ORDER NO. AD9601015C1
A2

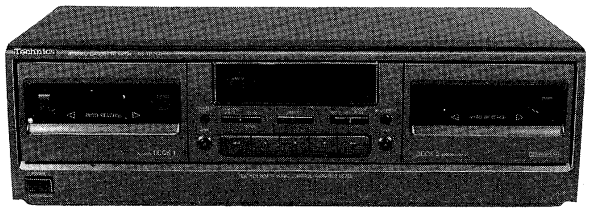
Service Manual

Stereo Cassette Deck

DOLBY B·C NR HX PRO *1

Cassette Deck

RS-TR280



Colour

(K) : Black

Areas

Suffix for Model No.	Area	Colour
(PP)	U.S.A.	(K)

*1 : Dolby noise reduction and HX PRO headroom extension manufactured under license from Dolby Laboratories Licensing Corporation.
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AR-2 MECHANISM SERIES

Specifications (IHF '78)

■ Cassette Deck Section

Deck system Stereo cassette deck
Track system 4-track, 2-channel
Recording system AC bias
Bias frequency 80 kHz (approx.)
Erasing system AC erase
Heads
DECK 1 Playback head (Permalloy) × 1
DECK 2 Recording/Playback head (Permalloy) × 1
Erasing head (Double-gap ferrite) × 1
Motors
DECK 1 Capstan/Reel table drive (DC servo motor) × 1
DECK 2 Capstan/Reel table drive (DC servo motor) × 1
Tape speed 4.8 cm/sec. (1-7/8 ips)
Wow and flutter 0.18% (WRMS)
Fast forward and rewind times
Approx. 120 seconds with C-60 cassette tape
Frequency response (Dolby NR off)
TYPE I (NORMAL) 40 Hz–14 kHz, ±3 dB
20 Hz–17 kHz
TYPE II (HIGH POSITION) 40 Hz–14 kHz, ±3 dB
20 Hz–17 kHz
TYPE IV (METAL) 40 Hz–15 kHz, ±3 dB
20 Hz–18 kHz

S/N (signal level = max recording level, TYPE II type tape)
NR off 54 dB (A weighted)
Dolby B NR on 64 dB (A weighted)
Dolby C NR on 72 dB (A weighted)
Input sensitivity and impedance
REC (IN) 320 mV/47 kΩ
Output voltage and impedance
PLAY (OUT) 320 mV/500 Ω

■ General

Power consumption 18 W
Power supply AC 120 V, 60 Hz
Dimensions (W × H × D) 430 × 131 × 286 mm
(16-15/16" × 5-5/32" × 11-1/4")
Weight 3.8 kg (8.9 lb)

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

⚠WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product.
Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

Technics®

■ Contents

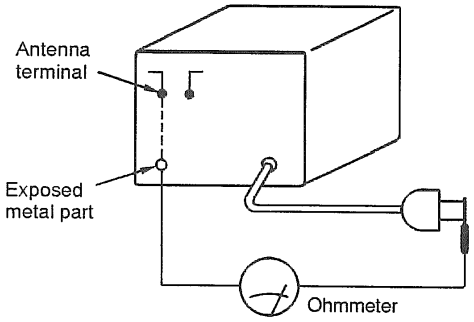
■ Safety Precaution

1. Before servicing, unplug the power cord to prevent an electric shock.
2. When replacing parts, use only manufacturer's recommended components for safety.
3. Check the condition of the power cord. Replace if wear or damage is evident.
4. After servicing, be sure to restore the lead dress, insulation barriers, insulation papers, shields, etc.
5. Before returning the serviced equipment to the customer, be sure to make the following insulation resistance test to prevent the customer from being exposed to a shock hazard.

● INSULATION RESISTANCE TEST

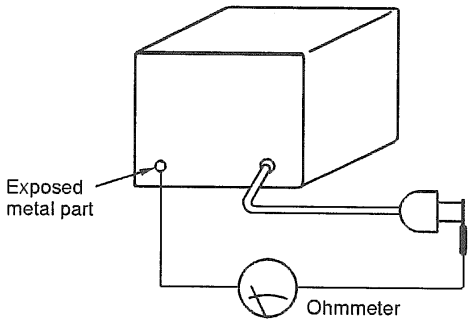
1. Unplug the power cord and short the two prongs of the plug with a jumper wire.
2. Turn on the power switch.
3. Measure the resistance value with ohmmeter between the jumpered AC plug and each exposed metal cabinet part, such as screwheads antenna, control shafts, handle brackets, etc. Equipment with antenna terminals should read between 3 MΩ and 5.2 MΩ to all exposed parts. (Fig. A) Equipment without antenna terminals should read approximately infinity to all exposed parts. (Fig. B)

Note: Some exposed parts may be isolated from the chassis by design. These will read infinity.



(Fig.A)

Resistance = 3 MΩ — 5.2 MΩ

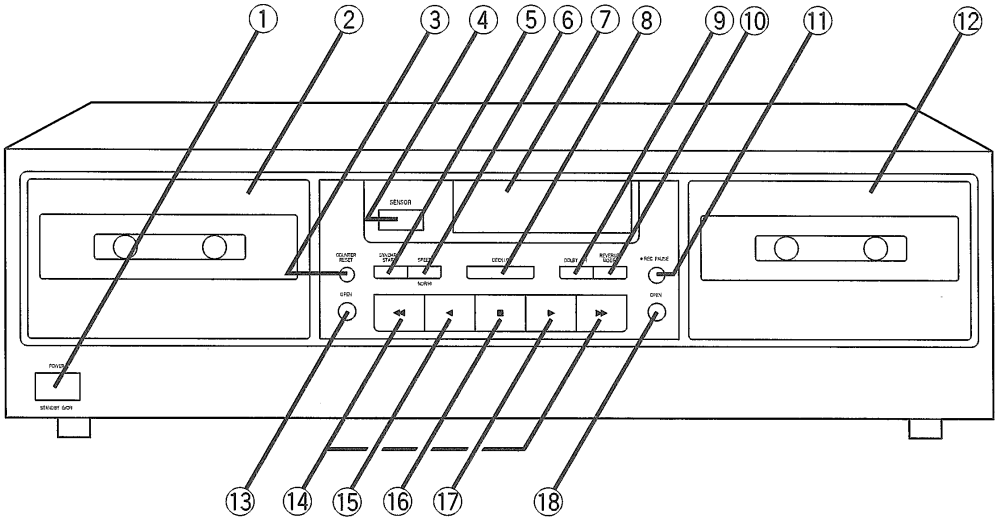


(Fig. B)

Resistance = Approx. ∞

4. If the measurement is outside the specified limits, there is a possibility of a shock hazard. The equipment should be repaired and rechecked before it is returned to the customer.

■ Front Panel Controls



No.	*Name*
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	**Cassette holder for deck 1**
③	**Counter reset button (COUNTER RESET)**
④	**Remote control signal sensor (SENSOR)**
⑤	**Synchro-start button (SYNCHRO START)**
⑥	**Tape-to-tape recording-speed button (SPEED)**
⑦	**Display**
⑧	**Tape deck select button (DECK 1/2)**
⑨	**Dolby noise-reduction button (DOLBY NR)**
⑩	**Reverse-mode select button (REVERSE MODE)**

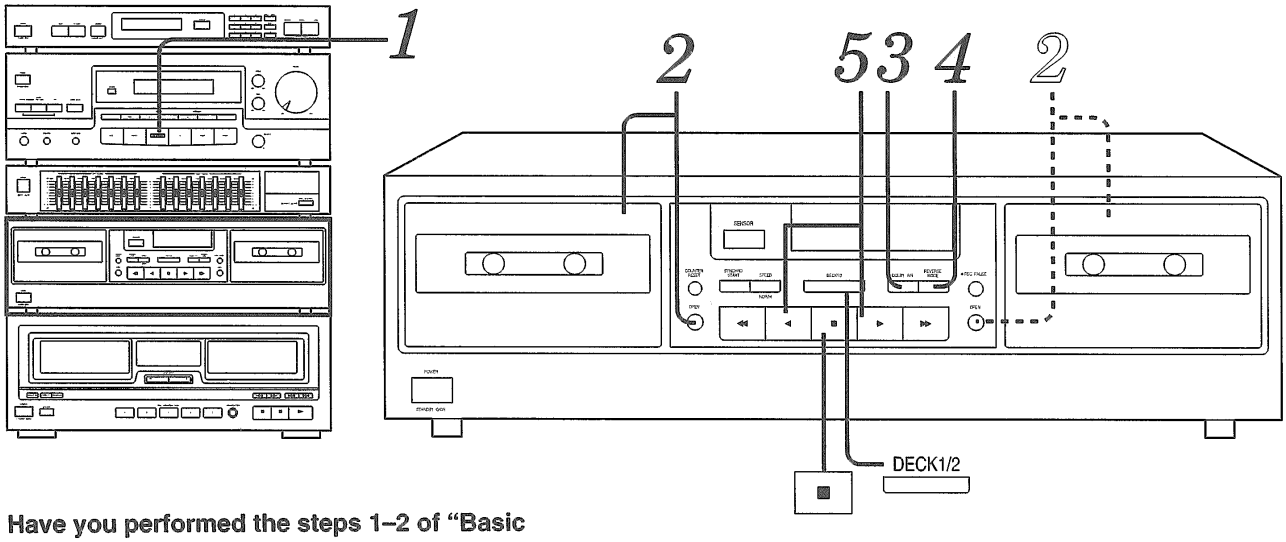
No.	*Name*
⑪	**Rec pause button (● REC PAUSE)**
⑫	**Cassette holder for deck 2**
⑬	**Open button for deck 1 (▲ OPEN)**
⑭	**Rewind/fast-forward buttons (◀◀ , ▶▶)**
⑮	**Reverse-side playback button (◀)**
⑯	**Stop button (■)**
⑰	**Forward-side playback button (▶)**
⑱	**Open button for deck 2 (▲ OPEN)**

■ Listening to Tapes

Type of tape which can be played on this unit:

NORMAL POSITION/TYPE I	○
HIGH POSITION/TYPE II	○
Metal/TYPE IV	○

The unit automatically identifies the type of tape.

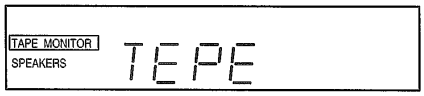


Have you performed the steps 1–2 of "Basic operations"?
The procedures described below are an example of playback on Deck 1.

1 

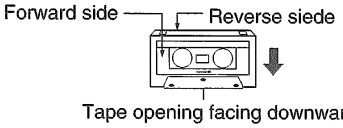
Press the input selector on the amplifier marked "TAPE MONITOR".

On the amplifier's display

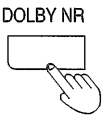


2 

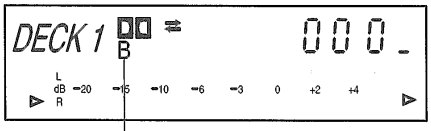
Press ▲ OPEN on Deck 1, and then insert the cassette tape.
Close the cassette holder.



To play back on Deck 2, press the button (2) for Deck 2.

3 

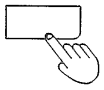
Press DOLBY NR to select the appropriate noise-reduction system.



Each time the button is pressed, the indicators will change in the order: B → C → off.

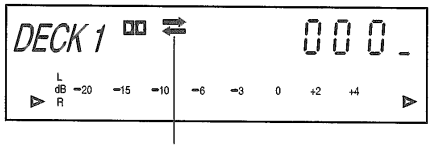
Select the same type as that used for recording. When playing back a tape which was not recorded using a Dolby NR system, press so that the indicators go off.

4 REVERSE MODE



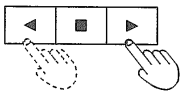
Press REVERSE MODE to select the appropriate reverse mode.

⇄ : One side only.
↻ : Both sides repeatedly (up to 8 times).
↻↻ : Both sides, once only.
(Refer to the right side of the page.)

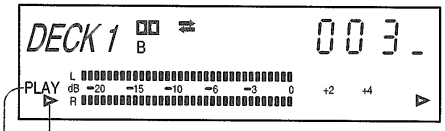


Each time the button is pressed, the indicator will change in the order: ⇄ → ↻ → ↻↻.

5

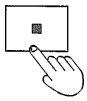


Press ▶ (or ◀).
(Playback will begin.)
▶ : To begin from the forward side.
◀ : To begin from the reverse side.



Illuminates — Indicates the side being played.

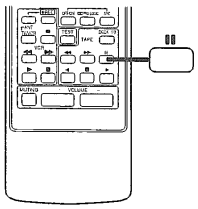
To stop playback



Press ■.

To temporarily stop playback

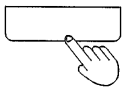
(Only availabre from the remote control.)



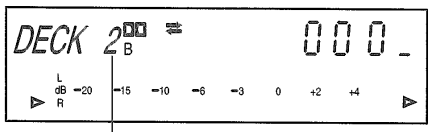
Press ⏸.
The play indicator will flash.
Press once again to resume playback.

To change the Deck to be used

DECK 1/2



Press DECK 1/2 to select the Deck you want to play.



Each time the button is pressed, the indicator will change: DECK 1 ⇄ DECK 2

Reverse function

The reverse function on this unit has three modes (⇄, ↻, ↻↻). Read the descriptions below and select the mode as desired

Mode	Tape travel
⟶ ⟵	Only one side of the tape (either the forward side or the reverse side) will be played, and operation will automatically stop when playback has been completed.
↻	Both sides of the tape will be played repeatedly eight times, and then operation will automatically stop. (If playback is begun from the reverse side, the forward side will be played seven times.)
↻↻	**When there is a tape in only one of the decks** Both sides of the tape will be played once, and then operation will automatically stop. (If playback is begun from the reverse side, the forward side will not be played.) **When there is a tape in each of the decks** The forward and reverse sides of the tape in Deck 1 will be played, followed by the forward and reverse sides of the tape in Deck 2, and after this operation is repeated eight times, operation will automatically stop. (If playback is begun from Deck 2, the tape in Deck 1 will be played seven times.)

Dolby noise-reduction system

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

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

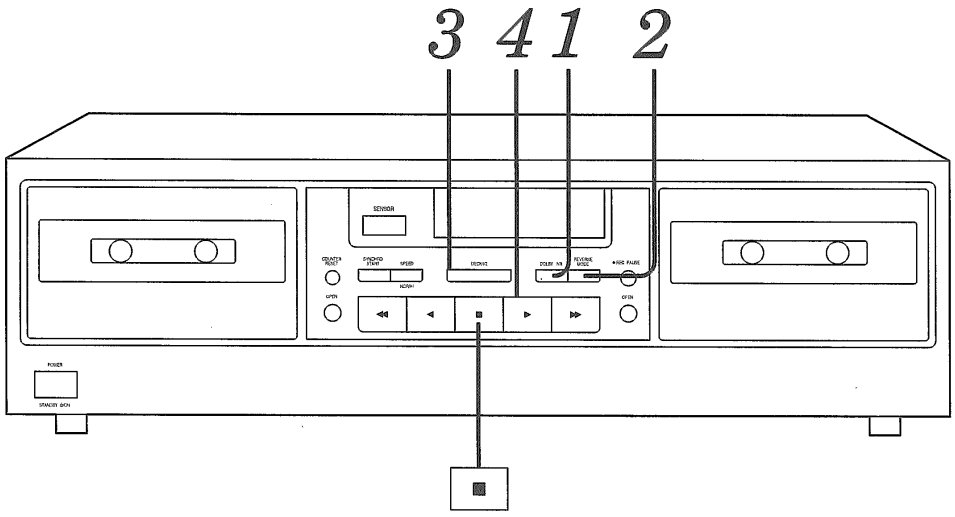
Noise is reduced to about one-tenth.
Use this system for the recording and playback of sound sources that have a wide dynamic range and good tone quality, such as FM broadcasts of live performances, etc., and for playing back such tapes.

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.

Series playback

Both sides of the tape in Deck 1 will be played, followed by both sides of the tape in Deck 2. (Repeated up to eight times.)



Preparation

Load the tapes to be played into Deck 1 and Deck 2.
Note that for series playback it is not possible to select different types of Dolby NR for Deck 1 and Deck 2. It is recommended that you use two tapes which were recorded using the same type of Dolby NR (or both recorded without Dolby NR).

1 DOLBY NR

Press DOLBY NR to select the appropriate noise-reduction system.

2 REVERSE MODE

Press REVERSE MODE to select the " ↻↻ " mode.

3 DECK 1/2

Press DECK 1/2 to select the Deck 1.

4

Press ▶.
(Series playback will begin from the forward side of the tape in Deck 1.)

For your reference:

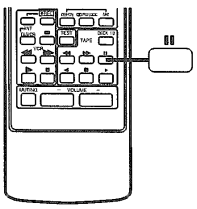
It is also possible to begin series playback from the reverse side of the tape in Deck 1 or from Deck 2. (Refer to the tape travel table on page 5.)

To stop playback

Press ■.

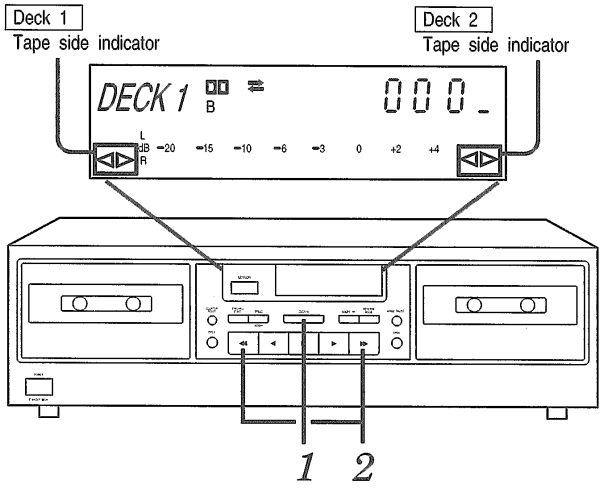
To temporarily stop playback

(Only available from the remote control.)



Press ⏸.
Press once again to resume playback.

To fast-forward or rewind the tape



1 DECK 1/2

Press DECK 1/2 to select the Deck (1 or 2).

2 [In stop mode]

Press ◀◀ or ▶▶ .

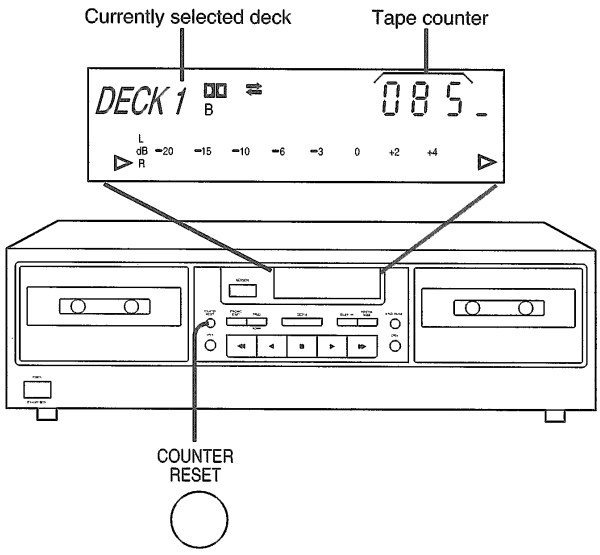
Because this unit is capable of playing back both sides of the tape, the operation changes in accordance with the direction of the tape side indicator.

Tape side indicator	Rewind	Fast forward
▷	◀◀	▶▶
◁	▶▶	◀◀

- Cassette tapes in Deck 1 and Deck 2 can be advanced or rewound at the same time.

Tape counter

The tape counter indicates the amount of tape travel as a numerical value based on the number of revolutions of the tape hub.
As you switch between Deck 1 and Deck 2, the tape counter shown on the display changes too.



To reset the tape counter

COUNTER RESET

Press COUNTER RESET.
The tape counter of the currently selected deck will revert back to "000", while that of the other deck will remain unchanged.

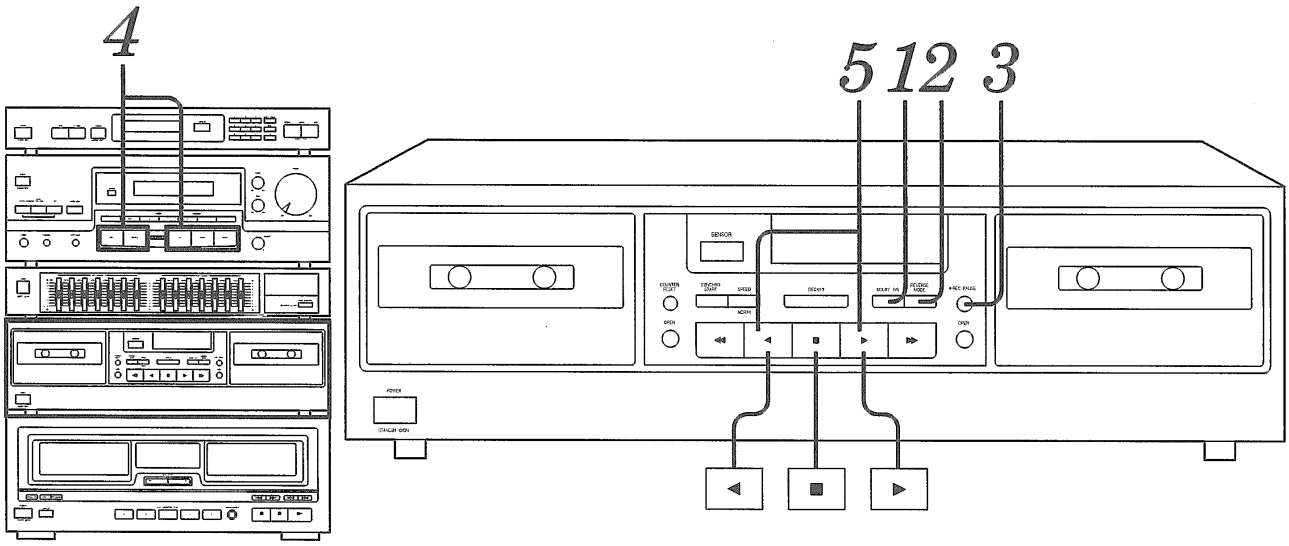
For your reference:
When the tape is travelling in the reverse direction, the value displayed on the tape counter will count down.
After "000" is reached, the display will switch to "999" and will then continue counting down.

■ Making a Recording

Recording from the radio or external source

Type of tape which can be used for recording:

NORMAL POSITION/TYPE I	○
HIGH POSITION/TYPE II	○
Metal/TYPE IV	○

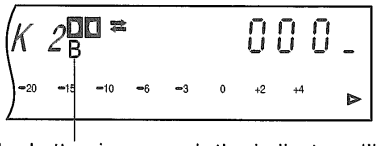


Preparation

Load a tape which has been advanced to the end of the leader tape (the transparent part at both ends of the tape) into Deck 2.

1 DOLBY NR

Press DOLBY NR to select the appropriate noise-reduction system.



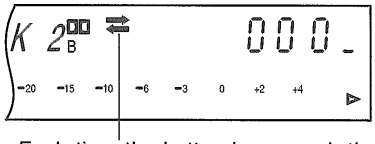
Each time the button is pressed, the indicator will change in the order:

B → C → off.

When recording a tape without using a Dolby NR system, press so that the indicators go off.

2 REVERSE MODE

Press REVERSE MODE to select the desired reverse mode.



Each time the button is pressed, the indicator will change in the order:

⇄ → ↻ → ↻↻.

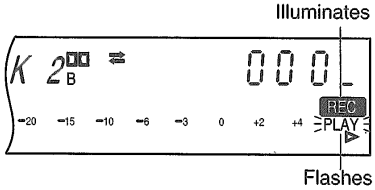
⇄ : Only one side will be recorded, and then operation will automatically stop.

↻ , ↻↻ : Both sides (the forward side first, and then the reverse side) will be recorded, and then operation will automatically stop.

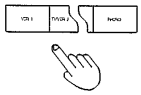
3 ● REC PAUSE

Press ● REC PAUSE.

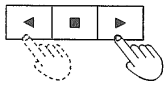
(The unit will be in the recording stand-by mode.)



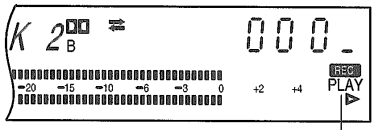
4 **Press to select the desired source to be recording.**



5 **Press ◀ or ▶ to begin recording, and play the source to be recorded.**



▶: To begin recording from the forward side.
◀: To begin recording from the reverse side.



Illuminates

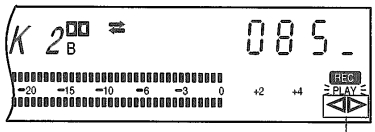
Note
When recording on both sides of the tape, be sure to press the ▶ button.

To temporarily stop recording

● REC PAUSE

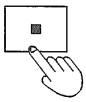
Press ● REC PAUSE.

To resume recording
Press either ◀ or ▶, corresponding to the side of the tape side indicator which is lit.



Tape side indicator

To stop recording



Press ■.

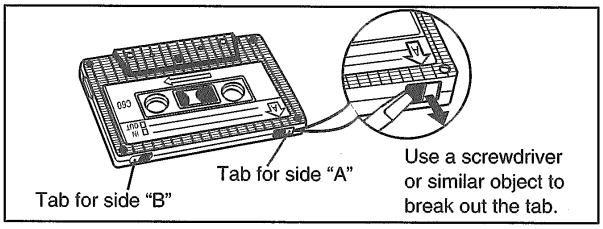
About the selection of the Dolby NR type

The Dolby NR effect can be obtained by using the same type of Dolby NR during both recording and playback. Refer to the following table when selecting the type (either B or C).

Type B	Use this type when the deck on which the tape will be played back is equipped with only type B Dolby NR.
Type C	Use this type when the deck on which the tape will be played back is equipped with type C Dolby NR. (for example, when this unit is also going to be used to play back the tape.)

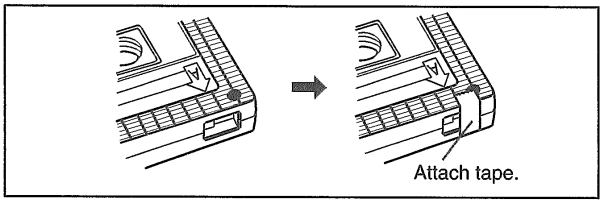
Erasure prevention

Remove the tab(s).



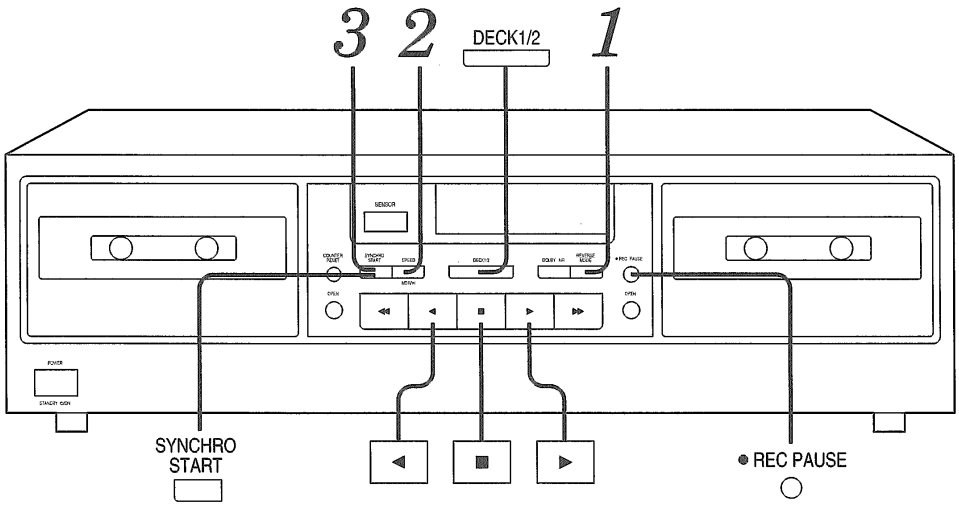
To re-record on a protected cassette

Cover the slot with adhesive tape.



■ Tape-to-Tape Recording

Use Deck 2 to record the sound being played back on Deck 1.

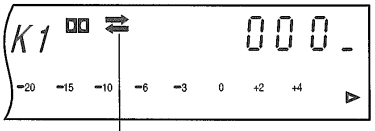


Preparation

Load tapes which have been advanced to the end of the leader tape into both decks.
Deck 1: For playback **Deck 2:** For recording

1 REVERSE MODE

Press REVERSE MODE to select the desired reverse mode.



Each time the button is pressed, the indicator will change in the order:

⇄ → ⟲ → ⟲⟲.

⇄ : Only one side of the tape will be recorded, and then operation will automatically stop.

⟲ : Both sides of the tape (first the forward side and then the reverse side) will be recorded, and then operation will automatically stop.
If the recording tape is longer than the playback tape, the playback tape will be played repeatedly as many as eight times until the recording tape is finished.

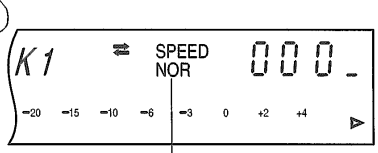
⟲⟲ : Both sides of the tape (first the forward side and then the reverse side) will be recorded once, and then operation will automatically stop.

Note

To record on only one side of the tape, set the tape side indicators (◁ or ▷) on Deck 1 and Deck 2 in accordance with the tape sides to be played back and recorded.
To record on both sides of the tape, set the tape side indicators on both Deck 1 and Deck 2 to the forward side (▷).

2 SPEED NOR/HI

Press SPEED to select the recording speed.



Each time the button is pressed, the indicators will change in the order:

NOR → HI → off.

NOR: normal speed
HI: approx. double speed

3 SYNCHRO START

Press SYNCHRO START.
(Recording will begin.)

To stop recording

1. Press DECK 1/2 to select the Deck 2.
2. Press ■.

Note

In order to avoid operation errors later, be sure to switch off the SPEED button (the "NOR" and "HI" indicator will go out) after the tape-to-tape recording has finished.

To record selected tracks

1 DECK 1/2 [During recording]

Press DECK 1/2 to select the Deck 1.

2 **Press ■**

(Deck 1 will stop, and Deck 2 will record a 4-second silent interval and then enter the recording standby mode.)

3 **Operate Deck 1 to find the track you wish to record.**

It is also possible to change the playback tape at this time.

4 SYNCHRO START

Press SYNCHRO START.

(Recording will resume.

To cut unwanted parts during recording

1 ● REC PAUSE

Press ● REC PAUSE during recording.

Deck 2, which was recording, will enter the pause mode, and Deck 1 will continue playback.

(If you were recording at hi-speed, Deck 1 will change to normal speed while Deck 2 is on pause, but will return to hi-speed when you resume recording.)

2 [When Deck 1 reaches a part you wish to record]

Press either ◀ or ▶, corresponding to the side of the tape side indicator which is lit.

(Deck 2 will resume recording.)

For your reference:

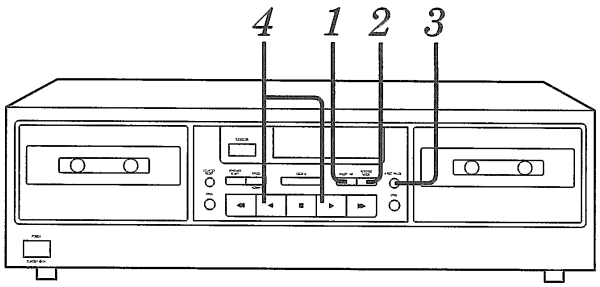
- The Dolby effect will be recorded as they are on the tape being played back.
- Because the signal being recorded from Deck 1 onto Deck 2 does not pass through the amplifier, it is possible to change the setting of the amplifier's input selector during recording in order to listen to some other sound source.

Note

When recording with the recording speed set to double speed, noise interference may be recorded onto the tape if there is a television set nearby, so make the recording in a location separated from the television set or switch off the television set during recording.

■ To Erase Recorded Sound

When new recordings are made on a pre-recorded tape, all sounds recorded on that portion of the tape are automatically erased. To erase a tape without making a new recording, follow the steps below.



Preparation

- Load the tape to be erased into Deck 2.
- Set the input source on the amplifier to "TAPE MONITOR" position.

1 DOLBY NR

Press DOLBY NR so that the Dolby NR indicators ("B" and "C") are off.

2 REVERSE MODE

Press REVERSE MODE to select the desired reverse mode.

⇄ : To erase one side of the tape.

↻ , ↻↻ : To erase both sides of the tape.

3 ● REC PAUSE

Press ● REC PAUSE.

(The unit will be in the recording standby mode.)

4

Press ◀ or ▶ to begin erasing the tape.

▶: To erase the forward side of the tape.

◀: To erase the reverse side of the tape.

Note

To erase both sides of the tape, be sure to press the ▶ button.

■ Service Mode Function of Cassette Mechanism

This unit is equipped with a self-check mode of its cassette mechanisms using the display of diagnostic items. As the mode is capable of identifying the faults described below, make the most of it when servicing the unit.

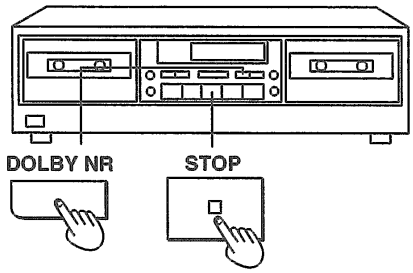
- **Cassette tapes to be prepared**

  Normal blank tape with only one erase-prevention tab intact (use middle portion of tape).
  Normal blank tape with both erase-prevention tabs intact (use middle portion of tape).

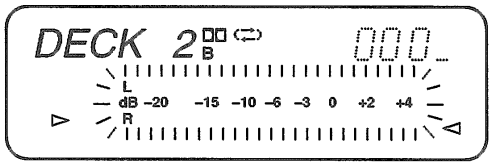
- **Selecting Service Mode**

Step 1 Turn on the power to the unit.

Step 2 Check that no tape is inserted in the cassette deck. Press the DOLBY NR button for about 2 seconds, and keep pressing it, also press the STOP button for about 2 seconds. (Wrong result is occurred if any tape is inserted. To clear it, press STOP button for more than 6 seconds.)

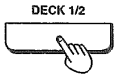


Step 3 The level meter changes from constantly lit to blinking, the service mode has been activated.
[When activated, this mode checks that the following mechanism switches (MODE detect, REC prevention, Half detect, CrO2 tape detect, Metal tape detect) are OFF].



- **Deck 1 Mechanism Check**

Step 1 Press the DECK 1/2 button to display DECK 1. (If DECK 1 is already displayed, no selection is made.)



Step 2 Open the Deck 1 cassette holder. (OPEN button)

Step 3 Load the DECK 1 cassette holder with a normal blank tape with only one erase-prevention tab intact and close it.

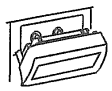
Step 4 Press the PLAY ▶ button. After about 2 seconds, then press the STOP ■ button. (During this period, the mode checks the Cr02 and metal tape detect switches are ON and the REC prevention switch remains OFF.)

Step 5 Open the Deck 1 cassette holder. (OPEN button)

To Step 6

From Step 5

Step 6 Reload the DECK 1 cassette holder with a normal blank tape with both erase-prevention tabs intact and close it.



Step 7 Press the FF ►► button.
(The mechanism automatically fast forwards and rewinds the tape for about 2 seconds respectively, and then stops. During this period, the mode checks the Cr02 tape detect, metal tape detect and REC prevention switches are ON and the reel pulse detect system operates properly.)

Step 8 Press the STOP button. Of the six diagnostic items, any identified faults can be displayed and checked. (See Table 1.)
Repressing the STOP ■ button repeatedly displays the identified faults in order.

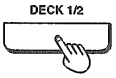
Table 1: Service Mode Diagnostic Items

No.	Display	Fault location
1.	H01	MODE detect switch
2.	H02	REC prevention switch
3.	H03	Half detect switch
4.	H06	CrO_2 tape detect switch
5.	H07	Metal tape detect switch
6.	F01	Reel pulse detect system (Hall IC, etc.)

- When each diagnostic item is normal, its counter display remains unchanged.

• Deck 2 Mechanism Check

Step 1 Press the DECK 1/2 button to display DECK 2.

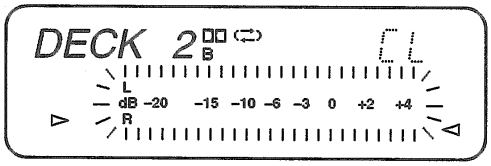


Step 2 Follow Step 1 ~ Step 8 of DECK 1 to similarly check DECK 2.

• Exiting Self-Check Mode

Step 1 Press the STOP ■ button for more than 6 seconds.
(Diagnostic contents stored in memory for both Deck 1 and 2 are erased.)

Step 2 "CL" appears on the display.



Step 3 Remove the cassette tape from the cassette holder.

Step 4 Turn off the unit.

OPERATION CHECKS AND MAIN COMPONENT REPLACEMENT PROCEDURES

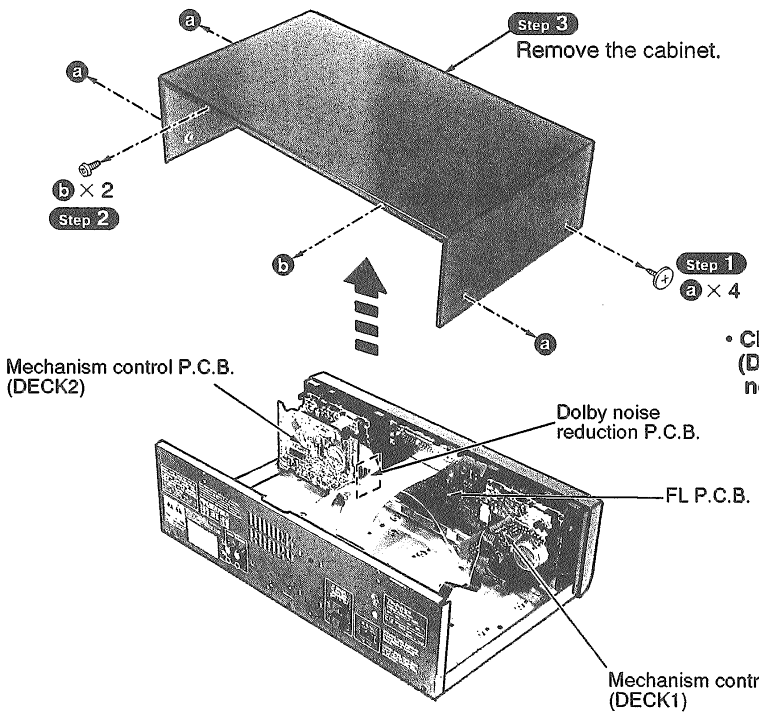
NOTE

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.**

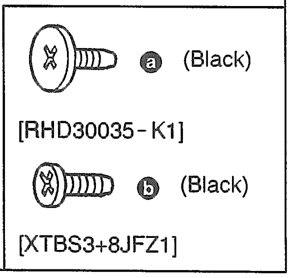
• Contents

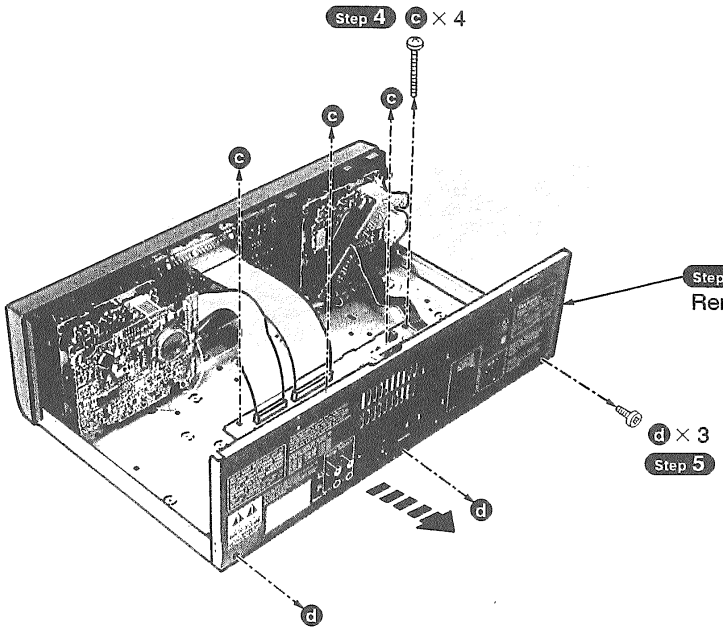
Checking Procedure for each P.C.B.

1. Checking for the mechanism control P.C.B., FL P.C.B., dolby noise reduction P.C.B. and main P.C.B.

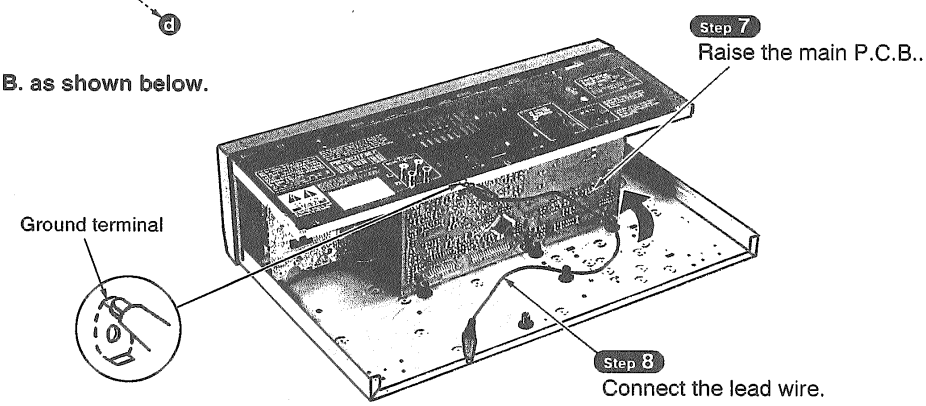


• **Check the mechanism control P.C.B. (DECK1,DECK2), FL P.C.B. and dolby noise reduction P.C.B. as shown left.**





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

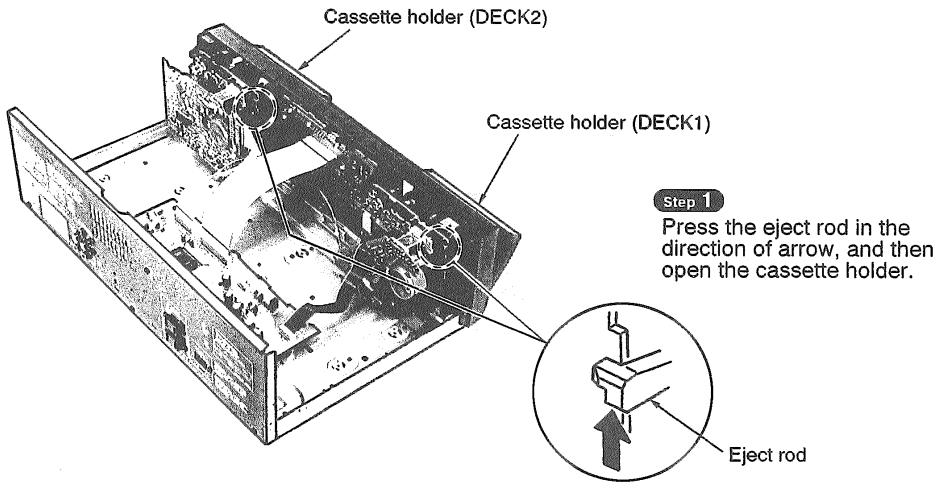


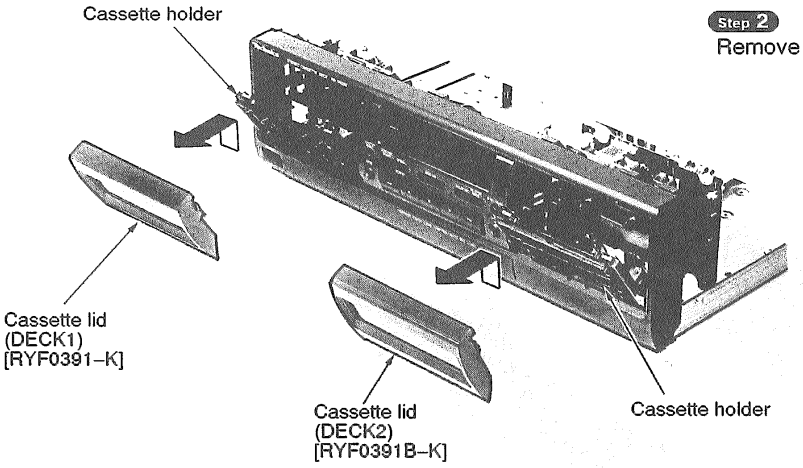
c (Black)
[XTB3+20JFZ]
d (Black)
[XTBS3+8JFZ1]

Main Component Replacement Precedures

1. Replacement for the cassette lid

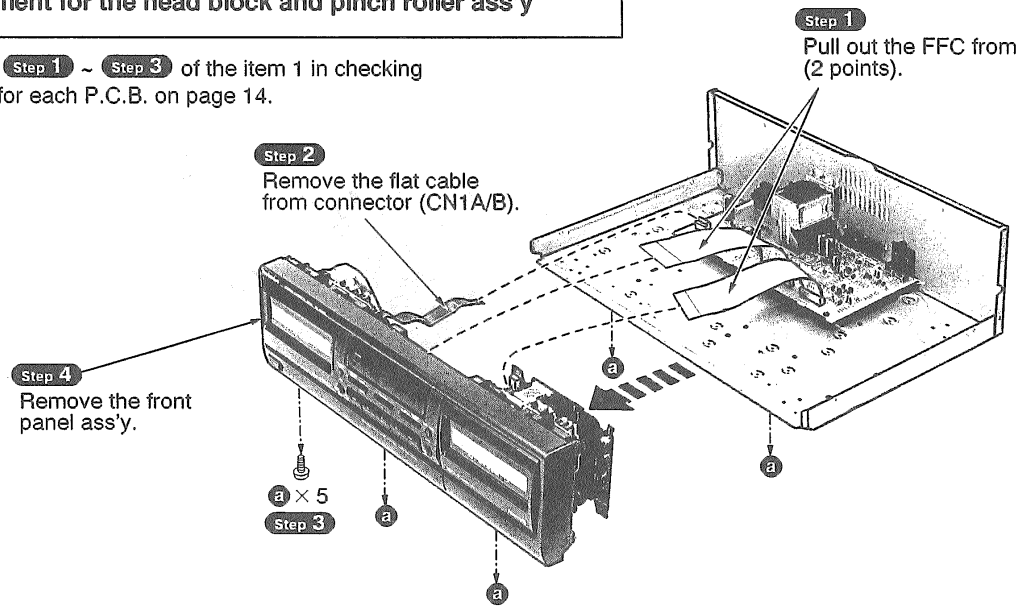
• Follow the Step 1 ~ Step 3 of the item 1 in checking procedure for each P.C.B. on page 14.

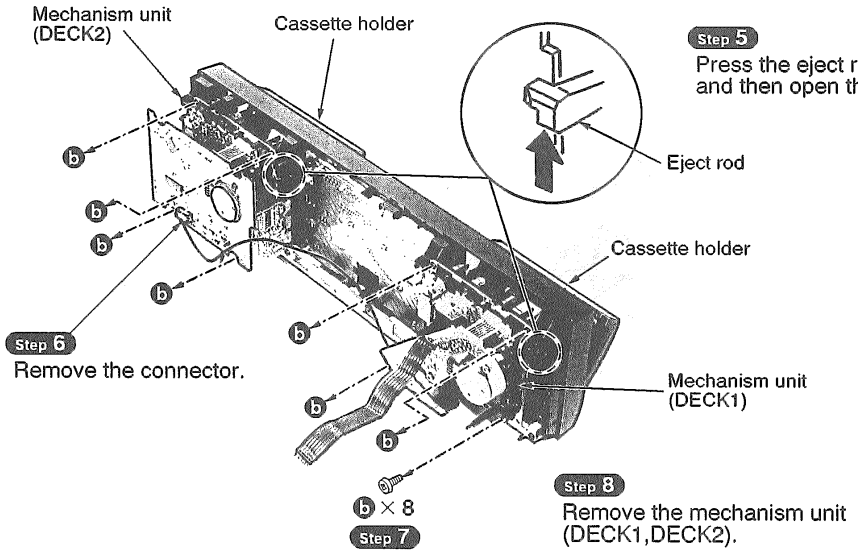




2. Replacement for the head block and pinch roller ass'y

• Follow the Step 1 ~ Step 3 of the item 1 in checking procedure for each P.C.B. on page 14.

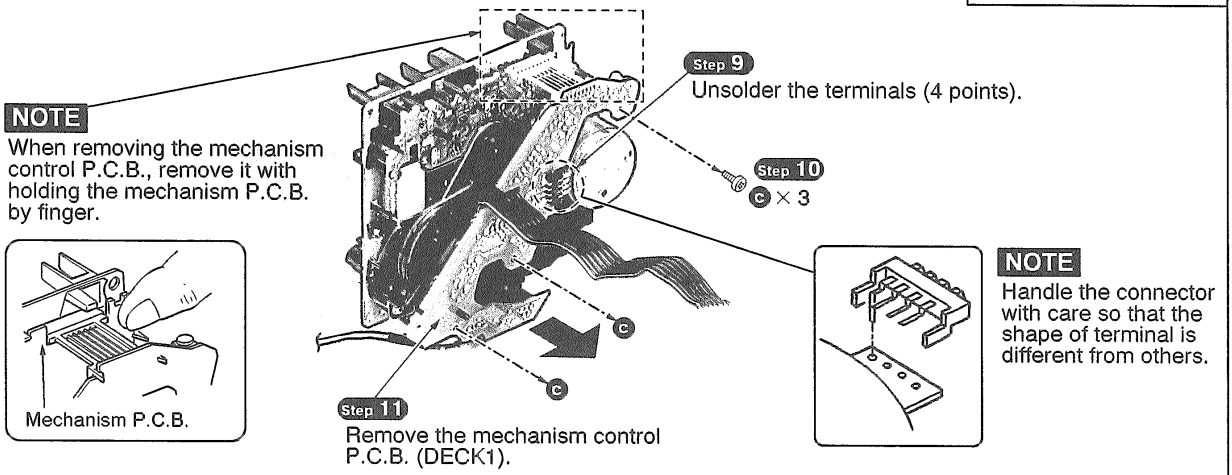




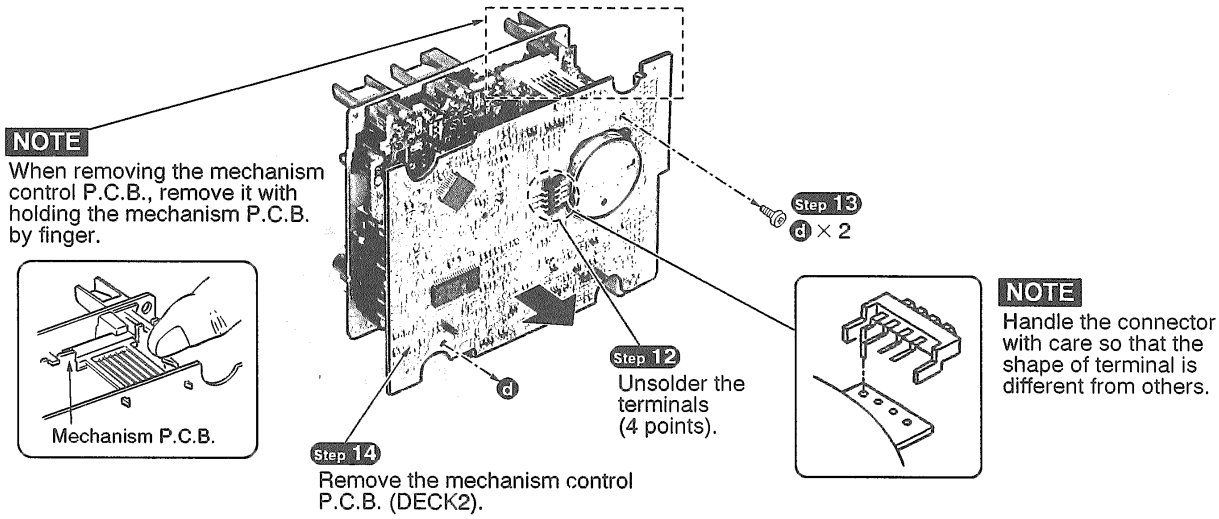
ⓐ (Black)
[XTBS3+8JFZ1]
ⓑ (Black)
[XTB3+10JFZ]

[Removal of the mechanism control P.C.B. (DECK1)]

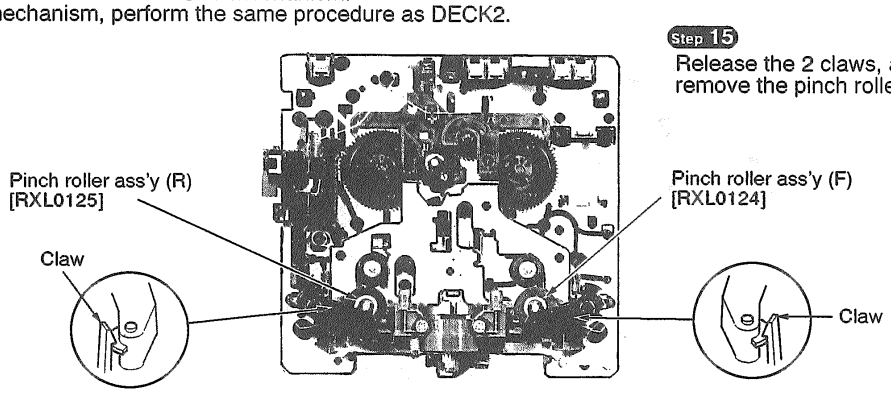
ⓒ, ⓓ
[XTBS26+8J]



[Removal of the mechanism control P.C.B. (DECK2)]

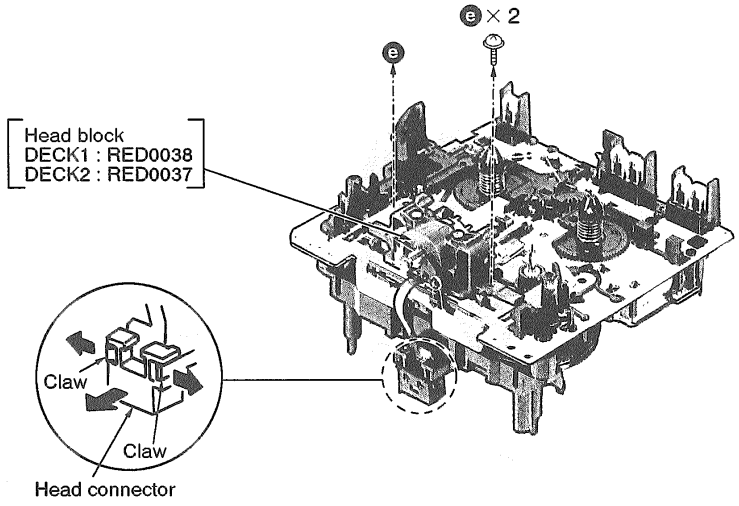


NOTE
The illustration below shows DECK2 mechanism.
For DECK1 mechanism, perform the same procedure as DECK2.



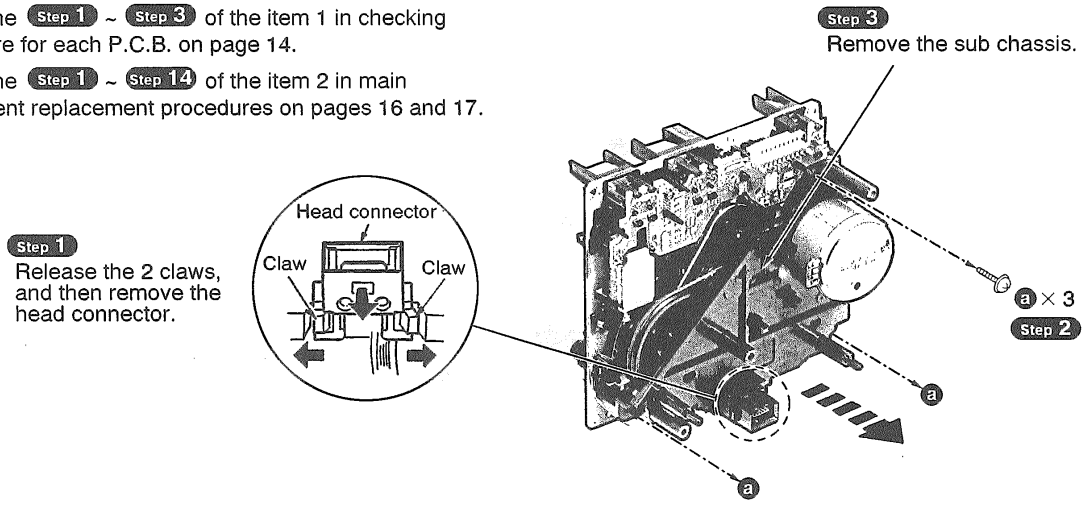
ⓔ

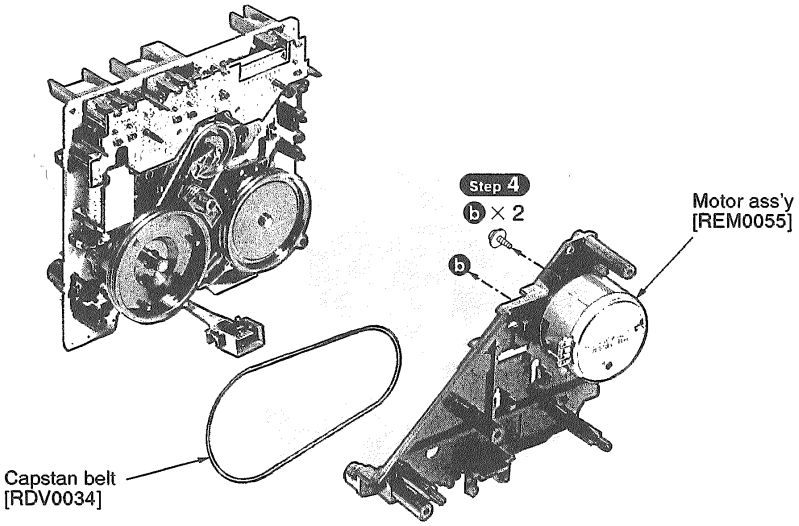
[XTW2+5L]



3. Replacement for the motor ass'y, capstan belt and winding belt

- Follow the Step 1 ~ Step 3 of the item 1 in checking procedure for each P.C.B. on page 14.
- Follow the Step 1 ~ Step 14 of the item 2 in main component replacement procedures on pages 16 and 17.



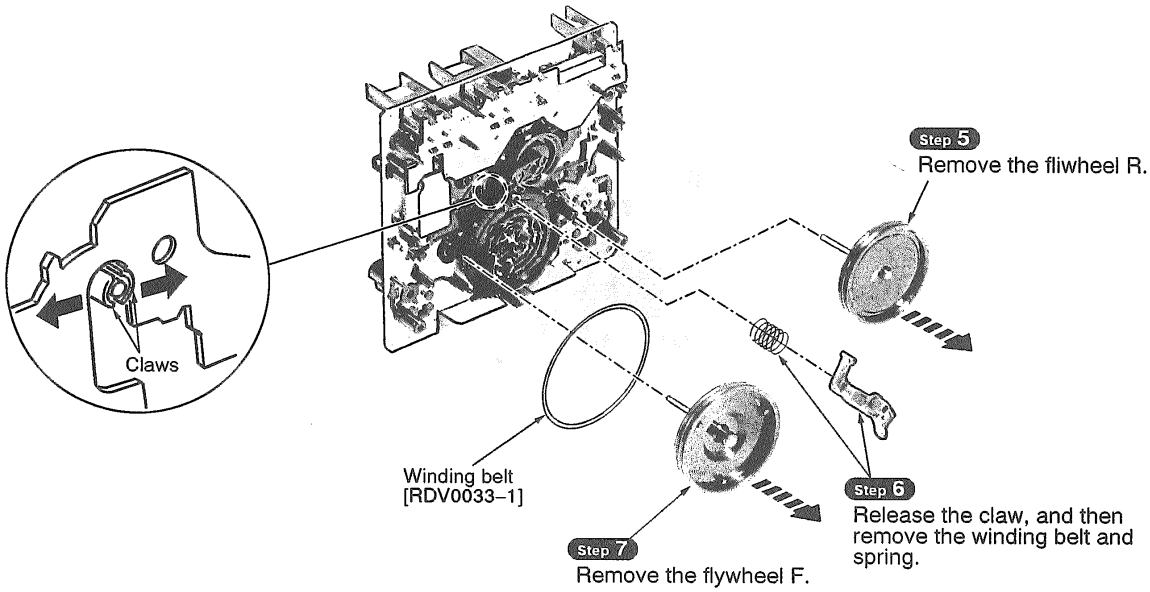


ⓐ

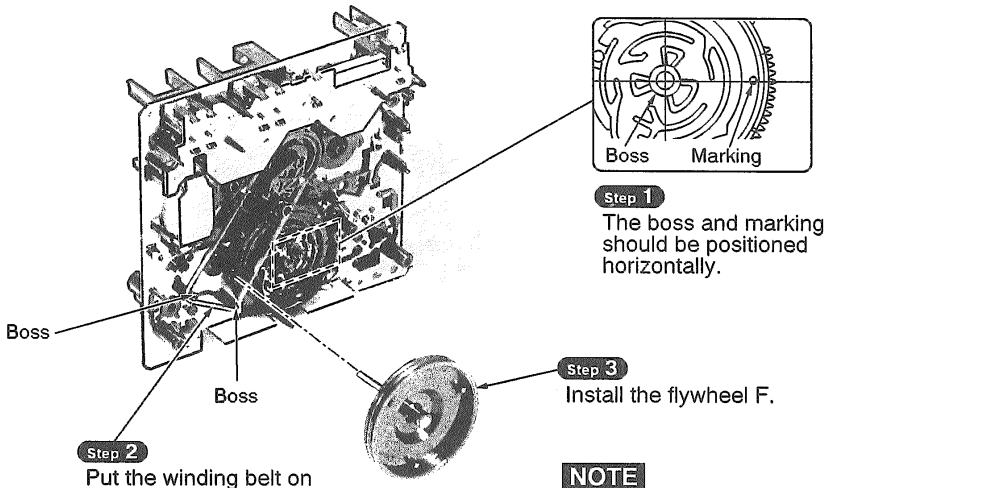
[XTW26+10S]

ⓑ

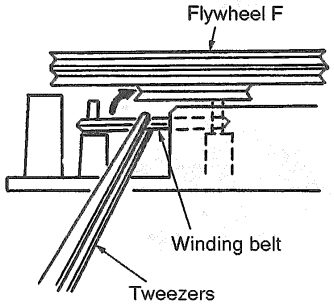
[RHD26022]



Installing the belt

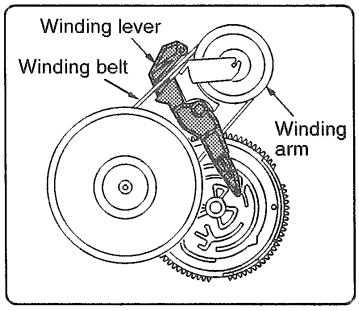


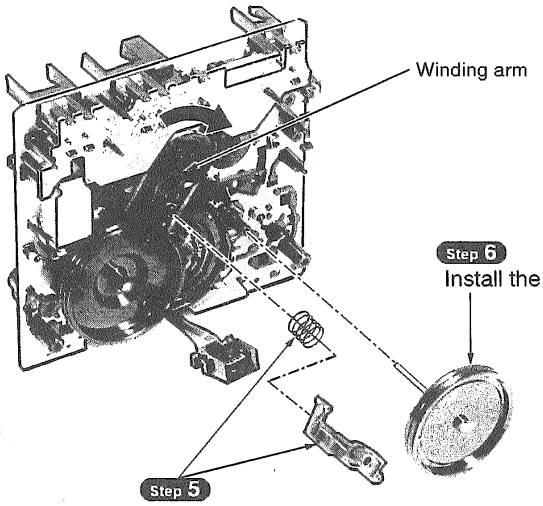
Step 4
Put the winding belt on the flywheel F.



NOTE

The winding lever should be positioned as shown below.

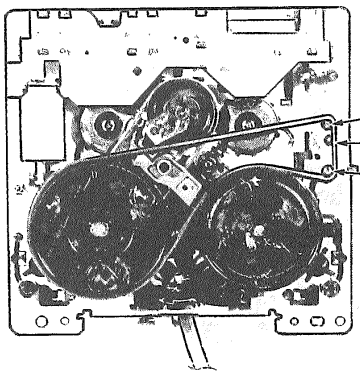


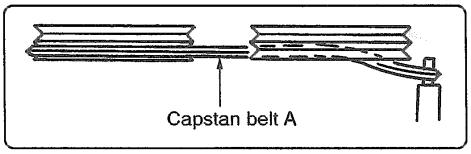


Step 6
Install the flywheel R.

Step 5
Install the winding lever and spring while pressing the winding arm in the direction of arrow.
(The winding lever must be inserted completly and latched with claws.)

Step 7
Put the capstan belt A temporarily as shown below.

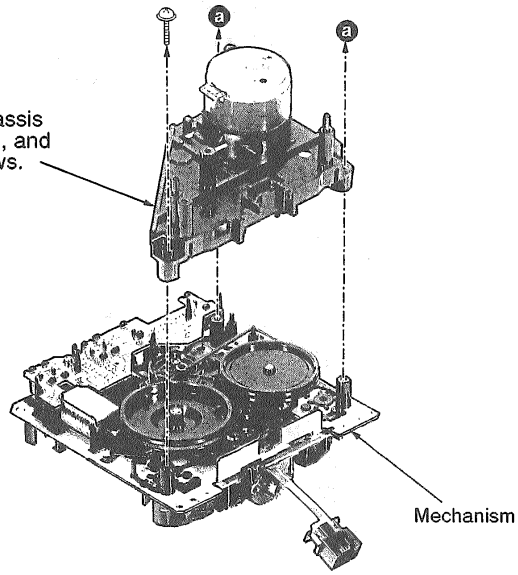




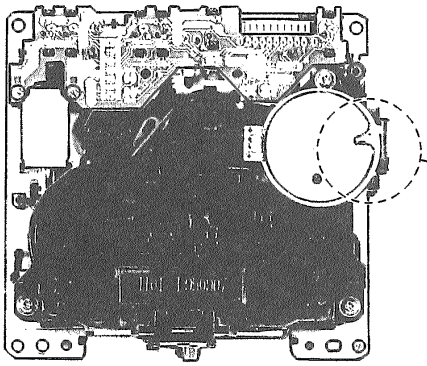
(Side view)

Step 9 ⓐ × 3

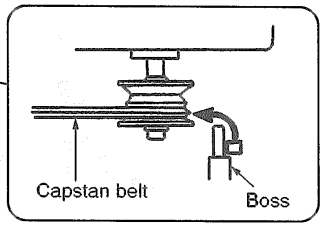
Step 8
Install the sub chassis to the mechanism, and then tighten screws.



[XTW26+10S]



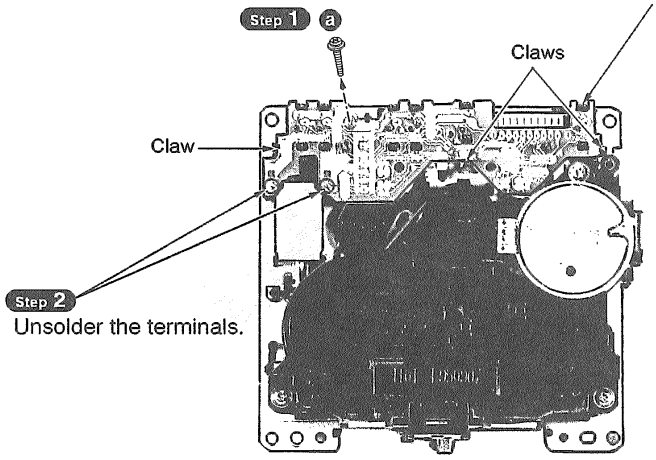
Step 10
Put the capstan belt on the motor ass'y pulley.



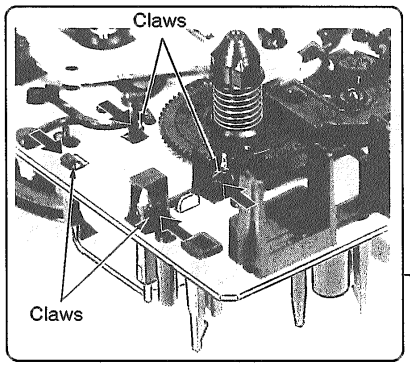
4. Replacement for the plunger ass'y and the parts mounted on mechanism P.C.B.

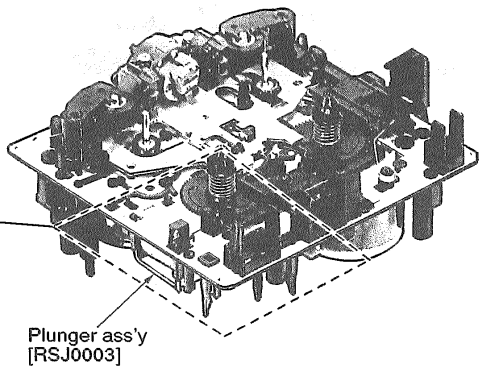
- Follow the Step 1 ~ Step 3 of the item 1 in checking procedure for each P.C.B. on page 14.
- Follow the Step 1 ~ Step 14 of the item 2 in main component replacement procedures on pages 16 and 17.

Step 3
Release the 3 claws, and then remove the mechanism P.C.B..



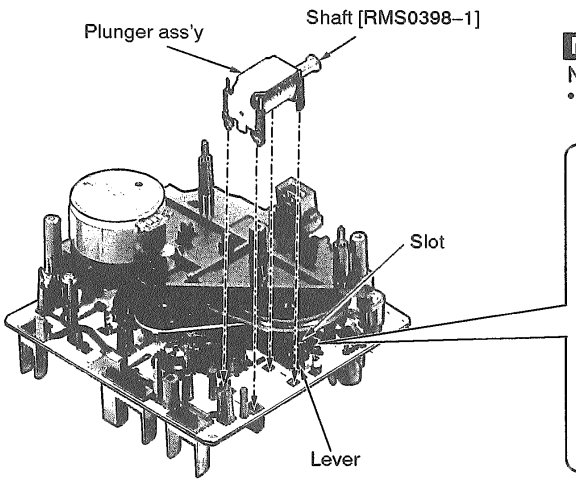
[XYC2+JF17]





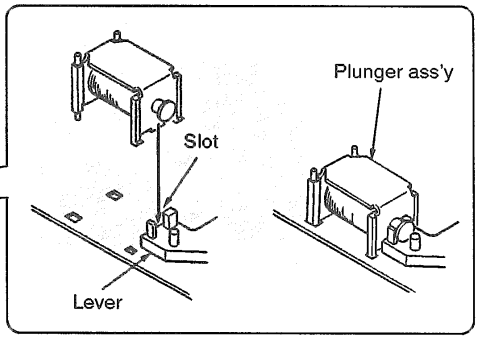
Step 4
Release the 4 claws.

Plunger ass'y
[RSJ0003]



NOTE

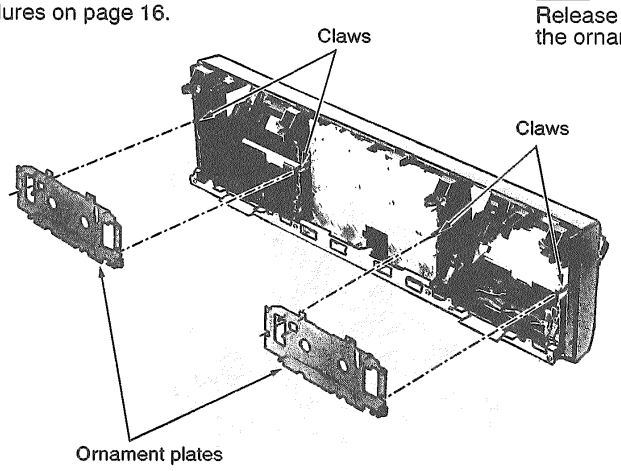
Notice for installing the plunger ass'y
- The shaft of plunger ass'y should be aligned with the slot of lever.

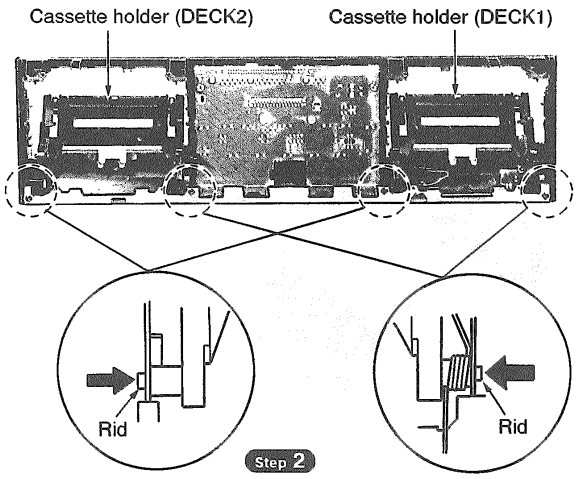


4. Replacement for the cassette holder.

- Follow the Step 1 ~ Step 3 of the item 1 in checking procedure for each P.C.B. on page 14.
- Follow the Step 1 ~ Step 8 of the item 2 in main component replacement procedures on page 16.

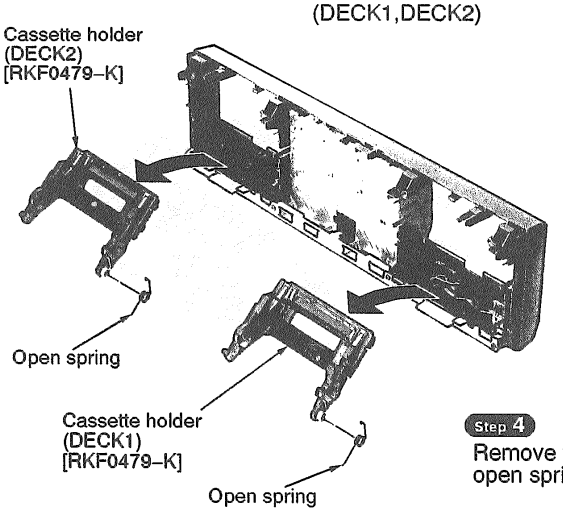
Step 1
Release the 4 claws, and then remove the ornament plates.





Step 2
Release the 4 rids.

Step 3
Remove the cassette holder (DECK1,DECK2)



Step 4
Remove the open spring.

■ EEPROM Data Write

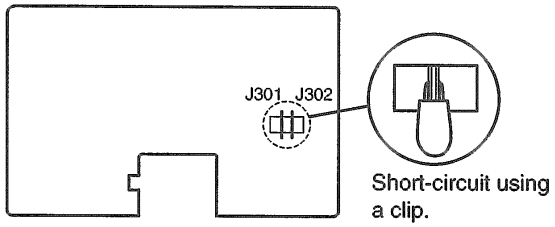
Various factory-preset data and adjusted values are stored in this unit's EEPROM (IC502). When the IC502 EEPROM is replaced, its data and adjusted values need to be written to a new EEPROM.

● EEPROM Write Procedure

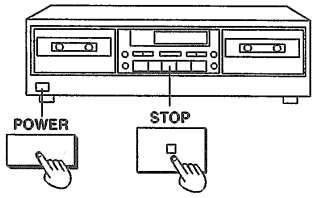
Note:
Follow this procedure only when the IC502 EEPROM is replaced. No writing of EEPROM data and adjusted values is required for the replacement of any other component.

Step 1 Short-circuit the TEST mode terminal (J301⇔J302) using a clip.

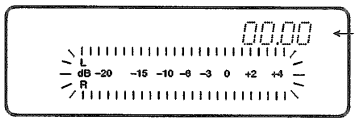
FL P. C. B.



Step 2 Press the POWER button while keeping the STOP ■ button pressed.



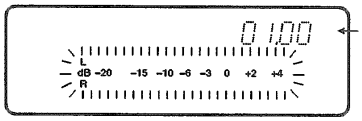
Step 3 The display level meter blinks, with "00 00" appearing on the counter display.
(The unit enters the EEPROM write mode.)



The write data is set to "00 00."

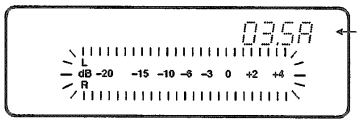
- The address is represented by the two left-hand digits of the counter display and the data by the two right-hand digits.
- When an address is changed, the previously set address and data are written.

Step 4 Press the FF ►► button to set the 2 left digits (Address) of the counter display to "01" but leave the two right-hand digits (Data) at "00."



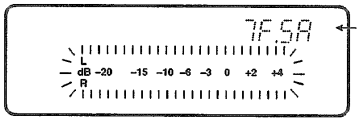
The write data is set to "01 00."

Step 5 Press the FF ►► button to set the two left-hand digits (Address) of the counter display to "03" and press the F.PLAY ► button to set the 2 right digits (Data) to "5A."

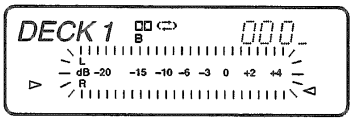


The write data is set to "03 5A."

Step 6 Similarly (set the two left-hand digits (Address) of the counter display using the FF ►► and REW ◄◄ buttons and the two right-hand digits (Data) using the F.PLAY ► and R.PLAY ◄ buttons), write data at the ▒▒ columns in Table 1 up to "7F 00."



Step 7 Press STOP ■ button. (EEPROM write is completed, and the unit enters the adjustment mode.)



Step 8 Follow **Step 4** ~ **Step 9** in the "Adjusted Value Rewrite Procedure" to rewrite the adjusted values.

Table 1: EEPROM Address/Data map

Address	Data	Address	Data	Address	Data	Address	Data
00	00	20	B0	40	—	60	92
01	00	21	B0	41	—	61	A0
02	—	22	A0	42	—	62	89
03	5A	23	05	43	—	63	7C
04	—	24	—	44	—	64	60
05	—	25	—	45	—	65	60
06	—	26	—	46	—	66	40
07	—	27	—	47	—	67	56
08	—	28	—	48	—	68	79
09	—	29	—	49	—	69	70
0A	—	2A	78	4A	—	6A	28
0B	—	2B	71	4B	—	6B	40
0C	—	2C	4E	4C	—	6C	75
0D	—	2D	65	4D	—	6D	90
0E	—	2E	4F	4E	—	6E	—
0F	—	2F	5E	4F	—	6F	—
10	—	30	A0	50	78	70	BD
11	—	31	71	51	84	71	D0
12	—	32	44	52	6F	72	A3
13	—	33	47	53	65	73	94
14	—	34	4F	54	4C	74	57
15	—	35	5E	55	68	75	26
16	—	36	—	56	05	76	40
17	EC	37	—	57	56	77	58
18	80	38	—	58	90	78	A0
19	80	39	—	59	4D	79	60
1A	80	3A	—	5A	40	7A	40
1B	80	3B	—	5B	23	7B	50
1C	80	3C	—	5C	7C	7C	90
1D	80	3D	—	5D	90	7D	90
1E	80	3E	—	5E	—	7E	0A
1F	80	3F	—	5F	—	7F	00

Note: At an address with no data value indicated (e.g. 02 —), the EEPROM operates normally irrespective of the kind of the data supplied.

■ Adjusted Value Rewrite

Various factory-preset data and adjusted values are stored in the EEPROM (IC502) of this unit. Re-adjust the following components when replaced. Upon completion of the re-adjustments, the necessary data can be automatically rewritten.

Applicable components

- MECHANISM HEAD
- IC2: PLAY BACK AMP IC
- IC302: DOLBY HX PRO IC
- IC401: DOLBY BC IC
- Q301, Q302

Cassette tapes to be prepared

- Normal blank tape: QZZCRA
- Playback gain adjustment (315 Hz, 0 dB); QZZCFM

Measurement Condition

- Make sure heads are clean.
- Make sure capstan and pressure roller are clean.
- Judgeable room temperature 20 ± 5°C (68 ± 9°F)

Measuring Instrument

- EVM (Electronic Voltmeter)
- AF oscillator
- Digital frequency counter
- Attenuator
- Resistor (600 Ω)

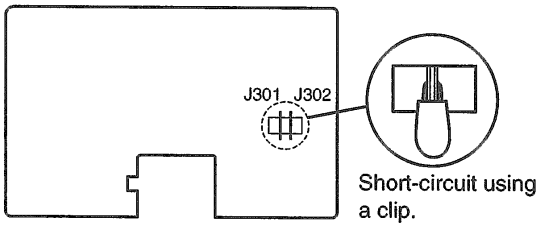
● Adjusted Value Rewrite Procedure (Adjusted values can be automatically rewritten.)

Note: No rewriting of the adjusted values are needed even for the replacement of the system control IC (IC501).

Step 1

Short-circuit the TEST mode terminal (J301⇔J302) using a clip.

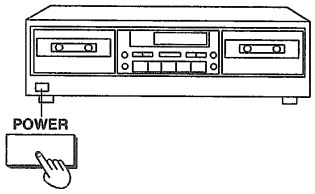
FL P. C. B.



Short-circuit using a clip.

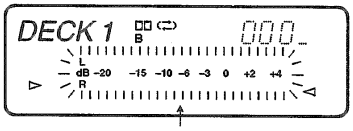
Step 2

Press the POWER button.



Step 3

The display level meter blinks. (The unit enters the adjustment mode.)

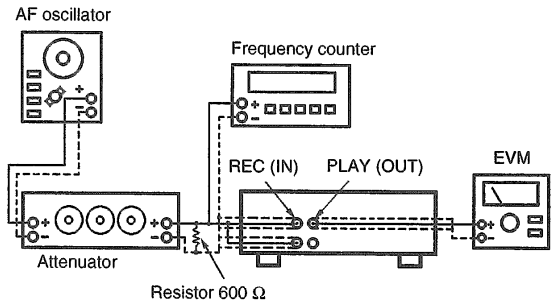


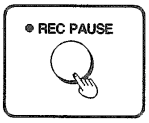
The level meter blinks.

Step 4

Setting Playback Gain Level

1. Load DECK 2 with the test tape (QZZCFM) (at the section with 315 Hz and 0 dB)
2. Apply an input signal at **315 Hz** to the REC (IN) jack from the AF oscillator.
3. Leave the REC PAUSE button pressed.
4. Adjust the attenuator to bring an output signal from the PLAY (OUT) jack close to **320 mV ± 20 mV**.
5. Release the REC PAUSE button.
6. Repeat 3 through 5 above (to reset the Auto Level Control circuit) and finally set the output signal from the PLAY (OUT) jack to **320 mV ± 20 mV**.
7. When the output signal from the PLAY (OUT) jack is set to **320 mV ± 20 mV**, release the REC PAUSE button after about 2 seconds.





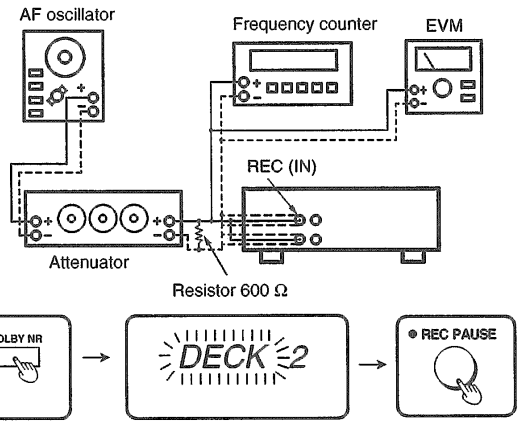
To Step 5

From Step 4

Step 5
Adjusting MPX

1. Apply an input signal at **19 kHz ± 50 Hz** and **320 mV** to the REC (IN) jack from the AF oscillator.
2. Press the DOLBY NR button.
   (The DECK display slowly blinks.)
3. Press the REC PAUSE button.
   (No mechanism operates, but the DECK display disappears after several seconds.)

Note: If no proper adjustment is made, the DECK display quickly blinks. In this case, adjust the input level from the AF oscillator to within the range of **320 mV ± 50 mV** and repeat steps 2 and 3 above. Upon completion of the adjustment, the DECK display disappears.



Step 6
Adjusting Playback Gain

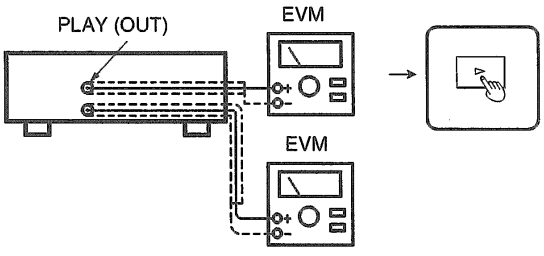
1. Press the DOLBY NR button. (The DECK display slowly blinks.)
2. Press the F.PLAY ► button.
   (The mechanism automatically runs for the FWD PLAY/REV PLAY and stops, and the DECK display disappears.)
3. Load DECK 1 with the test tape (QZZCFM)
   (at the section with 315 Hz and 0 dB).
4. Press the DOLBY NR button.
   (The DECK display slowly blinks.)
5. Press the F.PLAY ► button.
   (The mechanism automatically runs for the FWD PLAY/REV PLAY and stops, and the DECK display disappears.)

Note: If no proper adjustment is made, the DECK display quickly blinks. In this case, repeat Step 4 and Step 6. Upon completion of the adjustment, the DECK display disappears.

Step 7
Checking Playback Gain

1. Press the F.PLAY ► button.
   (Play the test tape (QZZCFM: 315 Hz, 0 dB) in DECK 1.)
2. Check the output stays within the standard value range.
   Standard value range: 280 mV ~ 360 mV
3. Load DECK 2 with a test tape (QZZCFM).
   (At the section with 315 Hz and 0 dB)
4. Press the F.PLAY ► button.
   (Play the test tape (QZZCFM: 315 Hz, 0 dB) in DECK 2.)
5. Check the output stays within the standard value range.
   Standard value range: 280 mV ~ 360 m

Note: If the output stays outside the standard value range, repeat Step 4, Step 6 and Step 7.



To Step 8

From Step 7

Step 8

Adjusting Overall Gain and Overall Frequency Characteristics

1. Load DECK 2 with a normal blank tape (QZZCRA).
2. Press the DOLBY NR button.
   (The DECK display slowly blinks.)
3. Press the REC PAUSE button.
   (The mechanism automatically performs the following operations.)
   - Forward record (for recording the reference signal)
   - Rewind (for rewinding the tape and locating the start of the reference signal)
   - Forward play (for playing the reference signal)
   - Adjusted values to be written in the EEPROM
   - STOP (The DECK display disappears.)

Note: If no proper adjustment is made, the DECK display quickly blinks. In this case, check the tape for scratches, creases and any other damage. If the tape is damaged, replace it with a new one and repeat the above step. Upon completion of the adjustment, the DECK display disappears.

Step 9

Clearing the Adjusted Value Rewrite mode

1. Remove the clip from the TEST mode terminal.
2. Press the POWER button to turn off the unit.

■ Measurements and Adjustments

Measurement Condition
- Dolby NR switch; OFF
- Make sure heads are clean.
- Make sure capstan and pressure roller are clean.
- Judgeable room temperature 20 ± 5°C (68 ± 9°F)

Measuring Instrument
- EVM (Electronic Voltmeter)
- AF oscillator
- Digital frequency counter
- Attenuator
- Resistor (600 Ω)

Test Tape
- Head azimuth adjustment (8 kHz, -20 dB); QZZCFM
- Tape speed adjustment (3 kHz, -10 dB); QZZCWAT
- Playback gain adjustment (315 Hz, 0 dB); QZZCFM
- Recording/playback frequency response adjustment;
  QZZCFM (315 Hz/0 dB, 315 Hz/-20 dB, 12.5 kHz~63 Hz/-20 dB)
  QZZCRA (Normal blank Tape)
  QZZCRX (CrO2 blank Tape)
  QZZCRZ (Metal blank Tape)

● Adjustment Points

Deck 1 Mechanism Control P.C.B.

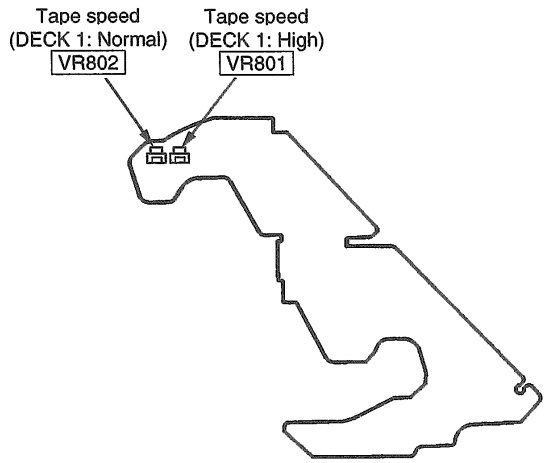


Fig. 1

Deck 2 Mechanism Control P.C.B.

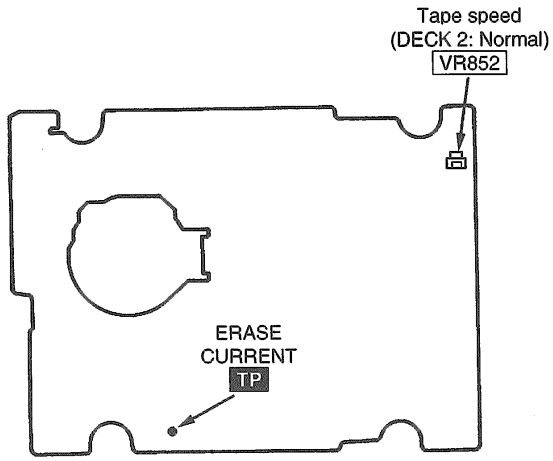


Fig. 2

FL P.C.B.

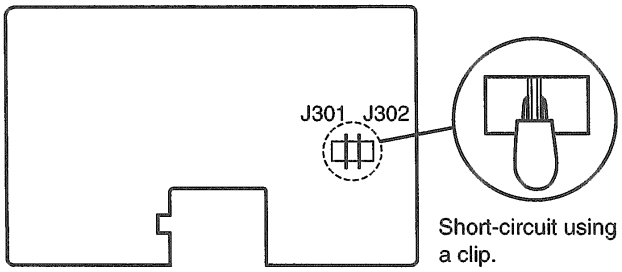


Fig. 3

Main P.C.B.

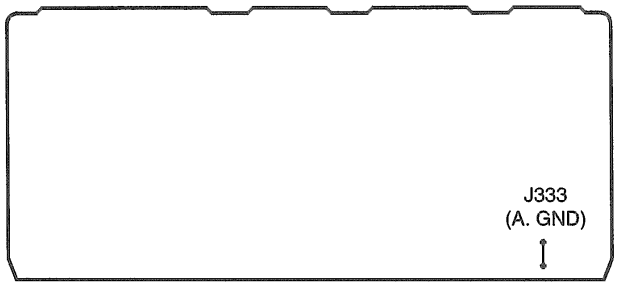


Fig. 4

Head Azimuth Adjustment (Decks 1 and 2)

1. Connect the measuring instruments as shown in Fig. 5.
2. Replace the azimuth adjustment screws (for both forward and reverse plays) with new ones.
   At this point, remove the screw lock bond stuck to the area around the heads. If the screw lock bond remains in place, no fine adjustment can be made.
   (Azimuth adjustment screw supply model: RHD17015)
3. Forward play the azimuth adjusting portion (8 kHz, -20 dB) of a test tape (QZZCFM) and adjust the azimuth adjustment screw so the output at the left and right channels is at the maximum. (See Fig. 6.)
4. For the reverse play, make the azimuth adjustment in a similar manner.

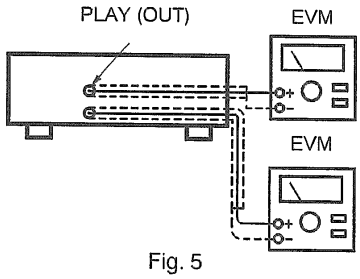


Fig. 5

Difference check between forward and reverse play levels

5. Play the playback gain adjusting portion (315 Hz, 0 dB) of the test tape (QZZCFM) and ensure the difference between the forward and reverse play levels remains within the range of 1.5 dB.
6. After completing the adjustment, lock the azimuth adjustment screws.

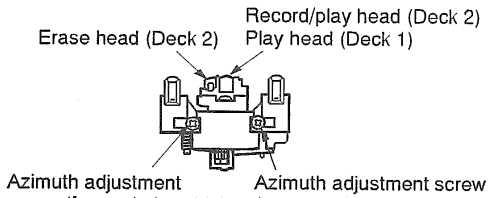


Fig. 6

Tape Speed Adjustment (Decks 1 and 2)

1. Turn on the power to the unit and short-circuit the TEST mode terminal (J301⇔ J302) using a clip.

Normal speed adjustment (adjust in the FWD play mode)

Product specification value: 3,000 Hz ± 45 Hz

2. Connect the measuring instruments as shown in Fig. 7.
3. Press the SPEED button to set the tape speed to the Normal position.
4. Play the middle portion of the test tape (QZZCWAT).
5. Adjust **VR802 for DECK 1** and **VR852 for DECK 2** so their outputs have the following value.

Adjusted value: 3,000 Hz ± 15 Hz (Normal speed)

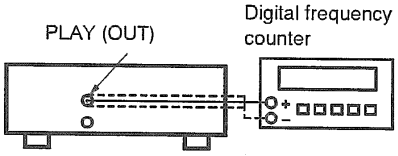


Fig. 7

High speed adjustment (Adjust in the FWD play mode.)

Product specification value: 3,000 Hz ± 45 Hz

6. Play the middle portion of the test tape (QZZCWAT).
7. Press the SPEED button to set the tape speed to the High position.
8. At this point, ensure the output of DECK 2 stays within the specification value.

DECK 2 specification value: 6,000 Hz ± 600 Hz (High speed)

9. Adjust **VR801 for DECK 1** so its output frequency remains within ± **30 Hz** of that of DECK 2.
10. Clear the short circuit of the TEST terminal.

Playback Gain Check (Decks 1 and 2)

1. Connect the measuring instruments as shown in Fig. 8.
2. Play the 315 Hz, 0 dB section of the test tape (QZZCFM).
3. Ensure the output stays within the standard value range.

Standard value range (Decks 1 and 2): 280 mV ~ 360 mV

Note: If the output is outside the standard value range, follow **Step 1** ~ **Step 4** in the "**Adjusted Value Rewrite.**" (See page 25)

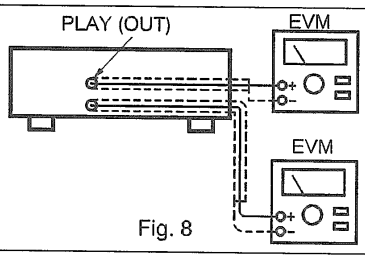


Fig. 8

Erase Current Check (Decks 1 and 2)

1. Connect the measuring instruments as shown in Fig. 9.
2. Load DECK 2 with a normal, CrO2 or metal tape.
3. Press the REC PAUSE button to pause the recording.
4. Ensure the measured erase current of the tape stays within the standard value.

Standard value	Measured value with EVM
Normal tape : 140 mA ± 25 mA	(140 mA ± 25 mV)
CrO2 tape : 140 mA ± 25 mA	(140 mA ± 25 mV)
Metal tape : 220 mA ± 25 mA	(220 mA ± 25 mV)

Note: If the measured value is outside the standard range, follow **Step 1** ~ **Step 9** in the "**Adjusted Value Rewrite.**" (See pages 25, 26)

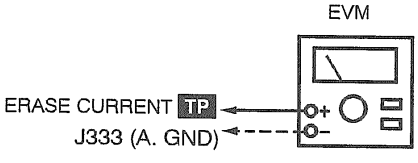


Fig. 9

Playback Frequency Characteristic Check (Decks 1 and 2)

1. Connect the measuring instruments as shown in Fig. 10.
2. Play the playback frequency characteristic check portions (315 Hz, 12.5 kHz ~ 63 Hz, -20 dB) of the test tape (QZZCFM).
3. With the output produced at 315 Hz as a standard, check the playback output levels (both L- and R-channels) at the individual frequencies stay within the range shown in Fig. 11.

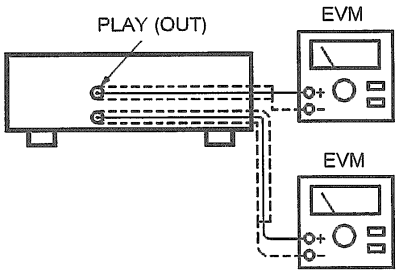


Fig. 10

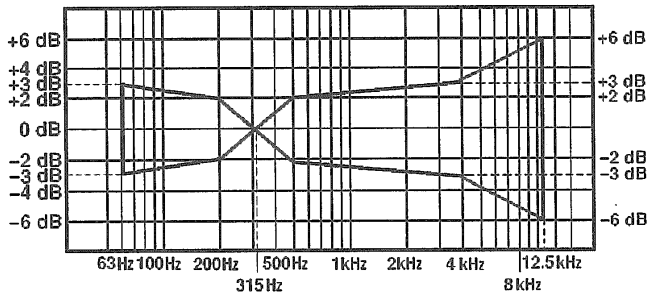


Fig. 11

Note: If these levels are outside the standard value range, follow Step 1 ~ Step 6 in the "**Adjusted Value Rewrite.**" (See pages 25, 26)

Record/Playback Frequency Characteristic Check (Deck 2)

Normal tape check

1. Connect the measuring instruments as shown in Fig. 12.
2. Load DECK 2 with a test tape (QZZCRA: normal blank tape).
3. Press the DOLBY NR button to set it to the DOLBY OFF position.
4. Using an input level of 32 mV, record signals at 50 Hz, 100 Hz, 200 Hz, 500 Hz, 1 kHz, 2 kHz, 10 kHz and 12.5 kHz. (The recording time at each individual frequency is immaterial.)
5. Play the recorded signals.
6. With the output produced at 1 kHz as a standard, ensure the playback output levels (both left and right channels) at the individual frequencies stay within the range shown in Fig. 13.

CrO2/metal tape check

7. Load DECK 2 with a CrO2 or metal tape.
8. Follow the procedure for the "Normal Tape Check" and ensure the playback output levels stay within the range shown in Fig. 14.

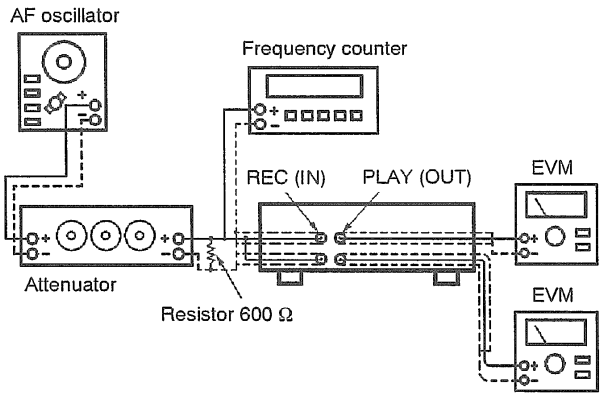


Fig. 12

Normal tape overall frequency characteristics (DOLBY NR: OFF)

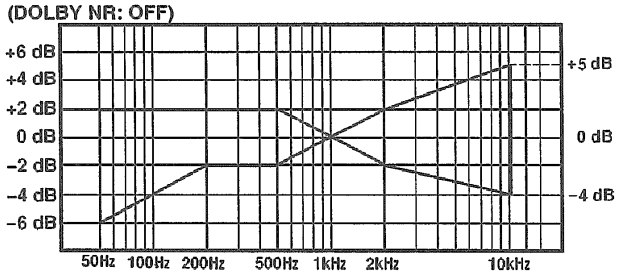


Fig. 13

CrO2/metal tape overall frequency characteristics (DOLBY NR: OFF)

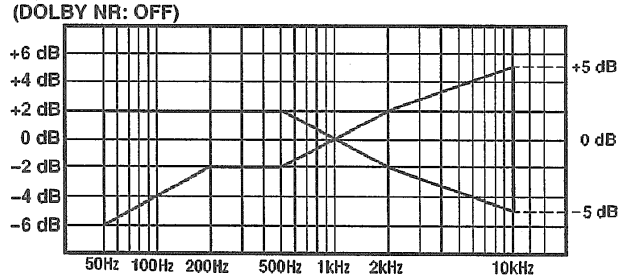


Fig. 14

Note: If the outputs stay outside the standard value range, follow Step 1 ~ Step 9 in the "**Adjusted Value Rewrite.**" (See pages 25 ~ 27)

■ Schematic Diagram

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

Notes:

- **S701** : Power switch (STAND BY ⏻/ON)
- **S707** : DECK 1 cassette holder open switch (⏏ OPEN)
- **S708** : Dolby noise-reduction switch (DOLBY NR)
- **S709** : Reverse-mode select switch (REVERSE MODE)
- **S710** : Synchro-start switch (SYNCHRO START)
- **S711** : Tape-to-tape recording-speed switch (SPEED)
- **S714** : Stop switch (■)
- **S715** : Forward-side playback switch (►)
- **S716** : Reverse-side playback switch (◄)
- **S717** : Fast forward switch (►►)
- **S718** : Rewind switch (◄◄)
- **S719** : DECK 2 cassette holder open switch (⏏ OPEN)
- **S720** : Record pause switch (● REC PAUSE)
- **S721** : Tape deck select switch (DECK 1/2)
- **S723** : Counter reset (COUNTER RESET)
- **S951** : DECK 1 mode detect switch
- **S952** : DECK 1 half detect switch
- **S953** : DECK 1 CrO_2 tape detect switch
- **S971** : DECK 2 mode detect switch
- **S972** : DECK 2 half detect switch
- **S973** : DECK 2 CrO_2 tape detect switch
- **S974** : DECK 2 reverse side record prevention tab detect switch
- **S975** : DECK 2 forward side record prevention tab detect switch
- **S976** : DECK 2 METAL tape detect switch

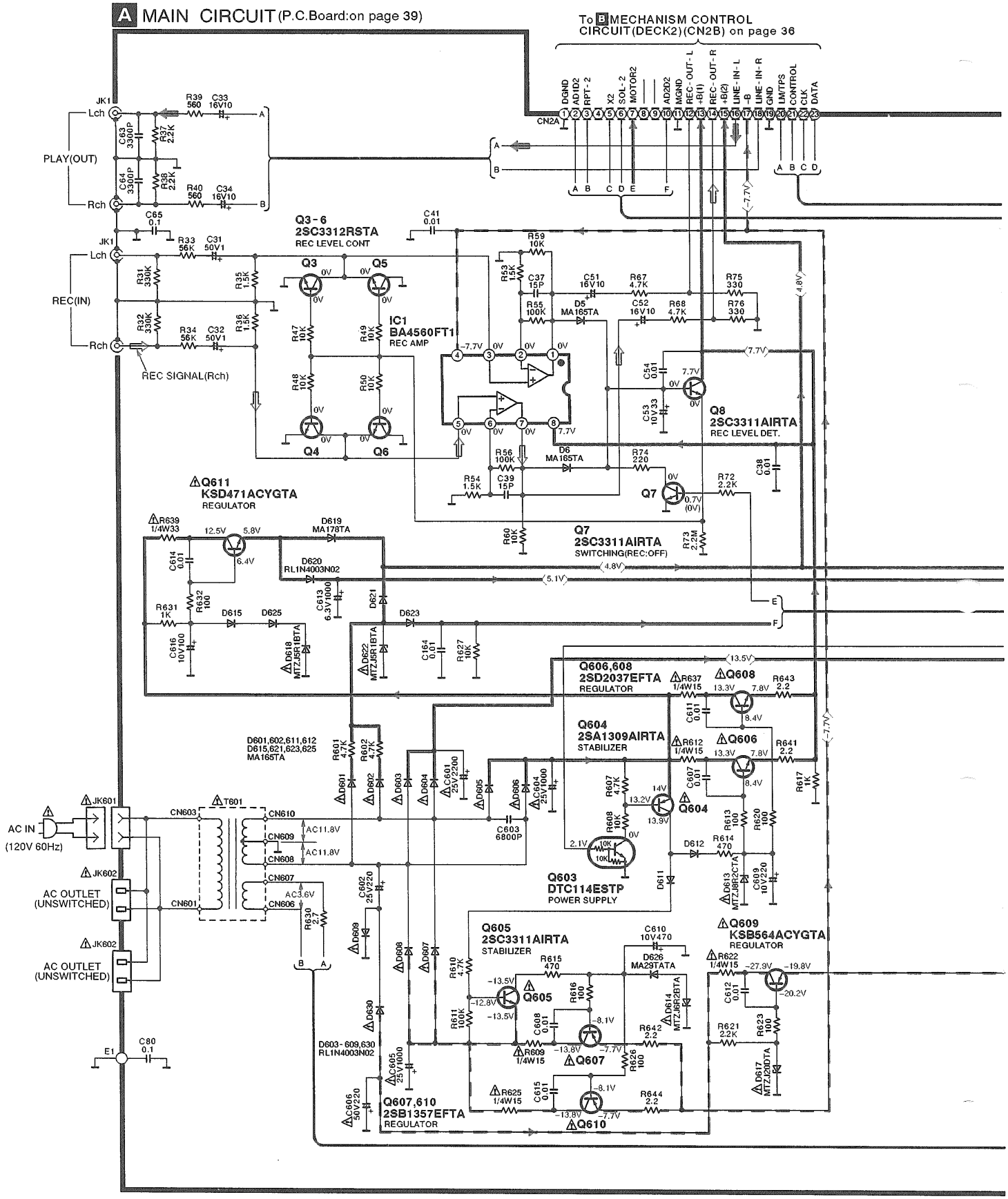
- Indicated voltage values are the standard values for the unit measured by the DC electronic circuit tester (high-impedance) with the chassis taken as standard. Therefore, there may exist some errors in the voltage values, depending on the internal impedance of the DC circuit tester.

  No mark : Playback ( ) : Recording

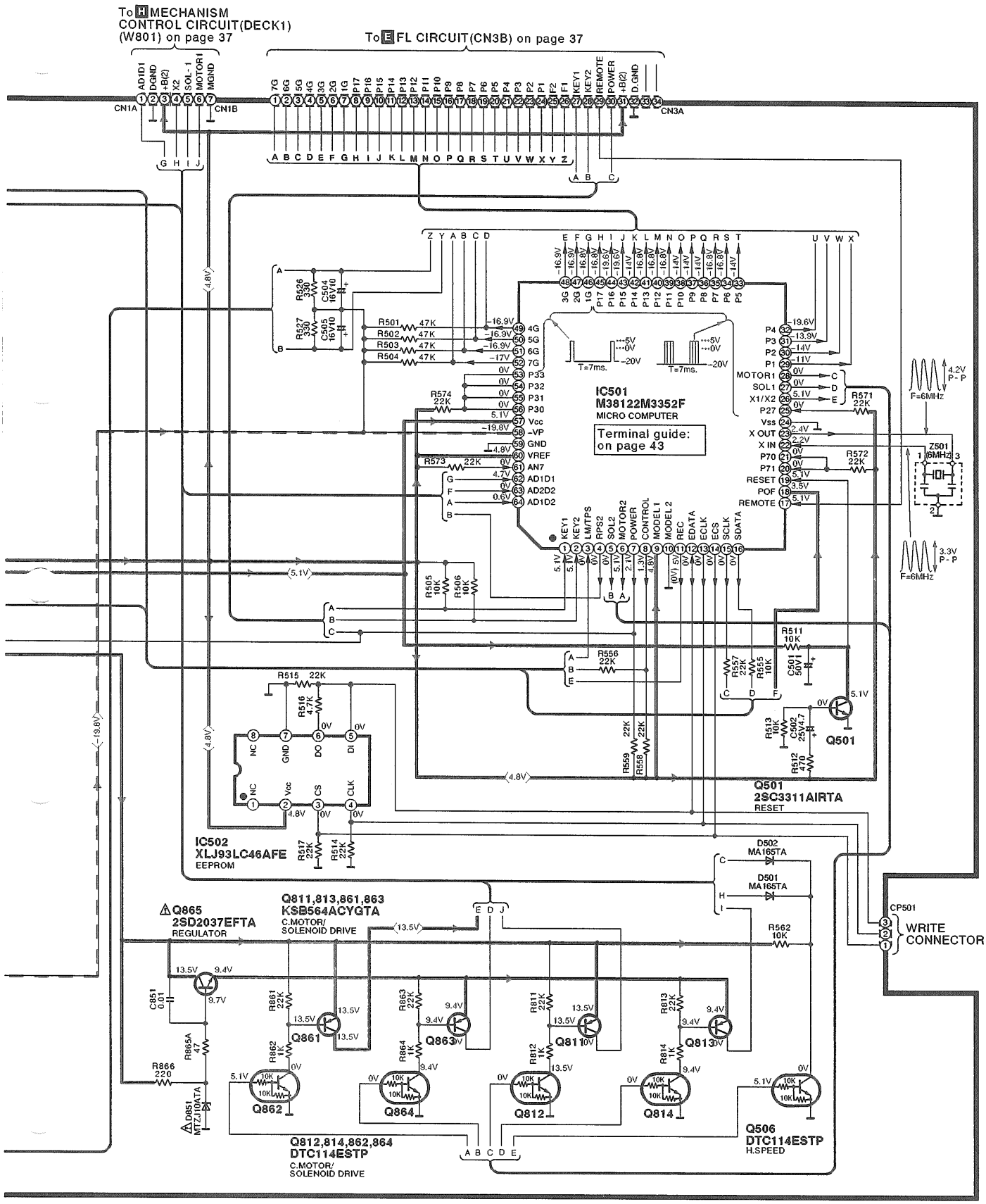
- Important safety notice:
  Components identified by ⚠ mark have special characteristics important for safety.
  Furthermore, special parts which have purposes of fire-retardant (resistors), high-quality sound (capacitors), low-noise (resistors), etc. are used. When replacing any of components, be sure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

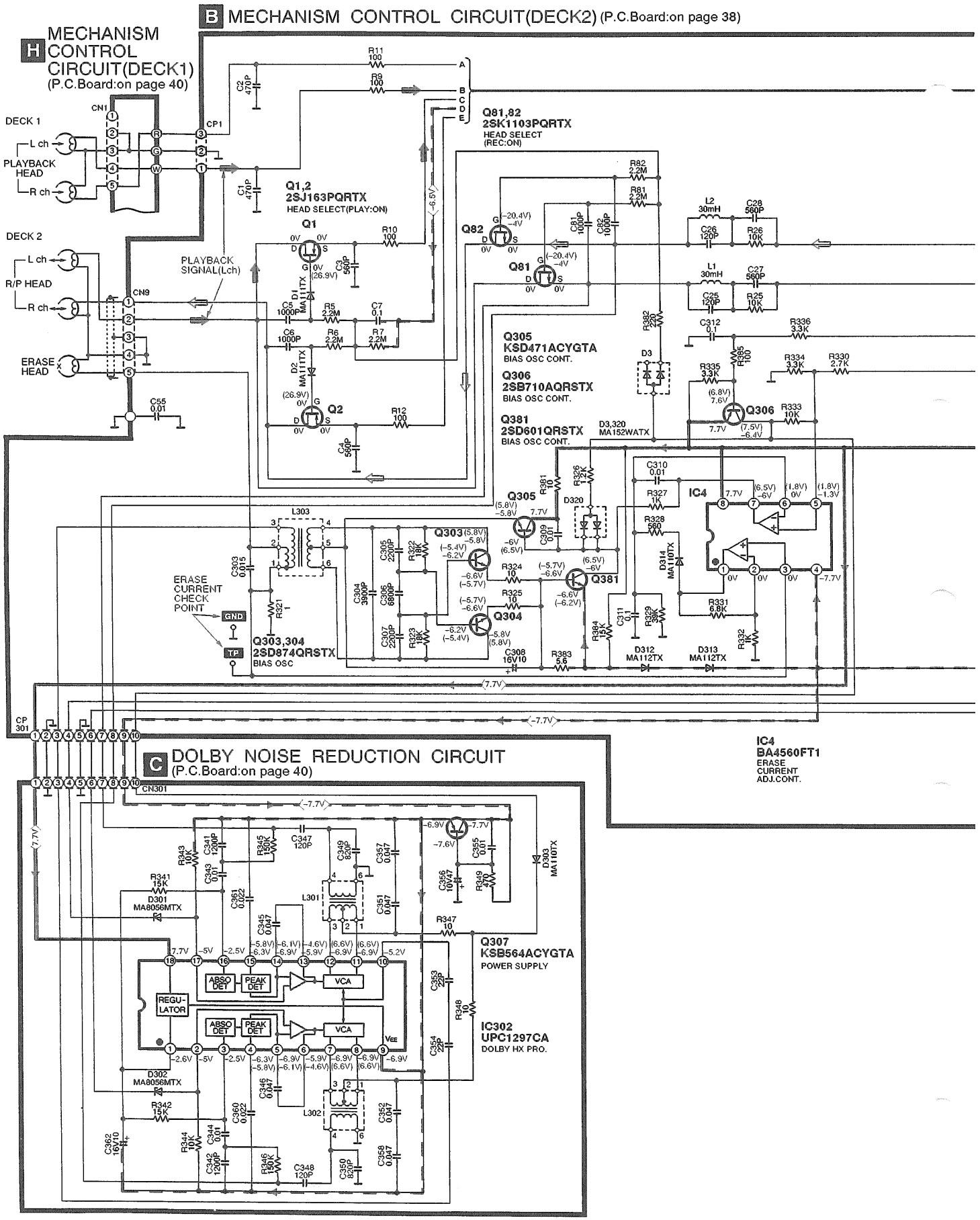
- **Caution!**
  IC and LSI are sensitive to static electricity.
  Secondary trouble can be prevented by taking care during repair.
  Cover the parts boxes made of plastics with aluminum foil.
  Ground the soldering iron.
  Put a conductive mat on the work table.
  Do not touch the legs of IC or LSI with the fingers directly.

- **Voltage and signal line**
  : Positive voltage line
  : Negative voltage line
  : Playback signal Line
  : Recording signal Line

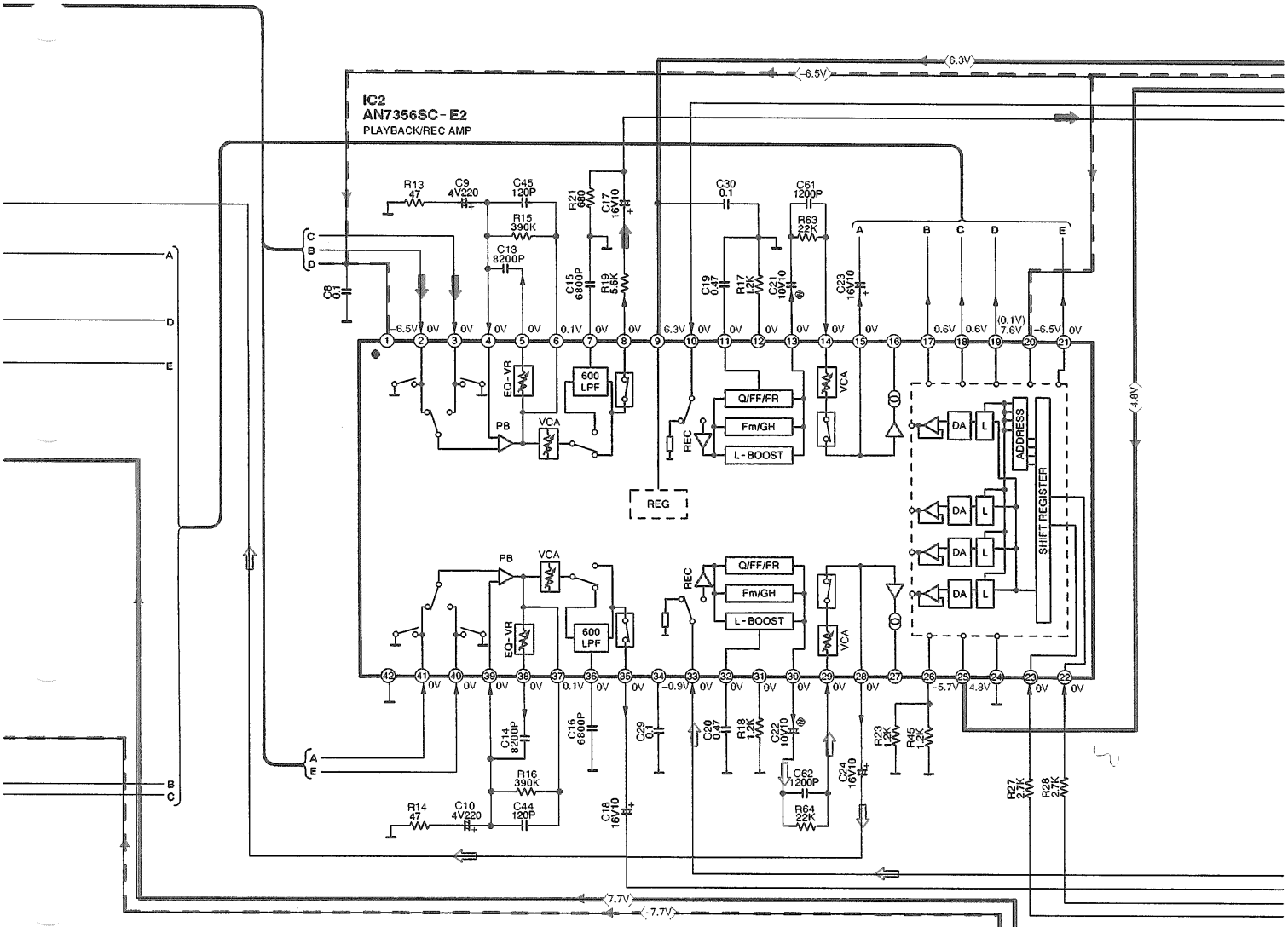

A MAIN CIRCUIT (P.C.Board:on page 39)
To B MECHANISM CONTROL CIRCUIT(DECK2)(CN2B) on page 36
CN2A
DGND
AD1D2
RPT-2
X2
SOL-2
MOTOR2
AD2D2
MGND
REC-OUT-L
+B(1)
REC-OUT-R
+B(2)
LINE-IN-L
-B
LINE-IN-R
GND
LM/TPS
CONTROL
CLK
DATA
PLAY(OUT)
REC(IN)
REC SIGNAL(Rch)
Lch
Rch
Q3-6
2SC3312RSTA
REC LEVEL CONT
IC1
BA4560FT1
REC AMP
Q8
2SC3311AIRTA
REC LEVEL DET.
Q7
2SC3311AIRTA
SWITCHING(REC:OFF)
Q611
KSD471ACYGTA
REGULATOR
Q606,608
2SD2037EFTA
REGULATOR
Q604
2SA1309AIRTA
STABILIZER
Q603
DTC114ESTP
POWER SUPPLY
Q605
2SC3311AIRTA
STABILIZER
Q609
KSB564ACYGTA
REGULATOR
Q607,610
2SB1357EFTA
REGULATOR
AC IN
(120V 60Hz)
AC OUTLET
(UNSWITCHED)
AC OUTLET
(UNSWITCHED)
D601,602,611,612
D615,621,623,625
MA165TA
D603-609,630
RL1N4003N02
D620
RL1N4003N02
D619
MA178TA
D626
MA29TATA
D5
MA165TA
D6
MA165TA

: Positive voltage line
: Playback signal Line
: Negative voltage line
: Recording signal Line



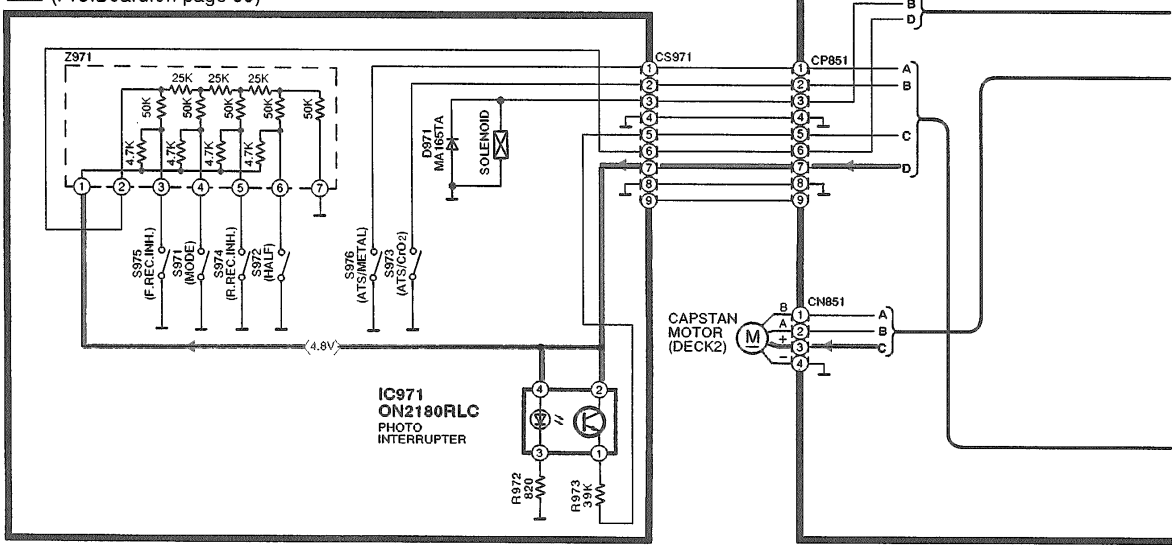

B MECHANISM CONTROL CIRCUIT(DECK2) (P.C.Board:on page 38)
H MECHANISM CONTROL CIRCUIT(DECK1) (P.C.Board:on page 40)
DECK 1
L ch
PLAYBACK HEAD
R ch
DECK 2
L ch
R/P HEAD
R ch
ERASE HEAD
PLAYBACK SIGNAL(Lch)
Q1,2
2SJ163PQRTX
HEAD SELECT(PLAY:ON)
Q81,82
2SK1103PQRTX
HEAD SELECT (REC:ON)
Q305
KSD471ACYGTA
BIAS OSC CONT.
Q306
2SB710AQRSTX
BIAS OSC CONT.
Q381
2SD601QRSTX
BIAS OSC CONT.
Q303,304
2SD874QRSTX
BIAS OSC
ERASE CURRENT CHECK POINT
IC4
BA4560FT1
ERASE CURRENT ADJ.CONT.
C DOLBY NOISE REDUCTION CIRCUIT (P.C.Board:on page 40)
Q307
KSB564ACYGTA
POWER SUPPLY
IC302
UPC1297CA
DOLBY HX PRO.

: Positive voltage line
: Playback signal Line
: Negative voltage line
: Recording signal Line

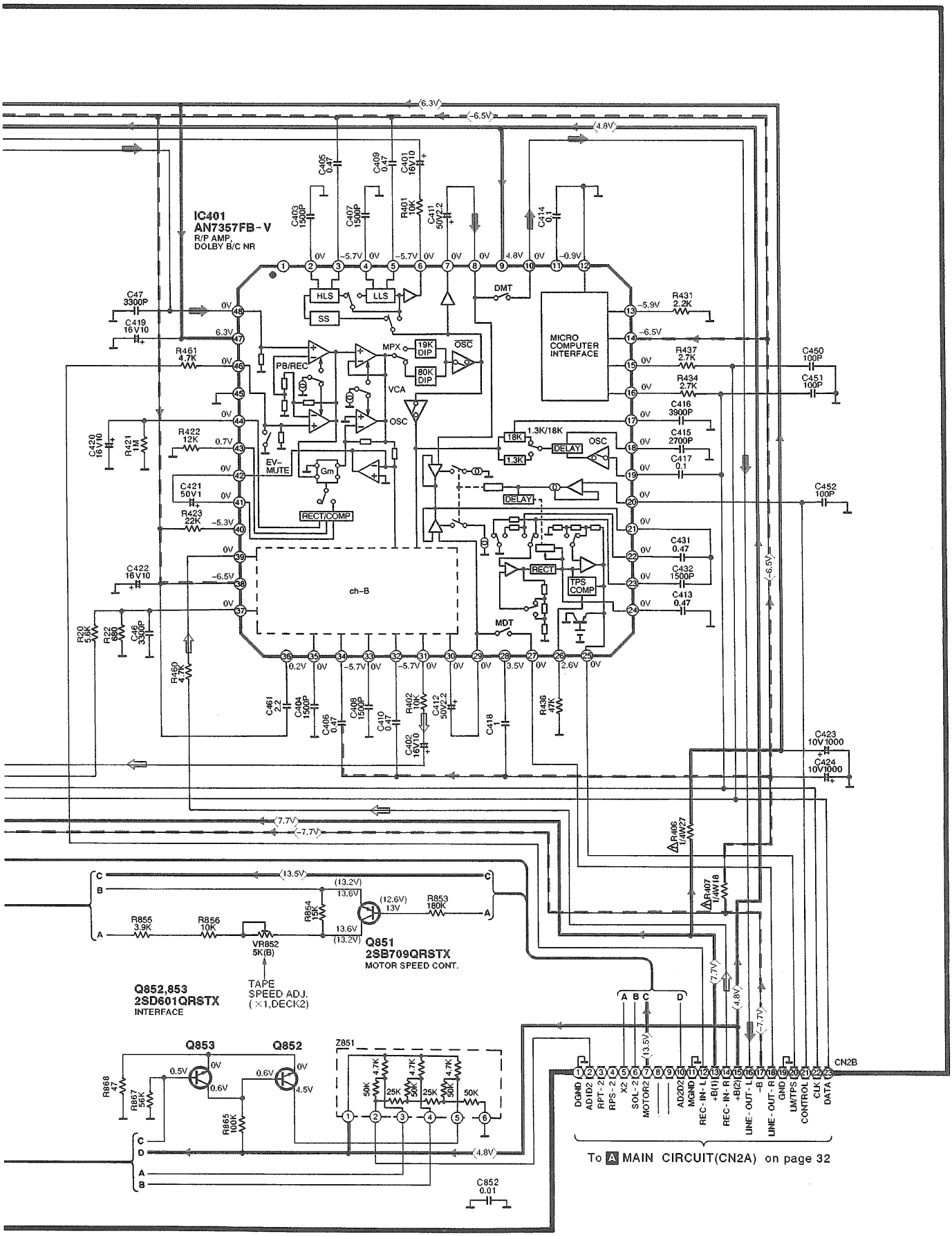


D MECHANISM CIRCUIT(DECK2)

(P.C.Board:on page 39)



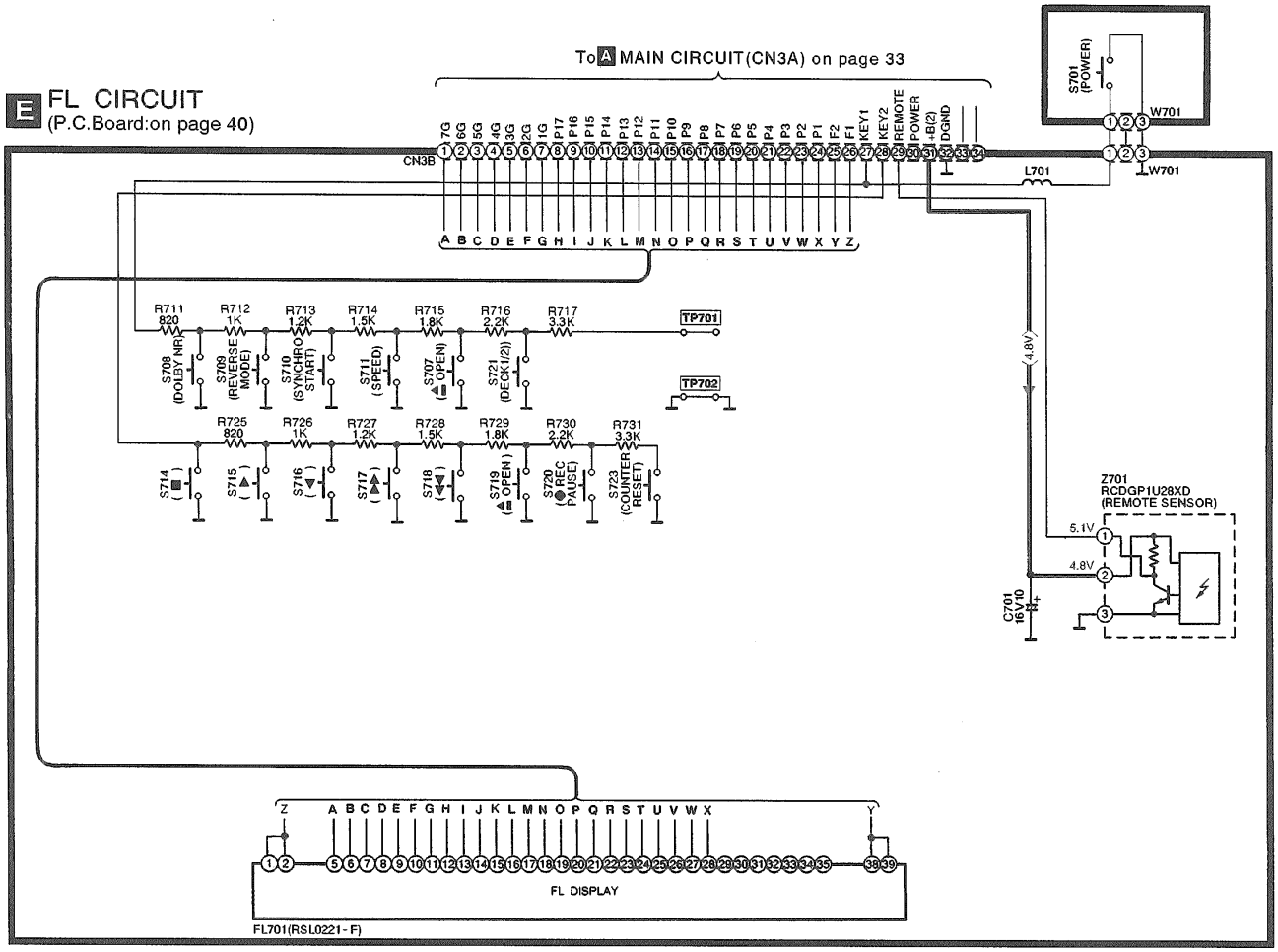
B MECHANISM CONTROL CIRCUIT(DECK2) (P.C.Board : on page 38)



: Positive voltage line
: Playback signal Line
: Negative voltage line
: Recording signal Line

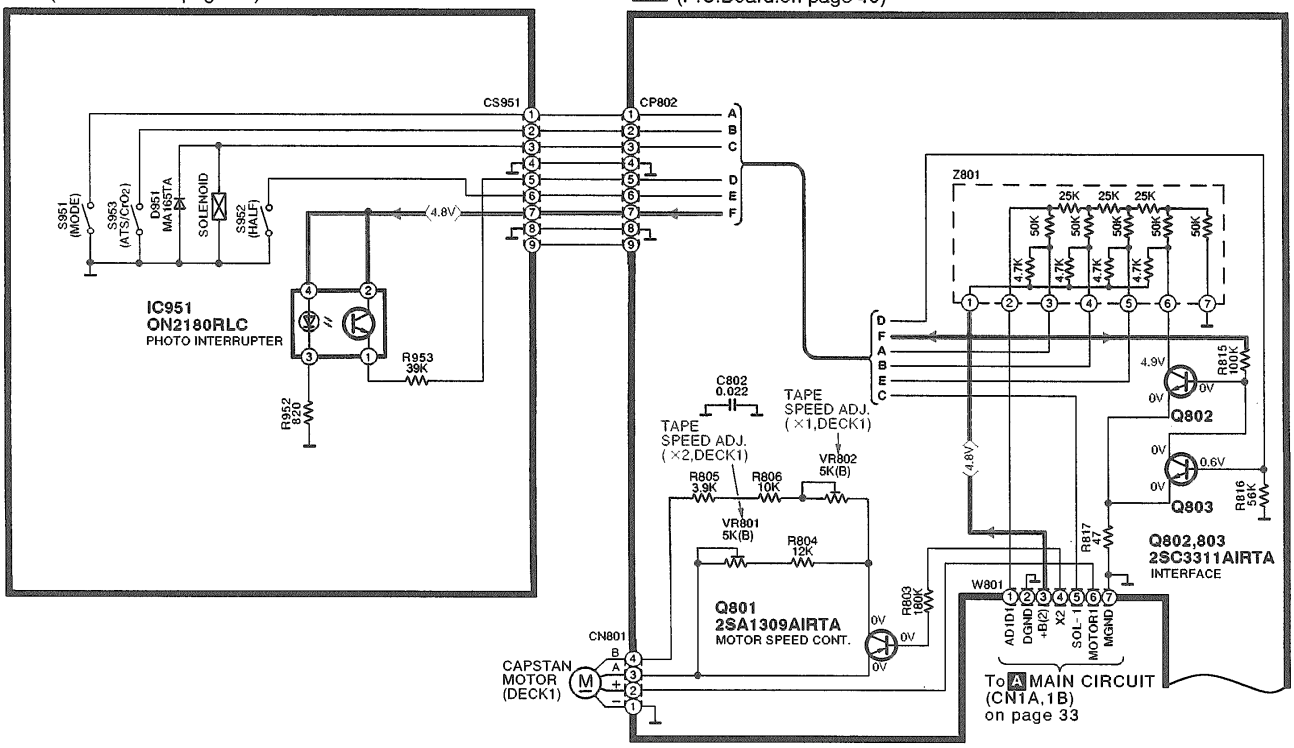
F POWER SWITCH CIRCUIT
(P.C.Board:on page 40)

E FL CIRCUIT
(P.C.Board:on page 40)



G MECHANISM CIRCUIT(DECK1)
(P.C.Board:on page 39)

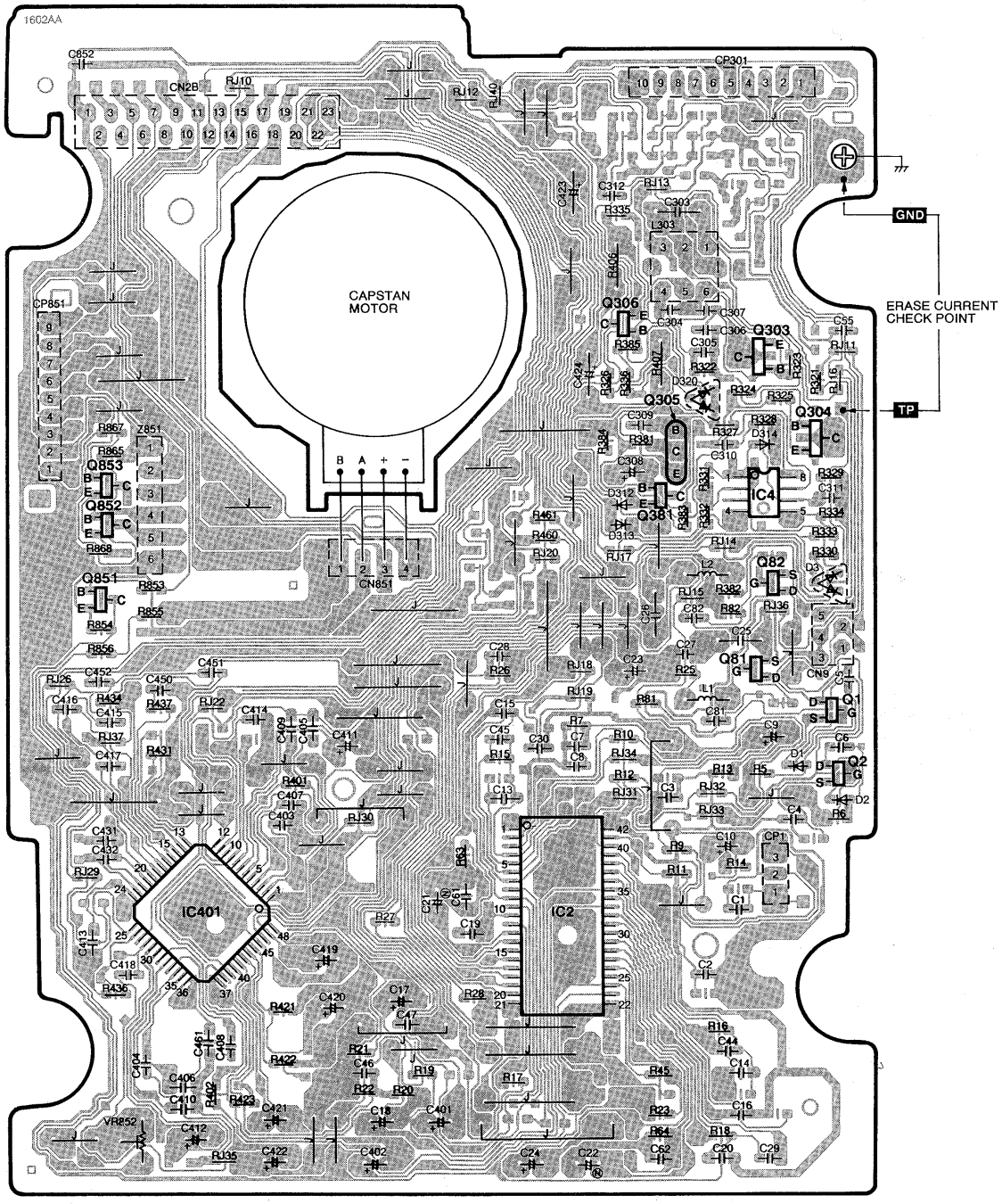
H MECHANISM CONTROL CIRCUIT(DECK1)
(P.C.Board:on page 40)



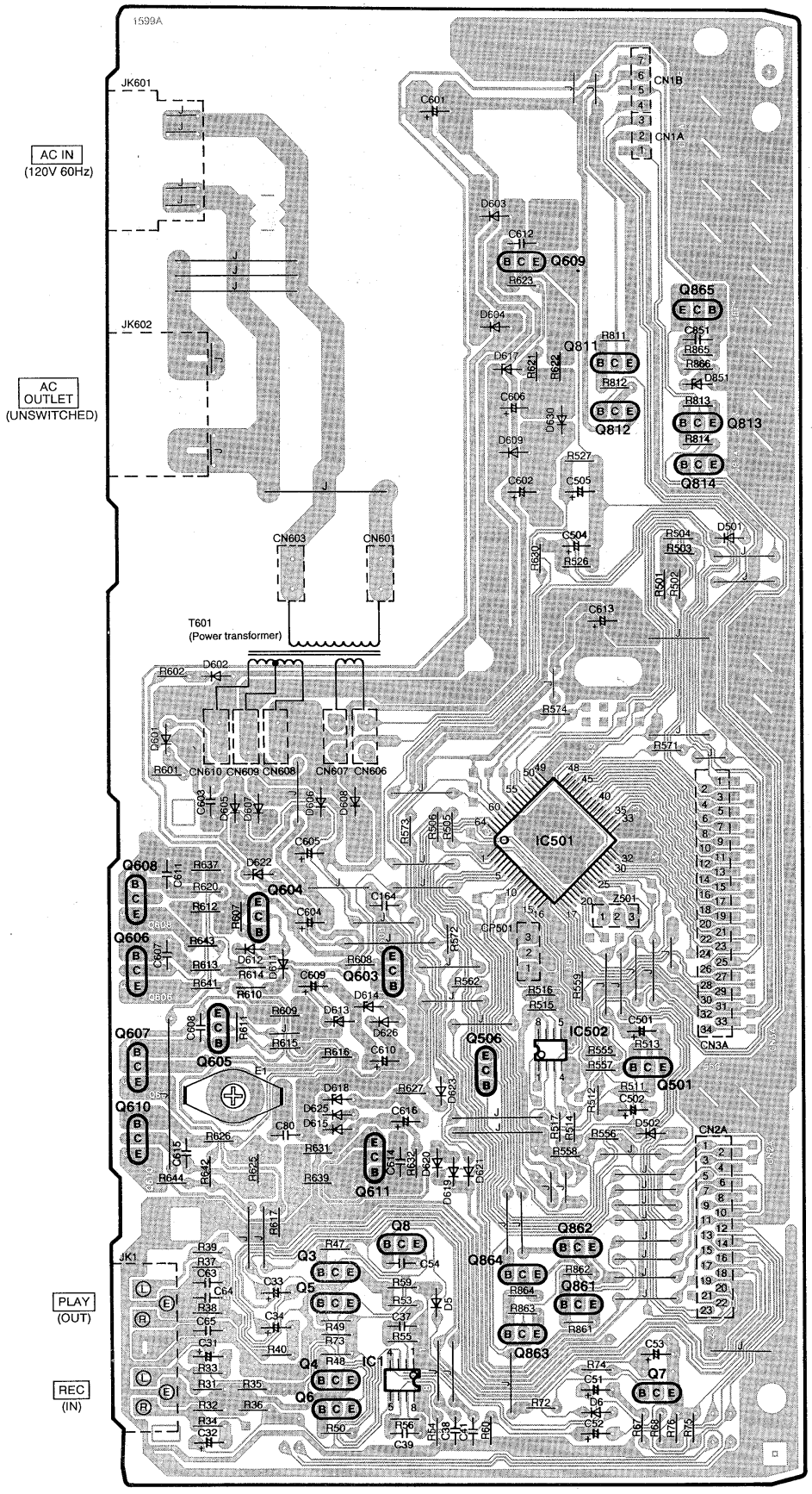
■ Printed Circuit Board Diagram

- This circuit board diagram may be modified at any time with the development of new technology.

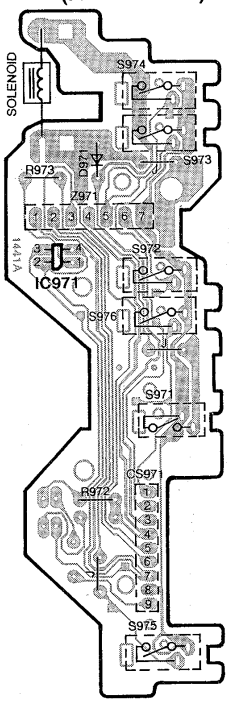
B MECHANISM CONTROL P.C.B.(DECK2) (REP2262B–T)



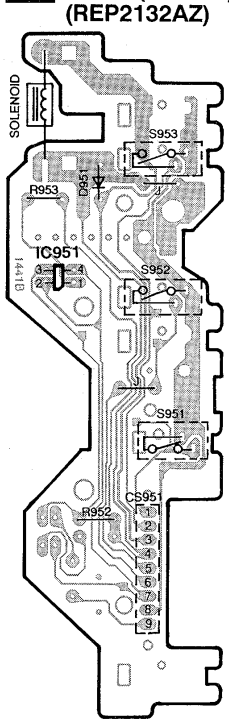
A MAIN P.C.B. (REP2259B–M)



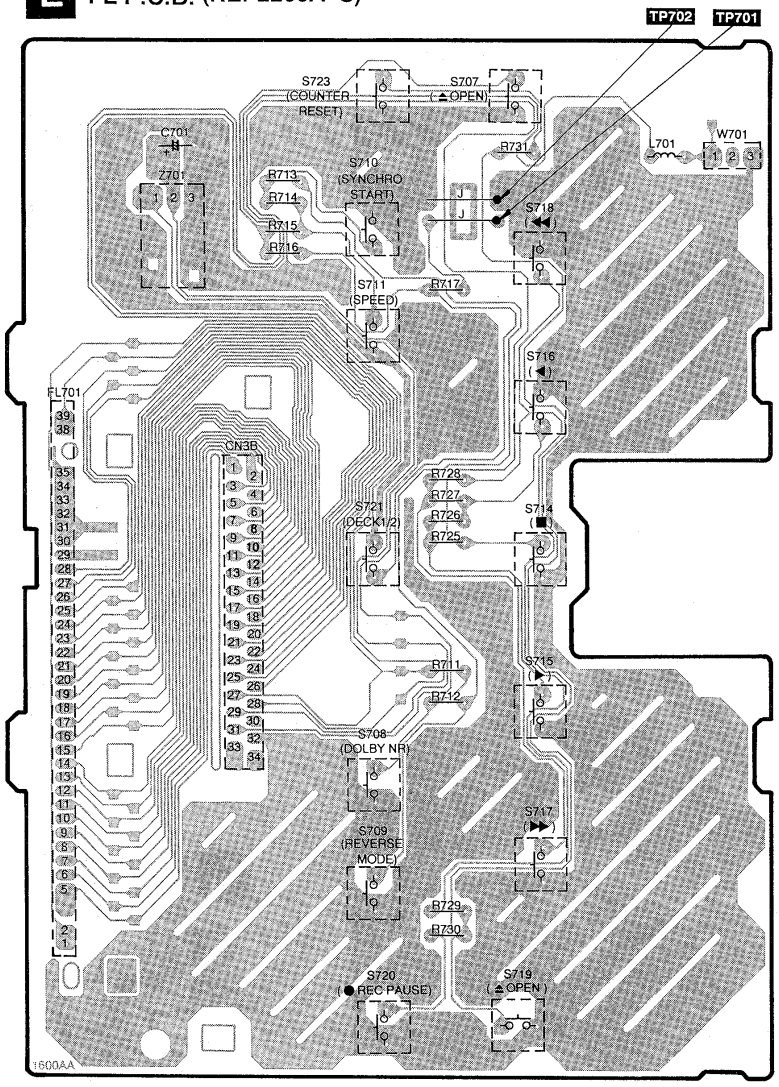
D MECHANISM P.C.B.(DECK2) (REP2131CZ)



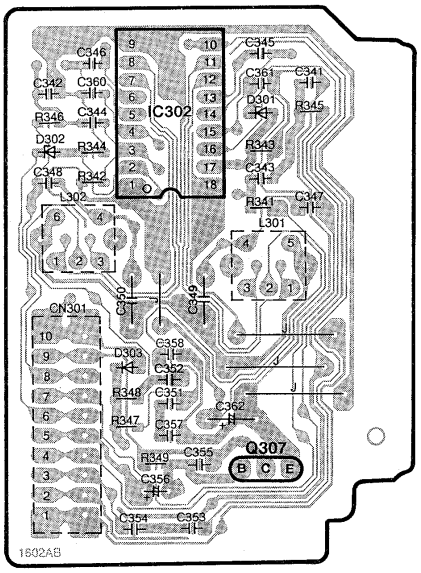
G MECHANISM P.C.B.(DECK1) (REP2132AZ)



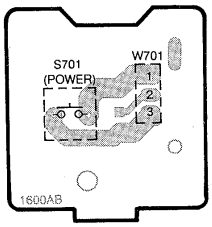
E FL P.C.B. (REP2260A–S)



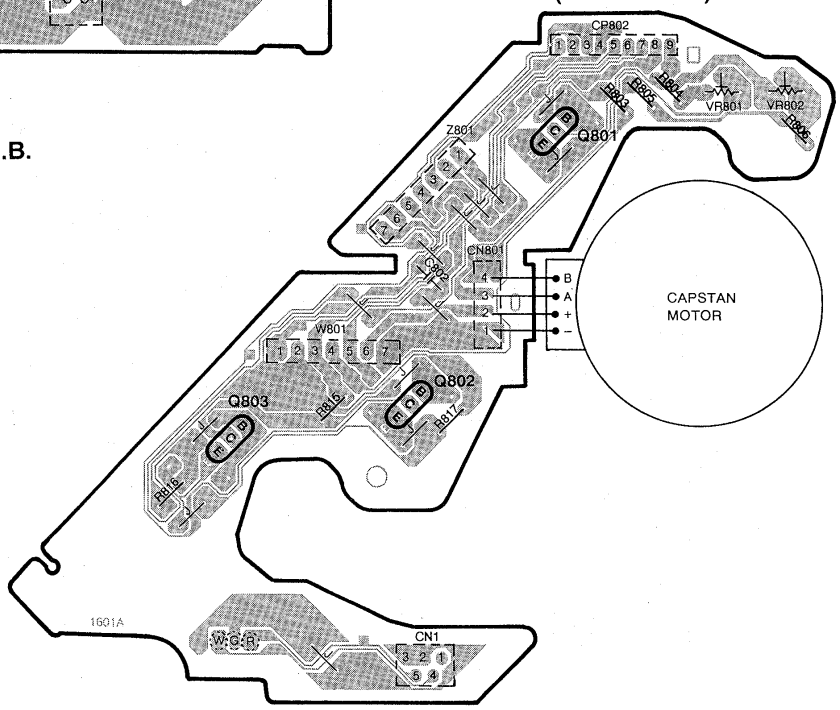
C DOLBY NOISE REDUCTION P.C.B. (REP2262B–T)



F POWER SWITCH P.C.B. (REP2260A–S)



H MECHANISM CONTROL P.C.B.(DECK1) (REP2261A–T)



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 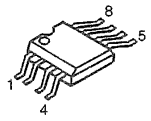 </td>
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 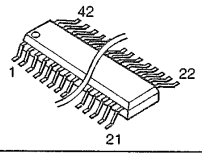 </td>
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 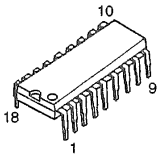 </td>
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 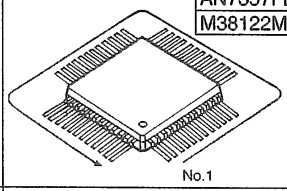 </td>
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 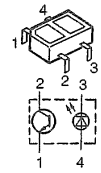 </td>
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 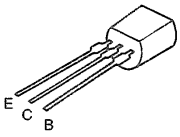 </td>
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 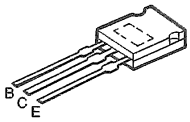 </td>
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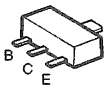
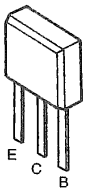
  </td>
<td colspan="2"> 
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2SC3311AIRTA
2SC3312RSTA</td>
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 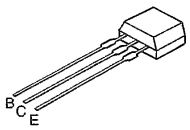 </td>
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 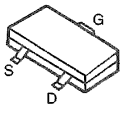 </td>
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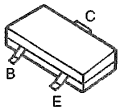
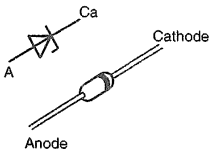
  </td>
<td colspan="2"> 
MTZJ10ATA
MTZJ20DTA
MTZJ5R1BTA
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MTZJ8R2CTA</td>
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 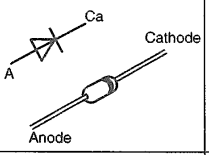 </td>
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 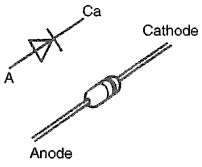 </td>
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 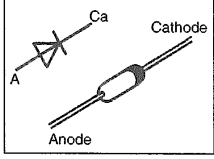 </td>
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 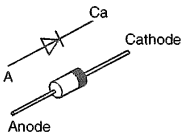 </td>
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 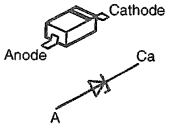 </td>
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MA111TX
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 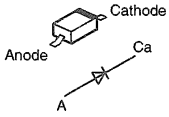 </td>
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 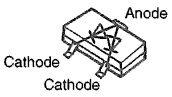 </td>
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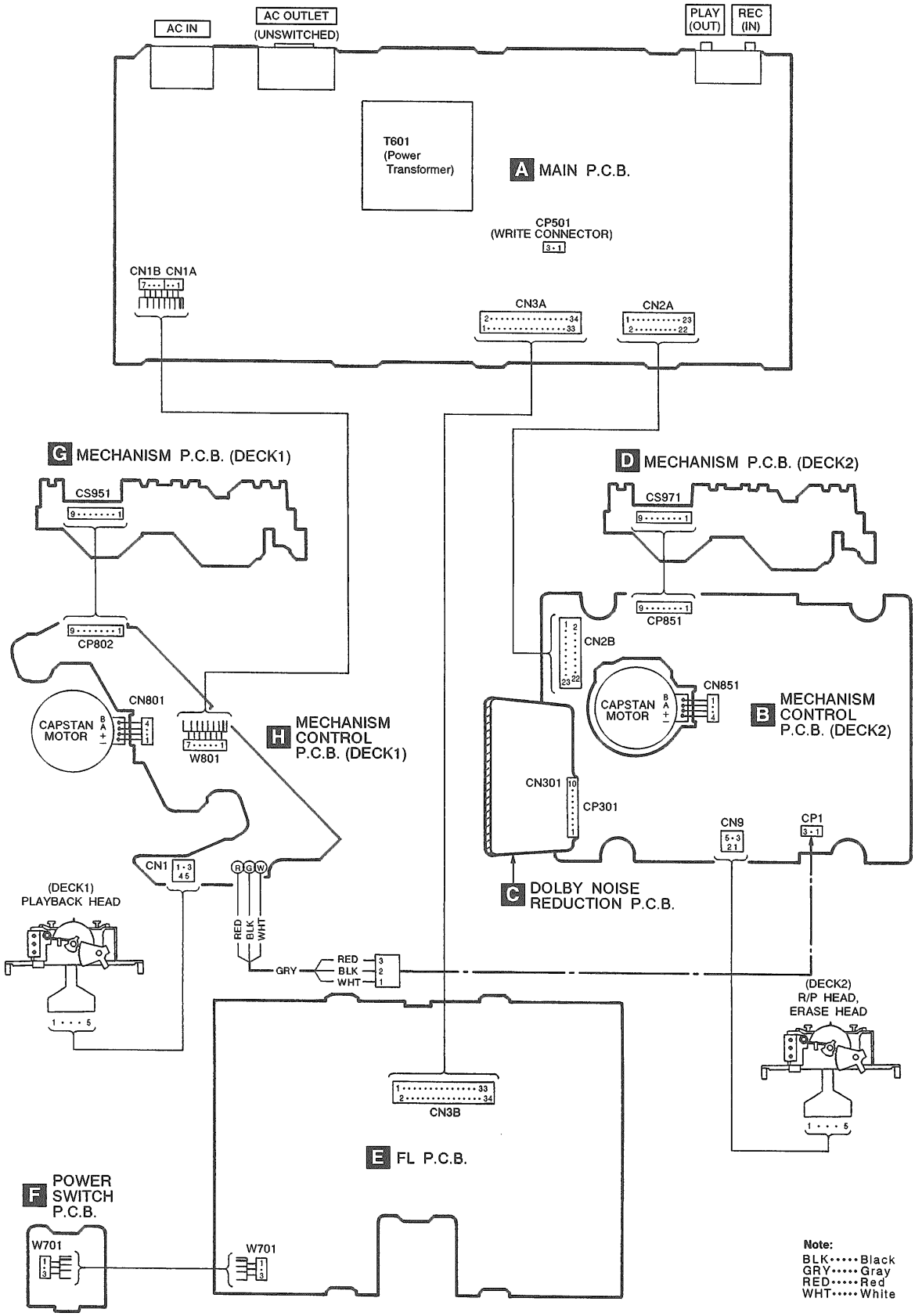
■ Wiring Connection Diagram



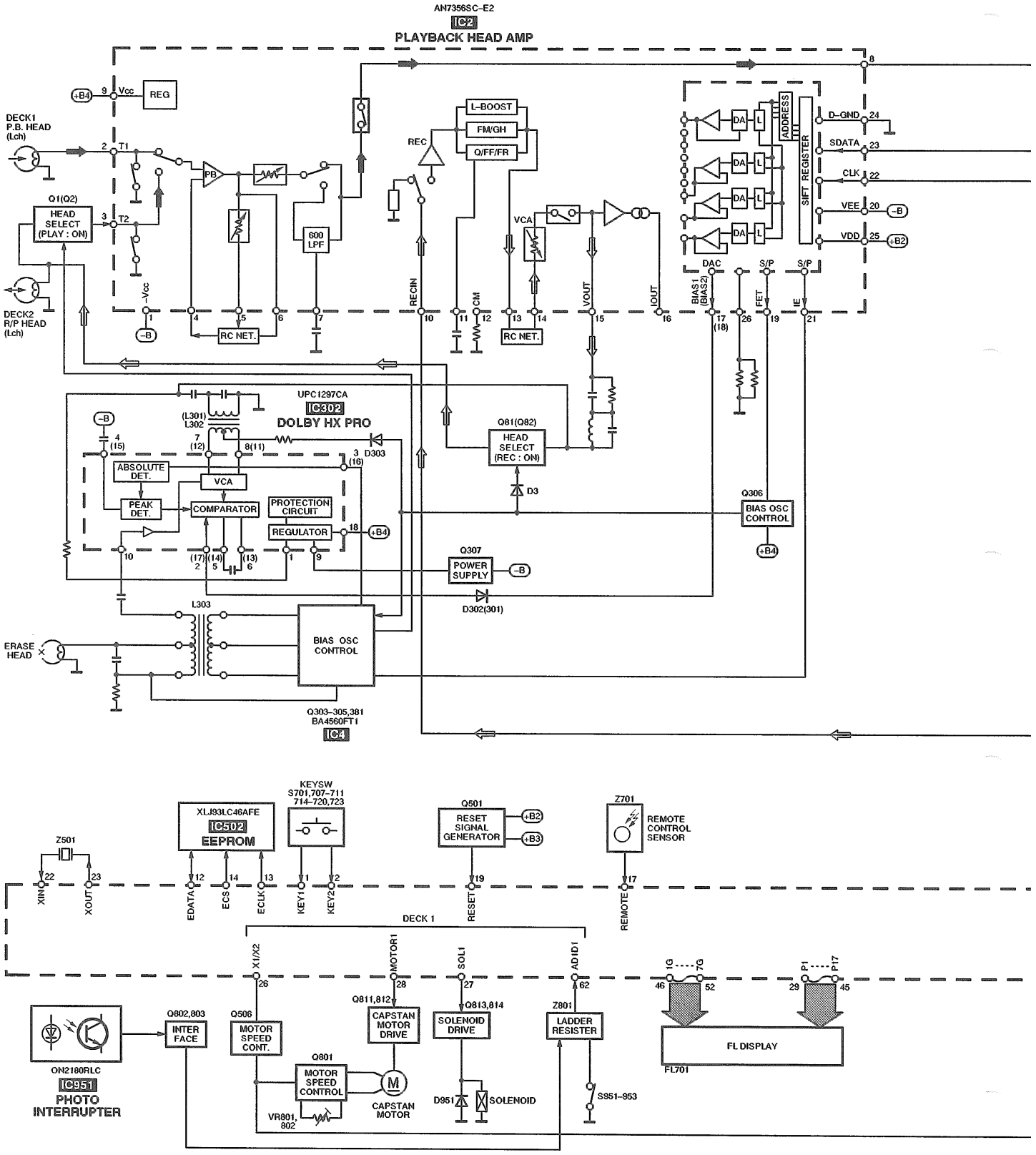
■ Function of IC Terminals

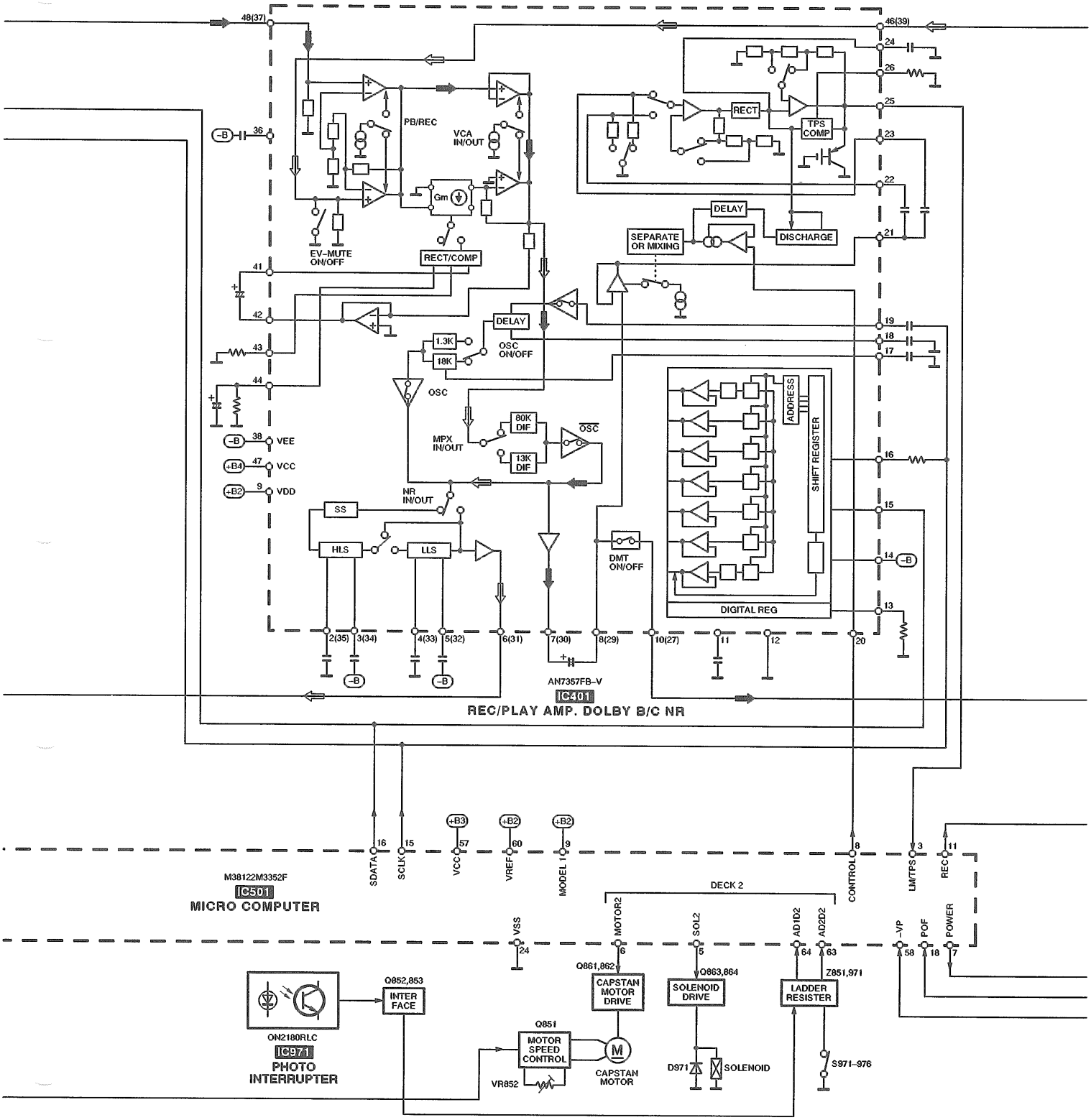
● IC501 (M38122M3352F)

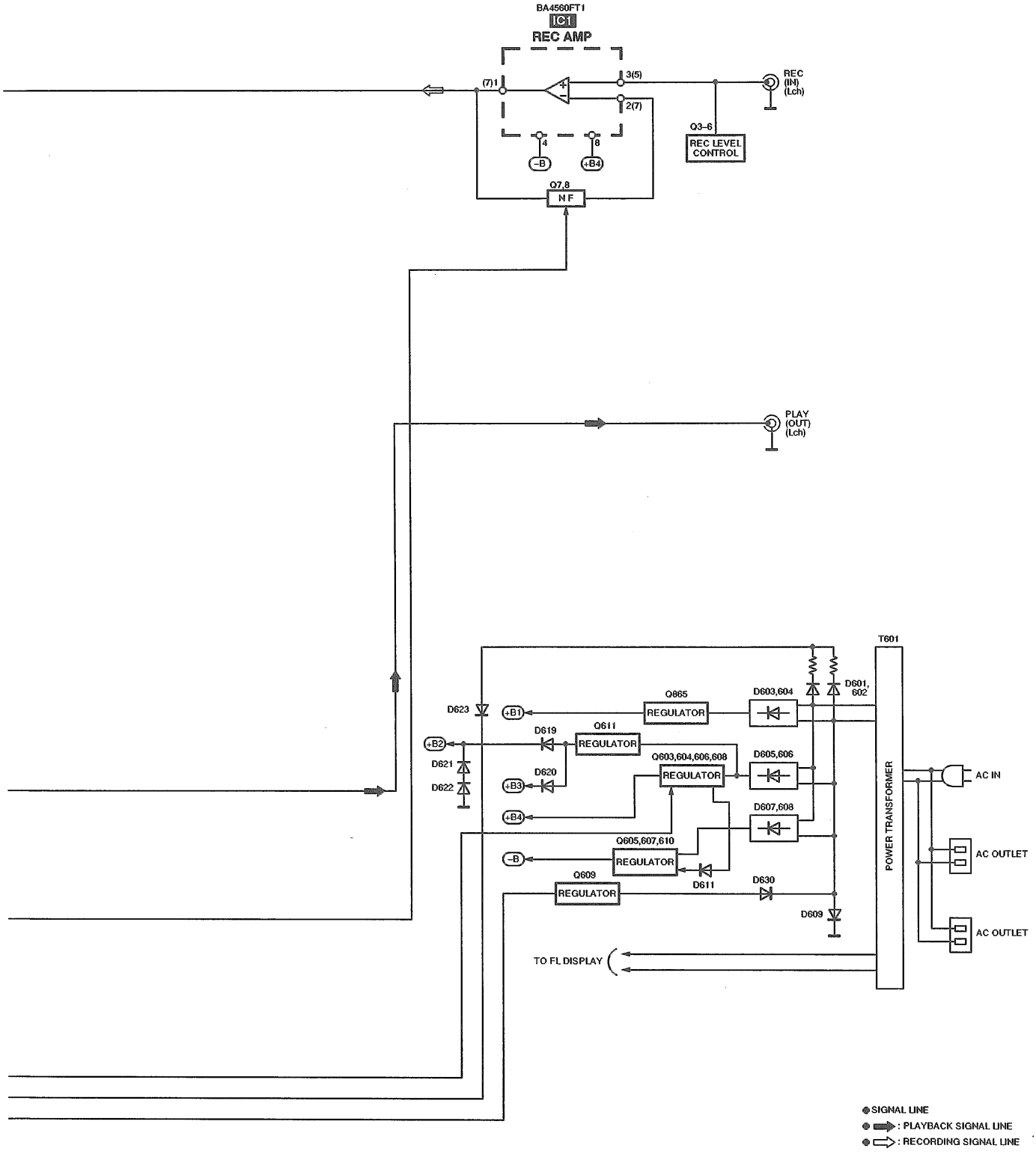
Pin No.	Terminal Name	I/O	Function
1	KEY1	I	Operation switch (S701, S707, S708, S709, S710, S711, S721) signal input
2	KEY2	I	Operation switch (S714, S715, S716, S717, S718, S719, S720, S723) signal input
3	LM/MSP	I	Level meter signal input
4	RPS 2	O	Not used
5	SOL2	O	DECK 2 solenoid drive signal output
6	MOTOR2	O	DECK 2 motor drive signal output
7	POWER	O	Power control signal output
8	CONTROL	O	Level meter (Lch/Rch) select signal output
9	MODEL 1	I	Model select terminal
10	MODEL 2	I	
11	REC-L	O	Auto level control circuit drive signal output
12	EDATA	I/O	EEPROM (IC502) serial data input/output
13	ECLK	O	EEPROM (IC502) clock signal output
14	ECS	I/O	EEPROM (IC502) chip select signal output
15	SCLK	O	Audio adjustment signal output
16	SDATA	O	Audio IC (IC2) serial data output
17	REMOTE	I	Remote control signal input
18	POF	I	Power off detection signal input
19	RESET	I	Reset signal input
20	P71	I	Not used
21	P70	I	
22	XIN	I	Clock signal (6 MHz) input
23	XOUT	O	Clock signal (6 MHz) output
24	VSS	—	GND terminal
25	P27	I	Not used
26	X1/X2	O	Motor speed control signal output

Pin No.	Terminal Name	I/O	Function
27	SOL1	O	DECK 1 solenoid drive signal output
28	MOTOR1	O	DECK 1 motor drive signal output
29~45	P1~P17	O	Segment signal output
46~52	G1~G7	O	Grid signal output
53~56	P33~P30	O	Not used
57	VCC	—	Power supply (+5 V)
58	VEE	—	FL meter pull down voltage input terminal
59	AVSS	—	GND terminal for A/D converter
60	VREF	—	Reference voltage input terminal for A/D converter (+5 V)
61	AN7	I	Not used
62	AD1D1	I	DECK 1 mechanism switch signal input (Half, Mode, CrO_2, Reel pulse)
63	AD2D2	I	DECK 2 mechanism switch signal input (Half, Mode, F. REC INH., R. REC INH.)
64	AD1D2	I	DECK 1 mechanism switch signal input (Metal, CrO_2, Reel pulse)

■ Block Diagram




48(37)
46(39)
PB/REC
VCA IN/OUT
Gm
EV-MUTE ON/OFF
RECT/COMP
RECT
TPS COMP
DELAY
SEPARATE OR MIXING
DISCHARGE
1.3K
18K
OSC ON/OFF
OSC
80K DIF
13K DIF
MPX IN/OUT
NR IN/OUT
SS
HLS
LLS
DMT ON/OFF
ADDRESS
SHIFT REGISTER
DIGITAL REG
VEE
VCC
VDD
AN7357FB-V
IC401
REC/PLAY AMP. DOLBY B/C NR
SDATA
SCLK
VCC
VREF
MODEL 1
CONTROL
LM/TPS
REC
M38122M3352F
IC501
MICRO COMPUTER
DECK 2
VSS
MOTOR2
SOL2
AD1D2
AD2D2
-VP
POF
POWER
Q852,853
INTER FACE
ON2180RLC
IC971
PHOTO INTERRUPTER
Q851
MOTOR SPEED CONTROL
VR852
Q861,862
CAPSTAN MOTOR DRIVE
CAPSTAN MOTOR
Q863,864
SOLENOID DRIVE
D971
SOLENOID
LADDER RESISTER
Z851,971
S971-976


BA4560FT1
IC1
REC AMP
(7)1
3(5)
2(7)
4
8
-B
+B4
Q7,8
N F
Q3-6
REC LEVEL CONTROL
REC (IN) (Lch)
PLAY (OUT) (Lch)
T601
D601, 602
D603,604
Q865
REGULATOR
D623
+B1
D619
Q611
REGULATOR
+B2
D621
D622
D620
+B3
+B4
Q603,604,606,608
REGULATOR
D605,606
D607,608
Q605,607,610
REGULATOR
-B
Q609
REGULATOR
D611
D630
D609
TO FL DISPLAY
POWER TRANSFORMER
AC IN
AC OUTLET
AC OUTLET
SIGNAL LINE
: PLAYBACK SIGNAL LINE
: RECORDING SIGNAL LINE

■ 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 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.

Ref. No.	Part No.	Part Name & Description	Remarks
		INTEGRATED CIRCUIT(S)	
IC1	BA4560FT1	I. C, REC AMP	
IC2	AN7356SC-E2	I. C, PLAY BACK/REC AMP	
IC4	BA4560FT1	I. C, ERASE CURRENT ADJ. CONT	
IC302	UPC1297CA	I. C, DOLBY HX PRO	
IC401	AN7357FB-V	I. C, R/P AMP DOLBY B/C NR	
IC501	M38122M3352F	I. C, MICRO COMPUTER	
IC502	XLJ93LC46AFE	I. C, EEPROM	
IC951	ON2180RLC	I. C, PHOTO INTERRUPTER	
IC971	ON2180RLC	I. C, PHOTO INTERRUPTER	
		TRANSISTOR(S)	
Q1, 2	2SJ163PQRTX	TRANSISTOR	
Q3-6	2SC3312RSTA	TRANSISTOR	
Q7, 8	2SC3311AIRTA	TRANSISTOR	
Q81, 82	2SK1103PQRTX	TRANSISTOR	
Q303, 304	2SD874QRSTX	TRANSISTOR	
Q305	KSD471ACYGTA	TRANSISTOR	
Q306	2SB710AQRSTX	TRANSISTOR	
Q307	KSB564ACYGTA	TRANSISTOR	
Q381	2SD601QRSTX	TRANSISTOR	
Q501	2SC3311AIRTA	TRANSISTOR	
Q506	DTC114ESTP	TRANSISTOR	
Q603	DTC114ESTP	TRANSISTOR	
Q604	2SA1309AIRTA	TRANSISTOR	⚠
Q605	2SC3311AIRTA	TRANSISTOR	⚠
Q606	2SD2037EFTA	TRANSISTOR	⚠
Q607	2SB1357EFTA	TRANSISTOR	⚠
Q608	2SD2037EFTA	TRANSISTOR	⚠
Q609	KSB564ACYGTA	TRANSISTOR	⚠
Q610	2SB1357EFTA	TRANSISTOR	⚠
Q611	KSD471ACYGTA	TRANSISTOR	⚠
Q801	2SA1309AIRTA	TRANSISTOR	
Q802, 803	2SC3311AIRTA	TRANSISTOR	
Q811	KSB564ACYGTA	TRANSISTOR	
Q812	DTC114ESTP	TRANSISTOR	
Q813	KSB564ACYGTA	TRANSISTOR	
Q814	DTC114ESTP	TRANSISTOR	
Q851	2SB709QRSTX	TRANSISTOR	
Q852, 853	2SD601QRSTX	TRANSISTOR	
Q861	KSB564ACYGTA	TRANSISTOR	
Q862	DTC114ESTP	TRANSISTOR	
Q863	KSB564ACYGTA	TRANSISTOR	

Ref. No.	Part No.	Part Name & Description	Remarks
Q864	DTC114ESTP	TRANSISTOR	
Q865	2SD2037EFTA	TRANSISTOR	⚠
		DIODE(S)	
D1, 2	MA111TX	DIODE	
D3	MA152WATX	DIODE	
D5, 6	MA165	DIODE	
D301, 302	MA8056MTX	DIODE	
D303	MA110TX	DIODE	
D312, 313	MA112TX	DIODE	
D314	MA110TX	DIODE	
D320	MA152WATX	DIODE	
D501, 502	MA165	DIODE	
D601, 602	MA165	DIODE	⚠
D603-609	RL1N4003N02	DIODE	⚠
D611, 612	MA165	DIODE	
D613	MTZJ8R2CTA	DIODE	⚠
D614	MTZJ6R2BTA	DIODE	⚠
D615	MA165	DIODE	
D617	MTZJ20DTA	DIODE	⚠
D618	MTZJ5R1BTA	DIODE	⚠
D619	MA178TA	DIODE	
D620	RL1N4003N02	DIODE	
D621	MA165	DIODE	
D622	MTZJ5R1BTA	DIODE	⚠
D623	MA165	DIODE	
D625	MA165	DIODE	
D626	MA29TATA	DIODE	
D630	RL1N4003N02	DIODE	⚠
D851	MTZJ10ATA	DIODE	⚠
D951	MA165TA	DIODE	
D971	MA165TA	DIODE	
		VARIABLE RESISTOR(S)	
VR801, 802	EVND1AA00B53	V. R, TAPE SPEED ADJ.	
VR852	EVNDCAA03B53	V. R, TAPE SPEED ADJ.	
		COMPONENT COMBINATION(S)	
Z501	EFOEC6004T4	CERAMIC OSCILLATOR(6MHZ)	
Z701	RCDGP1U28XD	REMOTE SENSOR	
Z801	EXBF7L355SYV	COMPONENT COMBINATION	
Z851	EXBF6L306SYV	COMPONENT COMBINATION	
Z971	EXBF7L355SYV	COMPONENT COMBINATION	

Ref. No.	Part No.	Part Name & Description	Remarks
		COIL(S)	
L1, 2	RLQX303JT-K	COIL	
L301, 302	SL09B1-Z	COIL	
L303	SL09B4-K	COIL	
L701	RLQZP100KT-Y	COIL	
		POWER TRANSFORMER(S)	
T601	RTP1K4C022-V	POWER TRANSFORMER	⚠
		DISPLAY TUBE	
FL701	RSL0221-F	DISPLAY TUBE	
		SWITCH(ES)	
S701	EVQ21405R	SW, POWER	
S707	EVQ21405R	SW, OPEN/CLOSE	
S708	EVQ21405R	SW, DOLBY NR	
S709	EVQ21405R	SW, REVERSE MODE	
S710	EVQ21405R	SW, SYNCHRO START	
S711	EVQ21405R	SW, SPEED	
S714	EVQ21405R	SW, STOP	
S715	EVQ21405R	SW, F. PLAY	
S716	EVQ21405R	SW, R. PLAY	
S717	EVQ21405R	SW, FF	
S718	EVQ21405R	SW, REW	
S719	EVQ21405R	SW, OPEN/CLOSE	
S720	EVQ21405R	SW, REC PAUSE	
S721	EVQ21405R	SW, DECK1/2	
S723	EVQ21405R	SW, COUNTER RESET	
S951	RSH1A018-1U	SW, MODE (DECK1)	
S952	RSH1A019-2U	SW, HALF (DECK1)	
S953	RSH1A019-2U	SW, ATS/CrO2 (DECK1)	
S971	RSH1A018-1U	SW, MODE (DECK2)	
S972	RSH1A019-2U	SW, HALF (DECK2)	
S973	RSH1A019-2U	SW, ATS/CrO2 (DECK2)	
S974	RSH1A019-2U	SW, R. REC. INH. (DECK2)	
S975	RSH1A019-2U	SW, F. REC. INH. (DECK2)	
S976	RSH1A019-2U	SW, ATS/METAL (DECK2)	
		CONNECTOR8S)	
CN1	RJS2A0205-2S	CONNECTOR (5P)	
CN9	RJS2A0205-2S	CONNECTOR (5P)	
CN301	RJU057W010	SOCKET (10P)	
CN601	RJS1A1101T1	CONNECTOR (1P)	
CN603	RJS1A1101T1	CONNECTOR (1P)	
CN606-610	RJS1A1101T1	CONNECTOR (1P)	
CN801	RJR0113	CONNECTOR (4P)	

Ref. No.	Part No.	Part Name & Description	Remarks
CN851	RJR0113	CONNECTOR (4P)	
CN1A	RJS1A1703	CONNECTOR (3P)	
CN2A	RJS1A6823	CONNECTOR (23P)	
CN3A	RJS1A6834	CONNECTOR (34P)	
CN1B	RJS1A1704	SOCKET (4P)	
CN2B	RJS1A6723	CONNECTOR (23P)	
CN3B	RJS1A6234-1	CONNECTOR (34P)	
CP1	RJP3G17ZA	CONNECTOR (3P)	
CP301	RJT057W010-1	CONNECTOR (10P)	
CP501	RJT029W03VT	CONNECTOR (3P)	
CP802	RJT071H09A	CONNECTOR (9P)	
CP851	RJT071H09A	CONNECTOR (9P)	
CS951	RJU071H09M	CONNECTOR (9P)	
CS971	RJU071H09M	CONNECTOR (9P)	
		GND PART(S)	
E1	SNE1004-2	GND PLATE	
		JACK(S)	
JK1	SJF3069-5N	JACK, PLAY & REC	
JK601	SJSD16-1	AC INLET	⚠
JK602	RJS2A0102-1S	AC OUTLET	⚠

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
R5-7	ERJ6GEYJ225V	1/10W 2.2M
R9	ERJ6GEYJ101V	1/10W 100
R10-12	ERJ6GEYJ101V	1/10W 100
R13, 14	ERJ6GEYJ470V	1/10W 47
R15, 16	ERJ6GEYJ394V	1/10W 390K
R17, 18	ERJ6GEYJ122V	1/10W 1.2K
R19, 20	ERJ6GEYJ562V	1/10W 5.6K
R21, 22	ERJ6GEYJ681V	1/10W 680
R23	ERJ6GEYJ122V	1/10W 1.2K
R25, 26	ERJ6GEYJ103V	1/10W 10K
R27, 28	ERJ6GEYJ272V	1/10W 2.7K
R31, 32	ERDS2TJ334	1/4W 330K
R33, 34	ERDS2TJ563	1/4W 56K
R35, 36	ERDS2TJ152	1/4W 1.5K
R37, 38	ERDS2TJ222	1/4W 2.2K
R39, 40	ERDS2TJ561	1/4W 560
R45	ERJ6GEYJ122V	1/10W 1.2K
R47-50	ERDS2TJ103T	1/4W 10K
R53, 54	ERDS2TJ152	1/4W 1.5K
R55, 56	ERDS2TJ104	1/4W 100K
R59, 60	ERDS2TJ103	1/4W 10K
R63, 64	ERJ6GEYJ223V	1/10W 22K
R67, 68	ERDS2TJ472	1/4W 4.7K
R72	ERDS2TJ222	1/4W 2.2K
R73	ERDS2TJ225	1/4W 2.2M
R74	ERDS2TJ221	1/4W 220
R75, 76	ERDS2TJ331	1/4W 330
R81, 82	ERJ6GEYJ225V	1/10W 2.2M
R321	ERJ6GEYJ1R0V	1/10W 1.0
R322, 323	ERJ6GEYJ183V	1/10W 18K
R324, 325	ERJ6GEYJ100	1/10W 10
R326	ERJ6GEYJ122V	1/10W 1.2K
R327	ERJ6GEYJ102V	1/10W 1K
R328	ERJ6GEYJ561V	1/10W 560
R329	ERJ6GEYJ393V	1/10W 39K
R330	ERJ6GEYJ272V	1/10W 2.7K
R331	ERJ6GEYJ682V	1/10W 6.8K
R332	ERJ6GEYJ102V	1/10W 1K
R333	ERJ6GEYJ103V	1/10W 10K
R334-336	ERJ6GEYJ332V	1/10W 3.3K
R341, 342	ERJ6GEYJ153V	1/10W 15K
R343, 344	ERJ6GEYJ103V	1/10W 10K
R345, 346	ERJ6GEYJ154V	1/10W 150K
R347, 348	ERJ6GEYJ100	1/10W 10
R349	ERJ6GEYJ471V	1/10W 470
R381	ERJ6GEYJ100	1/10W 10

Ref. No.	Part No.	Values & Remarks
R382	ERJ6GEYJ221V	1/10W 220
R383	ERJ6GEYJ5R6V	1/10W 5.6
R384	ERJ6GEYJ153V	1/10W 15K
R385	ERJ6GEYJ101V	1/10W 100
R401, 402	ERJ6GEYJ103V	1/10W 10K
R406⚠	ERD2FCVG270T	1/4W 27
R407⚠	ERD2FCVG180T	1/4W 18
R421	ERJ6GEYJ105	1/10W 1M
R422	ERJ6GEYJ123V	1/10W 12K
R423	ERJ6GEYJ223V	1/10W 22K
R431	ERJ6GEYJ222V	1/10W 2.2K
R434	ERJ6GEYJ272V	1/10W 2.7K
R436	ERJ6GEYJ473V	1/10W 47K
R437	ERJ6GEYJ272V	1/10W 2.7K
R460, 461	ERJ6GEYJ472V	1/10W 4.7K
R501-504	ERDS2TJ473	1/4W 47K
R505, 506	ERDS2TJ103	1/4W 10K
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
R526, 527	ERDS2TJ331	1/4W 330
R555	ERDS2TJ103	1/4W 10K
R556-559	ERDS2TJ223	1/4W 22K
R562	ERDS2TJ103	1/4W 10K
R571-574	ERDS2TJ223	1/4W 22K
R601, 602	ERDS2TJ472	1/4W 4.7K
R607	ERDS2TJ472	1/4W 4.7K
R608	ERDS2TJ103	1/4W 10K
R609⚠	ERD2FCVG150T	1/4W 15
R610	ERDS2TJ472	1/4W 4.7K
R611	ERDS2TJ104	1/4W 100K
R612⚠	ERD2FCVG150T	1/4W 15
R613	ERDS2TJ101	1/4W 100
R614, 615	ERDS2TJ471	1/4W 470
R616	ERDS2TJ101	1/4W 100
R617	ERDS2TJ102	1/4W 1K
R620	ERDS2TJ101	1/4W 100
R621	ERDS2TJ222	1/4W 2.2K
R622⚠	ERD2FCVG150T	1/4W 15
R623	ERDS2TJ101	1/4W 100
R625⚠	ERD2FCVG150T	1/4W 15
R626	ERDS2TJ101	1/4W 100
R627	ERDS2TJ103	1/4W 10K
R630	ERDS2TJ2R7T	1/4W 2.7
R631	ERDS2TJ102	1/4W 1K
R632	ERDS2TJ101	1/4W 100

Ref. No.	Part No.	Values & Remarks
R637⚠	ERD2FCVG150T	1/4W 15
R639⚠	ERD2FCVG330T	1/4W 33
R641-644	ERDS2TJ2R2T	1/4W 2.2
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
R725	ERDS2TJ821	1/4W 820
R726	ERDS2TJ102	1/4W 1K
R727	ERDS2TJ122	1/4W 1.2K
R728	ERDS2TJ152	1/4W 1.5K
R729	ERDS2TJ182	1/4W 1.8K
R730	ERDS2TJ222	1/4W 2.2K
R731	ERDS2TJ332	1/4W 3.3K
R803	ERDS2TJ184T	1/4W 180K
R804	ERDS2TJ123	1/4W 12K
R805	ERDS2TJ392T	1/4W 3.9K
R806	ERDS2TJ103	1/4W 10K
R811	ERDS2TJ223	1/4W 22K
R812	ERDS2TJ102	1/4W 1K
R813	ERDS2TJ223	1/4W 22K
R814	ERDS2TJ102	1/4W 1K
R815	ERDS2TJ104	1/4W 100K
R816	ERDS2TJ563	1/4W 56K
R817	ERDS2TJ470	1/4W 47
R853	ERJ6GEYJ184V	1/10W 180K
R854	ERJ6GEYJ153V	1/10W 15K
R855	ERJ6GEYJ392V	1/10W 3.9K
R856	ERJ6GEYJ103V	1/10W 10K
R861	ERDS2TJ223	1/4W 22K
R862	ERDS2TJ102	1/4W 1K
R863	ERDS2TJ223	1/4W 22K
R864	ERDS2TJ102	1/4W 1K
R865A	ERDS2TJ470	1/4W 47
R865	ERJ6GEYJ104V	1/10W 100K
R866	ERDS2TJ221	1/4W 220
R867	ERJ6GEYJ563V	1/10W 56K
R868	ERJ6GEYJ470V	1/10W 47
R952	ERDS2TJ821	1/4W 820
R953	ERDS2TJ393	1/4W 39K
R972	ERDS2TJ821	1/4W 820
R973	ERDS2TJ393	1/4W 39K
		CHIP JUMPER(S)
RJ10-20	ERJ6GEY0R00V	CHIP JUMPER

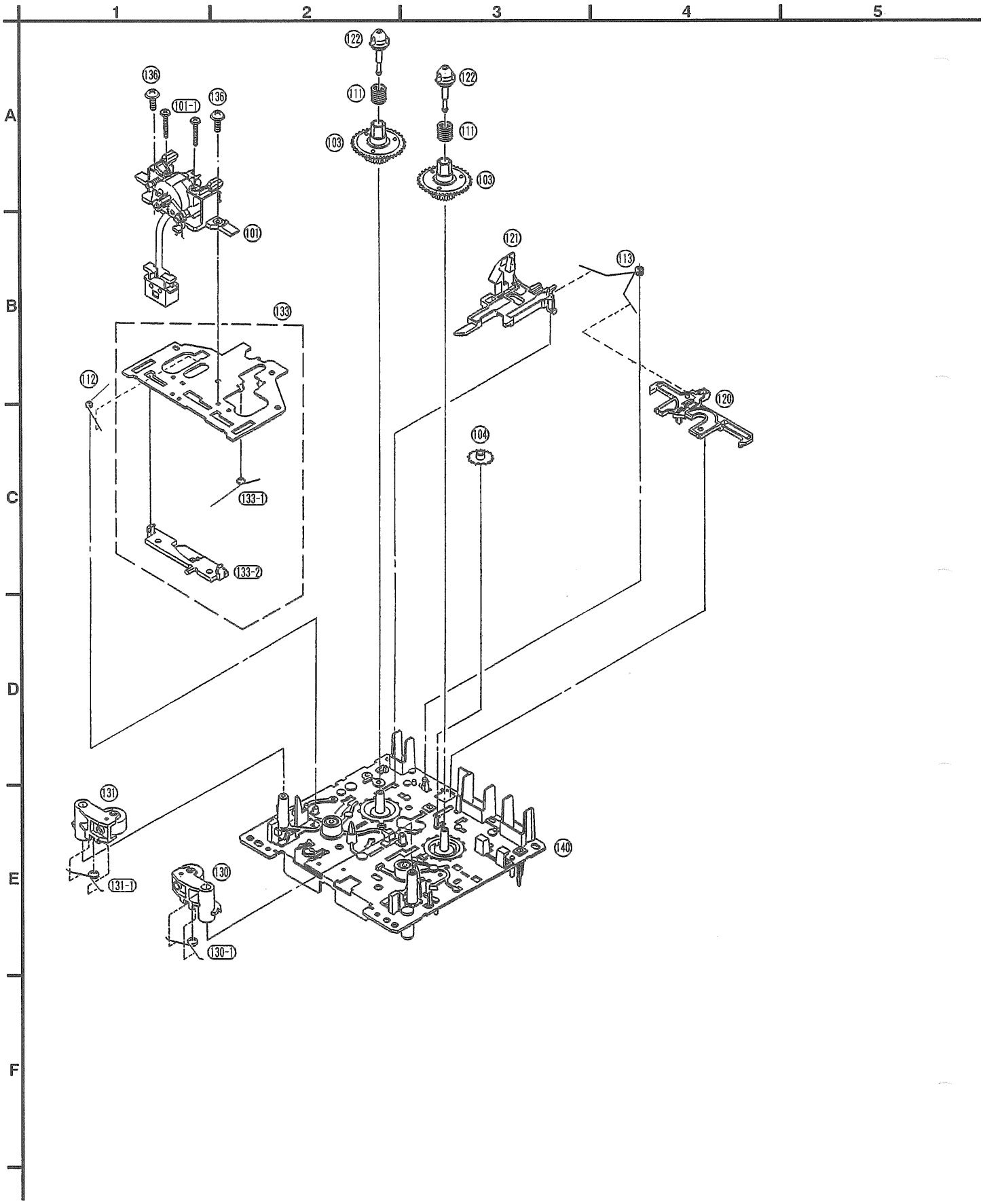
Ref. No.	Part No.	Values & Remarks
RJ22	ERJ6GEY0R00V	CHIP JUMPER
RJ26	ERJ6GEY0R00V	CHIP JUMPER
RJ29-37	ERJ6GEY0R00V	CHIP JUMPER
RJ40	ERJ6GEY0R00V	CHIP JUMPER
		CAPACITORS
C1, 2	ECUV1H471KBN	50V 470P
C3, 4	ECUV1H561KBN	50V 560P
C5, 6	ECUV1H102KBN	50V 1000P
C7, 8	ECUVNE104ZFN	25V 0.1U
C9	RCE0GKS221IG	4V 220U
C10	RCE0GKS221IG	4V 220U
C13, 14	ECUV1H822KBN	50V 8200P
C15, 16	ECUV1H682KBN	50V 6800P
C17, 18	ECEA1CKS100I	16V 10U
C19, 20	ECUVNC474KBM	16V 0.47U
C21, 22	ECEA1ASN100I	10V 10U
C23, 24	ECEA1CKS100I	16V 10U
C25, 26	ECKR2H121KB5	500V 120P
C27, 28	ECUV1H561KBN	50V 560P
C29, 30	ECUVNE104ZFN	25V 0.1U
C31, 32	ECEA1HKA010B	50V 1U
C33, 34	RCE1CKA100BG	16V 10U
C37	ECBT1H150J5	50V 15P
C38	ECBT1E103ZF	25V 0.01U
C39	ECBT1H150J5	50V 15P
C41	ECBT1E103ZF	25V 0.01U
C44, 45	ECUV1H121KCN	50V 120P
C46, 47	ECUV1H332KBN	50V 3300P
C51, 52	RCE1CKA100BG	16V 10U
C53	RCE1AKA330BG	10V 33U
C54	ECBT1E103ZF	25V 0.01U
C55	ECUV1H103ZFN	50V 0.01U
C61, 62	ECUV1H122KBN	50V 1200P
C63, 64	ECBT1C332KR5	16V 3300P
C65	ECBT1H104ZF5	50V 0.1U
C80	ECBT1H104ZF5	50V 0.1U
C81, 82	ECUV1H102KBN	50V 1000P
C164	ECBT1E103ZF	25V 0.01U
C303	ECQP1153JZ	100V 0.015U
C304	ECUV1H392KBN	50V 3900P
C305	ECUV1H222KBN	50V 2200P
C306	ECUV1H682KBN	50V 6800P
C307	ECUV1H222KBN	50V 2200P
C308	ECEA1CKS100I	16V 10U
C309, 310	ECUV1H103ZFN	50V 0.01U
C311, 312	ECUVNE104ZFN	25V 0.1U
C341, 342	ECUV1H122KBN	50V 1200P
C343, 344	ECUV1H103KBN	50V 0.01U
C345, 346	ECUV1E473KBN	25V 0.047U
C347, 348	ECUV1H121KCN	50V 120P

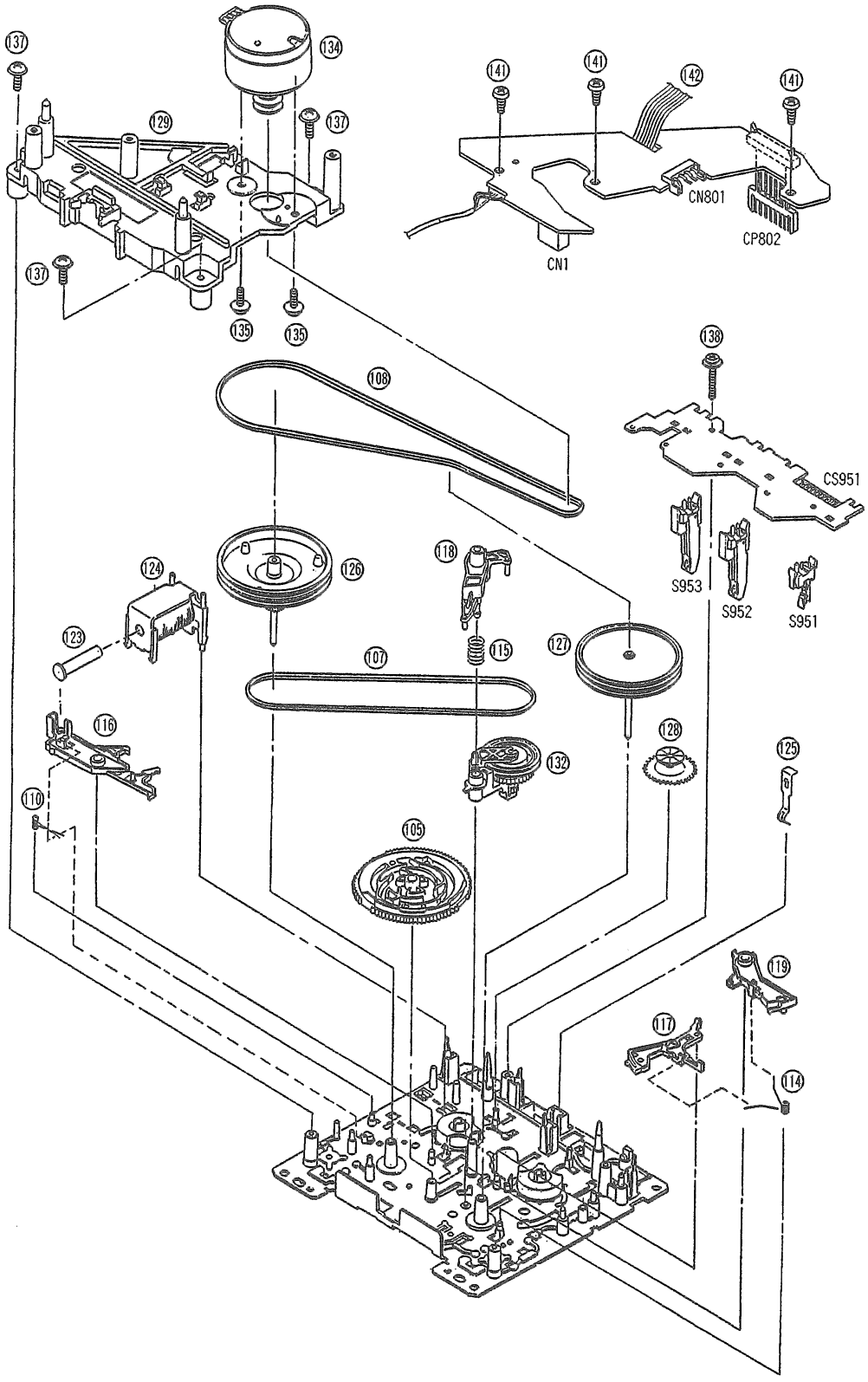
Ref. No.	Part No.	Values & Remarks
C349, 350	ECKR2H821KB5	500V 820P
C351, 352	ECUV1E473ZFN	25V 0.047U
C353, 354	ECUV1H220KCN	50V 22P
C355	ECUV1H103ZFN	50V 0.01U
C356	ECEA1AKS470	10V 47U
C357, 358	ECUV1E473ZFN	25V 0.047U
C360, 361	ECUV1E223KBN	25V 0.022U
C362	RCE1CKA100BG	16V 10U
C401, 402	ECEA1CKS100I	16V 10U
C403, 404	ECUV1H152KBN	50V 1500P
C405, 406	ECUVNC474KBM	16V 0.47U
C407, 408	ECUV1H152KBN	50V 1500P
C409, 410	ECUVNC474KBM	16V 0.47U
C411, 412	ECEA1HKS2R2I	50V 2.2U
C413	ECUVNC474KBM	16V 0.47U
C414	ECUVNE104ZFN	25V 0.1U
C415	ECUV1H272KBN	50V 2700P
C416	ECUV1H392KBN	50V 3900P
C417	ECUVNE104ZFN	25V 0.1U
C418	ECUVNC105ZFN	16V 1U
C419, 420	ECEA1CKS100I	16V 10U
C421	ECEA1HKS010	50V 1U
C422	ECEA1CKS100I	16V 10U
C423, 424	RCE1AM102BV	10V 1000U
C431	ECUV1C474ZFN	16V 0.47U
C432	ECUV1H152KBN	50V 1500P
C450-452	ECUV1H101KCN	50V 100P
C461	ECUVNC225ZFM	16V 2.2U
C501	ECEA1HKA010B	50V 1U
C502	ECEA1EKA4R7B	25V 4.7U
C504, 505	RCE1CKA100BG	16V 10U
C601⚠	ECA1EM222B	25V 2200U
C602	ECA1EM221B	25V 220U
C603	ECKR2H682PE	500V 6800P
C604, 605⚠	ECA1EM102B	25V 1000U
C606⚠	RCE1HM221BV	50V 220U
C607, 608	ECBT1E103ZF	25V 0.01U
C609	ECEA1AKA221B	10V 220U
C610	ECA1AM471B	10V 470U
C611, 612	ECBT1E103ZF	25V 0.01U
C613	ECA0JM102B	6.3V 1000U
C614, 615	ECBT1E103ZF	25V 0.01U
C616	RCE1AKA101BG	10V 100U
C701	RCE1CKA100BG	16V 10U
C802	ECBT1E223ZF	25V 0.022U
C851	ECBT1E103ZF	25V 0.01U
C852	ECUV1H103ZFN	50V 0.01U

Ref. No.	Part No.	Part Name & Description	Remarks
		DECK 1	
		MECHANISM PARTS(P. B)	
102	REDO038	HEAD BLOCK(P. B)	
102-1	RHD17015	SCREW	
103	RDGO300	REEL TABLE ASS'Y	
104	RDGO301	GEAR	
105	RDKO026	GEAR	
107	RDVO033-1	BELT1	
108	RDVO034	BELT2	
110	RUW147ZA	SPRING	
111	RMBO400	SPRING	
112	RMBO403	SPRING	
113	RMBO404	SPRING	
114	RMBO406	SPRING	
115	RMBO408	SPRING	
116	RMLO370	LEVER	
117	RMLO371	LEVER	
118	RMLO372	LEVER	
119	RMLO374	LEVER	
120	RMMO131	ROD	
121	RMMO133	ROD	
122	RMQO519	REEL CAP	
123	RMSO398-1	SHAFT	
124	RSJO003	PLUNGER ASS'Y	
125	RUS609ZC	SPRING	
126	RXFO049	FLYWHEEL ASS'Y	
127	RXFO050	FLYWHEEL ASS'Y	
128	RXGO040	GEAR	
129	RMKO283	SUB CHASSIS	
130	RXLO124	PINCH ROLLER ASS'Y	
130-1	RMBO401	SPRING	
131	RXLO125	PINCH ROLLER ASS'Y	
131-1	RMBO402	SPRING	
132	RXLO126	ARM	
133	RXQO412	CHASSIS ASS'Y	
133-1	RMBO405	SPRING	
133-2	RMMO132	ROD	
134	REMO055	MOTOR ASS'Y	
135	RHD26022	SCREW	
136	XTW2+5L	SCREW	
137	XTW26+10S	SCREW	
138	XYC2+JF17	SCREW	
140	RFKJSTR280PP	MAIN CHASSIS ASS'Y	
141	XTBS26+8J	SCREW	
142	REZO893	WIRE ASS'Y	

Ref. No.	Part No.	Part Name & Description	Remarks
		DECK 2	
		MECHANISM PARTS(R/P)	
202	REDO037	HEAD BLOCK(R/P)	
202-1	RHD17015	SCREW	
203	RDGO300	REEL TABLE ASS'Y	
204	RDGO301	GEAR	
205	RDKO026	GEAR	
207	RDVO033-1	BELT1	
208	RDVO034	BELT2	
210	RMBO399	SPRING	
211	RMBO400	SPRING	
212	RMBO403	SPRING	
213	RMBO404	SPRING	
214	RMBO406	SPRING	
215	RMBO408	SPRING	
216	RMLO370	LEVER	
217	RMLO371	LEVER	
218	RMLO372	LEVER	
219	RMLO374	LEVER	
220	RMMO131	ROD	
221	RMMO133	ROD	
222	RMQO519	REEL CAP	
223	RMSO398-1	SHAFT	
224	RSJO003	PLUNGER ASS'Y	
225	RUS609ZC	SPRING	
226	RXFO049	FLYWHEEL ASS'Y	
227	RXFO050	FLYWHEEL ASS'Y	
228	RXGO040	GEAR	
229	RMKO283	SUB CHASSIS	
230	RXLO124	PINCH ROLLER ASS'Y	
230-1	RMBO401	SPRING	
231	RXLO125	PINCH ROLLER ASS'Y	
231-1	RMBO402	SPRING	
232	RXLO126	ARM	
233	RXQO412	CHASSIS ASS'Y	
233-1	RMBO405	SPIRNG	
233-2	RMMO132	ROD	
234	REMO055	MOTOR ASS'Y	
235	RHD26022	SCREW	
236	XTW2+5L	SCREW	
237	XTW26+10S	SCREW	
238	XYC2+JF17	SCREW	
240	RFKJSTR280PP	MAIN CHASSIS ASS'Y	
241	XTBS26+8J	SCREW	
242	XYC26+JF6	SCREW	
243	RMAO942	ANGLE	

■ Mechanism Parts Location • DECK 1 (PLAYBACK)

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S951
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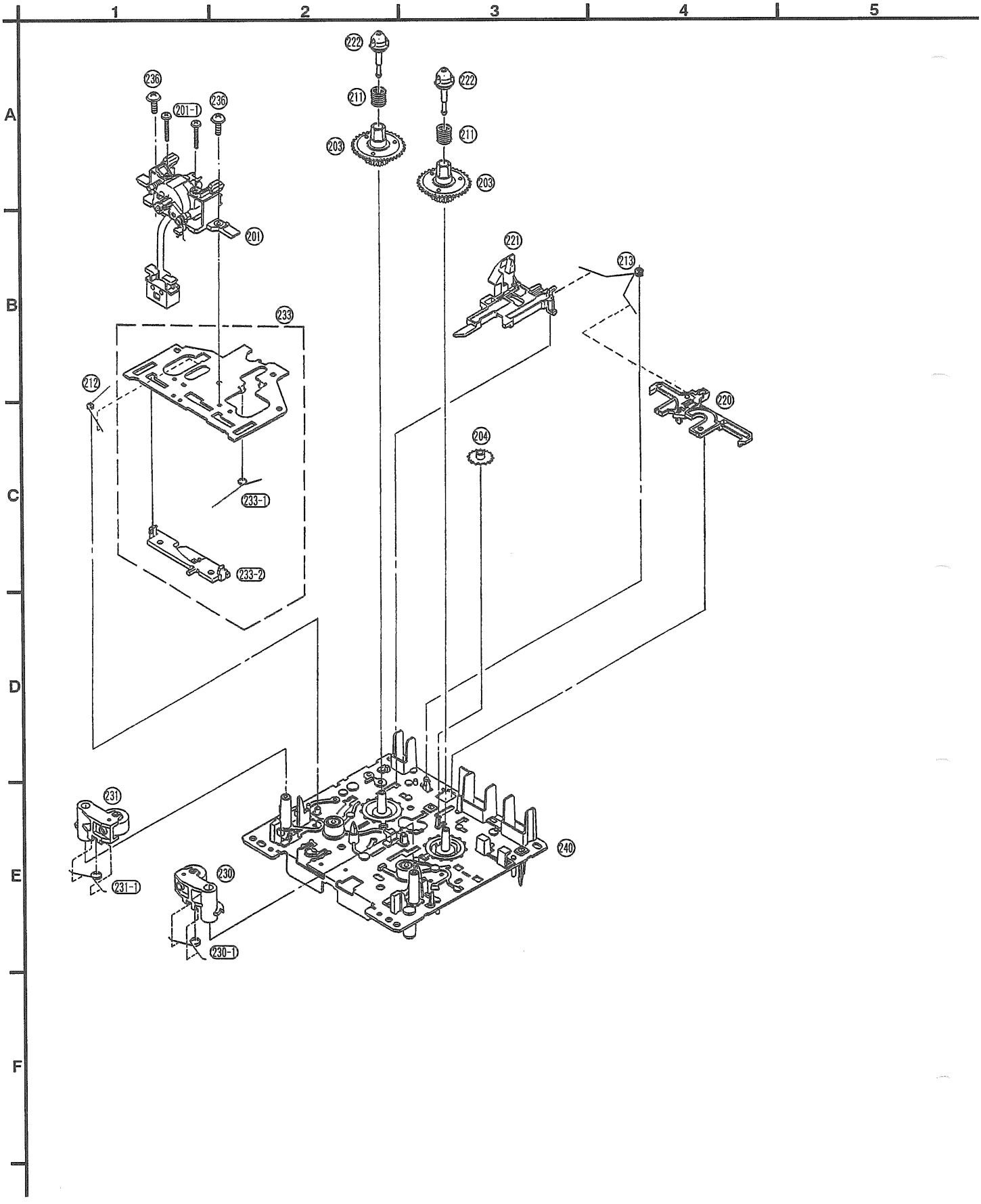
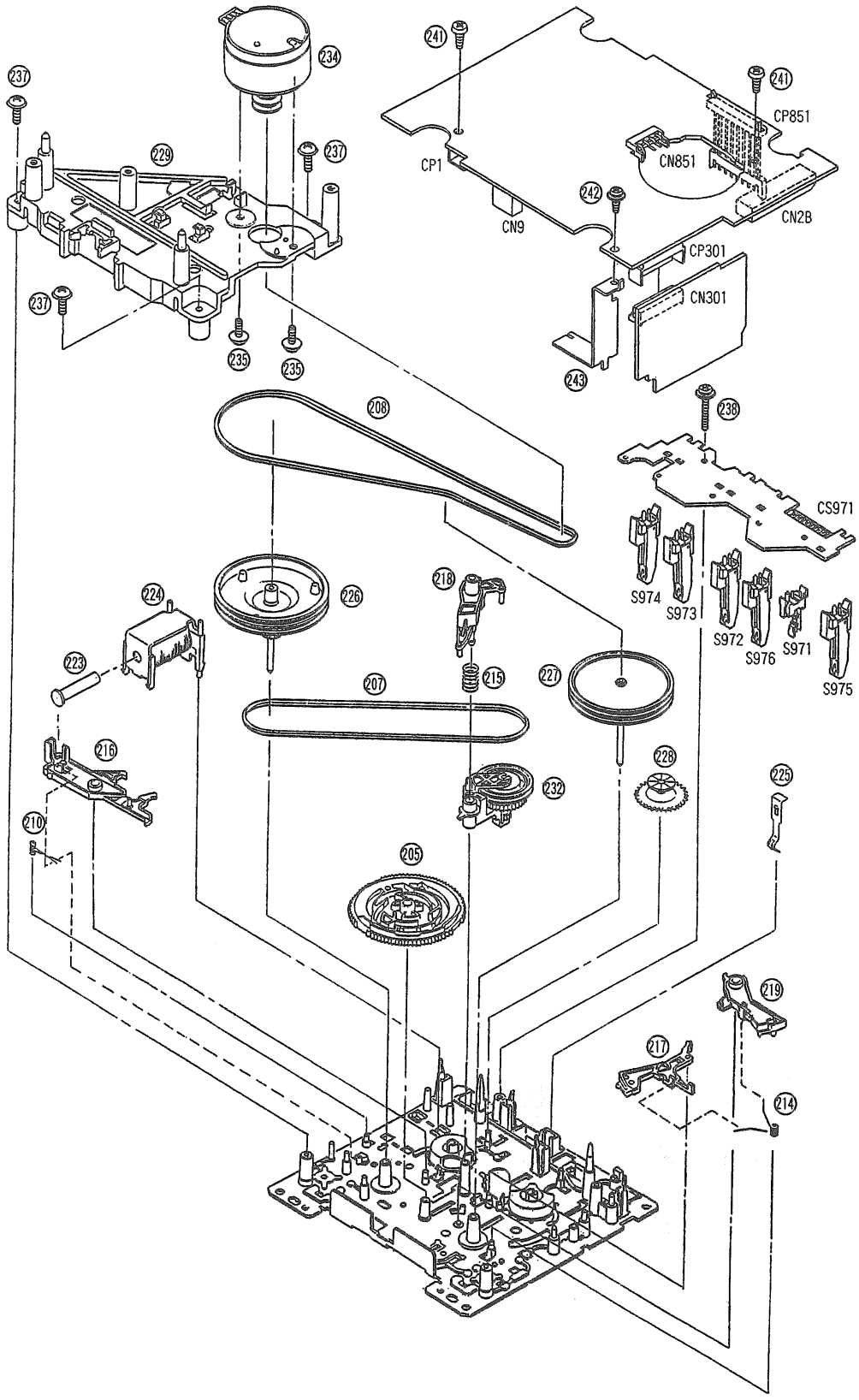
■ Mechanism Parts Location • DECK 2 (RECORD/PLAYBACK)

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CP1
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CP301
CN301
237
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243
208
238
CS971
S974
S973
S972
S976
S971
S975
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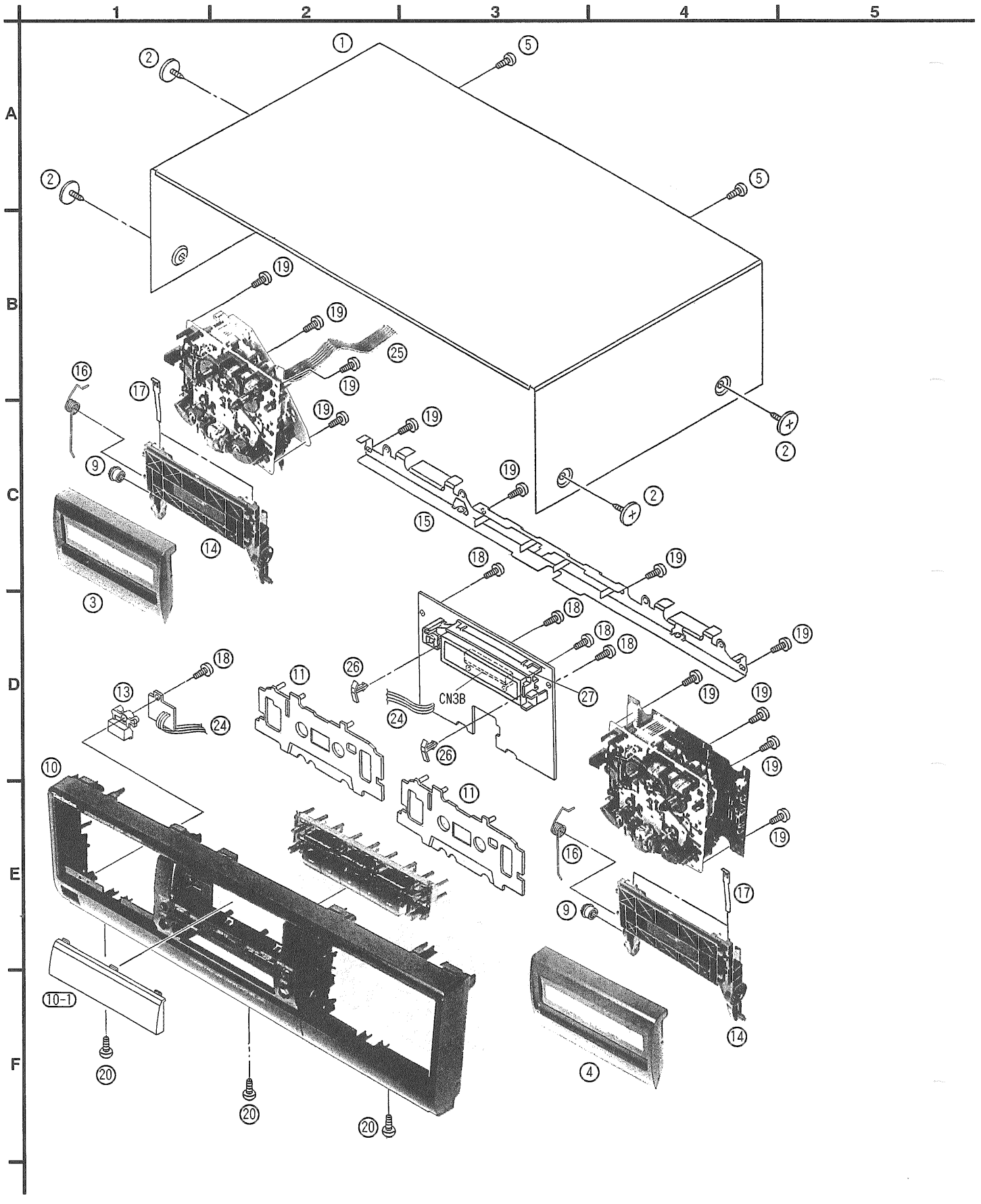
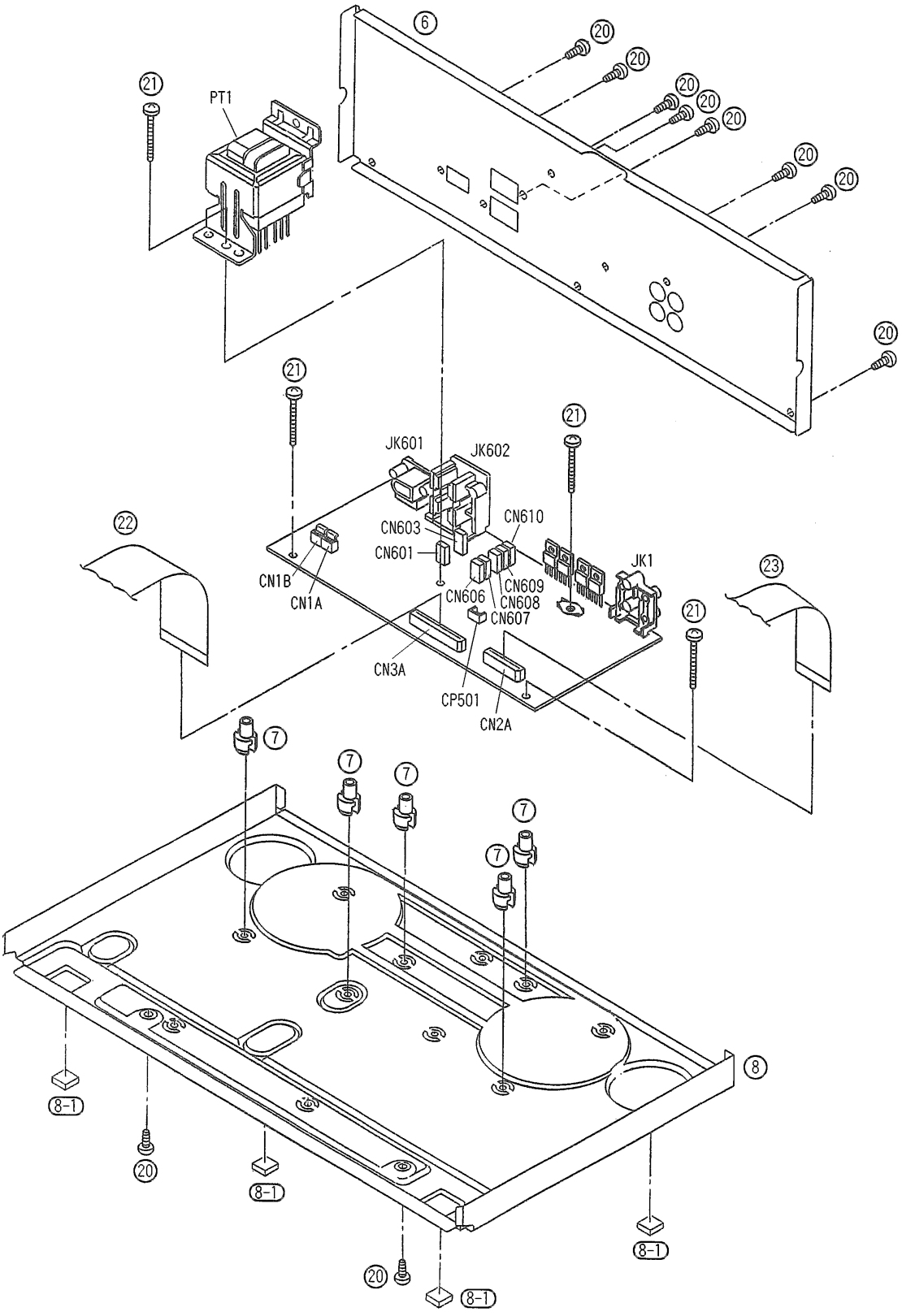
■ Cabinet Parts Location

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JK601
JK602
CN610
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CN601
JK1
CN1B
CN1A
CN609
CN606
CN608
CN607
CN3A
CP501
CN2A
⑦
⑧
⑧-1

Ref. No.	Part No.	Part Name & Description	Remarks
		CABINET PARTS	
1	RKM0260-K	CABINET	
2	RHD30035-K1	SCREW	
3	RYF0391-K	CASSETTE LID(DECK1)	
4	RYF0391B-K	CASSETTE LID(DECK2)	
5	XTBS3+8JFZ1	SCREW	
6	RGR0228D-B	REAR PANEL	
7	RKQ0089	P. C. B. HOLDER	
8	RFKJSTR180PP	BOTTOM BOARD ASS'Y	
9	RDG0357	DUMPPING GEAR	
10	RFKGSTR280PP	FRONT PANEL ASS'Y	
10-1	RKW0443-R	TRANSPARENT PLATE	
11	RGK0802-K	ORNAMENT PLATE	
12	RGU1380-K	BUTTON	
13	RGU1381-K	POWER	
14	RKF0479-K	CASSETTE HOLDER	
15	RMA0766	MECHANISM ANGLE	
16	RMB0477	OPEN SPRING	
17	RUS757ZA	SPRING	
18	XTBS26+8J	SCREW	
19	XTB3+10JFZ	SCREW	
20	XTBS3+8JFZ1	SCREW	
21	XTB3+20JFZ	SCREW	
22	REZ0787	FLAT CABLE(34P)	
23	REZ0788	FLAT CABLE(23P)	
24	REZ0823	FLAT CABLE(3P)	
25	RMN0195	STOPPER	
26	RMN0259	HOLDER	
		PACKING MATERIAL	
P1	RPG2849	PACKING CASE	
P2	RPN0664-1	CUSHION	
P3	SPP740	PROTECTION COVER	

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