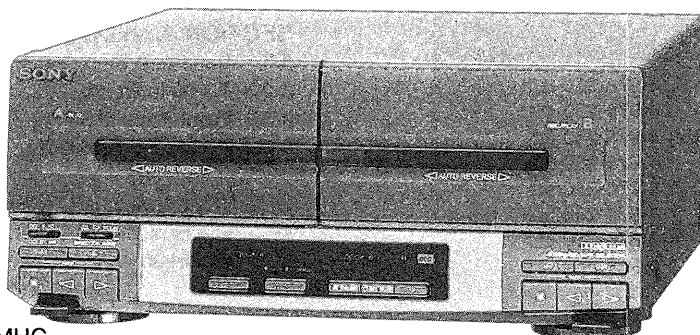


TC-EX90/EX100


SERVICE MANUAL

AEP Model
UK Model
E Model



TC-EX90 is the deck section in MHC-EX50/EX90, and TC-EX100 is the deck section in MHC-EX70AV/EX100AV.

Photo : TC-EX100 (SILVER)

Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation. "DOLBY" and the double-D symbol  are trademarks of Dolby Laboratories Licensing Corporation.

Model Name Using Similar Mechanism	TC-EX5	
Tape Transport Mechanism Type	DECK-A	TCM-190RA12CL
	DECK-B	TCM-190RB52C

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)

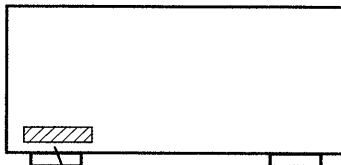
Dimensions
Approx. 280 x 122.5 x 280 mm
(11 1/8 x 4 7/8 x 11 1/8 in) (w/h/d)
incl. projecting parts and controls

Mass
Approx. 2.8 kg
(6 lb 2 oz)

STEREO CASSETTE DECK
SONY[®]

MODEL IDENTIFICATION

— BACK PANEL —



TC-EX100 (AEP, UK Model)	: 4-978-260-0□
TC-EX100 (E Model)	: 4-978-260-1□
TC-EX100 (Saudi Arabia Model)	: 4-978-260-2□
TC-EX100 (Thailand Model)	: 4-978-260-3□
TC-EX90 (AEP, UK Model)	: 4-978-260-4□
TC-EX90 (E Model)	: 4-978-260-5□
TC-EX90 (Saudi Arabia Model)	: 4-978-260-6□
TC-EX90 (Thailand Model)	: 4-978-260-7□

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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.

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

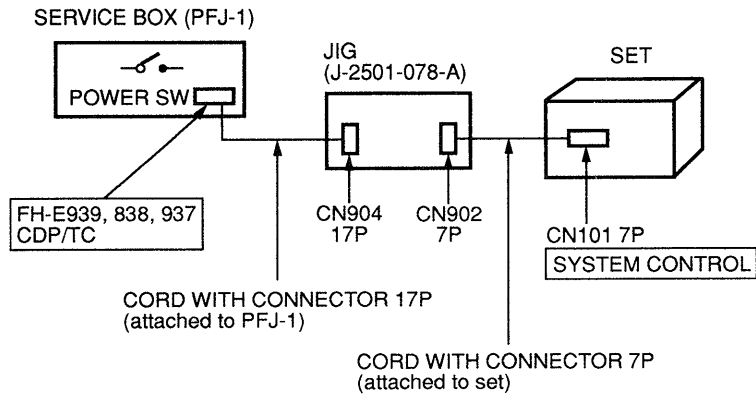
SERVICING NOTE

How to operate with a single unit.

Normally, this set is not operated with its own.

The exclusive jig (J-2501-078-A) and service box (PFJ-1) are necessary to operate the set with a single unit.

Turn the power set of the service box ON. Then press the ■ button of both DECK A and DECK B at the same time to turn the power on.



[Tune light on all LED]

Push ■ button of DECK A and ○ REC MUTE button at the same time. then, all segments of LED turn on the light.

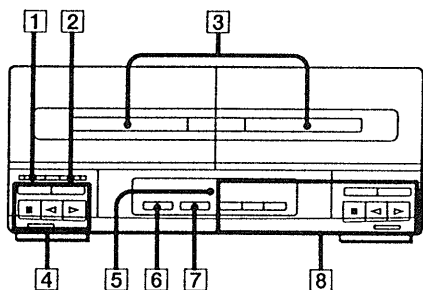
To cancel the mode, push ■ button of DECK A and ○ REC MUTE button at the same time again.

SECTION 2 GENERAL

This section is extracted
from instruction manual.

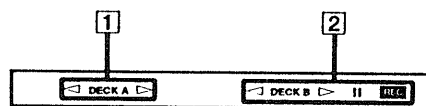
Index to Parts and Controls

Front Panel



- 1 DOLBY NR selector (15)
 - 2 DIRECTION MODE selector (14)
 - 3 Cassette compartments (14)
 - 4 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)
 - ⊞ (eject) (14)
 - 5 Display window
 - 6 CD SYNC button (15)
 - 7 DUBBING MODE button (19)
 - 8 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)
 - || PAUSE (14)
 - REC MUTE (16)
 - REC (recording) (16)
 - ⊞ (eject) (14)
- **AMS: Automatic Music Sensor (14)

Display Window

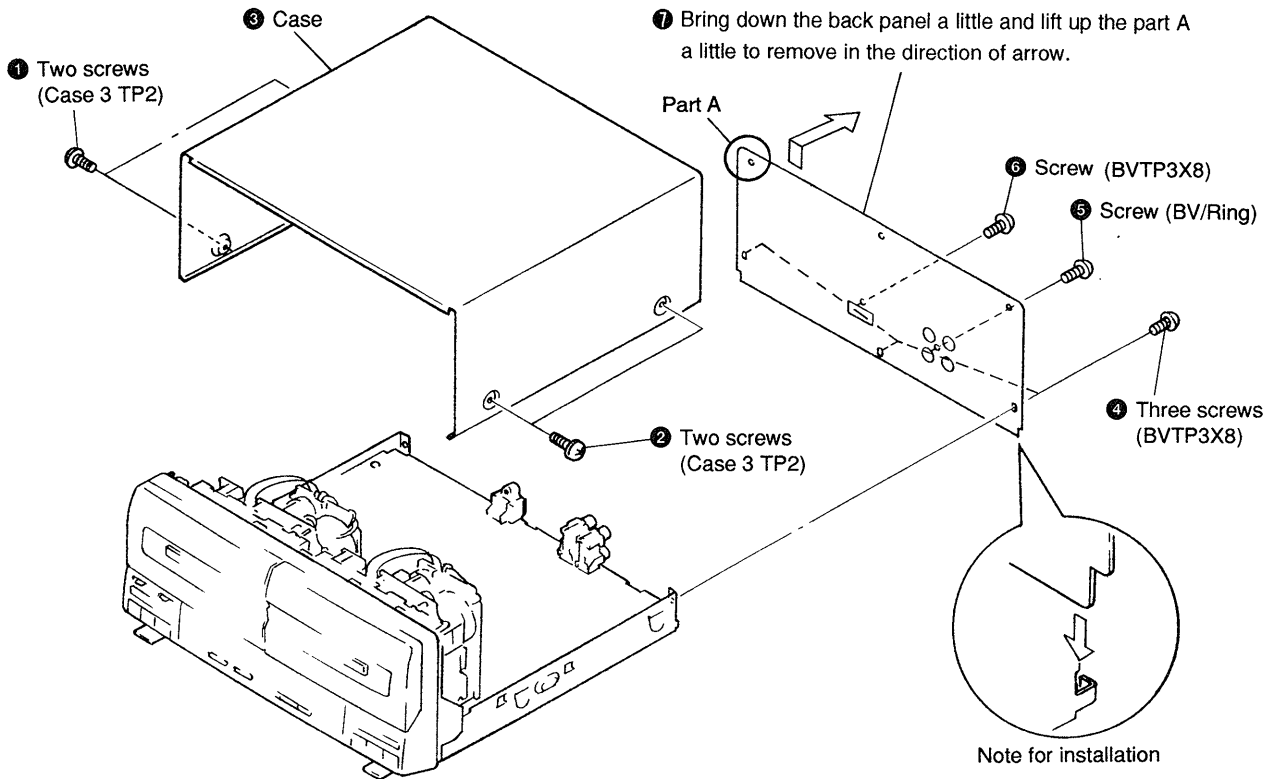


- 1 Deck A status indication
- 2 Deck B status indication

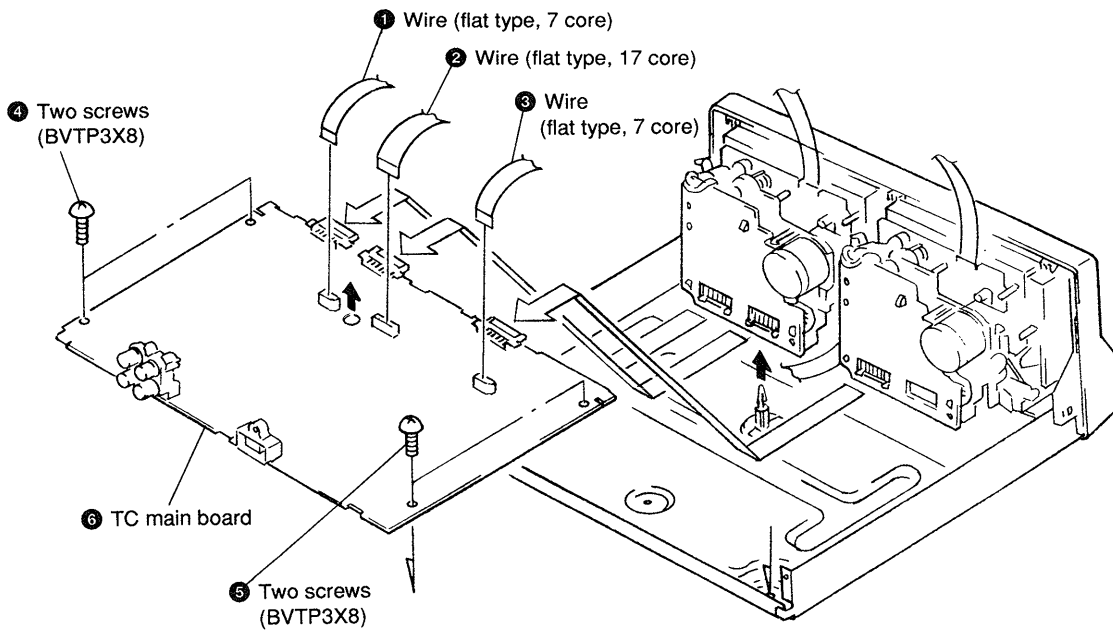
SECTION 3 DISASSEMBLY

Note : Follow the disassembly procedure in the numerical order given.

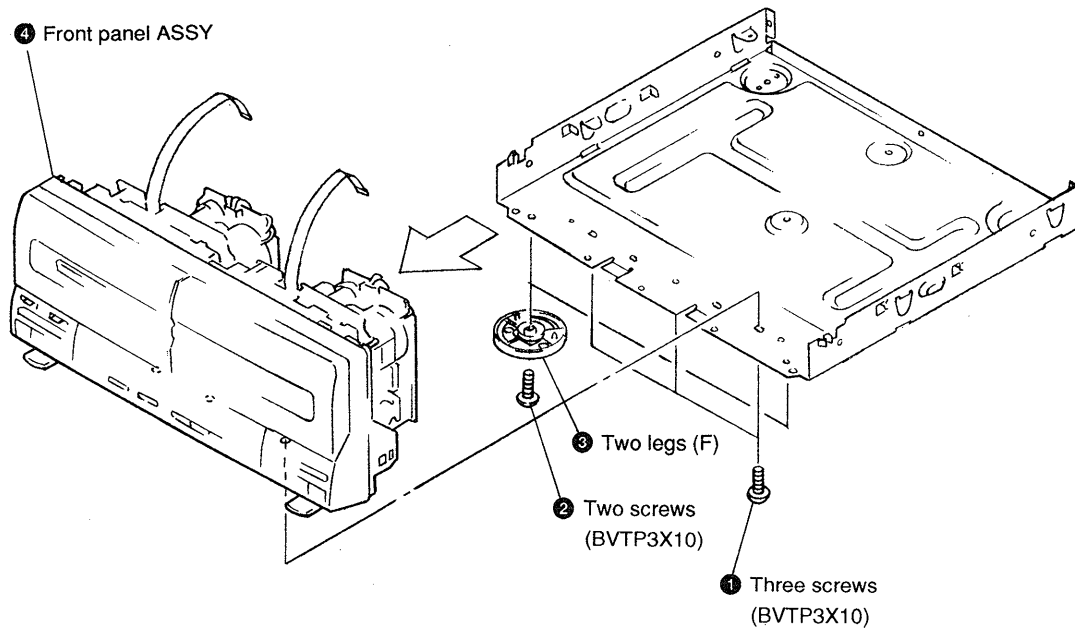
3-1. CASE AND BACK PANEL



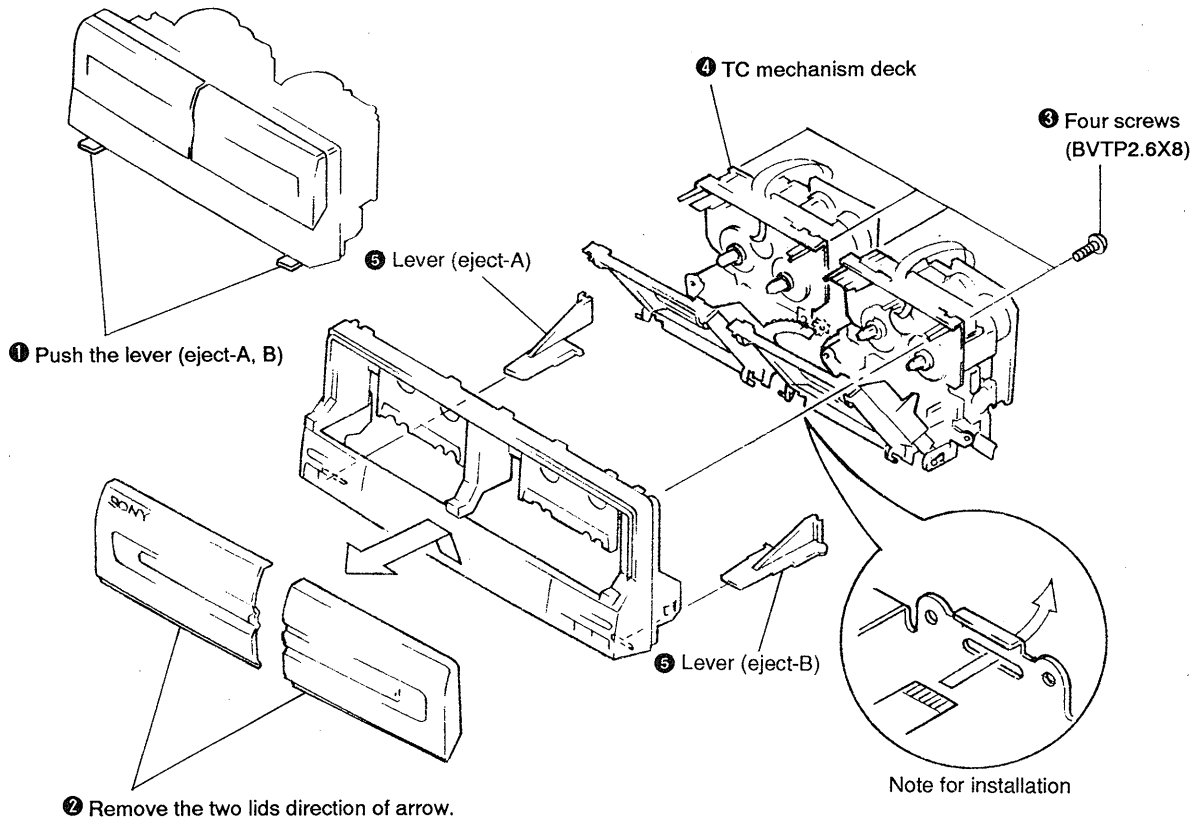
3-2. TC MAIN BOARD



3-3. FRONT PANEL ASSY



3-4. TC MECHANISM DECK



SECTION 4 ADJUSTMENTS

4-1. MECHANICAL ADJUSTMENTS

PRECAUTION

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

record/playback/erase head	pinch roller
rubber belts	capstan
2. Demagnetize the record/playback head with a head demagnetizer.
3. Do not use a magnetized screwdriver for the adjustment.
4. After the adjustments, 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
Forward	CQ-102C	30 to 60 g • cm (0.42 to 0.83 oz • inch)
Forward Back tension	CQ-102C	1 to 5 g • cm (0.014 to 0.069 oz • inch)
Reverse	CQ-102RC	30 to 60 g • cm (0.42 to 0.83 oz • inch)
Reverse Back tension	CQ-102RC	1 to 5 g • cm (0.014 to 0.069 oz • inch)
FF, REW	CQ-201B	65 to 90 g • cm (0.91 to 1.25 oz • inch)

Tape Tension Measurement

Torque meter	Meter reading
CQ-403A	more than 110 g (more than 3.88 oz)

4-2. ELECTRICAL ADJUSTMENTS

PRECAUTION

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

Test Tape

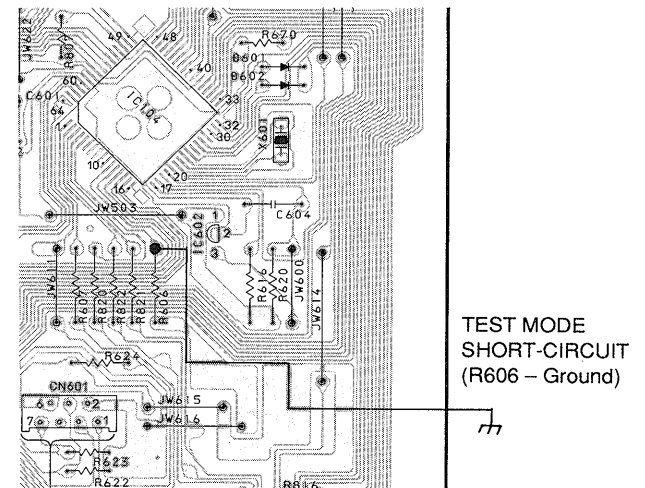
Tape	Contents	Use
P-4-A100	10 kHz, -10 dB	Azimuth Adjustment
P-4-L300	315 Hz, 0 dB	PB Level Adjustment
WS-48B	3 kHz, 0 dB	Tape Speed Adjustment

0dB = 0.775V

Test mode

1. If the power supply is TA-EX50/EX70/EX90/EX100. (When AU BUS is alive)
 - ① Short-circuit following portion (R606 – Ground) on the TC MAIN board.
 - ② Turn the POWER on.
 - ③ Open the short-circuit to release test mode.

[TC MAIN BOARD]



2. If the power supply is a jig.
 Turn the power set of the service box ON. Then press the ■ button of both DECK A and DECK B at the same time to turn the power on.

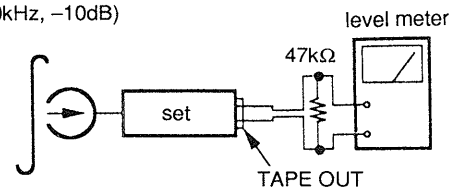
Record/Playback Head Azimuth Adjustment

DECK-A **DECK-B**

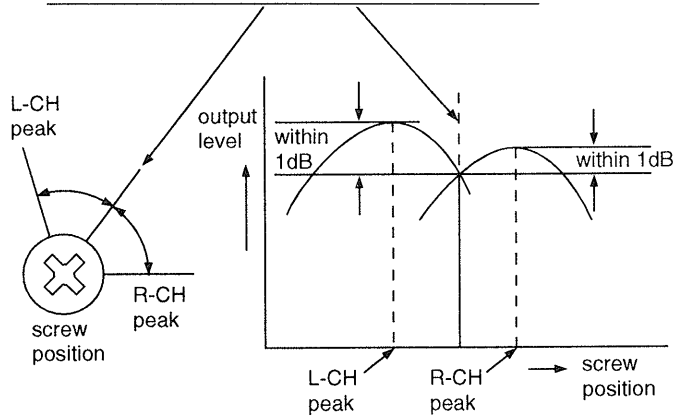
Note : Perform this adjustment for both decks.

Procedure :

1. Mode : Forward playback
 test tape
 P-4-A100
 (10kHz, -10dB)

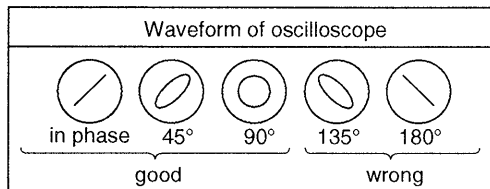
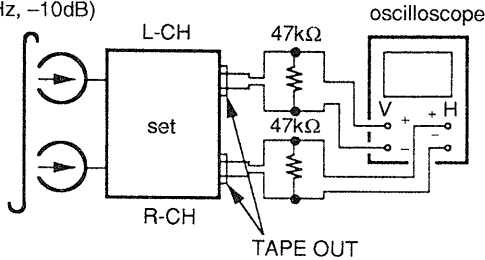


- Turn the adjustment screw for the maximum output levels. If these levels do not match, turn the adjustment screw until both of output levels match together within 1 dB.



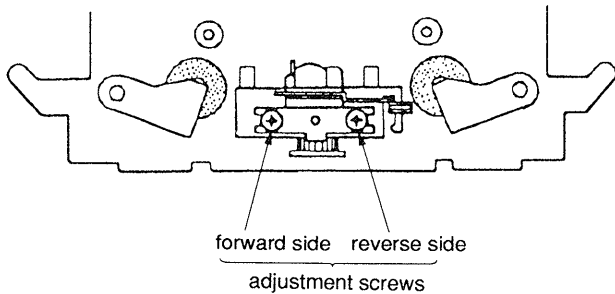
- Mode : Playback

test tape
P-4-A100
(10kHz, -10dB)



- Change the reverse playback mode and repeat the steps 1 to 3.
- After the adjustment, lock the adjustment screws with suitable locking compound.

Adjustment Location : — Record/Playback head —



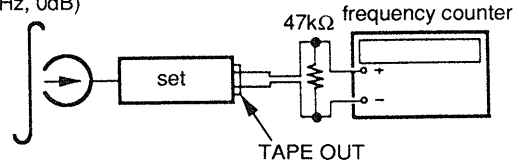
Note : To adjust Azimuth, after take off WINDOW ASSY, ILLUMINATOR and LID ASSY CASSETTE of FRONT PANEL.

Tape Speed Adjustment DECK-A DECK-B

Procedure :

Mode : Forward Playback

test tape
WS-48B
(3kHz, 0dB)



(high speed adjustment)

- Set to FWD playback mode.
- Press the DUBBING MODE button at HIGH position.
- Adjust RV72 so that the frequency counter reading becomes $6,000 \pm 60$ Hz.

(normal speed adjustment)

- Set to FWD playback mode.
- Set the DUBBING MODE button to NORMAL.
- Adjust RV71 so that the frequency counter reading becomes $3,000 \pm 30$ Hz.

Frequency difference between the deck A and deck B the beginning of the tape should be within $\pm 1\%$.

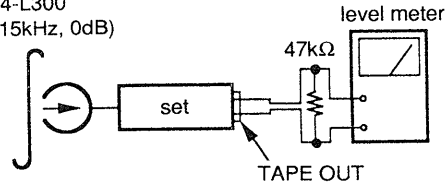
Adjustment Location : AUDIO board. (See page 9)

Playback Level Adjustment DECK-A DECK-B

Procedure :

Mode : Forward Playback

test tape
P-4-L300
(315kHz, 0dB)



Adjust RV11 (L-CH) and RV21 (R-CH), so the level meter reading becomes the adjustment Level below.

Adjustment Level :

TAPE OUT level : -7.4 ± 1 dB (0.294 to 0.37 V)

Level difference between channels : within 0.5 dB.

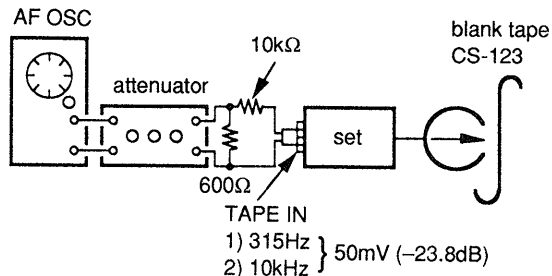
Confirm the TAPE OUT level does not change in playback mode while changing the mode from playback to stop several times.

Adjustment Location : AUDIO board. (See page 9)

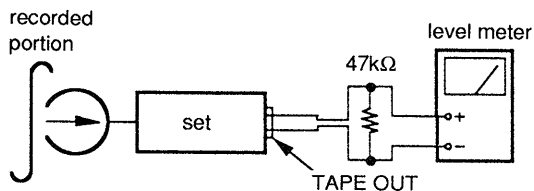
Record Bias Adjustment **DECK-B**

Procedure :

1. Mode : Record



2. Mode : Playback



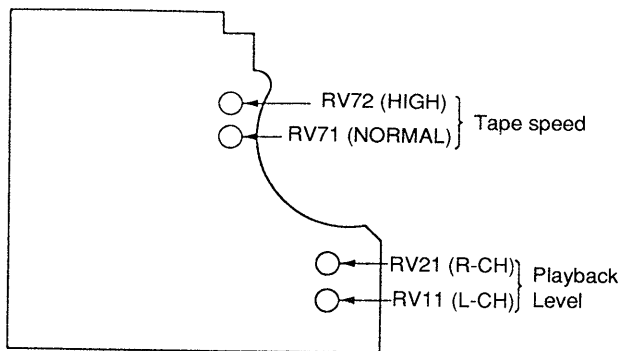
Confirm that the 10 kHz playback output is 0 ± 0.5 dB relative to the 315 Hz output. If necessary, adjust RV12 (L-CH), RV22 (R-CH) and repeat the steps given above.

Adjustment Location : AUDIO board. (See page 9)

— Adjustment Parts Location Diagrams —

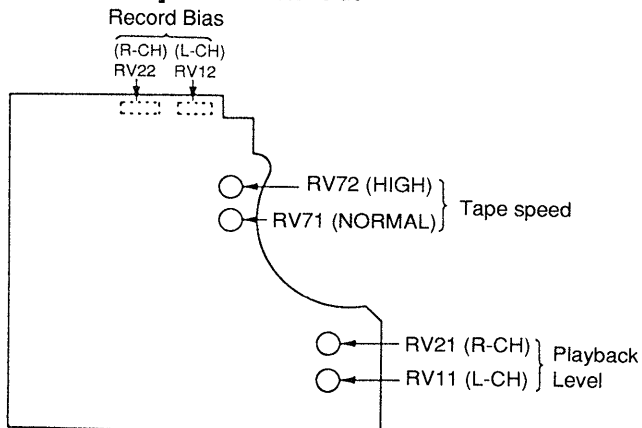
DECK A :

[MAIN BOARD] — Conductor side —



DECK B :

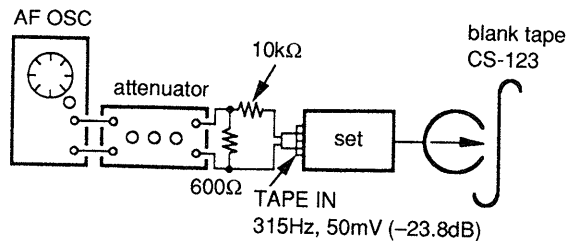
[AUDIO BOARD] — Conductor side —



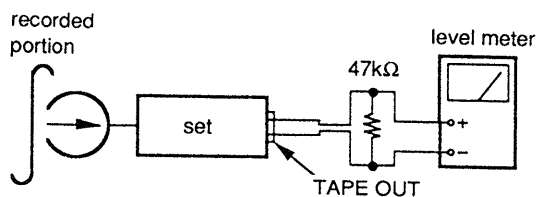
Record Level Adjustment **DECK-B**

Procedure :

1. Mode : Record



2. Mode : Playback



Confirm playback the tape recorded become adjustment level as follows.

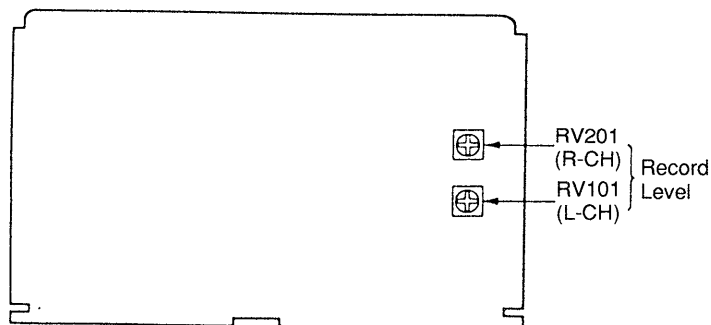
If necessary, adjust RV101 (L-CH), RV201 (R-CH) and repeat the steps 1 and 2.

Adjustment level :

TAPE OUT level : -23.8 ± 0.5 dB (47.2 to 53 mV)

Adjustment Location : TC MAIN board. (See page 9)

[TC MAIN BOARD] — Component side —



SECTION 5 DIAGRAMS

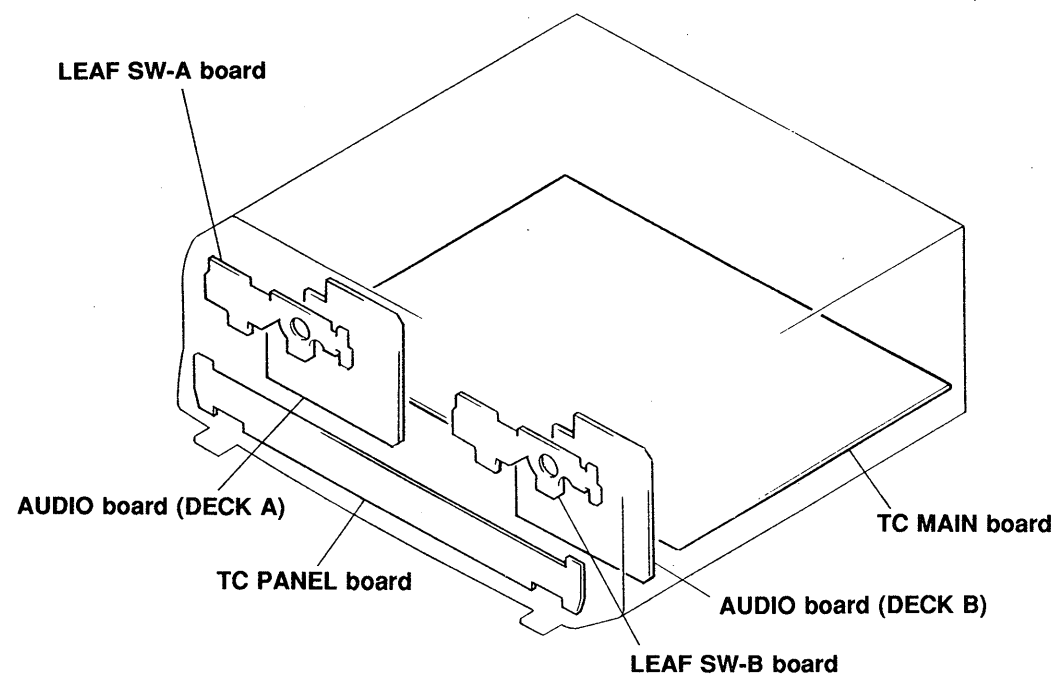
5-1. IC PIN FUNCTION

• IC104 M38123M4-118FP SYSTEM CONTROL (TC MAIN BOARD)

Pin No.	Pin Name	I/O	Function																				
1	B HALF	I	B Half detection input. "L": Presence "H": Nothing																				
2	KEY 3	I	} Key input. (A/D converter analog input)																				
3	KEY 2	I																					
4	KEY 1	I																					
5	TEST	I	Electrical adjustment test mode setting. "L": Test mode																				
6	DISP RST	O	} GND																				
7	DISP SYNC	O																					
8	DISP CLK	O																					
9	DISP OUT	O																					
10	DISP IN	O																					
11	B REEL 2	O	} Deck B reel motor control output.																				
12	B REEL 3	O																					
13	B REEL 1	O																					
				<table border="1" style="float: right; margin-left: 20px;"> <thead> <tr> <th></th> <th>FF</th> <th>TRIG</th> <th>STOP</th> <th>FWD</th> </tr> </thead> <tbody> <tr> <td>REEL 1</td> <td>H</td> <td>L</td> <td>L</td> <td>H</td> </tr> <tr> <td>REEL 2</td> <td>L</td> <td>H</td> <td>L</td> <td>L</td> </tr> <tr> <td>REEL 3</td> <td>H</td> <td>H</td> <td>L</td> <td>L</td> </tr> </tbody> </table>		FF	TRIG	STOP	FWD	REEL 1	H	L	L	H	REEL 2	L	H	L	L	REEL 3	H	H	L
	FF	TRIG	STOP	FWD																			
REEL 1	H	L	L	H																			
REEL 2	L	H	L	L																			
REEL 3	H	H	L	L																			
14	A REEL 1	O	} Deck A reel motor control output.																				
15	A REEL 3	O																					
16	A REEL 2	O																					
17	PWR IN	I	+5V power supply input.																				
18	AUB IN	I	Audio bus input.																				
19	NRST	I	Microcomputer reset input.																				
20	AUB OUT	O	Audio bus output.																				
21	XC OUT	O	Not used. (GND)																				
22	X IN	I	} Oscillator connection pins. (4 MHz)																				
23	X OUT	O																					
24	Vss	-	} GND																				
25	VER	-																					
26	PWR OUT	O	Not used. (Open)																				
27	LINE MUTE	O	Line mute ON/OFF. "L": ON																				
28	BIAS	O	Bias oscillation control output. "L": ON																				
29	NC	-	GND																				
30	DAT FUNC	O	DAT mute output.																				
31	CD FUNC	O	CD mute output.																				
32	PASS	O	PASS amplifier switch output to dolby.																				
33	EQ H/L	O	REC equalizer switching output. "L": High speed "H": Normal speed																				
34	REC MUTE	O	REC mute output.																				
35	PB SEL	O	Play mode deck A/B select output. "L": DECK A "H": DECK B																				
36	AMS G SEL	O	AMS/BS mode select output. "H": AMS mode "L": BS mode																				
37	I599 MUTE	O	Mute output to IC101 (CXA1599Q). "H": ON "L": OFF																				
38	NC	-	Not used. (+5V)																				
39	NR RELAY	O	ALC (Automatic Level Control) control output.																				
40	CD SYNC	O	CD synchro dubbing LED output. "H": ON "L": OFF																				

Pin No.	Pin Name	I/O	Function
41	DUB H	O	High speed dubbing LED output. "H": ON "L": OFF
42	DUB N	O	Normal speed dubbing LED output. "H": ON "L": OFF
43	PAUSE	O	PAUSE LED output. "H": ON "L": OFF
44	REC	O	REC LED output. "H": ON "L": OFF
45	B ◀	O	Deck B REV LED output. "H": ON "L": OFF
46	B ▶	O	Deck B FWD LED output. "H": ON "L": OFF
47	A ◀	O	Deck A REV LED output. "H": ON "L": OFF
48	A ▶	O	Deck A FWD LED output. "H": ON "L": OFF
49	B STOP SW	I	Deck B stop detect input. "H": STOP
50	A STOP SW	I	Deck A stop detect input. "H": STOP
51	+7.5V DET	I	+7.5V power supply detect input.
52	RELAY	O	Control output to REC/PB select output. "H": REC "L": PLAY
53	REC/PB	O	Dolby IC (IC103) REC/PB select output. "H": REC "L": PLAY
54	CAP. MOT H/L	O	Capstan motor HIGH/LOW select output. "H": HIGH "L": LOW
55	B CAP. MOTOR	O	Deck B capstan motor control output. "H": ON "L": OFF
56	A CAP. MOTOR	O	Deck A capstan motor control output. "H": ON "L": OFF
57	VDD	—	+5V power supply.
58	VEE	—	} GND
59	AVss	—	
60	VREF	I	A/D converter reference power supply +5V.
61	A HALF	I	Deck A half detect input.
62	BS. REEL IN	I	Deck B reel table signal input.
63	AS. REEL IN	I	Deck A reel table signal input.
64	AMS IN	I	AMS input. "L": No song "H": Song

5-2. CIRCUIT BOARDS LOCATION



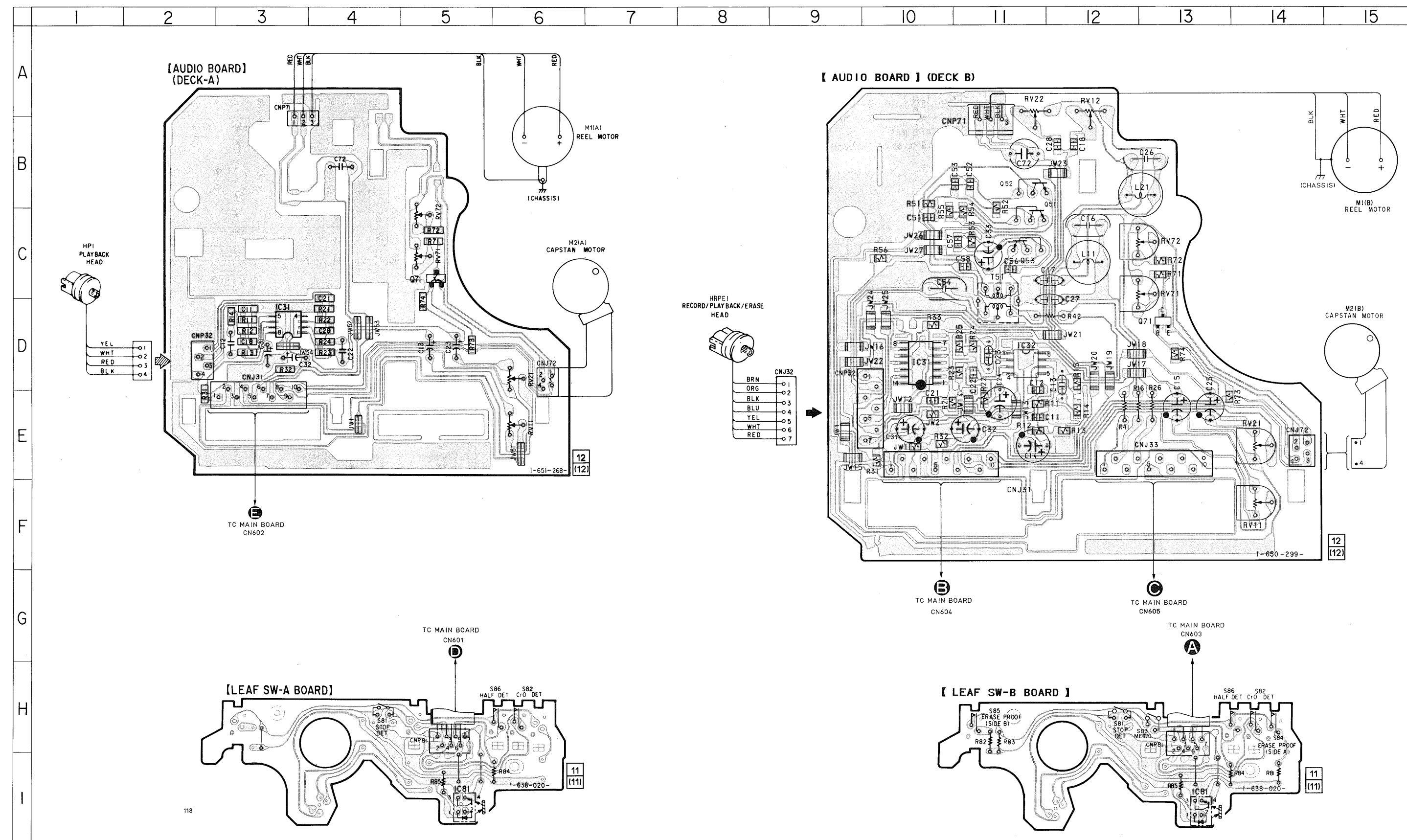
• Semiconductor Location

Ref. No.	Location
IC31 (DECK A)	D-3
IC31 (DECK B)	D-10
IC32	D-11
IC81 (DECK A)	I-5
IC81 (DECK B)	I-13
Q51	C-11
Q52	B-11
Q53	C-11
Q71 (DECK A)	C-5
Q71 (DECK B)	D-13

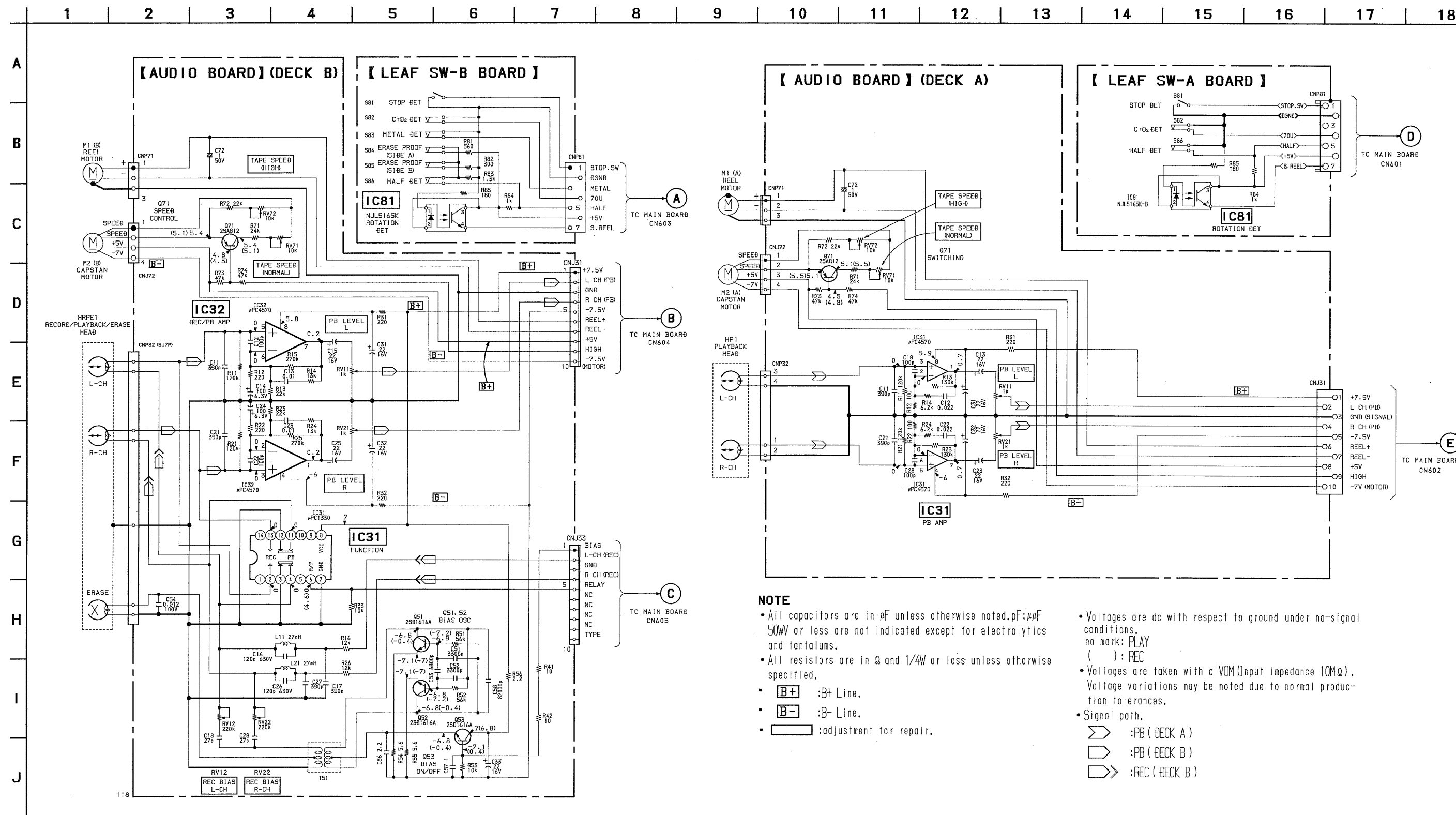
Note:

- : parts extracted from the component side.
- : parts extracted from the conductor side.
- : Pattern from the side which enable seeing.

5-3. PRINTED WIRING BOARD — AUDIO SECTION —



5-4. SCHEMATIC DIAGRAM — AUDIO SECTION —



NOTE

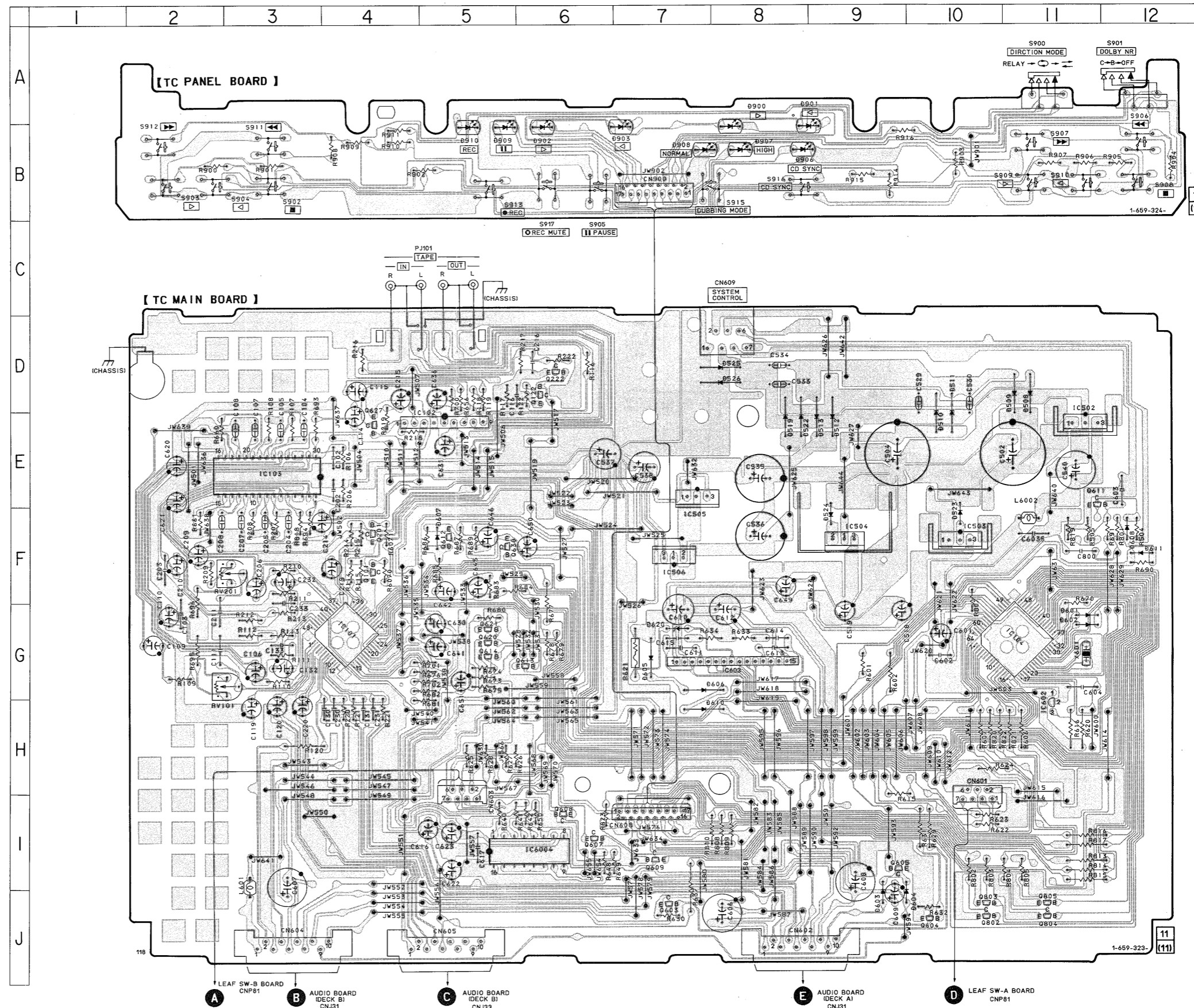
- All capacitors are in μF unless otherwise noted. pF : μF 50W or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and $1/4\text{W}$ or less unless otherwise specified.
- **[B+]** :B+ Line.
- **[B-]** :B- Line.
- **[]** :adjustment for repair.

- Voltages are dc with respect to ground under no-signal conditions, no mark: PLAY () : REC
- Voltages are taken with a VOM (Input impedance $10\text{M}\Omega$). Voltage variations may be noted due to normal production tolerances.
- Signal path.
 - >> :PB (DECK A)
 - > :PB (DECK B)
 - >>> :REC (DECK B)

5-5. PRINTED WIRING BOARD — TC SECTION —
 • See page 12 for Circuit Boards Location.

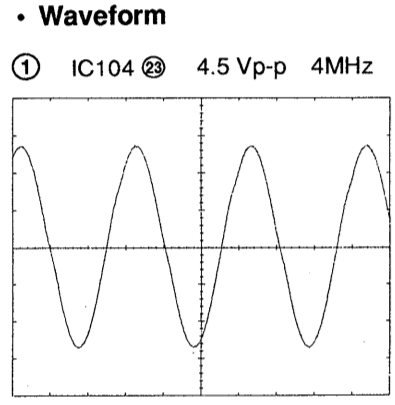
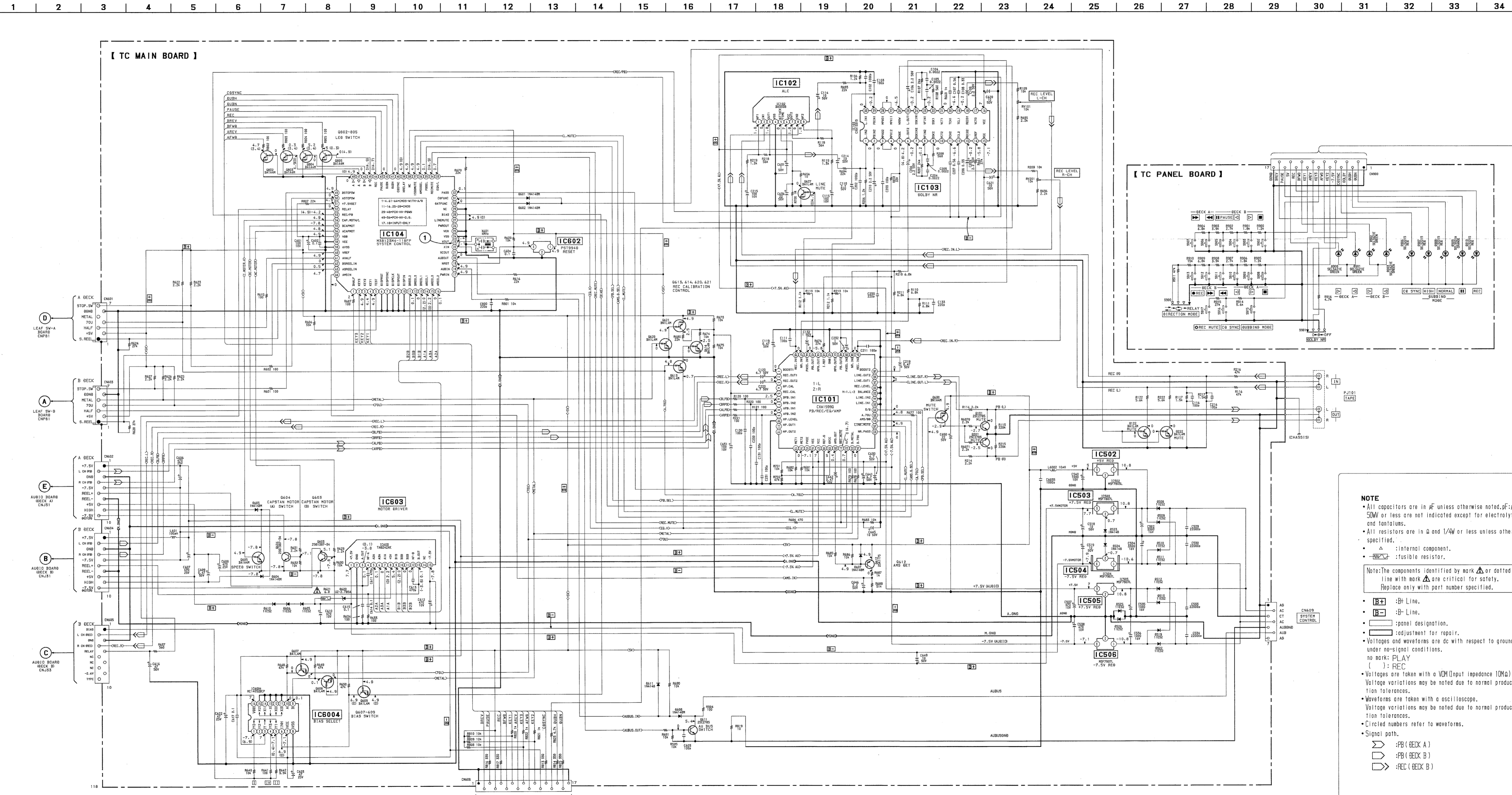
• Semiconductor Location

Ref. No.	Location	Ref. No.	Location
D508	D-11	IC102	E-5
D509	D-11	IC103	E-3
D510	E-10	IC104	G-11
D511	E-10	IC502	E-11
D512	E-9	IC503	F-10
D513	E-9	IC504	F-9
D519	E-8	IC505	E-7
D522	E-8	IC506	F-7
D523	F-10	IC602	H-11
D524	F-9	IC603	G-8
D525	D-8	IC6004	I-6
D526	D-8		
D601	G-11	Q101	F-4
D602	G-11	Q122	D-6
D603	J-9	Q201	F-4
D604	J-9	Q222	D-6
D605	G-7	Q603	J-7
D606	G-7	Q604	J-10
D607	F-5	Q605	I-9
D608	F-12	Q607	I-6
D610	H-7	Q608	I-6
D611	F-12	Q609	I-7
D620	G-7	Q611	F-11
D900	B-8	Q612	F-5
D901	B-8	Q613	G-6
D902	B-6	Q614	G-5
D903	B-7	Q620	G-5
D906	B-8	Q621	G-5
D907	B-8	Q627	E-4
D908	B-7	Q630	F-5
D909	B-5	Q802	J-10
D910	B-5	Q803	J-10
		Q804	J-11
IC101	G-4	Q805	J-11



Note:
 • ○ : parts extracted from the component side.
 • — : parts extracted from the conductor side.
 • △ : internal component.
 • [] : Pattern from the side which enable seeing.

5-6. SCHEMATIC DIAGRAM — TC SECTION —
• See page 10 for IC Pin function. (IC104)
• See page 23 for IC Block Diagrams.



- NOTE**
- All capacitors are in μF unless otherwise noted. μF = μF 50WV or less are not indicated except for electrolytics and tantalums.
 - All resistors are in Ω and $1/4\text{W}$ or less unless otherwise specified.
 - Δ : internal component.
 - R : fusible resistor.
- Note: The components identified by mark Δ or dotted line with mark R are critical for safety. Replace only with part number specified.
- B+ : B+ Line.
 - B- : B- Line.
 - P : panel designation.
 - R : adjustment for repair.
 - Voltagages and waveforms are dc with respect to ground under no-signal conditions.
 - no mark: PLAY
 - (): REC
 - Voltagages are taken with a VOM (input impedance 10M Ω). Voltage variations may be noted due to normal production tolerances.
 - Waveforms are taken with an oscilloscope. Voltage variations may be noted due to normal production tolerances.
 - Circled numbers refer to waveforms.
 - Signal path.
- PB (BECK A)
 - PB (BECK B)
 - REC (BECK B)

SECTION 6

EXPLODED VIEWS

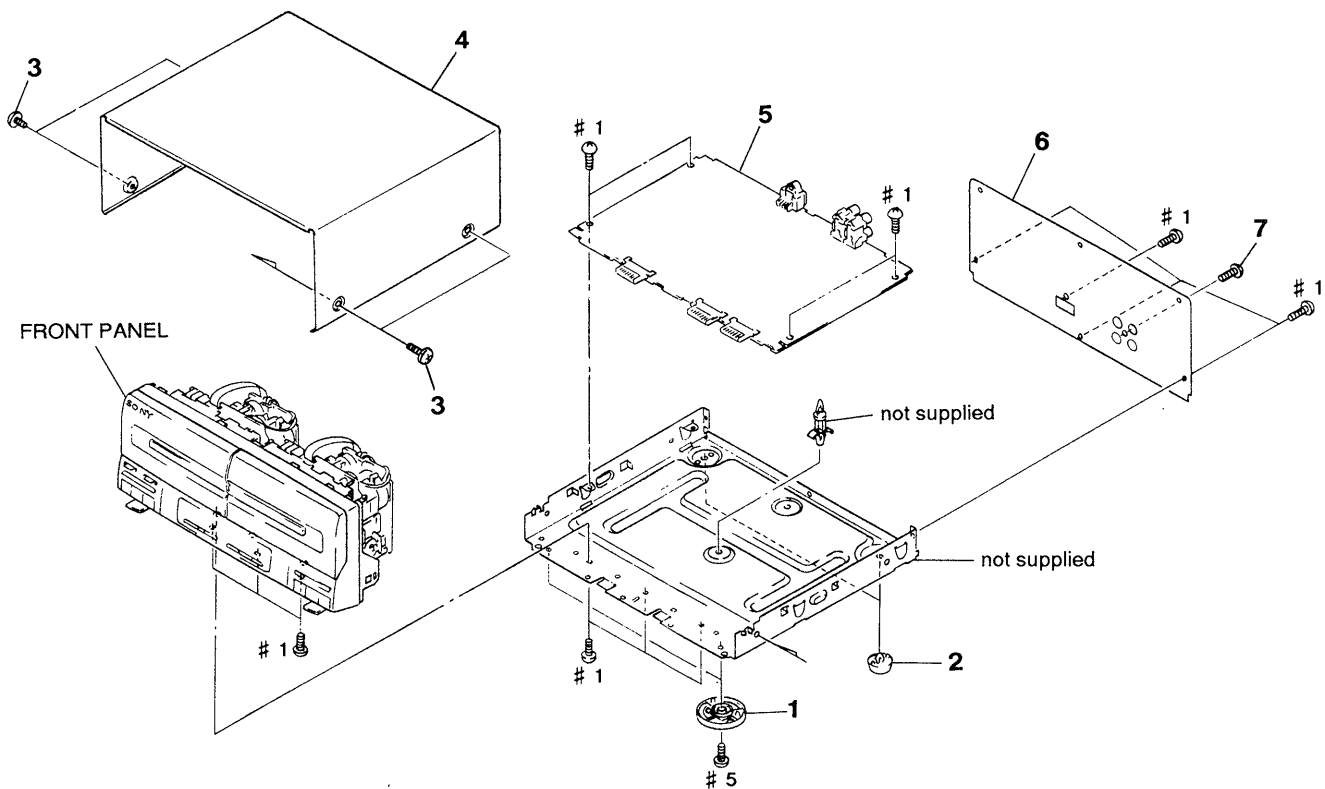
NOTE:

- -XX, -X mean standardized parts, so they may have some difference from the original one.
- Items marked “ * ” are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Color Indication of Appearance Parts Example:
 KNOB, BALANCE (WHITE) . . . (RED)
 ↑ ↑
 Parts color Cabinet's color

- 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.
- Abbreviation
 EA : Saudi Arabia model
 TH : Thailand model

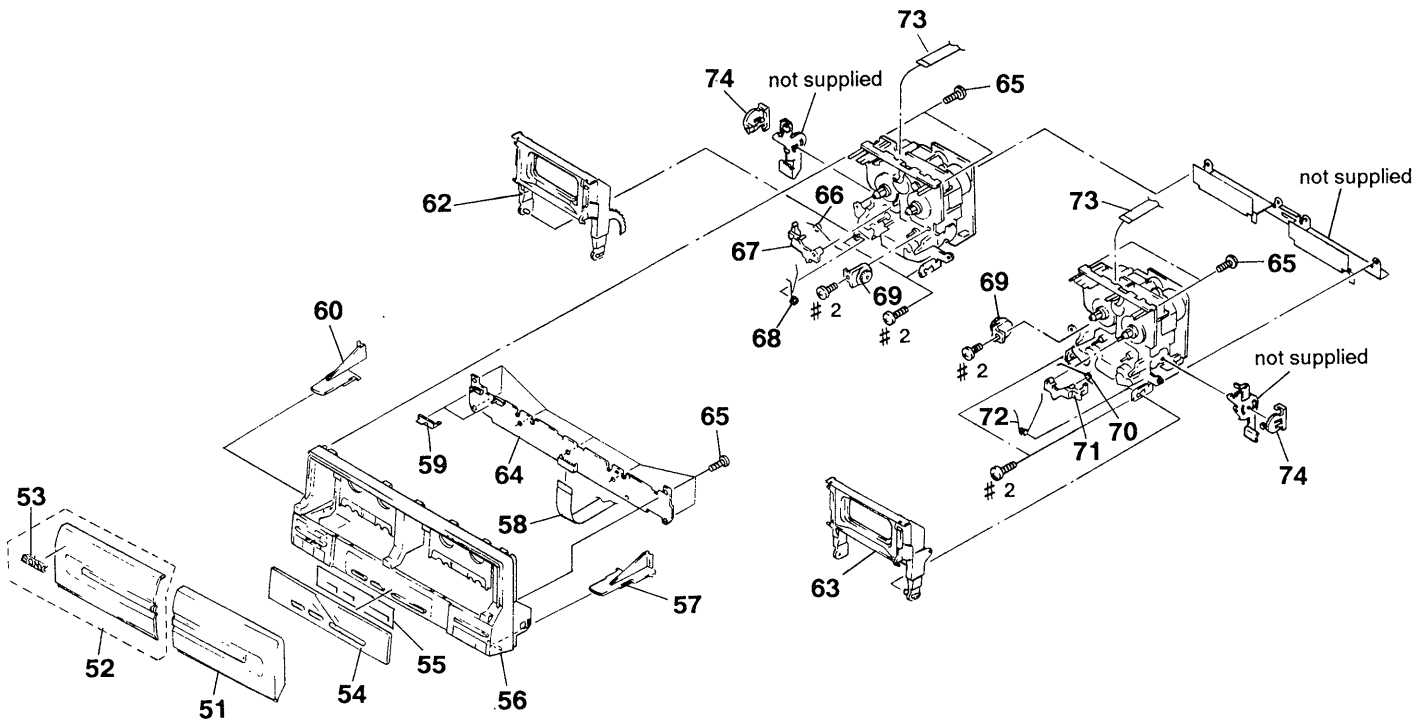
The components identified by mark or dotted line with mark are critical for safety. Replace only with part number specified.

6-1. CHASSIS SECTION



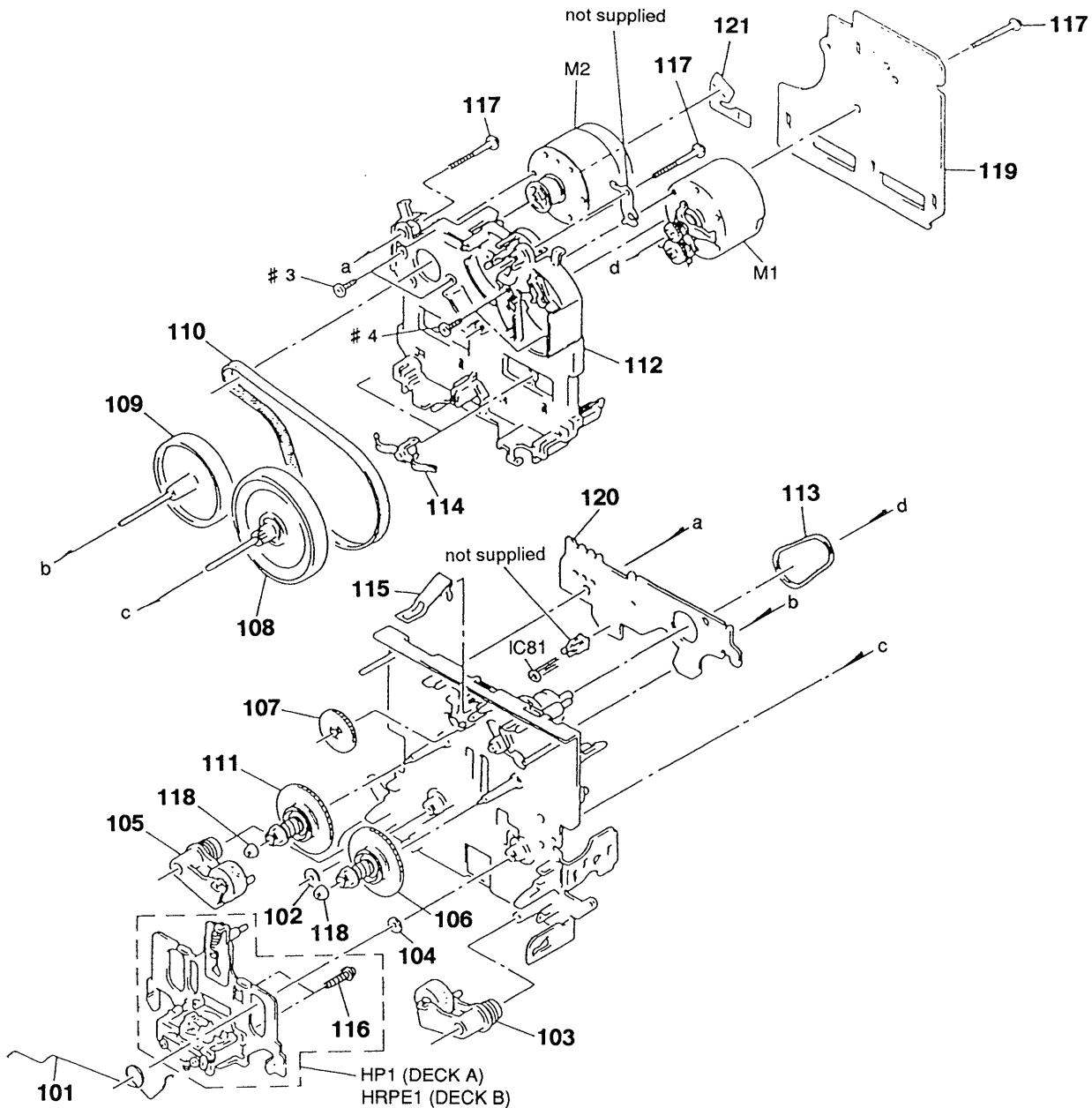
Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
1	4-977-699-11	LEG (F)		* 6	4-978-260-21	PANEL, BACK (EX100:EA)	
2	4-965-822-01	FOOT		* 6	4-978-260-31	PANEL, BACK (EX100:TH)	
3	3-363-099-01	SCREW (CASE 3 TP2)		* 6	4-978-260-41	PANEL, BACK (EX90:AEP, UK)	
* 4	4-978-245-51	CASE (SILVER)		* 6	4-978-260-51	PANEL, BACK (EX90:E)	
* 4	4-978-245-71	CASE (BLACK)		* 6	4-978-260-61	PANEL, BACK (EX90:EA)	
5	A-2007-477-A	TC MAIN BOARD, COMPLETE		* 6	4-978-260-71	PANEL, BACK (EX90:TH)	
* 6	4-978-260-01	PANEL, BACK (EX100:AEP, UK)		7	3-704-515-01	SCREW (BV/RING)	
* 6	4-978-260-11	PANEL, BACK (EX100:E)					

6-2. FRONT PANEL SECTION



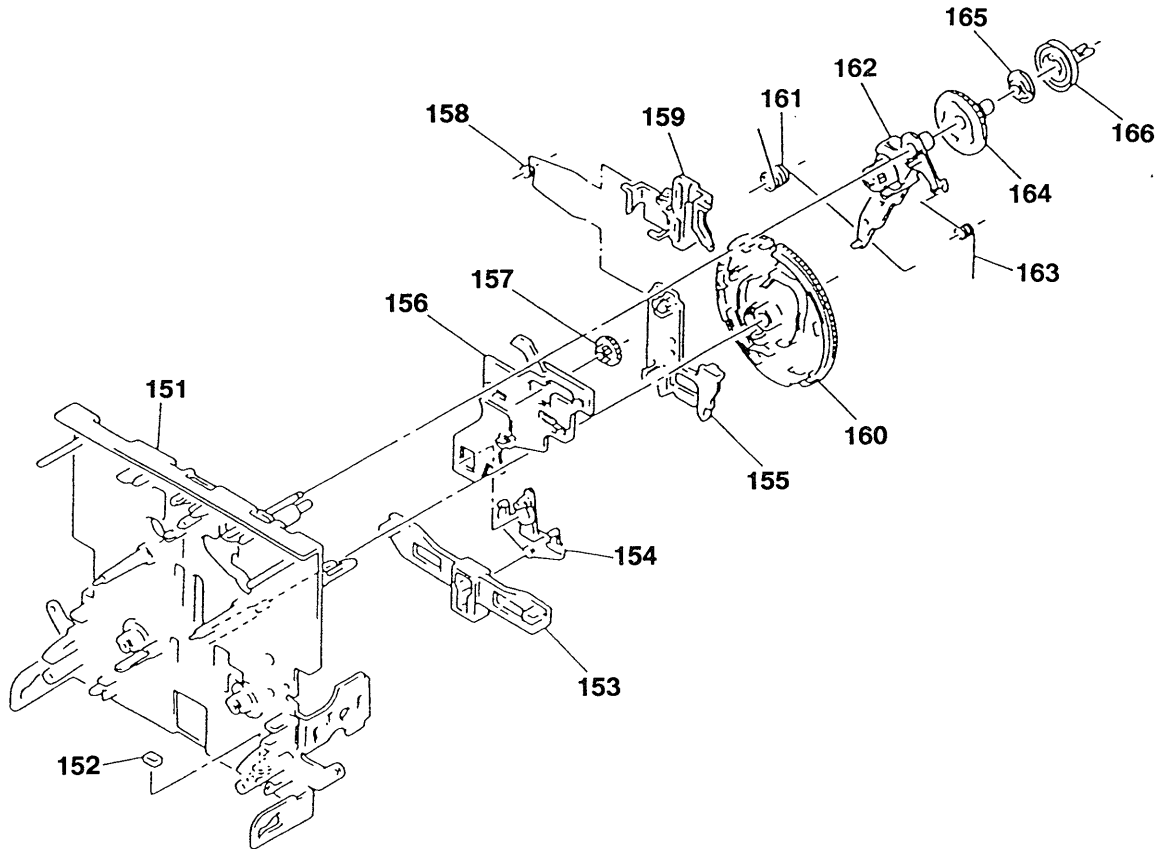
Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
51	X-3371-674-1	LID (B) ASSY, CASSETTE (BLACK)		62	X-3371-697-1	HOLDER (L) ASSY, CASSETTE (TH)	
51	X-4946-613-1	LID (B) ASSY, CASSETTE (SILVER)		62	X-3372-081-1	HOLDER (L) ASSY, CASSETTE (AEP, UK, E, EA)	
52	X-3371-673-1	LID (A) ASSY, CASSETTE (BLACK)		63	X-3371-698-1	HOLDER (R) ASSY, CASSETTE (TH)	
52	X-4946-612-1	LID (A) ASSY, CASSETTE (SILVER)		63	X-3372-082-1	HOLDER (R) ASSY, CASSETTE (AEP, UK, E, EA)	
53	4-962-708-11	EMBLEM (4-A), SONY					
54	X-4947-183-1	WINDOW ASSY		* 64	A-2007-478-A	TC PANEL BOARD, COMPLETE	
55	4-978-257-01	ILLUMINATOR		65	4-951-620-01	SCREW (2. 6X8), +BVTP	
56	X-3371-672-1	PANEL ASSY, FRONT (BLACK)		66	3-354-961-01	SPRING (EJ SAFTY SPRING L)	
56	X-4946-611-1	PANEL ASSY, FRONT (SILVER)		67	3-354-955-01	LEVER (EJ SAFTY LEVER L)	
57	4-978-255-01	LEVER (EJECT-B) (SILVER)		68	4-959-231-11	SPRING (L), TORSION	
57	4-978-255-11	LEVER (EJECT-B) (BLACK)		69	3-354-963-01	DAMPER	
58	1-769-390-11	WIRE (FLAT TYPE) (17 CORE)		70	3-354-962-01	SPRING (EJ SAFTY SPRING R)	
59	4-978-256-01	KNOB (SLIDE) (SILVER)		71	3-354-956-01	LEVER (EJ SAFTY LEVER R)	
59	4-978-256-11	KNOB (SLIDE) (BLACK)		72	4-959-232-11	SPRING (R), TORSION	
60	4-978-254-01	LEVER (EJECT-A) (SILVER)		73	1-765-384-11	WIRE (FLAT TYPE) (7 CORE)	
60	4-978-254-11	LEVER (EJECT-A) (BLACK)		74	3-354-957-01	JOINT (LOCK LEVER)	

6-3. MECHANISM SECTION-1
(DECK A: TCM-190RA12CL)
(DECK B: TCM-190RB52C)



Ref.No.	Part No.	Description	Remark	Ref.No.	Part No.	Description	Remark
101	3-907-362-01	SPRING, TORSION		114	3-575-321-00	RETAINER, THRUST, CAPSTAN	
102	3-356-714-01	WASHER		115	3-359-430-01	SPRING (CASSETTE RETAINER), LEAF	
103	X-3366-047-1	LEVER (PINCH F) ASSY		116	3-388-848-01	SCREW (P2X6) (B TIGHT)	
104	3-356-713-01	WASHER		117	3-359-414-01	SCREW (+PTPWH 2X23)	
105	X-3366-048-1	LEVER (PINCH R) ASSY		118	3-362-308-01	CAP (REEL)	
106	X-3366-971-1	TABLE ASSY (B), REEL (DECK A)		* 119	A-2007-266-A	AUDIO BOARD, COMPLETE (DECK A)	
106	X-3369-508-1	TABLE (C) ASSY, REEL (DECK B)		* 119	A-2007-133-A	AUDIO BOARD, COMPLETE (DECK B)	
107	3-359-424-01	GEAR (REV GEAR)		* 120	1-638-020-11	LEAF SW-A BOARD	
108	X-3367-629-1	FLYWHEEL (FWD) ASSY		* 120	1-638-020-11	LEAF SW-B BOARD	
109	X-3359-410-1	FLYWHEEL (REV) ASSY (DECK A)		121	1-638-983-11	MOTOR FLEXIBLE BOARD	
109	X-3367-630-1	FLYWHEEL (REV) ASSY (DECK B)		HP1	A-2003-757-A	BASE ASSY, HEAD (PB) (DECK A)	
110	3-359-417-01	BELT (FLAT), CAPSTAN		HRPE1	A-2003-930-A	BASE ASSY, HEAD (PB/REC/ERASE) (DECK A)	
111	X-3366-970-1	TABLE ASSY, REEL		IC81	8-749-924-10	IC PHONT REFLECTOR NJL5165K-B(H1)	
112	3-359-436-11	BASE (THRUST RETAINER), FITTING		M1	X-3363-501-2	MOTOR ASSY (REEL)	
113	3-359-466-01	BELT (FR), SQUARE		M2	X-3365-377-2	MOTOR ASSY (CAPSTAN)	

6-4. MECHANISM SECTION-2
(DECK A: TCM-190RA12CL)
(DECK B: TCM-190RB52C)



Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
151	X-3359-415-1	CHASSIS ASSY, MECHANICAL		159	3-359-429-11	SLIDER (BRAKE PLATE) (DECK B)	
152	3-359-469-01	SPACER		160	3-359-420-01	GEAR (CAM GEAR)	
153	3-359-425-01	SLIDER (REVERSE SLIDER)		161	3-359-456-01	SPRING (TRIGGER SPRING), TORSION	
154	3-359-426-01	LEVER (REVERSE LEVER)		162	X-3366-569-1	ARM ASSY, FR	
155	3-359-427-01	SLIDER (LEVERSE SLIDER)		163	3-924-185-11	SPRING (FR ARM), TORSION	
* 156	3-359-415-01	SLIDER (TRIGGER SLIDER) (DECK A)		164	3-359-419-11	GEAR (FR GEAR)	
156	3-359-415-11	SLIDER (TRIGGER SLIDER) (DECK B)		165	3-359-421-01	CLUTCH (REEL DISK)	
157	3-359-448-01	GEAR (TRIGGER)		166	3-359-418-01	PULLEY (FR PULLEY)	
158	3-359-454-01	SPRING, TORSION					
159	3-359-429-01	SLIDER (BRAKE PLATE) (DECK A)					

SECTION 7

AUDIO

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.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- 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
*	A-2007-266-A	AUDIO BOARD, COMPLETE (DECK A)		R23	1-216-100-00	METAL GLAZE 130K 5% 1/10W	
		*****		R24	1-216-068-00	METAL CHIP 6.2K 5% 1/10W	
		< CAPACITOR >		R31	1-216-033-00	METAL CHIP 220 5% 1/10W	
				R32	1-216-033-00	METAL CHIP 220 5% 1/10W	
C11	1-163-131-00	CERAMIC CHIP 390PF	5% 50V	R71	1-216-082-00	METAL GLAZE 24K 5% 1/10W	
C12	1-136-157-00	FILM 0.022uF	5% 50V	R72	1-216-081-00	METAL CHIP 22K 5% 1/10W	
C13	1-124-234-00	ELECT 22uF	20% 16V	R73	1-216-089-91	METAL GLAZE 47K 5% 1/10W	
C18	1-163-251-11	CERAMIC CHIP 100PF	5% 50V	R74	1-216-089-91	METAL GLAZE 47K 5% 1/10W	
C21	1-163-131-00	CERAMIC CHIP 390PF	5% 50V			< VARIABLE RESISTOR >	
				RV11	1-241-761-11	RES, ADJ, CARBON 1K	
C22	1-136-157-00	FILM 0.022uF	5% 50V	RV21	1-241-761-11	RES, ADJ, CARBON 1K	
C23	1-124-234-00	ELECT 22uF	20% 16V	RV71	1-241-630-11	RES, ADJ, CARBON 10K	
C28	1-163-251-11	CERAMIC CHIP 100PF	5% 50V	RV72	1-241-630-11	RES, ADJ, CARBON 10K	
C31	1-124-234-00	ELECT 22uF	20% 16V			*****	
C32	1-124-234-00	ELECT 22uF	20% 16V	*	A-2007-133-A	AUDIO BOARD, COMPLETE (DECK B)	

C72	1-109-889-11	ELECT 1uF	20% 50V			< CAPACITOR >	
		< CONNECTOR >		C11	1-163-131-00	CERAMIC CHIP 390PF 5% 50V	
* CNJ31	1-580-782-11	CONNECTOR, BOARD TO BOARD		C12	1-163-251-11	CERAMIC CHIP 100PF 5% 50V	
CNJ72	1-764-902-11	CONNECTOR, FFC/FPC 4P		C13	1-136-153-00	FILM 0.01uF 5% 50V	
* CNP32	1-580-772-11	PIN, CONNECTOR (PC BOARD) 4P		C14	1-126-177-11	ELECT 100uF 20% 10V	
* CNP71	1-564-719-11	PIN, CONNECTOR (SMALL TYPE) 3P		C15	1-124-234-00	ELECT 22uF 20% 16V	
		< IC >					
IC31	8-759-106-02	IC uPC4570G2		C16	1-136-434-11	FILM 120PF 5% 630V	
				C17	1-102-113-00	CERAMIC 390PF 10% 50V	
		< JUMPER RESISTOR >		C18	1-163-237-11	CERAMIC CHIP 27PF 5% 50V	
JW1	1-216-295-91	CONDUCTOR, CHIP (2012)		C21	1-163-131-00	CERAMIC CHIP 390PF 5% 50V	
JW51	1-216-296-91	CONDUCTOR, CHIP (3216)		C22	1-163-251-11	CERAMIC CHIP 100PF 5% 50V	
JW52	1-216-296-91	CONDUCTOR, CHIP (3216)					
JW53	1-216-296-91	CONDUCTOR, CHIP (3216)		C23	1-136-153-00	FILM 0.01uF 5% 50V	
JW54	1-216-296-91	CONDUCTOR, CHIP (3216)		C24	1-126-177-11	ELECT 100uF 20% 10V	
		< TRANSISTOR >		C25	1-124-234-00	ELECT 22uF 20% 16V	
Q71	8-729-216-22	TRANSISTOR 2SA1162-G		C26	1-136-434-11	FILM 120PF 5% 630V	
				C27	1-102-113-00	CERAMIC 390PF 10% 50V	
		< RESISTOR >					
R11	1-216-099-00	METAL CHIP 120K 5% 1/10W		C28	1-163-237-11	CERAMIC CHIP 27PF 5% 50V	
R12	1-216-025-91	METAL GLAZE 100 5% 1/10W		C31	1-124-234-00	ELECT 22uF 20% 16V	
R13	1-216-100-00	METAL GLAZE 130K 5% 1/10W		C32	1-124-234-00	ELECT 22uF 20% 16V	
R14	1-216-068-00	METAL CHIP 6.2K 5% 1/10W		C33	1-124-234-00	ELECT 22uF 20% 16V	
R21	1-216-099-00	METAL CHIP 120K 5% 1/10W		C51	1-164-182-11	CERAMIC CHIP 0.0033uF 10% 50V	
R22	1-216-025-91	METAL GLAZE 100 5% 1/10W		C52	1-164-182-11	CERAMIC CHIP 0.0033uF 10% 50V	
				C53	1-163-019-00	CERAMIC CHIP 0.0068uF 10% 50V	
				C54	1-107-364-11	FILM 0.012uF 5% 100V	

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
C56	1-164-505-11	CERAMIC CHIP	2. 2uF	16V	R13	1-216-081-00	METAL CHIP 22K 5% 1/10W
C57	1-164-346-11	CERAMIC CHIP	1uF	16V	R14	1-216-076-00	METAL CHIP 13K 5% 1/10W
C58	1-163-020-00	CERAMIC CHIP	0. 0082uF	10% 50V	R15	1-216-107-00	METAL CHIP 270K 5% 1/10W
C72	1-109-889-11	ELECT	1uF	20% 50V	R16	1-249-430-11	CARBON 12K 5% 1/4W
< CONNECTOR >				R21	1-216-099-00	METAL CHIP 120K 5% 1/10W	
* CNJ31	1-580-782-11	CONNECTOR, BOARD TO BOARD		R22	1-216-033-00	METAL CHIP 220 5% 1/10W	
* CNJ33	1-580-782-11	CONNECTOR, BOARD TO BOARD		R23	1-216-081-00	METAL CHIP 22K 5% 1/10W	
CNJ72	1-764-902-11	CONNECTOR, FFC/FPC 4P		R24	1-216-076-00	METAL CHIP 13K 5% 1/10W	
* CNP32	1-580-781-11	PIN, CONNECTOR (PC BOARD) 7P		R25	1-216-107-00	METAL CHIP 270K 5% 1/10W	
* CNP71	1-564-719-11	PIN, CONNECTOR (SMALL TYPE) 3P		R26	1-249-430-11	CARBON 12K 5% 1/4W	
< IC >				R31	1-216-033-00	METAL CHIP 220 5% 1/10W	
IC31	8-759-249-21	IC uPC1330AGR		R32	1-216-033-00	METAL CHIP 220 5% 1/10W	
IC32	8-759-106-02	IC uPC4570G2		R33	1-216-073-00	METAL CHIP 10K 5% 1/10W	
< JUMPER RESISTOR >				R41	1-249-393-11	CARBON 10 5% 1/4W	
JW1	1-216-295-91	CONDUCTOR, CHIP	(2012)	R42	1-249-393-11	CARBON 10 5% 1/4W	
JW2	1-216-295-91	CONDUCTOR, CHIP	(2012)	R51	1-216-091-00	METAL CHIP 56K 5% 1/10W	
JW11	1-216-296-91	CONDUCTOR, CHIP	(3216)	R52	1-216-091-00	METAL CHIP 56K 5% 1/10W	
JW12	1-216-296-91	CONDUCTOR, CHIP	(3216)	R53	1-216-073-00	METAL CHIP 10K 5% 1/10W	
JW13	1-216-296-91	CONDUCTOR, CHIP	(3216)	R54	1-216-309-00	METAL CHIP 5. 6 5% 1/10W	
JW14	1-216-296-91	CONDUCTOR, CHIP	(3216)	R55	1-216-309-00	METAL CHIP 5. 6 5% 1/10W	
JW15	1-216-296-91	CONDUCTOR, CHIP	(3216)	R56	1-216-298-00	METAL CHIP 2. 2 5% 1/10W	
JW16	1-216-296-91	CONDUCTOR, CHIP	(3216)	R71	1-216-082-00	METAL GLAZE 24K 5% 1/10W	
JW17	1-216-296-91	CONDUCTOR, CHIP	(3216)	R72	1-216-081-00	METAL CHIP 22K 5% 1/10W	
JW18	1-216-296-91	CONDUCTOR, CHIP	(3216)	R73	1-216-089-91	METAL GLAZE 47K 5% 1/10W	
JW19	1-216-296-91	CONDUCTOR, CHIP	(3216)	R74	1-216-089-91	METAL GLAZE 47K 5% 1/10W	
JW20	1-216-296-91	CONDUCTOR, CHIP	(3216)	< VARIABLE RESISTOR >			
JW21	1-216-296-91	CONDUCTOR, CHIP	(3216)	RV11	1-241-761-11	RES, ADJ, CARBON 1K	
JW22	1-216-296-91	CONDUCTOR, CHIP	(3216)	RV12	1-238-551-11	RES, ADJ, CARBON 220K	
JW23	1-216-296-91	CONDUCTOR, CHIP	(3216)	RV21	1-241-761-11	RES, ADJ, CARBON 1K	
JW24	1-216-296-91	CONDUCTOR, CHIP	(3216)	RV22	1-238-551-11	RES, ADJ, CARBON 220K	
JW25	1-216-296-91	CONDUCTOR, CHIP	(3216)	RV71	1-241-630-11	RES, ADJ, CARBON 10K	
JW26	1-216-296-91	CONDUCTOR, CHIP	(3216)	RV72	1-241-630-11	RES, ADJ, CARBON 10K	
JW27	1-216-296-91	CONDUCTOR, CHIP	(3216)	< TRANSFORMER >			
< COIL >				T51	1-429-290-11	TRANSFORMER, BIAS OSCILLATION	
L11	1-410-780-11	INDUCTOR	27mH	*****			
L21	1-410-780-11	INDUCTOR	27mH	* 1-638-020-11	LEAF SW-A BOARD	*****	
< TRANSISTOR >				< CONECTOR >			
Q51	8-729-111-29	TRANSISTOR	2SD1616A-K	* CNP81	1-568-850-11	SOCKET, CONNECTOR 7P	
Q52	8-729-111-29	TRANSISTOR	2SD1616A-K	< IC >			
Q53	8-729-111-29	TRANSISTOR	2SD1616A-K	IC81	8-749-924-10	IC PHONT REFLECTOR NJL5165K-B(H1)	
Q71	8-729-216-22	TRANSISTOR	2SA1162-G				
< RESISTOR >							
R11	1-216-099-00	METAL CHIP	120K 5% 1/10W				
R12	1-216-033-00	METAL CHIP	220 5% 1/10W				

LEAF SW-A

LEAF SW-B

TC MAIN

Ref.No.	Part No.	Description	Remark
		< RESISTOR >	
R84	1-249-417-11	CARBON 1K 5% 1/4W	
R85	1-249-408-11	CARBON 180 5% 1/4W	
		< SWITCH >	
S81	1-571-958-11	SWITCH, PUSH (1 KEY) (STOP DET)	
S82	1-571-281-21	SWITCH, LEAF (CrO2 DET)	
S86	1-571-281-21	SWITCH, LEAF (HALF DET)	

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

		< CONNECTOR >	
* CNP81	1-568-850-11	SOCKET, CONNECTOR 7P	
		< IC >	
IC81	8-749-924-10	IC PHONT REFLECTOR NJL5165K-B(H1)	
		< RESISTOR >	
R81	1-249-414-11	CARBON 560 5% 1/4W	
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	
R85	1-249-408-11	CARBON 180 5% 1/4W	
		< SWITCH >	
S81	1-571-958-11	SWITCH, PUSH (1 KEY) (STOP DET)	
S82	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 (A))	
S85	1-571-281-21	SWITCH, LEAF (ERASE PROOF (B))	
S86	1-571-281-21	SWITCH, LEAF (HALF DET)	

*	A-2007-477-A	TC MAIN BOARD, COMPLETE	

	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S	
		< CAPACITOR >	
C102	1-162-294-31	CERAMIC 0.001uF 10% 50V	
C103	1-162-282-31	CERAMIC 100PF 10% 50V	
C104	1-130-475-00	MYLAR 0.0022uF 5% 50V	
C105	1-130-475-00	MYLAR 0.0022uF 5% 50V	
C106	1-126-961-11	ELECT 2.2uF 20% 50V	
C107	1-136-174-00	FILM 0.56uF 5% 50V	
C108	1-136-171-00	FILM 0.33uF 5% 50V	
C109	1-126-961-11	ELECT 2.2uF 20% 50V	

Ref.No.	Part No.	Description	Remark
C110	1-126-961-11	ELECT 2.2uF 20% 50V	
C111	1-162-282-31	CERAMIC 100PF 10% 50V	
C114	1-124-907-11	ELECT 10uF 20% 50V	
C115	1-124-443-00	ELECT 100uF 20% 10V	
C116	1-162-282-31	CERAMIC 100PF 10% 50V	
C119	1-124-902-00	ELECT 0.47uF 20% 50V	
C120	1-126-963-11	ELECT 4.7uF 20% 50V	
C130	1-162-282-31	CERAMIC 100PF 10% 50V	
C131	1-162-282-31	CERAMIC 100PF 10% 50V	
C132	1-124-903-11	ELECT 1uF 20% 50V	
C133	1-162-286-31	CERAMIC 220PF 10% 50V	
C202	1-162-294-31	CERAMIC 0.001uF 10% 50V	
C203	1-162-282-31	CERAMIC 100PF 10% 50V	
C204	1-130-475-00	MYLAR 0.0022uF 5% 50V	
C205	1-130-475-00	MYLAR 0.0022uF 5% 50V	
C206	1-126-961-11	ELECT 2.2uF 20% 50V	
C207	1-136-174-00	FILM 0.56uF 5% 50V	
C208	1-136-171-00	FILM 0.33uF 5% 50V	
C209	1-126-961-11	ELECT 2.2uF 20% 50V	
C210	1-126-961-11	ELECT 2.2uF 20% 50V	
C211	1-162-282-31	CERAMIC 100PF 10% 50V	
C214	1-124-907-11	ELECT 10uF 20% 50V	
C215	1-124-443-00	ELECT 100uF 20% 10V	
C216	1-162-282-31	CERAMIC 100PF 10% 50V	
C219	1-124-902-00	ELECT 0.47uF 20% 50V	
C220	1-126-963-11	ELECT 4.7uF 20% 50V	
C230	1-162-282-31	CERAMIC 100PF 10% 50V	
C231	1-162-282-31	CERAMIC 100PF 10% 50V	
C232	1-124-903-11	ELECT 1uF 20% 50V	
C233	1-162-286-31	CERAMIC 220PF 10% 50V	
C502	1-126-944-11	ELECT 3300uF 20% 16V	
C504	1-126-944-11	ELECT 3300uF 20% 16V	
C518	1-124-907-11	ELECT 10uF 20% 50V	
C519	1-124-907-11	ELECT 10uF 20% 50V	
C529	1-136-157-00	FILM 0.022uF 5% 50V	
C530	1-136-157-00	FILM 0.022uF 5% 50V	
C533	1-136-157-00	FILM 0.022uF 5% 50V	
C534	1-136-157-00	FILM 0.022uF 5% 50V	
C535	1-126-942-61	ELECT 1000uF 20% 16V	
C536	1-126-942-61	ELECT 1000uF 20% 16V	
C537	1-124-472-11	ELECT 470uF 20% 10V	
C538	1-124-472-11	ELECT 470uF 20% 10V	
C540	1-126-926-11	ELECT 1000uF 20% 10V	
C601	1-124-443-00	ELECT 100uF 20% 10V	
C602	1-164-159-11	CERAMIC 0.1uF 50V	
C603	1-162-282-31	CERAMIC 100PF 10% 50V	
C604	1-164-159-11	CERAMIC 0.1uF 50V	
C606	1-124-480-11	ELECT 470uF 20% 25V	
C607	1-124-480-11	ELECT 470uF 20% 25V	
C608	1-124-480-11	ELECT 470uF 20% 25V	

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
C609	1-124-902-00	ELECT	0. 47uF	20%	50V		
C610	1-124-472-11	ELECT	470uF	20%	10V		
C611	1-162-290-31	CERAMIC	470PF	10%	50V		
C612	1-124-472-11	ELECT	470uF	20%	10V		
C613	1-162-290-31	CERAMIC	470PF	10%	50V		
C614	1-164-159-11	CERAMIC	0. 1uF		50V		
C615	1-164-159-11	CERAMIC	0. 1uF		50V		
C616	1-124-910-11	ELECT	47uF	20%	50V		
C617	1-164-159-11	CERAMIC	0. 1uF		50V		
C620	1-124-907-11	ELECT	10uF	20%	50V		
C621	1-124-907-11	ELECT	10uF	20%	50V		
C622	1-124-477-11	ELECT	47uF	20%	25V		
C623	1-124-477-11	ELECT	47uF	20%	25V		
C630	1-126-963-11	ELECT	4. 7uF	20%	50V		
C631	1-124-903-11	ELECT	1uF	20%	50V		
C636	1-126-965-11	ELECT	22uF	20%	50V		
C641	1-126-963-11	ELECT	4. 7uF	20%	50V		
C642	1-124-902-00	ELECT	0. 47uF	20%	50V		
C645	1-124-907-11	ELECT	10uF	20%	50V		
C646	1-126-961-11	ELECT	2. 2uF	20%	50V		
C649	1-124-907-11	ELECT	10uF	20%	50V		
C650	1-126-965-11	ELECT	22uF	20%	50V		
C651	1-124-443-00	ELECT	100uF	20%	10V		
C800	1-162-286-31	CERAMIC	220PF	10%	50V		
C6035	1-162-294-31	CERAMIC	0. 001uF	10%	50V		
< CONNECTOR >							
CN601	1-695-330-31	PIN, CONNECTOR (PC BOARD) 7P					
* CN602	1-691-916-11	CONNECTOR, BOARD TO BOARD					
CN603	1-695-330-31	PIN, CONNECTOR (PC BOARD) 7P					
* CN604	1-691-916-11	CONNECTOR, BOARD TO BOARD					
* CN605	1-691-916-11	CONNECTOR, BOARD TO BOARD					
CN608	1-770-166-11	CONNECTOR, FFC/FPC 17P					
CN609	1-770-158-21	HOUSING, CONNECTOR 7P (SYSTEM CONTROL)					
< DIODE >							
D508	8-719-024-99	DIODE	11ES2-NTA2B				
D509	8-719-024-99	DIODE	11ES2-NTA2B				
D510	8-719-024-99	DIODE	11ES2-NTA2B				
D511	8-719-024-99	DIODE	11ES2-NTA2B				
D512	8-719-024-99	DIODE	11ES2-NTA2B				
D513	8-719-024-99	DIODE	11ES2-NTA2B				
D519	8-719-024-99	DIODE	11ES2-NTA2B				
D522	8-719-024-99	DIODE	11ES2-NTA2B				
D523	8-719-987-63	DIODE	1N4148M				
D524	8-719-987-63	DIODE	1N4148M				
D525	8-719-024-99	DIODE	11ES2-NTA2B				
D526	8-719-024-99	DIODE	11ES2-NTA2B				
D601	8-719-987-63	DIODE	1N4148M				
D602	8-719-987-63	DIODE	1N4148M				
D603	8-719-987-63	DIODE	1N4148M				
D604	8-719-987-63	DIODE	1N4148M				
D605	8-719-024-99	DIODE	11ES2-NTA2B				
D606	8-719-024-99	DIODE	11ES2-NTA2B				
D607	8-719-987-63	DIODE	1N4148M				
D608	8-719-987-63	DIODE	1N4148M				
D610	8-719-024-99	DIODE	11ES2-NTA2B				
D611	8-719-987-63	DIODE	1N4148M				
D620	8-719-012-68	DIODE	UZ-2. 7BSA-TP				
< IC >							
IC101	8-752-058-57	IC	CXA1599Q				
IC102	8-759-939-73	IC	BA3308				
IC103	8-752-059-55	IC	CXA1331S				
IC104	8-759-337-73	IC	M38123M4-118FP				
IC502	8-759-231-53	IC	TA7805S				
IC503	8-759-604-86	IC	M5F7807L				
IC504	8-759-604-90	IC	M5F7907L				
IC505	8-759-604-86	IC	M5F7807L				
IC506	8-759-604-90	IC	M5F7907L				
IC602	8-759-256-72	IC	PST994D				
IC603	8-759-266-35	IC	TA8242AK				
IC6004	8-759-000-48	IC	MC14052BCP				
< COIL >							
L601	1-414-189-31	INDUCTOR			100uH		
L6002	1-414-183-41	INDUCTOR			10uH		
< JACK >							
PJ101	1-695-188-31	JACK, PIN 4P (TAPE IN/OUT)					
< TRANSISTOR >							
Q101	8-729-119-78	TRANSISTOR	2SC2785-HFE				
Q122	8-729-900-89	TRANSISTOR	DTC144ES				
Q201	8-729-119-78	TRANSISTOR	2SC2785-HFE				
Q222	8-729-900-89	TRANSISTOR	DTC144ES				
Q603	8-729-801-93	TRANSISTOR	2SD1387				
Q604	8-729-801-93	TRANSISTOR	2SD1387				
Q605	8-729-900-80	TRANSISTOR	DTC114ES				
Q607	8-729-900-89	TRANSISTOR	DTC144ES				
Q608	8-729-900-89	TRANSISTOR	DTC144ES				
Q609	8-729-900-89	TRANSISTOR	DTC144ES				
Q611	8-729-119-78	TRANSISTOR	2SC2785-HFE				
Q612	8-729-119-76	TRANSISTOR	2SA1175-HFE				
Q613	8-729-900-65	TRANSISTOR	DTA144ES				
Q614	8-729-900-89	TRANSISTOR	DTC144ES				
Q620	8-729-900-89	TRANSISTOR	DTC144ES				
Q621	8-729-900-65	TRANSISTOR	DTA144ES				
Q627	8-729-900-89	TRANSISTOR	DTC144ES				

TC MAIN

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
Q630	8-729-422-57	TRANSISTOR UN4111		△R621	1-212-853-00	FUSIBLE 6.8 5% 1/4W	F
Q802	8-729-900-80	TRANSISTOR DTC114ES		R622	1-249-421-11	CARBON 2.2K 5% 1/4W	
Q803	8-729-900-80	TRANSISTOR DTC114ES					
Q804	8-729-900-80	TRANSISTOR DTC114ES		R623	1-249-421-11	CARBON 2.2K 5% 1/4W	
Q805	8-729-900-80	TRANSISTOR DTC114ES		R624	1-249-434-11	CARBON 27K 5% 1/4W	
		< RESISTOR >		R625	1-249-421-11	CARBON 2.2K 5% 1/4W	
				R626	1-249-421-11	CARBON 2.2K 5% 1/4W	
				R627	1-249-421-11	CARBON 2.2K 5% 1/4W	
R106	1-249-418-11	CARBON 1.2K 5% 1/4W		R628	1-249-434-11	CARBON 27K 5% 1/4W	
R107	1-247-864-11	CARBON 24K 5% 1/4W		R629	1-249-421-11	CARBON 2.2K 5% 1/4W	
R108	1-249-414-11	CARBON 560 5% 1/4W		R630	1-249-429-11	CARBON 10K 5% 1/4W	
R109	1-249-429-11	CARBON 10K 5% 1/4W		R631	1-249-421-11	CARBON 2.2K 5% 1/4W	
R110	1-249-427-11	CARBON 6.8K 5% 1/4W		R632	1-249-429-11	CARBON 10K 5% 1/4W	
R111	1-249-427-11	CARBON 6.8K 5% 1/4W		R633	1-247-807-31	CARBON 100 5% 1/4W	
R112	1-247-832-11	CARBON 1.1K 5% 1/4W		R634	1-247-807-31	CARBON 100 5% 1/4W	
R113	1-249-429-11	CARBON 10K 5% 1/4W		R637	1-249-414-11	CARBON 560 5% 1/4W	
R114	1-249-421-11	CARBON 2.2K 5% 1/4W		R640	1-249-429-11	CARBON 10K 5% 1/4W	
R115	1-247-887-00	CARBON 220K 5% 1/4W		R641	1-247-807-31	CARBON 100 5% 1/4W	
R116	1-249-437-11	CARBON 47K 5% 1/4W		R642	1-249-424-11	CARBON 3.9K 5% 1/4W	
R117	1-249-419-11	CARBON 1.5K 5% 1/4W		R648	1-249-437-11	CARBON 47K 5% 1/4W	
R118	1-249-438-11	CARBON 56K 5% 1/4W		R649	1-249-437-11	CARBON 47K 5% 1/4W	
R119	1-247-834-11	CARBON 1.3K 5% 1/4W		R650	1-249-437-11	CARBON 47K 5% 1/4W	
R120	1-247-807-31	CARBON 100 5% 1/4W		R656	1-249-393-11	CARBON 10 5% 1/4W	
R121	1-247-807-31	CARBON 100 5% 1/4W		R660	1-249-417-11	CARBON 1K 5% 1/4W	
R122	1-249-426-11	CARBON 5.6K 5% 1/4W		R661	1-249-434-11	CARBON 27K 5% 1/4W	
R206	1-249-418-11	CARBON 1.2K 5% 1/4W		R670	1-249-433-11	CARBON 22K 5% 1/4W	
R207	1-247-864-11	CARBON 24K 5% 1/4W		R673	1-249-429-11	CARBON 10K 5% 1/4W	
R208	1-249-414-11	CARBON 560 5% 1/4W		R674	1-247-860-11	CARBON 16K 5% 1/4W	
R209	1-249-429-11	CARBON 10K 5% 1/4W		R675	1-249-429-11	CARBON 10K 5% 1/4W	
R210	1-249-427-11	CARBON 6.8K 5% 1/4W		R676	1-249-434-11	CARBON 27K 5% 1/4W	
R211	1-249-427-11	CARBON 6.8K 5% 1/4W		R677	1-247-807-31	CARBON 100 5% 1/4W	
R212	1-247-832-11	CARBON 1.1K 5% 1/4W		R678	1-247-807-31	CARBON 100 5% 1/4W	
R213	1-249-429-11	CARBON 10K 5% 1/4W		R679	1-247-807-31	CARBON 100 5% 1/4W	
R214	1-249-421-11	CARBON 2.2K 5% 1/4W		R680	1-249-433-11	CARBON 22K 5% 1/4W	
R215	1-247-887-00	CARBON 220K 5% 1/4W		R681	1-249-429-11	CARBON 10K 5% 1/4W	
R216	1-249-437-11	CARBON 47K 5% 1/4W		R682	1-249-429-11	CARBON 10K 5% 1/4W	
R217	1-249-419-11	CARBON 1.5K 5% 1/4W		R683	1-249-429-11	CARBON 10K 5% 1/4W	
R218	1-249-438-11	CARBON 56K 5% 1/4W		R684	1-249-413-11	CARBON 470 5% 1/4W	
R219	1-247-834-11	CARBON 1.3K 5% 1/4W		R685	1-249-429-11	CARBON 10K 5% 1/4W	
R220	1-247-807-31	CARBON 100 5% 1/4W		R686	1-249-429-11	CARBON 10K 5% 1/4W	
R221	1-247-807-31	CARBON 100 5% 1/4W		R687	1-249-417-11	CARBON 1K 5% 1/4W	
R222	1-249-426-11	CARBON 5.6K 5% 1/4W		R689	1-247-872-11	CARBON 51K 5% 1/4W	
R504	1-247-807-31	CARBON 100 5% 1/4W		R690	1-249-429-11	CARBON 10K 5% 1/4W	
R505	1-249-429-11	CARBON 10K 5% 1/4W		R691	1-249-429-11	CARBON 10K 5% 1/4W	
R601	1-247-807-31	CARBON 100 5% 1/4W		R693	1-249-433-11	CARBON 22K 5% 1/4W	
R602	1-247-807-31	CARBON 100 5% 1/4W		R694	1-249-433-11	CARBON 22K 5% 1/4W	
R606	1-249-435-11	CARBON 33K 5% 1/4W		R695	1-249-421-11	CARBON 2.2K 5% 1/4W	
R607	1-247-807-31	CARBON 100 5% 1/4W		R696	1-249-421-11	CARBON 2.2K 5% 1/4W	
R615	1-247-807-31	CARBON 100 5% 1/4W		R700	1-247-903-00	CARBON 1M 5% 1/4W	
R616	1-249-433-11	CARBON 22K 5% 1/4W		R701	1-249-429-11	CARBON 10K 5% 1/4W	
R620	1-249-429-11	CARBON 10K 5% 1/4W		R702	1-249-437-11	CARBON 47K 5% 1/4W	

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

Ref.No.	Part No.	Description	Remark
R801	1-249-429-11	CARBON 10K 5%	1/4W
R802	1-247-807-31	CARBON 100 5%	1/4W
R803	1-247-807-31	CARBON 100 5%	1/4W
R804	1-247-807-31	CARBON 100 5%	1/4W
R805	1-247-807-31	CARBON 100 5%	1/4W
R807	1-249-433-11	CARBON 22K 5%	1/4W
R808	1-249-429-11	CARBON 10K 5%	1/4W
R809	1-249-429-11	CARBON 10K 5%	1/4W
R810	1-249-429-11	CARBON 10K 5%	1/4W
R813	1-249-411-11	CARBON 330 5%	1/4W
R814	1-249-411-11	CARBON 330 5%	1/4W
R815	1-249-411-11	CARBON 330 5%	1/4W
R816	1-249-411-11	CARBON 330 5%	1/4W
R817	1-249-411-11	CARBON 330 5%	1/4W
R818	1-249-435-11	CARBON 33K 5%	1/4W
R819	1-249-393-11	CARBON 10 5%	1/4W
R820	1-249-417-11	CARBON 1K 5%	1/4W
R821	1-249-417-11	CARBON 1K 5%	1/4W
R822	1-249-417-11	CARBON 1K 5%	1/4W
R823	1-249-425-11	CARBON 4.7K 5%	1/4W
R6070	1-249-421-11	CARBON 2.2K 5%	1/4W
R6071	1-249-421-11	CARBON 2.2K 5%	1/4W
< VARIABLE RESISTOR >			
RV101	1-238-600-11	RES, ADJ, CARBON 10K	
RV201	1-238-600-11	RES, ADJ, CARBON 10K	
< VIBRATOR >			
X601	1-577-358-21	VIBRATOR, CERAMIC (4MHZ)	

*	A-2007-478-A	TC PANEL BOARD, COMPLETE	*****
< CONNECTOR >			
CN900	1-770-169-11	CONNECTOR, FFC/FPC 17P	
< DIODE >			
D900	8-719-046-43	DIODE SEL5421E-TP15 (▷ DECK A)	
D901	8-719-046-43	DIODE SEL5421E-TP15 (◁ DECK A)	
D902	8-719-046-43	DIODE SEL5421E-TP15 (▷ DECK B)	
D903	8-719-046-43	DIODE SEL5421E-TP15 (◁ DECK B)	
D906	8-719-046-44	DIODE SEL5221S (CD SYNC)	
D907	8-719-046-44	DIODE SEL5221S (HIGH)	
D908	8-719-046-44	DIODE SEL5221S (NORMAL)	
D909	8-719-046-36	DIODE SEL5921A-TP15 (■■■)	
D910	8-719-046-44	DIODE SEL5221S (REC)	

Ref.No.	Part No.	Description	Remark
< RESISTOR >			
R900	1-249-418-11	CARBON 1.2K 5%	1/4W
R901	1-249-420-11	CARBON 1.8K 5%	1/4W
R902	1-249-422-11	CARBON 2.7K 5%	1/4W
R903	1-249-424-11	CARBON 3.9K 5%	1/4W
R904	1-249-427-11	CARBON 6.8K 5%	1/4W
R905	1-249-418-11	CARBON 1.2K 5%	1/4W
R906	1-249-420-11	CARBON 1.8K 5%	1/4W
R907	1-249-422-11	CARBON 2.7K 5%	1/4W
R908	1-249-424-11	CARBON 3.9K 5%	1/4W
R909	1-249-427-11	CARBON 6.8K 5%	1/4W
R910	1-249-431-11	CARBON 15K 5%	1/4W
R911	1-249-437-11	CARBON 47K 5%	1/4W
R914	1-249-426-11	CARBON 5.6K 5%	1/4W
R915	1-249-434-11	CARBON 27K 5%	1/4W
R916	1-249-425-11	CARBON 4.7K 5%	1/4W
< SWITCH >			
S900	1-762-205-11	SWITCH, SLIDE (DIRECTION MODE)	
S901	1-762-205-11	SWITCH, SLIDE (DOLBY NR)	
S902	1-554-303-21	SWITCH, TACTILE (■ DECK B)	
S903	1-554-303-21	SWITCH, TACTILE (▷ DECK B)	
S904	1-554-303-21	SWITCH, TACTILE (◁ DECK B)	
S905	1-554-303-21	SWITCH, TACTILE (■■ PAUSE, DECK B)	
S906	1-554-303-21	SWITCH, TACTILE (◀ DECK A)	
S907	1-554-303-21	SWITCH, TACTILE (▶ DECK A)	
S908	1-554-303-21	SWITCH, TACTILE (■ DECK A)	
S909	1-554-303-21	SWITCH, TACTILE (▷ DECK A)	
S910	1-554-303-21	SWITCH, TACTILE (◁ DECK A)	
S911	1-554-303-21	SWITCH, TACTILE (◀ DECK B)	
S912	1-554-303-21	SWITCH, TACTILE (▶ DECK B)	
S913	1-554-303-21	SWITCH, TACTILE (● REC)	
S915	1-554-303-21	SWITCH, TACTILE (DUBBING MODE)	
S916	1-554-303-21	SWITCH, TACTILE (CD SYNC)	
S917	1-554-303-21	SWITCH, TACTILE (● REC MUTE)	

MISCELLANEOUS			

58	1-769-390-11	WIRE (FLAT TYPE) (17 CORE)	
73	1-765-384-11	WIRE (FLAT TYPE) (7 CORE)	
HP1	A-2003-757-A	BASE ASSY, HEAD (PB) (DECK A)	
HRPE1	A-2003-930-A	BASE ASSY, HEAD (PB/REC/ERASE) (DECK A)	
IC81	8-749-924-10	IC PHONT REFLECTOR NJL5165K-B(HI)	
M1	X-3363-501-2	MOTOR ASSY (REEL)	
M2	X-3365-377-2	MOTOR ASSY (CAPSTAN)	

Ref. No.	Part No.	Description	Remark
		ACCESSORIES & PACKING MATERIALS *****	
*	3-933-134-01	CUSHION (LOWER)	
*	3-933-164-01	CUSHION (UPPER)	

		***** HARDWARE LIST *****	
#1	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S	
#2	7-621-770-67	SCREW +BVTT 2.6X6 (S)	
#3	7-621-775-00	SCREW +B 2.6X3	
#4	7-627-556-08	SCREW +P 2.6X2.8	
#5	7-685-647-79	SCREW +BVTP 3X10 TYPE2 N-S	