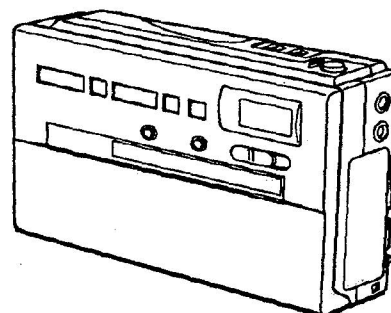


**AIWA®****HS-F505****SERVICE  
MANUAL**

STEREO CASSETTE RECORDER

• BASIC TAPE MECHANISM :  $\alpha-2$ 

• TYPE. AH1, AE, AK1

## SPECIFICATIONS

Maximum output. 10 mW + 10 mW (EIAJ/32 ohms)  
12 mW + 12 mW (EIAJ/16 ohms)

Power sources 3 V DC  
Conventional battery: LR-03 (UM-4, AAA, R03; 2)  
Rechargeable battery: PB-4  
Household AC power (using the optional AC-207  
AC adaptor)

Battery life (EIAJ, using PB-4 rechargeable battery)

Recharging (min.)	15	60
Playback (1 mW)(h)	Approx. 2.5	Approx. 3.5
Recording (h)		Approx. 2.5

Dimensions 77.4 (W) × 107.5 (H) × 27.6 (D) mm  
incl. projecting parts and controls

Weight Approx. 230 g incl. rechargeable battery

- Design and specifications are subject to change without notice.
- Noise reduction system manufactured under license from Dolby Laboratories Licensing Corporation.
- "Dolby", the double-D symbol are trademarks of Dolby Laboratories Licensing Corporation.

**AIWA Co., Ltd.****Tokyo Japan**

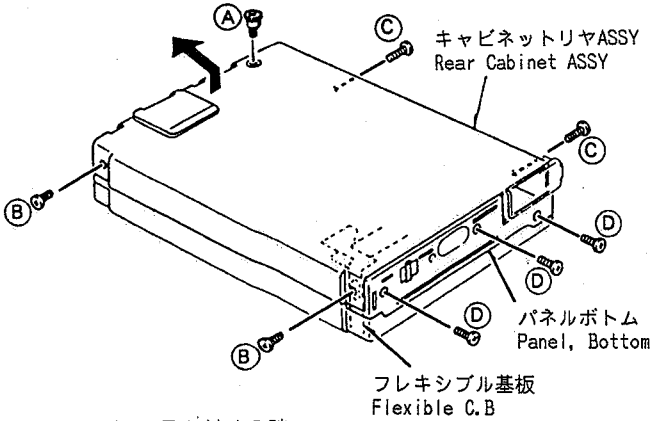
Printed in Japan

# DISASSEMBLY INSTRUCTIONS

## 1. "Rear Cabinet ASSY" and "Panel, Bottom" Removal (See Figure 1)

- 1) Remove 5 screws (A)×1, (B)×2, (C)×2 holding the "Rear Cabinet ASSY".
- 2) Remove 3 screws (D)×3 holding the "Panel, Bottom".

A	Hinge screw M1.4
B	V+1.4-2
C	V+1.4-3
D	Special screw 1.4-3



注) このビスを取り付ける時  
フレキに注意する。  
Note) Be careful of the flexible  
circuit board when tightening  
this screw.

Fig. 1

## 2. "Frame, Center" Removal (See Figure 2)

- 1) While releasing the hooks in the directions of arrows ① and ②, remove the "Frame, Center". Be careful because 2 knobs come off at this time.

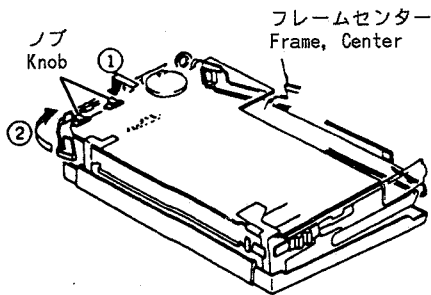


Fig. 2

## 3. "Main Circuit Board" Removal (See Figure 3)

- 1) Remove 3 screws (A)×2, (B)×1 and then remove the "Main circuit board" in the direction of the arrow.

Note) Connection of external power supply

・ The main unit does not have an external DC jack.  
When checking the operation (conducting) by opening the "Main circuit board", stand pins on patterns (B+, GND) and supply power using alligator clips, etc.

A	Screw serrate M1.4-2
B	Special screw +1.4-1.4

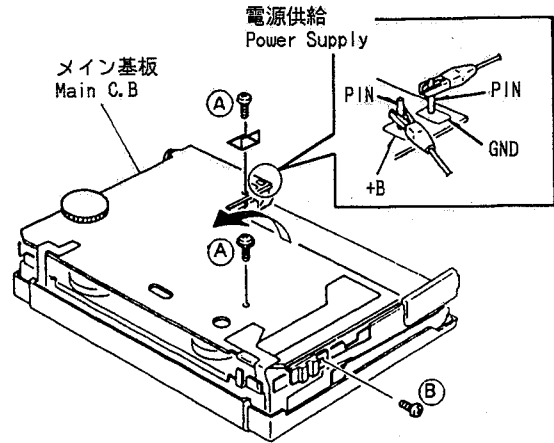


Fig. 3

## 4. "Motor Circuit Board" Removal (See Figure 4)

- 1) Remove 2 screws, unsolder the soldered section and remove the circuit board in the direction of the arrow.

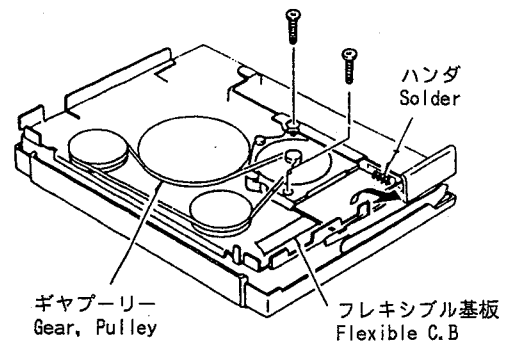


Fig. 4

### 5. Azimuth Adjustment (See Figure 5)

- Adjust the azimuth in both the FWD and REV tape running modes.
- Apply locking paint to the tips of the adjustment screws (near the head). When either the forward or reverse mode is set, the screw corresponding to the mode can be seen through the hole in the main circuit board as shown in the figure. Loosen this screw by 1~1,5 turns and the adjust it.
- After adjustment is completed, wipe off the locking paint from the screws.

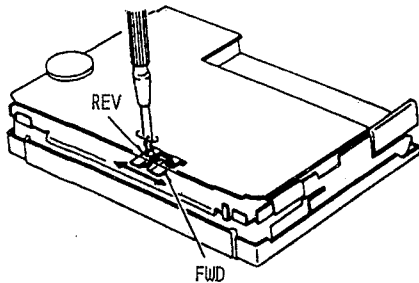


Fig. 5

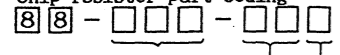
## ELECTRICAL MAIN PARTS LIST

REF.NO.	PART NO.	DESCRIPTION	REF.NO.	PART NO.	DESCRIPTION
=== IC ===			=== MAIN CIRCUIT BOARD SECTION ===		
87-020-498-010		IC,BA3818F	C1	*87-010-746-010	CAP,CHIP TANTALUM 10-4
87-001-373-010		IC,CXA1278N	C2	*87-010-746-010	CAP,CHIP TANTALUM 10-4
87-001-621-010		IC,LC7600	C3	*87-010-197-010	CAP,CHIP S 0.01-25
87-020-224-010		IC,NJM2063A	C4	*87-010-197-010	CAP,CHIP S 0.01-25
87-001-723-010		IC,NJM2076M	C5	*87-010-182-010	CAP,CHIP S 2200P-50
87-020-234-010		IC,TA7688F(S)	C6	*87-010-182-010	CAP,CHIP S 2200P-50
87-001-583-010		IC,TC7S00F	C7	*87-010-192-010	CAP,CHIP S 0.022-50
87-001-584-010		IC,TC7S02F	C8	*87-010-192-010	CAP,CHIP S 0.022-50
87-001-551-010		IC,TC7S08F	C9	*87-010-180-010	CAP,CHIP S 1500P-50
87-001-513-010		IC,TC9311F-014	C10	*87-010-180-010	CAP,CHIP S 1500P-50
=== TRANSISTOR ===			C11	*87-010-215-010	CAP,CHIP TANTALUM 0.047-35
89-508-804-010		FET,2SK880Y	C12	*87-010-215-010	CAP,CHIP TANTALUM 0.047-35
89-112-134-010		TRANSISTOR,2SA1213Y	C13	*87-010-188-010	CAP,CHIP S 6800P-50
89-113-625-010		TRANSISTOR,2SA1362GR	C14	*87-010-188-010	CAP,CHIP S 6800P-50
89-115-864-010		TRANSISTOR,2SA1586Y	C15	*87-010-664-010	CAP,CHIP ELECT 47-4
89-115-884-010		TRANSISTOR,2SA1588Y	C16	*87-010-747-010	CAP,CHIP TANTALUM 22-4
89-341-165-010		TRANSISTOR,2SC4116GR	C17	*87-015-934-010	CAP,CHIP TANTALUM 2.2-4
89-342-132-010		TRANSISTOR,2SC4213B	C18	*87-015-934-010	CAP,CHIP TANTALUM 2.2-4
87-026-473-010		TRANSISTOR,HN1A01F(GR)	C19	*87-010-746-010	CAP,CHIP TANTALUM 10-4
87-026-467-010		TRANSISTOR,HN1C01F(GR)	C20	*87-010-746-010	CAP,CHIP TANTALUM 10-4
87-026-470-010		TRANSISTOR,HN1C03F(B)	C21	*87-010-746-010	CAP,CHIP TANTALUM 10-4
87-026-411-010		TRANSISTOR,RN1304	C22	*87-010-746-010	CAP,CHIP TANTALUM 10-4
87-026-413-010		TRANSISTOR,RN1305	C23	*87-010-176-010	CAP,CHIP S 680P-50 SL
87-026-482-010		TRANSISTOR,RN4610	C24	*87-010-176-010	CAP,CHIP S 680P-50 SL
=== DIODE ===			C25	*87-010-182-010	CAP,CHIP S 2200P-50
87-001-599-010		DIODE,CHIP 1MN11	C26	*87-010-197-010	CAP,CHIP S 0.01-25
87-001-167-010		DIODE,CHIP 1SS302	C27	*87-010-424-010	CAP,CHIP TANTALUM 4.7-4
87-020-737-010		DIODE,CHIP MA713	C28	*87-010-197-010	CAP,CHIP S 0.01-25
			C29	*87-010-184-010	CAP,CHIP S 3300P-50
			C30	*87-010-197-010	CAP,CHIP S 0.01-25

REF.NO.	PART NO.	DESCRIPTION	REF.NO.	PART NO.	DESCRIPTION
C31	*87-010-188-010	CAP,CHIP S 6800P-50	SFR1	*87-024-288-010	SFR 10K
C32	*87-010-188-010	CAP,CHIP S 6800P-50	SFR2	*87-024-288-010	SFR 10K
C33	*87-010-194-010	CAP,CHIP S 0.047-25	TM2	89-HK2-215-010	BATTERY-CONTACT ASSY
C34	*87-010-194-010	CAP,CHIP S 0.047-25	TM3	87-033-201-210	BATTERY TERMINAL ASSY
C35	*87-010-193-010	CAP,CHIP S 0.033-25	VR1	87-024-155-010	VOLUME 20K(A)(VOLUME)
C36	*87-010-193-010	CAP,CHIP S 0.033-25	=== CONTROL CIRCUIT BOARD SECTION ===		
C37	*87-010-214-010	CAP,CHIP TANTALUM 0.68-16	C401	*87-010-424-010	CAP,CHIP TANTALUM 4.7-4
C38	*87-010-214-010	CAP,CHIP TANTALUM 0.68-16	C402	*87-010-158-010	CAP,CHIP S 22P-50 SL
C39	*87-010-186-010	CAP,CHIP S 4700P-50	C403	*87-012-141-010	CAP,CHIP S 0.22-16
C40	*87-010-186-010	CAP,CHIP S 4700P-50	C404	*87-012-141-010	CAP,CHIP S 0.22-16
C41	*87-010-196-010	CAP,CHIP S 0.1-25	C407	*87-010-152-010	CAP,CHIP S 8P-50 CH
C42	*87-010-664-010	CAP,CHIP ELECT 47-4	LCD1	84-512-611-010	LCD(DISPLAY)
C43	*87-010-196-010	CAP,CHIP S 0.1-25	LED401	87-020-510-010	LED,SLM-23VM (TP)(OPE/BATT)
C44	*87-010-196-010	CAP,CHIP S 0.1-25	S401	87-030-152-010	TACT SW(STOP/DIR)
C45	*87-010-452-010	CAP,CHIP 1-16	S402	87-030-152-010	TACT SW(FFWD)
C46	*87-010-452-010	CAP,CHIP 1-16	S403	87-030-152-010	TACT SW(REW)
C47	*87-010-195-010	CAP,CHIP S 0.068-25	S404	87-030-152-010	TACT SW(RECORD)
C48	*87-010-195-010	CAP,CHIP S 0.068-25	S405	87-030-152-010	TACT SW(PLAY/DIR)
C49	*87-010-195-010	CAP,CHIP S 0.068-25	S406	87-030-152-010	TACT SW(RESET)
C50	*87-010-195-010	CAP,CHIP S 0.068-25	S407	87-030-152-010	TACT SW(TIME SET)
C51	*87-010-192-010	CAP,CHIP S 0.022-50	S408	87-036-146-010	SLIDE SW(TIME/COUNTER)
C52	*87-010-192-010	CAP,CHIP S 0.022-50	X401	87-030-193-010	XTAL 32.768KHZ
C53	*87-015-932-010	CAP,CHIP TANTALUM 0.47-20	=== HEAD FLEX. CIRCUIT BOARD SECTION ===		
C54	*87-015-932-010	CAP,CHIP TANTALUM 0.47-20		84-497-609-010	HEAD FLEXIBLE CIRCUIT BOARD
C57	*87-010-452-010	CAP,CHIP 1-16		86-550-602-010	HEAD ASSY
C58	*87-010-452-010	CAP,CHIP 1-16	RPH	84-497-607-010	HEAD ASSY(W/PCB-C)
C59	*87-010-667-010	CAP,CHIP ELECT 100-4	=== SP AMP CIRCUIT BOARD SECTION ===		
C60	*87-010-664-010	CAP,CHIP ELECT 47-4	C201	*87-010-668-010	CAP,CHIP ELECT 220-4
C61	*87-010-452-010	CAP,CHIP 1-16	C202	*87-010-668-010	CAP,CHIP ELECT 220-4
C62	*87-010-452-010	CAP,CHIP 1-16	C203	*87-010-180-010	CAP,CHIP S 1500P-50
C63	*87-010-174-010	CAP,CHIP S 470P-50 SL	C204	*87-010-196-010	CAP,CHIP S 0.1-25
C64	*87-010-174-010	CAP,CHIP S 470P-50 SL	C205	*87-010-450-010	CAP,CHIP 0.47-16
C65	*87-010-178-010	CAP,CHIP S 1000P-50	C206	*87-010-450-010	CAP,CHIP 0.47-16
C66	*87-010-178-010	CAP,CHIP S 1000P-50	S201	87-036-123-010	SLIDE SW(POWER)
C67	*87-010-082-010	CAP,ELECT 220-4	TM4	80-HF1-207-010	TERMINAL ASSY 1.4F
C68	*87-010-664-010	CAP,CHIP ELECT 47-4	=== RELAY FLEX. CIRCUIT BOARD SECTION ===		
C69	*87-010-197-010	CAP,CHIP S 0.01-25	PCB-E	80-HF1-605-010	RELAY FLEXIBLE CIRCUIT BOARD
C70	*87-012-142-010	CAP,CHIP S 0.33-16	=== MOTOR FLEX. CIRCUIT BOARD SECTION ===		
C71	*87-012-142-010	CAP,CHIP S 0.33-16	PCB-F	84-500-614-010	MOTOR FLEXIBLE CIRCUIT BOARD
C72	*87-010-588-010	CAP,ELECT 220-2	=== REGULATOR CIRCUIT BOARD SECTION ===		
C73	*87-010-588-010	CAP,ELECT 220-2	C301	*84-439-620-010	CAP,ELECT 470-4
C74	*87-010-424-010	CAP,CHIP TANTALUM 4.7-4	J3	87-049-549-010	JACK DC(DC2V)
C75	*87-010-452-010	CAP,CHIP 1-16	TM1	84-435-246-110	TERMINAL ASSY 1.4
C76	*87-010-186-010	CAP,CHIP S 4700P-50	=== MOTOR GOVERNOR CIRCUIT BOARD SECTION ===		
C77	*87-015-923-010	CAP,CHIP TANTALUM 0.22-35	M1	M8-655-410-310	MOTOR ABL-3(W/PCB-H)
C78	*87-010-192-010	CAP,CHIP S 0.022-50	=== MISCELLANEOUS ===		
C79	*87-010-668-010	CAP,CHIP ELECT 220-4	S301	86-536-468-110	LEAF SW(HEAD UP)
C80	*87-010-178-010	CAP,CHIP S 1000P-50	S302	86-550-603-010	LEAF SW(REV REC PREVENTION)
C81	*87-010-178-010	CAP,CHIP S 1000P-50	S303	86-550-603-010	LEAF SW(FWD REC PREVENTION)
C82	*87-010-668-010	CAP,CHIP ELECT 220-4	SOL101	86-536-477-010	SOLENOID(MD)
C83	*87-010-471-010	CAP,CHIP ELECT 10-16	SOL102	86-536-477-010	SOLENOID(REC)
CP1	87-026-248-010	PHOTO SENSOR ON270Q2	SP1	84-512-612-010	SPEAKER DIA36
J1	87-009-218-010	JACK 3.5BK(MIC)			
J2	87-009-218-010	JACK 3.5BK(PHONES)			
L1	87-007-270-010	COIL,OSC BIAS			
S1	87-036-152-010	SLIDE SW(FWD/REV)			
S2	87-036-143-010	SLIDE SW(REC/PLAY)			
S3	87-036-123-010	SLIDE SW(DOLBY-NR)			
S4	87-036-123-010	SLIDE SW(TAPE)			
S5	87-036-123-010	SLIDE SW(DSL)			
S6	87-036-145-010	SLIDE SW(REMOTE)			
S7	87-036-144-010	PUSH SW(CASSETTE)			
S8	87-036-123-010	SLIDE SW(REVERSE MODE)			
S9	87-036-083-010	PUSH SW(REMOTE)			

チップ抵抗部品コード/CHIP RESISTOR PART CODE

チップ抵抗部品コードの成り立ち  
Chip resistor part coding

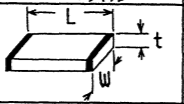


A  
抵抗コード  
Resistor code

桁表示  
Figure

抵抗値  
Value of resistor

チップ抵抗  
Chip resistor

Wattage 容量	Type 種類	Tolerance 許容誤差	Symbol 記号	Dimensions/寸法(mm)			Resistor Code : A 抵抗コード : A	
				Form/外形	L	W		t
1/32W	1608	±5%	CJ		1.6	0.8	0.35	108
1/10W	2125	±5%	CJ		2	1.25	1.45	118
1/8W	3216	±5%	CJ		3.2	1.6	0.5 ~0.7	128

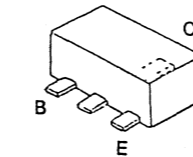
IC DESCRIPTION

TC9311F-014

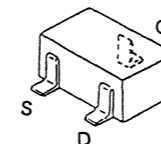
Pin No.	Pin Name	I/O	Description
1	GND	-	Ground terminal.
2	OSC	-	Clock oscillation terminal. Generates a 2.85kHz±50Hz clock signal at VCC (2V).
3	CLR	I	Reset terminal. "LOW" level resets the IC.
4	REW	I	REW key input. Active "LOW".
5	FF	I	FF key input. Active "LOW".
6	STOP	I	STOP key input. Active "LOW".
7	PLAY	I	PLAY key input. Active "LOW".
8	REC SW	I	REC key input. Active "LOW".
9	AUTO	I	Tape end sensor input. Performs the AUTO operation when there is no change between "HIGH" and "LOW" for 2.5 seconds.
10	CASS SW	I	Cassette switch terminal. An input key is accepted only at "LOW"; all operations are stopped at "HIGH". The reset and direction operations are performed when "HIGH" changes to "LOW".
11	HEAD-UP SW	I	HEAD-UP SW terminal (Malfunction prevention terminal). "LOW" during play and "HIGH" in other modes.
12	F/R SW	I	FWD/REV terminal. FWD at "HIGH" and REV at "LOW".
13	REV MODE	I	Determines the tape running mode (→, ↺). ↺ at "HIGH" and → at "LOW".
14	MUTE	O	MUTE output. "HIGH" : Start of PLAY, DIRECTION, FF, REW, "LOW" : in other modes.
15	DIRECTION	O	Motor rotation direction switching output. "HIGH" : FF, "LOW" : in other modes.
16	MOTOR	O	Motor on/off switching output. The motor stops at "LOW".
17	—	-	Unused.
18	REC PL	O	REC plunger output. "HIGH" output sets the unit to the record mode.
19	MD PL	O	MD plunger output. "HIGH" output attracts the MD plunger and "LOW" output releases it.
20	VCC	-	Power terminal.

LC7600

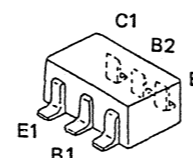
Pin No.	Pin Name	I/O	Description																					
1	CNT	I	Display mode switching inputs. The display mode is switched according to the combination shown in the table below (pins 4 and 7 are not used). <table border="1" data-bbox="1944 304 2448 409"> <tr> <td></td> <td>1</td> <td>3</td> <td>4</td> <td>5</td> <td>6</td> <td>7</td> </tr> <tr> <td>Clock</td> <td>VSS<sub>1</sub></td> <td>VDD</td> <td>—</td> <td>—</td> <td>—</td> <td>—</td> </tr> <tr> <td>Counter</td> <td>VSS<sub>1</sub></td> <td>Off</td> <td>Off</td> <td>VDD</td> <td>VDD</td> <td>—</td> </tr> </table> — : VDD or Open or VSS <sub>1</sub> Off : Open or VSS <sub>1</sub>		1	3	4	5	6	7	Clock	VSS <sub>1</sub>	VDD	—	—	—	—	Counter	VSS <sub>1</sub>	Off	Off	VDD	VDD	—
	1			3	4	5	6	7																
Clock	VSS <sub>1</sub>			VDD	—	—	—	—																
Counter	VSS <sub>1</sub>			Off	Off	VDD	VDD	—																
3	REAL																							
4	—																							
5	SLP																							
6	DVAL																							
7	—																							
8	TH	-	Changes the hour's digit of the clock by one every time the button is pressed. When the button is held depressed for 2 seconds or more, the hour's digit changes continuously.																					
9	TM	-	Changes the minute's digit of the clock by one every time the button is pressed. When the button is held depressed for 2 seconds or more, the minute's digit changes continuously.																					
10	TS	-	Clears the second's digit of the clock. When 32 seconds or more are displayed, the minute's digit advances by one minute.																					
11	COUNT	I	Counter pulse input. The counter advances every 4 pulses. Counter up/down switching input. "H" input sets the counter to an up counter and "L" input sets it to a down counter.																					
12	UP/DOWN																							
16~31	—	O	LCD display outputs.																					
34	CUP2	-	These pins form a booster circuit which maintains the oscillation frequency at pin 35 at 1024.000±0.008Hz.																					
35	CUP1																							
36	VSS <sub>1</sub>																							
37	VSS <sub>2</sub>																							
38	OSC OUT	-	A crystal oscillator is connected to these pins.																					
39	OSC IN																							
40	VDD	-	Power supply.																					
41	24H/12H	I	Time display switching input which sets the 24-hour display. The VDD level sets the 24-hour display and OPEN or VSS <sub>1</sub> level sets the 12-hour display (unused).																					
43	SLP OUT	O	Sleep output (unused).																					
48	RESET	I	Counter reset input. Resets the counter reading to "000" when VDD is applied.																					
50~64	—	O	LCD display outputs.																					
13~15 18, 19 23~25 32, 33 42, 44~47 49, 56	—	-	Unused.																					



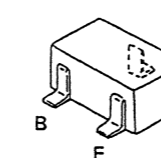
2SA1213



2SK880



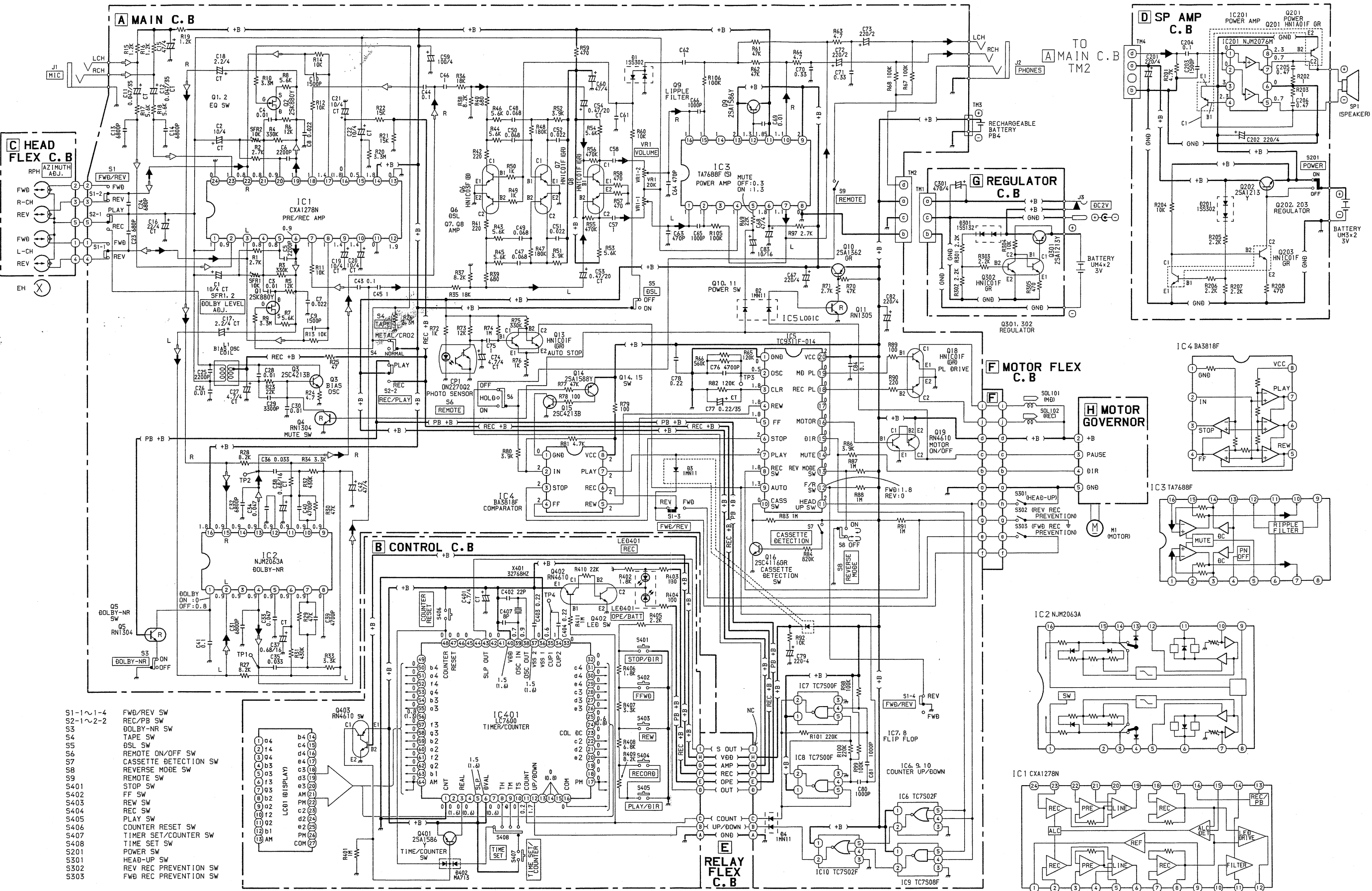
HN1A01  
HN1C01  
HN1C03  
RN4610



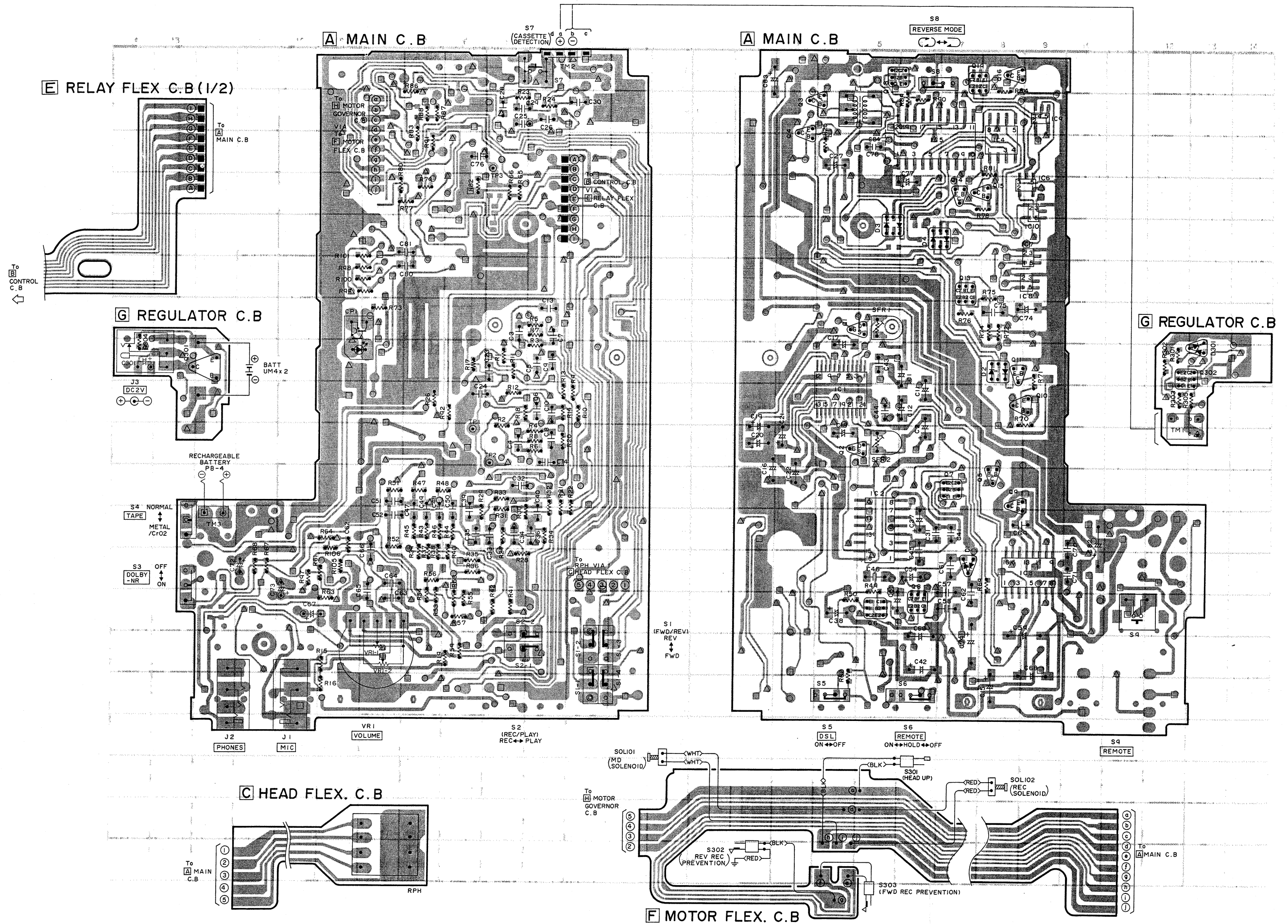
2SA1362  
2SA1586  
2SA1588  
2SC4116  
2SC4213  
RN1304  
RN1305

PRACTICAL SERVICE FIGURE

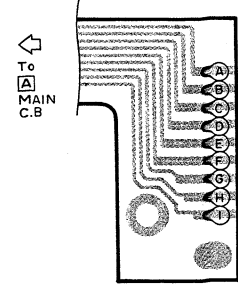
Wow & flutter : Less than 0.45% (RMS)  
Pinch roller press : 150 ± 15g - cm  
Take-up torque : 31 ± 7g - cm (FWD, REV)  
F.F & Rew torque : 120 ± 45g - cm  
S/N ratio : More than 45dB  
Distortion : Less than 3.0%  
Noise level : Less than 3.5mV (VOL MAX)  
Frequency response : 63Hz~8kHz ± 4.5dB (NORMAL)  
63Hz~10kHz ± 5.0dB (CrO2, METAL)



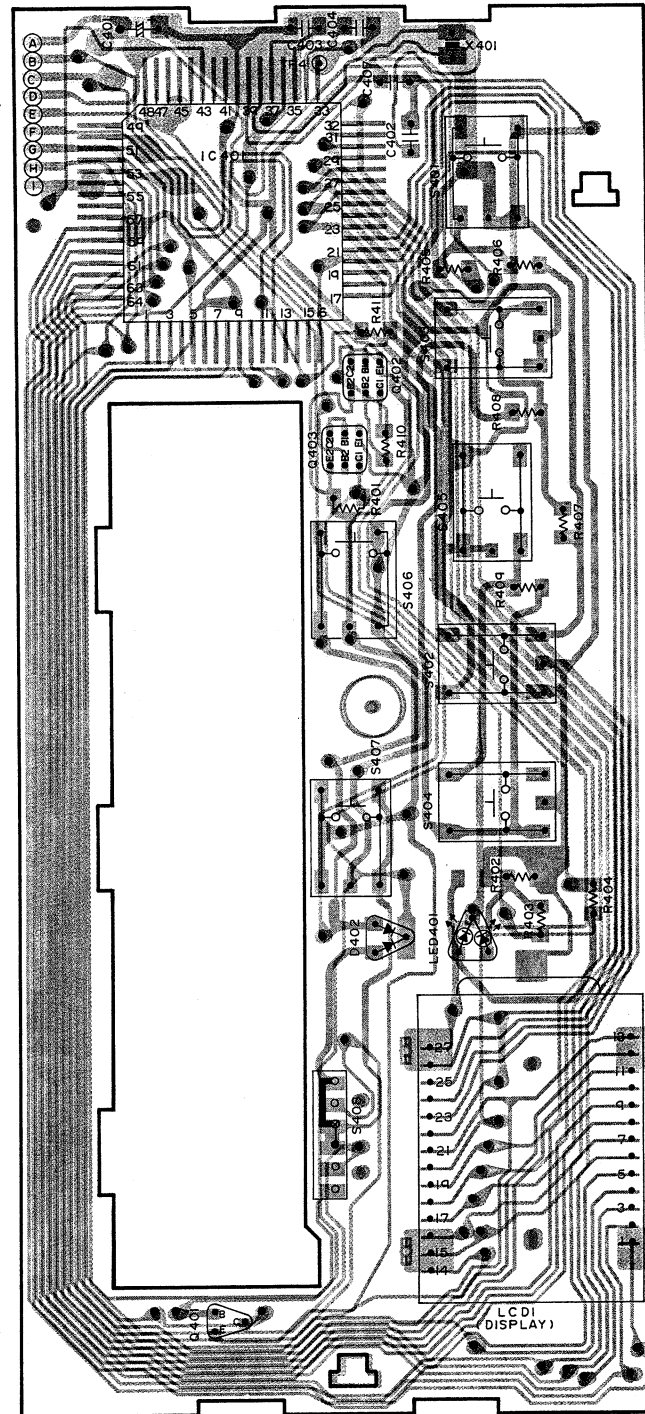
- S1-1~1-4 FWD/REV SW
- S2-1~2-2 REC/PB SW
- S3 DOLBY-NR SW
- S4 TAPE SW
- S5 ØSL SW
- S6 REMOTE ON/OFF SW
- S7 CASSETTE DETECTION SW
- S8 REVERSE MODE SW
- S9 REMOTE SW
- S401 STOP SW
- S402 FF SW
- S403 REW SW
- S404 REC SW
- S405 PLAY SW
- S406 COUNTER RESET SW
- S407 TIMER SET/COUNTER SW
- S408 TIME SET SW
- S201 POWER SW
- S301 HEAD-UP SW
- S302 REV REC PREVENTION SW
- S303 FWD REC PREVENTION SW



E RELAY FLEX C.B(2/2)

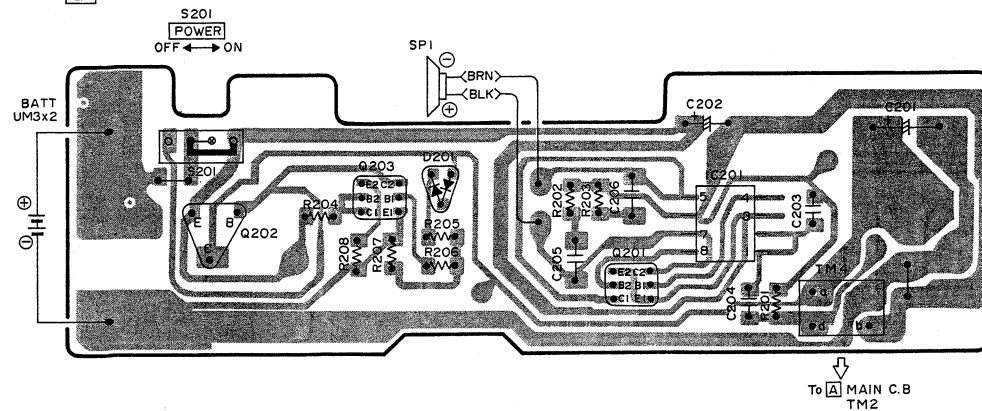


B CONTROL C.B

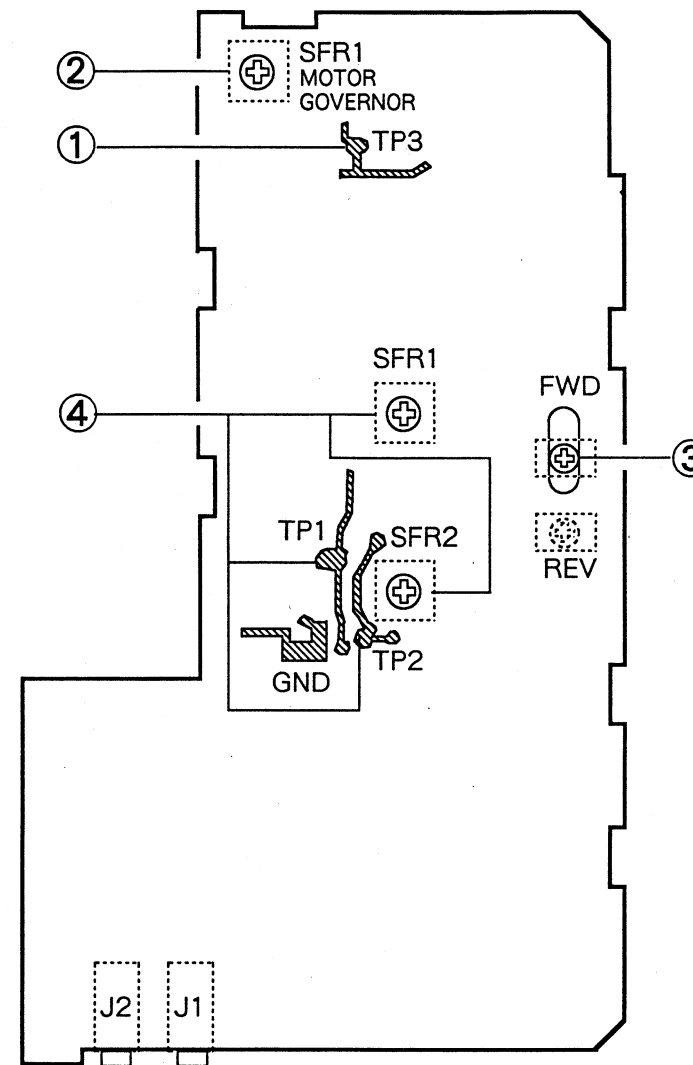


- S401 STOP/DIR
- S403 REW
- S405 PLAY/DIR
- S406 COUNTER RESET
- S402 F FWD
- S404 RECORD
- S407 TIMER SET/COUNTER
- LED401 OPE/BATT REC
- S408 TIME/COUNTER
- SEC
- MIN
- HOUR
- SET

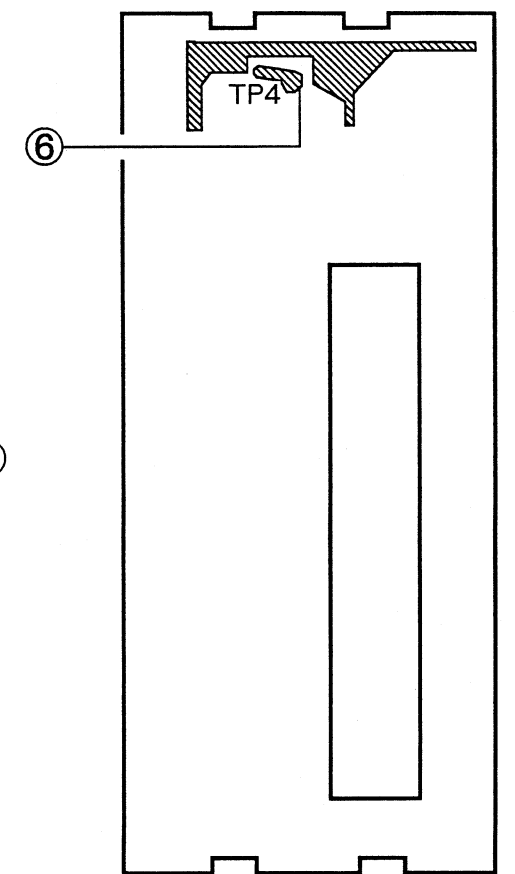
D SP AMP C.B



A MAIN C.B



B CONTROL C.B



1. Clock Frequency Check

Setting : • Test point : TP3  
 Method : • Connect a resistor (1MΩ) to counter and TP3. Check the frequency at TP3 is 2650Hz ± 250Hz.

2. Tape Speed Adjustment

Settings : • Test tape : TTA - 100 (TTA - 111S)  
 • Test point : PHONES JACK  
 • Adjustment location : SFR1 of motor governor

Method : • Play back the test tape, adjust for 3000Hz at FWD and ± 45Hz at REV.

3. Azimuth Adjustment

Settings : • Test tape : TTS - 320 (TTA - 113B, TCC - 152)  
 • Test point : PHONES JACK  
 • Adjustment location : Azimuth adjustment screw

Method : • Play back the test tape, and adjust so that the output becomes maximum at FWD or REV mode.

4. Dolby Level Adjustment

Settings : • Test tape : TTS - 200 (TTA - 161, TCC - 130)  
 • Test point : TP1 (Lch), TP2 (Rch)  
 • Adjustment location : SFR1 (Lch), SFR2 (Rch)  
 • DOLBY SW : OFF  
 • DSL SW : OFF

Method : • Connect an electrolytic capacitor (10 μF/16V) to measured equipment and TP1 (2), adjust for 100mV ± 10mV.

5. Motor load Adjustment

Refer to the Motor governor section.

6. Control Clock Check

Setting : • Test point : TP4  
 Method : • Connect the frequency counter to TP4 and check the frequency for 1024.007Hz ± 0.01Hz.



[Simplified Check]

A frequency counter which can measure to an accuracy of 1/10,000Hz is required.

If such a counter is not available, check as follows.

1. Attach the following circuits externally as a buffer and connect the frequency counter.
2. Check the counter reads 32.768kHz.
3. After check is completed, remove the externally attached circuits.

[Codes on parts in the externally attached circuits]

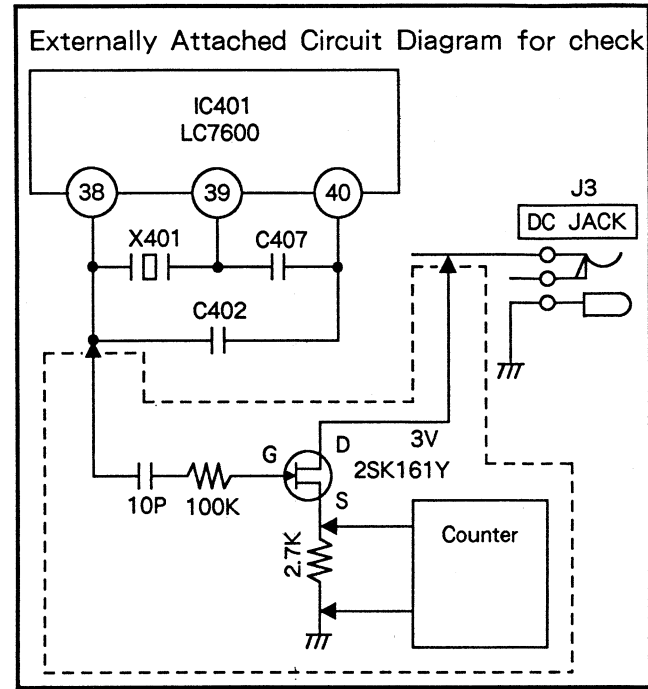
- 2SK161Y..... 89 - 501 - 614
- 10P..... 87 - 018 - 104
- 100k..... 88 - 122 - 104
- 2.7k..... 88 - 122 - 272

[Reference]

- 32.7680kHz ..... Center frequency
- 32.7674kHz .... Difference in monthly rate : - 30 seconds
- 32.7685kHz .... Difference in monthly rate : + 30 seconds

[Note]

The oscillation frequency becomes unstable due to heat generated when soldering the externally attached circuits. Leave the unit until the frequency becomes stable, then check it.



ADJUSTMENT - 2/WIRING - 3 (MOTOR GOVERNOR SECTION)

NOTE ON REPLACING THE MOTOR

MOTOR LOAD ADJUSTMENT

The following adjustment should be made after replacing a motor.

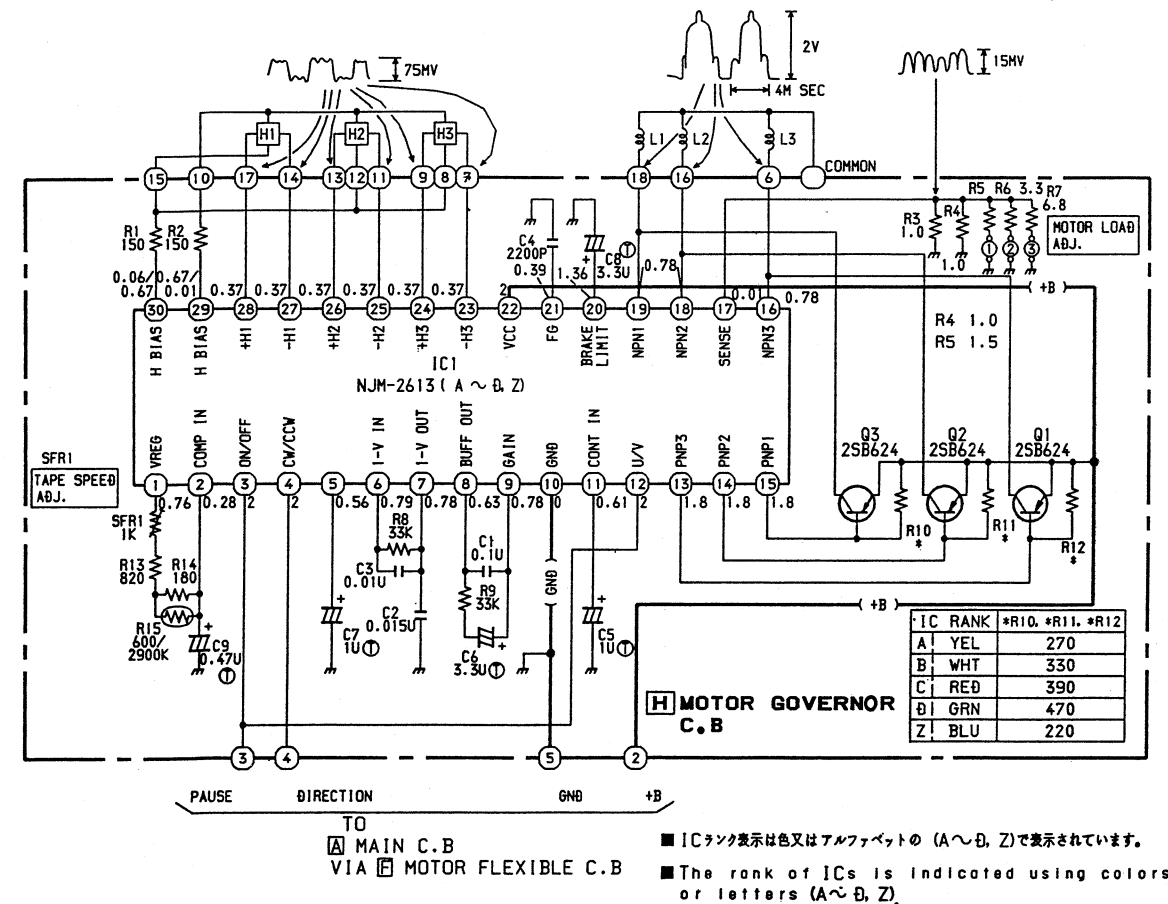
As shown figure, connect the counter, ampere meter and power supply.

- (1) Adjust SFR1 to be 153Hz ± 2Hz.
- (2) Restrain the motor manually and check that the resultant current is 250mA <sup>+10</sup>/<sub>-20</sub> mA. If the current reading does not satisfy the specification, make the adjustment as shown in Table 1.
- (3) Check that the nonload current is 20mA or less.
- (4) Connect the plus (+) pin of power supply to the DIRECTION terminal to rotate the motor in reverse and check Steps (2) and (3).
- (5) Check that Step (3) is satisfied when the motor is rotated in the forward or reverse direction at a supply voltage of 1.7V.

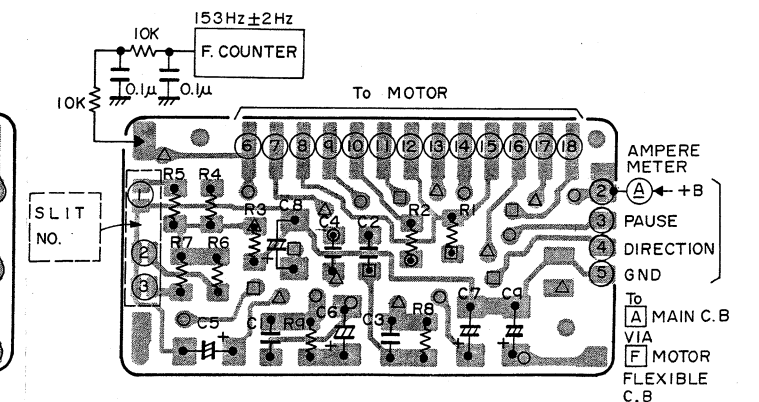
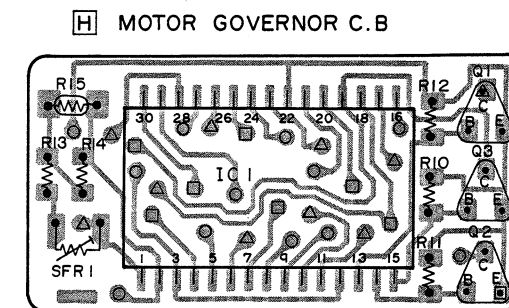
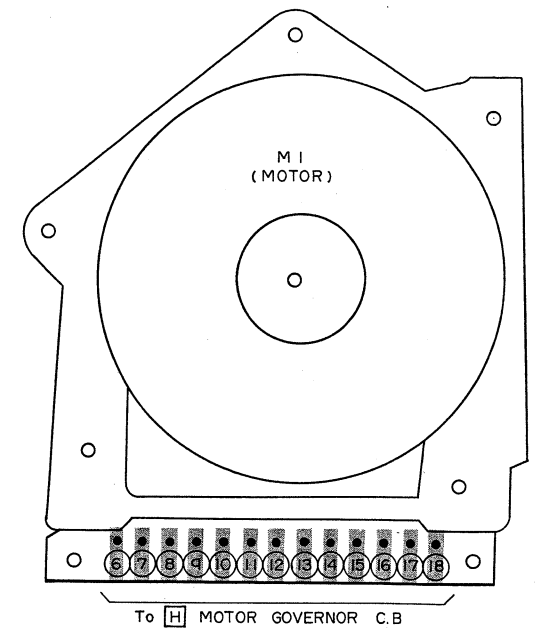
Table 1

CURRENT CHANGE WITH SLITS ①, ② AND ③ SET TO OPEN	SLITS NO.		
	①	②	③
OPEN	OPEN	OPEN	OPEN
+ 1.9 mA	OPEN	OPEN	SHORT
+ 2.5 mA	OPEN	SHORT	OPEN
+ 3.5 mA	OPEN	SHORT	SHORT
+ 4.7 mA	SHORT	OPEN	OPEN
+ 5.0 mA	SHORT	OPEN	SHORT
+ 6.2 mA	SHORT	SHORT	OPEN
+ 6.8 mA	SHORT	SHORT	SHORT

SCHEMATIC DIAGRAM - 2 (MOTOR GOVERNOR SECTION)

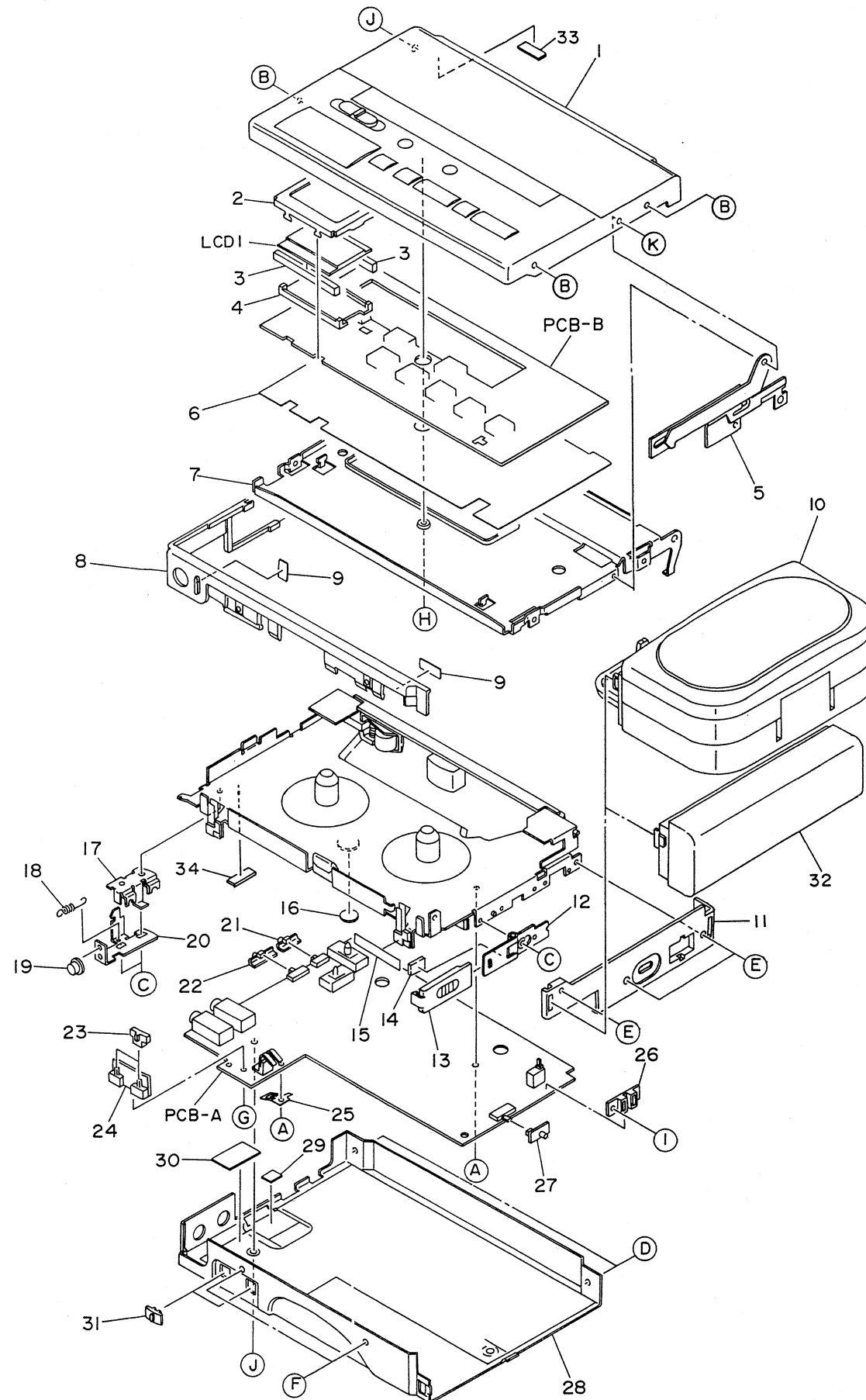


ICランク表示は色又はアルファベットの (A~D, Z) で表示されています。  
The rank of ICs is indicated using colors or letters (A~D, Z).



EXPLODED VIEW - 1

REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION
A	87-067-437-010	SCREW SERRATE M1.4-2	E	87-067-480-010	SPECIAL SCREW 1.4-3(B)	I	87-067-501-010	SPECIAL SCREW +1.4-1.4(B)
B	87-067-589-010	V+1.4-1.4(B) NLOCK	F	87-067-631-010	V+1.4-3(B) NLOCK	J	87-067-595-010	HINGE SCREW M1.4(B) NLOCK
C	87-067-351-010	SCREW M1.4(CABINET)	G	87-067-385-010	VT+1.4-2.5HL	K	87-067-628-010	SPECIAL SCREW 1.4-1(B)
D	87-067-591-010	V+1.4-2(B) NLOCK	H	87-067-535-010	VT+1.4-3.5HL			

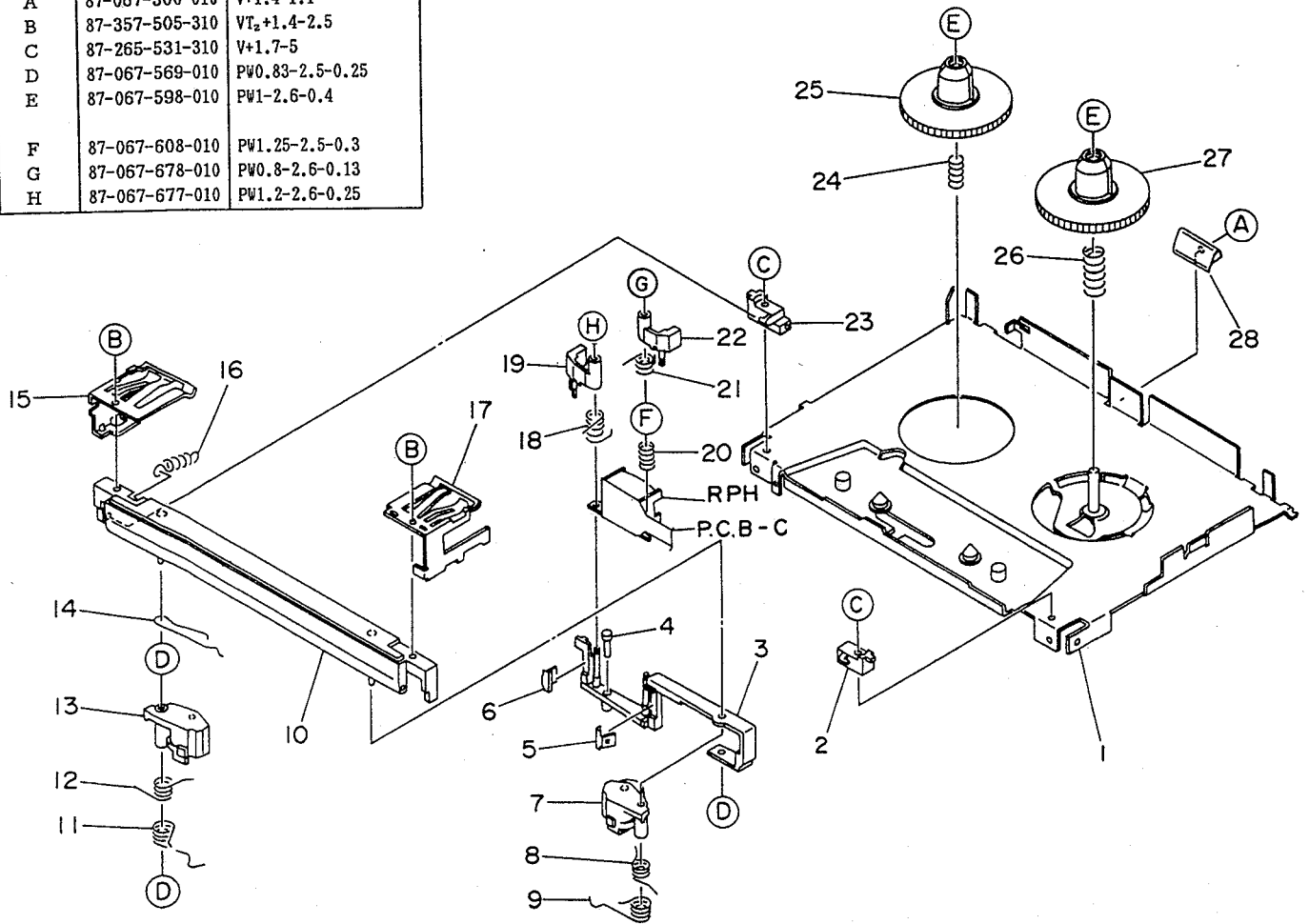


MECHANICAL PARTS LIST

PART NO. CHANGED TO	REF. NO.	PART NO.	DESCRIPTION	COMMON MODEL	Q. TY
	1-1	*09-027-814-010	LID CASSETTE ASSY	*	1
	1-2	*80-HF1-203-010	COVER, LCD	*	1
	1-3	---	RUBBER, CONNECTOR	*	2
	1-4	*80-HF1-204-010	HOLDER, LCD	*	1
	1-5	*80-HF1-209-010	HOLDER ASSY	*	1
	1-6	*80-HF1-208-010	SHEET, PCB	*	1
	1-7	*80-HF1-201-010	HOLDER, CASSETTE	*	1
	1-8	*80-HF1-004-010	FRAME, CENTER	*	1
	1-9	*84-500-223-010	MYLAR, FRAME	*	2
	1-10	*09-027-815-010	SPEAKER BOX ASSY	*	1
	1-11	*84-497-026-210	PANEL, BOTTOM		1
	1-12	*89-HK2-217-010	HINGE, BATTERY ASSY		1
	1-13	84-497-027-010	LID, BATTERY		1
	1-14	84-497-230-010	G-CUSHION, BATTERY		1
	1-15	*84-500-235-010	SHEET, FLEX		1
	1-16	*86-550-610-010	SHEET, AUTO M		1
	1-17	*84-500-202-110	HOLDER, JACK		1
	1-18	*84-500-217-010	E-SPRING, OPEN		1
	1-19	*84-500-011-010	BUTTON, OPEN		1
	1-20	*84-520-210-010	LEVER, OPEN		1
	1-21	*84-497-029-010	KNOB, SLIDE B		1
	1-22	*84-497-028-010	KNOB, SLIDE A		1
	1-23	*84-500-206-010	CAP, SWITCH		2
	1-24	*84-500-204-110	HOLDER, SWITCH		1
	1-25	*89-HK2-212-010	P-SPRING, EARTH		1
	1-26	*89-HK2-215-010	BATTERY CONTACT ASSY		1
	1-27	*84-497-037-210	KNOB, SLIDE D		1
	1-28	*80-HF1-024-010	CABINET REAR ASSY	*	1
	1-29	*84-501-212-010	SHEET, 5-5		1
	1-30	*84-500-231-010	MYLAR, JACK		1
	1-31	*84-500-013-010	KNOB, SLIDE B		2
	1-32	*09-027-698-010	BATTERY BOX ASSY	*	1
	1-33	*80-HF1-216-010	SHEET, LCD	*	1
	1-34	*80-HF1-213-010	SHEET, 3-16-1.0	*	1

# EXPLODED VIEW - 2

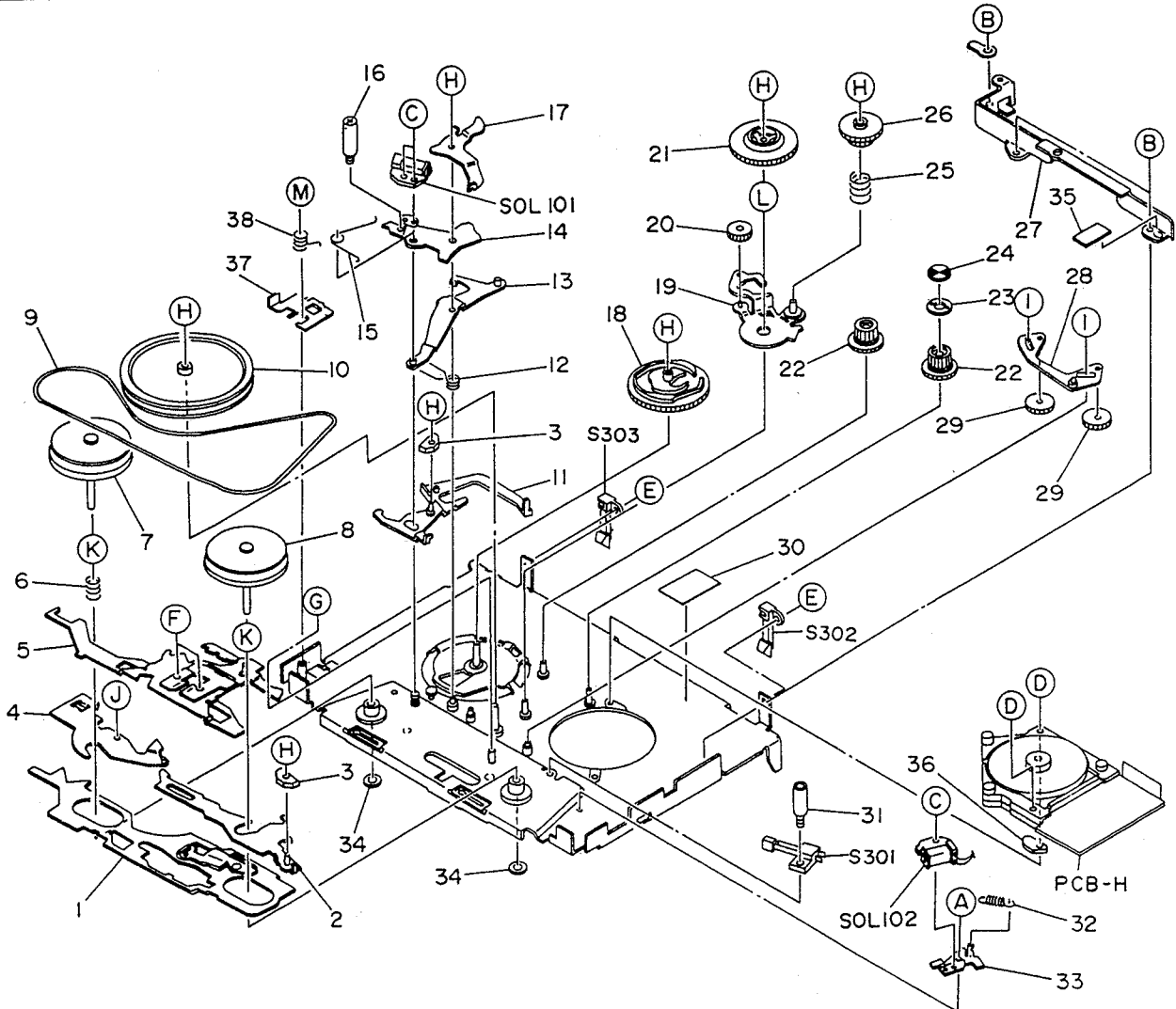
REF.NO.	PART NO.	DESCRIPTION
A	87-067-300-010	V+1.4-1.1
B	87-357-505-310	VT <sub>2</sub> +1.4-2.5
C	87-265-531-310	V+1.7-5
D	87-067-569-010	PW0.83-2.5-0.25
E	87-067-598-010	PW1-2.6-0.4
F	87-067-608-010	PW1.25-2.5-0.3
G	87-067-678-010	PW0.8-2.6-0.13
H	87-067-677-010	PW1.2-2.6-0.25



PART NO. CHANGED TO	REF. NO.	PART NO.	DESCRIPTION	COMMON MODEL	Q. TY
	2-1	*86-550-360-510	CHASSIS REC ASSY		1
	2-2	*86-550-289-110	HOLDER,R		1
	2-3	*86-550-333-210	ARM HEAD REC ASSY		1
	2-4	*86-550-335-010	SHAFT,AZIMUTH REC		1
	2-5	*86-550-359-010	SHEET,EH R		1
	2-6	*86-550-352-110	SHEET,EH L		1
	2-7	86-550-439-110	LEVER PINCH RJ ASSY		1
	2-8	*86-550-275-110	T-SPRING,PLAY BACK R		1
	2-9	*86-550-346-110	T-SPRING,PINCH RJ		1
	2-10	*86-550-421-110	HOLDER CASSETTE J ASSY		1
	2-11	*86-550-348-110	T-SPRING,PINCH LJ		1
	2-12	*86-550-274-010	T-SPRING,PLAY BACK L		1
	2-13	86-550-427-110	LEVER PINCH LJ ASSY		1
	2-14	*86-550-343-110	T-SPRING,HEAD BACK J		1
	2-15	*86-550-216-110	P-SPRING,HOLDER L		1
	2-16	*86-550-278-010	E-SPRING,HOLDER C		1
	2-17	*86-550-217-110	P-SPRING,HOLDER R		1
	2-18	*86-550-319-010	T-SPRING,AZIMUTH L		1
	2-19	*86-550-349-010	ARM EH L ASSY(W/EH)		1
	2-20	*86-550-358-010	C-SPRING,AZIMUTH		1
	2-21	*86-550-321-010	T-SPRING,AZIMUTH		1
	2-22	*86-550-350-010	ARM EH R ASSY(W/EH)		1
	2-23	*86-550-290-110	HOLDER,L		1
	2-24	*86-550-288-110	C-SPRING,REEL GEAR L		1
	2-25	*86-550-240-010	GEAR,REEL L		1
	2-26	*86-550-374-010	C-SPRING,GEAR RJ		1
	2-27	*86-550-285-010	GEAR,REEL R		1
	2-28	*86-550-218-010	P-SPRING CASSETTE ASSY		1

# EXPLODED VIEW - 3

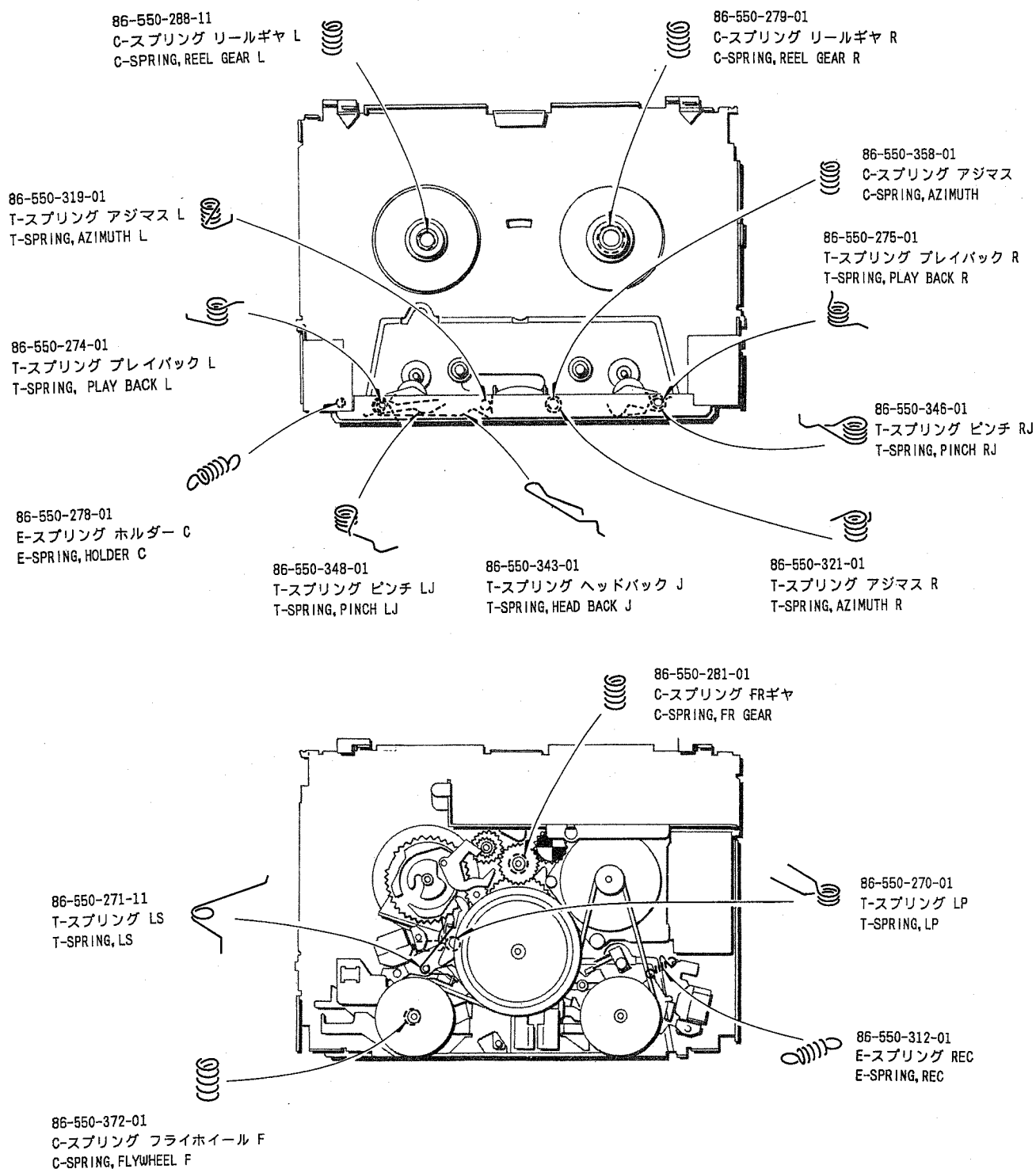
REF.NO.	PART NO.	DESCRIPTION	REF.NO.	PART NO.	DESCRIPTION	REF.NO.	PART NO.	DESCRIPTION
A	87-067-300-110	V+1.4-1.4(B)	F	86-550-341-010	SCREW AZIMUTH J	K	87-067-370-010	RW1.2-3-0.25
B	87-261-500-310	V+1.4-1.4	G	87-067-683-010	PW0.8-3-0.5	L	86-550-268-010	STEO.8-5
C	87-067-560-010	V+1.4-2.5	H	87-067-569-010	PW0.83-2.5-0.25	M	86-550-378-010	PW1.7-3.5-0.25 CUT
D	87-262-510-310	V+1.4-4.5(B)	I	87-067-623-010	PW0.85-3.2-0.3			
E	87-067-511-010	SPECIAL SCREW M1.4-2	J	87-067-563-010	PW1.2-3-0.2			



PART NO. CHANGED TO	REF. NO.	PART NO.	DESCRIPTION	COMMON MODEL	Q. TY
	3-1	*86-550-338-110	LEVER EH ASSY		1
	3-2	*86-550-302-010	LEVER REC ASSY		1
	3-3	---	PLATE, MR2		2
	3-4	*86-550-311-210	LINK REC SW ASSY		1
	3-5	*86-550-313-010	LEVER HEAD TURN J ASSY		1
	3-6	*86-550-372-010	C-SPRING, FLYWHEEL F		1
	3-7	86-550-315-010	FLYWHEEL REC ASSY		1
	3-8	*86-550-354-010	FLYWHEEL REC-T ASSY		1
	3-9	86-550-325-010	BELT, J		1
	3-10	*86-550-242-110	GEAR, PULLEY		1
	3-11	*86-550-211-210	LEVER SOLENOID ASSY		1
	3-12	*86-550-270-110	T-SPRING, L P		1
	3-13	*86-550-489-010	LEVER PLAY CL J ASSY		1
	3-14	*86-550-286-410	PLATE, SOLENOID		1
	3-15	*86-550-271-110	T-SPRING, L S		1
	3-16	*86-550-293-010	SHAFT, P SOLENOID		1
	3-17	*86-550-204-310	LEVER, LOCK		1
	3-18	*86-550-347-310	GEAR, CAM REC		1
	3-19	86-550-368-210	LEVER FR J ASSY		1
	3-20	*86-550-241-010	GEAR, CAM C		1
	3-21	*86-550-232-010	SLIP GEAR ASSY		1
	3-22	*86-550-237-010	GEAR, FR C		2
	3-23	*86-550-236-210	DISK, AUTO		1
	3-24	*86-550-606-010	SHEET, AUTO		1
	3-25	*86-550-281-010	C-SPRING, FR GEAR		1

PART NO. CHANGED TO	REF. NO.	PART NO.	DESCRIPTION	COMMON MODEL	Q, TY
	3-26	*86-550-238-010	GEAR,FR		1
	3-27	*86-550-203-110	HOLDER,BATTERY		1
	3-28	*86-550-336-110	LEVER,PLAY J ASSY		1
	3-29	*86-550-239-110	GEAR,PLAY		2
	3-30	*86-550-367-010	MYLAR,14-17-0.05		1
	3-31	*86-550-292-110	SHAFT,P SW		1
	3-32	*86-550-312-010	E-SPRING,REC		1
	3-33	*86-550-317-010	PLATE,REC SOLENOID		1
	3-34	*86-550-455-010	SHEET,0.87-2.25-0.25 CUT		2
	3-35	*86-550-301-110	MYLAR,5-10-0.5		1
	3-36	*86-554-019-110	SPACER,B		1
	3-37	*86-550-410-110	LEVER,DIRECTION		1
	3-38	*86-550-406-110	T-SPRING,DIRECTION		1

## SPRING APPLICATION POSITION



## ■ ACCESSORIES/PACKAGE LIST

PART NO. CHANGED TO	REF. NO.	PART NO.	DESCRIPTION	COMMON MODEL	Q, TY
	1	*80-HF1-910-010	INSTRUCTION BOOKLET	*	1
	2	*09-027-815-010	SPEAKER BOX ASSY	*	1
	3	*09-027-698-010	BATTERY BOX ASSY	*	1
	4	*80-HF1-952-010	CARRYING CASE	*	1
	5	*84-513-951-010	STAND, MIC		1
	6	*87-042-063-010	AC-208H(AH1)		1
	7	*87-042-064-010	AC-208E(AE)		1
	8	*87-042-065-010	AC-208K(AK1)		1
	9	*87-047-107-010	PB-4Y		1
	10	87-048-176-010	HP-R21(AH1, AK1)		1
	11	87-048-178-010	HP-MR17(AE)		1
	12	87-041-056-010	MIC, CM-S20		1