ORDER NO. MD9707073C3

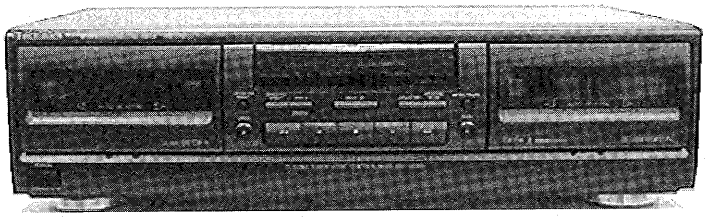
Service Manual

Stereo Cassette Deck

DOLBY B·C NR HX PRO*

Cassette Deck

RS-TR272



Colour

(K) . . . . . Black Type

Area

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

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AR-2 MECHANISM SERIES

Specifications (IHF '78)

■ Cassette Deck Section

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

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

■ General

Power consumption
For GC, GT 21W
For GN 18W
Power supply
For GC, GT AC 50/60Hz, 110V/127V/220V/230V~240V
For GN AC 50/60Hz, 230V~240V
Dimensions (W X H X D) 430 X 136 X286 mm
Weight 3.8 kg

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

Technics®

⚠ 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.

■ Contents

■ Before Use (for GC and GT area only)

Be sure to disconnect the mains cord before adjusting the voltage selector.
Use a minus(-) screwdriver to set the voltage selector (on the rear panel) to the voltage setting for the area in which the unit will be used.
(If the power supply in your area is 117V or 120V, set to the "110 – 127V" position.)
Note that this unit will be seriously damaged if this setting is not made correctly.
(There is no voltage selector for some countries; the correct voltage is already set.)

■ Operation Checks

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

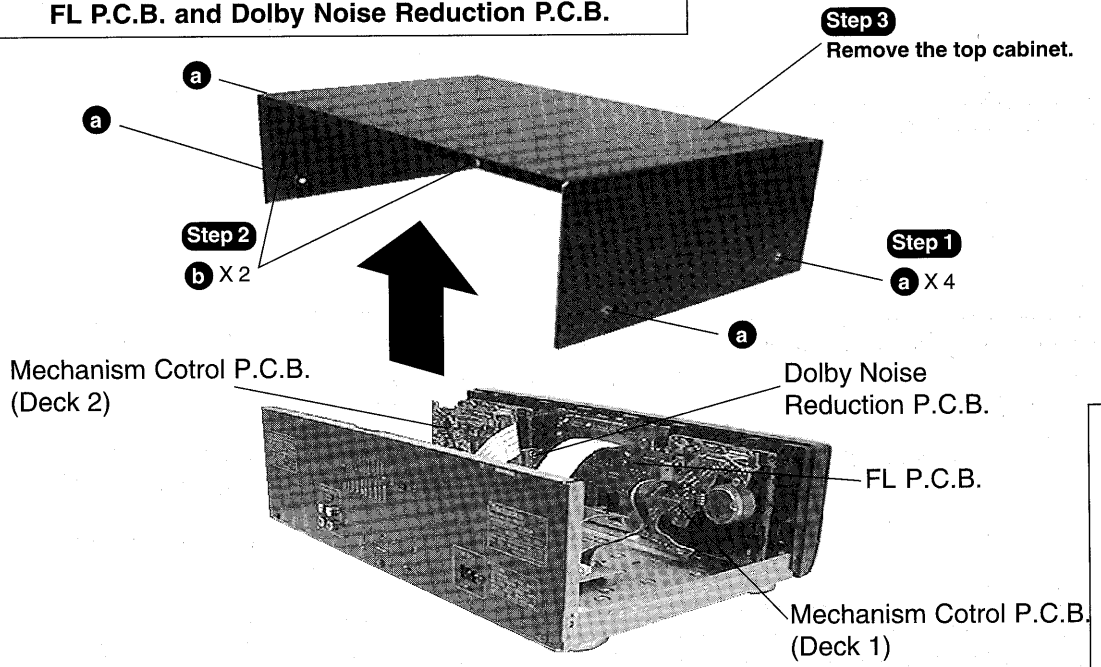
1. This section describes procedures for checking the operation of the major printed circuit boards and replacing the main components.
2. For reassembly after operation checks or replacement, reverse the respective procedures. Special reassembly procedures are described only when required.
3. Select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

• Contents

page

■ Checking Procedure For Each Major P.C.B.

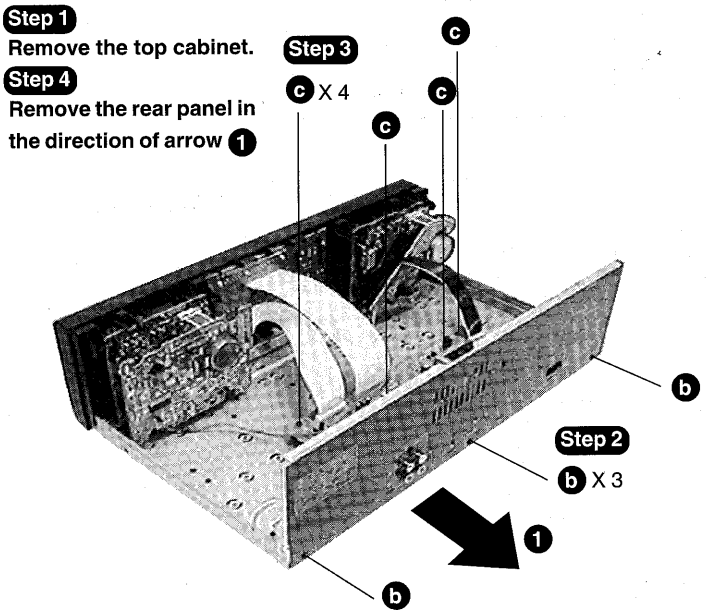
1. Checking of the Mechanism Control P.C.B., FL P.C.B. and Dolby Noise Reduction P.C.B.

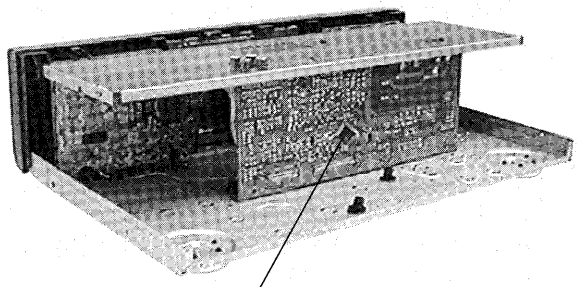


[SNE2129-1] (Black)

[XTBS3+8JFZ1] (Black)

2. Checking of the Main P.C.B.





Step 5
Raise the Main P.C.B.

[XTB3+20JFZ] (Black)

■ EEPROM Data Write

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

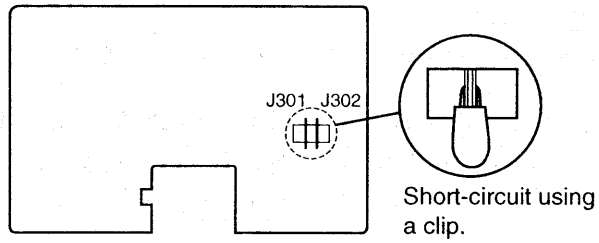
• EEPROM Write Procedure

Note:

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

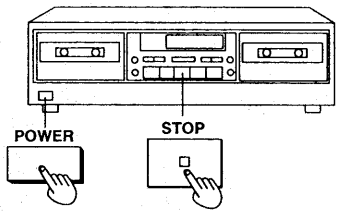
Step 1 Short-circuit the TEST mode terminal (J301⇔ J302) using a clip.

FL P. C. B.

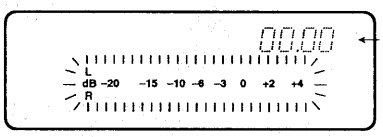


Short-circuit using a clip.

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



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

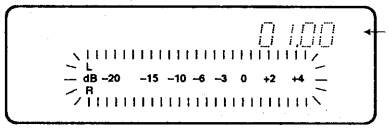


← Counter display

The write data is set to "00 00."

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

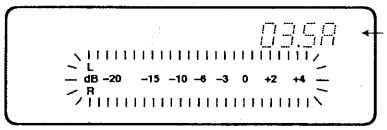
Step 4 Press the FF ►► button to set the 2 left digits (Address) of the counter display to "01" but leave the two right-hand digits (Data) at "00."



← Counter display

The write data is set to "01 00."

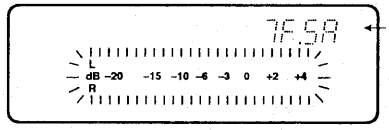
Step 5 Press the FF ►► button to set the two left-hand digits (Address) of the counter display to "03" and press the F.PLAY ► button to set the 2 right digits (Data) to "5A."



← Counter display

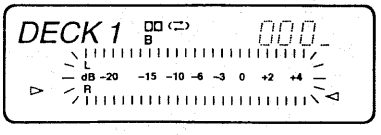
The write data is set to "03 5A."

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



← Counter display

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



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

Table 1: EEPROM Address/Data map

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

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

■ Adjusted Value Rewrite

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

Applicable components

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

Cassette tapes to be prepared

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

Measurement Condition

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

Measuring Instrument

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

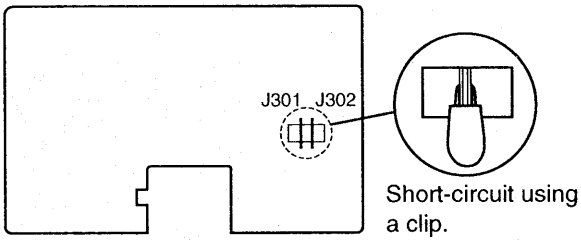
● Adjusted Value Rewrite Procedure (Adjusted values can be automatically rewritten.)

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

Step 1

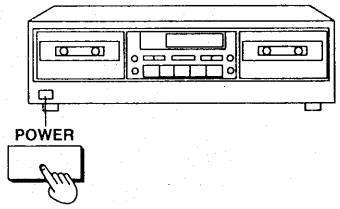
Short-circuit the TEST mode terminal (J301⇔J302) using a clip.

FL P. C. B.



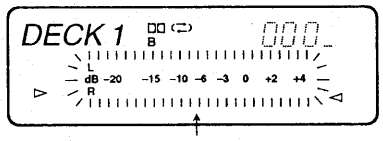
Step 2

Press the POWER button.



Step 3

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

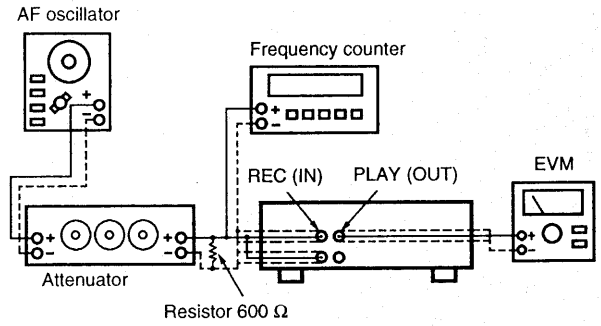


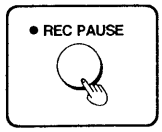
The level meter blinks.

Step 4

Setting Playback Gain Level

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





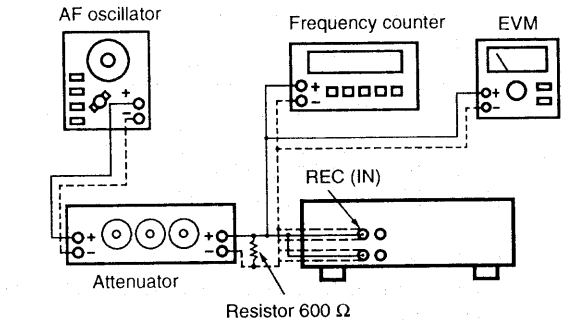
To **Step 5**

From Step 4

Step 5
Adjusting MPX

1. Apply an input signal at **19 kHz ± 10 Hz** and **320 mV** to the REC (IN) jack from the AF oscillator.
2. Press the DOLBY NR button.
   (The DECK display slowly blinks.)
3. Press the REC PAUSE button.
   (No mechanism operates, but the DECK display disappears after several seconds.)

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



Step 6
Adjusting Playback Gain

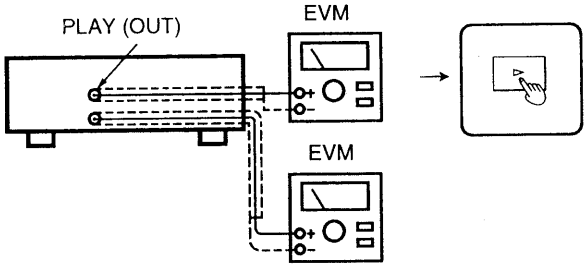
1. Press the DOLBY NR button. (The DECK display slowly blinks.)
2. Press the F.PLAY ► button.
   (The mechanism automatically runs for the FWD PLAY/REV PLAY and stops, and the DECK display disappears.)
3. Load DECK 1 with the test tape (QZZCFM)
   (at the section with 315 Hz and 0 dB).
4. Press the DOLBY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

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

Step 7
Checking Playback Gain

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

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



To Step 8

From Step 7

Step 8

Adjusting Overall Gain and Overall Frequency Characteristics

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

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

Step 9

Clearing the Adjusted Value Rewrite mode

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

■ Measurements and Adjustments

Measurement Condition

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

Measuring Instrument

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

Test Tape

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

● Adjustment Points

Deck 1 Mechanism Control P.C.B.

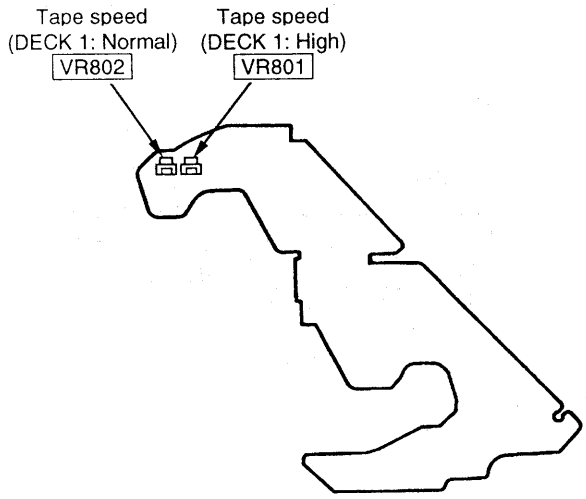


Fig. 1

Deck 2 Mechanism Control P.C.B.

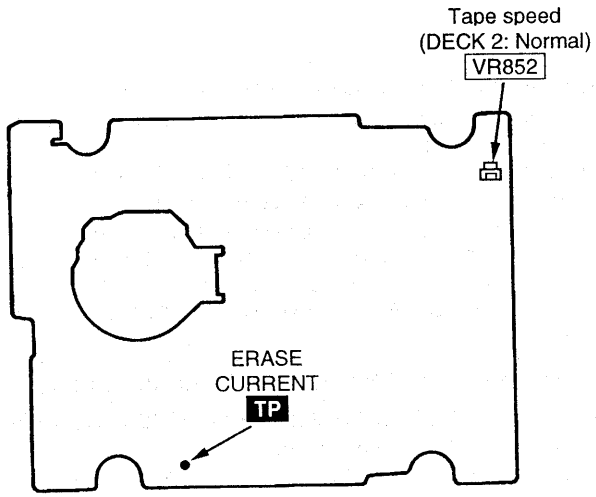


Fig. 2

FL P.C.B.

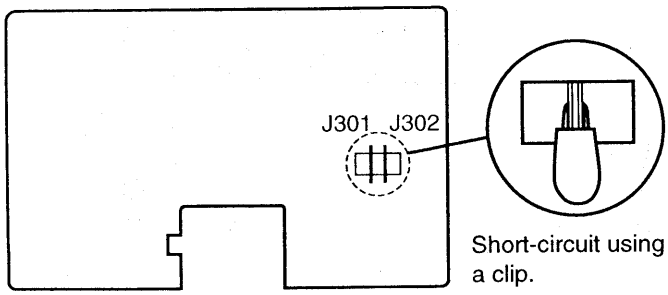


Fig. 3

Main P.C.B.

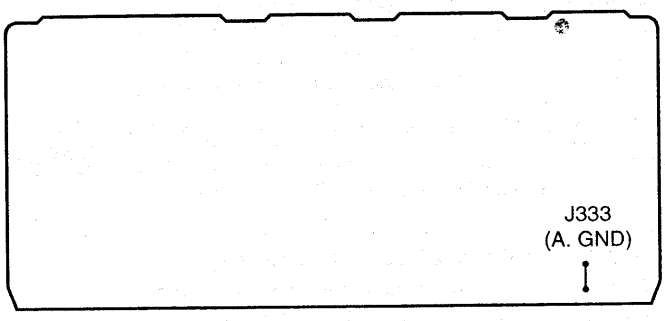


Fig. 4

Head Azimuth Adjustment (Decks 1 and 2)

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

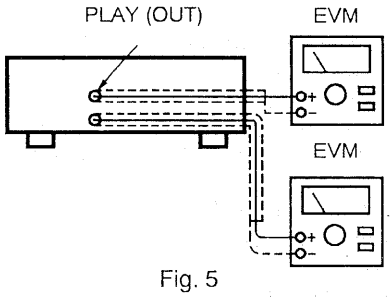


Fig. 5

Difference check between forward and reverse play levels

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

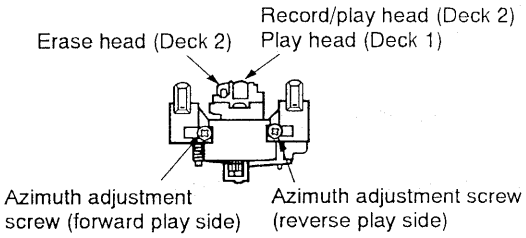


Fig. 6

Tape Speed Adjustment (Decks 1 and 2)

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

Normal speed adjustment (adjust in the FWD play mode)

Product specification value: 3,000 Hz ± 45 Hz

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

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

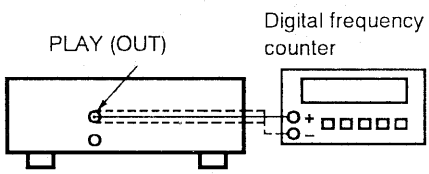


Fig. 7

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

Product specification value: 3,000 Hz ± 45 Hz

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

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

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

Playback Gain Check (Decks 1 and 2)

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

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

Note: If the output is outside the standard value range, follow **Step 1** ~ **Step 4** in the "**Adjusted Value Rewrite.**" (See page 6)

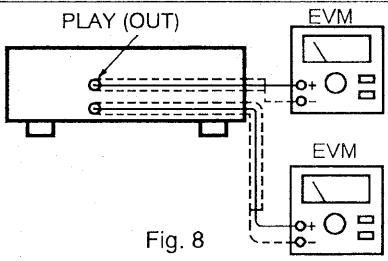


Fig. 8

Erase Current Check (Decks 1 and 2)

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

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

Note: If the measured value is outside the standard range, follow **Step 1** ~ **Step 9** in the "**Adjusted Value Rewrite.**" (See pages 6, 7)

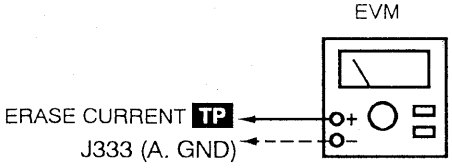


Fig. 9

Playback Frequency Characteristic Check (Decks 1 and 2)

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

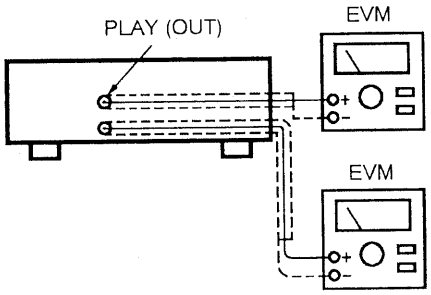


Fig. 10

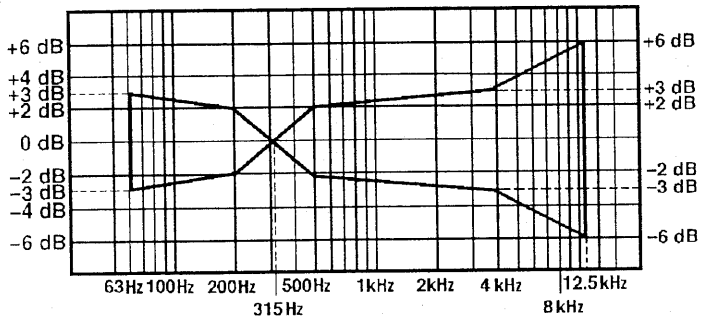


Fig. 11

Note: If these levels are outside the standard value range, follow **Step 1** ~ **Step 6** in the "**Adjusted Value Rewrite.**" (See pages 6, 7)

Record/Playback Frequency Characteristic Check (Deck 2)

Normal tape check

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

CrO2/metal tape check

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

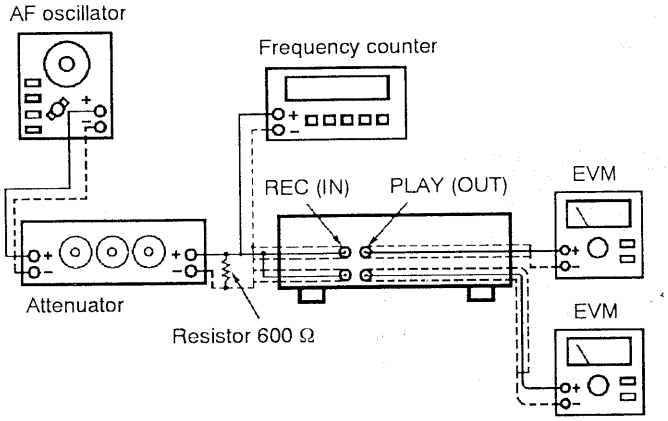


Fig. 12

Normal tape overall frequency characteristics (DOLBY NR: OFF)

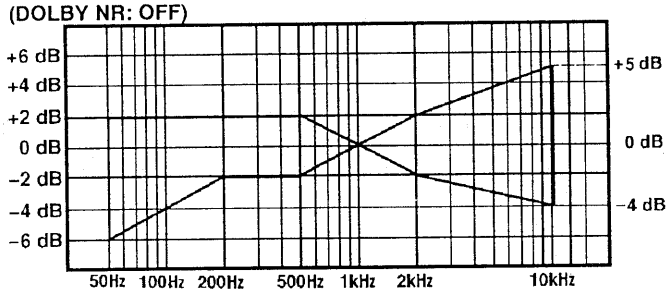


Fig. 13

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

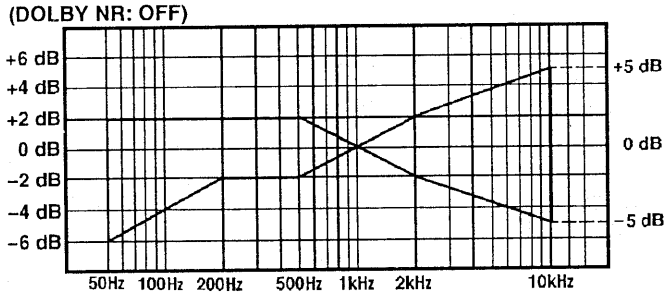


Fig. 14

Note: If the outputs stay outside the standard value range, follow **Step 1** ~ **Step 9** in the "**Adjusted Value Rewrite.**" (See pages 6 ~ 8)

■ Terminal Function Of IC's

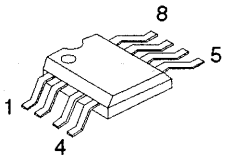
• IC501 (M38122M3352F) System Microprocessor

Pin No.	Mark	I/O	Function
1	KEY1	I	Operation switch(S701, S707, S708, S709 S710, S711, S721) signal input
2	KEY2	I	Operation switch(S714, S715, S716, S717 S718, S719, S720, S723) signal input
3	LM/MSP	I	Level meter signal input
4	RPS2	O	Not used
5	SOL2	O	DECK 2 solenoid drive signal input
6	MOTOR 2	O	DECK 2 motor drive signal input
7	POWER	O	Power control signal output
8	CONTROL	O	Level meter(Lch/Rch)select signal output
9	MODEL 1	I	Model select terminal
10	MODEL 2	I	
11	REC-L	O	Auto level control circuit drive signal output
12	EDATA	I/O	EEPROM(IC502)serial data input/output
13	ECLK	O	EEPROM(IC502)clock signal output
14	ECS	I/O	EEPROM(IC502)chip select signal output
15	SCLK	O	Audio adjustment signal output
16	SDATA	O	Audio IC(IC2)serial data output
17	REMOTE	I	Remote control signal input
18	POF	I	Power off detection signal input
19	RESET	I	Reset signal input
20	P71	I	Not used
21	P70	I	

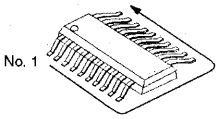
Pin No.	Mark	I/O	Function
22	XIN	I	Clock signal(6 MHz)input
23	XOUT	O	Clock signal(6 MHz)output
24	VSS	–	GND terminal
25	P27	I	Not used
26	X1/X2	O	Motor speed control signal output
27	SOL1	O	DECK 1 solenoid drive signal output
28	MOTOR1	O	DECK 1 motor drive signal output
29~45	P1~P17	O	Segment signal output
46~52	G1~G7	O	Grid signal output
53~56	P33~P30	O	Not used
57	VCC	–	Power supply(+5V)
58	VEE	–	FL meter pull down voltage input terminal
59	AVSS	–	GND terminal for A/D converter
60	VREF	–	Reference voltage input terminal for A/D converter(+5V)
61	AN7	I	Not used
62	AD1D1	I	Deck 1 mechanism switch signal input(Half, Mode, Cro2, Reel pulse)
63	AD2D2	I	Deck 2 mechanism switch signal input(Half, Mode, F. REC INH., R. REC INH.)
64	AD1D2	I	Deck 1 mechanism switch signal input (Metal, Cro2, Reel pulse)

■ Terminal Guide of IC's, Transistors and Diodes

BA4560FE2
ST93C46TM6TR



AN7356SC-E2



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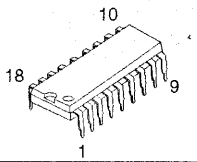
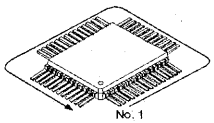
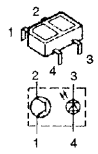


AN7357FB-V(48PIN)
M38122M3352F(64PIN)



ON2180RLC



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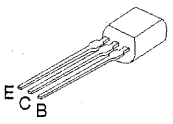

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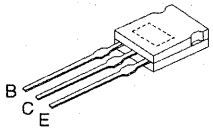

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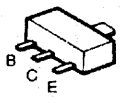

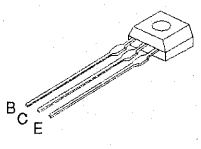

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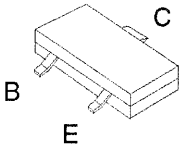
2SC3311ARTA
RVTDTC114EST
2SC3312RSTA



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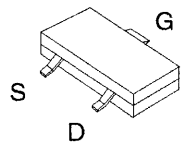
2SB710AQRSTX
2SD601ATX

2SJ163PQRTX
2SK1103PQRTX



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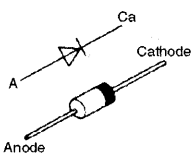

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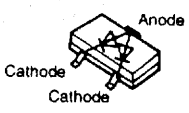

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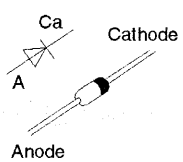

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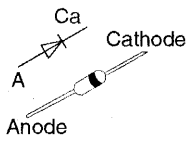
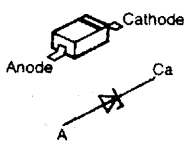
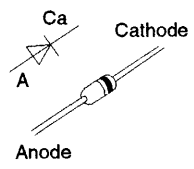
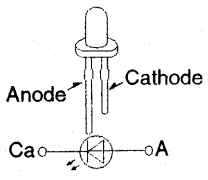
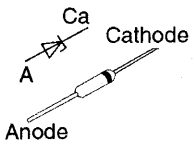
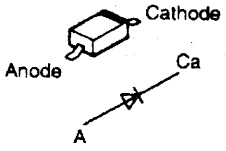


MA8056MTX



MA178TA 	LN28RPX 	 MTZJ10BTA MTZJ20BTA MTZJ5R1BTA MTZJ6R2BTA MTZJ8R2CTA	 MA110TX MA111TX MA112TX

■ Schematic Diagram

(All schematic diagrams may be modified at any time with the development of new technology)

Note :

- **S601** : Voltage selector switch
- **S701** : Power switch
- **S707** : DECK 1 cassette holder open switch
- **S708** : Dolby noise-reduction switch
- **S709** : Reverse-mode select switch
- **S710** : Synchro-start switch
- **S711** : Tape-to-tape recording-speed switch
- **S714** : Stop switch
- **S715** : Forward-side playback switch
- **S716** : Reverse-side playback switch
- **S717** : Fast forward switch
- **S718** : Rewind switch
- **S719** : DECK 2 cassette holder open switch
- **S720** : Record pause switch
- **S721** : Tape deck select switch
- **S723** : Counter reset switch
- **S951** : DECK 1 mode detect switch
- **S952** : DECK 1 half detect switch
- **S953** : DECK 1 CrO_2 tape detect switch
- **S971** : DECK 2 mode detect switch
- **S972** : DECK 2 half detect switch
- **S973** : DECK 2 CrO_2 tape detect switch
- **S974** : DECK 2 reverse side record prevention tab detect switch
- **S975** : DECK 2 forward side record prevention tab detect switch
- **S976** : DECK 2 METAL tape detect switch
- **VR801 ~ VR802** : Tape speed adjustment
- **VR852** : Tape speed adjustment

• Signal line

: +B line

: –B line

: Playback signal line

: Record signal line

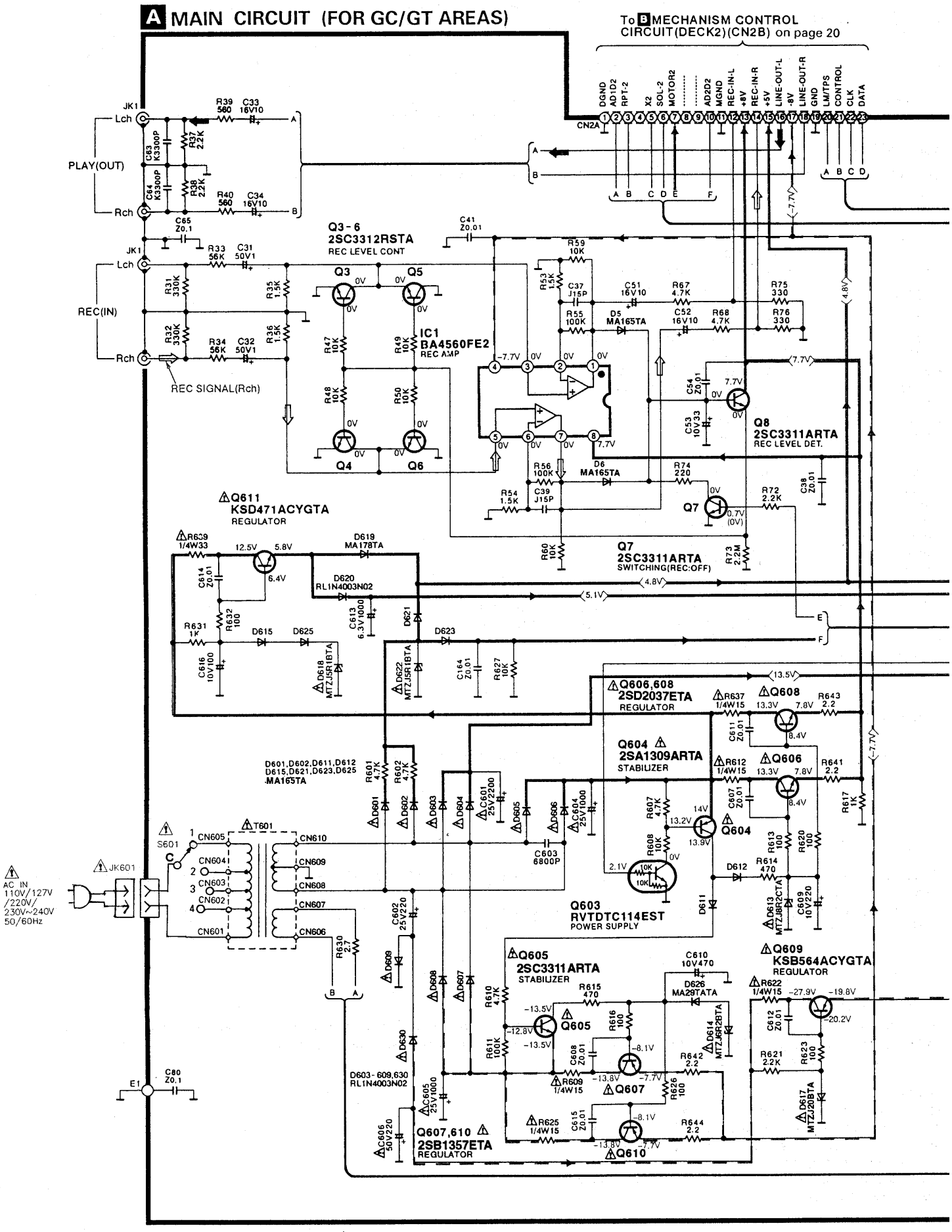
•The voltage value and waveforms are the reference voltage of this unit measured by DC electronic voltmeter (high impedance) and oscilloscope on the basis of chassis.
Accordingly, there may arise some error in voltage values and waveforms depending upon the internal impedance of the tester or the measuring unit.

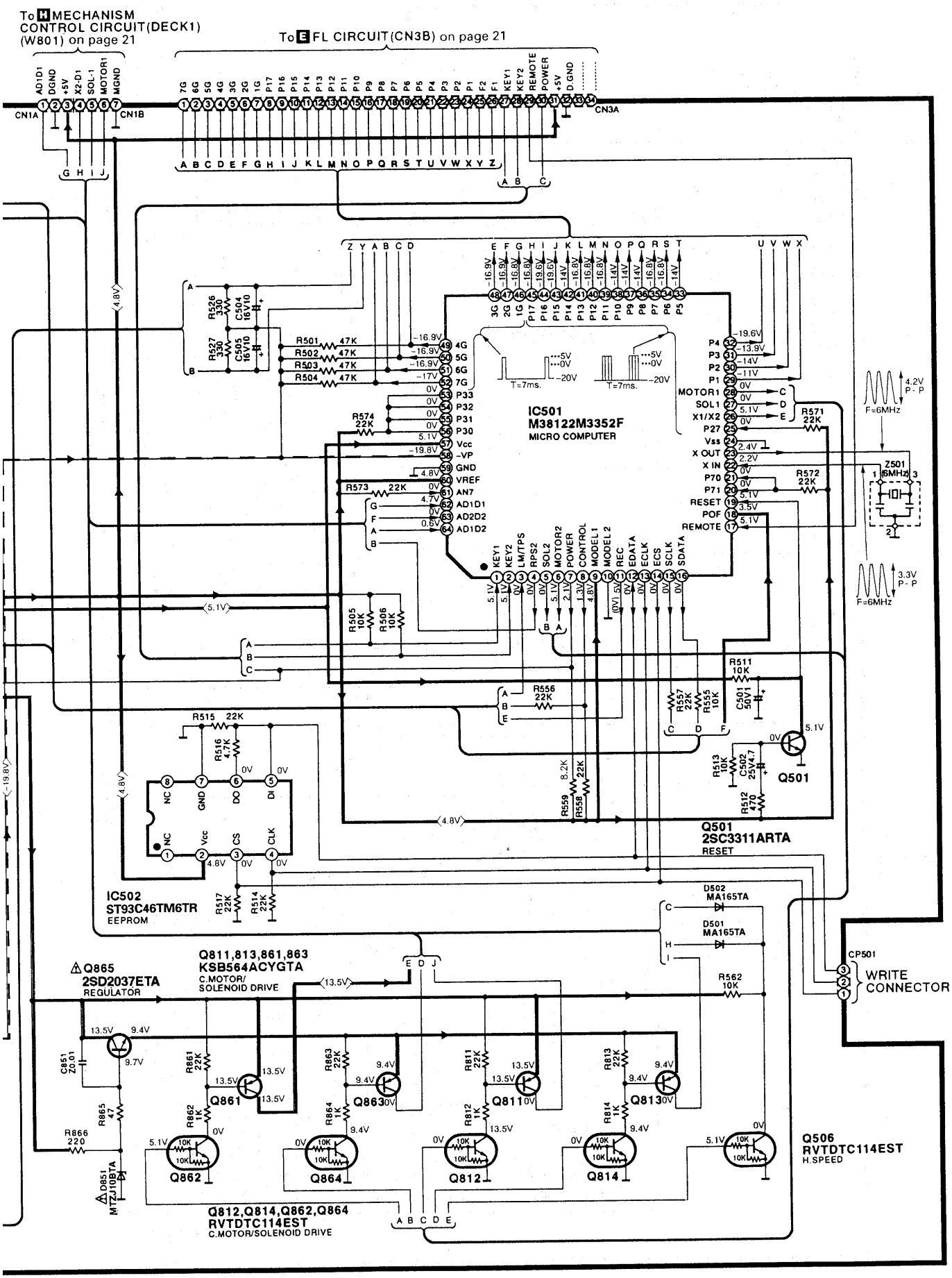
No mark : Playback ( ).....Recording

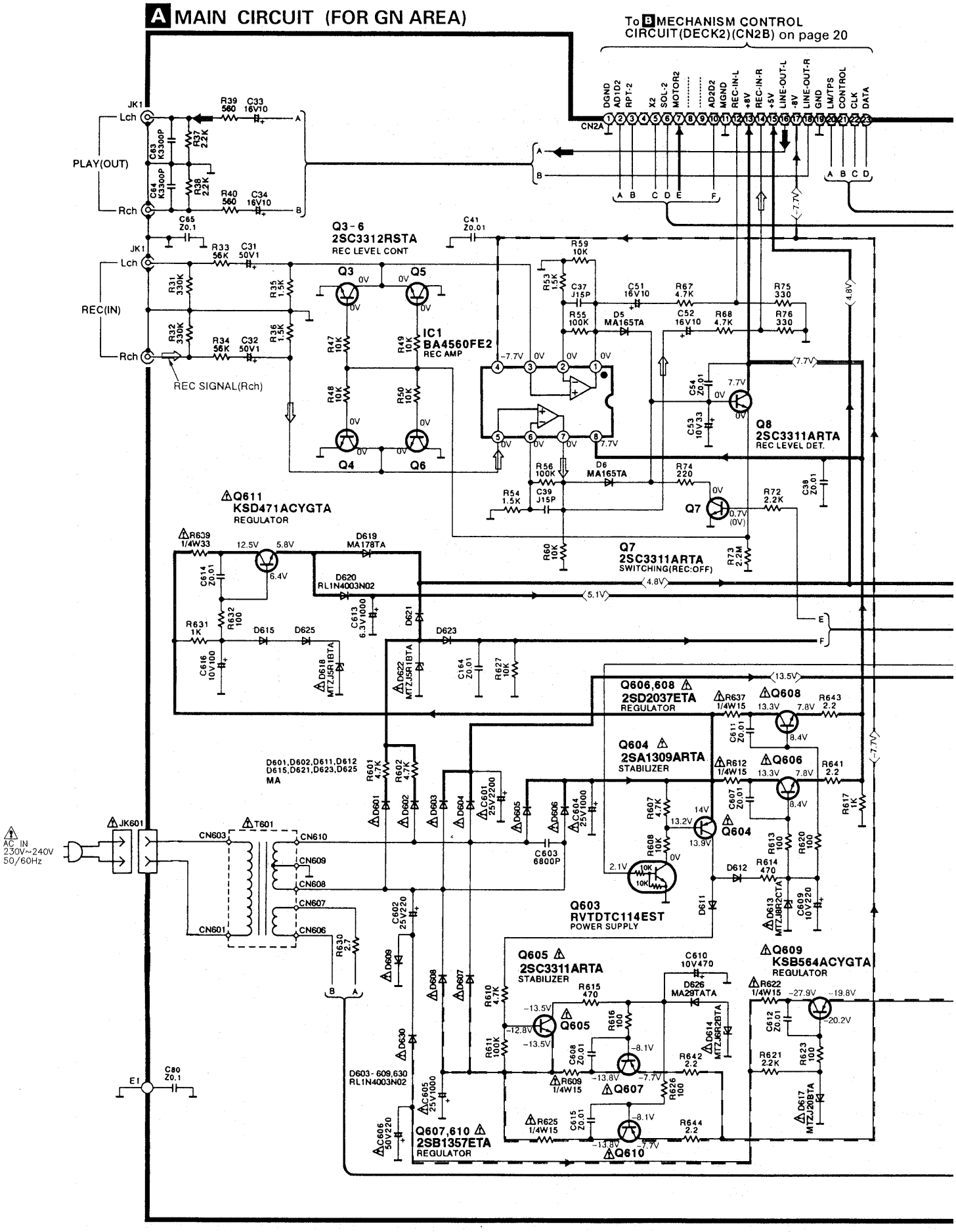
•Importance safety notice:
Components identified by ⚠ mark have special characteristics important for safety. Furthermore, special parts which have purposes of fire-retardant (resistors), high-quality sound (capacitors), low-noise (resistors), etc. are used. When replacing any of components, be sure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

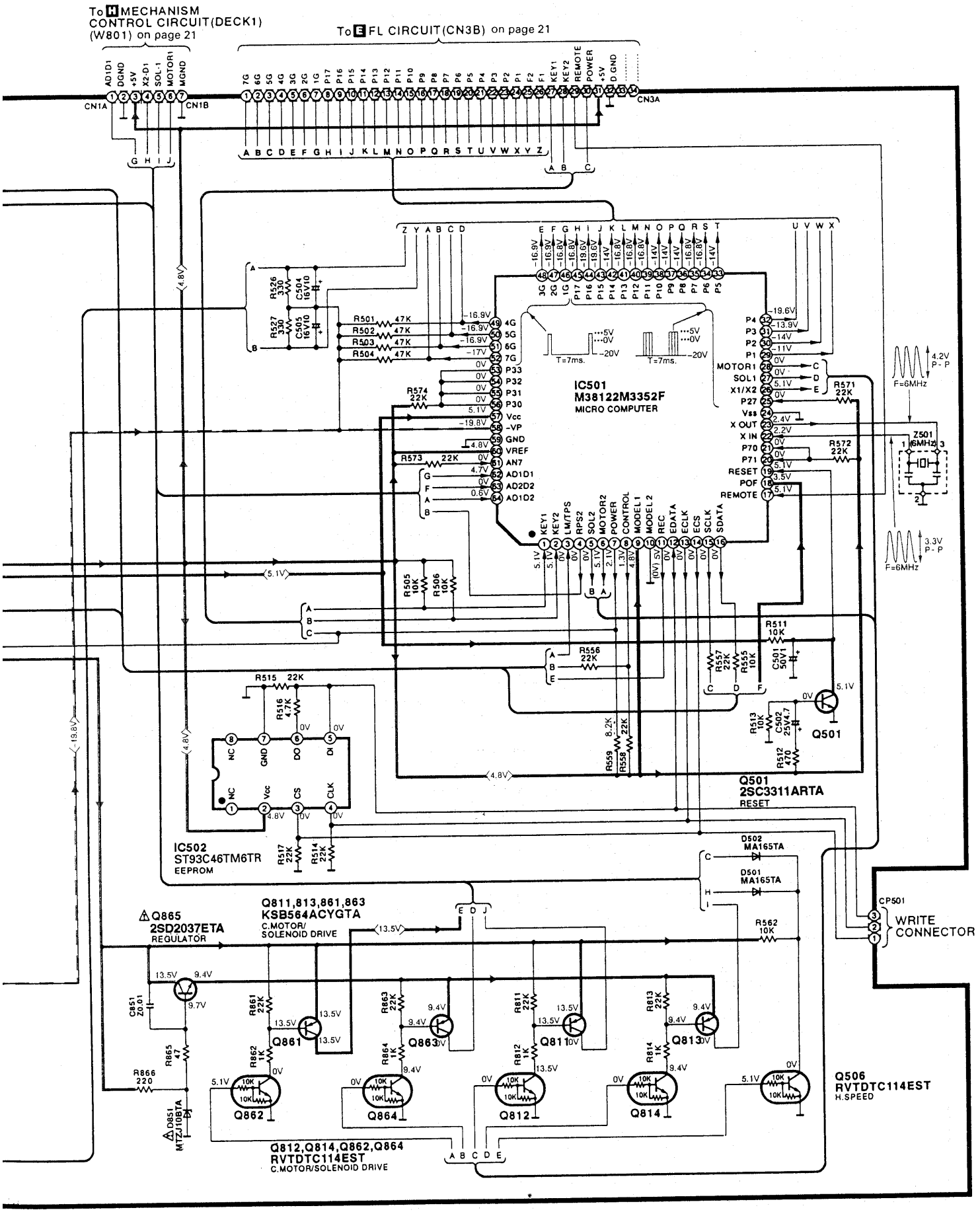
Caution !
IC, LSI and VLSI are sensitive to static electricity.
Secondary trouble can be prevented by taking care during repair.
•Cover the parts boxes made of plastics with aluminium foil.
•Ground the soldering iron.
•Do not touch the pins of IC, LSI or VLSI with fingers directly.
•Put a conductive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

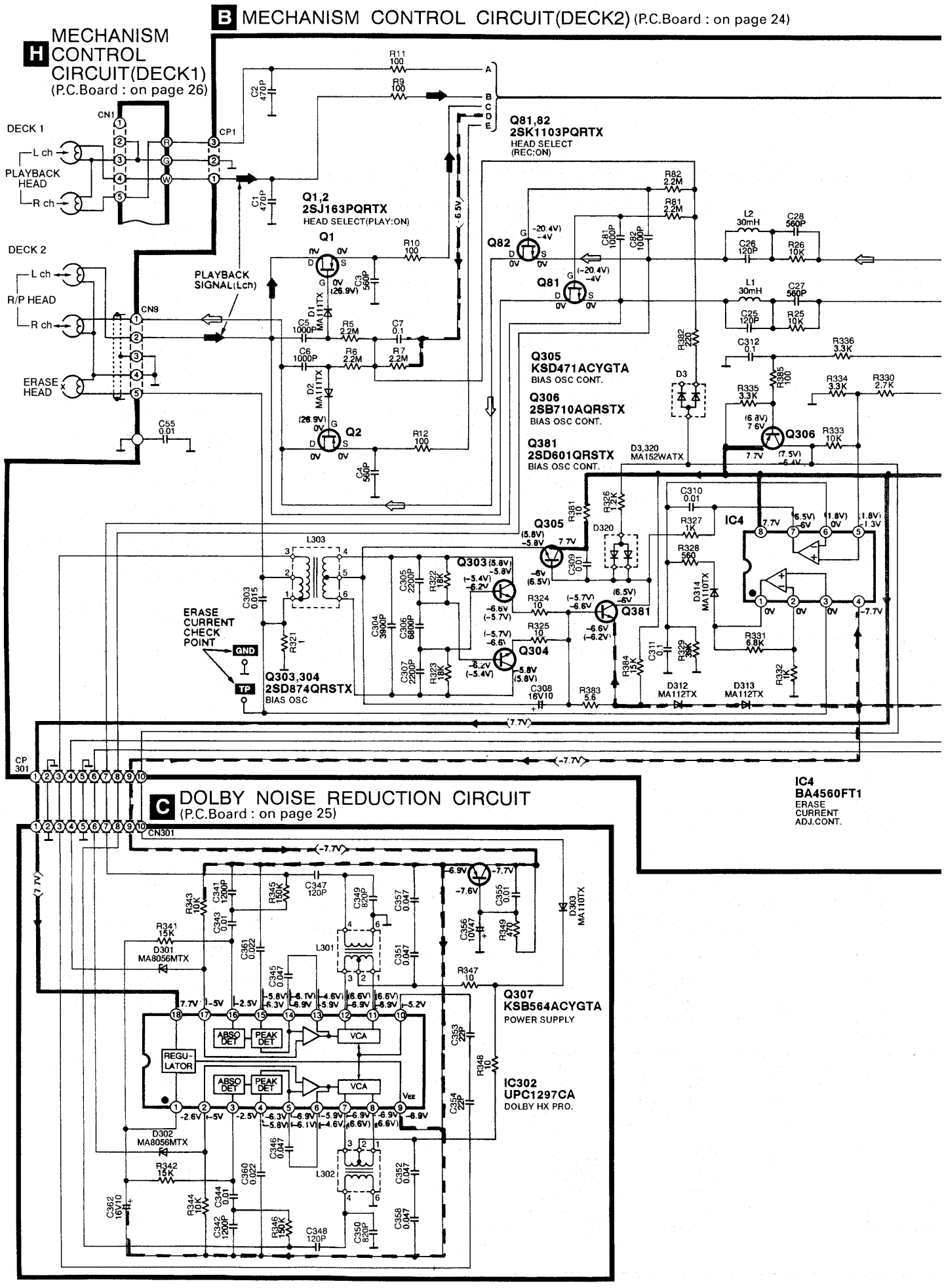
■ Schematic Diagram

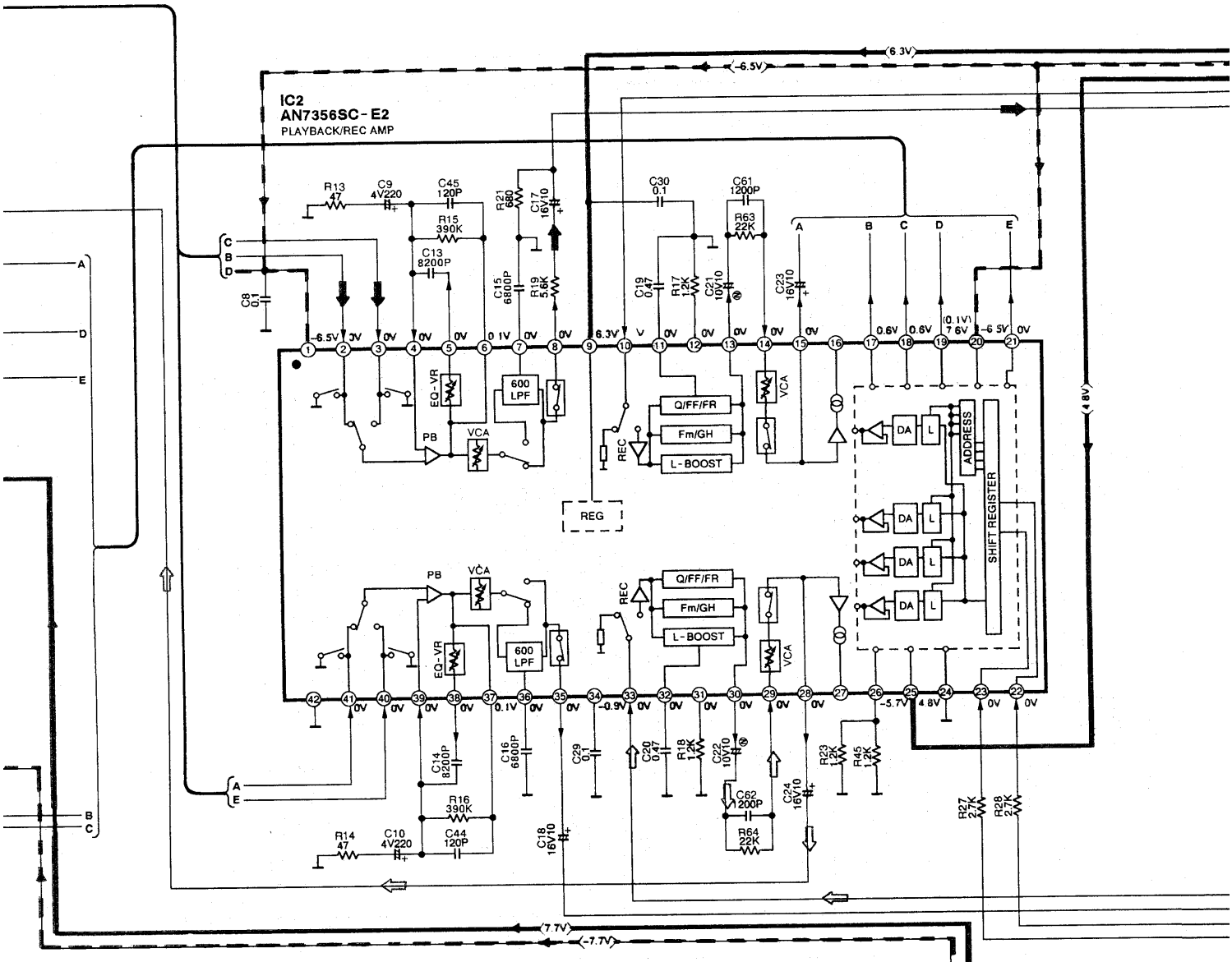



To H MECHANISM CONTROL CIRCUIT(DECK1) (W801) on page 21
To E FL CIRCUIT(CN3B) on page 21
CN1A
CN1B
CN3A
IC501
M38122M3352F
MICRO COMPUTER
IC502
ST93C46TM6TR
EEPROM
Q501
2SC3311ARTA
RESET
Q811,813,861,863
KSB564ACYGTA
C.MOTOR/
SOLENOID DRIVE
Q865
2SD2037ETA
REGULATOR
Q862
Q864
Q812
Q814
Q861
Q863
Q811
Q813
Q506
RVTDTC114EST
H.SPEED
Q812,Q814,Q862,Q864
RVTDTC114EST
C.MOTOR/SOLENOID DRIVE
D502
MA165TA
D501
MA165TA
CP501
WRITE
CONNECTOR
Z501
6MHz
F=6MHz
4.2V
P-P
3.3V
P-P
T=7ms.
-20V
5V
0V


A MAIN CIRCUIT (FOR GN AREA)
To B MECHANISM CONTROL CIRCUIT(DECK2)(CN2B) on page 20
CN2A
DGND AD1D2 RPT-2 X2 SOL-2 MOTOR2 AD2D2 MGND REC-IN-L +8V REC-IN-R +5V LINE-OUT-L +8V LINE-OUT-R GND LM/TPS CONTROL CLK DATA
PLAY(OUT)
REC(IN)
REC SIGNAL(Rch)
Q3-6
2SC3312RSTA
REC LEVEL CONT
IC1
BA4560FE2
REC AMP
Q8
2SC3311ARTA
REC LEVEL DET.
Q7
2SC3311ARTA
SWITCHING(REC:OFF)
Q611
KSD471ACYGTA
REGULATOR
Q606,608
2SD2037ETA
REGULATOR
Q604
2SA1309ARTA
STABILIZER
Q603
RVTDTC114EST
POWER SUPPLY
Q605
2SC3311ARTA
STABILIZER
Q609
KSB564ACYGTA
REGULATOR
Q607,610
2SB1357ETA
REGULATOR
AC IN 230V~240V 50/60Hz
D601,D602,D611,D612 D615,D621,D623,D625 MA
D603-609,630 RL1N4003N02

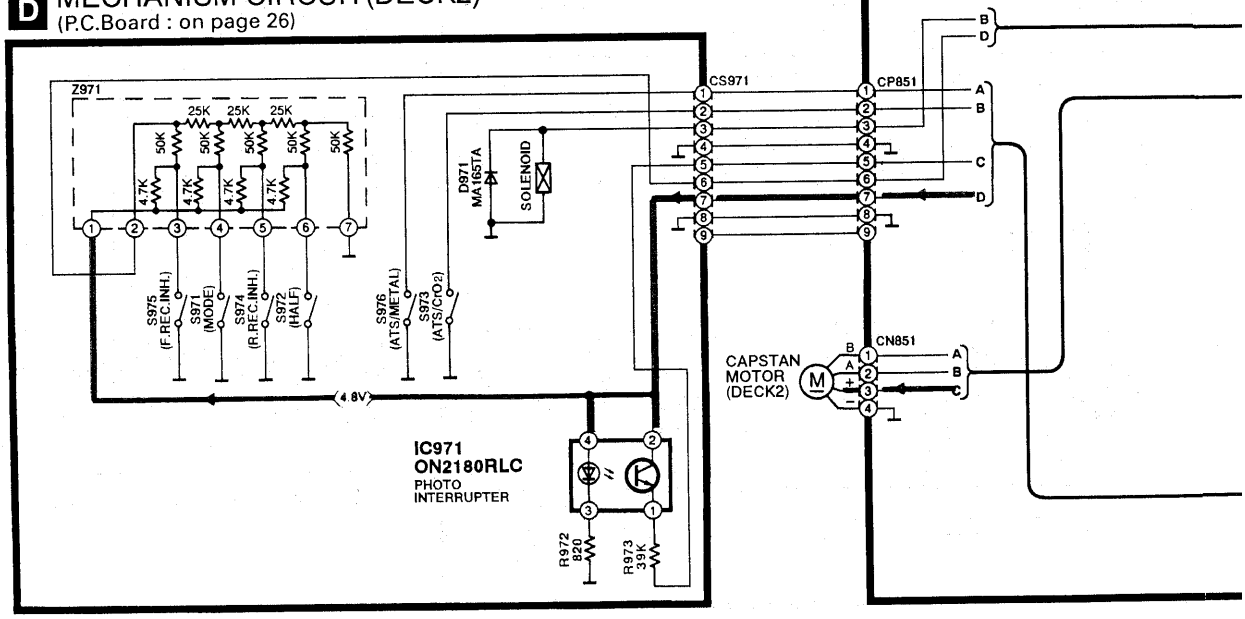

To H MECHANISM CONTROL CIRCUIT(DECK1) (W801) on page 21
To E FL CIRCUIT(CN3B) on page 21
CN1A
CN1B
CN3A
IC501
M38122M3352F
MICRO COMPUTER
IC502
ST93C46TM6TR
EEPROM
Q501
2SC3311ARTA
RESET
Q811,813,861,863
KSB564ACYGTA
C.MOTOR/
SOLENOID DRIVE
Q865
2SD2037ETA
REGULATOR
Q506
RVTDTC114EST
H.SPEED
Q812,Q814,Q862,Q864
RVTDTC114EST
C.MOTOR/SOLENOID DRIVE
WRITE
CONNECTOR
CP501
Z501
6MHz
F=6MHz
4.2V
P-P
3.3V
P-P
D502
MA165TA
D501
MA165TA
D851
MTZJ10BTA
Q861
Q863
Q811
Q813
Q862
Q864
Q812
Q814


B MECHANISM CONTROL CIRCUIT(DECK2) (P.C.Board : on page 24)
H MECHANISM CONTROL CIRCUIT(DECK1) (P.C.Board : on page 26)
DECK 1
L ch
PLAYBACK HEAD
R ch
DECK 2
L ch
R/P HEAD
R ch
ERASE HEAD
CN1
CN9
CP1
PLAYBACK SIGNAL(Lch)
Q1,2
2SJ163PQRTX
HEAD SELECT(PLAY:ON)
Q81,82
2SK1103PQRTX
HEAD SELECT (REC:ON)
Q305
KSD471ACYGTA
BIAS OSC CONT.
Q306
2SB710AQRSTX
BIAS OSC CONT.
Q381
2SD601QRSTX
BIAS OSC CONT.
D3,320
MA152WATX
ERASE CURRENT CHECK POINT
GND
TP
Q303,304
2SD874QRSTX
BIAS OSC
IC4
BA4560FT1
ERASE CURRENT ADJ.CONT.
CP 301
C DOLBY NOISE REDUCTION CIRCUIT (P.C.Board : on page 25)
CN301
Q307
KSB564ACYGTA
POWER SUPPLY
IC302
UPC1297CA
DOLBY HX PRO.
REGU-LATOR
ABSO DET
PEAK DET
VCA
D301
MA8056MTX
D302
MA8056MTX
D303
MA110TX
D312
MA112TX
D313
MA112TX
D314
MA110TX

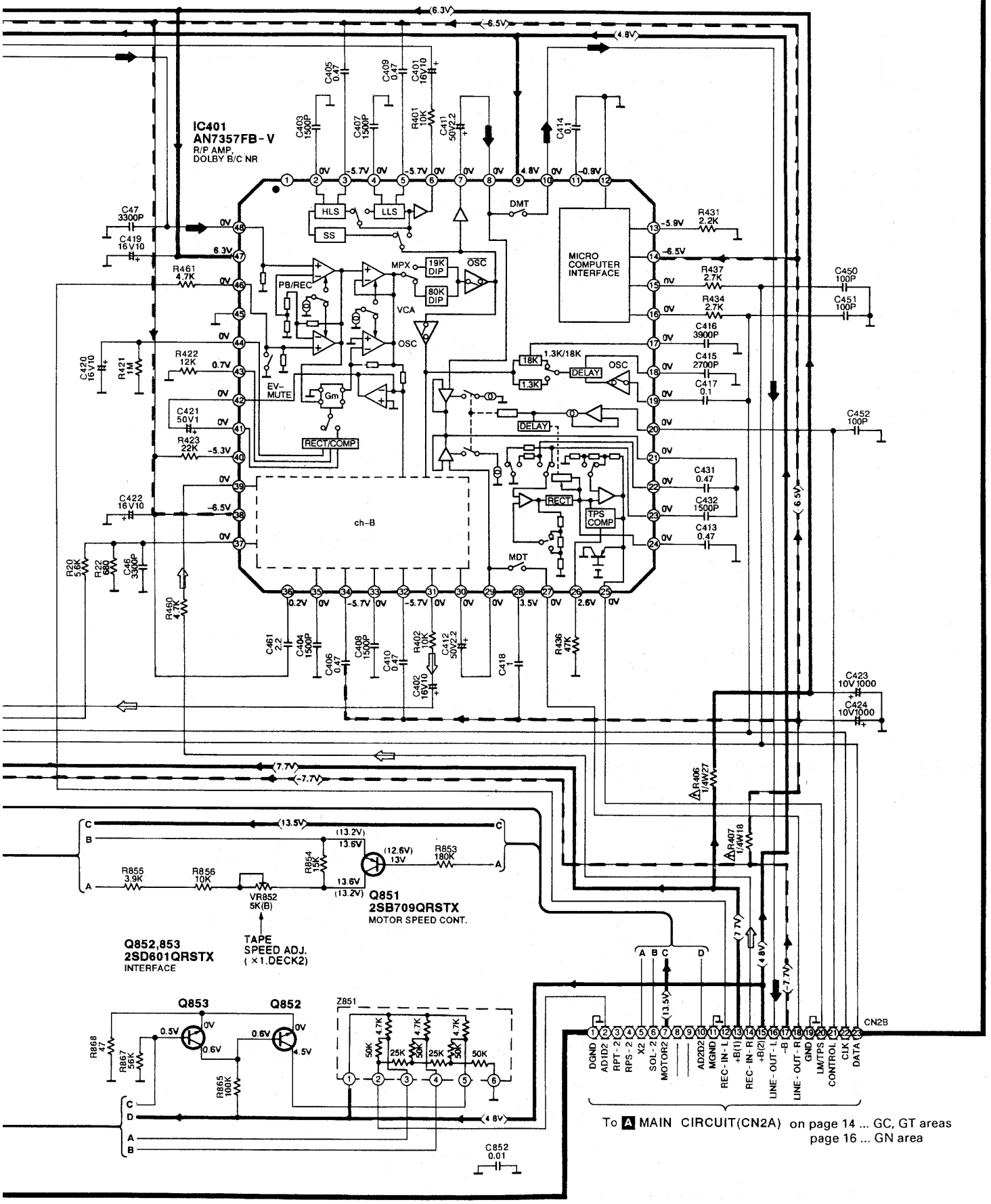


D MECHANISM CIRCUIT(DECK2)

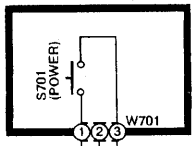
(P.C.Board : on page 26)



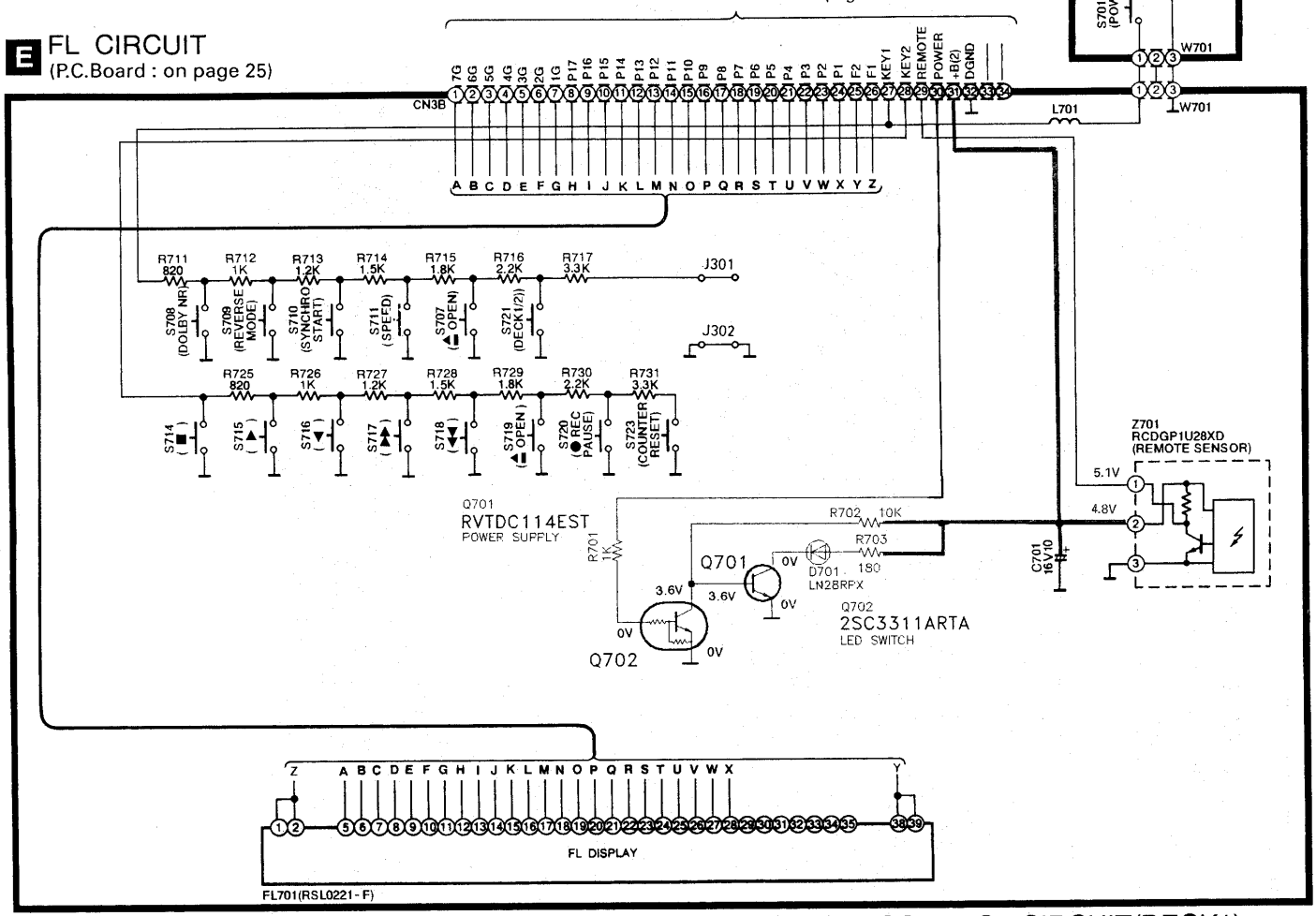
B MECHANISM CONTROL CIRCUIT(DECK2) (P.C.Board : on page 24)



F POWER SWITCH CIRCUIT
(P.C.Board : on page 25)

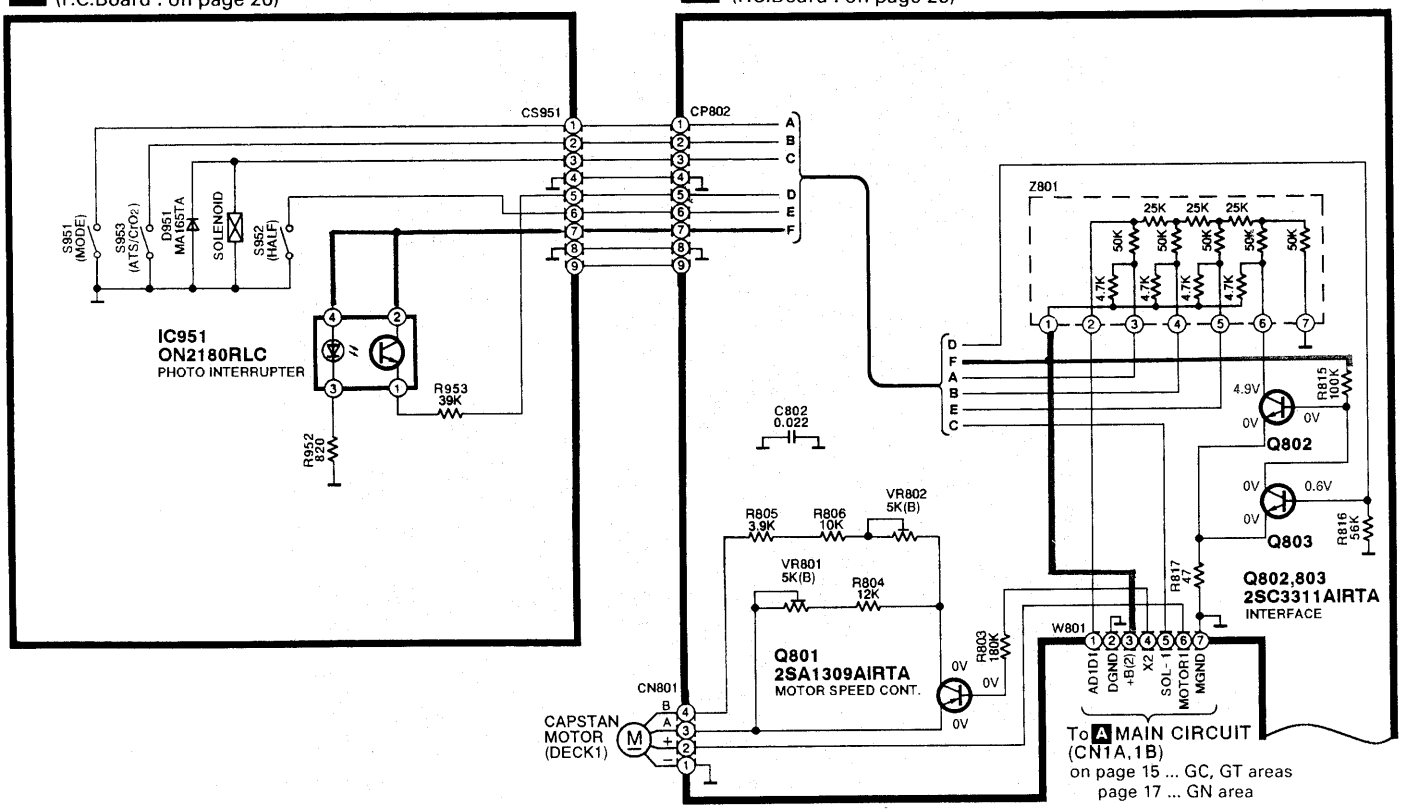


E FL CIRCUIT
(P.C.Board : on page 25)



G MECHANISM CIRCUIT(DECK1)
(P.C.Board : on page 26)

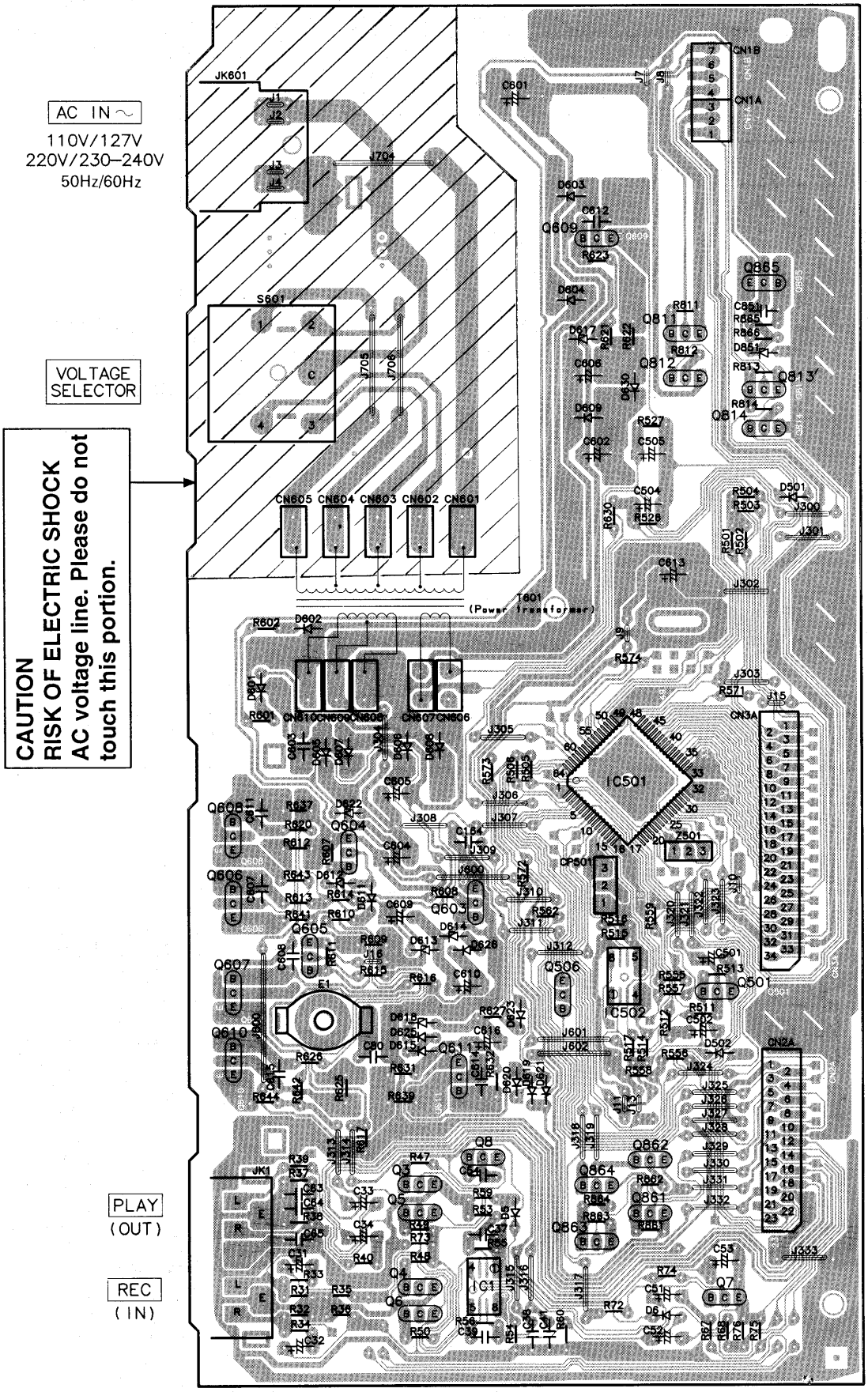
H MECHANISM CONTROL CIRCUIT(DECK1)
(P.C.Board : on page 26)



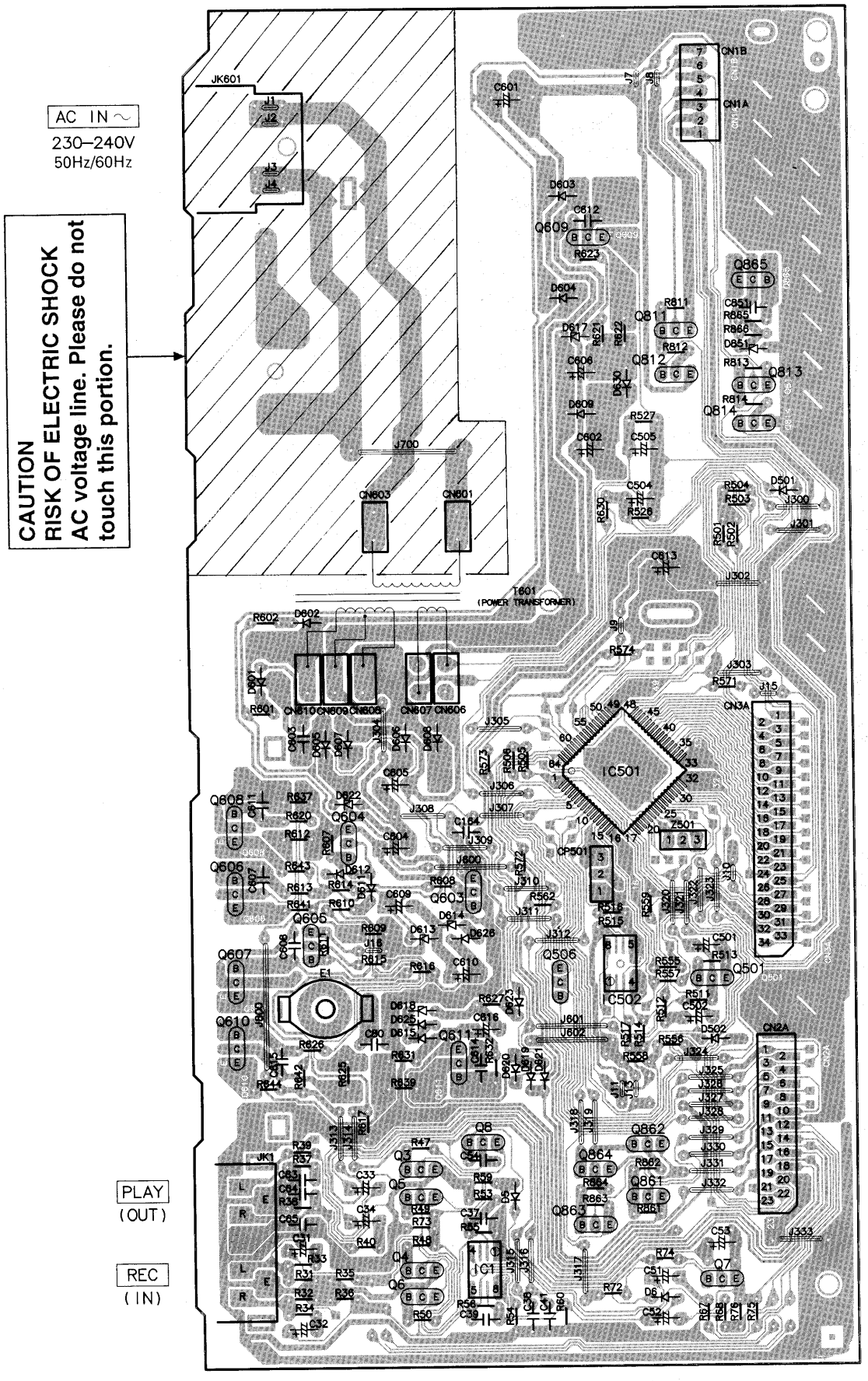
■ Printed Circuit Board

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

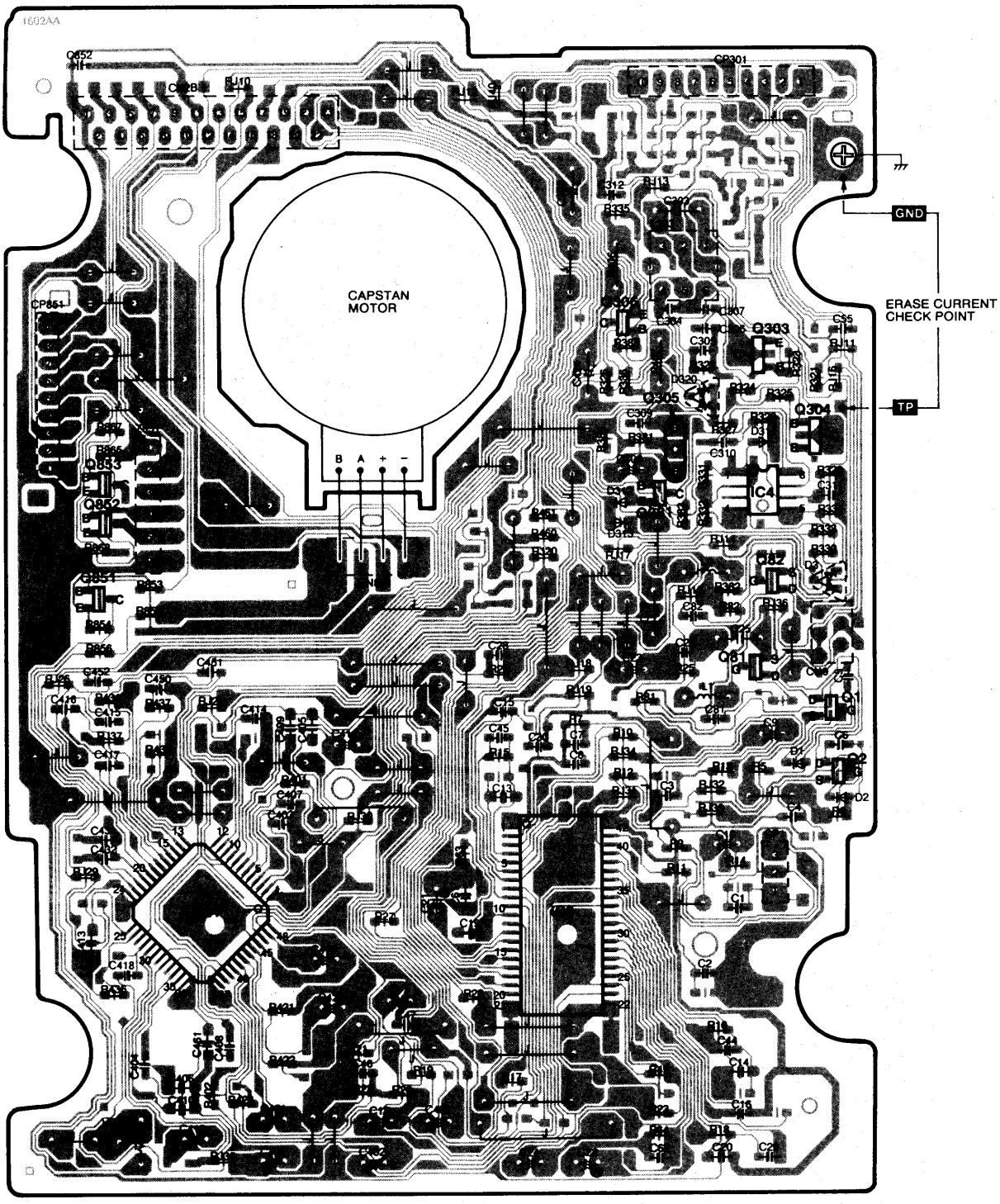
A MAIN P.C.B. (REP2259D-M)...GC,GT



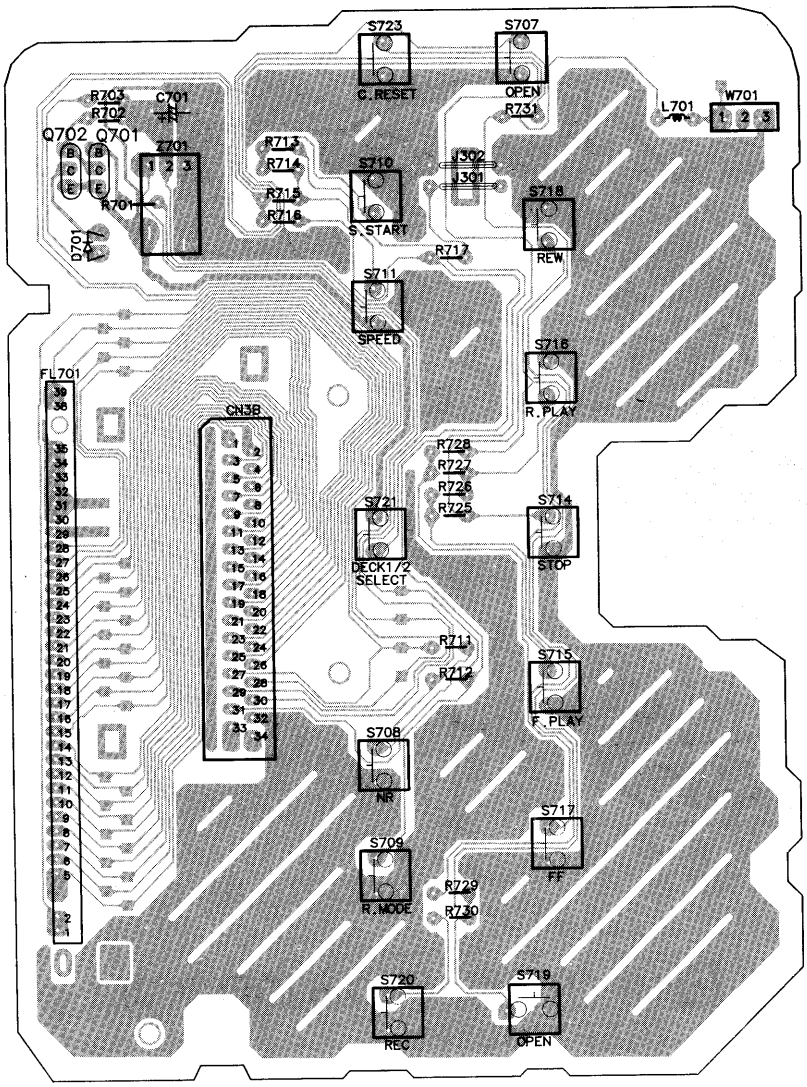
A MAIN P.C.B. (REP2259E-M)...GN



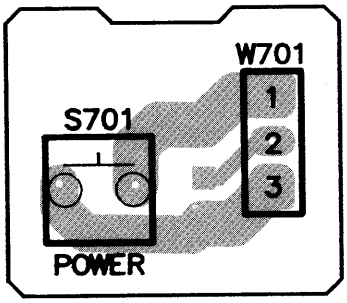
B MECHANISM CONTROL P.C.B.(DECK 2) (REP2262B-T)



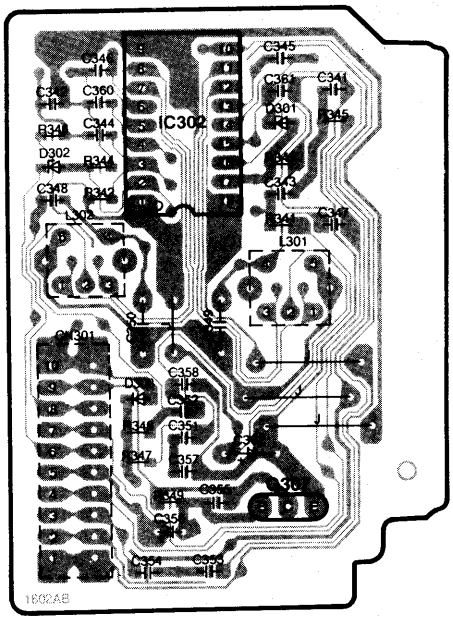
E FL P.C.B. (REP2260C-S)



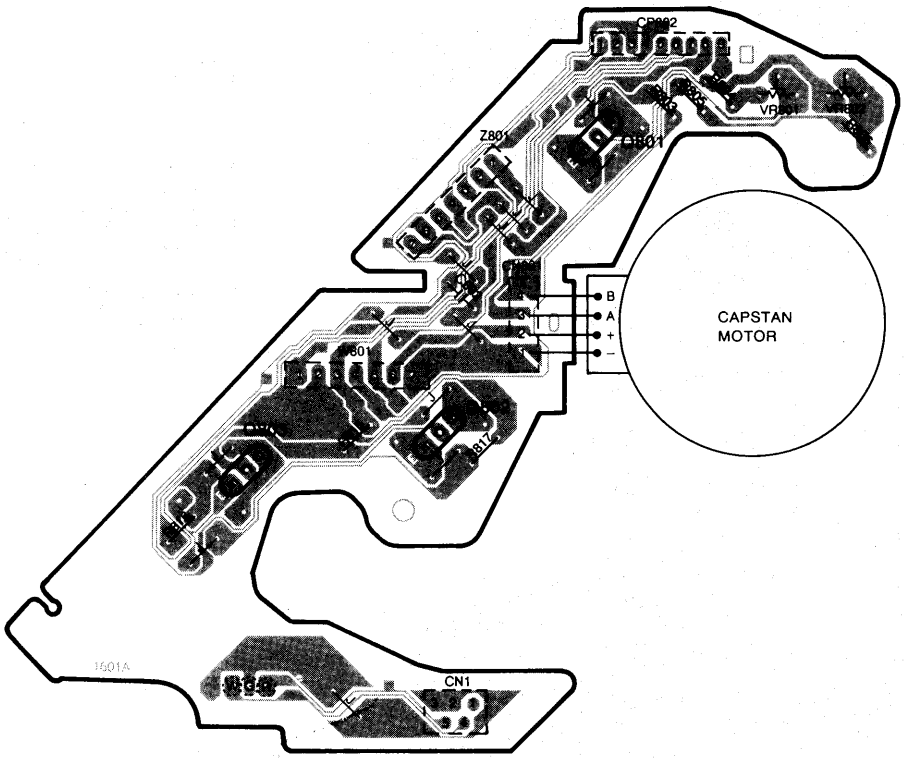
F POWER SWITCH P.C.B. (REP2260C-S)



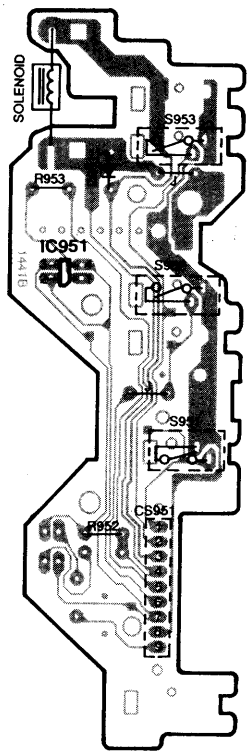
C DOLBY NOISE REDUCTION P.C.B. (REP2262B-T)



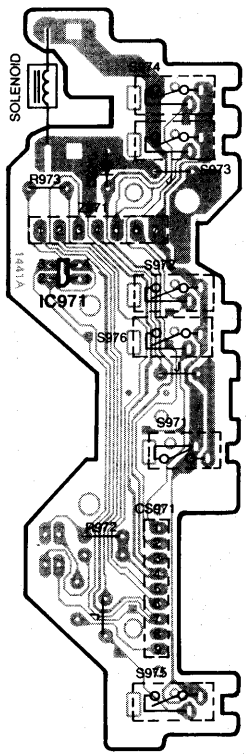
H MECHANISM CONTROL P.C.B.(DECK 1) (REP2261A-T)



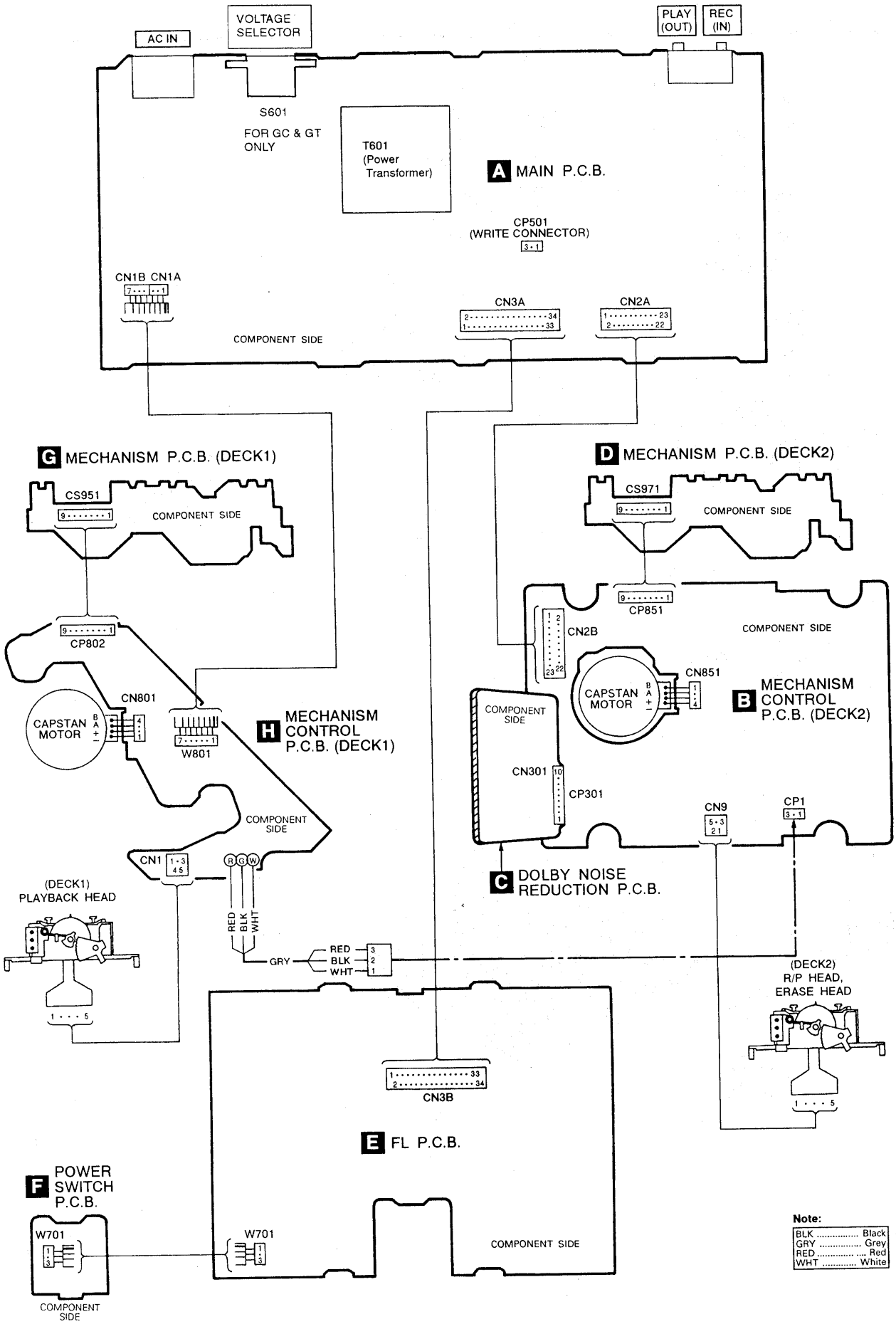
G MECHANISM P.C.B.(DECK 1) (REPX0108A)



D MECHANISM P.C.B.(DECK 2) (REPX0108B)

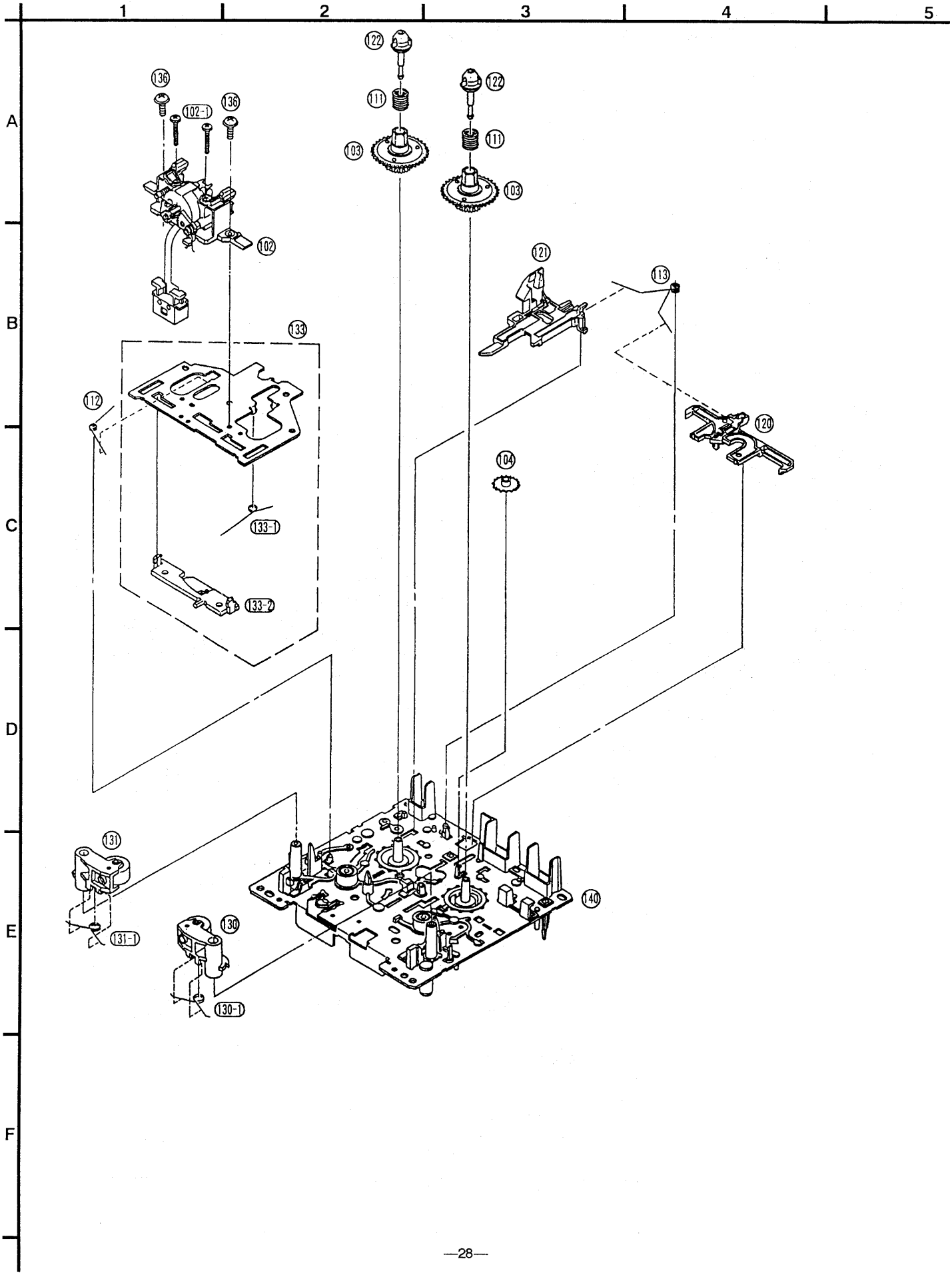


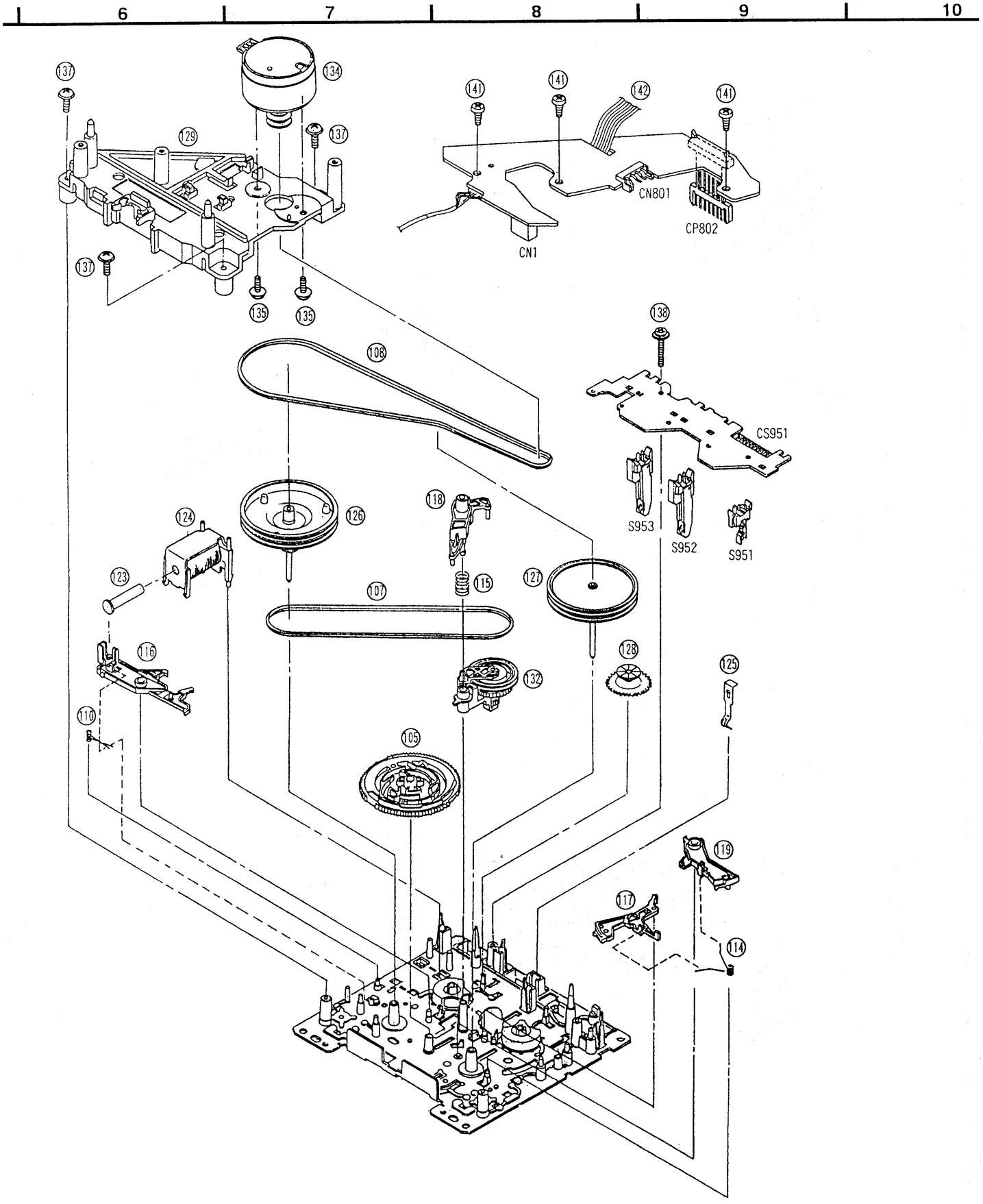
■ Wiring Connection Diagram



■ Mechanism Parts Location

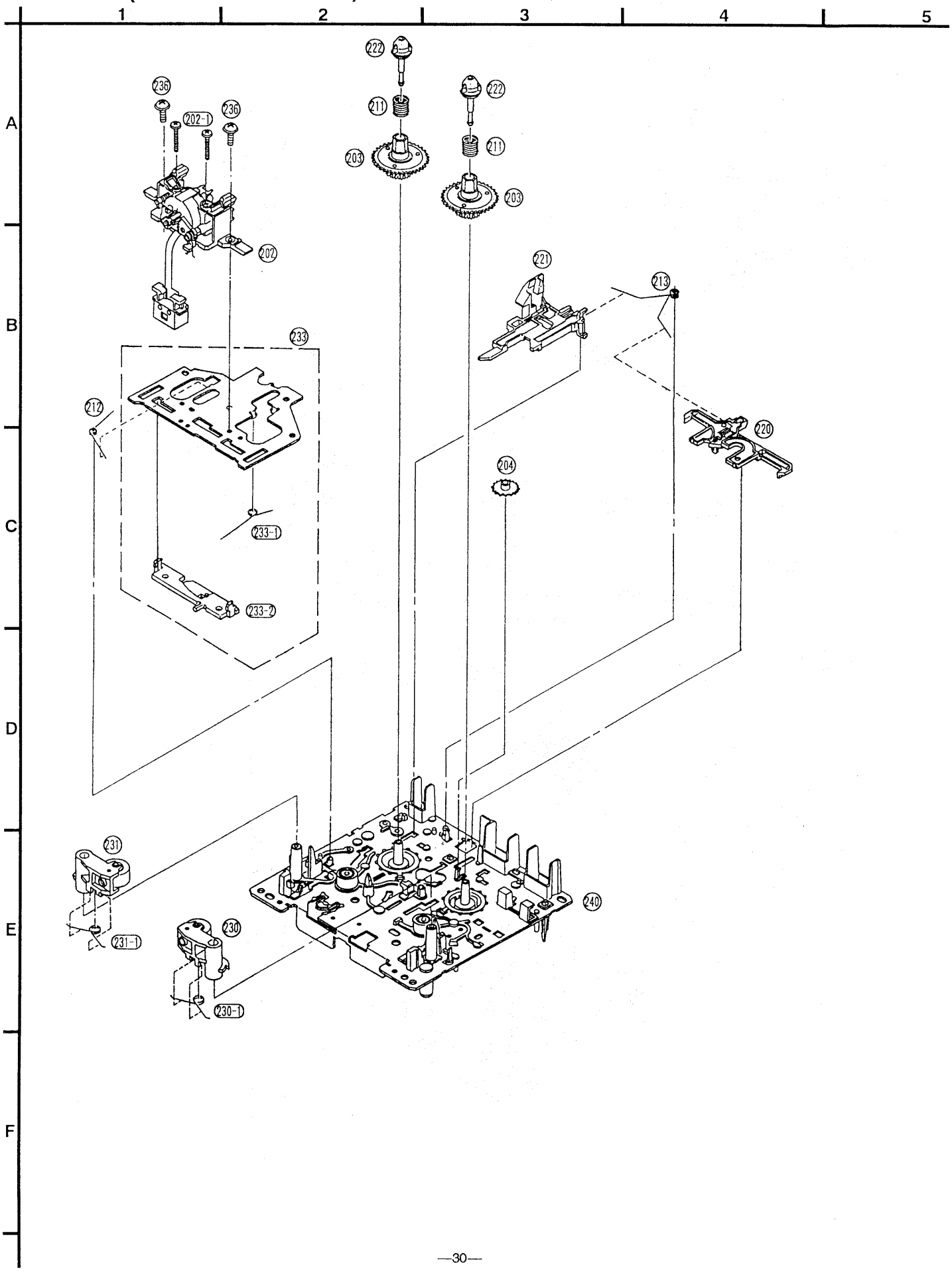
• DECK 1 (PLAYBACK)

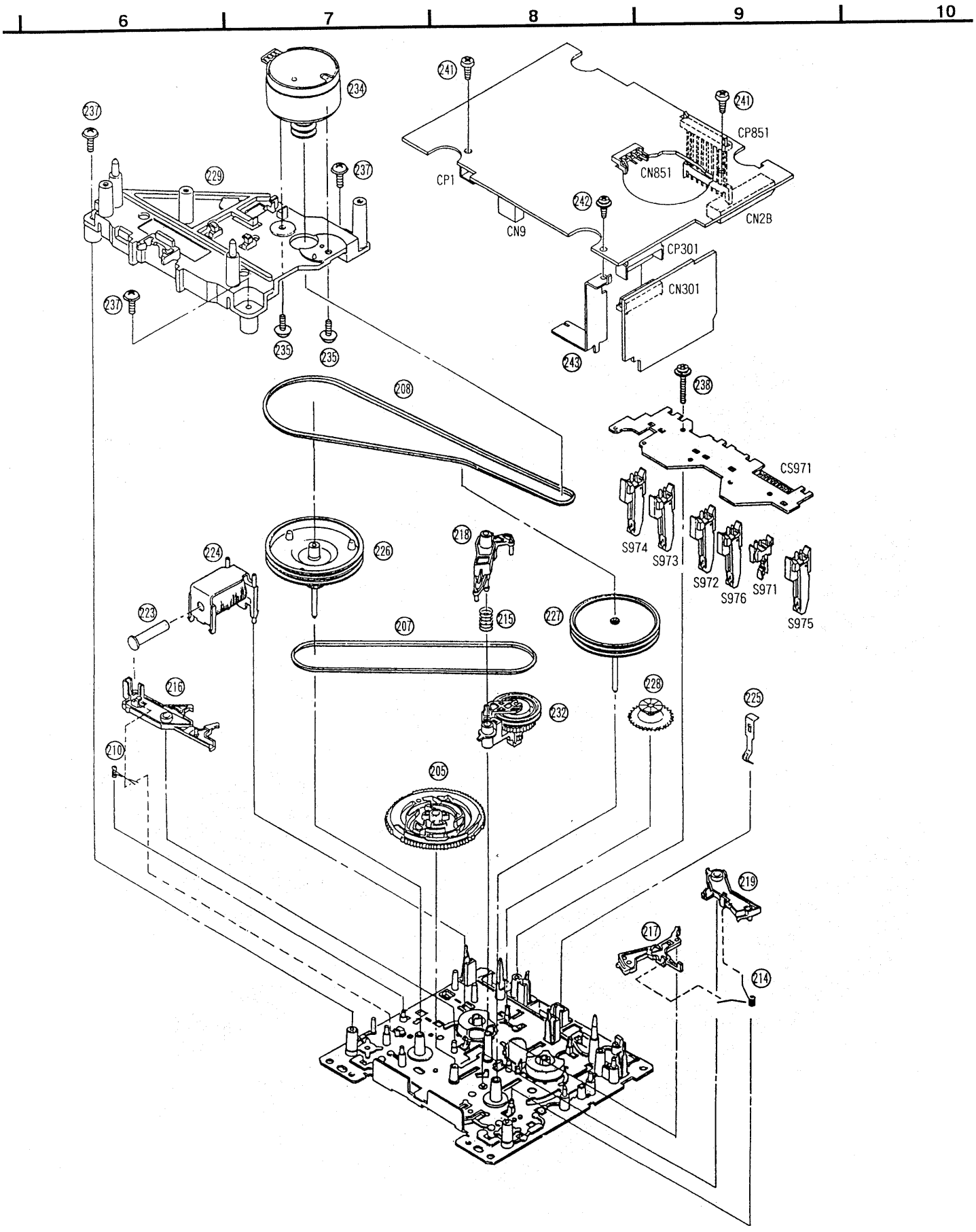



6
7
8
9
10
137
134
129
141
142
CN801
CP802
CN1
135
108
138
CS951
S953
S952
S951
124
126
118
123
115
107
127
116
128
132
125
110
105
119
117
114

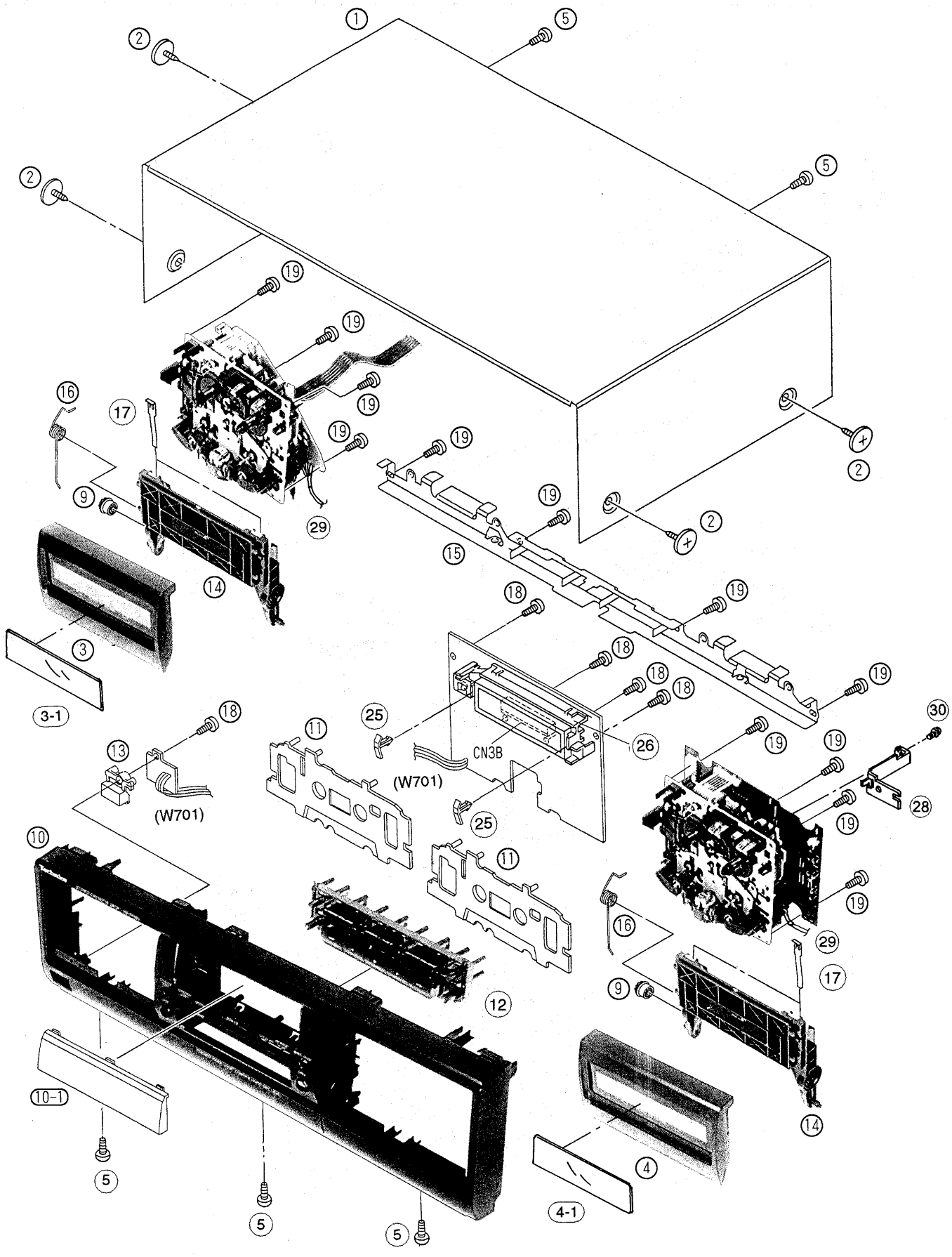
■ Mechanism Parts Location

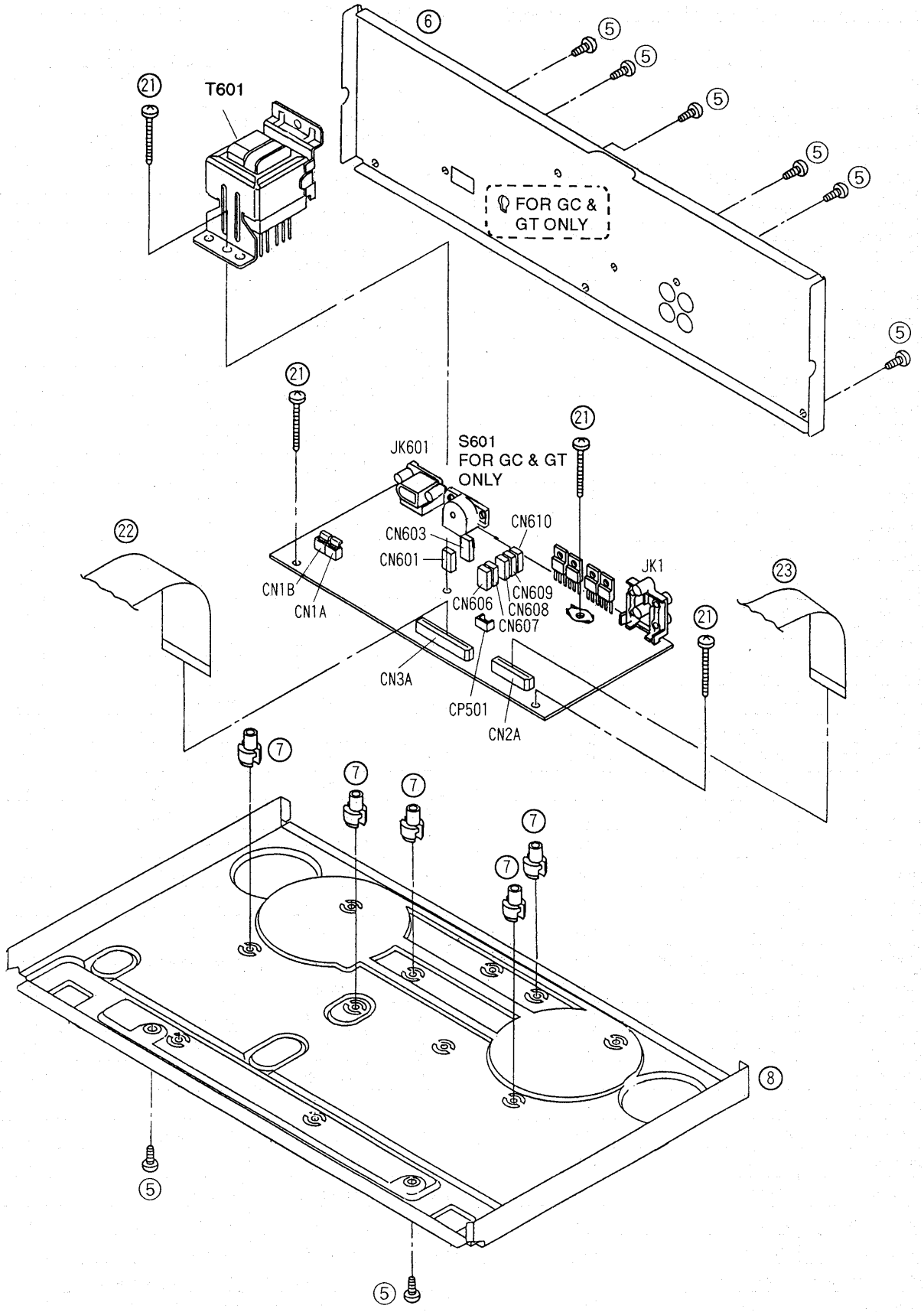
• DECK 2 (RECORD/PLAYBACK)




6
7
8
9
10
234
237
229
235
241
CP1
CN9
CP851
CN851
242
CN2B
CP301
CN301
243
208
238
CS971
S974
S973
S972
S976
S971
S975
218
224
226
223
215
207
227
216
228
232
225
210
205
219
217
214

■ Cabinet Parts Location




⑥
⑤
⑤
⑤
⑤
⑤
⑤
㉑
T601
FOR GC & GT ONLY
㉑
㉑
JK601
S601
FOR GC & GT ONLY
㉒
CN603
CN610
CN601
JK1
CN1B
CN1A
CN606
CN609
CN608
CN607
㉓
㉑
CN3A
CP501
CN2A
⑦
⑦
⑦
⑦
⑦
⑧
⑤
⑤

■ Mechanism Parts List

Note : [M] mark in Remarks column indicates parts that are supplied by **MESA**

Ref.No.	Part No.	Part Name & Description	Remarks
		MECHANISM PARTS LIST	
DECK 1			
102	RED0038	HEAD BLOCK (P.B)	[M]
102-1	RHD17015	SCREW	[M]
103	RDG0300	REEL TABLE A'SSY	[M]
104	RDG0301	GEAR	[M]
105	RDK0026	GEAR	[M]
107	RDV0033-1	BELI1	[M]
108	RDV0034	BELT2	[M]
110	RUW147ZA	SPRING	[M]
111	RMB0400	SPRING	[M]
112	RMB0403	SPRING	[M]
113	RMB0404	SPRING	[M]
114	RMB0406	SPRING	[M]
115	RMB0408	SPRING	[M]
116	RML0370	LEVER	[M]
117	RML0371	LEVER	[M]
118	RML0372	LEVER	[M]
119	RML0374	LEVER	[M]
120	RMM0131	ROD	[M]
121	RMM0133	ROD	[M]
122	RMQ0519	REEL CAP	[M]
123	RMS0398-1	SHAFT	[M]
124	RSJ0003	PLUNGER ASS'Y	[M]
125	RUS609ZC	SPRING	[M]
126	RXF0049	FLYWHEEL ASS'Y	[M]
127	RXF0050	FLYWHEEL ASS'Y	[M]
128	RXG0040	GEAR	[M]
129	RMK0283	SUB CHASSIS	[M]
130	RXL0124	PINCH ROLLER ASS'Y	[M]
130-1	RMB0401	SPRING	[M]
131	RXL0125	PINCH ROLLER ASS'Y	[M]
131-1	RMB0402	SPRING	[M]
132	RXL0126	ARM	[M]
133	RXQ0412	CHASSIS ASS'Y	[M]
133-1	RMB0405	SPRING	[M]
133-2	RMM0132	ROD	[M]
134	REM0055	MOTOR ASS'Y	[M]
135	RHD26022	SCREW	[M]
136	XTW2+5L	SCREW	[M]
137	XTW26+10S	SCREW	[M]
138	XYC2+JF17	SCREW	[M]
140	RFKJSTR280PP	MAIN CHASSIS ASS'Y	[M]
141	XTBS26+8J	SCREW	[M]
142	REZ0893	WIRE ASS'Y	[M]

Ref.No.	Part No.	Part Name & Description	Remarks
		MECHANISM PARTS LIST	
DECK 2			
202	RED0037	HEAD BLOCK (R/P)	[M]
202-1	RHD17015	SCREW	[M]
203	RDG0300	REEL TABLE A'SSY	[M]
204	RDG0301	GEAR	[M]
205	RDK0026	GEAR	[M]
207	RDV0033-1	BELI1	[M]
208	RDV0034	BELT2	[M]
210	RMB0399	SPRING	[M]
211	RMB0400	SPRING	[M]
212	RMB0403	SPRING	[M]
213	RMB0404	SPRING	[M]
214	RMB0406	SPRING	[M]
215	RMB0408	SPRING	[M]
216	RML0370	LEVER	[M]
217	RML0371	LEVER	[M]
218	RML0372	LEVER	[M]
219	RML0374	LEVER	[M]
220	RMM0131	ROD	[M]
221	RMM0133	ROD	[M]
222	RMQ0519	REEL CAP	[M]
223	RMS0398-1	SHAFT	[M]
224	RSJ0003	PLUNGER ASS'Y	[M]
225	RUS609ZC	SPRING	[M]
226	RXF0049	FLYWHEEL ASS'Y	[M]
227	RXF0050	FLYWHEEL ASS'Y	[M]
228	RXG0040	GEAR	[M]
229	RMK0283	SUB CHASSIS	[M]
230	RXL0124	PINCH ROLLER ASS'Y	[M]
230-1	RMB0401	SPRING	[M]
231	RXL0125	PINCH ROLLER ASS'Y	[M]
231-1	RMB0402	SPRING	[M]
232	RXL0126	ARM	[M]
233	RXQ0412	CHASSIS ASS'Y	[M]
233-1	RMB0405	SPRING	[M]
233-2	RMM0132	ROD	[M]
234	REM0055	MOTOR ASS'Y	[M]
235	RHD26022	SCREW	[M]
236	XTW2+5L	SCREW	[M]
237	XTW26+10S	SCREW	[M]
238	XYC2+JF17	SCREW	[M]
240	RFKJSTR280PP	MAIN CHASSIS ASS'Y	[M]
241	XTBS26+8J	SCREW	[M]
242	XYC26+JF6	SCREW	[M]
243	RMA0942	ANGLE	[M]

■ Replacement Parts List

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

Ref No.	Part No.	Part Name & Description	Remarks
		CABINET AND CHASSIS	
1	RKM0260-K1J	CABINET	[M]
2	SNE2129-1	SCREW	[M]
3	RFKLTR272PBK	CASSETTE LID 1 ASSY	[M]
3-1	RKW0450-K1	CASS. WINDOW	[M]
4	RFKLTR272PAK	CASSETTE LID 2 ASSY	[M]
4-1	RKW0450-K1	CASS. WINDOW	[M]
5	XTBS3+8JFZ1	SCREW	[M]
6	RGR0238D-A	REAR PANEL	[M]GC
6	RGR0238G-A1	REAR PANEL	[M]GN
6	RGR0238D-B	REAR PANEL	[M]GT
7	RKQ0089	PCB HOLDER	[M]
8	RFKJTR272GCK	BOTTOM CHASIS ASSY	[M]
9	RDG0357	DUMPPING GEAR	[M]
10	RFKGTR272GCK	FRONT PANEL ASSY	[M]
10-1	RKW0443B-R	FL WINDOW	[M]
11	RGK0802-K	ORNAMENT PLATE	[M]
12	RGU1380-K	OPERATION BUTTON	[M]
13	RGU1381-K	POWER BUTTON	[M]
14	RFKLTR272PCK	CASSETTE HOLDER ASSY	[M]
15	RMA0943	MECHA ANGLE	[M]
16	RMB0477	OPEN SPRING	[M]
17	RUS757ZAA	CASS. HALF SPRING	[M]
18	XTBS26+8J	SCREW	[M]
19	XTB3+10JFZ	SCREW	[M]
21	XTB3+20JFZ	SCREW	[M]
22	REE0787	34 FFC L=190	[M]
23	REE0788	23 FFC L=175	[M]
25	RMN0195	FL-SUPPORT	[M]
26	RMN0377	FL HOLDER	[M]
28	RMA0942	MECHA PB ANGLE	[M]
29	REZ0894	HEAD WIRE KIT	[M]
		INTEGRATED CIRCUITS	
IC1	BA4560FE2	IC, OP AMP	[M]
IC2	AN7356SC-E2	IC, PB/REC AMP	[M]
IC4	BA4560FE2	IC, OP AMP	[M]
IC302	UPC1297CA	IC, DOLBY HX PRO	[M]
IC401	AN7357FB-V	IC, DOLBY BC	[M]
IC501	M38122M3352F	IC, MICROCOM	[M]
IC502	ST93C46TM6TR	IC, EEPROM	[M]
IC951	ON2180RLC	IC, PHOTO INTERRUPTER	[M]
IC971	ON2180RLC	IC,PHOTO INTERRUPTER	[M]
		TRANSISTORS	
Q1	2SJ163PQRTX	TRANSISTOR	[M]
Q2	2SJ163PQRTX	TRANSISTOR	[M]
Q3	2SC3312RSTA	TRANSISTOR	[M]
Q4	2SC3312RSTA	TRANSISTOR	[M]
Q5	2SC3312RSTA	TRANSISTOR	[M]
Q6	2SC3312RSTA	TRANSISTOR	[M]
Q7	2SC3311ARTA	TRANSISTOR	[M]
Q8	2SC3311ARTA	TRANSISTOR	[M]
Q81	2SK1103PQRTX	TRANSISTOR	[M]
Q82	2SK1103PQRTX	TRANSISTOR	[M]
Q303	2SD874QRSTX	TRANSISTOR	[M]
Q304	2SD874QRSTX	TRANSISTOR	[M]
Q305	KSD471ACYGTA	TRANSISTOR	[M]
Q306	2SB710AQRSTX	TRANSISTOR	[M]
Q307	KSB564ACYGTA	TRANSISTOR	[M]
Q381	2SD601ATX	TRANSISTOR	[M]
Q501	2SC3311ARTA	TRANSISTOR	[M]
Q506	RVTDTC114EST	TRANSISTOR	[M]
Q603	RVTDTC114EST	TRANSISTOR	[M]
Q604	2SA1309ARTA	TRANSISTOR	[M]⚠
Q605	2SC3311ARTA	TRANSISTOR	[M]⚠
Q606	2SD2037ETA	TRANSISTOR	[M]⚠
Q607	2SB1357ETA	TRANSISTOR	[M]⚠
Q608	2SD2037ETA	TRANSISTOR	[M]⚠
Q609	KSB564ACYGTA	TRANSISTOR	[M]⚠
Q610	2SB1357ETA	TRANSISTOR	[M]⚠
Q611	KSD471ACYGTA	TRANSISTOR	[M]⚠
Q701	RVTDTC114EST	TRANSISTOR	[M]
Q702	2SC3311ARTA	TRANSISTOR	[M]
Q801	2SA1309ARTA	TRANSISTOR	[M]
Q802	2SC3311ARTA	TRANSISTOR	[M]
Q803	2SC3311ARTA	TRANSISTOR	[M]
Q811	KSB564ACYGTA	TRANSISTOR	[M]
Q812	RVTDTC114EST	TRANSISTOR	[M]
Q813	KSB564ACYGTA	TRANSISTOR	[M]
Q814	RVTDTC114EST	TRANSISTOR	[M]
Q851	2SB709ATX	TRANSISTOR	[M]
Q852	2SD601ATX	TRANSISTOR	[M]
Q853	2SD601ATX	TRANSISTOR	[M]
Q861	KSB564ACYGTA	TRANSISTOR	[M]
Q862	RVTDTC114EST	TRANSISTOR	[M]
Q863	KSB564ACYGTA	TRANSISTOR	[M]
Q864	RVTDTC114EST	TRANSISTOR	[M]
Q865	2SD2037ETA	TRANSISTOR	[M]⚠
		DIODES	
D1	MA111TX	DIODE	[M]
D2	MA111TX	DIODE	[M]
D3	MA152WATX	DIODE	[M]
D5	MA165TA	DIODE	[M]
D6	MA165TA	DIODE	[M]
D301	MA8056MTX	DIODE	[M]
D302	MA8056MTX	DIODE	[M]
D303	MA110TX	DIODE	[M]
D312	MA112TX	DIODE	[M]
D313	MA112TX	DIODE	[M]
D314	MA110TX	DIODE	[M]
D320	MA152WATX	DIODE	[M]
D501	MA165TA	DIODE	[M]
D502	MA165TA	DIODE	[M]
D601	MA165TA	DIODE	[M]⚠
D602	MA165TA	DIODE	[M]⚠
D603	RL1N4003N02	DIODE	[M]⚠
D604	RL1N4003N02	DIODE	[M]⚠
D605	RL1N4003N02	DIODE	[M]⚠
D606	RL1N4003N02	DIODE	[M]⚠

Ref No.	Part No.	Part Name & Description	Remarks
D607	RL1N4003N02	DIODE	[M]⚠
D608	RL1N4003N02	DIODE	[M]⚠
D609	RL1N4003N02	DIODE	[M]⚠
D611	MA165TA	DIODE	[M]
D612	MA165TA	DIODE	[M]
D613	MTZJ8R2CTA	DIODE	[M]⚠
D614	MTZJ6R2BTA	DIODE	[M]⚠
D615	MA165TA	DIODE	[M]
D617	MTZJ20BTA	DIODE	[M]⚠
D618	MTZJ5R1BTA	DIODE	[M]⚠
D619	MA178TA	DIODE	[M]
D620	RL1N4003N02	DIODE	[M]
D621	MA165TA	DIODE	[M]
D622	MTZJ5R1BTA	DIODE	[M]⚠
D623	MA165TA	DIODE	[M]
D625	MA165TA	DIODE	[M]
D626	MA29TATA	DIODE	[M]
D630	RL1N4003N02	DIODE	[M]⚠
D701	LN28RPX	DIODE	[M]
D851	MTZJ10BTA	DIODE	[M]⚠
D951	MA165TA	DIODE	[M]
D971	MA165TA	DIODE	[M]
		VARIABLE RESISTORS	
VR801	EVND2AA03B53	VARIABLE RESISTOR	[M]
VR802	EVND2AA03B53	VARIABLE RESISTOR	[M]
VR852	EVNDCAA03B53	VARIABLE RESISTOR	[M]
		SWITCHES	
S601	RSR4A001S-H	VOLTAGE SELECTOR⚠	[M]GC,GT
S701	EVQ21405R	SW, POWER	[M]
S707	EVQ21405R	SW, OPEN/CLOSE	[M]
S708	EVQ21405R	SW, DOLBY NR	[M]
S709	EVQ21405R	SW, REVERSE MODE	[M]
S710	EVQ21405R	SW, SYNCHRO START	[M]
S711	EVQ21405R	SW, SPEED	[M]
S714	EVQ21405R	SW, STOP	[M]
S715	EVQ21405R	SW, F. PLAY	[M]
S716	EVQ21405R	SW, R. PLAY	[M]
S717	EVQ21405R	SW, FF	[M]
S718	EVQ21405R	SW, REW	[M]
S719	EVQ21405R	SW, OPEN/CLOSE	[M]
S720	EVQ21405R	SW, REC PAUSE	[M]
S721	EVQ21405R	SW, DECK 1/2	[M]
S723	EVQ21405R	SW, COUNTER RESET	[M]
S951	RSH1A018-1U	SW,MODE(DECK1)	[M]

Ref No.	Part No.	Part Name & Description	Remarks
S952	RSH1A019-2U	SW,HALF(DECK1)	[M]
S953	RSH1A019-2U	SW,ATS/CrO2(DECK1)	[M]
S971	RSH1A018-1U	SW,MODE(DECK2)	[M]
S972	RSH1A019-2U	SW,HALF(DECK12	[M]
S973	RSH1A019-2U	SW,ATS/CrO2(DECK2)	[M]
S974	RSH1A019-2U	SW,R.REC.1NH.(DECK2)	[M]
S975	RSH1A019-2U	SW,F.REC.1NH.(DECK2)	[M]
S976	RSH1A019-2U	SW,ATS/METAL(DECK2)	[M]
		CONNECTORS	
CN1	RJS2A0205-2S	5P CONNECTOR	[M]
CN1	RJS7T5ZA	7P CONNECTOR	[M]
CN2A	RJS1A9423	FFC CONNECTOR	[M]
CN2B	RJS1A9323	FFC CONNECTOR	[M]
CN3A	RJS1A6834	FFC CONNECTOR	[M]
CN3B	RJS1A6234-1	FFC CONNECTOR	[M]
CN9	RJS2A0205-2S	HEAD SOCKET	[M]
CN301	RJU057W010	CONNECTOR	[M]
CN601	RJS1A1101T1	CONNECTOR	[M]
CN602	RJS1A1101T1	CONNECTOR	[M]GC,GT
CN603	RJS1A1101T1	CONNECTOR	[M]
CN604	RJS1A1101T1	CONNECTOR	[M]GC,GT
CN605	RJS1A1101T1	CONNECTOR	[M]GC,GT
CN606	RJS1A1101T1	CONNECTOR	[M]
CN607	RJS1A1101T1	CONNECTOR	[M]
CN608	RJS1A1101T1	CONNECTOR	[M]
CN609	RJS1A1101T1	CONNECTOR	[M]
CN610	RJS1A1101T1	CONNECTOR	[M]
CN801	RJR0113	4P CONNECTOR	[M]
CN851	RJR0113	4P CONNECTOR	[M]
CP1	RJP3G17ZA	3P CONNECTOR	[M]
CP301	RJT057W010-1	CONNECTOR	[M]
CP501	RJT029W03VT	2.5MM CONNECTOR	[M]
CP802	RJT071H09A	9P B-B PIN	[M]
CP851	RJT071H09A	9P B-B PIN	[M]
CS951	RJU071H09M	CONNECTOR(9P)	[M]
CS971	RJU071H09M	CONNECTOR(9P)	[M]
		COILS & TRANSFORMERS	
L1	RLQX303JT-K	INDUCTOR	[M]
L2	RLQX303JT-K	INDUCTOR	[M]
L301	SL09B1-Z	COIL	[M]
L302	SL09B1-Z	COIL	[M]
L303	SL09B4-K	COIL	[M]
L701	RLQZP100KT-Y	AXIAL COIL	[M]
T601	RTP1K4B026-V	POWER TRANSFORMER	[M]GN⚠

Ref No.	Part No.	Part Name & Description	Remarks
T601	RTP1K4E032-V	POWER TRANSFORMER⚠	[M]GC,GT
		COMPONENT COMBINATION	
Z501	EF0EC6004T4	CERAMIC OSCILLATOR	[M]
Z701	RCDGP1U28XD	REMOTE SENSOR	[M]
Z801	EXBF7L355SYV	RADIAL RESISTOR	[M]
Z851	EXBF6L306SYV	BLOCK RESISTOR	[M]
Z971	EXBF7L355SYV	COMPONENT COMBINATION	[M]
		DISPLAY TUBE	
FL701	RSL0221-F	FL DISPLAY	[M]
		JACKS	
JK1	SJF3069-5N	LINE IN JACK	[M]
JK601	SJS9236	SOCKET	[M]⚠
		EARTH TERMINAL	
E1	SNE1004-2	EARTH TERMINAL	[M]
		PACKING MATERIALS	
P1	RPG3338	PACKING BLOCK	[M]GC,GN
P1	RPG3590	PACKING BLOCK	[M]GT
P2	RPN0664-1	POLYFOAM	[M]
P3	RPQ0164	ACCESSORY PAD	[M]
P4	RPFX0005	MIRAMAT BAG	[M]
		ACCESSORIES	
A1	RJA0019-2A	AC CORD (SF)⚠	[M]GC,GT
A1	RJA0035-K	AC CORD (SF)⚠	[M]GN
A2	RJL2P004B08	STEREO CONN CABLE	[M]
A3	XZB24X33C04	VINYL BAG	[M]
A4	RFKSTR272GCK	INSTR MANUAL ASS'Y	[M]GC
A4	RQT3812-G	INSTR MANUAL	[M]GN,GT
A5	SJP5213-2	AC CORD ADAPTOR	[M]GC,GT

■ Resistors & Capacitors

Notes : * Important safety notice:
Components identified by ⚠ mark have special characteristics important for safety.
Furthermore, special parts which have purposes of fire-retardant (resistors), high-quality sound (capacitors), low-noise (resistors),etc. are used.
When replacing any of components, be sure to use only manufacturer's specified parts shown in the parts list.
* Capacitor values are in microfarad (μF) unless specified otherwise, P=Pico-farads (pF) F=Farads (F)
* Resistors values are in ohms, unless specified otherwise, 1k=1,000(OHM), 1M=1,000k(OHM)

Ref No.	Part No.	Values & Remarks
	RESISTORS	
R5	ERJ6GEYJ225V	2.2M 1/10W [M]
R6	ERJ6GEYJ225V	2.2M 1/10W [M]
R7	ERJ6GEYJ225V	2.2M 1/10W [M]
R9	ERJ6GEYJ101V	100 1/10W [M]
R10	ERJ6GEYJ101V	100 1/10W [M]
R11	ERJ6GEYJ101V	100 1/10W [M]
R12	ERJ6GEYJ101V	100 1/10W [M]
R13	ERJ6GEYJ470V	47 1/10W [M]
R14	ERJ6GEYJ470V	47 1/10W [M]
R15	ERJ6GEYJ394V	390K 1/10W [M]
R16	ERJ6GEYJ394V	390K 1/10W [M]
R17	ERJ6GEYJ122V	1.2K 1/10W [M]
R18	ERJ6GEYJ122V	1.2K 1/10W [M]
R19	ERJ6GEYJ562V	5.6K 1/10W [M]
R20	ERJ6GEYJ562V	5.6K 1/10W [M]
R21	ERJ6GEYJ681V	680 1/10W [M]
R22	ERJ6GEYJ681V	680 1/10W [M]
R23	ERJ6GEYJ122V	1.2K 1/10W [M]
R25	ERJ6GEYJ103V	10K 1/10W [M]
R26	ERJ6GEYJ103V	10K 1/10W [M]
R27	ERJ6GEYJ272V	2.7K 1/10W [M]
R28	ERJ6GEYJ272V	2.7K 1/10W [M]
R31	ERDS2TJ334T	330K 1/4W [M]
R32	ERDS2TJ334T	330K 1/4W [M]
R33	ERDS2TJ563T	56K 1/4W [M]
R34	ERDS2TJ563T	56K 1/4W [M]
R35	ERDS2TJ152T	1.5K 1/4W [M]
R36	ERDS2TJ152T	1.5K 1/4W [M]
R37	ERDS2TJ222T	2.2K 1/4W [M]
R38	ERDS2TJ222T	2.2K 1/4W [M]
R39	ERDS2TJ561T	560 1/4W [M]
R40	ERDS2TJ561T	560 1/4W [M]
R45	ERJ6GEYJ122V	1.2K 1/10W [M]
R47	ERDS2TJ103T	10K 1/4W [M]
R48	ERDS2TJ103T	10K 1/4W [M]
R49	ERDS2TJ103T	10K 1/4W [M]
R50	ERDS2TJ103T	10K 1/4W [M]
R53	ERDS2TJ152T	1.5K 1/4W [M]
R54	ERDS2TJ152T	1.5K 1/4W [M]
R55	ERDS2TJ104T	100K 1/4W [M]
R56	ERDS2TJ104T	100K 1/4W [M]
R59	ERDS2TJ103T	10K 1/4W [M]
R60	ERDS2TJ103T	10K 1/4W [M]
R63	ERJ6GEYJ223V	22K 1/10W [M]
R64	ERJ6GEYJ223V	22K 1/10W [M]
R67	ERDS2TJ472T	4.7K 1/4W [M]
R68	ERDS2TJ472T	4.7K 1/4W [M]
R72	ERDS2TJ222T	2.2K 1/4W [M]
R73	ERDS2TJ225T	2.2M 1/4W [M]
R74	ERDS2TJ221T	220 1/4W [M]
R75	ERDS2TJ331T	330 1/4W [M]
R76	ERDS2TJ331T	330 1/4W [M]
R81	ERJ6GEYJ225V	2.2M 1/10W [M]
R82	ERJ6GEYJ225V	2.2M 1/10W [M]
R321	ERJ6GEYJ1R0V	1 1/10W [M]
R322	ERJ6GEYJ183V	18K 1/10W [M]
R323	ERJ6GEYJ183V	18K 1/10W [M]
R324	ERJ6GEYJ100V	10 1/10W [M]
R325	ERJ6GEYJ100V	10 1/10W [M]
R326	ERJ6GEYJ122V	1.2K 1/10W [M]
R327	ERJ6GEYJ102V	1K 1/10W [M]
R328	ERJ6GEYJ561V	560 1/10W [M]
R329	ERJ6GEYJ393V	39K 1/10W [M]
R330	ERJ6GEYJ272V	2.7K 1/10W [M]
R331	ERJ6GEYJ682V	6.8K 1/10W [M]
R332	ERJ6GEYJ102V	1K 1/10W [M]
R333	ERJ6GEYJ103V	10K 1/10W [M]
R334	ERJ6GEYJ332V	3.3K 1/10W [M]
R335	ERJ6GEYJ332V	3.3K 1/10W [M]
R336	ERJ6GEYJ332V	3.3K 1/10W [M]
R341	ERJ6GEYJ153V	15K 1/10W [M]
R342	ERJ6GEYJ153V	15K 1/10W [M]
R343	ERJ6GEYJ103V	10K 1/10W [M]
R344	ERJ6GEYJ103V	10K 1/10W [M]
R345	ERJ6GEYJ154V	150K 1/10W [M]
R346	ERJ6GEYJ154V	150K 1/10W [M]
R347	ERJ6GEYJ100V	10 1/10W [M]
R348	ERJ6GEYJ100V	10 1/10W [M]
R349	ERJ6GEYJ471V	470 1/10W [M]
R381	ERJ6GEYJ100V	10 1/10W [M]
R382	ERJ6GEYJ221V	220 1/10W [M]
R383	ERJ6GEYJ5R6V	5.6 1/10W [M]
R384	ERJ6GEYJ153V	15K 1/10W [M]
R385	ERJ6GEYJ101V	100 1/10W [M]
R401	ERJ6GEYJ103V	10K 1/10W [M]
R402	ERJ6GEYJ103V	10K 1/10W [M]
R406	ERD2FCVG270T ⚠	27 1/4W [M]
R407	ERD2FCVG180T ⚠	18 1/4W [M]
R421	ERJ6GEYJ105V	1M 1/10W [M]
R422	ERJ6GEYJ123V	12K 1/10W [M]
R423	ERJ6GEYJ223V	22K 1/10W [M]
R431	ERJ6GEYJ222V	2.2K 1/10W [M]
R434	ERJ6GEYJ272V	2.7K 1/10W [M]
R436	ERJ6GEYJ473V	47K 1/10W [M]
R437	ERJ6GEYJ272V	2.7K 1/10W [M]
R460	ERJ6GEYJ472V	4.7K 1/10W [M]
R461	ERJ6GEYJ472V	4.7K 1/10W [M]
R501	ERDS2TJ473T	47K 1/4W [M]
R502	ERDS2TJ473T	47K 1/4W [M]
R503	ERDS2TJ473T	47K 1/4W [M]
R504	ERDS2TJ473T	47K 1/4W [M]
R505	ERDS2TJ103T	10K 1/4W [M]
R506	ERDS2TJ103T	10K 1/4W [M]
R511	ERDS2TJ103T	10K 1/4W [M]
R512	ERDS2TJ471T	470 1/4W [M]
R513	ERDS2TJ103T	10K 1/4W [M]
R514	ERDS2TJ223T	22K 1/4W [M]
R515	ERDS2TJ223T	22K 1/4W [M]
R516	ERDS2TJ472T	4.7K 1/4W [M]
R517	ERDS2TJ223T	22K 1/4W [M]
R526	ERDS2TJ331T	330 1/4W [M]
R527	ERDS2TJ331T	330 1/4W [M]
R555	ERDS2TJ103T	10K 1/4W [M]
R556	ERDS2TJ223T	22K 1/4W [M]
R557	ERDS2TJ223T	22K 1/4W [M]
R558	ERDS2TJ223T	22K 1/4W [M]
R559	ERDS2TJ822T	8.2K 1/4W [M]
R562	ERDS2TJ103T	10K 1/4W [M]
R571	ERDS2TJ223T	22K 1/4W [M]
R572	ERDS2TJ223T	22K 1/4W [M]
R573	ERDS2TJ223T	22K 1/4W [M]
R574	ERDS2TJ223T	22K 1/4W [M]
R601	ERDS2TJ472T	4.7K 1/4W [M]
R602	ERDS2TJ472T	4.7K 1/4W [M]
R607	ERDS2TJ472T	4.7K 1/4W [M]
R608	ERDS2TJ103T	10K 1/4W [M]
R609	ERD2FCVG150T ⚠	15 1/4W [M]
R610	ERDS2TJ472T	4.7K 1/4W [M]
R611	ERDS2TJ104T	100K 1/4W [M]
R612	ERD2FCVG150T ⚠	15 1/4W [M]
R613	ERDS2TJ101T	100 1/4W [M]
R614	ERDS2TJ471T	470 1/4W [M]
R615	ERDS2TJ471T	470 1/4W [M]
R616	ERDS2TJ101T	100 1/4W [M]
R617	ERDS2TJ102T	1K 1/4W [M]
R620	ERDS2TJ101T	100 1/4W [M]
R621	ERDS2TJ222T	2.2K 1/4W [M]
R622	ERD2FCVG150T ⚠	15 1/4W [M]
R623	ERDS2TJ101T	100 1/4W [M]
R625	ERD2FCVG150T ⚠	15 1/4W [M]
R626	ERDS2TJ101T	100 1/4W [M]
R627	ERDS2TJ103T	10K 1/4W [M]
R630	ERDS2TJ2R7T	2.7 1/4W [M]
R631	ERDS2TJ102T	1K 1/4W [M]
R632	ERDS2TJ101T	100 1/4W [M]
R637	ERD2FCVG150T ⚠	15 1/4W [M]
R639	ERD2FCVG330T ⚠	33 1/4W [M]
R641	ERDS2TJ2R2T	2.2 1/4W [M]
R642	ERDS2TJ2R2T	2.2 1/4W [M]
R643	ERDS2TJ2R2T	2.2 1/4W [M]
R644	ERDS2TJ2R2T	2.2 1/4W [M]
R701	ERDS2TJ102T	1K 1/4W [M]
R702	ERDS2TJ103T	10K 1/4W [M]
R703	ERDS2TJ181T	180 1/4W [M]
R711	ERDS2TJ821T	820 1/4W [M]
R712	ERDS2TJ102T	1K 1/4W [M]
R713	ERDS2TJ122T	1.2K 1/4W [M]
R714	ERDS2TJ152T	1.5K 1/4W [M]
R715	ERDS2TJ182T	1.8K 1/4W [M]
R716	ERDS2TJ222T	2.2K 1/4W [M]
R717	ERDS2TJ332T	3.3K 1/4W [M]
R725	ERDS2TJ821T	820 1/4W [M]
R726	ERDS2TJ102T	1K 1/4W [M]
R727	ERDS2TJ122T	1.2K 1/4W [M]
R728	ERDS2TJ152T	1.5K 1/4W [M]
R729	ERDS2TJ182T	1.8K 1/4W [M]

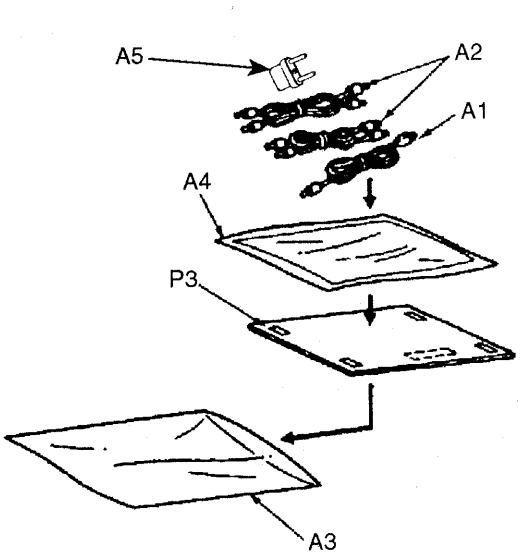
Ref No.	Part No.	Values & Remarks
R730	ERDS2TJ222T	2.2K 1/4W [M]
R731	ERDS2TJ332T	3.3K 1/4W [M]
R803	ERDS2TJ184T	180K 1/4W [M]
R804	ERDS2TJ123T	12K 1/4W [M]
R805	ERDS2TJ392T	3.9K 1/4W [M]
R806	ERDS2TJ103T	10K 1/4W [M]
R811	ERDS2TJ223T	22K 1/4W [M]
R812	ERDS2TJ102T	1K 1/4W [M]
R813	ERDS2TJ223T	22K 1/4W [M]
R814	ERDS2TJ102T	1K 1/4W [M]
R815	ERDS2TJ104T	100K 1/4W [M]
R816	ERDS2TJ563T	56K 1/4W [M]
R817	ERDS2TJ470T	47 1/4W [M]
R853	ERJ6GEYJ184V	180K 1/10W[M]
R854	ERJ6GEYJ153V	15K 1/10W[M]
R855	ERJ6GEYJ392V	3.9K 1/10W[M]
R856	ERJ6GEYJ103V	10K 1/10W[M]
R861	ERDS2TJ223T	22K 1/4W [M]
R862	ERDS2TJ102T	1K 1/4W [M]
R863	ERDS2TJ223T	22K 1/4W [M]
R864	ERDS2TJ102T	1K 1/4W [M]
R865	ERDS2TJ470T	47 1/4W [M]
R865	ERJ6GEYJ104V	100K 1/10W[M]
R866	ERDS2TJ221T	220 1/4W [M]
R867	ERJ6GEYJ563V	56K 1/10W[M]
R868	ERJ6GEYJ470V	47 1/10W[M]
R952	ERDS2TJ821	1/4W 820 [M]
R953	ERDS2TJ393	1/4W 39K [M]
R972	ERDS2TJ821	1/4W 820 [M]
R973	ERDS2TJ393	1/4W 39K [M]
	CAPACITORS	
C1	ECUV1H471KBN	470P 50V[M]
C2	ECUV1H471KBN	470P 50V[M]
C3	ECUV1H561KBN	560P 50V[M]
C4	ECUV1H561KBN	560P 50V[M]
C5	ECUV1H102KBN	1000P 50V[M]
C6	ECUV1H102KBN	1000P 50V[M]
C7	ECUV1E104ZFN	0.1 25V[M]
C8	ECUV1E104ZFN	0.1 25V[M]
C9	ECEA0GKS221I	220 4V [M]
C10	ECEA0GKS221I	220 4V [M]
C13	ECUV1H822KBN	8200P 50V[M]
C14	ECUV1H822KBN	8200P 50V[M]
C15	ECUV1H682KBN	6800P 50V[M]
C16	ECUV1H682KBN	6800P 50V[M]
C17	ECEA1CKS100I	10 16V[M]

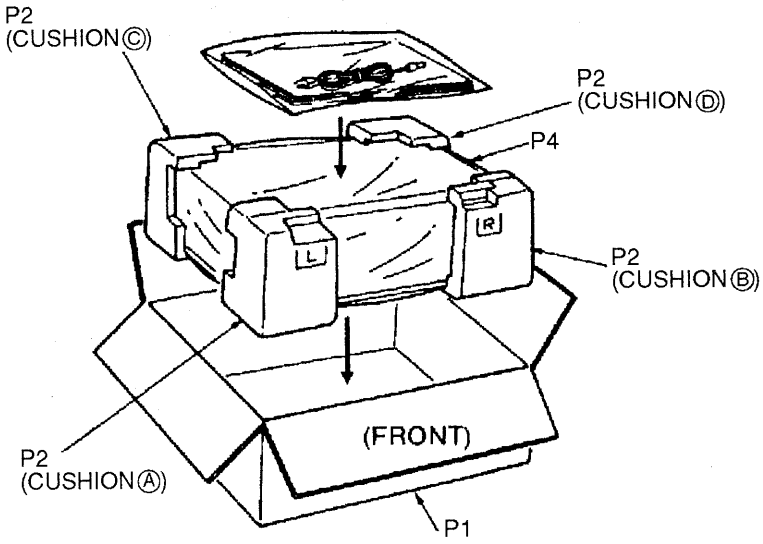
Ref No.	Part No.	Values & Remarks
C18	ECEA1CKS100I	10 16V[M]
C19	ECUV1C474KBM	0.47 16V[M]
C20	ECUV1C474KBM	0.47 16V[M]
C21	ECEA1ASN100I	10 10V[M]
C22	ECEA1ASN100I	10 10V[M]
C23	ECEA1CKS100I	10 16V[M]
C24	ECEA1CKS100I	10 16V[M]
C25	ECKR2H121KB5	120P 500V[M]
C26	ECKR2H121KB5	120P 500V[M]
C27	ECUV1H561KBN	560P 50V[M]
C28	ECUV1H561KBN	560P 50V[M]
C29	ECUV1E104ZFN	0.1 25V[M]
C30	ECUV1E104ZFN	0.1 25V[M]
C31	ECEA1HKA010B	1 50V[M]
C32	ECEA1HKA010B	1 50V[M]
C33	ECEA1CKA100B	10 16V[M]
C34	ECEA1CKA100B	10 16V[M]
C37	ECBT1H150J5	15P 50V[M]
C38	ECBT1E103ZF5	0.01 25V[M]
C39	ECBT1H150J5	15P 50V[M]
C41	ECBT1E103ZF5	0.01 25V[M]
C44	ECUV1H121KCN	120P 50V[M]
C45	ECUV1H121KCN	120P 50V[M]
C46	ECUV1H332KBN	3300P 50V[M]
C47	ECUV1H332KBN	3300P 50V[M]
C51	ECEA1CKA100B	10 16V[M]
C52	ECEA1CKA100B	10 16V[M]
C53	ECEA1AKA330B	33 10V[M]
C54	ECBT1E103ZF5	0.01 25V[M]
C55	ECUV1H103ZFN	0.01 50V[M]
C61	ECUV1H122KBN	1200P 50V[M]
C62	ECUV1H122KBN	1200P 50V[M]
C63	ECBT1C332KR5	3300P 16V[M]
C64	ECBT1C332KR5	3300P 16V[M]
C65	ECBT1H104ZF5	0.1 50V[M]
C80	ECBT1H104ZF5	0.1 50V[M]
C81	ECUV1H102KBN	1000P 50V[M]
C82	ECUV1H102KBN	1000P 50V[M]
C164	ECBT1E103ZF5	0.01 25V[M]
C303	ECQP2A153JZ	0.015 100V[M]
C304	ECUV1H392KBN	3900P 50V[M]
C305	ECUV1H222KBN	2200P 50V[M]
C306	ECUV1H682KBN	6800P 50V[M]
C307	ECUV1H222KBN	2200P 50V[M]
C308	ECEA1CKS100I	10 16V[M]
C309	ECUV1H103ZFN	0.01 50V[M]
C310	ECUV1H103ZFN	0.01 50V[M]
C311	ECUV1E104ZFN	0.1 25V[M]

Ref No.	Part No.	Values & Remarks
C312	ECUV1E104ZFN	0.1 25V[M]
C341	ECUV1H122KBN	1200P 50V[M]
C342	ECUV1H122KBN	1200P 50V[M]
C343	ECUV1H103KBN	0.01 50V[M]
C344	ECUV1H103KBN	0.01 50V[M]
C345	ECUV1E473KBN	0.047 25V[M]
C346	ECUV1E473KBN	0.047 25V[M]
C347	ECUV1H121KCN	120P 50V[M]
C348	ECUV1H121KCN	120P 50V[M]
C349	ECKR2H821KB5	820P 500V[M]
C350	ECKR2H821KB5	820P 500V[M]
C351	ECUV1E473ZFN	0.047 25V[M]
C352	ECUV1E473ZFN	0.047 25V[M]
C353	ECUV1H220KCN	22P 50V[M]
C354	ECUV1H220KCN	22P 50V[M]
C355	ECUV1H103ZFN	0.01 50V[M]
C356	ECEA1AKS470I	47 10V[M]
C357	ECUV1E473ZFN	0.047 25V[M]
C358	ECUV1E473ZFN	0.047 25V[M]
C360	ECUV1E223KBN	0.022 25V[M]
C361	ECUV1E223KBN	0.022 25V[M]
C362	ECEA1CKA100B	10 16V[M]
C401	ECEA1CKS100I	10 16V[M]
C402	ECEA1CKS100I	10 16V[M]
C403	ECUV1H182KBN	1800P 50V[M]
C404	ECUV1H182KBN	1800P 50V[M]
C405	ECUV1C474KBM	0.47 16V[M]
C406	ECUV1C474KBM	0.47 16V[M]
C407	ECUV1H152KBN	1500P 50V[M]
C408	ECUV1H152KBN	1500P 50V[M]
C409	ECUV1C474KBM	0.47 16V[M]
C410	ECUV1C474KBM	0.47 16V[M]
C411	ECEA1HKS2R2I	2.2 50V[M]
C412	ECEA1HKS2R2I	2.2 50V[M]
C413	ECUV1C474KBM	0.47 16V[M]
C414	ECUV1E104ZFN	0.1 25V[M]
C415	ECUV1H272KBN	2700P 50V[M]
C416	ECUV1H392KBN	3900P 50V[M]
C417	ECUV1E104ZFN	0.1 25V[M]
C418	ECUV1C105ZFN	10 16V[M]
C419	ECEA1CKS100I	10 16V[M]
C420	ECEA1CKS100I	10 16V[M]
C421	ECEA1HKS010I	1 50V[M]
C422	ECEA1CKS100I	10 16V[M]
C423	ECA1AM102B	1000P 10V[M]
C424	ECA1AM102B	1000P 10V[M]
C431	ECUV1C474ZFN	0.47 16V[M]
C432	ECUV1H152KBN	1500P 50V[M]

Ref No.	Part No.	Values & Remarks
C450	ECUV1H101KCN	100P 50V[M]
C451	ECUV1H101KCN	100P 50V[M]
C452	ECUV1H101KCN	100P 50V[M]
C461	ECUV1C225ZFN	22 16V[M]
C501	ECEA1HKA010B	1 50V[M]
C502	ECEA1EKA4R7B	4.7 25V[M]
C504	ECEA1CKA100B	10 16V[M]
C505	ECEA1CKA100B	10 16V[M]
C601	ECEA1EU222B ⚠	2200 25V[M]
C602	ECA1EM221B	220 25V[M]
C603	ECKR2H682PE	6800P 500V[M]
C604	ECA1EM102B ⚠	1000P 25V[M]
C605	ECA1EM102B ⚠	1000P 25V[M]
C606	RCE1HM221BV ⚠	220 50V[M]
C607	ECBT1E103ZF5	0.01 25V[M]
C608	ECBT1E103ZF5	0.01 25V[M]
C609	ECEA1AKA221Q	220 10V[M]
C610	ECA1AM471B	470P 10V[M]
C611	ECBT1E103ZF5	0.01 25V[M]
C612	ECBT1E103ZF5	0.01 25V[M]
C613	ECA0JM102B	1000P 6.3V[M]
C614	ECBT1E103ZF5	0.01 25V[M]
C615	ECBT1E103ZF5	0.01 25V[M]
C616	ECEA1AKA101B	100 10V[M]
C701	ECEA1CKA100B	10 16V[M]
C802	ECBT1E223ZF5	0.022 25V[M]
C851	ECBT1E103ZF5	0.01 25V[M]
C852	ECUV1H103ZFN	0.01 50V[M]

■ Packaging (Refer to page 36 for the Parts List.)





<CUSHION Ⓐ,Ⓑ,©,Ⓓ, Part No. : RPN0664-1>

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