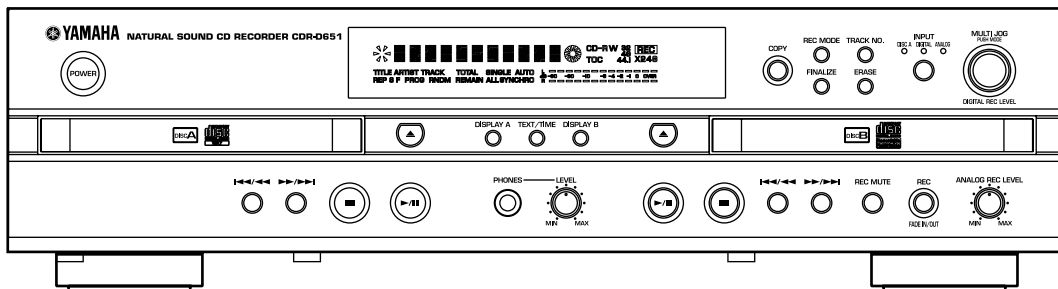
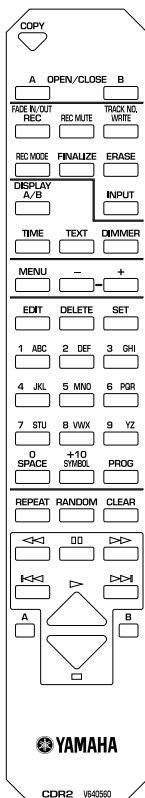


COMPACT DISC RECORDER CDR-D651

CDR-D651

SERVICE MANUAL



IMPORTANT NOTICE

This manual has been provided for the use of authorized YAMAHA Retailers and their service personnel.

It has been assumed that basic service procedures inherent to the industry, and more specifically YAMAHA Products, are already known and understood by the users, and have therefore not been restated.

WARNING: Failure to follow appropriate service and safety procedures when servicing this product may result in personal injury, destruction of expensive components, and failure of the product to perform as specified. For these reasons, we advise all YAMAHA product owners that any service required should be performed by an authorized YAMAHA Retailer or the appointed service representative.

IMPORTANT: The presentation or sale of this manual to any individual or firm does not constitute authorization, certification or recognition of any applicable technical capabilities, or establish a principle-agent relationship of any form.

The data provided is believed to be accurate and applicable to the unit(s) indicated on the cover. The research, engineering, and service departments of YAMAHA are continually striving to improve YAMAHA products. Modifications are, therefore, inevitable and specifications are subject to change without notice or obligation to retrofit. Should any discrepancy appear to exist, please contact the distributor's Service Division.

WARNING: Static discharges can destroy expensive components. Discharge any static electricity your body may have accumulated by grounding yourself to the ground buss in the unit (heavy gauge black wires connect to this buss).

IMPORTANT: Turn the unit OFF during disassembly and part replacement. Recheck all work before you apply power to the unit.

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このサービスマニュアルは、エコマーク認定の再生紙を使用しています。
This Service Manual uses recycled paper.


100732



YAMAHA
YAMAHA CORPORATION
P.O.Box 1, Hamamatsu, Japan

■ TO SERVICE PERSONNEL

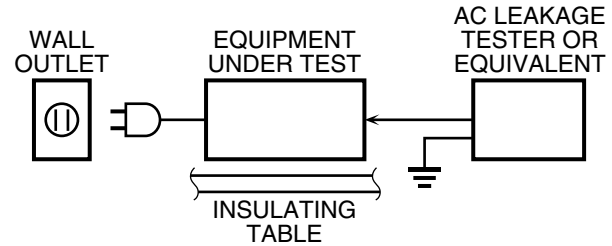
1. Critical Components Information

Components having special characteristics are marked  and must be replaced with parts having specifications equal to those originally installed.

2. Leakage Current Measurement (For 120V Models Only)

When service has been completed, it is imperative to verify that all exposed conductive surfaces are properly insulated from supply circuits.

- Meter impedance should be equivalent to 1500 ohm shunted by 0.15 μ F.
- Leakage current must not exceed 0.5mA.
- Be sure to test for leakage with the AC plug in both polarities.



WARNING: CHEMICAL CONTENT NOTICE!

The solder used in the production of this product contains LEAD. In addition, other electrical/electronic and /or plastic (where applicable) components may also contain traces of chemicals found by the California Health and Welfare Agency (and possibly other entities) to cause cancer and/or birth defects or other reproductive harm.

DO NOT PLACE SOLDER, ELECTRICAL/ELECTRONIC OR PLASTIC COMPONENTS IN YOUR MOUTH FOR ANY REASON WHATSOEVER!

Avoid prolonged, unprotected contact between solder and your skin! When soldering, do not inhale solder fumes or expose eyes to solder/flux vapor!

If you come in contact with solder or components located inside the enclosure of this product, wash your hands before handling food.

WARNING: Laser Safety

This product contains a laser beam component. This component may emit invisible, as well as visible radiation, which may cause eye damage. To protect your eyes and skin from laser radiation, the following precautions must be used during servicing of the unit.

- 1) When testing and/or repairing any component within the product, keep your eyes and skin more than 30 cm away from the laser pick-up unit at all times. Do not stare at the laser beam at any time.
- 2) Do not attempt readjustment, disassemble or repair of the laser pick-up, unless noted elsewhere in this manual.
- 3) CAUTION: Use of controls, adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

Laser Emitting conditions:

- 1) When the Top Cover is removed, and POWER SW is turned to the "ON" position, the laser component will emit a beam for several seconds to detect if a disc is present. During this time (5 - 10 sec.) the laser may radiate through the lens of the laser pick-up unit. Do not attempt any servicing during this period!
If no disc is detected, the laser will stop emitting the beam. When a disc is set, you will not be exposed to any laser emissions.
- 2) The laser power level can be adjust with VR on pick-up PWB, however, this level has been set by the factory prior to shipping from the factory. Do not adjust this laser level control unless instruction is provided elsewhere in this manual. Adjustment of this control can increase the laser emission level from the device.

PROTECTION OF EYES FROM LASER BEAM DURING SERVICING

This set employs a laser. Therefore, be sure to carefully follow the instructions below when servicing .

1. Laser Diode Properties

CD (Drive A)

- Material : GaAlAs
- Wavelength : 790 nm
- Emission Duration : Continuous
- Laser Output : max. 180 μ W*
- ANSI Class : Class 1

CDR (Drive B)

- Material : GaAlAs
- Wavelength : 790 nm
- Emission Duration : Pulse
- Laser Output : Write mode: max. 10 mW* (Duty 50%)
- ANSI Class : Class 2

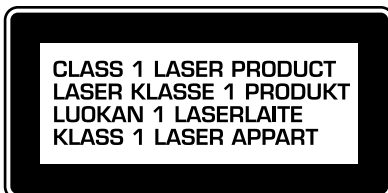
* This output is the value measured at a distance of about 200 mm from the objective lens surface on the Optical Pick-up Block.

2. When checking the laser diode emission, keep your eyes more than 30 cm away from the objective lens.

VARO! : AVATTAESSA JA SUOJALUKITUS OHITETTAESSA OLET ALTTIINA NÄKYMÄTTÖMÄLLE LASER-SÄTEILYLLE. ÄLÄ KATSO SÄTEESEEN.

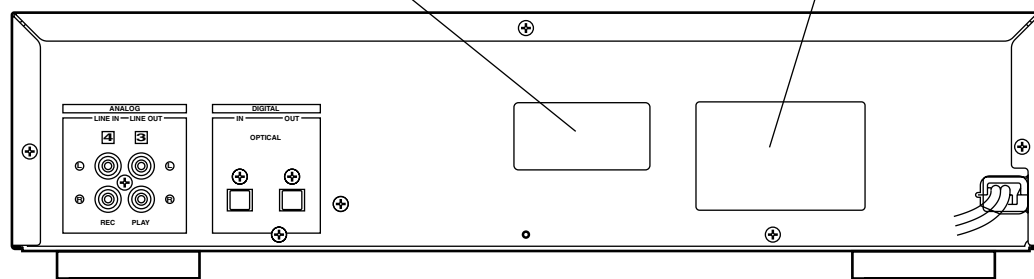
WARNING! : OSYNLIG LASERSTRÅLNING NÄR DENNA DEL ÄR ÖPPNAD OCH SPÄRREN ÄR URKOPPLAD. BETRakta EJ STRÅLEN.

B, G, R models



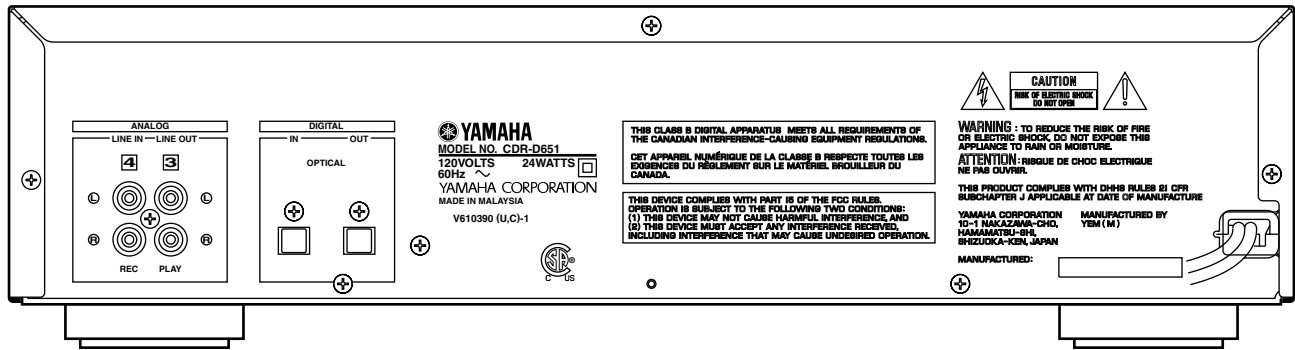
A, B, G, R models

CAUTION	- VISIBLE AND / OR INVISIBLE LASER RADIATION WHEN OPEN. AVOID EXPOSURE TO BEAM.
VARNING	- SYNLIg OCH / ELLER OSYNLIg LASERSTRÅLNING NÄR DENNA DEL ÄR ÖPPNAD. STRÅLEN ÄR FARLIg.
VARO!	AVATTAESSA OLET ALTTIINA NÄKYVÄLLE JA / TAI NÄKYMÄTTÖMÄLLE LASERSÄTEILYLLE. ÄLÄ KATSO SÄTEESEEN.
VARNING	- SYNLIg OCH / ELLER OSYNLIg LASERSTRÅLNING NÄR DENNA DEL ÄR ÖPPNAD. BETRakta EJ STRÅLEN.
VORSICHT!	SICHTBARE UND / ODER UNSICHTBARE LASERSTRAHLUNG WENN ARDECKUNG GEÖFFNET. NICHT DEM STRAHL AUSSETZEN.

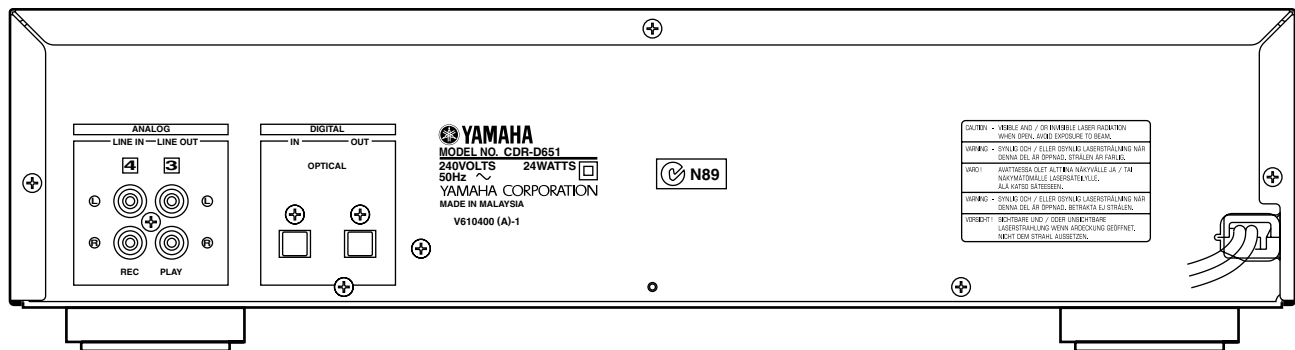


REAR PANELS

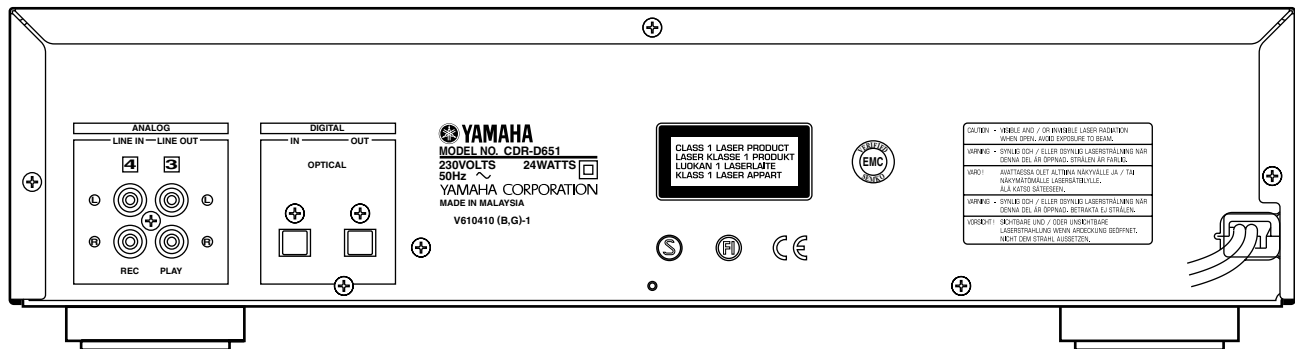
U, C models



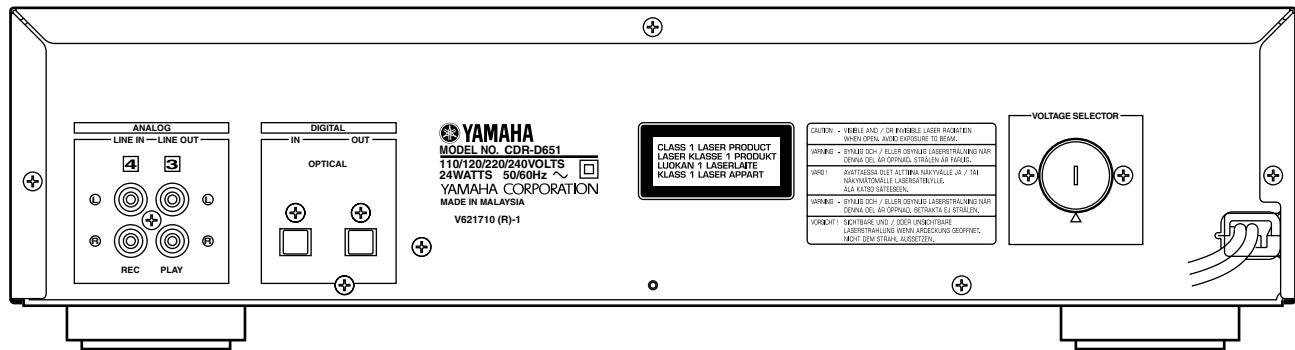
A model



B, G model



R model



■ SPECIFICATIONS

■ Audio Performance

Frequency Response	
Playback (5Hz to 20000Hz)	0 ±0.5dB
Signal to Noise Ratio (IHF-A-Network)	
Playback	100dB
Recording	90dB
Total Harmonic Distortion (1kHz)	
Playback	0.004%
Recording	0.02%
Dynamic Range	
Playback	95dB
Recording	85dB

■ Laser Diode Properties

CD (Drive A)	
Material	GaAlAs
Wavelength	780 ±25nm
Emission duration	Continuous
Laser output	Max: 180μW
CDR (Drive B)	
Material	GaAlAs
Wavelength	780 ±5nm
Emission duration	Pulse
Laser output	Write mode: Max 10mW (Duty 50%)

■ Inputs

LINE IN (REC)	
Type	Pin jack
Standard input level	700mV / 20kΩ

DIGITAL IN OPTICAL	
Type	Square optical connector jack

■ Outputs

LINE OUT (PLAY)	
Type	Pin jack
Standard output level (1kHz, 0dB)	2.0 ±0.5Vrms

DIGITAL OUT OPTICAL	
Type	Square optical connector jack

PHONES	
Standard output level (150Ω short / input -20dB)	300mV

■ General

Power Supply	
U, C models	AC120V, 60Hz
B, G models	AC230V, 50Hz
A model	AC240V, 50Hz
R models	AC110/120/220/240V, 50/60Hz

Power Consumption	
24W	

Dimensions (W x H x D)	
435 x 117 x 285mm (17-1/8" x 4-1/4" x 11-1/16")	

Weight	
5 kg (13lbs. 14oz.)	

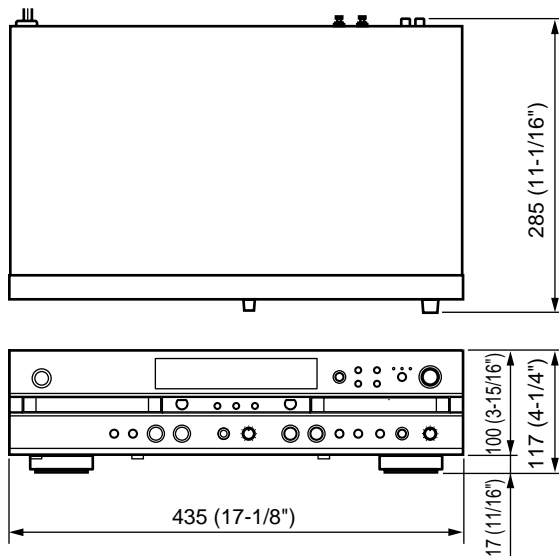
Finish	
Black, Titan (G model)	

Accessories	
RCA Pin Cables x 2	
Optical Fiber Cable x 1	
Remote Control Transmitter	
Batteries x 2	

* Specifications subject to change without notice.

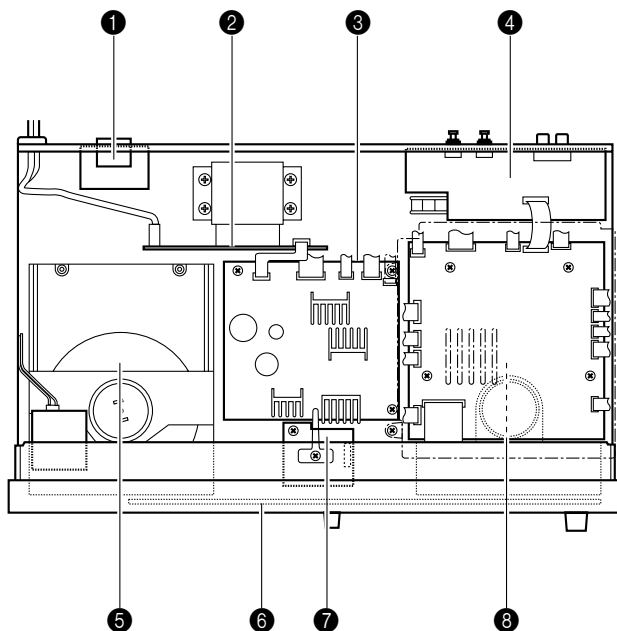
U U.S.A. model C Canada model
 G Europe model B British model
 A Australia model R General model

• DIMENSIONS



Unit : mm (inch)

■ INTERNAL VIEW



- ① OPE P.C.B. (7)
- ② OPE P.C.B. (3)
- ③ OPE P.C.B. (2)
- ④ OPE P.C.B. (4)
- ⑤ CD Drive Mechanism Unit
- ⑥ OPE P.C.B. (1)
- ⑦ OPE P.C.B. (5)
- ⑧ MAIN P.C.B. (Top side),
CD-R Drive Mechanism Unit (Bottom side)

DISASSEMBLY PROCEDURES

(Remove parts in the order as numbered.)
 Disconnect the power cord from the AC outlet.

1. Removal of Top Cover

- a. Remove 4 screws (1) and 3 screws (2) in Fig. 1.
- b. Remove the Top Cover.

2. Removal of Front Panel

- a. Remove 2 screws (3) and 4 screws (4) in Fig. 1, and then remove the Frame/CDR.
- b. Disconnect 3 connectors (CB105, CB301, CB307 in Fig. 2) from the MAIN PCB and a connector (CB202 in Fig. 2) from the OPE PCB (6).
- c. Remove a screw (5) in Fig. 1 fixing the OPE PCB (5).
- d. Remove 4 screws (6) and 2 screws (7) in Fig. 1.
- e. Release 2 hooks at the right and left of the Front Panel in Fig. 1, and then remove the Front Panel forward.

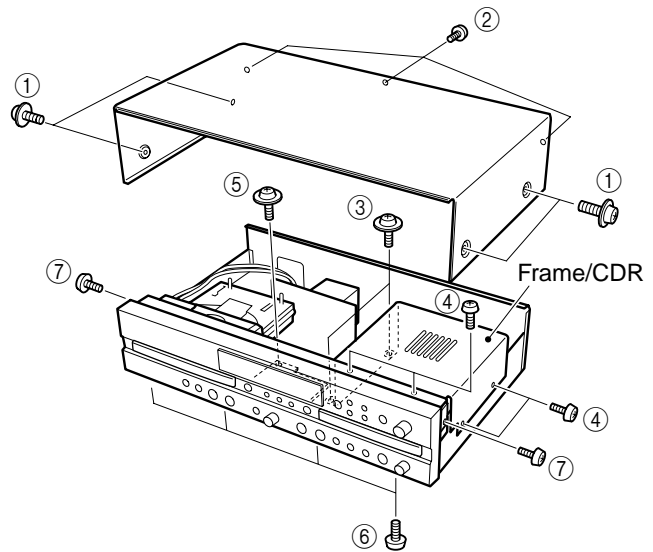


Fig. 1

3. Removal of Tray (applicable to both CD drive and CD-R drive models)

- a. Remove the Front Panel.
- b. Check that the pick-up is in the inner track position. If it is not, move it to the inner track position. (At this time, never touch the lens.)
- c. Lower the pick-up mechanism by turning the gear on the front face of the drive to the right. (Fig. 3)
- d. Pull out the Tray forward.
- e. While pushing the lever (8) toward the left, lift up the lever (9). Then with the lever held up, remove the Tray by pulling it forward. (Fig. 4)

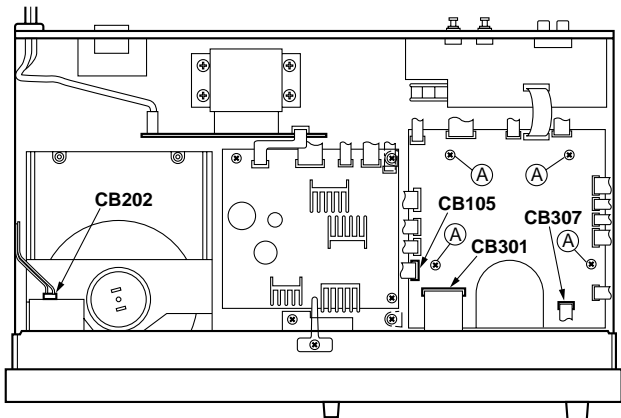


Fig. 2

* If the pick-up is not at a position along the inner track on the CD-R drive side, perform the following procedure.

- a. Disconnect all connectors of the Main PCB.
- b. Remove 4 screws (A) fixing the Main PCB. (Fig. 2)
- c. Remove the Main PCB.
- d. Move the pick-up to a position along the inner track by pushing it lightly with finger. (At this time, never touch the lens.)

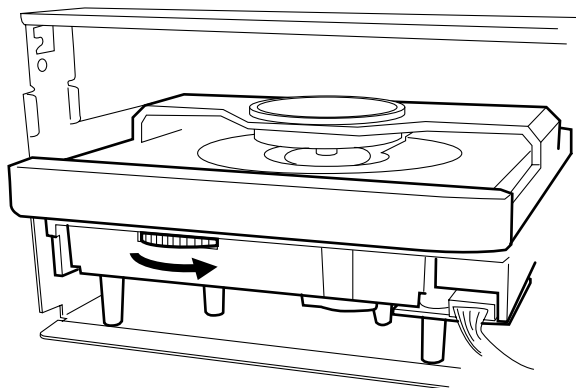


Fig. 3

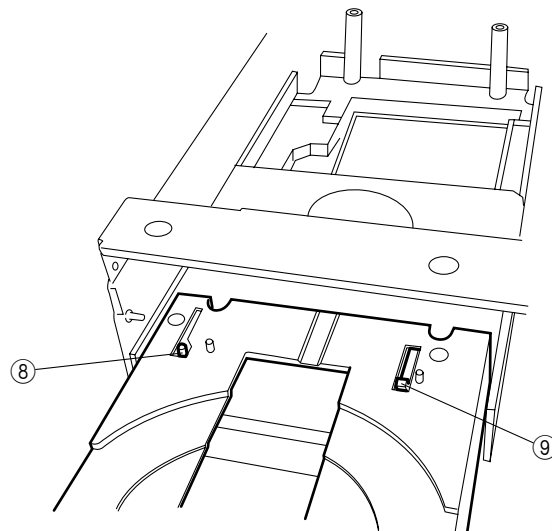


Fig. 4

4. Removal of Pick-up Mechanism on CD drive side

- While pushing the claw (10) to the left, release the pin on the left side of the Pick-up Mechanism Unit from the CD mechanism chassis. (Fig. 5)
- Release the pin on the right side by sliding the Pick-up Mechanism Unit toward the left, and then slide the Pick-up Mechanism Unit by moving it rearward.
- Disconnect the flexible flat cable (11) connected to the pick-up mechanism unit.
- Remove the pick-up mechanism unit from the CD mechanism chassis.

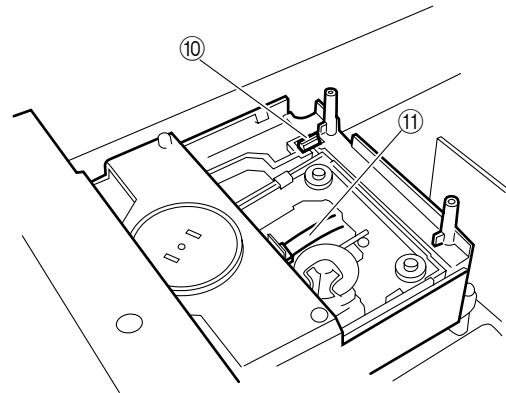


Fig. 5

5. Removal of CD Drive Mechanism Unit

- Remove 4 screws (12). (Fig. 6)
- Disconnect 2 connectors. (Fig. 7)
- Disconnect the flexible flat cable (11) connected to the pick-up mechanism unit. (Fig. 5)
- Remove the CD drive mechanism unit from the main chassis.

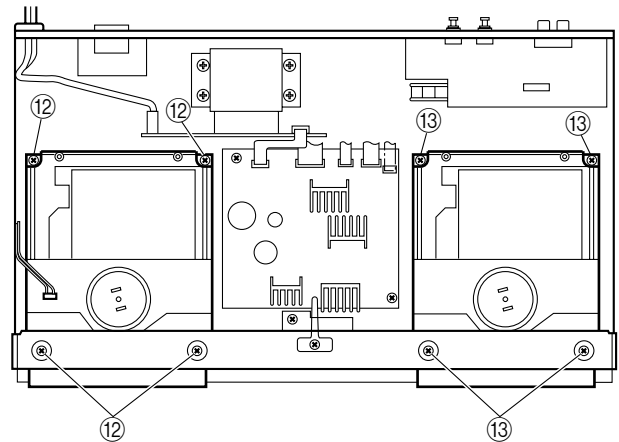


Fig. 6

6. Replacement of CD-R Mechanism Unit Belt

- Remove the Tray of the CD-R Mechanism Unit. (See Step 3.)
- Remove the belt (14) visible from the front with tweezers or the like. (Fig. 8)
- Using alcohol, clean the belt contacting section of the pulley.
- Using tweezers or the like, install a new belt to the pulley A first and then B as shown in Fig. 8. At this time, use care so as not to allow the belt to be twisted or grease to attach to it.

7. Removal of CD-R Drive Mechanism Unit

- Remove the MAIN PCB.
- Remove 4 screws (13). (Fig. 6)
- Remove the CD-R drive mechanism unit from the main chassis.

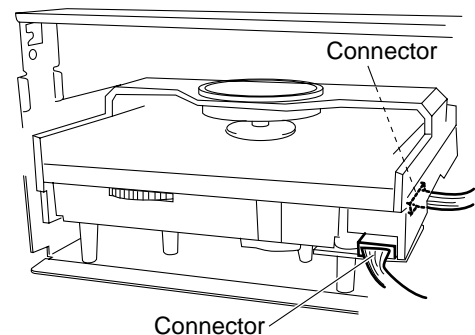


Fig. 7

8. Installation of Tray (applicable to both CD drive and CD-R drive models)

- Slide the slide gear (15) to the right to attain the state with the pick-up mechanism lowered. (Fig. 8)
- Load the tray from the front.
- Reversing the procedure for unloading the tray, make the gear at the front of the drive turn to the left so that the pick-up mechanism is raised fully.

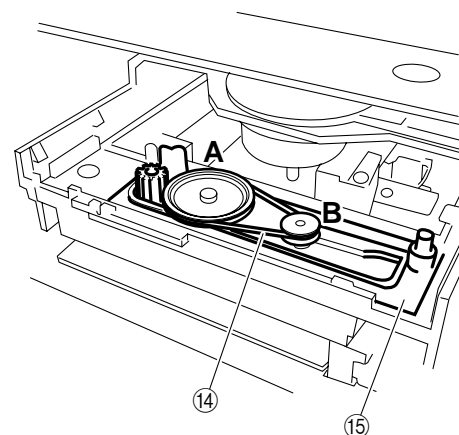


Fig. 8

■ TEST MODE



Test Mode

In the test mode, only the CD drive side functions.

There are two test modes. One is Product Test Mode and the other is PCB Test Mode.

In both modes, the test results can be checked with the contents displayed on the fluorescent character display tube. Refer to the separate table for the contents to be displayed.

Starting the Test Mode

1. In the power off state, press the POWER button while pressing () and () buttons of the DISC A side of the Front Panel.
2. When the power is turned on and the hand is off from the button, the mode is set to the Product Test Mode. At this time, "FQA Mode" appears on the display.

Changing to the PCB Test Mode (service)

Operation on the main unit:

1. In the Product Test Mode, push the MULTI JOG knob.
2. Select the test mode by turning the MULTI JOG knob. At this time, "PCB Test" appears on the display.
3. Press the MULTI JOB knob to finalize the mode selection.

Operation on the remote controller:

1. Press the [EDIT] button.
2. Press the [DELETE] button and select the test mode. At this time, "PCB Test" appears on the display.
3. Press the [SET] button to finalize the mode selection.

After either of the above operations, the mode changes to the PCB Test Mode.

Use the same procedure to change the mode from the PCB Test Mode to the Product Test Mode.

Front panel	Remote controller	CODE	PCB Test Mode (service)
(A) OPEN/CLOSE	(A) OPEN/CLOSE	81	(A) Drive open/close
(A) PLAY/PAUSE	PLAY	82	(A) Playback if FOCUS ON
(A) STOP	STOP	84	(A) All at stop
(A) SKIP -	SKIP -	86	(A) FEED shift toward inner track
(A) SKIP +	SKIP +	87	(A) FEED shift toward outer track
(B) OPEN/CLOSE	(B) OPEN/CLOSE	C1	
(B) PLAY/PAUSE			(A) Spindle acceleration
(B) STOP			(A) All at stop
(B) SKIP -			MUTE OFF
(B) SKIP +			MUTE ON
DISPLAY A			
DISPLAY B			
TEXT/TIME			FL display test
REC	REC	A0	
REC MUTE	REC MUTE	A1	
COPY	COPY	A3	
REC MODE	REC MODE	A2	Servo gain changed *1
TRACK No.	TRACK No. WRITE	A7	Version check *2
FINALIZE	FINALIZE	A5	EEPROM test
ERASE	ERASE	A6	Output changed
INPUT	INPUT	AB	Analog input changed
	DISPLAY A/B	9F	
	TEXT	9D	

Front panel	Remote controller	CODE	PCB Test Mode (service)
	TIME	9E	FL display test
	DIMMER	9C	Dimmer test
	MENU	BA	Not used for service
	-	BC	Not used for service
	+	BB	Not used for service
	EDIT	B0	Not used for service
	DELETE	B1	Not used for service
	SET	B2	Not used for service
	1	91	Not used for service
	2	92	Automatic adjustment (1) (at CD-RW playback)
	3	93	Automatic adjustment (2) (at CD-RW playback)
	4	94	Automatic adjustment (3) (at CD-RW playback)
	5	95	1 track kick - continued
	6	96	1 track kick + continued
	7	97	30 track kick - continued
	8	98	30 track kick + continued
	9	99	150 track kick - continued
	0	90	150 track kick + continued
	+10	9A	
	PROG	8B	(A) Spindle acceleration
	REPEAT	8D	MUTE OFF
	RANDOM	8E	MUTE ON
	CLEAR	8C	(A) Spindle deceleration
	PAUSE	83	TRACKING OFF
	SEARCH -	88	10 track kick - continued
	SEARCH +	89	10 track kick + continued
JOG (push)			Test mode switch mode finalized
JOG (+/-)			Test mode selected

*1 Switching Servo Gain

In order to use a CD-RW disk in the test mode, press the REC MODE button in the PCB inspection mode so as to raise the servo gain.

Also, it is possible to play back the disk by selecting "Auto Adjustment (1)" to "Auto Adjustment (3)" (pressing 2 to 4 keys of the remote controller).

When the power is turned off, the original state is resumed.

*2 Version Check

With the "Version Check" selected, it is possible to check the version of the microprocessor and CDR unit.

In the test mode, every time TRACK NO. button on the front panel is pressed, the display changes to the microprocessor, firmware in the CDR unit and checksum of the microprocessor in that order.

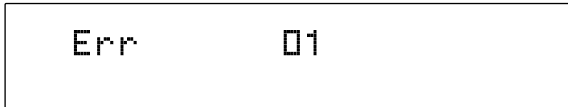
■ ERROR MESSAGE

If operation has stopped on the disc A side due to occurrence of some error, the content of the error can be identified by checking the error message.

● How to have the error message displayed

With the DISC A at stop, press the STOP key of the remote controller while pressing the STOP key of the main unit panel on the DISC A side. Then an error message appears in the time display section of the display for about 2 seconds.

Even with the power turned off, it is possible to have the message of an error which occurred immediately before appear on display.



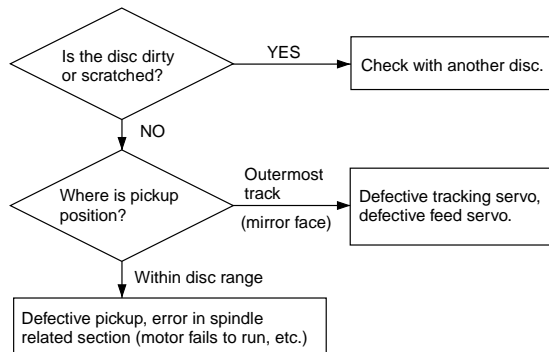
Error message	Description
E-X0	Data is illegible after searching.
E-X1	Data is illegible during play (x=0), pause (x=3), scan (x=2) being executed.
E-41	Tracking servo cannot be turned on when starting.
E-42	Spindle servo PLL cannot be applied when starting.
E-43	Data is illegible when starting.
E-64	Tray closed but CLOSE switch fails to turn on.
E-75	Tray opened but OPEN switch fails to turn on.
E-X7	Traverse (feed) inner track switch fails to turn on.
E-X8	Focus, after having fallen, cannot be recovered.
E-99	Microprocessor executed resetting but no SENSE response is provided from MN35511AL.

Note) x represents each state as follows.

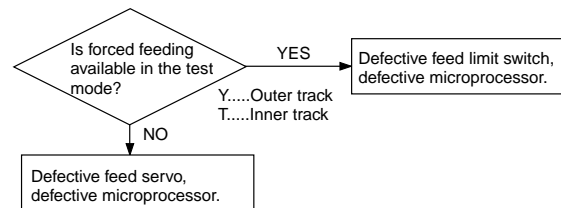
- Play x = "0"
- Scan x = "1"
- Pause x = "2"
- Search x = "3"
- Start x = "4"
- Stop x = "5"
- Loading x = "6"
- Eject x = "7"
- No disc x = "8"

1) Estimating point of possible cause from error messages

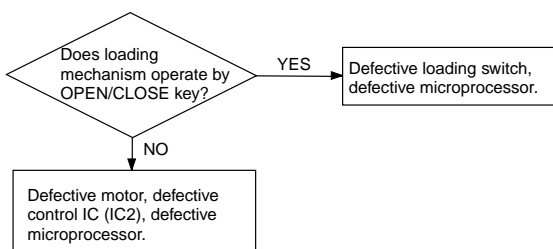
Error code [X0], [X1], [43] Data is illegible.



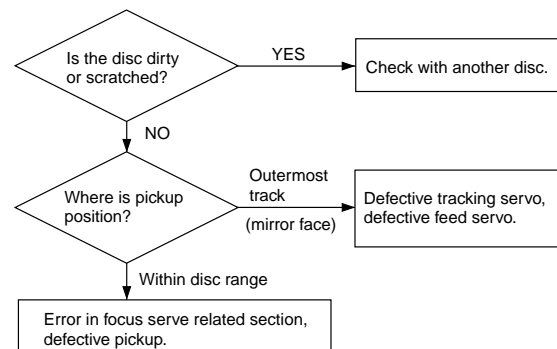
Error code [X7] Feeding function fails. (Limit switch does not turn on.)



Error code [64], [75] Tray loading function fails.

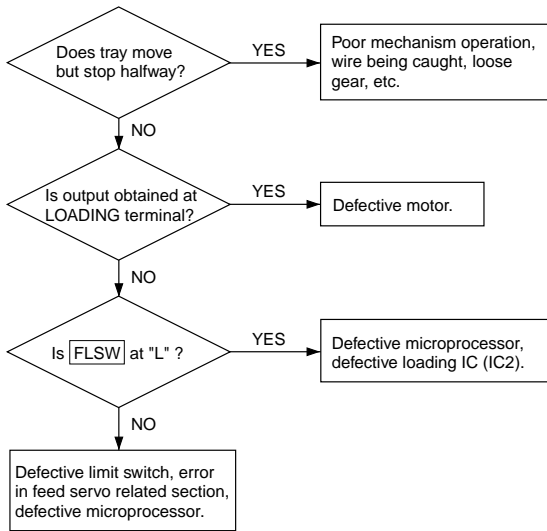


Error code [X8] Focus falls.



2) Estimating possible cause from erroneous operation

a) Tray fails to come out or go in.

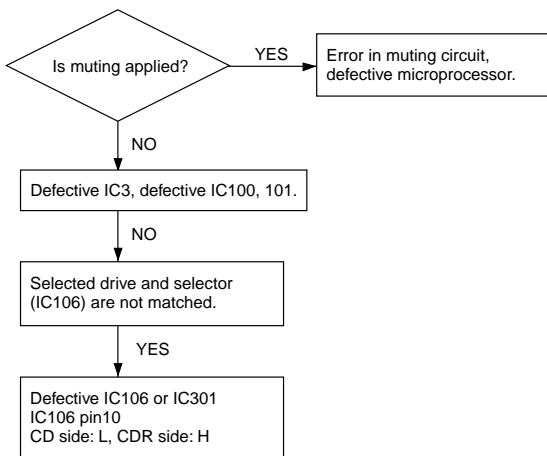


When the tray fails to close completely (when the tray stops halfway)

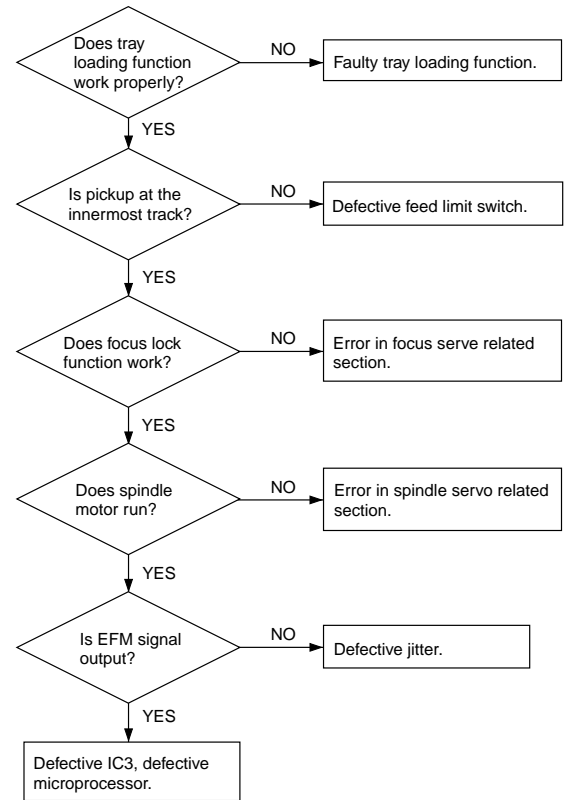
[Correction]

- 1) Turn on the power to open the tray.
If it cannot be opened (because the head and tray contact each other), remove the chucking unit and then open it.
- 2) Turn off the power to force the tray to close fully.
- 3) Turn on the power and open/close the tray so as to check that the tray closes completely.

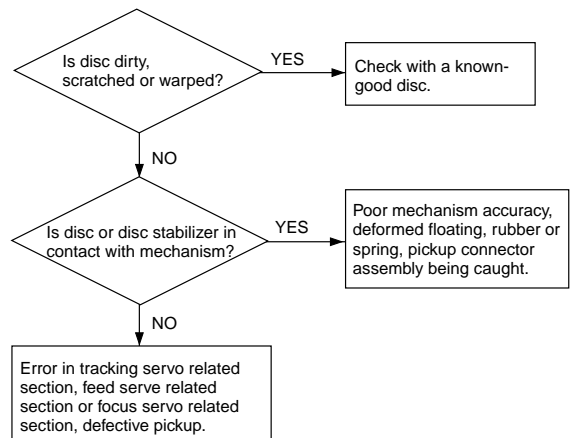
b) Sound is not produced or interrupted while playing. (Time on display advances properly.)



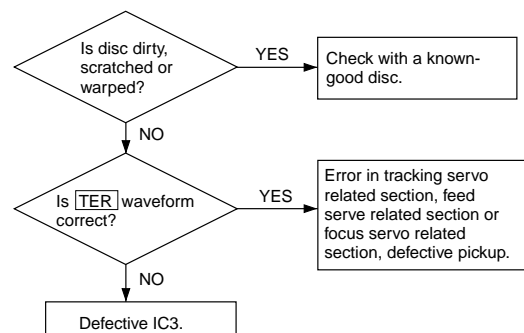
c) "No disc" appears on display.



d) Sound skips. (Time on display does not advance correctly.)

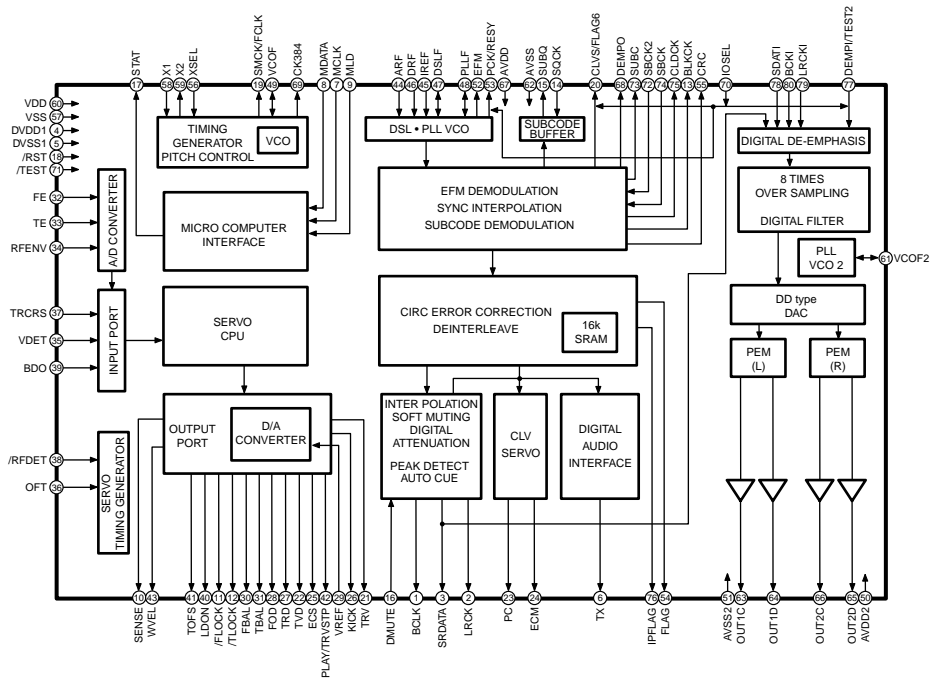
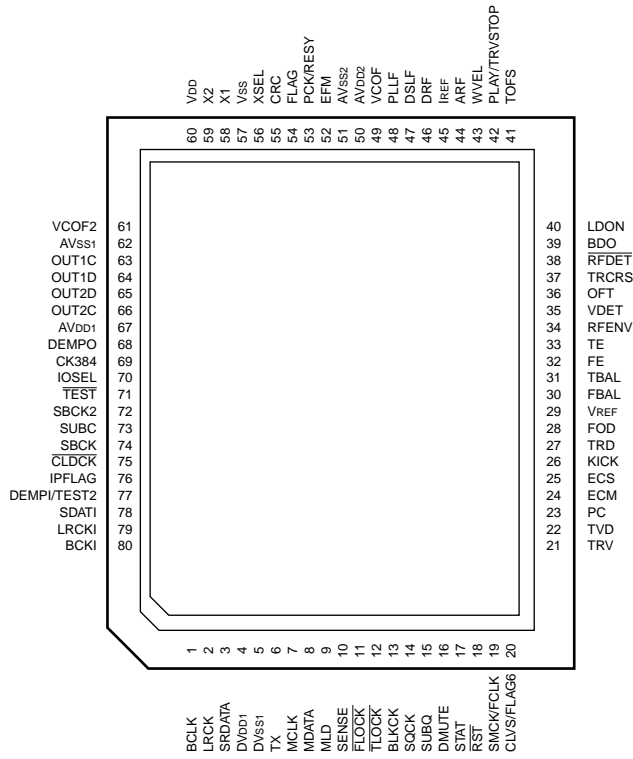


e) Searching function fails to work.(Sound skips after searching.)



NO.	PIN NAME	CIRCUIT NAME	I/O	FUNCTION
28	P51/A9	CLSW	I	Close switch
29	P52/A10	K0	I	Key input 0
30	P53/A11	K1	I	Key input 1
31	P54/A12	K2	I	Key input 2
32	P55/A13	K3	I	Key input 3
33	V _{SS1}			GND
34	P56/A14	K4	I	Key input 4
35	P57/A15	K5	I	Key input 5
36	P60	KD0	O	Key digit output 0
37	P61	KD1	O	Key digit output 1
38	P62	KD2	O	Key digit output 2
39	P63	KD3	O	Key digit output 3
40	P64/RD	FLSW	I	Feed limit switch
41	P65/WR	MON1	O	Monitor port 1
42	P66/WAIT	MON2	O	Monitor port 2
43	P67/ASTB	MON3	O	Monitor port 3
44	P30/TO0	CE	O	LC75711 chip enable
45	P31/TO1	BLK	O	LC75711 clock
46	P32/TO2	LED1	O	LED control 1
47	P33/TI1	LED2	O	LED control 2
48	P34/TI2	LED3	O	LED control 3
49	P35/PCL	ENCSW	I	Encoder SW
50	P36/BUZ	ENCA	I	Encoder A
51	P37	ENCB	I	Encoder B
52	P120/RTP0		O	(NC)
53	P121/RTP1	S_REQ	O	CRD-RA1W02 S_REQ
54	P122/RTP2	S_RDY	O	CRD-RA1W02 S_RDY
55	P123/RTP3	R_REQ	I	CRD-RA1W02 R_REQ
56	P124/RTP4	CDR_RES	O	CRD-RA1W02 RESET
57	P125/RTP5	ASW2	O	Analog switch 2
58	P126/RTP6	SCL	O	S24C01 clock
59	P127/RTP7	SDA	I/O	S24C01 data
60	RESET	RESET		uPD78F0058 reset
61	P00/INTP0/TI00	REM	I	Remote control transmitter
62	P01/INTP1/TI01	ANA_METE	O	Analog mute
63	P02/INTP2	ASWA	O	
64	P03/INTP3	ASWB	O	
65	P04/INTP4	BLKCK	I	MN35511 SUBCODE block clock
66	P05/INTP5	CLDCK	I	MN35511 SUBCODE frame clock
67	V _{SS1}			GND
68	V _{DD1}			+5V
69	X1			System clock (5MHz)
70	X2			System clock (5MHz)
71	V _{PP}			(Flash write = +10V)
72	XT2			(Open)
73	XT1/P07			(+5V)
74	V _{DD0}			+5V
75	AV _{REF0}			GND
76	P10/ANI0		O	(NC)
77	P11/ANI1	MN_MRST	I	MN35511 reset
78	P12/ANI2	DMUTE	I	MN35511 digit mute
79	P13/ANI3	TLOCK	O	MN35511 tracking servo lock
80	P14/ANI4	FLOCK	O	MN35511 focus servo lock

IC3 : MN35511
Signal Processor & Controller



IC3 : MN35511

Signal Processor & Controller

Pin No.	Name	I/O	Function
1	BCLK	O	Bit clock output for SR DATA
2	LRCK	O	L/R identification signal output
3	SRDATA	O	Serial data output
4	DVDD1	I	Power supply for digital circuit (+5)
5	DVSS1	I	GND for digital circuit
6	TX	O	Digital, audio, interface output signal
7	MCLK	I	Microprocessor command clock signal input (data latched at leading edge)
8	MDATA	I	Microprocessor command data input
9	MLD	I	Microprocessor command load signal input (L : LOAD)
10	SENSE	O	Sense signal output (OFT, FESL, NACEND, NAJEND, SFG, NWTEND)
11	FLOCK	O	Focus servo drawing signal (L : when drawn)
12	TLOCK	O	Tracking servo drawing signal (L : when drawn)
13	BLKCK	O	Sub code block clock signal (BLKCK=75Hz)
14	SQCK	I	Clock input for sub-code Q register
15	SUBQ	O	Sub-code Q code output
16	DMUTE	I	Muting input (H : MUTE)
17	STAT	O	Status signal (CRC, STCNT, CLVS, TTSTOP, SQOK, RESY, FCLV, FLAG6, SENSE, /FLOCK, /RFDET, /TLOCK)
18	RST	I	Reset input (L : RESET)
19	SMCK/ FCLK	O	4.2336MHz clock signal output SMCK when command is defaulted. (Note 1) (NC) SMCK (8.4672MHz), FCLK (7.35kHz) or "L" fixed is selected when command is switched.
20	CLVS/ FLAG6	O	With command defaulted : CLVS when IOSEL=H, FLAG6 when IOSEL=L (NC) These settings can be reversed by command (FLAG6 when IOSEL=H).
21	TRV	O	Traverse (Feed) forced feed output 3-State
22	TVD	O	Traverse (Feed) drive output
23	PC	O	Spindle motor ON signal L : ON (default) (NC)
24	ECM	O	Spindle motor drive signal (forced mode output) 3-State
25	ECS	O	Spindle motor drive signal (servo error signal output)
26	KICK	O	Kick pulse output 3-State
27	TRD	O	Tracking drive output
28	FOD	O	Focus drive output
29	VREF	I	Reference voltage for DA output block (TVD, ECS, TRD, FOD, FBAL, TBAL)
30	FBAL	O	Focus balance adjustment output
31	TBAL	O	Tracking balance adjustment output
32	FE	I	Focus error signal input (analog input)
33	TE	I	Tracking error signal input (analog input)
34	RFENV	I	RF envelope signal input (analog input)
35	VDET	I	Oscillation detect signal input (H : DETECT)
36	OFT	I	Off track signal input (H : OFF TRACK)
37	TRCRS	I	Track cross signal input (analog input)
38	RFDET	I	RF detect signal input (L : DETECT)
39	BDO	I	Drop out signal input (H : DROP OUT)
40	LDON	O	Laser ON signal output (H : ON)
41	TOFS	O	Tracking offset adjustment output (NC)
42	PLAY/TRVSTOP	O	Switched by command. PLAY (Play signal output) when command is defaulted. (NC)
43	WVEL	O	Double speed status signal output (H : double speed) (NC)
44	ARF	I	RF signal input
45	IREF	I	Reference current input terminal
46	DRF	I	Bias terminal for DSL

(Note 1) At the SMCK/FCLK pin, output does not stop while /RST=L.

IC3 : MN35511

Signal Processor & Controller

Pin No.	Name	I/O	Function	
47	DSLFL	I/O	Loop filter terminal for DSL	
48	PLLF	I/O	Loop filter terminal for PLL	
49	VCOF	I/O	Loop filter terminal for VCO	(+5)
50	AVDD2	I	Power supply for analog circuit (for AD of DSL, PLL, DA output blocks)	(+5)
51	AVSS2	I	GND for analog circuit (for AD of DSL, PLL, DA output blocks)	(GND)
52	EFM	O	EFM signal output	(NC)
53	PCK/ RESY	O	With command defaulted : PLL extract clock output PCK when IOSEL=H, frame re-synchronous signal RESY when IOSEL=L These settings can be reversed by command (RESY when IOSEL=H).	(NC)
54	FLAG	O	Flag signal output	(NC)
55	CRC	O	Sub-code CRC check result output (H : OK, L : NG)	(NC)
56	XSEL	I	L : Normal mode H : • For internal master clock, VCO2 output clock for jitter adsorbing PLL is used instead of Xtal oscillation output (X2). • VCO2 is always fixed to oscillation mode regardless of VCO2 oscillation stop command or resetting (/RST=L) and Xtal oscillation is stopped.	(GND)
57	VSS	I	GND for oscillation circuit	
58	X1	I	Crystal oscillation circuit input terminal	
59	X2	O	Crystal oscillation circuit output terminal	
60	VDD	I	Power supply for oscillation circuit	(+5)
61	VCOF2	O	PLL loop filter terminal for jitter adsorption	(GND)
62	AVSS1	O	GND for audio DAC	
63	OUT1C	O	PEM output terminal 1C	(NC)
64	OUT1D	O	PEM output terminal 1D	(NC)
65	OUT2D	O	PEM output terminal 2D	(NC)
66	OUT2C	O	PEM output terminal 2C	(NC)
67	AVDD1	I	Power supply terminal for audio DAC	
68	DEMPO	O	Deemphasis detect signal output	
69	CK384	O	384fs clock output (At the CK384 pin, output does not stop while /RST=L.) Xtal system when command is defaulted. Signal processing system when command is switched	(NC)
70	IOSEL	I	Mode selecting terminal	(+5)
71	$\overline{\text{TEST}}$	I	Test mode setting terminal (Normal : H)	(+5)
72	SBCK2	I	Sub-code data read clock input	
73	SUBC	O	Sub-code serial output (SBCK effective) when command is defaulted. PACK data usable (SBCK2 effective) when command is switched	
74	SBCK	I	Clock input for sub-code serial output (with pull-up resistor)	(NC)
75	$\overline{\text{CLDCK}}$	O	Sub-code frame clock signal output when command is defaulted (fCLDCK=7.35kHz) PACK synchronous signal when command is switched	
76	IPFLAG	O	Interpolation flag signal output (H : INTERPOLATION)	(NC)
77	DEMPI /TEST2	I	When IOSEL=H, L : NORMAL H : TEST2 Emphasis control in accordance with DEMP0 When IOSEL=L, external DEMP1 input terminal For emphasis control, DEMP0, OR of DEMP1, DEMP1, forced OFF or forced ON is selected by command. When command is defaulted, DEMP0 and OR of DEMP1	(GND)
78	SDATI	I	SRDATA input (effective only when IOSEL=L)	(NC)
79	LRCKI	I	LRCK input (effective only when IOSEL=L) H : Lch data, L : Rch data	(NC)
80	BCKI	I	BCK input (effective only when IOSEL=L)	(NC)

BLOCK DIAGRAM

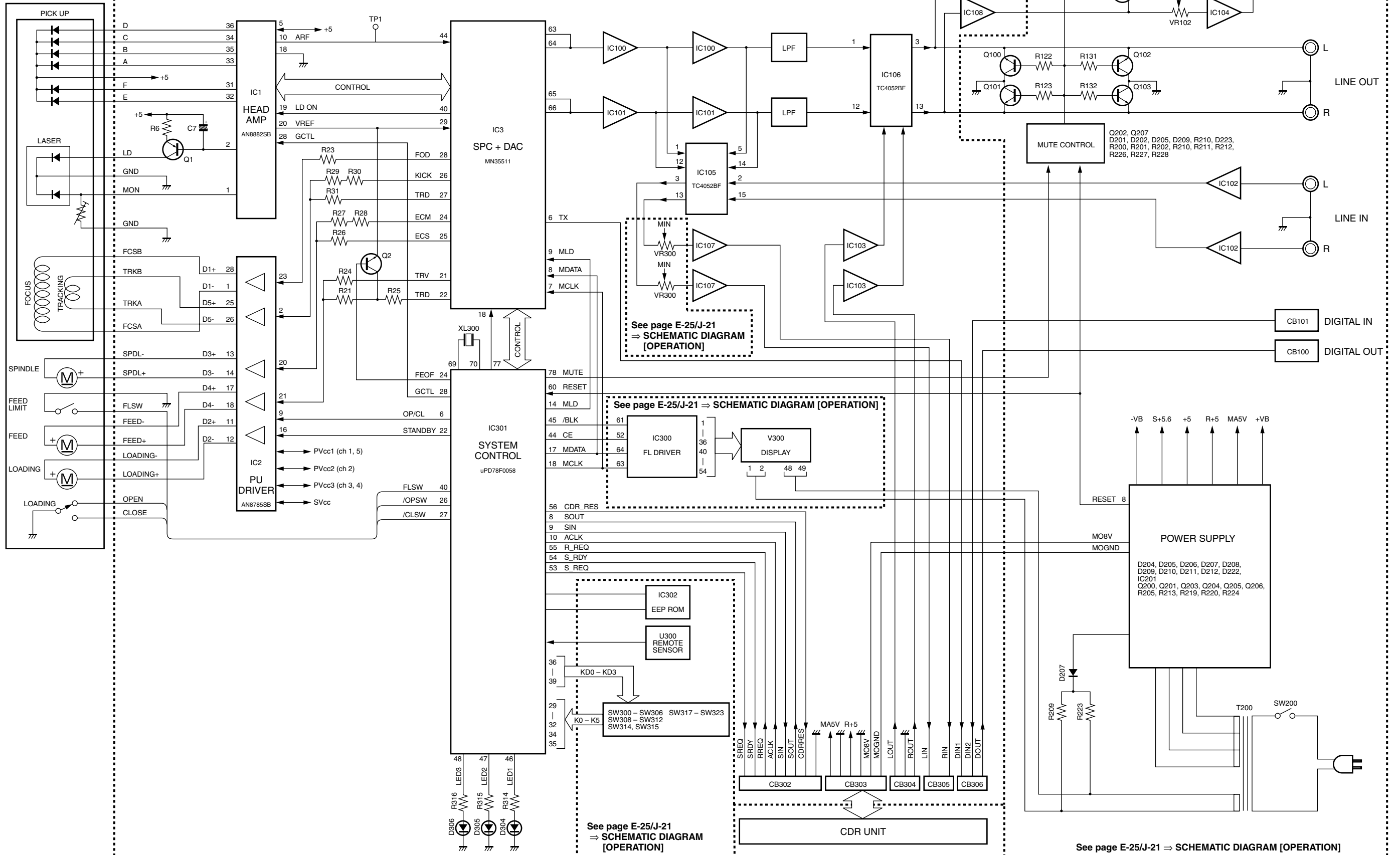
See page E-24/J-20 ⇒ SCHEMATIC DIAGRAM [MAIN]

See page E-25/J-21 ⇒ SCHEMATIC DIAGRAM [OPERATION]

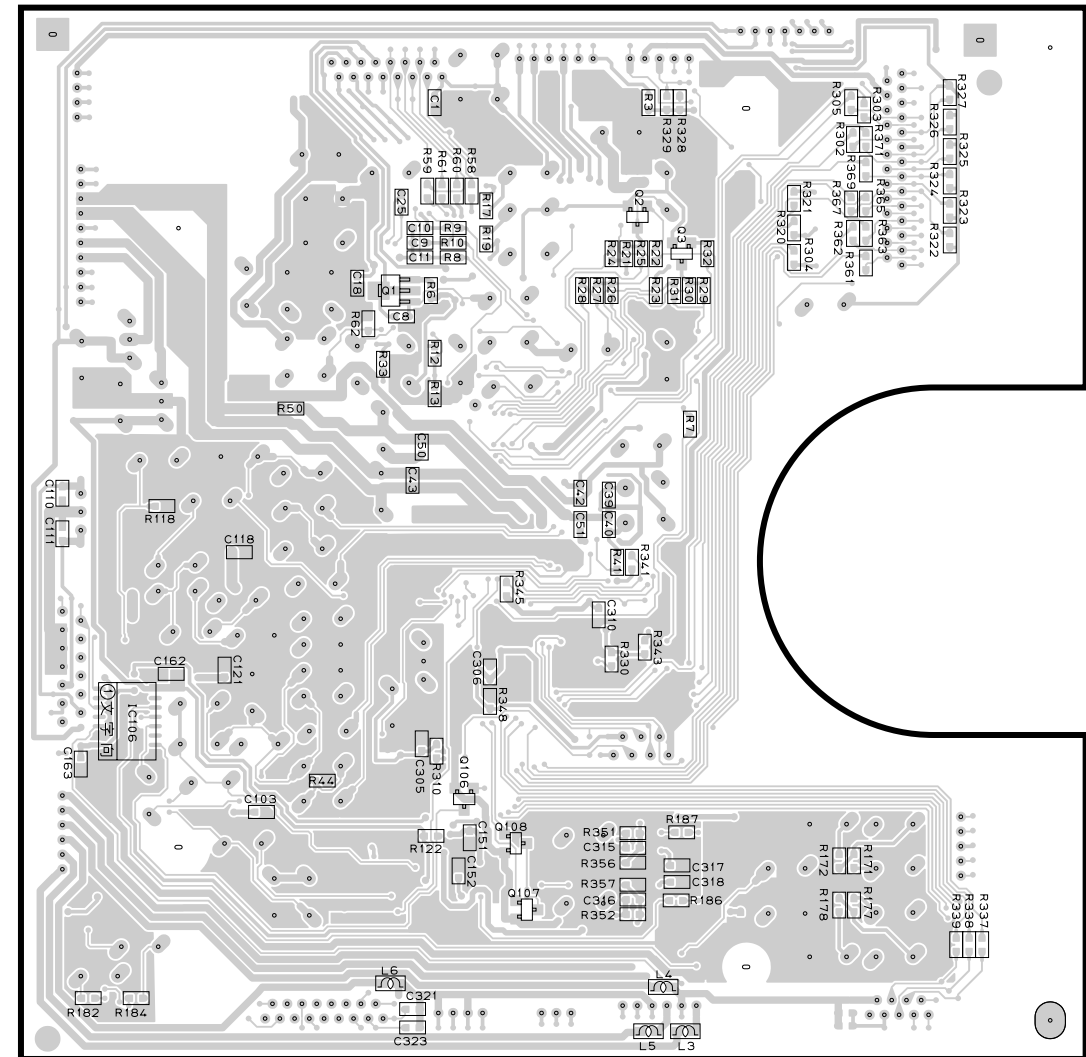
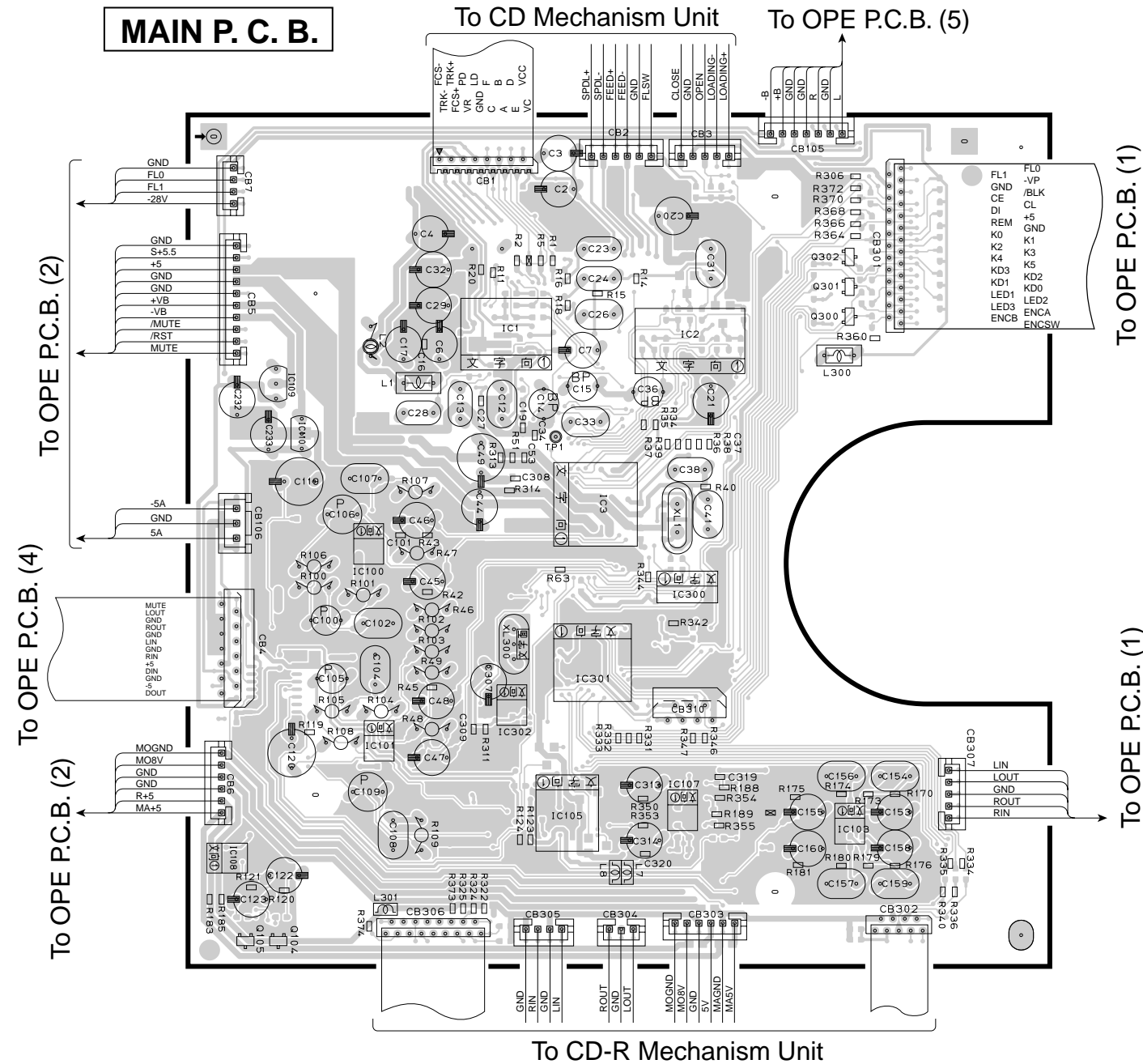
See page E-25/J-21 ⇒ SCHEMATIC DIAGRAM [OPERATION]

See page E-25/J-21 ⇒ SCHEMATIC DIAGRAM [OPERATION]

See page E-25/J-21 ⇒ SCHEMATIC DIAGRAM [OPERATION]



PRINTED CIRCUIT BOARD (Foil side)

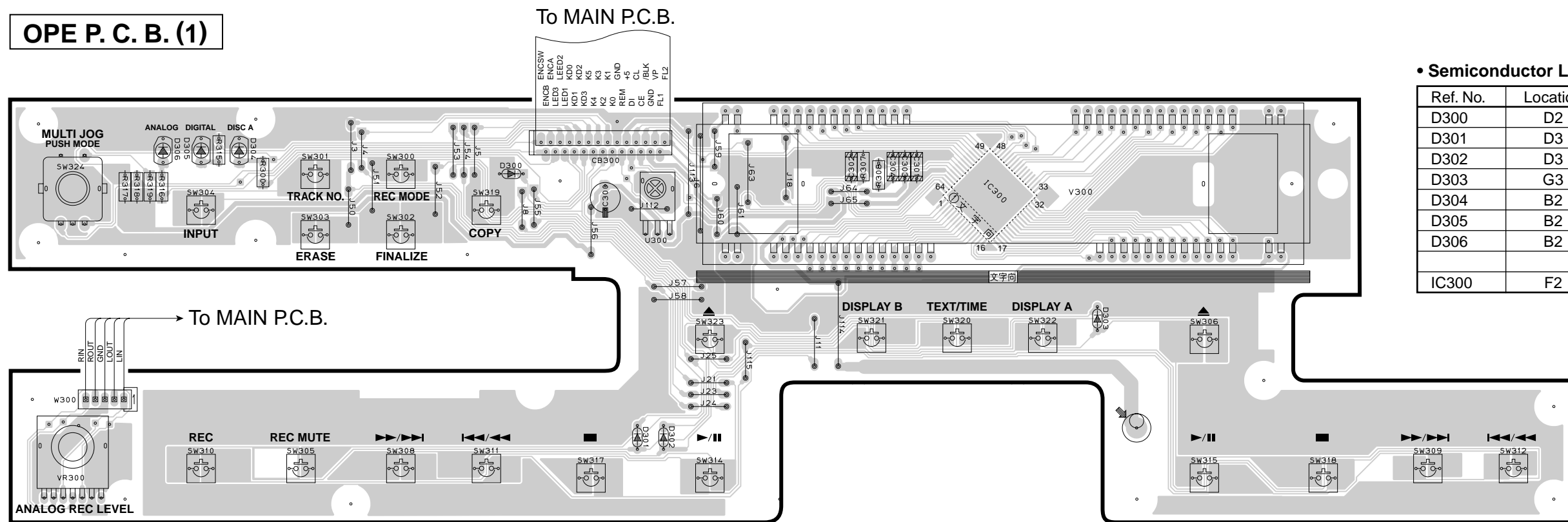


• Semiconductor Location

Ref. No.	Location	Ref. No.	Location	Ref. No.	Location
IC1	C3	IC109	B3	Q105	B6
IC2	D3	IC110	B4	Q106	G5
IC3	C4	IC300	D4	Q107	H5
IC100	B4	IC301	C4	Q108	H5
IC101	B5	IC302	C5	Q300	D3
IC103	D5			Q301	D3
IC105	C5	Q1	G3	Q302	D3
IC106	F4	Q2	H3		
IC107	D5	Q3	H3		
IC108	B5	Q104	B6		

1 ■ PRINTED CIRCUIT BOARD (Foil side)

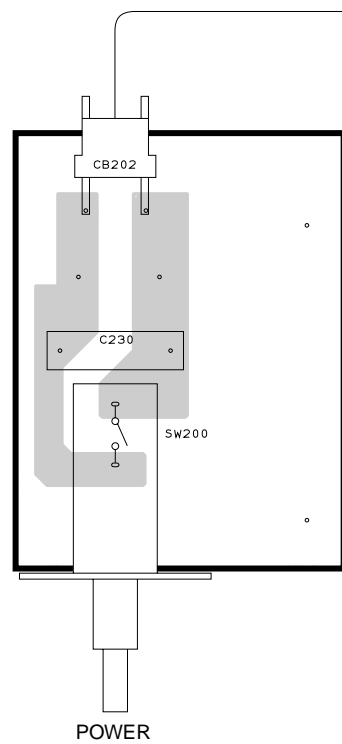
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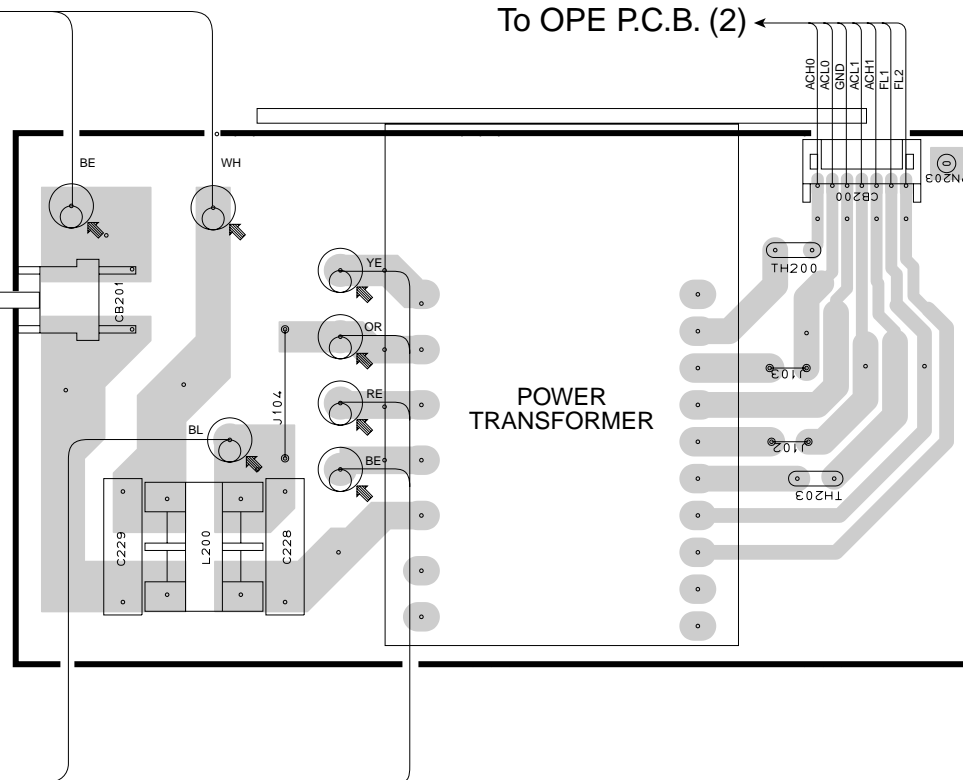
• Semiconductor Location

Ref. No.	Location
D300	D2
D301	D3
D302	D3
D303	G3
D304	B2
D305	B2
D306	B2
IC300	F2

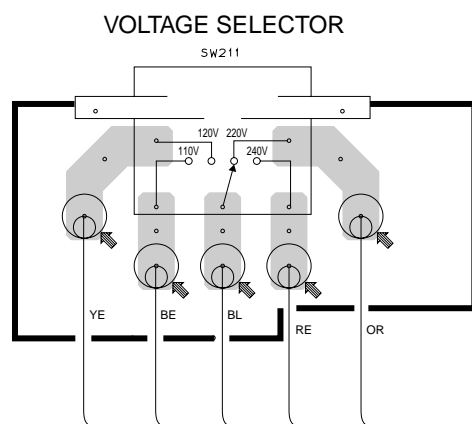
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OPE P. C. B. (3)

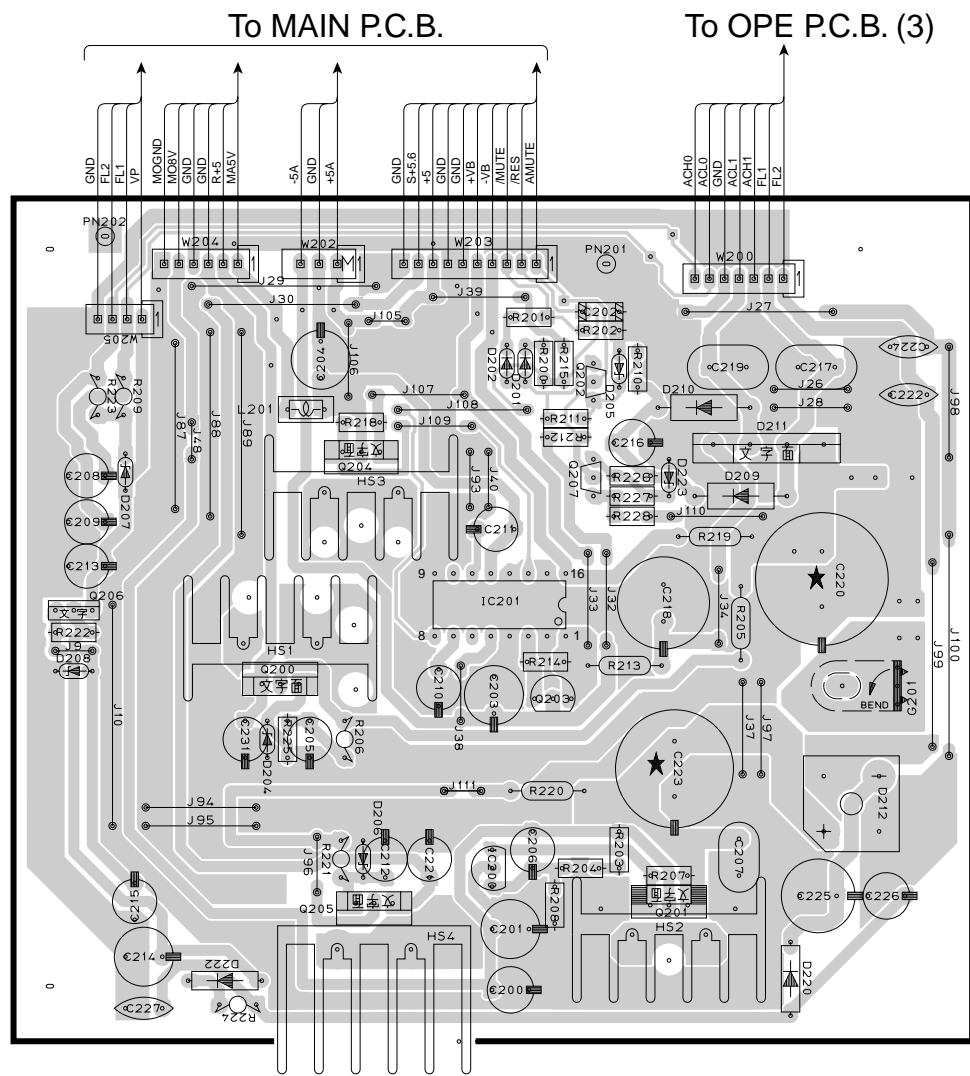


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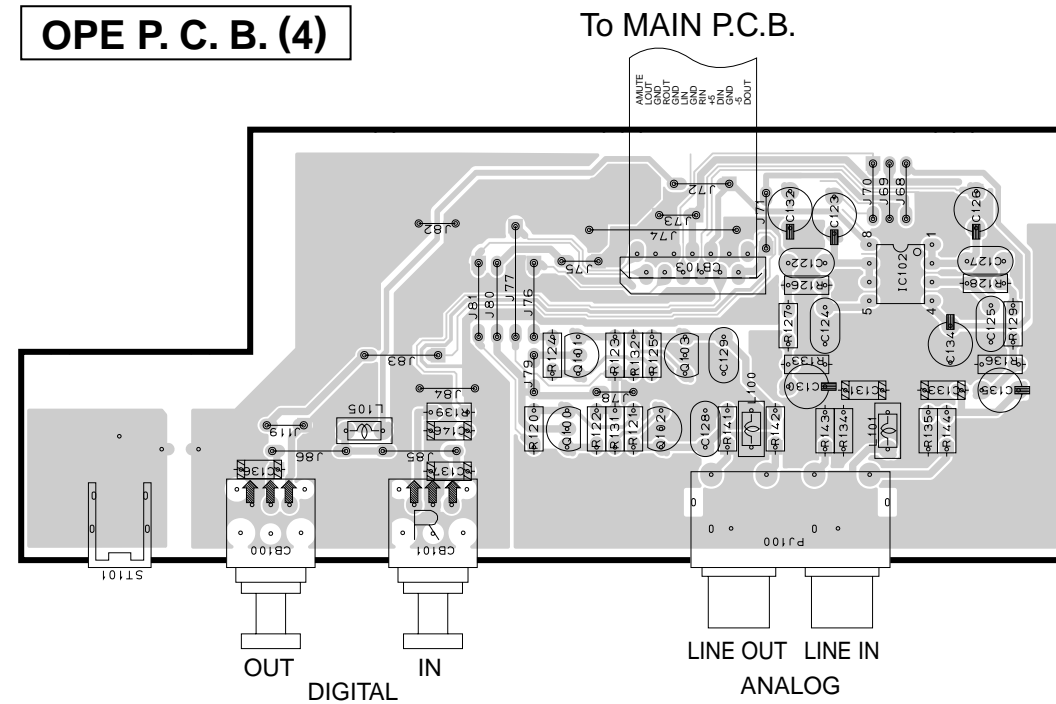


PRINTED CIRCUIT BOARD (Foil side)

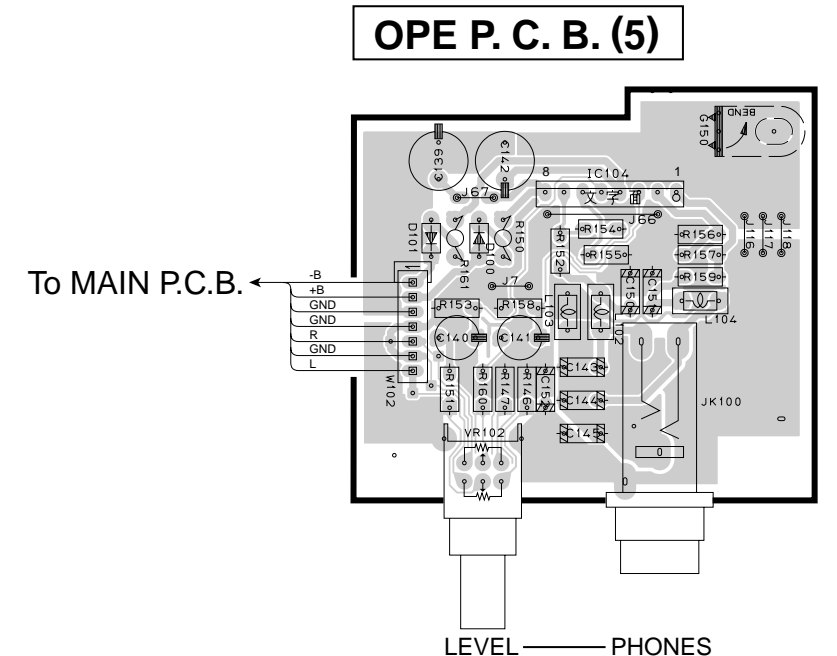
OPE P. C. B. (2)



OPE P. C. B. (4)



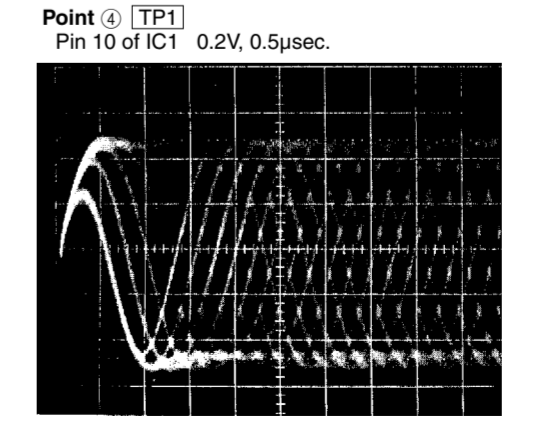
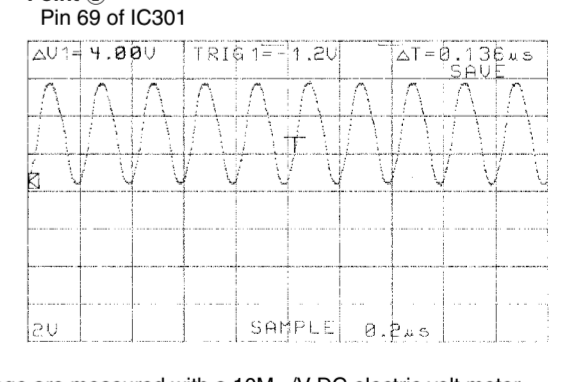
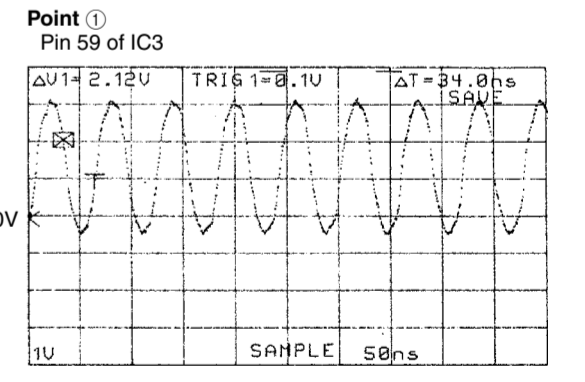
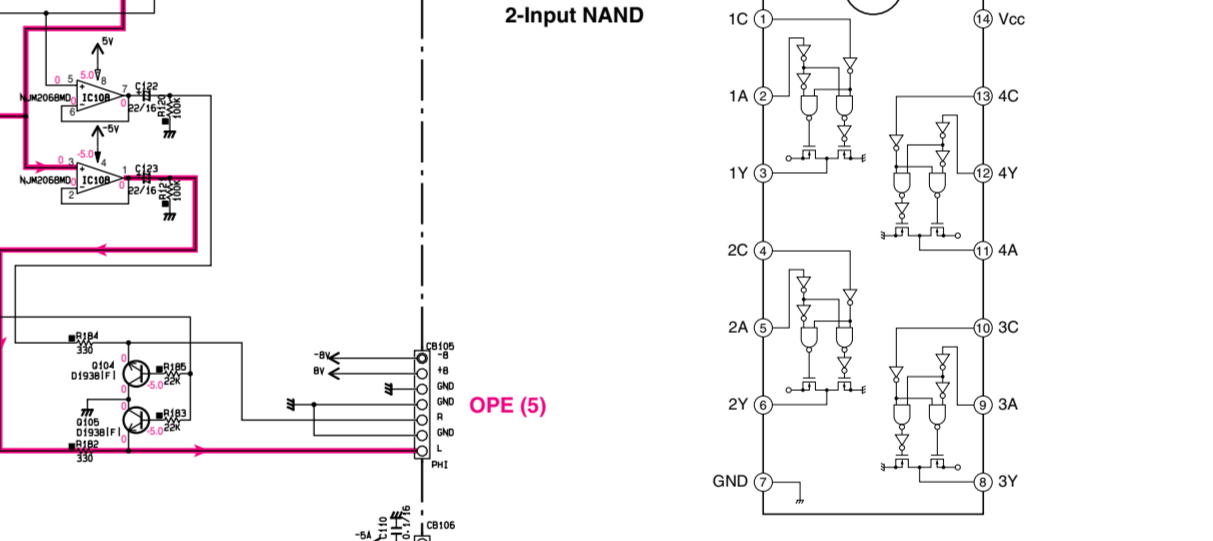
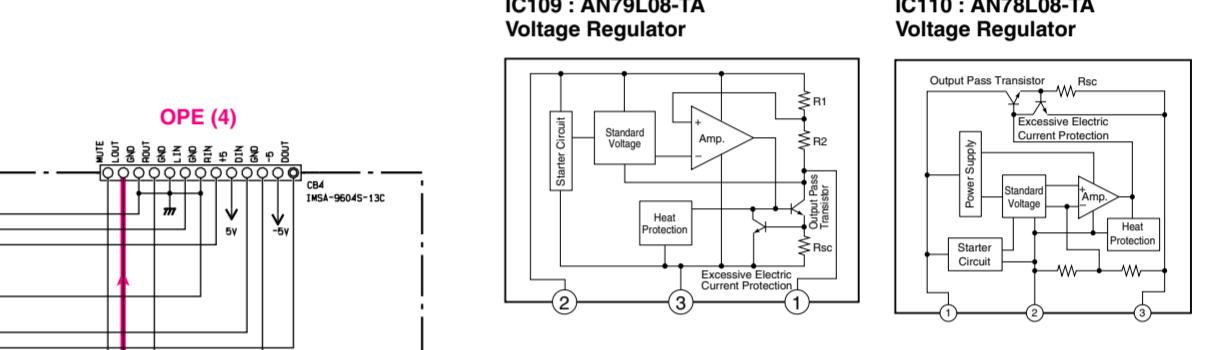
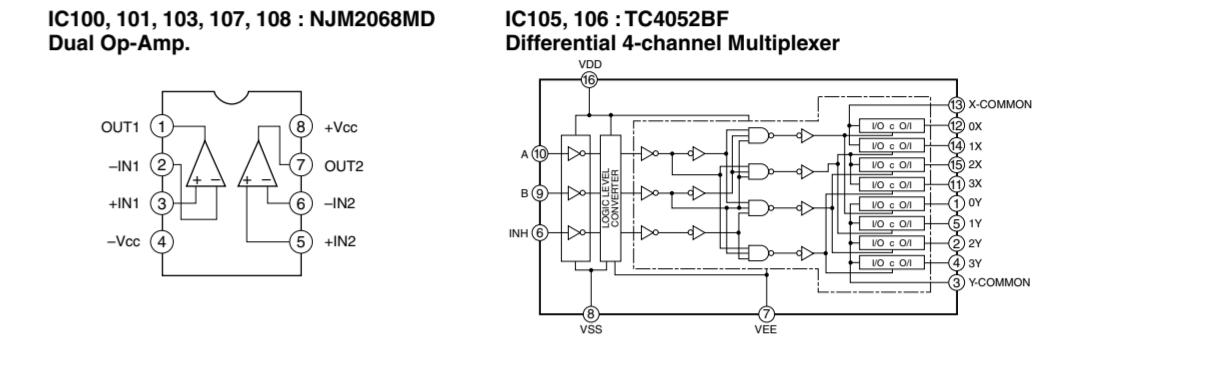
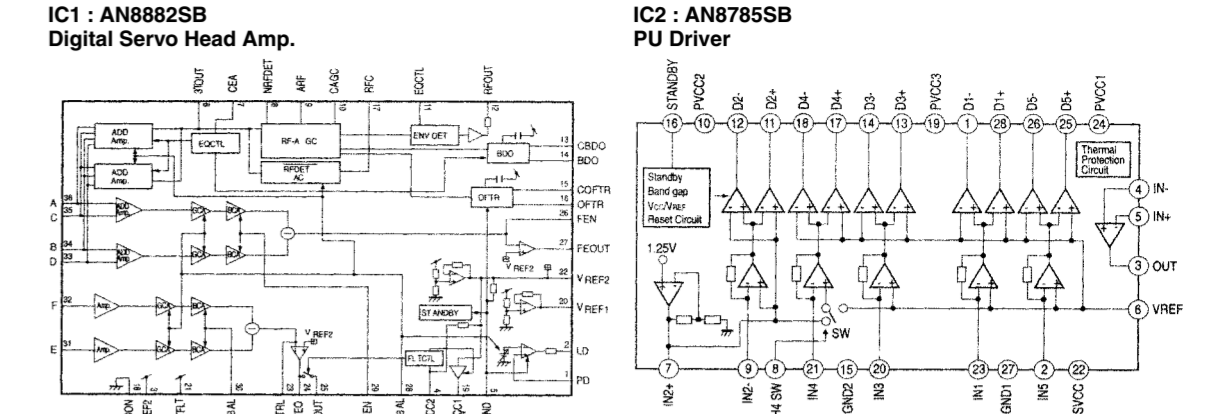
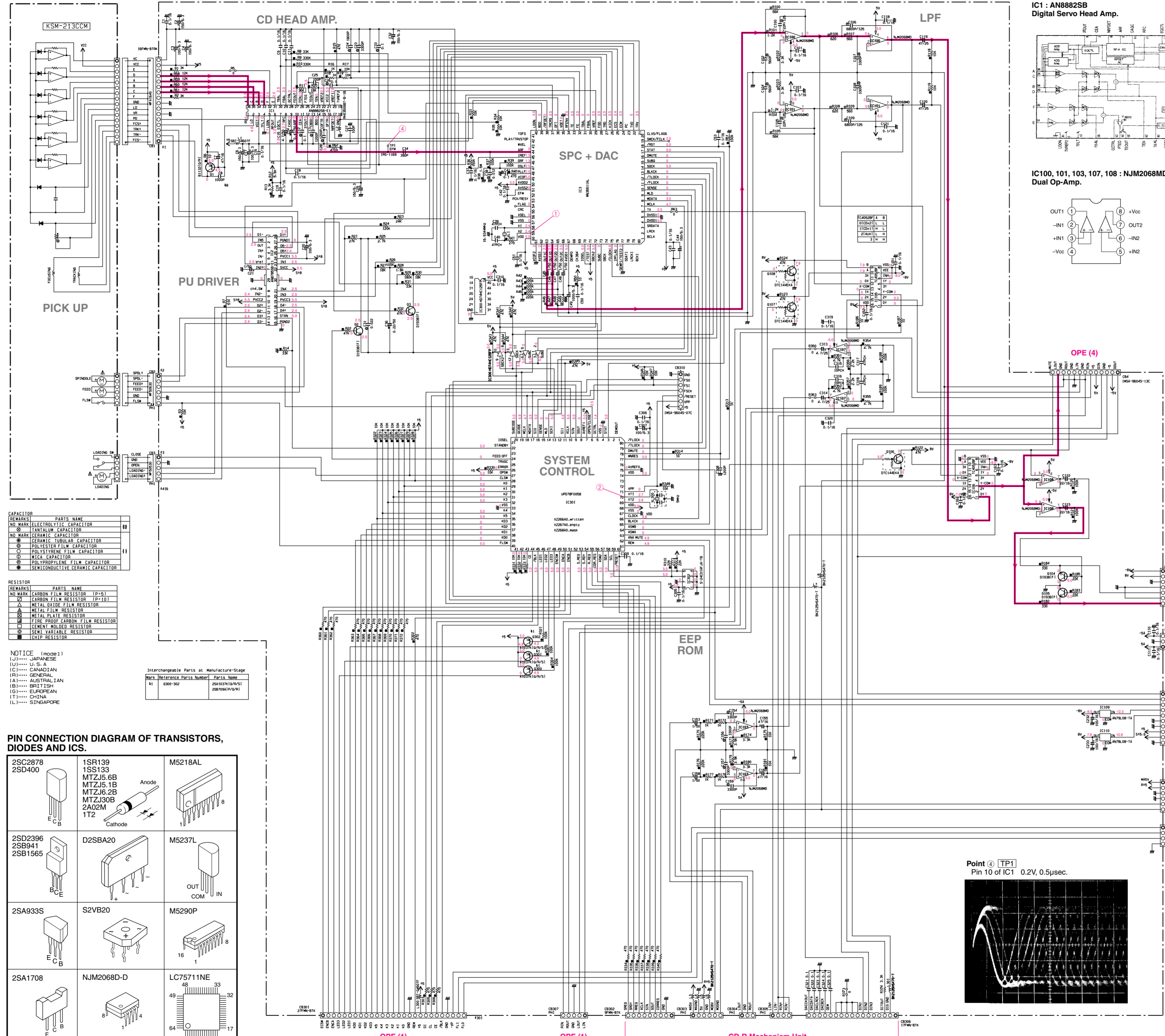
OPE P. C. B. (5)



• Semiconductor Location

Ref. No.	Location	Ref. No.	Location	Ref. No.	Location	Ref. No.	Location
D100	G5	D210	C3	IC201	C4	Q204	B3
D101	G5	D211	D3			Q205	B5
D201	C3	D212	D4	Q100	G3	Q206	A4
D202	C3	D220	D5	Q101	G3	Q207	C3
D204	B4	D222	B5	Q102	H3		
D205	C3	D223	C3	Q103	H3		
D206	B4			Q200	B4		
D207	A3	IC102	I2	Q201	C5		
D208	A4	IC104	H5	Q202	C3		
D209	C3	IC200	C4	Q203	C4		

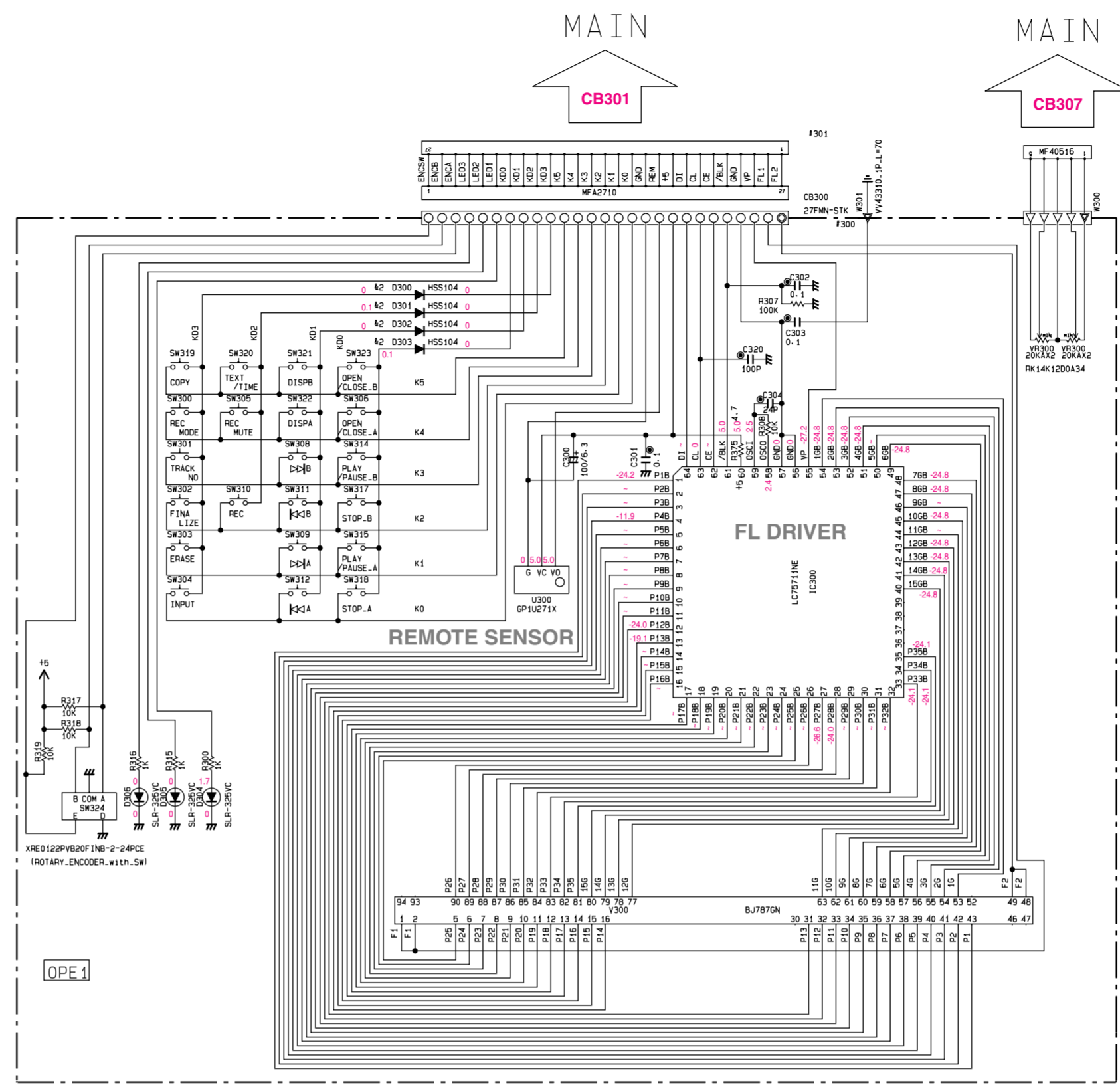
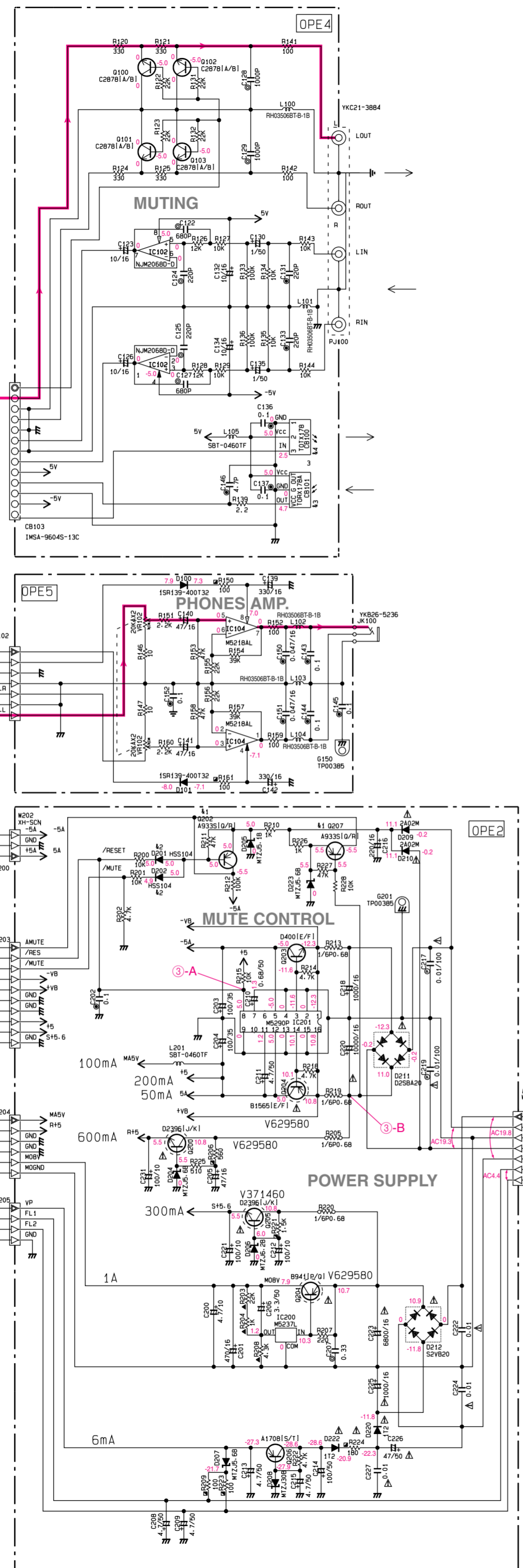
SCHEMATIC DIAGRAM (MAIN)



- ★ All voltage are measured with a 10M Ω DC electric volt meter.
- ★ Components having special characteristics are marked with a triangle symbol and must be replaced with parts having specifications equal to those originally installed.
- ★ Schematic diagram is subject to change without notice.

電圧は、内部抵抗 10M Ω の電圧計で測定したものです。
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本回路図は標準回路図です。改良のため予告なく変更することがございます。

CDR-D651
SCHEMATIC DIAGRAM
(OPERATION)



CAPACITOR

REMARKS	PARTS NAME
NO MARK	ELECTROLYTIC CAPACITOR
⊗	TANTALUM CAPACITOR
NO MARK	CERAMIC CAPACITOR
⊙	CERAMIC TUBULAR CAPACITOR
⊚	POLYESTER FILM CAPACITOR
○	POLYSTYRENE FILM CAPACITOR
⊖	MICA CAPACITOR
⊕	POLYPROPYLENE FILM CAPACITOR
⊙	SEMICONDUCTIVE CERAMIC CAPACITOR

RESISTOR

REMARKS	PARTS NAME
NO MARK	CARBON FILM RESISTOR (P=5)
□	CARBON FILM RESISTOR (P=10)
△	METAL OXIDE FILM RESISTOR
▲	METAL FILM RESISTOR
⊠	METAL PLATE RESISTOR
■	FIRE PROOF CARBON FILM RESISTOR
□	CEMENT MOLDED RESISTOR
⊖	SEMI VARIABLE RESISTOR
■	CHIP RESISTOR

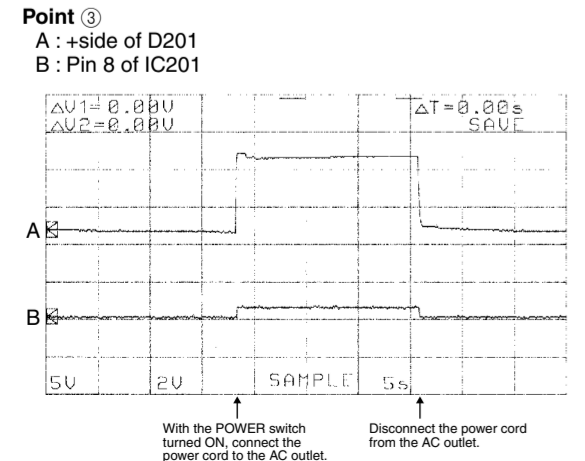
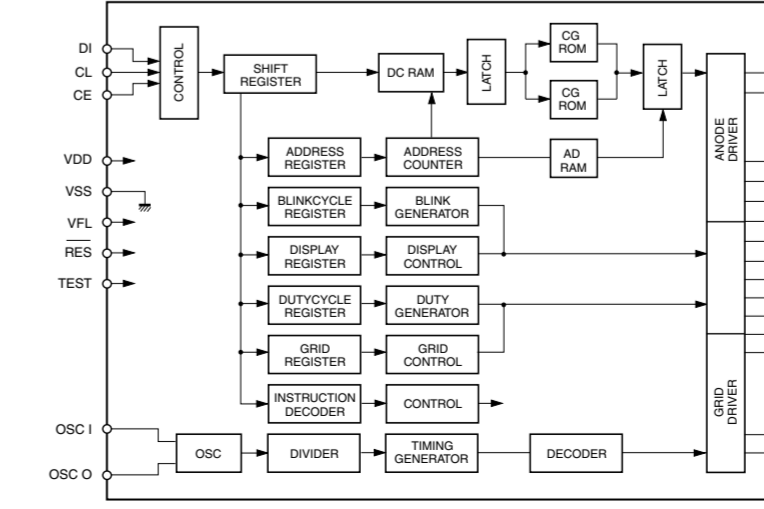
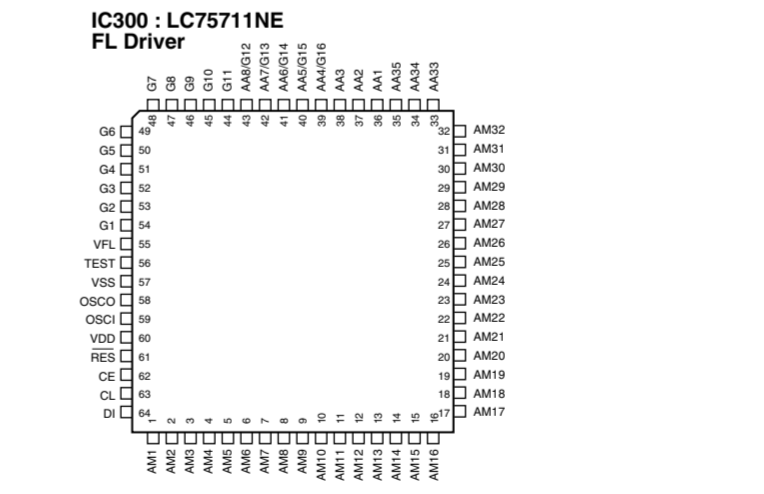
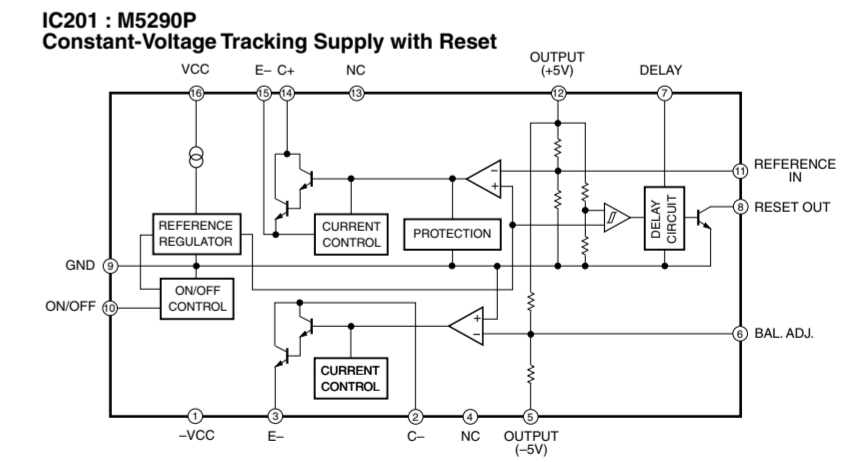
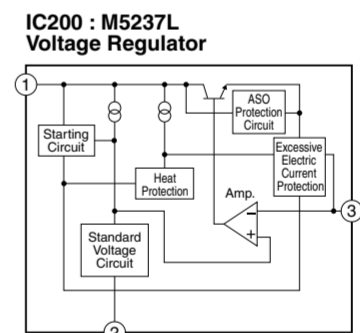
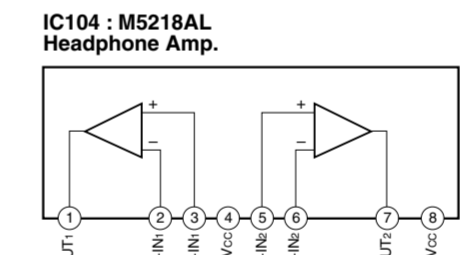
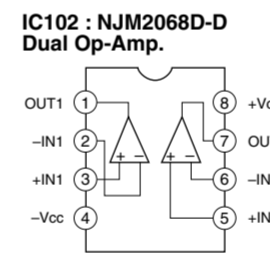
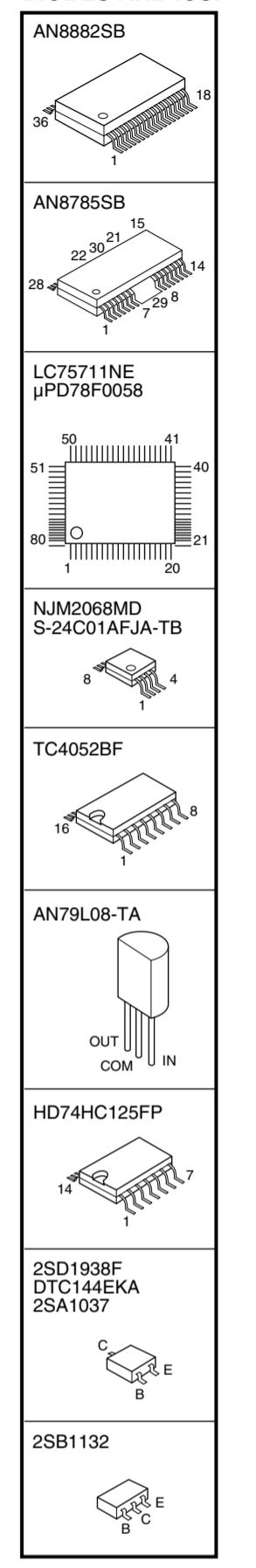
NOTICE (mode1)
 (J)..... JAPANESE
 (U)..... U. S. A
 (C)..... CANADIAN
 (R)..... GENERAL
 (A)..... AUSTRALIAN
 (B)..... BRITISH
 (G)..... EUROPEAN
 (T)..... CHINA
 (L)..... SINGAPORE

Interchangeable Parts at Manufacture-Stage

Mark	Reference Parts Number	Parts Name
K1	Q202-207	2S4933S10/R1 2S411151E/F1 2S41309A10/R/S1
K2	D201-202-300-303	HSS104 HSS133 1SS176
K3	CB101	10R4178A 10R4178B
K4	CB100	10T4178 10T4178A

S	J/UC/A/B/G	R
1		
RE 2	W211	X MH02014
OR 3	W214	X MH03012
YE 4	W213	X MH04014
BE 5	W212	X MH05014
BL 6	W215	X MH00012
7	J104	VN50000 X
B	SW211	X V599350 1V5A-14-11

PIN CONNECTION DIAGRAM OF TRANSISTORS, DIODES AND ICs.



★ All voltage are measured with a 10M Ω DC electric volt meter.
 ★ Components having special characteristics are marked with a triangle and must be replaced with parts having specifications also those originally installed.
 ★ Schematic diagram is subject to change without notice.

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PARTS LIST

■ ELECTRICAL PARTS

■ WARNING

Components having special characteristics are marked \triangle and must be replaced with parts having specifications equal to those originally installed.

- Carbon resistors (1/6W or 1/4W) are not included in the ELECTRICAL PARTS List. For the parts No. of the carbon resistors, refer to last page.

ABBREVIATIONS IN THIS LIST ARE AS FOLLOWS:

C.A.EL.CHP	: CHIP ALUMI.ELECTROLYTIC CAP	L.EMIT	: LIGHT EMITTING MODULE
C.CE	: CERAMIC CAP	LED.DSPLY	: LED DISPLAY
C.CE.ARRAY	: CERAMIC CAP ARRAY	LED.INFRD	: LED,INFRARED
C.CE.CHP	: CHIP CERAMIC CAP	MODUL.RF	: MODULATOR,RF
C.CE.ML	: MULTILAYER CERAMIC CAP	PHOT.CPL	: PHOTO COUPLER
C.CE.M.CHP	: CHIP MULTILAYER CERAMIC CAP	PHOT.INTR	: PHOTO INTERRUPTER
C.CE.SAFETY	: RECOGNIZED CERAMIC CAP	PHOT.RFLCT	: PHOTO REFLECTOR
C.CE.TUBLR	: CERAMIC TUBULAR CAP	PIN.TEST	: PIN,TEST POINT
C.CE.SMI	: SEMI CONDUCTIVE CERAMIC CAP	PLST.RIVET	: PLASTIC RIVET
C.EL	: ELECTROLYTIC CAP	R.ARRAY	: RESISTOR ARRAY
C.MICA	: MICA CAP	R.CAR.	: CARBON RESISTOR
C.ML.FLM	: MULTILAYER FILM CAP	R.CAR.CHP	: CHIPRESISTOR
C.MP	: METALLIZED PAPER CAP	R.CAR.FP	: FLAME PROOF CARBON RESISTOR
C.MYLAR	: MYLAR FILM CAP	R.FUS	: FUSABLE RESISTOR
C.MYLAR.ML	: MULTILAYER MYLAR FILM CAP	R.MTL.CHP	: CHIP METAL FILM RESISTOR
C.PAPER	: PAPER CAPACITOR	R.MTL.FLM	: METAL FILM RESISTOR
C.PLS	: POLYSTYRENE FILM CAP	R.MTL.OXD	: METAL OXIDE FILM RESISTOR
C.POL	: POLYESTER FILM CAP	R.MTL.PLAT	: METAL PLATE RESISTOR
C.POLY	: POLYETHYLENE FILM CAP	RSNR.CE	: CERAMIC RESONATOR
C.PP	: POLYPROPYLENE FILM CAP	RSNR.CRYS	: CRYSTAL RESONATOR
C.TNTL	: TANTALUM CAP	R.TW.CEM	: TWIN CEMENT FIXED RESISTOR
C.TNTL.CHP	: CHIP TANTALUM CAP	R.WW	: WIRE WOUND RESISTOR
C.TRIM	: TRIMMER CAP	SCR.BND.HD	: BIND HEAD B-TITE SCREW
CN	: CONNECTOR	SCR.BW.HD	: BW HEAD TAPPING SCREW
CN.BS.PIN	: CONNECTOR,BASE PIN	SCR.CUP	: CUP TITE SCREW
CN.CANNON	: CONNECTOR,CANNON	SCR.TERM	: SCREW TERMINAL
CN.DIN	: CONNECTOR,DIN	SCR.TR	: SCREW,TRANSISTOR
CN.FLAT	: CONNECTOR,FLAT CABLE	SUPRT.PCB	: SUPPORT,P.C.B.
CN.POST	: CONNECTOR,BASE POST	SURG.PRTCT	: SURGE PROTECTOR
COIL.MX.AM	: COIL,AM MIX	SW.TACT	: TACT SWITCH
COIL.AT.FM	: COIL,FM ANTENNA	SW.LEAF	: LEAF SWITCH
COIL.DT.FM	: COIL,FM DETECT	SW.LEVER	: LEVER SWITCH
COIL.MX.FM	: COIL,FM MIX	SW.MICRO	: MICRO SWITCH
COIL.OUTPT	: OUTPUT COIL	SW.PUSH	: PUSH SWITCH
DIOD.ARRAY	: DIODE ARRAY	SW.RT.ENC	: ROTARY ENCODER
DIODE.BRG	: DIODE BRIDGE	SW.RT.MTR	: ROTARY SWITCH WITH MOTOR
DIODE.CHP	: CHIP DIODE	SW.RT	: ROTARY SWITCH
DIODE.VAR	: VARACTOR DIODE	SW.SLIDE	: SLIDE SWITCH
DIOD.Z.CHP	: CHIP ZENER DIODE	TERM.SP	: SPEAKER TERMINAL
DIODE.ZENR	: ZENER DIODE	TERM.WRAP	: WRAPPING TERMINAL
DSCR.CE	: CERAMIC DISCRIMINATOR	THRMST.CHP	: CHIP THERMISTOR
FER.BEAD	: FERRITE BEADS	TR.CHP	: CHIP TRANSISTOR
FER.CORE	: FERRITE CORE	TR.DGT	: DIGITAL TRANSISTOR
FET.CHP	: CHIP FET	TR.DGT.CHP	: CHIP DIGITAL TRANSISTOR
FL.DSPLY	: FLUORESCENT DISPLAY	TRANS	: TRANSFORMER
FLTR.CE	: CERAMIC FILTER	TRANS.PULS	: PULSE TRANSFORMER
FLTR.COMB	: COMB FILTER MODULE	TRANS.PWR	: POWER TRANSFORMER ASS'Y
FLTR.LC.RF	: LC FILTER,EMI	TUNER.AM	: TUNER PACK,AM
GND.MTL	: GROUND PLATE	TUNER.FM	: TUNER PACK,FM
GND.TERM	: GROUND TERMINAL	TUNER.PK	: FRONT-ENDTUNER PACK
HOLDER.FUS	: FUSE HOLDER	VR	: ROTARY POTENTIOMETER
IC.PRTCT	: IC PROTECTOR	VR.MTR	: POTENTIOMETER WITH MOTOR
JUMPER.CN	: JUMPER CONNECTOR	VR.SW	: POTENTIOMETER WITH ROTARY SW
JUMPER.TST	: JUMPER,TEST POINT	VR.SLIDE	: SLIDE POTENTIOMETER
L.DTCT	: LIGHT DETECTING MODULE	VR.TRIM	: TRIMMER POTENTIOMETER

Note) Those parts marked with “#” are not included in the P.C.B. ass'y.

P. C. B. OPERATION

Schm Ref.	PART NO.	Description
	V6439500	P. C. B. OPERATION(UCABG)
	V6439600	P. C. B. OPERATION(R)
CB100	VT707200	L. EMIT TOTX178
CB101	VT620100	L. DTCT TORX178A
CB103	VU271300	CN 13P
CB200	VB858600	CN.BS.PIN 7P
CB201	VP245600	CN 2P
CB202	VP245600	CN 2P
CB300	V6313500	27P SE
C122	UA952680	C. MYLAR 680pF 50V
C123	UR837100	C. EL 10uF 16V
C124	UA952220	C. MYLAR 220pF 50V
C125	UA952220	C. MYLAR 220pF 50V
C126	UR837100	C. EL 10uF 16V
C127	UA952680	C. MYLAR 680pF 50V
C128	UA953100	C. MYLAR 1000pF 50V
C129	UA953100	C. MYLAR 1000pF 50V
C130	UR866100	C. EL 1uF 50V
C131	VG278400	C. CE. TUBLR 220pF 50V
C132	UR837100	C. EL 10uF 16V
C133	VG278400	C. CE. TUBLR 220pF 50V
C134	UR837100	C. EL 10uF 16V
C135	UR866100	C. EL 1uF 50V
C136	VJ599100	C. CE. TUBLR 0.1uF 50V
C137	VJ599100	C. CE. TUBLR 0.1uF 50V
C139	UR838330	C. EL 330uF 16V
C140	UR837470	C. EL 47uF 16V
C141	UR837470	C. EL 47uF 16V
C142	UR838330	C. EL 330uF 16V
C143	VJ599100	C. CE. TUBLR 0.1uF 50V
C144	VJ599100	C. CE. TUBLR 0.1uF 50V
C145	VJ599100	C. CE. TUBLR 0.1uF 50V
C146	VG274700	C. CE. TUBLR 4.7pF 50V
C150	VJ599000	C. CE. TUBLR 0.047uF 16V
C151	VJ599000	C. CE. TUBLR 0.047uF 16V
C152	VJ599100	C. CE. TUBLR 0.1uF 50V
C200	V3694000	4.7uF 10V
C201	UR838470	C. EL 470uF 16V
C202	VJ599100	C. CE. TUBLR 0.1uF 50V
C203	VN011900	C. EL 100uF 35V
C204	VN011900	C. EL 100uF 35V
C205	UR837470	C. EL 47uF 16V
C206	UR866330	C. EL 3.3uF 50V
C207	VR169000	C. MYLAR.ML ECQ-V1H334JL3
C208	UR866470	C. EL 4.7uF 50V
C209	UR866470	C. EL 4.7uF 50V
C210	UR865680	C. EL 0.68uF 50V
C211	UR866470	C. EL 4.7uF 50V
C212	UR828100	C. EL 100uF 10V
C213	UR866470	C. EL 4.7uF 50V
C214	UR868100	C. EL 100uF 50V
C215	UR866470	C. EL 4.7uF 50V
C216	UR838220	C. EL 220uF 16V
C217	VK534100	C. PP 0.01uF 100V
C218	VN137400	C. EL 1000uF 16V
C219	VK534100	C. PP 0.01uF 100V
C220	UR73A100	C. EL 10000uF 16V
C221	UR828100	C. EL 100uF 10V
C222	FG644100	C. CE 0.01uF 50V
C223	UR739680	C. EL 6800uF 16V
C224	FG644100	C. CE 0.01uF 50V
C225	UR839100	C. EL 1000uF 16V
C226	UR867470	C. EL 47uF 50V

* New Parts

Schm Ref.	PART NO.	Description
C227	FG644100	C. CE 0.01uF 50V
C228	VS741700	C. CE. SAFTY 0.01uF 275V
C229	VS741700	C. CE. SAFTY 0.01uF 275V
C230	VS741700	C. CE. SAFTY 0.01uF 275V
C231	UR828100	C. EL 100uF 10V
C300	UM388100	C. EL 100uF 10V
C301	VJ599100	C. CE. TUBLR 0.1uF 50V
C302	VJ599100	C. CE. TUBLR 0.1uF 50V
C303	VJ599100	C. CE. TUBLR 0.1uF 50V
C304	VG276700	C. CE. TUBLR 24pF 50V
C320	VF466800	C. CE. TUBLR 100pF 50V
D100	VU264100	D1ODE 1SR139-400
D101	VU264100	D1ODE 1SR139-400
D201	VD631600	D1ODE 1SS133,176
D202	VD631600	D1ODE 1SS133,176
D204	VG437700	D1ODE.ZENR MTZJ5.6B 5.6V
D205	VG437400	D1ODE.ZENR MTZJ5.1B 5.1V
D206	VG438000	D1ODE.ZENR MTZJ6.2B 6.2V
D207	VG437700	D1ODE.ZENR MTZJ5.6B 5.6V
D208	VG443300	D1ODE.ZENR MTZJ30B 30V
D209	VV731400	D1ODE 2A02M
D210	VV731400	D1ODE 2A02M
D211	V4269600	D1ODE.BRG D2SBA20 1.5A 200V
D212	iH001120	D1ODE.BRG S2VB20 2.0A 200V
D220	VS997800	D1ODE 1T2
D222	VS997800	D1ODE 1T2
D223	VG437700	D1ODE.ZENR MTZJ5.6B 5.6V
D300	VD631600	D1ODE 1SS133,176
D301	VD631600	D1ODE 1SS133,176
D302	VD631600	D1ODE 1SS133,176
D303	VD631600	D1ODE 1SS133,176
D304	VS132300	LED(re) SLR-325VCT31
D305	VS132300	LED(re) SLR-325VCT31
D306	VS132300	LED(re) SLR-325VCT31
G150	VR463400	TERM.GND D3.5 TP00385
G201	VR463400	TERM.GND D3.5 TP00385
HS1	V6295800	HEAT.SINK PUH26-30
HS2	V6295800	HEAT.SINK PUH26-30
HS3	V6295800	HEAT.SINK PUH26-30
HS4	V3714600	HEAT.SINK PUG26-25 GX-500ML
IC102	XA987A00	IC NJM2068D-D
IC104	XH471A00	IC M5218AL
IC200	XQ667A00	IC M5237L
IC201	XD201A00	IC M5290P
IC300	XV633A00	IC LC75711NE FLD
JK100	V5129000	JACK.PHONE YKB26-5236
L100	V4769500	FER.BEAD RH03506BT-B-1B
L101	V4769500	FER.BEAD RH03506BT-B-1B
L102	V4769500	FER.BEAD RH03506BT-B-1B
L103	V4769500	FER.BEAD RH03506BT-B-1B
L104	V4769500	FER.BEAD RH03506BT-B-1B
L105	VD473700	COIL 60uH
L200	VV900900	FLTR 3071-012-0
L201	VD473700	COIL 60uH
L203	Vi491100	FER.CORE BP53RB19012080M
L204	Vi491100	FER.CORE BP53RB19012080M
L205	Vi491100	FER.CORE BP53RB19012080M
L206	Vi491100	FER.CORE BP53RB19012080M
PJ100	V3007700	JACK.PIN 4P
PN101	V3750100	PIN L=50
PN201	V3750100	PIN L=50
PN202	V3750100	PIN L=50
PN203	V3750100	PIN L=50

* New Parts

P. C. B. OPERATION & P. C. B. MAIN

Schm Ref.	PART NO.	Description	
Q100	iC287820	TR	2SC2878 A,B
Q101	iC287820	TR	2SC2878 A,B
Q102	iC287820	TR	2SC2878 A,B
Q103	iC287820	TR	2SC2878 A,B
⚠ Q200	VR510800	TR	2SD2396 J,K
⚠ Q201	VC141900	TR	2SB941 P,Q
Q202	iA093320	TR	2SA933S Q,R
Q203	iD040040	TR	2SD400
⚠ Q204	VS883300	TR	2SB1565 E,F
⚠ Q205	VR510800	TR	2SD2396 J,K
Q206	VP872600	TR	2SA1708 S,T
Q207	iA093320	TR	2SA933S Q,R
R150	HV755100	R. CAR. FP	100 1/4W
R161	HV755100	R. CAR. FP	100 1/4W
* R203	VP442200	R. MTL. FLM	22K 1/4 F
R204	VP439000	R. MTL. FLM	1K 1/4W
R205	Vi868300	R. FUS	0.68 1/6W
R206	HV755560	R. CAR. FP	560 1/4W
* R208	VP440500	R. MTL. FLM	4.3K 1/4W F
R209	HV755100	R. CAR. FP	100 1/4W
R213	Vi868300	R. FUS	0.68 1/6W
⚠ R219	Vi868300	R. FUS	0.68 1/6W
R220	Vi868300	R. FUS	0.68 1/6W
R221	HV756150	R. CAR. FP	1.5K 1/4W
R223	HV755100	R. CAR. FP	100 1/4W
⚠ R224	HV755180	R. CAR. FP	180 1/4W
ST101	V4040500	SCR. TERM	M3
* SW200	VZ364100	SW. PUSH	SDDL1-A2-F-1
* SW211	V5993500	VOLT. SELCT	VSA-14-1(R)
SW300	VG392900	SW. TACT	SKHVAA
SW301	VG392900	SW. TACT	SKHVAA
SW302	VG392900	SW. TACT	SKHVAA
SW303	VG392900	SW. TACT	SKHVAA
SW304	VG392900	SW. TACT	SKHVAA
SW305	VG392900	SW. TACT	SKHVAA
SW306	VG392900	SW. TACT	SKHVAA
SW308	VG392900	SW. TACT	SKHVAA
SW309	VG392900	SW. TACT	SKHVAA
SW310	VG392900	SW. TACT	SKHVAA
SW311	VG392900	SW. TACT	SKHVAA
SW312	VG392900	SW. TACT	SKHVAA
SW314	VG392900	SW. TACT	SKHVAA
SW315	VG392900	SW. TACT	SKHVAA
SW317	VG392900	SW. TACT	SKHVAA
SW318	VG392900	SW. TACT	SKHVAA
SW319	VG392900	SW. TACT	SKHVAA
SW320	VG392900	SW. TACT	SKHVAA
SW321	VG392900	SW. TACT	SKHVAA
SW322	VG392900	SW. TACT	SKHVAA
SW323	VG392900	SW. TACT	SKHVAA
* SW324	V6091700	SW. RT. ENC	XRE0122PVB25FINB-2
* ⚠ TH200	V6265200		RUE110 1.1A 30V
* ⚠ TH203	V6265200		RUE110 1.1A 30V
U300	VU591000	L. DTCT	GP1U271X
* V300	V6132600	FL. DSPLY	BJ787GN
* VR102	V6677100	VR	A 20.0K RK09L12B0
* VR300	V6466800	VR	A 5.0K RK14K12D0

* New Parts

Schm Ref.	PART NO.	Description	
*	V6439900	P. C. B.	MAIN
CB1	V2731000	CN. FMN	16P
CB2	VB390200	CN. BS. PIN	6P
CB3	VB390100	CN. BS. PIN	5P
CB4	VU271300	CN	13P
CB5	VB390600	CN. BS. PIN	10P
CB6	VB390200	CN. BS. PIN	6P
CB7	VB390000	CN. BS. PIN	4P
CB105	VB390300	CN. BS. PIN	7P
CB106	VL844700	CN. BS. PIN	3P
* CB301	V6313400	CN. FMN	27P TE
* CB302	V6313200	CN. FMN	9P TE
CB303	VB390200	CN. BS. PIN	6P
CB304	VB389900	CN. BS. PIN	3P
CB305	VB390000	CN. BS. PIN	4P
* CB306	V6313300	CN. FMN	17P TE
CB307	VB390100	CN. BS. PIN	5P
* CB310	VU270700	CN	7P 9604S
* C1	US035100	C. CE. M. CHP	0.1uF 16V
C2	V4749000	C. EL	150uF 6.3V
C3	UR818100	C. EL	100uF 6.3V
C4	UR818100	C. EL	100uF 6.3V
C6	V4749000	C. EL	150uF 6.3V
C7	UR837470	C. EL	47uF 16V
* C8	US063100	C. CE. M. CHP	1000pF 50V
* C9	US035100	C. CE. M. CHP	0.1uF 16V
* C10	US035100	C. CE. M. CHP	0.1uF 16V
* C11	US035100	C. CE. M. CHP	0.1uF 16V
C12	UA655100	C. MYLAR	0.1uF 50V
C13	UA953120	C. MYLAR	1200pF 50V
C14	UN865470	C. EL	0.47uF 50V
C15	UN866470	C. EL	4.7uF 50V
* C16	US035100	C. CE. M. CHP	0.1uF 16V
C17	UR818100	C. EL	100uF 6.3V
* C18	US035100	C. CE. M. CHP	0.1uF 16V
* C19	US035100	C. CE. M. CHP	0.1uF 16V
C20	UR818100	C. EL	100uF 6.3V
C21	UR866100	C. EL	1uF 50V
C23	UA953330	C. MYLAR	3300pF 50V
C24	UA953180	C. MYLAR	1800pF 50V
* C25	US062100	C. CE. M. CHP	100pF 50V
C26	UA655100	C. MYLAR	0.1uF 50V
* C27	US062100	C. CE. M. CHP	100pF 50V
C28	UA953120	C. MYLAR	1200pF 50V
C29	V4749000	C. EL	150uF 6.3V
C31	UA654220	C. MYLAR	0.022uF 50V
C32	V4749000	C. EL	150uF 6.3V
C33	UA655100	C. MYLAR	0.1uF 50V
* C34	US062390	C. CE. M. CHP	390P 50V
C36	UN865220	C. EL	0.22uF 50V
* C37	US035100	C. CE. M. CHP	0.1uF 16V
C38	UA954120	C. MYLAR	0.012uF 50V
* C39	US061470	C. CE. M. CHP	47pF 50V
* C40	US061470	C. CE. M. CHP	47pF 50V
C41	UA655100	C. MYLAR	0.1uF 50V
* C42	US035100	C. CE. M. CHP	0.1uF 16V
* C43	US035100	C. CE. M. CHP	0.1uF 16V
C44	V4749000	C. EL	150uF 6.3V
C45	VG290500	C. EL	1uF 50V
C46	VG290500	C. EL	1uF 50V
C47	VG290500	C. EL	1uF 50V
C48	VG290500	C. EL	1uF 50V
C49	UR819100	C. EL	1000uF 6.3V

* New Parts

P. C. B. MAIN

Schm Ref.	PART NO.	Description		
* C50	US035100	C. CE. M. CHP	0.1uF	16V
* C51	US035100	C. CE. M. CHP	0.1uF	16V
* C53	US035100	C. CE. M. CHP	0.1uF	16V
* C100	V6673200	C. PP	22P	125V
* C101	US035100	C. CE. M. CHP	0.1uF	16V
* C102	V4850700	C. MYLAR	560pF	50V
* C103	US035100	C. CE. M. CHP	0.1uF	16V
* C104	V4850700	C. MYLAR	560pF	50V
* C105	V6673200	C. PP	22P	125V
* C106	V6673300	C. PP	6800P	125V
* C107	V2680700	C. MYLAR	3300pF	50V
* C108	V2680700	C. MYLAR	3300pF	50V
* C109	V6673300	C. PP	6800P	125V
* C110	US035100	C. CE. M. CHP	0.1uF	16V
* C111	US035100	C. CE. M. CHP	0.1uF	16V
* C118	US035100	C. CE. M. CHP	0.1uF	16V
* C119	VQ562000	C. EL	47uF	25V
* C120	VQ562000	C. EL	47uF	25V
* C121	US035100	C. CE. M. CHP	0.1uF	16V
* C122	UR837220	C. EL	22uF	25V
* C123	UR837220	C. EL	22uF	25V
* C151	US035100	C. CE. M. CHP	0.1uF	16V
* C152	US035100	C. CE. M. CHP	0.1uF	16V
* C153	VG290500	C. EL	1uF	50V
* C154	UA953330	C. MYLAR	3300pF	50V
* C155	VG287500	C. EL	47uF	16V
* C156	UA953330	C. MYLAR	3300pF	50V
* C157	UA953330	C. MYLAR	3300pF	50V
* C158	VG290500	C. EL	1uF	50V
* C159	UA953330	C. MYLAR	3300pF	50V
* C160	VG287500	C. EL	47uF	16V
* C162	US035100	C. CE. M. CHP	0.1uF	16V
* C163	US035100	C. CE. M. CHP	0.1uF	16V
* C232	UR838100	C. EL	100uF	16V
* C233	UR838100	C. EL	100uF	16V
* C305	US035100	C. CE. M. CHP	0.1uF	16V
* C306	US035100	C. CE. M. CHP	0.1uF	16V
* C307	UR818100	C. EL	100uF	6.3V
* C308	US163120	C. CE. CHP	1200pF	50V
* C309	US035100	C. CE. M. CHP	0.1uF	16V
* C310	US035100	C. CE. M. CHP	0.1uF	16V
* C313	UR846470	C. EL	4.7uF	25V
* C314	UR846470	C. EL	4.7uF	25V
* C315	US061100	C. CE. M. CHP	10pF	50V
* C316	US061100	C. CE. M. CHP	10pF	50V
* C317	US061470	C. CE. M. CHP	47pF	50V
* C318	US061470	C. CE. M. CHP	47pF	50V
* C319	US035100	C. CE. M. CHP	0.1uF	16V
* C320	US035100	C. CE. M. CHP	0.1uF	16V
* C321	US035100	C. CE. M. CHP	0.1uF	16V
* C322	US035100	C. CE. M. CHP	0.1uF	16V
* C323	US035100	C. CE. M. CHP	0.1uF	16V
* C324	US035100	C. CE. M. CHP	0.1uF	16V
* C325	US035100	C. CE. M. CHP	0.1uF	16V
* IC1	XZ371A00	IC	AN8882SB-E1	
* IC2	XZ370A00	IC	AN8785SB-E1 DRIVER	
* IC3	XW915A00	IC	MN35511AL	
* IC100	XJ553A00	IC	NJM2068MD	
* IC101	XJ553A00	IC	NJM2068MD	
* IC103	XJ553A00	IC	NJM2068MD	
* IC105	XG903A00	IC	TC4052BF MPX	
* IC106	XG903A00	IC	TC4052BF MPX	
* IC107	XJ553A00	IC	NJM2068MD	

* New Parts

Schm Ref.	PART NO.	Description		
* IC108	XJ553A00	IC	NJM2068MD	
* IC109	XZ484A00	IC	AN79L08-TA 8V	
* IC110	XZ483A00	IC	AN78L08-TA 8V	
* IC300	XU529A00	IC	HD74HC125FP 3STATE	
* IC301	XZ266A00	IC	CPU	
* IC302	XZ364A00	IC	S-24C01AFJA-TB	
* L1	VD473700	COIL	60uH	
* L2	V4769500	FER. BEAD	RH03506BT-B-1B	
* L3	VZ250100	COIL. CHP	BK2125HS470-T	
* L4	VZ250100	COIL. CHP	BK2125HS470-T	
* L5	VZ250100	COIL. CHP	BK2125HS470-T	
* L6	VZ250100	COIL. CHP	BK2125HS470-T	
* L7	VZ250100	COIL. CHP	BK2125HS470-T	
* L8	VZ250100	COIL. CHP	BK2125HS470-T	
* L300	VD473700	COIL	60uH	
* L301	VZ250100	COIL. CHP	BK2125HS470-T	
* PN30	V3750100	PIN	L=50	
* Q1	VR810000	TR	2SB1132 Q,R	
* Q2	VZ725900	TR	2SD1938F S,T	
* Q3	VZ725900	TR	2SD1938F S,T	
* Q104	VZ725900	TR	2SD1938F S,T	
* Q105	VZ725900	TR	2SD1938F S,T	
* Q106	VV655700	TR. DGT	DTC144EKA	
* Q107	VV655700	TR. DGT	DTC144EKA	
* Q108	VV655700	TR. DGT	DTC144EKA	
* Q300	iA103700	TR. CHP	2SA1037 Q,R,S	
* Q301	iA103700	TR. CHP	2SA1037 Q,R,S	
* Q302	iA103700	TR. CHP	2SA1037 Q,R,S	
* R8	RD357330	R. MTL. CHP	33K 1/10W	
* R14	RD357330	R. MTL. CHP	33K 1/10W	
* R31	RD357330	R. MTL. CHP	33K 1/10W	
* TP1	VE340300	PIN. TEST	IRS-1169	
* XL1	VJ719800	RSNR. CRYST	16.9344MHz	
* XL300	VU763600	RSNR. CE	5MHz	

* New Parts

■ CHIP RESISTORS

Schm Ref.	PART NO.	Description		
*	RD350000	R . CAR . CHP	0	1/10W
*	RD354100	R . CAR . CHP	10	1/10W
*	RD355270	R . CAR . CHP	270	1/10W
*	RD355330	R . CAR . CHP	330	1/10W
*	RD355470	R . CAR . CHP	470	1/10W
*	RD356100	R . CAR . CHP	1K	1/10W
*	RD356180	R . CAR . CHP	1 .8K	1/10W
*	RD356220	R . CAR . CHP	2 .2K	1/10W
*	RD356270	R . CAR . CHP	2 .7K	1/10W
*	RD356300	R . CAR . CHP	3K	1/10W
*	RD356330	R . CAR . CHP	3 .3K	1/10W
*	RD356390	R . CAR . CHP	3 .9K	1/10W
*	RD356470	R . CAR . CHP	4 .7K	1/10W
*	RD356560	R . CAR . CHP	5 .6K	1/10W
*	RD357100	R . CAR . CHP	10K	1/10W
*	RD357120	R . CAR . CHP	12K	1/10W
*	RD357180	R . CAR . CHP	18K	1/10W
*	RD357220	R . CAR . CHP	22K	1/10W
*	RD357240	R . CAR . CHP	24K	1/10W
*	RD357270	R . CAR . CHP	27K	1/10W
*	RD357360	R . CAR . CHP	36K	1/10W
*	RD357470	R . CAR . CHP	47K	1/10W
*	RD357510	R . CAR . CHP	51K	1/10W
*	RD358100	R . CAR . CHP	100K	1/10W
*	RD358120	R . CAR . CHP	120K	1/10W
*	RD358150	R . CAR . CHP	150K	1/10W
*	RD358180	R . CAR . CHP	180K	1/10W
*	RD358220	R . CAR . CHP	220K	1/10W
*	RD358330	R . CAR . CHP	330K	1/16W
*	RD358470	R . CAR . CHP	470K	1/10W
*	RD359150	R . CAR . CHP	1 .5M	1/10W

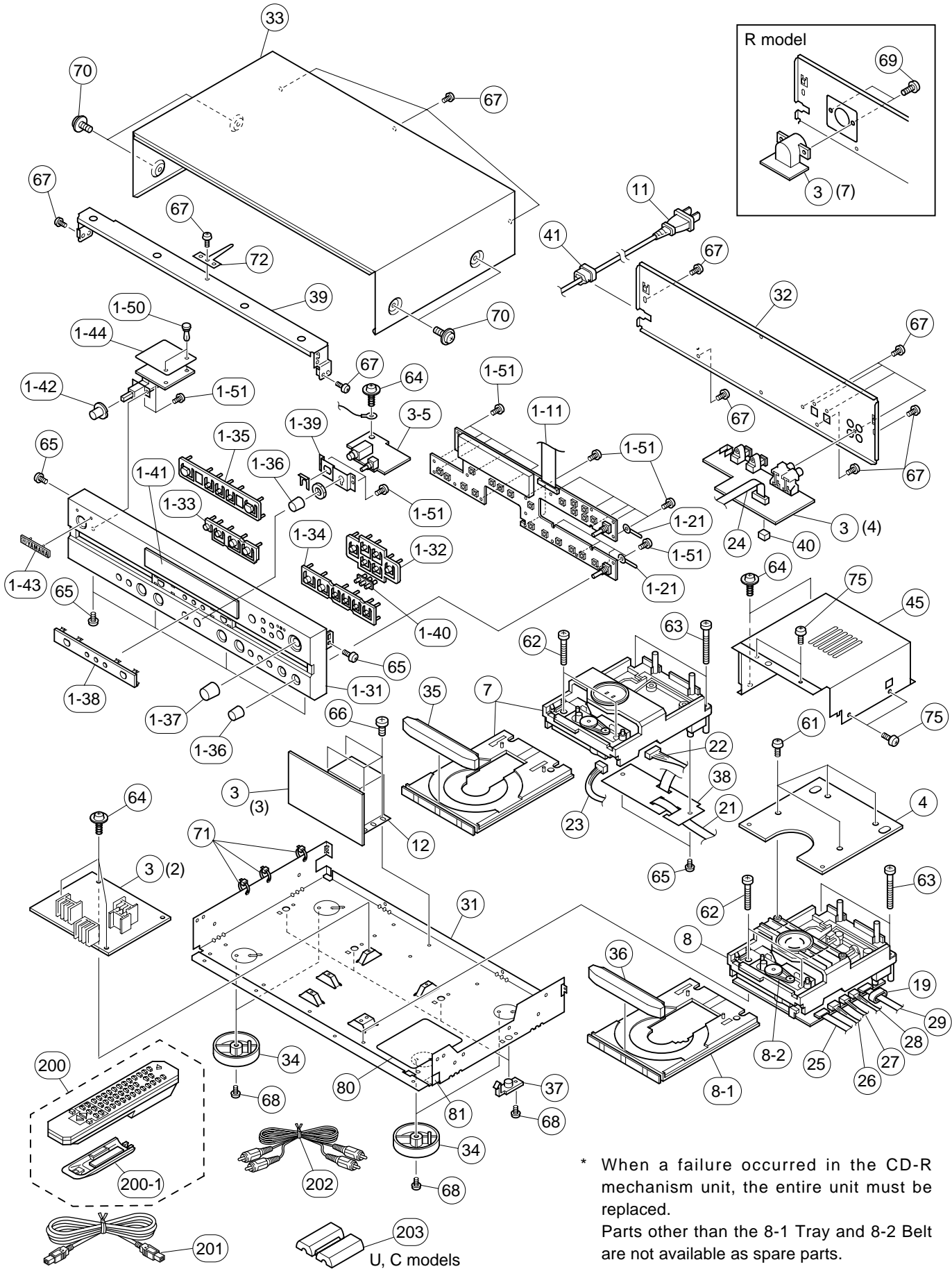
* New Parts

Schm Ref.	PART NO.	Description		
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* New Parts

1
2
3
4
5
6
7

EXPLODED VIEW



U, C models

* When a failure occurred in the CD-R mechanism unit, the entire unit must be replaced.
Parts other than the 8-1 Tray and 8-2 Belt are not available as spare parts.

MECHANICAL PARTS

Ref. No.	PART NO.	Description	Remarks	Markets
*	1-11	MFA27100 FLEXIBLE FLAT CABLE	27P 100mm P=1.0	
	1-21	VC380200 BINDING TIE	S-15	
*	1-31	V6104300 FRONT PANEL		BL
*	1-31	V6104400 FRONT PANEL		GD
*	1-31	V6258800 FRONT PANEL		TI
*	1-32	V6102000 BUTTON COPY		BL
*	1-32	V6102600 BUTTON COPY		GD
*	1-32	V6259100 BUTTON COPY		TI
*	1-33	V6101700 BUTTON PLAY		BL
*	1-33	V6101800 BUTTON PLAY		GD
*	1-33	V6259200 BUTTON PLAY		TI
*	1-34	V6102700 BUTTON REC		BL
*	1-34	V6102800 BUTTON REC		GD
*	1-34	V6259300 BUTTON REC		TI
*	1-35	V6102900 BUTTON TIME		BL
*	1-35	V6103000 BUTTON TIME		GD
*	1-35	V6259400 BUTTON TIME		TI
*	1-36	V6101000 KNOB HP		BL
*	1-36	V6101200 KNOB HP		GD
*	1-36	V6259500 KNOB HP		TI
*	1-37	V6101400 KNOB		BL
*	1-37	V6101600 KNOB		GD
*	1-37	V6259600 KNOB		TI
*	1-38	V6214800 PLATE BUTTON		BL
*	1-38	V6215000 PLATE BUTTON		GD
*	1-38	V6259700 PLATE BUTTON		TI
*	1-39	V6100400 FRAME/HP		
*	1-40	V6100700 LENS, LED		
*	1-41	V6100800 WINDOW PANEL, LID		
*	1-42	V5914500 BUTTON/D12		BL
*	1-42	V5914600 BUTTON/D12		GD
*	1-42	V6470000 BUTTON/D12		TI
*	1-43	V6034100 EMBLEM		BL, TI
*	1-43	V6034200 EMBLEM		GD
*	1-44	V6474800 PLATE/POWER		
	1-50	VQ368500 PUSH RIVET	P3545-B	
	1-51	EP600730 BIND HEAD P-TITE SCREW	3x8 FCRM3-BL	
*	3	V6439500 P.C.B. ASS'Y	OPERATION	(UCABG)
*	3	V6439600 P.C.B. ASS'Y	OPERATION	(R)
*	4	V6439900 P.C.B. ASS'Y	MAIN	
*	7	V6226200 PU MECHA. UNIT	CD11FTA3	
*	8	V6226300 CDR MECH UNIT	CRD-RA1W02	
*	8-1	AAX19060 TABLE ROADING	for CRD-RA1W02	6202362458
*	8-2	AAX19070 BELT SQUARE	for CRD-RA1W02	6202362434
▲	11	V2296800 POWER CORD ASS'Y		(A)
▲	11	V2363800 POWER CORD ASS'Y		(UC)
▲	11	VN363700 POWER CORD ASS'Y		(G)
▲	11	VV437300 POWER CORD ASS'Y		(B)
▲	11	VZ542500 POWER CORD ASS'Y		(R)
* ▲	12	XZ087A00 POWER TRANSFORMER		(UC)
* ▲	12	XZ088A00 POWER TRANSFORMER		(BG)
* ▲	12	XZ122A00 POWER TRANSFORMER		(R)
* ▲	12	XZ123A00 POWER TRANSFORMER		(A)

* New Parts

Ref. No.	PART NO.	Description	Remarks	Markets
* 19	V6662400	FERRITE CORE		
* 21	V6565800	FLEXIBLE FLAT CABLE		
* 22	MF506300	CRIMPING ASS'Y		
* 23	MF505350	CRIMPING ASS'Y		
24	MF113120	FLEXIBLE FLAT CABLE		
* 25	MFA09140	FLEXIBLE FLAT CABLE		
26	MF506100	CRIMPING ASS'Y		
* 27	MF503100	CRIMPING ASS'Y		
* 28	MF504100	CRIMPING ASS'Y		
* 29	V6569700	S FLEXIBLE FLAT CABLE		
* 31	V6100300	CHASSIS, MAIN		
* 32	V6103900	REAR PANEL		(UC)
* 32	V6104000	REAR PANEL		(A)
* 32	V6104100	REAR PANEL		(BG)
* 32	V6217100	REAR PANEL		(R)
* 33	V6099400	TOP COVER		BL
* 33	V6099600	TOP COVER		GD
* 33	V6258700	TOP COVER		TI
34	V0049900	LEG	D60xH16	GD
34	VQ780300	LEG	D60xH16	BL, TI
* 35	V6104500	LID ASS'Y		BL
* 35	V6104600	LID ASS'Y		GD
* 35	V6258900	LID ASS'Y		TI
* 36	V6104700	LID B		BL
* 36	V6104800	LID B		GD
* 36	V6259000	LID B		TI
* 37	V6123800	SUPPORT DRIVE		
* 38	V6260000	SUPPORT BC		
* 39	V6100500	FRAME, FRONT		
40	V2879500	SPACER PCB-M		
41	V2438700	CORD STOPPER	10P1	
* 42	V6270600	PLATE/SELECTOR		BL
* 45	V6609000	FRAME/CDR		(R)
61	EP600730	BIND HEAD P-TITE SCREW	3x8 FCRM3-BL	
* 62	V6467500	SCREW +BINDING H.TAPPING BT	3X25 MFZN2Y	
* 63	V6467400	SCREW +BINDING H.TAPPING BT	3X35 MFZN2Y	
64	VT669300	PW HEAD B-TITE SCREW	3x8-8 MFC2	
65	EP600730	BIND HEAD P-TITE SCREW	3x8 FCRM3-BL	
66	V2728500	BIND HEAD S-TITE SCREW	4x7 MFZN2-BL	
67	VN413300	BIND HEAD BONDING B-T. SCREW	3x8 MFZN2-BL	
68	EP600820	BIND HEAD B-TITE SCREW	3x6 MFC2-BL	
* 69	V6467600	PAN HEAD B-TITE SCREW	4x8 MFZN2BL	(R)
70	21991500	PW HEAD S-TITE SCREW	4x8-10 FCRM3-BL	BL
70	VD069600	PW HEAD S-TITE SCREW	4x8-10 MFN1-33	GD
70	VH313200	BW HEAD S-TITE SCREW	4x8-10 FNM3-BL	TI
71	VU590000	BINDING TIE	CBTD001B	
72	VQ775900	GROUND PLATE		
75	VE190700	BIND HEAD BONDING B-T. SCREW	3x6 FCRM3-BL	
* 80	V6775700	SHEET/CDR		
* 81	VP803200	LABEL		
* 200	V6405600	ACCESSORIES REMOTE CONTROL TRANSMITTER	RC-7060-01-0015	

* New Parts

Ref. No.	PART NO.	Description		Remarks	Markets	
200-1	AAX13340	LID	BLJYE 60050001			
*	201	V6326400	OPTICAL CABLE	1P 0.6m 1pc		
	202	VY952200	PIN-PLUG CORD	2P 1.0m 1pc		
*	203	V6885300	FERRITE CRAMP BATTERY, MANGANESE	RFC-8 1pc SUM-3,AA,R06		(UC)

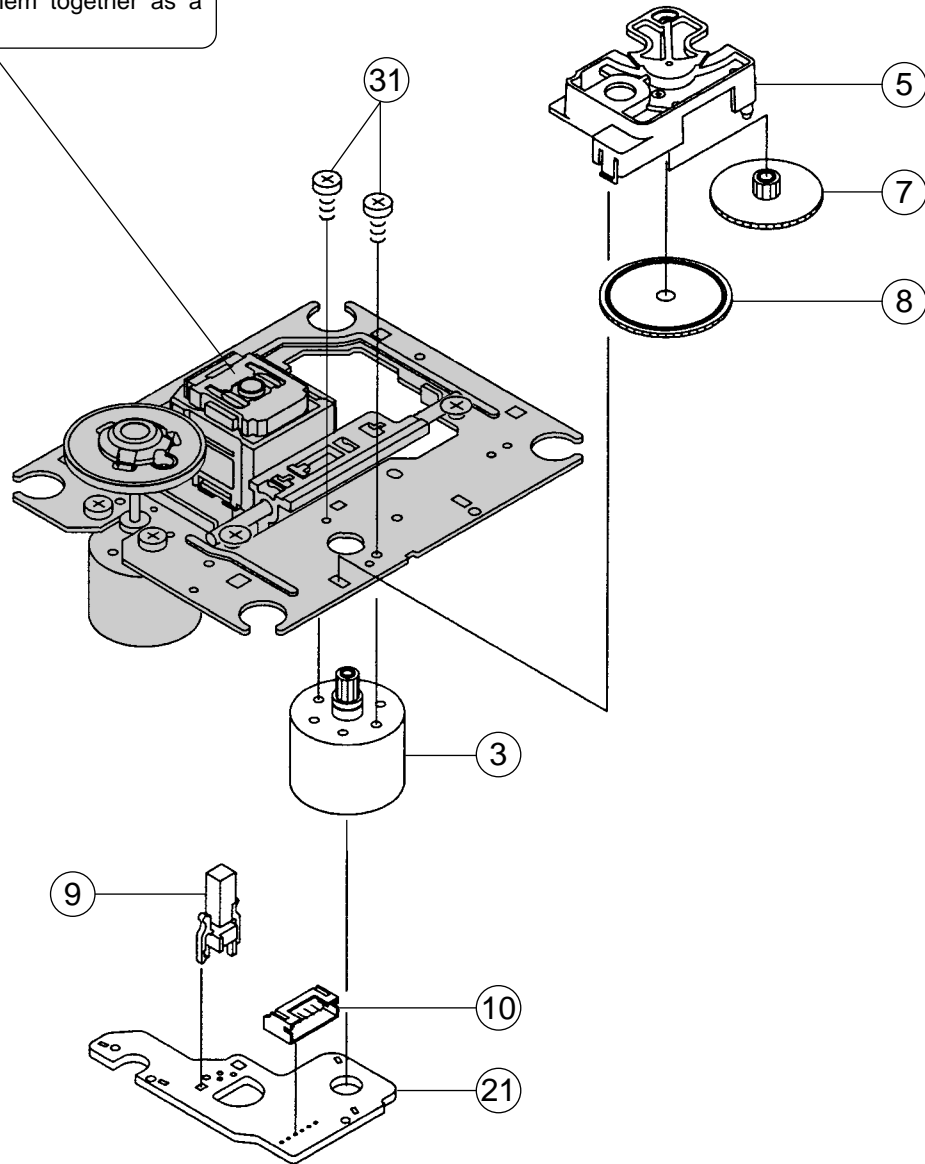
* New Parts

CDR-D651

EXPLODED VIEW (PU Mechanism Unit / DISC A SIDE)

Note :

Neither the pick-up head nor the spindle motor is available independently because they are factory-adjusted for the optimum level after assembly. If the pick-up head or the spindle motor must be replaced, be sure to replace them together as a unit.



Ref. No.	PART NO.	Description	Remarks	Markets
*	V6226200	PU MECHA. UNIT	CD11FTA3 DVD-C996	
3	XX702580	SLED MOTOR ASS'Y	6.0V	1EA0M10A09700
*	AAX19190	COVER, GEAR		1EA2121A28400
	XX702610	GEAR, MIDDLE		1EA2511A21000
	XX702600	GEAR, DRIVE		1EA2511A21100
	XX702660	SWITCH, LEAFE	PWB MOTOR	1EA4S13A01600
	LX606800	CONNECTOR	6P	42369750000
*	AAX19200	PWB, MOTOR		1EA4B10B08600
	XX702640	SCREW, PAN PCS	2x3	SE1PN203ROSE

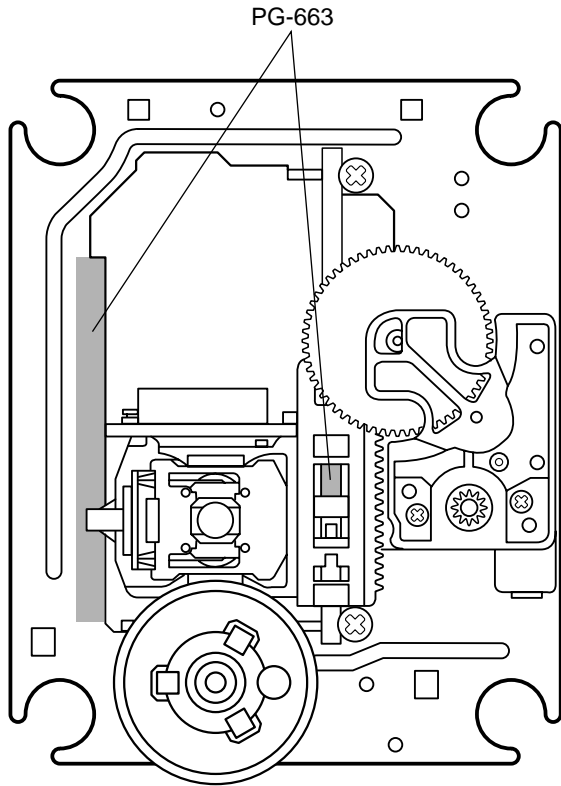
* New Parts

1

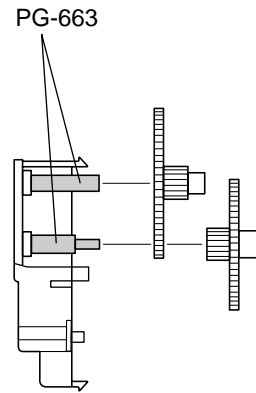
GREASE APPLICATION DIAGRAM (PU Mechanism)

Apply the grease
Molykote PG-663 (P/No. AAX01170)

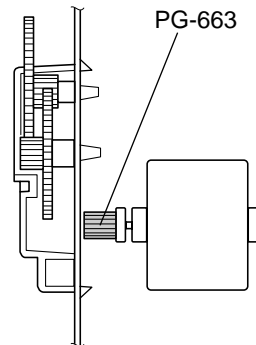
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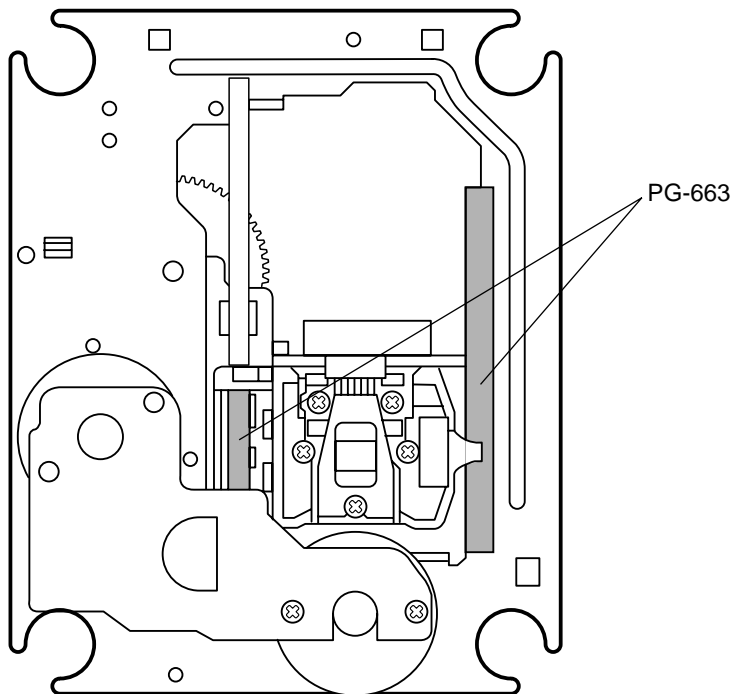
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4



5

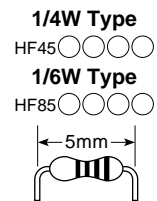
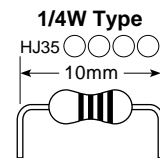


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Parts List for Carbon Resistors

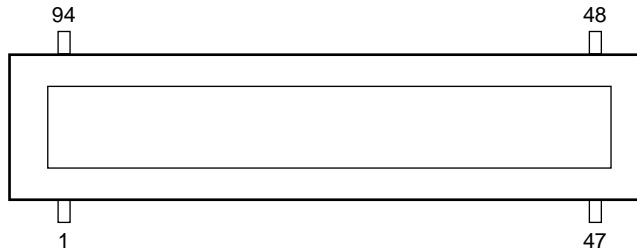
Value	1/4W Type Part No.	1/6W Type Part No.	Value	1/4W Type Part No.	1/6W Type Part No.
1.0 Ω	HJ35 3100	HF85 3100	10 kΩ	HF45 7100	HF45 7100
1.8 Ω	HJ35 3180	*	11 kΩ	HF45 7110	HF45 7110
2.2 Ω	HJ35 3220	HF85 3220	12 kΩ	HJ35 7120	HF85 7120
3.3 Ω	HJ35 3330	HF85 3330	13 kΩ	HF45 7130	HF45 7130
4.7 Ω	HJ35 3470	HF85 3470	15 kΩ	HF45 7150	HF45 7150
5.6 Ω	HJ35 3560	HF85 3560	18 kΩ	HF45 7180	HF45 7180
10 Ω	HF45 4100	HF45 4100	22 kΩ	HF45 7220	HF45 7220
15 Ω	HJ35 4150	HF85 4150	24 kΩ	HF45 7240	HF45 7240
22 Ω	HF45 4220	HF45 4220	27 kΩ	HJ35 7270	HF85 7270
27 Ω	HJ35 4270	HF85 4270	30 kΩ	HF45 7300	HF45 7300
33 Ω	HF45 4330	HF45 4330	33 kΩ	HF45 7330	HF45 7330
39 Ω	HJ35 4470	HF85 4390	36 kΩ	HF45 7360	HF45 7360
47 Ω	HF45 4470	HF45 4470	39 kΩ	HF45 7390	HF45 7390
56 Ω	HF45 4560	HF45 4560	47 kΩ	HF45 7470	HF45 7470
68 Ω	HF45 4680	HF45 4680	51 kΩ	HF45 7510	HF45 7510
75 Ω	HF45 4750	HF45 4750	56 kΩ	HF45 7560	HF45 7560
82 Ω	HF45 4820	HF45 4820	62 kΩ	HF45 7620	HF45 7620
91 Ω	HF45 4910	HF45 4910	68 kΩ	HF45 7680	HF45 7680
100 Ω	HF45 5100	HF45 5100	82 kΩ	HF45 7820	HF45 7820
110 Ω	HJ35 5110	HF85 5110	91 kΩ	HF45 7910	HF45 7910
120 Ω	HF45 5120	HF45 5120	100 kΩ	HF45 8100	HF45 8100
150 Ω	HF45 5150	HF45 5150	110 kΩ	HF45 8110	HF45 8110
160 Ω	HJ35 5160	*	120 kΩ	HF45 8120	HF45 8120
180 Ω	HF45 5180	HF45 5180	150 kΩ	HF45 8150	HF45 8150
200 Ω	HF45 5200	HF45 5200	180 kΩ	HF45 8180	HF45 8180
220 Ω	HF45 5220	HF45 5220	220 kΩ	HJ35 8220	HF85 8220
270 Ω	HF45 5270	HF45 5270	270 kΩ	HF45 8270	HF45 8270
330 Ω	HF45 5330	HF45 5330	300 kΩ	HF45 8300	HF45 8300
390 Ω	HF45 5390	HF45 5390	330 kΩ	HF45 8330	HF45 8330
430 Ω	HF45 5430	HF45 5430	390 kΩ	HJ35 8390	HF85 8390
470 Ω	HF45 5470	HF45 5470	470 kΩ	HF45 8470	HF45 8470
510 Ω	HF45 5510	HF45 5510	560 kΩ	HJ35 8560	HF85 8560
560 Ω	HF45 5560	HF45 5560	680 kΩ	HJ35 8680	HF85 8680
680 Ω	HF45 5680	HF45 5680	820 kΩ	HJ35 8820	HF85 8820
820 Ω	HF45 5820	HF45 5820	1.0 MΩ	HF45 9100	HF45 9100
910 Ω	HF45 5910	HF45 5910	1.2 MΩ	HJ35 9120	*
1.0 kΩ	HF45 6100	HF45 6100	1.5 MΩ	HJ35 9150	HF85 9150
1.2 kΩ	HF45 6120	HF45 6120	1.8 MΩ	HJ35 9180	HF85 9180
1.5 kΩ	HF45 6150	HF45 6150	2.2 MΩ	HJ35 9220	HF85 9220
1.8 kΩ	HF45 6180	HF45 6180	3.3 MΩ	HJ35 9330	HF85 9330
2.0 kΩ	HJ35 6200	HF85 6200	3.9 MΩ	HJ35 9390	*
2.2 kΩ	HF45 6220	HF45 6220	4.7 MΩ	HJ35 9470	HF85 9470
2.4 kΩ	HJ35 6240	HF85 6240			
2.7 kΩ	HF45 6270	HF45 6270			
3.0 kΩ	HF45 6300	HF45 6300			
3.3 kΩ	HF45 6330	HF45 6330			
3.6 kΩ	HJ35 6360	HF85 6360			
3.9 kΩ	HF45 6390	HF45 6390			
4.7 kΩ	HF45 6470	HF45 6470			
5.1 kΩ	HF45 6510	HF45 6510			
5.6 kΩ	HF45 6560	HF45 6560			
6.8 kΩ	HF45 6680	HF45 6680			
8.2 kΩ	HF45 6820	HF45 6820			
9.1 kΩ	HF45 6910	HF45 6910			



* : Not available

DISPLAY DATA

● V300 : BJ787GN (V6132600)



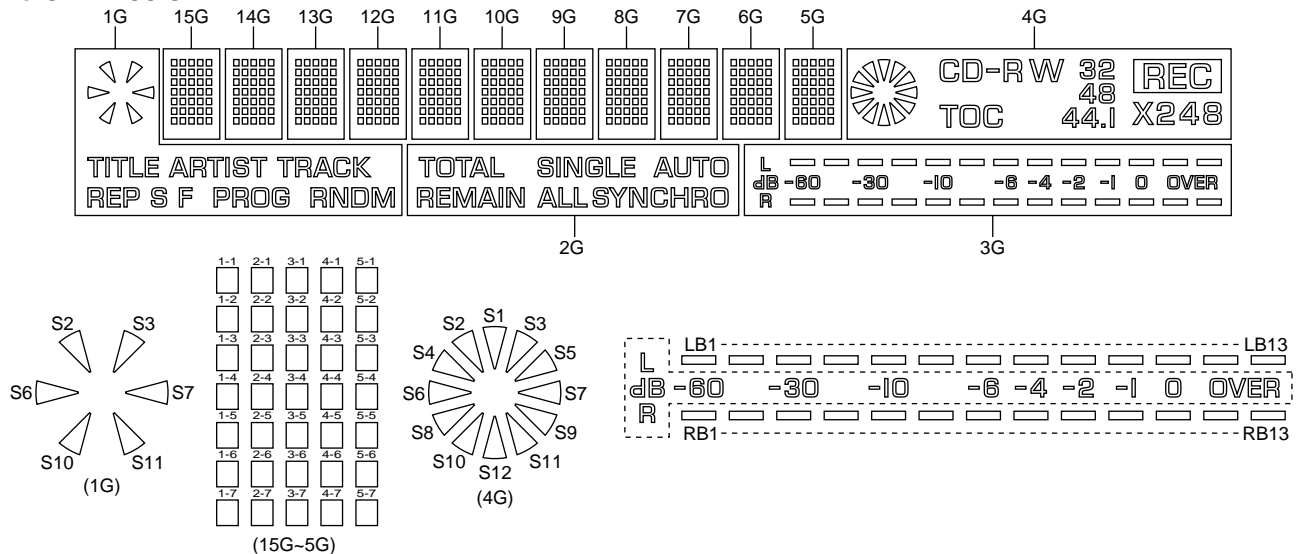
PIN CONNECTION

Pin No.	94	93	92	91	90	89	88	87	86	85	84	83	82	81	80	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65	64	63	62	61	60	59	58	57	56	55	54	53	52	51	50	49	48		
Connection	F1	F1	NP	NP	P26	P27	P28	P29	P30	P31	P32	P33	P34	P35	15G	14G	13G	12G	NX	NX	NX	NX	NX	NX	NX	NX	NX	NX	NX	NX	NX	NX	NX	11G	10G	9G	8G	7G	6G	5G	4G	3G	2G	1G	IC	NP	NP	F2	F2

Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
Connection	F1	F1	NP	NP	P25	P24	P23	P22	P21	P20	P19	P18	P17	P16	P15	P14	NX	NX	NX	NX	NX	NX	NX	NX	NX	NX	NX	NX	NX	IC	P13	P12	P11	P10	P9	P8	P7	P6	P5	P4	P3	P2	P1	NP	NP	F2	F2

Note : 1) F1, F2 Filament 2) NP No pin 3) NX No extended pin 4) DL Datum Line 5) 1G ~ 15G Grid
6) IC Internal connection (IC pin should be electrically open on the PC board.)

GRID ASSIGNMENT



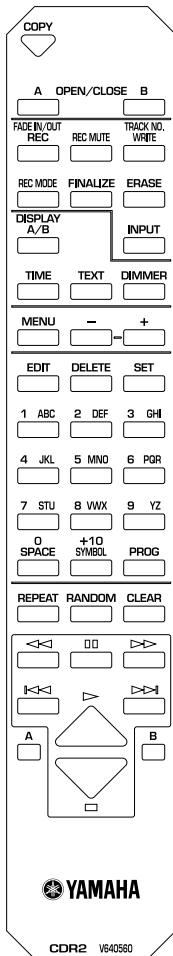
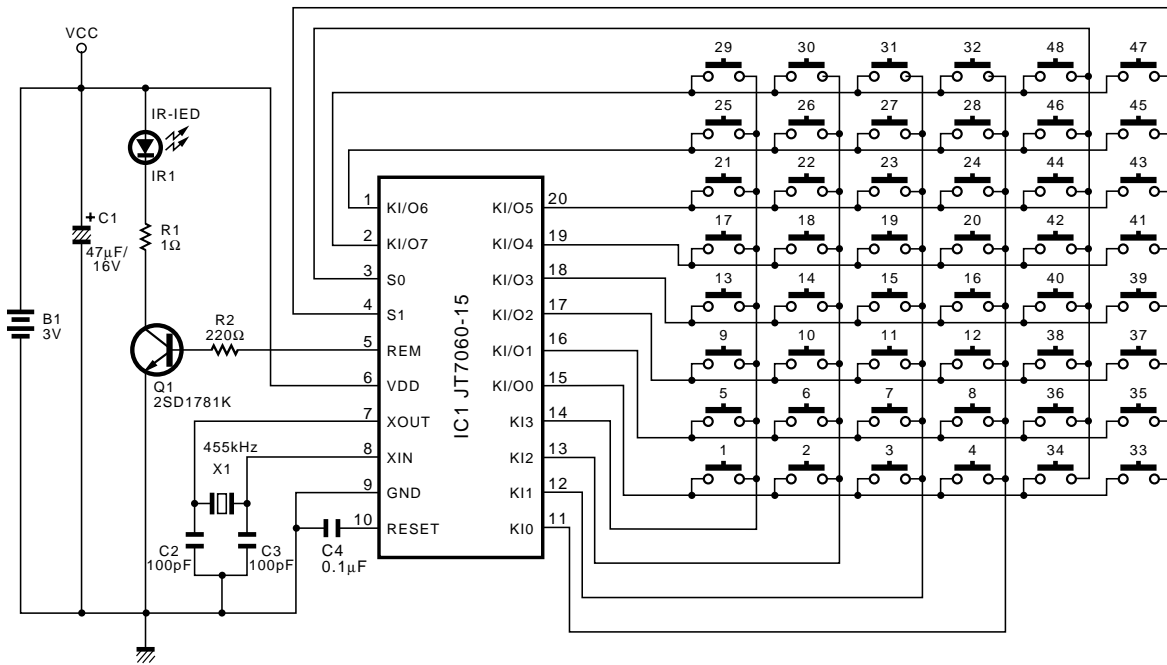
ANODE CONNECTION

	1G	2G	3G	4G	5G~15G
P1	-	-	LB1	S1	1-1
P2	S2	-	LB2	S2	2-1
P3	S3	-	LB3	S3	3-1
P4	-	-	LB4	S4	4-1
P5	-	-	LB5	S5	5-1
P6	S6	-	LB6	S6	1-2
P7	S7	-	LB7	S7	2-2
P8	-	-	LB8	S8	3-2
P9	-	-	LB9	S9	4-2
P10	S10	-	LB10	S10	5-2
P11	S11	-	LB11	S11	1-3
P12	-	-	LB12, LB13	S12	2-3
P13	-	-	S1	CD	3-3
P14	TITLE	AUTO	RB1	-R	4-3
P15	ARTIST	SINGLE	RB2	W	5-3
P16	TRACK	TOTAL	RB3	TOC	1-4
P17	REP	SYNCHRO	RB4	32	2-4
P18	S	ALL	RB5	48	3-4

	1G	2G	3G	4G	5G~15G
P19	F	REMAIN	RB6	44.I	4-4
P20	PROG	-	RB7	REC	5-4
P21	RNDM	-	RB8	X	1-5
P22	-	-	RB9	2	2-5
P23	-	-	RB10	4	3-5
P24	-	-	RB11	8	4-5
P25	-	-	RB12, RB13	-	5-5
P26	-	-	-	-	1-6
P27	-	-	-	-	2-6
P28	-	-	-	-	3-6
P29	-	-	-	-	4-6
P30	-	-	-	-	5-6
P31	-	-	-	-	1-7
P32	-	-	-	-	2-7
P33	-	-	-	-	3-7
P34	-	-	-	-	4-7
P35	-	-	-	-	5-7

REMOTE CONTROL TRANSMITTER

SCHEMATIC DIAGRAM



KEY NO.	FUNCTION	CUSTOM CODE (HEX)	DATA CODE (HEX)
1	COPY	7F	A3
2	OPEN/CLOSE A	7F	81
3	OPEN/CLOSE B	7F	C1
4	REC/FADER	7F	A0
5	REC MUTE	7F	A1
6	TRACK NO. WRTEE	7F	A7
7	REC MODE	7F	A2
8	FINALIZE	7F	A5
9	ERASE	7F	A6
10	DISPLAY A/B	7F	9F
11	INPUT	7F	AB
12	TIME	7F	9E
13	TEXT	7F	9D
14	DIMMER	7F	9C
15	MENU	7F	BA
16	MENU -	7F	BC
17	MENU +	7F	BB
18	EDIT	7F	B0
19	DELETE	7F	B1
20	SET	7F	B2
21	1/ABC	7F	91
22	2/DEF	7F	92

KEY NO.	FUNCTION	CUSTOM CODE (HEX)	DATA CODE (HEX)
23	3/GHI	7F	93
24	4/JKL	7F	94
25	5/MNO	7F	95
26	6/PQR	7F	96
27	7/STU	7F	97
28	8/VWX	7F	98
29	9/YZ	7F	99
30	0/SPACE	7F	90
31	+10SYMBOL	7F	9A
32	PROG	7F	8B
33	REPEAT	7F	8D
34	RANDOM	7F	8E
35	CLEAR	7F	8C
36	◀◀	7F	88
37	□□	7F	83
38	▶▶	7F	89
39	◀◀◀	7F	86
40	▶▶▶	7F	87
41	A	7F	BD
42	▶	7F	82
43	B	7F	BE
44	□	7F	84