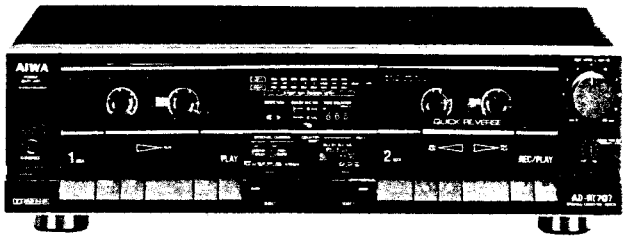
AIWA®

S/M Code No. 87-053
DATE OF ISSUE 9/1987-I

SERVICE MANUAL

MODEL No. **AD-WX707**

- STEREO CASSETTE DECK
- TYPE. HB,UB,CB,EB,KB,GB,ZB
- BASIC MECHANISM : X-3



SPECIFICATIONS

Type	Stereo cassette tape deck
Track format	4 tracks, 2 channels
Power supply	**AD-WX707E, Z** AC 220 V, 50/60 Hz **AD-WX707K, G** AC 240 V, 50/60 Hz **AD-WX707U, C** AC 120 V, 60 Hz **AD-WX707H** AC 120 V/220 V/240 V switchable, 50/60 Hz
Power consumption	26W
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	Deck [1] 0.12% (According to DIN 45500) 0.065% (WRMS) Deck [2] 0.12% (According to DIN 45500) 0.065% (WRMS)
Inputs	LINE IN maximum input sensitivity: 50 mV (over 50 kΩ)
Outputs	LINE OUT standard output level: 390 mV (0 VU); suitable load impedance: over 50 kΩ.
Dimensions	430(W) × 126.5(H) × 318.5(D)
Weight	5.0 kg
Tape speed	4.8 cm/sec. (1-7/8 ips), 9.5 cm/sec (Double speed)
Recording system	AC bias (frequency 100 kHz)
Erase system	AC erase
Motor	DC Servomotor × 2
Heads	Record/playback head × 1 Playback head: × 1 Erase head: × 1

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

AIWA CO., Ltd. Tokyo Japan

Printed in Japan

DISASSEMBLY INSTRUCTIONS

1. Applying the counter belt

1) Apply the counter belt to the rib of the front cabinet temporarily. (See Figure-1)
2) Assemble the mechanism into the front cabinet.
3) Turn the relay pulley. The counter belt is applied to the pulley of the reel disk automatically.

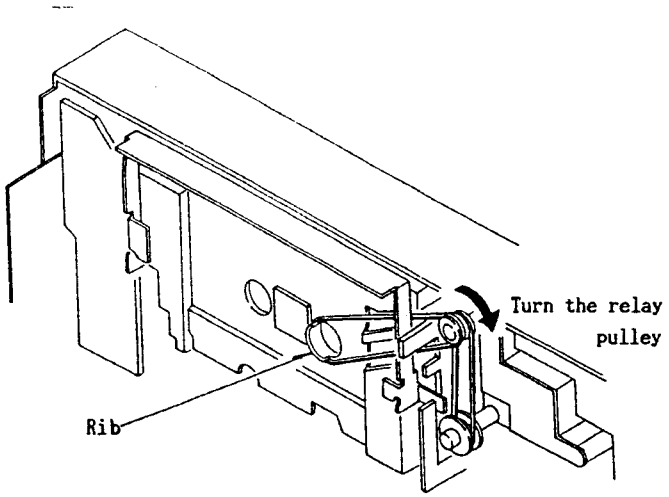


Fig. 1

■ ACCESSORIES/PACKAGE LIST

PART NO. CHANGED TO	REF. NO.	PART NO.	ORDER	DESCRIPTION	COMMON MODEL	Q, TY
	1	*82-224-901-010		INSTRUCTION BOOKLET	*	1
	2	*87-032-845-010		SIEMENS PLUG(H ONLY)		1
	3	*87-034-978-010		CW-254 BSK		2

ELECTRICAL MAIN PARTS LIST

REF.NO.	PART NO. ORDER	DESCRIPTION
=== IC ===		
	87-001-143-010	IC,CX20187
	87-020-454-010	IC,DM-6851
	87-020-261-010	IC,LA6358S
	87-001-164-010	IC,LB1408
	82-224-614-010	IC,LC6520H-3386
	87-027-895-010	IC,M5218L
	87-020-680-010	IC,NJM2068S
	87-020-758-010	IC,NJM2068SD
	87-001-133-010	IC,NJU4052BP
	87-020-908-010	IC,NJU4066BD
	87-001-191-010	IC,TA78DL12P
=== TRANSISTOR ===		
	89-503-735-010	FET,2SK373GR
	87-026-219-010	TRANSISTOR, DTA144ES
	87-026-292-010	TRANSISTOR, DTA144WS
	89-109-521-010	TRANSISTOR,2SA 952K
	89-110-155-010	TRANSISTOR,2SA1015GR
	89-309-456-010	TRANSISTOR,2SC 945LP
	89-318-155-010	TRANSISTOR,2SC1815 GR
	89-320-011-010	TRANSISTOR,2SC2001K
	89-331-138-010	TRANSISTOR,2SC3113B
	89-411-110-010	TRANSISTOR,2SD1111
	89-413-023-010	TRANSISTOR,2SD1302ST
	89-414-065-010	TRANSISTOR,2SD1406GR
=== MAIN CIRCUIT BOARD SECTION ===		
PCB-A	82-224-602-010	MAIN CIRCUIT BOARD
C1	*87-010-390-010	CAP,ELECT 3300UF/25V SME
C3	*87-010-235-010	CAP,ELECT 470UF/16V
C5	*87-010-237-010	CAP,ELECT 1000UF/16V SME
C8	*87-010-374-010	CAP,ELECT 47UF/10V
C9	*87-010-235-010	CAP,ELECT 470UF/16V
C10	*87-010-248-010	CAP,ELECT 220UF/10V SME
C22	*87-010-401-010	CAP,ELECT 1UF/50V SME
C23	*87-010-248-010	CAP,ELECT 220U/10V SME
C101	*87-018-125-010	CAP,CERA-SOL 330PF
C102	*87-018-125-010	CAP,CERA-SOL 330PF
C103	*87-018-106-010	CAP,CERA-SOL 15PF
C104	*87-018-106-010	CAP,CERA-SOL 15PF
C107	*87-015-455-010	CAP,ELECT BP 10UF/25
C108	*87-015-455-010	CAP,ELECT BP 10UF/25V
C111	*87-018-134-010	CAP,CERA-SOL 0.01UF
C112	*87-010-101-010	CAP,ELECT 220UF/16V SME
C113	*87-018-134-010	CAP,CERA-SOL 0.01UF
C201	*87-018-125-010	CAP,CERA-SOL 330PF
C202	*87-018-125-010	CAP,CERA-SOL 330PF
C203	*87-018-106-010	CAP,CERA-SOL 15PF
C204	*87-018-106-010	CAP,CERA-SOL 15PF
C207	*87-015-455-010	CAP,ELECT BP 10UF/25V
C208	*87-015-455-010	CAP,ELECT BP 10UF/25V
C211	*87-018-121-010	CAP,CERA-SOL 150PF
C211	*87-018-134-010	CAP,CERA-SOL 0.01UF
C212	*87-018-121-010	CAP,CERA-SOL 150PF
C301	*87-018-132-010	CAP,CERA-SOL 2200PF
C302	*87-018-132-010	CAP,CERA-SOL 2200PF
C305	*87-010-402-010	CAP,ELECT 2.2UF/50V SME
C306	*87-010-402-010	CAP,ELECT 2.2UF/50V SME
C421	*87-010-260-010	CAP,ELECT 47UF/25V SME
C422	*87-010-406-010	CAP,ELECT 22UF/50V SME
C425	*87-018-133-010	CAP,CERA-SOL 4700PF
C428	*87-014-069-010	CAP,PP 3300PF
C429	*87-018-131-010	CAP,CERA-SOL 1000PF
C431	*87-018-121-010	CAP,CERA-SOL 150P
C432	*87-018-121-010	CAP,CERA-SOL 150PF
C501	*87-018-125-010	CAP,CERA-SOL 330PF
C502	*87-018-125-010	CAP,CERA-SOL 330PF
C503	*87-010-404-010	CAP,ELECT 4.7UF/50V SME
C504	*87-010-404-010	CAP,ELECT 4.7UF/50V SME
C507	*87-010-402-010	CAP,ELECT 2.2UF/50V SME
C508	*87-010-402-010	CAP,ELECT 2.2UF/50V SME
C509	*87-010-248-010	CAP,ELECT 220UF/10V SME
C510	*87-010-248-010	CAP,ELECT 220UF/10V SME
C511	*87-018-205-010	CAP,CERA-SOL 0.022PF
C512	*87-018-205-010	CAP,CERA-SOL 0.022PF
C515	*87-010-400-010	CAP,ELECT 0.47UF/50V SME
C516	*87-010-400-010	CAP,ELECT 0.47UF/50V SME
C521	*87-010-545-010	CAP,ELECT 0.22UF/50V SME
C522	*87-010-545-010	CAP,ELECT 0.22UF/50V SME
C531	*87-010-075-010	CAP,ELECT 10UF/16V
C532	*87-010-075-010	CAP,ELECT 10UF/16V
C701	*87-010-401-010	CAP,ELECT 1UF/50V SME
C702	*87-010-401-010	CAP,ELECT 1UF/50V SME
C703	*87-018-134-010	CAP,CERA-SOL 0.01UF
C757	*87-010-402-010	CAP,ELECT 2.2UF/50V SME
C758	*87-010-402-010	CAP,ELECT 2.2UF/50V SME
C801	*87-018-118-010	CAP,CERA-SOL 82PF
C802	*87-018-205-010	CAP,CERA-SOL 0.022PF
C851	*87-010-565-010	CAP,ELECT 470UF/12V SME
C852	*87-010-565-010	CAP,ELECT 470UF/12V SME
C853	*87-010-565-010	CAP,ELECT 470UF/12V SME
C854	*87-010-565-010	CAP,ELECT 470UF/12V SME
C883	*87-010-379-010	CAP,ELECT 22UF/16V SME
C884	*87-010-402-010	CAP,ELECT 2.2UF/50V SME
C901	*87-010-404-010	CAP,ELECT 4.7UF/50V SME
C902	*87-010-404-010	CAP,ELECT 4.7UF/50V SME
C903	*87-018-134-010	CAP,CERA-SOL 0.01UF
C904	*87-018-134-010	CAP,CERA-SOL 0.01UF
D1	87-027-365-010	DIODE,S5277B
D2	87-027-365-010	DIODE,S5277B
D3	87-027-365-010	DIODE,S5277B
D4	87-027-365-010	DIODE,S5277B
D8	87-020-752-010	DIODE,1SS270
D9	87-027-286-010	DIODE,ZENER HZ-5C1
D401	87-020-752-010	DIODE,1SS270
D402	87-020-752-010	DIODE,1SS270
D403	87-020-752-010	DIODE,1SS270
D404	87-020-123-010	DIODE,DS446
D421	87-020-752-010	DIODE,1SS270
D803	87-020-752-010	DIODE,1SS270
D804	87-020-752-010	DIODE,1SS270
D805	87-020-752-010	DIODE,1SS270
D806	87-020-752-010	DIODE,1SS270
D809	87-020-752-010	DIODE,1SS270
D810	87-020-752-010	DIODE,1SS270
D811	87-020-752-010	DIODE,1SS270
D812	87-020-752-010	DIODE,1SS270
D813	87-020-752-010	DIODE,1SS270
D851	87-020-123-010	DIODE,DS446
D852	87-020-123-010	DIODE,DS446
D853	87-020-123-010	DIODE,DS446
D854	87-020-123-010	DIODE,DS446
ICP1	*83-203-688-010	ICP-N25
J701-1	87-049-420-010	JACK,PIN 4P-14(PLAY/LINE OUT L)
J701-2	+++	JACK,PIN 4P-14(PLAY/LINE OUT R)
J701-3	+++	JACK,PIN 4P-14(REC/LINE IN L)
J701-4	+++	JACK,PIN 4P-14(REC/LINE IN R)

REF.NO.	PART NO.	ORDER	DESCRIPTION
L301	*87-003-131-010		COIL,CHOKE 10MMH
L302	*87-003-131-010		COIL,CHOKE 10MMH
L303	*87-003-128-010		COIL,5.6MMH J
L304	*87-003-128-010		COIL,5.6MMH J
L305	*82-196-603-010		COIL,TRAP 100KH
L306	*82-196-603-010		COIL,TRAP 100KH
L401	*82-224-619-010		COIL,OSC BIAS 100KH
L501	*82-221-697-010		FILTER,SQ CX
L502	*82-221-697-010		FILTER,SQ CX
L503	*82-224-612-010		FILTER,DOLBY 100KZ
L504	*82-224-612-010		FILTER,DOLBY 100KZ
L801	*82-202-624-010		COIL,OSC LC6520H
SFR101	*87-021-735-010		SFR,220
SFR102	*87-021-735-010		SFR,220
SFR103	*87-021-738-010		SFR,1K
SFR104	*87-021-738-010		SFR,1K
SFR201	*87-021-735-010		SFR,220
SFR202	*87-021-735-010		SFR,220
SFR203	*87-021-738-010		SFR,1K
SFR204	*87-021-738-010		SFR,1K
SFR301	*87-021-739-010		SFR,2.2K
SFR302	*87-021-739-010		SFR,2.2K
SFR451	*87-021-745-010		SFR,47K
SFR452	*87-021-745-010		SFR,47K

=== KEY CIRCUIT BOARD SECTION ===

PCB-B	*		KEY CIRCUIT BOARD
C1201	*87-010-378-010		CAP,ELECT 10UF/16V
C1203	*87-010-378-010		CAP,ELECT 10UF/16V
C1204	*87-010-378-010		CAP,ELECT 10UF/16V
D1001	87-020-752-010		DIODE,1SS270
D1002	87-020-752-010		DIODE,1SS270
D1201	*87-001-162-010		LED,SEL-2210 W(PEAK METER L)
D1202	*87-001-162-010		LED,SEL-2210 W(PEAK METER R)
D1203	*87-001-162-010		LED,SEL-2210 W(PEAK METER L)
D1204	*87-001-162-010		LED,SEL-2210 W(PEAK METER R)
D1205	*87-001-162-010		LED,SEL-2210 W(PEAK METER L)
D1206	*87-001-162-010		LED,SEL-2210 W(PEAK METER R)
D1207	*87-001-161-010		LED,SEL-2410 E(PEAK METER L)
D1208	*87-001-161-010		LED,SEL-2410 E(PEAK METER R)
D1209	*87-001-161-010		LED,SEL-2410 E(PEAK METER L)
D1210	*87-001-161-010		LED,SEL-2410 E(PEAK METER R)
D1211	*87-001-161-010		LED,SEL-2410 E(PEAK METER L)
D1212	*87-001-161-010		LED,SEL-2410 E(PEAK METER R)
D1213	*87-001-161-010		LED,SEL-2410 E(PEAK METER L)
D1214	*87-001-161-010		LED,SEL-2410 E(PEAK METER R)
D1215	*87-001-161-010		LED,SEL-2410 E(PEAK METER L)
D1216	*87-001-161-010		LED,SEL-2410 E(PEAK METER R)
D1217	*87-001-161-010		LED,SEL-2410 E(D2 DIRECTION►)
D1218	*87-001-161-010		LED,SEL-2410 E(D2 DIRECTION◄)
D1219	*87-001-161-010		LED,SEL-2410 E(DOLBY NR,B)
D1220	*87-001-162-010		LED,SEL-2210 W(DOLBY NR,C)
D1221	87-020-752-010		DIODE,1SS270
D1222	87-020-752-010		DIODE,1SS270
D1505	87-020-752-010		DIODE,1SS270
D1506	87-020-752-010		DIODE,1SS270
D1507	87-020-752-010		DIODE,1SS270
D1508	87-020-752-010		DIODE,1SS270
D1509	87-020-752-010		DIODE,1SS270
D1510	87-020-752-010		DIODE,1SS270
D1511	87-020-752-010		DIODE,1SS270
D1512	87-020-752-010		DIODE,1SS270
D1513	87-020-752-010		DIODE,1SS270
D1514	87-020-752-010		DIODE,1SS270

REF.NO.	PART NO.	ORDER	DESCRIPTION
D1515	87-020-752-010		DIODE,1SS270
D1516	87-020-752-010		DIODE,1SS270
D1517	87-020-752-010		DIODE,1SS270
D1518	87-020-752-010		DIODE,1SS270
D1573	*87-001-137-010		LED,SLP-981C50(REC MUTE D2)
D1574	*87-001-138-010		LED,SLP-481C50(PAUSE D2)
D1575	*87-001-138-010		LED,SLP-481C50(PAUSE D1)
D1576	*87-001-137-010		LED,SLP-981C50(SYNC.DUB HI)
D1577	*87-001-137-010		LED,SLP-981C50(SYNC.DUB NOR)
S1505	87-031-893-010		SW,TACT(D1 REC)
S1506	87-031-893-010		SW,TACT(D1 REC MUTE)
S1507	87-031-893-010		SW,TACT(SYNC.DUB HI)
S1508	87-031-893-010		SW,TACT(SYNC.DUB NOR)
S1509	87-031-893-010		SW,TACT(D2 STOP)
S1510	87-031-893-010		SW,TACT(D2 PAUSE)
S1511	87-031-893-010		SW,TACT(D2 FF►►)
S1512	87-031-893-010		SW,TACT(D2 REW◄◄)
S1513	87-031-893-010		SW,TACT(D1 PLAY)
S1514	87-031-893-010		SW,TACT(D1 PAUSE)
S1515	87-031-893-010		SW,TACT(D1►►)
S1516	87-031-893-010		SW,TACT(D1 ⏮)
S1517	87-036-032-010		SW,SLIDE(TIMER)
S1518	87-036-053-010		SW,SLIDE(REV.MODE)
S1519	82-224-615-010		SW,SLIDE(DOLBY NR)

=== POWER CIRCUIT BOARD SECTION ===

⚠ PCB-D	*		POWER CIRCUIT BOARD
⚠ C15	*87-019-113-010		0.0022E
C751	*87-010-544-010		CAP,ELECT 0.1UF/50V
C752	*87-010-544-010		CAP,ELECT 0.1UF/50V
C753	*87-010-101-010		CAP,ELECT 220UF/16V SME
C754	*87-010-101-010		CAP,ELECT 220UF/16V SME
C755	*87-010-565-010		CAP,ELECT 470UF/12V SME
J751	87-049-827-010		JACK,HLJ-0521-010(PHONES)
⚠ S1	82-224-617-010		SW,PUSH(POWER)

=== SWITCH-1 CIRCUIT BOARD SECTION ===

PCB-E	*		SW-1 CIRCUIT BOARD
D1501	87-020-752-010		DIODE,1SS270
D1561	*87-001-159-010		LED,SLV-31MC 3F(PLAY)
D1562	*87-001-159-010		LED,SLV-31MC 3F(PLAY)
D1563	*87-001-159-010		LED,SLV-31MC 3F(PLAY)
D1564	*87-001-159-010		LED,SLV-31MC 3F(PLAY)
S1501	87-031-893-010		SW,TACT(PLAY)

=== SWITCH-2 CIRCUIT BOARD SECTION ===

PCB-F	*		SW-2 CIRCUIT BOARD
D1503	87-020-752-010		DIODE,1SS270
D1504	87-020-752-010		DIODE,1SS270
D1565	*87-001-160-010		LED,SLV-31VC 3F(REV PLAY)
D1566	*87-001-160-010		LED,SLV-31VC 3F(REV PLAY)
D1567	*87-001-160-010		LED,SLV-31VC 3F(PLAY)
D1568	*87-001-160-010		LED,SLV-31VC 3F(PLAY)
D1569	*87-001-159-010		LED,SLV-31MC 3F(PLAY)
D1570	*87-001-159-010		LED,SLV-31MC 3F(PLAY)
D1571	*87-001-159-010		LED,SLV-31MC 3F(REV PLAY)
D1572	*87-001-159-010		LED,SLV-31MC 3F(REV PLAY)
S1503	87-031-893-010		SW,TACT(PLAY►)
S1504	87-031-893-010		SW,TACT(REV.PLAY◄)

=== VL CIRCUIT BOARD SECTION ===

PCB-G	*		VOLUME CIRCUIT BOARD
C319	*87-015-241-010		CAP,ELECT LL 1UF/50V
C320	*87-015-241-010		CAP,ELECT LL 1UF/50V

REF.NO.	PART NO. ORDER	DESCRIPTION
VOL301	82-224-613-010	VR,10K(A)(REC LEVEL)
VOL302	82-224-618-010	VR,250K(B)(BIAS FINE,NOR/CRO2)
=== TR CIRCUIT BOARD SECTION ===		
PCB-H	*	TR CIRCUIT BOARD
=== MECHANISM-1 CIRCUIT BOARD SECTION ==		
PCB-I	*	MECHANISM-1 CIRCUIT BOARD
S1108	87-036-040-010	PUSH SW(D1, CRO2)
S1109	87-036-039-010	PUSH SW(D1,CST)
SFR1103	87-021-966-010	SFR 4,7K(D1)
SFR1104	87-021-966-010	SFR 4.7K(D1)
SOL1103	86-535-611-010	SOLENOID X-3 PB(D1)
SOL1104	86-535-612-010	SOLENOID X-3 FR(D1)
=== MECHANISM-2 CIRCUIT BOARD SECTION ==		
PCB-J	*	MECHANISM-2 CIRCUIT BOARD
S1101	87-036-039-010	PUSH SW(D2,MT)
S1102	87-036-040-010	PUSH SW(D2,CRO2)
S1103	87-036-039-010	PUSH SW(D2,CST)
S1104	87-036-039-010	PUSH SW(D2,DIR)
S1104	87-036-039-010	PUSH SW
S1105	87-036-039-010	PUSH SW(D2,RE-B)
S1106	87-036-039-010	PUSH SW(D2,RE-A)
SFR1101	87-021-966-010	SFR 4.7K(D2)
SFR1102	87-021-966-010	SFR 4.7K(D2)
SOL1101	86-535-611-010	SOLENOID X-3 PB(D2)
SOL1102	86-535-612-010	SOLENOID X-3 FR(D2)
=== SENSOR CIRCUIT BOARD SECTION ===		
PCB-K	*	SENSOR CIRCUIT BOARD
CP1101	87-020-755-010	PHOTO SENSOR SPI-900
=== MISCELLANEOUS ===		
⚠	*87-034-732-010	AC CORD H ASSY(H)
⚠	*87-034-731-010	AC CORD UL ASSY(U)
⚠	*87-034-736-010	AC CORD E ASSY(E,Z)
⚠	*87-034-734-010	AC CORD K ASSY(K)
⚠	*87-034-735-010	AC CORD ASSY(G)
⚠	*87-085-184-010	AC CORD BUSHING D(H)
⚠	*87-085-189-010	AC CORD BUSHING U(U)
⚠	*87-085-185-010	AC CORD BUSHING E(E,Z)
CON8	86-535-605-110	CONNECTOR ASSY RPEH 9P
CON9	82-224-801-010	CONNECTOR ASSY 6P(PBH)
D1501	*87-020-109-010	LED,SLF-201C(D1)
D1502	*87-020-109-010	LED,SLF-201C(D2)
M1101	87-045-235-010	MOTOR MMA6B2LW(D1)
M1102	87-045-235-010	MOTOR MMA6B2LW(D2)
PH	87-046-261-010	HEAD PH(D1)
⚠ PT1	82-224-621-010	POWER TRANSFORMER H(H)
⚠ PT1	82-224-622-010	POWER TRANSFORMER UC(U,C)
⚠ PT1	82-224-623-010	POWER TRANSFORMER EZ(E,Z)
⚠ PT1	82-224-624-010	POWER TRANSFORMER KG(K,G)
RPEH	87-046-275-010	HEAD RPEH(D2)
⚠ S2	87-031-586-010	SW,ROTARY H(AC VOLTAGE)(H)

Combination circuit board A 82-224-601-110

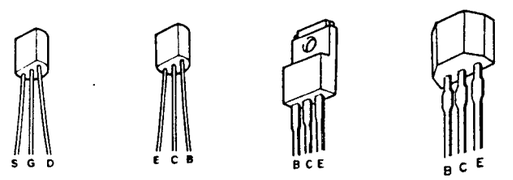
PCB-A 82-224-602-110
PCB-B 82-224-603-110
PCB-D 82-224-605-110
PCB-E 82-224-606-110
PCB-F 82-224-607-110
PCB-G 82-224-610-110
PCB-H 82-224-608-110

Combination circuit board B 86-535-601-210

PCB-I,J 86-535-602-210
PCB-K 86-535-603-210

PRACTICAL SERVICE FIGURE

Playback output: (TTA-161)	520mV (LINE OUT,400Hz)
PB/REC output: (TTA-119K)	400±30mV (LINE OUT,1kHz)
PB/REC distortion:	Less than 2% (NORM,CrO_2,MT tapes)
Playback noise:	Less than 2.8mV (DOLBY C NR ON, with leader tapes) Less than 2.3mV (DOLBY B NR OFF, with leader tapes)
Erase ratio (125Hz):	More than 60dB
Crosstalk:	More than 60dB(1kHz,0VU)
Channel separation:	More than 30dB(1kHz,0VU)
PB/REC S/N retio:	More than 44/50dB (DOLBY C NR OFF/ON with MT,CrO_2 tapes) More than 39/46dB (DOLBY C NR OFF/ON with NORM. tapes)
Recording bias frequency:	100kHz
Tape speed:	3kHz±1.5%
(TTA-111S) Wow & flutter: (W.R.M.S)	Less than 0.07% (FWD.)(DECK1,2) Less than 0.075%(REV.)
Take-up torque:	30~60g-cm(DECK 1,2)
Fast forward torque:	130±30g-cm(DECK 1,2)
Rewind torque:	130±30g-cm(DECK 1,2)
Back-tension:	2.5~5.5g-cm(DECK 1,2)
Pinch roller pressure:	290±70g-cm(DECK 1,2)
Test tapes:	METAL TTA-119MP CrO_2 TTA-119H NORMAL TTA-119K



2SK373 **2SA952** **2SA1015** **2SC 945** **2SC 1815** **2SC 2001** **2SD1111** **2SD1302** **2SD1406** **DT A144** **2SC 3113**

1. IC, LC6520H-3386

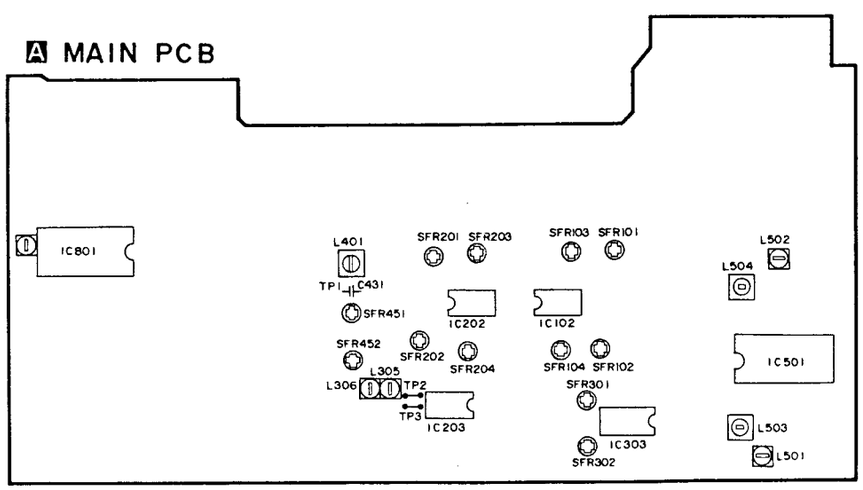
1-1 Terminal Description

Pin No	Pin Name	Description
1	——	Pulled up to 10.8 V by a resistor.
2	——	Pulled up to 10.8 V by a resistor.
3	I-AUTO-1	DECK 1 auto-stop input. DECK 1 stops automatically without level change of "L" and "H".
4	I-AUTO-2	DECK 2 auto-stop input. DECK 2 stops automatically without level change of "L" and "H".
5	——	GND
6	——	Pulled down by a resistor and grounded.
7	O-MOTOR	Motor drive output (active "H"). Outputs "L" only when both DECKs 1 & 2 are in the stop mode. This pin outputs a signal 320 msec before SOL-PB and SOL-FRP, waiting for the O-MOTR rotating steadily.
8	O-BIAS	Bias oscillation output. Goes "L" during REC PAUSE and "H" during REC and DUBBING.
9	O-FL-RES	Outputs "H" when MPU is reset (initialized).
10	O-DUBB	Noise reduction control output during dubbing. Goes "L" during dubbing.
11	O-PB1	DECK 1 PB request output. Goes "L" when DECK 2 is in the play, play pause, cue and review modes.
12	O-PB2	DECK 2 PB request output. Goes "H" when DECK 1 is in the play, play pause, cue and review modes.
13	O-PLAY	CUE/REVIEW MUTE output. Goes "H" when the DECK which is slected by O-PB1 and O-PB2 is in the play mode.
14	O-HSP	Motor high-speed request output. Goes "H" at high-speed.
15	O-RMT	REC MUTE output. Goes "H" during REC and PLAY. Goes "L" during PAUSE, RMT and REC→REVERSE.
16	O-LMT	LINE MUTE output. Goes "L" during PLAY, CUE REVIEW, REC, REC PLAY, REC MUTE and REC→PAUSE.
17	O-REC	REC/PLAY switching output. Goes "H" during REC and REC REVERSE. Goes "L" during dubbing.
18	——	GND
19	TEST	MPU test pin connected to Vss
20	Vss	Common terminal (GND) of each input/output power of MPU.
21	OSC-1	4MHz clock oscillation pin.
22	OSC-2	4MHz clock oscillation pin.
23	RESET	MPU reset input. "H" resets the MPU.
24 (36		Refer to the next page.
37	O-SOL-FRP2	DECK 2 / solenoid absorption output (active "L"). DECK 2 performs F.FWD/REW and CUE/REVIEW according to the absorption timing.
38	O-SOL-PB2	DECK 2 / solenoid absorption output (active "L"). DECK 2 performs PLAY, PAUSE and REVESE according to the absorption timing.
39	O-SOL-FRP1	DECK 1 / solenoid absorption output (active "L"). DECK 1 performs F.FWD/REW and CUE/REVIEW according to the absorption timing.
40	VDD	MPU power pin connected to +5 V.
41	O-SOL-PB1	DECK 1 PB solenoid absorption output (active "L"). DECK 1 performs PLAY, PAUSE and REVERSE according to the absorption timing.
42	——	Pulled down by a resistor and grounded.

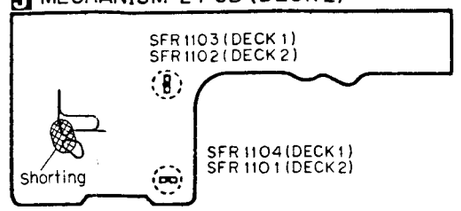
Pin No	Pin Name	Description				
		Input : Key DATA				Output : LED
		Key SW IN = ON at "L", PULSE = ON at "H"				Lights when
		When KS3 is "L"	When KS2 is "L"	When KS1 is "L"	When KS0 is "L"	DISP is "L"
35	DTφ	*	F.PLAY-1 KEY IN		CST-2 SW IN	PLAY-1 LED OUT
34	DT1	R.PLAY-2 KEY IN			QUICK-2 PULSE IN	PLAY-2 LED OUT
33	DT2	F.PLAY-2 KEY IN	REV.MODE ⊂⊃ SW IN	REC KEY IN	DIR-2 SW IN	REC LED OUT
32	DT3	STOP-2 KEY IN	STOP-1 KEY IN	RMT KEY IN	CST-1 SW IN	RMT LED OUT
31	DT4		PAUSE-1 KEY IN	TIMER PLAY SW IN		PAUSE-1 LED OUT
30	DT5	PAUSE-2 KEY IN	REV.MODE = SW IN	TIMER REC SW IN		PAUSE-2 LED OUT
29	DT6	FF-2 KEY IN	FF-1 KEY IN	H/DUB KEY IN	RE-A SW IN	H/DUB LED OUT
28	DT7	REW-2 KEY IN	REW-1 KEY IN	N/DUB KEY IN	RE-B SW IN	N/DUB LED OUT
27	$\overline{KS0}$	DTφ ~ DT7 KEY SCAN OUT				
26	$\overline{KS1}$					
25	$\overline{KS2}$					
24	$\overline{KS3}$					
36	DISP	DTφ ~ DT7 LED SCAN OUT				

ADJUSTMENT

A MAIN PCB



I MECHANISM-1 PCB (DECK 1)
J MECHANISM-2 PCB (DECK 2)



RECORD/PLAYBACK HEAD AZIMUTH ADJUSTMENT

1. Turn off the Dolby NR switch (S1519).
2. Load the unit with a test tape SCC-1429 (TTA-317E) and place it in play mode.
3. Adjust the head azimuth adjusting screws so that the output becomes 10kHz signal level maximum.
4. Adjust also the reverse running of tape for DECK 2.

TAPE SPEED ADJUSTMENT

(Normal speed)
1. Load the unit with a test tape (TTA-111S) and play its intermediate area.
2. Then adjust the variable resistor inserting a screwdriver through the adjustment SFR1104(1101) so that the frequency counter reads 3000Hz±20Hz.
3. Check the reverse running of tape for DECK 2.

(Hi-speed)
4. Short-Circuit the pattern of the MOTOR P.C.B in the DECK to be adjusted as shown in Fig.
5. Load the unit with a test tape (TTA-111H) and play its intermediate area.
6. Adjust the variable resistor SFR1103(1102) so that the frequency counter reads 3000Hz.
7. After adjustment is completed, release the short-circuit of the pattern.

Note: Always perform the normal speed adjustment and then the high-speed adjustment. Adjusting the high-speed only will cause an error in the normal tape speed.

PLAYBACK SENSITIVITY ADJUSTMENT

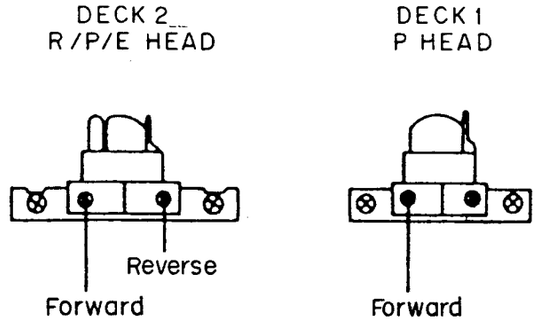
1. Turn off the Dolby NR switch (S1519).
2. Load the unit with a test tape TCC-130 (TTA-161) and place it in play mode.
3. Adjust the variable resistors SFR101 (left) and SFR102 (right) so that the SSVM reads 535±10mV.(DECK1) Adjust SFR201 (left) and SFR202 (right) for DECK 2.

PLAYBACK FREQUENCY RESPONSE ADJUSTMENT

1. Turn off the Dolby NR switch (S1519).
2. Playback the test tape SCC-1429 (TTA-317E)
3. Adjust the variable resistors SFR103 (left) and SFR104(right) so that the output difference of 1kHz and 10kHz become±0.5dB±0.5dB X (DECK1).
4. Adjust SFR203 (left) and SFR204 (right) for DECK2.

BIAS FREQUENCY ADJUSTMENT

1. Turn off the Dolby NR switch (S1519).
2. Load the unit with the test tape (TTA-119K), and place it in record (DECK2).
3. Adjust the variable coil L401 for 100kHz at test point (TP1).



BIAS TRAP COIL ADJUSTMENT

1. Turn off the Dolby NR switch (S1519).
2. Load the unit with the test tape (TTA-119K), and place it in record (DECK 2).
3. Adjust the variable coil L305 (left) and L306 (right) for minimum level at Bias trap coil test point (TP3,TP2).

FILTER MPX COIL ADJUSTMENT

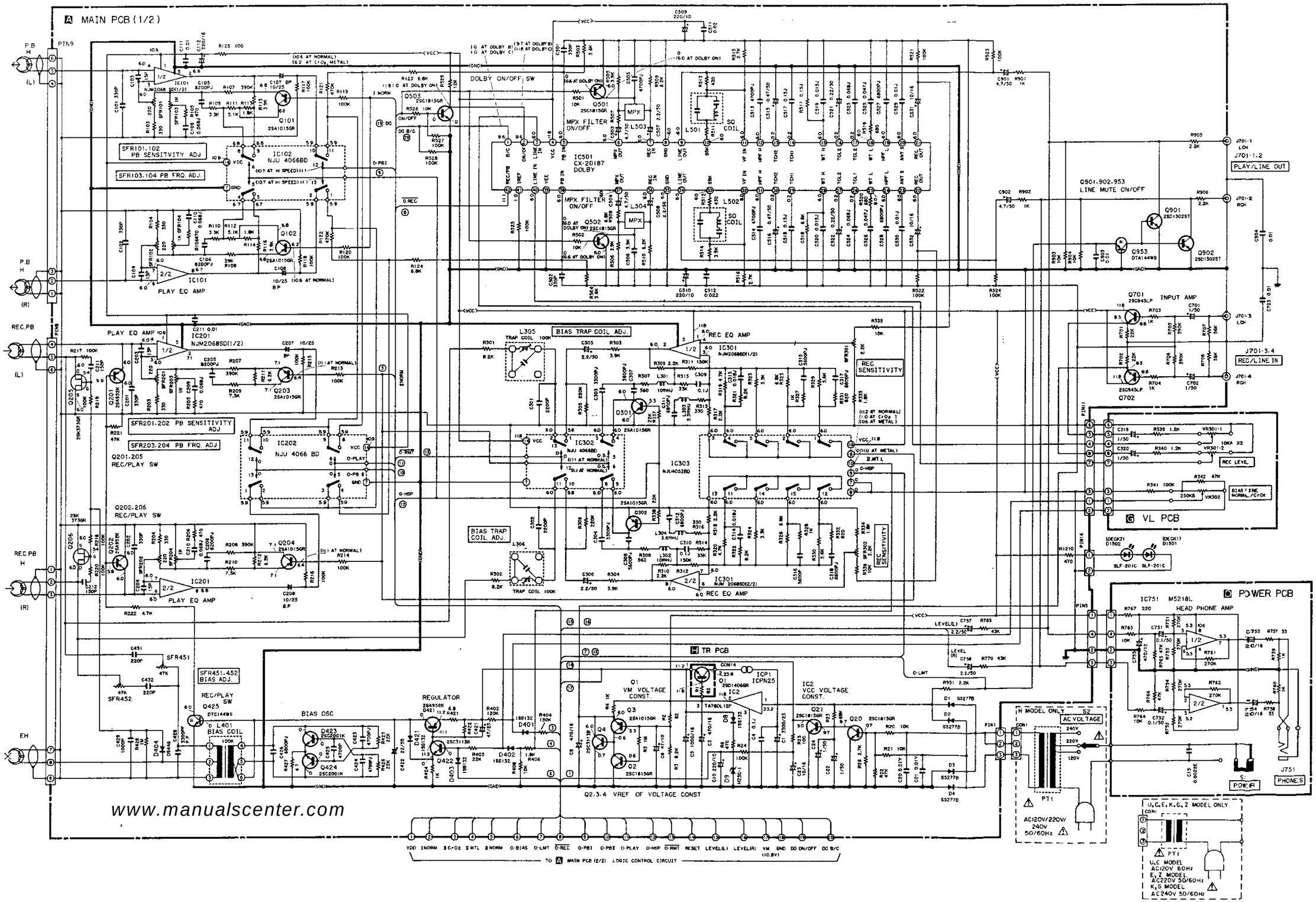
1. Turn off the Dobly NR switch (S1519).
2. Load the unit (DECK 2) with the test tape TTA-119K and set DECK2 to the record mode.
3. Adjust L503 and L504 so that the difference in the levels at test points 1 and 2 when the Dolby NR switch is turned on and off is 27 dB or more.

RECORD/PLAYBACK FREQUENCY ADJUSTMENT

1. Turn off the Dolby NR switch (S1519).
2. Set variable resistor VR302(BIAS FINE) to the center.
   Set variable resistor VR301(REC LEVEL) to a maximum.
3. Load the unit with test tape (TTA-119K), and place it in record. Using CR oscillation apply a signal of oscillation frequency 1kHz and 10kHz. (input level 500mV). Adjust the attenuator so that the level at the Line out jack is 390mV.
4. Record and playback the 1kHz and 10kHz signals and adjust the variable resistors SFR203 (left) and SFR204 (right) so that Line out level difference becomes 1dB±0.5dB.

RECORD/PLAYBACK SENSITIVITY ADJUSTMENT

1. Turn off the Dolby NR switch (S1519).
2. Set variable resistor VR302 (BIAS FINE) to the center.
   Set variable resistor VR301 (REC LEVEL) to a maximum.
3. Load the unit with test tape (TTA-119K) and place it in record (DECK 2). Using CR oscillator apply a signal of oscillation frequncy 1kHz (input level 500mV). Adjust the attenuator so that the level at the Line Out (jack) is 39 mV.
4. Recording and Playback the 1kHz signal and adjust the variable resistors SFR301 (left) and SFR302 (right) so that Line out level difference becomes 0.1dB±0.5dB.


A MAIN PCB (1/2)
DOLBY ON/OFF SW
MPX FILTER ON/OFF
IC501 CX-20187 DOLBY
Q901,902,953 LINE MUTE ON/OFF
Q701 INPUT AMP
PLAY/LINE OUT
REC/LINE IN
PLAY EQ AMP
REC EQ AMP
BIAS TRAP COIL ADJ.
REC SENSITIVITY
REC LEVEL
BIAS TIME NORMAL/CrO2
SFR101,102 PB SENSITIVITY ADJ
SFR103,104 PB FRQ. ADJ.
SFR201,202 PB SENSITIVITY ADJ
SFR203,204 PB FRQ. ADJ
Q201,205 REC/PLAY SW
Q202,206 REC/PLAY SW
SFR451,452 BIAS ADJ.
REC/PLAY SW
BIAS OSC
REGULATOR
VM VOLTAGE CONST.
VCC VOLTAGE CONST.
Q2,3,4 VREF OF VOLTAGE CONST
B VL PCB
C POWER PCB
H TR PCB
IC751 M5218L HEAD PHONE AMP
H MODEL ONLY
U,C,E,K,G,Z MODEL ONLY
TO A MAIN PCB (2/2) LOGIC CONTROL CIRCUIT
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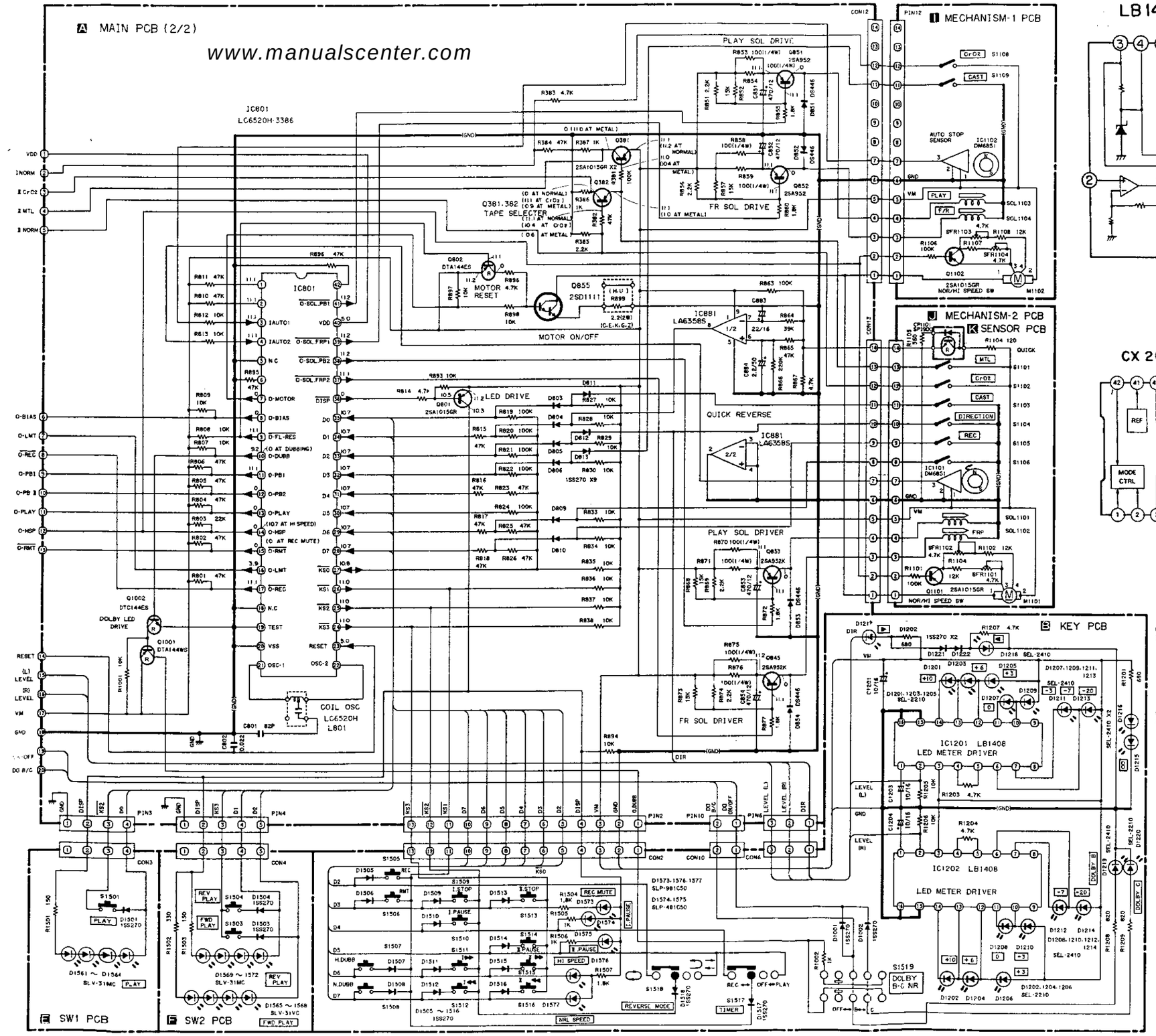
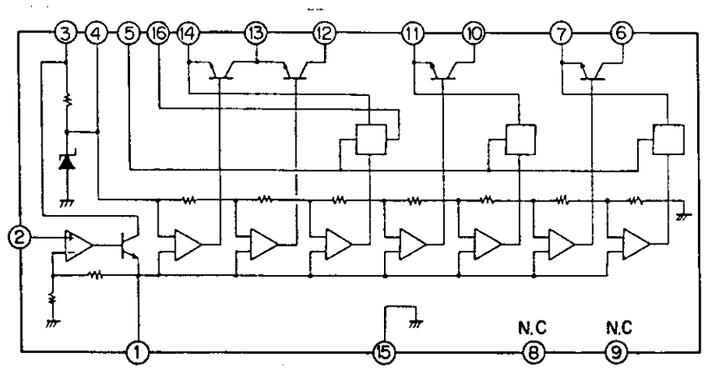
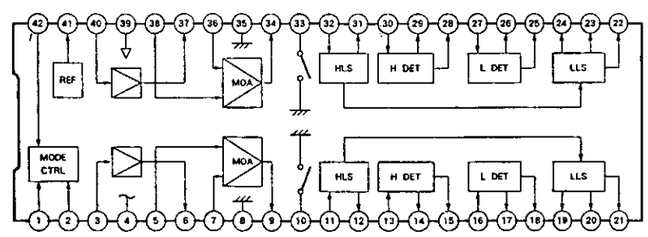


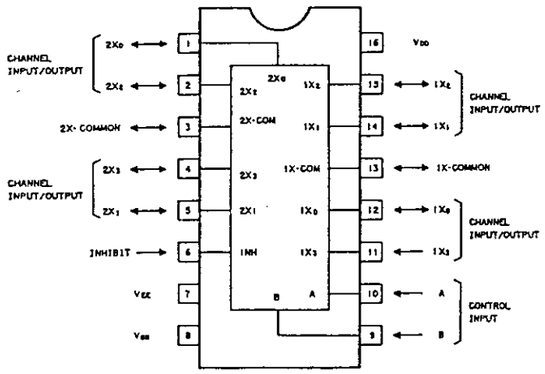
LB1408



CX 20187



NJU4052BP

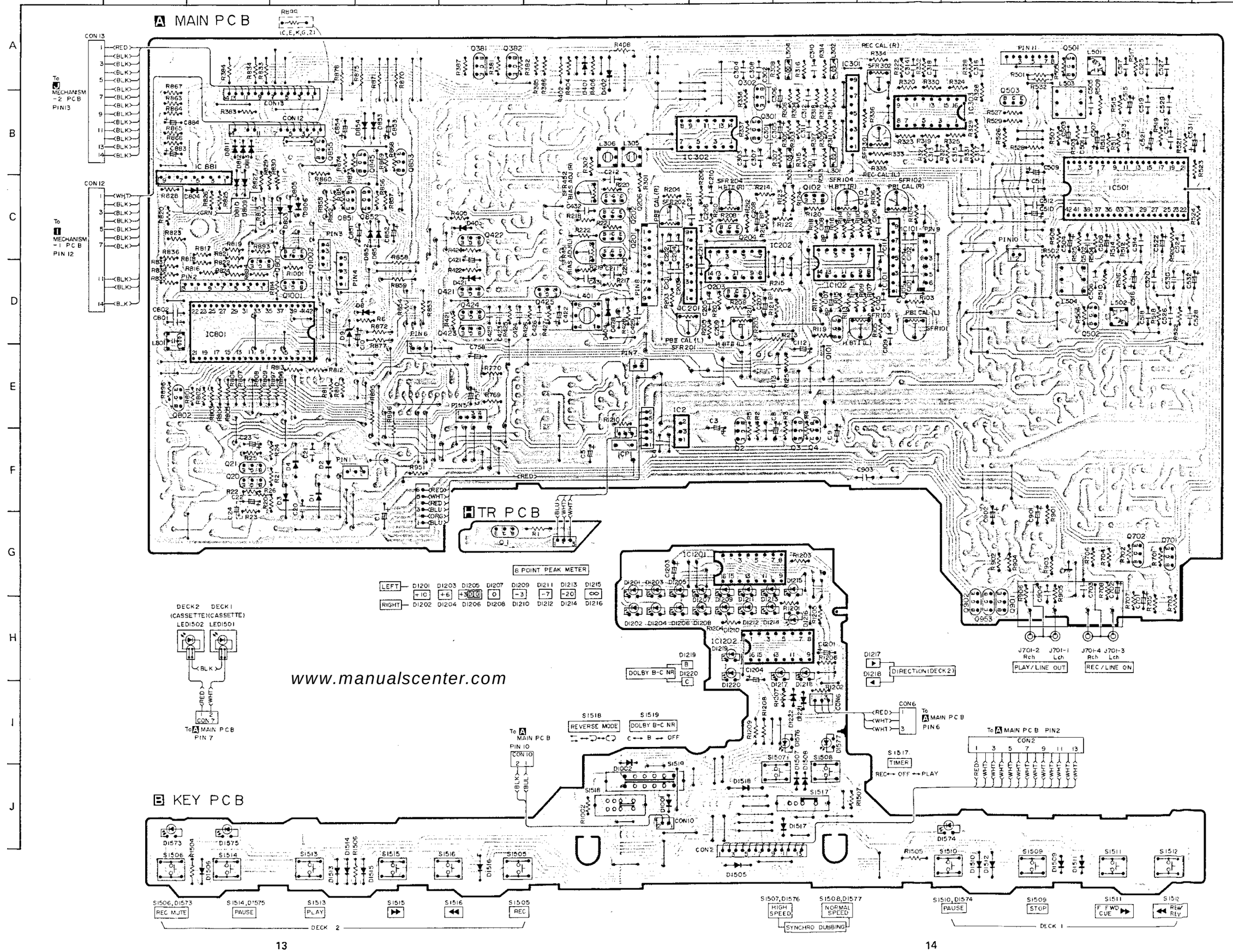


TRUTH TABLE

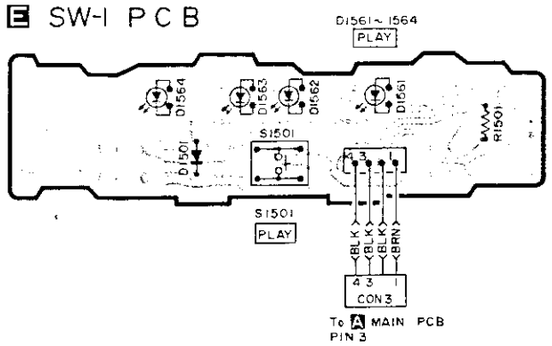
INHIBIT INPUT	CONTROL INPUT		CHANNEL INPUT/OUTPUT SWITCH OF COMMON TERMINAL			
INHIBIT	B	A	X_0	X_1	X_2	X_3
L	L	L	ON	OFF	OFF	OFF
L	L	H	OFF	ON	OFF	OFF
L	H	L	OFF	OFF	ON	OFF
L	H	H	OFF	OFF	OFF	ON
H	X	X	OFF	OFF	OFF	OFF

Note 1 X: "H" or "L"

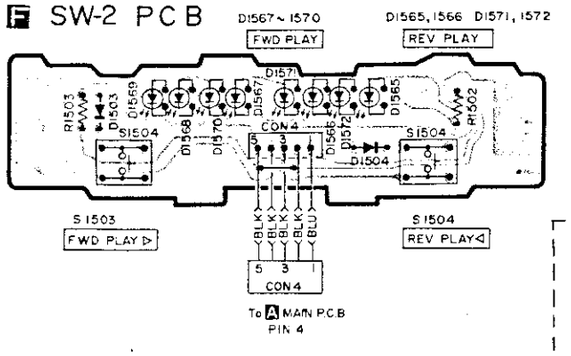
WIRING



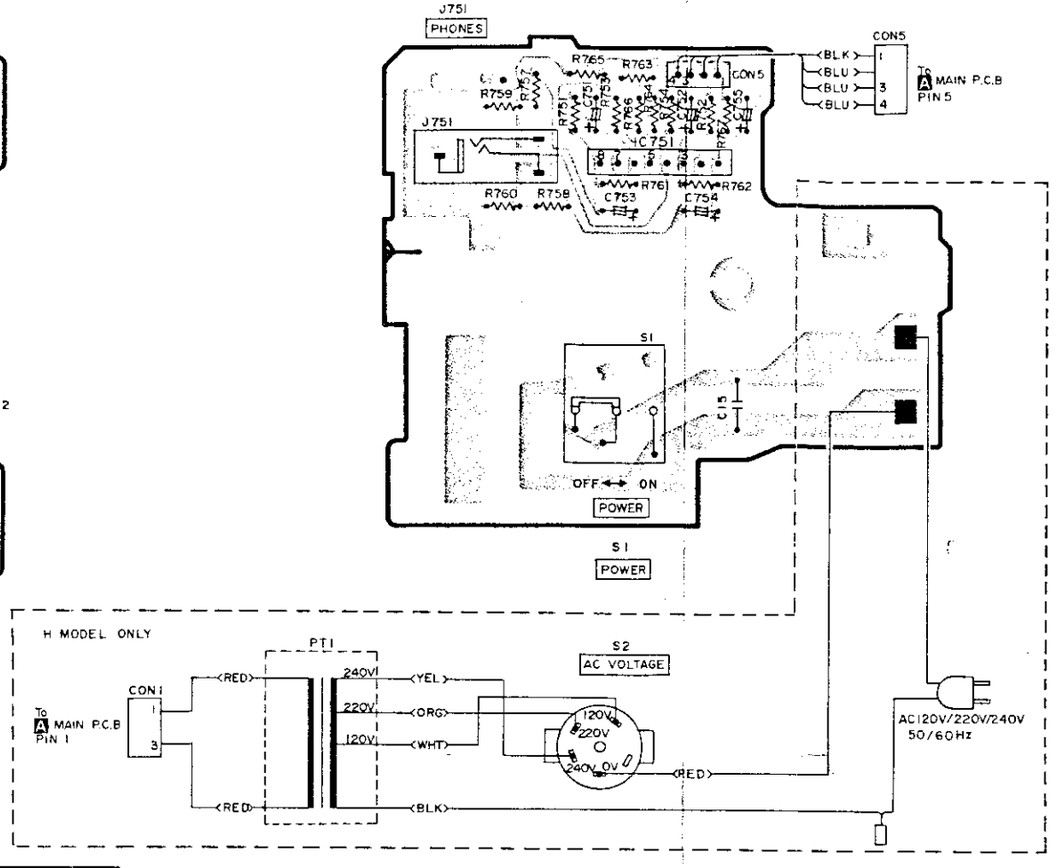
E SW-1 P C B

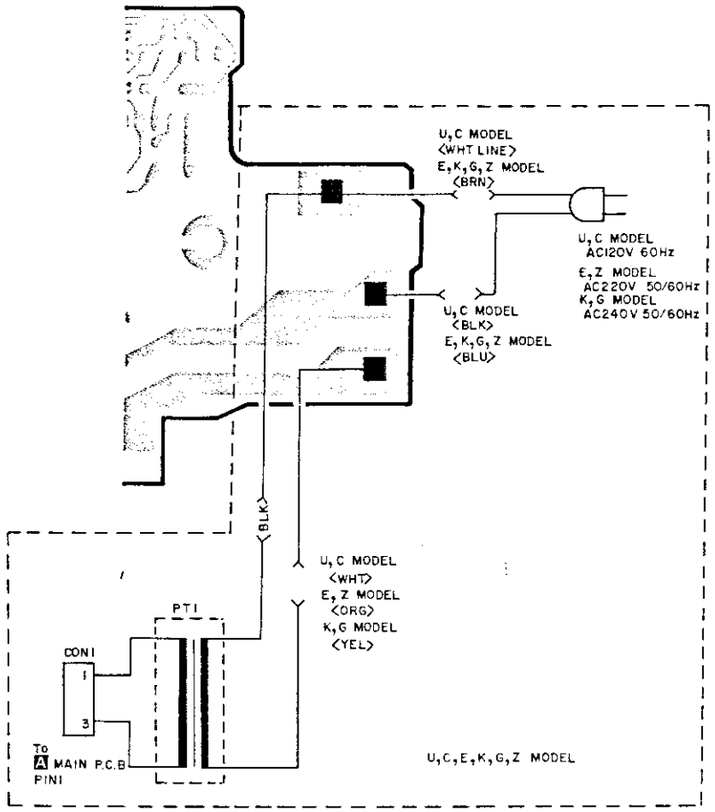


F SW-2 P C B

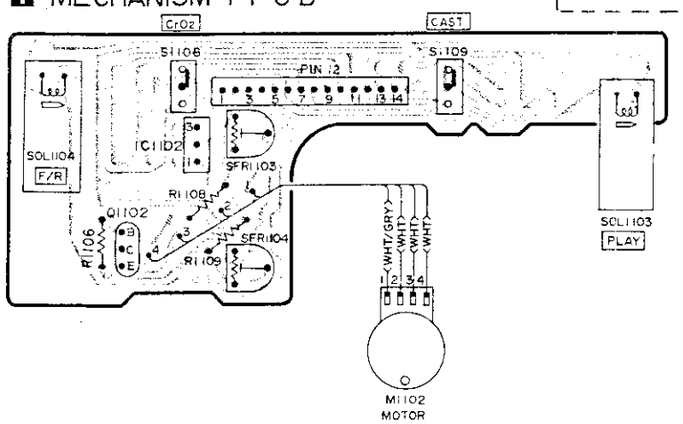


D POWER P C B

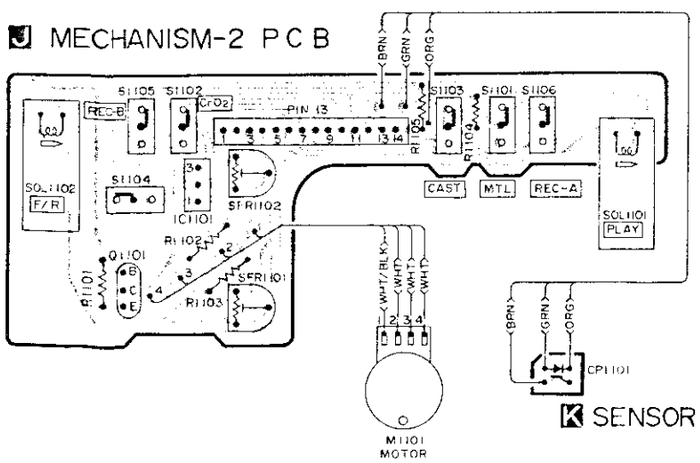




I MECHANISM-1 P C B

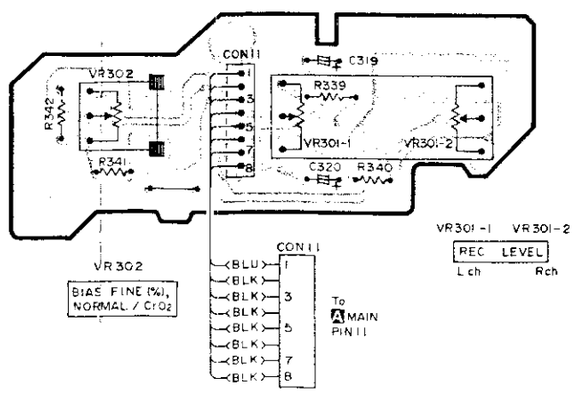


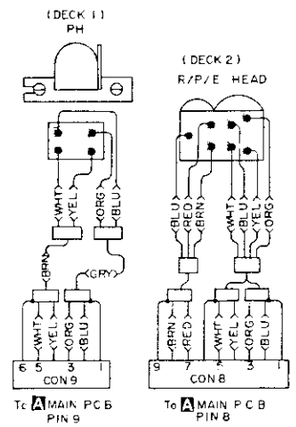
J MECHANISM-2 P C B



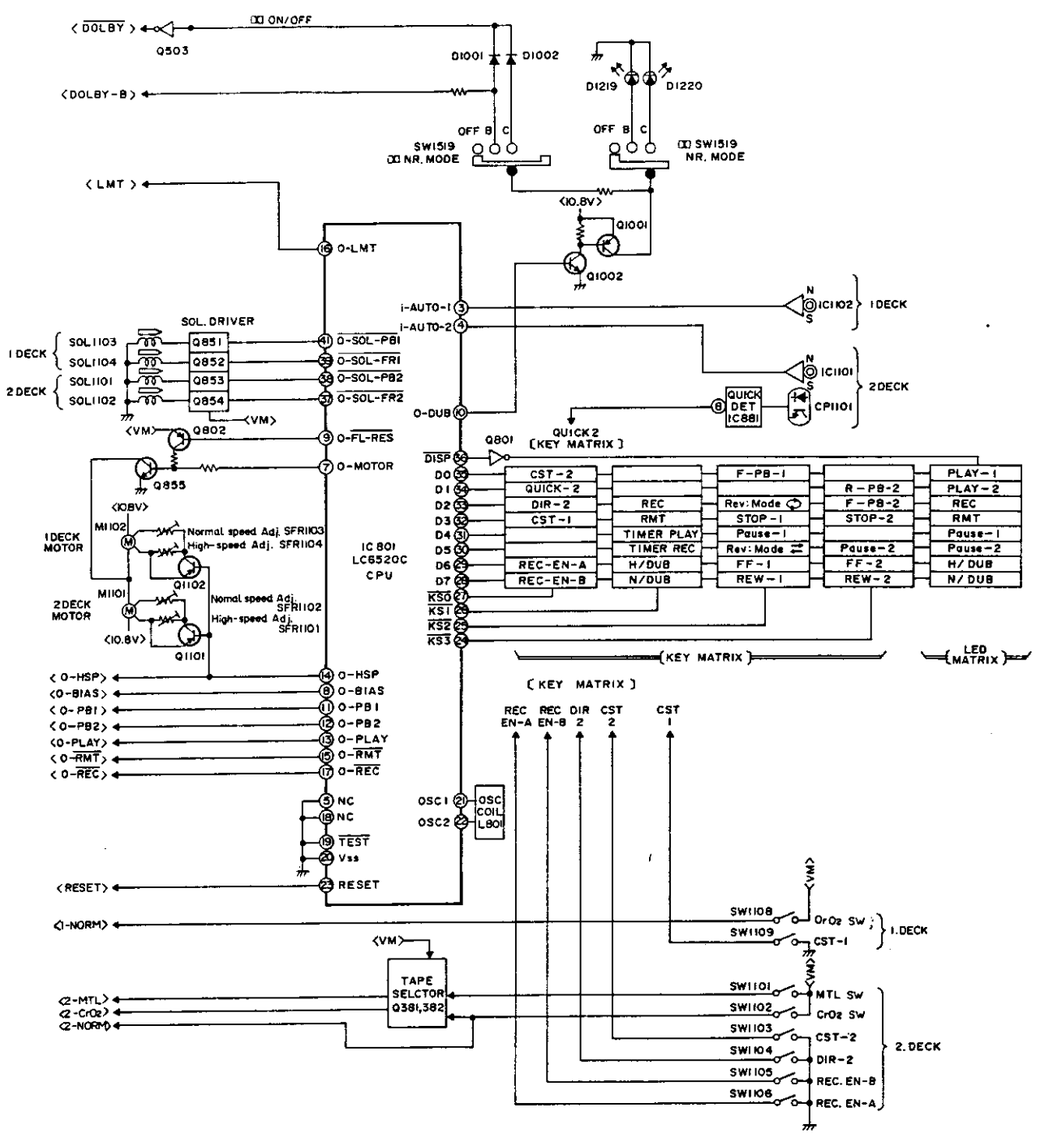
K SENSOR P C B

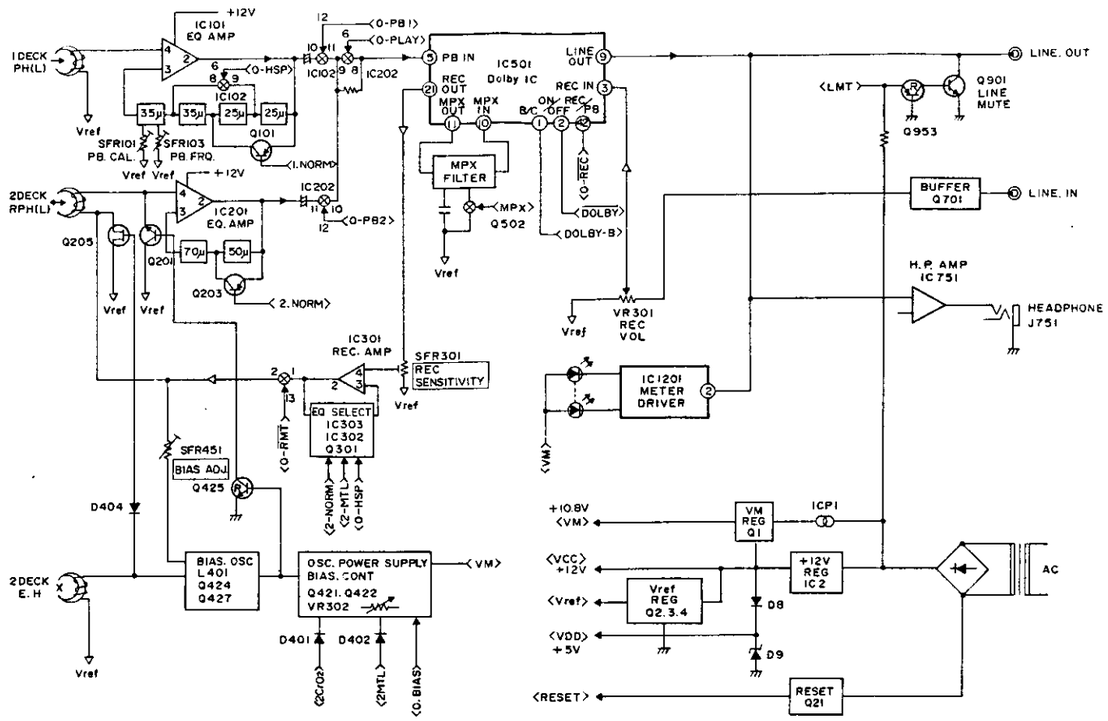
G VL P C B





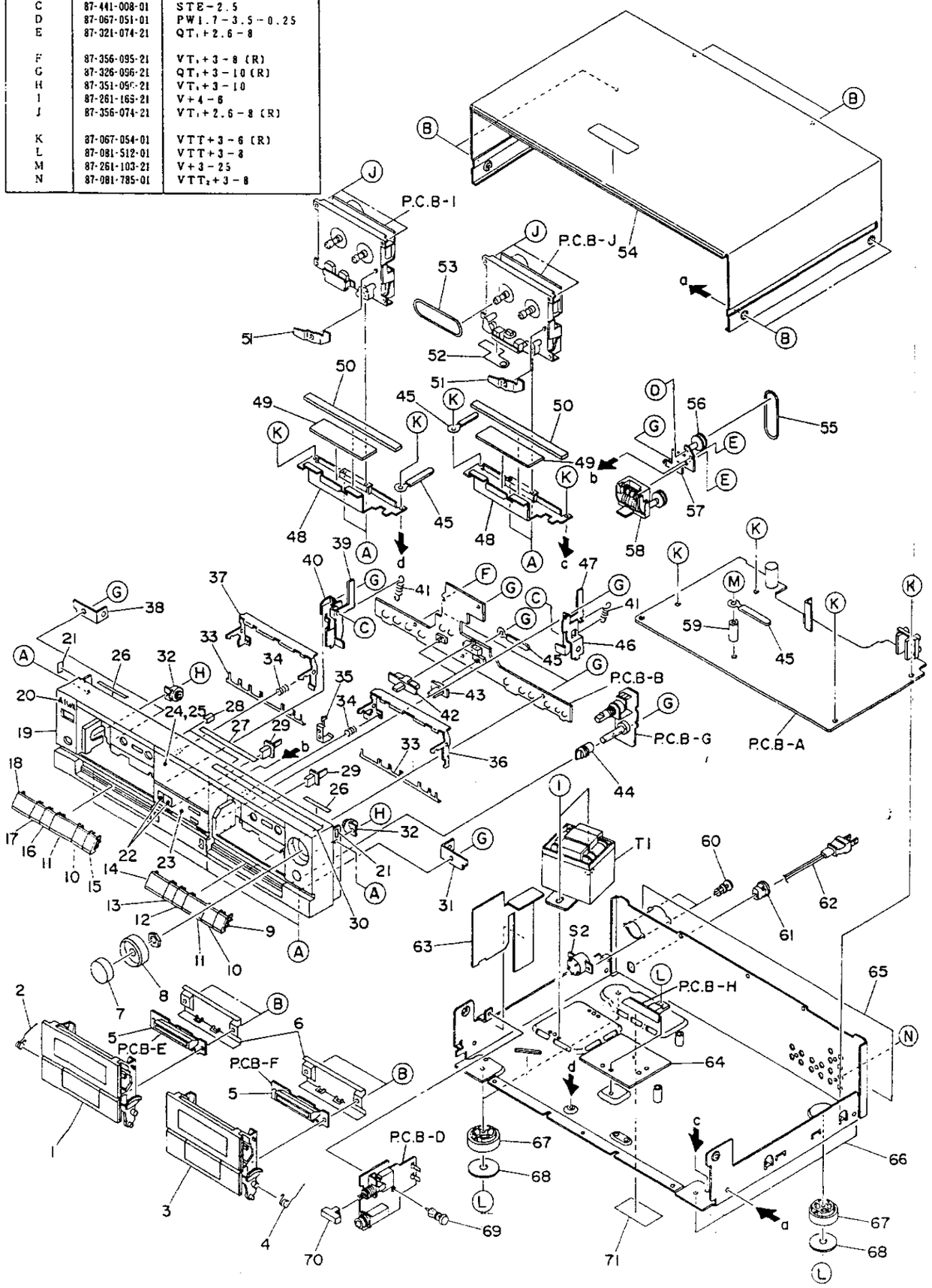
BLOCK DIAGRAM





EXPLODED VIEW—1

REF.NO.	PART NO.	DESCRIPTION
A	87-081-531-01	QTT+3-6
B	87-347-095-21	UT,+3-8 (B)
C	87-441-008-01	STE-2.5
D	87-067-051-01	PW1.7-3.5-0.25
E	87-321-074-21	QT,+2.6-8
F	87-356-095-21	VT,+3-8 (R)
G	87-326-096-21	QT,+3-10 (R)
H	87-351-096-21	VT,+3-10
I	87-261-165-21	V+4-6
J	87-356-074-21	VT,+2.6-8 (R)
K	87-067-054-01	VTT+3-6 (R)
L	87-081-512-01	VTT+3-8
M	87-261-103-21	V+3-25
N	87-081-785-01	VTT,+3-8

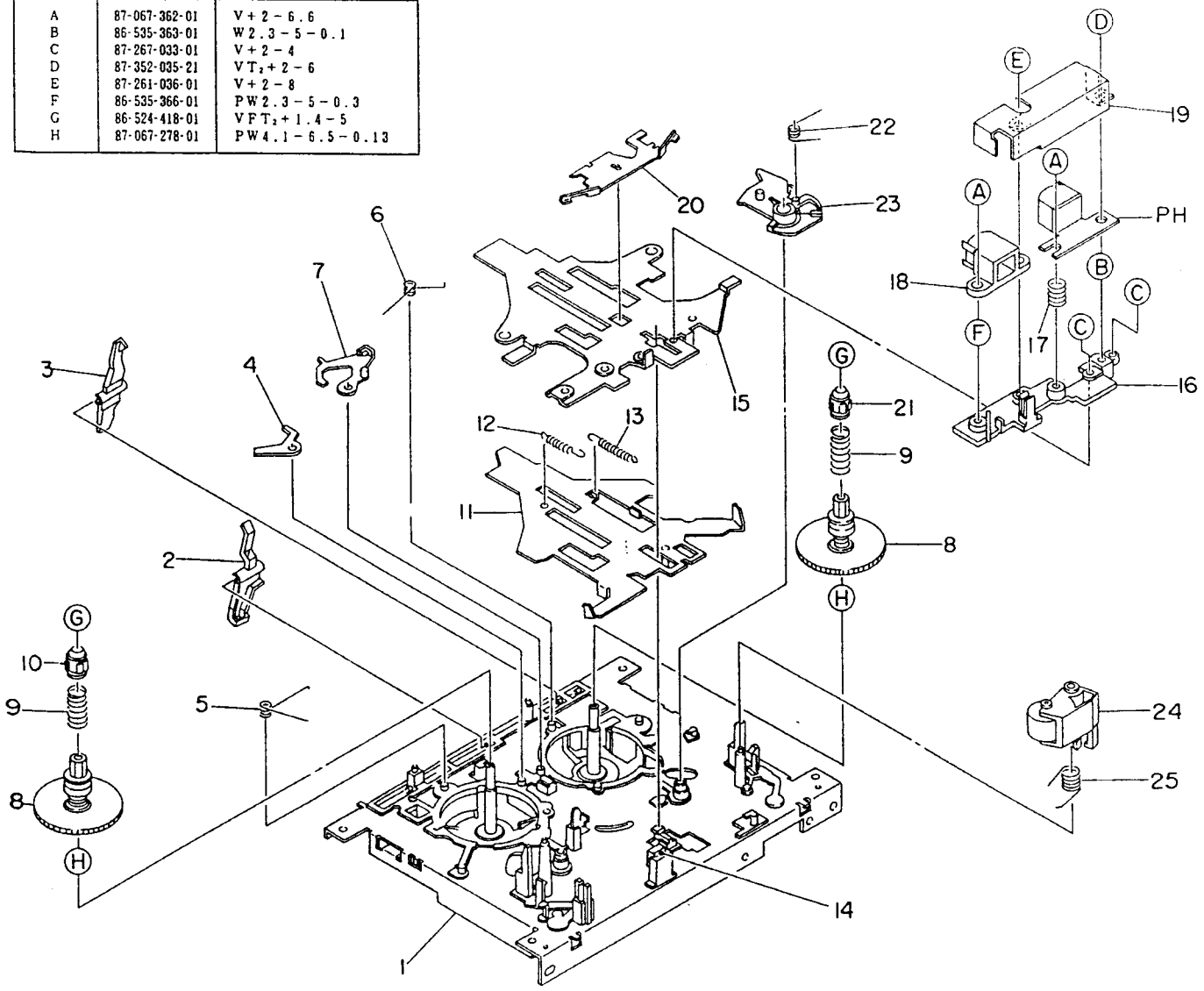


MECHANICAL PARTS LIST

PART NO. CHANGED TO	REF. NO.	PART NO.	ORDER	DESCRIPTION	COMMON MODEL	Q'TY
	1-1	09-047-278-010		CASSETTE BOX 1 ASSY(EXCEPT U)	*	1
	1-1	09-047-280-010		CASSETTE BOX 1 ASSY(U ONLY)	*	1
	1-2	*82-221-223-110		T-SPRING,EJECT 1		1
	1-3	09-047-279-010		CASSETTE BOX 2 ASSY(EXCEPT U)	*	1
	1-3	09-047-281-010		CASSETTE BOX 2 ASSY(U ONLY)	*	1
	1-4	*82-221-224-110		T-SPRING,EJECT 2		1
	1-5	*82-221-204-010		GUIDE,LED		2
	1-6	*82-221-033-010		PLATE,BOX REAR		2
	1-7	82-221-012-010		KNOB,VOLUME R		1
	1-8	82-221-011-010		KNOB,VOLUME L		1
	1-9	*82-221-039-010		PUSH-KEY ASSY,MUTE		1
	1-10	*82-221-038-010		PUSH-KEY ASSY,PAUSE		2
	1-11	*82-221-019-010		PUSH-KEY,STOP		2
	1-12	*82-224-014-010		PUSH-KEY,FF2	*	1
	1-13	*82-224-013-010		PUSH-KEY,REW2	*	1
	1-14	*82-221-017-010		PUSH-KEY,REC		1
	1-15	*82-221-024-010		PUSH-KEY,DUMMY B		1
	1-16	*82-224-012-010		PUSH-KEY,FF	*	1
	1-17	*82-224-011-010		PUSH-KEY,REW	*	1
	1-18	*82-221-023-010		PUSH-KEY,DUMMY A		1
	1-19	*82-224-001-110		CABINET,FRONT	*	1
	1-20	84-721-024-010		BADGE,AIWA	XC-001	1
	1-21	*81-544-235-010		SHEET 14-6-0.3	CS-W550	2
	1-22	*82-221-032-010		PUSH-KEY ASSY,DUBB		1
	1-23	*82-224-002-010		PANEL,CONTROL L	*	1
	1-24	*82-224-005-010		WINDOW,IND(REAR)	*	1
	1-25	*82-224-007-010		WINDOW,INDICATOR	*	1
	1-26	*82-221-232-010		FELT 4-30		2
	1-27	*82-224-208-010		SHEET 4-100	*	1
	1-28	*81-525-222-010		G CUSHION 6X3X2	HS-J300	2
	1-29	*82-221-029-010		PUSH-BUTTON,EJECT		2
	1-30	*82-174-045-110		BIAS EXPLANATION SHEET EX		1
	1-31	*82-221-209-010		HOLDER,C-BOX 2		1
	1-32	*87-063-143-010		OIL-DAMP 75		2
	1-33	*82-221-207-010		P-SPRING,PUSH-KEY		2
	1-34	*82-217-211-110		C-SPRING,LEVER EJECT	AD-WX909	2
	1-35	*82-221-206-010		EARTH PLATE,CENTER		1
	1-36	*82-221-222-010		PLATE,EJECT(3)-2		1
	1-37	*82-221-221-110		PLATE,EJECT(3)-1		1
	1-38	*82-221-208-010		HOLDER,C-BOX 1		1
	1-39	*82-221-210-010		LEVER,EJECT 1		1
	1-40	*82-221-216-010		HOLDER ASSY,EJECT 1		1
	1-41	*84-123-293-010		E-SPRING,M		2
	1-42	*82-221-014-010		KNOB,DOLBY		1
	1-43	*82-221-013-010		KNOB,REV MODE		2
	1-44	*84-424-008-010		KNOB,VOLUME		1
	1-45	---		WIRE BINDER		4
	1-46	*82-221-215-110		HOLDER ASSY,EJECT 2		1
	1-47	*82-221-211-010		LEVER,EJECT 2		1
	1-48	*82-221-214-010		HOLDER,MECHANISM		2
	1-49	*82-221-050-010		DAMPER,MECHANISM		2
	1-50	*82-217-248-010		DAMPER,MECHANISM 2	AD-WX909	2
	1-51	*82-217-213-110		LEVER,EJECT BLOCKING L	AD-WX909	2
	1-52	*82-221-229-010		PLATE,WIRE		1
	1-53	82-463-219-010		BELT,COUNTER		1
	1-54	*82-217-041-010		CABINET,STEEL(EXCEPT U)	AD-WX909	1
	1-54	*82-224-052-010		CABINET,STEEL 3(U ONLY)	*	1
	1-55	82-422-279-010		BELT B,COUNTER		1
	1-56	*82-146-202-010		RELAY PULLEY	FX-W60	1
	1-57	*82-224-203-010		HOLDER ASSY,COUNTER	*	1
	1-58	*87-040-193-010		COUNTER		1
	1-59	*82-221-230-010		COLLAR 18,LED		1
	1-60	*87-085-090-010		NYLON RIVET 3-6.5(H ONLY)		2
	1-61	*87-085-184-010		AC CORD BUSHING(H ONLY)		1
	1-61	*87-085-189-010		AC CORD BUSHING(U,C ONLY)		1
	1-61	*87-085-185-010		AC CORD BUSHING(E,K,G,Z ONLY)		1
	1-62	*87-034-732-010		AC CORD ASSY(H ONLY)		1
	1-62	*87-034-731-010		AC CORD ASSY(U,C ONLY)		1
	1-62	*87-034-736-010		AC CORD ASSY(E,Z ONLY)		1
	1-62	*87-034-734-010		AC CORD ASSY(K ONLY)		1
	1-62	*87-034-735-010		AC CORD ASSY(G ONLY)		1
	1-63	*82-221-225-010		COVER,TERMINAL		1
	1-64	---		HEAT SINK		1
	1-65	---		NAME PLATE,JACK		1
	1-66	*82-221-201-010		CHASSIS ASSY,AMP.(H ONLY)		1
	1-66	*82-221-217-010		CHASSIS ASSY,AMP.(EXCEPT H)		1
	1-67	*81-715-051-010		FOOT(4D)		4
	1-68	*82-217-069-010		FELT φ33.5	AD-WX909	4
	1-69	*87-084-086-010		NYLON RIVET 3.5-4.5		1
	1-70	84-721-023-010		PUSH-BUTTON,POWER	XC-001	1
	1-71	*82-221-227-010		COVER,HALL		1

EXPLODED VIEW—2 (DECK 1)

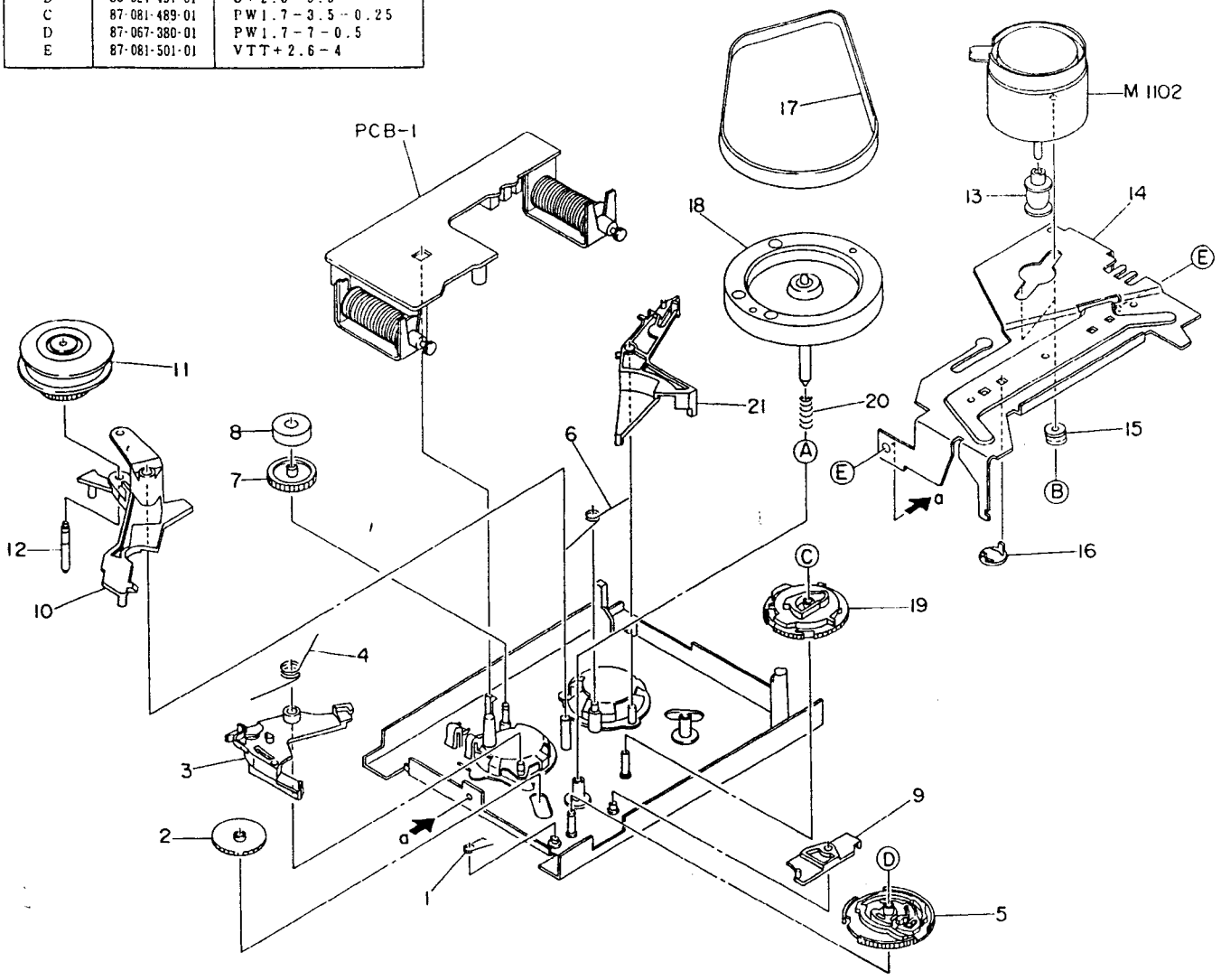
REF.NO.	PART NO.	DESCRIPTION
A	87-067-362-01	V+2-6.6
B	86-535-363-01	W2.3-5-0.1
C	87-267-033-01	V+2-4
D	87-352-035-21	VT,+2-6
E	87-261-036-01	V+2-8
F	86-535-366-01	PW2.3-5-0.3
G	86-524-418-01	VFT,+1.4-5
H	87-067-278-01	PW4.1-6.5-0.13



PART NO. CHANGED TO	REF. NO.	PART NO.	ORDER	DESCRIPTION	COMMON MODEL	Q, TY
	2-1	*86-535-339-110		OUTSERT CHASSIS ASSY		1
	2-2	*86-535-249-110		LEVER,CASSETTE DETECTION		1
	2-3	*86-535-254-010		LEVER,CHROME		1
	2-4	*86-535-252-110		LEVER,BRAKE R		1
	2-5	*86-535-358-010		T-SPRING,BRAKE R		1
	2-6	*86-535-276-010		T-SPRING,BRAKE		1
	2-7	*86-535-251-010		LEVER,BRAKE F		1
	2-8	*86-535-293-010		C-SPRING,REEL PLATFORM		2
	2-9	86-535-240-010		REEL PLATFORM R ASSY		2
	2-10	*86-524-218-110		STOPPER S,REEL PLATFORM		1
	2-11	*86-535-215-110		SLIDE PLATE ASSY		1
	2-12	*86-535-285-010		E-SPRING,SLIDE		1
	2-13	*86-535-286-010		E-SPRING,ACTUATING		1
	2-14	*86-535-353-010		FELT 5-4-2		1
	2-15	*86-535-311-010		ACTUATING CHASSIS S		1
	2-16	*86-535-314-010		BASE,HEAD		1
	2-17	*86-535-359-010		C-SPRING,AZIMUTH S		1
	2-18	*82-174-222-110		EH DUMMY		1
	2-19	*86-535-362-010		PLATE,HEAD SHIELD		1
	2-20	*86-535-289-010		P-SPRING,ACTUATING		1
	2-21	*86-524-233-110		STOPPER T,REEL PLATFORM		1
	2-22	*86-535-282-010		T-SPRING,PLAY GEAR F		1
	2-23	*86-535-238-110		LEVER,PLAY F		1
	2-24	86-535-226-110		PINCH LEVER F ASSY		1
	2-25	*86-535-312-010		T-SPRING,PINCH S		1

EXPLODED VIEW—3 (DECK 1)

REF.NO.	PART NO.	DESCRIPTION
A	87-067-332-01	PW2.8-4.7-0.13
B	86-524-457-01	U+2.6-5.5
C	87-081-489-01	PW1.7-3.5-0.25
D	87-067-380-01	PW1.7-7-0.5
E	87-081-501-01	VTT+2.6-4



PART NO. CHANGED TO	REF. NO.	PART NO.	ORDER	DESCRIPTION	COMMON MODEL	Q, TY
	3-1	★86-535-291-010		T-SPRING,FR CAM		1
	3-2	86-535-259-110		GEAR,PLAY		1
	3-3	★86-535-230-110		LEVER,TRIGGER FR		1
	3-4	★86-535-278-010		T-SPRING,FR		1
	3-5	★86-535-261-210		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(4P)		1
	3-9	★86-535-223-310		LEVER,PAUSE		1
	3-10	★86-535-233-010		LEVER,FR		1
	3-11	★86-535-301-010		SLIPDISC ASSY		1
	3-12	★86-535-235-010		SHAFT,FR		1
	3-13	★86-535-315-010		PULLEY,MOTOR		1
	3-14	---		HOLDER,MOTOR		1
	3-15	★86-513-441-110		COLLAR		2
	3-16	★86-535-255-010		FLYWHEEL BEARING		1
	3-17	86-535-316-110		BELT S(A)		1
	3-18	86-535-264-010		FLYWHEEL F ASSY		1
	3-19	★86-535-260-310		CAM,MAIN		1
	3-20	★86-535-288-010		C-SPRING,FLYWHEEL		1
	3-21	★86-535-231-210		LEVER,TRIGGER PLAY		1

■DECK 2 (X-3R4)

See the X-3 Mechanism (Supplement of Service Manual) for the exploded views.
The following parts have been changed for this model.

ALTERATION PARTS LIST

PART NO. CHANGED TO	REF. NO.	PART NO.	ORDER	DESCRIPTION	COMMON MODEL	Q'TY
	1-20	*86-535-351-110		ACTUATING CHASSIS PH ASSY		1
	1-23	*86-535-356-010		HEAD HOUSING PH ASSY		1
	1-44	*86-535-353-010		FELT 5-4-2		1
	2-17	86-535-394-010		BELT		1

ADDITIONAL PARTS LIST

PART NO. CHANGED TO	REF. NO.	PART NO.	ORDER	DESCRIPTION	COMMON MODEL	Q'TY
	1-45	*86-535-358-010		T-SPRING,BRAKE R		1

The following REF.NOS. are not used in this model.
1-4, 2-9

EXPLODED VIEW