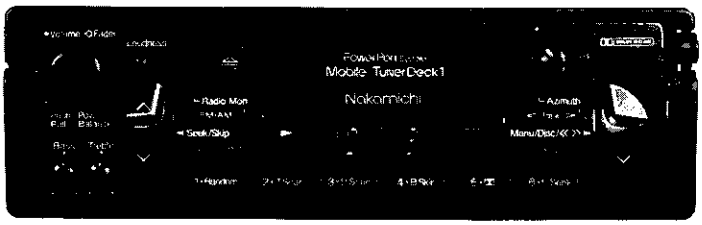
QQQ6148

Q 6148

Service Manual

Nakamichi

Mobile TunerDeck1



CONTENTS

1. GENERAL

1.1. Product Code

C617 (for USA, CAN, EP, AUS, JPN1)
C618 (for JPN1S)

1.2. Destinations

USA — U.S.A.
CAN — Canada
EP — Europe
AUS — Australia
JPN1 — Japan (without pull-out mechanism)
JPN1S — Japan (with pull-out Mechanism)

1.3. Lithium Battery Caution

Use ONLY replacement parts recommended by the manufacturer. Replacement must be done only by qualified service personnel because of risk for explosion.

VARNING
Litiumbatteri. Explosionsfara vid felaktig hantering. Byte får endast ske av sakkunnig personal enligt servicedokumentationens anvisningar.

ADVARSEL!
Lithiumbatterier. Eksplosionsfare. Udskiftning må kun foretages af en sagkyndig og som beskrevet i servicemanualen.
batterierne kun må udsklftes med batterier af samme fabrikat og type.

1.4. Package Ass'y and Accessory Ass'y

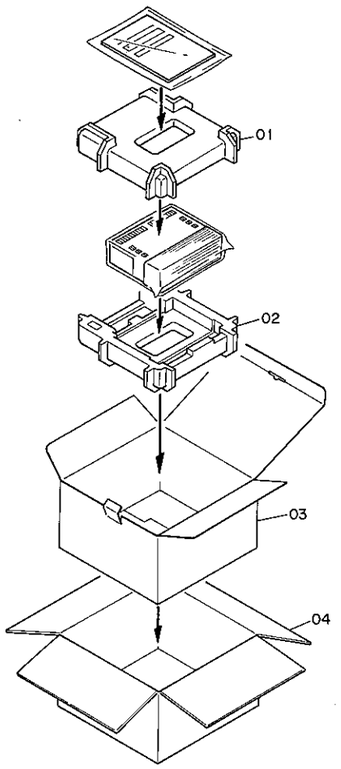


Fig. 1

Schematic Ref. No.	Part No.	Description	Q'ty
	—	Package Ass'y	
01	0F04547A	Packing Top	1
02	0F04520A	Packing Bottom	1
03	0F04516A	Inner Carton (Except JPN1S)	1
	0F04599A	Inner Carton (JPN1S)	1
04	0F04512A	Outer Carton (Except JPN1, JPN1S)	1
	0F04607A	Outer Carton (JPN1)	1
	0F04606A	Outer Carton (JPN1S)	1
—	0F04504A	Soft Sheet	1

Schematic Ref. No.	Part No.	Description	Q'ty
	DA04492A	Accessory Ass'y (USA, CAN)	1
	DA04493A	Accessory Ass'y (EP)	1
	DA04494A	Accessory Ass'y (AUS)	1
	DA04551A	Accessory Ass'y (JPN1)	1
	DA04542A	Accessory Ass'y (JPN1S)	1
	DA04502A	Remote Control Unit	1
	0B90462A	Battery UM4x1 (Except JPN1, JPN1S)	2
	0B90558A	Battery AM4LR03x1 (JPN1, JPN1S)	2
	0D04720A	Magic Tape (Male)	1
	0D04721A	Magic Tape (Female)	1
	0D06187A	Owner s Manual (English/French/German)	1
	0D06186A	Owner's Manual (Japanese) (JPN1)	1
	0D06229A	Owner's Manual (Japanese) (JPN1S)	1
	DA03825A	Screw for Accessory Ass'y (JPN1)	1
	DA04477A	Fuse Ass'y (JPN1)	1
	0B85048A	4P Terminal (Male) (JPN1)	1

2. REMOVAL PROCEDURES

2.1. Top Cover and Bottom Cover

Refer to Fig. 2.1.
(1) Loosen screws F01 (2 pcs.) and remove F02 (Top Cover).
(2) Loosen screws F03 (3 pcs.) and remove F04 (Bottom Cover).

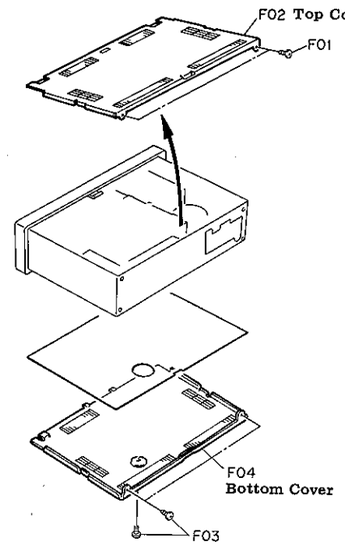


Fig. 2.1

2.2. Handle Ass'y and Front Panel Ass'y

Refer to Fig. 2.2.
(1) Remove the Top Cover and Bottom Cover referring to item 2.1.
(2) Loosen screws F01 (4 pcs.) and remove F02 (Handle Ass'y).
(3) Loosen screws F03 (2 pcs.), pull out F04 (Volume Knob Ass'y), F05 (Fader Knob) and F06 (Azimuth Knob), and remove F07 (Front Panel Ass'y).

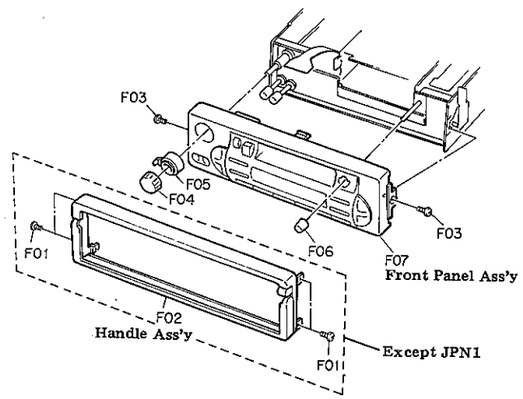


Fig. 2.2

2.3. Mechanism Ass'y
Refer to Fig. 2.3.
(1) Remove the Handle Ass'y and Front Panel Ass'y referring to item 2.2.
(2) Loosen screws F01 (3 pcs.) and lift F02 (Mechanism Ass'y).
(3) Disconnect 4 connectors and remove F02 (Mechanism Ass'y).

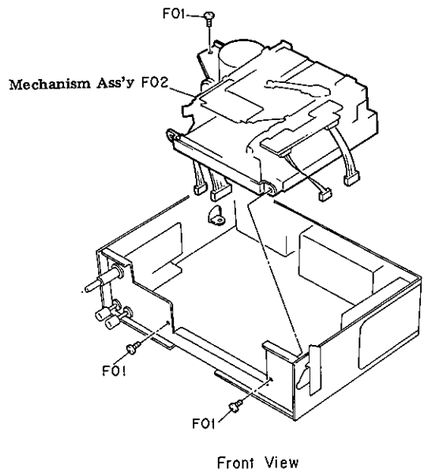


Fig. 2.3

2.4. Cassette Case and Cassette Case Plate Ass'y
Refer to Figs. 2.4.1 and 2.4.2.
(1) Remove the Mechanism Ass'y referring to item 2.3.
(2) Turn F01 (Flywheel F Ass'y) in the direction of the arrow to move F02 (Catch Arm Ass'y) rearward. (See Fig. 2.4.1.)
(3) Unhook F03 (Chip Arm Spring). (See Fig. 2.4.2.)
(4) Loosen screws F04 (1 pce.), F05 (1 pce.), and F06 (1 pce.), and remove F07 (Sub Chassis Ass'y, Deck P.C.B. & other parts).
(5) Remove F08 (Cassette Case) and F09 (Cassette Case Plate Ass'y).
Note: When installing parts, first install F07 and F08, and then F09.

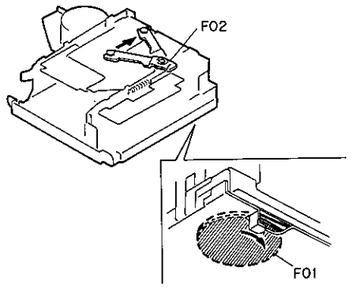


Fig. 2.4.1

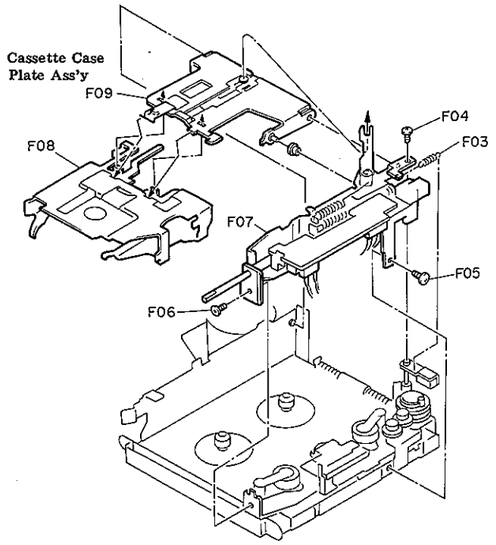


Fig. 2.4.2

2.5. Head Ass'y and Pressure Roller Arm Assemblies
Refer to Fig. 2.5.
(1) Remove the Cassette Case and Cassette Case Plate Ass'y referring to item 2.4.
(2) Loosen screws F01 (1 pce.) and F02 (1 pce.), and remove F03 (Tape Guide) and F04 (P-4C Head Ass'y).
(3) Disengage F05 (E-ring 1.5mm), and remove F06 (Pressure Roller Arm R Ass'y) and F07 (Pressure Roller Arm R Spring).
(4) Disengage F08 (E-ring 1.5mm), and remove F09 (Pressure Roller Arm F Ass'y) and F10 (Pressure Roller Arm F Spring).
Note: When installing the springs, see the bottom of the figure.

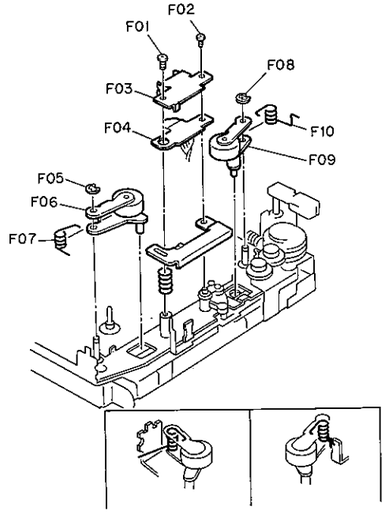


Fig. 2.5

3. TEST TAPES

(1) 3 kHz Speed and Wow/Flutter Tape (DA09006C)
(2) 400 Hz Level Tape (DA09005B)
(3) 15 kHz Azimuth Tape (DA09004B)
(4) 10 kHz PB Frequency Response Tape (DA09003B)
(5) 15 kHz PB Frequency Response Tape (DA09002B)

4. MECHANICAL ADJUSTMENTS

4.1. Tape Speed Adjustment
Refer to Fig. 4.1.
(1) Remove the Top Cover referring to item 2.1.
(2) Connect a frequency counter to the Output Jacks.
(3) Load a 3 kHz Speed and Wow/Flutter Tape (DA09006C) and play it back.
(4) Adjust the tape speed adjustment volume incorporated in the Motor Ass'y to obtain 3,000 kHz on the frequency counter.

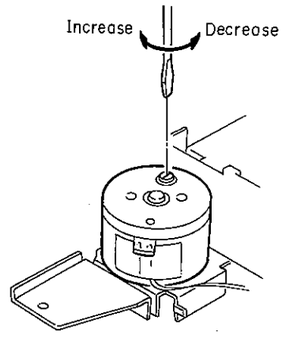


Fig. 4.1

4.2. Playback Head Azimuth Alignment
Refer to Fig. 4.2.
(1) Remove the Top Cover referring to item 2.1.
(2) Connect an AC voltmeter to the Output jacks.
(3) Set the Azimuth Control to the center position.
(4) Load a 15 kHz Azimuth Tape (DA09004B). The tape will automatically be forward-played back. (▶ indicator lights up.)
(5) Adjust the Forward Azimuth Alignment Screw to obtain maximum readings for both channels on the AC voltmeter. Note the readings.
(6) Press the F. Fwd. (Λ) and Rew. (V) buttons alternately several times to fast-wind and rewind the tape.
(7) Press the Eject button and load the tape again. (The tape is automatically forward-played back.)
(8) Check whether the readings stay the same as in (5). If not, repeat (5) through (7).
(9) Press the Eject button, turn over the tape, and load it again. (The tape is automatically forward-played back.)
(10) Press the "< Tape >" button once to reverse-play the tape back. (◀ indicator lights up.)
(11) Adjust the Reverse Azimuth Alignment Screw to obtain maximum readings for both channels on the AC voltmeter. Note the readings.
(12) Press the F. Fwd. (Λ) and Rew. (V) buttons alternately several times to fast-wind and rewind the tape.
(13) Press the Eject button and load the tape again. (The tape is now automatically reverse-played back.)
(14) Check whether tha readings stay the same as in (11). If not, repeat (11) to (14).
Note: The adjustment hole to access to the Forward and Reverse Azimuth Alignment Screws is only one. The location of the screws changes according to mode, Forward-Playback or Reverse-Playback.
So pay attention to the tape travelling direction viewing the Indicators (◀ ▶) while adjusting the screw.

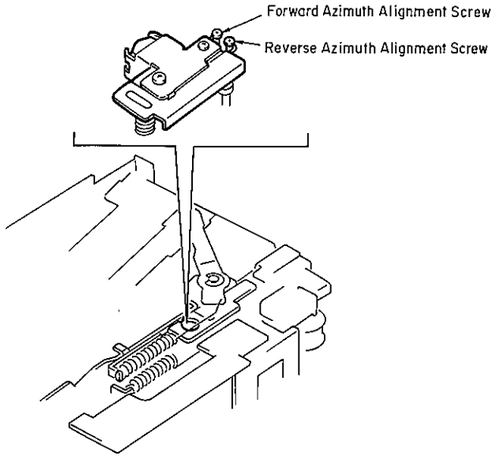
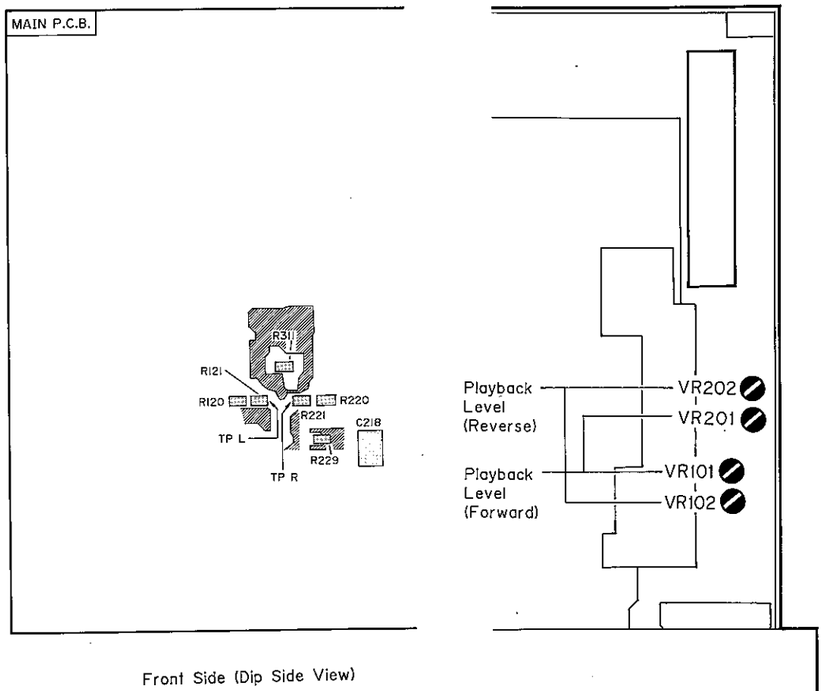


Fig. 4.2

5. PARTS LOCATION FOR ELECTRICAL ADJUSTMENT



Front Side (Dip Side View)

Front Side

Fig. 5

6. ELECTRICAL ADJUSTMENTS

STEP	ITEM	SIGNAL SOURCE	OUTPUT CONNECTION	MODE	ADJUST-MENT	REMARKS
1	Preliminary Step			Volume - Max. Balance, Fader - Center Bass, Treble - Center Loudness - OFF Azimuth - Center Dolby NR - OFF		Set the Mobile Tuner Deck to the initial mode (see MODE).
2	Tape Speed Adjustment	3 kHz Speed and Wow/Flutter Tape (DA09006C)	Frequency Counter to Output Jacks	Forward-Play Reverse-Play	Tape Speed Adj. Volume (Motor Ass'y)	Adjust the tape speed adjustment volume to obtain 3,000 Hz on the frequency counter. Refer to item 4.1.
3	Playback Level Adjustment	400Hz Level Tape (DA09005B)	AC Voltmeter to TP L, TP R on Main P.C.B.	Forward-Play/ Reverse-Play	Main P.C.B. (FWD) VR101 VR201 (REV) VR102 VR202	1. Load a 400 Hz level tape and forward-play it back. 2. Adjust VR101 (VR201) to obtain 245 mV on the AC voltmeter. 3. Press the Eject button, turn over the tape, and load it again. (The tape will be automatically forward-played back.) 4. Press the "<Tape>" button to reverse-play the tape back. 5. Adjust VR102 (VR202) to obtain 245 mV on the AC voltmeter.
4	Playback Head Azimuth Alignment	15 kHz Azimuth Tape (DA09004B)	AC Voltmeter to Output Jacks	Forward-Play/ Reverse-Play	Forward/ Reverse Azimuth Align-ment Screws	Adjust the Forward/Reverse Azimuth Alignment Screws to obtain maximum readings on the AC voltmeter. Refer to item 4.2.
5	Playback Frequency Response Check	400Hz Level Tape (DA09005B) 10 kHz and 15 kHz PB Frequency Response Tapes (DA09003B and DA09002B)	AC Voltmeter to Output Jacks	Forward-Play/ Reverse-Play		1. Load a 400 Hz level tape, forward-play it back, and read the level on the AC voltmeter. 2. Load a 10 kHz PB frequency response tape and forward-play it back. 3. Turn the Azimuth Control to obtain peak reading on the AC voltmeter. Check whether the reading on the AC voltmeter is within the following range against the reading in 1. 10 kHz: -20 dB ±3 dB 4. Load a 15 kHz PB frequency response tape and forward-play it back. 5. Turn the Azimuth Control to obtain peak reading on the AC voltmeter. Check whether the reading on the AC voltmeter is within the following range against the reading in 1. 15 kHz: -20 dB ±4 dB 6. Load a 400 Hz level tape, reverse-play it back, and read the level. 7. Load 10 kHz and 15 kHz PB frequency response tapes and reverse-play them back. Turn the Azimuth Control to obtain peak readings with each tape. Check whether the levels are within the ranges given below against the reading in 6. 10 kHz: -20 dB ±3 dB 15 kHz: -20 dB ±4 dB 8. Set the Azimuth Control to the center position.

7. MECHANISM ASS'Y AND PARTS LIST

7.1. Synthesis

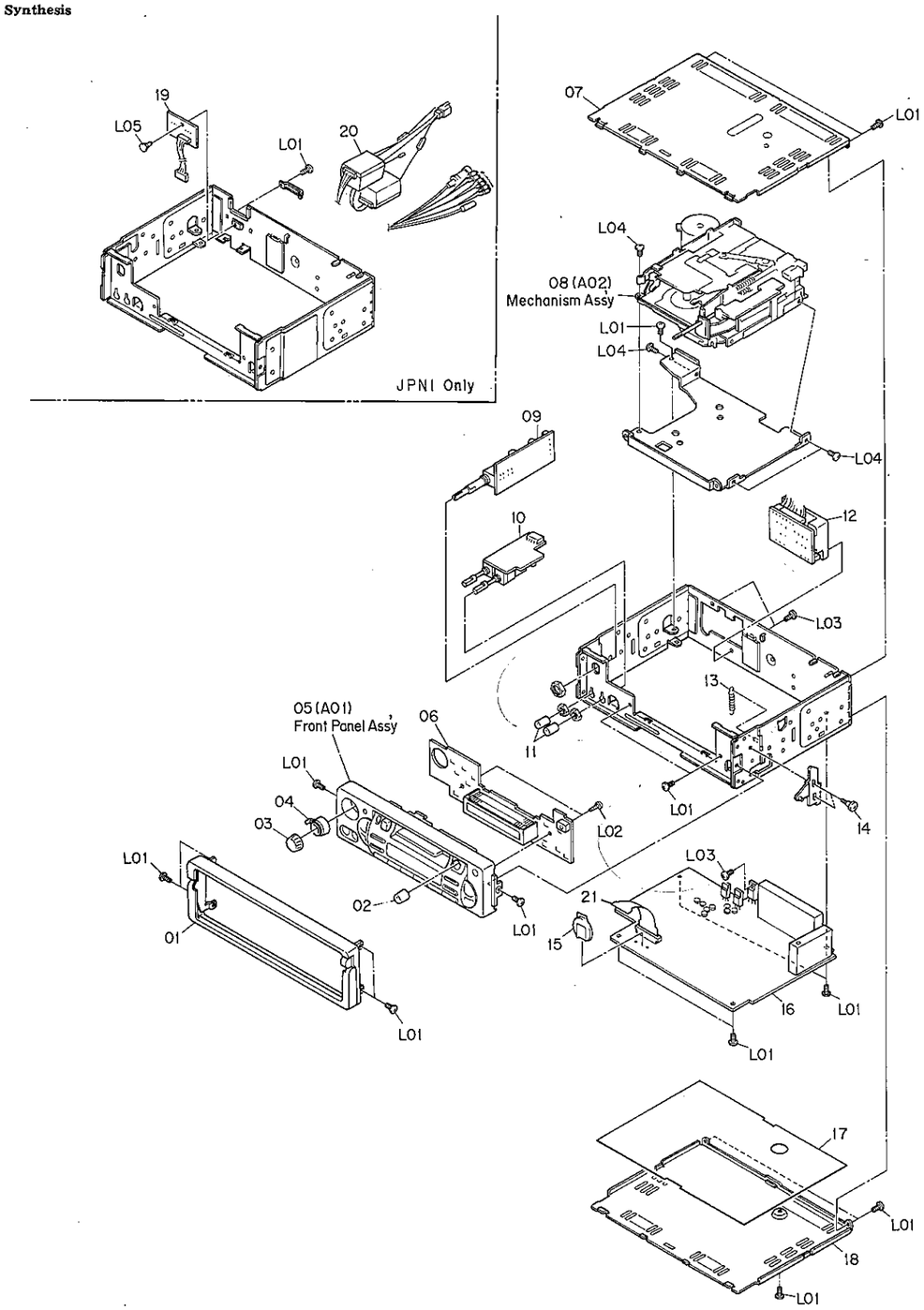


Fig. 7.1

7.2. Front Panel Ass'y (A01)

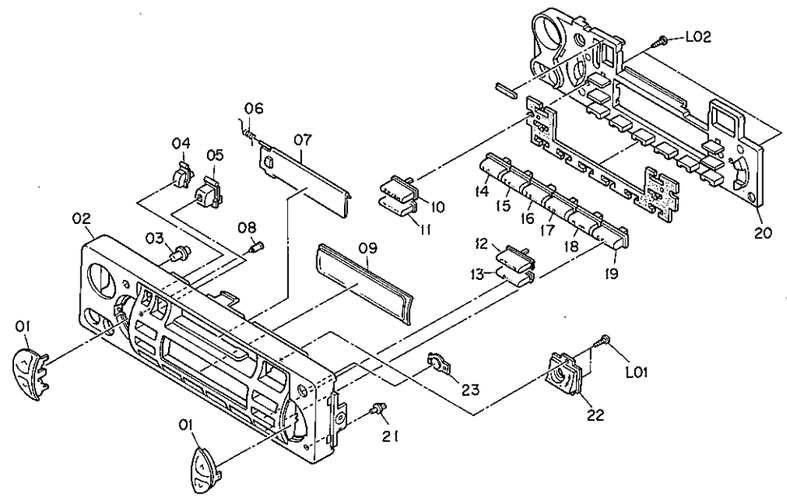


Fig. 7.2

7.1. Synthesis

Schematic Ref. No.	Part No.	Description	Q'ty
	—	**Synthesis**	
01	HA05861C	Handle Ass'y (Except JPN1)	1
02	0H06087A	Azimuth Knob	1
03	HA05862B	Volume Knob Ass'y (Except JPN1, JPN1S)	1
	HA06159A	Volume Knob Ass'y (JPN1, JPN1S)	1
04	0H05761B	Fader Knob	1
05	HA06044A	Front Panel Ass'y (Except JPN1S)	1
	HA06189A	Front Panel Ass'y (JPN1S)	1
06	BA08269A	Front P.C.B. Ass'y	1
07	0J06406A	Top Cover	1
08	CA09093A	Mechanism Ass'y	1
09	BA08267A	Volume P.C.B. Ass'y	1
10	BA08266A	Tone P.C.B. Ass'y	1
11	0H05762B	Tone Knob	2
12	BA08268A	Outlet P.C.B. Ass'y (Except JPN1)	1
13	0J06197A	Lock Spring (Except JPN1, JPN1S)	1
14	0J06196A	Lock Plate Screw (Except JPN1)	2
15	0B92048A	Lithium Battery [BATT1] (Except JPN1)	1
16	BA08263A	Main P.C.B. Ass'y (USA, CAN)	1
	BA08444A	Main P.C.B. Ass'y (EP)	1
	BA08265A	Main P.C.B. Ass'y (AUS)	1
	BA08578A	Main P.C.B. Ass'y (JPN1)	1
	BA08406A	Main P.C.B. Ass'y (JPN1S)	1
17	0J06437B	Bottom Insulator	1
18	0J06408A	Bottom Cover	1
19	BA08581A	Joint P.C.B. Ass'y (JPN1)	1
20	BA08574A	Filter P.C.B. Ass'y (JPN1)	1
21	0B60960A	Flexible P.C.B. 20P	1
—	0B84524A	RCA Cap (JPN1)	4
—	0B84525A	Shorting Pin (JPN1)	4
L01	0E03203A	ST2.6x5 + Binding	
L02	0E00855A	BT2x6 + Binding	
L03	0E00896A	M3x6 + Binding	
L04	0E03573A	ST2.6x4 + Pan (2A)	
L05	0J06629A	Plastic Rivet (JPN1)	

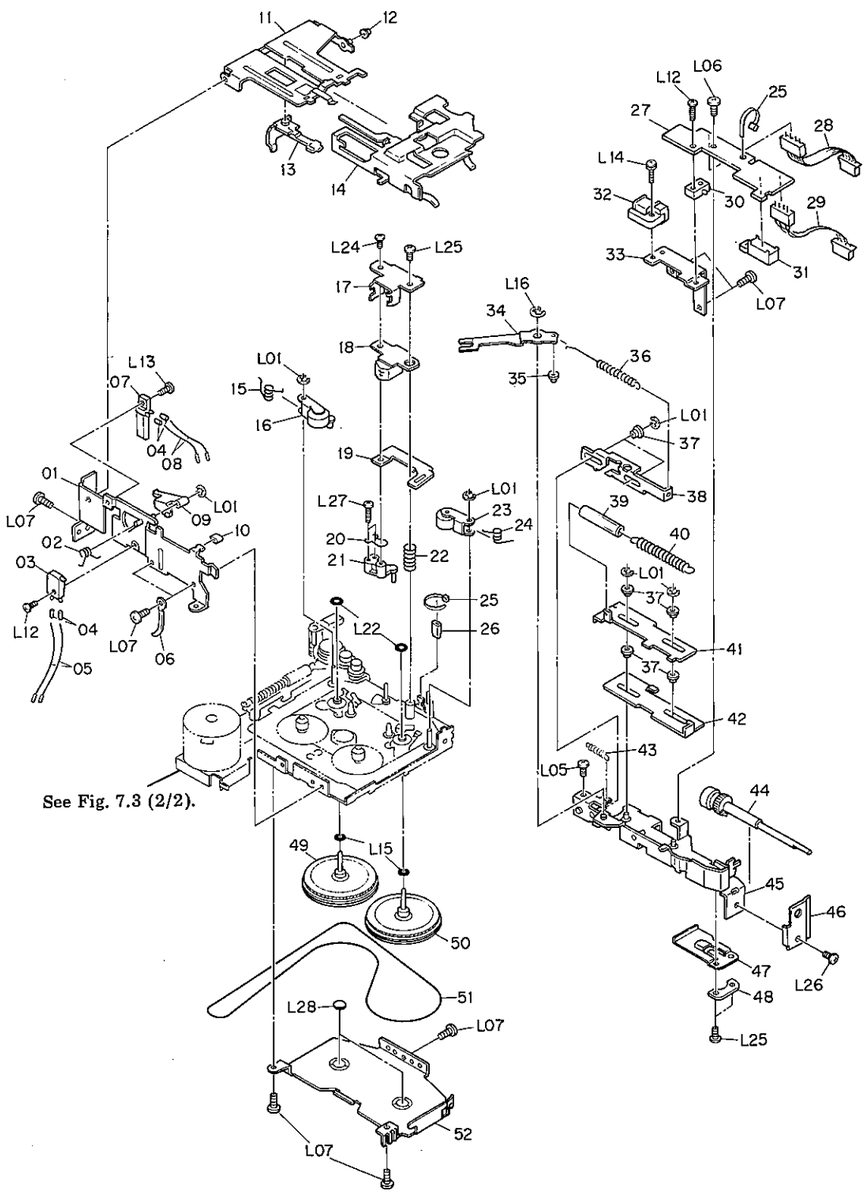
7.2. Front Panel Ass'y (A01)

Schematic Ref. No.	Part No.	Description	Q'ty
A01	**HA06044A**	**Front Panel Ass'y (Except JPN1S)**	**1**
	HA06189A	**Front Panel Ass'y (JPN1S)**	**1**
01	0H06069A	Up/Down Knob	2
02	0H05951B	Front Panel	1
03	0H05972A	Loudness Knob	1
04	0H05973A	Radio Monitor Knob	1
05	HA06101A	Eject Knob Ass'y	1
06	0J06393A	Door Spring	1
07	HA06085A	Cassette Door Ass'y (Except JPN1S)	1
	HA06182A	Cassette Door Ass'y (JPN1S)	1
08	0H05971A	Radio Monitor Lens	1
09	0H05970A	Display Lens	1
10	0H05934A	Mode Knob FM/AM	1
11	0H05933A	Mode Knob CDC	1
12	0H05952A	Mode Knob Tape	1
13	0H05936A	Mode Knob AUX	1
14	0H05943A	Preset Knob 1	1
15	0H05944A	Preset Knob 2	1
16	0H05945A	Preset Knob 3	1
17	0H05946A	Preset Knob 4	1
18	0H05947A	Preset Knob 5	1
19	0H05948A	Preset Knob 6	1
20	0H05969B	Panel Illuminator	1
21	0H05756B	Reset Button	1
22	0H05977A	Azimuth Cover	1
23	0H05975A	Remote Lens	1
L01	0E03670A	BT1.7x3 + Countersunk	
L02	0E00855A	BT2x6 + Binding	

7.3. Mechanism Ass'y (A02)

Schematic Ref. No.	Part No.	Description	Q'ty
A02	**CA09093A**	**Mechanism Ass'y**	**1**
01	CA81565A	Side Bracket Ass'y	1
02	0C84427B	Detector Spring	1
03	0C84449A	Leaf Switch	1
04	0C84452A	Insulating Tube	4
05	0C85758A	Switch Lead Wire Yellow	2
06	0C84464A	Cord Clamper	2
07	0C84450A	Chrome Tape Detector Switch	1
08	0C85759A	Switch Lead Wire Brown	2
09	0C84412A	Detector	1
10	0C81268A	Rubber Cushion	1
11	CA81256A	Cassette Case Plate Ass'y	1
12	0C84415A	Guide Arm Roller B	1
13	CA81265A	Cassette Guide Ass'y	1
14	0C84405A	Cassette Case	1
15	0C84432A	Pressure Roller Arm F Spring	1
16	CA81269A	Pressure Roller Arm F Ass'y	1
17	0C85763A	Tape Guide	1
18	GA02272B	P-4C Head Ass'y	1
19	0C85765A	Azimuth Plate	1
20	0C84440A	Azimuth Spring	1
21	0C85769A	Azimuth Arm	1
22	0C85766A	Azimuth Adjust Spring	1
23	CA81270A	Pressure Roller Arm R Ass'y	1
24	0C84433A	Pressure Roller Arm R Spring	1
25	0C84451A	Insu-Lock	3
26	0C85768A	Rubber Tube	1
27	0C85088B	Deck P.C.B.	1
28	CA81760A	5P Connector Ass'y	1
29	CA81274A	Head Shield Ass'y	1
30	0C84453A	Microswitch	1
31	0C84445A	Slide Switch	1
32	0C84446A	Solenoid	1
33	0C84394A	Switch Holder	1
34	CA81262A	Catch Arm Ass'y	1
35	0C84413A	Catch Arm Roller B	1
36	0C84422A	Arm Spring	1
37	0C84421A	Guide Shaft Roller	6
38	0C84391A	Timing Plate	1
39	0C84443A	Loading Spring Tube	1
40	0C84424A	Loading Spring	1
41	0C84393A	Loading Plate	1
42	0C84392A	Eject Plate	1
43	0C84423A	Chip Arm Spring	1
44	0C85767B	Azimuth Shaft Ass'y	1
45	CA81761A	Sub Chassis B3 Ass'y	1
46	0C85764A	Guide Plate	1
47	0C85762A	Cam Trace Plate	1
48	0C85761A	Holder Plate	1
49	CA81278A	Flywheel F Ass'y	1
50	CA81279A	Flywheel R Ass'y	1
51	0C84441A	Main Belt	1
52	0C84395A	Flywheel Holder	1
53	CA81259A	Chip Arm Ass'y	1
54	0C84414A	Pallet Arm	1
55	CA81267B	Load Gear M Ass'y	1
56	0C84406B	Power Gear B	1
57	0C85757A	Power Plate Spring	1
58	0C84442A	Power Plate Spring Tube	1
59	CA81254A	Power Plate Ass'y	1
60	0C84417A	Gear B	2
61	CA81258A	Gear Plate Ass'y	1
62	0C84403A	Reverse Lock Plate	1
63	0C84425A	Reverse Spring	1
64	CA81268A	Reverse Gear Ass'y	1
65	CA81762B	Head Base Ass'y	1
66	0C84418A	Head Base Roller B	4
67	0C84434A	Head Base Spring	1
68	0C84396A	Head Base Hook	1
69	CA81263A	Power Arm Ass'y	1
70	0C84404A	Reverse Plate	1
71	CA81280B	Motor Ass'y	1
72	0C85760A	Motor Lead Wire	2
73	0C85756A	Lock Plate Spring	1
74	CA81759A	Lock Plate Ass'y	1
75	0C84419A	Power Plate Roller B	1
76	0C84401A	Brake Arm F	1
77	0C84428A	Brake Spring	1
78	0C84402A	Brake Arm R	1
79	CA81257A	Reel Hub Plate Ass'y	1
80	0C84407A	Gear A	1
81	0C84409A	Tension Pulley	1
82	0C84398A	Pressure Roller Release Plate	1
83	CA81763A	Main Chassis Ass'y B	1
84	0C84431A	Head Base Return Spring B	1
85	0C84435A	Idler Spring	2
86	0C84411A	Idler Gear A	2
87	0C84430A	Head Base Return Spring A	1
88	0C84408A	Idler Gear B	1
89	CA81764A	Solenoid Sub Ass'y	1
90	CA81272A	F.F. Gear Ass'y	1
91	0C84436A	F.F. Arm Spring	1
92	CA81266A	F.F. Arm Ass'y	1
93	0C84438A	Actuator Spring	1
94	0C84399A	L Crank	1
95	0C84420A	L Crank Sleeve	1
96	0C84400A	Chip Actuator	1
97	0C84439A	Chip Spring	2
98	CA81260A	Chip Arm R Ass'y	1
99	CA81261A	Chip Arm F Ass'y	1
100	0C84410A	Reel Hub	2
101	0C84437A	Reel Hub Spring	2
102	CA81271A	Reel Hub Ass'y	2
103	CA81561A	Photo Interrupter P.C.B. Ass'y	1
104	CA81562A	4P Connector Ass'y	1
L01	0E00042A	E-Ring 1.5mm	
L02	0E00165A	E-Ring 1.2mm	
L03	0E00181A	E-Ring 3mm	
L04	0E00222A	E-Ring 2mm	
L05	0E00821A	M2x3 + Binding	
L06	0E00866A	M2.6x4 + Binding	
L07	0E03045A	M2.6x3 + Binding	
L08	0E03186A	M2.6x2.8 + Pan (Black Chromate)	
L09	0E03187A	Washer 2.1x4x0.25	
L10	0E03274A	Washer 2.1x4x0.125	
L11	0E03452A	Washer 1.6x3.2x0.25	
L12	0E03527A	M1.7x6 + Pan	
L13	0E03529A	M2x4 + Binding	
L14	0E03530A	M2x6 + Pan (2A)	
L15	0E03561A	Washer 2.1x4x0.13	
L16	0E03579A	E-Ring 2x6.5	
L17	0E03580A	Washer 0.85x3.2x0.25	
L18	0E03581A	Washer 1.3x3x0.25	
L19	0E03582A	Washer 1.6x3.2x0.5	
L20	0E03583A	Washer 1.6x5x0.25	
L21	0E03584A	Washer 2.1x4x0.25	
L22	0E03585A	Washer 1.93x3.2x0.13	
L23	0E03586A	Washer 1.6x3.2x0.25	
L24	0E03671A	M1.4x2.5 + Pan	
L25	0E03672A	M2x3 + Pan	
L26	0E03673A	M2.6x4 + Pan	
L27	0C84454A	Azimuth Screw M1.7x9	
L28	0C84456A	Thrust Plate	

7.3. Mechanism Ass'y (A02)



See Fig. 7.3 (2/2).

Fig. 7.3 (1/2)

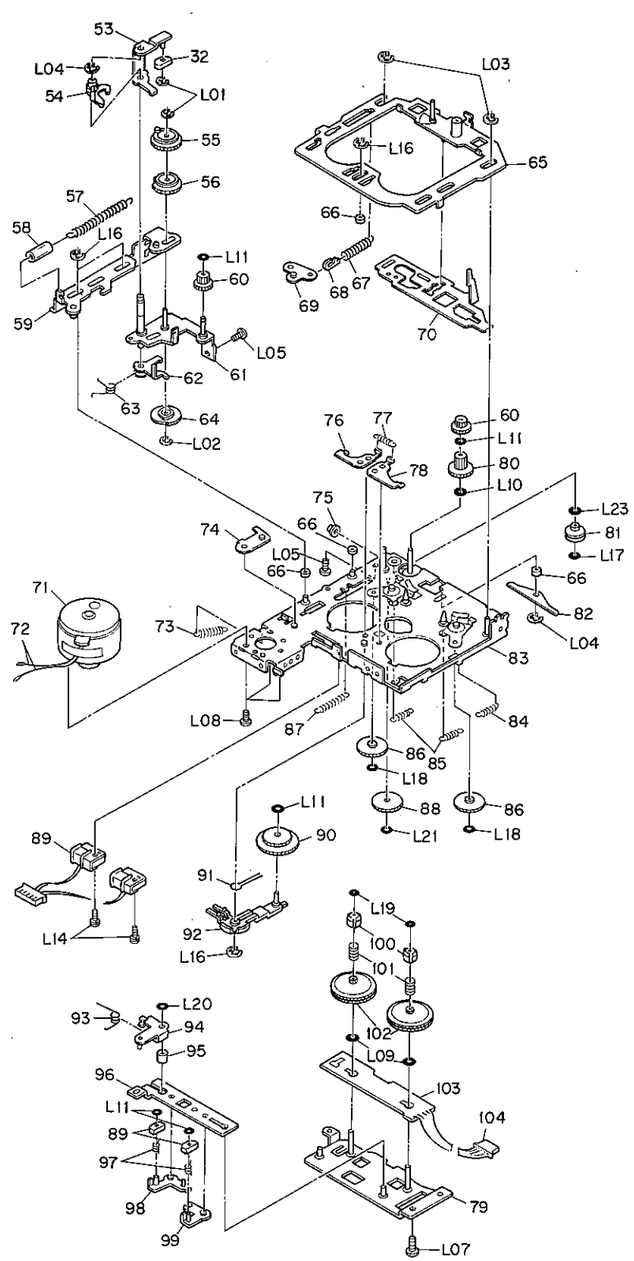


Fig. 7.3 (2/2)

8. MOUNTING DIAGRAMS AND PARTS LIST

8.1. Main P.C.B. Ass'y

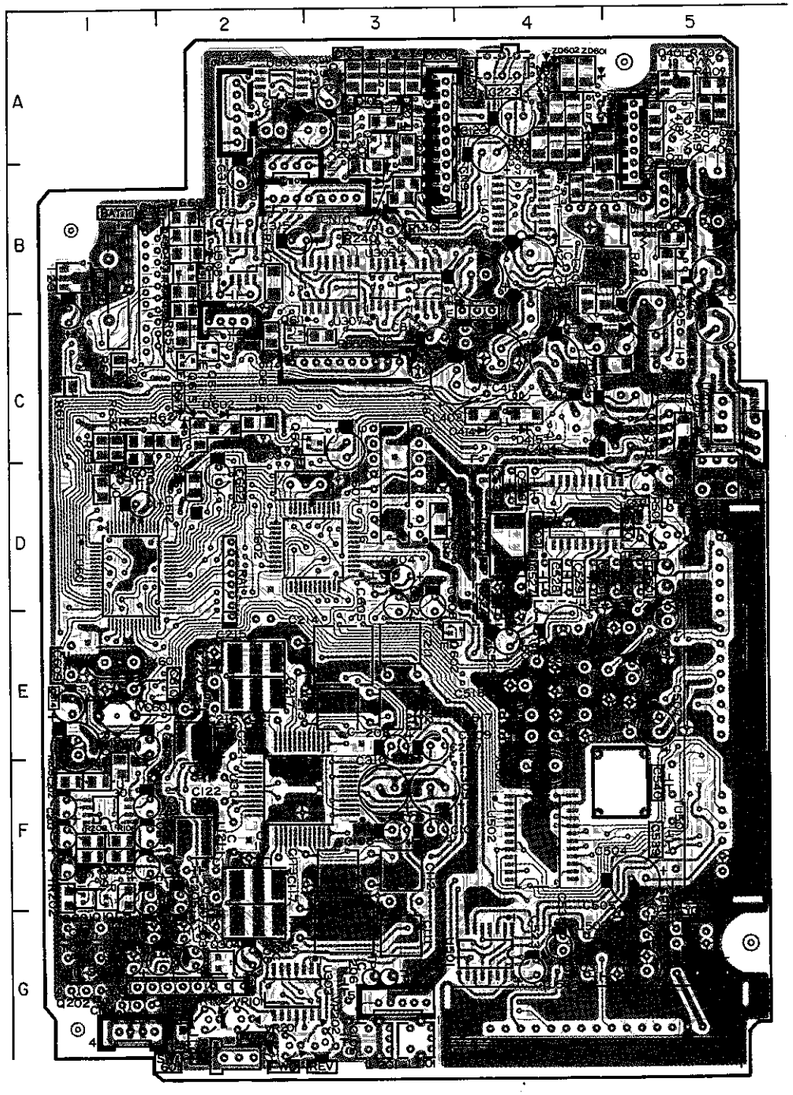


Fig. 8.1 (1/2) Component Side View

● Semiconductor Location

Ref. No.	Location
U301	F-1
U302	G-1
U303	G-3
U304	F-2
U305	B-3
U306	B-3
U307	C-3
U308	B-2
U309	A-2
U401	D-5
U402	C-5
U403	C-5
U404	B-4
U501	G-3
U502	F-4
U601	D-1
U602	D-2
U603	D-3
U604	B-1
Q101	G-1
Q102	G-1
Q201	G-1
Q202	G-1
Q207	A-3
Q304	G-2
Q401	A-5
Q413	B-5
Q419	B-3
Q602	E-3
Q608	C-2
Q611	C-2
Q614	C-2
Q615	C-2
ZD403	C-4
ZD408	B-5
ZD601	A-5
ZD602	A-4
ZD603	B-4
ZD604	A-4
ZD605	A-4
ZD606	B-4
ZD607	B-4
D104	A-3
D105	A-3
D202	A-3
D203	A-3
D204	A-3
D205	A-3
D405	B-5
D414	C-4
D415	C-4
D601	C-2
D602	C-2
D615	D-3

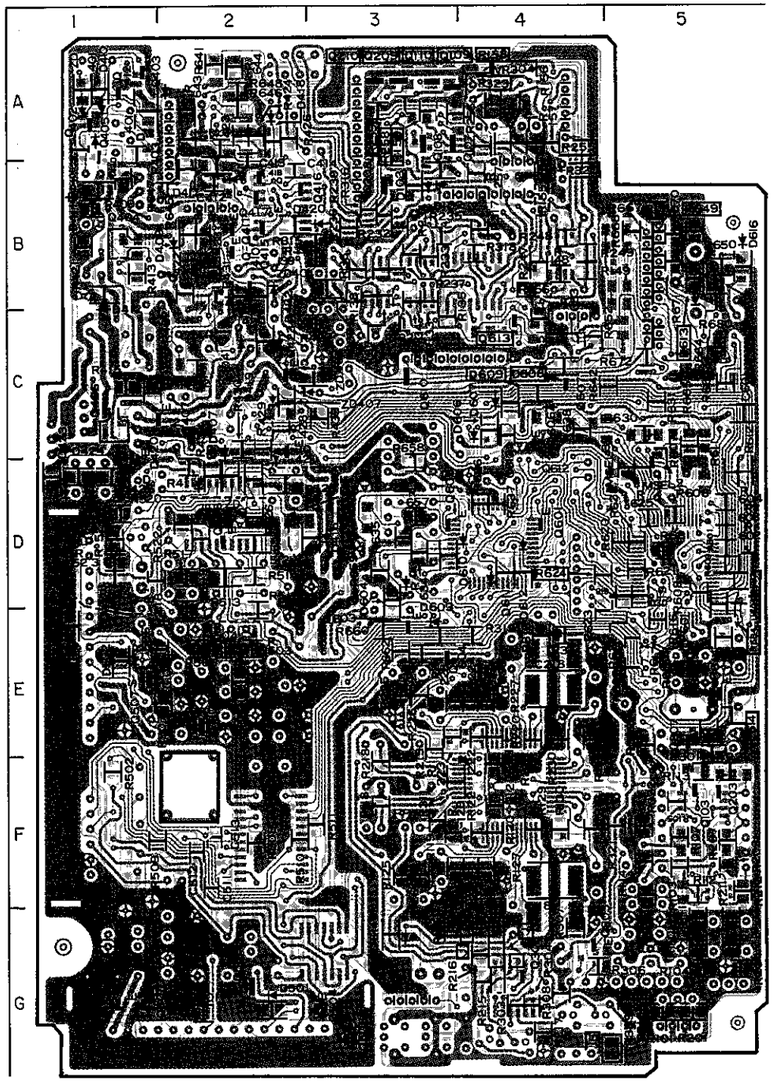


Fig. 8.1 (2/2) Dip Side View

● Semiconductor Location

Ref. No.	Location
Q103	F-5
Q107	A-4
Q109	A-3
Q110	A-3
Q203	F-5
Q208	B-3
Q209	A-3
Q210	A-3
Q303	G-4
Q305	G-4
Q306	E-4
Q307	E-5
Q402	A-1
Q403	A-1
Q404	B-1
Q405	A-1
Q406	C-1
Q407	C-2
Q410	B-2
Q411	B-2
Q412	A-1
Q414	C-2
Q416	B-3
Q417	B-2
Q418	B-2
Q420	C-1
Q421	D-2
Q422	B-2
Q423	C-2
Q501	G-1
Q502	G-1
Q503	G-2
Q504	G-3
Q505	G-3
Q506	E-2
Q507	E-1
Q601	D-4
Q603	E-3
Q604	E-3
Q605	D-3
Q606	C-4
Q607	C-4
Q610	C-3
Q612	D-4
Q616	B-5
Q618	E-5
ZD401	A-1
ZD404	B-2
ZD405	C-3
ZD406	D-2
ZD407	C-3
ZD501	E-2
D102	B-3
D103	B-3
D401	A-1
D404	C-2
D406	B-1
D407	C-2
D408	C-2
D409	B-2
D410	A-1
D411	B-1
D412	C-1
D416	D-3
D417	B-2
D418	A-2
D419	C-2
D420	B-2
D421	C-2
D422	B-2
D423	C-1
D424	C-1
D425	D-1
D501	G-2
D502	E-1
D503	E-1
D603	E-3
D604	D-3
D606	C-4
D607	C-4
D610	D-4
D611	E-4
D612	E-4
D613	C-5
D614	G-3
D616	B-5

8.2. Tone P.C.B. Ass'y

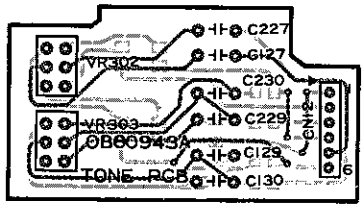


Fig. 8.2 (1/2) Component Side View

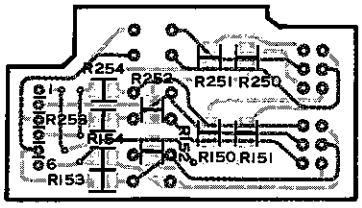


Fig. 8.2 (2/2) Dip Side View

8.3. Volume P.C.B. Ass'y

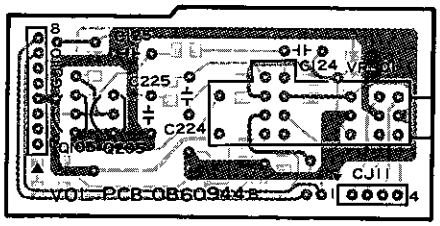


Fig. 8.3 (1/2) Component Side View

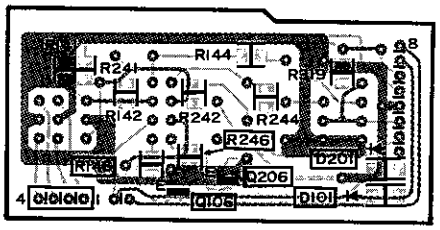


Fig. 8.3 (2/2) Dip Side View

8.4. Front P.C.B. Ass'y

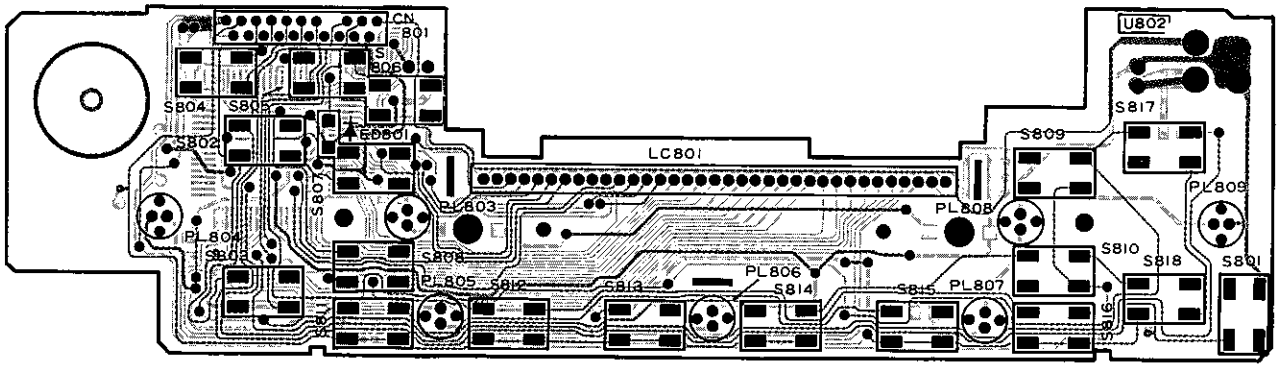


Fig. 8.4 (1/2) Component Side View

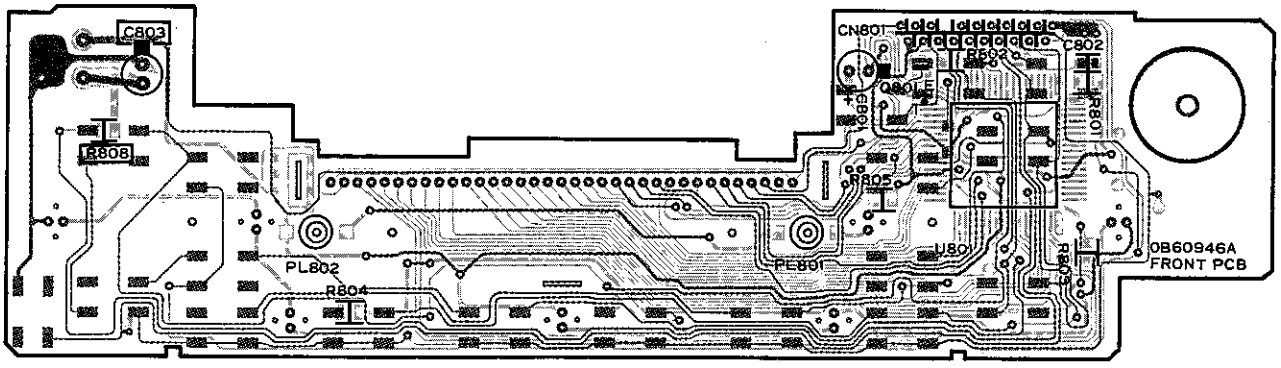


Fig. 8.4 (2/2) Dip Side View

8.5. Outlet P.C.B. Ass'y

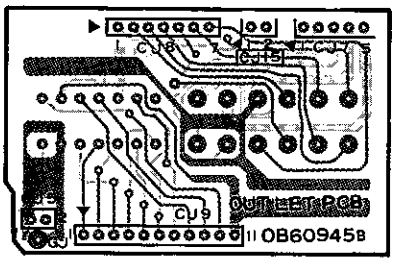


Fig. 8.5 Component Side View

8.6. Joint P.C.B. Ass'y

Note: Japan version only

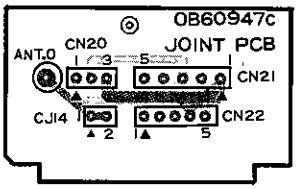


Fig. 8.6 Component Side View

Notes: 1. Abbreviations
TR — Transistor, SID — Silicon Diode, ZD — Zener Diode, Varicap — Variable Capacitance Diode
RK — Carbon Resistor, RM — Metal Film Resistor, RF — Fail Safe Type Resistor, RC — Cement Resistor
CE — Electrolytic Capacitor, CML — Mylar Capacitor, CC — Ceramic Capacitor, CPP — PP Capacitor,
CMM — Metalized Mylar Capacitor, CSP — Polystyrene Capacitor, C — Mica Capacitor, CT — Tanatlum Capacitor
2. Parts marked with * show chip parts.
3. Description of capacitor: 10 16V = 10μ 16V

8.1. Main P.C.B. Ass'y

Schematic Ref. No.	Part No.	Description
	BA08263A	Main P C.B. Ass'y (USA, CAN)
	BA08444A	Main P.C.B. Ass'y (EP)
	BA08265A	Main P.C.B. Ass'y (AUS)
	BA08578A	Main P.C.B. Ass'y (JPN1)
	BA08406A	Main P.C.B. Ass'y (JPN1S)
	0B60942D	Main P.C.B.
U301	0B11001A	IC NJM4558M-T1
U302	0B11690A	IC M51143AL
U303	0B11002A	IC uPD4066BG
U304	0B11930A	IC CXA1098Q
U305,306	0B11001A	IC NJM4558M
U307	0B11929A	IC TC4052BF
U308,309	0B11001A	IC NJM4558M-T1
U401	0B11960A	IC uPC78M10HF
U402	0B11935A	IC NJM78M08FA
U403	0B11609A	IC NJM78M05FA
U404	0B11928A	IC TC4049BF
U501	0B11002A	IC uPD4066BG
U502	0B11829A	IC LC7218M
U601	0B11994A	IC M50944-127FP
U602	0B11771A	IC 75008GB-555-3B4
U603	0B11728A	IC M5265P
U604	0B11956A	IC M51943B (JPN1)
Q101	0B14188A	TR 2SC4081*
Q102	0B10332A	FET 2SK370 (BL)
Q103	0B14188A	TR 2SC4081*
Q107,108	0B14206A	TR DTC323TK*
Q109,110	0B14205A	TR DTC314TK*
Q201	0B14188A	TR 2SC4081*
Q202	0B10332A	FET 2SK370 (BL)
Q203	0B14188A	TR 2SC4081 R*
Q207,208	0B14206A	TR DTC323TK*
Q209,210	0B14205A	TR DTC314TK*
Q303	0B14197A	TR DTC144EU*
Q304	0B14205A	TR DTC314TK*
Q305,306	0B14197A	TR DTC144EU*
Q307	0B10053A	TR DTA144ES
Q401	0B14180A	TR 2SA1203*
Q402	0B14187A	TR 2SA1576*
Q403	0B14188A	TR 2SC4081*
Q404	0B14198A	TR 2SA1213*
Q405	0B14188A	TR 2SC4081*
Q406	0B14180A	TR 2SA1203*
Q407	0B14202A	TR DTC114EU*
Q410	0B14200A	TR DTA114EU*
Q411	0B14197A	TR DTC144EU*
Q412	0B14202A	TR DTC114EU*
Q413	0B10406A	TR 2SA1357
Q414	0B14218A	TR 2SC4097*
Q415	0B14201A	TR DTA114WU*
Q416	0B14203A	TR DTC114WU*
Q417	0B14201A	TR DTA114WU*
Q418	0B14203A	TR DTC114WU*
Q419	0B10256A	TR 2SA1561
Q420	0B14197A	TR DTC144EU*
Q421,422	0B14195A	TR DTA144EU*
Q423	0B14197A	TR DTC144EU*
Q491	0B14197A	TR DTC144EU* (JPN1)
Q492	0B14180A	TR 2SA1203* (JPN1)
Q501	0B14197A	TR DTC144EU*
Q502	0B14195A	TR DTA144EU*
Q503	0B14204A	TR DTB143EK*
Q504,505	0B14197A	TR DTC144EU*
Q506	0B14204A	TR DTB143EK*
Q507	0B14199A	FET 2SK536
Q601,602	0B14195A	TR DTA144EU*
Q603	0B14195A	TR DTA144EU*
Q604	0B14197A	TR DTC144EU*
Q605	0B14200A	TR DTA114EU*
Q606,607	0B14197A	TR DTC144EU*
Q608	0B14197A	TR DTC144EU*
Q610	0B14204A	TR DTB143EK*
Q611	0B14197A	TR DTC144EU*
Q612	0B14200A	TR DTA114EU*
Q614,615	0B14188A	TR 2SC4081*
Q616	0B14197A	TR DTC144EU*
Q618	0B14187A	TR 2SA1576*
ZD401	0B13046A	ZD 16V RLZ16C TE-11*
ZD403	0B13014A	ZD 6.2V RLZ6.2BTE-11*
ZD404	0B13025A	ZD 8.5V RLZ8.5CTE-11*
ZD405,406	0B13014A	ZD 6.2V RLZ6.2BTE-11
ZD407	0B13018A	ZD 6.8V RLX6.8CTE-11
ZD408	0B13008A	ZD 5.1V RLZ5.1BTE-11*
ZD501	0B13027A	ZD 9.1V RLZ9.1CTE-11*
ZD601,602	0B13018A	ZD 6.8V RLZ6.8CTE-11*
ZD603,604	0B13018A	ZD 6.8V RLZ6.8CTE-11*
ZD605,606	0B13018A	ZD 6.8V RLZ6.8CTE-11*
ZD607	0B13008A	ZD 5.1V RLZ5.1BTE-11*
D102,103	0B13003A	SID RLS73*
D104,105	0B13003A	SID RLS73*
D202,203	0B13003A	SID RLS73*
D204,205	0B13003A	SID RLS73*
D401	0B13066A	SID RLR4001*
D402	0B06398A	SID 1SS176
D404,405	0B13003A	SID RLS73*
D406,407	0B13003A	SID RLS73*
D409,410	0B13003A	SID RLS73*
D411,412	0B13003A	SID RLS73*
D414,415	0B13003A	SID RLS73*
D416,417	0B13003A	SID RLS73*
D418,419	0B13003A	SID RLS73*
D420,421	0B13003A	SID RLS73*
D422,423	0B13003A	SID RLS73*
D424,425	0B13003A	SID RLS73*
D491	0B13003A	SID RLS73* (JPN1)
D492	0B13066A	SID RLR4001* (JPN1)
D493	0B13003A	SID RLS73* (JPN1)
D501,502	0B13003A	SID RLS73*
D503	0B13003A	SID RLS73*
D601,602	0B13003A	SID RLS73*
D603,604	0B13003A	SID RLS73*
D606,607	0B13003A	SID RLS73*
D610,611	0B13003A	SID RLS73*
D612	0B13003A	SID RLS73*
D613	0B13003A	SID RLS73* (Except JPN1)
D614,615	0B13003A	SID RLS73*
D616	0B13003A	SID RLS73*
D617	0B13003A	SID RLS73* (JPN1)
X501	0B92051A	X'tal 7.2Hz
X601	0B92043A	Crystal 4.19MHz (Except JPN1)
	0B92057A	Crystal 4.194304MHz (JPN1)
X603	0B92043A	Crystal 4.19MHz
L101	0B51222A	Coil 5mH
L201	0B51222A	Coil 5mH
L401,402	0B51126A	Inductor 100uH
L502	0B51126A	Inductor 100uH
L503	0B51337A	Inductor 22uH
VR101,102	0B32206A	Semi VR 22K
VR201,202	0B32206A	Semi VR 22K
VR304	0B33001A	Semi VR 200*
RA1	0B21112A	R Network 10Kx7
R101	0B23294A	RK 100K 1/8W J*
R102	0B23270A	RK 10K 1/8W J*
R103	0B26131A	RM 1.5K 1/8W F*
R104	0B26103A	RM 100 1/8W F*
R105,106	0B23318A	RK 1M 1/8W J*
R107	0B26131A	RM 1.5K 1/8W F*
R108,109	0B23318A	RK 1M 1/8W J*
R110	0B26182A	RM 210K 1/8W F*
R111	0B26150A	RM 9.1K 1/8W F*
R112	0B26180A	RM 13.3K 1/8W F*
R113	0B23278A	RK 22K 1/8W J*
R114	0B23268A	RK 8.2K 1/8W J*
R115	0B23228A	RK 180 1/8W J*
R116	0B23233A	RK 300 1/8W J*
R117	0B23264A	RK 5.6K 1/8W J*
R118,119	0B23278A	RK 22K 1/8W J*
R120	0B23254A	RK 2.2K 1/8W J*
R121	0B23276A	RK 18K 1/8W J*
R122	0B23268A	RK 8.2K 1/8W J*
R123	0B23274A	RK 15K 1/8W J*
R124	0B26145A	RM 5.6K 1/8W F*
R125	0B23318A	RK 1M 1/8W J*
R126	0B26121A	RM 560 1/8W F*
R127	0B26137A	RM 2.7K 1/8W F*
R128	0B26159A	RM 22K 1/8W F*
R129	0B23267A	RK 7.5K 1/8W J*
R130	0B23242A	RK 680 1/8W J*
R131	0B23269A	RK 9.1K 1/8W J*
R132	0B26158A	RM 20K 1/8W F*
R133	0B26163A	RM 33K 1/8W F*
R134	0B26158A	RM 20K 1/8W F*
R135	0B26163A	RM 33K 1/8W F*
R136	0B26158A	RM 20K 1/8W F*
R137	0B26163A	RM 33K 1/8W F*
R138	0B26158A	RM 20K 1/8W F*
R139	0B26163A	RM 33K 1/8W F*
R140	0B26127A	RM 1K 1/8W F*
R147	0B26183A	RM 220K 1/8W F*
R148,149	0B26148A	RM 7.5K 1/8W F*
R155	0B23294A	RK 100K 1/8W J*
R156,157	0B26127A	RM 1K 1/8W F*
R158,159	0B26103A	RM 100 1/8W F*
R201	0B23294A	RK 100K 1/8W J*
R202	0B23270A	RK 10K 1/8W J*
R203	0B26131A	RM 1.5K 1/8W F*
R204	0B26103A	RM 100 1/8W F*
R205,206	0B23318A	RK 1M 1/8W J*
R207	0B26131A	RM 1.5K 1/8W F*
R208,209	0B23318A	RK 1M 1/8W J*
R210	0B26182A	RM 210K 1/8W F*
R211	0B26150A	RM 9.1K 1/8W F*
R212	0B26180A	RM 13.3K 1/8W F*
R213	0B23278A	RK 22K 1/8W J*
R214	0B23268A	RK 8.2K 1/8W J*
R215	0B23228A	RK 180 1/8W J*
R216	0B23233A	RK 300 1/8W J*
R217	0B23264A	RK 5.6K 1/8W J*
R218,219	0B23278A	RK 22K 1/8W J*
R220	0B23254A	RK 2.2K 1/8W J*
R221	0B23276A	RK 18K 1/8W J*
R222	0B23268A	RK 8.2K 1/8W J*
R223	0B23274A	RK 15K 1/8W J*
R224	0B26145A	RM 5.6K 1/8W F*
R225	0B23318A	RK 1M 1/8W J*
R226	0B26121A	RM 560 1/8W F*
R227	0B26137A	RM 2.7K 1/8W F*
R228	0B26159A	RM 22K 1/8W F*
R229	0B23267A	RK 7.5K 1/8W J*
R230	0B23242A	RK 680 1/8W J*
R231	0B23269A	RK 9.1K 1/8W J*
R232	0B26158A	RM 20K 1/8W F*
R233	0B26163A	RM 33K 1/8W F*
R234	0B26158A	RM 20K 1/8W F*
R235	0B26163A	RM 33K 1/8W F*
R236	0B26158A	RM 20K 1/8W F*
R237	0B26163A	RM 33K 1/8W F*
R238	0B26158A	RM 20K 1/8W F*
R239	0B26163A	RM 33K 1/8W F*
R240	0B26127A	RM 1K 1/8W F*
R247	0B26183A	RM 220K 1/8W F*
R248	0B26148A	RM 7.5K 1/8W F*
R249	0B26148A	RM 7.5K 1/8W F*
R255	0B23294A	RK 100K 1/8W J*
R256,257	0B26127A	RM 1K 1/8W F*
R258,259	0B26103A	RM 100 1/8W F*
R301,302	0B23214A	RK 47 1/8W J*
R303	0B23294A	RK 100K 1/8W J*
R304	0B23262A	RK 4.7K 1/8W J*
R306	0B23246A	RK 1K 1/8W J*
R307	0B23298A	RK 150K 1/8W J*
R308	0B23314A	RK 680K 1/8W J*
R309	0B23310A	RK 470K 1/8W J*
R310	0B23296A	RK 120K 1/8W J*
R311	0B26186A	RM 130K 1/8W F*
R312	0B23234A	RK 330 1/8W J*
R313,314	0B23278A	RK 22K 1/8W J*
R315,316	0B23246A	RK 1K 1/8W J*
R317,318	0B23302A	RK 220K 1/8W J*
R320	0B23320A	RK 0 1/8W J*
R321	0B23286A	RK 47K 1/8W J*
R322	0B23292A	RK 82K 1/8W J*
R323	0B23246A	RK 1K 1/8W J*
R401	0B23246A	RK 1K 1/8W J*
R402	0B25195A	RM 1K 1/4W F
R403	0B23246A	RK 1K 1/8W J*
R404	0B24235A	RF 1 1W J
R405,406	0B23278A	RK 22K 1/8W J*
R407	0B23278A	RK 22K 1/8W J*
R408,409	0B23254A	RK 2.2K 1/8W J*
R410	0B23246A	RK 1K 1/8W J*
R411	0B23270A	RK 10K 1/8W J*
R412	0B23258A	RK 3.3K 1/8W J*
R413	0B23292A	RK 82K 1/8W J*
R415,416	0B23246A	RK 1K 1/8W J*
R418,419	0B20084B	RF 330 1/4W
R420	0B23246A	RK 1K 1/8W J*
R421	0B23222A	RK 100 1/8W J*
R422	0B23261A	RK 4.3K 1/8W J*
R423	0B23286A	RK 47K 1/8W J*
R424	0B23294A	RK 100K 1/8W J*
R425,426	0B23270A	RK 10K 1/8W J*
R427	0B23254A	RK 2.2K 1/8W J*
R428,429	0B23270A	RK 10K 1/8W J*
R430	0B23280A	RK 27K 1/8W J*
R431,432	0B23270A	RK 10K 1/8W J*
R433	0B23294A	RK 100K 1/8W J*
R434	0B23093A	RK 6.8K 1/8W J*
R491,492	0B23242A	RK 680 1/8W J* (JPN1)
R493	0B23246A	RK 1K 1/8W J* (JPN1)
R501	0B23294A	RK 100K 1/8W J*
R502	0B23278A	RK 22K 1/8W J*
R503	0B23228A	RK 180 1/8W J*
R504	0B23238A	RK 470 1/8W J*
R505,506	0B23250A	RK 1.5K 1/8W J*
R507,508	0B23250A	RK 1.5K 1/8W J*
R509	0B23258A	RK 3.3K 1/8W J*
R510	0B23262A	RK 4.7K 1/8W J*
R511	0B23270A	RK 10K 1/8W J*
R520	0B23270A	RK 10K 1/8W J*
R601,602	0B23270A	RK 10K 1/8W J*
R603,604	0B23270A	RK 10K 1/8W J*
R605,606	0B23246A	RK 1K 1/8W J*
R607,608	0B23246A	RK 1K 1/8W J*
R609	0B23254A	RK 2.2K 1/8W J*
R611,612	0B23294A	RK 100K 1/8W J*
R613	0B23294A	RK 100K 1/8W J*
R614	0B23270A	RK 10K 1/8W J*
R615	0B23318A	RK 1M 1/8W J*
R616	0B23270A	RK 10K 1/8W J*
R617	0B23258A	RK 3.3K 1/8W J*
R618,619	0B23270A	RK 10K 1/8W J*
R621,622	0B23270A	RK 10K 1/8W J*
R623	0B23270A	RK 10K 1/8W J*
R624	0B23294A	RK 100K 1/8W J*
R625,626	0B23270A	RK 10K 1/8W J*
R627	0B23286A	RK 47K 1/8W J*
R628,629	0B23270A	RK 10K 1/8W J*
R630	0B23270A	RK 10K 1/8W J*
R631	0B23270A	RK 10K 1/8W J* (JPN1)
R632	0B23270A	RK 10K 1/8W J* (EP, AUS)
R633	0B23270A	RK 10K 1/8W J* (JPN1, JPN1S)
R634	0B23294A	RK 100K 1/8W J*
R635	0B23254A	RK 2.2K 1/8W J*
R636,637	0B23270A	RK 10K 1/8W J*
R638	0B23270A	RK 10K 1/8W J*
R641,642	0B23222A	RK 100 1/8W J*
R643,644	0B23222A	RK 100 1/8W J*
R645	0B23246A	RK 1K 1/8W J*
R646,647	0B23222A	RK 100 1/8W J*
R648	0B23294A	RK 100K 1/8W J*
R649	0B23230A	RK 220 1/8W J* (Except JPN1)
R650	0B23294A	RK 100K 1/8W J*
R651	0B23249A	RK 1.3K 1/8W J*
R652	0B23294A	RK 100K 1/8W J*
R653,654	0B23294A	RK 100K 1/8W J*
R655	0B23270A	RK 10K 1/8W J*
R657,658	0B23258A	RK 3.3K 1/8W J*
R659	0B23270A	RK 10K 1/8W J*
R660	0B23278A	RK 22K 1/8W J*
R661,662	0B23270A	RK 10K 1/8W J*
R663,664	0B23270A	RK 10K 1/8W J*
R665,666	0B23270A	RK 10K 1/8W J*
R667,668	0B23294A	RK 100K 1/8W J*
R669,670	0B23294A	RK 100K 1/8W J*
R671	0B23294A	RK 100K 1/8W J*
R672	0B23270A	RK 10K 1/8W J*
R680	0B23294A	RK 100K 1/8W J*
R681,682	0B23270A	RK 10K 1/8W J*
R683,684	0B23320A	RK 0 1/8W J*
VC601	0B42020A	C Trimmer 20P (JPN1)
C101	0B40951A	CE 10 16V
C102,103	0B40956A	CE 1 50V (LN)
C104	0B47238A	CML 0.015 50V J
C105	0B40807A	CE 1 50V
C106	0B47248A	CML 8200P 50V J
C107,108	0B40953A	CE 2.2 50V
C111,112	0B47249A	CPP 2200P 50V G
C113	0B47250A	CPP 3900P 50V G
C114	0B41306A	CML 0.47 50V J
C115	0B43142A	CML 0.15 25V J*
C116	0B47238A	CML 0.015 50V J
C117	0B43141A	CML 0.12 25V J*
C118	0B43140A	CML 0.1 25V J*
C119	0B47246A	CML 0.068 50V J
C120	0B47190A	CML 0.056 50V J
C121	0B47251A	CPP 5600P 50V G
C122	0B47237A	CML 0.01 50V J
C123	0B40954A	CE 47 16V
C126	0B47027A	CML 470P 50V J
C131	0B40954A	CE 47 16V
C201	0B40951A	CE 10 16V
C202,203	0B40956A	CE 1 50V (LN)
C204	0B47238A	CML 0.015 50V J
C205	0B40807A	CE 1 50V
C206	0B47248A	CML 8200P 50V J
C207,208	0B40953A	CE 2.2 50V
C211,212	0B47249A	CPP 2200P 50V G
C213	0B47250A	CPP 3900P 50V G
C214	0B41306A	CML 0.47 50V J
C215	0B43142A	CML 0.15 25V J*
C216	0B47238A	CML 0.015 50V J
C217	0B43141A	CML 0.12 25V J*
C218	0B43140A	CML 0.1 25V J*
C219	0B47246A	CML 0.068 50V J
C220	0B47190A	CML 0.056 50V J
C221	0B47251A	CPP 5600P 50V G
C222	0B47237A	CML 0.01 50V J
C223	0B40954A	CE 47 16V
C226	0B47027A	CML 470P 50V J
C231	0B40954A	CE 47 16V
C301	0B40808A	CE 220 10V
C302	0B40951A	CE 10 16V
C303	0B40810A	CE 4.7 25V
C304	0B40951A	CE 10 16V
C305	0B40807A	CE 1 50V
C306	0B40946A	CE 0.1 50V
C307	0B40807A	CE 1 50V
C308	0B40951A	CE 10 16V
C309,310	0B40809A	CE 100 16V
C312,313	0B40951A	CE 10 16V
C314,315	0B40951A	CE 10 16V
C318,319	0B40951A	CE 10 16V
C401,402	0B40806A	CE 47 16V
C403	0B40809A	CE 100 16V
C404	0B40808A	CE 220 10V
C405	0B40807A	CE 1 50V
C406,407	0B40809A	CE 100 16V
C408,409	0B47247A	CML 0.1 50V J
C410,411	0B40951A	CE 10 16V
C412	0B43143A	CC 0.039 50V K*
C413,414	0B43064A	CC 0.01 50V K*
C415,416	0B40809A	CE 100 16V
C417,418	0B40809A	CE 100 16V
C419	0B40951A	CE 10 16V
C420	0B40808A	CE 220 10V
C421,422	0B40809A	CE 100 16V
C502	0B40806A	CE 47 16V
C503	0B41693A	CC 0.01 50V M
C504	0B40809A	CE 100 16V
C505	0B41693A	CC 0.01 50V M
C506	0B40807A	CE 1 50V
C507	0B40806A	CE 47 16V
C508	0B41693A	CC 0.01 50V M
C509,510	0B47261A	CC 27P 50V J
C511	0B43064A	CC 0.01 50V K*
C512,513	0B43134A	CC 100P 50V J*
C514	0B40981A	CT 4.7 25V
C515,516	0B41693A	CC 0.01 50V M
C517	0B41693A	CC 0.01 50V M
C518	0B40806A	CE 47 16V
C519	0B41693A	CC 0.01 50V M
C520	0B40809A	CE 100 16V
C521	0B41693A	CC 0.01 50V M
C522	0B40809A	CE 100 16V
C523	0B40951A	CE 10 16V
C538	0B40946A	CE 0.1 50V
C539,540	0B47237A	CML 0.01 50V J (USA, CAN)
C601	0B43064A	CC 0.01 50V K*
C602	0B40807A	CE 1 50V
C603	0B41693A	CC 0.01 50V M
C604	0B40812A	CE 47 6.3V
C605	0B41693A	CC 0.01 50V M
C606	0B40810A	CE 4.7 25V
C607	0B40945A	CE 100 10V
C608	0B43092A	CC 0.1 25V Z*
C609	0B47260A	CC 8P 50V D (JPN1)
C610	0B47259A	CC 3P 50V C (JPN1)
C611	0B40952A	CE 0.22 50V
C612	0B40980A	CE 100 6.3V
C613	0B43065A	CC 0.047 50V Z*
C614	0B43092A	CC 0.1 25V Z*
SW301	0B70152A	Slide Switch
SW601	0B70167A	Micro Slide Switch (Except JPN1)
CN1	0B81461A	4P T-Post
CN2	0B81462A	5P T-Post
CN3	0B84085A	10P T-Post
CN4	0B81461A	4P T-Post
CN5	0B81459A	2P T-Post (Except JPN1)
	0B85056A	Antenna Wire Ass'y (JPN1)
CN6	0B84444A	20P FPC Connector
CN7	0B81469A	5P T-Post
CN8	0B81464A	7P T-Post (Except JPN1)
	0B85054A	13-Pin DIN Cable CDC (JPN1)
CN9	0B84086A	11P T-Post (Except JPN1)
	0B85055A	IN/OUT RCA Pin Jack Ass'y (JPN1)
CN10	0B81465A	8P T-Post
CN11	0B81461A	4P T-Post
CN13	0B81459A	2P T-Post (JPN1)
CJ12	0B84447A	6P Connector Ass'y
SPR1	0B12655A	Surge Protector DSP-201M
TU501	BA08293A	FM Pack MX-A121 (USA, CAN, AUS)
	BA08452A	FM Pack MX-E121 (EP)
	BA08302A	FM Pack MX-J121 (JPN1, JPN1S)
TU502	BA07951A	AM Pack
	0E00964A	M3x5 + Binding (1)
	0E03123A	Earth Lug M2.6 (1)
	0J06545A	L. IC Holder (1)

8.2. Tone P.C.B. Ass'y

Schematic Ref. No.	Part No.	Description
	BA08266A	**Tone P.C.B. Ass'y**
	0B60943A	Tone P.C.B.
VR302,303	0B30122A	VR 50KBx2
R150,151	0B23270A	RK 10K 1/8W J
R152	0B23274A	RK 15K 1/8W J
R153	0B23288A	RK 56K 1/8W J
R154	0B23274A	RK 15K 1/8W J
R250,251	0B23270A	RK 10K 1/8W J*
R252	0B23274A	RK 15K 1/8W J*
R253	0B23288A	RK 56K 1/8W J*
R254	0B23274A	RK 15K 1/8W J*
C127	0B41768A	CML 560P 50V J
C129,130	0B47190A	CML 0.056 50V J
C227	0B41768A	CML 560P 50V J
C229,230	0B47190A	CML 0.056 50V J
CN12	0B81470A	6P S-Post

8.3. Volume P.C.B. Ass'y

Schematic Ref. No.	Part No.	Description
	BA08267A	**Volume P.C.B. Ass'y**
	0B60944A	Volume P.C.B.
Q105	0B10022A	FET 2SK246
Q205	0B10022A	FET 2SK246
VR301	0B30152A	Volume/Balance/ Fader
R141	0B26139A	RM 3.3K 1/8W F*
R142	0B26159A	RM 22K 1/8W F*
R144	0B26135A	RM 2.2K 1/8W F*
R146	0B23320A	Jumper Wire 0
R241	0B26139A	RM 3.3K 1/8W F*
R242	0B26159A	RM 22K 1/8W F*
R244	0B26135A	RM 2.2K 1/8W F*
R246	0B23320A	Jumper Wire 0
R319	0B23294A	RK 100K 1/8W J*
C124	0B41394A	CPP 220P 50V J
C125	0B41299A	CML 0.12 50V J
C224	0B41394A	CPP 220P 50V J
C225	0B41299A	CML 0.12 50V J
CJ10	0B84450A	8P Connector Ass'y VR
CJ11	0B85126A	4P Connector Ass'y VR

8.4. Front P.C.B. Ass'y

Schematic Ref. No.	Part No.	Description
	BA08269A	**Front P.C.B. Ass'y**
	0B60946A	Front P.C.B.
U801	0B11896A	IC LC7582ASP
U802	0B19015A	Remote Receiver Unit BX-1408
Q801	0B14197A	TR DTC144EU*
ED801	0B14192A	LED SLM-125DW*
R801	0B23287A	RK 51K 1/8W J*
R802	0B23236A	RK 390 1/8W J*
R803,804	0B23190A	RK 4.7 1/8W J*
R805	0B23190A	RK 4.7 1/8W J*
R808	0B23210A	RK 33 1/8W J*
C801	0B40945A	CE 100 10V
C802	0B43102A	CC 680P 50V J
C803	0B40812A	CE 47 6.3V
S801,802	0B70166A	Tact Switch
S803,804	0B70166A	Tact Switch
S805,806	0B70166A	Tact Switch
S807,808	0B70166A	Tact Switch
S809,810	0B70166A	Tact Switch
S811,812	0B70166A	Tact Switch
S813,814	0B70166A	Tact Switch
S815,816	0B70166A	Tact Switch
S817,818	0B70166A	Tact Switch
CN801	0B84444A	FPC Connector 20P
PL801,802	0B90447A	Lamp 115mA 5V
PL803,804	0B90447A	Lamp 115mA 5V
PL805,806	0B90447A	Lamp 115mA 5V
PL807,808	0B90447A	Lamp 115mA 5V
PL809	0B90447A	Lamp 115mA 5V
LC801	0B90544A	LCD GTD-10422
	0J06212A	Lamp Holder (9)
	0J06213C	RS Holder (1)
	0J06394B	LCD Holder (1)
	0J06395A	LCD Reflector (1)
	0J06396A	LCD Illuminator (1)
	0J06330B	Diffuser Sheet (1)

8.5. Outlet P.C.B. Ass'y

Schematic Ref. No.	Part No.	Description
	BA08268A	**Outlet P.C.B. Ass'y (Except JPN1)**
	0B60945A	Outlet P.C.B.
CJ5	0B84445A	2P Connector Ass'y ANT
CJ7	0B84448A	5P Connector Ass'y P.S
CJ8	0B84449A	7P Connector Ass'y
CJ9	0B84451A	11P Connector Ass'y Out
	0B84442A	26P Connector (1)
	0B85114A	Ant. GND Wire (1)

8.6. Joint P.C.B. Ass'y

Schematic Ref. No.	Part No.	Description
	BA08581A	**Joint P.C.B. Ass'y (JPN1)**
	0B60947C	Joint P.C.B.
CN21	0B85053A	Power Cord Ass'y
CN22	0B84448A	5P Connector Ass'y P.S.
CJ14	0B85138A	2P Connector Ass'y
ANT.O	0B85122A	ANT Connector Cable

9. IC BLOCK DIAGRAMS

• U601 M50944FP (System Control MPU)

Pin No.	Signal Name	I/O	Function
1 2	KEYD1 KEYD0	I	Key data input signals from the key matrix circuit.
3	TEN	O	PLL Frequency Synthesizer (U502) enable signal. L: Enable, H: Disable
4	SCLK	O	Clock for serial communication data SIN (pin 5).
5	SIN	O	Serial communication data output. – Sends display data to the LCD Driver (U801) on the Front P.C.B. Ass'y. – Sends various control data to the PLL Frequency Synthesizer (U502).
6	SOUT	I	Serial communication data input sent from the PLL Frequency Synthesizer (U502).
7	$\overline{\text{REM}}$	I	Serial data input sent from the Remote Control Unit.
8	$\overline{\text{DINH}}$	O	LCD Driver (U801) inhibit signal. L: Inhibit
9	DEN	O	LCD Driver (U801) enable signal. L: Enable, H: Disable
10	CDMUT	I	Mute signal sent from an external CD Changer. Active H.
11	LED	O	Radio Monitor LED drive signal. Active H.
12	ILM	O	Clock display lamp ON/OFF control signal. Outputs H at power OFF to illuminate lamps (JPN1 only).
13	CIN	I	Cassette IN signal input. H: Cassette is loaded, L: Not loaded.
14	CSET	I	Cassette Set signal input. Becomes L when a cassette is inserted into the cassette slot, or when inserted cassette has been loaded completely. H when no cassette is inserted into the cassette slot, or while the inserted cassette is in the course of loading process.
15	$\overline{\text{P.SW}}$	I	Power switch input. L while the Power switch is being pressed.
16	VCHK	I	Power supply voltage abnormality check pin. H: Normal, L: Abnormal
17	BCHK	I	Battery power check pin. H: Battery power is supplied, L: Not supplied.
18	ACHK	I	ACC power check pin. H: ACC power is supplied, L: Not supplied.
19	CNVSS	—	GND
20	$\overline{\text{RESET}}$	I	System reset input. Active L.
21 22	XIN XOUT	I O	X'tal for generating system clock is connected.
23 24	XCIN XCOUT	I O	Not used.
25	VSS	—	GND
26	PHA1	O	System clock divided signal (X1/4). Normally not output.
27	$\overline{\text{MF}}$	I	Music Find signal input during program search in Tape mode. L: Music selection present, H: Not present
28	METAL	I	Metal tape detection input. H: Metal tape, L: Normal tape
29 30	SK DK	I I	Not used.
31	LOUD	O	Loudness ON/OFF control signal. H: Loudness ON, L: Loudness OFF
32	$\overline{\text{M.PULL}}$	O	Deck/CDC Control MPU (U602) enable signal. H: U602 is enabled, L: U602 is set to Standby mode.
33	ACK	I	Communication acknowledge input sent from the Deck/CDC Control MPU (U602). Active H.
34	REQ	O	Communication request signal sent to the Deck/CDC Control MPU (U602). Active H.
35 36 37 38	D3 D2 D1 D0	I/O	Data bus between this System Control MPU and the Deck/CDC Control MPU (U602).
39	P07	O	Auxiliary output for program search in Tape mode. When FF program search is carried out and the desired music selection is detected, the tape will be rewound a little. At this time P07 outputs L.
40	BEEP2	O	Not used. (Fixed at L.)
41	BEEP1	O	Outputs a beep sound when the Remote Control Unit is used.
42 to 46	KEYS4 to KEYS0	O	Key Strobe output signals sent to the key matrix circuit. Scanning L pulses are output sequencially from KEYS0 to KEYS4 with a 10 msec interval.
47	R.MUTE	O	Not used.
48	$\overline{\text{ATT}}$	O	Attenuation signal. Active L. Becomes L when Mute signal is issued from the Remote Control Unit.

Pin No.	Signal Name	I/O	Function
49	MUTE	O	Mute control signal. H: Mute ON, L: Mute OFF
50	MOTOR	O	Motor control signal. When MOTOR is set to L, running motor is forcibly stopped.
51	MTUN	O	Tuner mode signal. H: Tuner mode, L: Other than Tuner mode
52	MON	O	Power ON mode signal. H: Power ON, L: Power OFF
53 54	MODE1 MODE0	O	Source mode select signals. Source: Radio: H, L; Tape: H, L; CDC: L, H; AUX: H, H MODE0: L, L, H, L, H MODE1: L, L, L, H, H
55 56	AVCC VCC	—	+5V is supplied.
57	AVSS	—	GND
58	VREF	—	Grounded.
59	MSEL3	I	Connected to $\overline{\text{M.PULL}}$ (pin 32).
60	MSEL2	I	Function select signal. L: Clock display function disabled. H: Clock display function enabled (JPN1 only).
61 62	MSEL1 MSEL0	I	Function select signals. Tuning band is selected as follows. Band: USA; Europe; South East Asia; Japan MSEL0: L, L, L, H MSEL1: L, H, H, L
63 64	KEYD3 KEYD2	I	Key data input signals from the key matrix circuit.

• **U602 μPD75008 (Deck/CDC Control MPU)**

Pin No.	Signal Name	I/O	Function
1	MS	—	—
2	RES	I	Reel pulse input.
3	—	—	—
4	B/$\overline{\text{C}}$	O	Dolby NR B/C select output. H: Dolby NR B, L: Dolby NR C
5	NR ON/OFF	O	Dolby NR ON/OFF select output. H: Dolby NR ON, L: Dolby NR OFF
6	EQ	O	Not used.
7	FAST	O	Goes H during F.F./REW.
8	$\overline{\text{HM3}}$	O	Transport solenoid (F.R.) control output.
9	$\overline{\text{HM2}}$	O	Transport solenoid (F.F.) control output.
10	$\overline{\text{HM1}}$	O	Transport direction change solenoid control output.
11	$\overline{\text{MOTOR}}$	O	Motor control output.
12	NC3	—	—
13	DATO	O	Serial data output to the external CD Changer (CDC).
14	CLKO	O	Clock output to the external CDC.
15	DEPSEL	O	CDC display select signal output.
16	REM	O	Not used.
17	VSS	—	GND.
18	XT1	—	Grounded.
19	XT2	—	Not used.
20	$\overline{\text{RESET}}$	I	System reset input.
21 22	X1 X2	—	4.19MHz osc. is connected.
23	CD MUTE	I	CD mute signal input.
24	CDRST	I	Reset signal input from the external CDC.
25	$\overline{\text{HRP}}$	O	Not used.
26	ACK	O	Data acknowledge signal to the System Control MPU (U601).
27	H71	I	Playback direction switch input (Forward/Reverse).
28	MSIN	—	—
29	DATI	I	Serial data input from the external CDC.
30	SO	—	—

Pin No.	Signal Name	I/O	Function
31	CLK	I	Clock input from the external CDC.
32	MPU	I	Standby instruction signal from the System Control MPU (U601).
33	CSET	I	Cassette Set signal input from the System Control MPU (U601).
34	NC1	—	—
35	CIN	I	Cassette IN switch input.
36	NES	I	Reel pulse input.
37	REQ	I	Communication request signal input from the System Control MPU (U601).
38	NC2	—	—
39	VDD	—	+5V is supplied.
40 41 42 43	D3 D2 D1 D0	I/O	Communication data bus with the System Control MPU (U601).
44	—	—	—

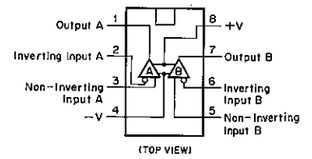


Fig. 9.1 Operational Amp. IC NJM4558M

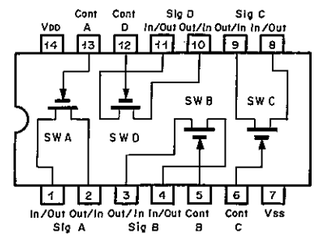


Fig. 9.2 Bilateral Switch IC μPD4066BG

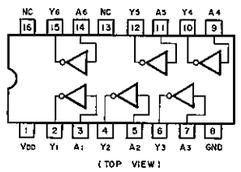


Fig. 9.3 Inverter IC TC4049BF

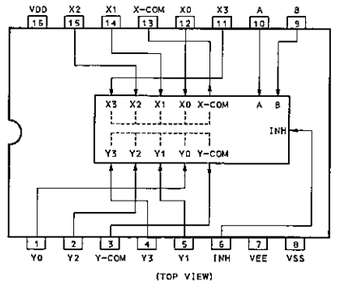


Fig. 9.4 Multiplexer IC TC4052BF

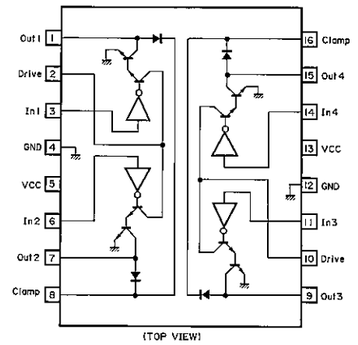


Fig. 9.5 Driver IC M5265P

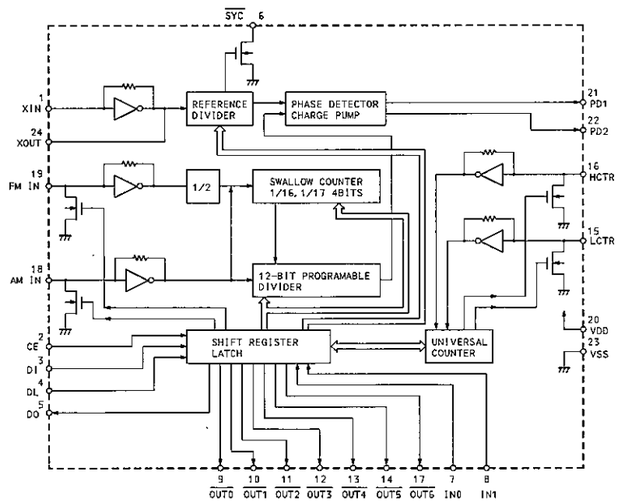


Fig. 9.6 PLL Frequency Synthesizer LC7218M

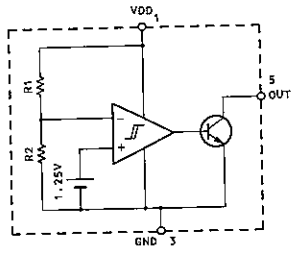


Fig. 9.7 Voltage Detector/System Reset IC M51943B

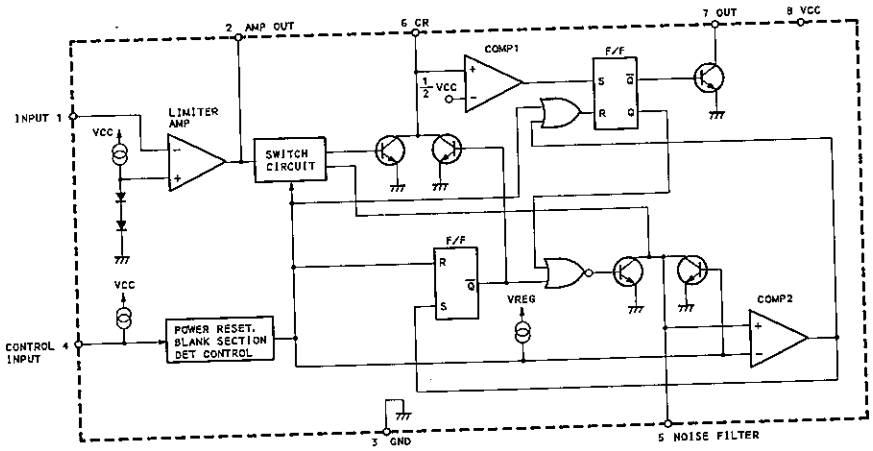


Fig. 9.8 Blank Section Detector IC M51143AL

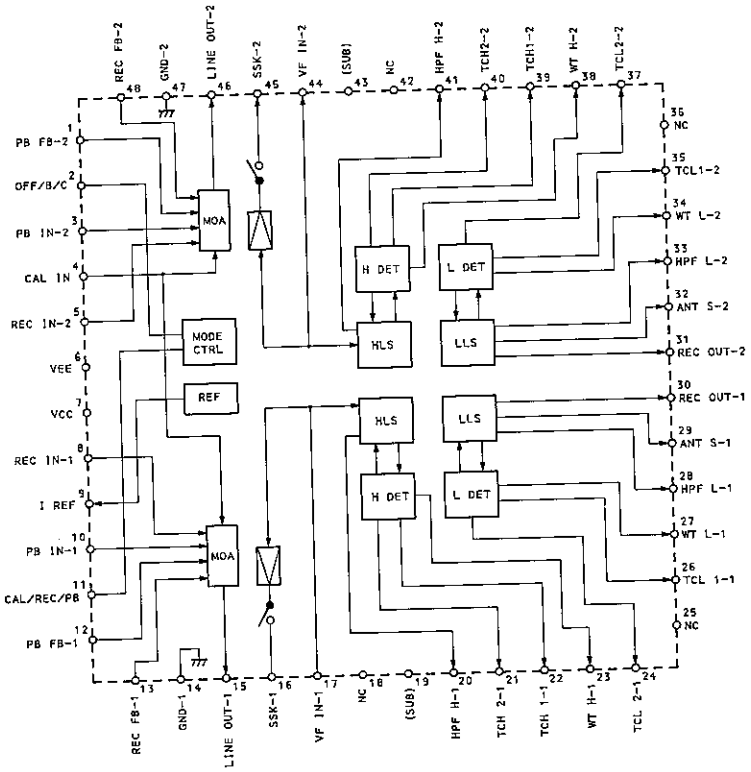
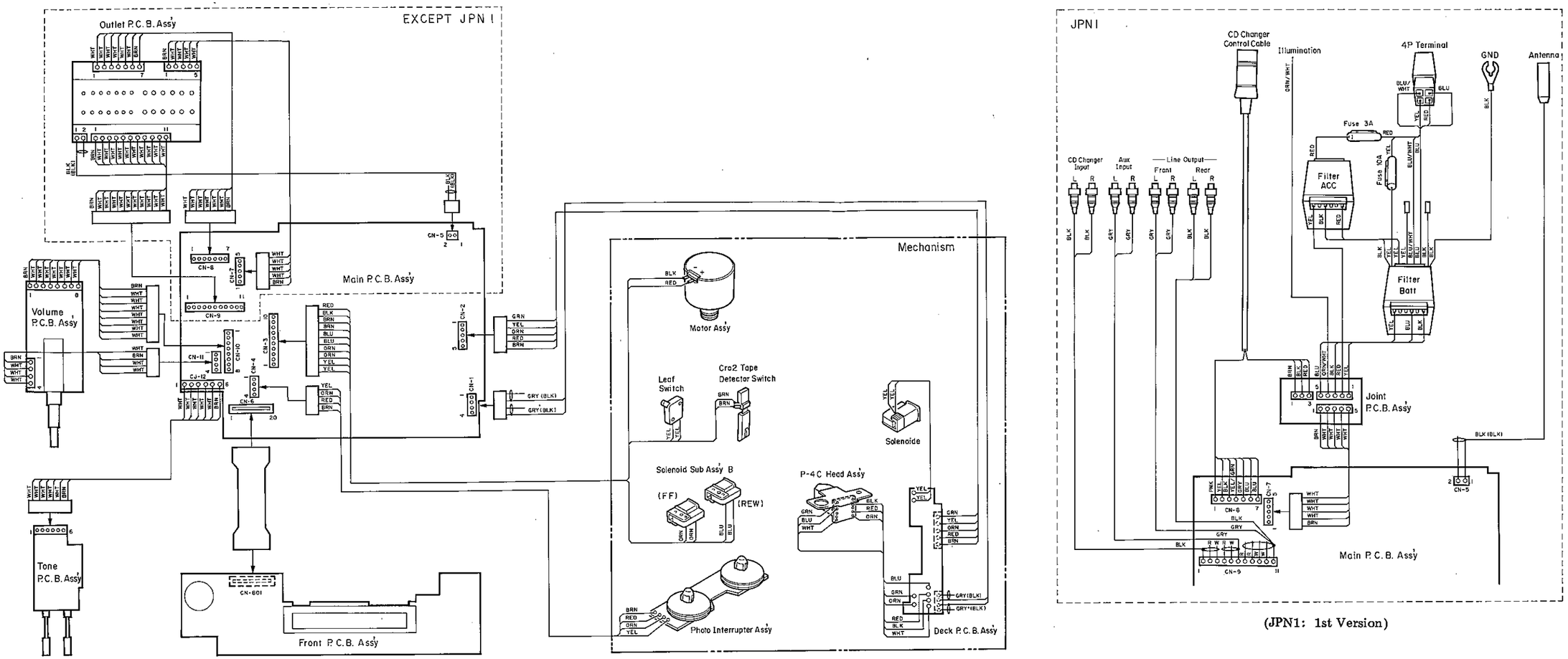


Fig. 9.9 Dolby NR IC CXA1098Q

10. SCHEMATIC DIAGRAM

Refer to the separate-volume supplement.

11. WIRING DIAGRAM



(JPN1: 1st Version)

Fig. 11

Notes: 1. Table of wire colors

BRN — Brown	BLU — Blue
RED — Red	VIO — Violet
ORN — Orange	GRY — Gray
YEL — Yellow	WHT — White
GRN — Green	BLK — Black

2. Component side view of the P.C.B. is illustrated unless otherwise specified.
3. Wire tube color is shown in ( ).

12. BLOCK DIAGRAM

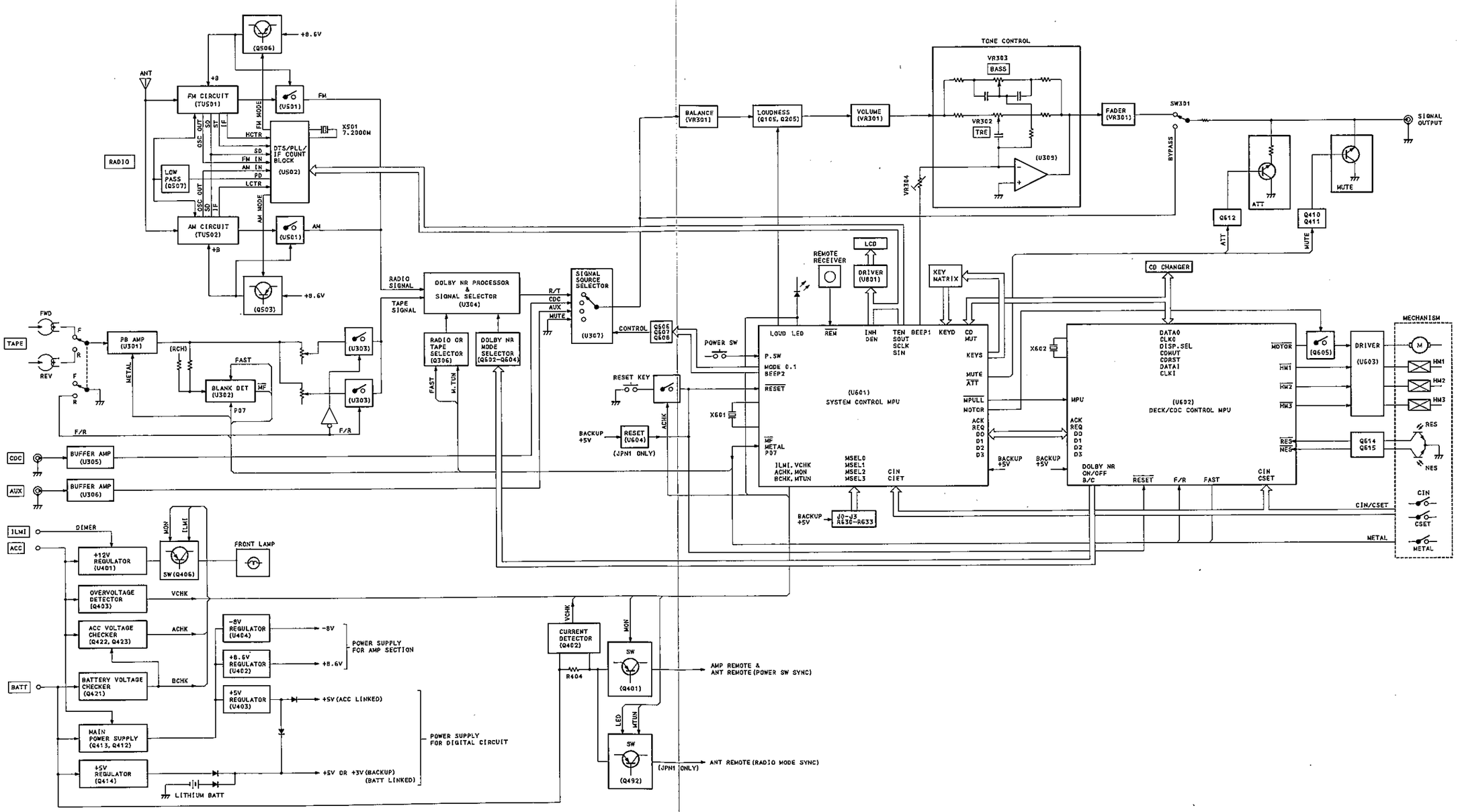


Fig. 12

SPECIFICATIONS

- **Cassette Deck**

Tape Speed	1-7/8 ips (4.8 cm/sec.)
Wow and Flutter	Less than 0.07% WTD RMS
Frequency Response	20 — 20,000 Hz
Signal to Noise Ratio	
Dolby C-Type NR On	Better than 70 dB
Dolby B-Type NR On	Better than 64 dB
Channel Separation	Better than 35 dB
Crosstalk	Better than 60 dB
Fast-Winding Time	Approx. 75 sec. (with C-60 cassette)

- **Tuner**

—FM—

Frequency Range	
U.S.A./Canada	87.5—107.9 MHz (in 200-kHz steps)
Europe	87.5—108 MHz (in 50-kHz steps)
Other Area	87.5—108 MHz (in 50-kHz steps)
Sensitivity	17 dBf (IHF)
50 dB Quieting Sensitivity	22 dBf (Mono)
Signal to Noise Ratio	60 dB (Mono)
Setereo Separation	35 dB (1 kHz, 65 dBf)
Antenna Terminals	75 ohms (unbalanced)

—AM—

Frequency Range	
U.S.A./Canada	520—1,710 kHz (in 10-kHz steps)
Europe	531—1,602 kHz (in 9-kHz steps)
Other Area	531—1,602 kHz (in 9-kHz steps)
Sensitivity	30 dBμ

- **Preamplifier**

Frequency Response	10—50,000 Hz ±1 dB
Output Level/Impedance	1 V/1 kohm
Aux Input Level/Impedance	0.5 V/10 kohms
Total Harmonic Distortion	Less than 0.005%
Loudness Control	
20 Hz	+6 dB
20 kHz	+3 dB
Tone Controls	
Bass	20 Hz ±12 dB
Treble	20 kHz ±12 dB

- **General**

Power Source	14.4 VDC negative ground (10.8—15.6 V allowable)
Current Consumption	3.0 A maximum
Dimensions*	190 (W) x 59 (H) x 146 (D) mm 7-1/2 (W) x 2-5/16 (H) x 5-3/4 (D) inches
Approximate Weight	1.4 kg/3 lbs. 1 oz.

- **Remote Control Unit**

Principle	Infrared pulse system
Power Supply	3 VDC (1.5 V x 2)
Dimensions*	57 (W) x 14 (H) x 80 (D) mm 2-1/4 (W) x 9/16 (H) x 3-1/8 (D) inches
Approximate Weight	55 g/2 oz. (including batteries)

*: Dimensions do not include protruding parts. Height is the panel height.

- Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation.
- "Dolby" and the double-D symbol ⧈ are trademarks of Dolby Laboratories Licensing Corporation.
- Specifications and design are subject to change for further improvement without notice.

Nakamichi Corporation/Tokyo Office	Shinjuku Daiichi Seimei Bldg., 2-7-1 Nishishinjuku, Shinjuku-ku, Tokyo 163 Phone: (03) 3342-4461 Telex: 2324721 (NAKAM J)
Nakamichi America Corporation	19701 South Vermont Ave., Torrance, CA 90502 Phone: (213) 538-8150
Nakamichi Canada	276 South West, Marine Drive, Vancouver, B.C. V5X 2R4 Phone: (604) 324-7535
Nakamichi Australia	Level 2, 61A Dunning Ave., Rosebery, N.S.W. 2018 Phone: (02) 313-7071/7090
Nakamichi GmbH	Praunheimer Landstraße 32, 6000 Frankfurt Main 90 Phone: (069) 768-2021 (Office), 2025 (Service)

O-910910A Printed in Japan

VOLUME P.C.B. (1/2)

TONE P.C.B.

VOLUME P.C.B. (2/2)

(CDC BUFFER)

(AUX BUFFER)

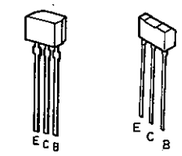
EXCEPT JPN1

OUTLET P.C.B.

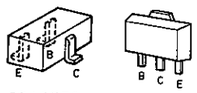
(VOLTAGE DET/ SYSTEM RESET)

(SYSTEM CONTROL MPU)

(-8V POWER SUPPLY)

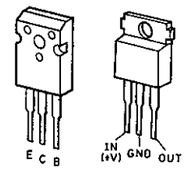


DTA144ES 2SA1561



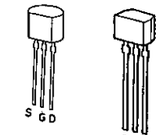
2SA1576
2SC4081
2SC4097
DTA114EU
DTA114WU
DTA144EU
DTB143EK
DTC114EU
DTC114WU
DTC144EU
DTC314TK
DTC323TK

2SA1203
2SA1213



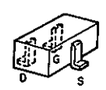
2SA1357

μPC78M10HF
NJM78M08FA
NJM78M05FA

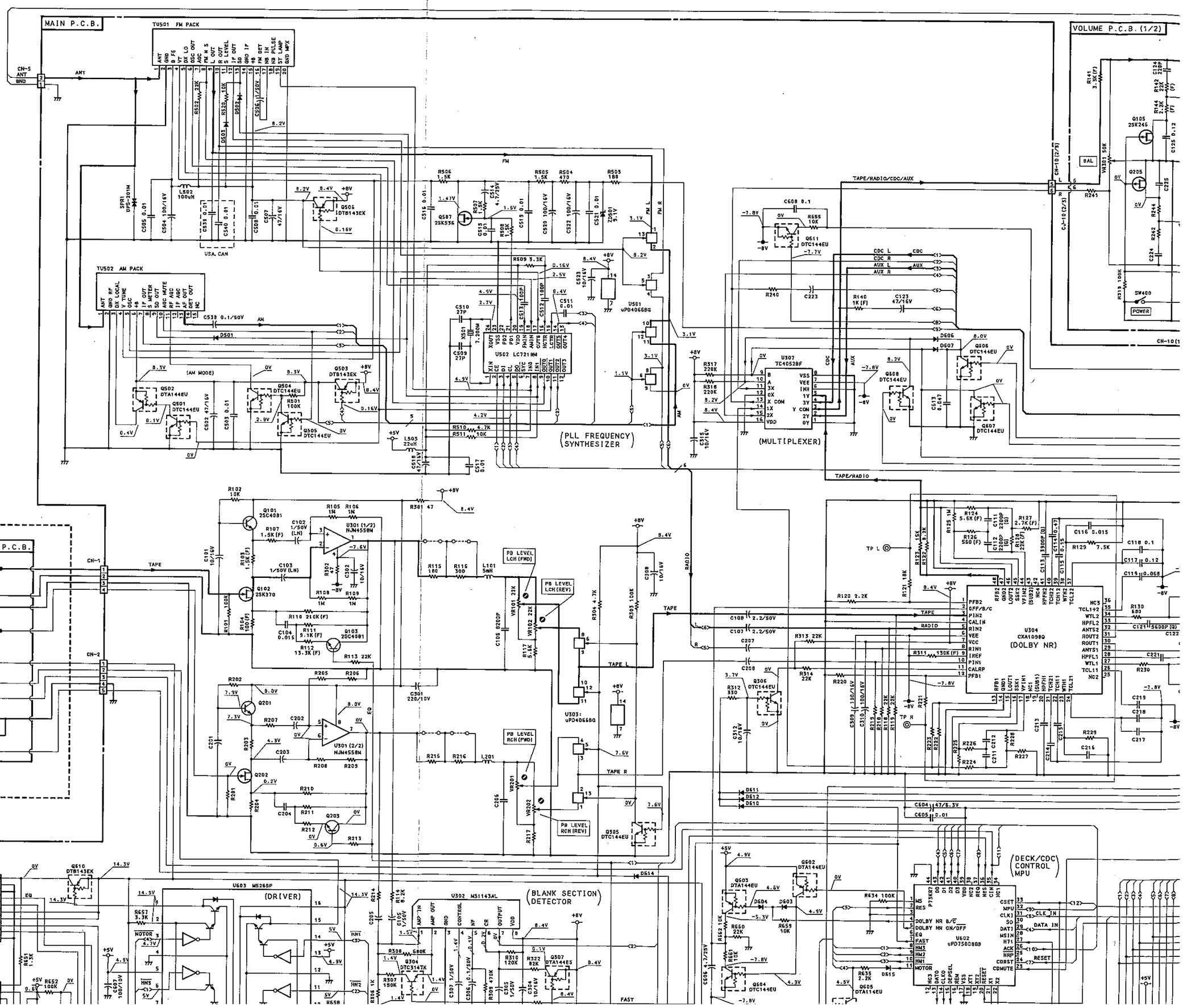


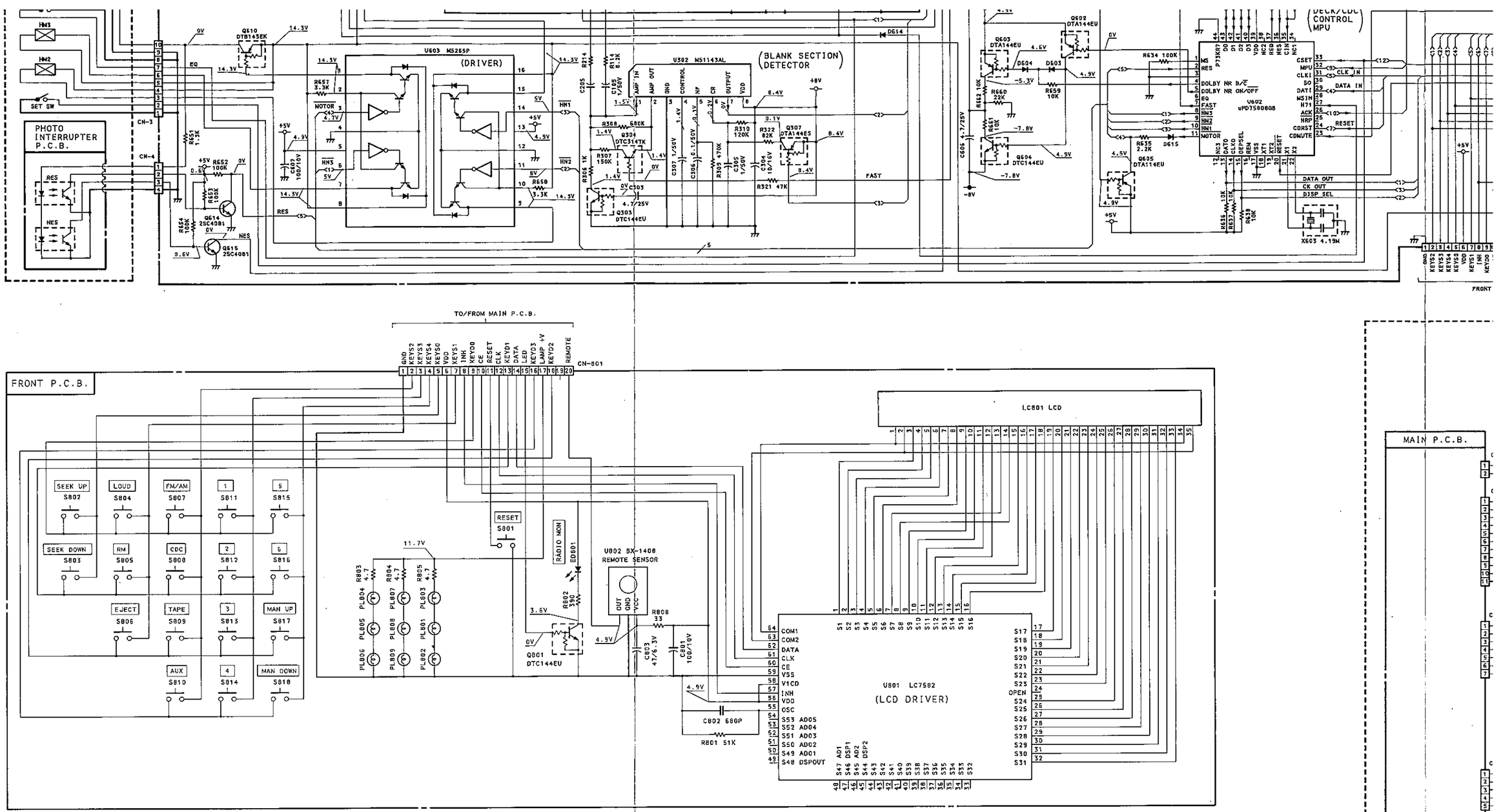
2SK246

2SK370



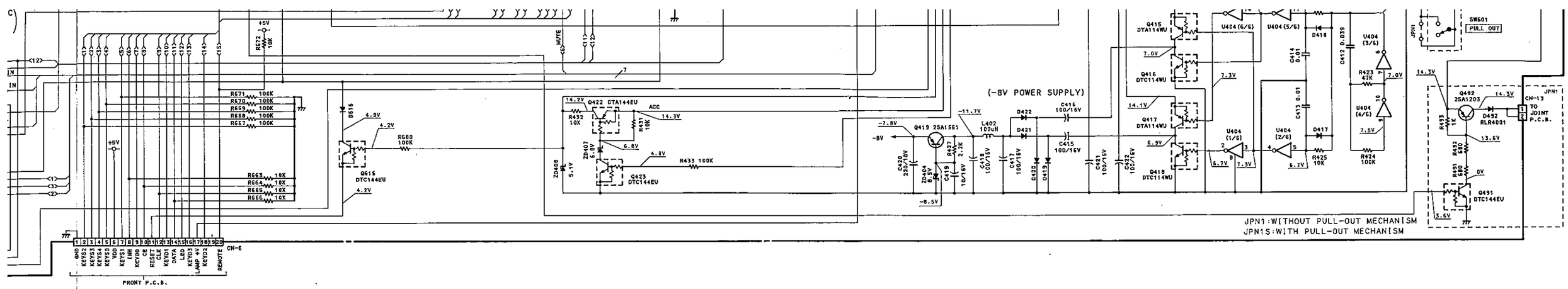
2SK536

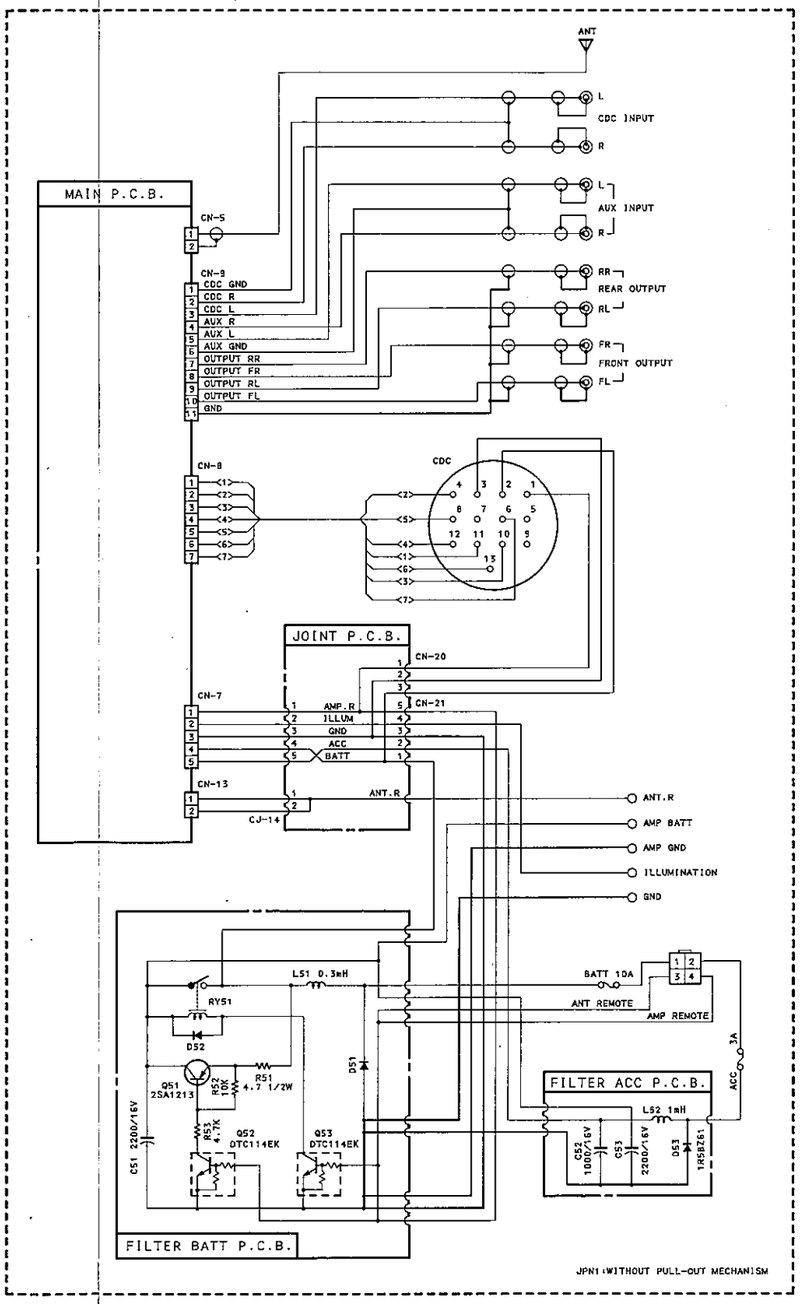




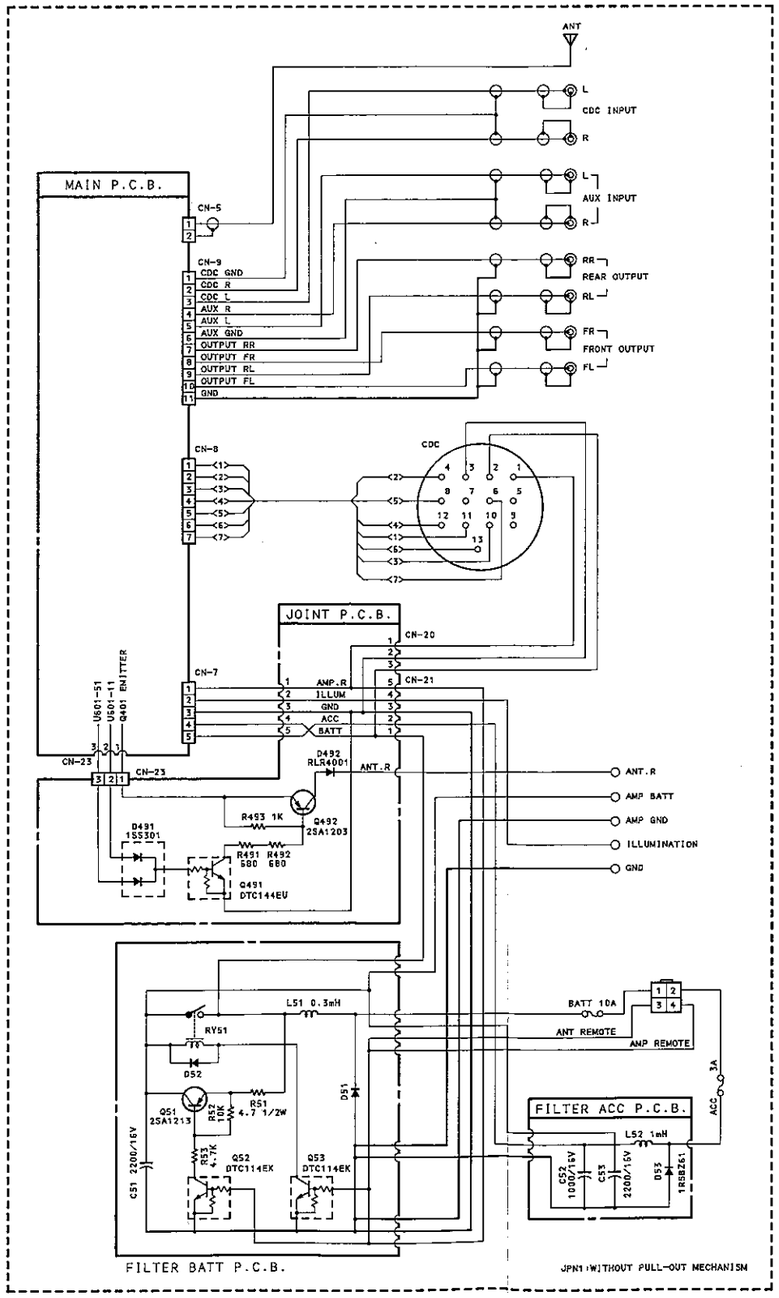
Notes: 1. Diode is RLS73 unless otherwise specified.

2. Description of electrolytic capacitors 100/16V = 100μ 16V

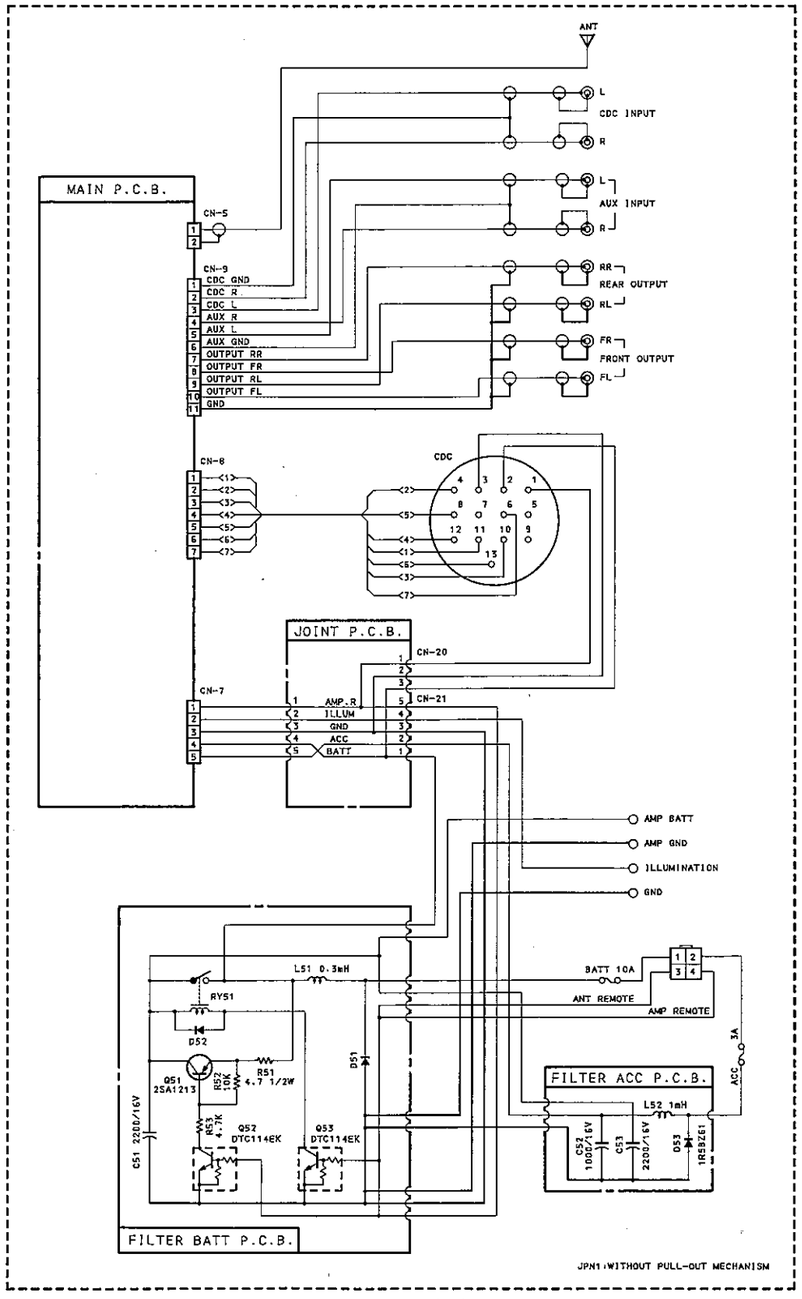




JPN1 (3RD VERSION)



JPN1 (2ND VERSION)



JPN1 (1ST VERSION)