ORDER NO. AD9601017C2

Service Manual

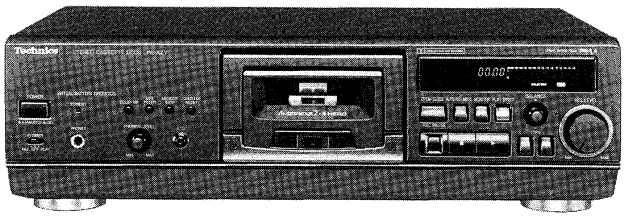
Stereo Cassette Deck

*

DOLBY B•C NR HX PRO

Cassette Deck

RS-AZ7



Colour

(K)...Black Type

Area

Suffix for Model No.	Area	Colour
(E)	Europe.	(K)
(EB)	Great Britain.	
(EG)	Germany and Italy.	

* Dolby noise reduction and HX Pro headroom extension manufactured under license from Dolby Laboratories Licensing Corporation. HX Pro originated by Band and Olufsen. "Dolby", the double-D symbol and "HX PRO" are trademarks of Dolby Laboratories Licensing Corporation.

AR-1 MECHANISM SERIES

■ SPECIFICATIONS

■ CASSETTE DECK SECTION

Deck system	Stereo cassette deck
Track system	4-track, 2-channel
Recording system	AC bias
Bias frequency	210 kHz
Erasing system	AC erase
Heads	Recording head (Permalloy)×1
	Playback head (Thin -Film type)×1
	Erasing head (Double-gap ferrite)×1
Motors	Capstan drive (DC servo motor)×1
	Reel table drive (DC motor)×1
Tape speed	4.8 cm/s.
Wow and flutter	0.07% (WRMS)
	±0.2% (DIN)

Fast forward and rewind times

Approx. 35 seconds with C-60 cassette tape

Frequency response (Dolby NR off)

TYPE Ⅰ (NORMAL)	20 Hz–17 kHz, ±3 dB
	20 Hz–18 kHz (DIN)
TYPE Ⅱ (HIGH)	20 Hz–18 kHz, ±3 dB
	20 Hz–19 kHz (DIN)
TYPE Ⅳ (METAL)	20 Hz–23 kHz, ±3 dB
	20 Hz–24 kHz (DIN)

S/N (Signal level=max recording level, TYPE Ⅱ type tape)

NR off	62 dB (A weighted)
Dolby B NR on	71 dB (A weighted)
Dolby C NR on	78 dB (A weighted)

Input sensitivity and impedance	
REC (IN)	100 mV/47 kΩ
Output voltage and impedane	
PLAY (OUT)	500 mV/500 Ω
HEADPHONES	190 mV/(8 Ω)
	(Load impedance 8 Ω–600 Ω)

■ GENERAL

Power consumption	26 W
	2.8 W (Remocon Standby)
	1.6 W (Power Standby)
Power supply	AC 50 Hz, 230 V–240 V
Dimensions (W×H×D)	430×125×290 mm
Weight	4.2 kg

Note:

Specifications are subject to change without notice.
Weight and dimensions are approximate.

ORDER NO. AD9606149A3

Service Manual

Stereo Cassette Deck

DOLBY B•C NR HX PRO *

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Cassette Deck

RS-AZ7

Colour

(K)...Black Type

Area

Suffix for Model No.	Area	Colour
(GU)	Asia, Middle Near East and Africa, Latin America, Oceania.	(K)

Please file and use this manual together with the service manual for Model No. RS-AZ7, Order No. AD9601017C2.

Note: • This service manual is provided to indicate the main differences between the original model No. RS-AZ7 (EB) and the subsequent model No. RS-AZ7 (GU).

CHANGES

■SPECIFICATIONS (RS-AZ7 Service Manual of the cover page.)

RS-AZ7 (EB)

■GENERAL
Power supply AC 50 Hz, 230V-240V

RS-AZ7 (GU)

■GENERAL
Power supply AC 50/60 Hz, 220-240V

■CHANGE IN REPLACEMENT PARTS LIST (RS-AZ7 Service Manual of pages 50, 60.)

Notes: • Mentioned in this parts list is only those different from Model No. RS-AZ7 (EB). All other parts are the same as for RS-AZ7 (EB).
• Important safety notice:
Components identified by ⚠ mark have special characteristics important for safety.
Furthermore, special parts which have purposes of fire-retardant (resistors), high-quality sound (capacitors), low-noise (resistors), etc. are used.
When replacing any of components, be sure to use only manufacture's specified parts shown in the parts list.
• The parenthesized indications in the Remarks columns specify the areas. (Refer to the cover page for area.) Parts without these indications can be used for all areas.
• The "(SF)" mark denotes the standard part.

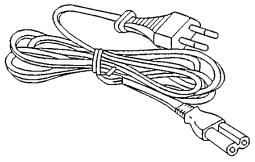
Ref. No.	Change of Part No. RS-AZ7 (EB) ➡ **RS-AZ7 (GU)**		Part Name & Description	Remarks
CABINET AND CHASSIS				
5	RGR0230A-C	**RGR0230A-F**	REAR PANEL	
ACCESSORIES				
A1	RQT3434-B	**RQT3657-G**	INSTRUCTION MANUAL	
A2	RQA0117	—	—	Deletion
A4 ※1	RJA0049-K	**RJA0019-2K**	AC POWER SUPPLY CORD	⚠ (SF)
A6 ※1	—	**SJP5213-1**	POWER PLUG ADAPTOR	⚠ Addition
A7 ※2	—	**RJA0035-K**	AC POWER SUPPLY CORD	⚠ Addition

※1 :This item is not supplied for Australia and N.Z.
※2 :This item is supplied for Australia and N.Z.

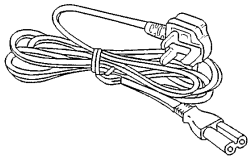
CONTENTS

ACCESSORIES

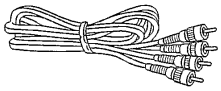
AC power supply code ..... 1 pc.
(RJA0019-2K)...(E, EG)



(RJA0049-K)...(EB)



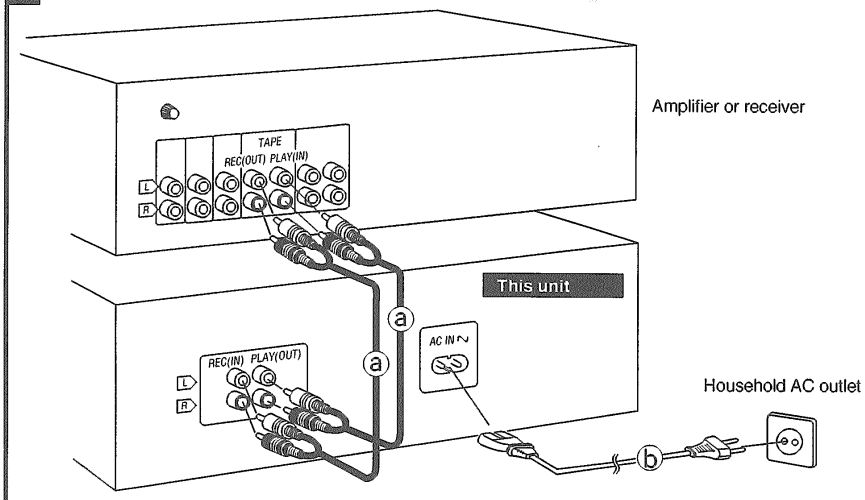
Stereo connection cables ..... 2 pcs.
(RJL4P004B08)



CONNECTIONS

Stereo connection cable White (L)
Red (R)

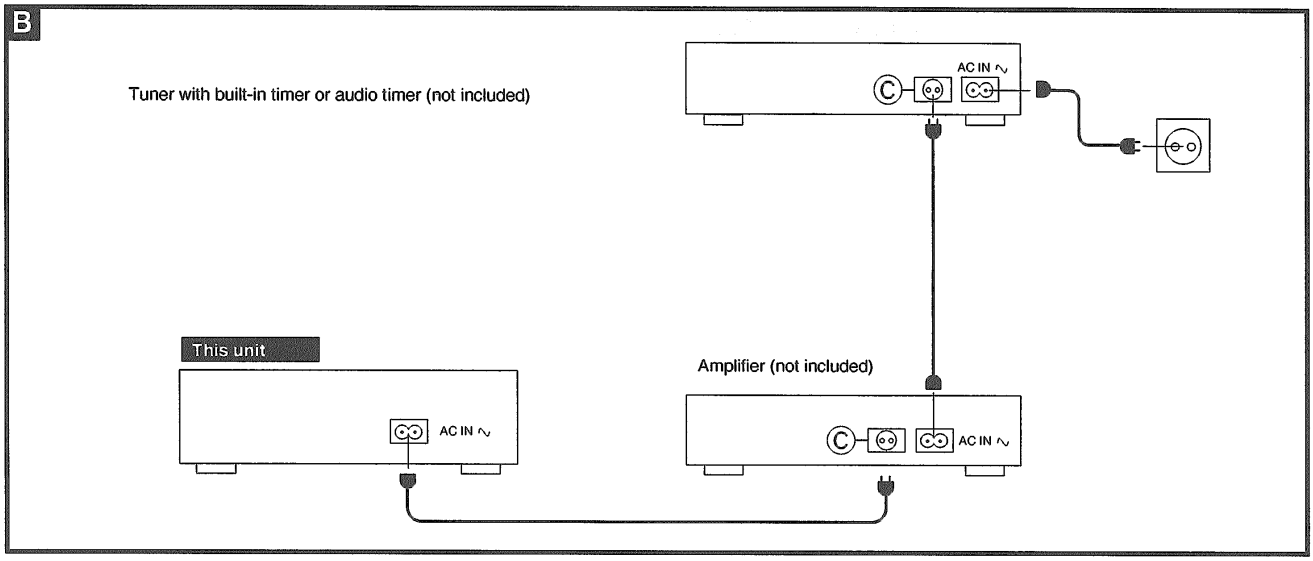
A



Amplifier or receiver

Household AC outlet

Note
Do not place this unit on top of an amplifier. Heat radiated from the top of the amplifier may cause damage to the tape.



Befoer making connections, make sure that the power to this unit and all other system components is turned off.

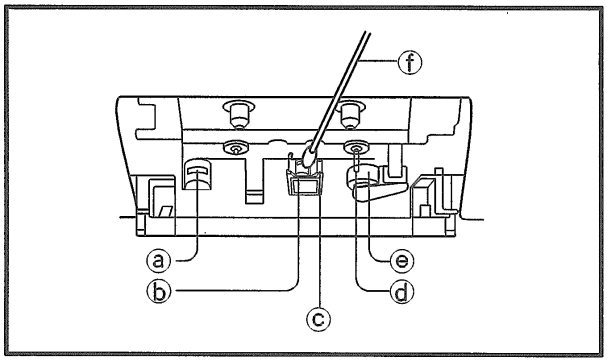
Note

- Avoid letting the cables touch each other as much as possible, otherwise noise will be generated.
- Although the figure below shows the AC power supply cord being connected to a household AC outlet, if the amplifier (or receiver) is equipped with an AC outlet, connect the cord to that outlet.

Placement hints

If this unit is placed near a receiver or a tuner, a "hum" noise may be heard during tape playback, recording, or AM reception of the receiver or the tuner.
If this occurs, leave as much space as possible between the units, or place them where there is the least amount of "hum".
ⓐ Stereo connection cables (included)

■MAINTENANCE



Maintenance of external surfaces

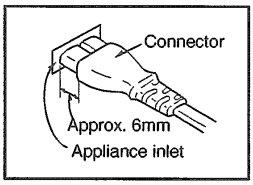
To clean this unit, use a soft, dry cloth.
If the surfaces are extremely dirty, use a soft cloth, dipped into a soap-and-water solution or a weak detergent solution.
Wring the cloth well before wiping the unit.
Wipe once again with a soft, dry cloth.
Never use alcohol, paint thinner, benzine, nor a chemically treated cloth to clean this unit.
Such chemicals may damage the finish of your unit.

Connecting the AC power supply cord A

ⓑ AC power supply cord (included)

Insertion of Connector

Even when the connector is perfectly inserted, depending on the type of inlet used, the front part of the connector may jut out as shown in the drawing. However there is no problem using the unit.



For timer playback/recording B

ⓒ AC outlet
※ **"SWITCHED" outlet**
Power is controlled by the power switch.

Head care

To assure sound quality for recording and playback, be sure to clean the heads after approximately every 10 hours of use.
1) Press OPEN/CLOSE to open the cassette holder.
2) Switch OFF the power.
3) Clean the heads, pinch roller and the capstan shaft with a cotton swab (or with a soft, lint-free cloth) slightly moistened with isopropyl alcohol.
Do not use any solution other than alcohol for head cleaning.

ⓐ Erasing head
ⓑ Recording head
ⓒ Playback head
ⓓ Capstan
ⓔ Pinch roller
ⓕ Cotton swab

Note

- NEVER use a demagnetizer.
You will seriously damage the head if you use a demagnetizer. Though this was possible with older model heads, the AZ head built into this unit works on a completely different principle. A head demagnetizer will apply a strong magnetic force to the head which will cause a drop in performance.
- Do not touch the heads.
- Do not insert hands or other objects deeply inside equipment.

■ CAUTION FOR AC MAINS LEAD

For (EB) area only

For your safety, please read the following text carefully.

This appliance is supplied with a moulded three pin mains plug for your safety and convenience.
A 5-ampere fuse is fitted in this plug.
Should the fuse need to be replaced please ensure that the replacement fuse has a rating of 5-ampere and that it is approved by ASTA or BSI to BS1362.
Check for the ASTA mark or the BSI mark on the body of the fuse.

If the plug contains a removable fuse cover you must ensure that it is refitted when the fuse is replaced.
If you lose the fuse cover the plug must not be used until a replacement cover is obtained.
A replacement fuse cover can be purchased from your local dealer.

CAUTION!
IF THE FITTED MOULDED PLUG IS UNSUITABLE FOR THE SOCKET OUTLET IN YOUR HOME THEN THE FUSE SHOULD BE REMOVED AND THE PLUG CUT OFF AND DISPOSED OF SAFELY.
THERE IS A DANGER OF SEVERE ELECTRICAL SHOCK IF THE CUT OFF PLUG IS INSERTED INTO ANY 13-AMPERE SOCKET.

If a new plug is to be fitted please observe the wiring code as shown below.
If in any doubt please consult a qualified electrician.

IMPORTANT

The wires in this mains lead are coloured in accordance with the following code:

Blue: Neutral
Brown: Live

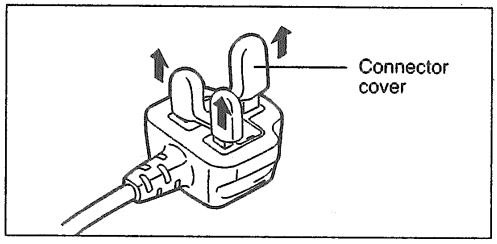
As the colours of the wires in the mains lead of this appliance may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows:
The wire which is coloured BLUE must be connected to the terminal in the plug which is marked with the letter N or coloured BLACK.

The wire which is coloured BROWN must be connected to the terminal in the plug which is marked with the letter L or coloured RED.

Under no circumstances should either of these wires be connected to the earth terminal of the three pin plug, marked with the letter E or the Earth Symbol ⏚.

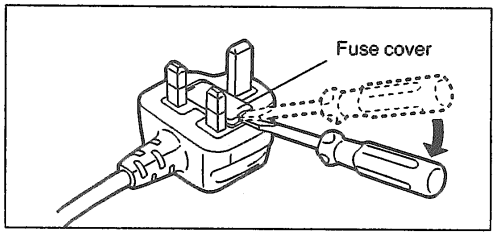
Before use

Remove the connector cover as follows.

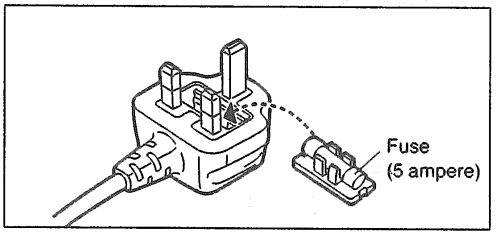


How to replace the fuse

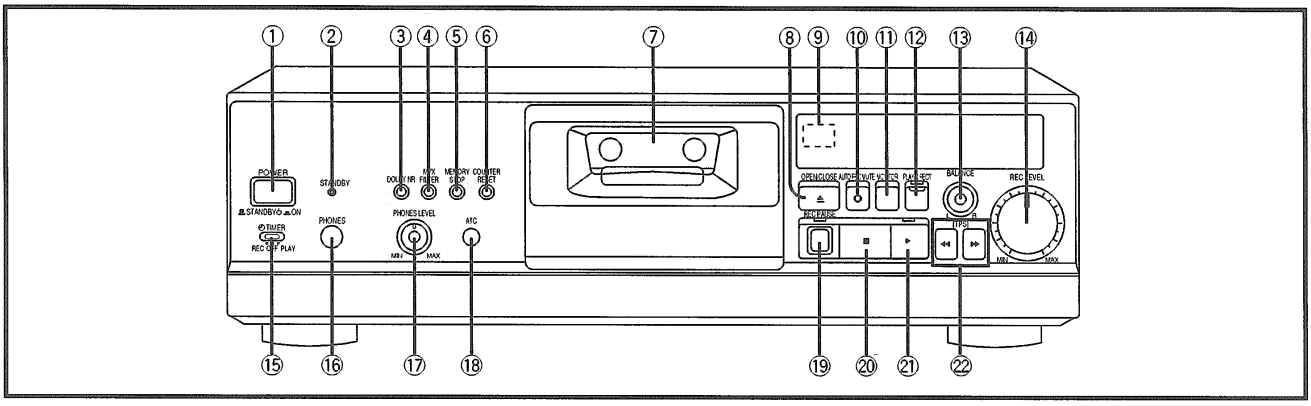
1. Remove the fuse cover with a screwdriver.



2. Replace the fuse and attach the fuse cover.



■FRONT PANEL CONTROLS



① Power " ▬ STANDBY ⏻ ▬ ON" switch (POWER, ▬ STANDBY ⏻ ▬ ON)
Press to switch the unit from on to standby mode or vice versa. In standby mode, the unit is still consuming a small amount of power.

② "STANDBY" indicator (STANDBY)
With the POWER button in the ON position (▬) the unit can be switched between the STANDBY and ON condition using the remote control. In the STANDBY condition the indicator will light.

③ Dolby noise-reduction button (DOLBY NR)

④ Multiplex filter button (MPX FILTER)

⑤ Memory stop button (MEMORY STOP)

⑥ Counter reset button (COUNTER RESET)

⑦ Cassette holder

⑧ Cassette holder open/close button (▲ OPEN/CLOSE)

⑨ Remote control signal sensor
This cassette deck can be operated by using the remote control provided with a Technics amplifier or receiver.
[See the operating instructions of the amplifier or the receiver for details.]

⑩ Automatic-record-muting button (○ AUTO REC MUTE)

⑪ Monitor button (MONITOR)

⑫ Play direct button (PLAY DIRECT)

⑬ Recording-balance control (BALANCE)

⑭ Recording-level control (REC LEVEL)

⑮ Timer control (◴ TIMER)

⑯ Headphones jack (PHONES)

⑰ Headphones volume control (PHONES LEVEL)

⑱ Auto tape calibration button (ATC)

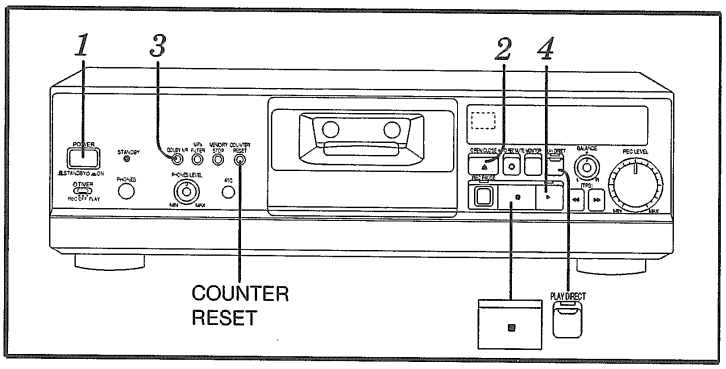
⑲ Recording pause button (REC PAUSE)

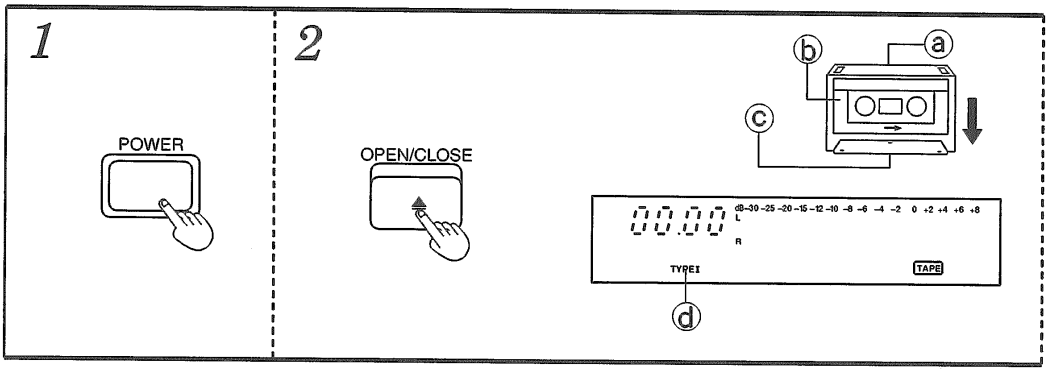
⑳ Stop button (■)

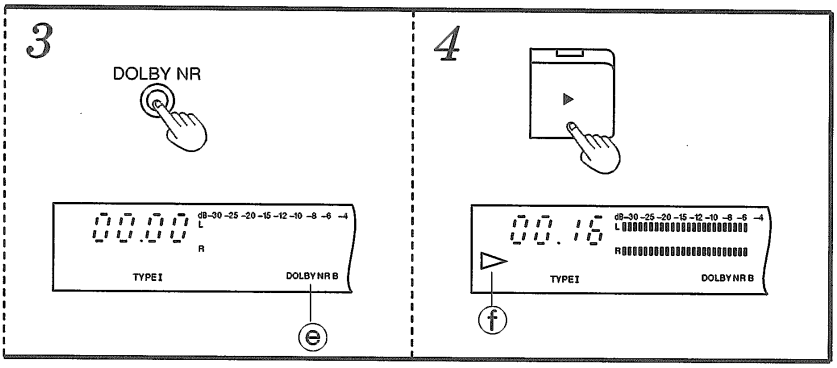
㉑ Playback/record button (▶)

㉒ Rewind/fast-forward search buttons (◀◀ / ▶▶ [TPS])

■PLAYBACK







1 Press POWER.
(The unit will switch on.)

2 Press OPEN/CLOSE, and then insert the cassette tape.
Press again to close the cassette holder.
ⓐ Reverse side
ⓑ Forward side
ⓒ Tape opening facing downward.
ⓓ The tape type will be displayed.

3 Press DOLBY NR to select the appropriate noise-reduction system.
ⓔ Each time the button is pressed, the indicator will change in the order:

DOLBY NR B → DOLBY NR C
↑ ↓
off ←

Select whichever you normally use for recording.

4 Press ▶.
(Playback will begin.)

ⓕ Illuminates

To stop playback, press ■.

For your reference:
When the cassette holder is open, pressing ▶, ◀◀ or ▶▶ will close the holder and begin the playback, fast-forwarding or rewinding the tape.

Type of tape which can be played correctly:
The unit automatically identifies the type of tape.

Normal position/ TYPE Ⅰ	○
High position/ TYPE Ⅱ	○
Metal position/ TYPE Ⅳ	○

About the AZ head

This unit comes with a newly developed AZ head. AZ stands for amorphous Z. The recording head is the same as before, but the playback head has been built with new technology [Magnet Resistive (MR) device, thin film head, amorphous material]. Compared to older heads, the AZ head has the following advantages.

- Noise level is low because the MR device efficiently converts the magnetic signals into electric signals, which keeps impedance down.

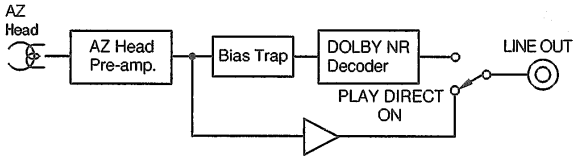
What is the MR device ?
It's a device that changes resistance by varying the magnitude of a magnetic field.

- Playback is possible with a wider range of sources thanks to the MR device and thin film head.
- Flat frequency characteristics are obtained because the contour effect doesn't occur.

What is the contour effect ?
Depending on how the head core is configured, frequency characteristics tend to wander in the low range. The AZ head has a thin-film construction which minimizes the area contacting the tape, thus the contour effect doesn't occur.

About the Play Direct function

This function lets you enjoy the clear sounds reproduced with the AZ head. When Play Direct is ON, the AZ head preamp outputs directly from the LINE OUT terminal instead of passing signals first through the bias trap and the noise reduction circuit.



How to use

[While playback is stopped]

1. **Press PLAY DIRECT.**
   The indicator immediately above the button will flash for about 1.5 seconds and then will light up solidly.
2. **Press ▶.**
   Playback will start.

Note

If you press PLAY DIRECT while playing back a source, the sound will be muted instantly, but it will return in about 1.5 seconds.

To cancel Play Direct

[While playback is stopped]

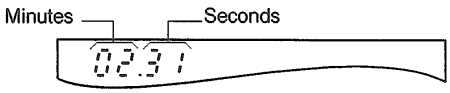
Press PLAY DIRECT.

Note

- Do not use the Play Direct function when playing back tapes recorded in Dolby NR.
- You cannot use the Play Direct function while recording.

About the linear counter

The linear counter indicates the amount of tape travel as the approximate of elapsed time.



To reset the linear counter, press COUNTER RESET.
The linear counter indication will return to "00.00".

Note

The linear counter is not a digital clock. The difference between the actual recording and playback time and the counter display may be anything up to several minutes.

About the Dolby noise-reduction system

The Dolby noise-reduction system is designed to effectively reduce the annoying high-frequency "hissing" noise typical of cassette tapes. During recording, the system functions to increase the high-frequency sound level, the sound, and then, during playback, that same portion is weakened to bring it back to the previous level.

This unit includes two types of Dolby noise-reduction systems, the Dolby B NR-type and C NR-type.

Dolby B-type noise-reduction

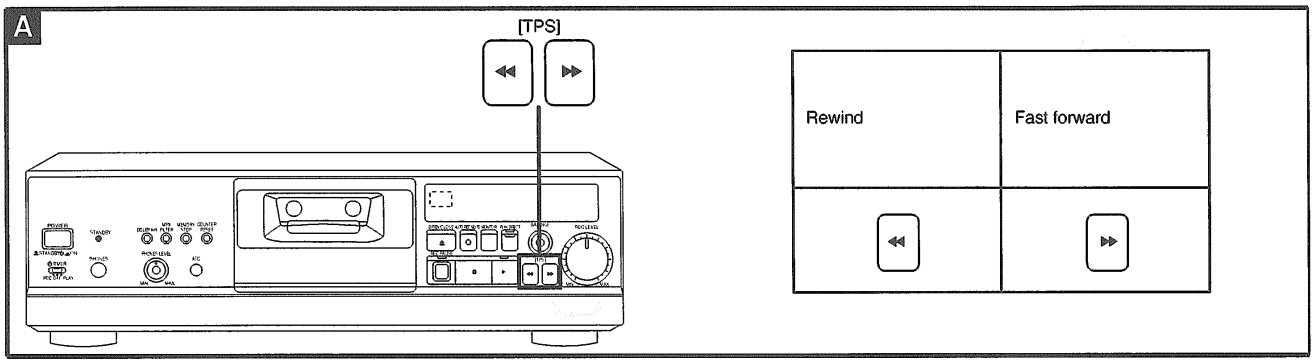
Noise is reduced to about one-third.
Use this system when playing back tapes recorded by the Dolby-B noise-reduction system, such as prerecorded music tapes, etc.

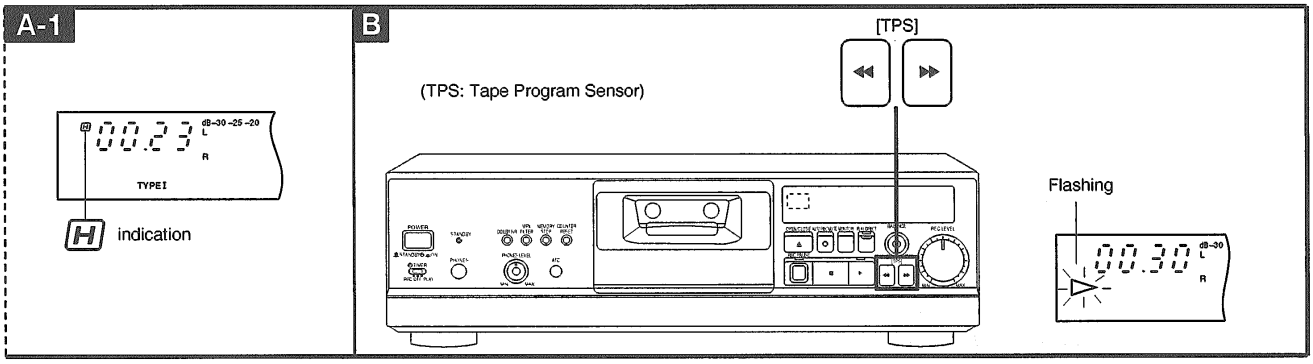
Dolby C-type noise-reduction

Noise is reduced to about one-tenth.
Use this system for the recording and playback of sound sources that have a wide dynamic range and good tone quality, such as FM broadcasts of live performances, etc., and for playing back such tapes.

About the Dolby HX-Pro headroom extension system

By functioning to improve the maximum output level of the tape's high-frequency range, this system permits recordings without a reduction in the level of the sound source's high-frequency range. In addition, by using the system in parallel with this unit's noise-reduction system, recording and playback with a greatly extended dynamic range is possible.





To fast-forward or rewind the tape A

[In stop mode]
Press ◀◀ or ▶▶.

High-speed tape transport A-1

When fast-forwarding from near the beginning of the tape or when rewinding from near the end of the tape, the tape travel speed will be faster than that during normal fast-forwarding or rewind.

- During high-speed tape transport, the H indication will light up.
- **To return to the normal speed during high-speed tape transport**
  Press the ◀◀ or ▶▶ button corresponding to the current direction of tape travel.

For your reference

The tape does not always travel at high speed when you start fast-forwarding or rewinding from somewhere in the middle.

To find the beginning of a program (TPS function) B

[While tape is being play back]
Press ◀◀ or ▶▶.
(The tape will be re-wound or fast-forwarded to the beginning of the track, and then playback will automatically begin.)

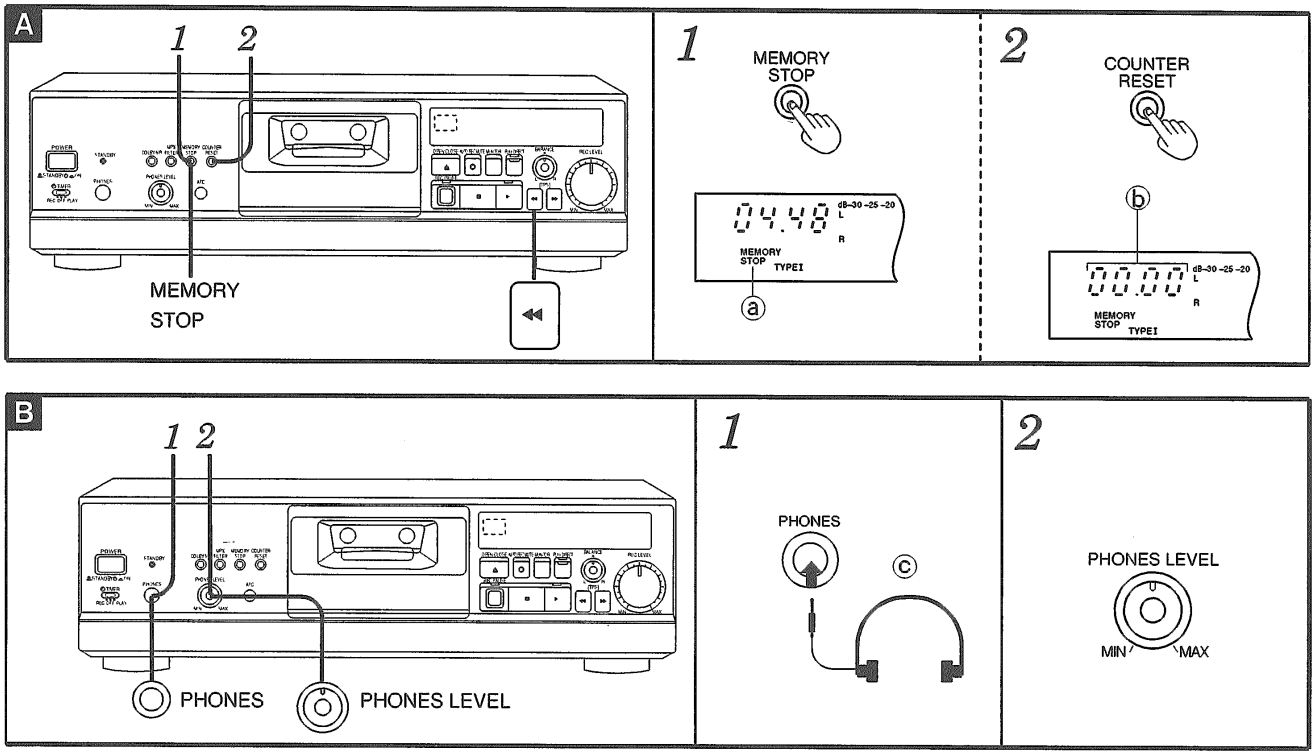
Tape returns to the beginning of the track currently being played, and playback begins.	Playback begins from the beginning of the next track.
◀◀	▶▶

- During operation of the TPS function, "▷" indicator will flash quickly.
- To find the beginning of a track which is several tracks before or after the track currently being played, repeat the procedure until the desired track is found.

Note

Because the TPS function utilizes the blank spaces between tracks, it may not be able to function properly under the following conditions:

- When there is less than 4 seconds of silent interval between tracks
- When there are no completely silent intervals (such as when the tape has been recorded using a microphone)
- When there are especially low-level parts or silent parts inside a track (such as sometimes occurs in classical music)
- If the ◀◀ or ▶▶ button is pressed during playback when less than 10 seconds has elapsed from the beginning of the track or there is less than 10 seconds remaining to the beginning of the next track
- If the tracks have been recorded with a fade-in (a gradual increase in the recording level) or a fade-out (a gradual decrease in the recording level)



Memory stop function A

1 [While the tape deck is paused, playing back or recording a tape]
Press MEMORY STOP.
ⓐ Illuminates

2 [While the tape deck is paused, playing back or recording a tape]
Press COUNTER RESET at the point where you wish to start playback or recording.
This point will be memorized as the rewind position.
ⓑ The counter will be reset to "00.00".

To rewind to the memorized point:
[While the tape deck is paused after playback or recording]
Press ◀◀ to rewind the tape.
The tape will stop rewinding when the counter reaches "00.00".

To clear a memory stop point:
Press MEMORY STOP.

Note
The position where the counter was reset and the actual stopping position may be slightly different (within an error of 4 seconds).

Listening through headphones B

Preparation:
Set PHONES LEVEL to "MIN".

1 **Connect the headphones.**
ⓒ Headphones (not included)
Plug type: 6.3 mm phone plug stereo type

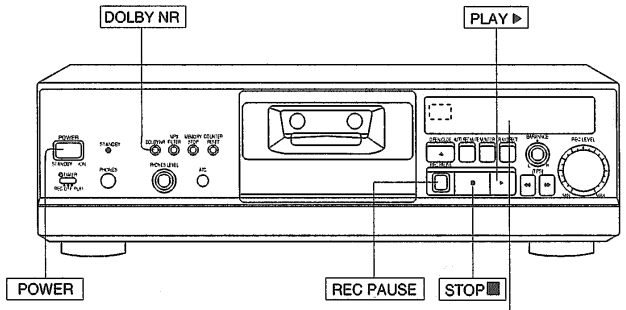
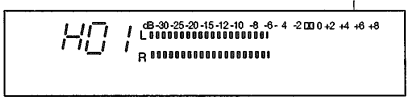
2 **Use the PHONES LEVEL control to adjust the volume.**
To increase the volume:
Turn to the right

To decrease the volume:
Turn to the left

Note
Avoid listening for prolonged periods of time to prevent hearing damage.

■SELF-DIAGNOSTIC

On this unit, each automatic adjustment result are displayed on the FL display. This function is convenient to check or identify.

Indication Procedure	Indication Position
• Normal blank tape (which has the erase preventing piece folded.) • Normal blank tape (which has the erase preventing pieces respectively.)	
To enter Self-Diagnostic mode 1. Check the deck is empty (no cassette tape), then turn on the power. 2. Press and hold the DOLBY NR button (for more than 3 seconds), and also press the STOP (■) button until the level meter changes from constantly lit to blinking.	Self-Diagnostic Function Indication **(Example)** 
To indicate Self-Diagnostic Function 1. Insert a normal tape for the deck, either side A or B of which has the erase preventing piece folded. Then close the cassette holder. 2. Press the PLAY (▶) button and play the tape for more than 1 second, then press the STOP (■) button. 3. Insert a normal blank cassette tape the deck, both sides A and B of which have the erase preventing pieces respectively, and close the cassette holder. (NOTE: The tape has to be taken up by playback for about 1 minute.) 4. Press the REC PAUSE button. This makes the deck perform the following operations automatically.	

Record an eight-second portion with no sound. ➡ Record a twenty-second portion off 400 Hz test signal. ⬇

STOP when the portion with no sound is found. ⬅ TPS-REVIEW search mode ⬅ Stop the unit.

5. Press the STOP (■) button to display the Self-Diagnostic results. When a fault occurs, the FL display indicates the results of Self-Diagnostic tests. For multiple faults, the indication changes each time.
(ex... H01→H02→F01→H01→H02→F01...)
6. If there is no fault, the counter display remains unchanged when the STOP (■) button is pressed.

To resume Ordinary Indication

To return the display to normal mode, switch the power off and then back on again.

To indicate Self-Diagnostic Function again

To have the indication appear again, take the above-stated steps 1 and 2 of "To enter Self-Diagnostic mode", and the STOP (■) button is pressed.

To clear the memory of the Self-Diagnostic mode

The contents of the Self-Diagnostic mode are stored in memory. To clear the memory, press the STOP (■) button for more than 6 seconds until "CL" appears in the FL display.
After the repairing, the memory must be cleared.

Indication Text

Symbol	Trouble	Remedy
H01	Irregular action of cassette mechanism.	The cassette mechanism mode switch (S971) and solenoid are defective. (Check and replace them.)
H02	No recording can be made, or the unit is placed in the recording mode though the erase preventing piece has been broken.	The erase preventing switch (S975) contacts improperly, or there is a shortcircuit. (Check and replace the switch.)
H03	Pressing the PLAY (▶) button fails to play the tape. Pressing the PLAY (▶) button causes the motor to rotate though nocassette tape is in.	The cassette half detect switch (S972) contacts improperly, or there is a shortcircuit. (Check and replace the switch.)
H04	The cassette holder will not open or close when the OPEN/CLOSE (▲) button is pressed. Pressing the OPEN/CLOSE (▲) button causes the cassette holder to open after it has closed, and vice versa.	The cassette holder open/close detect switch (S851, 852) contacts improperly, or there is a shortcircuit. (Check and replace the switch.)
H05		
H06	No treble is produced when a normal tape is played or recorded. Excessive treble is produced when a CrO_2/Metal tape is played, or the recorded treble is destorted and at a low level.	The auto tape select (CrO_2) switch (S973) contacts improperly, or there is a shortcircuit. (Check and replace the switch.)
H07		The auto tape select (Metal) switch (S976) contacts improperly, or there is a shortcircuit. (Check and replace the switch.)
F01	When the PLAY (▶) button is pressed, the tape runs a little and stops soon.	The photo interrupter IC (IC971, 972) is defective and, as the result, reel pulse is out of order. (Check and replace the IC.)
F02	TPS does not operate.	The playback IC (IC2) is defective. (Check and replace the IC.)
F03	The cassette holder will not open or close when the OPEN/CLOSE (▲) button is pressed. Irregular action of cassette mechanism.	Reel motor is defective. (Check and replace it.)

■ OPERATION CHECKS AND MAIN COMPONENT REPLACEMENT PROCEDURES

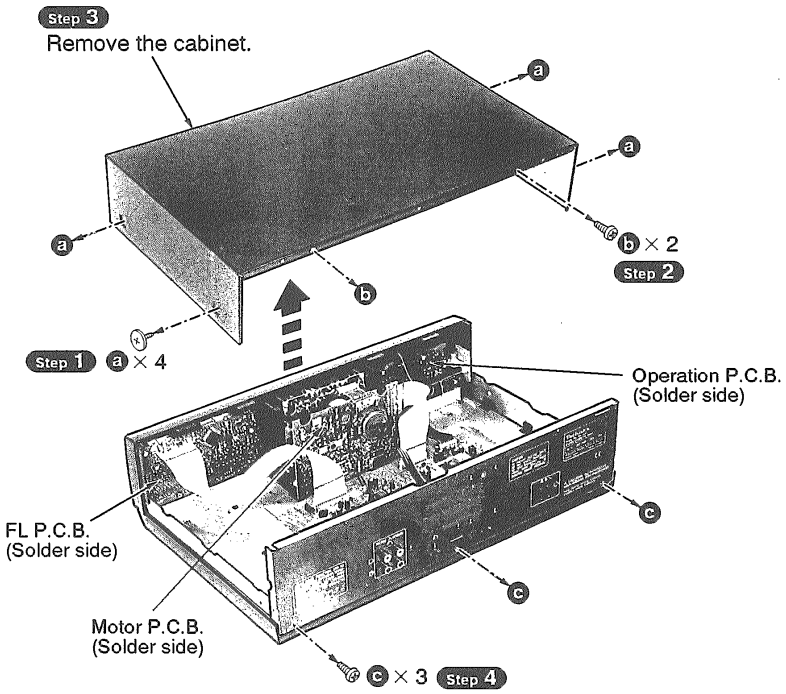
NOTE

1. This section describes procedures for checking the operation of the major printed circuit boards and replacing the main components.
2. For reassembly after operation checks or replacement, reverse the respective procedures. Special reassembly procedures are described only when required.
3. Select items from the following index when checks or replacement are required.
4. Illustrated screws are equivalent to actual size.
5. Refer the parts No. on the page of "Main Component Replacement Procedures", if necessary.

• Contents

■ Checking Procedure for each P.C.B.

1. Checking for the motor P.C.B., FL P.C.B., operation P.C.B. and main P.C.B.



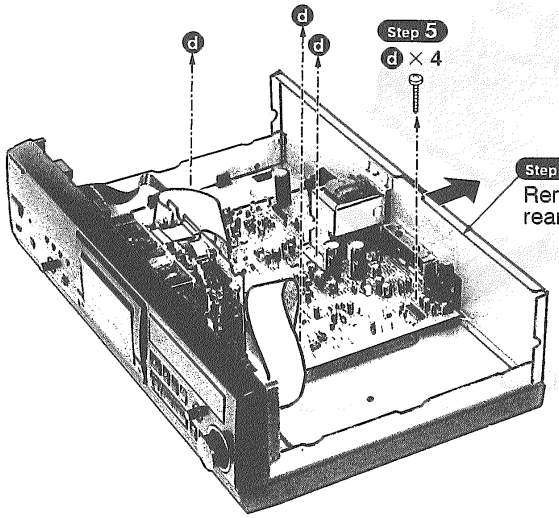

ⓐ (Black)

[RHD30035–K1]

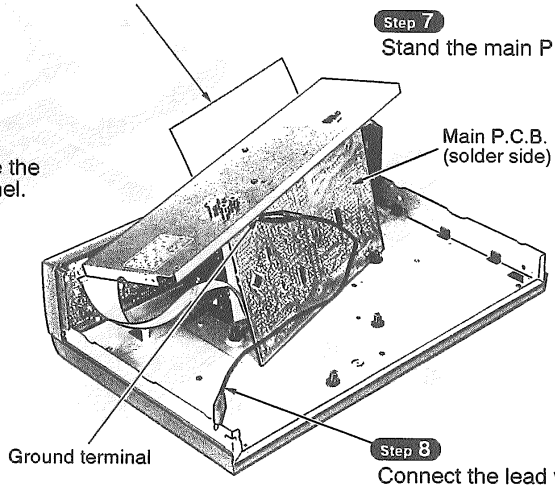

ⓑ, ⓒ (Black)

[XTBS3+8JFZ1]

• Check the motor P.C.B., FL P.C.B. and operation P.C.B. as shown above.



NOTE
Insert the insulation material to avoid the short circuit.



• **Check the main P.C.B. as shown above.**

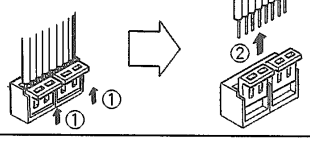
[XTB3+20JFZ]

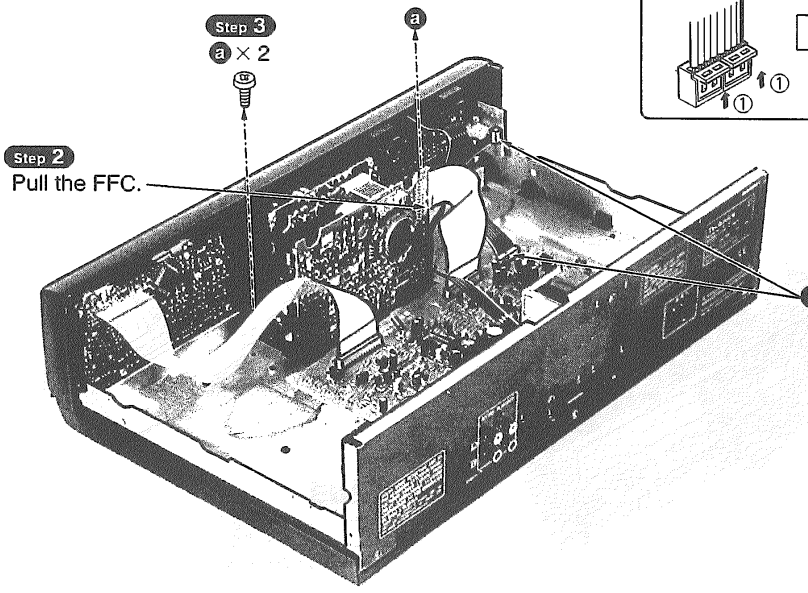
■ Main Component Replacement Procedures

1. Replacement for the cassette lid ass'y, sub cassette holder and cassette holder ass'y

• Follow the item 1 (Step 1 ~ Step 3) in checking procedures for each P.C.B. on page 12.

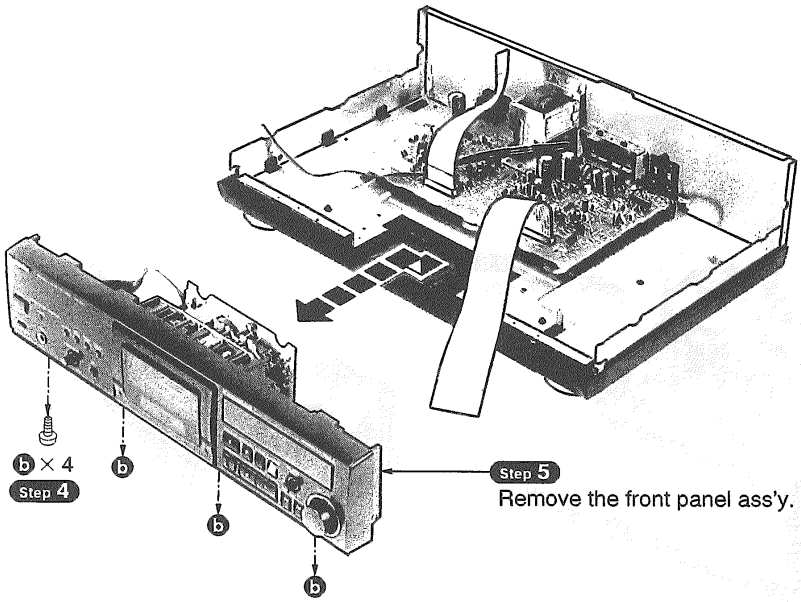
Removal for the connector.



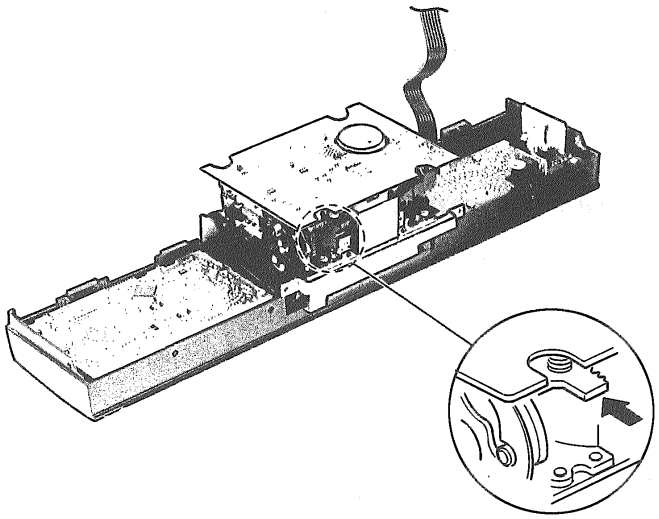


[XTBS3+8JFZ1]

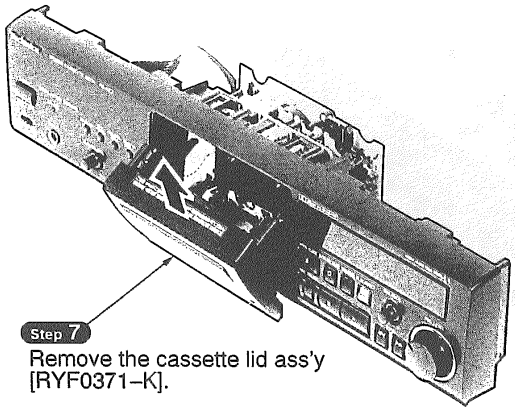
(b) (Black)
[XTBS3+8JFZ1]



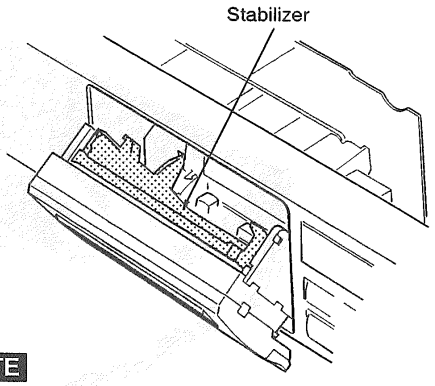
Step 5
Remove the front panel ass'y.



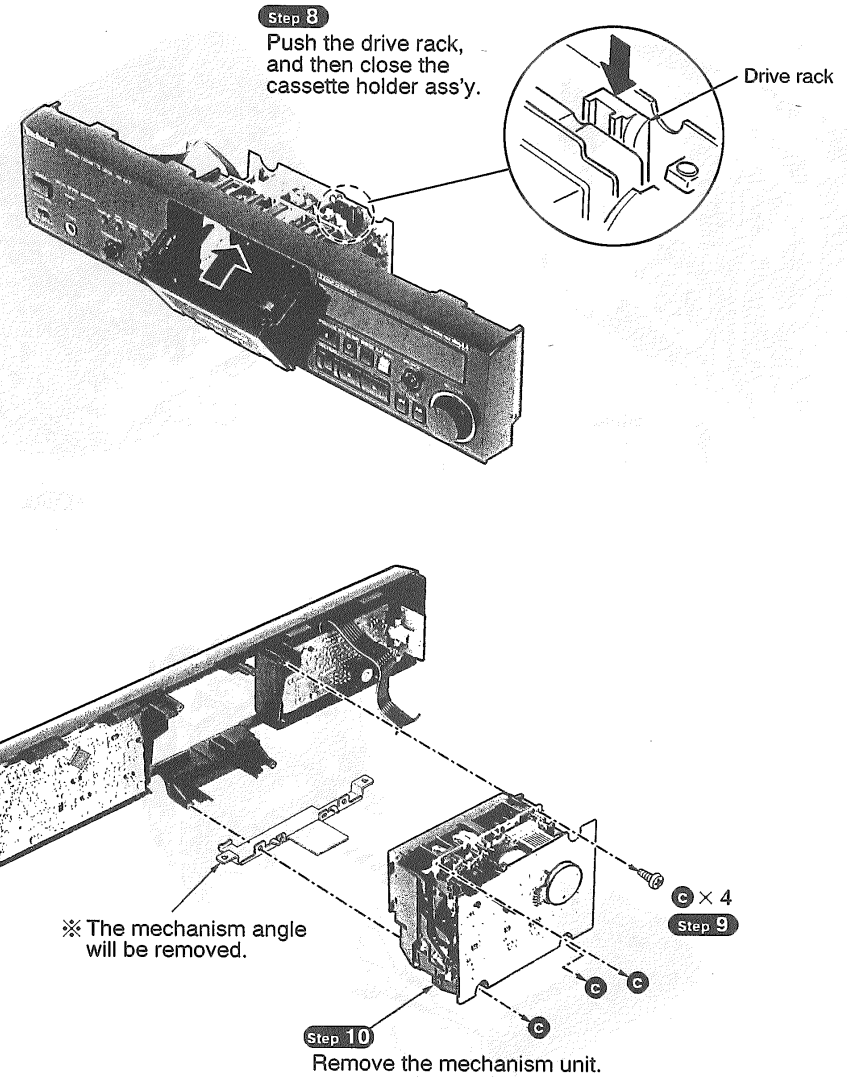
Step 6
Force the drive rack, and then open the cassette lid ass'y.

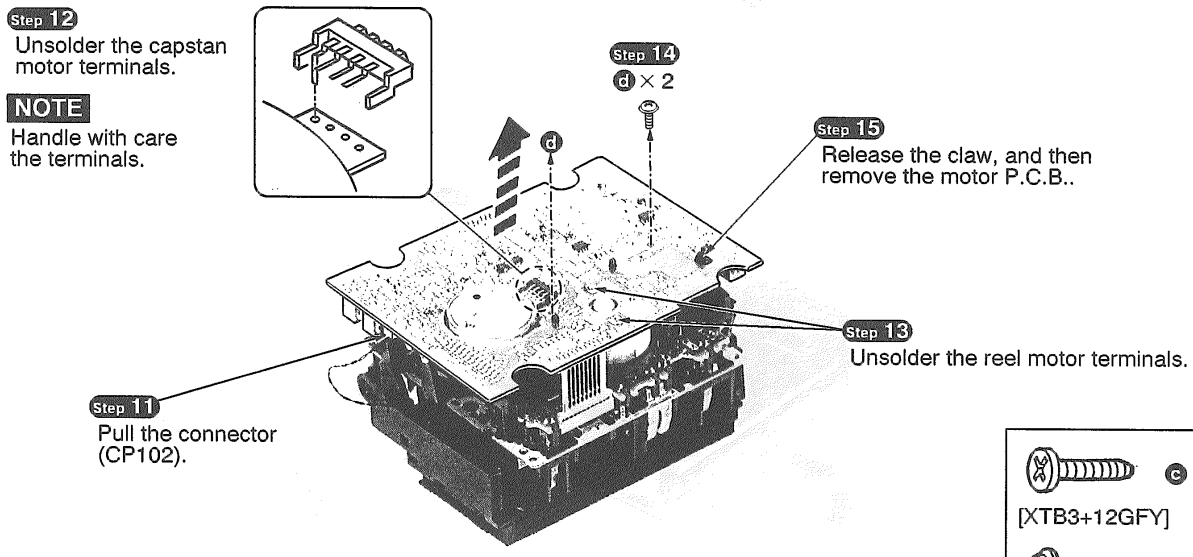


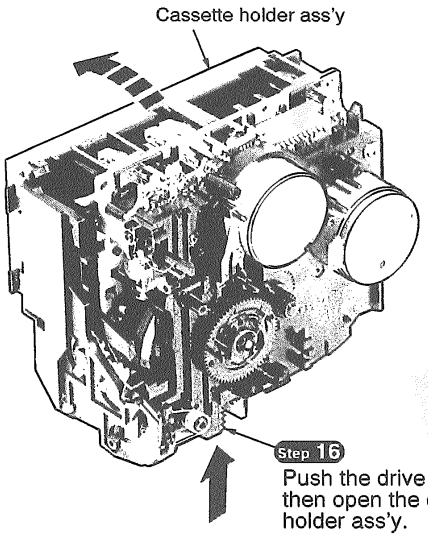
Step 7
Remove the cassette lid ass'y [RYF0371–K].



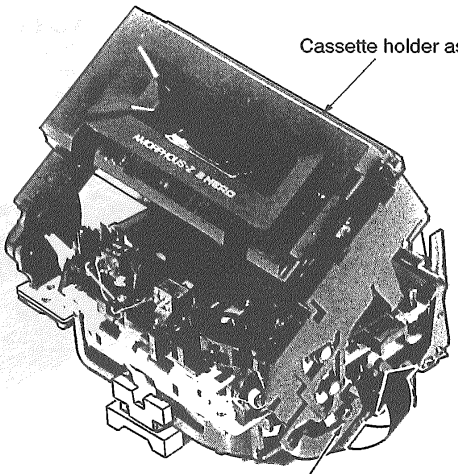
NOTE
When replacing the cassette lid ass'y and cassette holder ass'y, avoid to push the stabilizer marking with (▨).


Step 8
Push the drive rack, and then close the cassette holder ass'y.
Drive rack
※ The mechanism angle will be removed.
c × 4
Step 9
Step 10
Remove the mechanism unit.

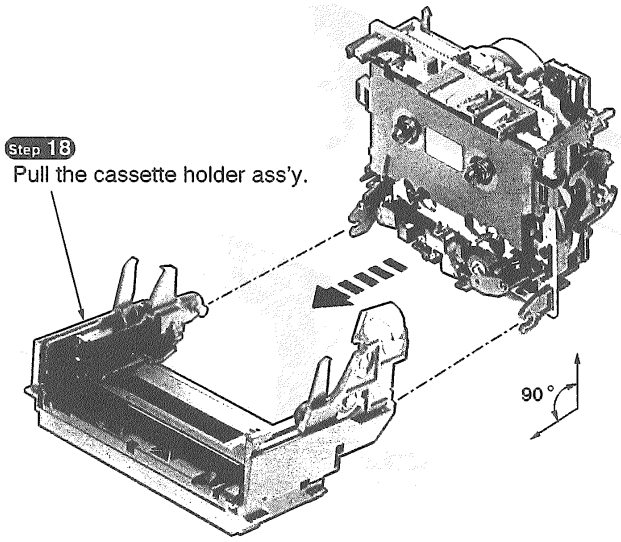

Step 12
Unsolder the capstan motor terminals.
NOTE
Handle with care the terminals.
Step 14
d × 2
Step 15
Release the claw, and then remove the motor P.C.B..
Step 13
Unsolder the reel motor terminals.
Step 11
Pull the connector (CP102).
c
[XTB3+12GFY]
d
[XTW2+6S]



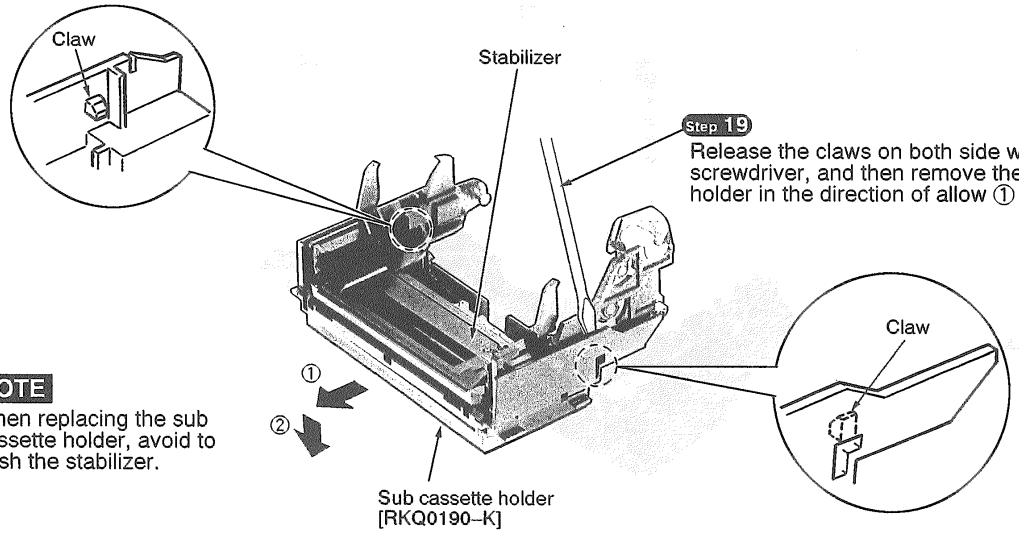
Step 16
Push the drive rack, and then open the cassette holder ass'y.



Step 17
Remove the cassette holder ass'y from the drive lever shaft.



Step 18
Pull the cassette holder ass'y.

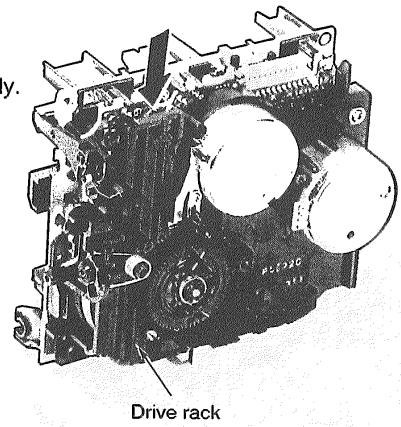


Step 19
Release the claws on both side with minus screwdriver, and then remove the sub cassette holder in the direction of allow ① and ②.

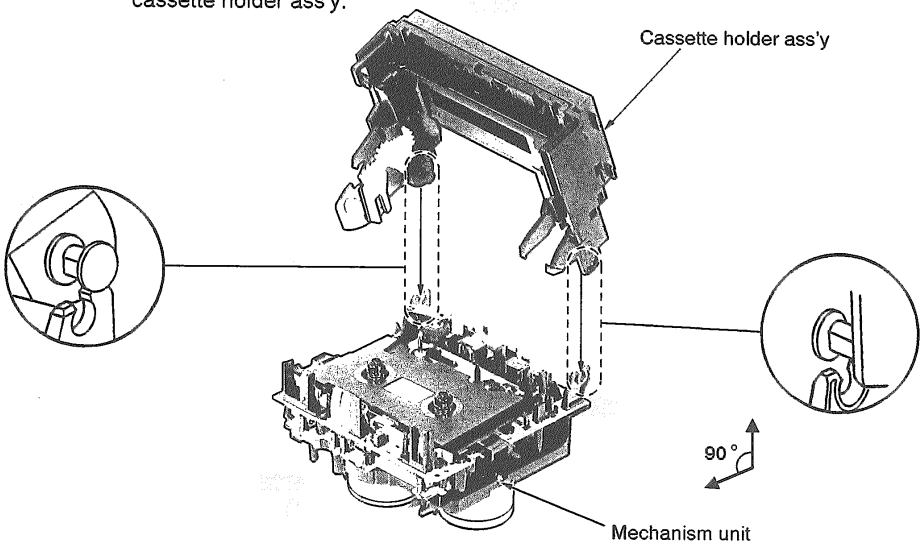
NOTE
When replacing the sub cassette holder, avoid to push the stabilizer.

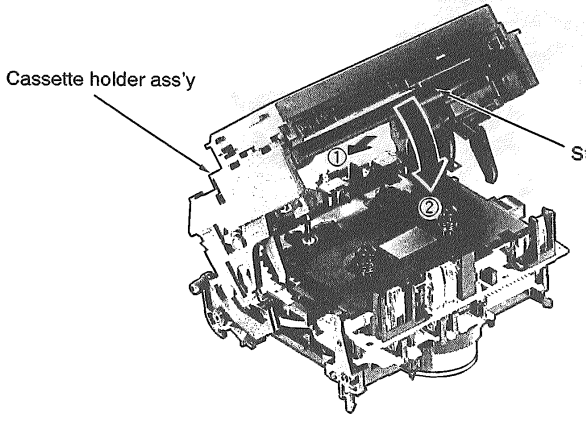
Installation of the cassette holder ass'y after replacement

Step 20
Force the drive rack fully.



Step 21
Locate the cassette holder ass'y and mechanism unit at a 90 degree angle, and then install the cassette holder ass'y.

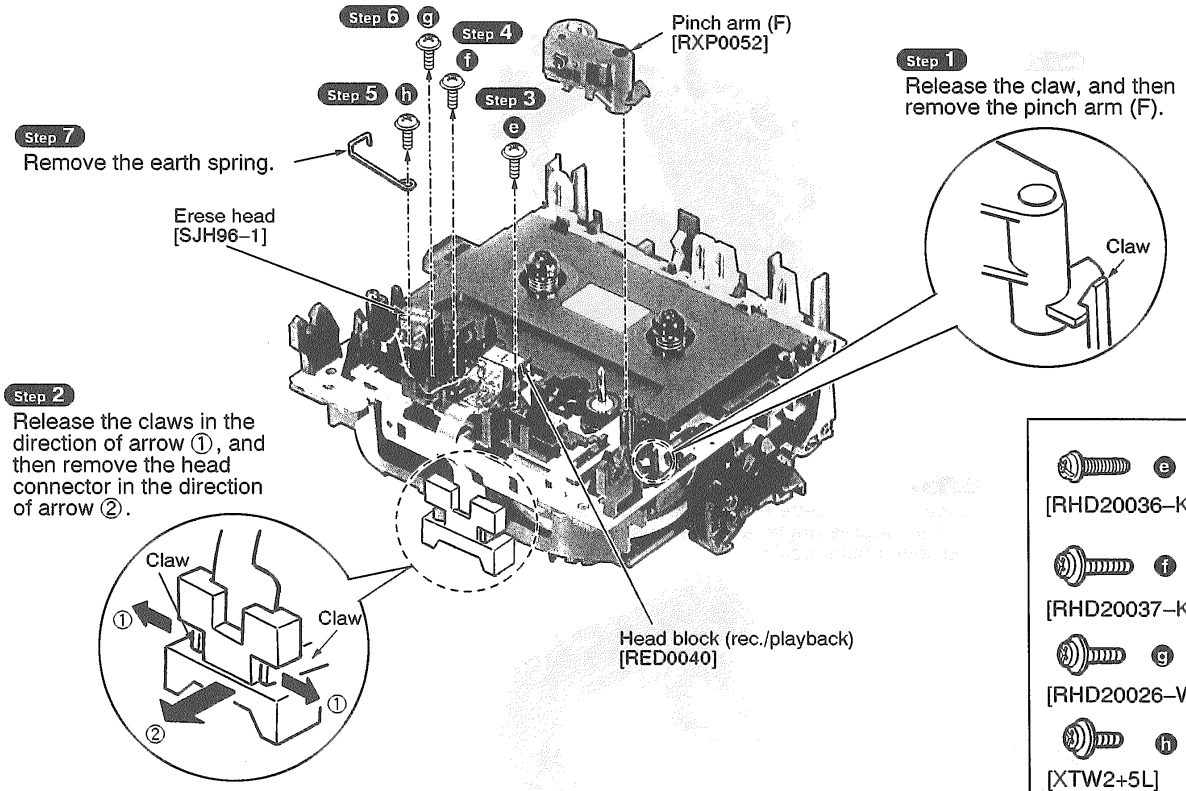




Step 22
Lower the stabilizer in the direction of arrow ①, and then push the cassette holder ass'y in the direction of arrow ②.

2. Replacement for the pinch arm (F), head block (rec./playback) and erase head

• Follow the item 1 (Step 1 ~ Step 17) in main component replacement procedures on page 13 to 16.



ⓔ (Black) [RHD20036–K]

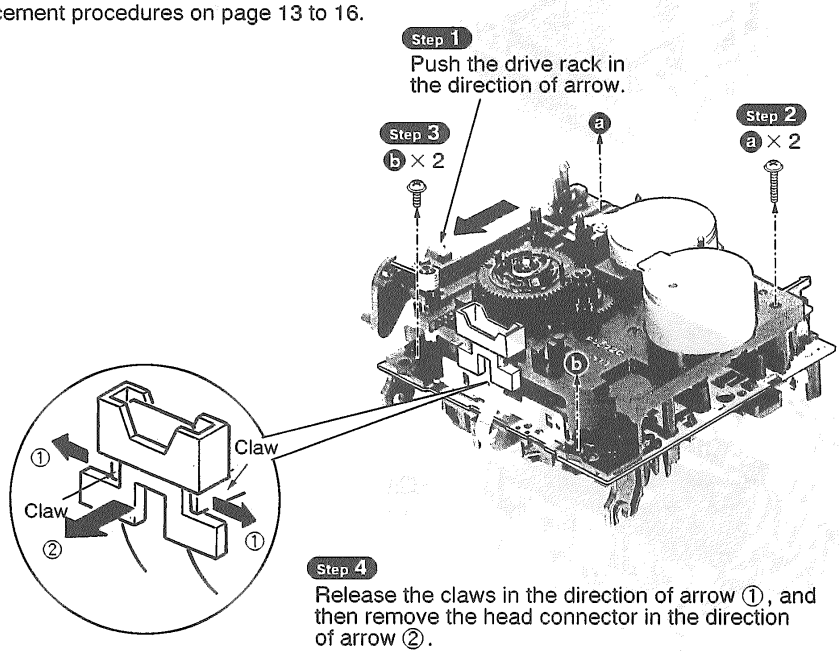
ⓕ (Black) [RHD20037–K]

ⓖ (Silver) [RHD20026–W]

ⓗ [XTW2+5L]

3. Replacement for the belt, reel motor and capstan motor

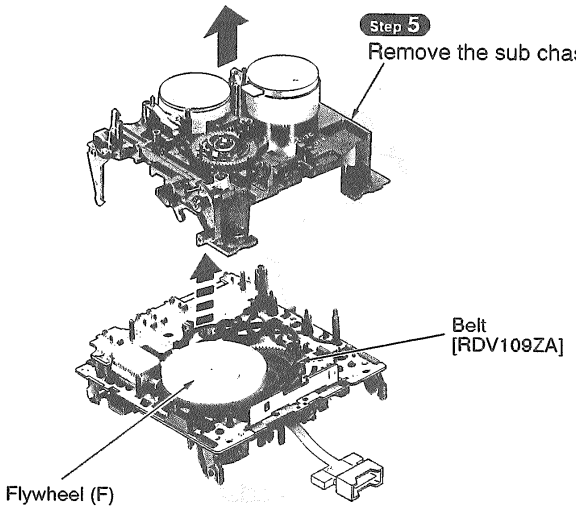
• Follow the item 1 (Step 1 ~ Step 17) in main component replacement procedures on page 13 to 16.

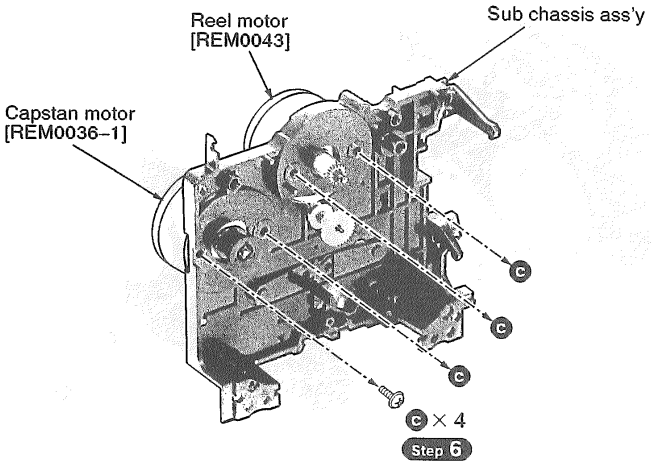


ⓐ [XTW26+12S]

ⓑ [XTW26+6L]

[RHD26013]

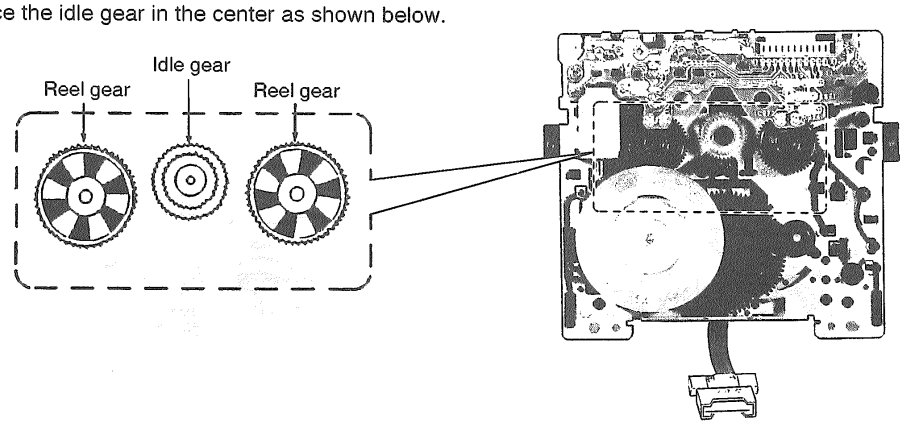


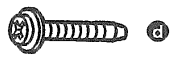


Installation of the sub chassis ass'y after replacement

Step 7

Place the idle gear in the center as shown below.

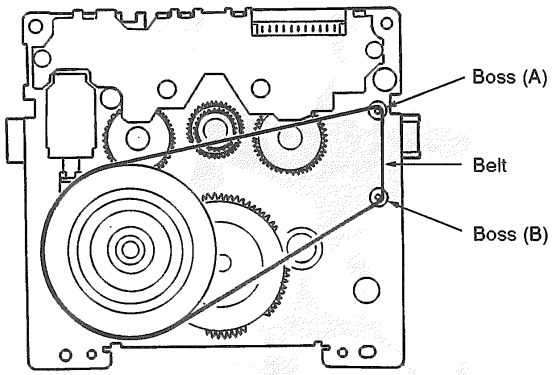




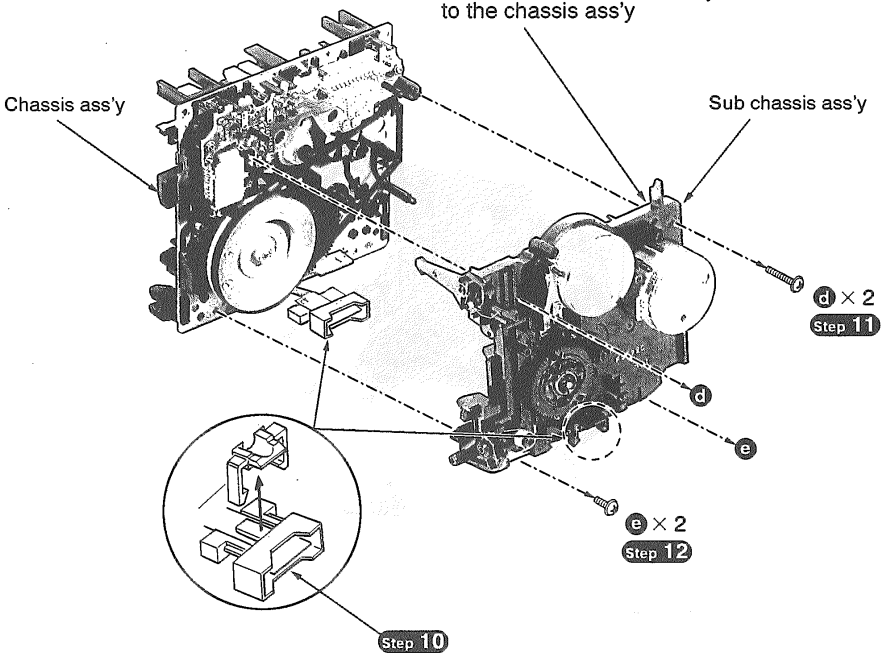
[XTW26+12S]

[XTW26+6L]

Step 8
Temporarily secure the belt.

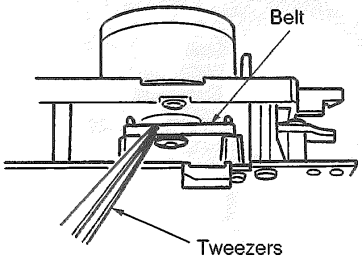


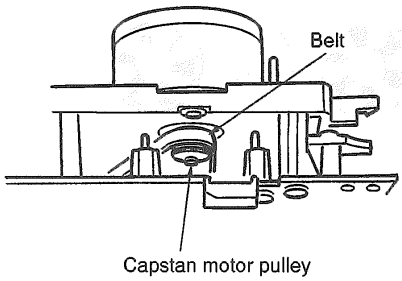
Step 9
Install the sub chassis ass'y
to the chassis ass'y



Install the head connector.

Step 13
Secure the belt with the capstan motor pulley.

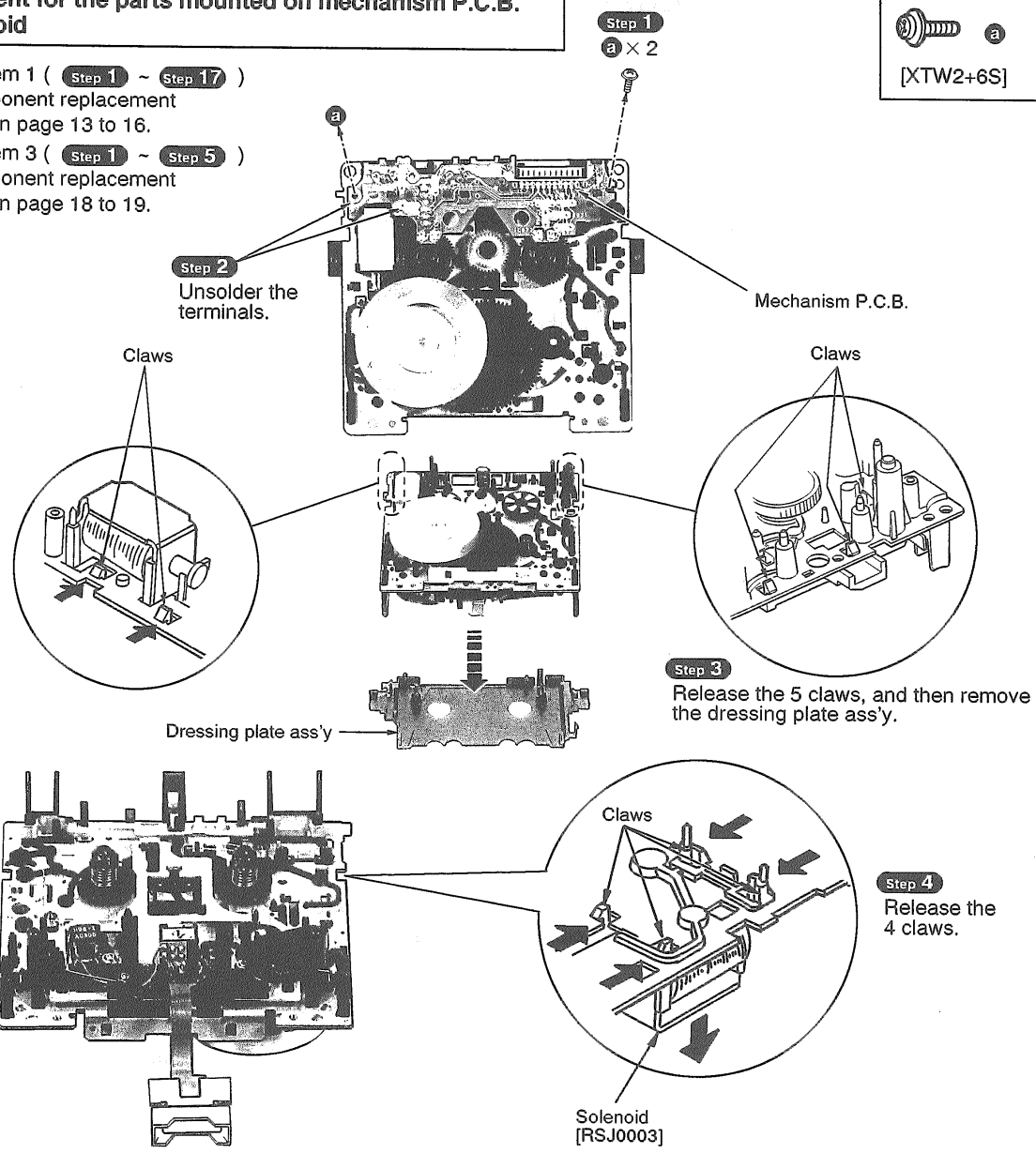




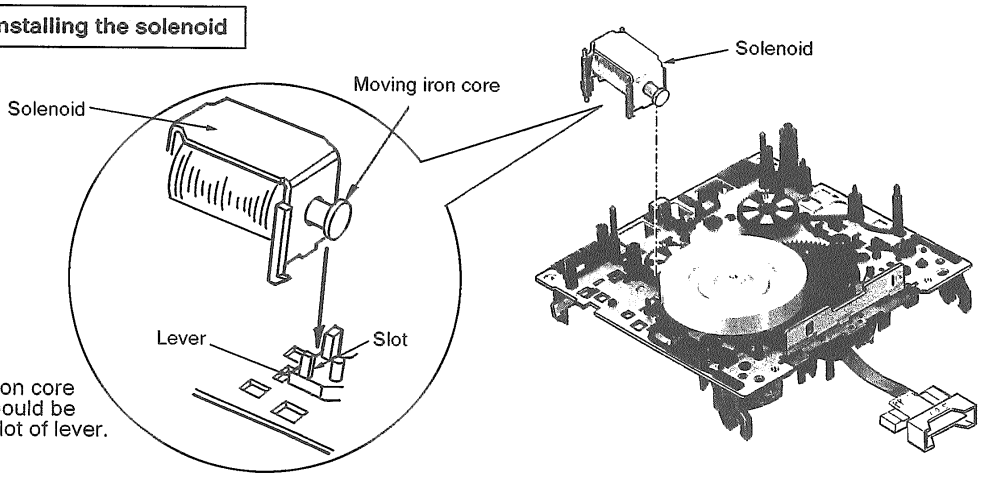
4. Replacement for the parts mounted on mechanism P.C.B. and solenoid

- Follow the item 1 (Step 1 ~ Step 17) in main component replacement procedures on page 13 to 16.
- Follow the item 3 (Step 1 ~ Step 5) in main component replacement procedures on page 18 to 19.

ⓐ [XTW2+6S]



Notice for installing the solenoid



NOTE
The moving iron core of solenoid should be aligned with slot of lever.

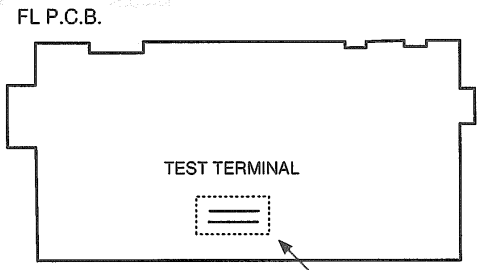
■ADJUSTMENT PROCEDURE

This unit holds recording bias and equalization data in its EEPROM chip. An internal CPU automatically adjusts playback gain, recording bias, overall gain, and overall frequency response according to the ROM data. Manual adjustment with potentiometers is no longer necessary except for head azimuth and tape speed. All other items require only measurement data checks.
The adjustment and checkout procedures are as follows.

• Writing to EEPROM

The EEPROM chip holds the optimal recording bias and equalization data. If the chip has been replaced, be sure to write to it, following the steps below:

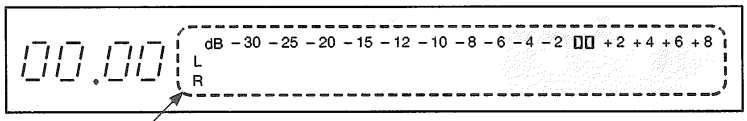
Short the Test Mode terminals with a shorting clip. (Fig. 1)



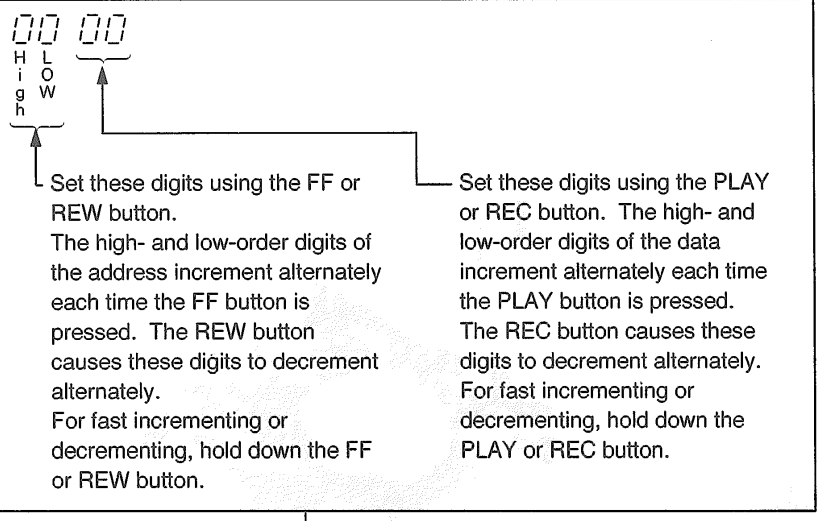
(Fig. 1)

While holding down the STOP button, press the POWER switch to ON.

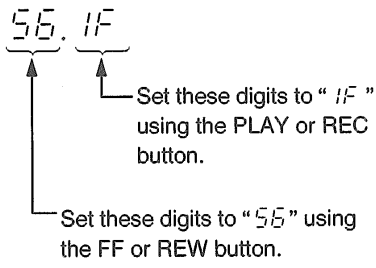
All FL display segments except for the four-digit counter will start blinking to indicate that the deck has entered Write mode.



The counter shows a four-digit hex number. The two high-order digits indicate a ROM address, and the two low-order digits indicate the data stored at that address.



Example: Set "1F" in address 56
(See Fig. 2)

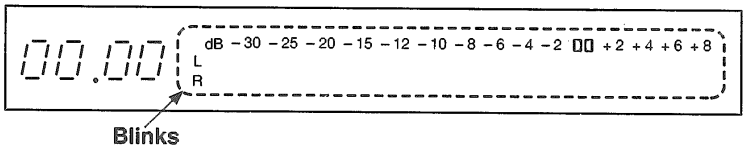


Ⓐ

Ⓐ

Begin from address 0F and write data up to address 7F . Check that the data at address 7F is "00"(end), and then exit the write mode. (Fig. 2)

After completing ROM writing, press the STOP button to restore the nomal Test mode. The four-digit counter displays.



Remove the shorting clip from the Test Mode terminals. The FL display will stop blinking.

● EEPROM MAP

High / Low	0	1	2	3	4	5	6	7
0	00	—	—	—	—	—	—	—
1	00	—	—	—	—	—	—	—
2	—	00	—	—	—	—	—	—
3	—	00	—	—	—	—	—	—
4	—	0B	—	—	—	51	99	A8
5	—	28	—	—	—	00	00	00
6	—	21	—	—	—	1F	00	01
7	—	08	—	—	—	64	6A	FF
8	—	FB	—	—	—	BF	BF	FF
9	—	F5	—	—	—	—	—	—
A	—	50	—	—	—	—	—	85
B	—	60	—	—	—	73	73	73
C	—	58	—	—	—	68	68	68
D	—	8F	—	—	—	82	82	82
E	—	49	8A	8F	93	—	00	09
F	E8	53	0E	0D	0D	—	00	5A

Fig. 2

■MEASUREMENTS AND ADJUSTMENTS

Measurement condition

- Recording-level control: Maximum
- Recording-balance control: Center
- Headphones volume control: Maximum
- Play direct switch: Off
- Dolby NR switch: Off
- ATC switch: Off
- MPX filter switch: Off
- Timer control switch: Off
- Make sure hands are clean
- Make sure capstan and pressure roller are clean
- Judgeable room temperature 20±5°C (69±9°F)

Measuring instrument

- EVM (Electronic Voltmeter)
- Oscilloscope
- Digital frequency counter
- AF oscillator
- ATT (Attenuator)
- DC voltmeter
- Resistor (600Ω)
- Distortion analyser

Note: Before adjustment, be sure to set the AF oscillator output level to 0dB (1kHz): 1V

Test Tape

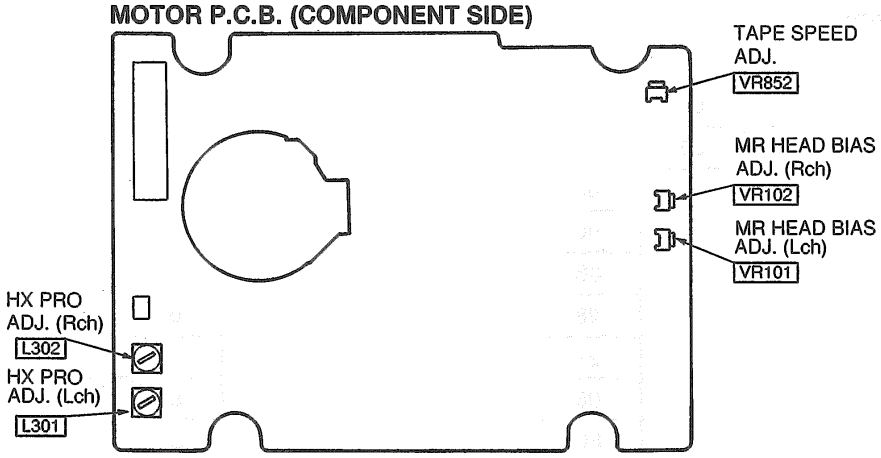
- Head azimuth adjustment (8kHz, −20dB)
- Playback frequency response (315Hz, 12.5kHz, 10kHz, 8kHz, 4kHz, 1kHz, 250Hz, 125Hz, 63Hz, −20dB)
- Playback gain adjustment (315Hz, 0dB)
- MR head bias adjustment and HX PRO adjustment.

} : QZZCFM

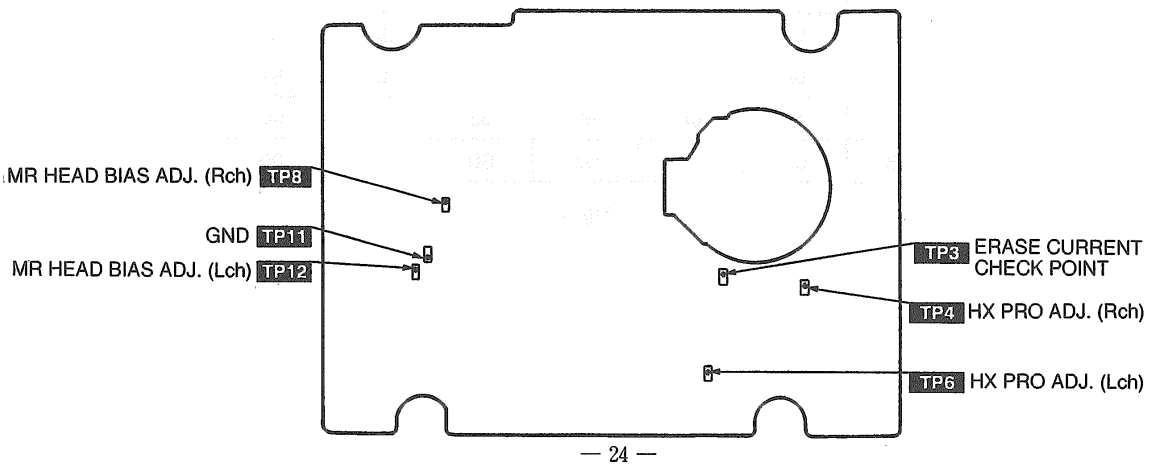
- Tape speed adjustment (3kHz, −10dB) : QZZCWAT
- Overall gain adjustment and Overall frequency response
  Nomal blank tape
  CrO_2 blank tape
  Metal blank tape

- **Adjustment Points**

MOTOR P.C.B. (COMPONENT SIDE)



MOTOR P.C.B. (FOIL SIDE)



HEAD AZIMUTH ADJUSTMENT

1. Connect the measuring instrument as shown in Fig. 1.
2. Playback the azimuth adjustment portion (8kHz, −20dB) of the test tape (QZZCFM). Vary the azimuth adjusting screw until the output of the Rch are maximized. (Refer to Fig. 2)
3. After the adjustment, apply screwlock to the azimuth adjusting screw.

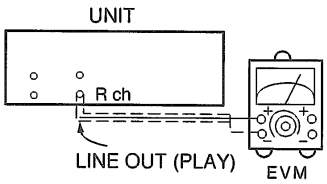


Fig. 1

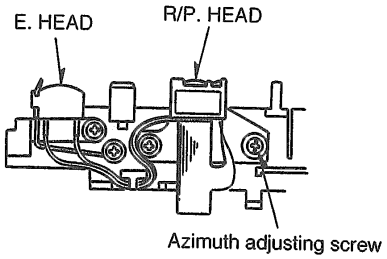


Fig. 2

TAPE SPEED ADJUSTMENT

1. Connect the measuring instrument as shown in Fig. 3.
2. Playback the middle portion of the test tape (QZZCWAT).
3. Adjust VR852 for the output value shown below.

Adjustment target: 3000±15Hz (NORMAL speed)

Standard value: 3000±45Hz (NORMAL speed)

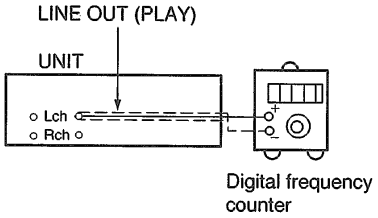


Fig. 3

MR HEAD BIAS ADJUSTMENT

1. Connect the measuring instrument as shown in Fig. 4.
2. Short the section between the test points. (Lch: TP12 and TP11, Rch: TP8 and TP11)
3. Playback the playback gain adjustment portion (315 Hz, 0dB) of test tape (QZZCFM).
4. Adjust the VR101 (Lch) and VR102 (Rch) until the distortion is minimized.

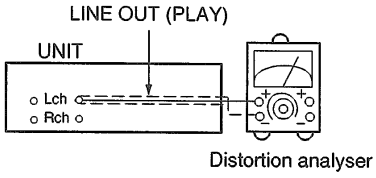


Fig. 4

PLAYBACK GAIN ADJUSTMENT

1. Connect the measuring as shown in Fig. 5. Adjust the frequency of OSC (315Hz).
2. With no tape loaded in the deck, press and hold the REC button. Adjust the test signal level using the Rec. Level and Balance controls until the line output levels on both channels, Lch and Rch, are 320mV. When the adjustment is complete, release the REC button. (The deck stores the data at the moment the REC button is released.)
3. Load the test tape (QZZCFM) into the deck and locate the part where the playback gain test tone (315Hz, 0dB) is recorded. Press the ATC button and then PLAY button. (Automatic adjustment of the Playback gain adjustment.) After this, play back the tape and verify that the output level falls in the specified range.

Standard value: 320mV±0.5dB

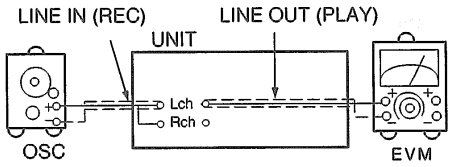


Fig. 5

HX PRO ADJUSTMENT

1. Connect the measuring instrument as shown in Fig. 6.
2. Insert the Metal blank tape into the deck, and press the REC PAUSE button.
3. Connect the EVM between TP6 (Lch) and TP4 (Rch). Adjust the L301 (Lch) and L302 (Rch) until the outputs are minimized.
   (**Note:** Please refer to the printed circuit board diagram for test point locations.)

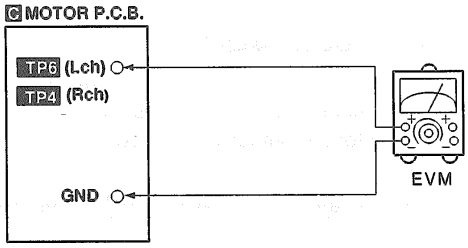


Fig. 6

PLAYBACK FREQUENCY RESPONSE

1. Connect the measuring instrument as shown in Fig. 7.
2. Playback the frequency response portion (315Hz, 12.5kHz~63Hz, −20dB) of the test tape (QZZCFM).
3. Assure that the frequency response is within the range shown in Fig. 8 for both Lch and Rch.

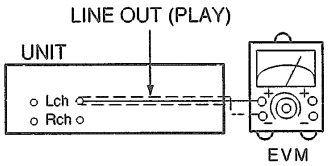


Fig. 7

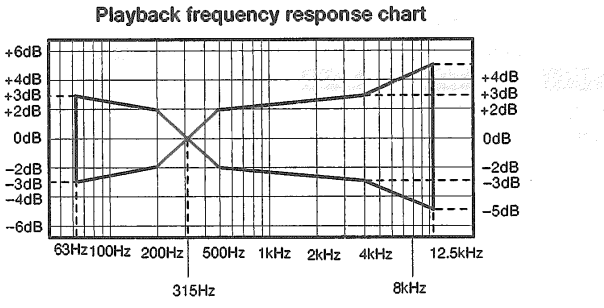


Fig. 8

ERASE CURRENT CONFIRMATION

1. Connect the measuring instrument as shown in Fig. 9.
2. Insert the Metal blank tape into the deck, and press the REC PAUSE button.
3. Check if the output at this time between the erase current confirmation point TP3 and GND (the output on both edged of R321) is within the standard value.

Notes: • The test tape is not required when confirming the erase current.
• Please refer to the printed circuit board diagram (C MOTOR P.C.B.) for test point locations.

Standard value	EVM reading
Metal tape: 190±20mA	(190±20mA)

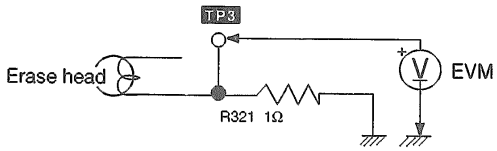


Fig. 9

CONFIRMATION OF THE OVERALL GAIN AND OVERALL FREQUENCY RESPONSE

1. Connect the measuring instrument as shown in Fig. 10.
2. Load a Normal blank tape into the deck, press the ATC button, and then press the REC button. (automatic adjustment of the Overall gain and Overall frequency response.)
3. In the Record Pause mode, and apply the reference input signal (1kHz, −24dB) to the Rec. input. adjust the output to 320mV with the attenuator, and start recording.
4. While playing back the reference signal just recorded, verify that the output level falls in following range.

Standard value: 320mV±0.5dB

5. Afterward, apply a signal (frequency at the measured point in the range from 50Hz to 10kHz), whose level is 20dB lower than the reference signal level (1kHz, −24dB=approx. 63mV), to the Rec. input. Then start recording with a Nomal blank tape.
6. Play back the test signals just recorded and verify that the levels at the test frequencies fall in the ranges specified in Fig.11 with respect to the reference signal level.
7. Repeat steps 5 and 6 above for CrO_2 blank test tape and Metal blank test tape, in these cases raising the upper end of the test signal frequency range to 12.5kHz. Verify that the signal levels at the test frequencies fall in the ranges specified in Fig. 12 with respect to the reference signal level.

• Steps 1 through 4 above are concerned with overall gain; steps 5 through 7 pertain to overall frequency response.

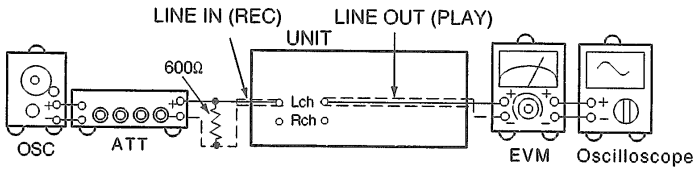


Fig. 10

Normal Overall frequency response chart (NR OUT)

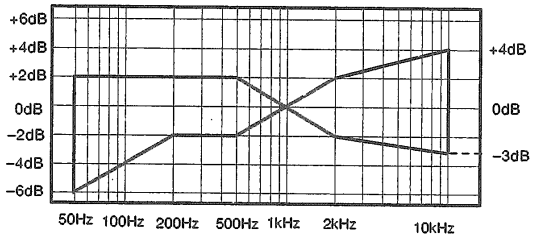


Fig. 11

CrO_2 Metal Overall frequency response chart (NR OUT)

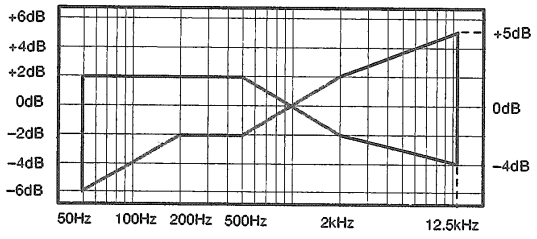
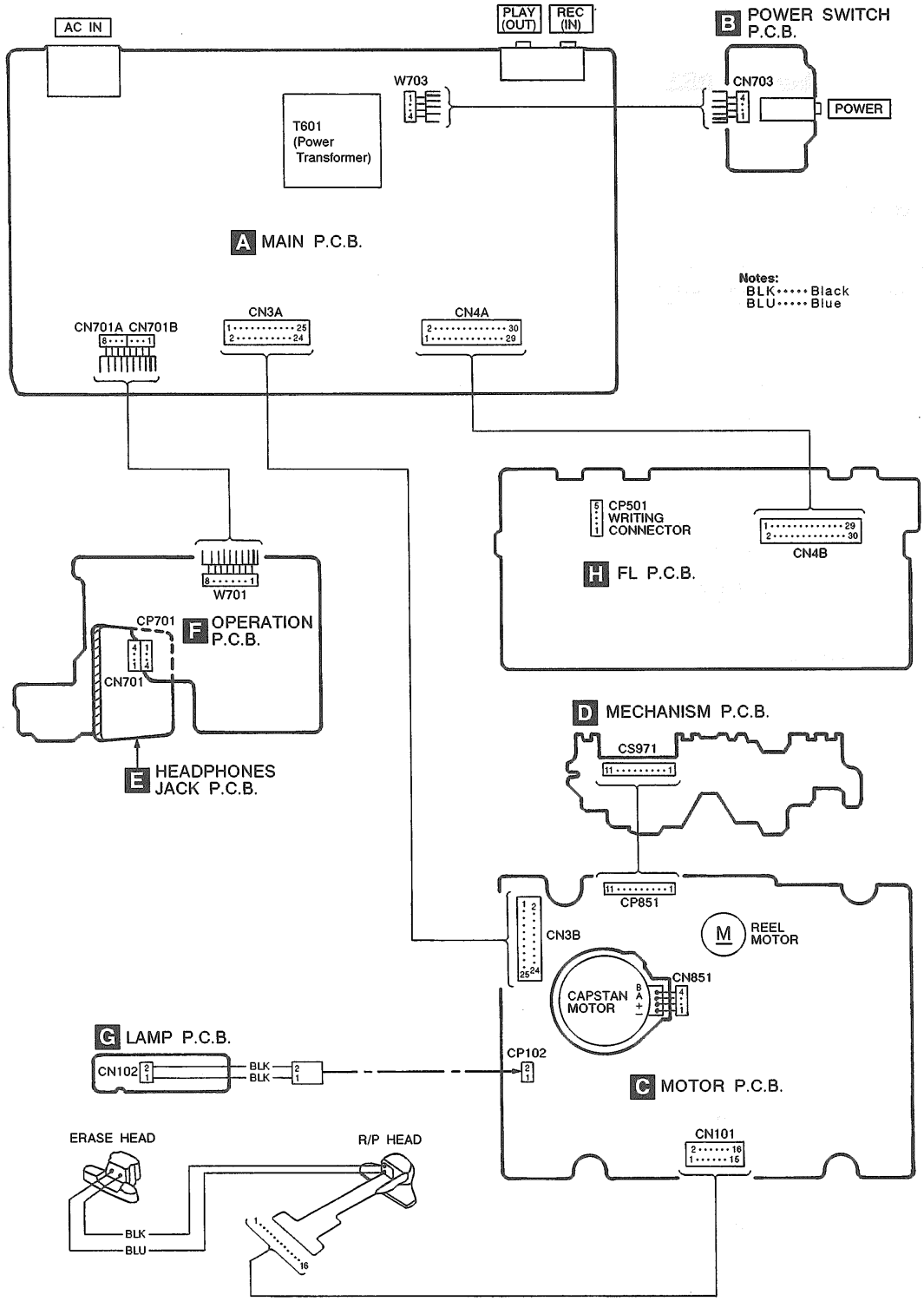
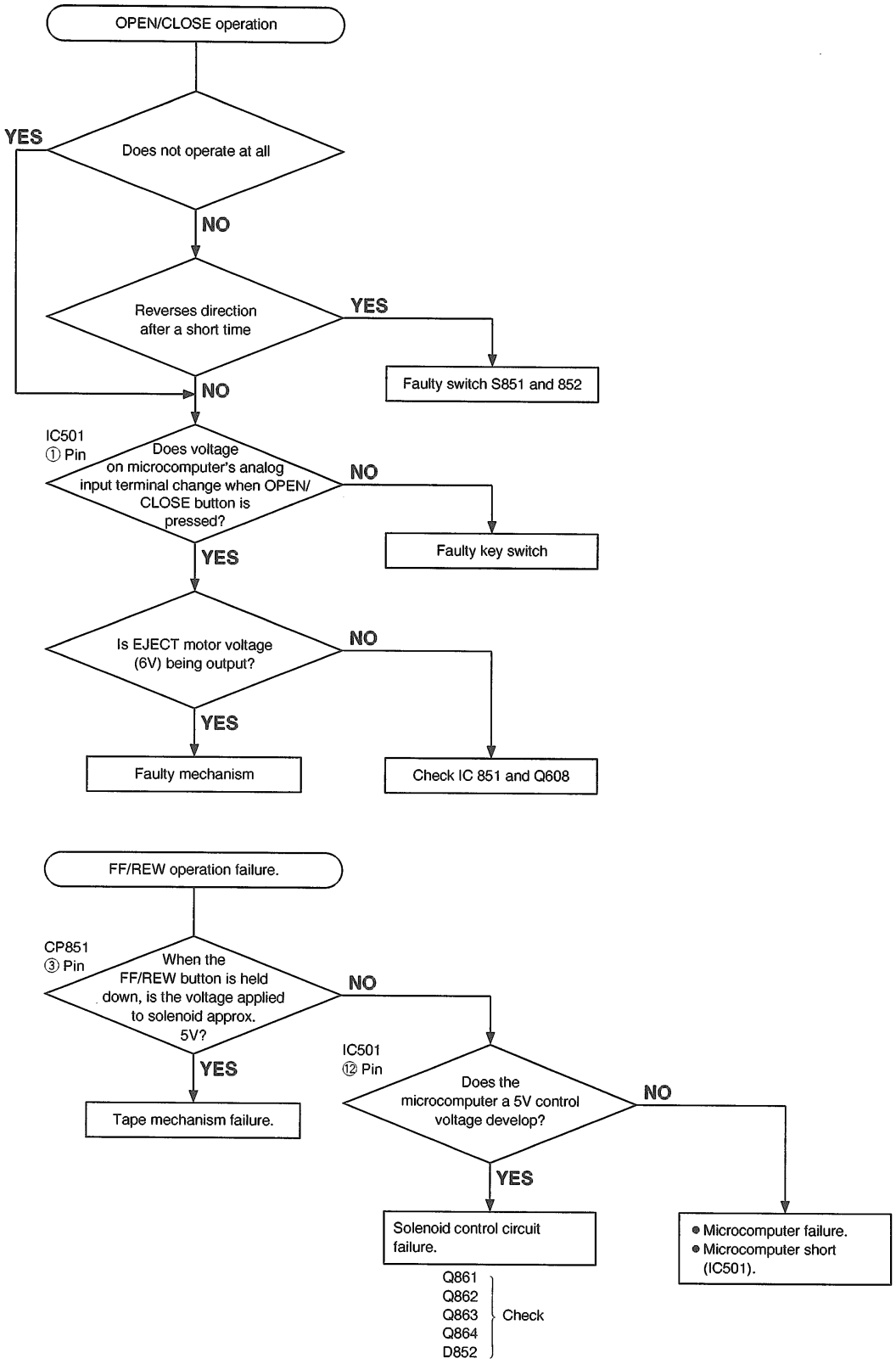


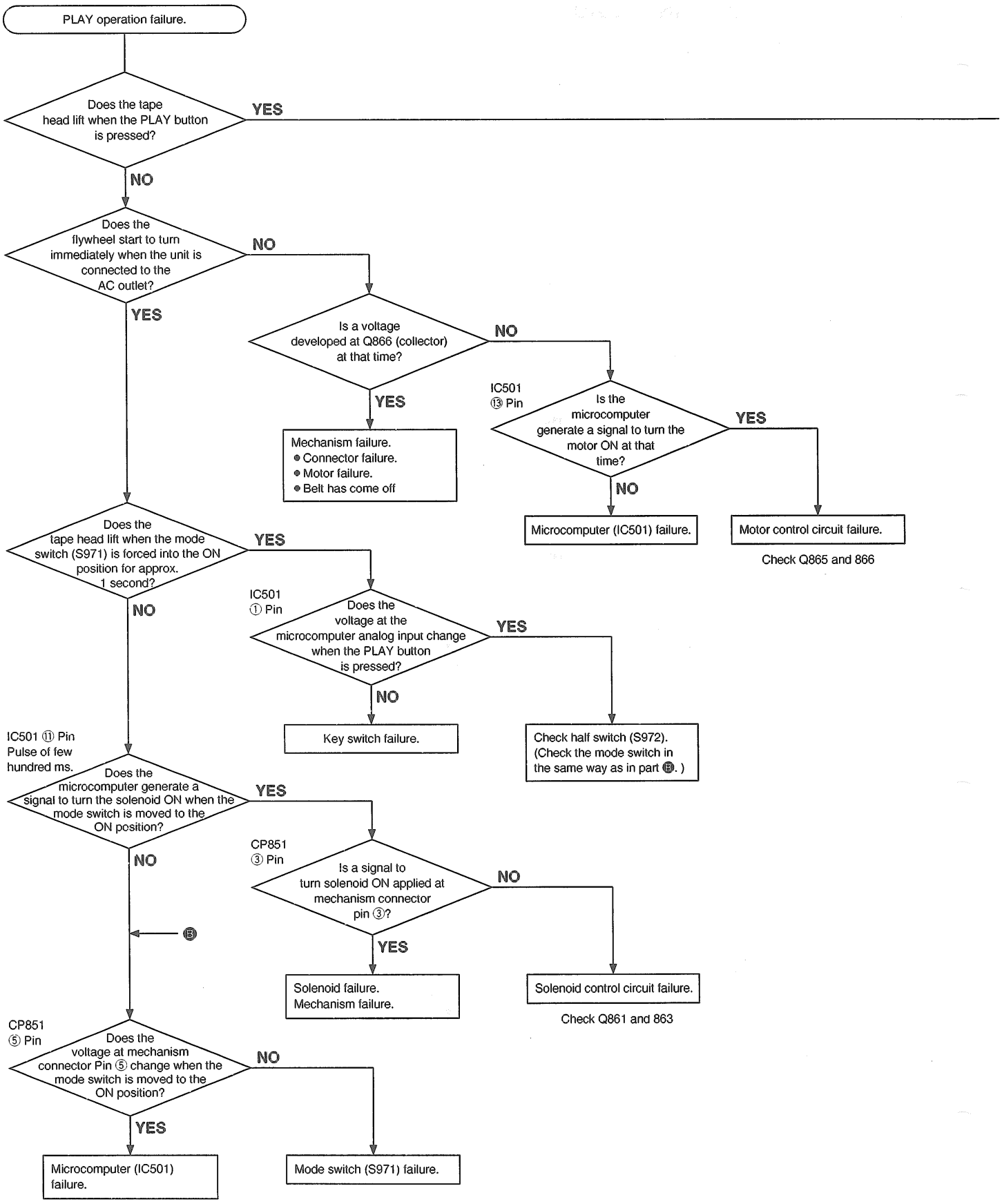
Fig. 12

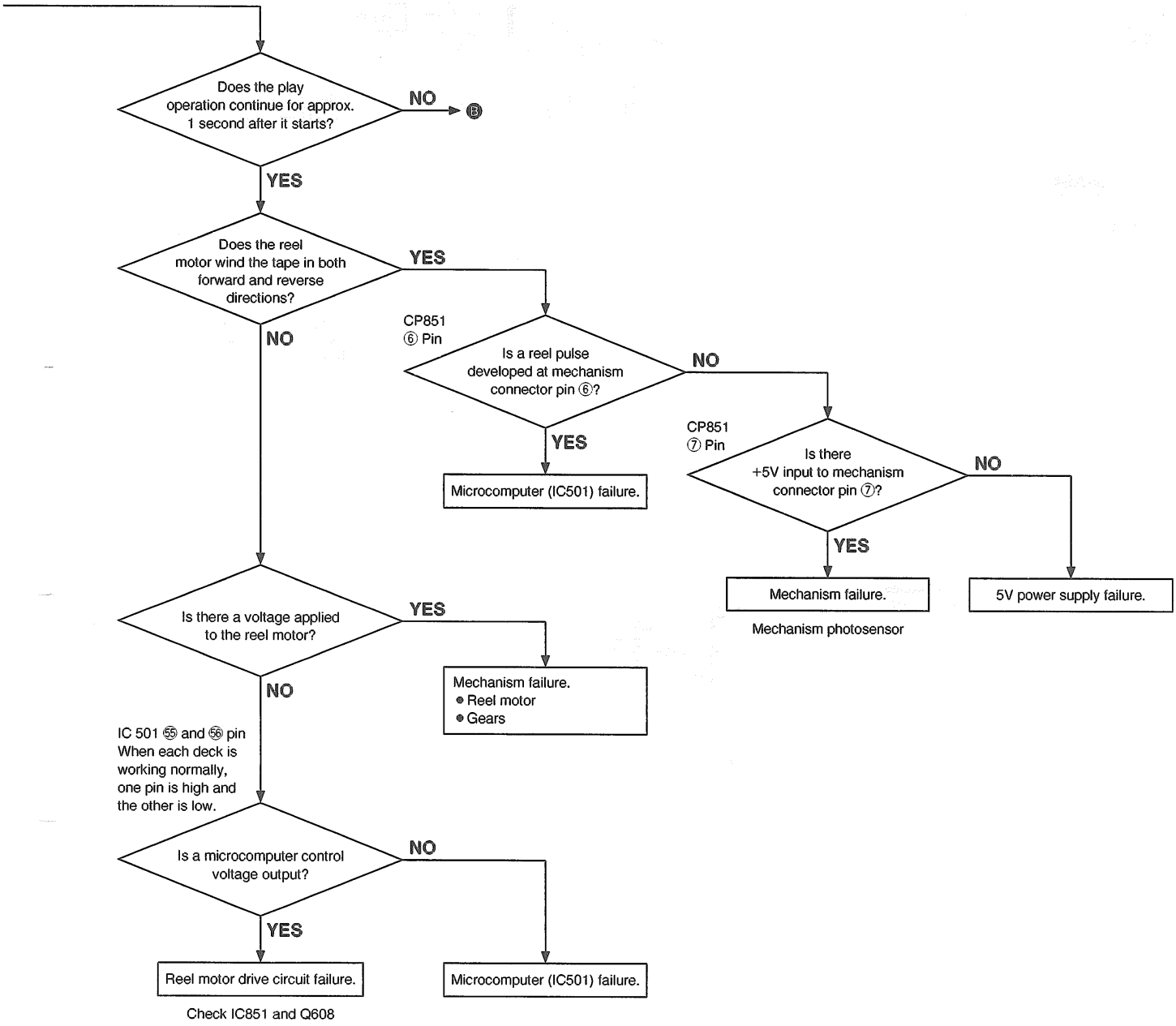
■WIRING CONNECTION DIAGRAM



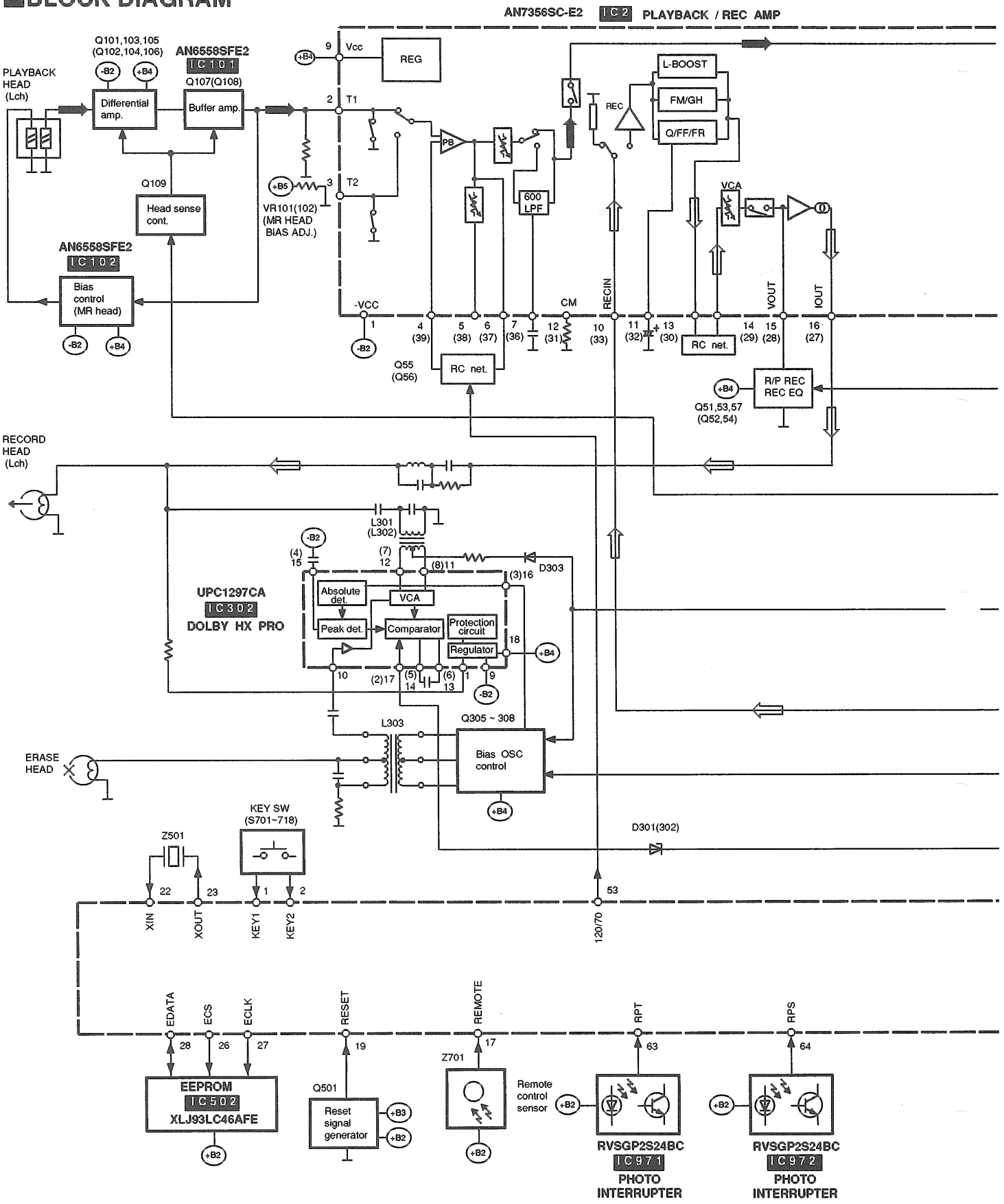
■TROUBLESHOOTING GUIDE



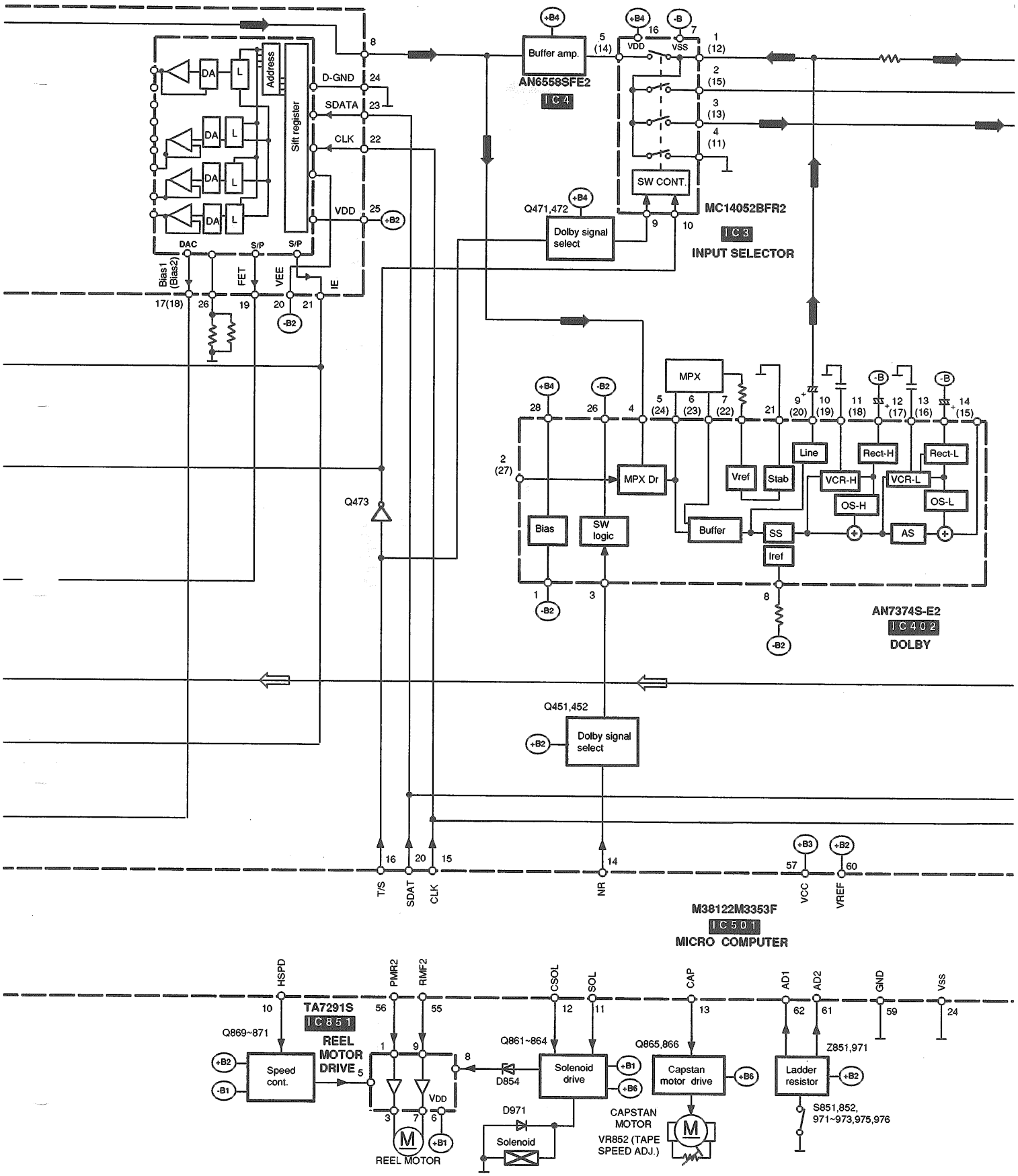

PLAY operation failure.
Does the tape head lift when the PLAY button is pressed?
YES
NO
Does the flywheel start to turn immediately when the unit is connected to the AC outlet?
NO
YES
Is a voltage developed at Q866 (collector) at that time?
NO
YES
Mechanism failure.
• Connector failure.
• Motor failure.
• Belt has come off
IC501 ⑬ Pin
Is the microcomputer generate a signal to turn the motor ON at that time?
YES
NO
Microcomputer (IC501) failure.
Motor control circuit failure.
Check Q865 and 866
Does the tape head lift when the mode switch (S971) is forced into the ON position for approx. 1 second?
YES
NO
IC501 ① Pin
Does the voltage at the microcomputer analog input change when the PLAY button is pressed?
YES
NO
Key switch failure.
Check half switch (S972). (Check the mode switch in the same way as in part Ⓑ.)
IC501 ⑪ Pin
Pulse of few hundred ms.
Does the microcomputer generate a signal to turn the solenoid ON when the mode switch is moved to the ON position?
YES
NO
CP851 ③ Pin
Is a signal to turn solenoid ON applied at mechanism connector pin ③?
NO
YES
Solenoid failure.
Mechanism failure.
Solenoid control circuit failure.
Check Q861 and 863
Ⓑ
CP851 ⑤ Pin
Does the voltage at mechanism connector Pin ⑤ change when the mode switch is moved to the ON position?
NO
YES
Microcomputer (IC501) failure.
Mode switch (S971) failure.


Does the play operation continue for approx. 1 second after it starts?
NO
Ⓑ
YES
Does the reel motor wind the tape in both forward and reverse directions?
YES
NO
CP851 ⑥ Pin
Is a reel pulse developed at mechanism connector pin ⑥?
NO
YES
Microcomputer (IC501) failure.
CP851 ⑦ Pin
Is there +5V input to mechanism connector pin ⑦?
NO
YES
Mechanism failure.
Mechanism photosensor
5V power supply failure.
Is there a voltage applied to the reel motor?
YES
NO
Mechanism failure.
• Reel motor
• Gears
IC 501 ㊺ and ㊻ pin
When each deck is working normally, one pin is high and the other is low.
Is a microcomputer control voltage output?
NO
YES
Reel motor drive circuit failure.
Check IC851 and Q608
Microcomputer (IC501) failure.

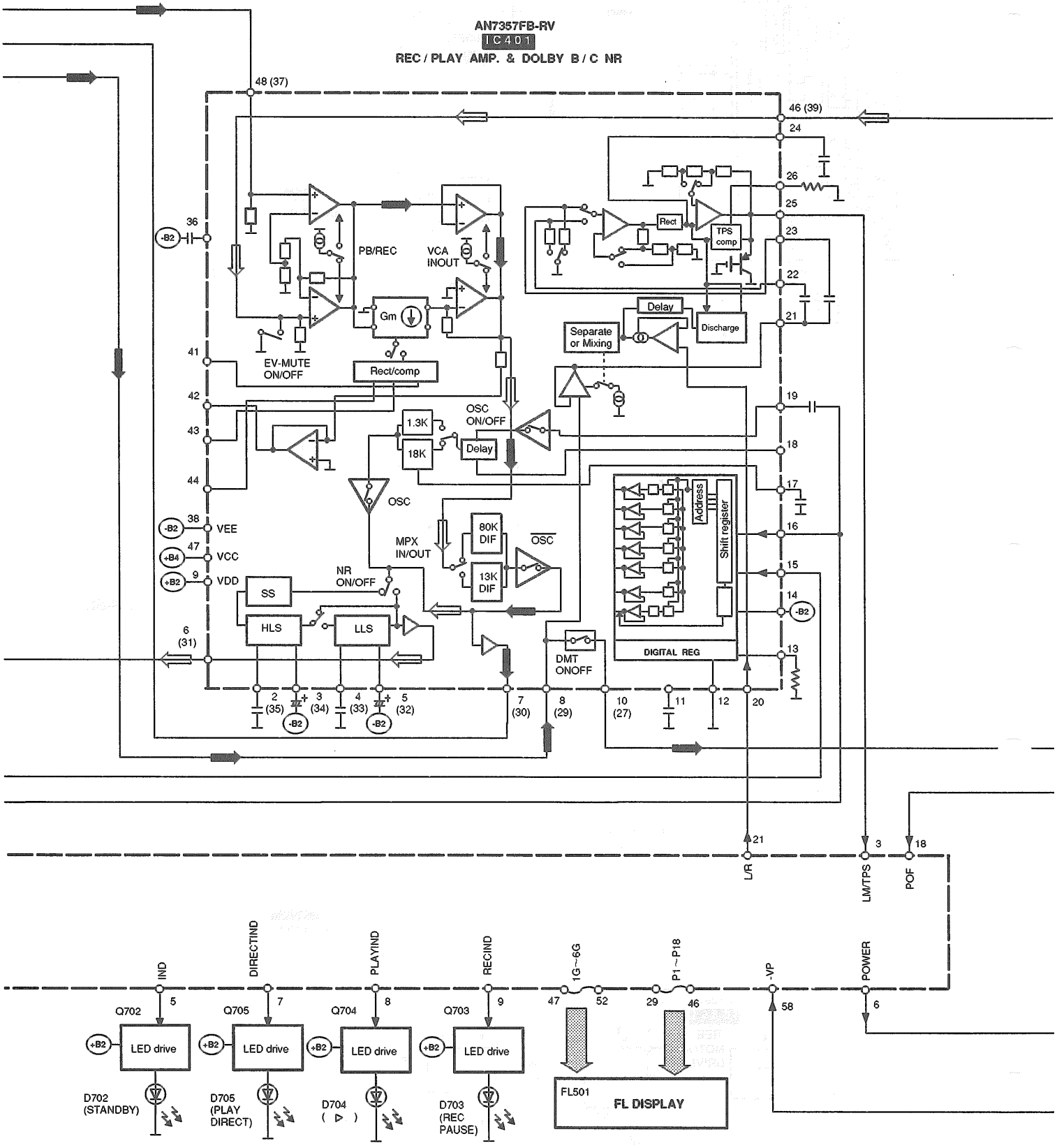
■BLOCK DIAGRAM

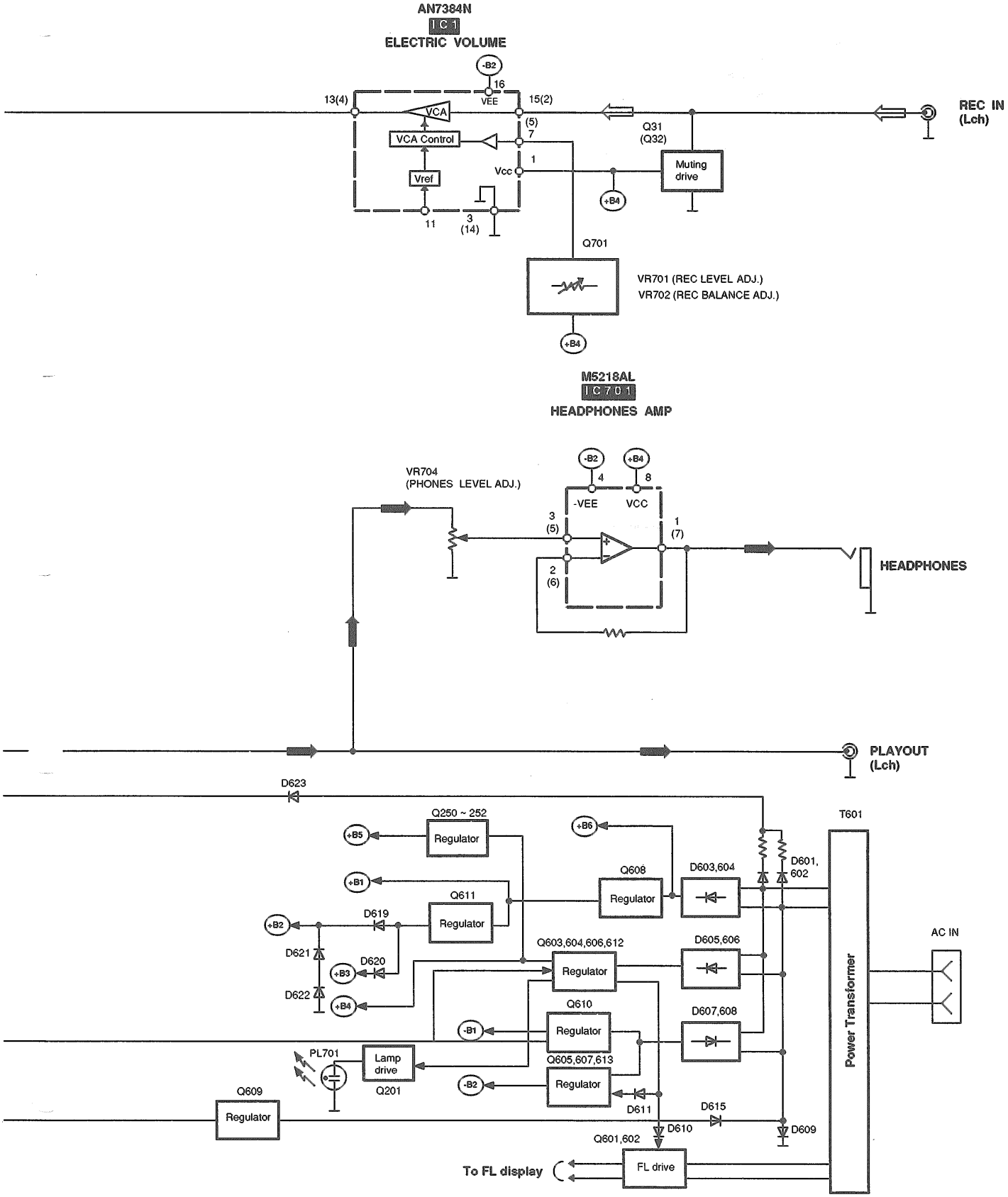


Signal line ➡ : Playback signal ⇨ : Recording signal ※ ( ) : indicates pin No. of right channel .



Signal line ➡ : Playback signal ⇨ : Recording signal ※ ( ) : indicates pin No. of right channel .




AN7384N
IC1
ELECTRIC VOLUME
-B2
16
VEE
13(4)
15(2)
VCA
(5)
7
VCA Control
Vref
Vcc
1
11
3
(14)
Q31
(Q32)
Muting
drive
+B4
REC IN
(Lch)
Q701
VR701 (REC LEVEL ADJ.)
VR702 (REC BALANCE ADJ.)
+B4
M5218AL
IC701
HEADPHONES AMP
VR704
(PHONES LEVEL ADJ.)
-B2
+B4
4
8
-VEE
VCC
3
(5)
1
(7)
2
(6)
HEADPHONES
PLAYOUT
(Lch)
D623
Q250 ~ 252
Regulator
+B5
+B6
T601
+B1
Q608
Regulator
D603,604
D601,
602
Q611
Regulator
+B2
D619
D621
D620
+B3
D622
+B4
Q603,604,606,612
Regulator
D605,606
AC IN
Q610
Regulator
D607,608
-B1
PL701
Lamp
drive
Q201
Q605,607,613
Regulator
-B2
Q609
Regulator
D611
D615
D610
D609
Q601,602
FL drive
To FL display
Power Transformer

■SCHEMATIC DIAGRAM (Parts list on pages 56~60.)

(This schematic diagram may be modified at any time with the development of new technology.)

Notes:

- **S701**: Stop switch (■).
- **S702**: Playback/Record switch (▶).
- **S704**: Fast-forward search switch (▶▶ TPS).
- **S705**: Rewind search switch (◀◀ TPS).
- **S706**: Recording/Pause switch (REC PAUSE).
- **S707**: Automatic-record-muting switch (⏺ AUTO REC MUTE).
- **S708**: Cassette holder open/close switch (⏏ OPEN/CLOSE).
- **S709**: Monitor switch (MONITOR).
- **S710**: Play direct switch (PLAY DIRECT).
- **S711**: Power "STANBY ⏻ /ON" (POWER STANBY ⏻ ON) switch.
- **S712**: Counter reset switch (COUNTER RESET).
- **S713**: Memory stop switch (MEMORY STOP).
- **S714**: Multiplex filter switch (MPX FILTER).
- **S715**: Dolby noise-reduction switch (DOLBY NR).
- **S716**: Auto tape calibration switch (ATC).
- **S718**: Timer control switch (◴ TIMER).
- **S851**: Cassette holder open detection switch in "**off**" position.
- **S852**: Cassette holder close detection switch in "**off**" position.
- **S971**: Mode switch in "**off**" position.
- **S972**: Half switch in "**off**" position.
- **S973**: ATS (CrO_2) switch in "**off**" position.
- **S975**: Forward rec. inhibit switch in "**off**" position.
- **S976**: ATS (Metal) switch in "**off**" position.
- Resistance are in ohms (Ω), 1/4 watt unless specified otherwise.
  1K=1,000 (Ω), 1M=1,000k (Ω)
- Capacity are in micro-farads (μF) unless specified otherwise.
- All voltage values shown in circuitry are underno signal condition and playback mode with volume control at minimum position otherwise specified.
  ( )..... Voltage values at record mode.
  For measurement us EVM.
- Important safety notice:
  Components identified by ⚠ mark have special characteristics important for safety.
  When replacing any of components, be sure to use only manufacturer's specified parts.
- (——〈+B〉——) indicates +B (bias).
- (– – –〈–B〉– – –) indicates –B (bias).
- (⟹) indicates the playback signal.
- (⟹) indicates the recording signal.
- The supply part number is described alone in the replacement parts list.

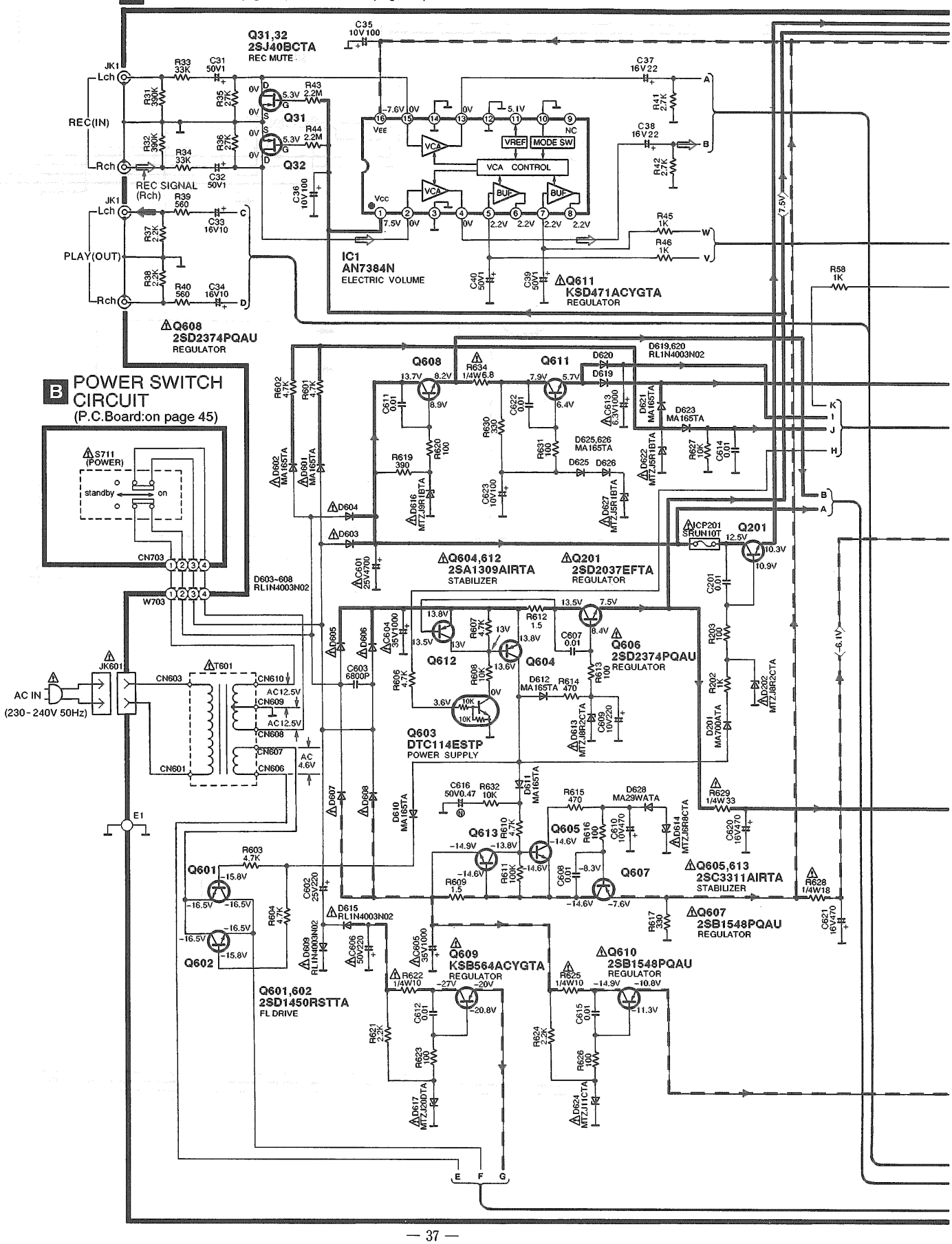
Part No.	Production Part No.	Supply Part No.
IC701	M5218AL	M5218L

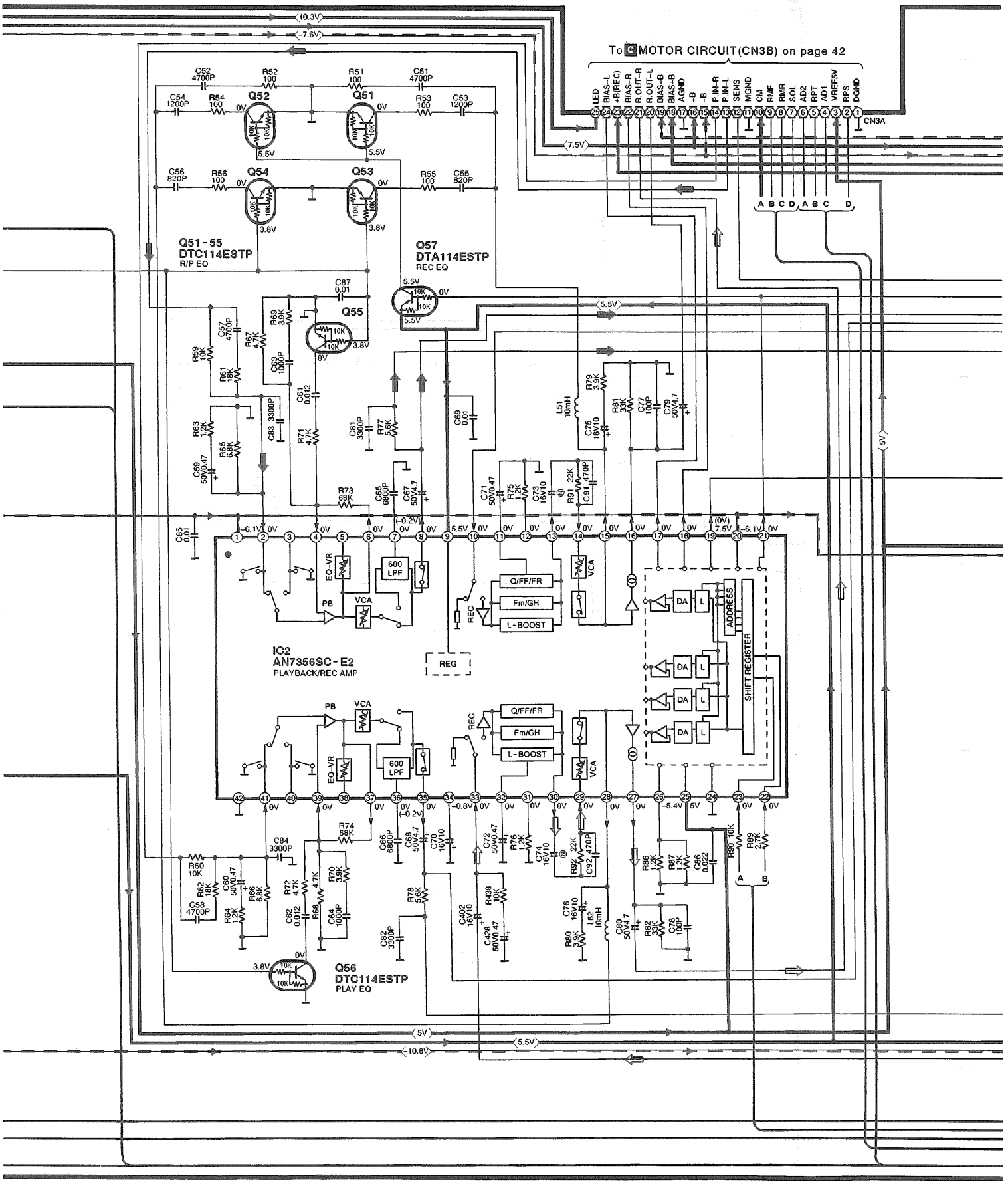
Caution!

IC and LSI are sensitive to static electricity.
Secondary trouble can be prevented by taking care during repair.

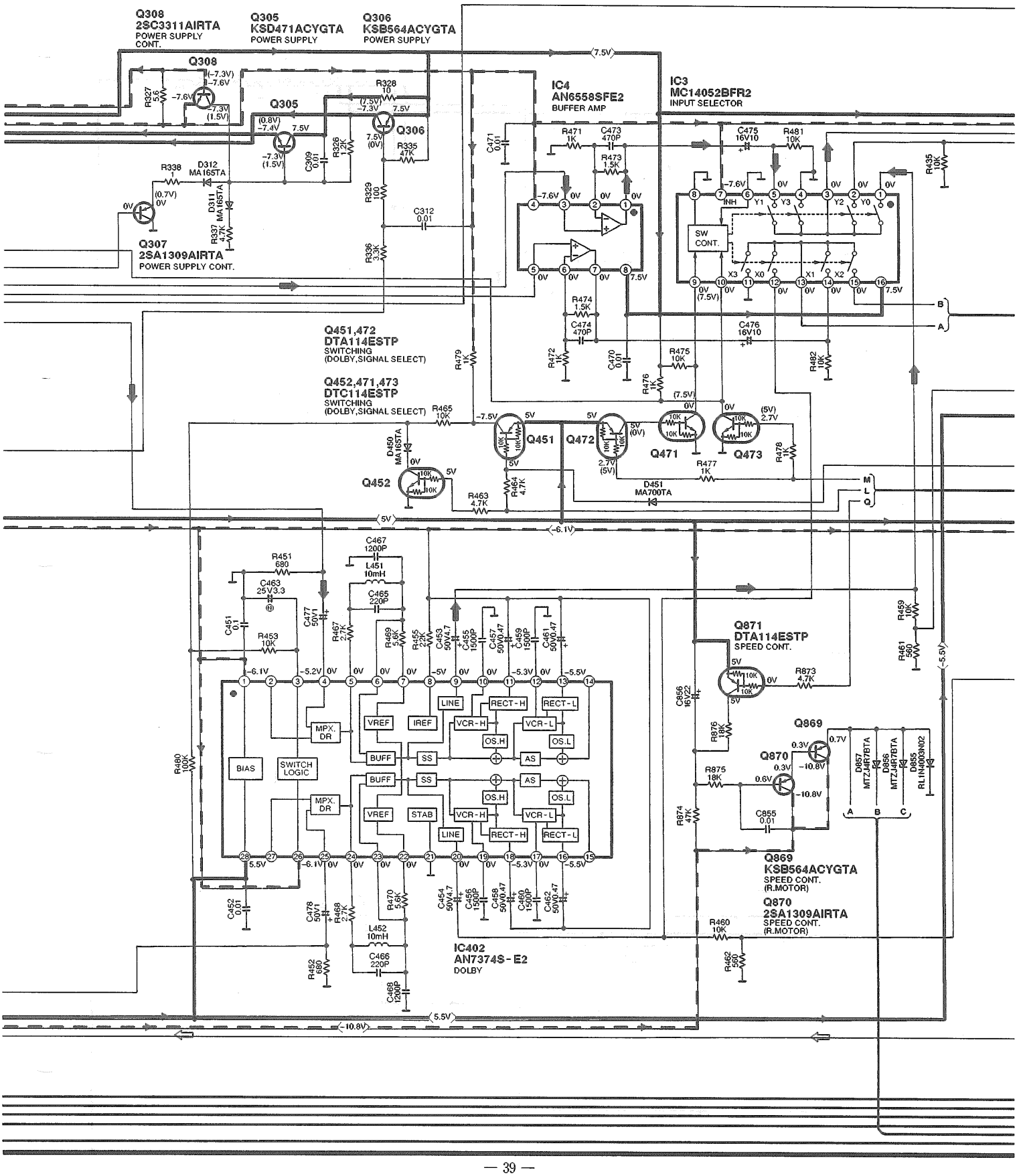
- Cover the parts boxes made of plastics with aluminum foil.
- Ground the soldering iron.
- Put a conductive mat on the work table.
- Do not touch the pins of IC or LSI with fingers directly.

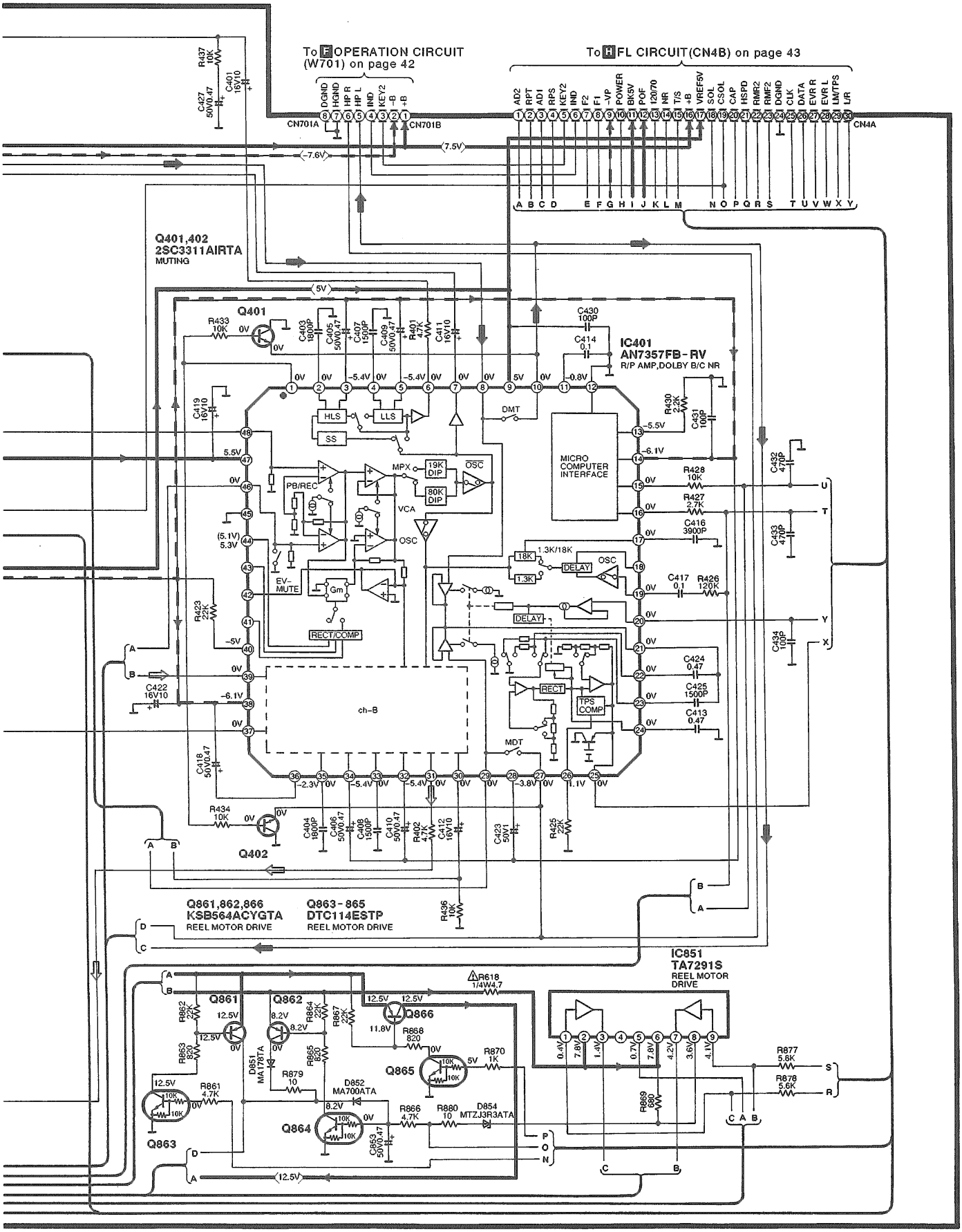
A MAIN CIRCUIT (P.C.Board:on page 46)



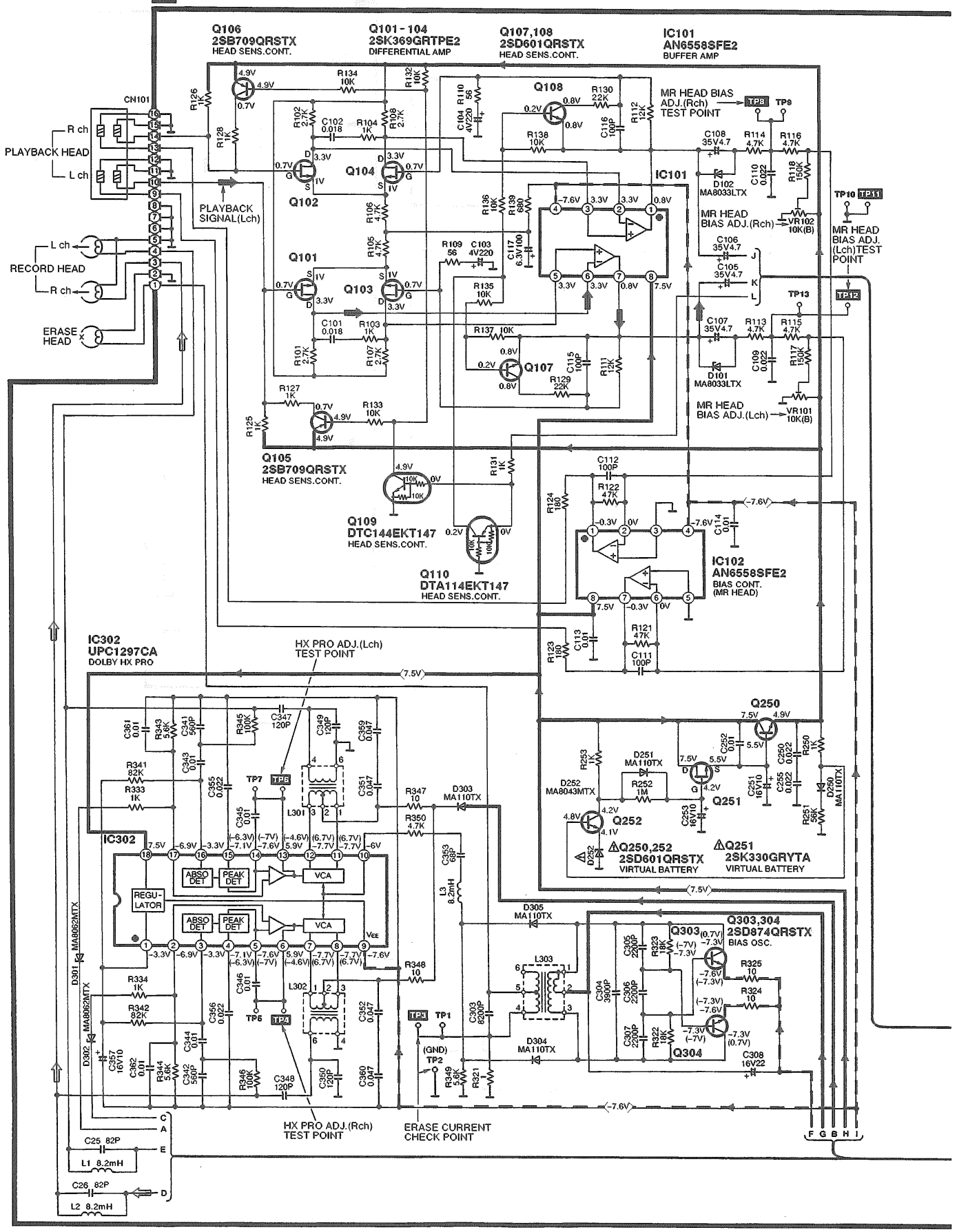

To C MOTOR CIRCUIT(CN3B) on page 42
CN3A
LED
BIAS-L
+B(REC)
BIAS-R
R.OUT-R
R.OUT-L
BIAS-B
BIAS+B
AGND
+B
-B
P.IN-R
P.IN-L
SENS
MGND
CM
RMF
RMR
SOL
AD2
RPT
AD1
VREF5V
RPS
DGND
Q51 - 55
DTC114ESTP
R/P EQ
Q57
DTA114ESTP
REC EQ
Q55
Q56
DTC114ESTP
PLAY EQ
IC2
AN7356SC - E2
PLAYBACK/REC AMP
EQ-VR
600 LPF
PB
VCA
REC
Q/FF/FR
Fm/GH
L-BOOST
REG
DA
L
ADDRESS
SHIFT REGISTER
10.3V
-7.6V
7.5V
5.5V
5V
10.8V

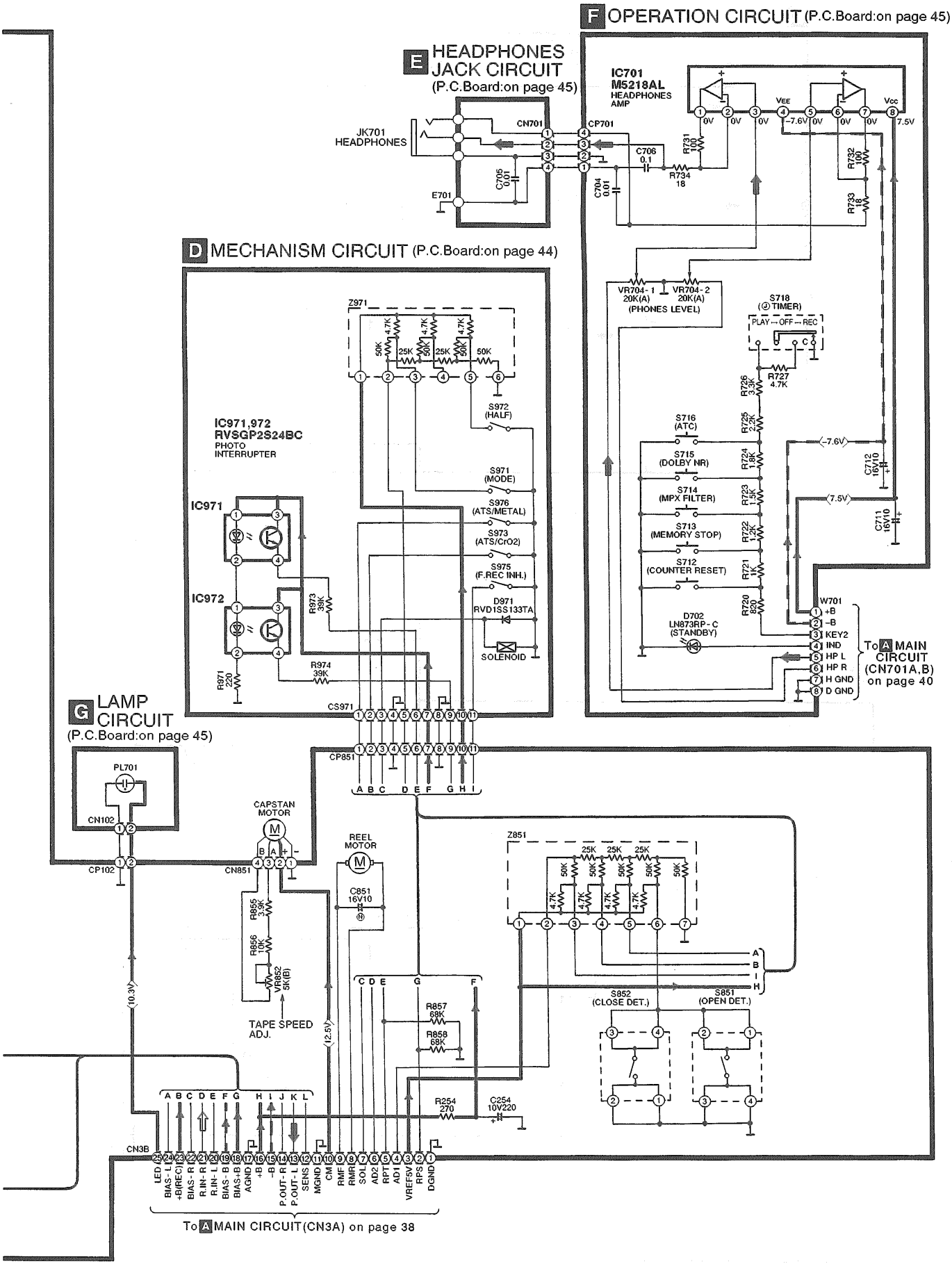
A MAIN CIRCUIT (P.C.Board:on page 46)



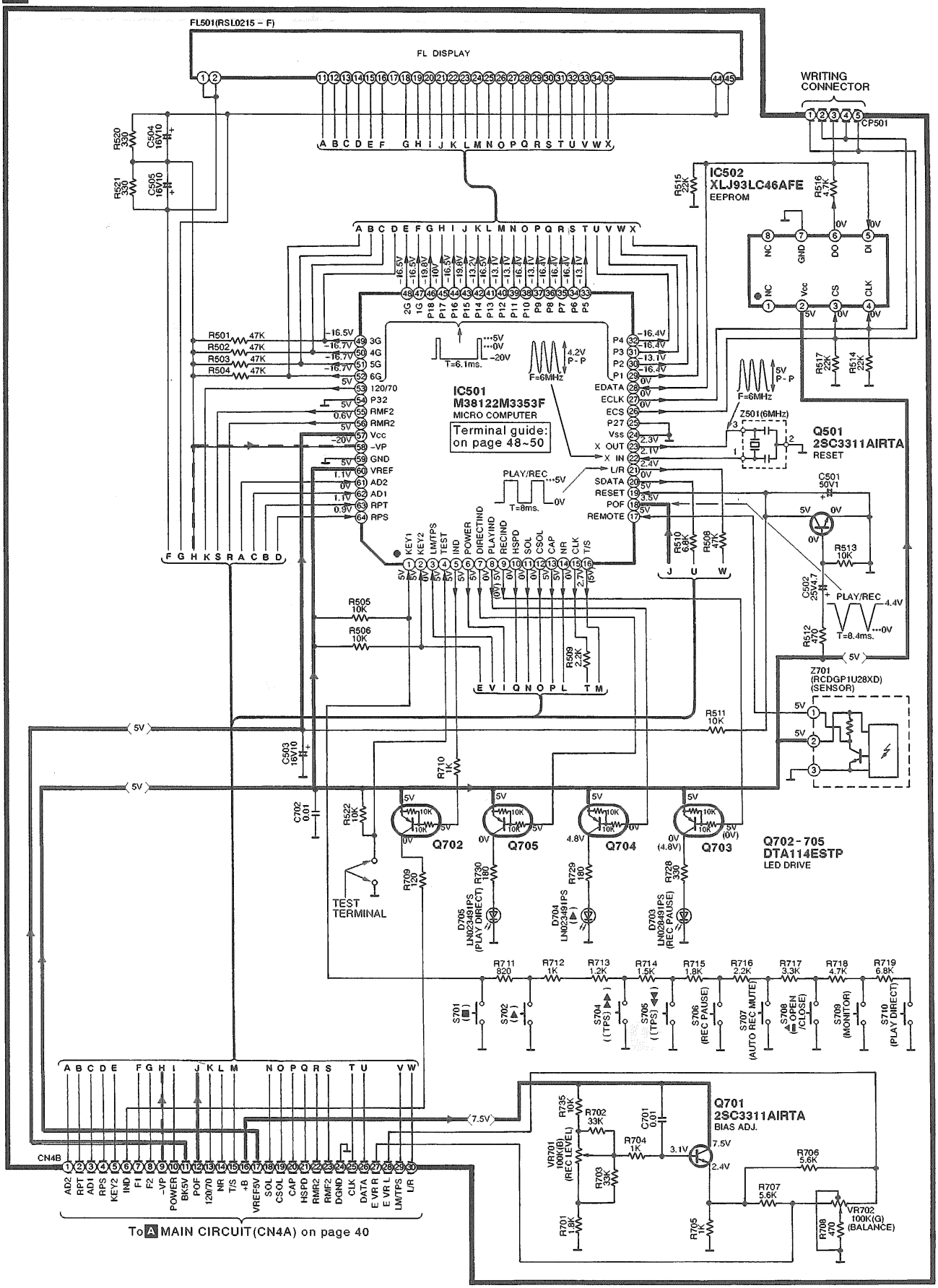

To F OPERATION CIRCUIT (W701) on page 42
To H FL CIRCUIT(CN4B) on page 43
CN701A
CN701B
CN4A
DGND HGND HP R HP L IND KEY2 -B +B
AD2 RPT AD1 RPS KEY2 IND F2 F1 -VP POWER BK5V POF 120/70 NR T/S +B VREF5V SOL CSOL CAP HSPD RMF2 RMF2 DGND CLK DATA EVR R EVR L LM/TPS LR
-7.6V
7.5V
Q401,402
2SC3311AIRTA
MUTING
Q401
IC401
AN7357FB-RV
R/P AMP,DOLBY B/C NR
MICRO COMPUTER INTERFACE
HLS
LLS
SS
DMT
MPX
19K DIP
80K DIP
OSC
VCA
PB/REC
EV-MUTE
Gm
RECT/COMP
18K
1.3K
1.3K/18K
DELAY
RECT
TPS COMP
MDT
ch-B
Q402
Q861,862,866
KSB564ACYGTA
REEL MOTOR DRIVE
Q863-865
DTC114ESTP
REEL MOTOR DRIVE
IC851
TA7291S
REEL MOTOR DRIVE
Q861
Q862
Q863
Q864
Q865
Q866
D851 MA170TA
D852 MA700ATA
D854 MTZJ3R3ATA

C MOTOR CIRCUIT (P.C.Board:on page 44)




F OPERATION CIRCUIT (P.C.Board:on page 45)
E HEADPHONES JACK CIRCUIT (P.C.Board:on page 45)
JK701 HEADPHONES
CN701
CP701
E701
C705 0.01
C706 0.1
C704 0.01
R734 18
IC701 M5218AL HEADPHONES AMP
R731 100
R732 100
R733 18
VR704-1 20K(A)
VR704-2 20K(A)
(PHONES LEVEL)
S718 (TIMER)
PLAY — OFF — REC
R727 4.7K
R726 3.3K
R725 2.2K
R724 1.8K
R723 1.5K
R722 1.2K
R721 1K
R720 820
S716 (ATC)
S715 (DOLBY NR)
S714 (MPX FILTER)
S713 (MEMORY STOP)
S712 (COUNTER RESET)
D702 LN873RP-C (STANDBY)
C712 16V10
C711 16V10
W701
+B
-B
KEY2
IND
HP L
HP R
H GND
D GND
To A MAIN CIRCUIT (CN701A,B) on page 40
D MECHANISM CIRCUIT (P.C.Board:on page 44)
Z971
S972 (HALF)
S971 (MODE)
S976 (ATS/METAL)
S973 (ATS/CrO2)
S975 (F.REC INH.)
D971 RVD1SS133TA
SOLENOID
IC971,972 RVSGP2S24BC PHOTO INTERRUPTER
IC971
IC972
R973 39K
R974 39K
R971 220
CS971
G LAMP CIRCUIT (P.C.Board:on page 45)
CP851
PL701
CN102
CP102
CAPSTAN MOTOR
CN851
REEL MOTOR
C851 16V10
R855 3.9K
R856 10K
VR852 5K(B)
TAPE SPEED ADJ.
10.3V
12.5V
Z851
S852 (CLOSE DET.)
S851 (OPEN DET.)
R857 68K
R858 68K
R254 270
C254 10V220
CN3B
LED
BIAS-L
+B(REC)
BIAS-R
R.IN-R
R.IN-L
BIAS-B
BIAS+B
AGND
+B
-B
P.OUT-R
P.OUT-L
SENS
MGND
CM
RMF
RMR
SOL
AD2
RPT
AD1
VREF5V
RPS
DGND
To A MAIN CIRCUIT (CN3A) on page 38

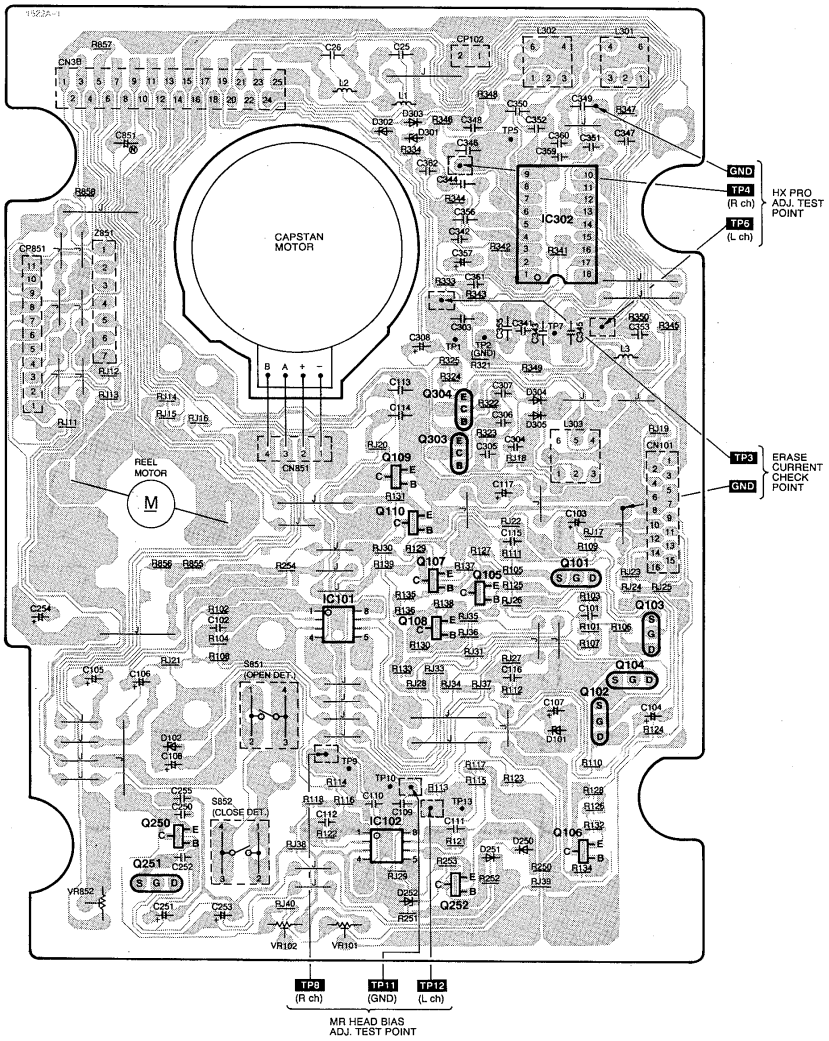
H FL CIRCUIT (P.C.Board:on page 45)



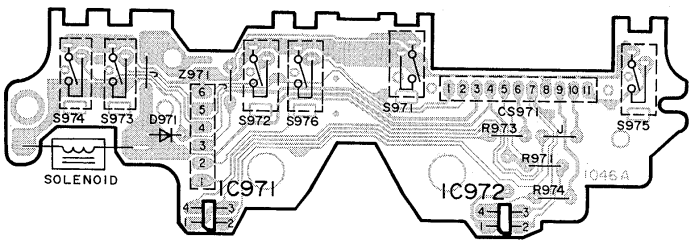
■PRINTED CIRCUIT BOARDS

(This schematic diagram may be modified at any time with the development of new technology.)

C MOTOR P.C.B. (REP2286A–T)

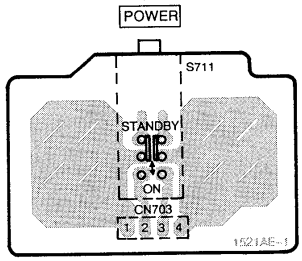


D MECHANISM P.C.B. (REP1656A)

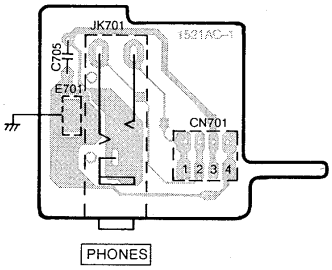


6 7 8 9 10

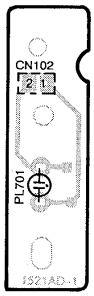
B POWER SWITCH P.C.B. (REP2285A–S)



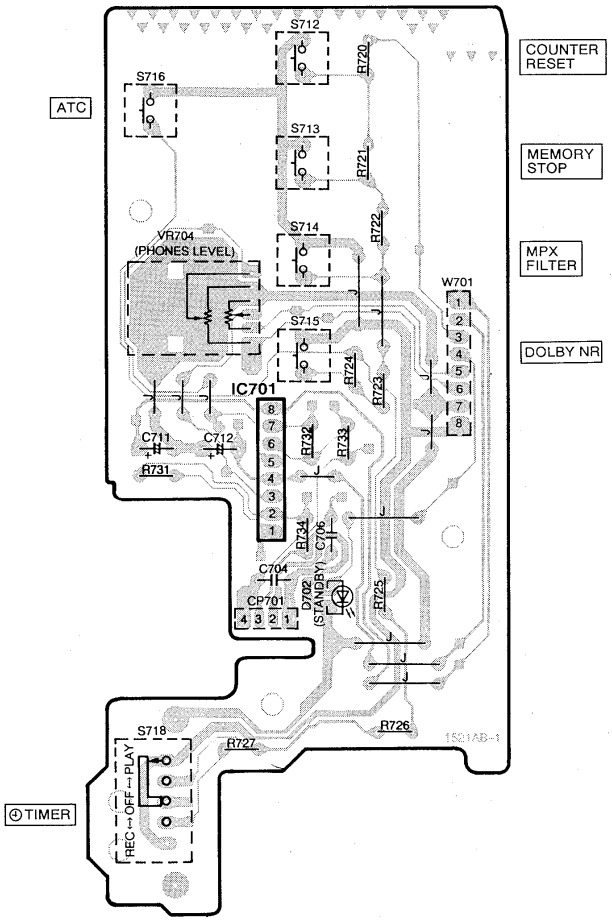
E HEADPHONES JACK P.C.B. (REP2285A–S)



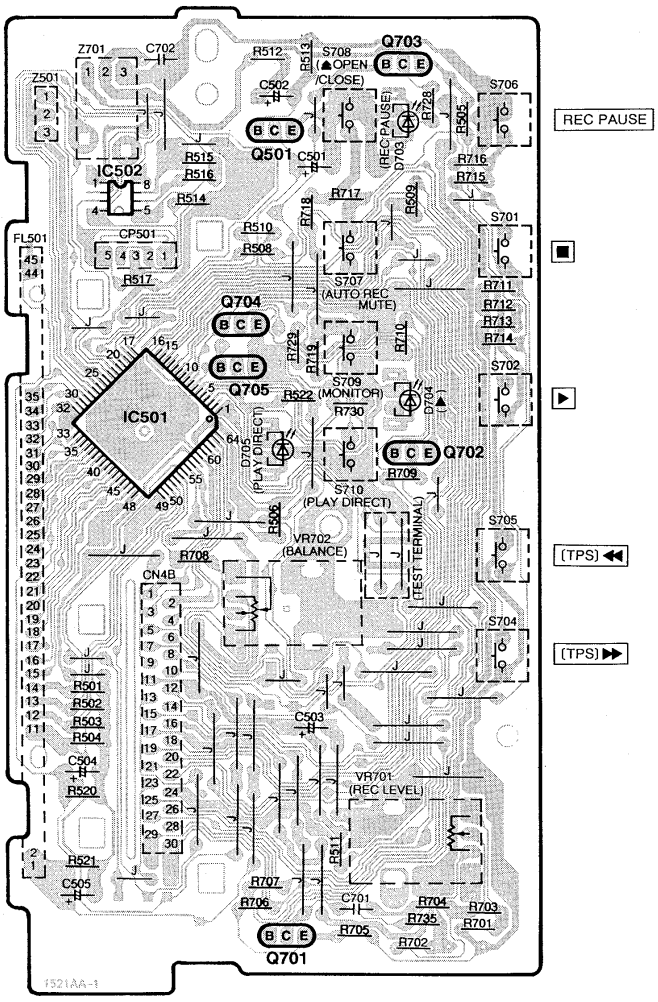
G LAMP P.C.B. (REP2285A–S)



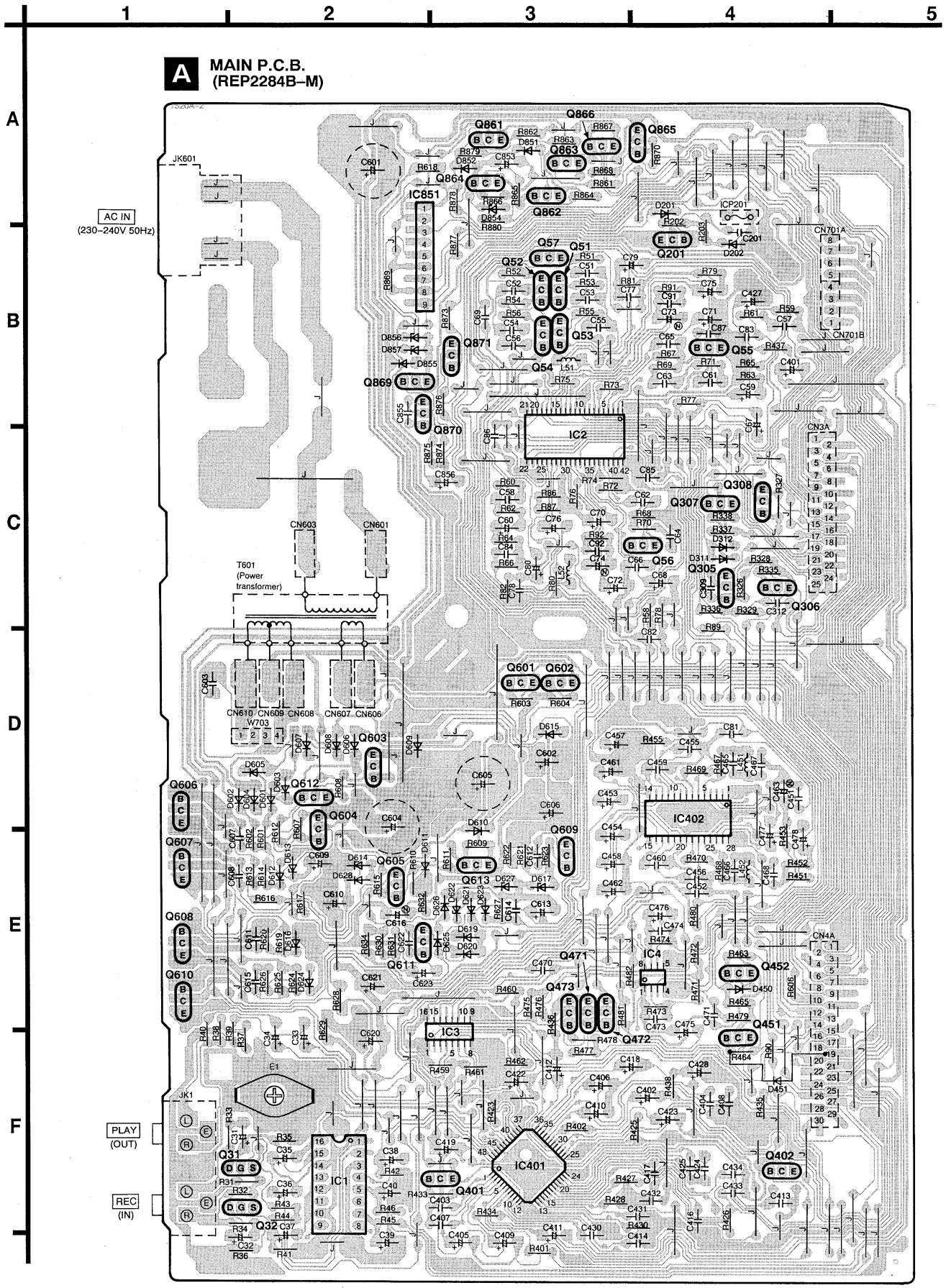
F OPERATION P.C.B. (REP2285A–S)



H FL P.C.B. (REP2285A–S)



A MAIN P.C.B.
(REP2284B–M)



• Terminal guide of IC's, transistors and diodes

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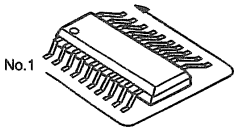
<td colspan="3"> 

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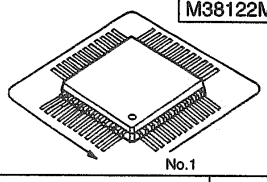
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 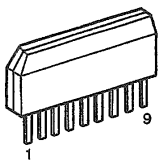
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 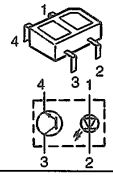
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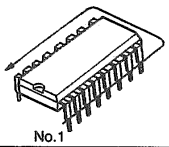
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 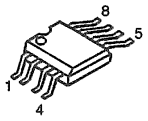
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 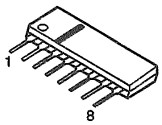
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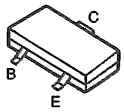
<td> 
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 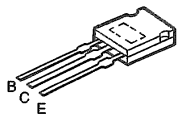
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 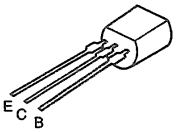
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 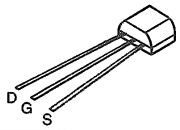
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 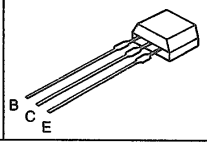
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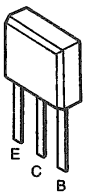
<td> 
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 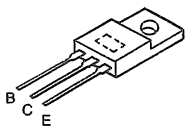
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 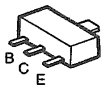
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 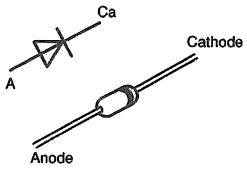
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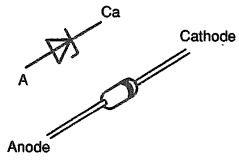
<td> 
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 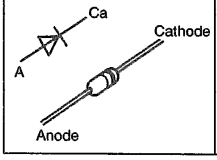
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 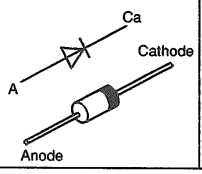
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 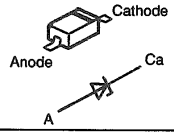
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 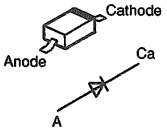
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 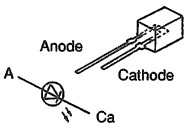
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 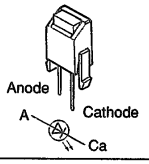
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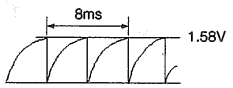
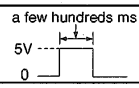
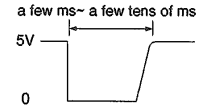
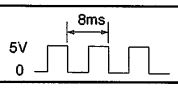
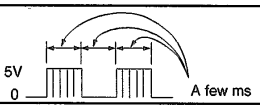
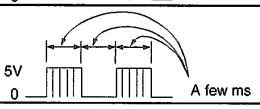
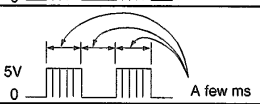
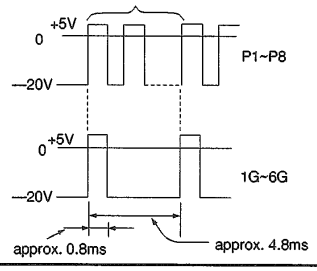
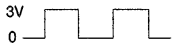
■TERMINAL GUIDE

• IC501 (M38122M3353F): MICROCOMPUTER

Pin No.	Mark	I/O Division	Function	Check Point	Description
1	KEY1	I	KEY SW (STOP, PLAY, FF, REW, REC, ARM, OPEN/CLOSE, MONITOR, PLAYDIRECT) input	S701	When any other key is pressed : 0 to 5V When no key is pressed : 5V When Stop key is pressed : 0V
2	KEY2	I	KEY SW (COUNTER RESET, MEMORY, STOP, MPX, DOLBY NR, ATC, TIME REC/PLAY) input	CN4B ⑤	When any other key is pressed : 0 to 5V COUNTER RESET ON : 0V When no key is pressed (TIMER OFF) : 5V
3	LM/TPS	I	Display level and TPS det. input	CN4B ㉙	0dB signal input mode : TPS mode Program : "H" (5V) No program : "L" (0V) 
4	TEST	I	TEST MODE input	TEST JUMPER	Ordinary mode : "H" (5V) Test mode : "L" (0V) (Service mode)
5	IND	O	STANDBY LED Display output	R710	POWER ON : "H" (POWER OFF [STANDBY] : "L")
6	POWER	O	Power supply control output ON : "H", OFF : "L"	CN4B ⑩	POWER ON : "H" (5V) POWER OFF : "L" (0V)
7	DIRECT IND	O	PLAY DIRECT LED Display output	Q705 Ⓑ	PLAY DIRECT ON : "L" PLAY DIRECT OFF : "H"
8	PLAY IND	O	PLAY LED Display output	Q704 Ⓑ	PLAY : "L" STOP : "H"
9	REC IND	O	REC LED Display output	Q703 Ⓑ	REC : "L" STOP : "H"
10	HSPD	O	Reel motor high speed select output	CN4B ㉑	High speed FF/REW/TPS mode : "H" (5V) Other : "L" (0V)
11	SOL	O	Solenoid control output	CN4B ⑱	STOP → PLAY : a few hundreds ms PLAY → STOP : "H" 
12	CSOL	O	Solenoid hold control output	CN4B ⑲	FF/REW/TPS mode : "H" (5V) Other : "L" (0V)
13	CAP	O	Capstan motor control output ON : "H", OFF : "L"	CN4B ⑳	STOP/FF/REW : "L" (0V) PLAY : "H" (5V)
14	NR	O	DOLBY NR output	CN4B ⑭	DOLBY OFF : "H" (5V) DOLBY B : "OPEN" (2.5V) DOLBY C : "L" (0V)
15	CLK	O	Serial clock for audio IC output ON : "L", OFF : "H"	CN4B ㉕	 When a mode change occurs
16	T/S	O	Monitor change output	CN4B ⑮	SOURCE : "H" (5V) TAPE : "OPEN" (2.5V) PLAY DIRECT : "L" (0V)
17	REMOTE	I	Remocon signal input ON : "H", OFF : "L"	Z701 ①	H and L pulse waveform appears on the input of a remote control signal.

Pin No.	Mark	I/O Division	Function	Check Point	Description
18	POF	I	Power off det. output ON : "H", OFF : "L"	CN4B ⑫	 Rectified waveform at both 50 and 60Hz (clamping at 5V)
19	RESET	I	Reset input ON : "L", OFF : "H"	Q501 Ⓒ	 Usually, H(=5V) but L for a period of a few to a few tens of milliseconds is first plugged in when the player.
20	SDATA	O	Serial data for audio IC output ON : "L", OFF : "H"	CN4B ㉖	 When a mode change occurs
21	L/R	O	Level meter input channel LCH : "L", RCH : "H"	R508	 Always
22	XIN	I	Microcomputer clock OSC terminal	Z501 ①	 Oscillator waveform at 6MHz
23	XOUT	O	Microcomputer clock OSC terminal	Z501 ③	 Oscillator waveform at 6MHz
24	Vss	—	Microcomputer GND	—	0V
25	P27	—	Not used	—	Connected to GND
26	ECS	O	EEPROM STROBE signal output (ON : "H", OFF : "L")	CP501 ⑤	 (ex...For PLAY ⟷ STOP mode is changed)
27	ECLK	O	EEPROM serial clock output ON : "H", OFF : "L"	CP501 ④	 (ex...For PLAY ⟷ STOP mode is changed)
28	EDATA	I/O	EEPROM serial data signal output ON : "H", OFF : "L"	CP501 ③	 (ex...For PLAY ⟷ STOP mode is changed
29 ⟆ 46	P1 ⟆ P18	O	FL meter segment output	FL501 ⑱~㉟	H for 0~6 pulses of duration approx. 0.8 ms each. 
47 ⟆ 52	1G ⟆ 6G	O	FL meter glid output	FL501 ⑪~⑯	
53	120/70	O	Play EQ output	CN4B ⑬	Normal tape : "H" (5V) CrO_2, Metal tape : "L" (0V)
54	P32	—	Not used	—	Connected to GND
55	RMF2	O	Reel motor control output (FWD)	CN4B ㉓	PLAY/FF : "L" (0V) Other : "H" (5V)
56	RMR2	O	Reel motor control output (REW)	CN4B ㉒	REW : "L" (0V) Other : "H" (5V)

Pin No.	Mark	I/O Division	Function	Check Point	Description
57	Vcc	I	Microcomputer terminal	CN4B ⑪	+5V
58	−Vp	I	FL meter pull down voltage input terminal	CN4B ⑨	−20V
59	GND	—	GND terminal (A/D)	CN4B ㉔	0V
60	VREF	I	Reference power supply (+5V) (A/D)	CN4B ⑰	+5V
61	AD2	I	Mechanism switch (HALF, MODE) input	CN4B ①	No tape STOP : 5V Tape STOP : approx. 0.6V PLAY : approx. 3.1V
62	AD1	I	Mechanism switch (RECINH, CrO_2, METAL, OPEN/CLOSE) input	CN4B ③	Changes within the 0~5V range each time any switch is ON/OFF
63	RPT	I	Reel pulse det. input (Take up side)	CN4B ②	 Changes within the 0 ⟷ 3V range each time the take up reel is through approx. 30 degrees.
64	RPS	I	Reel pulse det. input (Supply side)	CN4B ④	 Changes within the 0 ⟷ 3V range each time the supply reel is through approx. 30 degrees.

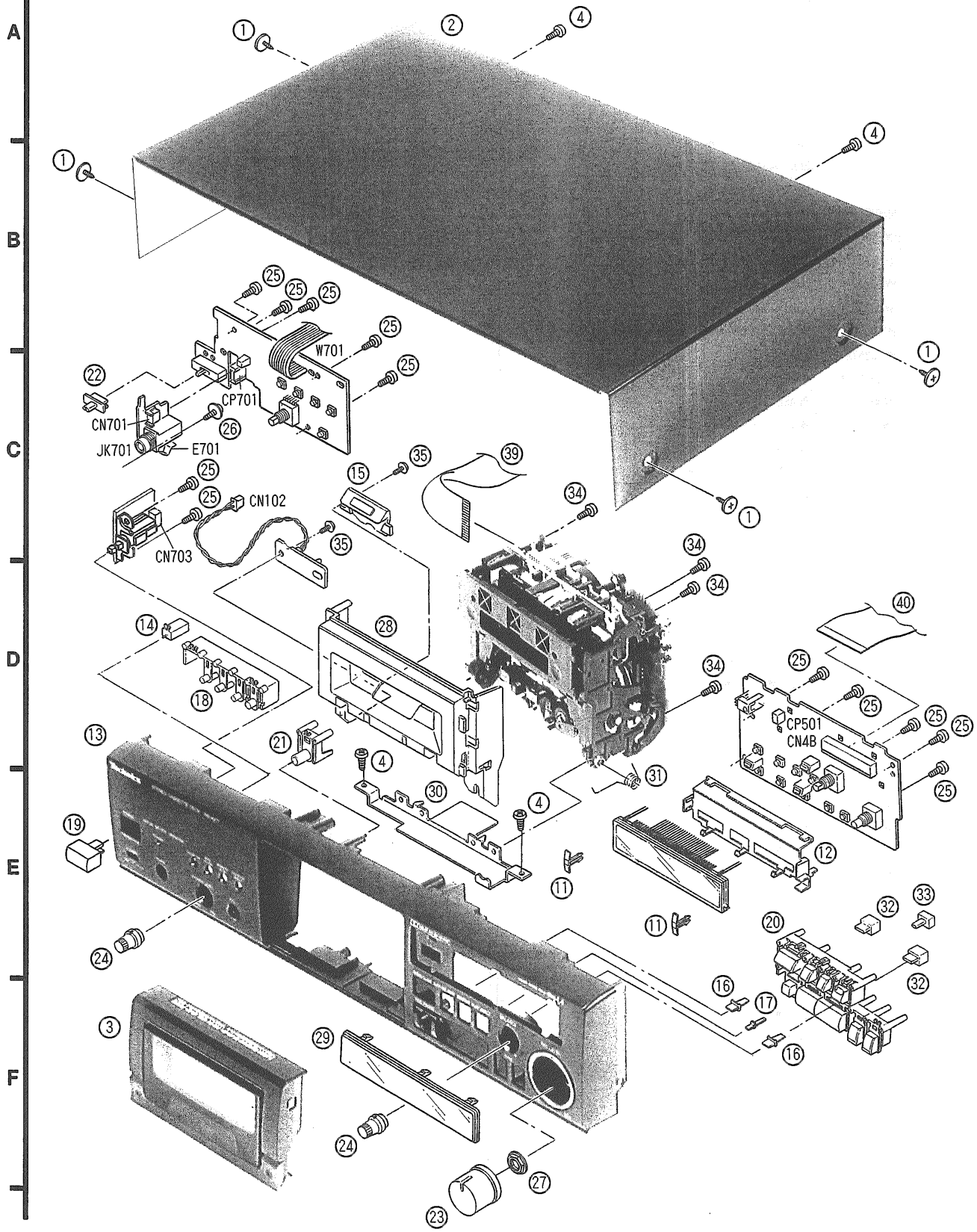
■REPLACEMENT PARTS LIST

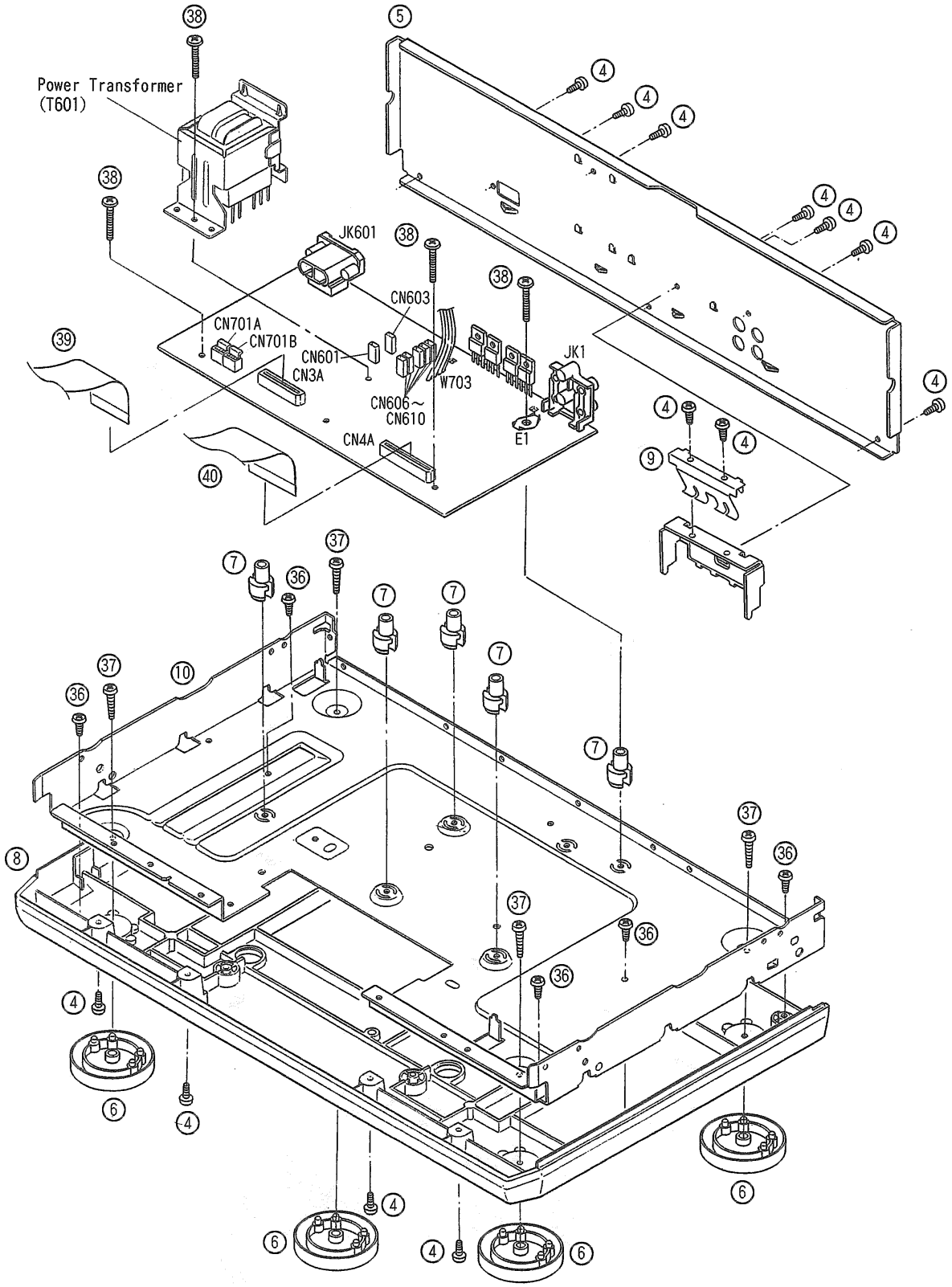
Notes: * The parenthesized indications in the Remarks columns specify the areas. (Refer to the cover page for area.) Parts without these indications can be used for all areas.

Ref. No.	Part No.	Part Name & Description	Remarks
		CABINET AND CHASSIS	
1	RHD30035-K1	SCREW	
2	RKM0114-K	CABINET	
3	RYF0371-K	CASSETTE LID ASS'Y	
4	XTBS3+8JFZ1	SCREW	
5	RGR0230A-B	REAR PANEL	(E, EG)
5	RGR0230A-C	REAR PANEL	(EB)
6	RKA0053-A	FOOT	
7	RKQ0089	P. C. B. HOLDER	
8	RKU0059-K	BOTTOM BOARD	
9	RMC0285	ANGLE	
10	RMK0202B	BOTTOM CHASSIS	
11	RMN0195	FL HOLD PIECE	
12	RMN0265	FL HOLDER	
13	RFKGSAZ7EK	FRONT PANEL ASS'Y	
14	RGL0206-Q	PANEL LIGHT, STANDBY	
15	RGL0307-Q	PANEL LIGHT, HALF	
16	RGL0308-Q	PANEL LIGHT, PLAY	
17	RGL0309-Q	PANEL LIGHT, DIRECT	
18	RFKNSAZ7KA	BUTTON ASS'Y, DOLBY	
19	RGU0890-K	BUTTON, POWER	
20	RGU1317-K	BUTTON, OPERATION	
21	RGU1318-K	BUTTON, ATC	
22	RGV0112-K	KNOB, TIMER	
23	RGW0063-K	KNOB, REC. LEVEL	
24	RGW0205-K	KNOB, REC. BALANCE/HP VOLUME	
25	RHD26017	SCREW	
26	RHD26018	SCREW	
27	RHN90001	NUT	
28	RKQ0190-K	SUB CASSETTE HOLDER	
29	RFKNSAZ7KB	TRANSPARENT PLATE ASS'Y	
30	RMA0902	MECHANISM ANGLE	
31	RMB0388	SPRING, BALANCE	
32	RMG0410-K	SPACER(A)	
33	RMG0411-K	SPACER(B)	
34	XTB3+12GFY	SCREW	
35	XTW2+6S	SCREW	
36	XTB3+10GFZ	SCREW	
37	XTB3+16CFN	SCREW	
38	XTB3+20JFZ	SCREW	
39	REZ0872	FFC (25P)	
40	REZ0896	FFC (30P)	

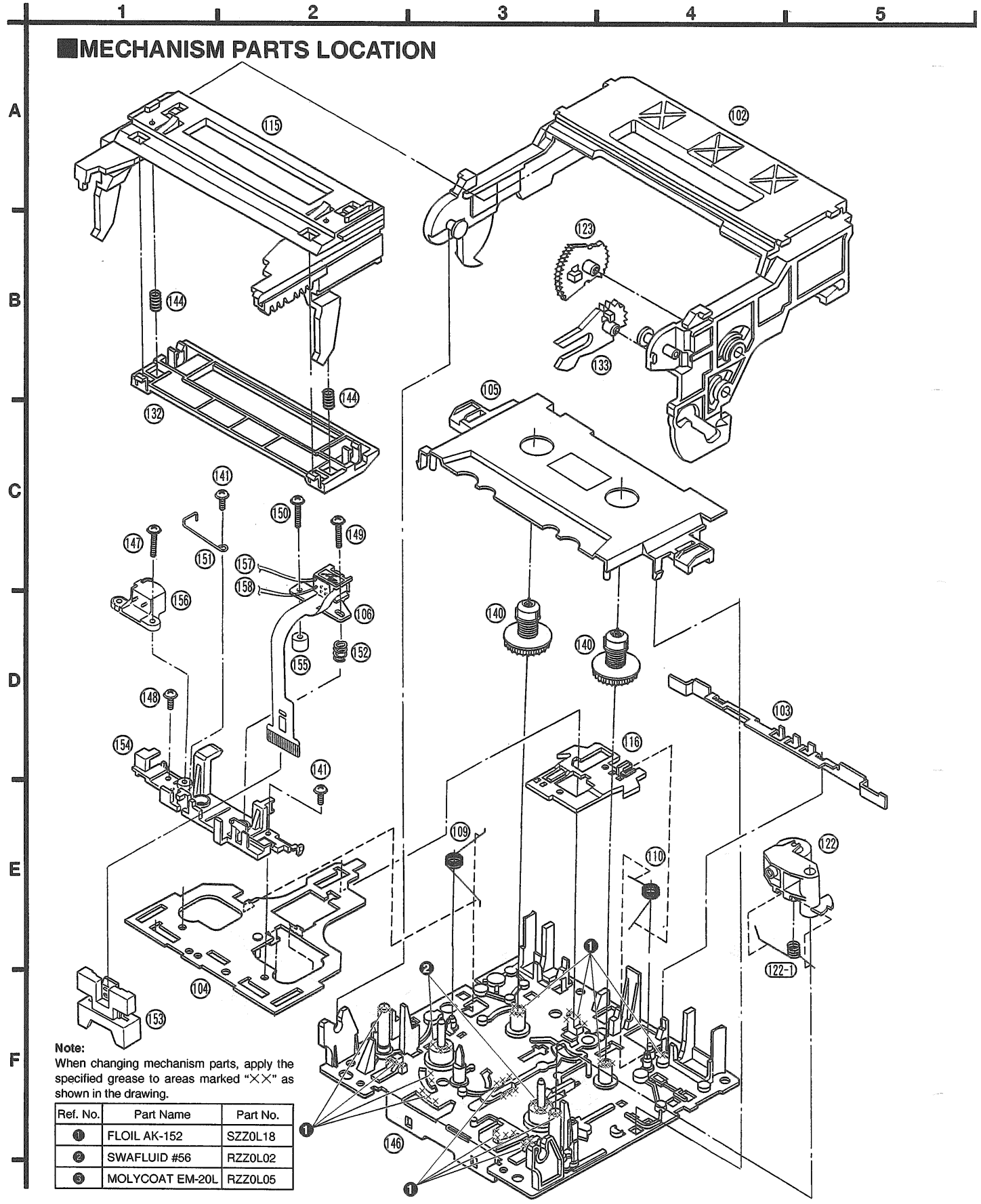
Ref. No.	Part No.	Part Name & Description	Remarks
		MECHANISM PARTS	
101	RXF0040	FLYWHEEL(F)	
102	RKF0334-K	CASSETTE HOLDER ASS'Y	
103	RML0272	SWITCH LEVER	
104	RXQ0452	HEAD BASE ASS'Y	
105	RGK0582-K	DRESSING PLATE ASS'Y	
106	RED0040	HEAD BLOCK(REC./PLAYBACK)	
107	RDV109ZA	BELT	
108	RDK0019A-1J	MAIN GEAR	
109	RMB0261	SPRING, HEAD BASE	
110	RMB0262	SPRING, BRAKE ROD	
111	RMB0263	SPRING(F)	
112	RMB0264	SPRING(R)	
113	RUW147ZA	SPRING, TRIGGER LEVER	
114	RML0267A	TRIGGER LEVER	
115	RGQ0121-K	LIFTER	
116	RMM0091A	BRAKE ROD	
117	RMS0398-1	MOVING IRON CORE	
118	RSJ0003	SOLENOID	
119	RUS609ZC	SPRING, TAPE PRESSURE	
120	RXG0036	REEL GEAR	
121	RXL0106	IDLE GEAR	
122	RXP0052	PINCH ARM(F)	
122-1	RMB0259	SPRING, PINCH ARM(F)	
123	RDG0212A	LIFT ARM	
124	RDG0206A-1	LOADING GEAR	
125	RDG0209A	INTERMEDIATE GEAR	
126	REM0036-1	CAPSTAN MOTOR	
127	REM0043	REEL MOTOR(RM852)	
128	RHD26013	SCREW	
129	RMC0169	SHIELD PLATE	
130	RMQ0314A	SURAS TO SPACER	
131	RXG0037	FRICTION GEAR	
132	RMQ0401	STABILIZER	
133	RML0275A	LIFT GEAR	
134	RMB0269	SPRING, DRIVE LEVER	
135	RML0270A-1	DRIVE LEVER	
136	RMQ0312A	DRIVE RACK	
137	RMB0268	SPRING, HOLDER HOOK	
138	RML0271A	HOLDER HOOK	
139	XTW2+6S	SCREW	
140	RXR0018	REEL TABLE	
141	XTW2+5L	SCREW	
142	XTW26+12S	SCREW	
143	XTW26+6L	SCREW	
144	RMB0324	SPRING, STABILIZER	
145	RFKJSCH404AK	SUB CHASSIS ASS'Y	
146	RFKJSCA7NB	CHASSIS ASS'Y	
147	RHD20026-W	SCREW	
148	RHD20031-Y	SCREW	
149	RHD20036-K	SCREW	
150	RHD20037-K	SCREW	
151	RMB0383	SPRING, EARTH	
152	RMB0485	SPRING, AZIMUTH	
153	RMQ0574	HEAD CONNECTOR	
154	RMR0782-K	HEAD SPACER	
155	RMX0121-1	SPACER	
156	SJH96-1	ERASE HEAD	
157	REX0776	HEAD READ WIRE(1P)	
158	REX0777	HEAD READ WIRE(1P)	

■CABINET PARTS LOCATION



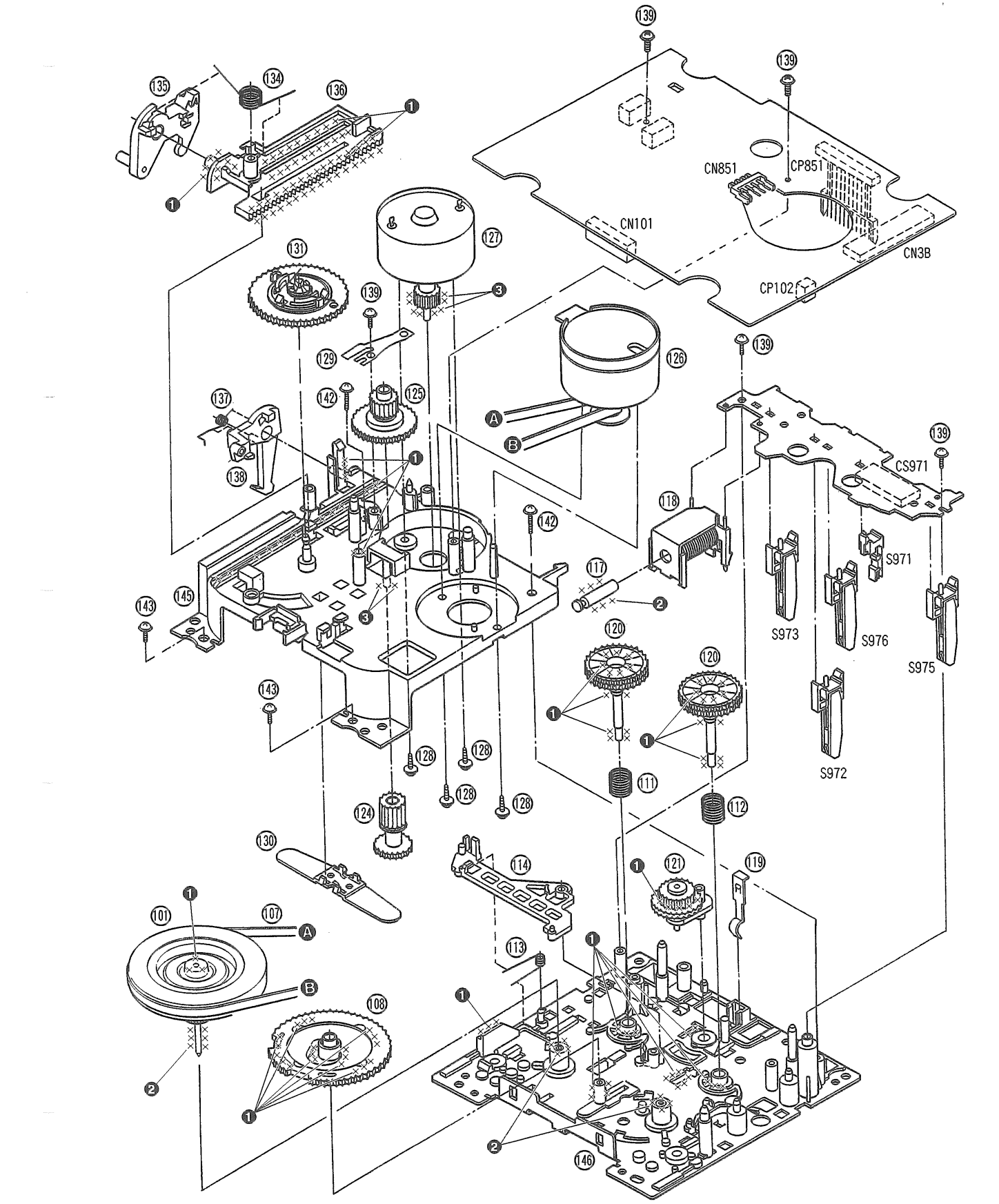

Power Transformer
(T601)
JK601
CN603
CN701A
CN701B
CN601
CN3A
W703
CN606~
CN610
CN4A
JK1
E1

■MECHANISM PARTS LOCATION



Note:
When changing mechanism parts, apply the specified grease to areas marked "××" as shown in the drawing.

Ref. No.	Part Name	Part No.
❶	FLOIL AK-152	SZZ0L18
❷	SWAFLUID #56	RZZ0L02
❸	MOLYCOAT EM-20L	RZZ0L05


6
7
8
9
10
CN851
CP851
CN101
CN3B
CP102
CS971
S971
S973
S976
S975
S972

REPLACEMENT PARTS LIST

Notes: * Important safety notice:
Components identified by ⚠ mark have special characteristics important for safety.
Furthermore, special parts which have purposes of fire-retardant (resistors), high-quality sound (capacitors), low-noise (resistors), etc. are used.
When replacing any of components, be sure to use only manufacturer's specified parts shown in the parts list.

Ref. No.	Part No.	Part Name & Description	Remarks
		INTEGRATED CIRCUIT(S)	
IC1	AN7384N	ELECTRIC VOLUME	
IC2	AN7356SC-E2	PLAYBACK/REC AMP	
IC3	MC14052BFR2	INPUT SELECTOR	
IC4	AN6558SFE2	BUFFER AMP	
IC101, 102	AN6558SFE2	BUFFER AMP	
IC302	UPC1297CA	DOLBY HX PRO	
IC401	AN7357FB-RV	DOLBY B/C NR	
IC402	AN7374S-E2	DOLBY	
IC501	M38122M3353F	MICROCOMPUTER	
IC502	XLJ93LC46AFE	EEPROM	
IC701	M5218L	HEADPHONES AMP	
IC851	TA7291S	REEL MOTOR DRIVE	
IC971	RVSGP2S24BC	PHOTO INTERRUPTER	
IC972	RVSGP2S24BC	PHOTO INTERRUPTER	
		TRANSISTOR(S)	
Q31, 32	2SJ40BCTA	TRANSISTOR	
Q51-56	DTC114ESTP	TRANSISTOR	
Q57	DTA114ESTP	TRANSISTOR	
Q101-104	2SK369GRTPE2	TRANSISTOR	
Q105, 106	2SB709QRSTX	TRANSISTOR	
Q107, 108	2SD601QRSTX	TRANSISTOR	
Q109	DTC144EKT147	TRANSISTOR	
Q110	DTA114EKT147	TRANSISTOR	
Q201	2SD2037EFTA	TRANSISTOR	⚠
Q250	2SD601QRSTX	TRANSISTOR	⚠
Q251	2SK330GRYTA	TRANSISTOR	⚠
Q252	2SD601QRSTX	TRANSISTOR	⚠
Q303, 304	2SD874QRSTX	TRANSISTOR	
Q305	KSD471ACYGTA	TRANSISTOR	
Q306	KSB564ACYGTA	TRANSISTOR	
Q307	2SA1309AIRTA	TRANSISTOR	
Q308	2SC3311AIRTA	TRANSISTOR	
Q401, 402	2SC3311AIRTA	TRANSISTOR	
Q451	DTA114ESTP	TRANSISTOR	
Q452	DTC114ESTP	TRANSISTOR	
Q471	DTC114ESTP	TRANSISTOR	
Q472	DTA114ESTP	TRANSISTOR	
Q473	DTC114ESTP	TRANSISTOR	
Q501	2SC3311AIRTA	TRANSISTOR	
Q601, 602	2SD1450RTA	TRANSISTOR	
Q603	DTC114ESTP	TRANSISTOR	
Q604	2SA1309AIRTA	TRANSISTOR	⚠
Q605	2SC3311AIRTA	TRANSISTOR	⚠
Q606	2SD2374PQAU	TRANSISTOR	⚠
Q607	2SB1548PQAU	TRANSISTOR	⚠

Ref. No.	Part No.	Part Name & Description	Remarks
Q608	2SD2374PQAU	TRANSISTOR	⚠
Q609	KSB564ACYGTA	TRANSISTOR	⚠
Q610	2SB1548PQAU	TRANSISTOR	⚠
Q611	KSD471ACYGTA	TRANSISTOR	⚠
Q612	2SA1309AIRTA	TRANSISTOR	⚠
Q613	2SC3311AIRTA	TRANSISTOR	⚠
Q701	2SC3311AIRTA	TRANSISTOR	
Q702-705	DTA114ESTP	TRANSISTOR	
Q861, 862	KSB564ACYGTA	TRANSISTOR	
Q863-865	DTC114ESTP	TRANSISTOR	
Q866	KSB564ACYGTA	TRANSISTOR	
Q869	KSB564ACYGTA	TRANSISTOR	
Q870	2SA1309AIRTA	TRANSISTOR	
Q871	DTA114ESTP	TRANSISTOR	
		DIODE(S)	
D101, 102	MA8033LTX	DIODE	
D201	MA700	DIODE	
D202	MTZJ8R2CTA	DIODE	⚠
D250, 251	MA110TX	DIODE	
D252	MA8043MTX	DIODE	⚠
D301, 302	MA8062MTX	DIODE	
D303-305	MA110TX	DIODE	
D311, 312	MA165	DIODE	
D450	MA165	DIODE	
D451	MA700	DIODE	
D601, 602	MA165	DIODE	⚠
D603-609	RL1N4003N02	DIODE	⚠
D610-612	MA165	DIODE	
D613	MTZJ8R2CTA	DIODE	⚠
D614	MTZJ6R8CTA	DIODE	⚠
D615	RL1N4003N02	DIODE	⚠
D616	MTZJ9R1BTA	DIODE	⚠
D617	MTZJ20DTA	DIODE	⚠
D619, 620	RL1N4003N02	DIODE	
D621	MA165	DIODE	
D622	MTZJ5R1BTA	DIODE	⚠
D623	MA165	DIODE	
D624	MTZJ11CTA	DIODE	⚠
D625, 626	MA165	DIODE	
D627	MTZJ5R1BTA	DIODE	⚠
D628	MA29WA	DIODE	
D702	LN873RP-C	L. E. D	
D703	LN028491PS	L. E. D	
D704, 705	LN023491PS	L. E. D	
D851	MA178TA	DIODE	
D852	MA700	DIODE	
D854	MTZJ3R3ATA	DIODE	
D855	RL1N4003N02	DIODE	

Ref. No.	Part No.	Part Name & Description	Remarks
D856, 857	MTZJ4R7BTA	DIODE	
D971	RVD1SS133TA	DIODE	
		IC PROTECTOR(S)	
ICP201	SRUN10	IC PROTECTOR	⚠
		VARIABLE RESISTOR(S)	
VR101, 102	EVNDCAA03B14	MR HEAD BIAS ADJ.	
VR701	EVJ02FF03B15	REC LEVEL ADJ.	
VR702	EVJ02SF02G15	REC BALANCE ADJ.	
VR704	EVJY10F01A24	PHONES LEVEL ADJ.	
VR852	EVNDCAA03B53	TAPE SPEED ADJ.	
		OSC. (S) AND COMBINATION(S)	
Z501	EFOEC6004T4	OSCILLATOR(6MHz)	
Z701	RCDGP1U28XD	REMOTE SENSOR	
Z851	EXBF7L355SYV	COMPONENT COMBINATION	
Z971	EXBF6L306SYV	COMPONENT COMBINATION	
		COIL(S)	
L1-3	RLQZB822KT-D	COIL	
L51, 52	RLQB103JT-Y	COIL	
L301, 302	SL09B1-K	COIL	
L303	RL08B005-K	COIL	
L451, 452	RLQB103JT-Y	COIL	
		TRANSFORMER(S)	
T601	RTP1K4B026-V	POWER TRANSFORMER	⚠
		DISPLAY TUBE(S)	
FL501	RSL0215-F	DISPLAY TUBE	
		LAMP(S)	
PL701	XAMR136S	LAMP	
		SWITCH(ES)	
S701	EVQ21405R	STOP	
S702	EVQ21405R	PLAY	
S704	EVQ21405R	F. F.	
S705	EVQ21405R	REW.	
S706	EVQ21405R	REC. PAUSE	
S707	EVQ21405R	AUTO REC. MUTE	
S708	EVQ21405R	OPEN/CLOSE	
S709	EVQ21405R	MONITOR	
S710	EVQ21405R	PLAY DIRECT	

Ref. No.	Part No.	Part Name & Description	Remarks
S711	RSP2B010-2J	POWER	⚠
S712	EVQ21405R	COUNTER RESET	
S713	EVQ21405R	MEMORY STOP	
S714	EVQ21405R	MPX FILTER	
S715	EVQ21405R	DOLBY NR	
S716	EVQ21405R	ATC	
S718	RSS3A18YA-H	PLAY TIMER REC.	
S851	RSH1A024-U	OPEN DETECTION	
S852	RSH1A024-U	CLOSE DETECTION	
S971	RSH1A018-1U	MODE	
S972	RSH1A019-2U	HALF	
S973	RSH1A019-2U	ATS/CrO2	
S975	RSH1A019-2U	F. REC. INH.	
S976	RSH1A019-2U	ATS/METAL	
		CONNECTOR(S) AND SOCKET(S)	
CN3A	RJS1A6825	CONNECTOR(25P)	
CN3B	RJS1A6725-D	CONNECTOR(25P)	
CN4A	RJS1A6830	CONNECTOR(30P)	
CN4B	RJS1A6230-1	CONNECTOR(30P)	
CN101	RJS2A3316	CONNECTOR(16P)	
CN102	REX0784	CONNECTOR ASS'Y(2P)	
CN601	RJS1A1101T1	CONNECTOR(1P)	
CN603	RJS1A1101T1	CONNECTOR(1P)	
CN606-610	RJS1A1101T1	CONNECTOR(1P)	
CN701	RJU057W004	SOCKET(4P)	
CN701A	RJS1A6604	CONNECTOR(4P)	
CN701B	RJS1A6604	CONNECTOR(4P)	
CN703	RJS1A6604	CONNECTOR(4P)	
CN851	RJR0113	MOTOR CONNECTOR(4P)	
CP102	RJP2G17ZA	CONNECTOR(2P)	
CP501	SJS50581BB	SOCKET(5P)	
CP701	RJT057W004-1	CONNECTOR(4P)	
CP851	RJT071H11A	CONNECTOR(11P)	
CS971	RJU071H11M	SOCKET(11P)	
		JACK(S)	
JK1	SJF3069A	TERMINAL BOARD:REC/PLAY	
JK601	SJS9236	AC INLET	⚠
JK701	SJJD19	HEADPHONES JACK	
		FLAT CABLE(S)	
W701	REZ0895-1	FLAT CABLE(8P)	
W703	REZ0918	FLAT CABLE(4P)	
		GND PART(S)	
E1	SNE1004-2	GND PLATE	
E701	SUSD165	GND PLATE	

RESISTORS AND CAPACITORS

Notes: * Capacity values are in microfarads (uF) unless specified otherwise, P=Pico-farads (pF) F=Farads (F)
* Resistance values are in ohms, unless specified otherwise, 1K=1,000 (OHM), 1M=1,000k (OHM)

Ref. No.	Part No.	Values & Remarks
		RESISTORS
R31, 32	ERDAS3G394T	1/4W 390K
R33, 34	ERDAS3G333	1/4W 33K
R35, 36	ERDAS3G273T	1/4W 27K
R37, 38	ERDAS3G222T	1/4W 2.2K
R39, 40	ERDAS3G561	1/4W 560
R41, 42	ERDAS3G272T	1/4W 2.7K
R43, 44	ERDS2TJ225	1/4W 2.2M
R45, 46	ERDS2TJ102	1/4W 1K
R51-56	ERDS2TJ101	1/4W 100
R58	ERDS2TJ102	1/4W 1K
R59, 60	ERDAS3G103T	1/4W 10K
R61, 62	ERDAS3G183T	1/4W 18K
R63, 64	ERDAS3G122	1/4W 1.2K
R65, 66	ERDAS3G682T	1/4W 6.8K
R67, 68	ERDAS3G472T	1/4W 4.7K
R69, 70	ERDAS3G392T	1/4W 3.9K
R71, 72	ERDAS3G472T	1/4W 4.7K
R73, 74	ERDAS3G683T	1/4W 68K
R75, 76	ERDS2TJ122	1/4W 1.2K
R77, 78	ERDAS3G562T	1/4W 5.6K
R79, 80	ERDAS3G392T	1/4W 3.9K
R81, 82	ERDAS3G333	1/4W 33K
R86, 87	ERDS2TJ122	1/4W 1.2K
R89	ERDS2TJ272T	1/4W 2.7K
R90	ERDS2TJ103	1/4W 10K
R91, 92	ERDAS3G223T	1/4W 22K
R101, 102	ERJ6GEYJ272V	1/10W 2.7K
R103, 104	ERJ6GEYJ102V	1/10W 1K
R105, 106	ERJ6GEYJ472V	1/10W 4.7K
R107, 108	ERJ6GEYJ272V	1/10W 2.7K
R109, 110	ERJ6GEYJ560V	1/10W 56
R111, 112	ERJ6GEYJ123V	1/10W 12K
R113-116	ERJ6GEYJ472V	1/10W 4.7K
R117, 118	ERJ6GEYJ154V	1/10W 150K
R121, 122	ERJ6GEYJ473V	1/10W 47K
R123, 124	ERJ6GEYJ181V	1/10W 180
R125-128	ERJ6GEYJ102V	1/10W 1K
R129, 130	ERJ6GEYJ223V	1/10W 22K
R131	ERJ6GEYJ102V	1/10W 1K
R132-138	ERJ6GEYJ103V	1/10W 10K
R139	ERJ6GEYJ681V	1/10W 680
R202	ERDS2TJ102	1/4W 1K
R203	ERDS2TJ101	1/4W 100
R250	ERJ6GEYJ102V	1/10W 1K
R251	ERJ6GEYJ563V	1/10W 56K
R252	ERJ6GEYJ105	1/10W 1M

Ref. No.	Part No.	Values & Remarks
R253	ERJ6GEYJ102V	1/10W 1K
R254	ERJ6GEYJ271V	1/10W 270
R321	ERJ6GEYJ1R0V	1/10W 1.0
R322, 323	ERJ6GEYJ183V	1/10W 18K
R324, 325	ERJ6GEYJ100	1/10W 10
R326	ERDS2TJ122	1/4W 1.2K
R327	ERDS2TJ5R6	1/4W 5.6
R328	ERDS2TJ100	1/4W 10
R329	ERDS2TJ101	1/4W 100
R333, 334	ERJ6GEYJ102V	1/10W 1K
R335	ERDS2TJ473	1/4W 47K
R336	ERDS2TJ332	1/4W 3.3K
R337	ERDS2TJ472	1/4W 4.7K
R338	ERDS2TJ1R0	1/4W 1.0
R341, 342	ERJ6GEYJ823	1/10W 82K
R343, 344	ERJ6GEYJ562V	1/10W 5.6K
R345, 346	ERJ6GEYJ104V	1/10W 100K
R347, 348	ERJ6GEYJ100	1/10W 10
R349	ERJ6GEYJ562V	1/10W 5.6K
R350	ERJ6GEYJ472V	1/10W 4.7K
R401, 402	ERDAS3G472T	1/4W 4.7K
R423	ERDS2TJ223	1/4W 22K
R425	ERDS2TJ223	1/4W 22K
R426	ERDS2TJ124T	1/4W 120K
R427	ERDS2TJ272T	1/4W 2.7K
R428	ERDS2TJ103	1/4W 10K
R430	ERDS2TJ222	1/4W 2.2K
R433, 434	ERDS2TJ103	1/4W 10K
R435-438	ERDAS3G103T	1/4W 10K
R451, 452	ERDAS3G681	1/4W 680
R453	ERDS2TJ103	1/4W 10K
R455	ERDS2TJ223	1/4W 22K
R459, 460	ERDAS3G103T	1/4W 10K
R461, 462	ERDAS3G561	1/4W 560
R463, 464	ERDS2TJ472	1/4W 4.7K
R465	ERDS2TJ103	1/4W 10K
R467, 468	ERDAS3G272T	1/4W 2.7K
R469, 470	ERDAS3G562T	1/4W 5.6K
R471, 472	ERDAS3G102T	1/4W 1K
R473, 474	ERDAS3G152T	1/4W 1.5K
R475	ERDS2TJ103	1/4W 10K
R476-479	ERDS2TJ102	1/4W 1K
R480	ERDS2TJ104	1/4W 100K
R481, 482	ERDAS3G103T	1/4W 10K
R501-504	ERDS2TJ473	1/4W 47K
R505, 506	ERDS2TJ103	1/4W 10K
R508	ERDS2TJ473	1/4W 47K
R509	ERDS2TJ222	1/4W 2.2K
R510	ERDS2TJ682T	1/4W 6.8K

Ref. No.	Part No.	Values & Remarks
R511	ERDS2TJ103	1/4W 10K
R512	ERDS2TJ471	1/4W 470
R513	ERDS2TJ103	1/4W 10K
R514, 515	ERDS2TJ223	1/4W 22K
R516	ERDS2TJ472	1/4W 4.7K
R517	ERDS2TJ223	1/4W 22K
R520, 521	ERDS2TJ331	1/4W 330
R522	ERDS2TJ103	1/4W 10K
R601-604	ERDS2TJ472	1/4W 4.7K
R606, 607	ERDS2TJ472	1/4W 4.7K
R608	ERDS2TJ103	1/4W 10K
R609	ERDS2TJ1R5T	1/4W 1.5
R610	ERDS2TJ472	1/4W 4.7K
R611	ERDS2TJ104	1/4W 100K
R612	ERDS2TJ1R5T	1/4W 1.5
R613	ERDS2TJ101	1/4W 100
R614, 615	ERDS2TJ471	1/4W 470
R616	ERDS2TJ101	1/4W 100
R617	ERDS2TJ331	1/4W 330
R618	ERD2FCVJ4R7T	1/4W 4.7 ⚠
R619	ERDS2TJ391	1/4W 390
R620	ERDS2TJ101	1/4W 100
R621	ERDS2TJ222	1/4W 2.2K
R622	ERD2FCVG100T	1/4W 10 ⚠
R623	ERDS2TJ101	1/4W 100
R624	ERDS2TJ222	1/4W 2.2K
R625	ERD2FCVG100T	1/4W 10
R626	ERDS2TJ101	1/4W 100
R627	ERDS2TJ103	1/4W 10K
R628	ERD2FCVG180T	1/4W 18 ⚠
R629	ERD2FCVG330T	1/4W 33 ⚠
R630	ERDS2TJ331	1/4W 330
R631	ERDS2TJ101	1/4W 100
R632	ERDS2TJ103	1/4W 10K
R634	ERD2FCVJ6R8T	1/4W 6.8 ⚠
R701	ERDS2TJ182	1/4W 1.8K
R702, 703	ERDS2TJ333	1/4W 33K
R704, 705	ERDS2TJ102	1/4W 1K
R706, 707	ERDS2TJ562	1/4W 5.6K
R708	ERDS2TJ471	1/4W 470
R709	ERDS2EJ121	1/4W 120
R710	ERDS2TJ102	1/4W 1K
R711	ERDS2TJ821	1/4W 820
R712	ERDS2TJ102	1/4W 1K
R713	ERDS2TJ122	1/4W 1.2K
R714	ERDS2TJ152	1/4W 1.5K
R715	ERDS2TJ182	1/4W 1.8K
R716	ERDS2TJ222	1/4W 2.2K
R717	ERDS2TJ332	1/4W 3.3K

Ref. No.	Part No.	Values & Remarks
R718	ERDS2TJ472	1/4W 4.7K
R719	ERDS2TJ682T	1/4W 6.8K
R720	ERDS2TJ821	1/4W 820
R721	ERDS2TJ102	1/4W 1K
R722	ERDS2TJ122	1/4W 1.2K
R723	ERDS2TJ152	1/4W 1.5K
R724	ERDS2TJ182	1/4W 1.8K
R725	ERDS2TJ222	1/4W 2.2K
R726	ERDS2TJ332	1/4W 3.3K
R727	ERDS2TJ472	1/4W 4.7K
R728	ERDS2TJ331	1/4W 330
R729, 730	ERDS2TJ181T	1/4W 180
R731, 732	ERDS2TJ101	1/4W 100
R733, 734	ERDS2TJ180T	1/4W 18
R735	ERDS2TJ103	1/4W 10K
R855	ERJ6GEYJ392V	1/10W 3.9K
R856	ERJ6GEYJ103V	1/10W 10K
R857, 858	ERJ6GEYJ683V	1/10W 68K
R861	ERDS2TJ472	1/4W 4.7K
R862	ERDS2TJ223	1/4W 22K
R863	ERDS2TJ821	1/4W 820
R864	ERDS2TJ223	1/4W 22K
R865	ERDS2TJ821	1/4W 820
R866	ERDS2TJ472	1/4W 4.7K
R867	ERDS2TJ223	1/4W 22K
R868	ERDS2TJ821	1/4W 820
R869	ERDS2TJ681	1/4W 680
R870	ERDS2TJ102	1/4W 1K
R873	ERDS2TJ472	1/4W 4.7K
R874	ERDS2TJ473	1/4W 47K
R875, 876	ERDS2TJ183T	1/4W 18K
R877, 878	ERDS2TJ562	1/4W 5.6K
R879, 880	ERDS2TJ100	1/4W 10
R971	ERDS2TJ221	1/4W 220
R973, 974	ERDS2TJ393	1/4W 39K
		CHIP JUMPER(S)
RJ11-31	ERJ6GEY0R00V	CHIP JUMPER
RJ33-40	ERJ6GEY0R00V	CHIP JUMPER
		CAPACITORS
C25, 26	ECCR2H820J5	500V 82P
C31, 32	ECA1HPXS010B	50V 1U
C33, 34	ECA1CPXS100B	16V 10U
C35, 36	ECA1APXS101B	10V 100U
C37, 38	ECA1CPXS220B	16V 22U
C39, 40	ECEA1HKA010B	50V 1U
C51, 52	ECQB1H472JF3	50V 4700P
C53, 54	ECQB1H122JF3	50V 1200P
C55, 56	ECKD1H821KB	50V 820P

Ref. No.	Part No.	Values & Remarks
C57, 58	ECQB1H472JF3	50V 4700P
C59, 60	ECA1HPXSR47B	50V 0.47U
C61, 62	ECQB1H123JF3	50V 0.012U
C63, 64	ECQB1H102JF3	50V 1000P
C65, 66	ECQB1H682JF3	50V 6800P
C67, 68	ECA1HPXS4R7B	50V 4.7U
C69	ECBT1E103ZF	25V 0.01U
C70	RCE1CKA100BG	16V 10U
C71, 72	ECA1HPXSR47B	50V 0.47U
C73, 74	ECEA1CN100SB	16V 10U
C75, 76	ECA1CPXS100B	16V 10U
C77, 78	ECBT1H101KB5	50V 100P
C79, 80	ECA1HPXS4R7B	50V 4.7U
C81-84	ECBT1C332KR5	16V 3300P
C85	ECBT1E103ZF	25V 0.01U
C86	ECBT1E223ZF	25V 0.022U
C87	ECBT1E103ZF	25V 0.01U
C91, 92	ECBT1H471KB5	50V 470P
C101, 102	ECUV1E183KBN	25V 0.018U
C103, 104	RCE0GKS221IG	4V 220U
C105-108	ECA1VAD4R7XI	35V 4.7U
C109, 110	ECUV1E223KBN	25V 0.022U
C111, 112	ECUV1H101KCN	50V 100P
C113, 114	ECQB1H103JF3	50V 0.01U
C115, 116	ECUV1H101KCN	50V 100P
C117	RCE0JKS101IV	6.3V 100U
C201	ECBT1E103ZF	25V 0.01U
C250	ECUV1E223ZFN	25V 0.022U
C251	ECA1CAD100XI	16V 10U
C252	ECUV1H103ZFN	50V 0.01U
C253	ECA1CAD100XI	16V 10U
C254	ECEA1AKS221I	10V 220U
C255	ECUV1E223ZFN	25V 0.022U
C303	ECQP2A822JZT	100V 8200P
C304	ECUV1H392KBN	50V 3900P
C305-307	ECUV1H222KBN	50V 2200P
C308	RCE1CKS220IV	16V 22U
C309	ECBT1E103ZF	25V 0.01U
C312	ECBT1E103ZF	25V 0.01U
C341, 342	ECUV1H561KBN	50V 560P
C343-346	ECQB1H103JF3	50V 0.01U
C347, 348	ECUV1H121KCN	50V 120P
C349, 350	ECKR2H121KB5	500V 120P
C351, 352	ECUV1E473KBN	25V 0.047U
C353	ECUV1H680KCN	50V 68P
C355, 356	ECQB1H223JF3	50V 0.022U
C357	ECA1CAD100XI	16V 10U
C359, 360	ECUV1E473KBN	25V 0.047U
C361, 362	ECUV1H103ZFN	50V 0.01U
C401, 402	ECA1CPXS100B	16V 10U
C403, 404	ECBT1C182KR5	16V 1800P
C405, 406	ECEA1HKAR47B	50V 0.47U

Ref. No.	Part No.	Values & Remarks
C407, 408	ECBT1C152JR5	16V 1500P
C409, 410	ECEA1HKAR47B	50V 0.47U
C411, 412	ECA1CPXS100B	16V 10U
C413	ECQV1H474JM3	50V 0.47U
C414	ECBT1H104ZF5	50V 0.1U
C416	ECBT1C392KR5	16V 3900P
C417	ECBT1H104ZF5	50V 0.1U
C418	ECEA1HKAR47B	50V 0.47U
C419	RCE1CKA100BG	16V 10U
C422	RCE1CKA100BG	16V 10U
C423	ECEA1HKA010B	50V 1U
C424	ECQV1H474JM3	50V 0.47U
C425	ECBT1C152KR5	16V 1500P
C427, 428	ECA1HPXSR47B	50V 0.47U
C430, 431	ECBT1H101KB5	50V 100P
C432, 433	ECBT1H471KB5	50V 470P
C434	ECBT1H101KB5	50V 100P
C451	ECBT1H104ZF5	50V 0.1U
C452	ECBT1E103ZF	25V 0.01U
C453, 454	ECA1HPXS4R7B	50V 4.7U
C455, 456	ECQB1H152JF3	50V 1500P
C457, 458	ECEA1HKAR47B	50V 0.47U
C459, 460	ECQB1H152JF3	50V 1500P
C461, 462	ECEA1HKAR47B	50V 0.47U
C463	ECEA1EKN3R3B	25V 3.3U
C465, 466	ECBT1H221KB5	50V 220P
C467, 468	ECBT1C122KR5	16V 1200P
C470, 471	ECBT1E103ZF	25V 0.01U
C473, 474	ECBT1H471KB5	50V 470P
C475, 476	ECA1CPXS100B	16V 10U
C477, 478	ECA1HPXS010B	50V 1U
C501	ECEA1HKA010B	50V 1U
C502	ECEA1EKA4R7B	25V 4.7U
C503-505	RCE1CKA100BG	16V 10U
C601	ECA1EM472E	25V 4700U ⚠
C602	ECA1EM221B	25V 220U
C603	ECKR2H682PE	500V 6800P
C604, 605	ECA1VPT102ZE	35V 1000U ⚠
C606	RCE1HM221BV	50V 220U ⚠
C607, 608	ECBT1E103ZF	25V 0.01U
C609	ECEA1AU221	10V 220U
C610	ECA1AM471B	10V 470U
C611, 612	ECBT1E103ZF	25V 0.01U
C613	ECA0JM102B	6.3V 1000U ⚠
C614, 615	ECBT1E103ZF	25V 0.01U
C616	ECEA1HKNR47B	50V 0.47U
C620, 621	ECA1CPX471TB	16V 470U
C622	ECBT1E103ZF	25V 0.01U
C623	RCE1AKA101BG	10V 100U
C701, 702	ECBT1E103ZF	25V 0.01U
C704, 705	ECBT1E103ZF	25V 0.01U
C706	ECBT1H104ZF5	50V 0.1U

Ref. No.	Part No.	Values & Remarks
C711, 712	RCE1CKA100BG	16V 10U
C851	ECEA1CSN100I	16V 10U

Ref. No.	Part No.	Values & Remarks
C853	ECEA1HKAR47B	50V 0.47U
C855	ECBT1E103ZF	25V 0.01U

Ref. No.	Part No.	Values & Remarks
C856	ECEA1CKA220B	16V 22U

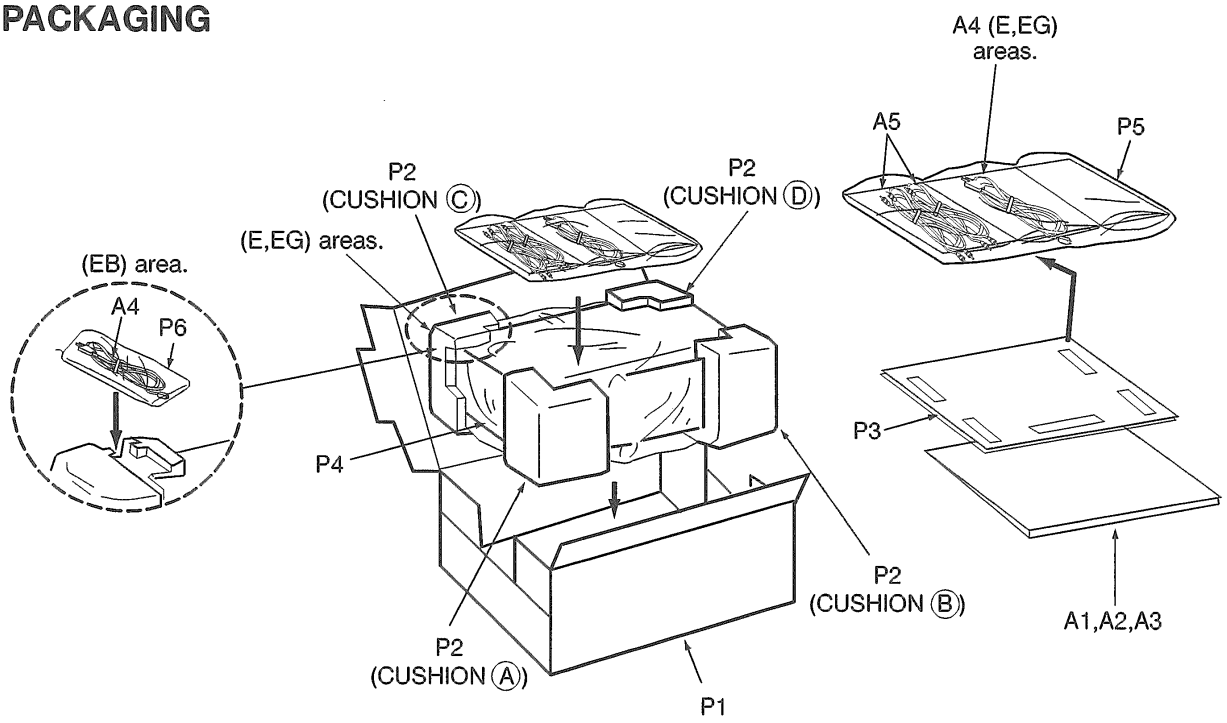
REPLACEMENT PARTS LIST

Notes: * Important safety notice:
Components identified by ⚠ mark have special characteristics important for safety.
Furthermore, special parts which have purposes of fire-retardant (resistors), high-quality sound (capacitors), low-noise (resistors), etc. are used.
When replacing any of components, be sure to use only manufacturer's specified parts shown in the parts list.
* The parenthesized indications in the Remarks columns specify the areas. (Refer to the cover page for area.)
Parts without these indications can be used for all areas.
* The "(SF)" mark denotes the standard part.

Ref. No.	Part No.	Part Name & Description	Remarks
		PACKING MATERIAL	
P1	RPG2956	PACKING CASE	(E, EG)
P1	RPG2957	PACKING CASE	(EB)
P2	RPN0956	CUSHION	(E, EG)
P2	RPN0979	CUSHION	(EB)
P3	RPQ0164	ACCESSORIES PAD	
P4	SPP723	PROTECTION COVER(THIS UNIT)	
P5	RPF0139	PROTECTION BAG(F.B., ACC.)	
P6	RPHD032	MIRROR SHEET	(EB)
		ACCESSORIES	
A1	RFKSSAZ7EK	INSTRUCTION MANUAL ASS'Y	(E)
A1	RQT3434-B	INSTRUCTION MANUAL	(EB)
A1	RQT3433-D	INSTRUCTION MANUAL	(EG)

Ref. No.	Part No.	Part Name & Description	Remarks
A2	RQA0117	WARRANTY CARD	
A3	RQCB0169	SERVICENTER LIST	
A4	RJA0019-2K	AC POWER SUPPLY CORD	(E, EG) ⚠ (SF)
A4	RJA0049-K	AC POWER SUPPLY CORD	(EB) ⚠
A5	RJL4P004B08	STEREO CONNECTION CABLE	
		<GREASE OR JIG/TOOL>	
		TEST TAPE	
SA1	QZZCFM	OVERALL ADJUSTMENT CHECK	
SA2	QZZCWAT	TEST SPEED ADJUSTMENT	
		GREASE	
SA3	SZZ0L18	FLOIL AK-152	
SA4	RZZ0L02	OIL #56	
SA5	RZZ0L05	MOLYCOAT EM-20L	

PACKAGING



<CUSHION Ⓐ, Ⓑ, Ⓒ, Ⓓ Part No.: RPN0956(E,EG), RPN0979 (EB)>

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