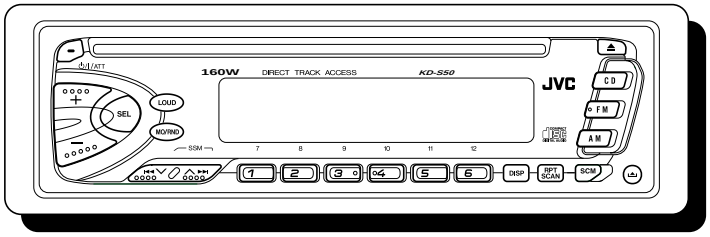
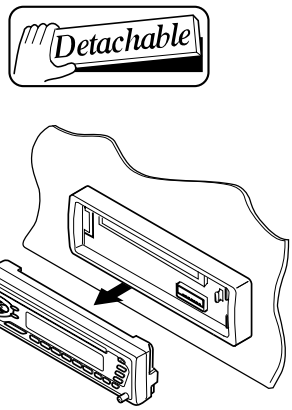
JVC

SERVICE MANUAL

CD RECEIVER

KD-S50





COMPACT disc DIGITAL AUDIO

Area Suffix

J ---- Northern America

Contents

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No.49657
Nov. 2001

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 preforming 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

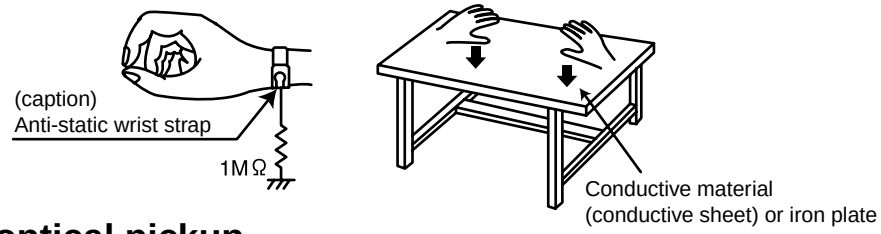
Static electricity in the work area can destroy the optical pickup (laser diode) in devices such as CD players. Be careful to use proper grounding in the area where repairs are being performed.

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.

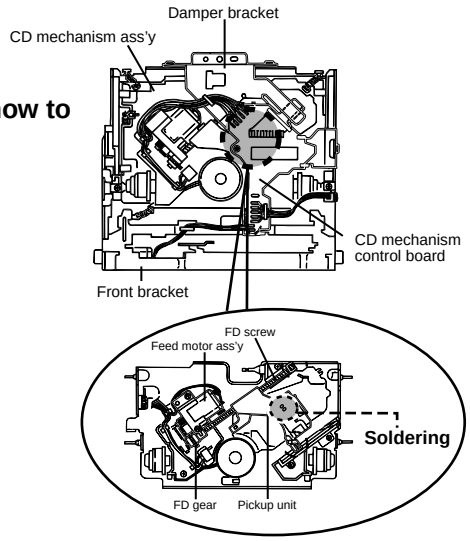
4. It is not possible to adjust the semi-fixed resistor that adjusts the laser power. Do not turn it

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.



< MEMO >

Disassembly method

<Main body>

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

1. Press the eject button in the lower right part of the front panel. Remove the front panel assembly from the body.

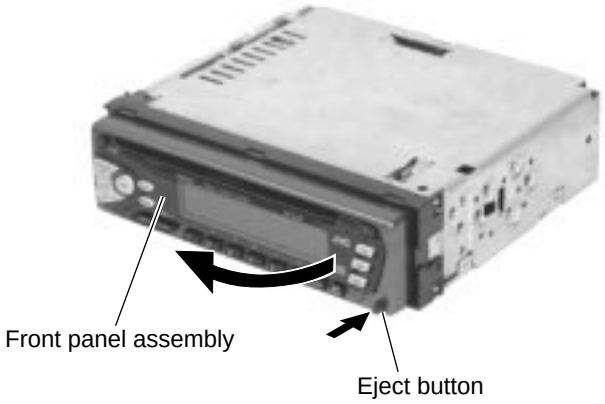


Fig.1

■ Removing the front chassis assembly (See Fig.2 and 3)

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

1. Release the four joint tabs **a** on both sides of the front chassis assembly and remove the front chassis assembly toward the front.

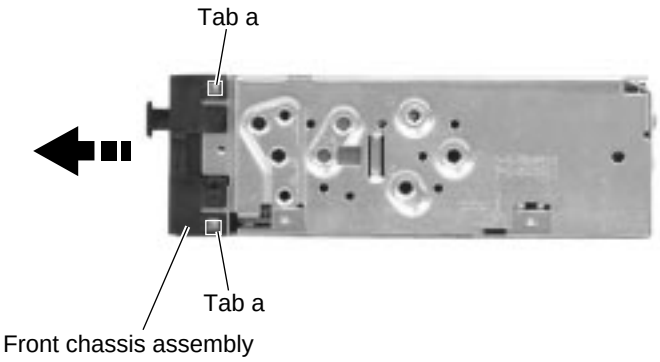


Fig.2

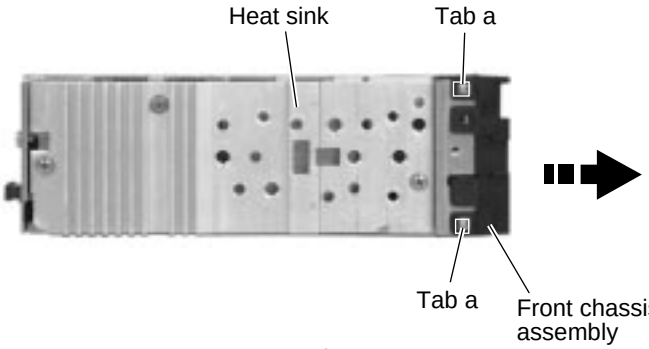


Fig.3

■ Removing the heat sink (See Fig.4)

1. Remove the three screws **A1, A2** and **A** on the left side of the body.

ATTENTION: Stop the screw in the order of **A1, A2** and **A.**

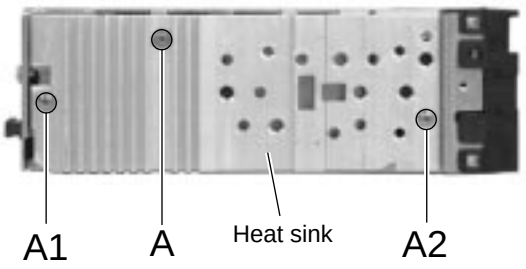


Fig.4

■ Removing the bottom cover (See Fig.5 and 6)

- Prior to performing the following procedure, remove the front panel assembly, the front chassis assembly and the heat sink.

1. Turn over the body and unjoint the five joints **b** with the bottom cover and the body using a screwdriver.

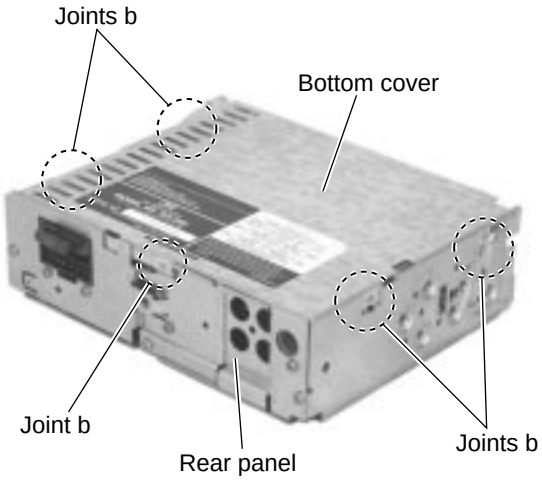


Fig.5

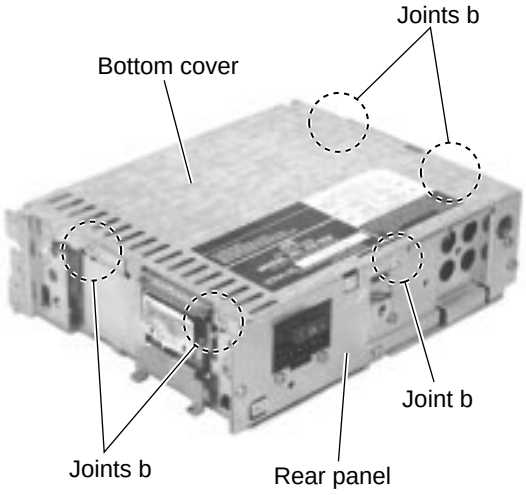


Fig.6

■ Removing the main board

(See Fig.7 and 8)

・ Prior to performing the following procedure, remove the front panel assembly, the front chassis assembly, the heat sink and the bottom cover.

1. Remove the four screws **B** and the three screws **C** attaching the rear bracket on the back of the body. Remove the rear panel.

2. Remove the two screws **D** attaching the main board on the bottom of the body. Disconnect connector CN501 on the main board in the direction of the arrow.

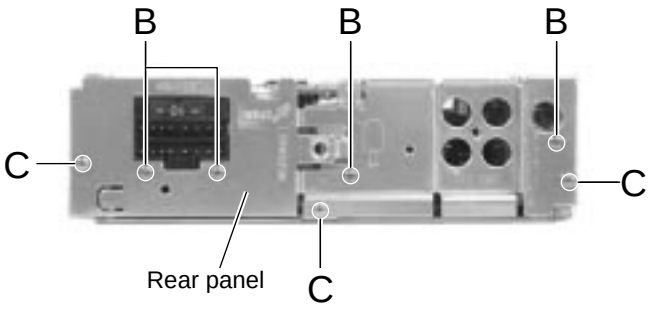


Fig.7

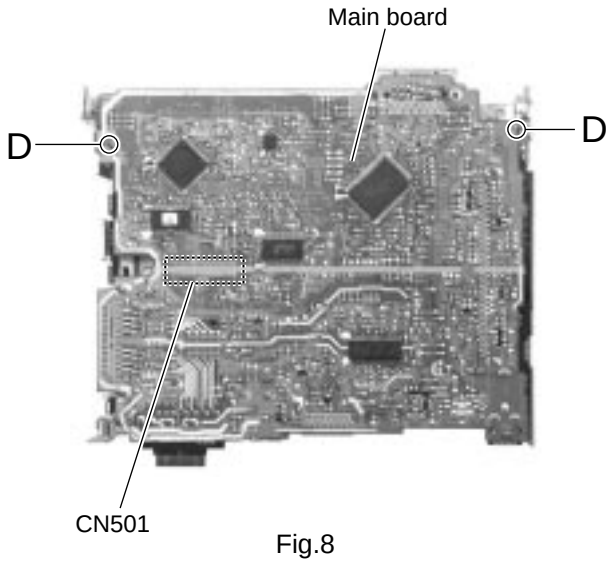


Fig.8

■ Removing the CD mechanism section

(See Fig.9)

・ Prior to performing the following procedure, remove the front panel assembly, the front chassis assembly, the heat sink, the bottom cover and the main board.

1. Remove the three screws **E** attaching the cassette mechanism section on the back of the top chassis.

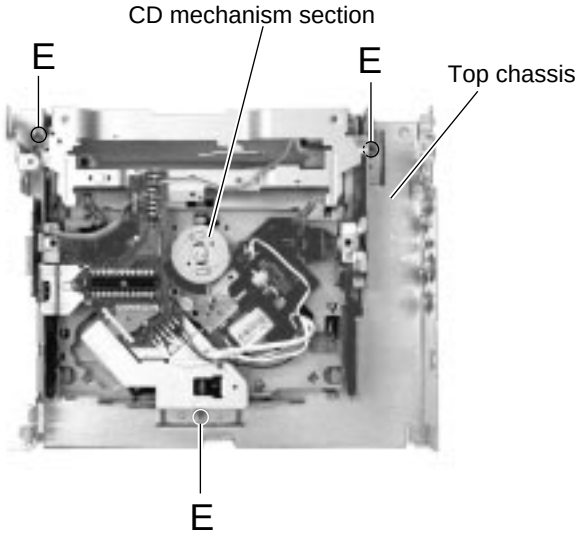


Fig.9

■ Removing the control switch board (See Fig.10 to 12)

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

1. Remove the four screws **F** attaching the rear cover on the back of the front panel assembly.
2. Unjoint the twelve joints **c** with the front panel and the rear cover.
3. Remove the control switch board on the back of the front panel.

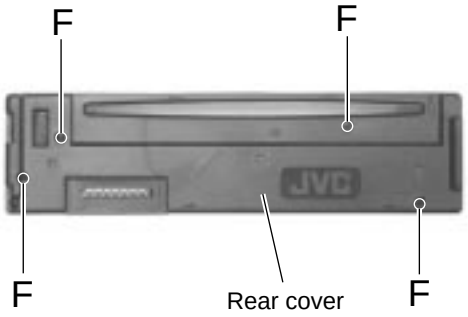


Fig.10

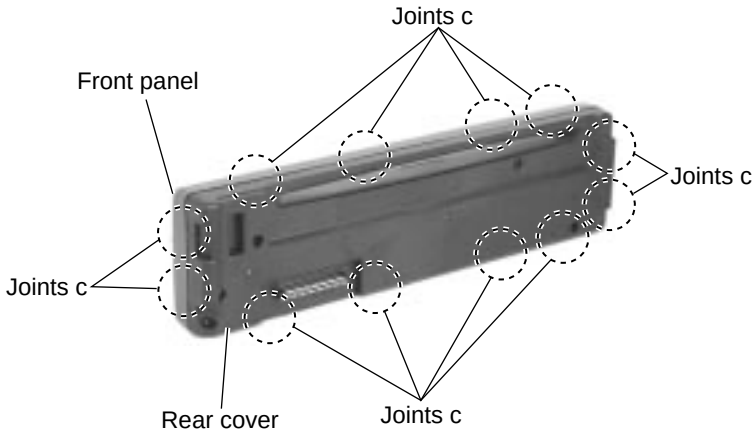


Fig.11

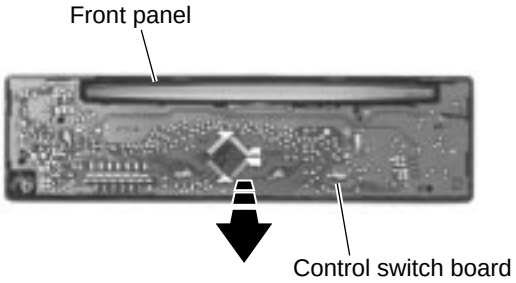


Fig.12

<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.

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)

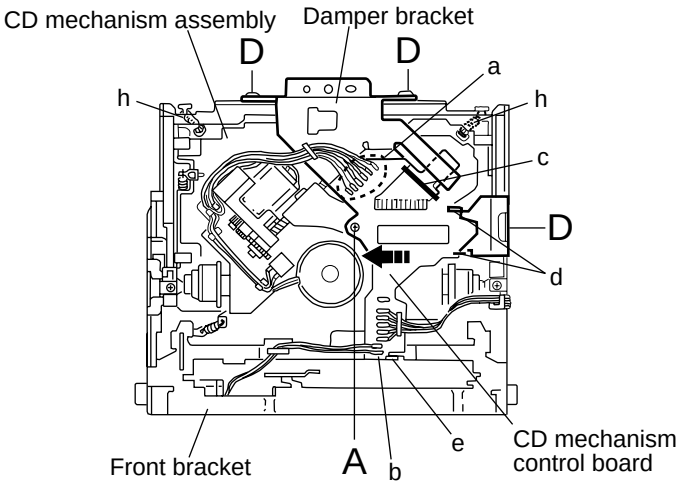


Fig.1

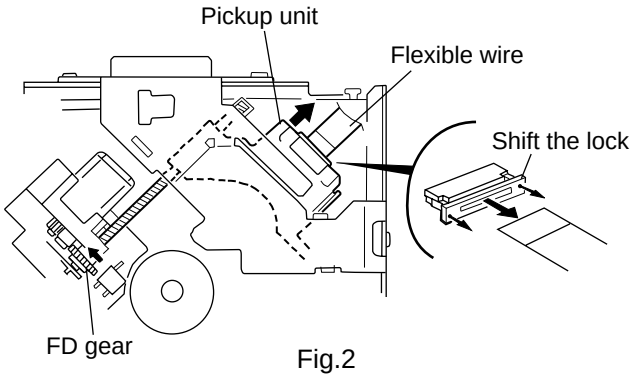


Fig.2

■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.

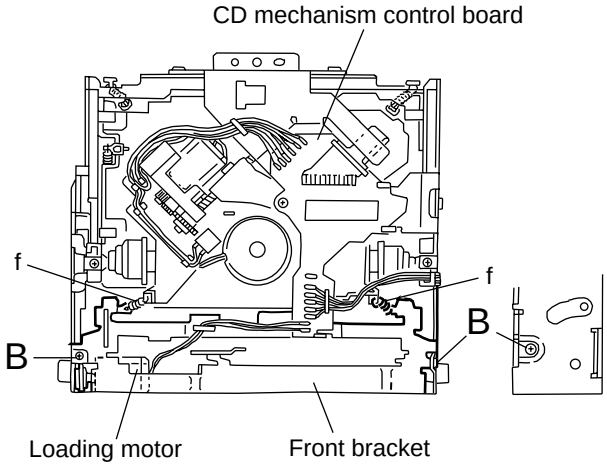


Fig.3

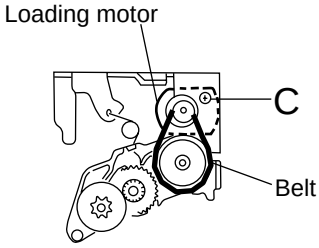


Fig.5

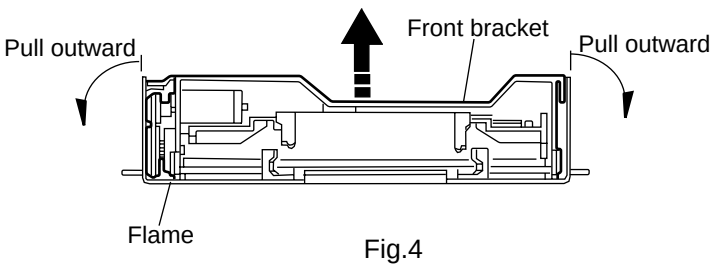


Fig.4

■ 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.

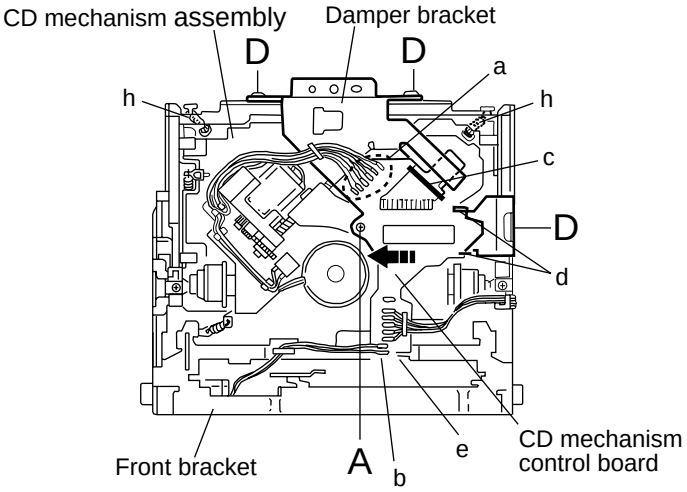


Fig.5

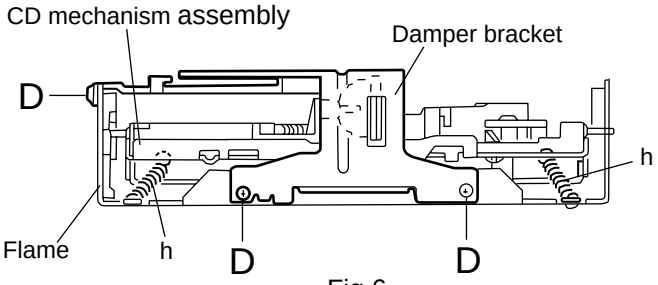


Fig.6

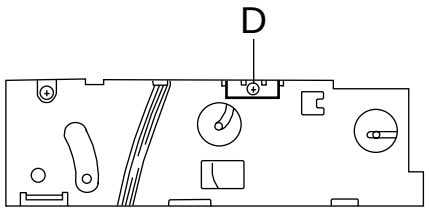


Fig.7

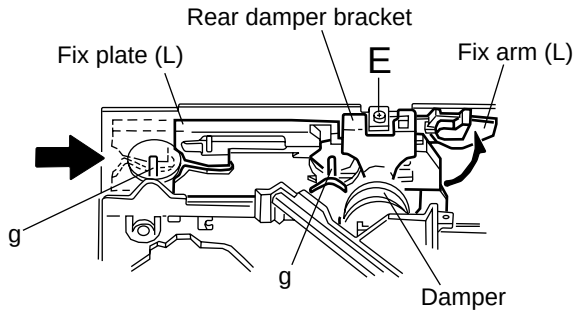


Fig.8

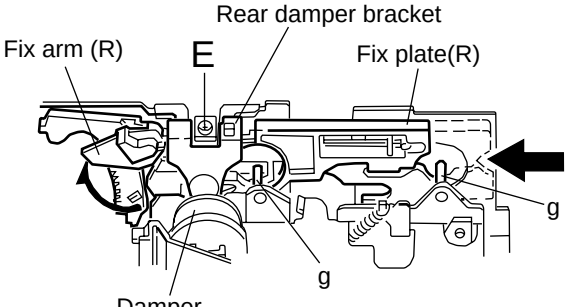


Fig.9

■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.

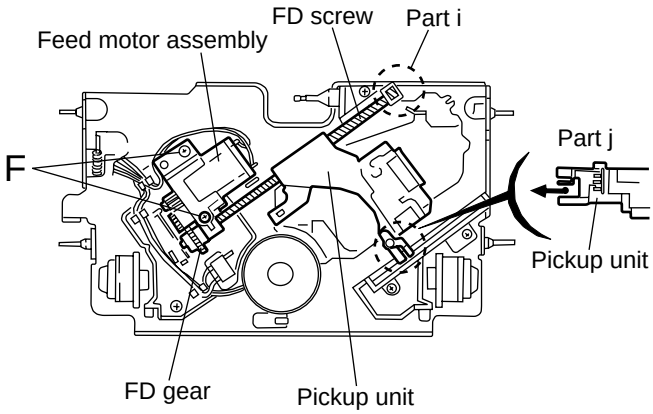


Fig.10

■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.

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.

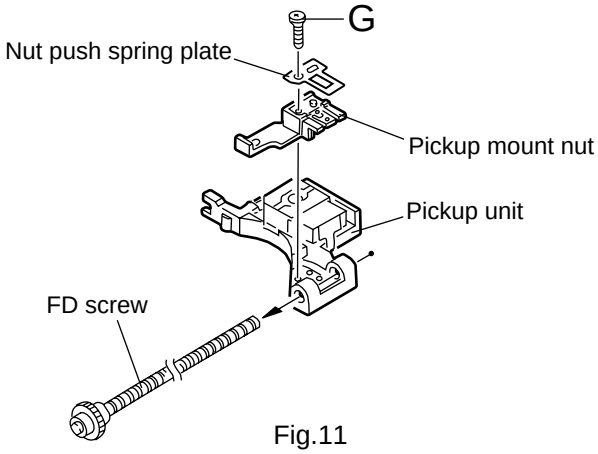


Fig.11

■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 clamper arms. Open the clamper arm upward.

2. Turn the turn table, and remove the two screws **H** and the spindle motor.

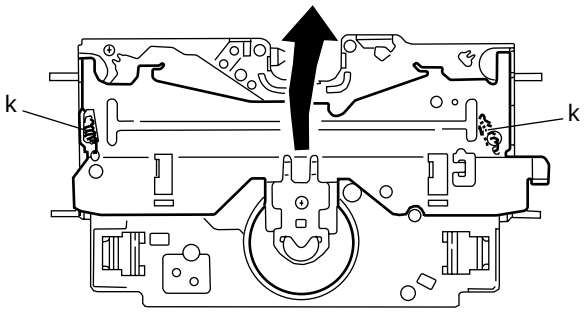


Fig.12

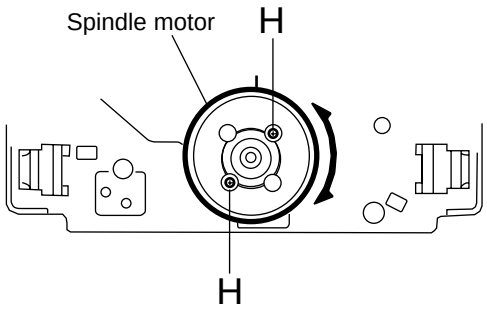


Fig.13

Adjustment method

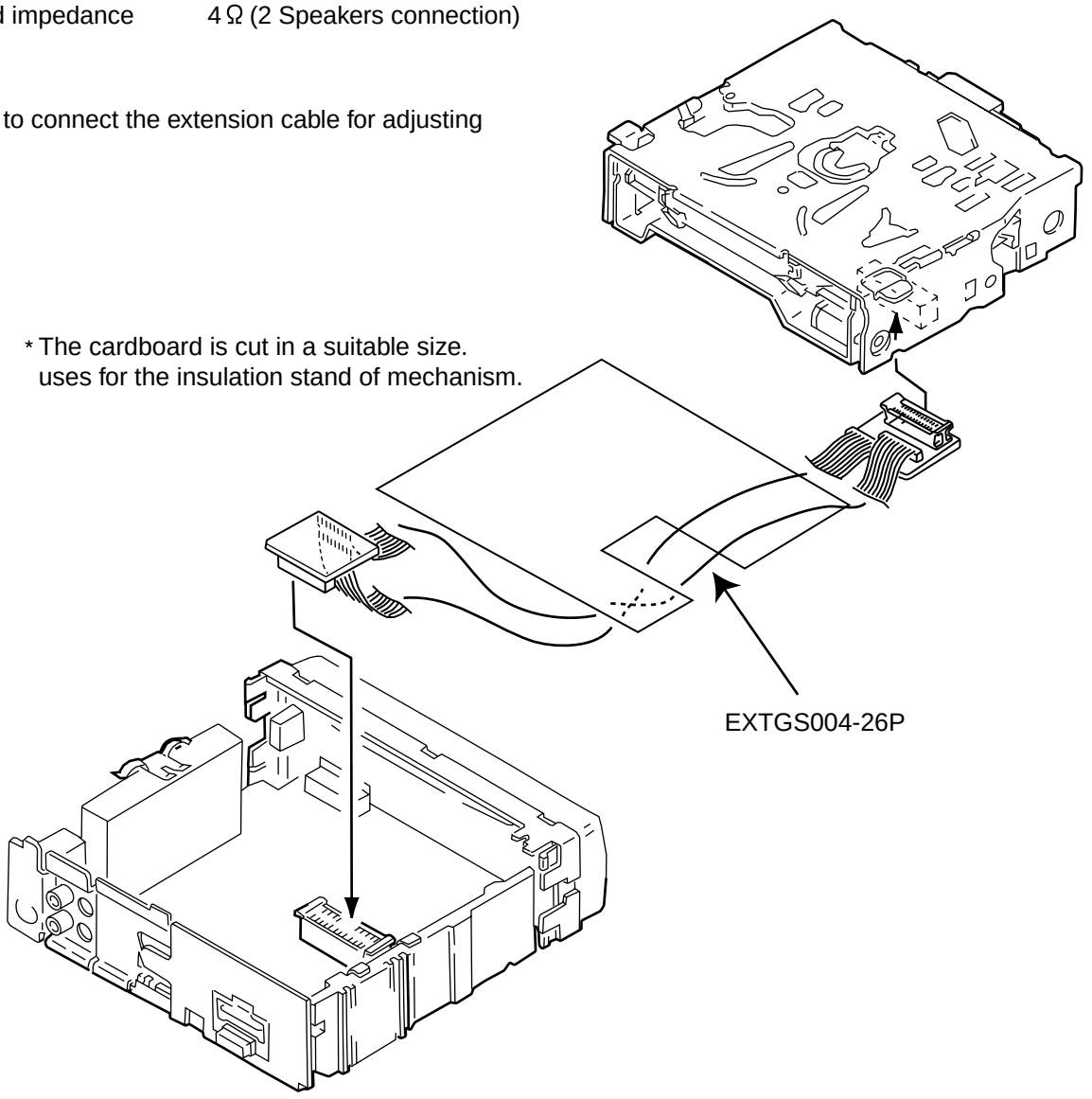
■Test instruments required for adjustment
1. Digital oscilloscope (100MHz)
2. AM Standard signal generator
3. FM Standard signal generator
4. Stereo modulator
5. Electric voltmeter
6. Digital tester
7. Tracking offset meter
8. Test Disc JVC :CTS-1000
9. Extension cable for check
EXTGS004-26P×1

■ Standard volume position
Balance and Bass &Treble volume : lndication"0"
Loudness : OFF
BBE : OFF
Frequency Band
■ FM 87.5MHz ~ 107.9MHz
MW 530kHz ~ 1710 kHz

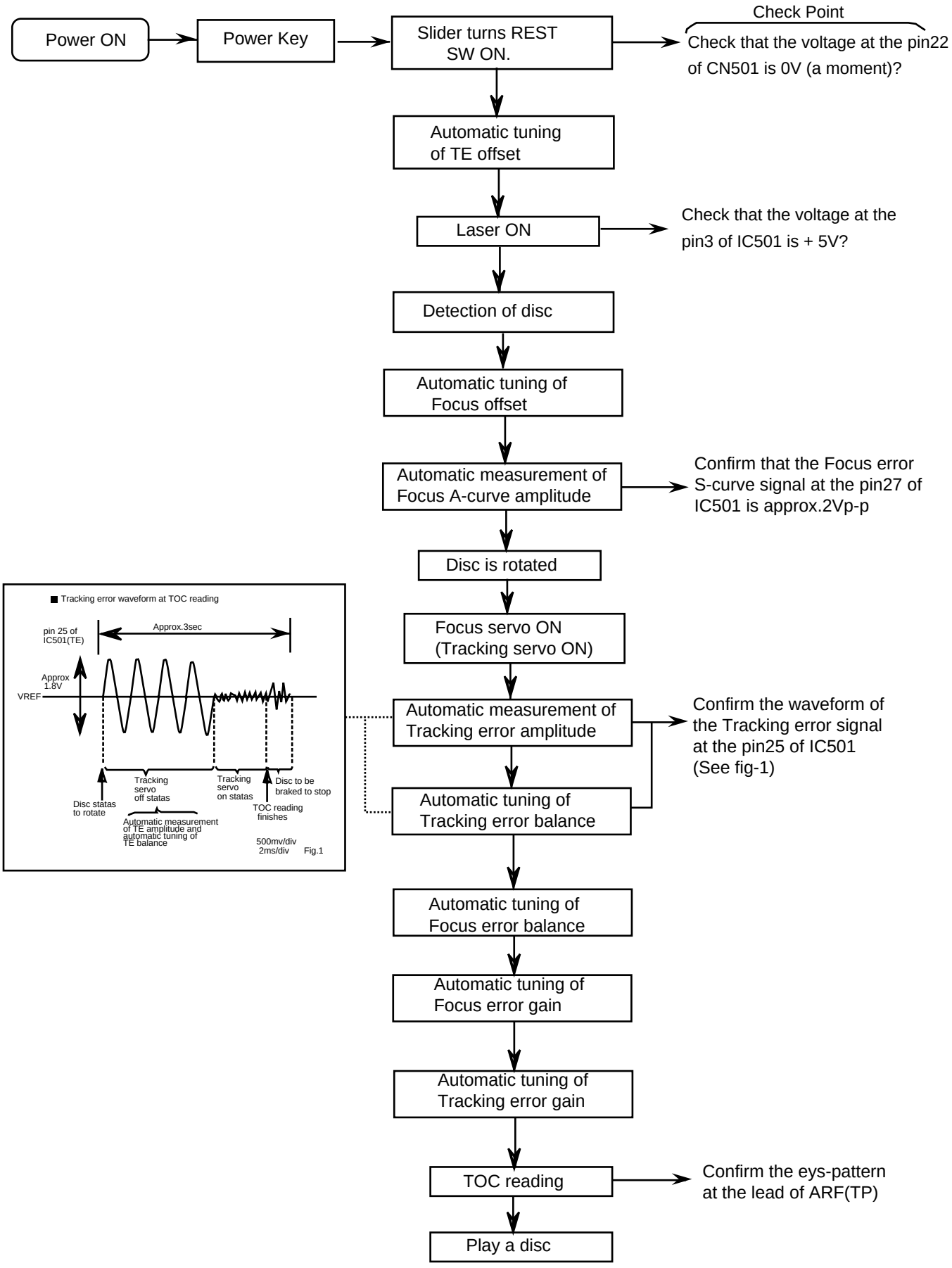
■ Dummy load
Exclusive dummy load should be used for AM,and FM. For FM dummy load,there is a loss of 6dB between SSG output and antenna input.The loss of 6dB need not be considered since direct reading of figures are applied in this working standard.

■ Standard measuring conditions
Power supply voltage DC14.4V(10.5~16V)
Load impedance 4Ω (2 Speakers connection)

■How to connect the extension cable for adjusting



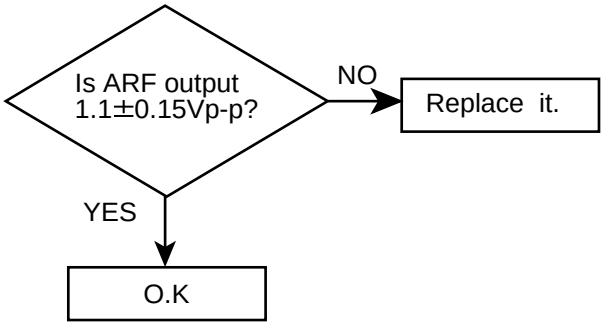
Flow of Functional Operation Until TOC Read



Maintenance of laser pickup

(1) Cleaning the pick up lens
Befor you replace the pick up, please try to clean the lens with a alcohol soaked cotton swab.

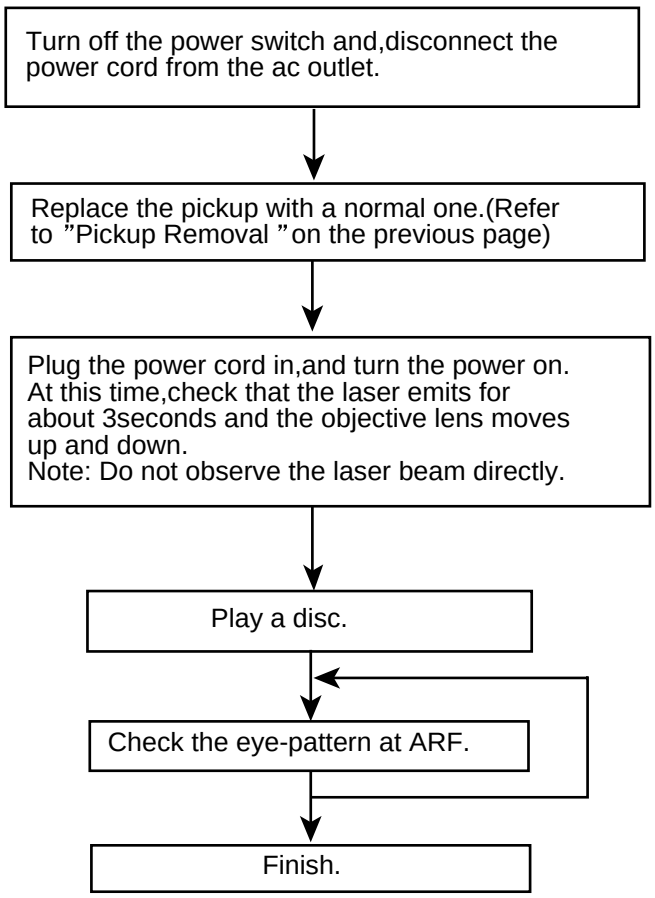
(2) Life of the laser diode (Fig.1)
When the life of the laser diode has expired, the following symptoms wil appear.
(1) The level of ARF output (EFM output:amplitude of eye pattern) will be low.



(Fig.1)

Replacement of laser pickup

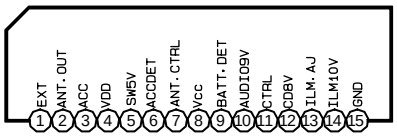
(3) Semi-fixed resistor on the APC PC board
The semi-fixed resistor on the APC printed circuit board which is attached to the pickup is used to adjust the laser power.Since this adjustment should be performed to match the characteristics of the whole optical block, do not touch the semi-fixed resistor.
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.



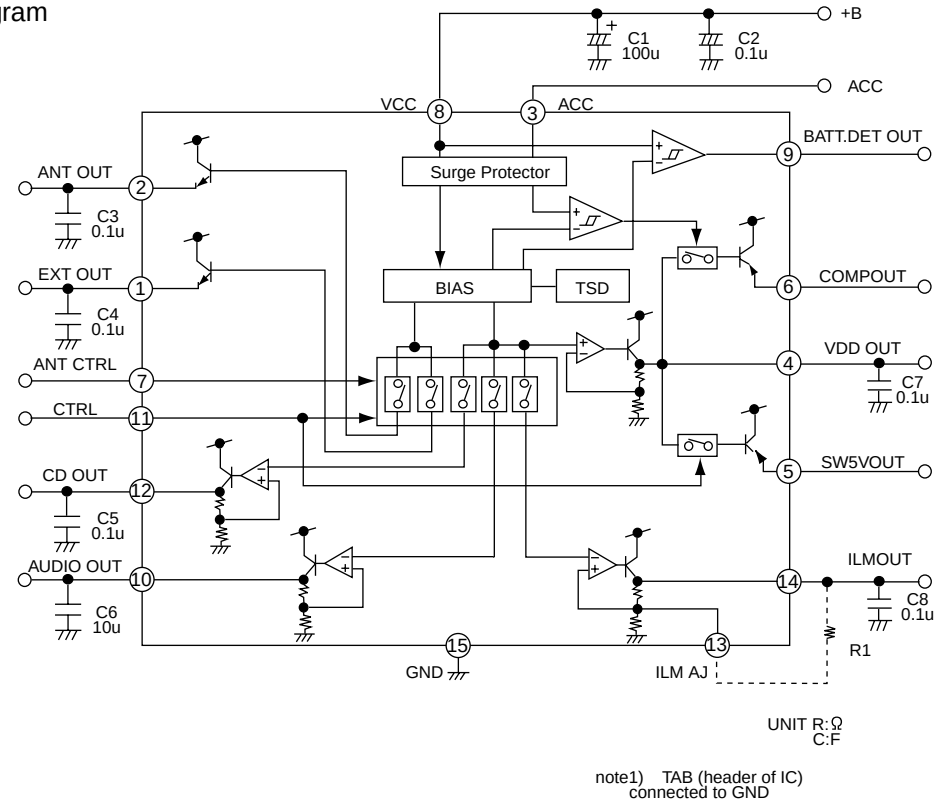
Description of major ICs

■ HA13164A (IC901) : Regulator

1.Terminal layout



2.Block diagram

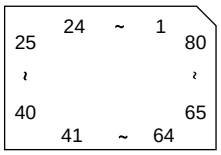


3.Pin function

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.

■ LC72366-9A64(IC801) : System CPU

1. Pin terminal



2. Pin function

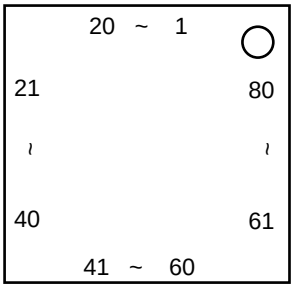
Pin No.	Symbol	I/O	Function
1	XIN	-	4.5MHz crystal oscillation
2	TEST2	-	Connect to ground
3	NC	-	Non connected
4	NC	-	Non connected
5	NC	-	Non connected
6	NC	-	Non connected
7	SUBQ	I	CD LSI subcode data input
8	NC	O	Non connected
9	SQCK	O	CD LSI subcode clock
10	RESET	I	Micon reset pin
11	LCD SI	O	Output (L)
12	LCD SO	O	LCD driver data output(to LC75823E pin 64)
13	LCD SCK	O	LCD driver clock signal(to LC75823E pin 63)
14	LCD CE	O	LCD driver chip enable port(to LC75823E pin 62)
15	FM ILLUMI	O	Output (L)
16	AM ILLUMI	O	H level during tuner mode (FM & AM)
17	CD ILLUMI	O	Level meter sensitivity control
18	DIMER OUT	O	Output (L)
19	LM0	O	CD loading motor output
20	LM1	O	CD loading motor output
21	NC	-	Non connected
22	NC	-	Non connected
23	NC	-	Non connected
24	KS2	O	Output for intial setting diode matrix
25	KS1	O	Output for initial setting diode matrix
26	KS0	O	Output for initial setting diode matrix
27	DETACH	I	front panel detect
28	K2	I	Input for initial setting diode matrix
29	K1	I	Input for initial setting diode matrix
30	K0	I	Input for initial setting diode matrix
31	vdd	-	5V supply
32	SW2	I	CD mechanism switch 2
33	CD LSI RESET	O	CD LSI reset
34	MCLK	O	CD LSI command clock signal
35	MDATA	O	CD LSI command data output
36	MLD	O	CD LSI command load signal
37	NC	-	Non connected
38	NC	-	Non connected
39	SCL	O	E.volume clock output (to TEA6320T pin 32)
40	SDA	O	E.volume data output (to TEA6320T pin 1)

LC72366-9A64

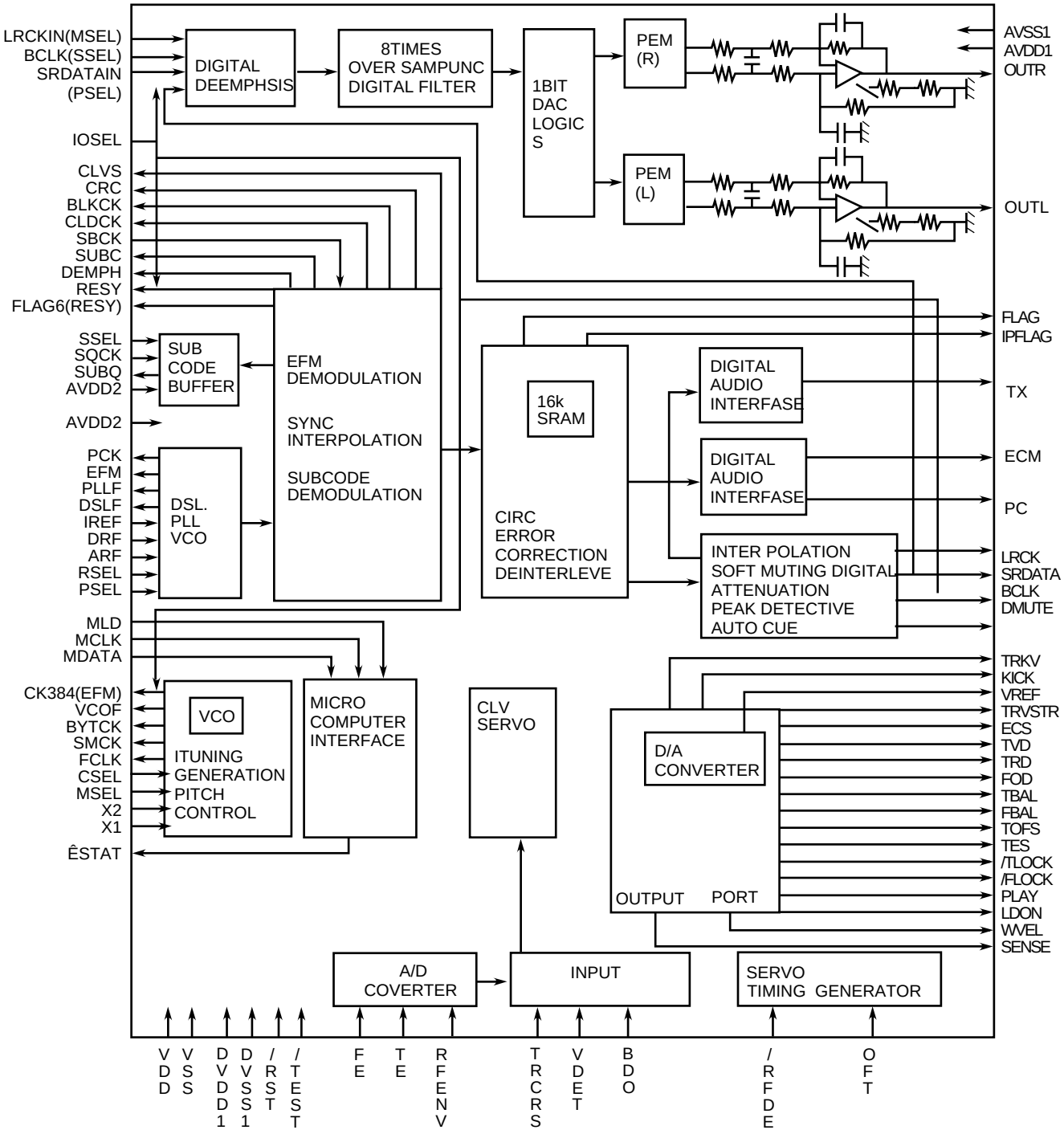
Pin No.	Symbol	I/O	Function
41	CD ON	O	CD 8V supply on ("H"*8V,"_":0V)
42	RELAY	O	5V power control
43	BLKCK	O	Output (L)
44	BEEP	O	Output (L)
45	SW4	I	CD mechanism switch 4
46	SW1	I	CD mechanism switch 1
47	SW3	I	CD mechanism switch 3
48	REST	I	CD pickup rest position
49	FLOCK	I	Focusing lock detection
50	TLOCK	I	Tracking lock detection
51	CD SENSE	I	CD LSI sense signal
52	STATUS	I	CD LSI status signal
53	P.SAVE2	I	Power save 2 :+B off detection
54	SD/ST	I	Station detection("H"),Stereo indication("L")
55	REMOCON	I	Remocon input
56	J BUS INT	O	Output(L)
57	BAND	O	FM/AM band selection("H":FM,"L":AM)
58	MONO	O	FM mono selection("H":MONO)
59	INFQ/AGC	O	During FM auto search,IF request output "H" after SD detected. During AM auto search,AGC output("H":auto search)
60	MUTE	O	Muting switch
61	LEVEL	I	Level meter input
62	S METER	I	S meter input
63	KEY CHANGE	I	TEL muting for U version
64	KEY2	I	Key 2 data input (AD)
65	KEY1	I	Key 1 data input (AD)
66	KEY0	I	Key 0 data input (AD)
67	P.SAVE1	-	Power save 1, ACC power detect
68	SENSE	-	Voltage sense
69	NC	-	Non connected
70	FM IF COUNT	-	FM IF counter data input
71	NC	-	Non connected
72	NC	-	Non connected
73	vdd	-	5V supply
74	AM OSC	-	
75	OSC (AM OSC)	-	FM input frequency
76	Vss	-	Ground
77	NC	-	Non connected
78	EO	-	PLL error output signal
79	TEST1	-	Connect to ground
80	XOUT	-	4.5MHz cystal oscillation

■ MN6627482WA (IC561) : Digital servo & Digital signal processer D/A converter

1. Pin layout



2.Block diagram



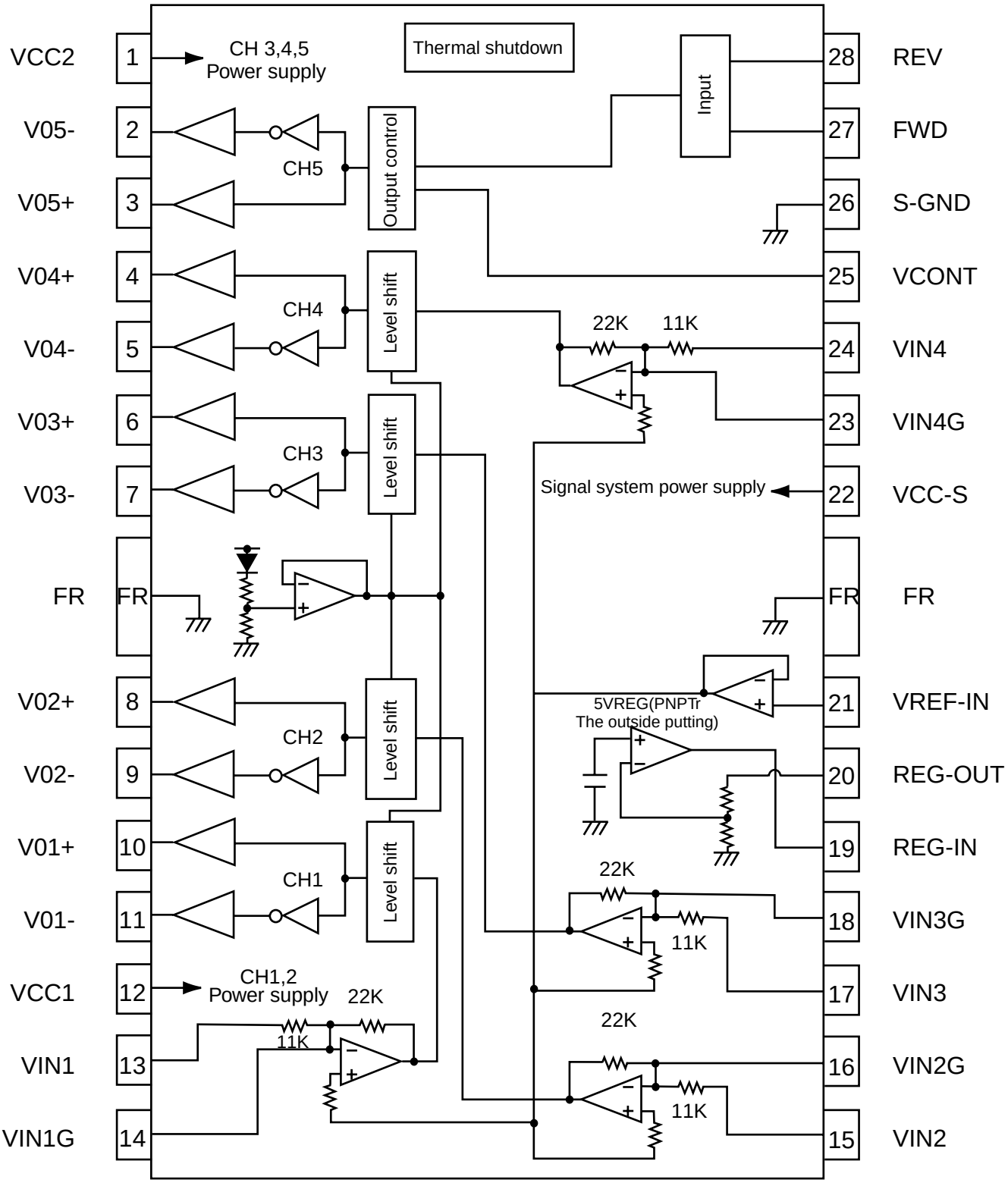
3. Pin function

MN6627482WA

Pin No.	Symbol	I/O	Function	Pin No.	Symbol	I/O	Function
1	BCLK	O	Not used	41	TES	O	Tracking error shunt signal output (H:shunt)
2	LRCK	O	Not used	42	PLAY	–	Not used
3	SRDATA	O	Not used	43	WVEL	–	Not used
4	DVDD1	–	Power supply (Digital)	44	ARF	I	RF signal input
5	DVSS1	–	Connected to GND	45	IREF	I	Reference current input pin
6	TX	O	Not used	46	DRF	I	Bias pin for DSL
7	MCLK	I	CPU command clock signal input (Data is latched at signal's rising point)	47	DSLF	I/O	Loop filter pin for DSL
8	MDATA	I	CPU command data input	48	PLLF	I/O	Loop filter pin for PLL
9	MLD	I	CPU command load signal input	49	VCOF	–	Not used
10	SENSE	O	Sense signal output	50	AVDD2	–	Power supply (Analog)
11	FLOCK	O	Focus lock signal output Active :Low	51	AVSS2	–	Connected to GND (Analog)
12	TLOCK	O	Tracking lock signal output Active :Low	52	EFM	–	Not used
13	BLKCK	O	sub-code/block/clock signal output	53	PCK	–	Not used
14	SQCK	I	Outside clock for sub-code Q resister input	54	PDO	–	PLL data slice output
15	SUBQ	O	Sub-code Q -code output	55	SUBC	–	Not used
16	DMUTE	–	Connected to GND	56	SBCK	–	Not used
17	STAT	O	Status signal (CRC,CUE,CLVS,TTSTOP,ECLV,SQOK)	57	VSS	–	Connected to GND (for X'tal oscillation circuit)
18	RST	I	Reset signal input (L:Reset)	58	XI	I	Input of 16.9344MHz X'tal oscillation circuit
19	SMCK	–	Not used	59	X2	O	Output of X'tal oscillation circuit
20	PMCK	–	Not used	60	VDD	–	Power supply (for X'tal oscillation circuit)
21	TRV	O	Traverse enforced output	61	BYTCK	–	Not used
22	TVD	O	Traverse drive output	62	CLOCK	–	Not used
23	PC	–	Not used	63	FLAG	–	Not used
24	ECM	O	Spindle motor drive signal (Enforced mode output) 3-State	64	IPPLAG	–	Not used
25	ECS	O	Spindle motor drive signal (Servo error signal output)	65	FLAG	–	Not used
26	KICK	O	Kick pulse output	66	CLVS	–	Not used
27	TRD	O	Tracking drive output	67	CRC	–	Not used
28	FOD	O	Focus drive output	68	DEMPH		Not used
29	VREF	I	Reference voltage input pin for D/A output block (TVD,FOD,FBA,TBAL)	69	RESY	–	Not used
30	FBAL	O	Focus Balance adjust signal output	70	IOSEL	–	pull up
31	TBAL	O	Tracking Balance adjust signal output	71	TEST	–	pull up
32	FE	I	Focus error signal input (Analog input)	72	AVDD1	–	Power supply (Digital)
33	TE	I	Tracking error signal input (Analog input)	73	OUT L	O	Lch audio output
34	RF ENV	I	RF envelope signal input (Analog input)	74	AVSS1	–	Connected to GND
35	VDET	I	Vibration detect signal input (H:detect)	75	OUT R	O	Rch audio output
36	OFT	I	Off track signal input (H:off track)	76	RSEL	–	pull up
37	TRCRS	I	Track cross signal input	77	CSEL	–	Connected to GND
38	RFDET	I	RF detect signal input (L:detect)	78	PSEL	–	Connected to GND
39	BDO	I	BDO input pin (L:detect)	79	MSEL	–	Connected to GND
40	LDON	O	Laser ON signal output (H:on)	80	SSEL	–	Pull up

■ LA6567H-X(IC541):CD DRIVER

1.Pin layout & blockdiagram



2. Pin function

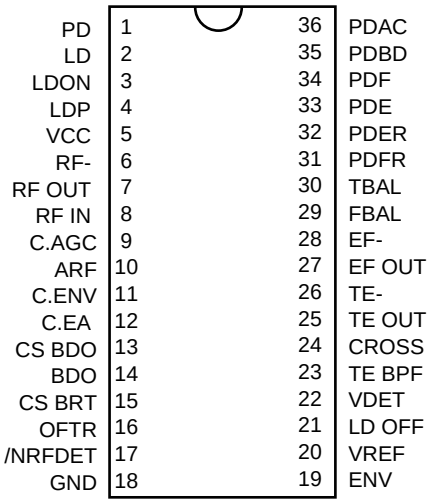
LA6567H-X(2/2)

Pin no.	Symbol	Function
1	VCC2	CH3,4,5 Power supply(It is short with VCC1,VCC-S)
2	V05-	Loading output(-)
3	V05+	Loading terminal (+)
4	V04+	CH4 Output terminal(+)
5	V04-	CH4 Output terminal(-)
6	V03+	CH3 Output terminal(+)
7	V03-	CH3 Output terminal(-)
8	V02+	CH2 Output terminal(+)
9	V02-	CH2 Output terminal(-)
10	V01+	CH1 Output terminal(+)
11	V01-	CH1 Output terminal(-)
12	VCC1	CH1,2(BTL) Power supply(It is short with VCC-S,VCC2)
13	VIN1	CH1 Input terminal
14	VIN1G	CH1 Input terminal(For gain adjustment)
15	VIN2	CH2 Input terminal
16	VIN2G	CH2 Input terminal(For gain adjustment)
17	VIN3	CH3 Input terminal
18	VIN3G	CH3 Input terminal(For gain adjustment)
19	REG-IN	Regulator terminal(Outside putting PNP base)
20	REG-OUT	Regulator terminal(Outside putting PNP collector)
21	VREF-IN	Standard voltage input terminal
22	VCC-S	Signal system power supply(It is short with VCC1,VCC2)
23	VIN4G	CH4 Input terminal(For gain adjustment)
24	VIN4	CH4 Input terminal
25	VCONT	5CH(VLO) Output voltage set terminal
26	S-GND	Signal system GND
27	FWD	5CH(VLO)Signal output switch terminal(FWD),Input of logic of loading part
28	REV	5CH(VLO)Signal output switch terminal(REV), Input of logic of loading part

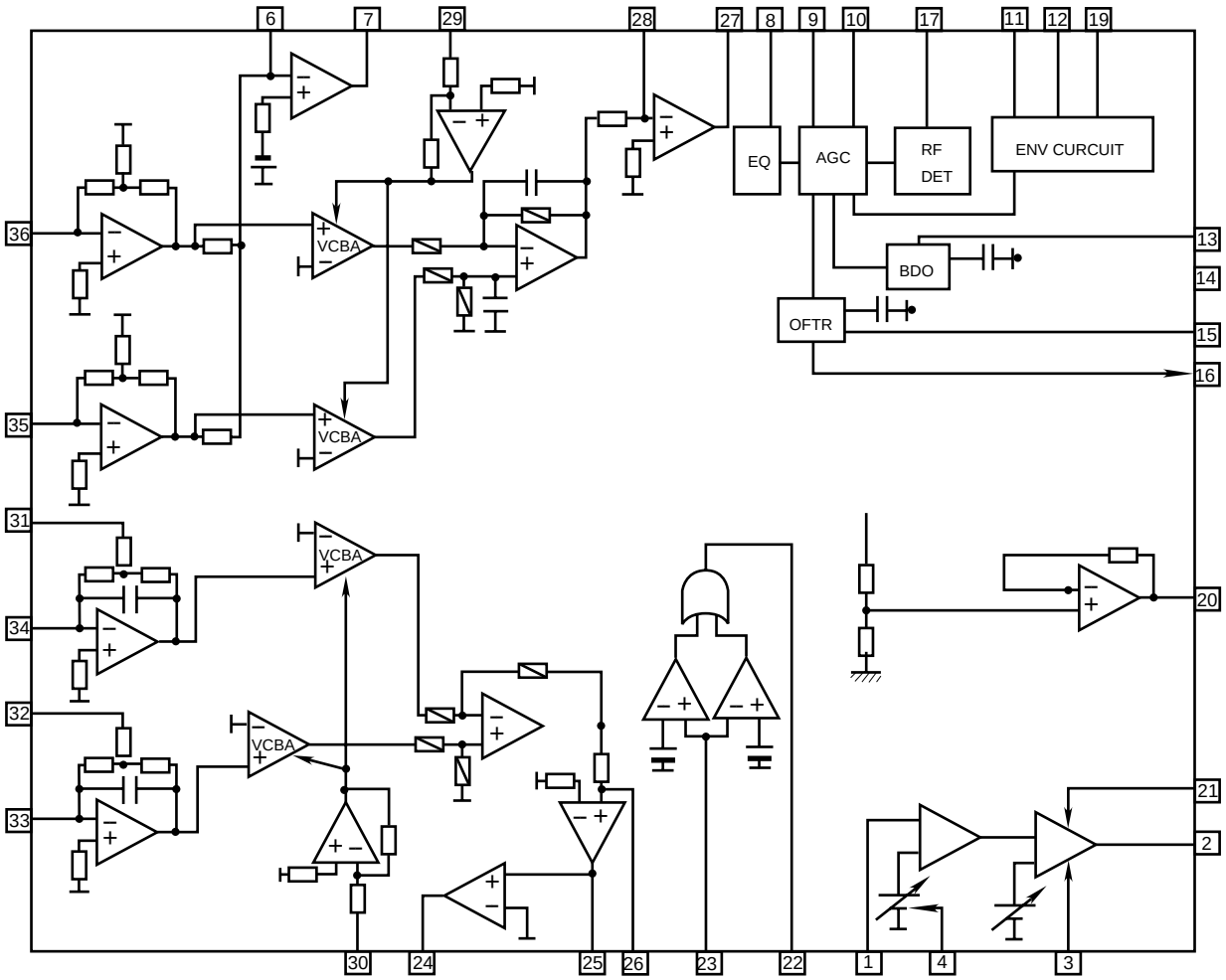
* Frame(FR)at the center becomes system GND.
* Please be short-circuited on the outside and use the terminal of the power supply system and three teminals of VCC-S, VCC1,VCC2.

■ AN8806SB-W (IC501) : RF&Servo amp.

1.Pin layout



2.Block diagram



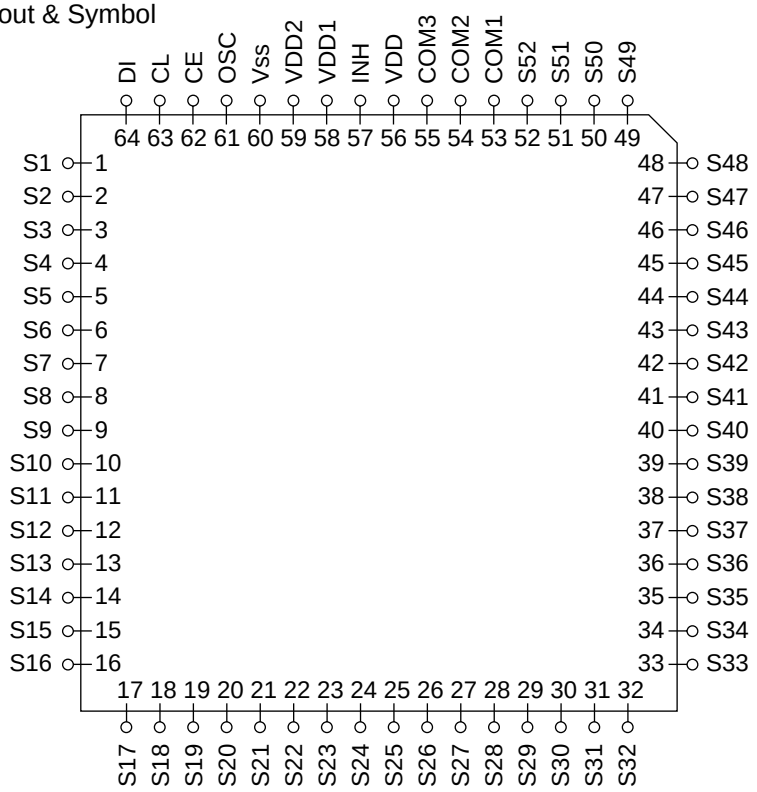
3. Pin function

AN8806SB-W

Pin No.	Symbol	I/O	Description
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

■ LC75823W (IC601) : LCD driver

1. Pin Layout & Symbol

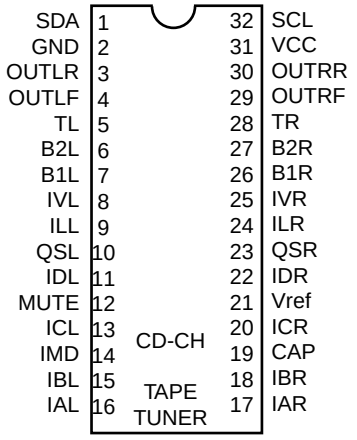


2. Pin Function

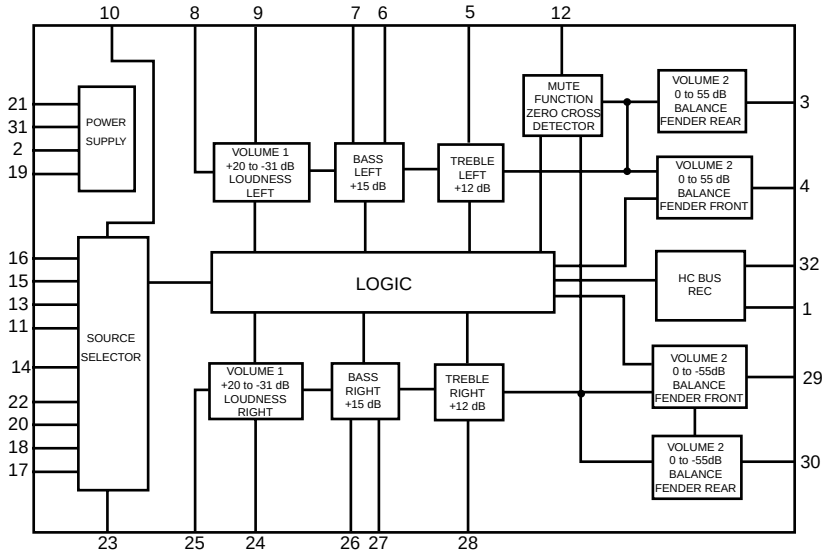
Pin No.	Symbol	I/O	Function
1 to 52	S1 to S52	O	Segment output pins used to display data transferred by serial data input.
53 to 55	COM1 to COM3	O	Common driver output pins. The frame frequency is given by : t0=(fosc/384)Hz.
56	VDD	--	Power supply connection. Provide a voltage of between 4.5 and 6.0V.
57	$\overline{\text{INH}}$	I	Display turning off input pin. $\overline{\text{INT}}$="L" (Vss) ----- off (S1 to S52, COM1 to COM3="L" $\overline{\text{INT}}$="H" (VDD)----- on Serial data can be transferred in display off mode.
58	VDD1	I	Used for applying the LCD drive 2/3 bias voltage externally. Must be connected to VDD2 when a 1/2 bias drive scheme is used.
59	VDD2	I	Used for applying the LCD drive 1/3 bias voltage externally. Must be connected to VDD1 when a 1/2 bias drive scheme is used.
60	Vss	--	Power supply connection. Connect to GND.
61	OSC	I/O	Oscillator connection. An oscillator circuit is formed by connecting an external resistor and capacitor at this pin.
62 63 64	CE CL DI	I	Serial data interface connection to the controller. CE : Chip enable CL : Sync clock DI : Transfer data

■ TEA6320T-X(IC301) : E.volume

1.Terminal Layout



2.Block Diagram

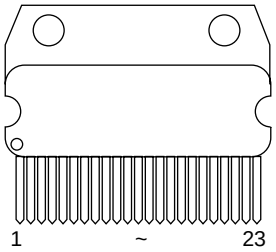


3.Pin Functions

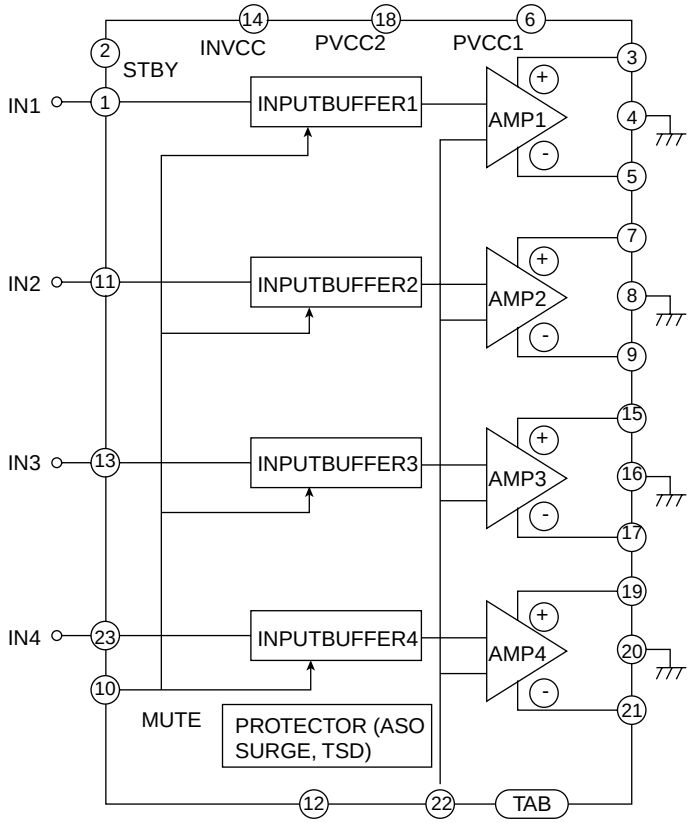
Pin No.	Symbol	I/O	Functions	Pin No.	Symbol	I/O	Functions
1	SDA	I/O	Serial data input/output.	17	IAR	I	Input A right source.
2	GND	-	Ground.	18	IBR	I	Input B right source.
3	OUTLR	O	output left rear.	19	CAP	-	Electronic filtering for supply.
4	OUTLF	O	output left front.	20	ICR	I	Input C right source.
5	TL	I	Treble control capacitor left channel or input from an external equalizer.	21	Vref	-	Reference voltage (0.5Vcc)
6	B2L	-	Bass control capacitor leftchannel or output to an external equalizer.	22	IDR	-	Not used
7	B1L	-	Bass control capacitor left channel.	23	QSR	O	Output source selector right channel.
8	IVL	I	Input volume 1. left control part.	24	ILR	I	Input loudness right channel.
9	ILL	I	Input loudness. left control part.	25	IVR	I	Input volume 1. right control part.
10	QSL	O	Output source selector. left channel.	26	B1R	-	Bass control capacitor right channel
11	IDL	-	Not used	27	B2R	O	Bass control capacitor right channel or output to an external equalizer.
12	MUTE	-	Not used	28	TR	I	Treble control capacitor right channel or input from an external equalizer.
13	ICL	I	Input C left source.	29	OUTRF	O	Output right front.
14	IMO	-	Not used	30	OUTRR	O	Output right rear.
15	IBL	I	Input B left source.	31	Vcc	-	Supply voltage.
16	IAL	I	Input A left source.	32	SCL	I	Serial clock input.

■ HA13158A (IC321) : Power amp

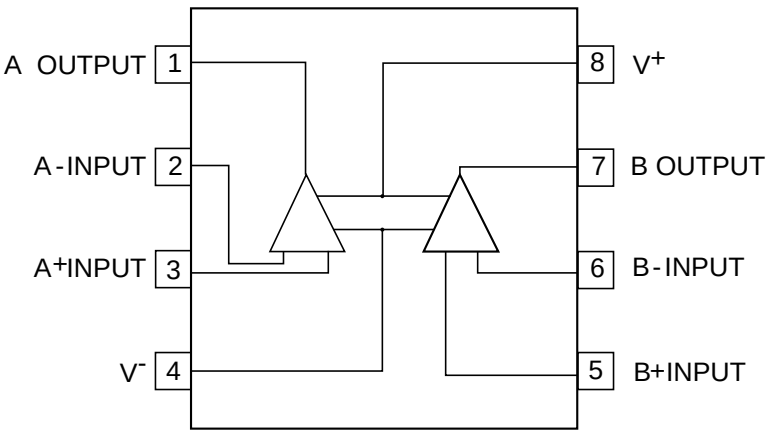
1. Pin layout



2. Block diagram



■ NJM4565M-WE (IC151) : Ope. amp



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