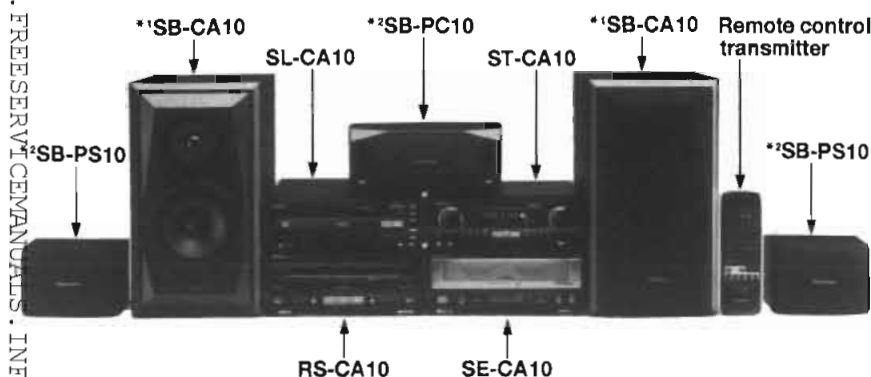


# Service Manual

Cassette Deck

## RS-CA10

Cassette deck



Colour

(K)...Black Type

Area

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

System: SC-CA10

\* Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation. "DOLBY", and the double-D symbol are trade marks of Dolby Laboratories Licensing Corporation.

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

## AR-1 MECHANISM SERIES

### SPECIFICATIONS

Deck system	Stereo cassette deck
Track system	4 track, 2 channel
Recording system	AC bias
Bias frequency	100kHz
Erasing system	AC erase
Heads	
Deck 1 (Playback head)	Permalloy head
Deck 2 (Recording/ Playback head) (Erasing head)	Permalloy head Double gap ferrite head
Motors	
Deck 1,2	
Capstan drive	DC servo motor
Reel table drive	DC motor
Tape speed	4.8 cm/s
Wow and flutter	0.1% (WRMS)
Fast forward and rewind times	Approx. 52 seconds with C-60 cassette tape

### Frequency response

(Dolby NR off)	
NORMAL	20Hz - 17kHz (DIN)
CrO <sub>2</sub>	20Hz - 17kHz (DIN)
METAL	20Hz - 17kHz (DIN)

### S/N (Signal level=max recording level, CrO<sub>2</sub>)

NR off	56dB (A weighted)
Dolby NR B on	66dB (A weighted)
Dolby NR C on	74dB (A weighted)

### Input sensitivity and impedance

REC (IN)	400mV/ 23kΩ
----------	-------------

### Output voltage and impedance

PLAY (OUT)	280mV/ 220Ω
------------	-------------

### General

Dimensions (WxHxD)	280x118.5x265 mm
Weight	2.5 kg

### Notes:

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

System	Tuner	CD changer	Amplifier	Cassette deck	Speakers
SC-CA10	ST-CA10	SL-CA10	SE-CA10	RS-CA10	*1 SB-CA10 (Front) *2 SB-PC10 (Center) (SB-PC10+SB-PS10)

\* 1 Made in PAES

\* 2 For (E, EB, EG) areas.....Made in PAES  
For (GC, GN) areas.....Made in NABEL

### ⚠ 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.

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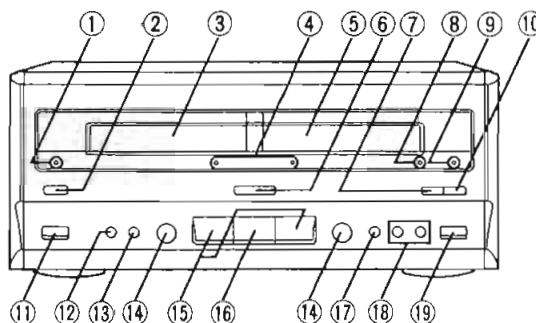
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### NOTE:

Refer to the service manual for Model No. SE-CA10 (ORDER No. AD9512272C8) for information on "ACCESSORIES", "INSTALLATION", "CONNECTIONS" and "PACKAGING".

## FRONT PANEL CONTROL



- |  |   |
|--|---|
| ① Deck 1 indicator (DECK 1)                                  | ⑫ Dolby noise reduction button (DOLBY NR)                                 |
| ② Deck 1/deck 2 select button (DECK 1/2)                     | ⑬ Reverse mode select button (REV MODE)                                   |
| ③ Deck 1 cassette holder                                     | ⑭ Fast forward/rewind/tape program sensor buttons<br>(◀◀ [TPS], ▶▶ [TPS]) |
| ④ Fast forward/rewind indicators<br>(HIGH SPEED FF/REW)      | ⑮ Playback buttons and indicators (<, >)                                  |
| ⑤ Deck 2 cassette holder                                     | ⑯ Stop button (□)   |
| ⑥ TPS skip button (TPS SKIP)                                 | ⑰ Record pause button (● REC PAUSE)                                       |
| ⑦ Counter reset button (RESET)                               | ⑱ Tape edit buttons (TAPE EDIT, NOR, HIGH)                                |
| ⑧ Record pause indicator (REC PAUSE)                         | ⑲ Deck 2 cassette holder open/close button<br>(▲ OPEN/CLOSE)              |
| ⑨ Deck 2 indicator (DECK 2)                                  |   |
| ⑩ Counter display button (DISPLAY)                           |   |
| ⑪ Deck 1 cassette holder open/close button<br>(▲ OPEN/CLOSE) |   |

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# OPERATION CHECKS AND MAIN COMPONENT REPLACEMENT PROCEDURES

## NOTE

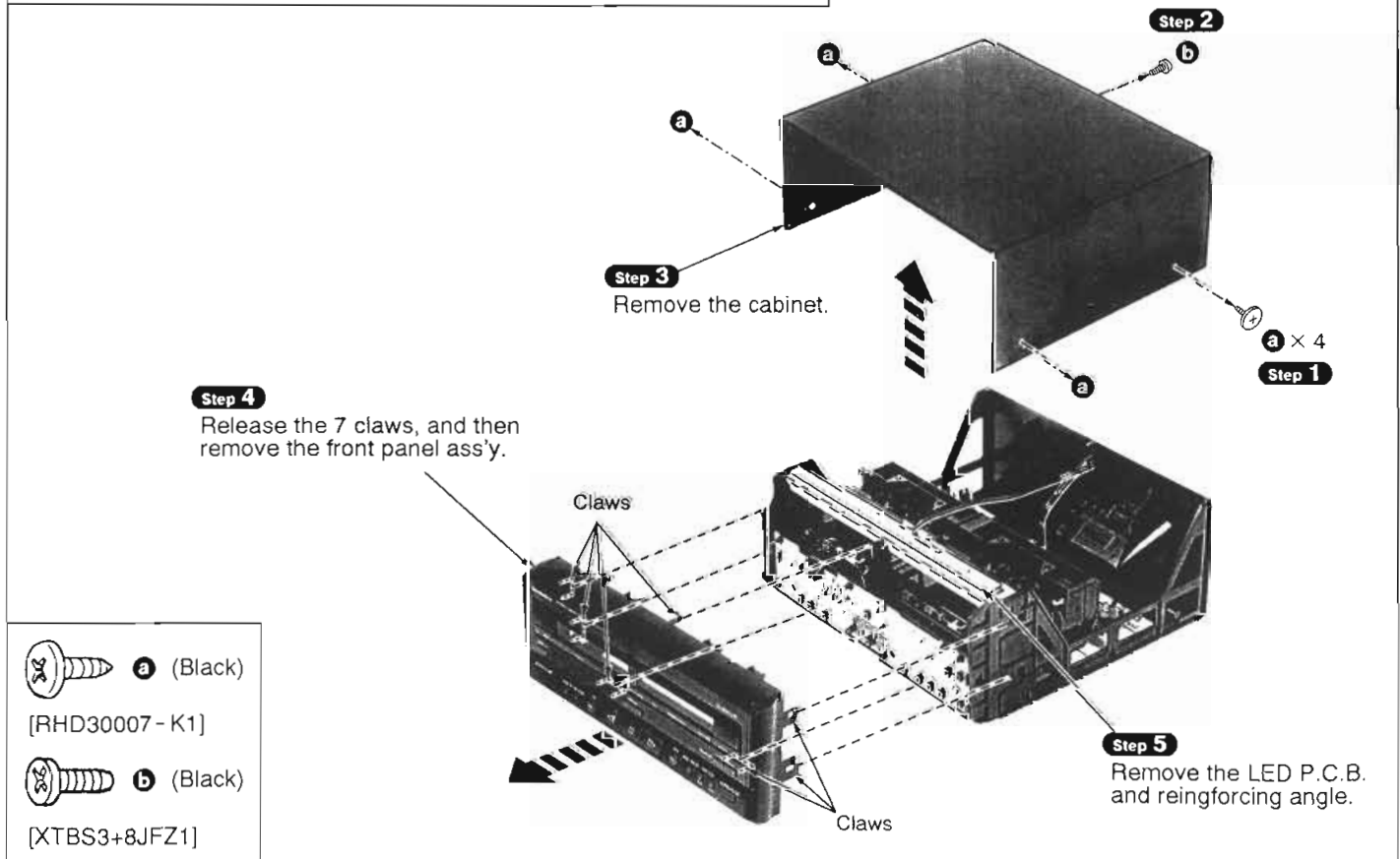
1. This section describes procedures for checking the operation of the major printed circuit boards and replacing the main components.
2. For reassembly after operation checks or replacement, reverse the respective procedures. Special reassembly procedures are described only when required.
3. Select 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.

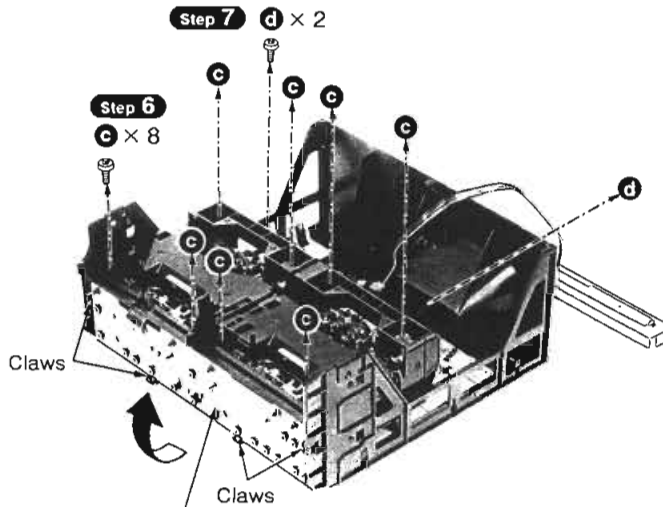
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•Checking Procedure for each P.C.B.	Page.
1. Checking for the main P.C.B. and operation P.C.B. ....	3,4.
•Main Component Replacement Procedures	
1. Replacement for the cassette holder ass'y. ....	5~7.
2. Replacement for the belt, reel motor ass'y and capstan motor ass'y. ....	7~9.
3. Replacement for the parts mounted on mechanism P.C.B. and solenoid. ....	9,10.
4. Replacement for the head block and pinch roller ass'y. ....	10.

## Checking Procedure for each P.C.B.

### 1. Checking for the main P.C.B. and operation P.C.B.

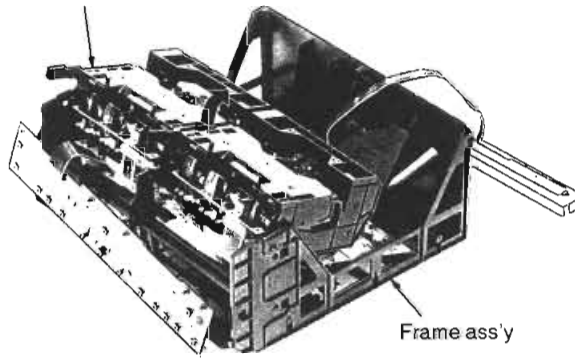




-  **c** (Black)  
[XTB3+10JFZ]
-  **d** (Black)  
[XTBS3+8JFZ1]

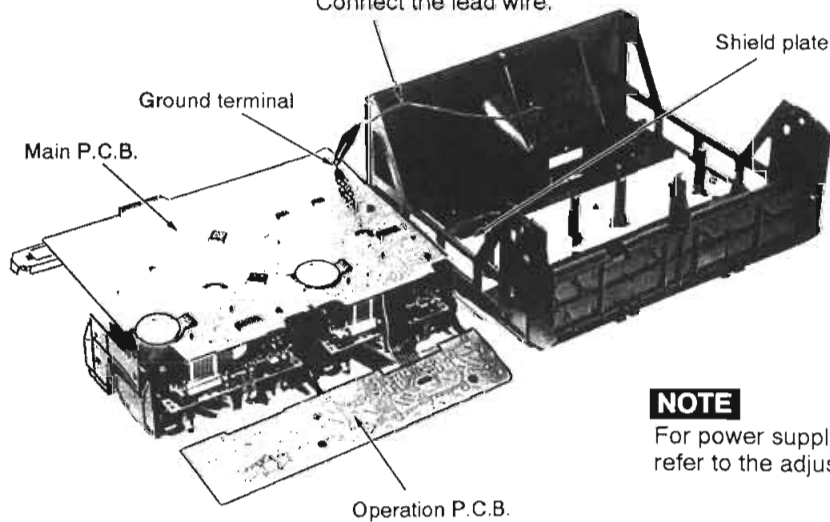
**Step 8**  
Release the claws, and then remove the operation P.C.B..

**Step 9**  
Remove the mechanism ass'y and main P.C.B. from the frame ass'y.



• Check the main P.C.B. and operation P.C.B. as shown below.

**Step 10**  
Connect the lead wire.

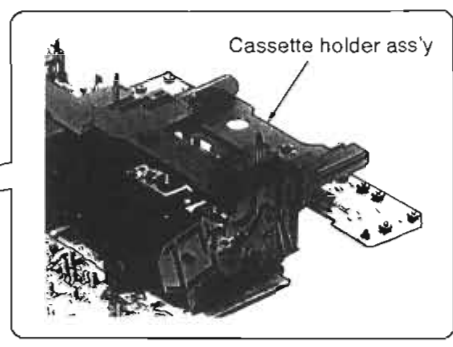
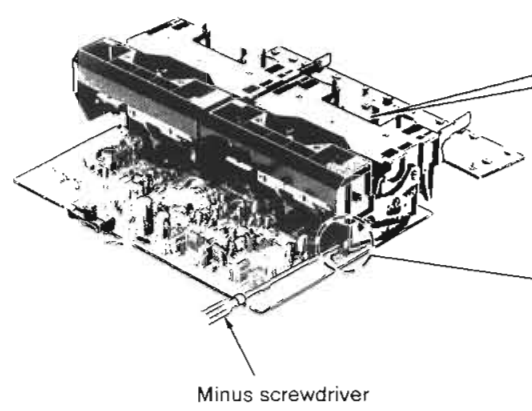


**NOTE**  
For power supply and test points shorting, refer to the adjust procedures on page 12.

# Main Component Replacement Procedures

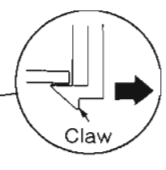
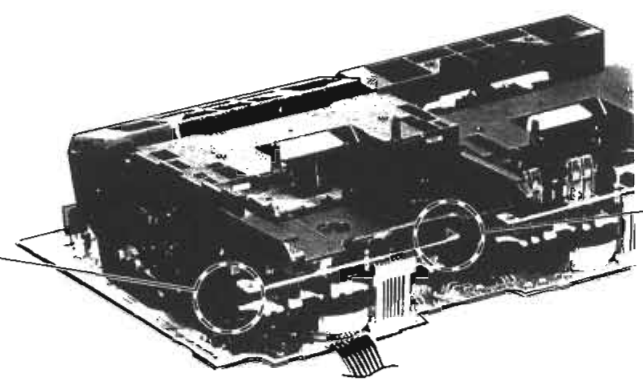
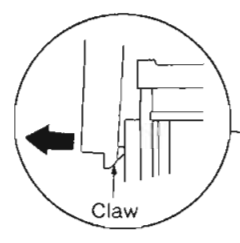
## 1. Replacement for the cassette holder ass'y

• Follow the ( **Step 1** ~ **Step 9** ) of the item 1 in checking procedure for each P.C.B. on pages 3 and 4.

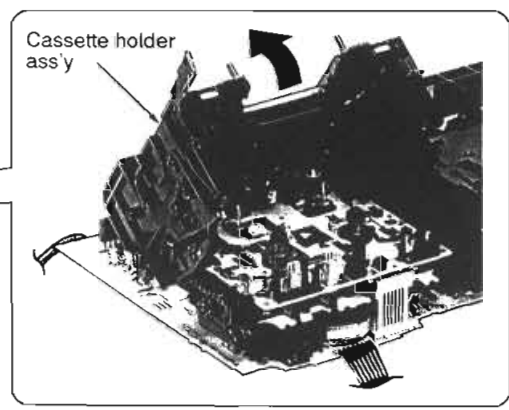
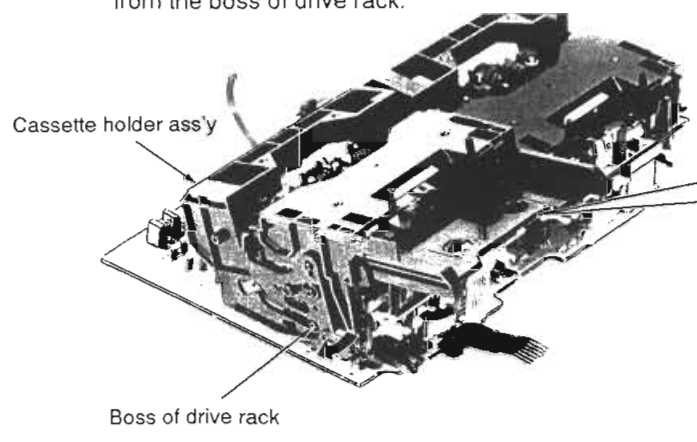


**Step 1**  
Press the drive rack with minus screwdriver, and then open the cassette holder ass'y.

**Step 2**  
Release the 2 claws.



**Step 3**  
Remove the cassette holder ass'y from the boss of drive rack.

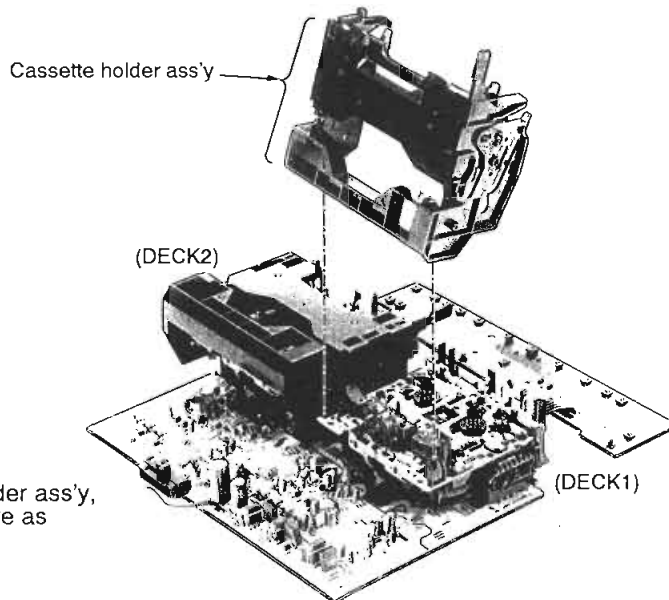
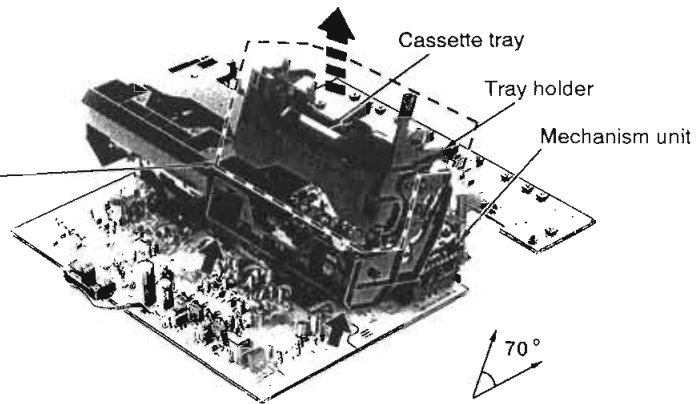


**Step 4**

Locate the cassette holder ass'y and mechanism unit at a 70 degree angle, and then pull out the cassette holder ass'y.

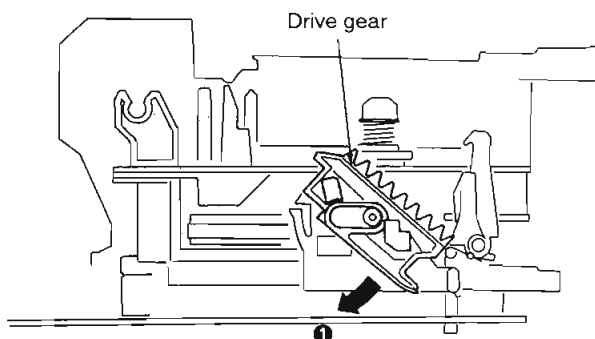
**NOTE**

When removing the cassette holder ass'y, avoid to pull it with holding cassette tray or tray holder.

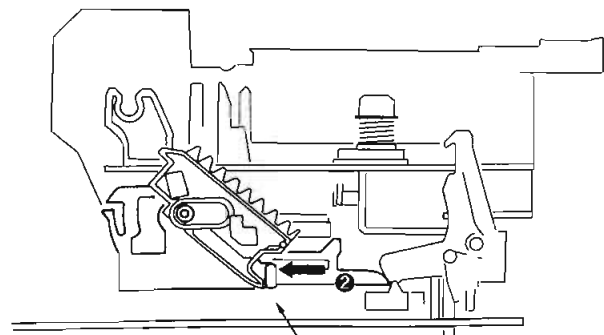


※ For DECK2 cassette holder ass'y, follow the same procedure as DECK1 cassette holder.

### Installation of the cassette holder ass'y after replacement

**Step 1**

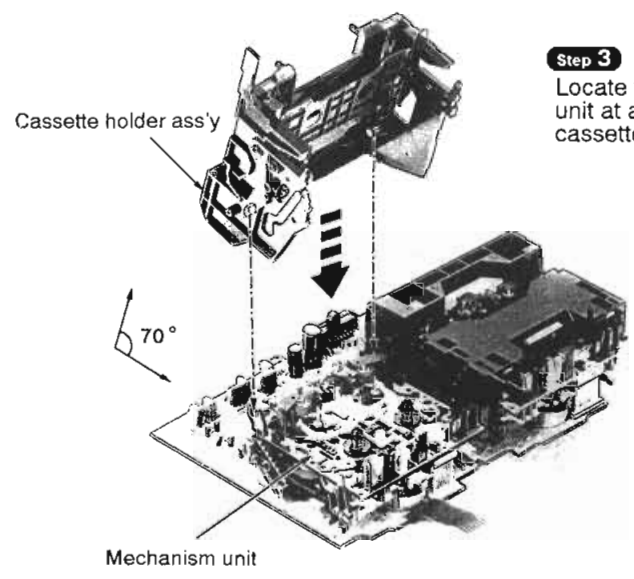
Tilt the drive gear in the direction of arrow ①.



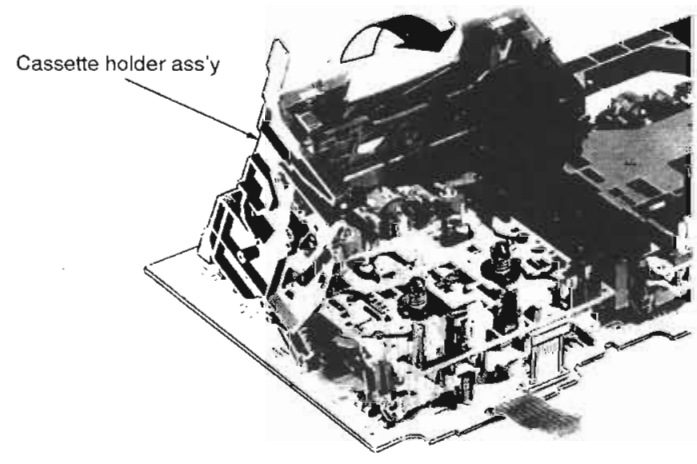
※ Force this point of drive rack.

**Step 2**

Force the drive rack fully in the direction of arrow ②.



**Step 3**  
 Locate the cassette holder ass'y and mechanism unit at a 70 degree angle, and then install the cassette holder ass'y.

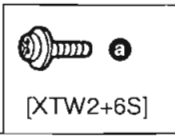
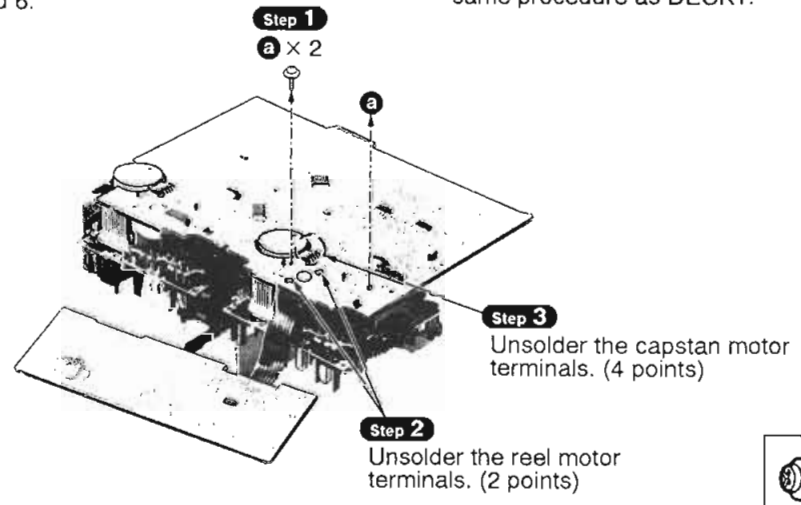


**Step 4**  
 Tilt the cassette holder ass'y in the direction of arrow, and then secure it to the mechanism ass'y.

**2. Replacement for the belt, reel motor ass'y and capstan motor ass'y**

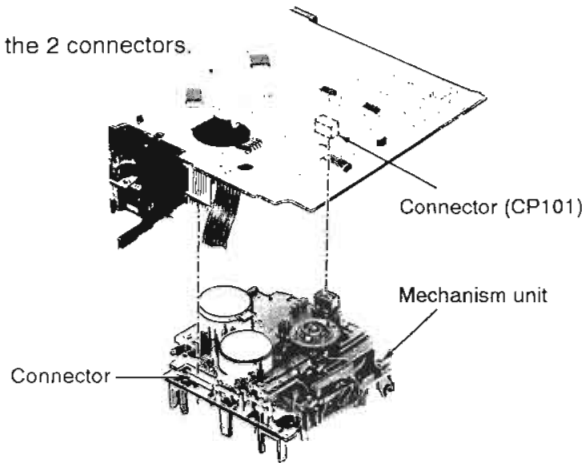
- Follow the item 1 ( **Step 1** ~ **Step 9** ) in checking procedure for each P.C.B. on pages 3 and 4.
- Follow the item 1 ( **Step 1** ~ **Step 4** ) in main component replacement procedures on pages 5 and 6.


※ The below illustration shows DECK1 mechanism unit disassembly procedure. For DECK2 mechanism unit, follow the same procedure as DECK1.



**Step 4**

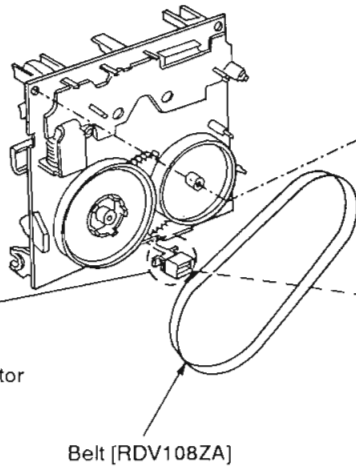
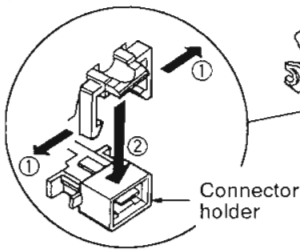
Remove the 2 connectors.



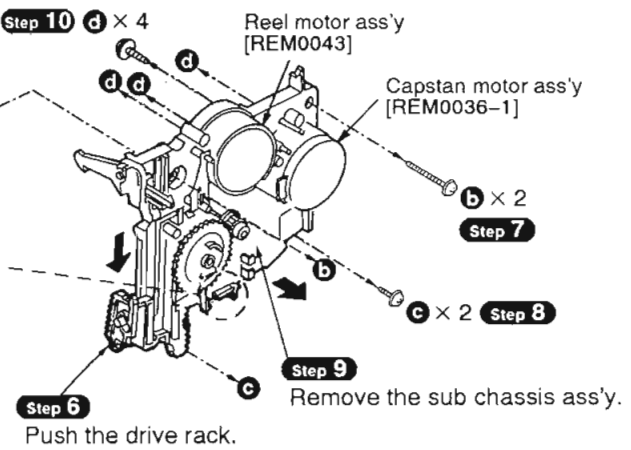
-  **b**  
[XTW26+12S]
-  **c**  
[XTW26+6L]
-  **d**  
[RHD26013]

**Step 5**

Remove the connector holder.



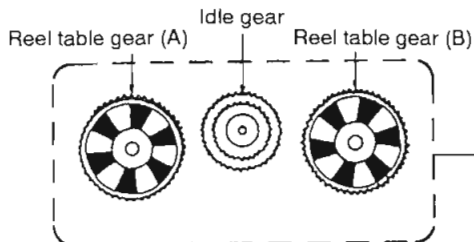
**Step 10** **d** × 4



**Installation of the sub chassis ass'y after replacement**

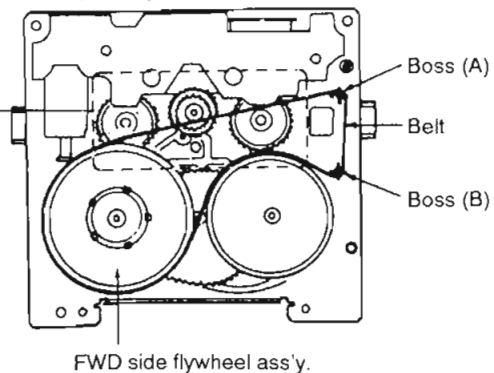
**Step 1**

Place the idle gear in the center.

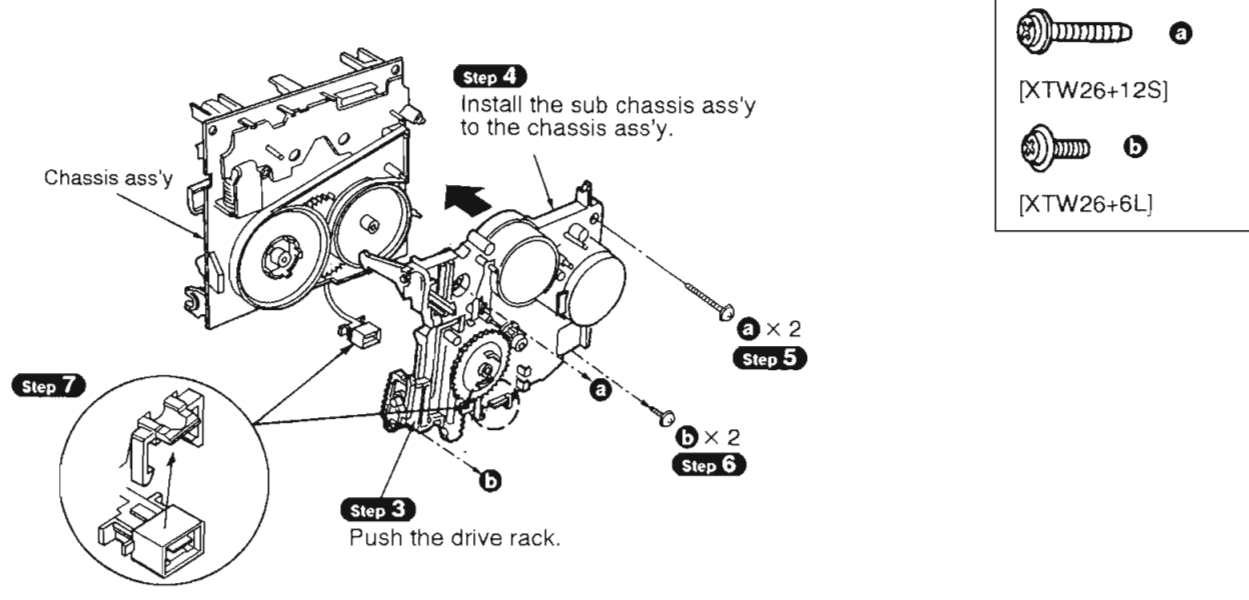


**Step 2**

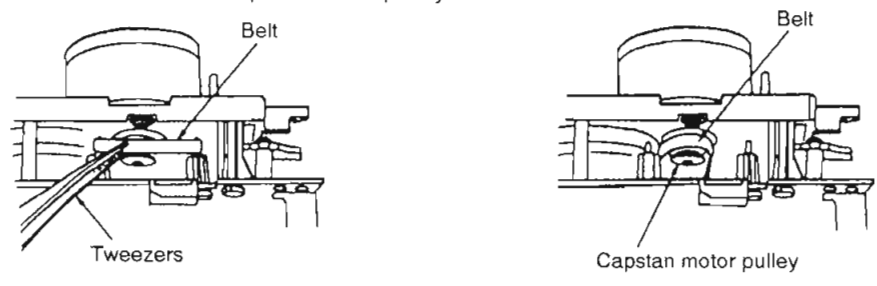
Temporarily secure the belt.





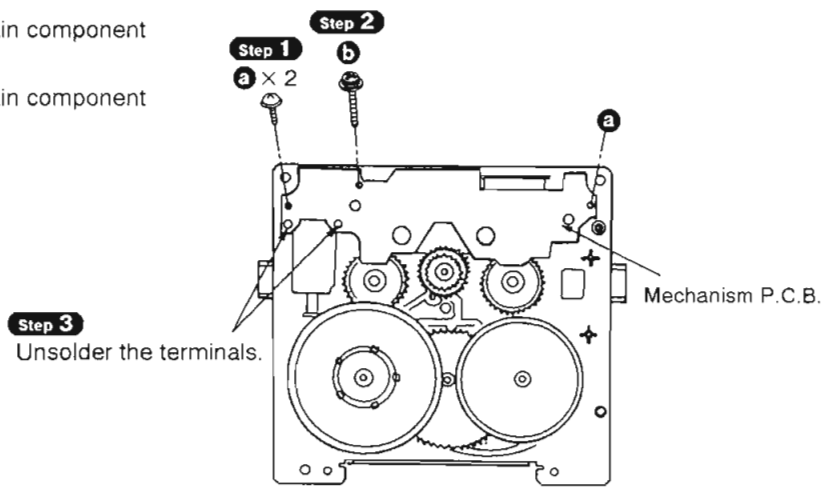


**Step 8**  
Secure the belt with the capstan motor pulley.

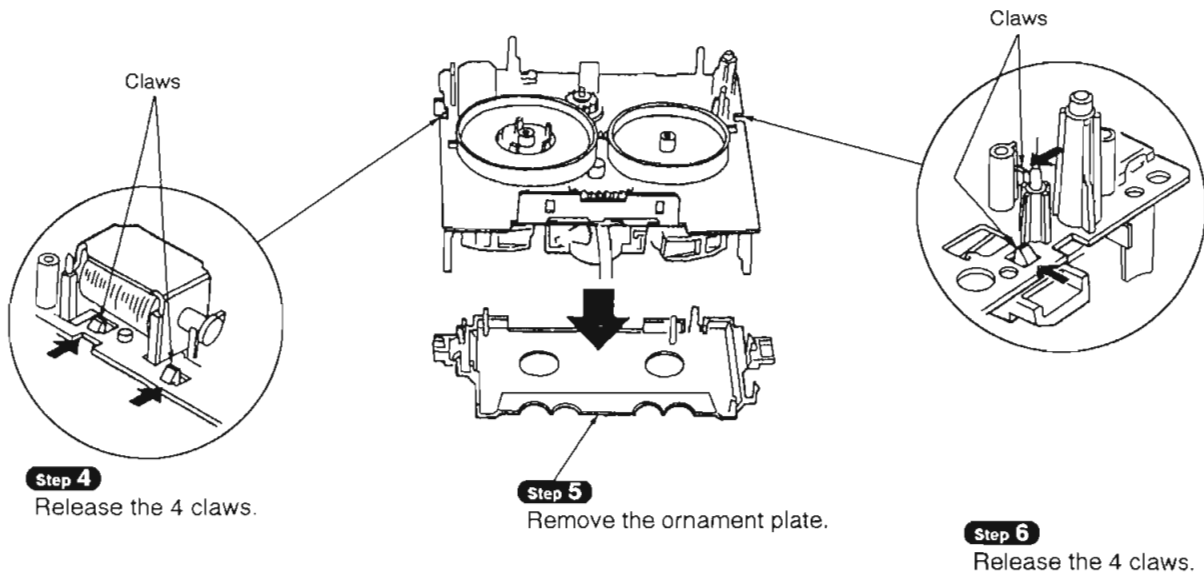


**3. Replacement for the parts mounted on mechanism P.C.B. and solenoid**

- Follow the item 1 ( **Step 1** ~ **Step 9** ) in checking procedure for each P.C.B. on pages 3 and 4.
- Follow the item 1 ( **Step 1** ~ **Step 4** ) in main component replacement procedures on pages 5 and 6.
- Follow the item 2 ( **Step 1** ~ **Step 8** ) in main component replacement procedures on pages 7 and 8.



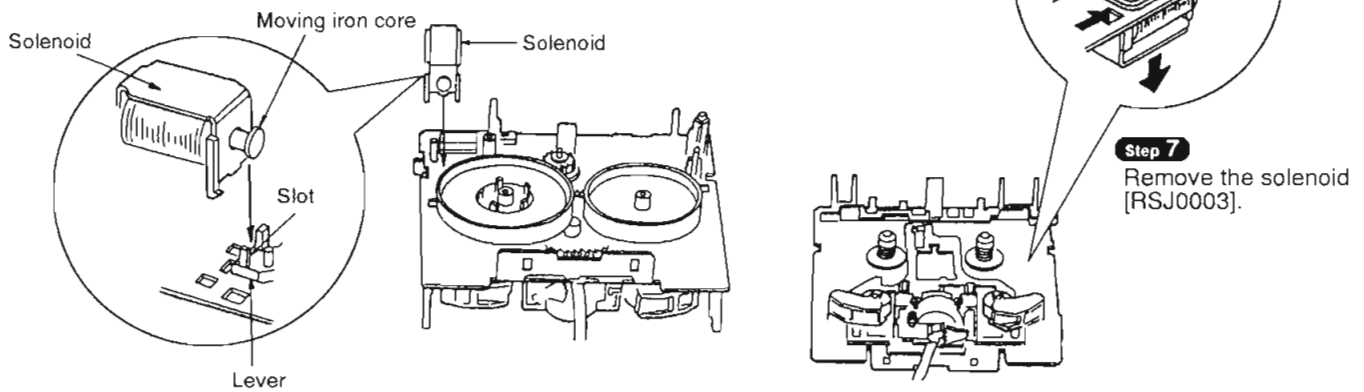
- a  
[XTW2+6S]
- b  
[XYC2+JF16]



**NOTE**

**Notice for installing the solenoid.**

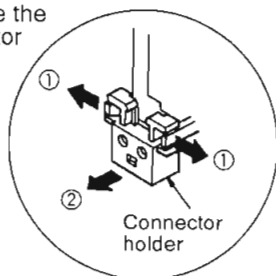
- The moving iron core of solenoid should be aligned with slot of lever.



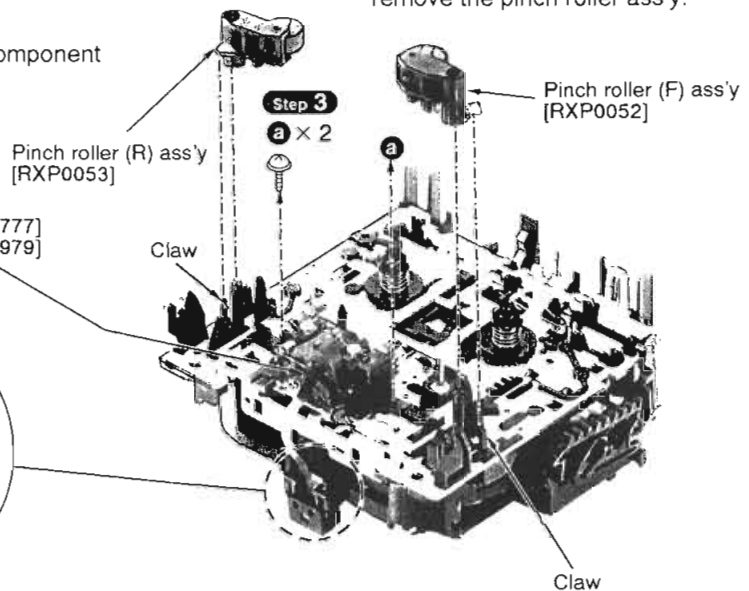
**4. Replacement for the head block and pinch roller ass'y**

- Follow the item 1 ( **Step 1** ~ **Step 9** ) in checking procedure for each P.C.B. on pages 3 and 4.
- Follow the item 1 ( **Step 1** ~ **Step 4** ) in main component replacement procedures on pages 5 and 6.

**Step 2**  
Remove the connector holder.



**Step 1**  
Release the 2 claws, and then remove the pinch roller ass'y.

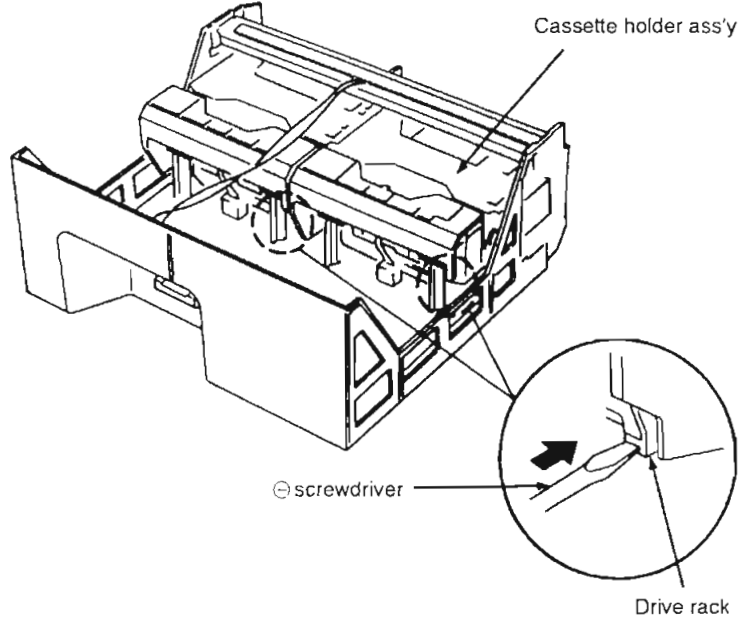


# Manually opening and closing the cassette holder assembly

Follow the item 1 (Step 1 ~ Step 4) in checking procedures for each P.C.B. on page 3.

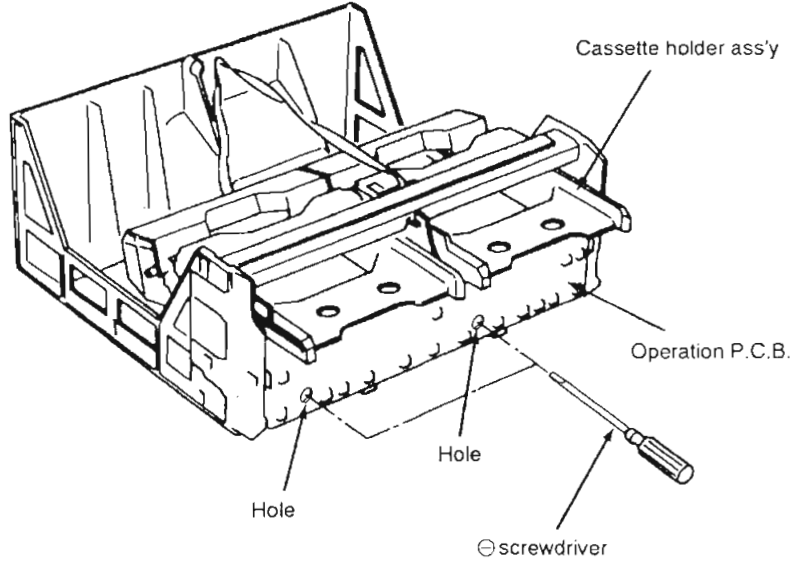
## OPENING

Push the drive rack in the direction of the arrow with a screwdriver.



## CLOSING

Push the drive rack back into position by inserting a screwdriver into the holes on the P.C.B.



## MEASUREMENTS AND ADJUSTMENTS

This unit RS-CA10 is designed to operate on power supplied from the Amplifier (SE-CA10) through Tuner (ST-CA10).

When connecting the unit to other system components, do not connect to the Amplifier (SE-CA10) directly. Be sure to connect this unit through the Tuner (ST-CA10).

When operating the unit RS-CA10 alone for testing and servicing, without having power supplied from the Amplifier (SE-CA10) and Tuner (ST-CA10), use the following method.

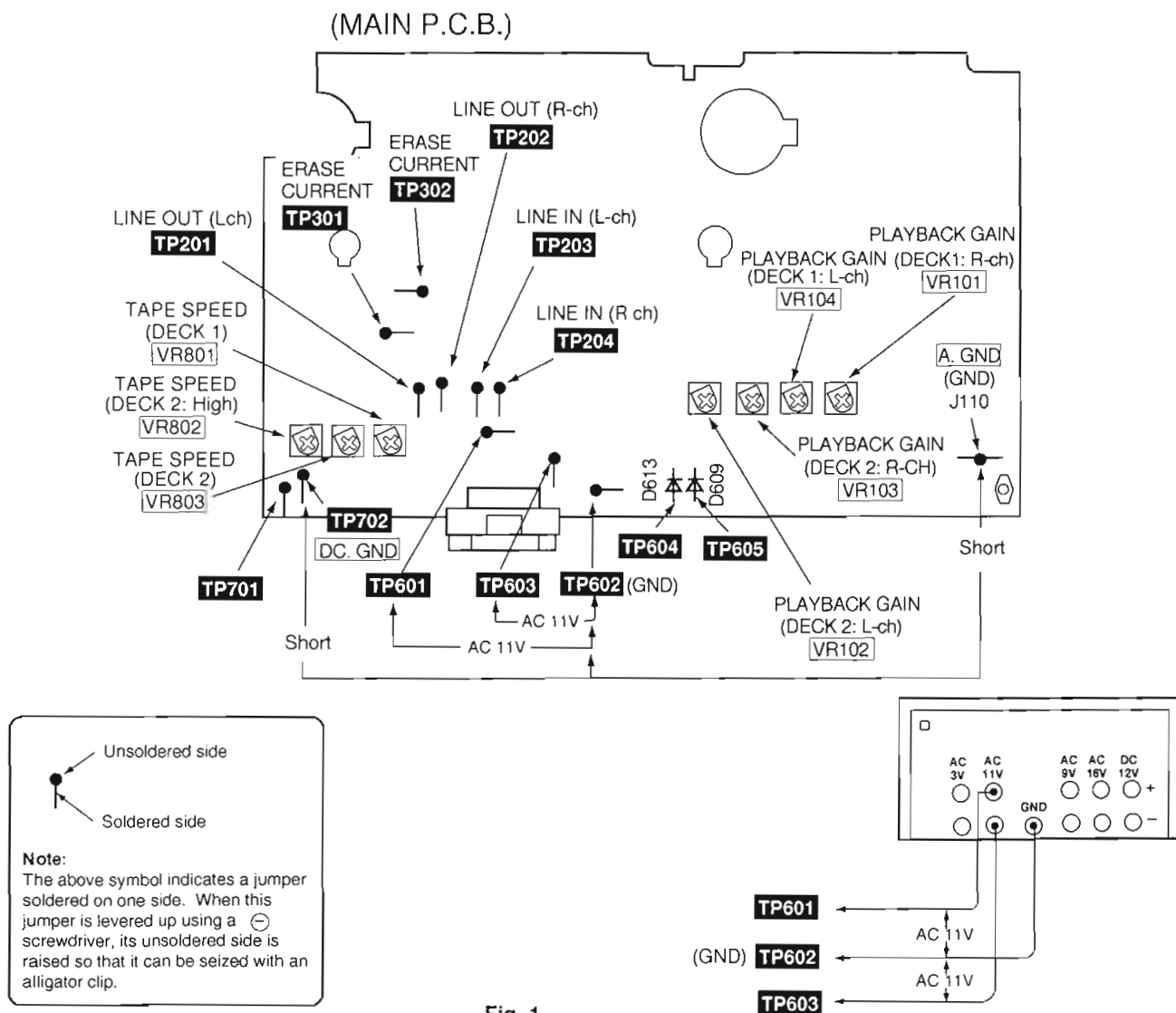
### • To Supply Power Source

1. Short three sections the test points **TP602**, **A. GND**, and **TP702**.
2. Apply 11 AC power to test points between **TP601** and **TP602** (GND), and **TP603** and **TP602** (GND).

**Note:** When operated alone, this unit automatically enter the TEST mode, causing either the DECK1 or DECK2 indicators to blink.

### • To Check Signals

Connect an oscilloscope or a built-in amplifier speaker between line output for L-ch (**TP201**) and jumper (**J110**) **A. GND**, and line out for R-ch (**TP202**) and jumper (**J110**) **A. GND** and check if the signals are outputting from this unit.



#### Measurement Condition

- 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)
- AF oscillator
- Digital frequency counter

#### Test Tape

- Head azimuth adjustment (8kHz, -20dB); QZZCFM
- Tape speed adjustment (3kHz, -10dB); QZZCWAT
- Playback gain adjustment (315Hz, 0dB); QZZCFM
- Recording/ playback frequency response adjustment; QZZCFM (315Hz/0dB, 315Hz/-20dB, 12.5kHz~63Hz/-20dB)
- Normal blank tape
- CrO<sub>2</sub> blank tape
- Metal blank tape

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

1. Connect the measuring instrument as shown in Fig. 2.
2. Replace azimuth screws for both forward and reverse direction after removing the screw-locking bond left on the head base.  
Fine adjustment of azimuth can not be performed with remaining the bond on the head base.  
(Supply part No. of azimuth adjusting screw: RHD17015)
3. Playback the azimuth adjustment portion (8 kHz, -20dB) of test tape (QZZCFM). Adjust the azimuth adjusting screw until the outputs of the L/R-ch are maximized. (Refer to Fig. 3.)  
Make sure that the difference in the peak level between the left and right channels does not exceed 0.5dB.
4. Perform the same adjustment in reverse playback mode.

### Check of the level difference forward and reverse directions

5. Playback the playback gain adjustment portion (315 Hz, 0dB) of test tape (QZZCFM). Check if level difference between forward and reverse direction is within 1.5 dB.
6. After the adjustment, apply screwlock to the azimuth adjusting screw.

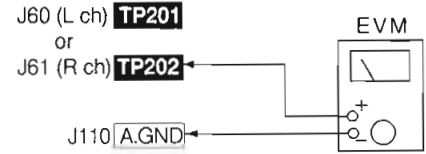


Fig. 2

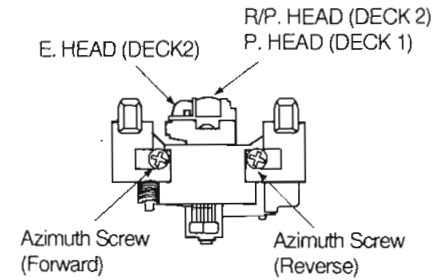


Fig. 3

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

**Note:** When connecting the unit to other system components for testing, short the section between the test points **TP701** and **TP702** and turn on the entire system. (The unit is set to the TEST mode, and either the DECK1 or DECK2 indicators will blink.)

**Normal speed (Standard value: 3000 ± 45Hz)**

1. Connect the measuring instrument as shown in Fig. 4.
2. Playback the middle portion of the test tape (QZZCWAT).
3. Adjust Deck1=VR801 and Deck 2= VR803 for the output value shown below. (Refer to Fig. 1)

Adjustment target: 3000 ± 15Hz (NORMAL speed)  
Standard value: 3000 ± 45Hz (NORMAL speed)

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

4. Playback the middle portion on the test tape (QZZCWAT).
5. Press the one touch tape edit (High) button.  
This will set the high speed mode.
6. At that time, check if the output from DECK1 is within the standard value.

Standard value: 5000 ± 600Hz (HIGH speed)

7. Adjust VR802 so that the output frequency of DECK 2 is within ± 30 Hz for the value of the output frequency of DECK 1. (Refer to Fig. 1)

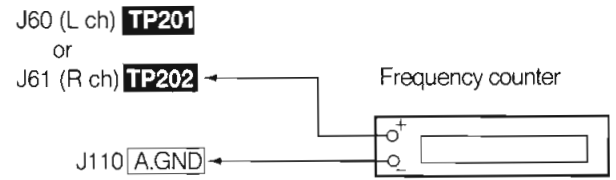


Fig. 4

**Note:** When connecting the unit to other system components, disconnect the short between the test points **TP701** and **TP702**.

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

1. Connect the measuring instrument as shown in Fig. 5.
2. Find the start of the 315Hz/0dB section of the test tape (QZZCFM), insert the tape into DECK 1 and 2, and play it back (FWD).
3. Adjust DECK 2: VR102 (L-ch) [VR103 (R-ch)] and DECK 1: VR104 (L-ch) [VR101 (R-ch)] so that the output is within the standard value. (Refer to Fig. 1).

Standard value: 280mV ± 15mV

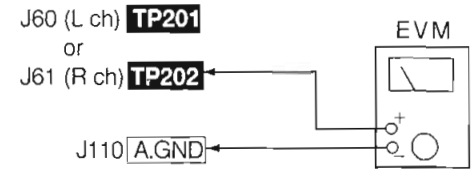


Fig. 5

### ERASE CURRENT CONFIRMATION (DECK 2)

1. Connect the measuring instrument as shown in Fig. 6.
2. Insert the blank tape into DECK 2, and press the REC PAUSE button.
3. Check if the output at this time between the erase current confirmation point TP301 and TP302 (the output on both edged of R313) is within the standard value.

Standard value	EVM reading
Normal tape : 70 ± 25 mA	(70 ± 25 mA)
CrO2 tape : 100 ± 25 mA	(100 ± 25 mA)
Metal tape : 160 ± 25 mA	(160 ± 25 mA)

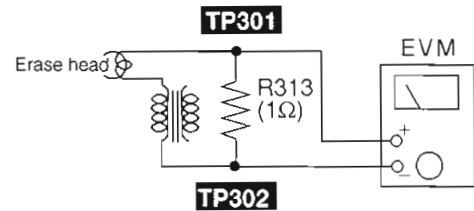


Fig. 6

**Note:** The test tape is not required when confirming the erase current.

### Playback frequency response check (DECK1/2)

1. Connect the measuring instrument as shown in Fig. 7
2. Playback the 315Hz/-20dB and 12.5 kHz to 63 Hz/-20dB sections of the test tape (QZZCFM) and then, using the 315 Hz/-20dB playback output as a reference (0 dB), confirm that the playback frequency response is within the range shown in Fig. 8.

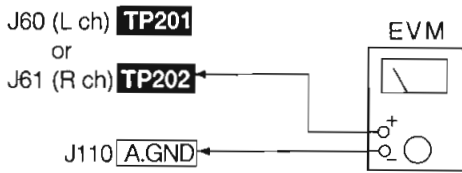


Fig. 7

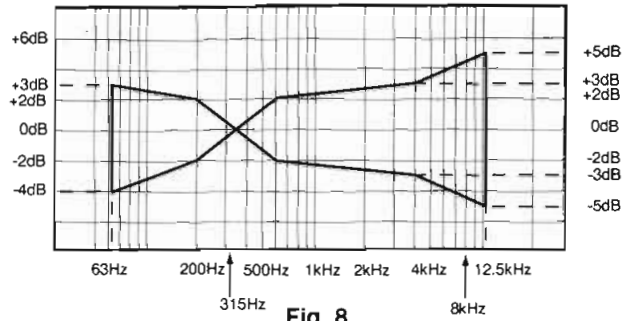


Fig. 8

### Recording/playback frequency response and gain check (DECK2)

#### Normal tape check

1. Connect the measuring instrument as shown in Fig. 9.
2. Insert a Normal-type blank tape into DECK 2.
3. Record signals at 50 Hz, 100Hz, 200 Hz, 500 Hz, 1kHz, 2kHz, 10kHz and 12.5 kHz (28mV).
4. Set the playback frequency of the recorded signals at 1kHz as the reference response (0 dB).
5. Playback the recorded signals to confirm that the output is within the range of the overall frequency response shown in Fig. 10.

#### CrO<sub>2</sub>/ Metal tape check

6. Repeat steps 3 to 5 for each tape and confirm that the output for each is within the range of the overall frequency response shown in Fig. 11.

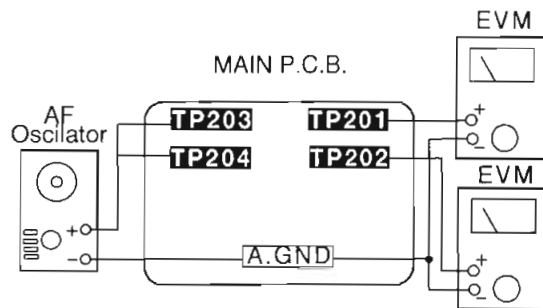


Fig. 9

Normal Overall frequency response chart (NR OUT)

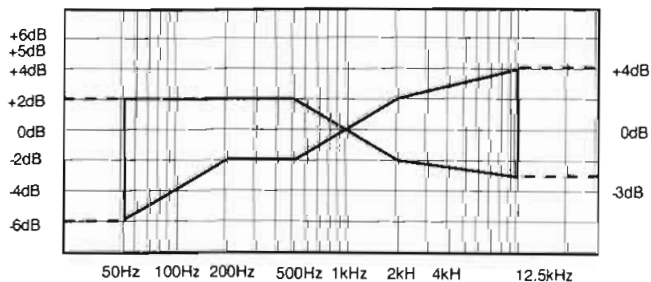


Fig. 10

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

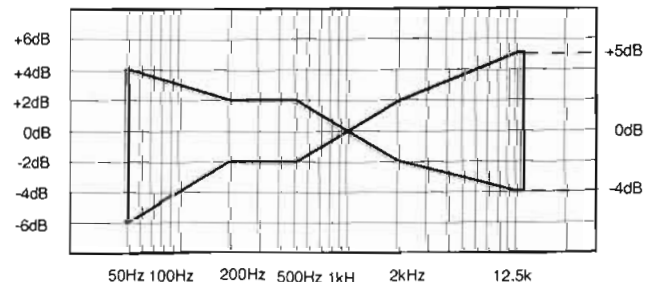


Fig. 11

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## SERVICE MODE FUNCTION OF CASSETTE MECHANISM

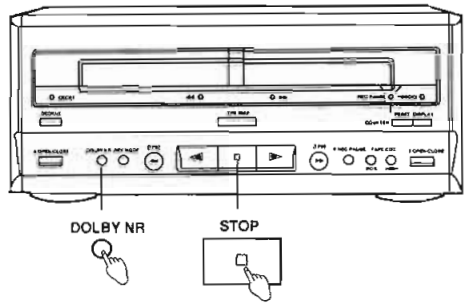
This unit is equipped with a service mode function of cassette mechanism using the LED indicators [R. PLAY (◀), F. PLAY (▶), REW (◀◀), FF(▶▶)]. Use this function during maintenance to check faults of the items below.

### • Cassette tapes to be prepared

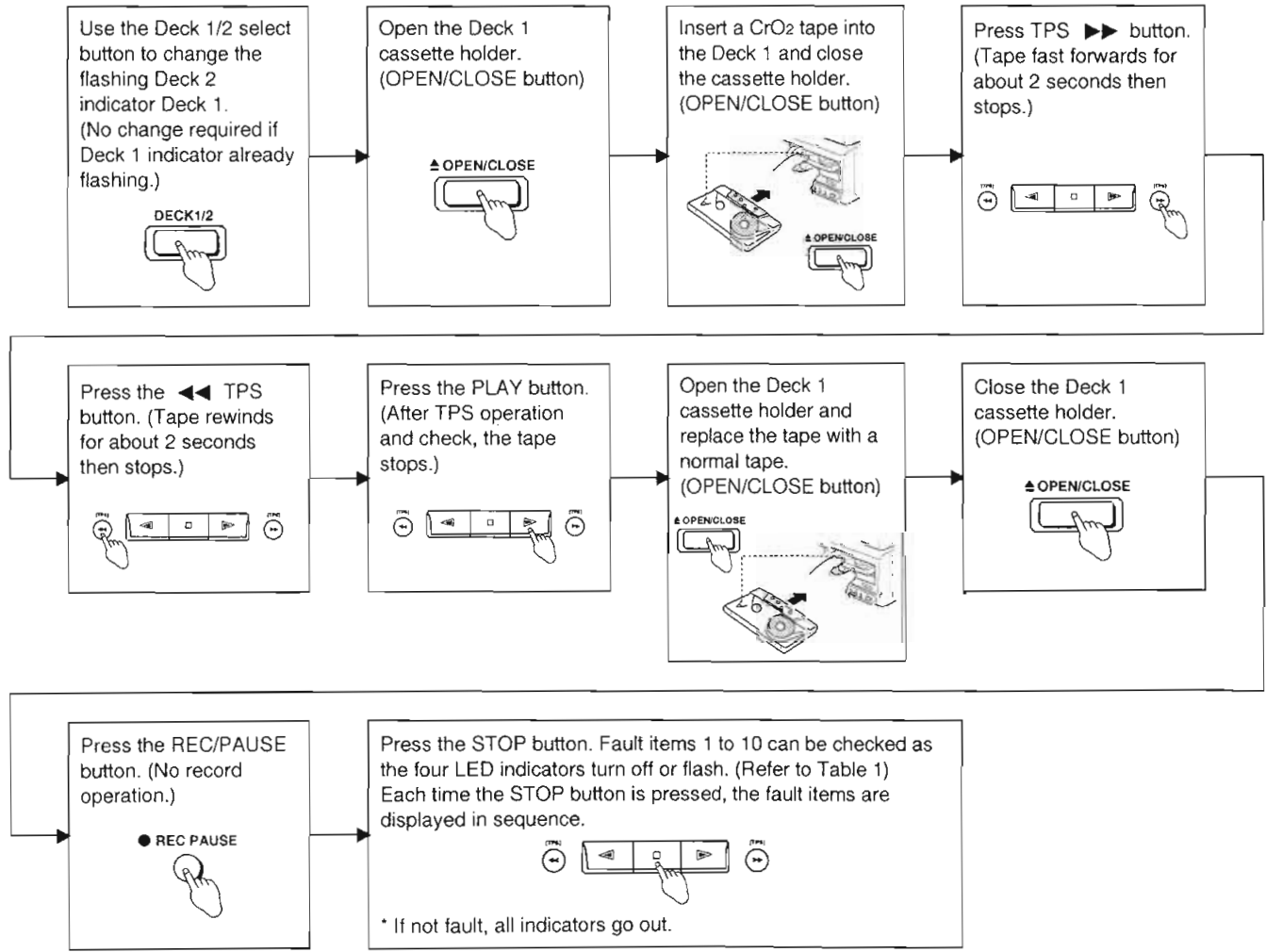
- Metal tape: Recorded music tape with only one erase-prevention tab intact (use middle portion of the tape).
- Normal tape: Recorded music tape with both erase-prevention tabs intact (use middle portion of the tape).
- CrO<sub>2</sub> tape: Recorded music tape with both erase-prevention tabs intact (use middle portion of the tape).

### • Selecting Service Mode

1. Turn on the power to the unit. (If RS-CA10 unit is removed from system, turn it on according to the procedure on page 12 of the original service manual.)  
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. (Service mode cannot be selected with a tape inserted in the cassette deck.)
2. The LED indicator for REC PAUSE flashes, the service mode has been activated.



### • Deck 1 Mechanism Check



No.	LED indicator status (off/flashing)				Fault location
	◀	▶	◀◀	▶▶	
1.	—	—	—	●	MODE detect switch
2.	—	—	●	—	REC prevention switch
3.	—	—	●	●	Half detect switch
4.	—	●	—	—	Deck OPEN switch
5.	—	●	—	●	Deck CLOSE switch
6.	—	●	●	—	CrO <sub>2</sub> tape detect switch
7.	—	●	●	●	Metal tape detect switch
8.	●	—	—	—	Reel pulse detect system (Hall IC, etc.)
9.	●	—	—	●	TPS operation
10.	●	—	●	—	Reel motor

**Notes:**

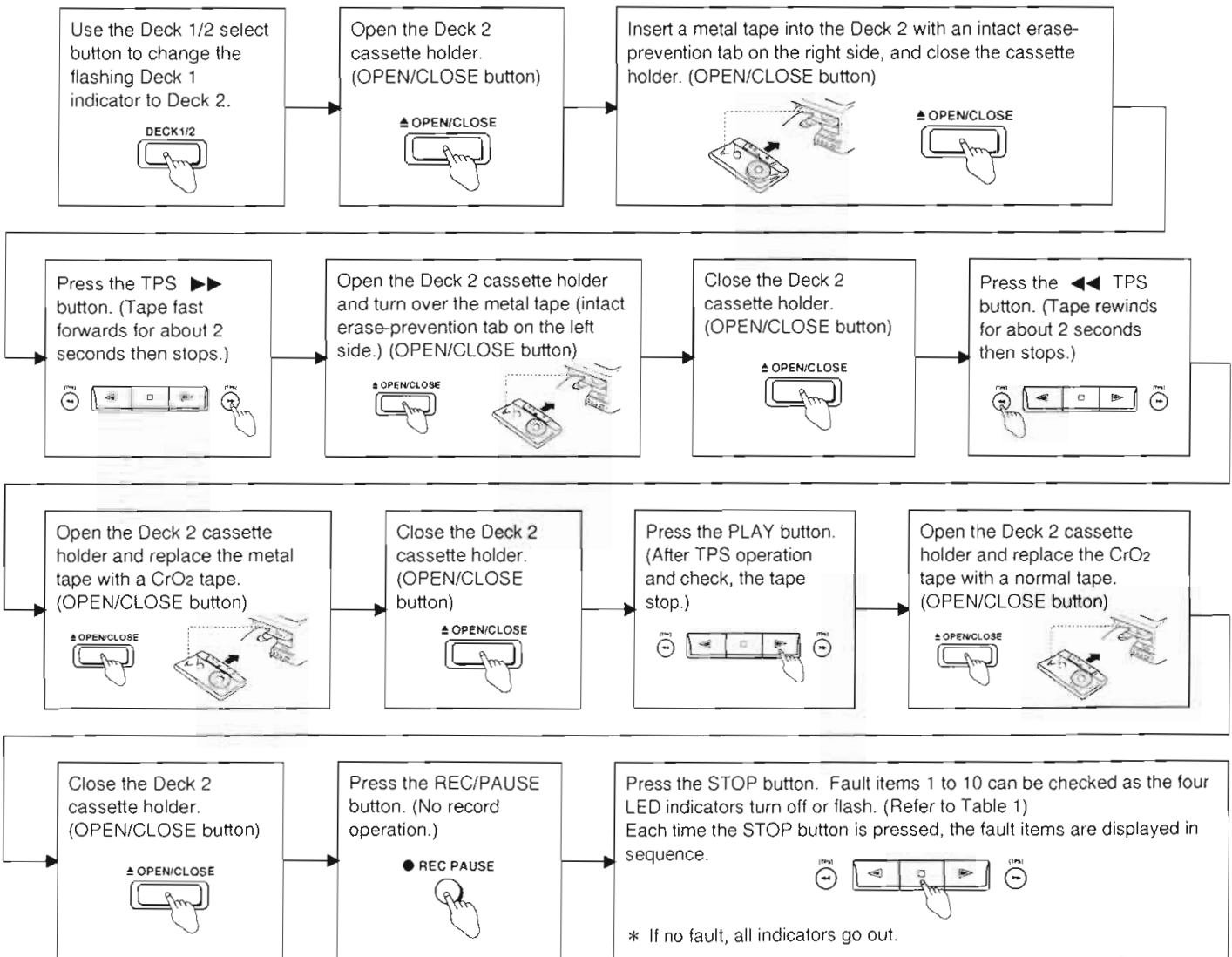
“●” : Flashing

“—” : off

\* If no fault, all indicators go out.

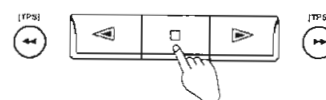
**Table 1: Service Mode Diagnostic Items**

**• Deck 2 Mechanism Check**



**• Exiting-Self-Check Mode**

1. Press the STOP button for more than 5 seconds. (Diagnostic contents stored in memory for both Deck 1 and 2 are erased.)
2. Remove the cassette tape from the cassette holder.
3. Turn off the unit.





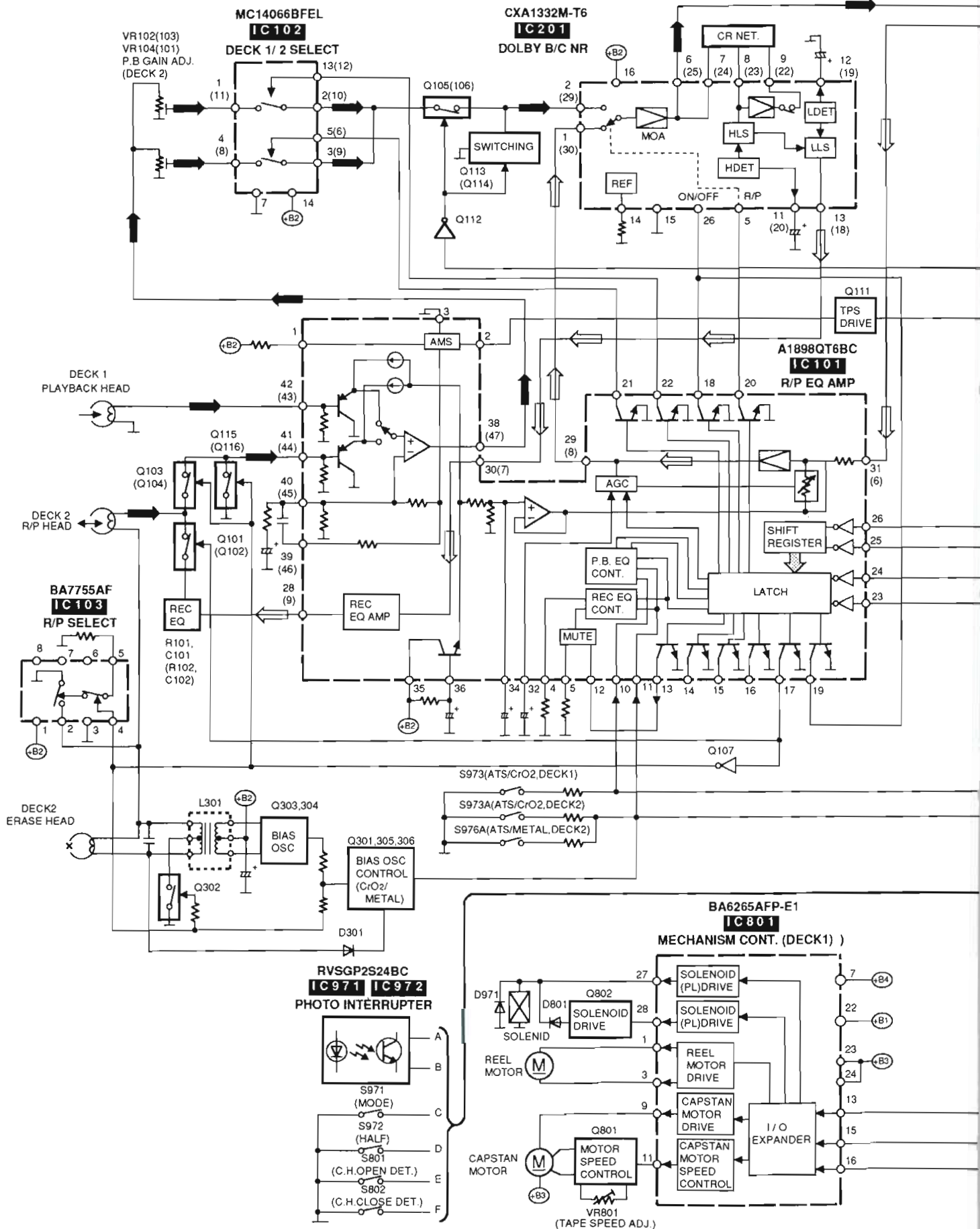
# TERMINAL GUIDE

## ● IC701 (M37471M4264F): MICRO COMPUTER

Pin No.	Mark	I/O	Function
1	NC	-	Not used
2	DATA IN	I	Serial data input
3	REQ	I	Request signal input
4	DATA2	O	Deck 2 mechanism control data output
5	CLK2	O	Deck 2 mechanism control clock output
6	LATCH2	O	Deck 2 mechanism control latch signal output
7	ME/CrO <sub>2</sub> -2	I	Deck 2 tape select switch input
8	PHOTO2_S	I	Deck 2 reverse side reel pulse input
9	PHOTO2_T	I	Deck 2 forward side reel pulse input
10	AD_SW	I	Deck 2 mechanism switch signal input
11	PHOTO1_S	I	Deck 1 reverse side reel pulse input
12	PHOTO2_T	I	Deck 1 forward side reel pulse input
13	KEY2	I	Key switch signal input
14	KEY1	I	
15	VREF	I	Reference voltage input
16	NC	-	Not used
17	NC	-	Not used
18	XIN	I	Clock input
19	XOUT	O	Clock output
20	NC	-	Not used
21	AVSS	-	Connect to GND
22	VSS	-	Connect to GND
23	VCC	-	Power supply (+5V)
24	NC	-	Not used
25	TEST	-	Test mode select (Not used, open)
26	CP_SEL1	-	Not used
27	NC	-	Not used
28	RESET	I	Reset signal input

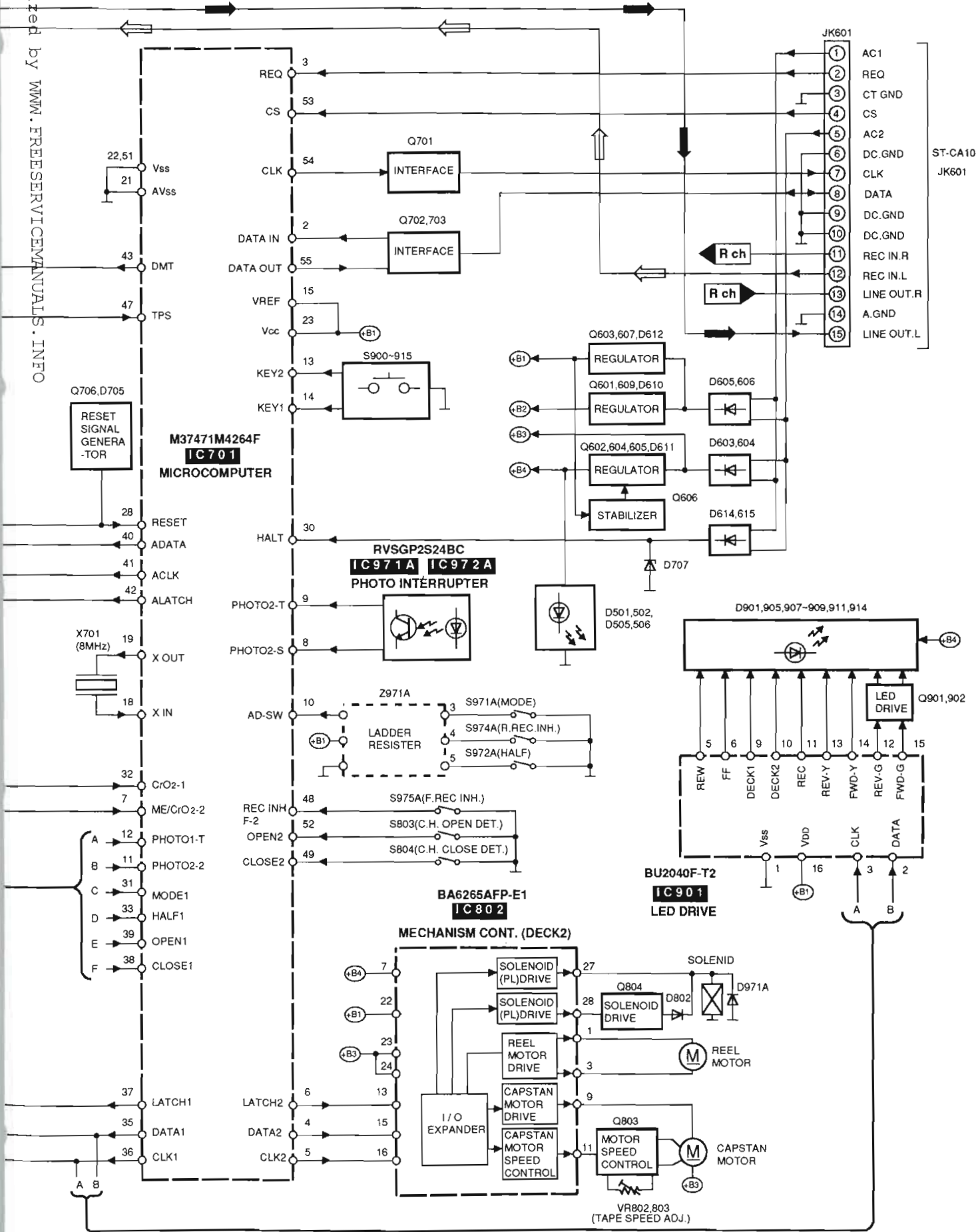
Pin No.	Mark	I/O	Function
29	NC	-	Not used
30	HALT	I	AC power source detect signal input
31	MODE1	I	Deck 1 mode detect switch signal input
32	ME/CrO <sub>2</sub> -1	I	Deck 1 tape select switch signal input
33	HALF1	I	Deck 1 Half detect switch signal input
34	NC	-	Not used
35	DATA1	O	Deck 1 control data output
36	CLK1	O	Deck 1 control clock output
37	LATCH1	O	Deck 1 mechanism control latch signal output
38	CLOSE1	I	Deck 1 cassette holder close detect switch signal input
39	OPEN1	I	Deck 1 cassette holder open detect switch signal input
40	A DATA	O	Serial data output
41	A CLK	O	Serial clock output
42	A LATCH	O	Latch signal output
43	DMT	O	Muting control signal output
44	NC	-	Not used
45	NC	-	Not used
46	CP_SEL2	-	Not used
47	TPS	I	TPS signal input
48	RECINH F <sub>2</sub>	I	Deck 2 record prevention tab detect switch signal input
49	CLOSE2	I	Deck 2 cassette holder close detect switch signal input
50	NC	-	Not used
51	VSS	-	GND terminal
52	OPEN2	I	Deck 2 cassette holder open detect switch signal input
53	CS	I	Serial data control signal input
54	CLK	O	Serial clock output
55	DATA OUT	O	Serial data output
56	NC	-	Not used

# BLOCK DIAGRAM



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• Signal line    **➔** : Playback signal    **⇨** : Recording signal    \* ( ) : indicates pin No. of right channel .



## ■ SCHEMATIC DIAGRAM (Parts list on pages 30, 31, 36, 37.)

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

Page

<b>A</b> MAIN CIRCUIT .....	21~25
<b>B</b> MECHANISM CIRCUIT (DECK 1) .....	23
<b>C</b> MECHANISM CIRCUIT (DECK 2) .....	23
<b>D</b> OPERATION CIRCUIT .....	26
<b>E</b> LED CIRCUIT .....	26

### Notes:

- **S801**: DECK 1 Cassette holder open detection switch in "off" position.
- **S802**: DECK 1 Cassette holder close detection switch in "off" position.
- **S803**: DECK 2 Cassette holder open detection switch in "off" position.
- **S804**: DECK 2 Cassette holder close detection switch in "off" position.
- **S900**: Stop (□) switch.
- **S901**: Dolby noise-reduction switch (DOLBY NR).
- **S902**: Rewind tape program sensor switch (◀◀ [TPS]).
- **S903**: Reverse-side playback switch (◁).
- **S904**: TPS skip switch (TPS SKIP).
- **S905**: Forward-side playback switch (▷).
- **S906**: Fast forward tape program sensor switch (▶▶ [TPS]).
- **S907, 908**: Tape edit switches (TAPE EDIT).  
[S907: NOR, S908: HIGH]
- **S909**: Rec pause switch (● REC PAUSE).
- **S910**: Deck 2 cassette holder open/ close switch (▲ OPEN/ CLOSE).
- **S911**: Counter display switch (DISPLAY).
- **S912**: Counter reset switch (RESET).
- **S913**: Deck 1/ Deck 2 select switch (DECK 1/2).
- **S914**: DECK 1 Cassette holder open/ close switch (▲ OPEN/ CLOSE).
- **S915**: Reverse-mode select switch (REV. MODE).
- **S971**: DECK 1 Mode switch in "off" position.
- **S971A**: DECK 2 Mode switch in "off" position.
- **S972**: DECK 1 Half switch in "off" position.
- **S972A**: DECK 2 Half switch in "off" position.
- **S973**: DECK 1 ATS (CrO<sub>2</sub>) switch in "off" position.
- **S973A**: DECK 2 ATS (CrO<sub>2</sub>) switch in "off" position.
- **S974A**: DECK 2 Reverse rec. inhibit switch in "off" position.
- **S975A**: DECK 2 Forward rec. inhibit switch in "off" position.
- **S976A**: DECK 2 ATS (Metal) switch in "off" position.

- Resistance are in ohms (Ω), 1/4 watt unless specified otherwise.  
1K=1,000 (Ω), 1M=1,000 (Ω)

- Capacity are in micro-farads (μF) unless specified otherwise.

- All voltage values shown in circuitry are under no signal condition and playback mode with volume control at minimum position otherwise specified.  
( ) ..... Voltage values at record mode.




For measurement us EVM.

- Voltage values and waveforms are measured as indicated in the schematic diagram when test points between **TP604** and **TP605**, and between **A. GND** and **TP602** are shorted.

- Important safety notice:

Components identified by ▲ mark have special characteristics important for safety.

When replacing any of components, be sure to use only manufacture's specified parts shown in the parts list.

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

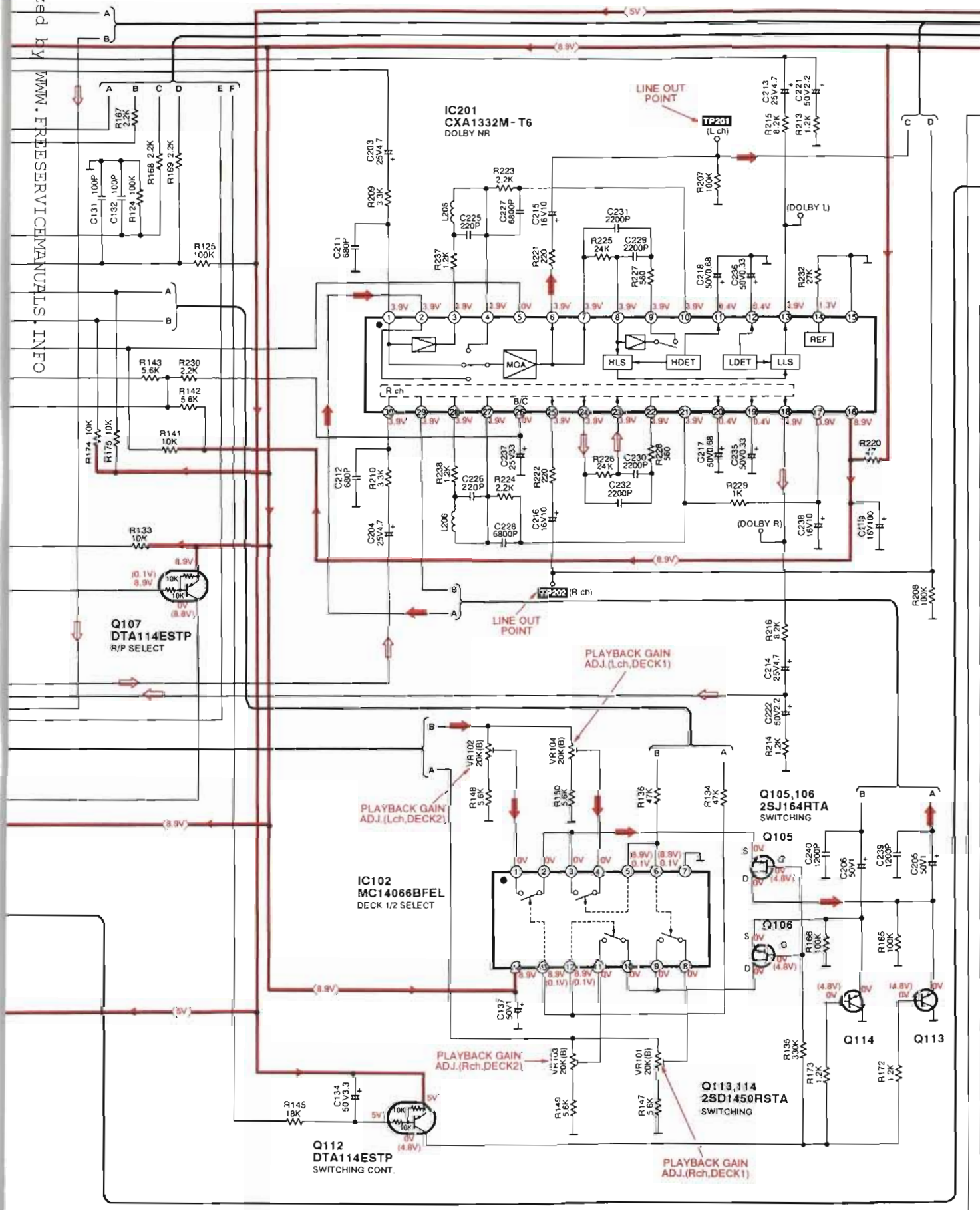
### ● Caution!

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.



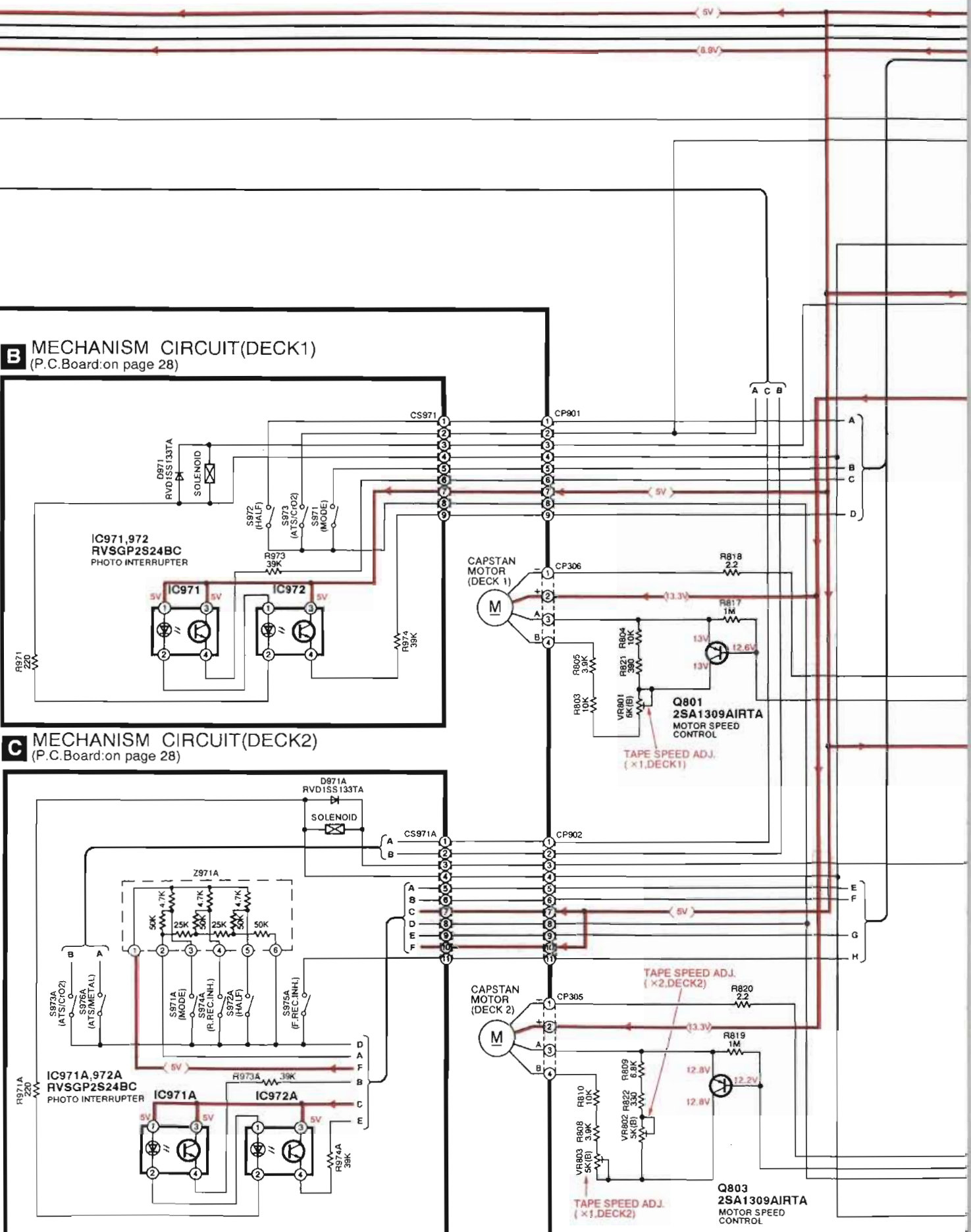


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**A** MAIN CIRCUIT (P.C.Board: on page 27)

**B** MECHANISM CIRCUIT (DECK 1) (P.C.Board: on page 28)

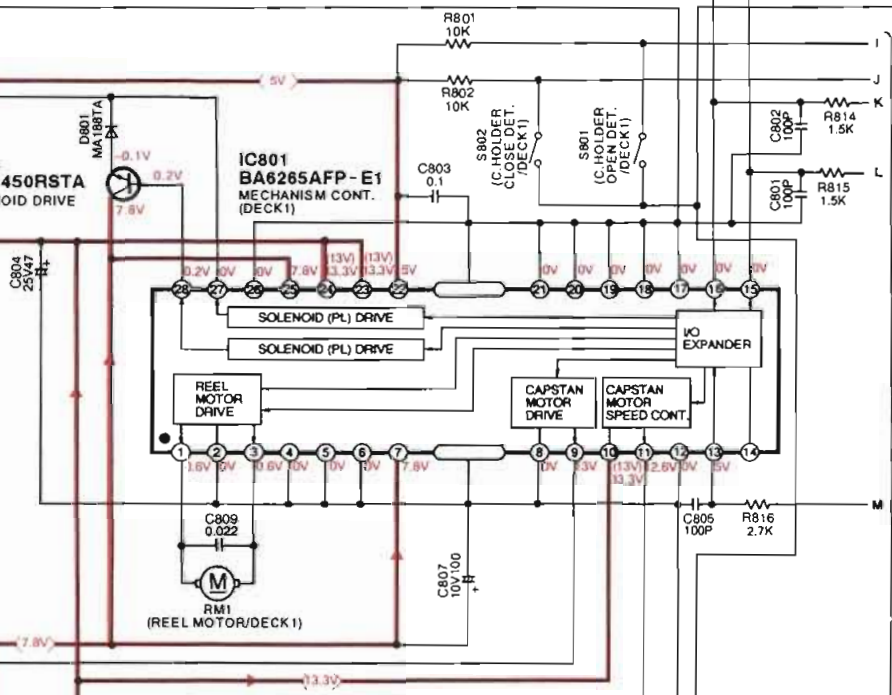
**C** MECHANISM CIRCUIT (DECK 2) (P.C.Board: on page 28)



**Q802**  
2SD1450RSTA  
SOLENOID DRIVE

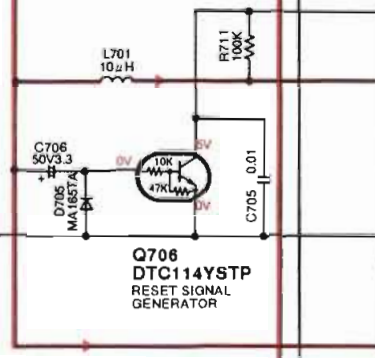
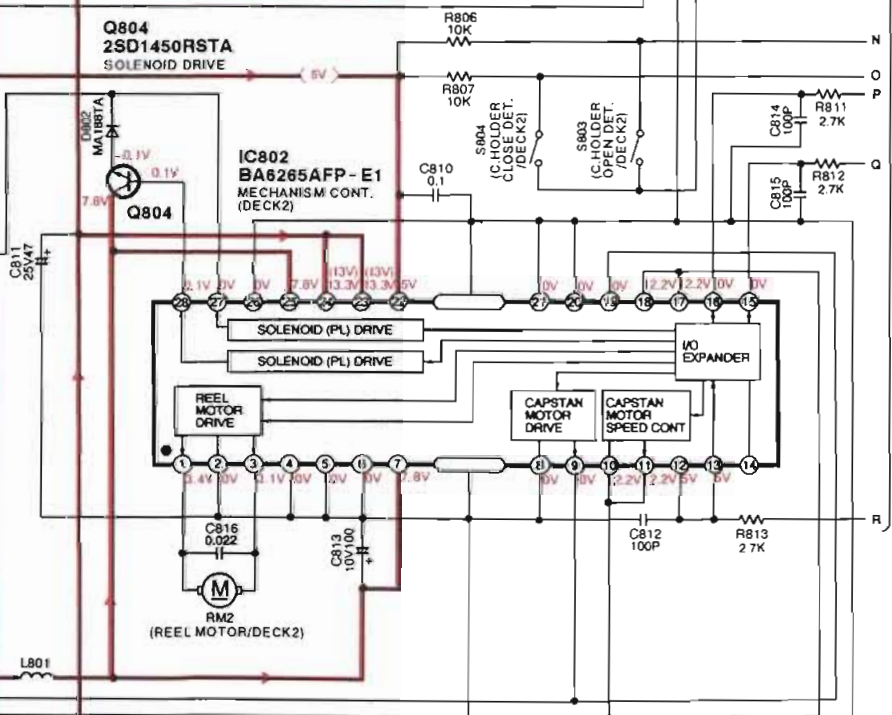
**IC801**  
BA6265AFP-E1  
MECHANISM CONT.  
(DECK1)

**Q706**  
DTC114YSTP  
RESET SIGNAL  
GENERATOR



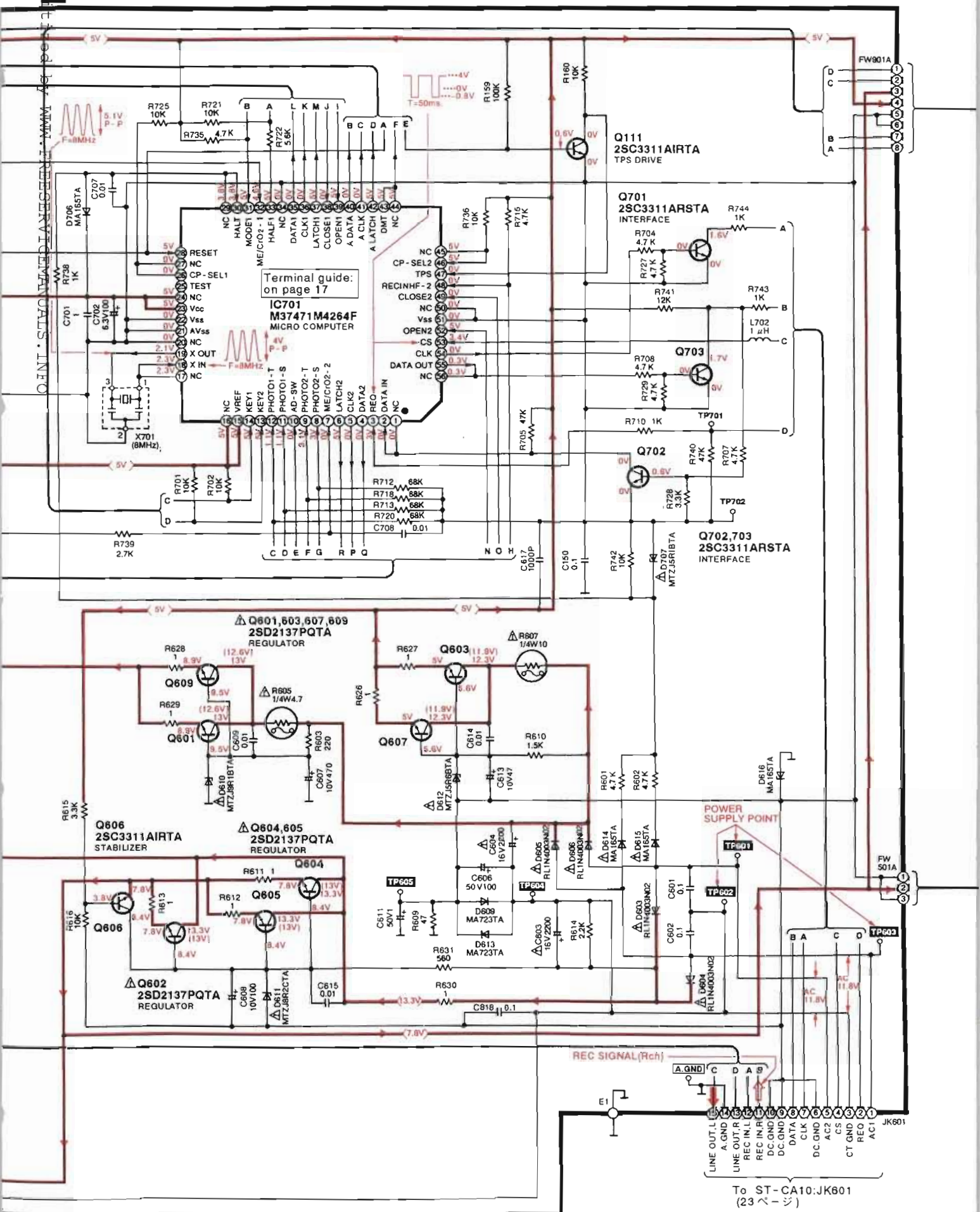
**Q804**  
2SD1450RSTA  
SOLENOID DRIVE

**IC802**  
BA6265AFP-E1  
MECHANISM CONT.  
(DECK2)





A MAIN CIRCUIT (P.C.Board: on page 27)



Terminal guide: on page 17

IC701 M37471M4264F MICRO COMPUTER

Q111 2SC3311AIRTA TPS DRIVE

Q701 2SC3311ARSTA INTERFACE

Q703 1.7V

Q702 0.8V

Q702,703 2SC3311ARSTA INTERFACE

Q601,603,607,609 2SD2137PQTA REGULATOR

Q604,605 2SD2137PQTA REGULATOR

Q606 2SC3311AIRTA STABILIZER

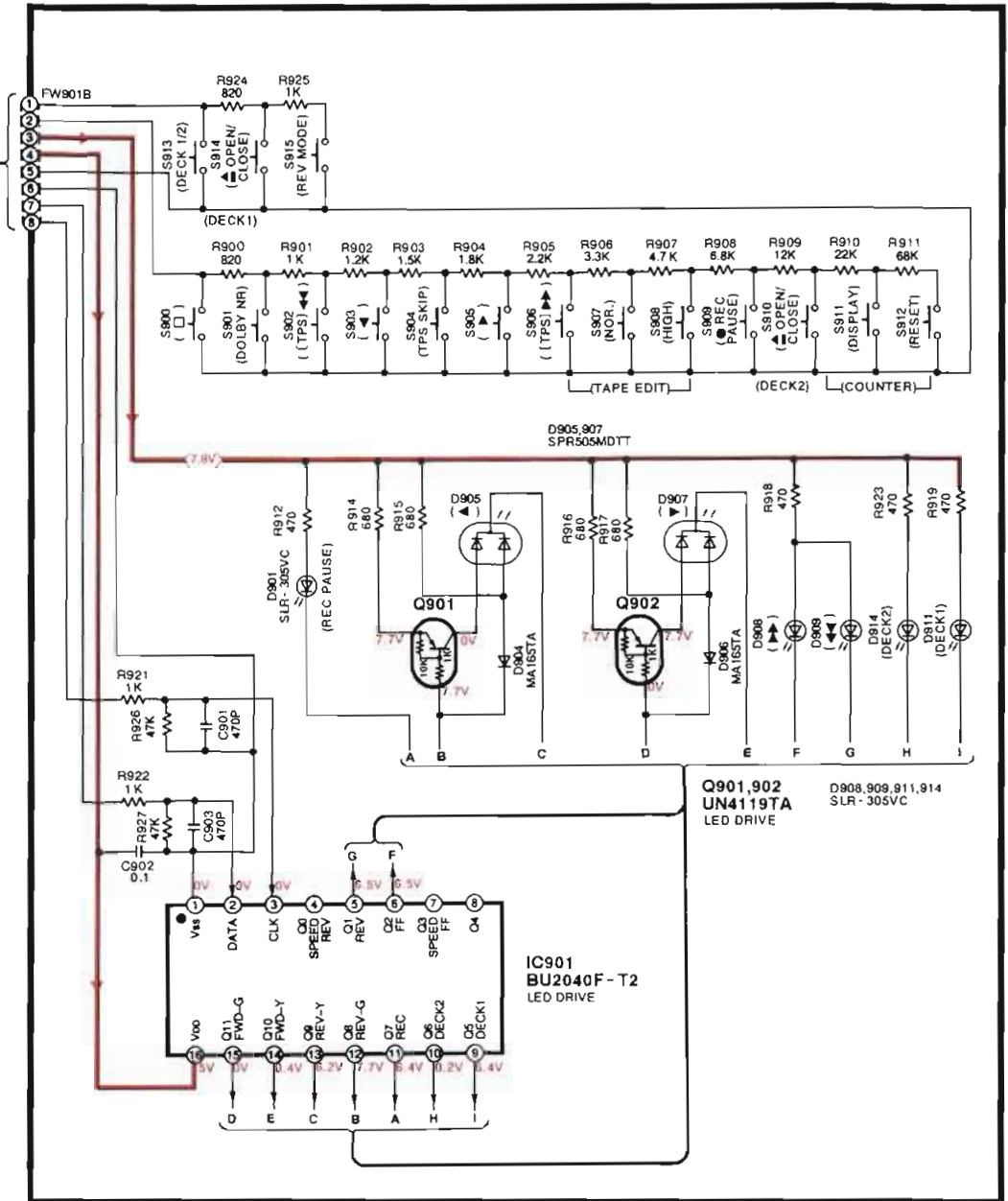
Q602 2SD2137PQTA REGULATOR

POWER SUPPLY POINT

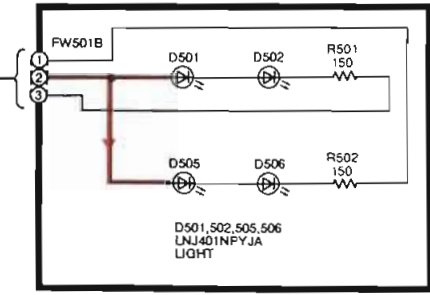
REC SIGNAL(Rch)

To ST-CA10:JK601 (23 x 1)

**D** OPERATION CIRCUIT (P.C.Board: on page 28)



**E** LED CIRCUIT (P.C.Board: on page 28)



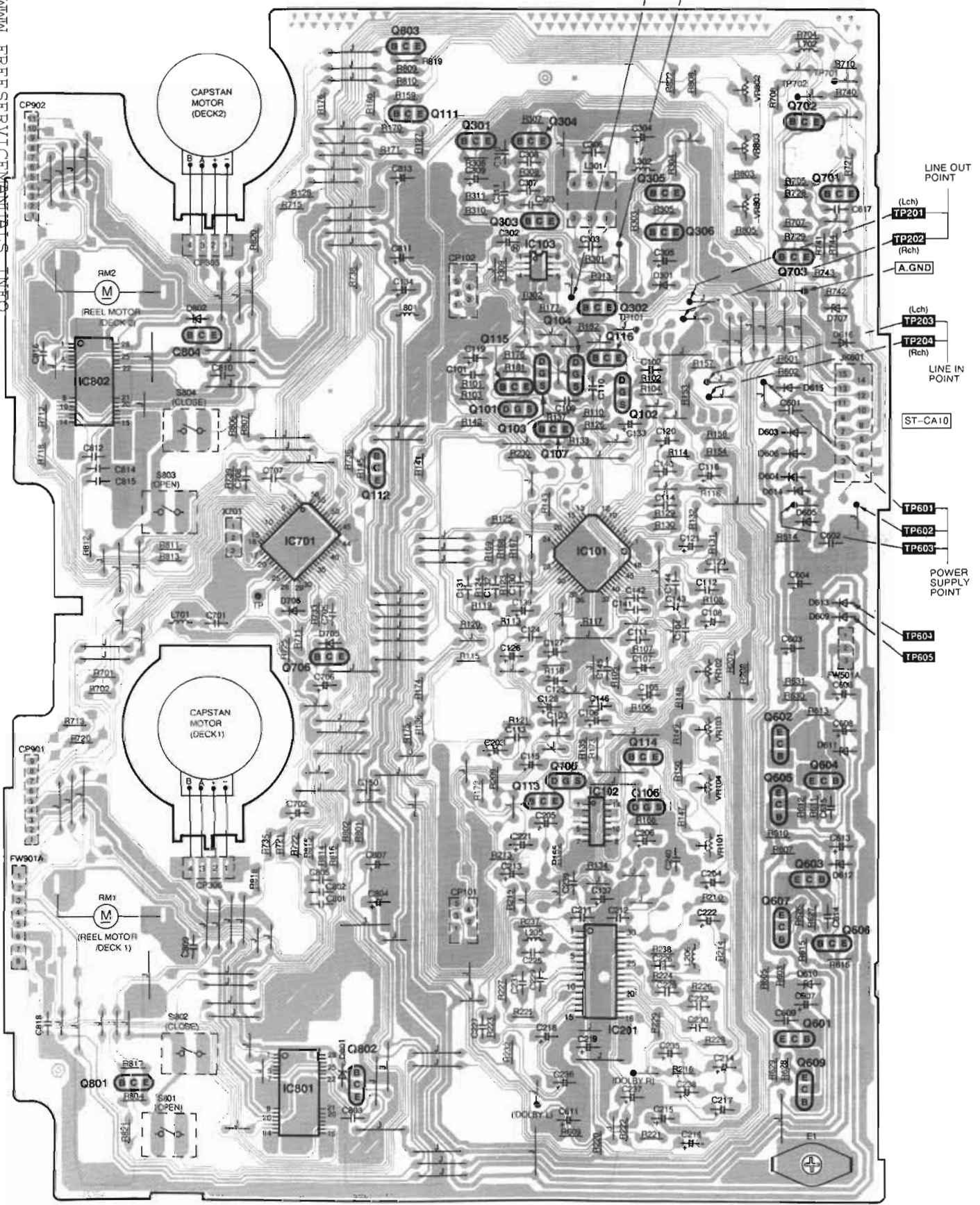
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# PRINTED CIRCUIT BOARD DIAGRAM

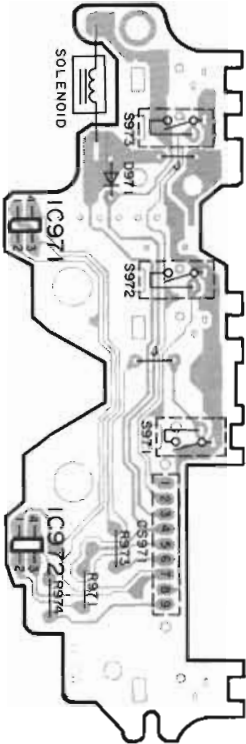
(This schematic diagram may be modified at any time with the development of new technology.)

## A MAIN P.C.B. (REP2142A-M)

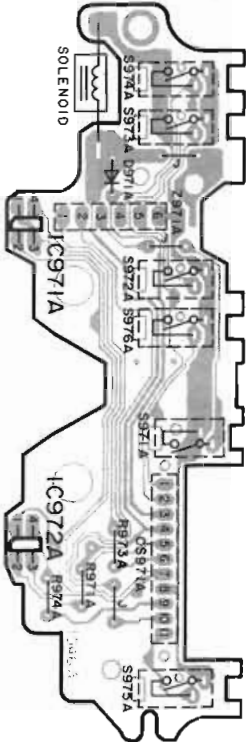
ERASE CURRENT CHECK POINT  
TP302 TP301



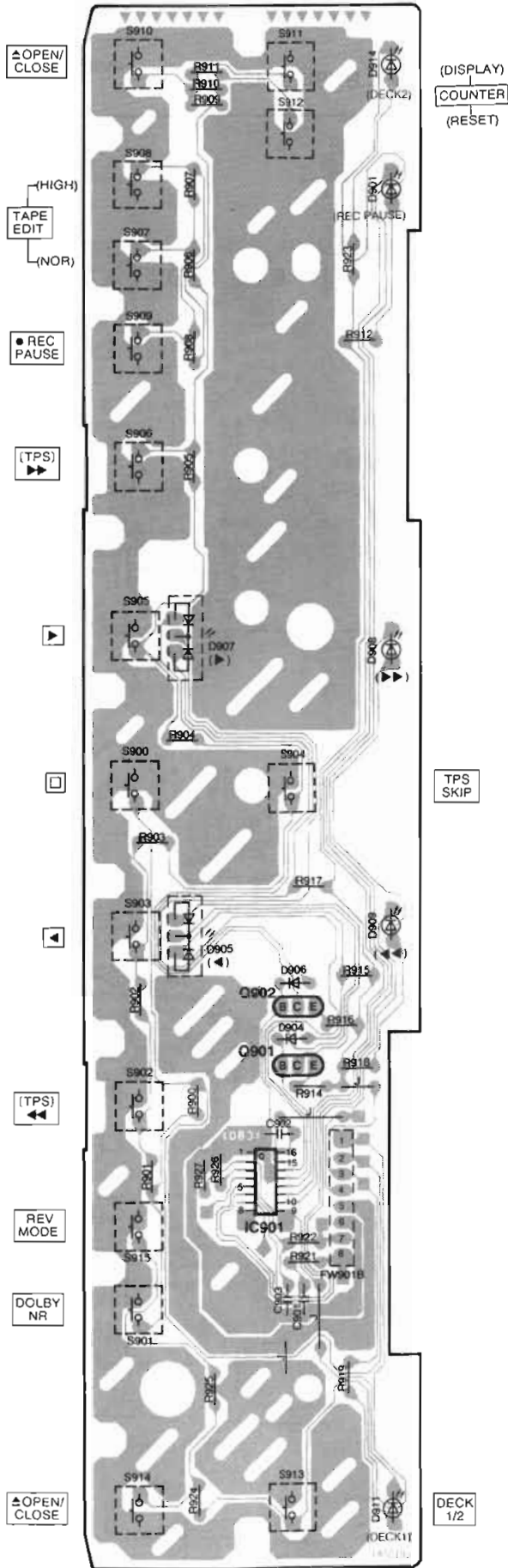
**B** MECHANISM P.C.B.(DECK1) (REP1655A)



**C** MECHANISM P.C.B.(DECK2) (REP1656A)



**D** OPERATION P.C.B. (REP2142A-M)

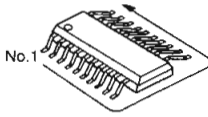
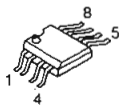
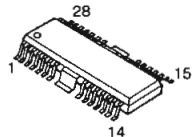
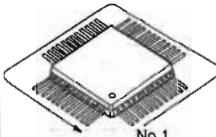
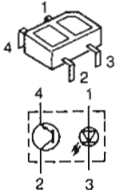
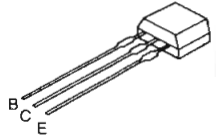
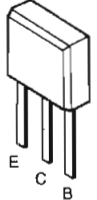
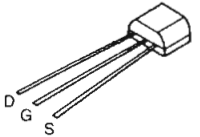
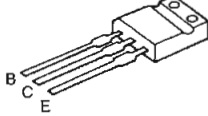
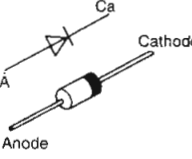
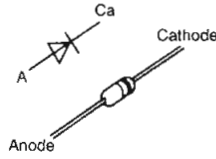
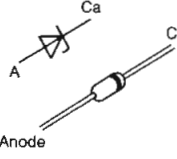
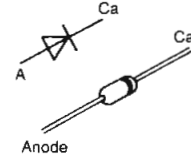
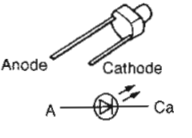
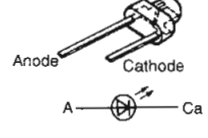
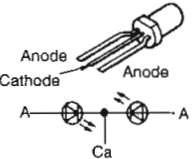


**E** LED P.C.B. (REP2142A-M)

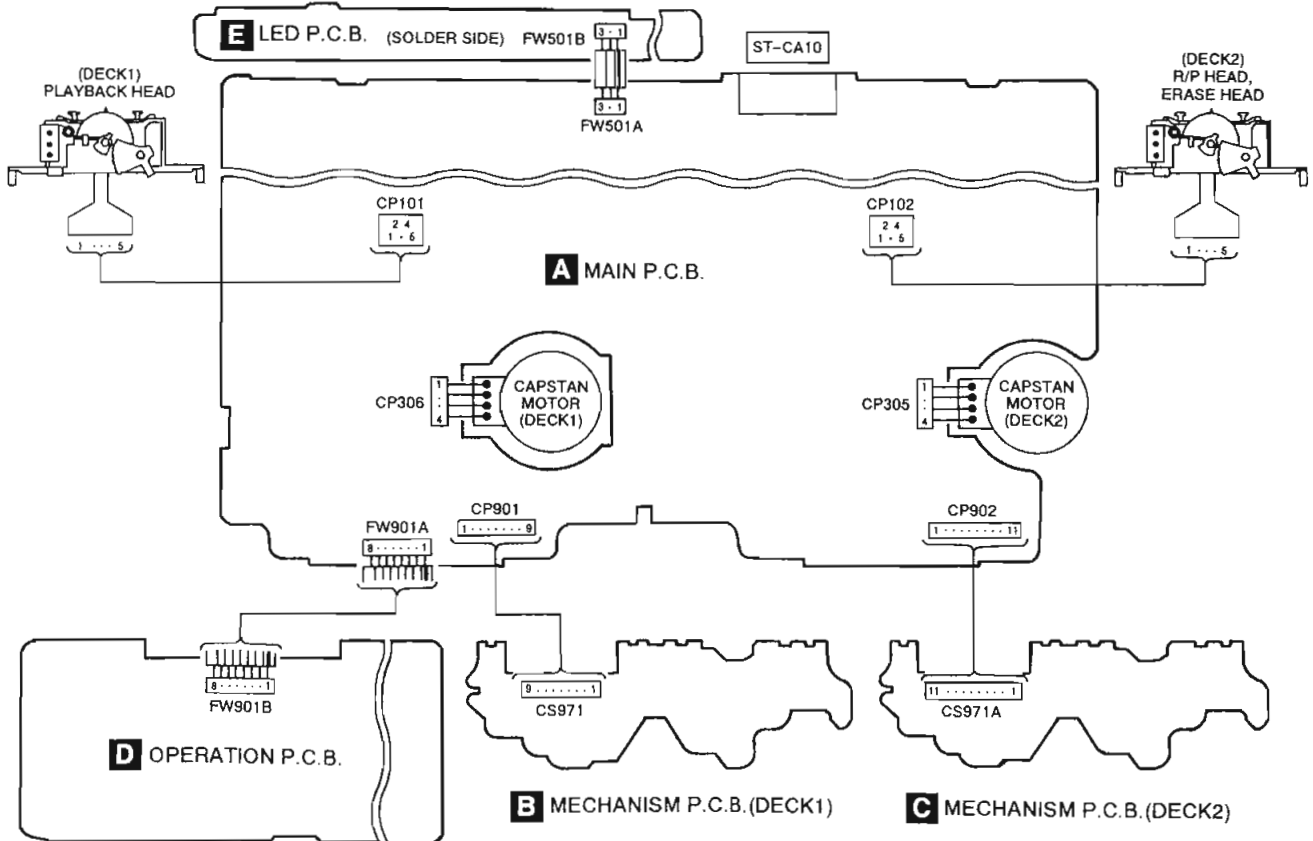


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### ● Terminal guide of IC's, transistors and diodes

 <p>No.1</p>	<table border="1"> <tr> <td>MC14066BFEL</td> <td>14PIN</td> </tr> <tr> <td>BU2040F-T2</td> <td>16PIN</td> </tr> <tr> <td>CXA1332M-T6</td> <td>30PIN</td> </tr> </table>	MC14066BFEL	14PIN	BU2040F-T2	16PIN	CXA1332M-T6	30PIN	<p>BA7755AF</p> 	<p>BA6265AFP-E1</p> 	<table border="1"> <tr> <td>A1898QT6BC</td> <td>48PIN</td> </tr> <tr> <td>M37471M4264F</td> <td>56PIN</td> </tr> </table>  <p>No.1</p>	A1898QT6BC	48PIN	M37471M4264F	56PIN
MC14066BFEL	14PIN													
BU2040F-T2	16PIN													
CXA1332M-T6	30PIN													
A1898QT6BC	48PIN													
M37471M4264F	56PIN													
<p>RVSGP2S24BC</p> 	<p>DTA114ESTP DTC114YSTP DTC144ESTP</p> 		<p>2SD1450RSTA 2SA1309AIRTA 2SC3311AIRTA 2SC3311ARSTA UN4119TA</p>	<p>2SJ164RTA</p> 	<p>2SD2137PQTA</p> 									
<p>RL1N4003N02</p> 	<p>MA188TA</p> 		<p>MTZJ5R1BTA MTZJ5R6BTA MTZJ8R2CTA MTZJ9R1BTA</p>		<p>MA165TA MA723TA RVD1SS133TA</p>									
<p>SLR-305VC</p> 	<p>LNJ401NPYJA</p> 	<p>SPR505MDTT</p> 												

### ■ WIRING CONNECTION DIAGRAM



# REPLACEMENT PARTS LIST

- Notes:**
- Important safety notice: Components identified by  $\Delta$  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.
  - Remote Control Ass'y: Supply period for three years from termination of production.

Ref. No.	Part No.	Part Name & Description	Remarks	Ref. No.	Part No.	Part Name & Description	Remarks
		INTEGRATED CIRCUIT(S)		D612	MTZJ5R6BTA	DIODE	$\Delta$
				D613	MA723TA	DIODE	
				D614, 615	MA165	DIODE	$\Delta$
IC101	A1898QT6BC	R/P EQ AMP		D616	MA165	DIODE	
IC102	MC14066BFEL	DECK 1/2 SELECT		D705, 706	MA165	DIODE	
IC103	BA7755AF	R/P SELECT		D707	MTZJ5R1BTA	DIODE	$\Delta$
IC201	CXA1332M-T6	DOLBY NR		D801, 802	MA188TA	DIODE	
IC701	M37471M4264F	MICRO COMPUTER		D901	SLR-305VC	L. E. D.	
IC801, 802	BAG265AFP-E1	MECHANISM CONT. (DECK 1/2)		D904	MA165	DIODE	
IC901	BU2040F-T2	LED DRIVE		D905	SPR505MDTT	L. E. D.	
IC971	RVSGP2S24BC	PHOTO INTERRUPTER (DECK1)		D906	MA165	DIODE	
IC971A	RVSGP2S24BC	PHOTO INTERRUPTER (DECK2)		D907	SPR505MDTT	L. E. D.	
IC972	RVSGP2S24BC	PHOTO INTERRUPTER (DECK1)		D908, 909	SLR-305VC	L. E. D.	
IC972A	RVSGP2S24BC	PHOTO INTERRUPTER (DECK2)		D911	SLR-305VC	L. E. D.	
		TRANSISTOR(S)		D914	SLR-305VC	L. E. D.	
				D971	RVD1SS133TA	DIODE (DECK1)	
Q101-106	2SJ164RTA	TRANSISTOR		D971A	RVD1SS133TA	DIODE (DECK2)	
Q107	DTA114ESTP	TRANSISTOR				VARIABLE RESISTOR(S)	
Q111	2SC3311AIRTA	TRANSISTOR		VR101	EVNDXAA00B24	P. B. GAIN ADJ. (DECK1) (R)	
Q112	DTA114ESTP	TRANSISTOR		VR102	EVNDXAA00B24	P. B. GAIN ADJ. (DECK2) (L)	
Q113, 114	2SD1450RSTA	TRANSISTOR		VR103	EVNDXAA00B24	P. B. GAIN ADJ. (DECK2) (R)	
Q115, 116	2SC3311ARSTA	TRANSISTOR		VR104	EVNDXAA00B24	P. B. GAIN ADJ. (DECK1) (L)	
Q301	2SC3311ARSTA	TRANSISTOR		VR801	EVNDXAA00B53	TAPE SPEED ADJ. (DECK1 :X1)	
Q302-304	2SD1450RSTA	TRANSISTOR		VR802	EVNDXAA00B53	TAPE SPEED ADJ. (DECK2 :X2)	
Q305, 306	DTC144ESTP	TRANSISTOR		VR803	EVNDXAA00B53	TAPE SPEED ADJ. (DECK2 :X1)	
Q601-605	2SD2137PQTA	TRANSISTOR	$\Delta$			COIL(S)	
Q606	2SC3311AIRTA	TRANSISTOR					
Q607	2SD2137PQTA	TRANSISTOR	$\Delta$	L205, 206	ELELN103KA	COIL	
Q609	2SD2137PQTA	TRANSISTOR	$\Delta$	L301	RL08C006M-T	COIL	
Q701-703	2SC3311ARSTA	TRANSISTOR		L302	RLQ2B101KT-D	COIL	
Q706	DTC114YSTP	TRANSISTOR		L701	RLQA100JT-Y	COIL	
Q801	2SA1309AIRTA	TRANSISTOR		L702	ELEXT1R0KA9	COIL	
Q802	2SD1450RSTA	TRANSISTOR		L801	RL1500050T-Y	COIL	
Q803	2SA1309AIRTA	TRANSISTOR				OSCILLATOR(S)	
Q804	2SD1450RSTA	TRANSISTOR					
Q901, 902	UN4119	TRANSISTOR		X701	EF0EC8004T4	OSCILLATOR (8MHz)	
		DIODE(S)				COMBINATION PART(S)	
D301	MA165	DIODE					
D501, 502	LNJ401NPYJA	L. E. D.		Z971A	EXBF6L306SYV	COMBINATION PART	
D505, 506	LNJ401NPYJA	L. E. D.				SWITCH(ES)	
D603-606	RL1N4003N02	DIODE	$\Delta$				
D609	MA723TA	DIODE					
D610	MTZJ9R1BTA	DIODE	$\Delta$				
D611	MTZJ8R2CTA	DIODE	$\Delta$				

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Ref. No.	Part No.	Part Name & Description	Remarks				
S801	RSH1A024-U	OPEN DET. (DECK1)					
S802	RSH1A024-U	CLOSE DET. (DECK1)					
S803	RSH1A024-U	OPEN DET. (DECK2)					
S804	RSH1A024-U	CLOSE DET. (DECK2)					
S900	EVQ21405R	STOP					
S901	EVQ21405R	DOLBY NR					
S902	EVQ21405R	REW(TPS)					
S903	EVQ21405R	R. PLAY					
S904	EVQ21405R	TPS SKIP					
S905	EVQ21405R	F. PLAY					
S906	EVQ21405R	F. F. (TPS)					
S907	EVQ21405R	NOR(TAPE EDIT)					
S908	EVQ21405R	HIGH(TAPE EDIT)					
S909	EVQ21405R	REC PAUSE					
S910	EVQ21405R	OPEN/CLOSE (DECK2)					
S911	EVQ21405R	DISPLAY (COUNTER)					
S912	EVQ21405R	RESET(COUNTER)					
S913	EVQ21405R	DECK 1/2 SELECT					
S914	EVQ21405R	OPEN/CLOSE (DECK1)					
S915	EVQ21405R	REV MODE					
S971	RSH1A018-1U	MODE DET. (DECK1)					
S971A	RSH1A018-1U	MODE DET. (DECK2)					
S972	RSH1A019-2U	HALF DET. (DECK1)					
S972A	RSH1A019-2U	HALF DET. (DECK2)					
S973	RSH1A019-2U	ATS/CrO2 (DECK1)					
S973A	RSH1A019-2U	ATS/CrO2 (DECK2)					
S974A	RSH1A019-2U	R. REC. INH. (DECK2)					
S975A	RSH1A019-2U	F. REC. INH. (DECK2)					
S976A	RSH1A019-2U	ATS/METAL (DECK2)					
		CONNECTOR (S) AND SOCKET (S)					
CP101, 102	RJS2A0205-2S	CONNECTOR (5P)					
CP901	RJT071H09A	CONNECTOR (9P)					
CP902	RJT071H11A	CONNECTOR (11P)					
CS971	RJU071H09M	SOCKET (9P) (DECK1)					
CS971A	RJU071H11M	SOCKET (11P) (DECK2)					
JK601	RJT065K15	CONNECTOR (15P)					
		EARTH PLATE (S)					
E1	SNE1004-2	EARTH PLATE					

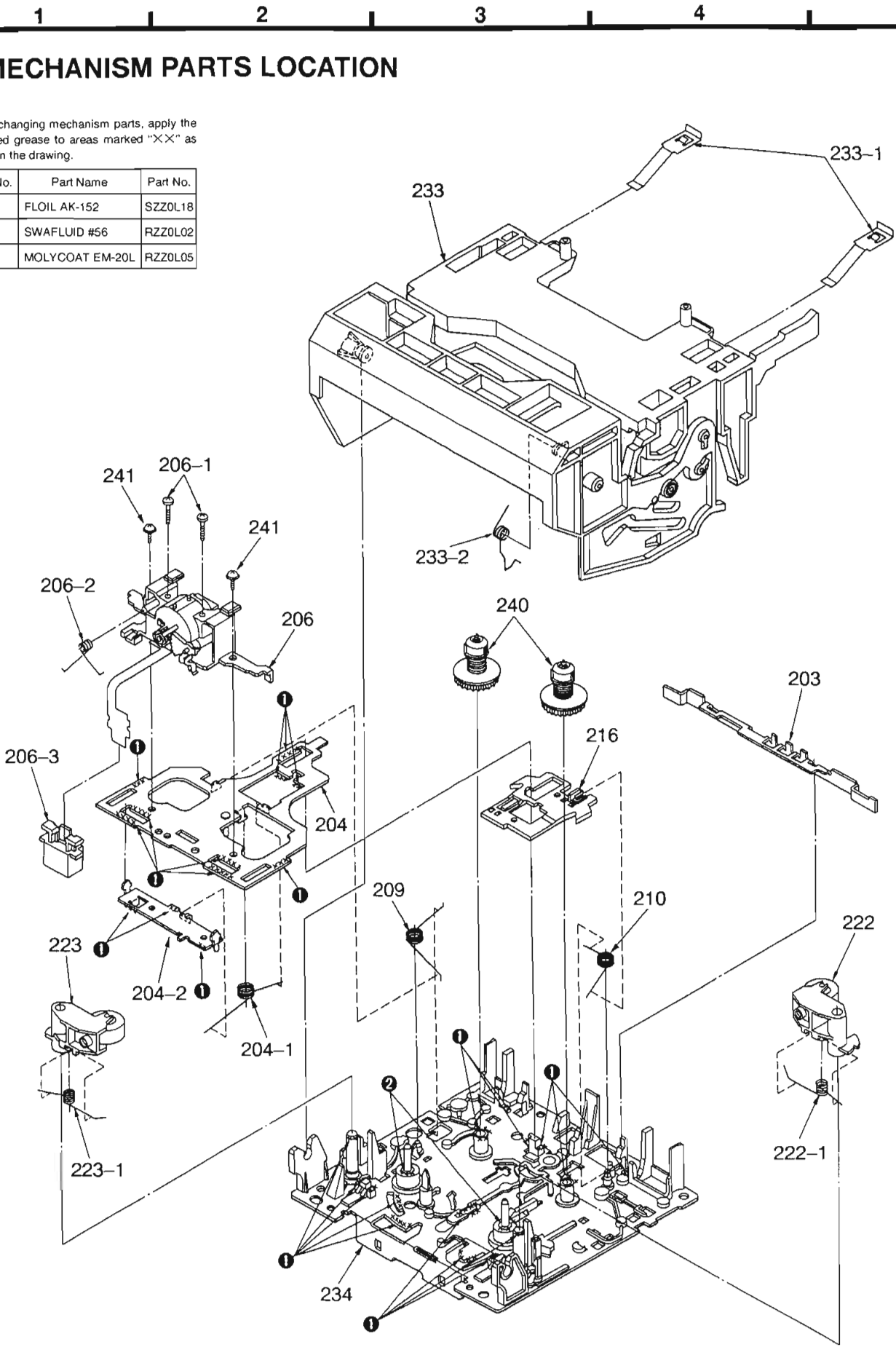
# MECHANISM PARTS LOCATION

**Note:**

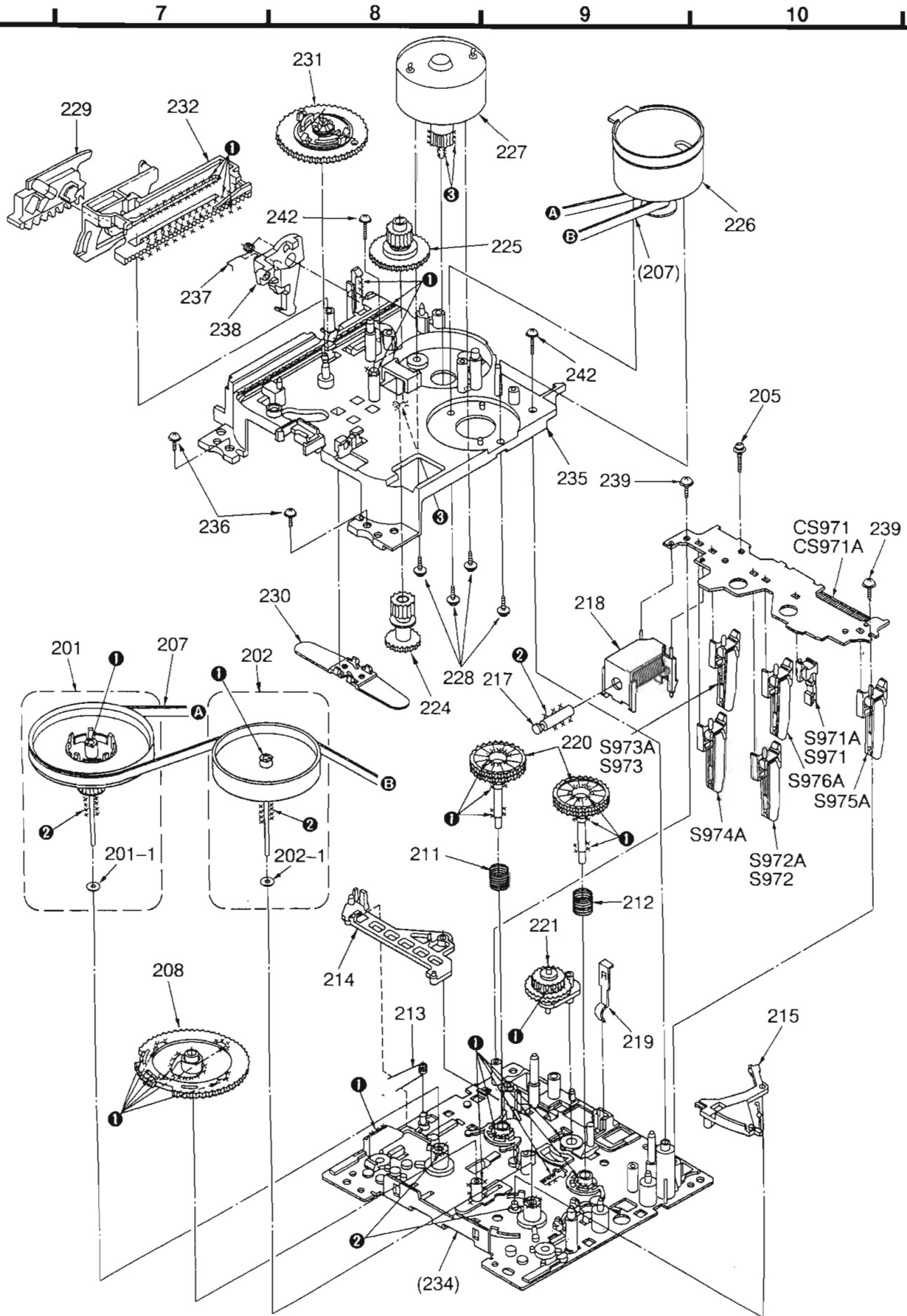
When changing mechanism parts, apply the specified grease to areas marked "X" as shown in the drawing.

Ref. No.	Part Name	Part No.
①	FLOIL AK-152	SZZ0L18
②	SWAFLUID #56	RZZ0L02
③	MOLYCOAT EM-20L	RZZ0L05

A  
B  
C  
D  
E  
F

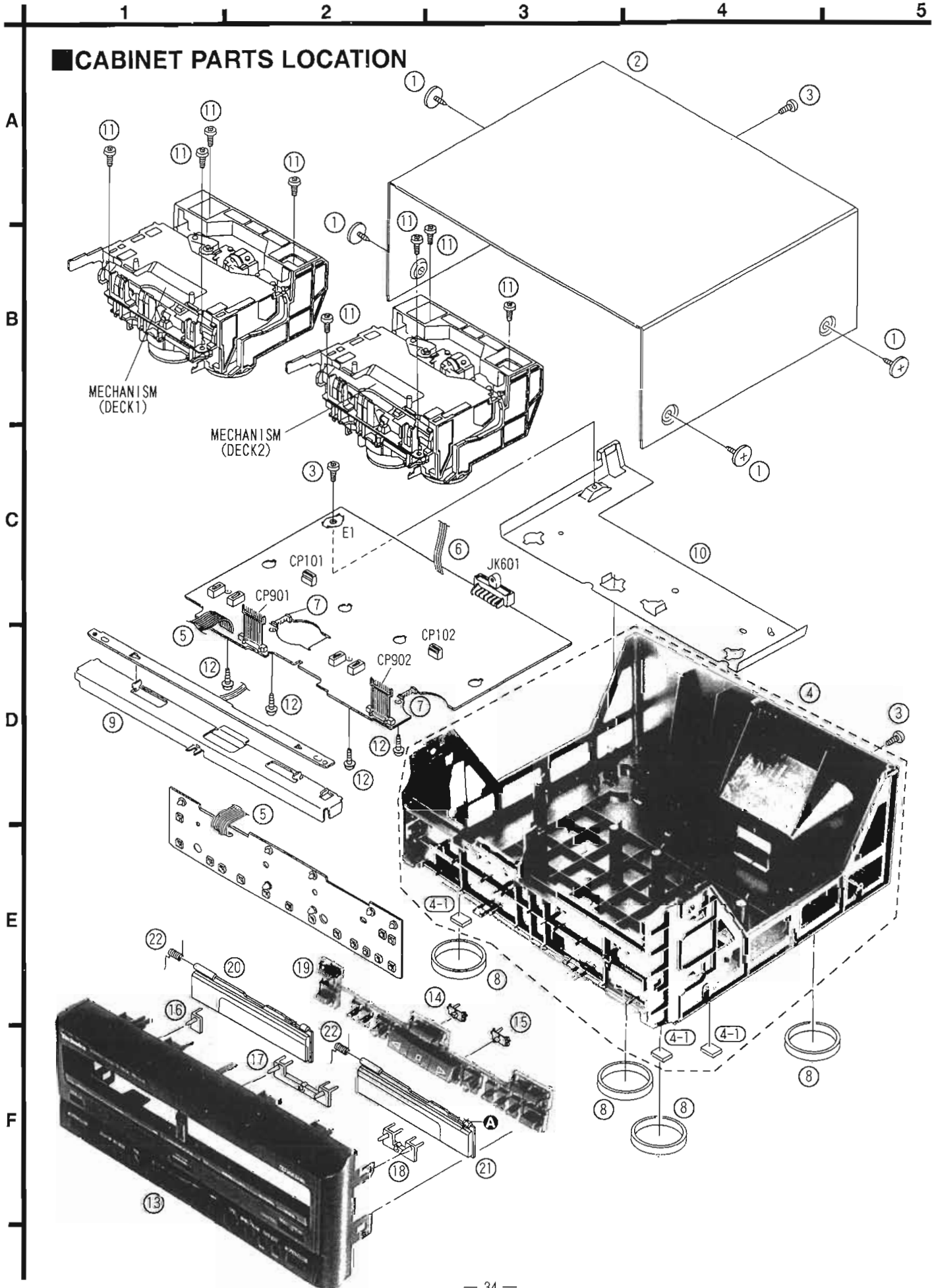






NOTE) CS971,S971-S973 : DECK1(PLAY) CS971A,S971A-S976A : DECK2(REC/PLAY)

# CABINET PARTS LOCATION





# RESISTORS AND CAPACITORS

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

Ref. No.	Part No.	Values & Remarks	Ref. No.	Part No.	Values & Remarks	Ref. No.	Part No.	Values & Remarks
		RESISTORS	R223, 224	ERDS2TJ222	1/4W 2.2K	R738	ERDS2TJ102	1/4W 1K
			R225, 226	ERDS2TJ243T	1/4W 24K	R739	ERDS2TJ272T	1/4W 2.7K
			R227, 228	ERDS2TJ561	1/4W 560	R740	ERDS2TJ473	1/4W 47K
R101, 102	ERDS2TJ682T	1/4W 6.8K	R229	ERDS2TJ102	1/4W 1K	R741	ERDS2TJ123	1/4W 12K
R103, 104	ERDS2TJ104	1/4W 100K	R230	ERDS2TJ222	1/4W 2.2K	R742	ERDS2TJ103	1/4W 10K
R105, 106	ERDS2TJ102	1/4W 1K	R232	ERDS2TJ273	1/4W 27K	R743, 744	ERDS2TJ102	1/4W 1K
R107, 108	ERDS2TJ820	1/4W 82	R237, 238	ERDS2TJ122	1/4W 1.2K	R801-804	ERDS2TJ103	1/4W 10K
R110	ERDS2TJ334	1/4W 330K	R301	ERDS2TJ103	1/4W 10K	R805	ERDS2TJ392T	1/4W 3.9K
R113, 114	ERDS2TJ103	1/4W 10K	R302	ERDS2TJ182	1/4W 1.8K	R806, 807	ERDS2TJ103	1/4W 10K
R115, 116	ERDS2TJ472	1/4W 4.7K	R303	ERDS2TJ682T	1/4W 6.8K	R808	ERDS2TJ392T	1/4W 3.9K
R117	ERDS2TJ123	1/4W 12K	R304	ERDS2TJ223	1/4W 22K	R809	ERDS2TJ682T	1/4W 6.8K
R118	ERDS2TJ102	1/4W 1K	R305	ERDS2TJ123	1/4W 12K	R810	ERDS2TJ103	1/4W 10K
R119, 120	ERDS2TJ330	1/4W 33	R306	ERDS2TJ223	1/4W 22K	R811-813	ERDS2TJ272T	1/4W 2.7K
R121	ERDS2TJ475T	1/4W 4.7M	R307	ERDS1FVJ2R2T	1/2W 2.2 $\Delta$	R814, 815	ERDS2TJ152	1/4W 1.5K
R123-126	ERDS2TJ104	1/4W 100K	R308	ERDS2TJ102	1/4W 1K	R816	ERDS2TJ272T	1/4W 2.7K
R127, 128	ERDS2TJ222	1/4W 2.2K	R309-311	ERDS2TJ472	1/4W 4.7K	R817	ERDS2TJ105T	1/4W 1M
R129	ERDS2TJ333	1/4W 33K	R313	ERDS2TJ1R0	1/4W 1.0	R818	ERDS2TJ2R2T	1/4W 2.2
R130	ERDS2TJ273	1/4W 27K	R501, 502	ERDS2TJ151	1/4W 150	R819	ERDS2TJ105T	1/4W 1M
R131	ERDS2TJ562	1/4W 5.6K	R601, 602	ERDS2TJ472	1/4W 4.7K	R820	ERDS2TJ2R2T	1/4W 2.2
R132	ERDS2TJ104	1/4W 100K	R603	ERDS2TJ221	1/4W 220	R821	ERDS2TJ391	1/4W 390
R133	ERDS2TJ103	1/4W 10K	R605	ERD2FCVJ4R7T	1/4W 4.7 $\Delta$	R822	ERDS2TJ331	1/4W 330
R134	ERDS2TJ473	1/4W 47K	R607	ERD2FCVG100T	1/4W 10 $\Delta$	R900	ERDS2TJ821	1/4W 820
R135	ERDS2TJ334	1/4W 330K	R609	ERDS2TJ470	1/4W 47	R901	ERDS2TJ102	1/4W 1K
R136	ERDS2TJ473	1/4W 47K	R610	ERDS2TJ152	1/4W 1.5K	R902	ERDS2TJ122	1/4W 1.2K
R137	ERDS2TJ334	1/4W 330K	R611-613	ERDS2TJ1R0	1/4W 1.0	R903	ERDS2TJ152	1/4W 1.5K
R141	ERDS2TJ103	1/4W 10K	R614	ERDS2TJ222	1/4W 2.2K	R904	ERDS2TJ182	1/4W 1.8K
R142, 143	ERDS2TJ562	1/4W 5.6K	R615	ERDS2TJ332	1/4W 3.3K	R905	ERDS2TJ222	1/4W 2.2K
R145	ERDS2TJ183T	1/4W 18K	R616	ERDS2TJ103	1/4W 10K	R906	ERDS2TJ332	1/4W 3.3K
R147-150	ERDS2TJ562	1/4W 5.6K	R626-630	ERDS2TJ1R0	1/4W 1.0	R907	ERDS2TJ472	1/4W 4.7K
R153, 154	ERDS2TJ681	1/4W 680	R631	ERDS2TJ561	1/4W 560	R908	ERDS2TJ682T	1/4W 6.8K
R157, 158	ERDS2TJ223	1/4W 22K	R701, 702	ERDS2TJ103	1/4W 10K	R909	ERDS2TJ123	1/4W 12K
R159	ERDS2TJ104	1/4W 100K	R704	ERDS2TJ472	1/4W 4.7K	R910	ERDS2TJ223	1/4W 22K
R160	ERDS2TJ103	1/4W 10K	R705	ERDS2TJ473	1/4W 47K	R911	ERDS2TJ683	1/4W 68K
R165, 166	ERDS2TJ104	1/4W 100K	R707, 708	ERDS2TJ472	1/4W 4.7K	R912	ERDS2TJ471	1/4W 470
R167-169	ERDS2TJ222	1/4W 2.2K	R710	ERDS2TJ102	1/4W 1K	R914-917	ERDS2TJ681	1/4W 680
R170	ERDS2TJ472	1/4W 4.7K	R711	ERDS2TJ104	1/4W 100K	R918, 919	ERDS2TJ471	1/4W 470
R171	ERDS2TJ682T	1/4W 6.8K	R712, 713	ERDS2TJ683	1/4W 68K	R921, 922	ERDS2TJ102	1/4W 1K
R172, 173	ERDS2TJ122	1/4W 1.2K	R715	ERDS2TJ472	1/4W 4.7K	R923	ERDS2TJ471	1/4W 470
R174, 175	ERDS2TJ103	1/4W 10K	R718	ERDS2TJ683	1/4W 68K	R924	ERDS2TJ821	1/4W 820
R176	ERDS2TJ392T	1/4W 3.9K	R720	ERDS2TJ683	1/4W 68K	R925	ERDS2TJ102	1/4W 1K
R177	ERDS2TJ273	1/4W 27K	R721	ERDS2TJ103	1/4W 10K	R926, 927	ERDS2TJ473	1/4W 47K
R178	ERDS2TJ334	1/4W 330K	R722	ERDS2TJ562	1/4W 5.6K	R971	ERDS2TJ221	1/4W 220
R181, 182	ERDS2TJ103	1/4W 10K	R725	ERDS2TJ103	1/4W 10K	R971A	ERDS2TJ221	1/4W 220
R207, 208	ERDS2TJ104	1/4W 100K	R727	ERDS2TJ472	1/4W 4.7K	R973	ERDS2TJ393	1/4W 39K
R209, 210	ERDS2TJ332	1/4W 3.3K	R728	ERDS2TJ332	1/4W 3.3K	R973A	ERDS2TJ393	1/4W 39K
R213, 214	ERDS2TJ122	1/4W 1.2K	R729	ERDS2TJ472	1/4W 4.7K	R974	ERDS2TJ393	1/4W 39K
R215, 216	ERDS2TJ822	1/4W 8.2K	R733	ERDS2TJ473	1/4W 47K	R974A	ERDS2TJ393	1/4W 39K
R220	ERDS2TJ470	1/4W 47	R735	ERDS2TJ472	1/4W 4.7K			
R221, 222	ERDS2TJ221	1/4W 220	R736	ERDS2TJ103	1/4W 10K			CAPACITORS

Ref. No.	Part No.	Values & Remarks	Ref. No.	Part No.	Values & Remarks
			C606	ECA1HM101B	50V 100U
C101, 102	ECBT1H221KB5	50V 220P	C607	ECA1AM471B	10V 470U
C103, 104	ECBT1H561KB5	50V 560P	C608	RCE1AKA101BG	10V 100U
C105, 106	ECEA1EKA4R7B	25V 4. 7U	C609	ECBT1E103ZF	25V 0. 01U
C107, 108	RCE0JKA470BG	6. 3V 47U	C611	ECEA1HKA010B	50V 1U
C109, 110	ECBT1H561KB5	50V 560P	C613	RCE1AKA470BG	10V 47U
C111, 112	ECQB1H183JF3	50V 0. 018U	C614, 615	ECBT1E103ZF	25V 0. 01U
C113, 114	ECBT1H331KB5	50V 330P	C617	ECBT1H102KB5	50V 1000P
C115, 116	ECEA1EKA4R7B	25V 4. 7U	C701	ECBT1C105ZF5	16V 1U
C119, 120	ECEA1EKA4R7B	25V 4. 7U	C702	RCE0JKA101BV	6. 3V 100U
C121	ECEA1HKAR33B	50V 0. 33U	C705	ECBT1E103ZF	25V 0. 01U
C123	ECQB1H153JF3	50V 0. 015U	C706	RCE1HKA3R3BG	50V 3. 3U
C124	ECBT1H102KB5	50V 1000P	C707, 708	ECBT1E103ZF	25V 0. 01U
C125	ECEA1AKA220B	10V 22U	C801, 802	ECBT1H101KB5	50V 100P
C126	RCE1AKA101BG	10V 100U	C803	ECBT1H104ZF5	50V 0. 1U
C127	RCE1CKA100BG	16V 10U	C804	ECEA1EKA470B	25V 47U
C128	RCE0JKA470BG	6. 3V 47U	C805	ECBT1H101KB5	50V 100P
C130-132	ECBT1H101KB5	50V 100P	C807	RCE1AKA101BG	10V 100U
C133	ECEA1HKA010B	50V 1U	C809	ECBT1E223ZF	25V 0. 022U
C134	RCE1HKA3R3BG	50V 3. 3U	C810	ECBT1H104ZF5	50V 0. 1U
C137	ECEA1HKA010B	50V 1U	C811	ECEA1EKA470B	25V 47U
C139, 140	ECEA1EKA4R7B	25V 4. 7U	C812	ECBT1H101KB5	50V 100P
C141-144	ECBT1H471KB5	50V 470P	C813	RCE1AKA101BG	10V 100U
C145, 146	ECBT1C332KR5	16V 3300P	C814, 815	ECBT1H101KB5	50V 100P
C150	ECBT1H104ZF5	50V 0. 1U	C816	ECBT1E223ZF	25V 0. 022U
C203, 204	ECEA1EKA4R7B	25V 4. 7U	C818	ECBT1H104ZF5	50V 0. 1U
C205, 206	ECEA1HKA010B	50V 1U	C901	ECBT1H471KB5	50V 470P
C211, 212	ECBA1H681KB5	50V 680P	C902	ECBT1H104ZF5	50V 0. 1U
C213, 214	ECEA1EKA4R7B	25V 4. 7U	C903	ECBT1H471KB5	50V 470P
C215, 216	RCE1CKA100BG	16V 10U			
C217, 218	ECEA1HKAR68B	50V 0. 68U			
C219	RCE1CKA101BV	16V 100U			
C221, 222	RCE1HKA2R2BG	50V 2. 2U			
C225, 226	ECBT1H221KB5	50V 220P			
C227, 228	ECBT1C682KR5	16V 6800P			
C229-232	ECQB1H222JF3	50V 2200P			
C235, 236	ECEA1HKAR33B	50V 0. 33U			
C237	ECEA1EKA330B	25V 33U			
C238	RCE1CKA100BG	16V 10U			
C239, 240	ECBT1C122KR5	16V 1200P			
C302	ECEA2AN2R2SB	100V 2. 2U			
C303	ECQP2E472JZT	250V 4700P			
C304	ECA1AKF820B	10V 82U			
C305	ECEA1HKA0R1B	50V 0. 1U			
C306	ECQB1H393JF3	50V 0. 039U			
C307	ECBT1H102KB5	50V 1000P			
C308	ECBT1C332KR5	16V 3300P			
C309	RCE0JKA470BG	6. 3V 47U			
C310, 311	ECBT1C103KS5	16V 0. 01U			
C323	ECBT1H102KB5	50V 1000P			
C601, 602	ECFR1H104ZF	50V 0. 1U			
C603, 604	ECA1CM222B	16V 2200U $\Delta$			