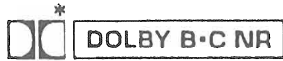


# Service Manual

Dolby NR-Equipped  
Stereo Double Cassette Deck

Cassette Deck  
**RS-CH7**



**Color**  
(K) ..... Black Type



**Area**

Country Code	Area	Color
(PP)	U.S.A./Canada.	(K)

**System: SC-CH7**

**RS-TR165 MECHANISM SERIES (AR300)**

Because of unique interconnecting cables, when a component requires service, send or bring in the entire system.

■ **SPECIFICATIONS**

<b>Track system</b>	Compact cassette stereo
<b>Tape speed</b>	4.8 cm/sec. (1 7/8 ips)
<b>Bias frequency</b>	80 kHz
<b>Heads</b>	
<b>(DECK 2) REC/PLAY</b>	Permalloy head
Erasing	Double-gap ferrite head
<b>(DECK 1) PLAY</b>	Permalloy head
<b>Motors</b>	
<b>(DECK 2)</b>	DC servo motor
<b>(DECK 1)</b>	DC servo motor
<b>Wow and flutter</b>	0.1% (WRMS)
<b>Fast Forward and Rewind Time</b>	Approx. 110 seconds with C-60 cassette tape
<b>Frequency response</b>	
<b>METAL</b>	30 Hz~17 kHz
<b>CrO<sub>2</sub></b>	30 Hz~16 kHz
<b>NORMAL</b>	30 Hz~16 kHz

**S/N** (signal level=max recording level, CrO<sub>2</sub> type tape)  
**DOLBY B NR on** 66 dB (CCIR)  
**DOLBY C NR on** 74 dB (CCIR)  
**DOLBY off** 56 dB (A WTD)

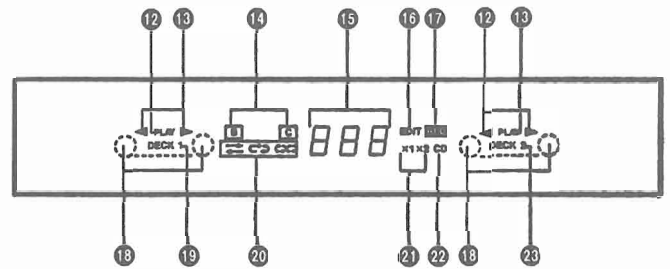
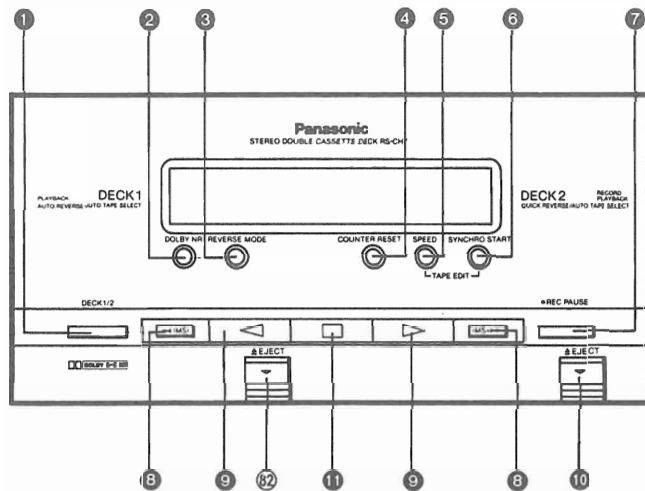
■ **GENERAL**  
**Power consumption** 16 W  
**Dimensions (W×H×D)** 215×110×297 mm  
 (8 1/32"×4 1/32"×11 1/16")  
**Weight** 2.6 kg (5.7 lb.)

**Notes:**  
 1. Specifications are subject to change without notice.  
 2. Weight and dimensions shown are approximate.

System	Tuner	Amplifier	CD Player	Cassette Deck	Speakers
SC-CH7	ST-CH7	SU-CH7	SL-CH7	RS-CH7	SB-CH7



## LOCATION OF CONTROLS



### Cassette deck section

- 1 Deck 1/deck 2 selector (DECK 1/2)**  
This button is used to select the deck to be operated.
- 2 Dolby noise reduction button (DOLBY NR)**  
This button is used to reduce the hissing noise heard from the tape. This unit is provided with both the Dolby B-type and Dolby C-type noise reduction systems.
- 3 Reverse mode button (REVERSE MODE)**  
This button is used to select the reverse mode (for playback or recording).
- 4 Tape counter reset button (COUNTER RESET)**  
This button is used to reset the tape counter indicator to "000".
- 5 Edit speed button (SPEED)**  
This button is used to select the recording speed when edit-recording tapes.
- 6 Synchro-start button (SYNCHRO START)**  
This button is used to start a tape-to-tape recording, simultaneously starting deck 1 (the playback deck) and the deck 2 (the recording deck).
- 7 Record/record standby button (● REC PAUSE)**  
This button is used to put deck 2 into the record standby mode.
- 8 Fast-forward/rewind/music select button (← (MS), (MS) →)**  
These buttons are used to advance or rewind the tape, or to quickly search for the beginning of a tune while the tape is being played.
- 9 Playback button (◀, ▶)**  
These buttons are used to start the playback or recording (deck 2 only).
- 10 Eject button (▲ EJECT)**  
This button is used to open the cassette holder.
- 11 Stop button (□)**  
This button is used to stop the tape movement.

### Display section

- 12 Playback indicator (PLAY)**  
Illuminates to show that deck 1 or 2 is in the playback mode or recording mode (deck 2).
- 13 Tape travel direction indicators (◀, ▶)**  
One of these indicators illuminates to show the direction of tape travel.
- 14 Dolby noise reduction indicators (B, C)**  
Each indicator illuminates to show the type of Dolby noise reduction system selected by pressing the Dolby noise reduction button.
- 15 Tape counter**  
Indicates the amount of tape movement separately for deck 1 or deck 2.
- 16 Edit indicator (EDIT)**  
Illuminates when edit-recording tapes or CD.
- 17 Recording indicator (REC)**  
Illuminates to indicate that deck 2 is in the recording standby or recording mode.
- 18 Tape indicator**  
Illuminates to show that there is a tape in the cassette holder of deck 1 or deck 2.
- 19 Deck 1 operating indicator (DECK 1)**  
Illuminates to show that deck 1 can be operated.
- 20 Reverse mode indicators (↔, ↔, ↔)**  
Each indicator illuminates to show which of the reverse modes was selected by the reverse mode button.
- 21 Edit speed indicators (×1, ×2)**  
One of these indicators will illuminate to show which of the tape-to-tape recording speeds was selected by pressing the edit speed button.
- 22 CD indicator (CD)**  
Illuminates when edit-recording a CD.
- 23 Deck 2 operating indicator (DECK 2)**  
Illuminates to show that deck 2 can be operated.

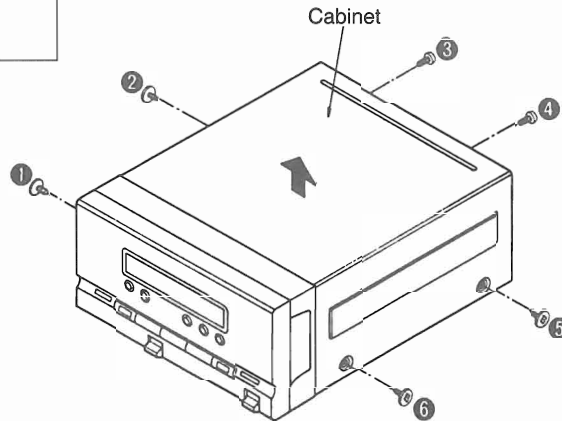
# DISASSEMBLY INSTRUCTIONS

**“ATTENTION SERVICER”**

Some chassis components may have sharp edges. Be careful when disassembling and servicing.

**Ref. No. 1**      **Removal of the Cabinet**

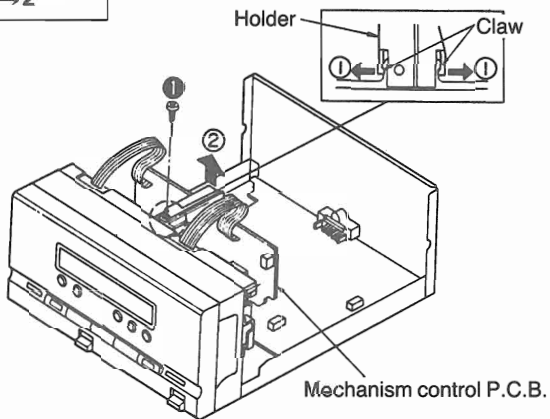
**Procedure 1**



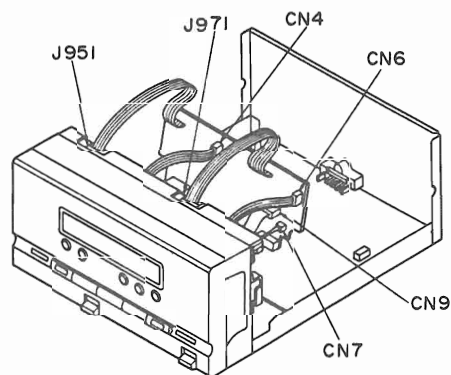
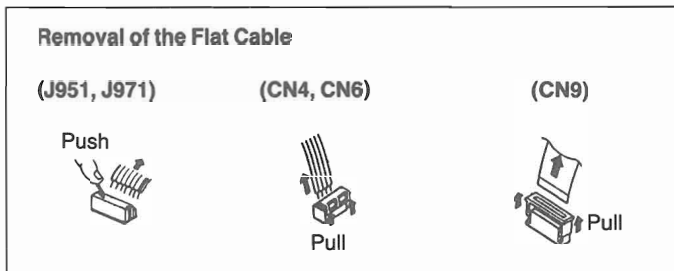
● Remove 6 screws (①~⑥).

**Ref. No. 2**      **Removal of the Mechanism Control P.C.B.**

**Procedure 1→2**



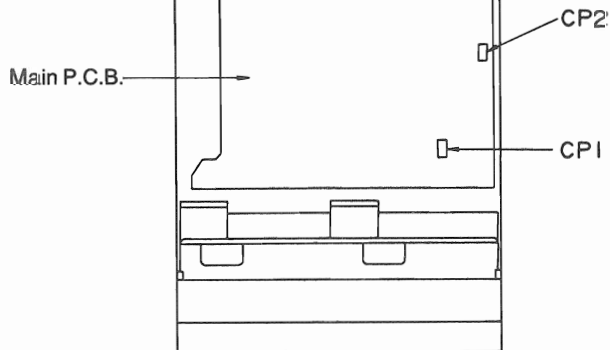
1. Remove the screw (①).
2. Remove 2 claw in the direction of arrow ① and then remove the holder.
3. Remove the mechanism control P.C.B. in the direction of arrow ②.



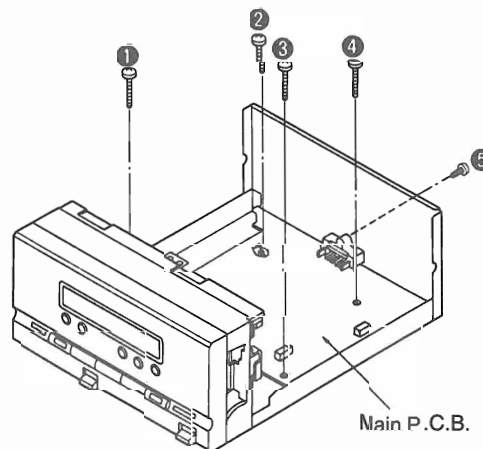
4. Remove 5 flat cable (CN4, CN6, CN9, J951, J971).
5. Remove the connector (CN7).

**Ref. No. 3**      **Removal of the Main P.C.B.**

**Procedure 1→2→3**

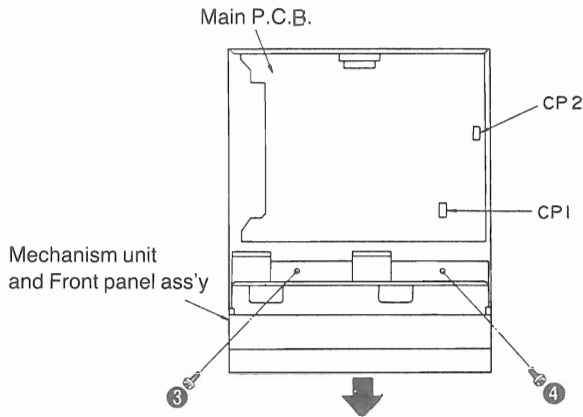
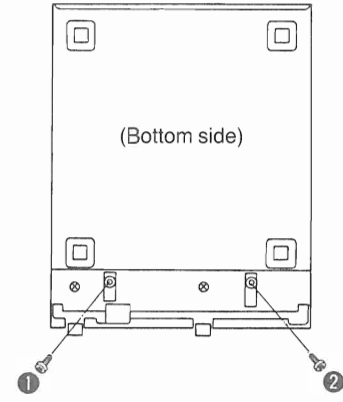
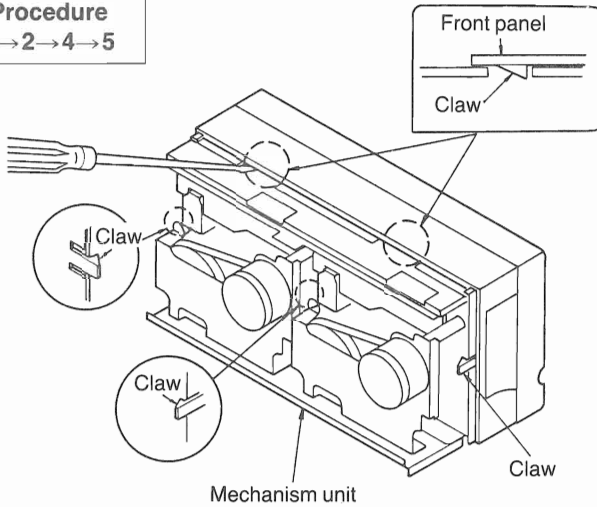
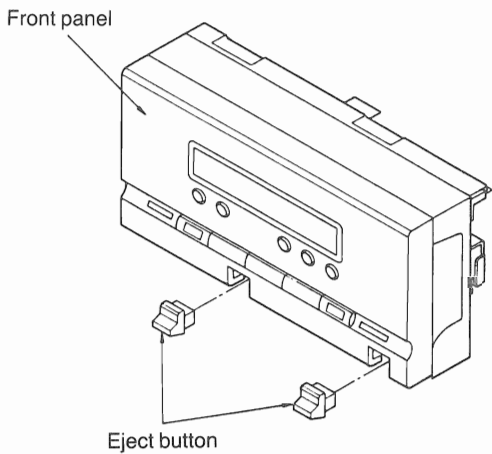
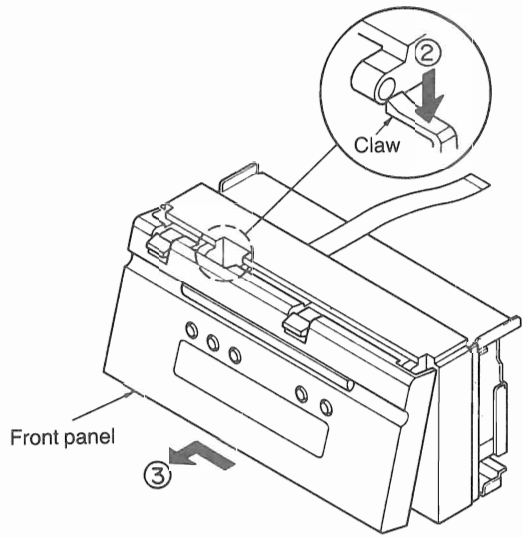
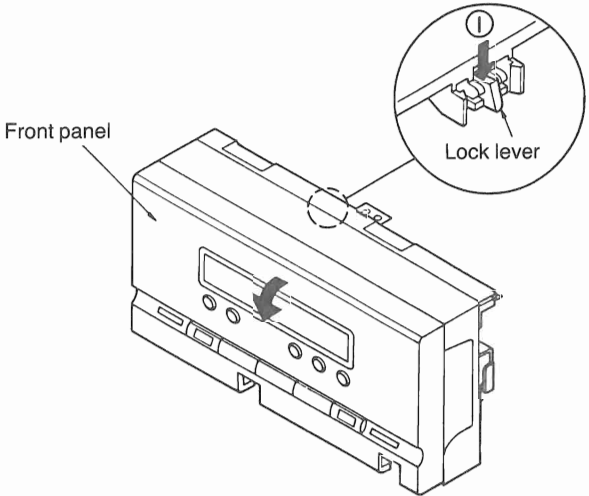


1. Remove 2 connector (CP1, CP2).



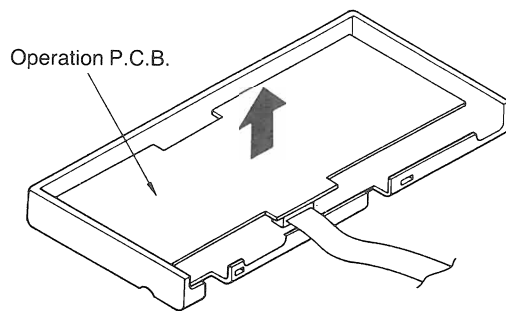
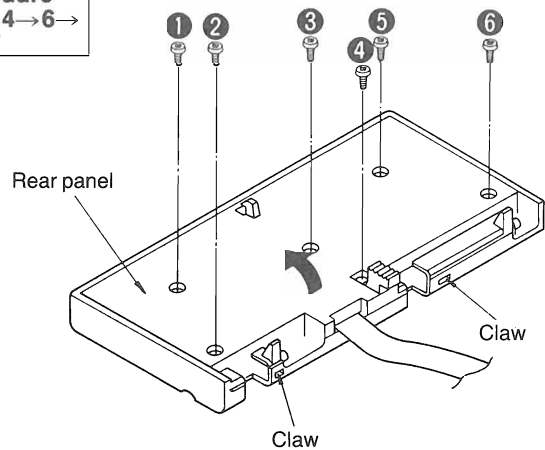
2. Remove 5 screws (①~⑤).



<p><b>Ref. No.</b> 4</p>	<p><b>Removal of the Mechanism Unit/Front Panel Ass'y</b></p>	 <p>Main P.C.B.</p> <p>CP2</p> <p>CP1</p> <p>Mechanism unit and Front panel ass'y</p> <p>1</p> <p>2</p> <p>3</p> <p>4</p> <p>2. Remove 2 connectors (CP1, CP2).</p> <p>3. Remove the mechanism unit and front panel in the direction of the arrow.</p>
<p><b>Procedure</b> 1→2→4</p>  <p>(Bottom side)</p> <p>1. Remove 4 screws (1~4).</p>	<p><b>Ref. No.</b> 5</p> <p><b>Removal of the Mechanism Unit</b></p> <p><b>Procedure</b> 1→2→4→5</p>  <p>Front panel</p> <p>Claw</p> <p>Claw</p> <p>Mechanism unit</p> <p>Claw</p> <p>Claw</p> <p>Claw</p> <p>●Remove 5 claws.</p>	<p><b>Ref. No.</b> 6</p> <p><b>Removal of the Front Panel</b></p> <p><b>Procedure</b> 1→2→4→6</p>  <p>Front panel</p> <p>Eject button</p> <p>1. Pull out the eject buttons. (DECK 1, DECK 2).</p>
 <p>Front panel</p> <p>Claw</p> <p>2</p> <p>3</p> <p>3. Push the claw in the direction of arrow ②, and then remove the front panel in the direction of arrow ③.</p>	 <p>Front panel</p> <p>Lock lever</p> <p>1</p> <p>2. Push the lever in the direction of the arrow ①, and then open the front panel.</p>	

**Ref. No. 7**      **Removal of the Operation P.C.B.**

**Procedure**  
1→2→4→6→7

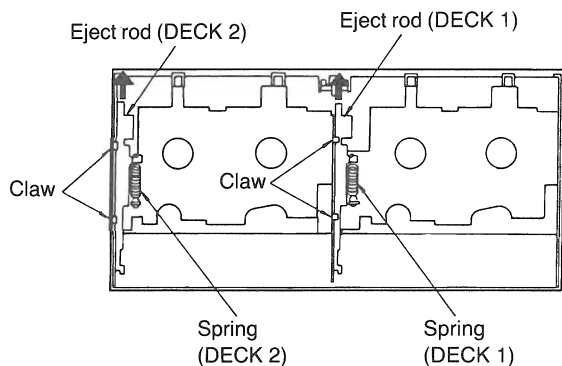


1. Remove 6 screws (①~⑥).
2. Remove 2 claws.
3. Remove the rear panel in the direction of arrow.

4. Remove the operation P.C.B. in the direction of arrow.

**Ref. No. 8**      **Removal of the Eject rod (DECK 1 and DECK 2)**

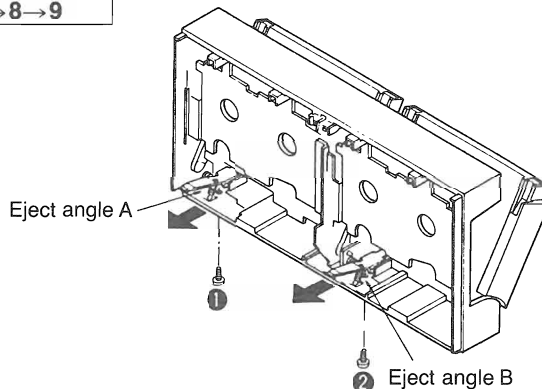
**Procedure**  
1→2→4→5→6→8



1. Push the eject rod in the direction of arrow and then open the cassette holder.
2. Remove the spring (DECK 1, DECK 2).
3. Press 4 claws and then remove the eject rod.

**Ref. No. 9**      **Removal of the Eject Angle (A) and Eject Angle (B)**

**Procedure**  
1→2→4→5→6→8→9



■ **Removal of the Eject Angle (A)**

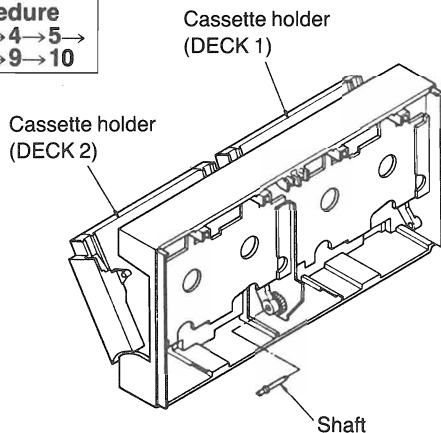
1. Remove the screw (①).
2. Pull out the eject angle (A).

■ **Removal of the Eject Angle (B)**

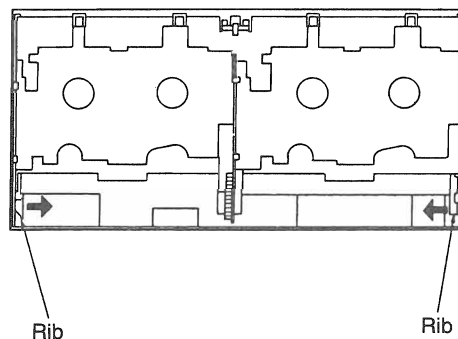
1. Remove the screw (②).
2. Pull out the eject angle (B).

**Ref. No. 10**      **Removal of the Cassette Holder (DECK 1 and DECK 2)**

**Procedure**  
1→2→4→5→6→8→9→10

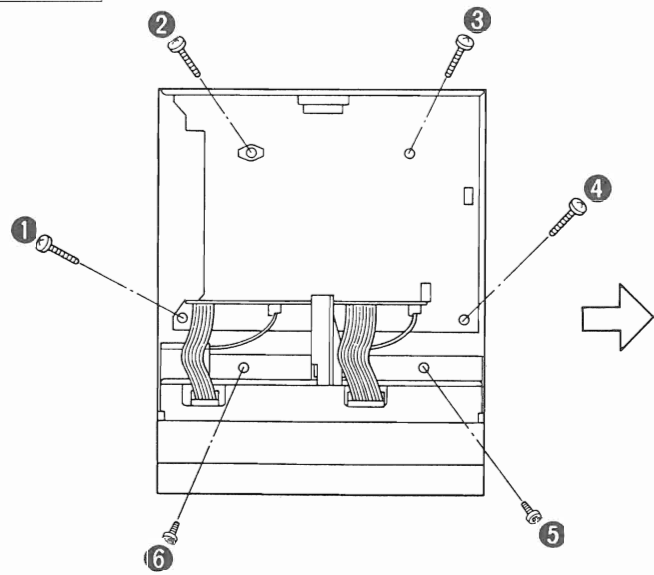


1. Pull out the shaft.

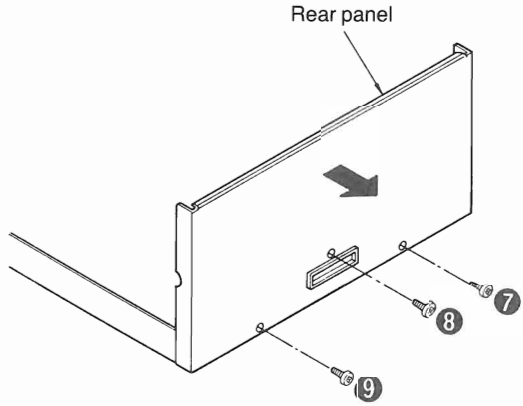


2. Push the rib in the direction of arrow and then remove the cassette holder.

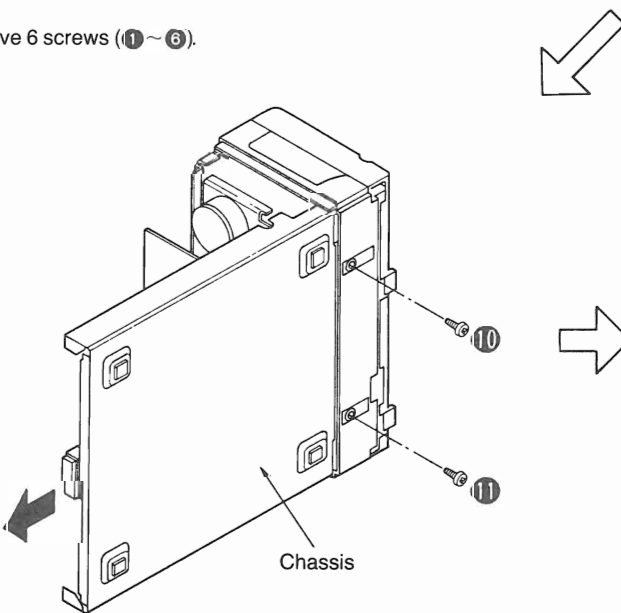
Ref. No. 11	Check of the Main P.C.B.
Procedure 1→11	



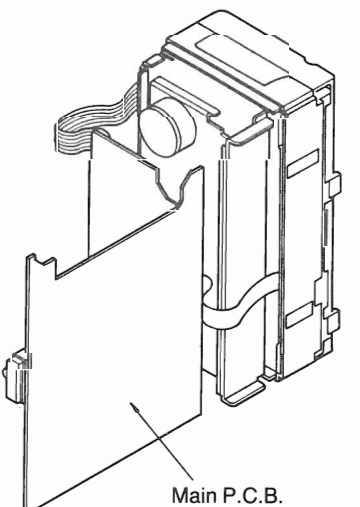
1. Remove 6 screws (1~6).



2. Remove 3 screws (7~9).  
3. Remove the rear panel in the direction of arrow.



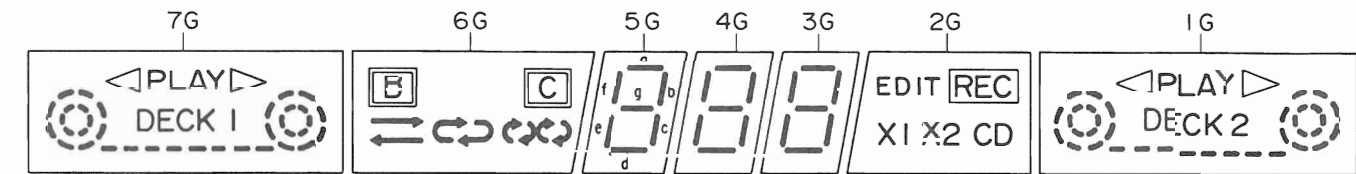
4. Remove 2 screws (10~11).  
5. Remove the chassis in the direction of arrow.



6. Check the main P.C.B. in the direction of arrow.

### DESCRIPTION OF FL PANEL [FL 1 (RSL0088-F)]

#### Grid assignment



#### Pin connection

Pin No.	3	3	3	3	3	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	0	9	8	7	6	5	4	3	2	1		
Connection	F	F	N	P	P	P	P	P	P	P	N	N	N	N	N	N	N	N	N	N	N	N	N	C	C	7	6	5	4	3	2	1	N	F	F

#### Anode connection

	7G	6G	5G	4G	3G	2G	1G
P1	<	[B]	a	a	a	EDIT	<
P2	PLAY	-	b	b	b	[REC]	PLAY
P3	S1	[X1]	c	c	c	X1	S1
P4	S3	-	d	d	d	CD	S3
P5	S2	[X2]	e	e	e	X2	S2
P6	>	[C]	f	f	f	-	>
P7	DECK1	[DECK]	g	g	g	-	DECK2
P8	S4	-	-	-	-	-	S4
P9	S5	-	-	-	-	-	S5

## MEASUREMENTS AND ADJUSTMENTS

This tape deck (RS-CH7) is powered by the amplifier (SU-CH7).

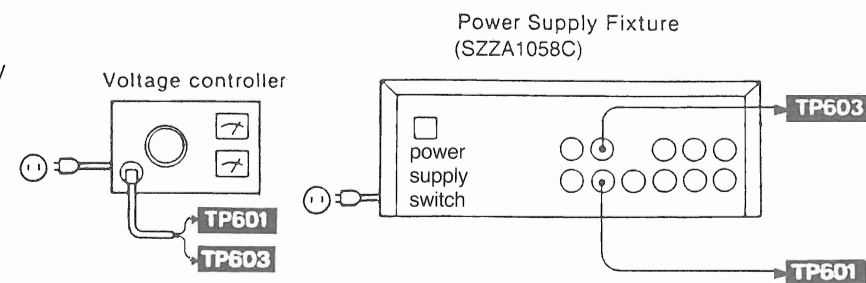
To adjust or check operations on the tape deck as a separate unit, follow the steps below.

1. Apply a power supply voltage of AC 20 V to TP601 and TP603.
2. Short-circuit TP504 and TP602 (GND) (power supply switch: ON).

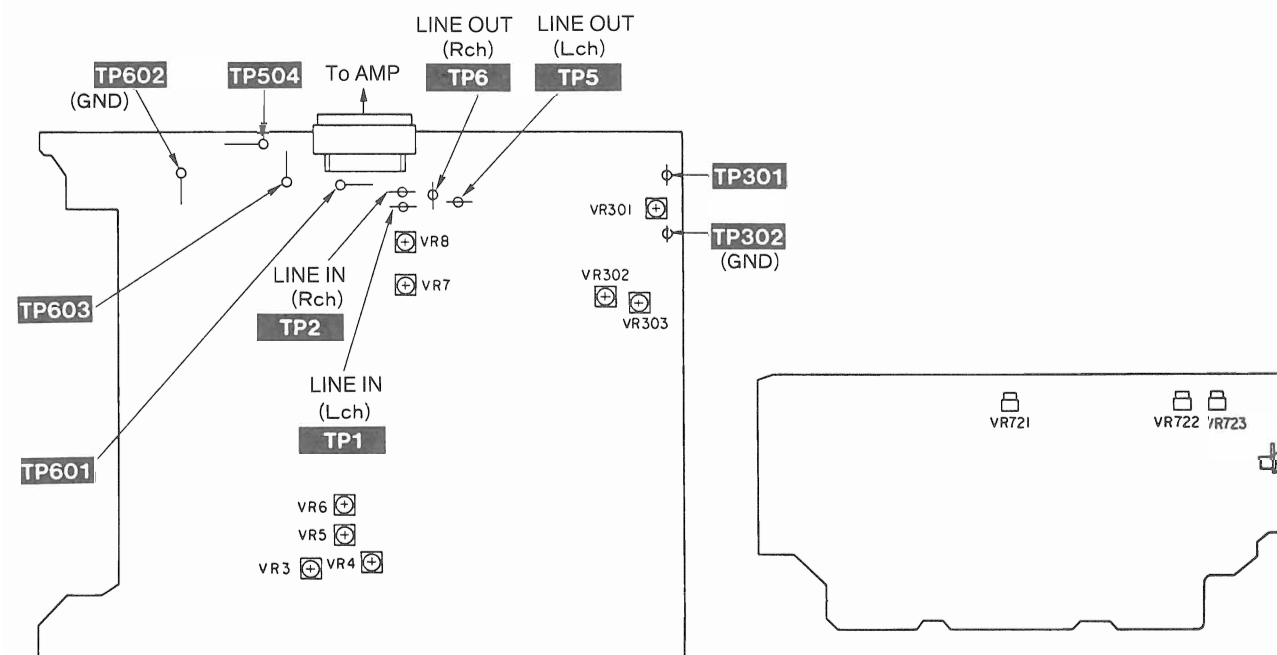
### HOW TO CONNECT

Note:

Apply a power supply voltage of AC 20 V to TP601 and TP603 by using a Voltage Controller. If it is not available, use a Power Supply Fixture (SZZA1058C) instead.



### Adjustment points



### Measurement Condition

- Rec. level control; Maximum
- Reverse-mode selector switch;  $\rightarrow$
- Edit-recording tape-speed selector; NORMAL
- Timer-recording switch; off

- Dolby NR switch; Off
- Make sure heads are clean
- Make sure capstan and pressure roller are clean
- Judgeable room temperature  $20 \pm 5^\circ\text{C}$  ( $68 \pm 9^\circ\text{F}$ )

### Measuring instrument

- EVM (Electronic Voltmeter)
- Oscilloscope
- Digital frequency counter
- AF oscillator

- ATT (Attenuator)
- DC voltmeter
- Resistor (600 $\Omega$ )

### Test tape

- Head azimuth adjustment (8 kHz, -20 dB); QZZCFM
- Tape speed adjustment (3 kHz, -10 dB); QZZCWAT
- Playback frequency response (315 Hz, 12.5 kHz, 10 kHz, 8 kHz, 4 kHz, 1 kHz, 250 Hz, 125 Hz, 63 Hz, -20 dB); QZZCFM

- Playback gain adjustment (315 Hz, 0 dB); QZZCFM
- Overall frequency response, Overall gain adjustment Normal reference blank tape; QZZCRA
- CrO<sub>2</sub> reference blank tape; QZZCRX
- Metal reference blank tape; QZZCRZ

### HEAD AZIMUTH ADJUSTMENT (DECK 1/2)

1. Playback the azimuth adjustment portion (8 kHz, -20 dB) of the test tape (QZZCFM). Vary the azimuth adjusting screw until the outputs of the L-CH and R-CH are maximized and the sinusoidal waveform, as illustrated, approaches 0 degrees.

Note: If L-CH and R-CH are not maximized at the same point, adjust to the point where the levels of each channel are maximized and equal.

2. Perform the same adjustment in the play mode.
3. After the adjustment, apply screwlock to the azimuth adjusting screw.

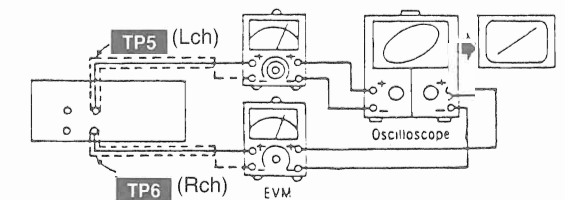


Fig. 1

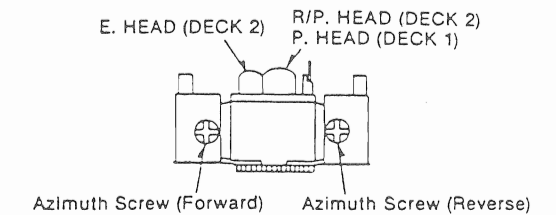


Fig. 2

### TAPE SPEED ADJUSTMENT (DECK 1/2)

#### Normal speed

1. Shift the edit-recording tape-speed selector to "NORMAL".
2. Playback the middle portion of the test tape (QZZCWAT).
3. Adjust Deck 1=VR721 and Deck 2=VR723 so that the output is within the standard value.

Standard value:  $3000 \pm 15$  Hz (NORMAL speed)

#### High speed [Set the unit to forward (FWD) mode.]

4. Push the edit speed button (SPEED). This will set the high speed mode.
5. Playback the middle portion on the test tape (QZZCWAT).
6. At that time, check if the output from DECK 1 is within the standard value.

Standard value:  $6000 \pm 600$  Hz (HIGH speed)

7. Adjust VR722 so that the output frequency of DECK 2 is within  $\pm 30$  Hz of the value of the output frequency of DECK 1.

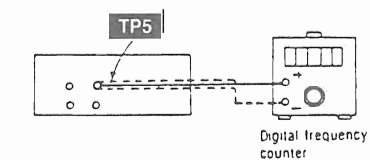


Fig. 3

### PLAYBACK GAIN ADJUSTMENT (DECK 1/2)

1. Playback the gain adjusted portion (315 Hz, 0 dB) of the test tape (QZZCFM).
2. Adjust Deck 2=VR5 (L-CH) [[VR6 (R-CH)]] and Deck 1=VR3 (L-CH) [[VR4 (R-CH)]] so that the output is within the standard value.

Standard value:  $400 \text{ mV} \pm 0.5 \text{ dB}$

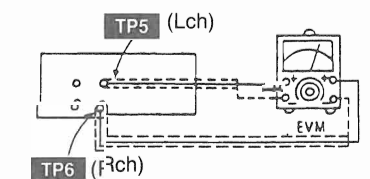


Fig. 4

### PLAYBACK FREQUENCY RESPONSE (DECK 1/2)

1. Playback the frequency response portion (315 Hz, 12.5 kHz ~ 63 Hz, -20 dB) of the test tape (QZZCFM).
2. Assure that the frequency response is within the range shown in Fig. 6 for both L-CH and R-CH.

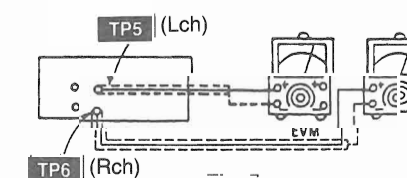


Fig. 5

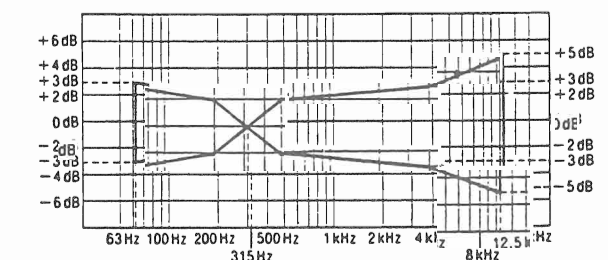


Fig. 6

**ERASE CURRENT ADJUSTMENT (DECK 2)**

1. Insert the Metal blank test tape (QZZCRZ) and set the unit to the Record Pause mode.
2. Adjust VR301 so that the output between TP301 and TP302 (GND) (the output on both edges of R302) is within the standard value.

Standard value: 190 mA ± 5 mA (Metal)

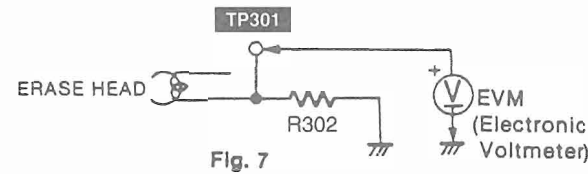


Fig. 7

**OVERALL FREQUENCY RESPONSE (DECK 2)**

1. Insert the Normal blank test tape (QZZCRA) and set the unit to the Record Pause mode.
2. Apply a reference input signal (1 kHz, -24 dB) through an attenuator.
3. Attenuate the signal by 20 dB and adjust the frequency from 50 Hz ~ 10 kHz.
4. Record the frequency sweep.
5. Playback the recorded signal and assure that it is within the range shown in Fig. 8 in comparison to the reference frequency (1 kHz).
6. If it is not within the standard range, adjust VR302 (L-CH) and VR303 (R-CH) so that the frequency level is within the standard range.
  - Level up in high frequency range . . . . . Increase the bias current.
  - Level down in high frequency range . . . . . Decrease the bias current.
7. Repeat steps 2~6 above using the CrO<sub>2</sub> tape (QZZCRX) and the Metal tape (QZZCRZ) increasing the frequency range to 12.5 kHz (50 Hz ~ 12.5 kHz).
8. Assure that the level is within the range shown in Fig. 9.

Normal Overall frequency response chart (NR OUT)

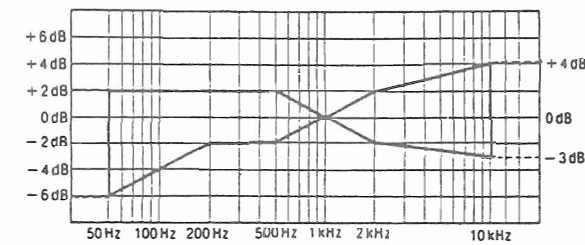


Fig. 8

CrO<sub>2</sub> Metal Overall frequency response chart (NR OUT)

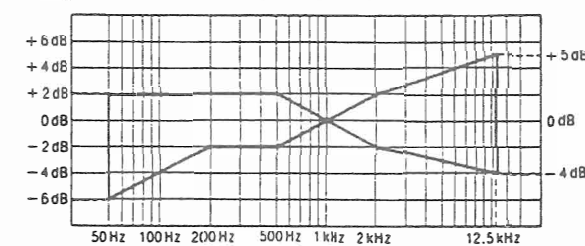


Fig. 9

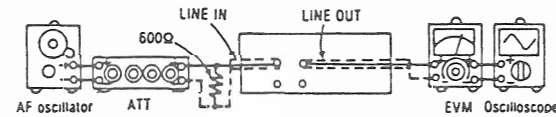


Fig. 10

LINE IN (Lch): TP1      LINE OUT (Lch): TP5  
(Rch): TP2              (Rch): TP6

**OVERALL GAIN ADJUSTMENT (DECK 2)**

1. Insert the Normal blank test tape (QZZCRA) and set the unit to the Record pause mode.
2. Apply a reference input signal (1 kHz, -19 dB). Attenuate the output so that its level becomes 0.4 V.
3. Record this input signal.
4. Playback the signal recorded in step 3 above, and assure that the output is within the standard value.
5. If it is not within the standard value, adjust VR7 (L-CH) and VR8 (R-CH).
6. Repeat the step 2~5 above until the output is within the standard value.

Standard value: 0.4 V ± 0.5 dB

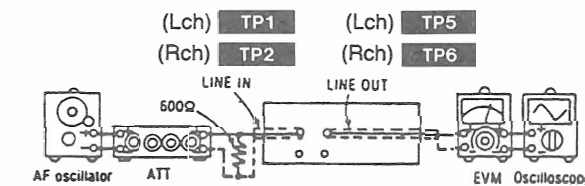
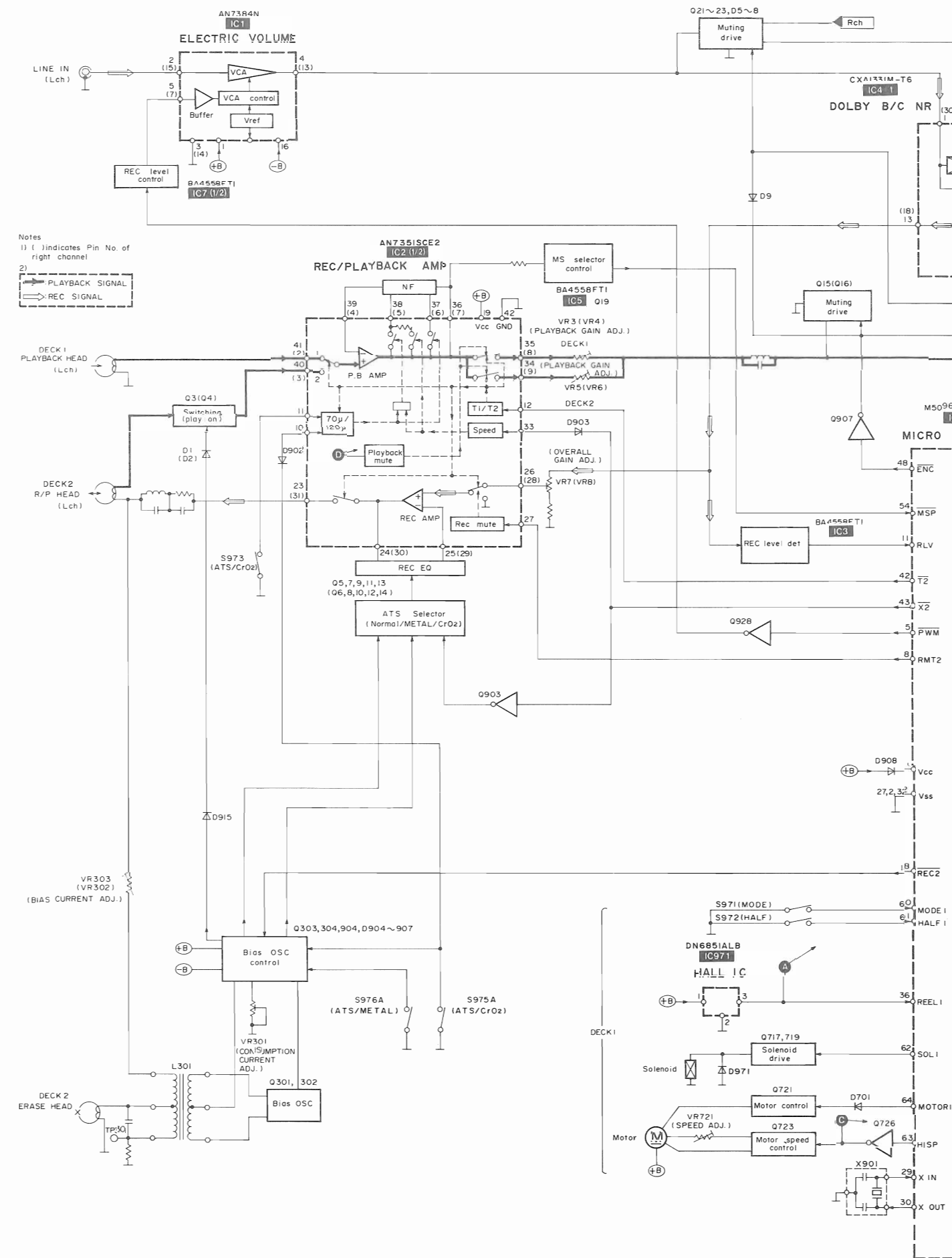


Fig. 11

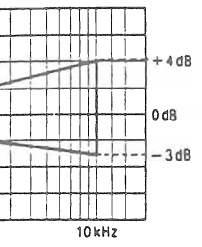
**■ BLOCK DIAGRAM**



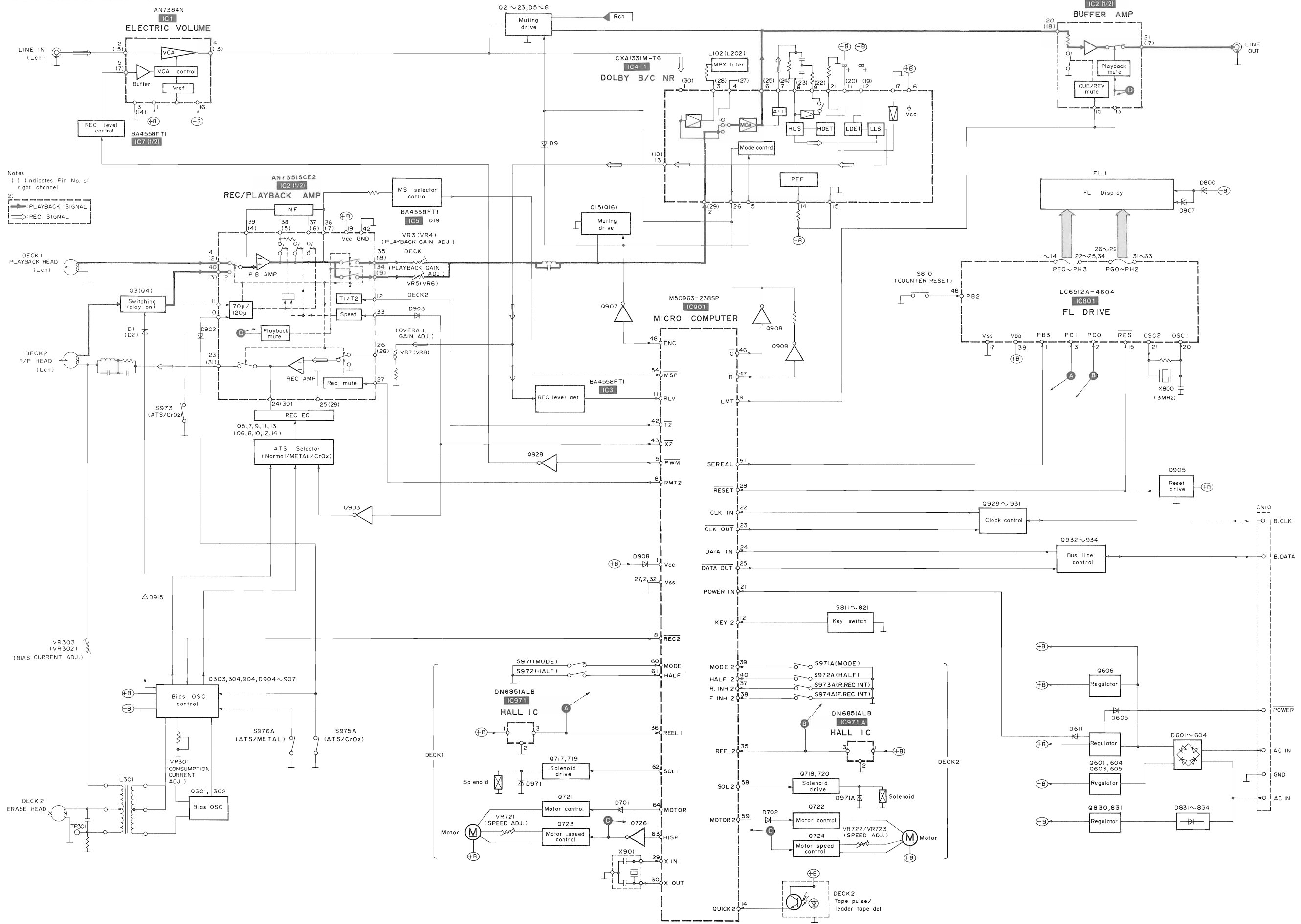
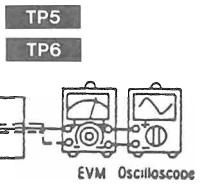
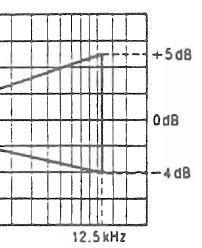
# BLOCK DIAGRAM



chart (NR OUT)

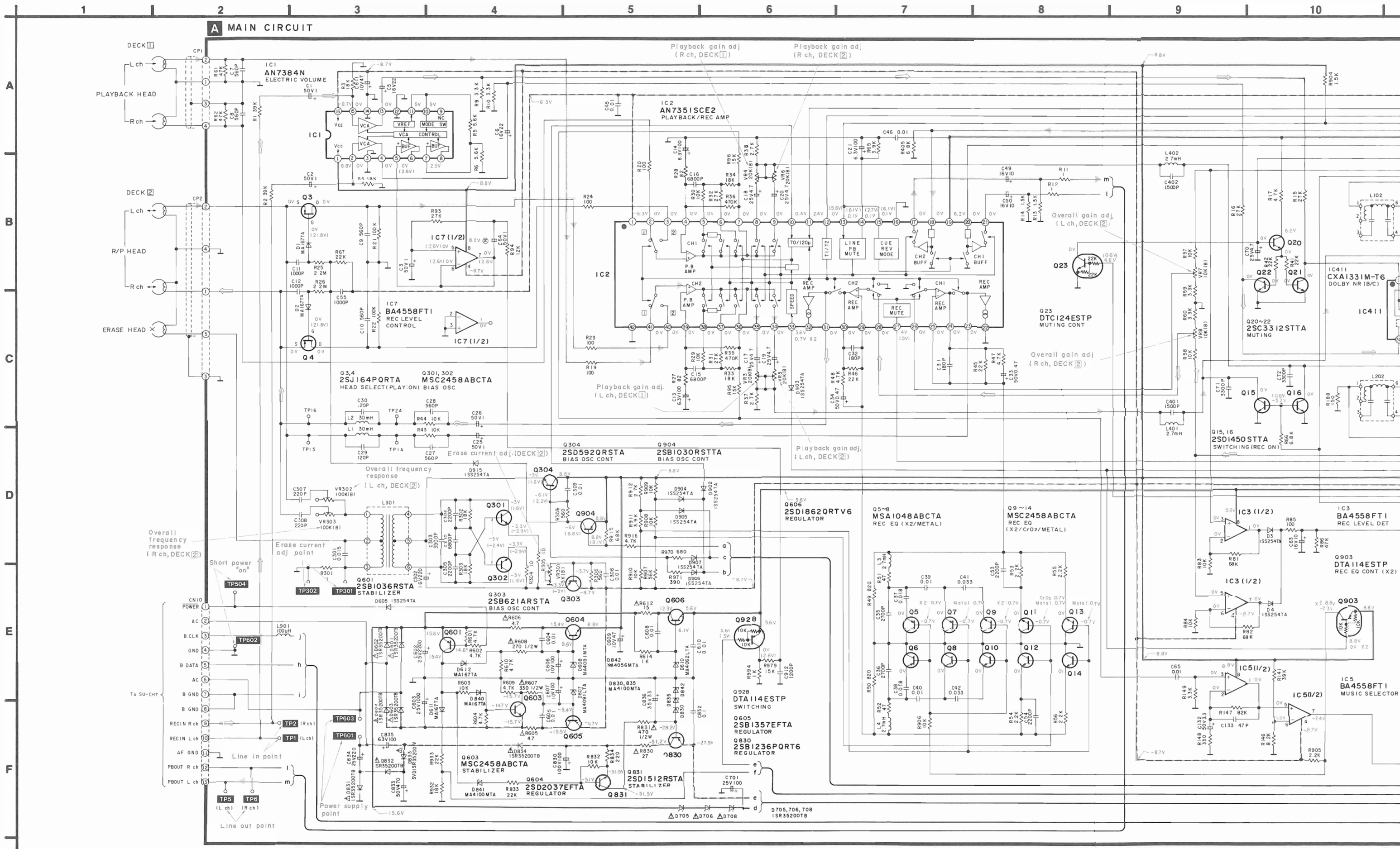


response chart (NR OUT)

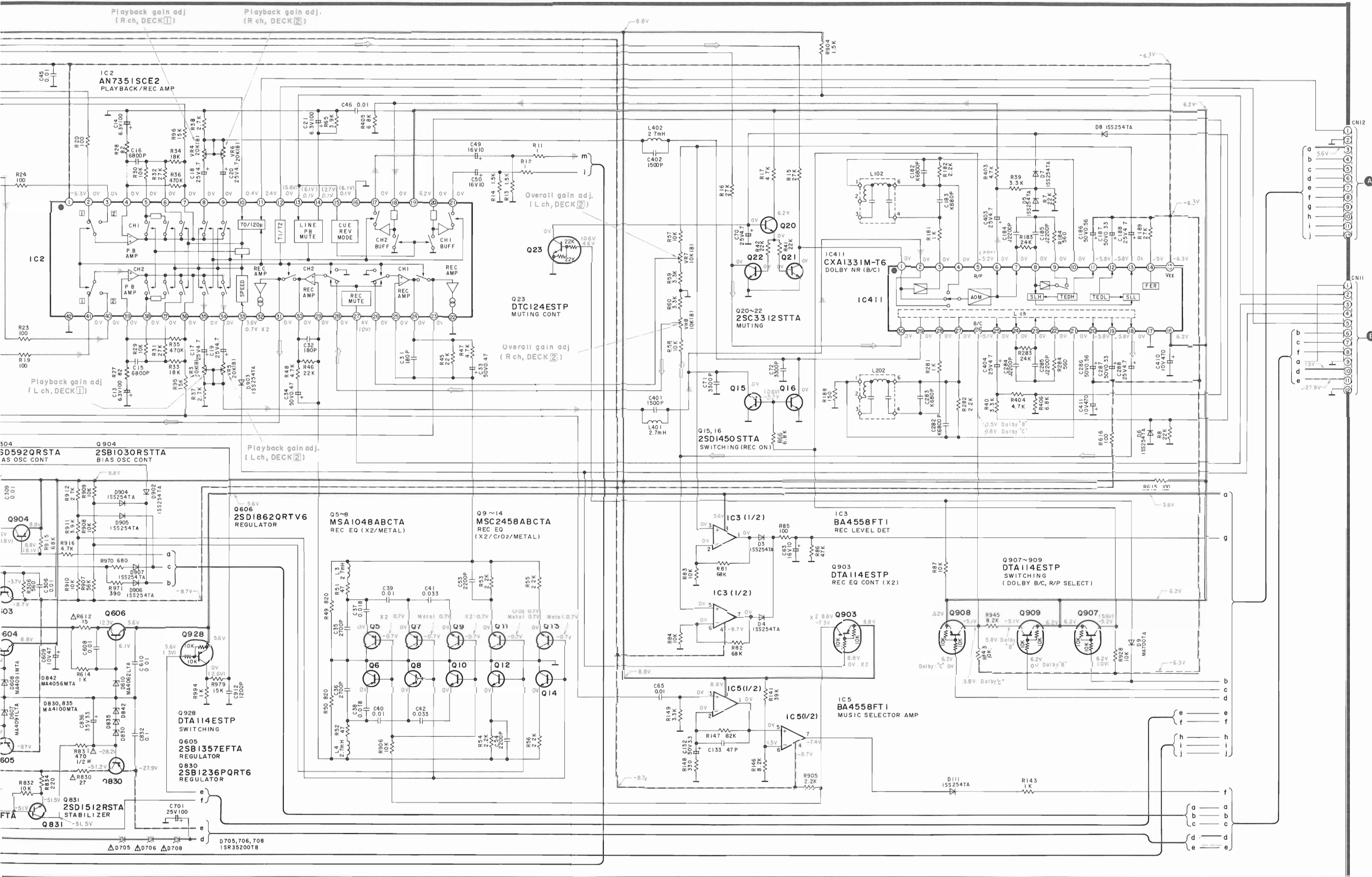


Notes  
 1) ( ) indicates Pin No. of right channel  
 2)   
 → PLAYBACK SIGNAL  
 ⇨ REC SIGNAL

SCHEMATIC DIAGRAM (Parts list on pages 25~28)









■ SCHEMATIC DIAGRAM (Parts list on pages 25~28)

Notes:

- S810 : Counter reset switch in "OFF" position. (COUNTER RESET)
- S811 : Stop switch in "OFF" position. (STOP)
- S812, 813 : FF/REW/MS switch. (S812: ▶▶, S813: ◀◀)
- S814, 815 : Playback switch. (S814: ▶, S815: ◀)
- S816 : Rec pause switch. (REC PAUSE)
- S817 : DECK 1/DECK 2 selector switch.
- S818 : Synchro start switch. (SYNCHRO START)
- S819 : Edit speed switch. (SPEED)
- S820 : Dolby NR switch in "OFF" position.
- S821 : Reverse mode switch. (REVERSE MODE)
- S971A~976A : DECK 2 mechanism leaf switch.

- S971A: Mode detect.
- S972A: Half detect.
- S973A: Reverse side record prevention tab detect.
- S974A: Forward side record prevention tab detect.
- S975A: ATS (CrO<sub>2</sub>).
- S976A: ATS (Metal).

- S971~973 : Deck 1 mechanism leaf switch.

- S971: Mode detect.
- S972: Half detect.
- S973: ATS (CrO<sub>2</sub>).

●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.

When replacing any of these components, use only manufacturer's specified parts.

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

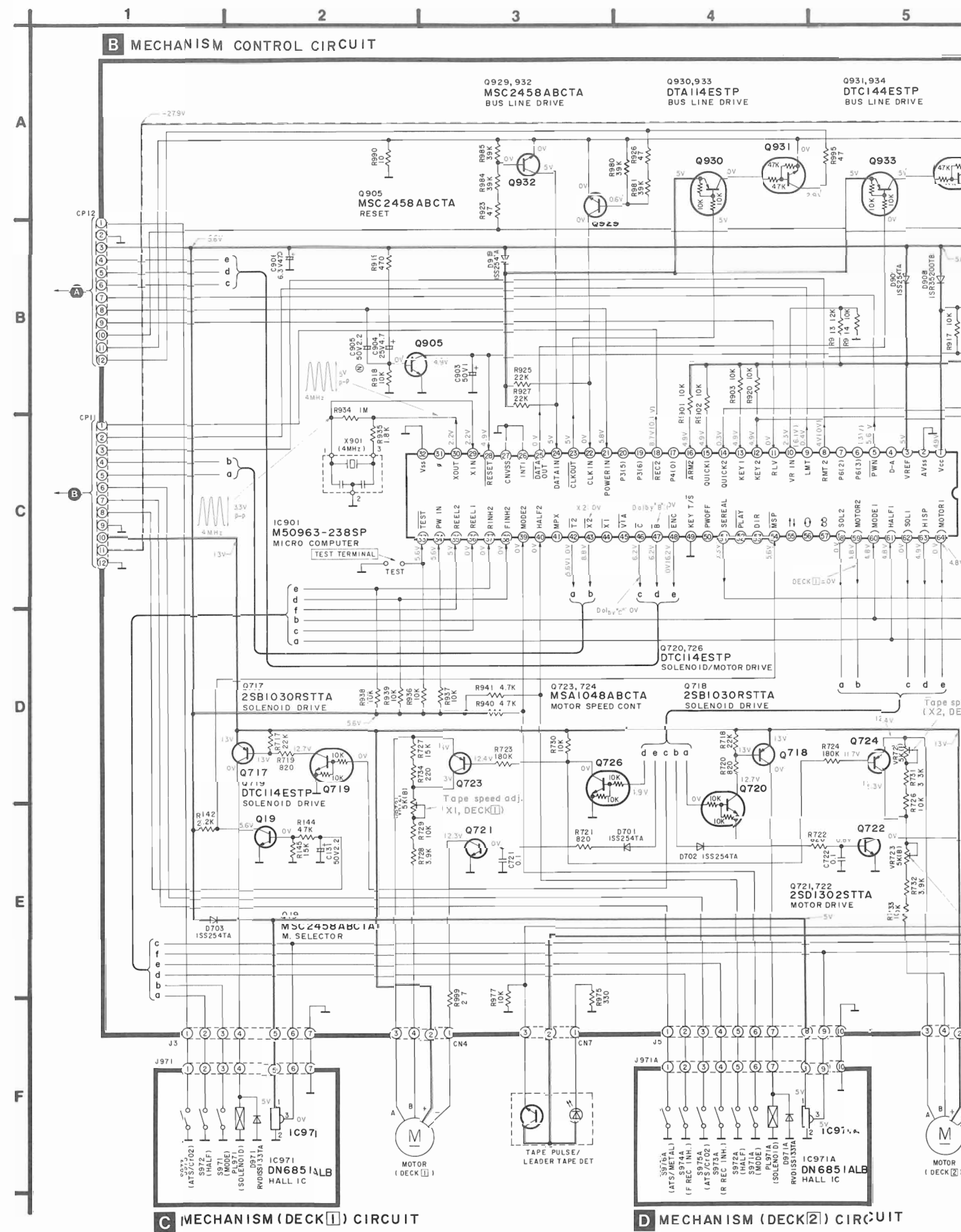


Caution!

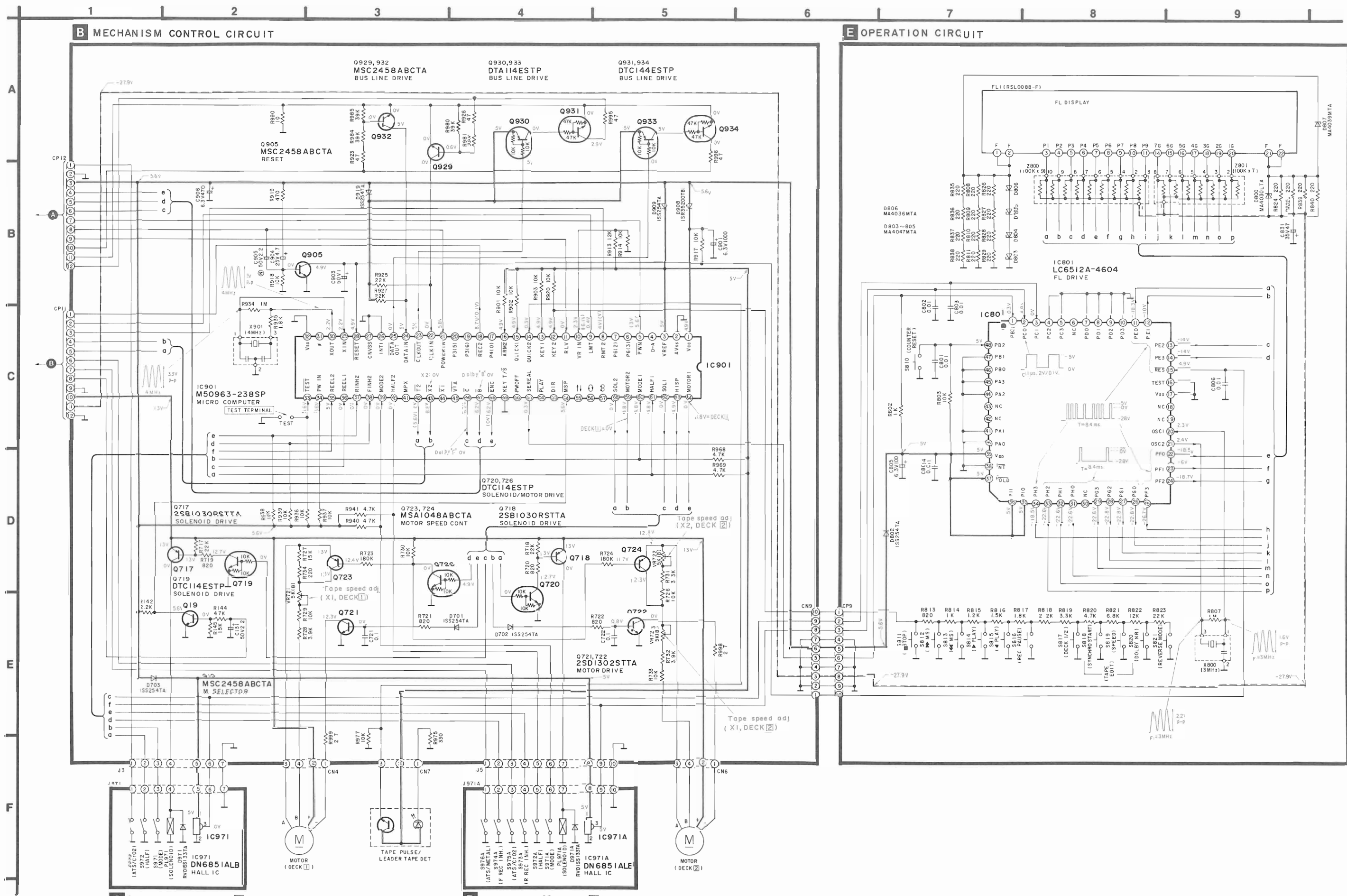
- IC and LSI are sensitive to static electricity.
- Secondary trouble can be prevented by taking care during repair.
- Cover the parts boxes made of plastics with aluminum foil.
- Ground the soldering iron.
- Put a conductive mat on the work table.
- Do not touch the legs of IC or LSI with the fingers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

●The supply part number is described alone in the replacement parts list.

Ref. No.	Production Part No.	Supply Part No.
IC3, 5, 7	BA4558FT1	SVIBA4558F

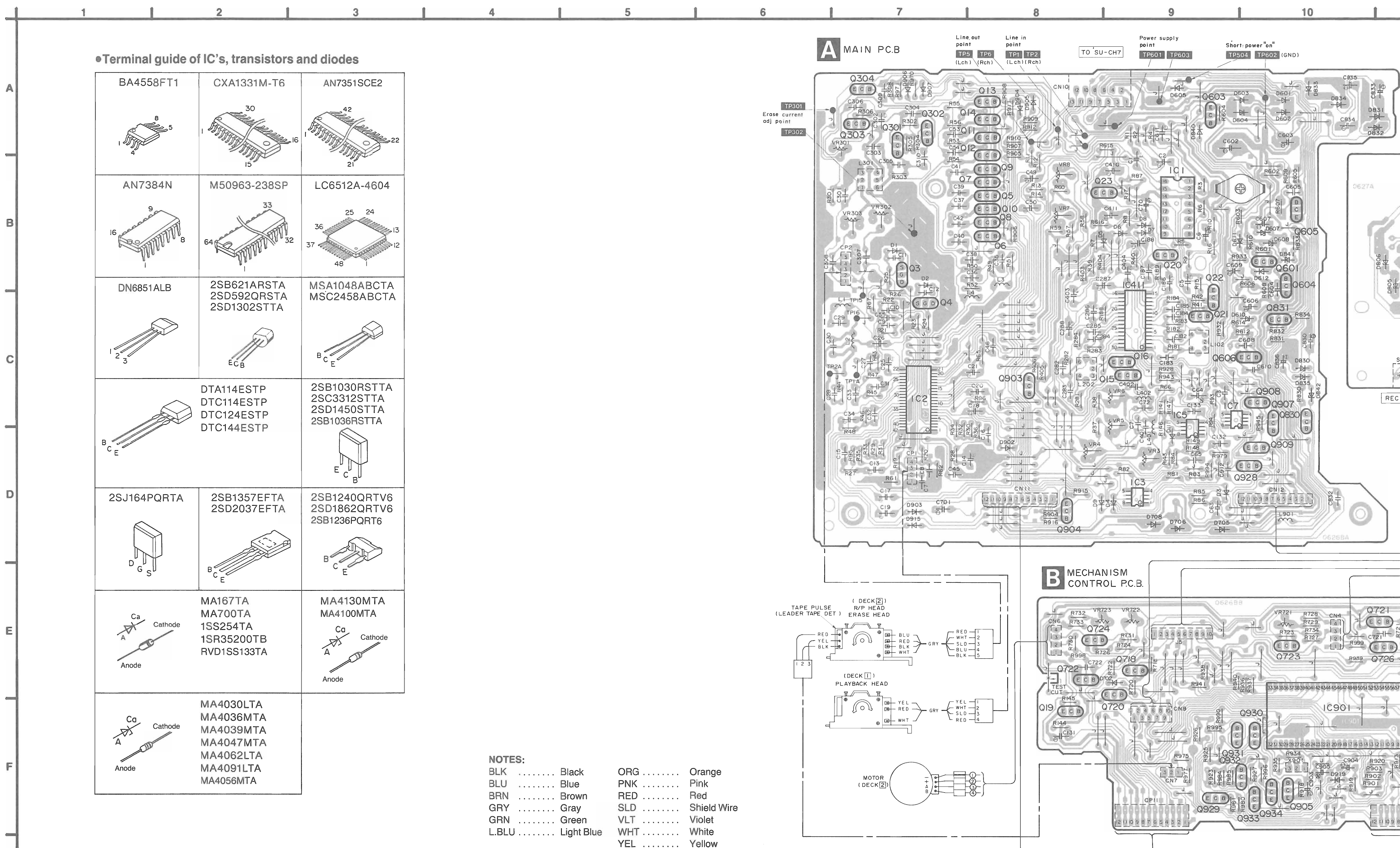


SCHEMATIC DIAGRAM (Parts list on pages 25~28)



# PRINTED CIRCUIT BOARDS AND WIRING CONNECTION DIAGRAM

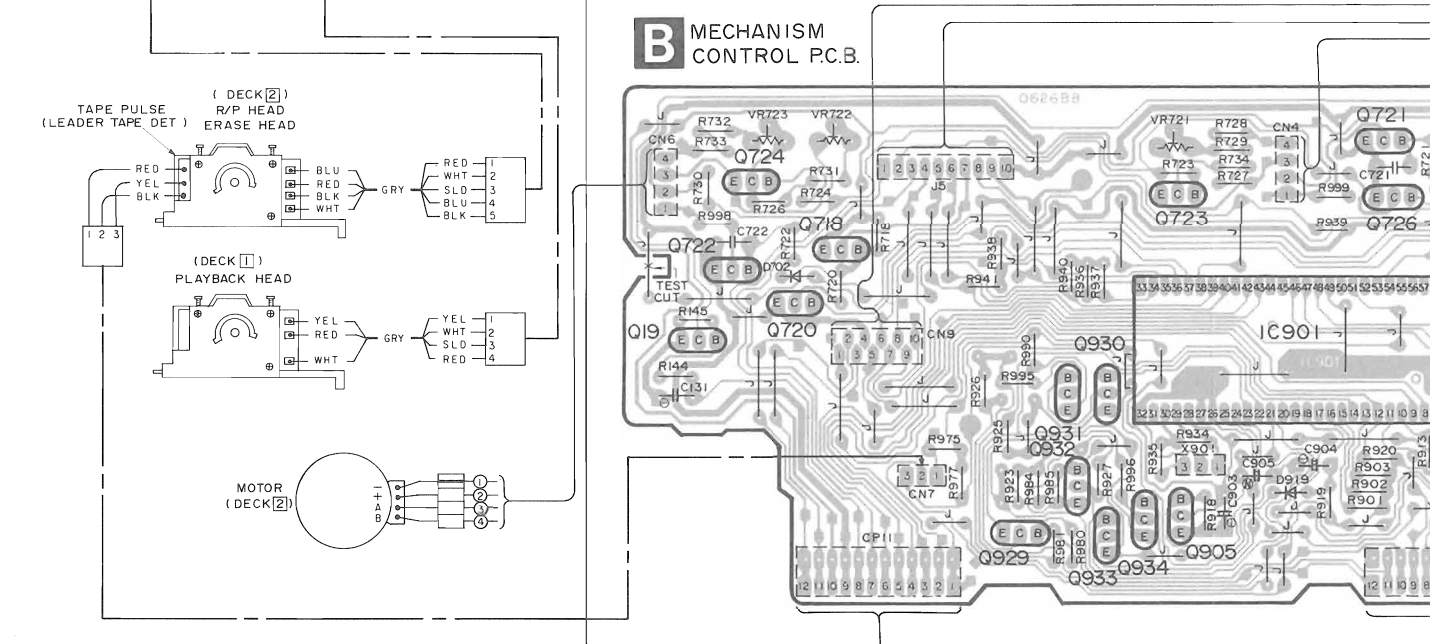
(Parts list on pages 25~28)



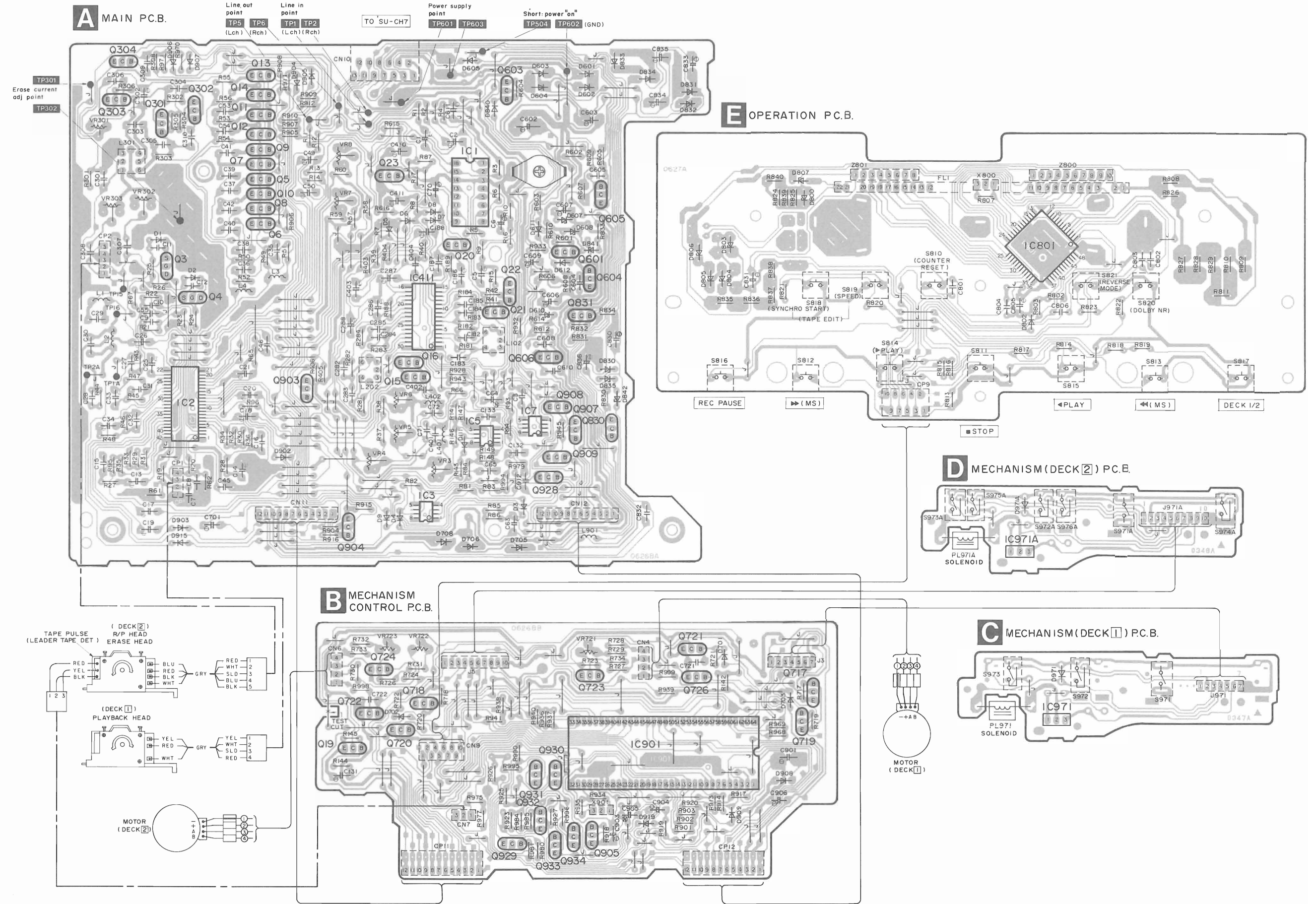
## Terminal guide of IC's, transistors and diodes

<p>BA4558FT1</p>	<p>CXA1331M-T6</p>	<p>AN7351SCE2</p>
<p>AN7384N</p>	<p>M50963-238SP</p>	<p>LC6512A-4604</p>
<p>DN6851ALB</p>	<p>2SB621ARSTA 2SD592QRSTA 2SD1302STTA</p>	<p>MSA1048ABCTA MSC2458ABCTA</p>
	<p>DTA114ESTP DTC114ESTP DTC124ESTP DTC144ESTP</p>	<p>2SB1030RSTTA 2SC3312STTA 2SD1450STTA 2SB1036RSTTA</p>
<p>2SJ164PQRTA</p>	<p>2SB1357EFTA 2SD2037EFTA</p>	<p>2SB1240QRTV6 2SD1862QRTV6 2SB1236PQRT6</p>
	<p>MA167TA MA700TA 1SR35200TB RVD1SS133TA</p>	<p>MA4130MTA MA4100MTA</p>
	<p>MA4030LTA MA4036MTA MA4039MTA MA4047MTA MA4062LTA MA4091LTA MA4056MTA</p>	

- NOTES:**
- |       |       |            |     |       |             |
|-------|-------|------------|-----|-------|-------------|
| BLK   | ..... | Black      | ORG | ..... | Orange      |
| BLU   | ..... | Blue       | PNK | ..... | Pink        |
| BRN   | ..... | Brown      | RED | ..... | Red         |
| GRY   | ..... | Gray       | SLD | ..... | Shield Wire |
| GRN   | ..... | Green      | VLT | ..... | Violet      |
| L.BLU | ..... | Light Blue | WHT | ..... | White       |
|       |       |            | YEL | ..... | Yellow      |







Black	ORG	Orange
Blue	PNK	Pink
Brown	RED	Red
Grey	SLD	Shield Wire
Green	VLT	Violet
Light Blue	WHT	White
	YEL	Yellow

## FUNCTION OF IC TERMINALS

### ●IC801 (LC6512A-4604)

Pin No.	Mark	I/O Division	Function
1	PB3	I	Serial data input
2	PC0	I/O	Deck 2 Rotation pulse signal of reel table
3	PC1	I/O	Deck 1 Rotation pulse signal of reel table
4 }	—	—	Connected to GND
10			
11 }	PE0 }	O	FL port signal output
14	PE3		
15	RES	I	Reset terminal
16	TEST	—	Connected to GND
17	VSS		
18	NC	—	Not connected
19			
20	OSC1	I/O	Connected to ceramic oscillator (X800)
21	OSC2		

### ●IC901 (M50963-236SP)

Pin No.	Mark	I/O Division	Function
1	VCC	I	Power supply (+5 V)
2	AVSS	—	Connected to GND
3	VREF	I	Reference voltage input (+5 V)
4	NC	—	Not connected
5	PWN	O	Control voltage terminal of electric volume
6	NC	—	Not connected
7			
8	RMT2	O	Rec. amp, mute signal of deck 2 "L" level in mute is off mode "H" level in mute is on mode
9	LMT	O	Line out mute signal
10	VR IN	I	Not used and connected to resistance
11	RLV	I	Recording level detection (at ATLS position)

Pin No.	Mark	I/O Division	Function
22 }	PF0 }	O	FL port signal output
25	PF3		
26 }	PG0 }	O	FL grid signal output
29	PG3		
30	NC	—	Not connected
31 }	PH0 }	O	FL grid signal output
34	PH3		
35 .	P10 .	—	Not connected
36	P11		
37	HOLD	—	Connected to GND
38	INT	—	Connected to GND
39	VDD	I	Power supply (+5.6 V)
40 }	—	—	Connected to GND
47			
48	PB2	I	Counter reset terminal

Pin No.	Mark	I/O Division	Function
12	KEY2	I	Key switch input Pin 13 is not used and connected to resistance
13	KEY1		
14	QUICK2	O	Pin 15 is not used and connected to resistance
15	QUICK1		
16	ARM2	I	Mute key input Not used and connected to resistance
17	NC	—	Not connected
18	REC2	I	Recording bias control voltage terminal "L" level when is on "H" level when is off
19	NC	—	Not connected
20			
21	POWER IN	I	Power ON/OFF detection terminal
22	CLK IN	I	Clock input for serial data
23	CLK OUT	O	Clock output for serial data

Pin No.	Mark	I/O Division	Function
24	DATA IN	I	Serial data input
25	DATA OUT	O	Serial data output
26	NC	—	Connected to Vss
27	CNVSS	—	Connected to Vss
28	RESET	I	Reset terminal "L" level when reset is off mode "L"→"H" level when reset is on mode
29	X IN	I	Clock OSC terminal Connected to crystal oscillator
30	X OUT	O	Connected to crystal oscillator
31	NC	—	Not used
32	Vss	—	Connected to GND
33	TEST	—	Test terminal ("L" level)
34	PW IN	I	Not used
35	REEL2	I	Deck 2 Rotation pulse signal of reel table
36	REEL1	I	Deck 1 Rotation pulse signal of reel table
37	RINH2	I	Deck 2 Reverse Rec. Inh. switch select terminal
38	FINH2	I	Deck 2 Forward Rec. Inh. switch select terminal
39	MODE2	I	Deck 2 mechanism mode switch select terminal
40	HALF2	I	Deck 2 cassette half detection switch "L" level in half detection switch is on mode. "H" level in half detection switch is off mode.
41	MPX	—	Not used
42	T2	O	Deck 2 play select signal "L" level with PLAY mode.
43	X2	O	X2 Speed LED display "L" level when LED is on mode
44	X1	O	Not used
45	VIA	—	

Pin No.	Mark	I/O Division	Function
46	C	O	Dolby C LED display "L" level when LED is on mode
47	B	O	"H" level when other mode
48	ENC	O	Encode/Decode select signal "L" level in encode mode "H" level in decode mode
49	KEY T/S	—	Not use and connected to GND
50	PW OFF	—	Not used
51	SERIAL	O	Control for FL micro computer Serial data output
52	PLAY	O	Not used
53	DIR	O	
54	MSP	O	Music search signal detection terminal
55	↔	O	Not used
56	↻	O	
57	↻	O	
58	SOL2	O	Deck 2 Solenoid control signal "H" level when solenoid is on mode "L" level when solenoid is off mode
59	MOTOR2	O	Deck 2 Motor control signal "H" level when motor is on mode "L" level when motor is off mode
60	MODE1	I	Deck 1 mechanism mode switch select terminal
61	HALF1	I	Deck 1 cassette half detection switch "L" level in half detection switch is on mode "H" level in half detection switch is off mode
62	SOL1	O	Deck 1 Solenoid control signal "H" level when solenoid is on mode "L" level when solenoid is off mode
63	HISP	O	Motor speed control signal "L" level when normal speed "H" level when high speed
64	MOTOR1	O	Deck 1 Motor control signal "H" level when motor is on mode "L" level when motor is off mode

# REPLACEMENT PARTS LIST

Notes : \* Important safety notice:  
 Components identified by  $\Delta$  mark have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.  
 \* 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.

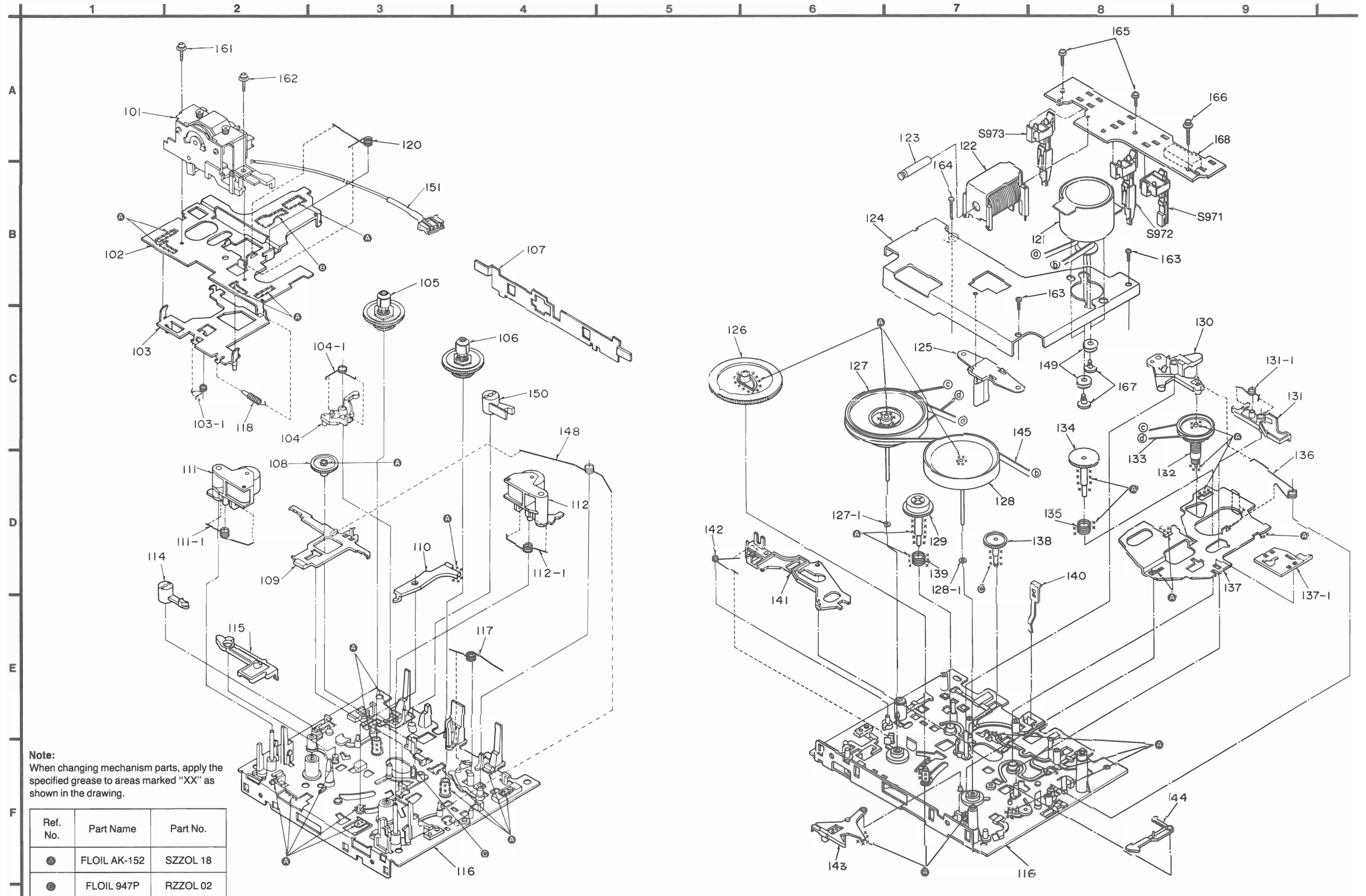
Ref. No.	Part No.	Part Name & Description	Remarks	Ref. No.	Part No.	Part Name & Description	Remarks
		INTEGRATED CIRCUIT(S)		Q932	MSC2458ABCTA	TRANSISTOR	
				Q933	DTA114ESTP	TRANSISTOR	
				Q934	DTC144EKT96	TRANSISTOR	
						DIODE(S)	
IC1	AN7384N	I. C. ELECTRIC VOLUME		D1, 2	MA167	DIODE	
IC2	AN7351SCE2	I. C. PLAYBACK/REC. AMP.		D3-8	1SS254TA	DIODE	
IC3	SVIBA4558F	I. C. REC. LEVEL DET.		D9	MA700TA	DIODE	
IC5	SVIBA4558F	I. C. MUSIC SEL. AMP.		D111	1SS254TA	DIODE	
IC7	SVIBA4558F	I. C. REC. LEVEL CONT.		D601-604	1SR35200TB	DIODE	$\Delta$
IC411	CXA1331M-T6	I. C. DOLBY NR(B/C)		D605	1SS254TA	DIODE	
IC801	LC6512A-4604	I. C. FL DRIVE		D607	MA4091LTA	DIODE	
IC901	MS0963-238SP	I. C. MICROCOMPUTER		D608	MA4091-M	DIODE	
IC971	DN6851ALB	I. C. HALL		D610	MA4062	DIODE	
IC971A	DN6851ALB	I. C. HALL		D611, 612	MA167	DIODE	
		TRANSISTOR(S)		D701-703	1SS254TA	DIODE	
Q3, 4	2SJ164PQRTA	TRANSISTOR		D705, 706	1SR35200TB	DIODE	$\Delta$
Q5-8	MSA1048ABCTA	TRANSISTOR		D708	1SR35200TB	DIODE	$\Delta$
Q9	MSC2458ABCTA	TRANSISTOR		D800	MA4030LTA	DIODE	
Q10-14	MSC2458ABCTA	TRANSISTOR		D802	1SS254TA	DIODE	
Q15, 16	2SD1450STTA	TRANSISTOR		D803-805	MA4047MTA	DIODE	
Q19	MSC2458ABCTA	TRANSISTOR		D806	MA4036MTA	DIODE	
Q20-22	2SC3312STTA	TRANSISTOR		D807	MA4039MTA	DIODE	
Q23	DTC124EST	TRANSISTOR		D830	MA4100MTA	DIODE	
Q301, 302	MSC2458ABCTA	TRANSISTOR		D831, 832	1SR35200TB	DIODE	$\Delta$
Q303	2SB621A-R	TRANSISTOR		D833	SVD1SR35200A	DIODE	
Q304	2SD592NCR	TRANSISTOR		D834	1SR35200TB	DIODE	$\Delta$
Q601	2SB1036RSTA	TRANSISTOR		D835	MA4100MTA	DIODE	
Q603	MSC2458ABCTA	TRANSISTOR		D840	MA167	DIODE	
Q604	2SD2037EFTA	TRANSISTOR		D841	MA4100MTA	DIODE	
Q605	2SB1357EFTA	TRANSISTOR		D842	MA4056MTA	DIODE	
Q606	2SD1862QRTV6	TRANSISTOR		D902-907	1SS254TA	DIODE	
Q717, 718	2SB1030QTA	TRANSISTOR		D908	1SR35200TB	DIODE	$\Delta$
Q719, 720	DTC114ESTP	TRANSISTOR		D909	1SS254TA	DIODE	
Q721, 722	2SD1302STTA	TRANSISTOR		D915	1SS254TA	DIODE	
Q723, 724	MSA1048ABCTA	TRANSISTOR		D919	1SS254TA	DIODE	
Q726	DTC114ESTP	TRANSISTOR		D971A	RVD1SS133TA	DIODE	
Q830	2SB1236PQRT6	TRANSISTOR		D971	RVD1SS133TA	DIODE	
Q831	2SD1512R	TRANSISTOR				VARIABLE RESISTOR(S)	
Q903	DTA114ESTP	TRANSISTOR					
Q904	2SB1030QTA	TRANSISTOR					
Q905	MSC2458ABCTA	TRANSISTOR					
Q907-909	DTA114ESTP	TRANSISTOR		VR3-6	EVNDXAA00B24	V. R. PLAYBACK GAIN ADJ.	
Q928	DTA114ESTP	TRANSISTOR		VR7, 8	EVNDXAA00B14	V. R. REC. /PLAY LEVEL ADJ.	
Q929	MSC2458ABCTA	TRANSISTOR		VR301	EVNDXAA00B53	V. R. ERASE CURRENT ADJ.	
Q930	DTA114ESTP	TRANSISTOR		VR302, 303	EVNDXAA00B15	V. R. OVERALL GAIN ADJ.	
Q931	DTC144EKT96	TRANSISTOR		VR721-723	EVNDCAA03B53	V. R. TAPE SPEED ADJ.	

Ref. No.	Part No.	Part Name & Description	Remarks	Ref. No.	Part No.	Part Name & Description	Remarks
		COMPONENT COMBINATION(S)		J5	SJSD1005	CONNECTOR(10P)	
				CN4	RJS1A1704	SOCKET(4P)	
				CN6	RJS1A1704	SOCKET(4P)	
Z800	EXBF10E104J	COMPONENT COMBINATION		CN7	SJTD313	CONNECTOR(3P)	
Z801	EXBF8E104J	COMPONENT COMBINATION		CN9	RJS10Q8ZA	SOCKET(10P)	
		COIL(S)		CN10	RJT055B013	CONNECTOR(13P)	
				CN11, 12	RJT057W012-1	CONNECTOR(12P)	
L1, 2	SLQX303-1KT	COIL		CP1	SJTD413	CONNECTOR(4P)	
L3, 4	SLQX272-1YT	COIL		CP2	RJP5G18ZA	CONNECTOR(5P)	
L102	RLM2B005-1M	COIL		CP9	RJS10Q9ZA	SOCKET(10P)	
L202	RLM2B005-1M	COIL		CP11, 12	RJU057W012	SOCKET(12P)	
L301	SL09B4-K	COIL					
L401, 402	SLQX272-1YT	COIL					
L901	ELEXT101KA9	COIL					
		OSCILLATOR(S)					
X800	EFOGC3004T4	OSCILLATOR					
X901	EFOGC4004A4	OSCILLATOR					
		DISPLAY					
FL1	RSL0088-F	DISPLAY					
		SWITCH(ES)					
S810	EVQ21405R	SW, COUNTER RESET					
S811	EVQ21405R	SW, STOP					
S812	EVQ21405R	SW, MS					
S813	EVQ21405R	SW, MS					
S814	EVQ21405R	SW, PLAY					
S815	EVQ21405R	SW, PLAY					
S816	EVQ21405R	SW, REC PAUSE					
S817	EVQ21405R	SW, DECK 1/2					
S818	EVQ21405R	SW, SYNCHRO START					
S819	EVQ21405R	SW, SEED					
S820	EVQ21405R	SW, DOLBY NR					
S821	EVQ21405R	SW, REVERSE MODE					
S971	RSH1A89Z	SW, MODE (DECK1)					
S971A	RSH1A89Z	SW, MODE (DECK2)					
S972	RSH1A90YB-U	SW, HALF (DECK1)					
S972A	RSH1A90YB-U	SW, HALF (DECK2)					
S973	RSH1A90YB-U	SW, ATS/Cr-02 (DECK1)					
S973A	RSH1A90YB-U	SW, R. REC INH(DECK2)					
S974A	RSH1A90YB-U	SW, F. REC INH(DECK2)					
S975A	RSH1A90YB-U	SW, ATS/Cr-02 (DECK2)					
S976A	RSH1A90YB-U	SW, ATS/METAL (DECK2)					
		CONNECTOR(S)					
J3	RJS7T4ZA	SOCKET(7P)					





MECHANISM PARTS LOCATION • DECK 1



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

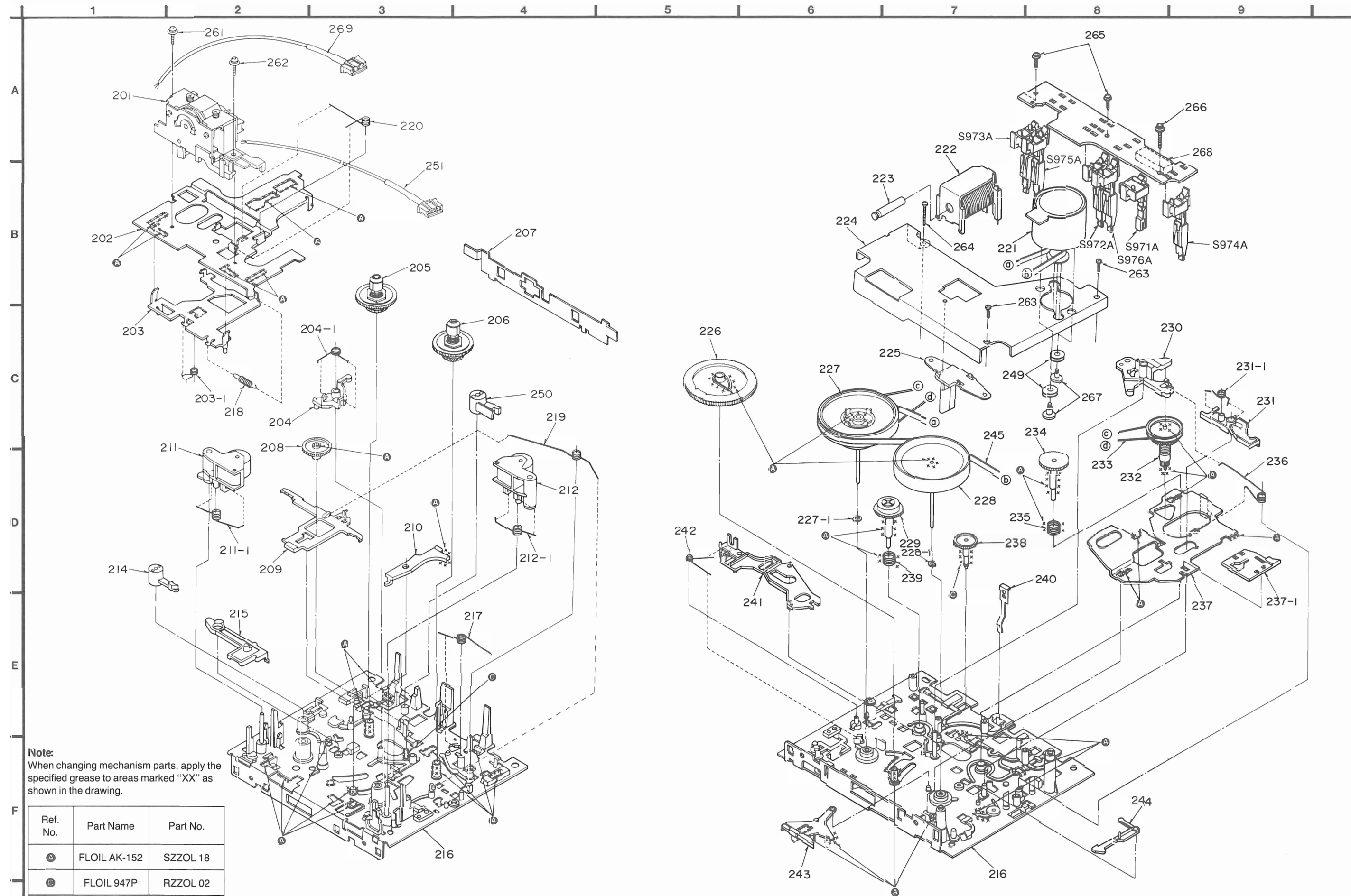
Ref. No.	Part Name	Part No.
Ⓐ	FLOIL AK-152	SZZOL 18
Ⓑ	FLOIL 947P	RZZOL 02



Ref. No.	Part No.	Part Name & Description	Remarks	Ref. No.	Part No.	Part Name & Description	Remarks
		MECHANISM PARTS LIST		144	RUB509ZA	LEVER	
(DECK1)				145	RDV108ZA	CAPSTAN BELT	
101	FXQ0051-1	HEAD BLOCK(PLAY)		148	RUW144ZA	SPRING	
102	RJA793ZF	HEAD BASE		149	RHG3032ZA	RUBBER CUSHION	
103	RZLAR300A	ROD		150	RNL180ZB	DAMPER ARM	
103-1	RUW143ZA	SPRING		151	REX0132	LEAD WIRE (4P)	
104	1UB0089ZA	ARM		161	XTW2+6L	SCREW	
104-1	RUW148ZA	SPRING		162	XTW2+8L	SCREW	
105	1DM00182B	REEL TABLE (R)		163	XTN26+7J	SCREW	
106	1DM00172B	REEL TABLE (F)		164	RHE5203ZA	SCREW	
107	FML0069-1	LEVER		165	XTW2+8S	SCREW	
108	RDG5772ZC	GEAR		166	XYC2+JF16	SCREW	
109	RUB508ZB	BRACKET ROD		167	RHD26002	SCREW	
110	RUB506ZB	LEVER		168	RJS7T7ZA	CONNECTOR (7P) J971	
111	1UB0088ZB	ARM (R)					
111-1	RUW141ZA	SPRING					
112	1UB0087ZB	ARM (F)					
112-1	RUW140ZC	SPRING					
114	RNL1ZD	DAMPER ARM					
115	RUB503ZD	MAIN LEVER					
116	RFKRRSCH9N	CHASSIS ASS'Y					
117	RUW142ZA	SPRING					
118	RUD105ZA	SPRING					
120	RUW139ZA	SPRING					
121	RFKPRSCH9N	DC MOTOR ASS'Y					
122	1UE0015ZB	PLUNGER					
123	RUB428ZE	MOVING IRON CORE					
124	FMA0101	ANGLE					
125	FMD5014ZC	ANGLE					
126	RDG5927ZG	MAIN GEAR					
127	1DW0037ZB	FLYWHEEL (F)					
127-1	RNW139ZA	WASHER					
128	1DW0038ZB	FLYWHEEL (R)					
128-1	RNW138ZA	WASHER					
129	1DG0006ZB	REEL TABLE GEAR					
130	RUB513ZD	ARM					
131	1UB0091ZA	LEVER					
131-1	RUW146ZA	SPRING					
132	1DR0011ZB	MAIN PULLEY					
133	RDV90ZB	BELT					
134	RDG5769ZA	REEL TABLE GEAR					
135	RUQ111ZB	SPRING					
136	RUW145ZA	SPRING					
137	1UB0090ZA	ROD					
137-1	RUB512ZB	ROD					
138	RDG5773ZB	GEAR					
139	RUQ112ZA	SPRING					
140	RUS609ZC	TAPE PRESSURE SPRING					
141	RUB514ZC	LEVER					
142	RUW147ZA	SPRING					
143	RUB515ZA	LEVER					

Ref. No.	Part No.	Part Name & Description	Remarks	Ref. No.	Part No.	Part Name & Description	Remarks
		MECHANISM PARTS LIST		243	RUB515ZA	LEVER	
				244	RUB509ZA	LEVER	
(DECK2)				245	RDV108ZA	CAPSTAN BELT	
201	FXQ0161	HEAD BLOCK(REC/PLAYBACK)		249	RHG3032ZA	RUBBER CUSHION	
202	RJA793ZF	HEAD BASE		250	RNL180ZB	DAMPER ARM	
203	RZLAR300A	ROD		251	REX0172	LEAD WIRE (5P)	
203-1	RUW143ZA	SPRING		261	XTW2+6L	SCREW	
204	IUB0089ZA	ARM		262	XTW2+8L	SCREW	
204-1	RUW148ZA	SPRING		263	XTN26+7J	SCREW	
205	1DM0018ZB	REEL TABLE (R)		264	RHE5203ZA	SCREW	
206	1DM0017ZB	REEL TABLE (F)		265	XTW2+8S	SCREW	
207	RML0069-1	LEVER		266	XYC2+JF16	SCREW	
208	RDG5772ZC	GEAR		267	RHD26002	SCREW	
209	RUB5082B	BRAKET ROD		268	RJS10T7ZA	CONNECTOR(10P) J971A	
210	RUB5062B	LEVER		269	REX0145	LEAD WIRE ASS' Y	
211	IUB00882B	ARM(R)					
211-1	RUW141ZA	SPRING					
212	IUB00872B	ARM(F)					
212-1	RUW1402C	SPRING					
214	RNL1ZD	DAMPER ARM					
215	RUB5032D	MAIN LEVER					
216	RFKRRSCH9N	CHASSIS ASS' Y					
217	RUW142ZA	SPRING					
218	RUD105ZA	SPRING					
219	RUW144ZA	SPRING					
220	RUW139ZA	SPRING					
221	RFM133ZA	DC MOTOR					
222	IUE0015ZB	PLUNGER					
223	RUB428ZE	MOVING IRON CORE					
224	RMA0101	ANGLE					
225	RMD5014ZC	ANGLE					
226	RDG5927ZG	MAIN GEAR					
227	1DW0037ZB	FLYWHEEL (F)					
227-1	RNW139ZA	WASHER					
228	1DW0038ZB	FLYWHEEL (R)					
228-1	RNW138ZA	WASHER					
229	1DG0006ZB	REEL TABLE GEAR					
230	RUB513ZD	ARM					
231	IUB0091ZA	LEVER					
231-1	RUW146ZA	SPRING					
232	1DR0011ZB	MAIN PULLEY					
233	RDV90ZB	BELT					
234	RDG5769ZA	REEL TABLE GEAR					
235	RUQ111ZB	SPRING					
236	RUW145ZA	SPRING					
237	IUB0090ZA	ROD					
237-1	RUB512ZB	ROD					
238	RDG5773ZB	GEAR					
239	RUQ112ZA	SPRING					
240	RUS609ZC	TAPE PRESSURE SPRING					
241	RUB514ZC	LEVER					
242	RUW147ZA	SPRING					

MECHANISM PARTS LOCATION • DECK 2



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

Ref. No.	Part Name	Part No.
Ⓐ	FLOIL AK-152	SZZOL 18
Ⓒ	FLOIL 947P	RZZOL 02

■ CABINET PARTS LOCATION

