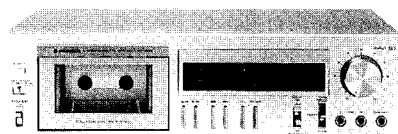


Service Manual

PIONEER



**ORDER NO.
ART-573-0**

CASSETTE TAPE DECK

CT-F555

MODEL CT-F555 COMES IN THREE VERSIONS DISTINGUISHED AS FOLLOWS:

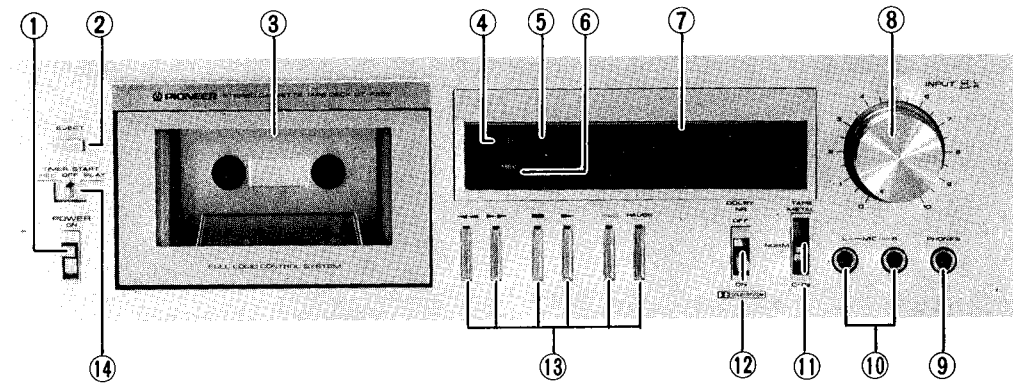
Type	Voltage	Remarks
KC	120V only	Canada model
KU	120V only	U.S.A model
D	120V, 220V and 240V (switchable)	General export model

- This service manual is applicable to the CT-F555/KC, KU and D types.

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2. FRONT PANEL FACILITIES



CAUTION
Push the ■ (Stop) switch before inserting a cassette. Forcible insertion can cause trouble. (E.g. during the playback)

① POWER SWITCH

Set this switch to ON to supply power to the tape deck.

- For about 4 seconds after the power has been switched on, the operating switches will not work even when depressed.

② EJECT SWITCH

When this switch is depressed, the cassette holder is jumped out.

③ CASSETTE HOLDER

④ TAPE COUNTER

⑤ COUNTER RESET BUTTON

Use this switch to reset the tape counter to "000".

⑥ REC (RECORDING) INDICATOR

⑦ LEVEL METERS

These indicate the input level during recording and the output level during playback.

⑧ INPUT (RECORDING LEVEL) CONTROLS

Use these to adjust the level of the input signals from the MIC jacks or rear panel Input cords. Turning these controls to the right increases the level. The controls are coupled to the left and right channels, but you can use them to adjust the right channel (back) and the left channel (front) independently by rotating the appropriate control and holding the other in position.

⑨ HEADPHONES JACK

This is the output jack for stereo headphones. Plug your headphones into this jack when you want to listen to a tape privately.

NOTES:

- Use low-impedance headphones. If you use a high-impedance model, you will not be able to obtain sufficient volume.
- Do not connect a microphone to this jack as the microphone may be damaged.

⑩ MIC JACKS

These are the input jacks for microphone recording. Plug the left channel microphone into the L jack and the right channel microphone into the R jack.

⑪ TAPE SELECTOR SWITCH

This selector allows the bias and equalizer characteristics to be selected during recording and the equalizer characteristics during playback in line with the type of tape you are using.

METAL position: For using metal tapes

NORM position: For using normal or LH tapes

CrO₂ position: For using chrome tapes

⑫ DOLBY* NR SWITCH

Set this switch to ON for recording with the built-in Dolby noise reduction system and for playback of tapes which have been recorded using the Dolby NR system.

*The word "Dolby" and  are trademark of Dolby Laboratories Licensing Corporation.

⑬ OPERATING SWITCHES

◀◀(REW): Depress this switch to rewind the tape at high speed. (The tape will travel from right to left.)

▶▶(FF): Depress this switch to send the tape forward at high speed. (The tape will travel from left to right.)

■ (Stop): Depress this switch to stop the tape run and to release the operating mode.

▶ (Play): Depress this switch when playing back a tape. (The tape will travel from left to right.)

REC: Depress this switch together with the ▶ (Play) switch for recording. This switch will not work when a cassette is not loaded or when the erasure prevention tabs of a loaded cassette have been broken off.

PAUSE: Depress this switch to stop the tape temporarily during recording or playback. Depress ▶ (Play) switch to allow the tape to continue to travel.

NOTES:

- If the POWER switch is set to the OFF position while the deck is operating (in any mode), all the operating mode will be released (shutdown mode).
- Do not depress the ◀◀ (REW) switch for about 0.3 sec. immediately after you have depressed the ▶ (Play) switch but wait until the head rises. Otherwise, a malfunction may occur.

⑭ TIMER START SWITCH

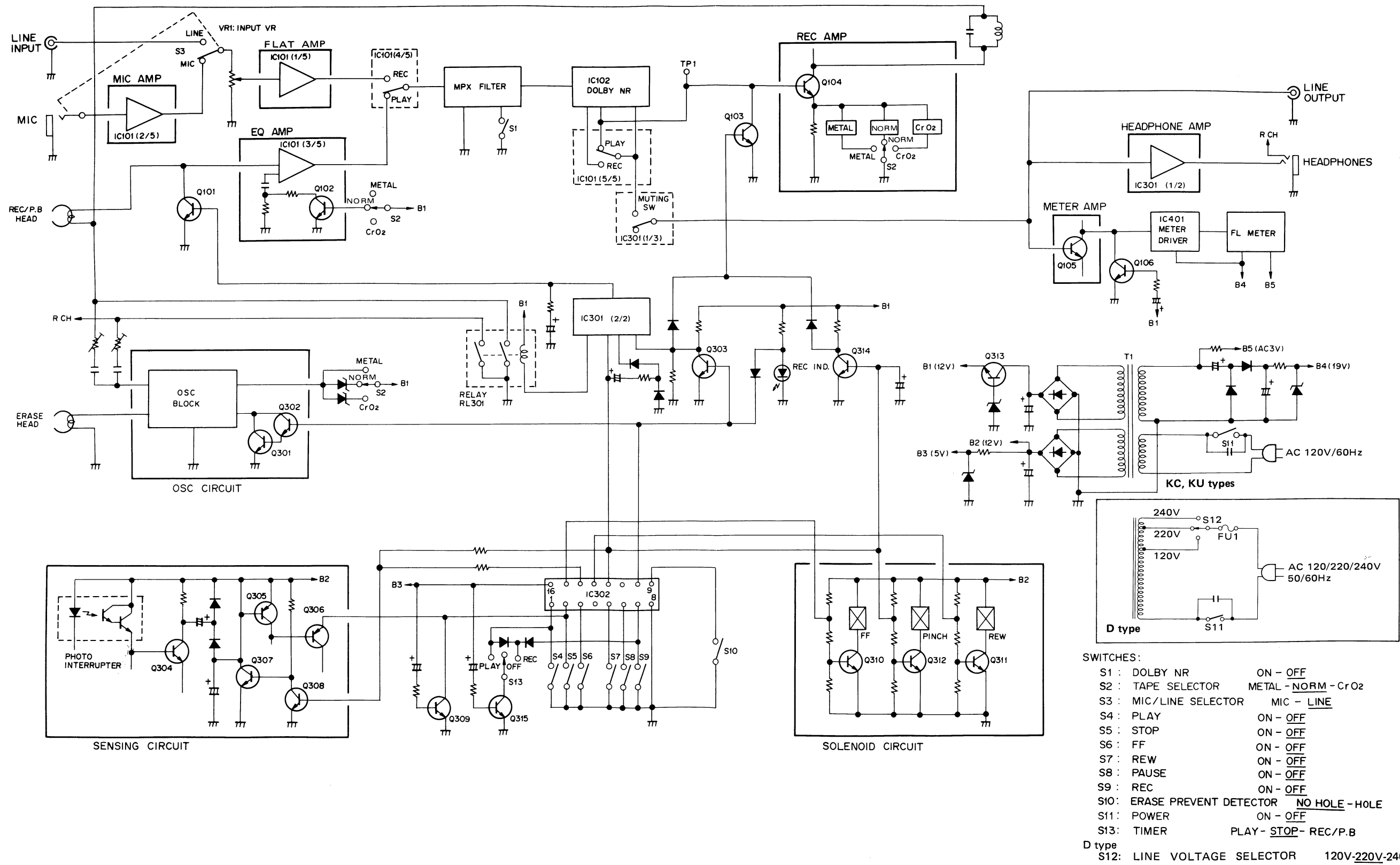
This is used when the timer is employed along with the deck for unattended recording and wake up playback.

REC: Set to this position to set the deck automatically to the recording mode at the time preset on the timer and to start the recording of programs unattended, for instance.

OFF: Set to this position for normal tape playback and recording.

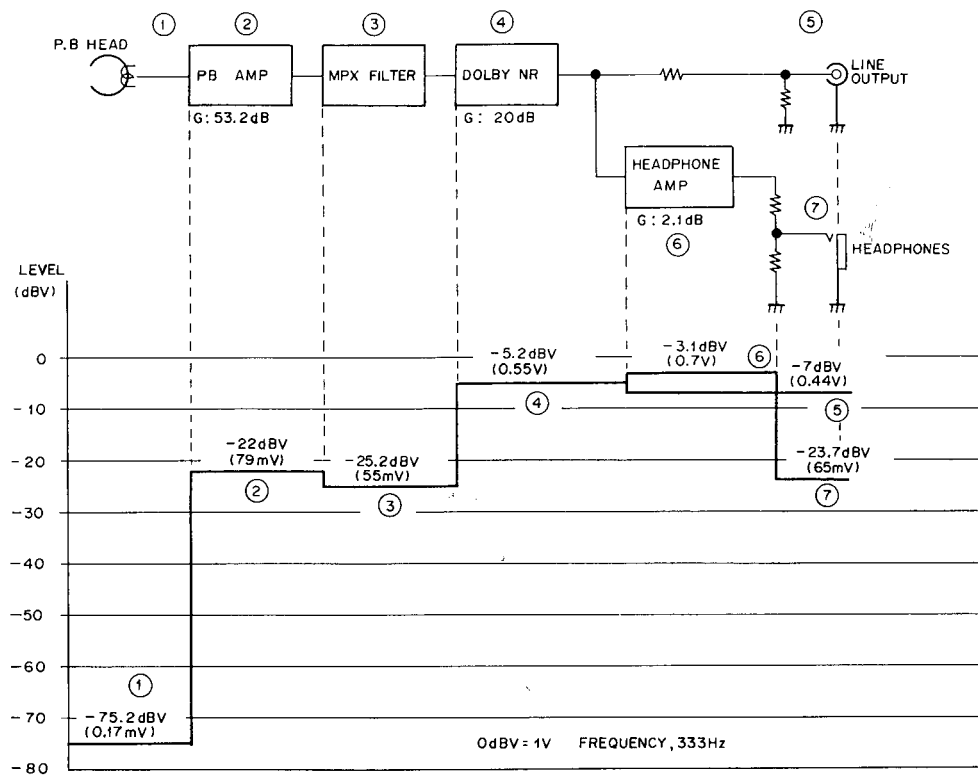
PLAY: Set to this position to set the deck automatically to the playback mode at the time preset on the timer and to start the playback. The tape playback function can be used to wake up in the morning instead of an alarm clock.

3. BLOCK DIAGRAM

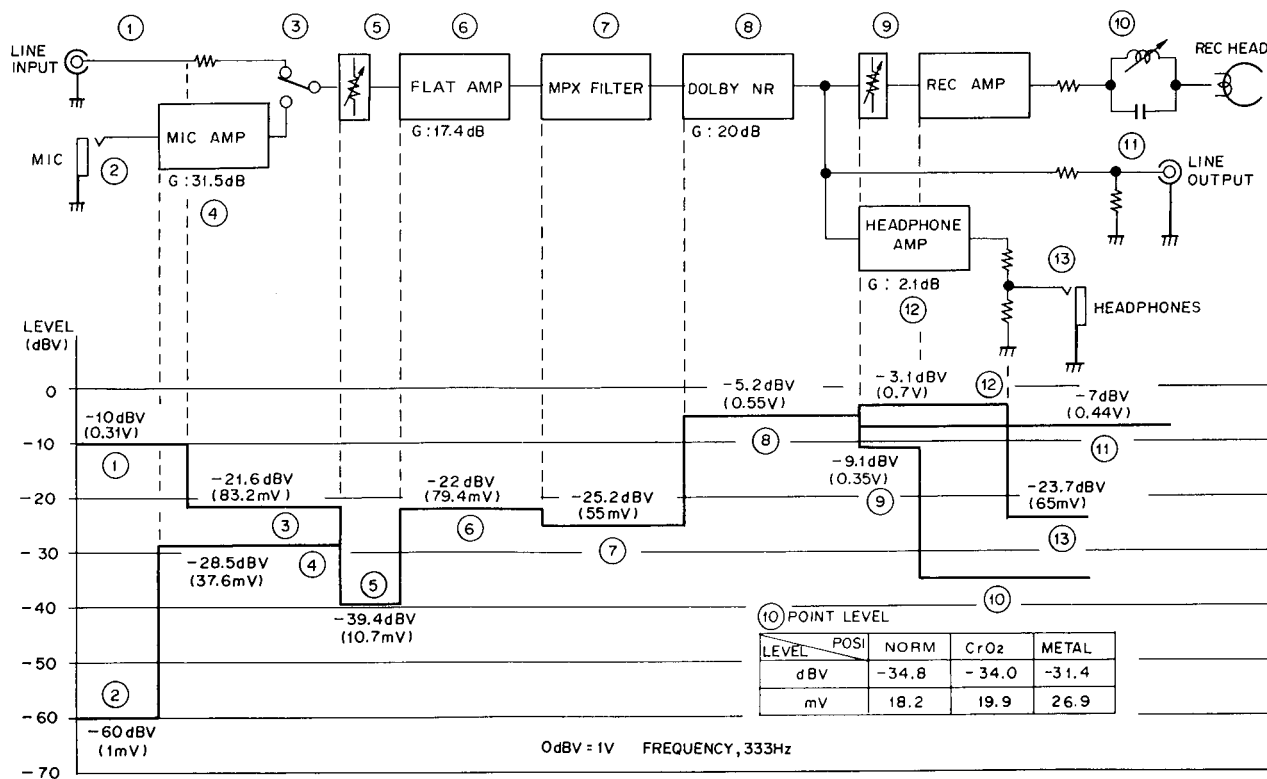


4. LEVEL DIAGRAM

Playback Mode



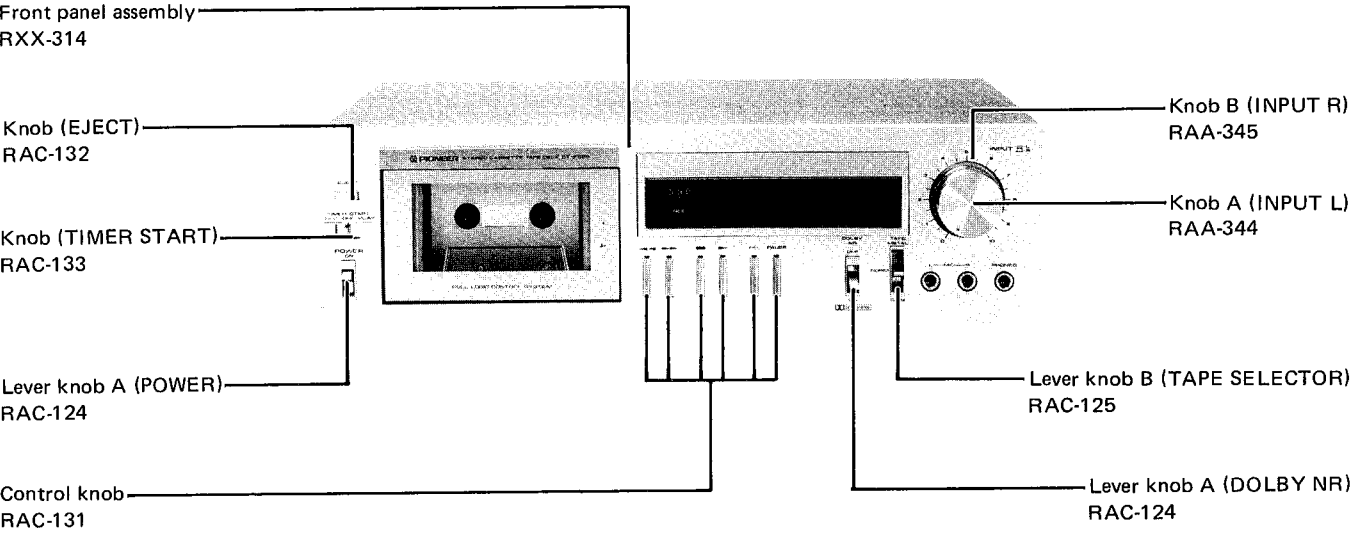
Recording Mode



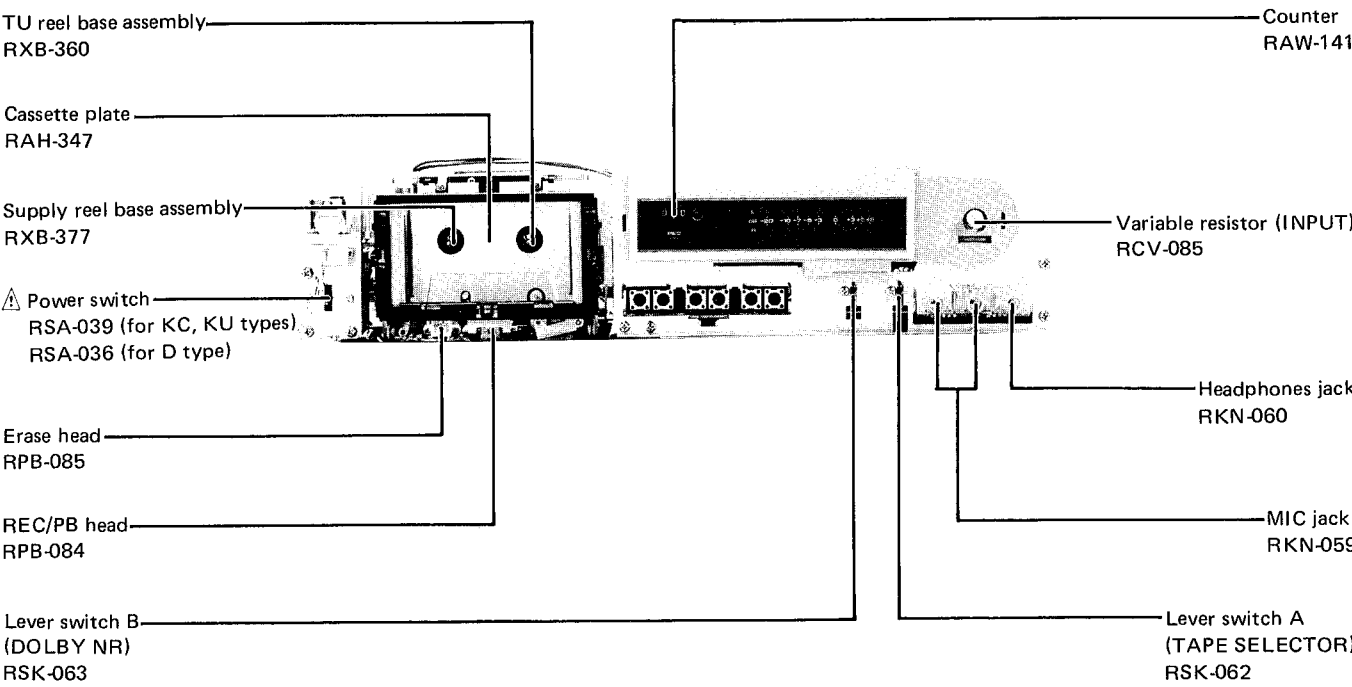
5. PARTS LOCATION

- The ⚠ mark found on some component parts indicates of the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.

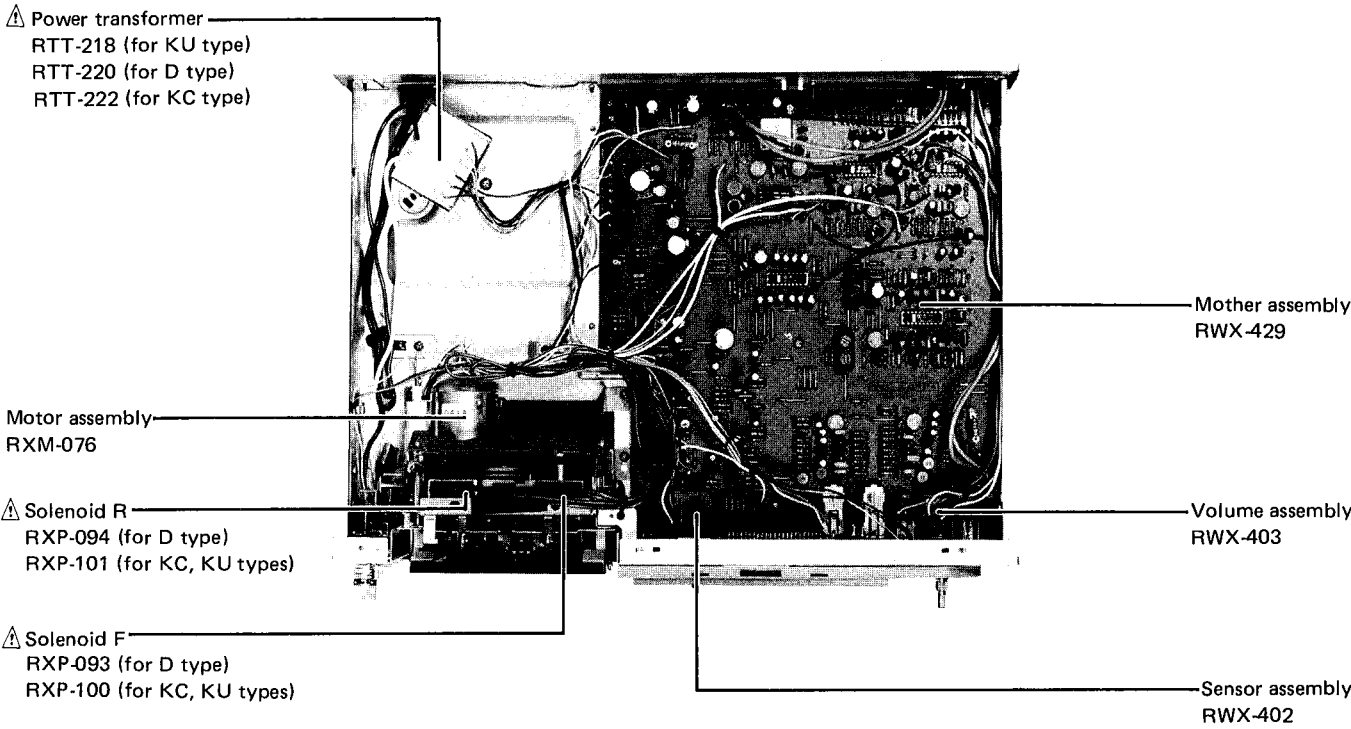
Front Panel View



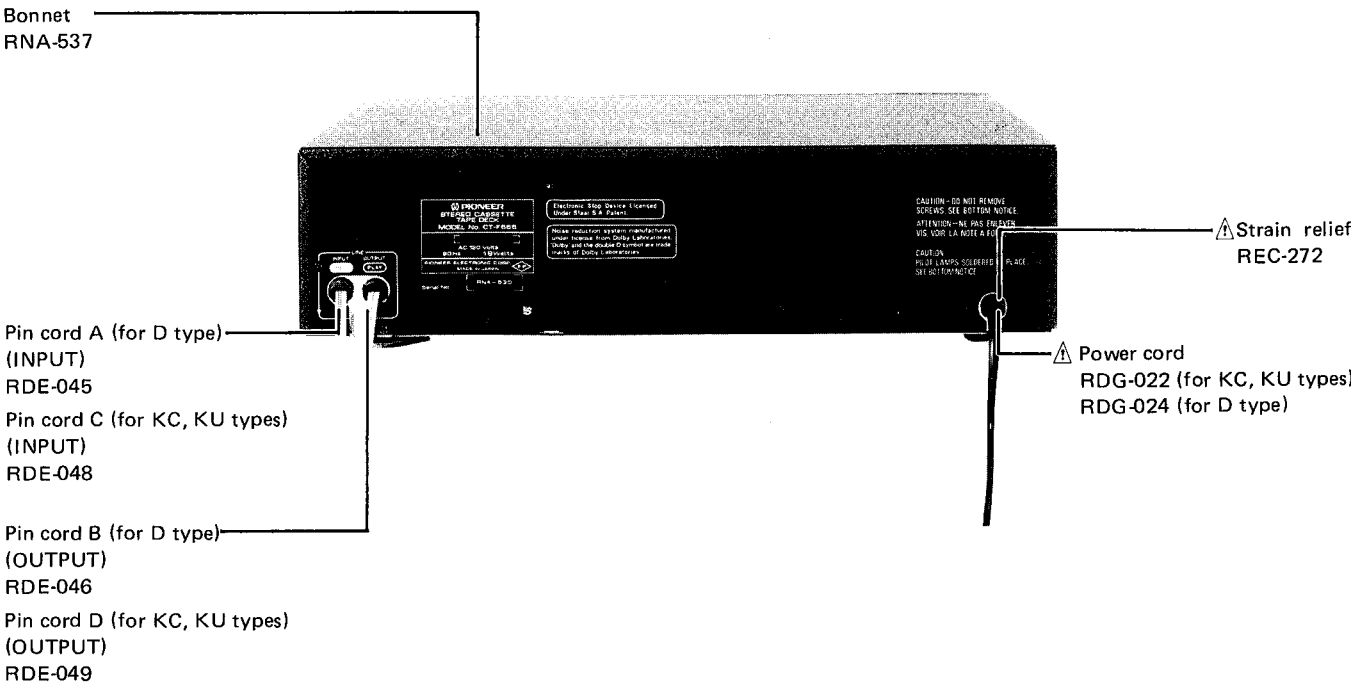
Front View with Front Panel Removed



Top View with Bonnet Removed



Rear Panel View



6. CIRCUIT DESCRIPTIONS

6.1 SIGNAL PATHS

Recording Mode

The signal from MIC is first amplified to the fixed level by the MIC amplifier (HA12005) and then applied via the MIC position of the S3; MIC/ LINE selector (MIC position switched in automatically when microphone plugged into the MIC jack) to the VR1; INPUT level control, flat amplifier (HA12005), MPX filter, and DOLBY NR circuit.

The signal from the LINE INPUT is passed via S3 to the INPUT level control, flat amplifier, MPX filter, and DOLBY NR circuit. After the frequency response has been equalized by the recording amplifier (Q104) equalizer circuit (according to the type of tape being employed), the output signal is applied to the recording head.

Play Mode

The signal from the playback head is first equalized in the playback equalizer amplifier (HA12005) according to the type of tape being employed, and then it is amplified to the fixed level. The output of DOLBY NR is then applied to the LINE OUTPUT via the REC/PB switch (located HA12005) and MUTE switch (located HA12006).

6.2 LEVEL METER CIRCUIT

After the output from the muting amp has been amplified by transistor Q105, it is rectified by D103 and D104. This direct current is supplied to the display driver IC (IC401). There are 12 display comparators within the display driver IC serving to adjust the up-down level by driving each segment. +B is connected to the comparator's negative sides, and sets the standard voltage for them. The standard voltage applied to the comparators is sequentially lowered by the ones with a lower level. The voltage is then compared with the DC rectified by D103 and D104, and when the compared voltage is greater than standard, the segments are lighted.

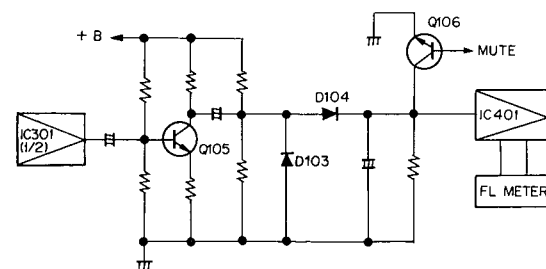


Fig. 6-1 Level meter circuit

6.3 CONTROL CIRCUIT

The control circuit employs IC(BA843) for use in the electronic control of the switching. See Fig. 6-3 and Fig. 6-4 for the corresponding pin arrangement and input/output truth table.

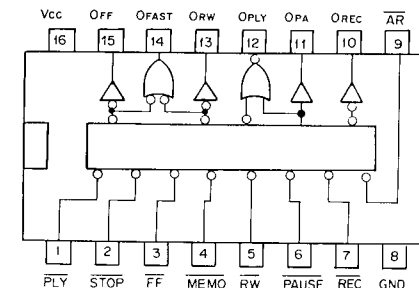


Fig. 6-3 Pin arrangement of BA843

For 3.0 ~ 5.0 seconds after the power has been turned on, Q309 is ON (until charge-amp C322 has completed). Since IC302 (2 pin) is at a LOW level, it is in a STOP status and no key is operable.

Play Operation

1. When play switch S4 is pressed ON, IC302 (12 pin) goes to a high level (hereafter called H level). This causes +B to flow through R343, R344, and Q312, turning Q312 ON.
2. The pinch solenoid (P.S.) is activated starting play operation.

Record Operation

1. Loading a cassette with an erase prevention detector (AR SW S10 is on no hole side), press play switch S4 and record switch S9 simultaneously.
2. IC302 (12 pin) and (10 pin) go to H level, current flows from R319 to Q303 and Q303 comes ON. IC301 (HA12006) (2 pin) goes to a low level (hereafter called L level).

3. As IC301 (2 pin) goes to L level, IC301 (6 pin) and (16 pin) go to H level and the head goes to a record status.
4. At the same time, as was noted earlier, IC302 (10 pin) goes to H level and the bias oscillator comes ON.
5. When a cassette without an erase prevention detector, AR SW is on the hole side, IC302 (9 pin) is shorted to ground causing IC302 (10 pin) not to go to H level, and preventing recording.

FF, REW Operation.

1. Pressing FF switch S6 to ON causes IC302 (15 pin) to go to H level. +B flows through R337, R338, and Q310 and Q310 comes ON.
2. FFS (Fast Forward Solenoid) becomes operative and FF operation begins.
3. Rewind operation is essentially the same as FF.

Pause Operation

When either in the play or record mode, pressing the pause switch S8 to ON causes IC302 (12 pin) to go from an H level to an L level. This causes Q312 to go OFF, releasing the pinch solenoid and temporarily stopping play or record.

Timer Start Operation

- Play operation
1. Turn the timer switch S13 to PLAY, and turn the power on at the timer.
 2. As the power comes on, Q315 comes ON by the charge current from C338, and Q309 by the charge current from C322. (As determined by the time constant circuit C338, R354, and R355, Q315 requires 3-5 seconds; and Q309 requires 3.0 ~ 5.0 seconds as determined by C322, R335, and R336.) IC302 (1 pin) and (2 pin) go to L level.
 3. While IC302 (2 pin) is at L level, IC302 (12 pin) is also at L level.

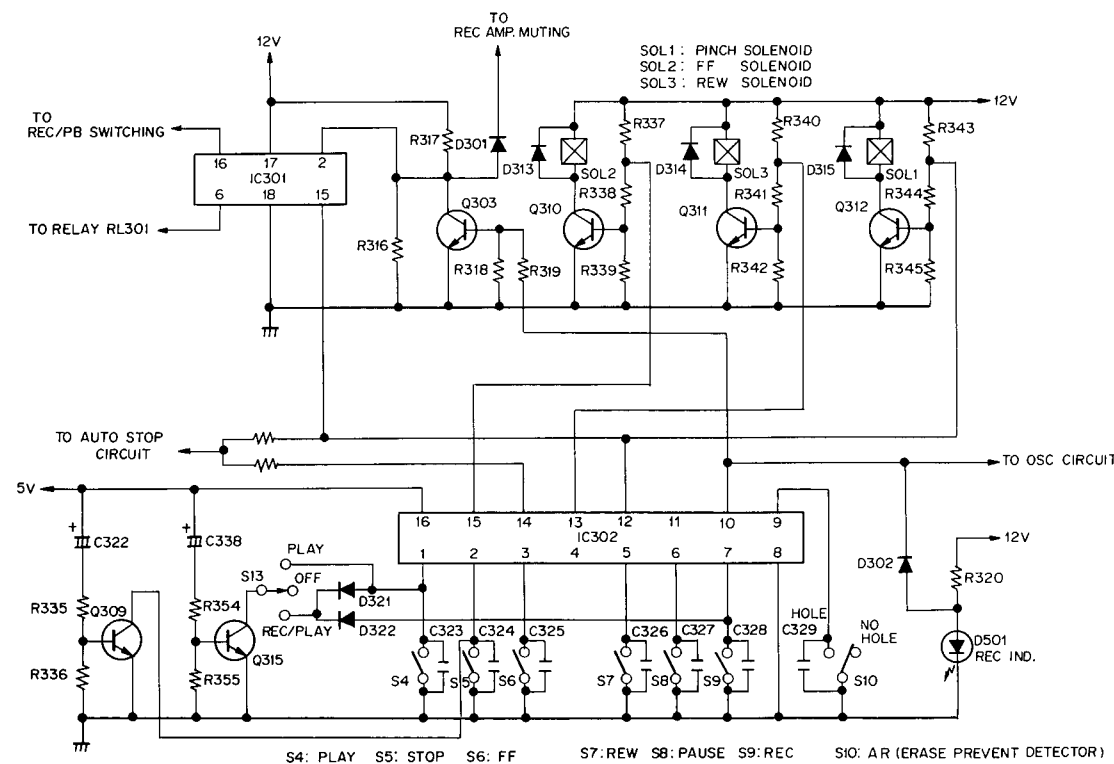


Fig. 6-2 Control circuit

Input signal	Output						Output mode
	0 FAST	0 FF	0-RW	0 REC	0-PAUSE	0-PLAY	
STOP	L	L	L	L	L	L	STOP mode
FF	H	H	L	L	L	L	FF mode
RW	H	L	H	L	L	L	REW mode
PLAY	L	L	L	L	L	H	PLAY mode
PAUSE	L	L	L	L	H	L	PAUSE mode
REC/PLAY	L	L	L	H	L	H	REC/PLAY mode
REC/PAUSE	L	L	L	H	H	L	REC/PAUSE mode

Fig. 6-4 Input/output truth table

4. After C322 has completed charging, Q309 goes OFF and IC302 (2 pin) goes to H level. Since at that time, IC302 (1 pin) is at L level, IC302 (12 pin) will be at H level supplying current to the base of Q312. Q312 goes ON, P.S. is activated, and play operation commences.

■ Record/Play operation

1. Turn the timer switch S13 to REC/PLAY and turn the power ON at the timer. IC302 (1 pin), (2 pin), and (7 pin) will go to L level.
2. While IC302 (2) is at L level, IC302 (10 pin) and (12 pin) is also at L level.
3. After C322 has completed charging up, Q309 goes OFF, and IC302 (2 pin) goes to H level. Since at this time IC302 (1 pin) and (7 pin) are L level, IC302 (10 pin) and (12 pin) are at H level and operation is the same as REC operation.

Auto-stop Circuit

When the tape has reached the end of its travel, the control IC goes into the STOP mode, stopping the mechanism. A photo-interruptor is used as the tape travel sensor. It is connected by belt to the take-up reel and uses fan blades to intercept the path of light.

1. During tape travel, the turning of the fan causes the photo-interruptor to generate a pulse signal. This causes Q304 to cycle ON-OFF and C321 repeats a charge-discharge cycle.
2. When tape travel stops, the signal from the photo-interruptor is lost, and Q304 stops its switching operation. +B charges C321 by route of R326 → R327 → C321. Along with the charging of C321, the potential at the base of Q305 rises and Q305 goes OFF. When Q305 goes OFF, Q306 goes ON, IC302 goes to STOP mode and operation ceases. This circuit is only effective during PLAY, FF and REW operations.

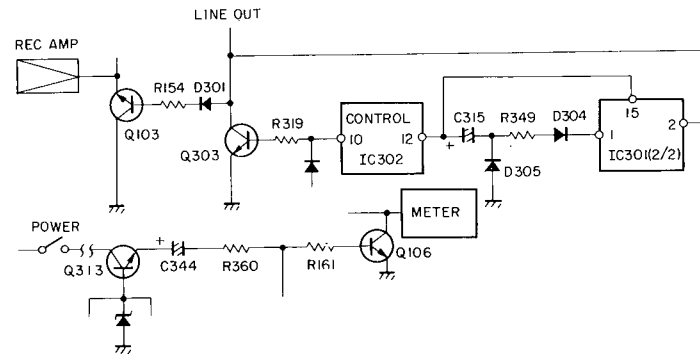


Fig. 6-6 Muting circuit

6.4 MUTING CIRCUIT

This set uses an IC-HA12006 for line output muting. This IC (IC301) is only effective in muting when REC input (2 pin) is at H level at the same time PLAY input (15 pin) is at L level. [IC301 (12 pin) goes to L level]

FF/REW/STOP

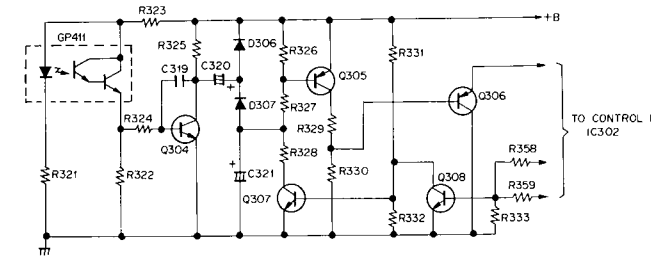
At FF, REW, and STOP, IC302 (10 pin) and (12 pin) are both at L level. When IC302 (12 pin) is at L level, IC301 (15 pin) is also at L level, and when IC302 (10 pin) is at L level, Q303 is OFF. This causes IC302 (2 pin) to go to H level, muting LINE OUT, and current to flow from IC301 (2 pin) through the route D301 → R154 → Q103, muting the record amp.

Turning the Power Switch ON

When the power switch is turned ON, as was mentioned previously, the set is in a STOP status for 3.0 ~ 5.0 seconds after the power is turned on, and LINE OUT and the record amp is muted. Also current flows through the route C344 → R360 → R161 → Q106 and Q106 goes to ON. The meter is muted until C344 is charged up and Q106 goes to OFF.

Going from STOP Status to PLAY

When going from STOP to PLAY, IC302 (12 pin) goes from L level to H level and through C315 → R349 → D304, sends current to IC301 (1 pin), muting LINE OUT. Muting continues until C315 is charged up. (approx. 0.6 sec.)



7. MECHANICAL ADJUSTMENTS

7.1 PINCH ROLLER PRESSURE ADJUSTMENT

- Put the tape deck into the playback mode.
- Gently push against the pinch roller arm with the tension gauge (Part No. G GK-047) and separate the pinch roller slightly from the capstan.
- Then the pinch roller back onto the capstan, and read the value when the pinch roller starts to rotate. If the reading fails to lie within 300g ~ 400g, replace the pinch roller pressure spring (Part No. RBH-742).

7.2 REEL BASE TORQUE ADJUSTMENT

Prior to adjustment

Clean the both reel base, the capstan and the pinch roller with an alcohol moistened swab.

Adjustment

Measure the torque with the torque meter during playback, fast forward (FF) and rewind (REW) modes. The measured values should normally lie within the allowable ranges listed in the table 1 below.

If the measured values lie outside the relevant ranges, replace the TU (take-up) reel base assembly and/or supply reel base assembly (Part No. RXB-377), or driving arm full assembly (Part No. RXB-376).

Torque meter

Part No.	Description	Remarks
STD-605	Cassette test tape	FF/REW torque Adjustment

Table 1

	TU reel base	Supply reel base
Playback mode	35 ~ 55g·cm	*2 ~ 5g·cm
FF mode	72 ~ 110g·cm	*2 ~ 5g·cm
REW mode	*2 ~ 5g·cm	72 ~ 110g·cm

* denotes back tension torque

7.3 TAPE SPEED ADJUSTMENT

- Connect the frequency counter to the OUTPUT terminals (to pin code).
- Play back the 3kHz portion of the STD-301 test tape. At the beginning, the frequency should be lie within the 2995Hz ~ 3010Hz range, and may be adjusted by turning the semi-fixed resistor located in the capstan motor adjustment hole as shown in Fig. 7-2.

Tape speed is increased by turning the semifixed resistor clockwise, and decreased by turning counter-clockwise.

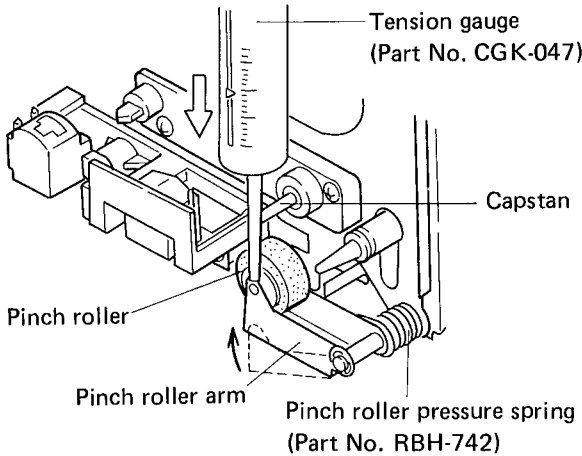


Fig. 7-1 Pinch roller pressure adjustment

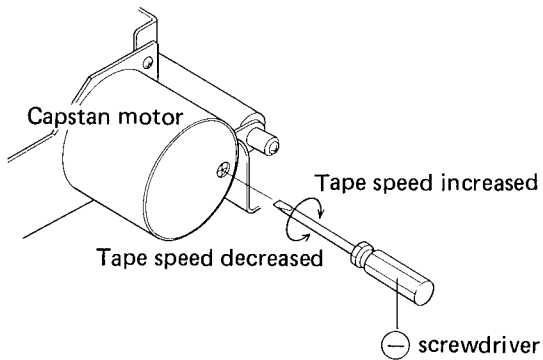


Fig. 7-2 Tape speed adjustment

7.4 REC DETECTOR SWITCH ADJUSTMENT

Adjust the tang (↔) shown in Fig. 7-3 by the arrow to a position where when a cassette with an erase prevention detector is loaded into the holder, the lever switch is ON, and when a cassette without the detector is loaded, the switch is OFF.

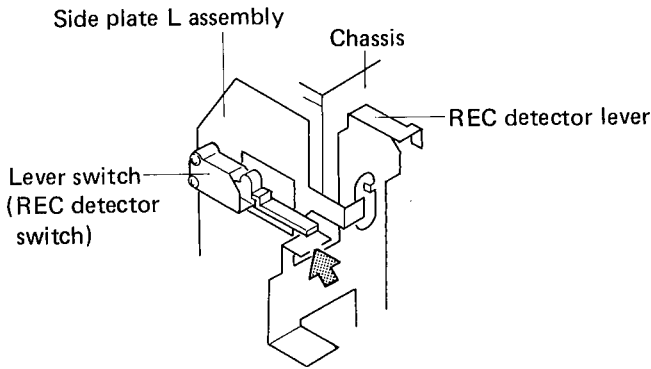


Fig. 7-3 REC detector switch adjustment

7.5 FF SOLENOID ADJUSTMENT

- Put the deck into FF mode.
- Loosen screws ❶ and adjust the FF solenoid mounting position so that the square hole of the reel base full assembly is flush against the boss of the driving arm full assembly (i.e. 0 separation) as shown in Fig. 7-4.

7.6 REW SOLENOID ADJUSTMENT

- Put the deck into REW mode
- Loosen screws ❷ and adjust the REW solenoid mounting position so that the square hole of the reel base full assembly is flush against the boss of the driving arm full assembly (i.e. 0 separation) as shown in Fig. 7-4.

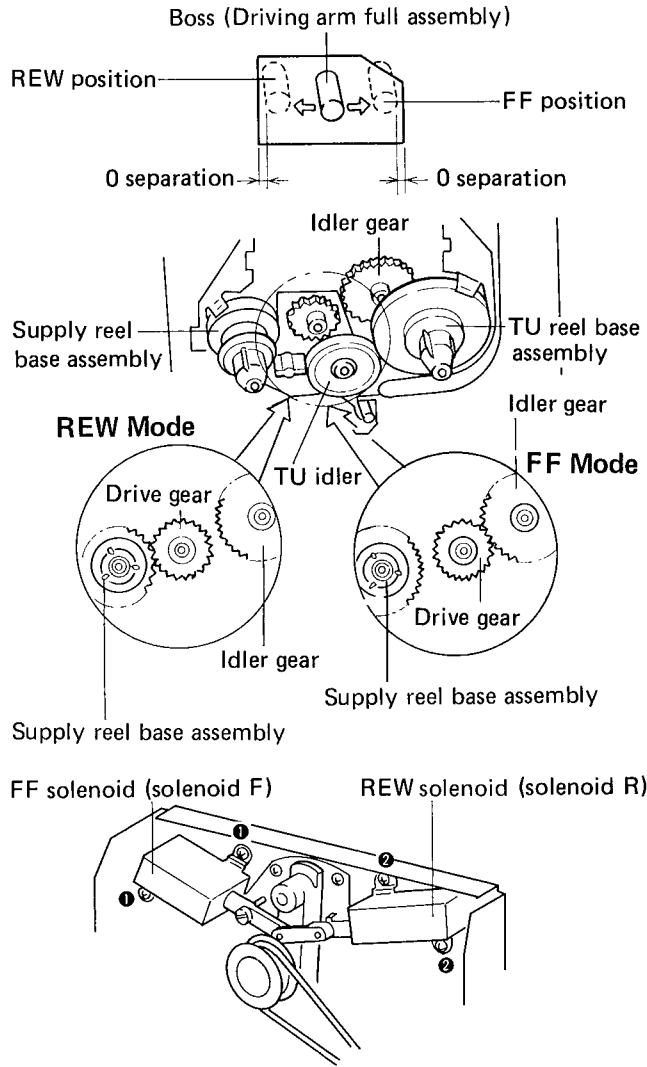


Fig. 7-4 FF (REW) solenoid adjustment

8. ELECTRICAL ADJUSTMENTS

Precaution

1. Mechanical adjustment should be completed.
2. Clean the following parts with an alcohol moistened swab: Record/Playback head, Pinch roller, Erase head, Rubber belts and Capstan.
3. Demagnetize record/playback head with a head demagnetizer.
4. Do not use magnetized screwdriver for adjustments.
5. Adjustments and measurements should be performed for both L-ch and R-ch with rated power supply voltage.
6. Adjustments should be performed in the order given in this service manual. Altering the order can hinder proper adjustments, resulting in loss of performance.
7. Level during measurements are based on 0dBv = 1V. Connect a 50k Ω dummy resistor across the OUTPUT terminals.
8. Let the CT-300 warm up (aging) for a few minutes before proceeding with the adjustment.
9. Set the DOLBY NR switch OFF unless directed otherwise.

Test Equipments/Tools Required;

1. Test tape
STD-331A..... for general playback purpose
STD-341A..... for playback adjustment
STD-601..... NORMAL blank tape
STD-603..... CrO₂ blank tape
STD-604..... METAL blank tape
2. Audio oscillator
3. AC millivoltmeter (AC mV)
4. Attenuator
5. Oscilloscope
6. Resistor 50k Ω (1/4 W)

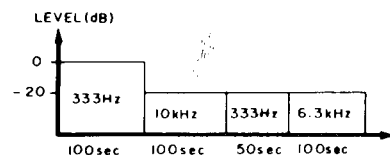


Fig. 8-1 Contents of the test tape STD-341A

8.1 HEAD AZIMUTH ADJUSTMENT

Setting:

MODE..... Playback
TAPE SELECTOR..... NORM
VR101, VR201..... Max.
TEST TAPE..... STD-341A
AC mV meter..... OUTPUT terminals

Procedure:

Adjust the azimuth adjusting screw for maximum AC mV meter readings for both L and R channels.

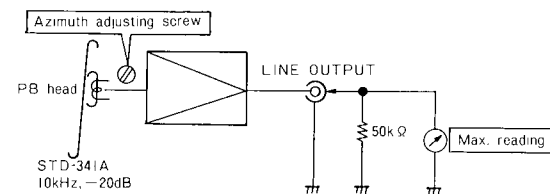


Fig. 8-2 Head azimuth adjustment

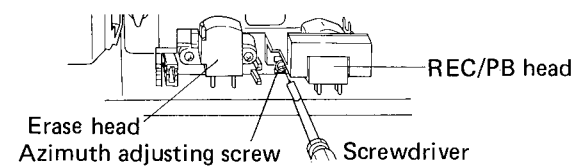


Fig. 8-3 Head azimuth adjustment

8.2 PLAYBACK EQUALIZER CHECK

Setting:

MODE..... Playback
TAPE SELECTOR..... NORM, METAL (or CrO₂)
TEST TAPE..... STD-341A
AC mV meter..... OUTPUT terminals

Procedure:

1. Set the TAPE SELECTOR to the NORM position. Play back the 333Hz and 6.3kHz portions of the STD-341A test tape, and check that the difference in output level between two is +0.5dB $\pm$ 1dB.
2. Next set the TAPE SELECTOR to the METAL (or CrO₂) position. Play back the 333Hz and 6.3kHz portions of the STD-341A test tape, and check that the difference in output level between two is -3.5dB $\pm$ 1dB.

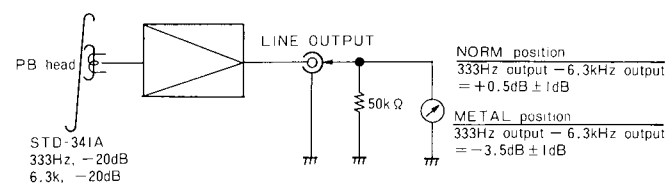


Fig. 8-4 Playback equalizer check

8.3 PLAYBACK LEVEL ADJUSTMENT

Since this adjustment determines the DOLBY NR level during playback, it should be performed precisely.

Setting:

MODE..... Playback
TAPE SELECTOR..... NORM
TEST TAPE..... STD-341A
AC mV meter..... TP1 (Lch) and TP2 (Rch) of the mother assembly

Procedure:

Adjust the VR101 (Lch) and VR201 (Rch) so that the AC mV meter reads -1.2dBv (0.87V).

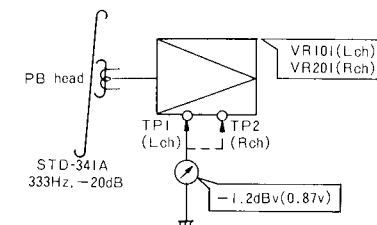


Fig. 8-5 Playback level adjustment

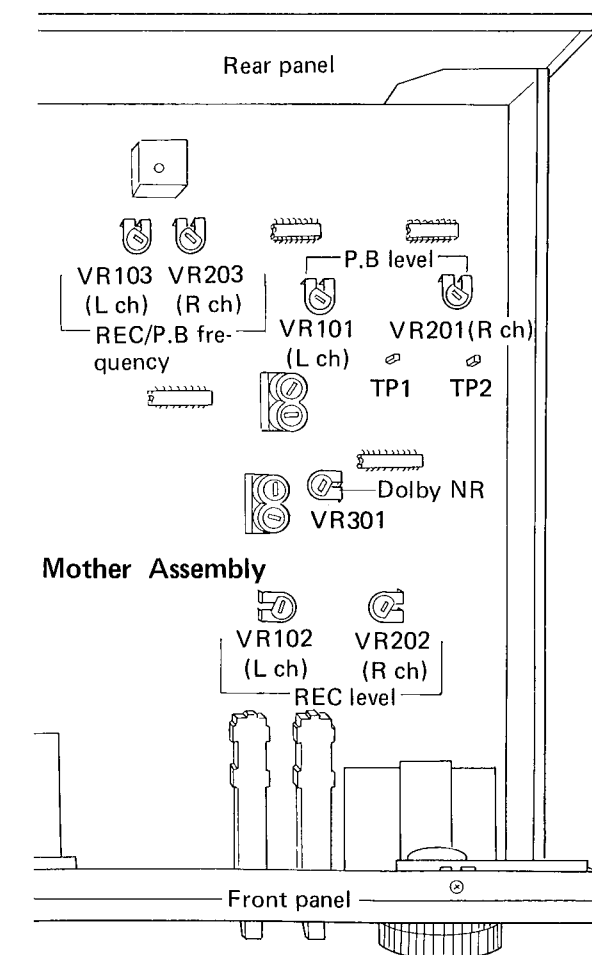


Fig. 8-7 Adjustment points

8.4 F.L. METER INDICATION CHECK

Setting:

MODE..... Record
INPUT SIGNAL (INPUT) 333Hz, -10dBv (316mV)
AC mV meter..... TP1 (Lch) and TP2 (Rch) of the mother assembly

Procedure:

Adjust the INPUT level control so that the AC mV meter reads -5.2dBv (0.54V). Then check the F.L. meter indication is 0dB $\pm$ 1dB.

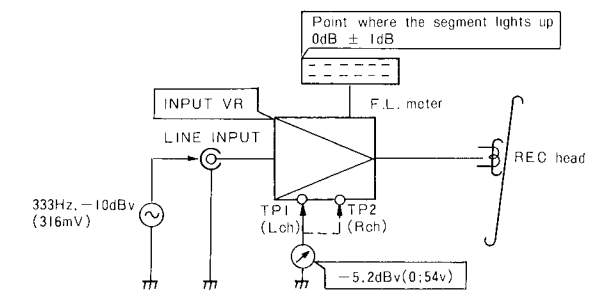


Fig. 8-6 F.L. meter indication check

8.5 DOLBY NR ADJUSTMENT

Setting:

MODE..... Record
INPUT SIGNAL..... 2kHz, -10dBv (316 mV) (INPUT)
AC mV meter..... TP1 (Lch) and TP2 (Rch) of the mother assembly

DOLBY NR SWITCH . OFF $\rightarrow$ ON

Procedure:

1. Adjust the INPUT level control so that the AC mV meter reads -2.2dBv (776 mV).
2. Next change the input signal level to -30dBv (31.6 mV) and DOLBY NR switch to ON, adjust the VR301 so that the AC mV meter reads -17.9dBv (120 mV).

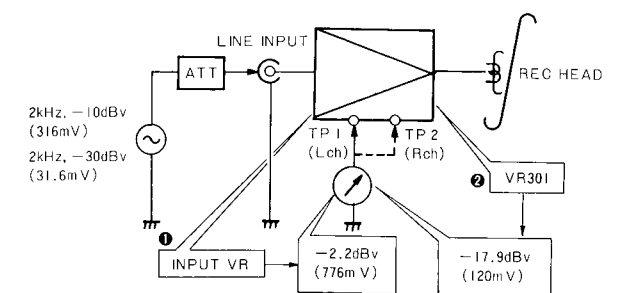


Fig. 8-8 Dolby NR adjustment

8.6 RECORDING / PLAYBACK FREQUENCY RESPONSE ADJUSTMENT

Setting:
 MODE Record
 TAPE SELECTOR NORM
 INPUT SIGNAL (INPUT) 333Hz, -30dBv (31mV)
 TEST TAPE STD-601
 AC mV meter OUTPUT terminals

- Procedure:**
1. Set the TAPE SELECTOR to the NORM position. Apply the 333Hz, -30dBv (31mV) signal to the INPUT terminals, and adjust the INPUT level control so that the AC mV meter reads -27dBv (44.6mV).
 2. Record the 333Hz and 6.3kHz signals onto the STD-601 test tape. Play back the tape and adjust the VR103 (Lch) and VR203 (Rch) so that the AC mV meter reads 0dB. Then confirm that the playback output deviation of the 6.3kHz signal is within 0dB ± 1 dB of the 333Hz signal.

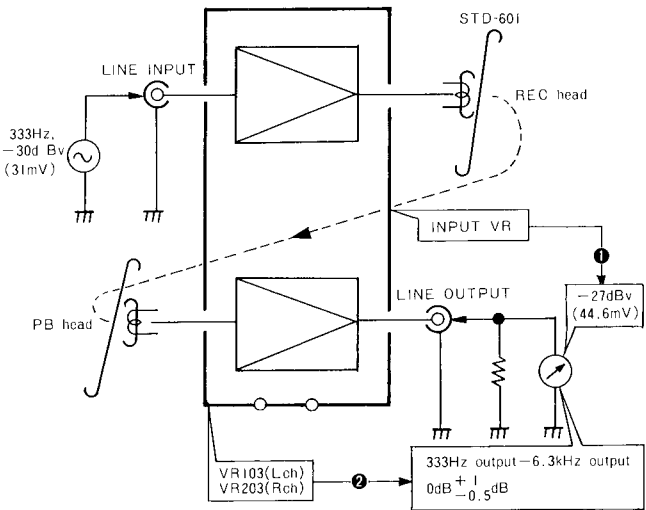


Fig. 8-9 Recording/Playback frequency response adjustment

Frequency Response

Using STD-331A and the TAPE SELECTOR NORM position, with DOLBY NR OFF
 However, the right channel is compensated by -1dB at 63Hz, and -0.5dB at 125Hz because of the insulation effect.

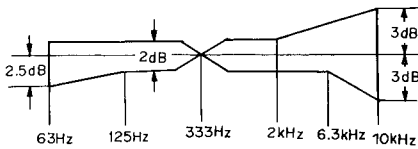
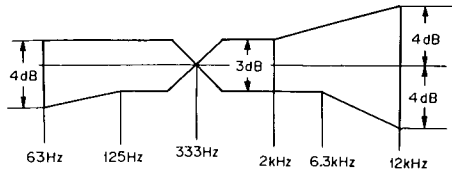


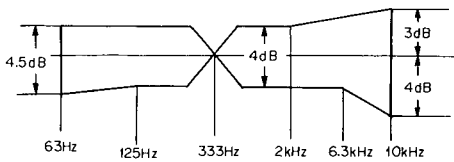
Fig. 8-10 Frequency response

Overall Frequency Response

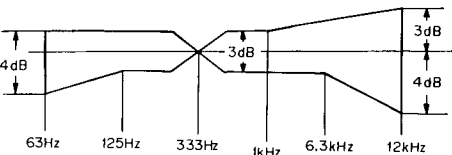
Using STD-601 and TAPE SELECTOR NORM position, with DOLBY NR OFF



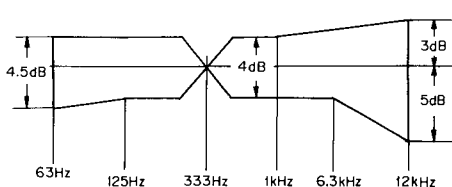
Using STD-601 and TAPE SELECTOR NORM position, with DOLBY NR ON



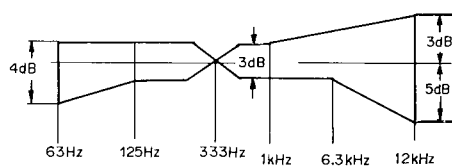
Using STD-603 and TAPE SELECTOR CrO₂ position, with DOLBY NR OFF



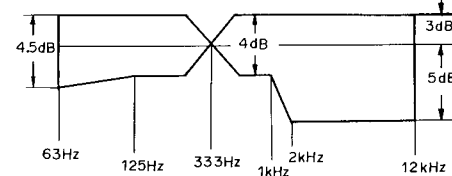
Using STD-603 and TAPE SELECTOR CrO₂ position, with DOLBY NR ON



Using STD-604 and TAPE SELECTOR METAL position, with DOLBY NR OFF



Using STD-604 and TAPE SELECTOR METAL position, with DOLBY NR ON



8.7 RECORDING LEVEL ADJUSTMENT

Since this adjustment determines the DOLBY NR level during recording, it should be performed precisely.

Setting:
 MODE Record
 TAPE SELECTOR NORM, CrO₂, METAL
 INPUT SIGNAL (INPUT) 333Hz, -10dBv (316 mV)

TEST TAPE STD-601, STD-603 and STD-604

AC mV meter TP1 (Lch) and TP2 (Rch) of the mother assembly

DOLBY NR SWITCH ... OFF → ON

- Procedure:**
1. Set the TAPE SELECTOR to the NORM and DOLBY NR switch to the OFF position. Apply the 333Hz signal to the INPUT terminals, and adjust the INPUT level control so that the AC mV meter reads -5.2dBv (0.54V).
 2. Next the DOLBY NR switch to the ON position and record the 333Hz signal onto the STD-601 test tape. Play back the signal and adjust the VR102 (Lch) and VR202 (Rch) so that the AC mV meter reads -5.2dBV (0.54V).

3. Set the TAPE SELECTOR to the CrO₂ position and record the 333Hz signal onto the STD-603 test tape. Play back signal and check that the AC mV meter reads -5.2dBV (0.54V) ± 1.5 dB.
4. Set the TAPE SELECTOR to the METAL position and record the 333Hz signal onto the STD-604 test tape. Play back signal and check that the AC mV meter reads -6.2dBv (0.48V) ± 1.5 dB.

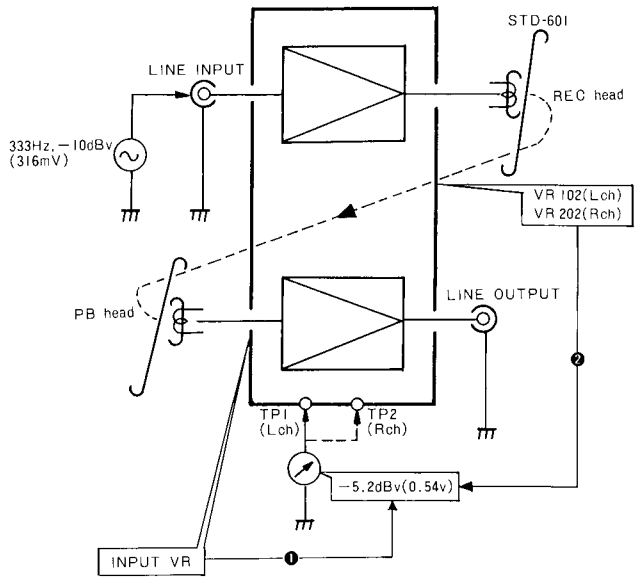


Fig. 8-11 Recording level adjustment

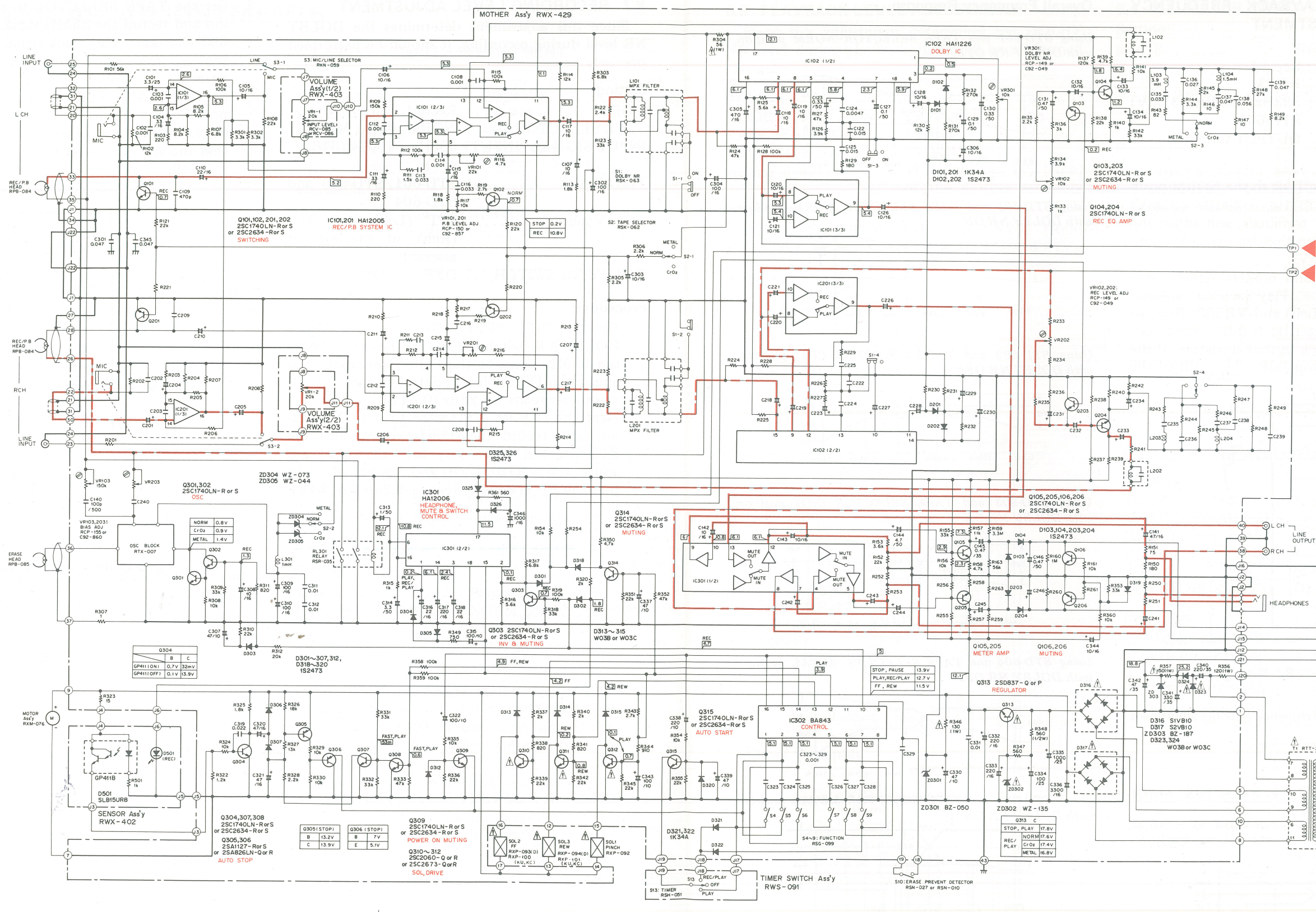
9. SCHEMATIC DIAGRAM

A

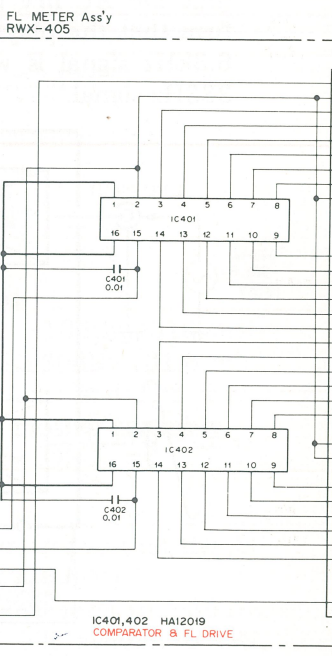
B

C

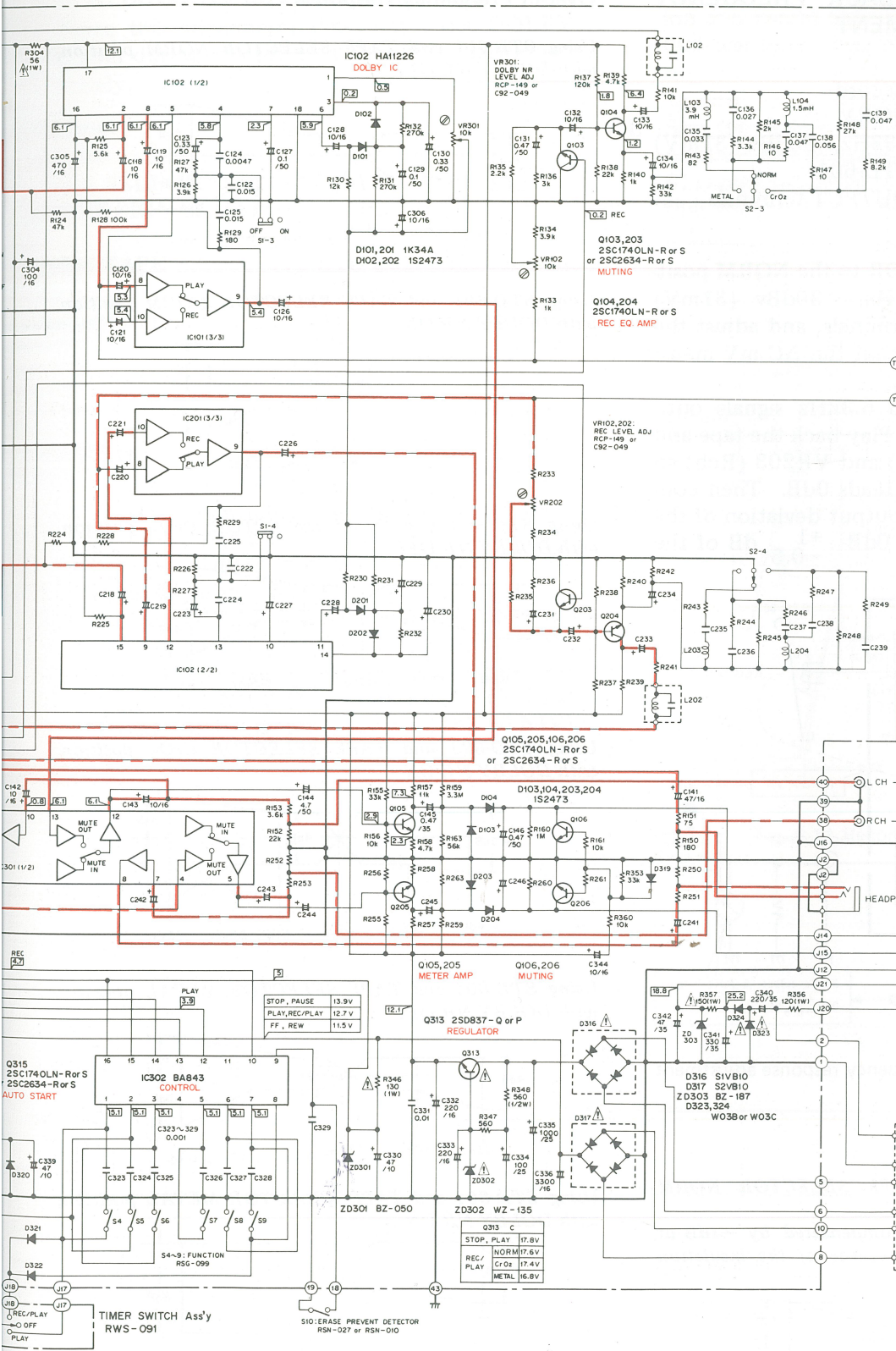
D



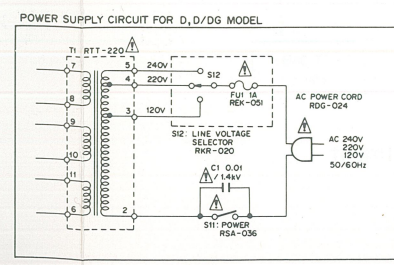
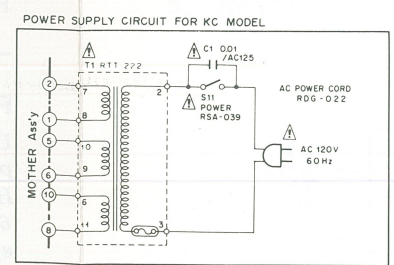
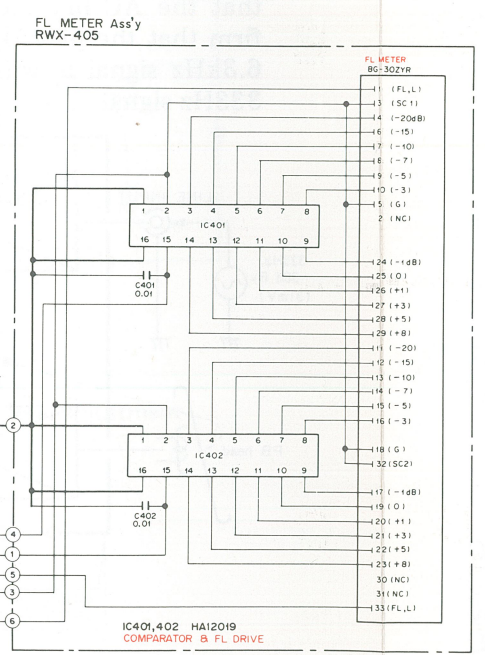
1. RESISTORS:
Indicated in Ω , $\text{k}\Omega$, $\text{M}\Omega$, (F) : $\pm 1\%$, (G) : $\pm 2\%$, (K) : $\pm 10\%$ tolerance
2. CAPACITORS:
Indicated in capacity (μF) voltage (V) unless otherwise noted p p
Indication without voltage is 50V, except electrolytic capacitor
3. VOLTAGE
DC voltage (V) at no input signal
4. OTHERS
⊗ Adjusting point
The Δ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing be sure to use parts of identical designation.
- SWITCHES:
S1 : DOLBY NR ON - OFF
S2 : TAPE SELECTOR METAL-NORM - Cr O₂
S3 : MIC/LINE SELECTOR MIC - LINE
S4 : PLAY ON - OFF
S5 : STOP ON - OFF
S6 : FF ON - OFF
S7 : REW ON - OFF
S8 : PAUSE ON - OFF
S9 : REC ON - OFF
S10 : ERASE PREVENT DETECTOR NO HOLE - HOLE
S11 : POWER ON - OFF
S13 : TIMER PLAY-STOP - REC/PB
- The underlined indicates the switch position.
- This is the basic schematic diagram, but the actual circuit may vary due to improvements in design.



NOTE;
Playback signal route ———
Recording signal route - - -

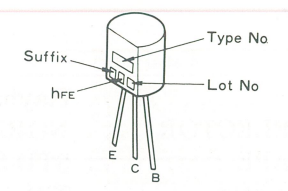


- RESISTORS:**
Indicated in Ω , $\frac{1}{4}W$, $\pm 5\%$ tolerance unless otherwise noted k : $k\Omega$, M : $M\Omega$, (F) : $\pm 1\%$, (G) : $\pm 2\%$, (K) : $\pm 10\%$ tolerance.
 - CAPACITORS:**
Indicated in capacity (μF) voltage (V) unless otherwise noted p : pF . Indication without voltage is 50V except electrolytic capacitor.
 - VOLTAGE**
DC voltage (V) at no input signal.
 - OTHERS:**
Adjusting point.
The Δ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- SWITCHES:**
- | | |
|-----------------------------|-------------------------------|
| S1: DOLBY NR | ON - OFF |
| S2: TAPE SELECTOR | METAL-NORM - CrO ₂ |
| S3: MIC/LINE SELECTOR | MIC - LINE |
| S4: PLAY | ON - OFF |
| S5: STOP | ON - OFF |
| S6: FF | ON - OFF |
| S7: REW | ON - OFF |
| S8: PAUSE | ON - OFF |
| S9: REC | ON - OFF |
| S10: ERASE PREVENT DETECTOR | NO HOLE - HOLE |
| S11: POWER | ON - OFF |
| S13: TIMER | PLAY-STOP - REC/PB |
- The underlined indicates the switch position.
- This is the basic schematic diagram, but the actual circuit may vary due to improvements in design.

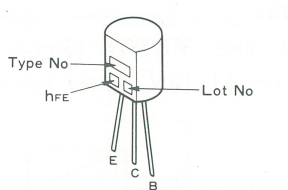


External Appearance of Transistors and ICs

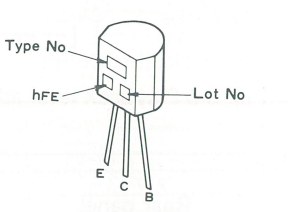
2SA826LN
2SC1740LN



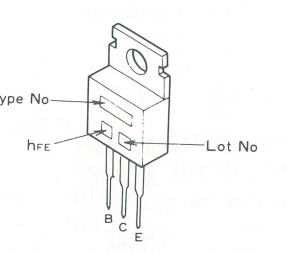
2SA1127
2SC2634



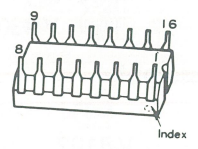
2SC2060



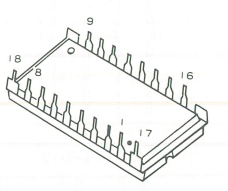
2SD837



HA12005
HA12019
BA843



HA11226
HA12006



NOTE:
Playback signal route ————
Recording signal route - - - - -

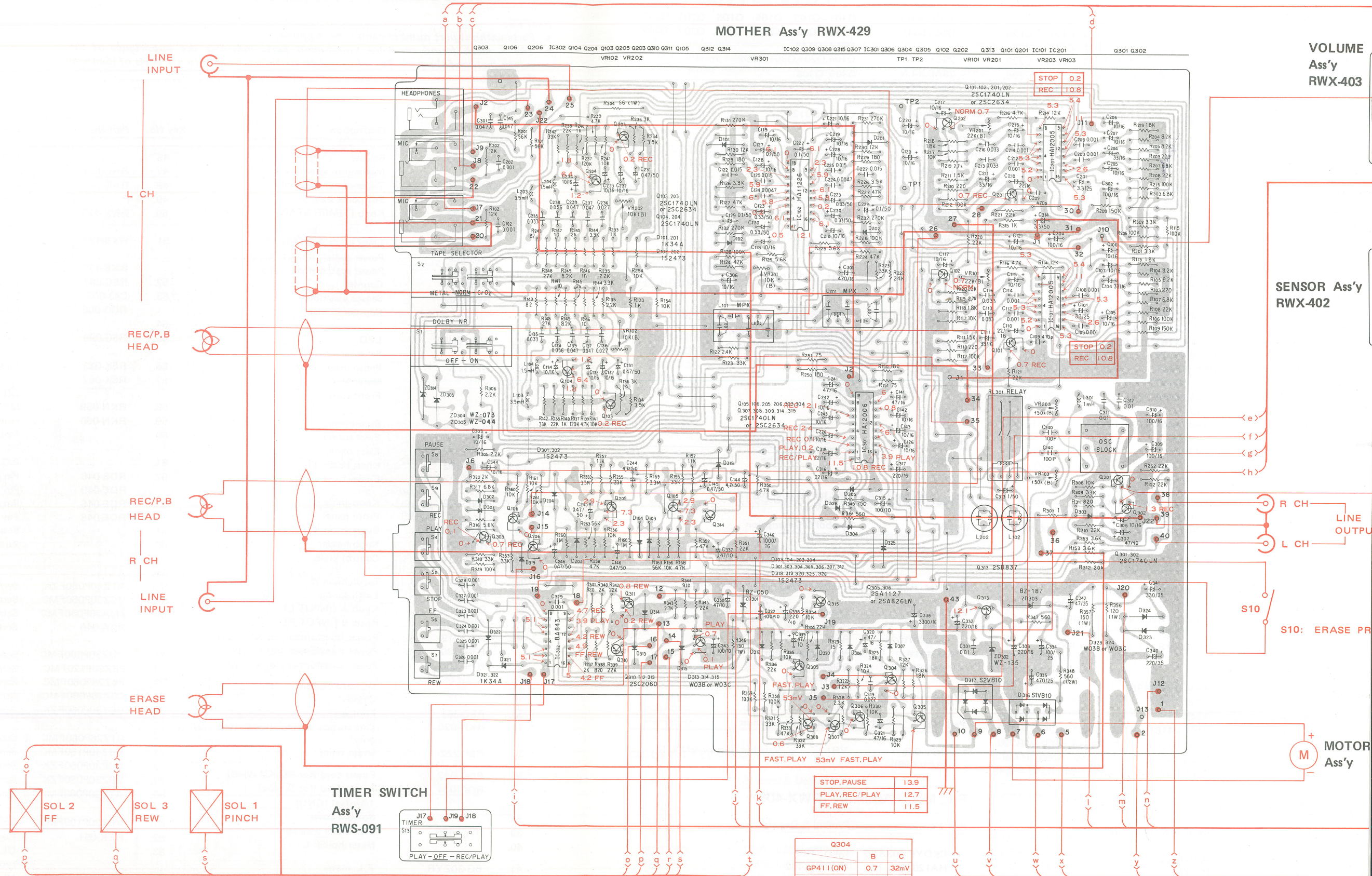
10. P.C.BOARD CONNECTION DIAGRAM

A

B

C

D



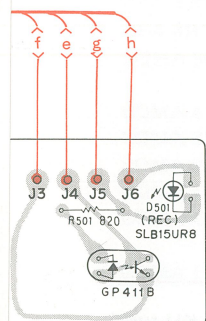
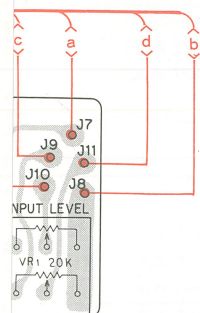
VOLUME
Ass'y
RWX-403

SENSOR Ass'y
RWX-402

LINE
OUTPUT

S10: ERASEPR

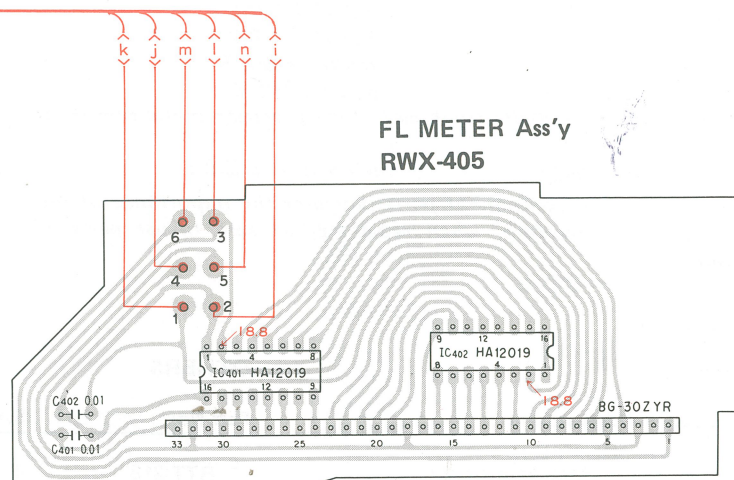
MOTOR
Ass'y



NORM	0.8
CrO ₂	0.9
METAL	1.4

Q313	C	
STOP, PLAY		17.8
REC/PLAY	NORM	17.6
	CrO ₂	17.4
	METAL	16.8

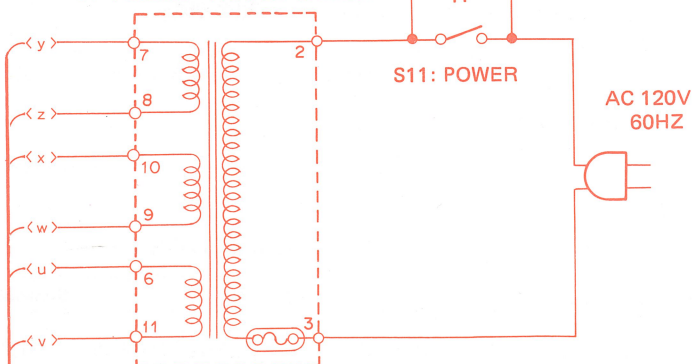
EVENT DETECTOR

FL METER Ass'y
RWX-405

T1 POWER TRANSFORMER

C1 0.01/AC 125

S11: POWER

AC 120V
60HZ

11. PARTS LIST

- NOTES:
- When ordering resistors, first convert resistance values into code form as shown in the following examples.
Ex. 1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J = 5%, and K = 10%).
560Ω—56 × 10¹—561 RD¼PS 561 J
47kΩ—47 × 10³—473 RD¼PS 473 J
0.5Ω—0R5 RN2H 0R5 K
1Ω—010 RS1P 010 K
Ex. 2 When there are 3 effective digits (such as in high precision metal film resistors).
5.62kΩ 562 × 10¹ 5621 RN¼SR 5621 F
 - The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.

Miscellaneous Parts List

P.C. BOARD ASSEMBLIES

Part No.	Symbol & Description
RWX-429	Mother assembly
RWX-402	Sensor assembly
RWX-403	Volume assembly
RWX-405	F.L. assembly
RWS-091	Timer-switch assembly

SWITCHES

Part No.	Symbol & Description
⚠ RSA-039	S11 Power switch (for KC,KU types)
⚠ RSA-036	S11 Power switch (for D type)
⚠ RKR-020	S12 Line voltage selector (for D type only) (switchable 3 positions)

Mother Assembly (RWX-429)

SWITCHES AND JACKS

Part No.	Symbol & Description
RSK-063	S1 Lever switch B (DOLBY NR)
RSK-062	S2 Lever switch A (TAPE SELECTOR)
RKN-059	S3 Mic Jack
RSG-099	S4-S9 Push switch
RKN-060	Headphones jack

COILS FILTER AND RELAY

Part No.	Symbol & Description
RTX-007	OSC block
RSR-035	RL301 Reed relay
RFT-083	L101, L201 MPX filter block
RTF-084	L102, L202 Trap coil
RTF-085	L103, L203 Peaking coil (3.9mH)
RTF-086	L104, L204 Peaking coil (1.5mH)
RTF-057	L301 Line coil

OTHERS

Part No.	Symbol & Description
⚠ RTT-218	T1 Power transformer (for KU type)
⚠ RTT-222	T1 Power transformer (for KC type)
⚠ RTT-220	T1 Power transformer (for D type)
⚠ RDG-022	Power cord (for KC, KU types)
⚠ RDG-024	Power cord (for D type)
⚠ RCG-006	C1 Capacitor (for KC, KU types)
⚠ C43-003	C1 Capacitor (for D type)
REC-287	Capacitor cover
⚠ RBM-004	Wire nut (for KC type only)
⚠ REK-051	FU1 Fuse 1A (for D type only)

CAPACITORS

Part No.	Symbol & Description
CEANL 3R3M 25	C101,C201
CEANL 220M 16	C110,C210
CEA 0R10M 50	C127,C129,C227,C229
CEA 0R33M 50	C123,C130,C223,C230
CEA 0R47M 50	C131,C145,C146,C231,C245,C246
CEA 3R3M 50	C314
CEA 010M 50	C313
CEA 331M 35	C341
CEA 102M 25	C335
CEA 101M 25	C334
CEA 332M 16	C336
CEA 471M 16	C305
CEA 221M 16	C317,C332,C333
CEA 101M 16	C302,C304,C309,C310
CEA 470M 16	C141,C241,C320,C321
CEA 330M 16	C104,C111,C204,C211

Part No.	Symbol & Description
CEA 220M 16 CEA 100M 16	C316,C318 C105–C107, C115, C117–C121, C126, C128, C132–C134, C142, C143, C205–C207, C215, C217–C221, C226, C228, C232–C234, C242, C243, C303, C306, C308, C344
CEA 470M 10 CEA 221M 10 CEA 101M 10 CEA 221M 35 CEA 470M 35 CEA 4R7M 35 CQMA 563J 50	C307,C330,C337,C339 C338 C315,C343,C322 C340 C342 C144,C244 C138,C238
CQMA 473J 50 CQMA 333J 50 CQMA 273J 50 CQMA 153K 50 CQMA 472K 50	C137,C139,C237,C239 C135,C235 C136,C236 C122,C125,C222,C225 C124,C224
CQMA 102K 50 CQMA 333K 50 CQMA 223K 50 CKDYF 473Z 50	C102,C103,C108,C112,C114,C202,C203, C208,C212,C214 C113,C116,C213,C216 C319 C301,C345
CKDYF 103Z 50 CKDYF 102Z 50 CCDSL 101K 500 REC-014 CEA 102M 16	C311,C312,C331 C323–C329 C140,C240 C109,C209 C346

Note: When ordering resistors, convert the resistance value into code form, and then rewrite the part no. as before.

RESISTORS

Part No.	Symbol & Description
RCP-150 (RCP-195) RCP-149 (RCP-193) RCP-155 (RCP-200)	VR101,VR201 Semi-fixed 22k-B VR102,VR202,VR301 Semi-fixed 10k-B VR103,VR203 Semi-fixed 100k-B
⚠ RS1PF□□□J RS1PF□□□J RD¼PSF□□□J RD¼PM□□□J	R304,R346,R357 R356 R348 R101–R161, R163, R201–R261, R263, R301–R303, R305–R313, R315–R320, R335–R338, R347, R349–R355, R358–R361,R322–R332,R340,R341,R343–R345

SEMICONDUCTORS

Part No.	Symbol & Description
HA12005 HA11226 HA12006 BA843	IC101,IC201 IC102 IC301 IC302

Part No.	Symbol & Description
2SC1740LN (2SC2634) 2SC1740LN 2SA826LN (2SA1127)	Q101–Q103, Q105, Q106, Q201–Q203, Q205, Q206, Q303, Q304, Q307–Q309, Q314, Q315 Q104,Q204,Q301,Q302 Q305, Q306
⚠ 2SC2060 (2SC2673) ⚠ 2SD837	Q310–Q312 Q313
BZ-050 ⚠ WZ-135 BZ-187 05Z6.8U (WZ-071) WZ-046 (RD4.7EB)	ZD301 ZD302 ZD303 ZD304 ZD305
1K34A (1K60A) (0A90) 1S2473	D101, D201, D321, D322 D102–D104, D202–D204, D301–D307, D312,D318–D320,D325,D326 D313–D315, D323, D324
⚠ W03B (W03C) ⚠ S1VB10 ⚠ S2VB10F	D316 D317

OTHER

Part No.	Symbol & Description
RBF-041	Tube

Timer Switch Assembly (RWS-091)

Part No.	Symbol & Description
RSH-051	S13 Slide switch (TIMER START)

Sensor Assembly (RWX-402)

Part No.	Symbol & Description
RD¼PM102J GP-411B SLB15UR8	R501 Photo interruptor D501

Volume Assembly (RWX-403)

Part No.	Symbol & Description
RCV-085 (RCV-086)	VR1 Variable resistor (INPUT)

F.L. Meter Assembly (RWX-405)

Part No.	Symbol & Description
CKDYF 103Z 50 HA12019 BG-30ZYR	C401,C402 IC401,IC402 F.L. Meter

12. EXPLODED VIEWS

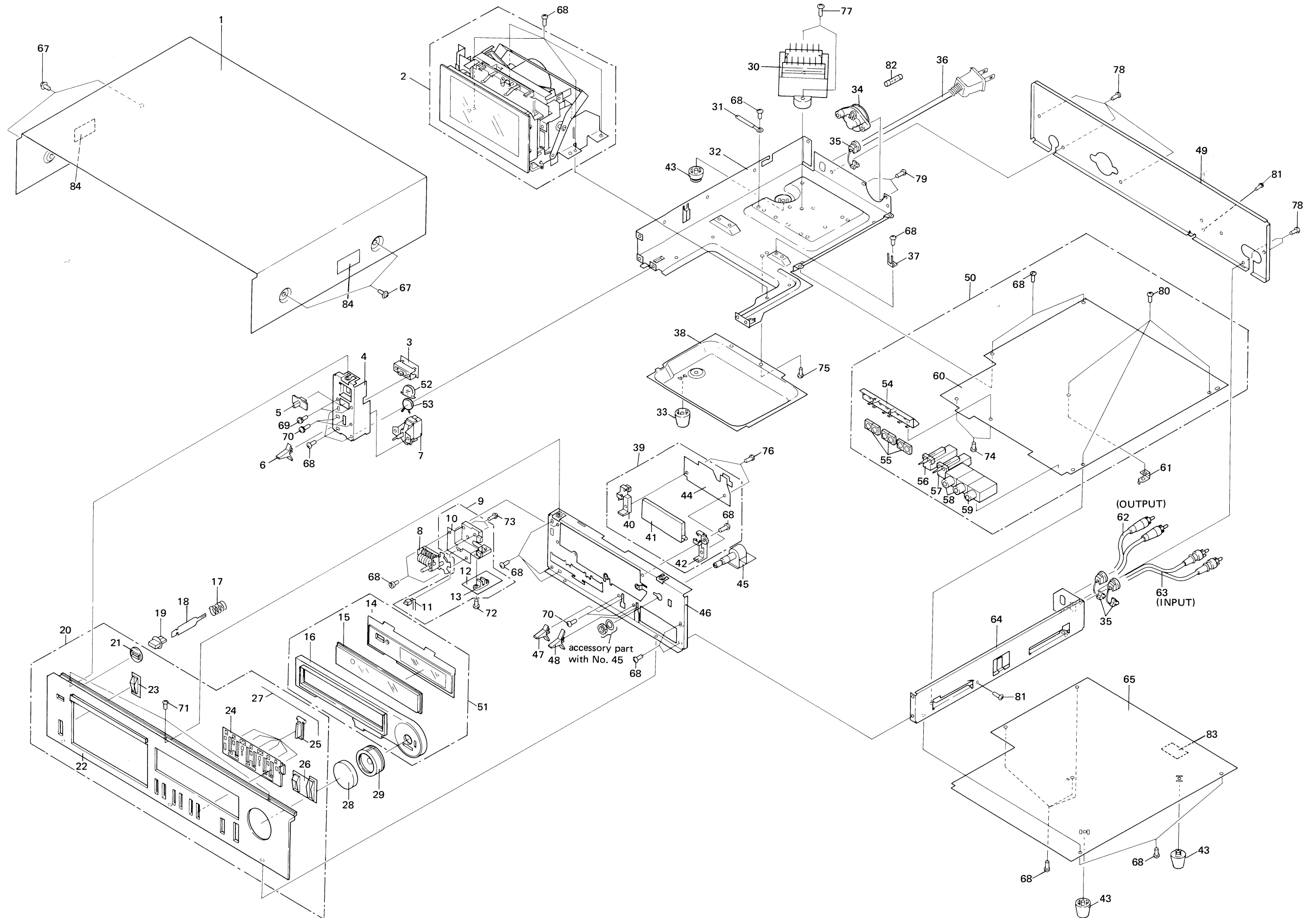
NOTES:

- Parts without part number cannot be supplied.
- The $\triangle$ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.

Parts List

Key No.	Part No.	Description	Key No.	Part No.	Description
1.	RNA-537	Bonnet	46.		Panel stay
2.		Mechanism assembly	47.	RAC-124	Lever knob A (DOLBY NR)
3.	RWS-091	Timer-switch assembly	48.	RAC-125	Lever knob B (TAPE SELECTOR)
4.		Sub panel stay	49.		Rear panel
5.	RAC-133	Knob (TIMER START)	50.	RWX-429	Mother assembly
6.	RAC-124	Lever knob A (POWER)	51.	RXB-473	Escutcheon assembly (for KU, D types)
$\triangle$ 7.	RSA-039	Power switch (for KC, KU types)		RXB-472	Escutcheon assembly (for KC type)
	RSA-036	Power switch (for D type)	52.	REC-287	Capacitor cover
8.	RAW-141	Counter	$\triangle$ 53.	C43-003	Capacitor (for D type)
9.	RWX-402	Sensor assembly		RCG-006	Capacitor (for KC, KU types)
10.		Counter holder	54.		Switch holder
11.	SLB15UR8	LED	55.	RSG-099	Push switch
12.		Sensor p.c.b.	56.	RSK-063	Lever switch B (DOLBY NR)
13.	GP411B	Photo interruptor	57.	RSK-062	Lever switch A (TAPE SELECT-OR)
14.		Meter lens	58.	RKN-059	MIC jack
15.		Front cover	59.	RKN-060	Headphones jack
16.		Escutcheon	60.		Mother p.c.b.
17.	RBH-750	Eject spring	61.		P.C.B holder
18.		Eject plate	62.	RDE-046	Pin cord B (for D type)
19.	RAC-132	Knob (EJECT)		RDE-049	Pin cord D (for KC, KU types)
20.	RXX-314	Front panel assembly	63.	RDE-045	Pin cord A (for D type)
21.	RNL-078	Knob guide		RDE-048	Pin cord C (for KC, KU types)
22.		Front panel	64.		Side frame
23.	RNL-076	Escutcheon S	65.		Bottom plate
24.	RNL-082	Knob holder	66.		
25.	RAC-131	Control knob	67.	ATZ40P080FZK	Screw
26.	RNL-077	Escutcheon W	68.	VCZ30P060FMC	Screw
27.	RBH-751	Earth spring	69.	PMA26P060FMC	Screw
28.	RAA-344	Knob A (INPUT L)	70.	RBA-046	Screw
29.	ARR-345	Knob B (INPUT R)	71.	CMZ30P060FMC	Screw
$\triangle$ 30.	RTT-218	Power transformer (for KU type)	72.	PBZ30P120FMC	Screw
	RTT-220	Power transformer (for D type)	73.	PBZ26P060FMC	Screw
	RTT-222	Power transformer (for KC type)	74.	CBZ26P060FMC	Screw
31.		UL cord clamber	75.	VCT30P060FZK	Screw
32.		Chassis	76.	CTZ26P060FMC	Screw
33.	REC-361	Foot A	77.	VBZ40P160FMC	Screw
$\triangle$ 34.	RKR-020	Line voltage selector (for D type only)	78.	VCZ30P060FZK	Screw
$\triangle$ 35.	REC-272	Strain relief	79.	VBZ30P080FZK	Screw
$\triangle$ 36.	RDG-022	Power cord (for KC, KU types)	80.	ATZ30P060FMC	Screw
	RDG-024	Power cord (for D type)	81.	VCZ30P100FMC	Screw
37.		Terminal (GND)	82.	REK-051	Fuse 1A (for D type)
38.		Bottom cover	83.		UL caution label B (for KC, KU types)
39.	RWX-405	F.L. meter assembly	84.	RRW-112	UL caution label A (for KC type x 1), (for KU type x 2)
40.		Meter holder L	85.	RNL-179	Emblem
41.	BG-30ZYR	F.L. meter			
42.		Meter holder R			
43.	REC-362	Foot B			
44.		F.L. meter p.c.b.			
45.	RWX-403	Volume assembly			

Exterior

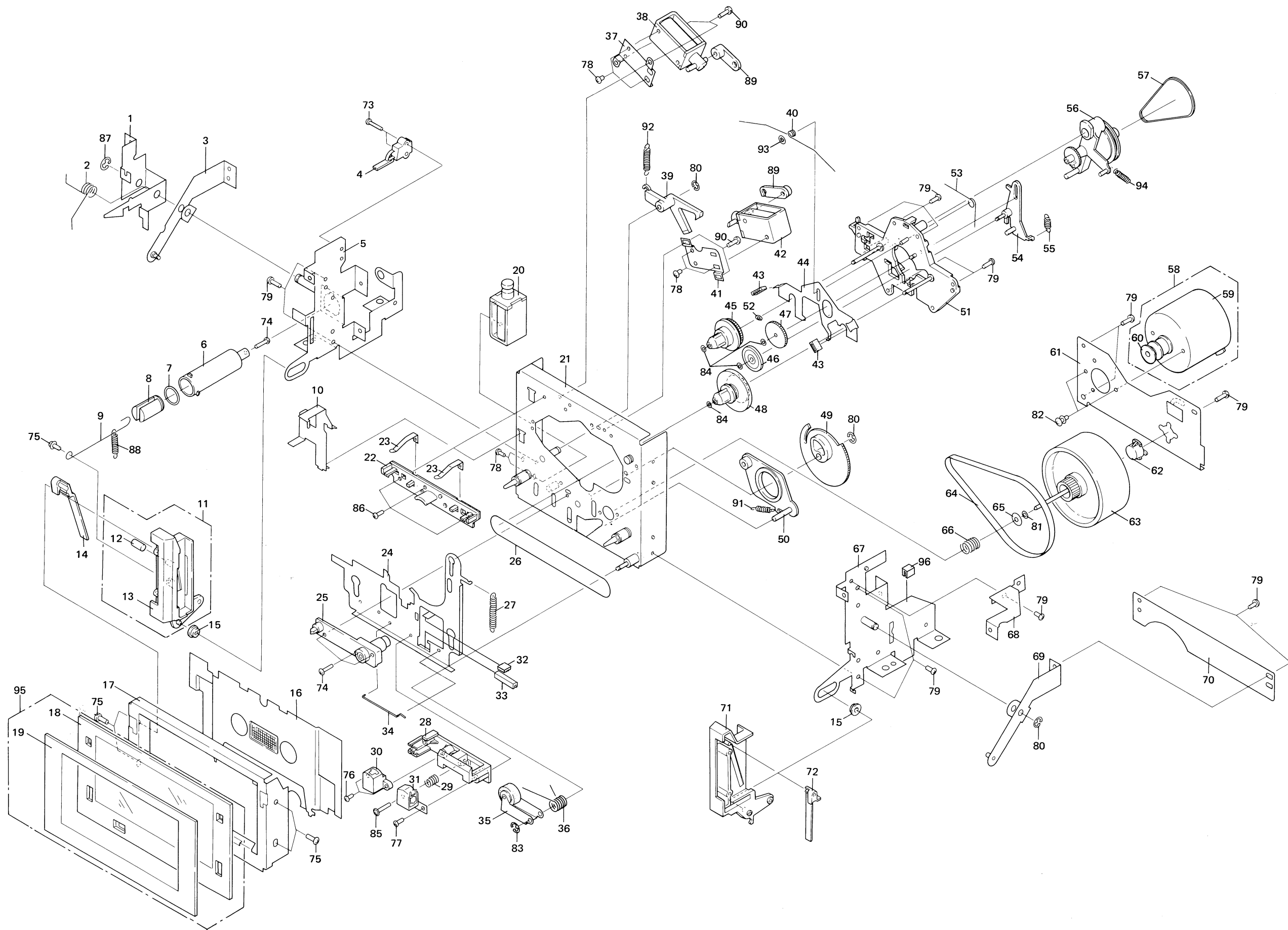


A

B

C

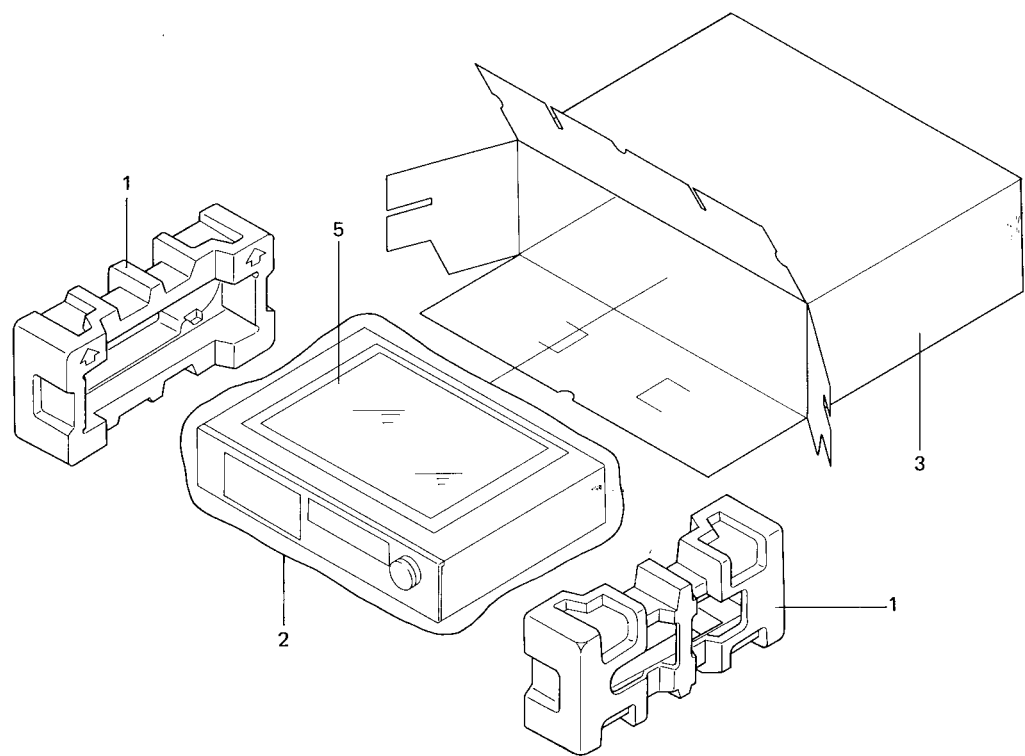
D



Parts List

Key No.	Part No.	Description	Key No.	Part No.	Description
1.	RBH-743	Eject lever	51.	RXB-378	Reel base assembly
2.		Eject lever spring	52.	WA21D040D025	Washer
3.		Side arm L assembly	53.	RBH-725	FR spring
4.	RSN-027 (RSN-010)	Lever switch	54.	RXB-374	Idler arm assembly
5.		Side plate L assembly	55.	RBH-724	Idler pressure spring
6.	RNK-995	Cylinder	56.	RXB-376	Driving arm full assembly
7.	REB-323	O ring	57.	REB-413	Drive belt
8.	RNL-053	Piston	58.	RXM-076	Motor assembly
9.	RBH-726	Connection rod	59.		Motor
10.		REC prevent lever	60.		Motor pulley
11.	RXB-405	Pocket L assembly	61.		Flywheel holder
12.		Bush	62.		Thrust receptacle
13.		Pocket L	63.	RXB-358	Flywheel assembly
14.	RNL-057	Pocket spring L	64.	REB-411	Capstan belt
15.	RNK-994	Guide roller	65.	RBH-050	Oil stop washer
16.	RAH-347	Cassete plate	66.	RBH-721	Flywheel spring
17.		Pocket frame	67.		Side plate R assembly
18.		Door	68.		Mounting plate
19.		Door panel	69.		Side arm R assembly
△ 20.	RXP-092	Solenoid P	70.		Connection plate
21.		Chassis assembly	71.	RNL-049	Pocket R
22.	RNL-042	Half receptacle	72.	RNL-058	Pocket spring R
23.	RNF-895	Half spring	73.	PMZ20P080FMC	Screw
24.		Head base	74.	VCZ26P090FMC	Screw
25.	RXB-359	Bearing holder assembly	75.	ATZ26P060FZK	Screw
26.	REB-417	Counter belt	76.	PMZ20P130FMC	Screw
27.	RBH-741	HB return spring	77.	PMZ20P120FMC	Screw
28.	RNL-050	Sub head base	78.	PMZ26P030FMC	Screw
29.	RBH-723	Head adjust spring	79.	VCZ26P060MFC	Screw
30.	RPB-085	Erase head	80.	YE30FUC	Washer
31.	RPB-084	REC/PB head	81.	WA21D040D25	Washer
32.		BT felt	82.	PMA26P040FMC	Screw
33.		Shaft stopper	83.	YE20FUC	Washer
34.	RBH-782	HB drive spring	84.	WA17D032D025	Washer
35.	RXB-414	Pinch arm assembly	85.	IMZ20Y120FMC	Screw
36.	RBH-760	Pinch pressure spring	86.	PCZ26P060FMC	Screw
37.		Solenoid bracket L	87.	YE40FUC	Washer
△ 38.	RXP-094	Solenoid R (for D type)	88.	RBH-795	Earth spring
	RXP-101	Solenoid R (for KC, KU types)	89.	RNL-047	Solenoid arm
39.	RNL-051	Gear lever	90.	PMZ26P060FMC	Screw
40.	RBH-727	Brake spring	91.	RBH-744	Lever spring
41.		Solenoid bracket R	92.	RBH-722	Gear lever spring
△ 42.	RXP-093	Solenoid F (for D type)	93.	YS20FBT	Washer
	RXP-100	Solenoid F (for KC, KU types)	94.	RBH-758	FF spring
43.	REB-187	Brake shoe	95.	RXX-315	Door assembly
44.		Brake plate	96.		Plate stopper
45.	RXB-377	Supply reel base assembly			
46.	RNK-999	TU idler			
47.	RNK-998	Idler gear			
48.	RXB-360	TU reel base assembly			
49.	RNL-059	Cam gear			
50.	RXB-387	Lever assembly			

13. PACKING



Parts List

Key No.	Part No.	Description
1	RHA-225	Side pad
2	RHX-031	Sheet C
3	RHG-375	Packing case (for D type)
	RHG-373	Packing case (for KU type)
	RHG-374	Packing case (for KC type)
4		
5	RRB-142	Operating instructions (for D type)
	RRB-141	Operating instructions (for KC,KU types)