(1608) 1/10W J 18K OHM	1	1	1
R529			CARBON RES. 1/4W J 270 OHM	1	1	1
R530			CHIP RES.(1608) 1/10W J 180 OHM	1	1	1
R531			CHIP RES.(1608) 1/10W J 68K OHM	1	1	1
R533			CHIP RES.(1608) 1/10W J 33K OHM	1	1	1
R534			CARBON RES. 1/6W G 3.6K OHM	1	1	1
R535			CARBON RES. 1/6W G 10K OHM	1	1	1
R536			CARBON RES. 1/6W G 470 OHM	1	1	1
R537			CARBON RES. 1/6W G 22K OHM	1	1	1
R538			CARBON RES. 1/6W G 1.5K OHM	1	1	1
R539			CARBON RES. 1/6W G 4.7K OHM	1	1	1
R540			CHIP RES.(1608) 1/10W J 390K OHM	1	1	1
R541			CHIP RES.(1608) 1/10W J 390K OHM	1	1	1
R542			CHIP RES.(1608) 1/10W J 1.8K OHM	1	1	1
R543			CHIP RES.(1608) 1/10W J 1K OHM	1	1	1
R544			CHIP RES.(1608) 1/10W J 2.7K OHM	1	1	1
R545			CHIP RES.(1608) 1/10W J 2.2K OHM	1	1	1
R546			CHIP RES.(1608) 1/10W J 12K OHM	1	1	1
R547			CHIP RES.(1608) 1/10W J 1.8K OHM	1	1	1
R548			CHIP RES.(1608) 1/10W J 1K OHM	1	1	1
R549			CHIP RES.(1608) 1/10W J 1.2K OHM	1	1	1
R551			CHIP RES.(1608) 1/10W J 100 OHM	1	1	1
R552			CHIP RES.(1608) 1/10W J 10K OHM	1	1	1
R556			CHIP RES.(1608) 1/10W J 10K OHM	1	1	1
R557			CHIP RES.(1608) 1/10W J 10K OHM	1		1
R558			CHIP RES.(1608) 1/10W J 10K OHM		1	
R566			CHIP RES.(1608) 1/10W J 56K OHM	1	1	1
R615			CHIP RES.(1608) 1/10W J 10K OHM	1	1	1
R621			CHIP RES.(1608) 1/10W J 10K OHM	1	1	1
R622			CHIP RES.(1608) 1/10W J 10K OHM	1	1	1
R701			CARBON RES. 1/6W J 1.8K OHM	1	1	1
R702			CARBON RES. 1/6W J 1K OHM	1	1	1
R703			CARBON RES. 1/6W J 1K OHM	1	1	1
R706			CHIP RES.(1608) 1/10W J 1K OHM	1	1	1
R707			CHIP RES.(1608) 1/10W 0 OHM	1	1	1
R771			CHIP RES.(1608) 1/10W J 4.7K OHM	1	1	1
R772			CHIP RES.(1608) 1/10W J 100K OHM	1	1	1
R773			CHIP RES.(1608) 1/10W J 4.7K OHM	1	1	1
R774			CHIP RES.(1608) 1/10W J 22K OHM	1	1	1
R775			CHIP RES.(1608) 1/10W J 15K OHM	1	1	1
R776			CHIP RES.(1608) 1/10W J 8.2K OHM	1	1	1
R777			CHIP RES.(1608) 1/10W J 8.2K OHM	1	1	1
R778			CHIP RES.(1608) 1/10W J 33K OHM	1	1	1
R779			CHIP RES.(1608) 1/10W J 33K OHM	1	1	1
R780			CHIP RES.(1608) 1/10W J 33K OHM	1	1	1
R781			CHIP RES.(1608) 1/10W J 15K OHM	1	1	1
R782			CHIP RES.(1608) 1/10W J 33K OHM	1	1	1
R783			CHIP RES.(1608) 1/10W J 15K OHM	1	1	1
R784			CHIP RES.(1608) 1/10W J 10M OHM	1	1	1
R785			CHIP RES.(1608) 1/10W J 10M OHM	1	1	1
R786			CHIP RES.(1608) 1/10W J 2.2K OHM	1	1	1

ELECTRICAL PARTS LIST

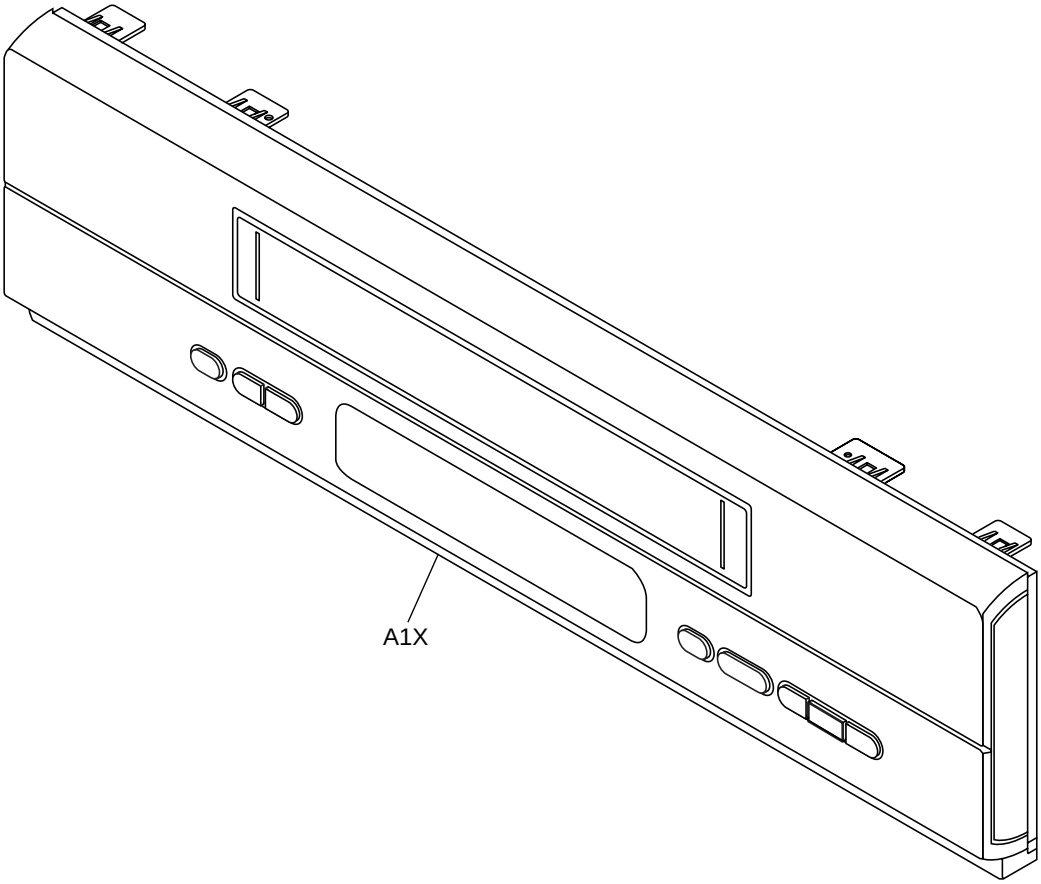
Pos.	▲	12 NC	Description	VR550/02	VR550/07	VR550/16
R787			CHIP RES.(1608) 1/10W J 2.2K OHM	1	1	1
R851			CHIP RES.(1608) 1/10W J 1.5K OHM	1	1	1
R852			CHIP RES.(1608) 1/10W J 1K OHM	1	1	1
R853			CHIP RES.(1608) 1/10W J 1K OHM	1	1	1
RS501		9965 000 12191	REMOTE RECEIVER MIM-93M9DKF	1	1	1
SA001	▲	9965 000 08602	SURGE ABSORBER CNR-10D471K	1	1	1
			SWITCHES			
SW501		4822 276 13954	TACT SWITCH KSM0614B	1	1	1
SW502		4822 276 13954	TACT SWITCH KSM0614B	1	1	1
SW503		4822 276 13954	TACT SWITCH KSM0614B	1	1	1
SW505		4822 276 13954	TACT SWITCH KSM0614B	1	1	1
SW506		9965 000 16625	LEAF SWITCH MXS01830MVP0	1	1	1
SW507		9965 000 23359	ROTARY MODE SWITCH SSS-53MD	1	1	1
SW509		4822 276 13954	TACT SWITCH KSM0614B	1	1	1
SW510		4822 276 13954	TACT SWITCH KSM0614B	1	1	1
SW511		4822 276 13954	TACT SWITCH KSM0614B	1	1	1
SW512		4822 276 13954	TACT SWITCH KSM0614B	1	1	1
T001	▲	9965 000 23360	SWITCHING TRANSFORMER 3733-S01	1	1	1
TP301			PCB JUMPER D0.6-P10.0	1	1	1
TP501			PCB JUMPER D0.6-P6.0	1	1	1
TP502			PCB JUMPER D0.6-P5.0	1	1	1
TP506			PCB JUMPER D0.6-P5.0	1	1	1
TP507			PCB JUMPER D0.6-P6.0	1	1	1
TU701		9965 000 23361	TUNER UNIT TMDG2-661A	1		1
TU701		9965 000 23386	TUNER UNIT TMDG2-662A		1	
VR501		9965 000 05260	CARBON P.O.T. 100K OHM B	1	1	1
X301		9965 000 05629	X'TAL 4.433619MHZ	1	1	1
X501		9965 000 12194	X'TAL 12.000MHZ	1	1	1
X502		9965 000 12288	X'TAL 32.768KHZ(20PPM)	1	1	1
			JACK CBA (MCV-C)			
2L022		4822 502 30752	SCREW, P-TIGHT M3X10 WASHER HEAD+	1	1	1
A5		9965 000 16629	JACK BOARD(2-21P) HE470ED	1	1	1
			CAPACITORS			
C101			CHIP CERAMIC CAP. B K 2200PF/50V	1	1	1
C102			CHIP CERAMIC CAP. B K 2200PF/50V	1	1	1
C103			CHIP CERAMIC CAP.(1608) CH J 470PF/50V	1	1	1
C104			CHIP CERAMIC CAP.(1608) CH J 470PF/50V	1	1	1
C105			CHIP CERAMIC CAP.(1608) F Z 0.1UF/50V	1	1	1
C107			ELECTROLYTIC CAP. 1UF/50V M H7	1	1	1
C108			CHIP CERAMIC CAP. B K 1000PF/50V	1	1	1
C109			CHIP CERAMIC CAP. B K 2200PF/50V	1	1	1
C110			CHIP CERAMIC CAP. B K 2200PF/50V	1	1	1
C111			CHIP CERAMIC CAP.(1608) CH J 470PF/50V	1	1	1
C112			CHIP CERAMIC CAP.(1608) CH J 470PF/50V	1	1	1
C113			CHIP CERAMIC CAP. B K 2200PF/50V	1	1	1
C115			ELECTROLYTIC CAP. 100UF/16V M H7	1	1	1
C116			ELECTROLYTIC CAP. 470UF/6.3V M	1	1	1
C117			ELECTROLYTIC CAP. 470UF/6.3V M	1	1	1
			DIODES			
D101		9965 000 12178	ZENER DIODE DZ-11BSAT265	1	1	1
D102		9965 000 12178	ZENER DIODE DZ-11BSAT265	1	1	1
D103		9965 000 12178	ZENER DIODE DZ-11BSAT265	1	1	1
D104		9965 000 12178	ZENER DIODE DZ-11BSAT265	1	1	1
D105		9965 000 12178	ZENER DIODE DZ-11BSAT265	1	1	1
D106		9965 000 12178	ZENER DIODE DZ-11BSAT265	1	1	1
			CONNECTORS			
JK101		9965 000 12197	RGB CONNECTOR MRC-021V-01	1	1	1
JK102		9965 000 12197	RGB CONNECTOR MRC-021V-01	1	1	1
			COILS			
L101		4822 526 10685	BEAD CORE B16 RH 3.5X10X1.3	1	1	1
L102		4822 526 10685	BEAD CORE B16 RH 3.5X10X1.3	1	1	1
			TRANSISTORS			
Q101		4822 130 42959	TRANSISTOR KTA1266(GR)	1	1	1
Q102		4822 130 42959	TRANSISTOR KTA1266(GR)	1	1	1
			RESISTORS			

ELECTRICAL PARTS LIST

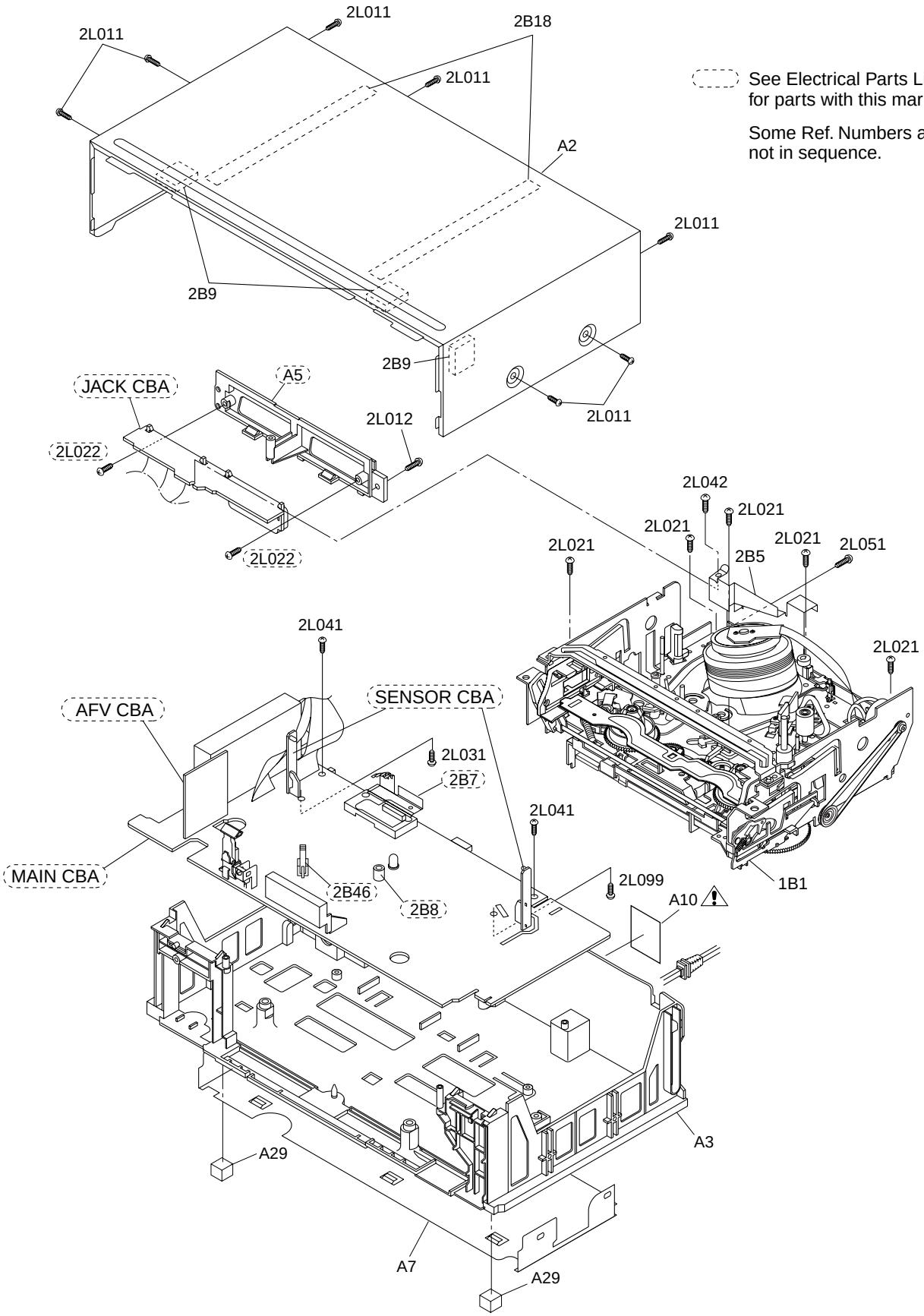
Pos.	▲	12 NC	Description	VR550/02	VR550/07	VR550/16
R101			CARBON RES. 1/4W J 820 OHM	1	1	1
R103			CARBON RES. 1/4W J 820 OHM	1	1	1
R104			CARBON RES. 1/6W J 4.7K OHM	1	1	1
R106			CARBON RES. 1/6W J 4.7K OHM	1	1	1
R108			CARBON RES. 1/4W J 68 OHM	1	1	1
R109			CHIP RES.(1608) 1/10W J 75 OHM	1	1	1
R110			CARBON RES. 1/4W J 820 OHM	1	1	1
R112			CARBON RES. 1/4W J 820 OHM	1	1	1
R113			CARBON RES. 1/6W J 4.7K OHM	1	1	1
R115			CARBON RES. 1/6W J 4.7K OHM	1	1	1
R116			CARBON RES. 1/6W J 15K OHM	1	1	1
R117			CHIP RES.(1608) 1/10W J 10K OHM	1	1	1
R118			CARBON RES. 1/4W J 68 OHM	1	1	1
R119			CHIP RES.(1608) 1/10W J 75 OHM	1	1	1
R120			CARBON RES. 1/6W J 680 OHM	1	1	1
R123			CHIP RES.(1608) 1/10W J 220 OHM	1	1	1
R125			CARBON RES. 1/6W J 680 OHM	1	1	1
R126			CHIP RES.(1608) 1/10W J 220 OHM	1	1	1
R127			CHIP RES.(1608) 1/10W 0 OHM	1	1	1
R128			CHIP RES.(1608) 1/10W 0 OHM	1	1	1
			SENSOR CBA			
Q504		9965 000 08630	PHOTO TRANSISTOR PT204-6B-12	1	1	1
Q505		9965 000 08630	PHOTO TRANSISTOR PT204-6B-12	1	1	1
			AFV CBA			
			CAPACITORS			
C1			CHIP CERAMIC CAP.(1608) F Z 0.1UF/50V	1	1	1
C4			CHIP CERAMIC CAP. CH J 56PF/50V	1	1	1
C5			CHIP CERAMIC CAP.(1608) CH J 22PF/50V	1	1	1
C6			CHIP CERAMIC CAP. CH J 56PF/50V	1	1	1
C7			CHIP CERAMIC CAP. CH C 3PF/50V	1	1	1
C8			CHIP CERAMIC CAP. CH C 3PF/50V	1	1	1
C11			CHIP CERAMIC CAP.(1608) B K 0.01UF/50V	1	1	1
C12			ELECTROLYTIC CAP. 10UF/16V M H7	1	1	1
C13			CHIP CERAMIC CAP.(1608) B K 0.01UF/50V	1	1	1
C14			CHIP CERAMIC CAP.(1608) B K 0.01UF/50V	1	1	1
C15			ELECTROLYTIC CAP. 10UF/16V M H7	1	1	1
C16			ELECTROLYTIC CAP. 10UF/16V M H7	1	1	1
C17			CHIP CERAMIC CAP.(1608) F Z 0.1UF/50V	1	1	1
C19			CHIP CERAMIC CAP.(1608) F Z 0.1UF/50V	1	1	1
C20			ELECTROLYTIC CAP. 3.3UF/50V M H7	1	1	1
C21			CHIP CERAMIC CAP.(1608) F Z 0.1UF/50V	1	1	1
C22			ELECTROLYTIC CAP. 10UF/16V M H7	1	1	1
C24			ELECTROLYTIC CAP. 0.22UF/50V M H7	1	1	1
			CONNECTORS			
CN1		4822 265 11267	ANGLE PIN HEADER, 9P 6029B-1-09Z003-T	1	1	1
			DIODES			
D2		4822 130 30621	SWITCHING DIODE 1N4148M	1	1	1
			IC's			
IC1		9965 000 12274	IC:AUDIO PROCESSOR MSP3407G-QG-B8	1		
IC1		9965 000 12199	IC:AUDIO PROCESSOR MSP3417G-QG-B8		1	1
			COILS			
L1		4822 157 10889	INDUCTOR 10UH-K-26T	1	1	1
L2		4822 157 10332	PCB JUMPER D0.6-P5.0	1	1	1
L3		4822 157 11318	INDUCTOR 18UH-K-26T	1	1	1
L4		4822 157 10889	INDUCTOR 10UH-K-26T	1	1	1
			RESISTORS			
R1		9965 000 13036	CHIP RES.(1608) 1/10W J 1K OHM	1	1	1
R4		9965 000 13037	CHIP RES.(1608) 1/10W J 120K OHM	1	1	1
R5		9965 000 09942	CHIP RES.(1608) 1/10W 0 OHM	1	1	1
X1		9965 000 12200	X'TAL 18.432MHZ	1	1	1

EXPLODED VIEWS

Front Panel



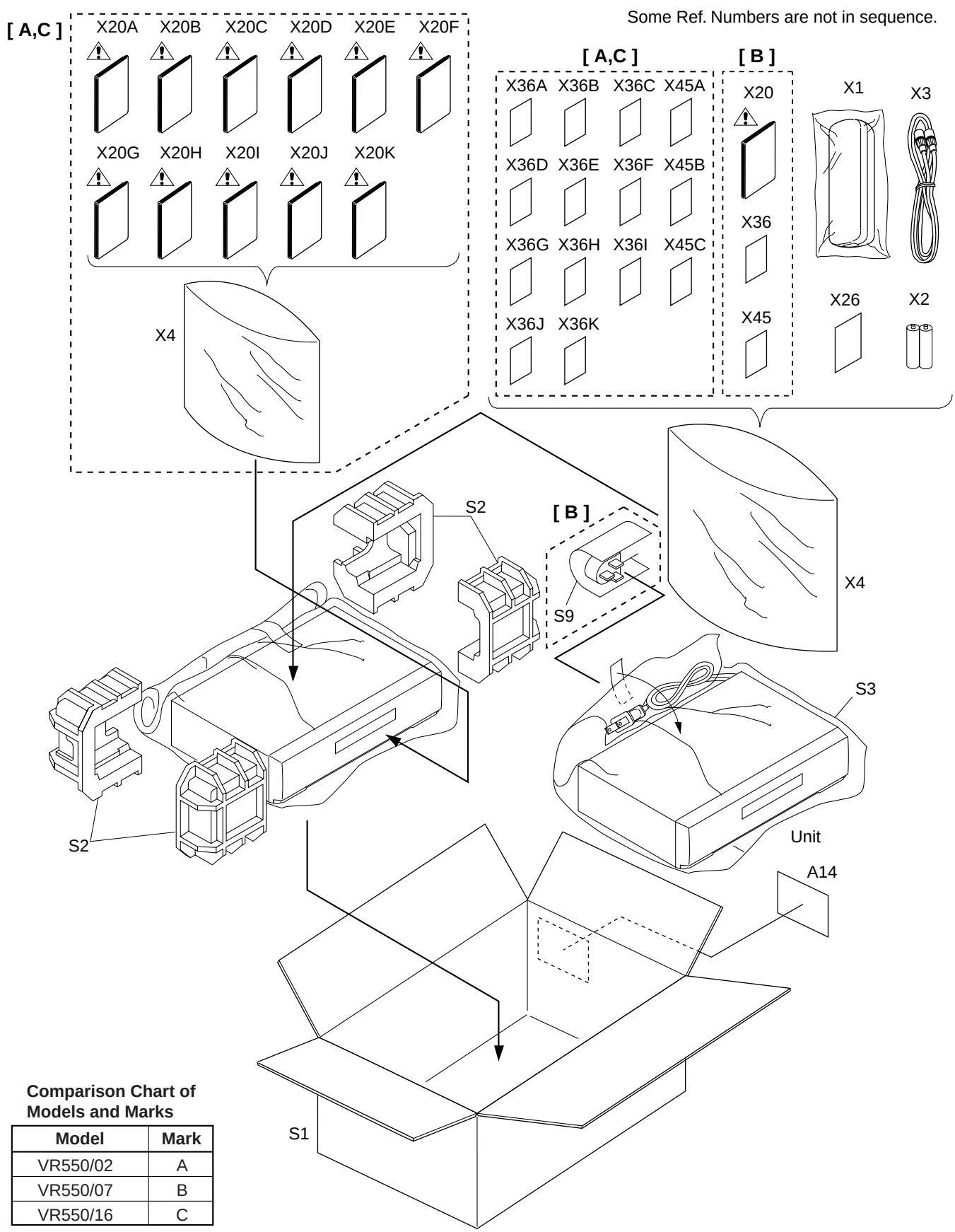
Cabinet



See Electrical Parts List for parts with this mark.

Some Ref. Numbers are not in sequence.

Packing



Comparison Chart of Models and Marks

Model	Mark
VR550/02	A
VR550/07	B
VR550/16	C

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.

MECHANICAL PARTS LIST				VR550/02	VR550/07	VR550/16
Pos.	**▲**	**12 NC**	**Description**			
A1X		9965 000 23350	FRONT ASSEMBLY HG470ED	1		
A1X		9965 000 23388	FRONT ASSEMBLY HG471BD		1	1
A2		9965 000 16612	CASE, TOP HE470ED	1	1	1
A3		9965 000 16613	CHASSIS HE470ED	1	1	1
A7		9965 000 16614	PANEL, BOTTOM HE470ED	1	1	1
A10	▲		LABEL, RATING HG470ED	1		
A10	▲		LABEL, RATING HG471BD		1	
A10	▲		LABEL, RATING HG472ED			1
A14			LABEL, BAR CODE HG470ED	1		
A14			LABEL, BAR CODE HG471BD		1	
A14			LABEL, BAR CODE HG472ED			1
A29			CHASSIS FOOT H79P9JD	1	1	1
1B1			DECK ASSEMBLY CZD013/VM23ED	1	1	1
2B5		9965 000 23351	SHEILD, CYLINDER HG470ED	1	1	1
2B9			CUSHION HC460ED	1	1	1
2B18		9965 000 12400	FIBER, TOP CASE HC460ED	1	1	1
2L011		9965 000 16615	SCREW, P-TIGHT 3X10 BIND HEAD+	1	1	1
2L012		9965 000 16615	SCREW, P-TIGHT 3X10 BIND HEAD+	1	1	1
2L021		4822 502 30752	SCREW, P-TIGHT M3X10 WASHER HEAD+	1	1	1
2L031		4822 502 14009	SCREW, S-TIGHT M3X6 BIND HEAD+	1	1	1
2L041		4822 502 14012	P-TIGHT SCREW 3X8 BIND +	1	1	1
2L042		4822 502 14012	P-TIGHT SCREW 3X8 BIND +	1	1	1
2L051		4822 502 14018	SCREW, S-TIGHT M3X5 BIND HEAD+	1	1	1
2L099		9965 000 13027	SCREW, P-TIGHT M3X8 BIND HEAD+	1	1	1
			PACKING			
S1			GIFT BOX CARTON HG470ED	1		1
S1			GIFT BOX CARTON HG471BD		1	
S2			STYROFOAM HE470ED	1		1
S2			STYROFOAM(U27UK) HE471BD		1	
S3			UNIT, BAG V4010PA	1	1	1
S9			AC PAD HC461BD		1	
X1		9965 000 23352	REMOTE CONTROL UNIT 364/CZF29UU	1	1	1
X3		4822 320 50377	RF CORD PAL 1.2M	1	1	1
X4			ACCESSORY BAG K8092BA	1	1	1

DECK MECHANISM SECTION

VIDEO CASSETTE RECORDER

Sec. 2: Deck Mechanism Section

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

TABLE OF CONTENTS

STANDARD MAINTENANCE

Service Schedule of Components

H: Hours ○: Check ●: Change

Deck		Periodic Service Schedule			
Ref.No.	**Part Name**	**1,000 H**	**2,000 H**	**3,000 H**	**4,000 H**
B2	Cylinder Assembly	○	●	○	●
B3	Loading Motor Assembly			●	
B8	Pulley Assembly		●		●
B587	Tension Lever Assembly		●		●
B31	ACE Head Assembly			●	
B573, B574	Reel S, Reel T			●	
B37	Capstan Motor		●		●
B52	Cap Belt		●		●
*B73	FE Head			●	
*B86	F Brake Assembly (HI)		●		●
B133	Idler Assembly (HI)		●		●
B410	Pinch Arm Assembly		●		●
B414	M Brake (SP) Assembly (HI)		●		●
B416	M Brake (TU) Assembly (HI)		●		●
B525	LDG Belt		●		●

Notes:

1. Clean all parts for the tape transport (Upper Drum with Video Head / Pinch Roller / ACE Head / FE Head) using 90% lsopropyl Alcohol.
2. After cleaning the parts, do all DECK ADJUSTMENTS.
3. For the reference numbers listed above, refer to Deck Exploded Views.
   * B73 ------ Recording model only
   * B86 ------ Not used in 2 head model.

Cleaning

Cleaning of Video Head

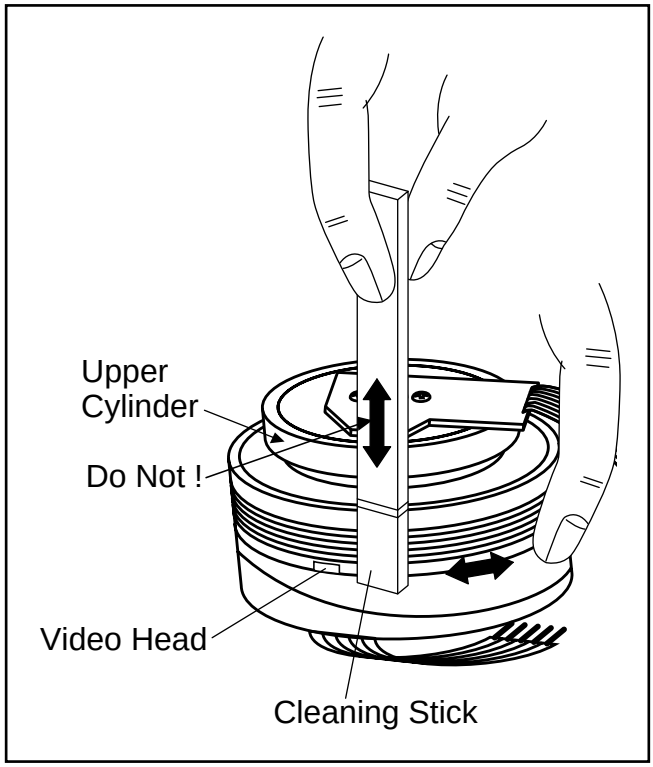
Clean the head with a head cleaning stick or chamois cloth.

Procedure

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

Notes:

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



Cleaning of ACE Head

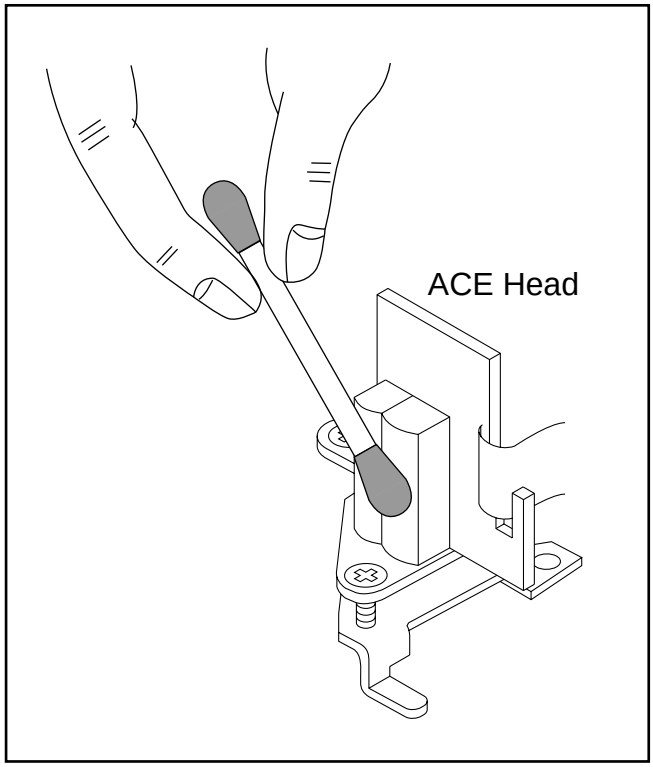
Clean the head with a cotton swab.

Procedure

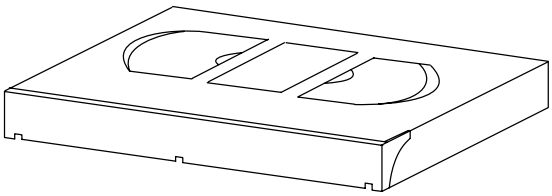
1. Remove the top cabinet.
2. Dip the cotton swab in 90% isopropyl alcohol and clean the ACE Head. Be careful not to damage the upper drum and other tape running parts.

Notes:

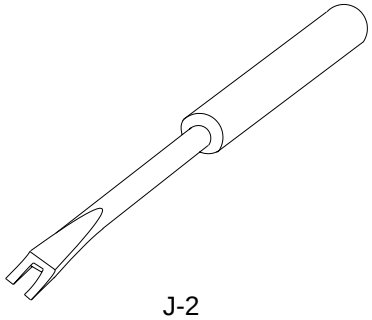
1. Avoid cleaning the ACE Head vertically.
2. Wait for the cleaned part to dry thoroughly before operating the unit or damage may occur.



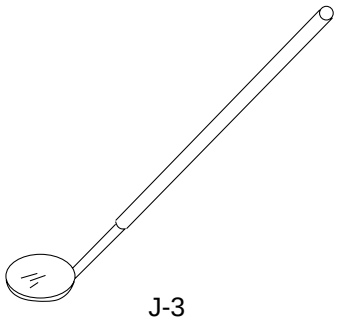
SERVICE FIXTURE AND TOOLS



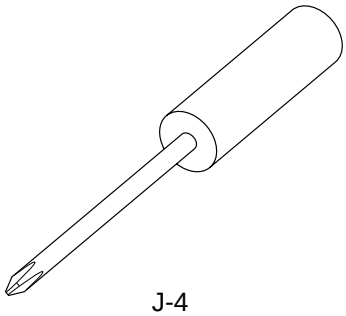
J-1-1, J-1-2



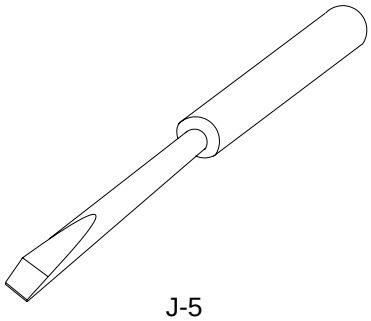
J-2



J-3



J-4



J-5

Ref. No.	Name	Part No.	Adjustment
J-1-1	Alignment Tape	9965 000 14514	Head Adjustment of ACE Head
J-1-2	Alignment Tape	9965 000 14516 (2 Head model) 9965 000 14515 (4 Head model)	Azimuth and X Value Adjustment of ACE Head / Adjustment of Envelope Waveform
J-2	Guide Roller Adj. Screwdriver	Available Locally	Guide Roller
J-3	Mirror	Available Locally	Tape Transportation Check
J-4	Azimuth Adj. Screwdriver +	Available Locally	ACE Head Height
J-5	Flat Screwdriver -	Available Locally	X Value

MECHANICAL ALIGNMENT PROCEDURES

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

Service Information

A. Method for Manual Tape Loading/Unloading

To load a cassette tape manually:

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

To unload a cassette tape manually:

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

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

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

Top View

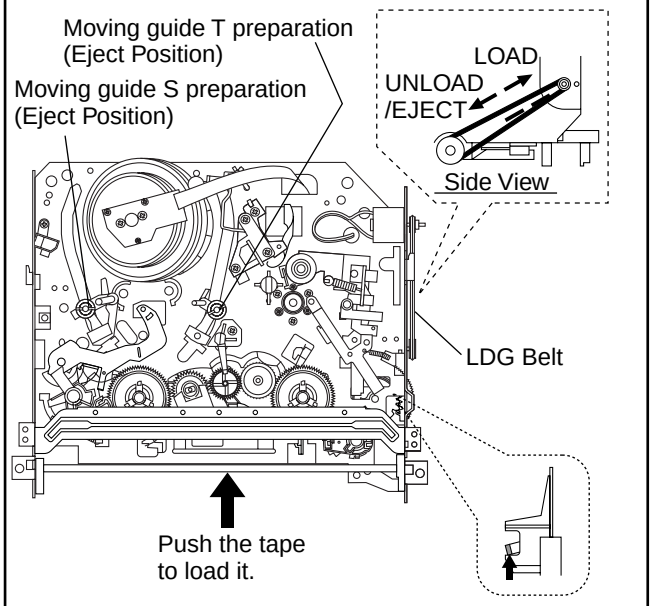


Fig. M1

Bottom View

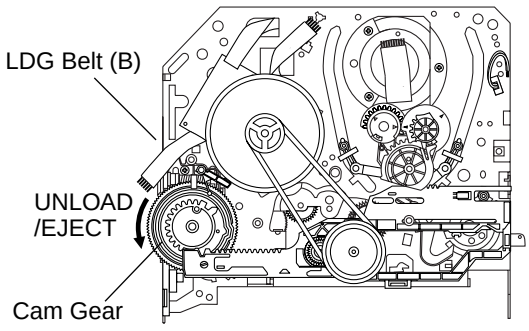


Fig. M2

1. Tape Interchangeability Alignment

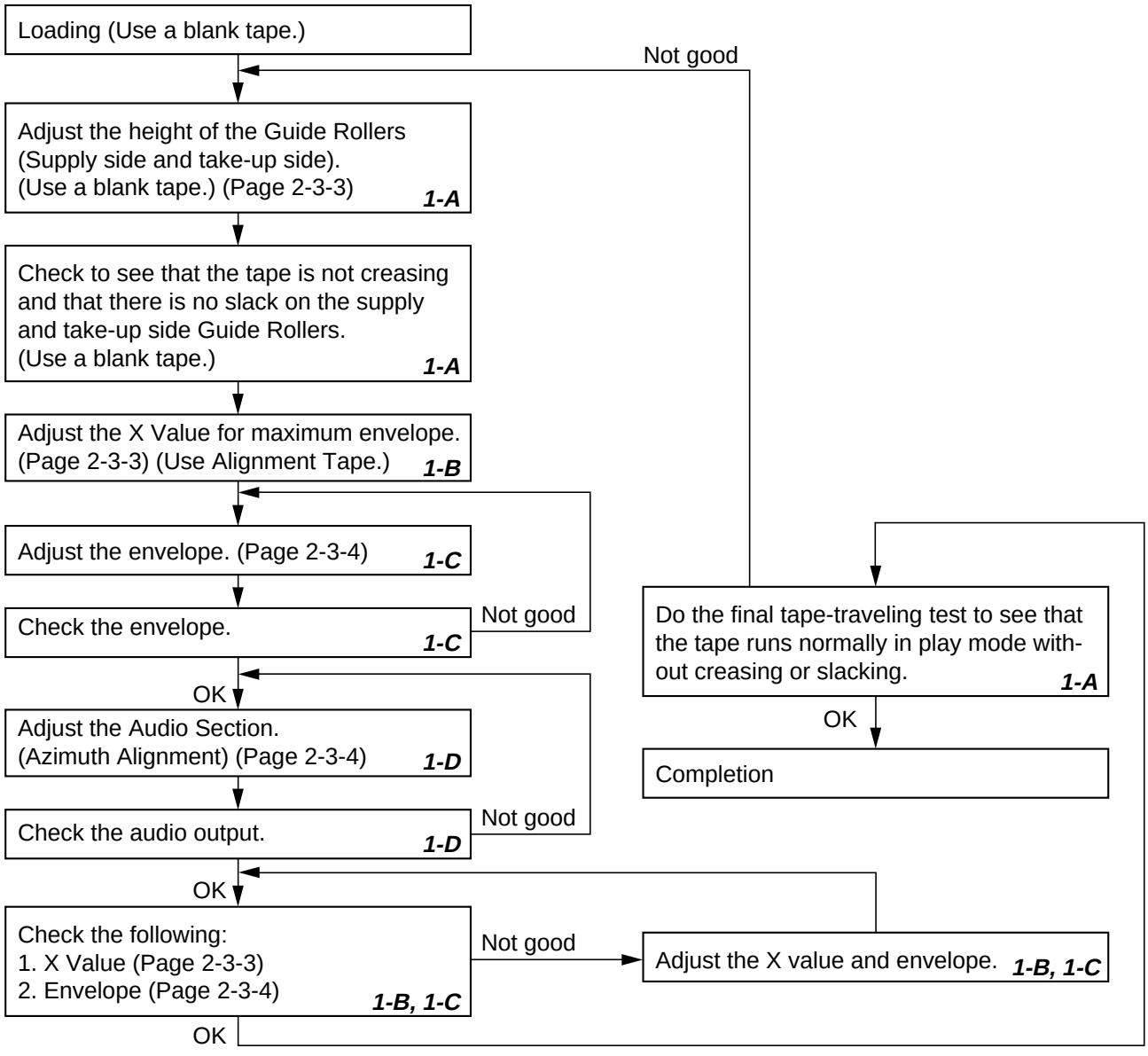
Note:
To do these alignment procedures, make sure that the Tracking Control Circuit is set to the preset position every time a tape is loaded or unloaded. (Refer to page 2-3-4, procedure 1-C, step 2.)

Equipment required:

Dual Trace Oscilloscope
VHS Alignment Tape (9965 000 14515)
Guide Roller Adj. Screwdriver
Flat Screwdriver (Purchase Locally)

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

Flowchart of Alignment for tape traveling



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

Purpose:

To make sure that the tape path is well stabilized.

Symptom of Misalignment:

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

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

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

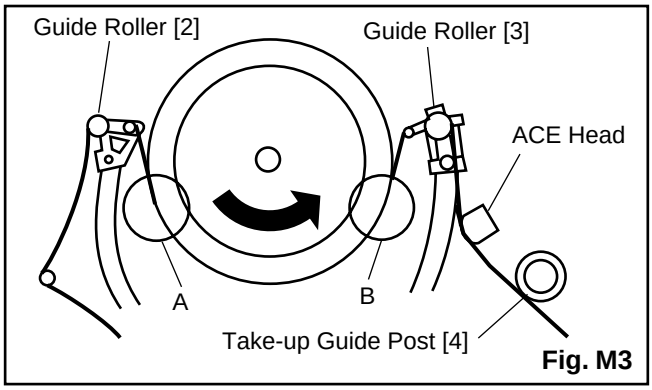


Fig. M3

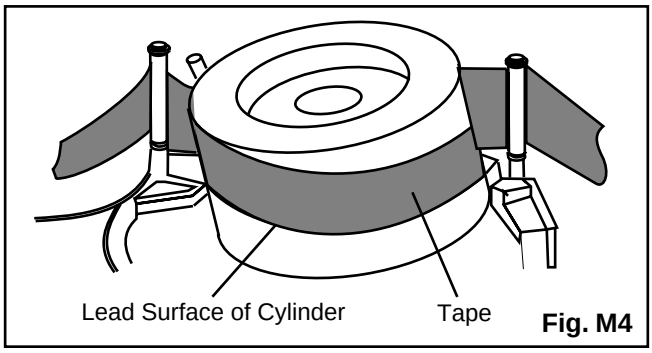


Fig. M4

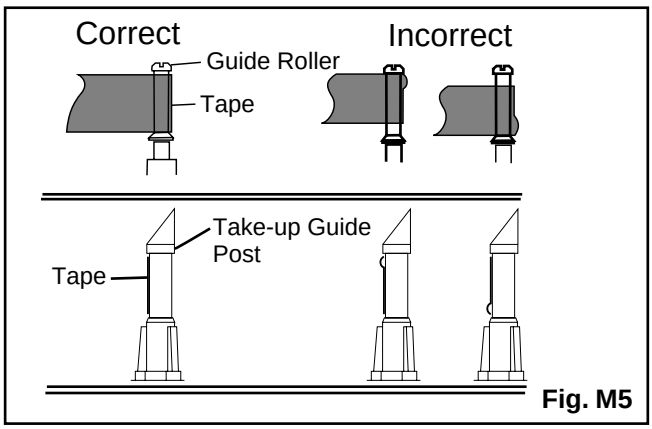


Fig. M5

3. Check to see that the tape runs without creasing at Take-up Guide Post [4] or without snaking between Guide Roller [3] and ACE Head. (Fig. M3 and M5)
4. If creasing or snaking is apparent, adjust the Tilt Adj. Screw of the ACE Head. (Fig. M6)

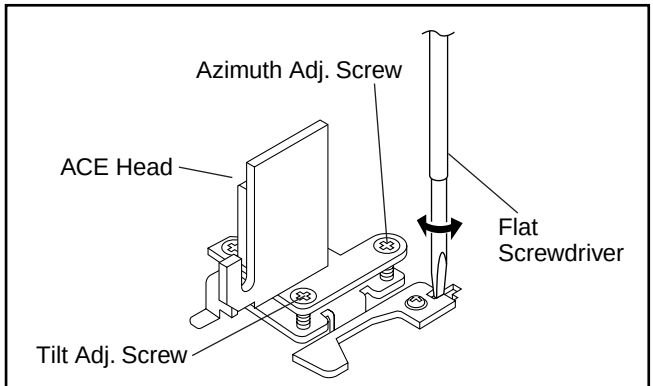


Fig. M6

1-B. X Value Alignment

Purpose:

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

Symptom of Misalignment:

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

1. Connect the oscilloscope to TP301 (C-PB) and TP501 (CTL) on the Main CBA. Use TP502 (RF-SW) as a trigger.
2. Playback the Gray Scale of the Alignment Tape (9965 000 14515) and confirm that the PB FM signal is present.
3. Set the Tracking Control Circuit to the preset position by pressing CH UP button on the remote control unit then “PLAY” button on the unit. (Refer to note on bottom of page 2-3-4.)
4. Use the Flat Screwdriver so that the PB FM signal at TP301 (C-PB) is maximum. (Fig. M6)

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

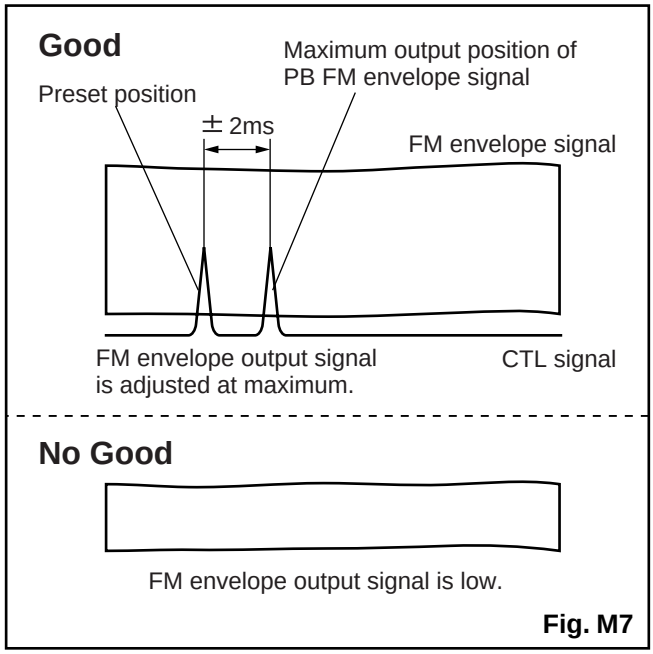


Fig. M7

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

1-C. Checking/Adjustment of Envelope Waveform

Purpose:

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

Symptom of Misalignment:

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

1. Connect the oscilloscope to TP301 (C-PB) on the Main CBA. Use TP502 (RF-SW) as a trigger.
2. Playback the Gray Scale on the Alignment Tape (9965 000 14515). Set the Tracking Control Circuit to the preset position by pressing CH UP button and then “PLAY” button on the unit. Adjust the height of Guide Rollers [2] and [3] (Fig. M3, Page 2-3-3) watching the oscilloscope display so that the envelope becomes as flat as possible. To do this adjustment, turn the top of the Guide Roller with the Guide Roller Adj. Screwdriver.
3. If the envelope is as shown in Fig. M7, adjust the height of Guide Roller [2] (Refer to Fig. M3) so that the waveform looks like the one shown in Fig. M9.
4. If the envelope is as shown in Fig. M8, adjust the height of Guide Roller [3] (Refer to Fig. M3) so that the waveform looks like the one shown in Fig. M9.
5. When Guide Rollers [2] and [3] (Refer to Fig. M3) are aligned properly, there is no envelope drop either at the beginning or end of track as shown in Fig. M9.

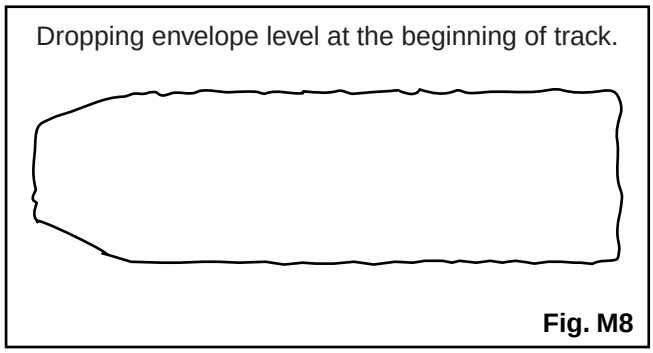


Fig. M8

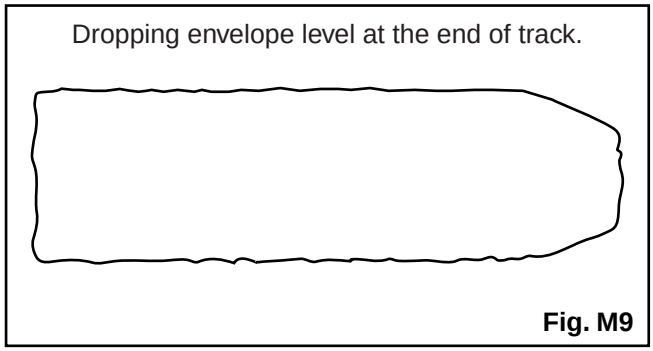


Fig. M9

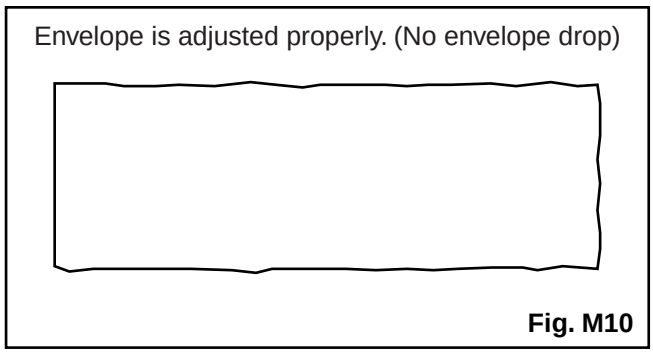


Fig. M10

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

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

Purpose:

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

Symptom of Misalignment:

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

1. Connect the oscilloscope to the audio output jack on the rear side of the deck.
2. Playback the alignment tape (9965 000 14515) and confirm that the audio signal output level is 6kHz.
3. Adjust Azimuth Adj. Screw so that the output level on the AC Voltmeter or the waveform on the oscilloscope is at maximum. (Fig. M6)

DISASSEMBLY/ASSEMBLY PROCEDURES OF DECK MECHANISM

Before following the procedures described below, be sure to remove the deck assembly from the cabinet. (Refer to CABINET DISASSEMBLY INSTRUCTIONS on page 1-7-1.)
All the following procedures, including those for adjustment and replacement of parts, should be done in Eject mode; see the positions of [44] and [45] in Fig. DM1H on page 2-4-3. When reassembling, follow the steps in reverse order.

STEP /LOC. No.	START-ING No.	PART		REMOVAL		INSTALLATION
				Fig. No.	REMOVE/*UNHOOK/ UNLOCK/RELEASE/ UNPLUG/DESOLDER	ADJUSTMENT CONDITION
[1]	[1]	Guide Holder A	T	DM3H	2(S-1)	
[2]	[1]	Cassette Holder Assembly	T	DM4H		
[3]	[2]	Slider (SP)	T	DM5H	(S-1A), *(L-1)	
[4]	[2]	Slider (TU)	T	DM5H	*(L-2)	
[5]	[4]	Lock Lever	T	DM5H	*(L-3), *(P-1)	
[6]	[2]	Cassette Plate	T	DM5H		
[7]	[7]	Cylinder Assembly	T	DM1H, DM6H	Desolder, 3(S-2)	
[8]	[8]	Loading Motor Assembly	T	DM1H, DM7H	Desolder, LDG Belt, 2(S-3)	
[9]	[9]	ACE Head Assembly	T	DM1H, DM7H	(S-4)	
[10]	[2]	Tape Guide Arm Assembly	T	DM1H, DM8H-1	*(P-2)	
[11]	[10]	C Door Opener	T	DM1H, DM8H-1	(S-4A), *(L-4)	
[12]	[11]	Pinch Arm (B)	T	DM1H, DM8H-1, DM8H-2	*(P-3)	
[13]	[12]	Pinch Arm (A) Assembly	T	DM1H, DM8H-1, DM8H-2		
[14]	[14]	FE Head	T	DM1H, DM9H	(S-5)	
[15]	[15]	Prism	T	DM1H, DM9H	(S-6)	
[16]	[2]	Slider Shaft	T	DM10H	*(L-5)	
[17]	[16]	C Drive Lever (SP)	T	DM10H		
[18]	[16]	C Drive Lever (TU)	T	DM10H	(S-7), *(P-4)	
[19]	[19]	Capstan Motor	B	DM2H, DM11H	3(S-8), Cap Belt	
[20]	[20]	Clutch Assembly (HI)	B	DM2H, DM12H	(C-1)	
[21]	[20]	Center Gear	B	DM12H		
*[22]	[22]	F Brake Assembly (HI)	B	DM2H, DM12H	*(L-6)	
[23]	[22]	Worm Holder	B	DM2H, DM13H-1	(S-9), *(L-7), *(L-8)	
[24]	[22]	Pulley Assembly (HI)	B	DM2H, DM13H-1		
[25]	[25]	Mode Gear (LM)	B	DM2H, DM13H-1	(C-2)	
[26]	[20],[25]	Mode Lever (HI)	B	DM2H, DM13H-1, DM13H-2	(C-3)	
[27]	[22],[23], [26]	Cam Gear (A) (HI)	B	DM2H, DM13H-1, DM13H-2	(C-4)	(+)Refer to Alignment Sec.Page 2-5-1
[28]	[26]	TR Gear C	B	DM2H, DM13H-1	(C-5)	
[29]	[28]	TR Gear Spring	B	DM13H-1		
[30]	[29]	TR Gear A/B	B	DM13H-1		
[31]	[31]	FF Arm (HI)	B	DM1H, DM13H		
[32]	[26]	Idler Assembly (HI)	B	DM1H, DM14H	*(L-9)	

STEP /LOC. No.	START-ING No.	PART		REMOVAL		INSTALLATION
				Fig. No.	REMOVE/*UNHOOK/ UNLOCK/RELEASE/ UNPLUG/DESOLDER	ADJUSTMENT CONDITION
[33]	[26]	BT Arm	B	DM2H, DM14H	*(P-5)	
[34]	[26]	Loading Arm (SP) Assembly	B	DM2H, DM14H		(+)Refer to Alignment Sec.Page 2-5-1
[35]	[34]	Loading Arm (TU) Assembly	B	DM2H, DM14H		(+)Refer to Alignment Sec.Page 2-5-1
[36]	[16],[26]	M Brake (TU) Assembly (HI)	T	DM1H, DM15H		
[37]	[2],[26]	M Brake (SP) Assembly (HI)	T	DM1H, DM15H	*(P-6)	
[38]	[37]	Tension Lever Assembly	T	DM1H, DM15H		
[39]	[38]	T Lever Holder	T	DM15H	*(L-10)	
[40]	[40]	M Gear (HI)	T	DM1H, DM15H	(C-6)	
[41]	[15],[40]	Sensor Gear (HI)	T	DM1H, DM15H	(C-7)	
[42]	[36],[40]	Reel T	T	DM1H, DM15H		
[43]	[38]	Reel S	T	DM1H, DM15H		
[44]	[34],[38]	Moving Guide S Preparation	T	DM1H, DM16H		
[45]	[35]	Moving Guide T Preparation	T	DM1H, DM16H		
[46]	[19]	TG Post Assembly	T	DM1H, DM16H	*(L-11)	
[47]	[27]	Rack Assembly	R	DM17H		(+)Refer to Alignment Sec.Page 2-5-1
[48]	[47]	F Door Opener	R	DM17H		
[49]	[49]	Cleaner Assembly	T	DM1H, DM6H		
[50]	[49]	CL Post	T	DM6H	*(L-12)	
↓ (1)	↓ (2)	↓ (3)	↓ (4)	↓ (5)	↓ (6)	↓ (7)

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

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

(3): Name of the part

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

(5): Figure Number

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

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

.

*** [22] F Brake Assembly (HI) is not used in 2 head model.**

Top View

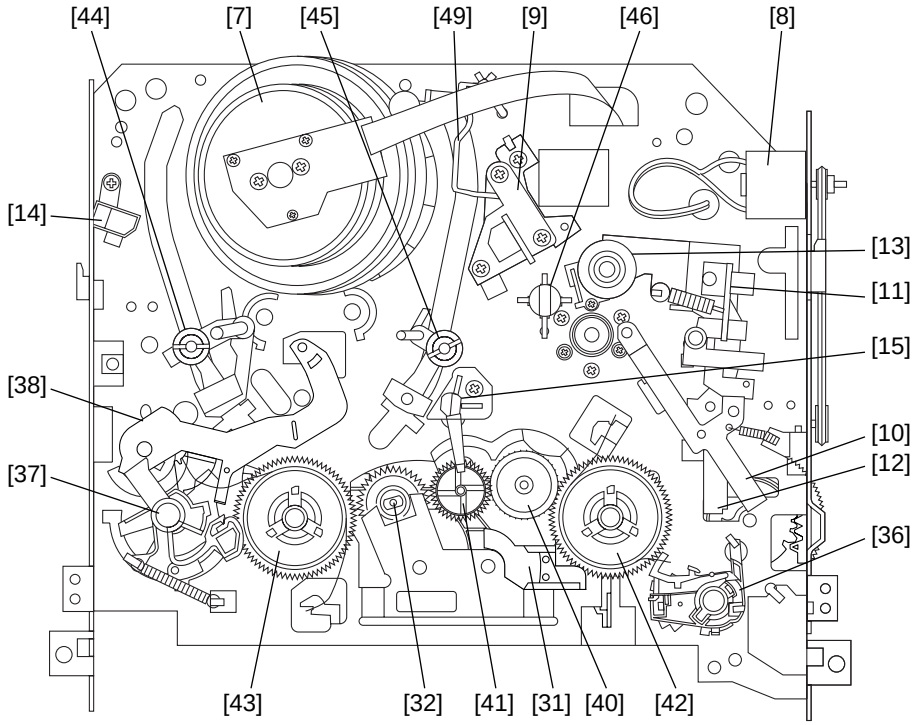


Fig. DM1H

Bottom View

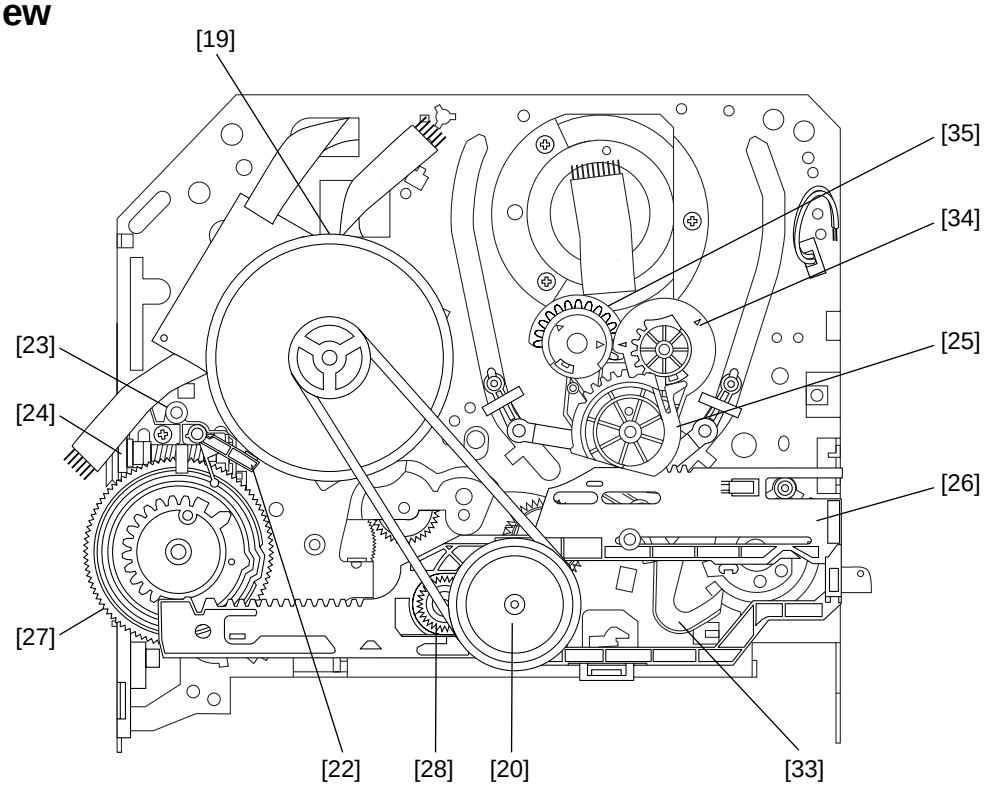


Fig. DM2H

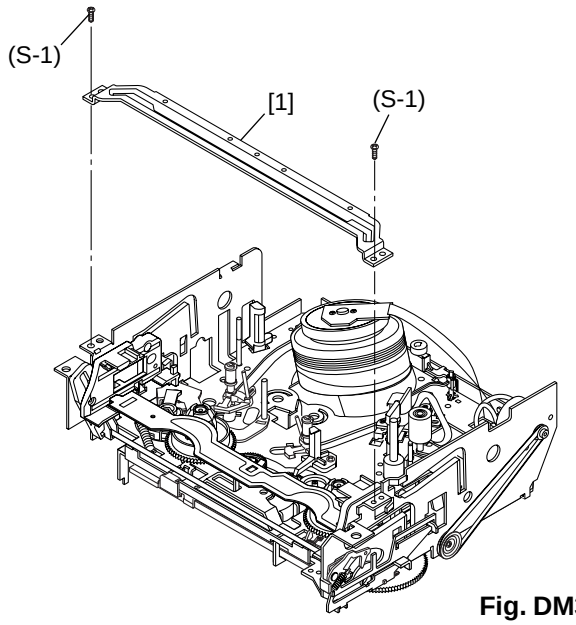
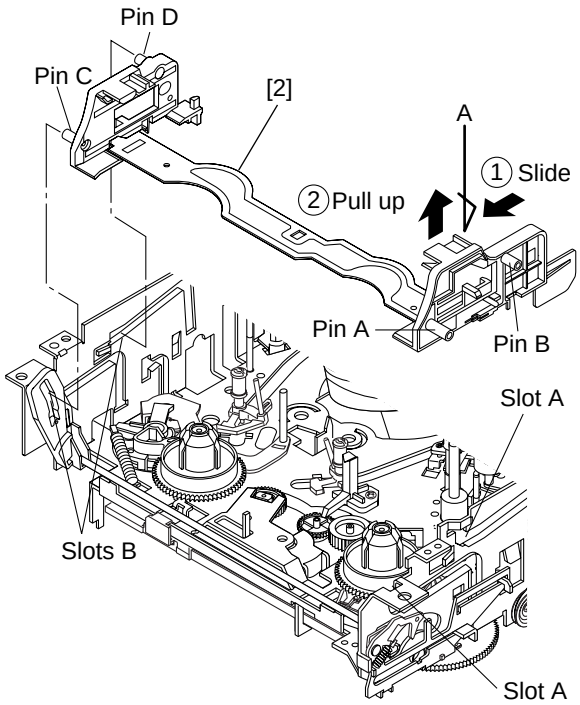


Fig. DM3H



First, while pushing the locking tab as shown in the right, slide and pull up the right side on [2] to release Pin A and Pin B from the slots A.
Then, remove Pin C and Pin D on [2] from the slots B as shown.

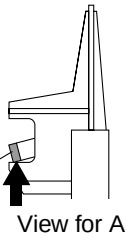
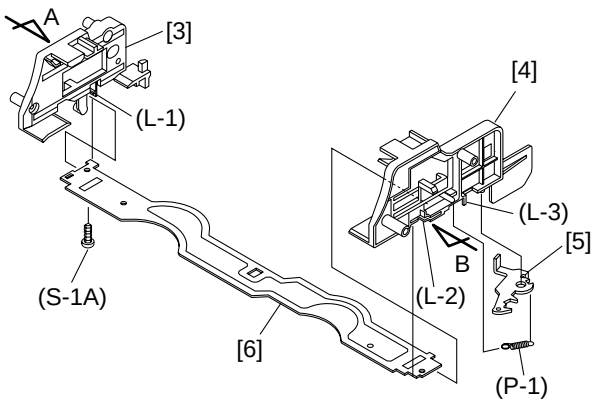
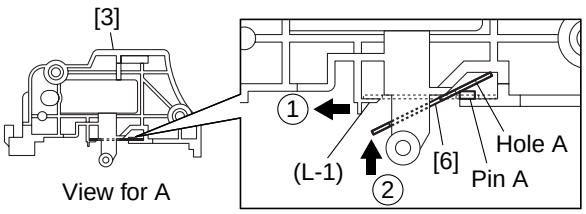


Fig. DM4H



Installation of [3] and [6]

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



Installation of [4] and [6]

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

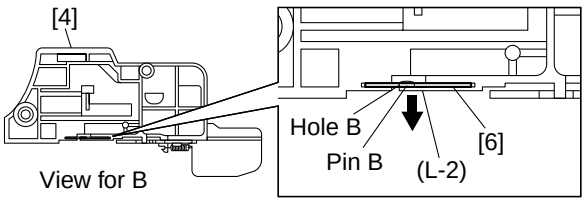


Fig. DM5H

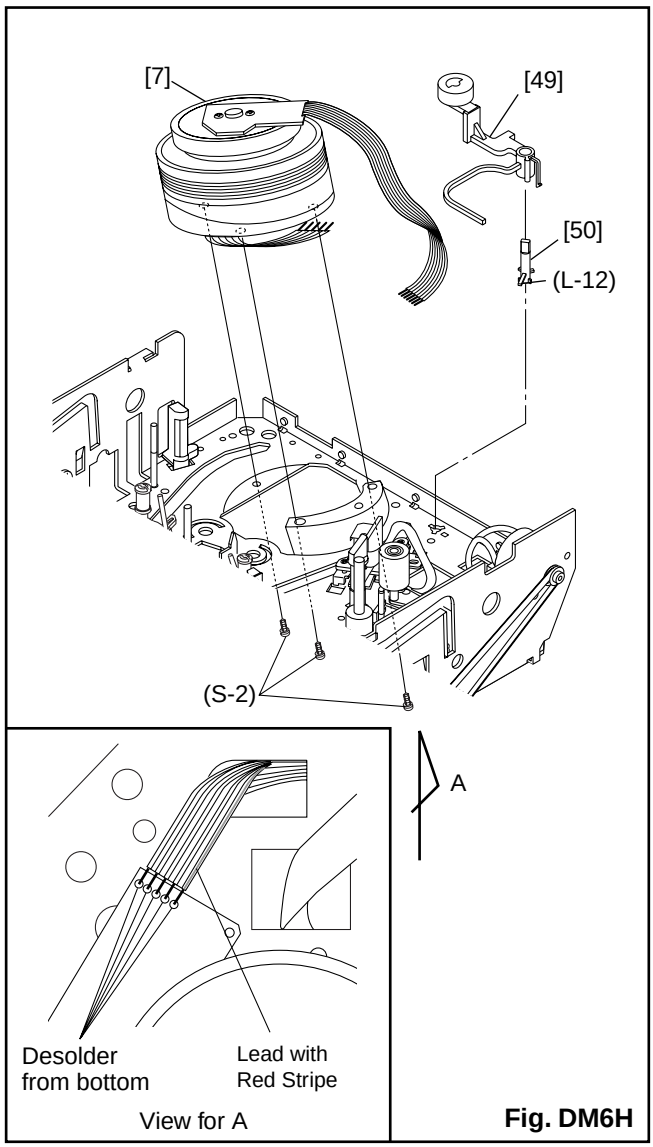


Fig. DM6H

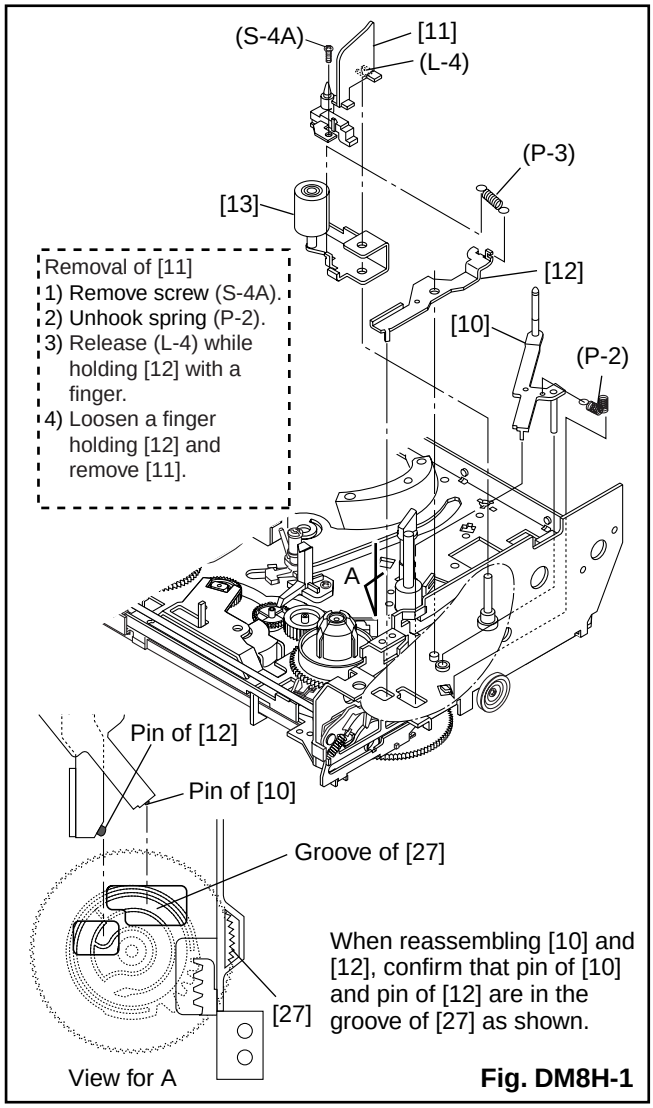


Fig. DM8H-1

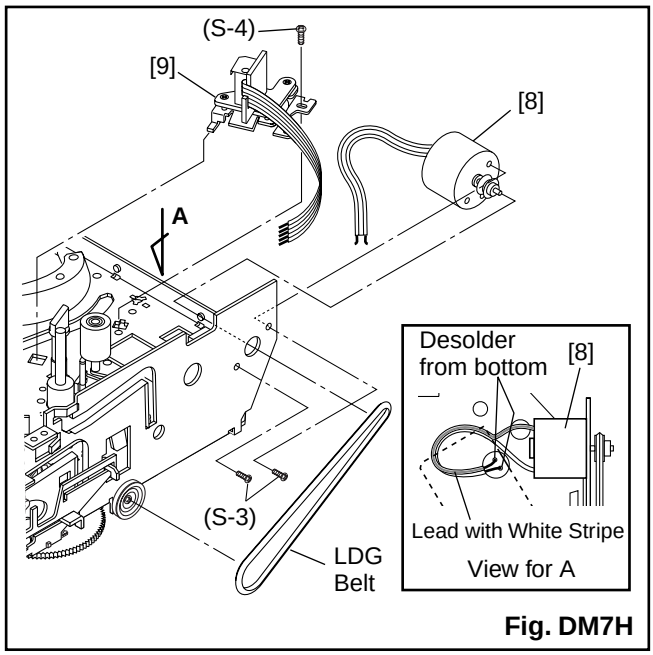


Fig. DM7H

Installation of [13] and [12]

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

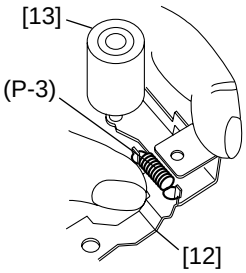


Fig. A

Install pin of [12] in groove of [27]. (Refer to Fig. B.)

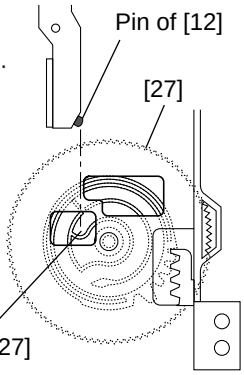


Fig. B (Top view)

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

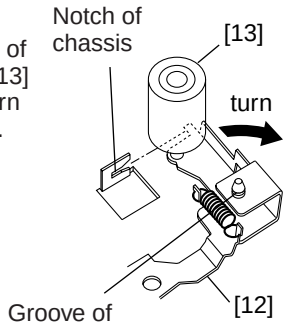


Fig. C

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

Fig. DM8H-2

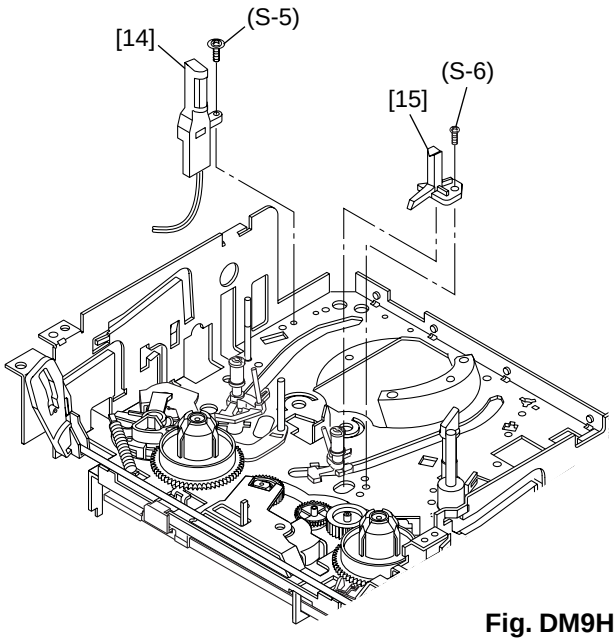


Fig. DM9H

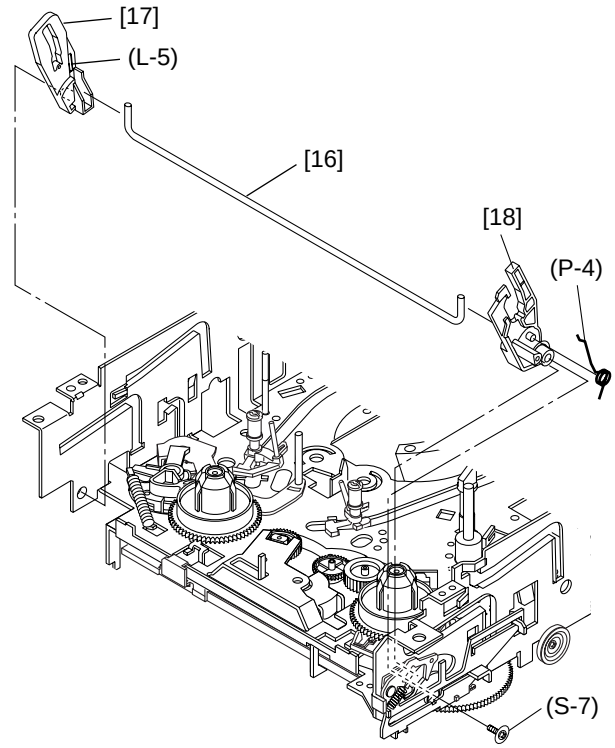
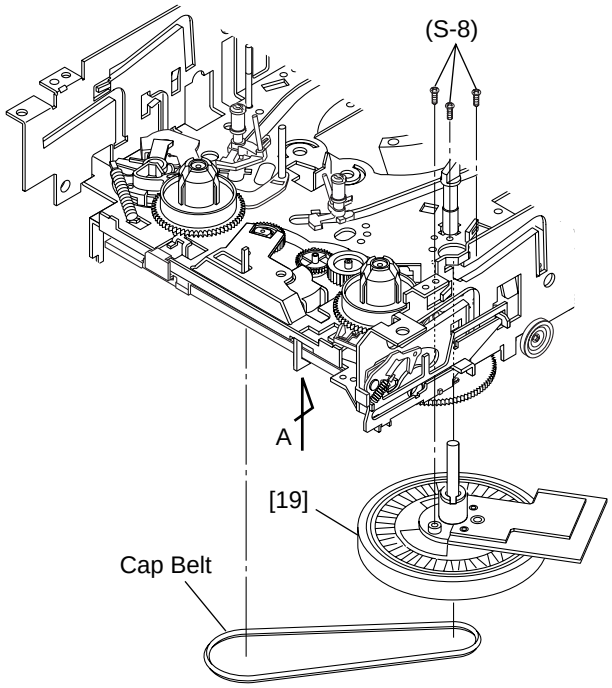


Fig. DM10H



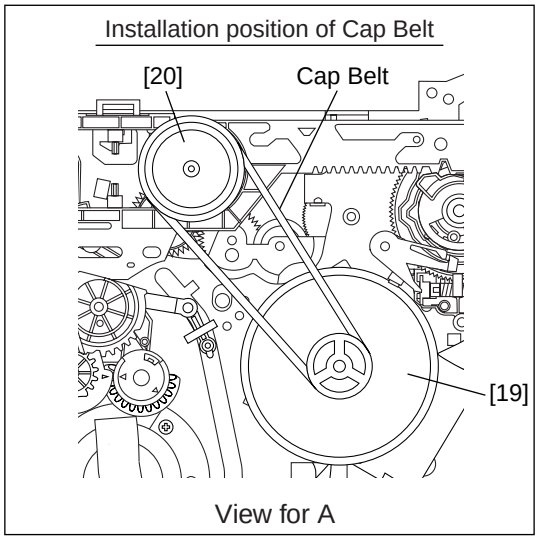


Fig. DM11H

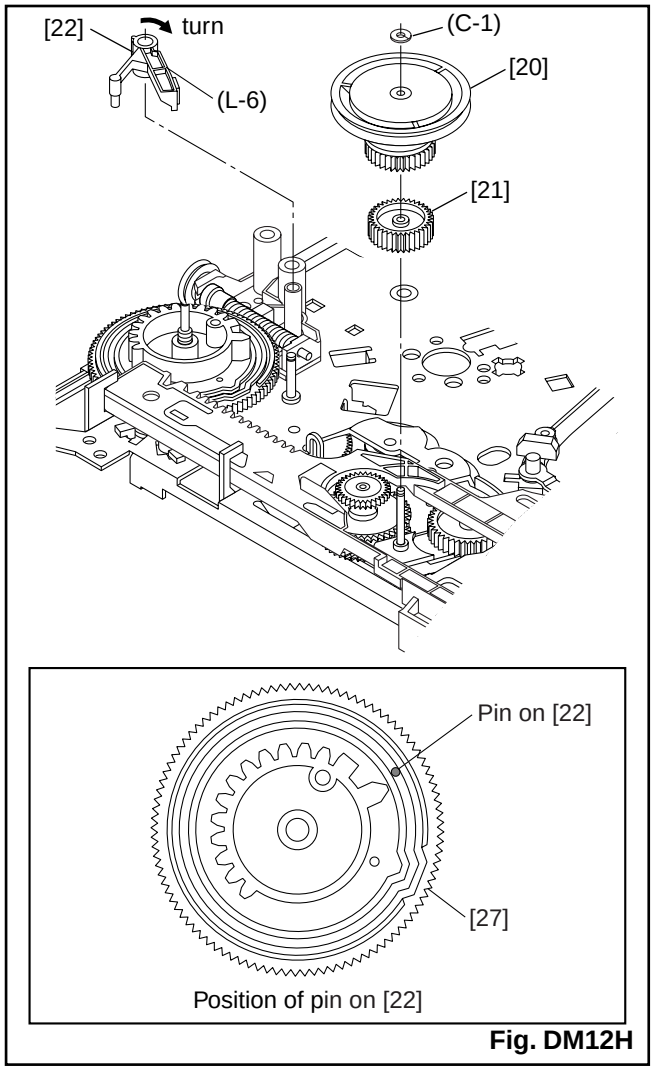


Fig. DM12H

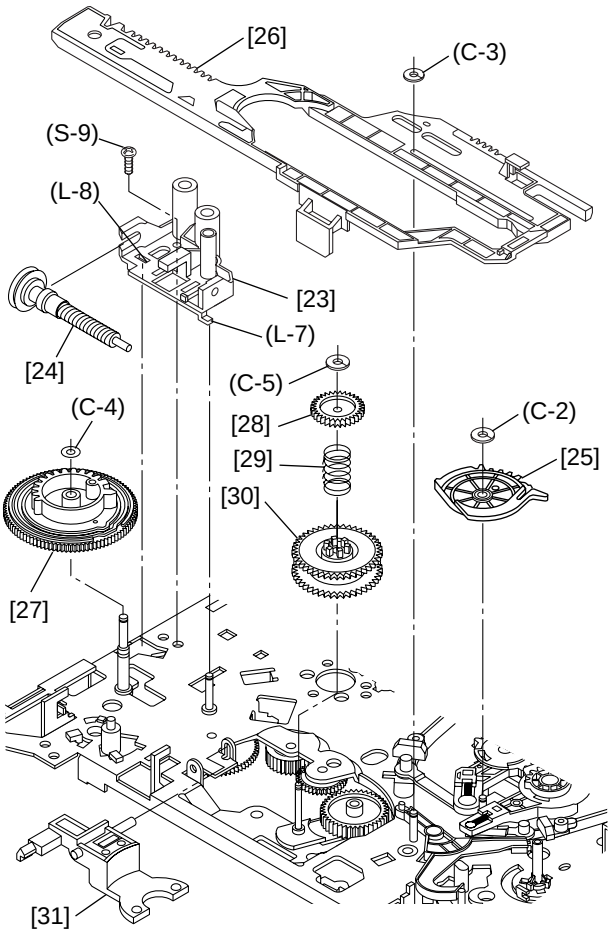


Fig. DM13H-1

Installation of [26]

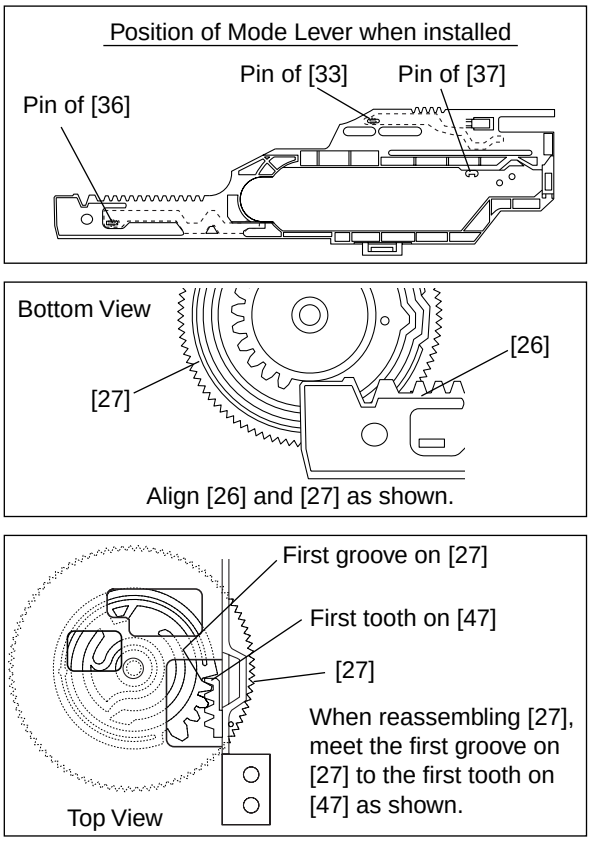


Fig. DM13H-2

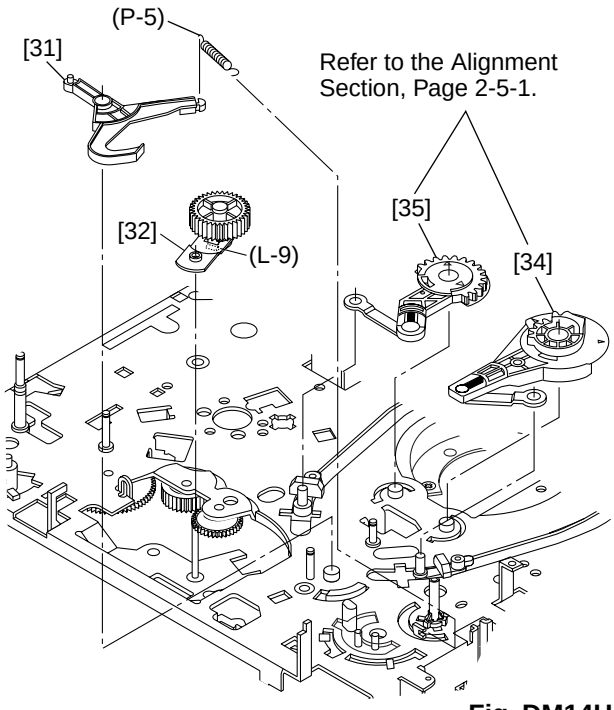


Fig. DM14H

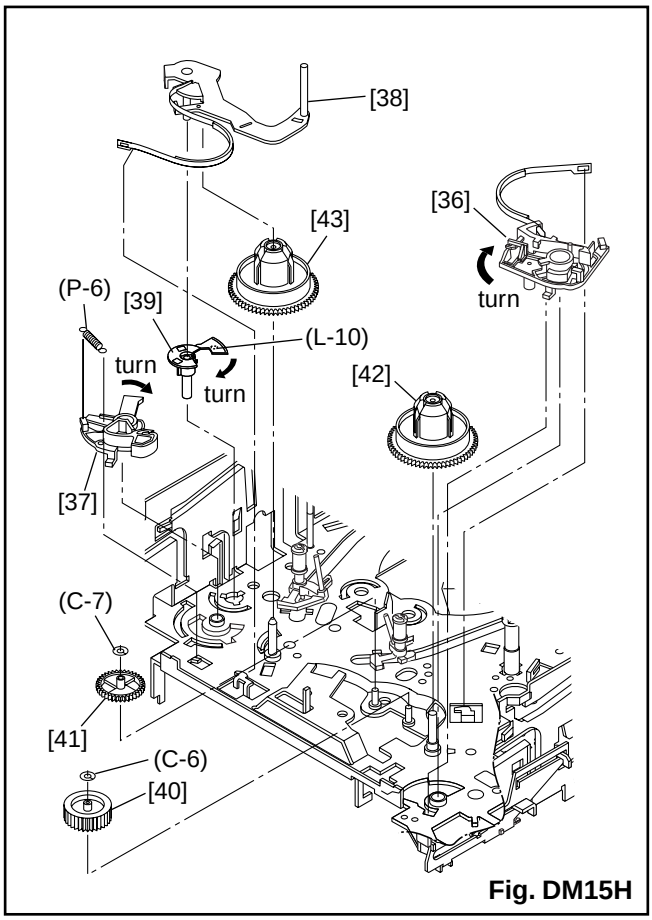


Fig. DM15H

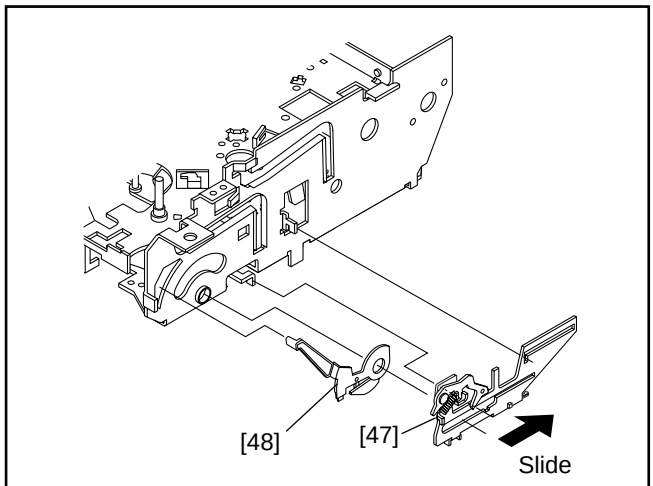


Fig. DM17H

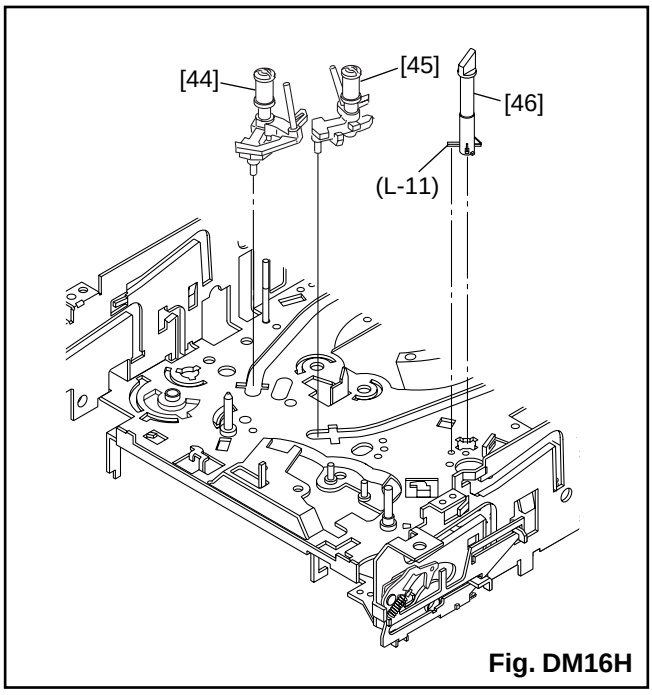


Fig. DM16H

ALIGNMENT PROCEDURES OF MECHANISM

The following procedures describe how to align the individual gears and levers that make up the tape loading/unloading mechanism. Since information about the state of the mechanism is provided to the System Control Circuit only through the Mode Switch, it is essential that the correct relationship between individual gears and levers be maintained.
All alignments are to be performed with the mechanism in Eject mode, in the sequence given. Each procedure assumes that all previous procedures have been completed.

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

Alignment points in Eject Position

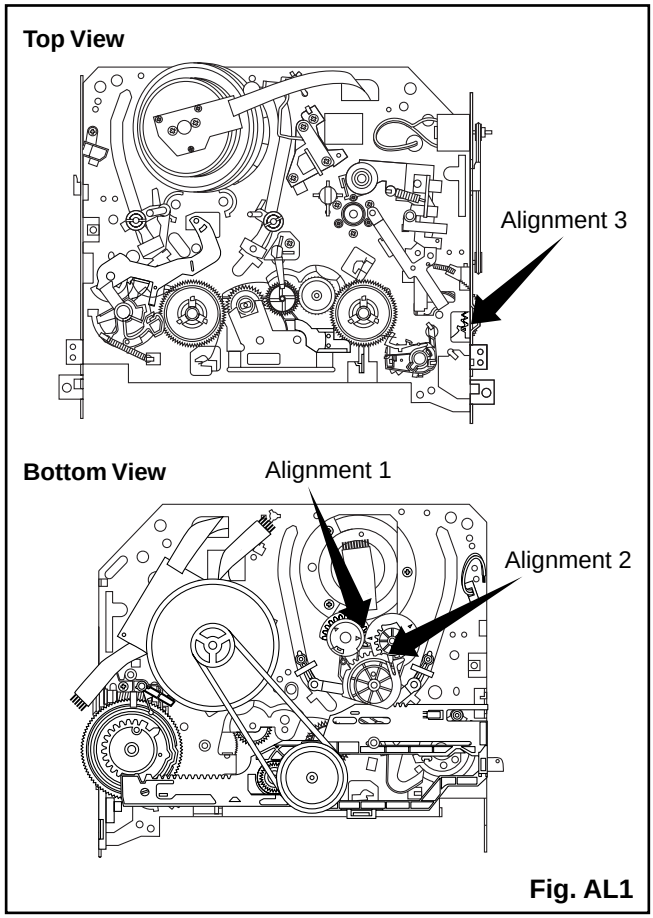


Fig. AL1

Alignment 1

Loading Arm (SP) and (TU) Assembly

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

Alignment 2

Mode Gear

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

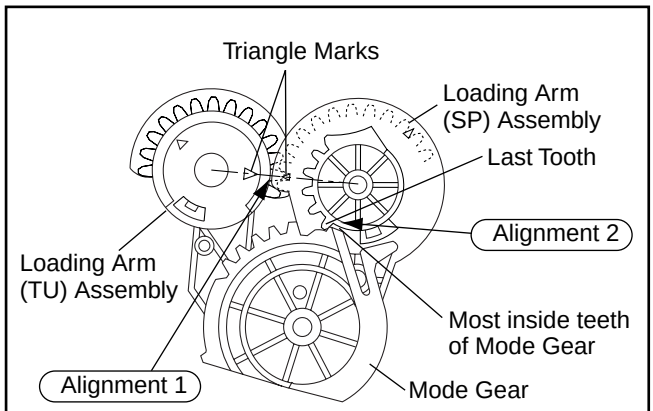


Fig. AL2

Alignment 3

Cam Gear (A) (HI), Rack Assembly

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

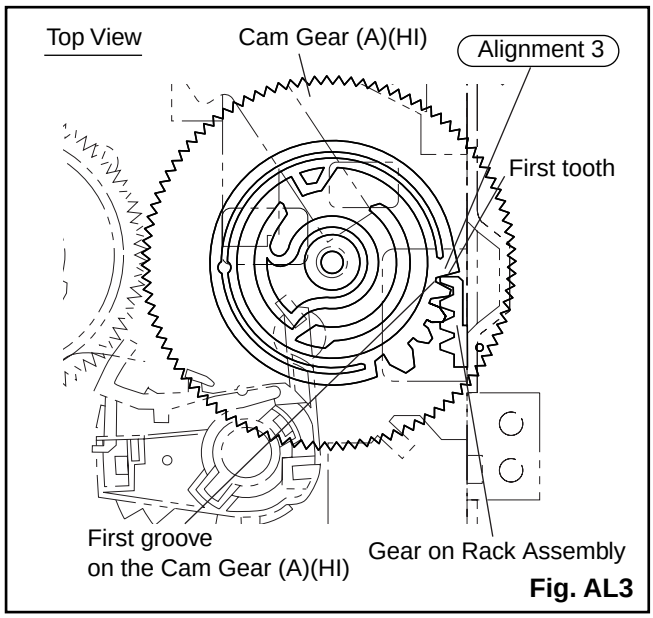
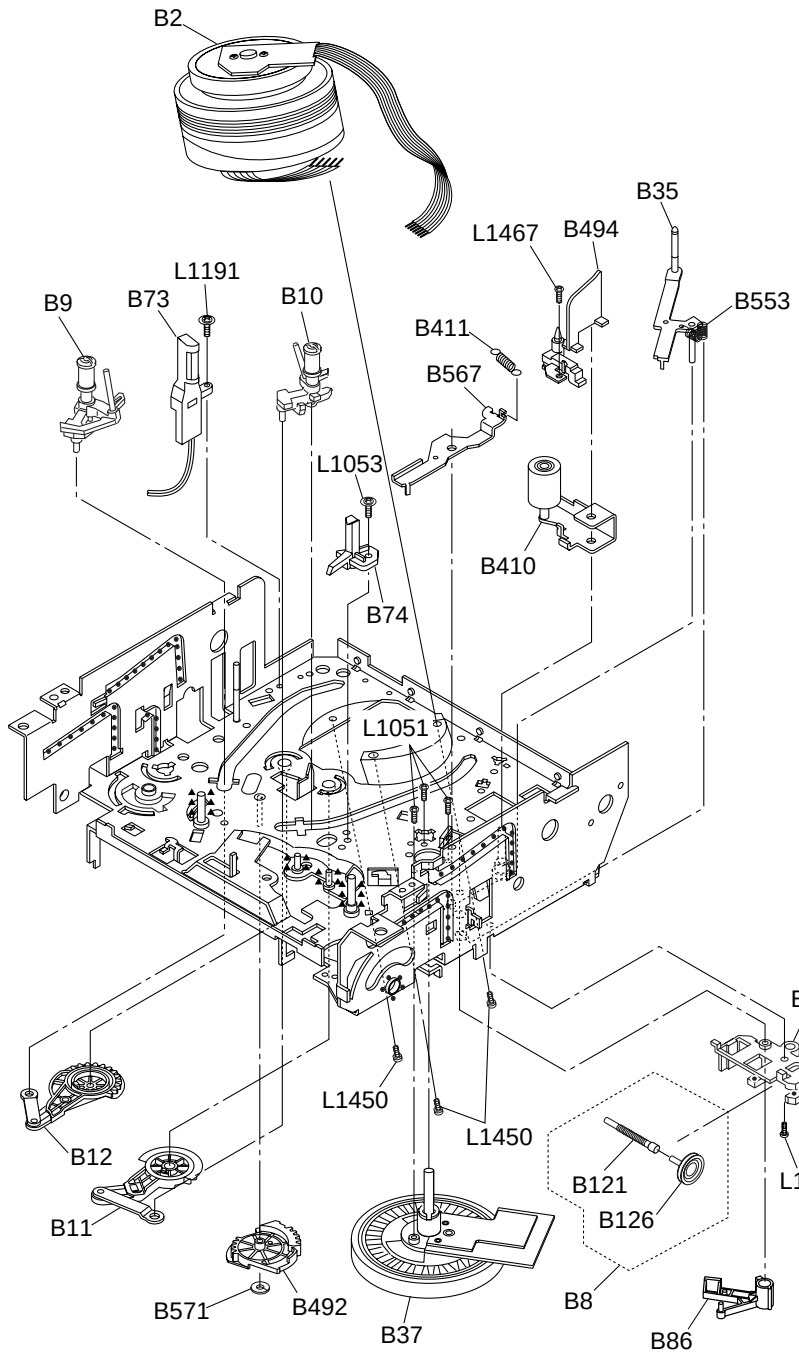


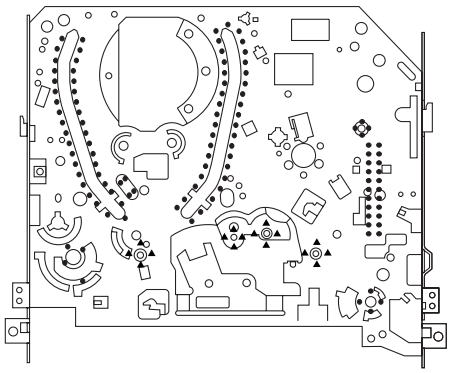
Fig. AL3

DECK EXPLODED VIEWS

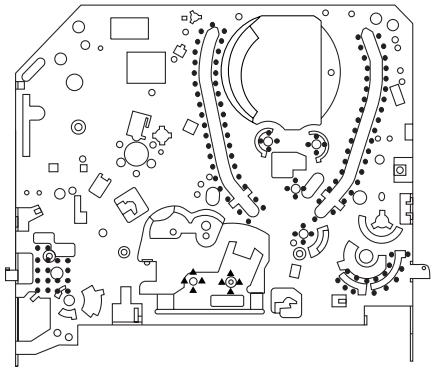
Deck Mechanism View 1

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





Chassis Assembly
Top View (Lubricating Point)

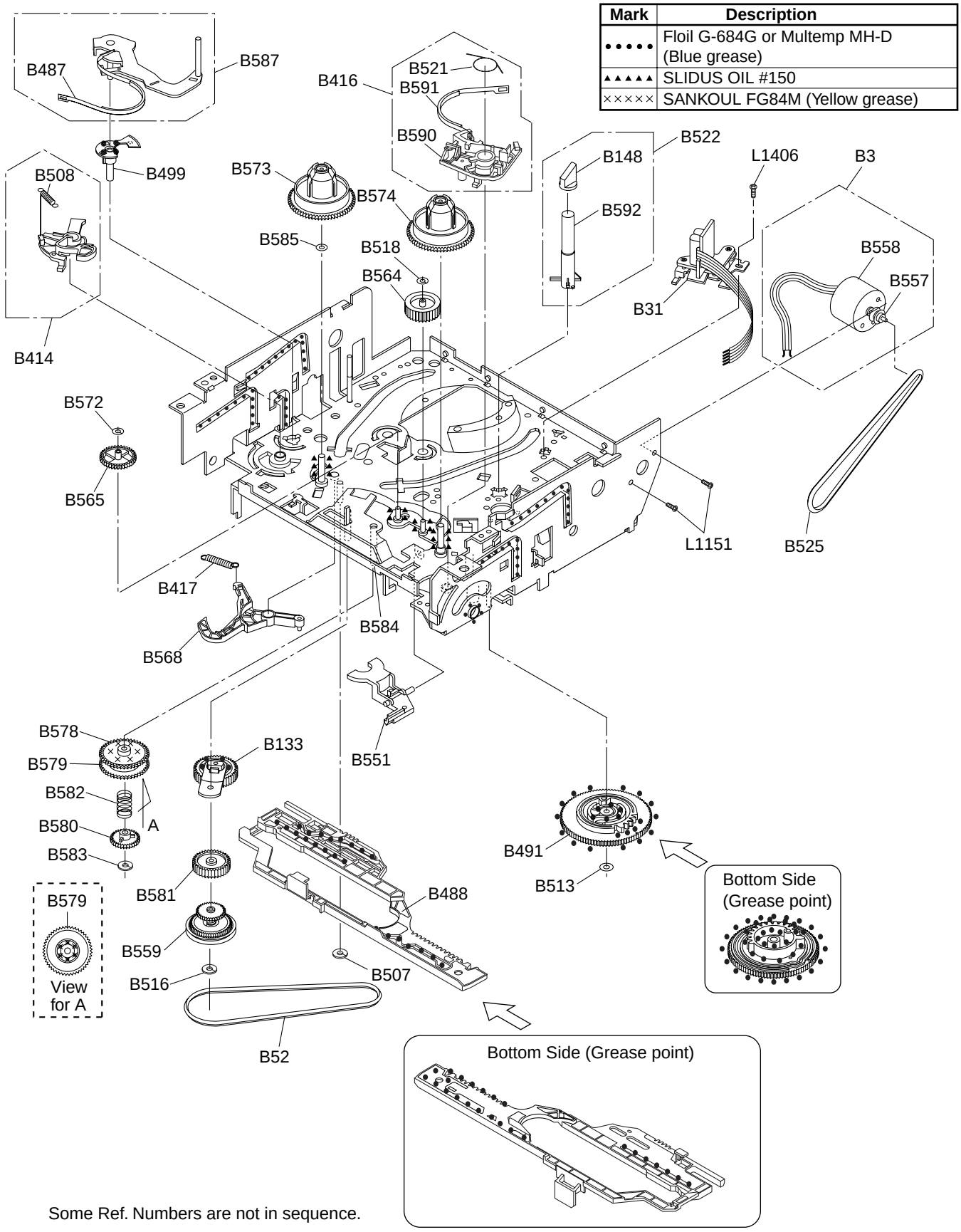


Chassis Assembly
Bottom View (Lubricating Point)

Some Ref. Numbers are not in sequence.

Deck Mechanism View 2

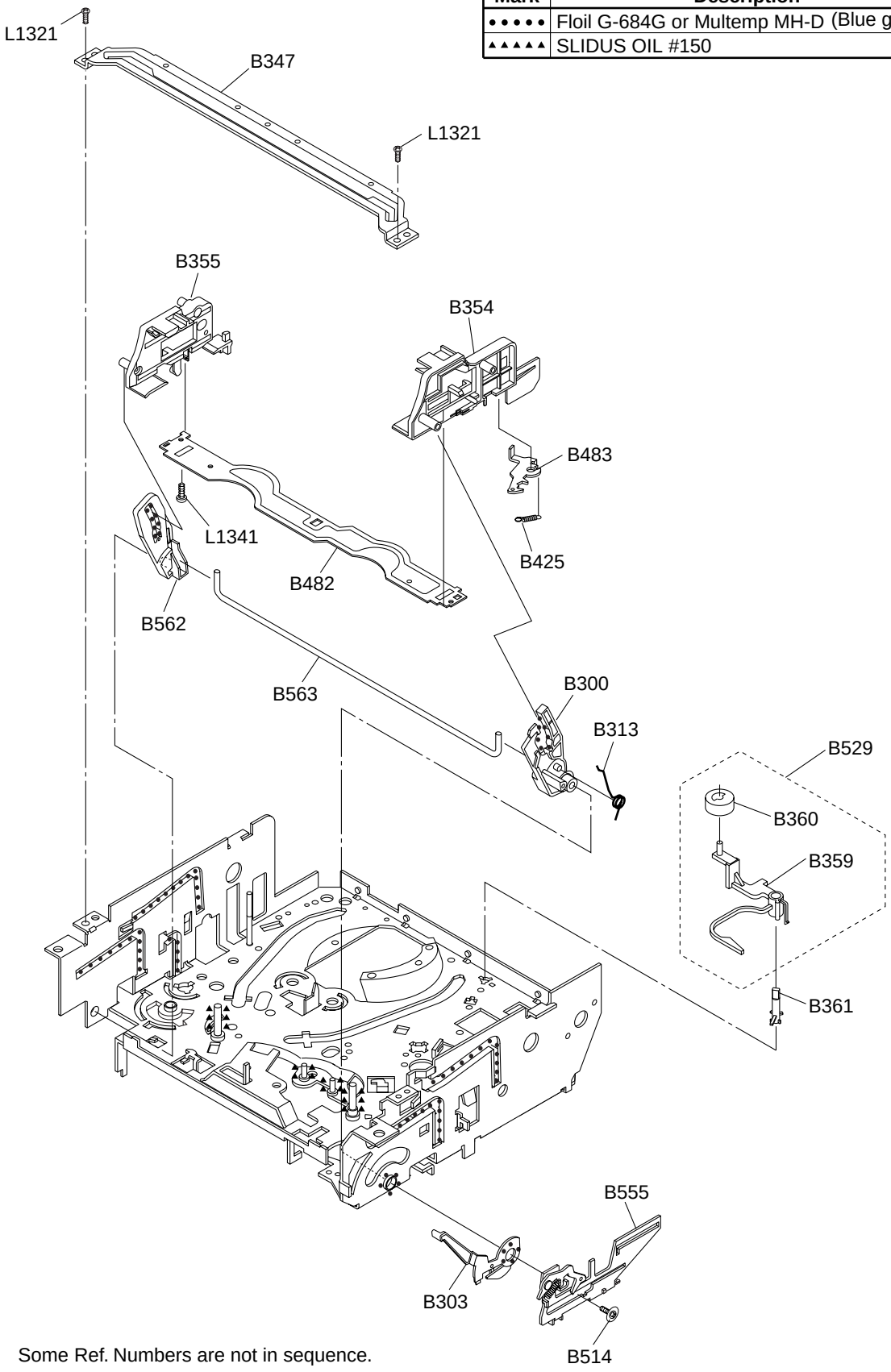
Mark	Description
●●●●●	Floil G-684G or Multemp MH-D (Blue grease)
▲▲▲▲▲	SLIDUS OIL #150
×××××	SANKOUL FG84M (Yellow grease)



Some Ref. Numbers are not in sequence.

Deck Mechanism View 3

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



Some Ref. Numbers are not in sequence.

DECK PARTS LIST

Pos.	▲	12 NC	Description
B2		9965 000 23362	CYLINDER ASS. PAL
B3		9965 000 23363	LOADING MOTOR
B8		9965 000 16631	PULLEY ASS.(HI)
B9		9965 000 23364	MOVING GUIDE S P.P
B10		9965 000 23365	MOVING GUIDE T P.P
B11		9965 000 16634	LOADING ARM(TU)
B12		9965 000 16635	LOADING ARM(SP)
B31		9965 000 23366	AC HEAD ASS.
B35		9965 000 16637	TAPE GUIDE ARM ASS.
B37		9965 000 23367	CAPSTAN MOTOR
B52		9965 000 08593	CAP BELT
B73		9965 000 19628	FE HEAD
B74		9965 000 08555	PRISM
B86		9965 000 16639	F BRAKE ASS.(HI)
B121		9965 000 16640	WORM
B126		9965 000 18128	PULLEY
B133		9965 000 23368	IDLER ASS.(HI)
B148		4822 462 11189	TG CAP
B300		9965 000 16643	C DRIVE LEVER(TU)
B303		9965 000 23369	F DOOR OPENER
B313		9965 000 16645	C DRIVE SPRING
B347		9965 000 08445	BRAND BADGE HC460ED
B354		9965 000 18130	SLIDER(TU)
B355		9965 000 19630	SLIDER(SP)
B359		9965 000 08449	CLEANER LEVER
B360		9965 000 06561	CLEANER ROLLER(2)
B361		9965 000 08450	CL POST
B410		9965 000 23370	PINCH ARM(A) ASS.
B411		9965 000 16649	PINCH SPRING
B414		9965 000 17218	M BRAKE(SP) ASS.(HI)
B416		9965 000 16651	M BRAKE(TU) ASS.(HI)
B417		9965 000 23371	TENSION SPRING
B425		9965 000 08457	LOCK LEVER SPRING
B482		9965 000 16653	CASSETTE PLATE
B483		9965 000 16654	LOCK LEVER
B487		9965 000 16655	BAND BRAKE(SP)
B488		9965 000 18145	MODE LEVER(HI)
B491		9965 000 16657	CAM GEAR(A)(HI)
B492		9965 000 19636	MODE GEAR(LM)
B494		9965 000 16659	C DOOR OPENER
B499		9965 000 16660	T LEVER HOLDER
B501		9965 000 16661	WORM HOLDER
B507		9965 000 05342	REEL WASHER 5*2.1*0.5
B508		9965 000 17219	S BRAKE SPRING(HI)
B513		4822 532 13158	P.S.W F 6*2.55*0.5
B514		9965 000 08641	SCREW RACK
B516		9965 000 05342	REEL WASHER 5*2.1*0.5

DECK PARTS LIST

Pos.	▲	12 NC	Description
B518		4822 532 13159	P.S.W CUT 1.6X4.0X0.5T
B521		9965 000 17220	REV BRAKE SPG(HI)
B522		9965 000 08483	TG POST ASS.
B525		9965 000 12230	LDG BELT
B529		9965 000 08504	CLEANER ASS.
B551		9965 000 17221	FF ARM(HI)
B553		9965 000 12233	REV SPRING
B555		9965 000 16663	RACK ASS.
B557		9965 000 23372	MOTER PULLEY U5
B558		9965 000 23373	LOADING MOTOR
B559		9965 000 16664	CLUTCH ASS.(HI)
B562		9965 000 16665	C DRIVE LEVER(SP)
B563		9965 000 16666	SLIDER SHAFT
B564		9965 000 16667	M GEAR(HI)
B565		9965 000 16668	SENSOR GEAR(HI)
B567		9965 000 16669	PINCH ARM(B)
B568		9965 000 16670	BT ARM
B571		4822 532 13159	P.S.W CUT 1.6X4.0X0.5T
B572		4822 532 13159	P.S.W CUT 1.6X4.0X0.5T
B573		9965 000 12241	REEL S
B574		9965 000 12376	REEL T
B578		9965 000 12243	TR GEAR A
B579		9965 000 16671	TR GEAR B
B580		9965 000 19638	TR GEAR C
B581		9965 000 16673	CENTER GEAR
B582		9965 000 23374	TR GEAR SPRING
B583		9965 000 17201	CAM WASHER
B584		9965 000 12248	TR GEAR SHAFT
B585		9965 000 13687	PSW(317505)
B587		9965 000 16674	TENSION LEVER ASS.
B590		9965 000 18132	BRAKE ARM(TU)
B591		9965 000 17210	BAND BRAKE(TU)
B592		9965 000 16678	TG POST
L1051		9965 000 05359	SCREW, B-TIGHT M2.6X6 PAN HEAD+
L1053		9965 000 05375	SCREW, S-TIGHT M2.6X8 WASHER HEAD+
L1151		9965 000 08642	SCREW, SEMS M2.6X4 PAN HEAD+
L1191		9965 000 05375	SCREW, S-TIGHT M2.6X8 WASHER HEAD+
L1321		4822 502 14009	SCREW, S-TIGHT M3X6 BIND HEAD+
L1341		9965 000 23375	SCREW, P-TIGHT M2X6 PAN HEAD+
L1406		9965 000 08643	AC HEAD SCREW
L1450		4822 502 14671	SCREW, SEMS M2.6X5 PAN HEAD+
L1466		9965 000 05364	SCREW, S-TIGHT M2.6X6 BIND HEAD+
L1467		9965 000 23376	SCREW M2.6X5 WASHER HEAD+