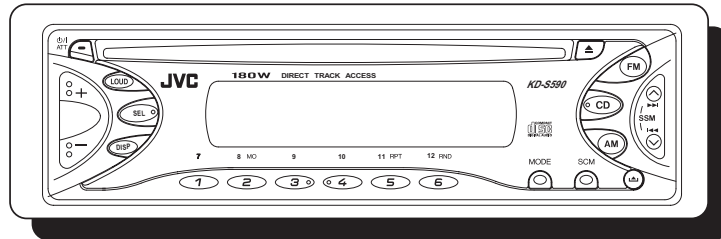
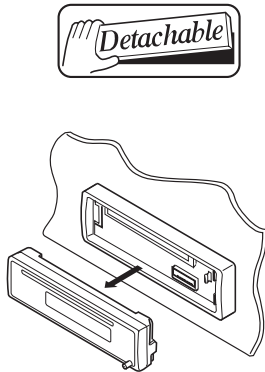


JVC

SERVICE MANUAL

CD RECEIVER

KD-S590



Area Suffix

J ----- Northern America


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SECTION 1

Important Safety Precautions

1.1 Safety Precautions

 **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.

1.2 Preventing 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.

1.2.1 Grounding to prevent damage by static electricity

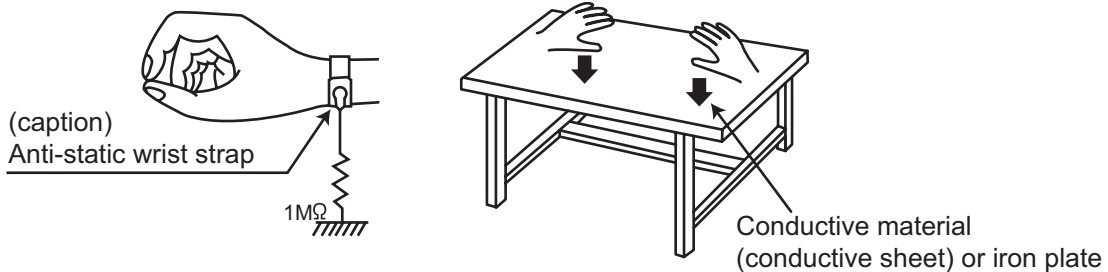
Static electricity in the work area can destroy the optical pickup (laser diode) in devices such as DVD players. Be careful to use proper grounding in the area where repairs are being performed.

(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) Ground yourself

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



(3) Handling the optical pickup

- 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.)
- 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.

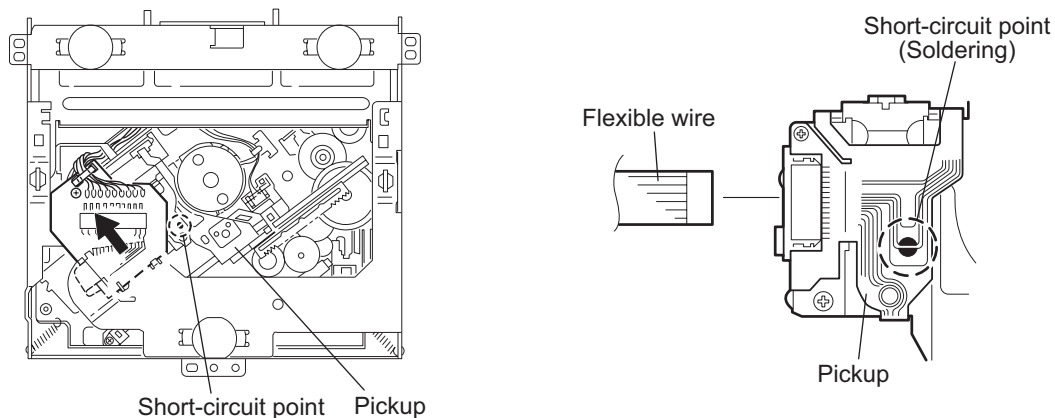
1.3 Handling the traverse unit (optical pickup)

- (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.

1.4 Attention when traverse unit is decomposed

***Please refer to "Disassembly method" in the text for the CD pickup unit.**

- Apply solder to the short land before the flexible wire is disconnected from the connector on the CD pickup unit. (If the flexible wire is disconnected without applying solder, the CD pickup may be destroyed by static electricity.)
- In the assembly, be sure to remove solder from the short land after connecting the flexible wire.



SECTION 2

Disassembly method

2.1 Main body

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

- (1) Push the detach button in the lower right part of the front panel and remove the front panel assembly in the direction of the arrow.

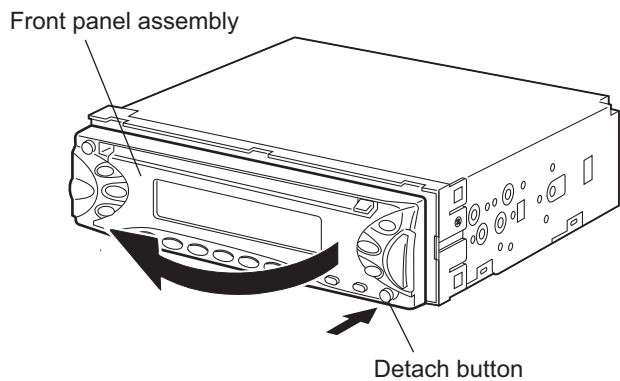


Fig.1

2.1.2 Removing the front chassis assembly (See Figs.2 and 3)

- Prior to performing the following procedure, remove the front panel assembly.
- (1) Remove the two screws **A** on the both sides of the main body.
 - (2) Release the two joints **a** and the two joints **b** on both sides of the main body using a screwdriver, and remove the front chassis assembly forward.

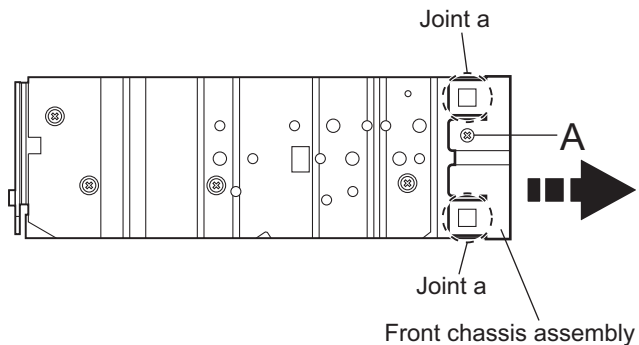


Fig.2

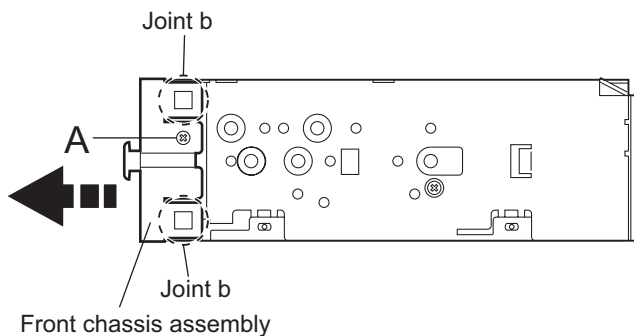


Fig.3

2.1.3 Removing the side panel (See Fig.4)

- (1) Remove the two screws **B** and two screws **C** on the left side of the main body.

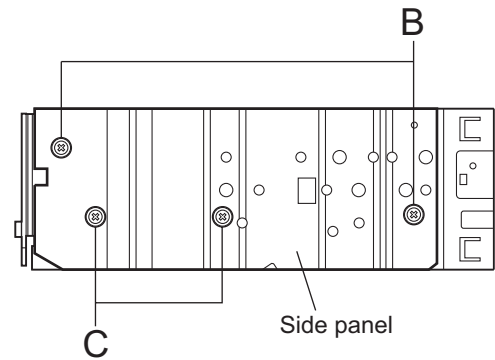


Fig.4

2.1.4 Removing the bottom cover (See Figs.5 and 6)

- Prior to performing the following procedure, remove the front panel assembly, front chassis assembly and side panel.
- (1) Turn over the body and release the two joints **c**, two joints **d** and joint **e**.

CAUTION:

Do not damage the board when releasing the joint **e** using a screwdriver. (See Figs.5 and 6)

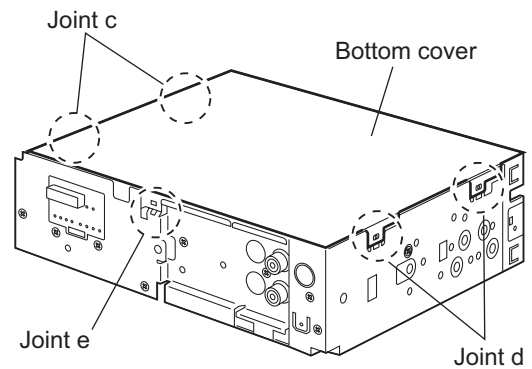


Fig.5

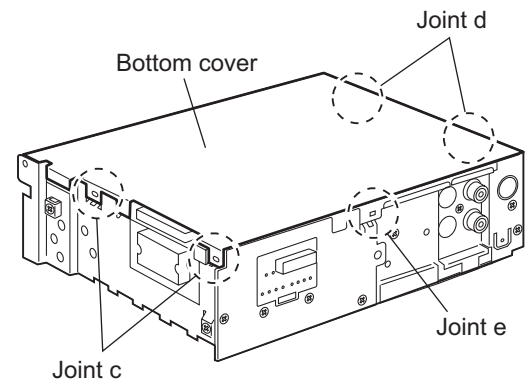


Fig.6

2.1.5 Removing the rear bracket (See Fig.7)

- Prior to performing the following procedure, remove the front panel assembly, front chassis assembly, side panel and bottom cover.
- (1) Remove the three screws **D**, three screws **E** and two screws **F** on the back of the body.
 - (2) Remove the rear bracket.

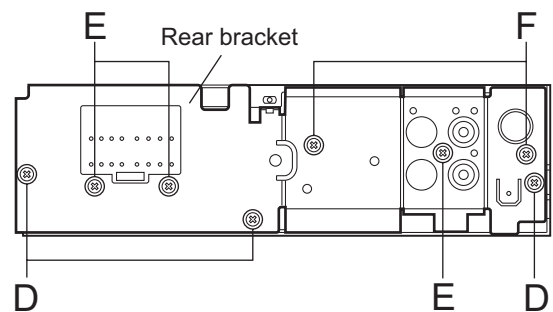


Fig.7

**2.1.6 Removing the main board assembly
(See Fig.8)**

- Prior to performing the following procedure, remove the front panel assembly, front chassis assembly, the heat sink, side panel, rear bracket and bottom cover.
 - (1) Remove the two screws **G** attaching the main board assembly.
 - (2) Disconnect connector CN501 and remove the main board assembly.

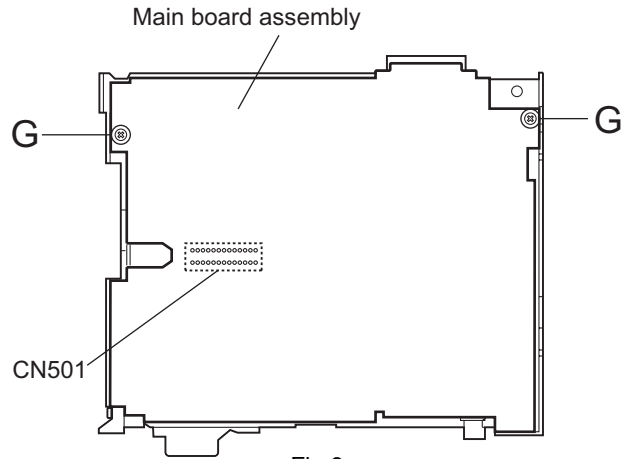


Fig.8

**2.1.7 Removing the CD mechanism assembly
(See Fig.9)**

- Prior to performing the following the procedure, remove the front panel assembly, chassis assembly, side panel, bottom cover, rear bracket and main board assembly.
 - (1) Remove the three screws **H**.

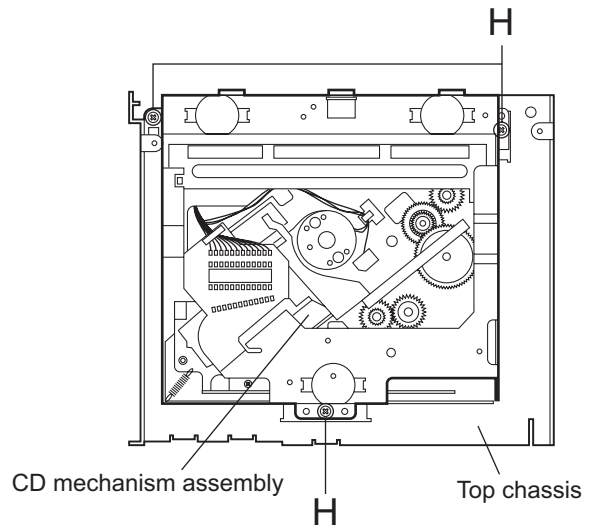


Fig.9

2.1.8 Removing the switch board (See Figs.10 to 12)

- Prior to performing the following procedure, remove the front panel assembly.
 - (1) Remove the four screws **J** on the back side of the front panel assembly.
 - (2) Release the eleven joints **f**.
 - (3) Take out the LCD key switch board.

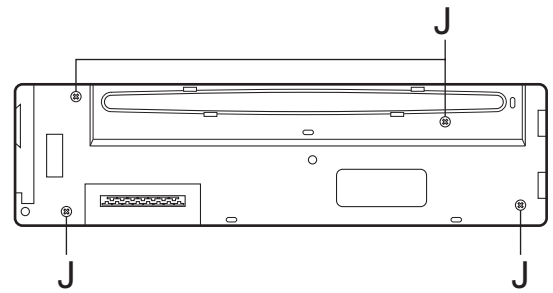


Fig.10

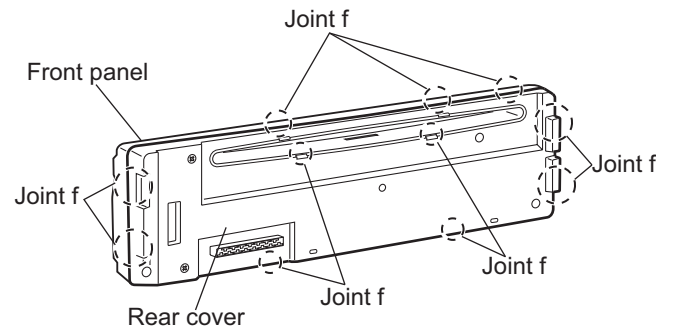


Fig.11

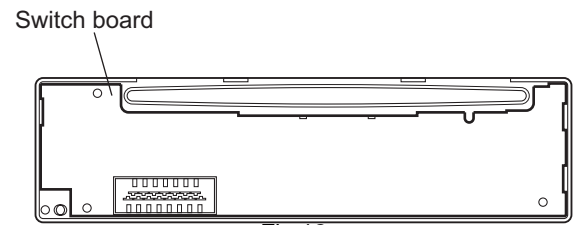


Fig.12

2.2 CD Mechanism Assembly

2.2.1 Removing the top cover (See Figs.1 and 2)

- (1) Remove the two screws **A** on the both side of the body.
- (2) Lift the front side of the top cover and move the top cover backward to release the two joints **a**.

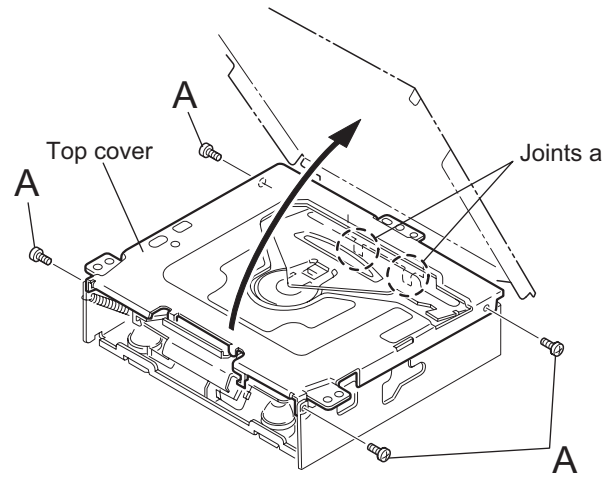


Fig.1

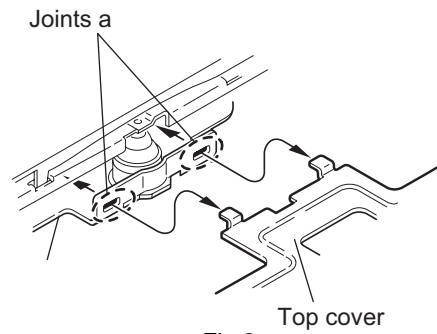


Fig.2

2.2.2 Removing the connector board (See Figs.3 to 5)

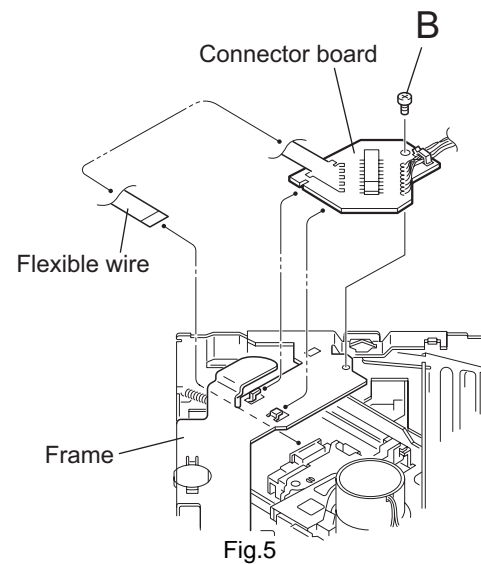
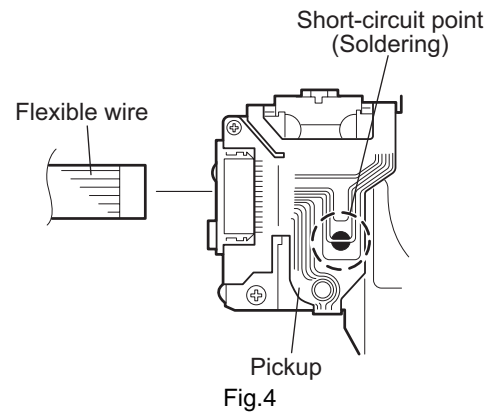
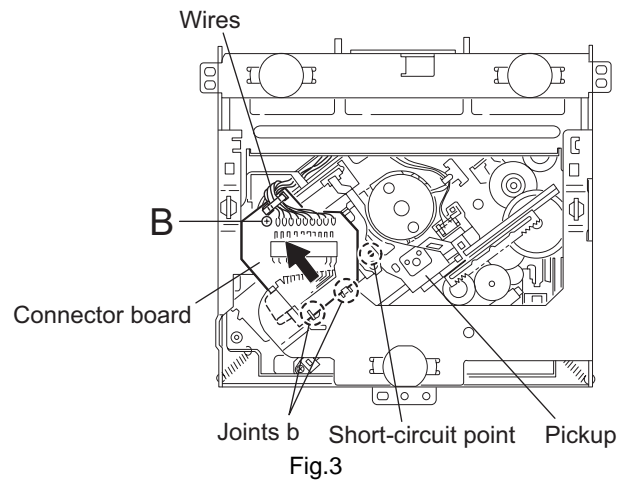
CAUTION:

Before disconnecting the flexible wire from the pickup, solder the short-circuit point on the pickup. No observance of this instruction may cause damage of the pickup.

- (1) Remove the screw **B** fixing the connector board.
- (2) Solder the short-circuit point on the connector board.
- (3) Disconnect the flexible wire from the pickup.
- (4) Move the connector board in the direction of the arrow to release the two joints **b**.
- (5) Unsolder the wire on the connector board if necessary.

CAUTION:

Unsolder the short-circuit point after reassembling.



2.2.3 Removing the DET switch (See Figs.6 and 7)

- (1) Extend the two tabs **c** of the feed sw. holder and pull out the switch.
- (2) Unsolder the DET switch wire if necessary.

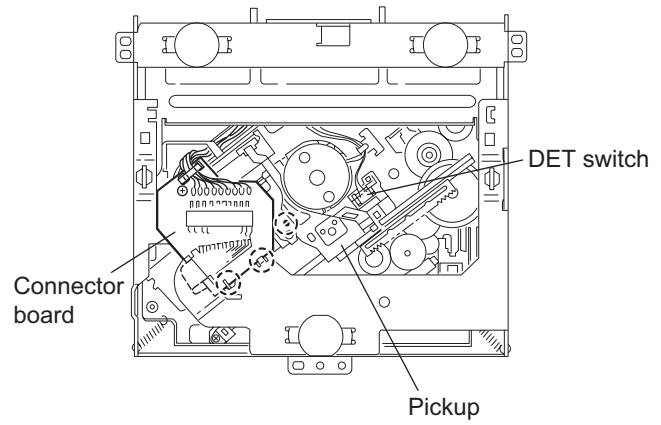


Fig.6

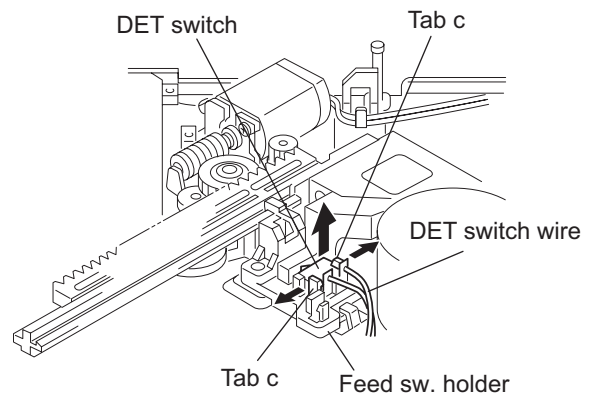


Fig.7

2.2.4 Removing the chassis unit (See Figs.8 and 9)

- Prior to performing the following procedure, remove the top cover and connector board.
- (1) Remove the two suspension springs (L) and (R) attaching the chassis unit to the frame.

CAUTION:

- The shape of the suspension spring (L) and (R) are different. Handle them with care.
- When reassembling, make sure that the three shafts on the underside of the chassis unit are inserted to the dampers certainly.

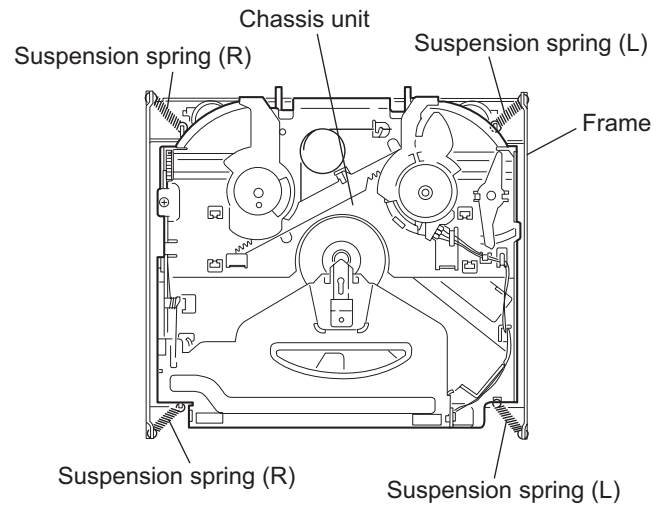


Fig.8

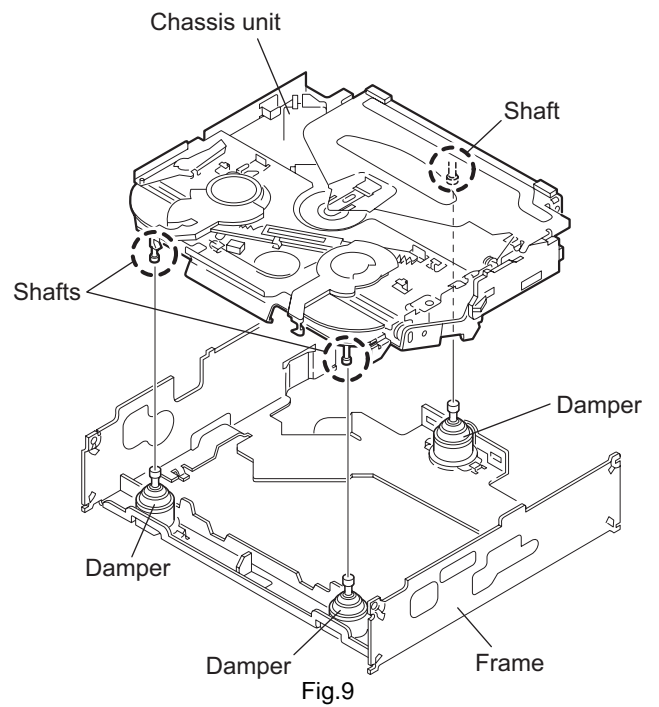
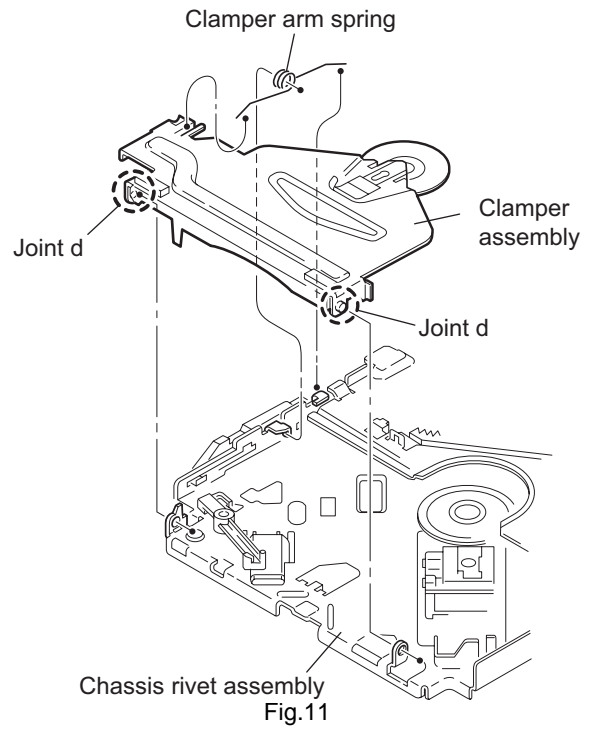
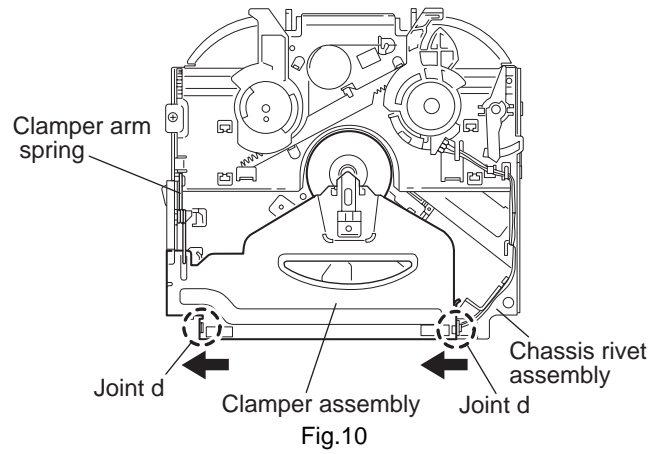


Fig.9

2.2.5 Removing the clamper assembly
(See Figs.10 and 11)

- Prior to performing the following procedure, remove the top cover.
 - (1) Remove the clamper arm spring.
 - (2) Move the clamper assembly in the direction of the arrow to release the two joints **d**.

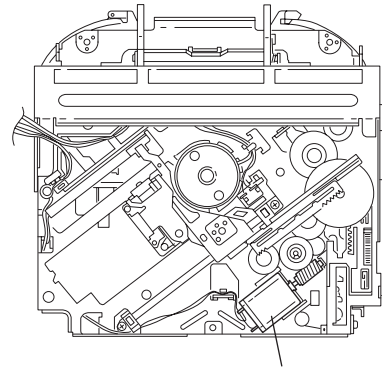


2.2.6 Removing the loading / feed motor assembly (See Figs.12 and 13)

- Prior to performing the following procedure, remove the top cover, connector board and chassis unit.
 - (1) Remove the screw **C** and move the loading / feed motor assembly in the direction of the arrow to remove it from the chassis rivet assembly.
 - (2) Disconnect the wire from the loading / feed motor assembly if necessary.

CAUTION:

When reassembling, connect the wire from the loading / feed motor assembly to the flame as shown in Fig.12.



Loading / feed motor assembly
Fig.12

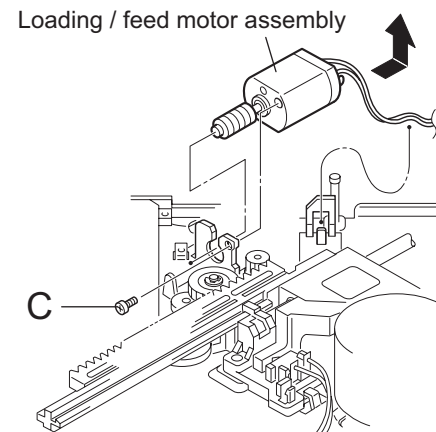
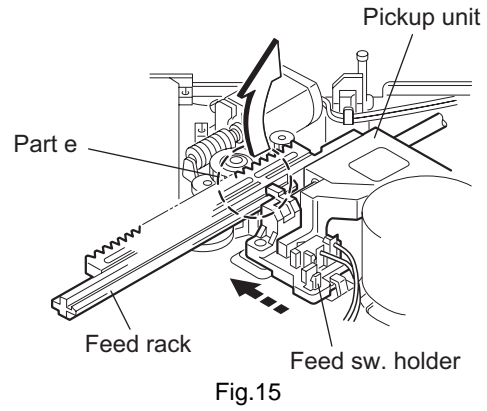


Fig.13

**2.2.7 Removing the pickup unit
(See Figs.14 to 18)**

- Prior to performing the following procedure, remove the top cover, connector board and chassis unit.
- (1) Remove the screw **D** and pull out the pu. shaft holder from the pu. shaft.
- (2) Remove the screw **E** attaching the feed sw. holder.
- (3) Move the part **e** of the pickup unit upward with the pu. shaft and the feed sw. holder, then release the joint **f** of the feed sw. holder in the direction of the arrow. The joint **g** of the pickup unit and the feed rack is released, and the feed sw. holder comes off.
- (4) Remove the pu. shaft from the pickup unit.
- (5) Remove the screw **F** attaching the feed rack to the pickup unit.



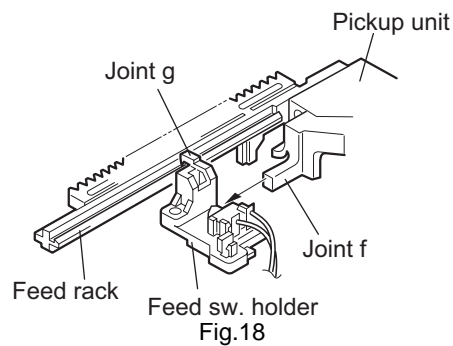
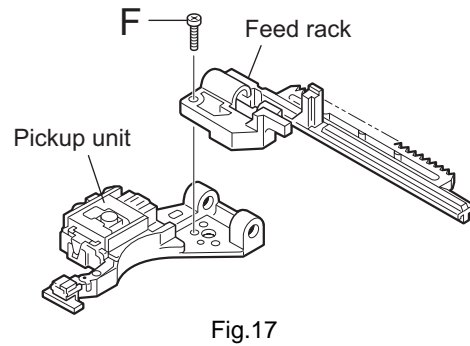
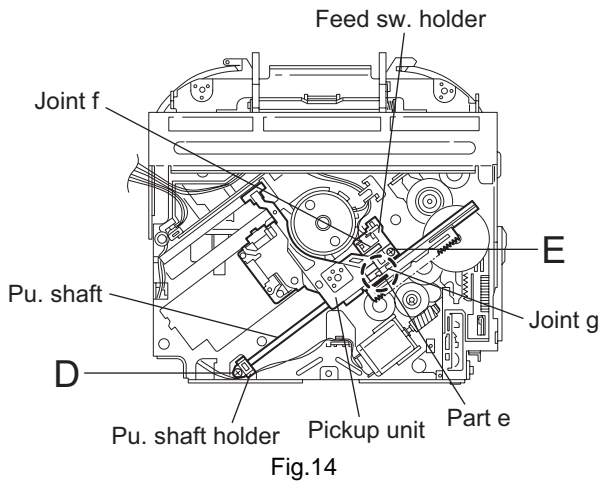
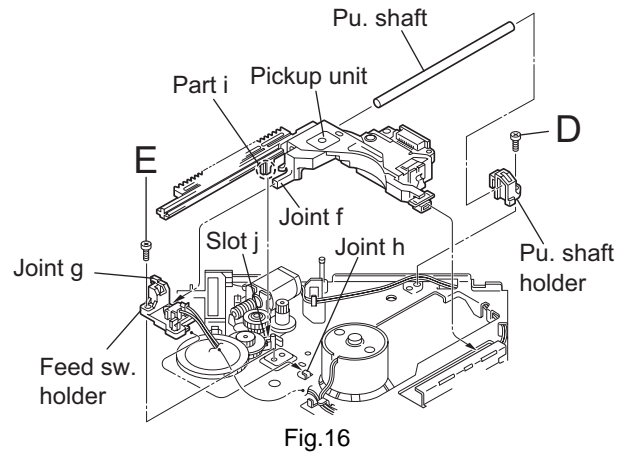
**2.2.8 Reattaching the pickup unit
(See Figs.14 to 17)**

- (1) Reattach the feed rack to the pickup unit using the screw **F**.
- (2) Reattach the feed sw. holder to the feed rack while setting the joint **g** to the slot of the feed rack and setting the part **f** of the feed rack to the switch of the feed sw. holder correctly.
- (3) As the feed sw. holder is temporarily attached to the pickup unit, set to the gear of the joint **g** and to the bending part of the chassis (joint **h**) at a time.

CAUTION:

Make sure that the part **i** on the underside of the feed rack is certainly inserted to the slot **j** of the change lock lever.

- (4) Reattach the feed sw. holder using the screw **E**.
- (5) Reattach the pu. shaft to the pickup unit. Reattach the pu. shaft holder to the pu. shaft using the screw **D**.



2.2.9 Removing the trigger arm (See Figs.19 and 20)

- Prior to performing the following procedure, remove the top cover, connector board and clamper unit.
- (1) Turn the trigger arm in the direction of the arrow to release the joint k and pull out upward.

CAUTION:

When reassembling, insert the part m and n of the trigger arm into the part p and q at the slot of the chassis rivet assembly respectively and join the joint k at a time.

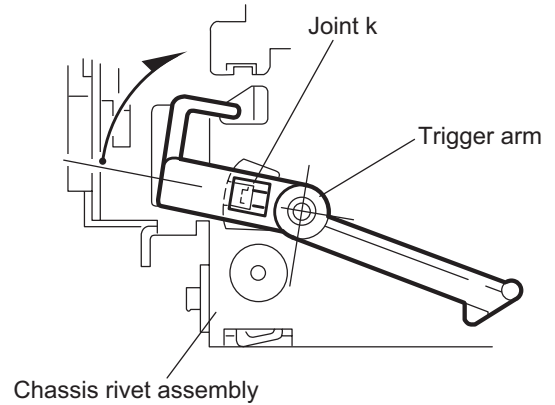


Fig.19

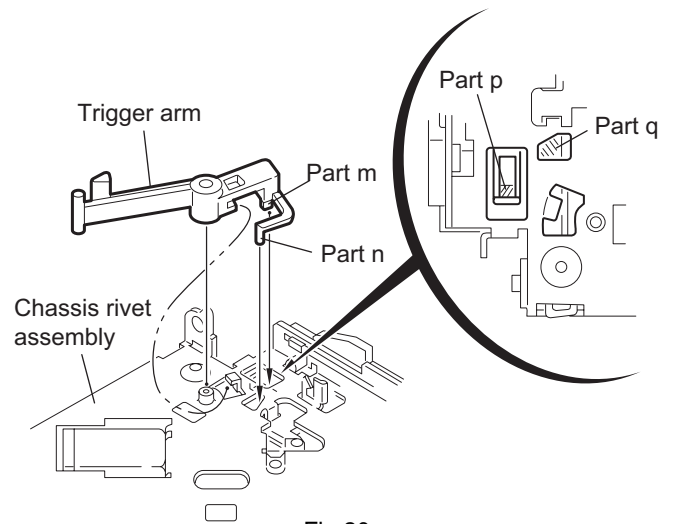


Fig.20

2.2.10 Removing the top plate assembly (See Fig.21)

- Prior to performing the following procedure, remove the top cover, connector board, chassis unit, and clamper assembly.
- (1) Remove the screw H.
- (2) Move the top plate assembly in the direction of the arrow to release the two joints r.
- (3) Unsolder the wire marked s if necessary.

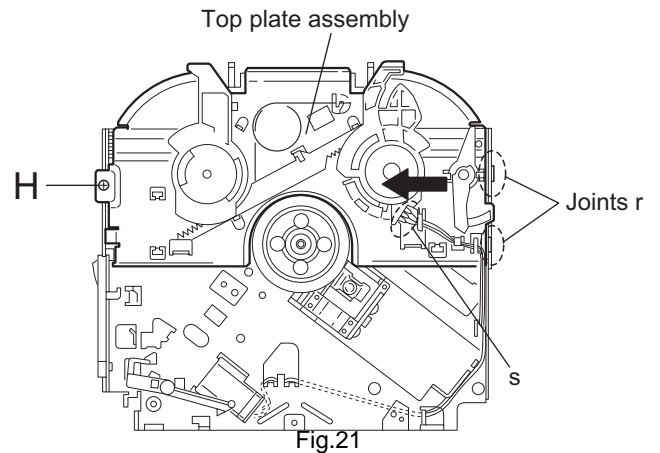


Fig.21

2.2.11 Removing the mode sw. / select lock arm
(See Figs.22 and 23)

- Prior to performing the following procedure, remove the top plate assembly.
 - (1) Bring up the mode sw. to release from the link plate (joint t) and turn in the direction of the arrow to release the joint u.
 - (2) Unsolder the wire of the mode sw. marked s if necessary.
 - (3) Turn the select lock arm in the direction of the arrow to release the two joints v.
 - (4) The select lock arm spring comes off the select lock arm at the same time.

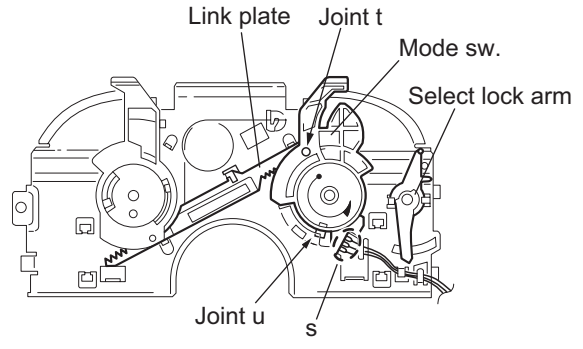


Fig.22

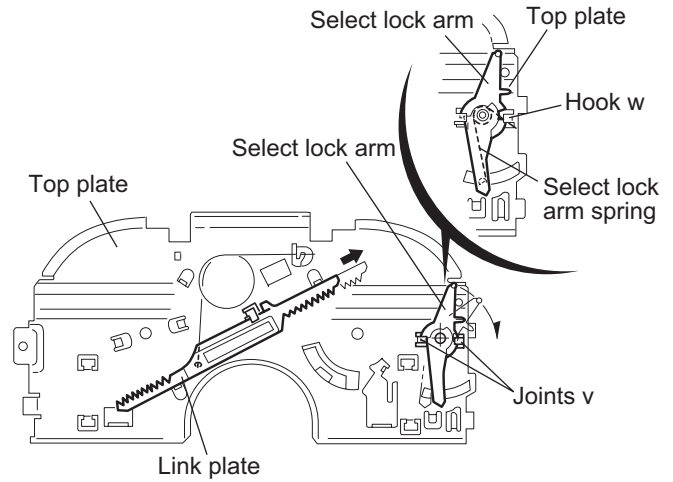


Fig.23

2.2.12 Reassembling the mode sw. / select lock arm (See Figs.24 to 26)

REFERENCE:

Reverse the above removing procedure.

- (1) Reattach the select lock arm spring to the top plate and set the shorter end of the select lock arm spring to the hook w on the top plate.
- (2) Set the other longer end of the select lock arm spring to the boss x on the underside of the select lock arm, and join the select lock arm to the slots (joint v). Turn the select lock arm as shown in the figure.
- (3) Reattach the mode sw. while setting the part t to the first peak of the link plate gear, and join the joint u.

CAUTION:

When reattaching the mode sw., check if the points y and z are correctly fitted and if each part operates properly.

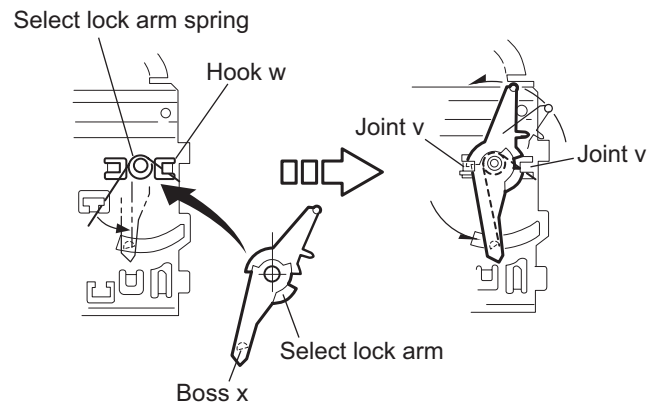


Fig.24

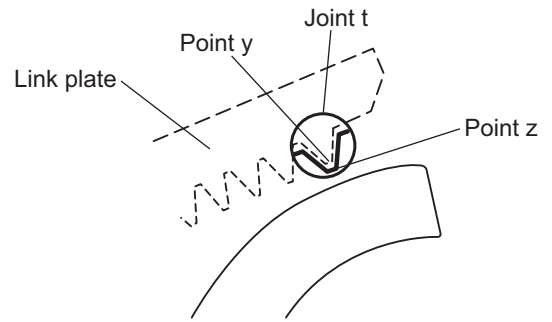


Fig.25

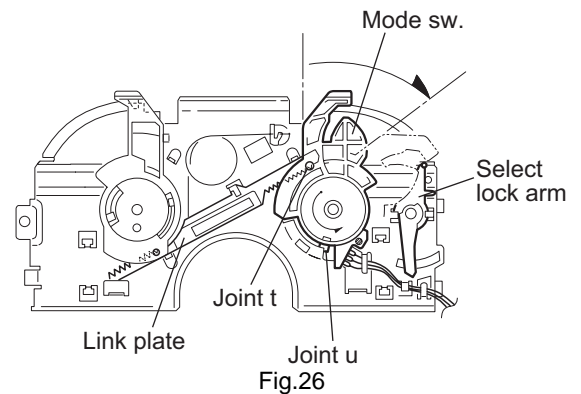


Fig.26

2.2.13 Removing the select arm R / link plate
(See Figs.27 and 28)

- Prior to performing the following procedure, remove the top plate assembly.
 - (1) Bring up the select arm R to release from the link plate (joint a') and turn as shown in the figure to release the two joints **b'** and joint **c'**.
 - (2) Move the link plate in the direction of the arrow to release the joint d'. Remove the link plate spring at the same time.

REFERENCE:

Before removing the link plate, remove the mode sw..

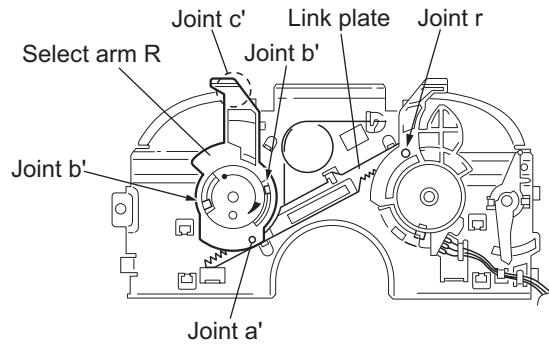


Fig.27

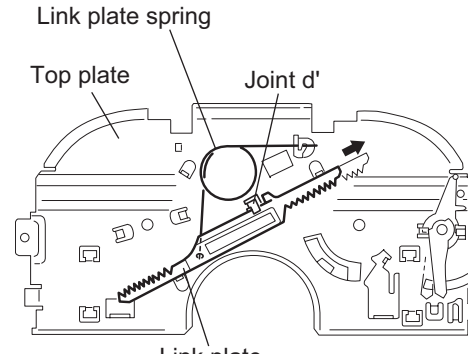


Fig.28

2.2.14 Reattaching the Select arm R / link plate
(See Figs.29 and 30)

REFERENCE:

Reverse the above removing procedure.

- (1) Reattach the link plate spring.
- (2) Reattach the link plate to the link plate spring while joining them at joint **d'**.
- (3) Reattach the joint a' of the select arm R to the first peak of the link plate while joining the two joints b' with the slots. Then turn the select arm R as shown in the figure. The top plate is joined to the joint **c'**.

CAUTION:

When reattaching the select arm R, check if the points **e'** and **f'** are correctly fitted and if each part operates properly.

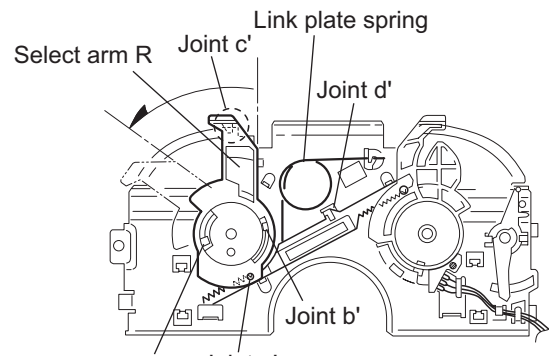


Fig.29

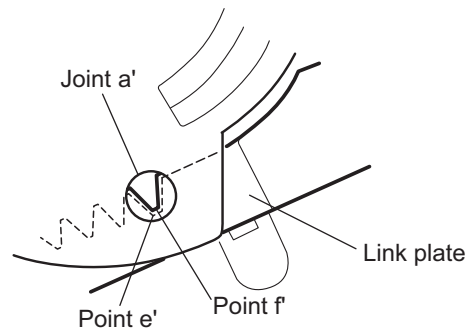


Fig.30

2.2.15 Removing the loading roller assembly
(See Figs.31 to 33)

- Prior to performing the following procedure, remove the clamper assembly and top plate assembly.
- (1) Push inward the loading roller assembly on the gear side and detach it upward from the slot of the joint **g'** of the lock arm rivet assembly.
- (2) Detach the loading roller assembly from the slot of the joint **h'** of the lock arm rivet assembly.

The roller guide comes off the gear section of the loading roller assembly.

Remove the roller guide and the HL washer from the shaft of the loading roller assembly.

- (3) Remove the screw **J** attaching the lock arm rivet assembly.
- (4) Push the shaft at the joint **i'** of the lock arm rivet assembly inward to release the lock arm rivet assembly from the slot of the L side plate.
- (5) Extend the lock arm rivet assembly outward and release the joint **j'** from the boss of the chassis rivet assembly. The roller guide springs on both sides come off at the same time.

CAUTION:

When reassembling, reattach the left and right roller guide springs to the lock arm rivet assembly before reattaching the lock arm rivet assembly to the chassis rivet assembly. Make sure to fit the part **k'** of the roller guide spring inside of the roller guide. (Refer to Fig.34.)

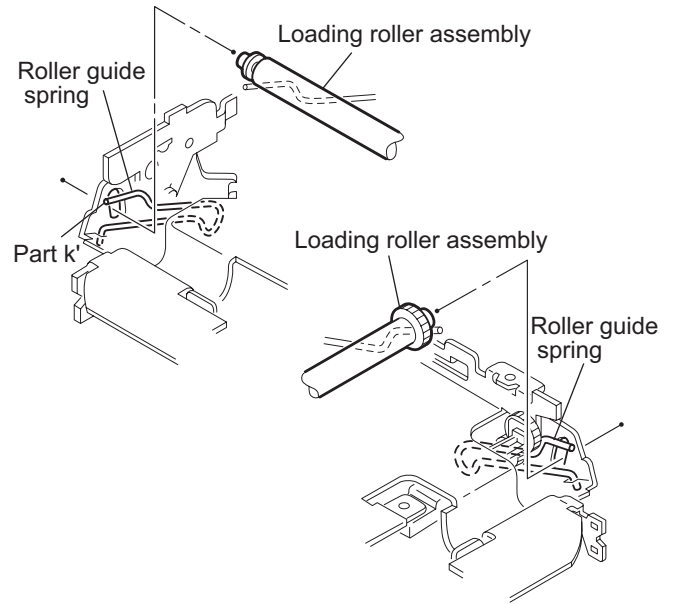


Fig.32

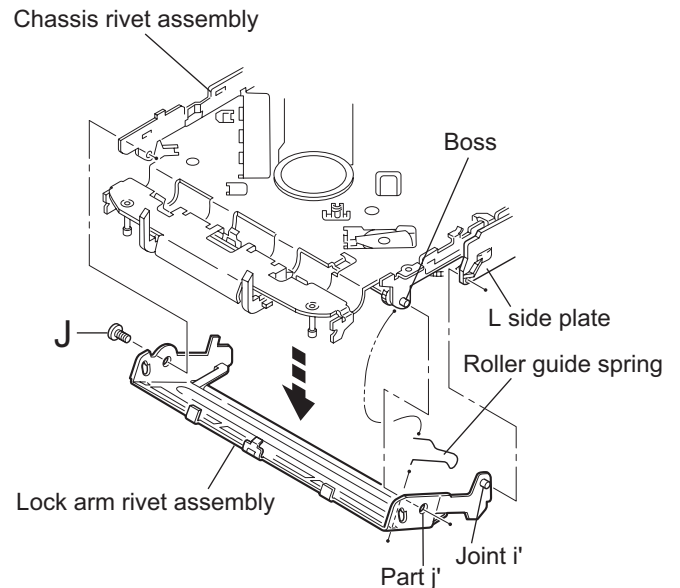


Fig.33

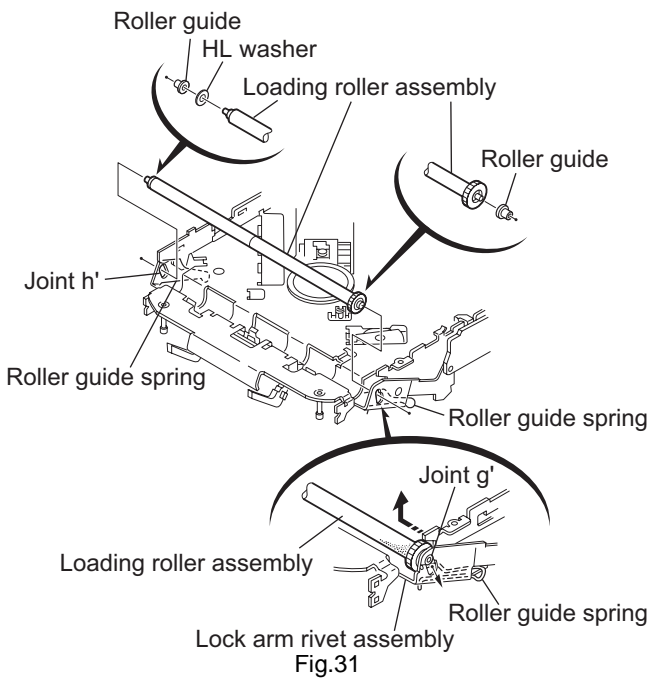


Fig.31

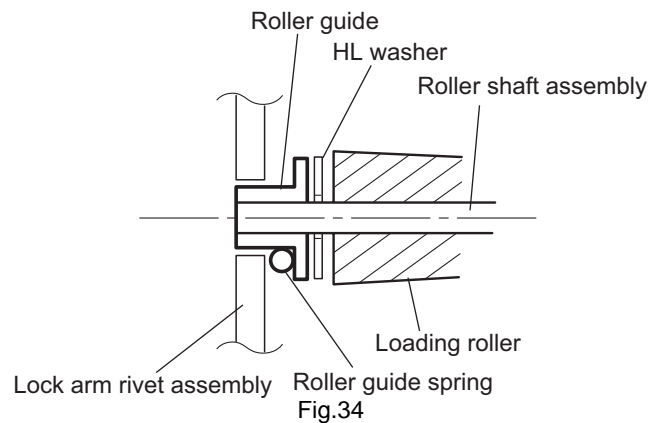


Fig.34

2.2.16 Removing the loading gear 5, 6 and 7 (See Figs.35 and 36)

- Prior to performing the following procedure, remove the top cover, chassis unit, pickup unit and top plate assembly.
 - (1) Remove the screw **K** attaching the loading gear bracket. The loading gear 6 and 7 come off the loading gear bracket.
 - (2) Pull out the loading gear 5.

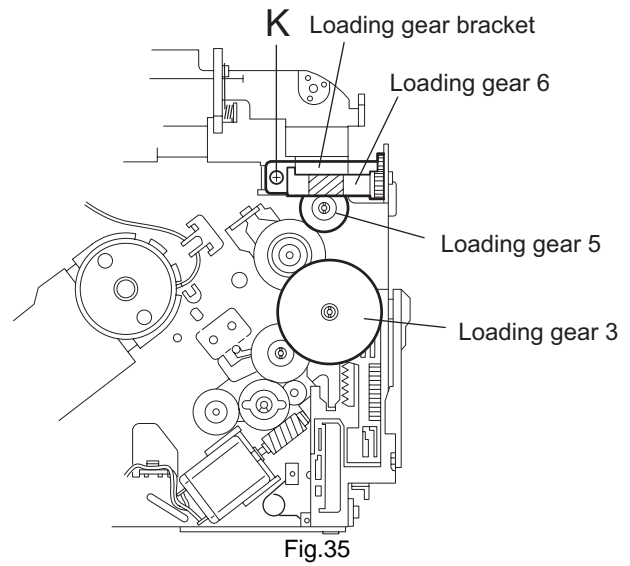


Fig.35

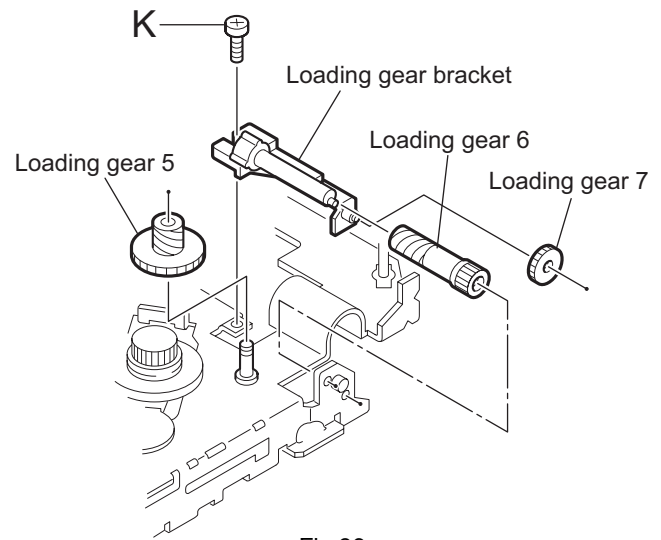
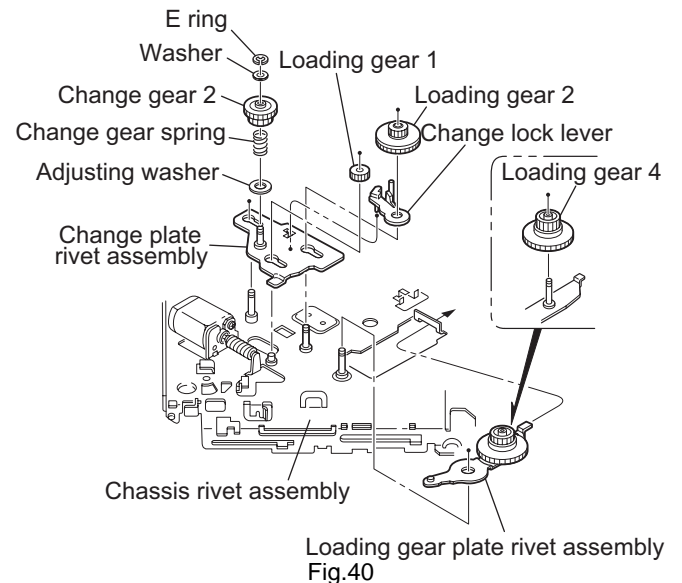
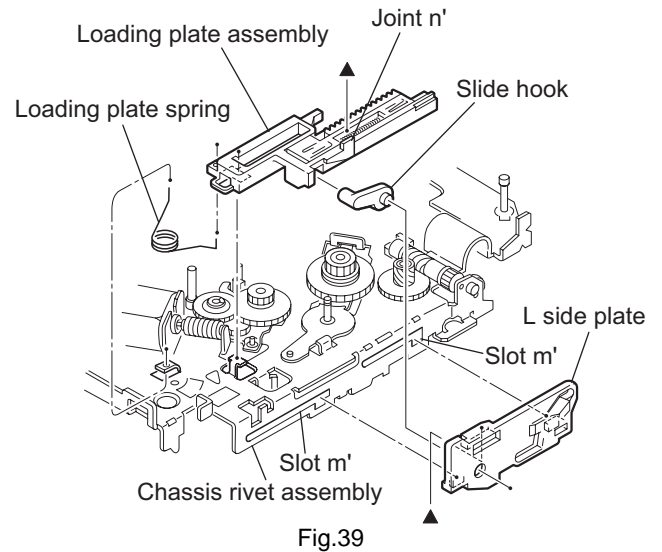
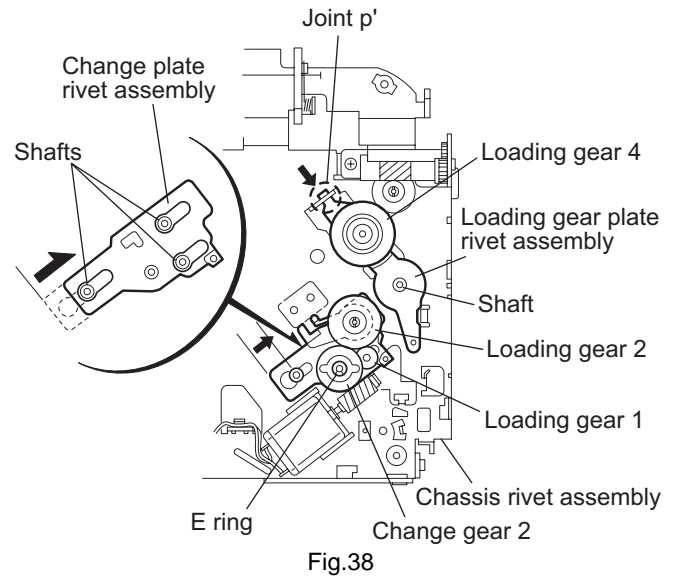
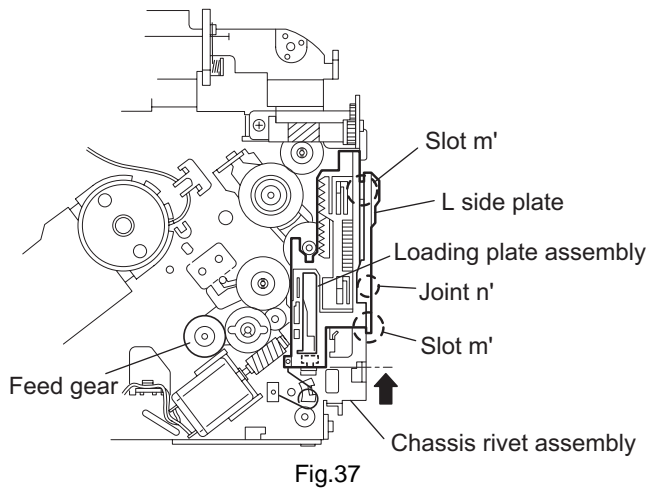


Fig.36

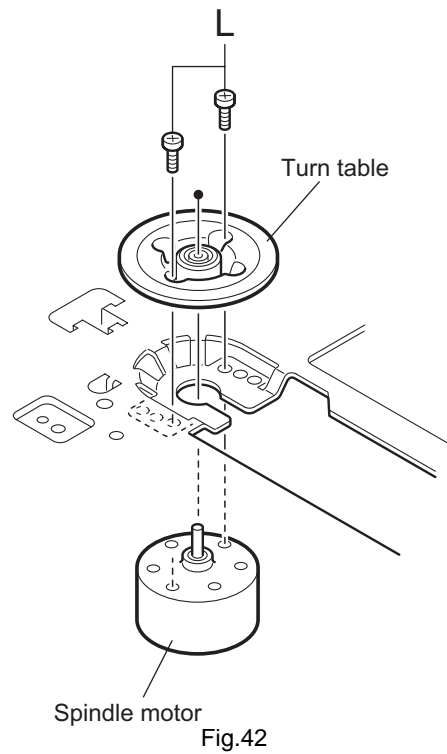
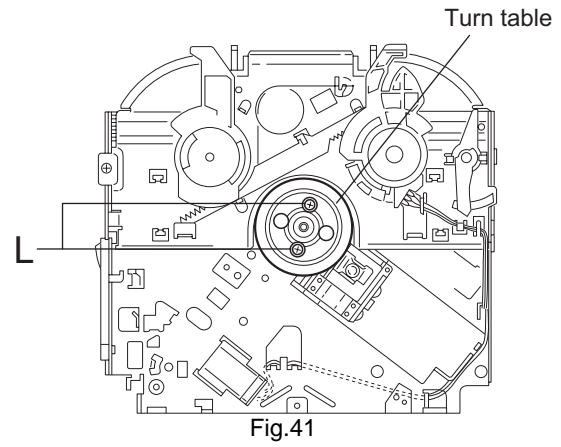
2.2.17 Removing the gears
(See Figs.37 to 40)

- Prior to performing the following procedure, remove the top cover, chassis unit, top plate assembly and pickup unit.
- Pull out the loading gear 3. (See Fig.35.)
 - (1) Pull out the feed gear.
 - (2) Move the loading plate assembly in the direction of the arrow to release the L side plate from the two slots m' of the chassis rivet assembly. (See Fig.37.)
 - (3) Detach the loading plate assembly upward from the chassis rivet assembly while releasing the joint n'. Remove the slide hook and loading plate spring from the loading plate assembly.
 - (4) Pull out the loading gear 2 and remove the change lock lever.
 - (5) Remove the E ring and washer attaching the changer gear 2.
 - (6) The changer gear 2, change gear spring and adjusting washer come off.
 - (7) Remove the loading gear 1.
 - (8) Move the change plate rivet assembly in the direction of the arrow to release from the three shafts of the chassis rivet assembly upward. (See Fig.38.)
 - (9) Detach the loading gear plate rivet assembly from the shaft of the chassis rivet assembly upward while releasing the joint p'. (See Figs.38 and 40.)
 - (10) Pull out the loading gear 4.



2.2.18 Removing the turn table / spindle motor (See Figs.41 and 42)

- Prior to performing the following procedure, remove the top cover, connector board, chassis unit and clasper assembly.
 - (1) Remove the two screws **L** attaching the spindle motor assembly through the slot of the turn table on top of the body.
 - (2) Unsolder the wire on the connector board if necessary.



SECTION 3 Adjustment

3.1 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
EXTSH002-22P × 1

■ Standard volume position

Balance and Bass & Treble volume : Indication "0"

Loudness : OFF

BBE : OFF

Frequency Band

■ FM 87.5MHz ~ 107.9MHz

AM 530kHz ~ 1710 kHz

■ 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.

■ Standard measuring conditions

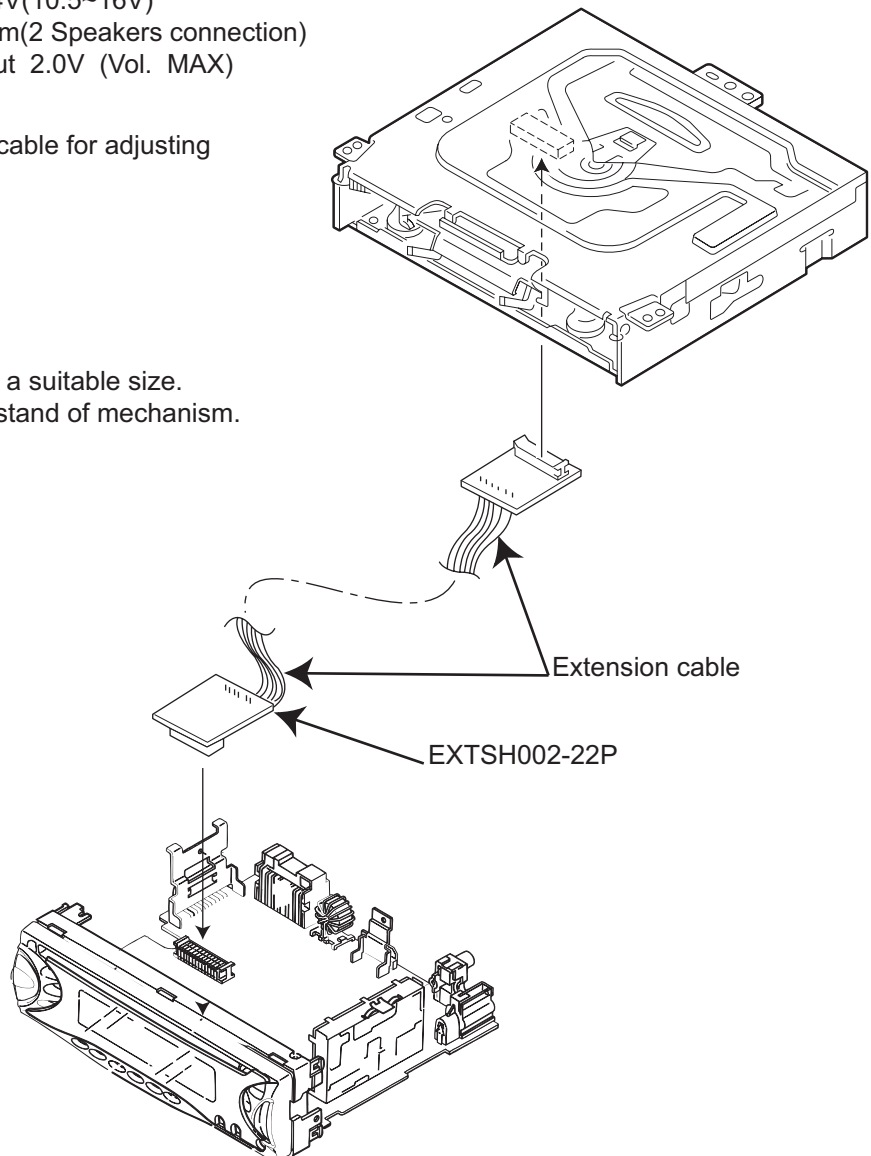
Power supply voltage DC14.4V(10.5~16V)

Load impedance 20Kohm(2 Speakers connection)

Output Level Line out 2.0V (Vol. MAX)

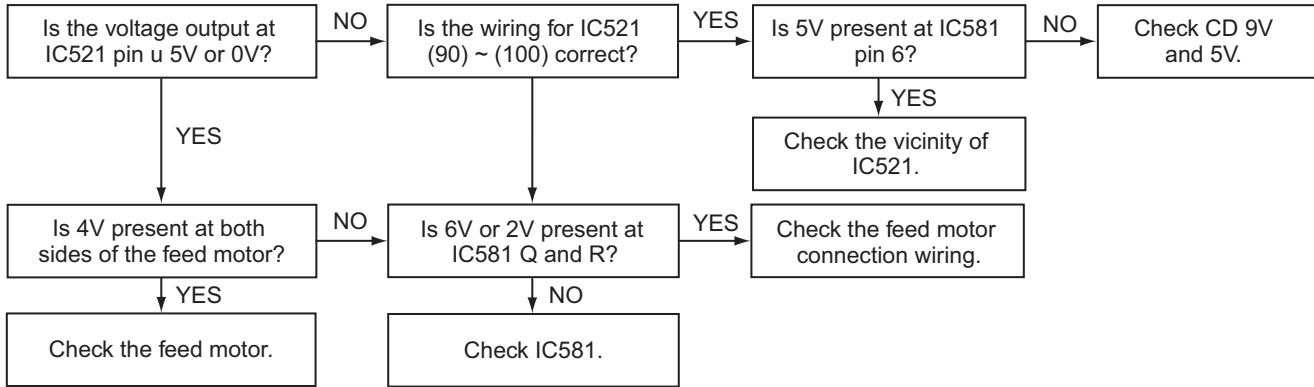
■ How to connect the extension cable for adjusting

*The cardboard is cut in a suitable size.
uses for the insulation stand of mechanism.

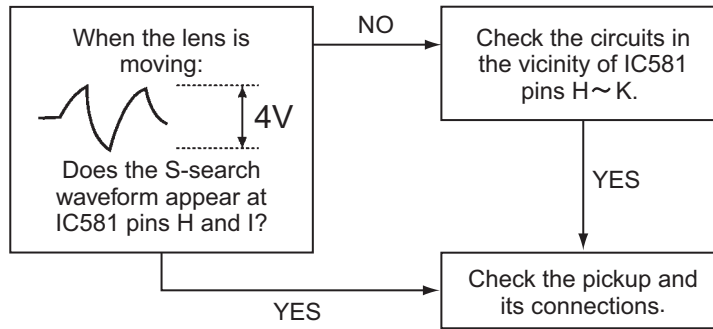


3.2 Troubleshooting

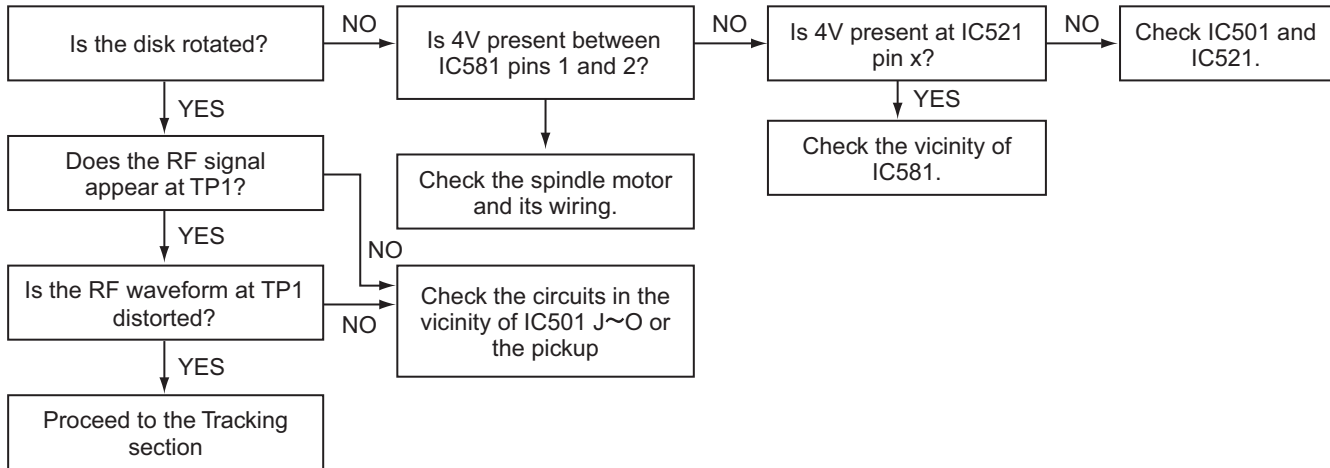
3.2.1 Feed section



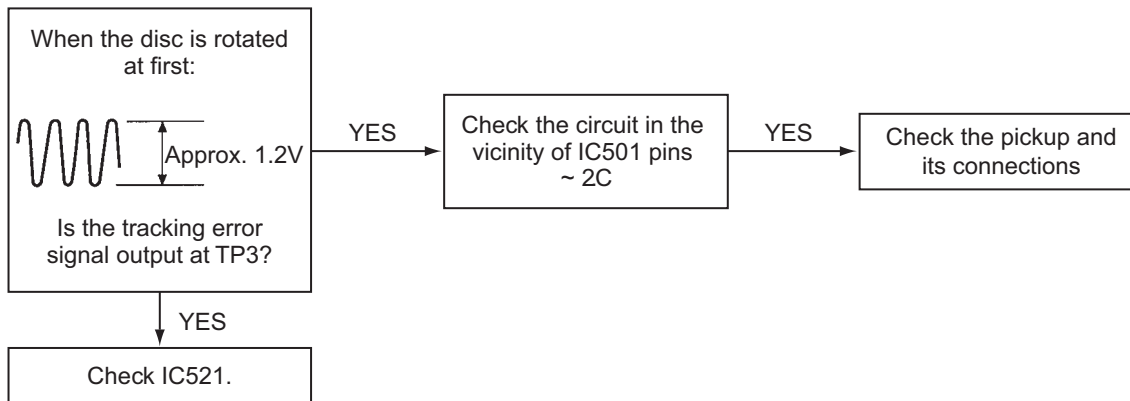
3.2.2 Focus section



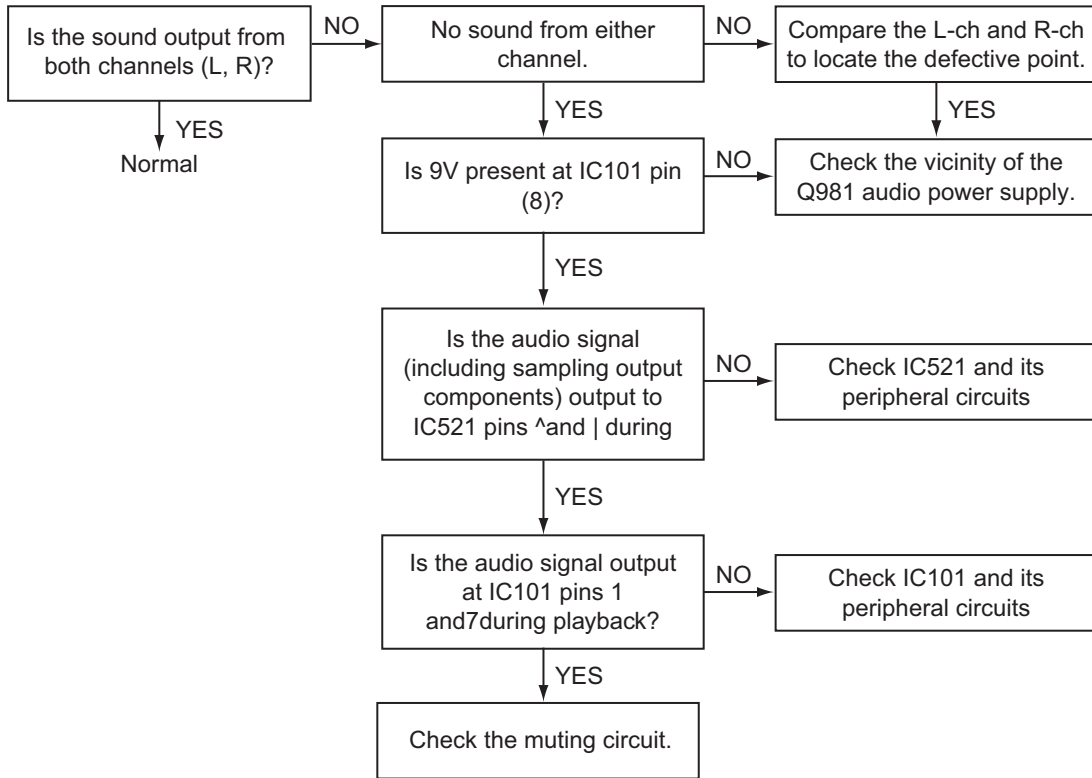
3.2.3 Spindle section



3.2.4 Tracking section



3.2.5 Signal processing section



3.3 Maintenance of laser pickup

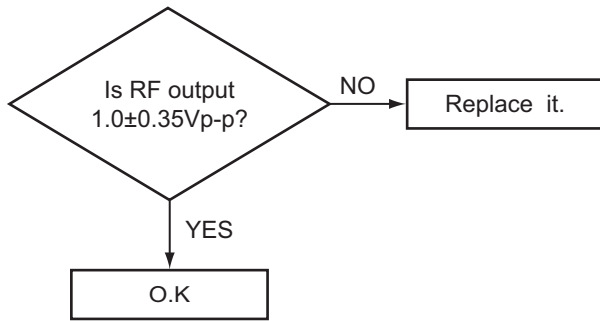
(1) Cleaning the pick up lens

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.

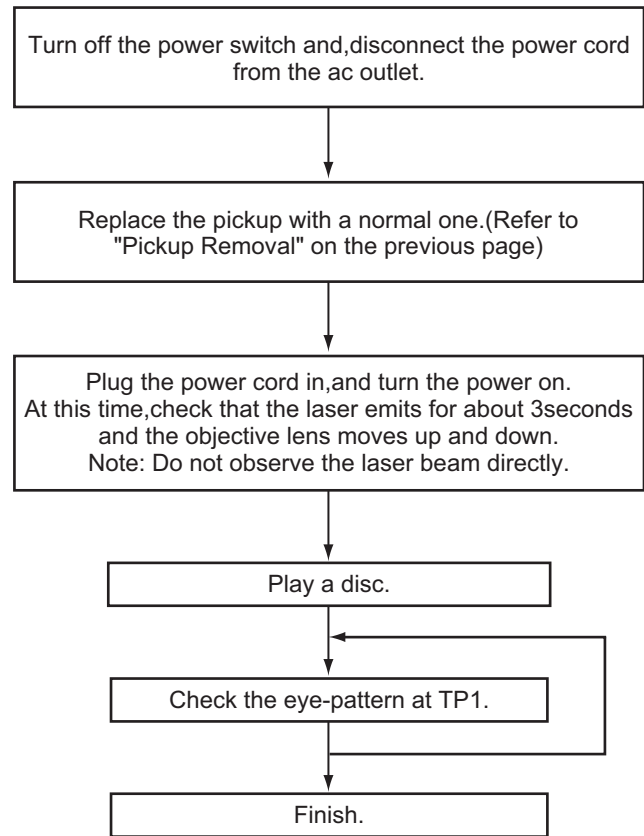
- The level of RF output (EFM output: amplitude of eye pattern) will be low.



(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.

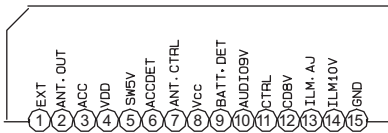
3.4 Replacement of laser pickup



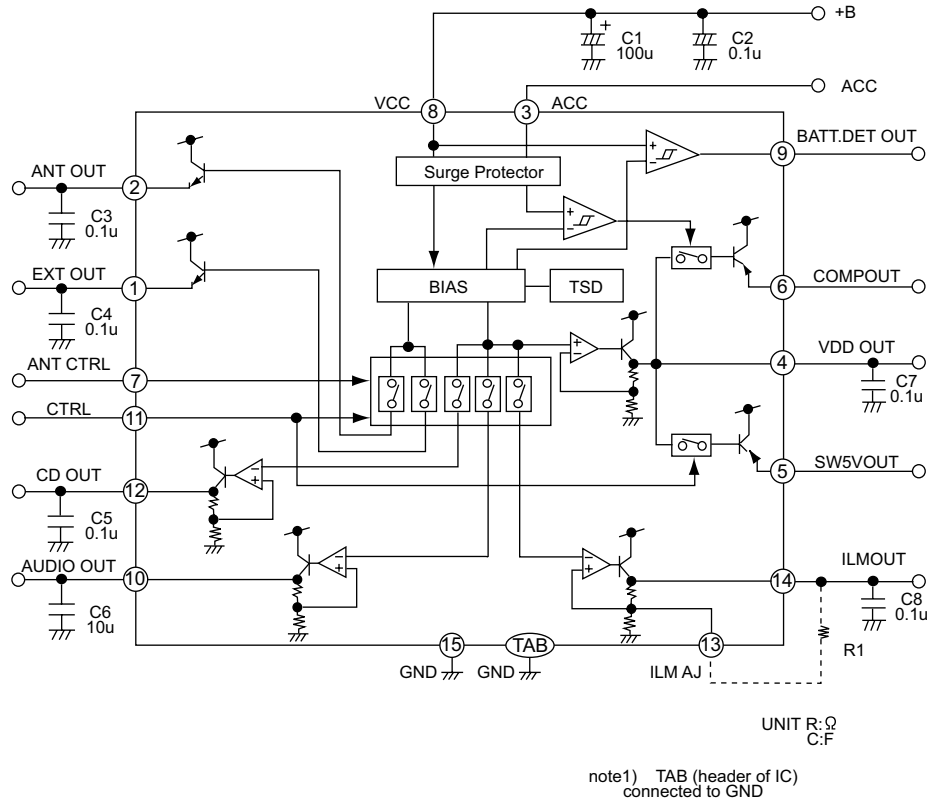
SECTION 4 Description of major ICs

4.1 HA13164A (IC901) : Regulator

- Pin layout



- Block diagram



- Pin function

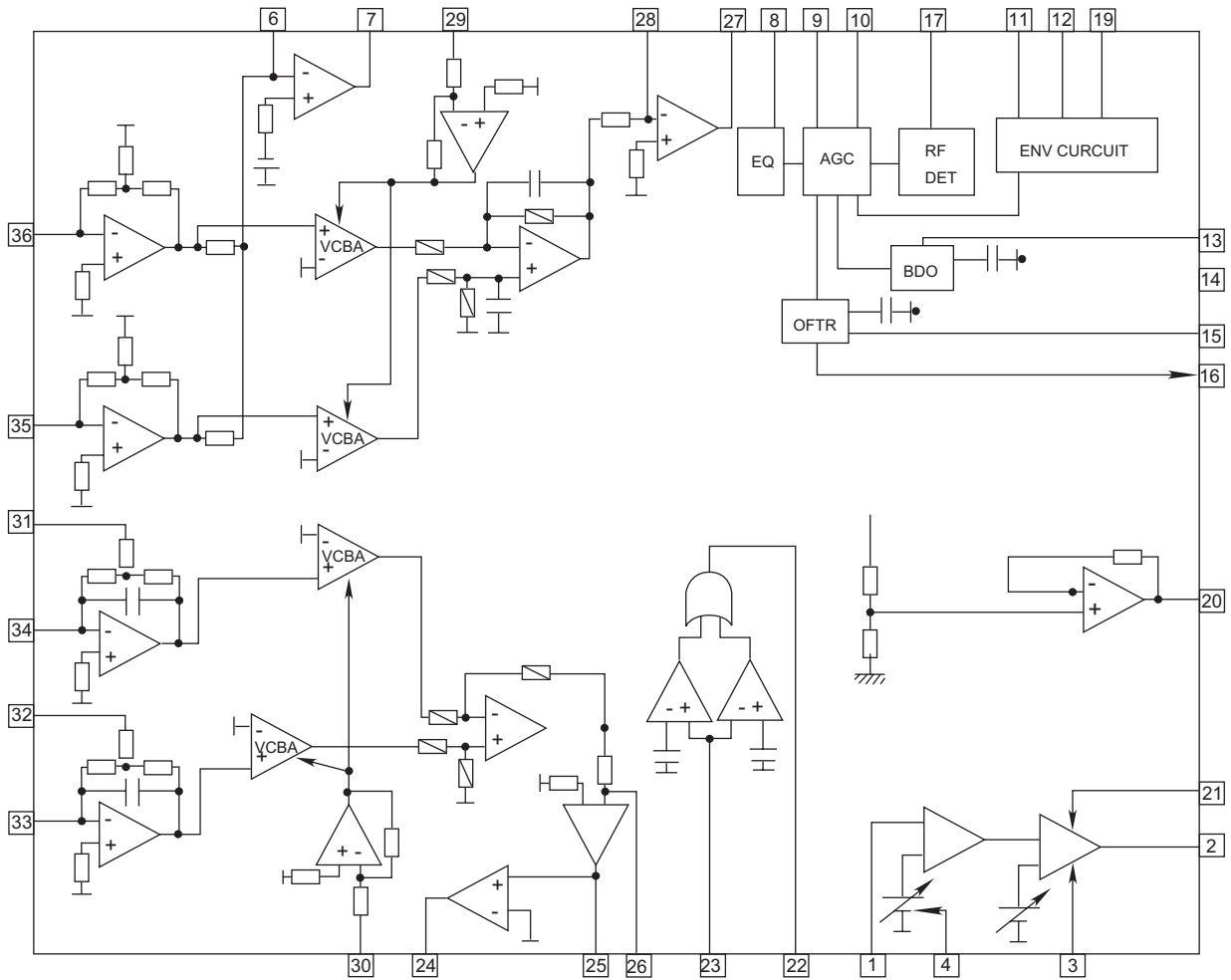
Pin No.	Symbol	Function
1	EXTOUT	Output voltage is VCC-1 V when M or H level applied to CTRL pin.
2	ANTOUT	Output voltage is VCC-1 V when M or H level to CTRL pin and H level to ANT-CTRL.
3	ACCIN	Connected to ACC.
4	VDDOUT	Regular 5.7V.
5	SW5VOUT	Output voltage is 5V when M or H level applied to CTRL 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 applied to CTRL pin.
15	GND	Connected to GND.

4.2 AN8806SB-W (IC501) : RF & amp.

• Pin layout

PD 1	36 PDAC
LD 2	35 PDBD
LDON 3	34 PDF
LDP 4	33 PDE
VCC 5	32 PDER
RF- 6	31 PDFR
RF OUT 7	30 TBAL
RF IN 8	29 FBAL
C.AGC 9	28 EF-
ARF 10	27 EF OUT
C.ENV 11	26 TE-
C.EA 12	25 TE OUT
CS BDO 13	24 CROSS
BDO 14	23 TE BPF
CS BRT 15	22 VDET
OFTR 16	21 LD OFF
/NRFDET 17	20 VREF
GND 18	19 ENV

• Block diagram



- Pin function

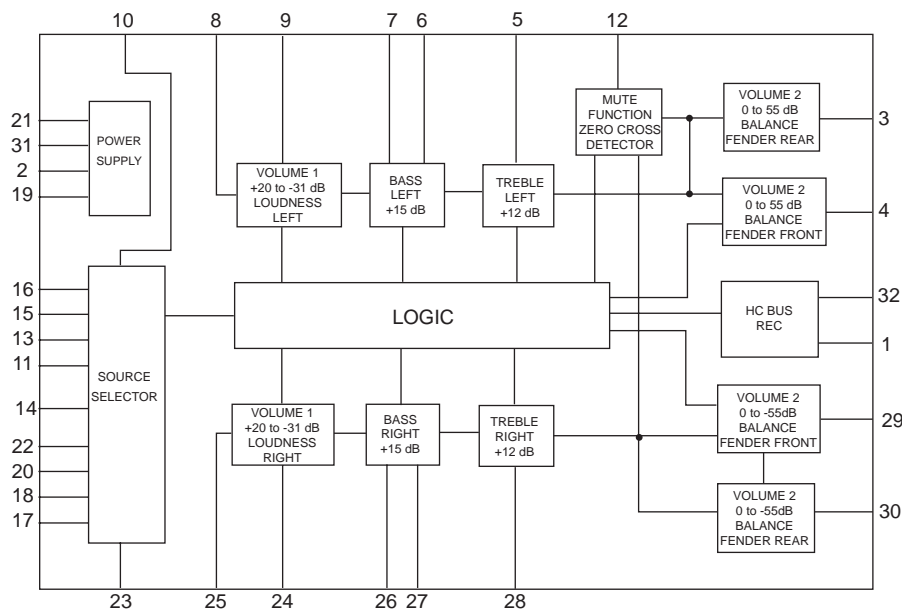
Pin No.	Symbol	I/O	Function
1	PD	I	APC amp input terminal
2	LD	O	APC amp output terminal
3	LD ON	I	APC ON/OFF control terminal
4	LDP	-	Connect to ground
5	VCC	-	Power supply
6	RF-	I	Inverse input pin for RF amp
7	RF OUT	O	RFamp output
8	RF IN	I	RF input
9	C.AGC	I/O	Connecting pin of AGC loop filter
10	ARF	O	RF output
11	C.ENV	I/O	A capacitor is connected to this terminal to detect the envelope of RF signal
12	C.EA	I/O	A capacitor is connected to this terminal to detect the envelope of RF signal
13	CS BDO	I/O	A capacitor is connected to detect the lower envelope of RF signal
14	BDO	O	BDO output pin
15	CS BRT	I/O	A capacitor is connected to detect the lower envelope of RF signal
16	OFTR	O	Of-track status signal output
17	/NRFDET	O	RF detection signal output
18	GND	-	Ground
19	ENV	O	Envelope output
20	VREF	O	Reference voltage output
21	LD OFF	-	Connect to ground
22	VDET	O	Vibration detection signal output
23	TE BPF	I	Input pin of tracking error through BPF
24	CROSS	O	Tracking error cross output
25	TE OUT	O	Tracking error signal output
26	TE-	I	Inverse input pin for tracking error amp
27	FE OUT	O	Output pin of focus error
28	FE-	I	Inverse input pin for focus error amp
29	FBAL	I	Focus balance control
30	TBAL	I	Tracking balance control
31	PDFR	I/O	F I-V amp gain control
32	PDER	I/O	E I-V amp gain control
33	PDF	I	I-V amp input
34	PDE	I	I-V amp input
35	PD BD	I	I-V amp input
36	PD AC	I	I-V amp input

4.3 TEA6320T-X (IC301) : E.volume

- Pin layout

SDA	1	32	SCL
GND	2	31	VCC
OUTLR	3	30	OUTRR
OUTLF	4	29	OUTRF
TL	5	28	TR
B2L	6	27	B2R
B1L	7	26	B1R
IVL	8	25	IVR
ILL	9	24	ILR
QSL	10	23	QSR
IDL	11	22	IDR
MUTE	12	21	Vref
ICL	13	20	ICR
IMD	14	19	CAP
IBL	15	18	IBR
IAL	16	17	IAR
			CD-CH
			TUNER

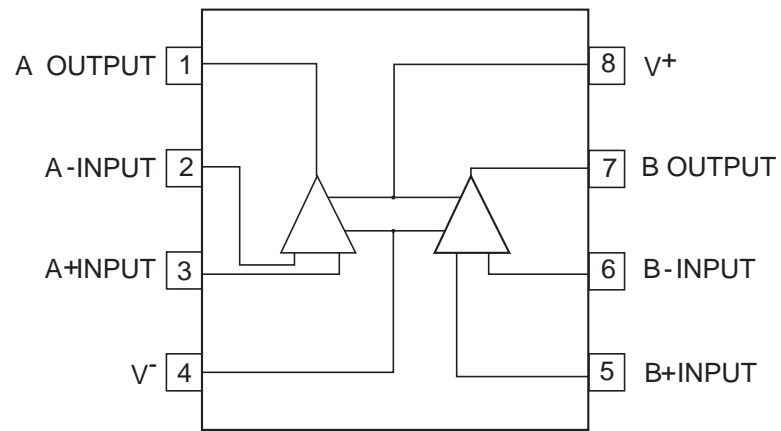
- Block diagram



- Pin functions

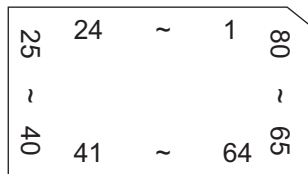
Pin No.	Symbol	I/O	Functions
1	SDA	I/O	Serial data input/output.
2	GND	-	Ground.
3	OUTLR	O	output left rear.
4	OUTLF	O	output left front.
5	TL	I	Treble control capacitor left channel or input from an external equalizer.
6	B2L	-	Bass control capacitor left channel or output to an external equalizer.
7	B1L	-	Bass control capacitor left channel.
8	IVL	I	Input volume 1. left control part.
9	ILL	I	Input loudness. left control part.
10	QSL	O	Output source selector. left channel.
11	IDL	-	Not used
12	MUTE	-	Not used
13	ICL	I	Input C left source.
14	IMO	-	Not used
15	IBL	I	Input B left source.
16	IAL	I	Input A left source.
17	IAR	I	Input A right source.
18	IBR	I	Input B right source.

Pin No.	Symbol	I/O	Functions
19	CAP	-	Electronic filtering for supply.
20	ICR	I	Input C right source.
21	Vref	-	Reference voltage (0.5Vcc)
22	IDR	-	Not used
23	QSR	O	Output source selector right channel.
24	ILR	I	Input loudness right channel.
25	IVR	I	Input volume 1. right control part.
26	B1R	-	Bass control capacitor right channel
27	B2R	O	Bass control capacitor right channel or output to an external equalizer.
28	TR	I	Treble control capacitor right channel or input from an external equalizer.
29	OUTRF	O	Output right front.
30	OUTRR	O	Output right rear.
31	Vcc	-	Supply voltage.
32	SCL	I	Serial clock input.

4.4 NJM4565M-WE (IC151) : CD L.P.F.

4.5 JES01-9B42 (IC801) : Main micon

- Pin layout



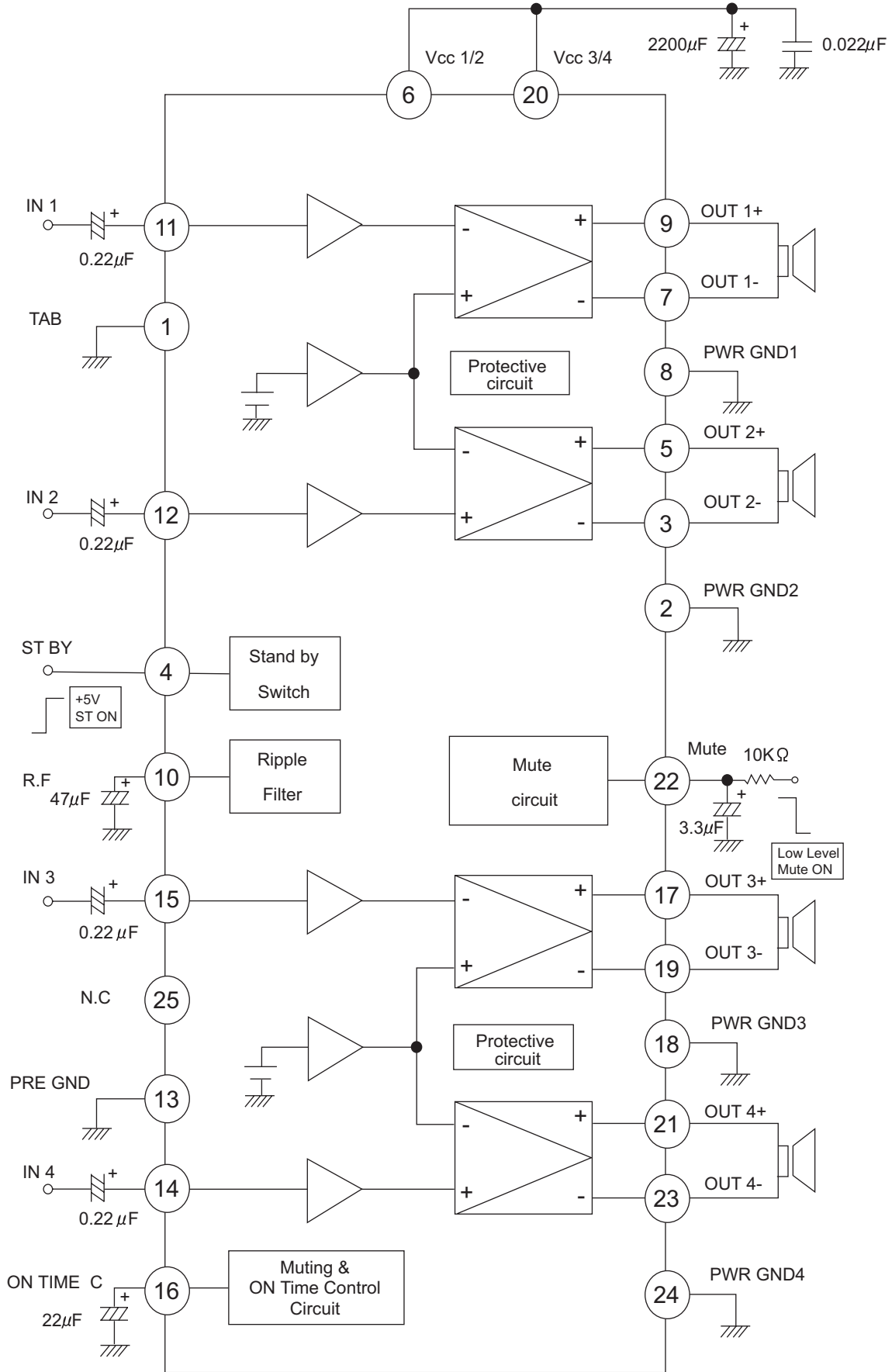
- Pin function

Pin No.	Symbol	Function
1	XIN	X'tal oscillator connection terminal
2	TEST2	GND
3	J BUS SI	Non connect
4	J BUS SO	Non connect
5	J BUS SCK	Non connect
6	J BUS I/O CONT	Non connect
7	SUBQ	CD LSI subQ code data input terminal
8	NC	Non connect
9	SQCK	CD LSI sub code clock terminal
10	RESET	Main micon reset terminal
11	LCD SI	Non connect
12	LCD SO	LCD serial data output
13	LCD SCK	LCD serial clock
14	LCD CE	Chip enable output for LCD driver
15	FM ILLUMI	Non connect
16	AM ILLUMI	Non connect
17	CD ILLUMI	Non connect
18	DIMMER OUT	Non connect
19	NC	Non connect
20	MOTOR SEL	Loading motor signal select terminal
21~23	NC	Non connect
24	KS2	Open
25	KS1	Open
26	KS0	Open
27	DETACH	Front panel detach detection signal input
28	K2	Non connect
29	K1	Open
30	K0	Open
31	Vdd	Power supply
32	LM	Loading motor control terminal
33	CD LSI RESET	CD LSI reset signal output terminal
34	MCLK	CD LSI command clock signal output terminal
35	MDATA	CD LSI command data output terminal
36	MLD	CD LSI command load signal output terminal
37,38	NC	Non connect
39	SCL	E.volume clock signal output terminal
40	SDA	E.volume data output terminal
41	CD ON	CD power ON control terminal

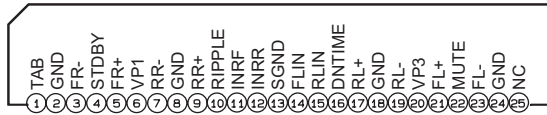
Pin No.	Symbol	Function
42	RELAY	Power supply control terminal
43	BLKCL	Sub code/ Block signal input terminal
44	BEEP	Non connect
45	SW1	Detection switch 1
46	SW2	Detection switch 2
47	PSW	Pnael switch detection
48	REST	Rest switch input terminal
49	FLOCK	Focus signal input terminal
50	TLOCK	Tracking signal input terminal
51	CD SENSE	Senser signal input terminal from CD LSI
52	STATUS	Status signal input terminal
53	P.SAVE2	Power save 2 detection signal input terminal
54	SD/ST	Station detect/Stereo indicator
55	REMOCON	Remocon signal detection terminal
56	J BUS INT	Non connect
57	BAND	FM/AM band select terminal
58	MONO	FM mono control signal output terminal
59	IFRQ/AGC	FA auto search IF request output
60	MUTE	Mute switch
61	LEVEL	Non connect
62	S METER	S meter input terminal
63	KEY CHANGE	AD key select terminal
64	KEY2	Key AD input terminal 2
65	KEY1	Key AD input terminal 1
66	KEY0	Key AD input terminal 0
67	P.SAVE1	Power save 1 detection input terminal
68	SENSE	Senser signal output terminal
69	NC	Non connect
70	FM IF COUNT	FM IF control signal input terminal
71,72	NC	Non connect
73	Vdd	Power supply
74	AM OSC	Non connect
75	FM OSC	FM local osc signal input terminal
76	Vss	GND
77	NC	Non connect
78	EQ	PLL error signal input terminal
79	TEST1	Test terminal 1
80	XOUT	X'tal oscillator connect terminal

4.6 LA4743K (IC321) : Power amp.

- Block diagram



- Terminal layout

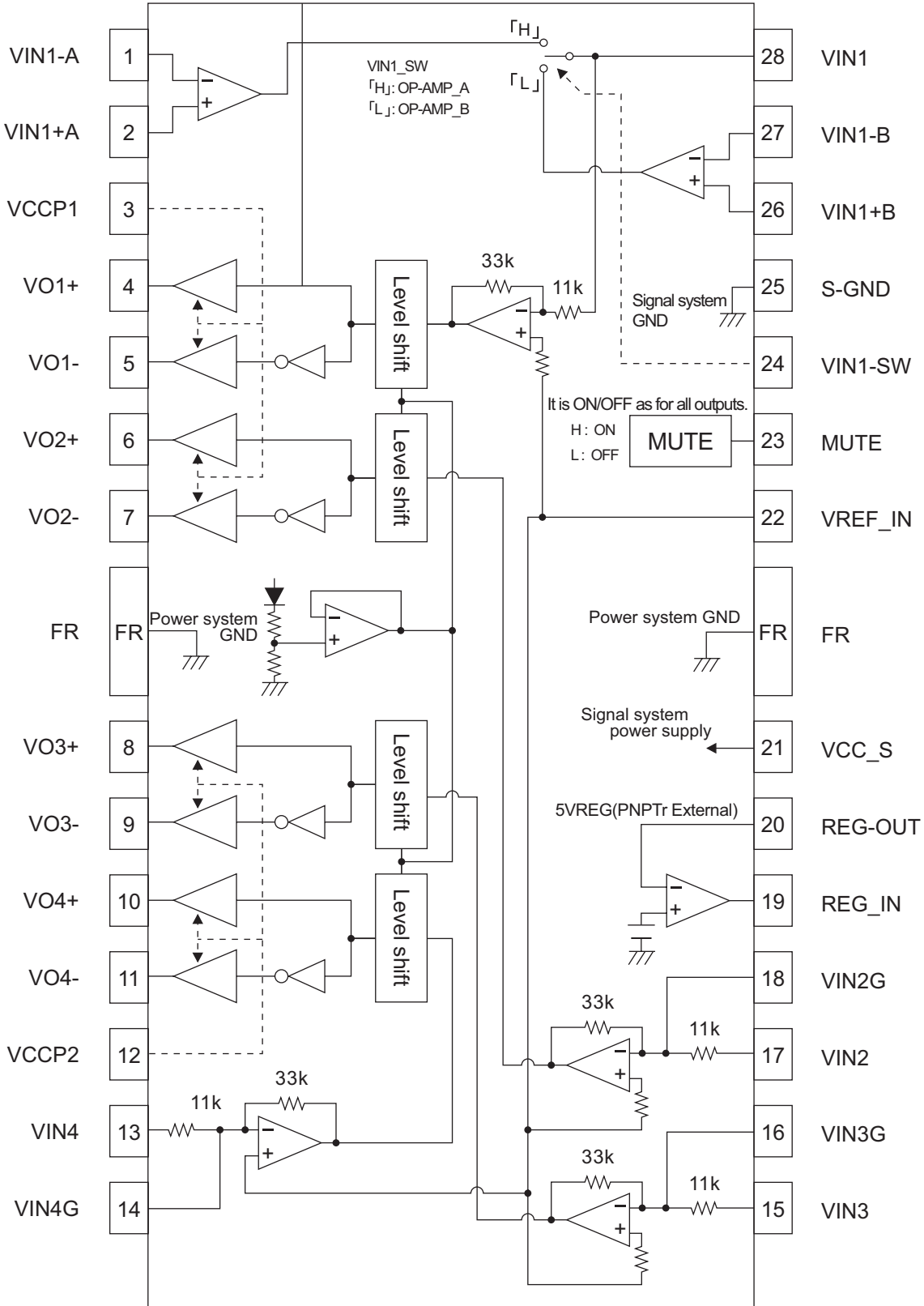


- Pin function

Pin No.	Symbol	Function
1	TAB	Header of IC
2	GND	Power GND
3	FR-	Output(-) for front Rch
4	STDBY	Stand by input
5	FR+	Output (+) for front Rch
6	VP1	Power input
7	RR-	Output (-) for rear Rch
8	GND	Power GND
9	RR+	Output (+) for rear Rch
10	RIPPLE	Ripple filter
11	RRIN	Rear Rch input
12	FRIN	Front Rch input
13	SGND	Signal GND
14	FLIN	Front Lch input
15	RLIN	Rear Lch input
16	ONTIME	Power on time control
17	RL+	Output (+) for rear Lch
18	GND	Power GND
19	RL-	Output (-) for rear Lch
20	VP3	Power input
21	FL+	Output (+) for front
22	MUTE	Muting control input
23	FL-	Output (-) for front
24	GND	Power GND
25	NC	Non connection

4.7 LA6589H-X (IC541) : BTL driver

- Pin layout / Block diagram



- Pin function

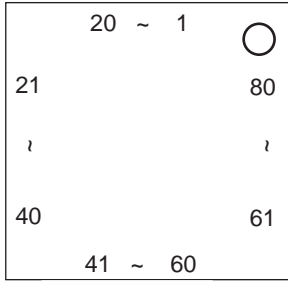
Pin No.	Symbol	Function
1	VIN1-A	CH1 input AMP_A reversing input
2	VIN1+A	CH1 input AMP_A non-reversing input
3	VCCP1	CH1 and CH2 power steps power supply
4	VO1+	CH1 Output terminal (+)
5	VO1-	CH1 Output terminal (-)
6	VO2+	CH2 Output terminal (+)
7	VO2-	CH2 Output terminal (-)
8	VO3+	CH3 Output terminal (+)
9	VO3-	CH3 Output terminal (-)
10	VO4+	CH4 Output terminal (+)
11	VO4-	CH4 Output terminal (-)
12	VCCP2	CH3 and CH4 power steps power supply
13	VIN4	CH4 Input terminal
14	VIN4G	CH4 Input terminal(For gain adjustment)
15	VIN3	CH3 Input terminal
16	VIN3G	CH3 Input terminal(For gain adjustment)
17	VIN2	CH2 Input terminal
18	VIN2G	CH2 Input terminal(For gain adjustment)
19	REGIN	External PNP transistor base connection
20	REG-OUT	5VREG output terminal and external PNP transistor collector connection
21	VCCS	Signal system power supply
22	VREFIN	Standard voltage impression terminal
23	MUTE	Output ON/OFF terminal
24	VIN1_SW	CH1 input OP_AMP switch terminal
25	S_GND	Signal system GND
26	VIN1+B	CH1 AMP_B non-reversing input terminal
27	VIN1-B	CH1 AMP_B reversing input terminal
28	VIN1	CH1 input terminal and input OP_AMP output terminal

*1 Frame (FR) at the center becomes system GND(P-GND) power . Please give (*O) as the lowest potential with system GND(S-GND) signal.

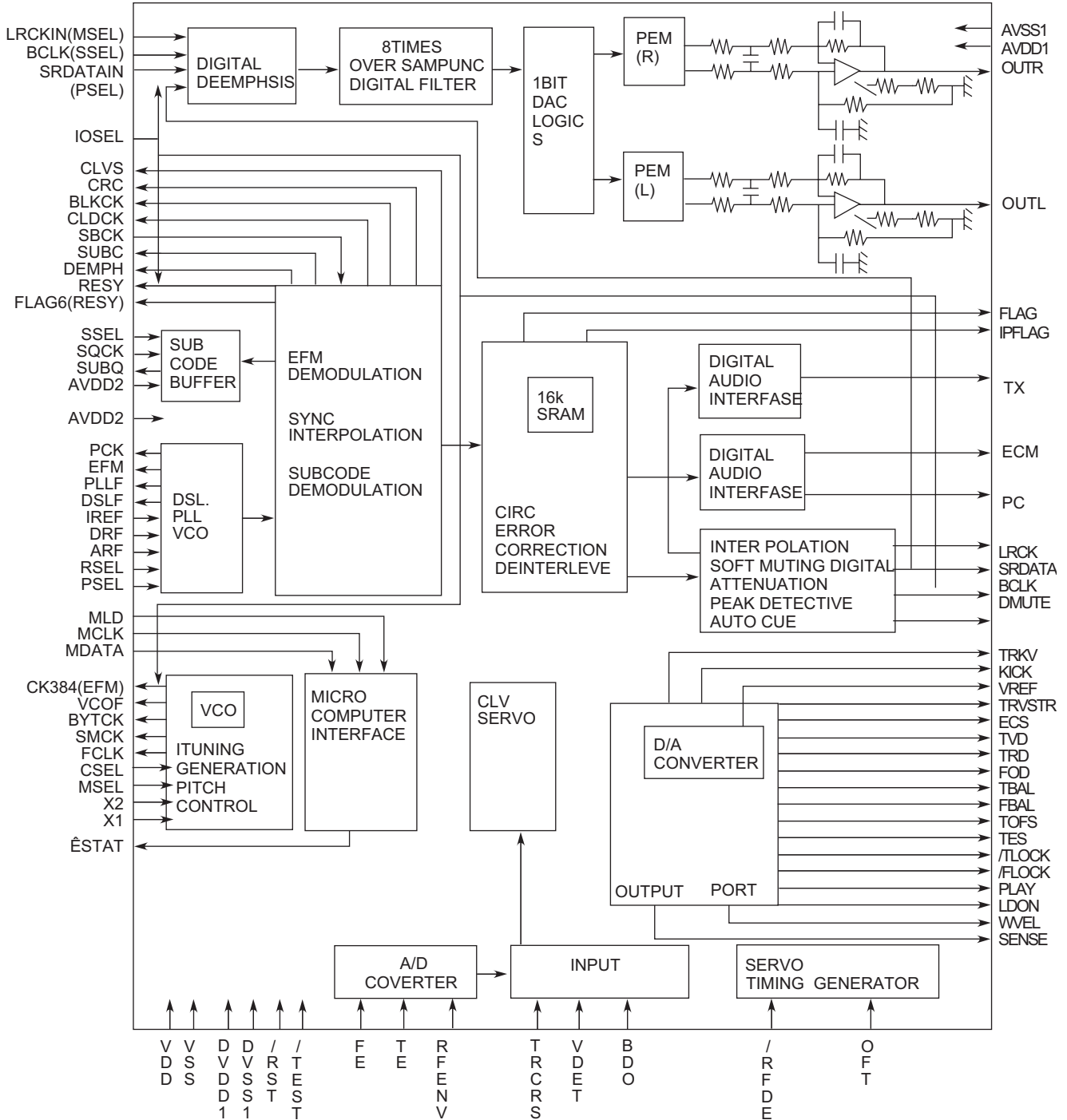
*2 Be short-circuited of VCC_S (signal system power supply) and VCCP1 and VCCP2 (output steps power supply) on the outside.

4.8 MN6627482WA (IC561) : DSP & DAC

- Pin layout



- Block diagram



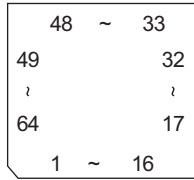
• Pin function

Pin No.	Symbol	I/O	Function
1	BCLK	O	Not used
2	LRCK	O	Not used
3	SRDATA	O	Not used
4	DVDD1	-	Power supply (Digital)
5	DVSS1	-	Connected to GND
6	TX	O	Not used
7	MCLK	I	CPU command clock signal input(Data is latched at signal's rising point)
8	MDATA	I	CPU command data input
9	MLD	I	CPU command load signal input
10	SENSE	O	Sense signal output
11	FLOCK	O	Focus lock signal output Active: Low
12	TLOCK	O	Tracking lock signal output Active: Low
13	BLKCK	O	sub-code/block/clock signal output
14	SQCK	I	Outside clock for sub-code Q resister input
15	SUBQ	O	Sub-code Q -code output
16	DMUTE		Connected to GND
17	STAT	O	Status signal(CRC,CUE,CLVS, TTSTOP,ECLV,SQOK)
18	RST	I	Reset signal input (L:Reset)
19	SMCK	-	Not used
20	PMCK	-	Not used
21	TRV	O	Traverse enforced output
22	TVD	O	Traverse drive output
23	PC	-	Not used
24	ECM	O	Spindle motor drive signal (Enforced mode output) 3-State
25	ECS	O	Spindle motor drive signal (Servo error signal output)
26	KICK	O	Kick pulse output
27	TRD	O	Tracking drive output
28	FOD	O	Focus drive output
29	VREF	-	Reference voltage input pin for D/A output block (TVD,FOD,FBA,TBAL)
30	FBAL	O	Focus Balance adjust signal output
31	TBAL	O	Tracking Balance adjust signal output
32	FE	I	Focus error signal input (Analog input)
33	TE	I	Tracking error signal input (Analog input)
34	RF ENV	I	RF envelope signal input (Analog input)
35	VDET	I	Vibration detect signal input (H:detect)
36	OFT	I	Off track signal input (H:off track)
37	TRCRS	I	Track cross signal input
38	RFDET	I	RF detect signal input (L:detect)
39	BDO	I	BDO input pin (L:detect)
40	LDON	O	Laser ON signal output (H:on)
41	PLL2	-	Not used
42	TOFS	O	Tracking error shunt signal output (H:shunt)

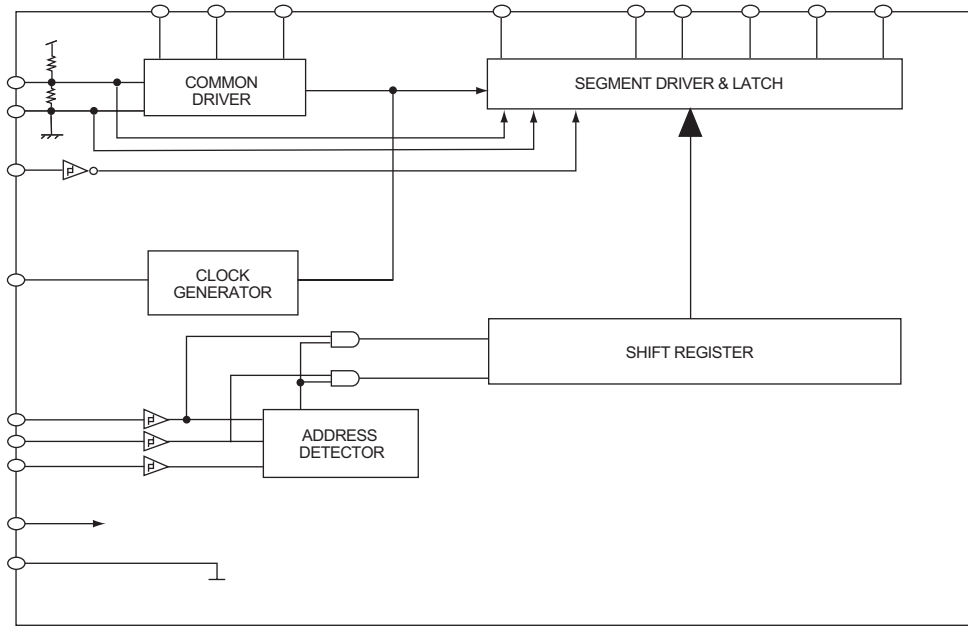
Pin No.	Symbol	I/O	Function
43	WVEL	-	Not used
44	ARF	I	RF signal input
45	IREF	I	Reference current input pin
46	DRF	I	Bias pin for DSL
47	DSL2	I/O	Loop filter pin for DSL
48	PLL2	I/O	Loop filter pin for PLL
49	VCOF	-	Not used
50	AVDD2	-	Power supply (Analog)
51	AVSS2	-	Connected to GND (Analog)
52	EFM	-	Not used
53	PCK	-	Not used
54	VCOF2	-	PLL data slice output
55	SUBC	-	Not used
56	SBCK	-	Not used
57	VSS	-	Connected to GND (for X'tal oscillation circuit)
58	XI	I	Input of 16.9344MHz X'tal oscillation circuit
59	X2	O	Output of X'tal oscillation circuit
60	VDD	-	Power supply (for X'tal oscillation circuit)
61	BYTCK	-	Not used
62	CLDCK	-	Not used
63	FCLK	-	Not used
64	IPFLAG	-	Not used
65	FLAG	-	Not used
66	CLVS	-	Not used
67	CRC	-	Not used
68	DEMPH	-	Not used
69	RESY	-	Not used
70	IOSEL	-	pull up
71	TEST	-	pull up
72	AVDD1	-	Power supply (Digital)
73	OUT L	O	Lch audio output
74	AVSS1	-	Connected to GND
75	OUT R	O	Rch audio output
76	RSEL	-	pull up
77	CSEL	-	Connected to GND
78	PSEL	-	Connected to GND
79	MSEL	-	Connected to GND
80	SSEL	-	Pull up

4.9 PT6523LQ (IC601) : LCD driver

- Terminal layout



- Block diagram



- Pin function

Pin No.	Pin Name	I/O	Description
1~ 52	SG1 ~ SG52	O	Segment Output Pins
53~55	COM1 ~ COM3	O	Common Driver Output Pins
56	VDD	-	Power Supply
57	$\overline{\text{INH}}$	I	Display OFF Control Input Pin When this pin is "Low", the Display is forcibly turned OFF. (SG1 to SG52, COM1 to COM3 are set to "LOW"). (See Note 1) When this pin is set to "High", the Displa is ON.
58	VDD1	I	Used for the 2/3 Bias Voltage when the Bias Voltages are provied externally. Connect to VDD2 when 1/2 Bias is used.
59	VDD2	I	Used for 1/3 Bias Voltage when the Bias Voltages are provided externally. Connect to VDD1 when 1/2 Bias is used.
60	VSS	-	Ground Pin.
61	OSC	I/O	Oscillation Input /Outout Pin
62	CE	I	Chip Enable Pin
63	CLK	I	Synchronization Clock
64	DI	I	Transfer Data Pin

Note 1:

When $\overline{\text{INH}}$ = "LOW" : Serial data transfers can be performed when the display is forcibly OFF.



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