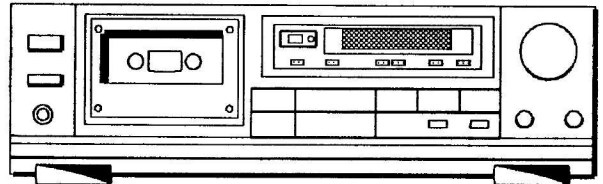


AIWA®**AD-F400****SERVICE
MANUAL**

STEREO CASSETTE DECK

• BASIC TAPE MECHANISM : X - 3


• TYPE. H,U,E,K,Z

SPECIFICATIONS

Type	Stereo cassette tape deck
Track format	4 tracks, 2 channels
Power supply	AD-F400H AC 110-120 V/220-240 V switchable, 50/60 Hz AD-F400U AC 120 V, 60 Hz AD-F400E, Z AC 220 V, 50/60 Hz AD-F400K AC 240V, 50/60 Hz
Power consumption	17 W
Frequency response	METAL tape: 20-18,000 Hz CrO ₂ tape: 20-17,000 Hz NORMAL tape: 20-16,000 Hz
Signal-to-noise ratio	73 dB (METAL tape DOLBY C NR ON)
Wow and flutter	0.15% (according to DIN 45500) 0.065% (WRMS)
Tape speed	4.8 cm/sec. (1 ⁷ / ₈ ips)
Rewind time	90 sec. (C-60)
Fast forward time	90 sec. (C-60)
Recording system	AC bias (frequency 85 kHz)
Erase system	AC erase
Motor	DC servomotor (1)
Heads	Record/playback head (1) Erase head (1)
Inputs	REC/LINE IN maximum input sensitivity: 50 mV (over 50 kΩ) DIN max sensitivity (Z model only): 0.1 mV/kΩ (3.3 kΩ)

Outputs	PLAY/LINE OUT standard output level: 0.35 V (0 VU); suitable load impedance: over 50 kΩ DIN standard level (Z model only): 0.35 V (0 VU) Headphones: 8 Ω-1 kΩ
Dimensions	430(W) × 127.5(H) × 233.4(D) mm
Weight	3.2 kg

• Design and specifications are subject to change without notice.

- Dolby noise reduction and HX Pro headroom extension manufactured under license from Dolby Laboratories Licensing Corporation. HX Pro originated by Bang & Olufsen.
- "Dolby", the double-D symbol  and "HX PRO" are trademarks of Dolby Laboratories Licensing Corporation.

AIWA Co., Ltd.

Tokyo Japan

Printed in Japan

ELECTRICAL MAIN PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION
===IC===			C307	*87-018-123-019	CAP, CERA-SOL SS 220P
	87-001-143-019	IC, CX20187	C308	*87-018-123-019	CAP, CERA-SOL SS 220P
	87-001-164-019	IC, LB1408	C311	*87-018-131-019	CAP, CERA-SOL SS 1000P
	87-001-334-010	IC, LB9051A	C312	*87-018-131-019	CAP, CERA-SOL SS 1000P
	82-236-620-010	IC, LC6543H-3715	C313	*87-018-134-019	CAP, CERA-SOL SS 0.01
	87-020-680-019	IC, NJM2068S	C314	*87-018-134-019	CAP, CERA-SOL SS 0.01
	87-020-758-019	IC, NJM2068SD	C317	*87-010-263-019	CAP, ELECT 100-10V
	87-020-840-019	IC, ICP-N20(H, K)	C401	*87-018-131-019	CAP, CERA-SOL SS 1000P
===TRANSISTOR===			C403	*87-014-118-019	CAP, PP 0.015
	89-502-235-019	FET, 2SK223E	C405	*87-018-201-019	CAP, CERA-SOL SS 5600P
	89-110-155-019	TRANSISTOR, 2SA1015GR	C409	*87-010-384-019	CAP, ELECT 100-25V
	89-112-965-019	TRANSISTOR, 2SA1296GR(U, E, K, Z)	C410	*87-010-384-019	CAP, ELECT 100-25V
	89-106-837-019	TRANSISTOR, 2SA683S(H)	C501	*87-010-404-019	CAP, ELECT 4.7-50V SME
	89-109-521-019	TRANSISTOR, 2SA952K	C502	*87-010-404-019	CAP, ELECT 4.7-50V SME
	89-318-156-019	TRANSISTOR, 2SC1815BL	C503	*87-010-405-019	CAP, ELECT 10-50V SME
	89-318-155-019	TRANSISTOR, 2SC1815GR	C504	*87-010-405-019	CAP, ELECT 10-50V SME
	89-322-405-019	TRANSISTOR, 2SC2240BL(Z)	C505	*87-018-133-019	CAP, CERA-SOL SS 4700PF
	89-331-130-019	TRANSISTOR, 2SC3113	C506	*87-018-133-019	CAP, CERA-SOL SS 4700PF
	89-413-023-019	TRANSISTOR, 2SD1302S	C507	*87-018-129-019	CAP, CERA-SOL SS 680P
	89-414-065-019	TRANSISTOR, 2SD1406GR	C508	*87-018-129-019	CAP, CERA-SOL SS 680P
===DIODE===			C515	*87-010-400-019	CAP, ELECT 0.47-50V SME
	82-596-799-019	DIODE, 1N4002	C516	*87-010-400-019	CAP, ELECT 0.47-50V SME
	87-020-465-019	DIODE, 1SS133	C517	*87-010-677-019	CAP, ELECT 0.15-50V SRA
	87-020-123-019	DIODE, DS446	C518	*87-010-677-019	CAP, ELECT 0.15-50V SRA
	87-027-686-019	DIODE, ZENER HZ-12A1	C521	*87-010-545-019	CAP, ELECT 0.22-50V SM
	87-027-301-019	DIODE, ZENER HZ-3A1	C522	*87-010-545-019	CAP, ELECT 0.22-50V SM
	87-027-286-019	DIODE, ZENER HZ5C1	C531	*87-010-404-019	CAP, ELECT 4.7-50V SME
			C532	*87-010-404-019	CAP, ELECT 4.7-50V SME
===MAIN CIRCUIT BOARD SECTION===			C651	*87-010-401-019	CAP, ELECT 1-50V
C1	*87-010-389-019	CAP, ELECT 2200-25V SME	C652	*87-010-401-019	CAP, ELECT 1-50V
C2	*87-010-237-019	CAP, ELECT 1000-16V SME	C653	*87-010-384-019	CAP, ELECT 100-25V
C3	*87-010-565-019	CAP, ELECT 470-12V SME	C654	*87-010-384-019	CAP, ELECT 100-25V
C4	*87-010-263-019	CAP, ELECT 100-10V	C801	*87-010-401-019	CAP, ELECT 1-50V
C5	*87-010-644-019	CAP, ELECT 470-16 MUSE	C802	*87-010-401-019	CAP, ELECT 1-50V
C7	*87-010-263-019	CAP, ELECT 100-10V	C851	*87-010-408-019	CAP, ELECT 47-50VX(Z)
C9	*87-010-384-019	CAP, ELECT 100-25V	C853	*87-018-206-019	CAP, CERA-SOL SS 15P(Z)
C31	*87-010-405-019	CAP, ELECT 10-50V SME	C854	*87-018-206-019	CAP, CERA-SOL SS 15P(Z)
C32	*87-010-405-019	CAP, ELECT 10-50V SME	C855	*87-018-127-019	CAP, CERA-SOL SS 470P(Z)
C101	*87-018-121-019	CAP, CERA-SOL SS 150P	C856	*87-018-127-019	CAP, CERA-SOL SS 470P(Z)
C102	*87-018-121-019	CAP, CERA-SOL SS 150P	C857	*87-010-544-019	CAP, ELECT 0.1-50V(Z)
C103	*87-018-125-019	CAP, CERA-SOL SS 330P(H, U)	C858	*87-010-544-019	CAP, ELECT 0.1-50V(Z)
C103	*87-018-039-019	CAP, CERA-SOL SS 390P(E, K, Z)	C859	*87-010-402-019	CAP, ELECT 2.2-50V(Z)
C104	*87-018-125-019	CAP, CERA-SOL SS 330P(H, U)	C860	*87-010-402-019	CAP, ELECT 2.2-50V(Z)
C104	*87-018-039-019	CAP, CERA-SOL SS 390P(E, K, Z)	C861	*87-018-127-019	CAP, CERA-SOL SS 470P(Z)
C109	*87-018-125-019	CAP, CERA-SOL SS 330P	C862	*87-018-127-019	CAP, CERA-SOL SS 470P(Z)
C110	*87-018-125-019	CAP, CERA-SOL SS 330P	C911	*87-010-565-019	CAP, ELECT 470-12V SME
C113	*87-010-405-019	CAP, ELECT 10-50V SME	C921	*87-010-565-019	CAP, ELECT 470-12V SME
C114	*87-010-405-019	CAP, ELECT 10-50V SME	C931	*87-010-402-019	CAP, ELECT 2.2-50V
C115	*87-010-405-019	CAP, ELECT 10-50V SME	C932	*87-010-382-019	CAP, ELECT 22-25V
C116	*87-010-405-019	CAP, ELECT 10-50V SME	C941	*87-018-113-019	CAP, CERA-SOL SS 33PF
C117	*87-010-384-019	CAP, ELECT 100-25V	C942	*87-018-113-019	CAP, CERA-SOL SS 33PF
C201	*87-018-121-019	CAP, CERA-SOL SS 150P	C943	*87-010-401-019	CAP, ELECT 1-50V
C202	*87-018-121-019	CAP, CERA-SOL SS 150P	C951	*87-018-114-089	CAP, CERA-SOL SS 39P
C203	*87-018-132-019	CAP, CERA-SOL SS 2200P	C952	*87-018-114-089	CAP, CERA-SOL SS 39P
C204	*87-018-132-019	CAP, CERA-SOL SS 2200P	C953	*87-018-201-019	CAP, CERA-SOL SS 5600PF
C205	*87-010-404-019	CAP, ELECT 4.7-50V SME	C991	*87-018-131-019	CAP, CERA-SOL SS 1000P
C206	*87-010-404-019	CAP, ELECT 4.7-50V SME	△FR1	87-029-108-019	RES, FUSIBLE J 1/2W 10
C213	*87-018-197-019	CAP, CERA-SOL SS 1800P	J601	*87-009-023-019	JACK PIN YKC21-0349(PLAY/LINE IN, OUT)
C214	*87-018-197-019	CAP, CERA-SOL SS 1800P	J651	*87-009-026-019	JACK DIN5P YKF51-5002(REC/PLAY)(Z)
C219	*87-010-404-019	CAP, ELECT 4.7-50V SME	L201	*82-201-622-010	COIL 22MMH
C220	*87-010-404-019	CAP, ELECT 4.7-50V SME	L202	*82-201-622-010	COIL 22MMH
C301	*87-018-131-019	CAP, CERA-SOL SS 1000P	L203	*87-003-131-019	COIL MICRO INDUCTOR 10MMH
C302	*87-018-131-019	CAP, CERA-SOL SS 1000P	L204	*87-003-131-019	COIL MICRO INDUCTOR 10MMH
C303	*87-018-122-019	CAP, CERA-SOL SS 180P	L301	*82-235-612-010	COIL, HX85K
C304	*87-018-122-019	CAP, CERA-SOL SS 180P	L302	*82-235-612-010	COIL, HX85K
			L401	*82-235-613-010	COIL, BIAS, 85K, S, P1A
			L501	*82-234-624-019	FILTER MPX 85K

REF. NO.	PART NO.	DESCRIPTION
L502	*82-234-624-019	FILTER MPX 85K
L503	*82-201-622-010	COIL 22MMH
L504	*82-201-622-010	COIL 22MMH
S851	87-031-752-019	SLIDE SW(INPUT SELECTOR)(Z)
SFR101	*87-021-738-019	SFR 1K
SFR102	*87-021-738-019	SFR 1K
SFR201	*87-021-739-019	SFR 2.2K
SFR202	*87-021-739-019	SFR 2.2K
SFR301	*87-021-747-019	SFR 220K
SFR302	*87-021-747-019	SFR 220K
X1	*87-030-144-019	CAP, CERA-LOCK CSA4, 00MHZ

===FRONT CIRCUIT BOARD SECTION===

C631	*87-010-401-019	CAP, ELECT 1-50V
C632	*87-010-401-019	CAP, ELECT 1-50V
C803	*87-010-405-019	CAP, ELECT 10-50V SME
C804	*87-015-681-019	CAP, ELECT 10-16V SRA
C805	*87-010-404-019	CAP, ELECT 4.7-50V SME
C806	*87-018-123-019	CAP, CERA-SOL SS 220P
D801	87-001-123-019	LED, SLZ 981C-2(+10)
D802	87-001-123-019	LED, SLZ 981C-2(+10)
D803	87-001-123-019	LED, SLZ 981C-2(+6)
D804	87-001-123-019	LED, SLZ 981C-2(+6)
D805	87-001-123-019	LED, SLZ 981C-2(□ +3)
D806	87-001-123-019	LED, SLZ 981C-2(□ +3)
D807	87-001-124-019	LED, SLZ 381C(0)
D808	87-001-124-019	LED, SLZ 381C(0)
D809	87-001-124-019	LED, SLZ 381C(-3)
D810	87-001-124-019	LED, SLZ 381C(-3)
D811	87-001-124-019	LED, SLZ 381C(-7)
D812	87-001-124-019	LED, SLZ 381C(-7)
D813	87-001-124-019	LED, SLZ 381C(-20)
D814	87-001-124-019	LED, SLZ 381C(-20)
D815	87-001-124-019	LED, SLZ 381C(-∞)
D816	87-001-124-019	LED, SLZ 381C(-∞)
D831	87-001-123-019	LED, SLZ 981C-2(DOLBY C NR)
D832	87-001-124-019	LED, SLZ 381C(DOLBY B NR)
D844	87-001-124-019	LED, SLZ 381C(PLAY)
D846	87-001-123-019	LED, SLZ 981C-2(RECORD)
D847	87-001-294-019	LED, SLZ 481C-2(PAUSE)
D848	87-001-123-019	LED, SLZ 981C-2(REC MUTE)
S831	87-036-135-019	SLIDE SW(DOLBY B/C NR)
S833	87-036-135-019	SLIDE SW(TIMER)

REF. NO.	PART NO.	DESCRIPTION
S835	87-031-893-010	TACT SW QVDO4M(▶▶)
S836	87-031-893-010	TACT SW QVDO4M(▶)
S838	87-031-893-010	TACT SW QVDO4M(◀◀)
S839	87-031-893-010	TACT SW QVDO4M(■ PAUSE)
S840	87-031-893-010	TACT SW QVDO4M(● REC MUTE)
S841	87-031-893-010	TACT SW QVDO4M(■ STOP)
S842	87-031-893-010	TACT SW QVDO4M(● REC)
VR451	87-024-151-019	VR, 250KB(BIAS FINE)
VR631	87-024-149-019	VR, 2GANG, 50KA(REC LEVEL)
VR632	87-024-150-019	VR, 100KB(BALANCE)

===JACK CIRCUIT BOARD SECTION===

△C8	87-019-113-019	CAP, SPARK-GAP 0.0022E
J661	87-009-043-010	JACK 6.3(PHONES)
△S1	87-036-015-019	AC SW SDDLDI(POWER)

===POWER CIRCUIT BOARD SECTION===

△PT1	80-DS7-601-019	POWER TRANSFORMER(H)
△PT1	82-236-602-019	POWER TRANSFORMER(U)
△PT1	82-236-603-019	POWER TRANSFORMER(E, Z)
△PT1	82-236-604-019	POWER TRANSFORMER(K)

△S2	87-031-780-019	SLIDE SW(AC VOLTAGE)(H)
-----	----------------	-------------------------

===DECK CIRCUIT BOARD SECTION===

SFR921	*87-021-966-019	SFR 4.7K
SOL921	86-535-611-110	SOLENOID, X-3, PL(PLAY)
SOL922	86-535-612-110	SOLENOID, X-3, FR(FR)
S921	87-036-110-010	PUSH SW(CRO2)
S922	87-036-040-010	PUSH SW(CST)

S951	87-036-110-010	PUSH SW(REA)
S952	87-036-109-010	PUSH SW(MT)

===MISCELLANEOUS===

△	*82-187-797-019	AC CORD(H, E, Z)
△	*87-034-583-019	AC CORD(U)
△	*82-187-796-019	AC CORD(K)
△	*87-085-184-010	BUSHING, AC CORD D(U)
△	*87-085-185-010	BUSHING, AC CORD E(H, E, K, Z)
EH	87-046-196-019	E, HEAD
M921	87-045-296-019	MOTOR
RPH	87-046-322-019	RPH(H, U)
RPH	87-046-323-019	RPH(E, K, Z)



2SA683

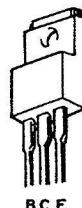


2SA952



2SC1815

2SC3113



2SD1406



2SK223

2SA1015 2SC2240

2SA1296 2SD1302

ACCESSORIES/PACKAGE LIST

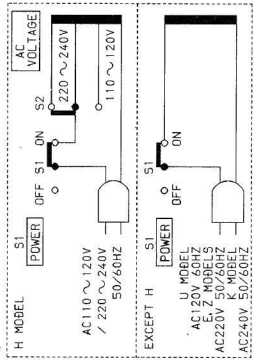
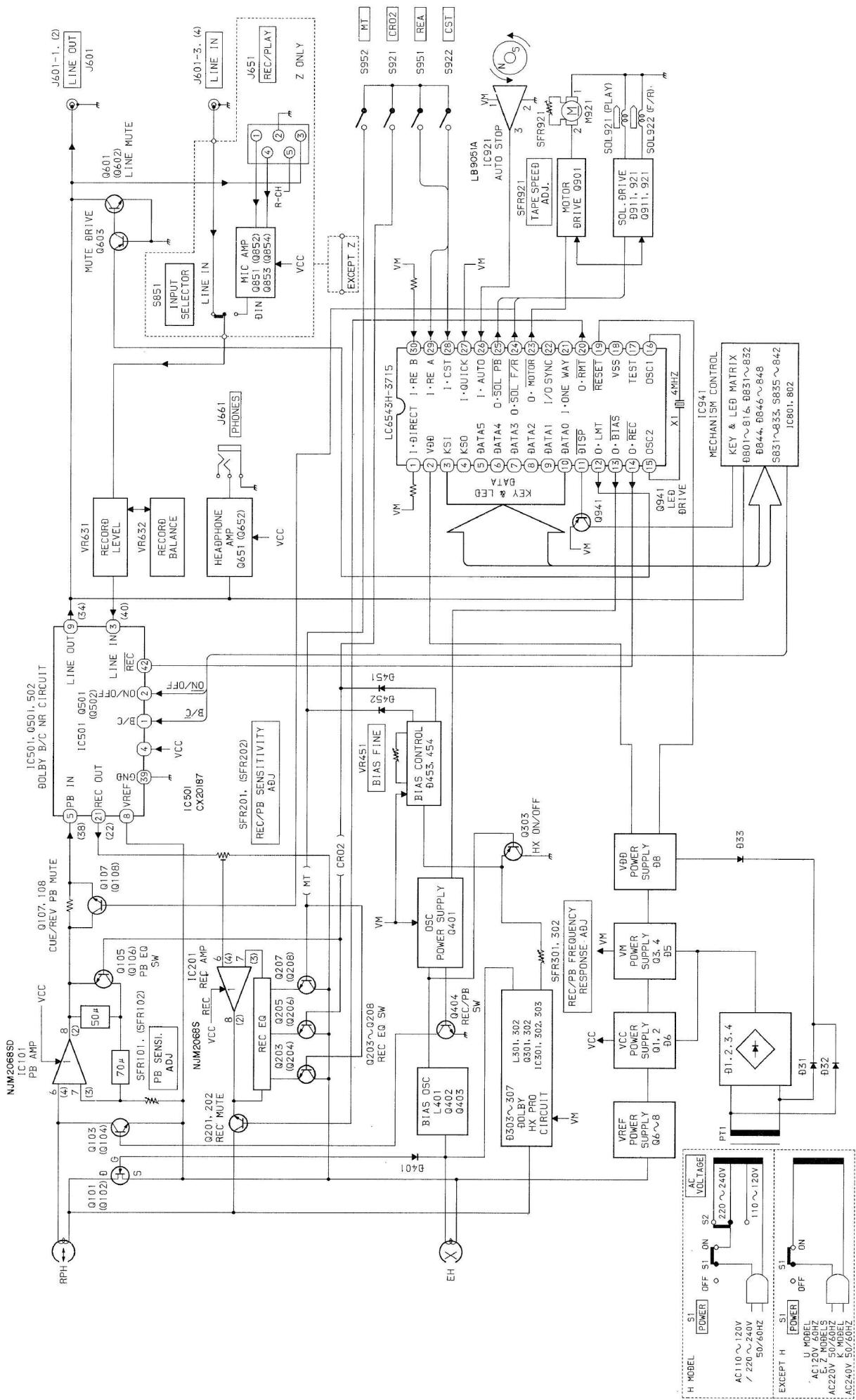
PART NO. CHANGED TO	REF. NO.	PART NO.	DESCRIPTION	COMMON MODEL	Q, TY
	1	★ 80-DS7-901-019	INSTRUCTION BOOKLET, EX	※	1
	2	★ 87-034-773-010	CORD PIN, R-237W-1M		1
	3	★ 87-042-062-010	SIEMENS PLUG S-16115 (H)		1

IC DESCRIPTION

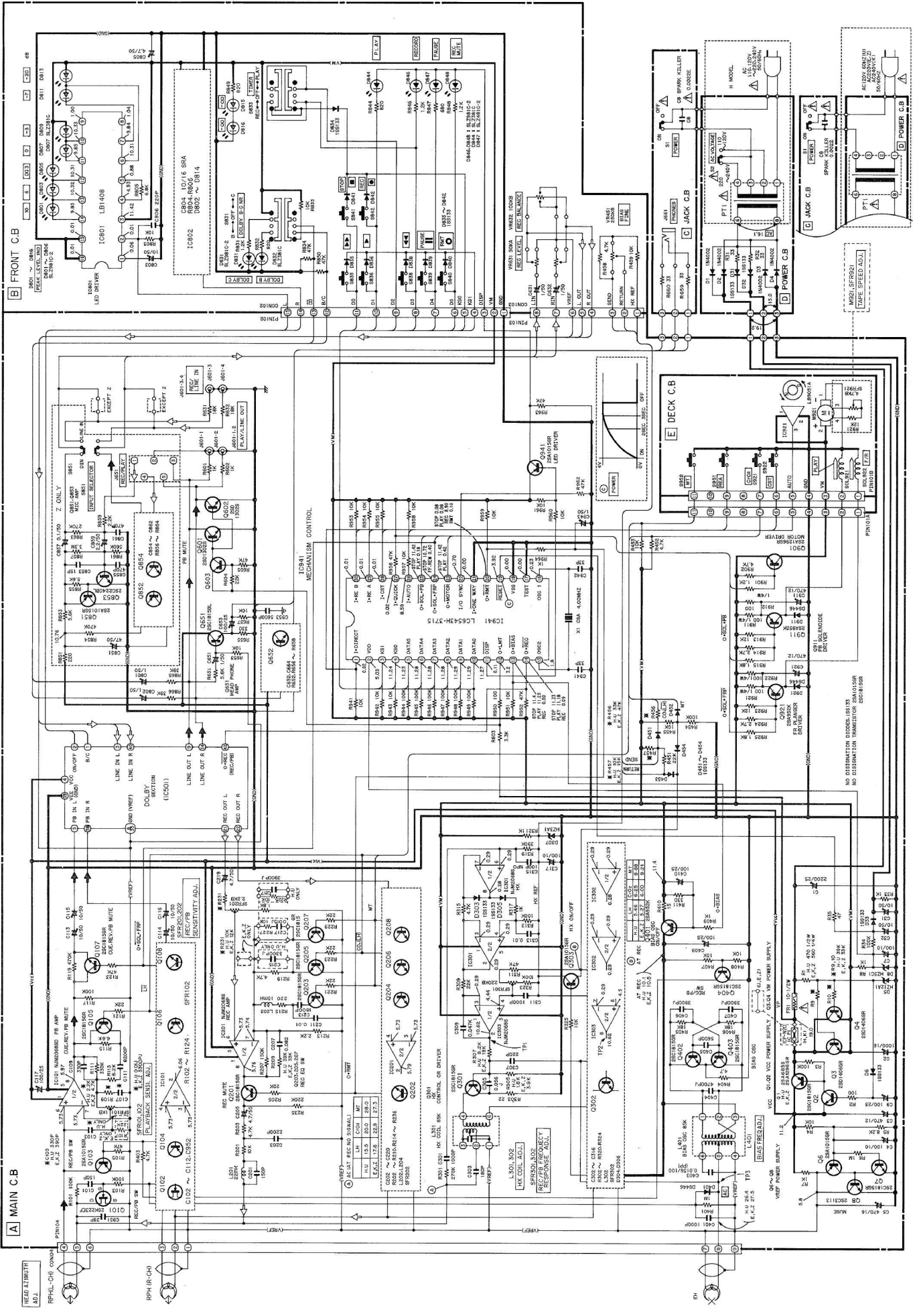
IC, LC6543H-3715

Pin No.	Pin Name	I/O	Description																																																								
1	I-DIRECT	I	Head direction detection SW input: Low at side A.																																																								
2	VDD	—	Power: 4.5 to 5.5V																																																								
3	KSI	O	<table border="1"> <thead> <tr> <th colspan="2">Data 0 to 5: KEY MATRIX SCAN output</th> <th colspan="2">KSL="1"</th> <th colspan="2">KSO="L"</th> <th colspan="2">DISP="L" lights in low</th> </tr> </thead> <tbody> <tr> <td>5</td> <td>DATA 5</td> <td>key ►►</td> <td>key STOP</td> <td colspan="2"></td> <td colspan="2">LED PLAY</td> </tr> <tr> <td>6</td> <td>DATA 4</td> <td>key ►</td> <td>key REC</td> <td colspan="2"></td> <td colspan="2">—</td> </tr> <tr> <td>7</td> <td>DATA 3</td> <td>—</td> <td>key Timer Rec</td> <td colspan="2"></td> <td colspan="2">—</td> </tr> <tr> <td>8</td> <td>DATA 2</td> <td>key ◀◀</td> <td>key Repeat Timer PLAY</td> <td colspan="2"></td> <td colspan="2">LED REC</td> </tr> <tr> <td>9</td> <td>DATA 1</td> <td>key ■■</td> <td>—</td> <td colspan="2"></td> <td colspan="2">LED ■■</td> </tr> <tr> <td>10</td> <td>DATA 0</td> <td>key RMT</td> <td>—</td> <td colspan="2"></td> <td colspan="2">LED RMT</td> </tr> </tbody> </table>	Data 0 to 5: KEY MATRIX SCAN output		KSL="1"		KSO="L"		DISP="L" lights in low		5	DATA 5	key ►►	key STOP			LED PLAY		6	DATA 4	key ►	key REC			—		7	DATA 3	—	key Timer Rec			—		8	DATA 2	key ◀◀	key Repeat Timer PLAY			LED REC		9	DATA 1	key ■■	—			LED ■■		10	DATA 0	key RMT	—			LED RMT	
Data 0 to 5: KEY MATRIX SCAN output		KSL="1"		KSO="L"		DISP="L" lights in low																																																					
5	DATA 5	key ►►		key STOP			LED PLAY																																																				
6	DATA 4	key ►		key REC			—																																																				
7	DATA 3	—		key Timer Rec			—																																																				
8	DATA 2	key ◀◀		key Repeat Timer PLAY			LED REC																																																				
9	DATA 1	key ■■		—			LED ■■																																																				
10	DATA 0	key RMT		—			LED RMT																																																				
4	KSO	O																																																									
5	DATA 5	I		MATRIX SCAN input and output																																																							
6	DATA 4																																																										
7	DATA 3																																																										
8	DATA 2																																																										
9	DATA 1																																																										
10	DATA 0																																																										
11	DISP	O	Data 0 to 5: LED SCAN output																																																								
12	O-LMT	O	LINE MUTE control: Goes low in PLAY, CUE, REC, REC & PLAY, REC & PAUSE, and RMT modes.																																																								
13	O-BIAS	O	Bias oscillation control: Oscillated in low. Goes low in REC mode.																																																								
14	O-REC	O	Dolby IC REC/PB selection: Enters the REC mode in low.																																																								
15	OSC-2	—	Clock input																																																								
16	OSC-1	—	Clock input																																																								
17	TEST	—	Test pin: Connected Ground																																																								
18	VSS	—	Power: Connected Ground																																																								
19	RESET	I	Reset control																																																								
20	O-RMT	O	REC MUTE control: Goes high in REC & PLAY mode.																																																								
21	I-ONE WAY	I	MODE selection: Connected Ground																																																								
22	I/O SYNC	I/O	CD SYNC input and output: CD SYNC with CBRS. When recording is started in low, the set is put into the PAUSE mode.																																																								
23	O-MOTOR	O	Mechanism power control: A motor is rotated in low. Mechanical switch, and auto stop sensor are then activated.																																																								
24	O-SOL-FRP	O	FRP solenoid control: Controlled in low.																																																								
25	O-SOL-PB	O	PB solenoid control: Controlled in low.																																																								
26	I-AUTO	I	Reel pulse input: Two pulses are input when a take-up reel (at side A) is rotated once. When the input is not changed for more than 4 seconds in PLAY mode and for 0.5 seconds in FP/REW/CUE mode, auto stop is done.																																																								
27	I-QUICK	I	—																																																								
28	I-CST	I	Cassette detection SW input: Goes low during cassette insertion.																																																								
29	I-RE A	I	Accidental erasure protection SW input (at side A): Can be recorded in low.																																																								
30	I-RE B	I	Accidental erasure protection SW input (at side B): Can be recorded in low.																																																								

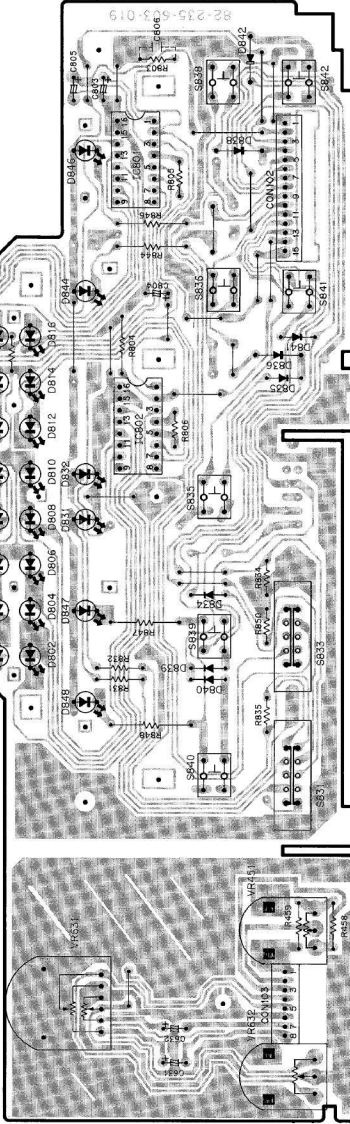
BLOCK DIAGRAM



SCHEMATIC DIAGRAM - 1



B FRONT C.B.



8 POINT PEAK LEVEL METER

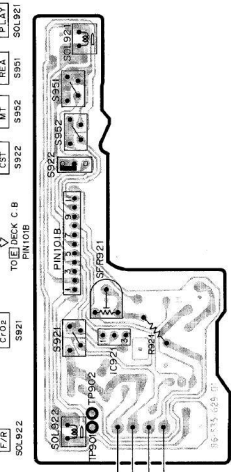
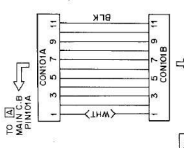
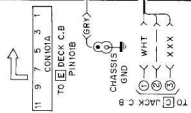
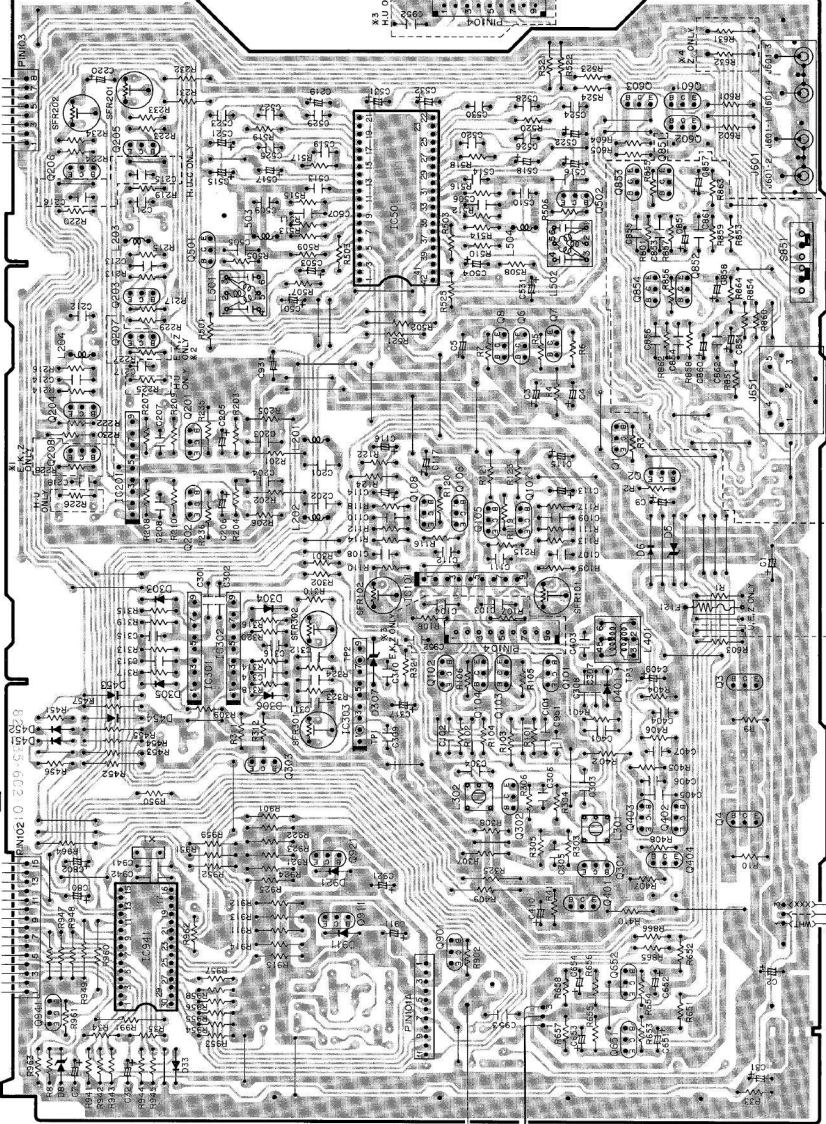
- D801 D803 D805 D807 D809 D811 D813 D815 LEFT
- D802 D804 D806 D808 D810 D812 D814 D816 RIGHT

- +10.0B
- +3.0B
- 3.0B
- 7.0B
- 20.0B
- 00

- REC. MUTE
- PAUSE
- DOUBT. C. NR.
- DOUBT. B. NR.
- PLAY
- RECORD

- VR632 BALANCE
- VR651 REC. LEVEL
- VR651 BIAS FINE (NORMAL, CO2)
- SR339 PAUSE
- SR339 TIMER
- SR340 REC. MUTE
- SR341 DOUBLY B-C NR.
- SR342 STOP
- SR343 REWIND
- SR344 REC.

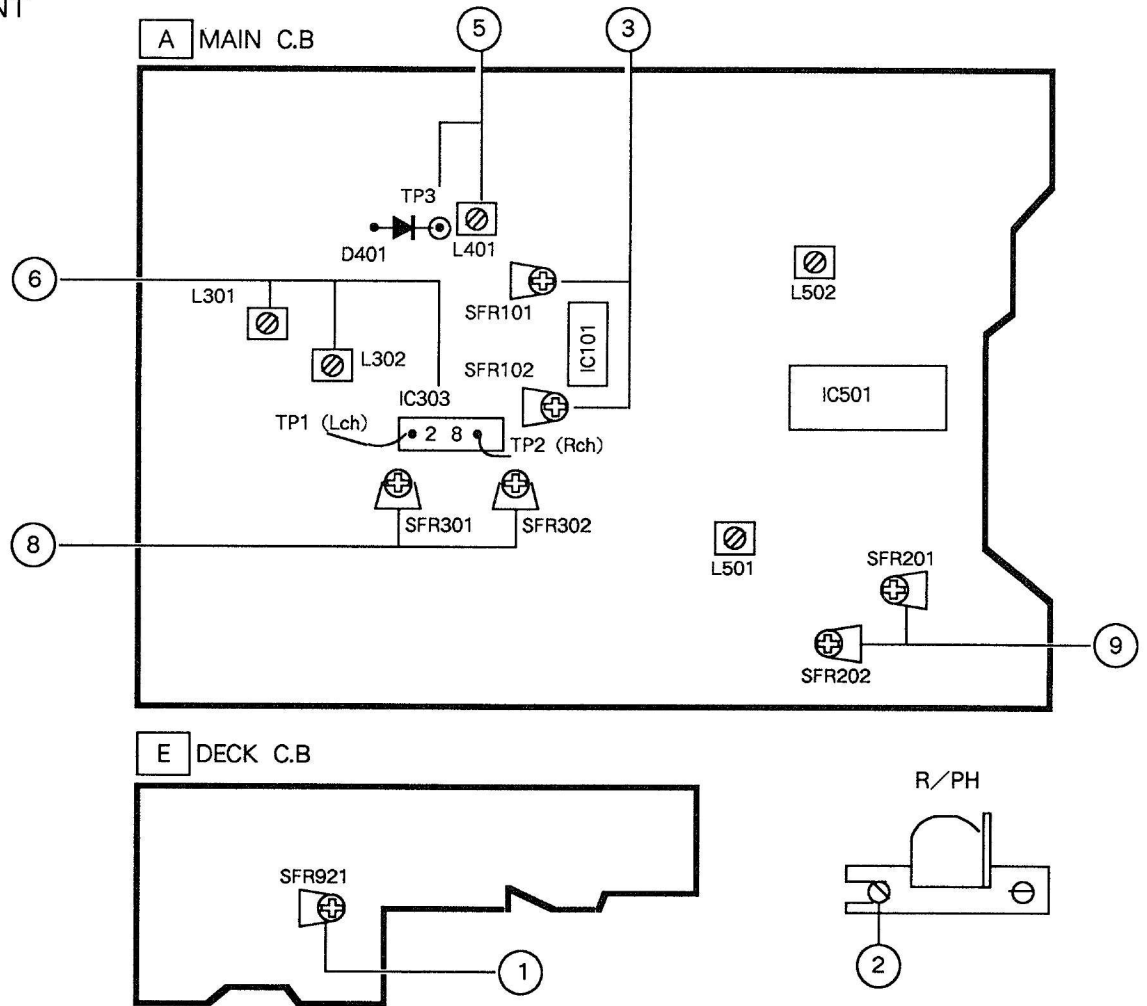
A MAIN C.B.



E DECK C.B.



ADJUSTMENT



1. Tape Speed Adjustment

- Settings : • Test tape : TTA - 100 (TTA - 111S)
 • Test point : LINE OUT (Except for Z)
 J601 - 1 (L - CH)
 J601 - 2 (R - CH)

DIN OUT (Z only)
 J651

- Adjustment Location : SFR921

Method : Play back the test tape, adjust the SFR921 for 3000Hz.

2. Head Azimuth Adjustment

- Settings : • Test tape : TTS - 310 (TTA - 317E, SCC - 1429)
 • Test point : LINE OUT (Except for Z)
 J601 - 1 (L - CH)
 J601 - 2 (R - CH)

DIN OUT (Z only)
 J651

- Adjustment Location : Head azimuth adjustment screw

Method : Play back the 10kHz signal of the test tape and adjust the screw so that the output becomes maximum.

3. PB Sensitivity Adjustment

- Settings : • Test tape : TTS - 200 (TTA - 161, TCC - 130)
 • Test point : LINE OUT (Except for Z)
 J601 - 1 (L - CH)
 J601 - 2 (R - CH)

DIN OUT (Z only)
 J651

- Adjustment Location : SFR101 (L - CH)
 SFR102 (R - CH)

Method : Play back the test tape and adjust SFR101, SFR102 so that the output becomes 490mV + 10mV, - 0mV.

4. PB Frequency Response Check

- Settings : • Test tape : TTS - 310 (TTA - 317E, SCC - 1429)
 • Test point : LINE OUT (Except for Z)
 J601 - 1 (L - CH)
 J601 - 2 (R - CH)

DIN OUT (Z only)
 J651

Method : Play back the 315Hz and 10kHz signals of the test tape and check the output of the 10kHz signal is 1dB + 2.0dB, - 2.5dB with respect to that of the 315Hz signal.

5. Bias Frequency Adjustment

- Settings : • Test tape : TTA - 620 (TTA - 119MP)
 • Test point : TP3
 • DOLBY NR SW : OFF
 • Adjustment Location : L401

Method : Set to the record mode and adjust L401 so that the frequency at TP3 is 85kHz ± 200Hz.

6. HX Coil Adjustment

- Settings : • Test tape : TTA - 600 (TTA - 119K)
• Test point : IC303 (HX Comparator), Pin2
(TP1), Pin8 (TP2)
• Adjustment Location : L301 (L - CH)
L302 (R - CH)

Method : Adjust L301, L302 so that the DC voltage at the test points is 4.7~4.9V (H,U), 4~4.2V (E,K,Z) in the REC STANDBY mode.

7. MPX Filter Check

- Settings : • Test tape : Blank tape
• Input signal : 19kHz signal at LINE IN
• Test point : LINE OUT (Except for Z)
J601 - 1 (L - CH)
J601 - 2 (R - CH)
DIN OUT (Z only)
J651

Method : Record the test tape, and adjust DOLBY - NR B/C SW ON becomes lower up to 27dB than that at DOLBY - NR B/C SW OFF.

8. REC/PB Frequency Response Adjustment

- Settings : • Test tape : TTA - 600 (TTA - 119K)
• Test point : LINE OUT (Except for Z)
J601 - 1 (L - CH)
J601 - 2 (R - CH)
DIN OUT (Z only)
J651
• Adjustment Location : SFR301 (L - CH)
SFR302 (R - CH)

Method : Apply a 1kHz signal and adjust attenuator so that the level at the LINE OUT, DIN OUT is 35mV.

Record and play back the 1kHz and 10kHz signals and adjust so that the output level of 10kHz signal is 0.5dB + 0dB, - 0.5dB for 1kHz signal.

9. REC/PB Sensitivity Adjustment

- Settings : • Test tape : TTA - 600 (TTA - 119K)
• Test point : LINE OUT (Except for Z)
J601 - 1 (L - CH)
J601 - 2 (R - CH)
DIN OUT (Z only)
J651
• Adjustment Location : SFR201 (L - CH)
SFR202 (R - CH)

Method : Apply a 1kHz signal and adjust attenuator so that the level at the LINE OUT, DIN OUT is 35mV.

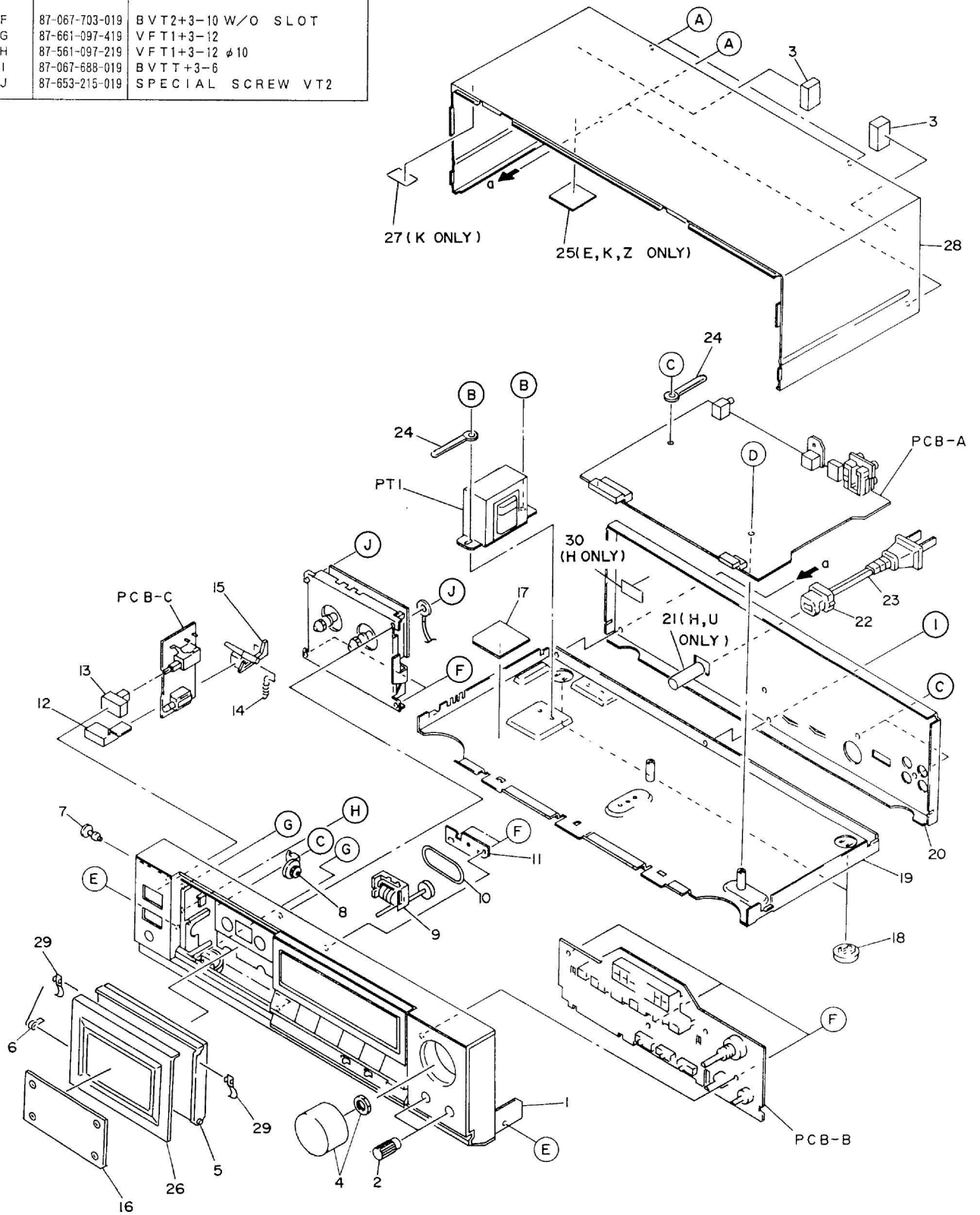
Record and play back the 1kHz signal and adjust SFR201 and SFR202 so that the output level is 0dB + 0.4dB, - 0.2dB (Except for Z), 355mV ± 50mV (Z only).

PRACTICAL SERVICE FIGURE

Playback output :	EXCEPT Z
TTS - 200	470 ± 50mV (LINE OUT)
(TTA - 161, TCC - 130)	Z ONLY
	490 ± 50mV (DIN OUT)
PB/REC output :	EXCEPT Z
	0 VU ± 1.0dB (LINE OUT)
	Z ONLY
	0 VU ± 1.0dB (DIN OUT)
PB/REC distortion :	Less than 2.0 % (NORM.)
	Less than 2.0 % (CrO2)
	Less than 2.0 % (MT)
Playback noise :	Less than 4.0mV
(Unweighted)	(DOLBY - B NR OFF, NORM. tape)
	Less than 3.0mV
	(DOLBY - B NR OFF, CrO2 tape)
	Less than 2.2/2.0mV
	(DOLBY - B/C NR ON, NORM. tape)
	Less than 2.0/1.8mV
	(DOLBY - B/C NR ON, CrO2 tape)
Erase ratio :	More than 60dB
	(125 Hz)
PB/REC noise :	Less than 4.3/2.1/2.1mV
(Unweighted)	(DOLBY - NR OFF/B/C, NORM. tape)
	Less than 3.4/1.7/1.7mV
	(DOLBY - NR OFF/B/C, CrO2, MT tape)
(Weighted)	Less than 2.1/0.85/0.27mV
	(DOLBY - NR OFF/B/C, NORM. tape)
	Less than 1.7/0.68/0.21mV
	(DOLBY - NR OFF/B/C, CrO2, MT tape)
Recording bias frequency :	85kHz
Tape speed :	3kHz ± 1.5 %
{TTA - 100 (TTA - 111S)}	
Wow & flutter :	Less than 0.08 %
(WRMS)	
Take - up torque :	45 ± 10g - cm
Fast forward torque :	120 ± 30g - cm
Rewind torque :	120 ± 30g - cm
Back tension :	2~5g - cm
Test tape :	METAL TTA - 620
	(TTA - 119MP)
	CrO2 TTA - 610
	(TTA - 119H)
	NORMAL TTA - 600
	(TTA - 119K)

EXPLODED VIEW - 1

REF. NO.	PART NO.	DESCRIPTION
A	87-067-660-019	BVT2+3-8 W/O SLOT (B)
B	87-067-553-019	VVWS+4-7
C	87-067-579-019	BVT2+3-8 W/O SLOT
D	87-661-095-419	VFT1+3-8
E	87-571-094-419	VIT+3-6
F	87-067-703-019	BVT2+3-10 W/O SLOT
G	87-661-097-419	VFT1+3-12
H	87-561-097-219	VFT1+3-12 ϕ 10
I	87-067-688-019	BVTT+3-6
J	87-653-215-019	SPECIAL SCREW VT2

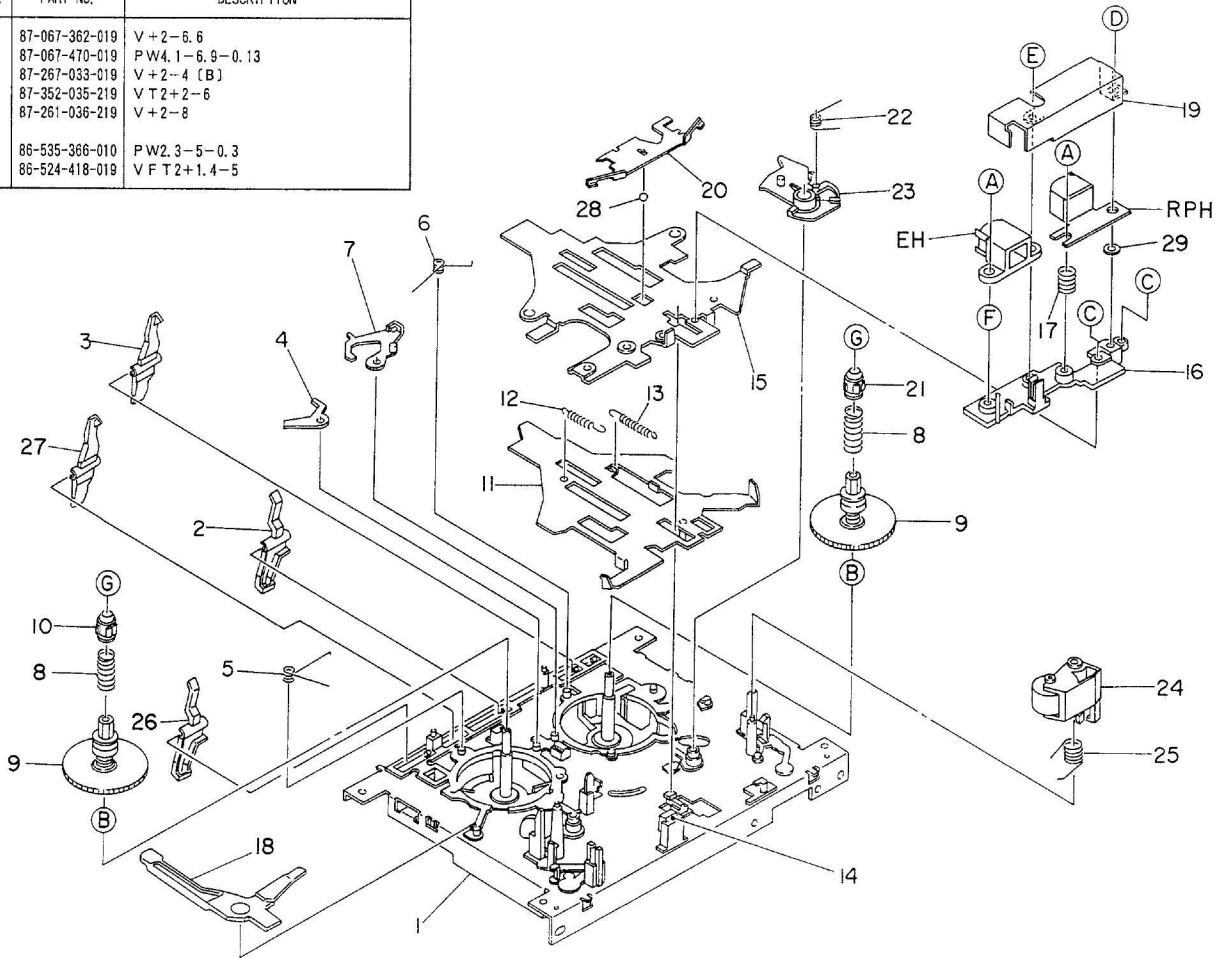


MECHANICAL PARTS LIST

PART NO. CHANGED TO	REF. NO.	PART NO.	DESCRIPTION	COMMON MODEL	Q' TY
	1-1	★09-047-578-010	FRONT CABINET ASSY (H, E, K, Z)	※	1
	1-1	★09-047-579-010	FRONT CABINET ASSY (U)	※	1
	1-2	★82-234-018-010	KNOB, BIAS		2
	1-3	★84-711-306-019	CUSHION, G 10-5-5		2
	1-4	★82-235-014-119	KNOB, REC		1
	1-5	82-235-017-010	BOX, CASSETTE		1
	1-6	★82-235-208-019	T-SPRING, EJECT		1
	1-7	★87-084-077-019	RIVET, NYLON DIA 3.5-4.5		1
	1-8	★87-063-143-010	DAMPER, OIL 75		1
	1-9	★87-040-194-010	COUNTER		1
	1-10	★82-235-207-010	BELT, COUNTER		1
	1-11	★82-205-208-010	HOLDER, COUNTER		1
	1-12	★82-234-015-010	PUSH KEY, EJECT		1
	1-13	★84-721-023-010	BUTTON, POWER		1
	1-14	★82-235-206-019	E-SPRING, EJECT		1
	1-15	★82-235-202-019	LEVER, EJECT		1
	1-16	★80-DS7-003-019	WINDOW, BOX (H, U)	※	1
	1-16	★80-DS7-013-019	WINDOW, BOX (E, K, Z)	※	1
	1-17	★82-231-615-010	STEEL, SILICON 43-43		1
	1-18	★87-055-059-010	FOOT, B		2
	1-19	---	CHASSIS, AMP		1
	1-20	★80-DS7-008-019	PANEL, REAR (H)	※	1
	1-20	★80-DS7-014-019	PANEL, REAR (HJ)	※	1
	1-20	★80-DS7-009-019	PANEL, REAR (U)	※	1
	1-20	★80-DS7-010-019	PANEL, REAR (E)	※	1
	1-20	★80-DS7-011-019	PANEL, REAR (K)	※	1
	1-20	★80-DS7-012-019	PANEL, REAR (Z)	※	1
	1-21	---	TUBE, UL 8 DIA-140MM (H, U)		1
	1-22	★87-085-185-010	BUSHING, AC CORD (H, E, K, Z)		1
	1-22	★87-085-184-010	BUSHING, AC CORD (U)		1
	1-23	★82-187-797-019	CORD, AC (H, E, Z)		1
	1-23	★87-034-583-019	CORD, AC (U)		1
	1-23	★82-187-796-019	CORD, AC (K)		1
	1-24	---	BINDER, WIRE		2
	1-25	★82-226-274-010	DAMPER, 80-60-3 (E, K, Z)		1
	1-26	★82-235-003-019	COVER, C BOX		1
	1-27	★82-235-210-019	SHEET, 30-30-0.5 (K)		1
	1-28	★82-235-002-219	CABINET, STEEL		1
	1-29	★82-221-231-010	P-SPRING, CASSETTE		2
	1-30	★82-231-213-019	SHEET, 45-30 (H)		1

EXPLODED VIEW - 2

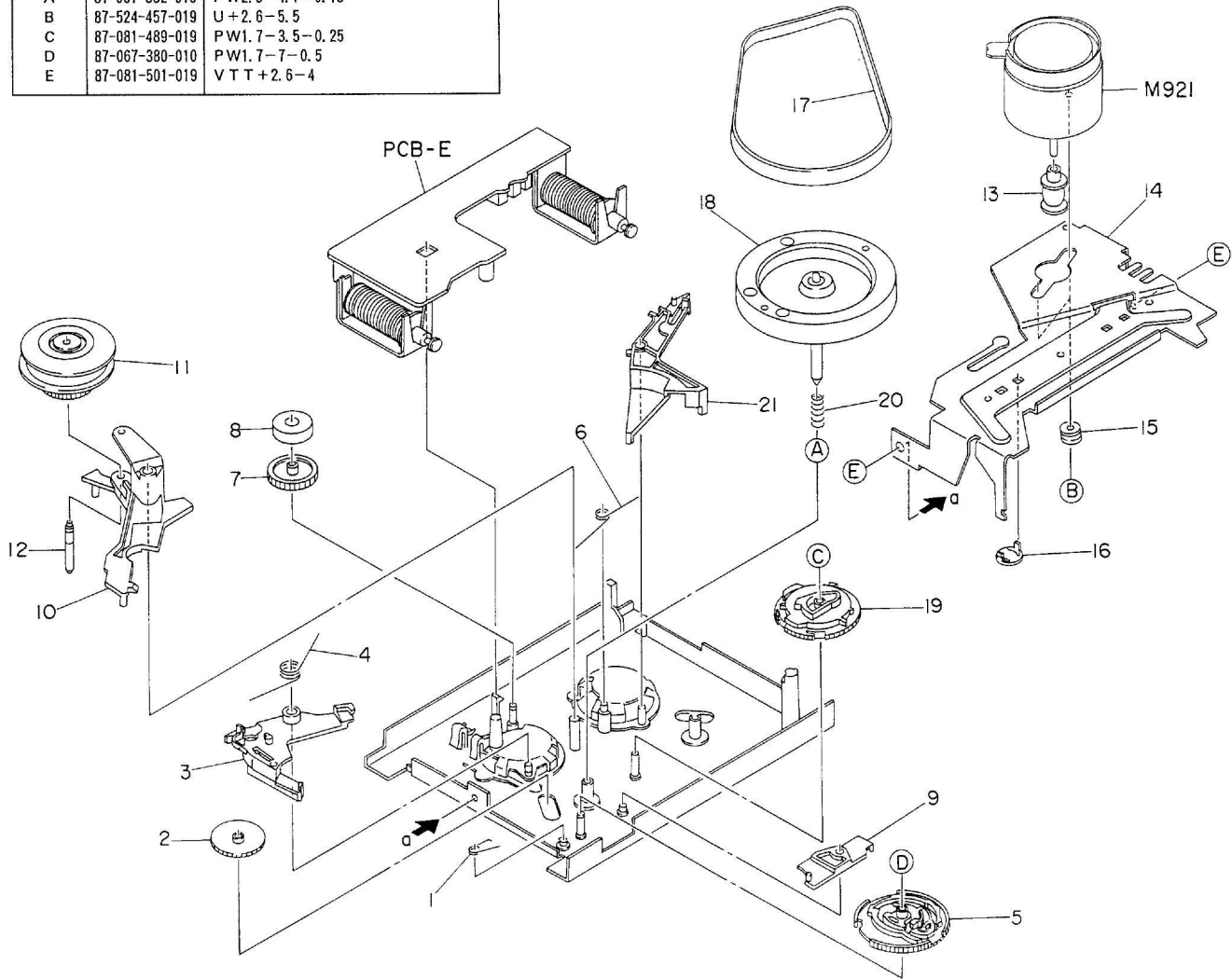
REF. NO.	PART NO.	DESCRIPTION
A	87-067-362-019	V+2-6.6
B	87-067-470-019	PW4.1-6.9-0.13
C	87-267-033-019	V+2-4 [B]
D	87-352-035-219	VT2+2-6
E	87-261-036-219	V+2-8
F	86-535-366-010	PW2.3-5-0.3
G	86-524-418-019	VFT2+1.4-5



PART NO. CHANGED TO	REF. NO.	PART NO.	DESCRIPTION	COMMON MODEL	Q'TY
	2-1	★86-575-239-410	MECHANISM CHASSIS ASSY S		1
	2-2	★86-535-249-210	LEVER, CASSETTE S		1
	2-3	★86-535-254-110	LEVER, CHROME		1
	2-4	★86-535-252-210	LEVER, BRAKE R		1
	2-5	★86-535-371-019	T-SPRING, BRAKE R		1
	2-6	★86-535-370-019	T-SPRING, BRAKE F		1
	2-7	★86-535-251-010	LEVER, BRAKE F		1
	2-8	★86-535-293-019	C-SPRING, REEL PLATFORM		2
	2-9	86-535-240-410	REEL PLATFORM A ASSY		2
	2-10	★86-524-218-119	STOPPER, REEL PLATFORM S		1
	2-11	★86-535-385-210	SLIDE PLATE S ASSY		1
	2-12	★86-575-227-010	E-SPRING, LEVER SLIDE		1
	2-13	★86-575-226-010	E-SPRING, CHASSIS HEAD		1
	2-14	★86-535-353-010	FELT, 5-4-2		1
	2-15	★86-535-311-410	CHASSIS, ACTUATING S		1
	2-16	★86-535-314-010	BASE, HEAD		1
	2-17	★86-535-359-010	C-SPRING, AZIMUTH S		1
	2-18	★82-235-204-010	LEVER, PROTECT		1
	2-19	★86-535-362-010	PLATE, HEAD SHIELD		1
	2-20	★86-535-289-110	P-SPRING, ACTUATING		1
	2-21	★86-524-233-119	STOPPER, REEL PLATFORM T		1
	2-22	★86-535-282-019	T-SPRING, PLAT GEAR F		1
	2-23	★86-535-238-210	LEVER, PLAY F		1
	2-24	86-535-226-210	PINCH LEVER F ASSY		1
	2-25	★86-535-312-010	T-SPRING, PINCH S		1
	2-26	★86-535-247-210	LEVER, REC A		1
	2-27	★86-535-250-010	LEVER, METAL		1
	2-28	★87-073-018-019	BALL, STEEL 1.388		1
	2-29	★86-535-363-010	SHEET, MYLAR 2.3-5-0.1		1

EXPLODED VIEW - 3

REF. NO.	PART NO.	DESCRIPTION
A	87-067-332-019	PW2. 8-4. 7-0. 13
B	87-524-457-019	U+2. 6-5. 5
C	87-081-489-019	PW1. 7-3. 5-0. 25
D	87-067-380-010	PW1. 7-7-0. 5
E	87-081-501-019	VTT+2. 6-4



PART NO. CHANGED TO	REF. NO.	PART NO.	DESCRIPTION	COMMON MODEL	Q' TY
	3-1	★86-535-291-210	T-SPRING, FR CAM		1
	3-2	86-535-259-310	GEAR, PLAY		1
	3-3	★86-535-230-310	LEVER, TRIGGER FR		1
	3-4	★86-535-278-019	T-SPRING, FR		1
	3-5	★86-535-261-410	CAM, FR P		1
	3-6	★86-535-279-010	T-SPRING, MAIN		1
	3-7	86-535-258-310	GEAR, IDLER		1
	3-8	★86-535-614-010	RING, MAGNET 4 P		1
	3-9	★86-535-223-310	LEVER, PAUSE		1
	3-10	★86-535-233-210	LEVER, FR		1
	3-11	★86-535-301-310	SLIPDISC ASSY		1
	3-12	★86-535-235-010	SHAFT, FR		1
	3-13	★86-535-315-110	PULLEY, MOTOR C		1
	3-14	---	HOLDER, MOTOR		1
	3-15	★86-513-441-110	COLLAR		2
	3-16	★86-535-255-010	TABLE, FLYWHEEL		1
	3-17	86-575-238-110	BELT, 3		1
	3-18	86-535-395-010	FLYWHEEL F ASSY		1
	3-19	★86-535-260-310	CAM, MAIN		1
	3-20	★86-535-288-019	C-SPRING, FLYWHEEL		1
	3-21	★86-535-231-310	LEVER, TRIGGER PLAY		1