Clarion

SERVICE MANUAL

Closer Relations through "CLARION SERVICE MANUAL"

MAZDA AUTOMOBILE GENUINE STEREO

MODEL PT-818A·N

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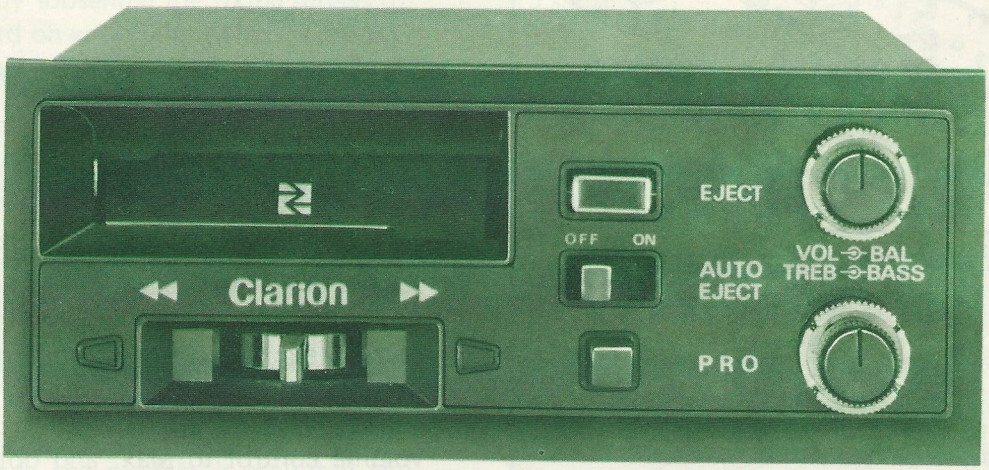


■SPECIFICATION:

Reproduction system:	4 track, 2 channel, 2 program stereo cassette tape player (Manaural tape playable)
Tape speed:	4.75 cm/sec
Wow and flutter:	Less than 0.3% (WRMS)
S/N ratio:	More than 40dB
Corss talk:	More than 30dB (for adjacent channel)
	More than 40dB (for adjacent track)
Reproduction frequency:	40 to 10,000Hz
Automatic change time:	With in 4 sec
F.F and REW time:	With in 90 sec (C-60)
Power output:	More than 3.5W×2 (for 10% distortion)
	More than 5.5W×2 (for max, volume)
Output impedance:	4Ω×2
Power supply voltage:	DC 13.2V(10.8~15.6V) Negative ground
Power consumption:	Less than 1.5A (at max. output)
	Less than 4.0A (at plunger operated)
Weight:	2kg
Dimensions:	Width 150mm
	Height 60mm
	Depth 177mm
Semiconductors:	4 ICs, 6 transistors and 4 diodes

Printed in Japan 298-1867-00

PT-818A·N

■COMPONENTS VIEW:

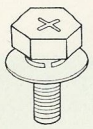
Main unit 1

921-5983-00 Parts bag 1

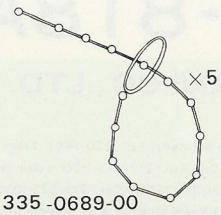

×2
740-5000-10
Flat washer


×2
741-5000-20
Spring washer

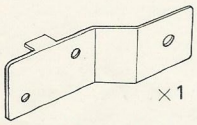

×2
723-5000-11
Hex nut

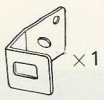

×1
734-5010-31
D-sems hex bolt

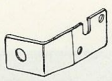

×8
700-4010-71
Tap screw


×5
335-0689-00
Molded part

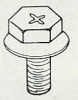
921-6189-00 Parts bag 1


×1
300-5459-00
Mounting bracket


×1
300-5458-00
Mounting bracket


×1
300-5466-00
Mounting bracket

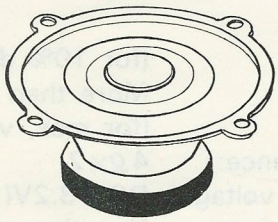

×4
714-3004-41
Machine screw
(M3×4)


×2
734-5010-31
D-sems hex bolt
(M5×10)

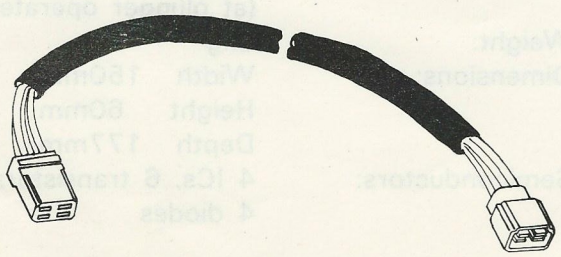

×1
710-5010-31
Hex bolt
(M5×10)


×1
745-0531-00
Special washer

SPA-420-103 (090-0170-05) Speaker assy 2



852-4799-00 Extension lead 1



■FEATURES:

- Horizontal lever system employed in FF. REW (fast forward. rewind) makes fast forward and rewind (both with lock) simple.
- Auto eject mechanism. The tape is automatically ejected when the tape is returned (end of tape side A side B) with the auto eject knob set to the ON position.
- Since a tape winding detection mechanism is provided and the tape is automatically reversed to indicate a mechanical trouble when tape winding has occurred, it can be used with confidence.
- Since individual BAS. TREBLE tone control circuits are employed, the bass and treble tones can be freely adjusted and the desired tone quality can be enjoyed.
- A one direction start function which plays back the tape from track 1-2 (forward direction) when the cassette tape is inserted is provided.

■ADJUSTMENT OF MECHANISM SECTION:

1. Adjusting head azimuth

Incorrect head azimuth with respect to the tape is one of the causes of bad quality of sound and crosstalk. When the head azimuth is not correct, adjust according to the following procedure.

1) Play the test tape 333Hz-15VU, set the volume control to Max. and obtain balance by the balance control.

2) Next play the test tape 6.3KHz – 10VU and adjust by turning the head azimuth adjusting screw so that the output level becomes close to maximum in both forward and reverse directions.

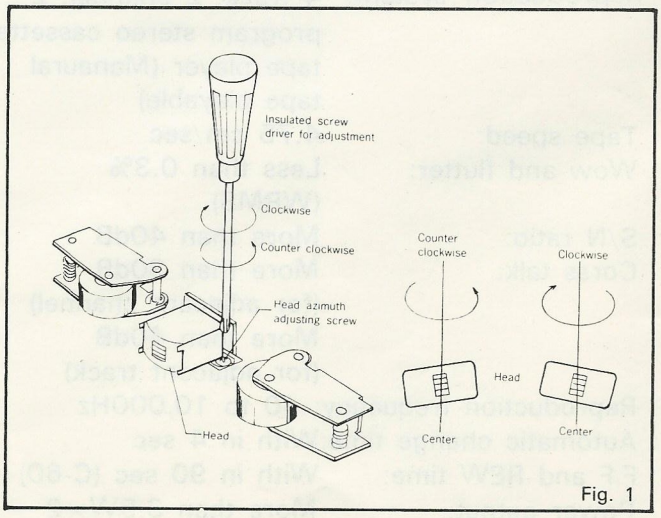


Fig. 1

2. Adjusting pinch roller pressure

1) Measuring method

With the mechanism in playback state, pull the pin attached to the pinch roller mount in the direction shown by arrow in the Fig. 11 using a tension gauge and measure the tension when the pinch roller separates from the capstan. If the tension at this time is found to be 220g ~ 280g, it is normal.

2) Adjusting method

Adjust by bending the spring as shown in the Fig. using radio use pincers.

If adjustment is not possible, replace the prings 750-1684-00, 750-1685-00.

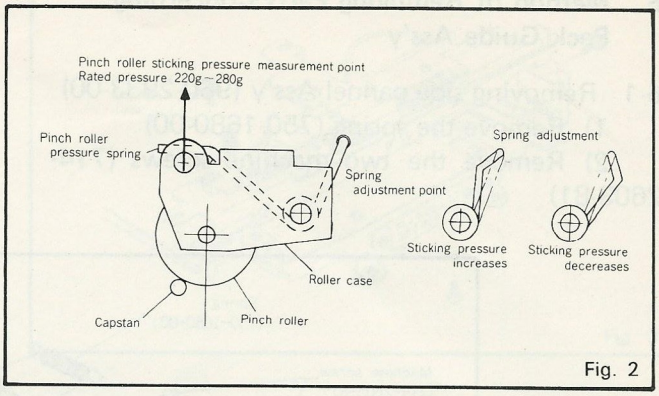


Fig. 2

3. Adjusting head selector switch 013-3066-00

When faults like crosstalk, no sound on one channel, simultaneous lighting of (tape) running indicator lamps, etc. are found on reverse drive to be caused by faulty switch contact, adjust by loosening the fixing screws of the printed board on which the switch is mounted and shifting the printed board to the left or right.

After completing the adjustment, fix the screws by screw lock.

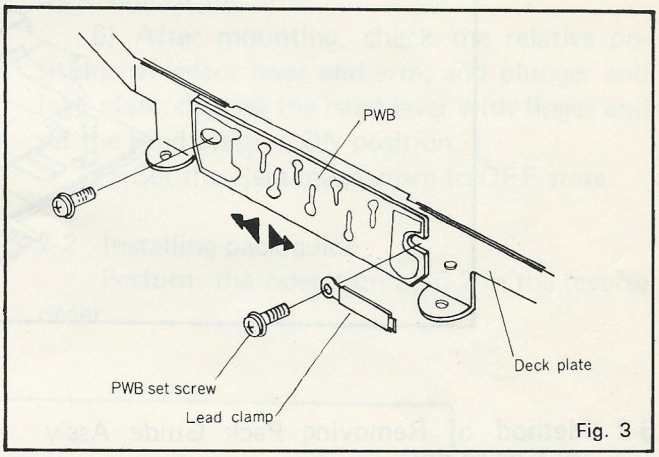


Fig. 3

4. Adjusting the plunger

When faulty switching operation is found to be caused by faulty plunger position, this can be adjusted by loosening the two screws with which the plunger is mounted and shifting the plunger forward or backward. After adjusting, check the switching operation in both forward and reverse directions and fix the screws by screw lock.

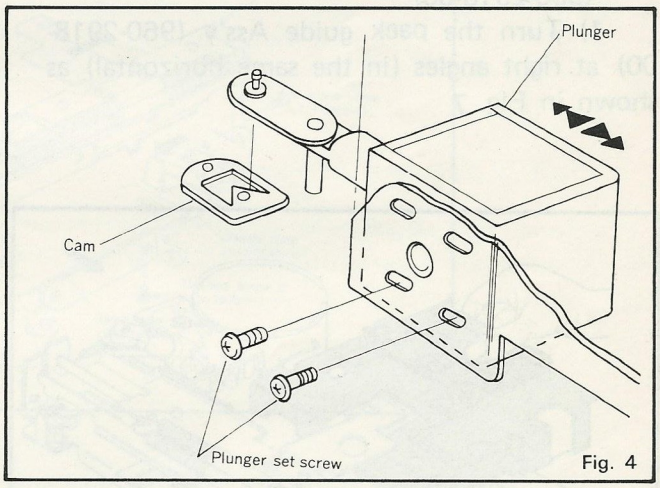


Fig. 4

5. Method of replacing motor

1) Disconnect the power cord of the motor from the printed board using a soldering iron.

2) Remove the 3 screws with which the motor is fixed.

3) Remove the fixing screw of motor pulley and take off the pulley.

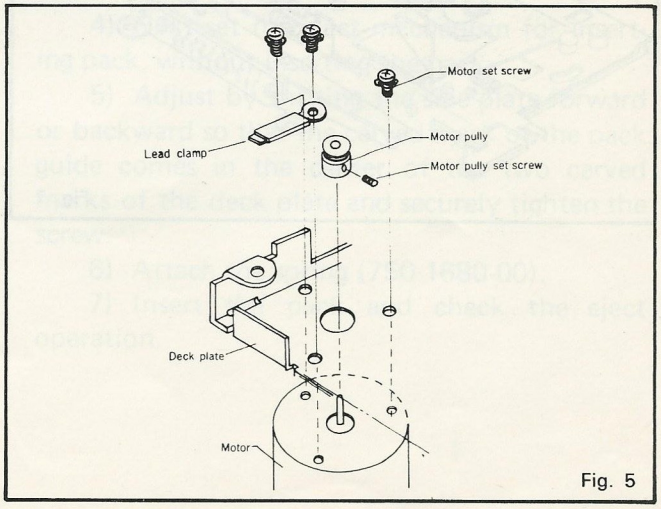


Fig. 5

6. Method of Removing Parts Concerning Pack Guide Ass'y

6-1 Removing side pannel Ass'y (960-2933-00)

1) Remove the spring (750-1680-00)

2) Remove the two machine screws (714-2603-81)

3) Remove the side pannel Ass'y (960-2933-00)

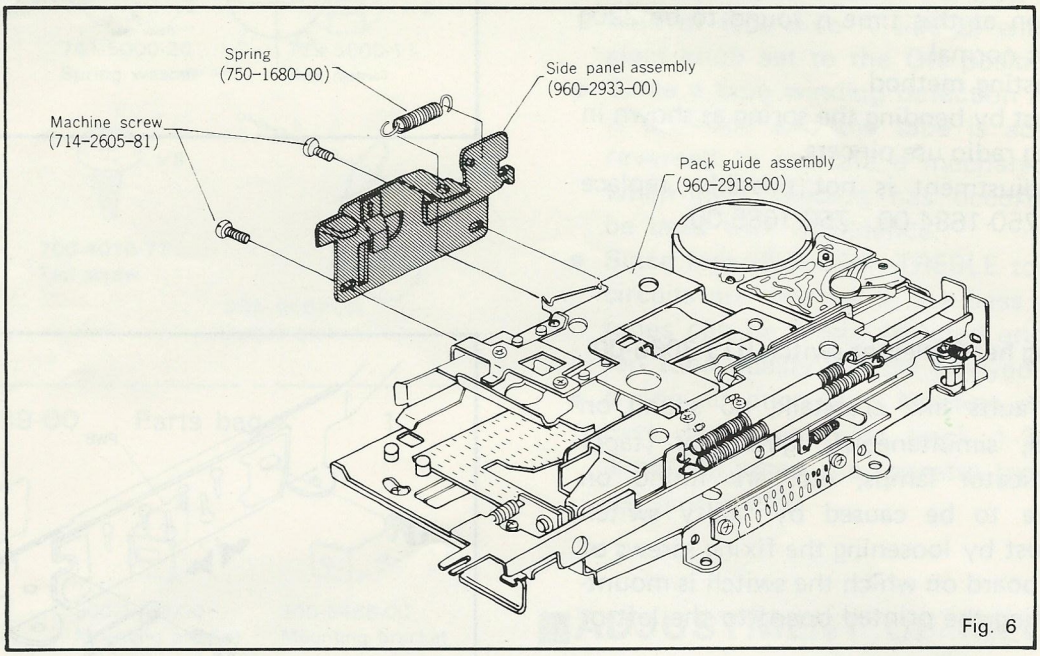


Fig. 6

6-2 Method of Removing Pack Guide Ass'y (960-2918-00)

1) Turn the pack guide Ass'y (960-2918-00) at right angles (in the same horizontal) as shown in Fig. 7

2) Next turn the pack guide Ass'y (960-2918-00) in the vertical direction and take off through the head slot of the reel bade Ass'y (960-2926-00)

NOTE: At this time be careful not to scratch the front surface of the head.

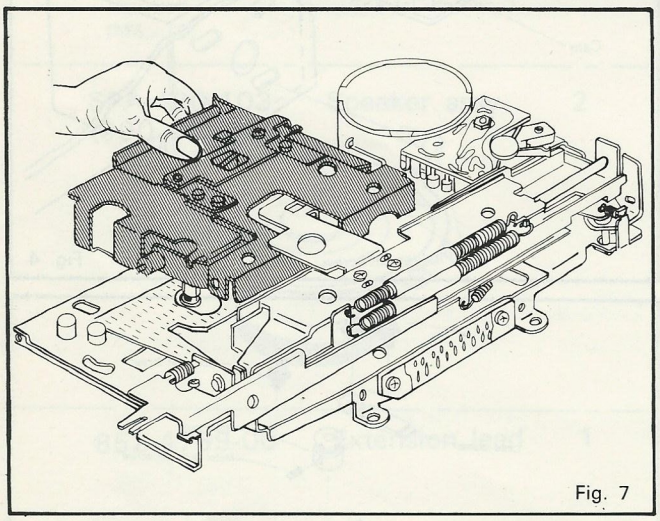


Fig. 7

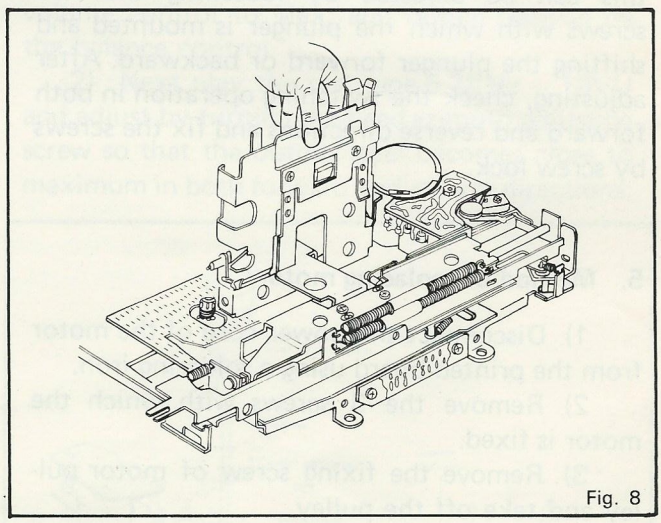


Fig. 8

6-3 Method of Removing Eject Mechanism

1) Remove the 3 machine screws (714-2605-81).

2) Lift the eject mechanism and take it off as a whole.

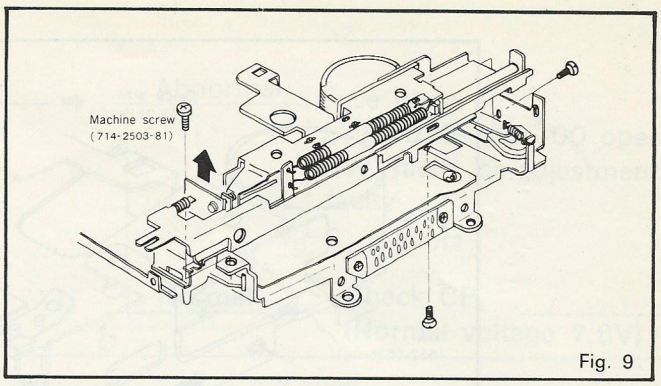


Fig. 9

7. Method of Installing Parts Concerned with Pack Guide Ass'y

7-1 Installing Eject mechanism

1) Set the head plate (960-2917-00) to OFF position.

2) Set the arm (631-0173-00) to the front side.

3) Set the change plate (630-0865-00) to the Forward side.

4) Set the eject mechanism for inserting pack.

5) Insert the protruding part of the eject mechanism into the square hole of the deck and mount the mechanism to the deck plate Ass'y (960-2912-00) with machine screw Ⓐ so that the change plate come to the front side of the protruding part of the lock plate (630-0861-00) and the select lever (630-0859-00) goes to the back side of the arm.

6) After mounting, check the relative positions of select lever and arm, and plunger and lock plate; depress the head lever with finger and set the head plate to ON position.

7) Set the eject mechanism to OFF state.

7-2 Installing pack guide

Perform the operation of 6-2 in the reverse order.

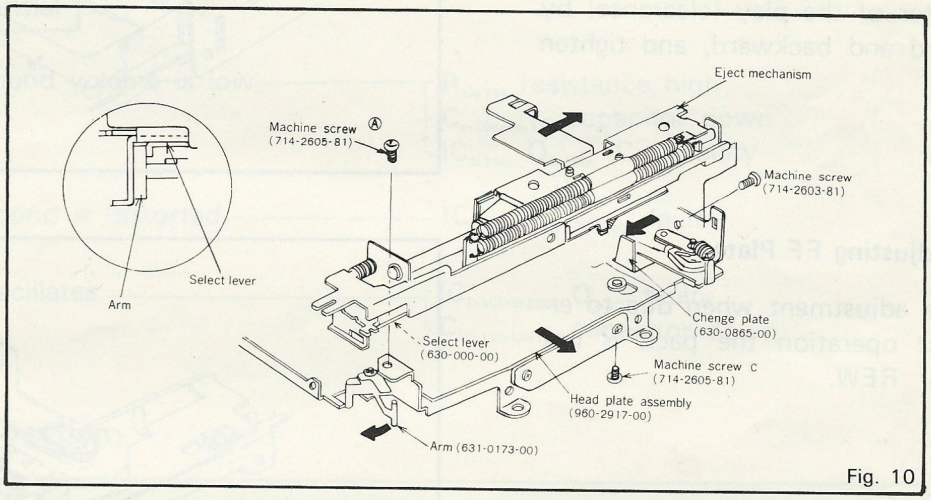


Fig. 10

7-3 Installing side pannel Ass'y (See Fig. 11)

1) Raise the front side of the side pannel a little upward and inser the pin (632-0536-00) into the hole of the guide arm (960-2919-00).

2) Return the side plate parallel to the mechanism.

At this time, make sure that the curved part fo the guide plate (630-0864-01) at the top of pack guide is in the square hole of the side plate.

3) Temporarily fix the mounting screw. (CAUTION: Never use any other mounting screw except 714-2603-81)

4) Next set the eject mechanism for inserting pack, without inserting the pack.

5) Adjust by shifting the side plate forward or backward so that the carved mark of the pack guide comes in the center of the two carved marks of the deck plate and securely tighten the screw.

6) Attach the spring (750-1680-00).

7) Insert the pack and check the eject operation.

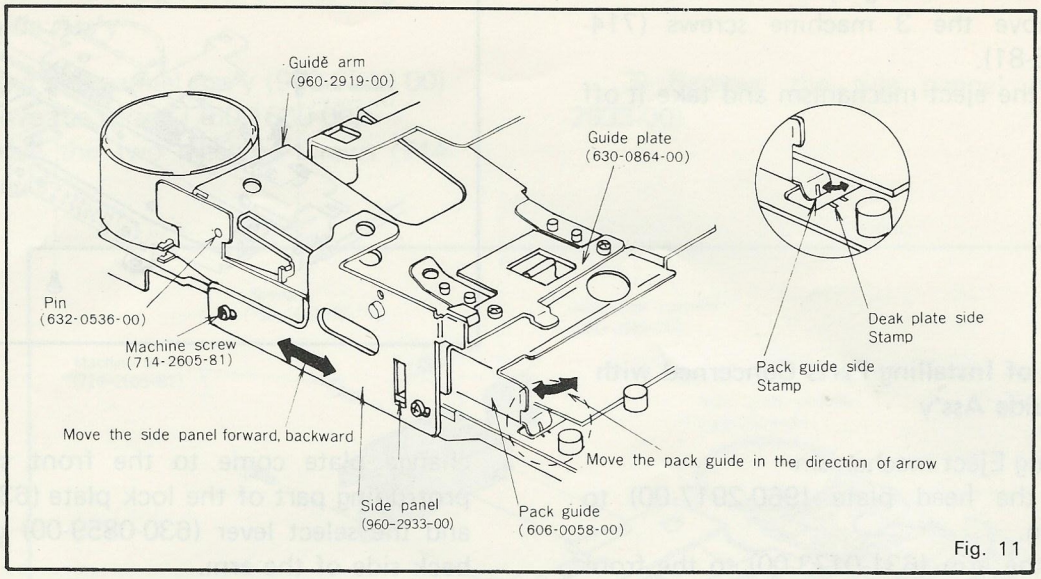


Fig. 11

8. Method of Adjusting Guide Plate

Perform this adjustment when pack insertion is bad and operation is erroneous or eject operation is incomplete.

1) Insert the pack and loosen the screw with which the guide plate (630-0864-01) of the pack guide is fixed. Next drop the pack by slightly pressing it with finger, set the guide plate in the center of the play (clearance) by moving it forward and backward, and tighten the screw.

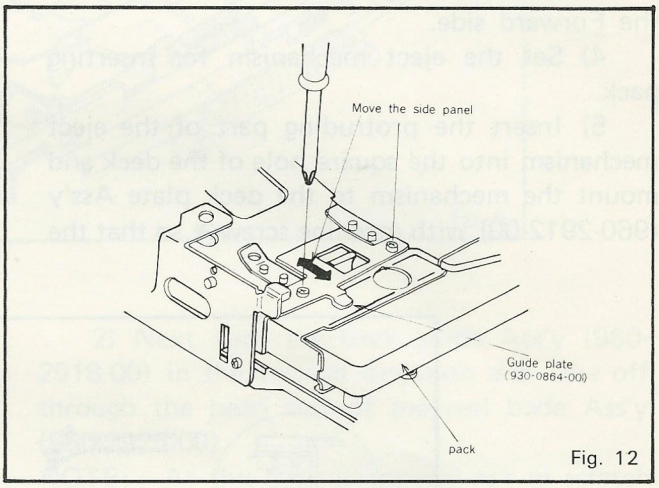
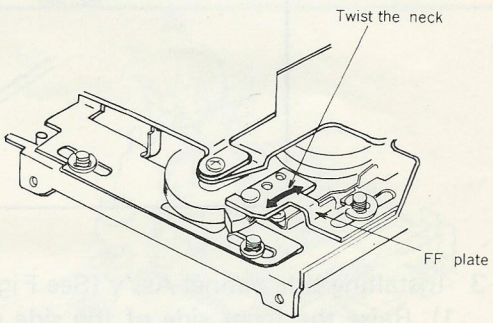


Fig. 12

9. Method of Adjusting FF Plate

Perform this adjustment when due to erroneous autoeject operation the pack is not ejected at FF or REW.



(960-2924-00) Method of bending FF plate

Forward direction when ther is eject fault during FF, bend in ↙ direction

Lever direction when ther is eject fault during FF, bend in ↗ direction

Fig. 13

■TROUBLESHOOTING:

No sound → Check CP_1 (Normal voltage 13.2V)

- Abnormal
  - Fuse open
  - L_1 or 010-1686-00 open
  - SW_1 faulty or adjustment faulty
  - $C_{53,23}$ short
- Normal → Check CP_2 (Normal voltage 7.6V)
  - Abnormal
    - $IC_{1,101}$ faulty
    - R_{53} open
    - C_{52}, R_{52} short
    - R_1, R_{102}, C_{51} short
  - Normal
    - Output circuit check
      - Speaker faulty
      - $CT_{1,2}$ faulty or soldering faulty
      - $C_{24,124,22,122,21,121}$ short
      - $IC_{2,102}$ faulty
    - Tone circuit check
      - $C_{10,110,11,111}$ short
      - $Q_{1,101}$ faulty
      - $R_{12,112}$ open
    - Pre-amp circuit check
      - Head faulty
      - $C_{2,102,6,106}$, $R_{1,101}$ short

Sound is abnormal

- Sound volume is low
  - $R_{13,113}$ resistance high
  - $C_{4,104,16,116}$ capacitor down
  - $IC_{1,101}$, $Q_{1,101}$, $IC_{2,102}$ faulty
- Sound is distorted
  - $IC_{1,101,2,102}$, $Q_{1,101}$ faulty
- Oscillates
  - $IC_{1,101,2,102}$, $Q_{1,101}$ faulty
  - $C_{17,117,21,121}$ capacitor down

⊙Mechanism Section

Symptom	Place and cause of fault	Corrective action
High tones absent	1) Head azimuth adjustment faulty 2) Scratches on head 3) Head dirty	1) Adjust (see 1) 2) Replace the head (see section 6) 3) Clean
No sound	1) Power switch faulty 2) Motor faulty 3) Drive belt came off	1) Replace the power switch (013-3266-00) 2) Replace the motor (020-0320-01) 3) Replace the belt (602-0034-00)
Tape is not being wound (auto reverse due to tape bulging out)	1) Reel base faulty 2) Idler pressure (contact) faulty 3) Cassette tape faulty (cassette curved, tape hard wound → hub does not move)	1) Measure the take-up torque of the reel base. If less than 45g-cm, replace the real base (960-2926-00). 2) Check idler switching mechanism (check by moving the change plate in PLAY state without pack). a. Repair if the idler is stuck up. b. Clean off any oil or grease c. If the spring (750-1683-00) came off, stretch it properly. 3) If the tape is hard wound, move with a pencil, etc. so that it moves smoothly.

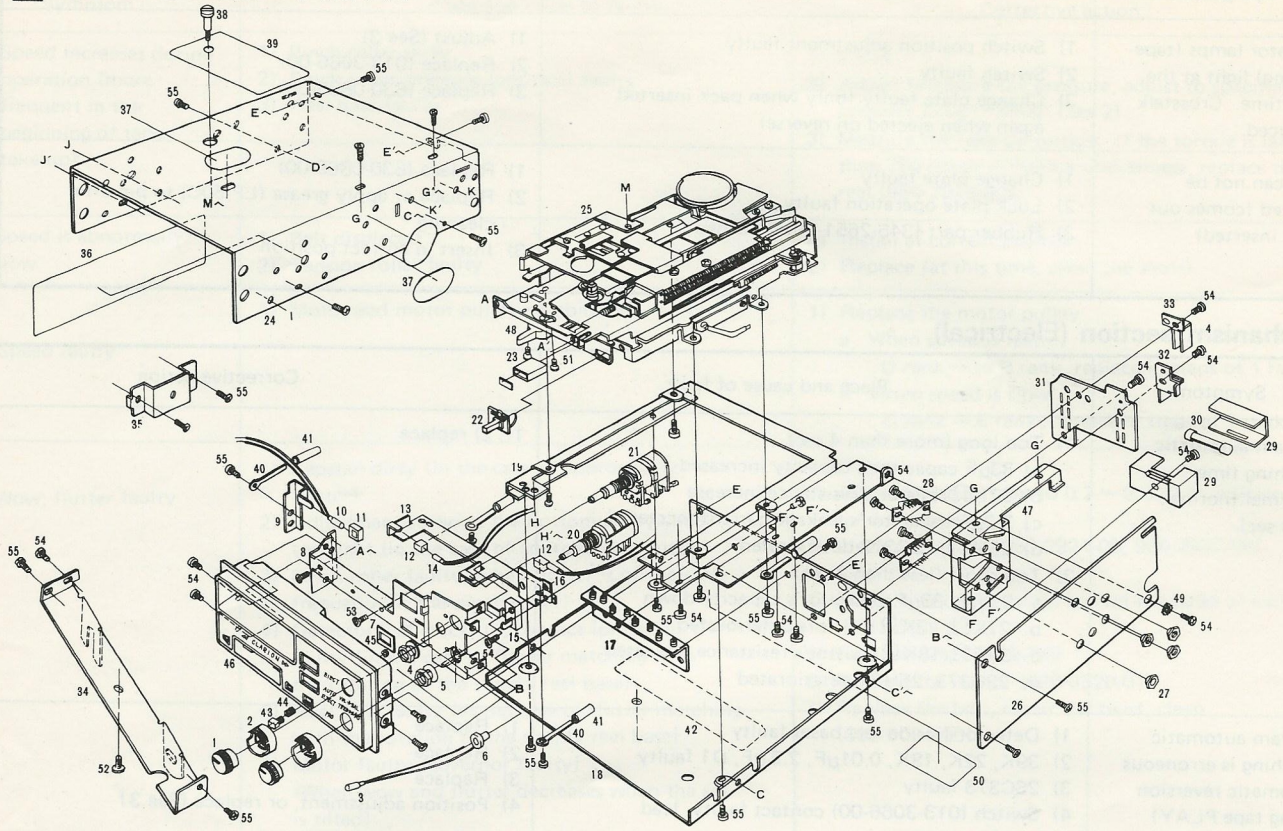
Symptom	Place and cause of faulty	Corrective action
Speed increases during operation (more frequent in the beginning of tape take-up)	1) Pinch roller dirty 2) Pinch roller pressure (contact) faulty 3) Reel base faulty	1) Clean 2) Adjust (measure the pressure, adjust to specified pressure 220g ~ 280g) (See 2). 3) Measure the take-up torque. If the torque is larger than 75g-cm or if there is unevenness, replace the reel (960-2926-00).
Speed is abnormally slow	1) Belt displaced 2) Tension roller faulty	1) Install at correct position 2) Replace (at this time, clean the shaft)
Speed faulty	1) Motor and motor pulley combination faulty	1) Replace the motor pulley a. When speed is fast: D rank → to B rank, replace in steps of 1 rank b. When speed is slow: D rank → E rank, replace in steps of 1 rank
Wow, flutter faulty	1) Capstan dirty (in the case of approx. 8Hz flutter) 2) Adjustment screw at the bottom of flywheel too tight (in the case of approx. 8Hz flutter) 3) Pinch roller faulty (when flutter is of the same frequency as the pinch roller) 4) Detector leaf stuck up, contact (pressure) faulty (in the case of flutter matching with the rotation of the supply reel base) 5) Reel base faulty (in the case of flutter matching with the rotation of the supply reel base) 6) Motor faulty (governor faulty) (When wow and flutter decreases when the set is tilted) 7) Belt faulty (twisted, dirty)	1) Clean 2) Adjust flywheel play to 0.2 ~ 0.3 (0.4 variation for 1 rotation) 3) Clean or replace (960-2921-00, 960-2922-00) (See 6). 4) Replace the detector or correct the bend of leaf. (631-0180-00) 5) Replace (960-2926-00) 6) Replace the motor (020-0320-01) 7) Replace the belt, repair the twist, clean (602-0034-00)
Abnormal reversion during PLAY	1) Detector faulty 2) Reel base faulty 3) Detector contact faulty	1) Replace (631-0180-00) 2) Replace (960-2926-00) 3) Repair the bend of leaf (so that wow and flutter does not worsen)
FF, REW not possible	1) U spring fatigued 2) Spring (750-1689-00) fatigued (slip between flywheel and FF idler) 3) Spring bonding faulty (slip at reel base)	1) Replace (750-1688-00) 2) Replace 3) Take off bond sticking to FF idler shaft side
Program selection not possible	1) Plunger faulty (open) (when NG when the operation is checked with manual switch) 2) Switching mechanism faulty (when only the plunger moves when checked with manual switch) (check the voltage (10V)) 3) Plunger position adjustment faulty (when operates at more than 11V)	1) Replace the plunger 2) Check related parts (spring 750-1681-00, cam plate Ass'y 960-2928-00, cam Ass'y 960-2929-00, change plate 630-0865-00, plate spring 630-0931-00) 3) Adjust (See 4)
Auto eject operation erroneous	1) Select lever stuck up (auto eject performed at the end of tape PLAY after FF, REW) 2) Spring (750-1682-00) displaced (when auto eject performed at tape end at PLAY on forward side) 3) FF, REW mechanism adjustment faulty (auto eject not performed at tape end on FF or REW)	1) Repair select lever (sticking, bending, burr, etc.) (See 6,7) 2) Install at correct position 3) Adjust (See 9)
Pack does not come out	1) Pack insertion mechanism operation faulty a). No grease at the roller shaft of guide arm b). No oil at head plate roller shaft c). No oil at slide plate's shaft roller d). No oil at the rolling contact (corss section of plate) of the rollers 2) Spring (750-1677-00) faulty (loading faulty) (1.1 Kg ± 10% at 102 mm)	1) a), b), c), d): Fill grease containing molybdenum (Nichimori LP-50C) (See section 6,7) 2) Replace with a correct-loading spring
Pack does not drop completely	1) Side panel's mounting position adjustment faulty 2) Pack guide's guide plate adjustment faulty 3) No oil at the sliding part of side panel, guide plate 4) Plate (630-0863-00) position adjustment faulty	1) Adjust (See 7-3) 2) Adjust (See 8) 3) Apply LP-50C 4) Adjust (See 10)

Symptom	Place and cause of faulty	Corrective action
Indicator lamps (tape-running) light at the same time. Crosstalk produced.	1) Switch position adjustment faulty 2) Switch faulty 3) Change plate faulty (only when pack inserted again when ejected on reverse)	1) Adjust (See 3) 2) Replace (013-3066-00) 3) Replace (630-0865-00)
Pack can not be inserted (comes out when inserted)	1) Change plate faulty 2) Lock plate operation faulty 3) Rubber part (345-2651-00) detached	1) Replace (630-0865-00) 2) Replace or apply grease (LP-50C) to pin after cleaning 3) Insert in correct position

⊙Mechanism section (Electrical)

Symptom	Place and cause of fault	Corrective action
Program automatic switching time abnormal (normal: 2 ~ 4 sec)	1) Too long (more than 4 sec) a). 33μF capacitor's capacity increased b). 27KΩ resistor's resistance increase c). 2.2μF capacitor's leakage current increased d). 2SH21, 2SC373 deteriorated 2) Too short (less than 2 sec) a. 2.2μF, 33μF capacitor's capacity down b. 27KΩ, 22KΩ resistors deteriorated c. 39KΩ, 18KΩ resistor's resistance increased d. 2SC373, 2SH21 deteriorated	1), 2) replace
Program automatic switching is erroneous (automatic reversion during tape PLAY)	1) Detector (inside reel base) faulty 2) 39K, 22K, 18K, 0.01μF, 2.2μF, D1 faulty 3) 2SC373 faulty 4) Switch (013-3066-00) contact faulty, lead soldering faulty	1) Replace 2) Replace 3) Replace 4) Position adjustment, or replace (See 3)
Plunger does not operate	Normal values When tape is running: 0.4V At tape end: 0.4 ~ 11V When tape is running: 13.2V At tape end, reversion: 1.2V When tape is running: 13.2V At tape end: 0.2V Manual switch operation check → NG: 1) a. Plunger faulty b. 10D4 short OK → 16-33μ + voltage check → NG: 2) a. 2SC373 faulty b. 2SH21 faulty c. 1S1555 open d. 12K, 27K, 330Ω open e. 16 - 33μF short OK → 2SC735 collector voltage check → NG: 3) a. 33Ω open b. 2SC735 faulty OK → 2SD235 collector voltage check → NG: 4) a. 1K short b. 2SD235 faulty	1) - 4) replace
	NOTE: This mechanism has 2 reel base rotation detecting terminals because of tape coiling prevention. Switching is performed so that detection is made by the take-up reel according to the channel direction. Therefore, when set in PLAY state without inserting cassette pack, automatic reversion is not performed.	
Plunger pull-in time is abnormal (Normal: 0.2 ±0.05 sec)	1) Too long a. 12K resistor's resistance increased b. 33μF capacitor's capacity increased 2) Too short a. 1S1588 short b. 12K resistor deteriorated	1), 2) replace

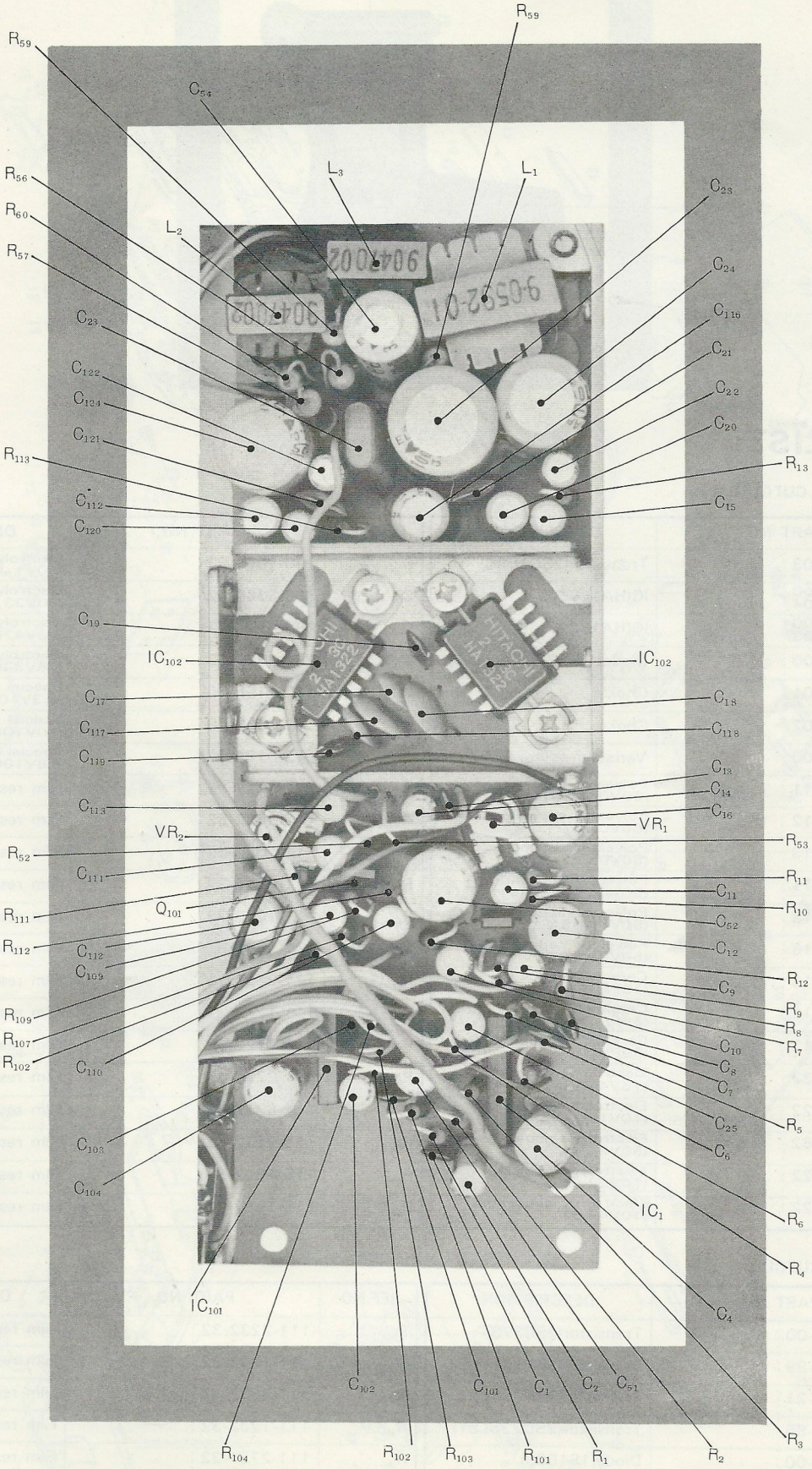
■EXPLODED VIEW: ◎Main section



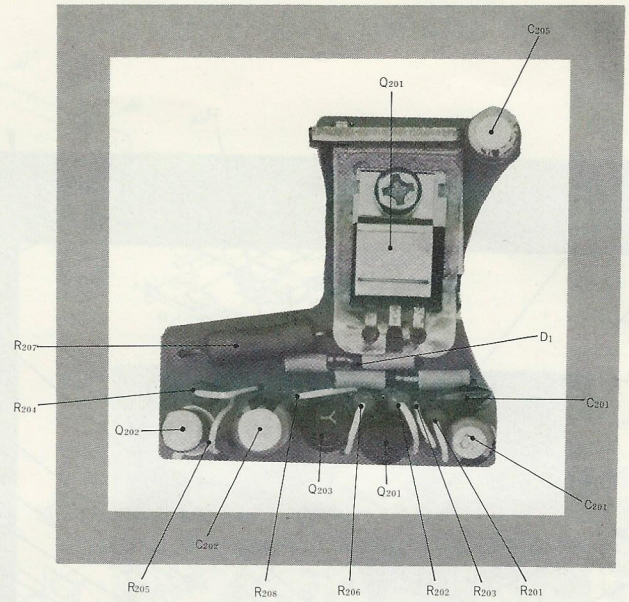
■PARTS LIST: ◎Main section

REF.NO.	PART NO.	DESCRIPTION
1	380-3536-00	Knob
2	380-3537-02	Knob
3	017-0308-00	Pilot lamp
4	722-0231-00	Special nut
5	745-0430-01	Special washer
6	345-2649-00	Rubber part
7	353-0079-03	Shade
8	308-0860-02	Front cover
9	330-5744-01	Pressed part
10	017-0314-22	Pilot lamp
11	345-2650-00	Rubber part
12	345-2648-01	Rubber part
13	330-5743-00	Pressed part
14	017-0314-09	Pilot lamp
15	335-0640-00	Molded part
16	017-0314-03	Pilot lamp
17	944-0449-00	Filter assy
18	311-0897-01	Lower case
19	304-0276-02	Lower cover
20	012-3458-00	Variable resistor
21	012-3459-00	Variable resistor
22	380-3535-00	Knob
23	380-0001A	Knob assy
24	310-0847-02	Upper case
25	930-0432-00	Tape mechanism
26	099-4480-01	PWB
27	725-0182-00	Plate nut
28	051-0036-00	IC(HA1322)

REF.NO.	PART NO.	DESCRIPTION
29	077-0064-00	Fuse reseptacle
30	120-0050-00	Fuse(5A)
31	074-0483-02	Outlet socket
32	330-5210-00	Pressed part
33	330-5199-00	Pressed part
34	300-5529-00	Mounting bracket
35	300-5438-00	Mounting bracket
36	347-0548-01	Paper part
37	290-2567-01	Label
38	716-0282-00	Special screw
39	285-0648-01	Guide label
40	330-4662-00	Pressed part
41	820-4020-03	Vinyl tube
42	353-0062-00	Shade
43	380-3539-00	Knob
44	750-1690-00	Spring
45	743-2000-00	E-ring
46	940-2330-01	Escutcheon assy
47	313-0925-01	Heat sink
48	380-3534-00	Knob
49	742-3000-20	Toothed washer
50	286-3678-00	Setplate
51	714-2604-41	Machine screw(M2.6×4)
52	714-3004-41	Machine screw(M3×4)
53	714-2604-81	Machine screw(M2.6×4)
54	714-3006-81	Machine screw(M3×6)
55	714-3004-81	Machine screw(M3×4)


R59
C54
L3
L1
R59
C23
R56
R60
L2
R57
C24
C116
C23
C21
C122
C22
C124
C20
C121
R13
R113
C112
C15
C120
C19
IC102
IC102
C17
C18
C117
C118
C119
C13
C14
C113
C16
VR2
VR1
R53
R52
C111
R11
C11
R111
Q101
R10
C52
R112
C112
C12
C109
R12
C9
R109
R9
R107
R8
C10
R102
R7
C8
C110
C7
C25
R5
C103
C6
C104
R6
IC1
R4
IC101
C4
C102
C101
C1
C2
C51
R3
R104
R102
R103
R101
R1
R2

PT-818A·N



PARTS LIST:

◎Pre. Main-amp curcuit

REF.NO.	PART NO.	DESCRIPTION
$Q_{1,2}$	102-0458-03	Transistor(2SC458C)
$IC_{1,101}$	051-0035-00 ~04	IC(HA1406)
$IC_{2,102}$	051-0036-00 ~03	IC(HA1322)
D_2	001-0077-00	Diode(10D4)
L_1	009-0592-01	Choke
$L_{2,3}$	009-0470-02	Choke
$VR_{1,2}$	012-2740-00	Variable resistor
$C_{1,13,101,113}$	141-1523-11	Polyestor capacitor (50V0.0015μF)
$C_{5,105}$	141-1033-12	Polyestor capacitor (50V0.01μF)
$C_{25,107,125}$	141-2233-13	Polyestor capacitor (50V0.022μF)
$C_{8,19,108,119}$	141-4723-11	Polyestor capacitor (50V0.0047μF)
$C_{21,121}$	141-3933-13	Polyestor capacitor (50V0.039μF)
$C_{23,123}$	141-1043-16	Polyestor capacitor (50V0.1μF)
$C_{3,103}$	151-1002-13	Ceramic capacitor (10PFCH)
$C_{17,117}$	154-5602-13	Ceramic capacitor (56PFCH)
$C_{18,118}$	152-3902-13	Ceramic capacitor (39PFCH)
$C_{2,102}$	180-4759-32	Electrolytic capacitor (16V4.7μF)
$C_{4,16,104,116}$	180-1074-22	Electrolytic capacitor (10V100μF)
$C^{6,9,10,11,14}_{106,109,110,111,114}$	180-2254-62	Electrolytic capacitor (50V2.2μF)
$C_{15,115}$	180-2264-22	Electrolytic capacitor (10V22μF)
$C_{20,120}$	180-4764-22	Electrolytic capacitor (10V47μF)

REF.NO.	PART NO.	DESCRIPTION
$C_{22,122}$	180-1054-62	Electrolytic capacitor (50V1μF)
C_{51}	180-3364-22	Electrolytic capacitor (10V33μF)
C_{52}	180-4774-22	Electrolytic capacitor (10V470μF)
C_{54}	180-3374-32	Electrolytic capacitor (16V330μF)
$C_{12,112}$	042-0155-00	Special capacitor (6.3V100μF)
$C_{24,124}$	042-0153-00	Special capacitor (10V1000μF)
C_{53}	042-0178-00	Special capacitor (16V1000μF)
$R_{1,101}$	141-2232-32	Film resistor(¼W22KΩ)
$R_{2,102}$	111-5632-32	Film resistor(¼W56KΩ)
$R^{3,5,6,7,103}_{105,106,107}$	111-1032-32	Film resistor(¼W10KΩ)
$R_{4,10,104,110}$	111-2242-32	Film resistor(¼W220KΩ)
$R_{8,11,108,111}$	111-1022-32	Film resistor(¼W1KΩ)
$R_{9,109}$	111-3342-32	Film resistor(¼W330KΩ)
$R_{12,112}$	111-6822-32	Film resistor(¼W6.8KΩ)
$R_{13,113}$	111-1212-32	Film resistor(¼W120Ω)
R_{51}	111-4722-32	Film resistor(¼W4.7KΩ)
R_{52}	111-2222-32	Film resistor(¼W2.2KΩ)
R_{53}	111-8212-32	Film resistor(¼W820Ω)
$R_{56,57}$	115-2512-52	Film resistor(1W250Ω)
$R_{58,59}$	115-1812-52	Film resistor(1W180Ω)
R_{60}	115-1512-52	Film resistor(1W150Ω)

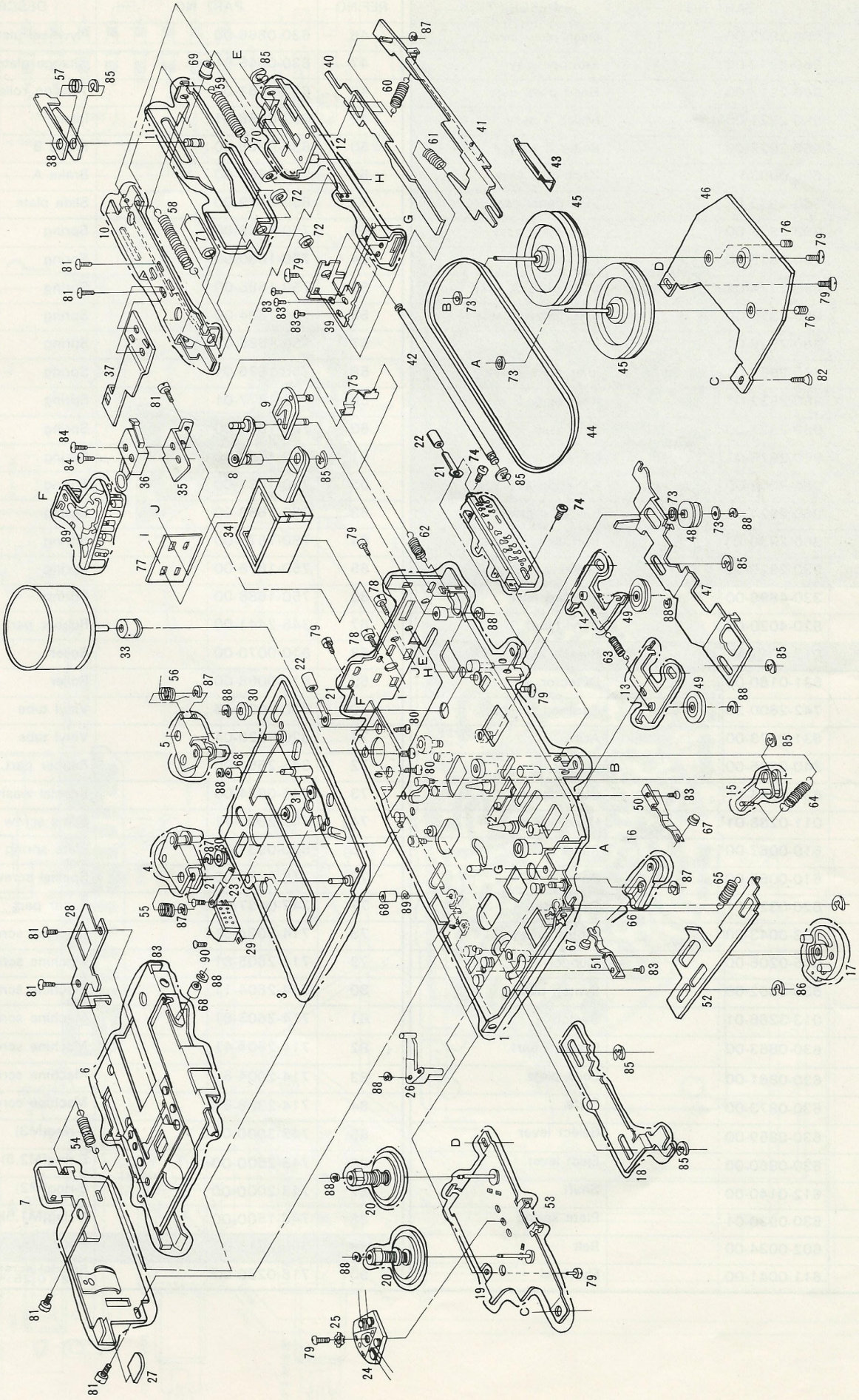
◎Auto reverse curcuit

REF.NO.	PART NO.	DESCRIPTION
Q_{201}	102-0373-00	Transistor(2SC373)
Q_{202}	106-0021-99	Transistor(2SH21)
Q_{203}	102-0735-21	Transistor(2SC735Y)
Q_{204}	103-0235-85	Transistor(2SD235LBY)
$D_{1,4}$	001-0112-00	Diode(1S1588)
C_{201}	180-2253-62	Electrolytic capacitor (50V2.2μF)
C_{202}	181-3363-32	Electrolytic capacitor (16V33μF)
C_{204}	141-1033-12	Polyester capacitor (50V0.01μF)
C_{205}	180-1064-32	Electrolytic capacitor (16V10μF)

REF.NO.	PART NO.	DESCRIPTION
R_{201}	111-2232-32	Film resistor(¼W22KΩ)
R_{202}	111-1832-32	Film resistor(¼W18KΩ)
R_{203}	111-3932-32	Film resistor(¼W39KΩ)
R_{204}	111-1232-32	Film resistor(¼W12KΩ)
R_{205}	111-2731-32	Film resistor(¼W27KΩ)
R_{206}	111-3312-32	Film resistor(¼W330Ω)
R_{207}	114-3302-51	Film resistor(1W33Ω)
R_{208}	111-1022-32	Film resistor(¼W1KΩ)

* EXPLODED VIEW:

◎Mechanism section



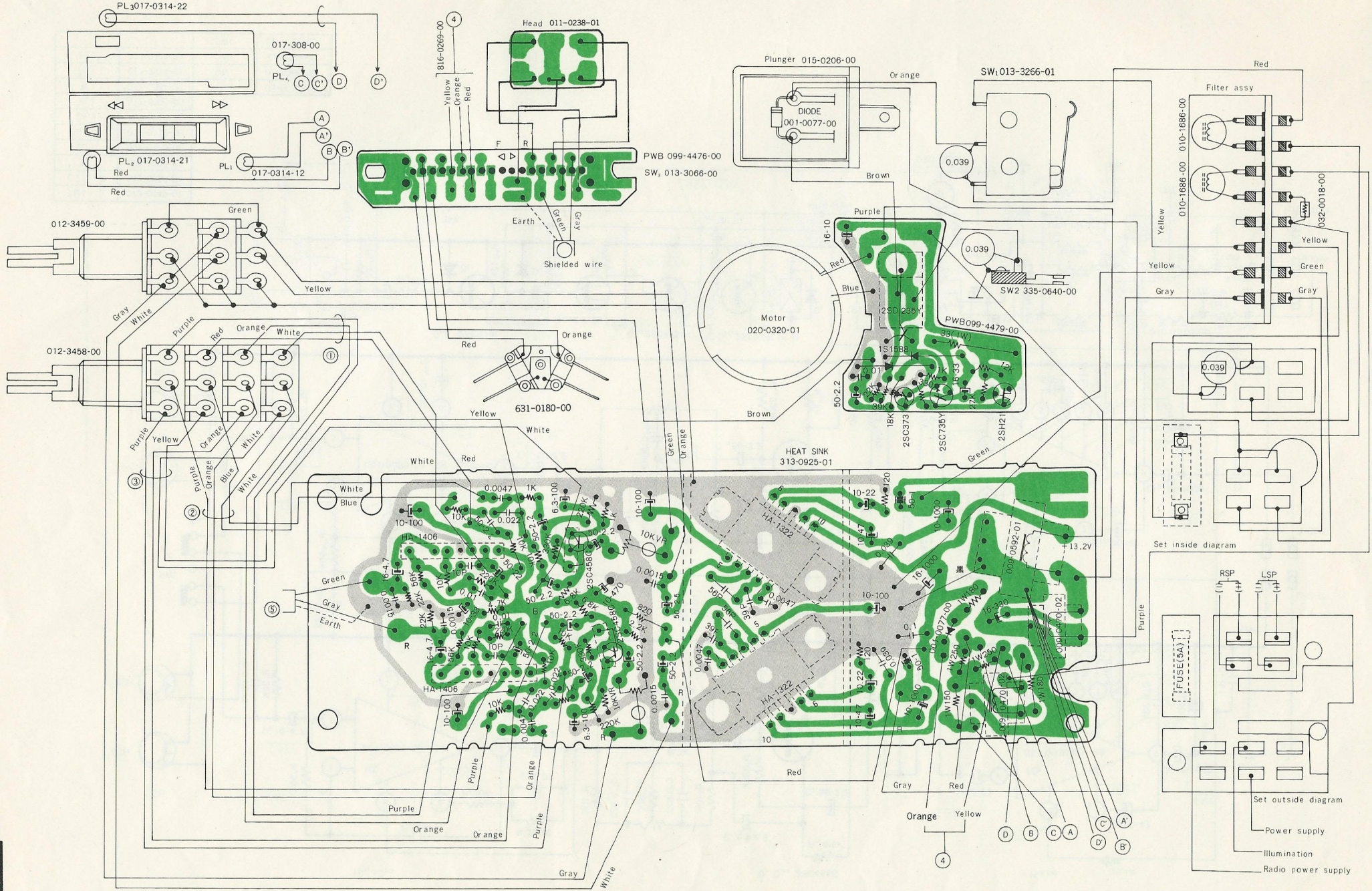
■PARTS LIST:

◎Mechanism section

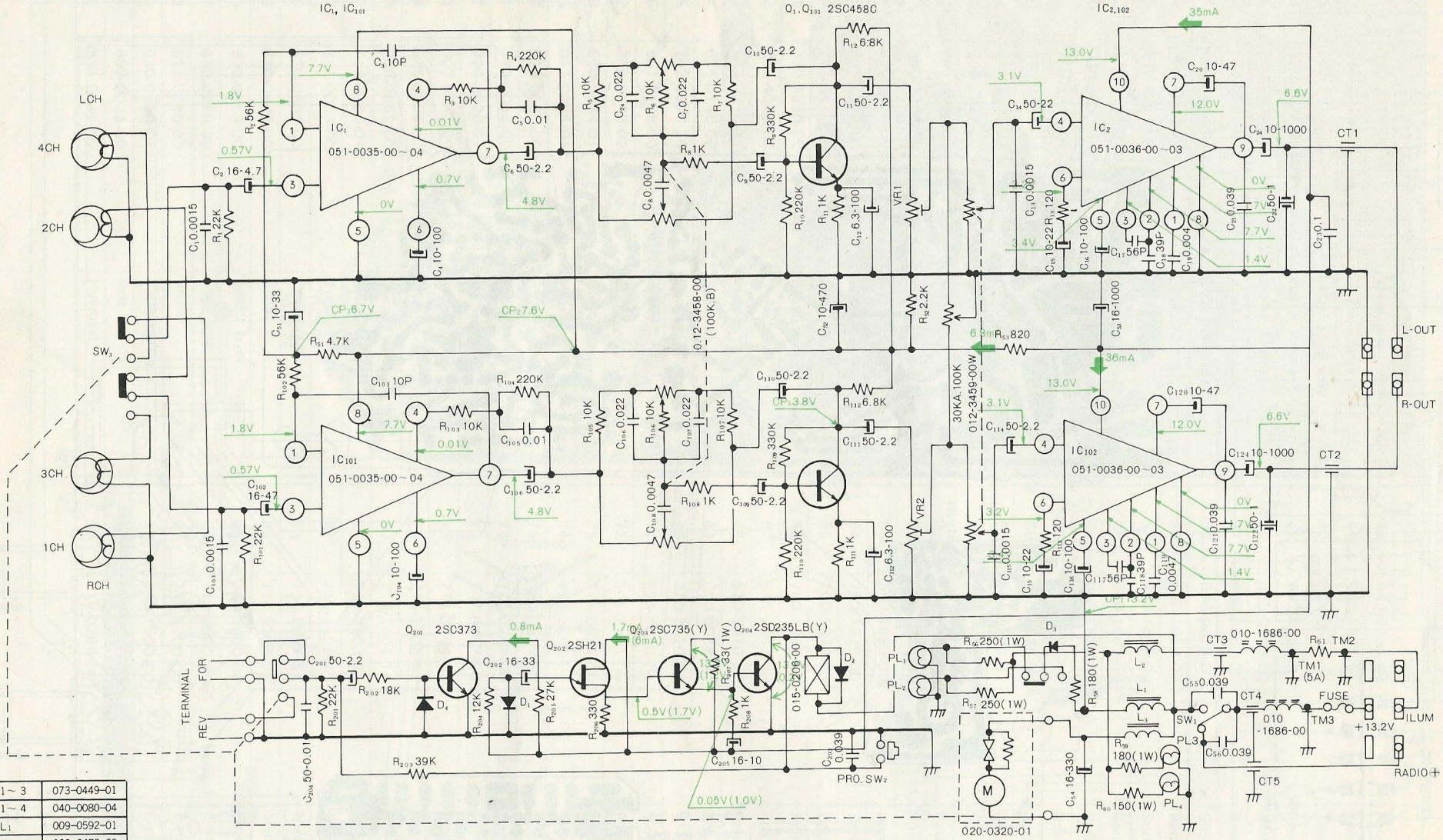
REF.NO.	PART NO.	DESCRIPTION
1	960-2912-00	Deck plate assy
2	960-2913-00	Stopper assy
3	960-2917-00	Head plate assy
4	960-2921-00	Roller A assy
5	960-2922-00	Roller B assy
6	606-0003A	Pack guid assy
7	960-2933-01	Side panel assy
8	960-2928-00	Cam plate assy
9	960-2929-00	Cam assy
10	960-2914-01	Slide plate A assy
11	960-2915-00	Slide plate B assy
12	960-2916-01	Frame assy
13	960-2931-01	Idler plate A assy
14	960-2932-01	Idler plate B assy
15	960-2927-00	Rink assy
16	960-2925-01	F.F arm assy
17	960-3002-00	F.F knob assy
18	960-2924-00	F.F plate assy
19	960-2930-01	Bottom plate assy
20	960-2926-02	Reel base assy
21	330-4896-00	Pressed part
22	820-4020-02	Vinyl-tube
23	013-0013 A	Switch assy
24	631-0180-00	Detector
25	742-2600-20	Toothed washer
26	631-0173-00	Arm
27	340-0395-00	Spacer
28	630-0864-01	Guide label
29	011-0238-01	Head
30	610-0067-00	Roller
31	610-0065-00	Roller
32	020-0320-01	DC motor
33	603-0043-00	Motor pulley
34	015-0206-00	Plunger
35	630-0862-00	Switch plate
36	013-3266-01	Switch
37	630-0863-00	Pressed part
38	630-0861-00	Lock plate
39	630-0873-00	Plate
40	630-0859-00	Select lever
41	630-0860-00	Eject lever
42	612-0140-00	Shaft
43	630-0930-01	Plate spring
44	602-0034-00	Belt
45	611-0041-00	Flywheel

REF.NO.	PART NO.	DESCRIPTION
46	630-0866-00	Flywheel plate
47	630-0865-01	Change plate
48	632-0561-00	Tension roller
49	632-0558-01	Idler
50	630-0868-00	Brake B
51	630-0867-00	Brake A
52	630-0879-00	Slide plate
53	750-1689-00	Spring
54	750-1680-00	Spring
55	750-1685-00	Spring
56	750-1684-00	Spring
57	750-1686-01	Spring
58	750-1676-01	Spring
59	750-1677-01	Spring
60	750-1682-00	Spring
61	750-1687-00	Spring
62	750-1681-00	Spring
63	750-1683-00	Spring
64	750-1679-00	Spring
65	750-1678-00	Spring
66	750-1688-00	Spring
67	345-2441-00	Rubber part
68	610-0070-00	Roller
69	610-0068-00	Roller
70	820-3020-05	Vinyl tube
71	820-4020-04	Vinyl tube
72	345-2651-00	Rubber part
73	746-0624-00	Special washer
74	732-2605-11	Sems screw
75	630-0931-00	Plate spring
76	716-0281-00	Special screw
77	347-0437-00	Paper part
78	714-3004-81	Machine screw(M3×4)
79	714-2605-81	Machine screw(M2.6×5)
80	714-2604-11	Machine screw(M2.6×4)
81	714-2603-81	Machine screw(M2.6×3)
82	714-2605-41	Machine screw(M2.6×5)
83	714-2004-81	Machine screw(M2×4)
84	714-2308-81	Machine screw(M2.3×8)
85	743-3000-00	E-ring(M3)
86	743-2500-00	E-ring(M2.5)
87	743-2000-00	E-ring(M2)
88	743-1500-00	E-ring(M1.5)
89	990-0216-00	PWB assy
90	716-0286-00	Special screw (M2×0.25×4)

* PRINTED WIRING BOARD:



* CIRCUIT DIAGRAM



TM1~3	073-0449-01		
CT1~4	040-0080-04		
L_1	009-0592-01		
$L_{2,3}$	009-0470-02		
D_1, D_4	001-0112-00		
$D_{2\sim3}$	001-0112-00		
PL_4	017-0308-00		
PL_3	017-0314-22	R_{60}	03-0018-00
PL_2	017-0314-21	SW_3	01-3066-00
PL_1	017-0314-12	SW_2	33-0640-00
		SW_1	01-3236-00