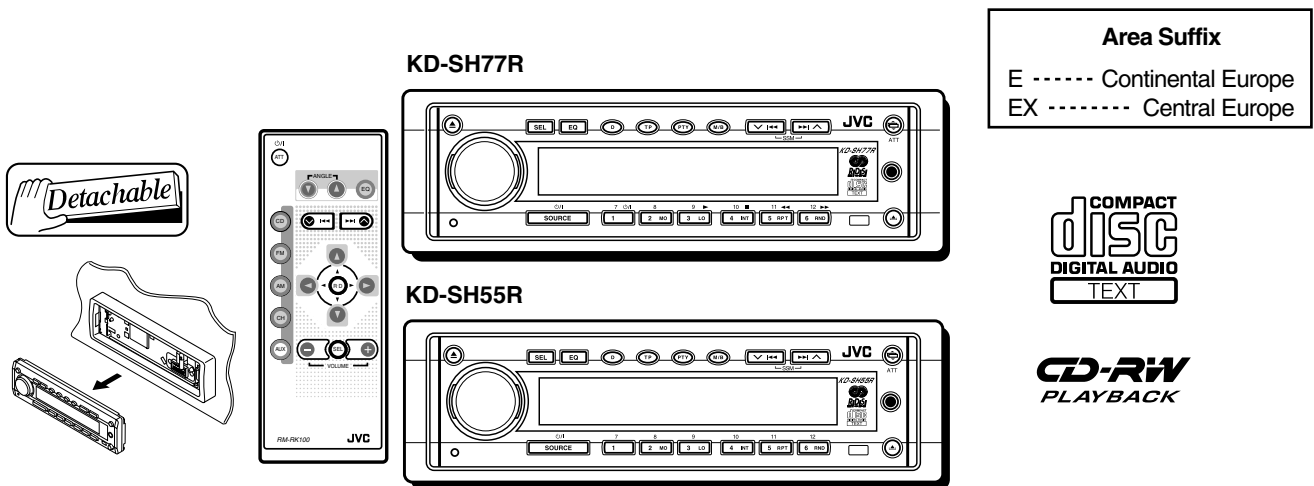


JVC

SERVICE MANUAL

CD RECEIVER

KD-SH77R/KD-SH55R




Difference point	DVD control	LINE IN	SUBWOOFER OUT	EXT OUT
KD-SH77R	O	O	O	O
KD-SH55R	X	X	X	X

Contents

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Safety precaution

 **CAUTION** Burrs formed during molding may be left over on some parts of the chassis. Therefore, pay attention to such burrs in the case of performing repair of this system.

 **CAUTION** Please use enough caution not to see the beam directly or touch it in case of an adjustment or operation check.

Preventing static electricity

1. Grounding to prevent damage by static electricity

Electrostatic discharge (ESD), which occurs when static electricity stored in the body, fabric, etc. is discharged, can destroy the laser diode in the traverse unit (optical pickup). Take care to prevent this when performing repairs.

2. About the earth processing for the destruction prevention by static electricity

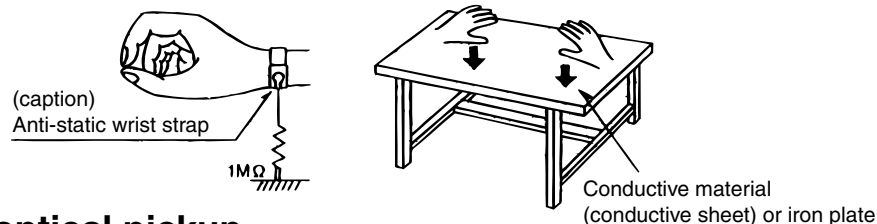
Static electricity in the work area can destroy the optical pickup (laser diode) in devices such as CD players. Be careful to use proper grounding in the area where repairs are being performed.

2-1 Ground the workbench

Ground the workbench by laying conductive material (such as a conductive sheet) or an iron plate over it before placing the traverse unit (optical pickup) on it.

2-2 Ground yourself

Use an anti-static wrist strap to release any static electricity built up in your body.



3. Handling the optical pickup

1. In order to maintain quality during transport and before installation, both sides of the laser diode on the replacement optical pickup are shorted. After replacement, return the shorted parts to their original condition. (Refer to the text.)
2. Do not use a tester to check the condition of the laser diode in the optical pickup. The tester's internal power source can easily destroy the laser diode.

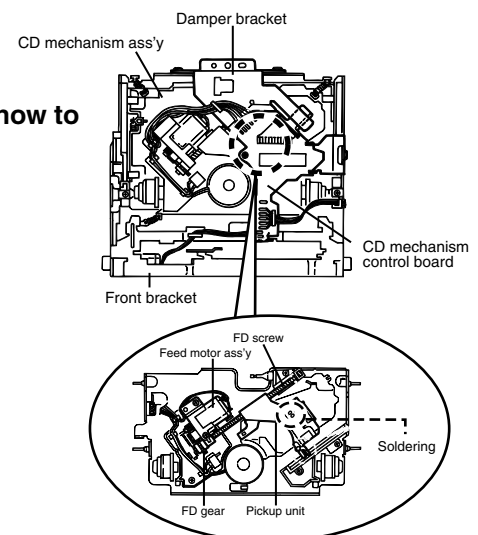
4. Handling the traverse unit (optical pickup)

1. Do not subject the traverse unit (optical pickup) to strong shocks, as it is a sensitive, complex unit.
2. Cut off the shorted part of the flexible cable using nippers, etc. after replacing the optical pickup. For specific details, refer to the replacement procedure in the text. Remove the anti-static pin when replacing the traverse unit. Be careful not to take too long a time when attaching it to the connector.
3. Handle the flexible cable carefully as it may break when subjected to strong force.
4. It is not possible to adjust the semi-fixed resistor that adjusts the laser power. Do not turn it

Attention when traverse unit is decomposed

***Please refer to "Disassembly method" in the text for pick-up and how to detach the substrate.**

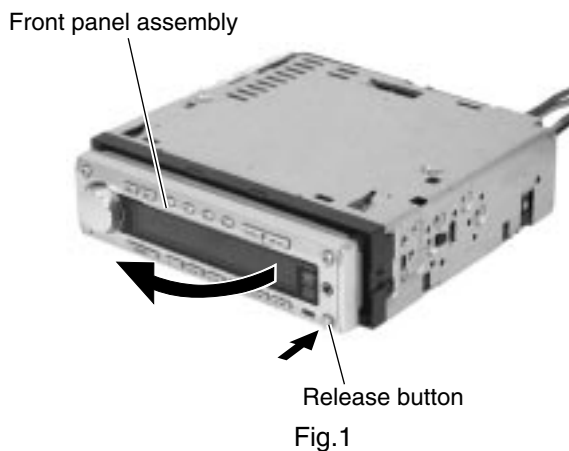
1. Solder is put up before the card wire is removed from connector on the CD substrate as shown in Figure.
(When the wire is removed without putting up solder, the CD pick-up assembly might destroy.)
2. Please remove solder after connecting the card wire with when you install picking up in the substrate.



Disassembly method

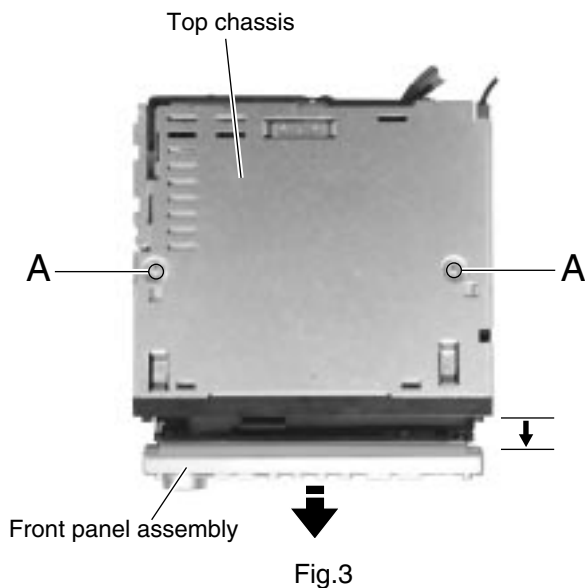
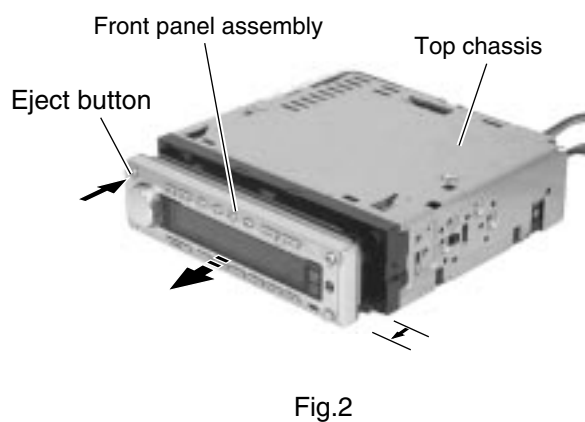
■ Removing the front panel assembly (See Fig.1)

1. Press the release button in the lower right part of the front panel assembly to unlock.
2. Remove the front panel assembly in the direction of the arrow.



■ Removing the top chassis (See Fig.2 to 6)

- Turn on power.
1. Press the eject button in the upper left part of the front panel assembly to move the assembly as shown in Fig.2 and turn off power.
 2. Remove the two screws **A** on the upper side of the body.



3. Remove the three screws **B** on both sides of the body.
4. Remove the screw **C** and the three screws **D** on the left side of the body.
5. Remove the two screws **E** and the screw **F** on the back of the body.
6. Move the top chassis upward and remove it with the CD mechanism assembly. The connector on the CD mechanism assembly is disconnected from connector CN601 on the main board.

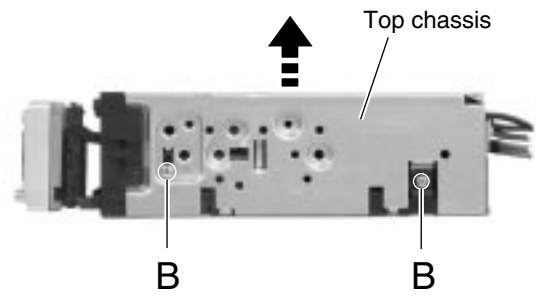


Fig.4

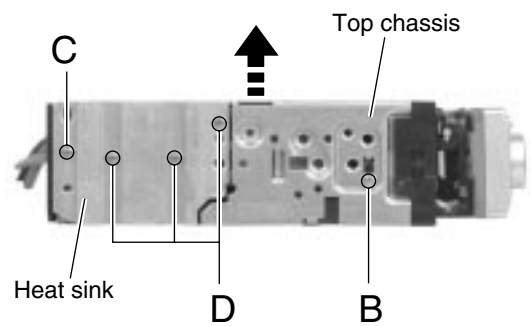


Fig.5

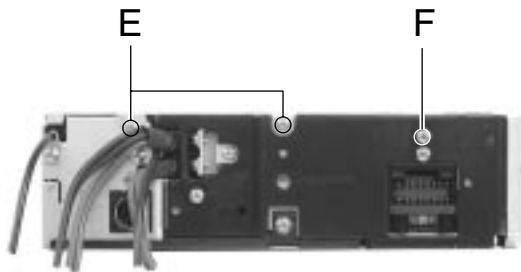


Fig.6 (KD-SH77RE)

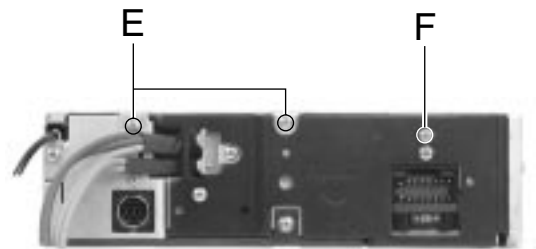


Fig.6 (KD-SH55RE)

**■ Removing the CD mechanism assembly
(See Fig.7)**

- Prior to performing the following procedure, remove the top chassis.
1. Remove the three screws **G** inside the top chassis and remove the CD mechanism assembly.

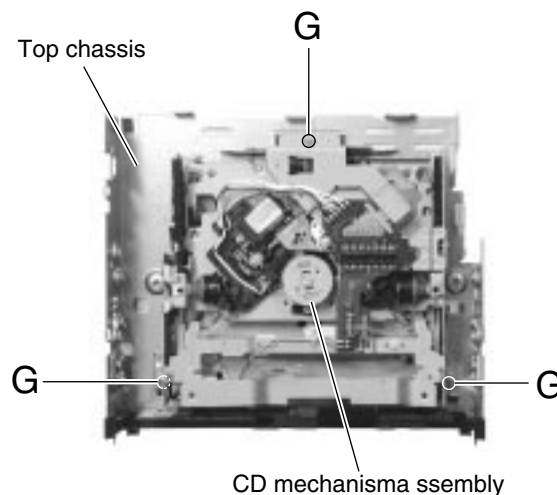


Fig.7

**■ Removing the motor assembly
(See Fig.8 to 10)**

- Prior to performing the following procedure, remove the top chassis.

1. Disconnect the wire from connector CN703 on the main board.
2. Remove the motor bracket and the spring attached to the arm bracket assembly (R).
3. Remove the two screws **H** attaching the motor bracket.
4. Remove the washer attaching the clutch assembly and pull out the clutch assembly from the shaft.
5. Remove the two screws **I** and the motor assembly from the motor bracket.

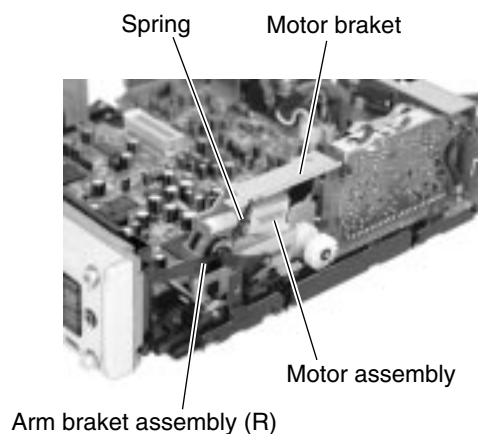


Fig.8

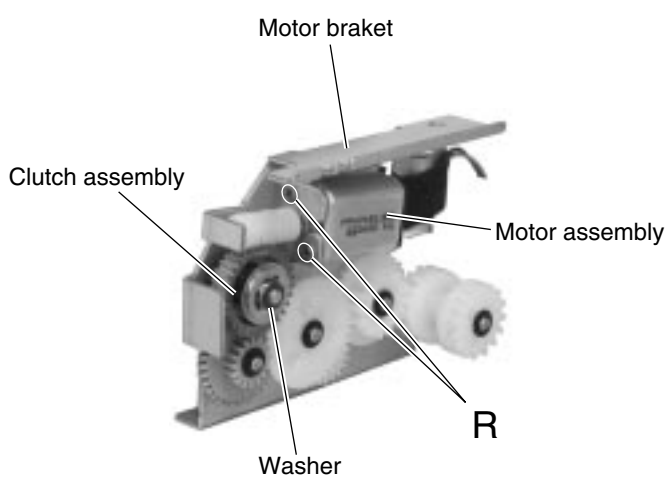


Fig.10

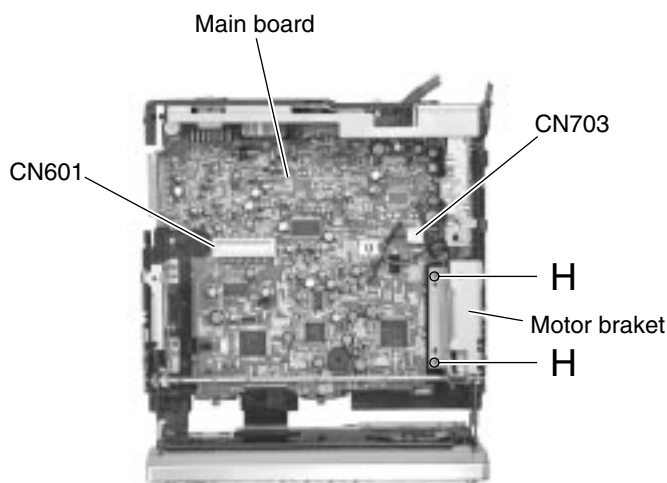


Fig.9

■ Removing the main board
(See Fig.11 to 15)

· Prior to performing the following procedures, remove the top chassis and the motor bracket.

1. Disconnect the flexible wire from connector CN701 and CN702 on the main board respectively.
2. Move the front bracket backward until it stops.
3. Remove the four screws **J** attaching the arm brackets (L) and (R). Move the right and arm left brackets from the rod gear.
4. Remove the rod gear.
5. Remove the screw **K** attaching the rear panel to the bottom cover on the back of the body.

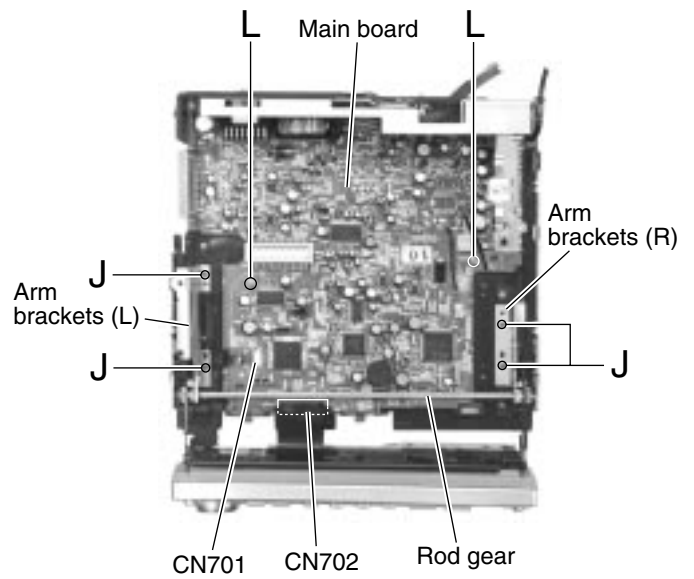


Fig.11

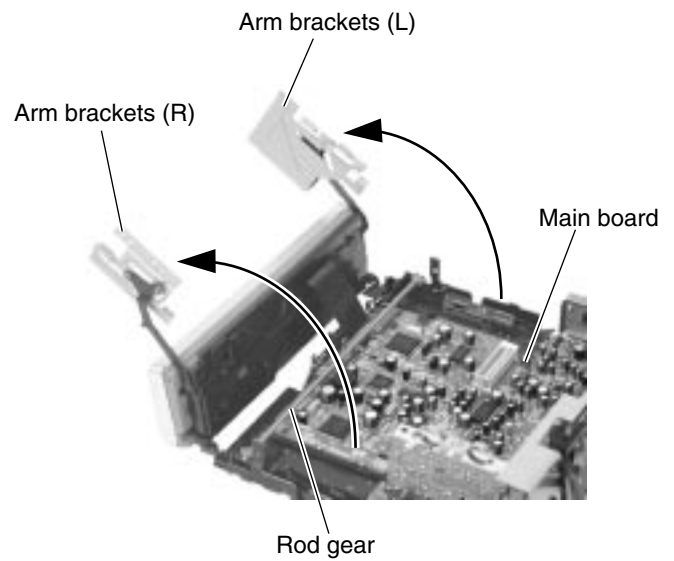


Fig.12

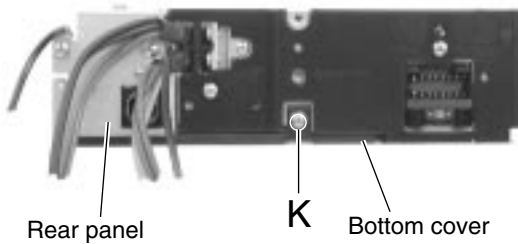


Fig.13 (KD-SH77RE)

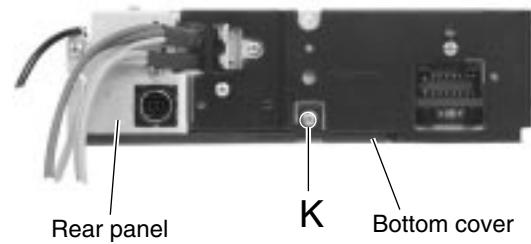


Fig.13 (KD-SH55RE)

6. Remove the two screws **L** and move the main board backwards to release the two joints **a**. (The main board will be removed with the rear panel and the rear heat sink)
7. Remove the screw **M** and **N** attaching the rear heat sink.
8. Remove the two screws **O** and the screw **P** attaching the rear panel. Remove the mainboard (KD-SH55RE).
9. Remove the three screws **O** and the screw **P** attaching the rear panel. Remove the main board (KD-SH77RE).

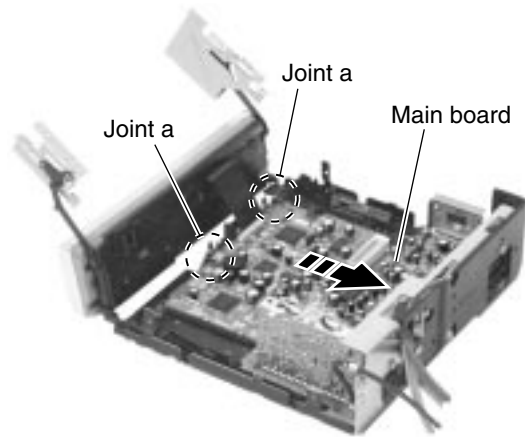


Fig.14

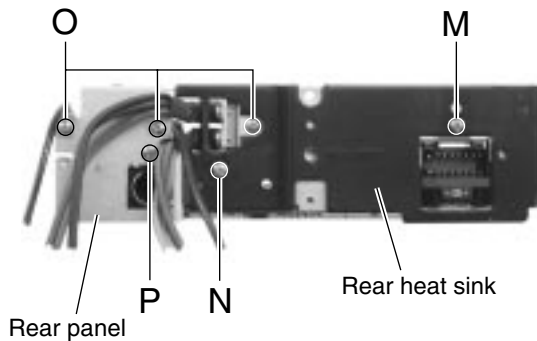


Fig.15 (KD-SH77RE)

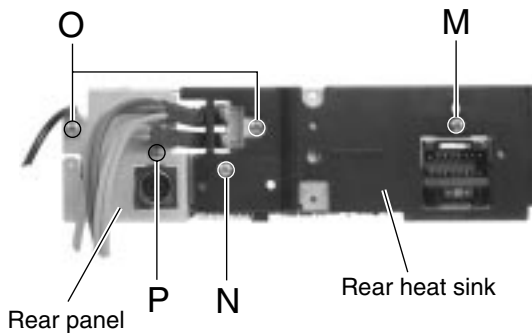


Fig.15 (KD-SH55RE)

■ **Removing the lifter switch board**
(See Fig.16)

• Prior to performing the following procedures, remove the top chassis, the motor bracket and the main board.

1. Remove the two screws **Q** attaching the lifter switch board.

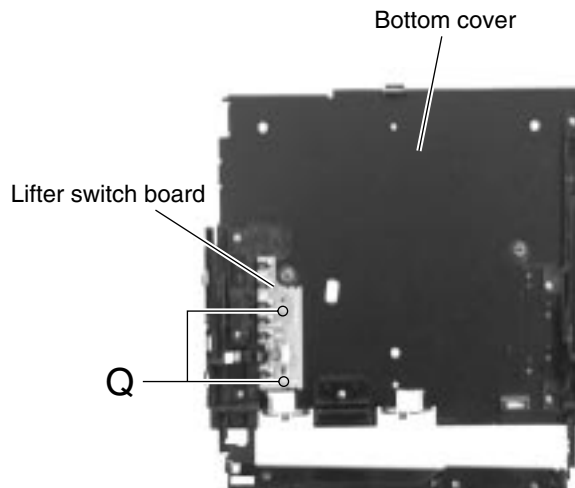


Fig.16

■ Removing the lifter board
(See Fig.17 to 23)

· Prior to performing the following procedure, remove the top chassis assembly and the front panel assembly.

1. Disconnect the flexible wire from connector CN702 on the main board.
2. Remove the four screws **R** attaching the front bracket on both sides of the body.
3. Push the pin of the joint **c** on the front of the front bracket to release the lock lever.

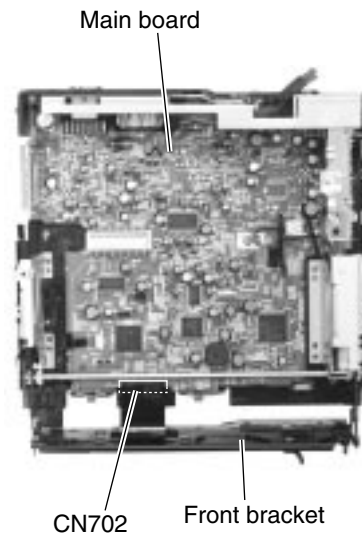


Fig.17

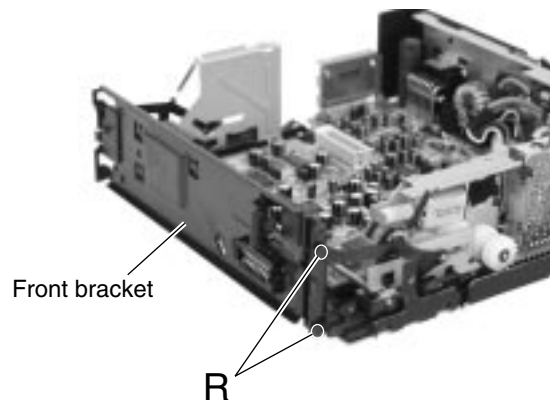


Fig.18

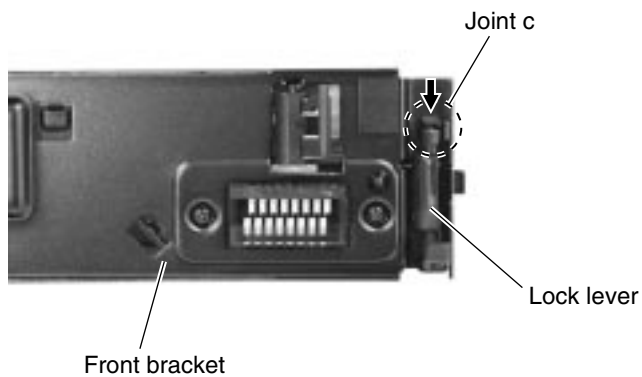


Fig.20

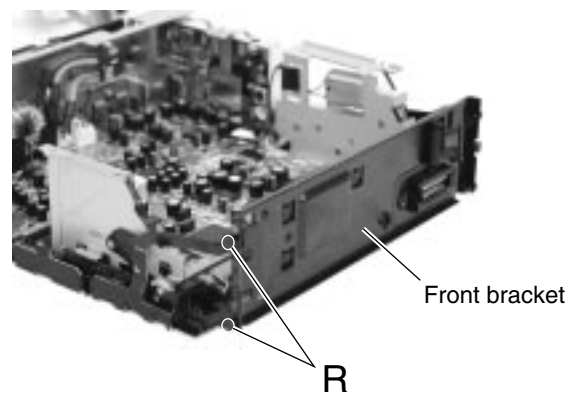


Fig.19

4. Remove the screw **S** attaching the lifter board cover in the rear of the front bracket.
5. Release the two joints **d** while pushing the front side. Move the lifter board cover in the direction of the arrow and release the eight joints **e**.
6. Remove the two screws **T** attaching the lifter board on the front of the body.

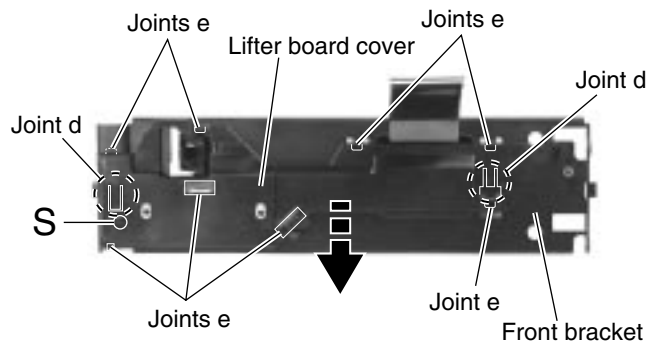


Fig.21

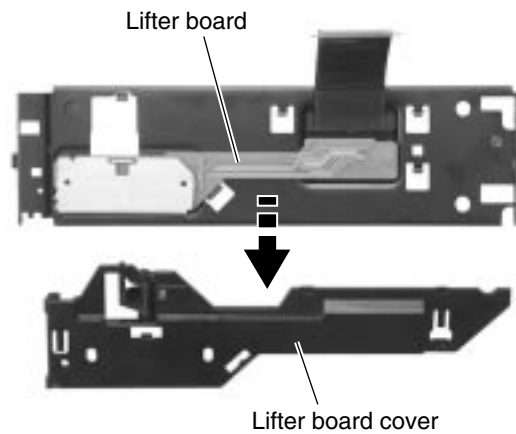


Fig.22

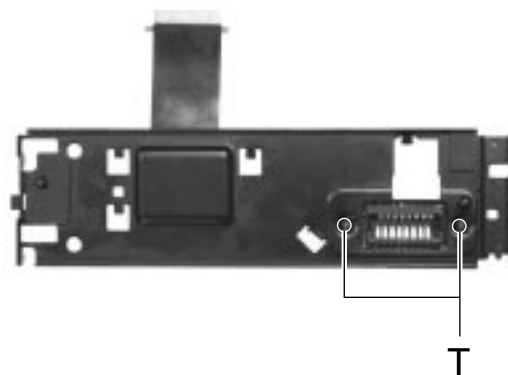


Fig.23

<Front panel assembly>

- Prior to performing the following procedure, remove the front panel assembly.

■ Removing the front board (See Fig.24 and 25)

1. Remove the four screws **U** attaching the rear panel to the front panel assembly.
2. Release the eleven joints **f** of the front panel and the rear panel.
3. Disconnect the wire from connector CN503 on the front board.
4. If necessary, unsolder connector CN502 on the front board.

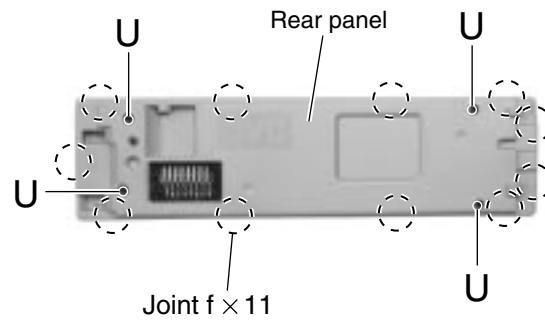


Fig.24

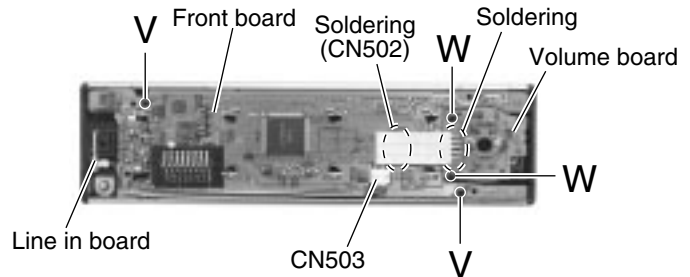


Fig.25

■ Removing the volume board (See Fig.25 and 26)

- Prior to performing the following procedure, remove the rear panel.
1. Remove the two screws **W** attaching the volume board.
 2. Disconnect the volume knob, ring lens and volume ring from the volume board.
 3. If necessary, unsolder the volume board.

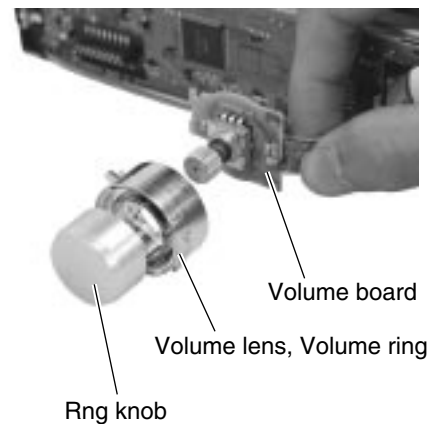


Fig.26

■ Removing the line in board (See Fig.25 and 27)

- Prior to performing the following procedure, remove the rear panel.
1. Disconnect the wire from connector CN503 on the front board.
 2. Pull out the line in board from the front panel assembly.

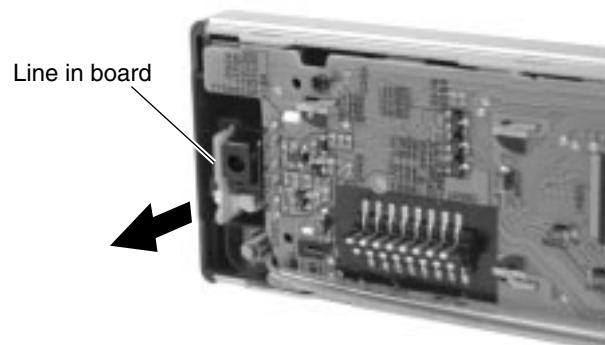


Fig.27

<CD mechanism section>

■ Removing the CD mechanism control board (See Fig.1 and 2)

1. Unsolder the part **a** and **b** on the CD mechanism control board.
2. Remove the stator fixing the CD mechanism control board and the damper bracket (To remove the stator smoothly, pick up the center part).
3. Remove the screw **A** attaching the CD mechanism control board.
4. Remove the CD mechanism control board in the direction of the arrow while releasing it from the two damper bracket slots **d** and the front bracket slot **e**.
5. Disconnect the flexible wire from connector on the pickup unit.

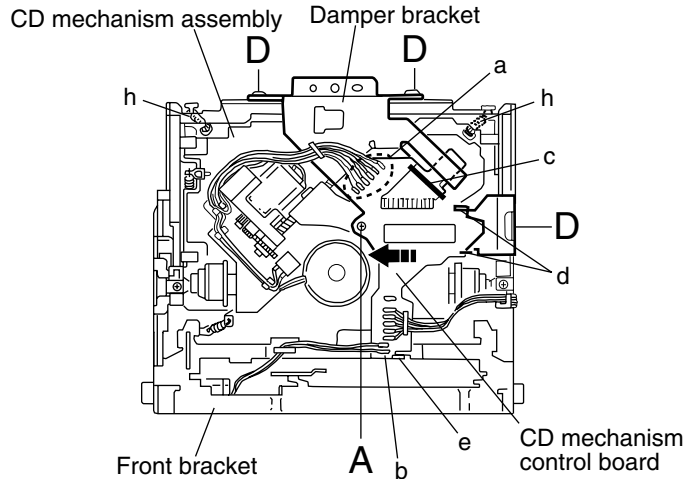


Fig.1

ATTENTION: Turn the FD gear in the direction of the arrow to move the entire pickup unit to the appropriate position where the flexible wire of the CD mechanism unit can be disconnected easily.

(Refer to Fig.2)

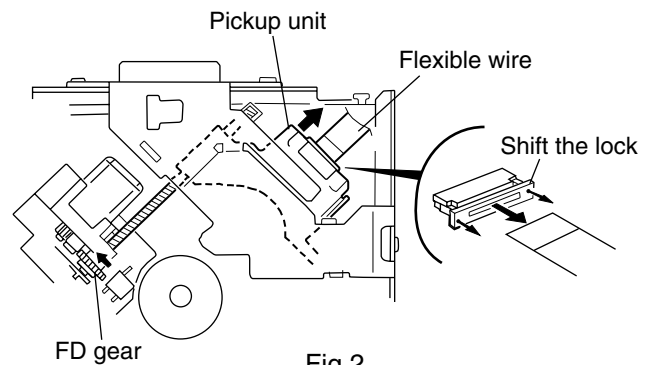


Fig.2

■ Removing the loading motor (See Fig.3 to 5)

- Prior to performing the following procedure, remove the CD mechanism control board.
1. Remove the two springs **f** attaching the CD mechanism assembly and the front bracket.
 2. Remove the two screws **B** and the front bracket while pulling the flame outward.
 3. Remove the belt and the screw **C** from the loading motor.

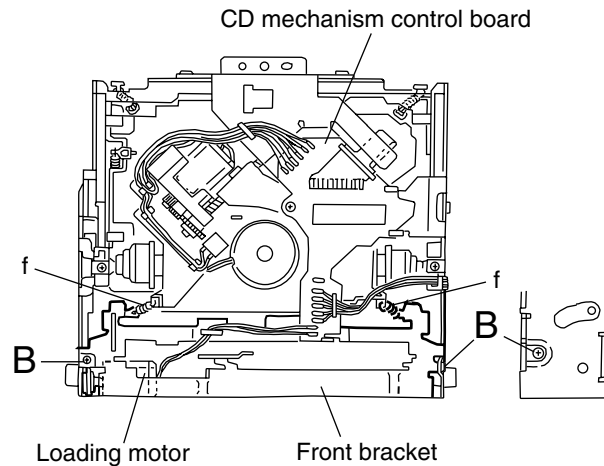


Fig.3

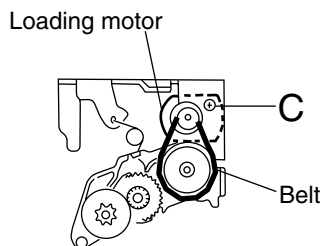


Fig.5

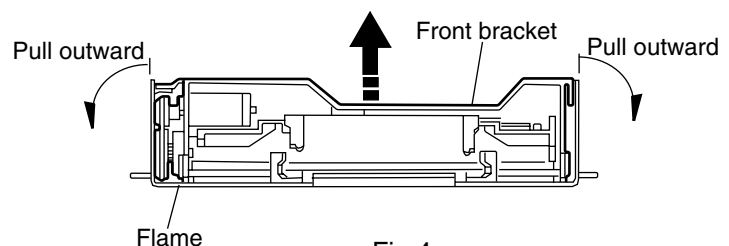


Fig.4

**■ Removing the CD mechanism assembly
(See Fig.1, 6 to 9)**

• Prior to performing the following procedure, remove the CD mechanism control board and the front bracket (loading motor).

1. Remove the three screws **D** and the damper bracket.
2. Raise the both sides fix arms and move the fix plates in the direction of the arrow to place the four shafts **g** as shown in Fig.8 and 9.
3. Remove the CD mechanism assembly and the two springs **h** attaching the flame.
4. Remove the two screws **E** and both sides rear damper brackets from the dampers. Detach the CD mechanism assembly from the left side to the right side.

ATTENTION: The CD mechanism assembly can be removed if only the rear damper bracket on the left side is removed.

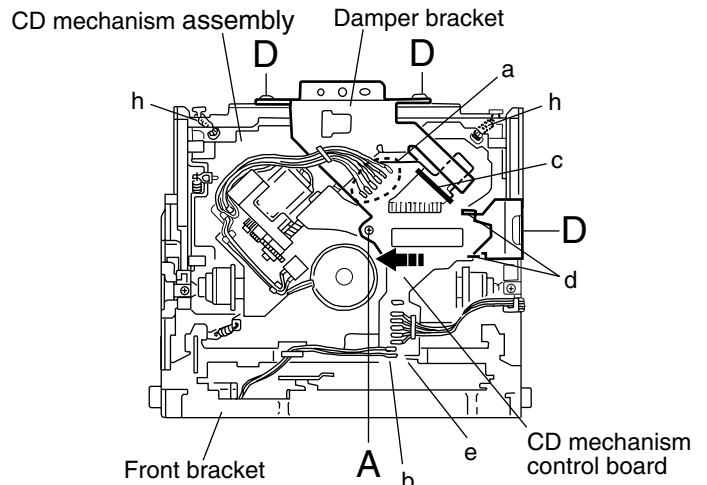


Fig.1

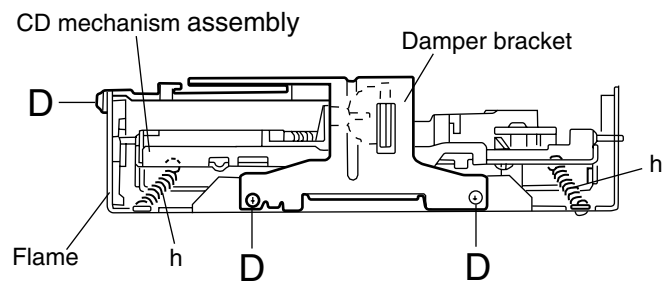


Fig.6

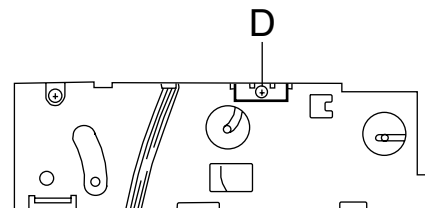


Fig.7

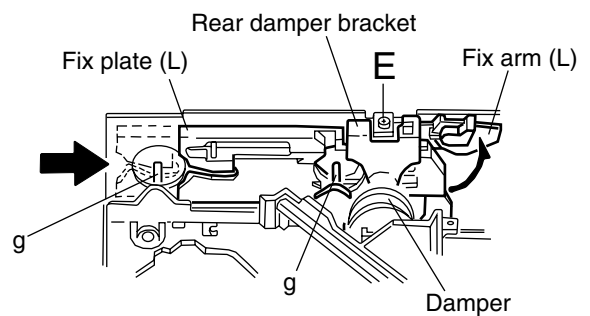


Fig.8

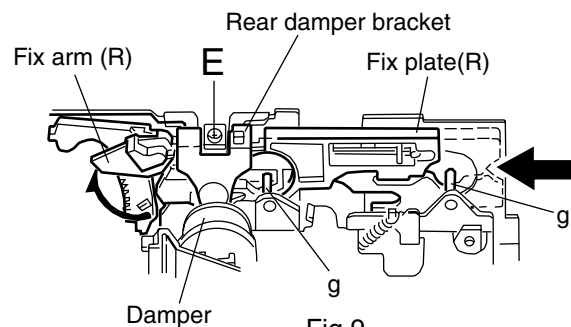


Fig.9

■ Removing the feed motor assembly
(See Fig.10)

• Prior to performing the following procedure, remove the CD mechanism control board, the front bracket (loading motor) and the CD mechanism assembly.

1. Remove the two screws **F** and the feed motor assembly.

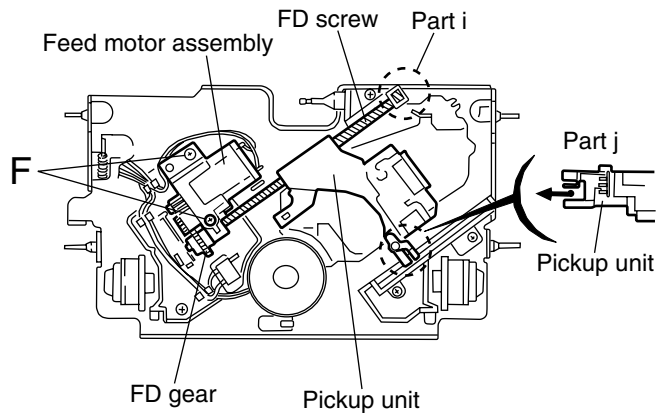


Fig.10

■ Removing the pickup unit
(See Fig.10 and 11)

• Prior to performing the following procedure, remove the CD mechanism control board, the front bracket (loading motor), the CD mechanism assembly and the feed motor assembly.

1. Detach the FD gear part of the pickup unit upward. Then remove the pickup unit while pulling out the part **i** of the FD screw.

ATTENTION: When reattaching the pickup unit, reattach the part **j** of the pickup unit, then the part **i** of the FD screw.

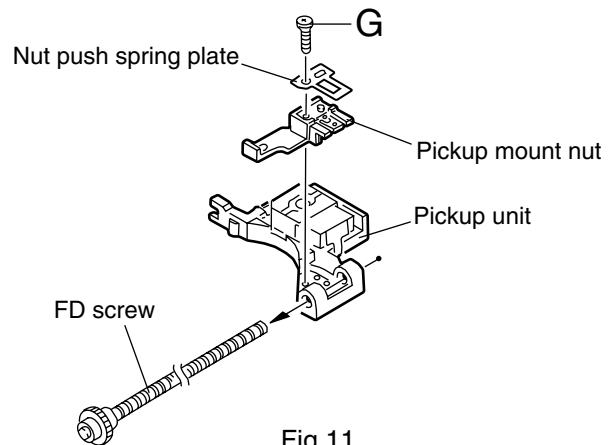


Fig.11

2. Remove the screw **G** attaching the nut push spring plate and the pickup mount nut from the pickup unit. Pull out the FD screw.

■ Removing the spindle motor
(See Fig.12 and 13)

• Prior to performing the following procedure, remove the CD mechanism control board, the front bracket (loading motor), the CD mechanism assembly and the feed motor assembly.

1. Turn up the CD mechanism assembly and remove the two springs **k** on both sides of the clamber arms. Open the clamber arm upward.
2. Turn the turn table, and remove the two screws **H** and the spindle motor.

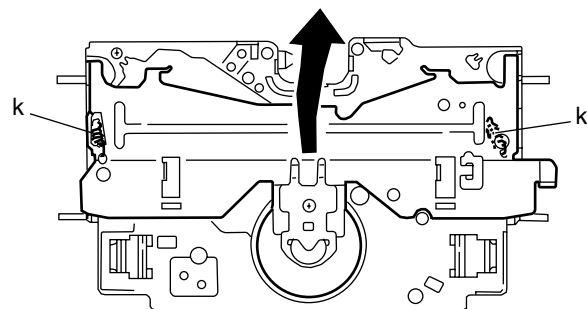


Fig.12

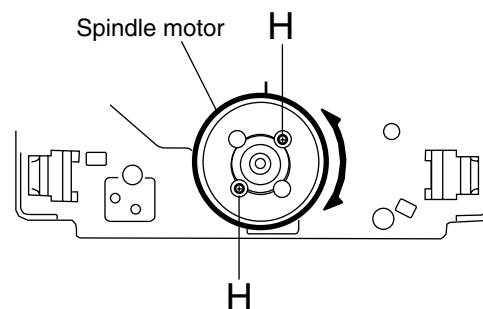


Fig.13

Adjustment method

■ Test instruments required for adjustment

1. Digital oscilloscope (100MHz)
2. AM Standard signal generator
3. FM Standard signal generator
4. Stereo modulator
5. Electric voltmeter
6. Digital tester
7. Tracking offset meter
8. Test Disc JVC :CTS-1000
9. Extension cable for check
EXTGS004-26P × 1

■ Standard measuring conditions

- Power supply voltage DC14.4V(10.5~16V)
 Load impedance 20Kohm(2 Speakers connection)
 Output Level KD-SH77R Line out 4.0V (Vol. MAX)
 KD-SH55R Line out 2.0V (Vol. MAX)

■ How to connect the extension cable for adjusting

■ Standard volume position

- Balance and Bass & Treble volume : Indication "0"
 Loudness : OFF
 BBE : OFF

■ Frequency Band

- FM 87.5MHz ~ 108.0MHz
 MW 522kHz ~ 1620 kHz
 LW 144kHz ~ 279kHz

■ Dummy load

- Exclusive dummy load should be used for AM, and FM. For FM dummy load, there is a loss of 6dB between SSG output and antenna input. The loss of 6dB need not be considered since direct reading of figures are applied in this working standard.

<ERROR CODE of Panel mechanism>

Memory to EEPROM of 6 digits, 1st and 2nd digit are indicate the operation mode when occur the error, 3rd to 6th digit are indicate details of error.

LCD indication time is use lower 2digits of details of error.

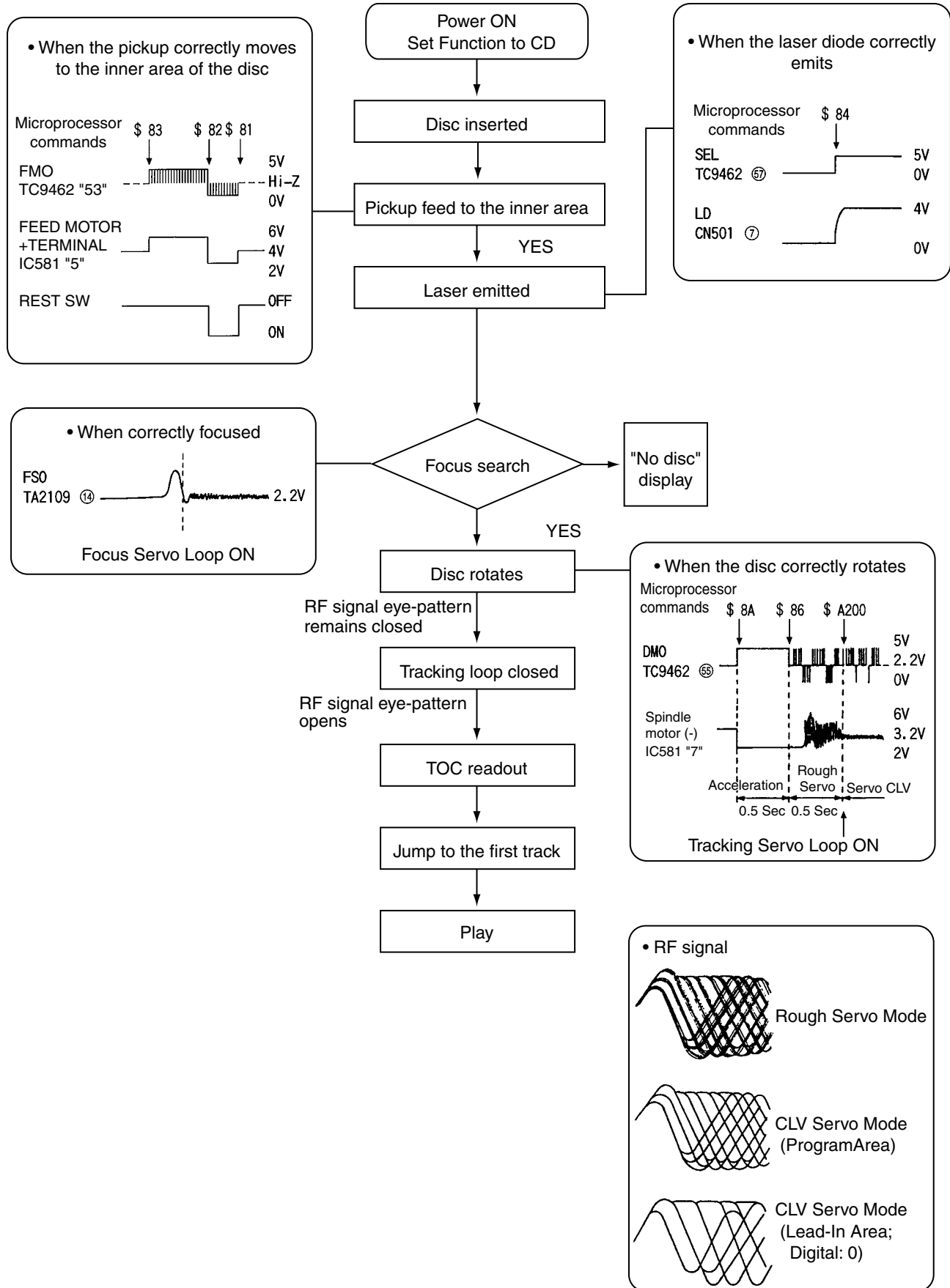
This series is indicate **ERR XX** (XX is error code).

<ex.> When details of error is 0A0001 , it is indicate **ERR 01**, details of error is 0E0031 , it is **ERR 31**.

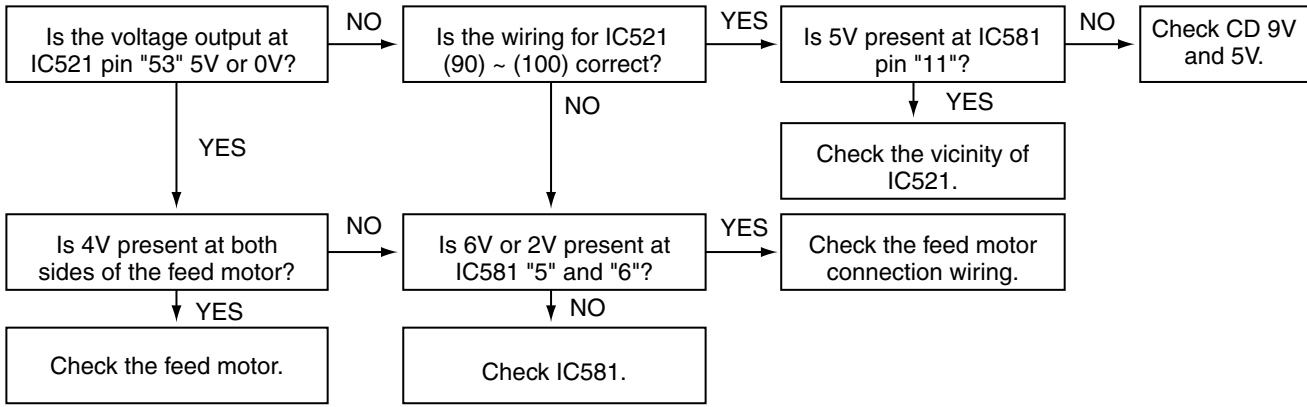
Switch is from this side sequentially PSW1, PSW2,.....PSW6.

Details of error	Error code
1. Error of door open (fault of PSW1)	
(1) Time out by PSW1 not changed	0A0001
(2) PSW1 change during waiting 300ms after open position detected	0A0002
2. Error of door close (fault of PSW6)	
(1) Time out by PSW6 not changed	0B0006
(2) PSW6 change during waiting 300ms after close position detected	0B0007
3. Error of shift to DETACH position (fault of PSW5)	
(1) Time out by PSW5 not changed to open side	0C0011
(2) Shift to open side, pass the DETACH position then detect ANGLE1	0C0012
(3) Time out by PSW5 not changed to close side	0C0013
(4) Shift to close side, pass the DETACH position then detect close position	0C0014
4. Error of angle adjustment	
4-1 Shift to ANGLE1 (fault of PSW4)	
(1) Time out by PSW4 not changed to shift for open side	0D0021
(2) Shift to open side, pass the ANGLE1 then detect ANGLE2	0D0022
(3) Time out by PSW4 not changed to shift for close side	0D0023
(4) Shift to close side, pass the ANGLE1 then detect DETACH position	0D0024
4-2 Shift to ANGLE2 (fault PSW3)	
(1) Time out by PSW3 not change to shift for open side	0E0031
(2) Shift to open side, pass the ANGLE2 then detect ANGLE3	0E0032
(3) Time out by PSW3 not changed to shift for close side	0E0033
(4) Shift to close side, pass the ANGLE2 then detect ANGLE1	0E0034
4-3 Shift to ANGLE3 (fault PSW2)	
(1) Time out by PSW2 not changed to shift for open side	0F0041
(2) Shift to open side, pass the ANGLE3 then detect OPEN position	0F0042
(3) Time out by PSW2 not changed for shift for close side	0F0043
(4) Shift to close side, pass the ANGLE3 then detect ANGLE2	0F0044
5. PSW fault condition at initialize	
When all PSW is checked immediately after RESET, and the state of SWITCH which cannot be originally is detected, it is displayed as ERR 00.	000000

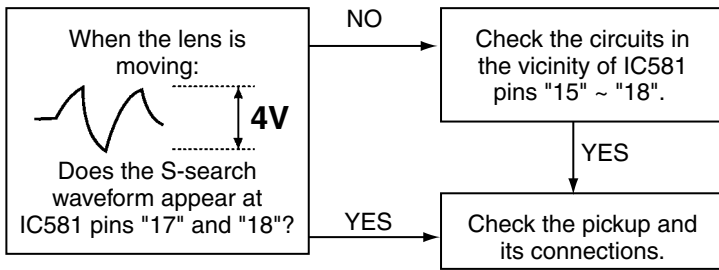
Flow of functional operation until TOC read



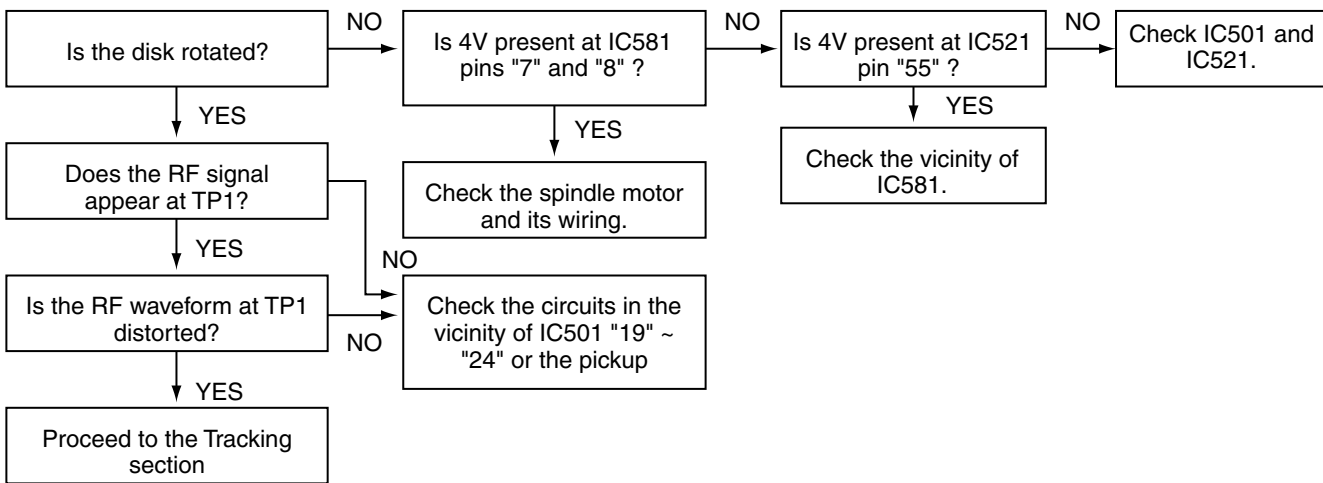
■ Feed Section



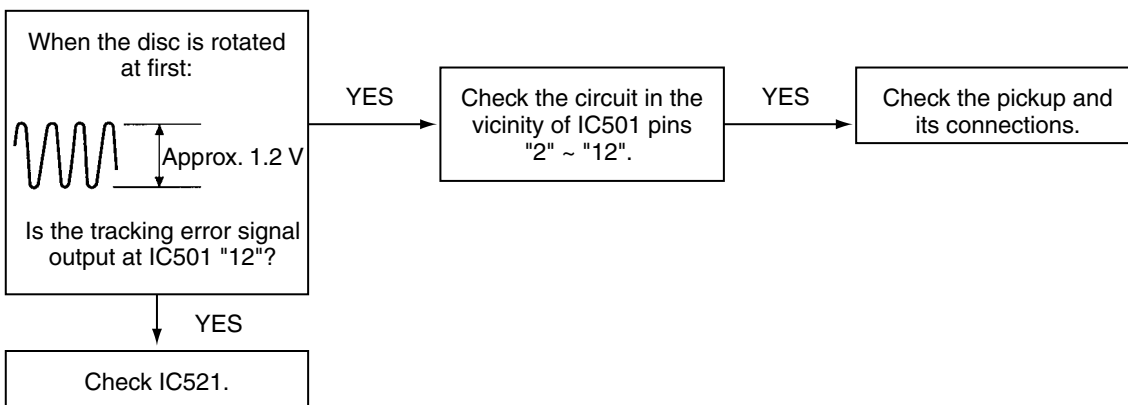
■ Focus Section



■ Spindle Section

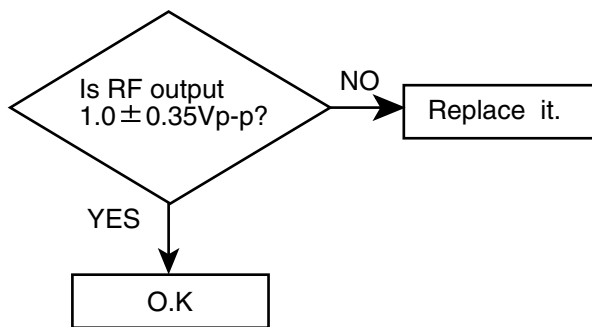


■ Tracking Section



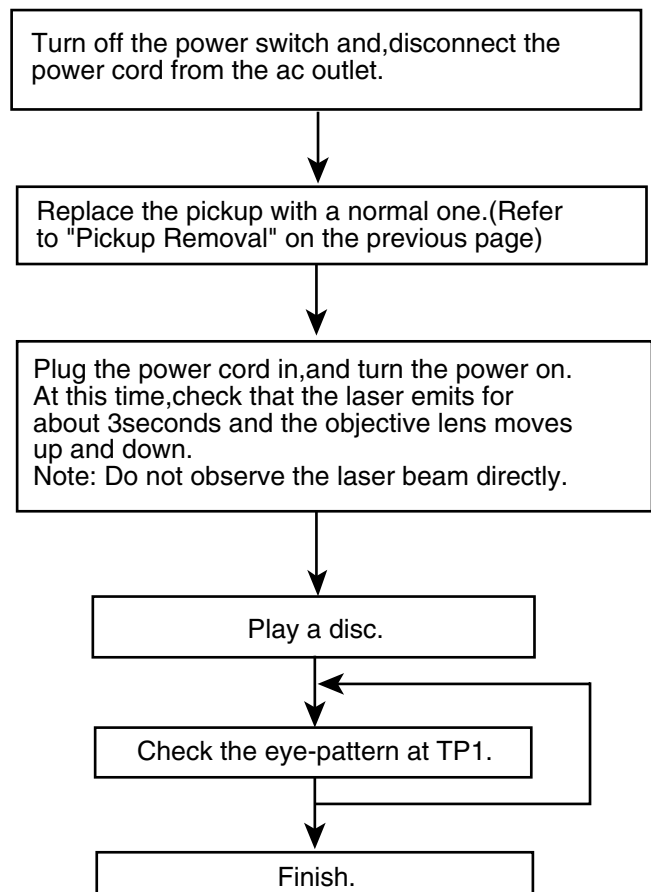
Maintenance of laser pickup

- (1) Cleaning the pick up lens
Before you replace the pick up, please try to clean the lens with a alcohol soaked cotton swab.
- (2) Life of the laser diode
When the life of the laser diode has expired, the following symptoms will appear.
 - (1) The level of RF output (EFM output:amplitude of eye pattern) will be low.



- (3) Semi-fixed resistor on the APC PC board
The semi-fixed resistor on the APC printed circuit board which is attached to the pickup is used to adjust the laser power. Since this adjustment should be performed to match the characteristics of the whole optical block, do not touch the semi-fixed resistor.
If the laser power is lower than the specified value, the laser diode is almost worn out, and the laser pickup should be replaced.
If the semi-fixed resistor is adjusted while the pickup is functioning normally, the laser pickup may be damaged due to excessive current.

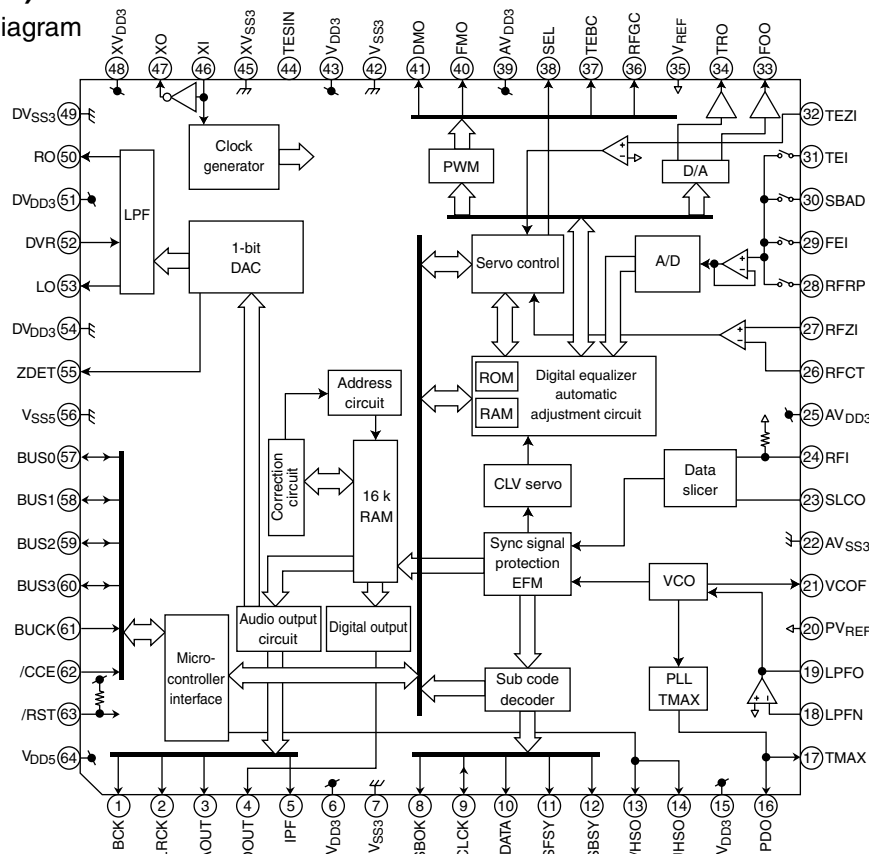
Replacement of laser pickup



Description of major ICs

■ TC9490FA (IC621) : DSP

1. Pin layout & Block diagram



2. Pin function (1/2)

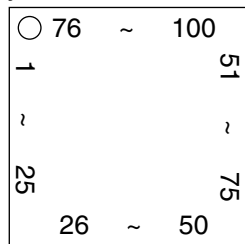
No.	Symbol	I/O	Function
1	BCK	O	Bit clock output pin. 32fs, 48fs, or 64fs selectable by command.
2	LRCK	O	L/R channel clock output pin. "L" for L channel and "H" for R channel.
3	AOUT	O	Audio data output pin. MSB-first or LSB-first selected by command.
4	DOUT	O	Digital data output pin. Outputs up to double-speed playback.
5	IPF	O	Correction flog output pin.
6	VDD3	-	Digital 3.3V power supply voltage pin.
7	VSS3	-	Digital GND pin.
8	SBOK	O	Subcode Q data CRCC result output pin. "H" level when result is OK.
9	CLCK	I/O	Sub-code P-W data read clock I/O pin. I/O polarity selectable by command.
10	DATA	O	Sub-code P-W data output pin.
11	SFSY	O	Playback frames sync signal output pin.
12	SBSY	O	Sub-code block sync output pin.
13	/HSO	O	Playback speed mode flag output pin.
14	/UHSO	O	Playback speed mode flag output pin.
15	PVDD3	-	PLL-only 3.3V power supply voltage pin.
16	PDO	O	EFM and PLCK phase difference signal output pin.
17	TMAX	O	TMAX detection result output pin.
18	LPFN	I	Inverted input pin for PLL RF amp.
19	LPFO	O	Output pin for PLL LPF amp.
20	PVREF	-	PLL-only VREF pin.
21	VCOF	O	VCO filter pin.
22	AVSS3	-	Analog GND pin.
23	SLCO	O	DAC output pin for data slice level generation.
24	RFI	I	RF signal input pin.
25	AVSS3	-	Analog 3.3V power supply voltage pin.

2. Pin function (2/2)

No.	Symbol	I/O	Function
26	RFCT	I	RFRP signal center level input pin.
27	RFZI	I	RFRP signal zero-cross input pin.
28	RFRP	I	RF ripple signal input pin.
29	FEI	I	Focus error signal input pin.
30	SBADTEI	I	Sub-beam adder signal input pin.
31	TEI	I	Tracking error input pin. Inputs when tracking servo is on.
32	TEZI	I	Tracking error signal zero-cross input pin.
33	FOO	O	Focus equalizer output pin.
34	TRO	O	Tracking equalizer output pin.
35	VREF	-	Analog reference power supply voltage pin.
36	RFGC	O	RF amplitude adjustment control signal output pin.
37	TEBC	O	Tracking balance control signal output pin.
38	SEL	O	APC circuit ON/OFF signal output pin.
39	AVDD3	-	Analog 3.3V power supply voltage pin.
40	FMO	O	Feed equalizer output pin.
41	DMO	O	Disc equalizer output pin.
42	VSS3	-	Digital GND pin.
43	VDD3	-	Digital 3.3V power supply voltage pin.
44	TESIN	I	Test input pin.
45	XVSS3	-	System clock oscillator GND pin.
46	XI	I	System clock oscillator input pin.
47	XO	O	System clock oscillator output pin.
48	XVDD3	-	System clock oscillator 3.3V power supply voltage pin.
49	DVSS3	-	DA converter GND pin.
50	RO	O	R-channel data forward output pin.
51	DVDD3	-	DA converter 3.3V power supply pin.
52	DVR	-	Reference voltage pin.
53	LO	O	L-channel data forward output pin.
54	DVSS3	-	DC converter GND pin.
55	ZDET	O	1 bit DA converter zero data detection flag output pin.
56	VSS5	-	Microcontroller interface GND pin.
57	BUS0	I/O	Microcontroller interface data I/O pins.
58	BUS1	I/O	Microcontroller interface data I/O pins.
59	BUS2	I/O	Microcontroller interface data I/O pins.
60	BUS3	I/O	Microcontroller interface data I/O pins.
61	BUCK	I	Microcontroller interface clock input pin.
62	/CCE	I	Microcontroller interface chip enable signal input pin.
63	/RST	I	Reset signal input pin.
64	VDD5	-	Microcontroller interface 5V power supply pin.

■ UPD784217AGC134 (IC701) : CPU

1. Pin layout



2. Pin function (1/2)

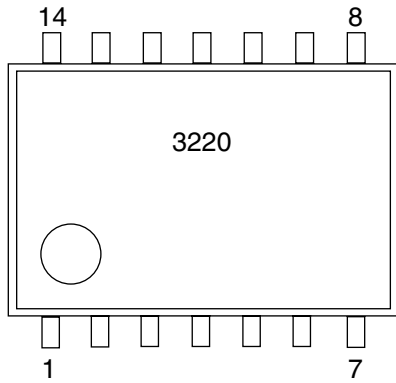
Pin No.	Symbol	I/O	Function
1	SW2	I	CD mecha switch 2 detection signal input
2	SW3	I	CD mecha switch 3 detection signal input
3	SW4	I	CD mecha switch 4 detection signal input
4	REST-SW	I	Rest switch detection signal input
5	LM0	O	Loading side motor control signal output
6	LM1	O	Eject side motor control signal output
7	NC	O	Non connect
8	ANT REM	O	Antenna remote output
9	VDD	-	5V connection
10	X2	-	Connect to X'tal for main clock
11	X1	-	Connect to X'tal for main clock
12	VSS	-	Connect to GND
13	XT2	-	Connect to X'tal for sub clock
14	XT1	-	Connect to X'tal for sub clock
15	RESET	I	Reset detection terminal
16	SW1	I	CD mecha switch 1 detection signal input
17	BUS-INT	I	J-BUS signal interrupt input
18	PS2	I	Power save 2
19	NC	-	Non connect
20	RDS-SCK	I	RDS clock signal input
21	RDS_DA	I	RDS data input
22	REMOCON	I	Remocon signal input
23	AVDD	-	5V connect
24	AVREF0	-	5V connect
25	SD/ST	I	Station detector, Stereo signal input
26	MRC DATA	I	MRC data input
27	KEY0	I	Key input 0
28	KEY1	I	Key input 1
29	TEMP	I	Temperature data input for contrast correction
30	LEVEL	I	Level meter input
31	SQ	I	S.Quality level input
32	SM	I	S.meter level input
33	AVSS	-	Connect to GND
34	INLOCK	O	Lock detection output
35	NC	-	Non connect
36	AVREF	-	5V connect
37	BUS-SI	I	J-BUS data input
38	BUS-SO	O	J-BUS data output
39	BUS-SCK	I/O	J-BUS clock input/output
40	STAGE	I	H:SH77, L:SH55
41	LCD-DA	O	Data output for LCD driver
42	LCD-SCK	O	Clock output for LCD driver
43	LCD-CE	O	Chip enable output for LCD driver

2. Pin function (2/2)

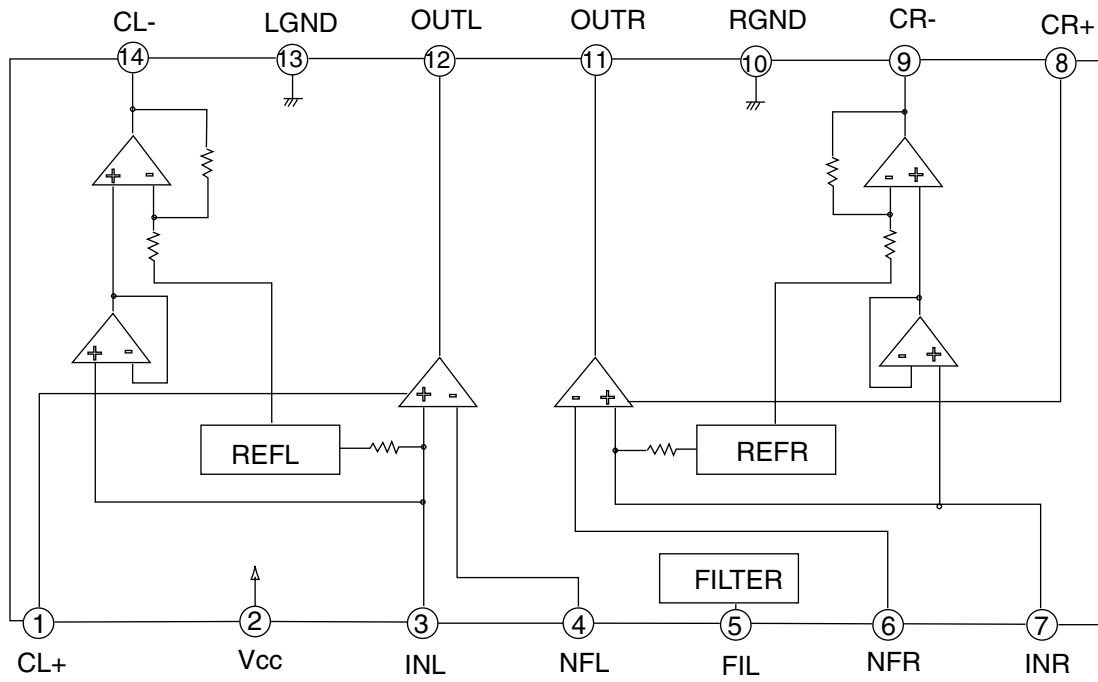
Pin No.	Symbol	I/O	Function
44	BUZZER	O	Buzzer output
45	I2C-DAI	I	I2C data input
46	I2C-DAO	O	I2C data output
47	I2C-CLK	O	I2C clock output
48	BUS-I/O	O	J-BUS I/O switching output
49	PM0	O	Panel close side motor control signal output
50	PM1	O	Panel open side motor control signal output
51	DACML	O	DAC mode control latch
52	DACMC	O	DAC mode control clock
53	DACMD	O	DAC mode control data
54	DETACH	I	Detach signal input
55	VCR CONT	O	VCR control signal output
56~61	PNL-SW1~6	I	Panel position detection switch 1 to 6 signal input
62	AFCK	O	AF check output
63	SEEK/STOP	O	Auto seek / Stop switching output
64	S MUTE	O	Soft mute output for CF switching noise
65	FM/AM	O	FM / AM select output
66	PLL-CE	O	PLL IC control CE output
67	PLL-DO	O	PLL IC control data output
68	PLL-CLK	O	PLL IC control clock output
69	PLL-DI	I	PLL IC control data input
70	TEL-MUTE	-	Telephone mute detection input
71	AMP-KILL	O	Power amp ON /OFF select output
72	VSS	-	Connect to GND
73	DIM-IN	I	Dimmer detection input
74	PS1	I	Power save 1
75	POWER	O	Power ON / OFF select output
76	CD-ON	O	CD power supply control signal output
77	MUTE	O	Mute output
78	W-LPF1	O	Sub woofer cut off frequency control output 1
79	W-LPF2	O	Sub woofer cut off frequency control output 2
80	W-MUTE	O	Sub woofer mute output
81	VDD	O	5V connect
82	VOL-DA	O	E. volume IC control data output
83	VOL-CLK	O	E. volume IC control clock data output
84	CF SEL	O	FM band area filter select signal output
85	PMKICK	O	Panel motor kick signal output
86	EMPH	O	CD emphasis output
87	CS	O	DAC chip select
88	VOL-1	I	Rotary volume pulse
89	VOL-2	I	Rotary volume pulse signal input
90	NC	-	Non connect
91	BUCK	O	Data communication clock output with CD LSI
92	CCE	O	Data communication CE output with CD LSI
93	LSIRST	O	CD LSI reset signal output
94	TEST	-	Connect to GND
95	BUS0	I/O	Data communication input/output port 0 with CD LSI
96	BUS1	I/O	Data communication input/output port 1 with CD LSI
97	BUS2	I/O	Data communication input/output port 2 with CD LSI
98	BUS3	I/O	Data communication input/output port 3 with CD LSI
99	DISCSEL	I	H: 8 cm disc non correspondence L: 8 cm disc correspondence
100	CD-RW	O	CD-RW select signal output

■ BA3220FV-X (IC301,IC401) : Line out amp

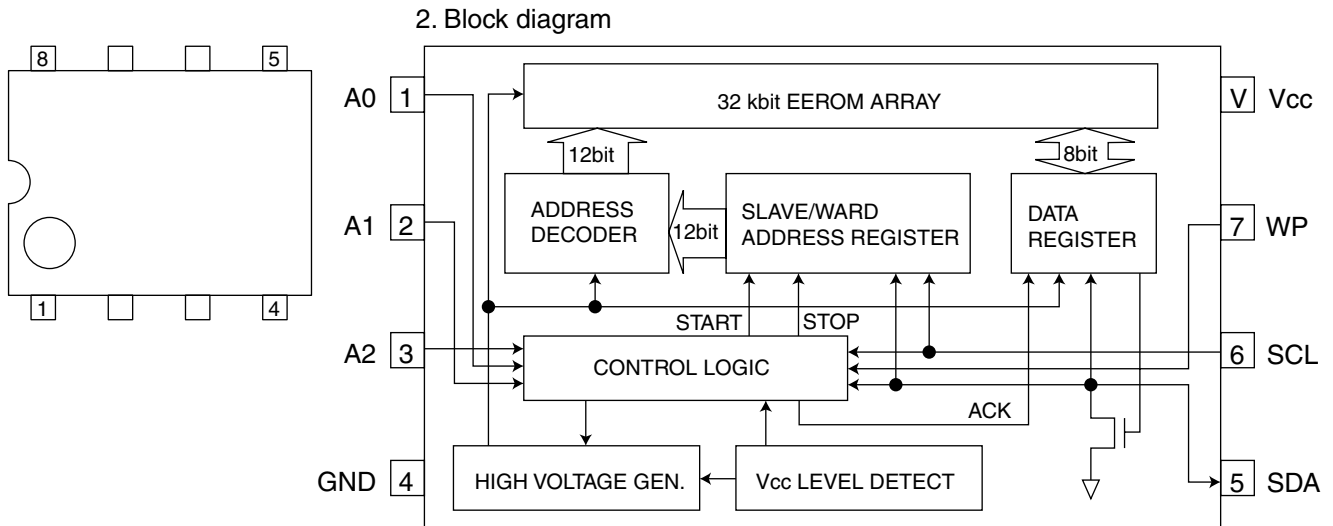
1.Pin layout



2.Block diagram



BR24C32F-X (IC703) : EEPROM

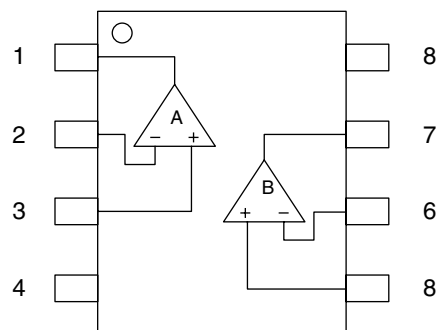


3. Pin function

Pin No.	Symbol	I/O	Function
1	A0	I	Slave address set
2	A1	I	Slave address set
3	A2	I	Slave address set
4	GND	-	Ground
5	SDA	I/O	Slave & Word address, Serial data input/Serial address output
6	SCL	I	Serial clock input
7	WP	I	Write protect input
8	Vcc	-	Power supply

NJM4580V-X (IC671) : Ope amp

1. Pin layout & Block diagram

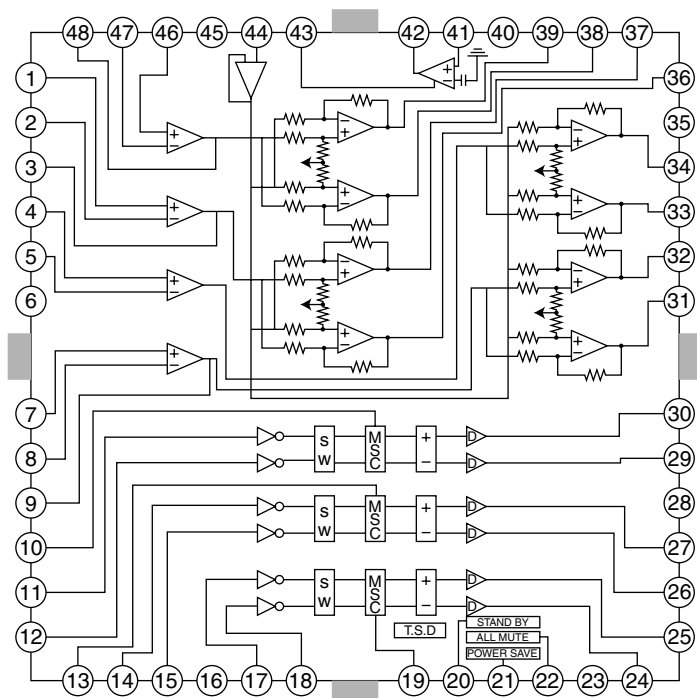


2. Pin function

Pin No.	Function
1	A output
2	A -input
3	A +input
4	V-
5	B +input
6	B -input
7	B output
8	V+

■ FAN8037 (IC661) : CD driver

1. Pin layout & Block diagram

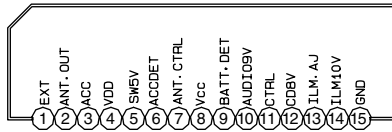


2. Pin function

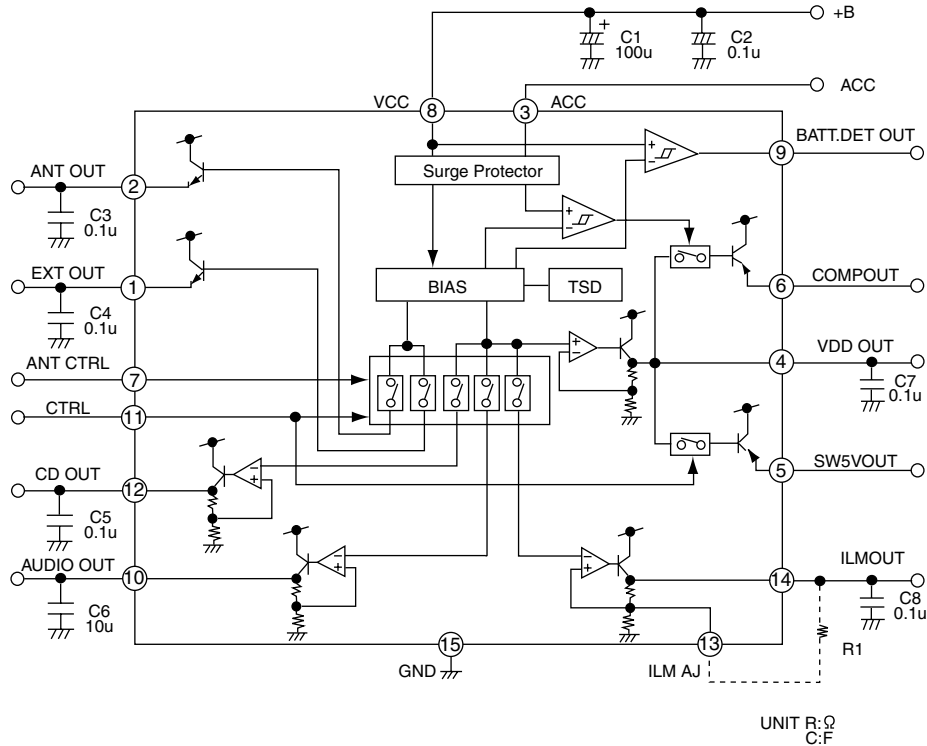
Pin No.	Symbol	I/O	Function	Pin No.	Symbol	I/O	Function
1	IN2+	I	CH2 op-amp input(+)	25	DO7+	O	CH7 drive output(+)
2	IN2-	I	CH2 op-amp input(-)	26	DO6-	O	CH6 drive output(-)
3	OUT2	O	CH2 op-amp output	27	DO6+	O	CH6 drive output(+)
4	IN3+	I	CH3 op-amp input(+)	28	PGND2	-	Power ground2
5	IN3-	I	CH3 op-amp input(-)	29	DO5-	O	CH5 drive output(-)
6	OUT3	O	CH3 op-amp output	30	DO5+	O	CH5 drive output(+)
7	IN4+	I	CH4 op-amp input(+)	31	DO4-	O	CH4 drive output(-)
8	IN4-	I	CH4 op-amp input(-)	32	DO4+	O	CH4 drive output(+)
9	OUT4	O	CH4 op-amp output(+)	33	DO3-	O	CH3 drive output(-)
10	CTL1	I	CH5 motor speed control	34	DO3+	O	CH3 drive output(+)
11	FWD1	I	CH5 forward input	35	PGND1	-	Power ground1
12	REV1	I	CH5 reverse input	36	DO2-	O	CH2 drive output(-)
13	CTL2	I	CH6 motor speed control	37	DO2+	O	CH2 drive output(+)
14	FWD2	I	CH6 forward input	38	DO1-	O	CH1 drive output(-)
15	REV2	I	CH6 reverse input	39	DO1+	O	CH1 drive output(+)
16	SGND	-	Signal ground	40	PVCC1	-	Power supply voltage
17	FWD3	I	CH7 forward input	41	REGOX	I	Regulator feedback input
18	REV3	I	CH7 reverse input	42	REGX	O	Regulator output
19	CTL3	I	CH7 motor speed control	43	RESX	I	Regulator reset input
20	SB	I	Stand by	44	VREF	I	Bias voltage input
21	PS	I	Power save	45	SVCC	-	Signal supply voltage
22	MUTE	I	All mute	46	IN1+	I	CH1 op-amp input(+)
23	PVCC2	-	Power supply voltage	47	IN1-	I	CH1 op-amp input(-)
24	DO7-	O	CH7 drive output(-)	48	OUT1	O	CH1 op-amp output

HA13164 (IC961) : Regulator

1. Terminal layout



2. Block diagram



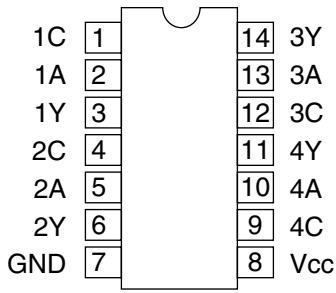
note1) TAB (header of IC)
connected to GND

3. Pin function

Pin No.	Symbol	Function
1	EXTOUT	Output voltage is VCC-1 V when M or H level applied to CTRL pin.
2	ANTOUT	Output voltage is VCC-1 V when M or H level to CTRL pin and H level to ANT-CTRL.
3	ACCIN	Connected to ACC.
4	VDDOUT	Regular 5.7V.
5	SW5VOUT	Output voltage is 5V when M or H level applies to CTRL pin.
6	COMPOUT	Output for ACC detector.
7	ANT CTRL	L:ANT output OFF , H:ANT output ON
8	VCC	Connected to VCC.
9	BATT DET	Low battery detect.
10	AUDIO OUT	Output voltage is 9V when M or H level applied to CTRL pin.
11	CTRL	L:BIAS OFF, M:BIAS ON, H:CD ON
12	CD OUT	Output voltage is 8V when H level applied to CTRL pin.
13	ILM AJ	Adjustment pin for ILM output voltage.
14	ILM OUT	Output voltage is 10V when M or H level applies to CTRL pin.
15	GND	Connected to GND.

■ HD74HC126FP-X (IC771) : Buffer

1. Terminal layout

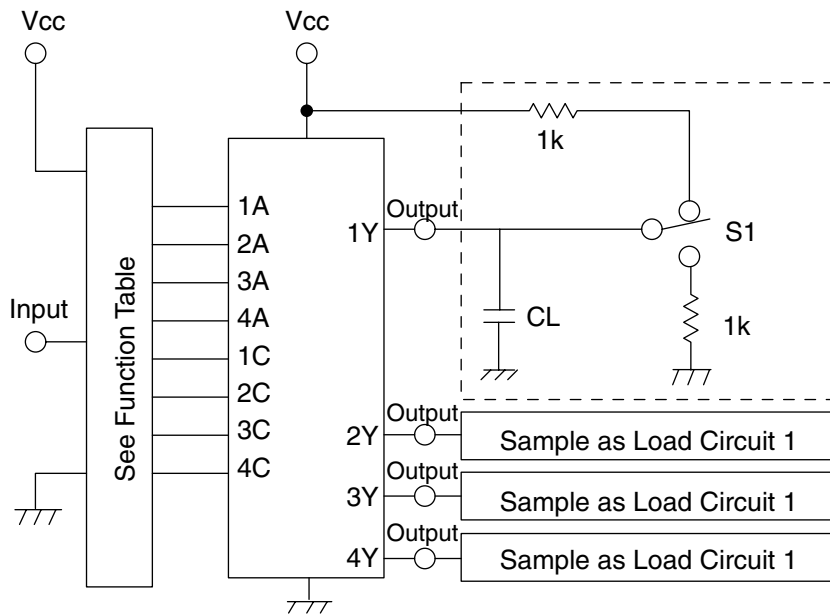


3. Pin function

Input		Output
C	A	Y
L	X	Z
H	L	H
H	H	L

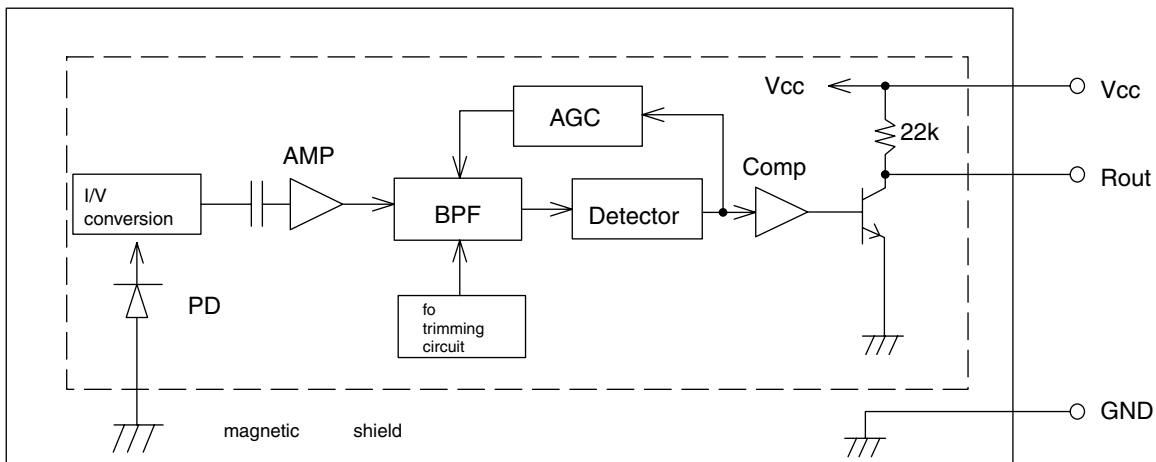
Note: H : High
 L : Low
 X : H and L
 Z : H.L.X

2. Block diagram



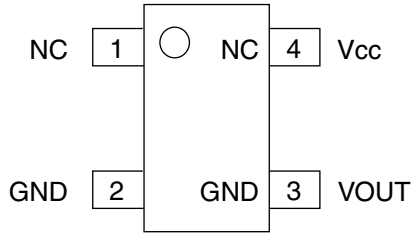
■ RPM6938-SV4 (IC561) : Remote sensor

1. Block diagram

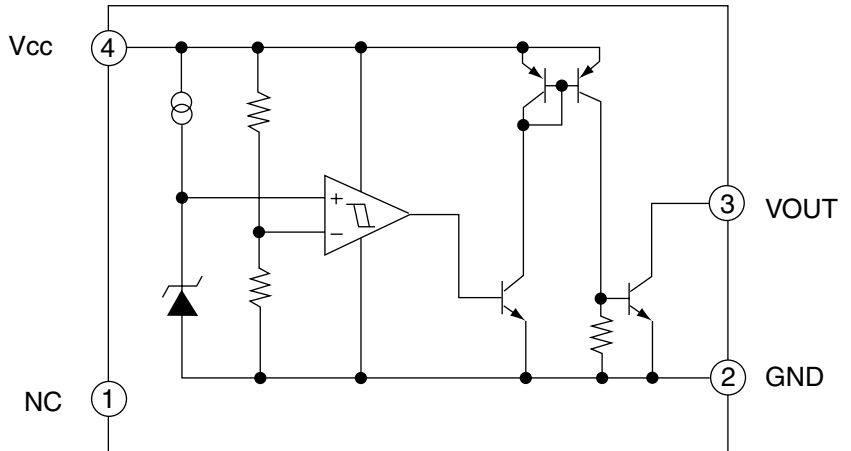


IC-PST9333U-X (IC702) : Reset IC

1. Pin layout



2. Block diagram

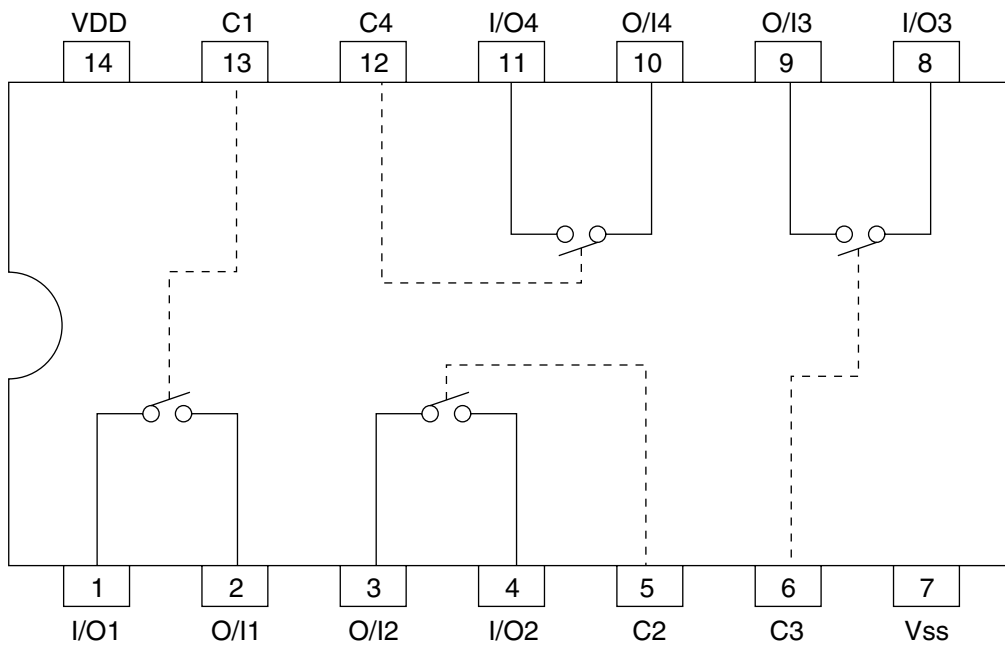


3. Pin function

Pin No.	Symbol	Function
1	NC	Non connect
2	GND	GND terminal
3	VOUT	Reset signal output terminal
4	Vcc	Power supply terminal

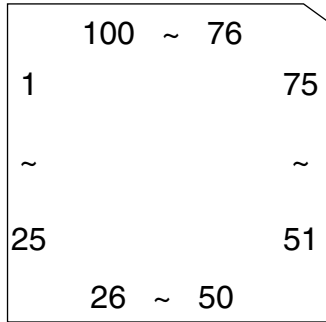
BU4066BCFV-X (IC322) : Quad analog switch

1. Pin layout & Block diagram

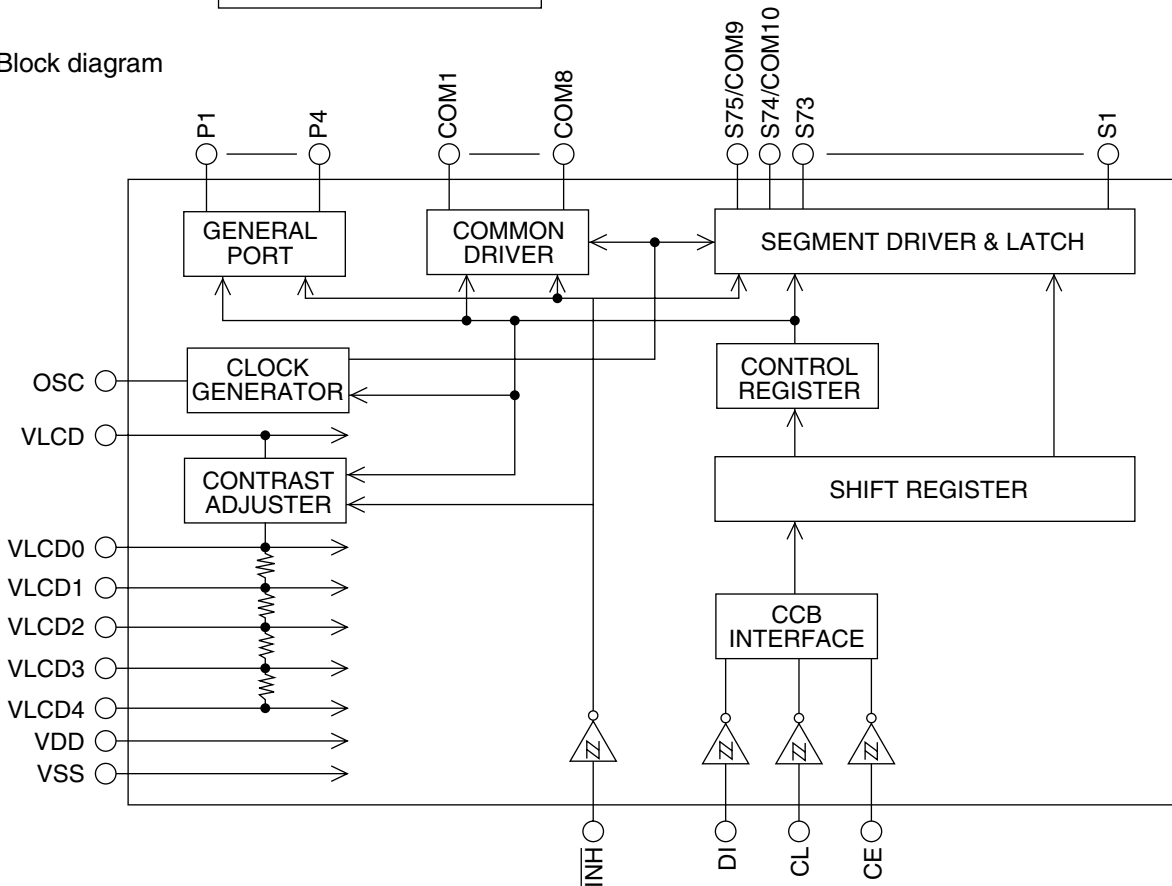


■ LC75878W (IC501) : LCD driver

1. Pin layout



2. Block diagram

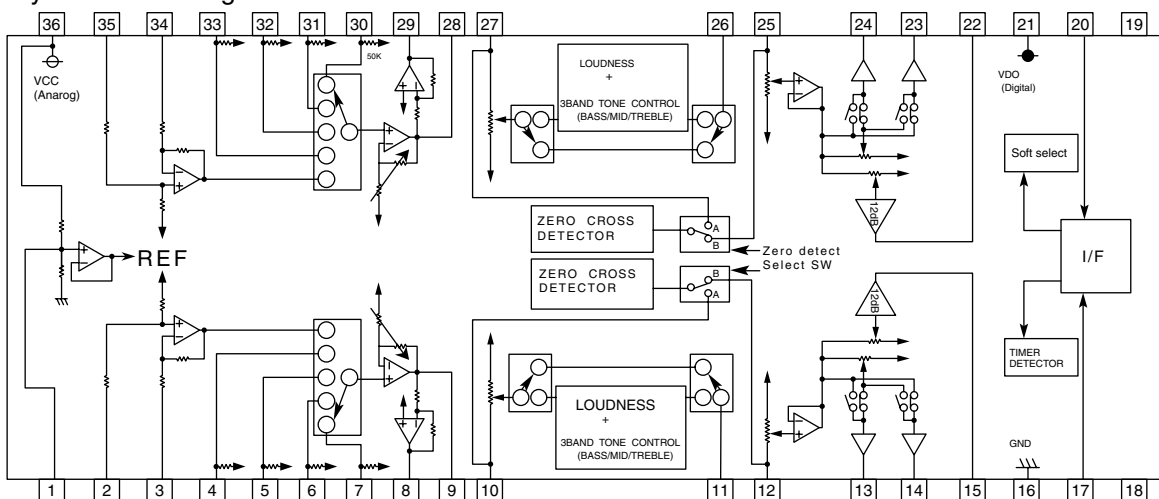


3. Pin function

No.	Symbol	I/O	Function
1~73	S1~S73	O	Segment driver output pin.
74	S74 / COM10	O	Segment driver output pin.
75	S75 / COM9	O	Segment driver output pin.
76~83	COM8~COM1	O	Common driver output pin.
84~87	P1~P4	O	General-purpose output pin.
88	VDD	-	Logic block power supply pin.
89	VLCD	-	LCD driver power supply pin.
90	VLCD0	O	LCD driver bias 4/4 voltage (H-level) power pin.
91	VLCD1	I	LCD driver bias 3/4 voltage (intermediate level) power pin.
92	VLCD2	I	LCD driver bias 2/4 voltage (intermediate level) power pin.
93	VLCD3	I	LCD driver bias 1/4 voltage (intermediate level) power pin.
94	VLCD4	I	LCD driver bias 0/4 voltage (L-level) power pin.
95	VSS	-	Power supply pin to connect to ground.
96	OSC	I/O	Oscillator pin.
97	INH	I	Display off, general-purpose output port 「L」 fixed input pin.
98	CE	I	Chip enable
99	CL	I	Synchronization clock
100	DI	I	Transfer data

■ M61508FP-X (IC911) : E. volume

1. Pin layout & Block diagram

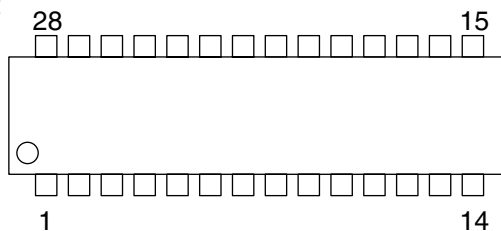


2. Pin function

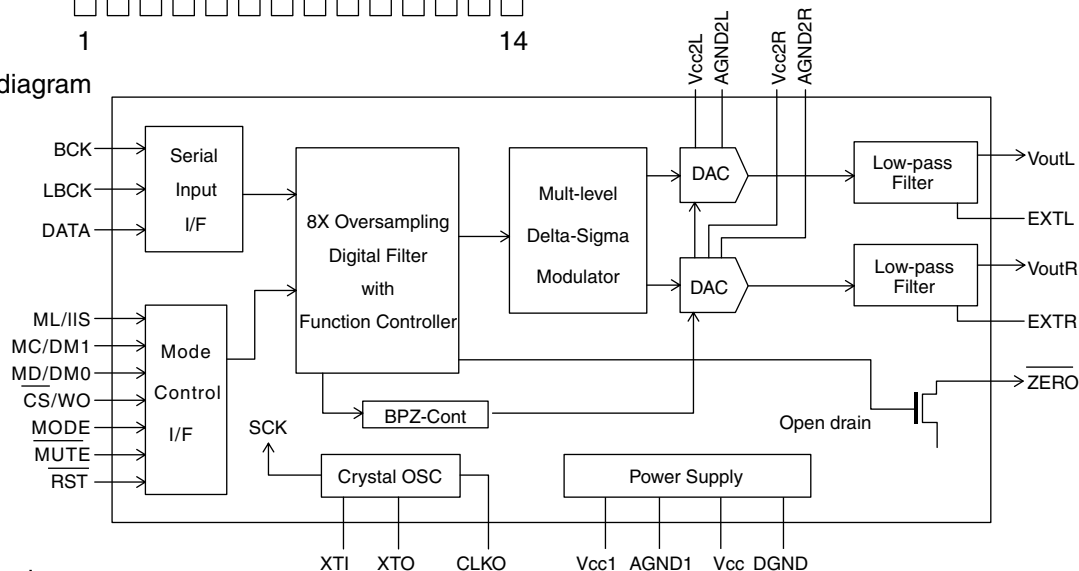
Pin No.	Symbol	Function
1	REF	Grand for IC signal
2	DEFP IN1	Differential motion amp. Positive terminal
3	DEFN IN1	Differential motion amp. Negative terminal
4	INA1	Input terminal of input selector switch channel 1
5	INB1	Input terminal of input selector switch channel 1
6	INC1	Input terminal of input selector switch channel 1
7	IND1	Input terminal of input selector switch channel 1
8	DEFN OUT1	Differential output terminal (-)
9	SEL OUT1	Input selector output terminal
10	VOL IN1	Volume 1 input terminal
11	TONE OUT1	Tone output terminal
12	FADER IN1	Volume 2 input terminal
13	REAR OUT1	Fader volume control (Rear) output terminal
14	FRONT OUT1	Fader volume control (Front) output terminal
15	NonFader OUT1	Non fader volume output terminal
16	GND	GND terminal
17	DATA	Control data input terminal
18	TEST1	Test terminal
19	TEST2	Test terminal
20	CLOCK	Clock input terminal for serial data transport
21	VDD	Power supply terminal for digital
22	NonFader OUT2	Non fader volume control output terminal
23	FRONT OUT2	Fader volume (Front) output terminal
24	REAR OUT2	Fader volume (Rear) output terminal
25	FADER IN2	Volume 2 input terminal
26	TONE OUT2	Tone output terminal
27	VOL IN2	Volume 1 input terminal
28	SEL OUT2	Input selector output terminal
29	DEFN OUT1	Differential output terminal (-)
30	IND2	Input terminal of input selector switch channel 2
31	INC2	Input terminal of input selector switch channel 2
32	INB2	Input terminal of input selector switch channel 2
33	INA2	Input terminal of input selector switch channel 2
34	DEFN IN1	Differential motion amp negative input terminal
35	DEFP IN1	Differential motion amp positive input terminal
36	VCC	Power supply terminal

■ PCM1716E-X (IC681) : D/A converter

1. Pin layout



2. Block diagram

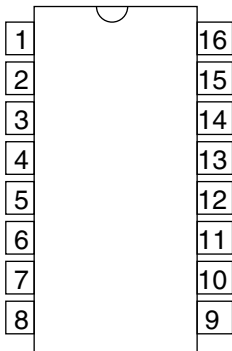


3. Pin function

Pin No.	Symbol	I/O	Function
1	LRCK	I	LRCK clock input
2	DATA	I	Serial audio data input
3	BCK	I	Bit clock input for serial audio data
4	CLKO	O	Buffered output of system clock
5	XTI	I	Oscillator input / External clock input
6	XTO	O	Oscillator output
7	DGND	-	Digital ground
8	VDD	-	Digital power +5V
9	VDD2R	-	Analog power +5V
10	AGND2R	-	Analog ground
11	EXTR	O	Rch common pin of analog output amp
12	NC	-	Non connection
13	VOUTr	O	Rch analog voltage output of audio signal
14	AGND1	-	Analog ground
15	Vcc1	-	Analog power +5V
16	VOuTL	O	Lch analog voltage output of audio signal
17	NC	-	Non connection
18	EXTL	O	Lch common pin of analog output amp
19	AGND2L	-	Analog ground
20	Vcc2L	-	Analog power +5V
21	ZERO	O	Zero data flag
22	RST	I	Reset
23	CS/IWO	I	Chip select / Input format selection
24	MODE	I	Mode control select
25	MUTE	I	Mute control
26	MD/DM0	I	Mode control, Data / De-emphasis selection 1
27	MC/DM1	I	Mode control, BCK / De-emphasis selection 2
28	ML/IIS	I	Mode control, WDCK / Input format selection

■ SAA6579T-X (IC51) : RDS detector

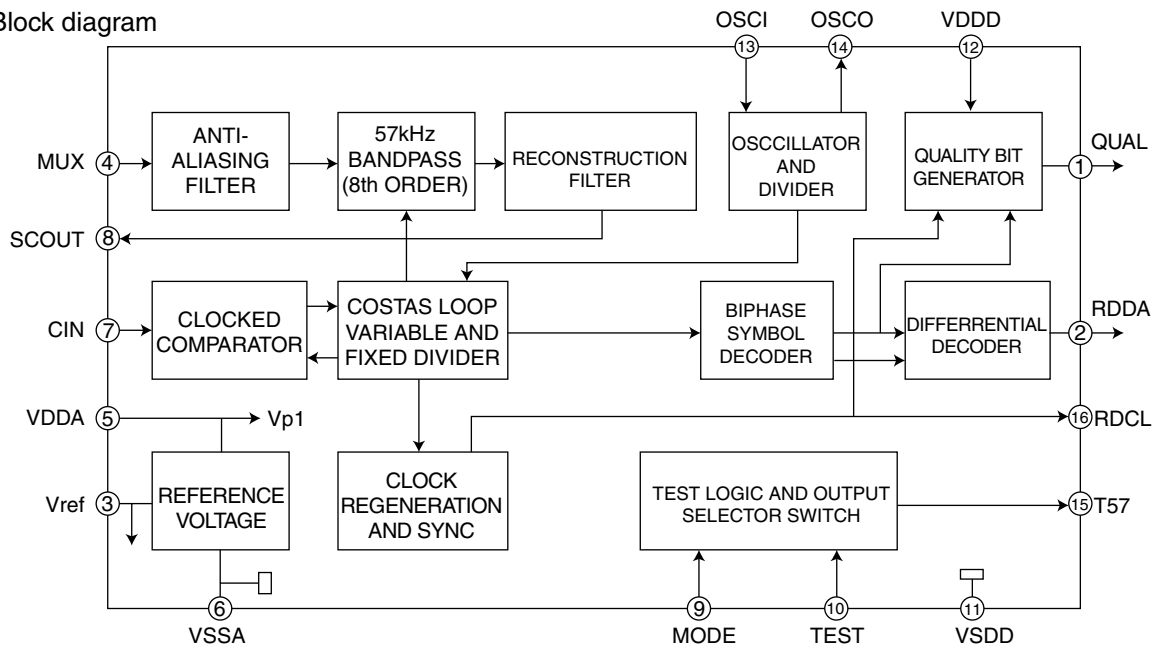
1. Pin layout



2. Pin function

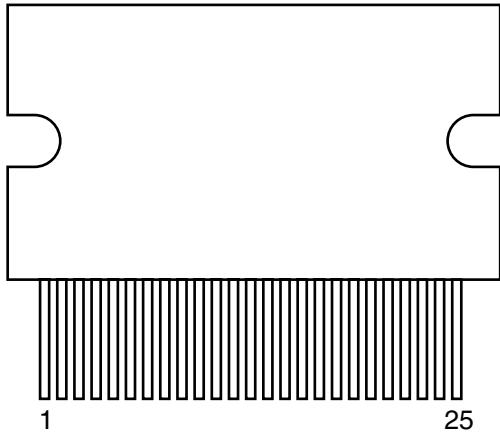
Pin No.	Symbol	Function
1	QUAL	Quality indication output
2	RDDA	RDS data output
3	Vref	Reference voltage output (0.5VDDA)
4	MUX	Multiplex signal input
5	VDDA	+5V supply voltage for analog part
6	VSSA	Ground for analog part (0V)
7	CIN	Subcarrier input to comparator
8	SCOUT	Subcarrier output of reconstruction filter
9	MODE	Oscillator mode / test control input
10	TEST	Test enable input
11	VSSD	Ground for digital part (0V)
12	VDDD	+5V supply voltage for digital part
13	OSCI	Oscillator input
14	OSCO	Oscillator output
15	T57	57kHz clock signal output
16	RDCL	RDS clock output

3. Block diagram

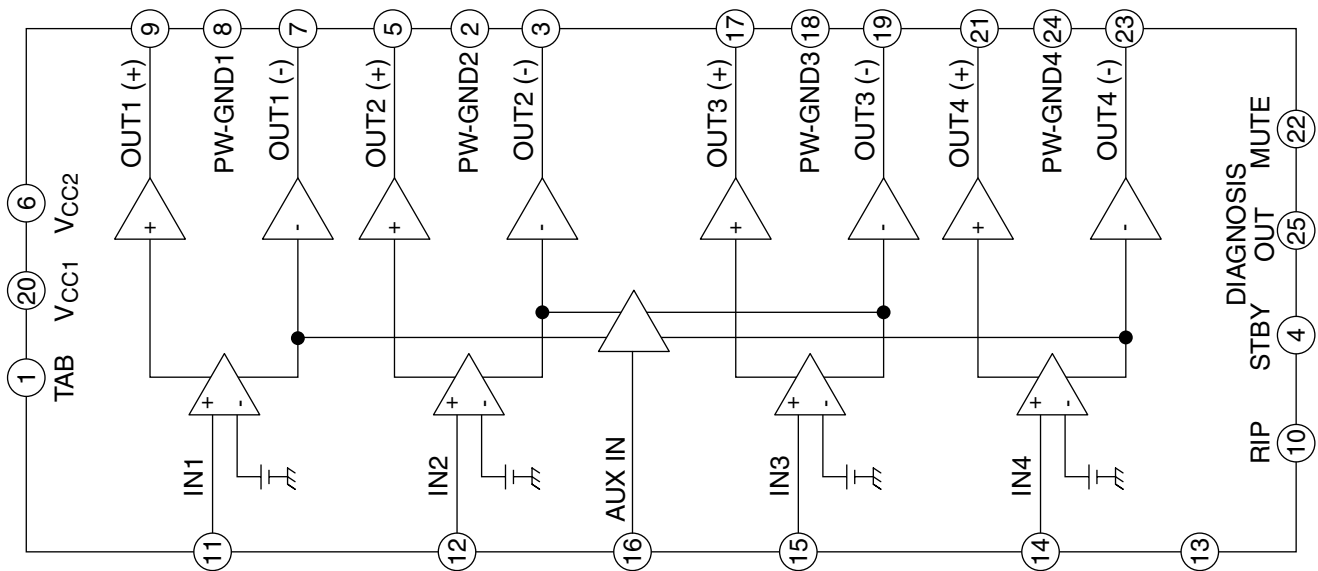


TA8273H (IC941) : Power amp

1. Pin layout

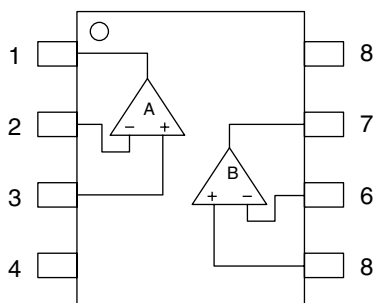


2. Block diagram



NJM4565V-X (IC171,IC301,IC323,IC401,IC951) : Ope amp

1. Pin layout & Block diagram



2. Pin function

Pin No.	Function
1	A output
2	A-input
3	A+input
4	V-
5	B+input
6	B-input
7	B output
8	V+



VICTOR COMPANY OF JAPAN, LIMITED
MOBILE ELECTRONICS DIVISION

PERSONAL & MOBILE NETWORK BUSINESS UNIT. 10-1,1Chome,Ohwatari-machi,Maebashi-city,Japan