FUNAI

SERVICE MANUAL

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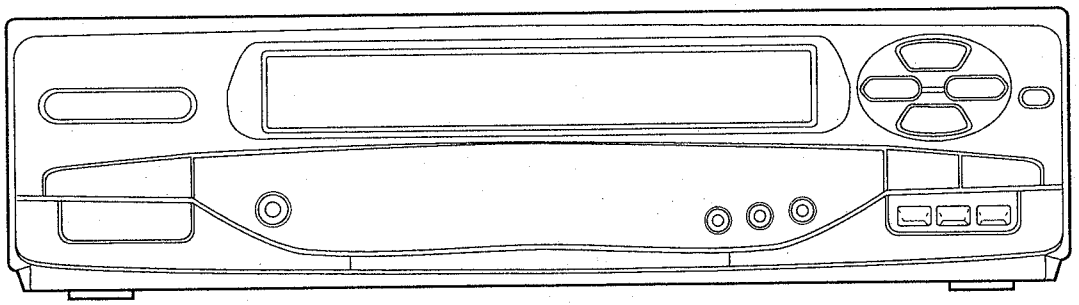
VIDEO CASSETTE RECORDER

13A-109 / 13A-129 / 13A-509 / 13A-529



VHS

PAL

MAIN SECTION

VIDEO CASSETTE RECORDER

13A-109 / 13A-129 / 13A-509 / 13A-529

Sec. 1: Main Section

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

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SPECIFICATIONS

Description	Unit	Minimum	Nominal	Maximum	Mode	Remark
1. Video						
1-1. Video Output (PB)	Vp-p	0.8	1.0	1.2	SP	FL6A
1-2. Video Output (R/P)	Vp-p	0.8	1.0	1.2	SP	
1-3. Video S/N Y (R/P) INPUT:50% WHITE	dB	40	45		SP	HPF:1KHz LPF:5MHz SC TRAP ON
1-4. Video Color S/N AM (R/P) INPUT:100% WHITE	dB	35	41		SP	HPF:1KHz LPF:500KHz SC TRAP ON
1-5. Video Color S/N PM (R/P) INPUT:100% WHITE	dB	30	36		SP	HPF:1KHz LPF:500KHz SC TRAP ON
1-6. Resolution (PB)	Line	230	240		SP	FL6M
2. Servo						
2-1. Jitter Low (PB)	μsec		0.07	0.12	SP	FL6N
2-2. Wow & Flutter(R/P)	%		0.3	0.6	SP	E-30, CCIR, WTD
3. Normal Audio						
3-1. Output (PB)	dBV	-10	-6	-2	SP	FL6A
3-2. Output (R/P)	dBV	-10	-6	-1.5	SP	
3-3. S/N (R/P)	dB	36	40		SP	
3-4. Distortion (R/P)	%		1.5	4.0	SP	INPUT:-10dBV
3-5. Freq. resp (R/P) at 200Hz (-20dB ref. 1kHz) at 6kHz	dB	-6	-3		SP	

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

IMPORTANT SAFETY PRECAUTIONS

Product Safety Notice

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

Precautions during Servicing

A. Parts identified by the ⚠ symbol are critical for safety. Replace only with part number specified.

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

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

C. Use specified internal wiring. Note especially:

1) Wires covered with PVC tubing

2) Double insulated wires

3) High voltage leads

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

1) Insulation tape

2) PVC tubing

3) Spacers

4) Insulators for transistors

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

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

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

H. When a power cord has been replaced, check that 5 - 6 kg of force in any direction will not loosen it.

I. Also check areas surrounding repaired locations.

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

K. Crimp type wire connector

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

Replacement procedure

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

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

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

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

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

L. When connecting or disconnecting the internal connectors, first, disconnect the AC plug from the AC outlet.

Safety Check after Servicing

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

1. Clearance Distance

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

Table 1 : Ratings for selected area

AC Line Voltage	Clearance Distance (d) (d')
230 V	≥ 3mm(d) ≥ 6 mm(d')

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

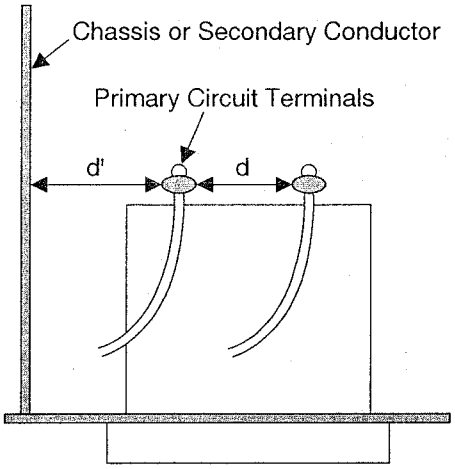


Fig. 1

2. Leakage Current Test

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

Measuring Method (Power ON) :

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

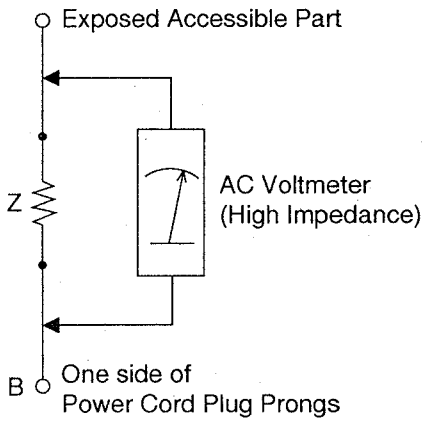


Fig. 2

Table 2 : Leakage current ratings for selected areas

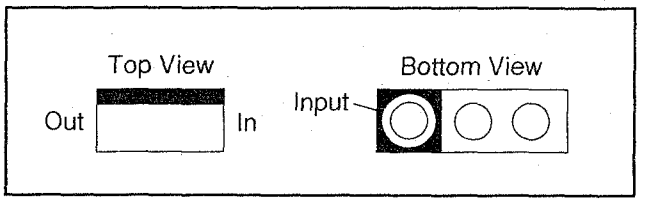
AC Line Voltage	Load Z	Leakage Current (i)	One side of power cord plug prongs (B) to:
230 V	2kΩ RES. Connected in parallel	i≤0.7mA AC Peak i≤2mA DC	RF or Antenna terminals
	50kΩ RES. Connected in parallel	i≤0.7mA AC Peak i≤2mA DC	A/V Input, Output

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

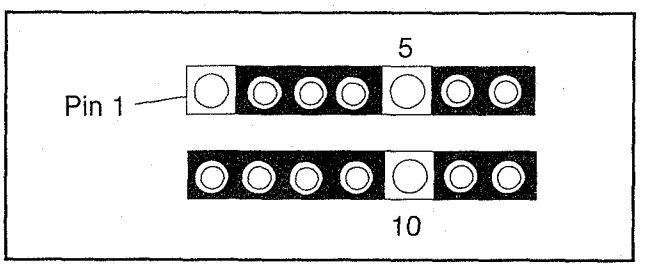
STANDARD NOTES FOR SERVICING

Circuit Board Indications

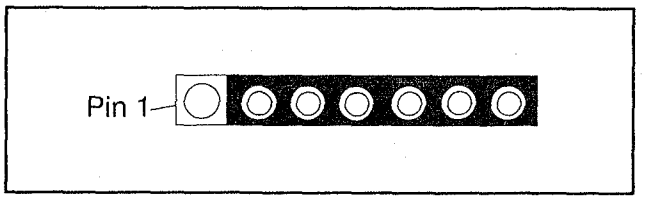
a. The output pin of the 3 pin Regulator ICs is indicated as shown.



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

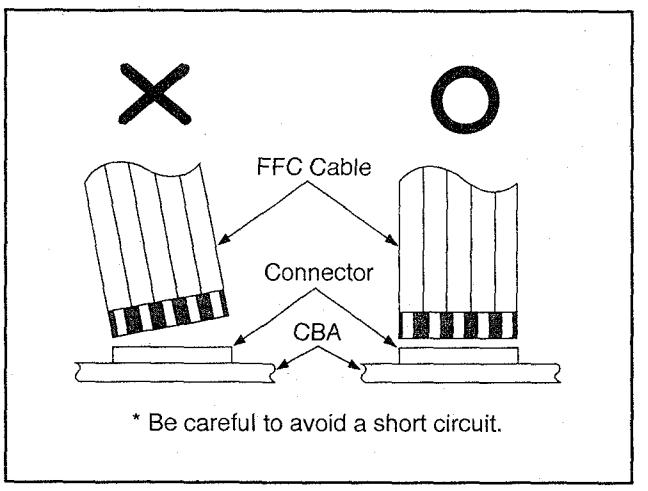


c. The 1st pin of every male connector is indicated as shown.



Instructions for Connectors

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



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)

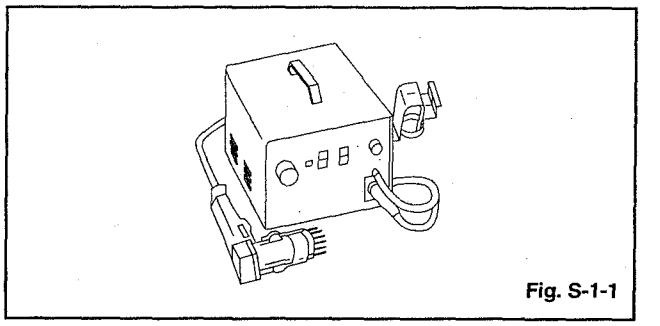


Fig. S-1-1

(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.

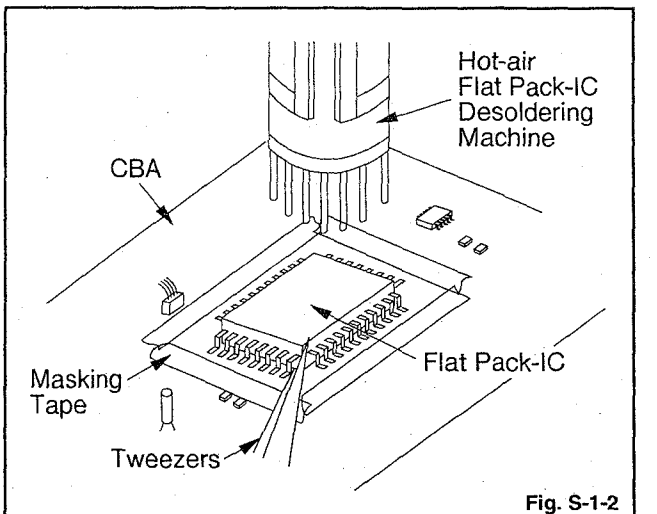


Fig. S-1-2

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)

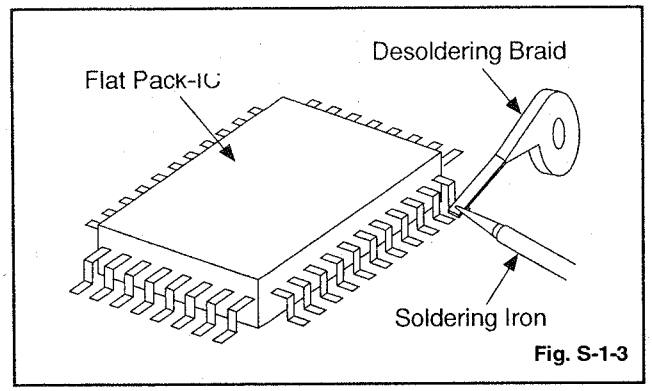


Fig. S-1-3

(2) Lift each lead of the flat pack-IC upward one by one, using a sharp pin or wire to which solder will not adhere (iron wire). When heating the pins, use a fine tip soldering iron or a hot air desoldering machine. (Fig. S-1-4)

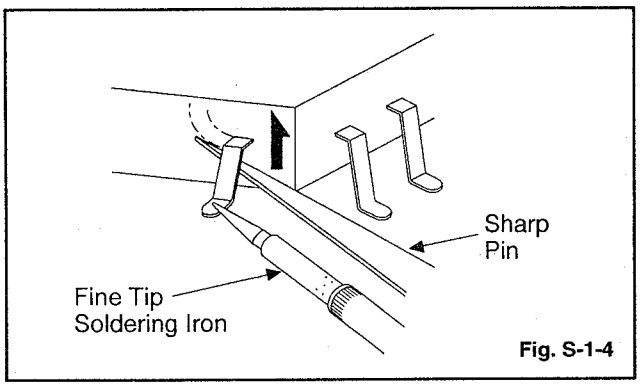


Fig. S-1-4

(3) Bottom of the flat pack-IC is fixed with glue to the CBA, when removing entire flat pack-IC. First apply soldering iron to center of the flat pack-IC and Heat up. Then Remove (glue will be melted). (Fig. S-1-8)

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

With Iron Wire:

(1) Using desoldering braid, remove the solder from all pins of the flat pack-IC. When you use solder flux which is applied to all pins of the flat pack-IC, you can remove it easily. (Fig. S-1-3)

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

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

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

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

Note:

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

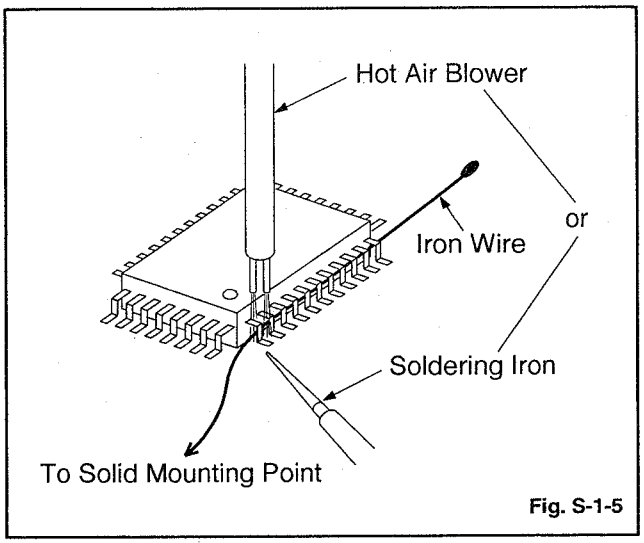


Fig. S-1-5

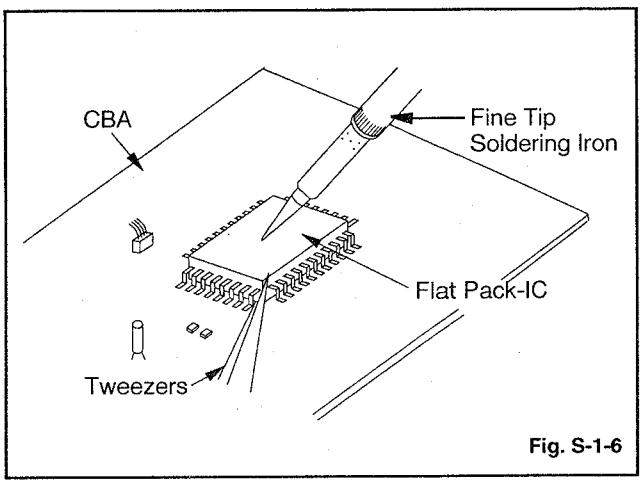


Fig. S-1-6

2. Installation

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

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

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

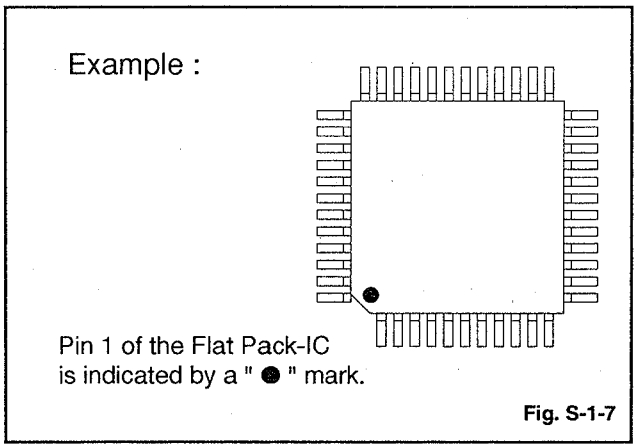


Fig. S-1-7

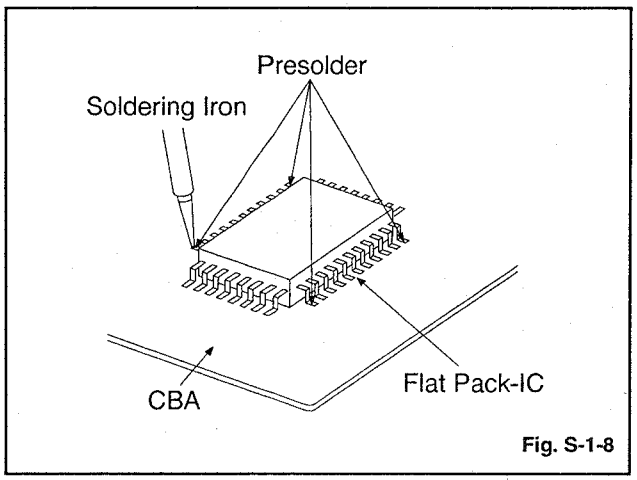


Fig. S-1-8

Instructions for Handling Semiconductors

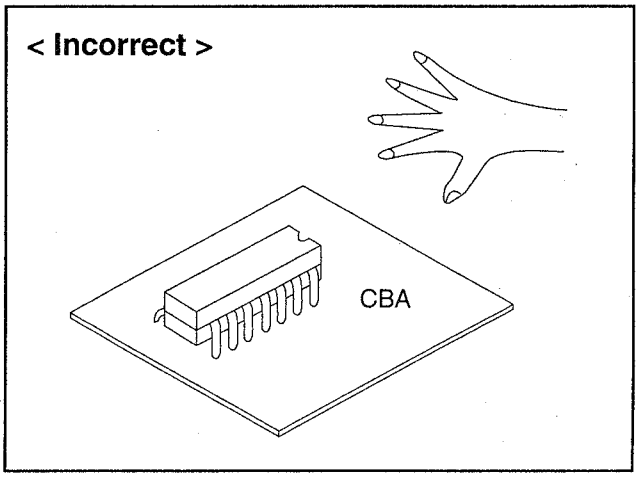
Electrostatic breakdown of the semiconductors may occur due to a potential difference caused by electrostatic charge during unpacking or repair work.

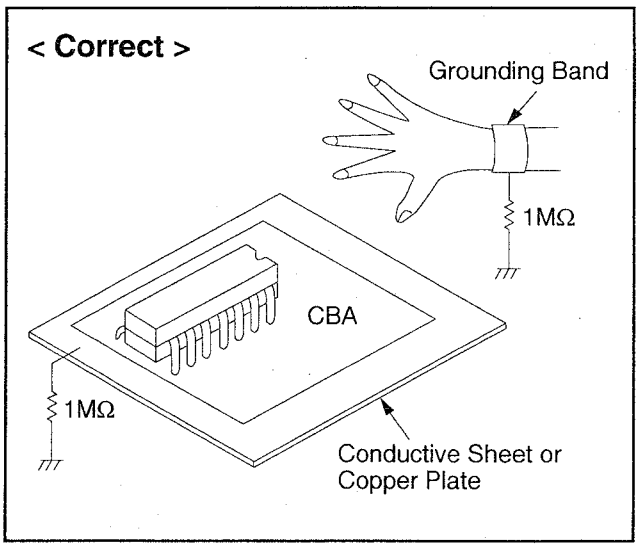
1. Ground for Human Body

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

2. Ground for Workbench

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





PREPARATION FOR SERVICING

How to use Deck Extension Cable

(1) Remove the Deck Mechanism Assembly. If needed, remove the Main CBA from the chassis. Refer to "Disassembly Instructions" on pg. 1-5-1.

(2) Use the Deck Extension Cable to connect the Deck Mechanism Assembly to the Main CBA. (Deck Extension Cable: N1091XA)

Comparison Chart of Models and Marks

Model	Mark	Model	Mark
13A-109	A	13A-509	C
13A-129	B	13A-529	D

Marks: A, B

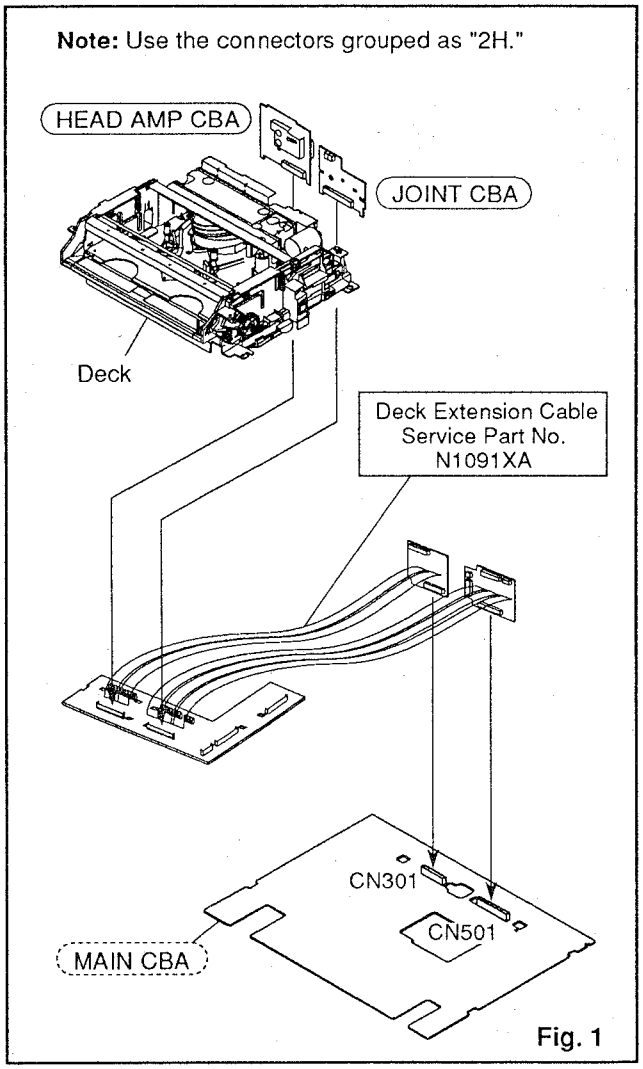


Fig. 1

Marks: C, D

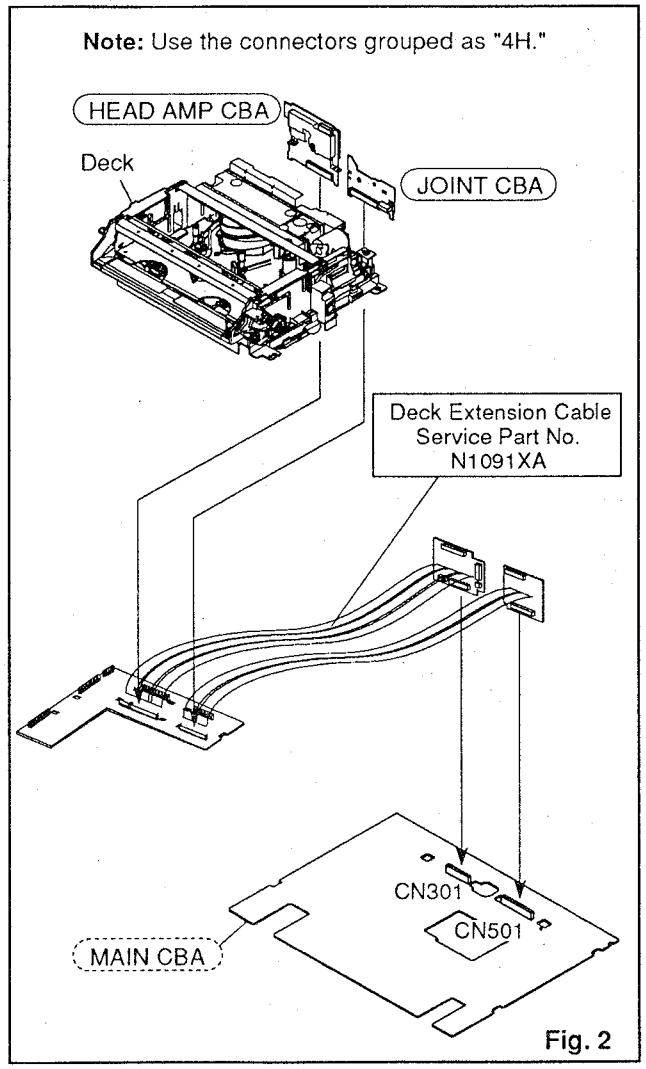


Fig. 2

How to Enter the Service Mode

Note: When the unit is set in the service mode, the whole display will keep blinking.

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

After plugging in the unit, connect TP503 (SENSOR INHIBITION) to TP504 (GROUND). 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.)

Insert a tape into the Deck Mechanism Assembly and press the PLAY button. The tape will be loaded into the Deck Mechanism Assembly.

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.

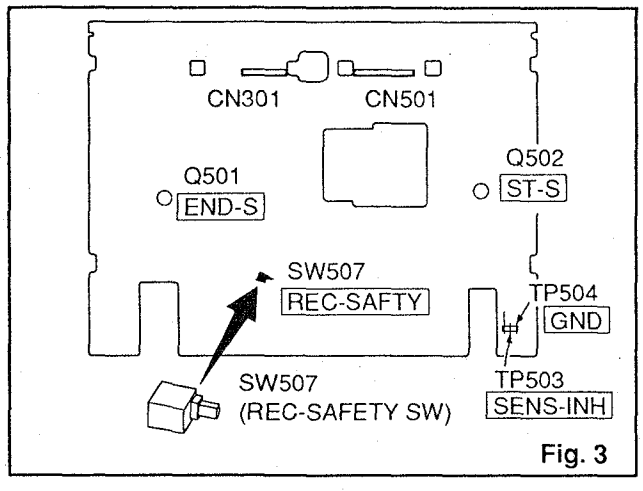
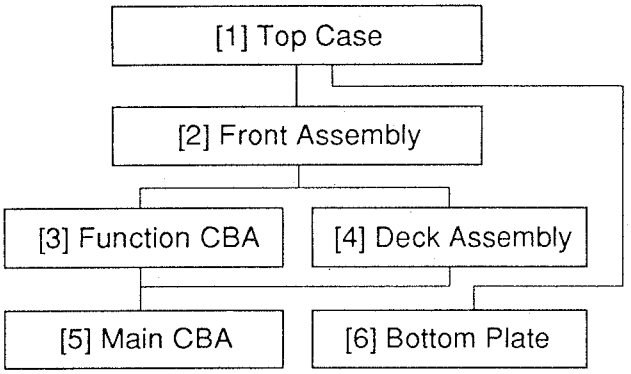


Fig. 3

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.



Disassembly Method

ID/ LOC. No.	PART	REMOVAL		
		Fig. No.	REMOVE/ *UNHOOK/UNLOCK/ RELEASE/UNPLUG/ DESOLDER	Note
[1]	Top Case	1	5(S-1)	-
[2]	Front Assembly	2, 3	*7(L-1)	1
[3]	Function CBA	2, 4	*(L-2), (CN502)	2
[4]	Deck Assembly	5	7(S-2), (CN301, CN501)	3
[5]	Main CBA	4, 6, 7	2(S-4), *2(L-3)	4
[6]	Bottom Plate	6	*2(L-4)	5

① ② ③ ④ ⑤

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

②: Name of the part

③: Figure Number for reference

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

⑤: Refer to "Reference Notes".

Reference Notes

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

1. Release 7 Locking Tabs (L-1). To do this, first release three Locking Tabs (A) at the bottom, and then four Locking Tabs (B) at the top. (Fig. 2, 3)
2. Disconnect Connector (CN5501) to remove Function CBA. Hold Main CBA while pulling up Function CBA. (Fig. 4)
3. Remove 7 Screws (S-2) and (S-3). Then slowly lift Deck Assembly up. Lifting Deck Assembly disconnects 2 Connectors (CN2901, CN3501). (Fig. 5)
4. First remove 2 Screws (S-4). Then, releasing 2 Locking Tabs (L-3), lift Main CBA. (Fig. 6, 7)
5. If you are disassembling Bottom Plate before Main CBA, remove 2 Screws (S-4) now. Then slide Bottom Plate in the direction of the big arrow as you press down two Locking Tabs (L-4).

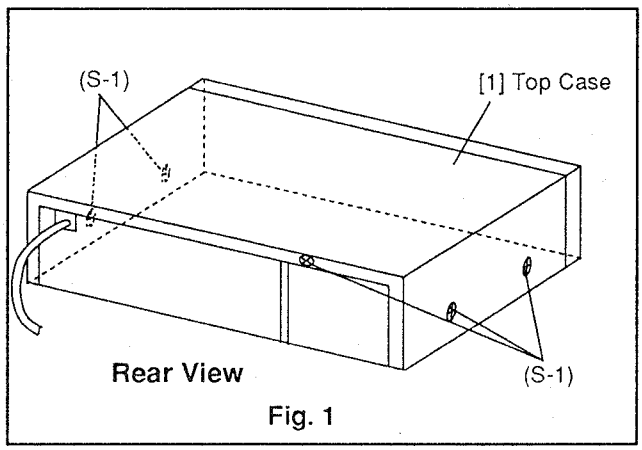


Fig. 1

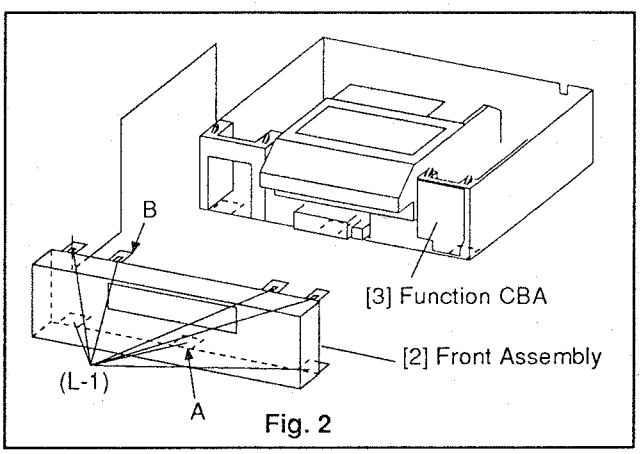


Fig. 2

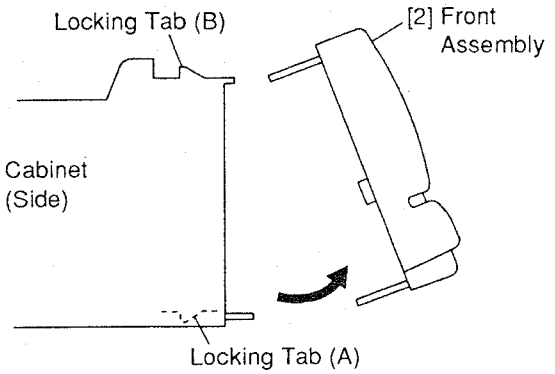
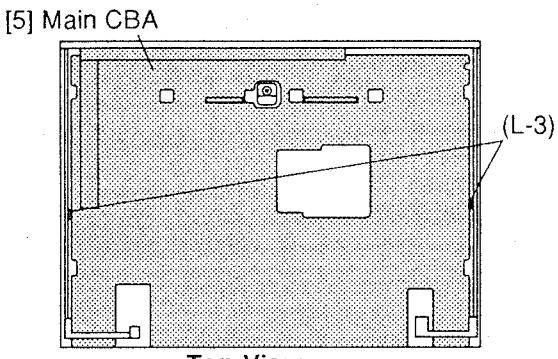


Fig. 3



Top View

Fig. 7

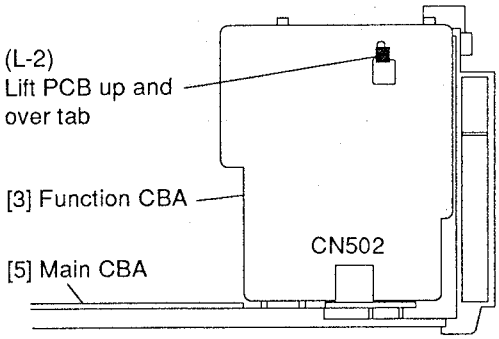
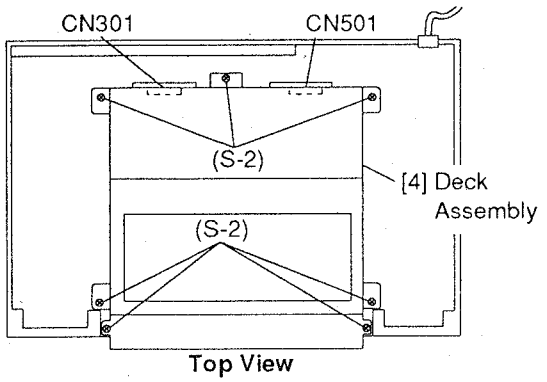
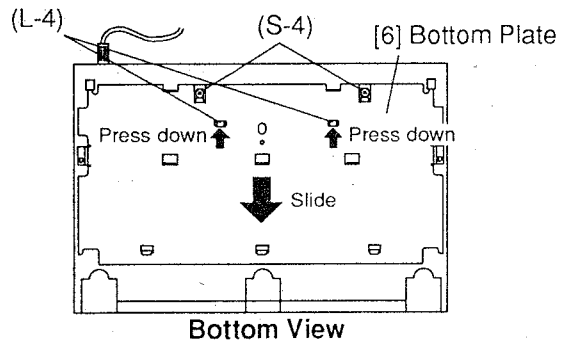


Fig. 4



Top View

Fig. 5



Bottom View

Fig. 6

ELECTRICAL ADJUSTMENT INSTRUCTIONS

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

Notes:

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 both CHANNEL "UP" and "DOWN" buttons at the same time. (VCR' s Front Panel only)

Test Equipment Required

1. Oscilloscope: Dual-trace with 10:1 probe, V-Range: 0.001~50V/Div., F-Frange: AC~DC-20MHz
2. PAL Pattern Generator (color bar with 100% white)
3. Alignment Tape (FL6A)
4. Blank Tape (Available Locally)
5. Spectrum Analyzer
6. UP Converter
7. DC Voltmeter
8. TV Modulator
9. Distortion meter

1. 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
TP7501(V-OUT) TP502(RF-SW) GND	VR501 (Switching Point)	PLAY (SP)	----
Tape	**Measurement Equipment**	**Spec.**	
FL6A	Oscilloscope	6.5H±1H (412.7±60μs)	

Connections of Measurement Equipment

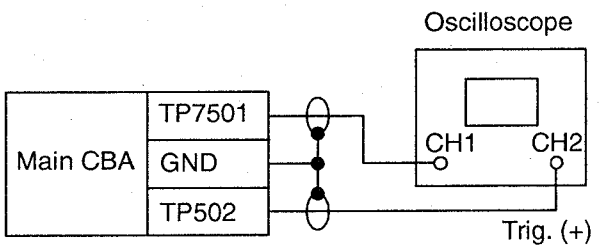
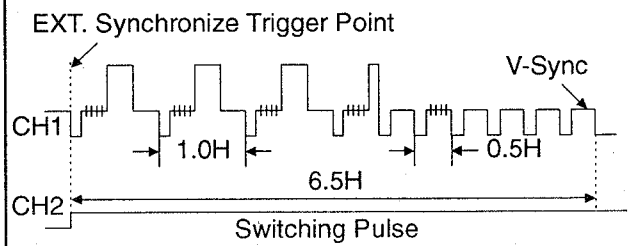


Figure 1



Reference Note:

TP502, TP7501, VR501 : Main CBA

- Play back the test 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.

2. V-Out Level Adjustment

Purpose: To set optimum luminance video out level.

Symptom of Misadjustment: If the video out level is too high, The TV may overload. If the level is too low, The S/N ratio deteriorates.

Test Point	Adj. Point	Mode	Input
TP7501 (V-OUT) GND	VR301 (E-E LEVEL)	E-E	Color Bar Signal with 100% white
Tape	**Measurement Equipment**	**Spec.**	
-----	Pattern Generator Oscilloscope	1±0.1Vp-p	

Connections of Measurement Equipment

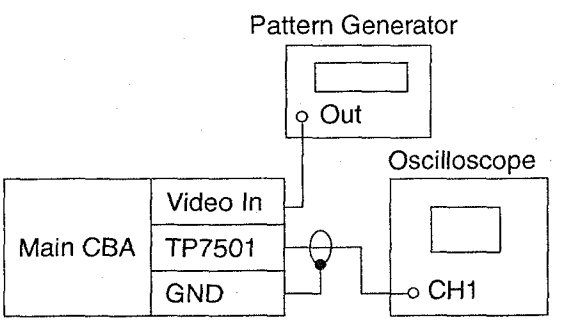
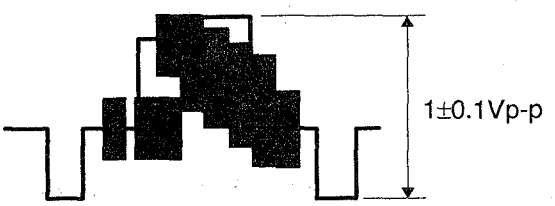


Figure 2



Reference Notes:

TP7501, VR301 : Main CBA

1. Input the color bar signal with window 100% white to video input.
2. Adjust VR301 so that the video level becomes 1±0.1Vp-p. (Connected to TV)

3. FM Carrier Adjustment

Purpose: To align FM carrier deviation.

Symptom of Misadjustment: If the deviation is not correct, abnormal contrast of light and dark on the picture may be seen.
If the carrier deviation is not correct, beats appear on the picture.

Test Point	Adjustment Point	Mode	Input
TP301 (Y-REC) TP502 (RF-SW) GND	VR302 (Y-CAR)	REC. (SP)	Color Bar with 100% white
Tape	**Measurement Equipment**	**Spec.**	
Blank Tape	Pattern Generator Spectrum Analyzer Oscilloscope	Sync-tip 3.8±0.1MHz	

Connections of Measurement Equipment

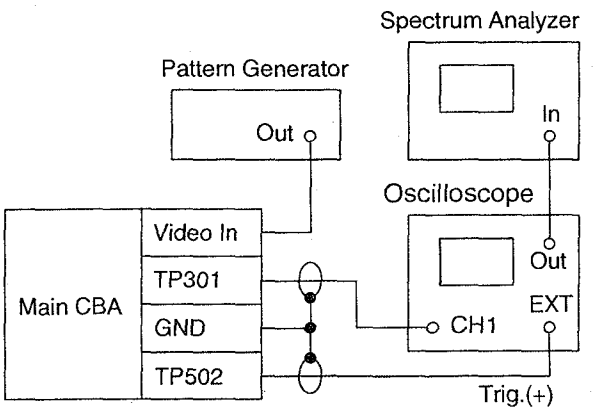
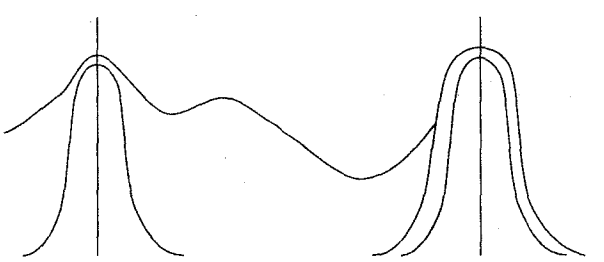


Figure 3



Reference Notes:

TP301, TP502, VR302 : Main CBA

1. Input color bar signal with 100% white to video input.
2. Adjust Sync-tip to 3.8MHz± 0.1MHz by VR302.

4. IF Unit Adjustment 1

Note: Remove the IF unit from the Main CBA.

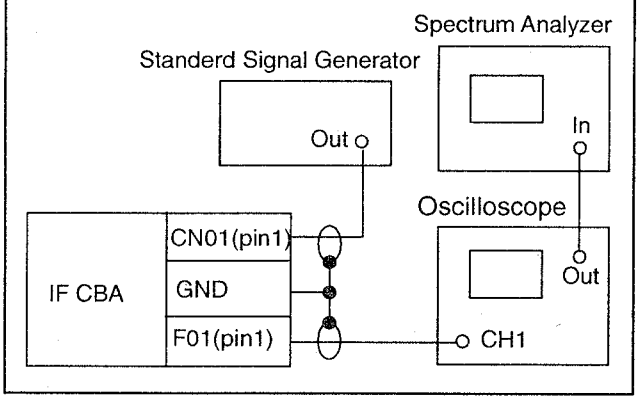
4-1. Adjacent Channel Trap Adjustment 1

Purpose: To comply IF for local radio wave regulation.

Symptom of Misadjustment: If may cause the noise in picture that audio IF may affect to video IF. If the frequency of trap overlape on video IF, IC input level WII be lower and The S/N ratio will be lower.

Test Point	Adj. Point	Mode	Input
Pin1 of CN01 Pin1 of F01 (Saw Filter)	T05 (TRAP)	-----	40.4MHz (70dBμV sine wave)
Tape	**Measurement Equipment**	**Spec.**	
-----	Standard Signal Generator Oscilloscope Spectrum Analyzer	-----	

Connections of Measurement Equipment



Reference Notes:

Pin1 of CN01, Pin1 of F01, T05 : IF CBA (IF unit)

1. Input Signal to Pin1 of CN01.
2. Adjust core of Coil T05 so that the waveform level becomes minimum.

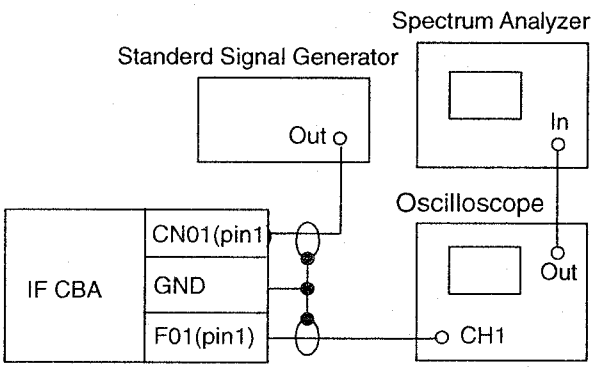
4-2. Adjacent Channel Trap Adjustment2

Purpose: To comply IF for local radio wave regulation.

Symptom of Misadjustment: If may cause the noise in picture that audio IF may affect to video IF. If the frequency of trap overlape on video IF, IC input level WII be lower and The S/N ratio will be lower.

Test Point	Adj. Point	Mode	Input
Pin1 of CN01 Pin1 of F01 (Saw Filter)	T05 (TRAP)	-----	31.9MHz (70dBμV sine wave)
Tape	**Measurement Equipment**	**Spec.**	
-----	Standard Signal Generator Oscilloscope Spectrum Analyzer	------	

Connections of Measurement Equipment



Reference Notes:

Pin1 of CN01, Pin1 of F01, T06 : IF CBA (IF unit)

1. Input Signal to Pin1 of CN01.
2. Adjust core of Coil T06 so that the waveform level becomes minimum.

5. IF Unit Adjustment 2

Note: Install the IF unit on Main CBA.

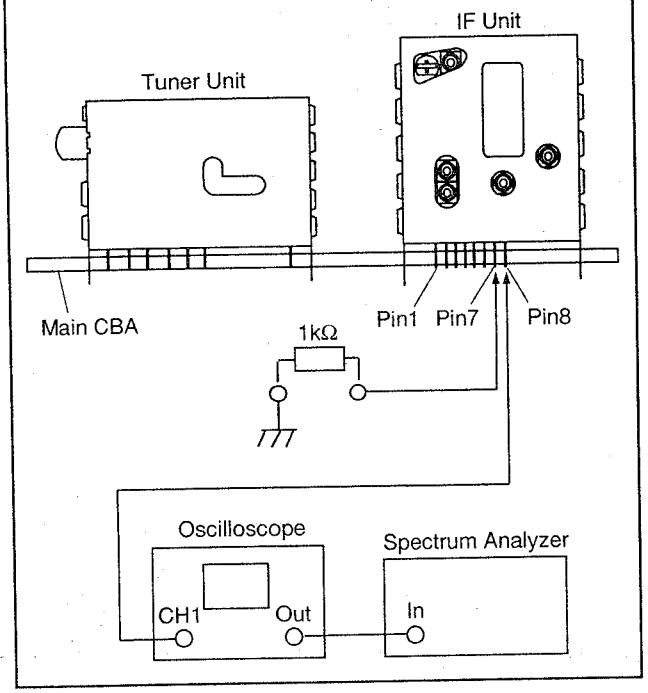
5-1. VCO Adjustment

Purpose: To adjust IF signal to optimum frequency .

Symptom of Misadjustment: Tunning will result unsyncronized

Test Point	Adj. Point	Mode	Input
Pin7 of CN01 Pin8 of CN01	T02 (VCO)	-----	-----
Tape	**Measurement Equipment**	**Spec.**	
-----	Oscilloscope Spectrum Analyzer	------	

Connections of Measurement Equipment



Reference Notes:

Pin7 of CN01, Pin8 of CN01, T02 : IF CBA (IF Unit)

1. Connect 1k Ω(1/4W) Resistor between Pin7 of CN01 and GND line.
2. Adjust T02 (COIL) so that the VCO of the frequency becomes following value.

   Alignment value= *IF frequency ± 25kHz

   *IF frequency= 38.9MHz

Note: Set the range of Adjust Spectrum Analyzer 2MHz first for rough adjust then set to 50kHz for precise adjustment.

5-2. AFT Adjustment

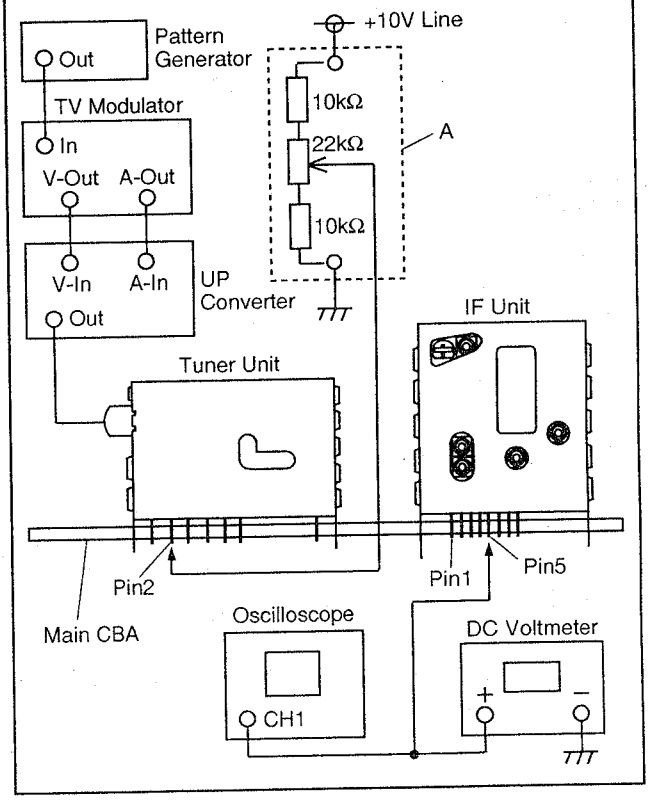
Note: Remove the R710(resistor) from the Main CBA.

Purpose: To adjust AFT effective rang which correct uncyncronized tuning after tuner preset.

Symptom of Misadjustment: May cause uncyncronized tuning after tuner preset.

Test Point	Adj. Point	Mode	Input
Pin5 of CN01 Pin2 of TU701	T03 (AFT)	-----	Color Bar with 100% white
Tape	**Measurement Equipment**	**Spec.**	
-----	TV modulator UP converter Pattern Generator Oscilloscope DC voltmeter	DC 2.5V±0.3V	

Connections of Measurement Equipment



Reference Notes:

Pin5 of CN01, T03 : IF CBA (IF Unit)
Pin2 of TU701 : Tuner unit

1. Make the service fixture shown in the above " **A**" .
2. Adjust 22k Ω P.O.T. in the service fixture so that the tuner receives the following frequency.

   *Tuner reception frequency= 203.25MHz
   (VHF H renge, VT= 5~6V)

   *Electric field strength: 70dBμV

   *IF frequency= 38.9MHz

3. Set the tuner in preset made and tuner to the above frequency.

4. Adjust core of Coil T03 so that the AFT voltage becomes DC 2.5V±0.3V.

5-3. Audio distortion Adjustment

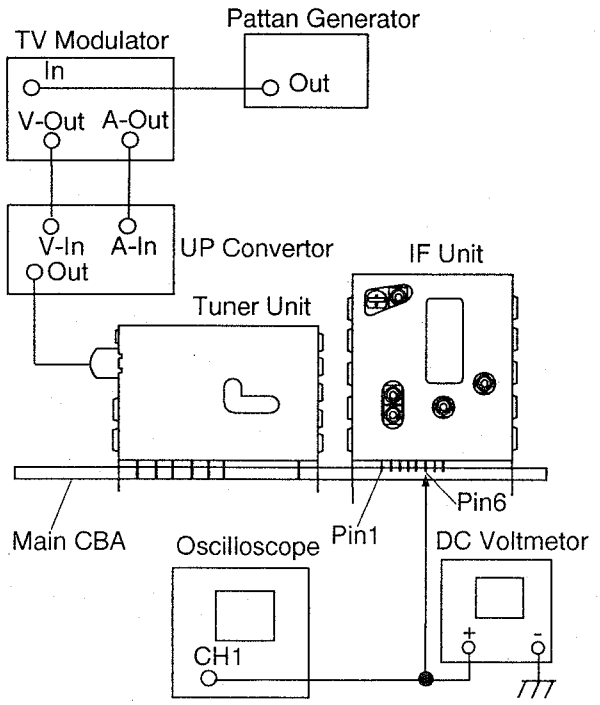
Note: Install the R710(resistor) in Main CBA.

Purpose: To minimize the audio distortion.

Symptom of Misadjustment: May cause audio distortion.

Test Point	Adj. Point	Mode	Input
Pin6 of CN01	T04 (DISTORTION)	-----	Color Bar with 100% white
Tape	**Measurement Equipment**	**Spec.**	
-----	Pattern Generator UP convertor TV Modulator Oscilloscope Distortion meter	-----	

Connections of Measurement Equipment



Reference Notes:

Pin6 of CN01, T04 : IF CBA (IF unit)

*IF tuner unit of tuner reception condition:

Tuner input = 1kHz (Monaural)

1. Adjust core of Coil T04 so that the audio distortion becomes minimum level.

6. AGC Adjustment

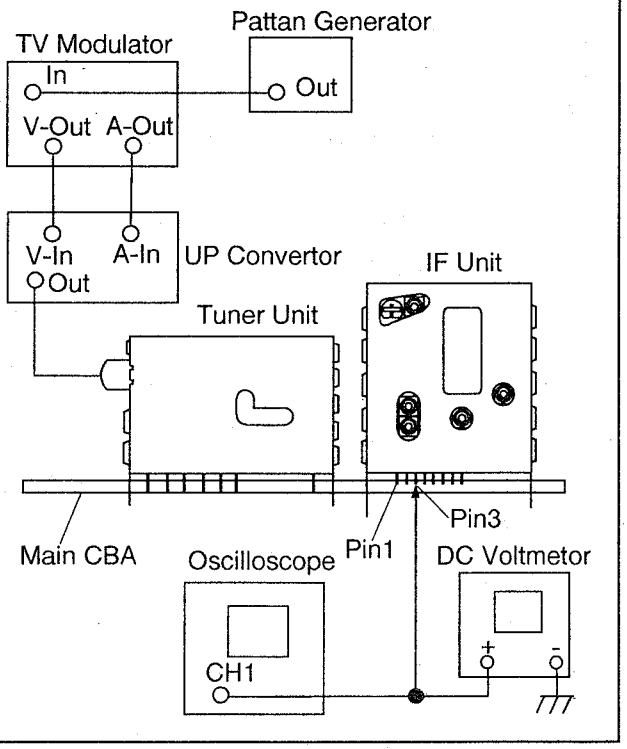
Note: Install the IF unit in Main CBA.

Purpose: To adjust the strength of received air signal.

Symptom of Misadjustment: May cause noise or beat in the picture.

Test Point	Adj. Point	Mode	Input
Pin3 of CN01	VR01 (AGC)	-----	Color Bar with 100% white
Tape	**Measurement Equipment**	**Spec.**	
-----	Standard Signal Generator Oscilloscope SpectrumAnalyzer DC Voltmeter	-----	

Connections of Measurement Equipment



Reference Notes:

Pin3 of CN01, VR01 : IF CBA (IF unit)

*IF tuner unit of Tuner reception condition:

Tuner input = 1kHz

1. Set the tuner in preset made and tuner to the above frequency.

*Tuner reception frequency= 203.25MHz (VHF H renge)

*Electric field strength: 70dBμV

2. Adjust VR01 so that the voltage of AGC becomes the following level.

*DC voltmeter level=DC 4.0V±0.2V

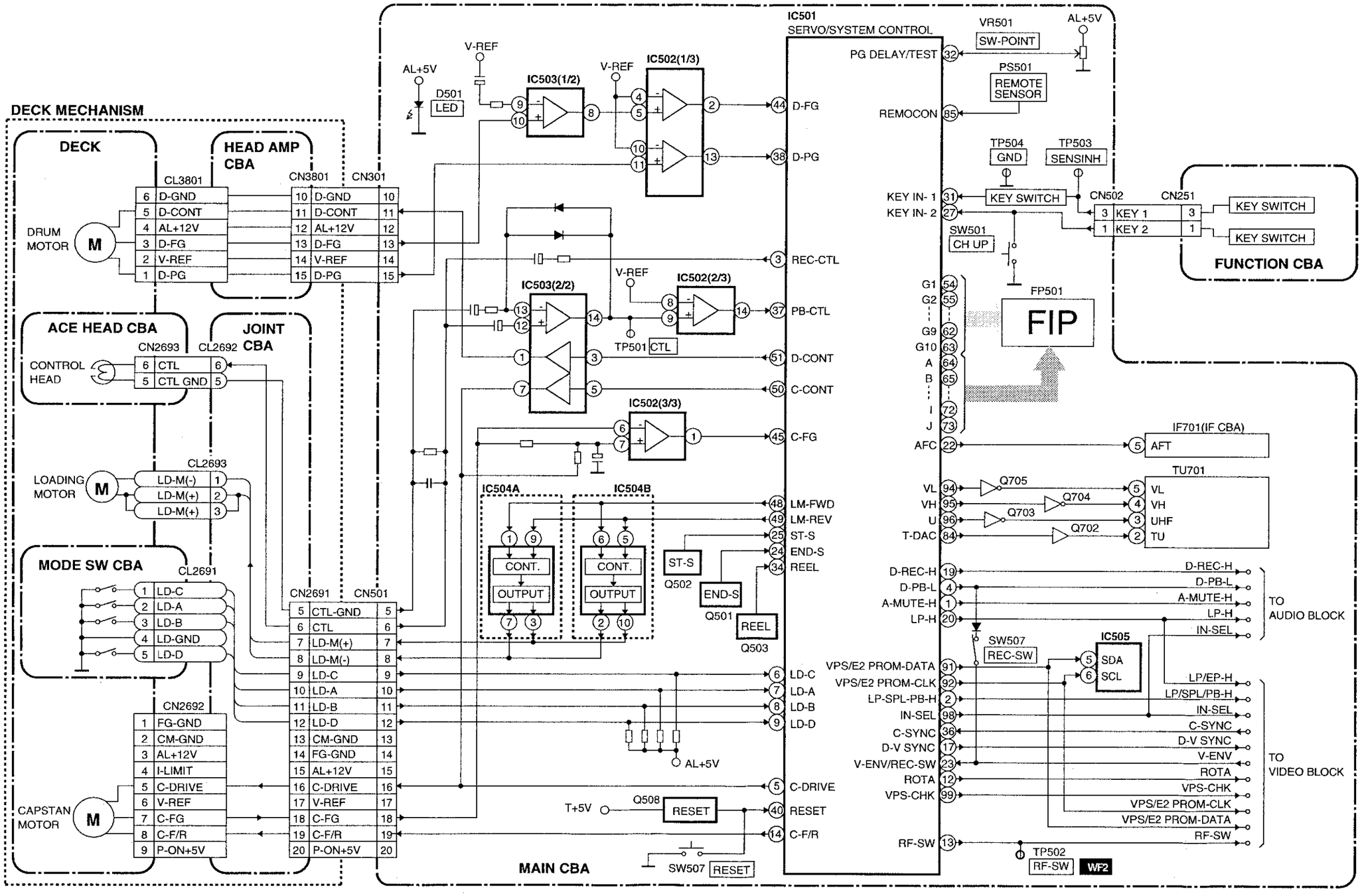
BLOCK DIAGRAMS

Servo/System Control Block Diagram (A, B)

Comparison Chart of Models and Marks

MODEL	MARK	MODEL	MARK
13A-109	A	13A-509	C
13A-129	B	13A-529	D

NOTE: THE LOADING MOTOR DRIVE IC IS EITHER IC504A(TA7291S) OR IC504B(LB1641).
THESE ICS ARE EXCHANGEABLE PARTS.

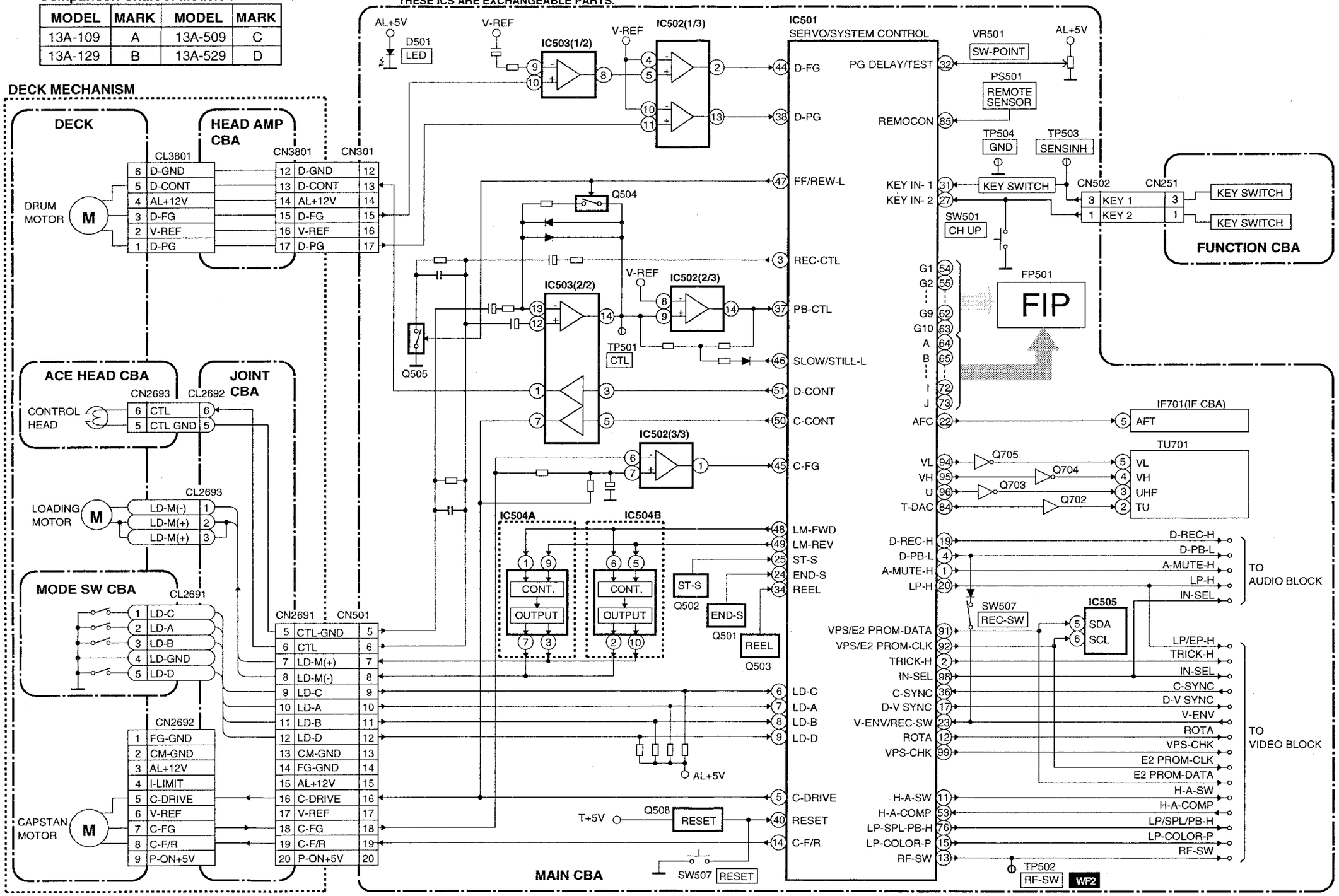


Servo/System Control Block Diagram (C, D)

Comparison Chart of Models and Marks

MODEL	MARK	MODEL	MARK
13A-109	A	13A-509	C
13A-129	B	13A-529	D

NOTE: THE LOADING MOTOR DRIVE IC IS EITHER IC504A(TA7291S) OR IC504B(LB1641). THESE ICS ARE EXCHANGEABLE PARTS.



Video Block Diagram (A, B)

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

Comparison Chart of Models and Marks

MODEL	MARK	MODEL	MARK
13A-109	A	13A-509	C
13A-129	B	13A-529	D

MAIN CBA

WF1 TP7501 V-OUT

MD701 VIDEO-IN 1

IF701(IF CBA) VIDEO 8

JK751 V-OUT 19 V-IN 20

IC751 INPUT SELECT SW CTL

Q308 BUFFER

TO SERVO/SYSTEM CONTROL BLOCK: C-SYNC, D-V, LP-SPL-PB-H

Q506 Q507

IC302 CCD DELAY LINE

OUTPUT (S/H), CCD (2.5bit), CCD (858bit), CCD (847bit), CCD (843.5bit), CCD (6bit), OUTPUT (S/H), CENTER BIAS, CENTER BIAS, CLAMP, CLK

BUFFER Q320

TO SERVO/SYSTEM CONTROL BLOCK: INSEL, VPS-CHK, VPS-CLK, VPS-DATA

Q307

VR301 E-E LEVEL

VR302 CAR/DEV

+5V

B

(IC5101 CAN BE EITHER SAA4700 OR SDA5642.)

IC5101(SDA5642) VPS CBA CN5101: CVBS 13, SEL 2, SDA 3 — 4 V-IN, 7 VPS-CLK, 8 VPS-DATA

IC5101(SAA4700) VPS CBA CN5101: V-IN 2, SCL 8, SDA 9 — 4 V-IN, 7 VPS-CLK, 8 VPS-DATA

Q302 Q303 EQUALIZER /PEAKING

Q301 BUFFER

IC301 Y/C PROCESS

TO SERVO/SYSTEM CONTROL BLOCK: RF-SW, V-ENV

DECK MECHANISM

HEAD AMP CBA — IC3801 HEAD AMP

DECK: VIDEO L HEAD, VIDEO R HEAD

CN3802: 4 V (L) 4, 3 V-COM 3, 2 V (R) 2, 1 V-COM 1

CN3801 CN301: 6 V-ENV 6, 1 RF-SW 1, 4 Y-PB 4, 5 C-PB 5, 3 Y/C REC 3

TP301 Y-REC

TP303 C-REC

TP302 C-PB WF5

B.P.F.

Q309 Q310 Q311 Q312

AL+5V

X301 4.43MHz

D-PB+5V, D-REC+5V } TO POWER SUPPLY BLOCK

ROTA, LP-H } TO SERVO/SYSTEM CONTROL BLOCK

1-7-5

1-7-6

H6102BLVX

Video Block Diagram (C, D)

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

Comparison Chart of Models and Marks

MODEL	MARK	MODEL	MARK
13A-109	A	13A-509	C
13A-129	B	13A-529	D

MAIN CBA

WF1 TP7501 V-OUT

MD701 VIDEO-IN

IF701(IF CBA) VIDEO

JK751 V-OUT / V-IN

IC751 INPUT SELECT, SW CTL

Q308 BUFFER

TO SERVO/SYSTEM CONTROL BLOCK: C-SYNC, D-V, LP-SPL-PB-H

Q506, Q507

CSV CIRCUIT

TO SERVO/SYSTEM CONTROL BLOCK: INSEL, VPS-CHK, VPS-CLK, VPS-DATA

Q307

VR301 E-E LEVEL

VR302 CAR/DEV

+5V

D

(IC5101 CAN BE EITHER SAA4700 OR SDA5642.)

IC5101(SDA5642) VPS CBA: CVBS, SEL, SDA → CN5101 V-IN, VPS-CLK, VPS-DATA

IC5101(SAA4700) VPS CBA: V-IN, SCL, SDA → CN5101 V-IN, VPS-CLK, VPS-DATA

Q302 Q303 EQUALIZER /PEAKING

Q301 BUFFER

TO SERVO/SYSTEM CONTROL BLOCK: H-A-SW, H-A-COMP, V-ENV, RF-SW

DECK MECHANISM

VIDEO L-1 HEAD, VIDEO R-1 HEAD, VIDEO L-2 HEAD, VIDEO R-2 HEAD

CN3802: V(L)1, V-COM, V(R)1, V(L)2, V-COM, V(R)2

IC3801 HEAD AMP: ENV DET, COMP, DET, DET, AGC, MIX AMP SP, SLP

CN3501 / CN301: H-A-SW, V-ENV, H-A-COMP, Y-PB, C-PB, Y/C REC, RF-SW

TP301 Y-REC

TP303 C-REC

TP302 C-PB

WF5 B.P.F.

DECK

HEAD AMP CBA

IC302 CCD DELAY LINE: OUTPUT (S/H), CCD (2.5bit), CCD (858bit), CCD (847bit), CCD (843.5bit), CCD (6bit), OUTPUT (S/H), CENTER BIAS, CENTER BIAS, CLAMP, CLK

BUFFER Q320

IC301 Y/C PROCESS

Q309 Q310 Q311 Q312

AL+5V

X301 4.43MHz

CSV CIRCUIT

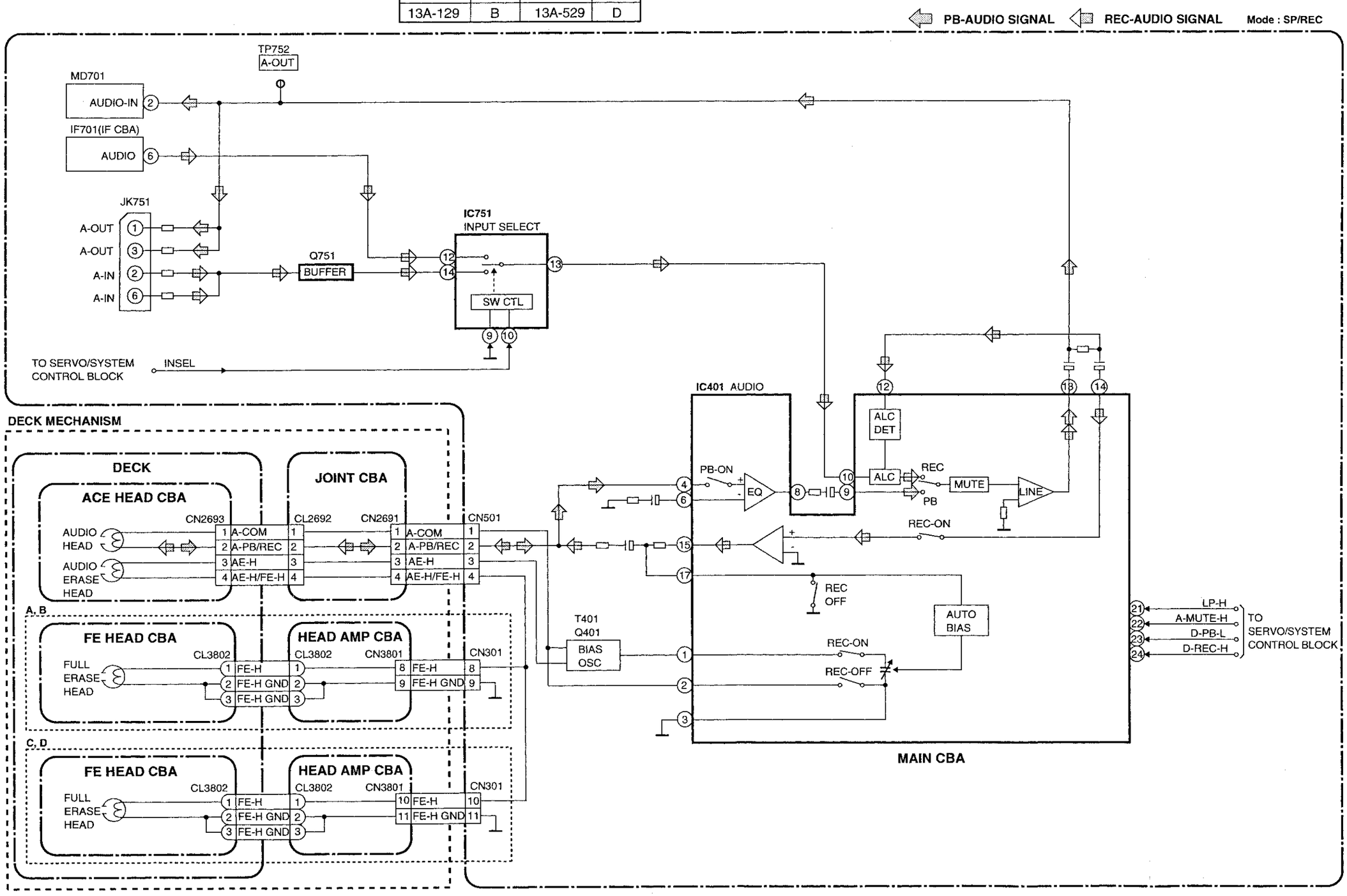
D-PB+5V, D-REC+5V → TO POWER SUPPLY BLOCK

TRICK-H, LP-H, ROTA, LP-SPL-PB-H → TO SERVO/SYSTEM CONTROL BLOCK

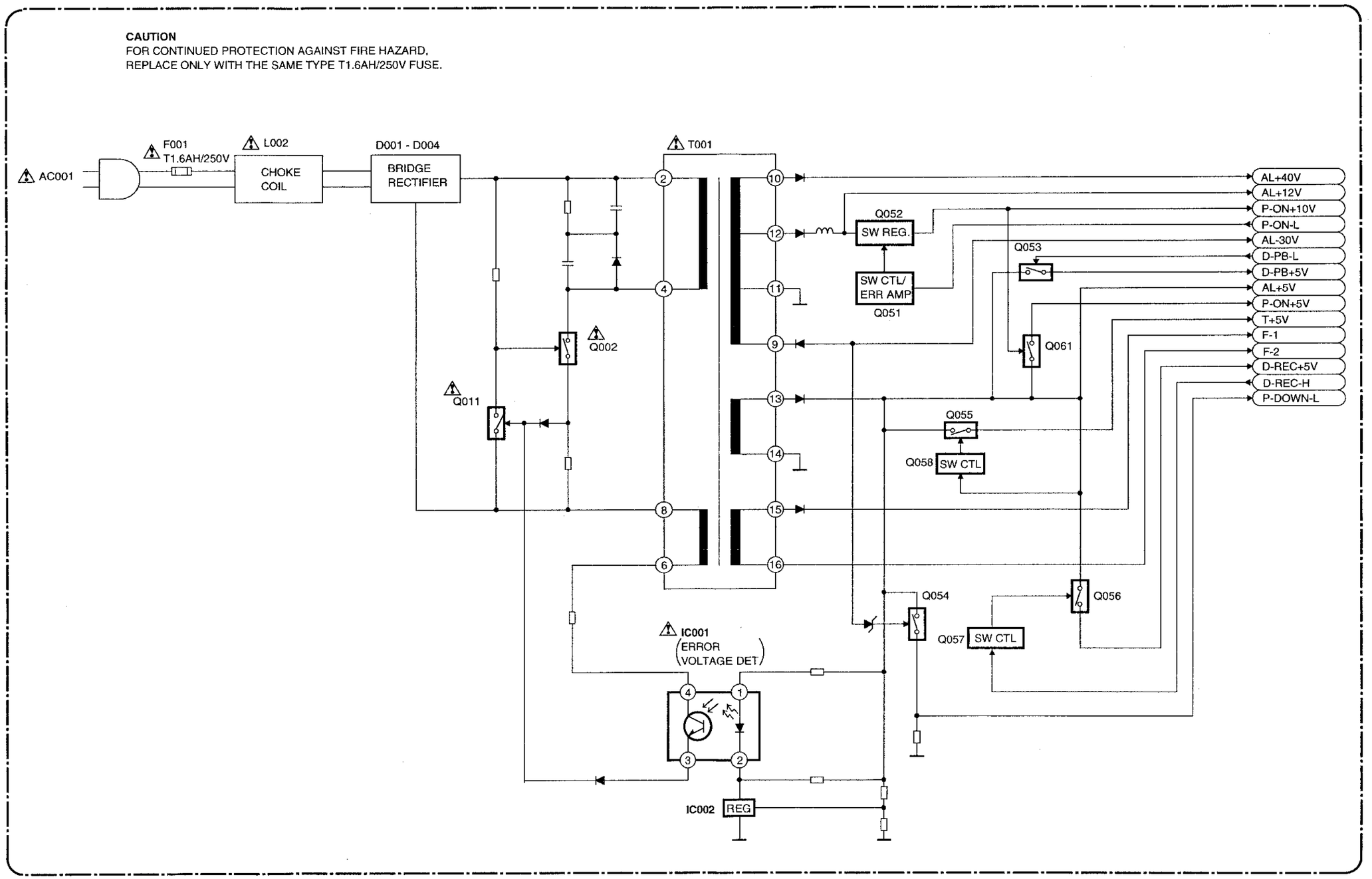
Audio Block Diagram

Comparison Chart of Models and Marks

MODEL	MARK	MODEL	MARK
13A-109	A	13A-509	C
13A-129	B	13A-529	D



Power Supply Block Diagram



SCHEMATIC DIAGRAMS / CBA'S AND TEST POINTS

Standard Notes

WARNING

Many electrical and mechanical parts in this chassis have special characteristics. These characteristics often pass unnoticed and the protection afforded by them cannot necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts that have these special safety characteristics are identified in this manual and its supplements; electrical components having such features are identified by the mark " ⚠ " in the schematic diagram and the parts list. Before replacing any of these components, read the parts list in this manual carefully. The use of substitute replacement parts that do not have the same safety characteristics as specified in the parts list may create shock, fire, or other hazards.

Capacitor Temperature Markings

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

Note:

1 Do not use the part number shown on these drawings for ordering. The correct part number is shown in the parts list, and may be slightly different or amended since these drawings were prepared.

2 All resistance values are indicated in ohms ($K=10^3$, $M=10^6$).

3 Resistor wattages are 1/5W or 1/6W unless otherwise specified.

4 All capacitance values are indicated in μF ($P=10^{-6}\mu F$).

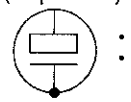
5 All voltages are DC voltages unless otherwise specified.

6 Electrical parts such as capacitors, connectors, diodes, IC's, transistors, resistors, switches, and fuses are identified by four digits. The first two digits are not shown for each component. In each block of the diagram, there is a note such as shown below to indicate these abbreviated two digits.

Capacitors and transistors are represented by the following symbols.

CBA Symbols

(Top View) (Bottom View)



: Electrolytic Capacitor

(Bottom View)

E C B

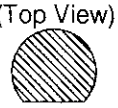
: Transistor or Digital Transistor

(Top View)

E C B

NPN Transistor

(Top View)



E C B

PNP Transistor

(Top View)

E C B

NPN Digital Transistor

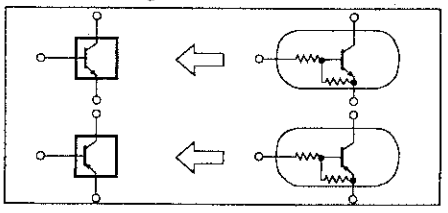
(Top View)

E C B

PNP Digital Transistor

Schematic Diagram Symbols

Digital Transistor



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

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

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

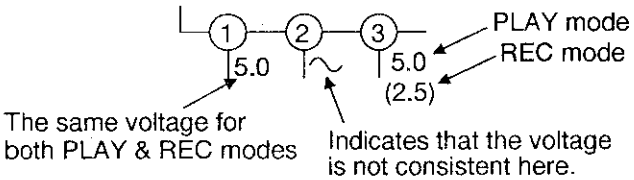
3. **Note:**
(1)Do not use the part number shown on the drawings for ordering. The correct part number is shown in the parts list, and may be slightly different or amended since the drawings were prepared.
(2)To maintain original function and reliability of repaired units, use only original replacement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

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

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

6. Mode: SP/REC

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

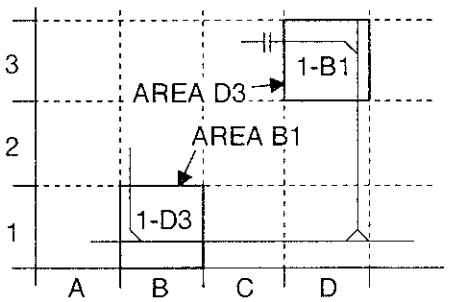


Unit: Volts

8. How to read converged lines

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

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



9. Test Point Information

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

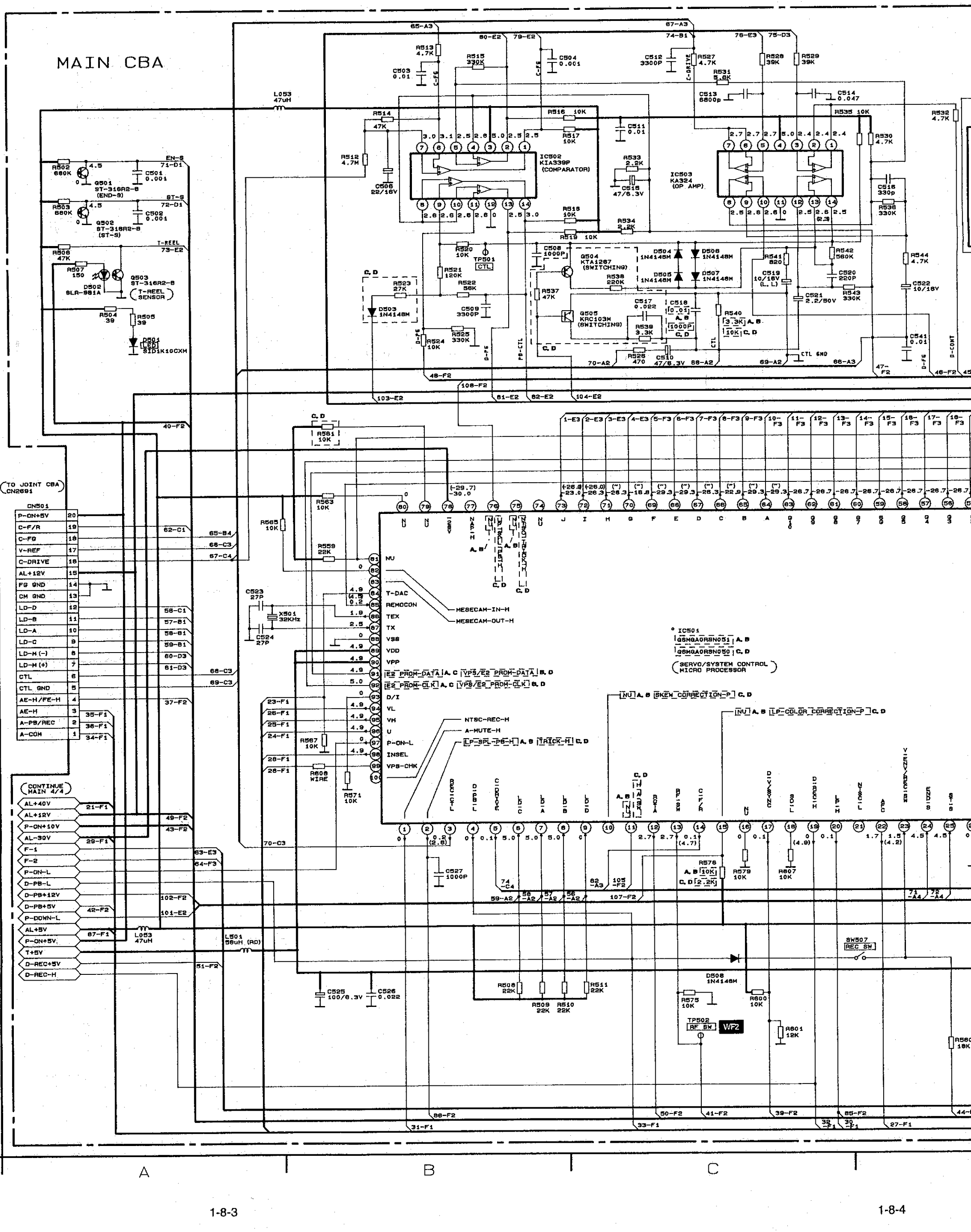
: Used to indicate a test point with a component lead on foil side.

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

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

ain 1/4 Schematic Diagram

Note: The loading motor drive IC is either type A or
These two types are exchangeable and can be equ
used whichever the model is. The difference betwe
A and type B is shown in the table below.

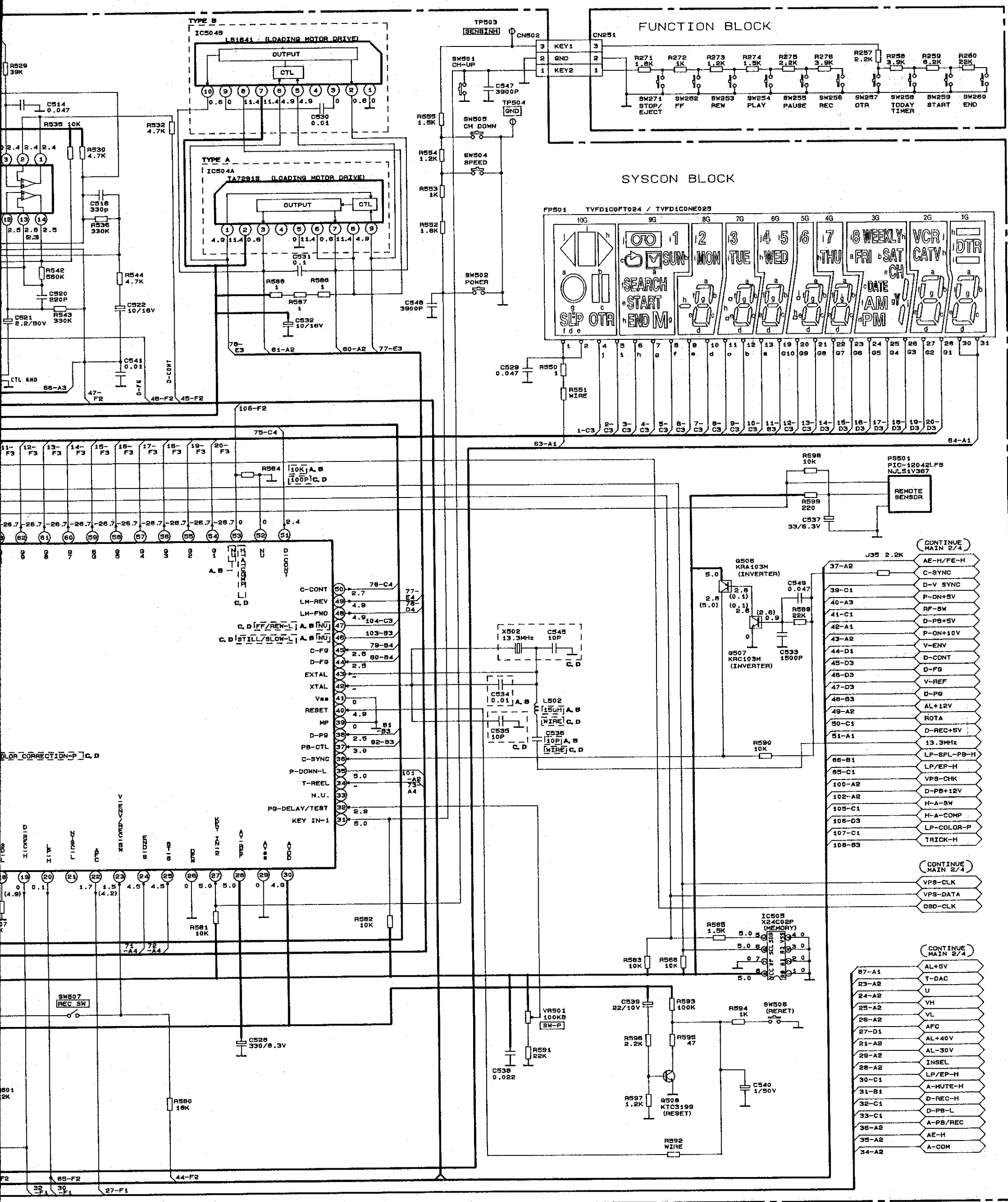


ding motor drive IC is either type A or type B.
pes are exchangeable and can be equally
ver the model is. The difference between type
is shown in the table below.

	IC504A	IC504B	C530
Type A	TA7291S	Not Used	Not Used
Type B	Not Used	LB1641	Used

Comparison Chart of Models and Marks

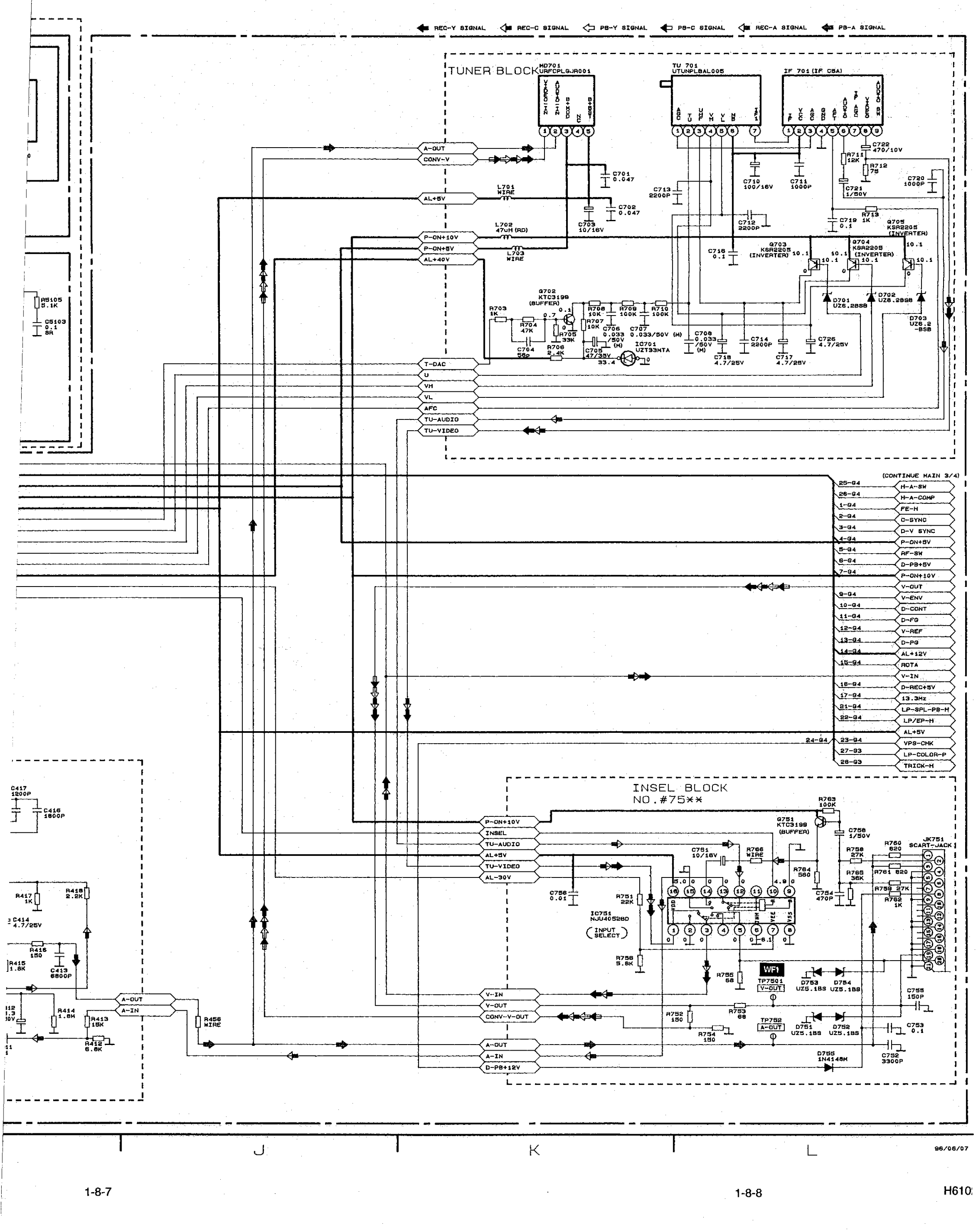
MODEL	MARK	MODEL	MARK
13A-109	A	13A-509	C
13A-129	B	13A-529	D



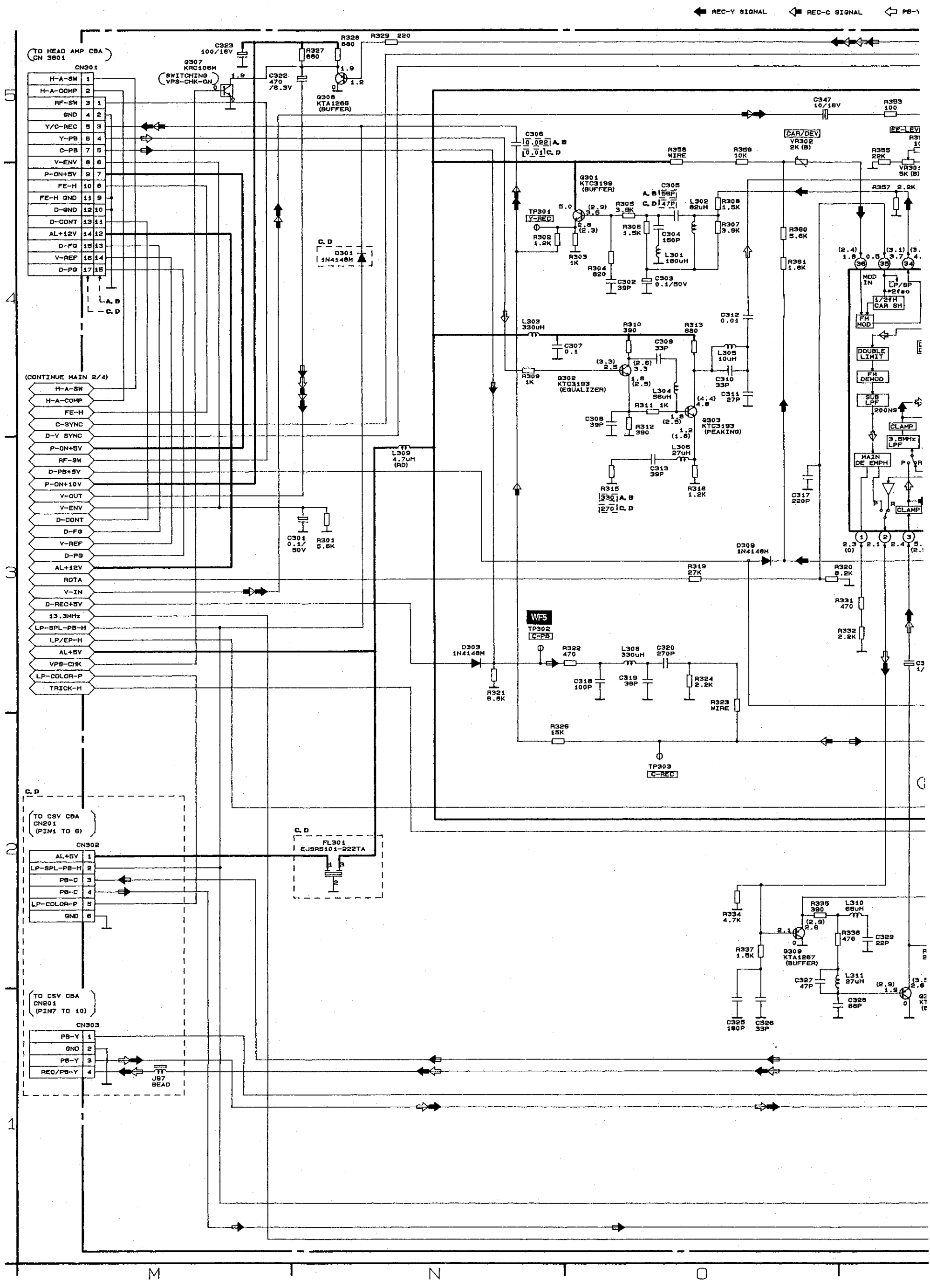
Main 2/4 Schematic Diagram

Comparison Chart of Models and Marks

MODEL	MARK	MODEL	MARK
13A-109	A	13A-509	C
13A-129	B	13A-529	D



Main 3/4 Schematic Diagram

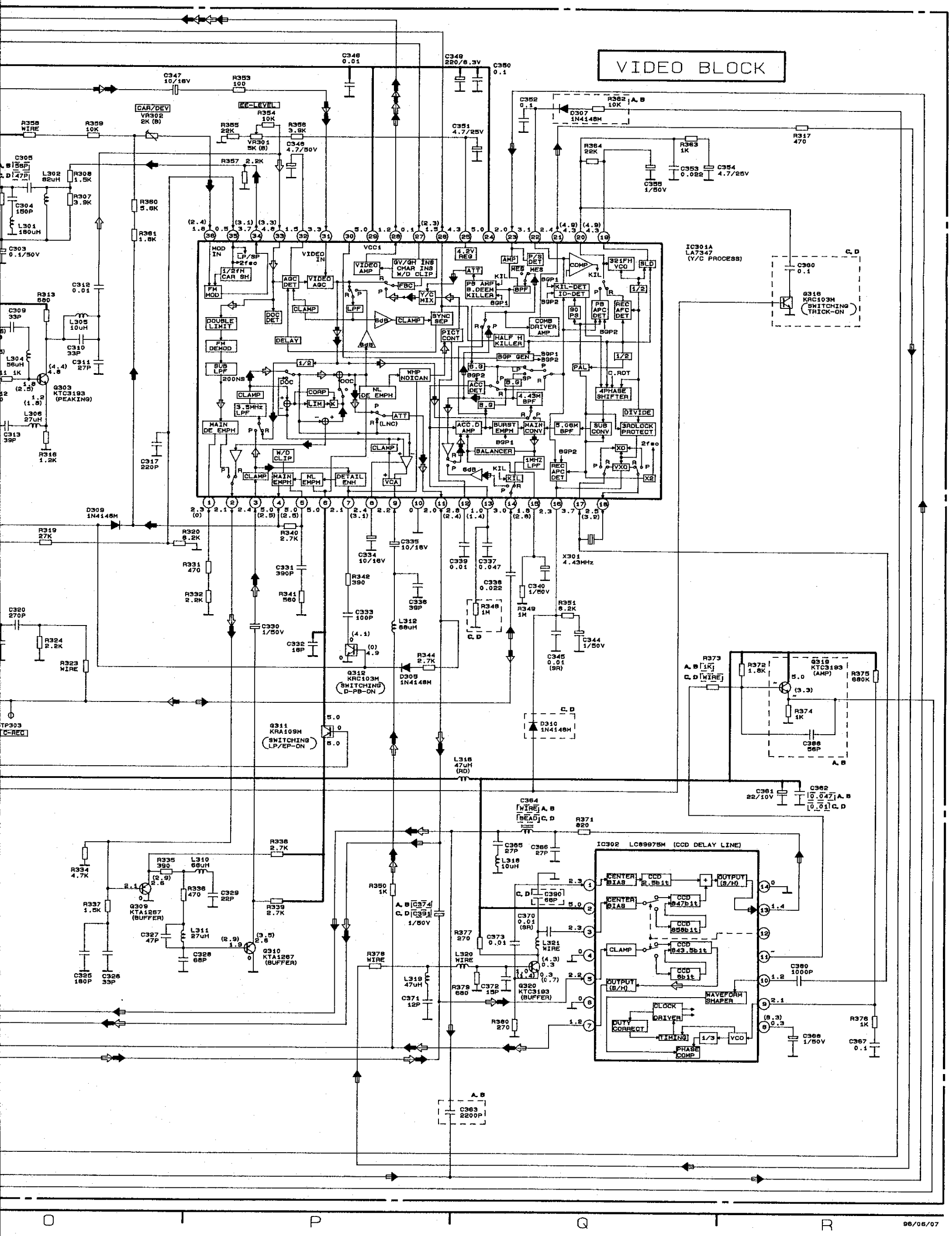


Comparison Chart of Models and Marks

MODEL	MARK	MODEL	MARK
13A-109	A	13A-509	C
13A-129	B	13A-529	D

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

VIDEO BLOCK

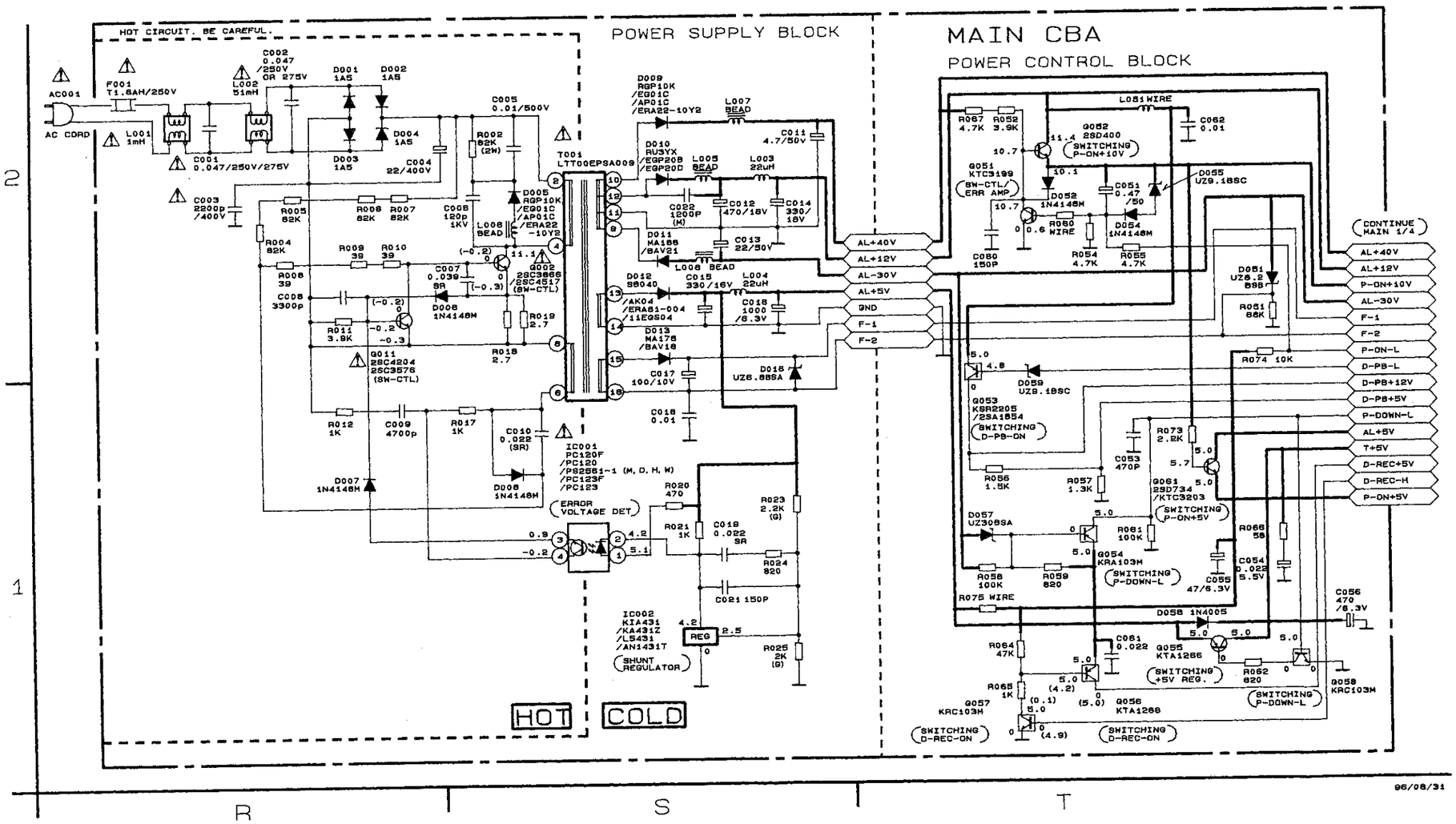


Main 4/4 Schematic Diagram

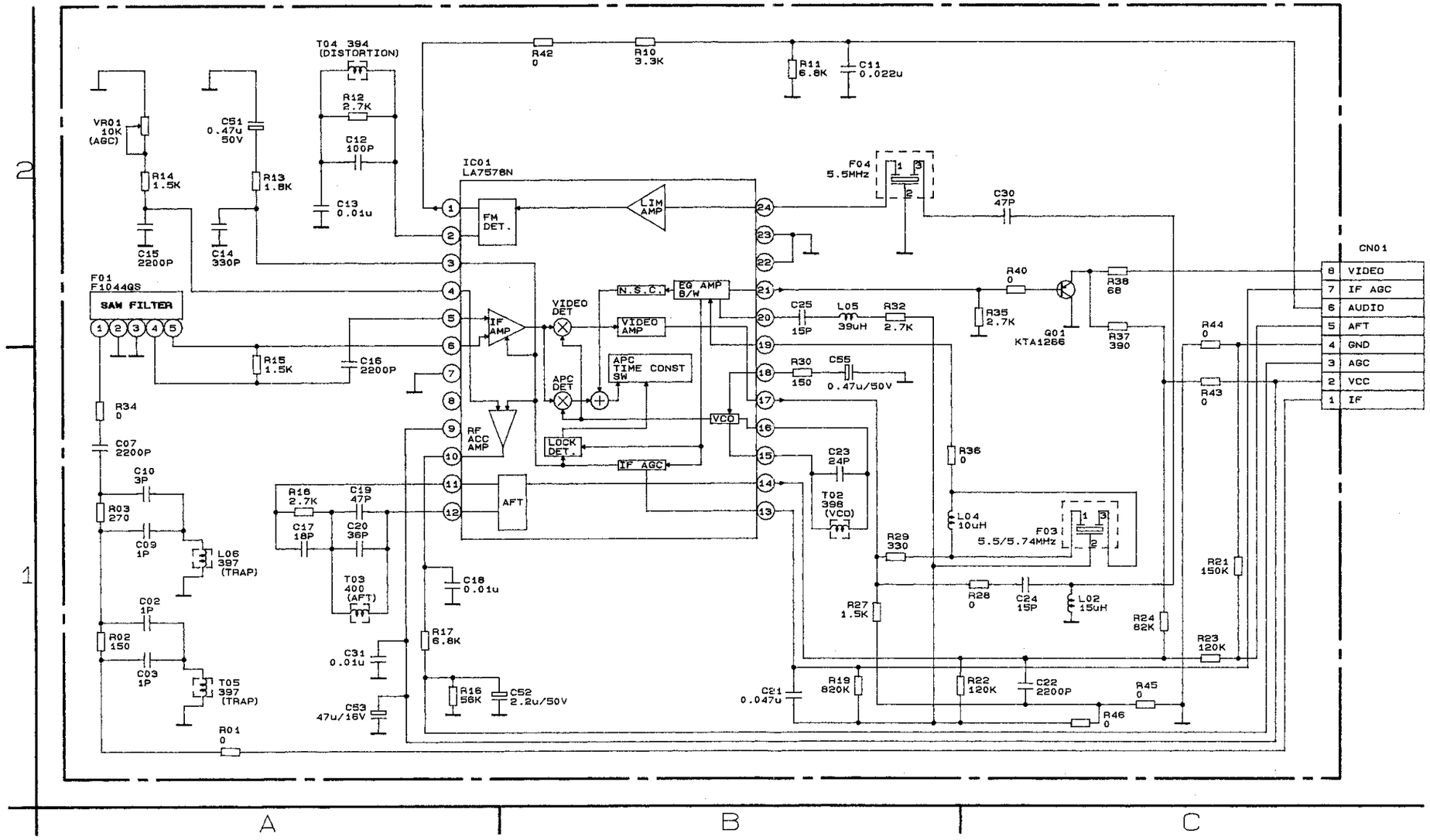
CAUTION
FOR CONTINUED PROTECTION AGAINST FIRE HAZARD,
REPLACE ONLY WITH THE SAME TYPE FUSE.

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

CAUTION !
Fixed voltage power supply circuit is used in this unit.
If Main Fuse (F01) 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.



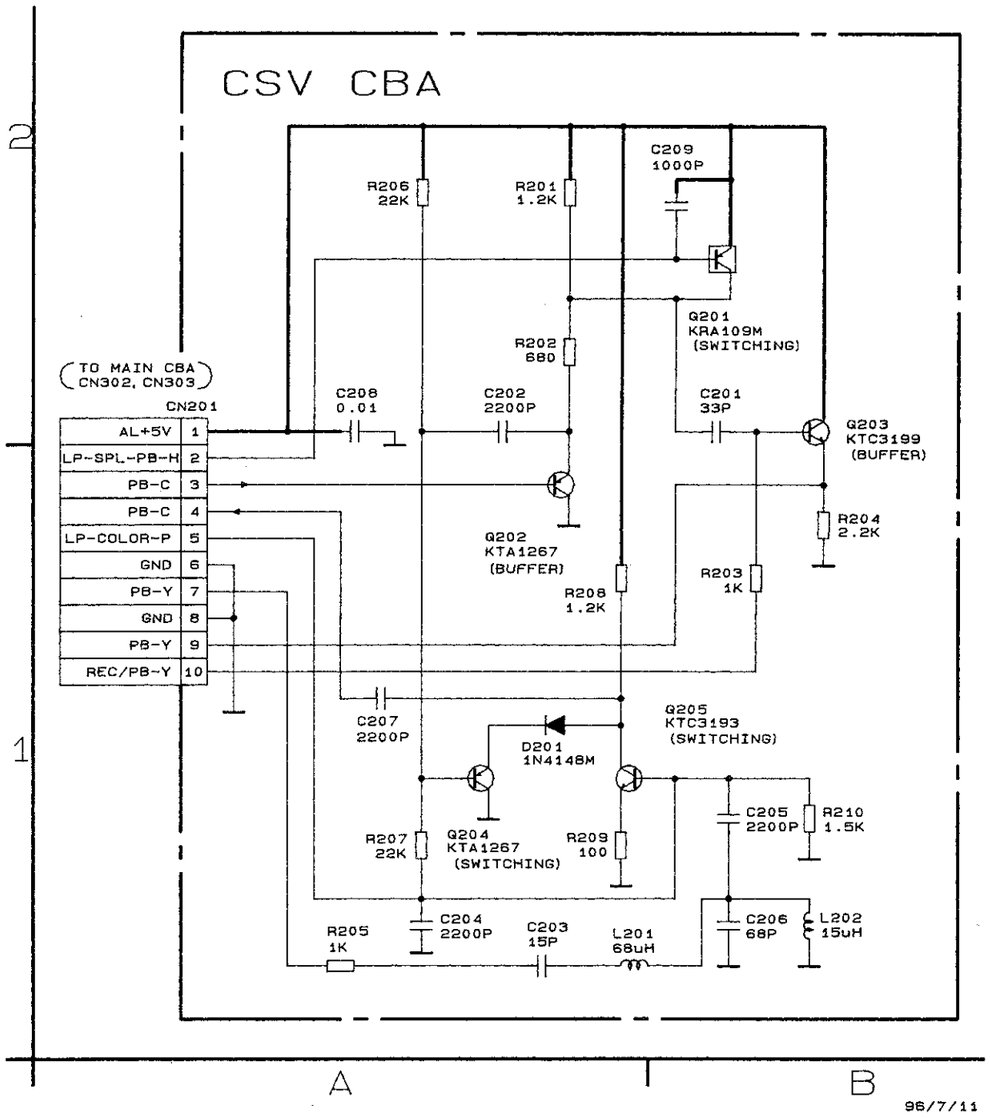
IF Schematic Diagram



CSV Schematic Diagram (C, D)

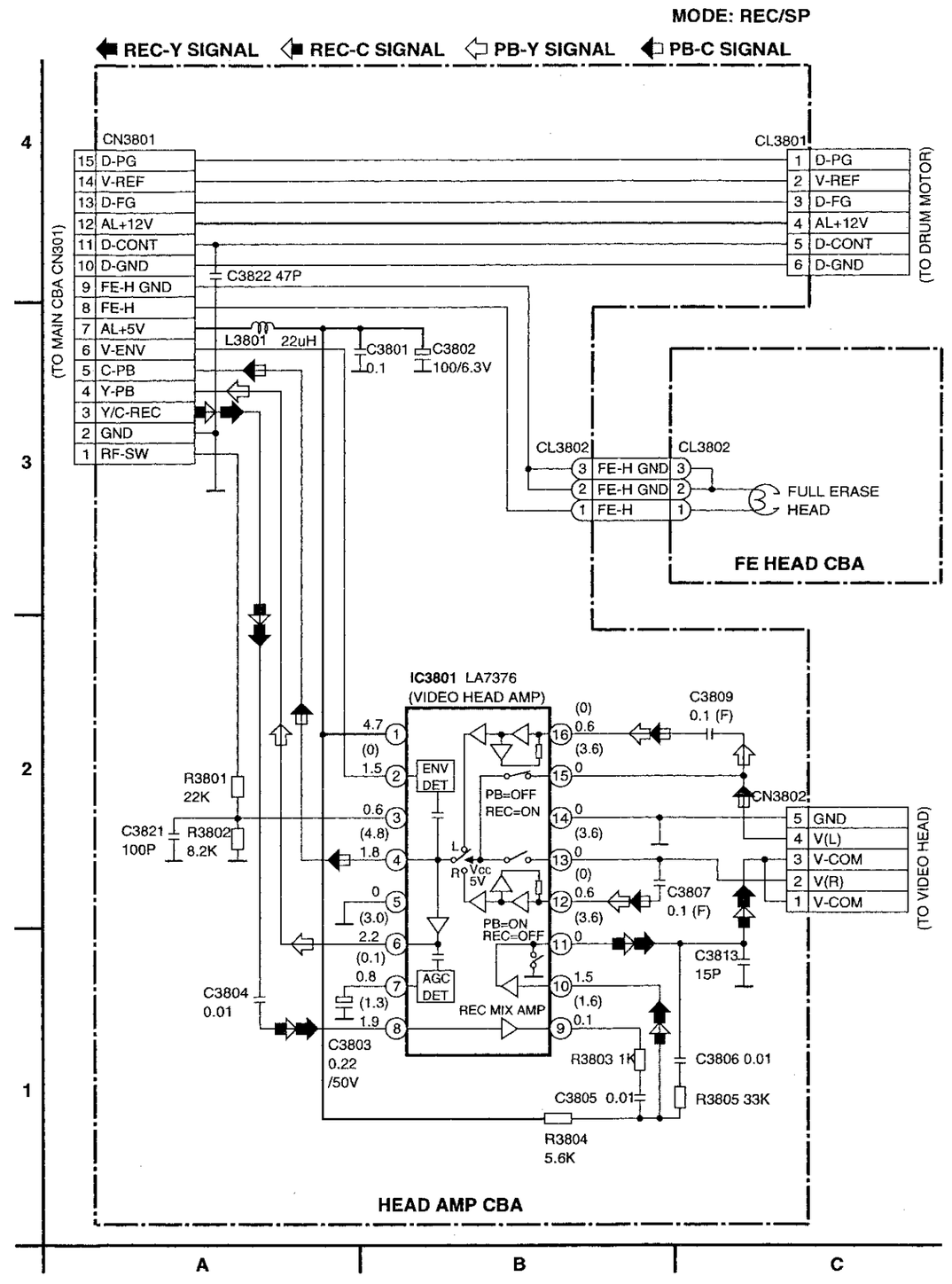
Comparison Chart of Models and Marks

MODEL	MARK	MODEL	MARK
13A-109	A	13A-509	C
13A-129	B	13A-529	D



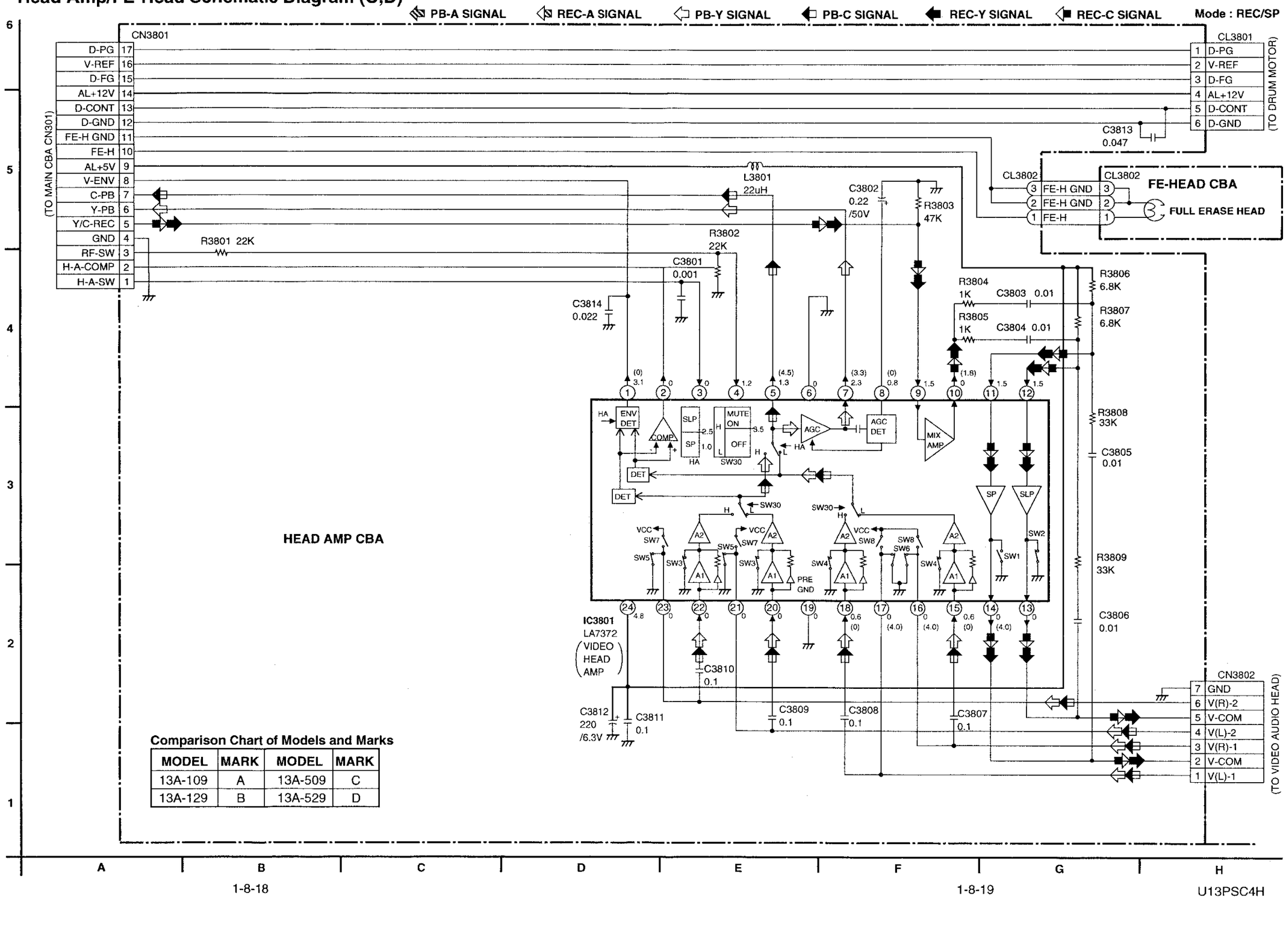
H6302CSV

Head Amp/FE-Head Schematic Diagram (A, B)



U13PSC2H

Head Amp/FE-Head Schematic Diagram (C,D)

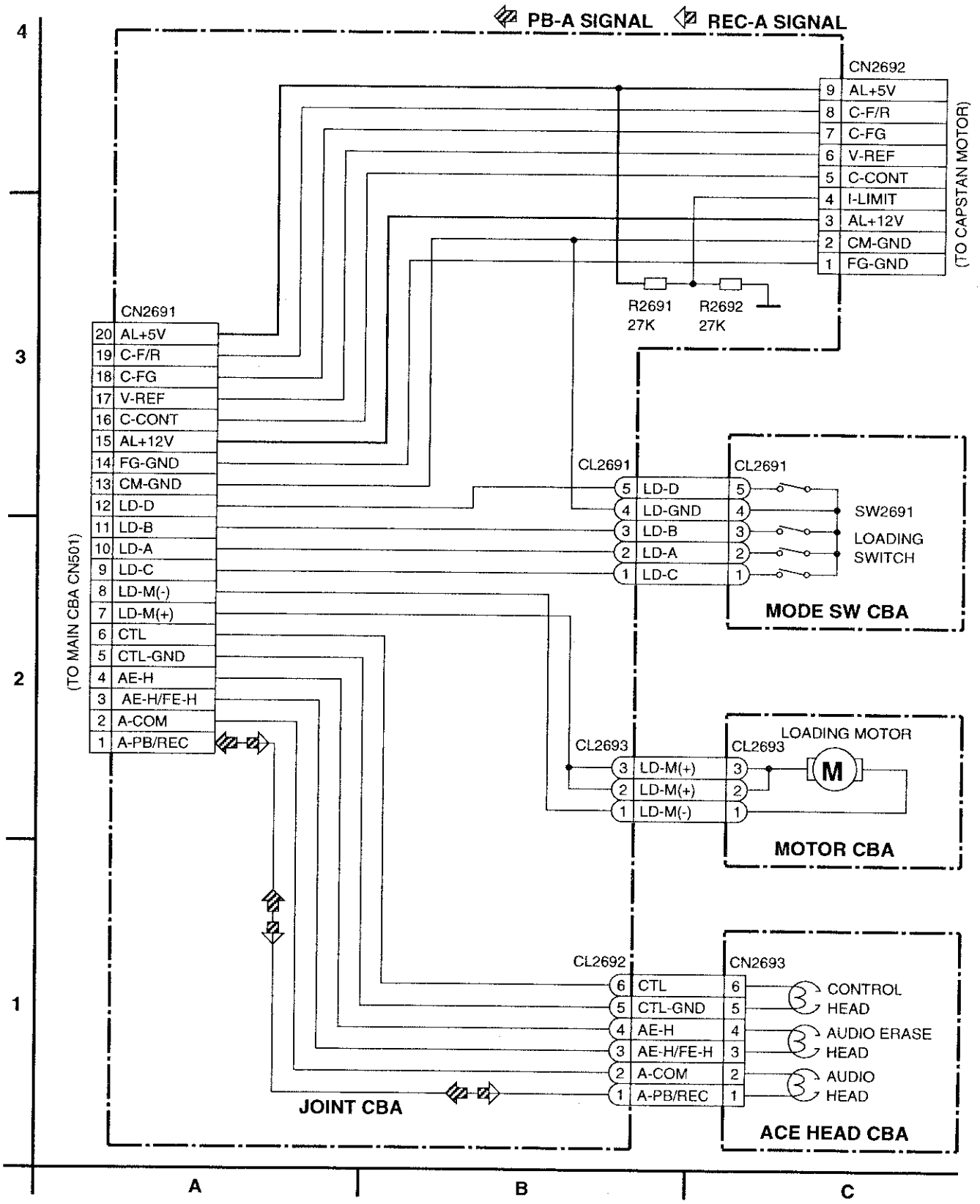


HEAD AMP CBA

Comparison Chart of Models and Marks

MODEL	MARK	MODEL	MARK
13A-109	A	13A-509	C
13A-129	B	13A-529	D

Joint/Mode Sw/Ace Head/Motor Schematic Diagram



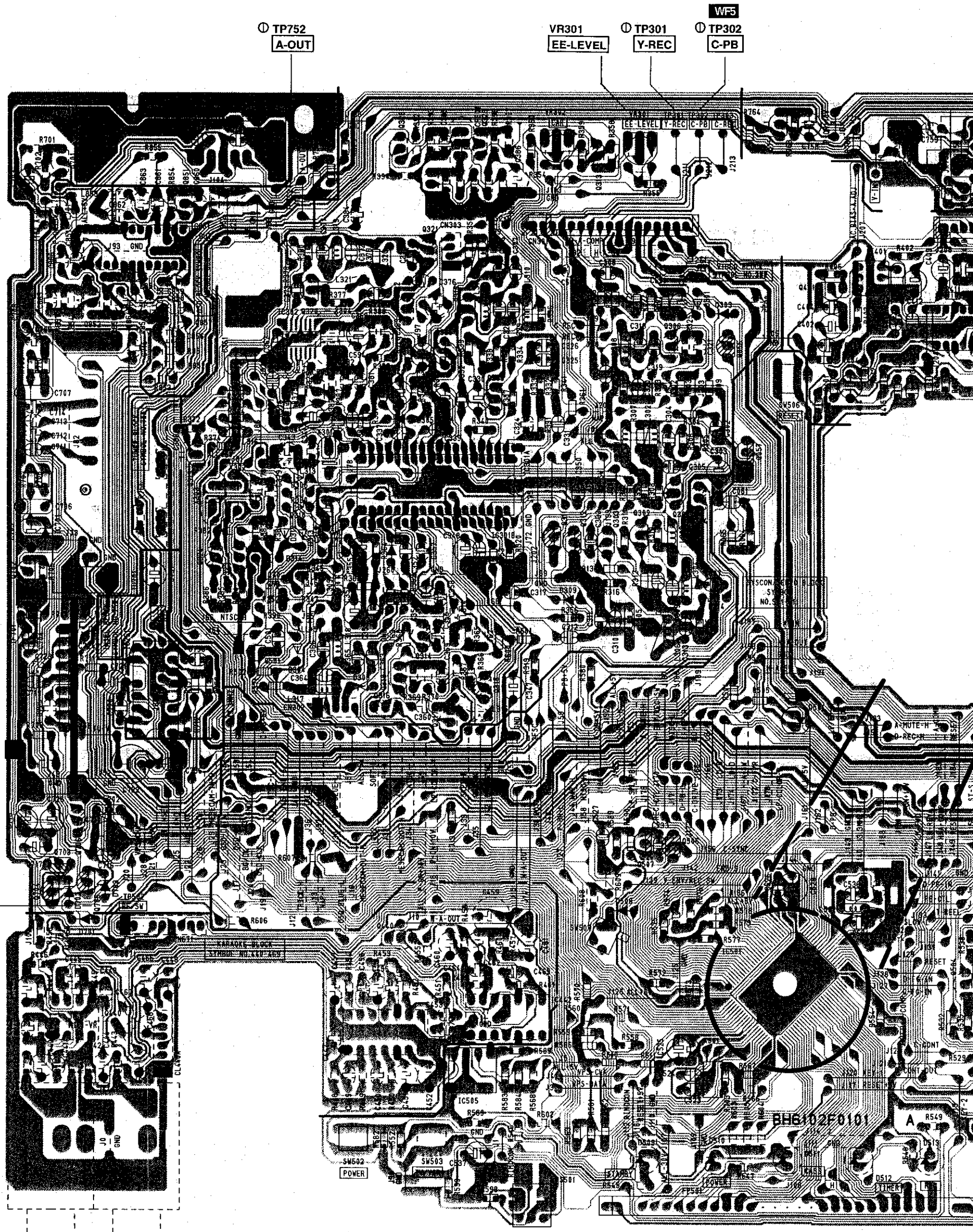
Main CBA Top View
(CBA NO. : BH6102F01011A)

NOTE:

The models covered by this manual employ two exchangeable Main CBAs which have the same parts but have patterns the are slightly different. (One of these two CBAs was provided to improve the production efficiency.) These CBAs can be identified by their CBA numbers that are screened on the lower left-hand conner of the top side. This number reads BH6102F0101 on the bottom line. Screened on top of this line is 1A or 2A, the last segment of the CBA number. when servicing, confirm this number of your unit to see which CBA you should refer to, BH6102F01011A below on these pages or BH6102F01012A following.

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

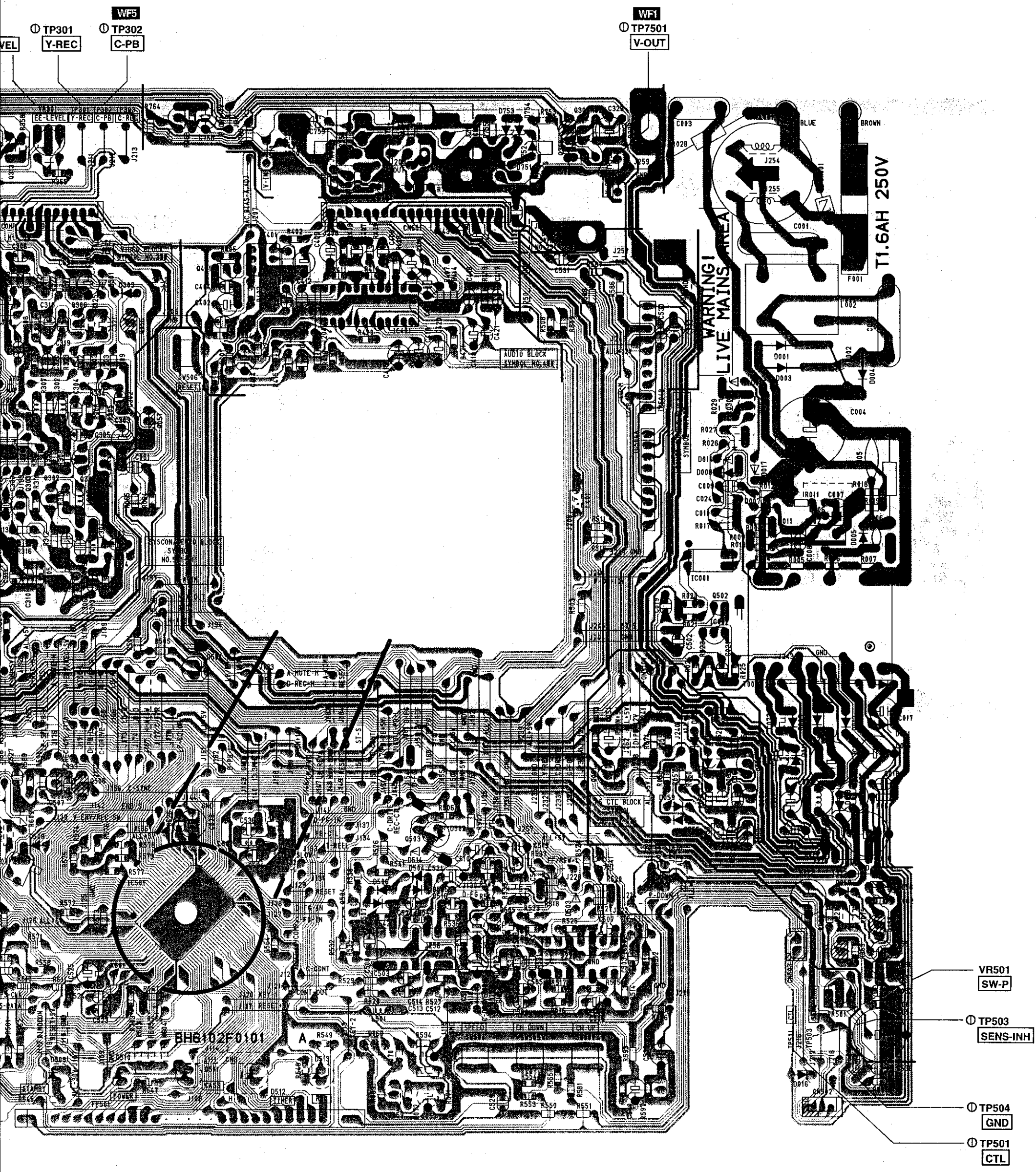
CAUTION
FOR CONTINUED PROT
REPLACE ONLY WITH T



CUIT IS MEASURED USING

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

CAUTION !
Fixed or auto voltage power supply circuit is used in this unit.
If Main Fuse (F01) 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.



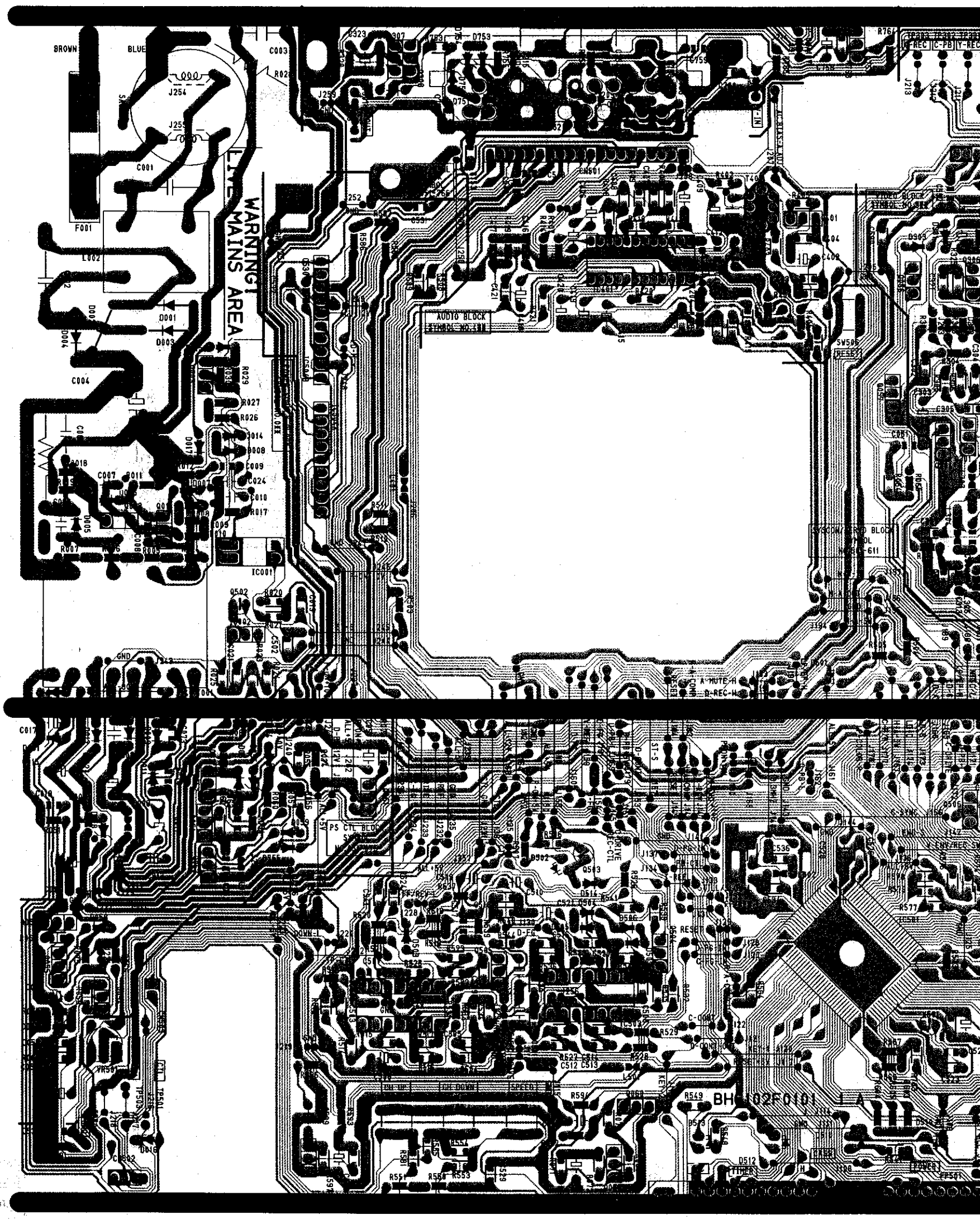
Main CBA Bottom View
(CBA NO. : BH6102F01011A)

NOTE:

The models covered by this manual employ two exchangeable Main CBAs which have the same parts but have patterns the are slightly different. (One of these two CBAs was provided to improve the production efficiency.) These CBAs can be identified by their CBA numbers that are screened on the lower left-hand conner of the top side. This number reads BH6102F0101 on the bottom line. Screened on top of this line is 1A or 2A, the last segment of the CBA number. when servicing, confirm this number of your unit to see which CBA you should refer to, BH6102F01011A below on these pages or BH6102F01012A following.

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

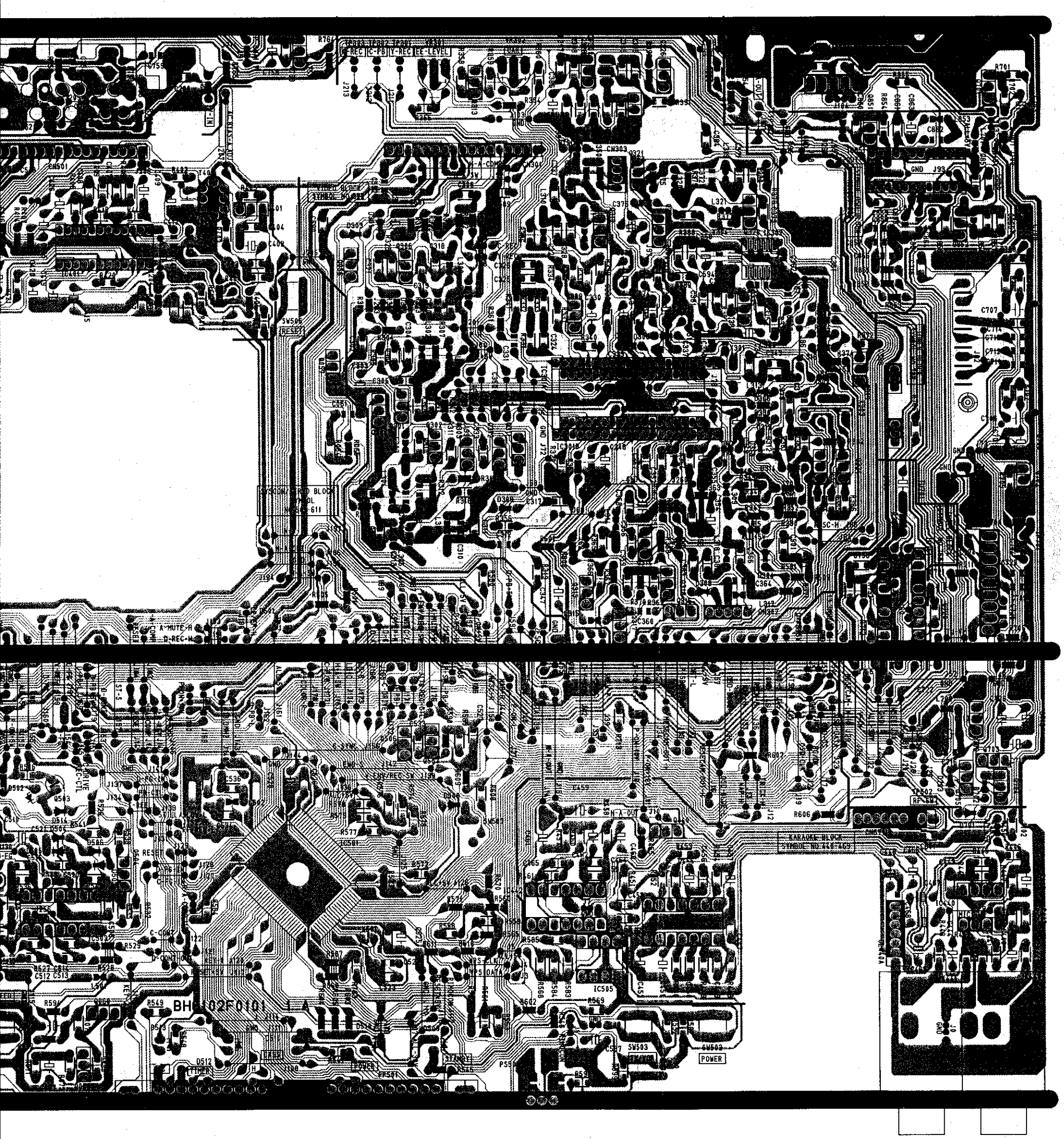
CAUTION
FOR CONTINUED PROTEC
REPLACE ONLY WITH THE



CIRCUIT IS MEASURED USING
L.

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

CAUTION !
Fixed or auto voltage power supply circuit is used in this unit.
If Main Fuse (F01) 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.

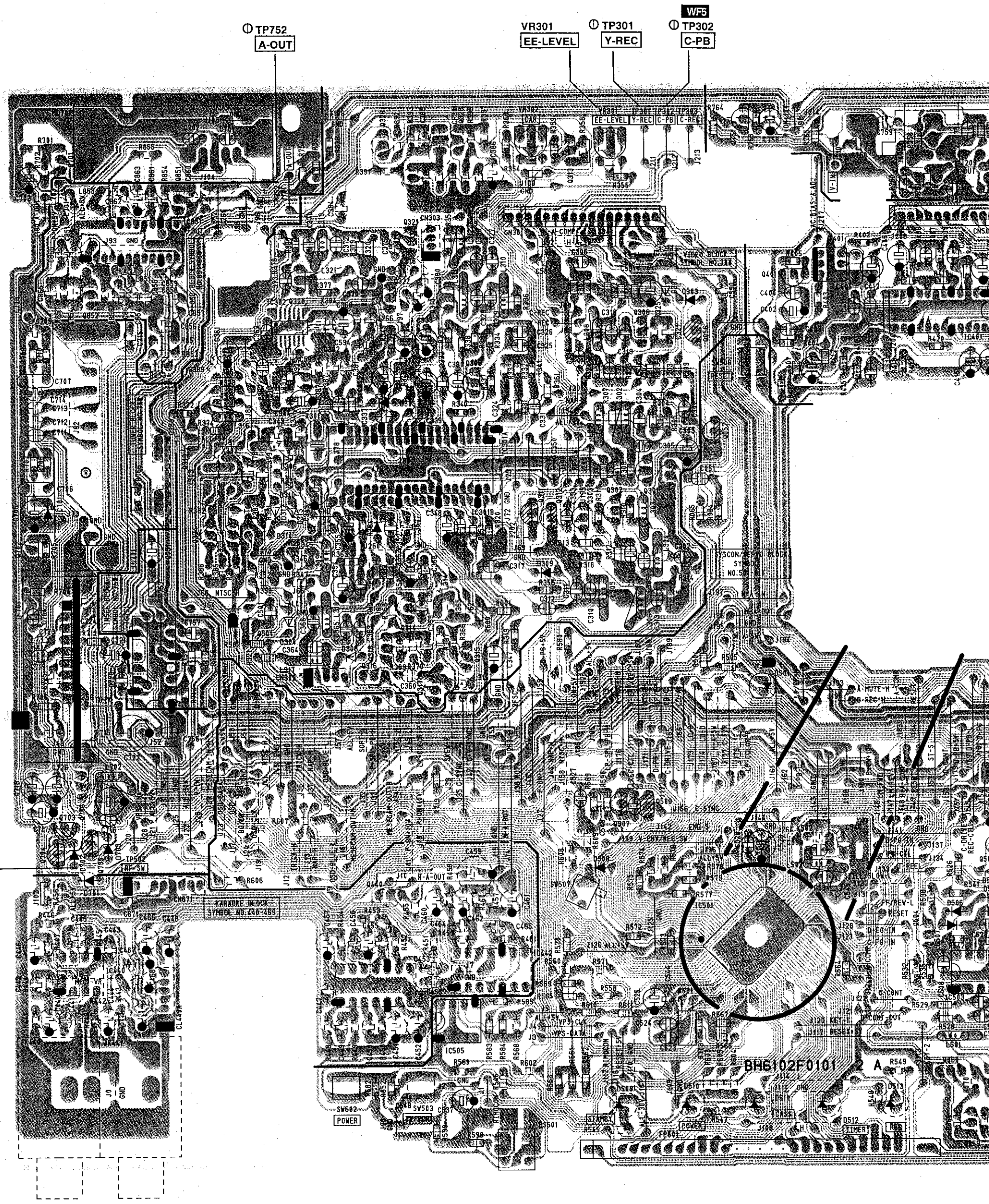


Main CBA Top View
(CBA NO. : BH6102F01012A)

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 or auto voltag
If Main Fuse (F01)
circuit are not defe
Otherwise it may ca

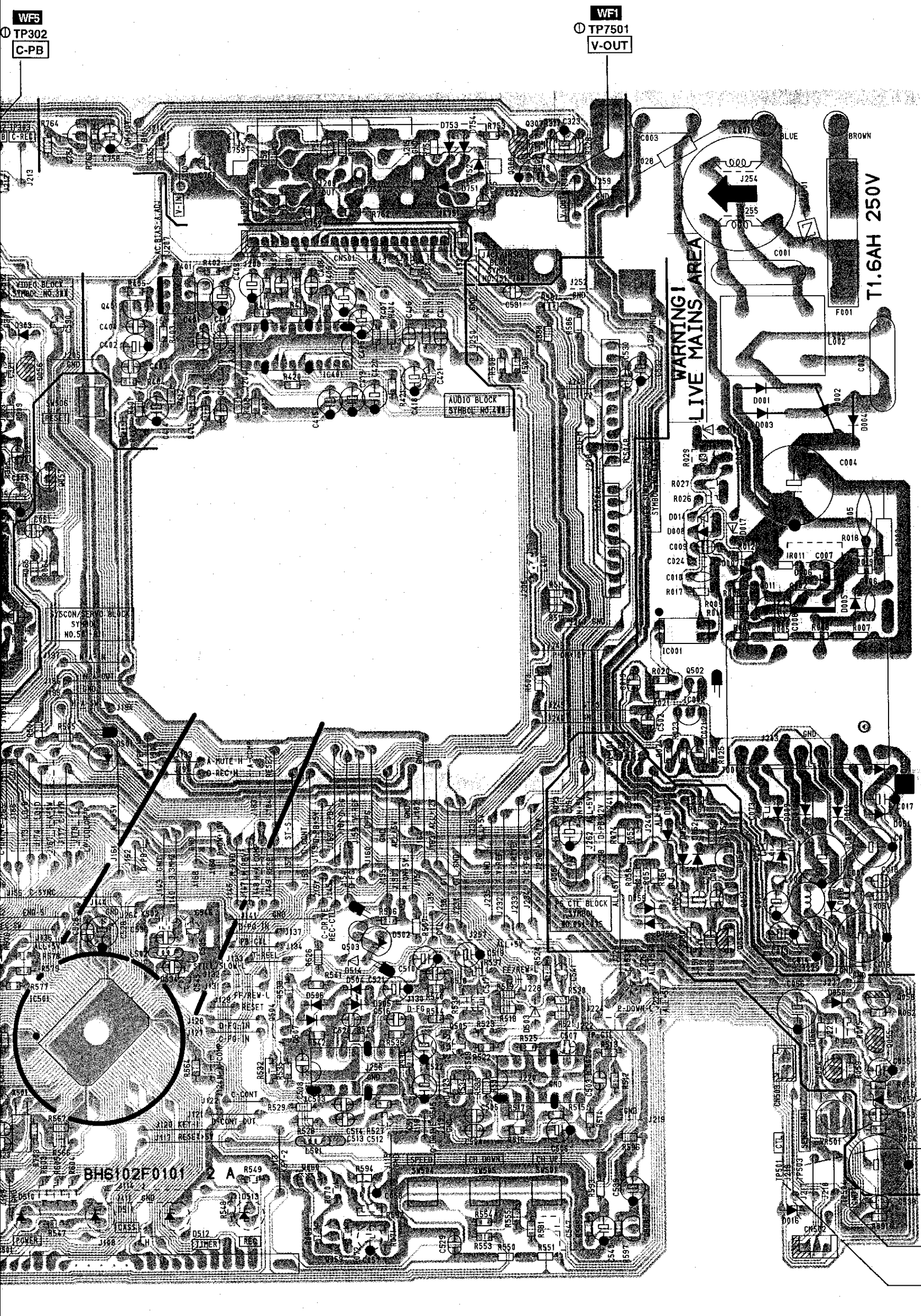


ECTION AGAINST FIRE HAZARD,
HE SAME TYPE FUSE.

CAUTION !
Fixed or auto voltage power supply circuit is used in this unit.
If Main Fuse (F01) 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 models covered by this manual employ two exchangeable Main CBAs whic have the same parts but have patterns the are slightly different. (One of these tw CBAs was provided to improve the production efficiency.) These CBAs can b identified by their CBA numbers that are screened on the lower left-hand conn of the top side. This number reads BH6102F0101 on the bottom line. Screene on top of this line is 1A or 2A, the last segment of the CBA number. when servicin confirm this number of your unit to see which CBA you should refer t BH6102F01012A below on these pages or BH6102F01011A following.



Main CBA Bottom View (CBA NO. : BH6102F01012A)

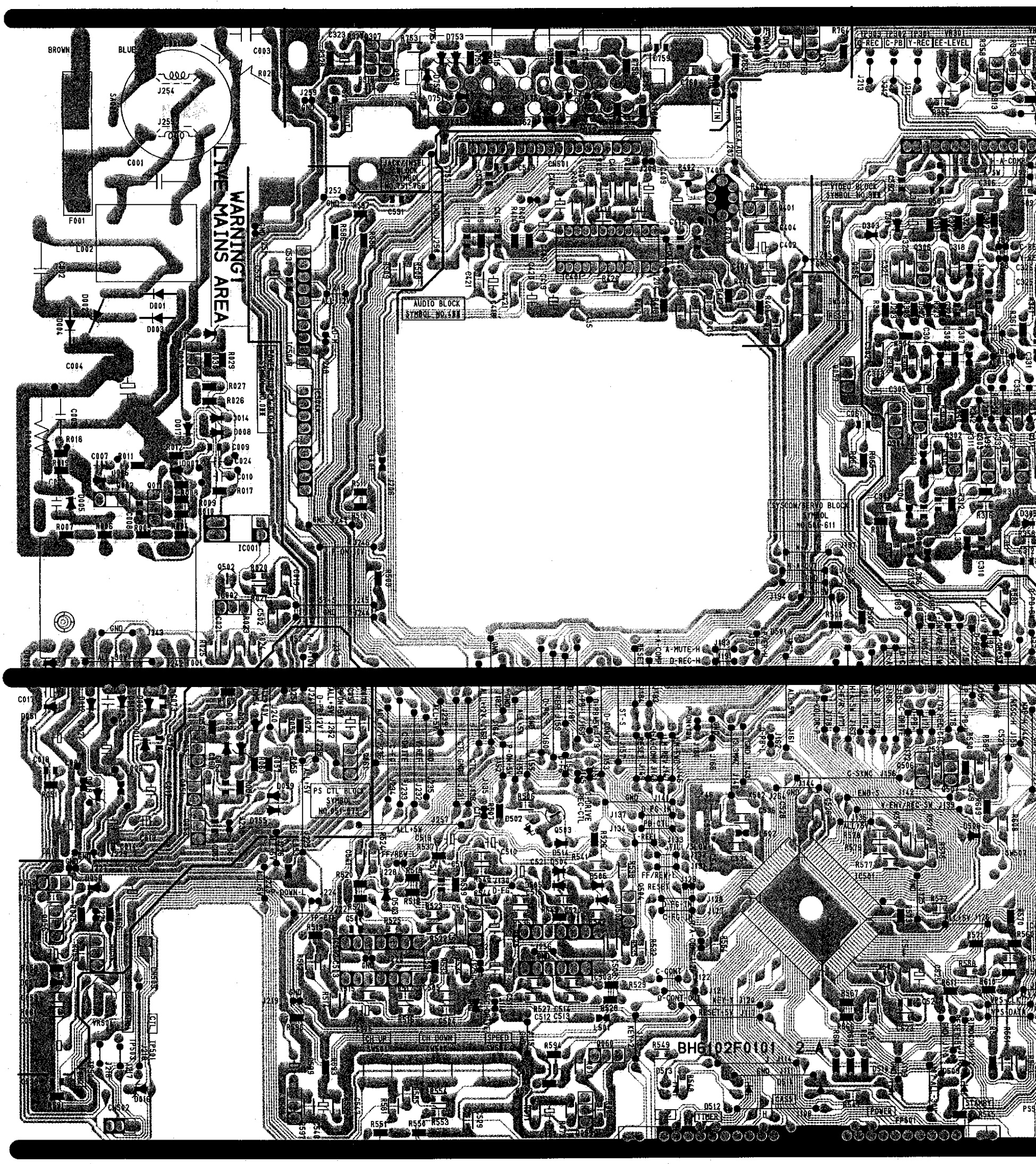
NOTE:

The models covered by this manual employ two exchangeable Main CBAs which have the same parts but have patterns the are slightly different. (One of these two CBAs was provided to improve the production efficiency.) These CBAs can be identified by their CBA numbers that are screened on the lower left-hand conner of the top side. This number reads BH6102F0101 on the bottom line. Screened on top of this line is 1A or 2A, the last segment of the CBA number. when servicing, confirm this number of your unit to see which CBA you should refer to, BH6102F01012A below on these pages or BH6102F01011A following.

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 or auto
If Main Fuse (
circuit are not
Otherwise it m

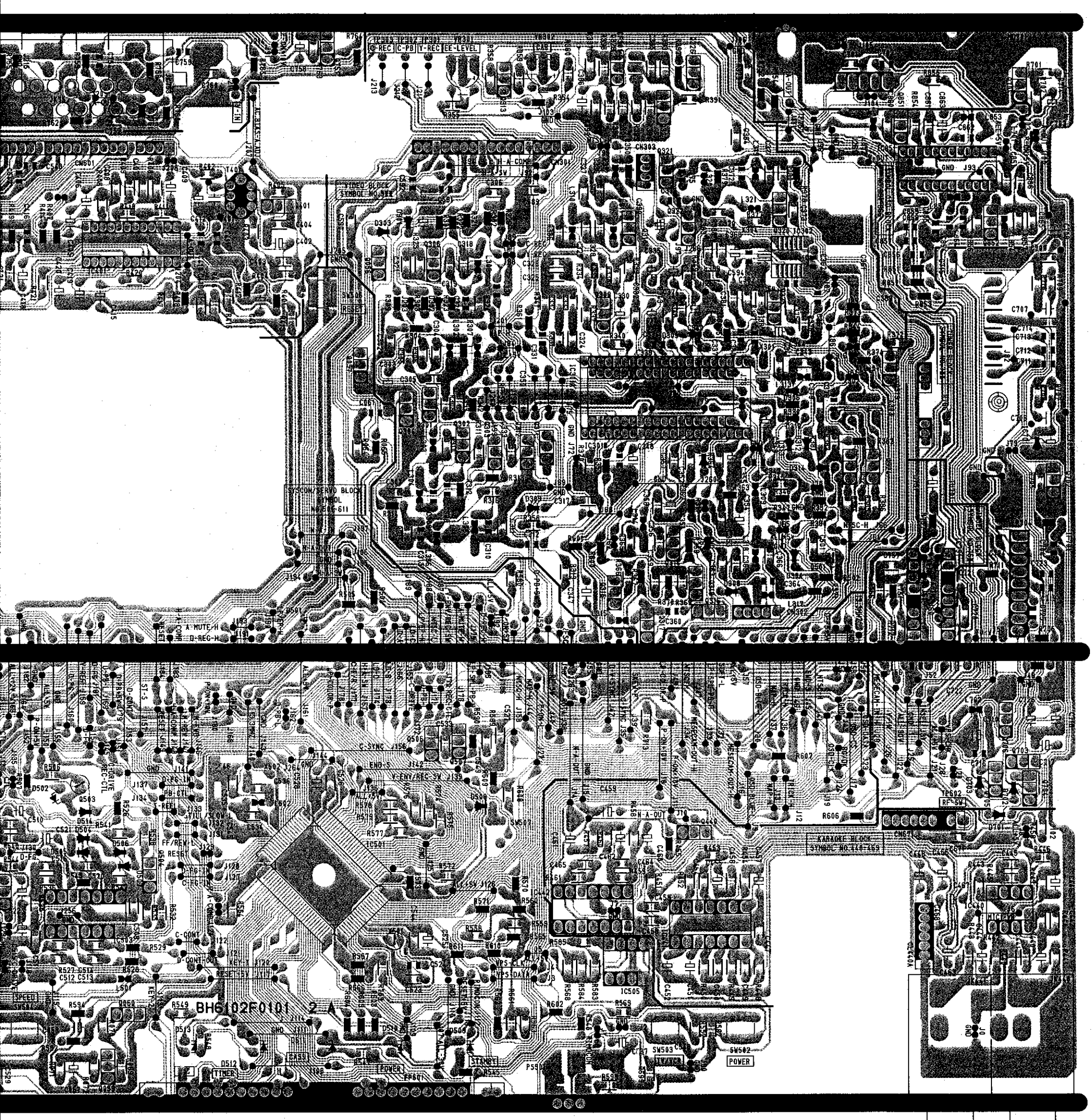


wo exchangeable Main CBAs which
e slightly different. (One of these two
ion efficiency.) These CBAs can be
eened on the lower left-hand conner
F0101 on the bottom line. Screened
of the CBA number. when servicing,
which CBA you should refer to,
3H6102F01011A following.

S MEASURED

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

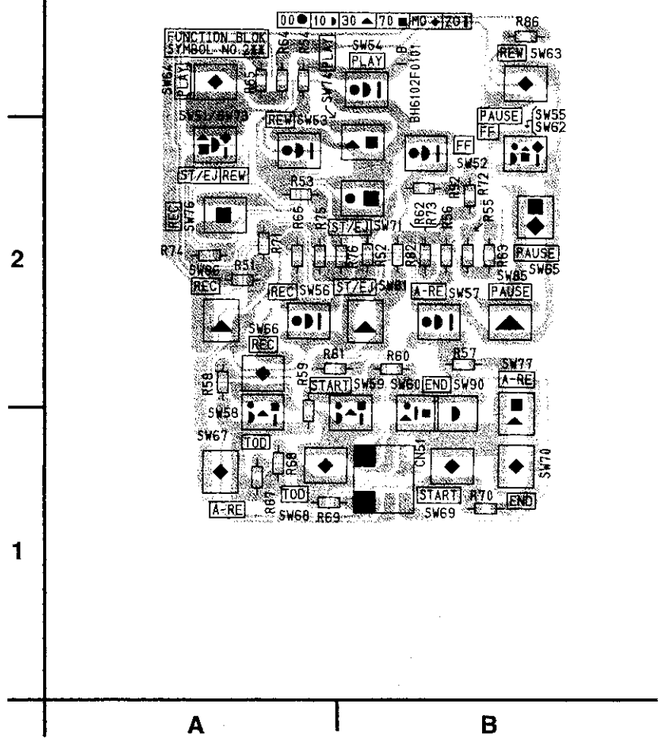
CAUTION !
Fixed or auto voltage power supply circuit is used in this unit.
If Main Fuse (F01) is blown, check to see that all components in the power supply circuit are not defective before you connect the AC plug to the AC power supply. Otherwise it may cause some components in the power supply circuit to fail.



Function CBA Top View
(CBA NO. : BH6102F01011B)

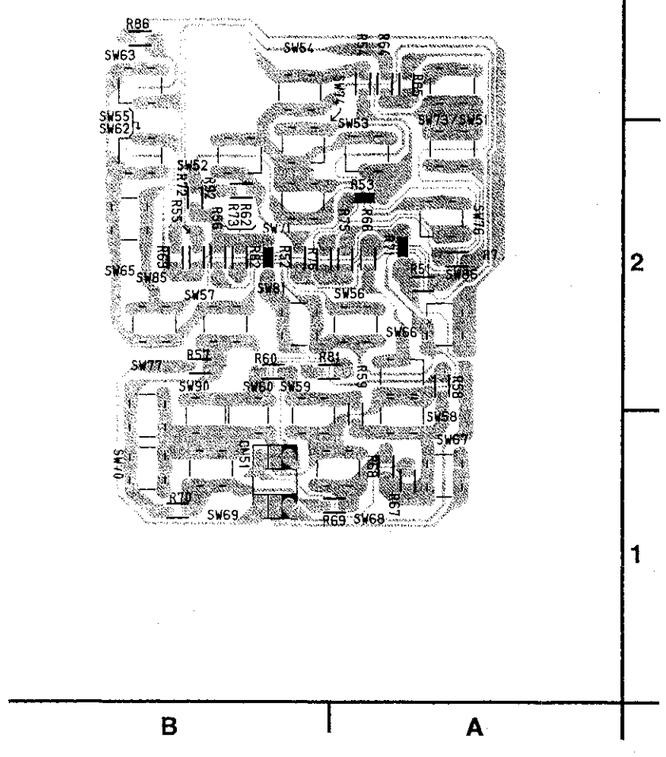
NOTE:

The models covered by this manual employ two exchangeable Function CBAs which have the same parts but have patterns the are slightly different. (One of these two CBAs was provided to improve the production efficiency.) These CBAs can be identified by their CBA numbers that are screened on the lower left-hand conner of the top side. This number reads BH6102F0101 on the bottom line. Screened on top of this line is 1B or 2B, the last segment of the CBA number. when servicing, confirm this number of your unit to see which CBA you should refer to, BH6102F01011B below on these pages or BH6102F01012B following.



1-8-33

Function CBA Bottom View
(CBA NO. : BH6102F01011B)



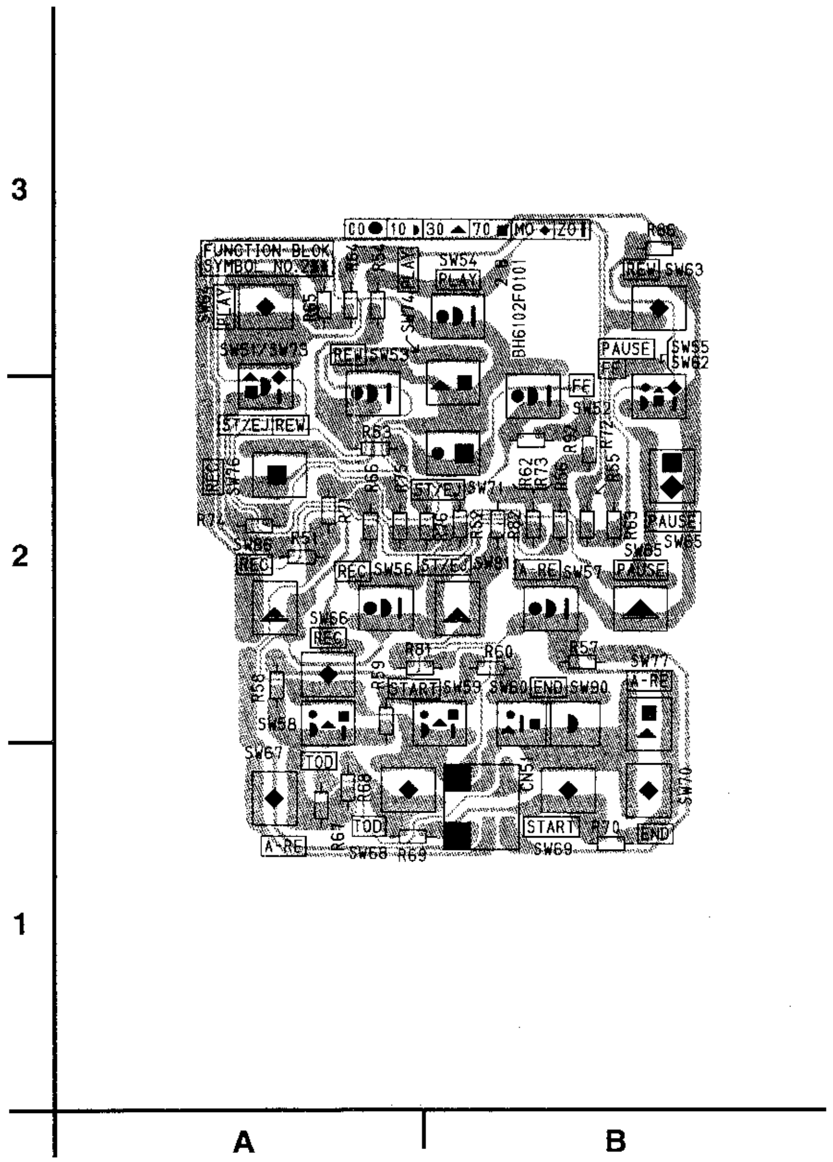
BH6102F01011B

1-8-34

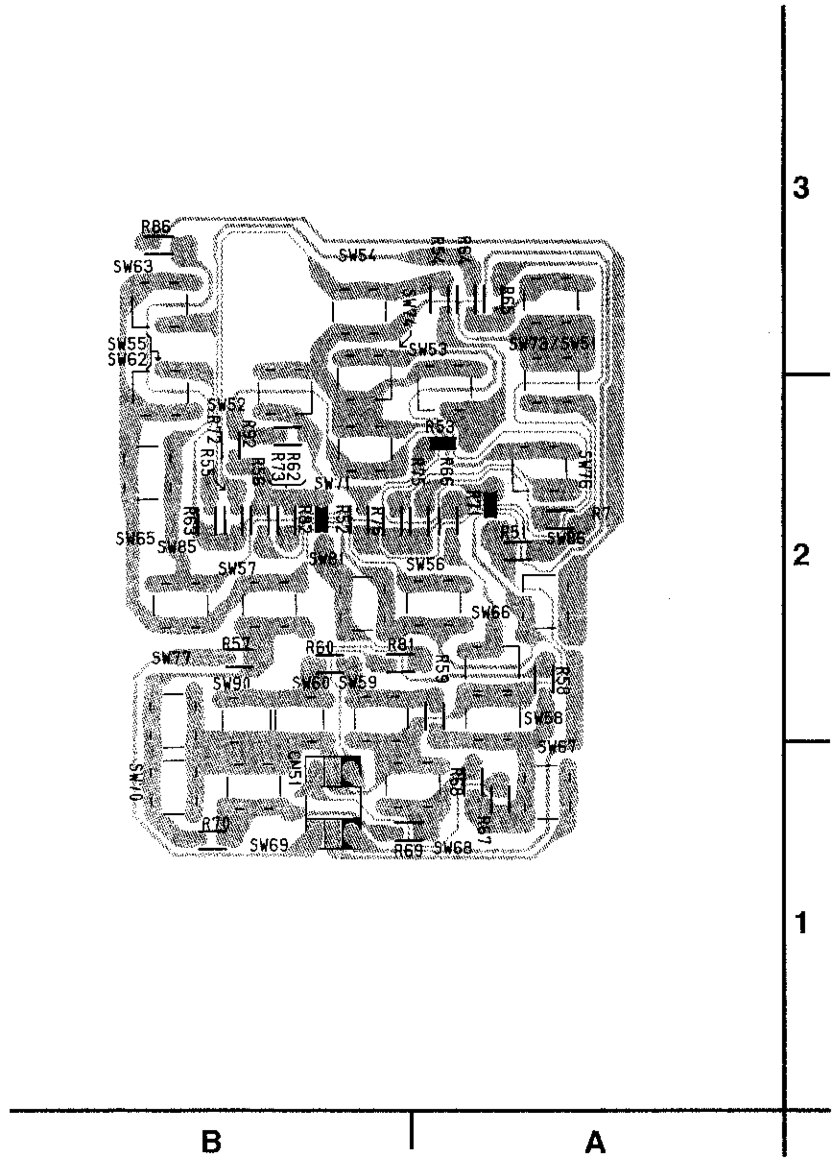
Function CBA Top View
(CBA NO. : BH6102F01012B)

NOTE:

The models covered by this manual employ two exchangeable Function CBAs which have the same parts but have patterns the are slightly different. (One of these two CBAs was provided to improve the production efficiency.) These CBAs can be identified by their CBA numbers that are screened on the lower left-hand conner of the top side. This number reads BH6102F0101 on the bottom line. Screened on top of this line is 1B or 2B, the last segment of the CBA number. when servicing, confirm this number of your unit to see which CBA you should refer to, BH6102F01012B below on these pages or BH6102F01011B following.

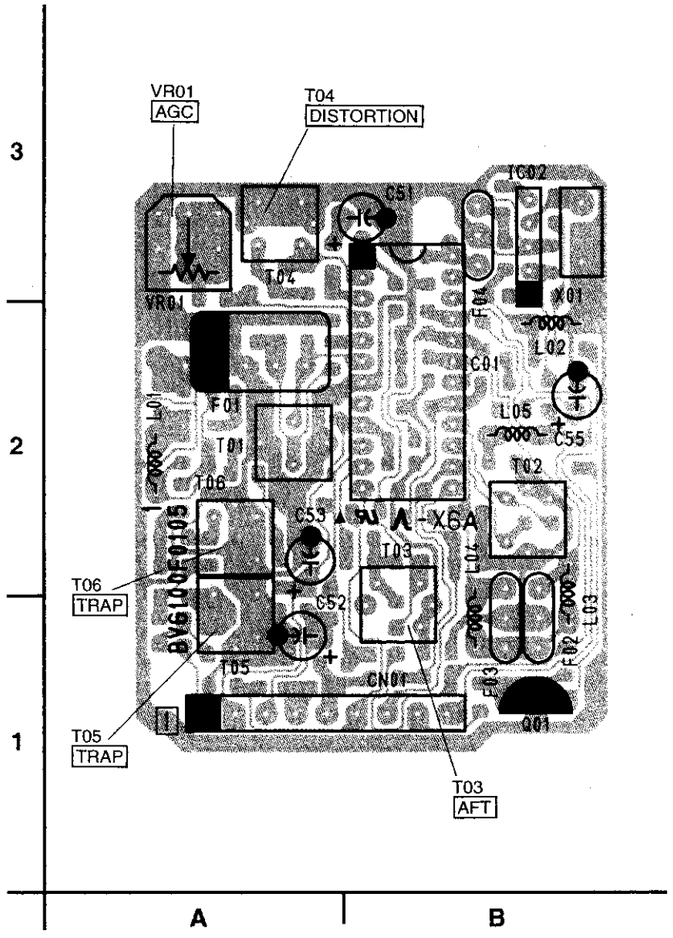


Function CBA Bottom View
(CBA NO. : BH6102F01012B)

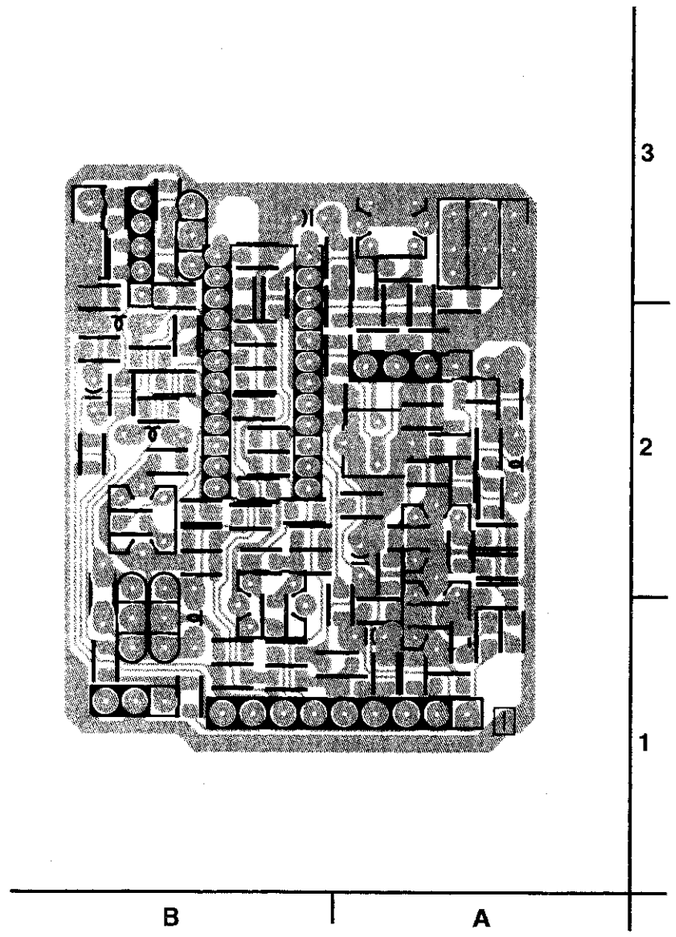


BH6102F01012B

IF CBA Top View



IF CBA Bottom View

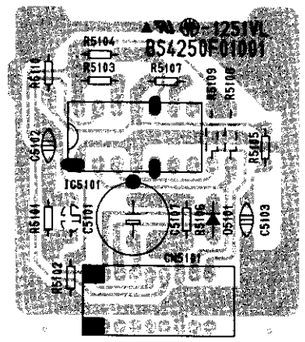


BV6100F01051

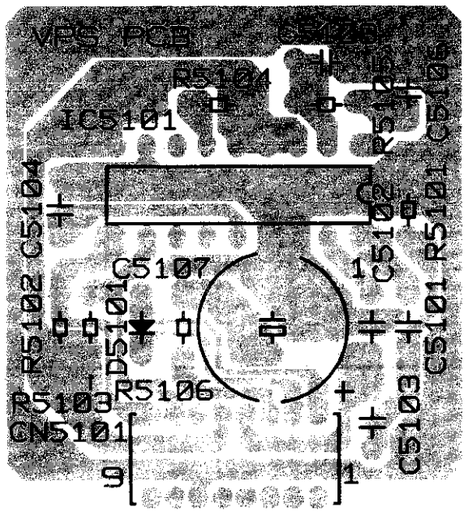
NOTE:

The models covered by this manual employ two exchangeable VPS CBAs but parts and patterns are quite different. (One of these two CBAs was provided to improve the production efficiency.)These CBAs can be identified by their CBA numbers that are screened on the upper right-hand conner of the top side. this number reads BS4250F01001 on the top line. when servicing, confirm this number of your unit to see which CBA you should refer. If the CBA number is not showing on the top line. This is identified as BK8036F01A01.

VPS Top View (B, D)
CBA NO. : BS4250F01001



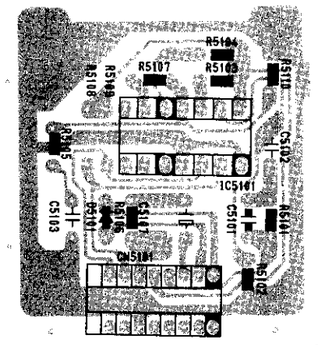
VPS Top View (B, D)
CBA NO. : BK8036F01A01



Comparison Chart of Models and Marks

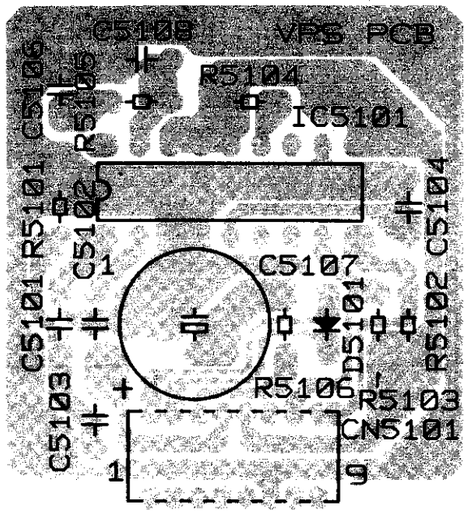
MODEL	MARK	MODEL	MARK
13A-109	A	13A-509	C
13A-129	B	13A-529	D

VPS Bottom View (B, D)
CBA NO. : BS4250F01001



BS4250F01001

VPS Bottom View (B, D)
CBA NO. : BK8036F01A01

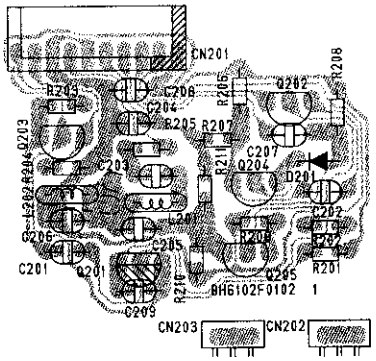


BK8036F01A01

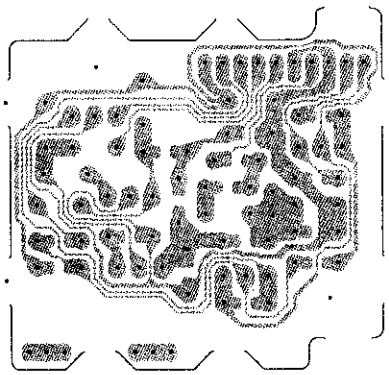
CSV CBA Top View (C, D)

Comparison Chart of Models and Marks

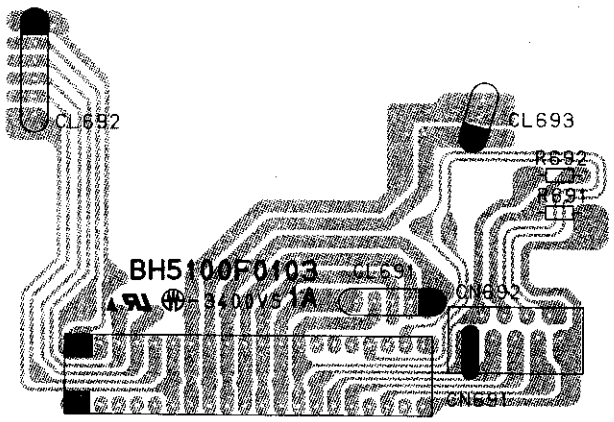
MODEL	MARK	MODEL	MARK
13A-109	A	13A-509	C
13A-129	B	13A-529	D



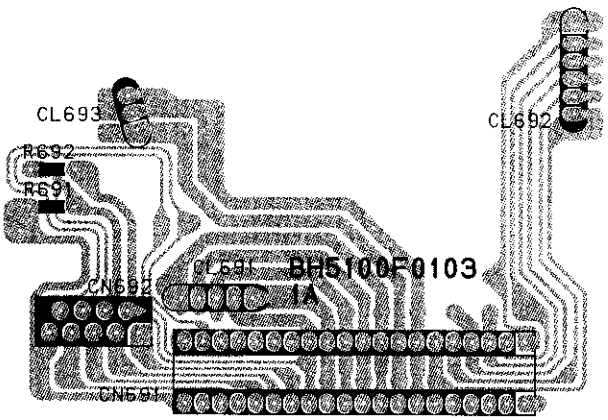
CSV CBA Bottom View (C, D)



Joint CBA Top View



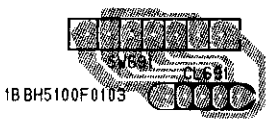
Joint CBA Bottom View



BH5100F0103-1A

Mode Sw CBA Top View

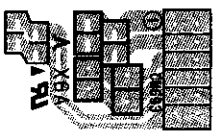
Mode Sw CBA Bottom View



BH5100F0103-1B

Ace Head CBA Top View

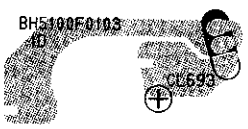
Ace Head CBA Bottom View



BH5100F0103-1C

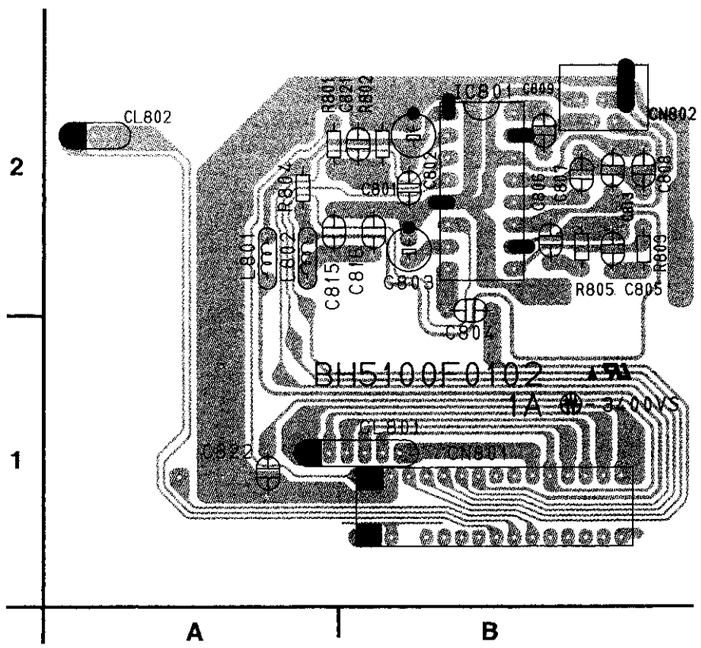
Motor CBA Top View

Motor CBA Bottom View

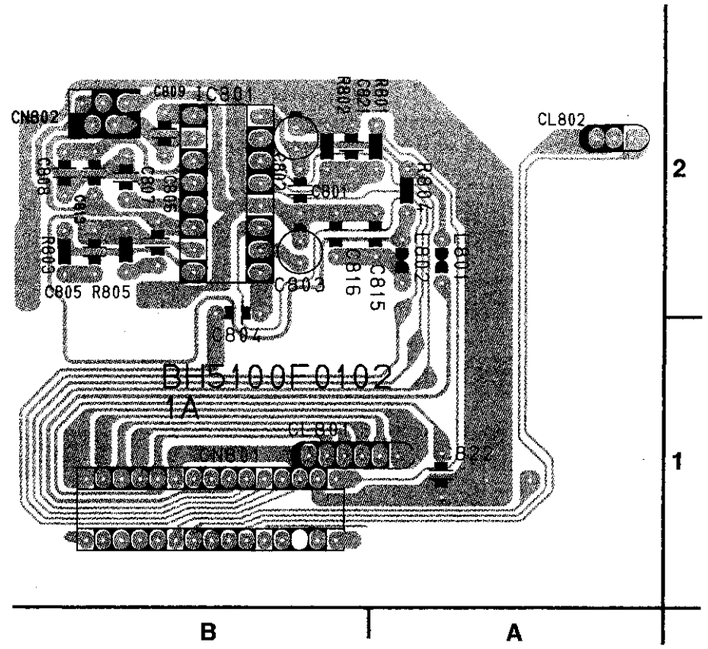


BH5100F0103-1D

Head Amp CBA Top View (A, B)

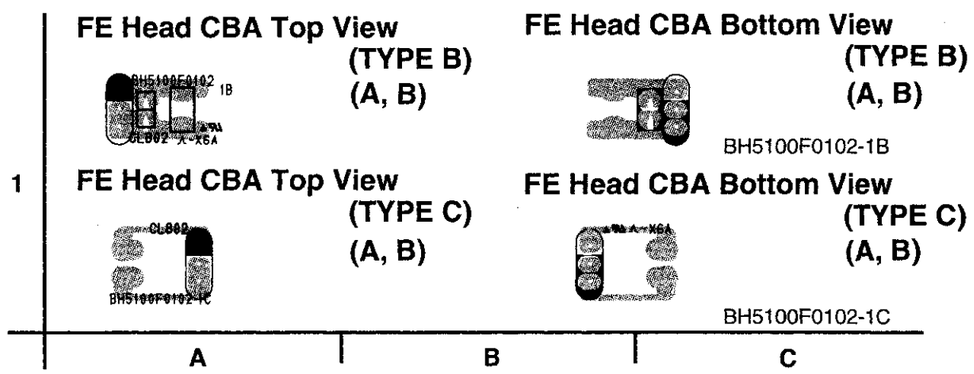


Head Amp CBA Bottom View (A, B)



BH5100F0102-1A

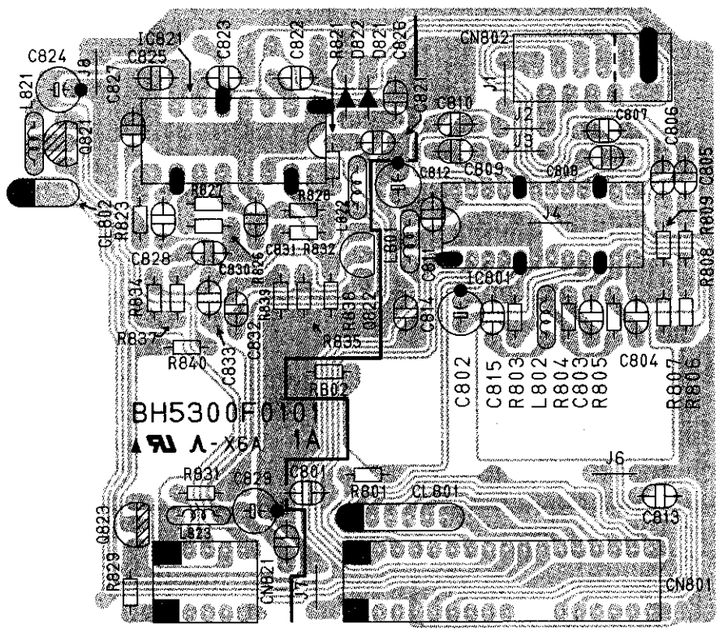
Note: There are two types of FE head CBAs and three types of FE heads. Combinations are made clear in Deck electrical parts list. As long as the combination is correct, all the three types of FE heads are interchangeable.



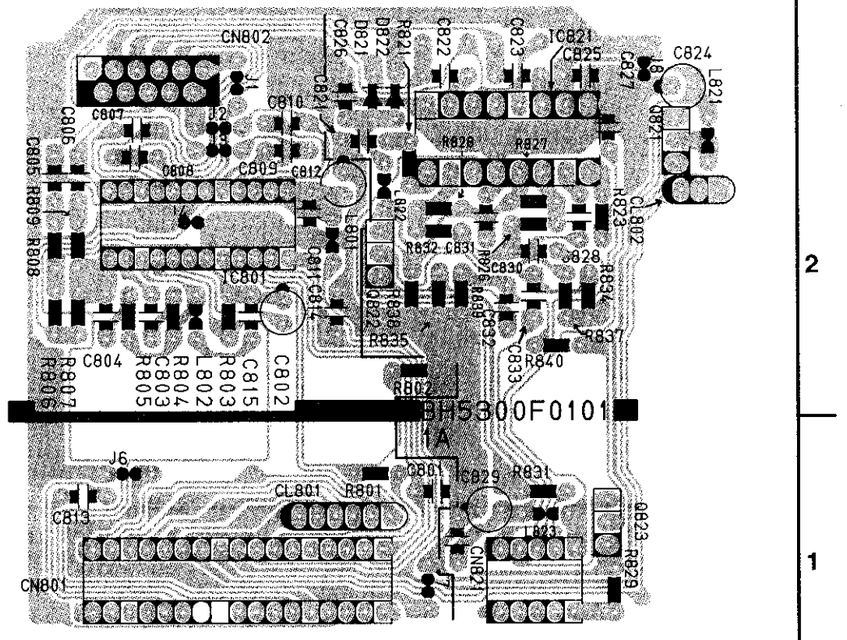
Comparison Chart of Models and Marks

MODEL	MARK	MODEL	MARK
13A-109	A	13A-509	C
13A-129	B	13A-529	D

Head Amp CBA Top View (C,D)



Head Amp CBA Bottom View (C,D)



BH5300F0101-1A

FE Head CBA Top View (C,D) (TYPE B)

FE Head CBA Bottom View (C,D) (TYPE B)

BH5300F0101-1B

FE Head CBA Top View (C,D) (TYPE C)

FE Head CBA Bottom View (C,D) (TYPE C)

BH5300F0101-1C

1

A B C

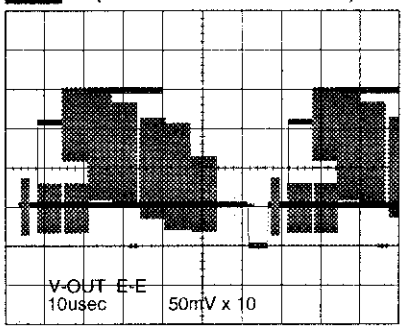
Note: There are two types of FE head CBAs and three types of FE heads. Combinations are made clear in Deck electrical parts list. As long as the combination is correct, all the three types of FE heads are interchangeable. The digit "3" is abbreviated in a reference number screened on CBAs. For example, CL802 on CBA is in fact CL3802.

Comparison Chart of Models and Marks

MODEL	MARK	MODEL	MARK
13A-109	A	13A-509	C
13A-129	B	13A-529	D

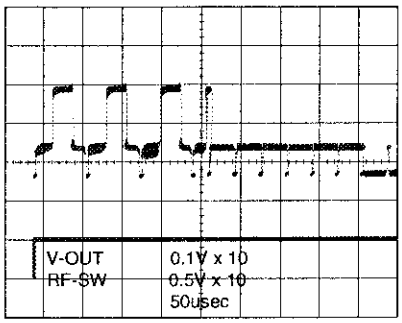
WAVEFORMS

WF 1 (TP7501 of Main CBA)



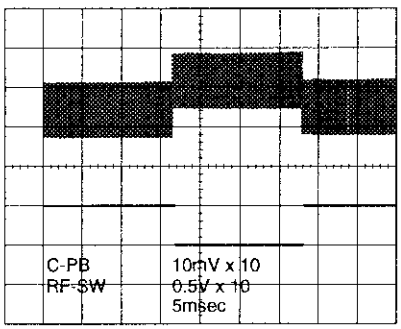
WF1 UPPER (TP7501 of Main CBA)

WF2 LOWER (TP502 of Main CBA)



WF5 UPPER (TP302 of Main CBA)

WF2 LOWER (TP502 of Main CBA)

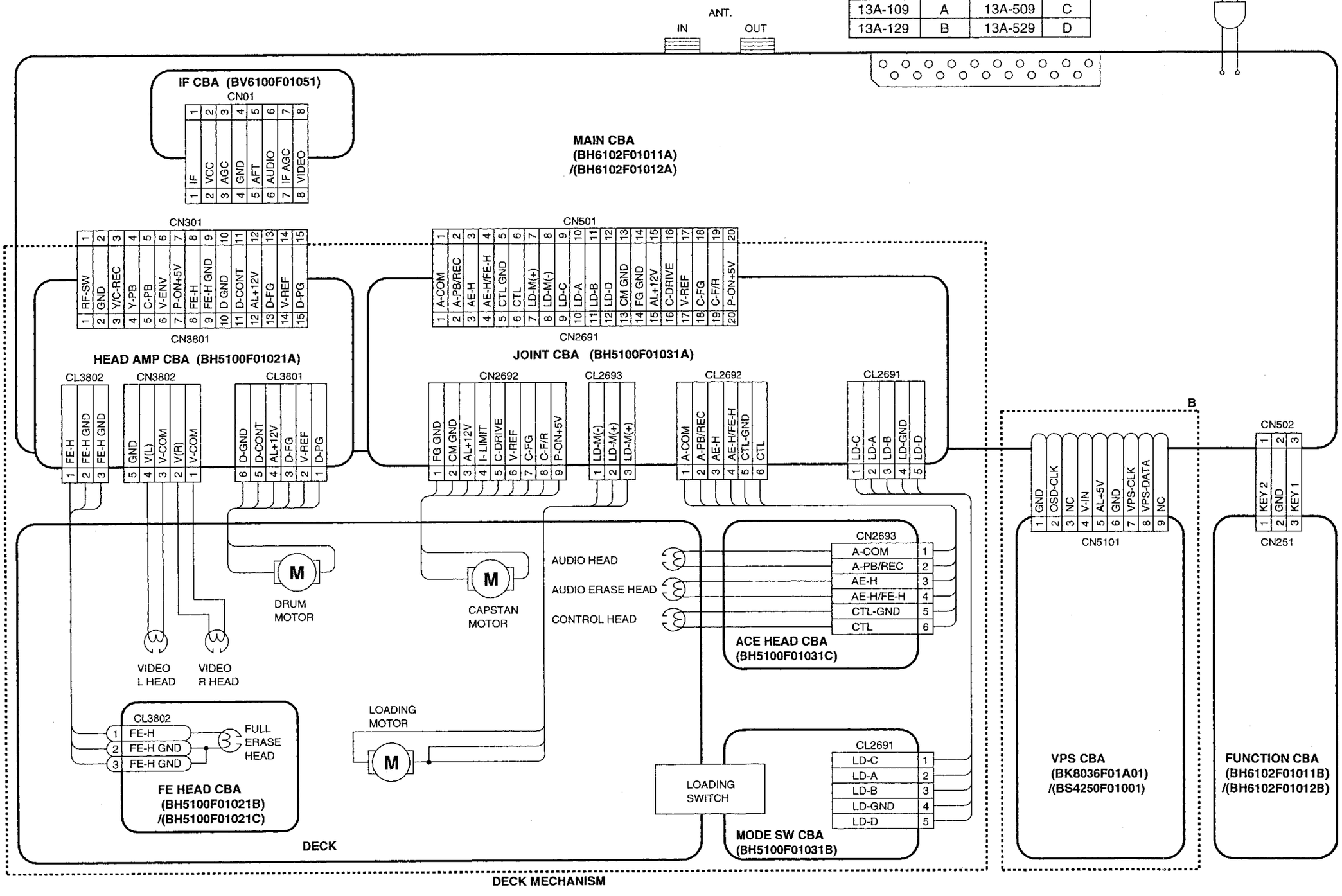


Wiring Diagram (A, B)

WIRING DIAGRAMS

Comparison Chart of Models and Marks

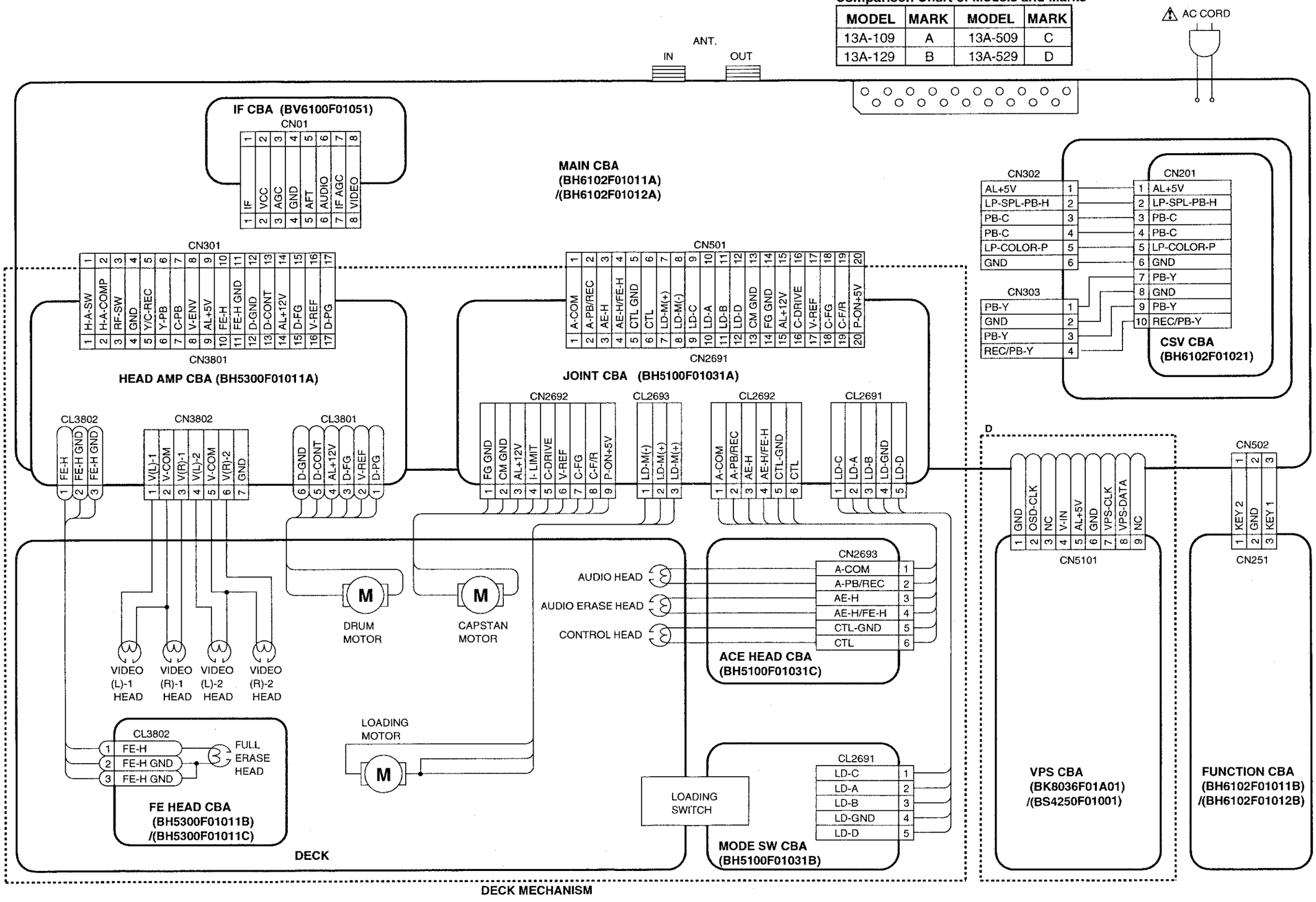
MODEL	MARK	MODEL	MARK
13A-109	A	13A-509	C
13A-129	B	13A-529	D



Wiring Diagram (C, D)

Comparison Chart of Models and Marks

MODEL	MARK	MODEL	MARK
13A-109	A	13A-509	C
13A-129	B	13A-529	D



SYSTEM CONTROL TIMING CHARTS

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

LD-SW				Symbol	
LD-A	LD-B	LD-C	LD-D		
L	H	H	H	EJ	Eject
H	H	H	H	CL	REW Reel
L	L	H	H	SB	Stop (B)
H	L	H	H	TL	Brake Cancel
H	L	L	H	FB	
H	H	L	H	SF	FF / REW, Stop (A)
H	H	L	L	AU	
H	H	H	L	AL	Play / REC (FS Pause 2 Head Still)
H	L	H	L	SS	4 Head Slow / Still
H	H	H	H	GC	Capstan Reversal
L	H	H	L	RS	RS (REV Reel)

Note:

EJ —— RS : Loading FWD (LM-FWD "H", LM-REW "L")

RS —— EJ : Loading REV (LM-FWD "L", LM-REW "H")

Stop (A) = Loading

Stop (B) = Unloading

Note :

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

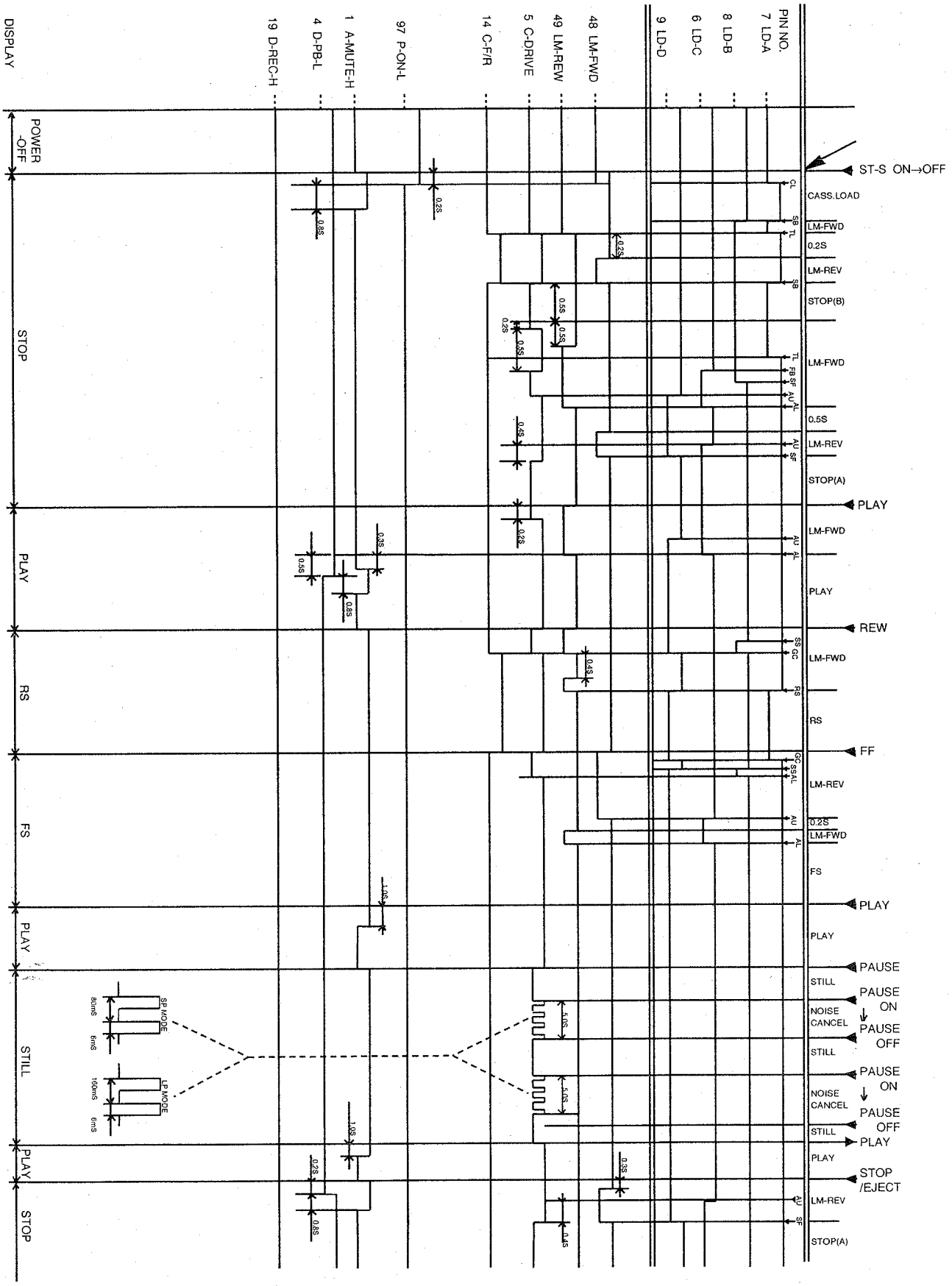
Loading Motor/Control

LM-FWD	LM-REW	Description
H	H	Stop
H	L	Loading Forward Rotation
L	H	Loading Reverse Rotation

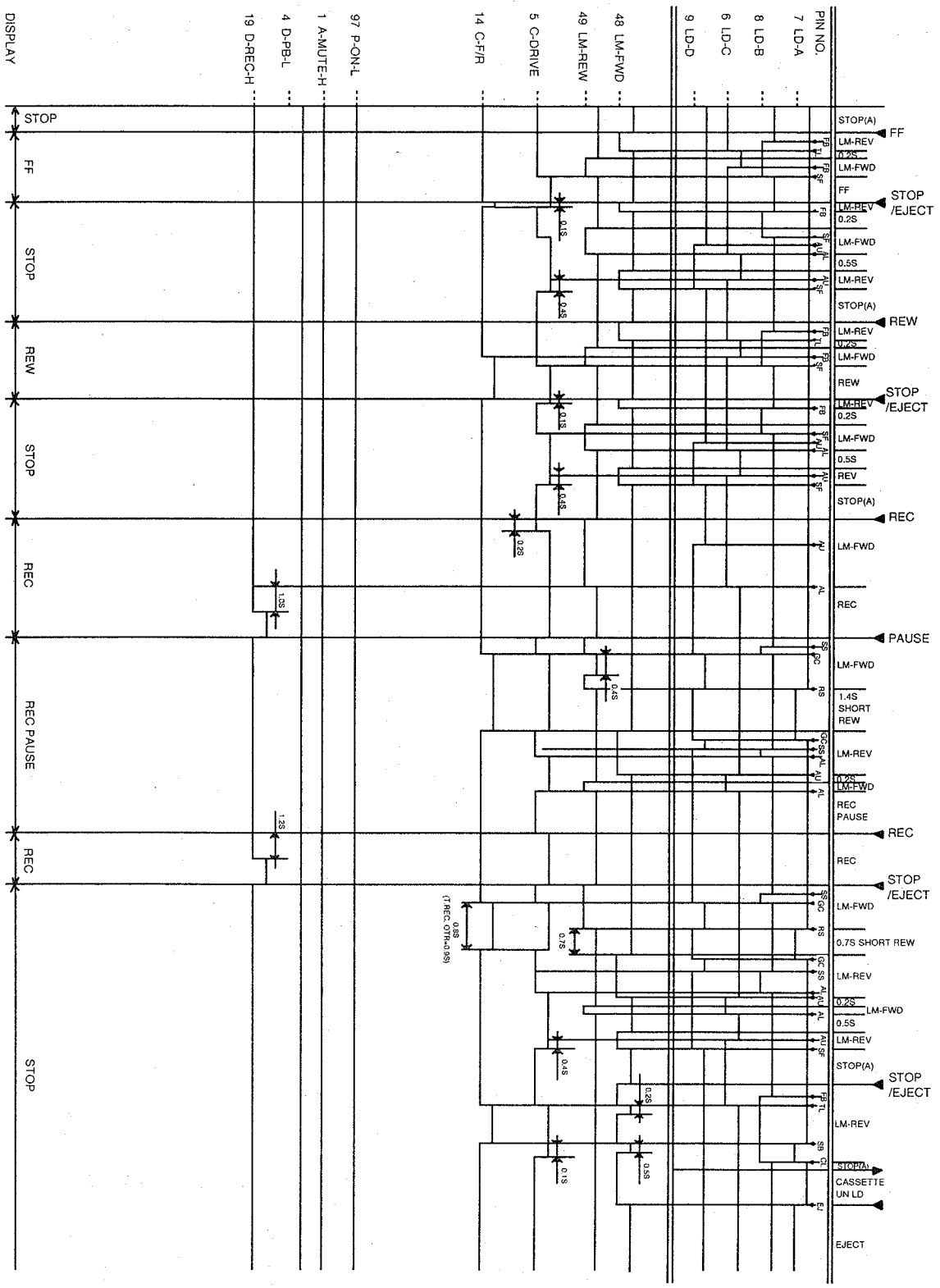
Capstan Motor/Control

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

13A-109 and 13A-129 Models only



13A-109 and 13A-129 Models only



13A-509 and 13A-529 Models only

Still/Slow Control

Frame Advance Timing Chart

1) SP MODE

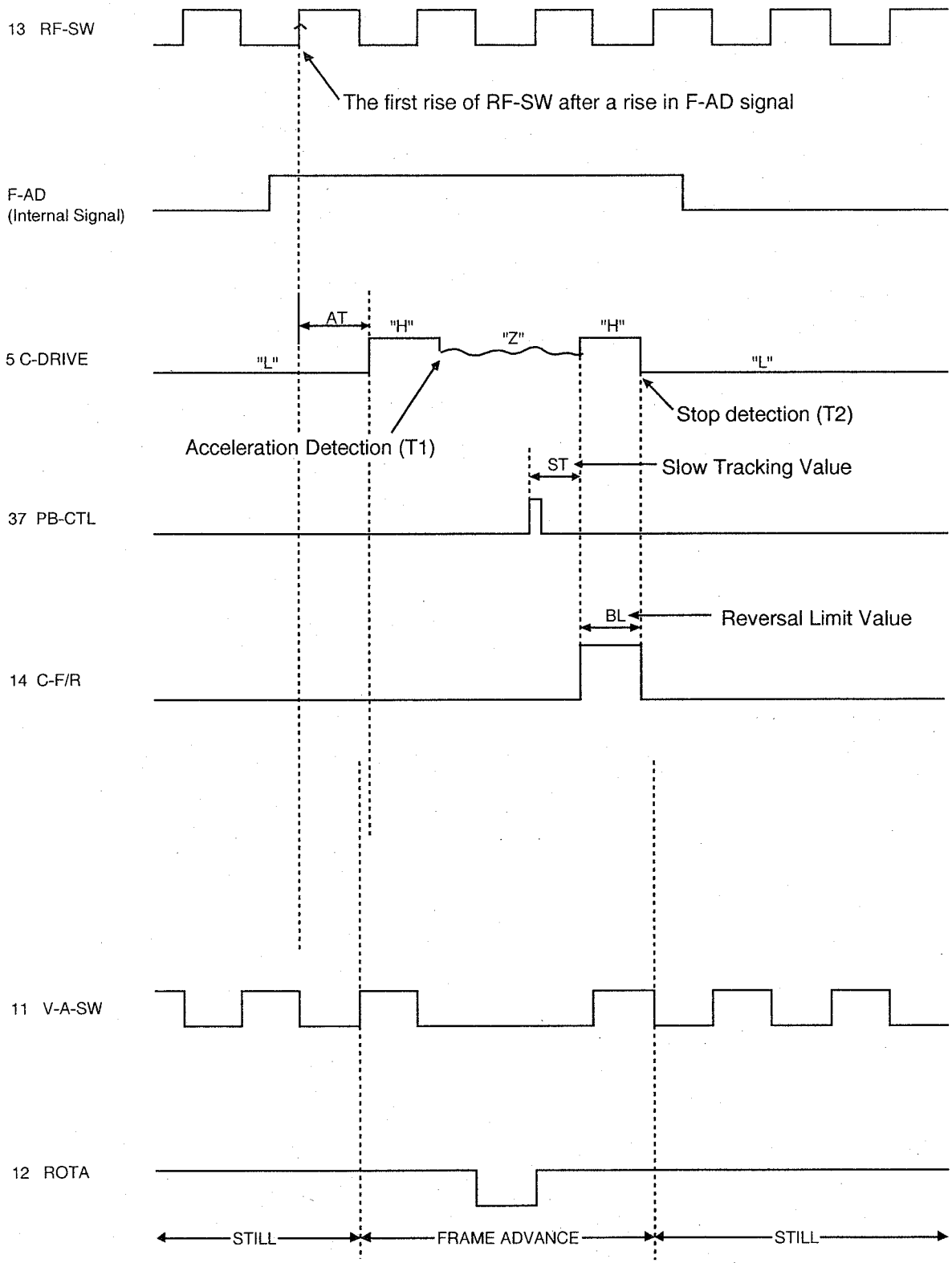


Fig.1

13A-509 and 13A-529 Models only

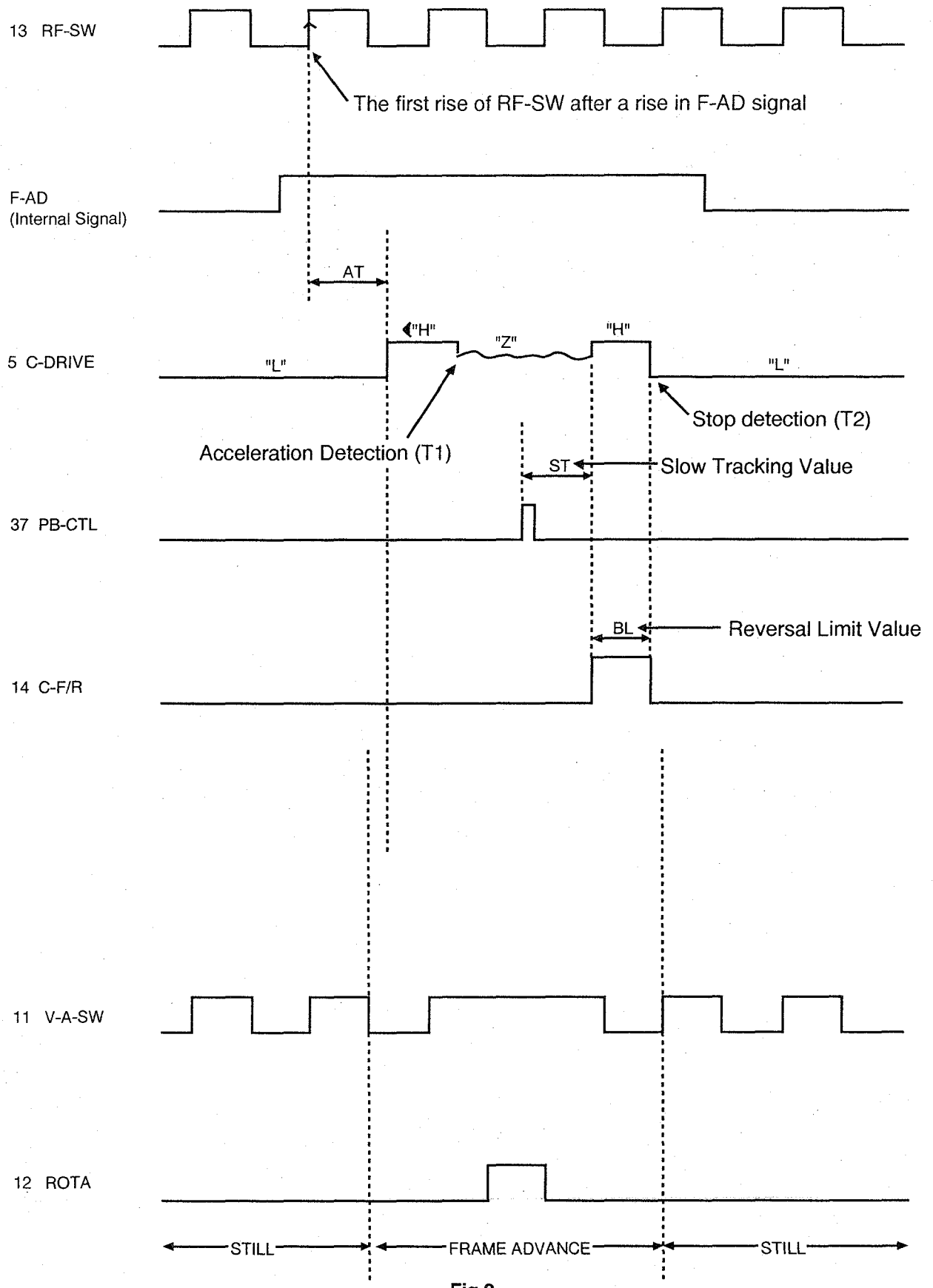
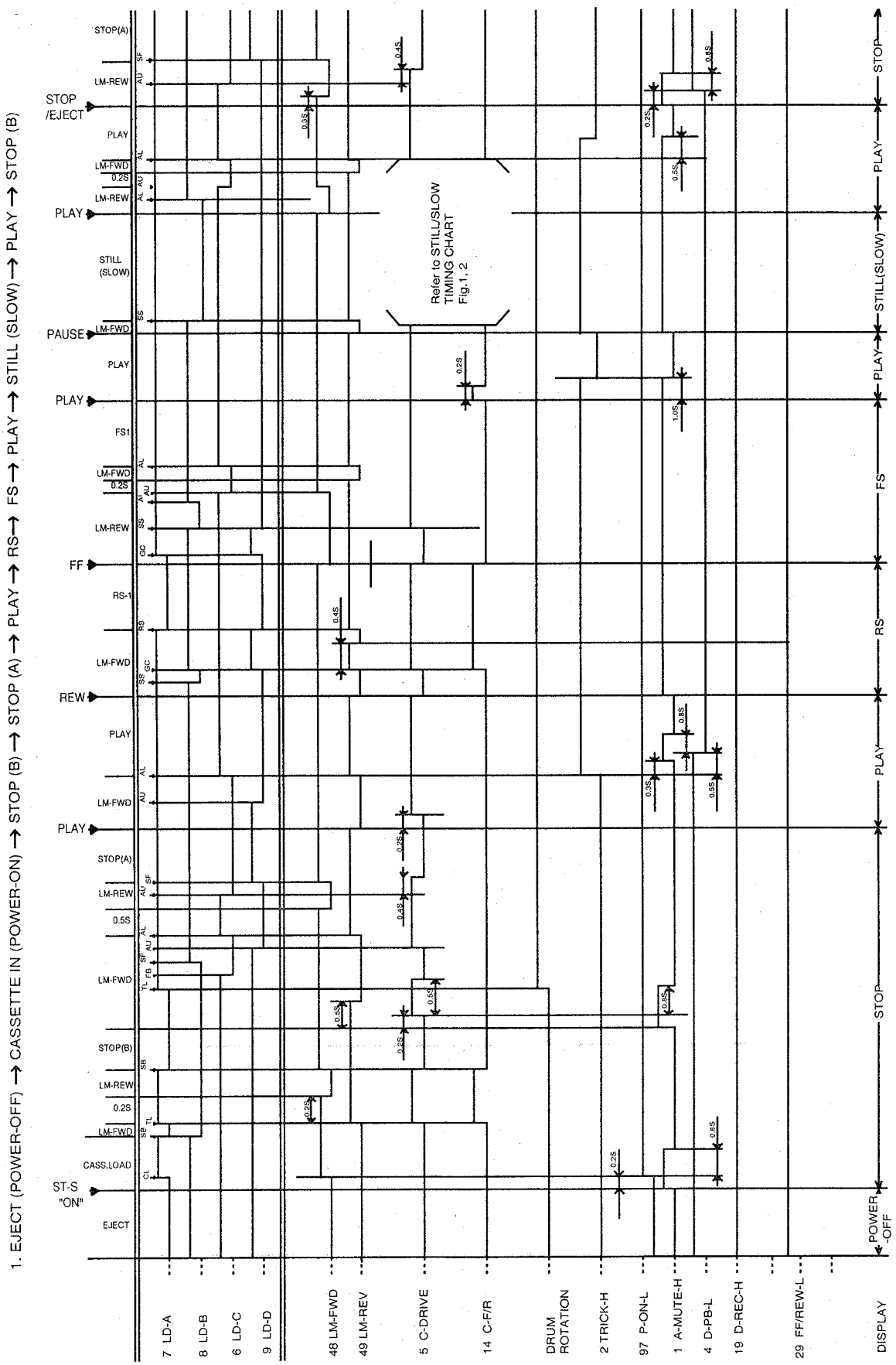
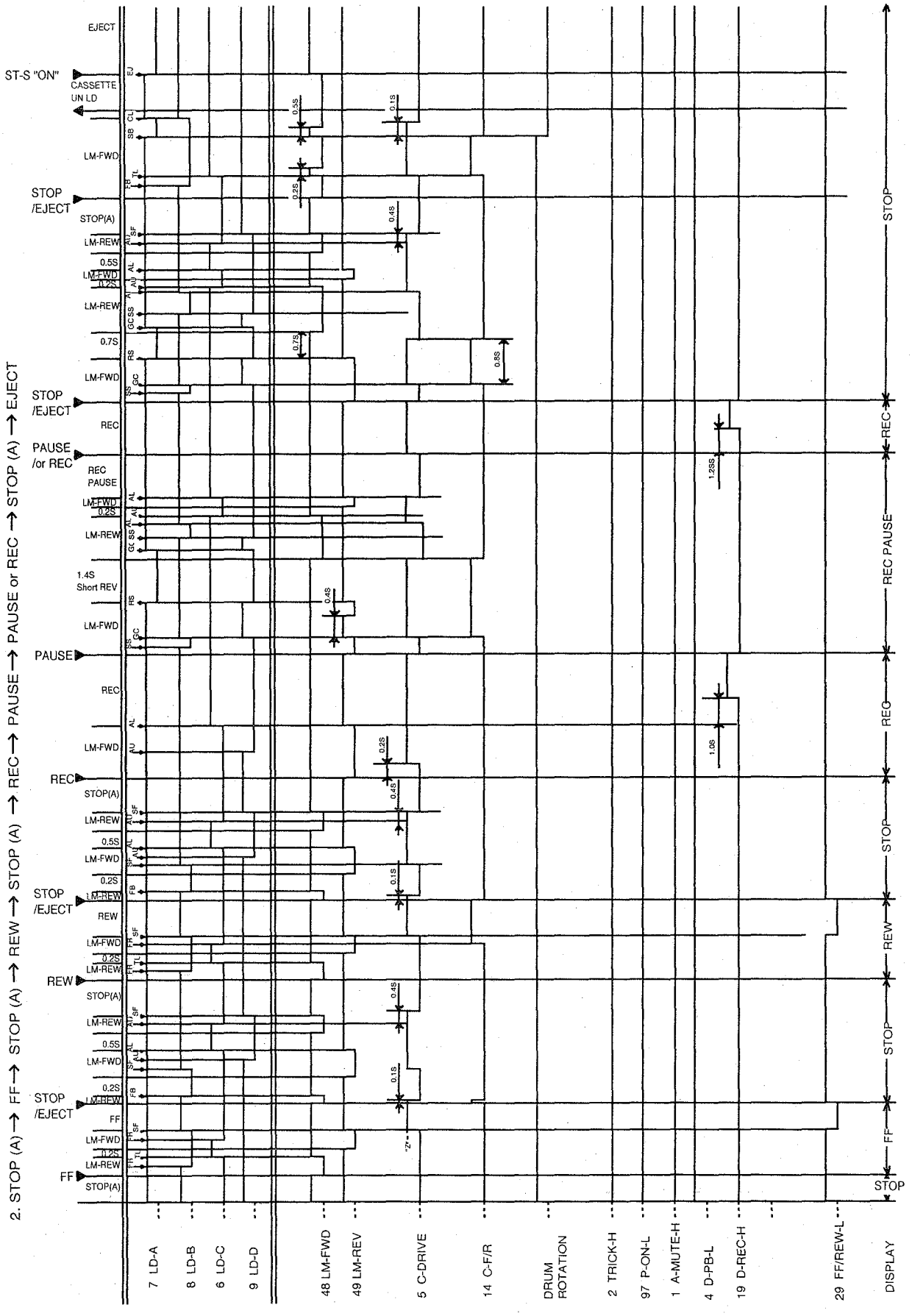


Fig.2

13A-509 and 13A-529 Models only



13A-509 and 13A-529 Models only



IC PIN FUNCTION DESCRIPTION

IC501 (SERVO / SYSTEM CONTROL IC)

"H" ≥ 4.5V, "L" ≤ 1.0V

Comparision Chart of Models and Marks

MODEL	MARK
13A-109	A
13A-129	B
13A-509	C
13A-529	D

Pin No.	Mark	IN/ OUT	Signal Name	Function	Active Level
1		OUT	A-MUTE-H	AUDIO Mute Signal Output	H
2	A,B	OUT	LP-SPL-PB-H	Special Effects Playback LP mode = " H " Output	H
	C,D	OUT	TRICK-H	Special Play back="H" Output	H
3		OUT	REC-CTL	REC-CTL	H/L
4		OUT	D-PB-L	D-PB Output	L
5		OUT	C-DRIVE	Capstan Drive Output	H/ Hi-Z
6		IN	LD-C	Loading SW C Input	H/L
7		IN	LD-A	Loading SW A Input	H/L
8		IN	LD-B	Loading SW B Input	H/L
9		IN	LD-D	Loading SW D Input	H/L
10	A,B	-	N.U.	Not Used	-
	C,D	OUT	SKEW-CORRECTION-P	Not Used	PULSE
11	A,B	-	N.U.	Not Used	-
	C,D	OUT	H-A-SW	Head Amp Select Signal	H/L
12		OUT	ROTA	ROTA Output	H/L
13		OUT	RF-SW	RF-SW Output	H/L
14		OUT	C-F/R	Capstan F/R Output	H/L
15	A,B	-	N.U.	Not Used	-
	C,D	OUT	LP-COLOR-CORRECTION-P	Not Used	PULSE
16		-	N.U.	Not Used(GND)	-
17		OUT	D-V /SYNC	Dummy V-Sync Output	H/ Hi-Z
18		OUT	SD-L	Not Used(GND)	L
19		OUT	D-REC-H	D-REC Output	H
20		OUT	LP-H	LP-H Output	H
21		OUT	NTSC-L	Not Used	L
22		IN	AFC	Tuner AFC Voltage Input	A/D
23		IN	V-ENV/ REC-SW	Video ENV./ REC-SAF-SW Input	A/D
24		IN	END-S	Tape END Position Detect	A/D
25		IN	ST-S	Tape Start Position Detect	A/D
26		IN	DEW	Not Used(GND)	A/D
27		IN	KEY IN-2	A/D Key Data Input	A/D
28		-	AV_{REF}	AV_{REF} A/D Converter Standard Voltage Input (ALL 5V)	-
29		-	AV_{SS}	AV_{SS} A/D for Converter Power (GND)	-
30		-	AV_{DD}	AV_{DD} A/D for Converter Power (Back Up 5V)	-
31		IN	KEY IN-1	A/D Key Data Input	A/D
32		IN	PG-DELAY/ TEST	PG-DELAY	A/D
33		-	N.U.	Not Used	-
34		IN	T-REEL	Take Up Reel Rotation Signal Input	PULSE
35		IN	P-DOWN-L	Power Down Detection Input	L

Pin No.	Mark	IN/ OUT	Signal Name	Function	Active Level
36		IN	C-SYNC	C-SYNC Input	PULSE
37		IN	PB-CTL	PB-CTL Input	PULSE
38		IN	D-PG	D-PG Input	PULSE
39		-	MP	GND	-
40		IN	RESET	System Reset	L
41		-	Vss	Vss (GND)	-
42		-	XTAL	Main Clock 13.300857MHz (IN)	-
43		-	EXTAL	Main Clock	-
44		IN	D-FG	D-FG Input	PULSE
45		IN	C-FG	C-FG Input	PULSE
46	A,B	-	N.U.	Not Used	-
	C,D	OUT	STILL /SLOW-L	STILL/SLOW "L" Output	L
47	A,B	-	N.U.	Not Used	-
	C,D	OUT	FF /REW-L	FF/REW="L"	L
48		OUT	LM-FWD	Loading Motor FWD Output	H
49		OUT	LM-REV	Loading Motor REV Output	H
50		OUT	C-CONT	Capstan Control	PWM
51		OUT	D-CONT	Drum Control	PWM
52		-	N.U.	Not Used(GND)	-
53	A,B	-	N.U.	Not Used(GND)	-
	C,D	IN	H-A-COMP	Head Amp Comparator Input	H/L
54		OUT	G1	Display Digit Output	H
55		OUT	G2	Display Digit Output	H
56		OUT	G3	Display Digit Output	H
57		OUT	G4	Display Digit Output	H
58		OUT	G5	Display Digit Output	H
59		OUT	G6	Display Digit Output	H
60		OUT	G7	Display Digit Output	H

Pin No.	Mark	IN/ OUT	Signal Name	Function	Active Level
61		OUT	G8	Display Digit Output	H
62		OUT	G9	Display Digit Output	H
63		OUT	G10	Display Digit Output	H
64		OUT	A	Display Segment Output	H
65		OUT	B	Display Segment Output	H
66		OUT	C	Display Segment Output	H
67		OUT	D	Display Segment Output	H
68		OUT	E	Display Segment Output	H
69		OUT	F	Display Segment Output	H
70		OUT	G	Display Segment Output	H
71		OUT	H	Display Segment Output	H
72		OUT	I	Display Segment Output	H
73		OUT	J	Display Segment Output	H
74		-	N.U.	Not Used	-
75	A,B	-	N.U.	Not Used	-
	C,D	OUT	NTSC TRICK-H	NTSC Special Play back="H" Output	H
76	A,B	-	N.U.	Not Used	-
	C,D	OUT	LP-SPL-PB-H	Special Effects Playback LP= " H " Output	-
77		OUT	NAP-H	Not Used	H
78		-	-28V	-28V	-
79		-	N.U.	Not Used(+5V)	-
80		-	N.U.	Not Used(+5V)	-
81		-	N.U.	Not Used(+5V)	-
82		IIN	MESEC AM-IN-H	Not Used	H
83		OUT	MESEC AM-OUT-H	Not Used	H
84		OUT	T-DAC	TUNING Voltage Control for PWM Output	PWM

Pin No.	Mark	IN/ OUT	Signal Name	Function	Active Level
85		IN	REMOCON	Remocon Sensor Input	L
86		-	TEX	SUB CLOCK 32KHz (IN)	-
87		-	TX	SUB CLOCK 32KHz (OUT)	-
88		-	V_{SS}	V_{SS}(GND)	-
89		-	V_{DD}	V_{DD}(BACK UP 5V)	-
90		-	V_{PP}	GND(BACK UP 5V)	-
91	A,C	IN/ OUT	E2 PROM-DATA	MEMORY IC Control DATA	H/L
	B,D	IN/ OUT	VPS/E2 PROM-DATA	VPS IC/MEMORY IC Control DATA	H/L
92	A,C	OUT	E2 PROM-CLK	VPS IC/ MEMORY IC Control CLOCK	H/L
	B,D	IN/ OUT	VPS/E2 PROM-DATA	VPS IC/MEMORY IC Control CLOCK	H/L
93		OUT	D/I	Not Used	H
94		OUT	VL	TUNER BAND Switching Output	L
95		OUT	VH	TUNER BAND Switching Output	L
96		OUT	U	TUNER BAND Switching Output	L
97		OUT	P-ON-L	P-ON Output	L
98		OUT	INSEL	Input Select	H/L
99	A,C	OUT	VPS-CHK	Not Used	H
	B,D	OUT	VPS-CHK	VIDEO MUTE Signal Output	H
100		OUT	NTSC-REC-H	Not Used	-

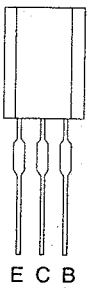
Notes:

Abbreviation for Active Level

PWM – Pulse Wide Modulation,

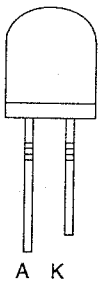
A/D -- Analog - Digital Converter

LEAD IDENTIFICATION



2SA608SP(E,F)
2SC536SP(E,F.G)
2SC3400
2SC2839(E,F)
KRC103M
KSR2205
2SA1654
KSR2203
KSR2208
2SA1347
KRA103M
KRC106M
2SSC4133
KSR1214

KSR1203
KTA1267(Y,GR)
KSA1175(Y,G)
KTC3199(Y,GR)
KSC2785(Y,G)
KTA1266(Y,GR)
2SA1317(S,T)
2SD400(F)
KTC3193(Y)
KRA109M
KSR2205
2SA1346



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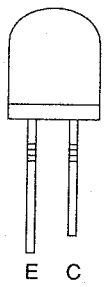
SID1K10CXM
LN66A.FN
SLR-981(A,B,C)

ST-316R2-B



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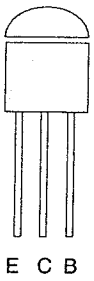
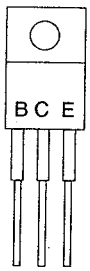
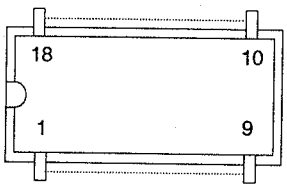
2SD734G-NP-AQ
2SD734F-NP-AQ
KTC3203(Y)
2SC4204
2SC3576
2SC3331(T,U)



2SC4517
2SC3866
2SC5239



SAA4700



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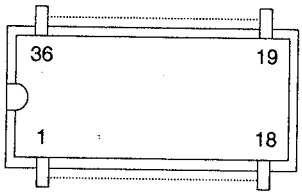
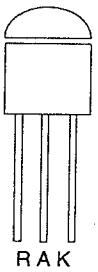
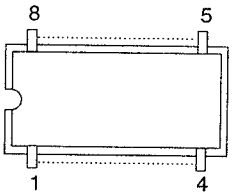


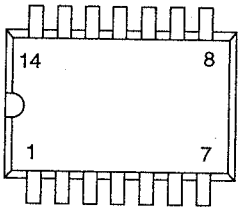


KIA431
KA431Z
AN1431T-(NSC)
L5431

24LC02B/P
ST24C02A-B1
X24C02P



LC89975M SDA5642
KA339 KA324
KIA339P KIA324P
NJM2901N



NJU4052BD
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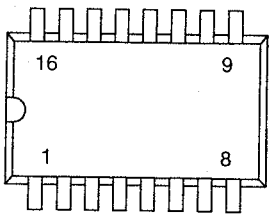
TC4052BP
HEF4052BP



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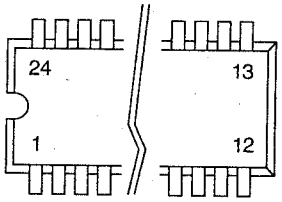
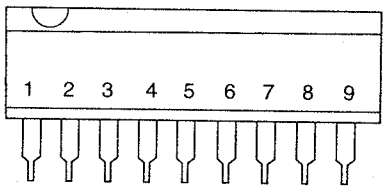
LA7578N

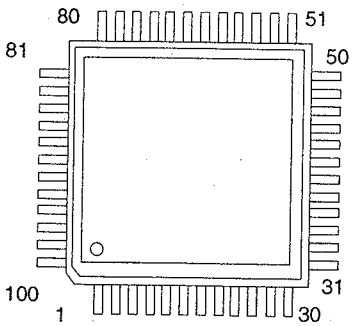


TA7291S

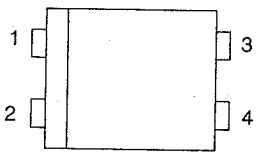


Note:
A: Anode
K: Cathode
E: Emitter
C: Collector
B: Base
R: Reference

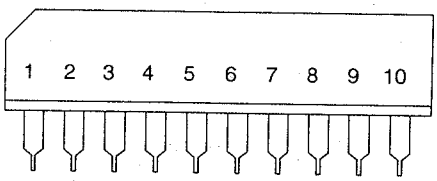
QSMQA0RSN050
QSMQB0RSN050
QSMQA0RSN051
QSMQB0RSN051



PC123F
PC123
PC120F
PC120
PS2561(1M,1D,1H,1W)



LB1641



DECK MECHANISM SECTION

VIDEO CASSETTE RECORDER

13A-109 / 13A-129 / 13A-509 / 13A-529

Sec. 2: Deck Mechanism Section

- **Standard Maintenance**
- **Alignment for Mechanism**
- **Disassembly/Assembly of Mechanism**
- **Front Loading Assembly**
- **Alignment Procedures of Mechanism**

TABLE OF CONTENTS

STANDARD MAINTENANCE

Service Schedule of Components

H: Hours ○: Check ●: Change

Deck		Periodic Service Schedule			
Ref. No.	Part Name	1,000 H	2,000 H	3,000 H	4,000 H
B2	Cylinder Assembly	○	●	○	●
B3	Loading Motor			●	
B6	Pinch Roller Arm Assembly		●		●
B8	Pulley Assembly		●		●
B21	Loading Belt		●		●
B27	Band Brake Assembly		●		●
B28	Main Brake S Assembly		●		●
B29	Main Brake T Assembly		●		●
B30	T Brake Arm Assembly		●		●
B31	ACE Head Assembly			●	
B32, B339	Reel Base Assembly			●	
B37	Capstan Motor		●		●
B52	Capstan Belt		●		●
B54	Ground Brush Assembly			●	
B73	FE Head CBA (See Deck Electrical Parts List)				
B132	Clutch Assembly		●		●
B133	Arm Idler Assembly		●		●

Notes:

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

Cleaning

Cleaning of Video Head

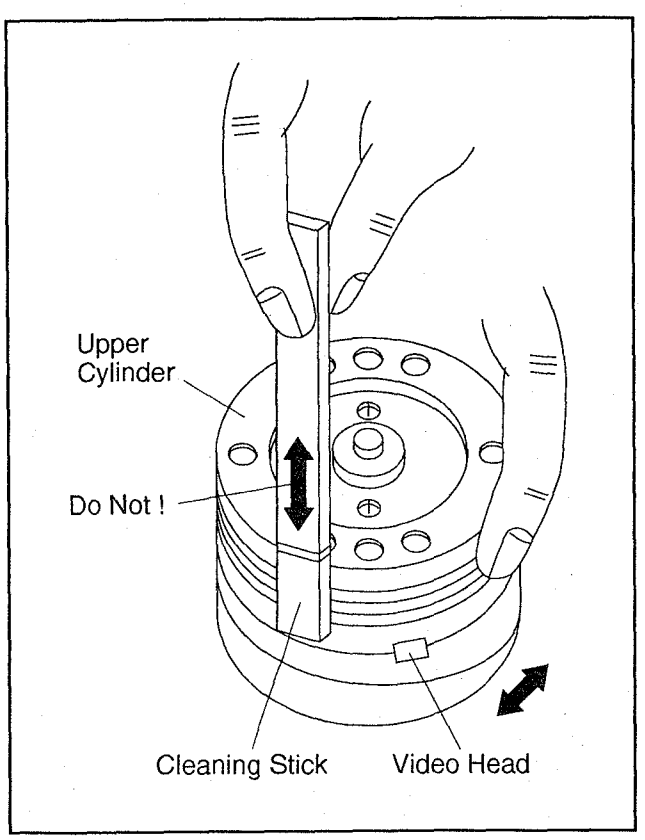
Clean the head with a head cleaning stick or chamois skin.

Procedure

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

Notes:

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



Cleaning of Audio Control Head

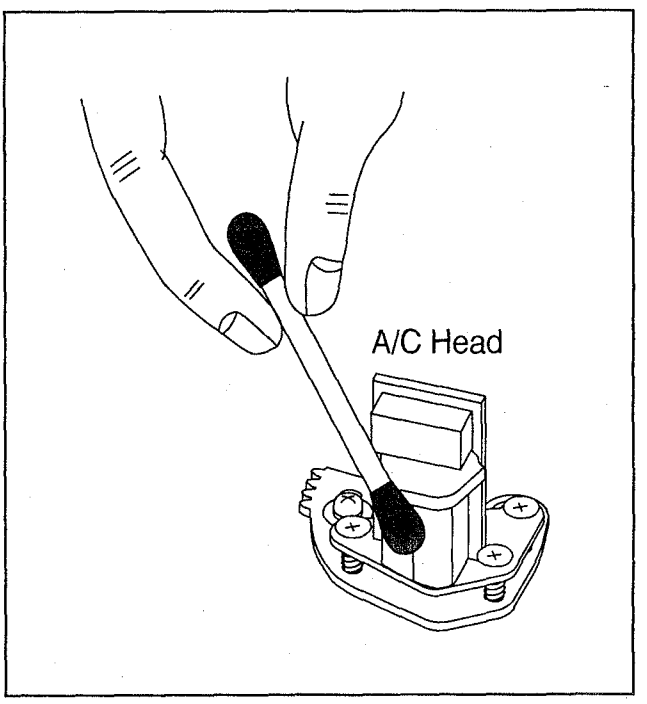
Clean the head with a cotton swab.

Procedure

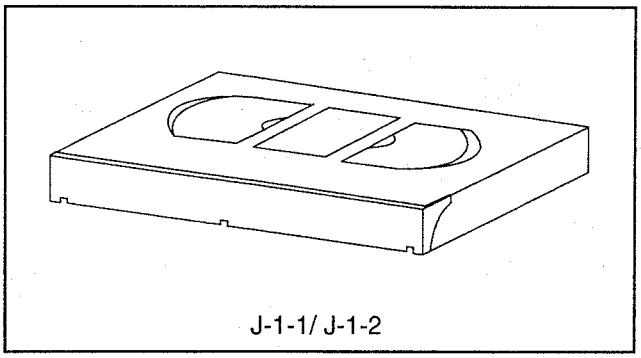
1. Remove the top cabinet.
2. Dip the cotton swab in 90% isopropyl alcohol and clean the audio control head. Be careful not to damage the upper drum and other tape running parts.

Notes:

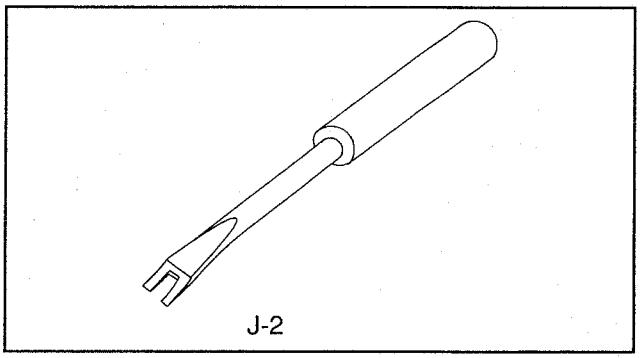
1. Avoid cleaning the audio control head vertically.
2. Wait for the cleaned part to dry thoroughly before operating the unit or damage may occur.



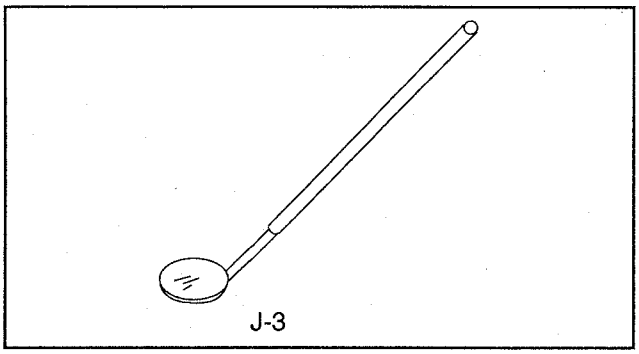
SERVICE FIXTURE AND TOOLS



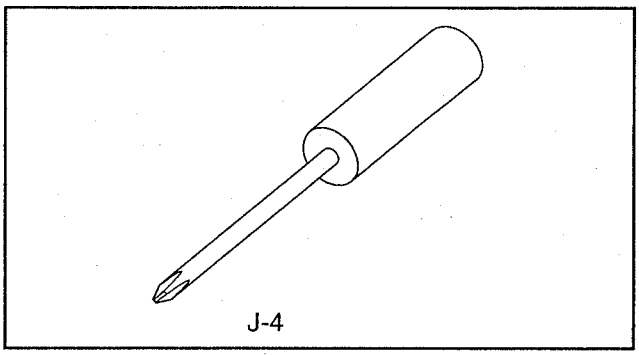
J-1-1/ J-1-2



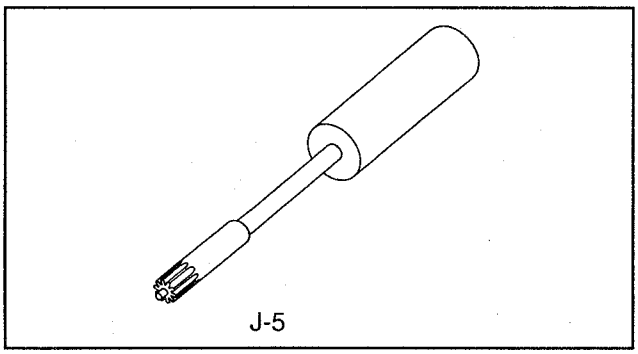
J-2



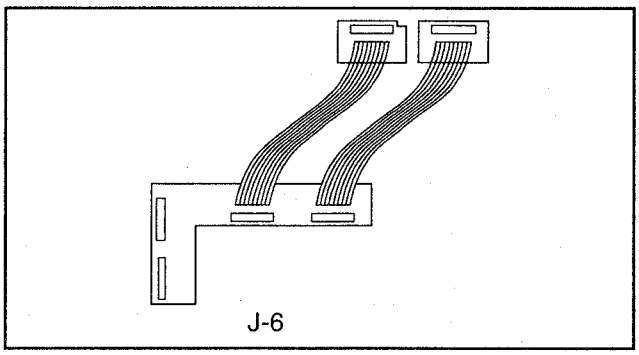
J-3



J-4



J-5



J-6

Ref. No.	Name	Part No.	Adjustment
J-1-1	Alignment Tape	FL6A	Electrical Adjustments
J-1-2	Alignment Tape	FL6N8 (1speed only) FL6NS8 (2speed only)	Azimuth and X Value Adjustment of Audio Control Head / Adjustment of Envelope Waveform
J-2	Special Driver, Small	FSJ-0006	Guide Roller
J-3	Mirror	FSJ-0004	Tape Transportation Check
J-4	Azimuth: Screwdriver	Available Locally	A/C Head Height
J-5	X Vaiu Adj. Screwdriver	FSJ-0007	X Value Adjustment
J-6	Deck Extention Cable	N1091XA	All Mechanical and Electrical Adjustments

Note:

Before starting any adjustment, take the Deck Assembly out of the cabinet and use J-6 to connect the Deck Assembly with the Main CBA.

MECHANICAL ALIGNMENT PROCEDURES

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

Service Information

A. Method for Manual Tape Loading/Unloading

To load a cassette tape manually:

1. Disconnect the AC plug.
2. Remove the Top Cover.
3. Insert a cassette tape. Though the tape will not be automatically loaded, make sure that the cassette tape is all the way in at the inlet of the Cassette Holder. To confirm this, lightly push the cassette tape further in and see if the tape comes back out, by a spring motion, just as much as you have pushed in.
4. Turn the Pulley Assembly in the appropriate direction shown in Fig. M1 until the cassette tape is fully loaded. By turning the Pulley Assembly, you are turning the cam indicated in this figure. However, movement of the cam will be very slow. Allow a minute or two to complete this task.

To unload a cassette tape manually:

1. Disconnect the AC plug.
2. Remove the Top Cover.
3. Turn the Pulley Assembly in the appropriate direction shown in Fig. M1 to unload the cassette tape. When turning the Pulley Assembly, please be aware that this is a long process and the cassette will not start getting unloaded instantaneously. Within this long process, before the cassette actually starts getting unloaded, there is a time period during which the moving guide assemblies slide back to their original positions shown in Fig. M1. However, the tape will be left wound around the cylinder. To put the tape back into the cassette, gently turn the Capstan Motor in the direction shown in Fig. M2. Make sure that the tape is completely placed back in the cassette before the cassette starts getting unloaded. Otherwise the tape hanging out will be caught and damaged by the lid of the cassette when it closes.
   By turning the Pulley Assembly, you are turning the cam indicated in Fig. M1. As stated, movement of the cam will be very slow. Allow a minute or two to complete this task.

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

1. Disconnect the AC Plug.
2. Remove the Top Cover.
3. Turn the Pulley Assembly in the appropriate direction shown in Fig. M1 until the Cassette Holder comes to the tape-loaded position. Allow a minute or two to complete this task.

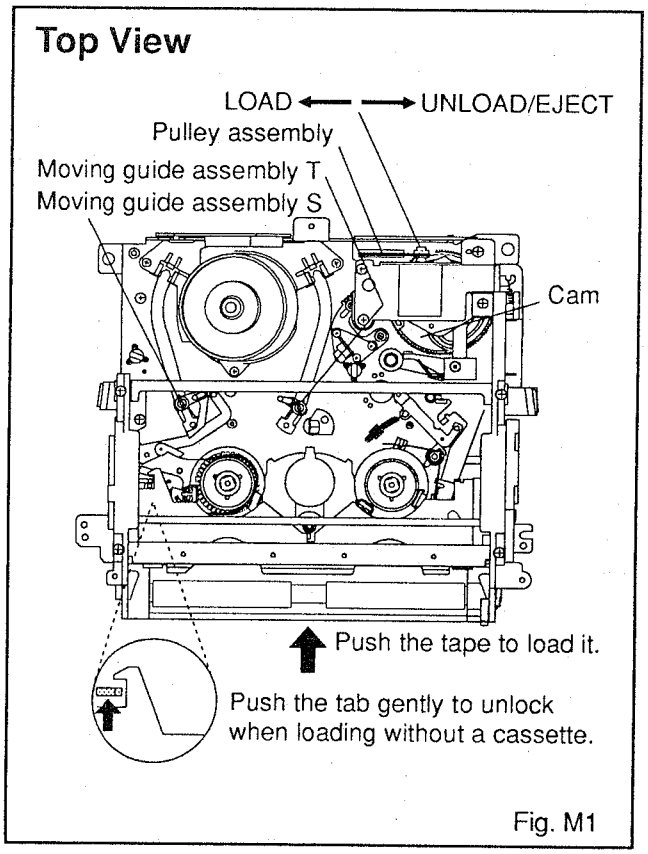


Fig. M1

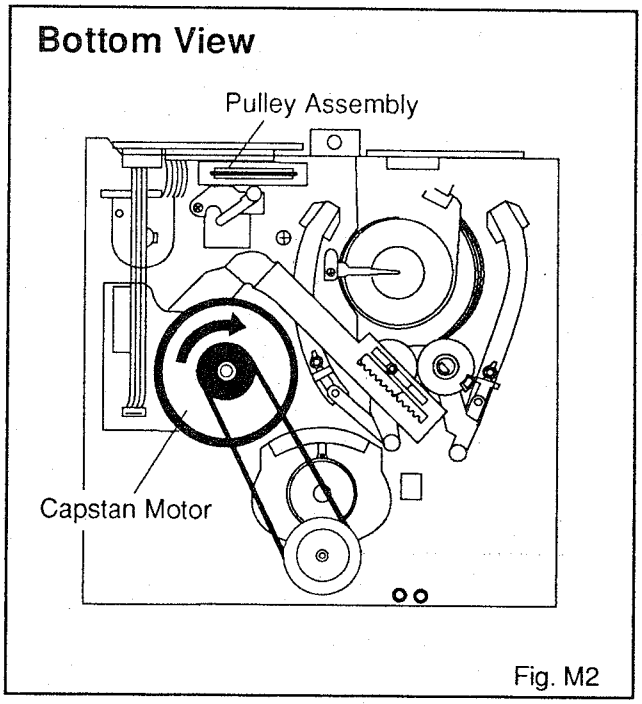


Fig. M2

1. Tape Interchangeability Alignment

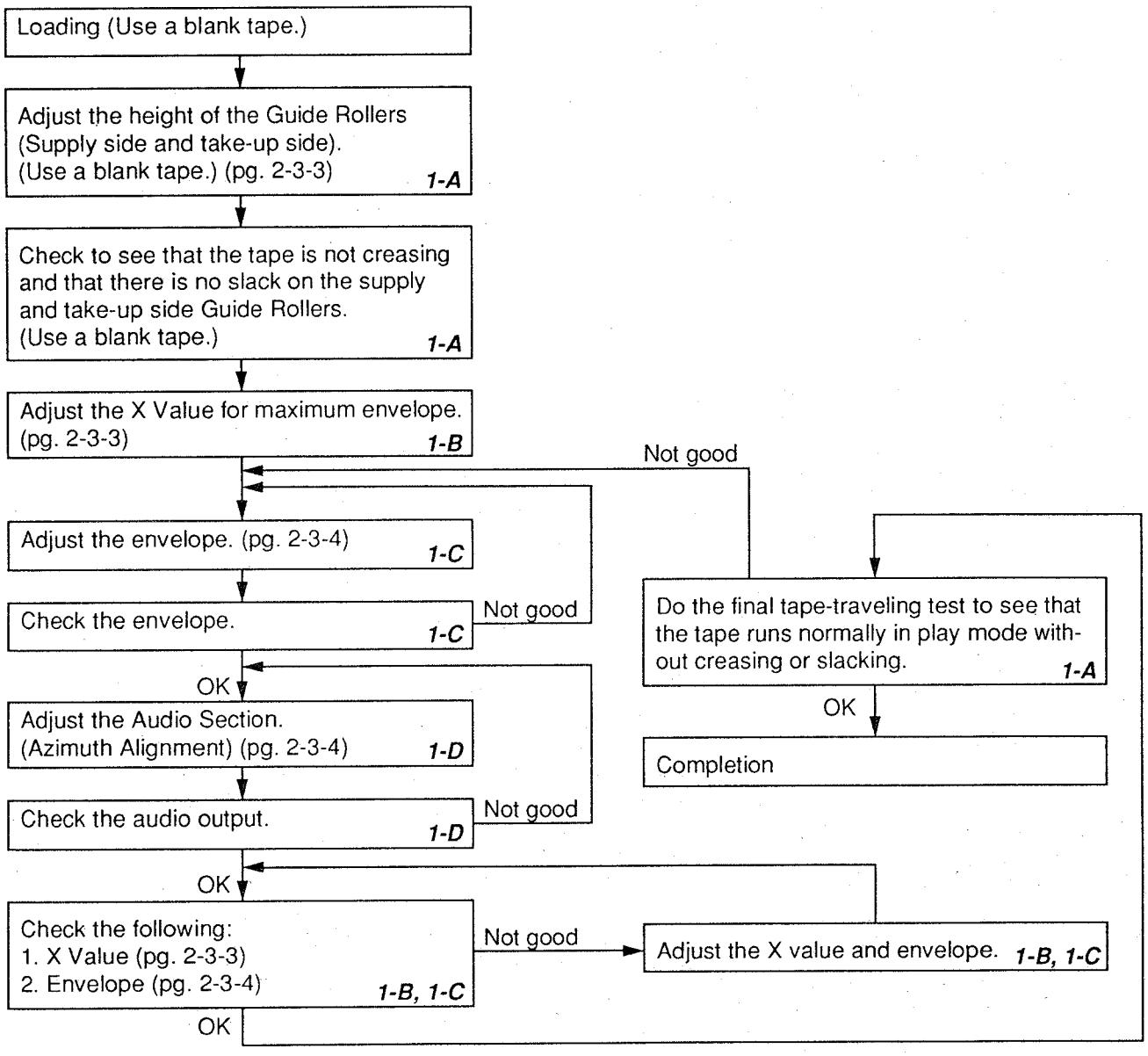
Note: To do these alignment procedures, make sure that the Tracking Control Circuit is set to the center position every time a tape is loaded or unloaded. (Refer to page 2-3-4, procedure 1-C, step 1.)

Equipment required:

Dual Trace Oscilloscope
VHS Alignment Tape (FL6NS8)
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 runs unstable, the tape will be damaged.

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

1. Play back a blank cassette tape and check to see that the tape runs without creasing at Guide Rollers [2] and [3], and at points A and B on the lead surface. (Refer to Fig M3 and M4.)
2. If creasing is apparent, align the height of the guide rollers by turning the top of Guide Rollers [2] and [3] with a Guide Roller Adj. Screwdriver. (Refer to Fig. M3 and M5.)
   Note: Beneath each Guide Roller, there is a small screw. (Refer to Fig. M5.) This screw works to apply adequate torque to the shaft of each Guide Roller so that the Guide Roller turns properly. Even when adjusting the height of the Guide Roller(s), do not touch these two small screws.
3. Check to see that the tape runs without creasing at Take-up Guide Post [4] or without snaking between Guide Roller [3] and AC Head. (Fig. M3 and M5)
4. If creasing or snaking is apparent, adjust the Tilt Adj. Screw of the AC Head. (Fig. M6)

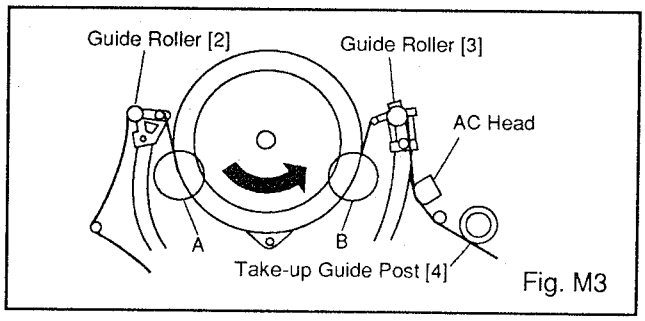


Fig. M3

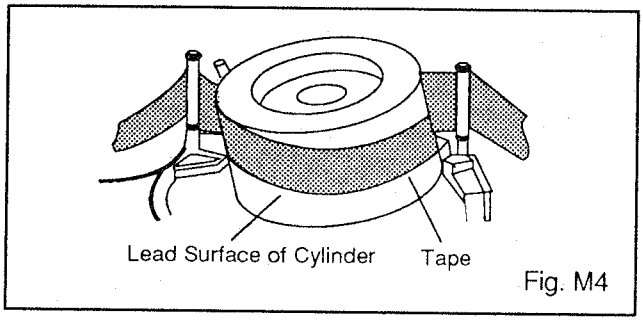


Fig. M4

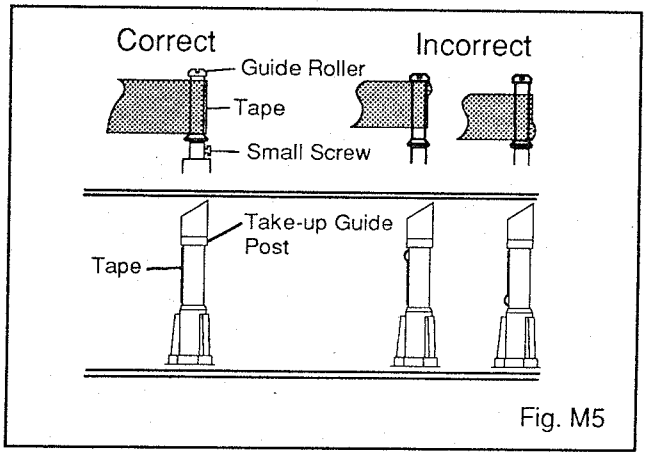


Fig. M5

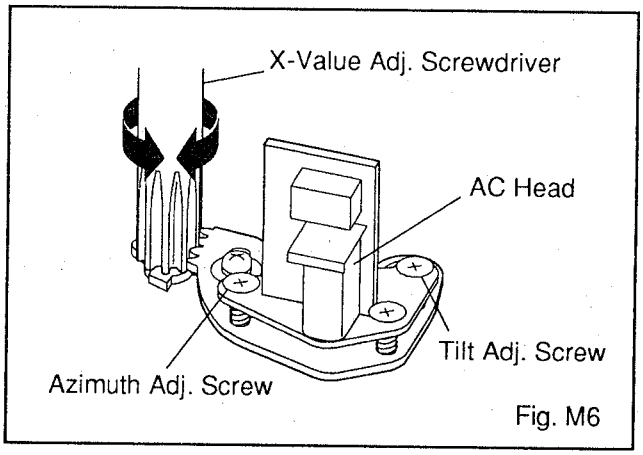


Fig. M6

1-B. X Value Alignment

Purpose:

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

Symptom of Misalignment:

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

1. Set the Tracking Control Circuit to the center position by pressing CH UP and DOWN buttons on VCR simultaneously (Refer to note on page 2-3-4.)
2. Connect the oscilloscope to TP (C-PB) and TP (CTL) on the Main CBA. Use TP (RF-SW) as a trigger.
3. Play back the Gray Scale of the Alignment Tape (FL6NS8) and confirm that the PB FM signal is present.
4. Use the X-Value Adj. Screwdriver so that the PB FM signal at TP (C-PB) or TP of AUDIO OUT is maximum. (Fig.M6)
5. Press CH UP button on VCR until CTL waveform is 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 VCR until CTL waveform is shifted from its original position (not the po-

sition achieved in step 5 just above, but the position of CTL waveform until 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 and DOWN buttons on VCR simultaneously.

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. Set the Tracking Control Circuit to the center position by pressing both CH UP and DOWN buttons on VCR simultaneously.
2. Connect the oscilloscope to TP (C-PB) on the Main CBA. Use TP (RF-SW) as a trigger.
3. Play back the Gray Scale on the Alignment Tape (FL6NS8). Adjust the height of Guide Rollers [2] and [3] (Fig.M3) watching the oscilloscope display so that the envelope becomes as flat as possibile. To do this adjustment, turn the top of the Guide Roller with the Guide Roller Adj. Screwdriver.
4. 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.
5. 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.
6. When Guide Rollers [2] and [3] (Refer to Fig.M3) are aligned properly, there is no envelope drop either at the beginning or end of track as shown in Fig. M9.

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

1-D. Azimuth Alignment of Audio/Control Head

Purpose:

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

Symptom of Misalignment:

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

1. Connect the oscilloscope to the audio output jack on the rear side of the deck.
2. Play back the alignment tape (FL6NS8) and confirm that the audio signal output level is 8 kHz.
3. Adjust Azimuth Adj. Screw so that the output level on the AC Voltmeter or the waveform of the oscilloscope is at maximum. (Fig. M6)

Dropping envelope level at the beginning of track.

Fig. M7

Dropping envelope level at the end of track.

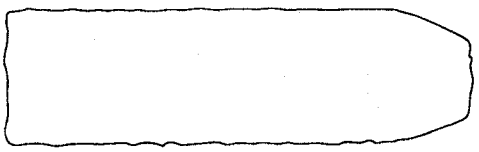


Fig. M8

Envelope is adjusted properly. (No envelope drop)

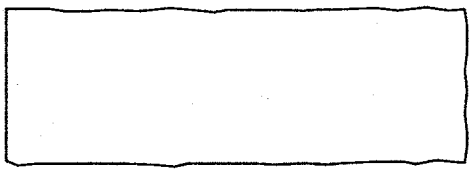


Fig. M9

DISASSEMBLY/ASSEMBLY PROCEDURES OF DECK MECHANISM

Main Mechanism

Before following the procedures described below, be sure to:

1. Remove the deck assembly from the cabinet.
   (Refer to DISASSEMBLY INSTRUCTIONS in Main Section.)
2. Remove Front Loading Assembly from the main mechanism of the deck assembly. (See Fig. DM1.)

All the following procedures, including those for adjustment and replacement of parts, should be done in Eject mode; see the positions of [33] and [34] in Fig. DM3 on page 2-4-4. When reassembling, follow the steps in reverse order.

STEP /LOC. No.	START-ING No.	PART		REMOVAL		INSTALLATION
				Fig. No.	REMOVE/*UNHOOK/ UNLOCK/RELEASE/ UNPLUG/DESOLDER	ADJUSTMENT CONDITION
[1]	[1]	Front Loading Assembly	T	DM1	2(S-1), (S-2), *(P-1)	
[2]	[1]	Motor Holder Assembly	T	DM3 DM5 DM6	3(S-4), Loading Belt	(+) Refer to Alignment Sec. Pg. 2-4-12.
[3]	[1]	Loading Motor Assembly	T	DM2 DM3 DM5	2(S-5), CL2693	
[4]	[1]	Cassette Drive Lever Assembly	T	DM3 DM5		(+) Refer to Alignment Sec. Pg. 2-4-12.
[5]	[1]	Pinch Roller Arm Assembly	T	DM3 DM5	(C-1) Pinch Roller Spring	Refer to Alignment Sec. Pg. 2-4-12.
[6]	[1]	Pinch Arm Assembly	T	DM3 DM5		Refer to Alignment Sec. Pg. 2-4-12.
[7]	[7]	Mode SW CBA	B	DM4 DM8	Stopper Boss, *(L-1)	
[8]	[8]	Joint CBA	T/B	DM2 DM3 DM4 DM7 DM8	(S-6), CN2692, CL2693, *CL2691, CL2692	
[9]	[1]	Cam	T	DM3 DM5		(+) Refer to Alignment Sec. Pg. 2-4-12.
[10]	[1]	Pulley Assembly	T	DM3 DM6	(W-1), Loading Belt	(+)
[11]	[11]	Head Amp CBA	T/B	DM2 DM3 DM4 DM8	(S-7), (S-8), (S-22) CN3802, CL3801, CL3802 (S-22 is not applicable to **A** and **B**.)	
[12]	[12]	Arm Idler Assembly	T	DM3 DM9	Clutch Shaft Cap, Clutch Bushing	(+)
[13]	[13]	Clutch Assembly	B	DM4 DM9	(C-2), (W-2) Capstan Belt	(+)
[14]	[13]	Capstan Motor Unit	B	DM4 DM10	3(S-9)	
[15]	[1]	M Lever Holder	T	DM3 DM11	(S-10)	(+) Oil, (+) Grease
[16]	[1]	Kick Arm Holder	B	DM4 DM11	Kick Arm Spring	
[17]	[16]	Kick Arm	B	DM4 DM11	Bushing	(+)
[18]	[18]	Mode Change Lever	T	DM3 DM12	*2(L-2)	(+)
[19]	[1]	Main Lever Assembly	T	DM3 DM12 DM15	*(L-3)	
[20]	[20]	Tape Guide Assembly	T	DM3 DM15	*(P-2), *(L-4)	Keep the distance specified in Fig. DM15.
[21]	[21]	ACE Head Assembly	T	DM3 DM14	2(S-11)	

STEP /LOC. No.	START-ING No.	PART		REMOVAL		INSTALLATION
				Fig. No.	REMOVE/*UNHOOK/ UNLOCK/RELEASE/ UNPLUG/DESOLDER	ADJUSTMENT CONDITION
[22]	[22]	Tension Lever Sub Assembly	T	DM3 DM13 DM22	*(L-5) *(P-6)	Refer to Alignment Sec. Pg. 2-4-14.
[23]	[22]	Band Brake Sub Assembly	T	DM3 DM13	(S-12), *(L-6)	
[24]	[18]	M Brake (S) Lever	T	DM3 DM12 DM16		(+)
[25]	[18]	M Brake (S)	T	DM3 DM16	*(P-3), *(L-7)	(+) When reassem-bling, hook the spring (P-3) after installation of Mode Change Lever.
[26]	[18]	S Brake Arm	T	DM3 DM16	*(P-4), *(L-8)	(+) When reassem-bling, hook the spring (P-4) after installation of Mode Change Lever.
[27]	[18]	M Brake (T) Assembly	T	DM3 DM16		(+)
[28]	[18]	T Brake Arm Assembly	T	DM3 DM16	*(P-5)	(+) When reassem-bling, hook the spring (P-5) after installation of Mode Change Lever.
[29]	[18]	Reel Base Assembly T	T	DM3 DM17	Poly Slider Washer	(+)
[30]	[18]	Reel Base Assembly S	T	DM3 DM17	Poly Slider Washer	(+) Base has slots.
[31]	[31]	Ground Brush Assembly	B	DM4 DM18 DM19	(S-13)	Refer to Alignment Sec. Pg. 2-4-12.
[32]	[11],[31] Only	Cylinder Assembly	T	DM3 DM18	3(S-14)	Refer to Alignment [31] Sec. Pg. 2-4-12.
[33]	[1]	Moving Guide S Assembly	T	DM3 DM20		
[34]	[1]	Moving Guide T Assembly	T	DM3 DM20		
[35]	[1] Only	FE Head	T	DM3 DM20	(S-15)	
[36]	[36]	Main Prism	T	DM3 DM20	(S-16)	
[37]	[1]	Loading Arm M Assembly	B	DM4 DM21	(C-3)	(+) Refer to Alignment Sec. Pg. 2-4-12.
[38]	[1]	Loading Gear A	B	DM4 DM21		(+) Refer to Alignment Sec. Pg. 2-4-12.
[39]	[1]	Loading Gear B	B	DM4 DM21		(+) Refer to Alignment Sec. Pg. 2-4-12.
[40]	[40]	Spring Supporter	B	DM4 DM22	(S-17)	
[41]	[40]	BT Drive Arm	B	DM4 DM12 DM22	(S-18), *(P-6), *(P-7)	
[42]	[42]	Rec Arm Assembly	B	DM4 DM22	(S-19)	
[43]	[42]	Reel Drive Arm	B	DM23	(S-20), (C-4), *(P-8) Drive Arm Roller	
[44]	[42]	Holder Kick Arm	B	DM23	*(P-9)	
[45]	[45]	Cleaning Head	T	DM3		
[46]	[46]	F Brake (2) **[C, D only]**	B	DM4 DM10	CS Ring	
[47]	[46]	F Brake Guide **[C, D only]**	B	DM4 DM10	2(S-21) F Brake Spring	

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 disassembly in order to disassemble the part in column (1).

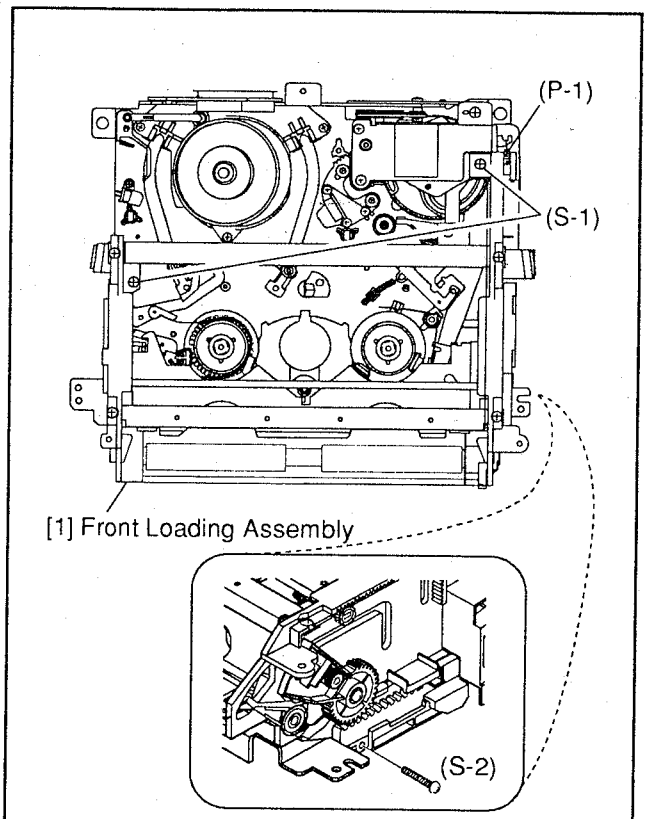
③: Name of the part

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
L=Locking Tab
*=Unhook, Unlock, Release, Unplug, or Desolder
e.g. 2(C-2) = two Cut Washers (C-2)
2(L-2) = two Locking Tabs (L-2)

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



To remove Front Loading Assembly:
1. Remove 3 screws (S-1) and (S-2).
2. Unhook spring (P-1).
3. Lift Assembly up carefully.

Fig. DM1

Comparison Chart of Models and Marks

Model	Mark
13A-109	A
13A-129	B
13A-509	C
13A-529	D

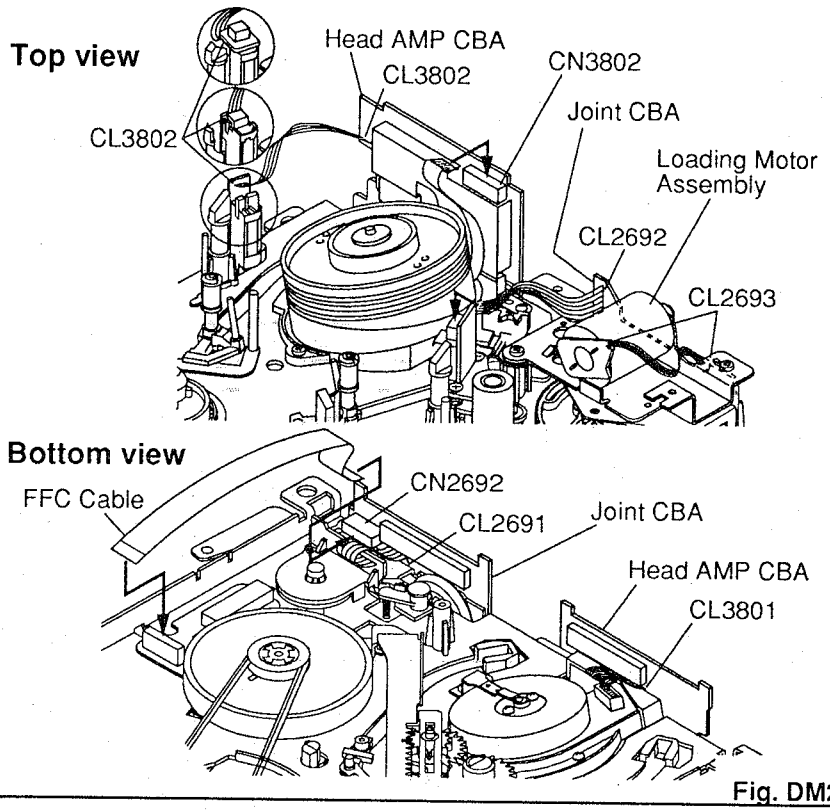


Fig. DM2

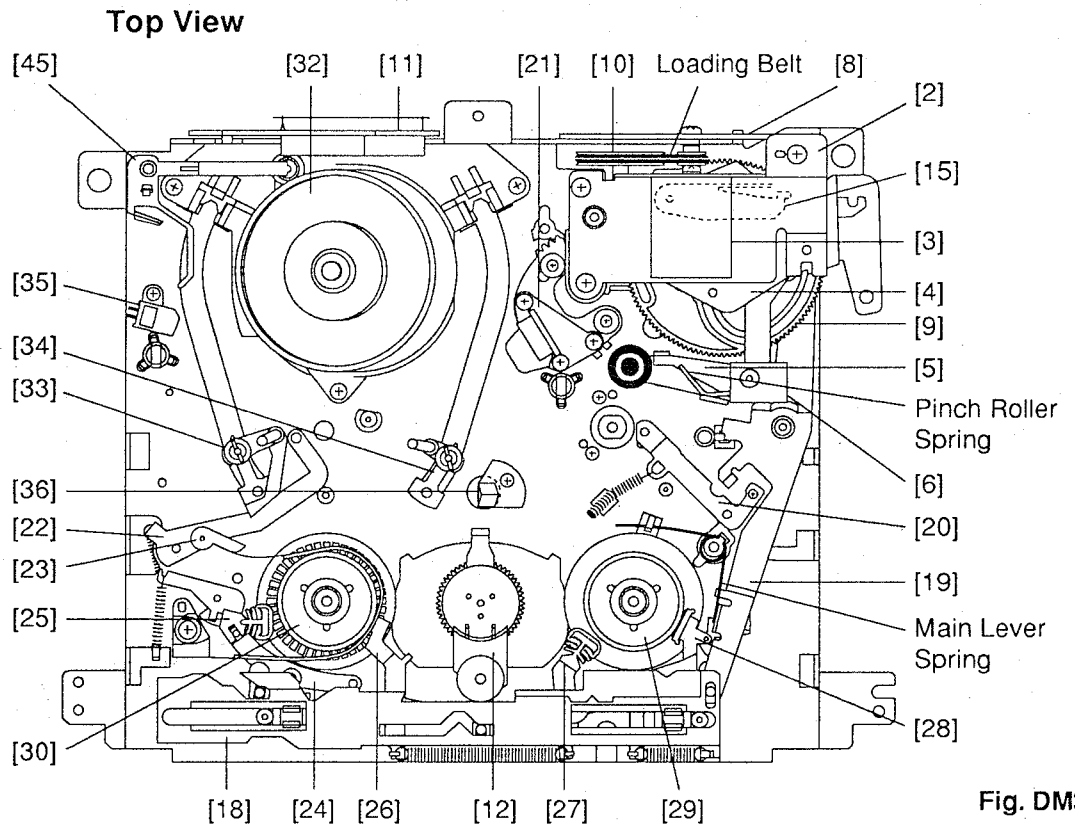


Fig. DM3

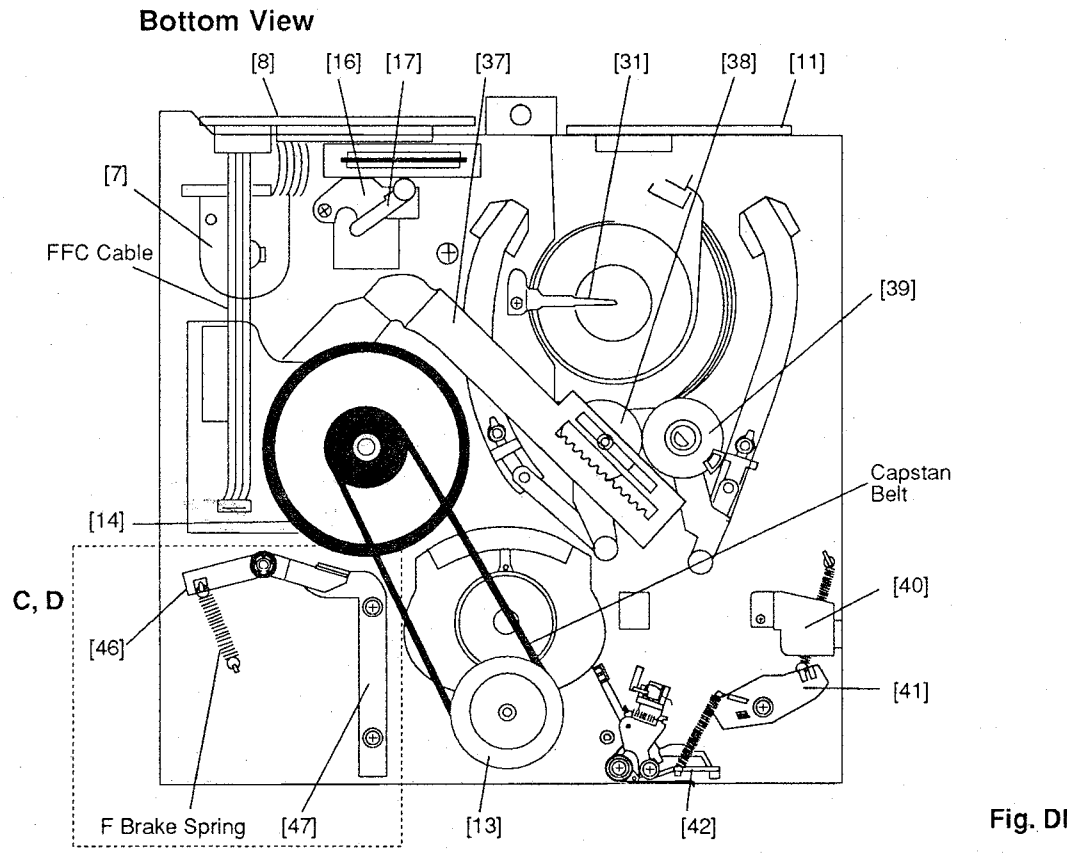


Fig. DM4

When disassembling, unhook Pinch Roller Spring as shown by the arrow. With this spring unhooked, [5] and [6] can be removed from the chassis more easily.

When reassembling [2] through [6] and [9], refer to the Alignment Section, Pg. 2-4-12.

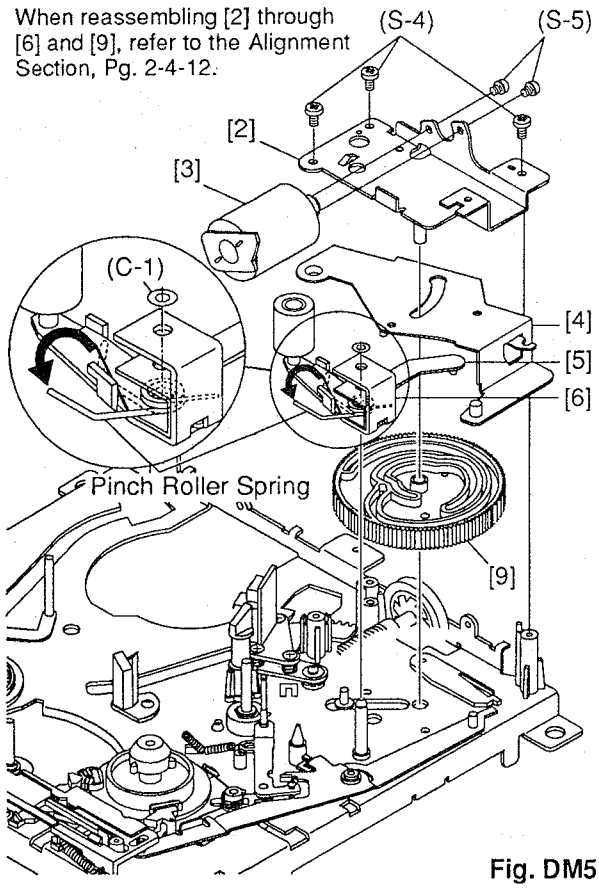


Fig. DM5

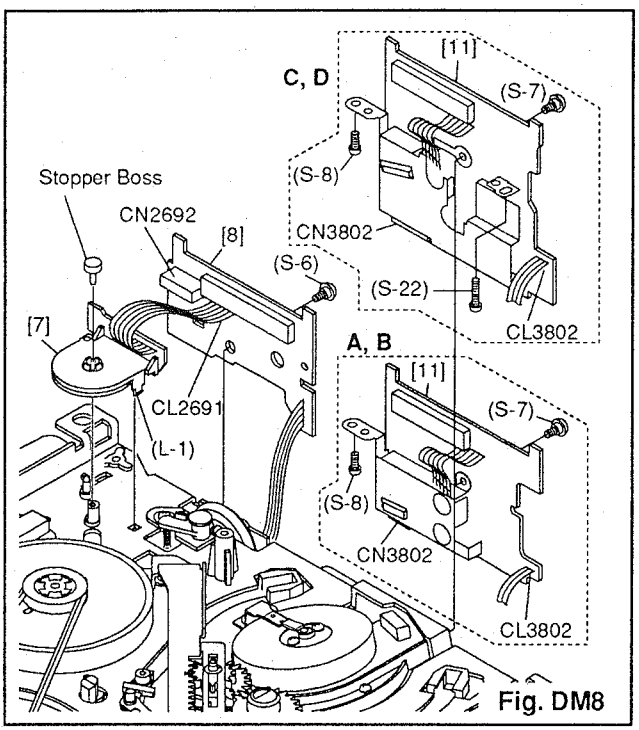


Fig. DM8

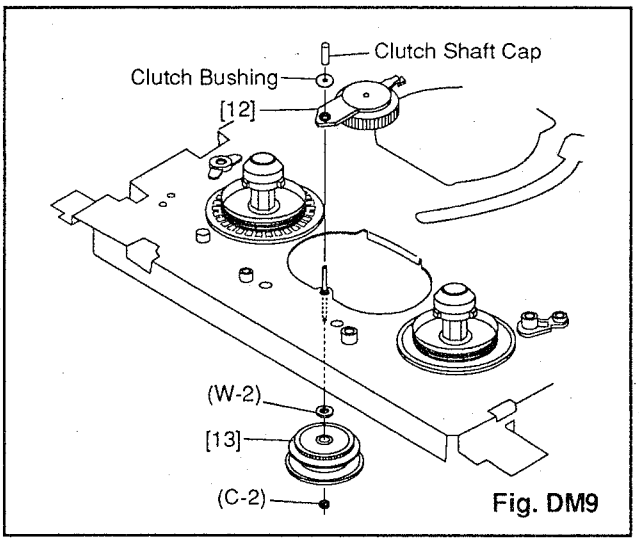


Fig. DM9

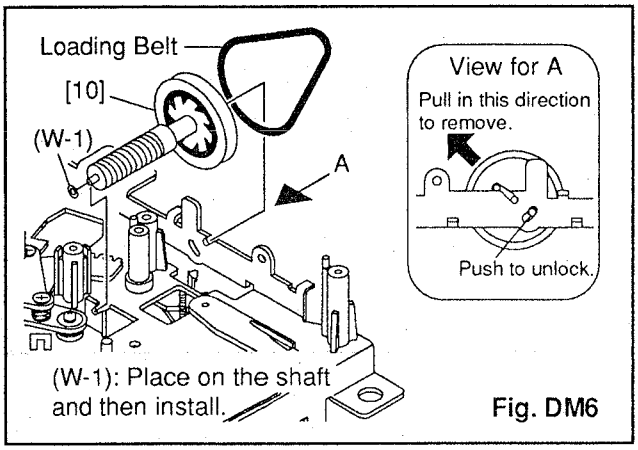


Fig. DM6

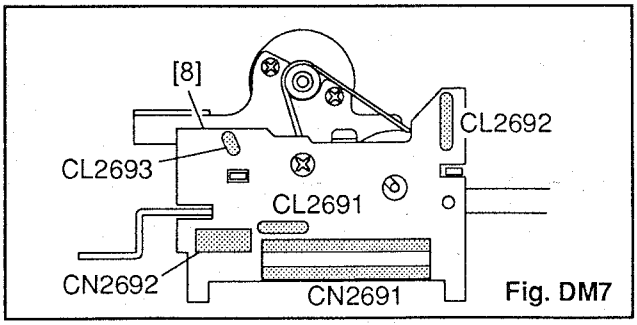


Fig. DM7

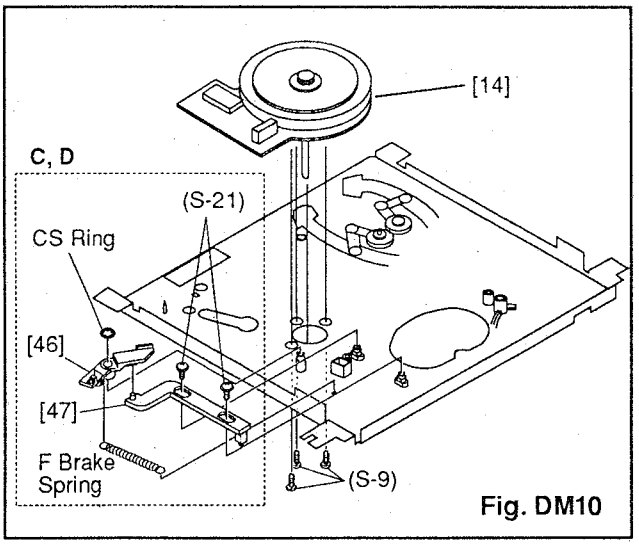


Fig. DM10

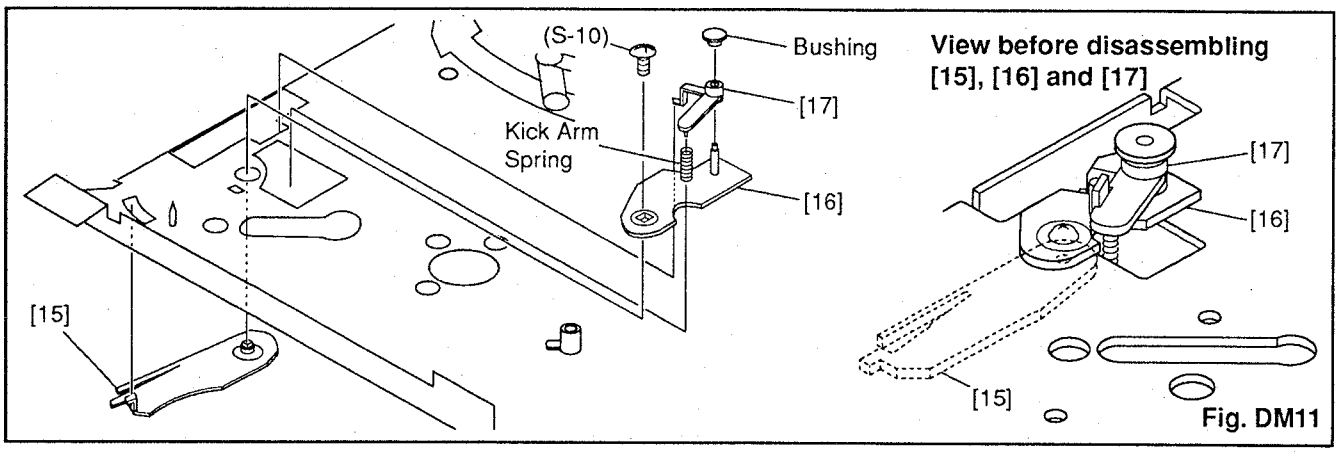


Fig. DM11

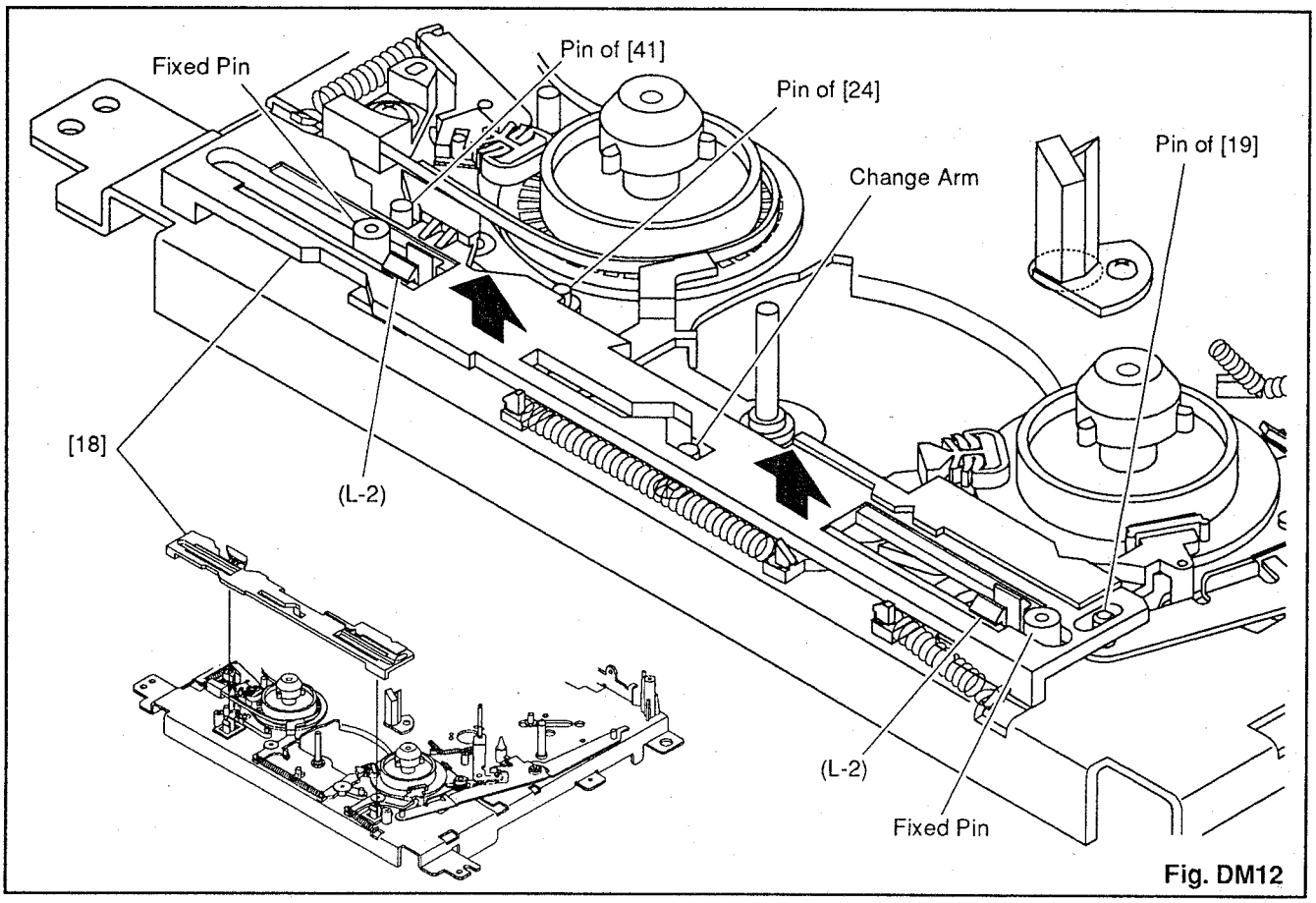


Fig. DM12

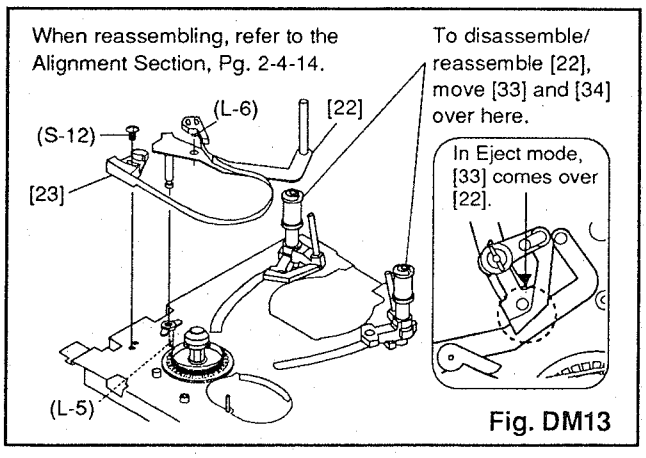


Fig. DM13

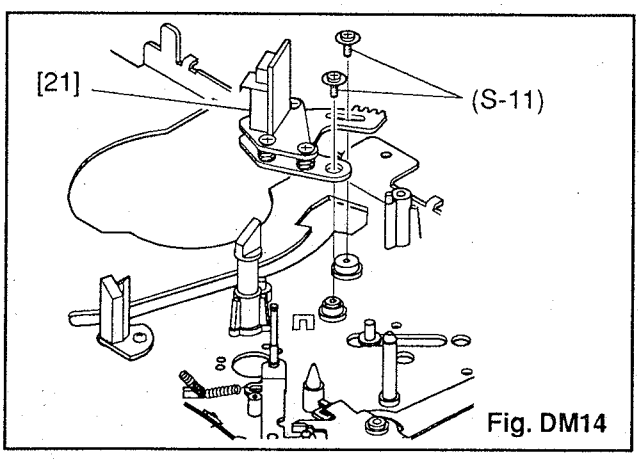


Fig. DM14

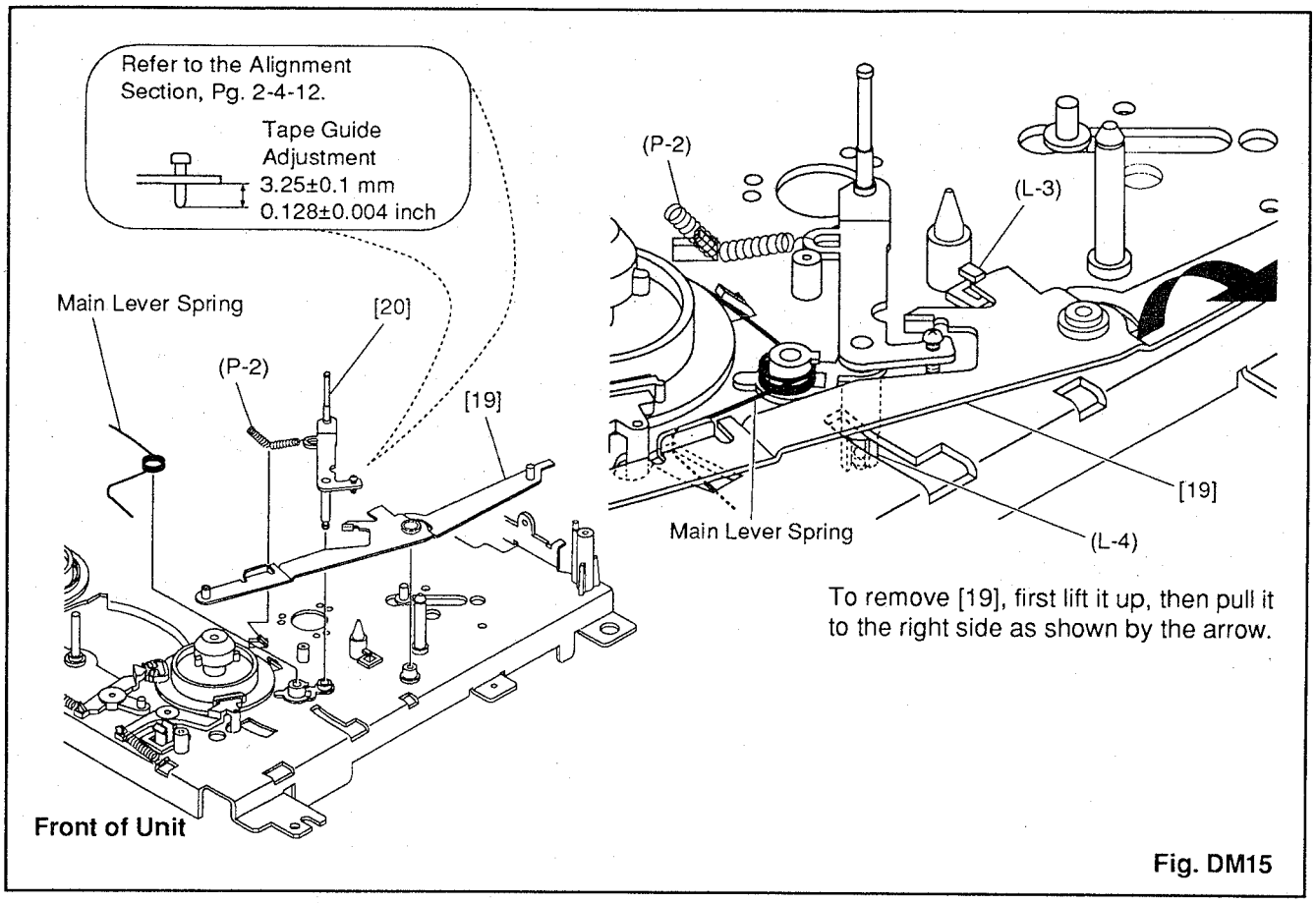


Fig. DM15

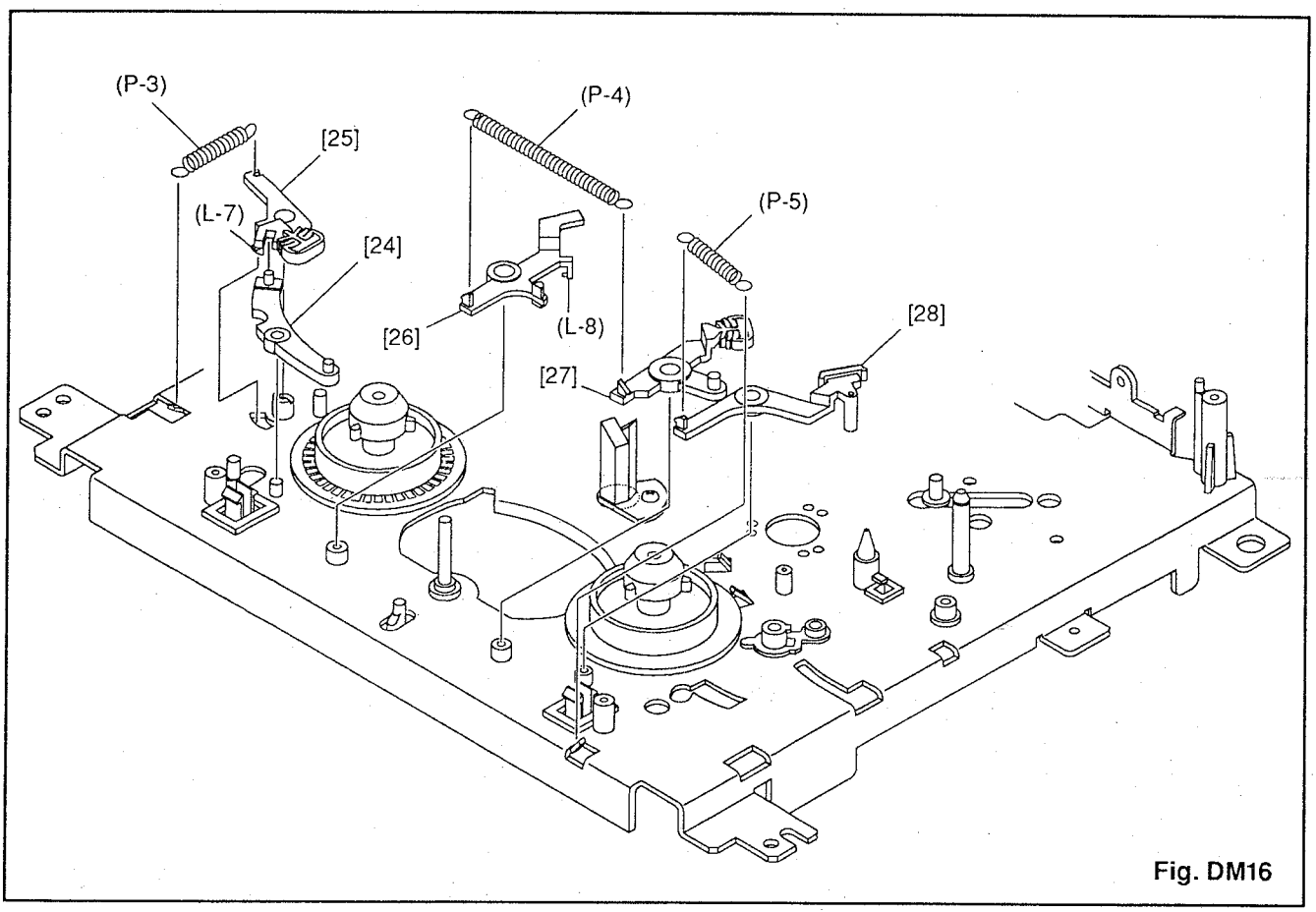


Fig. DM16

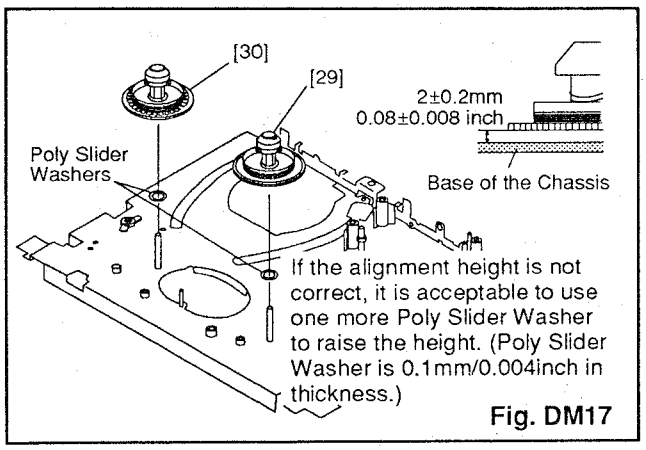


Fig. DM17

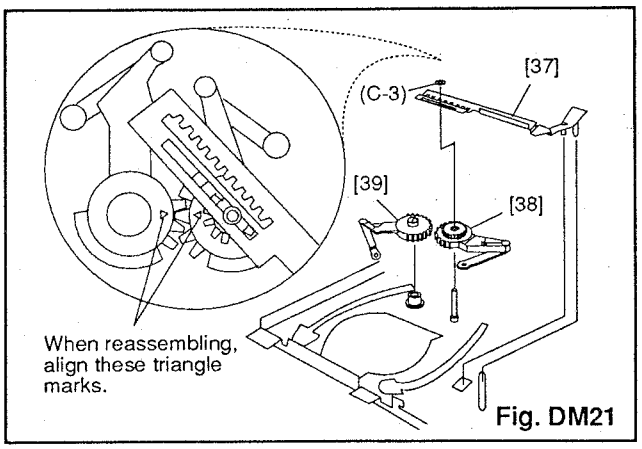


Fig. DM21

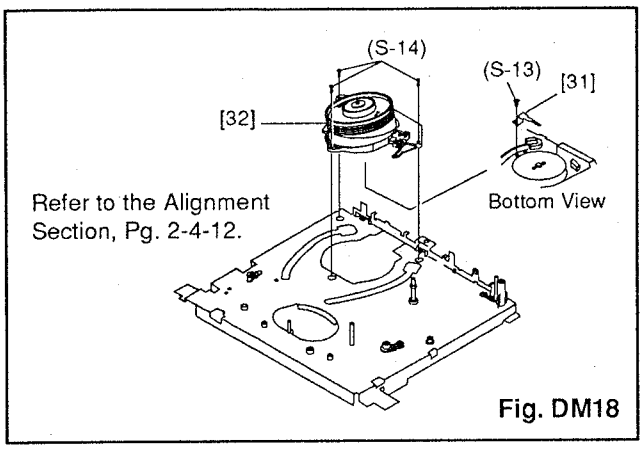


Fig. DM18

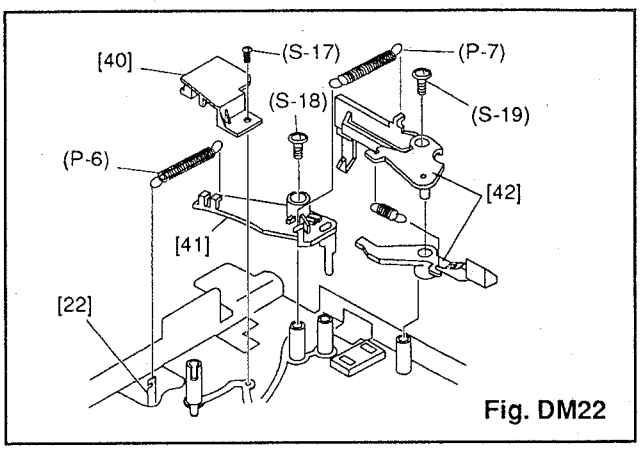


Fig. DM22

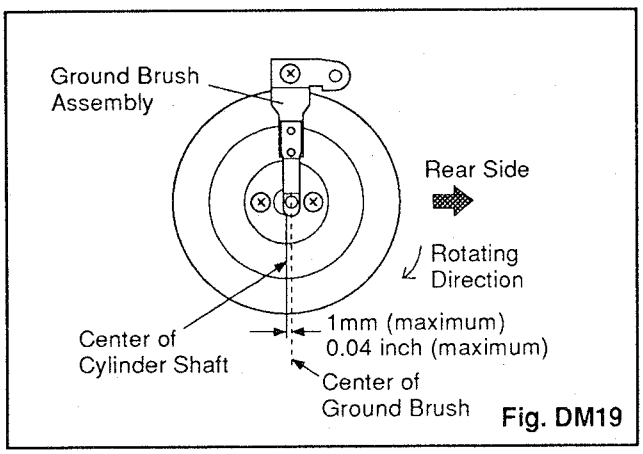


Fig. DM19

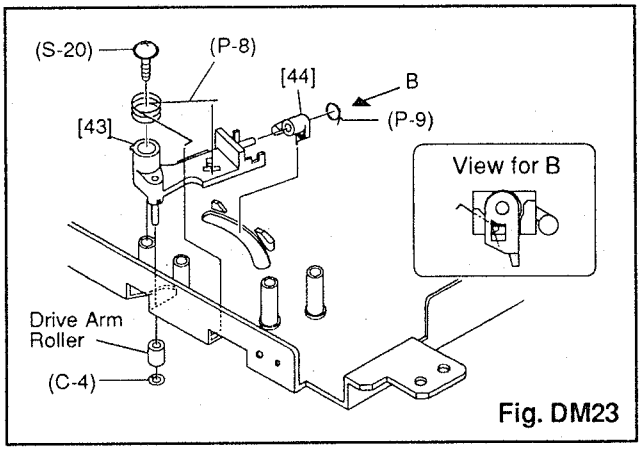


Fig. DM23

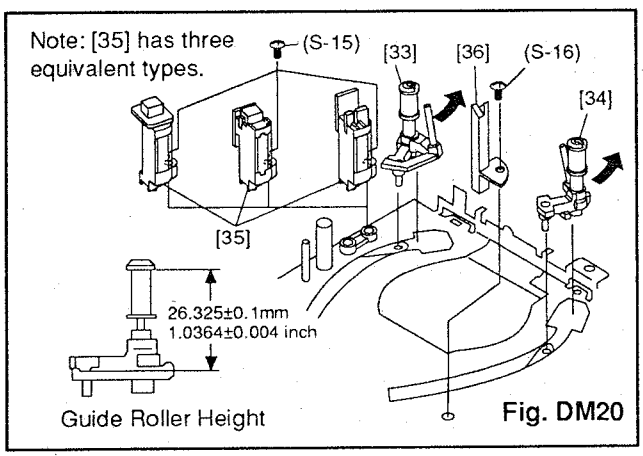


Fig. DM20

Front Loading Assembly

Before following the procedures described below, be sure to remove Front Loading Assembly from the main mechanism of the deck assembly. (See Fig. DM1.) When reassembling, start with the unit in Cassette-in mode and follow the steps in reverse order.

STEP /LOC. No.	START-ING No.	PART		REMOVAL		INSTALLATION
				Fig. No.	REMOVE/*UNHOOK/ UNLOCK/RELEASE/ UNPLUG/DESOLDER	ADJUSTMENT CONDITION
[1]	[1]	Door Opener	R	DM24 DM27	*(L-1) Door Opener Spring	(+)
*[2]	[2]	Slider Gear	R (or L)	DM28 DM30	(C-1)	(+)
*[3]	[2]	Slider Gear	L (or R)	DM28 DM30	(C-2)	(+)
		Slider Shaft	T			Install in Eject position.
[4]	[2]	Cassette Drive Gear	R	DM25 DM26 DM28	(S-1), (S-2), Cassette Drive Gear Spring	(+)
[5]	[2]	FL Rack	R	DM25 DM26 DM28		
[6]	[2]	F Door Opener R	R	DM25 DM28 DM29	*(L-2) F Door Opener R Spring	DM29
[7]	[2]	[7a] Front Guide [7b] Cassette Holder Assembly [7c] Deck Support B [7d] Deck Support F	T	DM25 DM26 DM27 DM28	4(S-3), *2(L-3)	
		[7e] Cassette Guide R	R			(+)
		[7f] Cassette Guide L	L			(+)
[8]	[8]	Gear Supporter	L	DM28	(S-4)	
[9]	[9]	Mirror Holder R	R	DM28		
[10]	[10]	Mirror Holder L	L	DM28		
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.

*[2], *[3]: Slider Gear in Step [2] and that in Step [3] are identical. However, they are divided into two steps because, before reassembling Slider Shaft, one Slider Gear must be preinstalled at either end of Slider Shaft.

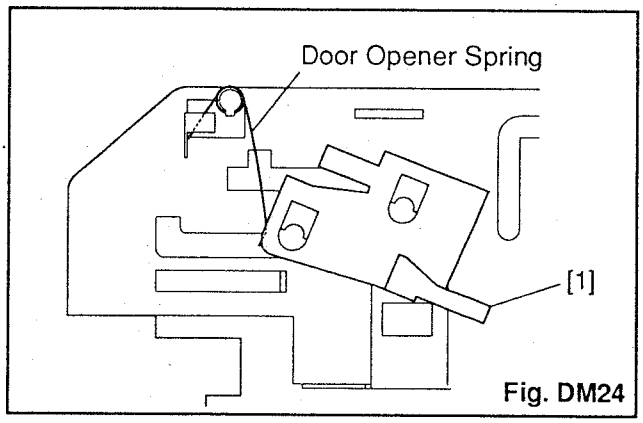


Fig. DM24

Before removing Parts [4], [5], [6] or [7], shift [7b] to Cassette-in position.

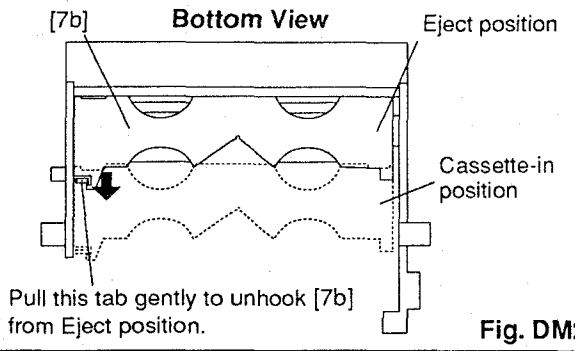


Fig. DM25

Install/remove in Cassette-in position to ensure that [7b] is in locked position.

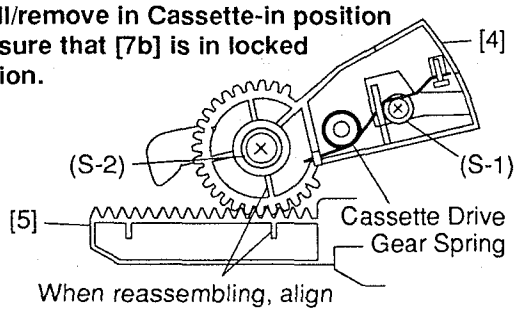


Fig. DM26

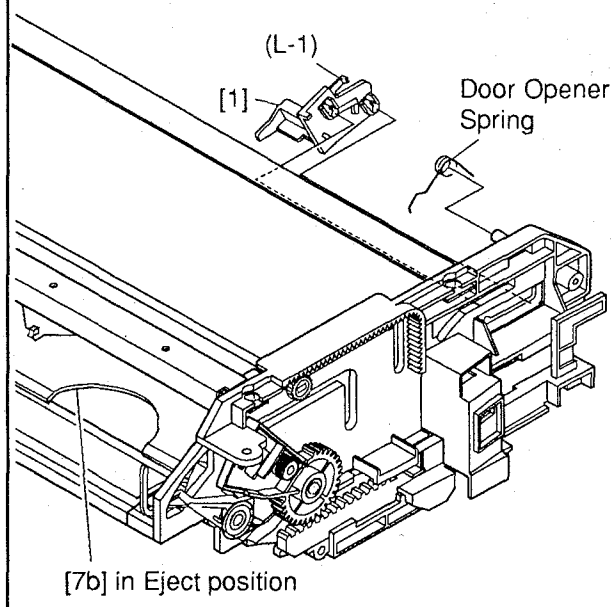


Fig. DM27

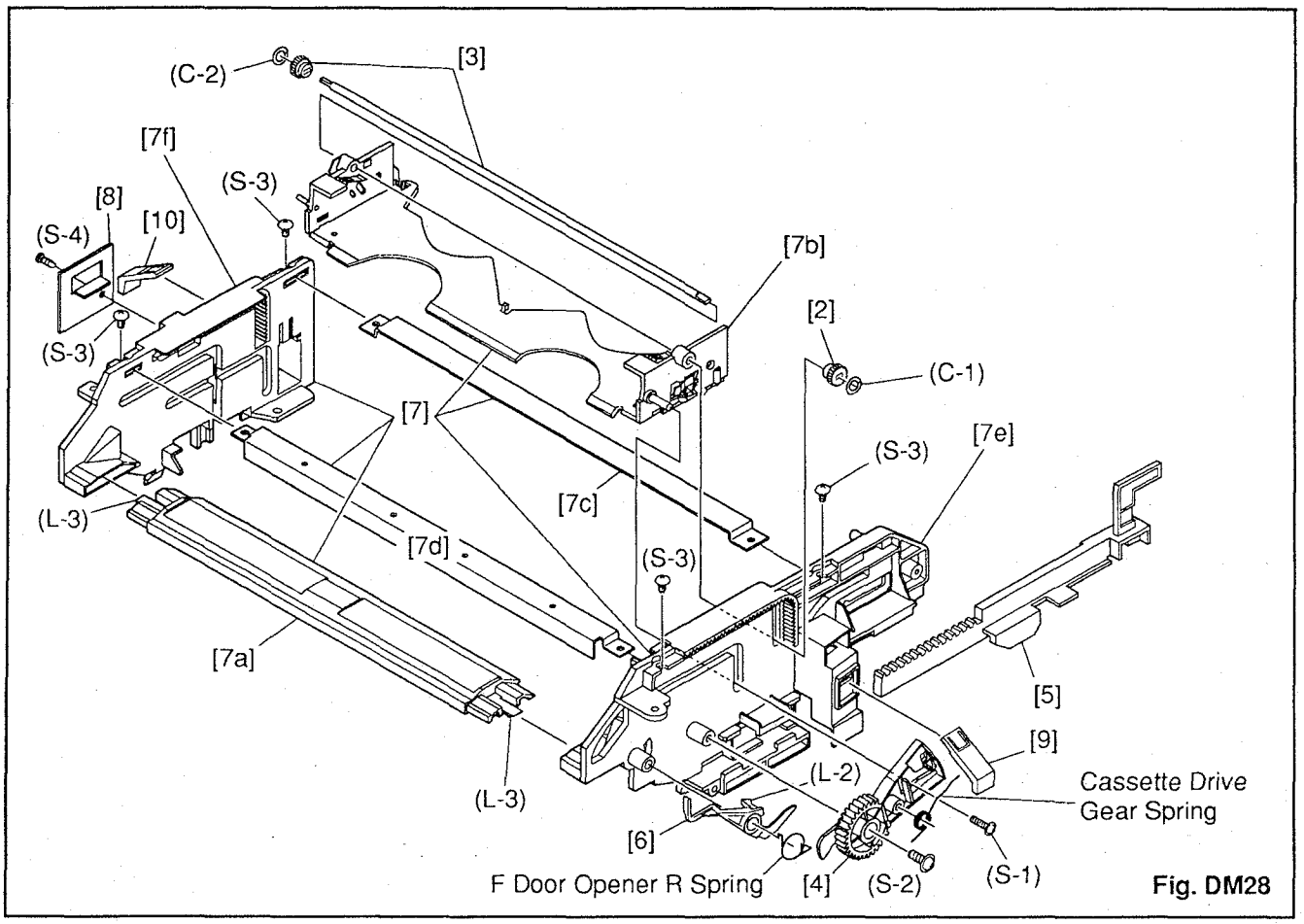
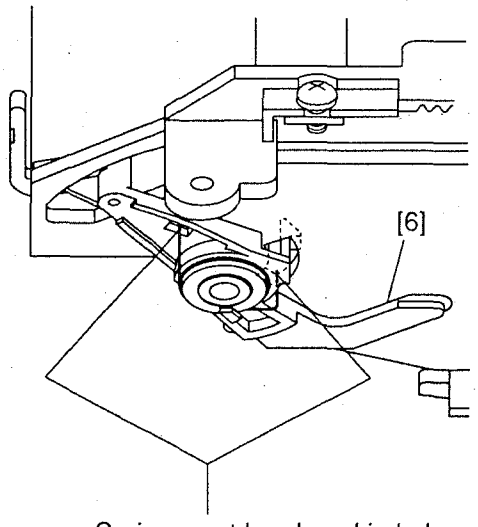
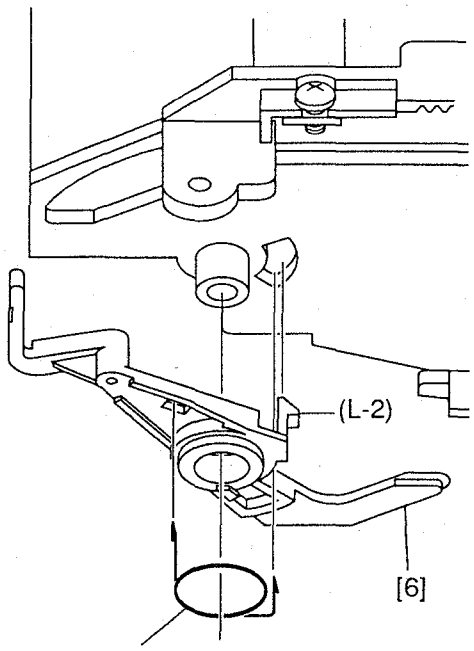


Fig. DM28

View before disassembling [6]
(F Door Opener R Spring Installation)



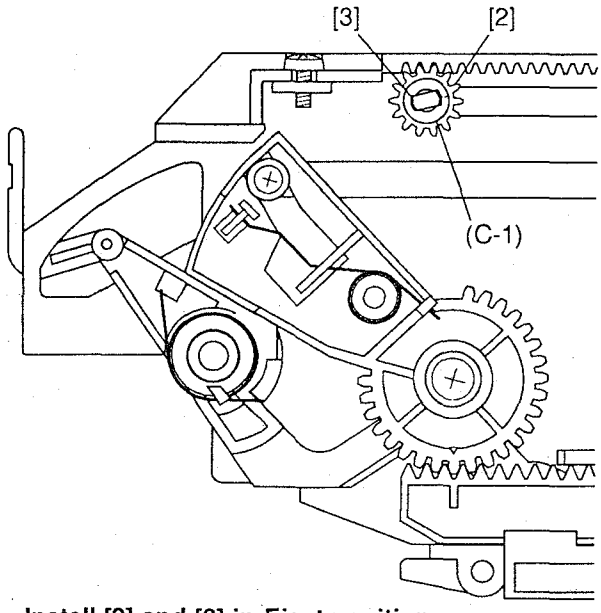
Spring must be placed in hole.



F Door Opener R Spring

Fig. DM29

View before disassembling [2] and [3]
(Installation of Slider Shaft and Slider Gear)



Install [2] and [3] in Eject position.
(When disassembling, [2] and [3] can be removed either in Eject position or Cassette-in position.)

- This figure shows where [2], [3] and other parts are in Eject position.

Fig. DM30

ALIGNMENT PROCEDURES OF MECHANISM

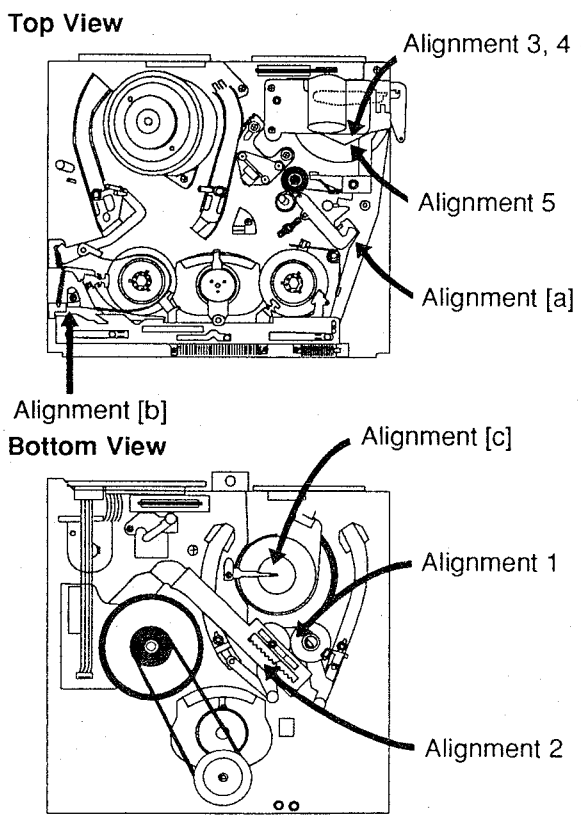
The following procedures describe how to align the individual gears and levers that make up the tape loading/unloading mechanism. Since information about the state of the mechanism is provided to the System Control Circuit only through the Mode Switch, it is essential that the correct relationship between 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 [a] through [c] can be done independently of any other alignment. **Fig. AL1**

Alignment [a]

Tape Guide Assembly

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

Alignment 1

Loading Gears, A and B

1. Install Loading Gears A and B so that their triangle marks point to each other as shown in Fig. AL2.

Alignment 2

Loading Arm M Assembly

1. Keeping the two triangles pointing at each other, install Loading Arm M Assembly so that its tooth with yet another triangle mark is in the position to align with Loading Gear A and the center of the shaft. See Fig. AL2.

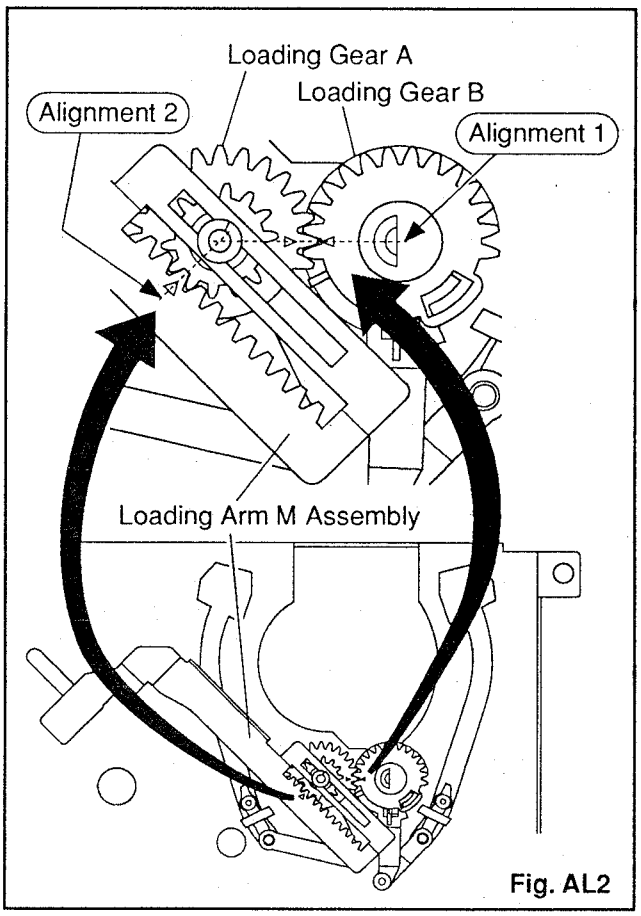


Fig. AL2

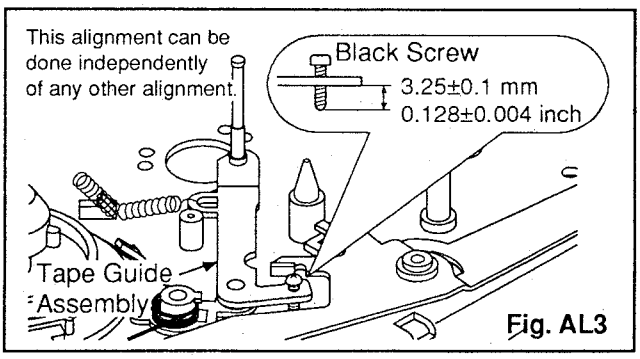


Fig. AL3

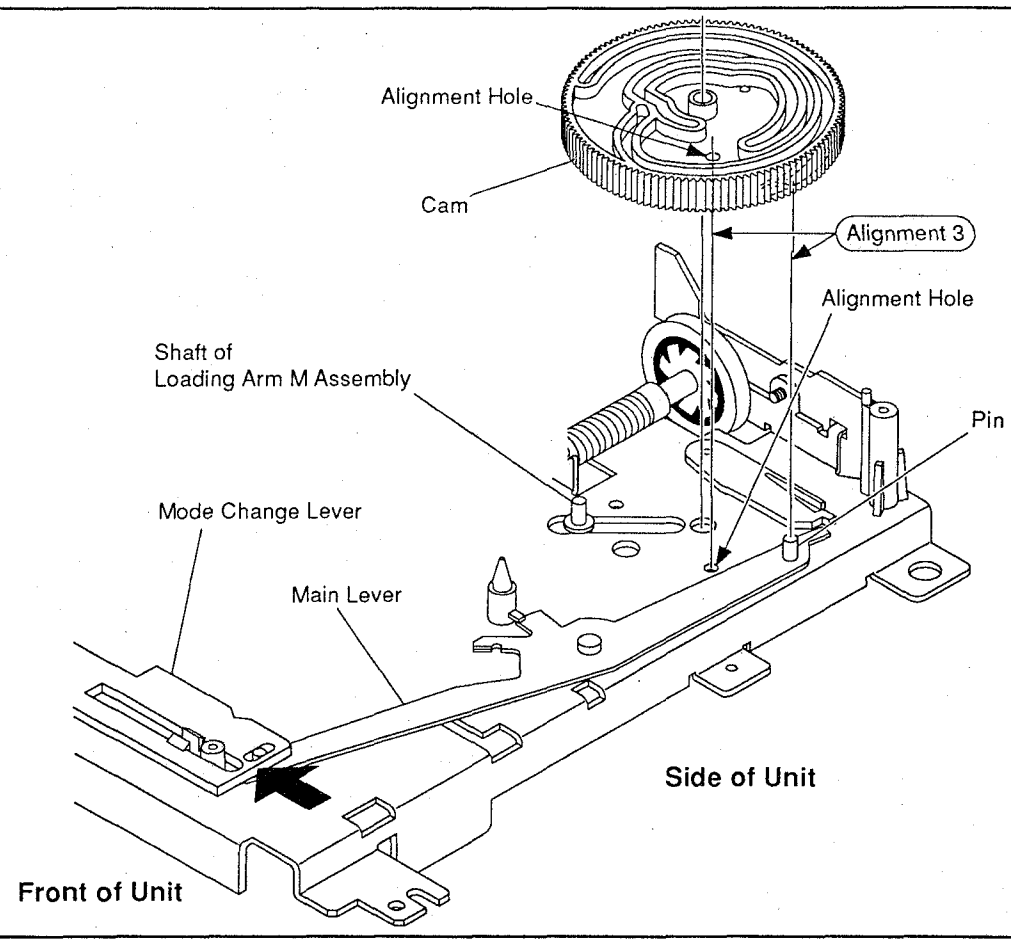


Fig. AL4

Alignment 3

Cam

1. Make sure that the mechanism is in Eject mode so that the shaft of Loading Arm M Assembly is in the position shown in Fig. AL4.
2. Align the alignment hole of the Cam with the alignment hole of the base, holding the Cam just above the base.
3. Carefully keeping these two holes aligned, install the Cam while pushing Mode Change Lever in the direction of the arrow. The Mode Change Lever must be pushed to make the pin on the Main Lever fit in the proper groove in the lower Cam.
4. After installing the Cam, make sure that the alignment hole of the Cam is still aligned with the base hole and that the pin on the Main Lever is inserted into the proper groove of the lower Cam as specified in Fig. AL4.

Alignment 4

Pinch Roller Arm Assembly

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

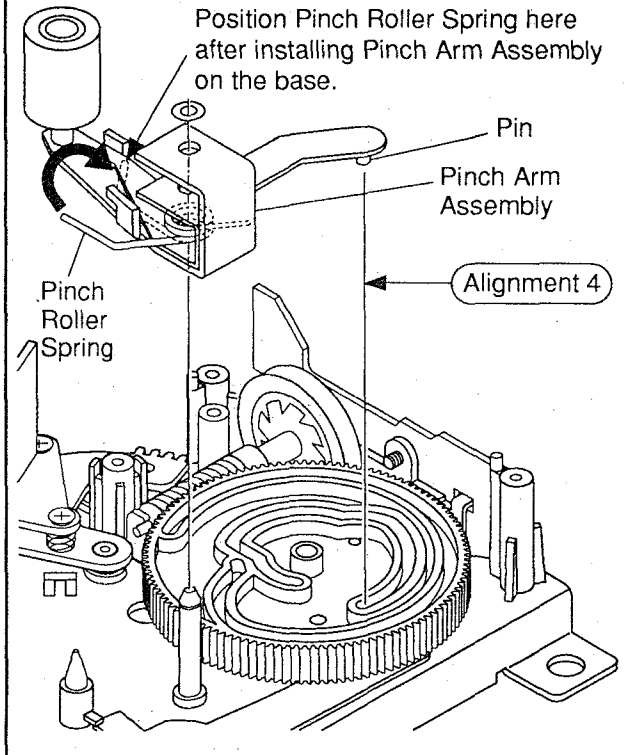


Fig. AL5

Alignment 5

Cassette Drive Lever Assembly

1. Ensure that the pin of the Cassette Drive Lever Assembly is positioned in the groove of the upper Cam as shown in Fig. AL6.

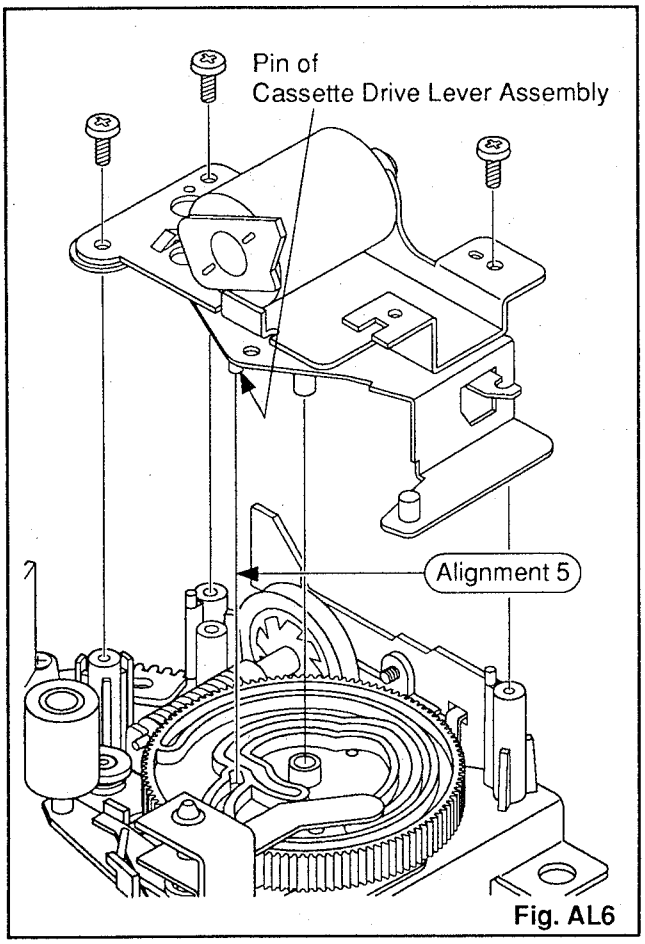


Fig. AL6

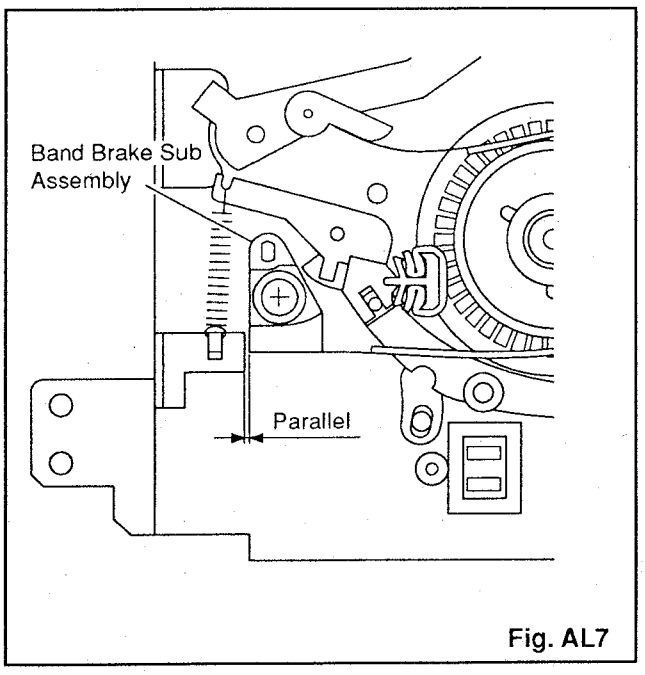


Fig. AL7

Alignment [b]

This alignment can be performed independently of any other alignment.

Band Brake Sub Assembly

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

Alignment [c]

This alignment can be performed independently of any other alignment.

Ground Brush Assembly

1. Check to see if the Ground Brush Assembly is properly set in a position equal to or just less than 1mm (0.04 inch) (but never more than 1 mm or 0.04 inch), as measured from the center of the brush to the center of the Cylinder Shaft as shown in Fig. AL8.
2. If this measurement exceeds 1mm (0.04 inch), loosen and refasten the screw of the Ground Brush Assembly. If this is not enough and further adjustment is necessary, loosen and refasten the three screws of Cylinder Assembly. These three screws are shown in Fig. DM18 in DISASSEMBLY/ASSEMBLY PROCEDURES OF DECK MECHANISM.

Note: DO NOT install the Ground Brush Assembly in the opposite position (on the left side of the center of the Cylinder shaft), but always within a maximum of 1mm (0.04 inch) to the right side of the center of this shaft.

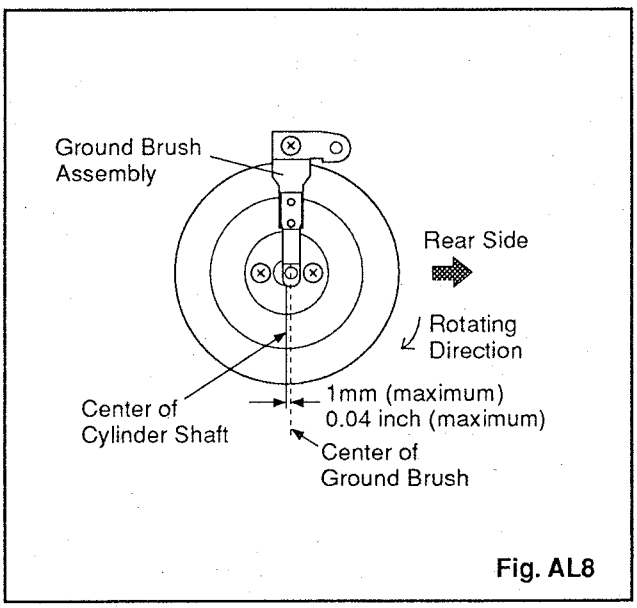


Fig. AL8

EXPLODED VIEWS AND PARTS LIST SECTION

VIDEO CASSETTE RECORDER

13A-109 / 13A-129 / 13A-509 / 13A-529

Sec. 3: Exploded views and Parts List Section

- **Exploded views**
- **Parts List**

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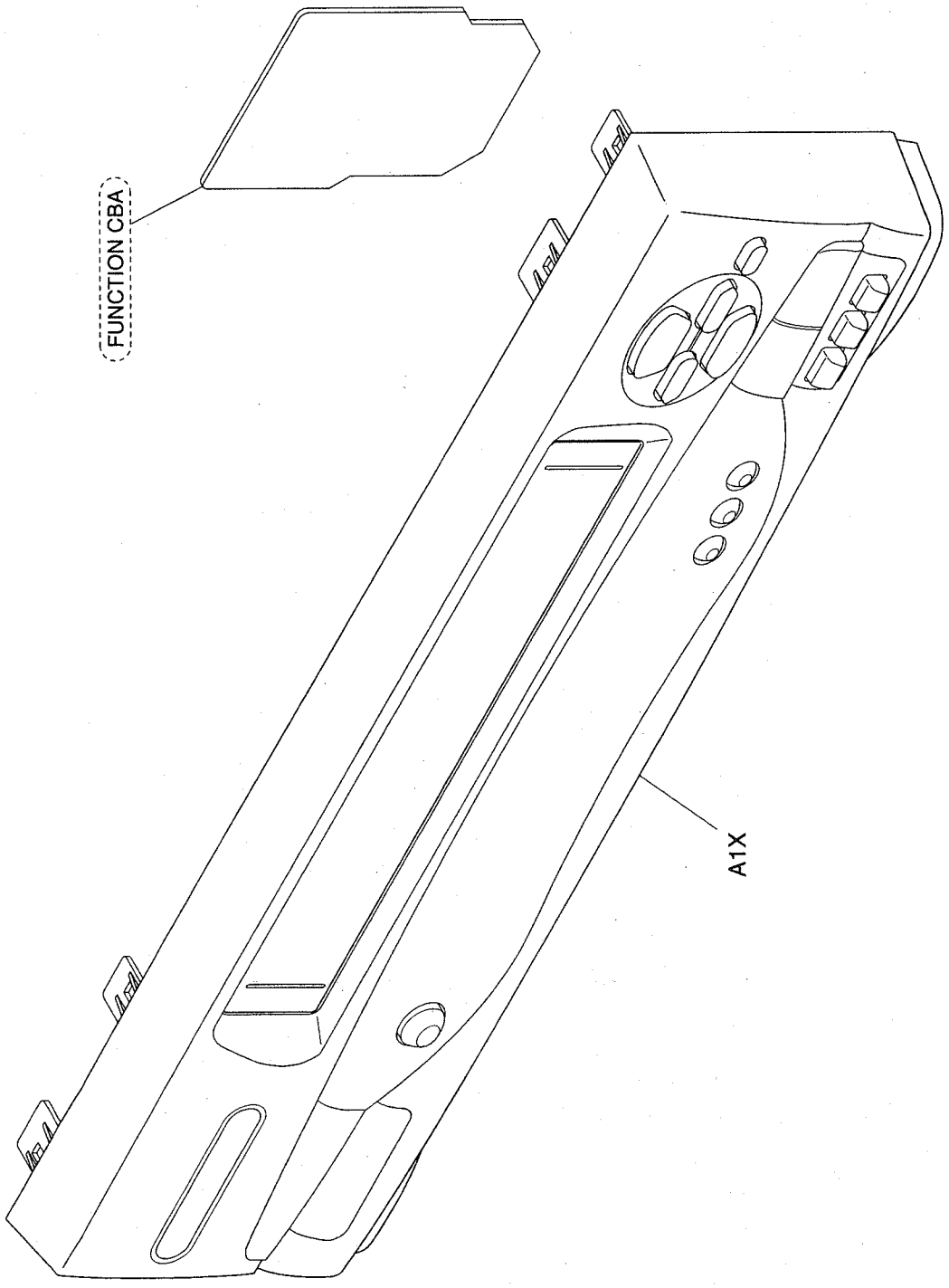
EXPLODED VIEWS

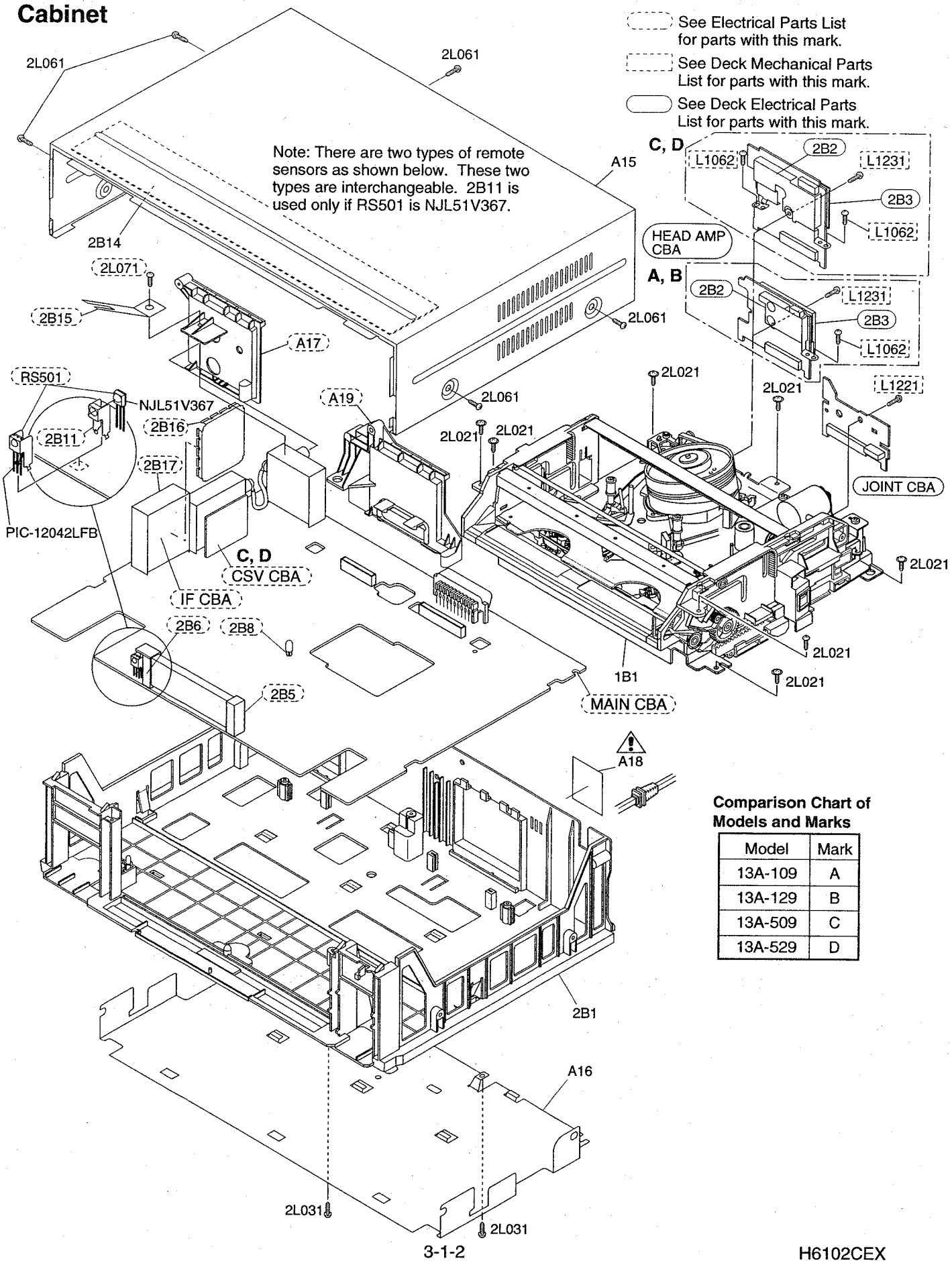
Front Panel

See Electrical Parts List for parts with this mark.



H6102FEX

Cabinet

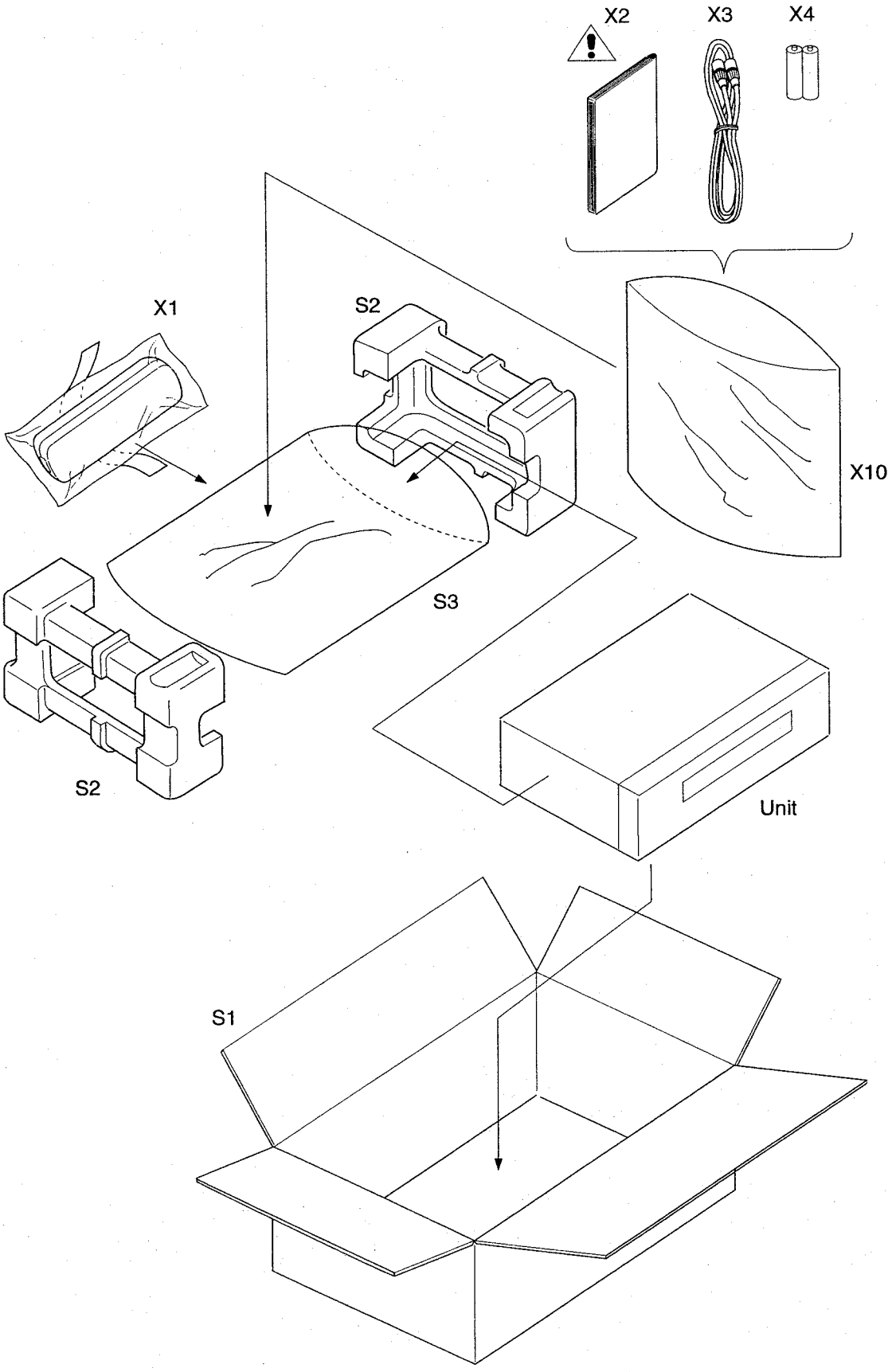


Comparison Chart of Models and Marks

Model	Mark
13A-109	A
13A-129	B
13A-509	C
13A-529	D

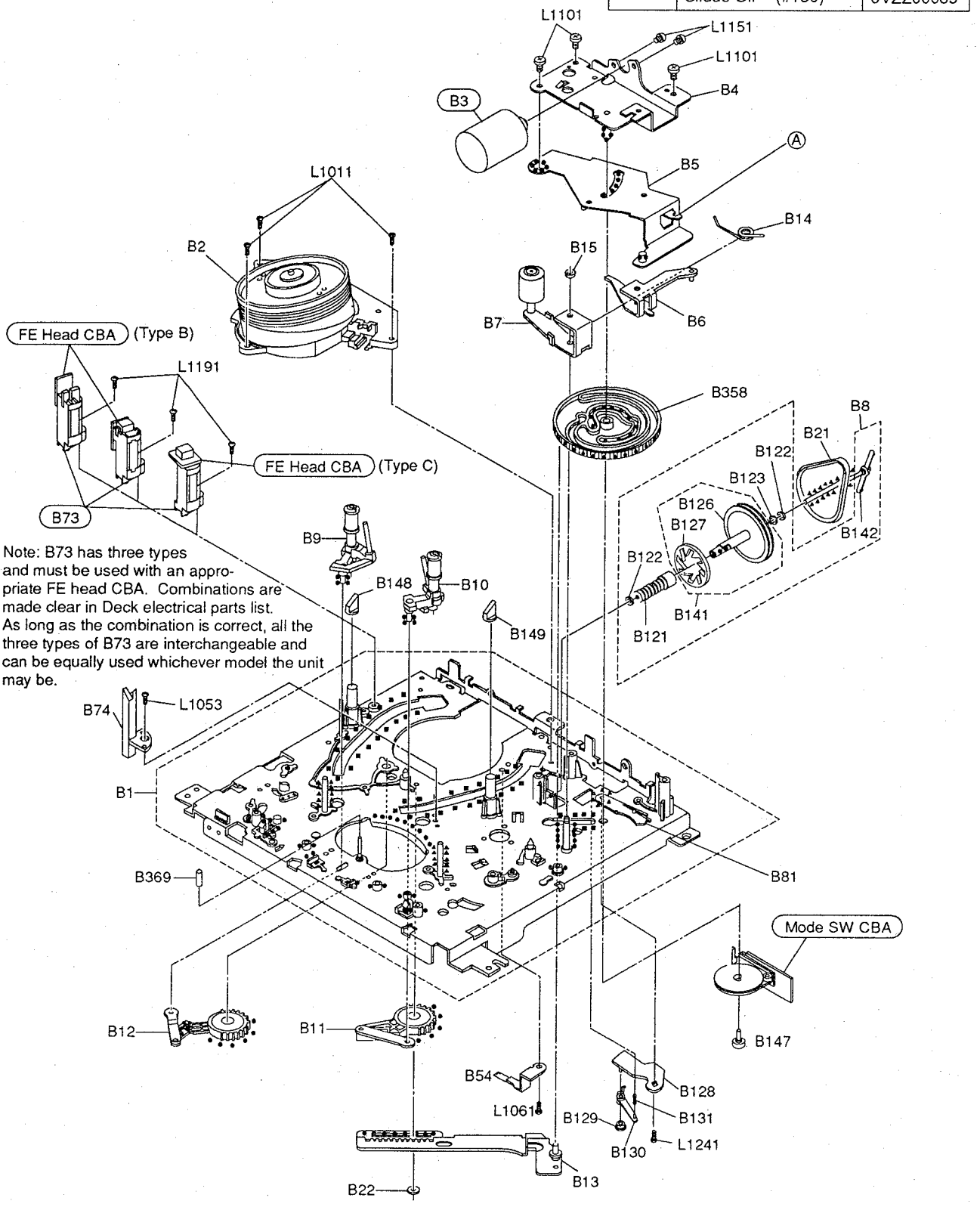
H6102CEX

Packing



Deck Mechanism
View 1

Mark	Description	Part No.
×××××	Sankohl (FG-84M)	0VZZ00062
■■■■■	Three Bond (TB-1901)	0VZZ00063
●●●●●	Floil (G-374G)	0VZZ00109
▲▲▲▲▲	Slidus Oil (#150)	0VZZ00065



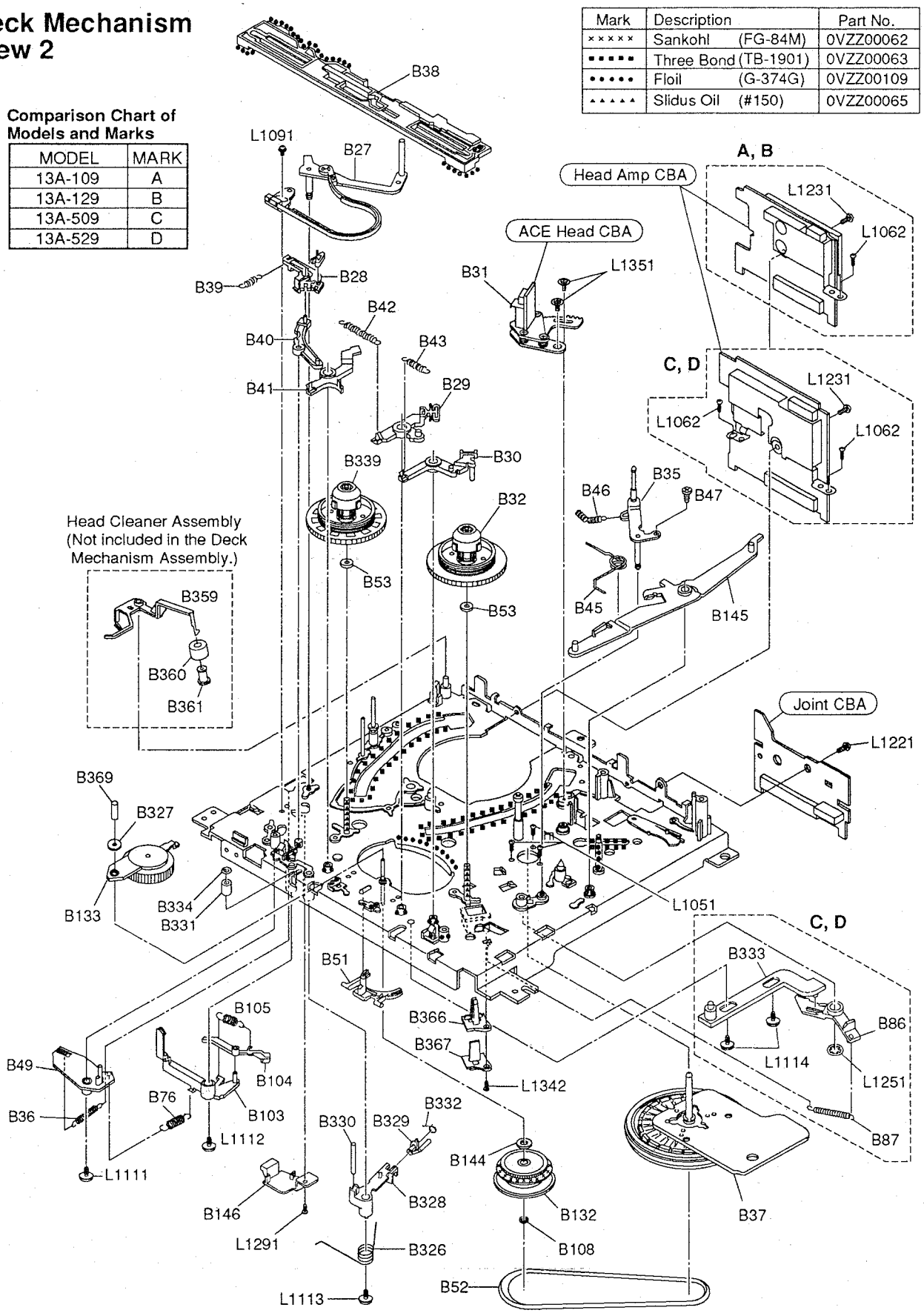
See the Deck Electrical Parts List.

Deck Mechanism View 2

Comparison Chart of Models and Marks

MODEL	MARK
13A-109	A
13A-129	B
13A-509	C
13A-529	D

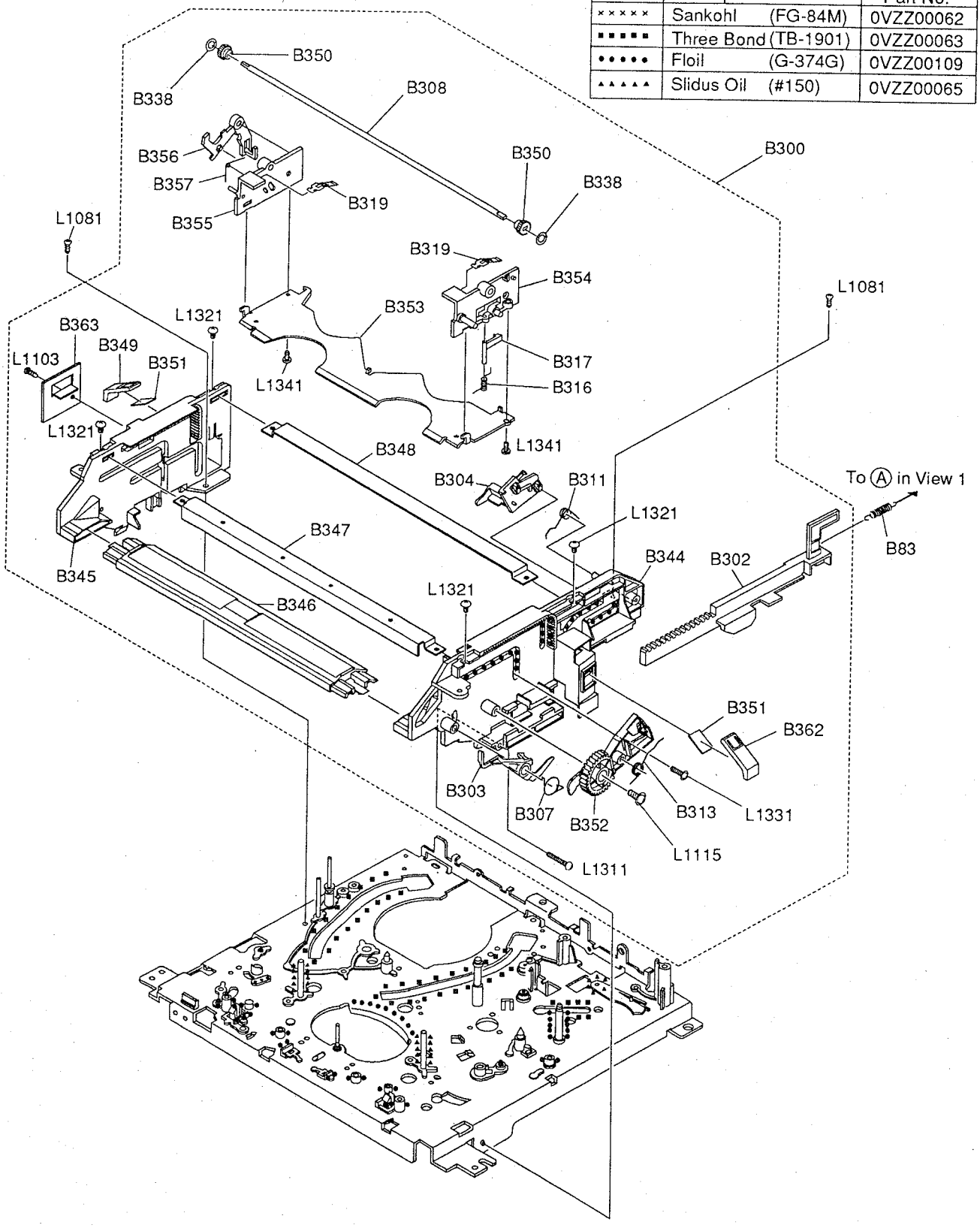
Mark	Description		Part No.
×××××	Sankohl	(FG-84M)	0VZZ00062
▪▪▪▪▪	Three Bond	(TB-1901)	0VZZ00063
●●●●●	Floil	(G-374G)	0VZZ00109
▲▲▲▲▲	Slidus Oil	(#150)	0VZZ00065



See the Deck Electrical Parts List.

Deck Mechanism
View 3

Mark	Description	Part No.
×××××	Sankohl (FG-84M)	0VZZ00062
■■■■■	Three Bond (TB-1901)	0VZZ00063
●●●●●	Floil (G-374G)	0VZZ00109
▲▲▲▲▲	Slidus Oil (#150)	0VZZ00065



MECHANICAL PARTS LIST

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

Comparision Chart of Models and Marks

MODEL	MARK
13A-109	A
13A-129	B
13A-509	C
13A-529	D

Ref. No.	Mark	Description	Part No.
A1X	A,B	FRONT ASSEMBLY	0VM201941
A1X	C,D	FRONT ASSEMBLY	0VM201960
A 15		CASE, TOP	0VM100621
A 16		PANEL, BOTTOM	0VM201919
A 18 ⚠	A	LABEL, RATING	0VM407361
A 18 ⚠	B	LABEL, RATING	0VM407362
A 18 ⚠	C	LABEL, RATING	0VM407425
A 18 ⚠	D	LABEL, RATING	0VM407646
1B 1	A,B	DECK ASSEMBLY	N5106FK
1B 1	C,D	DECK ASSEMBLY	N5147FK
2B 1		CHASSIS	0VM000090
2B 14		FIBER, TOP CASE	0VM406787
2L 021		SCREW, P-TIGHT 3X10 WASHER HEAD+	GCMP3100
2L 031		SCREW, P-TIGHT 3X10 BIND HEAD	GBMP3100
2L 061		SCREW, P-TIGHT 4X12 BIND HEAD+	GBKP4120
		PACKING	
S 1	A	GIFT BOX CARTON	0VM407364
S 1	B	GIFT BOX CARTON	0VM407363
S 1	C	GIFT BOX CARTON	0VM407422
S 1	D	GIFT BOX CARTON	0VM407649
S 2		STYROFOAM(U13 PAL)	0VM201926
S 3		ACCESSORY BAG 470X560X0.05T	Z547560
		ACCESSORY KIT	
X 1	A,B	REMOTE CONTROL UNIT 364/CRC001/4H/P2/VPS	UREMT34SR015
X 1	C,D	REMOTE CONTROL UNIT 364/CRC001/4H/P2/VPS	N9140EN
X 2 ⚠	A	OWNER'S MANUAL	0VMN01773
X 2 ⚠	B	OWNER'S MANUAL	0VMN01774
X 2 ⚠	C	OWNER'S MANUAL	0VMN01792
X 2 ⚠	D	OWNER'S MANUAL	0VMN01848
X 3		RF CORD PAL 1.2M	WPZ0122LG001
X 4		DRY BATTERY UM-3(M) 2PCS PACK or	1790849
		DRY BATTERY UM3/RS6 2PCS PACK or	579W099
		DRY BATTERY R6P(AR) 2PX	XB0M451HU002
X 10		ACCESSORY BAG	0VM404632

ELECTRICAL PARTS LIST

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

NOTE: Parts that not assigned part numbers (----------) are not available.

Tolerance of Capacitors and Resistors are noted with the following symbols.

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

Comparision Chart of Models and Marks

MODEL	MARK
13A-109	A
13A-129	B
13A-509	C
13A-529	D

MCV CBA

Ref. No.	Mark	Description	Part No.
	A,,B	MCV CBA (Main + Function + IFV)	0VSA07628
	C,,D	MCV CBA (Main + Function + IFV + CSV)	0VSA07786
		Consists of the following:	
		Main CBA (MCV-A)	————
		Function CBA (MCV-B)	————
	A,B	IF CBA (IFV)	0VSA07729
	C,D	IF CBA (IFV)	0VSA07788
	C,D	CSV CBA	0VSA07882

Main CBA (MCV-A)

Ref. No.	Mark	Description	Part No.
		Main CBA (MCV-A)	————
		Consists of the following:	
		CAPACITORS	
C 001 ⚠		METALLIZED FILM CAP. 0.047µF/250V K or	CT2E473NC011
		METALLIZED FILM CAP. 0.047µF/250V M or	CT2E473MS001
		METALLIZED FILM CAP. 0.047µF/250V M or	CT2E473UN009
		METALLIZED FILM CAP. 0.047µF/275V K or	CT2E473DT001
		METALLIZED FILM CAP. 0.047µF/250V K	CT2E473NC004
C 002 ⚠		METALLIZED FILM CAP. 0.047µF/250V K or	CT2E473NC011
		METALLIZED FILM CAP. 0.047µF/250V M or	CT2E473MS001
		METALLIZED FILM CAP. 0.047µF/250V M or	CT2E473UN009
		METALLIZED FILM CAP. 0.047µF/275V K or	CT2E473DT001
		METALLIZED FILM CAP. 0.047µF/250V K	CT2E473NC004
C 003 ⚠		SAFTY CAP. 2200pF/400V M or	CCN2HMA0E222
		SAFETY CAP. 2200pF/400V M	CCN2HMP0E222
C 004		ELECTROLYTIC CAP. 22µF/400V M or	CA2H220NC010
		ELECTROLYTIC CAP. 22µF/400V M	CA2H220SP027
C 005		CERAMIC CAP. 0.01µF/500V or	CA2J103TU001
		CERAMIC CAP. B K 0.01µF/500V or	CCD2JKD0B103
		CERAMIC CAP. B K 0.01µF/500V	CCD2JKP0B103
C 006		CERAMIC CAP. SL J 120pF/1KV or	CA3A121MR506
		CERAMIC CAP. SL K 120pF/1KV	CCD3AKPSL121
C 007		SEMICONDUCTOR CAP. SR K 0.039µF/25V or	CDA1EKS0X393
		SEMICONDUCTOR CAP. SR K 0.039µF/25V	12Y2393S
C 008		CERAMIC CAP.(AX) X K 3300pF/16V or	CDA1CKT0X332
		CERAMIC CAP. X K 0.0033µF/16V	3X4C332T
C 009		CERAMIC CAP.(AX) X K 4700pF/16V or	CDA1CKT0X472
		CERAMIC CAP. X K 0.0047µF/16V	3X4C472T
C 010		SEMICONDUCTOR CAP. SR K 0.022µF/25V or	CDA1EKS0X223
		SEMICONDUCTOR CAP. SR K 0.022µF/25V	12Y2223S
C 011		ELECTROLYTIC CAP. 4.7µF/50V M	CE1JMASDL4R7
C 012		ELECTROLYTIC CAP. 470µF/16V M	CE1CMASDL471
C 013		ELECTROLYTIC CAP. 22µF/50V M	CE1JMASDL220
C 014		ELECTROLYTIC CAP. 330µF/16V M	CE1CMASDL331
C 015		ELECTROLYTIC CAP. 330µF/16V M	CE1CMASDL331
C 016		ELECTROLYTIC CAP. 1000µF/6.3V M	CE0KMASDL102
C 017		ELECTROLYTIC CAP. 100µF/10V M	CE1AMASDL101
C 018		CERAMIC CAP. F Z 0.01µF/50V	CCD1JZS0F103
C 019		SEMICONDUCTOR CAP. SR K 0.022µF/25V or	CDA1EKS0X223
		SEMICONDUCTOR CAP. SR K 0.022µF/25V	12Y2223S
C 021		CERAMIC CAP.(AX) B J 150pF/50V or	CCA1JJT0B151
		CERAMIC CAP.(AX) B K 150pF/50V or	CCA1JKT0B151
		CERAMIC CAP. B J 150pF/50V or	3B41151T
		CERAMIC CAP. B K 150pF/50V	3B42151T
C 022		*MYLAR CAP. 0.0012µF/100V J or	CMA2AJS00122
		MYLAR CAP. 0.0012µF/100V J	1255122S
C 051		ELECTROLYTIC CAP. 0.47µF/50V M H7 or	CE1JMASSLR47
		ELECTROLYTIC CAP. 0.47µF/50V M H7	526W474S
C 053		CERAMIC CAP.(AX) B J 470pF/50V or	CCA1JJT0B471
		CERAMIC CAP.(AX) B K 470pF/50V or	CCA1JKT0B471
		CERAMIC CAP. B J 470pF/50V or	3B41471T
		CERAMIC CAP. B K 470pF/50V	3B42471T
C 054		ELECTRIC DOUBLE LAYER CAP. 0.022F/5.5V Z	CA0J223NE003
C 055		ELECTROLYTIC CAP. 47µF/6.3V M	CE0KMASDL470
C 056		ELECTROLYTIC CAP. 470µF/6.3V M	CE0KMASDL471
C 060		CERAMIC CAP.(AX) B J 150pF/50V or	CCA1JJT0B151
		CERAMIC CAP.(AX) B K 150pF/50V or	CCA1JKT0B151
		CERAMIC CAP. B J 150pF/50V or	3B41151T
		CERAMIC CAP. B K 150pF/50V	3B42151T
C 061		CERAMIC CAP.(AX) F Z 0.022µF/25V or	CDA1EZT0F223
		CERAMIC CAP. F Z 0.022µF/25V	1220843T
C 062		CERAMIC CAP.(AX) Y M 0.01µF/16V	CDA1CMT0Y103
C 301		ELECTROLYTIC CAP. 0.1µF/50V M H7 or	CE1JMASSL0R1
		ELECTROLYTIC CAP. 0.1µF/50V M H7	526W104S
C 302		CERAMIC CAP.(AX) SL J 39pF/50V or	CCA1JJTSL390
		CERAMIC CAP. SL J 39pF/50V	3S41390T

* Mylar is a registered trademark of E. I. DuPont de Nemours and Company.

Ref. No.	Mark	Description	Part No.
C 303		ELECTROLYTIC CAP. 0.1μF/50V M H7 or	CE1JMASSL0R1
		ELECTROLYTIC CAP. 0.1μF/50V M H7	526W104S
C 304		CERAMIC CAP.(AX) B J 150pF/50V or	CCA1JJT0B151
		CERAMIC CAP.(AX) B K 150pF/50V or	CCA1JKT0B151
		CERAMIC CAP. B J 150pF/50V or	3B41151T
		CERAMIC CAP. B K 150pF/50V	3B42151T
C 305	A,B	CERAMIC CAP.(AX) SL J 56pF/50V or	CCA1JJTSL560
		CERAMIC CAP. SL J 56pF/50V	3S41560T
C 305	C,D	CERAMIC CAP.(AX) SL J 47pF/50V or	CCA1JJTSL470
		CERAMIC CAP. SL J 47pF/50V	3S41470T
C 306	A,B	CERAMIC CAP.(AX) F Z 0.022μF/25V or	CDA1EZT0F223
		CERAMIC CAP. F Z 0.022μF/25V	1220843T
C 306	C,D	CERAMIC CAP.(AX) Y M 0.01μF/16V	CDA1CMT0Y103
C 307		CERAMIC CAP.(AX) F Z 0.1μF/50V	CCA1JZT0F104
C 308		CERAMIC CAP.(AX) SL J 39pF/50V or	CCA1JJTSL390
		CERAMIC CAP. SL J 39pF/50V	3S41390T
C 309		CERAMIC CAP.(AX) SL J 33pF/50V or	CCA1JJTSL330
		CERAMIC CAP. SL J 33pF/50V	3S41330T
C 310		CERAMIC CAP.(AX) SL J 33pF/50V or	CCA1JJTSL330
		CERAMIC CAP. SL J 33pF/50V	3S41330T
C 311		CERAMIC CAP.(AX) SL J 27pF/50V or	CCA1JJTSL270
		CERAMIC CAP. SL J 27pF/50V	3S41270T
C 312		CERAMIC CAP.(AX) Y M 0.01μF/16V	CDA1CMT0Y103
C 313		CERAMIC CAP.(AX) SL J 39pF/50V or	CCA1JJTSL390
		CERAMIC CAP. SL J 39pF/50V	3S41390T
C 317		CERAMIC CAP.(AX) B J 220pF/50V or	CCA1JJT0B221
		CERAMIC CAP.(AX) B K 220pF/50V or	CCA1JKT0B221
		CERAMIC CAP. B J 220pF/50V or	3B41221T
		CERAMIC CAP. B K 220pF/50V	3B42221T
C 318		CERAMIC CAP.(AX) B J 100pF/50V or	CCA1JJT0B101
		CERAMIC CAP.(AX) B K 100pF/50V or	CCA1JKT0B101
		CERAMIC CAP. B J 100pF/50V or	3B41101T
		CERAMIC CAP. B K 100pF/50V	3B42101T
C 319		CERAMIC CAP.(AX) SL J 39pF/50V or	CCA1JJTSL390
		CERAMIC CAP. SL J 39pF/50V	3S41390T
C 320		CERAMIC CAP.(AX) B J 270pF/50V or	CCA1JJT0B271
		CERAMIC CAP.(AX) B K 270pF/50V or	CCA1JKT0B271
		CERAMIC CAP. B J 270pF/50V or	3B41271T
		CERAMIC CAP. B K 270pF/50V	3B42271T
C 322		ELECTROLYTIC CAP. 470μF/6.3V M	CE0KMASDL471
C 323		ELECTROLYTIC CAP. 100μF/16V M	CE1CMASDL101
C 325		CERAMIC CAP.(AX) B J 180pF/50V or	CCA1JJT0B181
		CERAMIC CAP.(AX) B K 180pF/50V or	CCA1JKT0B181
		CERAMIC CAP. B J 180pF/50V or	3B41181T
		CERAMIC CAP. B K 180pF/50V	3B42181T
C 326		CERAMIC CAP.(AX) SL J 33pF/50V or	CCA1JJTSL330
		CERAMIC CAP. SL J 33pF/50V	3S41330T
C 327		CERAMIC CAP.(AX) SL J 47pF/50V or	CCA1JJTSL470
		CERAMIC CAP. SL J 47pF/50V	3S41470T
C 328		CERAMIC CAP.(AX) SL J 68pF/50V or	CCA1JJTSL680
		CERAMIC CAP. SL J 68pF/50V	3S41680T
C 329		CERAMIC CAP.(AX) SL J 22pF/50V or	CCA1JJTSL220
		CERAMIC CAP. SL J 22pF/50V	3S41220T
C 330		ELECTROLYTIC CAP. 1μF/50V M H7 or	CE1JMASSL010
		ELECTROLYTIC CAP. 1μF/50V M H7	526W105S
C 331		CERAMIC CAP.(AX) B J 390pF/50V or	CCA1JJT0B391
		CERAMIC CAP.(AX) B K 390pF/50V or	CCA1JKT0B391
		CERAMIC CAP. B J 390pF/50V or	3B41391T
		CERAMIC CAP. B K 390pF/50V	3B42391T
C 332		CERAMIC CAP.(AX) SL J 18pF/50V or	CCA1JJTSL180
		CERAMIC CAP. SL J 18pF/50V	3S41180T
C 333		CERAMIC CAP.(AX) B J 100pF/50V or	CCA1JJT0B101
		CERAMIC CAP.(AX) B K 100pF/50V or	CCA1JKT0B101
		CERAMIC CAP. B J 100pF/50V or	3B41101T
		CERAMIC CAP. B K 100pF/50V	3B42101T
C 334		ELECTROLYTIC CAP. 10μF/16V M	CE1CMASDL100

Ref. No.	Mark	Description	Part No.
C 335		ELECTROLYTIC CAP. 10μF/16V M H7 or	CE1CMASSL100
		ELECTROLYTIC CAP. 10μF/16V M H7	526T106S
C 336		CERAMIC CAP.(AX) SL J 39pF/50V or	CCA1JJTSL390
		CERAMIC CAP. SL J 39pF/50V	3S41390T
C 337		CERAMIC CAP.(AX) F Z 0.047μF/50V	CCA1JZT0F473
C 338		CERAMIC CAP.(AX) F Z 0.022μF/25V or	CDA1EZT0F223
		CERAMIC CAP. F Z 0.022μF/25V	1220843T
C 339		CERAMIC CAP. F Z 0.01μF/50V	CCD1JZS0F103
C 340		ELECTROLYTIC CAP. 1μF/50V M H7 or	CE1JMASSL010
		ELECTROLYTIC CAP. 1μF/50V M H7	526W105S
C 344		ELECTROLYTIC CAP. 1μF/50V M H7 or	CE1JMASSL010
		ELECTROLYTIC CAP. 1μF/50V M H7	526W105S
C 345		SEMICONDUCTOR CAP. SR K 0.01μF/25V or	CDA1EKS0X103
		SEMICONDUCTOR CAP. SR K 0.01μF/25V	12Y2103S
C 346		CERAMIC CAP.(AX) Y M 0.01μF/16V	CDA1CMT0Y103
C 347		ELECTROLYTIC CAP. 10μF/16V M H7 or	CE1CMASSL100
		ELECTROLYTIC CAP. 10μF/16V M H7	526T106S
C 348		ELECTROLYTIC CAP. 4.7μF/50V M H7 or	CE1JMASSL4R7
		ELECTROLYTIC CAP. 4.7μF/50V M H7	526W475S
C 349		ELECTROLYTIC CAP. 220μF/6.3V M H7 or	CE0KMASSL221
		ELECTROLYTIC CAP. 220μF/6.3V M H7	526R227S
C 350		CERAMIC CAP.(AX) F Z 0.1μF/50V	CCA1JZT0F104
C 351		ELECTROLYTIC CAP. 4.7μF/25V M H7 or	CE1EMASSL4R7
		ELECTROLYTIC CAP. 4.7μF/25V M H7	526U475S
C 352		CERAMIC CAP.(AX) F Z 0.1μF/50V	CCA1JZT0F104
C 353		CERAMIC CAP.(AX) F Z 0.022μF/25V or	CDA1EZT0F223
		CERAMIC CAP. F Z 0.022μF/25V	1220843T
C 354		ELECTROLYTIC CAP. 4.7μF/25V M H7 or	CE1EMASSL4R7
		ELECTROLYTIC CAP. 4.7μF/25V M H7	526U475S
C 355		ELECTROLYTIC CAP. 1μF/50V M H7 or	CE1JMASSL010
		ELECTROLYTIC CAP. 1μF/50V M H7	526W105S
C 360	C,D	CERAMIC CAP.(AX) F Z 0.1μF/50V	CCA1JZT0F104
C 361		ELECTROLYTIC CAP. 22μF/10V M	CE1AMASDL220
C 362	A,B	CERAMIC CAP.(AX) F Z 0.047μF/50V	CCA1JZT0F473
C 362	C,D	CERAMIC CAP.(AX) Y M 0.01μF/16V	CDA1CMT0Y103
C 363	A,B	CERAMIC CAP.(AX) X K 2200pF/16V or	CDA1CKT0X222
		CERAMIC CAP. X K 0.0022μF/16V	3X4C222T
C 364	A,B	PCB JUMPER D0.6-P5.0	JW5.0T
C 364	C,D	FARRITE BEAD CORE HF55BTS3.5X4.5B	LLBF00ZTE003
C 365		CERAMIC CAP.(AX) SL J 27pF/50V or	CCA1JJTSL270
		CERAMIC CAP. SL J 27pF/50V	3S41270T
C 366		CERAMIC CAP.(AX) SL J 27pF/50V or	CCA1JJTSL270
		CERAMIC CAP. SL J 27pF/50V	3S41270T
C 367		CERAMIC CAP.(AX) F Z 0.1μF/50V	CCA1JZT0F104
C 368		ELECTROLYTIC CAP. 1μF/50V M	CE1JMASDL010
C 370		SEMICONDUCTOR CAP. SR K 0.01μF/25V or	CDA1EKS0X103
		SEMICONDUCTOR CAP. SR K 0.01μF/25V	12Y2103S
C 371		CERAMIC CAP.(AX) SL J 12pF/50V or	CCA1JJTSL120
		CERAMIC CAP. SL J 12pF/50V	3S41120T
C 372		CERAMIC CAP.(AX) SL J 15pF/50V or	CCA1JJTSL150
		CERAMIC CAP. SL J 15pF/50V	3S41150T
C 373		CERAMIC CAP.(AX) Y M 0.01μF/16V	CDA1CMT0Y103
C 374	A,B	ELECTROLYTIC CAP. 1μF/50V M H7 or	CE1JMASSL010
		ELECTROLYTIC CAP. 1μF/50V M H7	526W105S
C 380		CERAMIC CAP.(AX) B J 1000pF/50V or	CDA1JJT0B102
		CERAMIC CAP.(AX) B K 1000pF/50V or	CDA1JKT0B102
		CERAMIC CAP. B J 0.001μF/50V or	3B41102T
		CERAMIC CAP. B K 0.001μF/50V	3B42102T
C 388	A,B	CERAMIC CAP.(AX) SL J 56pF/50V or	CCA1JJTSL560
		CERAMIC CAP. SL J 56pF/50V	3S41560T
C 390	C,D	CERAMIC CAP.(AX) SL J 68pF/50V or	CCA1JJTSL680

Ref. No.	Mark	Description	Part No.
		CERAMIC CAP. SL J 68pF/50V	3S41680T
C 391	C,D	ELECTROLYTIC CAP. 1μF/50V M H7 or	CE1JMASSL010
		ELECTROLYTIC CAP. 1μF/50V M H7	526W105S
C 401		MYLAR CAP. 0.022μF/100V J or	CMA2AJS00223
		MYLAR CAP. 0.022μF/100V J	1255223S
C 402		ELECTROLYTIC CAP. 47μF/16V M H7 or	CE1CMASSL470
		ELECTROLYTIC CAP. 47μF/16V M H7	526T476S
C 403		SEMICONDUCTOR CAP. SR K 0.01μF/25V or	CDA1EKS0X103
		SEMICONDUCTOR CAP. SR K 0.01μF/25V	12Y2103S
C 404		SEMICONDUCTOR CAP. SR K 0.01μF/25V or	CDA1EKS0X103
		SEMICONDUCTOR CAP. SR K 0.01μF/25V	12Y2103S
C 405		ELECTROLYTIC CAP. 4.7μF/25V M H7 or	CE1EMASSL4R7
		ELECTROLYTIC CAP. 4.7μF/25V M H7	526U475S
C 406		ELECTROLYTIC CAP. 22μF/16V M H7 or	CE1CMASSL220
		ELECTROLYTIC CAP. 22μF/16V M H7	526T226S
C 407		CERAMIC CAP.(AX) Y M 0.01μF/16V	CDA1CMT0Y103
C 408		CERAMIC CAP.(AX) B J 220pF/50V or	CCA1JJT0B221
		CERAMIC CAP.(AX) B K 220pF/50V or	CCA1JKT0B221
		CERAMIC CAP. B J 220pF/50V or	3B41221T
		CERAMIC CAP. B K 220pF/50V	3B42221T
C 409		ELECTROLYTIC CAP. 0.1μF/50V M	CE1JMASDL0R1
C 410		CERAMIC CAP.(AX) X K 2700pF/16V or	CDA1CKT0X272
		CERAMIC CAP. X K 0.0027μF/16V	3X4C272T
C 411		CERAMIC CAP.(AX) F Z 0.1μF/50V	CCA1JZT0F104
C 412		ELECTROLYTIC CAP. 3.3μF/50V M	CE1JMASDL3R3
C 413		CERAMIC CAP.(AX) X K 6800pF/16V or	CDA1CKT0X682
		CERAMIC CAP. X K 0.0068μF/16V	3X4C682T
C 414		ELECTROLYTIC CAP. 4.7μF/25V M H7 or	CE1EMASSL4R7
		ELECTROLYTIC CAP. 4.7μF/25V M H7	526U475S
C 415		ELECTROLYTIC CAP. 0.1μF/50V M H7 or	CE1JMASSL0R1
		ELECTROLYTIC CAP. 0.1μF/50V M H7	526W104S
C 416		CERAMIC CAP.(AX) X K 1800pF/16V or	CDA1CKT0X182
		CERAMIC CAP. X K 0.0018μF/16V	3X4C182T
C 417		CERAMIC CAP.(AX) X K 1200pF/16V or	CDA1CKT0X122
		CERAMIC CAP. X K 0.0012μF/16V	3X4C122T
C 418		ELECTROLYTIC CAP. 1μF/50V M H7 or	CE1JMASSL010
		ELECTROLYTIC CAP. 1μF/50V M H7	526W105S
C 419		ELECTROLYTIC CAP. 0.1μF/50V M	CE1JMASDL0R1
C 420		ELECTROLYTIC CAP. 10μF/16V M H7 or	CE1CMASSL100
		ELECTROLYTIC CAP. 10μF/16V M H7	526T106S
C 421		ELECTROLYTIC CAP. 1μF/50V M H7 or	CE1JMASSL010
		ELECTROLYTIC CAP. 1μF/50V M H7	526W105S
C 501		CERAMIC CAP.(AX) B J 1000pF/50V or	CDA1JJT0B102
		CERAMIC CAP.(AX) B K 1000pF/50V or	CDA1JKT0B102
		CERAMIC CAP. B J 0.001μF/50V or	3B41102T
		CERAMIC CAP. B K 0.001μF/50V	3B42102T
C 502		CERAMIC CAP.(AX) B J 1000pF/50V or	CDA1JJT0B102
		CERAMIC CAP.(AX) B K 1000pF/50V or	CDA1JKT0B102
		CERAMIC CAP. B J 0.001μF/50V or	3B41102T
		CERAMIC CAP. B K 0.001μF/50V	3B42102T
C 503		CERAMIC CAP.(AX) Y M 0.01μF/16V	CDA1CMT0Y103
C 504		CERAMIC CAP.(AX) B J 1000pF/50V or	CDA1JJT0B102
		CERAMIC CAP.(AX) B K 1000pF/50V or	CDA1JKT0B102
		CERAMIC CAP. B J 0.001μF/50V or	3B41102T
		CERAMIC CAP. B K 0.001μF/50V	3B42102T
C 506		ELECTROLYTIC CAP. 22μF/16V M H7 or	CE1CMASSL220
		ELECTROLYTIC CAP. 22μF/16V M H7	526T226S
C 508		CERAMIC CAP.(AX) B J 1000pF/50V or	CDA1JJT0B102
		CERAMIC CAP.(AX) B K 1000pF/50V or	CDA1JKT0B102
		CERAMIC CAP. B J 0.001μF/50V or	3B41102T
		CERAMIC CAP. B K 0.001μF/50V	3B42102T
C 509		CERAMIC CAP.(AX) X K 3300pF/16V or	CDA1CKT0X332
		CERAMIC CAP. X K 0.0033μF/16V	3X4C332T

Ref. No.	Mark	Description	Part No.
C 510		ELECTROLYTIC CAP. 47μF/6.3V M H7 or	CE0KMASSL470
		ELECTROLYTIC CAP. 47μF/6.3V M H7	526R476S
C 511		CERAMIC CAP.(AX) Y M 0.01μF/16V	CDA1CMT0Y103
C 512		CERAMIC CAP.(AX) X K 3300pF/16V or	CDA1CKT0X332
		CERAMIC CAP. X K 0.0033μF/16V	3X4C332T
C 513		CERAMIC CAP.(AX) X K 6800pF/16V or	CDA1CKT0X682
		CERAMIC CAP. X K 0.0068μF/16V	3X4C682T
C 514		CERAMIC CAP.(AX) F Z 0.047μF/50V	CCA1JZT0F473
C 515		ELECTROLYTIC CAP. 47μF/6.3V M H7 or	CE0KMASSL470
		ELECTROLYTIC CAP. 47μF/6.3V M H7	526R476S
C 516		CERAMIC CAP.(AX) B J 330pF/50V or	CCA1JJT0B331
		CERAMIC CAP.(AX) B K 330pF/50V or	CCA1JKT0B331
		CERAMIC CAP. B J 330pF/50V or	3B41331T
		CERAMIC CAP. B K 330pF/50V	3B42331T
C 517	C,D	CERAMIC CAP.(AX) F Z 0.022μF/25V or	CDA1EZT0F223
		CERAMIC CAP. F Z 0.022μF/25V	1220843T
C 518	A,B	CERAMIC CAP. F Z 0.01μF/50V	CCD1JZS0F103
C 518	C,D	CERAMIC CAP.(AX) B J 1000pF/50V or	CDA1JJT0B102
		CERAMIC CAP.(AX) B K 1000pF/50V or	CDA1JKT0B102
		CERAMIC CAP. B J 0.001μF/50V or	3B41102T
		CERAMIC CAP. B K 0.001μF/50V	3B42102T
C 519		ELECTROLYTIC CAP. 10μF/16V M LL H7 or	CA1C100SP018
		ELECTROLYTIC CAP. 10μF/16V M LL H7	CE1CMASHL100
C 520		CERAMIC CAP.(AX) B J 220pF/50V or	CCA1JJT0B221
		CERAMIC CAP.(AX) B K 220pF/50V or	CCA1JKT0B221
		CERAMIC CAP. B J 220pF/50V or	3B41221T
		CERAMIC CAP. B K 220pF/50V	3B42221T
C 521		ELECTROLYTIC CAP. 2.2μF/50V M	CE1JMASDL2R2
C 522		ELECTROLYTIC CAP. 10μF/16V M	CE1CMASDL100
C 523		CERAMIC CAP.(AX) SL J 27pF/50V or	CCA1JJTSL270
		CERAMIC CAP. SL J 27pF/50V	3S41270T
C 524		CERAMIC CAP.(AX) SL J 27pF/50V or	CCA1JJTSL270
		CERAMIC CAP. SL J 27pF/50V	3S41270T
C 525		ELECTROLYTIC CAP. 100μF/6.3V M H7 or	CE0KMASSL101
		ELECTROLYTIC CAP. 100μF/6.3V M H7	526R107S
C 526		CERAMIC CAP.(AX) F Z 0.022μF/25V or	CDA1EZT0F223
		CERAMIC CAP. F Z 0.022μF/25V	1220843T
C 527		CERAMIC CAP.(AX) B J 1000pF/50V or	CDA1JJT0B102
		CERAMIC CAP.(AX) B K 1000pF/50V or	CDA1JKT0B102
		CERAMIC CAP. B J 0.001μF/50V or	3B41102T
		CERAMIC CAP. B K 0.001μF/50V	3B42102T
C 528		ELECTROLYTIC CAP. 330μF/6.3V M H7 or	CE0KMASSL331
		ELECTROLYTIC CAP. 330μF/6.3V M H7	526R337S
C 529		CERAMIC CAP.(AX) F Z 0.047μF/50V	CCA1JZT0F473
C 530		CERAMIC CAP. F Z 0.01μF/50V (C530 Used only if IC504B: LB1641)	CCD1JZS0F103
C 531		CERAMIC CAP.(AX) F Z 0.1μF/50V	CCA1JZT0F104
C 532		ELECTROLYTIC CAP. 10μF/16V M	CE1CMASDL100
C 533		CERAMIC CAP.(AX) X K 1500pF/16V or	CDA1CKT0X152
		CERAMIC CAP. X K 0.0015μF/16V	3X4C152T
C 534	A,B	CERAMIC CAP.(AX) Y M 0.01μF/16V	CDA1CMT0Y103
C 535	C,D	CERAMIC CAP.(AX) SL J 10pF/50V or	CCA1JJTSL100
		CERAMIC CAP. SL J 10pF/50V	3S41100T
C 536	A,B	CERAMIC CAP.(AX) SL J 10pF/50V or	CCA1JJTSL100
		CERAMIC CAP. SL J 10pF/50V	3S41100T
C 536	C,D	PCB JUMPER D0.6-P5.0	JW5.0T
C 537		ELECTROLYTIC CAP. 33μF/6.3V M	CE0KMASDL330
C 538		CERAMIC CAP.(AX) F Z 0.022μF/25V or	CDA1EZT0F223
		CERAMIC CAP. F Z 0.022μF/25V	1220843T
C 539		ELECTROLYTIC CAP. 22μF/10V M	CE1AMASDL220
C 540		ELECTROLYTIC CAP. 1μF/50V M	CE1JMASDL010
C 541		CERAMIC CAP.(AX) Y M 0.01μF/16V	CDA1CMT0Y103
C 545	C,D	CERAMIC CAP.(AX) SL J 10pF/50V or	CCA1JJTSL100
		CERAMIC CAP. SL J 10pF/50V	3S41100T

Ref. No.	Mark	Description	Part No.
C 547		CERAMIC CAP.(AX) X K 3900pF/16V or	CDA1CKT0X392
		CERAMIC CAP. X K 0.0039μF/16V	3X4C392T
C 548		CERAMIC CAP.(AX) X K 3900pF/16V or	CDA1CKT0X392
		CERAMIC CAP. X K 0.0039μF/16V	3X4C392T
C 549		CERAMIC CAP.(AX) F Z 0.047μF/50V	CCA1JZT0F473
C 671		SEMICONDUCTOR CAP. F Z 0.1μF/25V or	CDA1EZS0F104
		SEMICONDUCTOR CAP. F Z 0.1μF/25V	1220520S
C 701		CERAMIC CAP.(AX) F Z 0.047μF/50V	CCA1JZT0F473
C 702		CERAMIC CAP.(AX) F Z 0.047μF/50V	CCA1JZT0F473
C 703		ELECTROLYTIC CAP. 10μF/16V M	CE1CMASDL100
C 704		CERAMIC CAP.(AX) SL J 56pF/50V or	CCA1JJTSL560
		CERAMIC CAP. SL J 56pF/50V	3S41560T
C 705		ELECTROLYTIC CAP. 47μF/35V M	CE1GMASDL470
C 706		MYLAR CAP. 0.033μF/50V J or	CMA1JJS00333
		MYLAR CAP. 0.033μF/50V J	2254333S
C 707		MYLAR CAP. 0.033μF/50V J or	CMA1JJS00333
		MYLAR CAP. 0.033μF/50V J	2254333S
C 708		MYLAR CAP. 0.033μF/50V J or	CMA1JJS00333
		MYLAR CAP. 0.033μF/50V J	2254333S
C 710		ELECTROLYTIC CAP. 100μF/16V M	CE1CMASDL101
C 711		CERAMIC CAP.(AX) B J 1000pF/50V or	CDA1JJT0B102
		CERAMIC CAP.(AX) B K 1000pF/50V or	CDA1JKT0B102
		CERAMIC CAP. B J 0.001μF/50V or	3B41102T
		CERAMIC CAP. B K 0.001μF/50V	3B42102T
C 712		CERAMIC CAP.(AX) X K 2200pF/16V or	CDA1CKT0X222
		CERAMIC CAP. X K 0.0022μF/16V	3X4C222T
C 713		CERAMIC CAP.(AX) X K 2200pF/16V or	CDA1CKT0X222
		CERAMIC CAP. X K 0.0022μF/16V	3X4C222T
C 714		CERAMIC CAP.(AX) X K 2200pF/16V or	CDA1CKT0X222
		CERAMIC CAP. X K 0.0022μF/16V	3X4C222T
C 716		CERAMIC CAP.(AX) F Z 0.1μF/50V	CCA1JZT0F104
C 717		ELECTROLYTIC CAP. 4.7μF/25V M	CE1EMASDL4R7
C 718		ELECTROLYTIC CAP. 4.7μF/25V M	CE1EMASDL4R7
C 719		CERAMIC CAP.(AX) F Z 0.1μF/50V	CCA1JZT0F104
C 720		CERAMIC CAP.(AX) B J 1000pF/50V or	CDA1JJT0B102
		CERAMIC CAP.(AX) B K 1000pF/50V or	CDA1JKT0B102
		CERAMIC CAP. B J 0.001μF/50V or	3B41102T
		CERAMIC CAP. B K 0.001μF/50V	3B42102T
C 721		ELECTROLYTIC CAP. 1μF/50V M	CE1JMASDL010
C 722		ELECTROLYTIC CAP. 470μF/10V M	CE1AMASDL471
C 726		ELECTROLYTIC CAP. 4.7μF/25V M	CE1EMASDL4R7
C 751		ELECTROLYTIC CAP. 10μF/16V M	CE1CMASDL100
C 752		CERAMIC CAP.(AX) X K 3300pF/16V or	CDA1CKT0X332
		CERAMIC CAP. X K 0.0033μF/16V	3X4C332T
C 753		CERAMIC CAP.(AX) F Z 0.1μF/50V	CCA1JZT0F104
C 754		CERAMIC CAP.(AX) B J 470pF/50V or	CCA1JJT0B471
		CERAMIC CAP.(AX) B K 470pF/50V or	CCA1JKT0B471
		CERAMIC CAP. B J 470pF/50V or	3B41471T
		CERAMIC CAP. B K 470pF/50V	3B42471T
C 755		CERAMIC CAP.(AX) B J 150pF/50V or	CCA1JJT0B151
		CERAMIC CAP.(AX) B K 150pF/50V or	CCA1JKT0B151
		CERAMIC CAP. B J 150pF/50V or	3B41151T
		CERAMIC CAP. B K 150pF/50V	3B42151T
C 756		CERAMIC CAP. F Z 0.01μF/50V	CCD1JZS0F103
C 758		ELECTROLYTIC CAP. 1μF/50V M	CE1JMASDL010
R 564	C,D	CERAMIC CAP.(AX) B J 100pF/50V or	CCA1JJT0B101
		CERAMIC CAP.(AX) B K 100pF/50V or	CCA1JKT0B101
		CERAMIC CAP. B J 100pF/50V or	3B41101T
		CERAMIC CAP. B K 100pF/50V	3B42101T
CONNECTORS			
CN 301	A,B	STRAIGHT PIN CONNECTOR, 15P	1770635
CN 301	C,D	STRAIGHT PIN CONNECTOR, 17P	1770637
CN 501		STRAIGHT PIN CONNECTOR, 20P	1770640
CN 502		STRAIGHT PIN CONNECTOR, 3P	1770623
CN 503		STRAIGHT PIN HEADER, 2P	1740764

Ref. No.	Mark	Description	Part No.
CN 671		STRAIGHT PIN CONNECTOR, 9P	1770629
DIODES			
D 001		RECTIFIER DIODE 1A5 or	NDQZ000001A5
		RECTIFIER DIODE 1N4005 or	ND8Z001N4005
		RECTIFIER DIODE 1N4005E or	NDQZ01N4005E
		RECTIFIER DIODE 1N4005	NDQZ001N4005
D 002		RECTIFIER DIODE 1A5 or	NDQZ000001A5
		RECTIFIER DIODE 1N4005 or	ND8Z001N4005
		RECTIFIER DIODE 1N4005E or	NDQZ01N4005E
		RECTIFIER DIODE 1N4005	NDQZ001N4005
D 003		RECTIFIER DIODE 1A5 or	NDQZ000001A5
		RECTIFIER DIODE 1N4005 or	ND8Z001N4005
		RECTIFIER DIODE 1N4005E or	NDQZ01N4005E
		RECTIFIER DIODE 1N4005	NDQZ001N4005
D 004		RECTIFIER DIODE 1A5 or	NDQZ000001A5
		RECTIFIER DIODE 1N4005 or	ND8Z001N4005
		RECTIFIER DIODE 1N4005E or	NDQZ01N4005E
		RECTIFIER DIODE 1N4005	NDQZ001N4005
D 005		RECTIFIER DIODE EG01C or	QDPZ000EG01C
		FAST RECOVERY DIODE AP01C or	AAP01C000000
		RECTIFIER DIODE ERA22-10Y2(TYPE I) or	QDQZ0ERA2210
		FAST RECOVERY DIODE RGP10K	ND8Z00RGP10K
D 006		SWITCHING DIODE 1N4148M or	NDTZ01N4148M
		SWITCHING DIODE 1N4148M or	QDTZ01N4148M
		SWITCHING DIODE GMB01-BT	GMB01BT
D 007		SWITCHING DIODE 1N4148M or	NDTZ01N4148M
		SWITCHING DIODE 1N4148M or	QDTZ01N4148M
		SWITCHING DIODE GMB01-BT	GMB01BT
D 008		SWITCHING DIODE 1N4148M or	NDTZ01N4148M
		SWITCHING DIODE 1N4148M or	QDTZ01N4148M
		SWITCHING DIODE GMB01-BT	GMB01BT
D 009		RECTIFIER DIODE EG01C or	QDPZ000EG01C
		FAST RECOVERY DIODE AP01C or	AAP01C000000
		RECTIFIER DIODE ERA22-10Y2(TYPE I) or	QDQZ0ERA2210
		FAST RECOVERY DIODE RGP10K	ND8Z00RGP10K
D 010		RECTIFIER DIODE RU3YX LF-C4 or	QD7Z000RU3YX
		FAST RECOVERY DIODE EGP20B or	NDQB000EGP20
		FAST RECOVERY DIODE EGP20D	NDQD000EGP20
D 011		SWITCHING DIODE MA188 or	QDTZ000MA188
		SWITCHING DIODE BAV21	NDQZ000BAV21
D 012		SCHOTTKY BARRIER DIODE AK04 or	QDQZ0000AK04
		SCHOTTKY BARRIER DIODE ERA81-004 or	QDQZERA81004
		SCHOTTKY BARRIER DIODE 11EQS04 or	QD4Z011EQS04
		SCHOTTKY BARRIER DIODE SB040	NDQZ000SB040
D 013		SWITCHING DIODE MA178 or	QDTZ000MA178
		SWITCHING DIODE BAV18	NDQZ000BAV18
D 016		ZENER DIODE UZ-6.8BSA	QDTA0UZ6R8BS
D 051		ZENER DIODE UZ-6.2BSB	QDTB0UZ6R2BS
D 052		SWITCHING DIODE 1N4148M or	NDTZ01N4148M
		SWITCHING DIODE 1N4148M or	QDTZ01N4148M
		SWITCHING DIODE GMB01-BT	GMB01BT
D 054		SWITCHING DIODE 1N4148M or	NDTZ01N4148M
		SWITCHING DIODE 1N4148M or	QDTZ01N4148M
		SWITCHING DIODE GMB01-BT	GMB01BT
D 055		ZENER DIODE UZ-9.1BSC	QDTC0UZ9R1BS
D 057		ZENER DIODE UZ-30BSA	QDTA00UZ30BS
D 058		RECTIFIER DIODE 1A5 or	NDQZ000001A5
		RECTIFIER DIODE 1N4005 or	ND8Z001N4005
		RECTIFIER DIODE 1N4005E or	NDQZ01N4005E
		RECTIFIER DIODE 1N4005	NDQZ001N4005
D 059		ZENER DIODE UZ-9.1BSC	QDTC0UZ9R1BS
D 301	C,D	SWITCHING DIODE 1N4148M or	NDTZ01N4148M
		SWITCHING DIODE 1N4148M or	QDTZ01N4148M

Ref. No.	Mark	Description	Part No.
		SWITCHING DIODE GMB01-BT	GMB01BT
D 303		SWITCHING DIODE 1N4148M or	NDTZ01N4148M
		SWITCHING DIODE 1N4148M or	QDTZ01N4148M
		SWITCHING DIODE GMB01-BT	GMB01BT
D 305		SWITCHING DIODE 1N4148M or	NDTZ01N4148M
		SWITCHING DIODE 1N4148M or	QDTZ01N4148M
		SWITCHING DIODE GMB01-BT	GMB01BT
D 307	A,B	SWITCHING DIODE 1N4148M or	NDTZ01N4148M
		SWITCHING DIODE 1N4148M or	QDTZ01N4148M
		SWITCHING DIODE GMB01-BT	GMB01BT
D 309		SWITCHING DIODE 1N4148M or	NDTZ01N4148M
		SWITCHING DIODE 1N4148M or	QDTZ01N4148M
		SWITCHING DIODE GMB01-BT	GMB01BT
D 310	C,D	SWITCHING DIODE 1N4148M or	NDTZ01N4148M
		SWITCHING DIODE 1N4148M or	QDTZ01N4148M
		SWITCHING DIODE GMB01-BT	GMB01BT
D 501		LED SID1K10CXM or	QP4ZD1K10CXM
		LED LN66A.FN or	QP7Z000LN66A
		LED SLR-932C-20-AB or	QPQ80SLR932C
		LED L-1543F3C	NP4ZL1543F3C
D 502		LED SLR-981A or	QPQA00SLR981
		LED SLR-981B or	QPQB00SLR981
		LED SLR-981C	QPQC00SLR981
D 503	C,D	SWITCHING DIODE 1N4148M or	NDTZ01N4148M
		SWITCHING DIODE 1N4148M or	QDTZ01N4148M
		SWITCHING DIODE GMB01-BT	GMB01BT
D 504		SWITCHING DIODE 1N4148M or	NDTZ01N4148M
		SWITCHING DIODE 1N4148M or	QDTZ01N4148M
		SWITCHING DIODE GMB01-BT	GMB01BT
D 505		SWITCHING DIODE 1N4148M or	NDTZ01N4148M
		SWITCHING DIODE 1N4148M or	QDTZ01N4148M
		SWITCHING DIODE GMB01-BT	GMB01BT
D 506		SWITCHING DIODE 1N4148M or	NDTZ01N4148M
		SWITCHING DIODE 1N4148M or	QDTZ01N4148M
		SWITCHING DIODE GMB01-BT	GMB01BT
D 507		SWITCHING DIODE 1N4148M or	NDTZ01N4148M
		SWITCHING DIODE 1N4148M or	QDTZ01N4148M
		SWITCHING DIODE GMB01-BT	GMB01BT
D 508		SWITCHING DIODE 1N4148M or	NDTZ01N4148M
		SWITCHING DIODE 1N4148M or	QDTZ01N4148M
		SWITCHING DIODE GMB01-BT	GMB01BT
D 701		ZENER DIODE UZ-6.2BSB	QDTB0UZ6R2BS
D 702		ZENER DIODE UZ-6.2BSB	QDTB0UZ6R2BS
D 703		ZENER DIODE UZ-6.2BSB	QDTB0UZ6R2BS
D 751		ZENER DIODE UZ-5.1BS	QDTZ0UZ5R1BS
D 752		ZENER DIODE UZ-5.1BS	QDTZ0UZ5R1BS
D 753		ZENER DIODE UZ-5.1BS	QDTZ0UZ5R1BS
D 754		ZENER DIODE UZ-5.1BS	QDTZ0UZ5R1BS
D 755		SWITCHING DIODE 1N4148M or	NDTZ01N4148M
		SWITCHING DIODE 1N4148M or	QDTZ01N4148M
		SWITCHING DIODE GMB01-BT	GMB01BT
		ICS	
IC 001 ⚠		PHOTO COUPLER PC120F or	QPEZ00PC120F
		PHOTOCOUPLER PC120 or	QP5Z000PC120
		PHOTOCOUPLER PS2561-1M or	QPEM0PS25611
		PHOTOCOUPLER PS2561-1D or	QPED0PS25611
		PHOTOCOUPLER PS2561-1H or	QPEH0PS25611
		PHOTOCOUPLER PS2561-1W or	QPEW0PS25611
		PHOTOCOUPLER PC123F or	QPEZ00PC123F
		PHOTOCOUPLER PC123	QPEZ000PC123
IC 002		IC KIA431 or	NSZLA0ZJY001
		IC KA431Z or	NSZLA0ZSM001
		IC L5431 or	QSZLA0ZSY004
		IC AN1431T-(NSC)	QSBLA0ZMS001
IC 301		IC, VIDEO LA7347	QSZLA0SSY006
IC 302		IC, CCD LC89975M	QSMLA0SSY019

Ref. No.	Mark	Description	Part No.
IC 401		IC:AUDIO LA7286	QSZLA0SSY007
IC 501	A,B	MICROCONTROLLER 8BIT SY/CXP88224-114Q or	QSMQA0RSN051
		MICROCONTROLLER 8BIT SY/CXP88224-115Q	QSMQB0RSN051
IC 501	C,D	MICROCONTROLLER 8BIT SY/CXP88132-148Q	QSMQA0RSN050
IC 502		IC:COMPARATOR KIA339P or	NSBLA0SJY019
		IC:COMPARATOR KA339 or	NSBLA0SSM002
		IC:COMPARATOR NJM2901N	QSBLA0SJR040
IC 503		IC:OP-AMP. KIA324P DIP-14 or	NSBLA0SJY002
		IC:OP-AMP. KA324	NSBLA0SSM001
IC 505		IC:MEMORY X24C02P or	QSMMA0SXC001
		IC ST24C02A-B1 or	GST24C02AB10
		IC:MEMORY 24LC02B/P	NSMMA0SMH003
IC 701		ZENER DIODE UZT33MTA	QCTZ00UZT33M
IC 751		IC NJU4052BD or	14D0438
		IC UPD4052BC or	QSMLA0SNE004
		IC TC4052BP or	QSMLA0STS003
		IC HEF4052BP	NSMLA0SPH001
IC504A		IC TA7291S (Not used C530)	14LW342
IC504B		IC LB1641 (Used C530)	QSBLA0SSY045
		COILS	
L 001 ⚠		LINE FILTER FK0B160MH16 or	1170567
		LINE FILTER TL81-015-102	LLBT00ZPC002
L 002 ⚠		LINE FILTER 51MH UU10LF or	LLBG00ZSF003
		LINE FILTER 51MH 53230 or	LLBG00ZKT002
		LINE FILTER 51MH UU10.5-51MH	LLBG00ZF8003
L 003		LEAD INDUCTOR 22μH-K or	LLARKMUTU220
		LEAD INDUCTOR 22μH-K or	LLARKMPKV220
		LEAD INDUCTOR 22μH-K	LLARKMPFG220
L 004		LEAD INDUCTOR 22μH-K or	LLARKMUTU220
		LEAD INDUCTOR 22μH-K or	LLARKMPKV220
		LEAD INDUCTOR 22μH-K	LLARKMPFG220
L 005		BEAD CORE HF70BB3.5X10X1.3 or	XL03010TE001
		BEAD CORE B16 RH 3.5X10X1.3	XL03010XM001
L 006		BEAD CORE HF70BB3.5X10X1.3 or	XL03010TE001
		BEAD CORE B16 RH 3.5X10X1.3	XL03010XM001
L 007		BEAD CORE HF70BB3.5X10X1.3 or	XL03010TE001
		BEAD CORE B16 RH 3.5X10X1.3	XL03010XM001
L 008		BEAD CORE HF70BB3.5X10X1.3 or	XL03010TE001
		BEAD CORE B16 RH 3.5X10X1.3	XL03010XM001
L 051		PCB JUMPER D0.6-P5.0	JW5.0T
L 053		INDUCTOR 47μH-K	LLAXKCPFG470
L 301		INDUCTOR 180μH-K-26T or	LLAXKDTKA181
		INDUCTOR 180μH-K-26T	LLAXKATTU181
L 302		INDUCTOR 82μH-K	LLAXKCPFG820
L 303		INDUCTOR 330μH-K-26T or	LLAXKDTKA331
		INDUCTOR 330μH-K-26T	LLAXKATTU331
L 304		INDUCTOR 56μH-K	LLAXKCPFG560
L 305		INDUCTOR 10μH-K-26T or	LLAXKDTKA100
		INDUCTOR 10μH-K-26T	LLAXKATTU100
L 306		INDUCTOR 27μH-K	LLAXKCPFG270
L 308		INDUCTOR 330μH-K-26T or	LLAXKDTKA331
		INDUCTOR 330μH-K-26T	LLAXKATTU331
L 309		INDUCTOR 4.7μH-K-5FT or	LLARKDSKA4R7
		INDUCTOR 4.7μH-K-5FT or	LLARKBSTU4R7
		INDUCTOR 4.7μH-K-5FT or	LLARKMSFS4R7
		INDUCTOR 4.7μH-K	LLAXKCPFG4R7
L 310		INDUCTOR 68μH-K	LLAXKCPFG680
L 311		INDUCTOR 27μH-K	LLAXKCPFG270
L 312		INDUCTOR 68μH-K	LLAXKCPFG680
L 316		INDUCTOR 47μH-K-5FT or	LLARKDSKA470
		INDUCTOR 47μH-K-5FT or	LLARKBSTU470
		INDUCTOR 47μH-K-5FT or	LLARKMSFS470
		INDUCTOR 47μH-K	LLAXKCPFG470
L 318		INDUCTOR 10μH-K-26T or	LLAXKDTKA100

Ref. No.	Mark	Description	Part No.
		INDUCTOR 10μH-K-26T	LLAXKATTU100
L 319		INDUCTOR 47μH-K	LLAXKCPFG470
L 320		PCB JUMPER D0.6-P5.0	JW5.0T
L 321		PCB JUMPER D0.6-P5.0	JW5.0T
L 401		INDUCTOR 10μH-K-26T or	LLAXKDTKA100
		INDUCTOR 10μH-K-26T	LLAXKATTU100
L 501		INDUCTOR 56μH-K-5FT or	LLARKDSKA560
		INDUCTOR 56μH-K-5FT or	LLARKBSTU560
		INDUCTOR 56μH-K-5FT or	LLARKMSFS560
		INDUCTOR 56μH-K	LLAXKCPFG560
L 502	A,B	INDUCTOR 15μH-K-26T or	LLAXKDTKA150
		INDUCTOR 15μH-K-26T	LLAXKATTU150
L 502	C,D	PCB JUMPER D0.6-P5.0	JW5.0T
L 701		PCB JUMPER D0.6-P5.0	JW5.0T
L 702		INDUCTOR 47μH-K-5FT or	LLARKDSKA470
		INDUCTOR 47μH-K-5FT or	LLARKBSTU470
		INDUCTOR 47μH-K-5FT or	LLARKMSFS470
		INDUCTOR 47μH-K	LLAXKCPFG470
L 703		PCB JUMPER D0.6-P5.0	JW5.0T
J 97	C,D	FARRITE BEAD CORE HF55BTS3.5X4.5B	LLBF00ZTE003
T 401		COIL, OSC 1027QM30003B7- or	LFA07V0VD003
		COIL, OSC R-12 P687 X or	LFA07V0MM045
		COIL, OSC 7L1A35N	LFA07V0LH002
		TRANSISTORS	
Q 002 ⚠		TRANSISTOR 2SC4517 or	QQPZ02SC4517
		TRANSISTOR 2SC5239 or	QQQZ02SC5239
		TRANSISTOR 2SC3866	QQPZ02SC3866
Q 011		TRANSISTOR 2SC4204 or	QQSZ02SC4204
		TRANSISTOR 2SC3576	QQSZ02SC3576
Q 051		TRANSISTOR KTC3199(Y) or	NQSY0KTC3199
		TRANSISTOR KTC3199(GR) or	NQS10KTC3199
		TRANSISTOR KSC2785(Y) or	NQSY0KSC2785
		TRANSISTOR KSC2785(G) or	NQSG0KSC2785
		TRANSISTOR 2SC536SP(E) or	C536SEZ
		TRANSISTOR 2SC536SP(F)	C536SFZ
Q 052		TRANSISTOR 2SD400(F)	D400FZ
Q 053		RES. BUILT-IN TRANSISTOR KSR2205 or	NQSZ0KSR2205
		RES. BUILT-IN TRANSISTOR 2SA1654	QQSZ02SA1654
Q 054		RES. BUILT-IN TRANSISTOR KRA103M or	NQSZ0KRA103M
		RES. BUILT-IN TRANSISTOR KSR2203 or	NQSZ0KSR2203
		RES. BUILT-IN TRANSISTOR 2SA1346	A1346Z
Q 055		TRANSISTOR KTA1266(Y) or	NQSY0KTA1266
		TRANSISTOR KTA1266(GR) or	NQS40KTA1266
		TRANSISTOR 2SA1317(S) or	A1317SZ
		TRANSISTOR 2SA1317(T)	A1317TZ
Q 056		TRANSISTOR KTA1266(Y) or	NQSY0KTA1266
		TRANSISTOR KTA1266(GR) or	NQS40KTA1266
		TRANSISTOR 2SA1317(S) or	A1317SZ
		TRANSISTOR 2SA1317(T)	A1317TZ
Q 057		RES. BUILT-IN TRANSISTOR KRC103M or	NQSZ0KRC103M
		RES. BUILT-IN TRANSISTOR KSR1203 or	NQSZ0KSR1203
		RES. BUILT-IN TRANSISTOR 2SC3400	C3400Z
Q 058		RES. BUILT-IN TRANSISTOR KRC103M or	NQSZ0KRC103M
		RES. BUILT-IN TRANSISTOR KSR1203 or	NQSZ0KSR1203
		RES. BUILT-IN TRANSISTOR 2SC3400	C3400Z
Q 061		TRANSISTOR KTC3203(Y) or	NQSY0KTC3203
		TRANSISTOR 2SD734F-NP-AQ or	QQSF002SD734
		TRANSISTOR 2SD734G-NP-AQ or	QQSG002SD734
		TRANSISTOR 2SC2120-Y	QQSY02SC2120
Q 301		TRANSISTOR KTC3199(Y) or	NQSY0KTC3199
		TRANSISTOR KTC3199(GR) or	NQS10KTC3199
		TRANSISTOR KSC2785(Y) or	NQSY0KSC2785
		TRANSISTOR KSC2785(G) or	NQSG0KSC2785
		TRANSISTOR 2SC536SP(E) or	C536SEZ
		TRANSISTOR 2SC536SP(F)	C536SFZ
Q 302		TRANSISTOR KTC3193(Y) or	NQSY0KTC3193
		TRANSISTOR 2SC2839(E) or	C2839EZ
		TRANSISTOR 2SC2839(F)	C2839FZ
Q 303		TRANSISTOR KTC3193(Y) or	NQSY0KTC3193
		TRANSISTOR 2SC2839(E) or	C2839EZ
		TRANSISTOR 2SC2839(F)	C2839FZ
Q 307		RES. BUILT-IN TRANSISTOR KRC106M or	NQSZ0KRC106M
		RES. BUILT-IN TRANSISTOR KSR1214 or	NQSZ0KSR1214
		RES. BUILT-IN TRANSISTOR 2SC4133	QQSZ02SC4133
Q 308		TRANSISTOR KTA1266(Y) or	NQSY0KTA1266
		TRANSISTOR KTA1266(GR) or	NQS40KTA1266
		TRANSISTOR 2SA1317(S) or	A1317SZ
		TRANSISTOR 2SA1317(T)	A1317TZ
Q 309		TRANSISTOR KTA1267(Y) or	NQSY0KTA1267
		TRANSISTOR KTA1267(GR) or	NQS10KTA1267
		TRANSISTOR KSA1175(Y) or	NQSY0KSA1175
		TRANSISTOR KSA1175(G) or	NQSG0KSA1175
		TRANSISTOR 2SA608SP(E) or	A608SEZ
		TRANSISTOR 2SA608SP(F)	A608SFZ
Q 310		TRANSISTOR KTA1267(Y) or	NQSY0KTA1267
		TRANSISTOR KTA1267(GR) or	NQS10KTA1267
		TRANSISTOR KSA1175(Y) or	NQSY0KSA1175
		TRANSISTOR KSA1175(G) or	NQSG0KSA1175
		TRANSISTOR 2SA608SP(E) or	A608SEZ
		TRANSISTOR 2SA608SP(F)	A608SFZ
Q 311		RES. BUILT-IN TRANSISTOR KRA109M or	NQSZ0KRA109M
		RES. BUILT-IN TRANSISTOR KSR2208 or	NQSZ0KSR2208
		RES. BUILT-IN TRANSISTOR 2SA1347	QQSZ02SA1347
Q 312		RES. BUILT-IN TRANSISTOR KRC103M or	NQSZ0KRC103M
		RES. BUILT-IN TRANSISTOR KSR1203 or	NQSZ0KSR1203
		RES. BUILT-IN TRANSISTOR 2SC3400	C3400Z
Q 316	C,D	RES. BUILT-IN TRANSISTOR KRC103M or	NQSZ0KRC103M
		RES. BUILT-IN TRANSISTOR KSR1203 or	NQSZ0KSR1203
		RES. BUILT-IN TRANSISTOR 2SC3400	C3400Z
Q 319	A,B	TRANSISTOR KTC3193(Y) or	NQSY0KTC3193
		TRANSISTOR 2SC2839(E) or	C2839EZ
		TRANSISTOR 2SC2839(F)	C2839FZ
Q 320		TRANSISTOR KTC3193(Y) or	NQSY0KTC3193
		TRANSISTOR 2SC2839(E) or	C2839EZ
		TRANSISTOR 2SC2839(F)	C2839FZ
Q 401		TRANSISTOR 2SC3331(T) or	QSC3331TNPAA
		TRANSISTOR 2SC3331(U)	QSC3331UNPAA
Q 501		PHOTO TRANSISTOR ST-316R2-B	QP4B0ST316R2
Q 502		PHOTO TRANSISTOR ST-316R2-B	QP4B0ST316R2
Q 503		PHOTO TRANSISTOR ST-316R2-B	QP4B0ST316R2
Q 504	C,D	TRANSISTOR KTA1267(Y) or	NQSY0KTA1267
		TRANSISTOR KTA1267(GR) or	NQS10KTA1267
		TRANSISTOR KSA1175(Y) or	NQSY0KSA1175
		TRANSISTOR KSA1175(G) or	NQSG0KSA1175
		TRANSISTOR 2SA608SP(E) or	A608SEZ
		TRANSISTOR 2SA608SP(F)	A608SFZ
Q 505	C,D	RES. BUILT-IN TRANSISTOR KRC103M or	NQSZ0KRC103M
		RES. BUILT-IN TRANSISTOR KSR1203 or	NQSZ0KSR1203

Ref. No.	Mark	Description	Part No.
		RES. BUILT-IN TRANSISTOR 2SC3400	C3400Z
Q 506		RES. BUILT-IN TRANSISTOR KRA103M or	NQSZ0KRA103M
		RES. BUILT-IN TRANSISTOR KSR2203 or	NQSZ0KSR2203
		RES. BUILT-IN TRANSISTOR 2SA1346	A1346Z
Q 507		RES. BUILT-IN TRANSISTOR KRC103M or	NQSZ0KRC103M
		RES. BUILT-IN TRANSISTOR KSR1203 or	NQSZ0KSR1203
		RES. BUILT-IN TRANSISTOR 2SC3400	C3400Z
Q 508		TRANSISTOR KTC3199(BL) or	NQS50KTC3199
		TRANSISTOR KSC2785(L) or	NQSL0KSC2785
		TRANSISTOR 2SC536SP(G)	QQSGSC536SPA
Q 702		TRANSISTOR KTC3199(Y) or	NQSY0KTC3199
		TRANSISTOR KTC3199(GR) or	NQS10KTC3199
		TRANSISTOR KSC2785(Y) or	NQSY0KSC2785
		TRANSISTOR KSC2785(G) or	NQSG0KSC2785
		TRANSISTOR 2SC536SP(E) or	C536SEZ
		TRANSISTOR 2SC536SP(F)	C536SFZ
Q 703		RES. BUILT-IN TRANSISTOR KSR2205 or	NQSZ0KSR2205
		RES. BUILT-IN TRANSISTOR 2SA1654	QQSZ02SA1654
Q 704		RES. BUILT-IN TRANSISTOR KSR2205 or	NQSZ0KSR2205
		RES. BUILT-IN TRANSISTOR 2SA1654	QQSZ02SA1654
Q 705		RES. BUILT-IN TRANSISTOR KSR2205 or	NQSZ0KSR2205
		RES. BUILT-IN TRANSISTOR 2SA1654	QQSZ02SA1654
Q 751		TRANSISTOR KTC3199(Y) or	NQSY0KTC3199
		TRANSISTOR KTC3199(GR) or	NQS10KTC3199
		TRANSISTOR KSC2785(Y) or	NQSY0KSC2785
		TRANSISTOR KSC2785(G) or	NQSG0KSC2785
		TRANSISTOR 2SC536SP(E) or	C536SEZ
		TRANSISTOR 2SC536SP(F)	C536SFZ
		RESISTORS	
R 002		FIXED METAL OXIDE FILM RES. 2W J 82K Ω or	1330513
		FIXED METAL OXIDE FILM RES. 2W J 82K Ω or	RN02JZPZ0823
		FIXED METAL OXIDE FILM RES. 2W J 82K Ω	RN02823KE009
R 004		CARBON RES. 1/4W J 82K Ω	RCX4JATZ0823
R 005		CARBON RES. 1/4W J 82K Ω	RCX4JATZ0823
R 006		CARBON RES. 1/4W J 82K Ω	RCX4JATZ0823
R 007		CARBON RES. 1/4W J 82K Ω	RCX4JATZ0823
R 008		CARBON RES. 1/4W J 39 Ω	RCX4JATZ0390
R 009		CARBON RES. 1/4W J 39 Ω	RCX4JATZ0390
R 010		CARBON RES. 1/4W J 39 Ω	RCX4JATZ0390
R 011		CARBON RES. 1/4W J 3.9K Ω	RCX4JATZ0392
R 012		CARBON RES. 1/4W J 1K Ω	RCX4JATZ0102
R 017		CARBON RES. 1/4W J 1K Ω	RCX4JATZ0102
R 018		CARBON RES. 1/4W J 2.7 Ω	RCX4JATZ02R7
R 019		CARBON RES. 1/4W J 2.7 Ω	RCX4JATZ02R7
R 020		CARBON RES. 1/4W J 470 Ω or	RCX4JATZ0471
		CARBON RES. 1/6W J 470 Ω	RCX6JATZ0471
R 021		CARBON RES. 1/4W J 1K Ω	RCX4JATZ0102
R 023		CARBON RES. 1/4W G 2.2K Ω	RCX4GATZ0222
R 024		CARBON RES. 1/4W J 820 Ω or	RCX4JATZ0821
		CARBON RES. 1/6W J 820 Ω	RCX6JATZ0821
R 025		CARBON RES. 1/4W G 2K Ω	RCX4GATZ0202
R 051		CARBON RES. 1/4W J 68K Ω	RCX4JATZ0683
R 052		CARBON RES. 1/4W J 3.9K Ω	RCX4JATZ0392
R 054		CARBON RES. 1/4W J 4.7K Ω	RCX4JATZ0472
R 055		CARBON RES. 1/4W J 4.7K Ω	RCX4JATZ0472
R 056		CARBON RES. 1/4W J 1.5K Ω	RCX4JATZ0152
R 057		CARBON RES. 1/4W J 1.3K Ω or	RCX4JATZ0132
		CARBON RES. 1/6W J 1.3K Ω	RCX6JATZ0132

Ref. No.	Mark	Description	Part No.
R 058		CARBON RES. 1/4W J 100K Ω or	RCX4JATZ0104
		CARBON RES. 1/6W J 100K Ω	RCX6JATZ0104
R 059		CARBON RES. 1/4W J 820 Ω or	RCX4JATZ0821
		CARBON RES. 1/6W J 820 Ω	RCX6JATZ0821
R 060		PCB JUMPER D0.6-P5.0	JW5.0T
R 061		CARBON RES. 1/4W J 100K Ω or	RCX4JATZ0104
		CARBON RES. 1/6W J 100K Ω	RCX6JATZ0104
R 062		CARBON RES. 1/4W J 820 Ω or	RCX4JATZ0821
		CARBON RES. 1/6W J 820 Ω	RCX6JATZ0821
R 064		CARBON RES. 1/4W J 47K Ω or	RCX4JATZ0473
		CARBON RES. 1/6W J 47K Ω	RCX6JATZ0473
R 065		CARBON RES. 1/4W J 1K Ω	RCX4JATZ0102
R 066		CARBON RES. 1/4W J 56 Ω or	RCX4JATZ0560
		CARBON RES. 1/6W J 56 Ω	RCX6JATZ0560
R 067		CARBON RES. 1/4W J 4.7K Ω	RCX4JATZ0472
R 073		CARBON RES. 1/4W J 2.2K Ω or	RCX4JATZ0222
		CARBON RES. 1/6W J 2.2K Ω	RCX6JATZ0222
R 074		CARBON RES. 1/4W J 10K Ω	RCX4JATZ0103
R 075		PCB JUMPER D0.6-P5.0	JW5.0T
R 301		CARBON RES. 1/4W J 5.6K Ω or	RCX4JATZ0562
		CARBON RES. 1/6W J 5.6K Ω	RCX6JATZ0562
R 302		CARBON RES. 1/4W J 1.2K Ω or	RCX4JATZ0122
		CARBON RES. 1/6W J 1.2K Ω	RCX6JATZ0122
R 303		CARBON RES. 1/4W J 1K Ω	RCX4JATZ0102
R 304		CARBON RES. 1/4W J 820 Ω or	RCX4JATZ0821
		CARBON RES. 1/6W J 820 Ω	RCX6JATZ0821
R 305		CARBON RES. 1/4W J 3.9K Ω	RCX4JATZ0392
R 306		CARBON RES. 1/4W J 1.5K Ω	RCX4JATZ0152
R 307		CARBON RES. 1/4W J 3.9K Ω	RCX4JATZ0392
R 308		CARBON RES. 1/4W J 1.5K Ω	RCX4JATZ0152
R 309		CARBON RES. 1/4W J 1K Ω	RCX4JATZ0102
R 310		CARBON RES. 1/4W J 390 Ω or	RCX4JATZ0391
		CARBON RES. 1/6W J 390 Ω	RCX6JATZ0391
R 311		CARBON RES. 1/4W J 1K Ω	RCX4JATZ0102
R 312		CARBON RES. 1/4W J 390 Ω or	RCX4JATZ0391
		CARBON RES. 1/6W J 390 Ω	RCX6JATZ0391
R 313		CARBON RES. 1/4W J 680 Ω	RCX4JATZ0681
R 315	A,B	CARBON RES. 1/4W J 330 Ω or	RCX4JATZ0331
		CARBON RES. 1/6W J 330 Ω	RCX6JATZ0331
R 315	C,D	CARBON RES. 1/4W J 270 Ω or	RCX4JATZ0271
		CARBON RES. 1/6W J 270 Ω	RCX6JATZ0271
R 316		CARBON RES. 1/4W J 1.2K Ω or	RCX4JATZ0122
		CARBON RES. 1/6W J 1.2K Ω	RCX6JATZ0122
R 317		CARBON RES. 1/4W J 470 Ω or	RCX4JATZ0471
		CARBON RES. 1/6W J 470 Ω	RCX6JATZ0471
R 319		CARBON RES. 1/4W J 27K Ω or	RCX4JATZ0273
		CARBON RES. 1/6W J 27K Ω	RCX6JATZ0273
R 320		CARBON RES. 1/4W J 8.2K Ω or	RCX4JATZ0822
		CARBON RES. 1/6W J 8.2K Ω	RCX6JATZ0822
R 321		CARBON RES. 1/4W J 6.8K Ω or	RCX4JATZ0682
		CARBON RES. 1/6W J 6.8K Ω	RCX6JATZ0682
R 322		CARBON RES. 1/4W J 470 Ω or	RCX4JATZ0471
		CARBON RES. 1/6W J 470 Ω	RCX6JATZ0471
R 323		PCB JUMPER D0.6-P5.0	JW5.0T
R 324		CARBON RES. 1/4W J 2.2K Ω or	RCX4JATZ0222
		CARBON RES. 1/6W J 2.2K Ω	RCX6JATZ0222
R 326		CARBON RES. 1/4W J 15K Ω or	RCX4JATZ0153
		CARBON RES. 1/6W J 15K Ω	RCX6JATZ0153
R 327		CARBON RES. 1/4W J 680 Ω	RCX4JATZ0681
R 328		CARBON RES. 1/4W J 680 Ω	RCX4JATZ0681
R 329		CARBON RES. 1/4W J 220 Ω or	RCX4JATZ0221
		CARBON RES. 1/6W J 220 Ω	RCX6JATZ0221
R 331		CARBON RES. 1/4W J 470 Ω or	RCX4JATZ0471
		CARBON RES. 1/6W J 470 Ω	RCX6JATZ0471
R 332		CARBON RES. 1/4W J 2.2K Ω or	RCX4JATZ0222
		CARBON RES. 1/6W J 2.2K Ω	RCX6JATZ0222

Ref. No.	Mark	Description	Part No.
R 334		CARBON RES. 1/4W J 4.7K Ω	RCX4JATZ0472
R 335		CARBON RES. 1/4W J 390 Ω or	RCX4JATZ0391
		CARBON RES. 1/6W J 390 Ω	RCX6JATZ0391
R 336		CARBON RES. 1/4W J 470 Ω or	RCX4JATZ0471
		CARBON RES. 1/6W J 470 Ω	RCX6JATZ0471
R 337		CARBON RES. 1/4W J 1.5K Ω	RCX4JATZ0152
R 338		CARBON RES. 1/4W J 2.7K Ω or	RCX4JATZ0272
		CARBON RES. 1/6W J 2.7K Ω	RCX6JATZ0272
R 339		CARBON RES. 1/4W J 2.7K Ω or	RCX4JATZ0272
		CARBON RES. 1/6W J 2.7K Ω	RCX6JATZ0272
R 340		CARBON RES. 1/4W J 2.7K Ω or	RCX4JATZ0272
		CARBON RES. 1/6W J 2.7K Ω	RCX6JATZ0272
R 341		CARBON RES. 1/4W J 560 Ω or	RCX4JATZ0561
		CARBON RES. 1/6W J 560 Ω	RCX6JATZ0561
R 342		CARBON RES. 1/4W J 390 Ω or	RCX4JATZ0391
		CARBON RES. 1/6W J 390 Ω	RCX6JATZ0391
R 344		CARBON RES. 1/4W J 2.7K Ω or	RCX4JATZ0272
		CARBON RES. 1/6W J 2.7K Ω	RCX6JATZ0272
R 348	C,D	CARBON RES. 1/4W J 1M Ω or	RCX4JATZ0105
		CARBON RES. 1/6W J 1M Ω	RCX6JATZ0105
R 349		CARBON RES. 1/4W J 1M Ω or	RCX4JATZ0105
		CARBON RES. 1/6W J 1M Ω	RCX6JATZ0105
R 350		CARBON RES. 1/4W J 1K Ω	RCX4JATZ0102
R 351		CARBON RES. 1/4W J 8.2K Ω or	RCX4JATZ0822
		CARBON RES. 1/6W J 8.2K Ω	RCX6JATZ0822
R 353		CARBON RES. 1/4W J 100 Ω or	RCX4JATZ0101
		CARBON RES. 1/6W J 100 Ω	RCX6JATZ0101
R 354		CARBON RES. 1/4W J 10K Ω	RCX4JATZ0103
R 355		CARBON RES. 1/4W J 22K Ω or	RCX4JATZ0223
		CARBON RES. 1/6W J 22K Ω	RCX6JATZ0223
R 356		CARBON RES. 1/4W J 3.9K Ω	RCX4JATZ0392
R 357		CARBON RES. 1/4W J 2.2K Ω or	RCX4JATZ0222
		CARBON RES. 1/6W J 2.2K Ω	RCX6JATZ0222
R 358		PCB JUMPER D0.6-P5.0	JW5.0T
R 359		CARBON RES. 1/4W J 10K Ω	RCX4JATZ0103
R 360		CARBON RES. 1/4W J 5.6K Ω or	RCX4JATZ0562
		CARBON RES. 1/6W J 5.6K Ω	RCX6JATZ0562
R 361		CARBON RES. 1/4W J 1.8K Ω or	RCX4JATZ0182
		CARBON RES. 1/6W J 1.8K Ω	RCX6JATZ0182
R 362	A,B	CARBON RES. 1/4W J 10K Ω	RCX4JATZ0103
R 363		CARBON RES. 1/4W J 1K Ω	RCX4JATZ0102
R 364		CARBON RES. 1/4W J 22K Ω or	RCX4JATZ0223
		CARBON RES. 1/6W J 22K Ω	RCX6JATZ0223
R 371		CARBON RES. 1/4W J 820 Ω or	RCX4JATZ0821
		CARBON RES. 1/6W J 820 Ω	RCX6JATZ0821
R 372		CARBON RES. 1/4W J 1.8K Ω or	RCX4JATZ0182
		CARBON RES. 1/6W J 1.8K Ω	RCX6JATZ0182
R 373	A,B	CARBON RES. 1/4W J 1K Ω	RCX4JATZ0102
R 373	C,D	PCB JUMPER D0.6-P5.0	JW5.0T
R 374	A,B	CARBON RES. 1/4W J 1K Ω	RCX4JATZ0102
R 375		CARBON RES. 1/4W J 680K Ω or	RCX4JATZ0684
		CARBON RES. 1/6W J 680K Ω	RCX6JATZ0684
R 376		CARBON RES. 1/4W J 1K Ω	RCX4JATZ0102
R 377		CARBON RES. 1/4W J 270 Ω or	RCX4JATZ0271
		CARBON RES. 1/6W J 270 Ω	RCX6JATZ0271
R 378		PCB JUMPER D0.6-P5.0	JW5.0T
R 379		CARBON RES. 1/4W J 680 Ω	RCX4JATZ0681
R 380		CARBON RES. 1/4W J 270 Ω or	RCX4JATZ0271
		CARBON RES. 1/6W J 270 Ω	RCX6JATZ0271
R 401		CARBON RES. 1/4W J 15 Ω	RCX4JATZ0150
R 402		CARBON RES. 1/4W J 180 Ω or	RCX4JATZ0181
		CARBON RES. 1/6W J 180 Ω	RCX6JATZ0181
R 403		CARBON RES. 1/4W J 47 Ω or	RCX4JATZ0470
		CARBON RES. 1/6W J 47 Ω	RCX6JATZ0470
R 404		CARBON RES. 1/4W J 4.7K Ω	RCX4JATZ0472
R 405		CARBON RES. 1/4W J 4.7 Ω or	RCX4JATZ04R7

Ref. No.	Mark	Description	Part No.
		CARBON RES. 1/6W J 4.7 Ω	RCX6JATZ04R7
R 406		CARBON RES. 1/4W J 150K Ω or	RCX4JATZ0154
		CARBON RES. 1/6W J 150K Ω	RCX6JATZ0154
R 407		CARBON RES. 1/4W J 120 Ω or	RCX4JATZ0121
		CARBON RES. 1/6W J 120 Ω	RCX6JATZ0121
R 408		CARBON RES. 1/4W J 330K Ω or	RCX4JATZ0334
		CARBON RES. 1/6W J 330K Ω	RCX6JATZ0334
R 409		CARBON RES. 1/4W J 12K Ω or	RCX4JATZ0123
		CARBON RES. 1/6W J 12K Ω	RCX6JATZ0123
R 410		CARBON RES. 1/4W J 5.6K Ω or	RCX4JATZ0562
		CARBON RES. 1/6W J 5.6K Ω	RCX6JATZ0562
R 411		CARBON RES. 1/4W J 3.9K Ω	RCX4JATZ0392
R 412		CARBON RES. 1/4W J 6.8K Ω or	RCX4JATZ0682
		CARBON RES. 1/6W J 6.8K Ω	RCX6JATZ0682
R 413		CARBON RES. 1/4W J 15K Ω or	RCX4JATZ0153
		CARBON RES. 1/6W J 15K Ω	RCX6JATZ0153
R 414		CARBON RES. 1/4W J 1.8M Ω or	RCX4JATZ0185
		CARBON RES. 1/6W J 1.8M Ω	RCX6JATZ0185
R 415		CARBON RES. 1/4W J 1.8K Ω or	RCX4JATZ0182
		CARBON RES. 1/6W J 1.8K Ω	RCX6JATZ0182
R 416		CARBON RES. 1/4W J 150 Ω	RCX4JATZ0151
R 417		CARBON RES. 1/4W J 1K Ω	RCX4JATZ0102
R 418		CARBON RES. 1/4W J 2.2K Ω or	RCX4JATZ0222
		CARBON RES. 1/6W J 2.2K Ω	RCX6JATZ0222
R 419		CARBON RES. 1/4W J 22K Ω or	RCX4JATZ0223
		CARBON RES. 1/6W J 22K Ω	RCX6JATZ0223
R 420		CARBON RES. 1/4W J 2.2K Ω or	RCX4JATZ0222
		CARBON RES. 1/6W J 2.2K Ω	RCX6JATZ0222
R 421		CARBON RES. 1/4W J 4.7K Ω	RCX4JATZ0472
R 456		PCB JUMPER D0.6-P5.0	JW5.0T
R 502		CARBON RES. 1/4W J 680K Ω or	RCX4JATZ0684
		CARBON RES. 1/6W J 680K Ω	RCX6JATZ0684
R 503		CARBON RES. 1/4W J 680K Ω or	RCX4JATZ0684
		CARBON RES. 1/6W J 680K Ω	RCX6JATZ0684
R 504		CARBON RES. 1/4W J 39 Ω	RCX4JATZ0390
R 505		CARBON RES. 1/4W J 39 Ω	RCX4JATZ0390
R 506		CARBON RES. 1/4W J 47K Ω or	RCX4JATZ0473
		CARBON RES. 1/6W J 47K Ω	RCX6JATZ0473
R 507		CARBON RES. 1/4W J 150 Ω	RCX4JATZ0151
R 508		CARBON RES. 1/4W J 22K Ω or	RCX4JATZ0223
		CARBON RES. 1/6W J 22K Ω	RCX6JATZ0223
R 509		CARBON RES. 1/4W J 22K Ω or	RCX4JATZ0223
		CARBON RES. 1/6W J 22K Ω	RCX6JATZ0223
R 510		CARBON RES. 1/4W J 22K Ω or	RCX4JATZ0223
		CARBON RES. 1/6W J 22K Ω	RCX6JATZ0223
R 511		CARBON RES. 1/4W J 22K Ω or	RCX4JATZ0223
		CARBON RES. 1/6W J 22K Ω	RCX6JATZ0223
R 512		CARBON RES. 1/4W J 4.7M Ω or	RCX4JATZ0475
		CARBON RES. 1/6W J 4.7M Ω	RCX6JATZ0475
R 513		CARBON RES. 1/4W J 4.7K Ω	RCX4JATZ0472
R 514		CARBON RES. 1/4W J 47K Ω or	RCX4JATZ0473
		CARBON RES. 1/6W J 47K Ω	RCX6JATZ0473
R 515		CARBON RES. 1/4W J 330K Ω or	RCX4JATZ0334
		CARBON RES. 1/6W J 330K Ω	RCX6JATZ0334
R 516		CARBON RES. 1/4W J 10K Ω	RCX4JATZ0103
R 517		CARBON RES. 1/4W J 10K Ω	RCX4JATZ0103
R 518		CARBON RES. 1/4W J 10K Ω	RCX4JATZ0103
R 519		CARBON RES. 1/4W J 10K Ω	RCX4JATZ0103
R 520		CARBON RES. 1/4W J 10K Ω	RCX4JATZ0103
R 521		CARBON RES. 1/4W J 120K Ω or	RCX4JATZ0124
		CARBON RES. 1/6W J 120K Ω	RCX6JATZ0124
R 522		CARBON RES. 1/4W J 56K Ω or	RCX4JATZ0563
		CARBON RES. 1/6W J 56K Ω	RCX6JATZ0563
R 523	C,D	CARBON RES. 1/4W J 27K Ω or	RCX4JATZ0273
		CARBON RES. 1/6W J 27K Ω	RCX6JATZ0273
R 524		CARBON RES. 1/4W J 10K Ω	RCX4JATZ0103

Ref. No.	Mark	Description	Part No.
R 525		CARBON RES. 1/4W J 330K Ω or	RCX4JATZ0334
		CARBON RES. 1/6W J 330K Ω	RCX6JATZ0334
R 526		CARBON RES. 1/4W J 470 Ω or	RCX4JATZ0471
		CARBON RES. 1/6W J 470 Ω	RCX6JATZ0471
R 527		CARBON RES. 1/4W J 4.7K Ω	RCX4JATZ0472
R 528		CARBON RES. 1/4W J 39K Ω or	RCX4JATZ0393
		CARBON RES. 1/6W J 39K Ω	RCX6JATZ0393
R 529		CARBON RES. 1/4W J 39K Ω or	RCX4JATZ0393
		CARBON RES. 1/6W J 39K Ω	RCX6JATZ0393
R 530		CARBON RES. 1/4W J 4.7K Ω	RCX4JATZ0472
R 531		CARBON RES. 1/4W J 5.6K Ω or	RCX4JATZ0562
		CARBON RES. 1/6W J 5.6K Ω	RCX6JATZ0562
R 532		CARBON RES. 1/4W J 4.7K Ω	RCX4JATZ0472
R 533		CARBON RES. 1/4W J 2.2K Ω or	RCX4JATZ0222
		CARBON RES. 1/6W J 2.2K Ω	RCX6JATZ0222
R 534		CARBON RES. 1/4W J 2.2K Ω or	RCX4JATZ0222
		CARBON RES. 1/6W J 2.2K Ω	RCX6JATZ0222
R 535		CARBON RES. 1/4W J 10K Ω	RCX4JATZ0103
R 536		CARBON RES. 1/4W J 330K Ω or	RCX4JATZ0334
		CARBON RES. 1/6W J 330K Ω	RCX6JATZ0334
R 537	C,D	CARBON RES. 1/4W J 47K Ω or	RCX4JATZ0473
		CARBON RES. 1/6W J 47K Ω	RCX6JATZ0473
R 538	C,D	CARBON RES. 1/4W J 220K Ω or	RCX4JATZ0224
		CARBON RES. 1/6W J 220K Ω	RCX6JATZ0224
R 539	C,D	CARBON RES. 1/4W J 3.3K Ω or	RCX4JATZ0332
		CARBON RES. 1/6W J 3.3K Ω	RCX6JATZ0332
R 540	A,B	CARBON RES. 1/4W J 3.3K Ω or	RCX4JATZ0332
		CARBON RES. 1/6W J 3.3K Ω	RCX6JATZ0332
R 540	C,D	CARBON RES. 1/4W J 10K Ω	RCX4JATZ0103
R 541		CARBON RES. 1/4W J 820 Ω or	RCX4JATZ0821
		CARBON RES. 1/6W J 820 Ω	RCX6JATZ0821
R 542		CARBON RES. 1/4W J 560K Ω or	RCX4JATZ0564
		CARBON RES. 1/6W J 560K Ω	RCX6JATZ0564
R 543		CARBON RES. 1/4W J 330K Ω or	RCX4JATZ0334
		CARBON RES. 1/6W J 330K Ω	RCX6JATZ0334
R 544		CARBON RES. 1/4W J 4.7K Ω	RCX4JATZ0472
R 550		CARBON RES. 1/4W J 1 Ω	RCX4JATZ0010
R 551		PCB JUMPER D0.6-P5.0	JW5.0T
R 552		CARBON RES. 1/4W J 1.8K Ω or	RCX4JATZ0182
		CARBON RES. 1/6W J 1.8K Ω	RCX6JATZ0182
R 553		CARBON RES. 1/4W J 1K Ω	RCX4JATZ0102
R 554		CARBON RES. 1/4W J 1.2K Ω or	RCX4JATZ0122
		CARBON RES. 1/6W J 1.2K Ω	RCX6JATZ0122
R 555		CARBON RES. 1/4W J 1.5K Ω	RCX4JATZ0152
R 559		CARBON RES. 1/4W J 22K Ω or	RCX4JATZ0223
		CARBON RES. 1/6W J 22K Ω	RCX6JATZ0223
R 561	C,D	CARBON RES. 1/4W J 10K Ω	RCX4JATZ0103
R 563		CARBON RES. 1/4W J 10K Ω	RCX4JATZ0103
R 564	A,B	CARBON RES. 1/4W J 10K Ω	RCX4JATZ0103
R 565		CARBON RES. 1/4W J 10K Ω	RCX4JATZ0103
R 567		CARBON RES. 1/4W J 10K Ω	RCX4JATZ0103
R 568		CARBON RES. 1/4W J 10K Ω	RCX4JATZ0103
R 571		CARBON RES. 1/4W J 10K Ω	RCX4JATZ0103
R 575		CARBON RES. 1/4W J 10K Ω	RCX4JATZ0103
R 576	A,B	CARBON RES. 1/4W J 10K Ω	RCX4JATZ0103
R 576	C,D	CARBON RES. 1/4W J 2.2K Ω or	RCX4JATZ0222
		CARBON RES. 1/6W J 2.2K Ω	RCX6JATZ0222
R 579		CARBON RES. 1/4W J 10K Ω	RCX4JATZ0103
R 580		CARBON RES. 1/4W J 18K Ω or	RCX4JATZ0183
		CARBON RES. 1/6W J 18K Ω	RCX6JATZ0183
R 581		CARBON RES. 1/4W J 10K Ω	RCX4JATZ0103
R 582		CARBON RES. 1/4W J 10K Ω	RCX4JATZ0103
R 583		CARBON RES. 1/4W J 10K Ω	RCX4JATZ0103
R 585		CARBON RES. 1/4W J 1.5K Ω	RCX4JATZ0152
R 586		CARBON RES. 1/4W J 1 Ω	RCX4JATZ0010
R 587		CARBON RES. 1/4W J 1 Ω	RCX4JATZ0010

Ref. No.	Mark	Description	Part No.
R 588		CARBON RES. 1/4W J 1 Ω	RCX4JATZ0010
R 589		CARBON RES. 1/4W J 22K Ω or	RCX4JATZ0223
		CARBON RES. 1/6W J 22K Ω	RCX6JATZ0223
R 590		CARBON RES. 1/4W J 10K Ω	RCX4JATZ0103
R 591		CARBON RES. 1/4W J 22K Ω or	RCX4JATZ0223
		CARBON RES. 1/6W J 22K Ω	RCX6JATZ0223
R 592		PCB JUMPER D0.6-P5.0	JW5.0T
R 593		CARBON RES. 1/4W J 100K Ω or	RCX4JATZ0104
		CARBON RES. 1/6W J 100K Ω	RCX6JATZ0104
R 594		CARBON RES. 1/4W J 1K Ω	RCX4JATZ0102
R 595		CARBON RES. 1/4W J 47 Ω or	RCX4JATZ0470
		CARBON RES. 1/6W J 47 Ω	RCX6JATZ0470
R 596		CARBON RES. 1/4W J 2.2K Ω or	RCX4JATZ0222
		CARBON RES. 1/6W J 2.2K Ω	RCX6JATZ0222
R 597		CARBON RES. 1/4W J 1.2K Ω or	RCX4JATZ0122
		CARBON RES. 1/6W J 1.2K Ω	RCX6JATZ0122
R 598		CARBON RES. 1/4W J 10K Ω	RCX4JATZ0103
R 599		CARBON RES. 1/4W J 220 Ω or	RCX4JATZ0221
		CARBON RES. 1/6W J 220 Ω	RCX6JATZ0221
R 600		CARBON RES. 1/4W J 10K Ω	RCX4JATZ0103
R 601		CARBON RES. 1/4W J 12K Ω or	RCX4JATZ0123
		CARBON RES. 1/6W J 12K Ω	RCX6JATZ0123
R 607		CARBON RES. 1/4W J 10K Ω	RCX4JATZ0103
R 608		PCB JUMPER D0.6-P5.0	JW5.0T
R 703		CARBON RES. 1/4W J 1K Ω	RCX4JATZ0102
R 704		CARBON RES. 1/4W J 47K Ω or	RCX4JATZ0473
		CARBON RES. 1/6W J 47K Ω	RCX6JATZ0473
R 705		CARBON RES. 1/4W J 33K Ω or	RCX4JATZ0333
		CARBON RES. 1/6W J 33K Ω	RCX6JATZ0333
R 706		CARBON RES. 1/4W J 2.4K Ω	RCX4JATZ0242
R 707		CARBON RES. 1/4W J 10K Ω	RCX4JATZ0103
R 708		CARBON RES. 1/4W J 10K Ω	RCX4JATZ0103
R 709		CARBON RES. 1/4W J 100K Ω or	RCX4JATZ0104
		CARBON RES. 1/6W J 100K Ω	RCX6JATZ0104
R 710		CARBON RES. 1/4W J 100K Ω or	RCX4JATZ0104
		CARBON RES. 1/6W J 100K Ω	RCX6JATZ0104
R 711		CARBON RES. 1/4W J 12K Ω or	RCX4JATZ0123
		CARBON RES. 1/6W J 12K Ω	RCX6JATZ0123
R 712		CARBON RES. 1/4W J 75 Ω or	RCX4JATZ0750
		CARBON RES. 1/6W J 75 Ω	RCX6JATZ0750
R 713		CARBON RES. 1/4W J 1K Ω	RCX4JATZ0102
R 751		CARBON RES. 1/4W J 22K Ω or	RCX4JATZ0223
		CARBON RES. 1/6W J 22K Ω	RCX6JATZ0223
R 752		CARBON RES. 1/4W J 150 Ω	RCX4JATZ0151
R 753		CARBON RES. 1/4W J 68 Ω or	RCX4JATZ0680
		CARBON RES. 1/6W J 68 Ω	RCX6JATZ0680
R 754		CARBON RES. 1/4W J 150 Ω	RCX4JATZ0151
R 755		CARBON RES. 1/4W J 68 Ω or	RCX4JATZ0680
		CARBON RES. 1/6W J 68 Ω	RCX6JATZ0680
R 756		CARBON RES. 1/4W J 5.6K Ω or	RCX4JATZ0562
		CARBON RES. 1/6W J 5.6K Ω	RCX6JATZ0562
R 758		CARBON RES. 1/4W J 27K Ω or	RCX4JATZ0273
		CARBON RES. 1/6W J 27K Ω	RCX6JATZ0273
R 759		CARBON RES. 1/4W J 27K Ω or	RCX4JATZ0273
		CARBON RES. 1/6W J 27K Ω	RCX6JATZ0273
R 760		CARBON RES. 1/4W J 820 Ω or	RCX4JATZ0821
		CARBON RES. 1/6W J 820 Ω	RCX6JATZ0821
R 761		CARBON RES. 1/4W J 820 Ω or	RCX4JATZ0821
		CARBON RES. 1/6W J 820 Ω	RCX6JATZ0821
R 762		CARBON RES. 1/4W J 1K Ω	RCX4JATZ0102
R 763		CARBON RES. 1/4W J 100K Ω or	RCX4JATZ0104
		CARBON RES. 1/6W J 100K Ω	RCX6JATZ0104
R 764		CARBON RES. 1/4W J 560 Ω or	RCX4JATZ0561
		CARBON RES. 1/6W J 560 Ω	RCX6JATZ0561
R 765		CARBON RES. 1/4W J 36K Ω or	RCX4JATZ0363
		CARBON RES. 1/6W J 36K Ω	RCX6JATZ0363

Ref. No.	Mark	Description	Part No.
R 766		PCB JUMPER D0.6-P5.0	JW5.0T
J 35		CARBON RES. 1/4W J 2.2K Ω or	RCX4JZPZ0222
		CARBON RES. 1/6W J 2.2K Ω	RCX6JZPZ0222
		SWITCHES	
SW 501		TACT SWITCH SKHHAP or	SST0101AL028
		TACT SWITCH KSM0614B or	SST0101HH013
		TACT SWITCH KPT-1105BM or	SST0101JP001
		TACT SWITCH DHT-1102C or	SST0101LJ001
		TACT SWITCH EVQ PAC 09K or	SST0101MS017
		TACT SWITCH EVQ JAC 09K	SST0101MS021
SW 502		TACT SWITCH SKHHAP or	SST0101AL028
		TACT SWITCH KSM0614B or	SST0101HH013
		TACT SWITCH KPT-1105BM or	SST0101JP001
		TACT SWITCH DHT-1102C or	SST0101LJ001
		TACT SWITCH EVQ PAC 09K or	SST0101MS017
		TACT SWITCH EVQ JAC 09K	SST0101MS021
SW 504		TACT SWITCH SKHHAP or	SST0101AL028
		TACT SWITCH KSM0614B or	SST0101HH013
		TACT SWITCH KPT-1105BM or	SST0101JP001
		TACT SWITCH DHT-1102C or	SST0101LJ001
		TACT SWITCH EVQ PAC 09K or	SST0101MS017
		TACT SWITCH EVQ JAC 09K	SST0101MS021
SW 505		TACT SWITCH SKHHAP or	SST0101AL028
		TACT SWITCH KSM0614B or	SST0101HH013
		TACT SWITCH KPT-1105BM or	SST0101JP001
		TACT SWITCH DHT-1102C or	SST0101LJ001
		TACT SWITCH EVQ PAC 09K or	SST0101MS017
		TACT SWITCH EVQ JAC 09K	SST0101MS021
SW 506		TACT SWITCH KSM0611B	SST0101HH004
SW 507		PUSH SWITCH SPPB61 or	SSP0102AL001
		PUSH SWITCH JPS1120-0601H	SSP0102SR001
		VARIABLE RESISTORS	
VR 301		CARBON P.O.T. 4.7K Ω B or	638A472
		CARBON P.O.T. 5K Ω B or	VRCB502KA011
		CARBON P.O.T. 5K Ω B or	138N780
		CARBON P.O.T. 5K Ω B	VRCB502HH005
VR 302		CARBON P.O.T. 2.2K Ω B or	638A222
		CARBON P.O.T. 2K Ω B or	VRCB202KA011
		CARBON P.O.T. 2K Ω B or	138N778
		CARBON P.O.T. 2K Ω B	VRCB202HH005
VR 501		CARBON P.O.T. 100K Ω B or	638A104
		CARBON P.O.T. 100K Ω B or	VRCB104KA011
		CARBON P.O.T. 100K Ω B or	138N785
		CARBON P.O.T. 100K Ω B	VRCB104HH005
		CRYSTAL OSCILLATORS	
X 301		CRYSTAL OSCILLATOR 4.433619MHZ or	1811388
		CRYSTAL OSCILLATOR 4.433619MHZ or	1811366
		CRYSTAL OSCILLATOR 4.433619MHZ	FXC445LGM001
X 501		CRYSTAL OSCILLATOR 32KHZ(10PPM) or	1811350
		CRYSTAL OSCILLATOR 32KHZ(10PPM)	1811351
X 502	C,D	CRYSTAL OSCILLATOR 13.300857MHZ	FXE136LDS001
		MISCELLANOEUS	
2B 5		HOLDER, F.I.P.(R)	0VM302619
2B 6		HOLDER, F.I.P.(L)	0VM302618
2B 8		BUSH, LED(B)	6N50114
2B 11		HOLDER, IF SENSOR (2B11 Used only if RS501: NJL51V367)	0VM407020
2B 15		PLATE, GROUND, TUNER	0VM407332
2L 071		SCREW, S-TIGHT M3X5 BIND HEAD+	GBMS3050
A 17		JACK BOARD(BG)	0VM302625
A 19		JACK BOARD(21P)	0VM201920
AC 001 ⚠		AC CORD LA-1517-1	WAE0202LW011
F 001 ⚠		FUSE T1.60AH250V or	PAGC20BAG162
		FUSE T1.60AH250V	PBGZ20CDX006
FH 001		FUSE HOLDER FH-V-03078-1 or	XH01Z00DK002
		HOLDER, FUSE CNT41-0014	1790424

Ref. No.	Mark	Description	Part No.
FH 002		FUSE HOLDER FH-V-03078-1 or	XH01Z00DK002
		HOLDER, FUSE CNT41-0014	1790424
FL 301	C,D	NOISE FILTER ZJSR5101-222TA	FAE806TTE001
FP 501		F.I.P. 10-BT-119G or	TVFD1C0FT024
		F.I.P. FIP10BTM6	TVFD1C0NE025
JK 751		SKIRT JACK, 21P CSS5021-1701R	JGZL210SR001
JW 01	C,D	WIRE ASSEMBLY 10P	WX1H6302-002
JW 03	C,D	WIRE 050/BRO/AWG26#1007	WX3101A6F405
JW 04	C,D	WIRE 050/BRO/AWG26#1007	WX3101A6F405
MD 701		RF MODULATOR PAL(G) NJH3032G007	URFCPLGJR001
RS 501		REMOTE RECEIVER PIC-12042LFB (Not used 2B11)	USESJRSKK018
RS 501		REMOTE RECEIVER NJL51V367 (Used 2B11)	USESJRSJR009
T 001 ⚠		PULSE TRANS S1468B	LTT00EPSA009
TU 701		TUNER UNIT TELE4-025A	UTUNPLBAL005
		RF CABLE	WPZ0050LG001
		LEAD CLAMPER or	1790356
		LEAD CLAMPER GT-80M	XF00080HL001

Function CBA (MCV-B)

Ref. No.	Mark	Description	Part No.
		Function CBA (MCV-B) Consists of the following:	———
		CONNECTOR	
CN 251		ANGLE SOCKET CONNECTOR, 3P	1770598
		RESISTORS	
R 253		CARBON RES. 1/4W J 1.2K Ω or	RCX4JATZ0122
		CARBON RES. 1/6W J 1.2K Ω	RCX6JATZ0122
R 254		CARBON RES. 1/4W J 1.5K Ω or	RCX4JATZ0152
		CARBON RES. 1/6W J 1.5K Ω	RCX6JATZ0152
R 255		CARBON RES. 1/4W J 2.2K Ω or	RCX4JATZ0222
		CARBON RES. 1/6W J 2.2K Ω	RCX6JATZ0222
R 256		CARBON RES. 1/4W J 3.9K Ω or	RCX4JATZ0392
		CARBON RES. 1/6W J 3.9K Ω	RCX6JATZ0392
R 257		CARBON RES. 1/4W J 2.2K Ω or	RCX4JATZ0222
		CARBON RES. 1/6W J 2.2K Ω	RCX6JATZ0222
R 258		CARBON RES. 1/4W J 3.9K Ω or	RCX4JATZ0392
		CARBON RES. 1/6W J 3.9K Ω	RCX6JATZ0392
R 259		CARBON RES. 1/4W J 8.2K Ω or	RCX4JATZ0822
		CARBON RES. 1/6W J 8.2K Ω	RCX6JATZ0822
R 260		CARBON RES. 1/4W J 22K Ω or	RCX4JATZ0223
		CARBON RES. 1/6W J 22K Ω	RCX6JATZ0223
R 271		CARBON RES. 1/4W J 1.8K Ω or	RCX4JATZ0182
		CARBON RES. 1/6W J 1.8K Ω	RCX6JATZ0182
R 292		CARBON RES. 1/4W J 1K Ω or	RCX4JATZ0102
		CARBON RES. 1/6W J 1K Ω	RCX6JATZ0102
		SWITCHES	
SW 252		TACT SWITCH SKHHAP or	SST0101AL028
		TACT SWITCH KSM0614B or	SST0101HH013
		TACT SWITCH KPT-1105BM or	SST0101JP001
		TACT SWITCH DHT-1102C or	SST0101LJ001
		TACT SWITCH EVQ PAC 09K or	SST0101MS017
		TACT SWITCH EVQ JAC 09K	SST0101MS021
SW 253		TACT SWITCH SKHHAP or	SST0101AL028
		TACT SWITCH KSM0614B or	SST0101HH013
		TACT SWITCH KPT-1105BM or	SST0101JP001
		TACT SWITCH DHT-1102C or	SST0101LJ001
		TACT SWITCH EVQ PAC 09K or	SST0101MS017
		TACT SWITCH EVQ JAC 09K	SST0101MS021
SW 254		TACT SWITCH SKHHAP or	SST0101AL028
		TACT SWITCH KSM0614B or	SST0101HH013
		TACT SWITCH KPT-1105BM or	SST0101JP001
		TACT SWITCH DHT-1102C or	SST0101LJ001
		TACT SWITCH EVQ PAC 09K or	SST0101MS017
		TACT SWITCH EVQ JAC 09K	SST0101MS021

Ref. No.	Mark	Description	Part No.
SW 255		TACT SWITCH SKHHAP or	SST0101AL028
		TACT SWITCH KSM0614B or	SST0101HH013
		TACT SWITCH KPT-1105BM or	SST0101JP001
		TACT SWITCH DHT-1102C or	SST0101LJ001
		TACT SWITCH EVQ PAC 09K or	SST0101MS017
		TACT SWITCH EVQ JAC 09K	SST0101MS021
SW 256		TACT SWITCH SKHHAP or	SST0101AL028
		TACT SWITCH KSM0614B or	SST0101HH013
		TACT SWITCH KPT-1105BM or	SST0101JP001
		TACT SWITCH DHT-1102C or	SST0101LJ001
		TACT SWITCH EVQ PAC 09K or	SST0101MS017
		TACT SWITCH EVQ JAC 09K	SST0101MS021
SW 257		TACT SWITCH SKHHAP or	SST0101AL028
		TACT SWITCH KSM0614B or	SST0101HH013
		TACT SWITCH KPT-1105BM or	SST0101JP001
		TACT SWITCH DHT-1102C or	SST0101LJ001
		TACT SWITCH EVQ PAC 09K or	SST0101MS017
		TACT SWITCH EVQ JAC 09K	SST0101MS021
SW 258		TACT SWITCH SKHHAP or	SST0101AL028
		TACT SWITCH KSM0614B or	SST0101HH013
		TACT SWITCH KPT-1105BM or	SST0101JP001
		TACT SWITCH DHT-1102C or	SST0101LJ001
		TACT SWITCH EVQ PAC 09K or	SST0101MS017
		TACT SWITCH EVQ JAC 09K	SST0101MS021
SW 259		TACT SWITCH SKHHAP or	SST0101AL028
		TACT SWITCH KSM0614B or	SST0101HH013
		TACT SWITCH KPT-1105BM or	SST0101JP001
		TACT SWITCH DHT-1102C or	SST0101LJ001
		TACT SWITCH EVQ PAC 09K or	SST0101MS017
		TACT SWITCH EVQ JAC 09K	SST0101MS021
SW 260		TACT SWITCH SKHHAP or	SST0101AL028
		TACT SWITCH KSM0614B or	SST0101HH013
		TACT SWITCH KPT-1105BM or	SST0101JP001
		TACT SWITCH DHT-1102C or	SST0101LJ001
		TACT SWITCH EVQ PAC 09K or	SST0101MS017
		TACT SWITCH EVQ JAC 09K	SST0101MS021
SW 271		TACT SWITCH SKHHAP or	SST0101AL028
		TACT SWITCH KSM0614B or	SST0101HH013
		TACT SWITCH KPT-1105BM or	SST0101JP001
		TACT SWITCH DHT-1102C or	SST0101LJ001
		TACT SWITCH EVQ PAC 09K or	SST0101MS017
		TACT SWITCH EVQ JAC 09K	SST0101MS021

IF CBA (IFV)

Ref. No.	Mark	Description	Part No.
	A,B	IF CBA (IFV)	0VSA07729
	C,D	IF CBA (IFV)	0VSA07788
		Consists of the following:	
		CAPACITORS	
C 02		CHIP CERAMIC CAP. CK C 1pF/50V	CHE1JC8CK1R0
C 03		CHIP CERAMIC CAP. CK C 1pF/50V	CHE1JC8CK1R0
C 07		CHIP CERAMIC CAP. B K 2200pF/50V or	CHE1JK80B222
		CHIP CERAMIC CAP. B K 0.0022μF/50V	12B3222C
C 09		CHIP CERAMIC CAP. CK C 1pF/50V	CHE1JC8CK1R0
C 10		CHIP CERAMIC CAP. CJ C 3pF/50V	CHE1JC8CJ3R0
C 11		CHIP CERAMIC CAP. B K 0.022μF/50V or	CHE1JK80B223
		CHIP CERAMIC CAP. B K 0.022μF/50V	12B3223C
C 12		CHIP CERAMIC CAP. CH J 100pF/50V or	CHE1JJ8CH101
		CHIP CERAMIC CAP. CH J 100pF/50V	12CH101C
C 13		CHIP CERAMIC CAP. F Z 0.01μF/50V or	CHE1JZ80F103
		CHIP CERAMIC CAP. F Z 0.01μF/50V	12F3103C
C 14		CHIP CERAMIC CAP. SL J 330pF/50V or	CHE1JJ8SL331
		CHIP CERAMIC CAP. SL J 330pF/50V	1270331C
C 15		CHIP CERAMIC CAP. B K 2200pF/50V or	CHE1JK80B222
		CHIP CERAMIC CAP. B K 0.0022μF/50V	12B3222C
C 16		CHIP CERAMIC CAP. B K 2200pF/50V or	CHE1JK80B222
		CHIP CERAMIC CAP. B K 0.0022μF/50V	12B3222C
C 17		CHIP CERAMIC CAP. CH J 18pF/50V or	CHE1JJ8CH180
		CHIP CERAMIC CAP. CH J 18pF/50V	12CH180C
C 18		CHIP CERAMIC CAP. F Z 0.01μF/50V or	CHE1JZ80F103
		CHIP CERAMIC CAP. F Z 0.01μF/50V	12F3103C
C 19		CHIP CERAMIC CAP. CH J 47pF/50V or	CHE1JJ8CH470
		CHIP CERAMIC CAP. CH J 47pF/50V	12CH470C
C 20		CHIP CERAMIC CAP. PH J 36pF/50V	CHE1JJ3PH360
C 21		CHIP CERAMIC CAP. F Z 0.047μF/50V or	CHE1JZ80F473
		CHIP CERAMIC CAP. F Z 0.047μF/50V	12F3473C
C 22		CHIP CERAMIC CAP. B K 2200pF/50V or	CHE1JK80B222
		CHIP CERAMIC CAP. B K 0.0022μF/50V	12B3222C
C 23		CHIP CERAMIC CAP. CH J 24pF/50V or	CHE1JJ8CH240
		CHIP CERAMIC CAP. CH J 24pF/50V	12CH240C
C 24		CHIP CERAMIC CAP. CH J 15pF/50V or	CHE1JJ8CH150
		CHIP CERAMIC CAP. CH J 15pF/50V	12CH150C
C 25		CHIP CERAMIC CAP. CH J 15pF/50V or	CHE1JJ8CH150
		CHIP CERAMIC CAP. CH J 15pF/50V	12CH150C
C 30		CHIP CERAMIC CAP. CH J 47pF/50V or	CHE1JJ8CH470
		CHIP CERAMIC CAP. CH J 47pF/50V	12CH470C
C 31		CHIP CERAMIC CAP. F Z 0.01μF/50V or	CHE1JZ80F103
		CHIP CERAMIC CAP. F Z 0.01μF/50V	12F3103C
C 51		ELECTROLYTIC CAP. 0.47μF/50V M H7	CE1JMAVSLR47
C 52		ELECTROLYTIC CAP. 2.2μF/50V M H7	CE1JMAVSL2R2
C 53		ELECTROLYTIC CAP. 47μF/16V M H7	CE1CMAVSL470
C 55		ELECTROLYTIC CAP. 0.47μF/50V M H7	CE1JMAVSLR47
		CONNECTOR	
CN 01		SHUNT CONNECTOR, 8P	JC92K08ER001
		IC	
IC 01		IC LA7578N	QSBLA0SSY057
		COILS	
L 02		INDUCTOR 15μH-K-26T or	LLAXKDTKA150
		INDUCTOR 15μH-K-26T	LLAXKATTU150
L 04		INDUCTOR 10μH-K-26T or	LLAXKDTKA100
		INDUCTOR 10μH-K-26T	LLAXKATTU100
L 05		INDUCTOR 39μH-K-26T or	LLAXKDTKA390
		INDUCTOR 39μH-K-26T	LLAXKATTU390
T 02		COIL 2259-JPS-398	LFA05V0SF007
T 03		COIL 2259-JPS-400	LFA05V0SF009
T 04		COIL 2259-JPS-394	LFA05V0SF003
T 05		COIL 2259-JPS-397	LFA05V0SF006
T 06		COIL 2259-JPS-397	LFA05V0SF006
		TRANSISTOR	
Q 01		TRANSISTOR KTA1266(Y) or	NQSY0KTA1266

Ref. No.	Mark	Description	Part No.
		TRANSISTOR KTA1266(GR) or	NQS40KTA1266
		TRANSISTOR 2SA1317(S) or	A1317SZ
		TRANSISTOR 2SA1317(T)	A1317TZ
		RESISTORS	
R 01		CHIP RES. 1/10W 0 Ω or	RRXAZR6Z0000
		CHIP RES. 1/10W J 0 Ω	134F000C
R 02		CHIP RES. 1/10W J 150 Ω or	RRXAJR6Z0151
		CHIP RES. 1/10W J 150 Ω	134F151C
R 03		CHIP RES. 1/10W J 270 Ω or	RRXAJR6Z0271
		CHIP RES. 1/10W J 270 Ω	134F271C
R 10		CHIP RES. 1/10W J 3.3K Ω or	RRXAJR6Z0332
		CHIP RES. 1/10W J 3.3K Ω	134F332C
R 11		CHIP RES. 1/10W J 6.8K Ω or	RRXAJR6Z0682
		CHIP RES. 1/10W J 6.8K Ω	134F682C
R 12		CHIP RES. 1/10W J 2.7K Ω or	RRXAJR6Z0272
		CHIP RES. 1/10W J 2.7K Ω	134F272C
R 13		CHIP RES. 1/10W J 1.8K Ω or	RRXAJR6Z0182
		CHIP RES. 1/10W J 1.8K Ω	134F182C
R 14		CHIP RES. 1/10W J 1.5K Ω or	RRXAJR6Z0152
		CHIP RES. 1/10W J 1.5K Ω	134F152C
R 15		CHIP RES. 1/10W J 1.2K Ω or	RRXAJR6Z0122
		CHIP RES. 1/10W J 1.2K Ω	134F122C
R 16		CHIP RES. 1/10W J 56K Ω or	RRXAJR6Z0563
		CHIP RES. 1/10W J 56K Ω	134F563C
R 17		CHIP RES. 1/10W J 6.8K Ω or	RRXAJR6Z0682
		CHIP RES. 1/10W J 6.8K Ω	134F682C
R 18		CHIP RES. 1/10W J 2.7K Ω or	RRXAJR6Z0272
		CHIP RES. 1/10W J 2.7K Ω	134F272C
R 19		CHIP RES. 1/10W J 820K Ω or	RRXAJR6Z0824
		CHIP RES. 1/10W J 820K Ω	134F824C
R 21		CHIP RES. 1/10W J 150K Ω or	RRXAJR6Z0154
		CHIP RES. 1/10W J 150K Ω	134F154C
R 22		CHIP RES. 1/10W J 120K Ω or	RRXAJR6Z0124
		CHIP RES. 1/10W J 120K Ω	134F124C
R 23		CHIP RES. 1/10W J 120K Ω or	RRXAJR6Z0124
		CHIP RES. 1/10W J 120K Ω	134F124C
R 24		CHIP RES. 1/10W J 82K Ω or	RRXAJR6Z0823
		CHIP RES. 1/10W J 82K Ω	134F823C
R 27		CHIP RES. 1/10W J 1.5K Ω or	RRXAJR6Z0152
		CHIP RES. 1/10W J 1.5K Ω	134F152C
R 28		CHIP RES. 1/10W 0 Ω or	RRXAZR6Z0000
		CHIP RES. 1/10W J 0 Ω	134F000C
R 29		CHIP RES. 1/10W J 360 Ω or	RRXAJR6Z0361
		CHIP RES. 1/10W J 360 Ω	134F361C
R 30		CHIP RES. 1/10W J 150 Ω or	RRXAJR6Z0151
		CHIP RES. 1/10W J 150 Ω	134F151C
R 32		CHIP RES. 1/10W J 3.3K Ω or	RRXAJR6Z0332
		CHIP RES. 1/10W J 3.3K Ω	134F332C
R 34		CHIP RES. 1/10W 0 Ω or	RRXAZR6Z0000
		CHIP RES. 1/10W J 0 Ω	134F000C
R 35		CHIP RES. 1/10W J 2.7K Ω or	RRXAJR6Z0272
		CHIP RES. 1/10W J 2.7K Ω	134F272C
R 36		CHIP RES. 1/10W 0 Ω or	RRXAZR6Z0000
		CHIP RES. 1/10W J 0 Ω	134F000C
R 37		CHIP RES. 1/10W J 390 Ω or	RRXAJR6Z0391
		CHIP RES. 1/10W J 390 Ω	134F391C
R 38		CHIP RES. 1/10W J 68 Ω or	RRXAJR6Z0680
		CHIP RES. 1/10W J 68 Ω	134F680C
R 40		CHIP RES. 1/10W 0 Ω or	RRXAZR6Z0000
		CHIP RES. 1/10W J 0 Ω	134F000C
R 42		CHIP RES. 1/10W 0 Ω or	RRXAZR6Z0000
		CHIP RES. 1/10W J 0 Ω	134F000C
R 43		CHIP RES. 1/10W 0 Ω or	RRXAZR6Z0000
		CHIP RES. 1/10W J 0 Ω	134F000C
R 44		CHIP RES. 1/10W 0 Ω or	RRXAZR6Z0000
		CHIP RES. 1/10W J 0 Ω	134F000C
R 45		CHIP RES. 1/10W 0 Ω or	RRXAZR6Z0000
		CHIP RES. 1/10W J 0 Ω	134F000C
R 46		CHIP RES. 1/10W 0 Ω or	RRXAZR6Z0000
		CHIP RES. 1/10W J 0 Ω	134F000C
		VARIABLE RESISTOR	
VR 01		CARBON P.O.T. 10K Ω B or	138A959
		CARBON P.O.T. 10K Ω B or	VRCB103KA012
		CARBON P.O.T. 10K Ω B	VRCB103HH002
		MISCELLANEOUS	
2B 16		SHIELD, TOP(IF)	0VM302616
2B 17		SHIELD, BOTTOM(IF)	0VM302617
F 01		SURFACE ACOUSTIC WAVE FILTER F1044QS	FBB386PTS003
F 03		CERAMIC TRAP 5.5MHZ/5.74MHZ	FBE575PMS004
F 04		CERAMIC FILTER 5.5MHZ	FBB555PMR004
		LABEL, IF	0VM407532

CSV CBA
(13A-509 and 13A-529 Models only)

Ref. No.	Mark	Description	Part No.
	C,D	CSV CBA Consists of the following:	0VSA07882
		CAPACITORS	
C 201		CERAMIC CAP.(AX) SL J 33pF/50V or	CCA1JJTSL330
		CERAMIC CAP. SL J 33pF/50V	3S41330T
C 202		CERAMIC CAP.(AX) X K 2200pF/16V or	CDA1CKT0X222
		CERAMIC CAP. X K 0.0022μF/16V	3X4C222T
C 203		CERAMIC CAP.(AX) SL J 15pF/50V or	CCA1JJTSL150
		CERAMIC CAP. SL J 15pF/50V	3S41150T
C 204		CERAMIC CAP.(AX) X K 2200pF/16V or	CDA1CKT0X222
		CERAMIC CAP. X K 0.0022μF/16V	3X4C222T
C 205		CERAMIC CAP.(AX) X K 2200pF/16V or	CDA1CKT0X222
		CERAMIC CAP. X K 0.0022μF/16V	3X4C222T
C 206		CERAMIC CAP.(AX) SL J 68pF/50V or	CCA1JJTSL680
		CERAMIC CAP. SL J 68pF/50V	3S41680T
C 207		CERAMIC CAP.(AX) X K 2200pF/16V or	CDA1CKT0X222
		CERAMIC CAP. X K 0.0022μF/16V	3X4C222T
C 208		CERAMIC CAP.(AX) Y M 0.01μF/16V	CDA1CMT0Y103
C 209		CERAMIC CAP.(AX) B J 1000pF/50V or	CDA1JJT0B102
		CERAMIC CAP.(AX) B K 1000pF/50V or	CDA1JKT0B102
		CERAMIC CAP. B J 0.001μF/50V or	3B41102T
		CERAMIC CAP. B K 0.001μF/50V	3B42102T
		CONNECTORS	
CN 201		ANGLE PIN HEADER, 10P	1740783
CN 202		PIN HEADER, ANGLE, 3P	5700289
CN 203		PIN HEADER, ANGLE, 3P	5700289
		DIODE	
D 201		SWITCHING DIODE 1N4148M or	NDTZ01N4148M
		SWITCHING DIODE 1N4148M or	QDTZ01N4148M
		SWITCHING DIODE GMB01-BT	GMB01BT
		COILS	
L 201		INDUCTOR 68μH-K	LLAXKCPFG680
L 202		INDUCTOR 15μH-K	LLAXKCPFG150
		TRANSISTORS	
Q 201		RES. BUILT-IN TRANSISTOR KRA109M or	NQSZ0KRA109M
		RES. BUILT-IN TRANSISTOR KSR2208 or	NQSZ0KSR2208
		RES. BUILT-IN TRANSISTOR 2SA1347	QQSZ02SA1347
Q 202		TRANSISTOR KTA1267(Y) or	NQSY0KTA1267

Ref. No.	Mark	Description	Part No.
		TRANSISTOR KTA1267(GR) or	NQS10KTA1267
		TRANSISTOR KSA1175(Y) or	NQSY0KSA1175
		TRANSISTOR KSA1175(G) or	NQSG0KSA1175
		TRANSISTOR 2SA608SP(E) or	A608SEZ
		TRANSISTOR 2SA608SP(F)	A608SFZ
Q 203		TRANSISTOR KTC3199(Y) or	NQSY0KTC3199
		TRANSISTOR KTC3199(GR) or	NQS10KTC3199
		TRANSISTOR KSC2785(Y) or	NQSY0KSC2785
		TRANSISTOR KSC2785(G) or	NQSG0KSC2785
		TRANSISTOR 2SC536SP(E) or	C536SEZ
		TRANSISTOR 2SC536SP(F)	C536SFZ
Q 204		TRANSISTOR KTA1267(Y) or	NQSY0KTA1267
		TRANSISTOR KTA1267(GR) or	NQS10KTA1267
		TRANSISTOR KSA1175(Y) or	NQSY0KSA1175
		TRANSISTOR KSA1175(G) or	NQSG0KSA1175
		TRANSISTOR 2SA608SP(E) or	A608SEZ
		TRANSISTOR 2SA608SP(F)	A608SFZ
Q 205		TRANSISTOR KTC3193(Y) or	NQSY0KTC3193
		TRANSISTOR 2SC2839(E) or	C2839EZ
		TRANSISTOR 2SC2839(F)	C2839FZ
RESISTORS			
R 201		CARBON RES. 1/4W J 1.2K Ω or	RCX4JATZ0122
		CARBON RES. 1/6W J 1.2K Ω	RCX6JATZ0122
R 202		CARBON RES. 1/4W J 680 Ω or	RCX4JATZ0681
		CARBON RES. 1/6W J 680 Ω	RCX6JATZ0681
R 203		CARBON RES. 1/4W J 1K Ω or	RCX4JATZ0102
		CARBON RES. 1/6W J 1K Ω	RCX6JATZ0102
R 204		CARBON RES. 1/4W J 2.2K Ω or	RCX4JATZ0222
		CARBON RES. 1/6W J 2.2K Ω	RCX6JATZ0222
R 205		CARBON RES. 1/4W J 1K Ω or	RCX4JATZ0102
		CARBON RES. 1/6W J 1K Ω	RCX6JATZ0102
R 206		CARBON RES. 1/4W J 22K Ω or	RCX4JATZ0223
		CARBON RES. 1/6W J 22K Ω	RCX6JATZ0223
R 207		CARBON RES. 1/4W J 22K Ω or	RCX4JATZ0223
		CARBON RES. 1/6W J 22K Ω	RCX6JATZ0223
R 208		CARBON RES. 1/4W J 1.2K Ω or	RCX4JATZ0122
		CARBON RES. 1/6W J 1.2K Ω	RCX6JATZ0122
R 209		CARBON RES. 1/4W J 100 Ω or	RCX4JATZ0101
		CARBON RES. 1/6W J 100 Ω	RCX6JATZ0101
R 210		CARBON RES. 1/4W J 1.5K Ω or	RCX4JATZ0152
		CARBON RES. 1/6W J 1.5K Ω	RCX6JATZ0152
R 211		CARBON RES. 1/4W J 8.2K Ω or	RCX4JATZ0822
		CARBON RES. 1/6W J 8.2K Ω	RCX6JATZ0822

Note:

IC5101 CAN BE EITHER
SAA4700(CBA NO.: BK8036F01A01) or
SDA5642(CBA NO.: BS4250F01001).
(Refer to 1-8-39~1-8-40)

Type: IC5101(SAA4700) VPS CBA

(CBA NO.: BK8036F01A01)

Ref. No.	Mark	Description	Part No.
	B,D	**VPS CBA** Consists of the following:	**0VSA07210**
CAPACITORS			
C 5101		CERAMIC CAP.(AX) B J 1000pF/50V or	CDA1JJT0B102
		CERAMIC CAP.(AX) B K 1000pF/50V or	CDA1JKT0B102
		CERAMIC CAP. B J 0.001μF/50V or	3B41102T
		CERAMIC CAP. B K 0.001μF/50V	3B42102T
C 5102		CERAMIC CAP.(AX) X K 4700pF/16V or	CDA1CKT0X472
		CERAMIC CAP. X K 0.0047μF/16V	3X4C472T
C 5103		CERAMIC CAP.(AX) B J 470pF/50V or	CCA1JJT0B471
		CERAMIC CAP.(AX) B K 470pF/50V or	CCA1JKT0B471
		CERAMIC CAP. B J 470pF/50V or	3B41471T
		CERAMIC CAP. B K 470pF/50V	3B42471T
C 5104		SEMICONDUCTOR CAP. SR K 0.1μF/25V or	CDA1EKS0X104
		SEMICONDUCTOR CAP. SR K 0.1μF/25V	12Y2104S
C 5106		MYLAR CAP. 0.022μF/50V J or	CMA1JJS00223
		MYLAR CAP. 0.022μF/50V J	2254223S
C 5108		MYLAR CAP. 0.0047μF/50V J or	CMA1JJS00472
		MYLAR CAP. 0.0047μF/50V J	2254472S
CONNECTOR			
CN5101		ANGLE SOCKET CONNECTOR, 9P	1770645
IC			
IC5101		IC, VPS SAA4700	14D0738
RESISTORS			
R 5101		CARBON RES. 1/4W J 4.7k Ω or	RCX4JATZ0472
		CARBON RES. 1/6W J 4.7k Ω	RCX6JATZ0472
R 5104		CARBON RES. 1/4W J 75k Ω or	RCX4JATZ0753
		CARBON RES. 1/6W J 75k Ω	RCX6JATZ0753
R 5105		CARBON RES. 1/4W J 8.2k Ω or	RCX4JATZ0822
		CARBON RES. 1/6W J 8.2k Ω	RCX6JATZ0822
R 5111		CARBON RES. 1/4W J 1k Ω or	RCX4JATZ0102
		CARBON RES. 1/6W J 1k Ω	RCX6JATZ0102

Type: IC5101 (SDA5642) VPS CBA

(CBA NO.: BS4250F01001)

Ref. No.	Mark	Description	Part No.
	B,D	**VPS CBA** Consists of the following:	**0VSA07212**
CAPACITORS			
C 5101		CERAMIC CAP.(AX) B J 150pF/50V or	CCA1JJT0B151
		CERAMIC CAP.(AX) B K 150pF/50V or	CCA1JKT0B151
		CERAMIC CAP. B J 150pF/50V or	3B41151T
		CERAMIC CAP. B K 150pF/50V	3B42151T
C 5102		SEMICONDUCTOR CAP. SR K 0.033μF/25V or	CDA1EKS0X333
		SEMICONDUCTOR CAP. SR K 0.033μF/25V	12Y2333S
C 5103		SEMICONDUCTOR CAP. SR K 0.1μF/25V or	CDA1EKS0X104
		SEMICONDUCTOR CAP. SR K 0.1μF/25V	12Y2104S
CONNECTOR			
CN5101		ANGLE SOCKET CONNECTOR, 9P	1770645
IC			
IC5101		IC, VPS SDA5642	14D0739
RESISTORS			
R 5101		CARBON RES. 1/4W J 2.2k Ω or	RCX4JATZ0222
		CARBON RES. 1/6W J 2.2k Ω	RCX6JATZ0222
R 5102		CARBON RES. 1/4W J 1M Ω or	RCX4JATZ0105
		CARBON RES. 1/6W J 1M Ω	RCX6JATZ0105
R 5103		CARBON RES. 1/4W J 100k Ω or	RCX4JATZ0104
		CARBON RES. 1/6W J 100k Ω	RCX6JATZ0104
R 5104		CARBON RES. 1/4W J 820k Ω or	RCX4JATZ0824

Ref. No.	Mark	Description	Part No.
		CARBON RES. 1/6W J 820k Ω	RCX6JATZ0824
R 5105		CARBON RES. 1/4W J 5.1k Ω or	RCX4JATZ0512
		CARBON RES. 1/6W J 5.1k Ω	RCX6JATZ0512
R 5107		CARBON RES. 1/4W J 100 Ω or	RCX4JATZ0101
		CARBON RES. 1/6W J 100 Ω	RCX6JATZ0101
R 5110		CARBON RES. 1/4W J 820k Ω or	RCX4JATZ0824
		CARBON RES. 1/6W J 820k Ω	RCX6JATZ0824
D 5101		CARBON RES. 1/4W J 1k Ω or	RCX4JATZ0102
		CARBON RES. 1/6W J 1k Ω	RCX6JATZ0102

DECK MECHANICAL PARTS LIST

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

Comparision Chart of Models and Marks

MODEL	MARK
13A-109/13A-129	A
13A-509/13A-529	B

Ref. No.	Mark	Description	Part No.
B 1	A	CHASSIS ASSEMBLY REEL SENSOR PRISM	0VSA07743
B 1	B	CHASSIS ASSEMBLY MK4	0VSA06769
B 2	A	CYLINDER ASSEMBLY(PPS) PAL 4HD 2SP	N5108CYL
B 2	B	CYLINDER ASSEMBLY(ADC) PAL 4HD	N5147CYL
B 4		MOTOR HOLDER CALKING ASSEMBLY MK5	0VSA07421
B 5		CASSETTE DRIVE LEVER ASSEMBLY MK4	0VSA06819
B 6		PINCH ROLLER ARM ASSEMBLY U6	0VSA05848
B 7		PINCH ARM ASSEMBLY FUNAI	0VSA05924
B 8		PULLEY ASSEMBLY U6 MK2	0VSA05505
B 9	A	MOVING GUIDE S ASSEMBLY MK4 PLASTIC	0VSA06934
B 9	B	MOVING GUIDE S ASSEMBLY MK4	0VSA06814
B 10	A	MOVING GUIDE T ASSEMBLY MK4 PLASTIC	0VSA06935
B 10	B	MOVING GUIDE T ASSEMBLY MK4	0VSA06815
B 11		LOADING ARM T ASSEMBLY U6 MK2	0VSA05503
B 12		LOADING ARM B ASSEMBLY	0VSA04215
B 13		LOADING ARM M ASSEMBLY or	0VM404693
		LOADING ARM M ASSEMBLY MK3	0VSA07350
B 14		PINCH ROLLER SPRING(U5)	0VM403949C
B 15		LUMIRROR WASHER 3.1X6X0.35	0VM403269
B 21		LOADING BELT U5 or	0VM403432
		LOADING BELT U6MK2	0VM403952
B 22		P.S.W(CUT)	0VM404679
B 27		BAND BRAKE ASSEMBLY	0VSA04658
B 28		MAIN BRAKE S ASSEMBLY	0VSA04212
B 29		MAIN BRAKE T ASSEMBLY	0VSA04213
B 30		T BRAKE ARM ASSEMBLY	0VSA04641
B 31		AC HEAD ASSEMBLY MK4 R/P	0VSA06766
B 32		REEL BASE ASSEMBLY U5	0VSA04759
B 35		TAPE GUIDE ASSEMBLY	0VM402560
B 36		TENSION LEVER SPRING ASSEMBLY	0VSA04550
B 37		CAPSTAN MOTOR F2QKB92 or	MMDDB5ZSJ002
		VA CAPSTAN MOTOR(SANKYO) F2QQTB11	MMDZB05SJ001
B 38		MODE CHANGE LEVER MK3 JOGSHUTTLE MK3	0VM100511K
B 39		M BRAKE(S) SPRING	0VM402579A
B 40		M BRAKE(S)LEVER	0VM300753F
B 41		S BREAKE ARM U6/U7	0VM301759
B 42		M BRAKE T ARM SPRING	0VM402582C
B 43		T BRAKE SPRING(2) MK3 JOG	0VM405798
B 45		M LEVER SPRING(3)	0VM406664
B 46		TAPE GUIDE ARM SPRING	0VM402581
B 47		TAPE GUIDE ARM ADJUST SCREW	0VM403242
B 49		BT DRIVE ARM	0VM300756K

Ref. No.	Mark	Description	Part No.
B 51		CHANGE ARM 16030500 or	0VM402441G
		CHANGE ARM A	0VM405857
B 52		CAPSTAN BELT or	0VM402397A
		CAPSTAN BELT	0VM403950B
B 53		P.S.W B	0VM402625
B 54		GROUND BRUSH ASSEMBLY U5 or	0VM404524
		GROUND BRUSH ASSEMBLY U5	0VM404827
B 74		LUMINESCENCE PRISM(B) U6/U7	0VM301764H
B 76		REC ARM SPRING	0VM402578A
B 81		M LEVER HOLDER U6/U7	0VM301717E
B 83		RACK SPRING B	0VM403894A
B 86	B	F BRAKE ASSEMBLY U9 4HEAD	0VSA06333
B 87	B	F BRAKE SP(3) F=60	0VM406233
B 103		REC ARM A	0VM301441J
B 104		REC ARM B	0VM301442I
B 105		REC SPRING	0VM403724
B 108		P.S.W F	0VM402629
B 121		WORM	0VM402429E
B 122		P.S.W C	0VM402626
B 123		P.S.W (WORM THRUST) 02130250	0VM403348
B 126		PULLEY U6/U7	0VM301718D
B 127		PULLEY FELT	0VM404952
B 128		KICK ARM HOLDER U6/U7	0VM301716
B 129		PRESS FIT BUSH	0VM403652A
B 130		KICK ARM U6/U7	0VM404382F
B 131		KICK ARM SPRING U6/U7	0VM404424D
B 132		CLUTCH ASSEMBLY U6 MK2	0VSA05509
B 133		ARM IDLER ASSEMBLY U9 4HEAD	0VSA06334
B 141		PULLEY SUB ASSEMBLY U6/U7	0VSA05998
B 142		SHAFT LOCK ASSEMBLY	0VSA04642
B 144		CLUTCH WASHER MK2	0VM404428
B 145		MAIN LEVER ASSEMBLY U9 4HEAD	0VSA06331
B 146		SPRING SUPPORTER	0VM405084A
B 147		STOPPER BOSS	0VM405188
B 148		TG CAP MK4	0VM406153A
B 149		TG CAP(2) MK4	0VM406389B
B 300		FL ASSEMBLY MK4	0VDM06962
B 302		RACK MK3	0VM201456B
B 303		F DOOR OPENER(2) or	0VM302218A
		F DOOR OPENER(3)	0VM302351B
B 304		DOOR OPENER MK3	0VM302019B
B 307		F DOOR OPENER R SPRING MK3	0VM405214E
B 308		SLIDER SHAFT MK3	0VM405222D
B 311		DOOR OPENER SPRING MK3	0VM405302D
B 313		CASSETTE DRIVE GEAR R SPRING MK4	0VM406253
B 316		DOOR LOCK RELEASE ARM SPRING	0VM402508C
B 317		DOOR LOCK RELEASE ARM(3) MK3	0VM405034D
B 319		CASSETTE SPRING STOPPER or	0VM402507I

Ref. No.	Mark	Description	Part No.
		CASSETTE SPRING STOPPER	0VM402507I
B 326	A	DRIVE ARM SPRING JOG SHUTTLE MK3	0VM405172C
B 326	B	DRIVE ARM SP JOG SHUTTLE MK3	0VM405172B
B 327		BUSH CLUTCH(2) JOG MK3	0VM405368
B 328		REEL DRIVE ARM JOG SHUTTLE MK3	0VM301978E
B 329		HOLDER KICK ARM JOG SHUTTLE MK3 or	0VM301979D
		HOLDER KICK ARM(2) JOG SHUTTLE MK3	0VM302219B
B 330		DRIVE ARM SHAFT JOG SHUTTLE MK3	0VM405170
B 331		DRIVE ARM ROLLER JOG SHUTTLE MK3	0VM405171
B 332		HOLDER ARM SPRING JOG SHUTTLE MK3	0VM405174C
B 333	B	GUIDE F BRAKE MK3	0VM301982E
B 334		P.S.W 1.7X3.2X0.5T	0VM403678
B 338		P.S.W CUT MK3(3.1X6X0.25)	0VM405809
B 339		REEL BASE ASSEMBLY U9 4HEAD	0VSA06332
B 344		CASSETTE GUIDE R MK4	0VM000074G
B 345		CASSETTE GUIDE L MK4	0VM100544E
B 346		FRONT GUIDE MK4	0VM201618A
B 347		DECKANGLE F MK4	0VM302263D
B 348		DECKANGLE B MK4	0VM302264D
B 349		MIRROR HOLDER L MK4	0VM302265D
B 350		SLIDER GEAR MK4	0VM406109A
B 351		MIRROR(3)	0VM406638
B 352		CASSETTE DRIVE GEAR MK4	0VM302260E
B 353		CASSETTE PLATE MK4	0VM302261D
B 354		SLIDER R MK4	0VM201616B
B 355		SLIDER L MK4	0VM201617D
B 356		LOCK LEVER MK4	0VM302262F
B 357		LOCK LEVER SPRING MK4	0VM406152
B 358		CAM	0VM100543A
B 359		CLEAN LEVER MK4	0VM302259H
B 360		CLEAN ROLLER MK4	0VM406123
B 361		CLEAN BEARING MK4	0VM406124
B 362		MIRROR HOLDER R MK4	0VM302365B
B 363		GEAR SUPPORTER MK4	0VM406240
B 366		PRISM	0VM406950
B 367		PRISM COVER	0VM406951
B 369		CLUTCH SHAFT CAP	0VM406892
L1011		SCREW, C-TIGHT M3X9 PAN HEAD+	GPMC3090
L1051		SCREW, S-TIGHT M2.6X6 PAN HEAD+ or	GPMS9060
		SCREW(CAPSTAN) M2.6X6 S-TIGHT	0VM405901
L1053		SCREW, S-TIGHT M2.6X6 PAN HEAD+ or	GPMS9060
		SCREW(CAPSTAN) M2.6X6 S-TIGHT	0VM405901
L1061		SCREW, S-TIGHT M2.6X4 PAN HEAD+	GPMS9040
L1062		SCREW, S-TIGHT M2.6X8 PAN HEAD+	GPMS9080
L1081		SCREW, S-TIGHT 3X6 BIND HEAD+	GBMS3060
L1091		SCREW, S-TIGHT M3X6 CUP HEAD+	GCMS3060
L1101		SCREW, P-TIGHT 3X8 BIND +	GBMP3080
L1103		SCREW, P-TIGHT 3X8 BIND +	GBMP3080
L1111		SCREW, P-TIGHT 3X8 WASHER +	GCMP3080
L1112		SCREW, P-TIGHT 3X8 WASHER +	GCMP3080
L1113		SCREW, P-TIGHT 3X8 WASHER +	GCMP3080
L1114	B	SCREW, P-TIGHT 3X8 WASHER +	GCMP3080
L1115		SCREW, P-TIGHT 3X8 WASHER +	GCMP3080
L1151		SCREW, SEMS M3X4 PAN HEAD +	CPM33040
L1191		SCREW, P-TIGHT M2.6X12	GCMP9120
L1221		SCREW,SPECIAL	0VM403688
L1231		SPACER SCREW ASSEMBLY	0VM403752
L1241		P-TITE SCREW M2X6	GBMP2060
L1251	B	CS RING(D=5)	WTM5063
L1291		SCREW, P-TIGHT M2.6X6 PAN HEAD+	GPMP9060
L1311		SCREW, B-TIGHT M3X18 PAN HEAD+	GPMB3180
L1321		SCREW, S-TIGHT M3X5 BIND HEAD+	GBMS3050
L1331		SCREW, P-TIGHT M2.6X12	GCMP9120
L1341		SCREW, P-TIGHT M2.6X8 BIND +	GBMP9080
L1342		SCREW, P-TIGHT M2.6X8 BIND +	GBMP9080
L1351		SCREW, SEMS M2.6X6	0VM406255A
2L051	B	SCREW, S-TIGHT M3X5 BIND HEAD+	GBMS3050

DECK ELECTRICAL PARTS LIST

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

NOTE: Parts that not assigned part numbers (----------) are not available.

Tolerance of Capacitors and Resistors are noted with the following symbols.

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

Comparision Chart of Models and Marks

MODEL	MARK
13A-109/13A-202	A
13A-509/13A-529	B

JNT CBA

Ref. No.	Mark	Description	Part No.
		JNT CBA (Joint+Mode SW+ACE Head+Motor) Consists of the following:	0VSA07380
		Joint CBA (JNT-A)	———
		Mode SW CBA (JNT-B)	———
		ACE Head CBA (JNT-C)	———
		Motor CBA (JNT-D)	———

Joint CBA (JNT-A)

Ref. No.	Mark	Description	Part No.
		Joint CBA (JNT-A) Consists of the following:	———
		CONNECTORS	
CN2691		ANGLE SOCKET CONNECTOR, 20P	1770615
CN2692		FFC CONNECTOR BASE, TOP 9P or	JC2SJ09ERH0C
		FFC CONNECTOR BASE, TOP 9P or	1700915
		FFC CONNECTOR BASE, TOP 9P or	1700449
		FFC CONNECTOR BASE, TOP 9P or	1700515
		FFC CONNECTOR BASE, TOP 9P	1700986
		RESISTORS	
R 2691		CARBON RES. 1/4W J 27K Ω or	RCX4JATZ0273
		CARBON RES. 1/6W J 27K Ω	RCX6JATZ0273
R 2692		CARBON RES. 1/4W J 27K Ω or	RCX4JATZ0273
		CARBON RES. 1/6W J 27K Ω	RCX6JATZ0273
		MISCELLANEOUS	
CL2691		JUMPER WIRE, 5P AWG26#20080/P2.0/50	WX1K7010-003
CL2692		JUMPER WIRE, 6P AWG26#20080/P2.0/90	WX1N5007-001
CL2693		JUMPER WIRE, 3P AWG26#2651/P2.0/80	WX1H5100-001
		FFC CABLE, 9P FFC/P1.25/120	WX3909QZ4413

Mode SW CBA (JNT-B)

Ref. No.	Mark	Description	Part No.
		MODE SW CBA (JNT-B) Consists of the following:	———
SW2691		MODE SWITCH HMW0420-810010	SSR0104HD002

ACE Head CBA (JNT-B)

Ref. No.	Mark	Description	Part No.
		ACE HEAD CBA (MCV-C) Consists of the following:	———
CN2693		FLAT CABLE CONNECTOR 6P or	JEHBJ06JE001
		FLAT CABLE CONNECTOR 6P	JC88J06NB001

Motor CBA (JNT-D)

Ref. No.	Mark	Description	Part No.
		MOTOR CBA (JNT-D) Consists of the following:	———
B 3		LOADING MOTOR PREPARATION MK5	0VSA07425
		MOTOR PULLEY U5	0VM403205A
		LOADING MOTOR RF-370CA-15370 or	MMDZB12MF001
		LOADING MOTOR(M) MXN-13FB06A2	MMDZB06MS001

PRV CBA

Ref. No.	Mark	Description	Part No.
	A	PRV CBA (Head Amp + FE Head)	0VSA07381
	B	PRV CBA (Head Amp + FE Head) Consists of the following:	0VSA07384
		Head Amp CBA (PRV-A)	———
		FE Head CBA (PRV-B)	———
		FE Head CBA (PRV-C)	———

Head Amp CBA (PRV-A)

Ref. No.	Mark	Description	Part No.
		Head Amp CBA (PRV-A) Consists of the following:	———
		CAPACITORS	
C 3801	A	CERAMIC CAP.(AX) F Z 0.1μF/50V	CCA1JZT0F104
C 3801	B	CERAMIC CAP.(AX) B J 1000pF/50V or	CDA1JJT0B102
		CERAMIC CAP.(AX) B K 1000pF/50V or	CDA1JKT0B102
		CERAMIC CAP. B J 0.001μF/50V or	3B41102T
		CERAMIC CAP. B K 0.001μF/50V	3B42102T
C 3802	A	ELECTROLYTIC CAP. 100μF/6.3V M H7 or	CE0KMZPSL101
		ELECTROLYTIC CAP. 100μF/6.3V M H7	526R107
C 3802	B	ELECTROLYTIC CAP. 0.22μF/50V M H7 or	CE1JMZPSLR22
		ELECTROLYTIC CAP. 0.22μF/50V M H7	526W224
C 3803	A	ELECTROLYTIC CAP. 0.22μF/50V M H7 or	CE1JMZPSLR22
		ELECTROLYTIC CAP. 0.22μF/50V M H7	526W224
C 3803	B	CERAMIC CAP.(AX) Y M 0.01μF/16V or	CDA1CMT0Y103
		CERAMIC CAP. F Z 0.01μF/16V	1220842T
C 3804		CERAMIC CAP.(AX) Y M 0.01μF/16V or	CDA1CMT0Y103
		CERAMIC CAP. F Z 0.01μF/16V	1220842T
C 3805		CERAMIC CAP.(AX) Y M 0.01μF/16V or	CDA1CMT0Y103
		CERAMIC CAP. F Z 0.01μF/16V	1220842T
C 3806		CERAMIC CAP.(AX) Y M 0.01μF/16V or	CDA1CMT0Y103
		CERAMIC CAP. F Z 0.01μF/16V	1220842T
C 3807		CERAMIC CAP.(AX) F Z 0.1μF/50V	CCA1JZT0F104
C 3808	B	CERAMIC CAP.(AX) F Z 0.1μF/50V	CCA1JZT0F104
C 3809		CERAMIC CAP.(AX) F Z 0.1μF/50V	CCA1JZT0F104
C 3810	B	CERAMIC CAP.(AX) F Z 0.1μF/50V	CCA1JZT0F104
C 3811	B	CERAMIC CAP.(AX) F Z 0.1μF/50V	CCA1JZT0F104
C 3812	B	ELECTROLYTIC CAP. 220μF/6.3V M H7 or	CE0KMZPSL221
		ELECTROLYTIC CAP. 220μF/6.3V M H7	526R227

Ref. No.	Mark	Description	Part No.
C 3813	A	CERAMIC CAP.(AX) SL J 15pF/50V or	CCA1JJTSL150
		CERAMIC CAP. SL J 15pF/50V	3S41150T
C 3813	B	CERAMIC CAP.(AX) F Z 0.047μF/50V	CCA1JZT0F473
C 3814	B	CERAMIC CAP.(AX) F Z 0.022μF/25V or	CDA1EZT0F223
		CERAMIC CAP. F Z 0.022μF/25V	1220843T
C 3821	A	CERAMIC CAP.(AX) B J 100pF/50V or	CCA1JJT0B101
		CERAMIC CAP.(AX) B J 100pF/50V or	CCA1JKT0B101
		CERAMIC CAP. B J 100pF/50V or	3B41101T
		CERAMIC CAP. B J 100pF/50V	3B42101T
C 3822	A	CERAMIC CAP.(AX) SL J 47pF/50V or	CCA1JJTSL470
		CERAMIC CAP.SL J 47pF/50V	3S41470T
CONNECTORS			
CN3801	A	ANGLE SOCKET CONNECTOR, 15P	1770612
CN3801	B	ANGLE SOCKET CONNECTOR, 17P	1770612
CN3802	A	FFC CONNECTOR BASE, SIDE 5P	JC96J05ERC0C
CN3802	B	FFC CONNECTOR BASE, SIDE 7P or	JC96J07ERC0C
		FFC CONNECTOR BASE, SIDE 7P	1700473
IC			
IC 3801	A	IC, VIDEO H-AMP LA7376	QSBLA0SSY035
IC3801	B	IC LA7372	QSBLA0SSY012
COILS			
L 3801		INDUCTOR 22μH-K-26T or	LLAXKDTKA220
		INDUCTOR 22μH-K-26T	LLAXKATTU220
RESISTORS			
R 3801		CARBON RES. 1/4W J 22K Ω or	RCX4JATZ0223
		CARBON RES. 1/6W J 22K Ω	RCX6JATZ0223
R 3802	A	CARBON RES. 1/4W J 8.2K Ω or	RCX4JATZ0822
		CARBON RES. 1/6W J 8.2K Ω	RCX6JATZ0822
R 3802	B	CARBON RES. 1/4W J 22K Ω or	RCX4JATZ0223
		CARBON RES. 1/6W J 22K Ω	RCX6JATZ0223
R 3803	A	CARBON RES. 1/4W J 1K Ω or	RCX4JATZ0102
		CARBON RES. 1/6W J 1K Ω	RCX6JATZ0102
R 3803	B	CARBON RES. 1/4W J 47K Ω or	RCX4JATZ0473
		CARBON RES. 1/6W J 47K Ω	RCX6JATZ0473
R 3804	A	CARBON RES. 1/4W J 5.6K Ω or	RCX4JATZ0562
		CARBON RES. 1/6W J 5.6K Ω	RCX6JATZ0562
R 3804	B	CARBON RES. 1/4W J 1K Ω or	RCX4JATZ0102
		CARBON RES. 1/6W J 1K Ω	RCX6JATZ0102
R 3808	A	CARBON RES. 1/4W J 33K Ω or	RCX4JATZ0333
		CARBON RES. 1/6W J 33K Ω	RCX6JATZ0333
R 3805	B	CARBON RES. 1/4W J 1K Ω or	RCX4JATZ0102
		CARBON RES. 1/6W J 1K Ω	RCX6JATZ0102
R 3806	B	CARBON RES. 1/4W J 6.8K Ω or	RCX4JATZ0682
		CARBON RES. 1/6W J 6.8K Ω	RCX6JATZ0682
R 3807	B	CARBON RES. 1/4W J 6.8K Ω or	RCX4JATZ0682
		CARBON RES. 1/6W J 6.8K Ω	RCX6JATZ0682
R 3808	B	CARBON RES. 1/4W J 33K Ω or	RCX4JATZ0333
		CARBON RES. 1/6W J 33K Ω	RCX6JATZ0333
R 3809	B	CARBON RES. 1/4W J 33K Ω or	RCX4JATZ0333
		CARBON RES. 1/6W J 33K Ω	RCX6JATZ0333
MISCELLANEOUS			
2B 2	A	SHIELD, TOP	0VM302519
2B 2	B	SHIELD, TOP(U13 4H)	0VM302523
2B 3	A	SHIELD, BOTTOM	0VM302520
2B 3	B	SHIELD, BOTTOM(U13 4H)	0VM302532
CL3801		JUMPER WIRE, 6P AWG26#20080/P2.0/35	WX1K7010-012
CL3802		JUMPER WIRE, 3P AWG26#2651/P2.0/80	WX1H5100-001
JW3801	B	WIRE 030/BLA/AWG28#1007	WX3001A83303

FE Head CBA (PRV-B)

Ref. No.	Mark	Description	Part No.
		FE Head CBA (PRV-B)	———
		Consists of the following:	
B 73		SPACER;FE	0VM405209B
		FE HEAD MH-131SF5/KM-1311550 or	DHVEC01LA004
		FE HEAD VTR-1X2ERS11-122	DHVEC01TE003

FE Head CBA (PRV-C)

Ref. No.	Mark	Description	Part No.
		FE Head CBA (PRV-C)	———
		Consists of the following:	
B 73		FE HEAD HVFHF0049A	DHVEC01AL002
		SPACER;FE	0VM405209B