

Service
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VR530/02/07/16

Service Manual

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Survey of versions:

/02	PAL B/G, VPS/PDC
/07	PAL I, Ireland
/16	PAL B/G, Spain
/39	SECAM L,L' & PAL B/G, I
/58	PAL/SECAM B/G, D/K

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



MAIN SECTION

VIDEO CASSETTE RECORDER

Sec. 1: Main Section

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

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SPECIFICATIONS

Description	Unit	Minimum	Nominal	Maximum	Remark
1. Video					
1-1. Video Output (PB)	Vp-p	0.8	1.0	1.2	SP Mode
1-2. Video Output (R/P)	Vp-p	0.8	1.0	1.2	
1-3. Video S/N Y (R/P)	dB	40	45		SP Mode, W/O Burst
1-4. Video Color S/N AM (R/P)	dB	37	41		SP Mode
1-5. Video Color S/N PM (R/P)	dB	30	36		SP Mode
1-6. Resolution (PB)	Line	230	245		SP Mode
2. Servo					
2-1. Jitter Low	μsec		0.07	0.12	SP Mode
2-2. Wow & Flutter	%		0.3	0.5	SP Mode
3. Normal Audio					
3-1. Output (PB)	dBV	-9	-6	-3	SP Mode
3-2. Output (R/P)	dBV	-9	-6	-1.5	SP Mode
3-3. S/N (R/P)	dB	36	41		SP Mode
3-4. Distortion (R/P)	%		1.0	4.0	SP Mode
3-5. Freq. resp (R/P) at 200Hz	dB	-7	-4		SP Mode
(-20dB ref. 1kHz) at 6kHz	dB	-10	-4		SP Mode
4. Tuner					
4-1. Video output	Vp-p	0.8	1.0	1.2	E-E Mode
4-2. Video S/N	dB	39	42		E-E Mode
4-3. Audio output	dB	-10	-6	-2	E-E Mode
4-4. Audio S/N	dB	40	46		E-E Mode
5. Hi-Fi Audio					
5-1. Output	dBV	-12	-8	-4	SP Mode
5-2. Dynamic Range	dB	70	85		SP Mode
5-3. Freq. resp (6dB B.W)	Hz		20 ~ 20K		SP Mode

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

IMPORTANT SAFETY PRECAUTIONS

Product Safety Notice

Some electrical and mechanical parts have special safety-related characteristics which are often not evident from visual inspection, nor can the protection they give necessarily be obtained by replacing them with components rated for higher voltage, wattage, etc. Parts that have special safety characteristics are identified by a \triangle 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 \triangle 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	$\geq 3\text{mm}(d)$ $\geq 6\text{mm}(d')$

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

2. Leakage Current Test

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

Measuring Method (Power ON) :

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

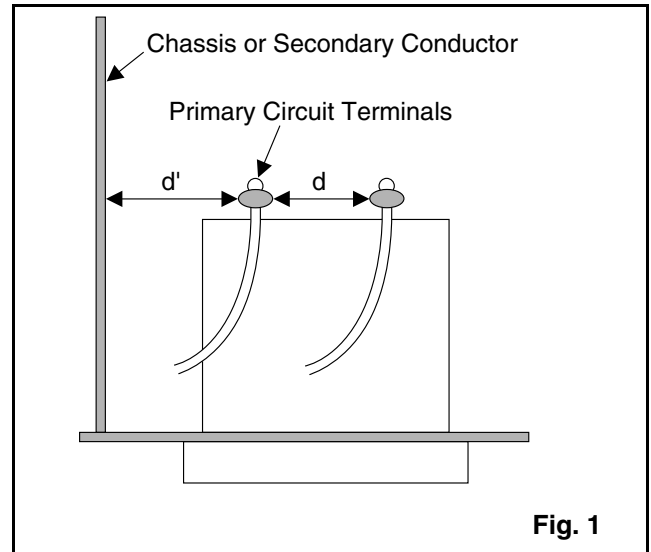


Fig. 1

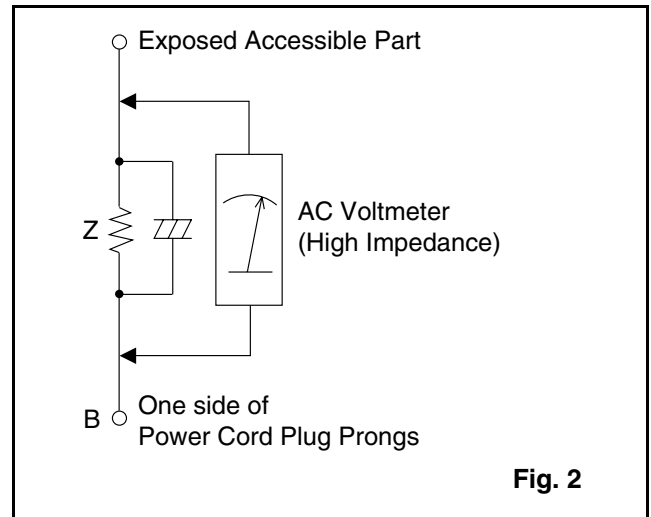


Fig. 2

Table 2: Leakage current ratings for selected areas

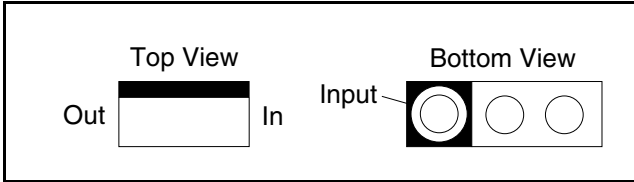
AC Line Voltage	Load Z	Leakage Current (i)	One side of power cord plug prongs (B) to:
110 to 240 V	2k Ω RES. Connected in parallel	$i \leq 0.7\text{mA AC Peak}$ $i \leq 2\text{mA DC}$	RF or Antenna terminals
	50k Ω RES. Connected in parallel	$i \leq 0.7\text{mA AC Peak}$ $i \leq 2\text{mA DC}$	A/V Input,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

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

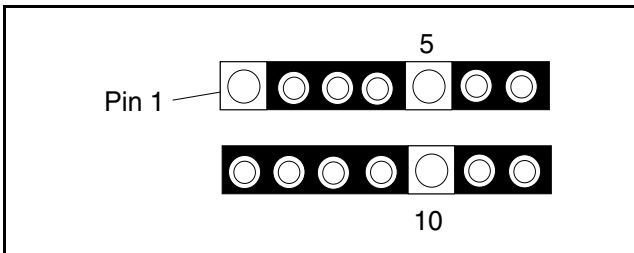
STANDARD NOTES FOR SERVICING

Circuit Board Indications

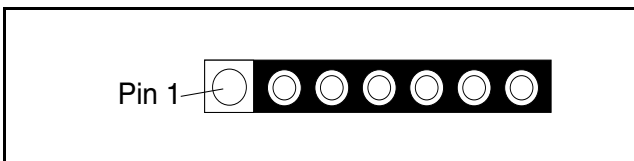
- a. The output pin of the 3 pin Regulator ICs is indicated as shown.



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

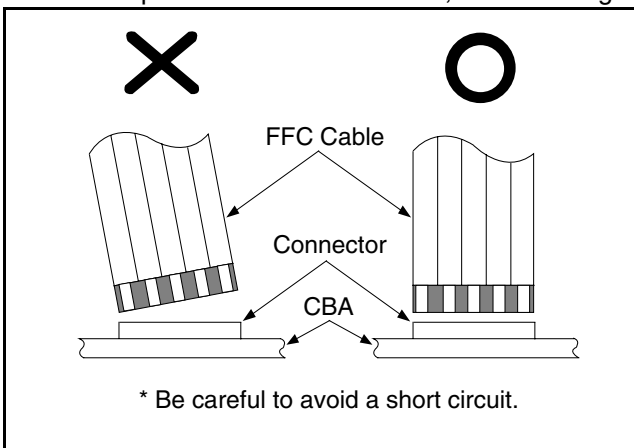


- c. The 1st pin of every male connector is indicated as shown.



Instructions for Connectors

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



How to 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)

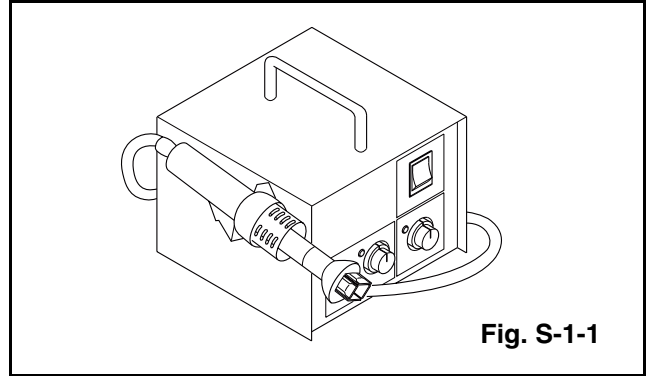


Fig. S-1-1

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

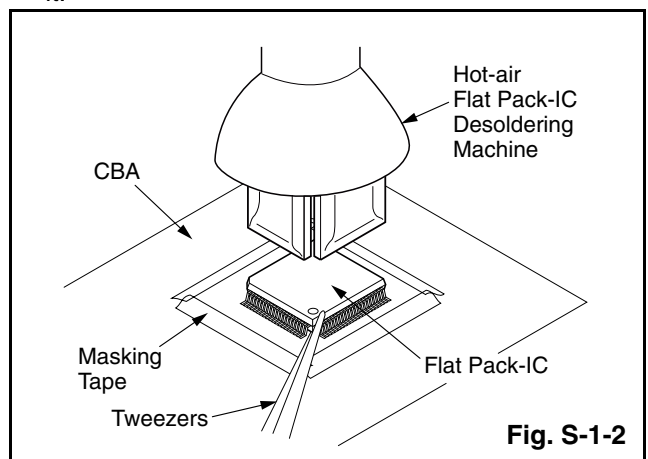
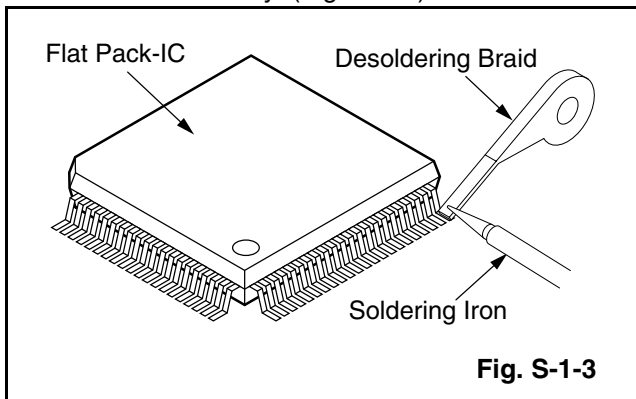


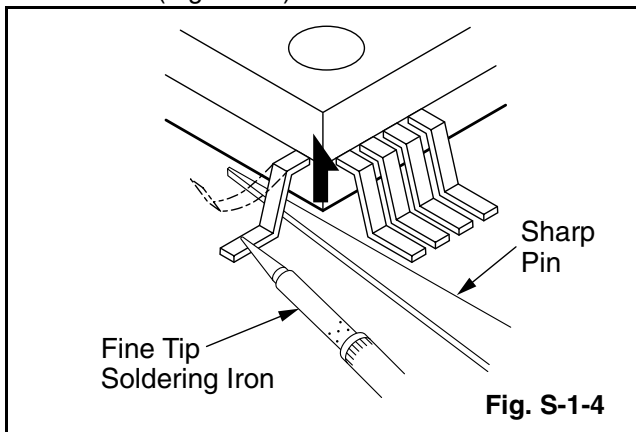
Fig. S-1-2

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)



- (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)



- (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.

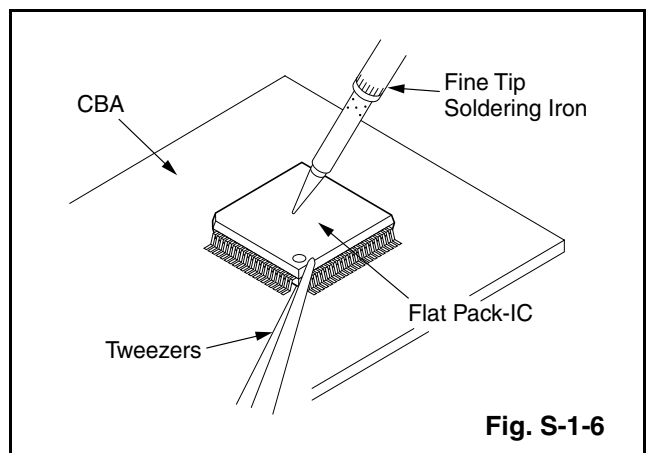
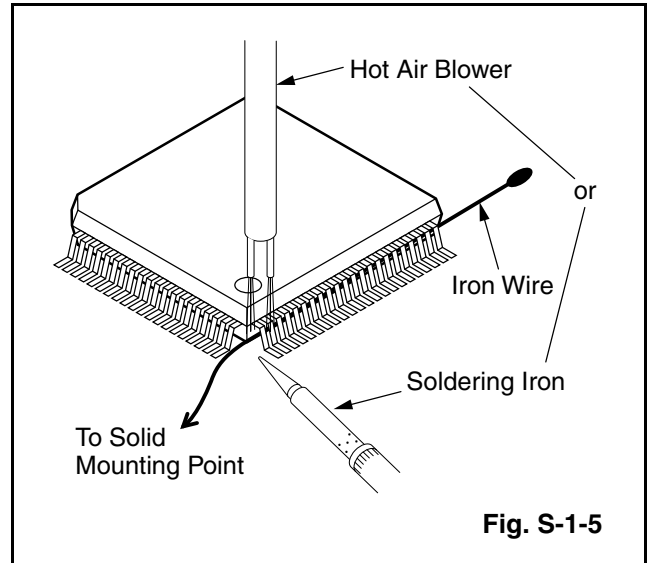
- (3) While heating the pins using a fine tip soldering iron or hot air blower, pull up the wire as the solder melts so as to lift the IC leads from the CBA contact pads as shown in Fig. S-1-5

- (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)

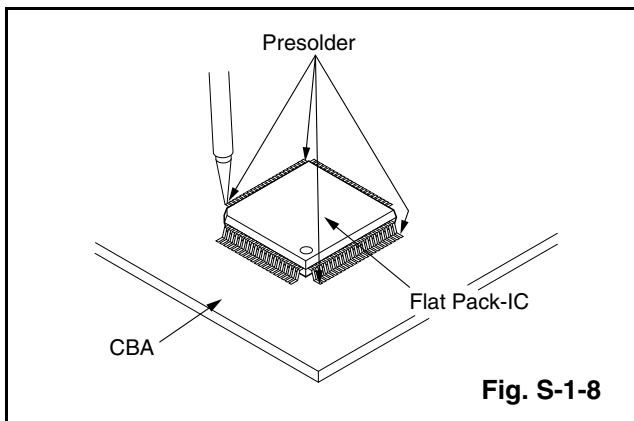
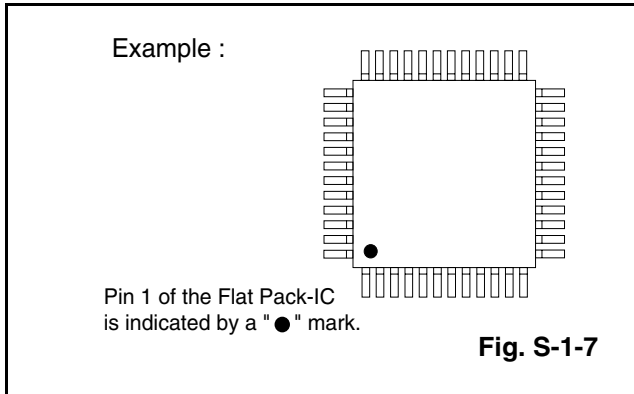
Note:

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.



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.



Instructions for Handling Semi-conductors

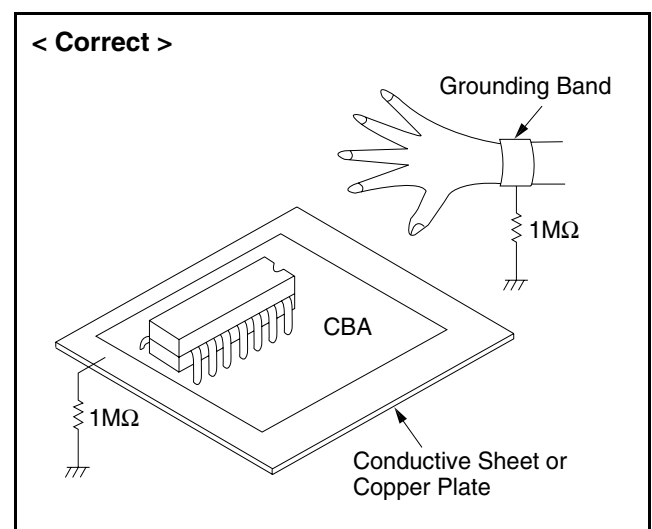
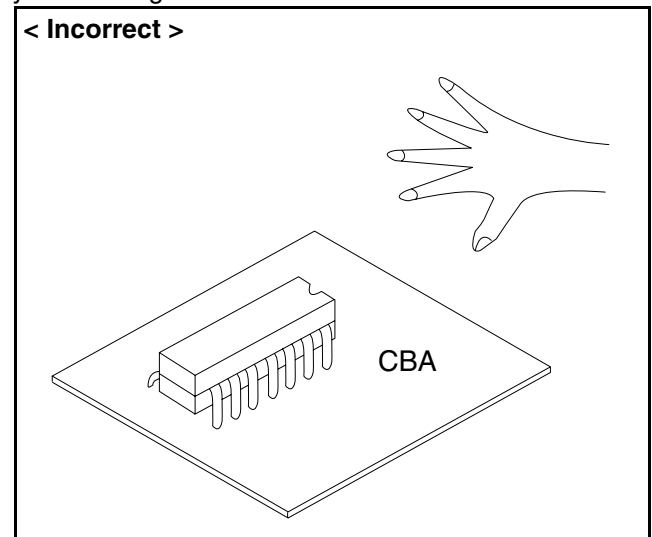
Electrostatic breakdown of the semi-conductors may occur due to a potential difference caused by electrostatic charge during unpacking or repair work.

1. Ground for Human Body

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

2. Ground for Workbench

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

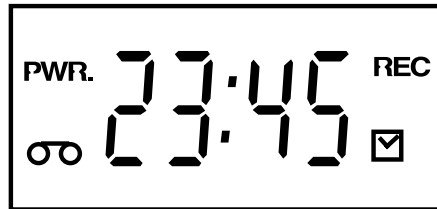


FUNCTION INDICATOR SYMBOLS

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



" H " = LED Light on, " L " = LED Light off

LED MODE	INDICATOR ACTIVE	
CASSETTE "IN"	" ∞ "	ON
CASSETTE "OUT"	" ∞ "	OFF
CLOCK	" 88:88 "	ON
POWER ON	" PWR. "	ON
REC	" REC "	ON
REC PAUSE	" REC "	Blinks at 0.8Hz interval
T-REC,OTR	" ☑ "	ON (T-REC OFF, T-REC incomplete Blinks at 0.8Hz interval)
When reel and capstan mechanism is not functioning correctly	" ∞ " " 1 "	Blinks at 0.8Hz interval
When tape loading mechanism is not functioning correctly	" ∞ " " 2 "	Blinks at 0.8Hz interval
When cassette loading mechanism is not functioning correctly	" ∞ " " 3 "	Blinks at 0.8Hz interval
When the drum is not working properly	" ∞ " " 4 "	Blinks at 0.8Hz interval
P-ON Power safety detection	" ∞ " " 5 "	Blinks at 0.8Hz interval
S-INH condition	All modes	Blinks at 0.8Hz interval

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, TP507 (SENSOR INHIBITION) 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.

About REC-Safety Switch

Caution:

The REC-Safety Switch is directly mounted on the Main CBA. When the Deck Mechanism Assembly is removed from the Main CBA for servicing, this switch does not work automatically.

What to do for preparation

In order to record, press the Rec button while pushing REC-SAFETY SW on the Main CBA. See Fig. 1.

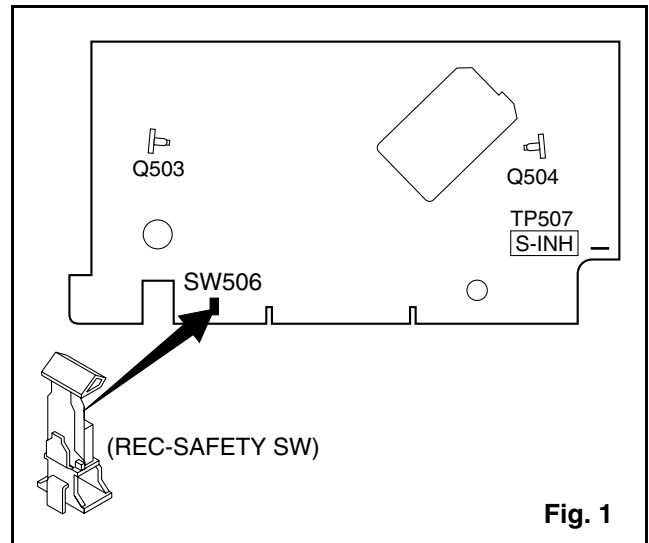
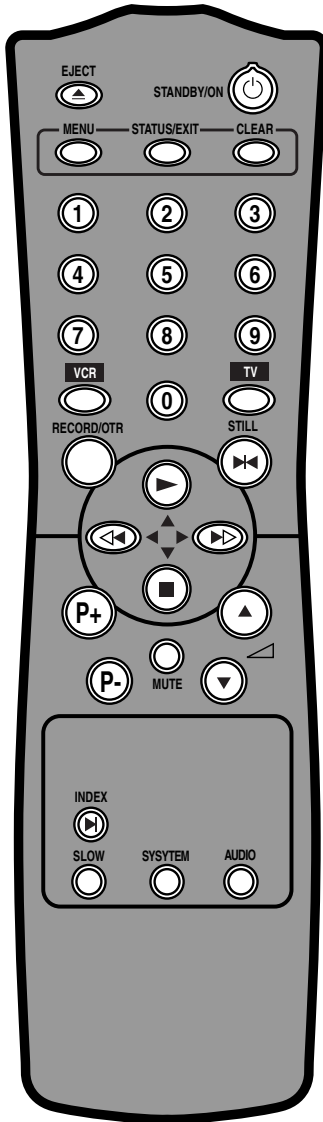


Fig. 1

OPERATING CONTROLS AND FUNCTIONS



Buttons for VCR feature only

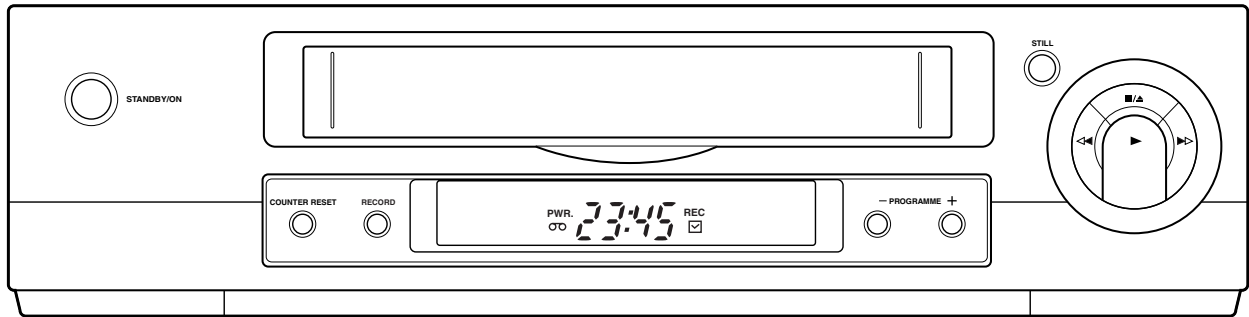
- VCR** To operate the VCR with the remote control.
- EJECT** To eject the cassette.
- CLEAR** To delete last entry/Clear programmed recording (TIMER).
- RECORD/OTR** To record the TV channel selected at this moment or press repeatedly to start a One-Touch Recording.
- STILL** To stop the tape and slow a still picture.
- P+** **P-** To select the programme number. During normal or slow motion playback, press to adjust the tracking.
- INDEX** 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.
- SYSTEM** Doesn't work in these models.
- MENU** To call up main menu of VCR.
- >>** 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 stay on the screen. To store or confirm entry in the menu.
- <<** When tape playback is stopped, press to rewind the tape at high speed. During playback, press to rewind the tape while the picture stay on the screen. To return the cursor in the menu.
- >** To play a tape, select an item in the menu of VCR.
- <** To stop the tape, select an item in the menu of VCR

Buttons with TV feature

- TV** To call up additional TV functions.
- STANDBY/ON** To switch VCR or Philips TV on or off, interrupt menu function.
- STATUS/EXIT** To access or remove the VCR's on-screen status display. To exit on-screen menus. Or, to access or remove a status display or menu of Philips TV.
- 0..9** Press to select channels at VCR or Philips TV.
- MUTE** To eliminate the TV's sound. Press again to restore the volume.
- <** **>** To adjust the TV's volume.

Press button VCR on the remote control before doing VCR related functions on the remote. By pressing button TV it is possible to navigate some functions on PHILIPS TV sets.

Front of the device



STANDBY/ON To switch off or on, interrupt a 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 moments.

▶▶ 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 stay on the screen.

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

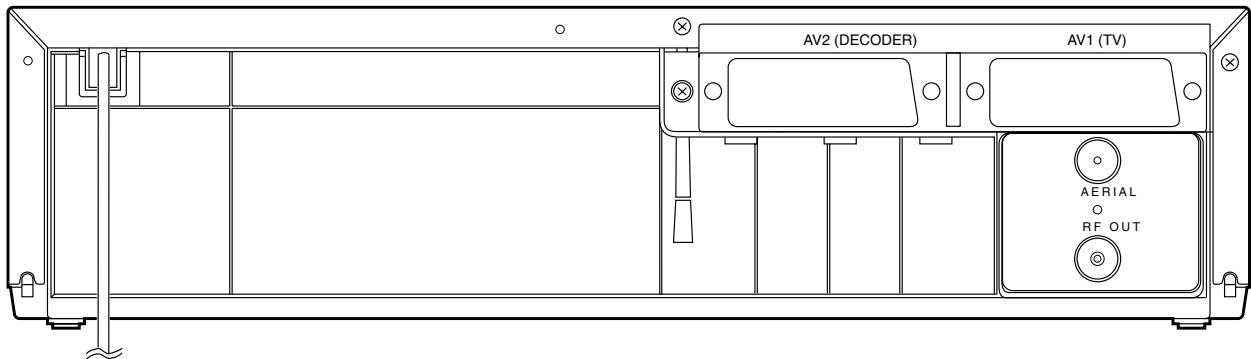
▶ To play a tape.

■/▲ To stop the tape and eject the cassette.

STILL To stop the tape and show a still picture.

COUNTER RESET To reset the counter.

Back of the set



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

AV1(TV) To connect the TV set (programme number).

AERIAL To connect the aerial cable.

RF OUT To connect the TV set.

SIGNAL NAME ABBREVIATIONS

Signal Name	Function
A-MODE	Hi-Fi Tape Detection Signal
A-MUTE-H	Audio Mute Control Signal (Mute = "H")
A-PB/REC	Normal Audio Play Back/Record Signal
AFC	Automatic Frequency Control Signal
AGC	IF AGC Control Signal
AL+15V/+12V	Always +15V/+12V 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
AMPVREF _{IN}	V-Ref for CTL AMP
AMPV _{SS}	AMPV _{SS} (GND)
AV _{CC}	A/D Converter Power Input/ Standard Voltage Input
C	C Terminal
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-POWER-SW	Capstan Power Switching Pulse
C-ROTA	Color Phase Rotary Changeover Signal
C-SYNC	Composite Synchronized Pulse
CLKSEL	Clock Select (GND)
CTL (+)	Playback/Record Control Signal (+)
CTL (-)	Playback/Record Control Signal (-)
CTLAMP _{OUT}	To Monitor for CTL AMP Output
D-CONT	Drum Motor Control Signal
D-FG	Drum Motor Rotation Detection Pulse
D-PG	Drum Motor Pulse Generator
D-REC-H	Delayed Record Signal
D-V- SYNC	Dummy V-sync Output

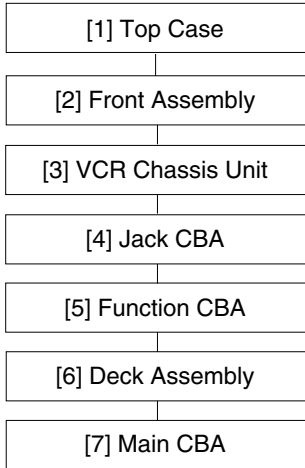
Signal Name	Function
DAVN-L	VPS/PDC Data Receive = "L"
DRV-CLK	LED Clock Driver IC Control Clock
DRV-DATA	LED Clock Driver IC Control Data
DRV-STB	LED Clock Driver IC Chip Select Signal
END-S	Tape End Position Detect Signal
FE-H GND	Ground for Full Erase Head
FF/REW-L	CTL Amp Gain Switching Signal (FF/REW="L")
FSC-IN [4.43MHz]	4.43MHz Clock Input
FTV-IN	Comparator Input of Video Signal for Follow TV
H-A-COMP	Head Amp Coparator Signal
H-A-SW	Video Head Amp Switching Pulse
Hi-Fi-A (L)	Hi-Fi Audio Head (L)
Hi-Fi-A (R)	Hi-Fi Audio Head (R)
Hi-Fi-COM	Hi-Fi Audio Head Common
Hi-Fi-H-SW	HiFi Audio Head Switching Pulse
HLF	LPF Connected Terminal (Slicer)
I ² C BUS- SCL	I ² C BUS Control Clock
I ² C BUS- SDA	I ² C BUS Control Data
JK1-8P-OUT-1	SCART 1 8Pin Output Control Signal
JK1-8P-OUT-2	SCART 2 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
LM-FWD/REV	Loading Motor Control Signal
MOD-A	Modulator Audio Output Signal
N-A-PB	Normal Audio Playback
N-A-REC	Normal Audio Recording
OSC _{IN}	Clock Input for letter size
OSC _{OUT}	Clock Output for letter size
P-DOWN-L	Power Voltage Down Detector Signal
P-ON+44V	+44V at Power-On Signal
P-ON+5V	+5V at Power-On Signal

Signal Name	Function
P-ON+9V	+9V at Power-On Signal
P-ON-H	Power On Signal at High
PG-DELAY	Video Head Switching Pulse Signal Adjusted Voltage
POW-SAF	P-ON Power Detection Input Signal
REMOCON-IN	Remote Control Sensor
RESET	System Reset Signal (Reset="L")
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
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-ENV	Video Envelope Comparator Signal
V-ENV	Video Envelope Signal
VIDEO-IN	Video Signal Input
VIDEO-OUT	Video Signal Output
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.



- (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

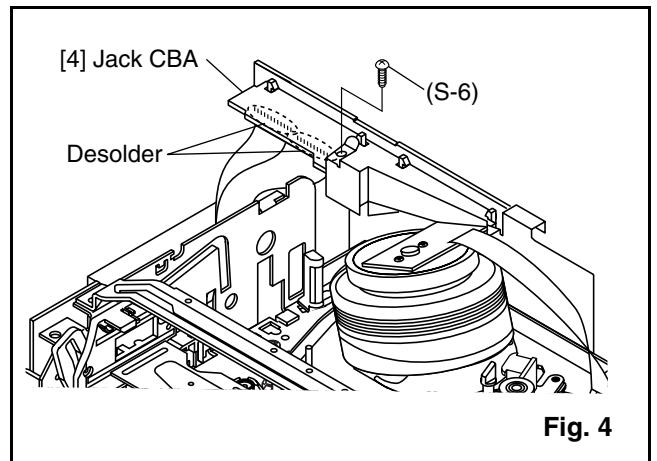
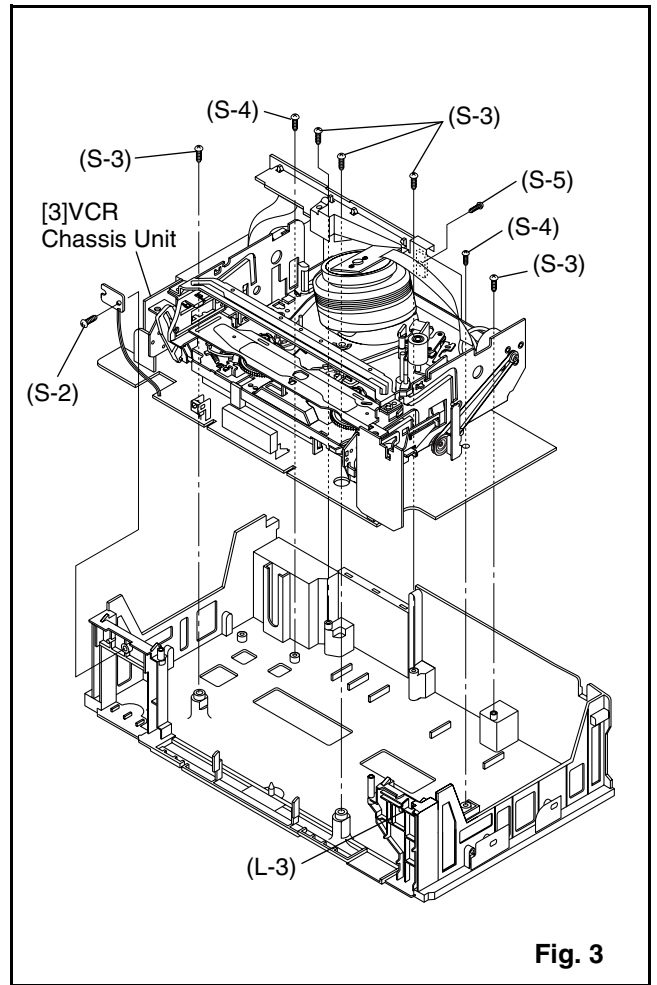
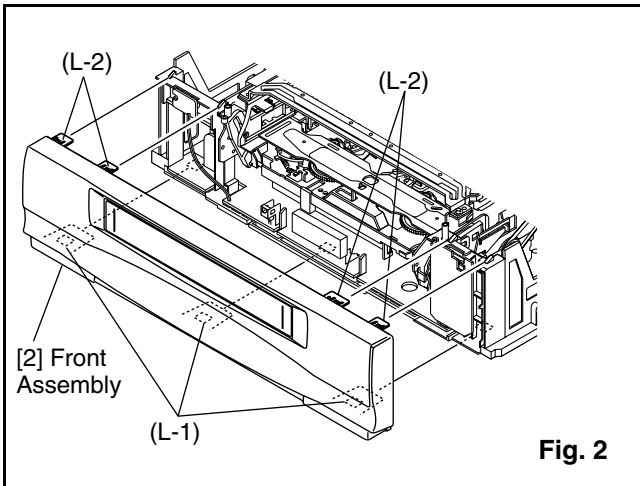
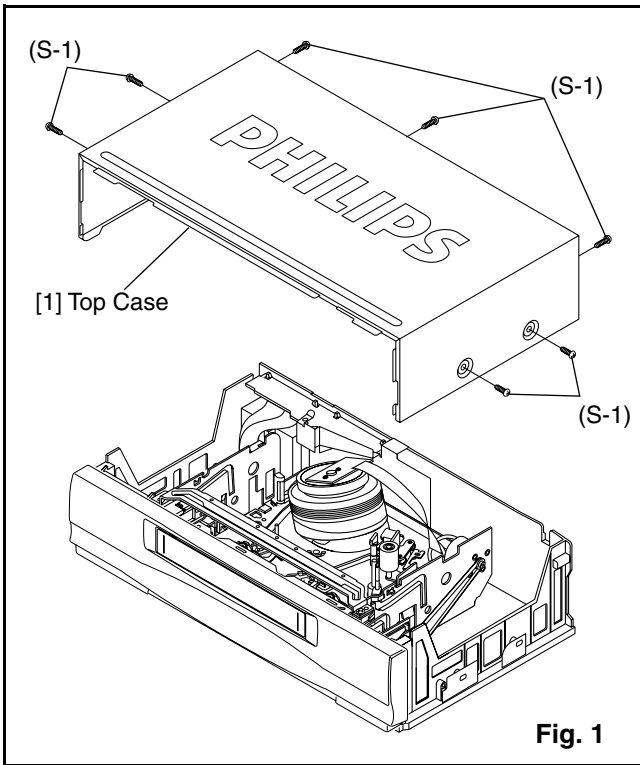
CAUTION: Locking Tabs (L-1) and (L-2) are fragile. Be careful not to break them.

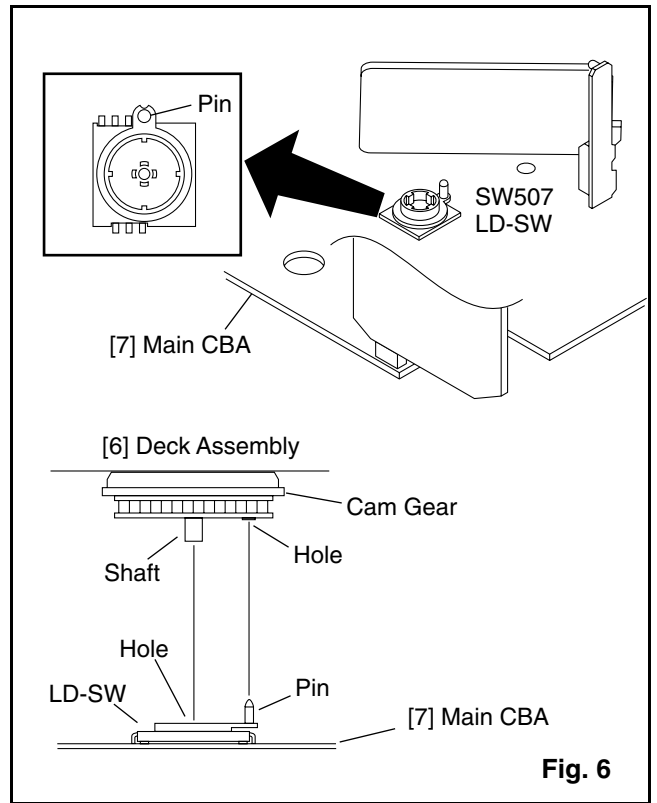
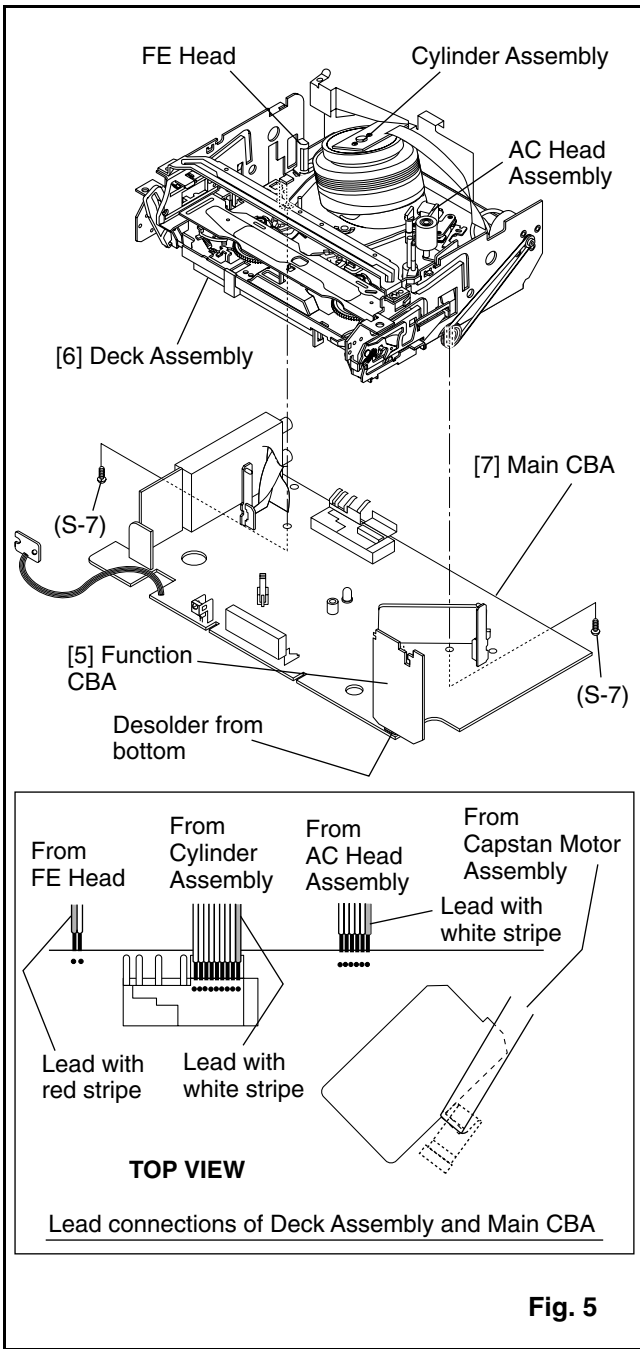
1. Release Locking Tab (L-3) and remove Screw (S-2), five Screws (S-3), two Screws (S-4) and Screw (S-5). Then, slowly lift the VCR Chassis Unit (Deck Assembly, Function CBA, Jack CBA and Main CBA) up.
2. When reassembling, solder wire jumpers as shown in Fig. 5.
3. Before installing the Deck Assembly, be sure to place the pin of LD-SW on Main CBA as shown in Fig. 6. 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. 6.

2. Disassembly Method

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

↓ ↓ ↓ ↓ ↓
 (1) (2) (3) (4) (5)





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 (4822 395 10283)

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
TP751(V-OUT) TP502(RF-SW) GND	VR501 (Switching Point) (MAIN CBA)	PLAY (SP)	----
Tape	Measurement Equipment	Spec.	
4822 395 10283	Oscilloscope	6.5H±1H (412.7µs±60µs)	

Connections of Measurement Equipment

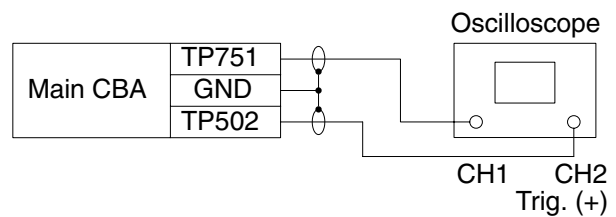
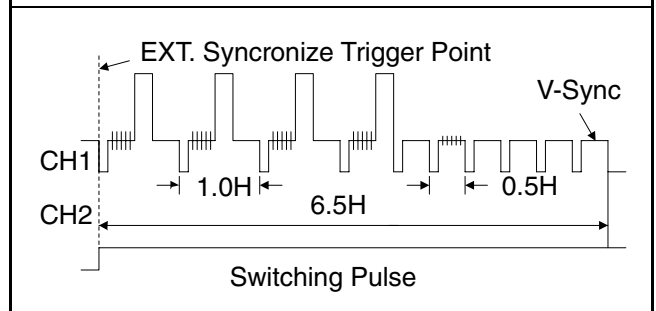


Figure 1



Reference Notes:

Play back 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.

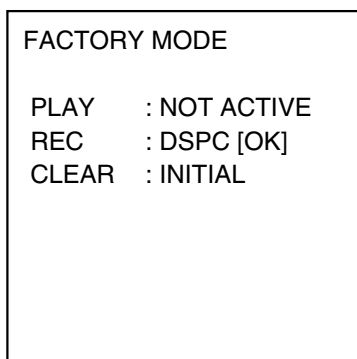
How to enter the factory set mode

In the factory set mode, measuring the standard V-ENV value of Digital Studio Picture Control can be performed.

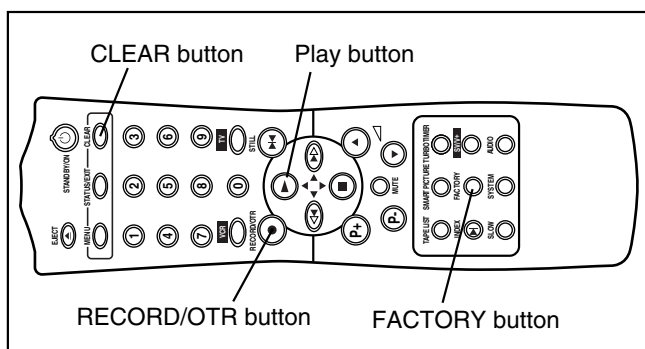
Preparation:

Input the color bar signal in line-in or tuner mode.

1. To enter the factory set mode, press the FACTORY button on the factory remote control unit (part No.: NA411ED or NA461ED) until the following picture is shown on the screen with blueback.

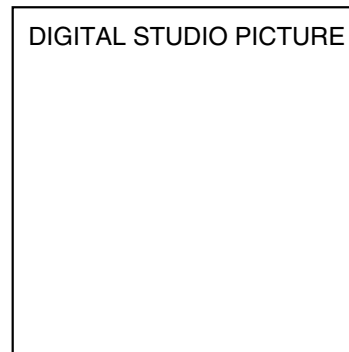


2. In the factory set mode....
 - The play (▶) button on the factory remote control unit is not available.
 - To enter the measuring the standard V-ENV value of Digital Studio Picture Control mode, press the RECORD/OTR button on the remote control unit.
 - When pressing the CLEAR button on the remote control unit, the unit resets the software after initializing the EEPROM.
3. "[OK]" or "[NG]" on the right of "REC: DSPC" above picture is depended on the standard DSPC value be written in the EEPROM. When 2 SPEED is set, "[OK]" is shown on that location in the SP and LP mode. When 1 SPEED is set and SP is OK, "[OK]" is shown on that location regardless of LP value.

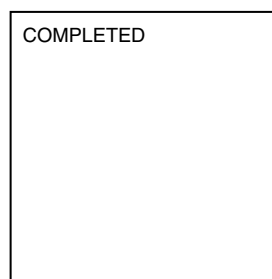


How to measure the standard V-ENV value of Digital Studio Picture Control

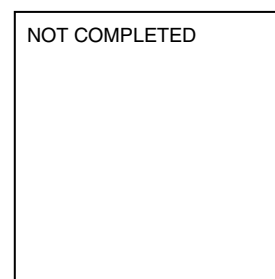
1. To enter the measuring the standard V-ENV value of Digital Studio Picture Control mode, press the RECORD/OTR button on the factory remote control unit in the factory set mode. The following picture is shown on the screen with superimpose.



2. Recording starts automatically for 10 seconds in SP mode. After that, recording starts for 10 seconds in LP mode.
3. The tape is rewinded to the recording start point.
4. The unit enters the play mode automatically and the V-ENV levels of each SP and LP modes are memorized into the EEPROM.
5. "COMPLETED" appears on the screen with blueback for 5 seconds, the unit enters the stop (A) mode, and is gone out from the factory mode.
6. If SYNC. and CTL are none, "NOT COMPLETED" appears on the screen with blueback for 5 seconds, the unit ejects the cassette and is gone out from the factory mode. Or, also when the V-ENV level in either of the SP and LP mode is written, "NOT COMPLETED" appears on the screen with blueback for 5 seconds, the unit ejects the cassette and is gone out from the factory mode.



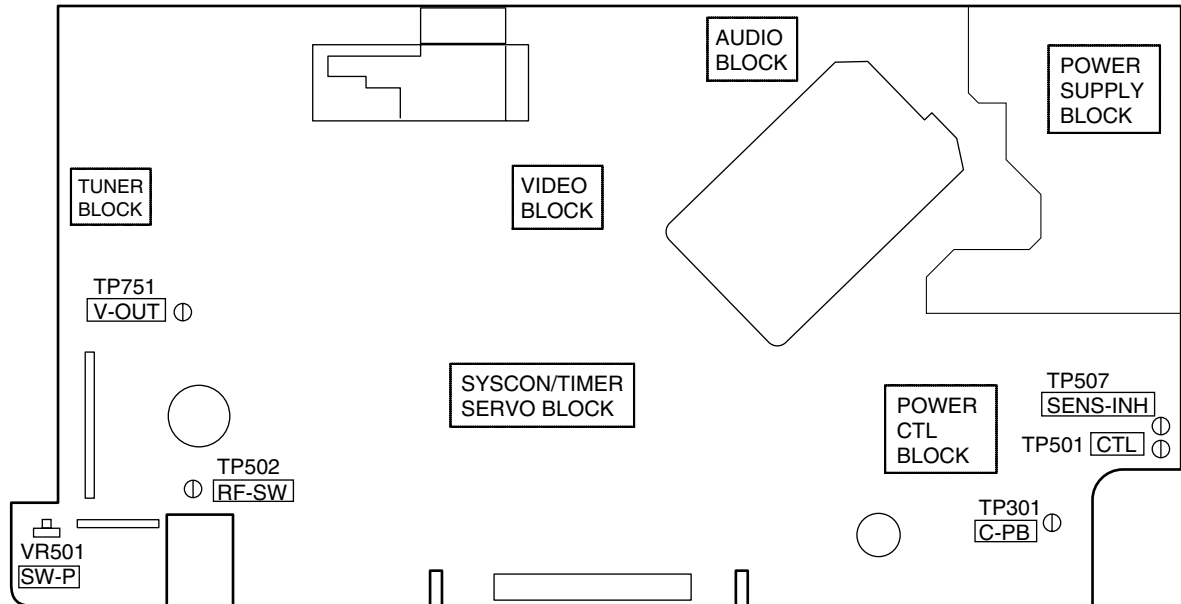
Normal



Abnormal

Adjustment Points and Test Points

Main CBA Top View

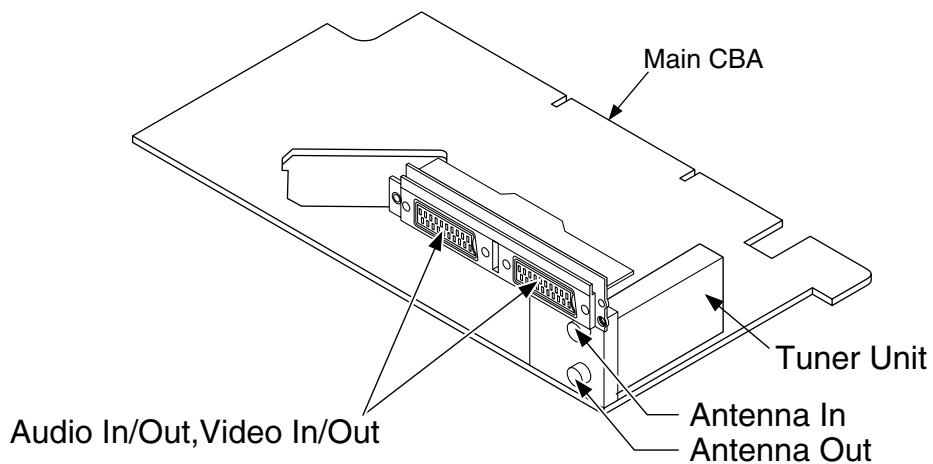


TEST POINT INFORMATION

⓪: 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



Servo/System Control Block Diagram

BLOCK DIAGRAMS

NOTE FOR WIRE CONNECTORS:

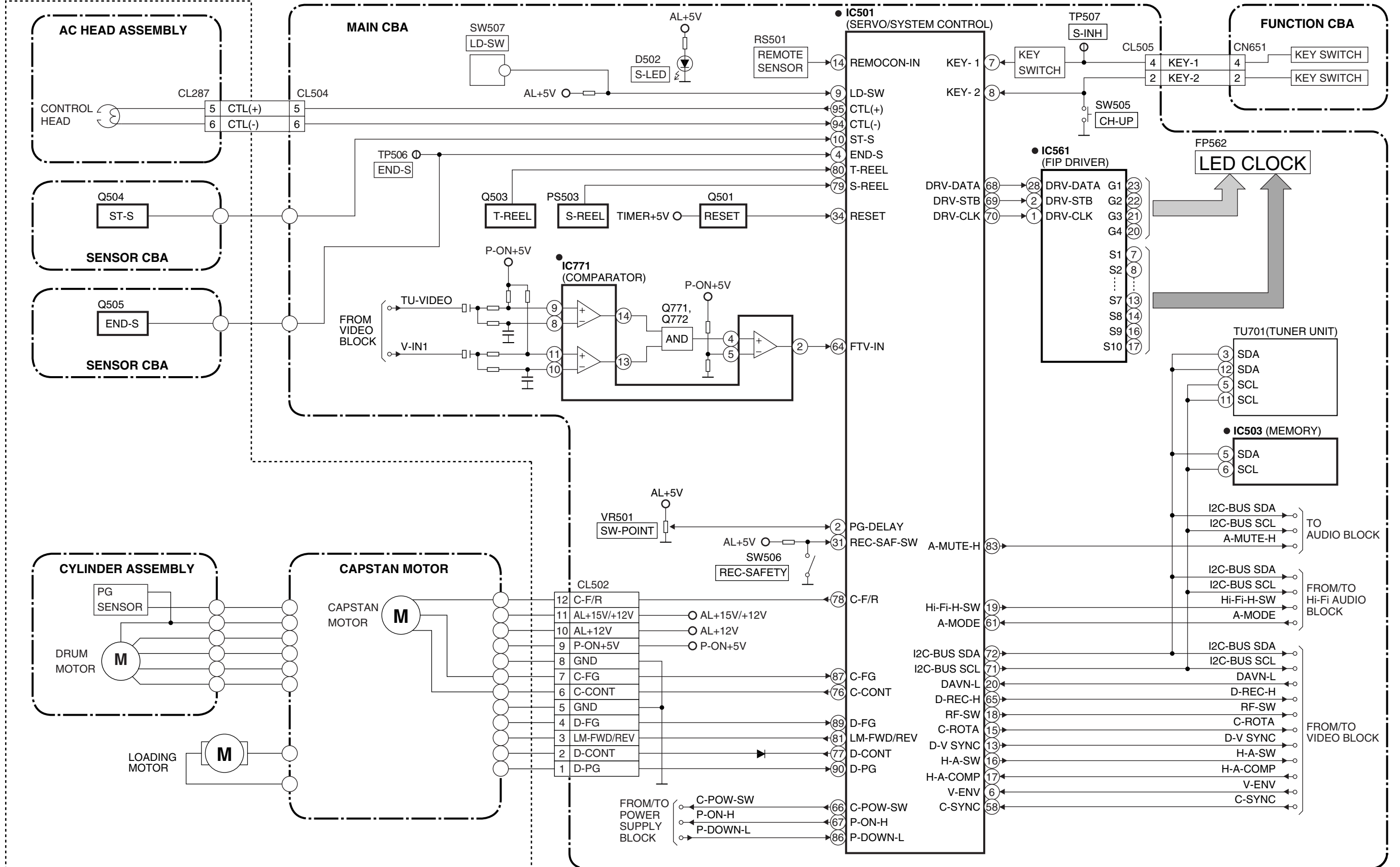
1. PREFIX SYMBOL "CN" MEANS CONNECTOR.
(CAN DISCONNECT AND RECONNECT.)
2. PREFIX SYMBOL "CL" MEANS WIRE-SOLDER HOLES OF THE PCB.
(WIRE IS SOLDERED DIRECTLY.)

TEST POINT INFORMATION

- ⊙ :INDICATES A TEST POINT WITH A JUMPER WIRE ACROSS A HOLE IN THE PCB.
- ◻ :USED TO INDICATE A TEST POINT WITH A COMPONENT LEAD ON FOIL SIDE.
- ⊗ :USED TO INDICATE A TEST POINT WITH NO TEST PIN.
- :USED TO INDICATE A TEST POINT WITH A TEST PIN.

"●" = SMD

(DECK ASSEMBLY)



Video Block Diagram

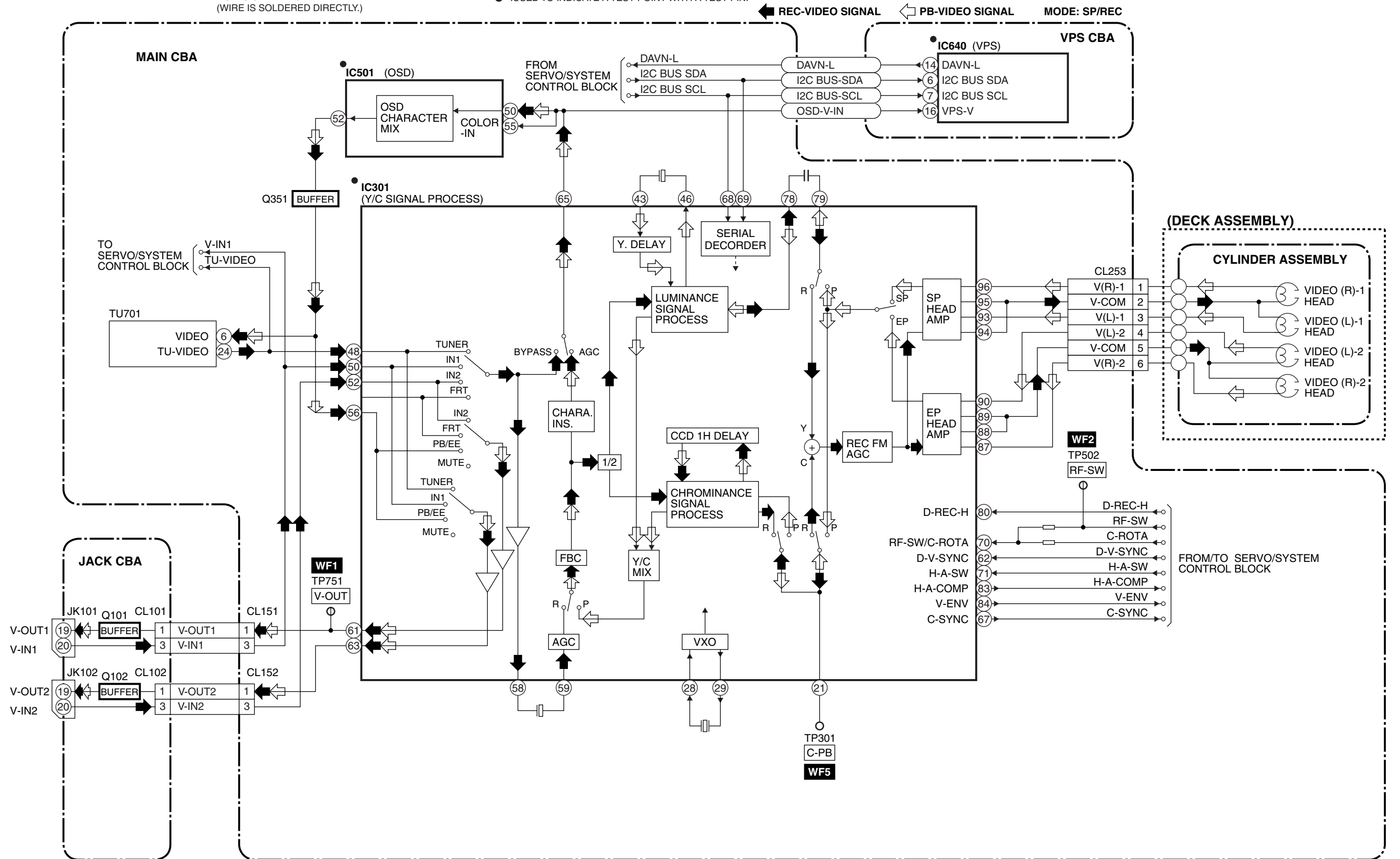
NOTE FOR WIRE CONNECTORS:

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

- ⊕ : 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.



Audio Block Diagram

NOTE FOR WIRE CONNECTORS:

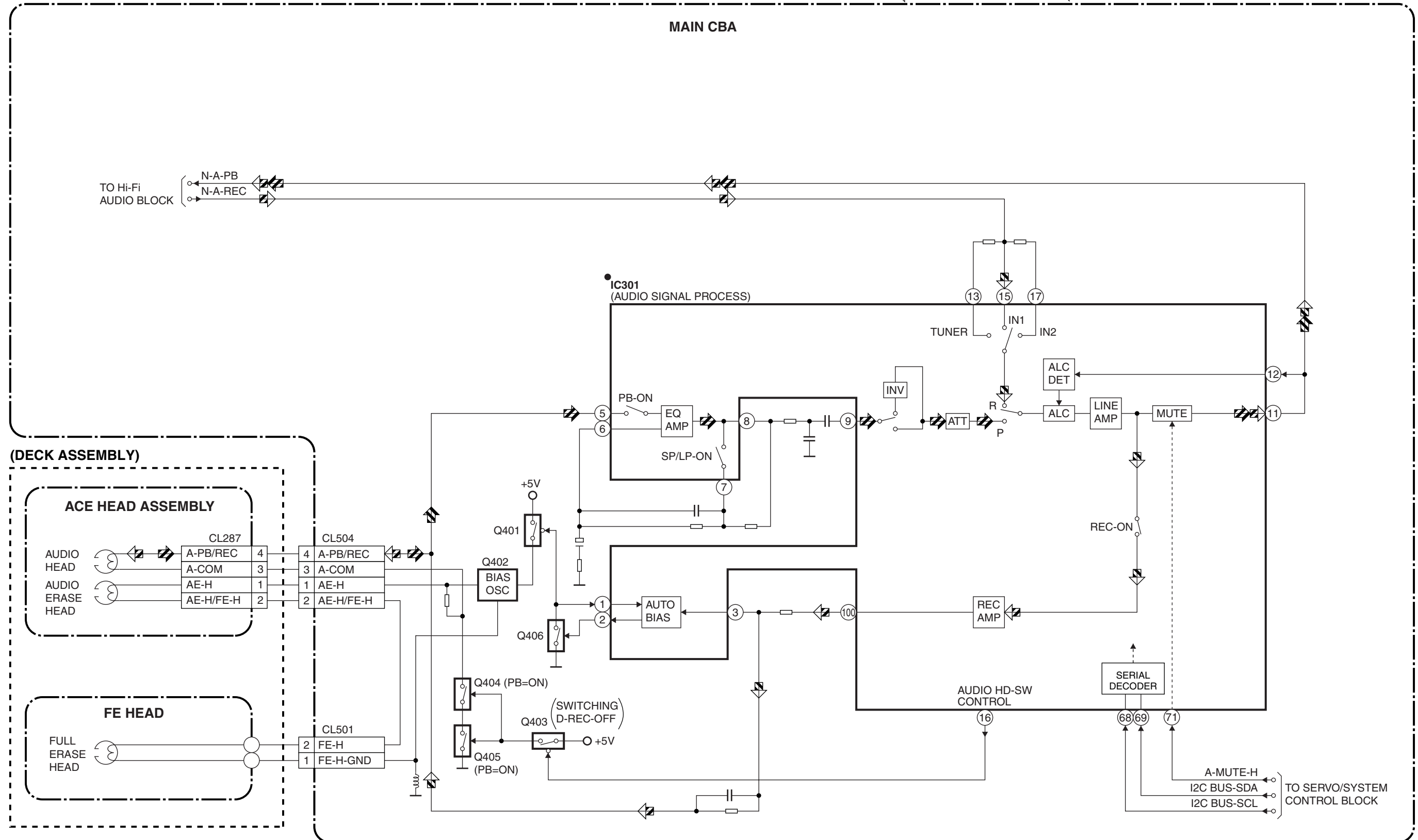
1. PREFIX SYMBOL "CN" MEANS CONNECTOR. (CAN DISCONNECT AND RECONNECT.)
2. PREFIX SYMBOL "CL" MEANS WIRE-SOLDER HOLES OF THE PCB. (WIRE IS SOLDERED DIRECTLY.)

"●" = SMD

TEST POINT INFORMATION

- ⊙ :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.

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



Hi-Fi Audio Block Diagram

"•" = SMD

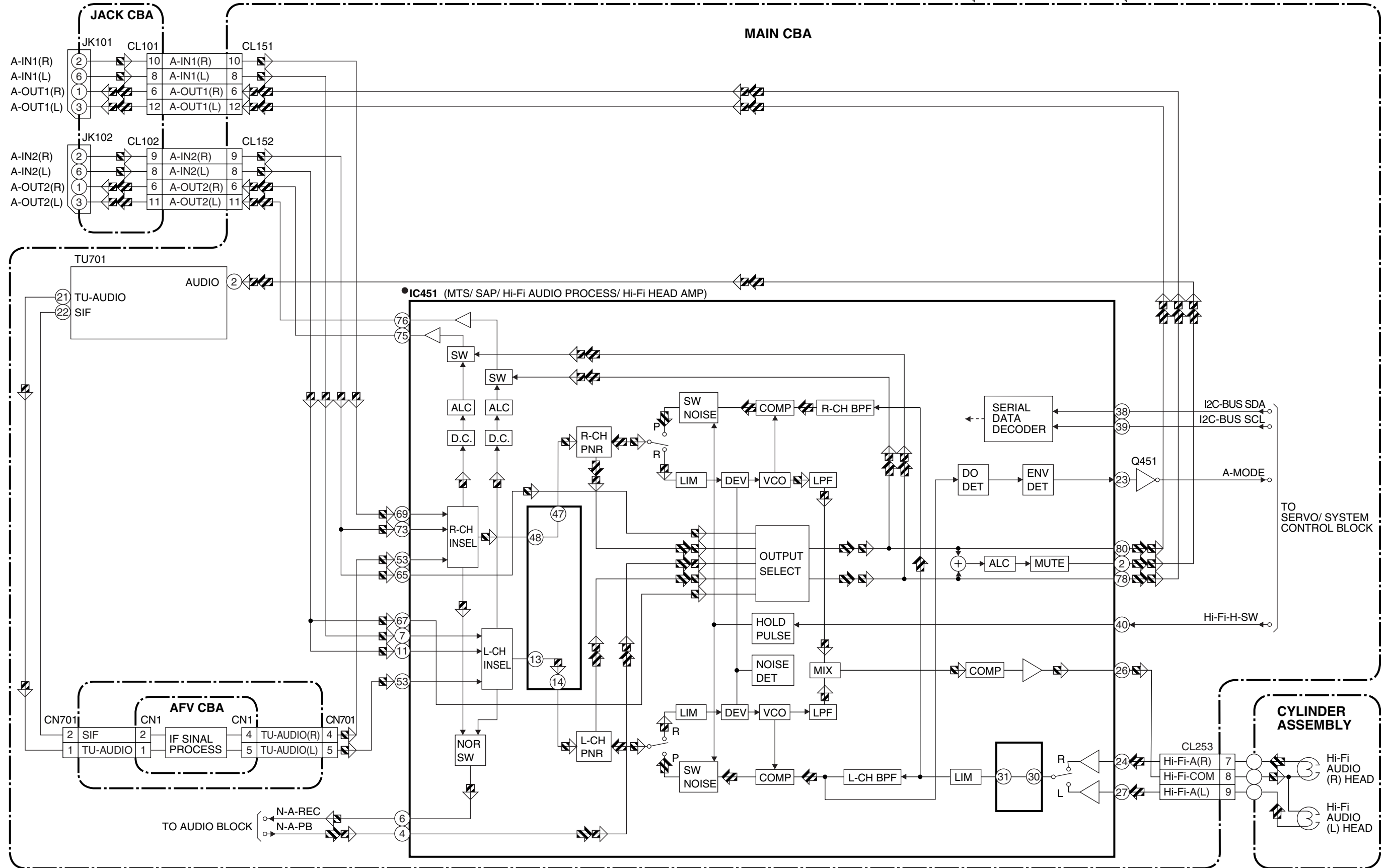
NOTE FOR WIRE CONNECTORS:
 1. PREFIX SYMBOL "CN" MEANS CONNECTOR.
 (CAN DISCONNECT AND RECONNECT.)
 2. PREFIX SYMBOL "CL" MEANS WIRE-SOLDER
 HOLES OF THE PCB.
 (WIRE IS SOLDERED DIRECTLY.)

TEST POINT INFORMATION
 ○ : INDICATES A TEST POINT WITH A JUMPER WIRE ACROSS A HOLE IN THE PCB.
 □ : USED TO INDICATE A TEST POINT WITH A COMPONENT LEAD ON FOIL SIDE.
 ⊗ : USED TO INDICATE A TEST POINT WITH NO TEST PIN.
 ● : USED TO INDICATE A TEST POINT WITH A TEST PIN.

PB-AUDIO SIGNAL

REC-AUDIO SIGNAL

Mode : SP/REC

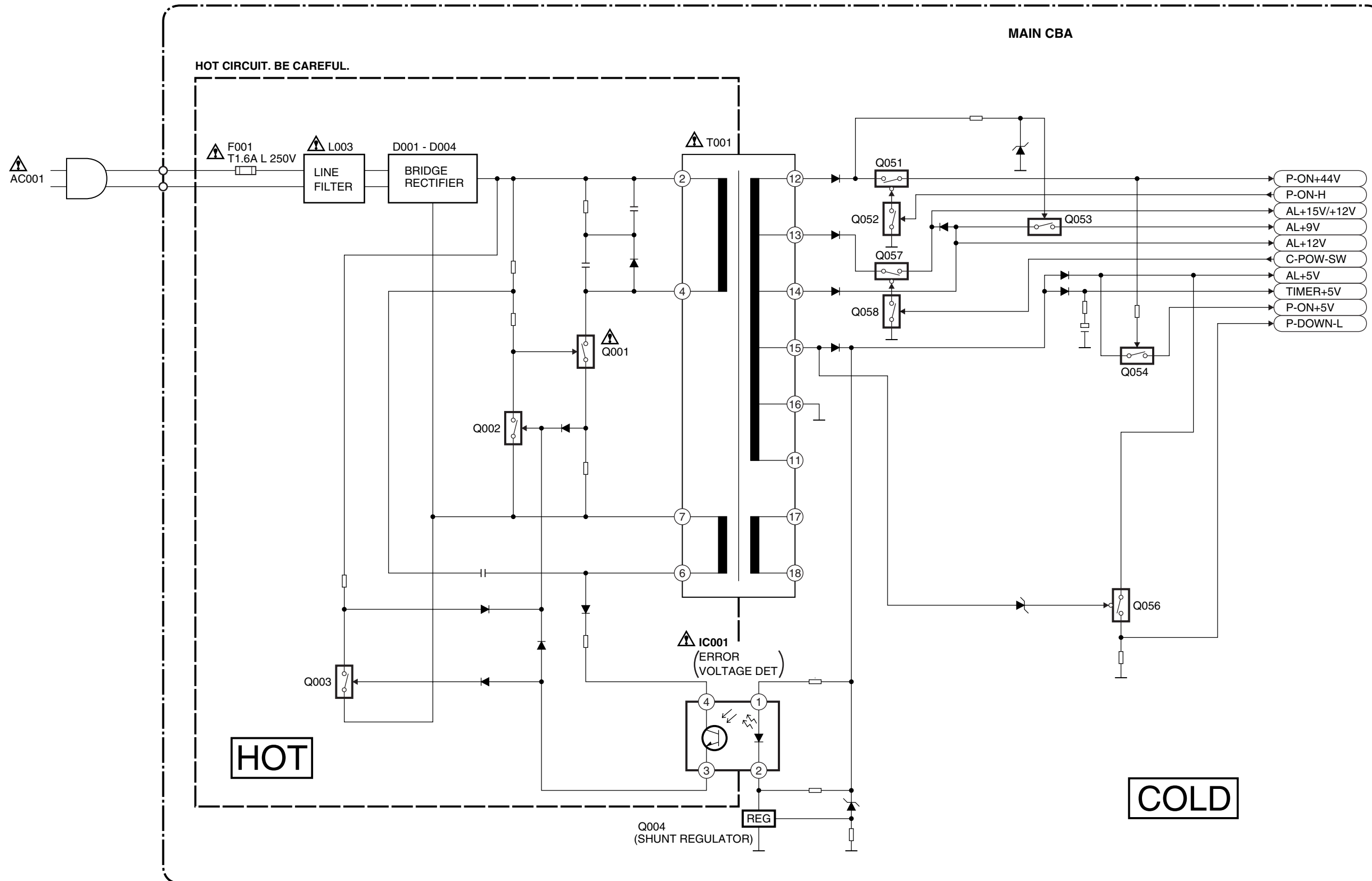


Power Supply Block Diagram

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

CAUTION
FOR CONTINUED PROTECTION AGAINST FIRE HAZARD,
REPLACE ONLY WITH THE SAME TYPE T1.6AL/250V FUSE.

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.



SCHEMATIC DIAGRAMS / CBA'S AND TEST POINTS

Main 1/5 Schematic Diagram Parts Location Guide

Standard Notes

WARNING

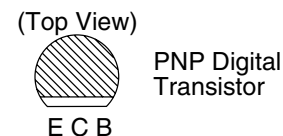
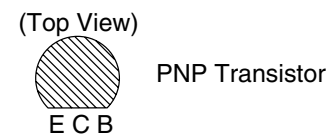
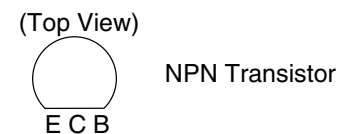
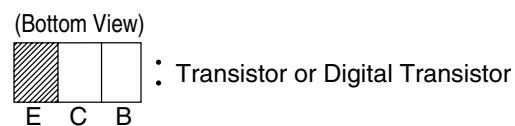
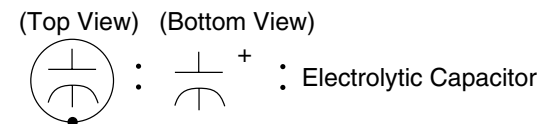
Many electrical and mechanical parts in this chassis have special characteristics. These characteristics often pass unnoticed and the protection afforded by them cannot necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts that have these special 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

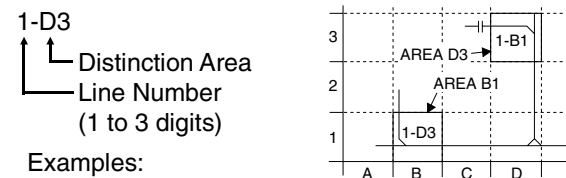
Capacitors and transistors are represented by the following symbols.

< PCB Symbols >



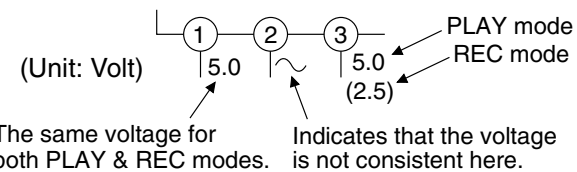
Notes:

- 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.
- 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.
- Prefix symbol "CN" means "connector" (can disconnect and reconnect).
Prefix symbol "CL" means "wire-solder holes of the PCB" (wire is soldered directly).
- How to read converged lines.

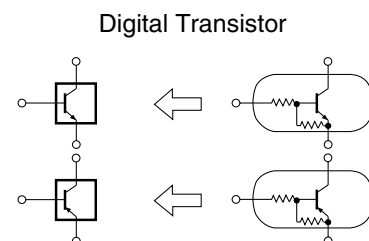


Examples:

- "1-D3" means that line number "1" goes to area "D3."
 - "1-B1" means that line number "1" goes to area "B1."
- All resistance values are indicated in ohms (K=10³, M=10⁶).
 - Resistor wattages are 1/4W or 1/6W unless otherwise specified.
 - All capacitance values are indicated in μF (P=10⁻⁶ μF).
 - All voltages are DC voltages unless otherwise specified.
 - Voltage indications for PLAY and REC modes on the schematics are as shown below.

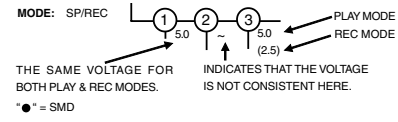


< Schematic Diagram Symbols >



Ref No.	Position	Ref No.	Position	Ref No.	Position	Ref No.	Position
CAPACITORS		CONNECTORS		RESISTORS		RESISTORS	
C501	B-1	CL502	F-5	R509	E-1	R552	E-3
C502	B-1	CL504	F-5	R510	E-2	R555	C-1
C506	D-1	CL505	A-2	R511	E-2	R556	C-1
C508	E-2	CL508	A-3	R513	F-2	R558	C-1
C510	F-2	CL509	A-3	R514	F-2	R566	D-5
C511	E-2	DIODES		R516	E-2	R607	D-4
C512	E-2	D501	E-4	R517	E-2	R612	D-1
C513	E-2	D502	A-1	R518	F-3	R616	D-1
C514	E-2	D552	E-3	R519	F-3	R851	E-3
C515	E-2	D553	E-2	R520	E-4	R852	E-3
C516	E-2	ICS		R521	E-4	R853	E-3
C517	E-4	IC501	C-2	R522	E-4	SWITCHES	
C518	F-4	IC503	B-3	R523	C-4	SW501	A-3
C519	C-3	IC561	D-5	R524	B-4	SW502	A-3
C520	B-3	COILS		R525	B-3	SW504	A-3
C521	B-2	L501	B-1	R526	B-2	SW505	A-2
C522	B-2	L561	B-4	R527	B-2	SW506	E-1
C523	B-2	L562	B-4	R528	C-1	SW507	A-2
C526	B-2	L851	E-3	R529	A-1	SW510	A-3
C527	B-2	L853	D-4	R530	A-3	VARIABLE RESISTORS	
C529	B-2	TRANSISTORS		R531	A-3	VR501	B-1
C530	B-2	Q501	E-2	R533	B-3	CRYSTAL OSCILLATORS	
C531	C-1	Q502	B-2	R534	A-2	X501	E-2
C535	B-3	Q503	A-3	R535	A-2	X502	E-2
C540	D-4	Q504	A-2	R536	A-2	MISCELLANEOUS	
C561	B-4	Q505	A-1	R537	A-2	FP562	B-5
C622	B-3	Q551	E-3	R538	B-2	PS503	B-3
C851	E-3	Q552	E-2	R539	B-2	RS501	B-2
C852	E-3	RESISTORS		R540	B-2	TEST POINTS	
C853	E-3	R501	C-1	R541	B-1	TP501	B-2
C854	E-3	R502	C-1	R542	A-3	TP502	D-1
C855	E-3	R503	C-1	R543	A-3	TP506	B-2
C856	E-3	R504	C-1	R544	A-3	TP507	A-2
C859	D-4	R505	C-1	R545	A-2	TP508	D-1
C862	E-3	R506	C-1	R546	A-2		
CONNECTORS		R507	C-1	R547	A-3		
CL501	F-4	R508	D-1	R551	E-3		

Main 1/5 Schematic Diagram

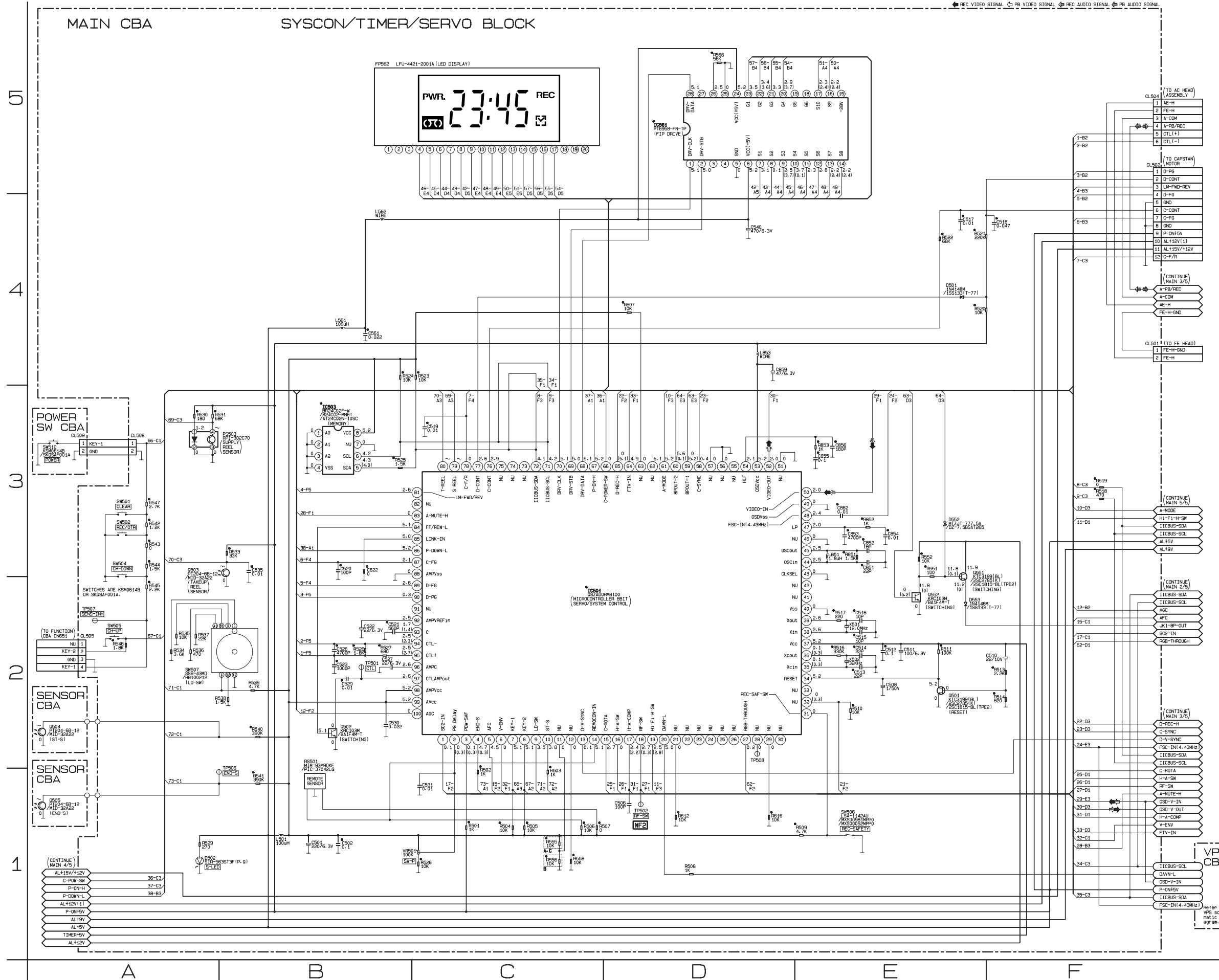


Comparison Chart of Models and Marks

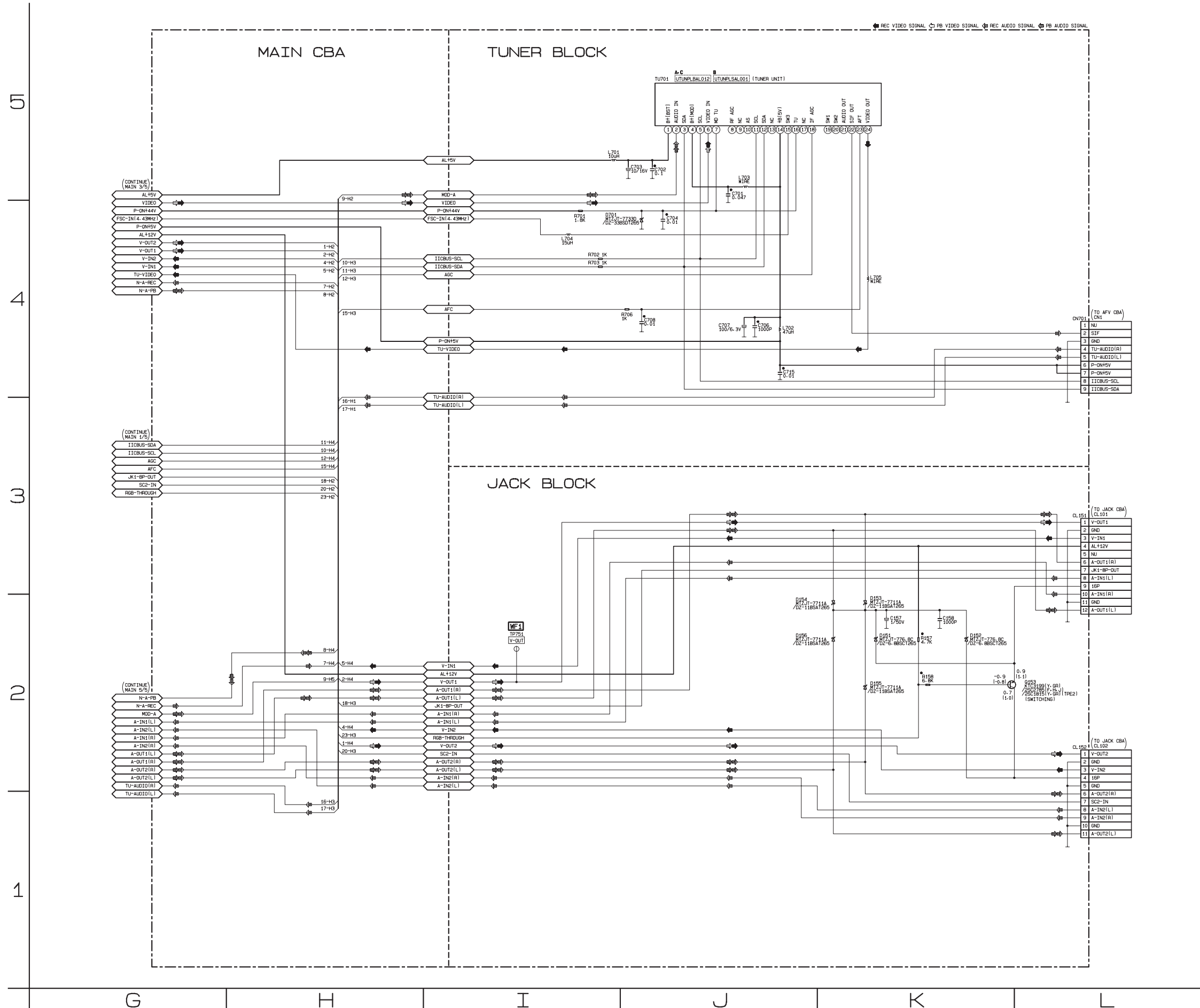
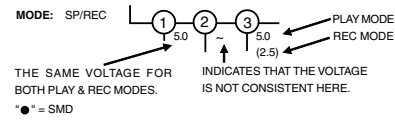
MODEL	MARK
VR530/02	A
VR530/07	B
VR530/16	C

IC501 KEY VOLTAGE CHART

Pin No.	KEY 1 (7PIN)	KEY 2 (8 PIN)
0.00 - 0.51V	POWER	CH UP
0.51 - 0.92V	-----	REW
0.92 - 1.27V	COUNTER RESET	PLAY
1.27 - 1.61V	REC/OTR	FF
1.61 - 1.98V	CH DOWN	PAUSE
1.98 - 2.39V	S-IN	-----
2.39 - 2.90V	-----	STOP/EJECT
2.90 - 3.60V	-----	-----
3.60 - 4.30V	-----	-----
4.30 - 5.00V	KEY OFF	KEY OFF



MODEL	MARK
VR530/02	A
VR530/07	B
VR530/16	C



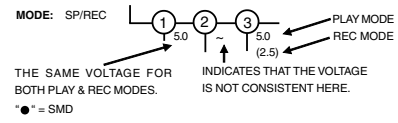
MAIN 2/5 Schematic Diagram Parts Location Guide

Ref No.	Position
CAPACITORS	
C157	K-2
C158	K-2
C701	J-5
C702	J-5
C703	J-5
C704	J-4
C706	J-4
C707	J-4
C708	J-4
C715	J-4
CONNECTORS	
CL151	L-3
CL152	L-2
CN701	L-4
DIODES	
D151	K-2
D152	K-2
D153	K-2
D154	J-2
D155	K-2
D156	J-2
D701	I-4
COILS	
L701	I-5
L702	J-4
L703	J-5
L704	I-4
L705	K-4
TRANSISTORS	
Q153	L-2
RESISTORS	
R157	K-2
R158	K-2
R701	I-4
R702	I-4
R703	I-4
R706	J-4
MISCELLANEOUS	
TU701	J-5
TEST POINTS	
TP751	I-2

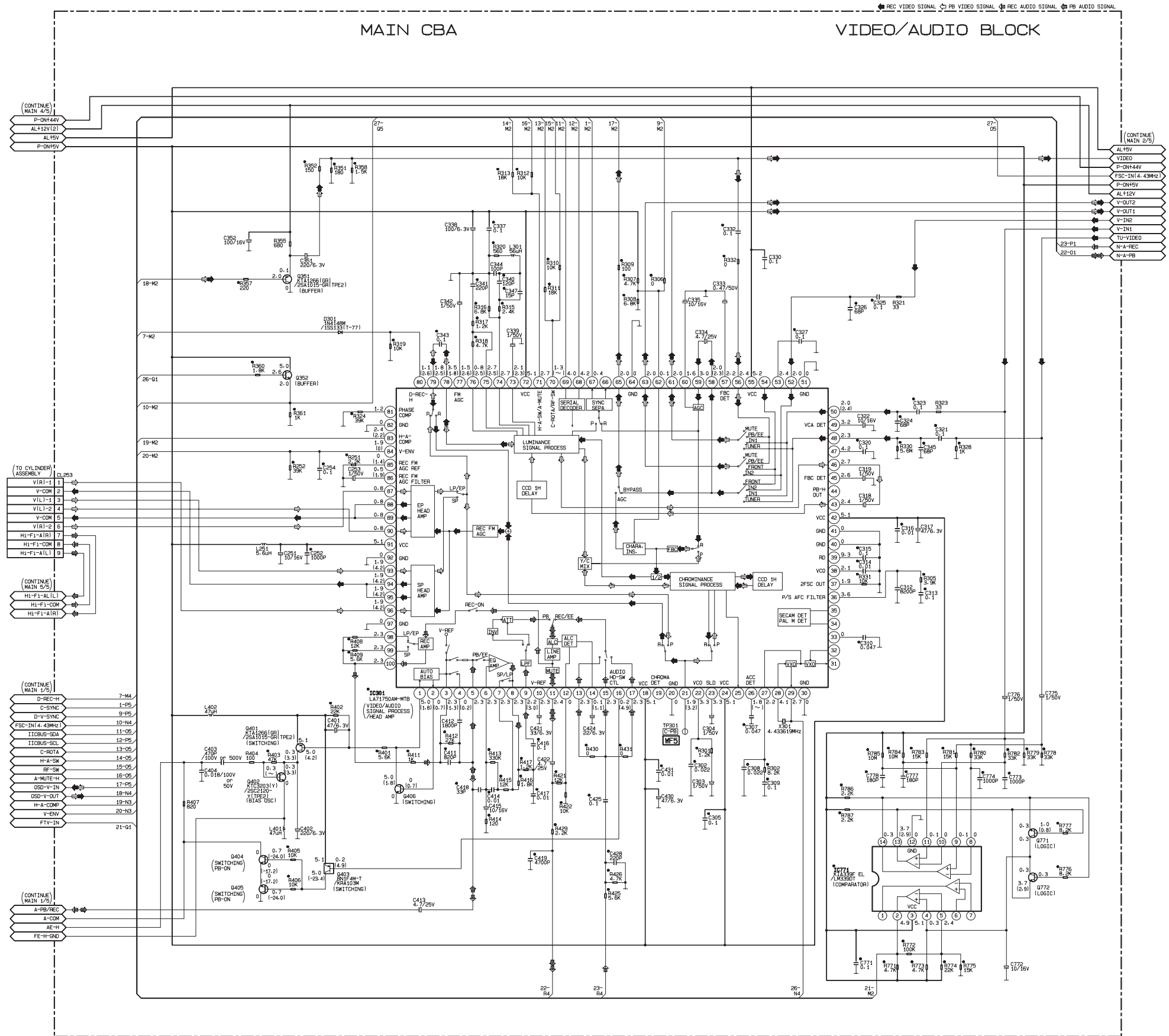
MAIN 3/5 Schematic Diagram Parts Location Guide

Ref No.	Position	Ref No.	Position	Ref No.	Position	Ref No.	Position
CAPACITORS		CAPACITORS		TRANSISTORS		RESISTORS	
C251	N-3	C352	N-4	Q401	N-2	R403	N-2
C252	N-3	C401	N-2	Q402	N-2	R404	N-2
C253	O-3	C402	N-2	Q403	N-1	R405	N-1
C254	N-3	C403	N-2	Q404	N-1	R406	N-1
C302	P-2	C404	N-2	Q405	N-1	R407	N-2
C303	P-2	C411	O-2	Q406	O-2	R408	O-2
C304	P-2	C412	O-2	Q771	R-2	R409	O-2
C305	P-2	C413	O-1	Q772	R-1	R411	O-2
C307	P-2	C414	O-2	RESISTORS		R412	O-2
C308	P-2	C415	O-2	R251	O-3	R413	O-2
C309	P-2	C416	O-2	R252	N-3	R414	O-2
C310	Q-2	C417	O-2	R301	P-2	R415	O-2
C312	Q-3	C418	O-2	R302	P-2	R416	O-2
C313	Q-3	C419	O-1	R305	Q-3	R417	O-2
C314	Q-3	C421	O-2	R306	P-4	R421	O-2
C315	Q-3	C422	O-2	R307	P-4	R422	O-2
C316	Q-3	C424	P-2	R308	P-4	R425	P-1
C317	Q-3	C425	P-2	R309	P-4	R426	P-1
C318	Q-3	C428	P-1	R310	O-4	R429	O-2
C319	Q-3	C430	P-2	R311	O-4	R430	P-2
C320	Q-3	C431	P-2	R312	O-5	R431	P-2
C321	Q-3	C771	Q-1	R313	O-5	R771	Q-1
C322	Q-3	C772	R-1	R315	O-4	R772	Q-1
C323	Q-4	C773	R-2	R316	O-4	R773	Q-1
C324	Q-3	C774	Q-2	R317	O-4	R774	Q-1
C325	Q-4	C775	R-2	R318	O-4	R775	Q-1
C326	Q-4	C776	R-2	R319	O-4	R776	R-2
C327	Q-4	C777	Q-2	R320	O-4	R777	R-2
C330	P-4	C778	Q-2	R321	Q-4	R778	R-2
C332	P-4	CONNECTORS		R323	Q-4	R779	R-2
C333	P-4	CL253	M-3	R324	O-3	R780	Q-2
C334	P-4	DIODES		R328	Q-3	R781	Q-2
C335	P-4	D301	N-4	R330	Q-3	R782	R-2
C337	O-4	ICS		R331	Q-3	R783	Q-2
C338	O-4	IC301	O-2	R332	P-4	R784	Q-2
C339	O-4	IC771	Q-1	R351	N-5	R785	Q-2
C340	O-4	COILS		R352	N-5	R786	Q-2
C341	O-4	L251	N-3	R355	N-4	R787	Q-2
C342	O-4	L301	O-4	R357	N-4	CRYSTAL OSCILLATORS	
C343	O-4	L401	N-2	R358	O-5	X301	P-2
C344	O-4	L402	N-2	R360	N-4	TEST POINTS	
C345	Q-4	TRANSISTORS		R361	N-3	TP301	P-2
C347	O-4	Q351	N-4	R401	O-2		
C351	N-4	Q352	N-4	R402	N-2		

Main 3/5 Schematic Diagram



5
4
3
2
1
M N O P Q R



Main 4/5 Schematic Diagram

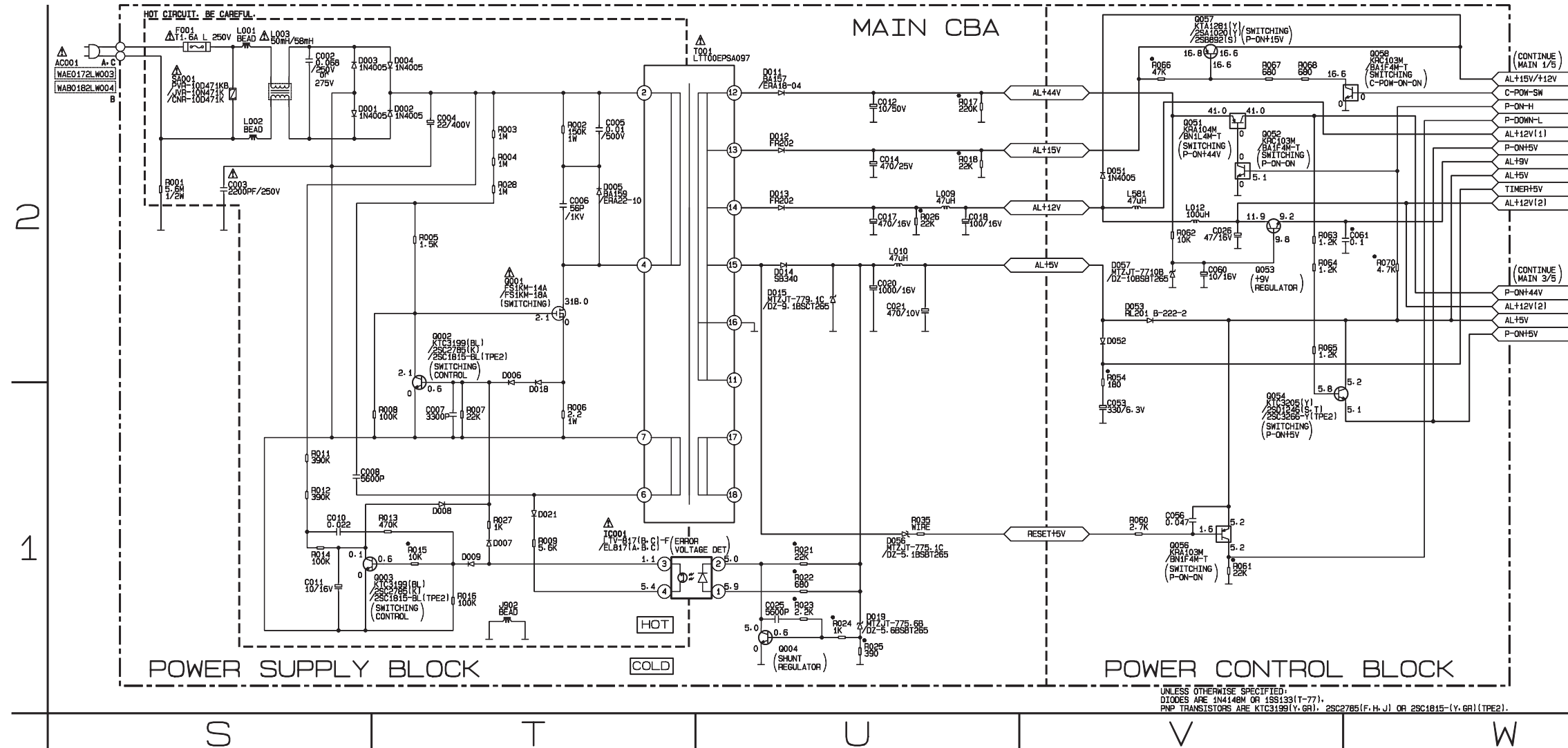
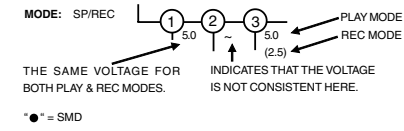
Comparison Chart of Models and Marks

MODEL	MARK
VR530/02	A
VR530/07	B
VR530/16	C

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

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

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.

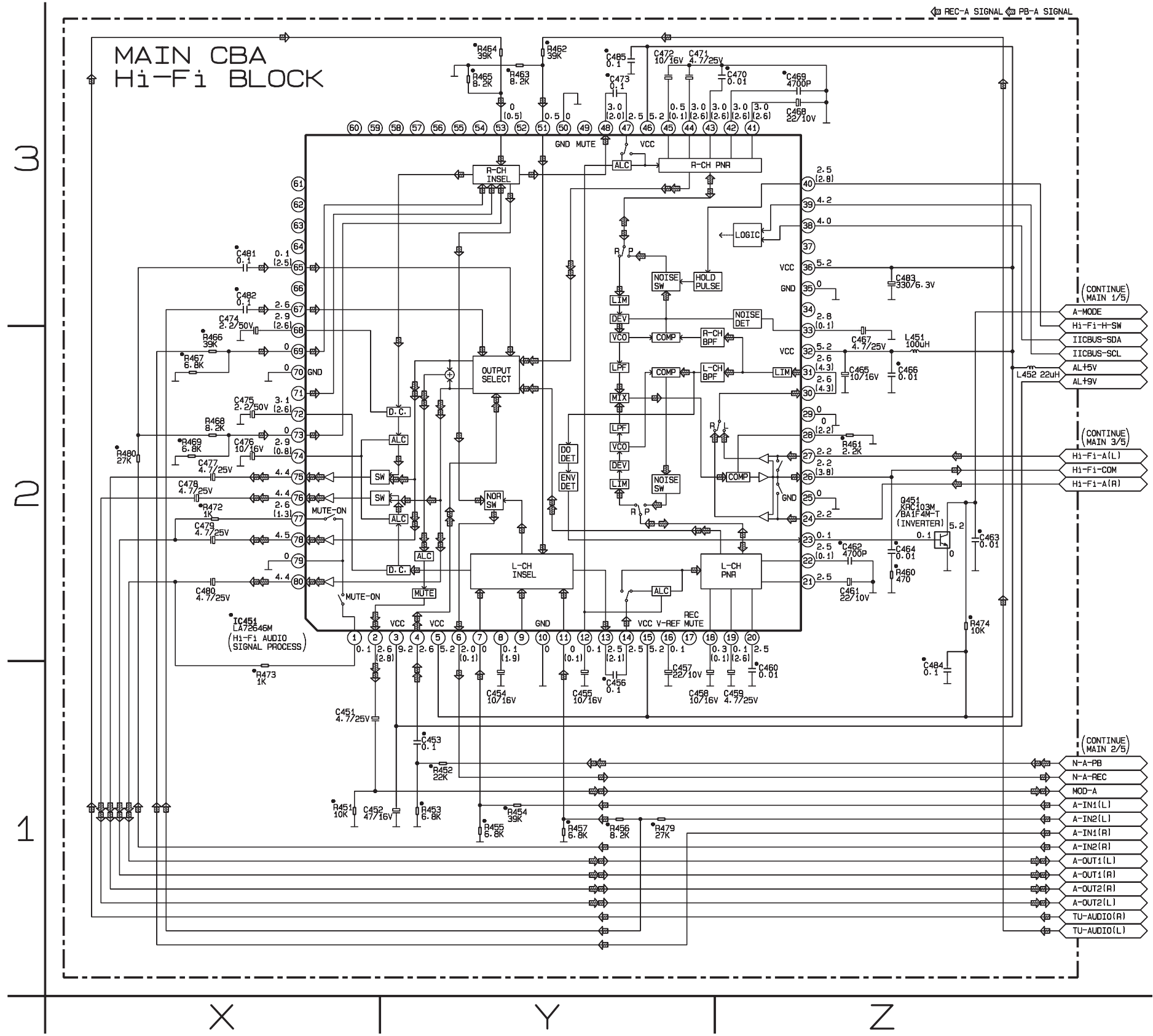
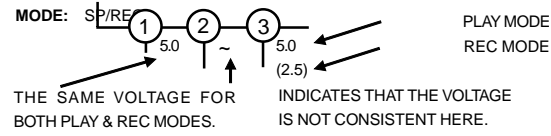


MAIN 4/5 Schematic Diagram Parts Location Guide

Ref No.	Position	Ref No.	Position
CAPACITORS			
C002	S-2	Q001	T-2
C003	S-2	Q002	T-2
C004	T-2	Q003	T-1
C005	T-2	Q004	U-1
C006	T-2	Q051	V-2
C007	T-1	Q052	V-2
C008	S-1	Q053	V-2
C010	S-1	Q054	V-1
C011	S-1	Q056	V-1
C012	U-2	Q057	V-2
C014	U-2	Q058	W-2
C017	U-2	RESISTORS	
C018	U-2	R001	S-2
C020	U-2	R002	T-2
C021	U-2	R003	T-2
C025	U-1	R004	T-2
C026	V-2	R005	T-2
C053	V-1	R006	T-1
C056	V-1	R007	T-1
C060	V-2	R008	T-1
C061	W-2	R009	T-1
DIODES			
D001	S-2	R012	S-1
D002	T-2	R013	T-1
D003	S-2	R014	S-1
D004	T-2	R015	T-1
D005	T-2	R016	T-1
D006	T-2	R017	U-2
D007	T-1	R018	U-2
D008	T-1	R021	U-1
D009	T-1	R022	U-1
D011	U-2	R023	U-1
D012	U-2	R024	U-1
D013	U-2	R025	U-1
D014	U-2	R026	U-2
D015	U-2	R027	T-1
D018	T-1	R028	T-2
D019	U-1	R035	U-1
D021	T-1	R054	V-2
D051	V-2	R060	V-1
D052	V-2	R061	V-1
D053	V-2	R062	V-2
D056	U-1	R063	V-2
D057	V-2	R064	V-2
ICs			
IC001	T-1	R065	V-2
COILS			
J902	T-1	R067	V-2
L001	S-2	R068	V-2
L002	S-2	R070	W-2
L003	S-2	AC001	S-2
L009	U-2	F001	S-2
L010	U-2	SA001	S-2
L012	T-1	T001	T-2
L581	V-2		

Main 5/5 Schematic Diagram

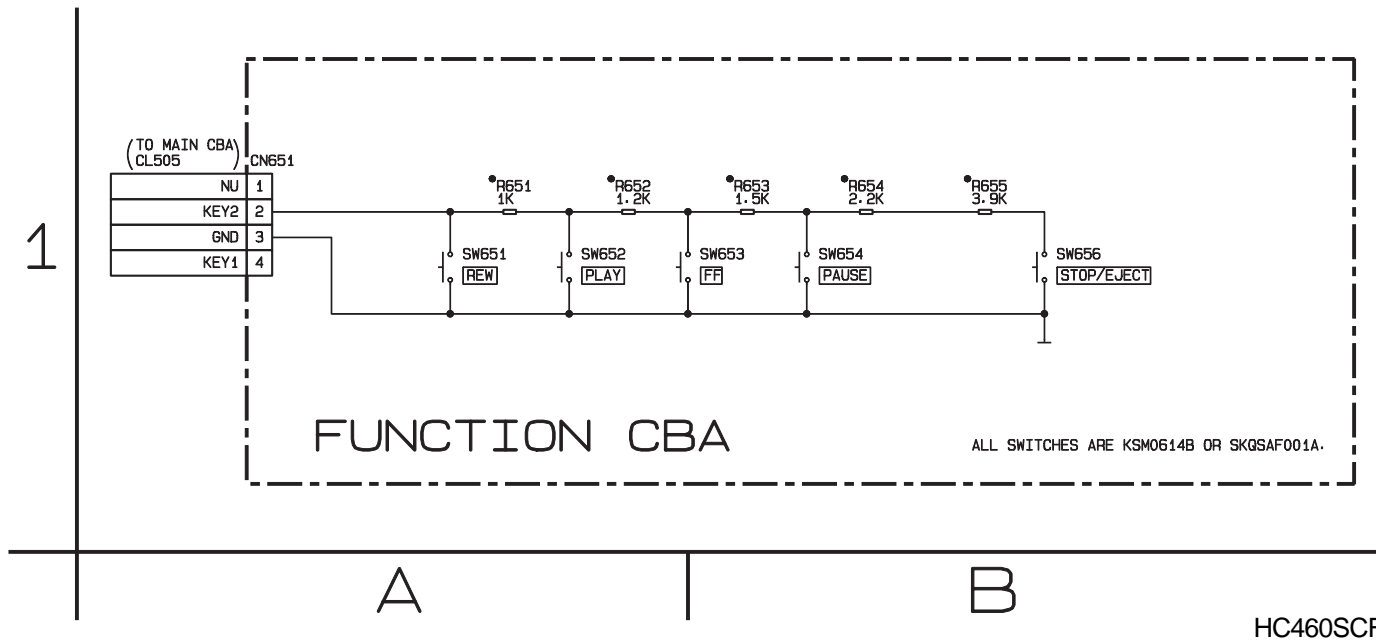
● = SMD



MAIN 5/5 Schematic Diagram Parts Location Guide

Ref No.	Position	Ref No.	Position
CAPACITORS			
C451	X-1	C484	Z-1
C452	X-1	C485	Y-3
C453	Y-1	ICS	
C454	Y-1	IC451	X-2
C455	Y-1	COILS	
C456	Y-1	L451	Z-2
C457	Y-1	L452	Z-2
C458	Y-1	TRANSISTORS	
C459	Z-1	Q451	Z-2
C460	Z-1	RESISTORS	
C461	Z-2	R451	X-1
C462	Z-2	R452	Y-1
C463	Z-2	R453	Y-1
C464	Z-2	R454	Y-1
C465	Z-2	R455	Y-1
C466	Z-2	R456	Y-1
C467	Z-2	R457	Y-1
C468	Z-3	R460	Z-2
C469	Z-3	R461	Z-2
C470	Z-3	R462	Y-3
C471	Y-3	R463	Y-3
C472	Y-3	R464	Y-3
C473	Y-3	R465	Y-3
C474	X-3	R466	X-2
C475	X-2	R467	X-2
C476	X-2	R468	X-2
C477	X-2	R469	X-2
C478	X-2	R472	X-2
C479	X-2	R473	X-1
C480	X-2	R474	Z-2
C481	X-3	R479	Y-1
C482	X-3	R480	X-2
C483	Z-3		

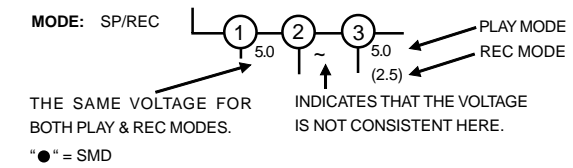
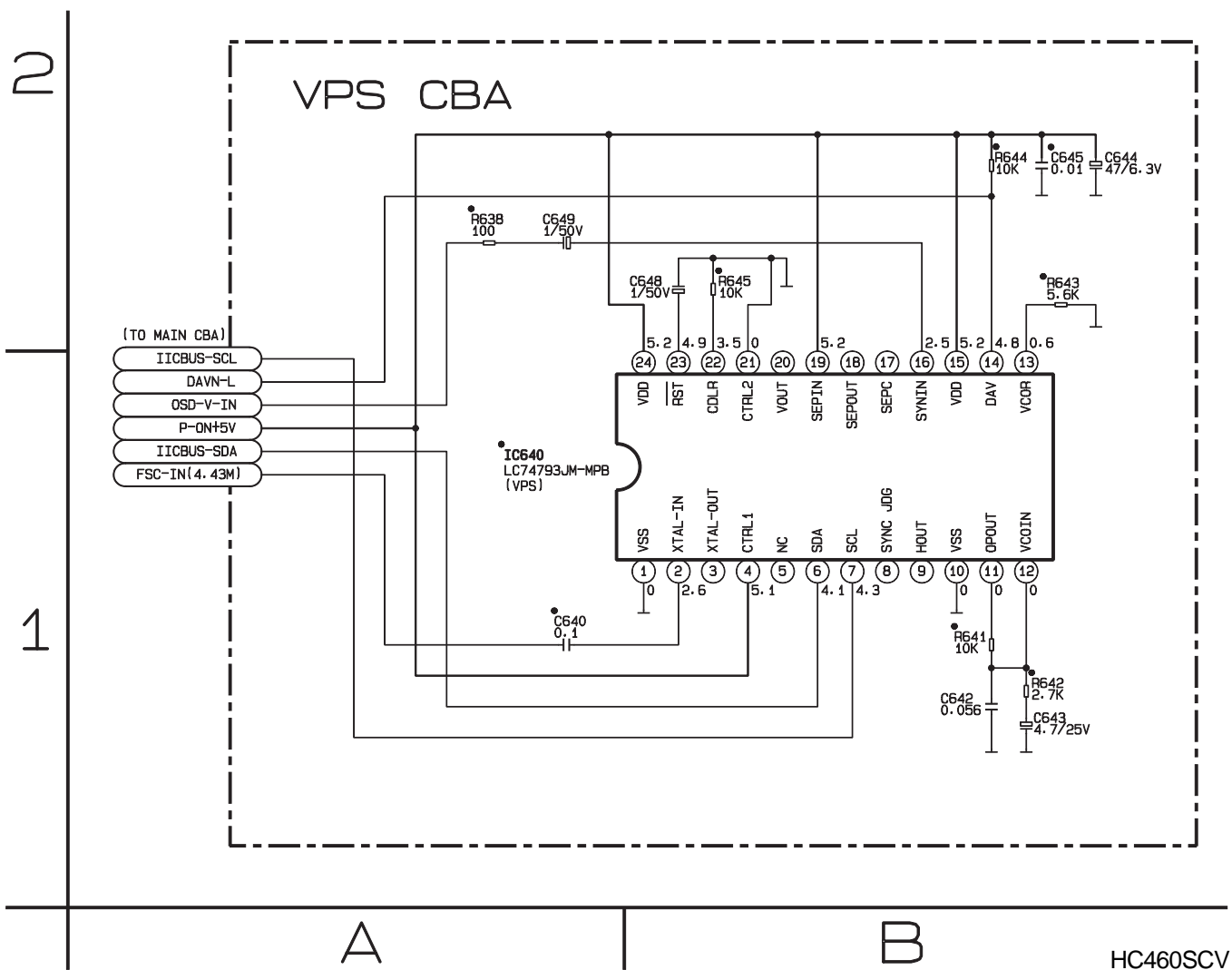
Function Schematic Diagram



Function Schematic Diagram Parts Location Guide

Ref No.	Position	Ref No.	Position
CONNECTORS		SWITCHES	
CN651	A-1	SW651	A-1
RESISTORS		SW652	
R651	A-1	SW653	B-1
R652	A-1	SW654	B-1
R653	B-1	SW656	B-1
R654	B-1		
R655	B-1		

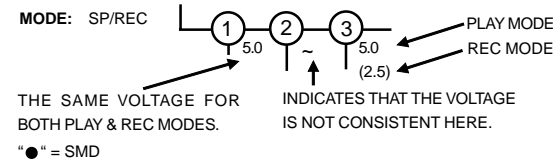
VPS Schematic Diagram



VPS Schematic Diagram Parts Location Guide

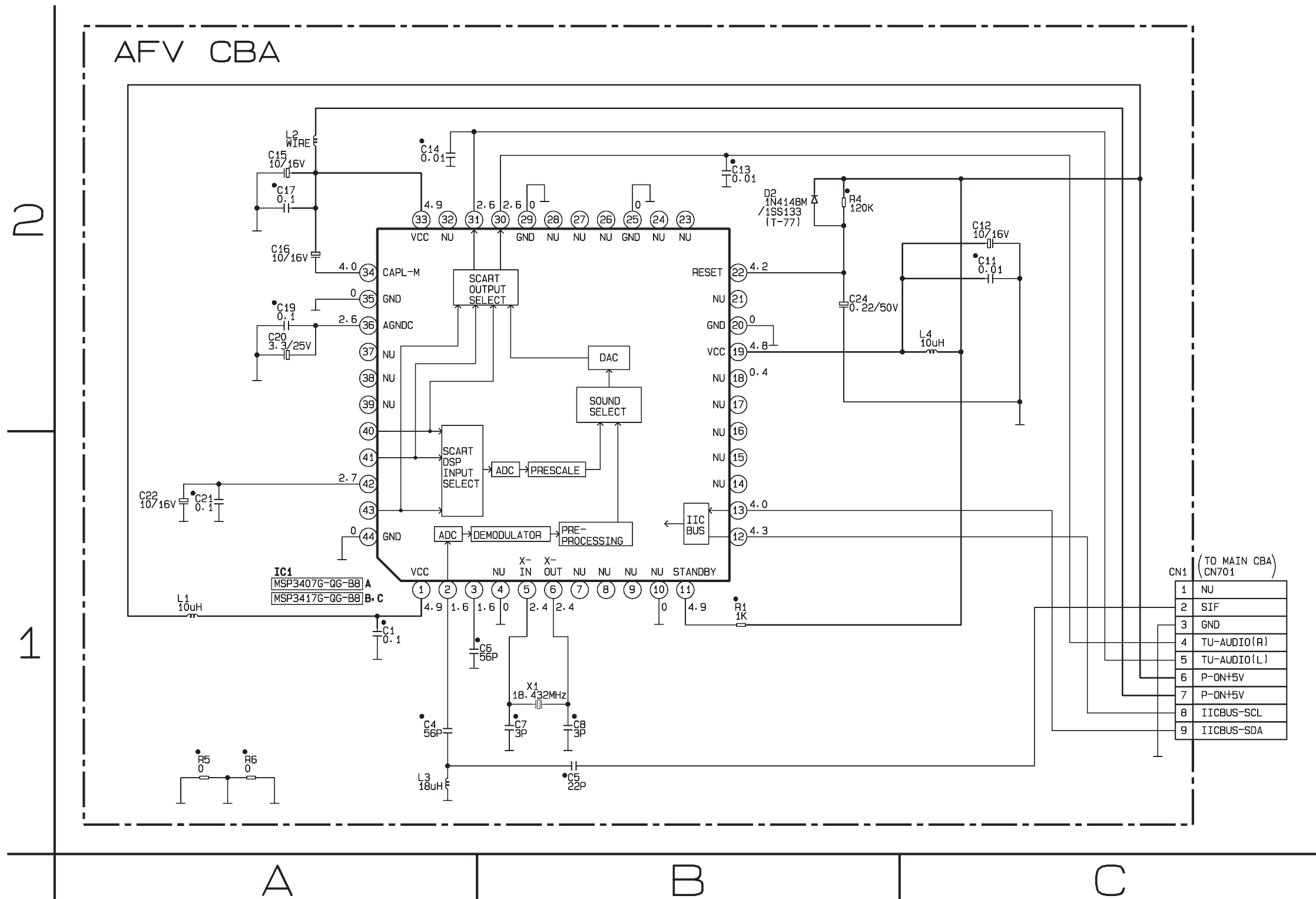
Ref No.	Position	Ref No.	Position
CAPACITORS		RESISTORS	
C640	A-1	R638	A-2
C642	B-1	R641	B-1
C643	B-1	R642	B-1
C644	B-2	R643	B-2
C645	B-2	R644	B-2
C648	B-2	R645	B-2
C649	A-2		
ICS			
IC640	A-2		

AFV Schematic Diagram



Comparison Chart of Models and Marks

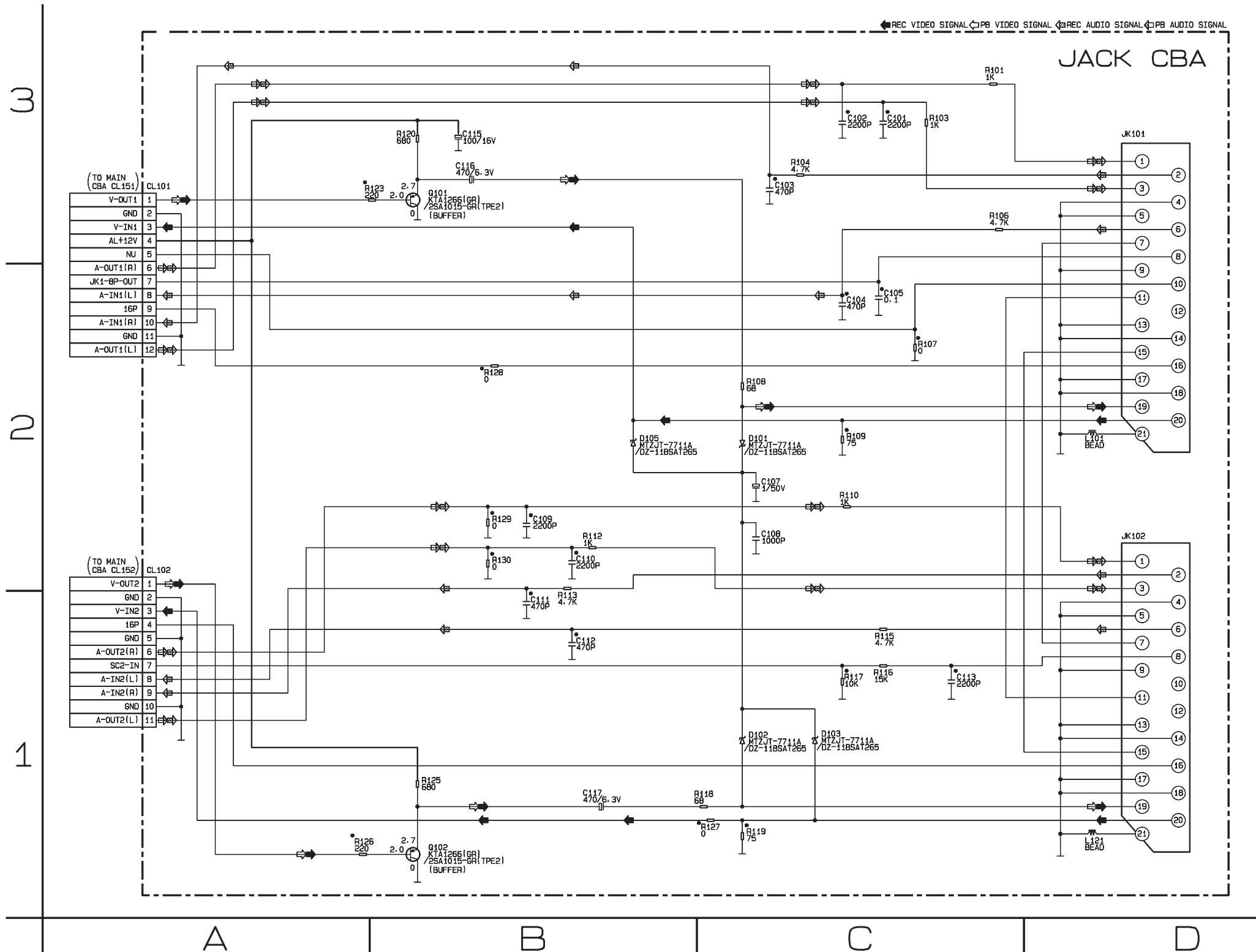
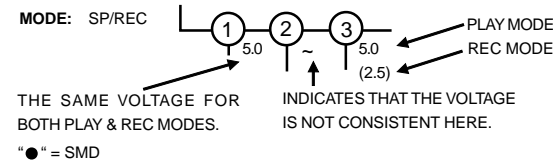
MODEL	MARK
VR530/02	A
VR530/07	B
VR530/16	C



AFV Schematic Diagram
Parts Location Guide

Ref No.	Position
CAPACITORS	
C1	A-1
C4	A-1
C5	B-1
C6	B-1
C7	B-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-1
C24	B-2
CONNECTORS	
CN1	C-1
DIODES	
D2	B-2
ICS	
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
R6	A-1
CRYSTAL OSCILLATORS	
X1	B-1

Jack Schematic Diagram



JACK Schematic Diagram Parts Location Guide

Ref No.	Position	Ref No.	Position
CAPACITORS		TRANSISTORS	
C101	C-3	Q102	B-1
C102	C-3	RESISTORS	
C103	C-3	R101	C-3
C104	C-2	R103	C-3
C105	C-2	R104	C-3
C107	C-2	R106	C-3
C108	C-2	R107	C-2
C109	B-2	R108	C-2
C110	B-2	R109	C-2
C111	B-1	R110	C-2
C112	B-1	R112	B-2
C113	C-1	R113	B-1
C115	B-3	R115	C-1
C116	B-3	R116	C-1
C117	B-1	R117	C-1
CONNECTORS		R118	C-1
CL101	A-3	R119	C-1
CL102	A-2	R120	B-3
DIODES		R123	B-3
D101	C-2	R125	B-1
D102	C-1	R126	A-1
D103	C-1	R127	C-1
D105	B-2	R128	B-2
COILS		R129	B-2
L101	D-2	R130	B-2
L121	D-1	MISCELLANEOUS	
TRANSISTORS		JK101	D-3
Q101	B-3	JK102	D-2

Main CBA Top View

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.

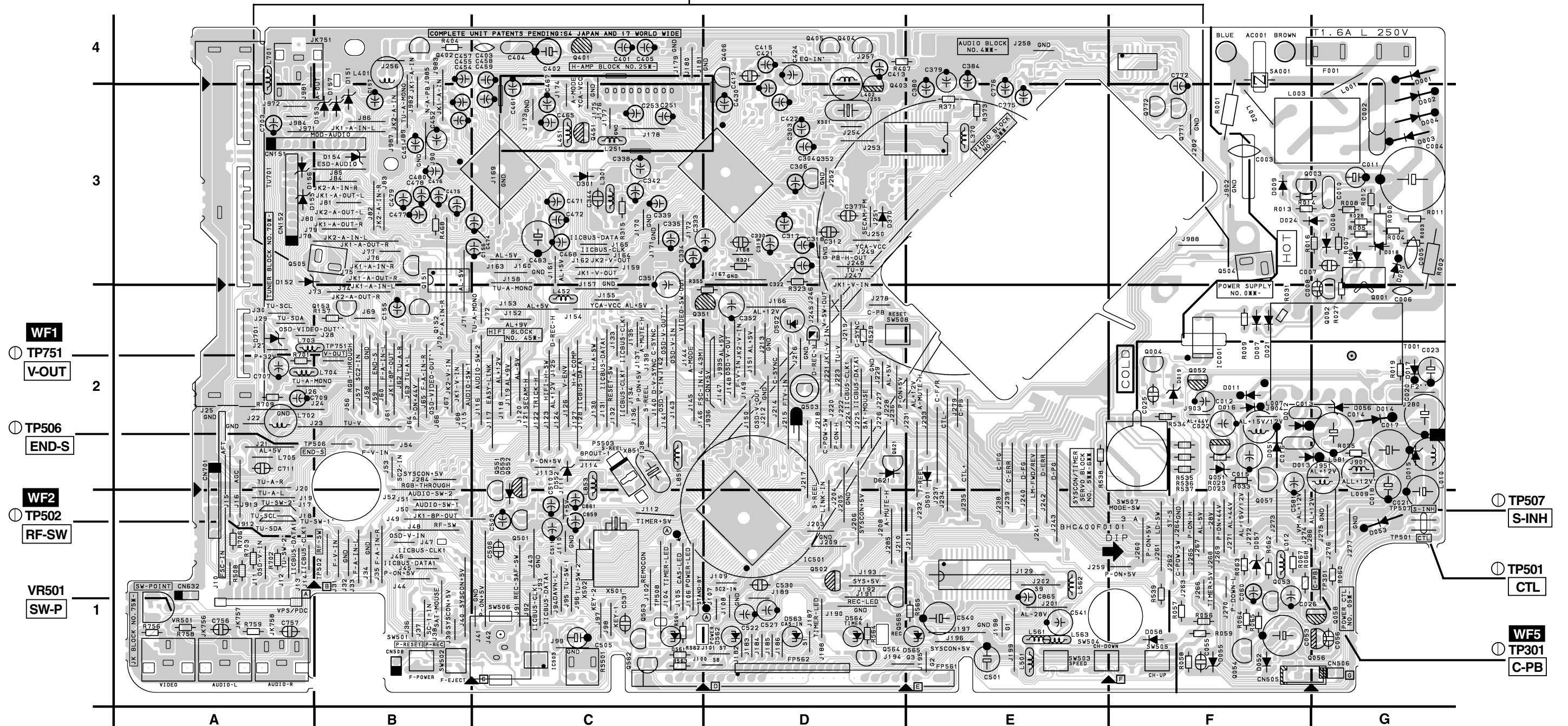
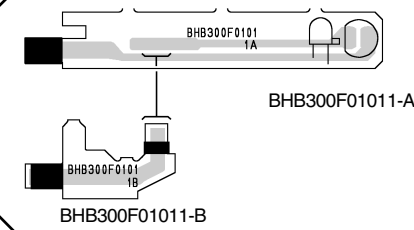
CAUTION
FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH THE SAME TYPE FUSE.

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.

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

NOTE :
Either BHC400F01013, BHC400F01014 is used for the Main CBA in this S/M.

Sensor CBA Top View



Main CBA Bottom View

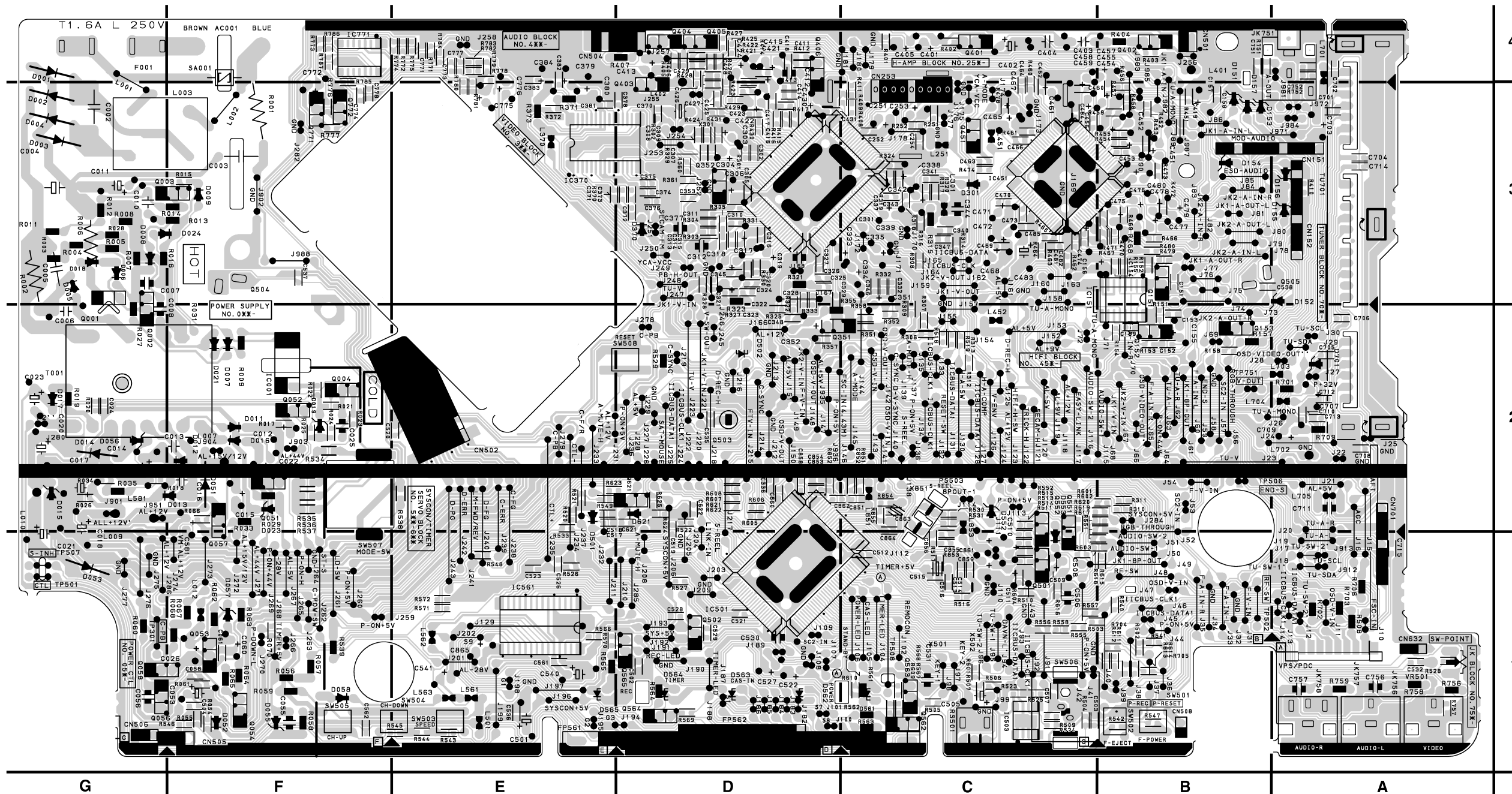
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CAUTION
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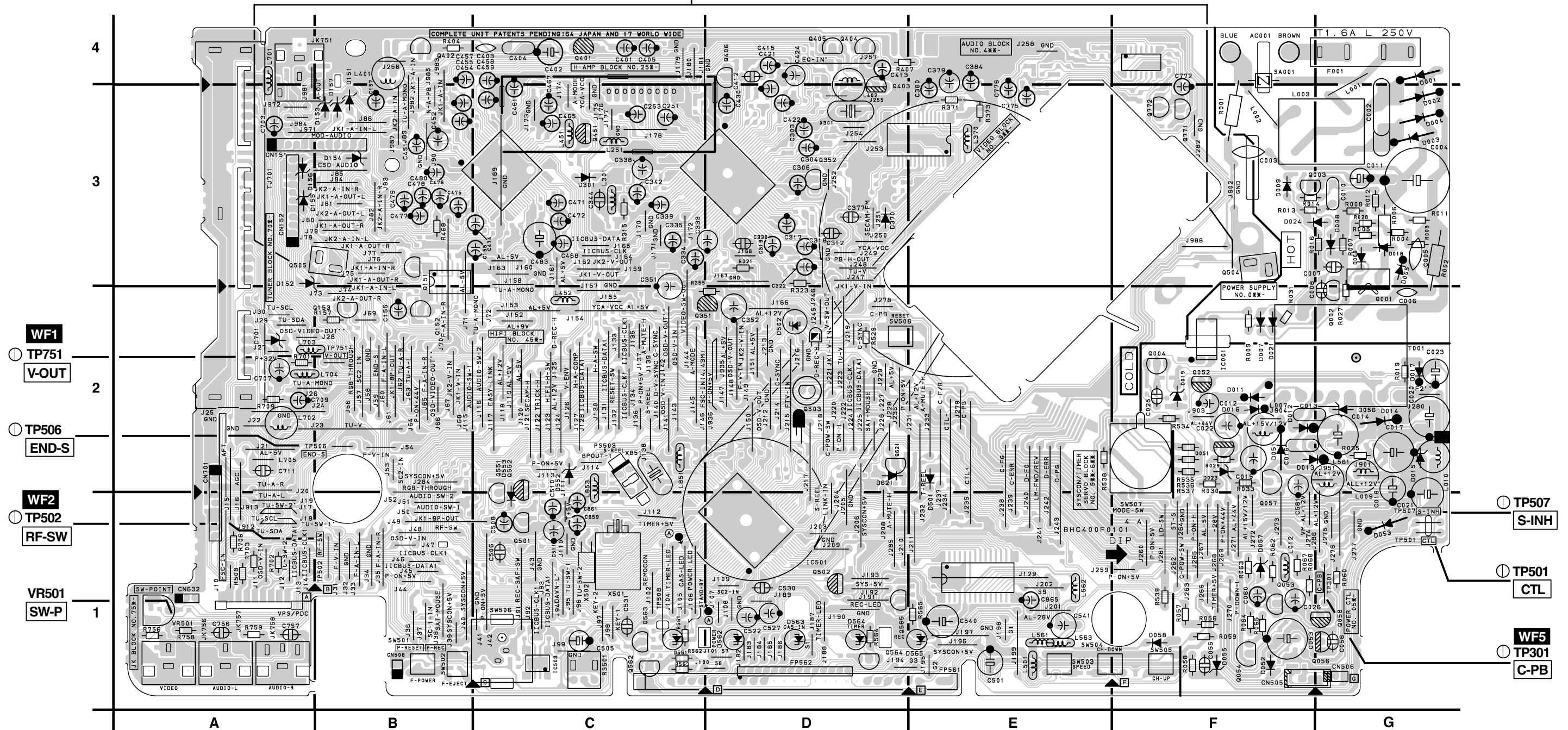
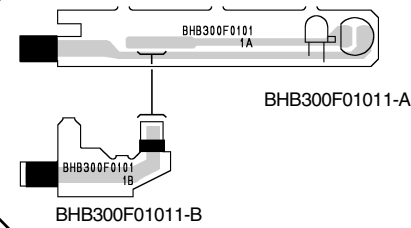
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Main CBA Bottom View

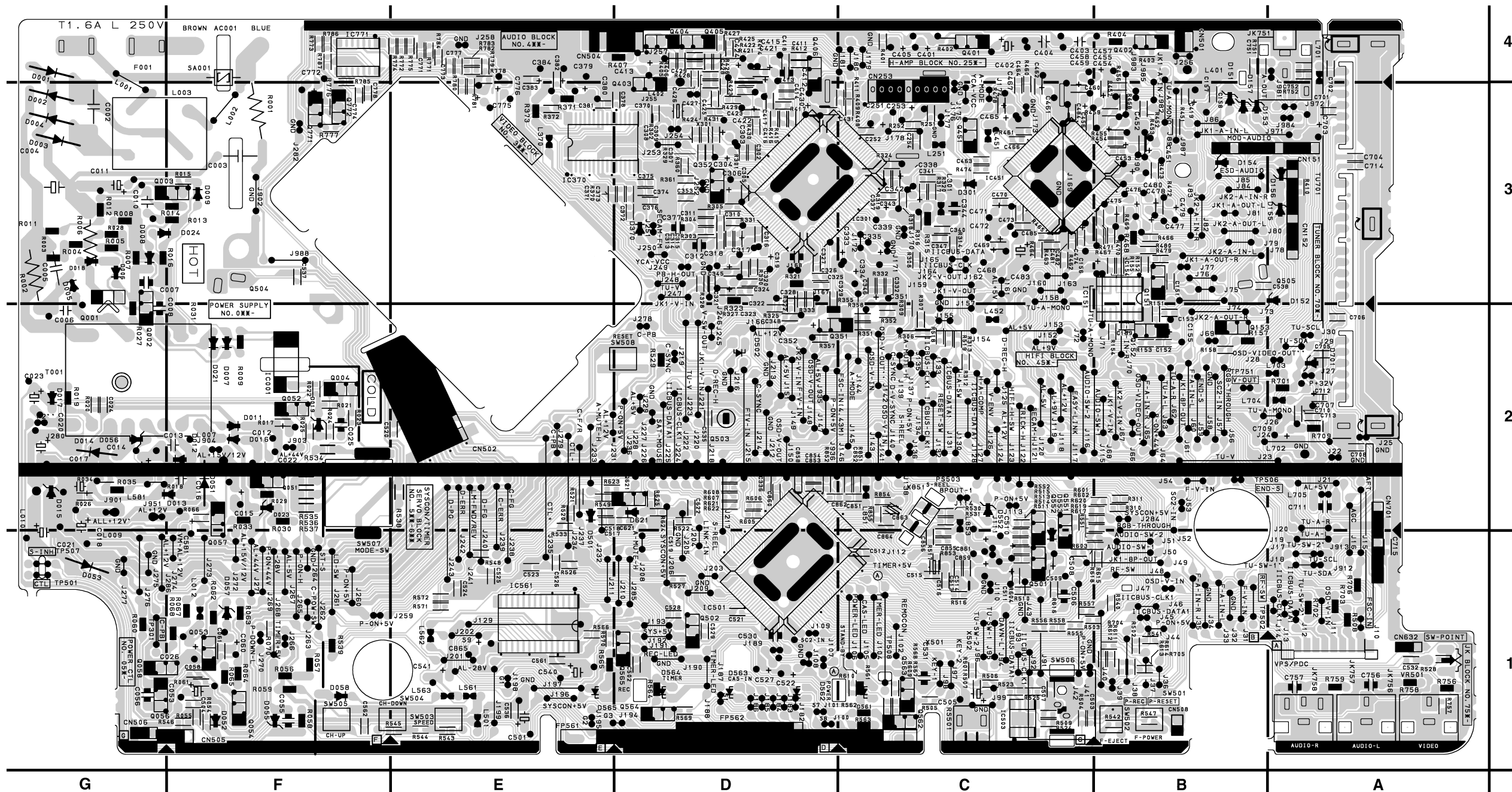
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Main CBA Parts Location Guide

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		COILS		RESISTORS		RESISTORS		RESISTORS		RESISTORS	
C002	G-3	C338	C-3	C477	B-3	C856	C-1	J902	F-3	R002	G-3	R321	D-3	R479	B-3	R703	A-1
C003	F-3	C339	C-3	C478	B-3	C859	C-1	L001	G-4	R003	G-3	R323	D-2	R480	B-3	R706	A-1
C004	G-3	C340	C-3	C479	B-3	C862	D-2	L002	F-3	R004	G-3	R324	C-3	R501	C-1	R771	E-4
C005	G-3	C341	C-3	C480	B-3	CONNECTORS		L003	F-3	R005	G-3	R328	D-3	R502	B-1	R772	E-4
C006	G-2	C342	C-3	C481	C-3	CL151	A-3	L009	C-1	R006	G-3	R330	D-3	R503	C-1	R773	F-4
C007	F-3	C343	C-3	C482	C-3	CL152	A-3	L010	G-2	R007	G-3	R331	D-3	R504	C-1	R774	E-4
C008	F-2	C344	C-3	C483	C-3	CL253	C-4	L012	F-1	R008	G-3	R332	C-3	R505	C-1	R775	E-4
C010	G-3	C345	D-3	C484	C-3	CL501	B-4	L251	C-3	R009	F-2	R351	C-2	R506	C-1	R776	F-4
C011	G-3	C347	C-3	C485	C-3	CL502	E-2	L301	C-3	R011	G-3	R352	C-2	R507	C-1	R777	F-3
C012	F-2	C351	C-3	C501	E-1	CL504	E-4	L401	B-4	R012	G-3	R355	C-2	R508	A-1	R778	E-4
C014	G-2	C352	D-2	C502	D-1	CL505	F-1	L402	D-3	R013	F-3	R357	D-2	R509	C-1	R779	E-4
C017	G-2	C401	C-4	C506	C-1	CL508	B-1	L451	C-3	R014	F-3	R358	C-3	R510	C-1	R780	E-4
C018	G-1	C402	C-4	C508	C-1	CL509	B-1	L452	C-2	R015	F-3	R360	D-3	R511	C-2	R781	E-4
C020	G-2	C403	C-4	C510	C-2	CN701	A-2	L501	E-1	R016	F-3	R361	D-3	R513	C-2	R782	E-4
C021	G-1	C404	C-4	C511	C-1	DIODES		L561	E-1	R017	F-2	R401	C-4	R514	C-2	R783	E-4
C025	F-2	C411	D-4	C512	C-1	D001	G-4	L562	E-1	R018	F-2	R402	C-4	R516	C-1	R784	E-4
C026	F-1	C412	D-4	C513	C-1	D002	G-3	L581	G-2	R021	F-2	R403	B-4	R517	C-1	R785	F-4
C053	F-1	C413	D-4	C514	C-1	D003	G-3	L701	A-4	R022	F-2	R404	B-4	R518	C-2	R786	F-4
C056	G-1	C414	D-4	C515	C-1	D004	G-3	L702	A-2	R023	F-2	R405	D-4	R519	C-2	R787	F-4
C060	F-1	C415	D-4	C516	C-1	D005	G-3	L703	A-2	R024	F-2	R406	D-4	R520	E-2	R851	C-2
C061	F-1	C416	D-3	C517	E-2	D006	G-3	L704	B-2	R025	F-2	R407	D-4	R521	E-2	R852	D-2
C157	B-4	C417	D-3	C518	E-2	D007	F-2	L705	A-2	R026	G-2	R408	C-3	R522	D-2	R853	C-1
C158	B-3	C418	D-4	C519	D-1	D008	G-3	L851	C-2	R027	G-2	R409	C-3	R523	C-1	SWITCHES	
C251	C-3	C419	D-3	C520	D-1	D009	F-3	L853	C-1	R028	G-3	R411	C-4	R524	C-1	SW501	B-1
C252	C-3	C421	D-4	C521	D-1	D011	F-2	TRANSISTORS		R035	G-2	R412	D-4	R525	C-1	SW502	B-1
C253	C-3	C422	D-3	C522	D-1	D012	F-2	Q001	G-2	R054	F-1	R413	D-4	R526	E-1	SW504	E-1
C254	C-3	C424	D-4	C523	E-1	D013	F-2	Q002	G-2	R060	G-1	R414	D-4	R527	D-1	SW505	F-1
C302	D-3	C425	D-3	C526	E-1	D014	G-2	Q003	F-3	R061	F-1	R415	D-3	R528	A-1	SW506	C-1
C303	D-3	C428	D-4	C527	D-1	D015	G-2	Q004	F-2	R062	F-1	R416	D-3	R529	D-2	SW507	F-1
C304	D-3	C430	D-3	C529	D-1	D018	G-3	Q051	F-2	R063	F-1	R417	D-3	R530	C-2	SW510	B-1
C305	D-3	C431	C-3	C530	D-1	D019	F-2	Q052	F-2	R064	F-1	R421	D-4	R531	C-2	VARIABLE RESISTORS	
C307	D-3	C451	B-3	C531	C-1	D021	F-2	Q053	F-1	R065	F-1	R422	D-4	R533	E-2	VR501	A-1
C308	D-3	C452	B-3	C535	D-2	D051	F-2	Q054	F-1	R066	F-2	R425	D-4	R534	F-2	CRYSTAL OSCILLATORS	
C309	D-3	C453	B-3	C540	E-1	D052	F-1	Q056	F-1	R067	F-1	R426	D-4	R535	F-2	X301	D-3
C310	D-3	C454	B-4	C561	E-1	D053	G-1	Q057	F-1	R068	F-1	R429	D-3	R536	F-2	X501	C-1
C312	D-3	C455	B-4	C622	D-2	D056	G-2	Q058	G-1	R070	F-1	R430	D-3	R537	F-1	X502	C-1
C313	D-3	C456	C-3	C701	A-3	D057	F-1	Q153	B-2	R157	B-2	R431	D-3	R538	E-2	MISCELLANEOUS	
C314	D-3	C457	B-4	C702	A-4	D151	B-4	Q351	C-2	R158	B-2	R451	B-3	R539	F-1	AC001	F-4
C315	D-3	C458	C-4	C703	A-3	D152	A-3	Q352	D-3	R251	C-3	R452	B-3	R540	B-1	F001	G-4
C316	D-3	C459	C-4	C704	A-3	D153	B-3	Q401	C-4	R252	C-3	R453	B-3	R541	B-1	FP562	D-1
C317	D-3	C460	C-3	C706	A-2	D154	B-3	Q402	B-4	R301	D-3	R454	B-3	R542	B-1	PS503	C-2
C318	D-3	C461	C-3	C707	A-2	D155	A-3	Q403	D-4	R302	D-3	R455	B-3	R543	E-1	RS501	C-1
C319	D-3	C462	C-4	C708	A-2	D156	A-3	Q404	D-4	R305	D-3	R456	B-4	R544	E-1	SA001	F-4
C320	D-3	C463	C-3	C715	A-1	D301	C-3	Q405	D-4	R306	C-2	R457	B-3	R545	F-1	T001	G-2
C321	D-3	C464	C-4	C771	E-4	D501	E-1	Q406	D-4	R307	C-3	R460	C-4	R546	G-1	TU701	A-3
C322	D-3	C465	C-3	C772	F-4	D502	D-2	Q451	C-3	R308	C-3	R461	C-3	R547	B-1	TEST POINTS	
C323	D-2	C466	C-3	C773	E-4	D552	C-2	Q501	C-1	R309	C-3	R462	C-3	R551	C-2	TP301	G-1
C324	D-3	C467	C-3	C774	F-3	D553	C-2	Q502	D-1	R310	B-2	R463	C-3	R552	C-2	TP501	G-1
C325	D-3	C468	C-3	C775	E-3	D701	A-2	Q503	D-2	R311	B-2	R464	C-3	R555	C-1	TP502	B-1
C326	D-3	C469	C-3	C776	E-3	ICS		Q504	F-3	R312	C-2	R465	C-3	R556	C-1	TP506	A-2
C327	D-3	C470	C-3	C777	E-4	IC001	F-2	Q505	A-3	R313	C-2	R466	B-3	R558	C-1	TP507	G-1
C330	D-3	C471	C-3	C778	F-3	IC301	C-3	Q551	C-2	R315	C-3	R467	B-3	R566	E-1	TP508	C-1
C332	C-3	C472	C-3	C851	C-2	IC451	C-3	Q552	C-2	R316	C-3	R468	B-3	R607	D-2	TP751	B-2
C333	C-3	C473	C-3	C852	C-2	IC501	D-1	Q771	F-3	R317	C-3	R469	B-3	R612	B-1		
C334	C-3	C474	C-3	C853	D-2	IC503	C-1	Q772	F-3	R318	C-3	R472	B-3	R616	C-1		
C335	C-3	C475	B-3	C854	D-2	IC561	E-1	RESISTORS		R319	C-3	R473	B-3	R701	A-2		
C337	C-3	C476	B-3	C855	C-1	IC771	F-4	R001	F-3	R320	C-3	R474	C-3	R702	A-1		

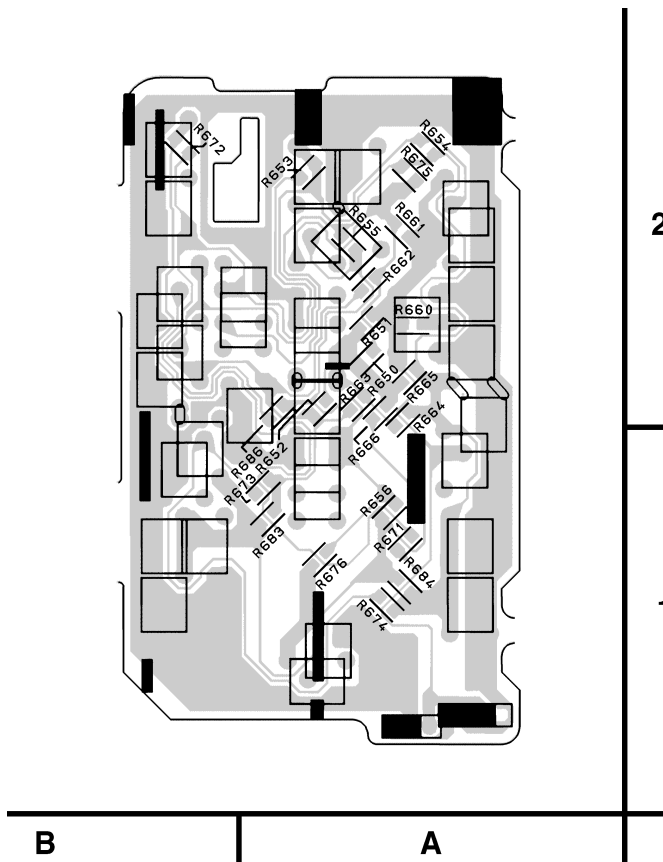
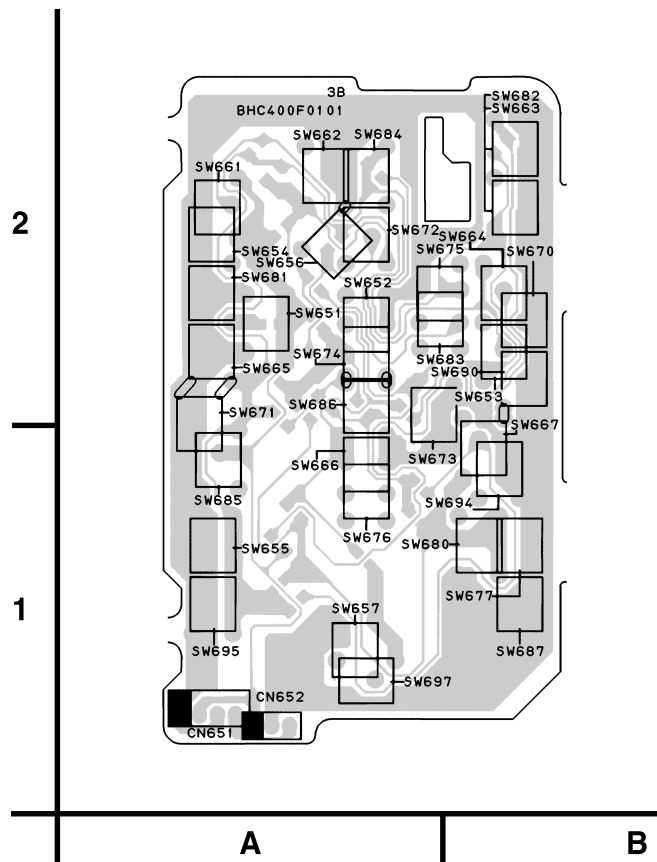
Function CBA Top View

Function CBA Bottom View

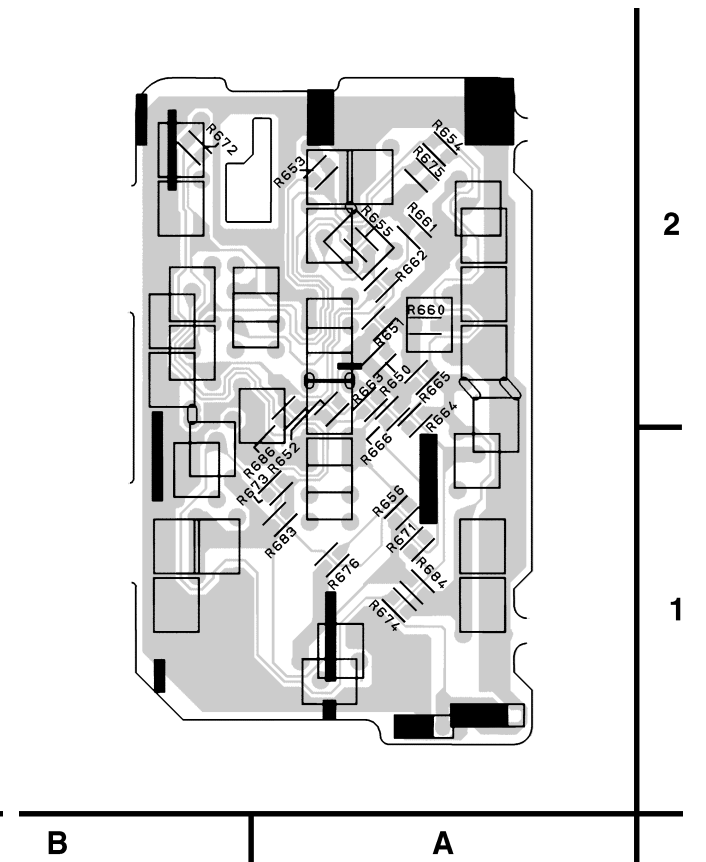
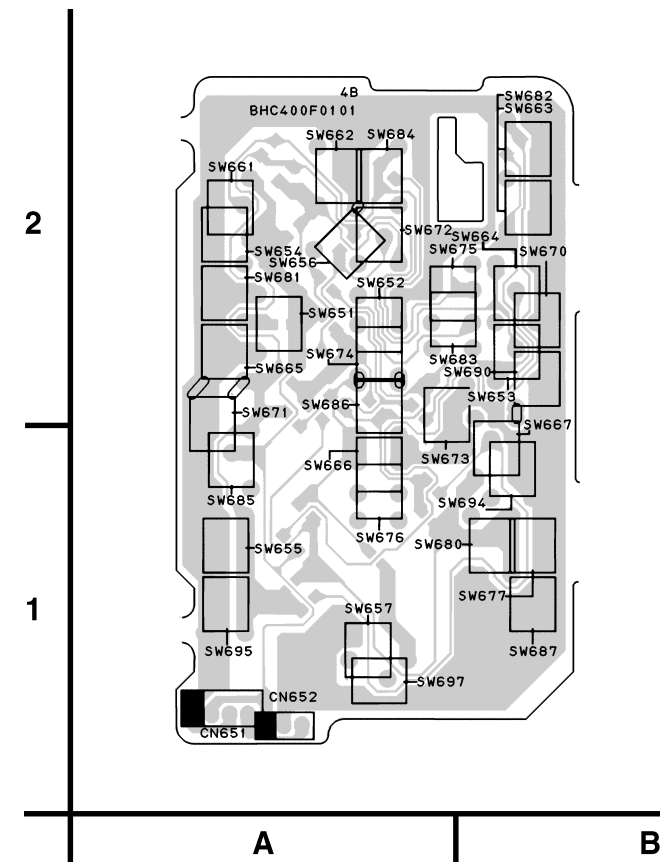
Function CBA Top View

Function CBA Bottom View

NOTE:
 Either BHC400F01013, BHC400F01014
 is used for the Function CBA in this S/M.



BHC400F01013-B



BHC400F01014-B

Function CBA Parts Location Guide

Ref No.	Position	Ref No.	Position
CONNECTORS		SWITCHES	
CN651	A-1	SW651	A-2
RESISTORS		SW652	A-2
R651	A-2	SW653	B-2
R652	A-1	SW654	A-2
R653	A-2	SW656	A-2
R654	A-2		
R655	A-2		

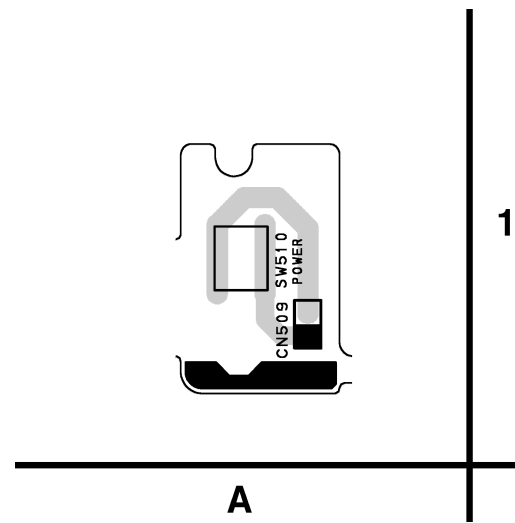
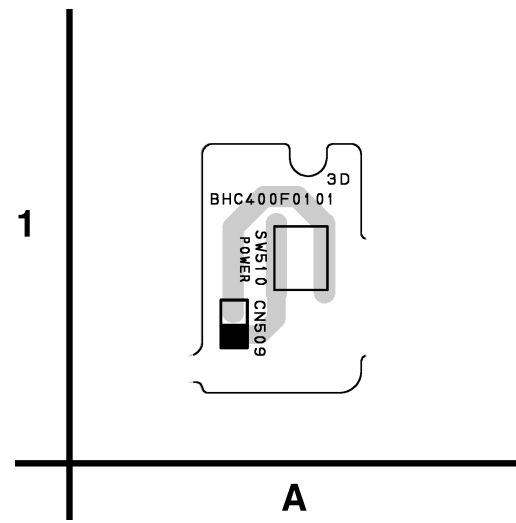
Power SW CBA Top View

Power SW CBA Bottom View

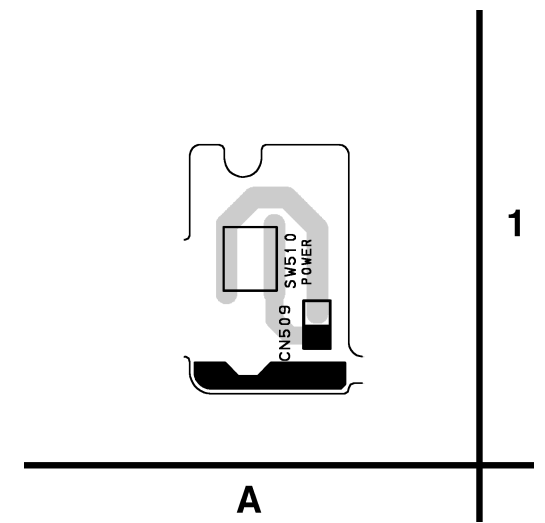
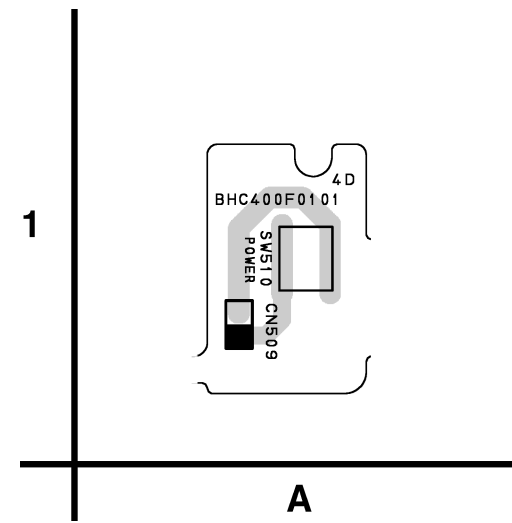
Power SW CBA Top View

Power SW CBA Bottom View

NOTE :
Either BHC400F01013, BHC400F01014
is used for the Power SW CBA in this S/M.



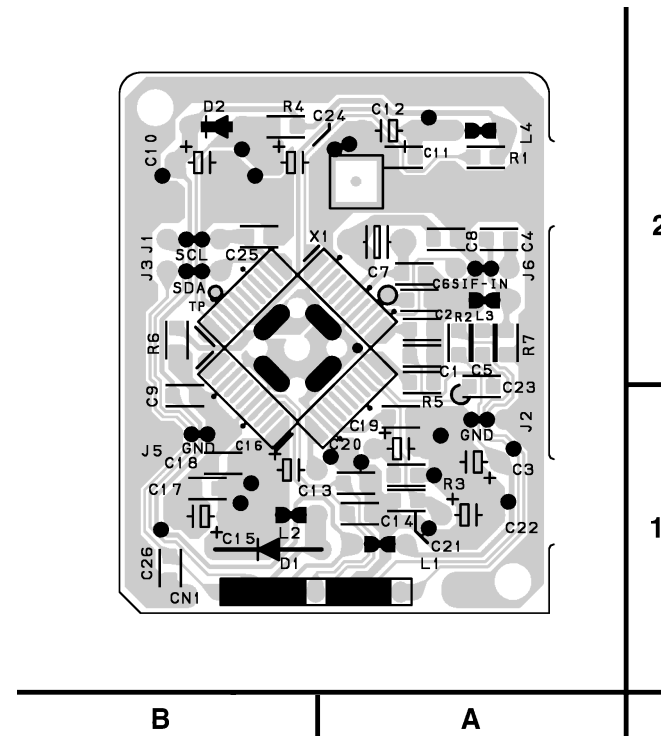
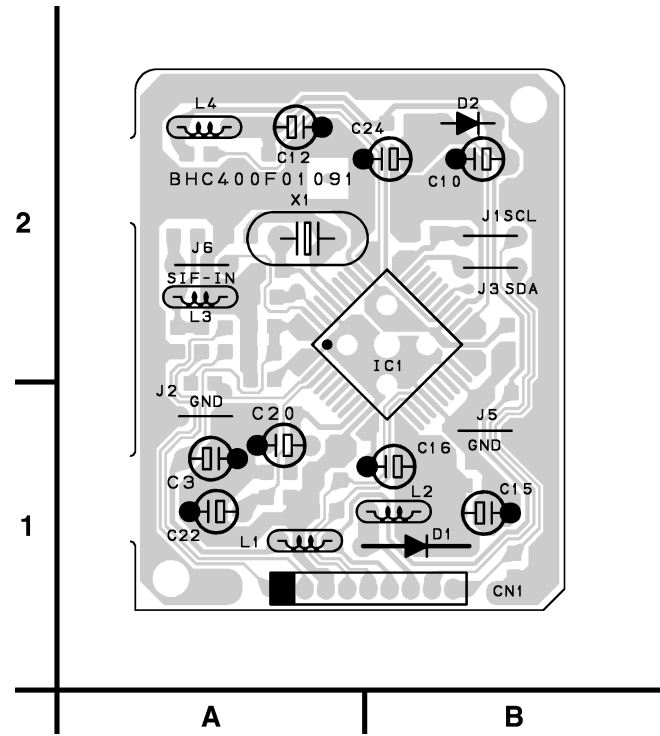
BHC400F01013-D



BHC400F01014-D

AFV CBA Top View

AFV CBA Bottom View



BHC400F01091

AFV CBA Parts Location Guide

Ref No.	Position	Ref No.	Position
CAPACITORS		CONNECTORS	
C1	A-2	CN1	B-1
C4	A-2	DIODES	
C5	A-2	D2	B-2
C6	A-2	ICS	
C7	A-2	IC1	A-2
C8	A-2	COILS	
C11	A-2	L1	A-1
C12	A-2	L2	B-1
C13	B-1	L3	A-2
C14	A-1	L4	A-2
C15	B-1	RESISTORS	
C16	B-1	R1	A-2
C17	B-1	R4	B-2
C19	B-1	R5	A-1
C20	A-1	R6	B-2
C21	A-1	CRYSTAL OSCILLATORS	
C22	A-1	X1	B-2
C24	B-2		

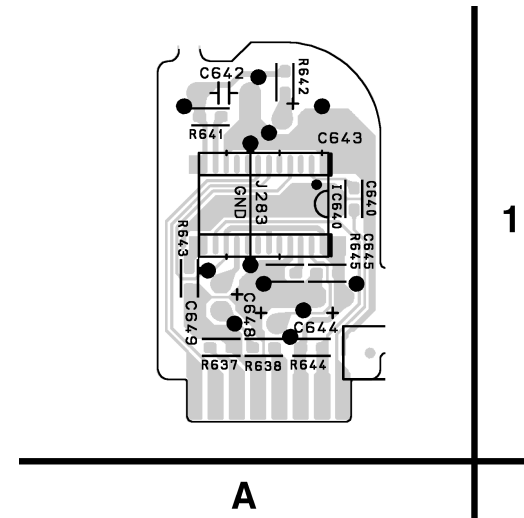
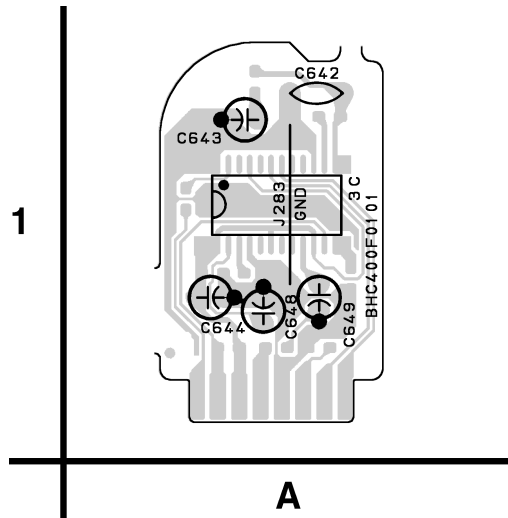
VPS CBA Top View

VPS CBA Bottom View

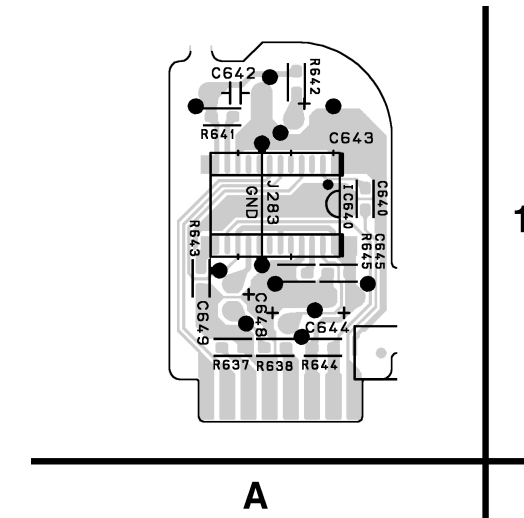
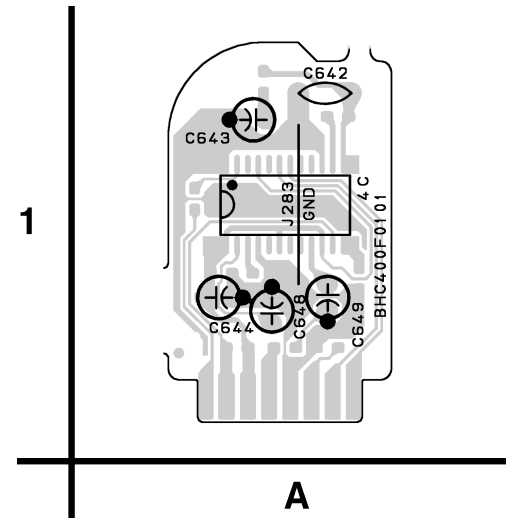
VPS CBA Top View

VPS CBA Bottom View

NOTE :
 Either BHC400F01013, BHC400F01014
 is used for the Vps CBA in this S/M.



BHC400F01013-C

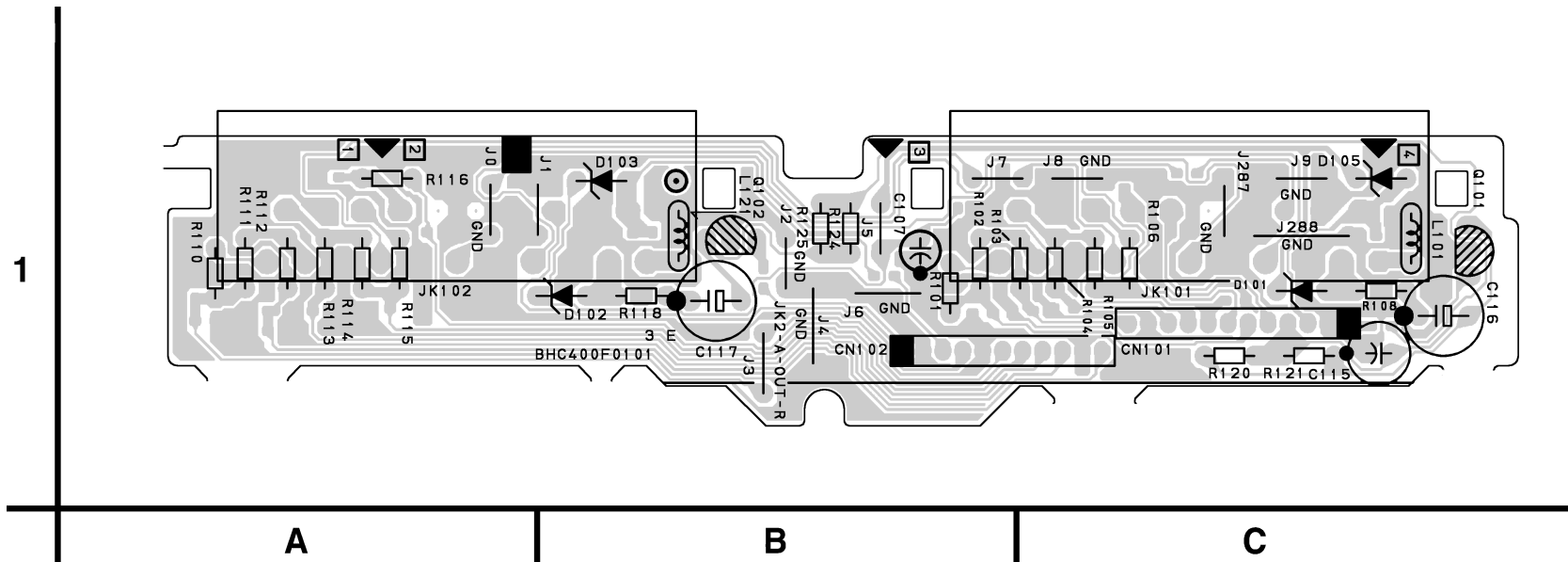


BHC400F01014-C

VPS CBA
 Parts Location Guide

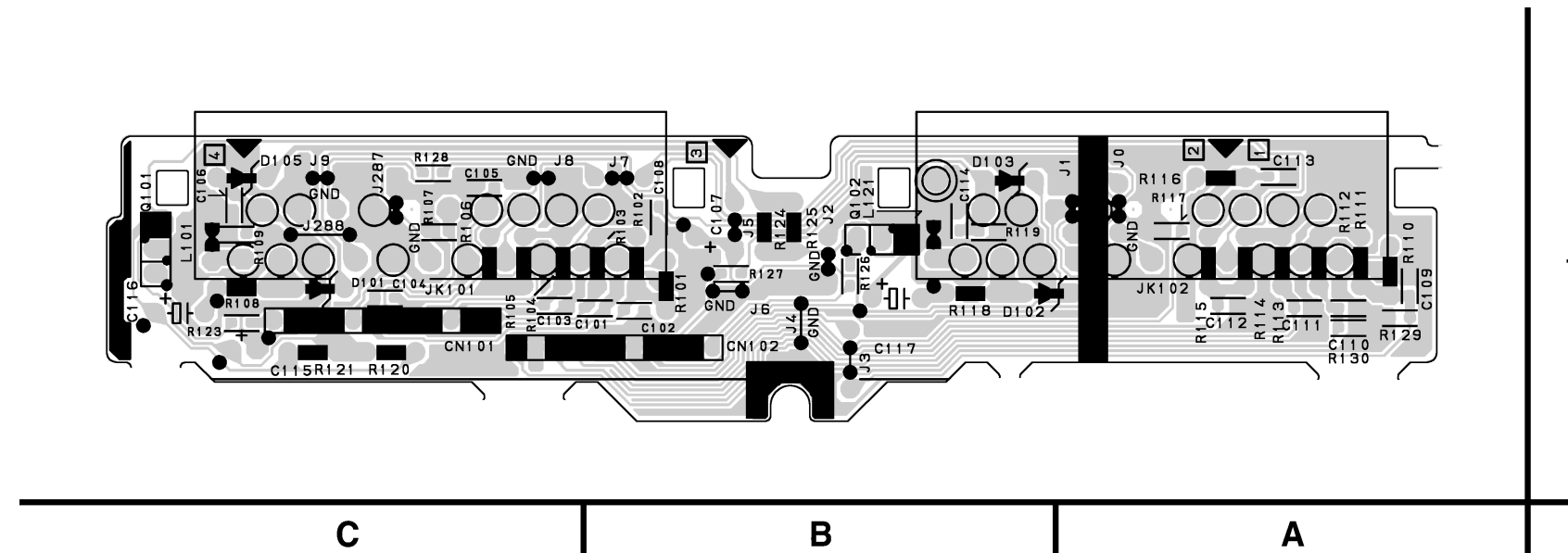
Ref No.	Position
CAPACITORS	
C640	A-1
C642	A-1
C643	A-1
C644	A-1
C645	A-1
C648	A-1
C649	A-1
ICS	
IC640	A-1
RESISTORS	
R638	A-1
R641	A-1
R642	A-1
R643	A-1
R644	A-1
R645	A-1

Jack CBA Top View



NOTE :
 Either BHC400F01013, BHC400F01014
 is used for the Jack CBA in this S/M.

Jack CBA Bottom View



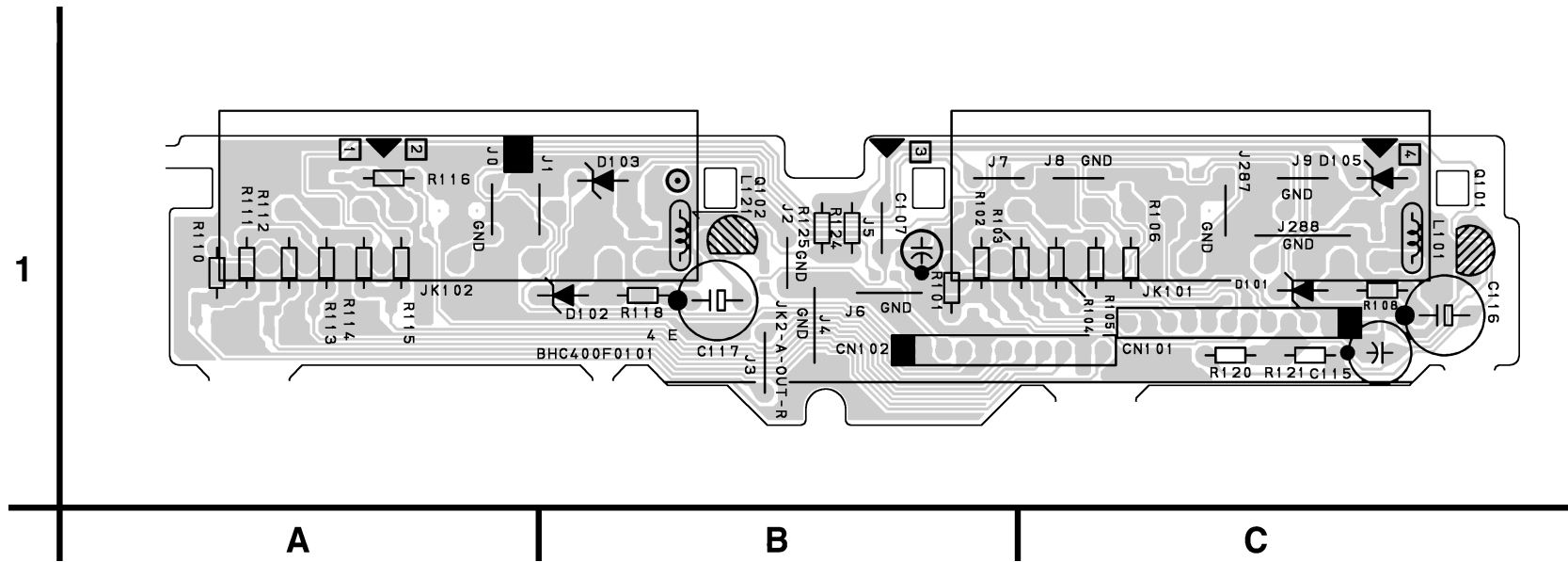
JACK CBA Parts Location Guide

Ref No.	Position	Ref No.	Position
CAPACITORS		TRANSISTORS	
C101	C-1	Q102	B-1
C102	B-1	RESISTORS	
C103	C-1	R101	B-1
C104	C-1	R103	B-1
C105	C-1	R104	C-1
C106	C-1	R106	C-1
C107	B-1	R107	C-1
C108	B-1	R108	C-1
C109	A-1	R109	C-1
C110	A-1	R110	A-1
C111	A-1	R112	A-1
C112	A-1	R113	A-1
C113	A-1	R115	A-1
C115	C-1	R116	A-1
C116	C-1	R117	A-1
C117	B-1	R118	B-1
CONNECTORS		R119	B-1
CL101	C-1	R120	C-1
CL102	B-1	R123	C-1
DIODES		R125	B-1
D101	C-1	R126	B-1
D102	B-1	R127	B-1
D103	B-1	R128	C-1
D105	C-1	R129	A-1
COILS		R130	A-1
L101	C-1	MISCELLANEOUS	
L121	B-1	JK101	C-1
TRANSISTORS		JK102	A-1
Q101	C-1		

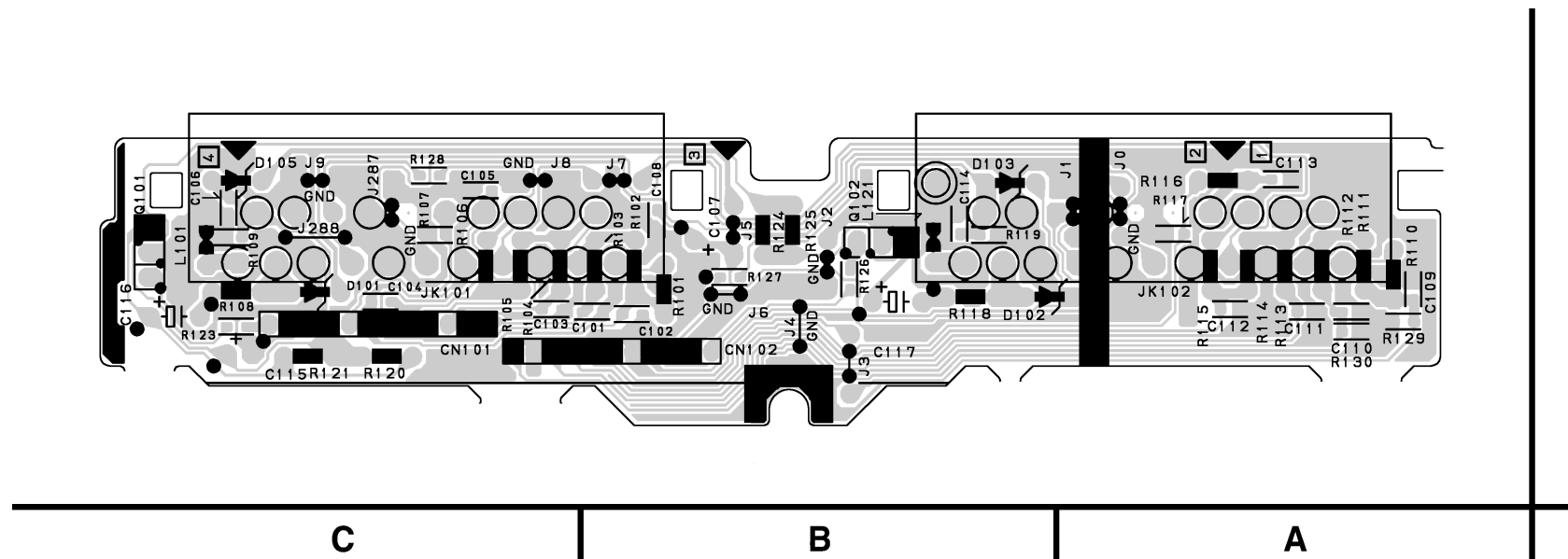
BHC400F01013-E

Jack CBA Top View

NOTE :
Either BHC400F01013, BHC400F01014
is used for the Jack CBA in this S/M.



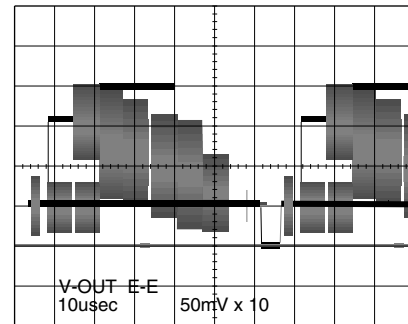
Jack CBA Bottom View



BHC400F01014-E

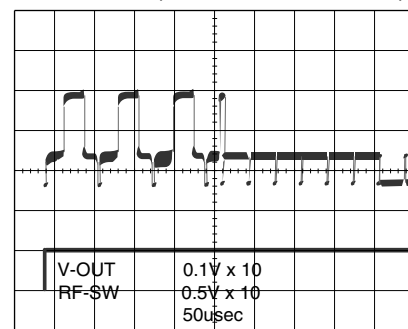
WAVEFORMS

WF1 (TP751 of Main CBA)



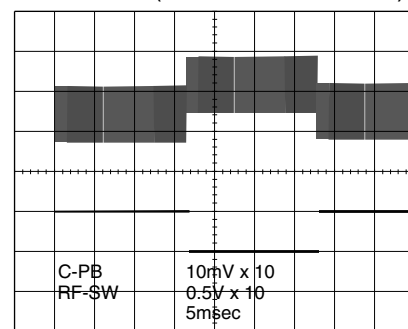
WF1 UPPER (TP751 of Main CBA)

WF2 LOWER (TP302 of Main CBA)



WF5 UPPER (TP301 of Main CBA)

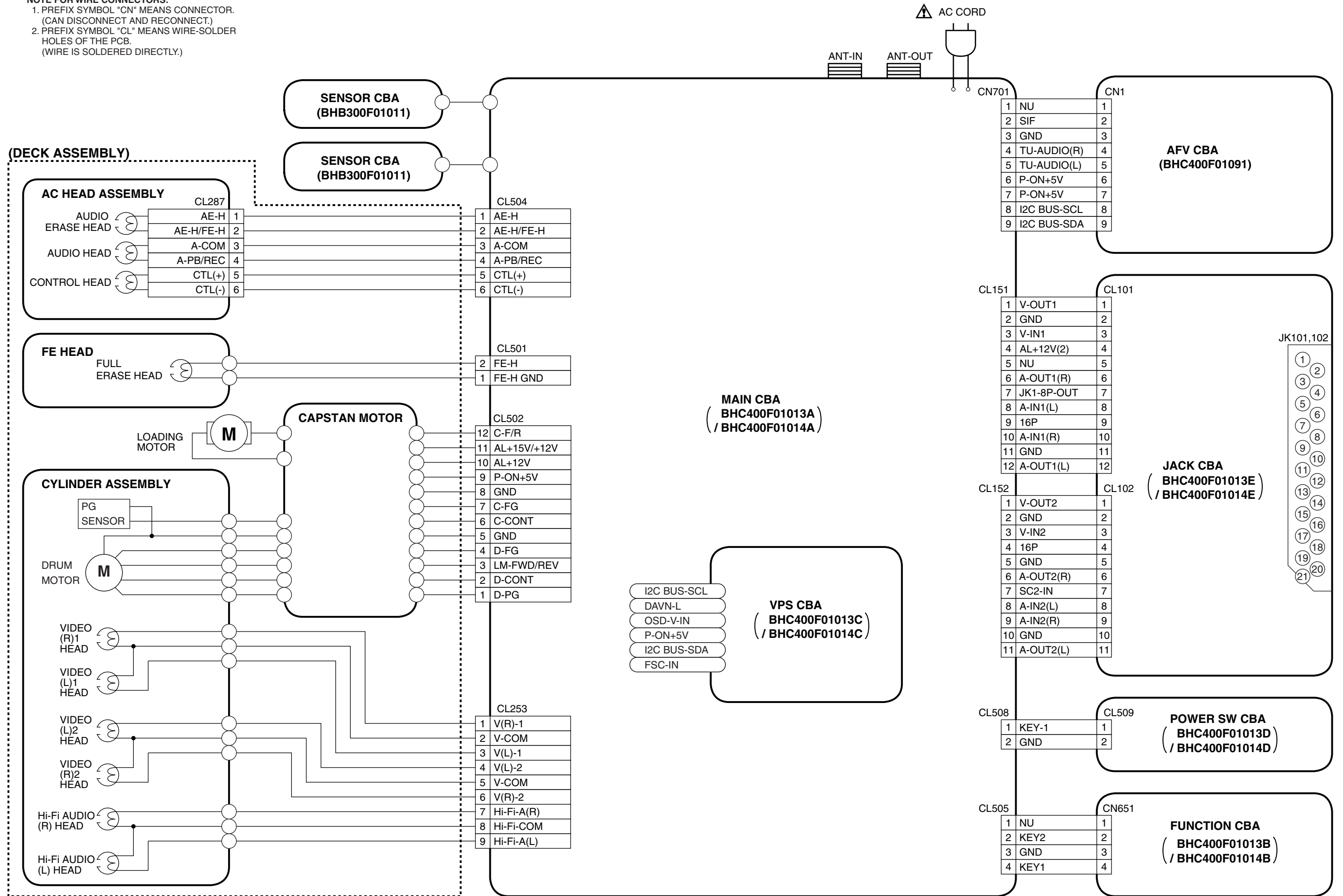
WF2 LOWER (TP302 of Main CBA)



WIRING 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.)



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)	AU
3.20V~3.75V (3.40V)	AL
0.26V~0.65V (0.44V)	SS
4.51V~5.00V (5.00V)	GC
2.61V~3.19V (2.97V)	RS

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
SF	~ Stop(A)
AU	Stop(A) ~ Play / REC
AL	Play / REC ~ Still / Slow
SS	Still / Slow ~ Capstan Reversal
GC	Capstan Reversal ~ RS (REW Search)
RS	RS (REW Search)

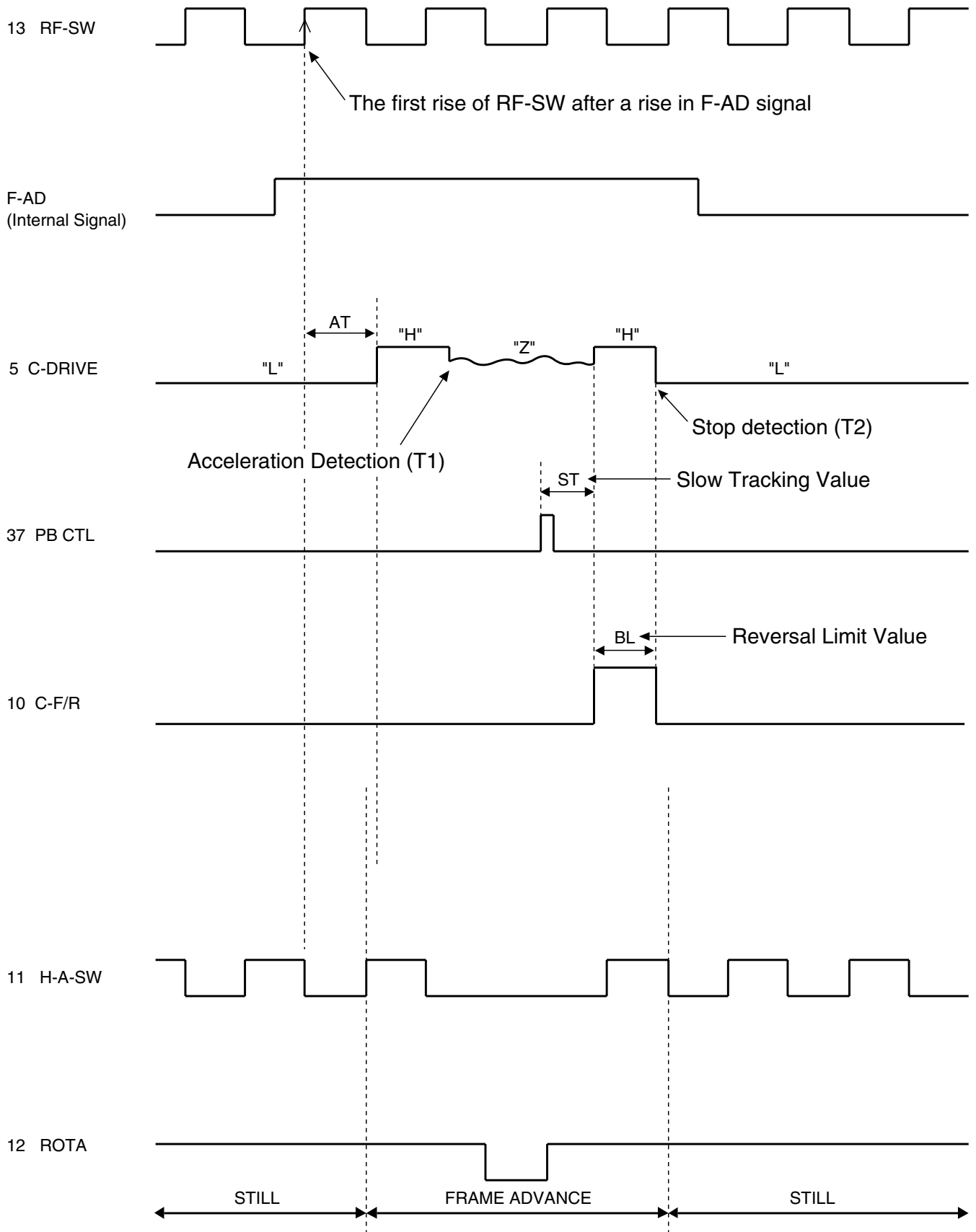


Fig. 1

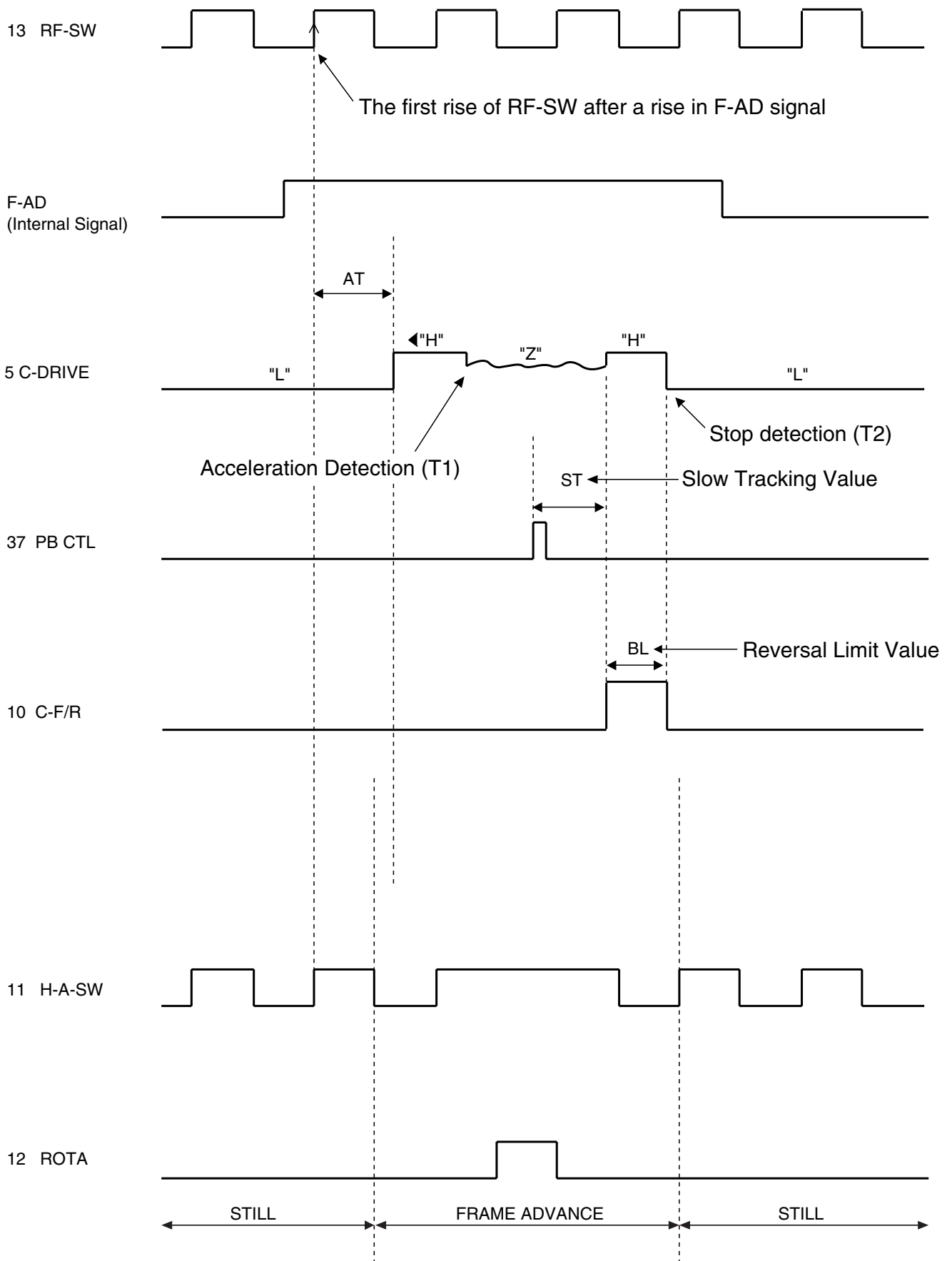


Fig. 2

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

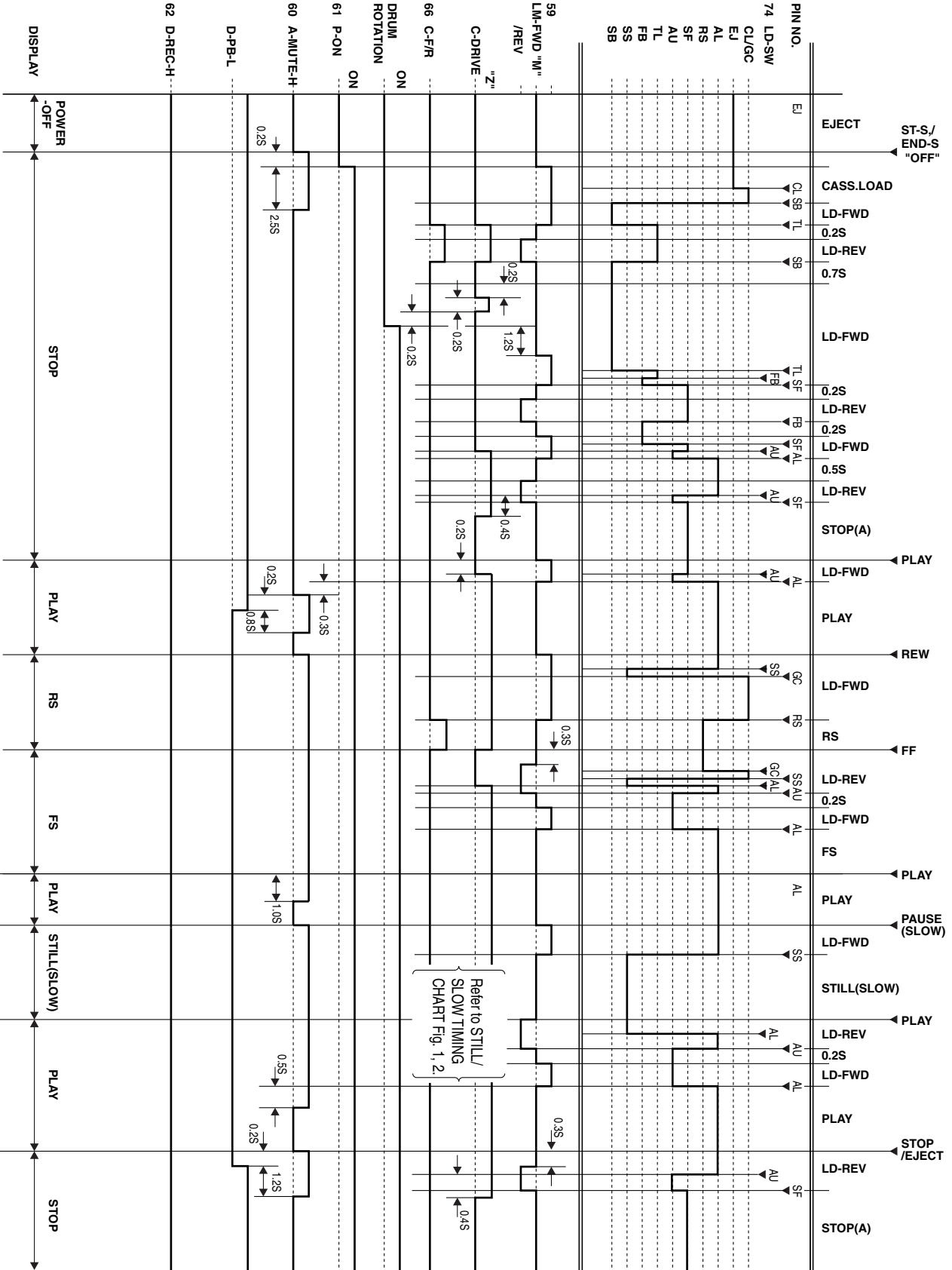


Fig. 3

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

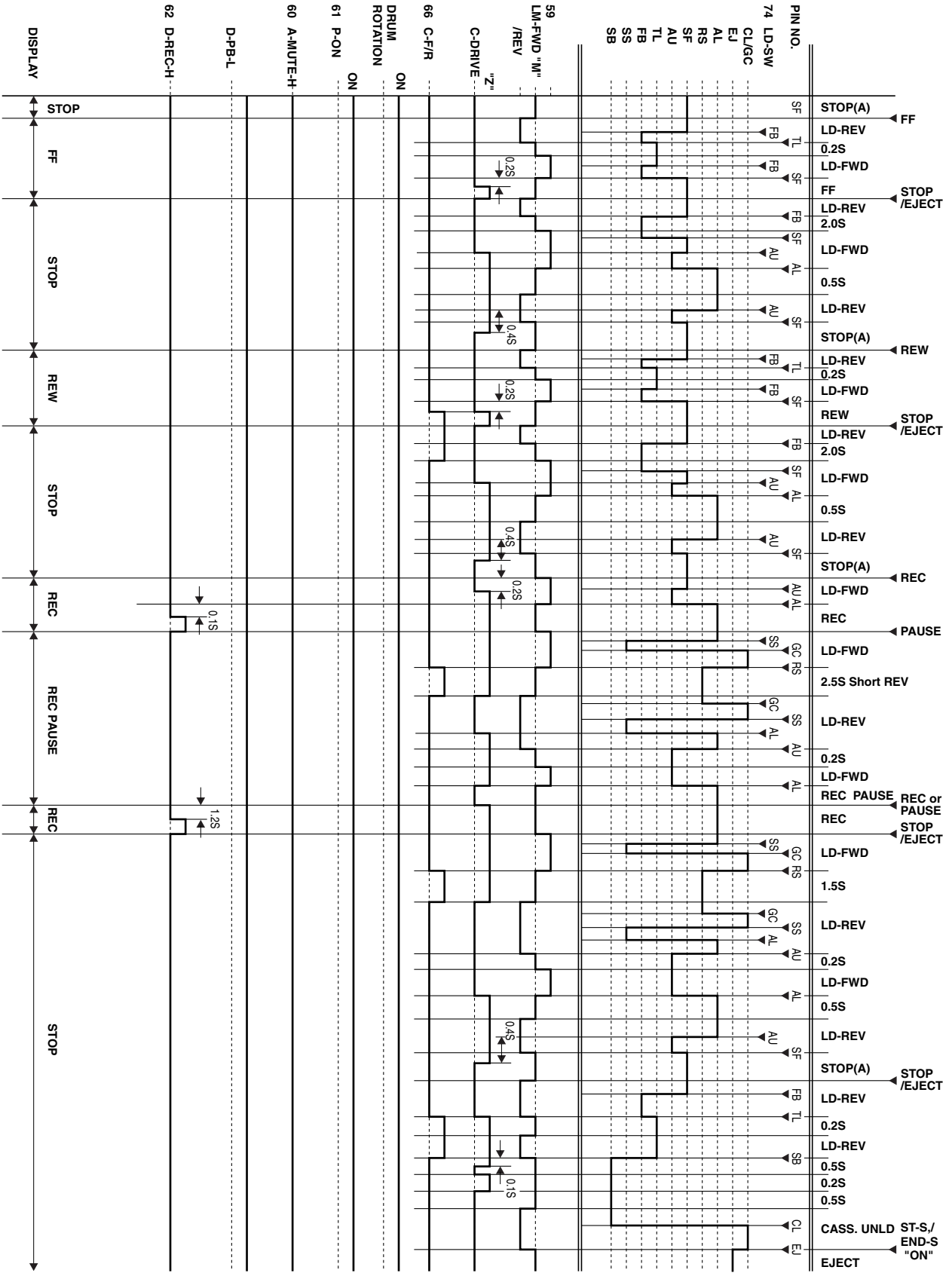


Fig. 4

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	L/Hi-z
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	OUT	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	REMOCO N-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 Coparator Signal	H/L
18	OUT	RF-SW	Video Head Switching Pulse	H/L
19	OUT	HiFi-H-SW	HiFi Audio Head Switching Pulse	H/L
20	IN	DAVN-L	VPS/PDC Data Receive = “L”	L
21	-	N.U.	Not Used	-
22	-	N.U.	Not Used	-
23	-	N.U.	Not Used	-
24	-	N.U.	Not Used	-

Pin No.	IN/OUT	Signal Name	Function	Active Level
25	-	N.U.	Not Used	-
26	-	N.U.	Not Used	-
27	OUT	RGB-THROUGH	SCART 2 RGB Through Control Signal	L/Hi-z
28	-	N.U.	Not Used	-
29	-	N.U.	Not Used	-
30	-	N.U.	Not Used	-
31	-	N.U.	Not Used	-
32	-	N.U.	Not Used	-
33	-	N.U.	Not Used	-
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)	L
44	IN	OSC _{IN}	Clock Input for letter size	-
45	OUT	OSC _{OUT}	Clock Output for letter size	-
46	-	NUB	Not Used	-
47	-	N.U.	Not Used	-
48	IN	FSC-IN [4.43MHz]	4.43MHz Clock Input	-
49	-	OSDVss	OSDVss	-
50	IN	VIDEO-IN	Video Signal Input	-
51	-	N.U.	Not Used	-
52	OUT	VIDEO-OUT	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	IN	A-MODE	Hi-Fi Tape Detection Signal	L
62	-	N.U.	Not Used	-
63	-	N.U.	Not Used	-
64	IN	FTV-IN	Comparator Input of Video Signal for Follow TV	L/Hi-z
65	OUT	D-REC-H	Delayed Record Signal	L
66	OUT	C-POWER-SW	Capstan Power Switching Pulse	L/Hi-z
67	IN	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	I ² C BUS-SCL	I ² C BUS Control Clock	H/L
72	IN/OUT	I ² C BUS-SDA	I ² C 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-H	Audio Mute Control Signal (Mute = "H")	H

Pin No.	IN/OUT	Signal Name	Function	Active Level
84	OUT	FF/REW-L	CTL Amp Gain Switching Signal (FF/REW="L")	L
85	-	N.U.	Not Used	-
86	IN	P-DOWN-L	Power Voltage Down Detector Signal	L
87	IN	C-FG	Capstan Motor Rotation Detection Pulse	PULSE
88	-	AMPVss	AMPVss (GND)	-
89	IN	D-FG	Drum Motor Rotation Detection Pulse	PULSE
90	IN	D-PG	Drum Motor Pulse Generator	PULSE
91	-	N.U.	Not Used	-
92	-	AMPVRE _{FIN}	V-Ref for CTL AMP	-
93	-	C	C Terminal	-
94	OUT	CTL (-)	Playback/Record Control Signal (-)	H/L
95	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 Control Signal	H/L/Hi-z

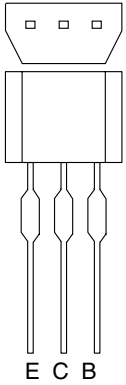
Notes:

Abbreviation for Active Level:

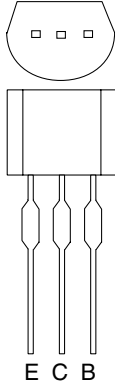
PWM -----Pulse Wide Modulation

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

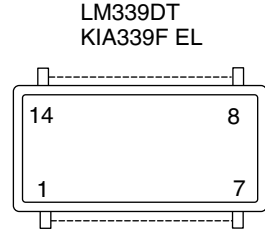
LEAD IDENTIFICATIONS



BN1F4M-T
BA1F4M-T
KTA1266(GR)
KTC3199(Y,GR,BL)
2SC2785(J.H.F.K)
KRA103M
KRC103M
2SA1015-GR(TPE2)
KRA104M
2SD1246(S,T)

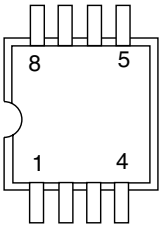


2SC1815-Y(TPE2)
2SC1815-GR(TPE2)
2SC3266-Y (TPE2)
KTA1271(Y)
2SC2120-Y(TPE2)
KTC3203(Y)
2SC1815-BL(TPE2)
2SA1020(Y)
2SB892(S)
KTC3205(Y)

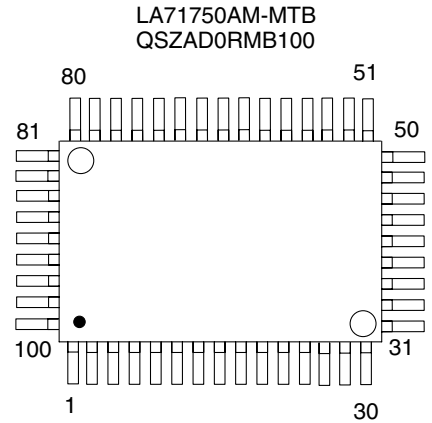
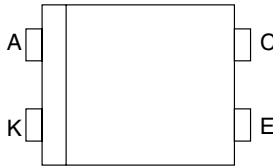


LM339DT
KIA339F EL

BR24C04F-W
AT24C04N-10SC
M24C04-MN6

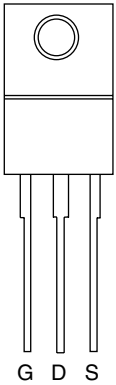


LTV-817(B,C)-F
EL817(A,B,C)

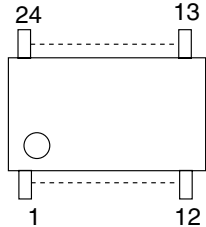


LA71750AM-MTB
QSZAD0RMB100

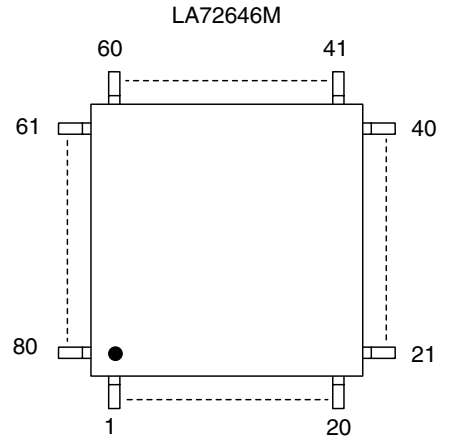
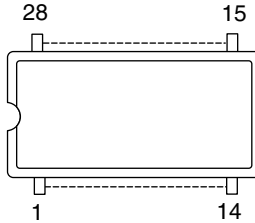
FS1KM-18A
FS1KM-14A



LC74793JM-TRM

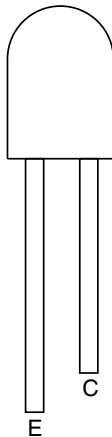


PT-6958-FN-TP

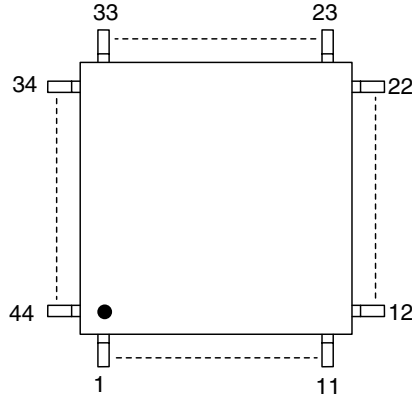


LA72646M

PT204-6B-12
MID-32A22



MSP3407G-QG-B8
MSP3417G-QG-B8



Note:

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

ELECTRICAL PARTS LIST			VR530/02	VR530/07	VR530/16
Pos.	▲ 12 NC	Description			
X36F		MCV CBA	1		
X36F		MCV CBA		1	
X36F		MCV CBA			1
		Consists of the following			
		MAIN CBA(MCV-A)	1	1	1
		FUNCTION CBA(MCV-B)	1	1	1
		VPS CBA(MCV-C)	1	1	1
		POWER SW CBA(MCV-D)	1	1	1
		JACK CBA(MCV-E)	1	1	1
		SENSOR CBA			
		SENSOR CBA	1	1	1
		MAIN CBA	1	1	1
		CAPACITORS			
C002	▲ 9965 000 06521	METALLIZED FILM CAP. 0.068UF/250V K	1	1	1
C003	▲ 9965 000 06522	SAFETY CAP. 2200PF/250V	1	1	1
C004	9965 000 06566	ELECTROLYTIC CAP. 22UF/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) X K 3300PF/16V	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	1	1	1
C012		ELECTROLYTIC CAP. 10UF/50V M H7	1	1	1
C014		ELECTROLYTIC CAP. 470UF/25V 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		CERAMIC CAP.(AX) X K 5600PF/16V	1	1	1
C026		ELECTROLYTIC CAP. 47UF/16V M H7	1	1	1
C053		ELECTROLYTIC CAP. 330UF/6.3V M	1	1	1
C056		CERAMIC CAP.(AX) F Z 0.047UF/16V	1	1	1
C060		ELECTROLYTIC CAP. 10UF/16V M H7	1	1	1
C061		CHIP CERAMIC CAP. 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. F Z 0.1UF/50V	1	1	1
C302		CHIP CERAMIC CAP. B K 0.022UF/50V	1	1	1
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 0.1UF/50V	1	1	1
C307		CHIP CERAMIC CAP. B K 0.047UF/50V	1	1	1
C308		CHIP CERAMIC CAP. B K 0.022UF/50V	1	1	1
C309		CHIP CERAMIC CAP. F Z 0.1UF/50V	1	1	1
C310		CHIP CERAMIC CAP. B K 0.047UF/50V	1	1	1
C312		CERAMIC CAP.(AX) Y M 8200PF/16V	1	1	1
C313		CHIP CERAMIC CAP. F Z 0.1UF/50V	1	1	1
C314		CHIP CERAMIC CAP. B K 0.01UF/50V	1	1	1
C315		CHIP CERAMIC CAP. F Z 0.1UF/50V	1	1	1
C316		CHIP CERAMIC CAP. 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. F Z 0.1UF/50V	1	1	1
C321		CHIP CERAMIC CAP. F Z 0.1UF/50V	1	1	1
C322		ELECTROLYTIC CAP. 10UF/16V M H7	1	1	1
C323		CHIP CERAMIC CAP. F Z 0.1UF/50V	1	1	1
C324		CHIP CERAMIC CAP. CH J 68PF/50V	1	1	1
C325		CHIP CERAMIC CAP. F Z 0.1UF/50V	1	1	1
C326		CHIP CERAMIC CAP. CH J 68PF/50V	1	1	1
C327		CHIP CERAMIC CAP. F Z 0.1UF/50V	1	1	1
C330		CERAMIC CAP.(AX) F Z 0.1UF/50V	1	1	1
C332		CHIP CERAMIC CAP. 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
C337		CHIP CERAMIC CAP. 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

ELECTRICAL PARTS LIST			VR530/02	VR530/07	VR530/16
Pos.	▲ 12 NC	Description			
C342		ELECTROLYTIC CAP. 1UF/50V M H7	1	1	1
C343		CHIP CERAMIC CAP. F Z 0.1UF/50V	1	1	1
C344		CERAMIC CAP.(AX) B K 100PF/50V	1	1	1
C345		CHIP CERAMIC CAP. CH J 68PF/50V	1	1	1
C347		CHIP CERAMIC CAP. CH J 15PF/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. CH J 820PF/50V	1	1	1
C412		CERAMIC CAP.(AX) X K 1800PF/16V	1	1	1
C413		ELECTROLYTIC CAP. 4.7UF/25V M H7	1	1	1
C414		CHIP CERAMIC CAP. B K 0.01UF/50V	1	1	1
C415		ELECTROLYTIC CAP. 10UF/16V M H7	1	1	1
C416		CHIP CERAMIC CAP. F Z 0.1UF/50V	1	1	1
C417		CHIP CERAMIC CAP. B K 0.01UF/50V	1	1	1
C418		CHIP CERAMIC CAP. CH J 33PF/50V	1	1	1
C419		CHIP CERAMIC CAP. 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. 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
C431		CHIP CERAMIC CAP. B K 0.01UF/50V	1	1	1
C451		ELECTROLYTIC CAP. 4.7UF/25V M H7	1	1	1
C452		ELECTROLYTIC CAP. 47UF/16V M H7	1	1	1
C453		CHIP CERAMIC CAP. F Z 0.1UF/50V	1	1	1
C454		ELECTROLYTIC CAP. 10UF/16V M H7	1	1	1
C455		ELECTROLYTIC CAP. 10UF/16V M H7	1	1	1
C456		CHIP CERAMIC CAP. F Z 0.1UF/50V	1	1	1
C457		ELECTROLYTIC CAP. 22UF/10V M H7	1	1	1
C458		ELECTROLYTIC CAP. 10UF/16V M H7	1	1	1
C459		ELECTROLYTIC CAP. 4.7UF/25V M H7	1	1	1
C460		CHIP CERAMIC CAP. B K 0.01UF/50V	1	1	1
C461		ELECTROLYTIC CAP. 22UF/10V M H7	1	1	1
C462		CHIP CERAMIC CAP. B K 4700PF/50V	1	1	1
C463		CHIP CERAMIC CAP. B K 0.01UF/50V	1	1	1
C464		CHIP CERAMIC CAP. B K 0.01UF/50V	1	1	1
C465		ELECTROLYTIC CAP. 10UF/16V M H7	1	1	1
C466		CHIP CERAMIC CAP. B K 0.01UF/50V	1	1	1
C467		ELECTROLYTIC CAP. 4.7UF/25V M H7	1	1	1
C468		ELECTROLYTIC CAP. 22UF/10V M H7	1	1	1
C469		CHIP CERAMIC CAP. B K 4700PF/50V	1	1	1
C470		CHIP CERAMIC CAP. B K 0.01UF/50V	1	1	1
C471		ELECTROLYTIC CAP. 4.7UF/25V M H7	1	1	1
C472		ELECTROLYTIC CAP. 10UF/16V M H7	1	1	1
C473		CHIP CERAMIC CAP. F Z 0.1UF/50V	1	1	1
C474		ELECTROLYTIC CAP. 2.2UF/50V M H7	1	1	1
C475		ELECTROLYTIC CAP. 2.2UF/50V M H7	1	1	1
C476		ELECTROLYTIC CAP. 10UF/16V M H7	1	1	1
C477		ELECTROLYTIC CAP. 4.7UF/25V 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		ELECTROLYTIC CAP. 4.7UF/25V M H7	1	1	1
C481		CHIP CERAMIC CAP. F Z 0.1UF/50V	1	1	1
C482		CHIP CERAMIC CAP. F Z 0.1UF/50V	1	1	1
C483		ELECTROLYTIC CAP. 330UF/6.3V M H7	1	1	1
C484		CHIP CERAMIC CAP. F Z 0.1UF/50V	1	1	1
C485		CHIP CERAMIC CAP. F Z 0.1UF/50V	1	1	1
C501		ELECTROLYTIC CAP. 220UF/6.3V M	1	1	1
C502		CHIP CERAMIC CAP. 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. F Z 0.1UF/50V	1	1	1
C513		CHIP CERAMIC CAP. CH J 22PF/50V	1	1	1
C514		CHIP CERAMIC CAP. CH J 22PF/50V	1	1	1
C515		CHIP CERAMIC CAP. CH D 10PF/50V	1	1	1
C516		CHIP CERAMIC CAP. CH D 10PF/50V	1	1	1
C517		CHIP CERAMIC CAP. B K 0.01UF/50V	1	1	1

ELECTRICAL PARTS LIST			VR530/02	VR530/07	VR530/16
Pos.	▲ 12 NC	Description			
C518		CHIP CERAMIC CAP. B K 0.047UF/50V	1	1	1
C519		CHIP CERAMIC CAP. B K 0.01UF/50V	1	1	1
C520		CHIP CERAMIC CAP. 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
C526		CHIP CERAMIC CAP. B K 4700PF/50V	1	1	1
C527		ELECTROLYTIC CAP. 22UF/6.3V M H7	1	1	1
C529		CHIP CERAMIC CAP. 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
C535		CHIP CERAMIC CAP. B K 0.01UF/50V	1	1	1
C540		ELECTROLYTIC CAP. 470UF/6.3V M	1	1	1
C561		CHIP CERAMIC CAP. B K 0.022UF/50V	1	1	1
C622		CHIP RES.(1608) 1/10W 0 OHM	1	1	1
C701		CHIP CERAMIC CAP. B K 0.047UF/50V	1	1	1
C702		CHIP CERAMIC CAP. F Z 0.1UF/50V	1	1	1
C703		ELECTROLYTIC CAP. 10UF/16V M H7	1	1	1
C704		CHIP CERAMIC CAP. B K 0.01UF/50V	1	1	1
C706		CHIP CERAMIC CAP. B K 1000PF/50V	1	1	1
C707		ELECTROLYTIC CAP. 100UF/6.3V H7	1	1	1
C708		CHIP CERAMIC CAP. B K 0.01UF/50V	1	1	1
C715		CHIP CERAMIC CAP. B K 0.01UF/50V	1	1	1
C771		CHIP CERAMIC CAP. 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. CH J 22PF/50V	1	1	1
C852		CHIP CERAMIC CAP. CH J 18PF/50V	1	1	1
C853		CHIP CERAMIC CAP. B K 4700PF/50V	1	1	1
C854		CHIP CERAMIC CAP. B K 0.01UF/50V	1	1	1
C855		CHIP CERAMIC CAP. 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. B K 0.01UF/50V	1	1	1
		PCB ASSEMBLY			
CN701	9965 000 12272	AFV PCB ASSEMBLY CP2500/C460	1		
CN701	9965 000 12175	AFV PCB ASSEMBLY CP2500/C461	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	4822 130 81244	RECTIFIER DIODE ERA22-10	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 41487	RECTIFIER DIODE BA157	1	1	1
D012	4822 130 83883	RECTIFIER DIODE FR202	1	1	1
D013	4822 130 83883	RECTIFIER DIODE FR202	1	1	1
D014	4822 130 32715	SCHOTTKY BARRIER DIODE SB340	1	1	1
D015	4822 130 80319	ZENER DIODE MTZJT-779.1C	1	1	1
D018	4822 130 30621	SWITCHING DIODE 1N4148M	1	1	1
D019	9965 000 08622	ZENER DIODE DZ-5.6BSBT265	1	1	1
D021	4822 130 30621	SWITCHING DIODE 1N4148M	1	1	1
D051	4822 130 31933	RECTIFIER DIODE 1N4005	1	1	1
D052	4822 130 30621	SWITCHING DIODE 1N4148M	1	1	1
D053	9965 000 12176	RECTIFIER DIODE RL201 B-222-2	1	1	1
D056	9965 000 09182	ZENER DIODE DZ-5.1BSCT265	1	1	1
D057	9965 000 09283	ZENER DIODE DZ-10BSBT265	1	1	1
D151	9965 000 12177	ZENER DIODE DZ-6.8BSCT265	1	1	1
D152	9965 000 12177	ZENER DIODE DZ-6.8BSCT265	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

ELECTRICAL PARTS LIST			VR530/02	VR530/07	VR530/16
Pos.	▲ 12 NC	Description			
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
IC001	▲ 4822 130 11655	PHOTOCOUPLER LTV-817B-F	1	1	1
		IC's			
IC301	9965 000 12180	IC:Y/C/A LA71750AM-MTB	1	1	1
IC451	9965 000 12181	IC:HIFI LA72646M	1	1	1
IC501	9965 000 12557	µ 16BIT M37762MCA-1B3GP	1	1	1
IC503	9965 000 12283	IC:MEMORY BR24C04F-W	1	1	1
IC561	9965 000 12284	IC:LED DRIVER PT6958-FN	1	1	1
IC771	9965 000 12184	IC:COMPARATOR KIA339F EL	1	1	1
		COILS			
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 12188	LINE FILTER 50MH LF-4Z-E503	1	1	1
L009	9965 000 05627	CHOKO COIL 47UH-K	1	1	1
L010	9965 000 05627	CHOKO COIL 47UH-K	1	1	1
L012	4822 157 10649	INDUCTOR 100UH-K-26T	1	1	1
L251	9965 000 08652	INDUCTOR 5.6UH-K-26T	1	1	1
L301	4822 157 63316	INDUCTOR 56UH-K-26T	1	1	1
L401	9965 000 05627	CHOKO COIL 47UH-K	1	1	1
L402	9965 000 05627	CHOKO COIL 47UH-K	1	1	1
L451	4822 157 10649	INDUCTOR 100UH-K-26T	1	1	1
L452	4822 157 10347	INDUCTOR 22UH-K-26T	1	1	1
L501	4822 157 10649	INDUCTOR 100UH-K-26T	1	1	1
L561	4822 157 10649	INDUCTOR 100UH-K-26T	1	1	1
L562	4822 157 10332	PCB JUMPER D0.6-P5.0	1	1	1
L701	4822 157 10889	INDUCTOR 10UH-K-26T	1	1	1
L702	9965 000 05627	CHOKO COIL 47UH-K	1	1	1
L703	4822 157 10332	PCB JUMPER D0.6-P5.0	1	1	1
L704	4822 157 11511	INDUCTOR 15UH-K-26T	1	1	1
L705	4822 157 10332	PCB JUMPER D0.6-P5.0	1	1	1
L851	9965 000 08629	INDUCTOR 1.8UH-K-26T	1	1	1
L853	4822 157 10332	PCB JUMPER D0.6-P5.0	1	1	1
		TRANSISTORS			
Q001	9965 000 06568	FET FS1KM-18A	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 10103	TRANSISTOR KTC3199(Y)	1	1	1
Q051	4822 130 42292	RES. BUILT-IN TRANSISTOR KRA104M	1	1	1
Q052	4822 130 10098	RES. BUILT-IN TRANSISTOR KRC103M	1	1	1
Q053	4822 130 10103	TRANSISTOR KTC3199(Y)	1	1	1
Q054	9965 000 09389	TRANSISTOR 2SD1246(T)	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	4822 130 10098	RES. BUILT-IN TRANSISTOR KRC103M	1	1	1
Q153	4822 130 10103	TRANSISTOR KTC3199(Y)	1	1	1
Q351	4822 130 42959	TRANSISTOR KTA1266(GR)	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
Q404	4822 130 10103	TRANSISTOR KTC3199(Y)	1	1	1
Q405	4822 130 10103	TRANSISTOR KTC3199(Y)	1	1	1
Q406	4822 130 10103	TRANSISTOR KTC3199(Y)	1	1	1
Q451	4822 130 10098	RES. BUILT-IN TRANSISTOR KRC103M	1	1	1
Q501	4822 130 10923	TRANSISTOR KTC3199(BL)	1	1	1
Q502	4822 130 10098	RES. BUILT-IN TRANSISTOR KRC103M	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	4822 130 10098	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
R005		CARBON RES. 1/6W G 1.5K OHM	1	1	1
R006		METAL OXIDE FILM RES. 1W J 2.2 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 5.6K OHM	1	1	1
R011		CARBON RES. 1/4W J 390K OHM	1	1	1

ELECTRICAL PARTS LIST			VR530/02	VR530/07	VR530/16
Pos.	▲ 12 NC	Description			
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 22K OHM	1	1	1
R022		CHIP RES.(1608) 1/10W J 680 OHM	1	1	1
R023		CHIP RES.(1608) 1/10W J 2.2K OHM	1	1	1
R024		CHIP RES.(1608) 1/10W J 1K OHM	1	1	1
R025		CHIP RES.(1608) 1/10W J 390 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
R035	4822 157 10332	PCB JUMPER D0.6-P5.0	1	1	1
R054		CHIP RES.(1608) 1/10W J 180 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. 1/4W 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
R070		CHIP RES.(1608) 1/10W J 4.7K OHM	1	1	1
R157		CARBON RES. 1/6W J 4.7K OHM	1	1	1
R158		CHIP RES.(1608) 1/10W J 6.8K OHM	1	1	1
R251		CHIP RES.(1608) 1/10W J 2.2K 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
R306		CHIP RES.(1608) 1/10W 0 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		CARBON RES. 1/6W J 2.4K 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 560 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 39K OHM	1	1	1
R328		CHIP RES.(1608) 1/10W J 1K 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
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
R405		CHIP RES.(1608) 1/10W J 10K OHM	1	1	1
R406		CHIP RES.(1608) 1/10W J 10K OHM	1	1	1
R407		CARBON RES. 1/6W 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
R543		CHIP RES.(1608) 1/10W 0 OHM	1	1	1

ELECTRICAL PARTS LIST			VR530/02	VR530/07	VR530/16
Pos.	▲ 12 NC	Description			
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 1.2K 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 10K OHM	1	1	1
R452		CHIP RES.(1608) 1/10W J 22K OHM	1	1	1
R453		CHIP RES.(1608) 1/10W J 6.8K OHM	1	1	1
R454		CHIP RES.(1608) 1/10W J 39K OHM	1	1	1
R455		CHIP RES.(1608) 1/10W J 6.8K OHM	1	1	1
R456		CHIP RES.(1608) 1/10W J 8.2K OHM	1	1	1
R457		CHIP RES.(1608) 1/10W J 6.8K OHM	1	1	1
R460		CHIP RES.(1608) 1/10W J 470 OHM	1	1	1
R461		CHIP RES.(1608) 1/10W J 2.2K OHM	1	1	1
R462		CHIP RES.(1608) 1/10W J 39K 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 39K OHM	1	1	1
R467		CHIP RES.(1608) 1/10W J 6.8K OHM	1	1	1
R468		CARBON RES. 1/6W J 8.2K OHM	1	1	1
R469		CHIP RES.(1608) 1/10W J 6.8K OHM	1	1	1
R472		CHIP RES.(1608) 1/10W J 1K OHM	1	1	1
R473		CHIP RES.(1608) 1/10W J 1K OHM	1	1	1
R474		CHIP RES.(1608) 1/10W J 10K OHM	1	1	1
R479		CHIP RES.(1608) 1/10W J 27K OHM	1	1	1
R480		CHIP RES.(1608) 1/10W J 27K 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
R507		CHIP RES.(1608) 1/10W 0 OHM	1	1	1
R508		CARBON RES. 1/6W J 1K 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
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 220 OHM	1	1	1
R518		CHIP RES.(1608) 1/10W J 470 OHM	1	1	1
R519		CHIP RES.(1608) 1/10W 0 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 68K OHM	1	1	1
R523		CHIP RES.(1608) 1/10W J 10K OHM	1	1	1
R524		CHIP RES.(1608) 1/10W J 10K 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 10K 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 1.2K OHM	1	1	1
X501	9965 000 12194	X'TAL 12.000MHZ	1	1	1

ELECTRICAL PARTS LIST			VR530/02	VR530/07	VR530/16
Pos.	▲ 12 NC	Description			
R544		CHIP RES.(1608) 1/10W J 1.5K OHM	1	1	1
R545		CHIP RES.(1608) 1/10W J 2.2K OHM	1	1	1
R546		CHIP RES.(1608) 1/10W J 1.8K OHM	1	1	1
R547		CHIP RES.(1608) 1/10W J 2.7K 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
R555		CHIP RES.(1608) 1/10W J 10K OHM	1	1	1
R556		CHIP RES.(1608) 1/10W J 10K OHM	1	1	1
R558		CHIP RES.(1608) 1/10W J 10K OHM	1	1	1
R566		CHIP RES.(1608) 1/10W J 56K OHM	1	1	1
R607		CHIP RES.(1608) 1/10W J 10K OHM	1	1	1
R612		CHIP RES.(1608) 1/10W J 10K OHM	1	1	1
R616		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		CARBON RES. 1/6W J 1K 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
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
		SWITCHES			
SW501	4822 276 13954	TACT SWITCH KSM0614B	1	1	1
SW502	4822 276 13954	TACT SWITCH KSM0614B	1	1	1
SW504	4822 276 13954	TACT SWITCH KSM0614B	1	1	1
SW505	4822 276 13954	TACT SWITCH KSM0614B	1	1	1
SW506	9965 000 12285	LEAF SWITCH LSA-1142AU	1	1	1
SW507	9965 000 08561	ROTARY MODE SWITCH SSS-43MD	1	1	1
		MISCELLANEOUS			
2B7	9965 000 12286	SHIELD ASSEMBLY HC460ED	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 PE8B2CB1H0A-057	1	1	1
AC001	▲ 9965 000 12174	AC CORD P08B1V51H0A-05B	1	1	1
F001	▲ 9965 000 12179	FUSE 21301.6M	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
FP562	9965 000 09307	LED DISPLAY LFU-4421-2001A	1	1	1
J902	4822 526 10685	BEAD CORE B16 RH 3.5X10X1.3	1	1	1
JW001	9965 000 12411	FLAT CABLE, 11P	1	1	1
JW002	9965 000 12412	FLAT CABLE, 12P	1	1	1
JW003	9965 000 12413	FLAT CABLE, 2P	1	1	1
PS503	9965 000 12189	PHOTO INTERRUPTER RPI-302C70	1	1	1
RS501	9965 000 12287	REMOTE RECEIVER MIM-93M9DKF	1	1	1
SA001	▲ 4822 252 11373	SURGE ABSORBER JVR-10N471K	1	1	1
T001	▲ 9965 000 09203	PULSE TRANS SA-00901B	1	1	1
TP301		PCB JUMPER D0.6-P9.5	1	1	1
TP501		PCB JUMPER D0.6-P6.0	1	1	1
TP502		PCB JUMPER D0.6-P10.0	1	1	1
TP506	4822 157 10332	PCB JUMPER D0.6-P5.0	1	1	1
TP507		PCB JUMPER D0.6-P6.0	1	1	1
TP508		PCB JUMPER D0.6-P23.0	1	1	1
TP751	4822 157 10332	PCB JUMPER D0.6-P5.0	1	1	1
TU701	9965 000 12265	TUNER UNIT TMDG2-631A	1	1	1
TU701	9965 000 12193	TUNER UNIT TMDG2-632A	1	1	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
R118		CARBON RES. 1/4W J 68 OHM	1	1	1

ELECTRICAL PARTS LIST			VR530/02	VR530/07	VR530/16
Pos.	▲ 12 NC	Description			
X502	9965 000 12288	X'TAL 32.768KHZ(20PPM)	1	1	1
		FUNCTION CBA			
CN651	9965 000 09213	ANGLE PIN HEADER	1	1	1
R651		CHIP RES.(1608) 1/10W J 1K OHM	1	1	1
R652		CHIP RES.(1608) 1/10W J 1.2K OHM	1	1	1
R653		CHIP RES.(1608) 1/10W J 1.5K OHM	1	1	1
R654		CHIP RES.(1608) 1/10W J 2.2K OHM	1	1	1
R655		CHIP RES.(1608) 1/10W J 3.9K OHM	1	1	1
SW651	4822 276 13954	TACT SWITCH KSM0614B	1	1	1
SW652	4822 276 13954	TACT SWITCH KSM0614B	1	1	1
SW653	4822 276 13954	TACT SWITCH KSM0614B	1	1	1
SW654	4822 276 13954	TACT SWITCH KSM0614B	1	1	1
SW656	4822 276 13954	TACT SWITCH KSM0614B	1	1	1
		VPS CBA			
C640		CHIP CERAMIC CAP. F Z 0.1UF/50V	1	1	1
C642	9965 000 12290	SEMICON. CAP. SR K 0.056UF/25V	1	1	1
C643		ELECTROLYTIC CAP. 4.7UF/25V M H7	1	1	1
C644		ELECTROLYTIC CAP. 47UF/6.3V M H7	1	1	1
C645		CHIP CERAMIC CAP. B K 0.01UF/50V	1	1	1
C648		ELECTROLYTIC CAP. 1UF/50V M H7	1	1	1
C649		ELECTROLYTIC CAP. 1UF/50V M H7	1	1	1
		IC's			
IC640	9965 000 12291	IC:VPS/PDC SLICER LC74793JM-MPB	1	1	1
		RESISTORS			
R638		CHIP RES.(1608) 1/10W J 100 OHM	1	1	1
R641		CHIP RES.(1608) 1/10W J 10K OHM	1	1	1
R642		CHIP RES.(1608) 1/10W J 2.7K OHM	1	1	1
R643		CHIP RES.(1608) 1/10W J 5.6K OHM	1	1	1
R644		CHIP RES.(1608) 1/10W J 10K OHM	1	1	1
R645		CHIP RES.(1608) 1/10W J 10K OHM	1	1	1
		POWER SW CBA			
SW510	4822 276 13954	TACT SWITCH KSM0614B	1	1	1
		JACK CBA			
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. CH J 470PF/50V	1	1	1
C104		CHIP CERAMIC CAP. CH J 470PF/50V	1	1	1
C105		CHIP CERAMIC CAP. 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. CH J 470PF/50V	1	1	1
C112		CHIP CERAMIC CAP. 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
D105	9965 000 12178	ZENER DIODE DZ-11BSAT265	1	1	1
		COILS			
L101	4822 526 10685	BEAD CORE B16 RH 3.5X10X1.3	1	1	1
L121	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			
R101		CARBON RES. 1/4W J 1K OHM	1	1	1
R103		CARBON RES. 1/4W J 1K 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
R107		CHIP RES.(1608) 1/10W 0 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 15K OHM	1	1	1
R112		CARBON RES. 1/4W J 1K 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
C15		ELECTROLYTIC CAP. 10UF/16V M H7	1	1	1

ELECTRICAL PARTS LIST			VR530/02	VR530/07	VR530/16
Pos.	▲ 12 NC	Description			
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
2L022	4822 502 30752	SCREW, P-TIGHT M3X10	1	1	1
A5	9965 000 12196	JACK BOARD(2-21P) HC460ED	1	1	1
JK101	9965 000 12197	RGB CONNECTOR MRC-021V-01	1	1	1
JK102	9965 000 12197	RGB CONNECTOR MRC-021V-01	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			
C1		CHIP CERAMIC CAP. F Z 0.1UF/50V	1	1	1
C4		CHIP CERAMIC CAP. CH J 56PF/50V	1	1	1
C5		CHIP CERAMIC CAP. CH J 22PF/50V	1	1	1
C6		CHIP CERAMIC CAP. CH J 56PF/50V	1	1	1
C7		CHIP CERAMIC CAP. CH D 3PF/50V	1	1	1
C8		CHIP CERAMIC CAP. CH D 3PF/50V	1	1	1
C11		CHIP CERAMIC CAP. B K 0.01UF/50V	1	1	1
C12		ELECTROLYTIC CAP. 10UF/16V M H7	1	1	1
C13		CHIP CERAMIC CAP. B K 0.01UF/50V	1	1	1
C14		CHIP CERAMIC CAP. B K 0.01UF/50V	1	1	1

ELECTRICAL PARTS LIST			VR530/02	VR530/07	VR530/16
Pos.	▲ 12 NC	Description			
C16		ELECTROLYTIC CAP. 10UF/16V M H7	1	1	1
C17		CHIP CERAMIC CAP. F Z 0.1UF/50V	1	1	1
C19		CHIP CERAMIC CAP. F Z 0.1UF/50V	1	1	1
C20		ELECTROLYTIC CAP. 3.3UF/50V M H7	1	1	1
C21		CHIP CERAMIC CAP. 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	1	1	1
		DIODES			
D2	4822 130 30621	SWITCHING DIODE 1N4148M	1	1	1
		IC's			
IC1	9965 000 12274	AUDIO PROCESSOR MSP3407G-QG-B8	1		
IC1	9965 000 12199	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		CHIP RES.(1608) 1/10W J 1K OHM	1	1	1
R4		CHIP RES.(1608) 1/10W J 120K OHM	1	1	1
R5		CHIP RES.(1608) 1/10W 0 OHM	1	1	1
R6		CHIP RES.(1608) 1/10W 0 OHM	1	1	1
X1	9965 000 12200	X'TAL 18.432MHZ	1	1	1

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.

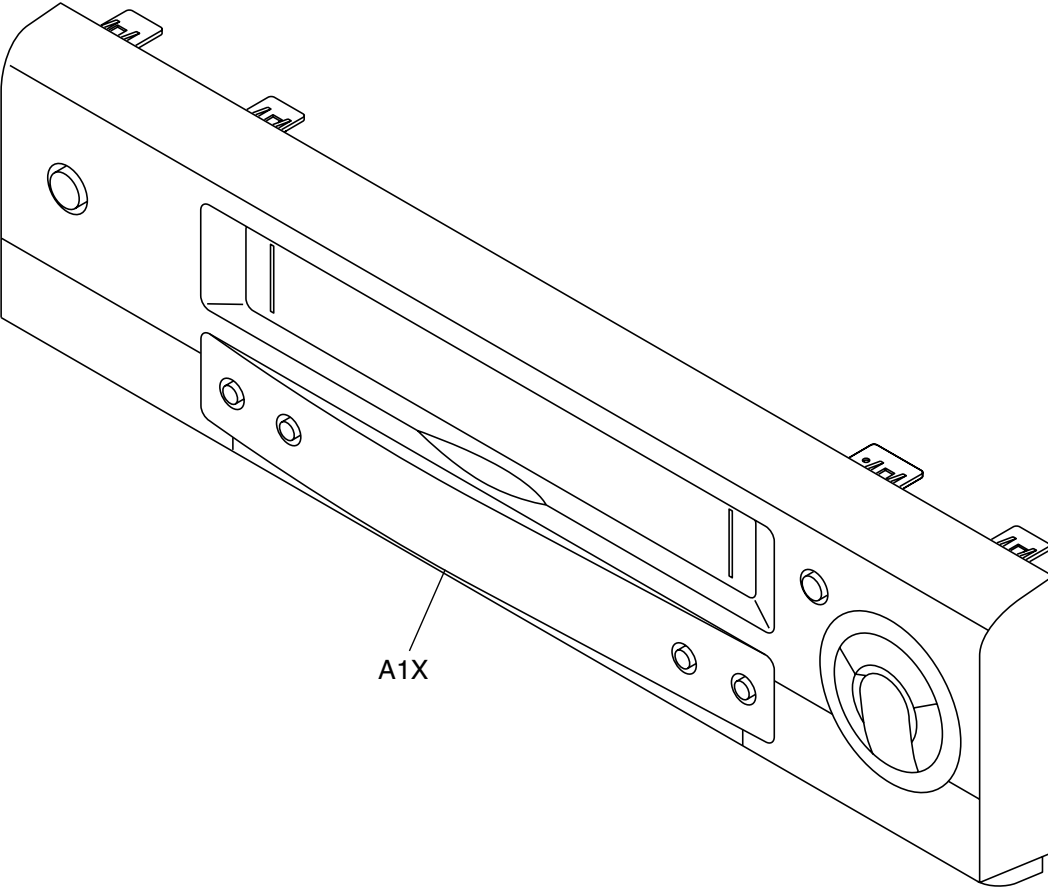
NOTES:

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

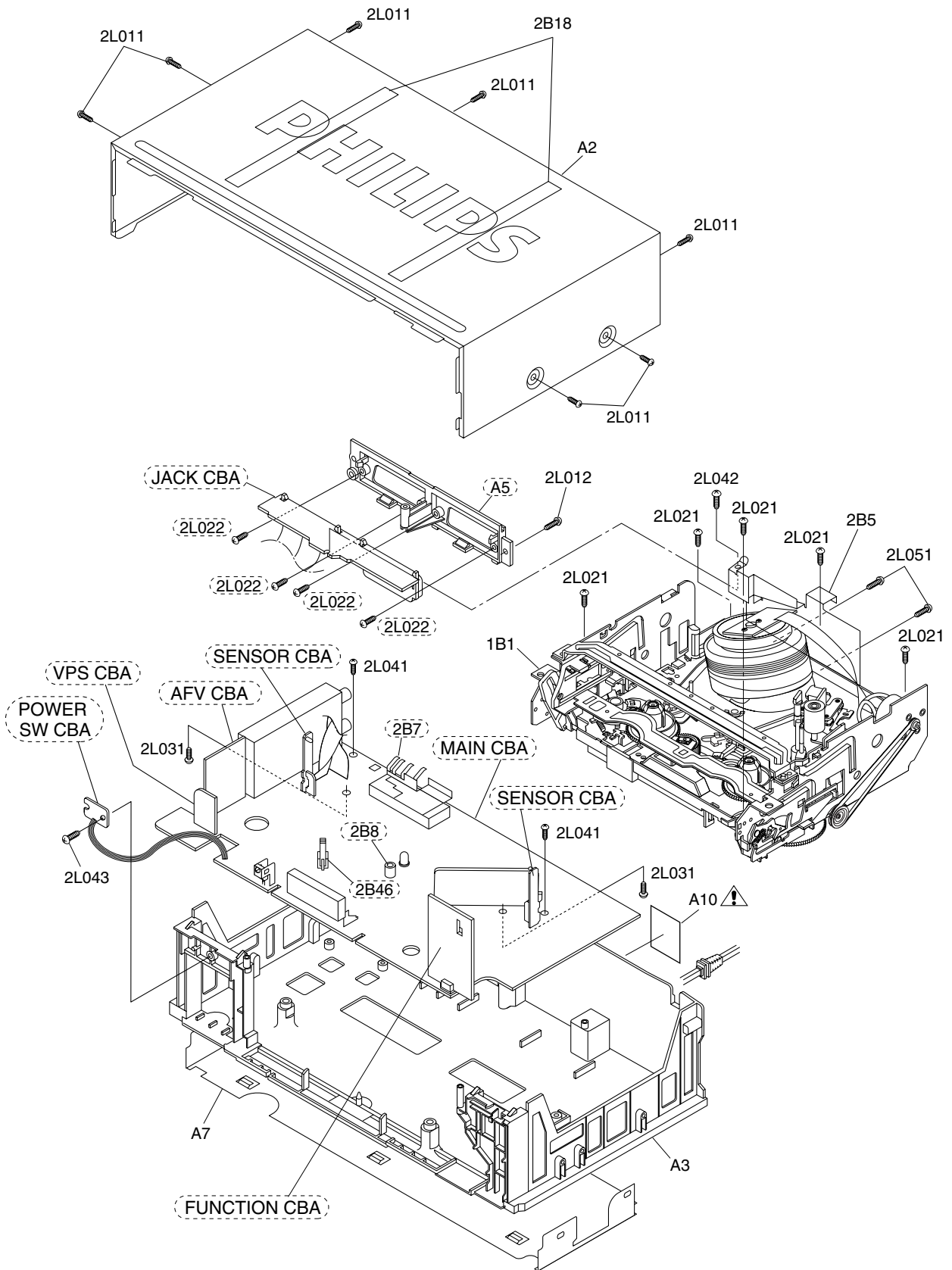
- C.....0.25% D0.5% F1%
- G.....2% J5% K10%
- M.....20% N30% Z+80/-20%

EXPLODED VIEWS

Front Panel



Cabinet

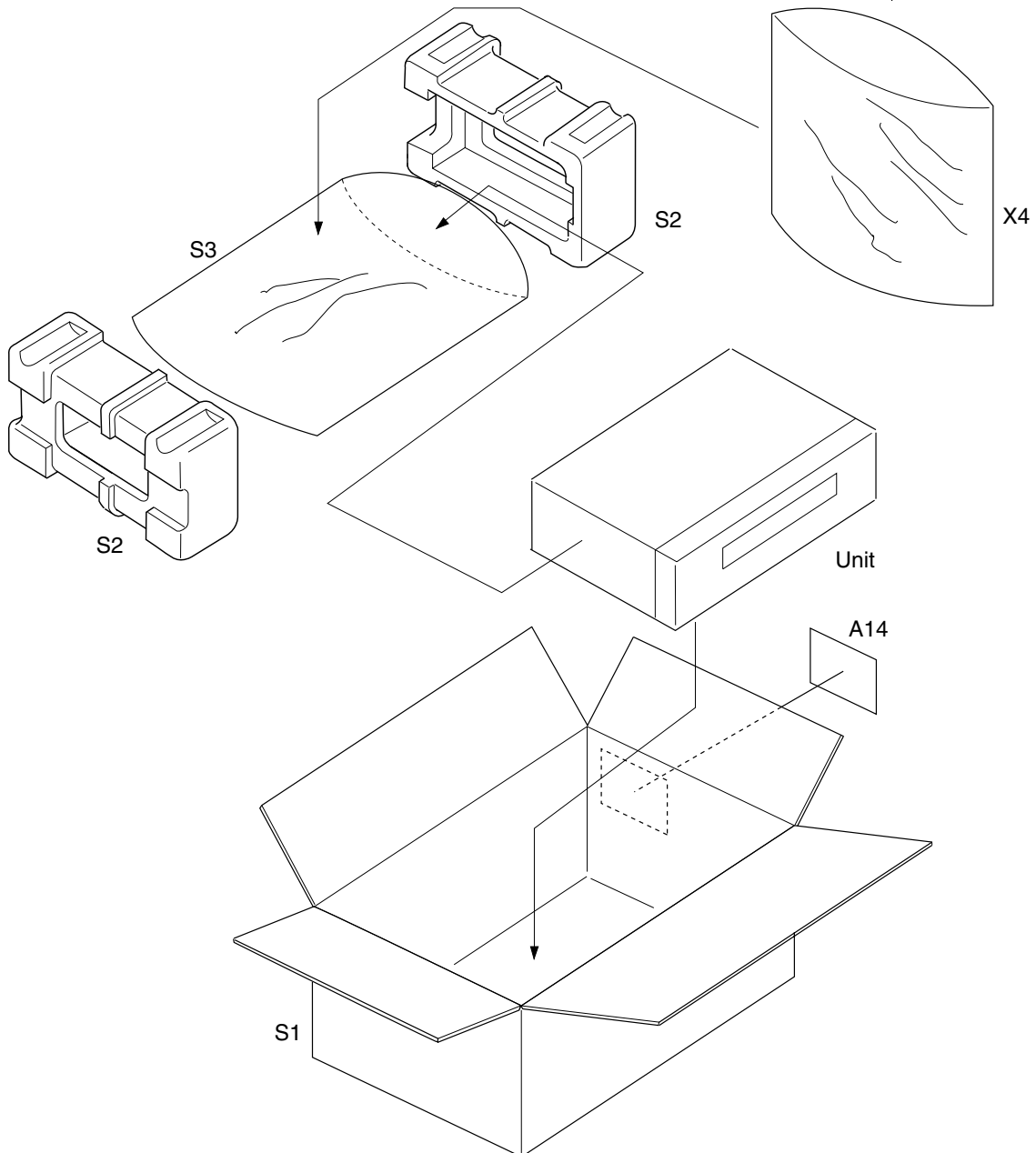
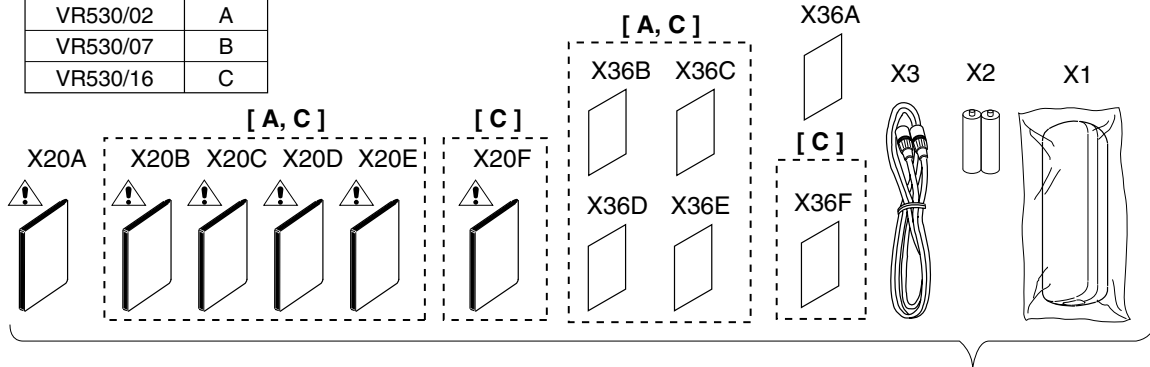


Packing

Comparison Chart of Models and Marks

Model	Mark
VR530/02	A
VR530/07	B
VR530/16	C

Some Ref. Numbers are not in sequence.



MECHANICAL PARTS LIST				VR530/02	VR530/07	VR530/16
Pos.	▲	12 NC	Description			
A1X		9965 000 12280	FRONT ASSEMBLY HC460ED	1		
A1X		9965 000 12292	FRONT ASSEMBLY HC462ED		1	1
A2		9965 000 12164	CASE, TOP HC460ED	1	1	1
A3		9965 000 12165	CHASSIS HC461BD	1	1	1
A7		9965 000 12166	PANEL, BOTTOM HC461BD	1	1	1
A10	▲		LABEL, RATING HC460ED	1		
A10	▲		LABEL, RATING HC461BD		1	
A10	▲		LABEL, RATING HC462ED			1
A14			LABEL, BAR CODE HC460ED	1		
A14			LABEL, BAR CODE HC461BD		1	
A14			LABEL, BAR CODE HC462ED			1
1B1		9965 000 12399	DECK ASSEMBLY CZD011/VM15E0	1	1	1
2B5		9965 000 12168	SHEILD, CYLINDER HC460ED	1	1	1
2B18		9965 000 12169	FIBER, TOP CASE H8101BD U15 PAL	1	1	1
2L011		4822 502 13712	SCREW, P-TIGHT 3X12 BIND HEAD+ BLK	1	1	1
2L012		4822 502 13712	SCREW, P-TIGHT 3X12 BIND HEAD+ BLK	1	1	1
2L021		4822 502 30752	SCREW, P-TIGHT M3X10 WASHER HEAD+	1	1	1
2L031		9965 000 12171	SCREW, B-TIGHT M3X8 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
2L043		4822 502 14012	P-TIGHT SCREW 3X8 BIND +	1	1	1
2L051		4822 502 14018	SCREW, S-TIGHT M3X5 BIND HEAD+	1	1	1
X1		9965 000 12281	REMOTE CONTROL UNIT 364/CRC006	1	1	1
X3		9965 000 09742	RF CORD PAL 1.2M	1	1	1

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.

DECK MECHANISM SECTION

VIDEO CASSETTE RECORDER

- | |
|---|
| <p>Sec. 2: Deck Mechanism Section</p> <ul style="list-style-type: none">● Standard Maintenance● Mechanism Alignment Procedures● Disassembly / Assembly of Mechanism● Deck Exploded Views● Deck Parts List |
|---|

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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		●		●
B27	Tension Lever Sub Assembly		●		●
B31	AC Head Assembly			●	
B573,B574	Reel S, Reel T			●	
B37	Capstan Motor		●		●
B52	Cap Belt		●		●
*B73	FE Head			●	
B133	Idler Assembly		●		●
B410	Pinch Arm (A) Assembly		●		●
B414	M Brake S Assembly		●		●
B416	M Brake T Assembly		●		●
B525	LDG Belt		●		●

Notes:

- Clean all parts for the tape transport (Upper Drum with Video Head / Pinch Roller / Audio Control Head / Full Erase Head) using 90% Isopropyl Alcohol.
- After cleaning the parts, do all DECK ADJUSTMENTS.
- For the reference numbers listed above, refer to Deck Exploded Views.
* B73 ----- Recording Model only

Cleaning

Cleaning of Video Head

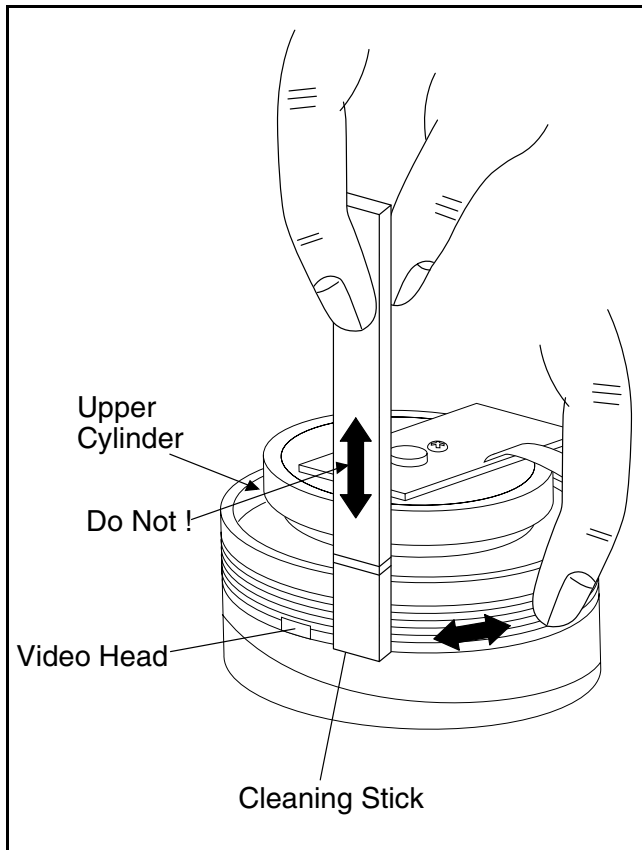
Clean the head with a head cleaning stick or chamois cloth.

Procedure

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

Notes:

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



Cleaning of Audio Control Head

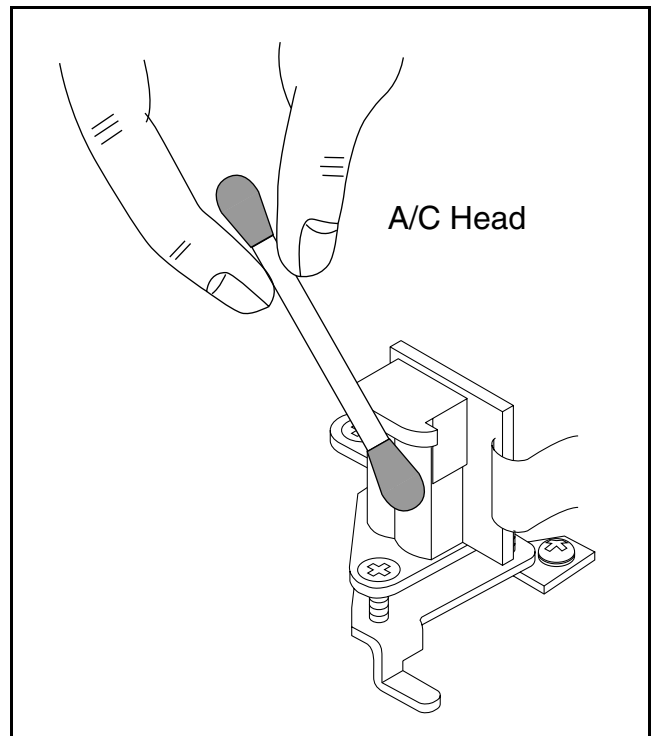
Clean the head with a cotton swab.

Procedure

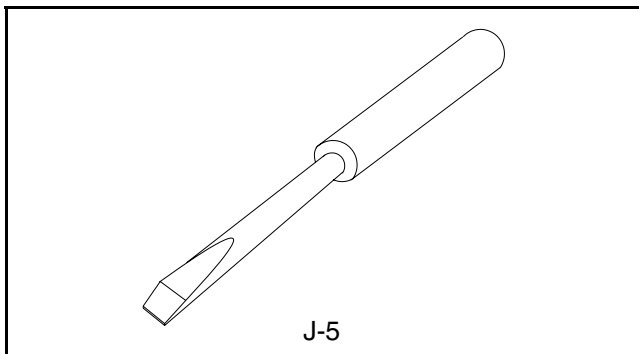
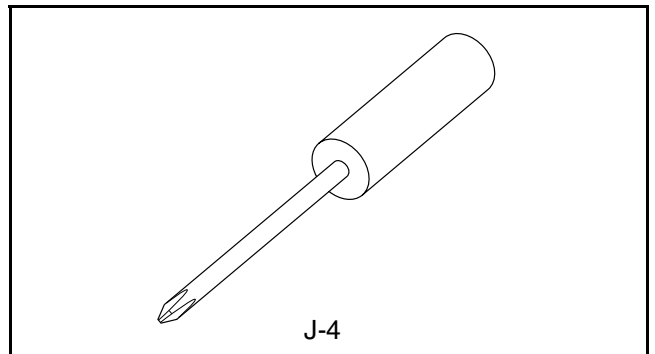
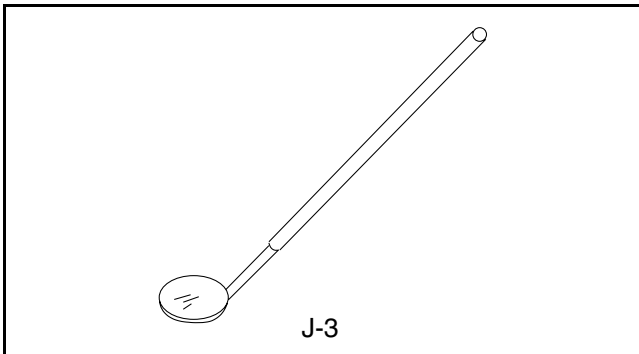
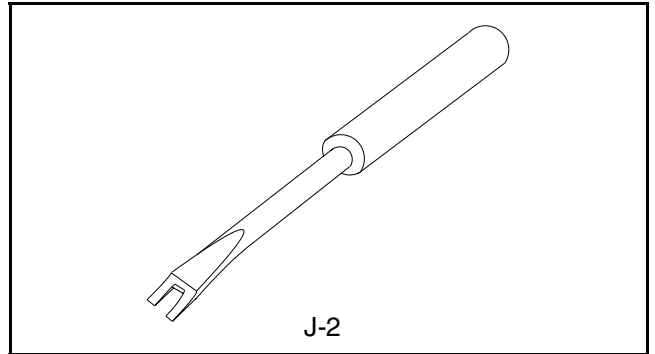
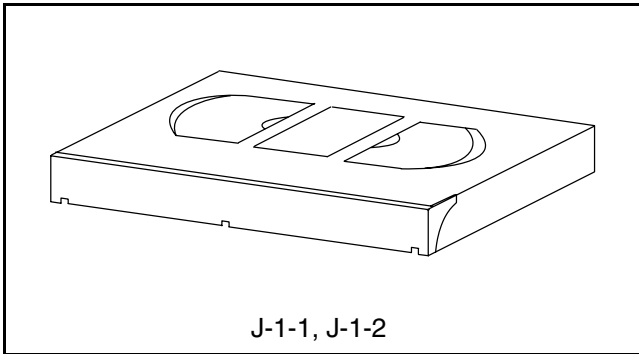
1. Remove the top cabinet.
2. Dip the cotton swab in 90% isopropyl alcohol and clean the audio control head. Be careful not to damage the upper drum and other tape running parts.

Notes:

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



SERVICE FIXTURE AND TOOLS



Ref. No.	Name	Part No.	Adjustment
J-1-1	Alignment Tape	4822 395 10283	Electrical Adjustments
J-1-2	Alignment Tape	4822 395 10057	Azimuth and X Value Adjustment of Audio Control Head / Adjustment of Envelope Waveform
J-2	Guide Roller Adj.Screwdriver	Available Locally	Guide Roller
J-3	Mirror	4822 380 10108	Tape Transportation Check
J-4	Azimuth Adj.Screwdriver +	Available Locally	A/C Head Height
J-5	X Value Adj.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:

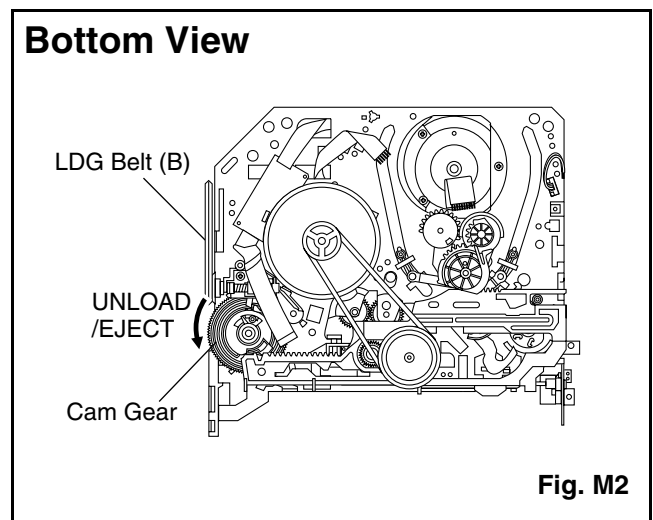
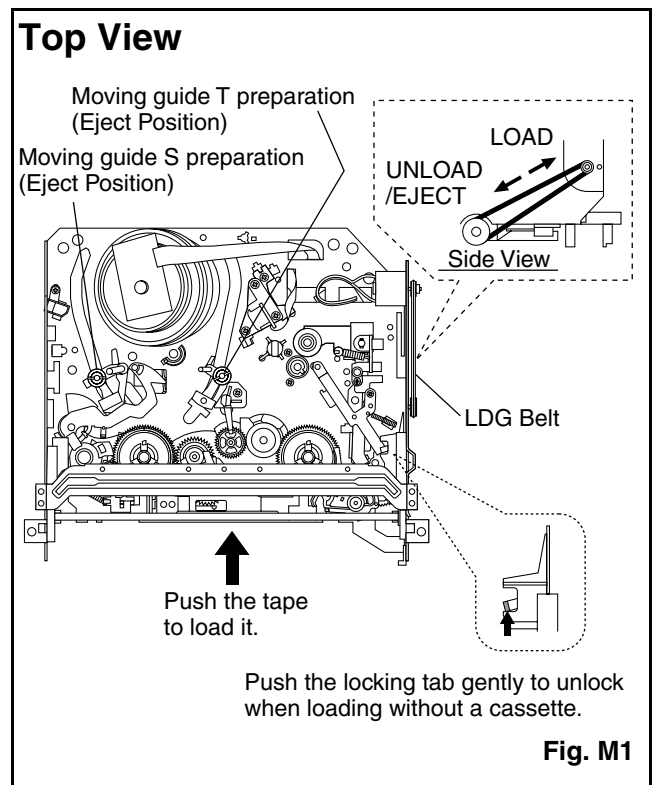
1. Disconnect the AC plug.
2. Remove the Top Case and Front Assembly.
3. Insert a cassette tape. Though the tape will not be automatically loaded, make sure that the cassette tape is all the way in at the inlet of the Cassette Holder. To confirm this, lightly push the cassette tape further in and see 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.



1. Tape Interchangeability Alignment

Note:

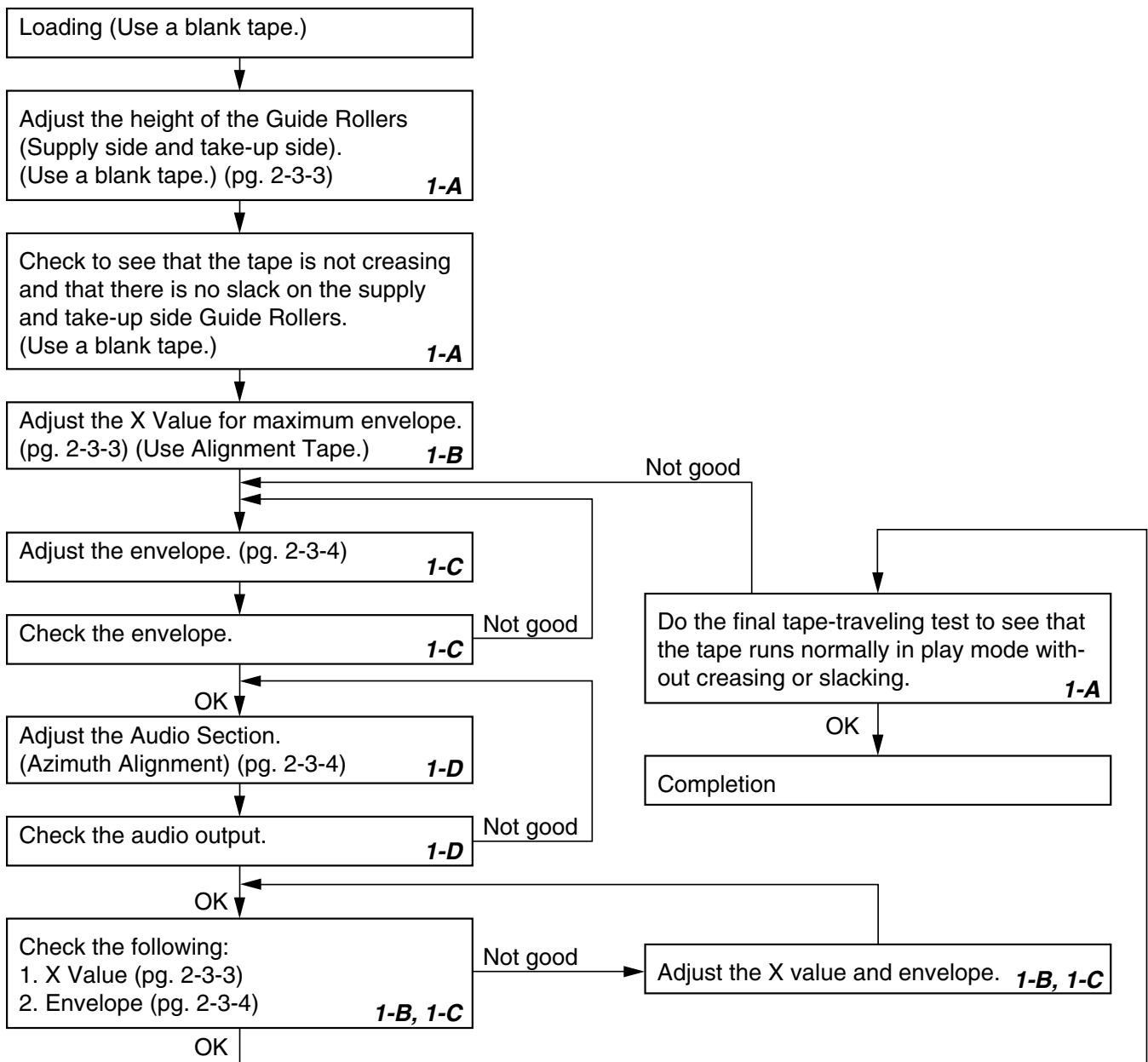
To do these alignment procedures, make sure that the Tracking Control Circuit is set to the center position every time a tape is loaded or unloaded. (Refer to page 2-3-4, procedure 1-C, step 2.)

Equipment required:

- Dual Trace Oscilloscope
- VHS Alignment Tape (4822 395 10057)
- Guide Roller Adj. Screwdriver
- X-Value Adj. Screwdriver

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

Flowchart of Alignment for tape traveling



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

Purpose:

To make sure that the tape path is well stabilized.

Symptom of Misalignment:

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

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

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

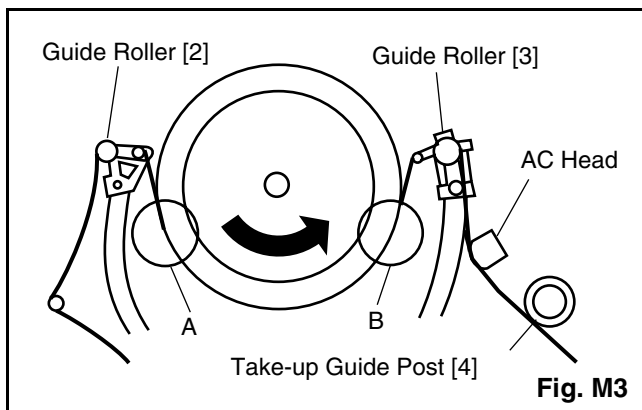


Fig. M3

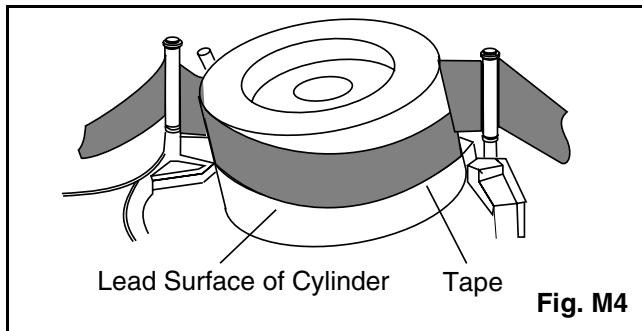


Fig. M4

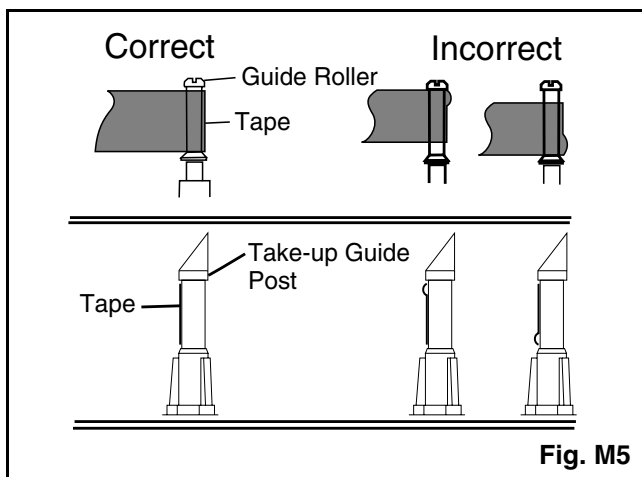


Fig. M5

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

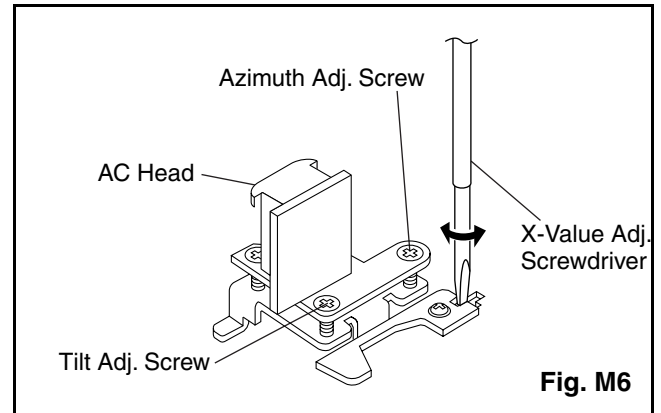


Fig. M6

1-B. X Value Alignment

Purpose:

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

Symptom of Misalignment:

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

1. Connect the oscilloscope to TP301 (C-PB) and TP501 (CTL) on the Main CBA. Use TP502 (RF-SW) as a trigger.
2. Play back the Gray Scale of the Alignment Tape (4822 395 10057) and confirm that the PB FM signal is present.
3. Set the Tracking Control Circuit to the center position by pressing CH UP button then "PLAY" button on the unit. (Refer to note on bottom of page 2-3-4.)
4. Use the X-Value Adj. Screwdriver so that the PB FM signal at TP301 (C-PB) is maximum. (Fig. M6)
5. Press CH UP button on the unit until the CTL waveform has shifted by approx. +2msec. Make sure that the envelope is simply attenuated (shrinks in height) during this process so that you will know the envelope has been at its peak.

6. Press CH DOWN button on the unit until the CTL waveform has shifted from its original position (not the position achieved in step 5, but the position of CTL waveform in step 4) by approximately -2msec. Make sure that the envelope is simply attenuated (shrinks in height) once CTL waveform passes its original position and is further brought in the minus direction.
7. Set the Tracking Control Circuit to the center position by pressing CH UP button and then "PLAY" button.

1-C. Checking/Adjustment of Envelope Waveform

Purpose:

To achieve a satisfactory picture and precise tracking.

Symptom of Misalignment:

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

1. Connect the oscilloscope to TP301 (C-PB) on the Main CBA. Use TP502 (RF-SW) as a trigger.
2. Play back the Gray Scale on the Alignment Tape (4822 395 10057). Set the Tracking Control Circuit to the center 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.

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

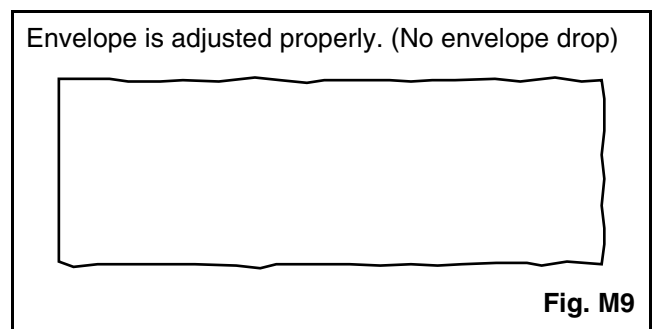
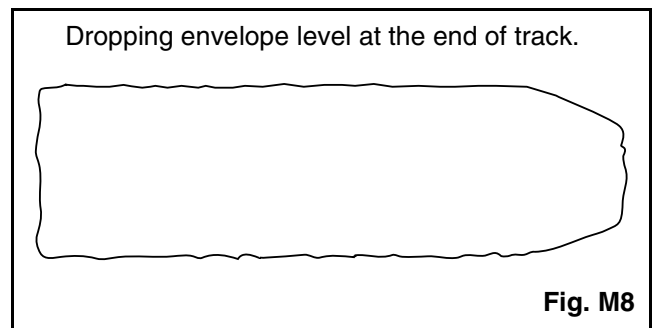
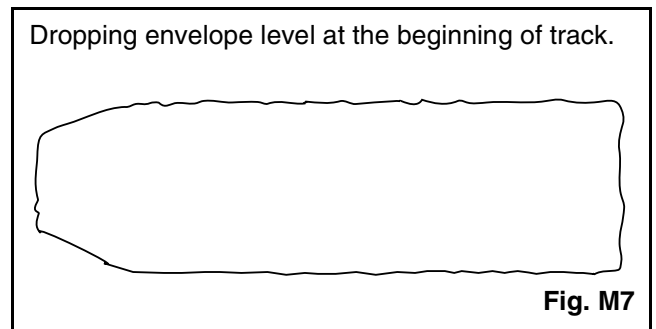
Purpose:

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. Play back the alignment tape (4822 395 10057) 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 [45] and [46] in Fig.DM1 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	DM3	2(S-1)	
[2]	[1]	Cassette Holder Assembly	T	DM4		
[3]	[2]	Slider L	T	DM5	(S-2)	
[4]	[2]	Slider R	T	DM5	(S-3)	
[5]	[4]	Lock Lever	T	DM5	(S-4),*(P-1)	
[6]	[2]	C Plate	T	DM5		
[7]	[7]	Cylinder Assembly	T	DM1,DM6	Desolder, 3(S-5)	
[8]	[8]	Loading Motor Assembly	T	DM1,DM7	Desolder, LDG Belt, 2(S-6)	
[9]	[9]	AC Head Assembly	T	DM1,DM7	(S-7)	
[10]	[2]	Tape Guide Assembly	T	DM1,DM8	*(P-2)	
[11]	[10]	Door Opener B	T	DM1,DM8	*(L-1),*(L-2)	
[12]	[11]	Pinch Arm (B)	T	DM1,DM8	*(P-3)	
[13]	[12]	Pinch Arm (A) Assembly	T	DM1,DM8		
[14]	[14]	FE Head	T	DM1,DM9	(S-9)	
[15]	[15]	Prism	T	DM1,DM9	(S-10)	
[16]	[2]	Slider Shaft	T	DM10	(S-11),*(L-3)	
[17]	[16]	C Drive Lever L	T	DM10		
[18]	[16]	C Drive Lever R	T	DM10		
[19]	[7],[10]	Capstan Motor	B	DM2,DM11	3(S-12), Cap Belt	
[20]	[20]	Clutch Assembly(HI)	B	DM2,DM12	(C-1)	
[21]	[20]	Center Gear	B	DM12		
[22]	[22]	Cam Holder F	B	DM2,DM13	(C-2)	
[23]	[22]	Cam Gear (B)	B	DM2,DM13	(C-3),*(P-4)	
[24]	[24]	Mode Gear	B	DM2,DM14	(C-4)	
[25]	[20],[23], [24]	Mode Lever(HI)	B	DM2,DM14	(C-5), *(L-4)	
[26]	[22]	Worm Holder	B	DM2,DM14	(S-15)	
[27]	[26]	Pully Assembly	B	DM2,DM14		
[28]	[22],[25]	Cam Gear (A)	B	DM2,DM14		(+)Refer to Alignment Sec.Pg.2-4-10
[29]	[20]	TR Gear C	B	DM2,DM14	(C-6)	
[30]	[29]	TR Gear Spring	B	DM14		
[31]	[30]	TR Gear A/B	B	DM1,DM14		
[32]	[31]	FF Arm(HI)	B	DM1,DM14		
[33]	[21],[25]	Idler Assembly(HI)	B	DM1,DM15	*(L-5)	
[34]	[25]	BT Arm	B	DM2,DM15	*(P-5)	

STEP /LOC. No.	START-ING No.	PART		REMOVAL		INSTALLATION
				Fig. No.	REMOVE/*UNHOOK/ UNLOCK/RELEASE/ UNPLUG/DESOLDER	ADJUSTMENT CONDITION
[35]	[25]	Loading Arm S(B) Assembly	B	DM2,DM15		(+)Refer to Alignment Sec.Pg.2-4-9
[36]	[35]	Loading Arm T(B) Assembly	B	DM2,DM15		(+)Refer to Alignment Sec.Pg.2-4-9
[37]	[2],[25]	M Brake T(HI) Assembly	T	DM1,DM16	*(P-6)	
[38]	[2],[25]	M Brake S(HI) Assembly	T	DM1,DM16	*(P-7)	
[39]	[38]	Tension Lever Sub Assembly	T	DM1,DM16		
[40]	[39]	T Lever Holder	T	DM1,DM16	*(L-6)	
[41]	[2]	M Gear(HYT)	T	DM1,DM16	(C-7)	
[42]	[2],[15]	Sensor Gear	T	DM1,DM16	(C-8)	
[43]	[37],[41]	Reel T	T	DM1,DM16		
[44]	[39]	Reel S	T	DM1,DM16		
[45]	[35],[38]	Moving Guide S Preparation	T	DM1,DM17		
[46]	[36]	Moving Guide T Preparation	T	DM1,DM17		
[47]	[19]	TG Post Assembly	T	DM1,DM17	*(L-7)	
[48]	[18],[28]	Rack Assembly	R	DM18		(+)Refer to Alignment Sec.Pg.2-4-10
[49]	[48]	F Door Opener	R	DM18		
[50]	[46]	Cleaner Lever Assembly	T	DM1,DM6	*(L-8)	

↓ ↓ ↓ ↓ ↓ ↓ ↓
 (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.

Top View

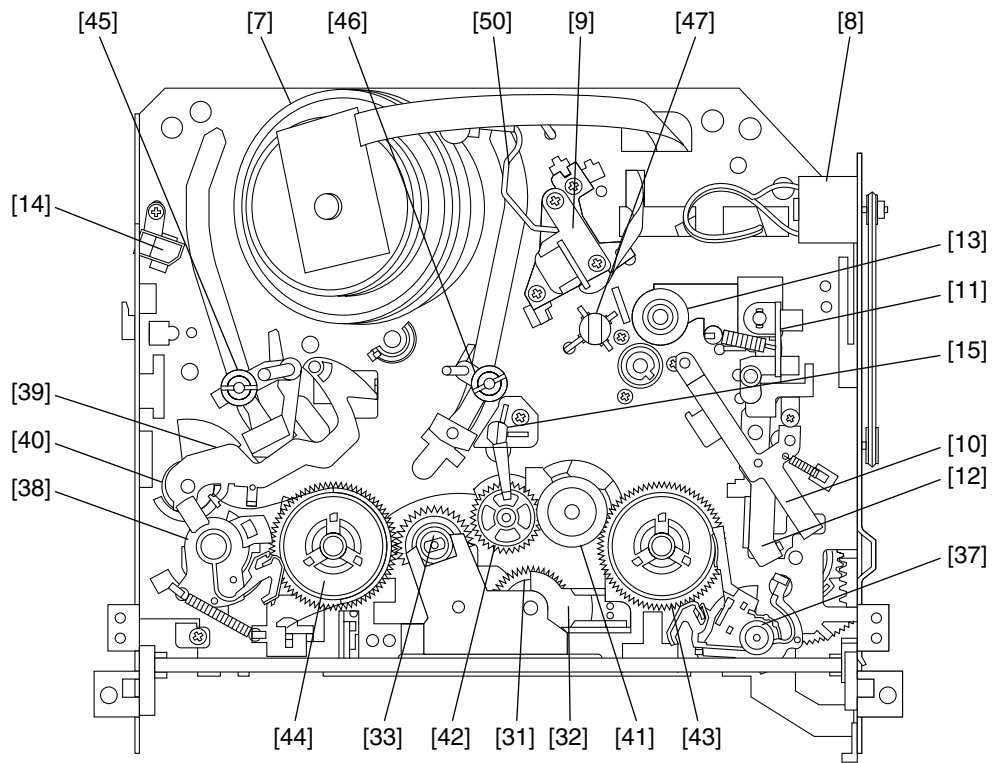


Fig. DM1

Bottom View

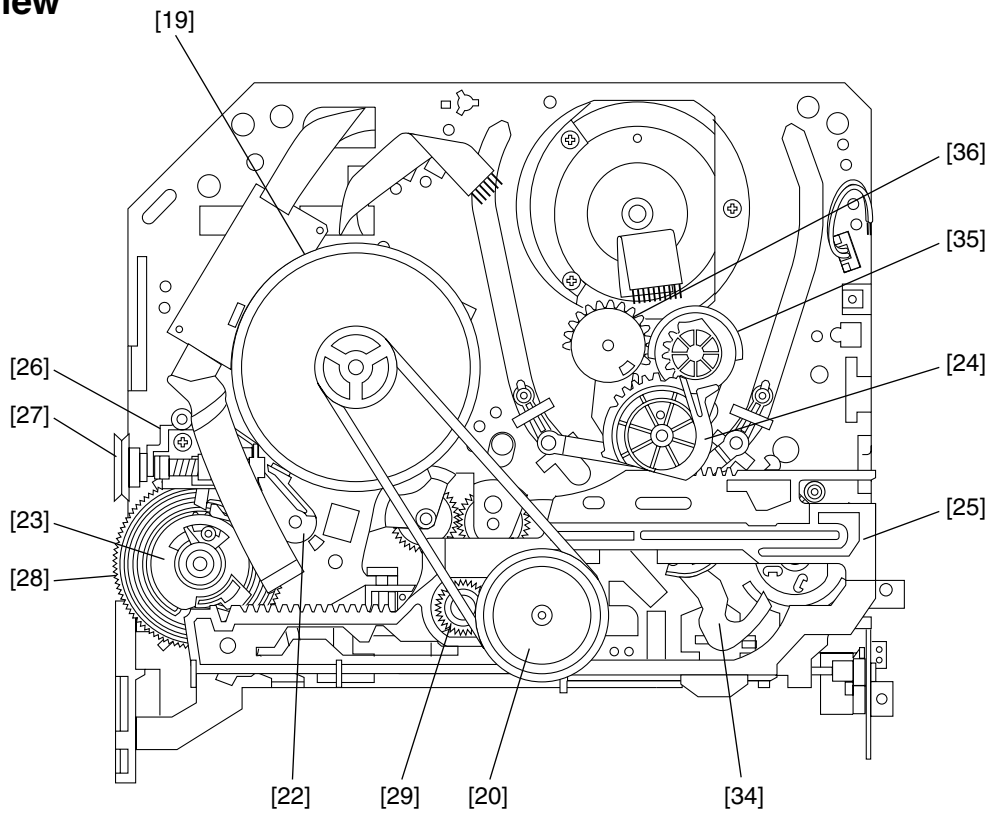


Fig. DM2

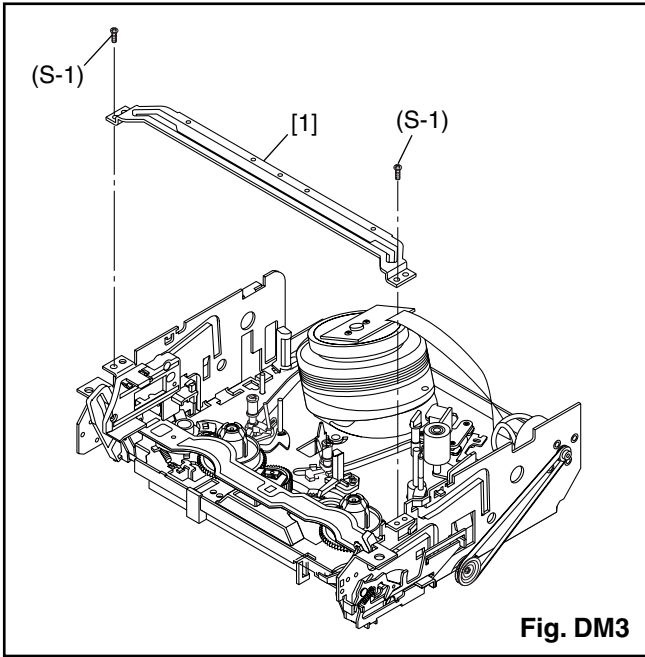


Fig. DM3

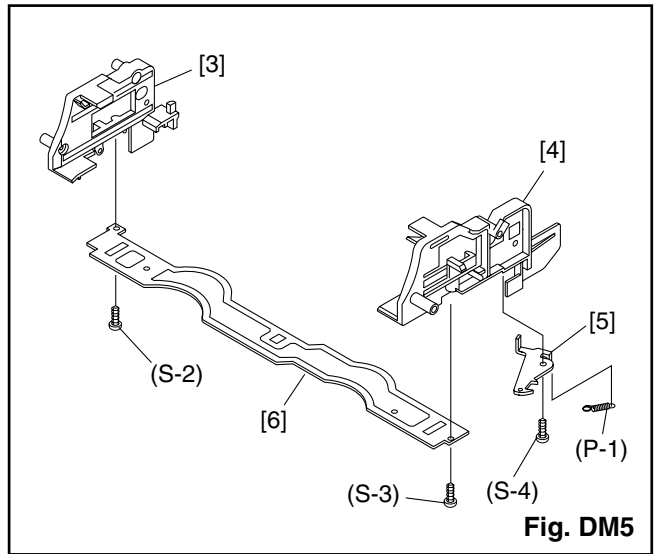


Fig. DM5

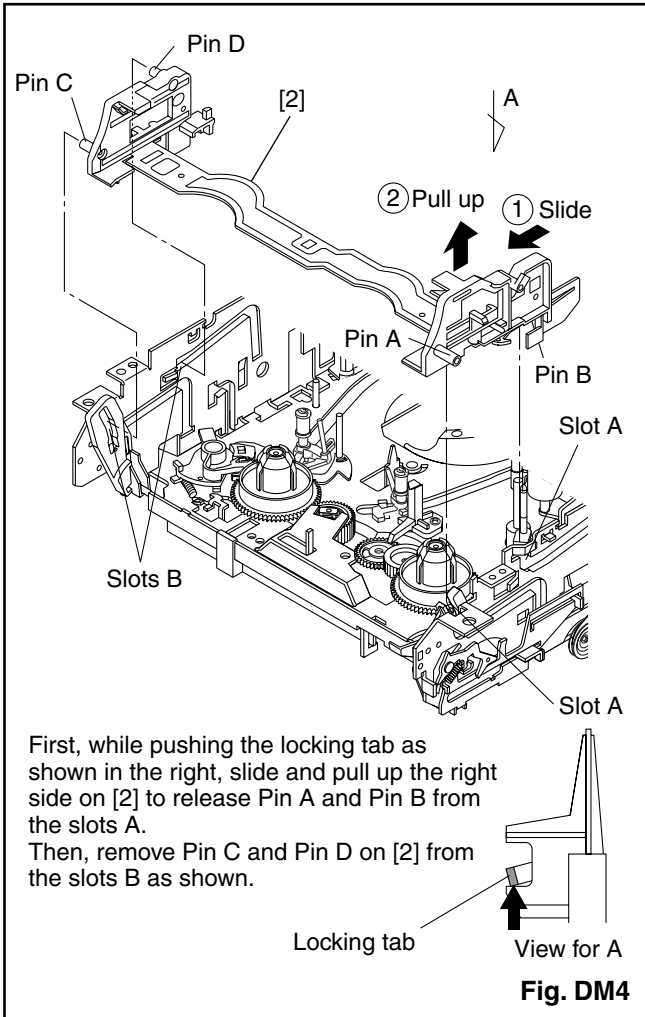


Fig. DM4

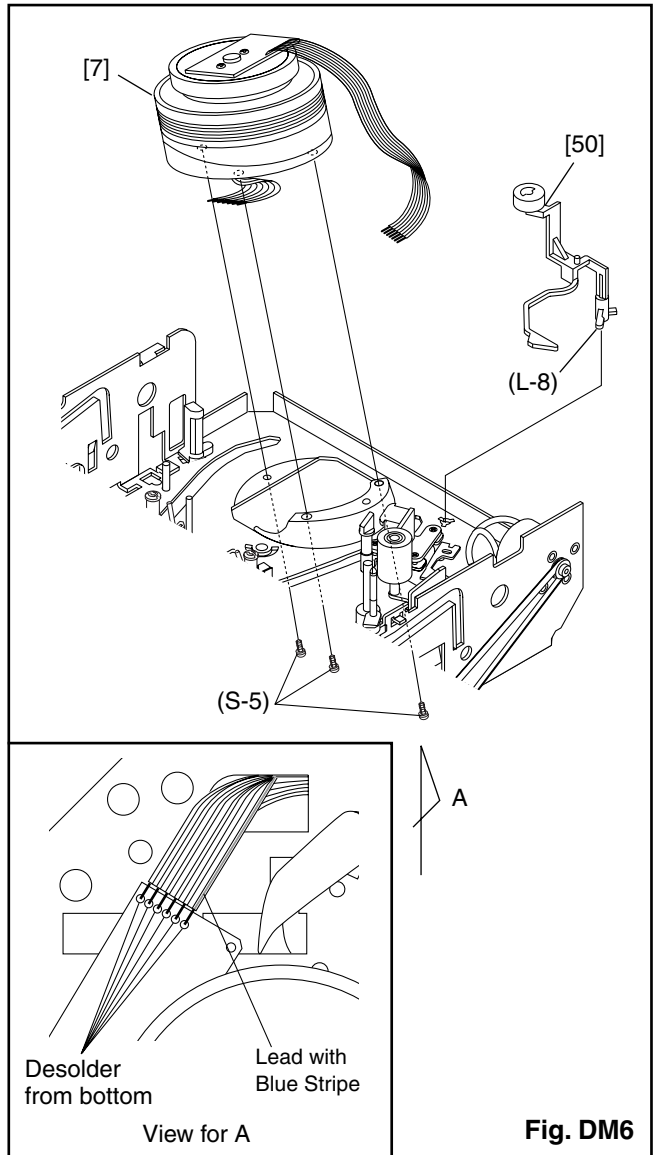
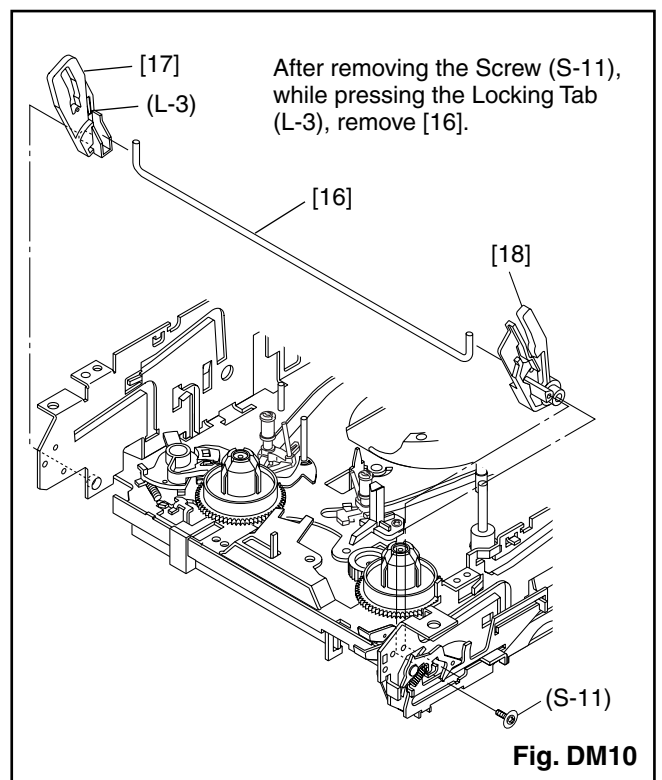
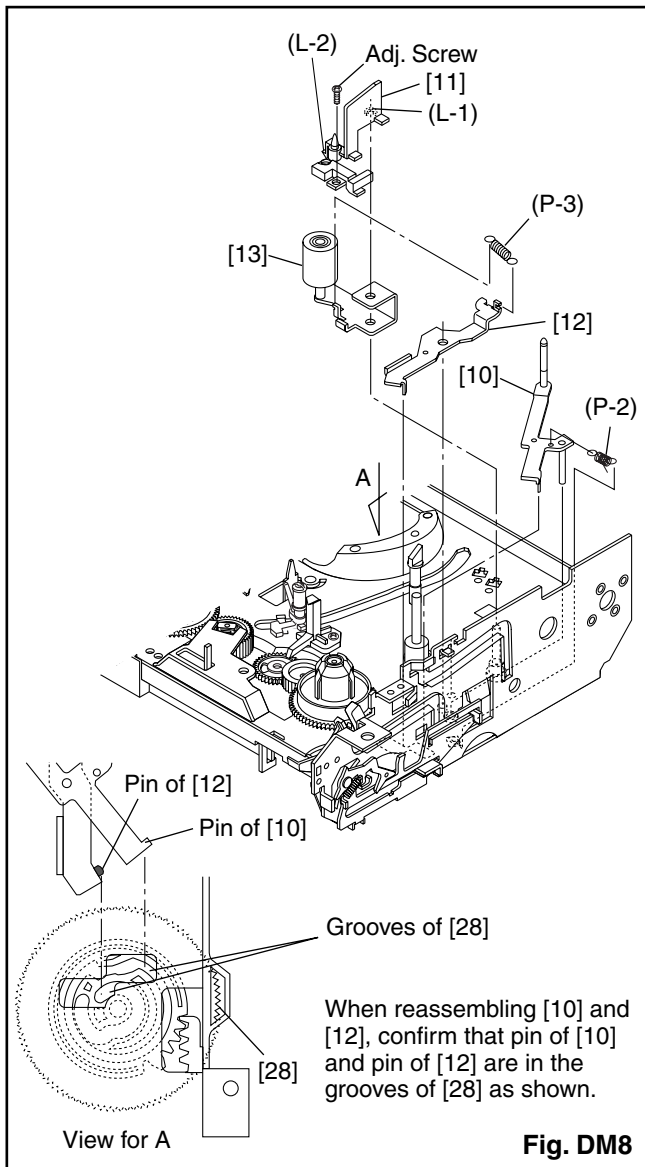
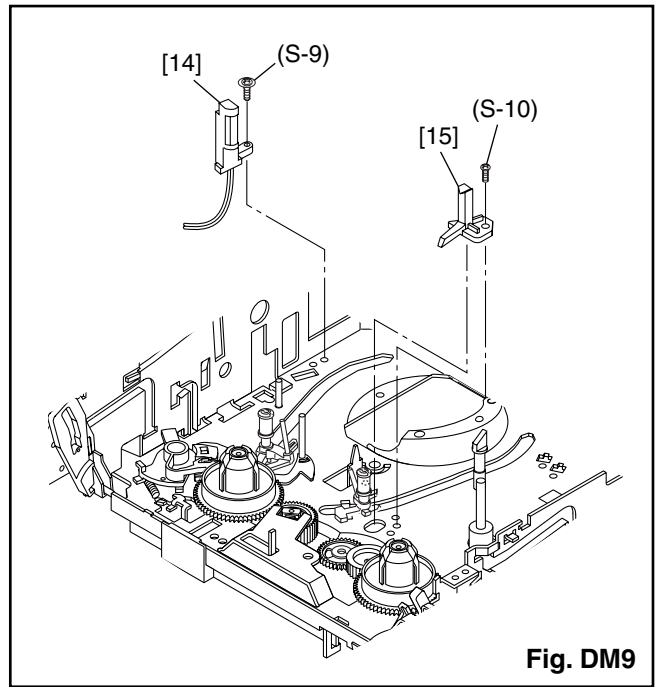
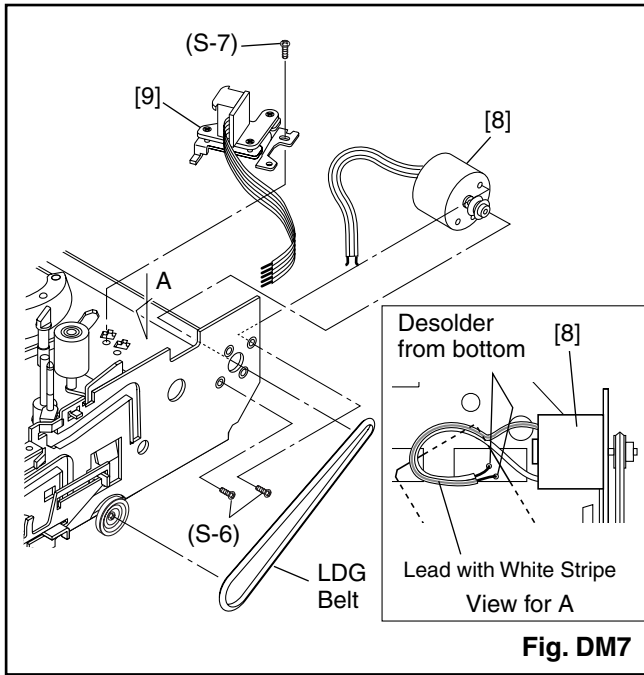
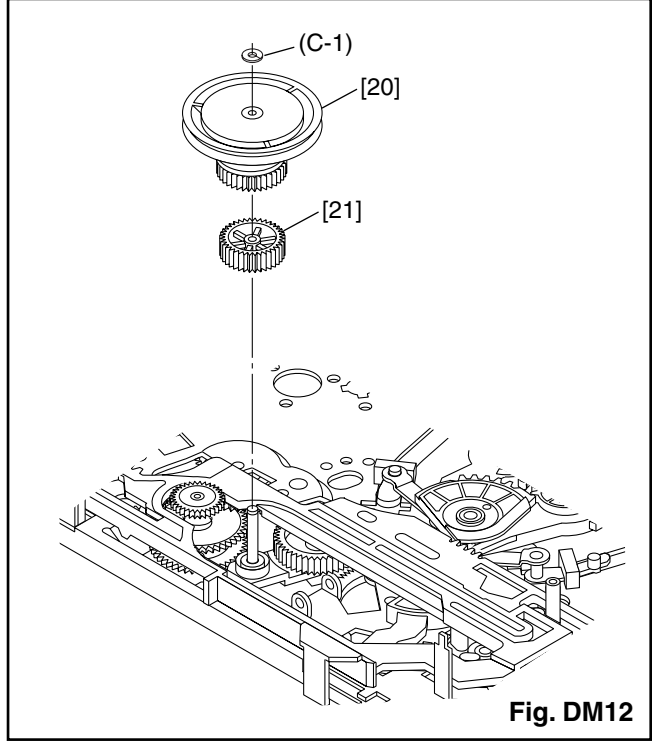
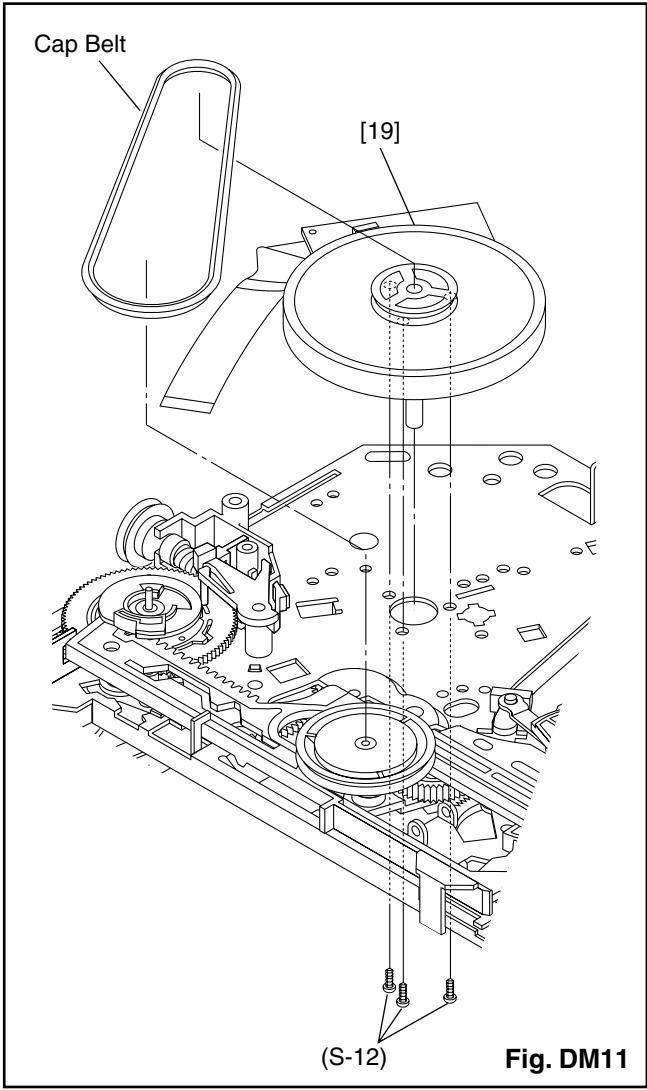
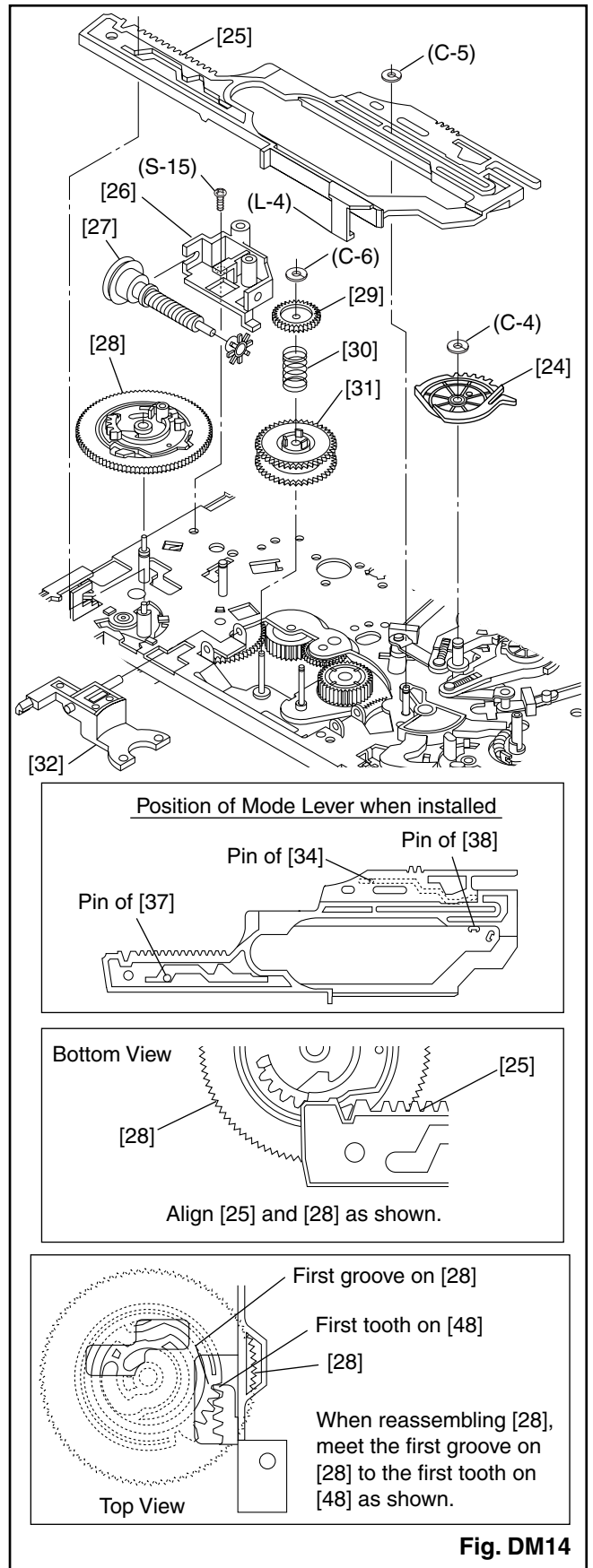
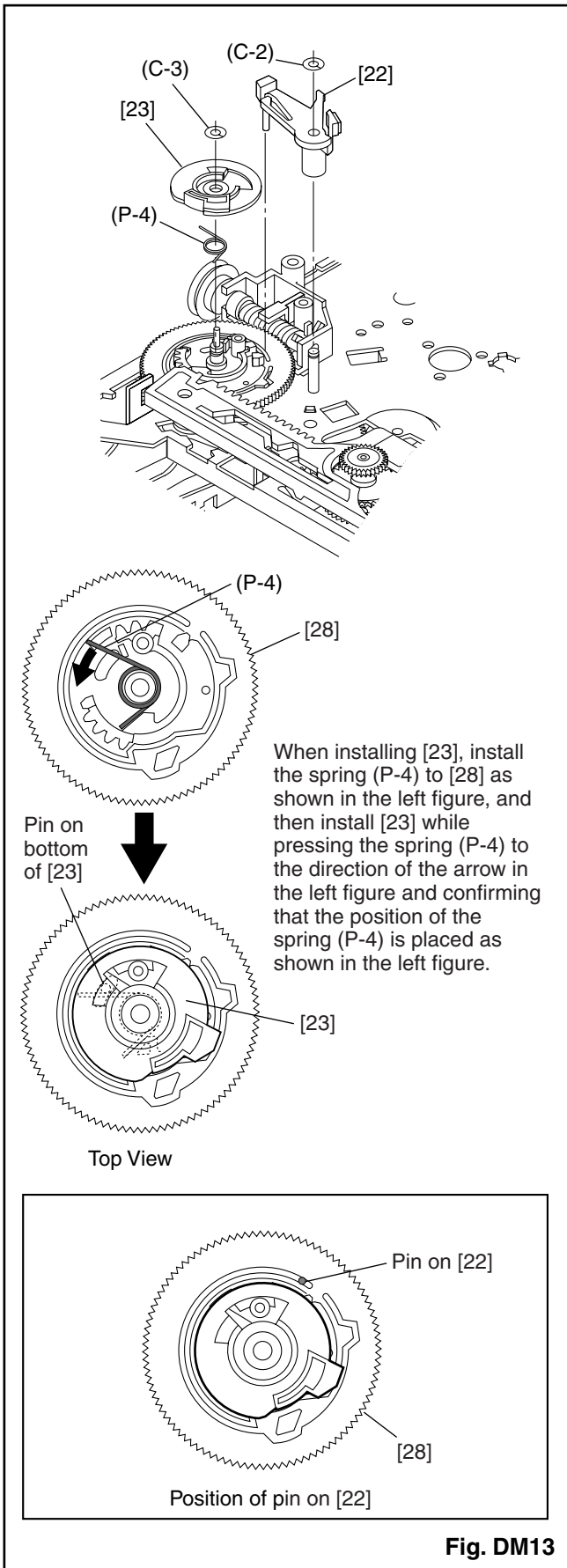
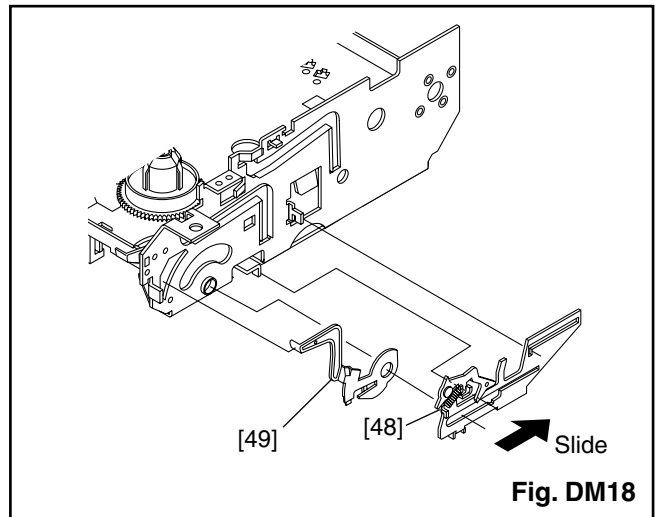
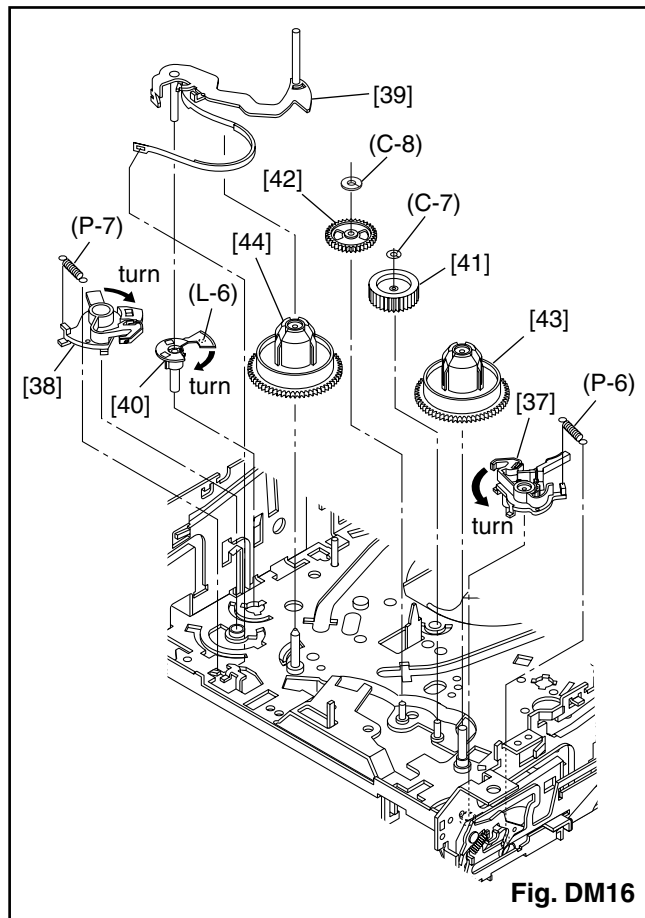
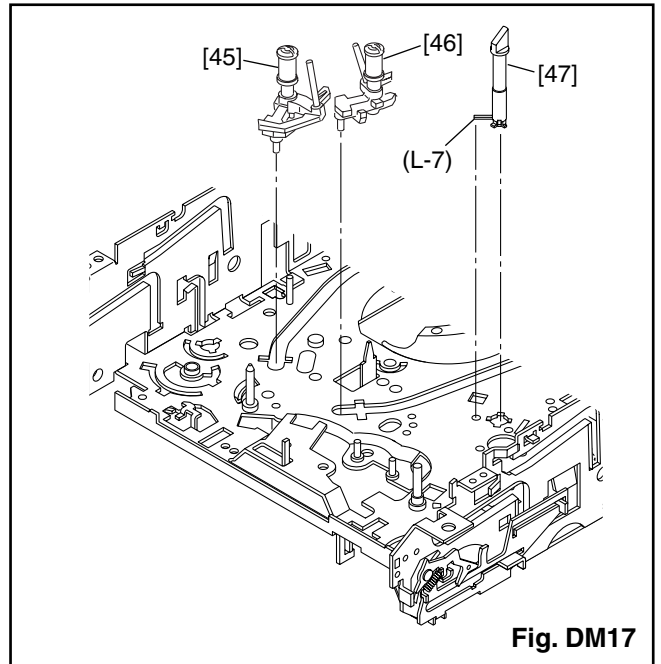
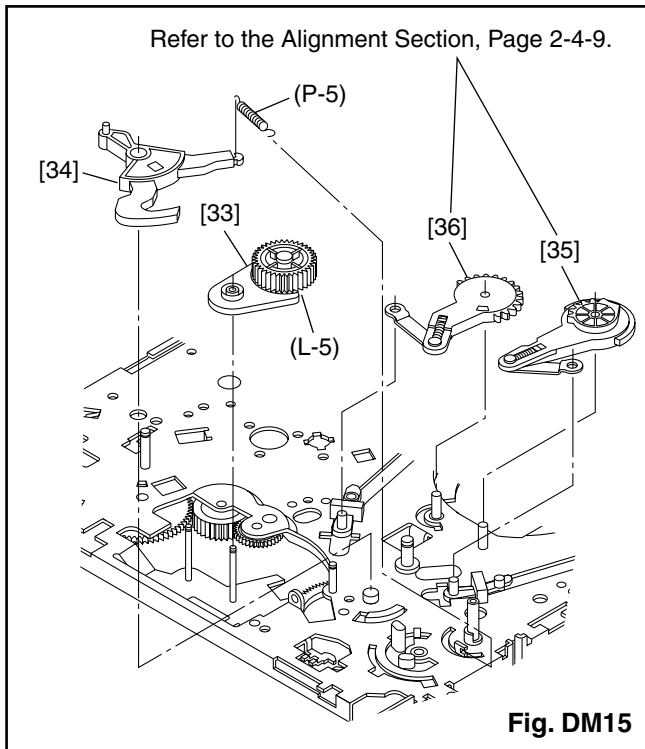


Fig. DM6









ALIGNMENT PROCEDURES OF MECHANISM

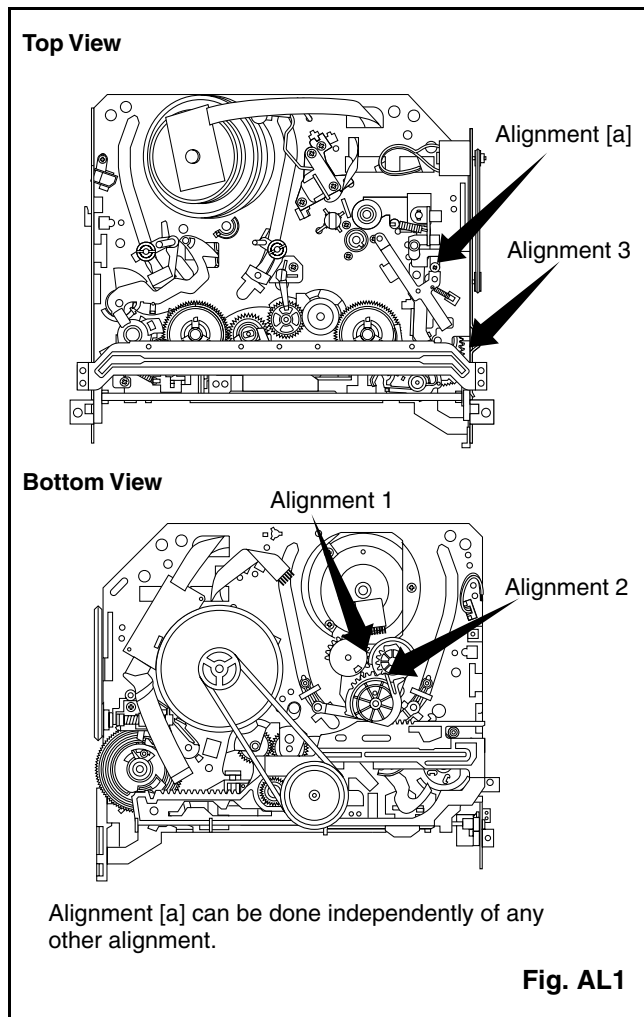
The following procedures describe how to align the individual gears and levers that make up the tape loading/unloading mechanism. Since information about the state of the mechanism is provided to the System Control Circuit only through the Mode Switch, it is essential that the correct relationship between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

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

IMPORTANT:

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

Alignment points in Eject Position



Alignment 1

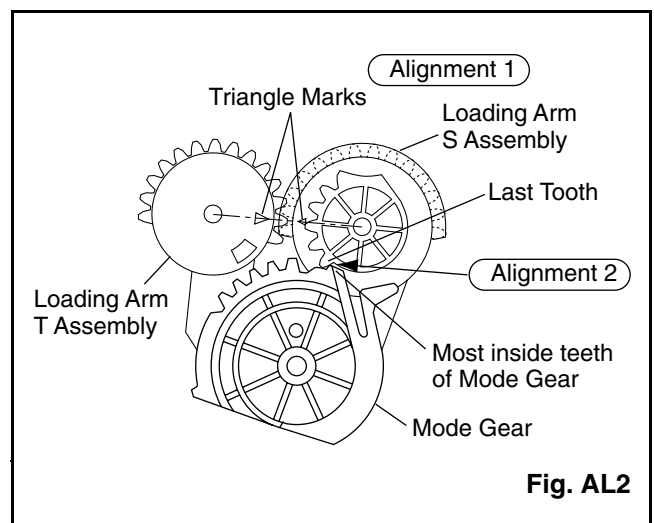
Loading Arm, S and T Assembly

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

Alignment 2

Mode Gear

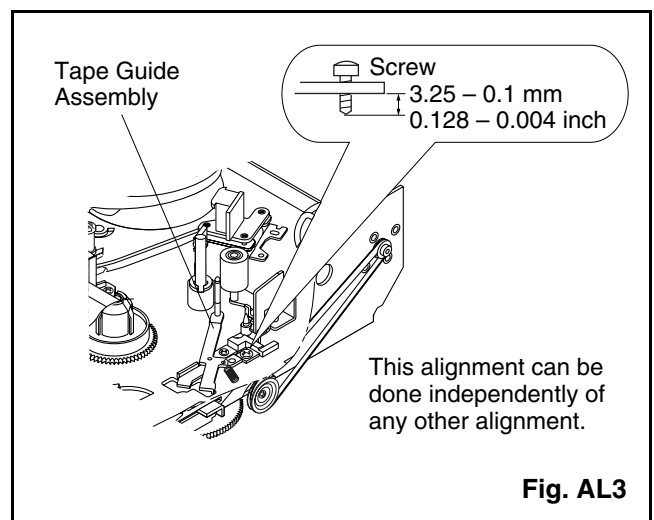
Keeping the two triangles pointing at each other, install the Loading Arm T Assembly so that the last tooth of the gear meets the most inside teeth of the Mode Gear. See Fig. AL2.



Alignment [a]

Tape Guide Assembly

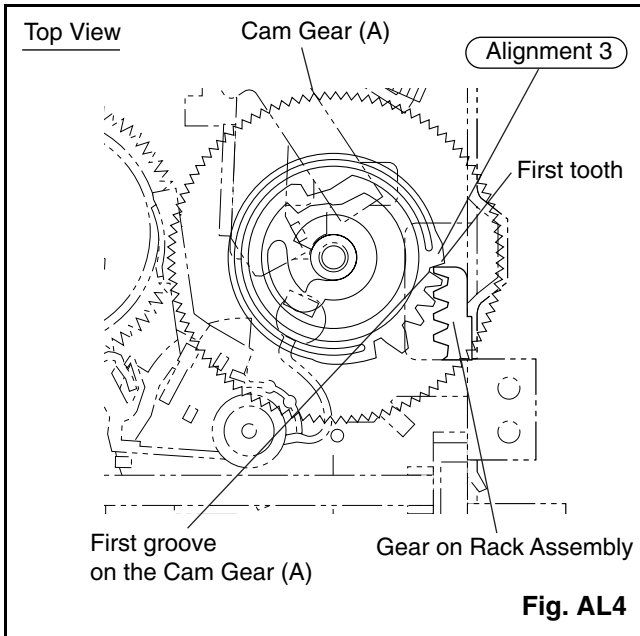
Measurement of the screw must be as specified in Fig. AL3.



Alignment 3

Cam Gear (A), Rack Assembly

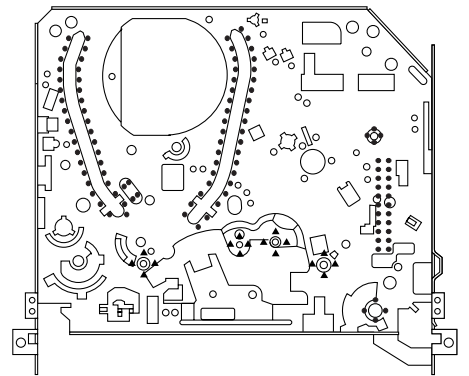
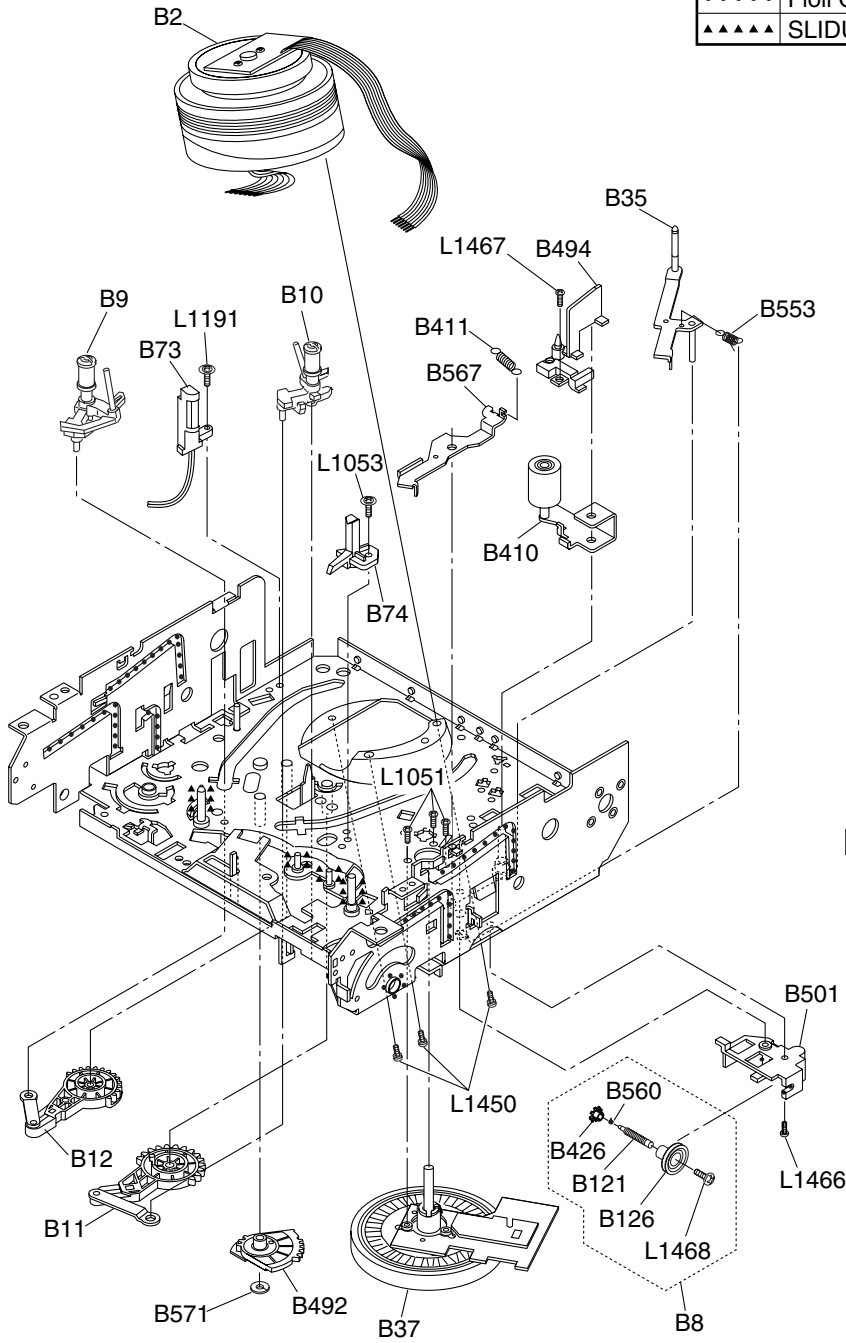
Install the Rack Assembly so that the first tooth on the gear of the Rack Assembly meets the first groove on the Cam Gear (A) as shown in Fig. AL4.



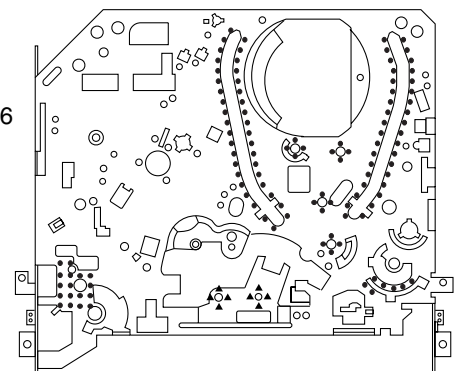
DECK EXPLODED VIEWS

Deck Mechanism View 1

Mark	Description	Part No.
•••••	Floil G-374G (Blue grease)	0VZZ00109
▲▲▲▲▲	SLIDUS OIL #150	0VZZ00226



Chassis Assembly
Top View (Lubricating Point)

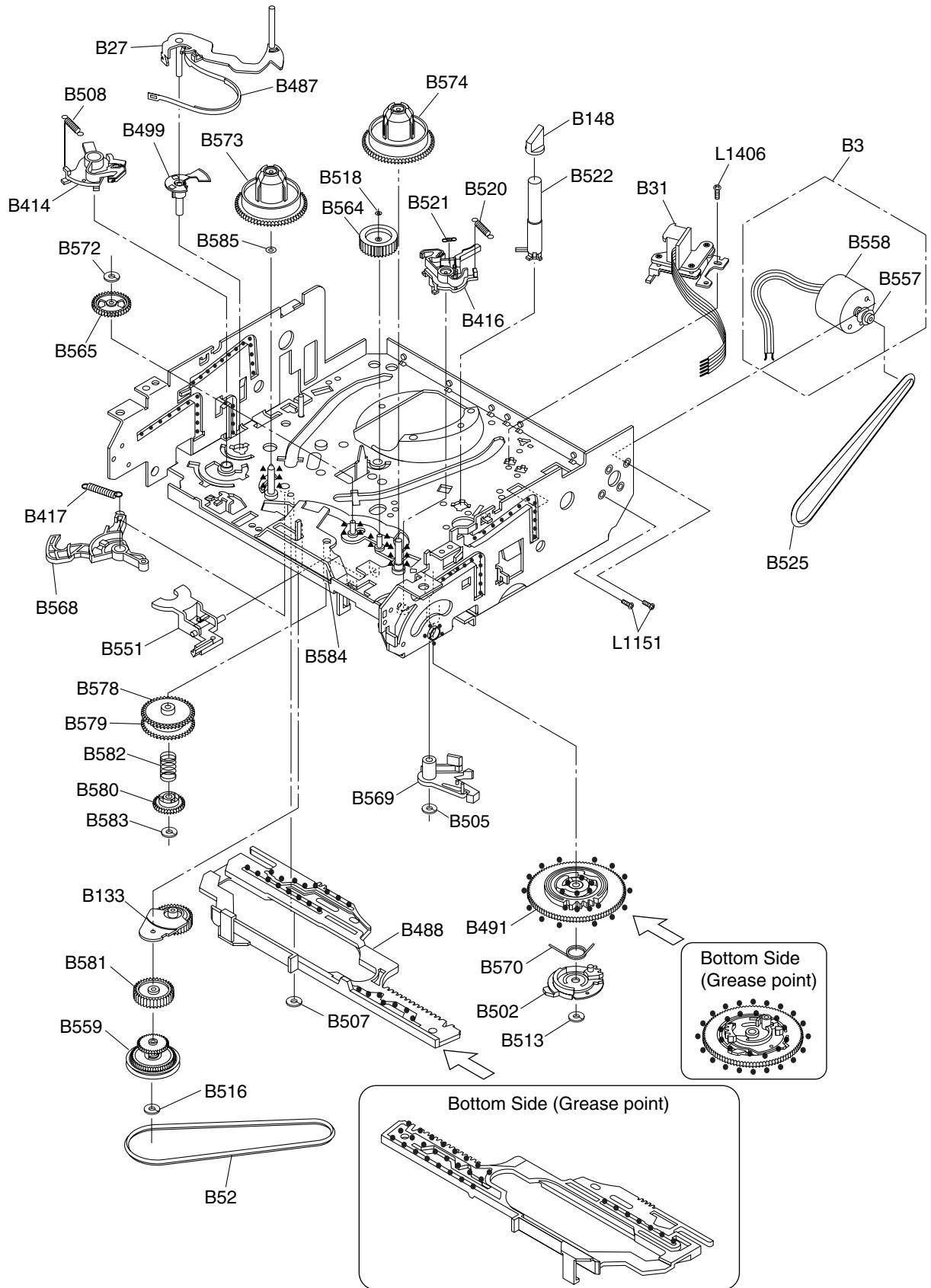


Chassis Assembly
Bottom View (Lubricating Point)

Some Ref. Numbers are not in sequence.

Deck Mechanism View 2

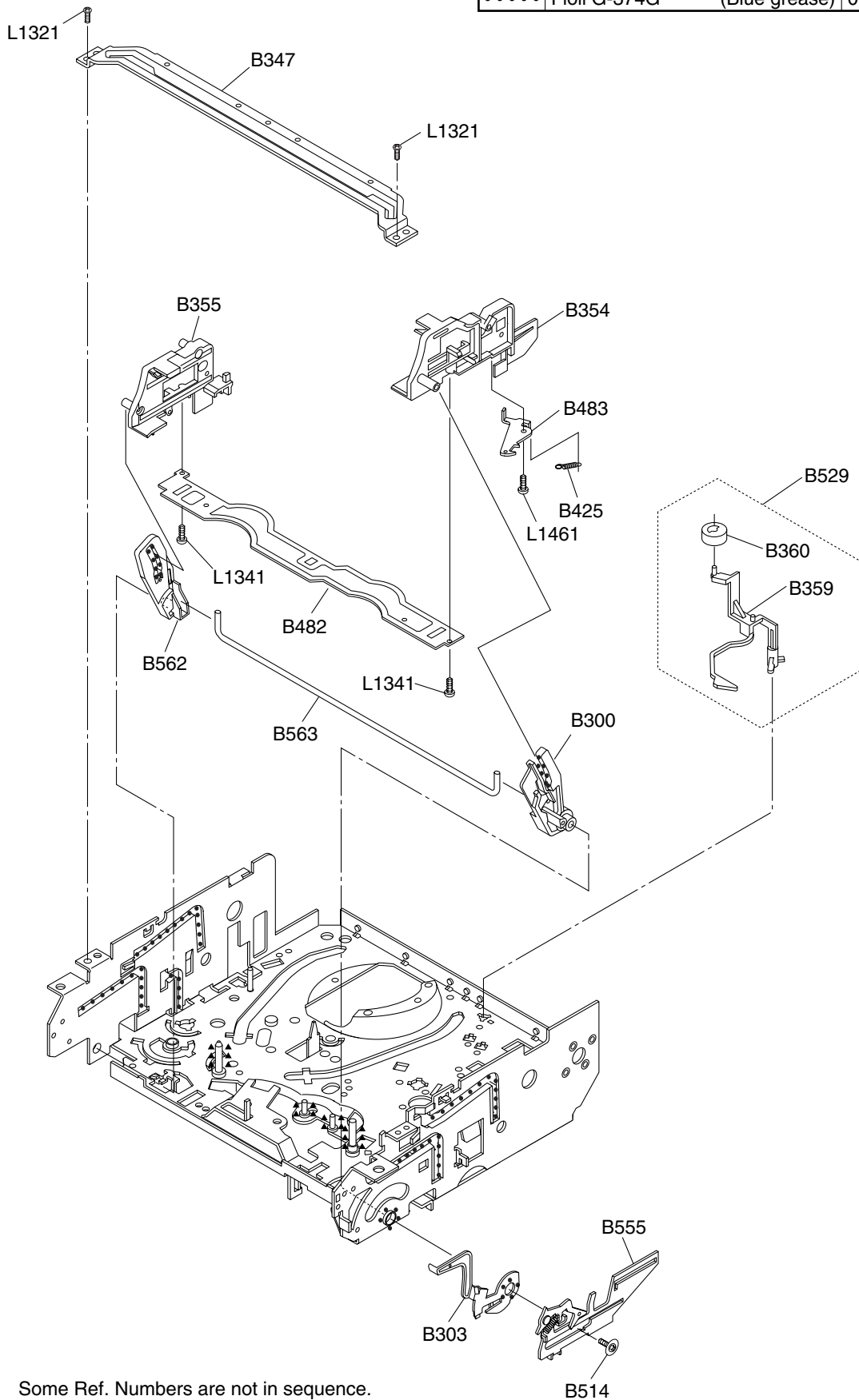
Mark	Description	Part No.
••••	Floil G-374G (Blue grease)	0VZZ00109



Some Ref. Numbers are not in sequence.

Deck Mechanism View 3

Mark	Description	Part No.
•••••	Floil G-374G (Blue grease)	0VZZ00109



DECK PARTS LIST		
Pos.	▲ 12 NC	Description
B2	9965 000 12201	CYLINDER ASS. MK11 PAL 4HD HIFI
B3	9965 000 12202	LOADING MOTOR ASSEMBLY MK11
B8	9965 000 12203	PULLEY ASSEMBLY MK11
B9	9965 000 08560	MOVING GUIDE S PREPARATION MK10
B10	9965 000 08431	MOVING GUIDE T PREPARATION MK10
B11	9965 000 12204	LOADING ARM T(B) ASSEMBLY MK11
B12	9965 000 12205	LOADING ARM S(B) ASSEMBLY MK11
B27	9965 000 12206	TENSION LEVER SUB ASSEMBLY MK11
B31	9965 000 12207	AC HEAD ASSEMBLY MK11
B35	9965 000 12208	TAPE GUIDE ASSEMBLY MK11
B37	9965 000 12209	CAPSTAN MOTOR 288/VCCM011
B52	9965 000 08593	CAP BELT MK10
B73	9965 000 12210	FE HEAD ASSEMBLY MK11
B74	9965 000 08555	PRISM MK10
B121	9965 000 12211	WORM MK11
B126	9965 000 12212	PULLEY MK11
B133	9965 000 12213	IDLER ASSEMBLY(2) MK10
B148	4822 462 11189	TG CAP MK6
B300	9965 000 12214	C DRIVE LEVER R MK11
B303	9965 000 12215	F DOOR OPENER MK11
B347	9965 000 08445	GUIDE HOLDER A MK10
B354	9965 000 12216	SLIDER R MK11
B355	9965 000 12217	SLIDER L MK11
B359	9965 000 08449	CLEANER LEVER MK10
B359	9965 000 12416	CLEANER LEVER MK11
B360	9965 000 06561	CLEANER ROLLER MK9
B361	9965 000 08450	CL POST MK10
B410	9965 000 12218	PINCH ARM(A) ASSEMBLY MK11
B411	9965 000 08453	PINCH SPRING MK10
B414	9965 000 12219	M BRAKE S(HI) ASSEMBLY MK11
B416	9965 000 12220	M BRAKE T(HI) ASSEMBLY MK11
B417	9965 000 12221	TENSION SPG(190265) MK11
B425	9965 000 08457	LOCK LEVER SPRING MK10
B426	9965 000 08458	KICK PULLEY MK10
B482	9965 000 12222	C PLATE MK11
B483	9965 000 08461	LOCK LEVER MK10
B487	9965 000 08462	BAND BRAKE MK10
B488	9965 000 12223	MODE LEVER(HI) MK11
B491	9965 000 12224	CAM GEAR(A) MK11
B492	9965 000 12225	MODE GEAR MK11
B494	9965 000 12226	DOOR OPENER B MK11
B499	9965 000 08467	T LEVER HOLDER MK10
B501	9965 000 12227	WORM HOLDER MK11
B502	9965 000 08469	CAM GEAR(B) MK10
B505	4822 532 13158	P.S.W F 6*2.55*0.5
B507	9965 000 05342	REEL WASHER MK9 5*2.1*0.5
B508	9965 000 08470	S BRAKE SPRING MK10
B513	9965 000 08471	PSCW(752605) MK10
B514	9965 000 12228	SCREW RACK MK11
B516	9965 000 05342	REEL WASHER MK9 5*2.1*0.5
B518	4822 532 13159	P.S.W CUT 1.6X4.0X0.5T
B520	9965 000 12229	T BRAKE SPRING HI(F) MK11
B521	9965 000 08482	SOFT SPRING MK10

DECK PARTS LIST		
Pos.	▲ 12 NC	Description
B522	9965 000 08483	TG POST ASSEMBLY MK10
B525	9965 000 12230	LDG BELT MK11
B529	9965 000 12231	CLEANER ASSEMBLY MK11
B551	9965 000 12232	FF ARM(HI) MK10
B553	9965 000 12233	REV SPRING MK11
B555	9965 000 12234	RACK ASSEMBLY MK11
B557	9965 000 08519	MOTOR PULLEY U5
B558	9965 000 12235	LOADING MOTOR M31E-1 R14 7351
B559	9965 000 12236	CLUTCH ASSEMBLY(HI)(2) MK11
B560	9965 000 08522	KICK SPRING MK10
B562	9965 000 08524	C DRIVE LEVER L MK10
B563	9965 000 08525	SLIDER SHAFT MK10
B564	9965 000 12237	M GEAR(HYT) N12G5F*
B565	9965 000 12238	SENSOR GEAR MK11
B567	9965 000 08544	PINCH ARM(B) MK10
B568	9965 000 08545	BT ARM MK10
B569	9965 000 12239	CAM HOLDER F MK11
B570	9965 000 12240	CAM RACK SPRING(HI) MK11
B571	4822 532 13158	P.S.W F 6*2.55*0.5
B572	4822 532 13159	P.S.W CUT 1.6X4.0X0.5T
B573	9965 000 12241	REEL S MK11
B574	9965 000 12242	REEL T MK11
B578	9965 000 12243	TR GEAR A MK10
B579	9965 000 12244	TR GEAR B MK10
B580	9965 000 12245	TR GEAR C MK11
B581	9965 000 12246	CENTER GEAR(HYT) N12G5F*
B582	9965 000 12247	TR GEAR SPRING MK10
B583	9965 000 05342	REEL WASHER MK9 5*2.1*0.5
B584	9965 000 12248	TR GEAR SHAFT MK10
B585	9965 000 12249	PSW(2957505) MK11
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	4822 502 14669	SCREW, P-TIGHT M2.6X6 BIND HEAD+
L1406	9965 000 08643	AC HEAD SCREW MK9
L1407	9965 000 12250	SCREW, S-TIGHT M2.6X10 DISH HEAD+
L1450	4822 502 14671	SCREW, SEMS M2.6X5 PAN HEAD+
L1461	4822 502 30471	SCREW, P-TIGHT M2.6X6 WASHER HEAD+
L1466	9965 000 05364	SCREW, S-TIGHT M2.6X6 BIND HEAD+
L1467	9965 000 12251	SCREW, S-TIGHT M2.6X5 WASHER HEAD+
L1468	9965 000 12252	SCREW, B-TIGHT M1.7X12
L1471	9965 000 05364	SCREW, S-TIGHT M2.6X6 BIND HEAD+