

TC-H4900

SERVICE MANUAL

*AEP Model
UK Model
E Model
Australian Model*



TC-H4900 is the Stereo cassette deck section in MHC-4900/E80X

Model Name Using Similer Mechanism	TC-H7900	
Tape Transport Mechanism Type	DECK-A	TCM-190RA12AL
	DECK-B	TCM-190RB12AL

SPECIFICATIONS


Recording system
4-track 2-channel stereo

Frequency response
(DOLBY NR OFF)
40 - 13,000 Hz (± 3 dB),
using Sony TYPE I cassette
40 - 14,000 Hz (± 3 dB),
using Sony TYPE II cassette
40 - 15,000 Hz (± 3 dB), using
Sony TYPE IV cassette

Wow and flutter
0.1% WRMS $\pm 0.3\%$ (DIN)

Dimensions
Approx. 225 x 125 x 230 mm (w/h/d)
(8 7/8 x 5 x 9 1/8 inches)

Mass: Approx. 2.9 kg
(6 lb 7 oz)

- * 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.

Design and specifications subject to change without notice.

STEREO CASSETTE DECK
SONY[®]

SERVICE NOTE

- **Power Supply Used in Servicing**

This unit does not have its own power supply. As it works on the power supplied from the amplifier (TA-H4900) and equalizer (SEQ-H4900) used for this series, connect this amplifier when servicing the unit (conduction repair, etc.).

Notes on chip component replacement

- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.

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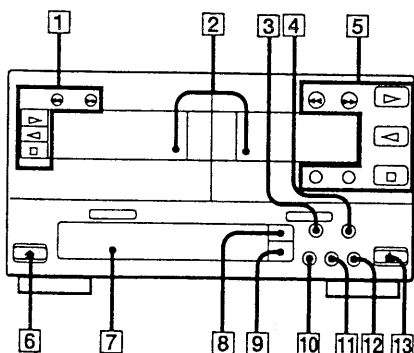
SAFETY-RELATED COMPONENT WARNING !!

COMPONENTS IDENTIFIED BY MARK \triangle OR DOTTED LINE WITH MARK \triangle ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

SECTION 1 GENERAL

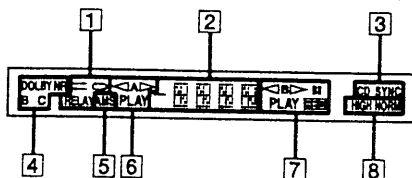
This section is extracted from instruction manual.

Front panel



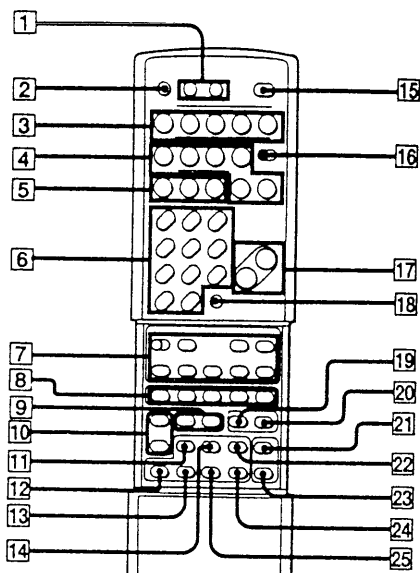
- 1 Tape operating buttons (for deck A)
 - ▷ (front side play) (14)
 - ◁ (reverse side play) (14)
 - (stop) (14)
 - ▶▶ (fast rightward and AMS**) (14)
 - ◀◀ (fast leftward and AMS**) (14)
- 2 Cassette compartments (14)
- 3 CD SYNCHRO button (15)
- 4 DUBBING MODE button (19)
- 5 Tape operating buttons (for deck B)
 - ▷ (front side play) (14)
 - ◁ (reverse side play) (14)
 - (stop) (14)
 - ▶▶ (fast rightward and AMS**) (14)
 - ◀◀ (fast leftward and AMS**) (14)
 - REC (recording) (16)
 - || PAUSE (14)
- **AMS: Automatic Music Sensor (14)
- 6 button (for deck A) (14)
- 7 Display window (16)
- 8 COUNTER A/B button (15)
- 9 RESET button (15)
- 10 DOLBY NR button (15)
- 11 DIRECTION MODE button (14)
- 12 MUTE button (16)
- 13 button (for deck B) (14)

Display window



- 1 Direction mode indication (14)
- 2 Tape counter indication (16)
- 3 CD SYNC (synchro) indication (15)
- 4 Dolby NR indication (15)
- 5 AMS mode indication (14)
- 6 Deck A status indication (16)
- 7 Deck B status indication (16)
- 8 Dubbing mode indication (19)

Remote commander (RM-S49, RM-S49E)

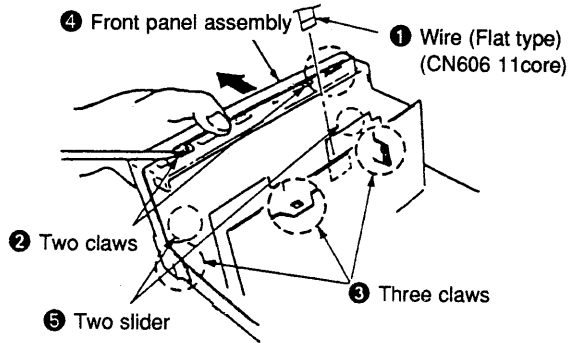
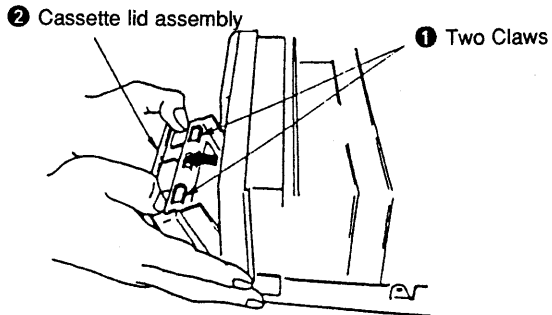


- 1 TAPE DECK A/B buttons (14)
- 2 SLEEP button (23)
- 3 CD/MD operating buttons (7)
- 4 Cassette deck operating buttons (14)
- 5 Tuner operating buttons (10)
- 6 CD/Tuner/numeric buttons (7, 11)
- 7 VCR operating buttons (26)
- 8 TV operating buttons (26)
- 9 MENU 1, 2 button (15, 20)
- 10 FUNCTION </> buttons (16, 25, 26)
- 11 CONTINUE button (8)
- 12 CHECK button (9)
- 13 CLEAR button (9)
- 14 SHUFFLE button (8)
- 15 SYSTEM POWER switch (7)
- 16 CD/MD switch (7)
- 17 VOLUME +/- buttons (7, 20)
- 18 MUTING button (20)
- 19 P.FILE button (22)
- 20 DIRECT button (15, 21)
- 21 RDS EON button (22)
(AEP, UK, G model) (RM-S49)
- 22 REC button (22) (E, AUS model) (RM-S49E)
- 23 PROGRAM button (8)
- 24 DISPLAY button (21)
(AEP, UK, G model) (RM-S49)
- 25 REC MUTE button (21) (E, AUS model) (RM-S49E)
- 26 TIME button (8)
- 27 REPEAT button (9)

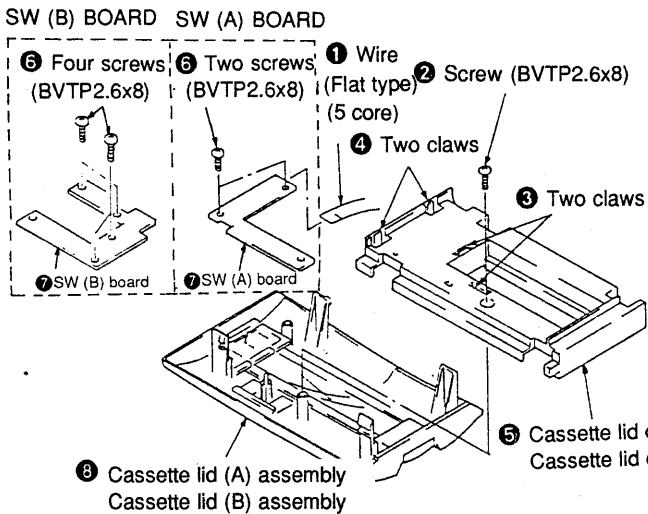
SECTION 2 DISASSEMBLY

Note : Follow the disassembly procedure in numerical order given.

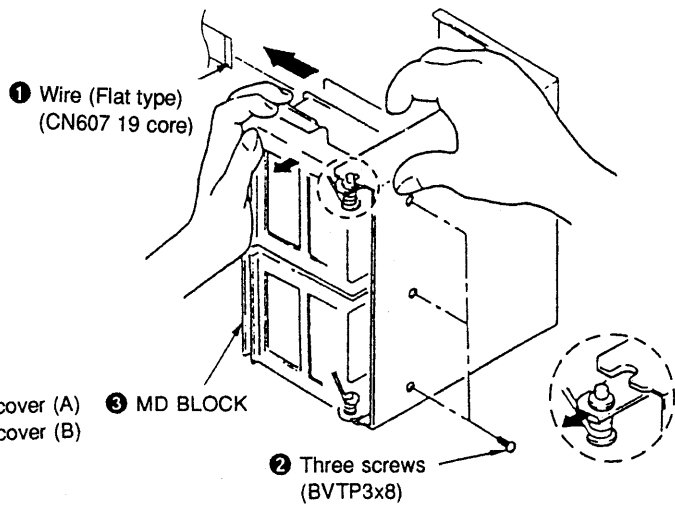
[FRONT PANEL ASSEMBLY]



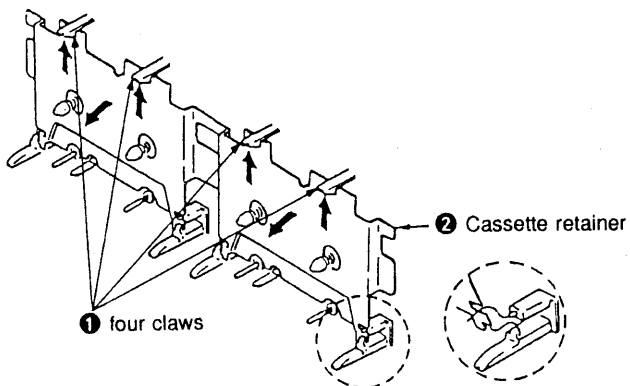
[SW (A), (B) BOARD]



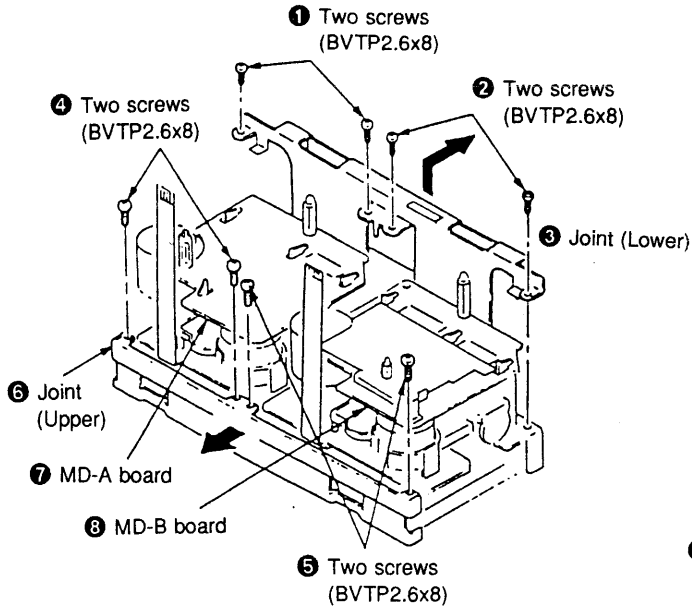
[MD BLOCK]



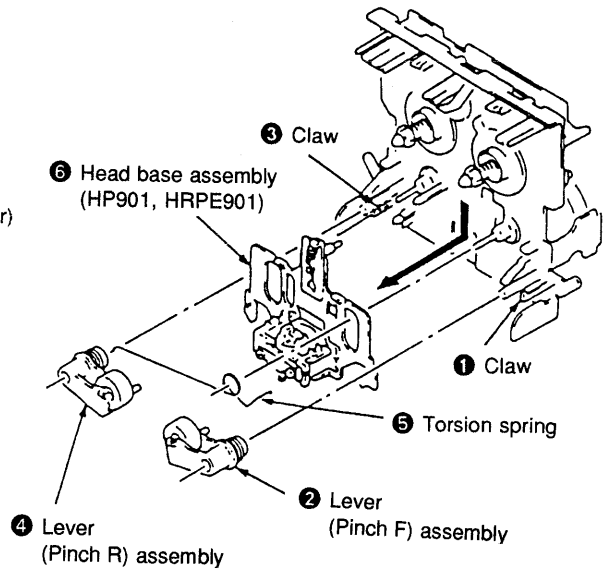
[CASSETTE RETAINER]



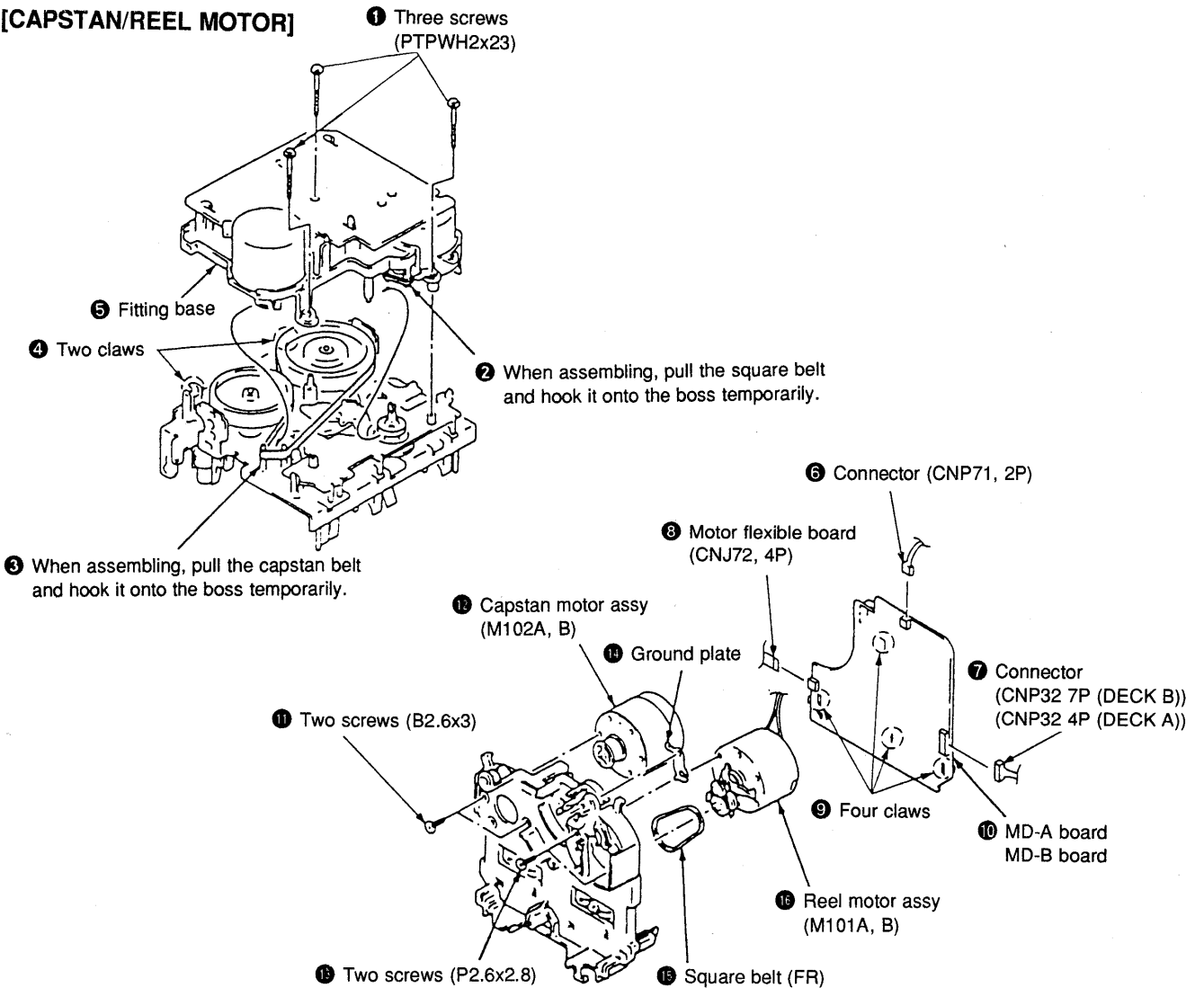
[MECHANISM DECK]



[HEAD BASE ASSEMBLY]



[CAPSTAN/REEL MOTOR]



SECTION 3 MECHANICAL ADJUSTMENTS

PRECAUTION

1. Clean the following parts with a denatured-alcohol-moistened swab :

record/playback head	pinch roller
erase head	rubber belt
capstan	idler
2. Demagnetize the record/playback head with a head demagnetizer.
3. Do not use a magnetized screwdriver for the adjustment.
4. After the adjustment, apply suitable locking compound to the parts adjusted.
5. The adjustments should be performed with the rated power supply voltage unless otherwise noted.

• Torque Measurement

Torque	Torque meter	Meter reading
FWD	CQ-102C	30 to 65 g • cm (0.42 — 0.90 oz • inch)
FWD Back tension	CQ-102RC	1 to 6 g • cm (0.14 to 0.08 oz • inch)
FF/ REW	CQ-201B	70 to 120 g • cm (0.98 to 1.67 oz • inch)

SECTION 4 ELECTRICAL ADJUSTMENTS

1. The adjustment should be performed in the publication. (Be sure to make playback adjustment at first.)
2. The adjustment and measurement should be performed for both L-CH and R-CH.
 - Switch position
DOLBY NR switch : OFF

• Test Tape

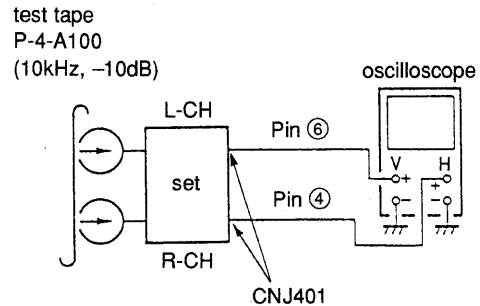
Tape	Contents	Used for
P-4-A100	10kHz , -10dB	Head Azimuth Adjustment
P-4-L300	315Hz, 0dB	Level Adjustment
WS-48B	3kHz, 0dB	Tape Speed Adjustment

Record/ Playback Head Azimuth Adjustment

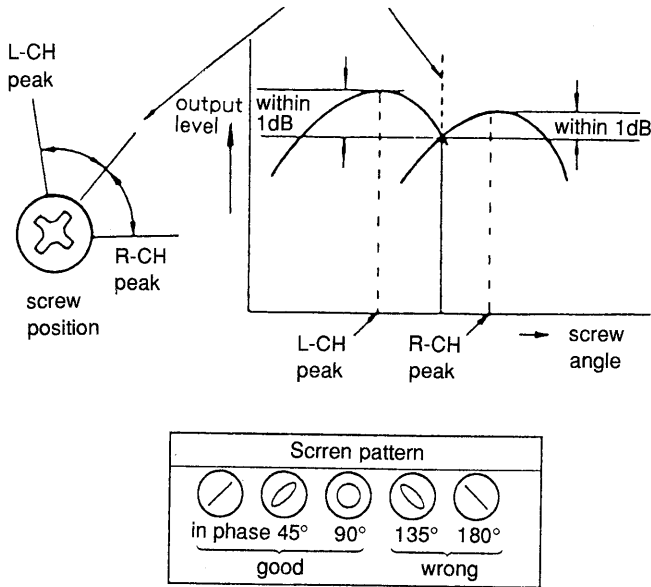
DECK A **DECK B**

Procedure :

1. Forward Playback Mode

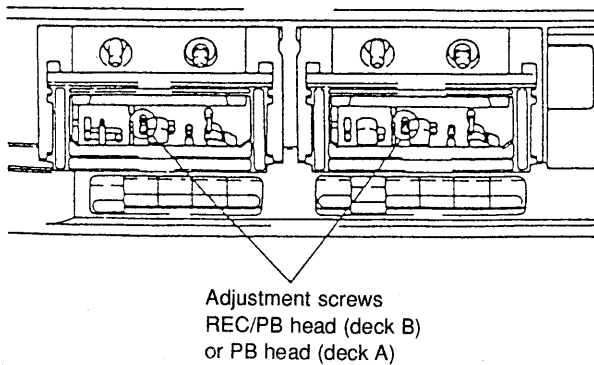


- Turn the adjustment screw for the maximum output levels. If these levels do not match, turn the adjustment screw until both of output levels match together within 1 dB.



- After the adjustments, apply suitable locking compound to the parts adjusted.

Adjustment Location :

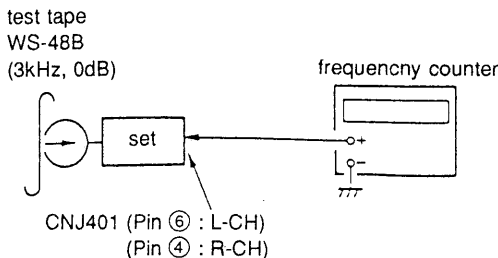


Tape Speed Adjustment DECK A DECK B

Procedure :

- Perform high speed adjustment before normal speed adjustment.

Mode : playback



(High Speed Adjustment)

- Short-circuit TP601 (Main board) with the power off.
- Turn on the power, press the DUB switch, and set high speed playback.
- Set deck A into the FWD mode.
- Adjust deck A: RV72A (H) so that the reading of the frequency counter becomes the specified value.
- Stop deck A.
- Carry out steps 2 to 5 for deck B in the same way.
- After adjusting, short-circuit TP601.

(Normal Speed Adjustment)

- Set the FWD playback mode.
- Adjust deck A: RV71A (L), deck B: RV71B (L) so that the reading of the frequency counter becomes the adjustment value.

Adjustment Values:

High Speed	6000 ± 30Hz
Normal Speed	3000 ± 15Hz

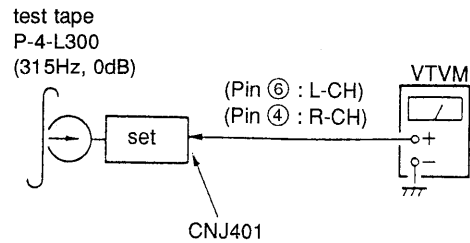
Adjust so that the difference between tape top and tape end is within 3%. Adjust so that the deviation between the speeds of deck A and deck B at the tape top is within 1.5%.

Adjustment Location : MD-A and MD-B boards.

Play back Level Adjustment DECK A DECK B

Procedure :

Mode : playback



Deck A is RV11A (L-CH) and RV21A (R-CH), deck B is RV11B (L-CH) and RV21B (R-CH) so that adjustment within adjustment level as follows.

Adjustment Level :

CNJ401 PB level : -7.7dB ± 0.5dB (0.30 to 0.34V)
Level Difference between Channels : within 0.5dB

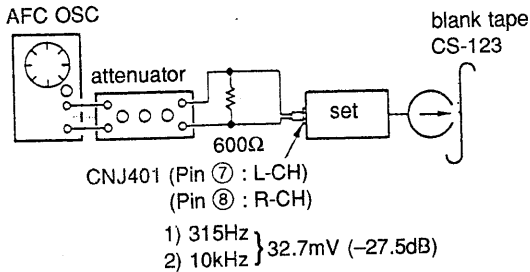
Confirm the level does not change in playback mode while changing the mode from playback to stop several times.

Adjustment Location : MD-A and MD-B boards

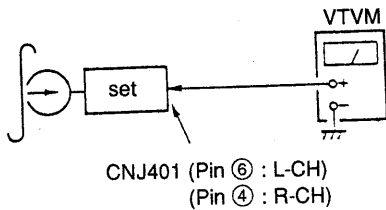
Record Bias Adjustment **DECK B**

Procedure :

1. Mode : record



2. Mode : Playback



Confirm playback the signal recorded in step 1 become adjustment level as follows.

If these levels do not adjustment level, adjustment the RV81 (L-CH) and RV91 (R-CH) to repeat step 1 and 2.

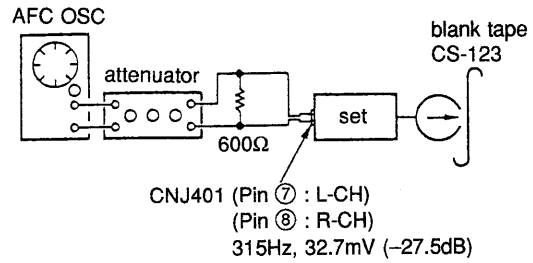
Adjustment Level : Playback output of 10kHz to playback output of 315Hz : $\pm 0.5\text{dB}$.

Adjustment Location : MD-B board

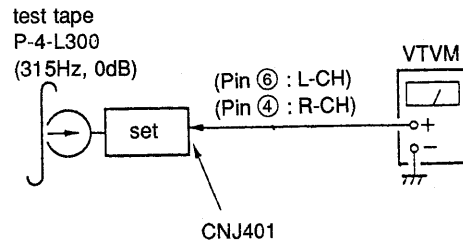
Record Level Adjustment **DECK B**

Procedure :

1. Mode : record



2. Mode : Playback



Confirm playback the signal recorded in step 1 become adjustment level as follows.

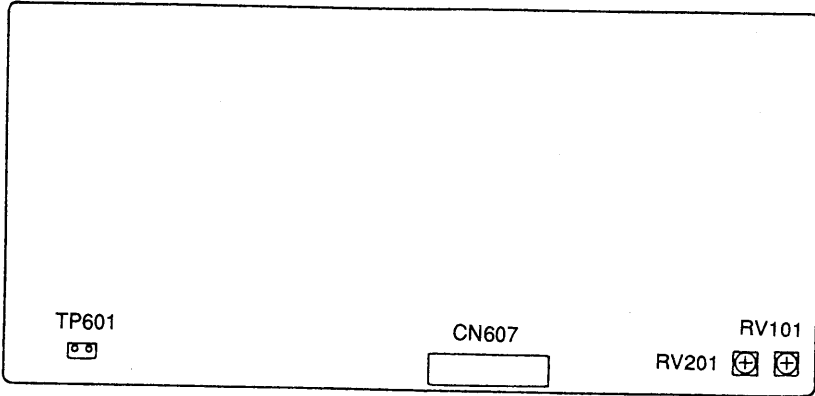
If these levels do not adjustment level, adjustment the RV101 (L-CH) and RV201 (R-CH) to repeat step 1 and 2.

Adjustment Level :
CNJ401 PB level : $-27.5\text{dB} \pm 0.5\text{dB}$ (31 to 35mV).

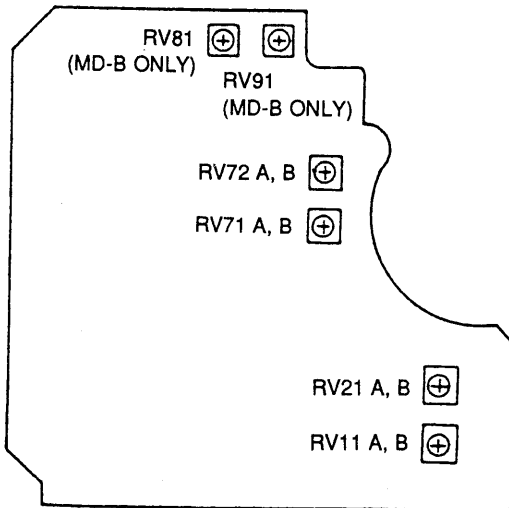
Adjustment Location : MAIN board

Adjustment Location :

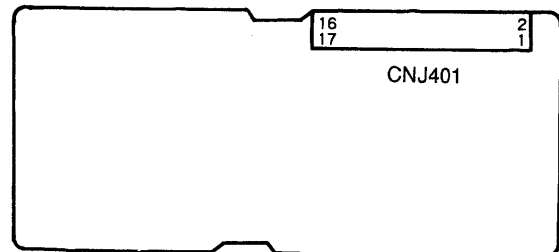
[MAIN BOARD] — Component Side —



[MD-A, MD-B BOARD] — Component Side —

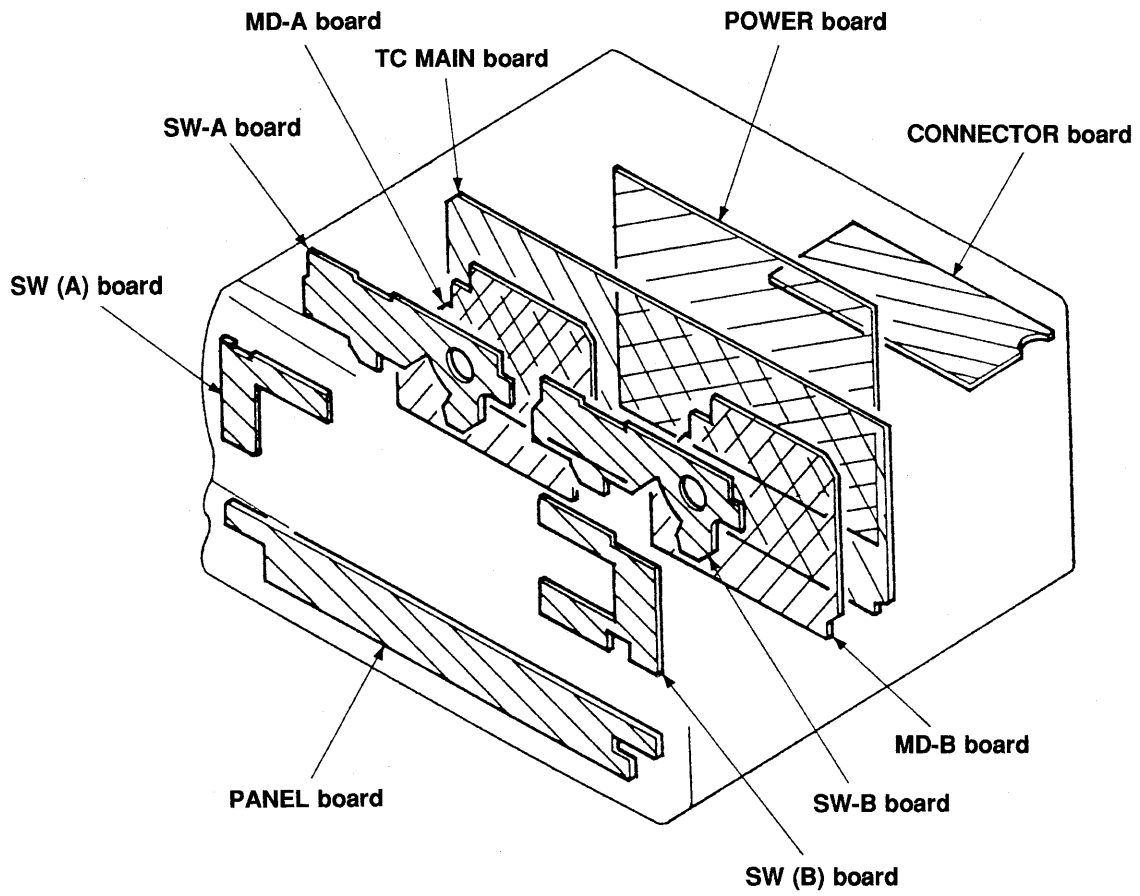


[CONNECTOR BOARD] — Component Side —



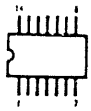
**SECTION 5
DIAGRAMS**

5-1. CIRCUIT BOARDS LOCATION



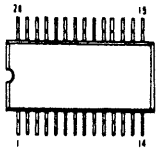
5-2. SEMICONDUCTOR LEAD LAYOUTS

BA3308F
CD4066BCM



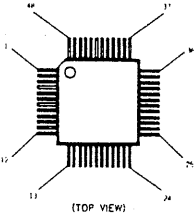
(TOP VIEW)

CXA1331M



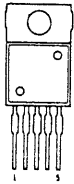
(TOP VIEW)

CXA1599Q

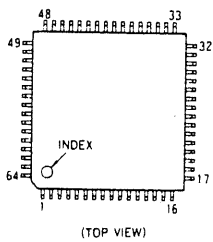


(TOP VIEW)

MC14052BF



M38122-M2-060FP

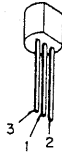


(TOP VIEW)

M5230L-A



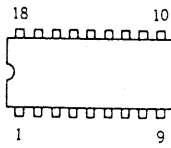
PST600E-T



TA8242AK

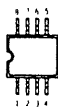


μPC1297CA



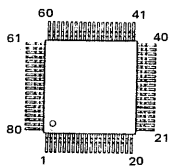
(Top view)

μPC4570G2



(TOP VIEW)

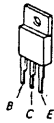
μPC78052-020



2SA1162-G
2SA1344
2SA1602-F
2SA4154-F L6
2SC3395
2SC3398
DTA144EK



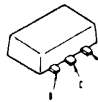
2SB1094-LK
2SD2012



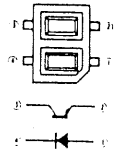
2SB1116-K



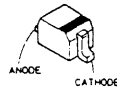
2SD1622-S
2SD999-CLCK



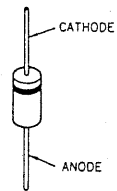
NJL5165K-B(H1)



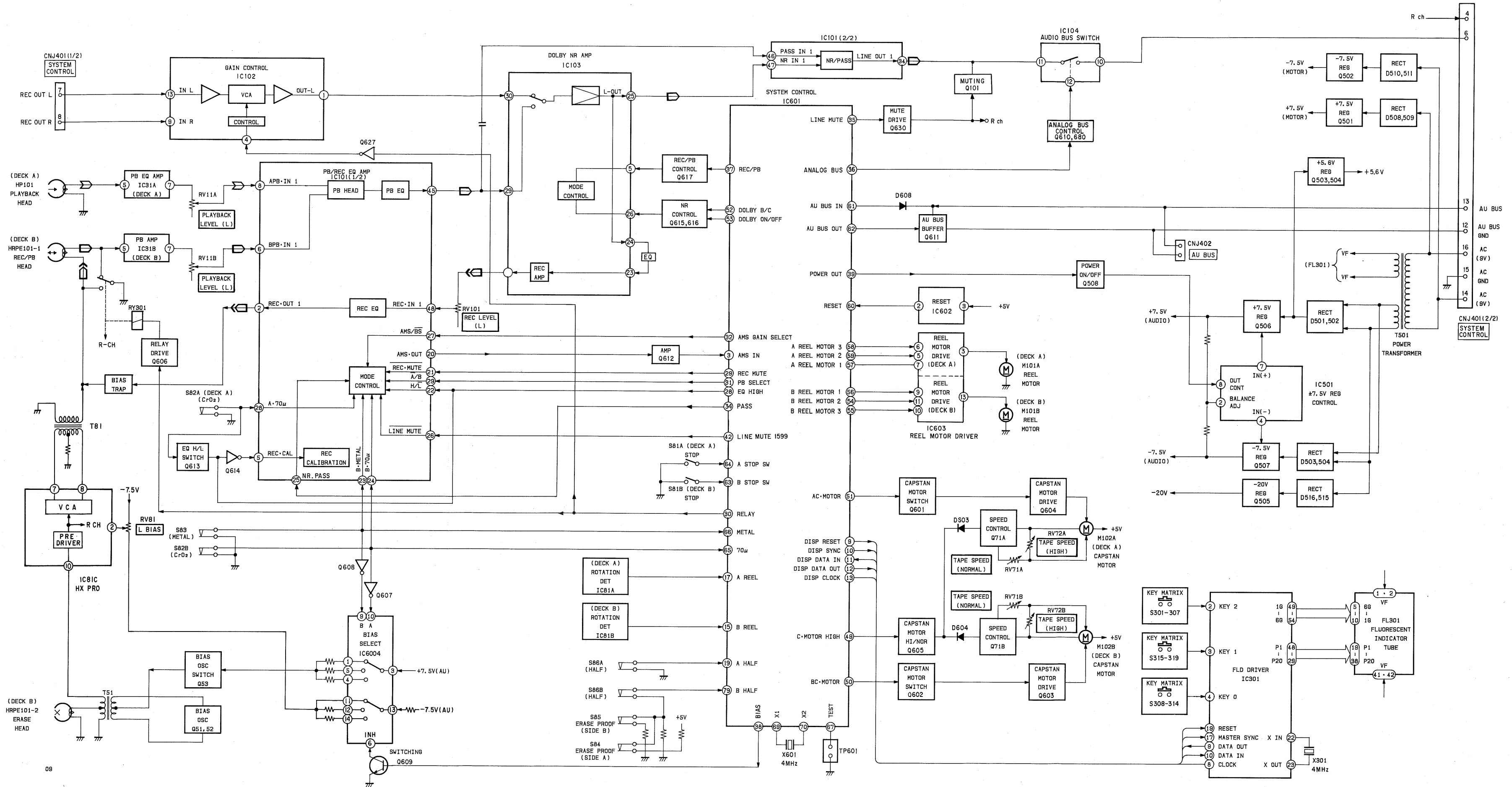
DTZ6.8B
MA110
MA8062
MA8082-M
MA8091
MA8180
O2DZ2.0
1SS352



10E2



5-3. BLOCK DIAGRAM

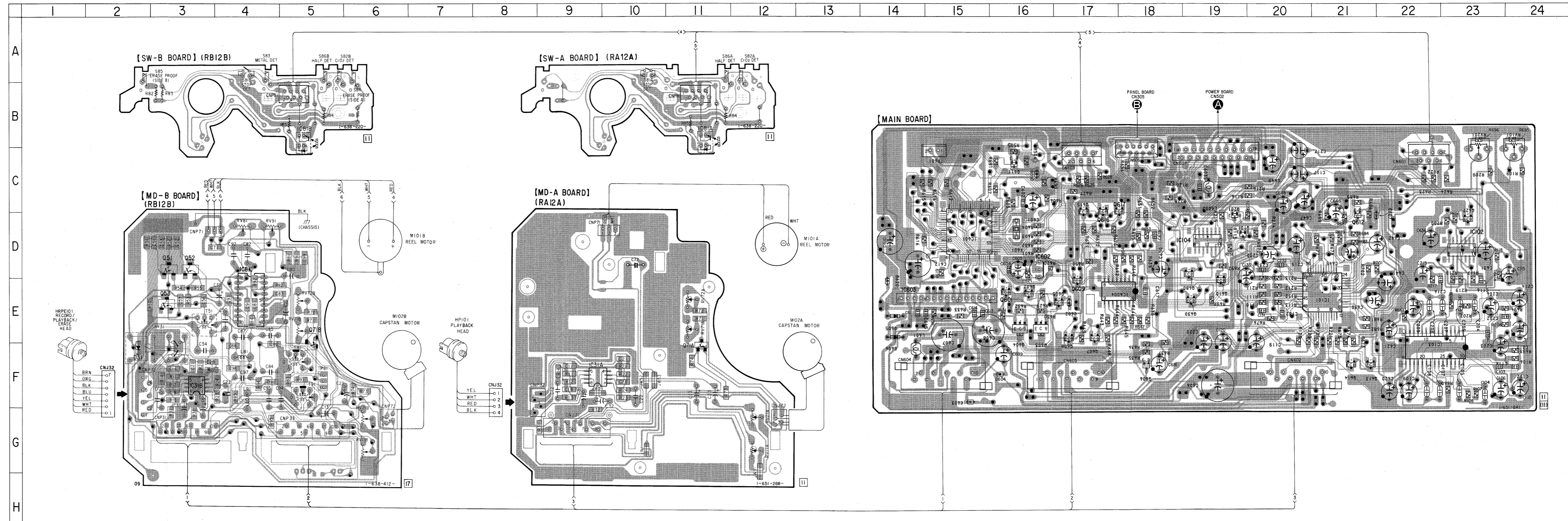


5-4. PRINTED WIRING BOARDS — MAIN SECTION —
 • See page 10 for Circuit Boards Location.
 • See page 11 for Semiconductor Lead Layouts.

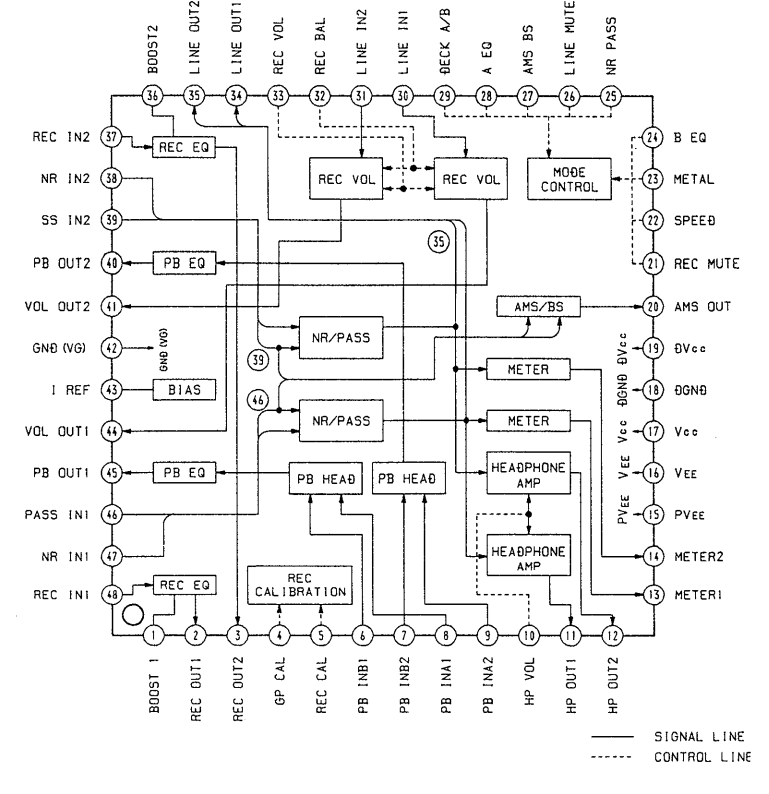
• Semiconductor Location

Ref. No.	Location
D31	F-2
D602	E-17
D603	F-15
D604	F-16
D605	E-14
D606	F-14
D607	D-22
D608	C-16
D620	E-14
IC31A	F-9
IC31B	F-3
IC81A	B-11
IC81B	B-5
IC81C	D-4
IC101	E-21
IC102	D-23
IC103	F-23
IC104	D-19
IC601	D-15
IC602	D-16
IC603	E-14
IC6004	E-18
Q51	D-3
Q52	D-3
Q53	E-3
Q71A	F-11
Q71B	E-5
Q101	D-20
Q201	C-19
Q601	E-16
Q602	E-16
Q603	F-16
Q604	F-16
Q605	E-17
Q606	F-18
Q607	F-17
Q608	F-17
Q609	E-17
Q610	E-19
Q611	C-16
Q612	D-21
Q613	F-22
Q614	F-21
Q615	C-17
Q616	D-17
Q617	C-18
Q627	D-23
Q630	E-19
Q680	E-19

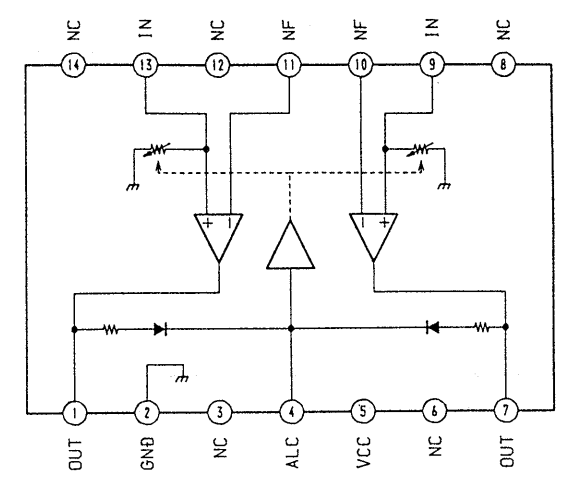
Note:
 • ○ : parts extracted from the component side.
 • ● : Through hole.
 • ⊕ : indicates side identified with part number.
 • ▨ : Pattern from the side which enable seeing.
 • ▩ : Pattern of the rear side.



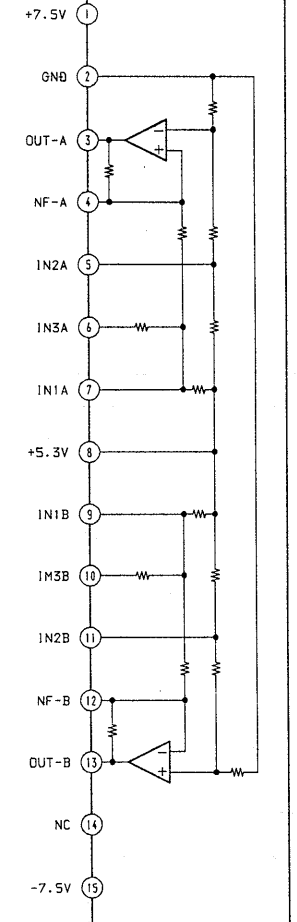
IC BLOCK DIAGRAMS
IC101 CXA1599Q



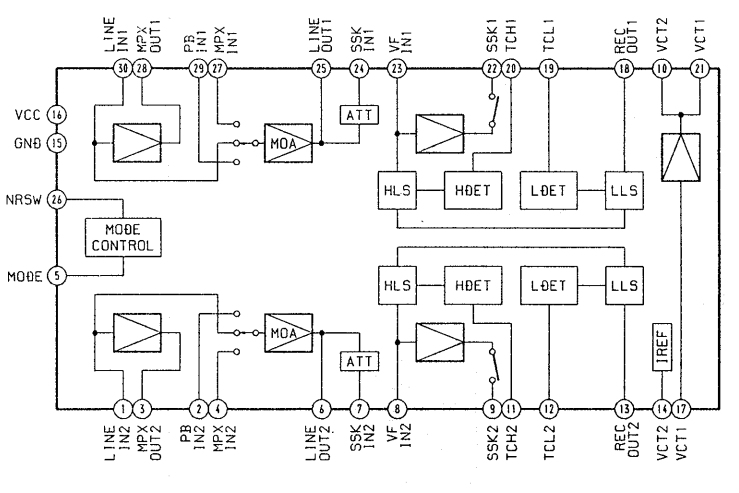
IC102 BA3308F



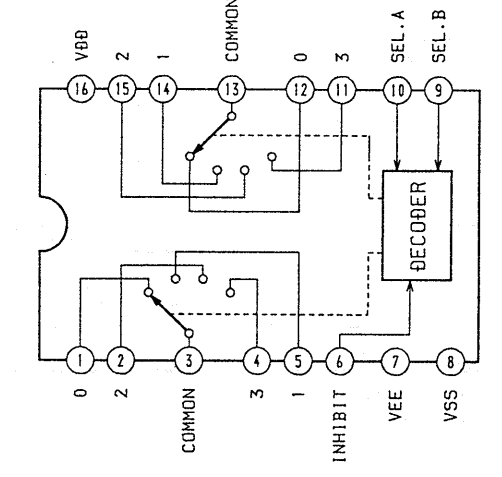
IC603 TA8242K



IC103 CXA1331M

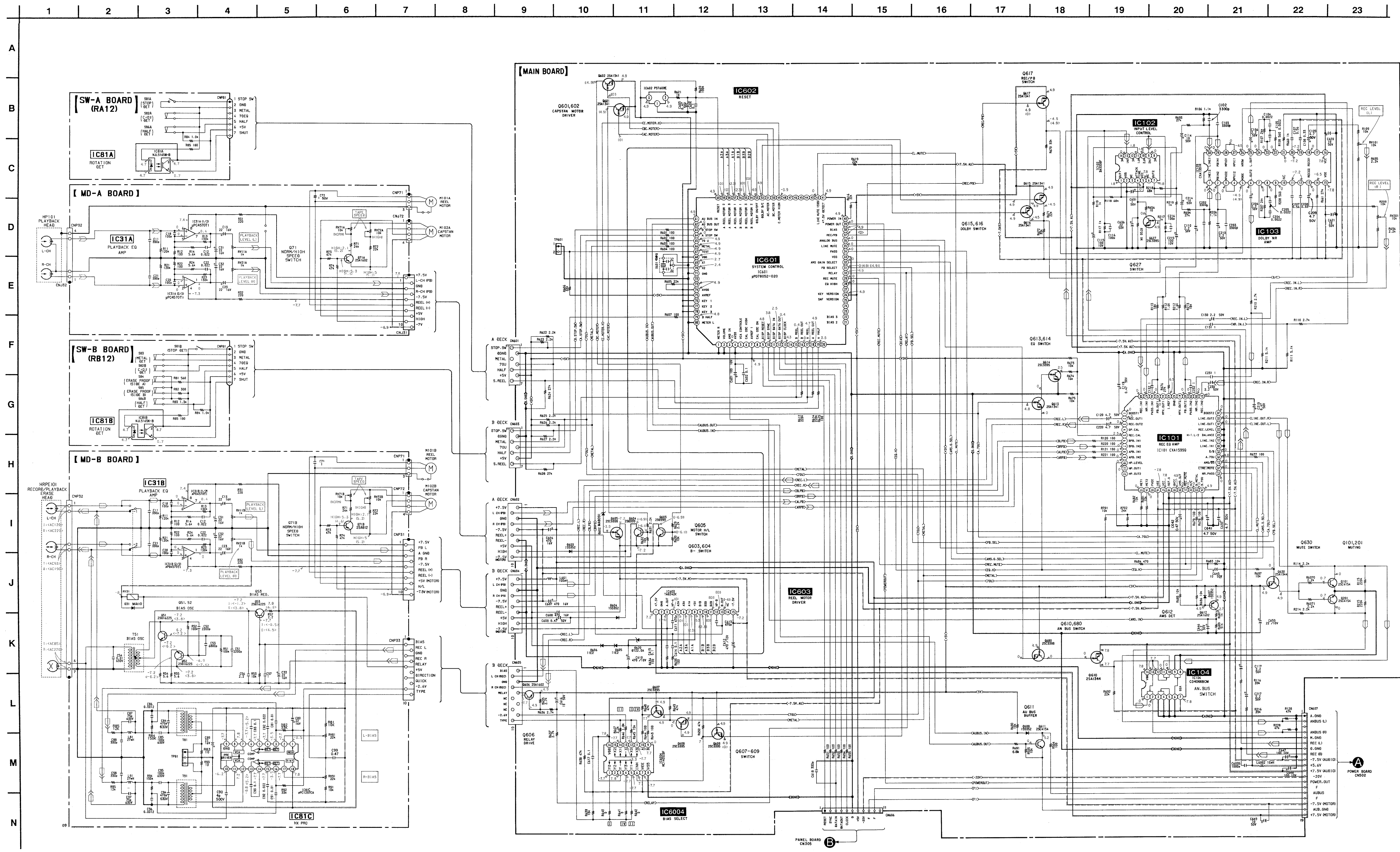


IC6004 MC14052BF



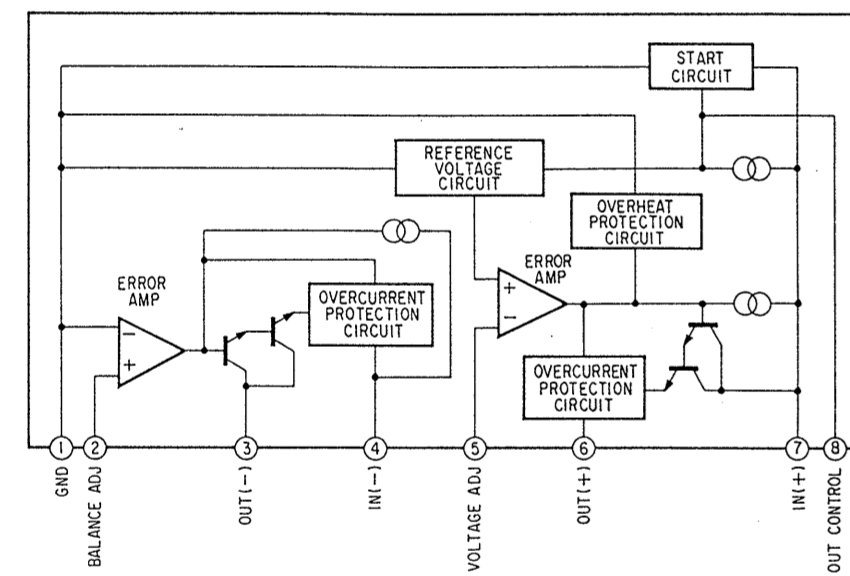
Note:
• All capacitors are in μF unless otherwise noted, pF; μM F 50V or less are not indicated except for electrolytics and tantalums.
• All resistors are in Ω and 1/4W or less unless otherwise specified.
• Δ : internal component.
• --- : B+ Line
• --- : B- Line
• --- : adjustment for repair.
• Voltage and waveforms are dc with respect to ground.
• no mark : STOP
• () : PB (DECK B)
• () : PB (DECK A)
• > : REC
• Voltages are taken with a VOM (Input impedance 10M Ω).
• Voltage variations may be noted due to normal production tolerances.
• Signal path:
• --- : PB (DECK A)
• --- : PB (DECK B)
• --- : REC (DECK B)

5-5. SCHEMATIC DIAGRAM — MAIN SECTION —
• See pages 30, 31 for IC Pin Functions (IC601).



5-6. SCHEMATIC DIAGRAM — PANEL/POWER SECTION —
• See page 29 for IC Pin Functions (IC301).

• IC BLOCK DIAGRAM
IC501 M5230L

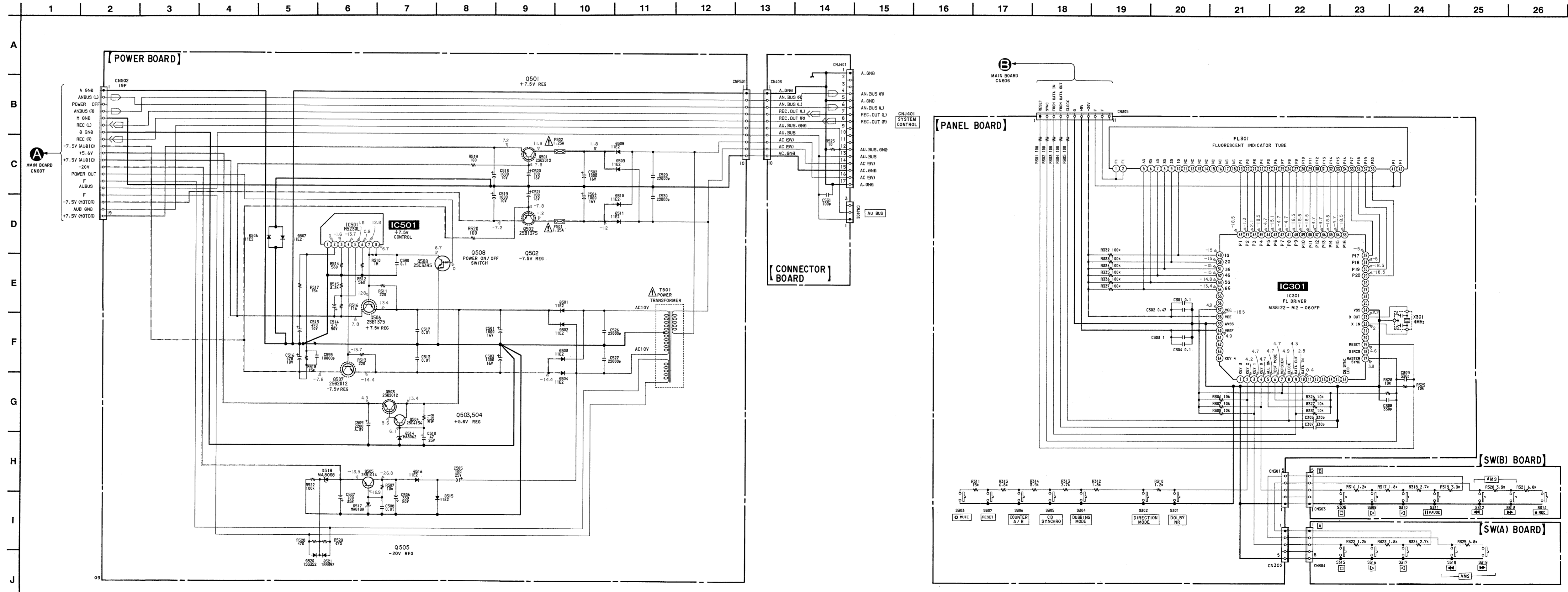


Note:

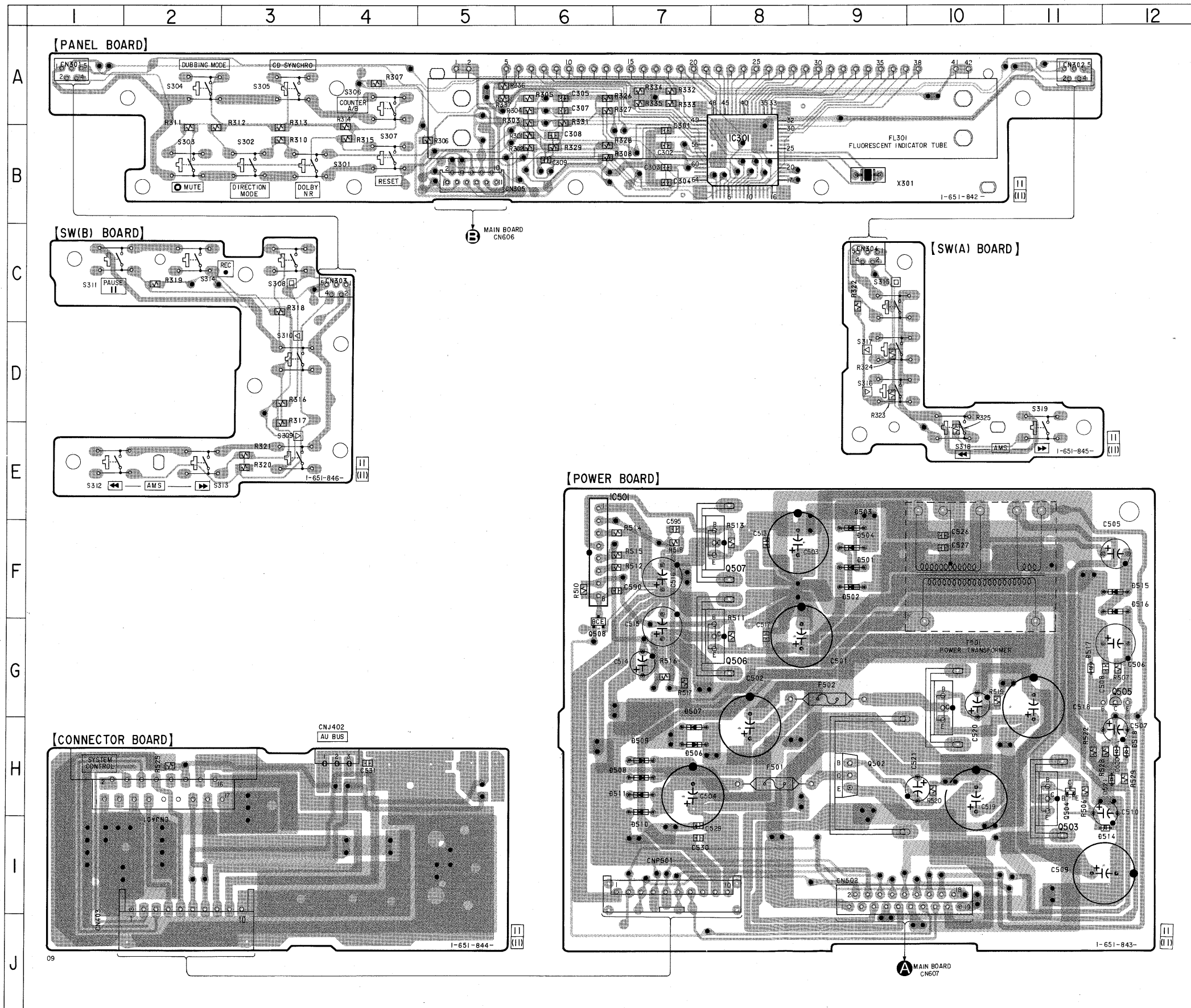
- All capacitors are in μF unless otherwise noted, pF or μF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4W or less unless otherwise specified.
- Δ : internal component.
- \square : panel designation.

Note: The components identified by mark Δ or dotted line with mark Δ are critical for safety. Replace only with part number specified.

- : B+ Line
- : B- Line
- Voltage and waveforms are dc with respect to ground under no-signal conditions.
- Voltages are taken with a VOM (input impedance 10M Ω). Voltage variations may be noted due to normal production tolerances.
- Signal path.
- \square : PB
- \Rightarrow : REC



5-7. PRINTED WIRING BOARDS — PANEL/POWER SECTION —
 • See page 10 for Circuit Boards Location.
 • See page 11 for Semiconductor Lead Layouts.



• Semiconductor Location

Ref. No.	Location
D501	F-9
D502	F-9
D503	E-9
D504	F-9
D506	H-7
D507	G-7
D508	H-7
D509	H-7
D510	I-7
D511	H-7
D514	I-12
D515	F-12
D516	F-12
D517	G-11
D518	H-12
D520	H-12
D521	H-12
IC301	B-8
IC501	E-7
Q501	G-10
Q502	H-9
Q503	I-11
Q504	H-11
Q505	G-11
Q506	G-8
Q507	F-8
Q508	G-6

Note:
 • ● : Through hole.
 • [Pattern] : Pattern from the side which enable seeing.
 • [Pattern] : Pattern of the rear side.

5-8. IC PIN FUNCTIONS

• IC301 FL DRIVER (M38122-M2-060FP)

Pin No.	Pin Name	I/O	Function
1	KYE3	I	Not used (Open).
2	KEY2	I	} Key input (AD input)
3	KEY1	I	
4	KEY0	I	
5	ALL ON	I	} Not used (Fixed at "H").
6	TEST MODE	I	
7	VERSION	I	VERSION discrimination input
8	CLOCK	I	Clock input from IC601
9	DATA OUT	O	Data output to IC601
10	DATA IN	I	Data input from IC601
11 to 16	—	O	Not used (Open).
17	MASTER SYNC	I	SYNC input from IC601.
18	SIRCS	I	Not used (Open).
19	RESET	I	Reset input from IC601
20, 21	—	O	Not used (Open).
22	X IN	—	Clock (4 MHz)
23	X OUT	—	Clock (4 MHz)
24	Vss	—	GND
25 to 28	—	O	Not used (Open).
29 to 48	P20 to P1	O	FL display drive
49 to 54	1G to 6G	O	FL display drive
55, 56	—	—	Not used (Open).
57	Vcc	—	+5V
58	VEE	—	-20V
59	AVss	—	GND
60	VREF	I	+5V
61 to 64	—		Not used (Open).

• IC601 SYSTEM CONTROL (μ PC78052-020)

Pin No.	Pin Name	I/O	Function
1	METER R	I	} VCA control input. Not used (Connected to GND)
2	VOLUME 0	I	
3	AMS IN	I	AMS signal input
4	AVSS	—	GND
5	VCA CONTROL	O	VCA control output. Not used (Open)
6	CAL OSC HIGH	O	Electric adjustment mode output. Not used (Open)
7	AVREF1	—	+5V
8	CAL OSC ON	O	Not used (Open)
9	DISP RESET	O	RESET output to IC301
10	DISP SYNC	O	SYNC output to IC301
11	DISP DATA IN	I	DATA input from IC301
12	DISP DATA OUT	O	DATA output to IC301
13	DISP CLOCK	O	CLOCK output to IC301
14	—	—	Not used (Open)
15	B REEL	I	Deck B reel table detection
16	B REEL OUT	O	Deck B reel table output
17	A REEL	I	Deck A reel table detection
18	A REEL OUT	O	Deck A reel table output
19	A HALF	I	Deck A half switch detection
20 to 24	—	—	Not used (Open)
25	SAF VERSION	I	Not used (Connected to GND)
26	KEY VERSION	I	Not used (Connected to +5V)
27	—	—	Not used
28	EQ HIGH	O	Normal speed: "L", High speed: "H"
29	REC MUTE	O	"L": REC MUTE
30	RELAY	O	Relay ON/OFF. ON: "L", OFF: "H"
31	PB SELECT	O	Deck A/B select. Deck A: "L", Deck B: "H"
32	AMS GAIN SELECT	O	BS: "L", AMS: "H"
33	VSS	—	GND
34	PASS	O	"L": PASS MODE
35	LINE MUTE	O	"L": MUTE
36	ANALOG BUS	O	Analog bus output
37	REC/PB	O	REC: "L", PB: "H"
38	BIAS	O	"L": BIAS ON
39	POWER OUT	O	POWER ON: "L", STANDBY: "H"
40	POWER IN	I	POWER ON detection
41	+7.5V DETECT	I	+7.5V detection
42	LINE MUTE 1599	O	MUTE output to IC101
43 to 48	—	I	Not used (Open)
49	C. MOTOR HIGH	O	"H": Capstan motor high speed
50	BC. MOTOR	O	Capstan motor control for Deck B. "H": ON

Pin No.	Pin Name	I/O	Function
51	AC MOTOR	O	Capstan motor control for Deck A. "H": ON
52	DOLBY B/C	O	C: "L", B: "H"
53	DOLBY ON/OFF	O	ON: "L", OFF: "H"
54	B REEL MOTOR 2	O	} Deck B Reel motor control output
55	B REEL MOTOR 3	O	
56	B REEL MOTOR 1	O	
57	A REEL MOTOR 1	O	} Deck A Reel motor control output
58	A REEL MOTOR 3	O	
59	A REEL MOTOR 2	O	
60	RESET	—	Reset input. "L": Reset
61	AU BUS IN	I	Audio bus input
62	AU BUS OUT	O	Audio bus output
63	B STOP SW	I	Deck B STOP switch detection
64	A STOP SW	I	Deck A STOP switch detection
65	70U	I	70 μ sec switch detection
66	METAL	I	METAL switch detection
67	TEST	I	"L": Electric adjustment mode
68	VDD	—	+5V
69	X1	O	} Clock (4 MHz)
70	X2	I	
71	GND	—	GND
72	—	O	Not used (open)
73	VERSION	I	VERSION discrimination input
74	AVDD	—	} +5V
75	AVREF	—	
76 to 78	KEY1 to KEY3	I	Not used (open)
79	B HALF	I	Deck B half switch detection
80	METER L	I	VCA control input. Not used (Connected to GND)

SECTION 6 EXPLODED VIEWS

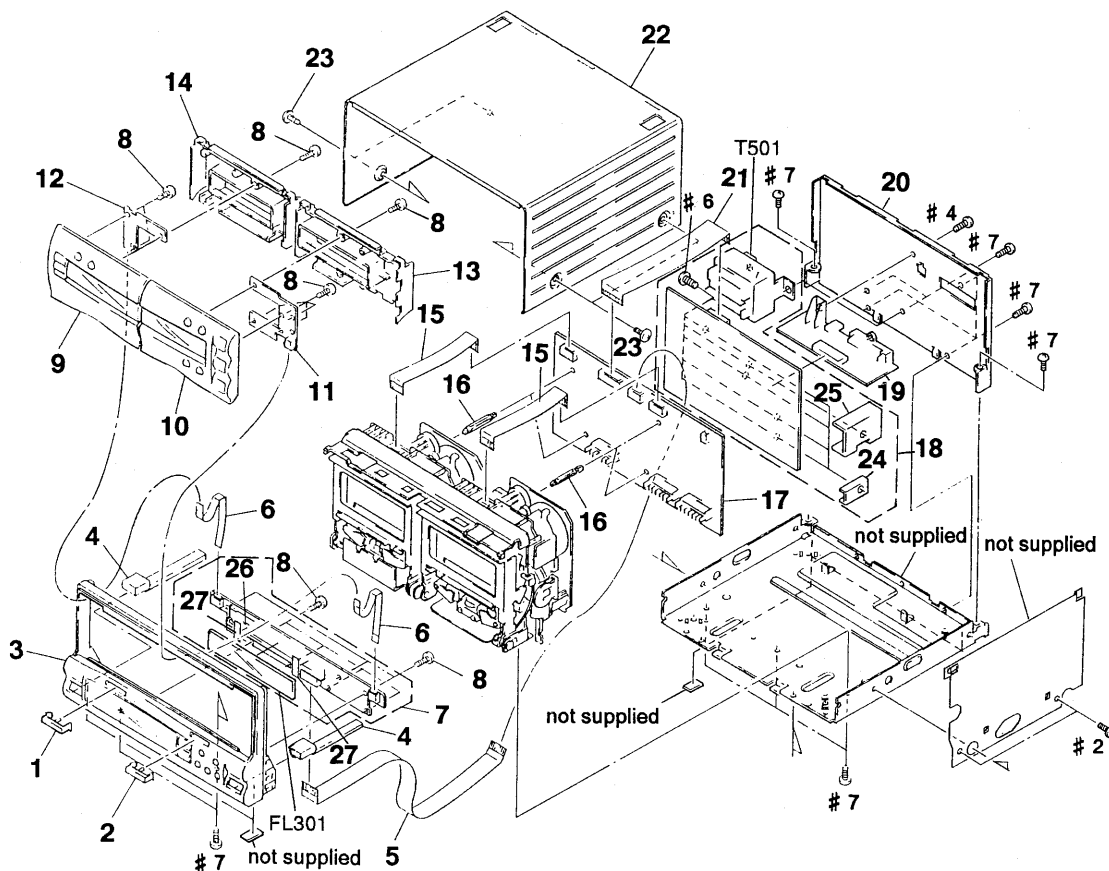
NOTE:

- Items marked “ * ” are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- G : German model

- -XX, -X mean standardized parts, so they may have some difference from the original one.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list and accessories and packing materials are given in the last of this parts list.

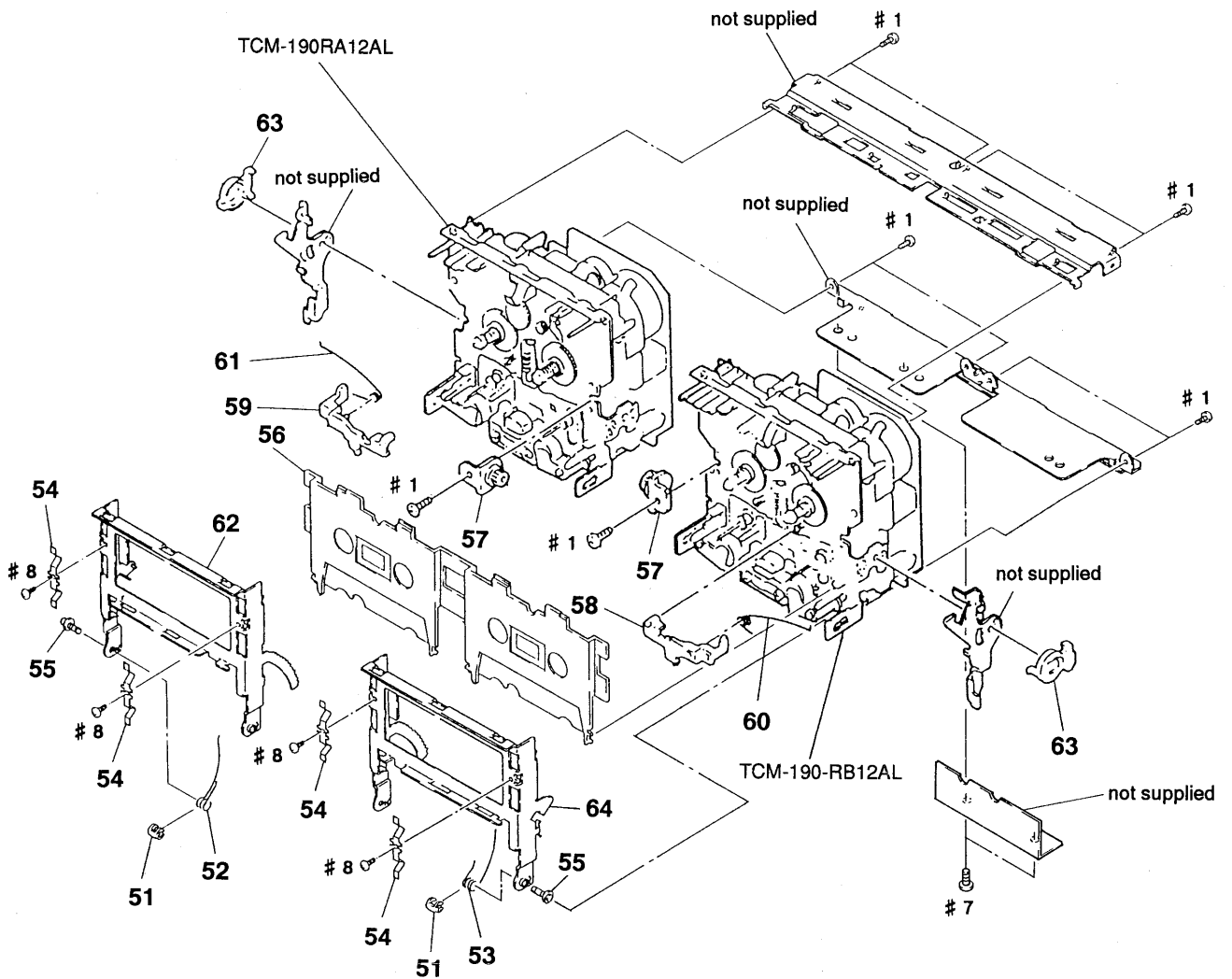
The components identified by mark Δ or dotted line with mark Δ are critical for safety. Replace only with part number specified.

6-1. CASE AND CHASSIS SECTION



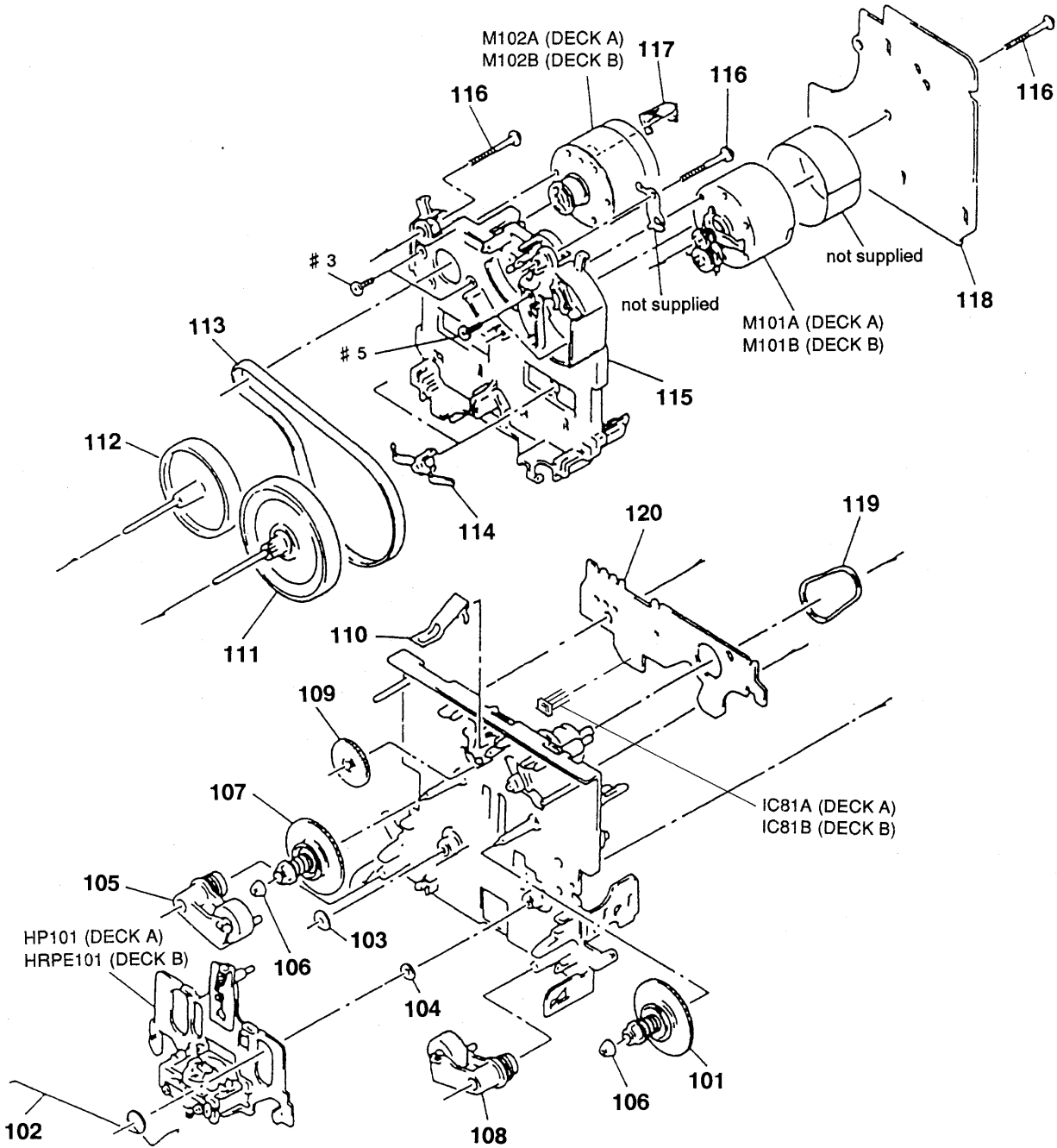
Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
1	3-905-904-01	COVER (AZIMUTH A)		* 16	3-682-419-21	HOLDER, P.C.B	
2	3-905-905-01	COVER (AZIMUTH B)		* 17	A-2007-213-A	TC MAIN BOARD, COMPLETE	
3	X-3367-319-1	PANEL ASSY, FRONT		* 18	A-2007-215-A	POWER BOARD, COMPLETE	
4	3-905-906-01	SLIDER		* 19	1-651-844-11	CONNECTOR BOARD	
5	1-765-405-11	WIRE (FLAT TYPE) (19 CORE)		* 20	3-905-901-61	PANEL, BACK (EXCEPT G)	
6	1-751-819-11	WIRE (FLAT TYPE) (5 CORE)		* 20	3-905-901-71	PANEL, BACK (G)	
* 7	A-2007-214-A	PANEL BOARD, COMPLETE		21	1-751-821-11	WIRE (FLAT TYPE) (11 CORE)	
8	4-951-620-01	SCREW (2. 6X8), +BVTP		22	4-961-519-31	CASE	
9	X-3367-320-1	LID (A) ASSY, CASSETTE		23	3-363-099-21	SCREW (CASE 3 TP2)	
10	X-3367-866-1	LID (B) ASSY, CASSETTE		* 24	3-309-144-21	HEAT SINK	
* 11	1-651-846-11	SW (B) BOARD		* 25	4-880-403-11	HEAT SINK	
* 12	1-651-845-11	SW (A) BOARD		* 26	3-905-909-01	HOLDER (FL)	
* 13	3-907-991-01	COVER (B), CASSETTE LID		* 27	4-932-810-11	CUSHION (FL)	
* 14	3-907-990-01	COVER (A), CASSETTE LID		FL301	1-517-232-11	INDICATOR TUBE, FLUORESCENT	
15	1-765-404-11	WIRE (FLAT TYPE) (7 CORE)		Δ T501	1-423-812-11	TRANSFORMER, POWER	

6-2. CASSETTE HOLDER SECTION



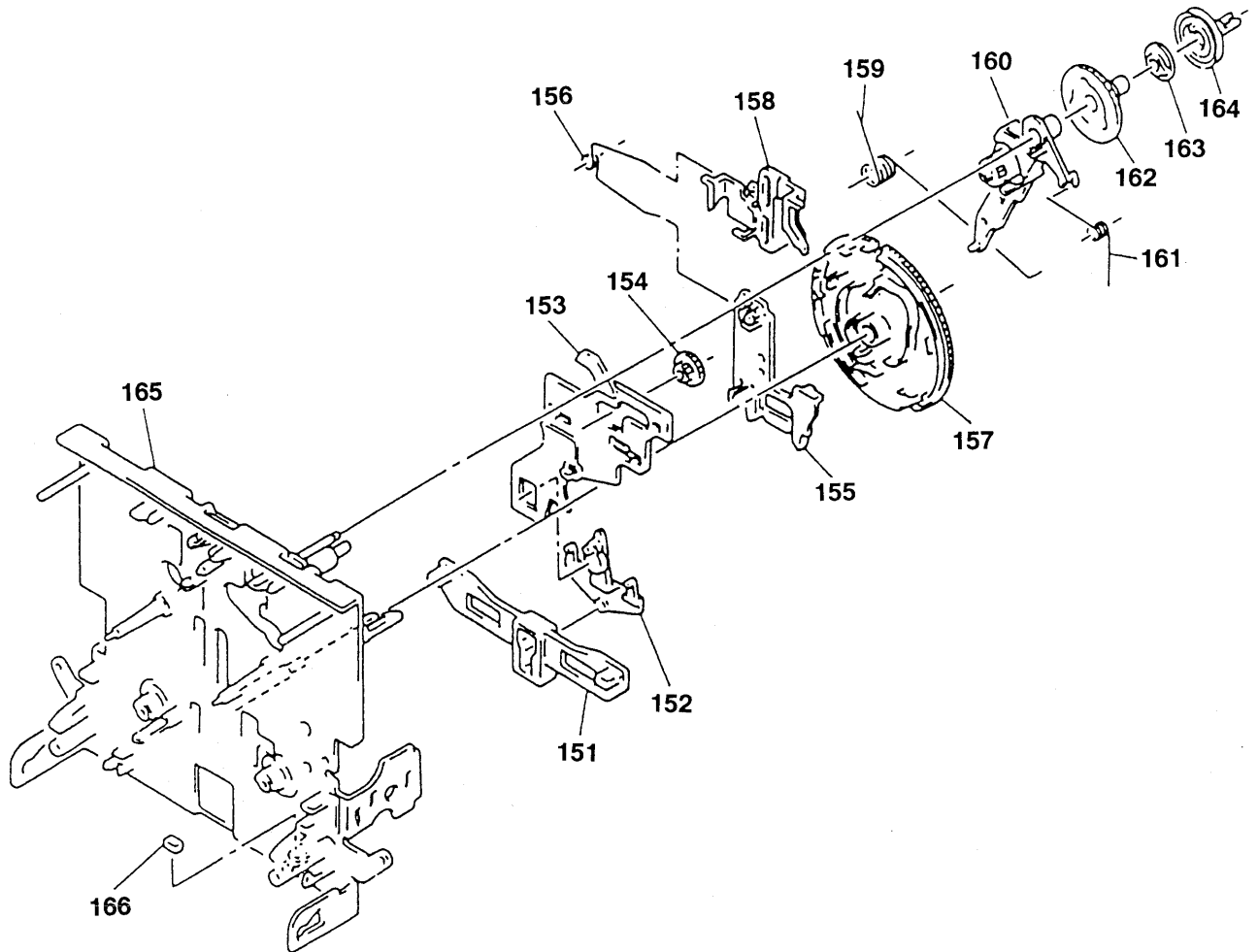
Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
51	3-367-720-01	RING (W), RETAINING		58	3-354-956-01	LEVER (EJ SAFTY LEVER R)	
52	3-354-959-01	SPRING (LOADING L), TORSION		59	3-354-955-01	LEVER (EJ SAFTY LEVER L)	
53	3-354-960-01	SPRING (LOADING R), TORSION		60	3-354-962-01	SPRING (EJ SAFTY SPRING R)	
54	3-340-137-01	SPRING, CASSETTE RETAINER		61	3-354-961-01	SPRING (EJ SAFTY SPRING L)	
55	3-367-721-01	SHAFT (FULCRUM SHAFT)		62	3-367-712-11	HOLDER (L), CASSETTE	
56	3-367-711-01	RETAINER, CASSETTE		63	3-354-957-01	JOINT (LOCK LEVER)	
57	3-354-963-01	DAMPER		64	3-367-713-11	HOLDER (R), CASSETTE	

**6-3. MECHANISM DECK SECTION-1
(DECK A: TCM-190RA12AL/DECK B: TCM-190RB12AL)**



Ref.No.	Part No.	Description	Remark	Ref.No.	Part No.	Description	Remark
101	X-3366-970-1	TABLE ASSY, REEL		116	3-359-414-01	SCREW (+PTPHW 2X23)	
102	3-907-362-01	SPRING, TORSION		117	1-638-983-11	MOTOR FLEXIBLE BOARD	
103	3-356-714-01	WASHER		* 118	A-2006-623-A	MD-A BOARD, COMPLETE (RA12AL)	
104	3-356-713-01	WASHER		* 118	A-2007-040-A	MD-B BOARD, COMPLETE (RB12AL)	
105	X-3366-048-1	LEVER (PINCH R) ASSY		119	3-359-466-01	BELT (FR), SQUARE	
106	3-913-841-01	CAP (REEL)		* 120	1-638-020-11	SW-A BOARD (DECK A)	
107	X-3366-971-1	TABLE ASSY (B), REEL		* 120	1-638-020-11	SW-B BOARD (DECK B)	
108	X-3366-047-1	LEVER (PINCH F) ASSY		HP101	A-2003-757-A	BASE ASSY, HEAD (DECK A)	
109	3-359-424-01	GEAR (REV GEAR)		HRPE101	A-2003-930-A	BASE ASSY, HEAD (DECK B)	
110	3-359-430-01	SPRING(CASSETTE RETAINER), LEAF		IC81A	8-749-924-10	PHOTO REFLECTOR NJ5165K-B (DECK A)	
111	X-3367-629-1	FLYWHEEL (FWD) ASSY		IC81B	8-749-924-10	PHOTO REFLECTOR NJ5165K-B (DECK B)	
112	X-3367-630-2	FLYWHEEL (REV) ASSY		M101A	X-3363-501-2	MOTOR ASSY (REEL) (DECK A)	
113	3-359-417-01	BELT (FLAT), CAPSTAN		M101B	X-3363-501-2	MOTOR ASSY (REEL) (DECK B)	
114	3-575-321-00	RETAINER, THRUST, CAPSTAN		M102A	X-3365-377-1	MOTOR ASSY (CAPSTAN) (DECK A)	
115	3-359-436-11	BASE (THRUST RETAINER), FITTING		M102B	X-3365-377-1	MOTOR ASSY (CAPSTAN) (DECK B)	

**6-4. MECHANISM DECK SECTION-2
(DECK A: TCM-190RA12AL/DECK B: TCM-190RB12AL)**



Ref.No.	Part No.	Description	Remark	Ref.No.	Part No.	Description	Remark
* 151	3-359-425-01	SLIDER (REVERSE SLIDER)		160	X-3366-569-1	ARM ASSY, FR	
152	3-359-426-01	LEVER (REVERSE LEVER)		161	3-359-453-01	SPRING (FR ARM), TORSION	
* 153	3-359-415-01	SLIDER (TRIGGER SLIDER)		162	3-359-419-11	GEAR (FR GEAR)	
154	3-359-448-01	GEAR (TRIGGER)		163	3-359-421-11	CLUTCH (REEL DISK)	
* 155	3-359-427-01	SLIDER (LEVERSE SLIDER)		164	3-359-418-11	PULLEY (FR PULLEY)	
156	3-359-454-01	SPRING, TORSION		165	X-3359-415-1	CHASSIS ASSY, MECHANICAL	
157	3-359-420-01	GEAR (CAM GEAR)		166	3-359-469-01	SPACER	
158	3-359-429-01	SLIDER (BRAKE PLATE)					
159	3-359-456-01	SPRING (TRIGGER SPRING), TORSION					

SECTION 7

CONNECTOR

MAIN

ELECTRICAL PARTS LIST

NOTE:

The components identified by mark Δ or dotted line with mark Δ are critical for safety.
Replace only with part number specified.

When indicating parts by reference number, please include the board name.

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- Hardware (# mark) list and accessories and packing materials are given in the last of this parts list.

- RESISTORS
All resistors are in ohms
METAL: Metal-film resistor
METAL OXIDE: Metal Oxide-film resistor
F : nonflammable
- SEMICONDUCTORS
In each case, u: μ , for example:
uA...: μ A..., uPA...: μ PA...,
uPB...: μ PB..., uPC...: μ PC...,
uPD...: μ PD...
- CAPACITORS
uF : μ F
- COILS
uH : μ H

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
*	1-651-844-11	CONNECTOR BOARD *****		C207	1-136-174-00	FILM 0.56uF 5%	50V
		< CAPACITOR >		C208	1-136-171-00	FILM 0.33uF 5%	50V
C531	1-163-117-00	CERAMIC CHIP 100PF 5% 50V		C209	1-124-927-11	ELECT 4.7uF 20%	100V
		< CONNECTOR >		C210	1-124-925-11	ELECT 2.2uF 20%	100V
* CN403	1-569-505-11	PIN, CONNECTOR 10P		C214	1-124-261-00	ELECT 10uF 20%	50V
CNJ401	1-569-624-21	SOCKET, CONNECTOR 17P (SYSTEM CONTROL)		C215	1-124-584-00	ELECT 100uF 20%	10V
* CNJ402	1-565-561-11	PIN, CONNECTOR 3P (AU BUS)		C216	1-163-117-00	CERAMIC CHIP 100PF 5%	50V
		< RESISTOR >		C217	1-124-925-11	ELECT 2.2uF 20%	100V
R525	1-216-001-00	METAL CHIP 10 5% 1/10W		C219	1-124-902-00	ELECT 0.47uF 20%	50V
*****				C220	1-124-927-11	ELECT 4.7uF 20%	100V
*	A-2007-213-A	MAIN BOARD, COMPLETE *****		C230	1-124-925-11	ELECT 2.2uF 20%	100V
		< CAPACITOR >		C231	1-164-346-11	CERAMIC CHIP 1uF	16V
C102	1-164-182-11	CERAMIC CHIP 0.0033uF 10% 50V		C232	1-164-346-11	CERAMIC CHIP 1uF	16V
C103	1-164-182-11	CERAMIC CHIP 0.0033uF 10% 50V		C601	1-124-443-00	ELECT 100uF 20%	10V
C104	1-106-351-00	MYLAR 2200PF 5% 200V		C602	1-163-037-11	CERAMIC CHIP 0.022uF 10%	25V
C105	1-106-351-00	MYLAR 2200PF 5% 200V		C604	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C106	1-124-257-00	ELECT 2.2uF 20% 50V		C605	1-124-902-00	ELECT 0.47uF 20%	50V
C107	1-136-174-00	FILM 0.56uF 5% 50V		C606	1-126-103-11	ELECT 470uF 20%	16V
C108	1-136-171-00	FILM 0.33uF 5% 50V		C607	1-126-103-11	ELECT 470uF 20%	16V
C109	1-124-927-11	ELECT 4.7uF 20% 100V		C608	1-126-103-11	ELECT 470uF 20%	16V
C110	1-124-925-11	ELECT 2.2uF 20% 100V		C609	1-124-902-00	ELECT 0.47uF 20%	50V
C114	1-124-261-00	ELECT 10uF 20% 50V		C610	1-124-472-11	ELECT 470uF 20%	10V
C115	1-124-584-00	ELECT 100uF 20% 10V		C611	1-163-133-00	CERAMIC CHIP 470PF 5%	50V
C116	1-163-117-00	CERAMIC CHIP 100PF 5% 50V		C612	1-124-472-11	ELECT 470uF 20%	10V
C117	1-124-925-11	ELECT 2.2uF 20% 100V		C613	1-163-133-00	CERAMIC CHIP 470PF 5%	50V
C119	1-124-902-00	ELECT 0.47uF 20% 50V		C614	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C120	1-124-927-11	ELECT 4.7uF 20% 100V		C615	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C130	1-124-925-11	ELECT 2.2uF 20% 100V		C616	1-124-907-11	ELECT 10uF 20%	50V
C131	1-164-346-11	CERAMIC CHIP 1uF 16V		C617	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C132	1-164-346-11	CERAMIC CHIP 1uF 16V		C618	1-163-003-11	CERAMIC CHIP 330PF 10%	50V
C202	1-164-182-11	CERAMIC CHIP 0.0033uF 10% 50V		C620	1-124-907-11	ELECT 10uF 20%	50V
C203	1-164-182-11	CERAMIC CHIP 0.0033uF 10% 50V		C621	1-124-907-11	ELECT 10uF 20%	50V
C204	1-106-351-00	MYLAR 2200PF 5% 200V		C630	1-124-927-11	ELECT 4.7uF 20%	100V
C205	1-106-351-00	MYLAR 2200PF 5% 200V		C631	1-126-160-11	ELECT 1uF 20%	50V
C206	1-124-257-00	ELECT 2.2uF 20% 50V		C636	1-124-916-11	ELECT 22uF 20%	63V
				C641	1-124-927-11	ELECT 4.7uF 20%	100V
				C642	1-124-902-00	ELECT 0.47uF 20%	50V
				C645	1-124-907-11	ELECT 10uF 20%	50V
				C646	1-124-925-11	ELECT 2.2uF 20%	100V
				C647	1-124-443-00	ELECT 100uF 20%	10V
				C648	1-124-443-00	ELECT 100uF 20%	10V
				C649	1-124-907-11	ELECT 10uF 20%	50V

Ref.No.	Part No.	Description	Remark	Ref.No.	Part No.	Description	Remark
C650	1-124-916-11	ELECT	22uF 20% 63V	Q612	8-729-602-36	TRANSISTOR	2SA1602-F
C6035	1-163-141-00	CERAMIC CHIP	0.001uF 5% 50V	Q613	8-729-901-06	TRANSISTOR	DTA144EK
< CONNECTOR >				Q614	8-729-805-45	TRANSISTOR	2SC3395
CN601	1-750-585-11	CONNECTOR, FFC/FPC 7P		Q615	8-729-901-06	TRANSISTOR	DTA144EK
CN602	1-580-783-11	CONNECTOR, BOARD TO BOARD 10P		Q616	8-729-901-06	TRANSISTOR	DTA144EK
CN603	1-750-585-11	CONNECTOR, FFC/FPC 7P		Q617	8-729-901-06	TRANSISTOR	DTA144EK
CN604	1-580-783-11	CONNECTOR, BOARD TO BOARD 10P		Q627	8-729-805-45	TRANSISTOR	2SC3395
CN605	1-580-783-11	CONNECTOR, BOARD TO BOARD 10P		Q630	8-729-805-65	TRANSISTOR	2SA1344
* CN606	1-580-415-11	SOCKET, CONNECTOR 11P		Q680	8-729-805-41	TRANSISTOR	2SC3398
* CN607	1-568-862-11	SOCKET, CONNECTOR 19P		< RESISTOR >			
< DIODE >				R106	1-216-050-00	METAL GLAZE	1.1K 5% 1/10W
D602	8-719-422-91	DIODE MA8091		R107	1-216-082-00	METAL GLAZE	24K 5% 1/10W
D603	8-719-016-74	DIODE 1SS352		R108	1-216-043-00	METAL CHIP	560 5% 1/10W
D604	8-719-016-74	DIODE 1SS352		R109	1-216-073-00	METAL CHIP	10K 5% 1/10W
D605	8-719-200-02	DIODE 10E2		R110	1-216-059-00	METAL CHIP	2.7K 5% 1/10W
D606	8-719-200-02	DIODE 10E2		R111	1-216-066-00	METAL CHIP	5.1K 5% 1/10W
D607	8-719-016-74	DIODE 1SS352		R112	1-216-054-00	METAL GLAZE	1.6K 5% 1/10W
D608	8-719-016-74	DIODE 1SS352		R113	1-216-079-00	METAL CHIP	18K 5% 1/10W
D620	8-719-016-84	DIODE 02DZ2.0		R114	1-216-057-00	METAL CHIP	2.2K 5% 1/10W
< IC >				R115	1-216-105-00	METAL CHIP	220K 5% 1/10W
IC101	8-752-058-57	IC CXA1599Q		R116	1-216-689-11	METAL CHIP	39K 0.5% 1/10W
IC102	8-759-998-71	IC BA3308F		R117	1-216-049-00	METAL CHIP	1K 5% 1/10W
IC103	8-752-037-90	IC CXA1331M		R118	1-216-093-00	METAL CHIP	68K 5% 1/10W
IC104	8-759-516-47	IC CD4066BCM		R119	1-216-049-00	METAL CHIP	1K 5% 1/10W
IC601	8-759-259-60	IC uPD78052-020		R120	1-216-025-00	METAL CHIP	100 5% 1/10W
IC602	8-759-165-82	IC PST600E-T		R121	1-216-025-00	METAL CHIP	100 5% 1/10W
IC603	8-759-266-35	IC TA8242AK		R128	1-216-089-91	METAL GLAZE	47K 5% 1/10W
IC6004	8-759-009-06	IC MC14052BF		R206	1-216-050-00	METAL GLAZE	1.1K 5% 1/10W
< COIL >				R207	1-216-082-00	METAL GLAZE	24K 5% 1/10W
L601	1-408-421-00	INDUCTOR 100uH		R208	1-216-043-00	METAL CHIP	560 5% 1/10W
L6002	1-410-470-11	INDUCTOR 10uH		R209	1-216-073-00	METAL CHIP	10K 5% 1/10W
< TRANSISTOR >				R210	1-216-059-00	METAL CHIP	2.7K 5% 1/10W
Q101	8-729-602-21	TRANSISTOR	2SC4154-F	R211	1-216-066-00	METAL CHIP	5.1K 5% 1/10W
Q201	8-729-602-21	TRANSISTOR	2SC4154-F	R212	1-216-054-00	METAL GLAZE	1.6K 5% 1/10W
Q601	8-729-901-06	TRANSISTOR	DTA144EK	R213	1-216-079-00	METAL CHIP	18K 5% 1/10W
Q602	8-729-901-06	TRANSISTOR	DTA144EK	R214	1-216-057-00	METAL CHIP	2.2K 5% 1/10W
Q603	8-729-140-75	TRANSISTOR	2SD999-CLCK	R215	1-216-105-00	METAL CHIP	220K 5% 1/10W
Q604	8-729-140-75	TRANSISTOR	2SD999-CLCK	R216	1-216-689-11	METAL CHIP	39K 0.5% 1/10W
Q605	8-729-805-41	TRANSISTOR	2SC3398	R217	1-216-049-00	METAL CHIP	1K 5% 1/10W
Q606	8-729-602-36	TRANSISTOR	2SA1602-F	R218	1-216-093-00	METAL CHIP	68K 5% 1/10W
Q607	8-729-805-45	TRANSISTOR	2SC3395	R219	1-216-049-00	METAL CHIP	1K 5% 1/10W
Q608	8-729-805-45	TRANSISTOR	2SC3395	R220	1-216-025-00	METAL CHIP	100 5% 1/10W
Q609	8-729-805-45	TRANSISTOR	2SC3395	R221	1-216-025-00	METAL CHIP	100 5% 1/10W
Q610	8-729-805-65	TRANSISTOR	2SA1344	R228	1-216-089-91	METAL GLAZE	47K 5% 1/10W
Q611	8-729-602-21	TRANSISTOR	2SC4154-F	R504	1-216-025-00	METAL CHIP	100 5% 1/10W
				R505	1-216-073-00	METAL CHIP	10K 5% 1/10W
				R601	1-216-025-00	METAL CHIP	100 5% 1/10W
				R602	1-216-025-00	METAL CHIP	100 5% 1/10W
				R603	1-216-025-00	METAL CHIP	100 5% 1/10W

MAIN MD-A

Ref. No.	Part No.	Description	Quantity	Percentage	Remark	Ref. No.	Part No.	Description	Quantity	Percentage	Remark
R604	1-216-025-00	METAL CHIP	100	5%	1/10W	R672	1-216-085-00	METAL CHIP	33K	5%	1/10W
R605	1-216-081-00	METAL CHIP	22K	5%	1/10W	R673	1-216-073-00	METAL CHIP	10K	5%	1/10W
R606	1-216-085-00	METAL CHIP	33K	5%	1/10W	R674	1-216-078-00	METAL GLAZE	16K	5%	1/10W
R607	1-216-025-00	METAL CHIP	100	5%	1/10W	R675	1-216-073-00	METAL CHIP	10K	5%	1/10W
R612	1-216-105-00	METAL CHIP	220K	5%	1/10W	R676	1-216-083-00	METAL CHIP	27K	5%	1/10W
R614	1-216-105-00	METAL CHIP	220K	5%	1/10W	R677	1-216-025-00	METAL CHIP	100	5%	1/10W
R615	1-216-025-00	METAL CHIP	100	5%	1/10W	R678	1-216-025-00	METAL CHIP	100	5%	1/10W
R616	1-216-081-00	METAL CHIP	22K	5%	1/10W	R679	1-216-025-00	METAL CHIP	100	5%	1/10W
R619	1-216-081-00	METAL CHIP	22K	5%	1/10W	R681	1-216-073-00	METAL CHIP	10K	5%	1/10W
R620	1-216-097-00	METAL CHIP	100K	5%	1/10W	R682	1-216-073-00	METAL CHIP	10K	5%	1/10W
R621	1-216-049-00	METAL CHIP	1K	5%	1/10W	R683	1-216-073-00	METAL CHIP	10K	5%	1/10W
R622	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	R684	1-216-041-00	METAL CHIP	470	5%	1/10W
R623	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	R685	1-216-073-00	METAL CHIP	10K	5%	1/10W
R624	1-216-083-00	METAL CHIP	27K	5%	1/10W	R686	1-216-073-00	METAL CHIP	10K	5%	1/10W
R625	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	R687	1-216-049-00	METAL CHIP	1K	5%	1/10W
R626	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	R689	1-216-090-00	METAL CHIP	51K	5%	1/10W
R627	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	R690	1-216-073-00	METAL CHIP	10K	5%	1/10W
R628	1-216-083-00	METAL CHIP	27K	5%	1/10W	R691	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R629	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	R692	1-216-081-00	METAL CHIP	22K	5%	1/10W
R630	1-216-073-00	METAL CHIP	10K	5%	1/10W	R693	1-216-083-00	METAL CHIP	27K	5%	1/10W
R631	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	R694	1-216-083-00	METAL CHIP	27K	5%	1/10W
R632	1-216-073-00	METAL CHIP	10K	5%	1/10W	R695	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R633	1-216-025-00	METAL CHIP	100	5%	1/10W	R696	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R634	1-216-025-00	METAL CHIP	100	5%	1/10W	R697	1-216-073-00	METAL CHIP	10K	5%	1/10W
R635	1-216-059-00	METAL CHIP	2.7K	5%	1/10W	R700	1-216-121-00	METAL CHIP	1M	5%	1/10W
R636	1-216-059-00	METAL CHIP	2.7K	5%	1/10W	R701	1-216-073-00	METAL CHIP	10K	5%	1/10W
R637	1-216-059-00	METAL CHIP	2.7K	5%	1/10W	R702	1-216-082-00	METAL GLAZE	24K	5%	1/10W
R638	1-216-089-91	METAL GLAZE	47K	5%	1/10W	R6070	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R639	1-216-073-00	METAL CHIP	10K	5%	1/10W	R6071	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R640	1-216-295-00	METAL CHIP	0	5%	1/10W						
R641	1-216-295-00	METAL CHIP	0	5%	1/10W			< VARIABLE RESISTOR >			
R642	1-216-295-00	METAL CHIP	0	5%	1/10W	RV101	1-241-785-11	RES, ADJ, CARBON 10K			
R643	1-216-025-00	METAL CHIP	100	5%	1/10W	RV201	1-241-785-11	RES, ADJ, CARBON 10K			
R644	1-216-025-00	METAL CHIP	100	5%	1/10W			< CONNECTOR >			
R645	1-216-077-00	METAL CHIP	15K	5%	1/10W	* TP601	1-564-718-11	PIN, CONNECTOR (SMALL TYPE) 2P			
R646	1-216-055-00	METAL CHIP	1.8K	5%	1/10W			< VIBRATOR >			
R647	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	X601	1-577-358-21	VIBRATOR, CERAMIC (4MHz)			
R648	1-216-089-91	METAL GLAZE	47K	5%	1/10W			*****			
R649	1-216-089-91	METAL GLAZE	47K	5%	1/10W			* A-2006-623-A MD-A BOARD, COMPLETE			
R650	1-216-089-91	METAL GLAZE	47K	5%	1/10W			*****			
R651	1-216-025-00	METAL CHIP	100	5%	1/10W			< CAPACITOR >			
R652	1-216-025-00	METAL CHIP	100	5%	1/10W	C11	1-163-131-00	CERAMIC CHIP	390PF	5%	50V
R653	1-216-025-00	METAL CHIP	100	5%	1/10W	C12	1-136-157-00	FILM	0.022uF	5%	50V
R654	1-216-025-00	METAL CHIP	100	5%	1/10W	C13	1-124-234-00	ELECT	22uF	20%	16V
R655	1-216-025-00	METAL CHIP	100	5%	1/10W	C18	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
R656	1-216-001-00	METAL CHIP	10	5%	1/10W						
R660	1-216-049-00	METAL CHIP	1K	5%	1/10W						
R661	1-216-083-00	METAL CHIP	27K	5%	1/10W						
R670	1-216-085-00	METAL CHIP	33K	5%	1/10W						
R671	1-216-081-00	METAL CHIP	22K	5%	1/10W						

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
C21	1-163-131-00	CERAMIC CHIP 390PF 5%	50V	*	A-2007-040-A	MD-B BOARD, COMPLETE *****	
C22	1-136-157-00	FILM 0.022uF 5%	50V			< CAPACITOR >	
C23	1-124-234-00	ELECT 22uF 20%	16V				
C28	1-163-117-00	CERAMIC CHIP 100PF 5%	50V	C11	1-163-131-00	CERAMIC CHIP 390PF 5%	50V
C31	1-124-234-00	ELECT 22uF 20%	16V	C12	1-136-157-00	FILM 0.022uF 5%	50V
C32	1-124-234-00	ELECT 22uF 20%	16V	C13	1-124-234-00	ELECT 22uF 20%	16V
C72	1-124-499-11	ELECT, NONPOLAR 1uF 20%	50V	C18	1-163-117-00	CERAMIC CHIP 100PF 5%	50V
		< CONNECTOR >		C21	1-163-131-00	CERAMIC CHIP 390PF 5%	50V
* CNJ31	1-580-782-11	CONNECTOR, BOARD TO BOARD 10P		C22	1-136-157-00	FILM 0.022uF 5%	50V
* CNJ72	1-580-411-11	SOCKET, CONNECTOR 4P		C23	1-124-234-00	ELECT 22uF 20%	16V
* CNP32	1-580-772-11	PIN, CONNECTOR (PC BOARD) 4P		C28	1-163-117-00	CERAMIC CHIP 100PF 5%	50V
* CNP71	1-564-719-11	PIN, CONNECTOR (SMALL TYPE) 3P		C31	1-124-234-00	ELECT 22uF 20%	16V
		< IC >		C32	1-124-234-00	ELECT 22uF 20%	16V
IC31A	8-759-106-02	IC UPC4570G2		C33	1-124-234-00	ELECT 22uF 20%	16V
		< JUMPER RESISTOR >		C51	1-164-161-11	CERAMIC CHIP 0.0022uF 10%	100V
JW1	1-216-295-00	METAL CHIP 0 5% 1/10W		C52	1-164-161-11	CERAMIC CHIP 0.0022uF 10%	100V
JW51	1-216-296-91	METAL GLAZE 0 5% 1/8W		C53	1-163-019-00	CERAMIC CHIP 0.0068uF 10%	50V
JW52	1-216-296-91	METAL GLAZE 0 5% 1/8W		C54	1-136-601-11	FILM 0.01uF 5%	630V
JW53	1-216-296-91	METAL GLAZE 0 5% 1/8W		C56	1-164-505-11	CERAMIC CHIP 2.2uF	16V
JW54	1-216-296-91	METAL GLAZE 0 5% 1/8W		C57	1-164-346-11	CERAMIC CHIP 1uF	16V
		< TRANSISTOR >		C71	1-164-346-11	CERAMIC CHIP 1uF	16V
Q71A	8-729-216-22	TRANSISTOR 2SA1162-G		C80	1-124-234-00	ELECT 22uF 20%	16V
		< RESISTOR >		C81	1-164-232-11	CERAMIC CHIP 0.01uF	50V
R11	1-216-099-00	METAL CHIP 120K 5% 1/10W		C82	1-136-157-00	FILM 0.022uF 5%	50V
R12	1-216-025-00	METAL CHIP 100 5% 1/10W		C83	1-164-004-11	CERAMIC CHIP 0.1uF 10%	25V
R13	1-216-100-00	METAL GLAZE 130K 5% 1/10W		C84	1-136-478-11	FILM 470PF 5%	630V
R14	1-216-067-00	METAL CHIP 5.6K 5% 1/10W		C85	1-136-433-11	FILM 100PF 5%	630V
R21	1-216-099-00	METAL CHIP 120K 5% 1/10W		C86	1-163-143-00	CERAMIC CHIP 0.0012uF 5%	50V
R22	1-216-025-00	METAL CHIP 100 5% 1/10W		C87	1-136-273-91	FILM 75PF 5%	630V
R23	1-216-100-00	METAL GLAZE 130K 5% 1/10W		C88	1-163-003-11	CERAMIC CHIP 330PF 10%	50V
R24	1-216-067-00	METAL CHIP 5.6K 5% 1/10W		C89	1-124-234-00	ELECT 22uF 20%	16V
R31	1-216-033-00	METAL CHIP 220 5% 1/10W		C90	1-107-584-11	CERAMIC 4PF 0.25PF	500V
R32	1-216-033-00	METAL CHIP 220 5% 1/10W		C91	1-164-232-11	CERAMIC CHIP 0.01uF	50V
R71	1-216-082-00	METAL GLAZE 24K 5% 1/10W		C92	1-136-157-00	FILM 0.022uF 5%	50V
R72	1-216-081-00	METAL CHIP 22K 5% 1/10W		C93	1-164-004-11	CERAMIC CHIP 0.1uF 10%	25V
R73	1-216-089-91	METAL GLAZE 47K 5% 1/10W		C94	1-136-478-11	FILM 470PF 5%	630V
R74	1-216-089-91	METAL GLAZE 47K 5% 1/10W		C95	1-136-433-11	FILM 100PF 5%	630V
		< VARIABLE RESISTOR >		C96	1-163-143-00	CERAMIC CHIP 0.0012uF 5%	50V
RV11A	1-241-761-11	RES, ADJ, CARBON 1K		C97	1-136-273-91	FILM 75PF 5%	630V
RV21A	1-241-761-11	RES, ADJ, CARBON 1K		C98	1-163-003-11	CERAMIC CHIP 330PF 10%	50V
RV71A	1-241-630-11	RES, ADJ, CARBON 10K		C99	1-164-005-11	CERAMIC CHIP 0.47uF	25V
RV72A	1-241-630-11	RES, ADJ, CARBON 10K				< CONNECTOR >	
		*****		* CNP31	1-580-782-11	CONNECTOR, BOARD TO BOARD 10P	
				* CNP32	1-580-781-11	PIN, CONNECTOR (PC BOARD) 7P	
				* CNP33	1-580-782-11	CONNECTOR, BOARD TO BOARD 10P	
				* CNP71	1-564-719-11	PIN, CONNECTOR (SMALL TYPE) 3P	
				* CNP72	1-580-411-11	SOCKET, CONNECTOR 4P	

MD-B **PANEL**

Ref. No.	Part No.	Description	Remark
		< DIODE >	
D31	8-719-404-46	DIODE MA110	
		< IC >	
IC31B	8-759-106-02	IC UPC4570G2	
IC81C	8-759-106-56	IC UPC1297CA	
		< COIL >	
L81	1-410-780-11	INDUCTOR 27mH	
L91	1-410-780-11	INDUCTOR 27mH	
		< TRANSISTOR >	
Q51	8-729-808-01	TRANSISTOR 2SD1622-S	
Q52	8-729-808-01	TRANSISTOR 2SD1622-S	
Q53	8-729-808-01	TRANSISTOR 2SD1622-S	
Q71B	8-729-216-22	TRANSISTOR 2SA1162-G	
		< RESISTOR >	
R11	1-216-099-00	METAL CHIP 120K 5% 1/10W	
R12	1-216-025-00	METAL CHIP 100 5% 1/10W	
R13	1-216-100-00	METAL GLAZE 130K 5% 1/10W	
R14	1-216-067-00	METAL CHIP 5.6K 5% 1/10W	
R21	1-216-099-00	METAL CHIP 120K 5% 1/10W	
R22	1-216-025-00	METAL CHIP 100 5% 1/10W	
R23	1-216-100-00	METAL GLAZE 130K 5% 1/10W	
R24	1-216-067-00	METAL CHIP 5.6K 5% 1/10W	
R31	1-216-033-00	METAL CHIP 220 5% 1/10W	
R32	1-216-033-00	METAL CHIP 220 5% 1/10W	
R51	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R52	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R53	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R54	1-216-309-00	METAL CHIP 5.6 5% 1/10W	
R55	1-216-309-00	METAL CHIP 5.6 5% 1/10W	
R57	1-216-298-00	METAL CHIP 2.2 5% 1/10W	
R71	1-216-082-00	METAL GLAZE 24K 5% 1/10W	
R72	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R73	1-216-089-91	METAL GLAZE 47K 5% 1/10W	
R74	1-216-089-91	METAL GLAZE 47K 5% 1/10W	
R81	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R82	1-216-085-00	METAL CHIP 33K 5% 1/10W	
R83	1-216-001-00	METAL CHIP 10 5% 1/10W	
R84	1-216-101-00	METAL CHIP 150K 5% 1/10W	
R85	1-216-075-00	METAL CHIP 12K 5% 1/10W	
R91	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R92	1-216-085-00	METAL CHIP 33K 5% 1/10W	
R93	1-216-001-00	METAL CHIP 10 5% 1/10W	
R94	1-216-101-00	METAL CHIP 150K 5% 1/10W	
R95	1-216-075-00	METAL CHIP 12K 5% 1/10W	

Ref. No.	Part No.	Description	Remark
		< VARIABLE RESISTOR >	
RV11B	1-241-761-11	RES, ADJ, CARBON 1K	
RV21B	1-241-761-11	RES, ADJ, CARBON 1K	
RV71B	1-241-630-11	RES, ADJ, CARBON 10K	
RV72B	1-241-630-11	RES, ADJ, CARBON 10K	
RV81	1-241-786-11	RES, ADJ, CARBON 22K	
RV91	1-241-786-11	RES, ADJ, CARBON 22K	
		< RELAY >	
RY31	1-515-913-11	RELAY	
		< TRANSFORMER >	
T51	1-406-417-11	COIL, BIAS OSCILLATION	
T81	1-433-381-11	TRANSFORMER, BIAS OSCILLATOR	
T91	1-433-381-11	TRANSFORMER, BIAS OSCILLATOR	
		< CONNECTOR >	
* TP81	1-568-449-11	HOUSING, CONNECTOR (PC BOARD) 3P	

*	A-2007-214-A	PANEL BOARD, COMPLETE	

*	3-905-909-01	HOLDER (FL)	
*	4-932-810-11	CUSHION (FL)	
		< CAPACITOR >	
C301	1-165-319-11	CERAMIC CHIP 0.1uF 50V	
C302	1-164-005-11	CERAMIC CHIP 0.47uF 25V	
C303	1-164-346-11	CERAMIC CHIP 1uF 16V	
C304	1-165-319-11	CERAMIC CHIP 0.1uF 50V	
C305	1-163-003-11	CERAMIC CHIP 330PF 10% 50V	
C307	1-163-003-11	CERAMIC CHIP 330PF 10% 50V	
C308	1-163-003-11	CERAMIC CHIP 330PF 10% 50V	
C309	1-163-003-11	CERAMIC CHIP 330PF 10% 50V	
		< CONNECTOR >	
CN301	1-580-472-11	SOCKET, CONNECTOR 5P	
CN302	1-580-472-11	SOCKET, CONNECTOR 5P	
* CN305	1-580-415-11	SOCKET, CONNECTOR 11P	
		< FLUORESCENT INDICATOR >	
FL301	1-517-232-11	INDICATOR TUBE, FLUORESCENT	
		< IC >	
IC301	8-759-198-92	IC M38122-M2-060FP	

PANEL POWER

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
< RESISTOR >							
R301	1-216-025-00	METAL CHIP	100 5% 1/10W	C505	1-124-478-11	ELECT	100uF 20% 25V
R302	1-216-025-00	METAL CHIP	100 5% 1/10W	C506	1-124-920-11	ELECT	330uF 20% 50V
R303	1-216-025-00	METAL CHIP	100 5% 1/10W	C507	1-124-122-11	ELECT	100uF 20% 50V
R304	1-216-025-00	METAL CHIP	100 5% 1/10W	C508	1-164-232-11	CERAMIC CHIP	0.01uF 50V
R305	1-216-025-00	METAL CHIP	100 5% 1/10W	C509	1-126-927-11	ELECT	2200uF 20% 6.3V
R306	1-216-073-00	METAL CHIP	10K 5% 1/10W	C510	1-124-477-11	ELECT	47uF 20% 25V
R307	1-216-073-00	METAL CHIP	10K 5% 1/10W	C513	1-164-232-11	CERAMIC CHIP	0.01uF 50V
R308	1-216-073-00	METAL CHIP	10K 5% 1/10W	C514	1-124-927-11	ELECT	4.7uF 20% 100V
R310	1-216-051-00	METAL CHIP	1.2K 5% 1/10W	C515	1-124-472-11	ELECT	470uF 20% 10V
R311	1-216-077-00	METAL CHIP	15K 5% 1/10W	C516	1-124-472-11	ELECT	470uF 20% 10V
R312	1-216-055-00	METAL CHIP	1.8K 5% 1/10W	C517	1-164-232-11	CERAMIC CHIP	0.01uF 50V
R313	1-216-059-00	METAL CHIP	2.7K 5% 1/10W	C518	1-126-926-11	ELECT	1000uF 20% 10V
R314	1-216-063-00	METAL CHIP	3.9K 5% 1/10W	C519	1-126-926-11	ELECT	1000uF 20% 10V
R315	1-216-069-00	METAL CHIP	6.8K 5% 1/10W	C520	1-126-101-11	ELECT	100uF 20% 16V
R326	1-216-073-00	METAL CHIP	10K 5% 1/10W	C521	1-126-101-11	ELECT	100uF 20% 16V
R327	1-216-073-00	METAL CHIP	10K 5% 1/10W	C526	1-163-037-11	CERAMIC CHIP	0.022uF 10% 25V
R328	1-216-073-00	METAL CHIP	10K 5% 1/10W	C527	1-163-037-11	CERAMIC CHIP	0.022uF 10% 25V
R329	1-216-073-00	METAL CHIP	10K 5% 1/10W	C529	1-163-037-11	CERAMIC CHIP	0.022uF 10% 25V
R331	1-216-073-00	METAL CHIP	10K 5% 1/10W	C530	1-163-037-11	CERAMIC CHIP	0.022uF 10% 25V
R332	1-216-097-00	METAL CHIP	100K 5% 1/10W	C590	1-163-038-00	CERAMIC CHIP	0.1uF 25V
R333	1-216-097-00	METAL CHIP	100K 5% 1/10W	C595	1-164-232-11	CERAMIC CHIP	0.01uF 50V
R334	1-216-097-00	METAL CHIP	100K 5% 1/10W	< CONNECTOR >			
R335	1-216-097-00	METAL CHIP	100K 5% 1/10W	* CN502	1-568-862-11	SOCKET, CONNECTOR	19P
R336	1-216-097-00	METAL CHIP	100K 5% 1/10W	* CNP501	1-569-496-11	SOCKET, CONNECTOR	10P
R337	1-216-097-00	METAL CHIP	100K 5% 1/10W	< DIODE >			
< SWITCH >				D501	8-719-200-02	DIODE	10E2
S301	1-554-303-21	SWITCH, TACTILE (DOLBY NR)		D502	8-719-200-02	DIODE	10E2
S302	1-554-303-21	SWITCH, TACTILE (DIRECTION MODE)		D503	8-719-200-02	DIODE	10E2
S303	1-554-303-21	SWITCH, TACTILE (MUTE)		D504	8-719-200-02	DIODE	10E2
S304	1-554-303-21	SWITCH, TACTILE (DUBBING MODE)		D506	8-719-200-02	DIODE	10E2
S305	1-554-303-21	SWITCH, TACTILE (CD SYNCHRO)		D507	8-719-200-02	DIODE	10E2
S306	1-554-303-21	SWITCH, TACTILE (COUNTER A/B)		D508	8-719-200-02	DIODE	10E2
S307	1-554-303-21	SWITCH, TACTILE (RESET)		D509	8-719-200-02	DIODE	10E2
< VIBRATOR >				D510	8-719-200-02	DIODE	10E2
X301	1-577-358-21	VIBRATOR, CERAMIC (4MHz)		D511	8-719-200-02	DIODE	10E2
*****				D514	8-719-422-58	DIODE	MA8062
*	A-2007-215-A	POWER BOARD, COMPLETE		D515	8-719-200-02	DIODE	10E2
*****				D516	8-719-200-02	DIODE	10E2
	7-682-547-09	SCREW +BVTT 3X6 (S)		D517	8-719-017-94	DIODE	MA8180
< CAPACITOR >				D518	8-719-977-12	DIODE	DTZ6.8B
C501	1-124-360-00	ELECT	1000uF 20% 16V	D520	8-719-016-74	DIODE	1SS352
C502	1-124-360-00	ELECT	1000uF 20% 16V	D521	8-719-016-74	DIODE	1SS352
C503	1-124-360-00	ELECT	1000uF 20% 16V	< HEAT SINK >			
C504	1-124-360-00	ELECT	1000uF 20% 16V	* HT501	3-309-144-21	HEAT SINK	
				* HT502	4-880-403-11	HEAT SINK	
				* HT503	3-309-144-21	HEAT SINK	
				* HT506	3-309-144-21	HEAT SINK	

POWER

SW-A

SW-B

SW (A)

Ref. No.	Part No.	Description	Remark
* HT507	3-309-144-21	HEAT SINK	
		< IC >	
IC501	8-759-602-66	IC M5230L-A	
		< IC LINK >	
△F501	1-532-840-21	LINK, IC (1.25A)	
△F502	1-532-840-21	LINK, IC (1.25A)	
		< TRANSISTOR >	
Q501	8-729-209-15	TRANSISTOR 2SD2012	
Q502	8-729-141-83	TRANSISTOR 2SB1094-LK	
Q503	8-729-209-15	TRANSISTOR 2SD2012	
Q504	8-729-602-21	TRANSISTOR 2SC4154-F	
Q505	8-729-118-01	TRANSISTOR 2SB1116-K	
Q506	8-729-141-83	TRANSISTOR 2SB1094-LK	
Q507	8-729-209-15	TRANSISTOR 2SD2012	
Q508	8-729-805-45	TRANSISTOR 2SC3395	
		< RESISTOR >	
R506	1-216-055-00	METAL CHIP 1.8K 5% 1/10W	
R507	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R510	1-216-121-00	METAL CHIP 1M 5% 1/10W	
R511	1-216-033-00	METAL CHIP 220 5% 1/10W	
R512	1-216-043-00	METAL CHIP 560 5% 1/10W	
R513	1-216-033-00	METAL CHIP 220 5% 1/10W	
R514	1-216-043-00	METAL CHIP 560 5% 1/10W	
R515	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R516	1-216-074-00	METAL CHIP 11K 5% 1/10W	
R517	1-216-077-00	METAL CHIP 15K 5% 1/10W	
R518	1-216-077-00	METAL CHIP 15K 5% 1/10W	
R519	1-216-025-00	METAL CHIP 100 5% 1/10W	
R520	1-216-025-00	METAL CHIP 100 5% 1/10W	
R522	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R528	1-216-041-00	METAL CHIP 470 5% 1/10W	
R529	1-216-041-00	METAL CHIP 470 5% 1/10W	
		< TRANSFORMER >	
△T501	1-423-812-11	TRANSFORMER, POWER	

*	1-638-020-11	SW-A BOARD	

		< CONNECTOR >	
* CNP81	1-568-850-11	SOCKET, CONNECTOR 7P	

Ref. No.	Part No.	Description	Remark
		< IC >	
IC81A	8-749-924-10	IC PHONT REFLECTOR NJL5165K-B(H1)	
		< RESISTOR >	
R84	1-249-417-11	CARBON 1K 5% 1/4W F	
R85	1-249-408-11	CARBON 180 5% 1/4W F	
		< SWITCH >	
S81A	1-571-958-11	SWITCH, PUSH (1 KEY) (STOP DET)	
S82A	1-571-281-21	SWITCH, LEAF (CrO2 DET)	
S86A	1-571-281-21	SWITCH, LEAF (HALF DET)	

*	1-638-020-11	SW-B BOARD	

		< CONNECTOR >	
* CNP81	1-568-850-11	SOCKET, CONNECTOR 7P	
		< IC >	
IC81B	8-749-924-10	IC PHONT REFLECTOR NJL5165K-B(H1)	
		< RESISTOR >	
R81	1-249-414-11	CARBON 560 5% 1/4W F	
R82	1-247-818-11	CARBON 300 5% 1/4W	
R83	1-247-834-11	CARBON 1.3K 5% 1/4W	
R84	1-249-417-11	CARBON 1K 5% 1/4W F	
R85	1-249-408-11	CARBON 180 5% 1/4W F	
		< SWITCH >	
S81B	1-571-958-11	SWITCH, PUSH (1 KEY) (STOP DET)	
S82B	1-571-281-21	SWITCH, LEAF (CrO2 DET)	
S83	1-571-281-21	SWITCH, LEAF (METAL DET)	
S84	1-571-281-21	SWITCH, LEAF (ERASE PROOF (SIDE A))	
S85	1-571-281-21	SWITCH, LEAF (ERASE PROOF (SIDE B))	
S86B	1-571-281-21	SWITCH, LEAF (HALF DET)	

*	1-651-845-11	SW (A) BOARD	

		< CONNECTOR >	
CN304	1-580-412-11	SOCKET, CONNECTOR 5P	
		< RESISTOR >	
R322	1-216-051-00	METAL CHIP 1.2K 5% 1/10W	
R323	1-216-055-00	METAL CHIP 1.8K 5% 1/10W	
R324	1-216-059-00	METAL CHIP 2.7K 5% 1/10W	

The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.

SW (A)

SW (B)

Ref. No.	Part No.	Description	Remark
R325	1-216-069-00	METAL CHIP 6.8K 5% 1/10W < SWITCH >	
S315	1-554-303-21	SWITCH, TACTILE (□)	
S316	1-554-303-21	SWITCH, TACTILE (▷)	
S317	1-554-303-21	SWITCH, TACTILE (◁)	
S318	1-554-303-21	SWITCH, TACTILE (◀◀)	
S319	1-554-303-21	SWITCH, TACTILE (▶▶)	

*	1-651-846-11	SW (B) BOARD ***** < CONNECTOR >	
CN303	1-580-412-11	SOCKET, CONNECTOR 5P < RESISTOR >	
R316	1-216-051-00	METAL CHIP 1.2K 5% 1/10W	
R317	1-216-055-00	METAL CHIP 1.8K 5% 1/10W	
R318	1-216-059-00	METAL CHIP 2.7K 5% 1/10W	
R319	1-216-063-00	METAL CHIP 3.9K 5% 1/10W	
R320	1-216-063-00	METAL CHIP 3.9K 5% 1/10W	
R321	1-216-069-00	METAL CHIP 6.8K 5% 1/10W < SWITCH >	
S308	1-554-303-21	SWITCH, TACTILE (□)	
S309	1-554-303-21	SWITCH, TACTILE (▷)	
S310	1-554-303-21	SWITCH, TACTILE (◁)	
S311	1-554-303-21	SWITCH, TACTILE (■ PAUSE)	
S312	1-554-303-21	SWITCH, TACTILE (◀◀)	
S313	1-554-303-21	SWITCH, TACTILE (▶▶)	
S314	1-554-303-21	SWITCH, TACTILE (● REC)	

MISCELLANEOUS *****			
5	1-765-405-11	WIRE (FLAT TYPE) (19 CORE)	
6	1-751-819-11	WIRE (FLAT TYPE) (5 CORE)	
15	1-765-404-11	WIRE (FLAT TYPE) (7 CORE)	
21	1-751-821-11	WIRE (FLAT TYPE) (11 CORE)	
FL301	1-517-232-11	INDICATOR TUBE, FLUORESCENT	
HP101	A-2003-757-A	BASE ASSY, HEAD (DECK A)	
HRPE101	A-2003-930-A	BASE ASSY, HEAD (DECK B)	
IC81A	8-749-924-10	PHOTO REFECTOR NJ5165K-B (DECK A)	
IC81B	8-749-924-10	PHOTO REFECTOR NJ5165K-B (DECK B)	
M101A	X-3363-501-2	MOTOR ASSY (REEL) (DECK A)	
M101B	X-3363-501-2	MOTOR ASSY (REEL) (DECK B)	
M102A	X-3365-377-1	MOTOR ASSY (CAPSTAN) (DECK A)	
M102B	X-3365-377-1	MOTOR ASSY (CAPSTAN) (DECK B)	

Ref. No.	Part No.	Description	Remark
△T501	1-423-812-11	TRANSFORMER, POWER	

***** HARDWARE LIST *****			
#1	7-621-770-67	SCREW +PTT 2.6X6 (S)	
#2	7-621-773-93	SCREW (PANEL 2.6 TP2)	
#3	7-621-775-00	SCREW +B 2.6X3	
#4	7-621-849-00	SCREW, TAPPING	
#5	7-627-556-08	SCREW +P 2.6X2.8	
#6	7-682-547-09	SCREW +BVTT 3X6 (S)	
#7	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S	
#8	7-685-780-01	SCREW +PTT1 2X3 (S)	

The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.

