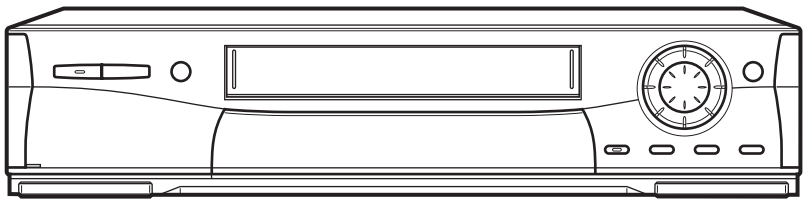
2001

MITSUBISHI

Service Manual

VIDEO CASSETTE RECORDER



D-VHS MTP NTSC

S-VHS

MODEL

HS-HD2000U

Only cassettes marked D-VHS or S-VHS or VHS can be used with this video cassette recorder.

SPECIFICATIONS

Tape Format	:	S-VHS/VHS NTSC standard with Hi-Fi audio and D-VHS standard
Power Source	:	120 V AC ; 60 Hz
Power Consumption	:	Approx. 28 W (standby 6.0 W)
Video Signal System	:	EIA standard ; NTSC color
Video Recording System	:	S-VHS standard/D-VHS standard
Luminance	:	Frequency modulation recording
Color Signal	:	Low frequency conversion sub-carrier phase shift recording
Hi-Fi Audio Recording System	:	S-VHS standard Azimuth helical scanning system
Linear Audio Track	:	1 track
Maximum Recording Time		
D-VHS	:	150 min. with DF-300 video cassette (HS) 300 min. with DF-300 video cassette (STD)
S-VHS/VHS	:	120 min. with T-120 video cassette (SP) 360 min. with T-120 video cassette (EP)
Record/Playback System		
Video	:	4 heads
Audio	:	2 Hi-Fi channels and 1 monoral audio control
Digital	:	HS 4 heads STD 2 heads
Rewind Time	:	Approx. 43 seconds for T-120 cassette

Video Input	:	0.5 to 2.0 V(p-p), 75 Ω unbalanced RCA pin Jack
Audio Input	:	-346 mV(rms), 47 kΩ unbalanced RCA pin Jack
Video Output	:	1.0 V(p-p), 75 Ω unbalanced RCA pin Jack
Audio Output	:	-346 mV(rms), 1 kΩ unbalanced RCA pin Jack
Digital Interface Input/Output	:	based on IEEE 1394 digital interface, 4 pin, corresponds to S400
Tuner VHF	:	54 to 88 MHz, 174 to 216 MHz
UHF	:	470 to 806 MHz
CATV	:	54 to 88 MHz, 90 to 804 MHz
Operating Temperature	:	41 °F to 104 °F
Relative Humidity	:	30 % to 80 %
RF Channel Output	:	Channel 3 or 4 switchable
Weight	:	Approx. 9.9 lbs (4.5 kg)
Dimensions	:	16.7”(W) × 3.7”(H) × 12.0”(D)
Timer Program Capacity	:	1 month programmable / 8 programs
Memory Backup Time	:	Approx. 30 minutes
Deck	:	α Deck

• Weight and dimensions shown are approximate.
• Design and specifications are subject to change without notice.

MITSUBISHI DIGITAL ELECTRONICS AMERICA, INC.

9351 Jeronimo Ave. Irvine, California 92618 U.S.A.

CONTENTS

CONTENTS

GLOSSARY OF ABBREVIATIONS

A/C : Audio/Control
A-PB : Audio Play Back
A-REC : Audio Recording
AE : Audio Erase
AENV : Audio Envelope
AFC : Automatic Frequency Control
AFF : Audio Flip Flop
AFTV : Auto Fine Tuning Voltage
ALC : Automatic Level Control
AMODE : Audio Mode
AMPC : Amplifier Alternating Current Ground
APC : Automatic Phase Control
ATFN : Auto Fine
ATT : Attenuator

BLMUTE : Blue Back Mute

C/N : Carrier/Noise Ratio
CCD : Charge Coupled Device
CG-CS : Character Generator-Chip Slect
CHSW : Channel Switch
CLKSEL : Clock Select
CNTR : Counter
COM : Comparator
CONV SW : Converter Switch
CP-FG : Capstan-Frequency Generator
CP-REV : Capstan-Reverse
CPMOTORV : Capstan Motor Voltage
CROT : Chroma Rotation
CSYNC : Composite Synchronizing Signal
CTL : Control

D.E. : Detail Enhancer
D-FF : Drum Flip Flop
DEMOD : Demodulator
DET : Detector
DLY : Delay
DOC : Drop Out Compensator
DOCSTOP : Drop Out Control Stop
DR-FG : Drum-Frequency Generator
DR-OUT : Drum Control Out
DR-PG : Drum-Phase Generator

EE : Electronic-Electronic
EMPH : Emphasis
EP : Extended Play
EQ : Equalizer
ES : End Sensor

FBC : Feed Back Clamp
FE : Full Erase
FF : Fast Forward
FG : Frequency Generator
FLDCS : Fluorescent Tube Driver Chip Slect
FM : Frequency Modulation
FSC : Frequency of Color Subcarrier

G : Ground

HASW : Head Amplifier Switch
HFR400 : Hi-Fast Forward/Rewind 400
HFRSS : Hi-Fast Forward/Reverse Speed Search
HSYNC : Horizontal Synchronizing Signal

I-LIMIT : I(Current)-Limitter

JSTCLK : Just Clock

LIN-IN : Linear Audio In
LIN-OUT : Linear Audio Out
LMUTE : Linear Mute
LP : Long Play

MOD : Modulator
MOTORV : Motor Voltage

NL : Non Linear

OSC : Oscillator

PB : Play Back
PC : Position Control
PCB : Printed Circuit Board
PG : Pulse Generator
PLL : Phase Locked Loop
PRT : Protect
PSAVE : Power Save
PSLED : Power Save Light Emitting Diode
PSYNC : Pretened Vartical Synchronizing Signal
PWSV : Power Save
PWV : ON/OFF Command to supply B + Power

QH : Cue Horizontal Signal
QV : Cue Vertical Signal

REC : Recording
REC2 : Record Command for the PB/REC Control Circuit
RECPBC : Record/Play Back Chroma Signal
RES : Reset
RESPCM : Reset Pulse Code Modulation
REW : Rewind
RIS : Record Inhibit Switch
RMSDET : Root Mean Square Detector
RXD : Read X Data

SAPIND : SAP carrier detect Indicator
SCLK : Serial Clock
SCR : Scramble
SI : Serial control data Input
SLD : Side Lock Detector
SP : Standard Play
SS : Start Sensor
SSVSYNC : Speed Search Vertical Synchronizing Signal
STRB : Strobe
SU-SENS : Supply Reel Sensor

TSREC : Tape Simulate Recording
TSSW : Tape Simulator Switch
TU-SENS : Take Up Reel Sensor

V-REF : Voltage Referrence
VBUSY : VSET Busy
VCA : Voltage Control Amplifier
VCO : Voltage Controlled Oscillator
VENV : Video Envelope
VSETCLK : VSET Clock
VSETCS : VSET Chip Select

YNR : Y(Luminance) Signal Noise Reduction

SAFETY PRECAUTIONS

INTRODUCTION

This manual provides service information for the adjustments of mechanical and electrical operations.
Due to design modifications, the servicing procedures and data given in this manual are subject to possible change without prior notice.

WARNING : Many of the programs broadcast by television stations are protected by copyright and Federal law imposes strict penalties for copyright infringement. Some motion picture companies have taken the position that home recording for noncommercial purposes is an infringement of their copyrights. Until the courts have ruled on the proper interpretation of the law as applied to home video recording, this equipment, if used to record copyrighted material, should be operated at the user's own risk.

WARNING :
TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.
This video cassette recorder should be used with AC 120V, 60Hz only.

SAFETY NOTICE

Before returning VCR to the customer a safety check of the entire VCR should be made. The service technician must be sure that no protective device built into the instrument by the manufacturer has become defective or inadvertently damaged during servicing. Observe all caution and safety related notes located on or inside the VCR cabinet.
WARNING : Alterations of the design or circuitry of this VCR should not be made. Any design alterations or additions, such as circuit modifications, auxiliary speaker jacks, switches, grounding, active or passive circuitry, etc., or use of unauthorized camera, cables, accessories, etc. may alter the safety characteristics of this VCR and potentially create a hazardous situation for the user. Any design alterations or unauthorized additions will invalidate the manufacturer's warranty and will further relieve the manufacturer of responsibility for personal injury or property damage resulting from them. Do not lubricate any motors. When reassembling the VCR, always be certain that all the protective devices are put back in place, such as non-metallic control knobs, shield plates, etc. When service is required, observe the original lead dress. Components that show evidence of overheating or other electrical or mechanical damage should be replaced.

WARNING : **Replace with same type 1.6A, 125V FUSE.**

LEAKAGE CURRENT CHECK

Before returning the VCR to the customer, it is recommended the leakage current be measured by the following methods.

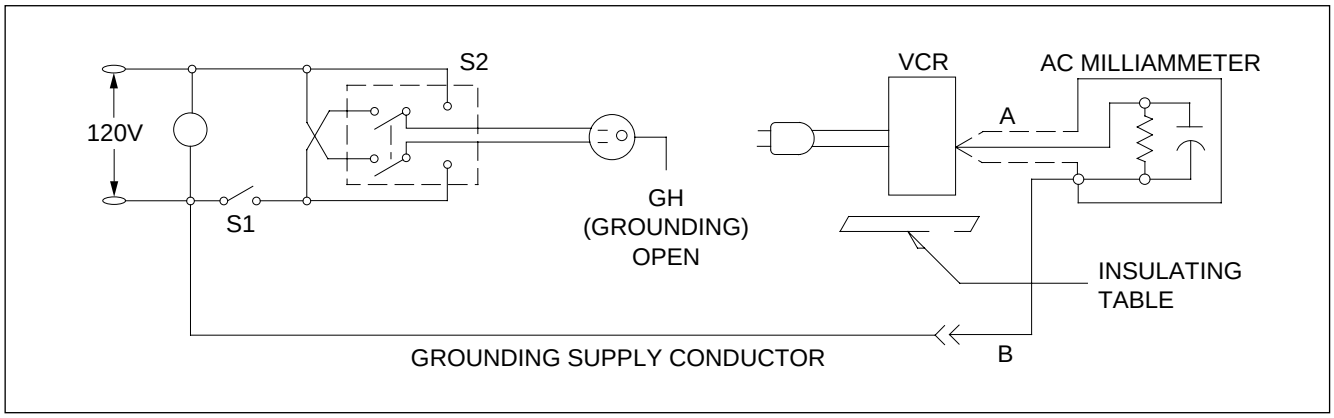
1. Cold Check
   With the AC plug removed from the 120V AC source, place a jumper across the two AC plug prongs. Turn the AC switch on. Using an ohmmeter, connect one lead to the jumpered AC plug and touch the other lead to each exposed metal part (metal cabinet, screwheads, metal overlays, control shafts, etc.), particularly any exposed metal part having a return path to the chassis. Exposed metal parts having a return path to the chassis should have a minimum resistance reading of 1 MΩ. Any resistance below this value indicates an abnormality which requires corrective action. Exposed metal parts not having a return path to the chassis will indicate an open circuit.

2. Hot Check

The test sequence, with reference to the measuring circuit in the figure is as follows:

(1) With switch S1 open, connect the VCR to the measuring circuit. Immediately after connection, measure the leakage current using both positions of switch S2 and with the switching devices in the VCR in all of their operating positions.

(2) Close switch S1, energizing the VCR, and immediately after closing the switch, measure leakage current using both positions of switch S2, and with the switching devices in the VCR in all of their operating positions. Repeat the current measurements of items (1) and (2) after the VCR has reached thermal stabilization. The leakage current should not be more than 0.5 mA.



AC Leakage Test

Avoid shock hazards. Do not connect this VCR to a TV antenna, cable or accessory that exhibits excessive leakage currents. If available, the television instrument or cable to which this VCR is connected should have the antenna cold check and leakage current hot check performed.

PRECAUTIONS

Handling and storage

- Avoid using the VCR in the following places:
  - extremely hot, cold or humid places,
  - dusty places,
  - near appliances generating strong magnetic fields,
  - places subject to vibration,
  - poorly ventilated areas.
- Be careful of moisture condensation.
- If you pour a cold liquid into a glass, water vapor in the air will condense on the surface of the glass. This is called moisture condensation.
- Moisture condensation on the head drum, one of the most critical parts of the VCR, will cause damage to the tape.
- The VCR is equipped with a moisture condensation prevention circuit. This circuit operates only when the unit is attached to an AC outlet.
- Handle the VCR carefully.
- Do not block the ventilation openings.
- Do not place anything heavy on the recorder.
- Do not place liquids on the top cover of the recorder.
- Use the Recorder in horizontal (flat) position only.
- Avoid violent shocks to the recorder during packing and transportation.
- Before packing, be sure to remove the cassette from the recorder.

CONNECTION

Connecting separate antennas (UHF/VHF)

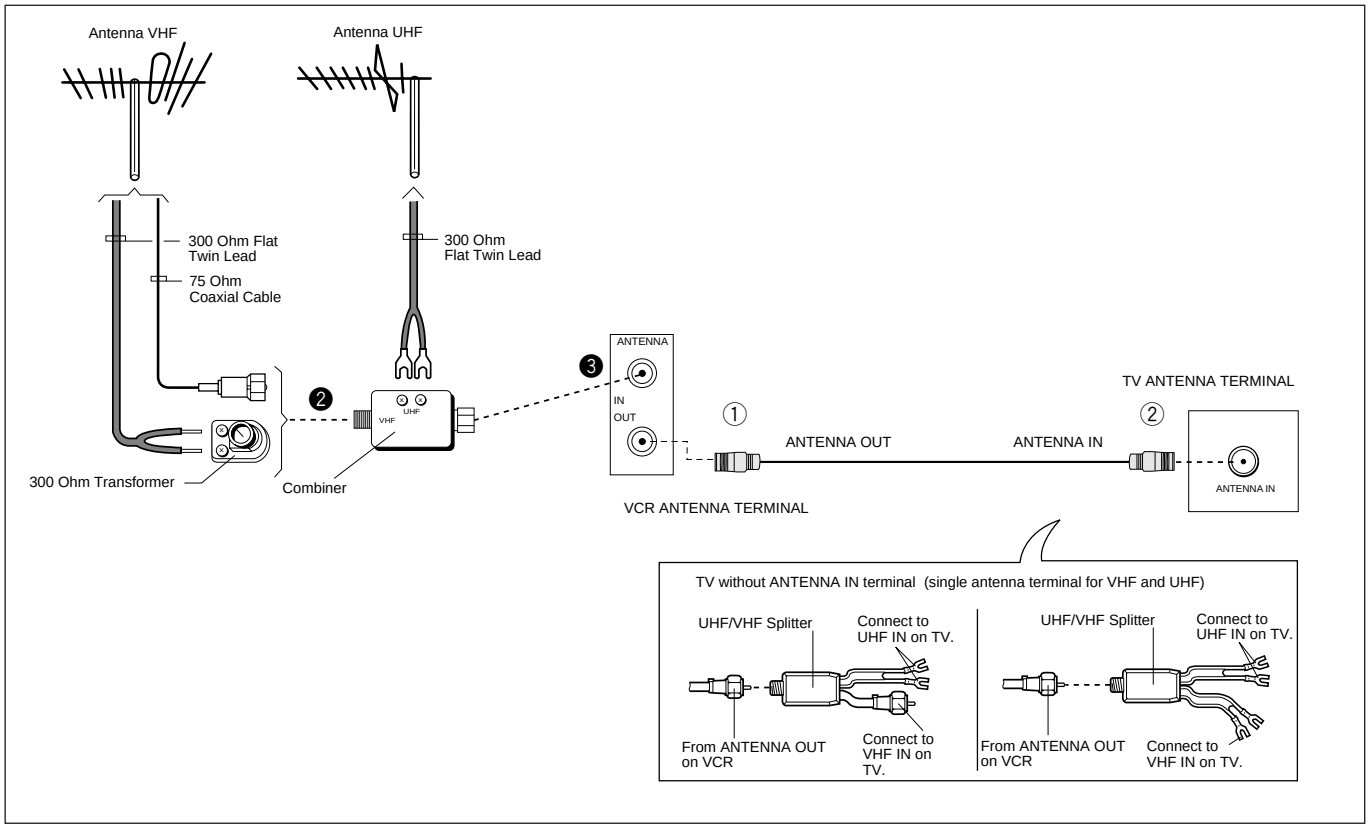
Connecting the Television

To connect separate UHF/VHF antennas to the VCR:

1. Disconnect the antennas from the back of your TV.
2. Connect the antenna leads to the combiner.
3. Screw or push the combiner onto the ANTENNA terminal on the VCR labeled ANTENNA IN.
4. When you are finished, refer to “Connecting the Television” to complete your connections.

Now that you’ve completed the antenna connections to your VCR, you’re ready to connect the VCR to the TV.
Because every television is different (especially older model TVs), your VCR may need to be connected in a variety of ways. See the Owner’s Manual for Instruction Information ON:

- **Determining if you need a splitter,**
- **Connecting TVs with audio and video inputs.**



Connecting a regular TV to the VCR

Before connecting the VCR to the TV, complete the cable or antenna connections to the VCR. (If you have not already done so.)

To connect a regular TV to the VCR:

1. Take the black cable that is supplied with your VCR (called a coaxial cable) and connect it to the ANTENNA terminal on the VCR labeled ANTENNA OUT.
2. Connect the other end of this cable to the terminal on your TV labeled ANTENNA IN. (This terminal may also be labeled VHF IN.) If you have an older TV without this kind of terminal, you will have to use a splitter and then connect the splitter to the television.

WARNING

Use the specified batteries.
Batteries of wrong type can lead to explosion.
Be sure to replace with batteries of the same type or equivalent batteries. Use the parts specified in the circuit diagram or parts list.
Confirm that the batteries are placed with their positive (+) and negative (-) in the correct position.

DISASSEMBLY

1. Removal of Top Cover

1. Remove the two Top Cover fastening screws (ⓐ) shown in Fig. 1 and remove the Top Cover in the direction shown by arrow.

2. Removal of Front Panel

1. Remove the Top Cover.
   (Refer to Para. 1 of the DISASSEMBLY.)
2. Remove the Jog Dial and the Shuttle Ring.
3. Unfasten the seven catches (ⓑ) shown in Fig. 1 and remove the Front Panel in the direction shown by arrows.
4. Disconnect the Connector OG inFig.1.

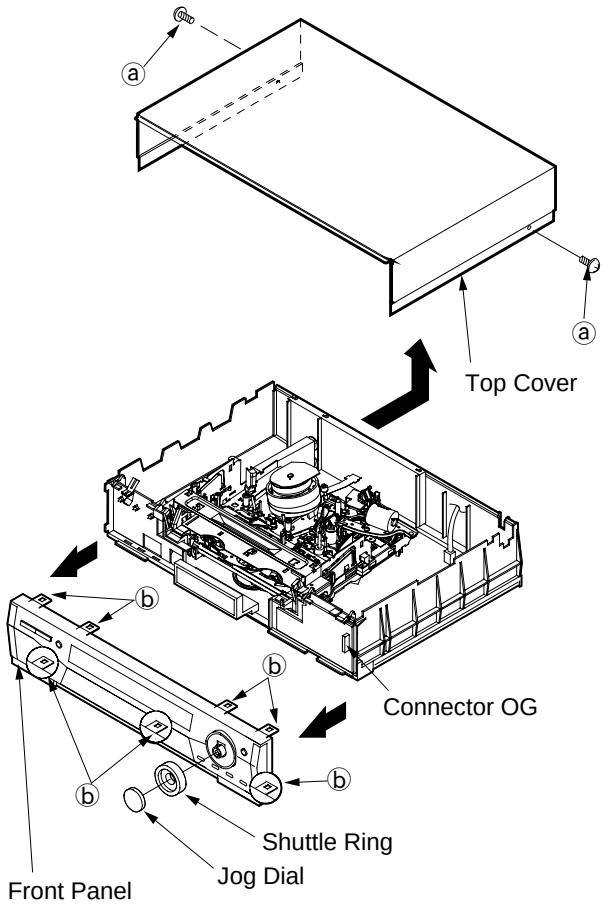


Fig. 1

3. Removal of Bottom Panel

1. Remove the Top Cover.
   (Refer to Para. 1 of the DISASSEMBLY.)
2. Remove the two fastening screws (ⓐ) shown in Fig. 2.
3. Turn the set upside down as shown in Fig. 3.
4. Push the one hook (ⓑ) toward inside.Slide the Bottom Panel backward to remove it,with taking care of the six catches (ⓒ).

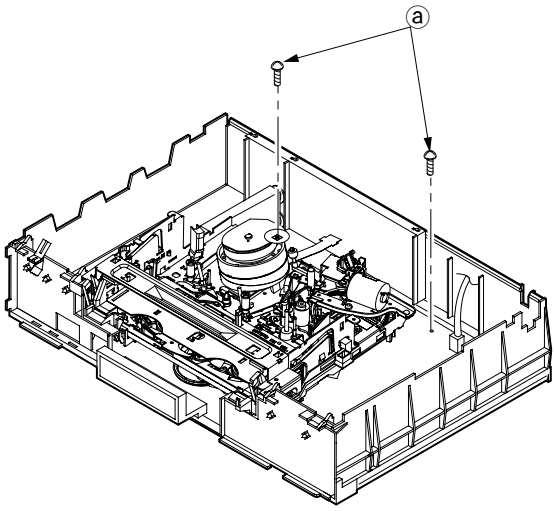


Fig. 2

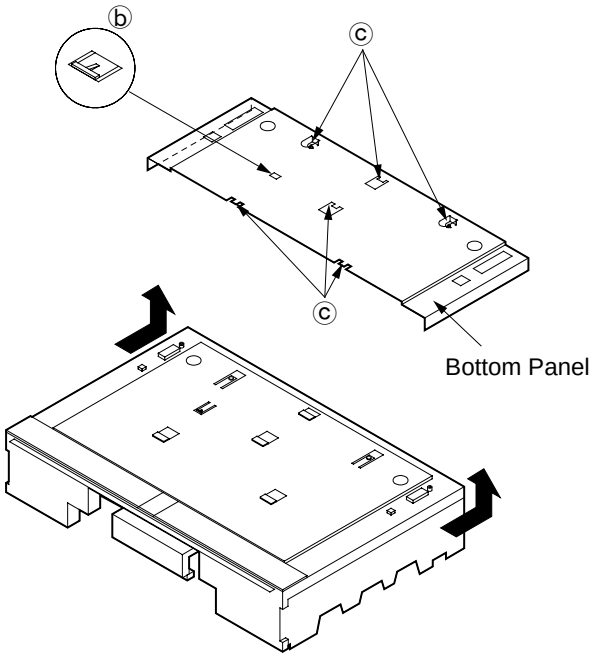


Fig. 3

4. Removal of DECK ASSY

1. Remove the Top Cover.
   (Refer to Para. 1 of the DISASSEMBLY.)
2. Remove the Front Panel.
   (Refer to Para. 2 of the DISASSEMBLY.)
3. Short-circuit J483 and the GND of the DECK ASSY using the jig shown below.

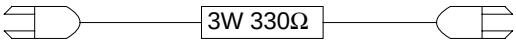
Note: The CAPSTAN MOTOR may be damaged without above short circuit.

4. Remove the one screw (ⓐ) and remove PCB HA Holder.
5. Disconnect the Connectors HH and HK on PCB-HEAD AMP.
6. Remove the two screws (ⓑ) shown in Fig. 4 and raise the PCB-HEAD AMP to remove it.
7. Remove the four screws (ⓒ) shown in Fig. 5.
8. Disconnect the Connectors MA, MD and ML on PCB-MAIN.
9. Release the two catches (ⓓ) shown in Fig.5 and raise the DECK ASSY to remove it.

Note1: Remove the DECK ASSY paying attention to the Connectors MC and MF under it.

Note2: Short-circuit the J483 and the Shield Case using the jig shown below before attaching the DECK ASSY.

Jig (Part No. : 859C548O10)



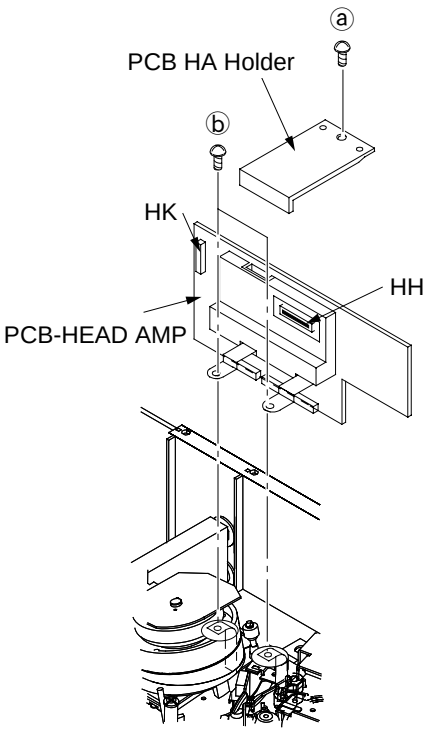


Fig. 4

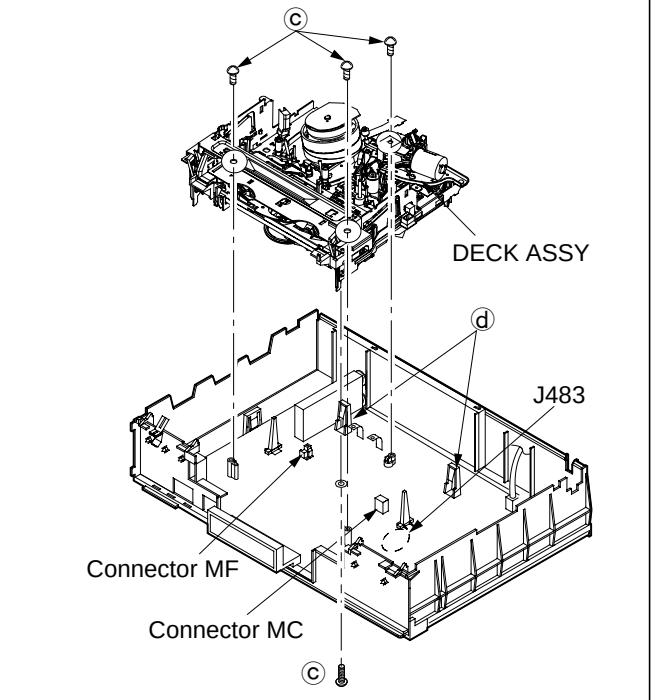


Fig. 5

HOW TO EXECUTE CIRCUIT BOARD SERVICE

CAUTION: BEFORE ATTEMPTING TO REMOVE OR REPAIR ANY PCB, UNPLUG THE POWER CORD FROM THE A.C. SOURCE.

LOCATION OF PRINT CIRCUIT BOARDS

Note :

- Take caution when removing flat cables to prevent any contact problem.
- Connect and disconnect the flat cables at right angles to the connector and make sure that it is completely secured.
- After servicing the PCB, restore the flat cable and leads to their former state.

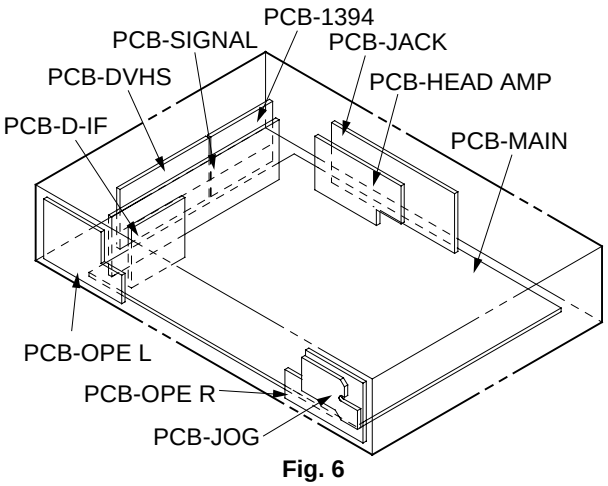


Fig. 6

1. PCB-OPE L

1. Remove the Top Cover.
   (Refer to Para. 1 of the DISASSEMBLY.)
2. Remove the Front Panel.
   (Refer to Para. 2 of the DISASSEMBLY.)
3. Remove the Connector OS.
4. Unfasten the two catchs (ⓐ) shown in Fig. 7 and rotate the PCB-OPE L in the direction shown by arrow (ⓑ) and remove it in the direction shown by arrow (ⓒ).

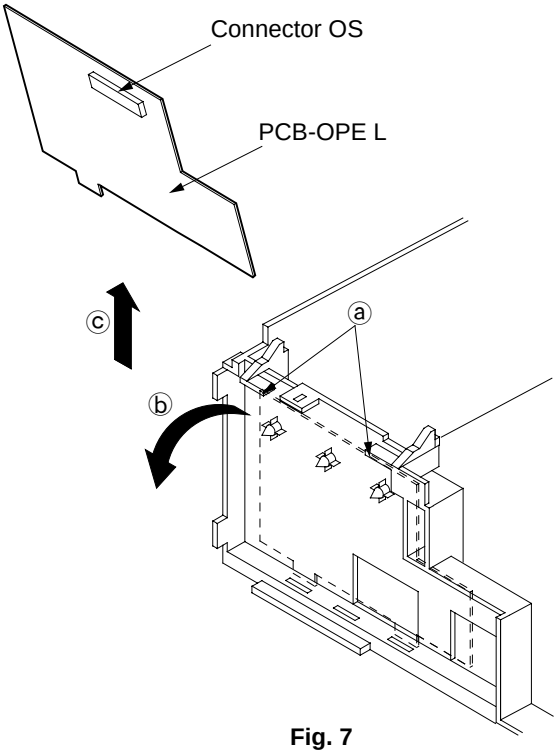


Fig. 7

2. PCB-OPE R

1. Remove the Top Cover.
   (Refer to Para. 1 of the DISASSEMBLY.)
2. Remove the Front Panel.
   (Refer to Para. 2 of the DISASSEMBLY.)
3. Remove the Connector OJ.
4. Unfasten the two catchs (ⓐ) shown in Fig. 8 and rotate the PCB-OPE R in the direction shown by arrow (ⓑ) and remove it in the direction shown by arrow (ⓒ).

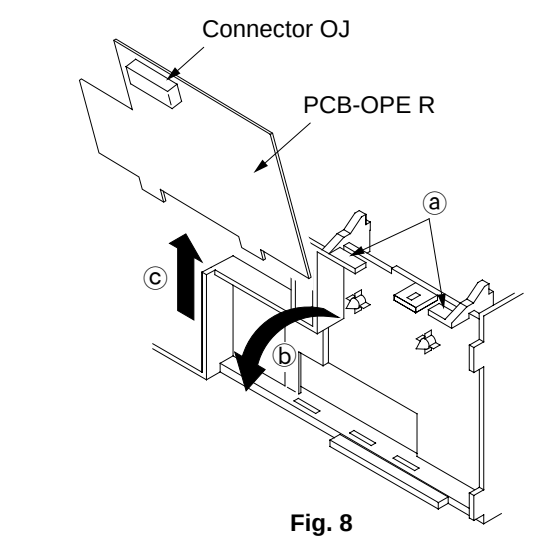


Fig. 8

3. PCB-JOG

1. Remove the Top Cover.
   (Refer to Para. 1 of the DISASSEMBLY.)
2. Remove the Front Panel.
   (Refer to Para. 2 of the DISASSEMBLY.)
3. Unfasten the three screws (ⓐ) shown in Fig. 9 and remove the PCB-JOG.

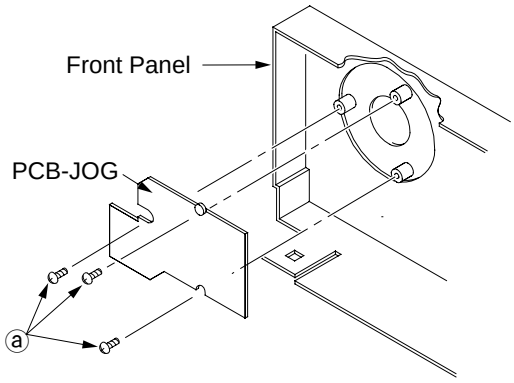


Fig. 9

4. PCB-SIGNAL

1. Remove the Top Cover.
   (Refer to Para. 1 of the DISASSEMBLY.)
2. Lift and remove the Cover D VHS as shown in Fig.10.
3. Remove the one screw (ⓐ) and remove the PCB HOLDER shown in fig. 10.
4. Disconnect the Connector FX on PCB-D-IF.
5. Disconnect the Connector HK on PCB-HEAD AMP.
6. Lift and remove the PCB-SIGNAL as shown in Fig. 10.

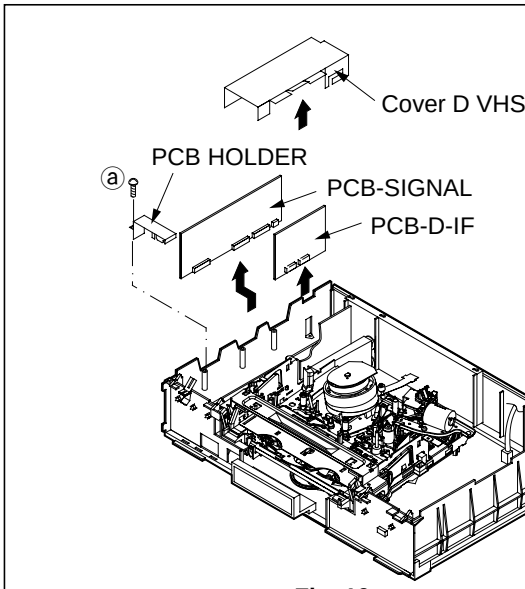


Fig. 10

5. PCB-D-IF

1. Remove the Top Cover.
   (Refer to Para. 1 of the DISASSEMBLY.)
2. Lift and remove the Cover D VHS as shown in Fig.10.
3. Remove the one screw (ⓐ) and remove the PCB HOLDER shown in fig. 10.
4. Remove the Connector FX.
5. Lift and remove the PCB-D-IF as shown in Fig. 10.

6. PCB-1394

1. Remove the Top Cover.
   (Refer to Para. 1 of the DISASSEMBLY.)
2. Lift and remove the Cover D VHS as shown in Fig.10.
3. Remove the PCB HOLDER shown in fig. 10.
4. Disconnect the connectors EE and EX on the PCB-1394 .
5. Pull out the Part A,lift and remove the Spring Earth EMC as shown in Fig. 11.
6. Unfasten the one screws (ⓐ) shown in Fig. 11 and remove the PCB-1394 ASSY.
7. Disconnect the connector PG3821 on the PCB-D-VHS .
8. Separate the bottom of the Shield Cover from the ASSY PCB-1394 first. Remove the Shield Cover moving the bottom in the direction shown by the arrow (Ⓐ) as shown in Fig. 11.
9. Remove the connectors EL and EH on the PCB-1394.
10. Disconnect six soldering connections and remove the PCB-1394 as shown in Fig. 12.

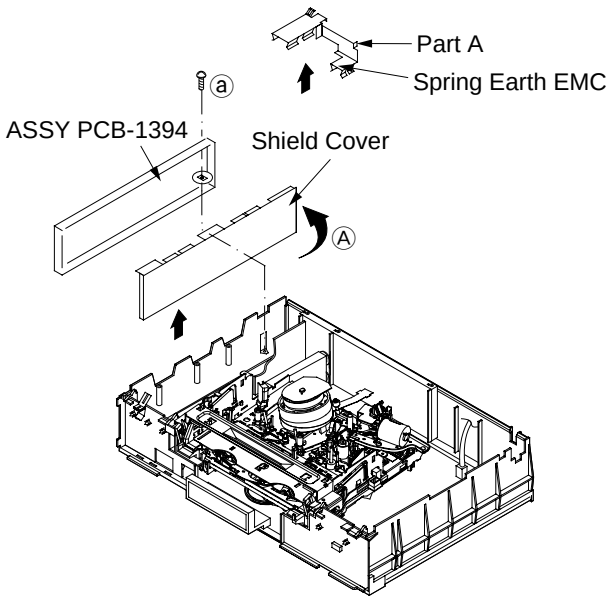


Fig. 11

7. PCB-DVHS

1. Remove the Top Cover.
   (Refer to Para. 1 of the DISASSEMBLY.)
2. Lift and remove the Cover D VHS as shown in Fig.10.
3. Remove the PCB HOLDER shown in fig. 10.
4. Disconnect the connectors EE and EX on the PCB-1394 .
5. Pull out the Part A,lift and remove the Spring Earth EMC as shown in Fig. 11.
6. Unfasten the one screws (ⓐ) shown in Fig. 11 and remove the PCB-1394 ASSY.
7. Disconnect the connector PG3821 on the PCB-D-VHS .
8. Separate the bottom of the Shield Cover from the ASSY PCB-1394 first. Remove the Shield Cover moving the bottom in the direction shown by the arrow (Ⓐ) as shown in Fig. 11.
9. Remove the connectors PG3823 and PG5153 on the PCB-DVHS.
10. Disconnect seven soldering connections and remove the PCB-DVHS as shown in Fig. 12.

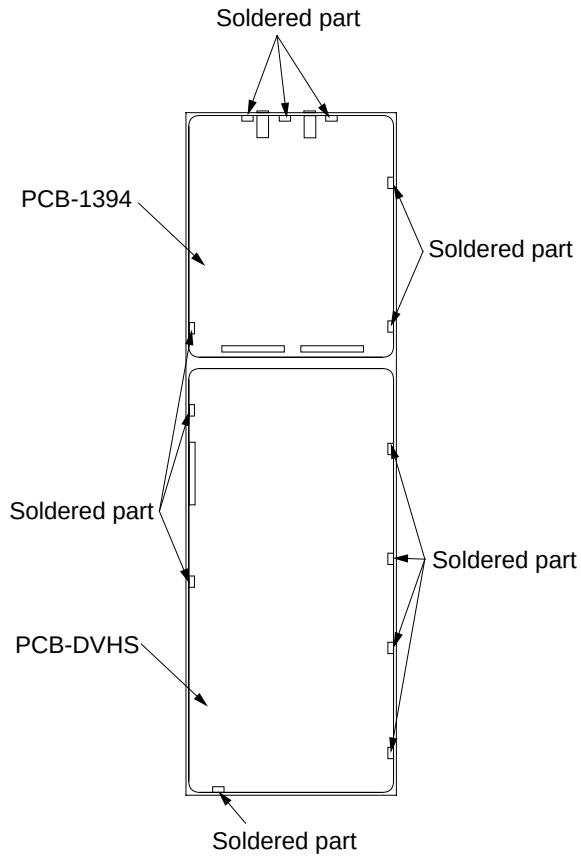


Fig. 12

8. PCB-MAIN

1. Carry out steps 1 and 2 of “3.Removal of Bottom Panel” of “DISASSEMBLY”
2. Remove the Front Panel.
   (Refer to Para. 2 of the DISASSEMBLY.)
3. Remove the DECK ASSY.
   (Refer to Para. 4 of the DISASSEMBLY.)
4. Remove the PCB-SIGNAL.
   (Refer to Para. 4 of the HOW TO EXECUT CIRCUIT BOARD SERVICE.)
5. Remove the PCB-D-IF.
6. Disconnect the connectors EE and EX on the PCB-1394 .
7. Pull out the Part A,lift and remove the Spring Earth EMC as shown in Fig. 11.
   (Refer to Para. 4 of the HOW TO EXECUT CIRCUIT BOARD SERVICE.)
8. Remove the three screws (ⓐ) shown in Fig. 13.
9. Remove the Holder for the AC Power Cord from the Base Chassis shown in Fig. 14.
10. Disconnect the connectors ME,MJ and MS on the PCB-MAIN .
11. Release the two fastening catches (ⓑ) shown in Fig. 13. Raise the PCB-MAIN to remove it.
12. Release the two fastening catches (ⓒ) and remove the Antenna Cover (R) shown in Fig. 15.
13. Unfasten the fastening five screws (ⓓ) shown in Fig.15 and remove the Antenna Cover (L).
14. Lift and remove the PCB-JACK as shown in Fig. 15.

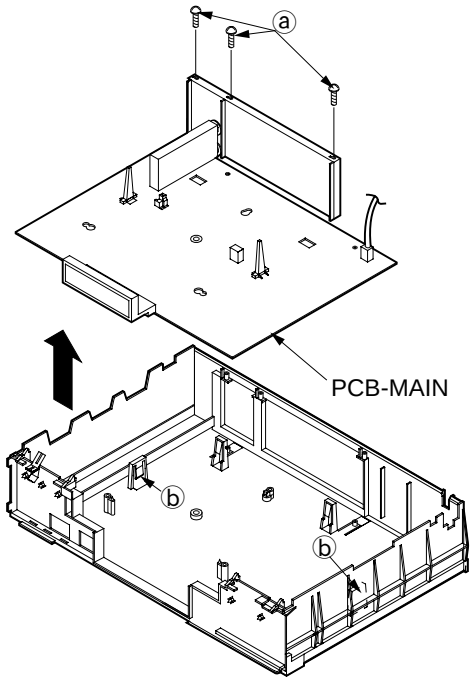


Fig. 13

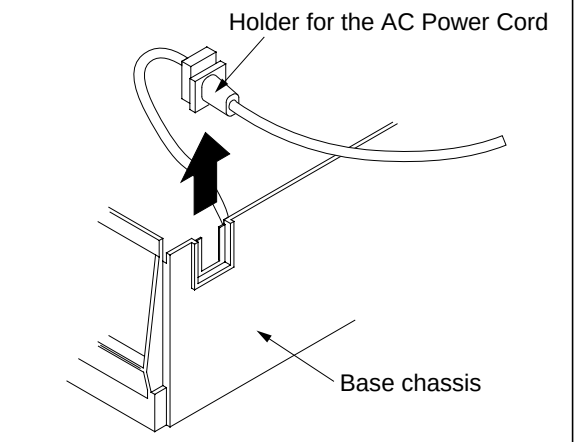


Fig. 14

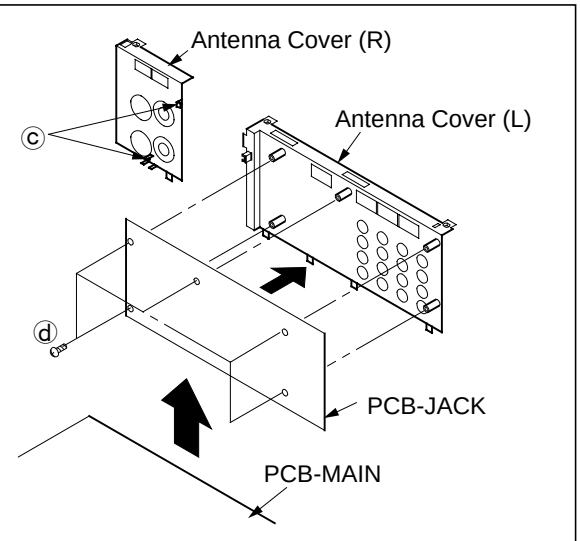


Fig. 15

CHIP PARTS REPLACEMENT

CHIP PARTS REPLACEMENT

Some resistors, shorting jumpers (0Ω resistor), ceramic capacitors, transistors and diodes are chip parts.
When replacing these parts, note the following cautions.

Cautions :

A. Use fine tipped, well insulated soldering pencil (iron), about 30 watts, and tweezers.
B. Melt the solder and remove the Chip Parts carefully not to tear off the copper foil of the printed circuit board.
C. Discard removed chips ; do not reuse them.
D. Do not apply heat for more than 3 seconds to new Chip Parts.
E. Avoid using a rubbing stroke when soldering.
F. Take care not to scratch, or damage the Chip Parts when soldering.
G. Supplementary cementing is not required.

1. Removal of Chip Parts (Resistors, capacitors, etc.)

A. Grasp the part with tweezers. Melt the solder at both sides alternately, remove one side of the part with a twisting motion.
B. Melt the solder at the other side and remove the part.

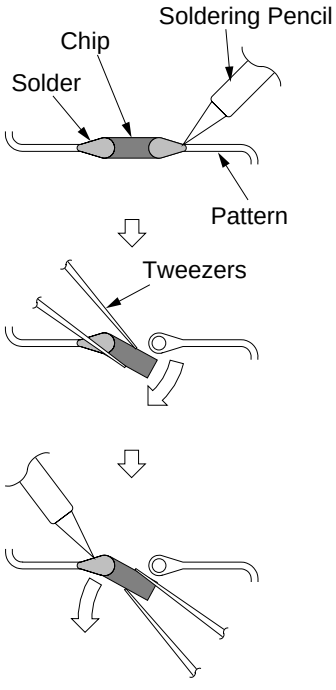


Fig. 1

2. Removal of Chip Parts (Transistors)

A. Melt the solder of one lead. Lift the side of that lead upward.
B. Simultaneously melt the solder of the two remaining leads and lift the part from the PCB.

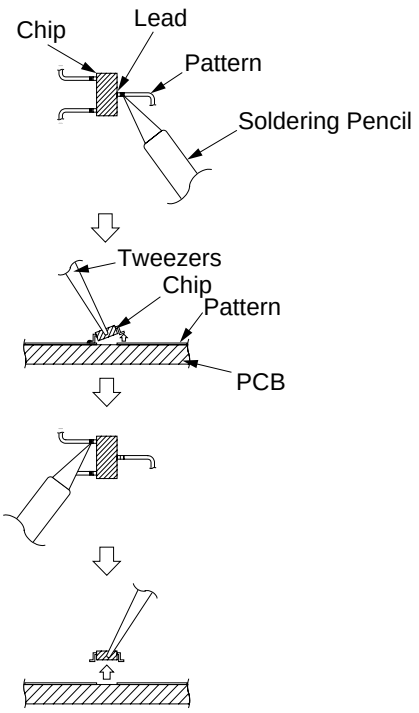


Fig. 2

3. Replacement

A. Presolder the contact points of the circuit pattern.
B. Press the part downward with tweezers and apply the soldering pencil as shown in Fig. 3.

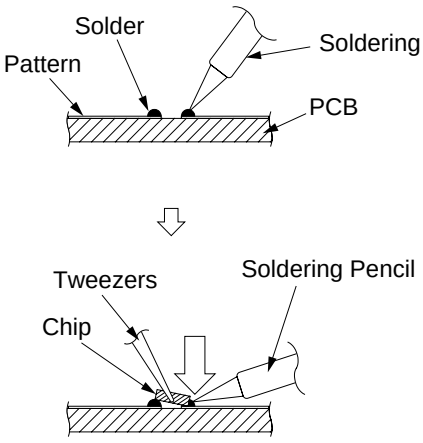


Fig. 3

MECHANICAL ADJUSTMENT AND REPLACEMENT

1. DECK Cleaning

The following Parts require cleaning whenever serviced in order to maintain satisfactory performance.

1-1. VIDEO HEAD

1. Clean the VIDEO HEAD according to the following method. Dust and other foreign objects on the VIDEO HEAD disturb the normal PLAYBACK picture. To clean the VIDEO HEAD, hold a VIDEO HEAD cleaning cloth dampened with alcohol against the DRUM and slowly turn the DRUM counter-clockwise.

Note : Do not directly touch the HEADS installed to the UPPER DRUM ASSY. The HEADS are very hard but brittle to shock (especially to shock in the vertical direction) and easily breakable. Never apply force to it in the vertical direction.

2. Allow the residual alcohol to dry thoroughly before running a tape. The residual alcohol on the HEADs may damage the tape if not dried competely.

UPPER DRUM ASSY cleaning

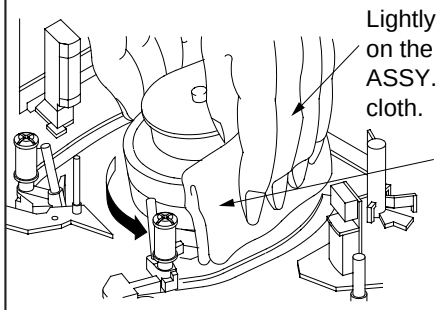


Fig. 1-1

1-2. Tape Running System

Clean the following Parts of the Tape Running System.

1. TENSION PIN
2. F/E HEAD
3. SLANT POLE (SP)
4. SLANT POLE (TU)
5. A/C HEAD
6. GUIDE POLE (TU)
7. PINCH ROLLER
8. GUIDE PIN (TU)
9. GUIDE ROLLER (SP)
10. UPPER / LOWER DRUM ASSY
11. GUIDE ROLLER (TU)
12. CAPSTAN SHAFT
13. IMPEDANCE UNIT (SP)

1. Clean the Tape Running System, using a piece of gauze dampened with alcohol, except for the GUIDE ROLLER (SP), GUIDE ROLLER (TU), and PINCH ROLLER which require to be cleaned with a piece of dry gauze.
2. Allow the residual alcohol to dry thoroughly before running the tape. The residual alcohol on the SYSTEM may damage the tape if not dried completely.

1-3. REEL DISK Drive System

1. Clean the BRAKE side and REEL BELT of the REEL DISK Drive System.
2. Clean the REEL DISK Drive System, using a piece of gauze dampened with alcohol, except for the REEL BELT which requires cleaning with a piece of dry gauze.
3. Allow the residual alcohol to dry thoroughly before operation.

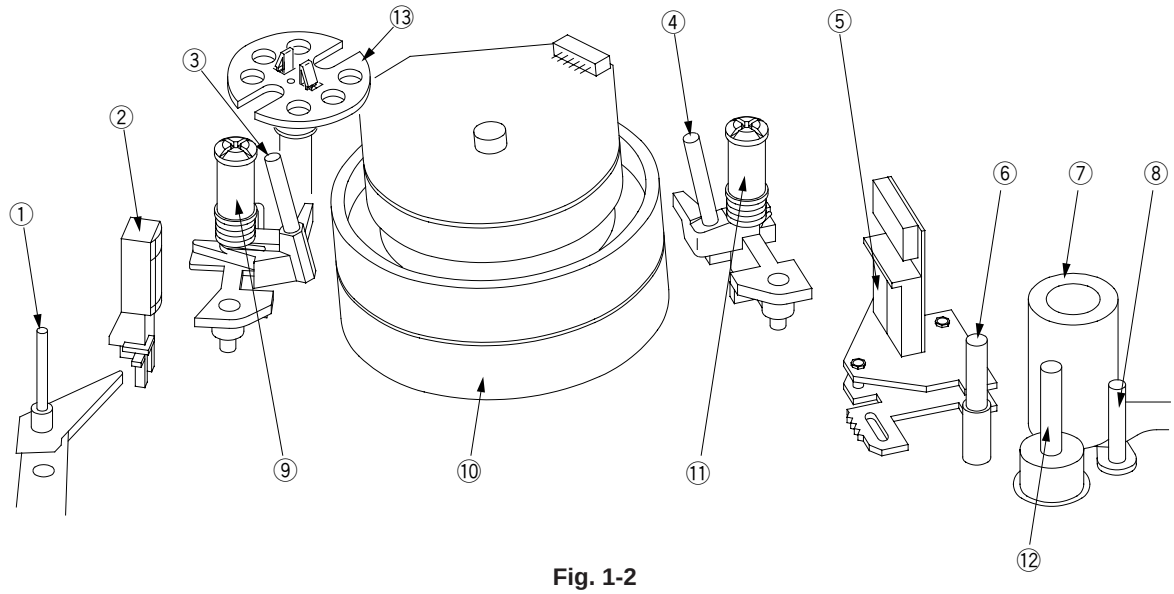


Fig. 1-2

2. Replacement of Major Parts

2-1. CLEANING ARM, FELT RING

SET POSITION : Normal

(Removal)

1. Release the two catches (ⓐ) of the CLEANING ARM shown in the Fig. 2-1 to remove the CLEANING ARM.
2. Release the two catches (ⓑ) of the CLEANING ARM shown in the Fig. 2-1 to remove the FELT RING.

(Installation)

1. Install the FELT RING shown in the Fig. 2-1 to the CLEANING ARM.
2. Install the CLEANING ARM shown in the Fig. 2-1.

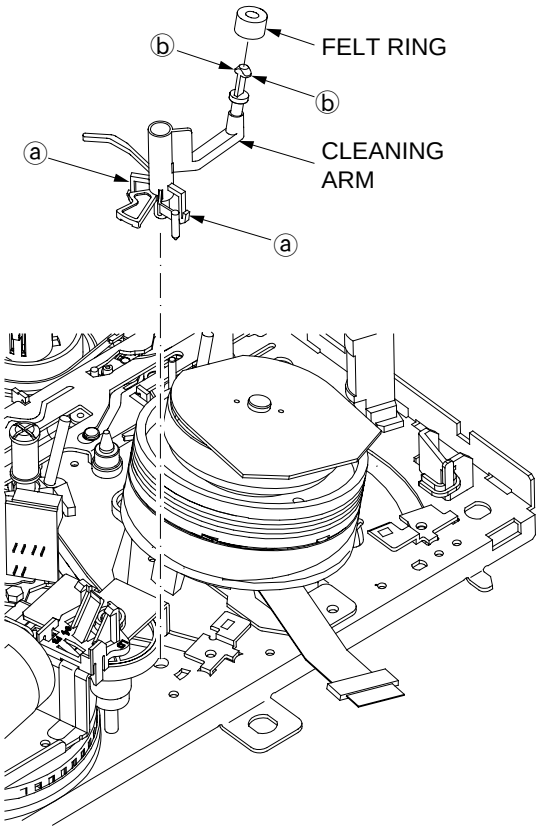


Fig. 2-1

2-2. STAY PLATE

SET POSITION : Normal

(Removal)

1. Remove the two screws (ⓐ) fastening the STAY PLATE shown in the Fig. 2-2 to remove the STAY PLATE.

(Installation)

1. Install the STAY PLATE shown in the Fig. 2-2.

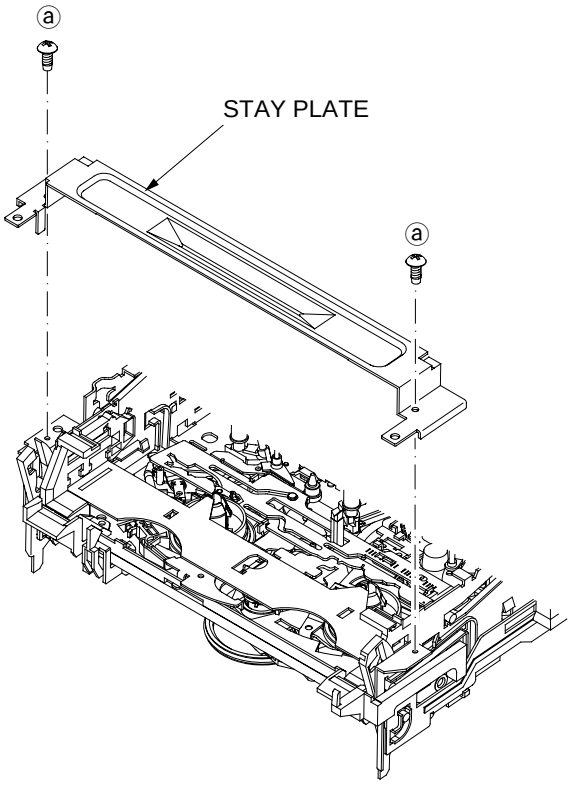


Fig. 2-2

2-3. BOTTOM ASSY

SET POSITION : Normal

Remove the following part before replacing the BOTTOM ASSY. Refer to the corresponding item to install it.

- STAY PLATE (Item 2-2)

(Removal)

1. Move the WORM WHEEL in the Fig. 2-3-1 in the direction shown by the arrow Ⓐ. And match the Boss ⓐ of the BOTTOM ASSY with the Hole in the MAIN PLATE ASSY.
2. Lift the BOTTOM ASSY in the Fig. 2-3-1 in the direction shown by the arrow Ⓑ and pull it out in the direction shown by the arrow Ⓒ.

(Installation)

1. Apply GREASE (MULTEMP AC-DM)[859D055O90] to the Grooves of the MAIN PLATE ASSY shown in the Fig. 2-3-2.
2. Apply GREASE (MULTEMP AC-DM)[859D055O90] to the Bosses of the BOTTOM ASSY shown in the Fig. 2-3-2.
3. Rotate the WORM WHEEL shown in the Fig. 2-3-1 so that the ARM (SP) stands vertically.
4. Insert the Boss ⓑ of the BOTTOM ASSY shown in the Fig. 2-3-2 in the Upper Groove of the MAIN PLATE and the Boss ⓒ in the Lower Groove.
5. Insert the Boss ⓓ of the BOTTOM ASSY to the Upper Groove through the Hole in the MAIN PLATE ASSY shown in the Fig. 2-3-1 and the Boss ⓔ to the Lower Groove through the slot in the ARM (SP).

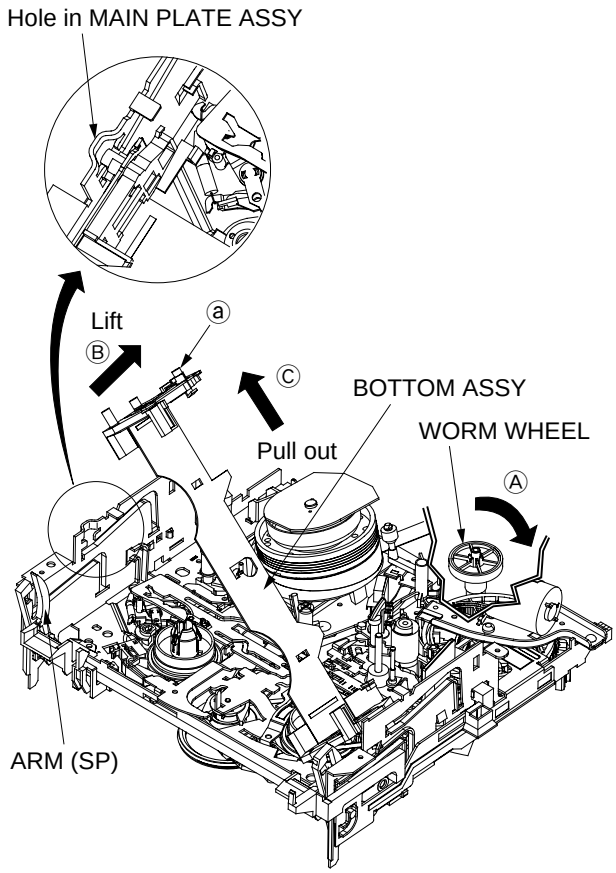


Fig. 2-3-1

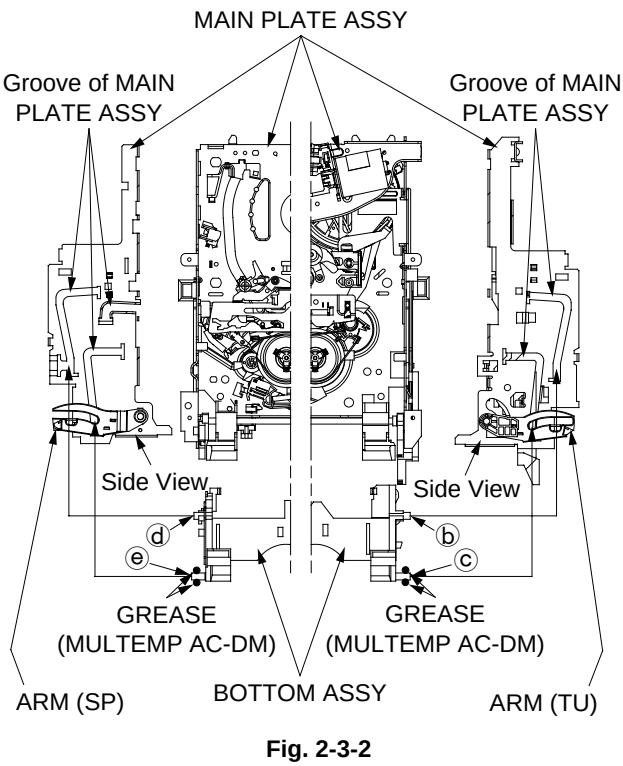


Fig. 2-3-2

2-4. INSERT GUIDE (TU)

SET POSITION : Normal

Remove the following parts before replacing the INSERT GUIDE (TU). Refer to the corresponding items to install them.

- STAY PLATE (Item 2-2)
- BOTTOM ASSY (Item 2-3)

(Removal)

1. Remove the screw (ⓐ) fastening the INSERT GUIDE (TU) shown in the Fig. 2-4 to remove the INSERT GUIDE (TU).

(Installation)

1. Install the INSERT GUIDE (TU) shown in the Fig. 2-4.

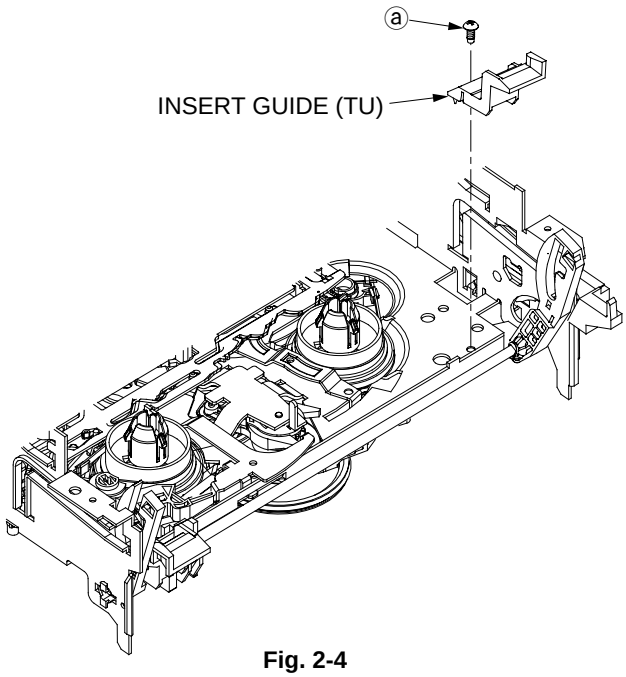


Fig. 2-4

2-5. INSERT GUIDE (SP)

SET POSITION : Normal

Remove the following parts before replacing the INSERT GUIDE (SP). Refer to the corresponding items to install them.

- STAY PLATE (Item 2-2)
- BOTTOM ASSY (Item 2-3)

(Removal)

1. Remove the screw (ⓐ) fastening the INSERT GUIDE (SP) shown in the Fig. 2-5 to remove the INSERT GUIDE (SP).

(Installation)

1. Install the INSERT GUIDE (SP) shown in the Fig. 2-5.

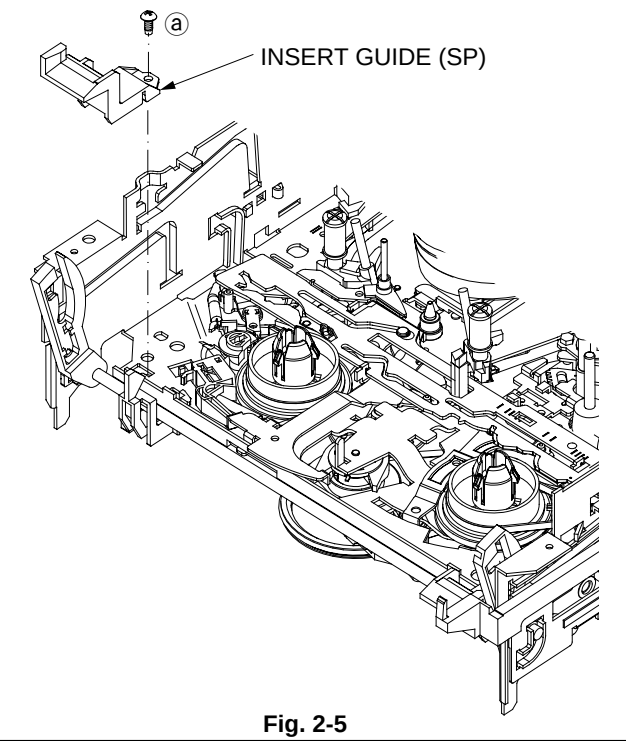


Fig. 2-5

2-6. REC HOLDER, REC LEVER, REC SPRING

SET POSITION : Upside down

(Removal)

1. Remove the screw (ⓐ) fastening the REC HOLDER shown in the Fig. 2-6 to remove the REC HOLDER.
2. Release the REC SPRING shown in the Fig. 2-6 from the catch (ⓑ) of the REC HOLDER to remove the REC LEVER.
3. Release the two catches (ⓒ) of the REC LEVER shown in the Fig. 2-6 to remove the REC SPRING.

(Installation)

1. Install the REC SPRING shown in the Fig. 2-6 to the REC LEVER and hook the REC SPRING to the catches (c).
2. Install the REC LEVER shown in the Fig. 2-6 to the REC HOLDER.
3. Hook the REC SPRING shown in the Fig. 2-6 to the catch (b).
4. Install the REC HOLDER shown in the Fig. 2-6.

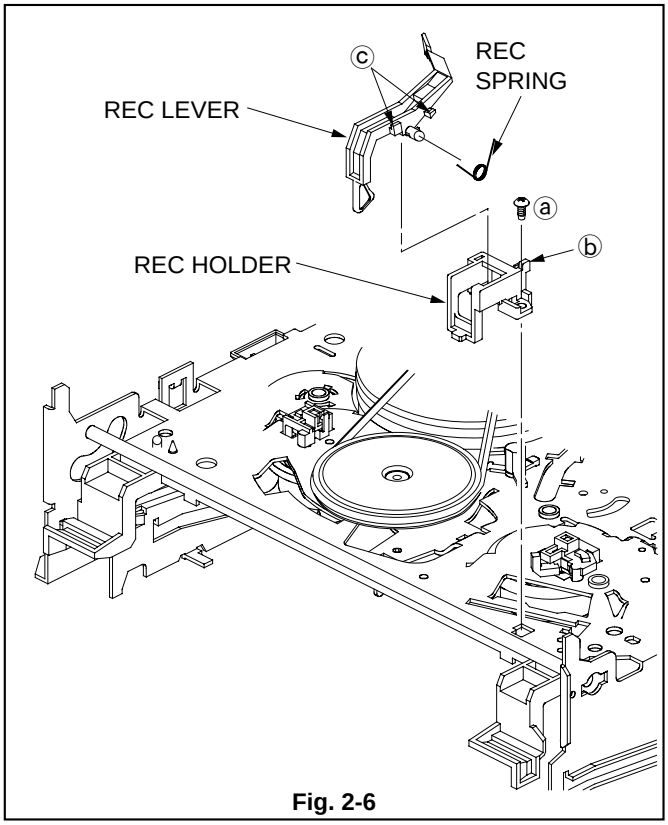


Fig. 2-6

2-7. F/L ARM ASSY, F/L BEARING

SET POSITION : Normal

Remove the following parts before replacing the F/L ARM ASSY, F/L BEARING. Refer to the corresponding items to install them.

- STAY PLATE (Item 2-2)
- BOTTOM ASSY (Item 2-3)
- INSERT GUIDE (TU) (Item 2-4)
- INSERT GUIDE (SP) (Item 2-5)
- REC HOLDER (Item 2-5)

(Removal)

1. Release the catch (ⓐ) of the F/L BEARING shown in the Fig. 2-7 and pull out the F/L ARM ASSY in the direction shown by the arrow Ⓐ.

Note : Do not pull the F/L ARM by force because it may break the catch (ⓐ) of the F/L BEARING.

2. Release the catch (ⓑ) of the F/L BEARING shown in the Fig. 2-7 and rotate the F/L BEARING by 90 degrees to remove it.

(Installation)

1. Apply GREASE (MULTEMP AC-DM)[859D055O90] to the Groove of the MAIN PLATE ASSY shown in the Fig. 2-7.
2. Apply GREASE (MULTEMP AC-DM)[859D055O90] to the Boss of the ARM (SP) shown in the Fig. 2-7.
3. Apply GREASE (MULTEMP AC-DM)[859D055O90] to the Bosses of the ARM (TU) shown in the Fig. 2-7.
4. Install the F/L BEARING shown in the Fig. 2-7.
5. Insert the Boss ⓒ of the F/L ARM ASSY shown in the Fig. 2-7 into the Groove ⓓ of the MAIN PLATE ASSY to install the F/L ARM ASSY.

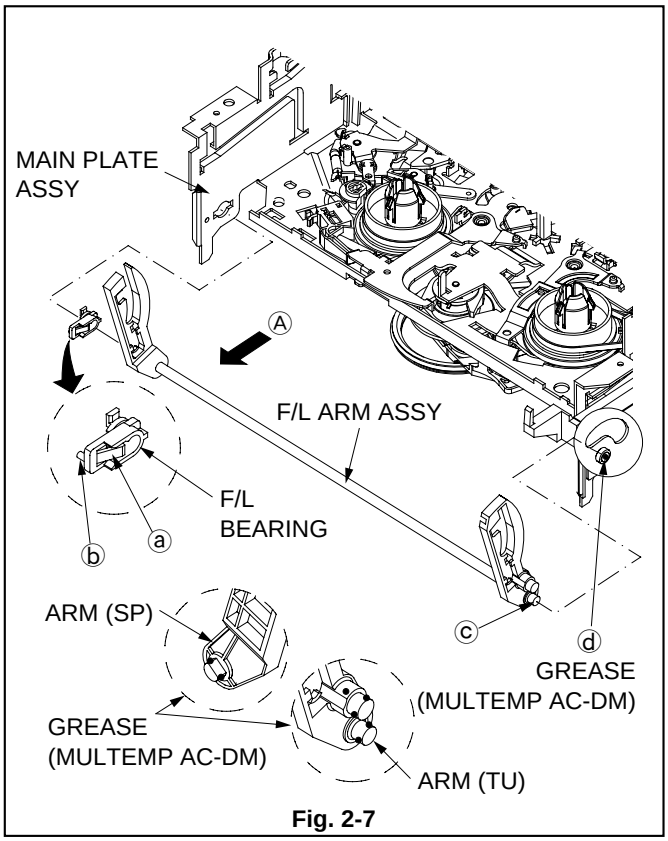


Fig. 2-7

2-8. A/C HEAD UNIT

SET POSITION : Normal

(Removal)

1. Remove the LEAD CONNECTOR of the A/C HEAD UNIT shown in the Fig. 2-8.
2. Remove the two screws (ⓐ) fastening the A/C HEAD UNIT shown in the Fig. 2-8 to remove the A/C HEAD UNIT.

(Installation)

1. Install the A/C HEAD UNIT shown in the Fig. 2-8.

Note : Never touch the Head of the A/C HEAD UNIT shown in the Fig. 2-8. Clean the dirt on the Head with alcohol if necessary.

2. Install the LEAD CONNECTOR of the A/C HEAD UNIT shown in the Fig. 2-8.
3. Perform the Item 3-3. "A/C HEAD Adjustment" and Item 3-4. "Phase Adjustment" of the "Interchangeability Adjustment of the Mechanism".

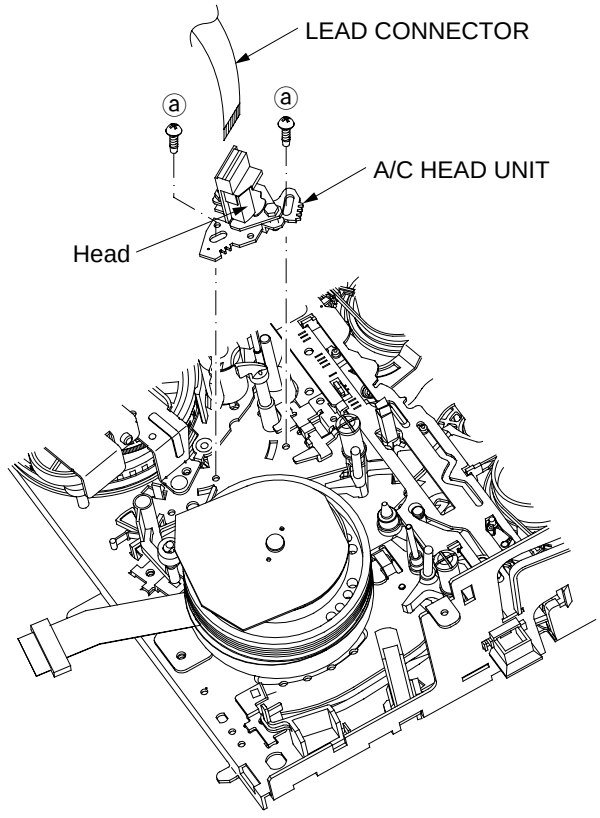


Fig. 2-8

2-9. F/E HEAD

SET POSITION : Normal

(Removal)

1. Lift the F/E HEAD shown in the Fig. 2-9-1 in the direction by the arrow Ⓐ to remove it.

Note : Be sure to replace the removed F/E HEAD with a new one.

(Installation)

1. Install the F/E HEAD shown in the Fig. 2-9-1.

Note : Never touch the Head shown in the Fig. 2-9-2. Clean it with alcohol if necessary.

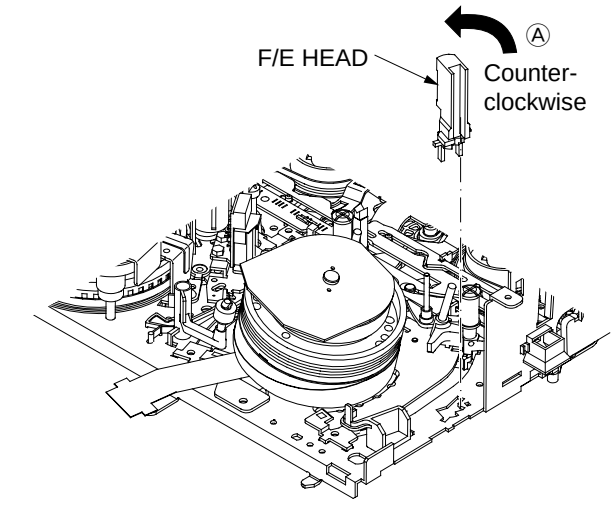


Fig. 2-9-1

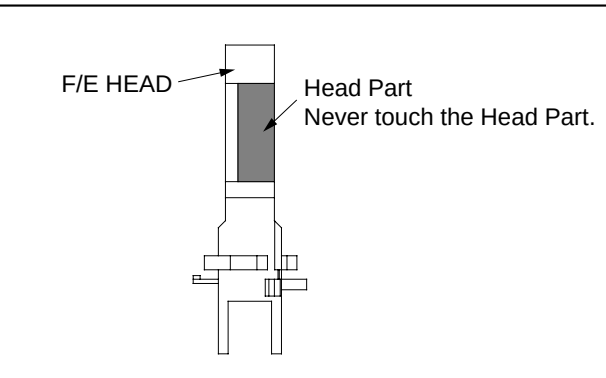


Fig. 2-9-2

2-10. SENSOR COVER (TU)

SET POSITION : Normal

(Removal)

1. Release the catch (ⓐ) of the SENSOR COVER (TU) shown in the Fig. 2-10 to remove the SENSOR COVER (TU).

(Installation)

1. Install the SENSOR COVER (TU) shown in the Fig. 2-10.

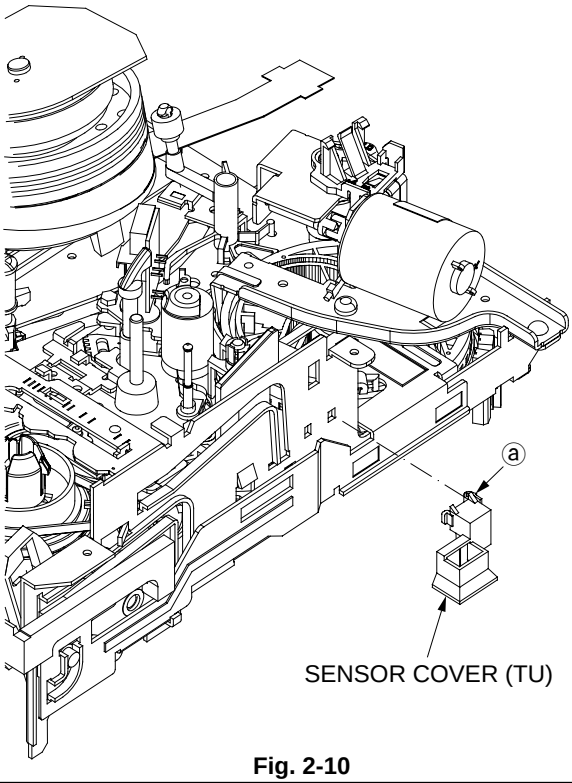


Fig. 2-10

2-11. SENSOR COVER (SP)

SET POSITION : Normal

(Removal)

1. Remove the catch (ⓐ) of the SENSOR COVER (SP) shown in the Fig. 2-11 to remove the SENSOR COVER (SP).

(Installation)

1. Install the SENSOR COVER (SP) shown in the Fig. 2-11.

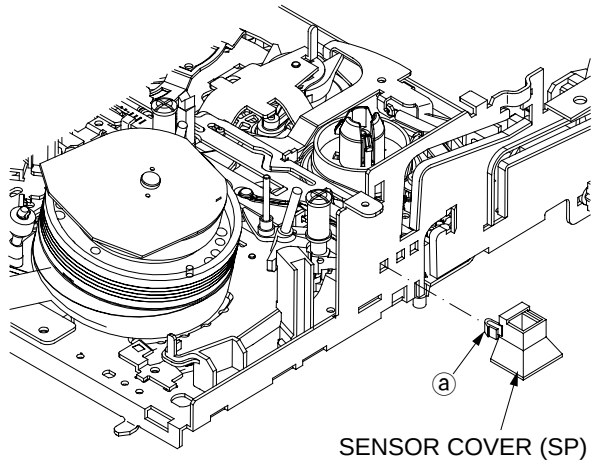


Fig. 2-11

2-12. REVERSE ASSY (TU), REVERSE ASSY (SP)

SET POSITION : Upside down

(Removal)

1. Release the two catches (ⓐ) of the REVERSE ASSY (TU) shown in the Fig. 2-12 to remove the REVERSE ASSY (TU).
2. Release the two catches (ⓑ) of the REVERSE ASSY (SP) shown in the Fig. 2-12 to remove the REVERSE ASSY (SP).

(Installation)

1. Clean the dirt on the transparent part of the REVERSE ASSY (TU) with a VIDEO HEAD cleaning cloth.

Note : Never use solvent such as alcohol to clean the REVERSE ASSY (TU).

2. Install the REVERSE ASSY (TU) shown in the Fig. 2-12.
3. Clean the dirt on the transparent part of the REVERSE ASSY (SP) with a VIDEO HEAD cleaning cloth.

Note : Never use solvent such as alcohol to clean the REVERSE HEAD (SP).

4. Install the REVERSE ASSY (SP) shown in the Fig. 2-12.

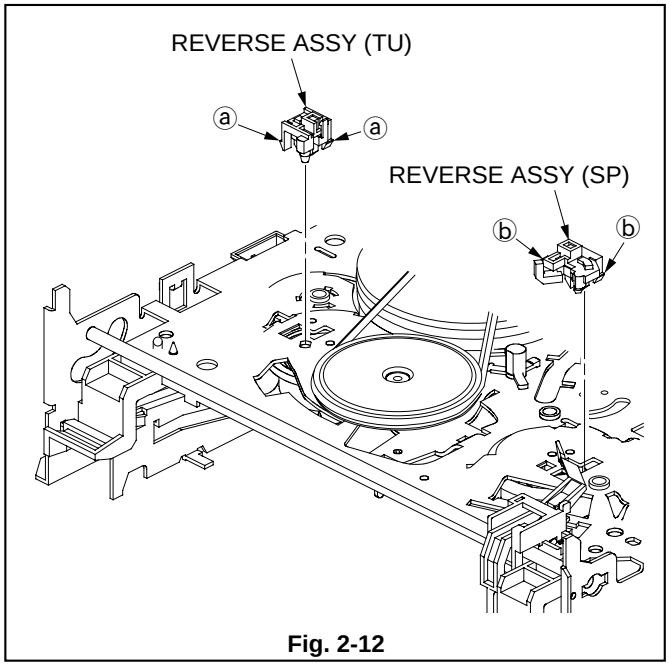


Fig. 2-12

2-13. MODE POSITION UNIT

SET POSITION: Upside down

(Removal)

1. Release the two catches (ⓐ, ⓑ) of the MODE POSITION UNIT shown in the Fig. 2-13 to remove the MODE POSITION UNIT.

(Installation)

1. Install the catch (ⓑ) of the MODE POSITION UNIT shown in the Fig. 2-13.
2. Install the catch (ⓐ) of the MODE POSITION UNIT shown in the Fig. 2-13.

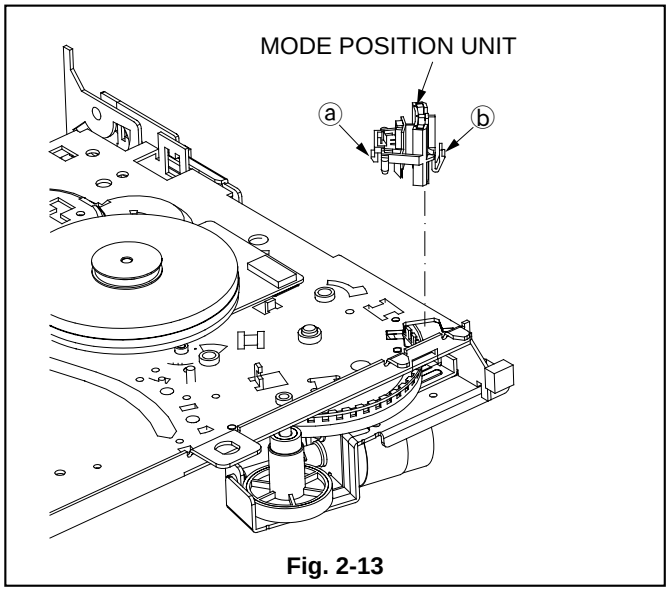


Fig. 2-13

2-14. REEL BELT, PULLEY BUSH, THRUST WASHER, BELT PULLEY, SHIFT SLIDER, PULLEY GEAR ASSY, SLIP GEAR, SLIP SPRING, SLIP WASHER, THRUST WASHER, SLIP ADJUSTER, IDLER UNIT

SET POSITION : Upside down

(Removal)

1. Remove the REEL BELT shown in the Fig. 2-14-1.
2. Move the SHIFT SLIDER in the Fig. 2-14-1 in the direction shown of the arrow Ⓐ to remove the SHIFT SLIDER from the SHIFT LEVER.
3. Release the two catches (ⓐ) of the PULLEY BUSH shown in the Fig. 2-14-1 to remove the PULLEY BUSH.

Note : Be sure to replace the removed PULLEY BUSH with a new one.

4. Remove the units from the THRUST WASHER to IDLER UNIT shown in the Fig. 2-14-1.

(Installation)

Note : Be careful so that GREASE and OIL does not adhere on the Felt Side of the PULLEY GEAR ASSY or the Grooved Side of the SLIP GEAR shown in the Fig. 2-14-4.

1. Apply OIL (FLOIL 948P) [859D154O20] to the SHAFT for the IDLER UNIT shown in the Fig. 2-14-1.
2. Apply GREASE (PG-641) [859D055O30] to the parts on the IDLER UNIT specified in the Fig. 2-14-1.
3. Apply GREASE (MULTEMP AC-DM) [859D055O90] to the parts on the MAIN PLATE ASSY specified in the Fig. 2-14-1.
4. Apply GREASE (PG-641) [859D055O30] to the parts on the new SHIFT SLIDER specified in the Fig. 2-14-2.
5. Apply GREASE (PG-641) [859D055O30] to the parts on the new SLIP ADJUSTER specified in the Fig. 2-14-2.
6. Apply GREASE (PG-641) [859D055O30] to the parts on the new BELT PULLEY specified in the Fig. 2-14-3.
7. Install the IDLER UNIT shown in the Fig. 2-14-1.
8. Install the SLIP ADJUSTER shown in the Fig. 2-14-3, matching the Lug of the SLIP ADJUSTER with the Center Notch of the IDLER UNIT.

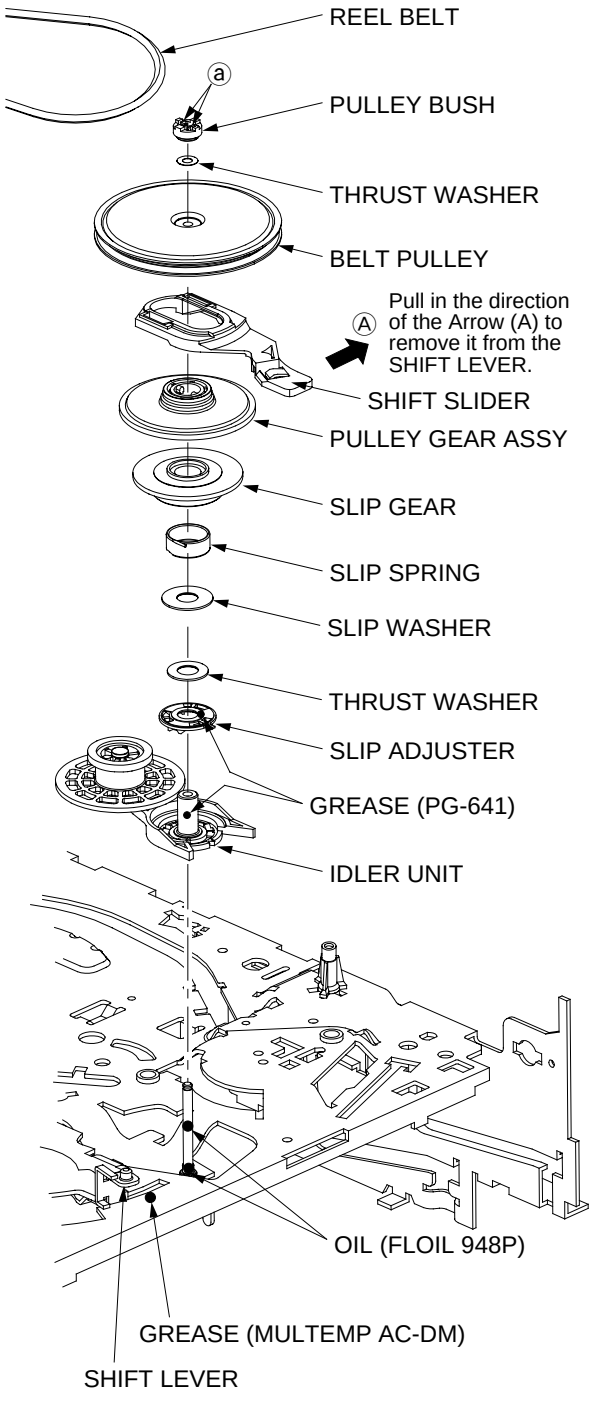
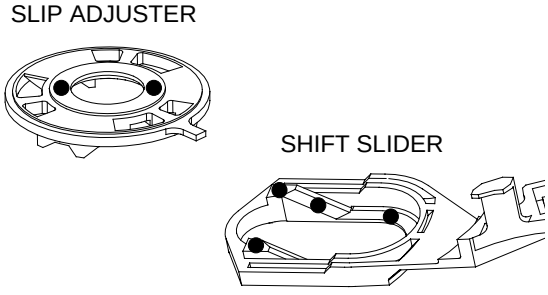


Fig. 2-14-1



Apply GREASE (PG-641) to the parts ●.

Fig. 2-14-2

9. Install the units from the SLIP WASHER to REEL BELT shown in the Fig. 2-14-1.

Note1 : Be sure to replace the removed PULLEY BUSH with a new one.

Note2 : Attach the SLIP SPRING with its straight end facing the SLIP GEAR side.

Note3 : Attach the SLIP WASHER with its position set as shown in the Fig. 2-14-5.

Note4 : Apply GREASE (PG-641) [859D055O30] to the part on the SLIP WASHER specified in the Fig. 2-14-5.

10. Install the SHIFT SLIDER to the SHIFT LEVER shown in the Fig. 2-14-1.

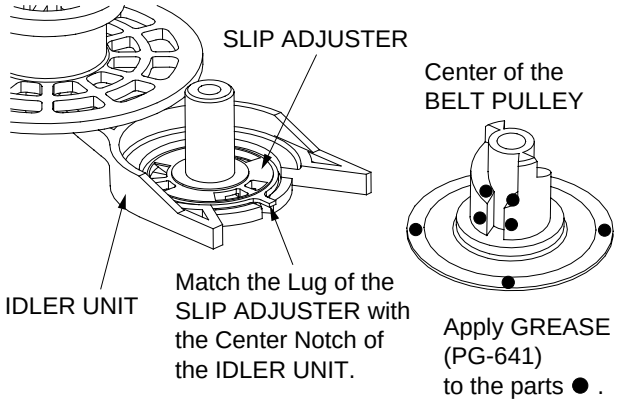


Fig. 2-14-3

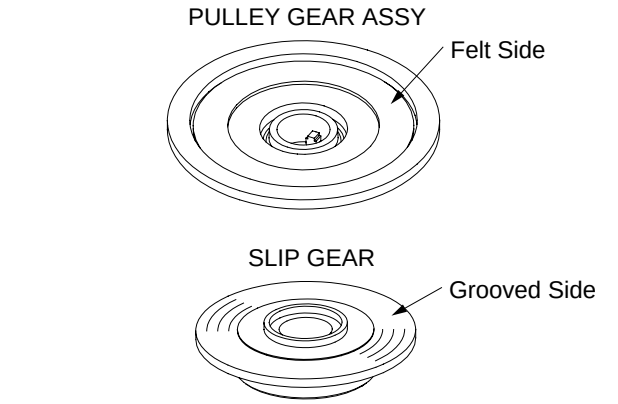


Fig. 2-14-4

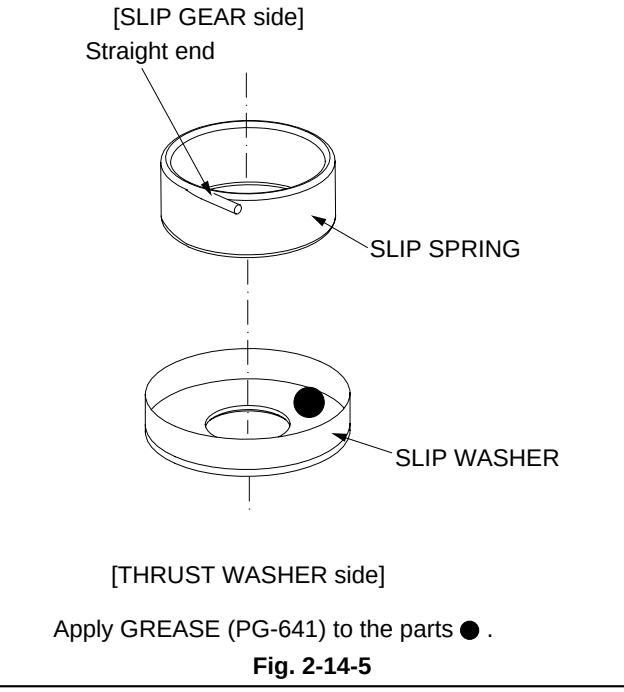


Fig. 2-14-5

2-15. CAPSTAN BRAKE SPRING, CAPSTAN BRAKE ASSY

SET POSITION : Upside down

(Removal)

1. Remove the CAPSTAN BRAKE SPRING shown in the Fig. 2-15.
2. Remove the catch (ⓐ) of the CAPSTAN BRAKE ASSY shown in the Fig. 2-15 to remove the CAPSTAN BRAKE ASSY.

(Installation)

1. Install the CAPSTAN BRAKE ASSY shown in the Fig. 2-15.
2. Install the CAPSTAN BRAKE SPRING shown in the Fig. 2-15.

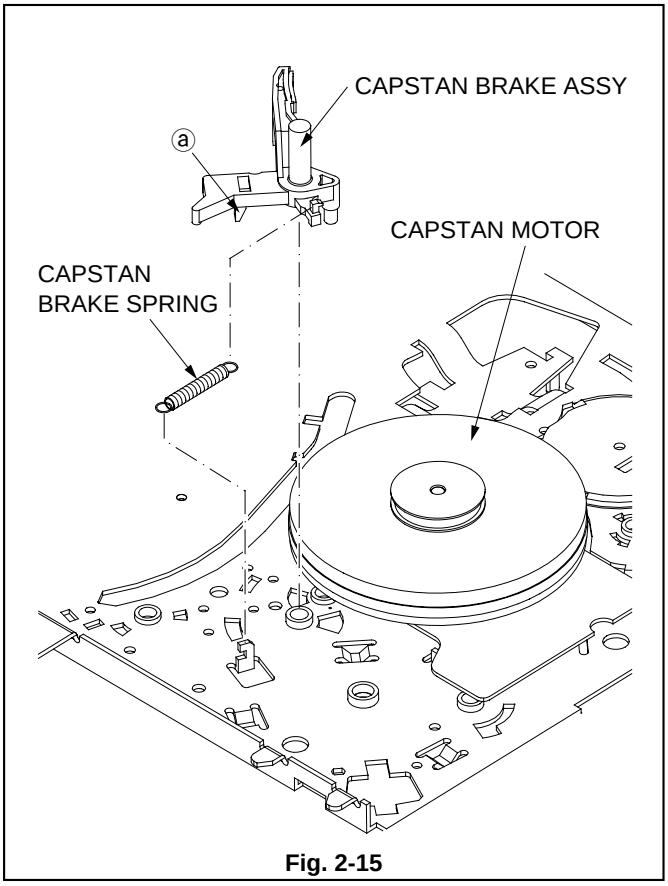


Fig. 2-15

2-16. FC HOLDER, MOTOR HOLDER, LOADING WORM, LOADING MOTOR ASSY, WORM WHEEL

SET POSITION : Normal

(Removal)

1. Release the two catches (ⓐ) of the FC HOLDER shown in the Fig. 2-16-1 to remove the FC HOLDER.
2. Remove the two screws (ⓑ) fastening the MOTOR HOLDER shown in the Fig. 2-16-1 to remove the MOTOR HOLDER.
3. Remove the two screws (ⓒ) fastening the LOADING MOTOR ASSY shown in the Fig. 2-16-1 to remove the LOADING MOTOR ASSY and LOADING WORM.
4. Remove the WORM WHEEL.

(Installation)

1. Apply GREASE (MULTEMP AC-DM)[859D055O90] to the LOADING WORM shown in the Fig. 2-16-2.
2. Apply GREASE (MULTEMP AC-DM)[859D055O90] to the WORM WHEEL shown in the Fig. 2-16-2.
3. Install the WORM WHEEL.
4. Install the LOADING WORM, LOADING MOTOR ASSY to the MOTOR HOLDER.

Note : Tighten the screw (ⓒ) shown in the Fig. 2-16-1 after putting the LUG TERMINAL on the screw.

5. Install the MOTOR HOLDER.
6. Install the FC HOLDER.

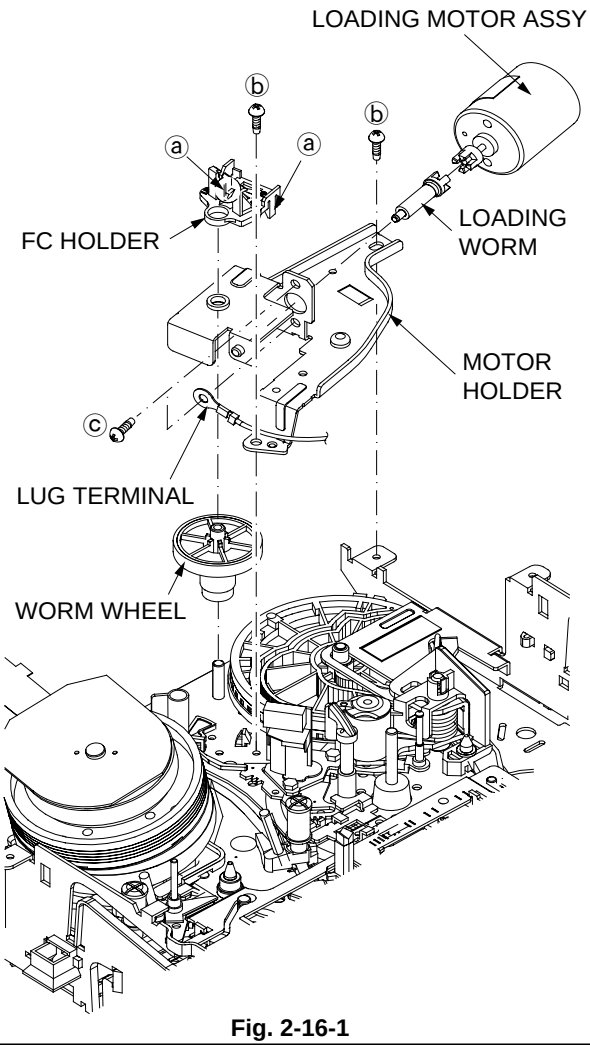
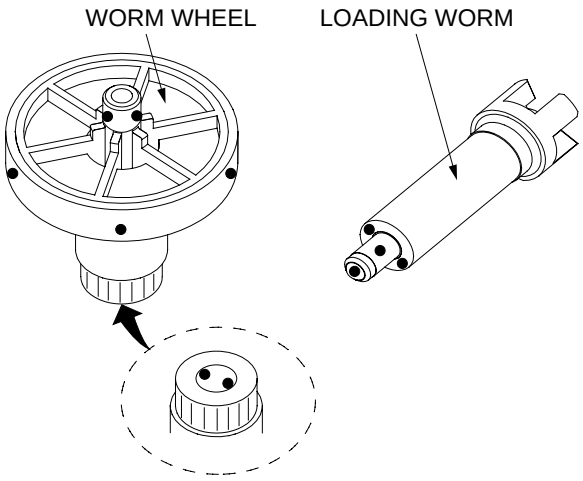


Fig. 2-16-1



Apply GREASE (MULTEMP AC-DM) to the parts ● .

Fig. 2-16-2

2-17. PINCH ARM CAP, PINCH ASSY

SET POSITION : Normal

(Removal)

1. Release the two catches (ⓐ) of the PINCH ARM CAP shown in the Fig. 2-17 to remove the PINCH ARM CAP.
2. Remove the PINCH ASSY shown in the Fig. 2-17.

(Installation)

1. Insert Part Ⓐ of the PINCH ASSY shown in the Fig. 2-17 in the most external groove of the MAIN CAM.
2. Install the PINCH ARM CAP matching the Part Ⓑ of the PINCH ARM CAP with the Rib of the MAIN PLATE ASSY.

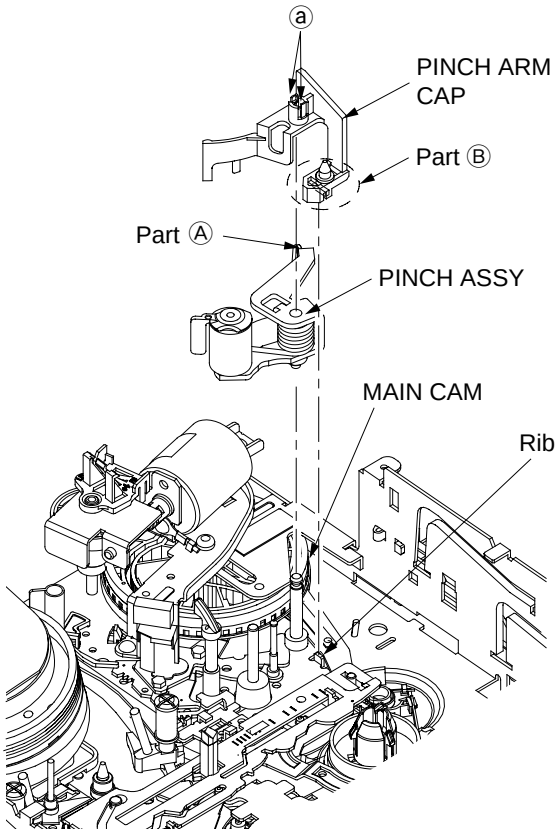


Fig. 2-17

2-18. F/L PLATE, DOOR ARM

SET POSITION : Normal

Remove the following parts before replacing the F/L PLATE, DOOR ARM. Refer to the corresponding items to install them.

- STAY PLATE (Item 2-2)
- BOTTOM ASSY (Item 2-3)
- SENSOR COVER (TU) (Item 2-10)
- MOTOR HOLDER (Item 2-16)
- PINCH ARM CAP (Item 2-17)
- PINCH ASSY (Item 2-17)

(Removal)

1. Slightly lift the back of the F/L PLATE (MAIN CAM side) shown in the Fig. 2-18-1 to remove the F/L PLATE.
2. Remove the DOOR ARM.

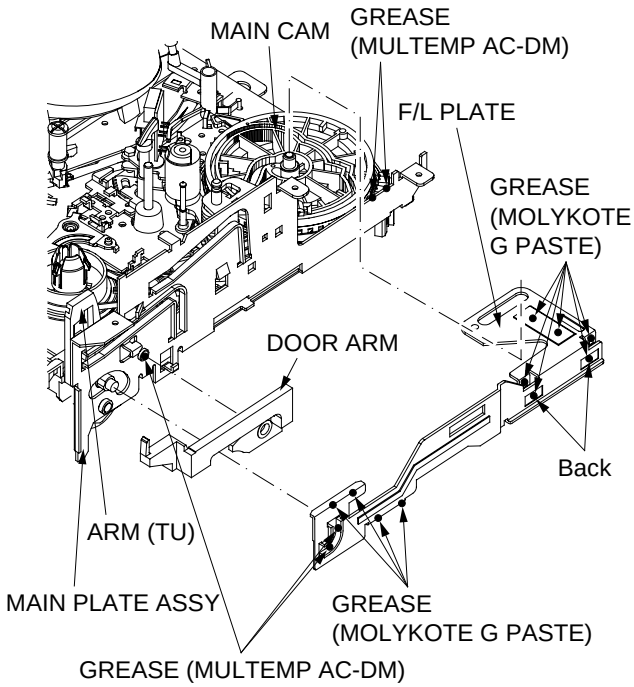


Fig. 2-18-1

(Installation)

1. Apply GREASE (MULTEMP AC-DM)[859D055O90] to the points on the new F/L PLATE specified in the Fig. 2-18-1.
2. Apply GREASE (MOLYKOTE G PASTE) [859D055O50] to the points on the new F/L PLATE specified in the Fig. 2-18-1.
3. Apply GREASE (MULTEMP AC-DM)[859D055O90] to the points on the MAIN PLATE ASSY specified in the Fig. 2-18-1.
4. Install the DOOR ARM.
5. Match the Hole in the MAIN CAM with the Hole in the MAIN PLATE ASSY shown in the Fig. 2-18-2.
6. Install the F/L PLATE shown in the Fig. 2-18-1 from the front side (ARM (TU) side).
7. Insert the Boss of the F/L PLATE shown in the Fig. 2-18-2 into the Groove of the MAIN CAM.

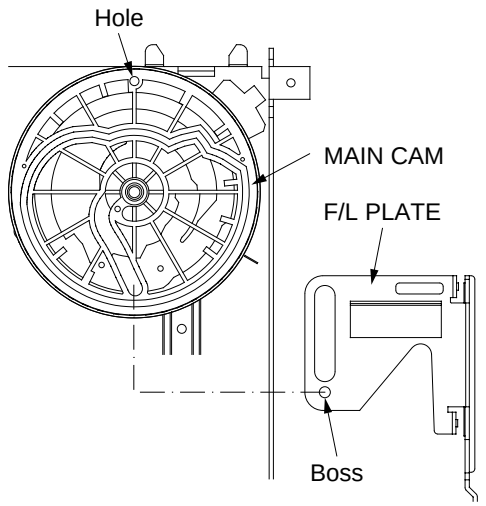


Fig. 2-18-2

2-19. BRAKE CAM PLATE

SET POSITION : Normal

Remove the following parts before replacing the BRAKE CAM PLATE. Refer to the corresponding items to install them.

- STAY PLATE (Item 2-2)
- BOTTOM ASSY (Item 2-3)
- MOTOR HOLDER (Item 2-16)
- PINCH ARM CAP (Item 2-17)
- PINCH ASSY (Item 2-17)

(Removal)

1. Rotate the MAIN CAM in the Fig. 2-19-1 in the direction shown by the arrow Ⓐ. And move the BRAKE CAM PLATE so that the three catches (ⓐ) of the MAIN PLATE ASSY can be released.
2. Remove the BRAKE CAM PLATE.

(Installation)

1. Apply GREASE (MOLYKOTE G PASTE) [859D055O50] to the points on the BRAKE CAM PLATE specified in the Fig. 2-19-2.
2. Hook the BRAKE SPRING shown in the Fig. 2-19-3 to the catch of the BRAKE (TU).
3. Install the BRAKE CAM PLATE, inserting the six Guide Pins (ⓑ) shown in the Fig. 2-19-1 into the slits of the BRAKE CAM PLATE.
4. Move the BRAKE SPRING in the Fig. 2-19-3 in the direction of the arrow Ⓒ to release the Catch of the BRAKE (TU) and insert the BRAKE SPRING under the Catch.
5. Rotate the MAIN CAM shown in the Fig. 2-19-1 in the direction shown of the arrow Ⓑ. And move the BRAKE CAM PLATE to hook it to the three catches (ⓐ) of the MAIN PLATE ASSY.

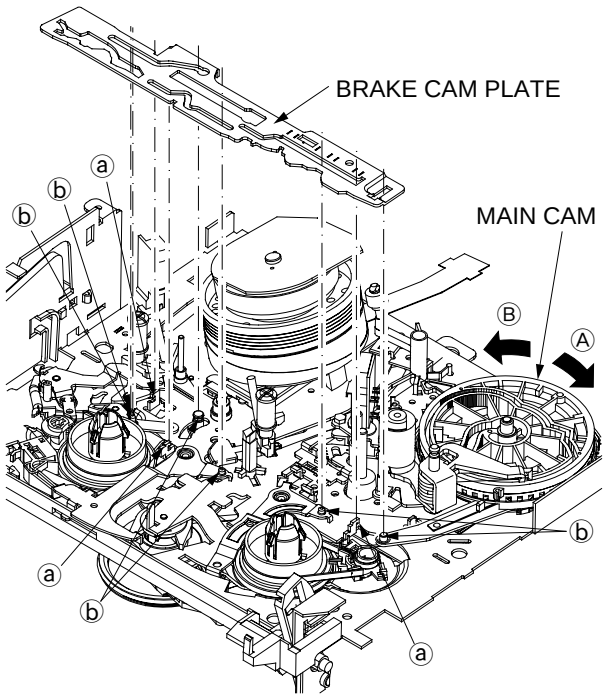
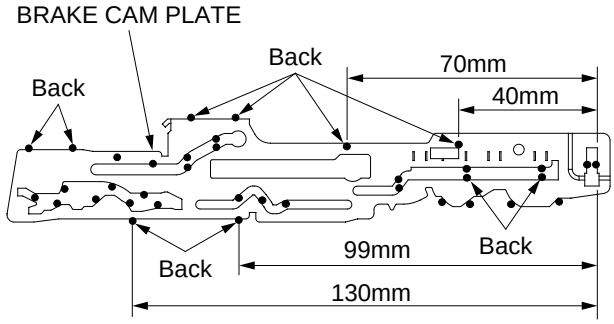


Fig. 2-19-1



Apply GREASE (MOLYKOTE G PASTE) to the points ●.

Fig. 2-19-2

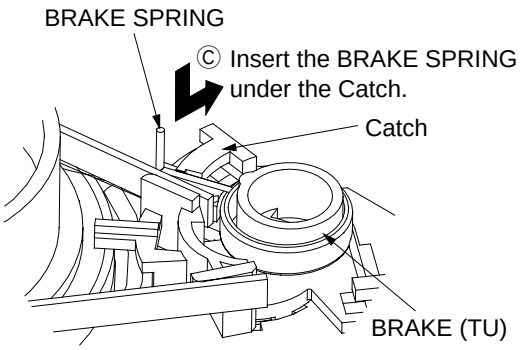


Fig. 2-19-3

2-20. GUIDE LAMP

SET POSITION : Normal

Remove the following parts before replacing the GUIDE LAMP. Refer to the corresponding items to install them.

- STAY PLATE (Item 2-2)
- BOTTOM ASSY (Item 2-3)
- MOTOR HOLDER (Item 2-16)
- PINCH ARM CAP (Item 2-17)
- PINCH ASSY (Item 2-17)
- BRAKE CAM PLATE (Item 2-19)

(Removal)

1. Release the catch (ⓐ) of the GUIDE LAMP shown in the Fig. 2-20.
2. Rotate the GUIDE LAMP in the direction shown by the arrow Ⓐ (counterclockwise, when viewed from the bottom) to match the longest slit (ⓒ) of the MAIN PLATE ASSY with the longest arm (ⓑ) of the GUIDE LAMP shown in the Fig. 2-20. Pull it out downward to remove it.

(Installation)

1. Clean the dirt on the GUIDE LAMP with a VIDEO HEAD cleaning cloth.

Note: Never use solvent such as alcohol to clean the GUIDE LAMP.

2. Insert the GUIDE LAMP in the Fig. 2-20, matching the longest arm (ⓑ) of the GUIDE LAMP with the longest slit (ⓒ) of the MAIN PLATE ASSY.
3. Rotate the GUIDE LAMP in the direction shown by the arrow Ⓑ (clockwise, when viewed from the bottom) to match the arm (ⓐ) of the GUIDE LAMP shown in the Fig. 2-20 with the longest slit (ⓒ) of the MAIN PLATE ASSY.

Note : Clean the dirt on the GUIDE LAMP with a VIDEO HEAD cleaning cloth if necessary.

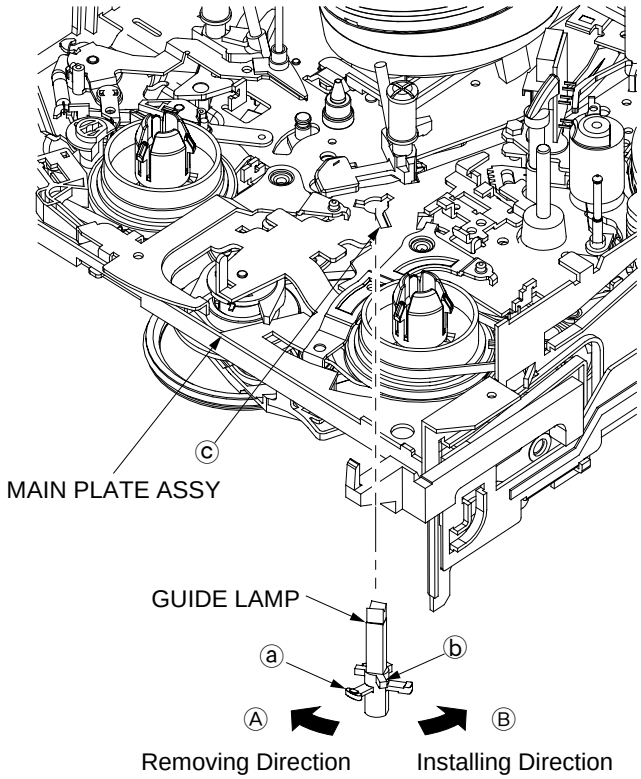


Fig. 2-20

2-21. MAIN CAM, GUIDE ARM (TU), BRAKE LEVER, LB PIN

SET POSITION : Normal

Remove the following parts before replacing the MAIN CAM, GUIDE ARM (TU), BRAKE LEVER. Refer to the corresponding items to install them.

- STAY PLATE (Item 2-2)
- BOTTOM ASSY (Item 2-3)
- SENSOR COVER (TU) (Item 2-10)
- MOTOR HOLDER (Item 2-16)
- WORM WHEEL (Item 2-16)
- PINCH ARM CAP (Item 2-17)
- PINCH ASSY (Item 2-17)
- F/L PLATE (Item 2-18)

(Removal)

1. Remove the MAIN CAM shown in the Fig. 2-21-1.
2. Remove the GUIDE ARM (TU) shown in the Fig. 2-21-1.
3. Move the BRAKE LEVER in the Fig. 2-21-1 in the direction shown by the arrow Ⓐ and release the catch (ⓐ) to remove the BRAKE LEVER.
4. Remove the LB PIN shown in the Fig. 2-21-1.

(Installation)

1. Apply GREASE (MULTEMP AC-DM)[859D055O90] to the points on the new GUIDE ARM (TU) specified in the Fig. 2-21-1.
2. Apply GREASE (MULTEMP AC-DM)[859D055O90] to the points on the MAIN PLATE ASSY specified in the Fig. 2-21-1.
3. Install the GUIDE ARM (TU), matching the Hole in the GUIDE ARM (TU) shown in the Fig. 2-21-2 with the Hole in the MAIN PLATE ASSY.

Note : Install the GUIDE ARM (TU) so that the Part specified with the Oblique Lines of the GUIDE ARM (TU) will be under the SHAFT FLANGE of the PINCH ASSY.

4. Install the BRAKE LEVER shown in the Fig. 2-21-2 so that the Hole in the BRAKE LEVER overlaps the Hole in the MAIN PLATE ASSY.
5. Apply GREASE (MULTEMP AC-DM)[859D055O90] to the points on the new MAIN CAM specified in the Fig. 2-21-3.
6. Install the MAIN CAM so that the Hole in the MAIN CAM shown in the Fig. 2-21-2 overlaps with the Hole in the MAIN PLATE ASSY.

Note : Install the MAIN CAM inserting the Pins of the CAPSTAN BRAKE ASSY, GUIDE ARM (TU), BRAKE LEVER into the Grooves on the back of the MAIN CAM for sure.

Be careful that GREASE does not adhere on the Wall when applying GREASE to the most external circle on the back of the MAIN CAM (4 parts) shown in the Fig. 2-21-3.

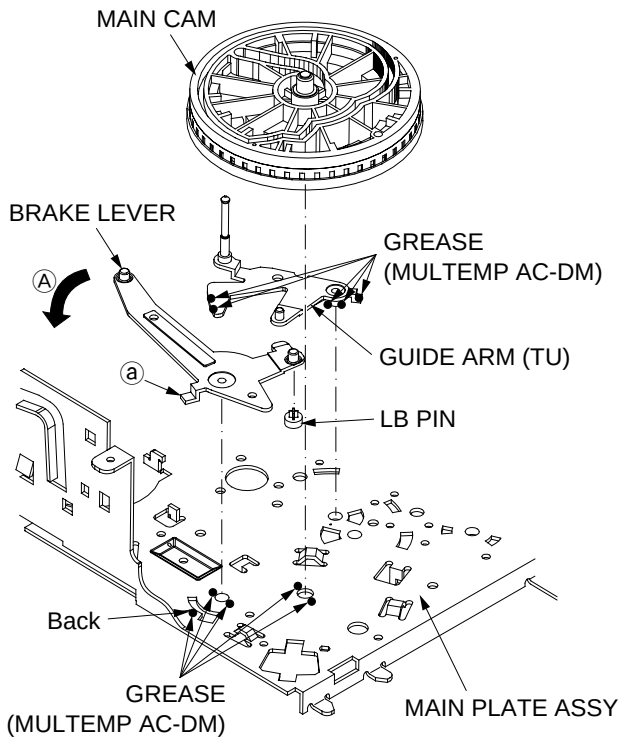


Fig. 2-21-1

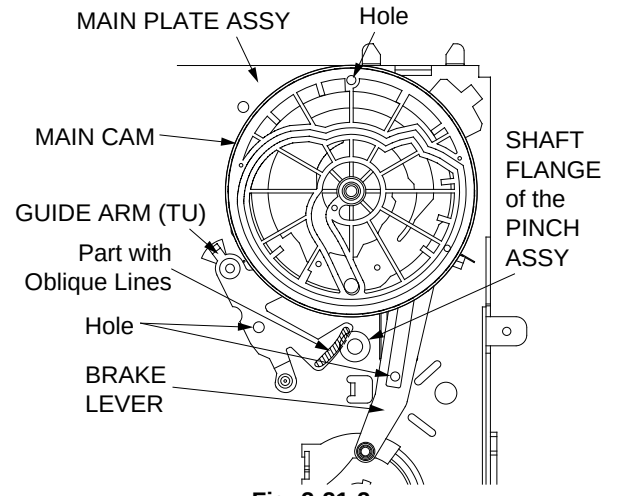
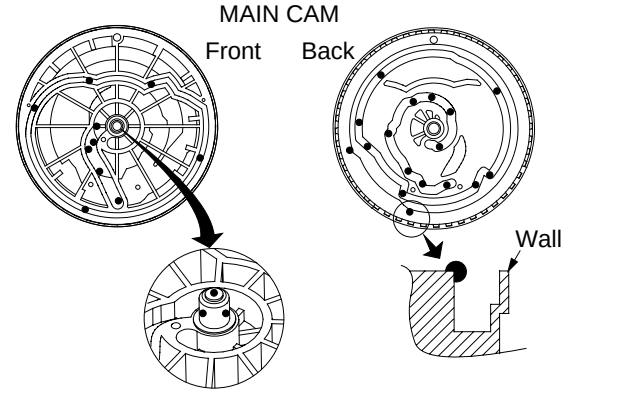


Fig. 2-21-2



Apply GREASE (MULTEMP AC-DM) to the parts ●.

Fig. 2-21-3

2-22. L/D LOCK LEVER

SET POSITION : Normal

Remove the following parts before replacing the L/D LOCK LEVER. Refer to the corresponding items to install them.

- STAY PLATE (Item 2-2)
- BOTTOM ASSY (Item 2-3)
- MOTOR HOLDER (Item 2-16)
- PINCH ARM CAP (Item 2-17)
- PINCH ASSY (Item 2-17)
- BRAKE CAM PLATE (Item 2-19)

(Removal)

1. Remove the L/D LOCK LEVER shown in the Fig. 2-22.

(Installation)

1. Install the L/D LOCK LEVER shown in Fig. 2-22.

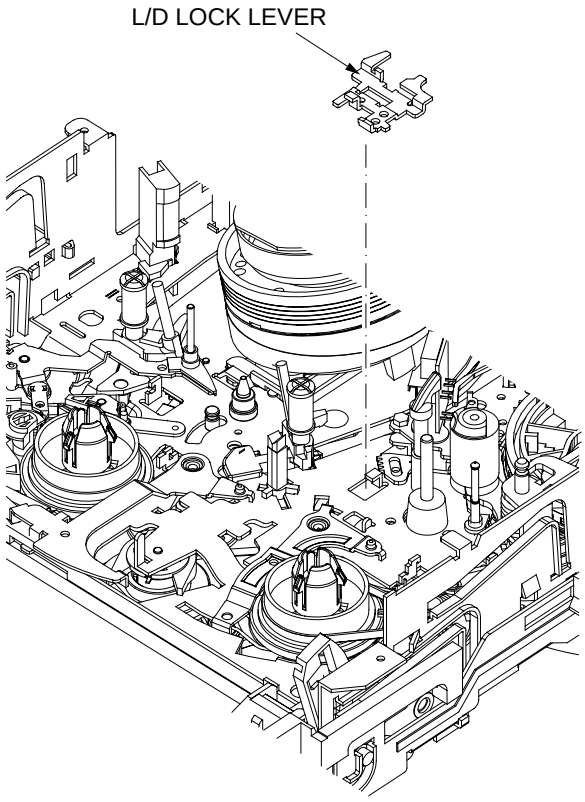


Fig. 2-22

2-23. BRAKE BELT (SP), BELT HOLDER

SET POSITION : Normal

Remove the following parts before replacing the BRAKE BELT (SP), BELT HOLDER. Refer to the corresponding items to install them.

- STAY PLATE (Item 2-2)
- BOTTOM ASSY (Item 2-3)

(Removal)

1. Lift the BRAKE BELT (SP) shown in the Fig. 2-23 to remove it from the REEL DISK (SP side).
2. Release the BRAKE BELT (SP) from the catch (ⓐ) of the BELT LEVER shown in the Fig. 2-23.
3. Release the two catches (ⓑ) of the BELT HOLDER shown in the Fig. 2-23 and separate the BELT HOLDER from the BRAKE BELT (SP).
4. Release the catch (ⓒ) of the BELT HOLDER shown in the Fig. 2-23 to remove the BRAKE BELT (SP).

(Installation)

Note : Install the BRAKE BELT (SP) so that its Felt Side touches the REEL DISK (SP side). GREASE applied to the BRAKE CAM PLATE and MAIN PLATE ASSY should not adhere on the Felt Side of the BRAKE BELT (SP).

1. Install the BRAKE BELT (SP) shown in the Fig. 2-23 to the catch (ⓒ) of the BELT HOLDER.
2. Install the BELT HOLDER shown in the Fig. 2-23.
3. Install the BRAKE BELT (SP) shown in the Fig. 2-23 to the catch (ⓐ) of the BELT LEVER.
4. Hook the BRAKE BELT (SP) shown in the Fig. 2-23 to the REEL DISK (SP side).

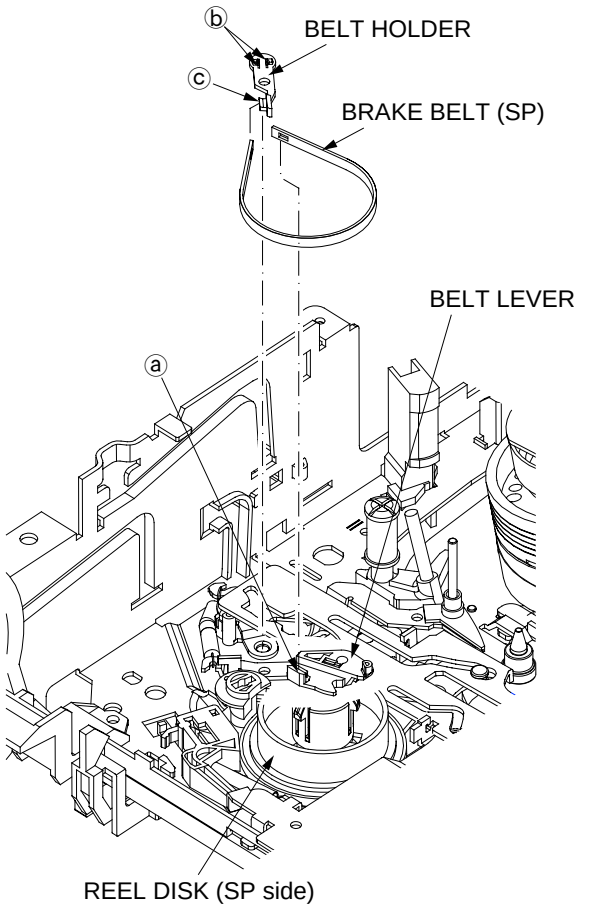


Fig. 2-23

2-24. BELT LEVER, BELT ADJUSTER

SET POSITION : Normal

Remove the following parts before replacing the BELT LEVER, BELT ADJUSTER. Refer to the corresponding items to install them.

- STAY PLATE (Item 2-2)
- BOTTOM ASSY (Item 2-3)
- MOTOR HOLDER (Item 2-16)
- PINCH ARM CAP (Item 2-17)
- PINCH ASSY (Item 2-17)
- BRAKE CAM PLATE (Item 2-19)
- BRAKE BELT (SP) (Item 2-23)
- BELT HOLDER (Item 2-23)

(Removal)

1. Release the catch (ⓐ) of the BELT LEVER shown in the Fig. 2-24 to remove the BELT LEVER.
2. Remove the BELT ADJUSTER shown in the Fig. 2-24.

(Installation)

1. Install the BELT ADJUSTER shown in the Fig. 2-24.
2. Install the BELT LEVER shown in the Fig. 2-24.

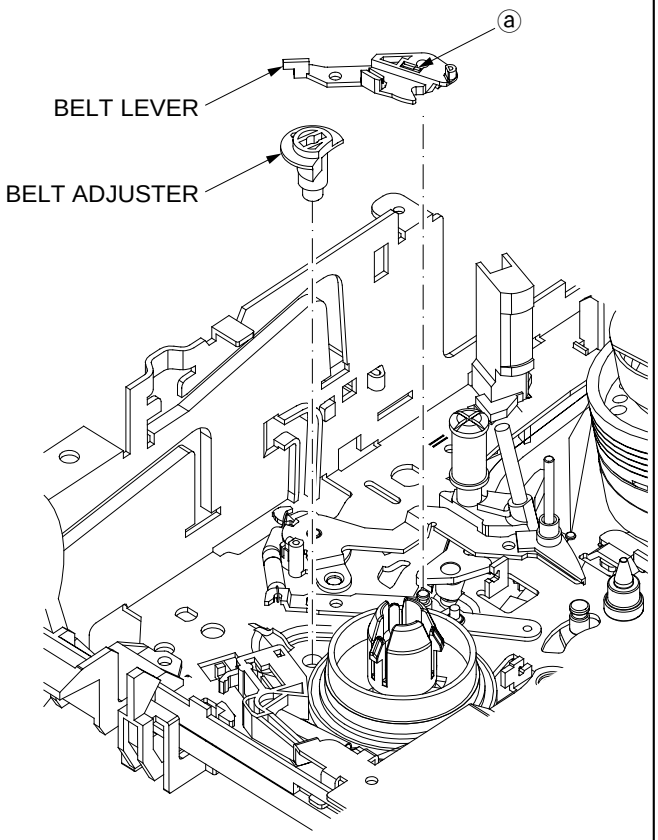


Fig. 2-24

2-25 TENSION ARM, TENSION LEVER, TENSION SPRING, TENS AXIS HOLDER, REEL DISK (SP side)

SET POSITION : Normal

Remove the following parts before performing this Item. Refer to the corresponding items to install them.

- STAY PLATE (Item 2-2)
- BOTTOM ASSY (Item 2-3)
- MOTOR HOLDER (Item 2-16)
- PINCH ARM CAP (Item 2-17)
- PINCH ASSY (Item 2-17)
- BRAKE CAM PLATE (Item 2-19)
- BRAKE BELT (SP) (Item 2-23)
- BELT HOLDER (Item 2-23)
- BELT LEVER (Item 2-24)

(Removal)

1. Remove the TENSION SPRING shown in the Fig. 2-25.
2. Release the catch (ⓐ) of the TENS AXIS HOLDER shown in the Fig. 2-25 to remove the TENSION ARM.
3. Remove the TENSION LEVER shown in the Fig. 2-25.
4. Release the catch (ⓑ) of the TENS AXIS HOLDER shown in the Fig. 2-25. Move the TENS AXIS HOLDER in the direction shown by the arrow Ⓐ to remove it.
5. Remove the REEL DISK (SP side).

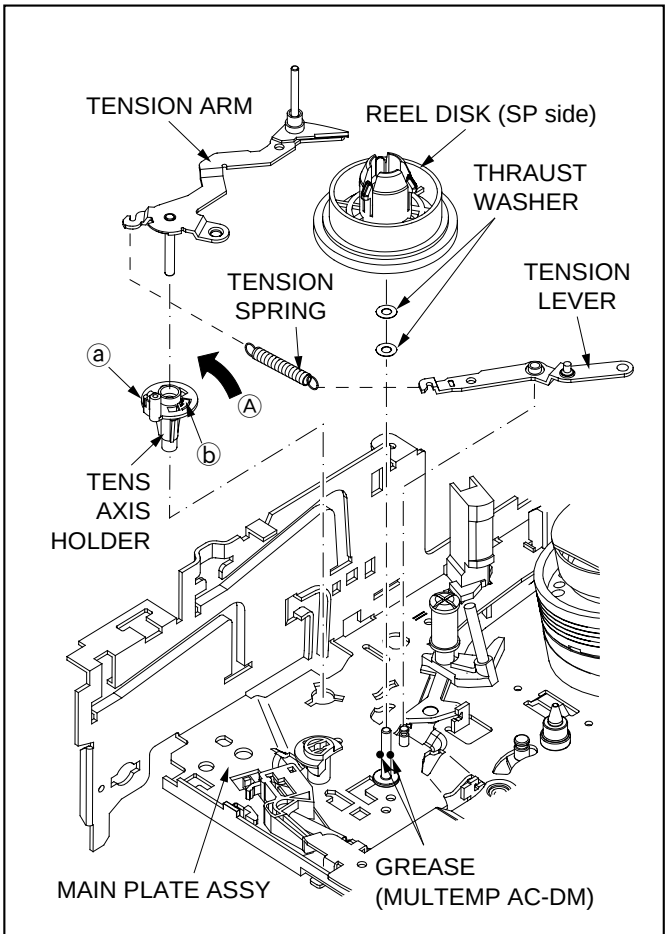


Fig. 2-25

(Installation)

1. Apply GREASE (MULTEMP AC-DM)[859D055O90] to the parts on the MAIN PLATE ASSY specified in the Fig. 2-25.
2. Install the REEL DISK (SP side).
3. Install the TENS AXIS HOLDER.

Note : Install the TENS AXIS HOLDER so that the catch (ⓐ) for the TENSION ARM will be positioned on the front (F/L ARM ASSY side).

4. Install the TENSION LEVER.
5. Install the TENSION ARM.
6. Install the TENSION SPRING.

Note : Install the longer hook of the TENSION SPRING to the TENSION ARM.

2-26. BRAKE BELT (TU)

SET POSITION : Normal

Remove the following parts before replacing the BRAKE BELT. Refer to the corresponding items to install them.

- STAY PLATE (Item 2-2)
- BOTTOM ASSY (Item 2-3)

(Removal)

1. Lift the BRAKE BELT (TU) shown in the Fig. 2-26 to remove it from the REEL DISK (TU side).
2. Release the two catches (ⓐ) of the BRAKE (TU) shown in the Fig. 2-26 to remove the BRAKE BELT (TU).

(Installation)

1. Install the BRAKE BELT (TU) shown in the Fig. 2-26 to the BRAKE (TU).
2. Hook the BRAKE BELT (TU) shown in the Fig. 2-26 to the REEL DISK (TU side).

Note : Install the BRAKE BELT (TU) so that its Felt Side touches the REEL DISK (TU side).

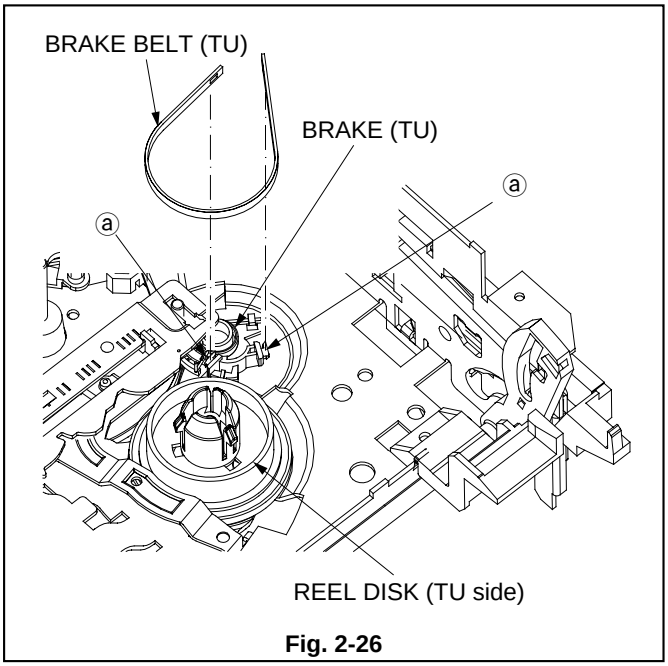


Fig. 2-26

2-27. BRAKE (TU), REEL DISK (TU side)

SET POSITION : Normal

Remove the following parts before replacing the BRAKE (TU), REEL DISK (TU side). Refer to the corresponding items to install them.

- STAY PLATE (Item 2-2)
- BOTTOM ASSY (Item 2-3)
- MOTOR HOLDER (Item 2-16)
- PINCH ARM CAP (Item 2-17)
- PINCH ASSY (Item 2-17)
- BRAKE CAM PLATE (Item 2-19)

(Removal)

1. Move the BRAKE (TU) in the Fig. 2-27 in the direction shown by the arrow Ⓐ to remove it.
2. Remove the BRAKE BELT (TU) from the BRAKE (TU).
3. Remove the REEL DISK (TU).

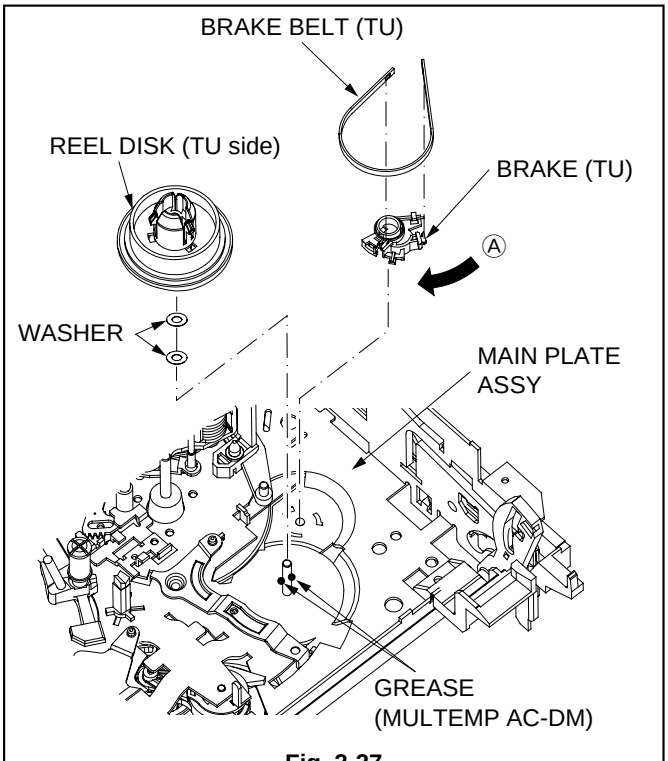


Fig. 2-27

(Installation)

(Installation)

Note : Install the BRAKE BELT (TU) so that its Felt Side touches the REEL DISK (TU side).
The GREASE applied to the BRAKE CAM PLATE and the MAIN PLATE ASSY should not adhere on the Felt Side of the BRAKE BELT (SP).

1. Apply GREASE (MULTEMP AC-DM)[859D055O90] to the parts on the MAIN PLATE ASSY specified in the Fig. 2-27.
2. Install the REEL DISK (TU side).
3. Install the BRAKE BELT (TU) to the BRAKE (TU).
4. Install the BRAKE (TU).
5. Hook the BRAKE BELT (TU) to the REEL DISK (TU side).

2-28. SHIFT LEVER

SET POSITION : Normal

Remove the following parts before replacing the SHIFT LEVER. Refer to the corresponding items to install them.

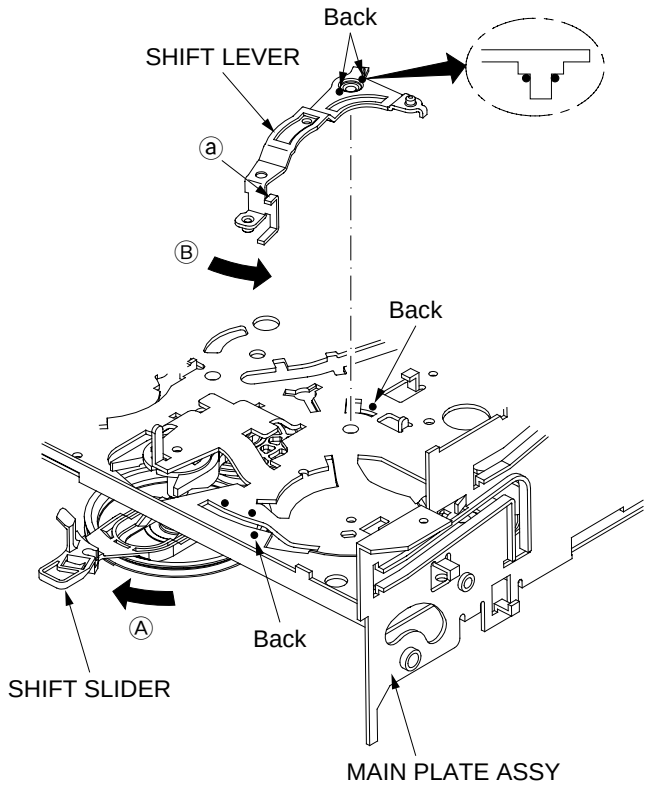
- STAY PLATE (Item 2-2)
- BOTTOM ASSY (Item 2-3)
- MOTOR HOLDER (Item 2-16)
- PINCH ARM CAP (Item 2-17)
- PINCH ASSY (Item 2-17)
- BRAKE CAM PLATE (Item 2-19)
- BRAKE (TU) (Item 2-27)
- REEL DISK (TU side) (Item 2-27)

(Removal)

1. Move the SHIFT SLIDER in the Fig. 2-28 in the direction shown by the arrow Ⓐ to release it from the SHIFT LEVER.
2. Move the SHIFT LEVER in the Fig. 2-28 in the direction shown by the arrow Ⓑ to remove it.

(Installation)

1. Apply GREASE (MULTEMP AC-DM)[859D055O90] to the parts on the new SHIFT LEVER specified in the Fig. 2-28.
2. Apply GREASE (MULTEMP AC-DM)[859D055O90] to the parts on the MAIN PLATE ASSY specified in the Fig. 2-28.
3. Install the SHIFT LEVER so that its Part (ⓐ) shown in the Fig. 2-28 will be positioned under the MAIN PLATE ASSY.
4. Install the SHIFT SLIDER to the SHIFT LEVER.



Apply GREASE (MULTEMP AC-DM) to the parts ● .

Fig. 2-28

2-29. CHARGE SPRING, SWING LEVER, CHARGE ASSY

SET POSITION : Normal

Remove the following parts before replacing the CHARGE SPRING, SWING LEVER, CHARGE ASSY. Refer to the corresponding items to install them.

- STAY PLATE (Item 2-2)
- BOTTOM ASSY (Item 2-3)
- MOTOR HOLDER (Item 2-16)
- PINCH ARM CAP (Item 2-17)
- PINCH ASSY (Item 2-17)
- BRAKE CAM PLATE (Item 2-19)

(Removal)

1. Remove the CHARGE SPRING shown in the Fig. 2-29 from the SWING LEVER.
2. Remove the SWING LEVER shown in the Fig. 2-29.
3. Release the Part ⓐ of the CHARGE ASSY shown in the Fig. 2-29 from the Part ⓑ of the MAIN PLATE ASSY to remove the CHARGE ASSY.

(Installation)

1. Apply GREASE (MULTEMP AC-DM)[859D055O90] to the parts on the MAIN PLATE ASSY specified in the Fig. 2-29.
2. Install the CHARGE ASSY.
3. Install the SWING LEVER inserting the Part ⓒ of the SWING LEVER in the Fig. 2-29 into the groove in the MAIN PLATE ASSY.
4. Install the CHARGE SPRING to the SWING LEVER.

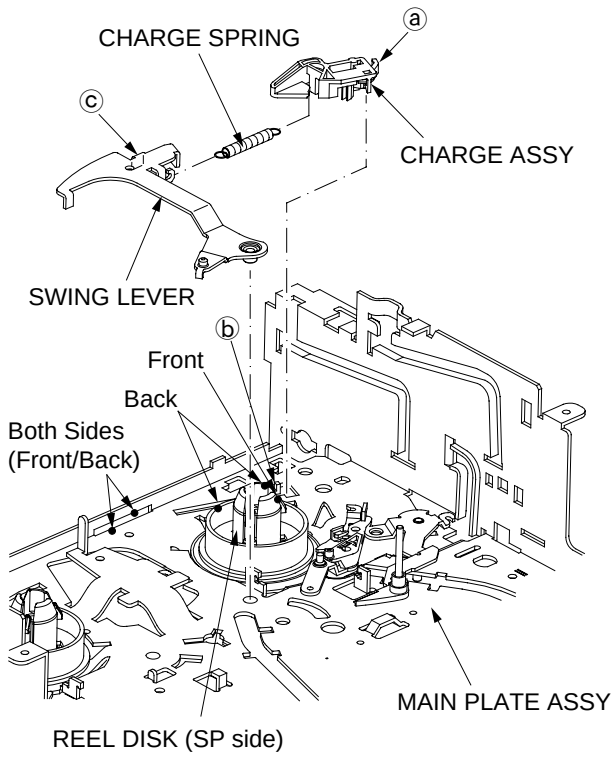


Fig. 2-29

2-30. LOADING ARM ASSY (SP), LOADING ARM ASSY (TU)

SET POSITION : Upside down

(Removal)

1. Release the catch (ⓐ) of the LOADING ARM ASSY (SP) shown in the Fig. 2-30-1 to remove the LOADING ARM ASSY (SP).

Note : Be sure to replace the removed LOADING ARM ASSY (SP) with a new one.

2. Remove the screw (ⓑ) fastening the SPACER PLATE shown in the Fig. 2-30-1 to remove the SPACER PLATE.
3. Remove the LOADING ARM ASSY (TU) shown in the Fig. 2-30-1.

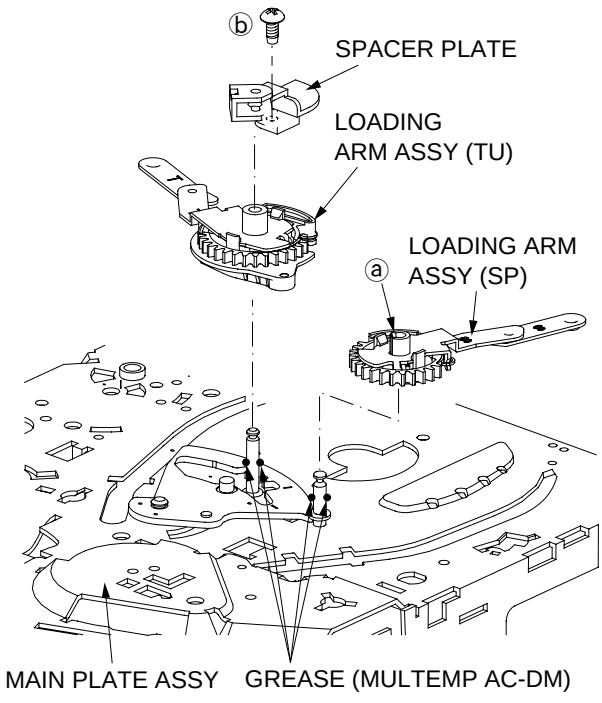
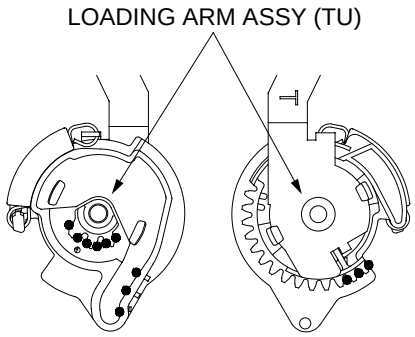


Fig. 2-30-1

(Installation)

1. Apply GREASE (MULTEMP AC-DM)[859D055O90] to the parts on the MAIN PLATE ASSY specified in the Fig. 2-30-1.
2. Apply GREASE (MULTEMP AC-DM)[859D055O90] to the parts on the LOADING ARM ASSY (TU) specified in the Fig. 2-30-2.
3. Install the LOADING ARM ASSY (SP) and LOADING ARM ASSY (TU) so that the Marks on the both UNITs face each other, as shown in the Fig. 2-30-3.

Note : Be sure to replace the removed LOADING ARM ASSY (SP) with a new one.



Apply GREASE (MULTEMP AC-DM) to the parts ●.

Fig. 2-30-2

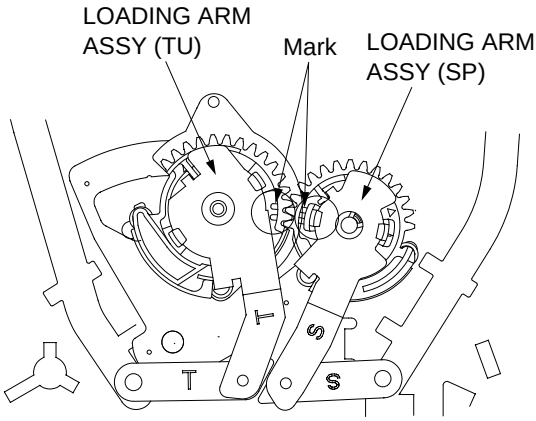


Fig. 2-30-3

2-31. A/L LEVER

SET POSITION: Upside down

Remove the following parts before replacing the A/L LEVER. Refer to the corresponding items to install them.

- STAY PLATE (Item 2-2)
- BOTTOM ASSY (Item 2-3)
- MOTOR HOLDER (Item 2-16)
- PINCH ARM CAP (Item 2-17)
- PINCH ASSY (Item 2-17)
- BRAKE CAM PLATE (Item 2-19)
- LOADING ARM ASSY (SP) (Item 2-30)
- LOADING ARM ASSY (TU) (Item 2-30)

(Removal)

1. Remove the CUT WASHER and WASHER shown in the Fig. 2-31-1. Then, remove the A/L LEVER.

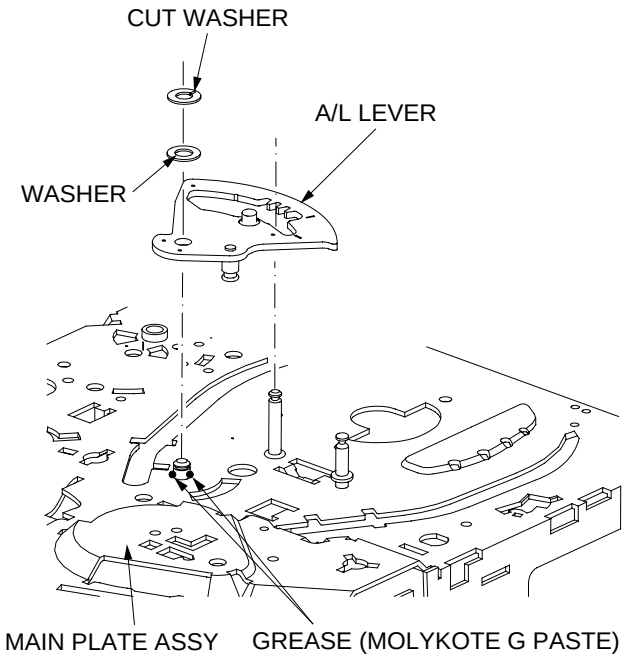


Fig. 2-31-1

(Installation)

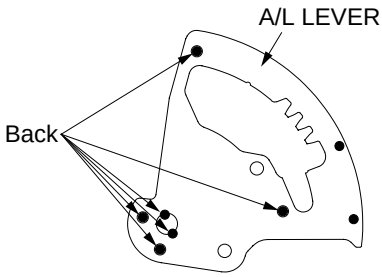
Note : Install the LOADING ARM ASSY (TU) and LOADING ARM ASSY (SP), according to the following procedure, after installing the A/L LEVER.

1. Apply GREASE (MOLYKOTE G PASTE) [859D055O50] to the parts on the MAIN PLATE ASSY specified in the Fig. 2-31-1.
2. Apply GREASE (MOLYKOTE G PASTE) [859D055O50] to the parts on the A/L LEVER specified in the Fig. 2-31-2.
3. Install the A/L LEVER so that the Mark on the A/L LEVER faces to the FLANGE of the LOADING ARM ASSY (SP), as shown in the Fig. 2-31-3.

Note : The Part specified with Oblique Lines on the A/L LEVER should be under the FLANGE of the LOADING ARM ASSY (SP).

4. Install the LOADING ARM ASSY (TU) so that the Marks on the LOADING ARM ASSY (TU) and on the A/L LEVER will face each other, as shown in the Fig. 2-31-4.
5. Install the LOADING ARM ASSY (SP) so that the ▲ mark on the LOADING ARM ASSY (SP) and the Reinforcement Rib of the LOADING ARM ASSY (TU) will face each other, as shown in the Fig. 2-31-4.

Note : Be sure to replace the removed LOADING ARM ASSY (SP) with a new one.



Apply GREASE (MOLYKOTE G PASTE) to the parts ● .

Fig. 2-31-2

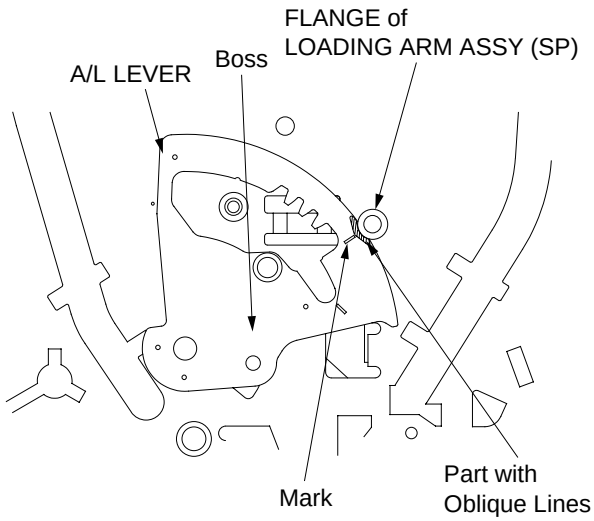


Fig. 2-31-3

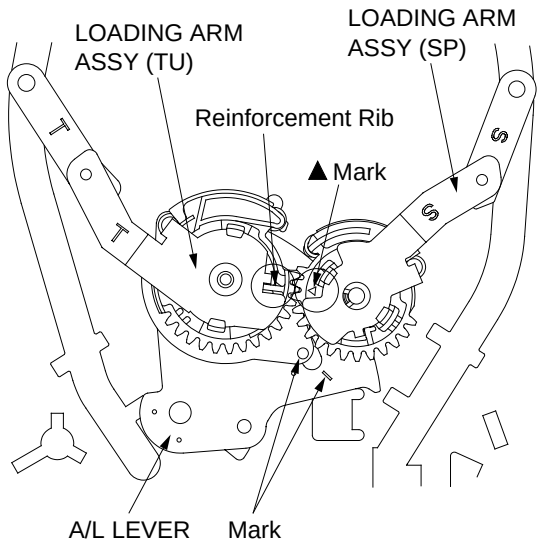


Fig. 2-31-4

2-32. TAPE GUIDE ASSY (SP), TAPE GUIDE ASSY (TU)

SET POSITION : Normal

Remove the following parts before replacing the TAPE GUIDE ASSY (SP), (TU). Refer to the corresponding items to install them.

- STAY PLATE (Item 2-2)
- BOTTOM ASSY (Item 2-3)
- MOTOR HOLDER (Item 2-16)
- PINCH ARM CAP (Item 2-17)
- PINCH ASSY (Item 2-17)
- BRAKE CAM PLATE (Item 2-19)
- BRAKE BELT (SP) (Item 2-23)
- BELT HOLDER (Item 2-23)
- BELT LEVER (Item 2-24)
- TENSION ARM (Item 2-25)

(Removal)

1. Loosen the TAPE GUIDE ASSY (SP) shown in the Fig. 2-32-1 (turn it fully in the Unloading direction) to remove it.
2. Loosen the TAPE GUIDE ASSY (TU) shown in the Fig. 2-32-1 (turn it fully in the Unloading direction) to remove it.

(Installation)

1. Apply GREASE (MULTEMP AC-DM)[859D055O90] to the parts on the MAIN PLATE ASSY specified in the Fig. 2-32-2.
2. Install the TAPE GUIDE ASSY (SP) shown in the Fig. 2-32-1.
3. Install the TAPE GUIDE ASSY (TU) shown in the Fig. 2-32-1.
4. Perform the Item 3-2-1. "GUIDE ROLLER Check" to the Item 3-2-5. "Flatness Check of FM Waveform" of the "Interchangeability Adjustment of the Mechanism".

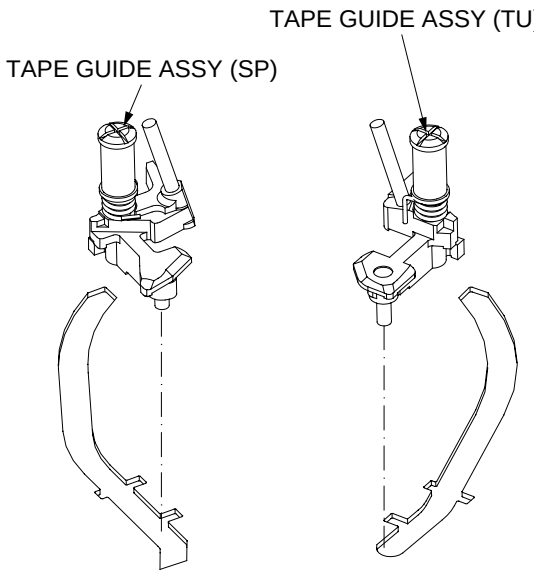
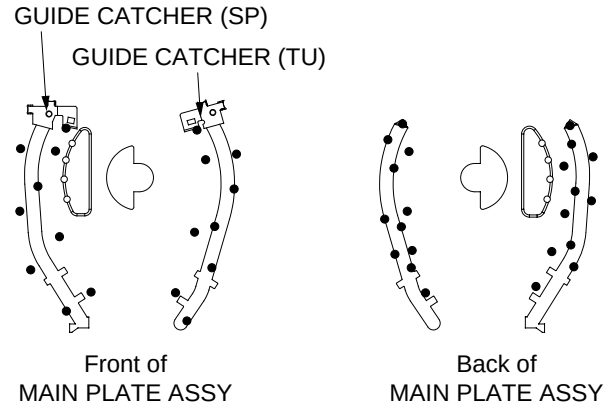


Fig. 2-32-1



Apply GREASE (MULTEMP AC-DM) to the parts ● .

Fig. 2-32-2

2-33. GUIDE ARM (SP)

SET POSITION : Normal

(Removal)

1. Release the catch (ⓐ) of the GUIDE ARM (SP) shown in the Fig. 2-33 to remove the GUIDE ARM (SP).

(Installation)

1. Install the GUIDE ARM (SP) shown in the Fig. 2-33.

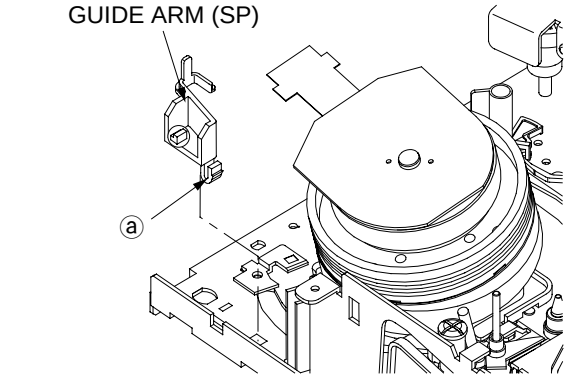


Fig. 2-33

2-34. DRUM CLAMPER, DRUM ASSY

SET POSITION : Normal

(Removal)

1. Disconnect the LEAD CONNECTOR of the DRUM ASSY shown in the Fig. 2-34-1.
2. Remove the two screws (ⓐ, ⓑ) fastening the DRUM CLAMPER shown in the Fig. 2-34-1 to remove the DRUM ASSY with the DRUM CLAMPER.
3. Rotate the DRUM CLAMPER in the Fig. 2-34-2 in the direction shown by the arrow Ⓐ to remove it from the DRUM ASSY.

(Installation)

1. Install the DRUM CLAMPER in the Fig. 2-34-2 to the DRUM ASSY by rotating it in the direction shown of the arrow Ⓑ.
2. Hook the Catch of the DRUM CLAMPER shown in the Fig. 2-34-3 to the Reference Pin.
3. Fasten the screw (ⓑ) while pushing the Part Ⓐ in the direction shown by the arrow Ⓒ (clockwise when viewed from the top) as shown in the Fig. 2-34-3.

Note : Confirm at this time that the Catch of the DRUM CLAMPER touches the side of the Reference Pin.

4. Fasten the screw (ⓐ) shown in the Fig. 2-34-3.

Note : Confirm at this time that the Catch of the DRUM CLAMPER touches the side of the Reference Pin.

5. Connect the LEAD CONNECTOR of the DRUM ASSY with the DRUM CLAMPER shown in the Fig. 2-34-1.
6. Connect the LEAD CONNECTOR of the DRUM ASSY shown in the Fig. 2-34-1.
7. Perform the Item "PLAYBACK Switching Point" of the "Circuit Adjustment" in this service manual.
8. Perform the Item "Interchangeability Adjustment of the Mechanism".
9. Clean the DRUM ASSY shown in the Fig. 2-34-1 with alcohol.

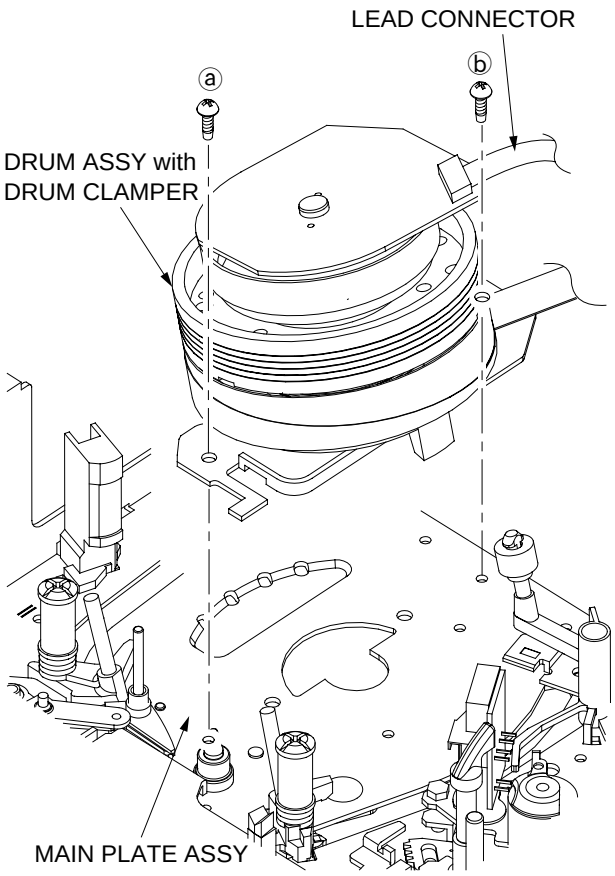


Fig. 2-34-1

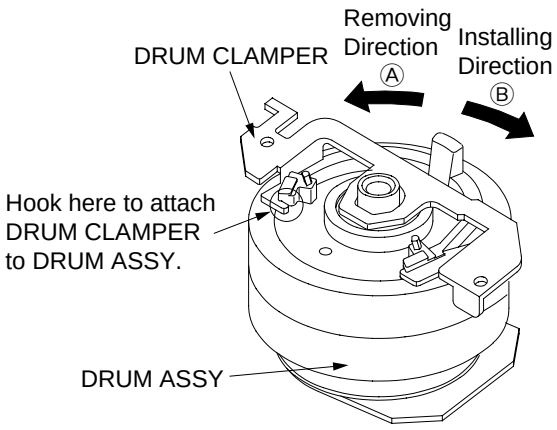


Fig. 2-34-2

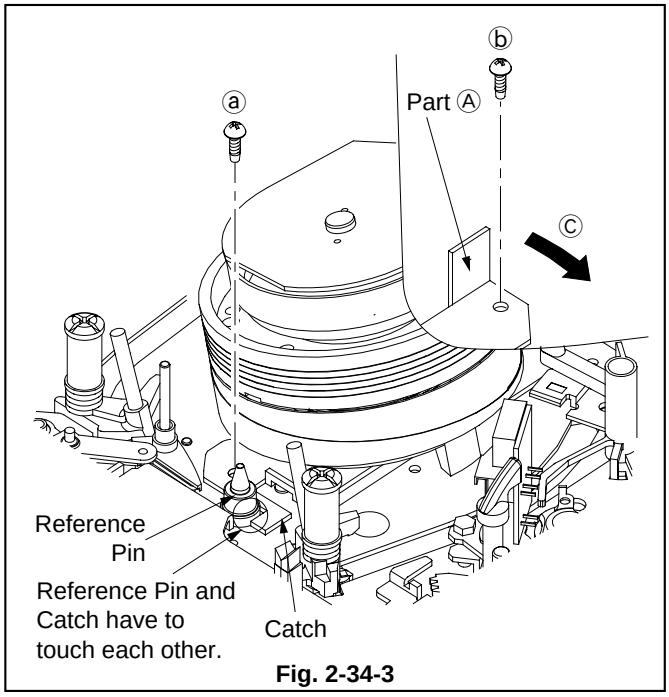


Fig. 2-34-3

2-35. DRUM MOTOR STATOR, BRUSH SPRING, SPACER, ROTOR CASE, END RING, BRUSH, UPPER DRUM ASSY

SET POSITION : Normal

(Removal)

1. Disconnect the LEAD CONNECTOR of the DRUM ASSY shown in the Fig. 2-35-1.
2. Remove the two screws (ⓐ) fastening the DRUM MOTOR STATOR shown in the Fig. 2-35-1 to remove the DRUM MOTOR STATOR.
3. Remove the two screws (ⓑ) fastening the ROTOR CASE shown in the Fig. 2-35-1 to remove the ROTOR CASE.

Note : Mark on the END RING and UPPER DRUM ASSY shown in the Fig. 2-35-1 using a pen, etc. for convenience in installing them.

4. Loosen the hexagon screw (ⓒ) fastening the END RING shown in the Fig. 2-35-1 to remove the END RING.
5. Remove the BRUSH SPRING shown in the Fig. 2-35-1.
6. Remove the BRUSH shown in the Fig. 2-35-1.
7. Remove the UPPER DRUM ASSY shown in the Fig. 2-35-1.
8. Remove the SPACER shown in the Fig. 2-35-1.

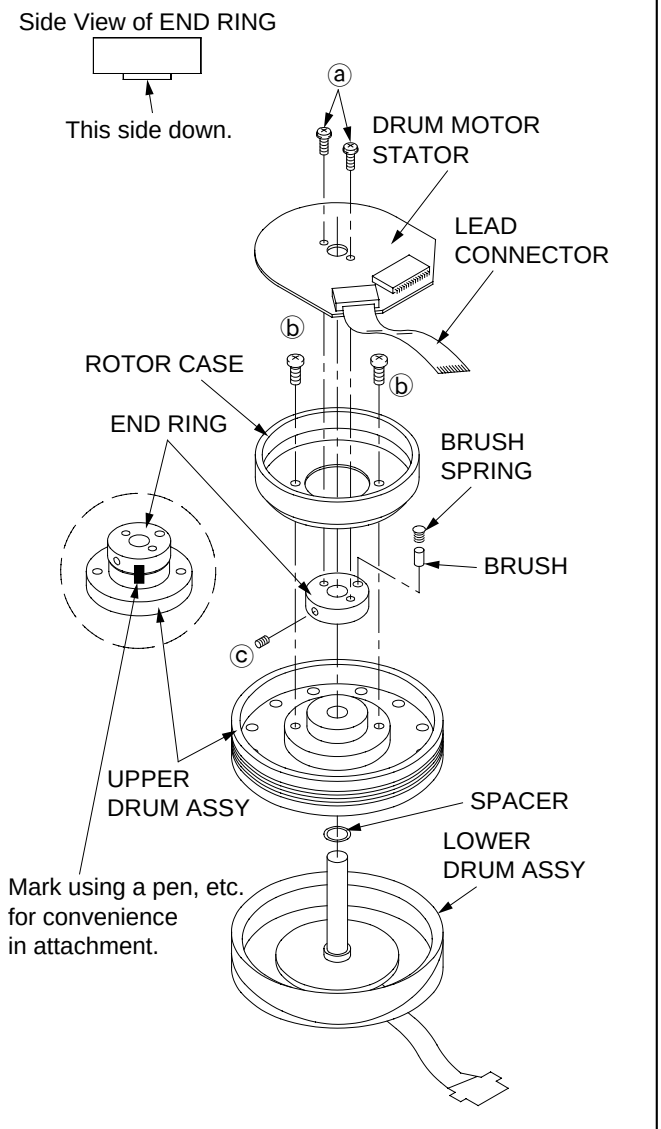


Fig. 2-35-1

(Installation)

1. Install the SPACER shown in the Fig. 2-35-1.

Note : Be sure to use the new SPACER packed with the new UPPER DRUM ASSY.

2. Install the UPPER DRUM ASSY shown in the Fig. 2-35-1.
3. Install the END RING so that the reference hole (Ⓐ) of the END RING shown in the Fig. 2-35-2 will be placed in parallel with the Rear Line of the MAIN PLATE ASSY. (The reference hole (Ⓐ) should be on the right when viewed from the bottom.)
4. Apply the screw-sealing agent to the hexagon screw (ⓒ) fastening the END RING shown in the Fig. 2-35-1.
5. Install the ROTOR CASE shown in the Fig. 2-35-3, matching its Holes with the three reference holes (Ⓑ) of the UPPER DRUM ASSY.
6. Install the BRUSH shown in the Fig. 2-35-1.
7. Install the BRUSH SPRING shown in the Fig. 2-35-1.
8. Install the DRUM MOTOR STATOR shown in the Fig. 2-35-1.
9. Connect the LEAD CONNECTOR of the DRUM ASSY shown in the Fig. 2-35-1.
10. Perform the Item "PLAYBACK Switching Point" adjustment.
11. Perform the Item "Interchangeability Adjustment of the Mechanism".
12. Clean the DRUM ASSY with alcohol.

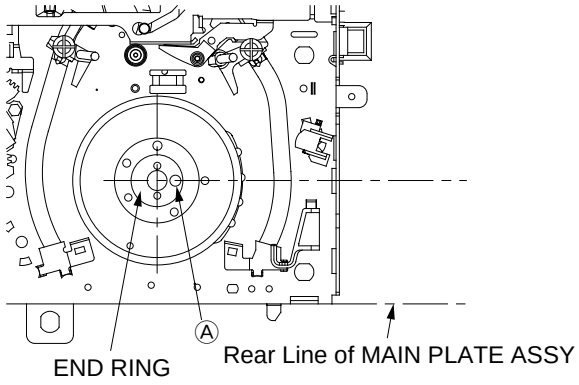


Fig. 2-35-2

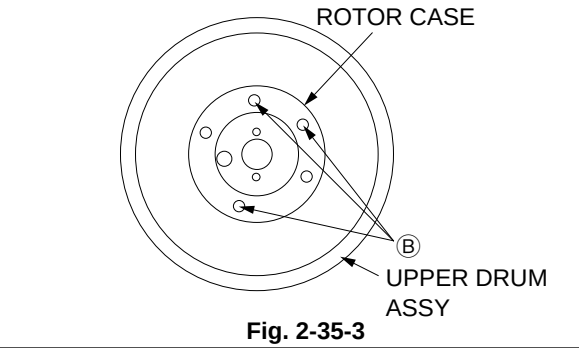


Fig. 2-35-3

2-36. CAPSTAN MOTOR

SET POSITION : Normal

Remove the following part before replacing the CAPSTAN MOTOR. Refer to the corresponding item to install it.

- REEL BELT (Item 2-14.)

(Removal)

1. Rotate the WORM WHEEL in the Fig. 2-36-1 in the direction shown by the arrow Ⓐ to release the Hooks of the BOTTOM ASSY from the Locks of the STAY PLATE.
2. Rotate the WORM WHEEL in the Fig. 2-36-2 in the direction shown by the arrow Ⓐ so that the GUIDE ARM (TU) moves in the direction of arrow Ⓑ and expose the three screws (ⓐ) fastening the CAPSTAN MOTOR.
3. Remove the three screws (ⓐ) fastening the CAPSTAN MOTOR shown in the Fig. 2-36-2 to remove the CAPSTAN MOTOR.

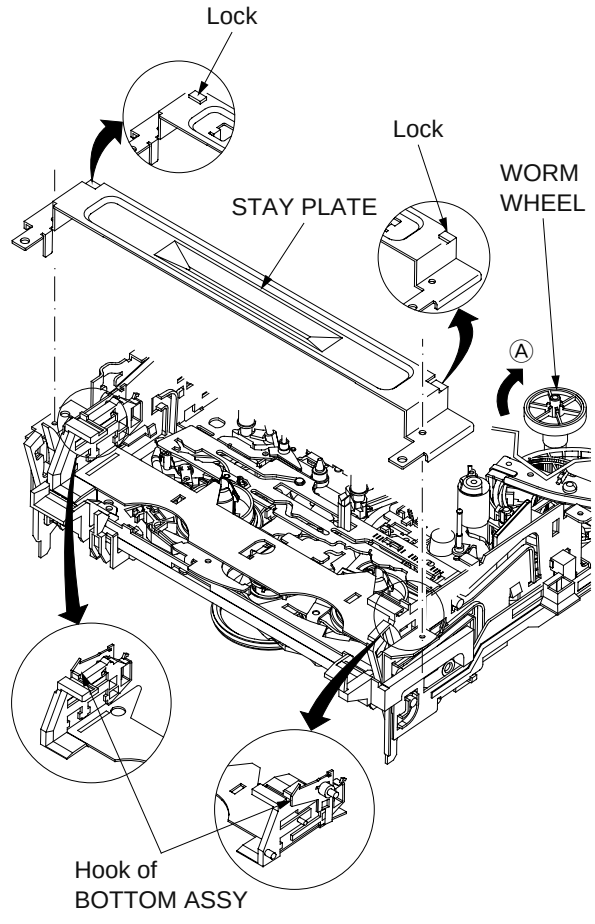


Fig. 2-36-1

(Installation)

1. Apply SILICON COMPOUND (SC102) [859D164O10] to the parts on the MAIN PLATE ASSY specified in the Fig. 2-36-3.
2. Install the CAPSTAN MOTOR.

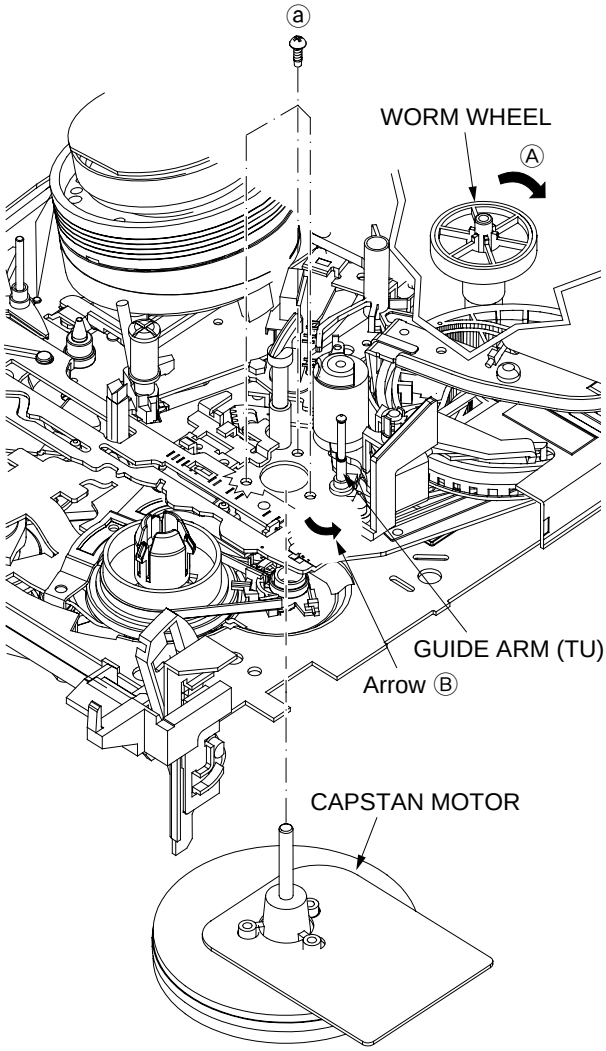


Fig. 2-36-2

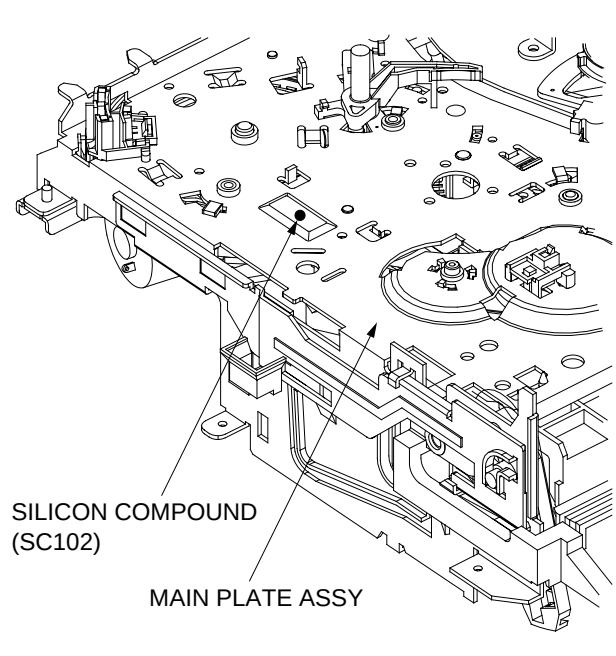


Fig. 2-36-3

2-37. IMPEDANCE UNIT (SP), FLYWHEEL (SP)

SET POSITION : Normal

(Removal)

1. Unfasten the two catches (ⓐ) on the IMPEDANCE UNIT (SP) shown in Fig. 2-37, and remove the FLYWHEEL (SP).
2. Remove the one screw (ⓑ) on the IMPEDANCE UNIT (SP) shown in Fig. 2-37, and remove the IMPEDANCE UNIT (SP).

(Installation)

1. Install the IMPEDANCE UNIT (SP) shown in Fig. 2-37.
2. Install the FLYWHEEL (SP) shown in Fig. 2-37.

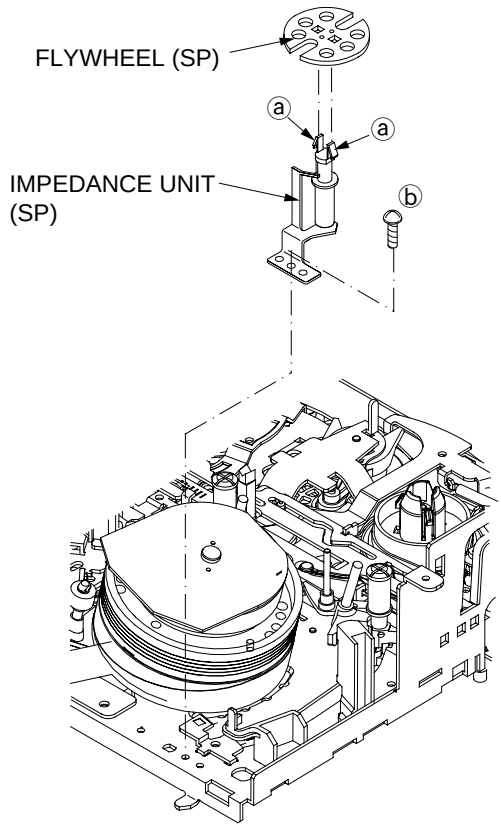


Fig. 2-37

2-38. SSW HOLDER, SSW SLIDER

SET POSITION : Upside down

To access the SSW UNIT, remove the following parts :

- STAY PLATE (Para. 2-2)
- BOTTOM ASSY (Para. 2-3)

(Removal)

1. Remove the SSW SLIDER shown in the Fig. 2-38 .
2. Unfasten the two catches (ⓐ) shown in Fig. 2-38, and remove the SSW HOLDER.

(Installation)

1. Install the SSW HOLDER shown in Fig. 2-38.
2. Install the SSW SLIDER shown in Fig. 2-38.

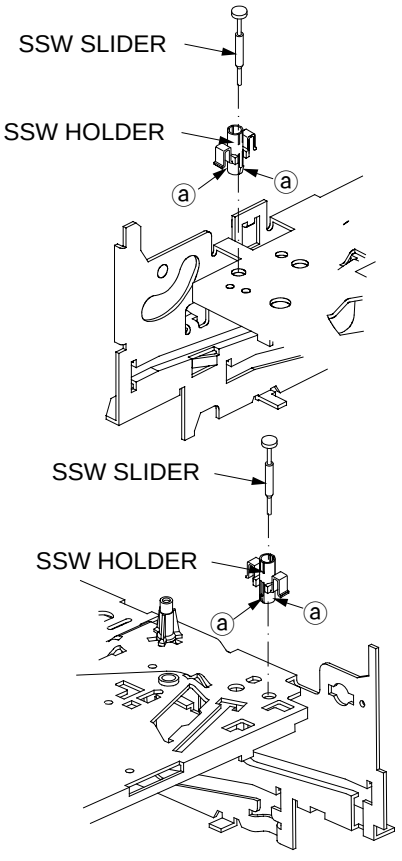


Fig. 2-38

3. Interchangeability Adjustment of the Mechanism

Note 1 : Tracking may need to be preset during interchangeability adjustment of the mechanism. Digital tracking is preset by short circuiting TP5A and TP5B on the PCB-MAIN.

Note 2 : The adjustments are performed in the PLAYBACK mode, using the staircase signal of an alignment tape,unless otherwise specified.Connect an oscilloscope to TP2A (FM Waveform) and externally trigger from TP2H.

3-1. Adjustment of BACK TENSION and TENSION POLE's Position

Run a Blank Tape for several minutes to break in the REEL DISKs and the Tape Running System before the adjustment.

1. Play back a dummy Tape.
2. Confirm that "A", the distance between the Holes in the TENSION ARM and the MAIN PLATE ASSY shown in the Fig. 3-1-1, is 0.6 ± 0.5mm.
3. If "A" is not 0.6 ± 0.5mm, move the Hole in the BELT ADJUSTER in the Fig. 3-1-2 within the range shown by the arrow Ⓐ to set "A" at 0.6 ± 0.5mm.
4. Set the BACK TENSION measuring jig (Code: 859C345O80) and play-back the tape.
5. Confirm that "A" shown in the Fig. 3-1-1 is 0.0 ± 0.5mm.
6. If "A" is not 0.0 ± 0.5mm at step 5, repeat the adjustment from step 1.
7. Confirm that the indicated value of the BACK TENSION measuring jig is within 5.4 ± 0.59mNm.

Note 1 : Check the indicated value of the BACK TENSION measuring jig when the tape running condition becomes steady.

Note 2 : Replace the TENSION SPRING if the indicated value exceeds the specified value.

8. While the tape is running steadily, check visually that the vibration range of the TENSION POLE is 1mm or less. If the vibration range exceeds 1mm, replace the REEL DISK.

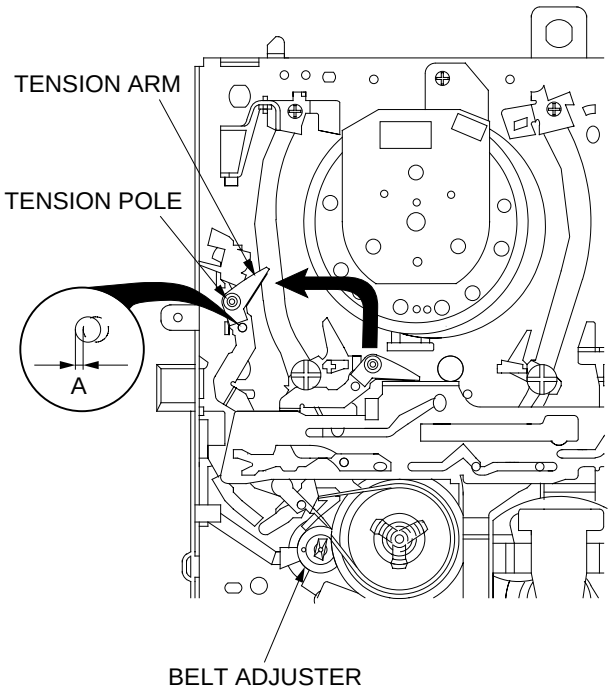


Fig. 3-1-1

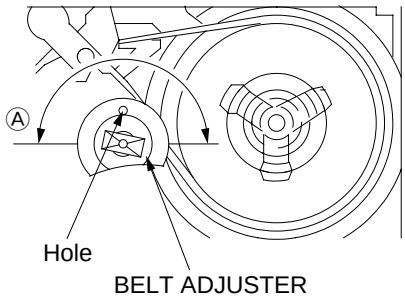


Fig. 3-1-2

3-2. Check and Adjustment of the FM Envelope

3-2-1. GUIDE ROLLER Adjustment check

1. Play back an alignment tape (NM6KE2 : 859C339O90).
2. Preset the tracking.
3. Confirm that the FM Waveform is flat such as in (A).
4. Perform the Item 3-2-2. "Height Adjustment of GUIDE ROLLER (SP) " if the leading edge (the DRUM entry side) of the FM Waveform is not flat (Waveform (B) or (C)). Perform the Item 3-2-3. "Height Adjustment of GUIDE ROLLER (TU)" if the trailing edge (the DRUM exit side) is not flat (Waveform (D) or (E)).

3-2-2. Height Adjustment of GUIDE ROLLER (SP)

1. Loosen the height adjustment screw at the top of the GUIDE ROLLER (SP) so that the GUIDE ROLLER (SP) will rotate smoothly.
2. Observe the leading edge (DRUM entry side) of the FM Waveform. If it looks like (B), the GUIDE ROLLER may be set too low. If it looks like (C), the GUIDE ROLLER may be set too high. To adjust it, turn the height adjustment screw at the top of the GUIDE ROLLER (SP) so that the FM Waveform becomes flat such as in (A).
   - Turn the screw counter-clockwise if the position of the GUIDE ROLLER is lower than specified.
   - Turn the screw clockwise if the position of the GUIDE ROLLER is higher than specified.
3. Perform the Item 3-2-4. "Coarse Adjustment of Phase".

3-2-3. Height Adjustment of GUIDE ROLLER (TU)

1. Loosen the height adjustment screw at the top of the GUIDE ROLLER (TU) so that the GUIDE ROLLER (TU) will rotate smoothly.
2. Observe the trailing edge (DRUM exit side) of the FM Waveform. If it looks like (D), the GUIDE ROLLER may be set too low. If it looks like (E), the GUIDE ROLLER may be set too high. To adjust it, turn the height adjustment screw at the top of the GUIDE ROLLER (TU) so that the FM Waveform becomes flat as in (A).
   - Turn the screw counter-clockwise if the position of the GUIDE ROLLER is too low.
   - Turn the screw clockwise if the position of the GUIDE ROLLER is too high.
3. Perform the Item 3-2-4. "Coarse Adjustment of Phase".

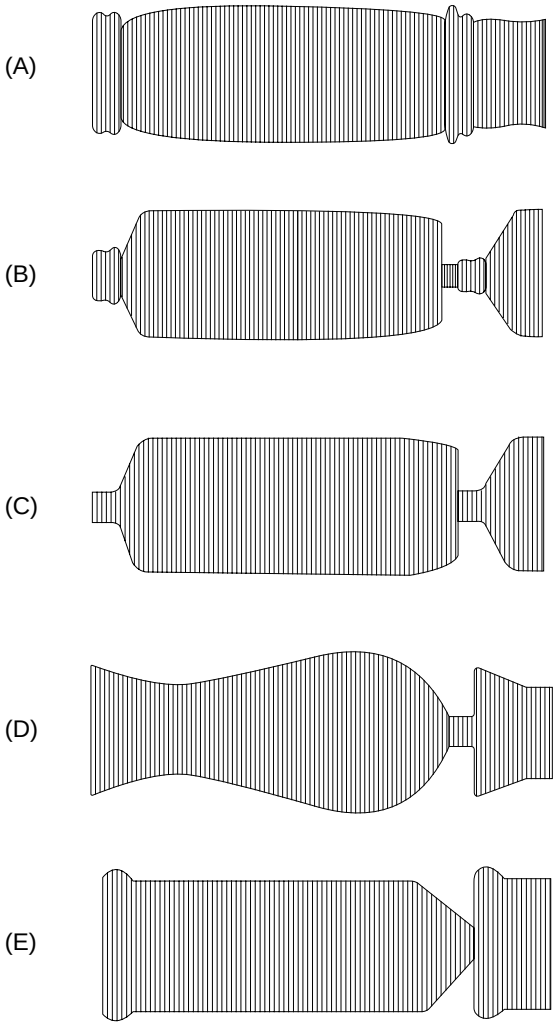


Fig. 3-2-1

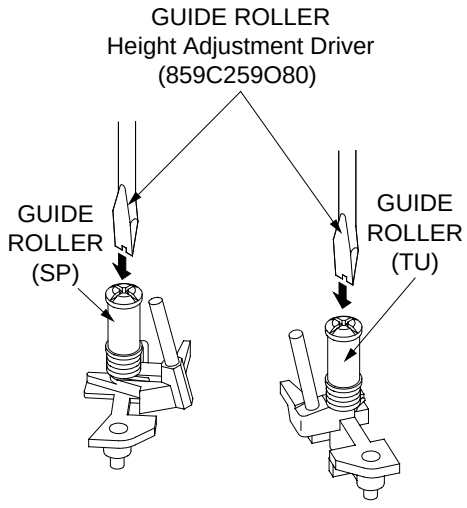


Fig. 3-2-2

3-2-4. Coarse Adjustment of Phase

1. Play back an alignment tape (NM6KE2 : 859C339O90).
2. Preset the tracking.
3. Observe the FM Waveform after performing Item 3-2-1. "GUIDE ROLLER Check".
4. If the amplitude level of the FM Waveform is low as in (F) in Fig. 3-2-4, set it at the maximum level as in (G), according to the following procedure. Loosen the Screws D and E and insert a screw driver (+) into the Hole in the MAIN PLATE ASSY (Part Ⓐ). Then, move the A/C PLATE to the right and left to set the amplitude level to maximum.
5. Tighten the Screws D and E.

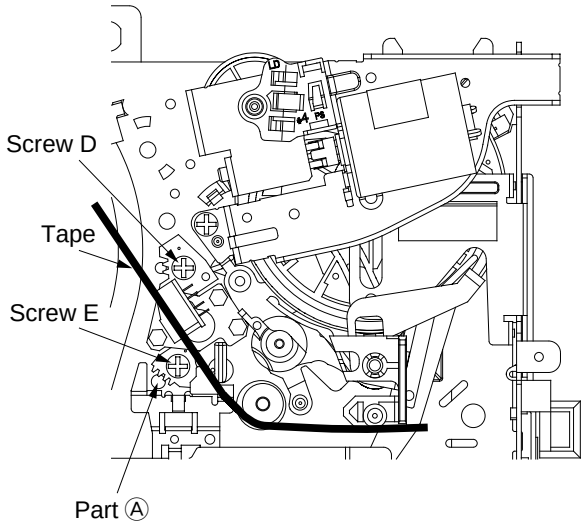


Fig. 3-2-3

3-2-5. Flatness Check of FM Waveform

1. Play back an alignment tape (NM6KE2 : 859C339O90).
2. Adjust the tracking and confirm that the amplitude of the FM signal remains flat.

Note : Adjust the tracking manually, according to the following procedure.

- Turn the Shuttle Ring of the product during PLAYBACK for manual tracking adjustment.
- Press the 3DSP button to switch the tracking adjustment from "Manual" to "Auto".

3. Adjust the tracking so that the amplitude level of the FM Waveform will be at the maximum. Set the oscilloscope so that the amplitude level of the FM Waveform is 5 divisions on the oscilloscope.
4. Adjust the tracking so that the peak of the FM Output Waveform is 4 divisions. Confirm that the FM Waveforms (B), (C), (D) and (E) are within the range of the specified values in the Fig. 3-2-5.
5. If the Waveforms are out of the specified values in step 4, repeat the Item 3-2. "Check and Adjustment of FM Envelope" from the beginning.

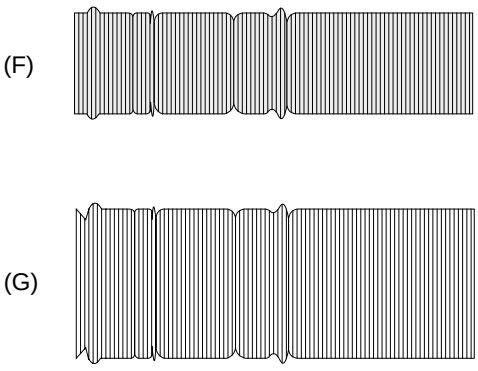
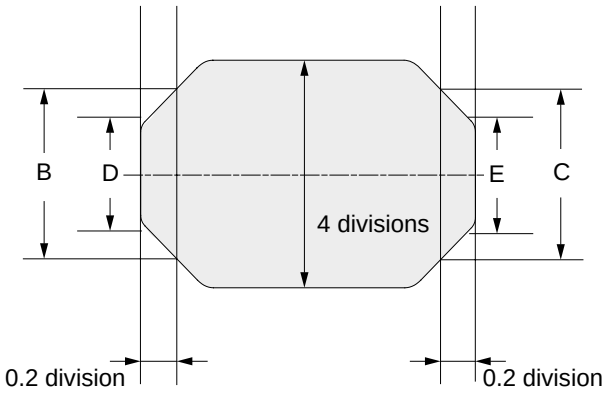


Fig. 3-2-4



	In VHS mode
B, C	3.2 divisions or more
D, E	1.0 division or more

Fig. 3-2-5

3-2-6. Tape Running Condition at the GUIDE ROLLERs (Check 1)

1. Play back an Alignment Tape. [NM6KE2: 859C339O90]
2. Confirm visually that there is a space between the Tape and the Lower FLANGE of the GUIDE ROLLER (SP) and the GUIDE ROLLER (TU).
3. If there is no space in step 2, replace the TAPE GUIDE ASSY (SP) and TAPE GUIDE ASSY (TU), according to the Item 2-32. "TAPE GUIDE ASSY (SP), TAPE GUIDE ASSY (TU)".
4. Alternately load and unload the tape several times and confirm that the FM Waveform remains flat.
5. If the flatness is affected, check the position of the A/C HEAD. If it is installed incorrectly, correct it according to the Item 2-8. "A/C HEAD UNIT" and repeat Item 3-2-4. "Coarse Adjustment of Phase".

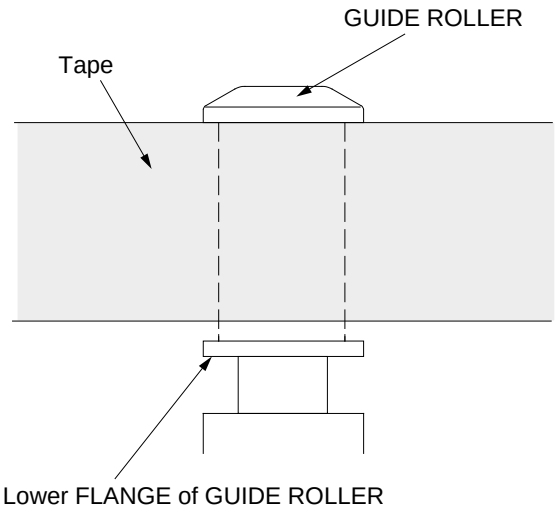


Fig. 3-2-6

3-2-7. Tape Running Condition at the GUIDE ROLLERs (Check 2)

1. Play back an alignment tape (NM6KE2 : 859C339O90).
2. Check that the FM Waveform is quickly restored to the previous level, after lightly pressing and releasing the tops of the GUIDE ROLLER (SP) and GUIDE ROLLER (TU).
3. If the FM Waveform is not restored immediately, replace the TAPE GUIDE ASSY (SP) and TAPE GUIDE ASSY (TU) according to the Item 2-32. "TAPE GUIDE ASSY (SP), TAPE GUIDE ASSY (TU)".

3-3. A/C HEAD Adjustment

3-3-1. Slant Adjustment of A/C HEAD

1. Play back a blank tape.
2. Slowly turn the slant adjustment Screw C shown in the Fig. 3-3-1 counter-clockwise to slightly crease the bottom of the tape at the Lower FLANGE of the GUIDE POLE (TU).
3. Slowly return the slant adjustment Screw C to remove the crease.
4. Slowly turn the slant adjustment Screw C counter-clockwise again and stop just before the tape is creased.

3-3-2. Azimuth and Height Adjustment of A/C HEAD

1. If the height of the CONTROL HEAD is shifted from the specified value in the Fig. 3-3-2, adjust it with the Height Adjustment Screws A, B and C shown in the Fig. 3-3-1.
2. After adjustment with the Screws A, B or C, repeat the Item 3-3-1. "Slant Adjustment of A/C HEAD".
3. Connect the oscilloscope to the audio output terminal.
4. Play back an alignment tape (NM6KE2 : 859C339O90).
5. Turn the Azimuth Adjustment Screw B in the Fig. 3-3-1 to set the audio output level in the Fig. 3-3-1 at the maximum. After the adjustment, remove the screw driver and confirm that the audio output level is 4.6 divisions or more when the maximum audio output level is set to 5. If the audio output level is less than 4.6, repeat steps 1 ~ 5.
6. Push the A/C HEAD to the right and left (in the direction of A-A' in the Fig. 3-3-1) and release it. And confirm that the audio output level does not change. (Do not push the A/C HEAD until the audio output level is reduced to 3/4 or less of its maximum level.)
7. Confirm that changes in the audio output level are 2dB or less in the PLAYBACK mode.
8. If the change in the audio output level exceeds 2dB, repeat the Item 3-3-1. "Slant Adjustment of A/C HEAD".
9. If the above procedure steps 1 ~ 8 proves to be unsatisfactory, replace the TAPE GUIDE ASSY (SP) and the TAPE GUIDE ASSY (TU), according to the Item 2-32. "TAPE GUIDE ASSY (SP), TAPE GUIDE ASSY (TU)".

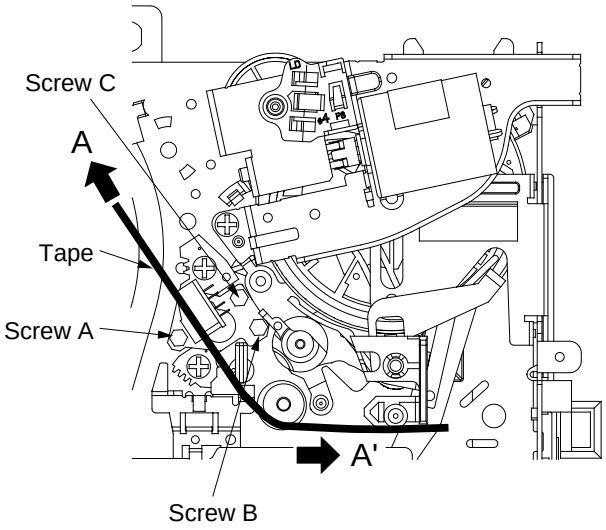


Fig. 3-3-1

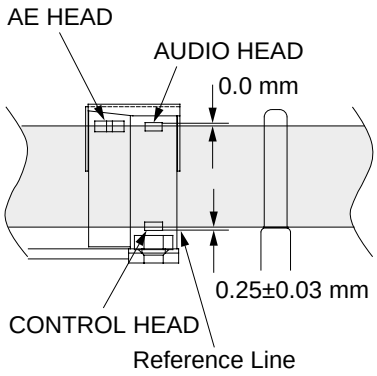


Fig. 3-3-2

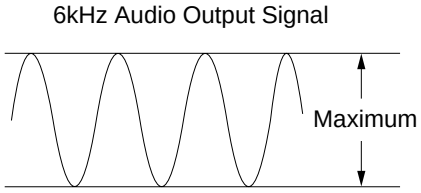


Fig. 3-3-3

3-4. Phase Adjustment

1. Play back an alignment tape (NM3KE6 : 859C339O50).
2. Preset the tracking.
3. Loosen the Screws D and E shown in the Fig. 3-4-1. Insert a screw driver (+) into the Hole in the MAIN PLATE ASSY (Part Ⓐ) and move the A/C PLATE to the right and left to set the amplitude level of the FM Waveform to maximum.
4. Tighten the Screws D and E.
5. Play back an alignment tape [NMX : 859C568O60].
6. Confirm the Missing Portions of the FM Waveform and Audio Waveform are as shown in the Fig. 3-4-2.
7. If the Missing Portions differ from the Fig. 3-4-2, repeat the procedure 3.
8. Adjust the tracking so that the amplitude level of the FM Waveform will be at the maximum. And set the oscilloscope so that the Waveform will be 5 divisions of the oscilloscope.
9. Preset the tracking.
10. Confirm that the FM Waveform on the oscilloscope is 4.8 divisions or more.
11. If the FM Waveform is below 4.8 divisions, preset the tracking and repeat steps 3~10.
12. Push the A/C HEAD to the right and left (in the direction of A-A' in the Fig. 3-4-1) and release it. Confirm that the amplitude of the FM Waveform does not change, compared to before the A/C HEAD was shifted.
13. If the amplitude level of the FM Waveform changes, check the set position of the A/C HEAD. If the A/C HEAD is installed incorrectly, correct the position according to the Item 2-8. "A/C HEAD UNIT" and 3-3. "A/C HEAD Adjustment", and then repeat this item from the beginning.
14. Alternately load and unload the tape several times. Confirm that the amplitude of the FM Waveform does not change.

3-5. Tape wrinkle check

1. Confirm that there is no wrinkle at the lower edge of GUIDE POLE(TU) in PB/FS mode with T-160 tape beginning and ending.
2. Confirm that there is no wrinkle at the upper edge of GUIDE POLE(TU) in RS mode with T-160 tape beginning and ending.

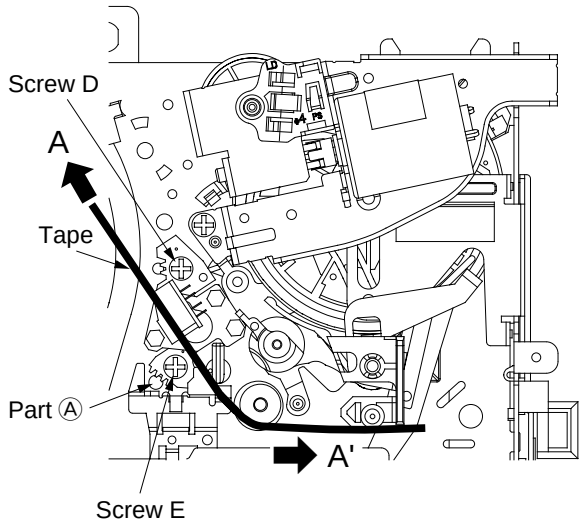


Fig. 3-4-1

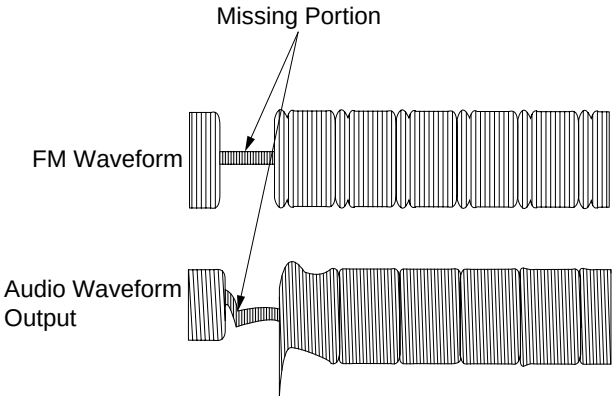


Fig. 3-4-2

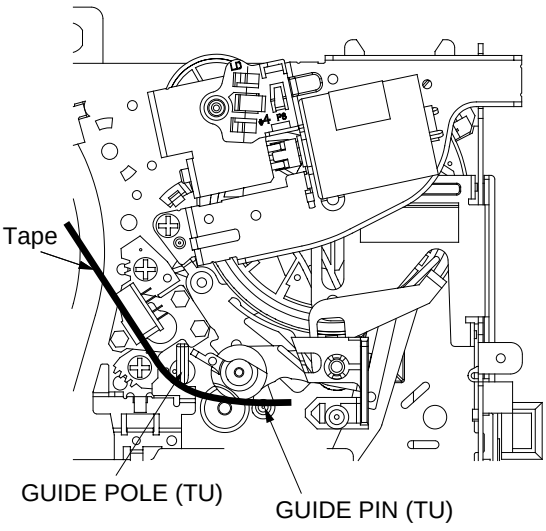


Fig. 3-5

4. Servicing for Tape Jam during the Loading Process

1. Remove the tape if the mechanism part is locked due tangled tape.
2. Rotate the WORM WHEEL of the LOADING MOTOR ASSY shown in the Fig. 4 in the direction of the arrow Ⓐ to eject the cassette tape.

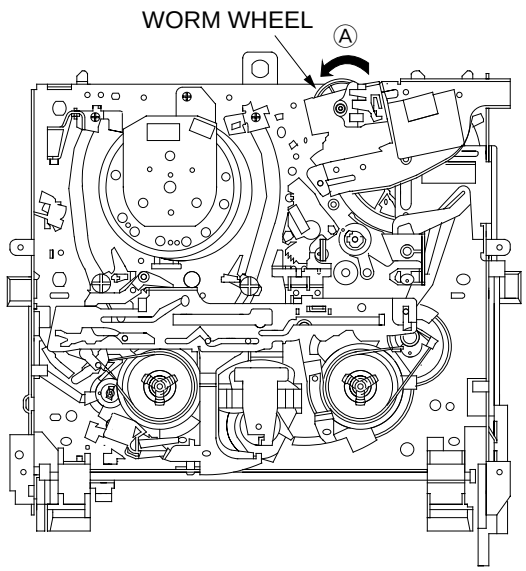


Fig. 4

SERVICE CAN BE EXECUTED WITH THE EE PICTURE DISPLAYED

1. Short-circuit the J483 and the GND of the DECK ASSY using the jig shown in Fig. 2.
2. Remove the DECK ASSY.
3. Connect TP5X and TP5Y with a jumper

Note1: Short-circuit the test points before turning on the power.

Note2: Short-circuit the Shield Case and the J483 using the jig shown in Fig. 2 before attaching the DECK ASSY.

PCB-MAIN (Component side)

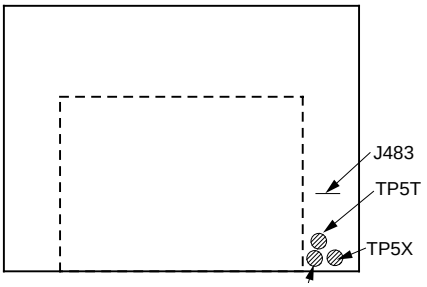


Fig. 1

Jig (Part No. : 859C548O10)

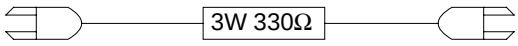


Fig. 2

DECK OPERATION CHECK

Check the DECK position and the operation of the Tape Running System, according to the following procedure.

1. Short-circuit TP5T and TP5Y shown in the Fig. 1.
2. Initialize the E²PROM.
3. Check the operation of the Tape Running System by pressing the FF button, REW button on the PCB-MAIN.
   FF button : For forward rotation of the CAPSTAN MOTOR
   REW button : For reverse rotation of the CAPSTAN MOTOR
4. Check the DECK position by pressing the CH-UP button, CH-DOWN button on the PCB-MAIN.
   CH-UP button : DECK operation in the Loading direction
   CH-DOWN button : DECK operation in the Unloading direction

HOW TO INITIALIZE THE E²PROM

A replacement E²PROM is not initialized before shipping, so the E²PROM must be initialized when replaced.

Initialize the E²PROM by following the steps below.

1. Press and hold the POWER button on the set for 8 seconds.
2. E²PROM initial setting is completed.

WHEN REPLACING IC5A0

When replacing IC5A0, be sure to press the RESET button after turning on the power.

ELECTRICAL ADJUSTMENTS

Perform only the alignments required. If proper equipment is not available, do not attempt an alignment.

❑ PRE-ADJUSTMENT SETTINGS

- Set the PerfecTape™ to “MANUAL” mode.

❑ TEST EQUIPMENT

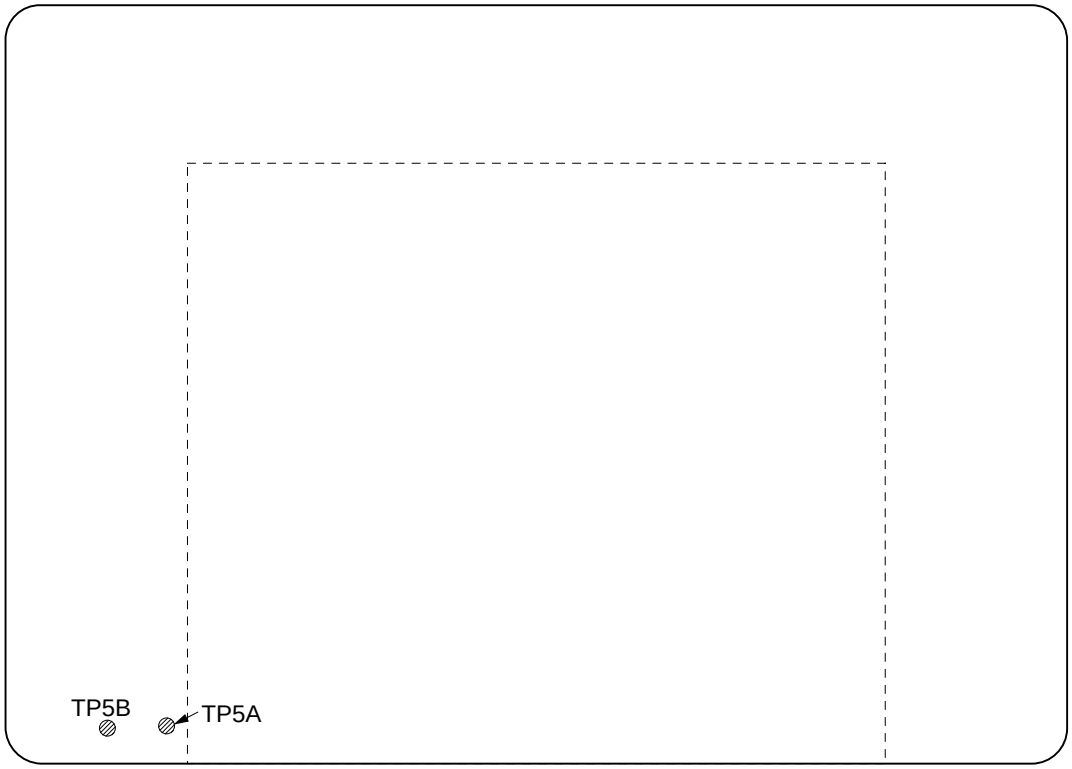
- Miscellaneous electrical tools
- Oscilloscope (10:1 probe unless 1:1 specified.)

❑ ALIGNMENT TAPES

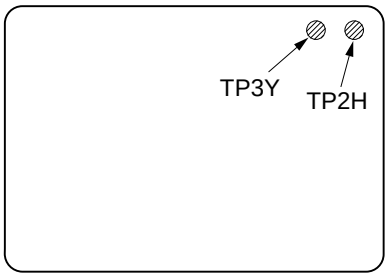
- NS1.....Part No.859C339O00
  Stair step, Color Bars, RF, 1kHz audio (SP)
- NM6KE2.....Part No.859C339O90
  Monoscope, 6kHz audio (SP)
- NC1KS·····Part No.859C339O80
  Color Bars, 1kHz audio (SP)
- NM3KE6.....Part No.859C339O50
  Monoscope, 3kHz audio (EP)
- NMX.....Part No.859C568O60
  Monoscope, 3kHz audio (SP)
- D-VHS (HS/STD)·····Part No.859C340O00

LOCATIONS

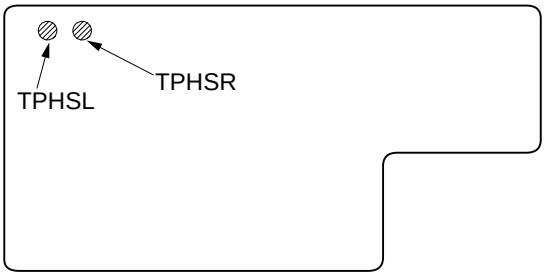
PCB-MAIN (Component side) **REAR**



PCB-D-IF (Component side)



PCB-HEAD AMP (Component side)

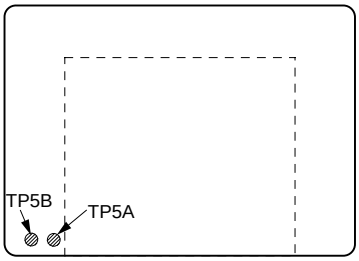


[Servo circuit] 1. Playback Switching Point	**Adjustment purpose**	Video switch over timing during playback.
	Symptom when incorrectly adjusted	Switching noise or jitter in the playback picture.

Measuring instrument and condition		**VCR set up condition**	
– – –		**Input signal**	– – –
Test point	– – –	**Using tape**	Alignment Tape (NS1, stair step)
EXT trigger	– – –	**VCR condition**	Playback
Measurement range	– – –	**Using Jig**	– – –

1. Play back an Alignment Tape. (NS1, stair step)
2. Short-circuit TP5A to TP5B.
3. Push the SP / EP buttons at the same time. (The adjustment will finish in about six seconds.)
4. The automatic adjustment will finish in about 6 seconds. A value between 55 and 75 will be displayed on the fluorescent display.
5. Open-circuit TP5A to TP5B.

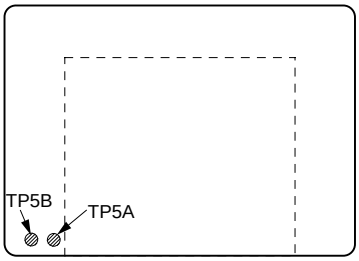
PCB-MAIN (Component side)



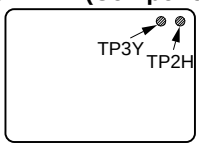
[D-VHS signal circuit] 2. D-VHS switching point	**Adjustment purpose**	To adjust the timing for switching the video head during playback.
	Symptom when incorrectly adjusted	Images may not be displayed or block noise may appear.

Measuring instrument and condition		**VCR set up condition**	
Oscilloscope		**Input signal**	– – –
Test point	TPHSL,TPHSR	**Using tape**	Alignment Tape
EXT trigger	TP2H,TP3Y	**VCR condition**	Playback
Measurement range	DIV 10 mV TIM 50 µs	**Using Jig**	– – –

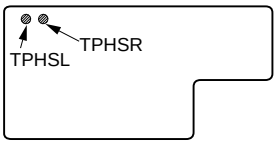
PCB-MAIN (Component side)



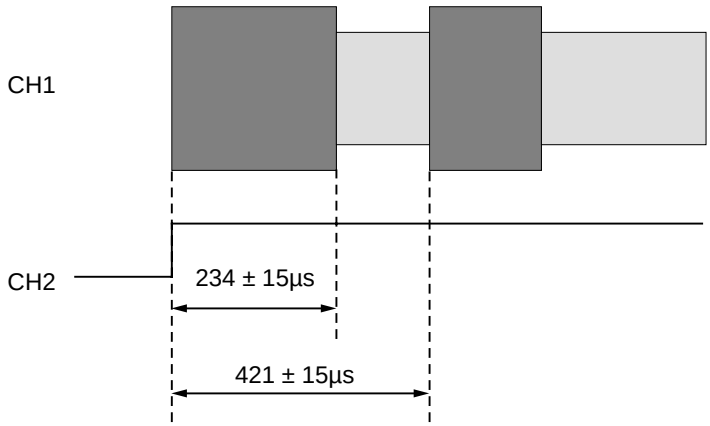
PCB-D-IF (Component side)



PCB-HEAD AMP (Component side)

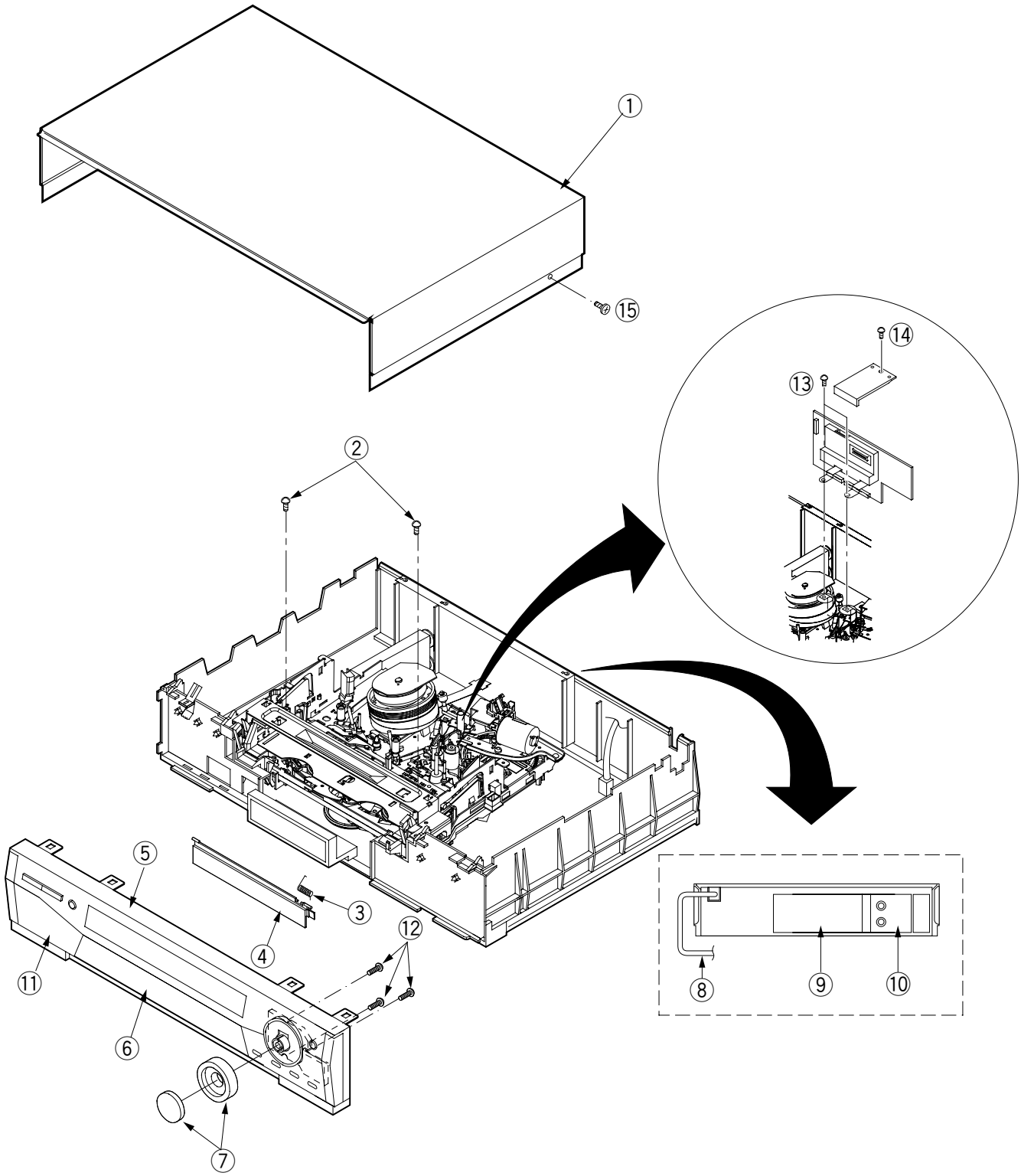


1. Playback an alignment tape (D-VHS [HS/STD] : STD part).
2. Connect TP5A and TP5B for short circuit.
3. Press the SP/EP button.
4. Connect the CH1 of the oscilloscope with TPHSL, and connect the CH2 with TP2H.
5. Trigger at the rising edge of the waveform of TP2H. Set the period from the trigger point of TPHSL to the specified value as shown in the figure below by pressing the JOG +/- button or the CH UP/DOWN button on the remote hand unit.
6. Disconnect TP5A and TP5B.
7. Playback an alignment tape (D-VHS [HS/STD] : HS part).
8. Carry out step 2 and 3.
9. Press the PLAY button to switch to display "AM" on the fluorescent display.
10. Carry out step 4 and 5.
11. Press the PLAY button to switch to display "PM" on the fluorescent display.
12. Connect the CH1 of the oscilloscope with TPHSR, and connect the CH2 with TP3Y.
13. Trigger at the rising edge of the waveform of TP3Y. Set the period from the trigger point of TPHSR to the specified value as shown in the figure below by pressing the JOG +/- button or the CH UP/DOWN button on the remote hand unit.
14. Disconnect TP5A and TP5B.



PARTS LIST

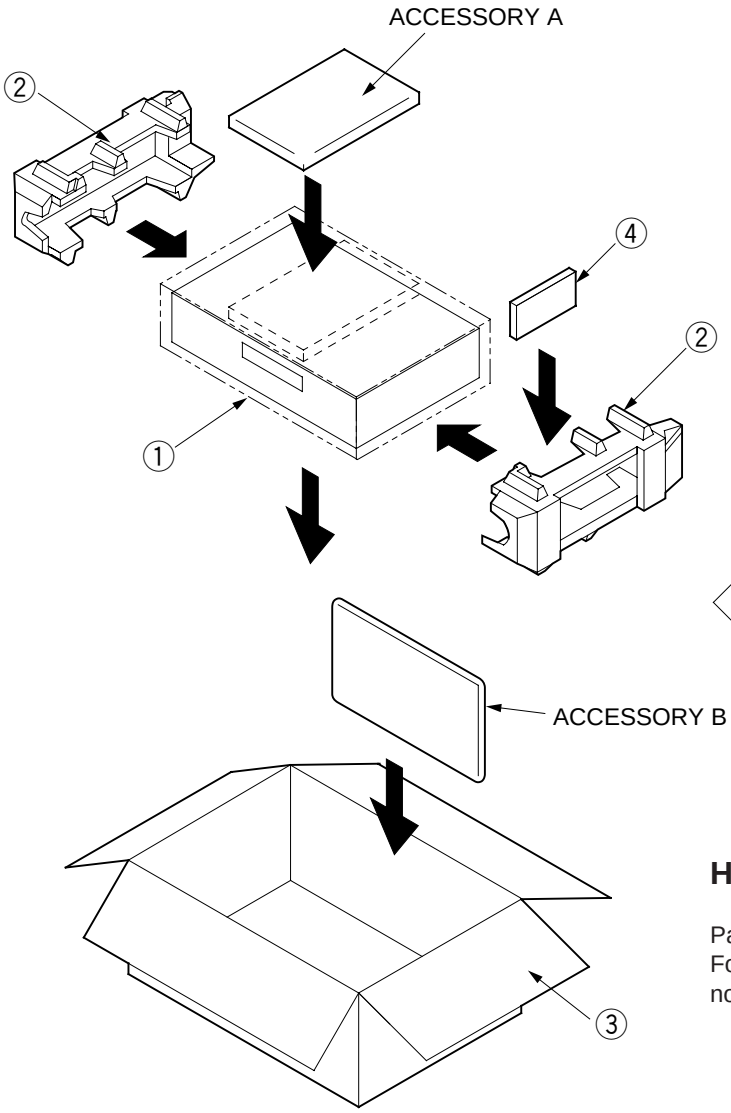
1. CABINET ASSEMBLY

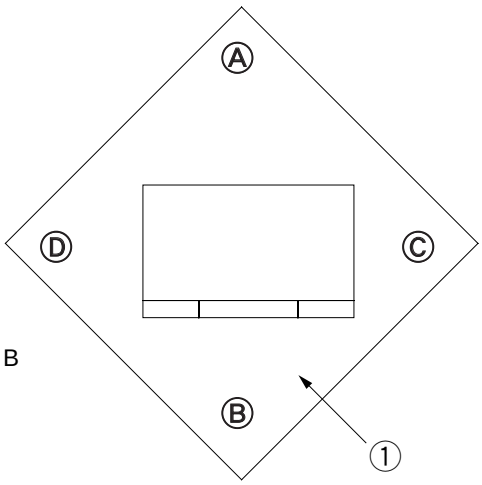


: Critical Component

ITEM NO.	PARTS NO.	PARTS NAME	DESCRIPTION
		CABINET ASSEMBLY	
1	968C050O04	TOP COVER ASSY	
2	669D221O40	SCREW	4 × 12 46LA005
3	572D385O10	F/L SPRING	
4	752C672O60	CASSETTE DOOR ASSY	
5	701B416O30	FRONT UNIT	
6	752C671O40	TIMER PANEL	
7	701C081O40	JOG SHUTTLE ASSY	
8	246C324O10	AC POWER CORD	
9	761B366O50	TERMINAL COVER	
10	761B645O20	ANTENNA COVER	
11	752C665O80	DOOR PANEL ASSY	
12	669D531O10	SCREW	2.6 × 8
13	669D229O90	SCREW	M3.0 × 4 46LA005
14	669D500O30	SCREW	3 × 10
15	669D501O10	SCREW	3 × 10

2. PACKING PARTS

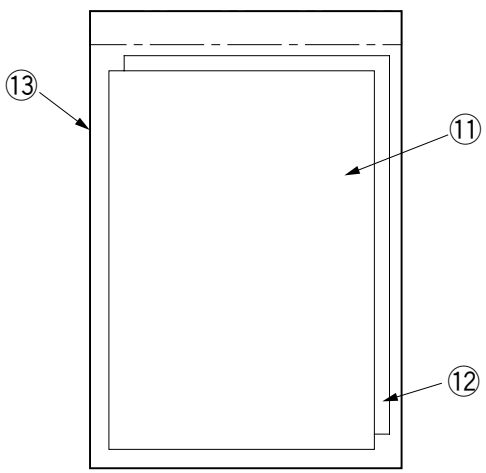


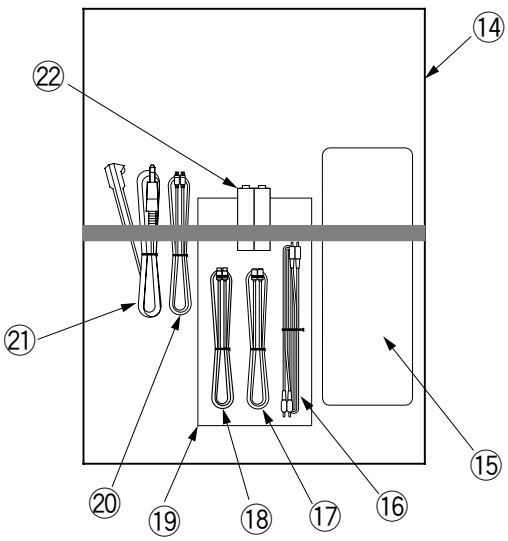


How to pack product

Pack with gloss side out.
Fold the corners Ⓐ, Ⓑ, Ⓒ, and Ⓓ in order not including the AC POWER CORD.

A ACCESSORY B

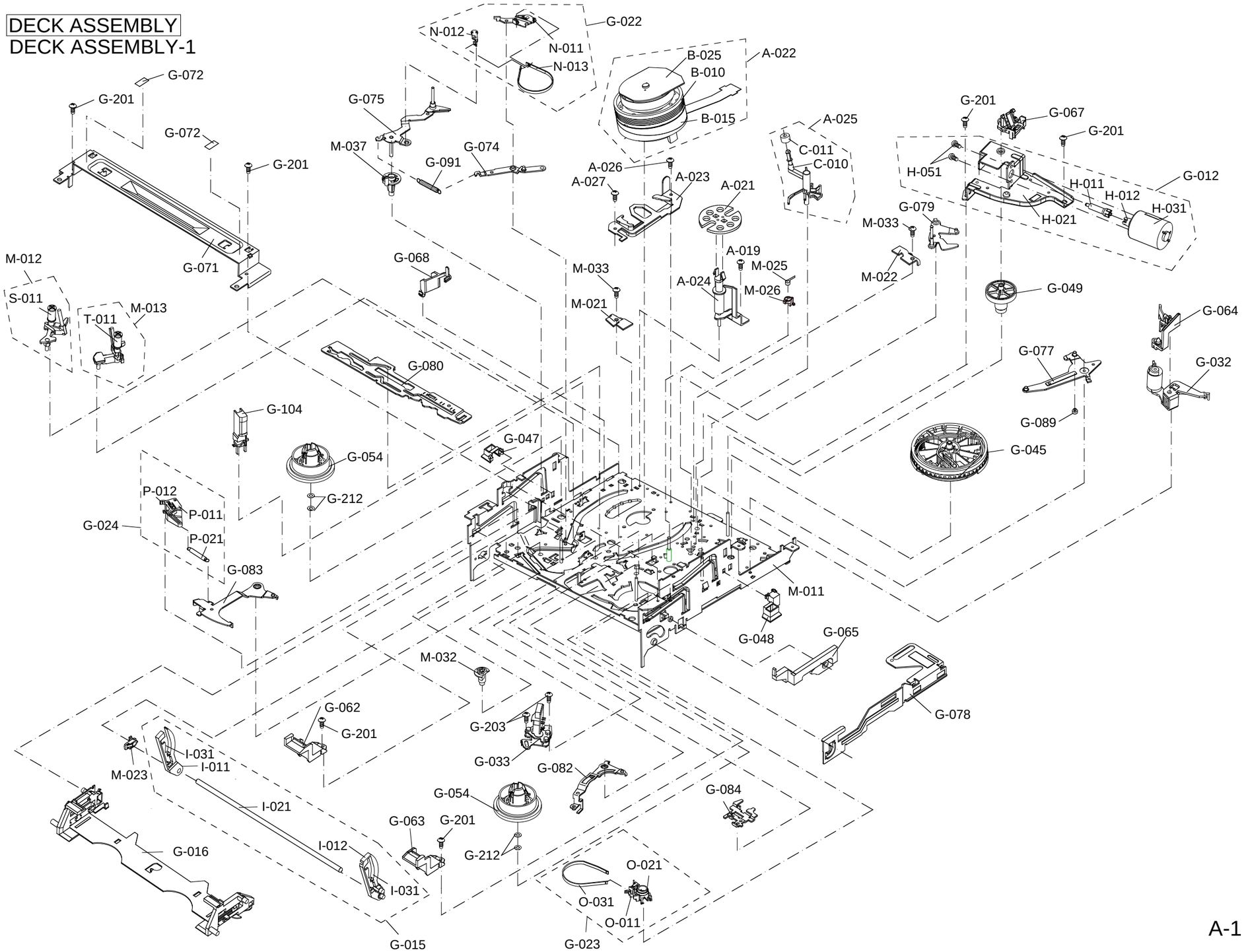




ITEM NO.	PARTS NO.	PARTS NAME	DESCRIPTION
		PACKING PARTS	
1	831D190O30	PACKING SHEET	800X800
2	803A574O10	CUSHION	
3	802B797O10	PACKING CASE	
4	– – – – – – –	D VIDEO CASSETTE	
		ACCESSORY	
11	872C244O90	INSTRUCTION BOOK	
12	– – – – – – –	REGISTRATION CARD	
13	831D337O10	PACKING BAG	(FOR ACCESSORY A)
14	– – – – – – –	ACCESSORY BOARD	
15	939P850O10	REMOTE HAND UNIT	
16	242C938O60	CABLE	
17	243C273O40	CABLE	
18	243C274O30	Y/C CABLE	
19	– – – – – – –	PACKING BAG	(FOR CABLE)
20	242P021O10	CABLE	IEEE1394
21	939P724O10	IR BLASTER	
22	– – – – – – –	BATTERY	

DECK ASSEMBLY

DECK ASSEMBLY-1



A-1

DECK ASSEMBLY-1

* Settled Service Parts

ITEM	PARTS NO.	*	ADDRESS		PARTS NAME	DESCRIPTION	Qt.
A-019	669D224O90	○	G-3		SCREW	2.6 × 5	1
A-021	597D568O10		G-2		FLYWHEEL (SP)		1
A-022	948B419O01		G-1		DRUM ASSY		1
A-023	592B552O10		F-2		DRUM CLAMPER		1
A-024	594C306O10		F-3		IMPEDANCE UNIT (SP)		1
A-025	927D027O01		H-2		CLEANING ASSY		1
A-026	669D556O10	○	F-2		SCREW	2.6 × 4	1
A-027	669D556O10	○	F-2		SCREW	2.6 × 4	1
B-010	925B139O21	○	G-1		UPPER DRUM ASSY		1
B-015	925B140O01	○	G-1		LOWER DRUM ASSY		1
B-025	288P158O30	○	G-1		DRUM MOTOR		1
C-010	641B903O10	○	G-2		CLEANING ARM		1
C-011	554D104O20	○	H-2		FELT RING		1
G-012	928D472O11	○	K-2		LOADING MOTOR ASSY		1
G-015	948D088O03		D-8		F/L ARM ASSY		1
G-016	948B406O03	○	B-8		F/L BOTTOM ASSY		1
G-022	948D095O01		F-1		TENSION BELT ASSY		1
G-023	948D096O01		F-8		BRAKE ASSY (TU)		1
G-024	948D097O02	○	A-5		CHARGE ASSY		1
G-032	594C260O40	○	K-4		PINCH ASSY		1
G-033	460C007O10	○	E-7		A/C HEAD UNIT		1
G-045	621C769O20	○	I-4		MAIN CAM		1
G-047	621C783O10	○	E-4		SENSER COVER (SP)	SUPPLY	1
G-048	621C784O10	○	G-6		SENSER COVER (TU)	TAKE UP	1
G-049	621C794O10	○	J-3		WROM WHEEL		1
G-054	640C181O20	○	D-4	D-7	REEL DISK		2
G-062	621C789O10	○	C-6		INSERT GUIDE (SP)	SUPPLY	1
G-063	621C790O10	○	D-7		INSERT GUIDE (TU)	TAKE UP	1
G-064	641B902O10	○	K-3		PINCH ARM CAP		1
G-065	641B908O10	○	H-6		DOOR ARM		1
G-067	621C804O10		J-1		FC HOLDER		1
G-068	621C805O10		D-3		GUIDE ARM (SP)		1
G-071	592B549O10	○	B-3		STAY PLATE		1
G-072	640D852O20		B-1	B-2	SPACER		2
G-074	594C217O10	○	E-2		TENSION LEVER		1
G-075	594C218O10	○	D-1		TENSION ARM		1
G-077	594C222O10	○	I-3		BRAKE LEVER		1
G-078	594C223O10	○	I-6		F/L PLATE		1
G-079	594C224O20	○	H-2		GUIDE ARM (TU)		1
G-080	594C225O30	○	D-4		BRAKE CAM PLATE		1
G-082	594C229O10	○	E-7		SHIFT LEVER		1
G-083	594C230O10	○	C-5		SWING LEVER		1
G-084	597D866O10	○	G-7		L/D LOCK LEVER		1
G-089	622D829O10	○	I-4		LB PIN		1
G-091	572D974O10	○	D-2		TENSION SPRING		1
G-104	460D018O10	○	C-4		F/E HEAD		1
G-201	669D224O90	○	A-1	C-2	SCREW	2.6×5	6
			D-7	I-1			
			J-2				
G-203	669D476O30	○	E-7		SCREW	2.6×6	2
G-212	552C017O30	○	C-5	E-8	THRUST WASHER	2.5×6×0.13	4
H-011	621C758O10	○	J-2		LOADING WORM		1
H-012	622D788O10		J-2		COUPLING WORM		1
H-021	594C216O10		J-2		MOTOR HOLDER		1
H-031	288P090O10		J-2		LOADING MOTOR		1

✻ Settled Service Parts

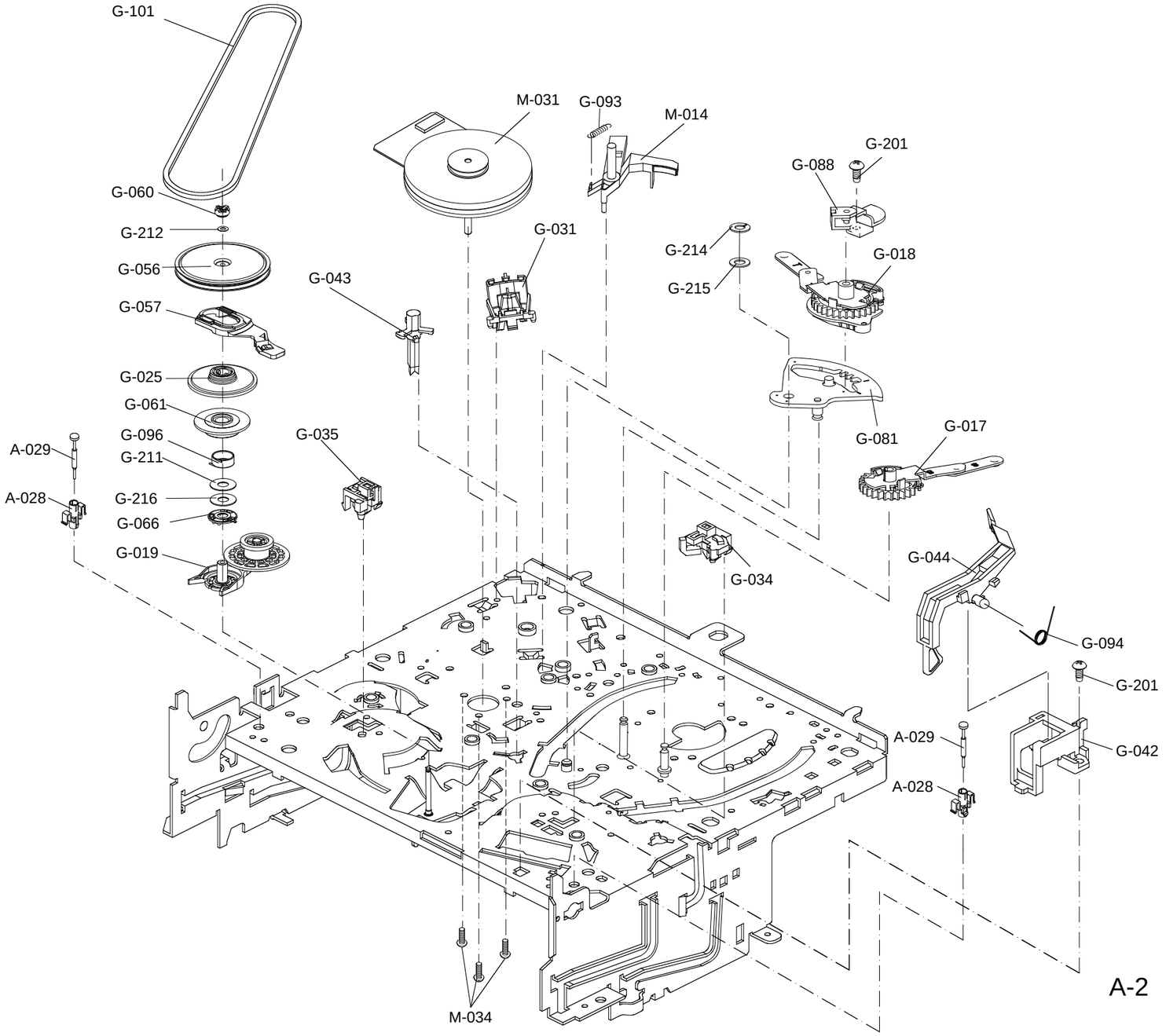
ITEM	PARTS NO.	✻	ADDRESS		PARTS NAME	DESCRIPTION	Qt.
H-051	669D173O80	○	H-2		SCREW	M3×0.5-4	2
I-011	641B913O10	○	B-7		ARM (SP)		1
I-012	641B911O20	○	C-8		ARM (TU)		1
I-021	631D823O10	○	C-7		F/L SHAFT		1
I-031	573D004O10		B-7	D-8	ARM SPRING		2
M-011	948B403O01		G-5		MAIN PLATE ASSY		1
M-012	948D084O01	○	A-3		TAPE GUIDE ASSY (SP)	SUPPLY	1
M-013	948D086O01	○	B-3		TAPE GUIDE ASSY (TU)	TAKE UP	1
M-021	594C258O01		F-3		GUIDE CATCHER (SP)	SUPPLY	1
M-022	594C259O01		H-3		GUIDE CATCHER (TU)	TAKE UP	1
M-023	622D799O10	○	B-7		F/L BEARING		1
M-025	622D820O10	○	G-3		GUIDE PIN COVER		1
M-026	621C944O10	○	G-3		GUIDE PIN COVER 2		1
M-032	622D791O10	○	D-6		BELT ADJUSTER		1
M-033	669D224O90	○	F-3	H-2	SCREW	M2.6×5	2
M-037	622D792O10	○	C-2		TENS AXIS HOLDER		1
S-011	522B061O10	○	A-3		GUIDE ROLLER (SP)	SUPPLY	1
T-011	522B061O10	○	B-3		GUIDE ROLLER (TU)	TAKE UP	1
N-011	621C759O10	○	E-1		BELT LEVER		1
N-012	622D790O10	○	D-1		BELT HOLDER		1
N-013	554D103O10	○	E-1		BRAKE BELT (SP)		1
O-011	621C760O10	○	F-8		BRAKE (TU)		1
O-021	572D975O10	○	F-8		BRAKE SPRING		1
O-031	554D103O10	○	F-8		BRAKE BELT (TU)		1
P-011	640C187O10		B-5		CHARGE BASE		1
P-012	640C188O20		B-5		CHARGE TIP		1
P-021	572D983O20		B-5		CHARGE SPRING		1

A	B	C	D	E	F	G	H	I

1 2 3 4 5 6 7 8

DECK ASSEMBLY

DECK ASSEMBLY-2



A-2

DECK ASSEMBLY-2

* Settled Service Parts

ITEM	PARTS NO.	*	ADDRESS		PARTS NAME	DESCRIPTION	Qt.
A-028	621C810O10		A-5		SSW HOLDER		2
A-029	622D837O10		A-4		SSW SLIDER		2
G-017	948D089O01	○	H-4		LOADING ARM ASSY (SP)	SUPPLY	1
G-018	948D090O01	○	G-3		LOADING ARM ASSY (TU)	TAKE UP	1
G-019	622D916O10	○	B-5		IDLER UNIT		1
G-025	948D098O03	○	B-4		PULLEY GEAR ASSY		1
G-031	622D800O10	○	E-3		MODE POSITION UNIT		1
G-034	622D801O10	○	F-5		REVERSE UNIT (SP)	SUPPLY	1
G-035	622D802O10	○	C-4		REVERSE UNIT (TU)	TAKE UP	1
G-042	621C807O10		I-6		REC HOLDER		1
G-043	621C765O10	○	C-3		LAMP GUIDE		1
G-044	621C766O20	○	H-5		REC LEVER		1
G-056	640C185O30	○	B-3		BELT PULLEY		1
G-057	640C186O10	○	B-3		SHIFT SLIDER		1
G-060	640D948O10	○	B-2		PULLEY BUSH		1
G-061	640D949O10	○	B-4		SLIP GEAR		1
G-066	640C189O20	○	B-5		SLIP ADJUSTER		1
G-081	594C228O10	○	G-4		A/L LEVER		1
G-088	594C304O10	○	G-2		SPACER PLATE		1
G-093	572D976O10	○	E-2		CAPSTAN BRAKE SPRING		1
G-094	572D977O10	○	I-6		REC SPRING		1
G-096	573D073O10	○	B-4		SLIP SPRING 2		1
G-101	521D102O10	○	B-1		REEL BELT		1
G-201	669D224O90	○	G-2	I-6	SCREW	2.6×5	2
G-211	597D997O10	○	B-4		SLIP WASHER		1
G-212	552C017O30	○	B-3		THRUST WASHER	2.5×6×0.13	1
G-214	552C022O10		F-3		CUT WASHER	4.0×8.0×0.5	1
G-215	680P140O10		F-3		WASHER		1
G-216	552C012O50		B-5		THRUST WASHER	5.6×9.5×0.2	1
M-014	948D094O01	○	F-2		CAPSTAN BRAKE ASSY		1
M-031	288P213O20	○	E-2		CAPSTAN MOTOR	F2QSB34	1
M-034	669D285O10		D-8		SCREW	M2.6×6	3

3. ELECTRICAL PARTS

SYMBOL No.	PARTS No.	PARTS NAME	DESCRIPTION
	INTEGRATED CIRCUITS		
IC120	275P344O30	MOS IC	M35053-051FP
IC150	272P583O20	IC	NJM2533M
IC151	272P325O40	IC	NJM2535M
IC180	263P094O50	MOS IC	BU4094BCF
IC2A0	270P827O10	IC	JCP8017-NSA
IC2A1	270P787O10	IC	NJM2534M
IC2001	270P671O10	IC	AN3360SB
IC2002	270P671O10	IC	AN3360SB
IC3A0	275P410O10	IC	AN3662FBP
IC5A0	275P629O20	MOS IC	M37777MAHYYYGP
IC5A1	274P670O60	IC	CAT24WC16J-TE13
IC5A4	272P235O10	IC	TA7291S
IC5A6	263P653O10	MOS IC	TC4053BF
IC5A7	274P760O10	MOS IC	TC4W53F
IC5D01	275P705O10	MOS IC	M37777MFH100GP
IC5D02	275P700O20	MOS IC	SN74ACT244NSR
IC5D03	275P649O20	MOS IC	SN74LVTH541NSR
IC6001	270P838O10	IC	NJM2520M
IC6002	270P838O10	IC	NJM2520M
IC6003	270P828O10	IC	MM1506XNRE
IC6004	270P829O10	IC	MM1508XNRE
IC6005	272P583O20	IC	NJM2533M
IC6301	275P360O10	MOS IC	M38503M4-082FP
IC8A0	275P345O20	IC	PT6312LQ/µPD16312GB
IC901	272P500O20	IC	HA17431PA
IC902	270P771O10	IC	MA8620
	TRANSISTORS		
Q100	260P818O30	CHIP TRANSISTOR	2SC2412K-S
Q102	261P066O10	CHIP TRANSISTOR	2SA1037AK
Q122	261P066O10	CHIP TRANSISTOR	2SA1037AK
Q123	260P818O30	CHIP TRANSISTOR	2SC2412K-S
Q124	261P067O30	CHIP TRANSISTOR	DTC124EKA
Q150	260P818O30	CHIP TRANSISTOR	2SC2412K-S
Q153	261P067O30	CHIP TRANSISTOR	DTC124EKA
Q154	261P067O30	CHIP TRANSISTOR	DTC124EKA
Q155	261P067O30	CHIP TRANSISTOR	DTC124EKA
Q156	261P065O30	CHIP TRANSISTOR	DTA124EKA
Q157	261P067O30	CHIP TRANSISTOR	DTC124EKA
Q2A0	261P067O30	CHIP TRANSISTOR	DTC124EKA
Q2A2	261P067O30	CHIP TRANSISTOR	DTC124EKA
Q2A3	261P067O30	CHIP TRANSISTOR	DTC124EKA
Q2A5	261P066O10	CHIP TRANSISTOR	2SA1037AK
Q2A6	260P818O30	CHIP TRANSISTOR	2SC2412K-S
Q2B0	261P066O10	CHIP TRANSISTOR	2SA1037AK
Q2B1	261P066O10	CHIP TRANSISTOR	2SA1037AK
Q2B2	260P818O30	CHIP TRANSISTOR	2SC2412K-S
Q2B3	261P066O10	CHIP TRANSISTOR	2SA1037AK
Q2B9	261P067O30	CHIP TRANSISTOR	DTC124EKA
Q2C0	260P818O30	CHIP TRANSISTOR	2SC2412K-S
Q2D0	261P065O30	CHIP TRANSISTOR	DTA124EKA
Q2E5	261P067O30	CHIP TRANSISTOR	DTC124EKA
Q2001	261P066O10	CHIP TRANSISTOR	2SA1037AK
Q2002	260P818O30	CHIP TRANSISTOR	2SC2412K-S
Q2003	260P818O30	CHIP TRANSISTOR	2SC2412K-S
Q2004	261P818O10	CHIP TRANSISTOR	2SC3932
Q2005	261P818O10	CHIP TRANSISTOR	2SC3932
Q2006	261P066O10	CHIP TRANSISTOR	2SA1037AK
Q2007	260P818O30	CHIP TRANSISTOR	2SC2412K-S
Q2008	260P818O30	CHIP TRANSISTOR	2SC2412K-S
Q2009	260P818O30	CHIP TRANSISTOR	2SC2412K-S
Q2010	261P818O10	CHIP TRANSISTOR	2SC3932
Q2011	260P818O30	CHIP TRANSISTOR	2SC2412K-S
Q2012	260P818O30	CHIP TRANSISTOR	2SC2412K-S
Q2013	261P066O10	CHIP TRANSISTOR	2SA1037AK
Q2014	260P818O30	CHIP TRANSISTOR	2SC2412K-S
Q2015	261P819O10	CHIP TRANSISTOR	2SA1532-C
Q2016	261P819O10	CHIP TRANSISTOR	2SA1532-C
Q2017	260P844O10	CHIP TRANSISTOR	FMW1
Q2018	261P819O10	CHIP TRANSISTOR	2SA1532-C
Q2019	261P819O10	CHIP TRANSISTOR	2SA1532-C
Q2020	260P844O10	CHIP TRANSISTOR	FMW1
Q2023	261P065O30	CHIP TRANSISTOR	DTA124EKA
Q2024	261P066O10	CHIP TRANSISTOR	2SA1037AK
Q2025	260P818O30	CHIP TRANSISTOR	2SC2412K-S
Q2026	260P818O30	CHIP TRANSISTOR	2SC2412K-S
Q2027	261P818O10	CHIP TRANSISTOR	2SC3932
Q2028	261P818O10	CHIP TRANSISTOR	2SC3932
Q2029	261P818O10	CHIP TRANSISTOR	2SC3932
Q2031	260P818O30	CHIP TRANSISTOR	2SC2412K-S
Q2032	261P065O30	CHIP TRANSISTOR	DTA124EKA
Q2034	260P818O30	CHIP TRANSISTOR	2SC2412K-S
Q2035	261P066O10	CHIP TRANSISTOR	2SA1037AK
Q2036	260P818O30	CHIP TRANSISTOR	2SC2412K-S
Q2037	261P067O30	CHIP TRANSISTOR	DTC124EKA
Q2038	261P065O30	CHIP TRANSISTOR	DTA124EKA
Q2039	261P819O10	CHIP TRANSISTOR	2SA1532-C
Q2040	261P819O10	CHIP TRANSISTOR	2SA1532-C
Q2042	260P844O10	CHIP TRANSISTOR	FMW1
Q2043	261P065O30	CHIP TRANSISTOR	DTA124EKA
Q2044	260P844O10	CHIP TRANSISTOR	FMW1
Q2045	260P844O10	CHIP TRANSISTOR	FMW1
Q2046	260P844O10	CHIP TRANSISTOR	FMW1
Q2047	261P065O30	CHIP TRANSISTOR	DTA124EKA
Q2048	260P562O40	TRANSISTOR	2SA952-K
Q2049	260P562O40	TRANSISTOR	2SA952-K
Q2050	261P067O30	CHIP TRANSISTOR	DTC124EKA
Q2051	261P067O30	CHIP TRANSISTOR	DTC124EKA
Q2053	260P818O30	CHIP TRANSISTOR	2SC2412K-S
Q2054	260P818O30	CHIP TRANSISTOR	2SC2412K-S
Q2055	260P818O30	CHIP TRANSISTOR	2SC2412K-S
Q2056	260P818O30	CHIP TRANSISTOR	2SC2412K-S
Q2057	260P818O30	CHIP TRANSISTOR	2SC2412K-S
Q2060	261P065O30	CHIP TRANSISTOR	DTA124EKA
Q2061	261P065O30	CHIP TRANSISTOR	DTA124EKA
Q351	261P056O10	TRANSISTOR	2SD734F
Q352	260P629O60	TRANSISTOR	2SC3331-T
Q353	260P629O60	TRANSISTOR	2SC3331-T
Q354	261P065O30	CHIP TRANSISTOR	DTA124EKA
Q355	260P562O40	TRANSISTOR	2SA952-K
Q356	261P067O30	CHIP TRANSISTOR	DTC124EKA

: Critical Components

SYMBOL No.	PARTS No.	PARTS NAME	DESCRIPTION
Q3L0	261P067O30	CHIP TRANSISTOR	DTC124EKA
Q5A3	260P802O20	CHIP TRANSISTOR	2SA1235-F
Q5A4	261P066O10	CHIP TRANSISTOR	2SA1037AK
Q5A5	260P818O30	CHIP TRANSISTOR	2SC2412K-S
Q5B1	261P066O10	CHIP TRANSISTOR	2SA1037AK
Q5B4	260P804O30	CHIP TRANSISTOR	2SC3052-G
Q5L0	260P818O30	CHIP TRANSISTOR	2SC2412K-S
Q5D01	261P067O30	CHIP TRANSISTOR	DTC124EKA
Q5D05	260P818O30	CHIP TRANSISTOR	2SC2412K-S
Q5D80	260P818O30	CHIP TRANSISTOR	2SC2412K-S
Q6002	261P066O10	CHIP TRANSISTOR	2SA1037AK
Q6003	261P066O10	CHIP TRANSISTOR	2SA1037AK
Q6004	261P066O10	CHIP TRANSISTOR	2SA1037AK
Q6005	261P067O30	CHIP TRANSISTOR	DTC124EKA
Q6009	261P065O30	CHIP TRANSISTOR	DTA124EKA
Q6010	260P818O30	CHIP TRANSISTOR	2SC2412K-S
Q6011	260P818O30	CHIP TRANSISTOR	2SC2412K-S
Q6301	260P562O40	TRANSISTOR	2SA952-K
Q905	260P559O40	TRANSISTOR	2SC1740S-R,S
Q906	260P559O40	TRANSISTOR	2SC1740S-R,S
Q907	260P559O40	TRANSISTOR	2SC1740S-R,S
Q908	260C628O10	TRANSISTOR	2SA1619A-Q
Q910	260C560O10	TRANSISTOR	2SA933S-R,S
Q918	260P559O40	TRANSISTOR	2SC1740S-R,S
Q919	261P067O30	CHIP TRANSISTOR	DTC124EKA
Q922	260P586O20	TRANSISTOR	2SB892-T
Q927	260P586O20	TRANSISTOR	2SB892-T
Q928	260P559O40	TRANSISTOR	2SC1740S-R,S
Q929	261P036O10	TRANSISTOR	2SB1548
Q930	260P559O40	TRANSISTOR	2SC1740S-R,S
Q985	260P585O30	TRANSISTOR	2SD1682-T,U
Q990	260P559O40	TRANSISTOR	2SC1740S-R,S
Q991	260P586O20	TRANSISTOR	2SB892-T
Q992	260P559O50	TRANSISTOR	2SC1740S-E
Q993	261P036O10	TRANSISTOR	2SB1548
	DIODES		
D120	264P568O30	DIODE	1SS254
D2A0	264P568O30	DIODE	1SS254
D2001	264P807O10	CHIP DIODE	DAP202K
D2002	264P807O10	CHIP DIODE	DAP202K
D3A2	264P568O30	DIODE	1SS254
D5A0	264P568O30	DIODE	1SS254
D5A9	264P795O20	LIGHT EMITTING DIODE	SID1050CMMTP5
D5B4	264P795O20	LIGHT EMITTING DIODE	SID1050CMMTP5
D5B5	264P795O20	LIGHT EMITTING DIODE	SID1050CMMTP5
D5C0	264P795O20	LIGHT EMITTING DIODE	SID1050CMMTP5
D5D0	264P773O60	DIODE	MTZJ3.9B
D5D2	264P500O20	DIODE	EM01Z
D5D3	264P500O20	DIODE	EM01Z
D5D01	264P773O60	DIODE	MTZJ3.9B
D6002	264P568O30	DIODE	1SS254
D801	264P568O30	DIODE	1SS254
D802	264P568O30	DIODE	1SS254
D803	264P568O30	DIODE	1SS254
D805	264P568O30	DIODE	1SS254
D807	264P568O30	DIODE	1SS254
D809	264P621O20	LIGHT EMITTING DIODE	SEL2410E TP2
D810	264P621O20	LIGHT EMITTING DIODE	SEL2410E TP2
D811	264P568O30	DIODE	1SS254
D812	264P568O30	DIODE	1SS254
D813	264P568O30	DIODE	1SS254
D814	264P568O30	DIODE	1SS254
D821	264P568O30	DIODE	1SS254
D822	264P568O30	DIODE	1SS254
D823	264P568O30	DIODE	1SS254
D824	264P568O30	DIODE	1SS254
D8A8	264P568O30	DIODE	1SS254
D8A9	264P568O30	DIODE	1SS254
D8G5	264P568O30	DIODE	1SS254
D901	264P508O70	DIODE	S1WB(A)60F4072
D905	264P695O10	DIODE	RK34/D2S4M
D907	264P670O10	DIODE	D5S4M
D908	264P672O10	DIODE	D5S6M
D909	264P663O10	DIODE	D1NL20U
D910	264P663O10	DIODE	D1NL20U
D911	264P527O30	DIODE	D1NS4/AK04
D912	264P771O80	DIODE	MTZJ2.4A
D913	264P783O60	DIODE	MTZJ30D
D914	264P783O10	DIODE	MTZJ27D
D917	264P452O30	DIODE	HZ5C3
D918	264P568O30	DIODE	1SS254
D920	264P500O20	DIODE	EM01Z
D926	264P488O90	DIODE	RD16FB
D927	264P695O70	DIODE	RK39
D931	264P568O30	DIODE	1SS254
D937	264P663O10	DIODE	D1NL20U
D938	264P663O10	DIODE	D1NL20U
D943	264P568O30	DIODE	1SS254
D951	264P695O10	DIODE	RK34/D2S4M
D970	264P568O30	DIODE	1SS254
D971	264P568O30	DIODE	1SS254
D972	264P568O30	DIODE	1SS254
D974	264P568O30	DIODE	1SS254
D985	264P783O60	DIODE	MTZJ30D
D990	264P670O10	DIODE	D5S4M
D991	264P568O30	DIODE	1SS254
D992	264P568O30	DIODE	1SS254
	FILTERS		
L901	351P172O10	LINE FILTER	SS11V-10062
	COILS		
L02	325C472O20	PEAKING COIL	56µH-J
L03	325C122O50	PEAKING COIL	100µH-K
L04	325C472O50	PEAKING COIL	100µH-J
L100	325C473O70	PEAKING COIL	1000µH-J
L120	325C472O50	PEAKING COIL	100µH-J
L121	325C472O50	PEAKING COIL	100µH-J
L122	325C472O10	PEAKING COIL	47µH-J
L150	325C472O50	PEAKING COIL	100µH-J
L2A1	325C472O30	PEAKING COIL	68µH-J
L2A3	325C472O50	PEAKING COIL	100µH-J

: Critical Components

SYMBOL No.	PARTS No.	PARTS NAME	DESCRIPTION
L2A4	325C472O50	PEAKING COIL	100µH-J
L2A6	325C472O20	PEAKING COIL	56µH-J
L2A7	325C166O40	PEAKING COIL	12µH-J
L2A9	325C471O30	PEAKING COIL	10µH-J
L2B0	325C472O50	PEAKING COIL	100µH-J
L2B1	325C472O50	PEAKING COIL	100µH-J
L2B3	325C473O50	PEAKING COIL	680µH-J
L2001	325C472O50	PEAKING COIL	100µH-J
L2002	325C472O50	PEAKING COIL	100µH-J
L2003	325C472O50	PEAKING COIL	100µH-J
L2004	325C472O50	PEAKING COIL	100µH-J
L300	325C472O50	PEAKING COIL	100µH-J
L350	325C472O50	PEAKING COIL	100µH-J
L3A0	325C471O30	PEAKING COIL	10µH-J
L3A1	325C121O30	PEAKING COIL	10µH-K
L3A2	325C472O50	PEAKING COIL	100µH-J
L3A3	325C471O30	PEAKING COIL	10µH-J
L5D01	325C471O90	PEAKING COIL	33µH-J
L6008	325C472O50	PEAKING COIL	100µH-J
L6009	325C472O50	PEAKING COIL	100µH-J
L6150	325C472O50	PEAKING COIL	100µH-J
L6300	325C472O50	PEAKING COIL	100µH-J
L8A0	325C472O50	PEAKING COIL	100µH-J
L902	321C141O90	RF COIL	33µH-K
L903	321C141O30	RF COIL	10µH-K
L904	321C141O90	RF COIL	33µH-K
L906	321C141O90	RF COIL	33µH-K
L907	321C141O30	RF COIL	10µH-K
L990	321C141O90	RF COIL	33µH-K
T350	409P880O30	BIAS OSCILLATOR COIL	
	TRANSFORMERS		
T901	350P717O90	POWER TRANSFORMER	
	VARIABLE RESISTORS		
R901	109C010O50	SOLID RESISTOR	1/2W 2.2MΩ-K (UL)
R930	109C010O10	SOLID RESISTOR	1/2W 1MΩ-K
	RESISTORS		
R100	103P401O30	CHIP RESISTOR	1/10W 100Ω-J
R101	103P402O60	CHIP RESISTOR	1/10W 1.2kΩ-J
R102	103P403O90	CHIP RESISTOR	1/10W 15kΩ-J
R103	103P403O70	CHIP RESISTOR	1/10W 10kΩ-J
R104	103P409O50	CHIP RESISTOR	0.1W 0Ω(2125)
R105	103P403O70	CHIP RESISTOR	1/10W 10kΩ-J
R106	103P402O50	CHIP RESISTOR	1/10W 1kΩ-J
R107	103P403O70	CHIP RESISTOR	1/10W 10kΩ-J
R108	103P401O30	CHIP RESISTOR	1/10W 100Ω-J
R120	103P472O90	CHIP RESISTOR	1/10W 1.5kΩ-
R121	103P472O00	CHIP RESISTOR	1/10W 620Ω-F
R122	103P402O50	CHIP RESISTOR	1/10W 1kΩ-J
R125	103P401O70	CHIP RESISTOR	1/10W 220Ω-J
R127	103P403O70	CHIP RESISTOR	1/10W 10kΩ-J
R128	103P472O60	CHIP RESISTOR	1/10W 1.1kΩ-F
R129	103P473O40	CHIP RESISTOR	1/10W 2.4kΩ-F
R130	103P402O50	CHIP RESISTOR	1/10W 1kΩ-J
R131	103P402O10	CHIP RESISTOR	1/10W 470Ω-J
R134	103P474O70	CHIP RESISTOR	1/10W 8.2kΩ-F
R135	103P475O30	CHIP RESISTOR	1/10W 15kΩ-F
R136	103P475O10	CHIP RESISTOR	1/10W 12kΩ-F
R139	103P409O50	CHIP RESISTOR	0.1W 0Ω(2125)
R150	103P402O50	CHIP RESISTOR	1/10W 1kΩ-J
R151	103P472O50	CHIP RESISTOR	1/10W 1kΩ-F
R2A2	103P474O40	CHIP RESISTOR	1/10W 6.2kΩ-F
R2A3	103P472O90	CHIP RESISTOR	1/10W 1.5kΩ-F
R2A4	103P475O30	CHIP RESISTOR	1/10W 15kΩ-F
R2A5	103P409O50	CHIP RESISTOR	0.1W 0Ω(2125)
R2A9	103P403O10	CHIP RESISTOR	1/10W 3.3kΩ-J
R2B0	103P476O30	CHIP RESISTOR	1/10W 39kΩ-F
R2B2	103P473O90	CHIP RESISTOR	1/10W 3.9kΩ-F
R2B3	103P473O70	CHIP RESISTOR	1/10W 3.3kΩ-F
R2B8	103P401O70	CHIP RESISTOR	1/10W 220Ω-J
R2C0	103P406O20	CHIP METAL RESISTOR	1/10W 1.2MΩ-J
R2C1	103P409O50	CHIP RESISTOR	0.1W 0Ω(2125)
R2C4	103P402O60	CHIP RESISTOR	1/10W 1.2kΩ-J
R2C7	103P403O30	CHIP RESISTOR	1/10W 4.7kΩ-J
R2D2	103P402O50	CHIP RESISTOR	1/10W 1kΩ-J
R2D4	103P402O70	CHIP RESISTOR	1/10W 1.5kΩ-J
R2D6	103P402O90	CHIP RESISTOR	1/10W 2.2kΩ-J
R2D7	103P472O70	CHIP RESISTOR	1/10W 1.2kΩ-F
R2D8	103P409O50	CHIP RESISTOR	0.1W 0Ω(2125)
R2D9	103P473O30	CHIP RESISTOR	1/10W 2.2kΩ-F
R2E0	103P472O50	CHIP RESISTOR	1/10W 1kΩ-F
R2E1	103P472O50	CHIP RESISTOR	1/10W 1kΩ-F
R2E5	103P404O80	CHIP RESISTOR	1/10W 82kΩ-J
R2E6	103P405O30	CHIP RESISTOR	1/10W 220kΩ-J
R2E7	103P409O50	CHIP RESISTOR	0.1W 0Ω(2125)
R2F0	103P405O80	CHIP RESISTOR	1/10W 560kΩ-J
R2F1	103P409O50	CHIP RESISTOR	0.1W 0Ω(2125)
R2F8	103P403O70	CHIP RESISTOR	1/10W 10kΩ-J
R2G0	103P403O70	CHIP RESISTOR	1/10W 10kΩ-J
R2G1	103P402O90	CHIP RESISTOR	1/10W 2.2kΩ-J
R2Z1	103P402O60	CHIP RESISTOR	1/10W 1.2kΩ-J
R2001	103P403O70	CHIP RESISTOR	1/10W 10kΩ-J
R2002	103P403O70	CHIP RESISTOR	1/10W 10kΩ-J
R2003	103P401O50	CHIP RESISTOR	1/10W 150Ω-J
R2004	103P402O50	CHIP RESISTOR	1/10W 1kΩ-J
R2005	103P402O10	CHIP RESISTOR	1/10W 470Ω-J
R2006	103P400O90	CHIP RESISTOR	1/10W 47Ω-J
R2007	103P401O30	CHIP RESISTOR	1/10W 100Ω-J
R2008	103P403O70	CHIP RESISTOR	1/10W 10kΩ-J
R2009	103P403O70	CHIP RESISTOR	1/10W 10kΩ-J
R2010	103P401O30	CHIP RESISTOR	1/10W 100Ω-J
R2011	103P401O30	CHIP RESISTOR	1/10W 100Ω-J
R2012	103P402O20	CHIP RESISTOR	1/10W 560Ω-J
R2013	103P400O50	CHIP RESISTOR	1/10W 22Ω-J
R2014	103P402O70	CHIP RESISTOR	1/10W 1.5kΩ-J
R2015	103P400O50	CHIP RESISTOR	1/10W 22Ω-J
R2016	103P402O10	CHIP RESISTOR	1/10W 470Ω-J
R2017	103P402O70	CHIP RESISTOR	1/10W 1.5kΩ-J
R2020	103P402O50	CHIP RESISTOR	1/10W 1kΩ-J
R2021	103P402O50	CHIP RESISTOR	1/10W 1kΩ-J
R2022	103P409O90	CHIP RESISTOR	1/10W 75Ω-J

SYMBOL No.	PARTS No.	PARTS NAME	DESCRIPTION
R2023	103P409O90	CHIP RESISTOR	1/10W 75Ω-J
R2024	103P401O50	CHIP RESISTOR	1/10W 150Ω-J
R2025	103P401O30	CHIP RESISTOR	1/10W 100Ω-J
R2026	103P400O30	CHIP METAL RESISTOR	1/10W 15Ω-J
R2027	103P401O60	CHIP RESISTOR	1/10W 180Ω-J
R2028	103P402O20	CHIP RESISTOR	1/10W 560Ω-J
R2029	103P401O50	CHIP RESISTOR	1/10W 150Ω-J
R2030	103P401O30	CHIP RESISTOR	1/10W 100Ω-J
R2031	103P402O70	CHIP RESISTOR	1/10W 1.5kΩ-J
R2032	103P404O20	CHIP RESISTOR	1/10W 27kΩ-J
R2033	103P404O50	CHIP RESISTOR	1/10W 47kΩ-J
R2034	103P404O20	CHIP RESISTOR	1/10W 27kΩ-J
R2035	103P402O90	CHIP RESISTOR	1/10W 2.2kΩ-J
R2036	103P402O90	CHIP RESISTOR	1/10W 2.2kΩ-J
R2037	103P401O80	CHIP RESISTOR	1/10W 270Ω-J
R2038	103P402O80	CHIP RESISTOR	1/10W 1.8kΩ-J
R2039	103P402O80	CHIP RESISTOR	1/10W 1.8kΩ-J
R2040	103P401O80	CHIP RESISTOR	1/10W 270Ω-J
R2041	103P401O80	CHIP RESISTOR	1/10W 270Ω-J
R2042	103P402O80	CHIP RESISTOR	1/10W 1.8kΩ-J
R2043	103P402O80	CHIP RESISTOR	1/10W 1.8kΩ-J
R2044	103P401O80	CHIP RESISTOR	1/10W 270Ω-J
R2045	103P400O10	CHIP RESISTOR	1/10W 10Ω-J
R2046	103P402O10	CHIP RESISTOR	1/10W 470Ω-J
R2047	103P402O10	CHIP RESISTOR	1/10W 470Ω-J
R2048	103P400O10	CHIP RESISTOR	1/10W 10Ω-J
R2049	103P402O90	CHIP RESISTOR	1/10W 2.2kΩ-J
R2050	103P402O90	CHIP RESISTOR	1/10W 2.2kΩ-J
R2051	103P409O50	CHIP RESISTOR	0.1W 0Ω(2125)
R2052	103P400O10	CHIP RESISTOR	1/10W 10Ω-J
R2053	103P402O10	CHIP RESISTOR	1/10W 470Ω-J
R2054	103P402O10	CHIP RESISTOR	1/10W 470Ω-J
R2055	103P400O10	CHIP RESISTOR	1/10W 10Ω-J
R2056	103P402O90	CHIP RESISTOR	1/10W 2.2kΩ-J
R2057	103P402O90	CHIP RESISTOR	1/10W 2.2kΩ-J
R2058	103P403O30	CHIP RESISTOR	1/10W 4.7kΩ-J
R2059	103P403O70	CHIP RESISTOR	1/10W 10kΩ-J
R2060	103P403O70	CHIP RESISTOR	1/10W 10kΩ-J
R2061	103P400O90	CHIP RESISTOR	1/10W 47Ω-J
R2062	103P402O50	CHIP RESISTOR	1/10W 1kΩ-J
R2063	103P402O10	CHIP RESISTOR	1/10W 470Ω-J
R2064	103P401O30	CHIP RESISTOR	1/10W 100Ω-J
R2065	103P403O70	CHIP RESISTOR	1/10W 10kΩ-J
R2066	103P403O70	CHIP RESISTOR	1/10W 10kΩ-J
R2067	103P401O30	CHIP RESISTOR	1/10W 100Ω-J
R2068	103P401O30	CHIP RESISTOR	1/10W 100Ω-J
R2069	103P402O20	CHIP RESISTOR	1/10W 560Ω-J
R2070	103P400O50	CHIP RESISTOR	1/10W 22Ω-J
R2071	103P400O50	CHIP RESISTOR	1/10W 22Ω-J
R2072	103P402O10	CHIP RESISTOR	1/10W 470Ω-J
R2075	103P402O50	CHIP RESISTOR	1/10W 1kΩ-J
R2077	103P403O30	CHIP RESISTOR	1/10W 4.7kΩ-J
R2078	103P403O70	CHIP RESISTOR	1/10W 10kΩ-J
R2079	103P403O30	CHIP RESISTOR	1/10W 4.7kΩ-J
R2080	103P403O70	CHIP RESISTOR	1/10W 10kΩ-J
R2081	103P402O90	CHIP RESISTOR	1/10W 2.2kΩ-J

SYMBOL No.	PARTS No.	PARTS NAME	DESCRIPTION
R2082	103P401O80	CHIP RESISTOR	1/10W 270Ω-J
R2083	103P402O80	CHIP RESISTOR	1/10W 1.8kΩ-J
R2084	103P402O80	CHIP RESISTOR	1/10W 1.8kΩ-J
R2085	103P401O80	CHIP RESISTOR	1/10W 270Ω-J
R2086	103P400O10	CHIP RESISTOR	1/10W 10Ω-J
R2087	103P402O10	CHIP RESISTOR	1/10W 470Ω-J
R2088	103P402O10	CHIP RESISTOR	1/10W 470Ω-J
R2089	103P400O10	CHIP RESISTOR	1/10W 10Ω-J
R2090	103P402O90	CHIP RESISTOR	1/10W 2.2kΩ-J
R2091	103P402O90	CHIP RESISTOR	1/10W 2.2kΩ-J
R2092	103P403O30	CHIP RESISTOR	1/10W 4.7kΩ-J
R2093	103P403O30	CHIP RESISTOR	1/10W 4.7kΩ-J
R2094	103P403O30	CHIP RESISTOR	1/10W 4.7kΩ-J
R2095	103P402O90	CHIP RESISTOR	1/10W 2.2kΩ-J
R2096	103P402O90	CHIP RESISTOR	1/10W 2.2kΩ-J
R2097	103P402O90	CHIP RESISTOR	1/10W 2.2kΩ-J
R2098	103P402O90	CHIP RESISTOR	1/10W 2.2kΩ-J
R2099	103P402O90	CHIP RESISTOR	1/10W 2.2kΩ-J
R2100	103P402O90	CHIP RESISTOR	1/10W 2.2kΩ-J
R2101	103P409O50	CHIP RESISTOR	0.1W 0Ω(2125)
R2102	103P401O50	CHIP RESISTOR	1/10W 150Ω-J
R2103	103P400O30	CHIP METAL RESISTOR	1/10W 15Ω-J
R2104	103P401O60	CHIP RESISTOR	1/10W 180Ω-J
R2105	103P401O50	CHIP RESISTOR	1/10W 150Ω-J
R2106	103P401O30	CHIP RESISTOR	1/10W 100Ω-J
R2107	103P402O70	CHIP RESISTOR	1/10W 1.5kΩ-J
R2108	103P402O20	CHIP RESISTOR	1/10W 560Ω-J
R2110	103P401O50	CHIP RESISTOR	1/10W 150Ω-J
R2111	103P409O50	CHIP RESISTOR	0.1W 0Ω(2125)
R2113	103P401O30	CHIP RESISTOR	1/10W 100Ω-J
R2114	103P404O50	CHIP RESISTOR	1/10W 47kΩ-J
R2115	103P404O20	CHIP RESISTOR	1/10W 27kΩ-J
R2116	103P401O30	CHIP RESISTOR	1/10W 100Ω-J
R2117	103P401O30	CHIP RESISTOR	1/10W 100Ω-J
R2120	103P403O70	CHIP RESISTOR	1/10W 10kΩ-J
R2121	103P403O70	CHIP RESISTOR	1/10W 10kΩ-J
R2122	103P401O50	CHIP RESISTOR	1/10W 150Ω-J
R2123	103P402O50	CHIP RESISTOR	1/10W 1kΩ-J
R2124	103P402O10	CHIP RESISTOR	1/10W 470Ω-J
R2125	103P400O90	CHIP RESISTOR	1/10W 47Ω-J
R2126	103P401O30	CHIP RESISTOR	1/10W 100Ω-J
R2127	103P403O70	CHIP RESISTOR	1/10W 10kΩ-J
R2128	103P403O70	CHIP RESISTOR	1/10W 10kΩ-J
R2129	103P401O30	CHIP RESISTOR	1/10W 100Ω-J
R2130	103P401O30	CHIP RESISTOR	1/10W 100Ω-J
R2131	103P402O20	CHIP RESISTOR	1/10W 560Ω-J
R2132	103P400O50	CHIP RESISTOR	1/10W 22Ω-J
R2133	103P400O50	CHIP RESISTOR	1/10W 22Ω-J
R2134	103P402O10	CHIP RESISTOR	1/10W 470Ω-J
R2135	103P403O70	CHIP RESISTOR	1/10W 10kΩ-J
R2136	103P402O50	CHIP RESISTOR	1/10W 1kΩ-J
R2137	103P402O50	CHIP RESISTOR	1/10W 1kΩ-J
R2138	103P402O50	CHIP RESISTOR	1/10W 1kΩ-J
R2139	103P404O20	CHIP RESISTOR	1/10W 27kΩ-J
R2140	103P403O70	CHIP RESISTOR	1/10W 10kΩ-J
R2141	103P403O70	CHIP RESISTOR	1/10W 10kΩ-J
R2142	103P471O10	CHIP RESISTOR	1/10W 270Ω-F

SYMBOL No.	PARTS No.	PARTS NAME	DESCRIPTION
R2143	103P472O10	CHIP RESISTOR	1/10W 680Ω-F
R2144	103P471O10	CHIP RESISTOR	1/10W 270Ω-F
R2145	103P472O10	CHIP RESISTOR	1/10W 680Ω-F
R2146	103P471O10	CHIP RESISTOR	1/10W 270Ω-F
R2147	103P472O10	CHIP RESISTOR	1/10W 680Ω-F
R2150	103P402O10	CHIP RESISTOR	1/10W 470Ω-J
R2151	103P402O10	CHIP RESISTOR	1/10W 470Ω-J
R301	103P405O50	CHIP RESISTOR	1/10W 330kΩ-J
R302	103P403O80	CHIP RESISTOR	1/10W 12kΩ-J
R303	103P470O80	CHIP RESISTOR	1/10W 200Ω-F
R304	103P404O10	CHIP RESISTOR	1/10W 22kΩ-J
R351	103P403O70	CHIP RESISTOR	1/10W 10kΩ-J
R352	103P403O30	CHIP RESISTOR	1/10W 4.7kΩ-J
R357	103P403O20	CHIP RESISTOR	1/10W 3.9kΩ-J
R358	103P403O20	CHIP RESISTOR	1/10W 3.9kΩ-J
R365	103P400O90	CHIP RESISTOR	1/10W 47Ω-J
R366	103P403O30	CHIP RESISTOR	1/10W 4.7kΩ-J
R367	103P408O40	CHIP RESISTOR	1/10W 2.2Ω-J
R368	103P403O20	CHIP RESISTOR	1/10W 3.9kΩ-J
R3A0	103P409O50	CHIP RESISTOR	0.1W 0Ω(2125)
R3A3	103P402O30	CHIP RESISTOR	1/10W 680Ω-J
R3A8	103P405O60	CHIP RESISTOR	1/10W 390kΩ-J
R3A9	103P474O40	CHIP RESISTOR	1/10W 6.2kΩ-F
R3B1	103P474O40	CHIP RESISTOR	1/10W 6.2kΩ-F
R3B2	103P476O50	CHIP RESISTOR	1/10W 47kΩ-F
R3B3	103P474O70	CHIP RESISTOR	1/10W 8.2kΩ-F
R3B4	103P476O10	CHIP RESISTOR	1/10W 33kΩ-F
R3B5	103P409O50	CHIP RESISTOR	0.1W 0Ω(2125)
R3B9	103P409O50	CHIP RESISTOR	0.1W 0Ω(2125)
R3C3	103P474O40	CHIP RESISTOR	1/10W 6.2kΩ-F
R3C5	103P474O40	CHIP RESISTOR	1/10W 6.2kΩ-F
R3F6	103P476O10	CHIP RESISTOR	1/10W 33kΩ-F
R3G1	103P403O10	CHIP RESISTOR	1/10W 3.3kΩ-J
R3L0	103P473O50	CHIP RESISTOR	1/10W 2.7kΩ-F
R5A1	103P404O00	CHIP RESISTOR	1/10W 18kΩ-J
R5A3	103P404O00	CHIP RESISTOR	1/10W 18kΩ-J
R5A7	103P403O90	CHIP RESISTOR	1/10W 15kΩ-J
R5A8	103P401O80	CHIP RESISTOR	1/10W 270Ω-J
R5A9	103P402O50	CHIP RESISTOR	1/10W 1kΩ-J
R5B0	103P402O80	CHIP RESISTOR	1/10W 1.8kΩ-J
R5B2	103P402O20	CHIP RESISTOR	1/10W 560Ω-J
R5B3	103P403O70	CHIP RESISTOR	1/10W 10kΩ-J
R5B5	103P405O30	CHIP RESISTOR	1/10W 220kΩ-J
R5B6	103P405O30	CHIP RESISTOR	1/10W 220kΩ-J
R5B8	103P405O00	CHIP RESISTOR	1/10W 120kΩ-J
R5B9	103P405O00	CHIP RESISTOR	1/10W 120kΩ-J
R5C0	103P405O00	CHIP RESISTOR	1/10W 120kΩ-J
R5C6	103P401O70	CHIP RESISTOR	1/10W 220Ω-J
R5D4	103P405O30	CHIP RESISTOR	1/10W 220kΩ-J
R5D5	103P406O10	CHIP RESISTOR	1/10W 1MΩ-J
R5D6	103P405O70	CHIP RESISTOR	1/10W 470kΩ-J
R5D7	103P403O70	CHIP RESISTOR	1/10W 10kΩ-J
R5D9	103P403O40	CHIP RESISTOR	1/10W 5.6kΩ-J
R5E0	103P403O20	CHIP RESISTOR	1/10W 3.9kΩ-J
R5E1	103P403O60	CHIP RESISTOR	1/10W 8.2kΩ-J
R5E2	103P404O90	CHIP RESISTOR	1/10W 100kΩ-J
R5E3	103P406O90	CHIP METAL RESISTOR	1/10W 4.7MΩ-K

SYMBOL No.	PARTS No.	PARTS NAME	DESCRIPTION
R5E4	103P406O90	CHIP METAL RESISTOR	1/10W 4.7MΩ-K
R5E5	103P402O40	CHIP RESISTOR	1/10W 820Ω-J
R5E6	103P406O10	CHIP RESISTOR	1/10W 1MΩ-J
R5E7	103P403O70	CHIP RESISTOR	1/10W 10kΩ-J
R5F7	103P403O00	CHIP RESISTOR	1/10W 2.7kΩ-J
R5F8	103P403O00	CHIP RESISTOR	1/10W 2.7kΩ-J
R5G5	103P402O50	CHIP RESISTOR	1/10W 1kΩ-J
R5J6	103P409O50	CHIP RESISTOR	0.1W 0Ω(2125)
R5K7	103P404O30	CHIP RESISTOR	1/10W 33kΩ-J
R5K8	103P404O30	CHIP RESISTOR	1/10W 33kΩ-J
R5L0	103P404O90	CHIP RESISTOR	1/10W 100kΩ-J
R5R2	103P402O60	CHIP RESISTOR	1/10W 1.2kΩ-J
R5R3	103P403O90	CHIP RESISTOR	1/10W 15kΩ-J
R5S0	103P404O30	CHIP RESISTOR	1/10W 33kΩ-J
R5S3	103P403O90	CHIP RESISTOR	1/10W 15kΩ-J
R5S4	103P404O40	CHIP RESISTOR	1/10W 39kΩ-J
R5S8	103P473O70	CHIP RESISTOR	1/10W 3.3kΩ-F
R5S9	103P405O50	CHIP RESISTOR	1/10W 330kΩ-J
R5T3	103P403O70	CHIP RESISTOR	1/10W 10kΩ-J
R5T4	103P403O70	CHIP RESISTOR	1/10W 10kΩ-J
R5T5	103P404O30	CHIP RESISTOR	1/10W 33kΩ-J
R5T6	103P404O30	CHIP RESISTOR	1/10W 33kΩ-J
R5V2	103P404O90	CHIP RESISTOR	1/10W 100kΩ-J
R5W0	103P402O50	CHIP RESISTOR	1/10W 1kΩ-J
R5W1	103P404O30	CHIP RESISTOR	1/10W 33kΩ-J
R5X2	103P402O50	CHIP RESISTOR	1/10W 1kΩ-J
R5D03	103P403O10	CHIP RESISTOR	1/10W 3.3kΩ-J
R5D04	103P403O70	CHIP RESISTOR	1/10W 10kΩ-J
R5D05	103P402O50	CHIP RESISTOR	1/10W 1kΩ-J
R5D06	103P401O80	CHIP RESISTOR	1/10W 270Ω-J
R5D07	103P406O10	CHIP RESISTOR	1/10W 1MΩ-J
R5D08	103P402O40	CHIP RESISTOR	1/10W 820Ω-J
R5D10	103P403O70	CHIP RESISTOR	1/10W 10kΩ-J
R5D13	103P403O70	CHIP RESISTOR	1/10W 10kΩ-J
R5D14	103P400O90	CHIP RESISTOR	1/10W 47Ω-J
R5D15	103P400O90	CHIP RESISTOR	1/10W 47Ω-J
R5D16	103P400O90	CHIP RESISTOR	1/10W 47Ω-J
R5D17	103P400O90	CHIP RESISTOR	1/10W 47Ω-J
R5D18	103P400O90	CHIP RESISTOR	1/10W 47Ω-J
R5D19	103P400O90	CHIP RESISTOR	1/10W 47Ω-J
R5D21	103P400O90	CHIP RESISTOR	1/10W 47Ω-J
R5D22	103P403O10	CHIP RESISTOR	1/10W 3.3kΩ-J
R5D23	103P403O70	CHIP RESISTOR	1/10W 10kΩ-J
R5D24	103P409O50	CHIP RESISTOR	0.1W 0Ω(2125)
R5D25	103P409O50	CHIP RESISTOR	0.1W 0Ω(2125)
R5D26	103P409O50	CHIP RESISTOR	0.1W 0Ω(2125)
R5D27	103P409O50	CHIP RESISTOR	0.1W 0Ω(2125)
R5D80	103P405O10	CHIP RESISTOR	1/10W 150kΩ-J
R5D81	103P404O90	CHIP RESISTOR	1/10W 100kΩ-J
R5D86	103P404O90	CHIP RESISTOR	1/10W 100kΩ-J
R6001	103P409O90	CHIP RESISTOR	1/10W 75Ω-J
R6002	103P409O90	CHIP RESISTOR	1/10W 75Ω-J
R6003	103P409O90	CHIP RESISTOR	1/10W 75Ω-J
R6004	103P402O40	CHIP RESISTOR	1/10W 820Ω-J
R6006	103P402O40	CHIP RESISTOR	1/10W 820Ω-J
R6010	103P403O10	CHIP RESISTOR	1/10W 3.3kΩ-J

: Critical Components

SYMBOL No.	PARTS No.	PARTS NAME	DESCRIPTION
R6011	103P403O10	CHIP RESISTOR	1/10W 3.3kΩ-J
R6012	103P402O30	CHIP RESISTOR	1/10W 680Ω-J
R6013	103P402O30	CHIP RESISTOR	1/10W 680Ω-J
R6025	103P401O90	CHIP RESISTOR	1/10W 330Ω-J
R6026	103P401O90	CHIP RESISTOR	1/10W 330Ω-J
R6027	103P401O90	CHIP RESISTOR	1/10W 330Ω-J
R6028	103P401O90	CHIP RESISTOR	1/10W 330Ω-J
R6029	103P409O90	CHIP RESISTOR	1/10W 75Ω-J
R6031	103P409O90	CHIP RESISTOR	1/10W 75Ω-J
R6032	103P409O90	CHIP RESISTOR	1/10W 75Ω-J
R6033	103P409O90	CHIP RESISTOR	1/10W 75Ω-J
R6034	103P409O90	CHIP RESISTOR	1/10W 75Ω-J
R6039	103P402O50	CHIP RESISTOR	1/10W 1kΩ-J
R6040	103P402O50	CHIP RESISTOR	1/10W 1kΩ-J
R6041	103P402O40	CHIP RESISTOR	1/10W 820Ω-J
R6042	103P401O30	CHIP RESISTOR	1/10W 100Ω-J
R6056	103P400O80	CHIP METAL RESISTOR	1/10W 39Ω-J
R6066	103P409O90	CHIP RESISTOR	1/10W 75Ω-J
R6086	103P404O20	CHIP RESISTOR	1/10W 27kΩ-J
R6087	103P404O20	CHIP RESISTOR	1/10W 27kΩ-J
R6110	103P400O80	CHIP METAL RESISTOR	1/10W 39Ω-J
R6111	103P400O80	CHIP METAL RESISTOR	1/10W 39Ω-J
R6112	103P401O30	CHIP RESISTOR	1/10W 100Ω-J
R6115	103P404O50	CHIP RESISTOR	1/10W 47kΩ-J
R6118	103P404O50	CHIP RESISTOR	1/10W 47kΩ-J
R6122	103P404O10	CHIP RESISTOR	1/10W 22kΩ-J
R6126	103P403O20	CHIP RESISTOR	1/10W 3.9kΩ-J
R6301	103P404O90	CHIP RESISTOR	1/10W 100kΩ-J
R6303	103P403O70	CHIP RESISTOR	1/10W 10kΩ-J
R6304	103P402O00	CHIP RESISTOR	1/10W 390Ω-J
R6314	103P403O10	CHIP RESISTOR	1/10W 3.3kΩ-J
R8A0	103P404O30	CHIP RESISTOR	1/10W 33kΩ-J
R8A1	103P404O30	CHIP RESISTOR	1/10W 33kΩ-J
R8A2	103P404O30	CHIP RESISTOR	1/10W 33kΩ-J
R8A3	103P404O30	CHIP RESISTOR	1/10W 33kΩ-J
R8A4	103P403O10	CHIP RESISTOR	1/10W 3.3kΩ-J
R8A5	103P404O50	CHIP RESISTOR	1/10W 47kΩ-J
R8A9	103P401O70	CHIP RESISTOR	1/10W 220Ω-J
R902	102P108O50	WIRE RESISTOR	2W 2.7Ω-J
R905	103P403O10	CHIP RESISTOR	1/10W 3.3kΩ-J
R911	103P472O70	CHIP RESISTOR	1/10W 1.2kΩ-F
R912	103P472O70	CHIP RESISTOR	1/10W 1.2kΩ-F
R916	103P471O90	CHIP RESISTOR	1/10W 560Ω-F
R917	103P472O10	CHIP RESISTOR	1/10W 680Ω-F
R918	103P403O70	CHIP RESISTOR	1/10W 10kΩ-J
R919	103P404O80	CHIP RESISTOR	1/10W 82kΩ-J
R920	103P403O20	CHIP RESISTOR	1/10W 3.9kΩ-J
R921	103P751O30	FUSE RESISTOR	1/4W 100Ω-J
R922	103P402O50	CHIP RESISTOR	1/10W 1kΩ-J
R925	103P758O00	FUSE RESISTOR	1/4W 1Ω-J
R926	103P470O10	CHIP RESISTOR	1/10W 100Ω-F
R927	103P403O40	CHIP RESISTOR	1/10W 5.6kΩ-J
R955	103P402O50	CHIP RESISTOR	1/10W 1kΩ-J
R956	103P473O00	CHIP RESISTOR	1/10W 1.6kΩ-F
R963	103P403O70	CHIP RESISTOR	1/10W 10kΩ-J
R964	103P478O20	CHIP RESISTOR	1/10W 240kΩ-F
R971	103P403O70	CHIP RESISTOR	1/10W 10kΩ-J

SYMBOL No.	PARTS No.	PARTS NAME	DESCRIPTION
R973	103P403O70	CHIP RESISTOR	1/10W 10kΩ-J
R975	103P403O70	CHIP RESISTOR	1/10W 10kΩ-J
R985	103P402O50	CHIP RESISTOR	1/10W 1kΩ-J
R990	103P403O70	CHIP RESISTOR	1/10W 10kΩ-J
R991	103P403O90	CHIP RESISTOR	1/10W 15kΩ-J
R992	103P404O30	CHIP RESISTOR	1/10W 33kΩ-J
R993	103P402O50	CHIP RESISTOR	1/10W 1kΩ-J
R994	103P403O70	CHIP RESISTOR	1/10W 10kΩ-J
R996	103P404O30	CHIP RESISTOR	1/10W 33kΩ-J
R997	103P401O90	CHIP RESISTOR	1/10W 330Ω-J
RJ01	103P409O50	CHIP RESISTOR	0.1W 0Ω(2125)
RJ02	103P409O50	CHIP RESISTOR	0.1W 0Ω(2125)
RJ03	103P409O50	CHIP RESISTOR	0.1W 0Ω(2125)
RJ04	103P409O50	CHIP RESISTOR	0.1W 0Ω(2125)
RJ05	103P409O50	CHIP RESISTOR	0.1W 0Ω(2125)
RJ06	103P409O50	CHIP RESISTOR	0.1W 0Ω(2125)
RJ07	103P409O50	CHIP RESISTOR	0.1W 0Ω(2125)
RJ08	103P409O50	CHIP RESISTOR	0.1W 0Ω(2125)
RJ09	103P409O50	CHIP RESISTOR	0.1W 0Ω(2125)
RJ10	103P409O50	CHIP RESISTOR	0.1W 0Ω(2125)
RJ11	103P409O50	CHIP RESISTOR	0.1W 0Ω(2125)
RJ12	103P409O50	CHIP RESISTOR	0.1W 0Ω(2125)
RJ13	103P409O50	CHIP RESISTOR	0.1W 0Ω(2125)
RJ14	103P409O50	CHIP RESISTOR	0.1W 0Ω(2125)
RJ15	103P409O50	CHIP RESISTOR	0.1W 0Ω(2125)
RJ16	103P409O50	CHIP RESISTOR	0.1W 0Ω(2125)
RJ17	103P409O50	CHIP RESISTOR	0.1W 0Ω(2125)
RJ18	103P409O50	CHIP RESISTOR	0.1W 0Ω(2125)
RJ19	103P409O50	CHIP RESISTOR	0.1W 0Ω(2125)
RJ20	103P409O50	CHIP RESISTOR	0.1W 0Ω(2125)
RJ21	103P409O50	CHIP RESISTOR	0.1W 0Ω(2125)
RJ22	103P409O50	CHIP RESISTOR	0.1W 0Ω(2125)
RJ23	103P409O50	CHIP RESISTOR	0.1W 0Ω(2125)
RJ24	103P409O50	CHIP RESISTOR	0.1W 0Ω(2125)
		CAPACITORS AND TRIMMERS	
C100	141P132O10	CHIP CAPACITOR	B50V 0.01µF-K
C101	141P132O10	CHIP CAPACITOR	B50V 0.01µF-K
C103	141P137O40	CHIP CAPACITOR	B25V 0.022µF-K
C120	154P325O20	CHIP CAPACITOR	SL50V 470pF-J
C121	141P139O70	CHIP CAPACITOR	B16V 0.22µF-K
C123	141P132O10	CHIP CAPACITOR	B50V 0.01µF-K
C124	181P350O60	ELECTROLYTIC CAPACITOR	CE04W 6.3V 1000µF-M
C126	141P132O10	CHIP CAPACITOR	B50V 0.01µF-K
C127	141P132O10	CHIP CAPACITOR	B50V 0.01µF-K
C128	154P332O70	CHIP CAPACITOR	CH50V 47pF-J
C130	141P130O30	CHIP CAPACITOR	B50V 330pF-K
C132	141P132O10	CHIP CAPACITOR	B50V 0.01µF-K
C133	154P332O50	CHIP CAPACITOR	CH50V 39pF-J
C150	141P132O10	CHIP CAPACITOR	B50V 0.01µF-K
C151	141P132O10	CHIP CAPACITOR	B50V 0.01µF-K
C152	141P132O10	CHIP CAPACITOR	B50V 0.01µF-K
C156	141P132O10	CHIP CAPACITOR	B50V 0.01µF-K
C163	141P132O10	CHIP CAPACITOR	B50V 0.01µF-K
C180	141P132O10	CHIP CAPACITOR	B50V 0.01µF-K
C2A0	141P132O10	CHIP CAPACITOR	B50V 0.01µF-K

SYMBOL No.	PARTS No.	PARTS NAME	DESCRIPTION
C2A1	141P132O10	CHIP CAPACITOR	B50V 0.01µF-K
C2A2	141P132O10	CHIP CAPACITOR	B50V 0.01µF-K
C2A3	141P132O10	CHIP CAPACITOR	B50V 0.01µF-K
C2A4	141P132O10	CHIP CAPACITOR	B50V 0.01µF-K
C2A5	141P132O10	CHIP CAPACITOR	B50V 0.01µF-K
C2A6	141P132O10	CHIP CAPACITOR	B50V 0.01µF-K
C2A7	141P132O10	CHIP CAPACITOR	B50V 0.01µF-K
C2A8	141P132O10	CHIP CAPACITOR	B50V 0.01µF-K
C2B4	141P135O80	CHIP CAPACITOR	F25V 0.1µF-Z
C2C0	154P330O60	CHIP CAPACITOR	CH50V 5pF-C
C2C1	154P333O90	CHIP CAPACITOR	CH50V 150pF-J
C2C2	154P331O90	CHIP CAPACITOR	CH50V 22pF-J
C2C3	141P135O80	CHIP CAPACITOR	F25V 0.1µF-Z
C2C5	141P139O30	CHIP CAPACITOR	B25V 0.1µF-K
C2C7	154P331O30	CHIP CAPACITOR	CH50V 12pF-J
C2C8	154P331O90	CHIP CAPACITOR	CH50V 22pF-J
C2C9	141P139O30	CHIP CAPACITOR	B25V 0.1µF-K
C2D0	141P139O30	CHIP CAPACITOR	B25V 0.1µF-K
C2D3	141P139O30	CHIP CAPACITOR	B25V 0.1µF-K
C2D4	141P139O30	CHIP CAPACITOR	B25V 0.1µF-K
C2D5	141P139O30	CHIP CAPACITOR	B25V 0.1µF-K
C2D9	141P132O10	CHIP CAPACITOR	B50V 0.01µF-K
C2E2	141P132O10	CHIP CAPACITOR	B50V 0.01µF-K
C2E3	141P130O30	CHIP CAPACITOR	B50V 330pF-K
C2E5	141P132O10	CHIP CAPACITOR	B50V 0.01µF-K
C2E6	141P132O10	CHIP CAPACITOR	B50V 0.01µF-K
C2E7	141P132O10	CHIP CAPACITOR	B50V 0.01µF-K
C2E8	141P139O30	CHIP CAPACITOR	B25V 0.1µF-K
C2E9	141P139O30	CHIP CAPACITOR	B25V 0.1µF-K
C2F1	141P132O10	CHIP CAPACITOR	B50V 0.01µF-K
C2F2	141P132O10	CHIP CAPACITOR	B50V 0.01µF-K
C2F5	154P330O50	CHIP CAPACITOR	CH50V 4pF-C
C2F6	141P135O80	CHIP CAPACITOR	F25V 0.1µF-Z
C2F7	141P139O10	CHIP CAPACITOR	B25V 0.068µF-K
C2G0	141P137O40	CHIP CAPACITOR	B25V 0.022µF-K
C2G1	141P131O70	CHIP CAPACITOR	B50V 4700pF-K
C2G7	141P139O30	CHIP CAPACITOR	B25V 0.1µF-K
C2G9	141P139O30	CHIP CAPACITOR	B25V 0.1µF-K
C2H0	154P330O80	CHIP CAPACITOR	CH50V 7pF-C
C2H1	154P332O70	CHIP CAPACITOR	CH50V 47pF-J
C2H3	141P135O80	CHIP CAPACITOR	F25V 0.1µF-Z
C2H5	141P132O10	CHIP CAPACITOR	B50V 0.01µF-K
C2H6	141P139O30	CHIP CAPACITOR	B25V 0.1µF-K
C2H7	141P137O60	CHIP CAPACITOR	B50V 0.033µF-K
C2H9	154P331O50	CHIP CAPACITOR	CH50V 15pF-J
C2J0	141P132O10	CHIP CAPACITOR	B50V 0.01µF-K
C2J2	141P132O10	CHIP CAPACITOR	B50V 0.01µF-K
C2J4	141P132O10	CHIP CAPACITOR	B50V 0.01µF-K
C2J5	154P333O90	CHIP CAPACITOR	CH50V 150pF-J
C2K0	141P139O30	CHIP CAPACITOR	B25V 0.1µF-K
C2001	141P133O80	CHIP CAPACITOR	F50V 0.01µF-Z
C2003	141P135O70	CHIP CAPACITOR	F16V 1µF-Z
C2004	141P135O70	CHIP CAPACITOR	F16V 1µF-Z
C2005	141P133O80	CHIP CAPACITOR	F50V 0.01µF-Z
C2007	141P135O70	CHIP CAPACITOR	F16V 1µF-Z
C2008	141P133O80	CHIP CAPACITOR	F50V 0.01µF-Z
C2009	141P135O80	CHIP CAPACITOR	F25V 0.1µF-Z

SYMBOL No.	PARTS No.	PARTS NAME	DESCRIPTION
C2010	141P135O70	CHIP CAPACITOR	F16V 1µF-Z
C2011	141P135O80	CHIP CAPACITOR	F25V 0.1µF-Z
C2012	141P135O70	CHIP CAPACITOR	F16V 1µF-Z
C2013	141P131O70	CHIP CAPACITOR	B50V 4700pF-K
C2014	141P139O30	CHIP CAPACITOR	B25V 0.1µF-K
C2015	141P130O90	CHIP CAPACITOR	B50V 1000pF-K
C2016	141P130O90	CHIP CAPACITOR	B50V 1000pF-K
C2017	154P333O10	CHIP CAPACITOR	CH50V 68pF-J
C2018	141P135O80	CHIP CAPACITOR	F25V 0.1µF-Z
C2019	141P133O80	CHIP CAPACITOR	F50V 0.01µF-Z
C2020	141P133O80	CHIP CAPACITOR	F50V 0.01µF-Z
C2021	154P333O10	CHIP CAPACITOR	CH50V 68pF-J
C2022	141P135O80	CHIP CAPACITOR	F25V 0.1µF-Z
C2023	141P135O80	CHIP CAPACITOR	F25V 0.1µF-Z
C2024	154P333O10	CHIP CAPACITOR	CH50V 68pF-J
C2025	141P133O80	CHIP CAPACITOR	F50V 0.01µF-Z
C2026	141P133O80	CHIP CAPACITOR	F50V 0.01µF-Z
C2027	154P333O10	CHIP CAPACITOR	CH50V 68pF-J
C2028	141P135O80	CHIP CAPACITOR	F25V 0.1µF-Z
C2029	141P135O70	CHIP CAPACITOR	F16V 1µF-Z
C2030	141P135O70	CHIP CAPACITOR	F16V 1µF-Z
C2031	141P133O80	CHIP CAPACITOR	F50V 0.01µF-Z
C2032	141P135O70	CHIP CAPACITOR	F16V 1µF-Z
C2033	141P133O80	CHIP CAPACITOR	F50V 0.01µF-Z
C2034	141P135O70	CHIP CAPACITOR	F16V 1µF-Z
C2035	141P135O70	CHIP CAPACITOR	F16V 1µF-Z
C2036	141P135O70	CHIP CAPACITOR	F16V 1µF-Z
C2037	141P133O80	CHIP CAPACITOR	F50V 0.01µF-Z
C2038	141P135O80	CHIP CAPACITOR	F25V 0.1µF-Z
C2039	141P135O70	CHIP CAPACITOR	F16V 1µF-Z
C2040	141P135O70	CHIP CAPACITOR	F16V 1µF-Z
C2041	141P131O70	CHIP CAPACITOR	B50V 4700pF-K
C2042	141P139O30	CHIP CAPACITOR	B25V 0.1µF-K
C2043	141P130O90	CHIP CAPACITOR	B50V 1000pF-K
C2044	154P333O10	CHIP CAPACITOR	CH50V 68pF-J
C2045	141P135O80	CHIP CAPACITOR	F25V 0.1µF-Z
C2046	141P133O80	CHIP CAPACITOR	F50V 0.01µF-Z
C2047	141P133O80	CHIP CAPACITOR	F50V 0.01µF-Z
C2048	141P135O80	CHIP CAPACITOR	F25V 0.1µF-Z
C2049	154P333O10	CHIP CAPACITOR	CH50V 68pF-J
C2050	141P133O80	CHIP CAPACITOR	F50V 0.01µF-Z
C2051	141P133O80	CHIP CAPACITOR	F50V 0.01µF-Z
C2052	141P133O80	CHIP CAPACITOR	F50V 0.01µF-Z
C2054	141P135O70	CHIP CAPACITOR	F16V 1µF-Z
C2055	141P135O80	CHIP CAPACITOR	F25V 0.1µF-Z
C2056	141P133O80	CHIP CAPACITOR	F50V 0.01µF-Z
C2057	141P133O80	CHIP CAPACITOR	F50V 0.01µF-Z
C2059	141P133O80	CHIP CAPACITOR	F50V 0.01µF-Z
C2060	141P135O70	CHIP CAPACITOR	F16V 1µF-Z
C2061	141P135O70	CHIP CAPACITOR	F16V 1µF-Z
C2062	141P135O70	CHIP CAPACITOR	F16V 1µF-Z
C2063	141P133O80	CHIP CAPACITOR	F50V 0.01µF-Z
C300	141P132O10	CHIP CAPACITOR	B50V 0.01µF-K
C301	141P132O10	CHIP CAPACITOR	B50V 0.01µF-K
C302	141P130O60	CHIP CAPACITOR	B50V 560pF-K
C303	141P131O60	CHIP CAPACITOR	B50V 3900pF-K
C304	141P132O10	CHIP CAPACITOR	B50V 0.01µF-K

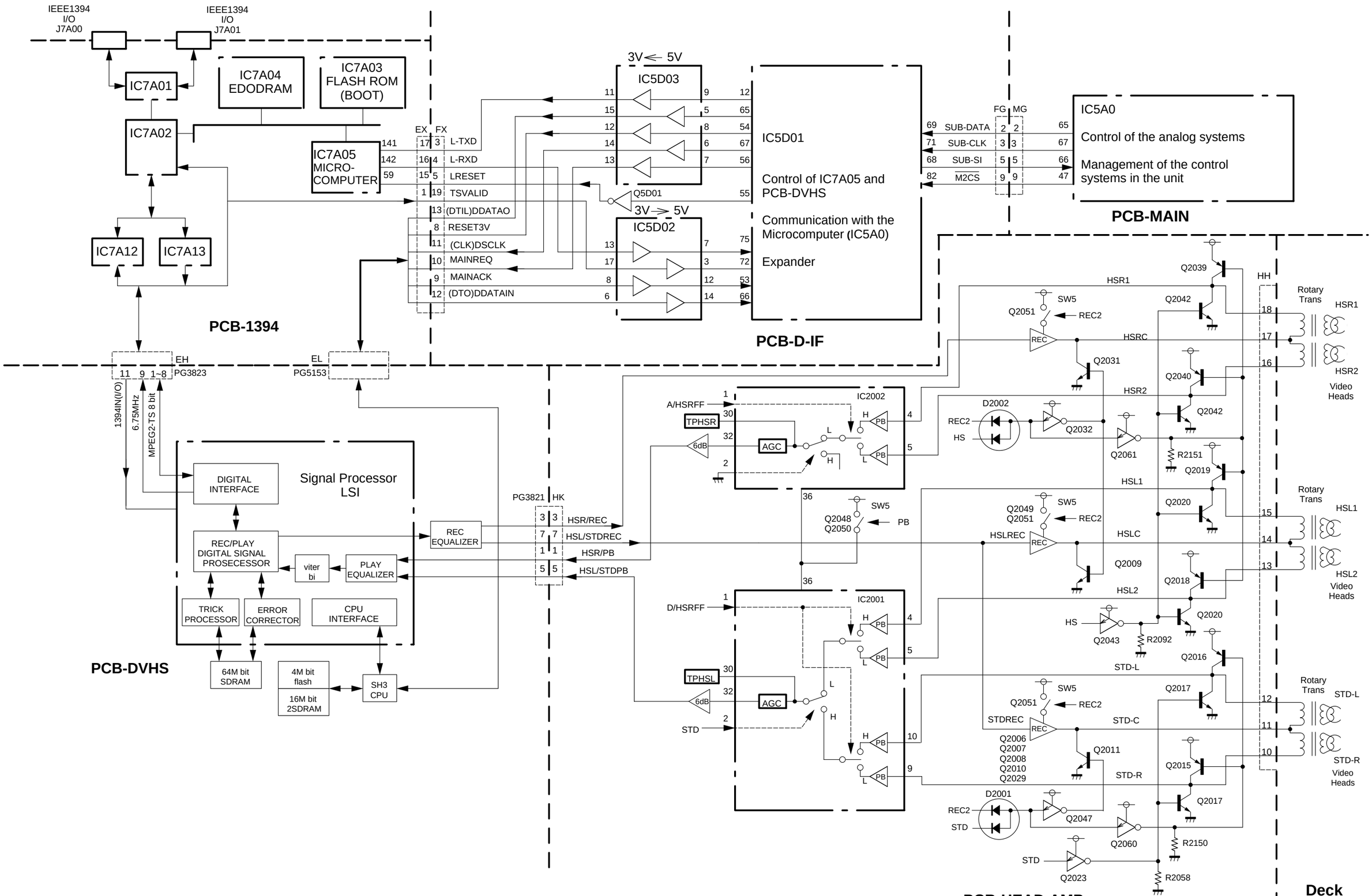
: Critical Components

SYMBOL No.	PARTS No.	PARTS NAME	DESCRIPTION
C305	141P139O30	CHIP CAPACITOR	B25V 0.1µF-K
C350	141P130O10	CHIP CAPACITOR	B50V 220pF-K
C357	141P137O40	CHIP CAPACITOR	B25V 0.022µF-K
C358	141P131O70	CHIP CAPACITOR	B50V 4700pF-K
C379	181P212O60	ELECTROLYTIC CAPACITOR	04W 16V 47µF-M
C3A7	141P139O30	CHIP CAPACITOR	B25V 0.1µF-K
C3A9	141P139O70	CHIP CAPACITOR	B16V 0.22µF-K
C3B9	141P139O30	CHIP CAPACITOR	B25V 0.1µF-K
C3C0	141P139O30	CHIP CAPACITOR	B25V 0.1µF-K
C3C1	141P139O30	CHIP CAPACITOR	B25V 0.1µF-K
C3C8	141P139O30	CHIP CAPACITOR	B25V 0.1µF-K
C3E4	141P133O80	CHIP CAPACITOR	F50V 0.01µF-Z
C3E8	141P139O30	CHIP CAPACITOR	B25V 0.1µF-K
C3F2	141P139O90	CHIP CAPACITOR	B16V 0.47µF-K
C3F4	141P139O30	CHIP CAPACITOR	B25V 0.1µF-K
C3F5	141P132O10	CHIP CAPACITOR	B50V 0.01µF-K
C3G1	141P132O10	CHIP CAPACITOR	B50V 0.01µF-K
C3G3	141P132O10	CHIP CAPACITOR	B50V 0.01µF-K
C3G5	141P139O70	CHIP CAPACITOR	B16V 0.22µF-K
C3G9	141P137O40	CHIP CAPACITOR	B25V 0.022µF-K
C3J0	141P139O30	CHIP CAPACITOR	B25V 0.1µF-K
C3J1	141P139O30	CHIP CAPACITOR	B25V 0.1µF-K
C3J2	141P139O30	CHIP CAPACITOR	B25V 0.1µF-K
C3J3	141P132O10	CHIP CAPACITOR	B50V 0.01µF-K
C3J4	141P132O10	CHIP CAPACITOR	B50V 0.01µF-K
C3J5	181P210O30	ELECTROLYTIC CAPACITOR	04W 6.3V 47µF-M
C3L0	141P137O80	CHIP CAPACITOR	B25V 0.047µF-K
C5A0	189P197O20	ELE DOUBLE LAYER CAPACITOR	FM0H473Z
C5A3	141P133O90	CHIP CAPACITOR	F50V 0.022µF-Z
C5A4	141P132O10	CHIP CAPACITOR	B50V 0.01µF-K
C5A6	141P132O10	CHIP CAPACITOR	B50V 0.01µF-K
C5A7	141P132O10	CHIP CAPACITOR	B50V 0.01µF-K
C5B1	141P131O90	CHIP CAPACITOR	B50V 6800pF-K
C5B2	141P131O90	CHIP CAPACITOR	B50V 6800pF-K
C5B3	141P131O90	CHIP CAPACITOR	B50V 6800pF-K
C5B5	141P139O30	CHIP CAPACITOR	B25V 0.1µF-K
C5B6	154P331O90	CHIP CAPACITOR	CH50V 22pF-J
C5B7	154P331O70	CHIP CAPACITOR	CH50V 18pF-J
C5B8	154P331O70	CHIP CAPACITOR	CH50V 18pF-J
C5B9	154P331O70	CHIP CAPACITOR	CH50V 18pF-J
C5C0	141P132O10	CHIP CAPACITOR	B50V 0.01µF-K
C5C6	141P130O50	CHIP CAPACITOR	B50V 470pF-K
C5C9	141P132O10	CHIP CAPACITOR	B50V 0.01µF-K
C5J9	141P133O90	CHIP CAPACITOR	F50V 0.022µF-Z
C5L0	141P139O30	CHIP CAPACITOR	B25V 0.1µF-K
C5R1	141P130O80	CHIP CAPACITOR	B50V 820pF-K
C5S0	141P131O70	CHIP CAPACITOR	B50V 4700pF-K
C5S1	141P132O20	CHIP CAPACITOR	B50V 0.012µF-K
C5S3	141P139O00	CHIP CAPACITOR	B25V 0.056µF-K
C5S4	141P139O00	CHIP CAPACITOR	B25V 0.056µF-K
C5S5	141P130O90	CHIP CAPACITOR	B50V 1000pF-K
C5S6	141P131O30	CHIP CAPACITOR	B50V 2200pF-K
C5T5	141P130O90	CHIP CAPACITOR	B50V 1000pF-K
C5T6	141P130O90	CHIP CAPACITOR	B50V 1000pF-K
C5T9	141P134O50	CHIP CAPACITOR	B50V 0.047µF-K
C5V2	154P334O30	CHIP CAPACITOR	CH50V 220pF-J

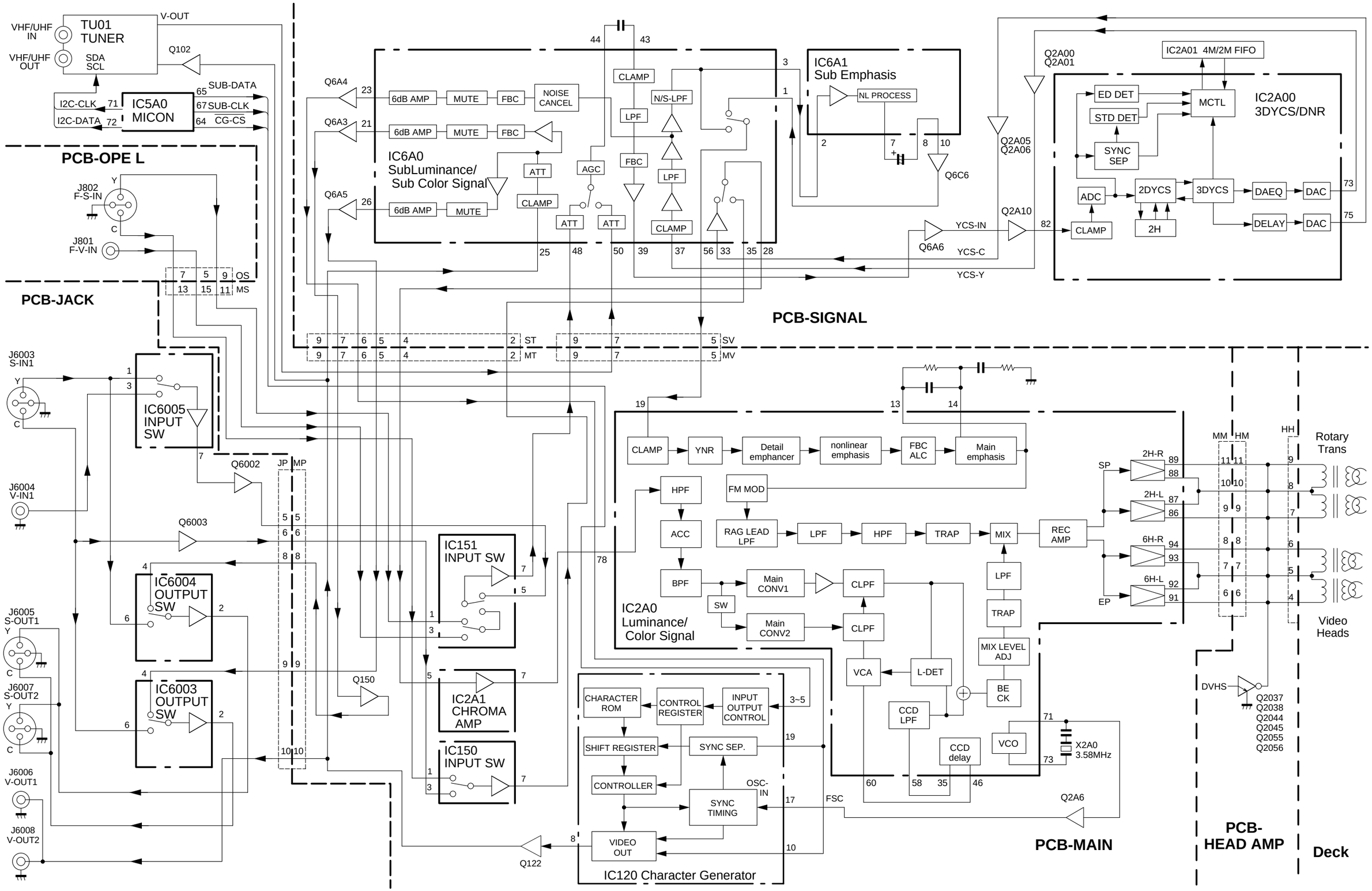
SYMBOL No.	PARTS No.	PARTS NAME	DESCRIPTION
C5W2	141P132O10	CHIP CAPACITOR	B50V 0.01µF-K
C5X1	141P133O80	CHIP CAPACITOR	F50V 0.01µF-Z
C5D01	141P135O80	CHIP CAPACITOR	F25V 0.1µF-Z
C5D02	141P135O80	CHIP CAPACITOR	F25V 0.1µF-Z
C5D04	141P133O90	CHIP CAPACITOR	F50V 0.022µF-Z
C5D07	141P139O30	CHIP CAPACITOR	B25V 0.1µF-K
C5D15	154P331O70	CHIP CAPACITOR	CH50V 18pF-J
C5D16	154P331O70	CHIP CAPACITOR	CH50V 18pF-J
C6005	141P132O10	CHIP CAPACITOR	B50V 0.01µF-K
C6028	141P132O10	CHIP CAPACITOR	B50V 0.01µF-K
C6030	141P132O10	CHIP CAPACITOR	B50V 0.01µF-K
C6032	181P219O90	ELECTROLYTIC CAPACITOR	04W 50V 3.3µF-M
C6033	181P219O90	ELECTROLYTIC CAPACITOR	04W 50V 3.3µF-M
C6034	181P219O90	ELECTROLYTIC CAPACITOR	04W 50V 3.3µF-M
C6035	181P219O90	ELECTROLYTIC CAPACITOR	04W 50V 3.3µF-M
C6036	141P132O10	CHIP CAPACITOR	B50V 0.01µF-K
C6037	141P132O10	CHIP CAPACITOR	B50V 0.01µF-K
C6040	181P219O90	ELECTROLYTIC CAPACITOR	04W 50V 3.3µF-M
C6041	181P219O90	ELECTROLYTIC CAPACITOR	04W 50V 3.3µF-M
C6072	141P132O10	CHIP CAPACITOR	B50V 0.01µF-K
C6116	141P132O10	CHIP CAPACITOR	B50V 0.01µF-K
C6117	181P350O60	ELECTROLYTIC CAPACITOR	CE04W 6.3V 1000µF-M
C6151	141P132O10	CHIP CAPACITOR	B50V 0.01µF-K
C6303	154P331O90	CHIP CAPACITOR	CH50V 22pF-J
C8A1	141P132O10	CHIP CAPACITOR	B50V 0.01µF-K
C901	189P193O30	C-M-P-AC	AC125V 0.068µF-M
C902	189P193O30	C-M-P-AC	AC125V 0.068µF-M
C908	189P215O90	AC CERAMIC CAPACITOR	AC250V E2200pF-M
C911	141P132O10	CHIP CAPACITOR	B50V 0.01µF-K
C912	181P732O10	ELECTROLYTIC CAPACITOR	04W10V 1000µF-M
C913	181P732O10	ELECTROLYTIC CAPACITOR	04W10V 1000µF-M
C914	141P139O90	CHIP CAPACITOR	B16V 0.47µF-K
C915	181P355O10	ELECTROLYTIC CAPACITOR	04W 50V 1µF-M
C916	181P734O30	ELECTROLYTIC CAPACITOR	04W16V 680µF-M
C917	181P737O50	ELECTROLYTIC CAPACITOR	04W50V 22µF-M
C918	181P737O50	ELECTROLYTIC CAPACITOR	04W50V 22µF-M
C920	181P731O70	ELECTROLYTIC CAPACITOR	04W10V 220µF-M
C921	181P351O50	ELECTROLYTIC CAPACITOR	10V 220µF-M
C926	181P352O50	ELECTROLYTIC CAPACITOR	04W 16V 220µF-M
C927	141P130O60	CHIP CAPACITOR	B50V 560pF-K
C929	181P352O60	ELECTROLYTIC CAPACITOR	16V 330µF-M
C930	181P736O70	ELECTROLYTIC CAPACITOR	04W35V 330µF-M
C933	181P352O50	ELECTROLYTIC CAPACITOR	04W 16V 220µF-M
C936	181P351O50	ELECTROLYTIC CAPACITOR	10V 220µF-M
C937	181P351O50	ELECTROLYTIC CAPACITOR	10V 220µF-M
C944	181P352O40	ELECTROLYTIC CAPACITOR	04W 16V 100µF-M
C945	181P351O40	ELECTROLYTIC CAPACITOR	CE04W 10V 100µF-M
C946	181P351O40	ELECTROLYTIC CAPACITOR	CE04W 10V 100µF-M
C990	181P732O10	ELECTROLYTIC CAPACITOR	04W10V 1000µF-M
C991	181P351O50	ELECTROLYTIC CAPACITOR	10V 220µF-M
C992	181P351O50	ELECTROLYTIC CAPACITOR	10V 220µF-M
C993	181P351O50	ELECTROLYTIC CAPACITOR	10V 220µF-M
C9Y1	189P215O90	AC CERAMIC CAPACITOR	AC250V E2200pF-M
C9Y2	189P215O90	AC CERAMIC CAPACITOR	AC250V E2200pF-M
	SWITCHES		
S5B1	432P166O10	KEY BOARD SWITCH	RESET

: Critical Components

SYMBOL No.	PARTS No.	PARTS NAME	DESCRIPTION
S5S0	439P045O10	SWITCH	S-SW MPU10184MLBO
S5S1	439P045O10	SWITCH	D-SW MPU10184MLBO
S801	432P203O30	KEY BOARD SWITCH	3D-TBC
S802	432P203O30	KEY BOARD SWITCH	REC
S803	432P203O30	KEY BOARD SWITCH	PAUSE
S805	432P203O30	KEY BOARD SWITCH	PLAY
S807	432P203O30	KEY BOARD SWITCH	STOP
S811	432P203O30	KEY BOARD SWITCH	POWER
S812	432P203O30	KEY BOARD SWITCH	EJECT
S813	432P203O30	KEY BOARD SWITCH	DVHS
S814	432P203O30	KEY BOARD SWITCH	SP/EP/VP
S820	439P041O10	JOG SWITCH	JOG/SHUTTLE
	MISCELLANEOUS		
	621C525O10	LED HOLDER	(D5B4)
	243C160O50	CARD LEAD WIRE	(EX FX) 19P L160(MA-OA)
	243C155O10	CARD LEAD WIRE	(JG OG) 9PIN L=85
	243C193O50	CARD LEAD WIRE	(MA DA) 7PIN L=160
	243C193O30	CARD LEAD WIRE	(MD DD) 7PIN L=120
	243C157O20	CARD LEAD WIRE	(MJ OJ) 13P L=100
	243C160O20	CARD LEAD WIRE	(MS OS) 19P L=100
	621C564O10	LED HOLDER R	(Q5A0)
	621C564O10	LED HOLDER R	(Q5A1)
	621C527O10	PHOTO HOLDER	(Q5A2)
CF6301	299P116O10	CERAMIC RESONATOR	KBR-4.0KES
F901	283D130O30	FUSE	S1.6A 125V
J6003	449C100O10	DIN SOCKET(4P)	
J6004	451C207O30	RCA PIN JACK	
J6005	449C100O10	DIN SOCKET(4P)	
J6006	451C207O10	RCA PIN JACK	3P
J6007	449C100O10	DIN SOCKET(4P)	
J6008	451C207O10	RCA PIN JACK	3P
J6012	451C117O10	HEADPHONE JACK	BLACK
J801	451C207O30	RCA PIN JACK	
J802	449C100O10	DIN SOCKET(4P)	
PC901	268P058O10	PHOTO COUPLER	ON3131-R
Q5A0	268P076O20	PHOTO TRANSISTOR	SPS-1119C-BC-T
Q5A1	268P076O20	PHOTO TRANSISTOR	SPS-1119C-BC-T
Q5A2	268P076O20	PHOTO TRANSISTOR	SPS-1119C-BC-T
Q5A6	268P092O10	PHOTO TRANSISTOR	PT492FK1
Q5A7	268P092O10	PHOTO TRANSISTOR	PT492FK1
Q5A8	268P076O20	PHOTO TRANSISTOR	SPS-1119C-BC-T
Q5A9	268P076O20	PHOTO TRANSISTOR	SPS-1119C-BC-T
Q5B0	268P076O20	PHOTO TRANSISTOR	SPS-1119C-BC-T
RV901	265P100O20	VARISTOR	ERZV10D271CS
TU01	295P515O10	TUNER	VD025AW
V8A0	253P157O10	FLUOR DISPLAY TUBE	
X2A0	285P147O60	CRYSTAL RESONATOR	3.579545MH
X5A0	285P054O40	CRYSTAL RESONATOR	32.768kHz
X5A1	285P368O40	CRYSTAL RESONATOR	12.000MHz
X5D01	285P368O40	CRYSTAL RESONATOR	12.000MHz
Z5A0	939P662O20	PREAMP UNIT	GP1U293Q
	PRINTED CIRCUIT BOARD ASSY'S		
	927C324O02	1394 PCB ASSY	
	928D572O01	HEAD AMP PCB ASSY	
	928D559O01	JACK PCB ASSY	
	925B126O02	MAIN PCB ASSY	
	928D478O03	OPE L PCB ASSY	
	928D479O03	OPE R PCB ASSY	
	928D571O02	SIGNAL PCB ASSY	
	928D560O01	D-IF PCB ASSY	
	928P009O20	DVHS PCB ASSY	

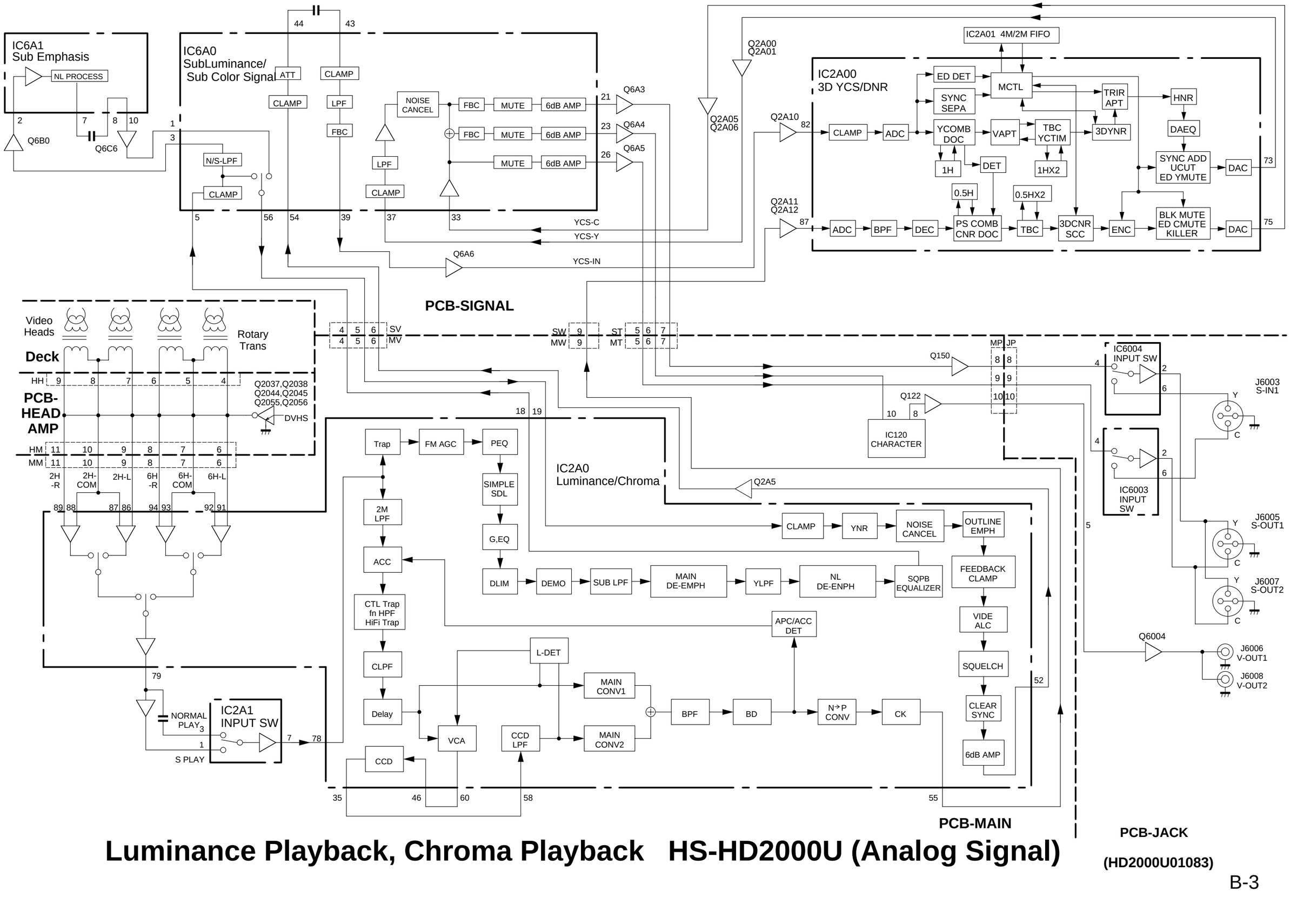


HS-HD2000U BLOCK DIAGRAM (Digital Signal)

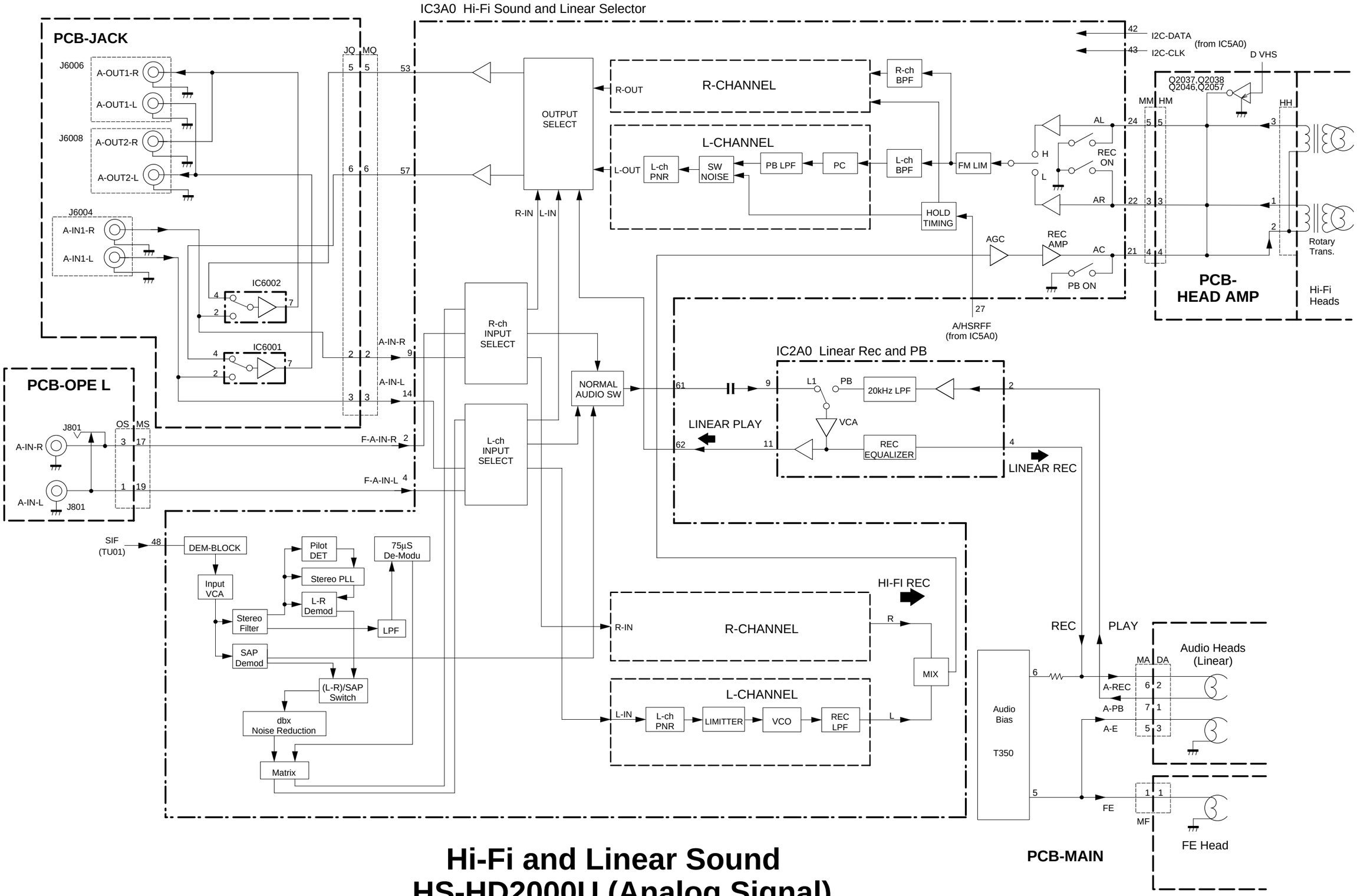


Luminance Record, Chroma Record HS-HD2000U (Analog Signal)

(HD2000U01082)



Luminance Playback, Chroma Playback HS-HD2000U (Analog Signal)

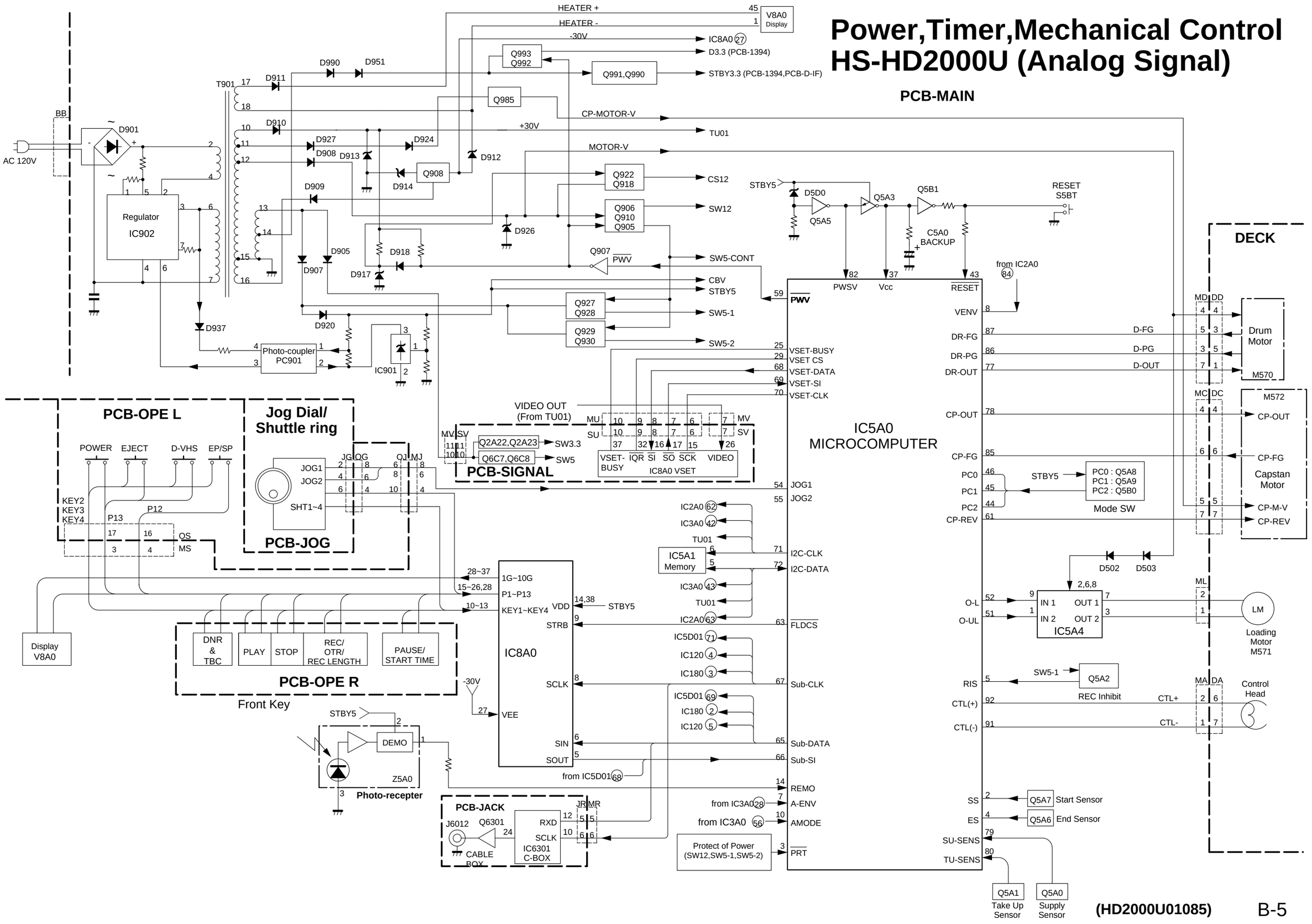


Hi-Fi and Linear Sound
HS-HD2000U (Analog Signal)

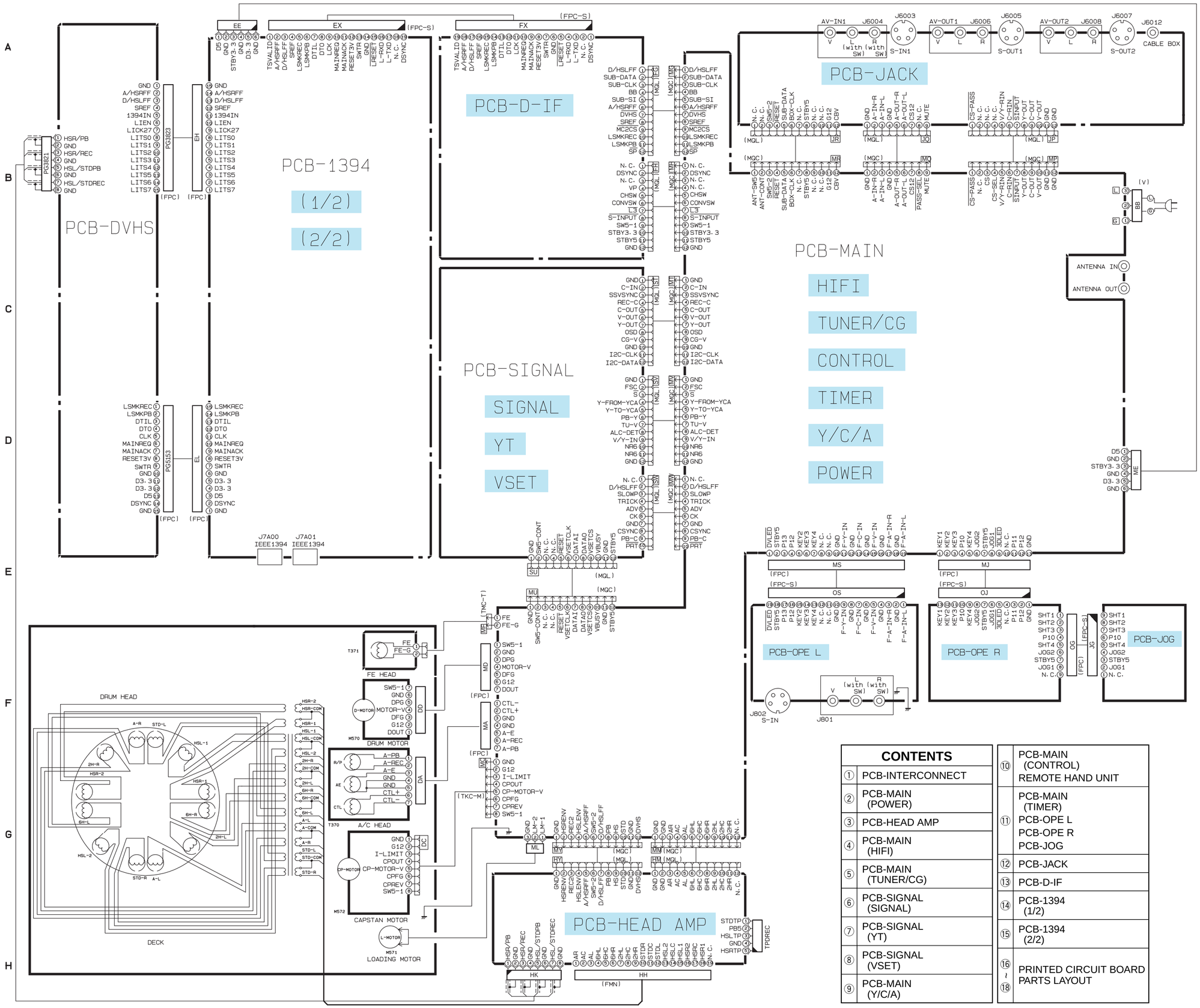
(HD2000u01084)

Power,Timer,Mechanical Control
HS-HD2000U (Analog Signal)

PCB-MAIN



PCB-INTERCONNECT



CONTENTS

SCHEMATIC DIAGRAMS

NOTE
1. Each voltage should be within ± 20% of the DC voltages measured with a digital voltmeter.
2. The voltages parenthesised on SP recording mode.
   While those without parenthesised on SP play back mode.
3. Waveforms were taken with standard color bar signal.
4. TP&A, etc. show Test Points.
5. Capacitors

Value	Not indicated	pF; for numbers more than 1 μF; for numbers less than 1	
Dielectric Strength	Not indicated : 50V		
Tolerance	Not indicated = ±10% (No Tolerance is indicated for electrolytic capacitors and ± 20%)		
	G = ± 2%	N = ± 30%	Q = + 30% – 10% C = ± 0.25pF
	J = ± 5%		D = ± 0.5pF
	K = ± 10%	P = + 100% – 0%	Z = + 80% – 20% F = ± 1pF
	M = ± 20%		G = ± 2pF
Sort I Parts except for chips	Not indicated		: Ceramic capacitor
	(MF)		: Polyester capacitor
	(PP)		: Polypropylene film capacitor
	(ALM)		: Aluminus electrolytic capacitor
	(TF)		: Twin film capacitor
	(SC)		: Semiconductor ceramic capacitor
	(MP)		: Metalized paper capacitor
	(MPP)		: Metalized plastic film capacitor
	(MMF)		: Metalized polyester capacitor
	(MF.PP)		: Polyester polypropylene film capacitor
	(PS)		: Styrol capacitor
	(TAN) or (TANT)		: Tantalum capacitor
	⊣⊢		: Electrolytic capacitor
	(BP) or (NP)		: Non polarized electrolytic capacitor
Sort II Chips	Not indicated		: Ceramic capacitor chip
	⊣⊢		: Electrolytic capacitor chip
	(BP) or (NP)		: Non polarized electrolytic capacitor chip
Characteristic (only ceramic capacitor)	Not indicated : F or B (high dielectric percentage) CH,SL,etc : Temperature compensating types		

6. Resistors

Value	Not indicated = Ω K = kΩ (1000Ω) M = MΩ(1000kΩ)		
Wattage	Parts except for chips	Not indicated = 1/4W or 1/6W	
	Chips	Not indicated = 1/10W	
Tolerance	Not indicated = ± 5% D = ± 0.5% F = ± 1%	J = ± 5% K = ± 10%	
Sort I Parts except for chips	Not indicated		: Carbon resistor
	(S)		: Fixed composition resistor
	(MB)		: Metal oxide film resistor (type B)
	(CE)		: Cemented resistor
	(W)		: Wire wound resistor
	(M)		: Metal film resistor
	(MPC)		: Metal plate cement resistor
	(ML)		: Metal liner resistor
Sort II Chips	Not indicated		: Chip resistor

7. This is basic schematic diagram.
   Some sets may be subject to modification according to engineering imporovement.

SPECIFIC SYMBOL

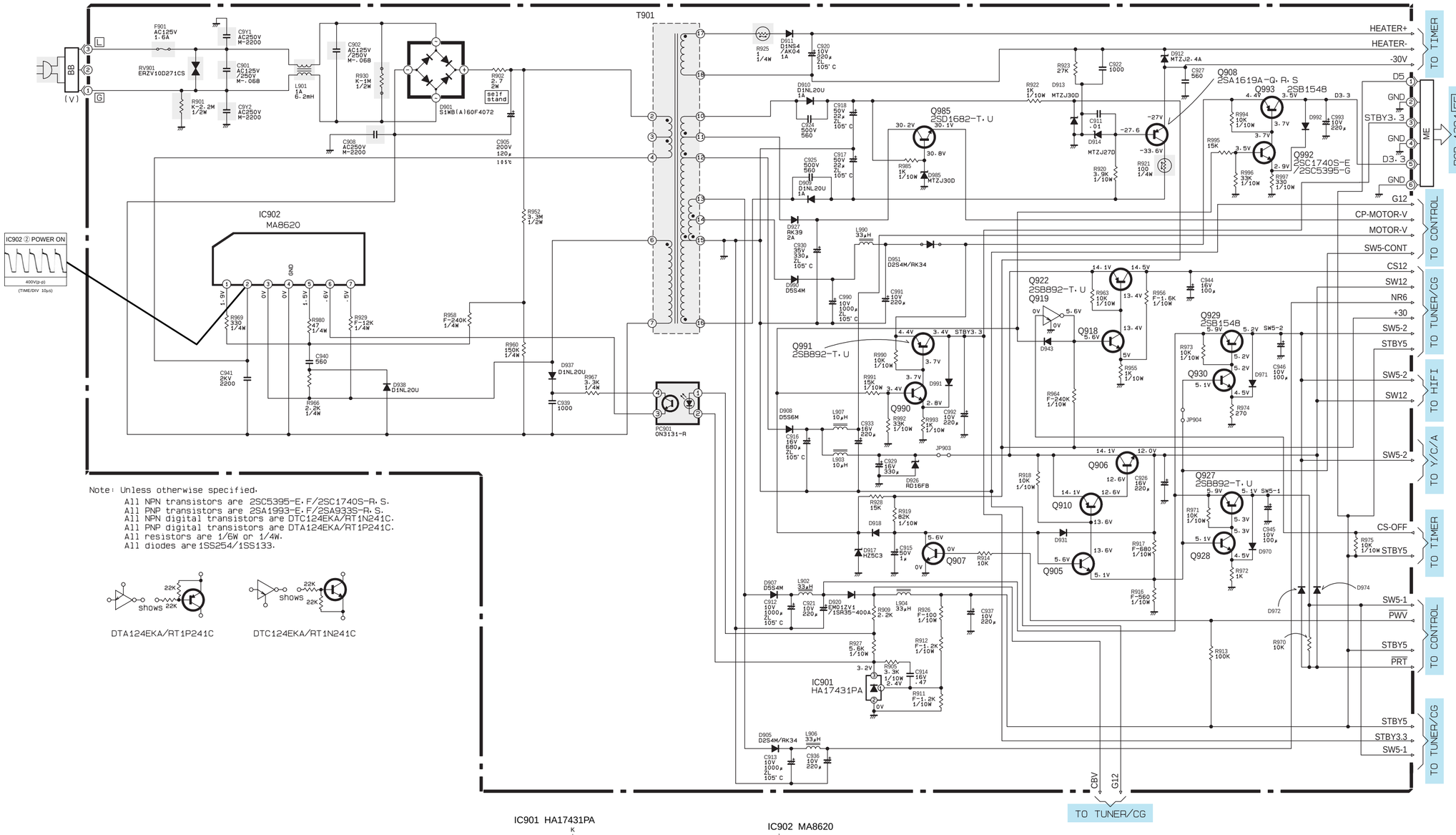
Zener Diode	Fusible Resistor
Varicap	Crystal unit
Positive Thermistor	Air Gap
Thermistor	Part (resistor) attached on the copper-foil side of PCB
Photo Diode	Ceramic filter
LED	

8. Correspondence of the units in the Schematic Diagrams to the SI units.

Schematic Diagram	SI
K	k
HZ	Hz
P	p

SHADED COMPONENTS HAVE SPECIAL CHARACTERISTICS IMPORTANT TO SAFETY. BEFORE REPLACING ANY OF THESE COMPONENTS READ CAREFULLY THE PRODUCT SAFETY NOTICE IN THE SERVICE MANUAL.
DON'T DEGRADE THE SAFETY OF THE RECEIVERS THROUGH IMPROPER SERVICING.

(POWER) PCB-MAIN

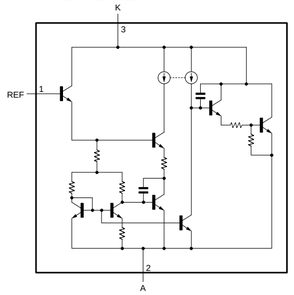


Note: Unless otherwise specified.
All NPN transistors are 2SC5395-E,F/2SC1740S-R,S.
All PNP transistors are 2SA1993-E,F/2SA933S-R,S.
All NPN digital transistors are DTC124EKA/RT1N241C.
All PNP digital transistors are DTA124EKA/RT1P241C.
All resistors are 1/6W or 1/4W.
All diodes are 1SS254/1SS133.

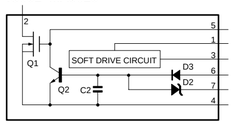
DTA124EKA/RT1P241C

DTC124EKA/RT1N241C

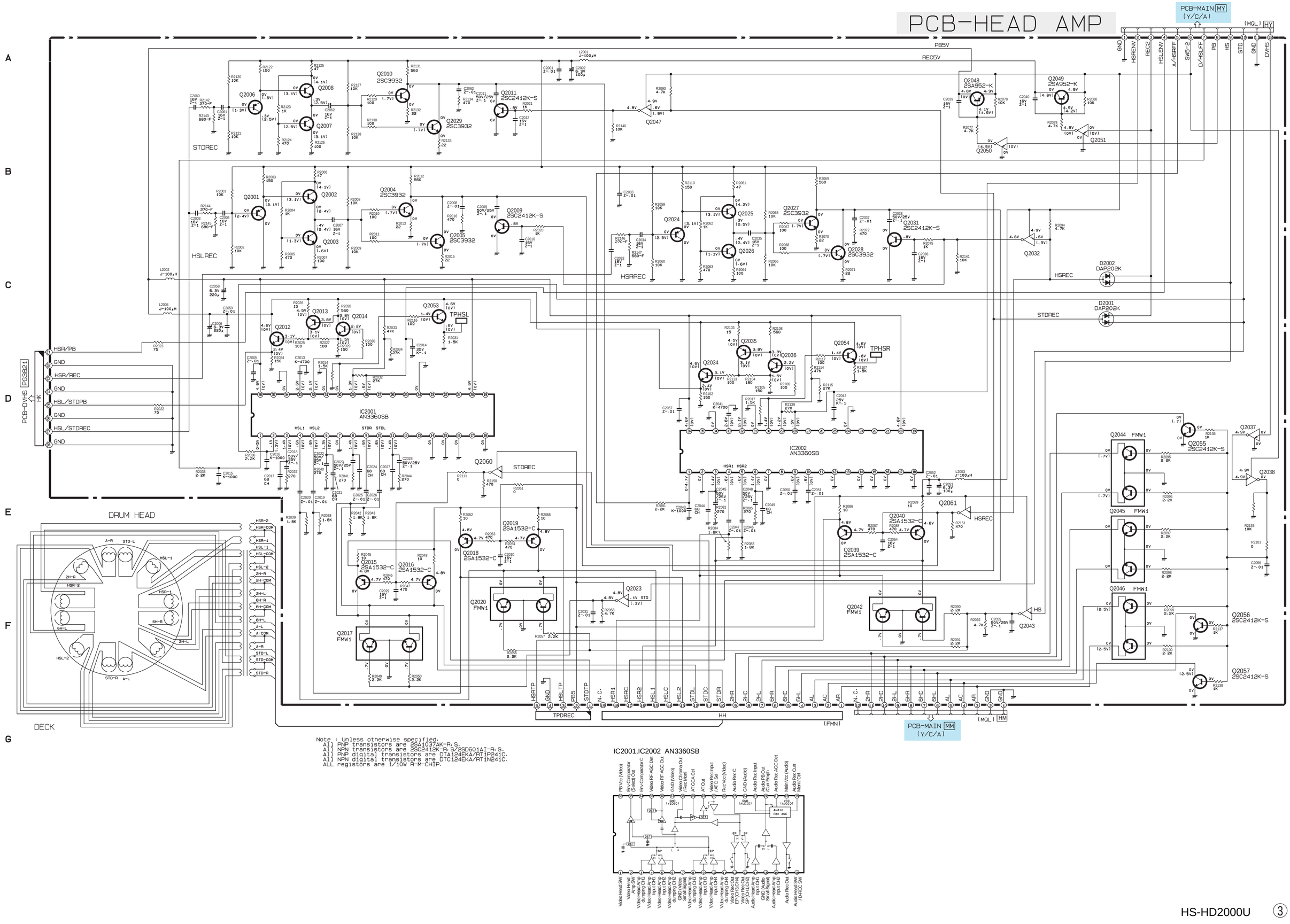
IC901 HA17431PA



IC902 MA8620



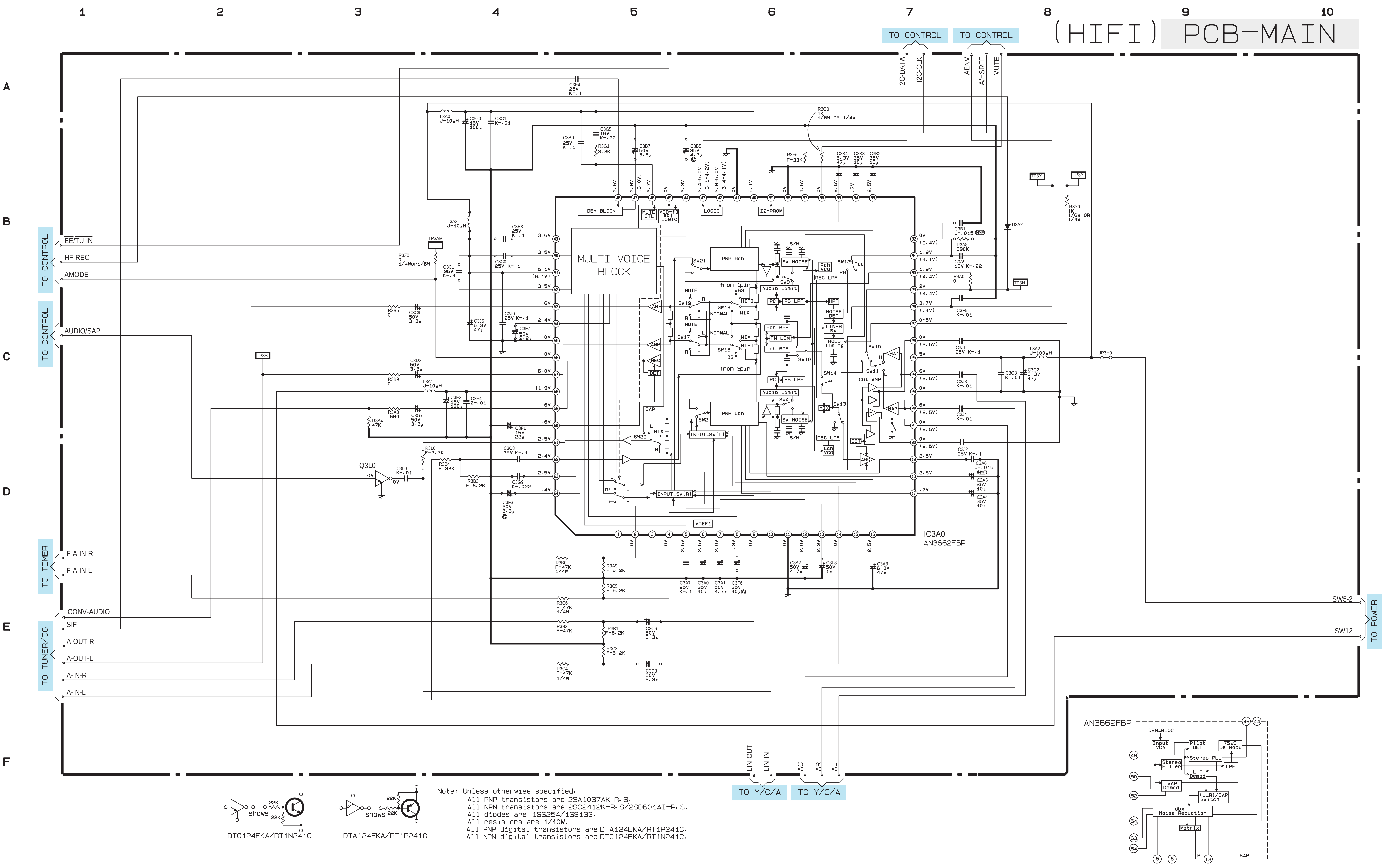
PCB-HEAD AMP



Note : Unless otherwise specified.
All PNP transistors are 2SA1037AK-R,S.
All NPN transistors are 2SC2412K-R,S/2SD601AI-R,S.
All PNP digital transistors are DTA124EKA/RT1P241C.
All NPN digital transistors are DTC124EKA/RT1N241C.
ALL registors are 1/10W R-M-CHIP.

IC2001,IC2002 AN3360SB

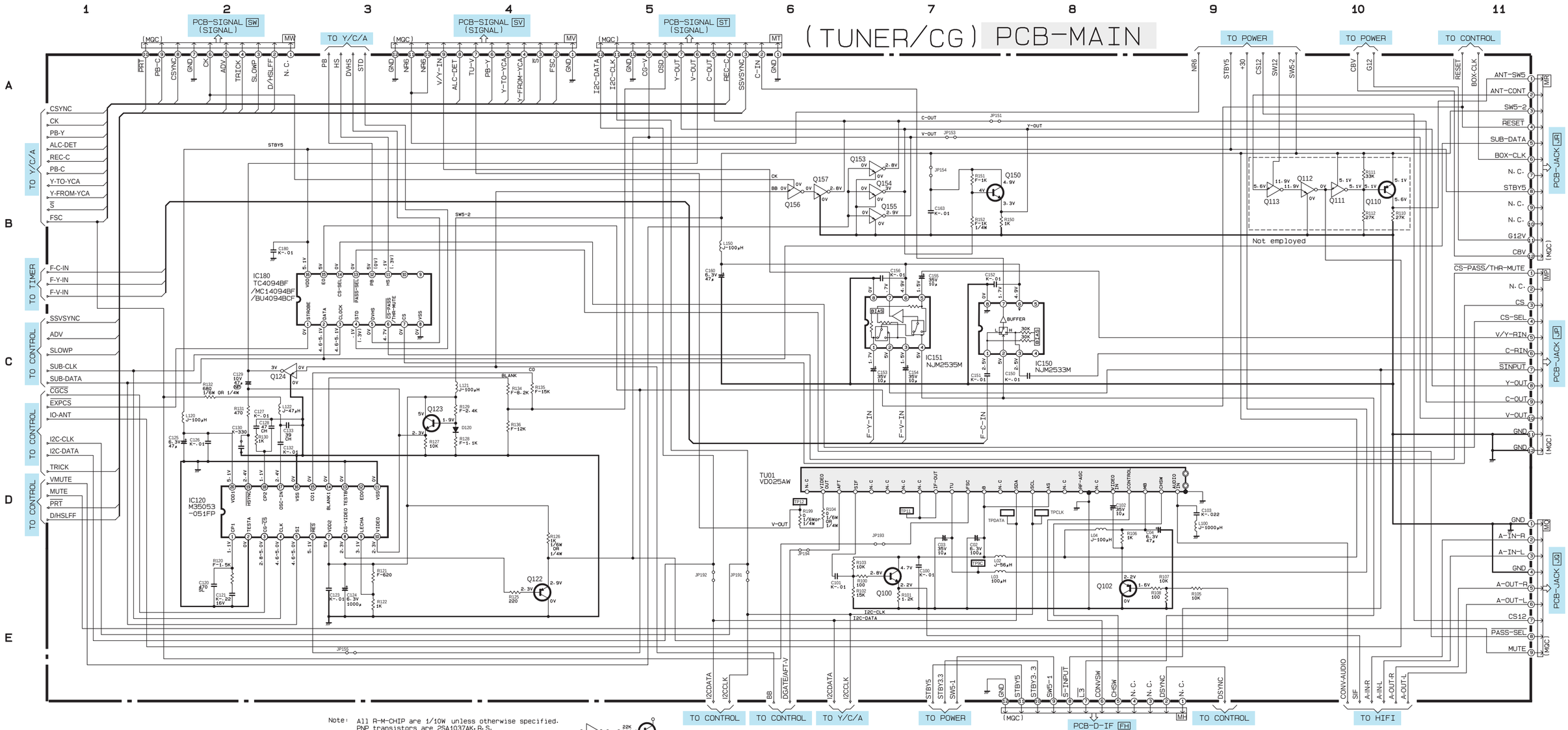
(HIFI) PCB-MAIN



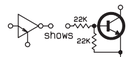
TO CONTROL
TO CONTROL
I2C-DATA
I2C-CLK
AENV
A/HSRFF
MUTE
EE/TU-IN
HF-REC
AMODE
AUDIO/SAP
TO TIMER
F-A-IN-R
F-A-IN-L
TO TUNER/CG
CONV-AUDIO
SIF
A-OUT-R
A-OUT-L
A-IN-R
A-IN-L
MULTI VOICE BLOCK
DEM.BLOCK
PNR Rch
PNR Lch
INPUT.SW(L)
INPUT.SW(R)
VREF1
IC3A0
AN3662FBP
Q3L0
SW5-2
SW12
TO POWER
LIN-OUT
LIN-IN
AC
AR
AL
TO Y/C/A
TO Y/C/A
AN3662FBP
Input VCA
Pilot DET
75μS De-Modu
Stereo Filter
Stereo PLL
LPF
L-R Demod
SAP Demod
(L-R)/SAP Switch
dbx Noise Reduction
Matrix
DTC124EKA/RT1N241C
DTA124EKA/RT1P241C

Note: Unless otherwise specified.
All PNP transistors are 2SA1037AK-R.S.
All NPN transistors are 2SC2412K-R.S/2SD601AI-R.S.
All diodes are 1SS254/1SS133.
All resistors are 1/10W.
All PNP digital transistors are DTA124EKA/RT1P241C.
All NPN digital transistors are DTC124EKA/RT1N241C.

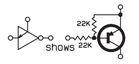
(TUNER/CG) PCB-MAIN



Note: All R-M-CHIP are 1/10W unless otherwise specified.
PNP transistors are 2SA1037AK-R-S.
NPN transistors are 2SC2412K-R-S/2SD601AI-R-S.
All diodes are 1SS254/1SS133.
PNP digital transistors are DTA124EKA/RT1N241C.
NPN digital transistors are DTC124EKA/RT1N241C.

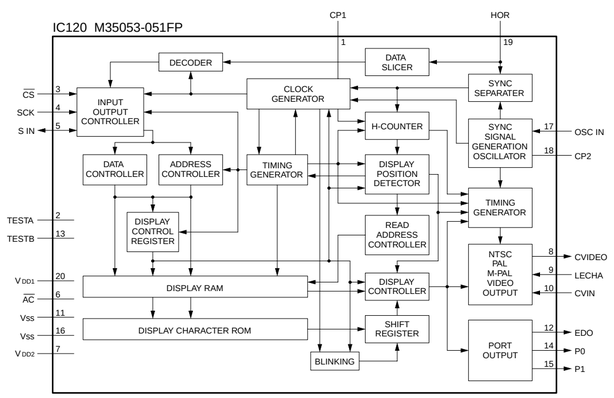


DTC124EKA/RT1N241C

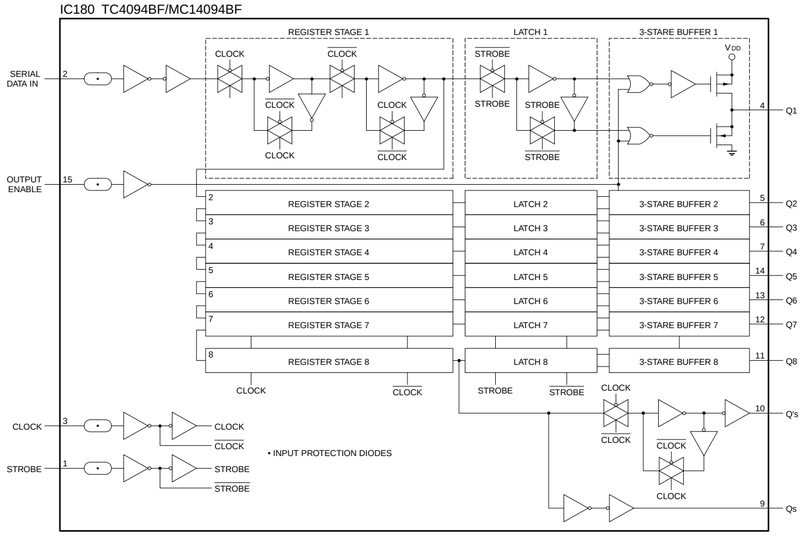


DTA124EKA/RT1P241C

IC120 M35053-051FP



IC180 TC4094BF/MC14094BF

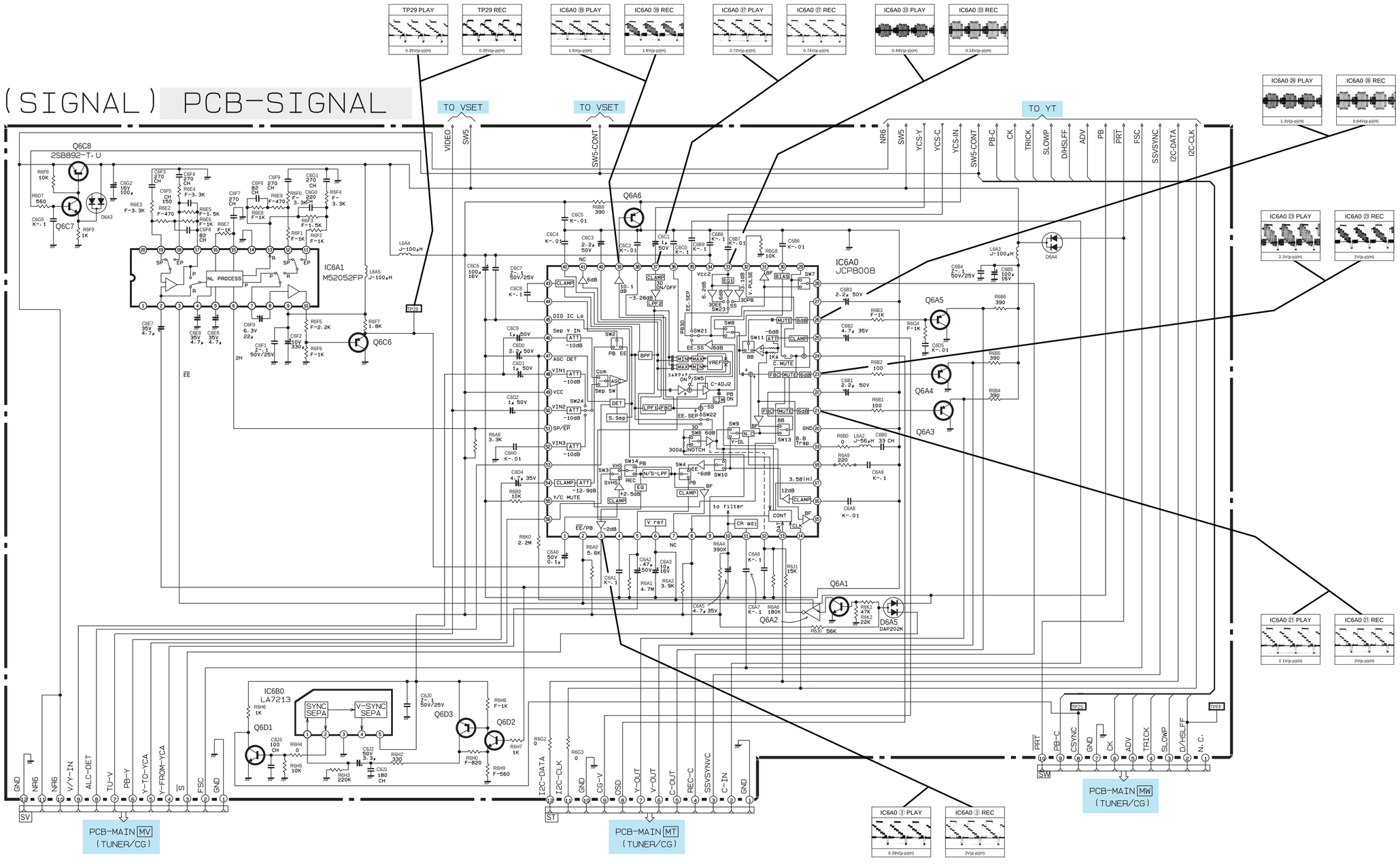


• TRUE TABLE

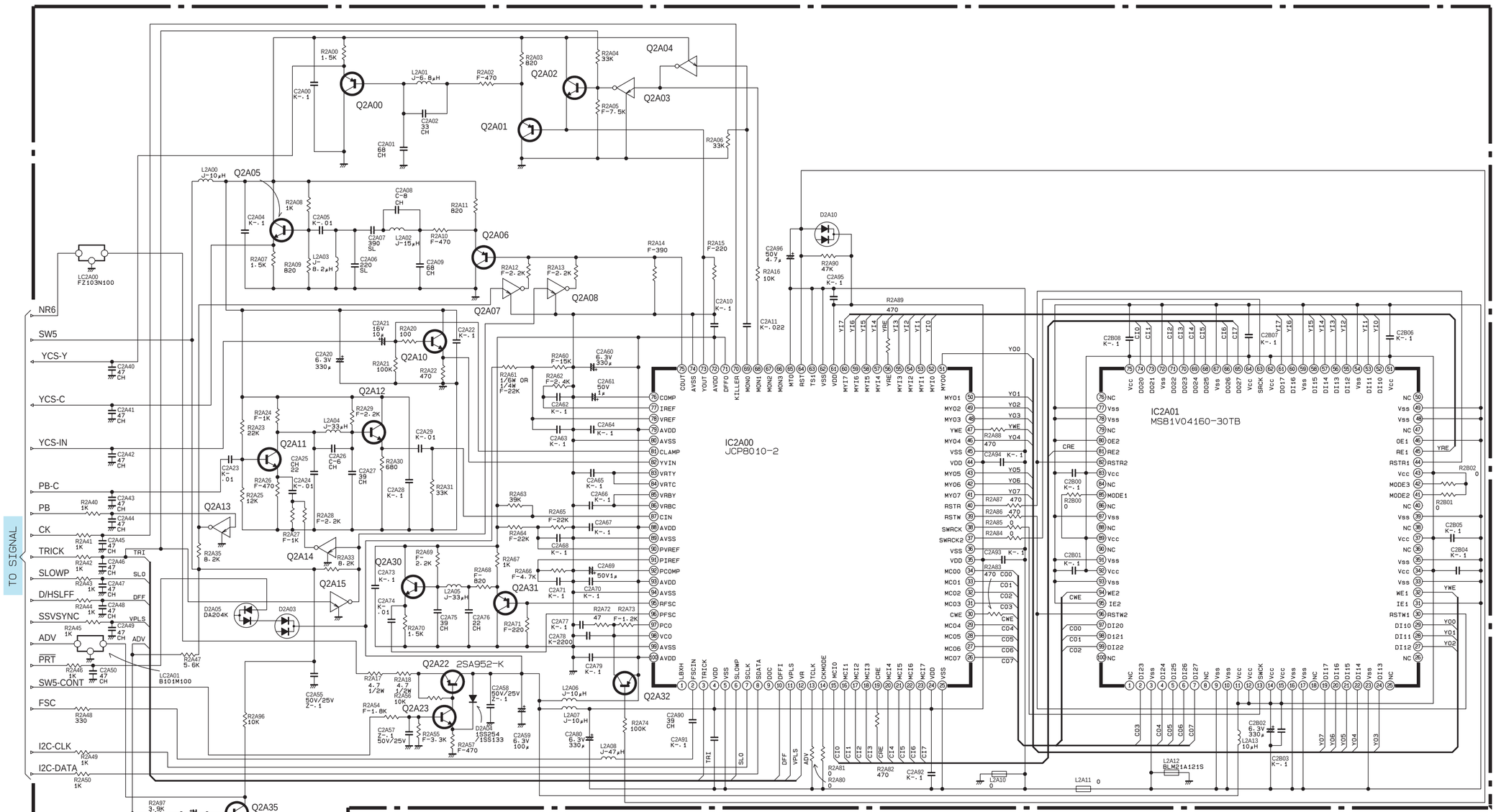
CLOCK	OUTPUT ENABLE	STROBE	DATA	PARALLEL OUTPUTS		SERIAL OUTPUTS	
				QI	QN	QS	Q'S
⎍	0	×	×	3S	3S	Q7	NO CHG.
⎍	0	×	×	3S	3S	NO CHG.	Q7
⎍	1	0	×	NO CHG.	NO CHG.	Q7	NO CHG.
⎍	1	1	0	0	QN-1	Q7	NO CHG.
⎍	1	1	1	1	QN-1	Q7	NO CHG.
⎍	1	1	1	NO CHG.	NO CHG.	NO CHG.	Q7

3S = Three-Stare
× = Don't Care
At the positive clock edge.
Information in the 7th shift register stage is transferred to Q8 and QS.

(SIGNAL) PCB-SIGNAL

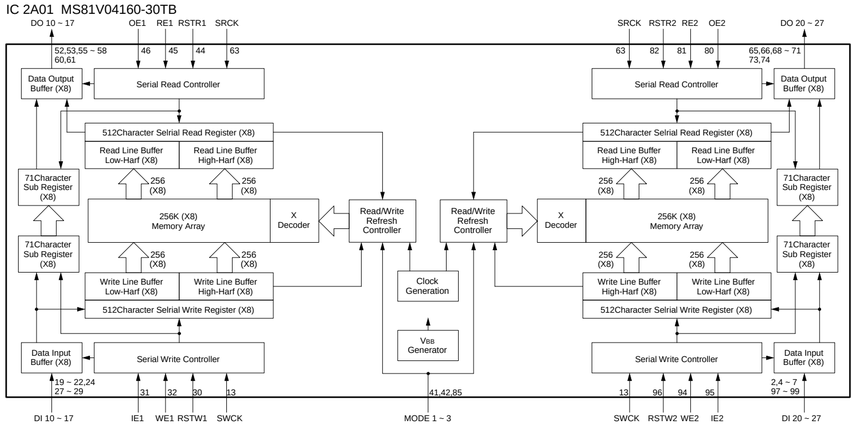


Note : Unless otherwise specified.
All resistors are 1/10W.
All PNP transistors are 2SA1037AK-R,S.
All NPN transistors are 2SC2412K-R,S/2SD601AI-R,S.
All PNP digital transistors are DTA124EKA/RT1P241C.
All NPN digital transistors are DTC124EKA/RT1N241C.
All diodes are DAN202K/M1MA151WKT1.
All C-CERAMIC-CHIP K-.1 are 25V.

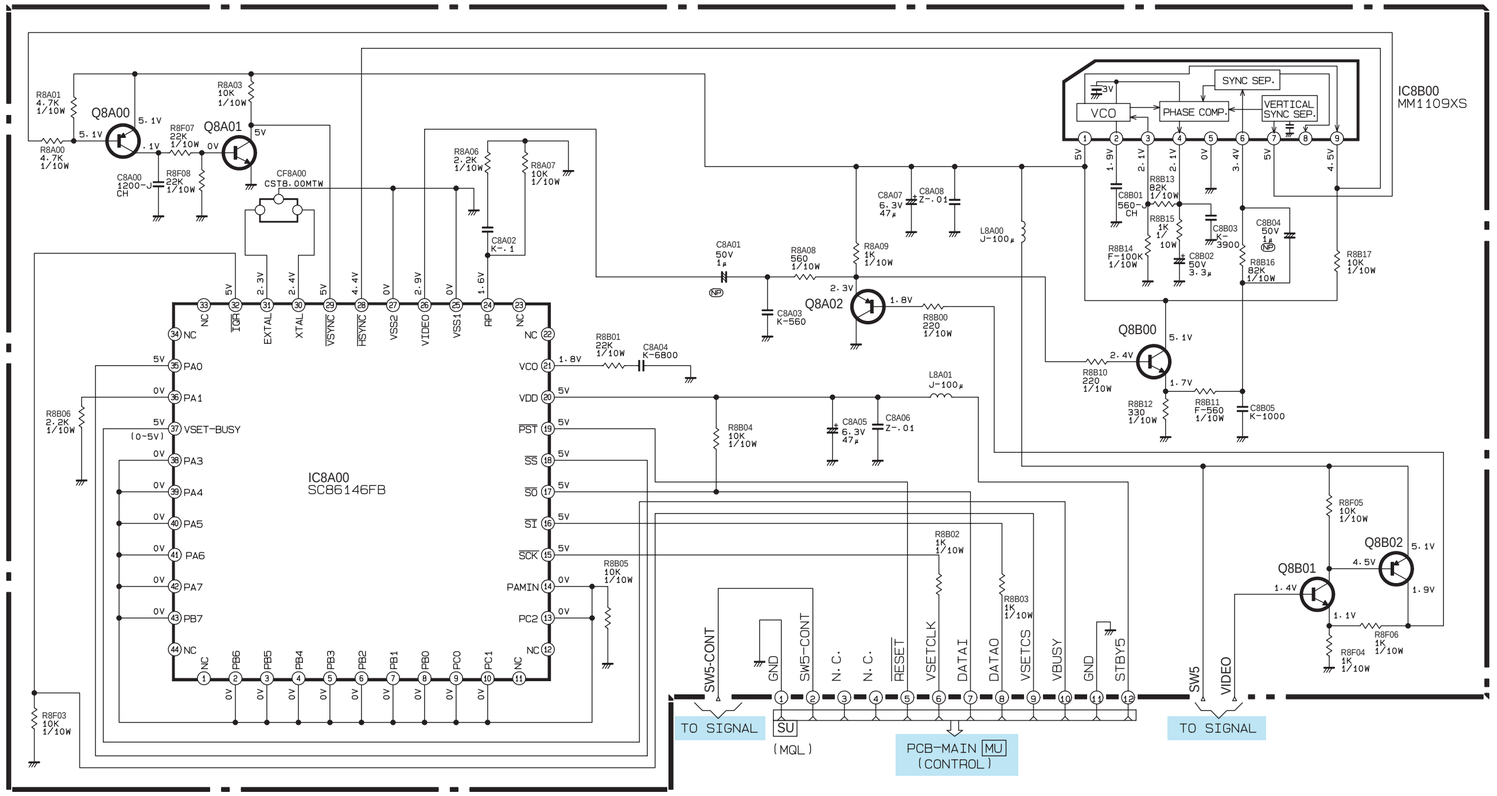


Note : Unless otherwise specified.
All PNP transistors are 2SA1037AK-R.S.
All NPN transistors are 2SC2412K-R.S/2SD601AI-R.S.
All PNP digital transistors are DTA124EKA/RT1P241C.
All NPN digital transistors are DTC124EKA/RT1N241C.
All diodes are DAN202K.
All R-M-CHIP are 1/10W.
All C-CERAMIC-CHIP K-.1 are 25V.

IC 2A01 MS81V04160-30TB

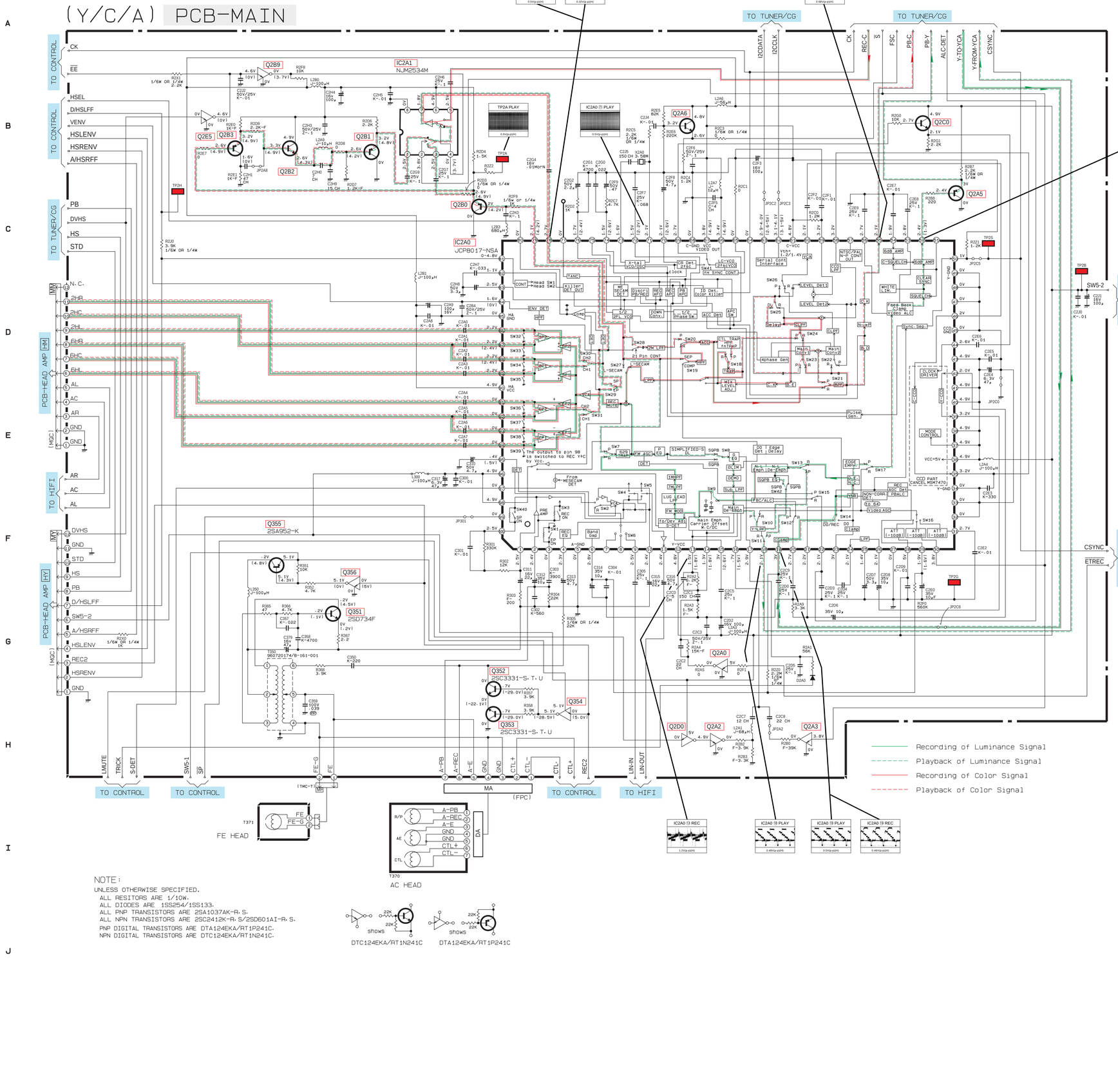


(VSET) PCB-SIGNAL



Note:
Unless otherwise specified.
PNP transistors are 2SC2412K-R.S/2SD601AI-R.S.
NPN transistors are 2SA1037AK-R.S.

(Y/C/A) PCB-MAIN



NOTE:

UNLESS OTHERWISE SPECIFIED.

ALL RESITORS ARE 1/10W.

ALL DIODES ARE 1SS254/1SS133.

ALL PNP TRANSISTORS ARE 2SA1037AK-R.S.

ALL NPN TRANSISTORS ARE 2SC2412K-R.S/2SD601AI-R.S.

PNP DIGITAL TRANSISTORS ARE DTA124EKA/RT1P241C.

NPN DIGITAL TRANSISTORS ARE DTC124EKA/RT1N241C.

TO TUNER/CG | TO HIFI | TO HIFI | TO TUNER/CG | TO Y/C/A | TO TUNER/CG | PCB-SIGNAL SU (VSET) | (MQC) MU | TO TUNER/CG

I2CDATA, I2CCLK, AUDIO/SAP, I2C-CLK, I2C-DATA, ADV, SLOWP, SSVSYNC, SUB-CLK, SUB-DATA, ETREC, CSYNC, DSYNC, GND, SWS-CONT, N.C., N.C., RESET, VSETCLK, DATAI, DATAO, VSETCS, VBUSY, GND, STBY5, I2C-DATA, I2C-CLK, CGCS, IO-ANT, EXPCS, TRICK

Q5A8 SPS-1119C-BC-T1 | Q5A9 SPS-1119C-BC-T1 | Q5B0 SPS-1119C-BC-T1

Q5A0 SPS-1119C-BC-T1 | Q5A2 SPS-1119C-BC-T1 | Q5A1 SPS-1119C-BC-T1

Q5A6 PT492FK1 | Q5A7 PT492FK1

IC5A1 BR24C16F-E2 /CAT24WC16J-TE13

IC5A6 TC4053BF

Q5B4 2SC3052-G

IC5A7 TC4W53F

IC5A4 TA7291S

IC5A0 M37777MFHYYYGP

Q5L0

Q5A3 2SA1235-E-F

Q5B1

Q5A4

Q5A5

X5A0 32.768KHZ | X5A1 12.000MHZ

Z5A0 GP1U293Q

TO TIMER: FLDCS, SUB-DATA, SUB-SI, SUB-CLK, JOG1, JOG2

TO Y/C/A: LMUTE, S-DET, TRICK

TO Y/C/A: EE, CK

RESET, BOXCLK → TO TUNER/CG

TO POWER: STBY5, SW5-1, PRT, PWW

TO POWER: CP-MOTOR-V, SW5-CONT, MOTOR-V, G12

MD (FPC): DOUT, G12, CPFG, MOTOR-V, DPG, GND, SW5-1

MC (TKC-M): SW5-1, CPREV, CPFG, CP-MOTOR-V, CPOUT, I-LIMIT, G12, GND

TO Y/C/A: CTL+, CTL-, REC2

TO Y/C/A: HSLENV, AHSRFF, VENV, DMSLFF, HSEL, HSRENV, SW5-1, SP

(MQC): SP, LSMKPB, LSMKREC, MCPCS, SHEF, DTVS, A/HSRFF, SUB-SI, BB, SUB-CLK, SUB-DATA, D/HSLFF, BB, DGATE(AFT-V

TO TUNER/CG: DGATE(AFT-V, PRT, DMSLFF, VMUTE, MUTE

TO HIFI: HF-REC, EEPTUIN, AMODE

TO HIFI: AENV, AHSRFF, MUTE

PCB-D-IF FG

LOADING MOTOR (L-MOTOR) M571

DRUM MOTOR (D-MOTOR) M570: SW5-1, GND, DPG, MOTOR-V, DFG, G12, DOUT

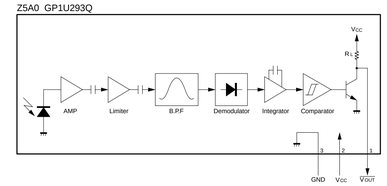
CAPSTAN MOTOR (CP-MOTOR) M572: GND, G12, I-LIMIT, CPOUT, CP-MOTOR-V, CPFG, CPREV, SW5-1

CONNECTOR MD PLAY (4.4Vp-p, TIME/DIV 0.5ms) | CONNECTOR MD PLAY (4.4Vp-p, TIME/DIV 10ms) | CONNECTOR MC PLAY (4.5Vp-p, TIME/DIV 0.2ms)

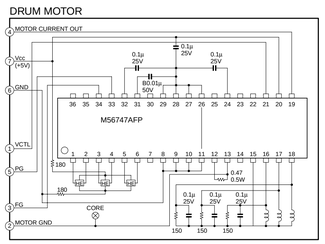
NOTE:
All registors are 1/6 or 1/4W unless otherwise specified.
All diodes are 1SS254/1SS133 unless otherwise specified.
All NPN transistors are 2SC2412K-R-S/2SD601AI-R-S unless otherwise specified.
All PNP transistors are 2SA1037AK-R-S unless otherwise specified.

Drum Servo System
Capstan Servo Syatem

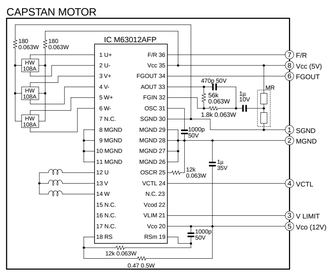
Z5A0 GP1U293Q



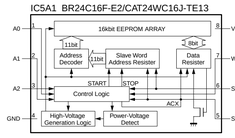
DRUM MOTOR



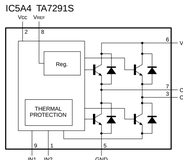
CAPSTAN MOTOR



IC5A1 BR24C16F-E2/CAT24WC16J-TE13



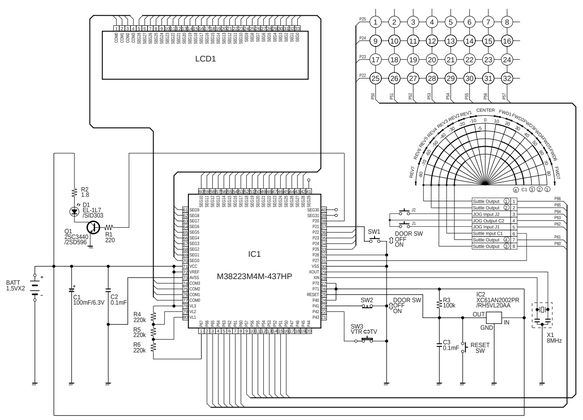
IC5A4 TA7291S

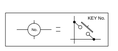


INPUT		OUTPUT		MODE
IN1	IN2	OUT1	OUT2	
0	0	∞	∞	STOP
1	0	H	L	CW/CCW
0	1	L	H	CCW/CW
1	1	L	L	BRAKE

∞ : High impedance.
Note : Input signal activate at "H".

REMOTE HAND UNIT





KEY No.	FUNCTION
K1	LCD PROGRAM
K2	1
K2'	EJECT
K3	4
K3'	TV AUDIO
K4	7
K4'	VCR-A/B
K5	TV POWER
K6	IEEE 1394 INPUT
K7	REW
K8	REC
K9	VCR POWER
K10	2
K10'	OTR2-START TIME
K11	5
K11'	VIDEO
K12	10
K12'	Q.V
K13	CHANNEL∧
K14	CHANNEL∨
K15	PLAY
K16	INDEX▶▶I/LEFT
K17	VCR Plus+

KEY No.	FUNCTION
K18	3
K18'	OTR2-REC LENGTH
K19	6
K19'	DISPLAY
K20	0
K20'	VCR/TV
K21	VOLUME∧
K22	VOLUME∨
K23	STOP
K24	INDEX ▶▶I/RIGHT
K25	QUICK PROGRAM
K26	TRANSFER
K27	9
K27'	SP/EP
K28	8
K28'	MUTE
K29	ENTER
K29'	MENU
K30	INPUT/DAILY/WEEKLY
K31	FF
K32	PAUSE

NOTE) ' : DOOR OPEN

SUTTLE PLACE	SUTTLE CODE
FWD7	J-HFS
FWD6	J-FS
FWD5	J-X2PB
FWD4	J-PB
FWD3	J-SLOW5
FWD2	J-SLOW3
FWD1	J-SLOW1
CENTER	J-STILL
REV1	J-RSLOW1
REV2	J-RSLOW3
REV3	J-RSLOW5
REV4	J-RPB
REV5	J-X3RPB
REV6	J-RS
REV7	J-HRS

(TIMER) PCB-MAIN

PCB-OPE L

PCB-OPE R

PCB-JOG

TO POWER

HEATER-
HEATER+
-30V

TO POWER

CS-OFF
STBY5

V8A0
2001US-D-VFD

IC8A0
µPD16312GB-3BS/PT6312LQ

TO HIFI

F-A-IN-L
F-A-IN-R

TO TUNER/CG

F-V-IN
F-C-IN
F-Y-IN

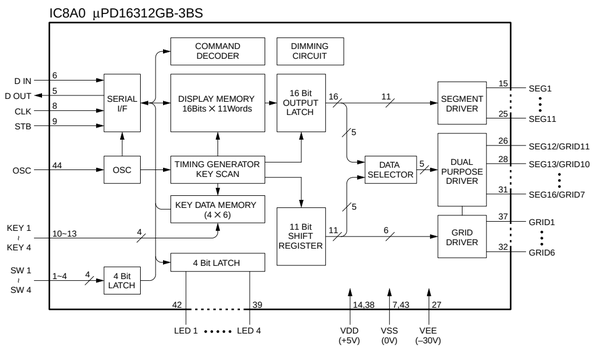
TO CONTROL

SUB-SI
SUB-DATA
SUB-CLK
FLDCS
JOG2
JOG1

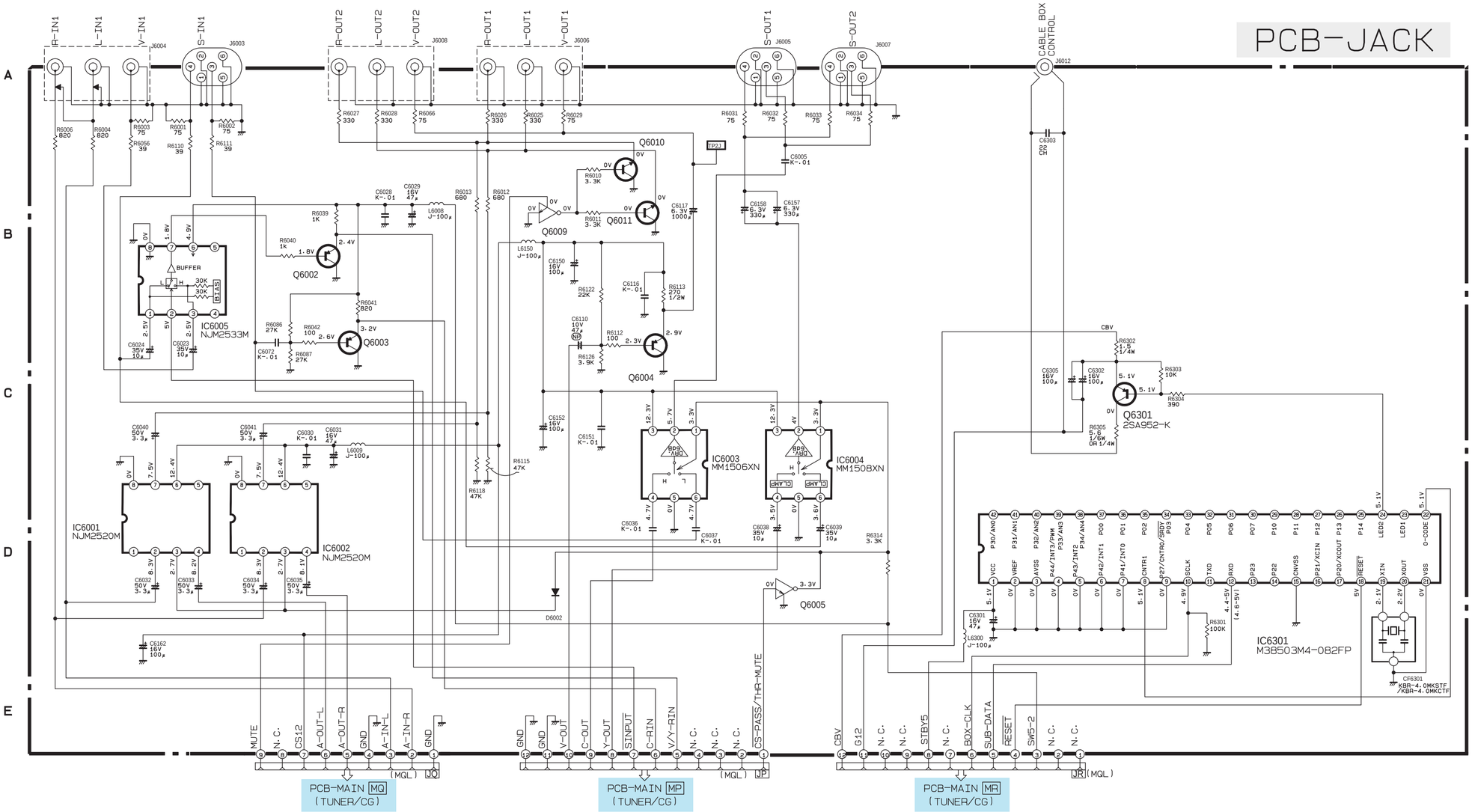
All registors are 1/6 or 1/4W unless otherwise specified.

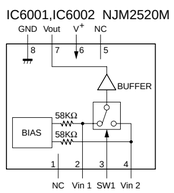
All diodes are 1SS254/1SS133 unless otherwise specified.

IC8A0 µPD16312GB-3BS



PCB-JACK





Note:
Unless otherwise specified.

PNP transistors are 2SA1037AK-R.S.
NPN transistors are 2SC2412K-R.S/2SD601AI-R.S.
All diodes are 1SS254.
PNP digital transistors are DTA124EKA/RT1P241C.
NPN digital transistors are DTC124EKA/RT1N241C.
All resistors are 1/10W.

PCB-D-IF

PCB-MAIN MH (TUNER/CG) — FH

PCB-MAIN MG (CONTROL) — FG

IC5D01 M37777MFH100GP

IC5D02 SN74ACT244NSR

IC5D03 SN74LVTH541NSR

Q5D80

Q5D05

Q5D01

D5D01 MTZJ3.9B

L5D01 J-33μH

XSD01 12.000MHZ

PCB-1394 EX (1/2)

FX (FPC-S)

Note: Unless otherwise specified.
All PNP transistors are 2SA1037AK-R.S.
All NPN transistors are 2SC2412K-R.S/2SD601AI-R.S.
All diodes are 1SS254/1SS133.
All resistors are 1/10W.
All PNP digital transistors are DTA124EKA/RT1P241C.
All NPN digital transistors are DTC124EKA/RT1N241C.

IC5D02 SN74ACT244NSR

INPUT		OUTPUT
OE	A	Y
L	H	H
L	L	L
H	X	Z

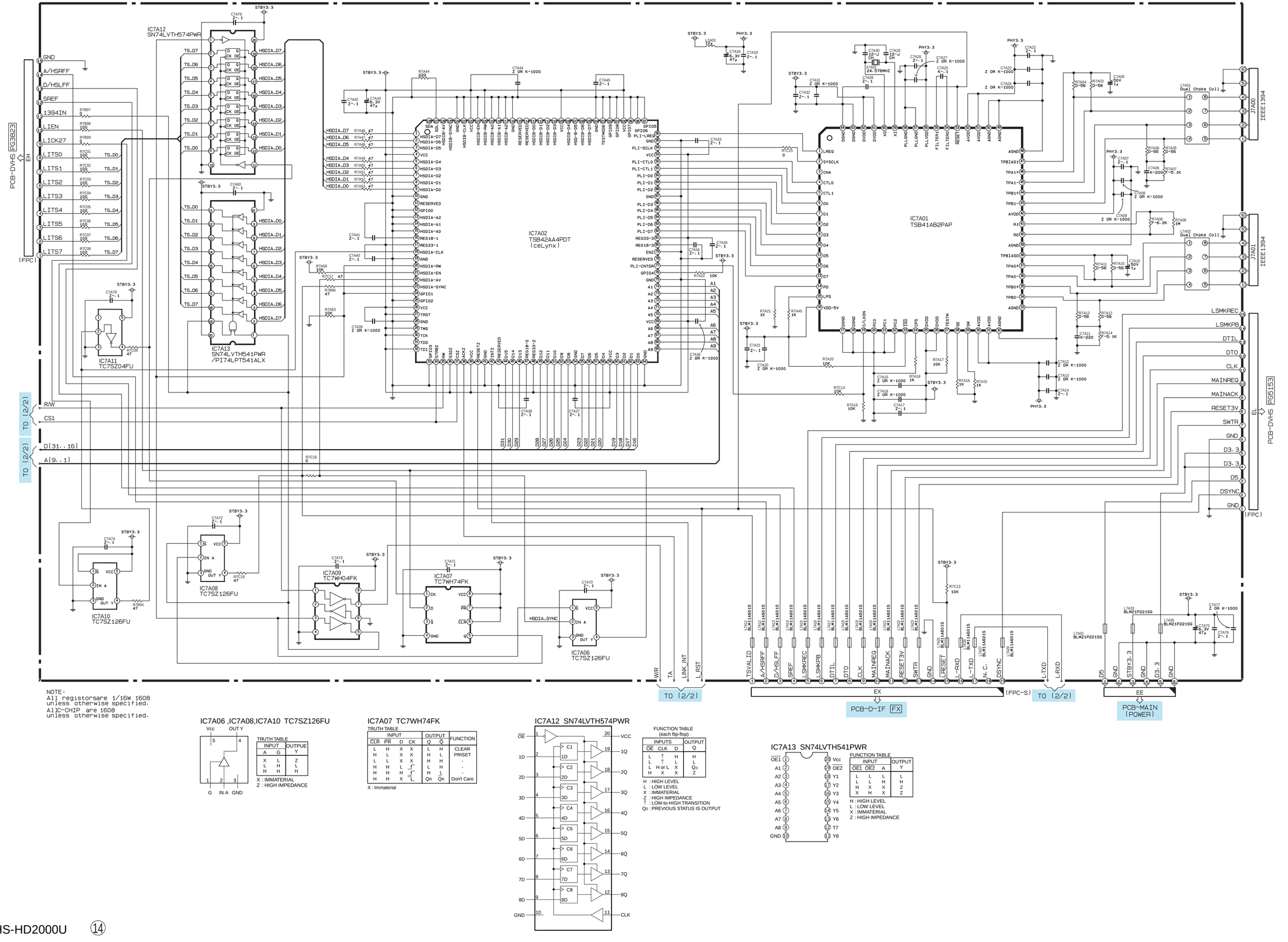
H : HIGH LEVEL
L : LOW LEVEL
X : IMMATERIAL
Z : HIGH IMPEDANCE

IC5D03 SN74LVTH541NSR

INPUT			OUTPUT
OE1	OE2	A	Y
L	L	L	L
L	L	H	H
H	X	X	Z
X	H	X	Z

H : HIGH LEVEL
L : LOW LEVEL
X : IMMATERIAL
Z : HIGH IMPEDANCE

PCB-1394 (1/2)



NOTE:
All registorsare 1/16W 1608 unless otherwise specified.
AJC-CHIP are 1608 unless otherwise specified.

IC7A06 ,IC7A08,IC7A10 TC7SZ126FU

TRUTH TABLE

INPUT A	INPUT G	OUTPUE Y
X	L	Z
L	H	L
H	H	H

X : IMMATERIAL
Z : HIGH IMPEDANCE

IC7A07 TC7WH74FK

TRUTH TABLE

INPUT $\overline{CLR}$	$\overline{PR}$	D	CK	OUTPUT Q	$\overline{Q}$	FUNCTION
L	H	X	X	L	H	CLEAR
H	L	X	X	H	L	PRISET
L	L	X	X	H	H	-
H	H	L	┌	L	H	-
H	H	H	┌	H	L	-
H	H	X	└	Qn	$\overline{Qn}$	Don't Care

X : Immaterial

IC7A12 SN74LVTH574PWR

FUNCTION TABLE (each flip-flop)

INPUTS $\overline{OE}$	CLK	D	OUTPUT Q
L	↑	H	H
L	↑	L	L
L	H or L	X	Q_0
H	X	X	Z

H : HIGH LEVEL
L : LOW LEVEL
X : IMMATERIAL
Z : HIGH IMPEDANCE
↑ : LOW-to-HIGH TRANSITION
Q_0 : PREVIOUS STATUS IS OUTPUT

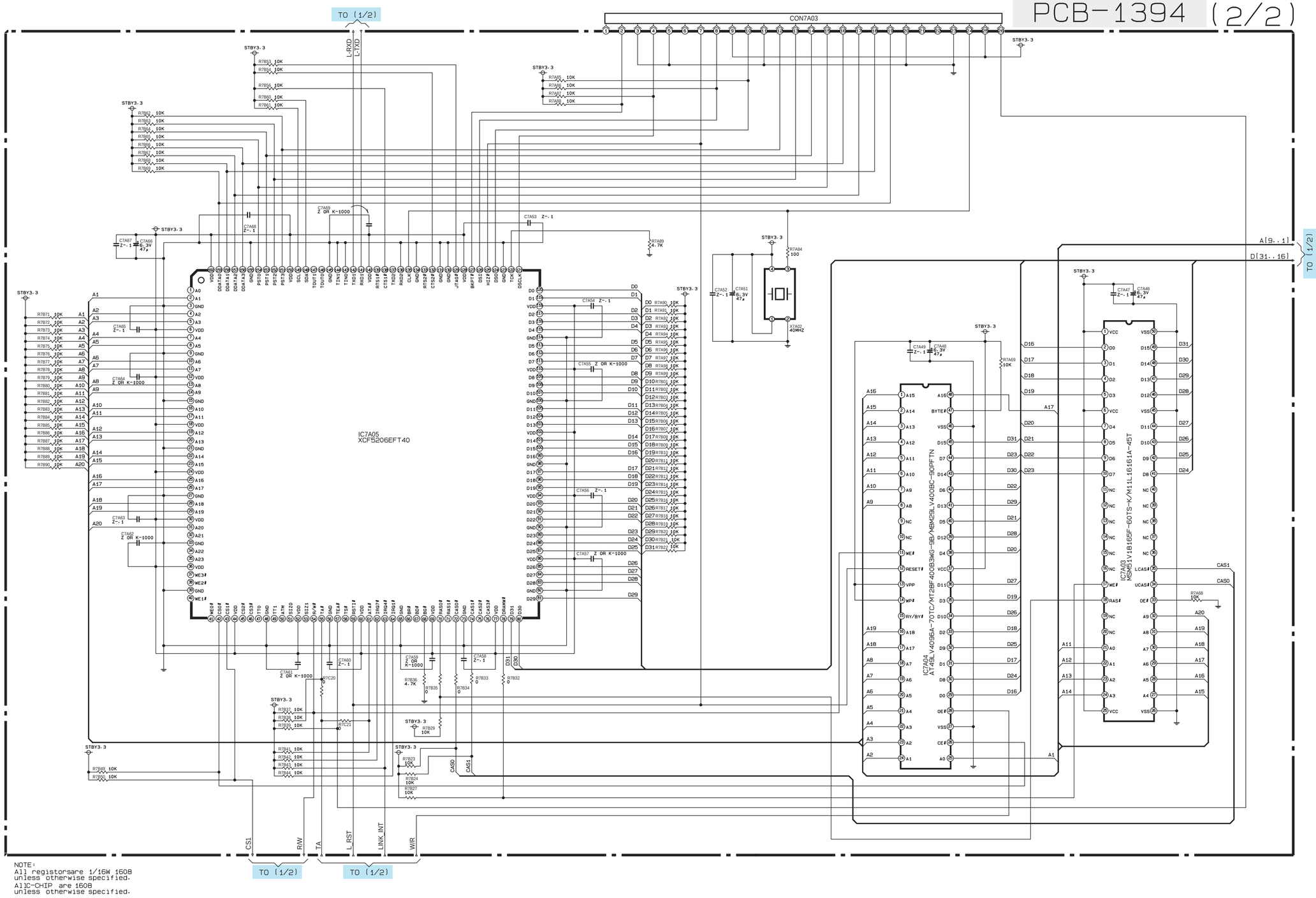
IC7A13 SN74LVTH541PWR

FUNCTION TABLE

INPUT $\overline{OE1}$	$\overline{OE2}$	A	OUTPUT Y
L	L	L	L
L	L	H	H
H	X	X	Z
X	H	X	Z

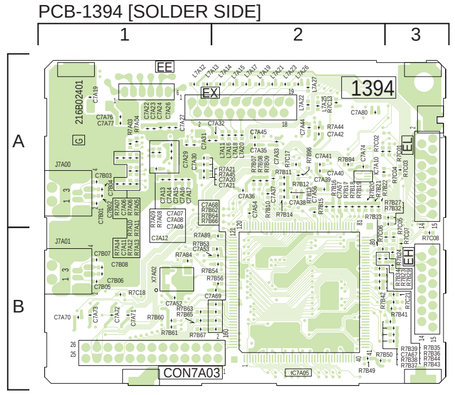
H : HIGH LEVEL
L : LOW LEVEL
X : IMMATERIAL
Z : HIGH IMPEDANCE

PCB-1394 (2/2)



NOTE:
All registorsare 1/16W 1608
unless otherwise specified.
All C-CHIP are 1608
unless otherwise specified.

PCB-1394 [SOLDER SIDE]



PCB-1394 [SOLDER SIDE]

SYMBOL NO.	ADDRESS
C7A06	A – 1
C7A07	A – 1
C7A08	A – 1
C7A09	A – 1
C7A11	A – 1
C7A12	A – 1
C7A13	A – 1
C7A14	A – 1
C7A15	A – 1
C7A16	A – 1
C7A17	A – 1
C7A19	A – 1
C7A20	A – 1
C7A21	A – 1
C7A22	A – 1
C7A23	A – 1
C7A24	A – 1
C7A26	A – 1
C7A27	A – 1
C7A29	A – 1
C7A30	A – 1
C7A31	A – 1
C7A32	A – 2
C7A33	A – 2
C7A35	A – 2
C7A36	A – 2
C7A37	A – 2
C7A38	A – 2
C7A39	A – 2
C7A40	A – 2

SYMBOL NO.	ADDRESS
C7A41	A – 2
C7A42	A – 2
C7A44	A – 2
C7A45	A – 2
C7A52	B – 1
C7A53	B – 2
C7A54	A – 2
C7A56	A – 2
C7A57	A – 2
C7A67	B – 3
C7A68	B – 2
C7A69	B – 2
C7A70	B – 1
C7A71	B – 1
C7A72	B – 1
C7A73	B – 1
C7A74	A – 2
C7A76	A – 1
C7A77	A – 1
C7A80	A – 2
C7B01	A – 1
C7B02	A – 1
C7B03	A – 1
C7B04	A – 1
C7B05	B – 1
C7B06	B – 1
C7B07	B – 1
C7B08	B – 1
CON7A03	B – 2

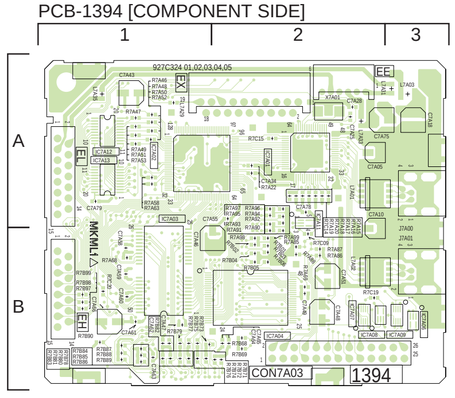
SYMBOL NO.	ADDRESS
EE	A – 1
EH	B – 3
EL	A – 3
EX	A – 1
IC7A05	B – 2
IC7A10	A – 2
J7A00	A – 1
J7A01	B – 1
L7A11	A – 2
L7A12	A – 1
L7A13	A – 1
L7A14	A – 2
L7A15	A – 2
L7A16	A – 2
L7A17	A – 2
L7A18	A – 2
L7A19	A – 2
L7A20	A – 2
L7A21	A – 2
L7A22	A – 2
L7A23	A – 2
L7A25	A – 2
L7A26	A – 2
L7A27	A – 2
R7A03	A – 1

SYMBOL NO.	ADDRESS
R7A04	A – 1
R7A05	A – 1
R7A06	A – 1
R7A07	A – 1
R7A08	A – 1
R7A09	A – 1
R7A10	A – 1
R7A11	A – 1
R7A12	A – 1
R7A13	A – 1
R7A14	A – 1
R7A21	A – 1
R7A44	A – 2
R7A45	A – 1
R7A84	B – 1
R7A89	B – 2
R7B07	A – 2
R7B08	A – 2
R7B09	A – 2
R7B10	A – 2
R7B11	A – 2
R7B12	A – 2
R7B13	A – 2
R7B14	A – 2
R7B15	A – 2
R7B16	A – 2
R7B17	A – 2
R7B18	A – 2
R7B19	A – 2
R7B20	A – 2

SYMBOL NO.	ADDRESS
R7B21	A – 2
R7B22	A – 2
R7B23	B – 3
R7B24	B – 3
R7B27	A – 3
R7B29	B – 3
R7B32	A – 3
R7B33	B – 2
R7B34	B – 2
R7B35	B – 2
R7B36	B – 2
R7B37	B – 3
R7B38	B – 3
R7B39	B – 3
R7B41	B – 3
R7B42	B – 3
R7B43	B – 2
R7B44	B – 2
R7B49	B – 2
R7B50	B – 2
R7B53	B – 2
R7B54	B – 2
R7B56	B – 2
R7B60	B – 1
R7B61	B – 1
R7B62	B – 2
R7B63	B – 1
R7B64	B – 2
R7B65	B – 1
R7B66	B – 2

SYMBOL NO.	ADDRESS
R7B67	B – 1
R7B94	A – 2
R7B96	A – 2
R7C01	A – 3
R7C02	A – 2
R7C03	A – 3
R7C04	A – 3
R7C05	B – 3
R7C06	B – 3
R7C07	B – 3
R7C08	B – 3
R7C13	A – 2
R7C17	A – 2
R7C18	B – 1
R7C21	B – 3
X7A02	B – 1

PCB-1394 [COMPONENT SIDE]



PCB-1394 [COMPONENT SIDE]

SYMBOL NO.	ADDRESS
C7A05	A – 2
C7A10	B – 2
C7A18	A – 3
C7A25	A – 2
C7A28	A – 2
C7A34	A – 2
C7A43	A – 1
C7A46	B – 2
C7A47	B – 1
C7A48	B – 2
C7A49	B – 2
C7A51	B – 2
C7A55	A – 2
C7A58	B – 1
C7A59	B – 1
C7A60	B – 1
C7A61	B – 1
C7A62	B – 1
C7A63	B – 1
C7A64	B – 2
C7A65	B – 2
C7A66	B – 1
C7A75	A – 2
C7A78	A – 2
C7A79	A – 1
CON7A03	B – 2
EE	A – 2
EH	B – 1

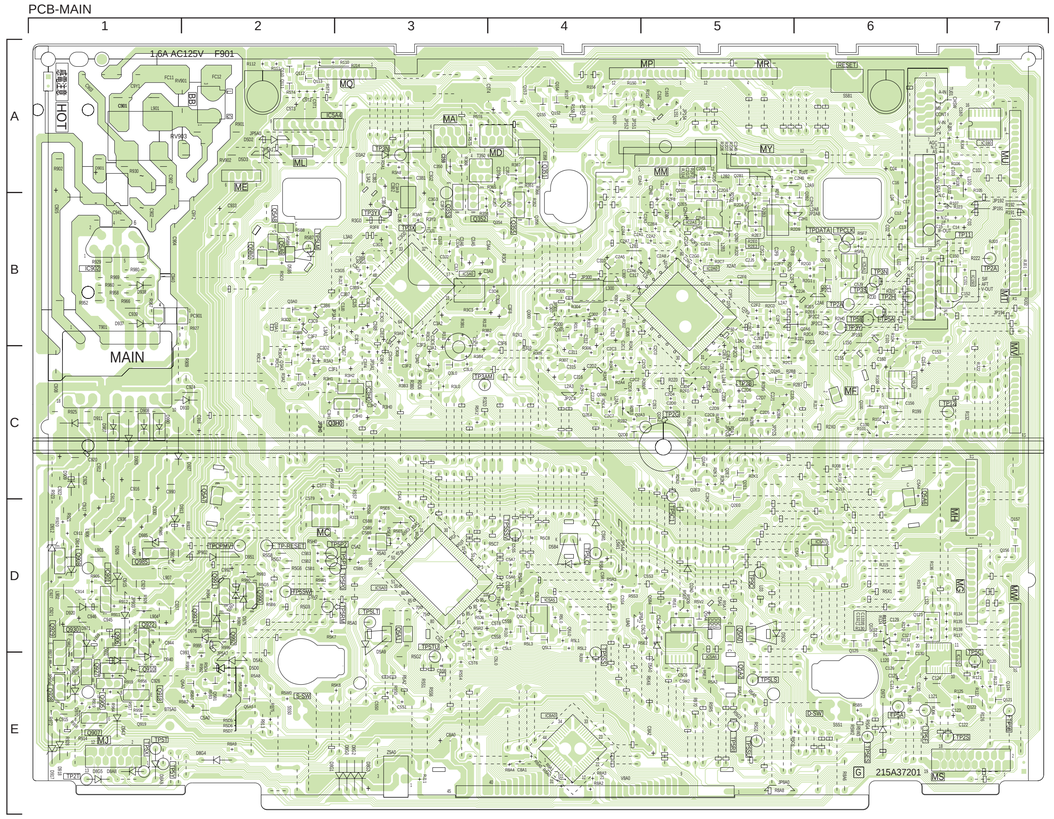
SYMBOL NO.	ADDRESS
EL	A – 1
EX	A – 2
IC7A01	A – 2
IC7A02	A – 1
IC7A03	B – 1
IC7A04	B – 2
IC7A06	B – 3
IC7A07	B – 2
IC7A08	B – 2
IC7A09	B – 3
IC7A11	A – 2
IC7A12	A – 1
IC7A13	A – 1
J7A00	A – 3
J7A01	B – 3
L7A01	A – 2
L7A02	B – 2
L7A03	A – 3
L7A29	A – 1
L7A31	A – 3
L7A33	A – 2
L7A35	A – 1
R7A15	A – 2
R7A16	A – 2
R7A17	A – 2
R7A18	A – 2

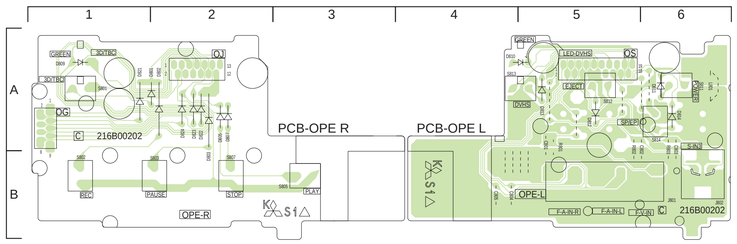
SYMBOL NO.	ADDRESS
R7A19	A – 2
R7A20	A – 2
R7A22	A – 2
R7A46	A – 1
R7A47	A – 1
R7A48	A – 1
R7A49	A – 1
R7A50	A – 1
R7A51	A – 1
R7A52	A – 1
R7A53	A – 1
R7A58	A – 1
R7A63	A – 1
R7A68	B – 1
R7A69	B – 2
R7A85	B – 2
R7A86	B – 2
R7A87	B – 2
R7A88	B – 2
R7A90	B – 2
R7A91	B – 2
R7A92	A – 2
R7A93	A – 2
R7A94	A – 2
R7A95	A – 2
R7A96	A – 2
R7A97	A – 2
R7A98	B – 2
R7A99	B – 2
R7B01	B – 2

SYMBOL NO.	ADDRESS
R7B02	B – 2
R7B03	B – 2
R7B04	B – 2
R7B05	B – 2
R7B06	B – 2
R7B68	B – 2
R7B69	B – 2
R7B71	B – 2
R7B72	B – 2
R7B73	B – 1
R7B74	B – 1
R7B75	B – 1
R7B76	B – 1
R7B77	B – 1
R7B78	B – 1
R7B79	B – 1
R7B80	B – 1
R7B81	B – 1
R7B82	B – 1
R7B83	B – 1
R7B84	B – 1
R7B85	B – 1
R7B86	B – 1
R7B87	B – 1
R7B88	B – 1
R7B89	B – 1
R7B90	B – 1
R7B97	B – 1
R7B98	B – 1
R7B99	B – 1

SYMBOL NO.	ADDRESS
R7C09	B – 2
R7C14	A – 2
R7C15	A – 2
R7C19	B – 2
R7C20	B – 1
X7A01	A – 2

PCB-MAIN





SYMBOL NO.	ADDRESS
C801	B – 5
C802	B – 6
C803	B – 6
C804	B – 5
C805	B – 4
D801	A – 2
D802	A – 2
D803	A – 2
D805	A – 2
D807	A – 2
D809	A – 1
D810	A – 5
D811	A – 6
D812	A – 5
D813	A – 5
D814	A – 6
D821	A – 2
D822	A – 2
D823	A – 2
D824	A – 2
J801	B – 5
J802	B – 6
L801	A – 6
OG	A – 1
OJ	A – 2
OS	A – 5
R801	B – 5
R802	B – 6
R803	B – 6
S801	A – 1
S802	B – 1
S803	B – 2
S805	B – 3
S807	B – 2
S811	A – 6
S812	A – 5
S813	A – 5
S814	A – 6

PCB-MAIN

SYMBOL NO.	ADDRESS
BB	A – 2
BT5A0	E – 2
C02	B – 6
C03	B – 7
C04	A – 6
C100	C – 6
C101	C – 6
C102	A – 7
C103	A – 6
C12	B – 6
C120	E – 6
C121	E – 6
C122	E – 7
C123	E – 7
C124	E – 6
C125	E – 6
C126	E – 6
C127	D – 6
C128	D – 6
C129	D – 6
C13	B – 6
C130	E – 6
C132	D – 6
C133	D – 6
C14	B – 7
C15	B – 6
C150	B – 7
C151	B – 7
C152	B – 7
C153	C – 6
C154	C – 6
C155	C – 6
C156	C – 6
C16	A – 6
C160	C – 6
C162	A – 5
C163	A – 5
C17	B – 6
C180	A – 7
C2A0	A – 5
C2A1	B – 5
C2A2	B – 5
C2A3	B – 4
C2A4	B – 4
C2A5	B – 4
C2A6	B – 4
C2A7	B – 4
C2A8	B – 5
C2A9	B – 5
C2B4	B – 5
C2C0	C – 5
C2C1	C – 4
C2C2	C – 4
C2C3	C – 4
C2C5	C – 4
C2C7	C – 4
C2C8	C – 4
C2C9	C – 5
C2D0	C – 5
C2D2	C – 4
C2D3	C – 5
C2D4	C – 5
C2D5	C – 5
C2D6	C – 5
C2D7	C – 5
C2D8	C – 5
C2D9	C – 5
C2E0	C – 5
C2E1	C – 5
C2E2	C – 5
C2E3	C – 5
C2E4	C – 5
C2E5	C – 5
C2E6	C – 5
C2E7	B – 5
C2E8	B – 5
C2E9	B – 5
C2F1	B – 5
C2F2	B – 5
C2F3	B – 6
C2F5	B – 5
C2F6	B – 5
C2F7	B – 5
C2F8	B – 6
C2F9	B – 5
C2G0	B – 5
C2G1	B – 5
C2G2	B – 5
C2G4	B – 5
C2G5	A – 5
C2G7	A – 5
C2G9	B – 5
C2H0	A – 5
C2H1	B – 6
C2H2	B – 5
C2H3	B – 5
C2H4	B – 5
C2H5	B – 5
C2H6	B – 5
C2H7	B – 5
C2H8	B – 5
C2H9	A – 5
C2J0	C – 5
C2J1	C – 5
C2J2	A – 5
C2J3	C – 4
C2J4	B – 5
C2J5	B – 5
C2K0	B – 5
C2K2	C – 5
C300	B – 4
C301	B – 4
C302	B – 4
C303	B – 4
C304	C – 5
C305	B – 4
C307	B – 4
C310	B – 4
C311	C – 4
C312	B – 4
C313	B – 4
C314	C – 5
C315	C – 4
C316	C – 4
C317	B – 4
C350	A – 3
C357	A – 4
C358	A – 4
C359	A – 3
C359	A – 3
C379	A – 4
C3A0	C – 3
C3A1	C – 3
C3A2	B – 3
C3A3	B – 3
C3A4	B – 4
C3A5	B – 3
C3A6	B – 3
C3A7	C – 3
C3A9	A – 3
C3B1	A – 3
C3B2	B – 3
C3B3	A – 3
C3B4	B – 3
C3B5	B – 3
C3B6	B – 2
C3B7	B – 3
C3B8	B – 3
C3B9	B – 3
C3C0	B – 3
C3C1	B – 3
C3C6	B – 3
C3C7	C – 3
C3C8	C – 3
C3C9	B – 2
C3D2	C – 2
C3D3	B – 4
C3D4	B – 4
C3E3	B – 3
C3E4	C – 3
C3E8	B – 3
C3F1	C – 2
C3F2	C – 3
C3F3	B – 3
C3F4	C – 3
C3F5	B – 3
C3F6	B – 3
C3F7	B – 2
C3F8	B – 4
C3G0	B – 3
C3G1	B – 3
C3G2	B – 3
C3G3	B – 3
C3G5	B – 3
C3G7	C – 3
C3G9	C – 3
C3H0	C – 3
C3H1	C – 2
C3H2	C – 3
C3J0	B – 3
C3J1	B – 3
C3J2	B – 3
C3J3	B – 3
C3J4	B – 3
C3J5	B – 3
C3J6	B – 3
C3J7	B – 3
C3L0	C – 3
C5A0	E – 2
C5A1	D – 5
C5A2	D – 3
C5A3	D – 3
C5A4	C – 6
C5A6	D – 4
C5A7	D – 4
C5B1	D – 2
C5B2	D – 2
C5B3	D – 2
C5B5	D – 3
C5B6	D – 3
C5B7	D – 3
C5B8	D – 3
C5B9	D – 3
C5C0	D – 5
C5C1	D – 5
C5C2	D – 5
C5C5	D – 5
C5C6	E – 5
C5C9	D – 5
C5J9	B – 6
C5L0	D – 4
C5L1	D – 4
C5L2	D – 4
C5R1	D – 4
C5S0	E – 3
C5S1	E – 3
C5S2	D – 4
C5S3	D – 4
C5S4	D – 4
C5S5	D – 4
C5S6	E – 3
C5S7	D – 3
C5S8	D – 4
C5S9	D – 4
C5T1	A – 2
C5T2	A – 2
C5T3	A – 2
C5T4	A – 4
C5T5	D – 3
C5T6	E – 3
C5T7	C – 2
C5T8	D – 3
C5T9	D – 2
C5V2	D – 2
C5W1	D – 4
C5W2	E – 5
C5X1	D – 6
C8A0	E – 3
C8A1	E – 4
C8A2	E – 5
C901	A – 1
C901	A – 1
C902	A – 1
C902	B – 1
C903	A – 1
C904	B – 1
C905	B – 1
C908	C – 1
C911	D – 1
C912	C – 1
C913	D – 1
C914	D – 1
C915	E – 1
C916	C – 1
C917	D – 1
C918	C – 2
C920	C – 1
C921	D – 1
C922	D – 1
C924	C – 2
C925	C – 1
C926	E – 1
C927	D – 1
C929	D – 1
C930	D – 1
C933	B – 2
C936	D – 1
C937	D – 1
C939	B – 1
C940	B – 1
C941	B – 1
C944	D – 1
C945	D – 1
C946	D – 1
C982	E – 1
C990	C – 1
C991	D – 1
C992	D – 2
C993	E – 2
C9Y1	A – 1
C9Y2	B – 2
D120	D – 6
D2A0	D – 5
D3A2	A – 3
D5A0	D – 5
D5A1	E – 2
D5A9	D – 3
D5B4	D – 4
D5B5	B – 2
D5C0	D – 5
D5D0	E – 2
D5D2	A – 2
D5D3	A – 2
D8A8	E – 1
D8A9	E – 1
D8G0	E – 3
D8G1	E – 3
D8G2	E – 3
D8G3	E – 3
D8G4	E – 2
D8G5	E – 1
D901	A – 1
D905	C – 1
D907	C – 1
D908	C – 1
D909	C – 1
D910	C – 2
D911	C – 1
D912	D – 1
D913	D – 1
D914	D – 1
D915	D – 1
D917	E – 1
D918	E – 1
D920	D – 1
D926	D – 1
D927	C – 1
D931	E – 1
D937	B – 1
D938	B – 1
D940	E – 1
D943	E – 1
D951	D – 2
D970	E – 1
D971	E – 1
D972	E – 6
D974	D – 4
D975	D – 2
D976	D – 2
D985	D – 1
D990	C – 1
D991	D – 2
D992	D – 2
FC11	A – 1
FC12	A – 2
IC120	E – 6
IC150	B – 7
IC151	C – 6
IC180	A – 7
IC2A0	B – 5
IC2A1	B – 5
IC3A0	B – 3
IC3H0	C – 3
IC5A0	D – 3
IC5A1	B – 6
IC5A4	A – 3
IC5A5	D – 4
IC5A6	D – 5
IC5A7	D – 6
IC8A0	E – 4
IC901	D – 1
IC902	B – 1
JP151	A – 4
JP152	A – 4
JP153	A – 4
JP154	A – 5
JP191	B – 7
JP192	B – 7
JP193	B – 6
JP194	B – 7
JP2A8	B – 5
JP2C0	C – 5
JP2C1	B – 6
JP2C2	B – 5
JP2C3	B – 5
JP2C4	C – 4
JP2C5	C – 5
JP2C6	C – 5
JP300	B – 4
JP301	B – 4
JP3A1	C – 3
JP3A3	B – 2
JP3H0	C – 2
JP5A0	A – 2
JP5A1	A – 2
JP5A4	D – 4
JP5A7	E – 2
JP8A0	E – 5
JP8A1	D – 4
JP902	D – 2
JP903	D – 1
JP904	E – 1
L02	B – 6
L03	D – 5
L04	B – 6
L100	B – 7
L120	E – 6
L121	E – 6
L122	D – 6
L150	B – 6
L151	A – 5
L2A1	C – 4
L2A3	C – 4
L2A4	C – 5
L2A5	C – 5
L2A6	B – 6
L2A7	B – 6
L2A8	B – 6
L2A9	A – 6
L2B0	B – 5
L2B1	B – 5
L2B2	A – 5
L2B3	B – 5
L300	B – 4
L350	B – 4
L3A0	B – 3
L3A1	C – 3
L3A2	A – 3
L3A3	B – 2
L5W1	D – 4
L8A0	D – 4
L901	A – 1
L902	D – 1
L903	D – 1
L904	D – 1
L906	D – 1
L907	D – 1
L990	D – 1
MA	A – 3
MC	D – 2
MD	A – 4
ME	A – 2
MF	C – 6
MG	D – 7
MH	D – 7
MJ	E – 1
ML	A – 2
MM	A – 4
MP	A – 5
MQ	A – 3
MR	A – 5
MS	E – 7
MT	B – 7
MU	A – 7
MV	C – 7
MW	D – 7
MY	A – 5
PC901	B – 2
Q100	C – 6
Q102	A – 6
Q110	A – 2
Q111	A – 2
Q112	A – 2
Q113	A – 2
Q120	E – 7
Q121	E – 7
Q122	E – 7
Q123	D – 6
Q124	E – 7
Q125	D – 6
Q126	D – 6
Q150	A – 4
Q152	A – 4
Q153	A – 4
Q154	A – 4
Q155	A – 4
Q156	D – 7
Q157	D – 7
Q2A0	C – 4
Q2A2	C – 5
Q2A3	C – 4
Q2A4	C – 5
Q2A5	C – 5
Q2A6	B – 6
Q2B0	B – 5
Q2B1	A – 5
Q2B2	B – 6
Q2B3	B – 5
Q2B9	A – 5
Q2C0	B – 6
Q2C1	B – 6
Q2D0	C – 4
Q2E0	C – 5
Q2E1	C – 5
Q2E2	C – 5
Q2E3	C – 5
Q2E4	C – 4
Q2E5	B – 5
Q300	B – 4
Q301	B – 4
Q351	A – 4
Q352	A – 3
Q353	A – 3
Q354	B – 4
Q355	B – 4
Q356	B – 4
Q3A0	B – 2
Q3A1	B – 2
Q3A2	C – 2
Q3A3	C – 2
Q3H0	C – 3
Q3L0	C – 3
Q5A0	D – 5
Q5A1	D – 3
Q5A2	E – 5
Q5A3	E – 2
Q5A4	D – 5
Q5A5	E – 2
Q5A6	C – 6
Q5A7	C – 2
Q5A8	B – 2
Q5A9	B – 2
Q5B0	B – 2
Q5B1	E – 2
Q5B4	D – 5
Q5L0	D – 4
Q5L1	D – 4
Q5L2	D – 4
Q905	E – 1
Q906	E – 1
Q907	E – 1
Q908	D – 1
Q910	E – 1
Q918	E – 1
Q919	E – 1
Q922	D – 1
Q927	E – 1
Q928	E – 1
Q929	D – 1
Q930	D – 1
Q985	D – 1
Q990	D – 2
Q991	D – 2
Q992	D – 2
Q993	D – 2
R100	C – 6
R101	C – 6
R102	C – 6
R103	C – 6
R104	B – 6
R105	A – 7
R106	A – 6
R107	B – 7
R108	A – 7
R110	A – 2
R111	A – 2
R112	A – 2
R120	E – 6
R121	E – 7
R122	E – 7
R123	E – 7
R124	D – 6
R125	E – 7
R126	E – 7
R127	D – 6
R128	D – 6
R129	D – 6
R130	D – 6
R131	D – 6
R132	C – 7
R133	D – 6
R134	D – 6
R135	D – 6
R136	D – 6
R137	D – 6
R138	D – 6
R139	D – 6
R150	A – 5
R151	A – 5
R152	A – 5
R156	A – 4
R157	A – 4
R158	A – 4
R191	B – 7
R192	B – 7
R199	C – 7
R2A1	C – 5
R2A2	C – 4
R2A3	C – 4
R2A4	C – 4
R2A5	C – 4
R2A9	C – 5
R2B0	C – 4
R2B2	C – 4
R2B3	C – 4
R2B4	C – 5
R2B5	C – 5
R2B6	C – 5
R2B7	C – 6
R2B8	C – 5
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R2C0	B – 5
R2C1	C – 5
R2C3	B – 6
R2C4	B – 6
R2C5	B – 5
R2C7	B – 5
R2D2	B – 5
R2D3	B – 5
R2D4	B – 5
R2D5	A – 5
R2D6	A – 5
R2D7	A – 5
R2D8	A – 5
R2D9	B – 6
R2E0	B – 5
R2E1	B – 5
R2E2	B – 5
R2E3	B – 5
R2E5	B – 6
R2E6	B – 6
R2E7	B – 5
R2F0	C – 5
R2F1	C – 4
R2F2	A – 5
R2F8	B – 5
R2F9	B – 5
R2G0	B – 6
R2G1	B – 6
R2H0	B – 6
R2H1	B – 6
R2J0	B – 6
R2K0	C – 5
R2K1	C – 5
R2K2	C – 5
R2K3	C – 5
R2K4	C – 4
R2X0	C – 6
R2X1	B – 4
R2Z0	C – 5
R2Z1	B – 5
R2Z2	B – 7
R300	B – 4
R301	B – 4
R302	B – 4
R303	B – 4
R304	B – 4
R305	B – 4
R306	C – 4
R307	C – 4
R309	C – 4
R310	B – 4
R311	B – 4
R351	A – 4
R352	B – 4
R357	B – 3
R358	B – 3
R365	B – 4
R366	A – 4
R367	A – 4
R368	A – 3
R3A0	B – 3
R3A1	A – 3
R3A2	C – 2
R3A3	C – 3
R3A4	C – 2
R3A8	A – 3
R3A9	B – 3
R3B0	C – 3
R3B1	B – 3
R3B2	B – 3
R3B3	C – 3
R3B4	C – 3
R3B5	B – 2
R3B9	C – 2
R3C1	C – 2
R3C2	C – 2
R3C3	B – 3
R3C4	B – 4
R3C5	B – 3
R3C6	C – 3
R3D2	B – 2
R3D4	C – 2
R3F6	B – 3
R3G0	B – 3
R3G1	B – 3
R3H0	C – 3
R3H1	C – 2
R3H2	C – 3
R3J1	B – 3
R3J2	B – 3
R3L0	C – 3
R3Y0	B – 3
R3Z0	C – 3
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R5A1	E – 5
R5A2	E – 3
R5A3	E – 5
R5A5	E – 5
R5A7	D – 5
R5A8	E – 2
R5A9	E – 2
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R5B2	E – 2
R5B3	E – 2
R5B4	D – 4
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R5B7	B – 2
R5B8	B – 2
R5B9	B – 2
R5C0	B – 2
R5C6	E – 6
R5C7	D – 4
R5C8	D – 4
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R5D5	E – 2
R5D6	E – 2
R5D7	E – 2
R5D9	D – 5
R5E0	D – 5
R5E1	D – 5
R5E2	D – 5
R5E3	D – 3
R5E4	D – 3
R5E5	D – 3
R5E6	D – 3
R5E7	E – 5
R5F7	B – 6
R5F8	B – 6
R5G1	E – 5
R5G2	E – 3
R5G3	E – 5
R5G4	E – 6
R5G5	D – 2
R5G6	D – 3
R5G7	D – 2
R5G8	D – 2
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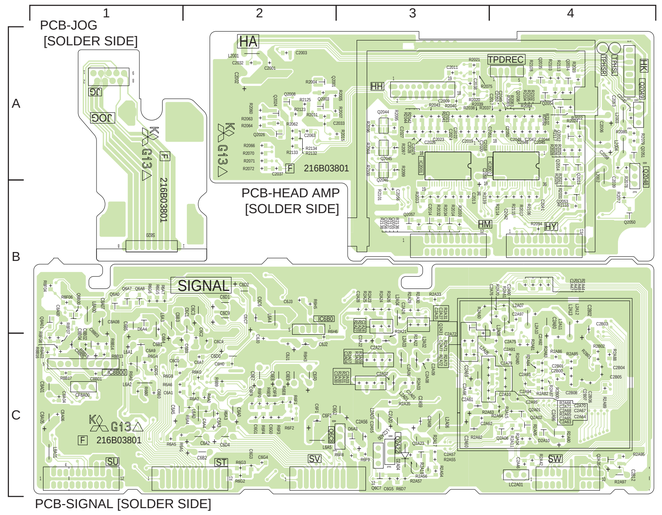

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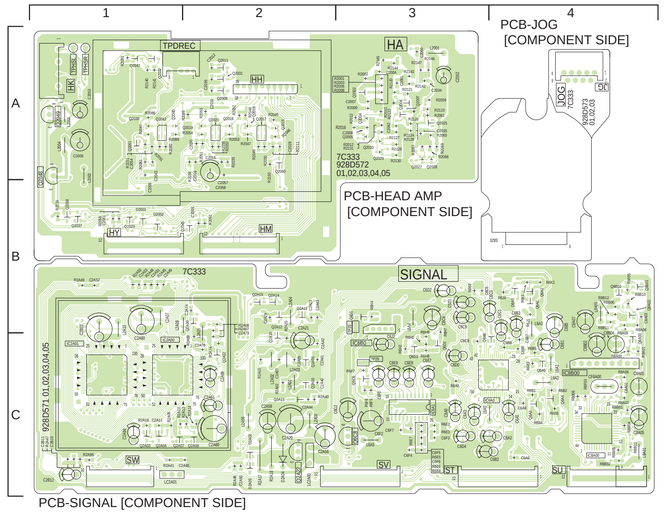

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Q2019	A – 2
Q2020	A – 2
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Q6D2	C – 3
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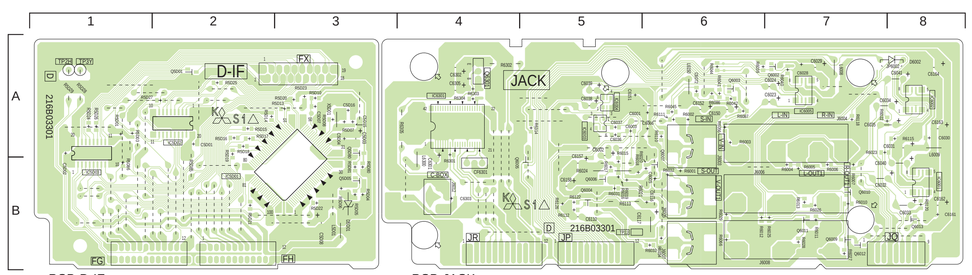
R8B11	B – 4
R8B12	B – 4
R8F03	C – 4
R8F05	B – 4
S820	B – 4
ST	C – 4
SU	C – 4
SV	C – 3
SW	C – 1
TP29	C – 3
TP2S	B – 3
TPDREC	A – 2
TPHSL	A – 1
TPHSR	A – 1



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C6003	A – 5
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C6030	A – 8
C6031	A – 8
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C6164	A – 8
C6301	B – 4
C6302	A – 4
C6303	B – 4
C6305	A – 4
CF6301	B – 4
D5D01	B – 3
D6002	A – 8
FG	B – 1
FH	B – 2
FX	A – 2
IC5D01	B – 3
IC5D02	A – 2
IC5D03	A – 1
IC6001	B – 8
IC6002	A – 8
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J6004	A – 7
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JP	B – 5
JP6002	A – 7
JQ	B – 7
JR	B – 4
L5D01	B – 3
L6008	A – 7
L6009	A – 8
L6150	A – 6
L6300	B – 4
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TP2J	B – 5
TP3Y	A – 1
X5D01	A – 3