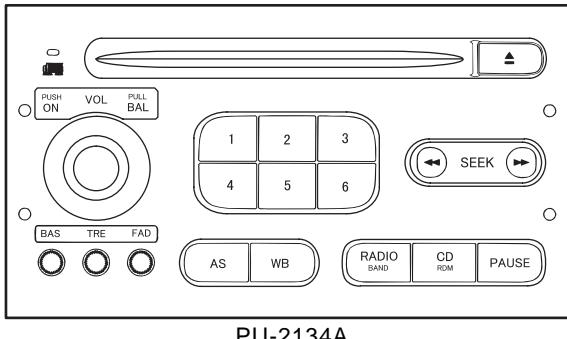


# Service Manual



PU-2134A

SAAB Automobile Genuine  
FM/AM Radio Cassette Stereo

## Model PU-2134A

(Genuine No. 47 10 349)  
For U.S.A./Canada

## Model PU-2136A

(Genuine No. 47 10 364)  
For Asia/Oceania

## SPECIFICATIONS

### Radio section

Tuning system: PLL Frequency synthesizer system  
Receive range: FM 87.9 to 107.9MHz(PU2134A)  
87.5 to 108.0MHz(PU2136A)  
AM 530 to 1,710kHz(PU2134A)  
531 to 1,602kHz(PU2136A)  
WB 162.4 to 162.55MHz(PU2134A)

### Intermediate frequency:

FM  $10.7 \pm 0.2\text{MHz}$   
AM  $450 \pm 3\text{kHz}$

Quieting sensitivity: FM Less than  $15\text{dB}\mu$  (at 30dB S/N)  
AM Less than  $35\text{dB}\mu$  (at 20dB S/N)

Separation: FM More than 20dB

### Auto tuning stop sensitivity:

FM  $25 \pm 8\text{dB}\mu$   
AM  $30 \pm 10\text{dB}\mu$

### CD section

Separation: More than 65dB  
S/N ratio: More than 80dB  
Dynamic range: More than 90dB  
Distortion: Less than 1%

### General

Load impedance: 4 /CH  
Output power: More than  $13\text{W} \times 4$   
Power supply voltage:  
DC13.2V(10.8V to 15.6V)  
Negative ground

### Consumptive current:

Less than 10A  
Dimensions(mm): 188(W)  $\times$  104(H)  $\times$  171(D)  
Weight: 1.8kg

Specifications and design are subject to change without notice for further improvement.

## COMPONENTS

PU-2134A-A / PU-2136A-A

Main unit

1

## ANTI-THEFT SYSTEM

This unit has a built-in Anti-Theft System.

## To engineers in charge of repair or inspection of our products.

Before repair or inspection, make sure to follow the instructions so that customers and Engineers in charge of repair or inspection can avoid suffering any risk or injury.

### 1. Use specified parts.

The system uses parts with special safety features against fire and voltage. Use only parts with equivalent characteristics when replacing them.

The use of unspecified parts shall be regarded as remodeling for which we shall not be liable. The onus of product liability (PL) shall not be our responsibility in cases where an accident or failure is as a result of unspecified parts being used.

### 2. Place the parts and wiring back in their original positions after replacement or re-wiring.

For proper circuit construction, use of insulation tubes, bonding, gaps to PWB, etc, is involved. The wiring connection and routing to the PWB are specially planned using clamps to keep away from heated and high voltage parts. Ensure that they are placed back in their original positions after repair or inspection.

If extended damage is caused due to negligence during repair, the legal responsibility shall be with the repairing company.

### 3. Check for safety after repair.

Check that the screws, parts and wires are put back securely in their original position after repair. Ensure for safety reasons there is no possibility of secondary problems around the repaired spots.

If extended damage is caused due to negligence of repair, the legal responsibility shall be with the repairing company.

### 4. Caution in removal and making wiring connection to the parts for the automobile.

Disconnect the battery terminal after turning the ignition key off. If wrong wiring connections are made with the battery connected, a short circuit and/or fire may occur. If extensive damage is caused due to negligence of repair, the legal responsibility shall be with the repairing company.

### 5. Cautions regarding chips.

Do not reuse removed chips even when no abnormality is observed in their appearance. Always replace them with new ones. (The chip parts include resistors, capacitors, diodes, transistors, etc). The negative pole of tantalum capacitors is highly susceptible to heat, so use special care when replacing them and check the operation afterwards.

### 6. Cautions in handling flexible PWB

Before working with a soldering iron, make sure that the iron tip temperature is around 270 °C. Take care not to apply the iron tip repeatedly (more than three times) to the same patterns. Also take care not to apply the tip with force.

### 7. Turn the unit OFF during disassembly and parts replacement. Recheck all work before you apply power to the unit.

### 8. Cautions in checking that the optical pickup lights up.

The laser is focused on the disc reflection surface through the lens of the optical pickup. When checking that the laser optical diode lights up, keep your eyes more than 30cms away from the lens. Prolonged viewing of the laser within 30cms may damage your eyesight.

### 9. Cautions in handling the optical pickup

The laser diode of the optical pickup can be damaged by electrostatic charge caused by your clothes and body. Make sure to avoid electrostatic charges on your clothes or body, or discharge static electricity before handling the optical pickup.

#### 9-1. Laser diode

The laser diode terminals are shorted for transportation in order to prevent electrostatic damage. After replacement, open the shorted circuit. When removing the pickup from the mechanism, short the terminals by soldering them to prevent this damage.

#### 9-2. Actuator

The actuator has a powerful magnetic circuit. If a magnetic material is put close to it, its characteristics will change. Ensure that no foreign substances enter through the ventilation slots in the cover.

#### 9-3. Cleaning the lens

Dust on the optical lens affects performance. To clean the lens, apply a small amount of isopropyl alcohol to lens paper and wipe the lens gently.

## ADJUSTMENTS

Item	Procedure	Measuring instrument
FM S-meter	1. Input a 98.1MHz/30dB μ (Mod freq:1kHz, Mod rate MONO:22.5kHz Dev) signal. 2. Adjust VR1 of tuner pack so that an output of TP101 is $3.2 \pm 0.1$ V.	SSG Milli volt meter

## ■ EXPLANATION OF IC

■ μPD178016GC-523-3B9	052-1142-00	Main microcomputer	
Outward Form			
80 pins, plastic QFP			
Terminal Description			
No.	Symbol	I/O	Function
1	BASS LEVEL IN	I	Input terminal of bass level control VR
2	TREBLE LEVEL IN	I	Input terminal of treble level control VR
3	FADER LEVEL IN	I	Input terminal of fader level control VR
4	BALANCE LEVEL IN	I	Input terminal of balance level control VR
5	WB S-METER	I	Input terminal of WB S meter
6	CD 8V ON	O	8V power control terminal for CD module
7	BUS DATA IN	O	
8	BUS DATA OUT	I	Serial data communication line with BUS microcomputer
9	BUS CLK	I	
10	SB LINE	O	Terminal for interruption to require serial transmission to BUS microcomputer
11	EQ CE	O	Selection terminal of EQ (LC7527)
12	EEPROM DATA IN	I	Data input terminal for EE PROM (NM93C56)
13	EE PROM/ EQ DATA OUT	O	Data output terminal for EE PROM (NM93C56), EQ (LC7527)
14	EE PROM/EQ CLK	O	Clock output terminal for EE PROM (NM93C56), EQ (LC7527)
15	EE PROM CE	O	Selection terminal for EE PROM (NM93C56) (Nch open drain)
16	DISC IND	O	CD disc indicator control terminal (Nch open drain)
17	CD 5V ON	O	5V power control terminal for CD module (Nch open drain)
18	KO 0		
19	KO 1		
20	KO 2		
21	GND	-	Ground
22	VDD	-	Power supply terminal
23	KO 3	O	Key matrix output terminal
24	N.C.	-	Not in use
25	MUTE ON	O	Audio mute output terminal
26	M-ANT	O	Motor antenna control terminal
27	IF REQ	O	IF request output terminal
28	AM IFC IN	I	AM IF count input terminal
29	FM IFC IN	I	FM IF count input terminal
30	VDD PLL	-	Connection to VDD
31	FM/WB OSC IN	I	FM/WB OSC input terminal
32	AM OSC IN	I	AM OSC input terminal
33	GND PLL	-	Connection to ground
34	EO 0		
35	EO 1	O	Error out output terminal
36	VPP	-	Connection to ground
37	KI 1		
38	KI 2		
39	KI 3	I	Key matrix input terminal
40	AM SD	I	AM SD input terminal, If "H," a station is present.
41	FM SD	I	FM SD input terminal, If "H," a station is present.
42	TR-A (CD)		
43	TR-B (CD)		
44	TR-C (CD)	I	CD module photo sensor input terminal
45	DX/LÖ	O	DX/LÖ control terminal (Nch open drain)
46	AM ON	O	AM 8V power control terminal (Nch open drain)
47	FM ON	O	FM 8V power control terminal (Nch open drain)
48	WB ON	O	WB 8V power control terminal (Nch open drain)
49	CH-SW (CD)	I	CD module chacking SW input terminal

No.	Symbol	I/O	Function
50	LD ON (CD)	O	CD module laser output control terminal, ON/OFF control terminal for APC amplifier
51	MCCW (CD)		
52	MCW (CD)	O	CD module loading motor control terminal
53	SQCK (CD)	O	Clock output terminal, reading SUB-Q from CD module CXD2545Q
54	XRST (CD)	O	Reset output terminal for CD module CXD2545Q
55	CLOCK (CD)	O	Clock output terminal, to transfer serial data for CD module CXD2545Q
56	XLAT (CD)	O	Latch output terminal for CD module CXD2545Q
57	DATA (CD)	O	Serial data output terminal to control CD module CXD2545Q
58	SCLK (CD)	O	Clock output terminal to read SENS data from CD module CXD2545Q
59	SQSO (CD)	I	Input terminal of SUB-Q data from CD module CXD2545Q
60	SENS (CD)	I	Input terminal to output CD IC inside condition from CD module CXD2545Q
61	5V REM	O	5V power supply control terminal for system
62	14V REM	O	14V (8V) power supply control terminal for system
63	E-VOL-DATA	O	Data output terminal for electronic volume (M62419)
64	E-VOL-CLK	O	Clock output terminal for electronic volume (M62419)
65	VOL-A	I	
66	VOL-B	I	Revolving-type volume input terminal
67	SCOR (CD)	I	Input terminal of signal from subcord sink SO/SI output terminal for CD module CXD2545Q
68	B-U DET	I	Backup voltage detection terminal. If "H," back-up exists.
69	ACC DET	I	ACC voltage detection terminal. If "L," ACC exists.
70	TEL IN	I	Telephone mute input terminal. If "H," telephone input exists.
71	WB SD	I	WB SD input terminal. If "H," a station exists.
72	BS LINE	I	Terminal to request transmission from BUS microcomputer
73	KI 0	I	Input terminal for key matrix
74	CPU REG	-	Connection to GND via condenser
75	GND	-	Ground
76	X 2	-	
77	X 1	-	Connects 4.5 MHz crystal.
78	OSC REG	-	Connection to GND via condenser.
79	VDD	-	Power supply terminal
80	RESET	I	Reset input terminal

Key matrix table

KEY OUT \ KEY IN	KI 0 (73 pins)	KI 1 (37 pins)	KI 2 (38 pins)	KI 3 (39 pins)
KO 0 (18 pins)	CD	RADIO	WB (BAND, TI)	AS
KO 1 (19 pins)	-	6	5	4
KO 2 (20 pins)	EJECT	3	2	1
KO 3 (23 pins)	POWER	SEEK DOWN	SEEK UP	PAUSE

**Outward Form**

64 pins, plastic QFP

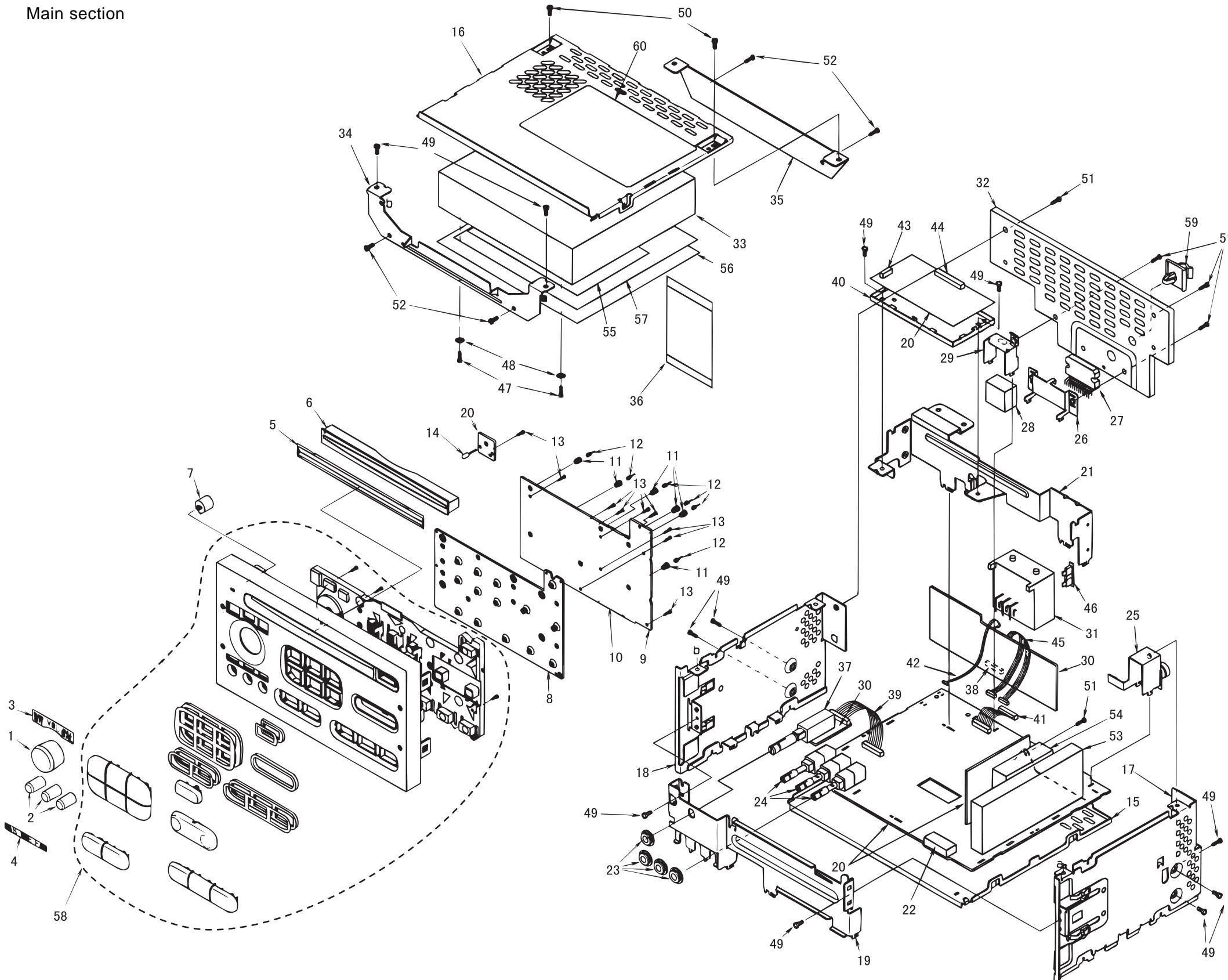
**Terminal Description**

No.	Symbol	I/O	Function
1	ILLUMI	O	Light control pulse signal output
2	WAKEUP	O	Wake-up signal output
3 7	N.C.	O	Not in use
8	TEST	O	Not in use
9	GND	-	Ground
10 17	D 0 D 7	I/O	Data output and input line to and from $\mu$ PD72005
18 23	A 0 A 5	O	Address data line to $\mu$ PD72005 (A 0~A5)
24	VSS	-	Ground terminal
25 27	A 6 A 8	O	Address data line to $\mu$ PD72005
28	CAN RST	O	RESET signal to $\mu$ PD72005
29	UNLOCK	I	Input of PLL unlock from $\mu$ PD72005
30	CS	O	Chip select signal to $\mu$ PD72005
31	RD	O	READ signal to $\mu$ PD72005
32	WR	O	WRITE signal to $\mu$ PD72005

No.	Symbol	I/O	Function
33	WAIT	I	WAIT signal from $\mu$ PD72005
34	ASTB	O	ASTB signal to $\mu$ PD72005
35	RESET	I	RESET input terminal
36	SB-LINE	I	Interruption of requirement of serial transmission from main microcomputer
37	INTE	I	Interruption of CAN error from $\mu$ PD72005
38	INTT	I	Interruption of transmission completion from $\mu$ PD72005
39	INTR	I	Interruption of receipt from $\mu$ PD72005
40	VDD	-	Power supply terminal (+5V)
41 42	X 2 X 1	-	System clock connection terminal (4.19 MHz)
43	VPP	-	Connection to ground
44	N.C.	-	Not in use
45	N.C.	I	Not in use
46	AVSS	-	Analog ground
47 54	N.C.	O	Not in use
55 56	VDD	-	Power supply terminal (+5V)
57 58 59	SI 1 SO 1 SCK I	I O O	Serial data communication line with main microcomputer
60	BS-LINE	O	Transmission requirement to main microcomputer
61 64	N.C.	O	Not in use

# EXPLODED VIEW · PARTS LIST

Main section

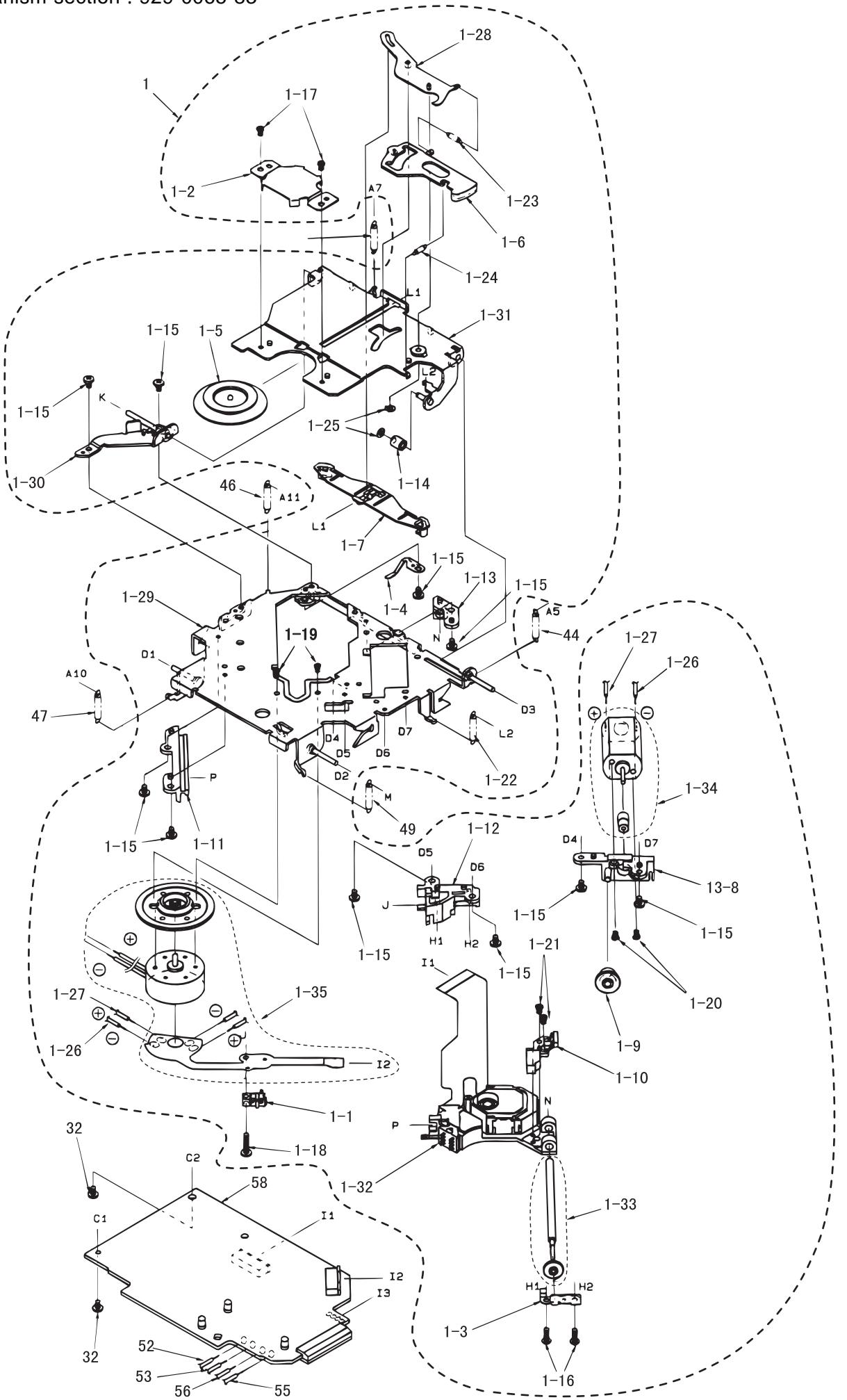


NO.	PART NO.	DESCRIPTION	Q'TY
1	380-5395-00	KNOB(VOL)	1
2	380-5396-00	KNOB(B/T/F)	3
3	371-3846-00	TRIM PLATE(VOL)	1
4	371-3847-00	TRIM PLATE(B/T/F)	1
5	346-0072-02	LEATHER SHEET	1

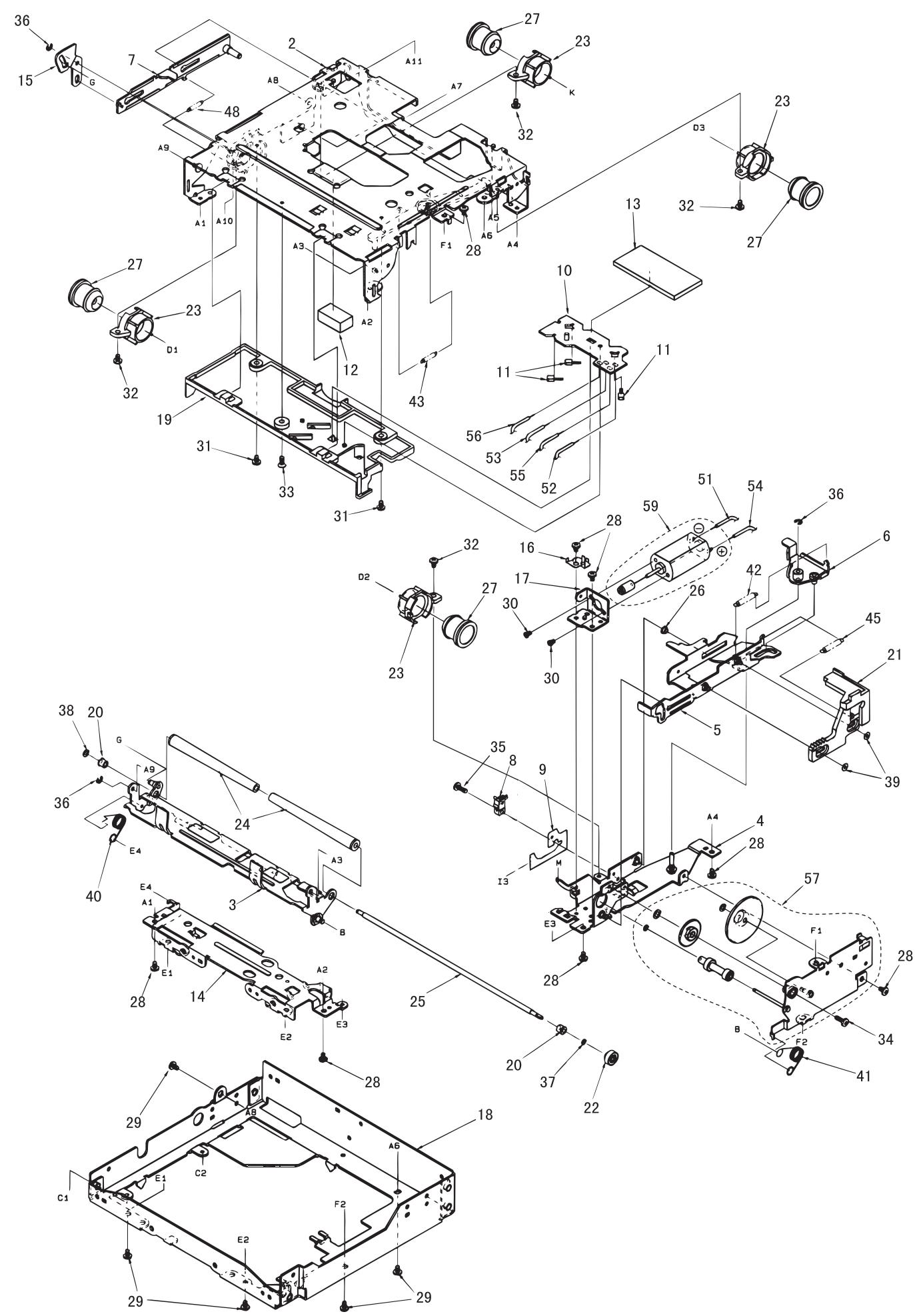
NO.	PART NO.	DESCRIPTION	Q'TY
11	345-3814-44	LAMP CAP	6
12	017-0449-00	PILOT LAMP	6
13	716-0872-01	PAD SCREW	9
14	001-0569-04	DIODE	1
15	304-0446-01	LOWER COVER	1

NO.	PART NO.	DESCRIPTION	Q'TY
16	303-0461-00	UPPER COVER	1
17	305-0258-00	SIDE COVER(R)	1
18	305-0257-00	SIDE COVER(L)	1
19	309-0685-01	FRONT PLATE	1
20	039-1037-00	MAIN PWB	1
21	307-0583-00	REAR PLATE	1
22	076-0515-14	CONNECTOR	1
23	722-0332-00	MUT(M6)	4
24	016-3100-00	VR(B/T/F)	3
25	331-2113-00	ANT HOLDER	1
26	331-2038-01	IC HOLDER	1
27	051-2014-00	IC	1
28	074-0850-08	DIN CONNECTOR	1
29	331-2039-00	DIN HOLDER	1
30	039-1035-00	ISO PWB	1
31	074-1155-00	ISO CONNECTOR	1
32	313-1682-01	HEAT SINK	1
33	929-0065-83	CD MECHANISM	1
34	331-2040-00	CD BRACKET(FRONT)	1
35	331-2041-00	CD BRACKET(REAR)	1
36	816-2438-00	FLAT WIRE(FOR CD)	1
37	016-0500-00	VR(VOL)	1
38	076-0324-06	OUTLET SOCKET	1
39	854-4318-30	EXTENSION LEAD	1
40	331-2112-01	SHIELD CASE	1
41	854-4322-30	EXTENSION LEAD(9P)	1
42	854-4323-30	EXTENSION LEAD(2P)	1
43	076-0349-02	PLUG(2P)	1
44	076-0349-09	PLUG(9P)	1
45	854-4319-30	EXTENSION LEAD	1
46	060-0057-56	AUTO FUSE(10A)	1
47	731-2608-80	TAP TIGHT	2
48	740-2600-11	FLAT WASHER	2
49	714-3005-81	MACHINE SCREW	11
50	714-3008-81	MACHINE SCREW	2
51	714-3010-81	MACHINE SCREW	5
52	714-2303-81	MACHINE SCREW	4
53	880-2079G	TUNER PACK(FM/AM)	1
54	880-2201A	TUNER PACK (WB/PU-2134A only)	1
55	347-5287-00	INSULATOR	1
56	347-5288-02	INSULATOR	1
57	347-5289-01	SHIELD SHEET	1
58	940-7818-01	ES-ASS'Y(PU-2134A)	1
	940-7822-01	ES-ASS'Y(PU-2136A)	1
59	335-5604-00	ANT CLIP	1
60	286-8759-00	SET PLATE(PU-2134A)	1
	286-8759-04	SET PLATE(PU-2136A)	1

CD mechanism section : 929-0065-83



**PU-2134A  
PU-2136A**



**PU-2134A  
PU-2136A**

NO.	PART NO.	DESCRIPTION	Q'TY
1	HBS-433-100	DRIVE UNIT	1
1-1	013-7100-00	LIMIT SWITCH	1
1-2	620-0198-03	CLAMPER PLATE	1
1-3	620-0491-03	SPRING PLATE	1
1-4	620-0690-00	RATTLE PLATE	1
1-5	621-0205-02	CLAMPER PLATE	1
1-6	621-0251-02	LOCK LINK	1
1-7	621-0252-03	DISC STOPPER	1
1-8	621-0253-01	MOTOR HOLDER	1
1-9	621-0255-02	SECOND GEAR	1
1-10	621-0257-05	SCREW HOLDER	1
1-11	621-0357-02	PICKUP GUIDE	1
1-12	621-0358-02	LS-HOLDER-F	1
1-13	621-0359-02	LS-HOLDER-R	1
1-14	622-1073-02	CLAMPER ROLLER	1
1-15	714-2003-81	MACHINE SCREW (M2X3)	10
1-16	716-0675-00	SCREW	2
1-17	716-1468-00	SCREW	2
1-18	716-1555-00	WAVE SCREW	1
1-19	716-1733-00	SCREW	2
1-20	732-2004-11	SEMS SCREW	2
1-21	739-1735-17	PRECISION SCREW	2
1-22	750-3097-03	CLAMPER SPRING	1
1-23	750-3098-00	L-LINK SPRING	1
1-24	750-3099-00	ES-SPRING	1
1-25	746-0761-00	WASHER	2
1-26	816-2372-00	VINYL COAT WIRE(BLU)	1
1-27	816-2373-00	VINYL COAT WIRE(WHT)	1
1-28	966-0314-01	STOP LINK ASS'Y	1
1-29	966-0447-04	DR-PLATE ASS'Y	1
1-30	966-0448-00	SIDE PLATE ASS'Y	1
1-31	966-0449-01	CLAMP LINK ASS'Y	1
1-32	969-0005-00	PICKUP UNIT ASS'Y	1
1-33	HBS-432-100	LS-GEAR ASS'Y	1
1-34	SMA-146-100	MOTOR ASS'Y(SLED)	1
1-35	SMA-151-100	MOTOR ASS'Y(SPINDLE)	1
2	966-0308-09	CHASSIS ASS'Y	1
3	966-0309-04	L-DISC-G-ASS'Y	1
4	966-0310-06	SFT-P-CH-ASS'Y	1
5	966-0312-06	SHIFT-P-ASS'Y	1
6	966-0358-01	DRIVE-L-PL-ASS'Y	1
7	966-0359-03	SIDE-L-PL-ASS'Y	1
8	013-3879-01	CHUCKING SWITCH	1
9	039-0586-01	CHUCKING SW PWB	1
10	039-0588-01	SENSOR PWB	1
11	060-0252-01	PHOTO TR (PT4850F)	3
12	345-7513-01	CLAMPER SHEET	1

NO.	PART NO.	DESCRIPTION	Q'TY
13	345-7514-00	S-PEB-SHEET	1
14	620-0485-03	FRONT PLATE	1
15	620-0488-01	S-L-LINK PLATE	1
16	620-0489-01	MOTOR PLATE	1
17	620-0492-01	MOTOR BRACKET	1
18	620-0697-01	MECHA BRACKET	1
19	621-0402-00	U-DISC GUIDE	1
20	621-0243-02	ROLLER SLEEVE	2
21	621-0248-06	RACK GEAR	1
22	621-0249-02	ROLLER GEAR	1
23	621-0250-01	DAMPER HOLDER	4
24	621-0258-03	LOADING ROLLER	2
25	622-1072-05	ROLER SHAFT	1
26	622-1219-01	SHIFT ROLLER	1
27	629-0058-00	DAMPER-DL	4
28	714-2003-81	MACHINE SCREW(M2X3)	8
29	714-2603-81	MACHINE SCREW(M2.6X3)	5
30	716-1468-00	SCREW	2
31	716-1507-00	SCREW	2
32	716-1670-00	SCREW	6
33	716-1677-00	SCREW	1
34	716-1704-00	SCREW	1
35	716-1742-00	SCREW	1
36	743-1500-10	E-RING	3
37	746-0712-03	WASHER	1
38	746-0762-00	WASHER	1
39	746-0877-02	WASHER	2
40	750-3090-02	RO-SPRING-L	1
41	750-3091-03	RO-SPRING-R	1
42	750-3092-03	SHIFT SPRING	1
43	750-3094-00	S-ARM SPRING	1
44	750-3096-01	DR-SPRING-R	1
45	750-3098-00	L-LINK SPRING	1
46	750-3164-00	DR-SPRING-LR	1
47	750-3188-00	DR-SP-F-B	1
48	750-3189-00	SIDE-L-SPRING	1
49	750-3201-00	DR-SPRING-F-R	1
50	750-3202-00	CENTER SPRING-B	1
51	800-4904-60	VINYL COAT WIRE(BLK)	1
52	800-4910-60	VINYL COAT WIRE(BLK)	1
53	801-4910-60	VINYL COAT WIRE(BRN)	1
54	802-4904-60	VINYL COAT WIRE(RED)	1
55	802-4910-60	VINYL COAT WIRE(RED)	1
56	804-4910-60	VINYL COAT WIRE(YEL)	1
57	HBS-430-100	GEAR-SUB-ASS'Y	1
58	HBS-461-100	PWB ASS'Y	1
59	SMA-147-100	MOTOR ASS'Y(LOADING)	1

# ELECTRICAL PARTS LIST

## Main PWB section(B1)

REF No.	PART No.	DESCRIPTION	REF No.	PART No.	DESCRIPTION	REF No.	PART No.	DESCRIPTION
C 101	182-1053-63	50V1 μ F	C 602	176-5601-00	56pF CH	C 816	172-2241-11	0.22 μ F
C 102	176-1801-00	18pF CH	C 603	176-5601-00	56pF CH	C 817	178-1032-78	0.01 μ F
C 103	176-2201-00	22pF CH	C 604	182-4753-53	35V4.7 μ F	C 819	184-1083-32	16V1000 μ F
C 104	178-1032-78	0.01 μ F	C 605	182-4753-53	35V4.7 μ F	C 820	172-1031-11	0.01 μ F
C 105	178-2232-78	0.022 μ F	C 606	176-1511-00	150pF CH	C 821	172-1031-11	0.01 μ F
C 106	178-1032-78	0.01 μ F	C 607	176-1511-00	150pF CH	C 822	178-1032-78	0.01 μ F
C 107	184-1083-22	10V1000 μ F	C 608	178-8232-78	0.082 μ F	C 990	182-2253-63	50V2.2 μ F
C 108	178-2232-78	0.022 μ F	C 609	178-8232-78	0.082 μ F	C 991	172-1041-11	0.1 μ F
C 109	178-4732-78	0.047 μ F	C 612	182-1063-33	16V10 μ F	C 992	182-3363-23	10V33 μ F
C 110	178-2232-78	0.022 μ F	C 613	182-1063-33	16V10 μ F	C 2001	183-1063-32	16V10 μ F
C 111	182-1053-63	50V1 μ F	C 614	182-4753-53	35V4.7 μ F	C 2003	176-1007-00	10pF CH
C 112	178-1032-78	0.01 μ F	C 615	182-4753-53	35V4.7 μ F	C 2004	176-1007-00	10pF CH
C 113	178-2722-78	2700pF	C 616	182-2253-63	50V2.2 μ F	C 2005	183-1043-62	50V0.1 μ F
C 114	178-1532-78	0.015 μ F	C 617	182-2253-63	50V2.2 μ F	C 2006	176-1501-00	15pF CH
C 115	178-1532-78	0.015 μ F	C 618	178-5632-78	0.056 μ F	C 2007	176-1501-00	15pF CH
C 116	182-4763-23	10V47 μ F	C 619	178-5632-78	0.056 μ F	C 2008	178-1042-78	0.1 μ F
C 117	178-1032-78	0.01 μ F	C 620	178-5622-78	5600pF	C 2009	178-1042-78	0.1 μ F
C 118	182-1056-62	50V1 μ F NP	C 621	178-5622-78	5600pF	C 2011	178-1032-78	0.01 μ F
C 119	178-1032-78	0.01 μ F	C 622	178-5622-78	5600pF	C 2015	183-1063-32	16V10 μ F
C 120	184-1083-22	10V1000 μ F	C 623	178-5622-78	5600pF	C 2020	178-1032-78	0.01 μ F
C 122	178-1032-78	0.01 μ F	C 626	178-1032-78	0.01 μ F	C 2021	183-1053-62	50V1 μ F
C 123	182-1053-63	50V1 μ F	C 627	182-1063-33	16V10 μ F	C 2022	178-1032-78	0.01 μ F
C 124	182-1053-63	50V1 μ F	C 630	178-1032-78	0.01 μ F	C 2023	042-0171-00	16V47 μ F
C 125	182-3343-63	50V0.33 μ F	C 632	172-1241-11	0.12 μ F	C 2024	178-1032-78	0.01 μ F
C 126	178-1022-78	1000pF	C 633	178-3932-78	0.039 μ F	C 2025	172-1841-15	0.18 μ F
C 128	178-4732-78	0.047 μ F	C 640	178-2222-78	2200pF	C 2026	183-1063-32	16V10 μ F
C 137	178-2232-78	0.022 μ F	C 641	178-1032-78	0.01 μ F	C 2027	176-1007-00	10pF CH
C 146	178-1032-78	0.01 μ F	C 642	178-3332-78	0.033 μ F	C 2028	178-1022-78	1000pF
C 147	178-1032-78	0.01 μ F	C 644	182-1056-62	50V1 μ F NP	C 2031	178-1032-78	0.01 μ F
C 201	182-1063-33	16V10 μ F	C 646	182-1073-13	6.3V100 μ F	C 2032	178-1032-78	0.01 μ F
C 202	182-1063-33	16V10 μ F	C 647	184-1073-22	10V100 μ F	D 101	001-0466-00	S5688B
C 203	182-1063-33	16V10 μ F	C 648	178-1032-78	0.01 μ F	D 102	001-0330-00	1SS119
C 204	182-1063-33	16V10 μ F	C 650	182-1056-62	50V1 μ F NP	D 106	001-0376-20	MTZJ3.9A
C 205	182-1063-33	16V10 μ F	C 652	178-3332-78	0.033 μ F	D 401	001-0376-41	MTZJ7.5B
C 206	182-1063-33	16V10 μ F	C 654	172-1241-11	0.12 μ F	D 402	001-0376-41	MTZJ7.5B
C 207	176-5601-00	56pF CH	C 655	178-3932-78	0.039 μ F	D 403	001-0376-41	MTZJ7.5B
C 208	178-1042-78	0.1 μ F	C 662	178-2222-78	2200pF	D 404	001-0376-41	MTZJ7.5B
C 209	176-5601-00	56pF CH	C 663	178-1032-78	0.01 μ F	D 701	001-0330-00	1SS119
C 210	176-5601-00	56pF CH	C 664	178-1242-78	0.12 μ F	D 702	001-0330-00	1SS119
C 211	176-5601-00	56pF CH	C 665	178-1242-78	0.12 μ F	D 703	001-0330-00	1SS119
C 212	176-5601-00	56pF CH	C 666	178-1242-78	0.12 μ F	D 704	001-0330-00	1SS119
C 213	176-5601-00	56pF CH	C 667	178-1242-78	0.12 μ F	D 705	001-0330-00	1SS119
C 214	182-1063-33	16V10 μ F	C 701	178-1042-78	0.1 μ F	D 706	001-0330-00	1SS119
C 215	182-1073-13	6.3V100 μ F	C 702	176-2201-00	22pF CH	D 707	001-0330-00	1SS119
C 216	178-1032-78	0.01 μ F	C 703	176-2201-00	22pF CH	D 708	001-0330-00	1SS119
C 401	176-5601-00	56pF CH	C 704	178-1042-78	0.1 μ F	D 709	001-0330-00	1SS119(PU-2134A)
C 402	176-5601-00	56pF CH	C 705	184-4773-12	6.3V470 μ F	D 709	001-0454-00	MA700(PU-2136A)
C 403	176-5601-00	56pF CH	C 706	178-1032-78	0.01 μ F	D 711	001-0454-00	MA700
C 404	176-5601-00	56pF CH	C 707	178-1032-78	0.01 μ F	D 712	001-0454-00	MA700
C 405	178-1032-78	0.01 μ F	C 708	176-1011-00	100pF CH	D 713	001-0454-00	MA700
C 407	184-1073-22	10V100 μ F	C 709	176-1011-00	100pF CH	D 714	001-0516-00	MA111
C 408	184-1073-22	10V100 μ F	C 710	176-1011-00	100pF CH	D 715	001-0569-04	MAA3371X
C 409	184-1073-22	10V100 μ F	C 711	176-1011-00	100pF CH	D 801	001-0466-00	S5688B
C 410	184-1073-22	10V100 μ F	C 713	178-1042-78	0.1 μ F	D 802	001-0330-00	1SS119
C 411	172-1041-11	0.1 μ F	C 714	176-1007-00	10pF CH	D 803	001-0376-47	MTZJ9.1B
C 412	172-1041-11	0.1 μ F	C 715	178-1042-78	0.1 μ F	D 805	001-0376-32	MTZJ5.6B
C 501	182-1046-62	50V0.1 μ F NP	C 716	178-1022-78	1000pF	D 806	001-0376-46	MTZJ9.1A
C 502	182-1046-62	50V0.1 μ F NP	C 717	178-1022-78	1000pF	D 807	001-0330-00	1SS119
C 503	182-1046-62	50V0.1 μ F NP	C 718	178-1022-78	1000pF	D 808	001-0334-30	RL202
C 504	182-1046-62	50V0.1 μ F NP	C 801	184-1073-22	10V100 μ F	D 810	001-0376-46	MTZJ9.1A
C 505	182-1053-63	50V1 μ F	C 802	184-2273-22	10V220 μ F	D 811	001-0421-31	MTZJ18
C 506	182-4763-33	16V47 μ F	C 803	178-2242-78	0.22 μ F	D 812	001-0330-00	1SS119
C 507	178-1022-78	1000pF	C 805	184-1073-22	10V100 μ F	D 813	001-0330-00	1SS119
C 508	178-1022-78	1000pF	C 806	182-1073-33	16V100 μ F	D 2001	001-0376-59	MTZ13JA
C 509	178-1022-78	1000pF	C 808	184-1073-22	10V100 μ F	D 2002	001-0330-00	1SS119
C 510	178-1022-78	1000pF	C 809	042-0171-00	16V47 μ F	D 2003	001-0330-00	1SS119
C 511	178-4742-78	0.47 μ F	C 810	178-1032-78	0.01 μ F	D 2004	001-0330-00	1SS119
C 512	042-0570-00	16V3300 μ F	C 811	172-1031-11	0.01 μ F	IC 201	051-0556-01	NJM2058M
C 513	172-1041-11	0.1 μ F	C 812	182-1063-53	35V10 μ F	IC 401	051-0556-01	NJM2058M
C 514	182-4753-63	50V4.7 μ F	C 813	184-4763-52	35V47 μ F	IC 501	051-2014-00	TDA7384A
C 601	178-4732-78	0.047 μ F	C 814	178-1032-78	0.01 μ F	IC 601	051-5008-00	M62419FP

REF No.	PART No.	DESCRIPTION	REF No.	PART No.	DESCRIPTION	REF No.	PART No.	DESCRIPTION
IC 603	051-5814-00	LC7527E	R 116	117-1031-10	1/10W 10k	R 609	117-3331-10	1/10W 33k
IC 604	051-0350-55	NJM4558M	R 117	117-1821-10	1/10W 1.8k	R 610	117-3331-10	1/10W 33k
IC 701	051-9402-05		R 118	117-8231-10	1/10W 82k	R 611	117-1831-10	1/10W 18k
IC 702	052-1142-00	μ PD178016GC-523-3B9	R 119	117-1031-10	1/10W 10k	R 612	117-1831-10	1/10W 18k
IC 801	051-1834-00	LM2936	R 120	117-1031-10	1/10W 10k	R 613	117-6821-10	1/10W 6.8k
IC 802	051-1556-05	S-80740AN-D4-X	R 121	117-1521-10	1/10W 1.5k	R 614	117-6821-10	1/10W 6.8k
IC 803	051-1556-05	S-80740AN-D4-X	R 124	117-2231-10	1/10W 22k	R 617	117-6821-10	1/10W 6.8k
IC 2001	052-3141-00	μ PD78013GC-784-AB8	R 125	117-5621-10	1/10W 5.6k	R 618	117-6821-10	1/10W 6.8k
IC 2002	051-1822-05	S-80732AN-DW-X	R 126	117-5621-10	1/10W 5.6k	R 619	117-1021-10	1/10W 1k
IC 2003	051-6608-00	μ PD72005GC(A)-3BH	R 127	117-2231-10	1/10W 22k	R 620	117-1021-10	1/10W 1k
IC 2004	051-6607-08	PCA82C250T-T	R 128	117-3311-10	1/10W 330	R 621	117-1021-10	1/10W 1k
IC 2005	051-1834-00	LM2936	R 130	117-5621-10	1/10W 5.6k	R 622	117-1021-10	1/10W 1k
L 101	010-2330-17	5.6 μ H J	R 131	117-5621-10	1/10W 5.6k	R 624	117-2231-10	1/10W 22k
L 701	010-2330-12	2.2 μ H J	R 132	117-1231-10	1/10W 12k	R 625	117-2231-10	1/10W 22k
L 2001	010-3025-00		R 135	117-8221-10	1/10W 8.2k	R 626	117-4721-10	1/10W 4.7k
L 2002	010-2330-00	0.22 μ H J	R 136	117-8221-10	1/10W 8.2k	R 627	117-4721-10	1/10W 4.7k
Q 101	102-2712-00	2SC2712	R 201	117-1021-10	1/10W 1k	R 628	117-4721-10	1/10W 4.7k
Q 102	125-2004-03	RN1403	R 202	117-1021-10	1/10W 1k	R 629	117-4721-10	1/10W 4.7k
Q 103	125-2004-03	RN1403	R 203	117-2731-10	1/10W 27k	R 703	117-4731-10	1/10W 47k
Q 104	100-1162-00	2SA1162	R 204	117-1021-10	1/10W 1k	R 707	117-1041-10	1/10W 100k
Q 105	102-2712-00	2SC2712	R 205	117-2731-10	1/10W 27k	R 708	117-1041-10	1/10W 100k
Q 106	100-1162-00	2SA1162	R 206	117-1021-10	1/10W 1k	R 709	117-1041-10	1/10W 100k
Q 107	100-1162-00	2SA1162	R 207	117-2231-10	1/10W 22k	R 710	117-1031-10	1/10W 10k
Q 401	100-1162-00	2SA1162	R 208	117-2231-10	1/10W 22k	R 711	117-4721-10	1/10W 4.7k
Q 501	102-2712-51	2SC2712G.L	R 209	117-1031-10	1/10W 10k	R 712	117-4721-10	1/10W 4.7k
Q 502	125-2004-02	RN1402	R 210	117-1031-10	1/10W 10k	R 720	117-1031-10	1/10W 10k
Q 601	103-1306-00	2SD1306	R 211	117-1011-10	1/10W 100	R 721	117-1031-10	1/10W 10k
Q 602	103-1306-00	2SD1306	R 212	117-1031-10	1/10W 10k	R 722	117-2231-10	1/10W 22k
Q 603	103-1306-00	2SD1306	R 213	117-1031-10	1/10W 10k	R 723	117-1021-10	1/10W 1k
Q 604	103-1306-00	2SD1306	R 214	117-2231-10	1/10W 22k	R 724	117-1021-10	1/10W 1k
Q 701	125-0002-02	RN2402	R 215	117-2231-10	1/10W 22k	R 725	117-1031-10	1/10W 10k
Q 702	125-0002-02	RN2402	R 216	117-1031-10	1/10W 10k	R 726	117-1021-10	1/10W 1k
Q 703	125-2004-02	RN1402	R 217	117-1031-10	1/10W 10k	R 727	117-1021-10	1/10W 1k
Q 801	103-1858-00	2SD1858	R 218	117-1031-10	1/10W 10k	R 728	117-1031-10	1/10W 10k
Q 802	103-1858-00	2SD1858	R 219	117-1231-10	1/10W 12k	R 729	117-1031-10	1/10W 10k
Q 803	103-1858-00	2SD1858	R 401	117-1031-10	1/10W 10k	R 730	117-1021-10	1/10W 1k
Q 805	100-1297-00	2SA1297	R 402	117-1031-10	1/10W 10k	R 731	117-3321-10	1/10W 3.3k
Q 806	125-2004-02	RN1402	R 403	117-1831-10	1/10W 18k	R 732	117-3321-10	1/10W 3.3k
Q 808	100-1297-00	2SA1297	R 404	117-5621-10	1/10W 5.6k	R 733	117-1021-10	1/10W 1k
Q 809	125-2004-02	RN1402	R 405	117-5621-10	1/10W 5.6k	R 734	117-1031-10	1/10W 10k
Q 810	103-1858-00	2SD1858	R 406	117-1831-10	1/10W 18k	R 735	117-1031-10	1/10W 10k
Q 811	103-1858-00	2SD1858	R 407	117-1031-10	1/10W 10k	R 736	117-1021-10	1/10W 1k
Q 812	125-0002-02	RN2402	R 408	117-1031-10	1/10W 10k	R 738	117-1031-10	1/10W 10k
Q 813	102-3420-00	2SC3420	R 409	117-1831-10	1/10W 18k	R 739	117-1021-10	1/10W 1k
Q 814	125-0002-02	RN2402	R 410	117-5621-10	1/10W 5.6k	R 740	117-1031-10	1/10W 10k
Q 815	125-2004-02	RN1402	R 411	117-5621-10	1/10W 5.6k	R 741	117-1031-10	1/10W 10k
Q 817	100-1298-00	2SA1298	R 412	117-1831-10	1/10W 18k	R 742	117-1031-10	1/10W 10k
Q 818	100-0885-00	2SA885-QRS	R 413	111-2201-91	1/4WS 22	R 743	117-1031-10	1/10W 10k
Q 819	102-2712-00	2SC2712	R 414	111-2201-91	1/4WS 22	R 744	117-1031-10	1/10W 10k
Q 820	125-2004-02	RN1402	R 415	111-2201-91	1/4WS 22	R 801	111-1091-91	1/4WS 1
Q 821	101-1018-00	2SB1018 Q,Y	R 416	111-2201-91	1/4WS 22	R 802	111-1091-91	1/4WS 1
Q 992	108-0669-00	2SK669	R 417	111-4721-91	1/4WS 4.7k	R 803	111-1091-91	1/4WS 1
Q 2001	100-1162-00	2SA1162	R 418	111-4721-91	1/4WS 4.7k	R 805	111-2211-81	1/2WS 220
Q 2002	102-2712-00	2SC2712	R 419	117-1031-10	1/10W 10k	R 806	111-1521-91	1/4WS 1.5k
Q 2003	100-1297-00	2SA1297	R 421	117-1021-10	1/10W 1k	R 807	117-1031-10	1/10W 10k
Q 2004	125-2004-02	RN1402	R 501	117-1021-10	1/10W 1k	R 809	111-8211-81	1/2WS 820
Q 2005	100-1431-00	2SA1431	R 502	117-1021-10	1/10W 1k	R 810	117-5621-10	1/10W 5.6k
R 101	117-4721-10	1/10W 4.7k	R 503	117-4721-10	1/10W 4.7k	R 811	111-1091-91	1/4WS 1
R 102	117-4721-10	1/10W 4.7k	R 504	117-4721-10	1/10W 4.7k	R 812	111-1091-91	1/4WS 1
R 103	111-3301-91	1/4WS 33	R 505	117-1031-10	1/10W 10k	R 813	111-2211-91	1/4WS 220
R 104	117-1001-10	1/10W 10	R 506	117-1031-10	1/10W 10k	R 814	111-1811-81	1/2WS 180
R 106	117-2221-10	1/10W 2.2k	R 507	117-1031-10	1/10W 10k	R 817	117-2221-10	1/10W 2.2k
R 107	117-5631-10	1/10W 56k	R 508	117-1031-10	1/10W 10k	R 818	117-1031-10	1/10W 10k
R 108	117-2221-10	1/10W 2.2k	R 509	117-1031-10	1/10W 10k	R 819	111-1001-81	1/2WS 10
R 109	117-1031-10	1/10W 10k	R 510	117-1031-10	1/10W 10k	R 820	111-2201-91	1/4WS 22
R 110	117-1231-10	1/10W 12k	R 511	117-1051-10	1/10W 1M	R 825	117-2231-10	1/10W 22k
R 111	117-1821-10	1/10W 1.8k	R 601	117-3931-10	1/10W 39k	R 826	117-2221-10	1/10W 2.2k
R 112	117-1041-10	1/10W 100k	R 602	117-3931-10	1/10W 39k	R 827	117-6821-10	1/10W 6.8k
R 113	117-1041-10	1/10W 100k	R 603	117-6831-10	1/10W 68k	R 828	111-3311-91	1/4WS 330
R 114	117-1031-10	1/10W 10k	R 604	117-6831-10	1/10W 68k	R 829	117-2231-10	1/10W 22k
R 115	117-4721-10	1/10W 4.7k	R 605	117-6821-10	1/10W 6.8k	R 830	117-4741-10	1/10W 470k
			R 606	117-6821-10	1/10W 6.8k			

REF No.	PART No.	DESCRIPTION
R 831	117-2741-10	1/10W 270k
R 832	111-6811-81	1/2WS 680
R 833	117-1031-10	1/10W 10k
R 834	114-2291-11	1W 2.2
R 835	117-5641-10	1/10W 560k
R 836	117-4741-10	1/10W 470k
R 838	117-1031-10	1/10W 10k
R 990	117-3311-10	1/10W 330
R 991	111-1021-91	1/4WS 1k
R 992	117-4711-10	1/10W 470
R 2001	117-1021-10	1/10W 1k
R 2002	117-1031-10	1/10W 10k
R 2003	111-2221-91	1/4WS 2.2k
R 2004	114-3301-11	1W 33

REF No.	PART No.	DESCRIPTION
R 2005	117-1031-10	1/10W 10k
R 2006	117-1041-10	1/10W 100k
R 2007	117-1031-10	1/10W 10k
R 2008	117-1031-10	1/10W 10k
R 2009	117-1031-10	1/10W 10k
R 2010	117-1031-10	1/10W 10k
R 2011	117-1031-10	1/10W 10k
R 2012	117-1031-10	1/10W 10k
R 2013	117-1031-10	1/10W 10k
R 2014	117-1031-10	1/10W 10k
R 2015	117-1031-10	1/10W 10k
R 2016	111-2221-91	1/4WS 2.2k
R 2017	111-1001-91	1/4WS 10
R 2018	117-1031-10	1/10W 10k

REF No.	PART No.	DESCRIPTION
R 2019	117-1231-10	1/10W 12k
R 2020	111-2201-91	1/4WS 22
RY 101	014-0497-00	
SUP101	060-0122-20	DSP-141N-S00B
T 801	009-9006-60	0.23mH
TH 801	002-0224-01	
VR 701	016-3100-00	
VR 702	016-3100-00	
VR 703	016-3100-00	
X 701	061-1064-00	4.5MHz
X 2001	061-3022-50	8.38MHz
X 2002	061-3031-00	4.00MHz

### ISO PWB section(B2)

REF No.	PART No.	DESCRIPTION
F 101	060-0057-56	10A

REF No.	PART No.	DESCRIPTION
VR 101	016-0500-00	

### Switch PWB section(B3)

REF No.	PART No.	DESCRIPTION
PL 101	017-0449-00	14V65mA
PL 102	017-0449-00	14V65mA

REF No.	PART No.	DESCRIPTION
PL 103	017-0449-00	14V65mA
PL 104	017-0449-00	14V65mA

REF No.	PART No.	DESCRIPTION
PL 105	017-0449-00	14V65mA
PL 106	017-0449-00	14V65mA

### Mech PWB section(CD mechanism)(B4)

REF No.	PART No.	DESCRIPTION
C 10	178-1032-78	0.01 μF
C 11	182-1063-32	16V10 μF
C 12	178-1042-78	0.1 μF
C 13	182-1073-12	6.3V100 μF
C 14	178-1032-78	0.01 μF
C 15	182-2263-12	6.3V22 μF
C 16	178-1032-78	0.01 μF
C 17	178-1042-78	0.1 μF
C 18	178-1042-78	0.1 μF
C 19	176-1501-00	15pF CH
C 20	178-1042-78	0.1 μF
C 21	182-2263-12	6.3V22 μF
C 22	176-2096-00	2pF CJ
C 23	178-1042-78	0.1 μF
C 24	178-1022-78	1000pF
C 25	176-1007-00	10pF CH
C 26	176-1007-00	10pF CH
C 27	182-1073-12	6.3V100 μF
C 28	178-1042-78	0.1 μF
C 29	182-1073-12	6.3V100 μF
C 30	178-1042-78	0.1 μF
C 31	176-1007-00	10pF CH
C 32	178-2212-78	220pF
C 33	178-1042-78	0.1 μF
C 34	178-2212-78	220pF

REF No.	PART No.	DESCRIPTION
C 35	178-1032-78	0.01 μF
C 36	178-4732-78	0.047 μF
C 37	178-1522-78	1500pF
C 38	178-1032-78	0.01 μF
C 39	042-0230-00	35V0.47 μF
C 40	178-1032-78	0.01 μF
C 41	178-1042-78	0.1 μF
C 42	178-2222-78	2200pF
C 100	182-4763-12	6.3V47 μF
C 101	182-4763-12	6.3V47 μF
C 102	178-1032-78	0.01 μF
C 103	182-1073-32	16V100 μF
D 1	001-0563-00	GL380
D 2	001-0563-00	GL380
D 3	001-0563-00	GL380
IC 1	051-1014-10	TA7291S
IC 2	051-6015-05	BA6392FP
IC 3	051-6314-05	TC9404FN
IC 4	051-1971-00	CXA1610M
IC 5	051-6313-00	CXD2545Q
L 1	010-2155-03	10 μH
Q 1	101-1237-00	2SB1237
R 10	111-2711-91	1/4WS 270
R 11	117-8231-10	1/10W 82k
R 12	117-1031-10	1/10W 10k

REF No.	PART No.	DESCRIPTION
R 14	117-5631-10	1/10W 56k
R 15	117-1021-10	1/10W 1k
R 16	117-2211-10	1/10W 220
R 17	117-2211-10	1/10W 220
R 18	117-1031-10	1/10W 10k
R 19	117-2231-10	1/10W 22k
R 20	117-1831-10	1/10W 18k
R 21	117-1031-10	1/10W 10k
R 22	117-4711-10	1/10W 470
R 23	117-1011-10	1/10W 100
R 24	117-1021-10	1/10W 1k
R 25	117-1001-10	1/10W 10
R 26	117-3331-10	1/10W 33k
R 27	117-3631-10	1/10W 36k
R 28	117-1241-10	1/10W 120k
R 29	117-3631-10	1/10W 36k
R 30	117-1041-10	1/10W 100k
R 31	117-1031-10	1/10W 10k
R 32	117-6821-10	1/10W 6.8k
R 33	117-3321-10	1/10W 3.3k
R 34	117-1051-10	1/10W 1M
R 35	117-1041-10	1/10W 100k
R 36	117-1031-10	1/10W 10k
X 1	060-1014-00	16.9344MHz

### Limit switch PWB section(CD mechanism)(B5)

REF No.	PART No.	DESCRIPTION
M 1	SMA-151-100	SPINDLE

REF No.	PART No.	DESCRIPTION
M 2	SMA-146-100	SLED

REF No.	PART No.	DESCRIPTION
S 1	013-7100-00	limit

### Chuck switch PWB section(CD mechanism)(B6)

REF No.	PART No.	DESCRIPTION
M 3	SMA-147-100	LOADING

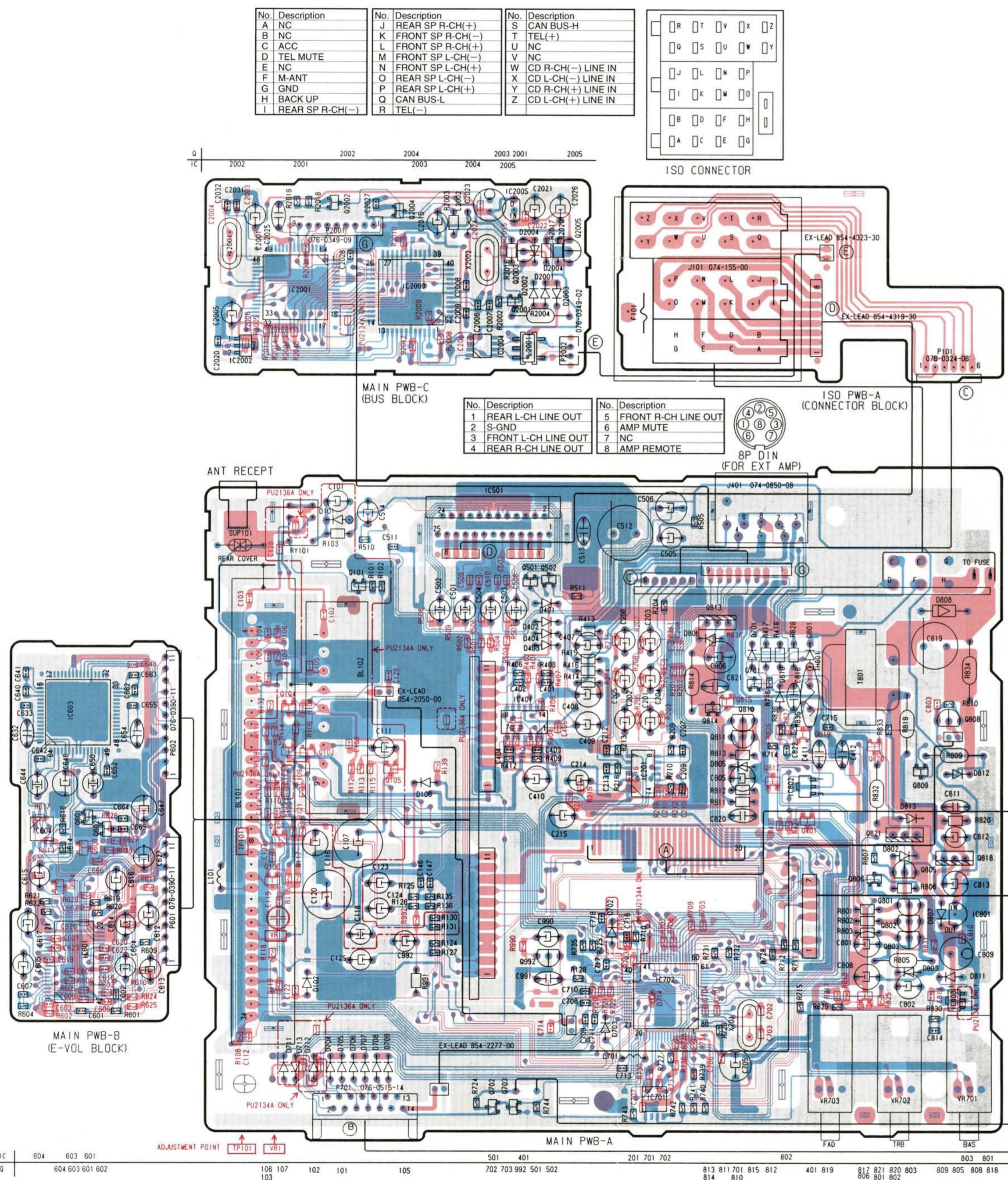
REF No.	PART No.	DESCRIPTION
S 2	013-3879-01	CHUCKING

REF No.	PART No.	DESCRIPTION
Q 103	060-0252-01	PT4850F

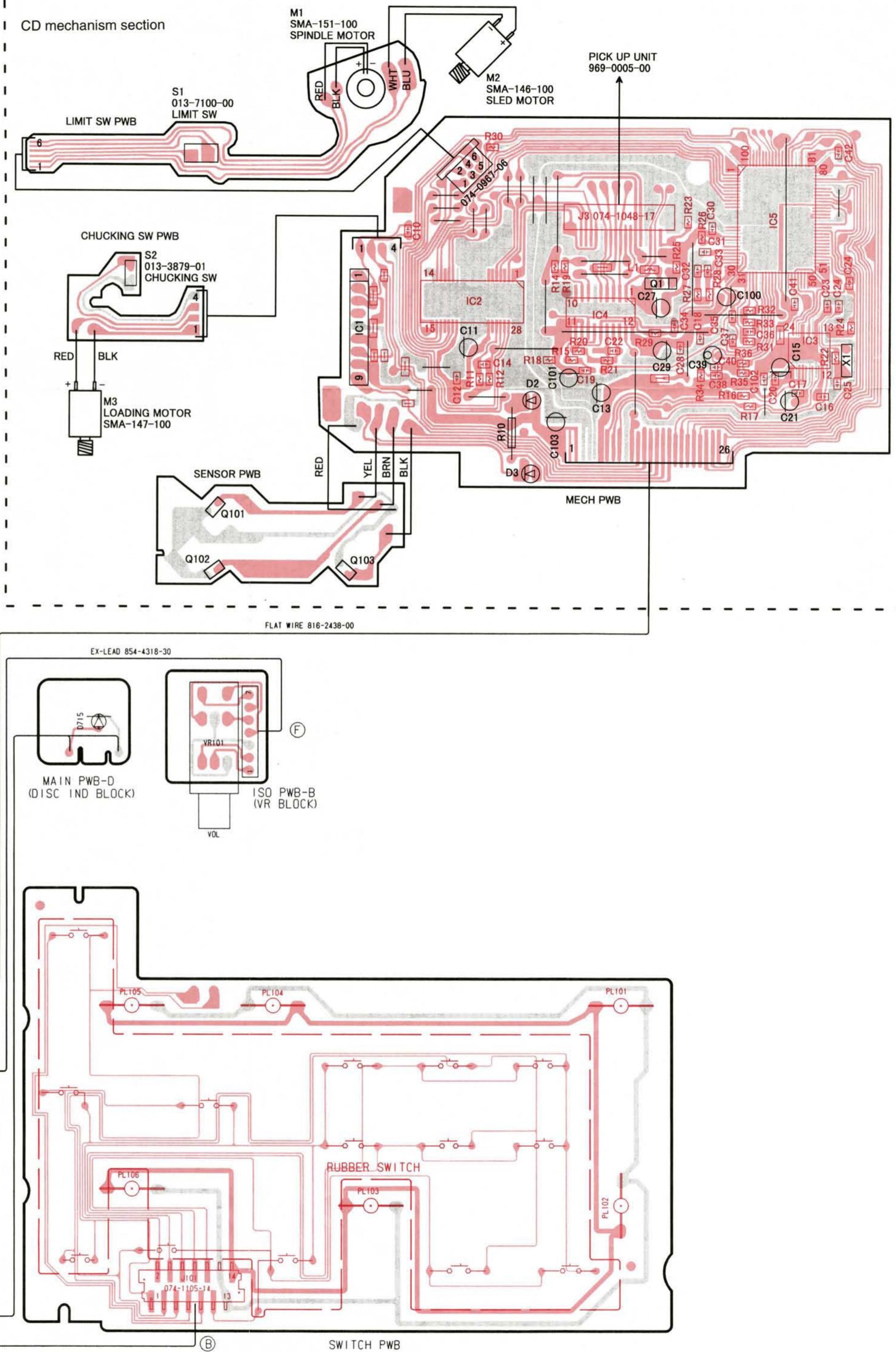
REF No.	PART No.	DESCRIPTION
Q 102	060-0252-01	PT4850F

REF No.	PART No.	DESCRIPTION
Q 103	060-0252-01	PT4850F

## ■ PRINTED WIRING BOARD

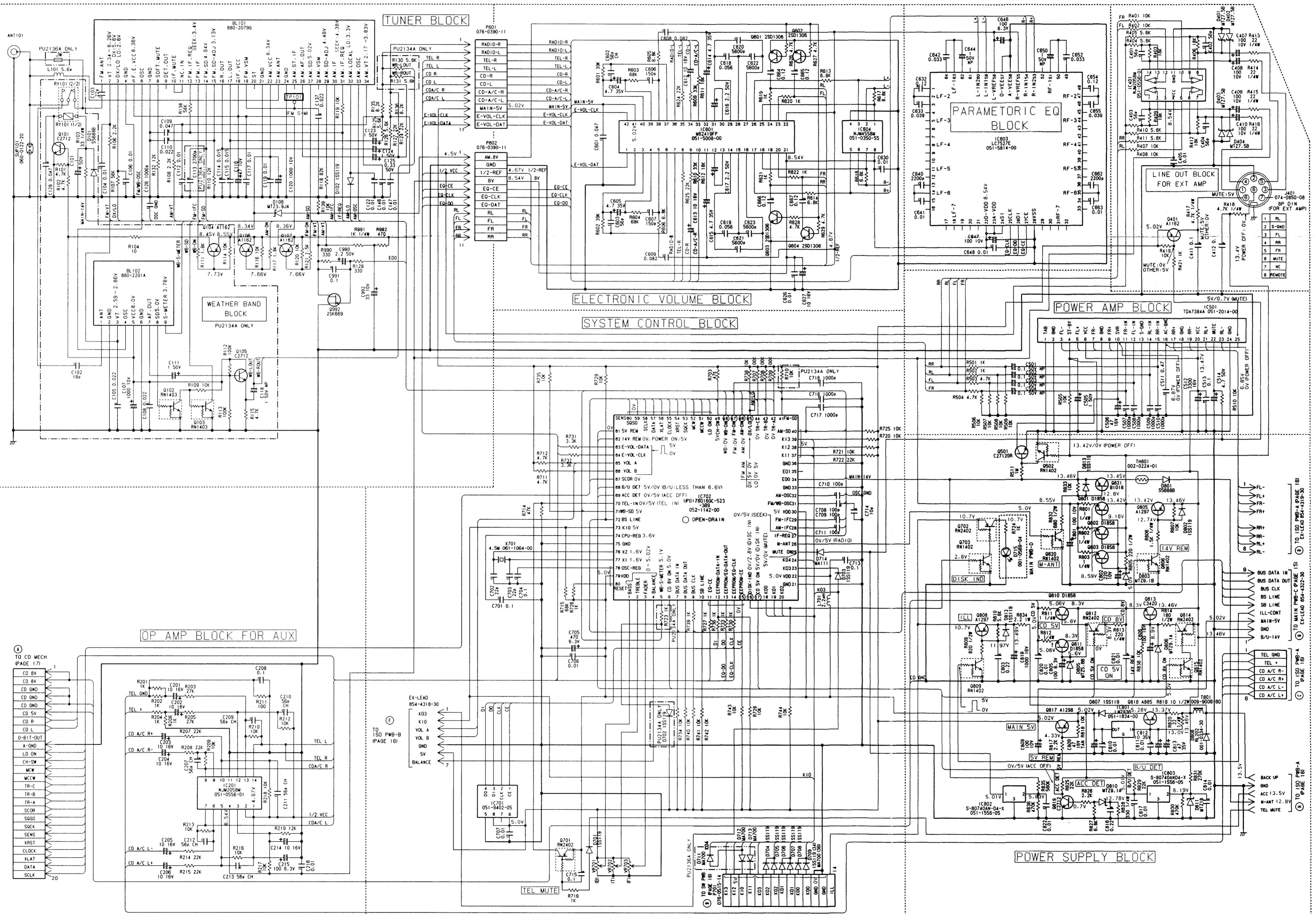


### CD mechanism section

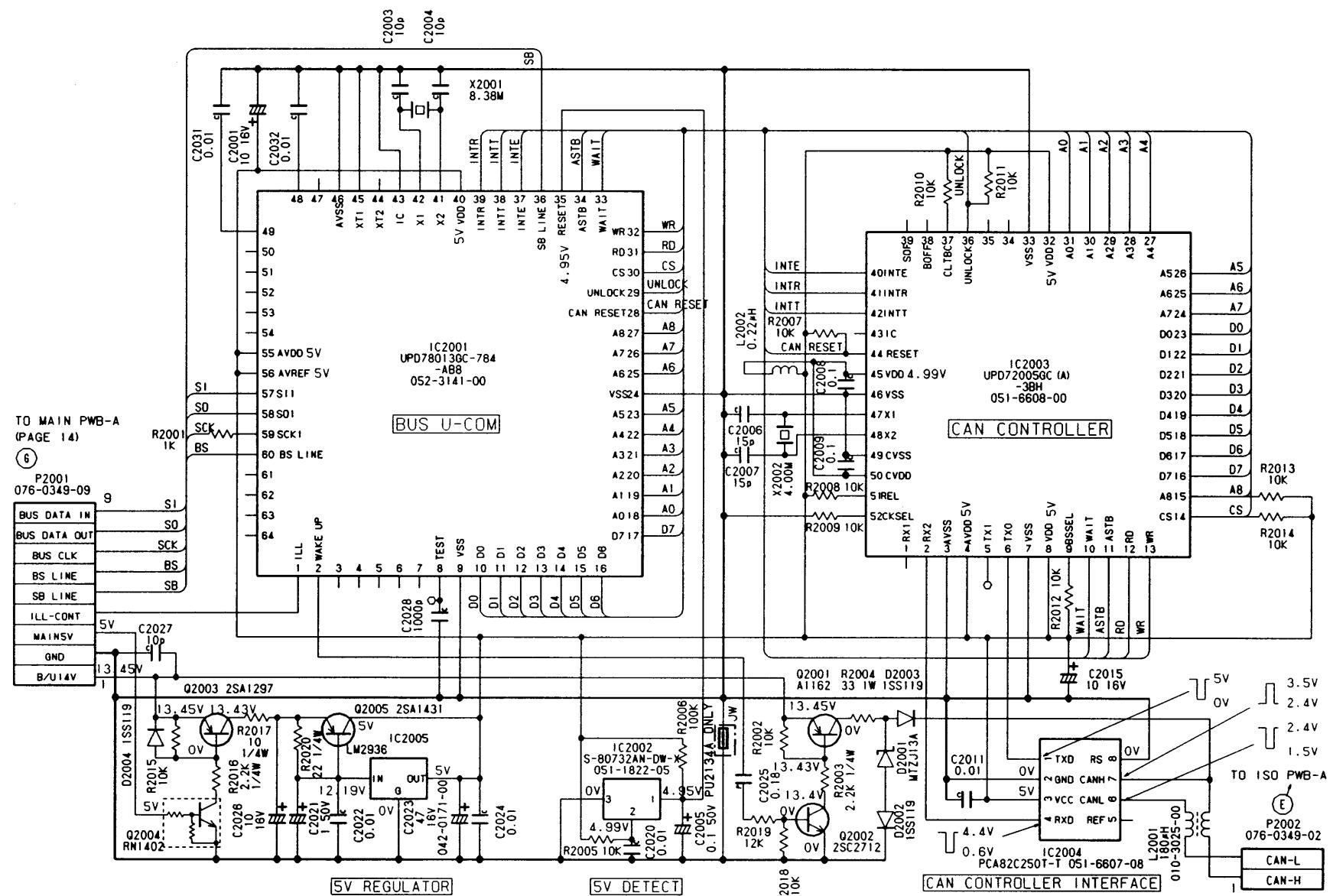


## ■ CIRCUIT DIAGRAM

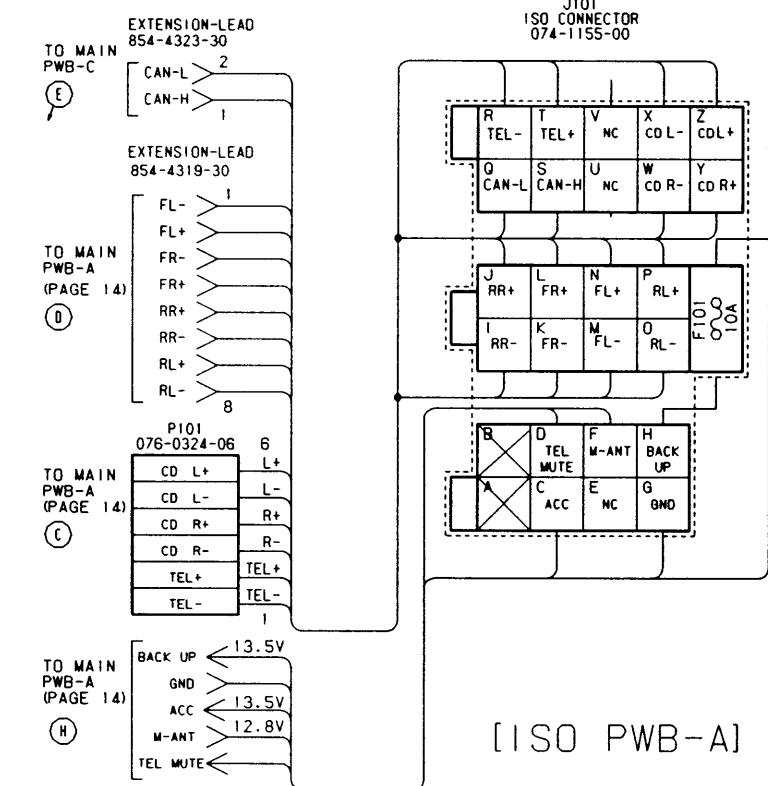
## Main PWB(A,B,D) section



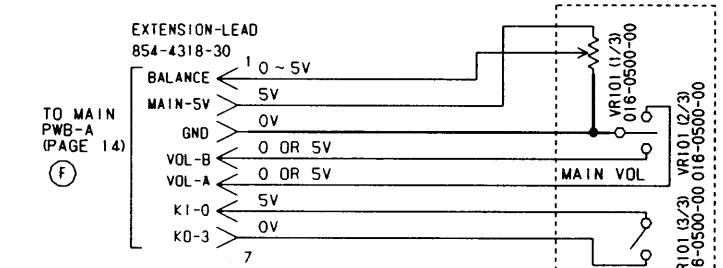
## Main PWB(C) section



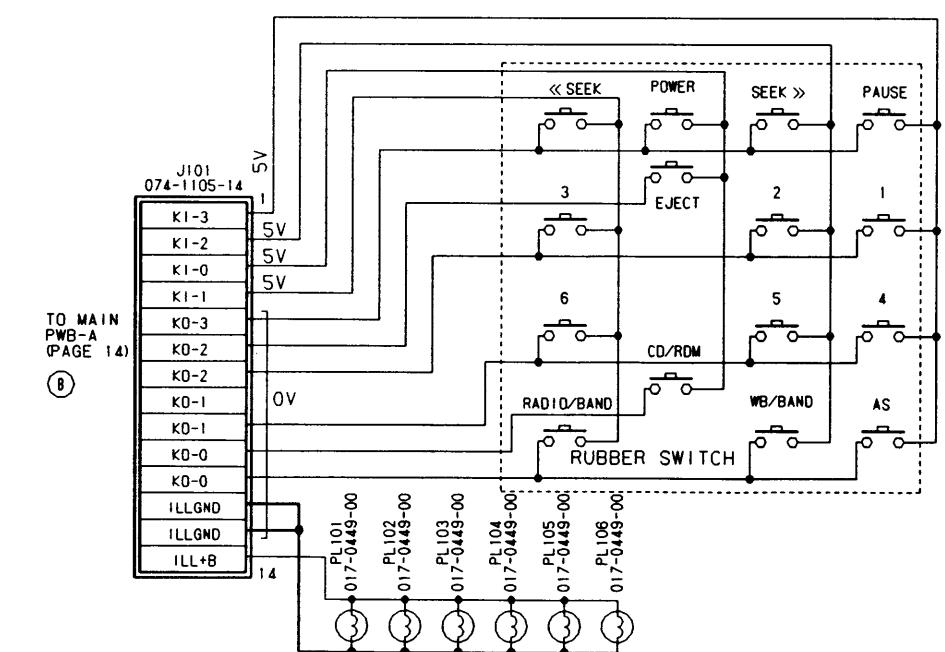
ISO PWB section



[LSO PWR-B1]



## Switch PWB section



CD mechanism section

