

AIWA®**XK-009**

SERVICE MANUAL


STEREO CASSETTE DECK• BASIC TAPE MECHANISM : α -6

• TYPE. H, C, E, K, K1, Z

SPECIFICATIONS

Type	Stereo cassette tape deck
Track format	4 tracks, 2 channels
Power supply	XK-009E, Z AC 220 V, 50/60 Hz XK-009K, K1 AC 240 V, 50/60 Hz XK-009C AC 120 V, 60 Hz XK-009H AC 120 V/220 V/240 V switchable, 50/60 Hz
Power consumption	XK-009E, K, K1, Z, C 33 W XK-009H 30 W
Frequency response	METAL tape: 20 — 22,000 Hz CrO ₂ tape: 20 — 21,000 Hz NORMAL tape: 20 — 20,000 Hz
Signal-to-noise ratio	95 dB (METAL tape dbx NR ON)
Wow and flutter	0.035% (According to DIN 45500) 0.018% (WRMS)
Tape speed	4.8 cm/sec. (1-7/8 ips)
Recording system	AC bias (frequency 105 kHz)
Erase system	AC erase
Motor	System servomotor (for the capstan) \times 1 DC motor (for tape take-up during playback/recording) \times 1 DC motor (for F FWD/REW) \times 1

Playback head	PC-OCC coil pure amorphous head
Recording head	PC-OCC coil pure amorphous head
Erase head	Double-gap sendust head
Inputs	REC/LINE IN, CD/DAT DIRECT IN maximum input sensitivity: 50 mV (47 k Ω)
Outputs	PLAY/LINE OUT standard output level: 530 mV (0 VU); suitable load impedance: over 47 k Ω . PHONES: 1.5 mW (8 Ω)
Dimensions	469 (W) \times 136 (H) \times 432.7 (D) mm
Weight	10.2 kg

- Design and specifications are subject to change without notice.
- Noise reduction system manufactured under license from Dolby Laboratories Licensing Corporation.
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DISASSEMBLY INSTRUCTIONS

1. Mechanism ASSY Removal

- 1) Remove side wooden panels R/L and the steel cabinet.
- 2) Remove 2 screws and take out the stabilizer solenoid.
(See Figure-1)

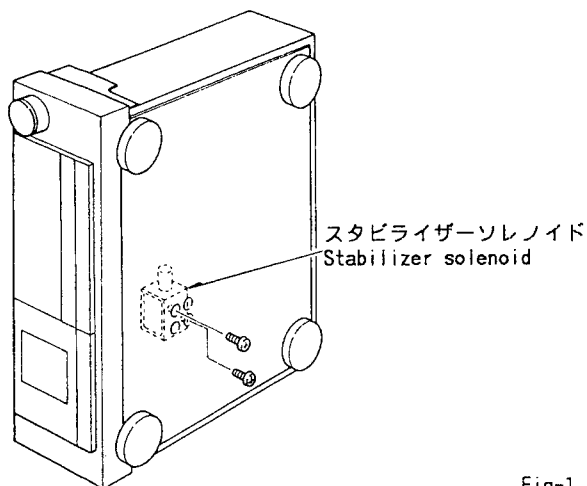


Fig-1

- 3) Remove the cassette lid in the direction of arrow ①.
Remove 6 screws and lay out the wires, then remove the front cabinet in the direction of arrow ②.
(See Figure-2)

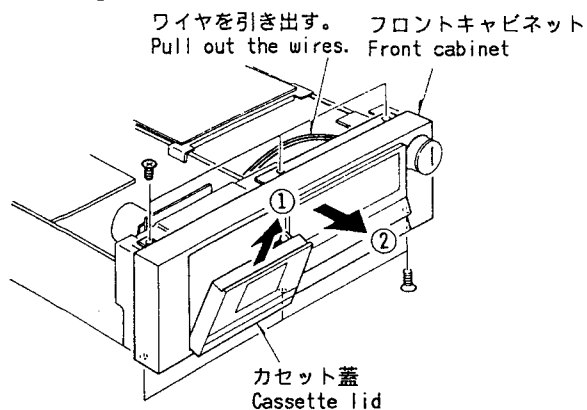


Fig-2

- 4) Remove 5 screws and push button (EJECT), then pull out the mechanism ASSY in the direction of the arrow. Take care of the hook of the lever plunger ASSY at this time. (See Figure-3)

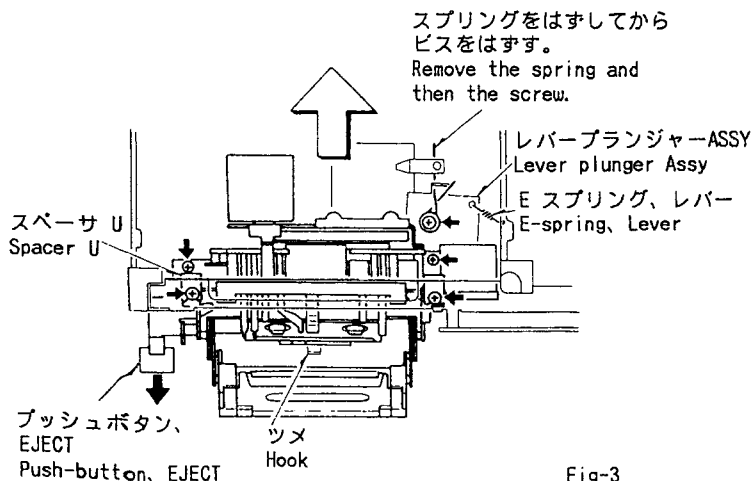


Fig-3

2. Cassette Holder Removal

- 1) Remove 2 screws in the EJECT state and then remove the holder in the direction of the arrow. Be careful that the lever (EJECT) is also removed at this time. (See Figure-4)
- 2) Turn on SW103 and SW107 to operate the mechanism in this state.

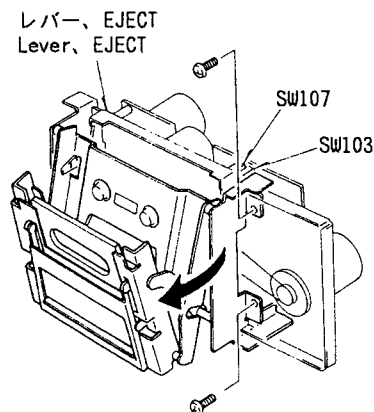


Fig-4

3. Main-2 C.B Removal

- 1) Remove 4 screws and lift the main-2 circuit board.
(See Figure-5)

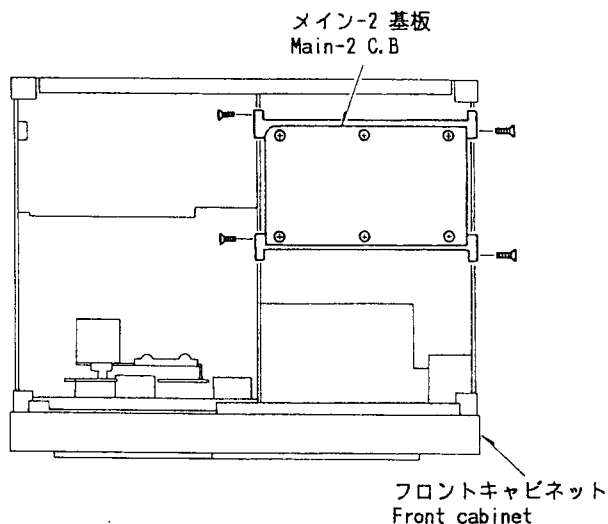


Fig-5

ELECTRICAL MAIN PARTS LIST

REF.NO. PART NO. DESCRIPTION

--- IC ---

87-001-384-010 IC,CX20188
82-226-645-010 IC,HD614042S-A87
87-020-111-010 IC,L78M05
87-020-877-010 IC,LC4966

82-100-630-010 IC,LC6502B-724
87-020-533-010 IC,M4069UBP
87-020-679-010 IC,M4572BP
87-027-895-010 IC,M5218L

87-001-383-010 IC,M5220P
87-020-619-010 IC,M5238L
87-027-909-010 IC,M54523P
87-001-387-010 IC,M5F78M10

87-020-871-010 IC,M5F78M12L
87-001-388-010 IC,M5F79M10
87-020-884-010 IC,M5F79M12L
87-027-940-010 IC,NJM2903S

87-020-052-010 IC,NJM4556S
87-027-986-010 IC,NJM4560S
87-027-937-010 IC,TC4030BP
87-001-385-010 IC,UPC1252H2

87-001-386-010 IC,UPC1253H2

--- TRANSISTOR ---

82-371-625-010 FET,2SK30
89-109-521-010 TRANSISTOR,2SA952K
89-110-155-010 TRANSISTOR,2SA1015 GR
89-210-154-510 TRANSISTOR,2SB1015Y,G

89-309-455-010 TRANSISTOR,2SC945L,Q
89-309-456-010 TRANSISTOR,2SC945L,P
89-318-155-010 TRANSISTOR,2SC1815 GR
89-318-464-510 TRANSISTOR,2SC1846R,S

89-320-011-010 TRANSISTOR,2SC2001K
89-321-204-010 TRANSISTOR,2SC2120Y
89-331-138-010 TRANSISTOR,2SC3113B
89-412-753-410 TRANSISTOR,2SD1275

87-026-206-010 TRANSISTOR,DTA124EF
87-026-216-010 TRANSISTOR,DTA124ES
87-026-215-010 TRANSISTOR,DTC114YS
87-026-217-010 TRANSISTOR,DTC124ES

87-026-293-010 TRANSISTOR,DTC144WS
87-026-364-010 TRANSISTOR,RN1202

--- DIODE ---

87-020-110-010 DIODE,1SS177
87-020-025-010 DIODE,2B4B41,LC-2
87-020-123-010 DIODE,DS446
87-027-365-010 DIODE,S5277B

87-027-346-010 DIODE,ZENER HZ11A2L
87-027-364-010 DIODE,ZENER HZ12A3L
87-027-661-010 DIODE,ZENER HZ30-2L
87-027-301-010 DIODE,ZENER HZ3A1

87-027-416-010 DIODE,ZENER HZ3C2
87-027-702-010 DIODE,ZENER HZ6C2L
87-027-399-010 DIODE,ZENER HZ7A3L

--- MAIN-1 CIRCUIT BOARD SECTION ---

PCB-A * MAIN-1 CIRCUIT BOARD
C253 *87-010-404-010 CAP,ELECT 4.7-50 SME
C254 *87-010-404-010 CAP,ELECT 4.7-50 SME
C255 *87-010-404-010 CAP,ELECT 4.7-50 SME

C256 *87-010-404-010 CAP,ELECT 4.7-50 SME
C701 *87-010-133-010 CAP,ELECT BP 2.2-50V

REF.NO. PART NO. DESCRIPTION

C702 *87-010-133-010 CAP,ELECT BP 2.2-50V
C703 *87-010-697-010 CAP,ELECT AWD 220-16
C707 *87-010-402-010 CAP,ELECT 2.2-50 SME
C708 *87-010-402-010 CAP,ELECT 2.2-50 SME

C709 *87-010-379-010 CAP,ELECT 22-16V
C710 *87-010-379-010 CAP,ELECT 22-16V
C713 *87-010-697-010 CAP,ELECT AWD 220-16
C715 *87-018-034-010 CAP,CERA-SOL S 150P

C716 *87-018-034-010 CAP,CERA-SOL S 150P
C717 *87-010-404-010 CAP,ELECT 4.7-50 SME
C719 *87-010-133-010 CAP,ELECT BP 2.2-50V
C720 *87-010-133-010 CAP,ELECT BP 2.2-50V

C721 *87-014-193-010 CAP,PP 0.0022G
C722 *87-014-193-010 CAP,PP 0.0022G
C723 *87-014-193-010 CAP,PP 0.0022G
C724 *87-014-193-010 CAP,PP 0.0022G

C725 *87-014-161-010 CAP,PP 0.0039-100V G
C726 *87-014-161-010 CAP,PP 0.0039-100V G
C733 *87-010-132-010 CAP,ELECT BP 1-50
C734 *87-010-132-010 CAP,ELECT BP 1-50

C741 *87-010-132-010 CAP,ELECT BP 1-50
C742 *87-010-132-010 CAP,ELECT BP 1-50
C743 *87-014-115-010 CAP,PP 0.0056G
C744 *87-014-115-010 CAP,PP 0.0056G

C747 *87-010-404-010 CAP,ELECT 4.7-50 SME
C748 *87-010-404-010 CAP,ELECT 4.7-50 SME
C751 *87-014-079-010 CAP,PP 8200P-100V J
C754 *87-010-138-010 CAP,ELECT BP 22-25

C755 *87-010-132-010 CAP,ELECT BP 1-50
C759 *87-010-378-010 CAP,ELECT 10-16
C760 *87-010-112-010 CAP,ELECT 100-16
C761 *87-010-112-010 CAP,ELECT 100-16

C777 *87-010-402-010 CAP,ELECT 2.2-50 SME
C778 *87-010-402-010 CAP,ELECT 2.2-50 SME
C779 *87-010-112-010 CAP,ELECT 100-16
C781 *87-014-131-010 CAP,PP 0.0018

C782 *87-014-131-010 CAP,PP 0.0018
C783 *87-014-041-010 CAP,PP 220P
C784 *87-014-041-010 CAP,PP 220P
C785 *87-014-049-010 CAP,PP 470P

C786 *87-014-049-010 CAP,PP 470P
C793 *87-010-379-010 CAP,ELECT 22-16V
C794 *87-010-379-010 CAP,ELECT 22-16V
C795 *87-010-374-010 CAP,ELECT 47-10V

C796 *87-010-374-010 CAP,ELECT 47-10V
C797 *87-010-404-010 CAP,ELECT 4.7-50 SME
C798 *87-010-404-010 CAP,ELECT 4.7-50 SME
C813 *87-010-404-010 CAP,ELECT 4.7-50 SME

C814 *87-010-404-010 CAP,ELECT 4.7-50 SME
C815 *87-010-265-010 CAP,ELECT 33-16 SME
C816 *87-010-265-010 CAP,ELECT 33-16 SME
C817 *87-010-697-010 CAP,ELECT AWD 220-16

C909 *87-010-697-010 CAP,ELECT AWD 220-16
C910 *87-010-697-010 CAP,ELECT AWD 220-16
C935 *87-010-404-010 CAP,ELECT 4.7-50 SME
C936 *87-010-404-010 CAP,ELECT 4.7-50 SME

C939 *87-010-404-010 CAP,ELECT 4.7-50 SME
C1002 *87-010-071-010 CAP,ELECT 1-50
C1004 *87-010-071-010 CAP,ELECT 1-50
C1005 *87-010-402-010 CAP,ELECT 2.2-50 SME

C1008 *87-010-071-010 CAP,ELECT 1-50
C1010 *87-010-402-010 CAP,ELECT 2.2-50 SME
J701 87-009-019-010 PIN JACK 2P(REC/LINE IN)
J702 87-009-019-010 PIN JACK 2P(REC/LINE IN)

REF.NO.	PART NO.	DESCRIPTION	REF.NO.	PART NO.	DESCRIPTION
J703	87-009-019-010	PIN JACK 2P(CD/DAT DIRECT IN)	C901	*87-010-696-010	CAP,ELECT AWD 470-25
J704	87-009-019-010	PIN JACK 2P(CD/DAT DIRECT IN)	C902	*87-010-696-010	CAP,ELECT AWD 470-25
J705	87-009-019-010	PIN JACK 2P(PLAY/LINE OUT)	L101	*82-226-622-010	COIL,TRAP 105K,PC-OCC
J706	87-009-019-010	PIN JACK 2P(PLAY/LINE OUT)	L102	*82-226-622-010	COIL,TRAP 105K,PC-OCC
L701	*82-226-641-010	COIL,BIAS 105K	R101	*87-025-429-010	RES,MF 1/6W 47K
L702	*87-003-051-010	COIL,CHOKE 470 UH	R102	*87-025-429-010	RES,MF 1/6W 47K
L703	*82-226-642-010	COIL,OSC 105K-HX	R105	*87-025-455-010	RES,MF 1/4W 110K
L704	*82-226-642-010	COIL,OSC 105K-HX	R106	*87-025-455-010	RES,MF 1/4W 110K
L705	*87-003-051-010	COIL,CHOKE 470 UH	R107	*87-025-423-010	RES,MF 1/4W 4.7K
L707	*82-226-628-010	COIL,TRAP 105K	R108	*87-025-423-010	RES,MF 1/4W 4.7K
L708	*82-226-628-010	COIL,TRAP 105K	R109	*87-025-414-010	RES,MF 1/6W 56K
L709	*82-132-631-010	COIL,4.7MMH,J	R110	*87-025-414-010	RES,MF 1/6W 56K
L710	*82-132-631-010	COIL,4.7MMH,J	RY702	87-045-270-010	RELAY G5A-297P
L711	*82-226-690-010	COIL,2.7 MMH	SFR101	*87-021-745-010	SFR 47KB
L712	*82-226-690-010	COIL,2.7 MMH	SFR102	*87-021-745-010	SFR 47KB
L713	*82-226-689-010	COIL,2.2 MMH J	=== CONTROL CIRCUIT BOARD SECTION ===		
L714	*82-226-689-010	COIL,2.2 MMH J	PCB-C	*	CONTROL CIRCUIT BOARD
L715	*82-226-623-010	FILTER ,MPX PC-OCC	C101	*87-010-698-010	CAP,ELECT 4700-25 105°
L716	*82-226-623-010	FILTER ,MPX PC-OCC	C102	*87-010-410-010	CAP,ELECT 330-50 VX
△ R767	87-029-089-010	RES,FUSIBLE 1/4W-4.7	C103	*87-010-247-010	CAP,ELECT 100-50 SME
△ R791	87-029-082-010	RES,FUSIBLE 1/4W-100	C104	*87-010-394-010	CAP,ELECT 220-35 SME
△ R792	87-029-082-010	RES,FUSIBLE 1/4W-100	C105	*87-010-378-010	CAP,ELECT 10-16
RY701	87-045-270-010	RELAY G5A-297P	C106	*87-010-263-010	CAP,ELECT 100-10V
SFR703	*87-021-747-010	SFR 220K	C107	*87-010-374-010	CAP,ELECT 47-10V
SFR704	*87-021-747-010	SFR 220K	C108	*87-010-237-010	CAP,ELECT 1000-16 SME
SFR705	*87-021-745-010	SFR 47KB	C109	*87-010-436-010	CAP,ELECT 1000-35
SFR706	*87-021-745-010	SFR 47KB	C111	*87-010-393-010	CAP,ELECT 100-35 SME
SFR1001	*87-021-745-010	SFR 47KB	C112	*87-010-695-010	CAP,ELECT AWD 2200-25
SFR1002	*87-021-745-010	SFR 47KB	C113	*87-010-695-010	CAP,ELECT AWD 2200-25
SW702	82-226-625-010	PUSH SW(CD/DAT DIRECT)	△ C116	*87-019-112-010	SPARK KILLER 0.01 E
SW703	82-226-625-010	PUSH SW(MPX)	C117	*87-018-131-010	CAP,CERA-SOL SS 1000P
SW704	82-226-630-010	PUSH SW(MONITOR)	C118	*87-010-401-010	CAP,ELECT 1-50 SME
=== MAIN-2 CIRCUIT BOARD SECTION ===			C119	*87-010-378-010	CAP,ELECT 10-16
PCB-B	*	MAIN-2 CIRCUIT BOARD	C120	*87-010-378-010	CAP,ELECT 10-16
C101	*87-014-119-010	CAP,PP 0.027G	C121	*87-010-235-010	CAP,ELECT 470-16
C102	*87-014-119-010	CAP,PP 0.027G	C123	*87-010-265-010	CAP,ELECT 33-16
C103	*82-226-688-010	CAP,FILM GU-1-100V	C124	*87-010-401-010	CAP,ELECT 1-50 SME
C104	*82-226-688-010	CAP,FILM GU-1-100V	C126	*87-018-131-010	CAP,CERA-SOL SS 1000P
C201	*87-018-034-010	CAP,CERA-SOL S 150P	L101	*82-196-649-010	COIL,OSC LC6502C
C202	*87-018-034-010	CAP,CERA-SOL S 150P	SFR101	*87-021-737-010	SFR 470
C203	*87-010-133-010	CAP,ELECT BP 2.2-50V	△ SW108	87-036-015-010	SLIDE SW(POWER)
C204	*87-010-133-010	CAP,ELECT BP 2.2-50V	=== DISPLAY CIRCUIT BOARD SECTION ===		
C205	*87-014-193-010	CAP,PP 0.0022G	PCB-D	*	DISPLAY CIRCUIT BOARD
C206	*87-014-193-010	CAP,PP 0.0022G	C201	*87-018-112-010	CAP,CERA-SOL SS 30P
C207	*87-014-193-010	CAP,PP 0.0022G	C202	*87-018-112-010	CAP,CERA-SOL SS 30P
C208	*87-014-193-010	CAP,PP 0.0022G	C203	*87-010-079-010	CAP,ELECT 100-6.3
C209	*87-014-161-010	CAP,PP 0.0039-100V G	C204	*87-010-075-010	CAP,ELECT H5 10-16
C210	*87-014-161-010	CAP,PP 0.0039-100V G	FL201	82-226-621-010	FL,CP5345AGR(PEAK/CAL-LEVEL METER)
C221	*87-010-132-010	CAP,ELECT BP 1-50	SW202	87-031-771-010	TACT SW(PEAK HOLD RESET,AUTO)
C222	*87-010-132-010	CAP,ELECT BP 1-50	SW203	87-031-771-010	TACT SW(PEAK HOLD RESET,MANUAL)
C223	*87-010-132-010	CAP,ELECT BP 1-50	SW204	87-031-771-010	TACT SW(LINEAR COUNTER RESET)
C224	*87-010-132-010	CAP,ELECT BP 1-50	SW205	87-031-771-010	TACT SW(MEMORY ON/OFF)
C225	*87-014-115-010	CAP,PP 0.0056G	SW206	82-226-626-010	PUSH SW(DOLBY-NR B)
C226	*87-014-115-010	CAP,PP 0.0056G	SW207	82-226-626-010	PUSH SW(DOLBY-NR C)
C229	*87-010-404-010	CAP,ELECT 4.7-50 SME	SW208	82-226-626-010	PUSH SW(DBX)
C231	*87-010-404-010	CAP,ELECT 4.7-50 SME	X201	*87-030-096-010	FILTER,CERAMIC 4MHZ
C232	*87-010-404-010	CAP,ELECT 4.7-50 SME	=== KEY SWITCH CIRCUIT BOARD SECTION ===		
C235	*87-018-115-010	CAP,CERA-SOL SS 47P	PCB-E	*	KEY SWITCH CIRCUIT BOARD
C236	*87-018-115-010	CAP,CERA-SOL SS 47P	D201	87-001-137-010	LED,SLP981C50(RECORD)
C241	*87-010-404-010	CAP,ELECT 4.7-50 SME	D202	87-001-137-010	LED,SLP981C50(REC MUTE)
C242	*87-010-404-010	CAP,ELECT 4.7-50 SME	D203	87-001-138-010	LED,SLP481C50(PAUSE)
C243	*87-010-404-010	CAP,ELECT 4.7-50 SME			
C244	*87-010-404-010	CAP,ELECT 4.7-50 SME			

REF.NO.	PART NO.	DESCRIPTION
D204	87-001-122-010	LED,SLP381C50(PLAY)
D205	87-001-137-010	LED,SLP981C50(OPERATION STANDBY)
SW201	87-031-771-010	TACT SW(REWIND/REVIEW)
SW202	87-031-771-010	TACT SW(PLAY)
SW203	87-031-771-010	TACT SW(STOP)
SW204	87-031-771-010	TACT SW(F.FWD/CUE)
SW205	87-031-771-010	TACT SW(PAUSE)
SW206	87-031-771-010	TACT SW(RECORD)
SW207	87-031-771-010	TACT SW(REC MUTE)
SW208	82-226-648-010	SLIDE SW(TIMER)
SW209	82-226-647-010	PUSH SW(MEMORY,STOP/REPLAY)

=== JACK CIRCUIT BOARD SECTION ===

PCB-F	*	JACK CIRCUIT BOARD
C801	*87-010-071-010	CAP,ELECT 1-50
C802	*87-010-071-010	CAP,ELECT 1-50
C805	*87-010-112-010	CAP,ELECT 100-16
C807	*87-010-112-010	CAP,ELECT 100-16
J801	87-009-018-010	JACK 6.3,HP-AU(PHONES)
VR703	82-226-627-010	VOLUME,10KA(PHONE LEVEL)

=== REC VR CIRCUIT BOARD SECTION ===

PCB-G	*	REC VR CIRCUIT BOARD
VR701	82-226-624-010	VOLUME,20KA(RECORD LEVEL)

=== CAL. VR CIRCUIT BOARD SECTION ===

PCB-H	*	CAL VR CIRCUIT BOARD
VR705	82-226-644-010	VOLUME,50KB (CAL.-REC LEVEL)
VR707	82-226-643-010	VOLUME,5KB(CAL.-BIAS)

=== SWITCH CIRCUIT BOARD SECTION ===

PCB-I	*	SWITCH CIRCUIT BOARD
SW701	82-226-629-010	ROTARY SW(REC EQ)
SW801	82-226-646-010	ROTARY SW(CALIBRATION)

=== DBX-1 CIRCUIT BOARD SECTION ===

PCB-J	*	DBX-1 CIRCUIT BOARD
C306	*87-014-040-010	CAP,PP 200P
C308	*87-014-033-010	CAP,PP 100P
C312	*87-014-045-010	CAP,PP 330P
C319	*87-015-425-010	CAP,AL 1-25
C320	*87-010-378-010	CAP,ELECT 10-16
C321	*87-015-215-010	CAP,TANTALUM 10-25V
C406	*87-014-040-010	CAP,PP 200P
C408	*87-014-033-010	CAP,PP 100P
C412	*87-014-045-010	CAP,PP 330P
C419	*87-015-425-010	CAP,AL 1-25
C420	*87-010-378-010	CAP,ELECT 10-16
C421	*87-015-215-010	CAP,TANTALUM 10-25V
SFR319	*87-021-867-010	SFR 47K
SFR419	*87-021-867-010	SFR 47K

=== DBX-2 CIRCUIT BOARD SECTION ===

PCB-K	*	DBX-2 CIRCUIT BOARD
C508	*87-014-033-010	CAP,PP 100P
C509	*87-014-033-010	CAP,PP 100P
C512	*87-014-045-010	CAP,PP 330P
C520	*87-010-378-010	CAP,ELECT 10-16
C521	*87-015-215-010	CAP,TANTALUM 10-25V
C608	*87-014-033-010	CAP,PP 100P
C609	*87-014-033-010	CAP,PP 100P
C612	*87-014-045-010	CAP,PP 330P
C620	*87-010-378-010	CAP,ELECT 10-16
C621	*87-015-215-010	CAP,TANTALUM 10-25V
SFR519	*87-021-867-010	SFR 47K

REF.NO.	PART NO.	DESCRIPTION
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SFR619 *87-021-867-010 SFR 47K

=== REMOTE CIRCUIT BOARD SECTION === (K1 MODEL ONLY)

PCB-L	*	REMOTE CIRCUIT BOARD
J1	87-032-985-010	SOCKET,DIN 8P(REMOTE)

=== MECHANISM-1 CIRCUIT BOARD SECTION ===

PCB-M	*	MECHANISM-1 CIRCUIT BOARD
SW104	81-505-607-010	LEAF SW(MT DET.)
SW105	81-505-607-010	LEAF SW(CRO2 DET.)
SW106	81-505-607-010	LEAF SW(REC ENA.)

=== MECHANISM-2 CIRCUIT BOARD SECTION ===

PCB-N	*	MECHANISM-2 CIRCUIT BOARD
SOL101	81-507-237-010	SOLENOID 9ME-C
SOL102	81-507-237-010	SOLENOID 9ME-C
SW103	81-505-607-010	LEAF SW(CASSETTE DET.)
SW107	81-505-607-010	LEAF SW(CASSETTE DET.)

=== AUTO STOP CIRCUIT BOARD SECTION ===

PCB-O	81-505-605-010	AUTO STOP CIRCUIT BOARD
PD1	87-027-644-010	PHOTO SENSOR NJL-5141EA
PD2	87-027-644-010	PHOTO SENSOR NJL-5141EA

=== MISCELLANEOUS ===

△	87-085-207-010	CORD BUSHING
△	87-034-761-010	AC CORD H(H)
△	87-034-759-010	AC CORD E(E,Z)
△	87-034-760-010	AC CORD K(K,K1)
△	87-034-762-010	AC CORD(C)
D123	87-020-109-010	LED SLF-201C(LIGHT)
EH	87-046-288-010	HEAD,EH
M101	87-045-210-010	REEL MOTOR(REEL)
M102	87-045-175-010	MOTOR DC,SYSTEM SERVO(CAPST)
M103	87-045-210-010	REEL MOTOR(PLAY)
△ PT1	82-226-633-010	POWER TRANSFORMER AUDIO(H)
△ PT1	82-226-637-010	POWER TRANSFORMER AUDIO(E,Z)
△ PT1	82-226-639-010	POWER TRANSFORMER AUDIO(K,K1)
△ PT1	82-226-635-010	POWER TRANSFORMER AUDIO(C)
△ PT2	82-226-634-010	POWER TRANSFORMER MECHA(H)
△ PT2	82-226-638-010	POWER TRANSFORMER MECHA(E,Z)
△ PT2	82-226-640-010	POWER TRANSFORMER MECHA(K,K1)
△ PT2	82-226-636-010	POWER TRANSFORMER MECHA(C)
RPH	87-046-308-010	HEAD,COMBINATION-AMO PC-OCC
SOL103	82-226-680-010	SOLENOID,SDC-1031
SW101	81-505-601-010	LEAF SW(PLAY)
SW102	81-505-601-010	LEAF SW(PAUSE)
△ SW108	87-031-586-010	ROTARY SW(AC VOLTAGE)(H)

Combination Circuit Board A 82-226-601-210

PCB-A	82-226-603-210
PCB-B	82-226-602-210
PCB-F	82-226-604-210
PCB-G	82-226-605-210
PCB-H	82-226-607-210
PCB-I	82-226-606-210
PCB-L	82-226-608-210 (K1 MODEL ONLY)

Combination Circuit Board B 82-226-611-210

PCB-C	82-226-612-210
PCB-D	82-226-614-210
PCB-E	82-226-613-210

Combination Circuit Board C 82-226-617-110

PCB-J	82-226-618-110
PCB-K	82-226-619-110

Combination Circuit Board D 86-543-611-010

PCB-M	86-543-612-010
PCB-N	86-543-613-010

IC DESCRIPTION

1. IC, LC6502B-724

Pin No.	Symbol	I/O	Description	
			When K-SIFT is set to "H"	When K-SIFT is set to "L"
42	K-REW/ K-REC EN.	I	REW key input(Active Low)	REC EN key input(Active High) [REC enabled at "H"]
1	K-PLAY/ K-TIM·REC	I	PLAY key input(Active Low)	TIMER REC input(Active High)
2	K-STOP/ K-CNT·RES	I	STOP key input(Active Low)	Counter Reset input(Active High)
3	K-FF/ K-TIM·PLY	I	FF key input(Active Low)	TIMER PLAY/Repeat input (Active High)
4	K-PAUSE/ K-CZ·PLY	I	PAUSE key input(Active Low)	Counter "0000" replay input (Active High)
5	K-REC/K·CST	I	REC key input(Active Low)	Cassette switch input(Active High) [Set to "H" level with cassette]
6	K-RMT/ K-CZ·STP	I	REC MUTE key input(Active Low)	Counter "0000" stop input (Active High)
7	M-CAPST	O	Capstan motor control input. Motor turns at "H" level.	
8	M-FWD	O	Sub-motor forward rotation output. Set to "H" in PLAY/REC, FF and CUE modes.	
9	M-RVS	O	Sub-motor reverse rotation output. Set to "H" in REW/REV modes.	
10	O-ADMS	—	Not used.	
11	S-PAUSE	O	Pause plunger output. Set to "H" PAUSE, PLAY PAUSE, R/P PAUSE, FF, REW, CUE and REV modes.	
12	S-PLAY	O	Play plunger output. Set to "H" in PLAY, PLAY PAUSE, R/P PAUSE, CUE and REV modes.	
13	$\overline{\text{O-RMT}}$	O	REC MUTE output. Set to "H" when the mechanism is stabilized in the REC/PLAY modes.	
14	$\overline{\text{O-LMT}}$	O	PLAY MUTE output. Set to "H" when the mechanism is stabilized in PLAY, REC/PLAY, CUE and REV modes.	
15	D-REC	O	REC LED output. Used in O-REC also. Set to "H" in REC, REC/PLAY, REC/PLAY-PAUSE, REC/PAUSE, REC/PLAY/REC MUTE modes.	
16	D-RMT	O	REC MUTE LED output. Set to "H" in REC/PLAY/RMT modes. Set to "H" every 1 sec when the RMT key is pressed continuously for 4 sec or more.	
17	D-PAUSE	O	Pause LED output. Set to "H" in PAUSE, R/P PAUSE, PLAY/PAUSE modes.	
18	D-PLAY	O	Play LED output. Set to "H" in PLAY, REC/PLAY, PLAY/PAUSE, R/P PAUSE modes.	
19	RESET	—	Microprocessor reset input. Gradually changes to +5V from 0V within 3 sec after power is turned on.	
20	TEST	—		
21	V _{ss}	—	Connected to GND.	
22	OSC 1	I	Microprocessor clock input(400kHz)	
23	OSC 2	I		
24 }	G ₀ }	O }	FL counter grid 0, Digit scan output, 1 place digit.	
27 }	G ₃ }	O }	FL counter grid 3, Digit scan output, 1000 place digit.	
28 }	SEG g }	O }	FL segment output g.	
34 }	SEG a }	O }	FL segment output a.	

Pin No.	Symbol	I/O	Description
35	D-ADMS	O	ADMS LED output. Set to "H" during slack tape removal and ADMS mode after power is turned on.
36	M-SLOW	O	Reel motor voltage control output. Set to "H" in PLAY and REC/PB modes.
37	K-SIFT	O	Select key input according to the "H" or "L" state.
38	HOLD	—	Connected to +5V.
39	INT	—	
40	VDD	—	
41	I-REEL	I	Take-up reel rotation pulse input. Auto stop, FL counter and slack tape removal control.

2. IC, HD614042S-A87

Pin No.	Symbol	I/O	Description	Type of Port
1	SEG 16	O	FL meter section SEG 16 output.	High dielectric strength PULL DOWN
9	SEG 8	O	FL meter section SEG 8 output.	High dielectric strength PULL DOWN
10	SEG 7	O	FL meter section SEG 7 output and SEG DP output.	High dielectric strength PULL DOWN
11	SEG 6	O	FL meter section SEG 6 output and SEG g output.	High dielectric strength PULL DOWN
12	SEG 5	O	FL meter section SEG 5 output and SEG f output.	High dielectric strength PULL DOWN
13	SEG 4	O	FL meter section SEG 4 output and SEG e output.	High dielectric strength PULL DOWN
14	SEG 3	O	FL meter section SEG 3 output and SEG d output.	High dielectric strength PULL DOWN
15	SEG 2	O	FL meter section SEG 2 output and SEG c output.	High dielectric strength PULL DOWN
16	SEG 1	O	FL meter section SEG 1 output and SEG b output.	High dielectric strength PULL DOWN
17	SEG 0	O	FL meter section SEG 0 output and SEG a output.	High dielectric strength PULL DOWN
			(The segments light when pins 1-17 are "H" and go off when they are "L".)	—
18	4/5	I	4 or 5-wave switching input (number of waves generated by the rotation of reel disk). "L" input causes 5 waves.	High dielectric strength PULL DOWN
19	V _{DISP}	I	PULL DOWN power (-VDD) for the FL driver.	V _{DISP}
20	MF	I	Motor forward input. "L" input causes forward rotation.	PULL UP
21	MR	I	Motor reverse input. "L" input causes reverse rotation.	PULL UP
22	FAIR	I	Rotation signal input from mechanism right reel disk (ϕR)	PULL UP
23	FAIL	I	Rotation signal input from mechanism left reel disk (ϕL)	PULL UP
24	REC	I	Recording state input. "L" input causes REC ON.	PULL UP
25	CAL	I	Calibration state input. "L" input causes CAL ON.	PULL UP
26	GL	O	FL meter section GRID L output ("L" causes on and "H" causes off).	PULL UP
27	GR	O	FL meter section GRID R output ("L" causes on and "H" causes off).	PULL UP

Pin No.	Symbol	I/O	Description	Type of Port
28 ∫	$\overline{G_0}$ ∫	O ∫	FL counter section GRID 0 output ("L" causes on and "H" causes off).	PULL UP ∫
31	$\overline{G_3}$	O	FL counter section GRID 3 output ("L" causes on and "H" causes off).	PULL UP
32	Vcc	—	+5V power supply.	—
33	MODE	I	Calibration mode switching input ("L" causes Mode A).	PULL UP
34	\overline{MUTE}	I	Meter muting input ("L" causes muting and "H" releases muting.)	PULL UP
35	LIN	I	Comparator Lch input.	PULL UP
36	RIN	I	Comparator Rch input.	PULL UP
37 ∫	$\overline{DA_0}$ ∫	O ∫	D/A conversion 0th bit (LSB) output ("L" for on and a potential to be applied).	C-MOS output ∫
42	$\overline{DA_5}$	O	D/A conversion 5th bit (LSB) output ("L" for on and a potential to be applied).	C-MOS output
43	GAIN	O	D/A conversion gain switching output ("H" causes 20dB attenuation).	C-MOS output
44	—	—	Not used.	
45	\overline{CRES}	I	Counter reset key input ("L" causes KEY ON).	PULL UP
46	$\overline{C MEM}$	I	Counter memory key input ("L" causes KEY ON).	PULL UP
47	\overline{AUTO}	I	Peak hold reset auto key input ("L" causes KEY ON).	PULL UP
48	\overline{MANU}	I	Peak hold reset manual key input ("L" causes KEY ON).	PULL UP
49	RESET	I	Reset signal input ("L" releases reset).	
50	TEST	I	+VDD (5V)	
51	OSC 1	I	External clock inputs (f = 4.19 MHz).	
52	OSC 2	I		
53	GND	I	Ground (0V).	
54	CCLK	O	Counter clock output.	PULL UP
55	C00	O	Counter 0.00 output.	PULL UP
56	\overline{CHECK}	I	FL output check input ("L" causes check state)	PULL UP
57	SYNC	—	Not used.	
58 ∫	SEG 17 ∫	O ∫	FL meter section SEG 17 output ("H" causes on and "L" causes off)	High dielectric strength PULL DOWN ∫
64	SEG 23	O	FL meter section SEG 23 output ("H" causes on and "L" causes off)	High dielectric strength PULL DOWN

3. IC, CX20188

Pin No.	Symbol	I/O	Description
1	Vcc	—	Positive power terminal.
2,41	REC IN	I	Recording inputs.
3	I REF	I	Reference current input.
4,39	PB IN	I	Playback inputs.
5	CAL/REC/PB	I	Calibration/recording/playback switching input.
6,37	PB FB	—	Playback feedback terminals.
7,36	REC FB	—	Recording feedback terminals.
8,35	GND	—	When two power supplies are operating: Ground pins, When one power supply is operating: Vcc/2 pins.
9,34	LINE OUT	O	Line outputs (decoding outputs).
10,33	SSK	—	Spectral skewing switching terminals.
11,32	VF IN	I	Encoding circuit inputs.
12,31	HPF H	O	HLS highpass filter terminals.
13,30	TCH 2	O	HLS detector time constant terminals 2.
14,29	TCH 1	O	HLS detector time constant terminals 1.

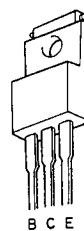
Pin No.	Symbol	I/O	Description
15,28	WT H	O	HLS weighting terminals.
16,27	TCL 2	O	LLS detector time constant terminals 2.
17,26	TCL 1	O	LLS detector time constant terminals 1.
18,25	WT L	O	LLS weighting terminals.
19,24	HPF L	O	LLS highpass filter terminals.
20,23	ANT S	O	Anti-saturation terminals.
21,22	REC OUT	O	Recording outputs (encoding outputs).
38	OFF/B/C	O	Dolby NR off/type B/type A switching input.
40	CAL IN	O	Calibration input.
42	VEE	O	When two power supplies are operating: Negative power supply pin, when one power supply is operating: Ground pin.

PRACTICAL SERVICE FIGURE

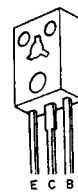
PB output level :	700±50mV	Rewind torque :	120 $\begin{smallmatrix} +30 \\ -30 \end{smallmatrix}$ g-cm
(TTS-200)(TTA-161,TCC-130)	(LINE OUT)		[1.18 $\begin{smallmatrix} +0.29 \\ -0.29 \end{smallmatrix}$ mN·m]
REC/PB output :	0VU±2dB	Back-tension :	7.5±2.5g-cm
(TTA-600)	(LINE OUT)		[0.07±0.025mN·m]
REC/PB distortion :	Less than 1.5%	Pinch roller pressure :	350g (F side)
	(NORM., CrO ₂ , MT tapes)		[3.4mN·m]
Playback noise :	Less than 4.0/3.5mV		140g (S side)
	(120 μs/70 μs, DOLBY NR OFF)		[1.4mN·m]
	Less than 1.8/1.5mV	Test tape :	METAL TTA-620(TTA-119MP)
	(120 μs/70 μs, DOLBY NR B)		CrO ₂ TTA-610(TTA-119H)
	Less than 1.5/1.3mV		NORMAL TTA-600(TTA-119K)
	(120 μs/70 μs, DOLBY NR C)		
	Less than 0.18/0.18mV		
	(120 μs/70 μs, DBX, DIN AUDIO)		
• Erase ratio (125Hz) :	More than 60dB		
Crosstalk :	More than 45dB		
Channel separation :	More than 30dB		
Level drift :	Within 1dB		
(10kHz,TTS-210)			
REC/PB S/N ratio :	More than 45/50dB		
(WTD-A)	(DOLBY C NR OFF/ON with MT,		
	CrO ₂ tapes)		
	More than 40/48dB		
	(DOLBY C OFF/ON with NORM. tape)		
(DIN AUDIO)	More than 69dB		
	(DBX ON with MT, CrO ₂ and NORM.		
	tape)		
DBX ON MRL (Dist. 3%)			
Level :	±21VU		
	(MT, CrO ₂ and NORM. tapes)		
Recording bias frequency :	105kHz		
Tape speed :	3kHz±1.5%		
TTA-100(TTA-111S)			
Wow & flutter :	Less than 0.023%		
(W.R.M.S)	(FWD)		
Take-up torque :	38±10g-cm		
	[0.38±0.1mN·m]		
Fast forward torque :	120 $\begin{smallmatrix} +70 \\ -30 \end{smallmatrix}$ g-cm		
	[1.18 $\begin{smallmatrix} +0.69 \\ -0.29 \end{smallmatrix}$ mN·m]		



2SA952
2SA1015
2SC945
2SC1815
2SC2001
2SC2120



2SB1015
2SD1275



2SC1846

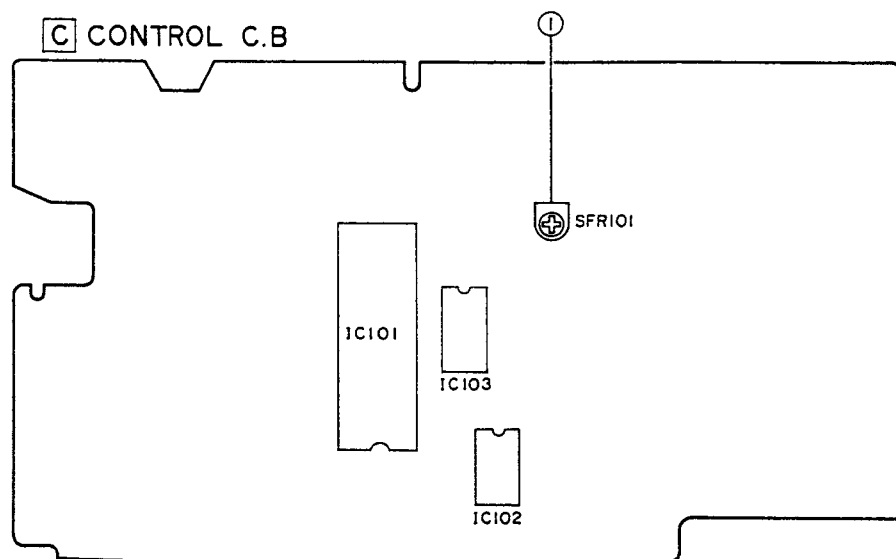
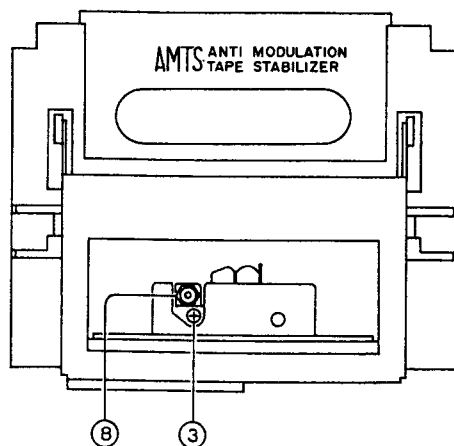
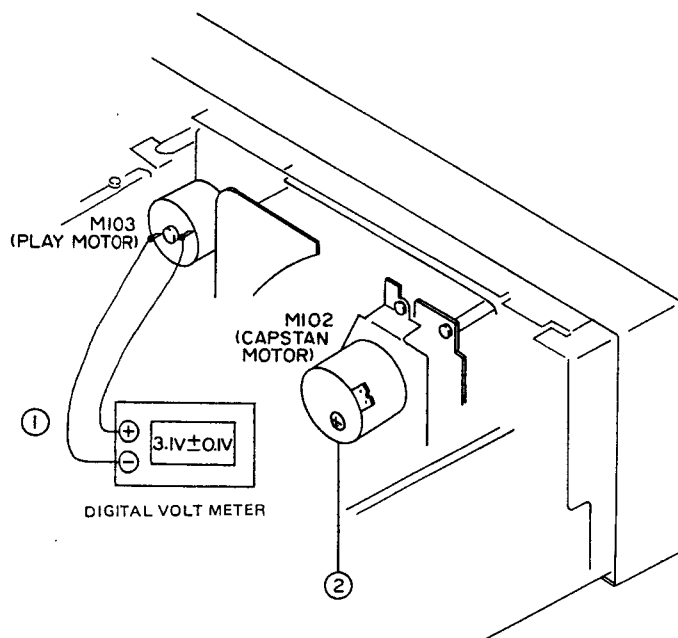


2SC3113
DTA124
DTC114
DTC124
DTC144
RN1202



2SK30

ADJUSTMENT



Initial Settings

- REC VOL : Center
- CAL SW : OFF
- REC EQ : NORM
- BIAS VOL : Center click position
- REC LEVEL VOL : Center click position
- INPUT SELECTOR SW : LINE
- MPX SELECTOR SW : THRU
- MONITOR SW : TAPE
- NOISE REDUCTION SW : THRU

1. Play Motor Adjustment (M103) (CONTROL C.B)

Settings : • Test tape : TTA-100(TTA-111S)

- Test point : Both terminals of
PLAY motor (M103)

- Adjustment location : SFR101(PCB-C)

Method : Play the approximately middle section of the test tape and adjust SFR101 so the voltage at the test point is $3.0 \pm 0.1V$.

2. Tape Speed Adjustment

Settings : • Test tape : TTA-100(TTA-111S)

- Test point : LINE OUT jack
- Adjustment location : SFR in capstan motor
(M102)

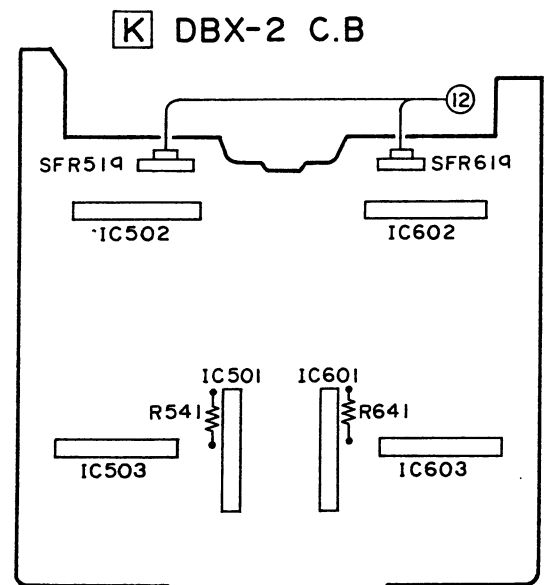
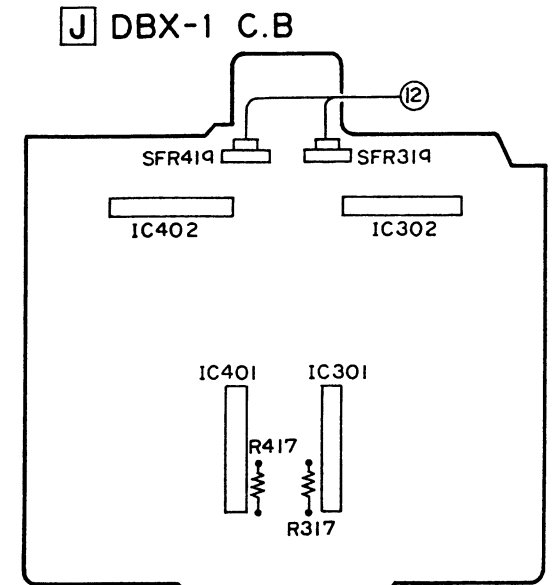
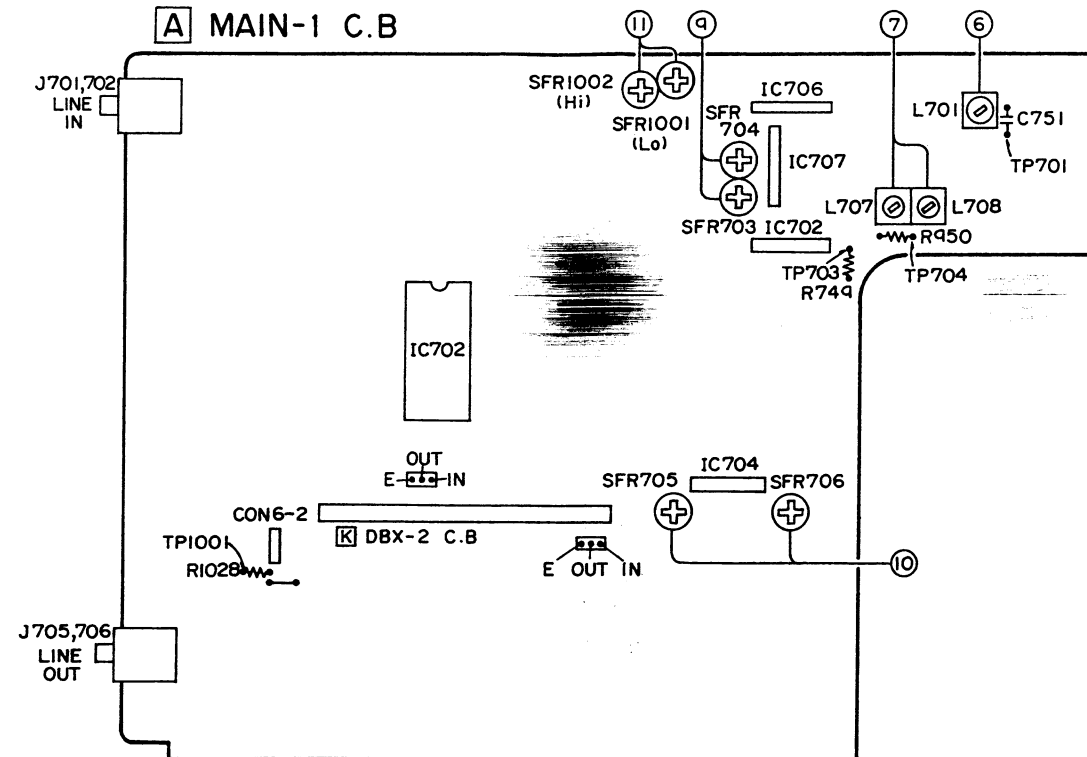
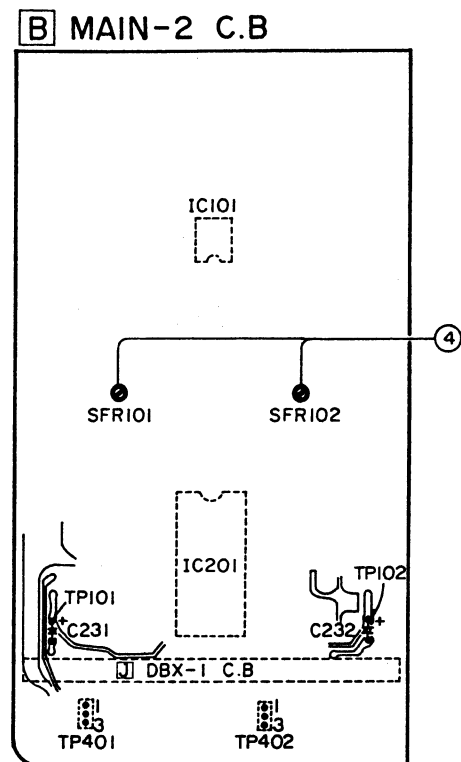
Method : Play the test tape and adjust so the frequency counter reads 3000Hz.

3. Azimuth Adjustment

Settings : • Test tape : TTS-310(TTA-317E)

- Test point : LINE OUT jack
- Adjustment location : Azimuth adjustment
screw

Method : Play the 10kHz signal of the test tape and adjust so the output is maximum and the waveforms in the Lissajours figure are in phase.



4. Dolby NR Level Adjustment (MAIN-2 C.B)

- Settings : • Test tape : TTS-200(TTA-161)
• Test point : LINE OUT jack
• FL meter : Dolby NR mark
• Adjustment locations : SFR101(Lch)
SFR102(Rch)

Method : Play the test tape and adjust so the output level is 710mV.

5. Playback Frequency Response Adjustment

- Settings : • Test tape : TTS-310(TTA-317E)
• Test point : LINE OUT jack

Method : Play the 315Hz and 10kHz signals of the test tape and adjust so the output of the 10kHz signal is $+1\text{dB} \pm \frac{1}{2}\text{dB}$ with respect to that of the 315Hz signal.

6. Bias Frequency Adjustment (MAIN-1 C.B)

- Settings : • Test tape : TTA-620(TTA-119MP)
• Test point : TP701
• Adjustment location : L701

Method : Set to the record mode and adjust so the frequency counter reads $105\text{kHz} \pm 300\text{Hz}$.

7. Bias Trap Adjustment

- Settings : • Test tape : TTA-620 (TTA-119MP)
• Test points : TP703(Lch)
TP704(Lch)
• Adjustment locations : L707(Lch)
L708(Rch)

Method : Set to the record mode and adjust so the bias voltage leaking to the test point is minimum (less than 3mV).

8. Erase Head Position Adjustment

- Settings : • Test tapes : TTA-620(TTA-119MP)
TTA-150(TTA-111H)
(1.5kHz)

- Test point : LINE OUT jack
• Adjustment location : Hexagonal nut of erase head

Method : Record a 125Hz signal of +10VU on test tape TTA-620(TTA-119MP) using this unit. Rewind the recorded section and set to the erase state. Turn the hexagonal nut gradually clockwise and check that 125Hz waveform appears in the Rch playback output. Then turn the hexagonal nut counterclockwise and stop it where the output is minimum, then turn it by a half turn more counterclockwise. (Over-erase check)
Play test tape TTA-150(TTA-111H) and assume the Rch output as a reference output. Then

turn over TTA-150(TTA-111H) and set to the erase state. Turn over the tape again and play the reverse side of the erased section and check that the difference in the Rch output with the reference output is within 1dB.

9. Recording/Playback Frequency Response Adjustment (MAIN-1 C.B)

- Settings : • Test tape : TTA-600(TTA-119K)
• Input signal : 1kHz/10kHz(LINE IN)
• Test point : LINE OUT jack
• Adjustment locations : SFR703(Lch)
SFR704(Rch)

Method : Apply a 1kHz signal and adjust the attenuator so the output level at the LINE OUT jack is 50mV. Record and play back the 1kHz and 10kHz signals and adjust so the output difference of both signals is $+0.5 \pm 0.5\text{dB}$.

10. Recording/Playback Sensitivity Adjustment (MAIN-1 C.B)

- Settings : • Test tape : TTA-600(TTA-119K)
• Input signal : 1kHz(LINE IN)
• Test point : LINE OUT jack
• Adjustment locations : SFR705(Lch)
SFR706(Rch)

Method : Apply a 1kHz signal and adjust the attenuator so the output level at the LINE OUT jack is 0VU(500mV). Record and playback the 1kHz signal and adjust so the output is $0 \pm 0.5\text{dB}$.

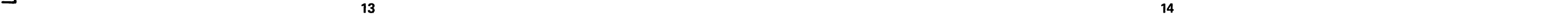
11. Calibration Level Adjustment (MAIN-1 C.B)

- Settings : • Test tape : TTA-600 (TTA-119K)
• CALIBRATION SW : ON
• MONITOR SW : SOURCE
• Test point : Ground TP1001
• Adjustment locations : SFR1001(Lo)
SFR1002(Hi)

Method : Set to the record mode and adjust SFR1001 so the segments up to mark 1 of the FL meter light for the LOW FREQ level. Then adjust so the segments up to the third from the mark light for the HIGH FREQ. level.

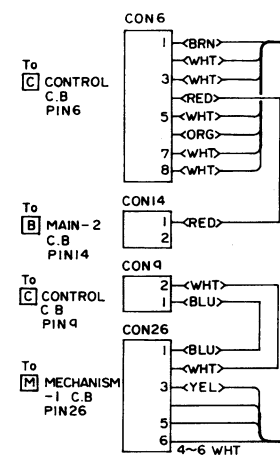
12. DBX Adjustment

Do not adjust this item.

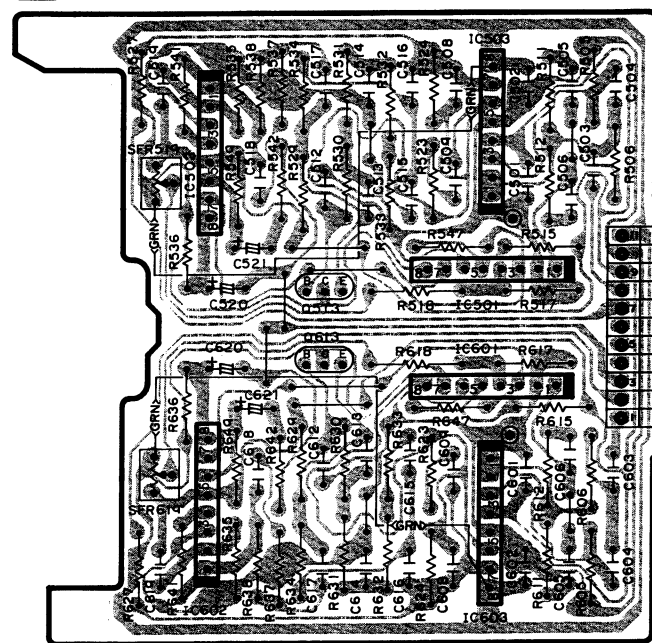


A
B
C
D
E
F
G
H
I
J
K

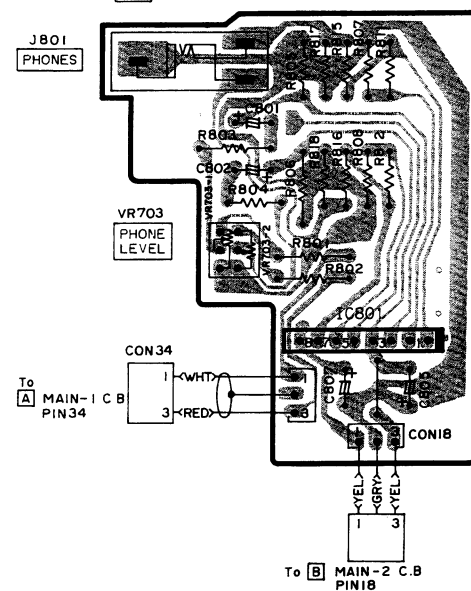
A MAIN-1 C.B (REC)



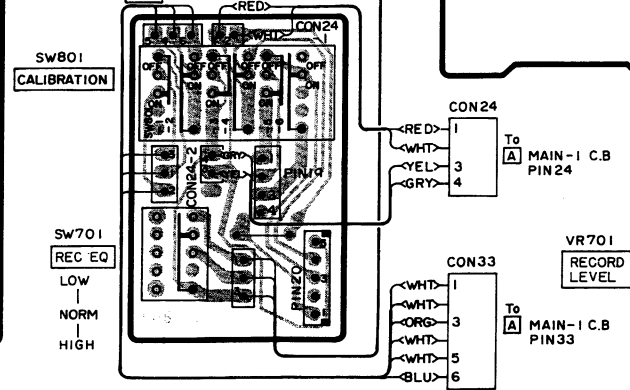
K DBX-2 C.B



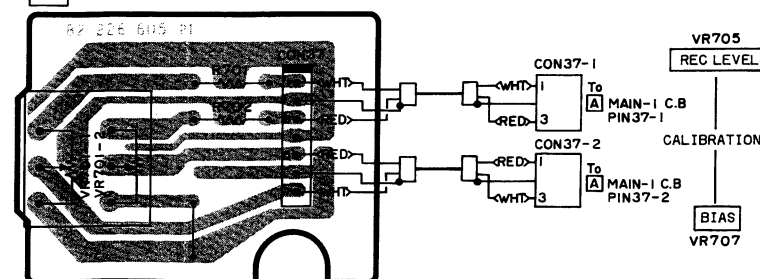
F JACK C.B



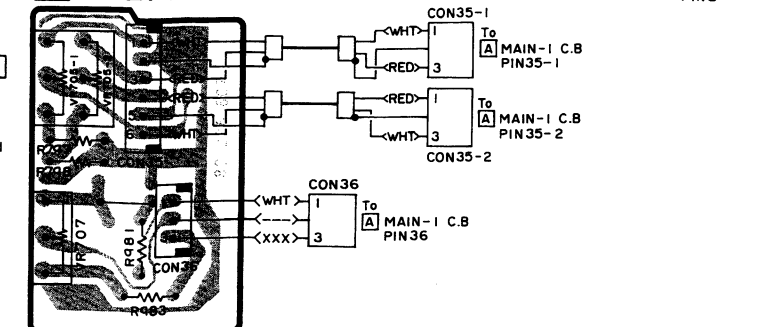
I SWITCH C.B



G REC VR C.B

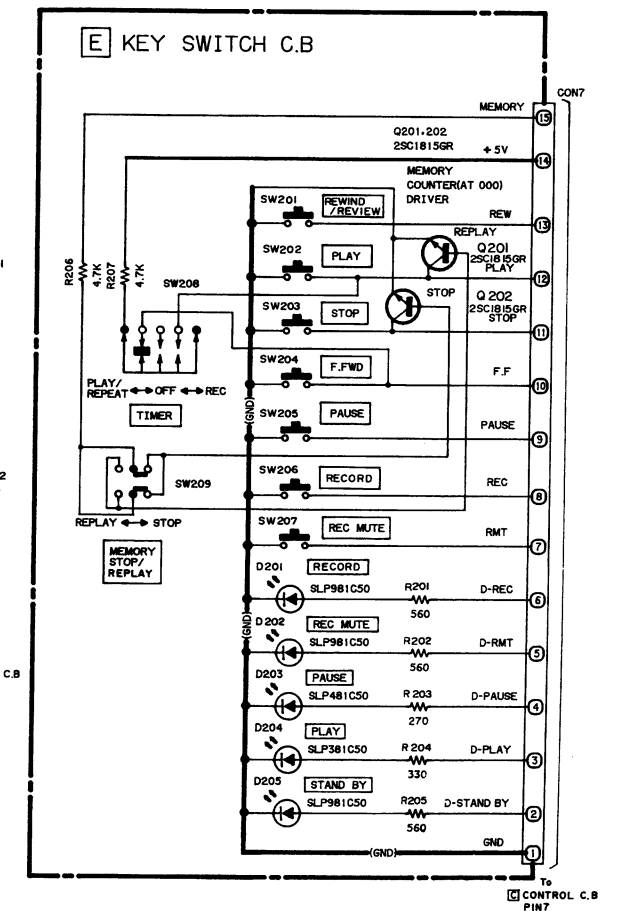
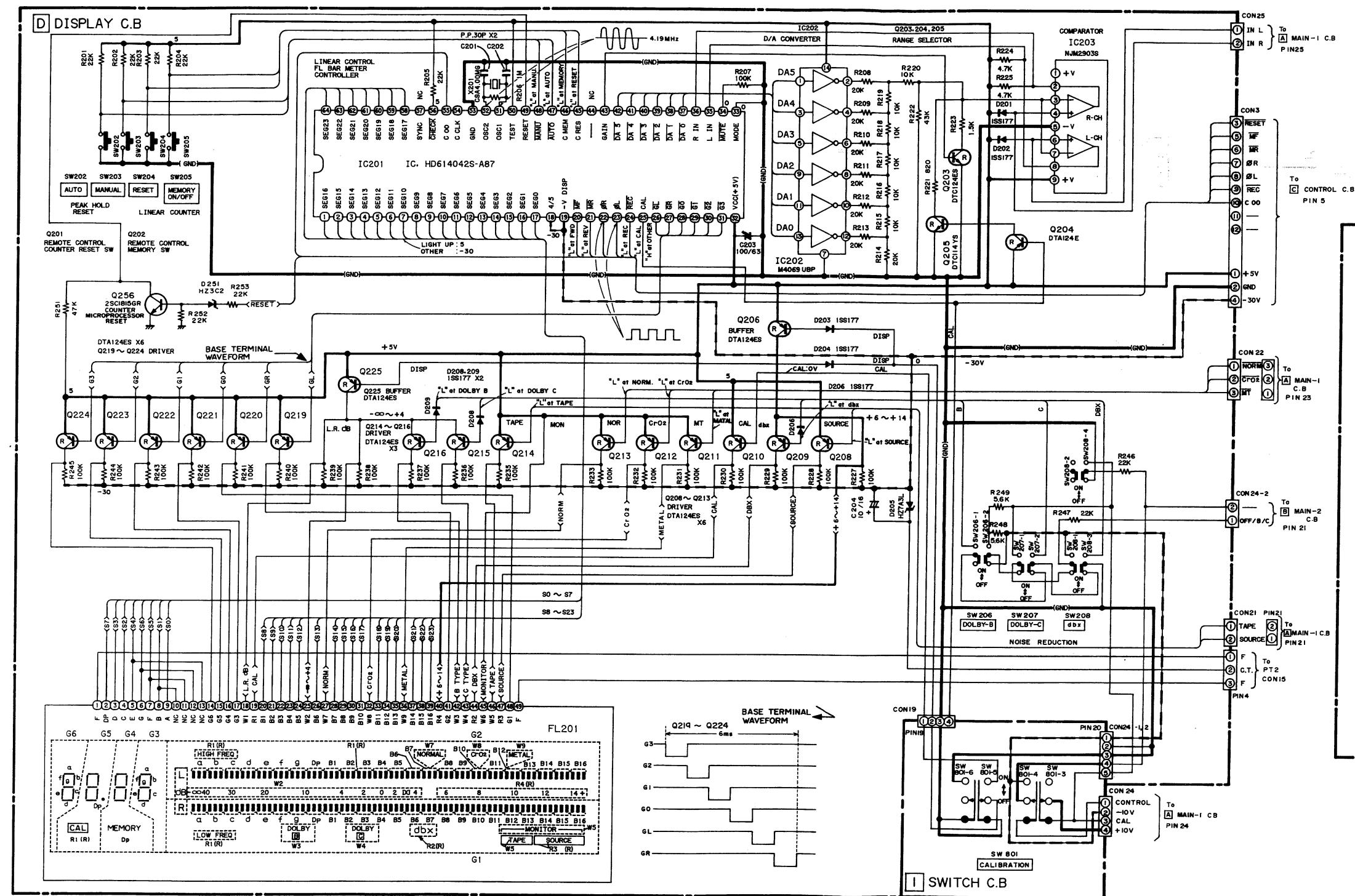


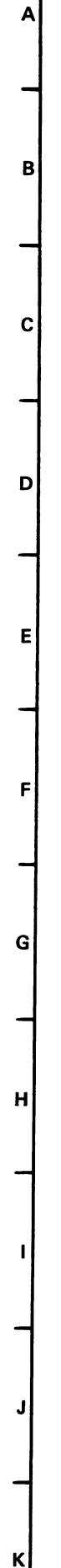
H CAL. VR C.B

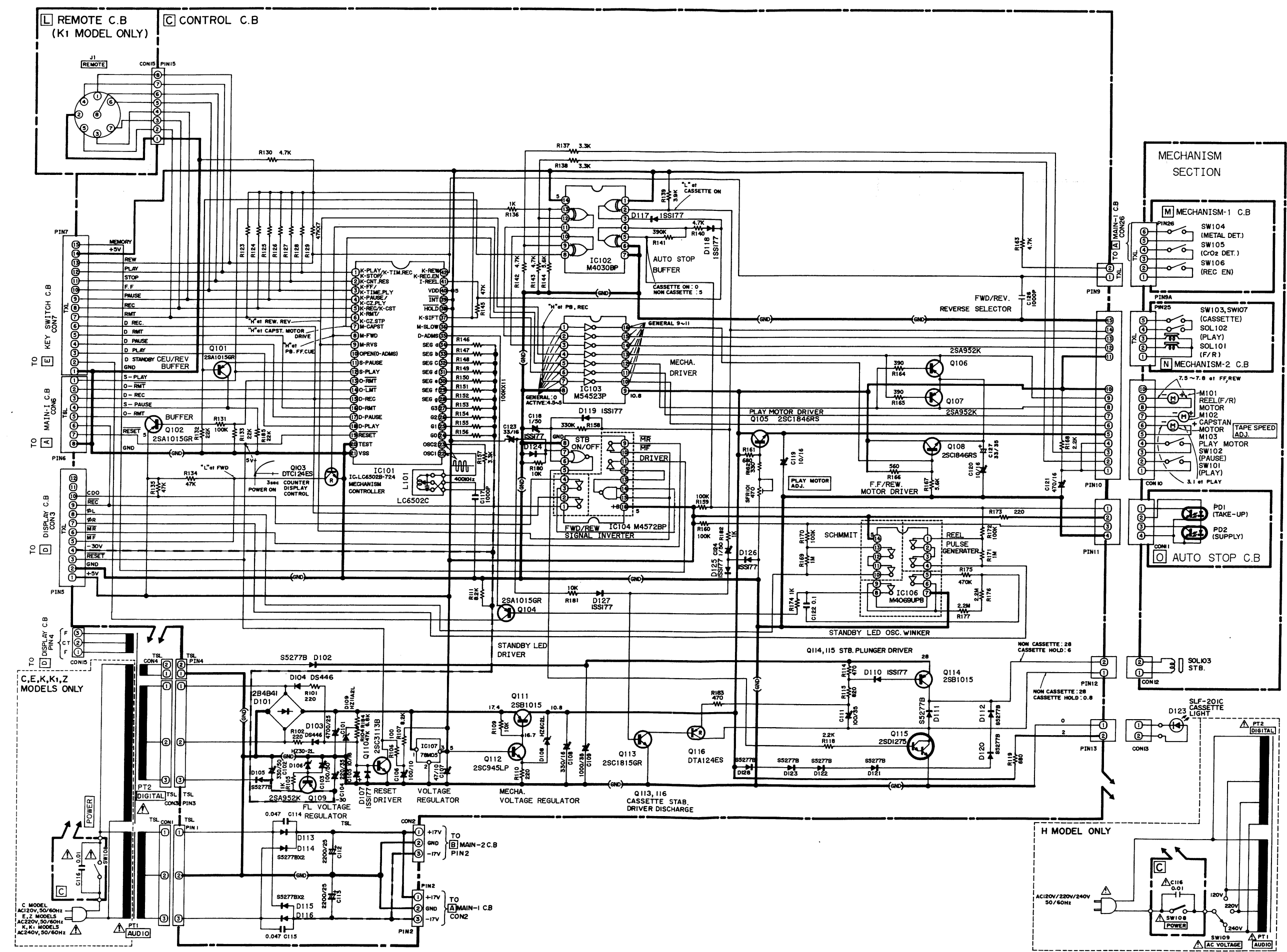


SW702
CD/DAT DIRECT.
LINE ← CD/DAT
SW703
MPX
THRU ← ON

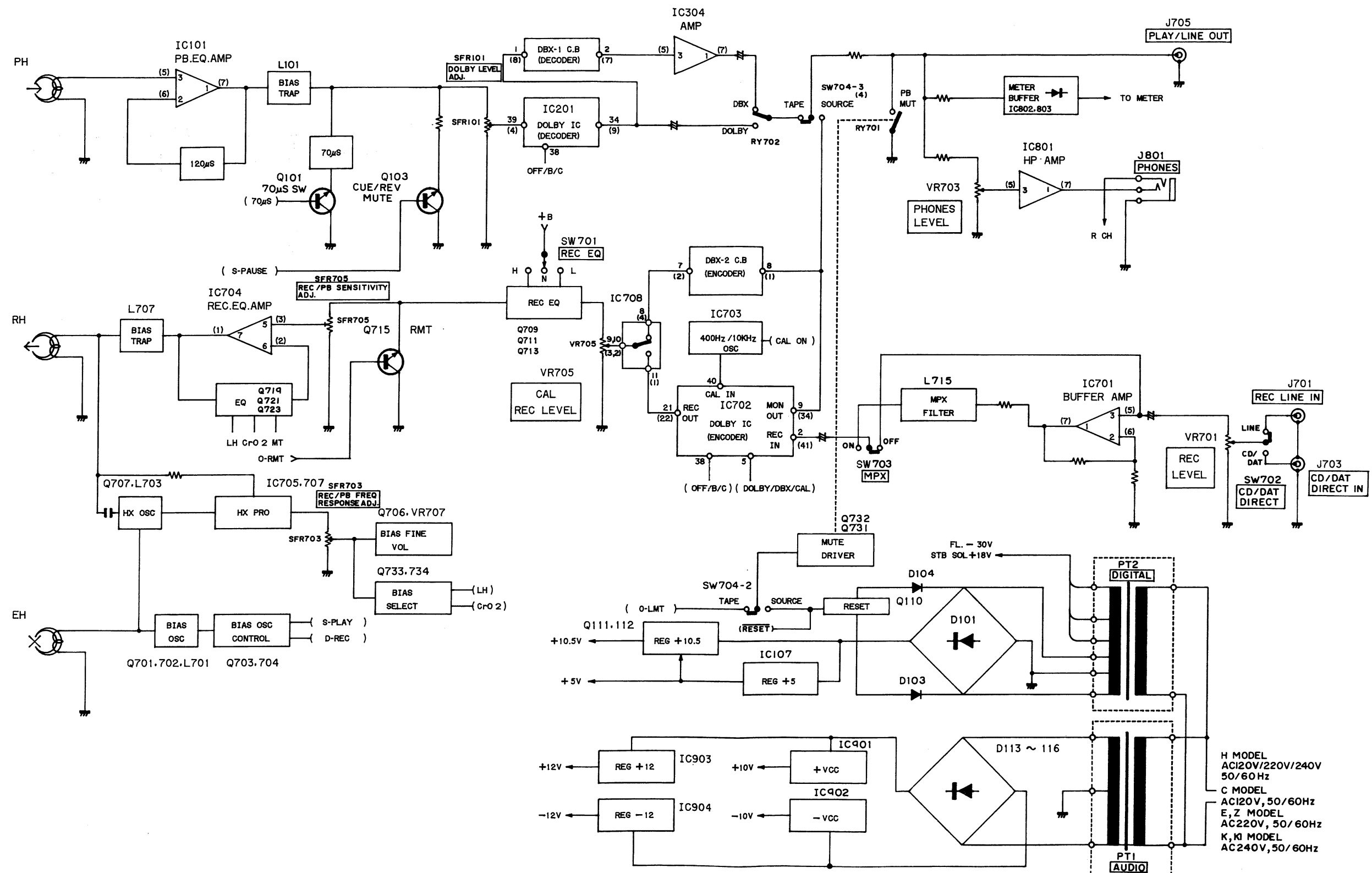
J701,702
REC/LINE INJ703,704
CD/DAT
DIRECT INSW704
MONITOR
TAPE ↔ SOURCEJ705,706
PLAY/LINE OUTCON2
To [C] CONTROL C.B. PIN2
1-RED
2-BLK
3-WHT



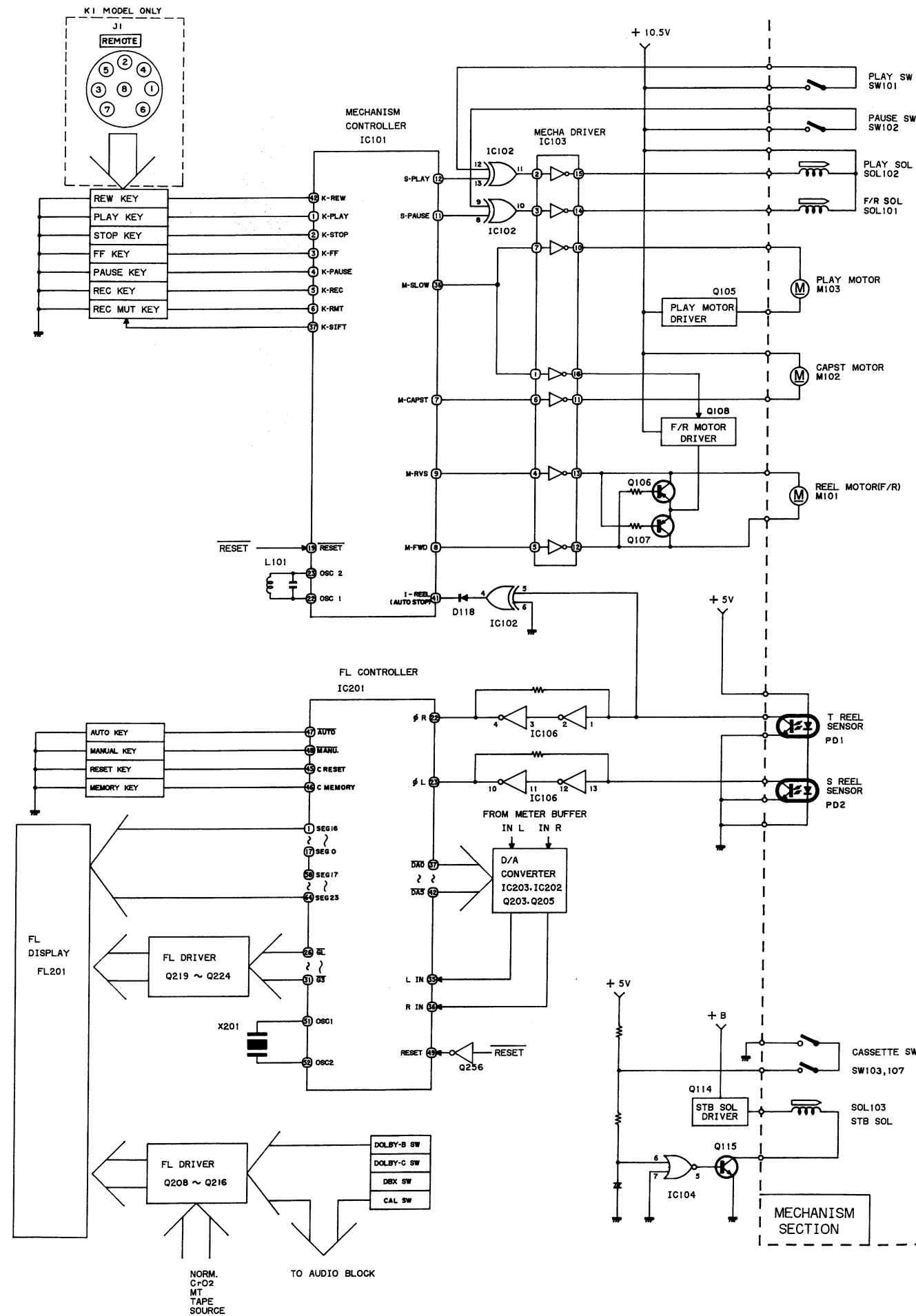




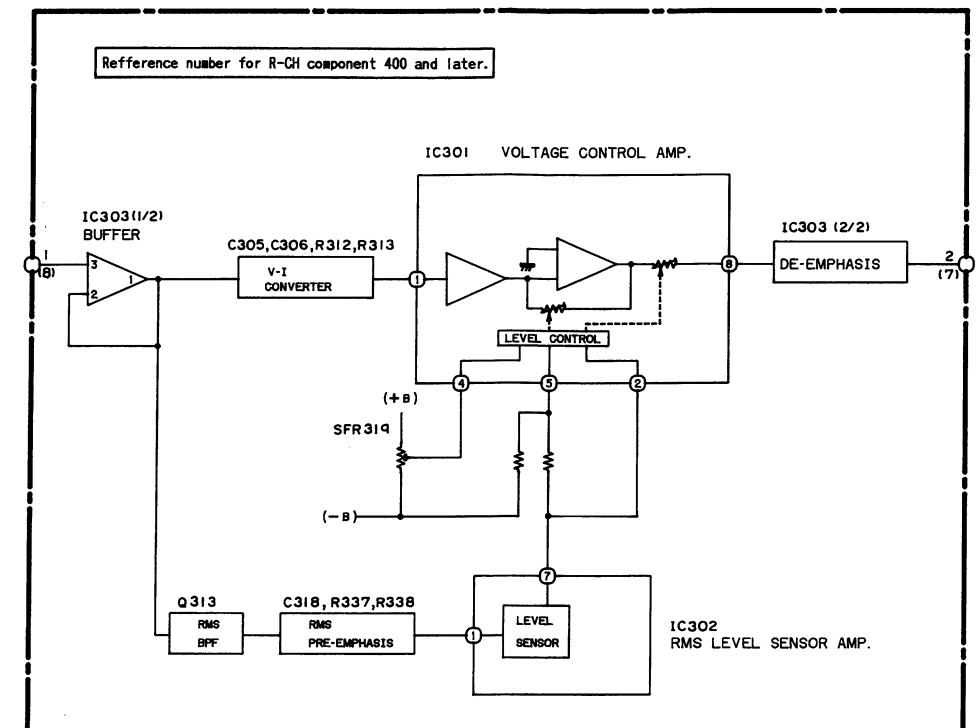
BLOCK DIAGRAM—1



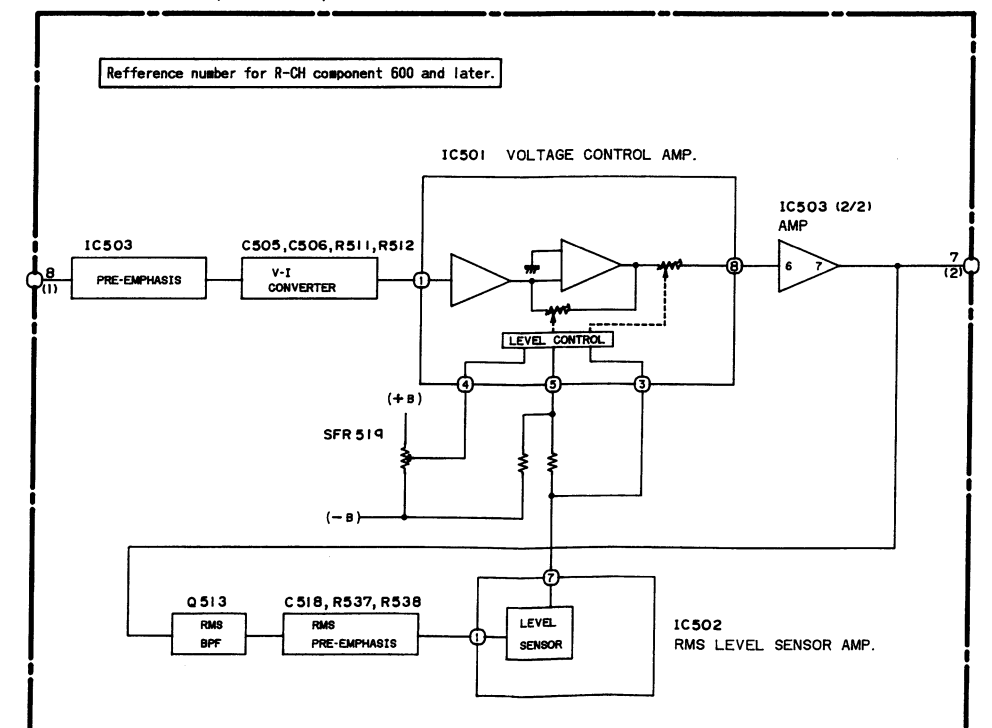
BLOCK DIAGRAM-2



DBX-1 C.B (DECODER)

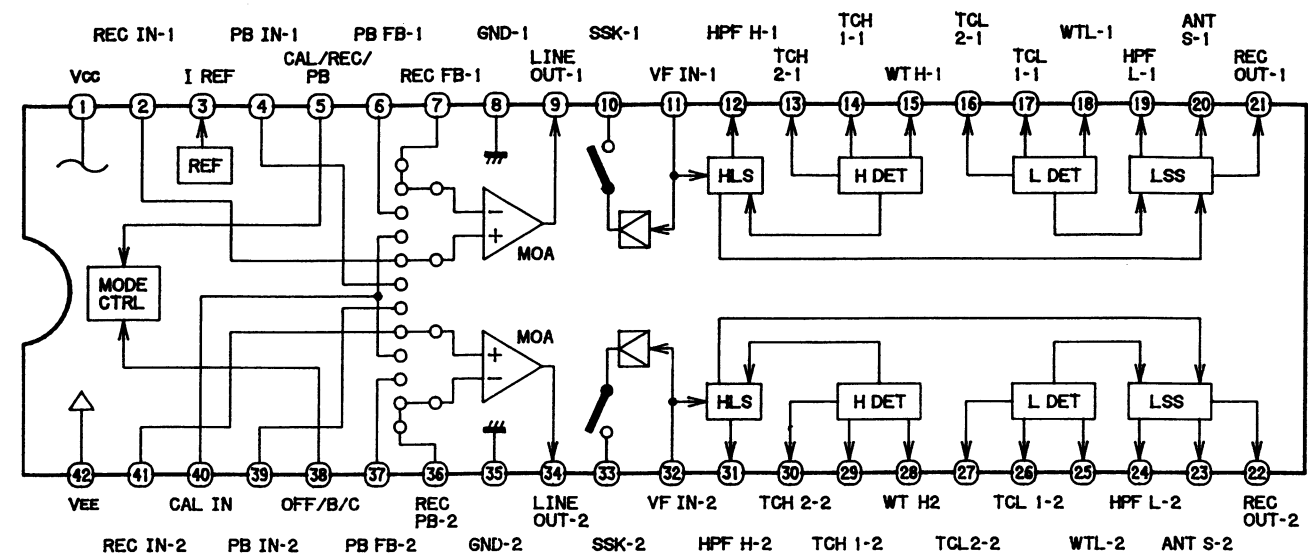


DBX-2 C.B (ENCODER)

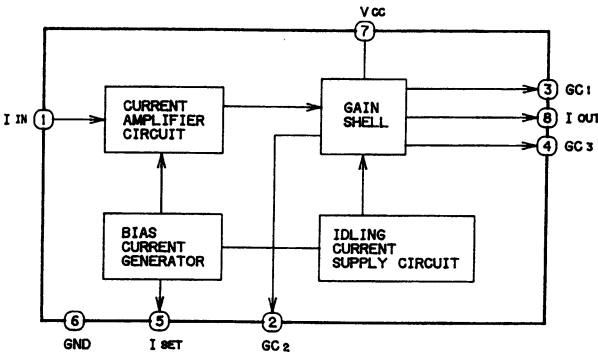


IC BLOCK DIAGRAM

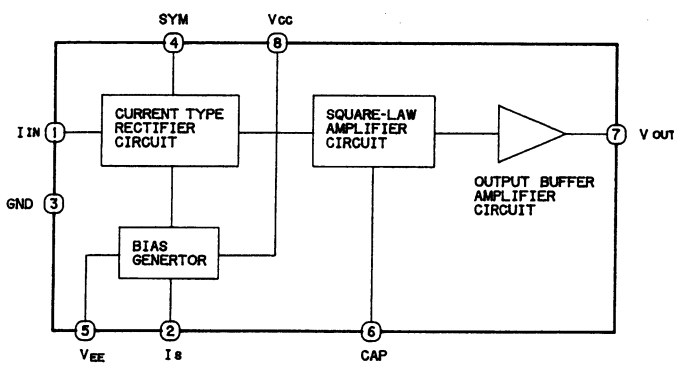
IC. CX20188



IC. μ PC1252H2

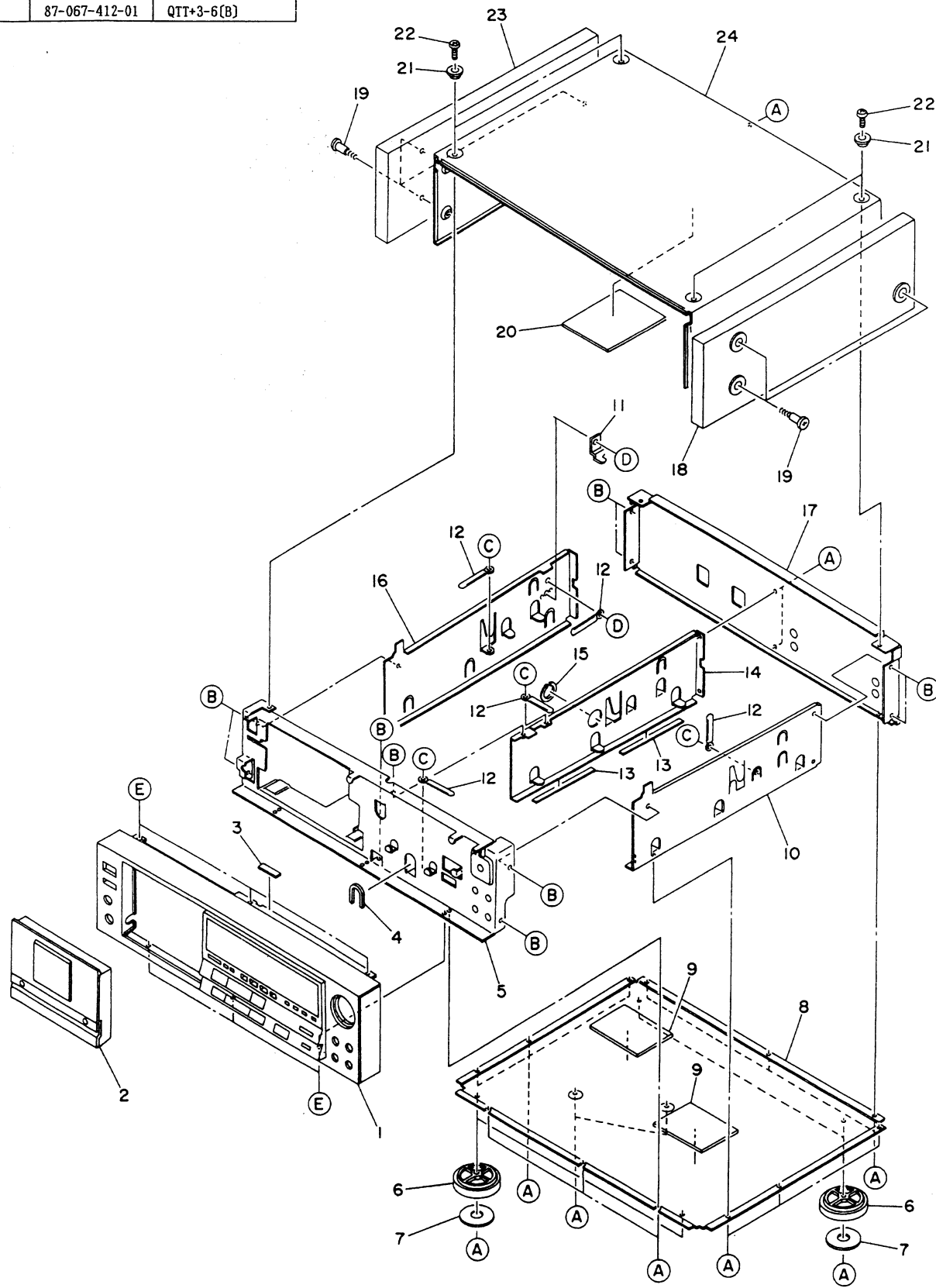


IC. μ PC1253H2



EXPLODED VIEW-1

REF.NO.	PART NO.	DESCRIPTION
A	87-067-277-01	UTT+3-6(B)
B	87-081-531-01	QTT+3-6
C	87-067-020-01	VTT+3-4
D	87-081-501-01	VTT+2.6-4
E	87-067-412-01	QTT+3-6(B)

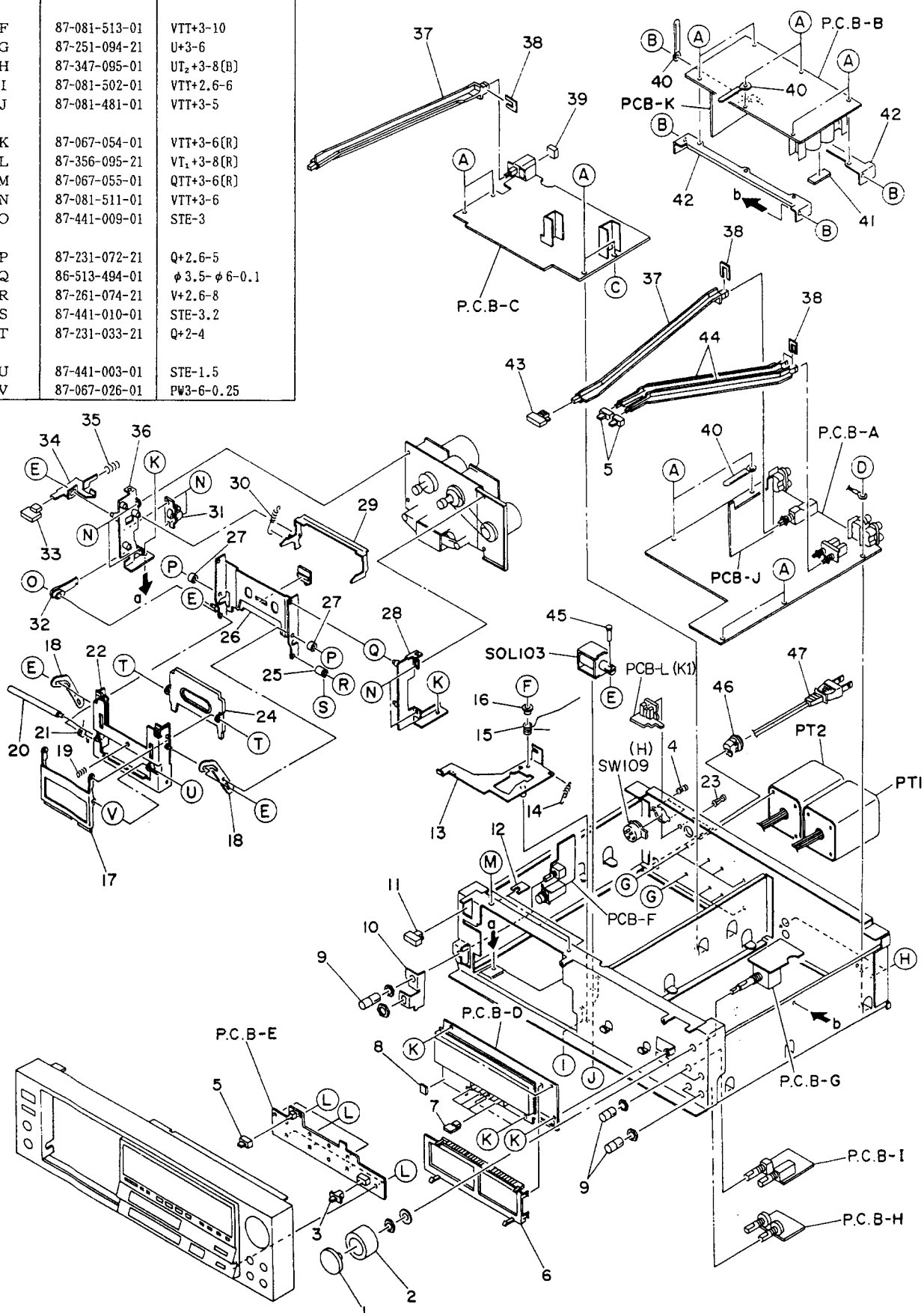


MECHANICAL PARTS LIST

PART NO. CHANGED TO	REF. NO.	PART NO.	DESCRIPTION	COMMON MODEL	Q, TY
1-1		*09-047-381-010	FRONT CABINET ASSY	*	1
1-2		09-047-382-010	CASSETTE BOX WINDOW ASSY	*	1
1-3		*82-226-281-010	S CUSHION 8X28X2	*	1
1-4		*82-226-276-010	BUSHING 61	*	1
1-5		*82-226-201-010	FRONT CHASSIS ASSY	*	1
1-6		*84-738-022-010	FOOT		4
1-7		*84-731-027-010	FELT, FOOT		4
1-8		*82-226-041-010	PLATE, BOTTOM (8D-1)	*	1
1-9		*82-226-274-010	DAMPER 80-60-3	*	2
1-10		*82-226-208-010	CHASSIS, SIDE R	*	1
1-11		*87-137-209-010	HOLDER B (E,K,K1,Z ONLY)		1
1-12		*87-038-039-010	WIRE BINDER		5
1-13		---	SHEET 100X10X2		2
1-14		*82-226-209-010	CHASSIS, SIDE C	*	1
1-15		*82-226-277-010	BUSHING 102	*	1
1-16		*82-226-207-010	CHASSIS, SIDE L	*	1
1-17		*82-226-020-010	PANEL, REAR (H ONLY)	*	1
1-17		*82-226-046-010	PANEL, REAR (C ONLY)	*	1
1-17		*82-226-022-010	PANEL, REAR (E ONLY)	*	1
1-17		*82-226-023-010	PANEL, REAR (K ONLY)	*	1
1-17		*82-226-055-010	PANEL, REAR (K1 ONLY)	*	1
1-17		*82-226-024-010	PANEL, REAR (Z ONLY)	*	1
1-18		*82-226-009-010	PANEL, WOOD R	*	1
1-19		*87-067-466-110	HEADER SCREW, M3		6
1-20		*82-217-251-010	DAMPER 120-80		1
1-21		*84-738-018-010	RING, TOP		4
1-22		*87-067-510-010	HEADER SCREW, M3-8		4
1-23		*82-226-008-010	PANEL, WOOD L	*	1
1-24		*82-226-037-010	CABINET, STEEL	*	1

EXPLODED VIEW-2

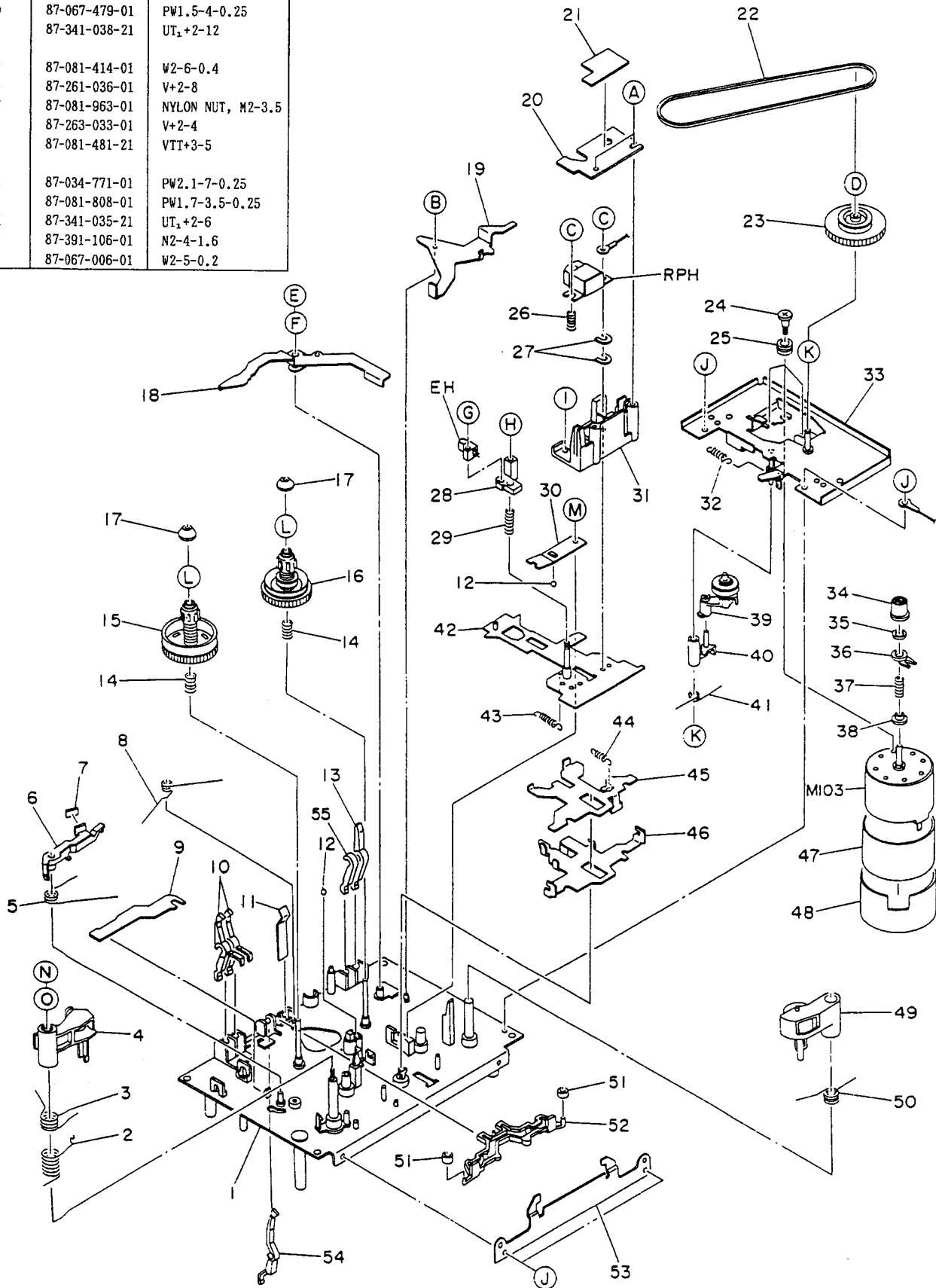
REF.NO.	PART NO.	DESCRIPTION
A	87-518-094-21	VFT ₂ +3-6(R)
B	87-081-531-01	QTT+3-6
C	87-067-065-01	FW3.2-8-0.25
D	87-521-094-21	VFT ₂ +3-6
E	82-190-206-01	STE-2
F	87-081-513-01	VTT+3-10
G	87-251-094-21	U+3-6
H	87-347-095-01	UT ₂ +3-8(B)
I	87-081-502-01	VTT+2.6-6
J	87-081-481-01	VTT+3-5
K	87-067-054-01	VTT+3-6(R)
L	87-356-095-21	VT ₁ +3-8(R)
M	87-067-055-01	QTT+3-6(R)
N	87-081-511-01	VTT+3-6
O	87-441-009-01	STE-3
P	87-231-072-21	Q+2.6-5
Q	86-513-494-01	φ 3.5-φ 6-0.1
R	87-261-074-21	V+2.6-8
S	87-441-010-01	STE-3.2
T	87-231-033-21	Q+2-4
U	87-441-003-01	STE-1.5
V	87-067-026-01	PW3-6-0.25



PART NO. CHANGED TO	REF. NO.	PART NO.	DESCRIPTION	COMMON MODEL	Q, TY
	2-1	*84-738-009-010	KNOB VOLUME R ASSY		1
	2-2	*84-738-008-010	KNOB VOLUME L ASSY		1
	2-3	*84-732-010-010	KNOB,SLIDE TIME		1
	2-4	*87-085-090-010	NYLON RIVET 3-6.5 (H ONLY)		2
	2-5	*82-226-027-010	PUSH-BUTTON	*	3
	2-6	*82-226-212-010	HOLDER,FL	*	1
	2-7	*81-777-003-010	PUSH-BUTTON,TONE		4
	2-8	*82-598-247-110	RUBBER CUSHION 10X7X5		1
	2-9	*84-738-015-110	KNOB ROTARY ASSY		5
	2-10	*82-226-214-010	HOLDER,HEADPHONE	*	1
	2-11	*84-721-023-010	PUSH-BUTTON,POWER		1
	2-12	*82-226-234-010	SPACER U	*	2
	2-13	*82-226-260-010	LEVER PLUNGER ASSY	*	1
	2-14	*82-226-263-010	E-SPRING,LEVER	*	1
	2-15	*82-226-264-010	T-SPRING,LEVER	*	1
	2-16	*82-226-262-010	SHAFT,LEVER	*	1
	2-17	*82-226-244-010	LEVER,CASSETTE	*	1
	2-18	*82-226-236-010	LEVER,CASSETTE BOX	*	2
	2-19	*82-226-246-010	C-SPRING,CASSETTE	*	1
	2-20	*82-226-245-010	SHAFT,CASSETTE	*	1
	2-21	*82-226-232-010	T-SPRING,OPEN	*	1
	2-22	*82-226-237-010	CASSETTE BOX ASSY	*	1
	2-23	*87-084-063-010	NYLON RIVET 3-5.5 (K1 ONLY)		2
	2-24	*09-047-345-010	PANEL STABILIZER ASSY	*	1
	2-25	*82-226-231-010	COLLAR,CASSETTE BOX R	*	1
	2-26	*82-226-042-010	CASSETTE PLATE ASSY	*	1
	2-27	*82-188-229-010	COLLAR,CASSETTE BOX L		2
	2-28	*82-226-218-010	MECHANISM HOLDER R ASSY	*	1
	2-29	*82-226-215-110	LEVER,EJECT	*	1
	2-30	*82-226-248-010	E-SPRING,EJECT LEVER	*	1
	2-31	82-179-228-010	OIL-DAMPER		1
	2-32	*82-541-240-110	LEVER,OIL-DAMP		1
	2-33	*82-226-025-010	PUSH-BUTTON,EJECT	*	1
	2-34	*82-226-229-010	PLATE,EJECT	*	1
	2-35	*82-226-249-010	C-SPRING,EJECT	*	1
	2-36	*82-226-216-010	MECHANISM HOLDER L ASSY	*	1
	2-37	*82-226-210-010	ROD B	*	2
	2-38	*82-385-383-110	STOPPER,ROD		4
	2-39	*82-226-251-010	G CUSHION 12X12X7	*	1
	2-40	*87-038-039-010	WIRE BINDER		3
	2-41	*82-226-273-010	DAMPER LR 10X30X3	*	2
	2-42	*82-226-204-010	SUB FRAME A	*	2
	2-43	*82-188-012-010	KNOB POWER		1
	2-44	*82-226-213-010	ROD A	*	2
	2-45	*82-226-268-010	SHAFT,PLUNGER	*	1
	2-46	*87-085-207-010	CORD BUSHING		1
	2-47	*87-034-761-010	AC CORD (H ONLY)		1
	2-47	*87-034-762-010	AC CORD (C ONLY)		1
	2-47	*87-034-759-010	AC CORD (E,Z ONLY)		1
	2-47	*87-034-760-010	AC CORD (K,K1 ONLY)		1

EXPLODED VIEW-3

REF.NO.	PART NO.	DESCRIPTION
A	87-342-035-21	VT ₂ +2-6
B	87-441-003-21	STE-1.5
C	87-081-543-01	U+2-9
D	87-067-479-01	PW1.5-4-0.25
E	87-341-038-21	UT ₁ +2-12
F	87-081-414-01	W2-6-0.4
G	87-261-036-01	V+2-8
H	87-081-963-01	NYLON NUT, M2-3.5
I	87-263-033-01	V+2-4
J	87-081-481-21	VTT+3-5
K	87-034-771-01	PW2.1-7-0.25
L	87-081-808-01	PW1.7-3.5-0.25
M	87-341-035-21	UT ₁ +2-6
N	87-391-106-01	N2-4-1.6
O	87-067-006-01	W2-5-0.2

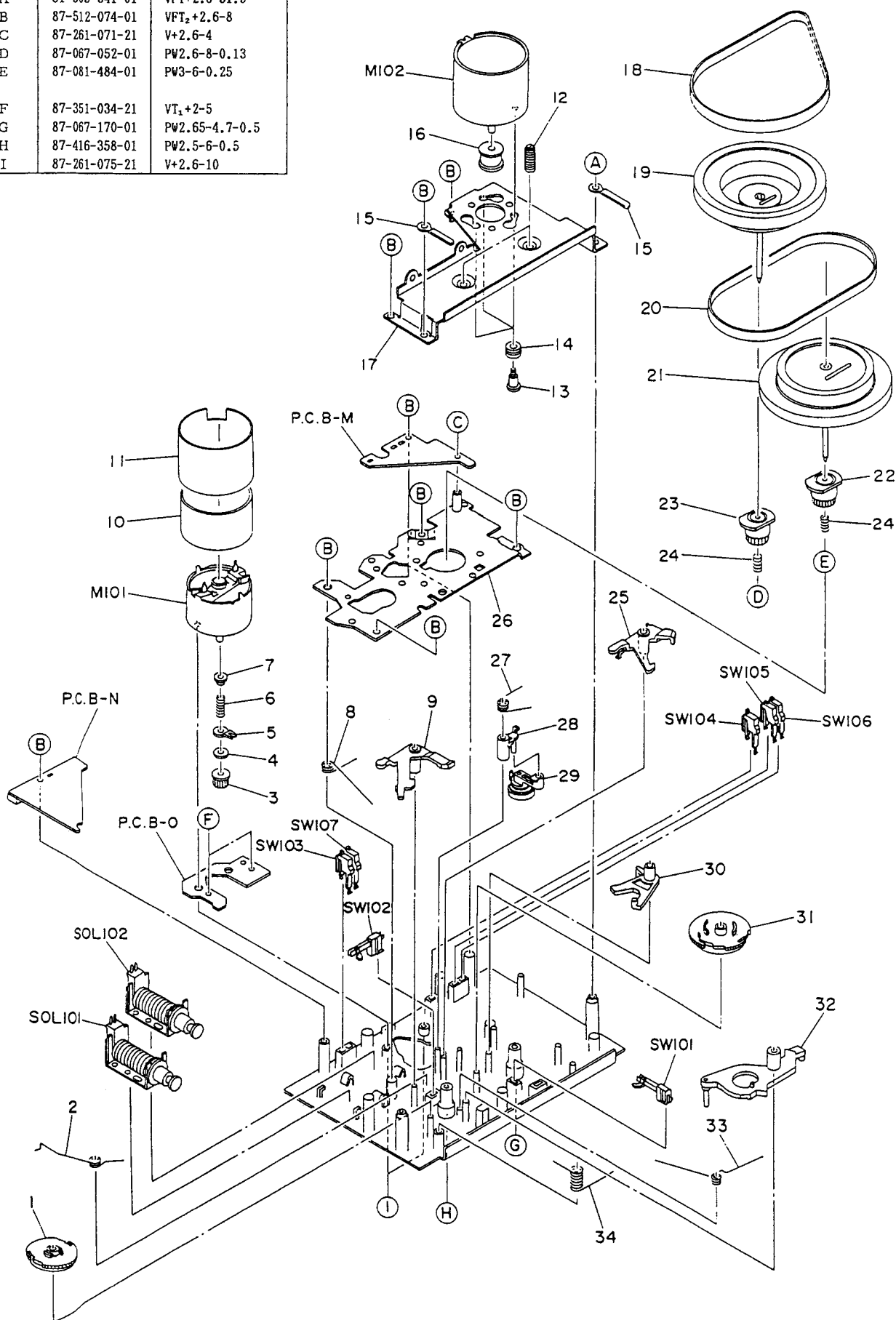


PART NO. CHANGED TO	REF. NO.	PART NO.	DESCRIPTION	COMMON MODEL	Q, TY
3-1		*86-543-201-110	OUTSEAT ASSY		1
3-2		*81-507-228-010	C-SPRING,PINCH LEVER S		1
3-3		*81-507-217-110	T-SPRING,PINCH LEVER S		1
3-4		81-507-207-310	PINCH LEVER S ASSY		1
3-5		*81-507-223-010	T-SPRING,B.T		1
3-6		*81-507-222-010	LEVER,BACK TENSION		1
3-7		*81-505-237-010	FELT,SLIDE BRAKE		1
3-8		*81-505-268-010	T-SPRING,SLIDE BRAKE		1
3-9		*81-505-238-010	PLATE,EJECT BLOCKING		1
3-10		*81-505-241-210	LEVER,CHROME REC BLOCKING		2
3-11		*81-505-260-010	P-SPRING,CASSETTE PRESSURE		1
3-12		87-073-005-010	STEEL BALL 2		2
3-13		*81-505-364-010	LEVER,CASSETTE SENSOR 1		1
3-14		*81-507-219-010	C-SPRING,S REEL PLATFORM		2
3-15		86-543-240-010	REEL PLATFORM S ASSY		1
3-16		86-543-216-010	REEL PLATFORM T ASSY		1
3-17		*82-303-398-010	CAP,TAKE-UP REEL PLATFORM		2
3-18		*81-505-307-010	LEVER,BRAKE EJECT		1
3-19		*86-543-214-010	LEVER,IDLER EJECT		1
3-20		*82-226-211-010	COVER,HEAD		1
3-21		*82-226-049-010	LABEL 2,HEAD		1
3-22		86-543-229-010	BELT,REEL		1
3-23		*86-543-215-010	V PULLEY,IDLER		1
3-24		*87-067-441-010	SCREW,MOTOR		3
3-25		*87-087-029-010	RUBBER,CUSHION		3
3-26		*86-543-224-010	C-SPRING,AZIMUTH		1
3-27		*81-507-227-010	SPACER		2
3-28		*86-543-204-110	HOLDER,EH		1
3-29		*86-543-225-010	C-SPRING,EH		1
3-30		*81-507-224-010	P-SPRING,ACTUATING CHASSIS		1
3-31		*86-543-203-110	BASE,HEAD		1
3-32		*86-543-227-010	E-SPRING,IDLER EJECT		1
3-33		*86-543-205-010	HOLDER MOTOR ASSY C		1
3-34		*81-505-320-010	PULLEY,REEL MOTOR B		1
3-35		*81-505-328-110	FELT 4.5-7.2-10		1
3-36		*81-505-287-110	LEVER,IDLER FR C		1
3-37		*81-505-290-010	C-SPRING,FR IDLER C		1
3-38		*81-505-289-010	PLATE,PRESSURE SPRING		1
3-39		86-543-228-010	FR IDLER ASSY C		1
3-40		*81-505-254-110	LEVER,IDLER FR A		1
3-41		*86-543-222-010	T-SPRING,IDLER LEVER		1
3-42		*86-543-211-010	ACTUATING CHASSIS ASSY		1
3-43		*86-543-241-010	E-SPRING,ACTUATING CHASSIS B		1
3-44		*81-505-266-010	E-SPRING,PLATE PAUSE		1
3-45		*81-505-207-010	PLATE,PAUSE		1
3-46		*81-507-220-010	PLATE,PINCH LEVER		1
3-47		*81-505-606-010	SHIELD PLATE		1
3-48		---	SHIELD PLATE B		1
3-49		86-543-243-010	PINCH LEVER F ASSY		1
3-50		*86-543-223-010	T-SPRING,PINCH T		1
3-51		*81-507-229-010	G BRAKE		2
3-52		*81-505-236-110	LEVER,SLIDE BRAKE		1
3-53		*86-543-231-010	HOLDER,ACTUATING CHASSIS		1
3-54		*81-505-242-110	LEVER,METAL		1
3-55		*81-505-365-010	LEVER,CASSETTE SENSOR 2		1

Note) Cut the tip of 3-55 Lever Cassette Sensor 2 when using it for servicing.

EXPLODED VIEW-4

REF.NO.	PART NO.	DESCRIPTION
A	81-505-341-01	VFT+2.6-31.5
B	87-512-074-01	VFT ₂ +2.6-8
C	87-261-071-21	V+2.6-4
D	87-067-052-01	PW2.6-8-0.13
E	87-081-484-01	PW3-6-0.25
F	87-351-034-21	VT ₁ +2-5
G	87-067-170-01	PW2.65-4.7-0.5
H	87-416-358-01	PW2.5-6-0.5
I	87-261-075-21	V+2.6-10



PART NO. CHANGED TO	REF. NO.	PART NO.	DESCRIPTION	COMMON MODEL	Q, TY
	4-1	*81-505-235-110	GEAR, PLATE CAM		1
	4-2	*81-505-269-010	T-SPRING, PLATE PINCH		1
	4-3	*81-505-320-010	PULLEY, REEL MOTOR B		1
	4-4	*81-505-328-110	FELT 4, 5-7.2-10		1
	4-5	*81-505-287-110	LEVER, IDLER FR C		1
	4-6	*81-505-290-010	C-SPRING, FR IDLER C		1
	4-7	*81-505-289-010	PLATE, PRESSURE SPRING		1
	4-8	*81-505-271-110	T-SPRING, TRIGGER LEVER		1
	4-9	*81-505-233-010	LEVER, TRIGGER PAUSE		1
	4-10	*81-505-606-010	SHIELD PLATE		1
	4-11	81-505-608-010	SHIELD PLATE B		1
	4-12	*82-565-373-010	SCREW, THRUST		2
	4-13	*87-067-441-010	SCREW, MOTOR		3
	4-14	*87-087-029-010	RUBBER CUSHION		3
	4-15	---	WIRE BINDER		2
	4-16	*86-543-218-210	PULLEY, MOTOR 10.68		1
	4-17	*81-507-221-010	HOLDER, MOTOR		1
	4-18	86-543-230-110	BELT, MAIN		1
	4-19	86-543-238-110	FLYWHEEL T ASSY		1
	4-20	86-543-245-010	BELT B, RUBBER		1
	4-21	86-543-235-110	FLYWHEEL S ASSY		1
	4-22	*81-505-354-010	GEAR, FLYWHEEL 2.7		1
	4-23	*81-505-225-010	GEAR, FLYWHEEL F		1
	4-24	*81-505-261-010	C-SPRING, FLYWHEEL F		2
	4-25	*81-505-231-410	LEVER, TRIGGER PLAY		1
	4-26	*86-543-220-010	CHASSIS ASSY B		1
	4-27	*81-505-282-010	T-SPRING, FR IDLER		1
	4-28	*81-505-254-110	LEVER, IDLER FR A		1
	4-29	86-543-228-010	FR IDLER ASSY C		1
	4-30	*81-505-230-010	LEVER, PLAY		1
	4-31	*81-505-234-110	GEAR, PLAY CAM		1
	4-32	*81-505-308-010	LEVER, PAUSE B		1
	4-33	*81-505-272-010	T-SPRING, CAM		1
	4-34	*81-505-283-010	T-SPRING, LEVER PAUSE		1

■ ACCESSORIES/PACKAGE LIST

PART NO. CHANGED TO	REF. NO.	PART NO.	DESCRIPTION	COMMON MODEL	Q, TY
	1	*82-226-904-010	INSTRUCTION BOOKLET H	*	1
	2	*87-032-845-019	SIEMENS PLUG (H ONLY)		1
	3	*87-034-754-010	PIN CORD, AU-0FC		2