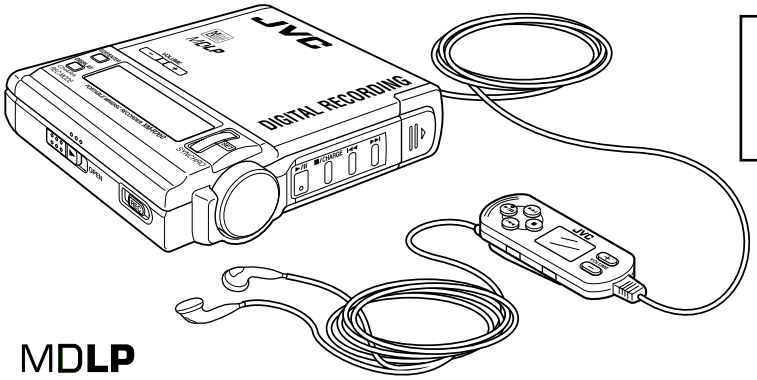
JVC

SERVICE MANUAL

PORTABLE MINIDISC RECORDER

XM-R700SL



Area Suffix	
B	U.K.
E	Continental Europe
EN	Northern Europe

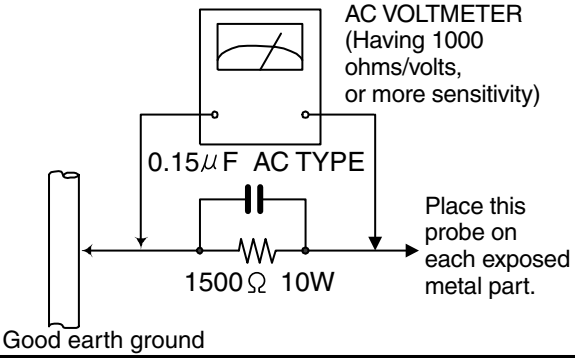
MiniDisc MDLP

Contents

No.20891
Jan. 2001

Safety Precautions

1. This design of this product contains special hardware and many circuits and components specially for safety purposes. For continued protection, no changes should be made to the original design unless authorized in writing by the manufacturer. Replacement parts must be identical to those used in the original circuits. Services should be performed by qualified personnel only.
2. Alterations of the design or circuitry of the product should not be made. Any design alterations of the product should not be made. Any design alterations or additions will void the manufacturer`s warranty and will further relieve the manufacture of responsibility for personal injury or property damage resulting therefrom.
3. Many electrical and mechanical parts in the products have special safety-related characteristics. These characteristics are often not evident from visual inspection nor can the protection afforded by them necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in the Parts List of Service Manual. Electrical components having such features are identified by shading on the schematics and by (⚠) on the Parts List in the Service Manual. The use of a substitute replacement which does not have the same safety characteristics as the recommended replacement parts shown in the Parts List of Service Manual may create shock, fire, or other hazards.
4. The leads in the products are routed and dressed with ties, clamps, tubings, barriers and the like to be separated from live parts, high temperature parts, moving parts and/or sharp edges for the prevention of electric shock and fire hazard. When service is required, the original lead routing and dress should be observed, and it should be confirmed that they have been returned to normal, after re-assembling.
5. Leakage currnet check (Electrical shock hazard testing)
   After re-assembling the product, always perform an isolation check on the exposed metal parts of the product (antenna terminals, knobs, metal cabinet, screw heads, headphone jack, control shafts, etc.) to be sure the product is safe to operate without danger of electrical shock.
   Do not use a line isolation transformer during this check.
   - Plug the AC line cord directly into the AC outlet. Using a "Leakage Current Tester", measure the leakage current from each exposed metal parts of the cabinet , particularly any exposed metal part having a return path to the chassis, to a known good earth ground. Any leakage current must not exceed 0.5mA AC (r.m.s.)
   - Alternate check method
     Plug the AC line cord directly into the AC outlet. Use an AC voltmeter having, 1,000 ohms per volt or more sensitivity in the following manner. Connect a 1,500Ω 10W resistor paralleled by a 0.15μF AC-type capacitor between an exposed metal part and a known good earth ground.
     Measure the AC voltage across the resistor with the AC voltmeter.
     Move the resistor connection to eachexposed metal part, particularly any exposed metal part having a return path to the chassis, and meausre the AC voltage across the resistor. Now, reverse the plug in the AC outlet and repeat each measurement. voltage measured Any must not exceed 0.75 V AC (r.m.s.). This corresponds to 0.5 mA AC (r.m.s.).



Warning

1. This equipment has been designed and manufactured to meet international safety standards.
2. It is the legal responsibility of the repairer to ensure that these safety standards are maintained.
3. Repairs must be made in accordance with the relevant safety standards.
4. It is essential that safety critical components are replaced by approved parts.
5. If mains voltage selector is provided, check setting for local voltage.

⚠ ***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.**

Safety precautions (U.K only)

1. This design of this product contains special hardware and many circuits and components specially for safety purposes. For continued protection, no changes should be made to the original design unless authorized in writing by the manufacturer. Replacement parts must be identical to those used in the original circuits.
2. Any unauthorised design alterations or additions will void the manufacturer's guarantee ; furthermore the manufacturer cannot accept responsibility for personal injury or property damage resulting therefrom.
3. Essential safety critical components are identified by (⚠) on the Parts List and by shading on the schematics, and must never be replaced by parts other than those listed in the manual. Please note however that many electrical and mechanical parts in the product have special safety related characteristics. These characteristics are often not evident from visual inspection. Parts other than specified by the manufacturer may not have the same safety characteristics as the recommended replacement parts shown in the Parts List of the Service Manual and may create shock, fire, or other hazards.
4. The leads in the products are routed and dressed with ties, clamps, tubings, barriers and the like to be separated from live parts, high temperature parts, moving parts and/or sharp edges for the prevention of electric shock and fire hazard. When service is required, the original lead routing and dress should be observed, and it should be confirmed that they have been returned to normal, after re-assembling.

Warning

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Important for laser products

1.CLASS 1 LASER PRODUCT

2.DANGER : Invisible laser radiation when open and inter lock failed or defeated. Avoid direct exposure to beam.

3.CAUTION : There are no serviceable parts inside the Laser Unit. Do not disassemble the Laser Unit. Replace the complete Laser Unit if it malfunctions.

4.CAUTION : The compact disc player uses invisible laserradiation and is equipped with safety switches whichprevent emission of radiation when the drawer is open and the safety interlocks have failed or are de feated. It is dangerous to defeat the safety switches.

5.CAUTION : If safety switches malfunction, the laser is able to function.

6.CAUTION : Use of controls, adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

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

VARNING : Osynlig laserstrålning är denna del är öppnad och spårren är urkopplad. Betrakta ej strålen.

VARO : Avattaessa ja suojalukitus ohitettaessa olet alttiina näkymättömälle lasersäteilylle.Älä katso säteeseen.

ADVARSEL : Usynlig laserstråling ved åbning , når sikkerhedsafbrydere er ude af funktion. Undgå udsættelse for stråling.

ADVARSEL : Usynlig laserstråling ved åpning,når sikkerhetsbryteren er avslott. unngå utsettelse for stråling.

REPRODUCTION AND POSITION OF LABELS

WARNING LABEL

DANGER : Invisibie laser radiation when open and interlock or defeated.
AVOID DIRECT EXPOSURE TO BEAM (e)

VARO : Avattaessa ja suojalukitus ohitettaessa olet alttiina näkymättömälle lasersäteilylle.Älä katso säteeseen. (d)

VARNING : Osynlig laserstrålning är denna del är öppnad och spårren är urkopplad. Betrakta ej strålen. (s)

ADVARSEL :Usynlig laserstråling ved åbning , når sikkerhedsafbrydere er ude af funktion. Undgå udsættelse for stråling. (f)

Attention when MD pick up is exchanged

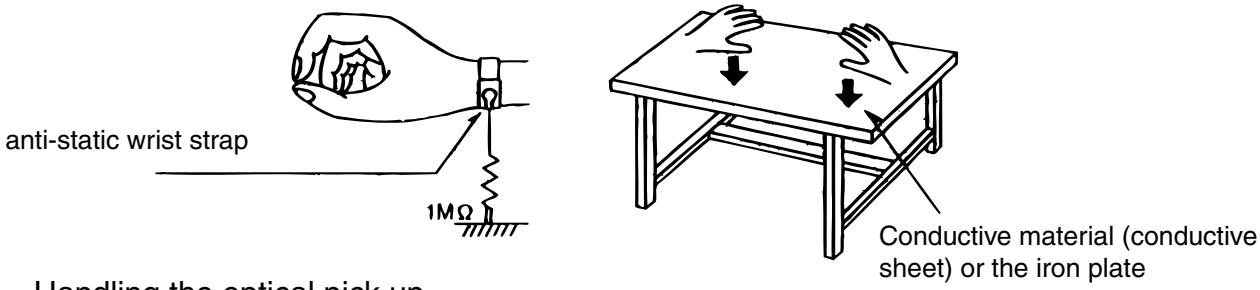
1. About the static electricity protection measures

The laser diode in the traverse unit (optical pick up) is easy to be destroyed by clothes and the human body to the electrified static electricity.
Please note the explosion by static electricity when repairing.

2. About the earth processing for the electrostatic destruction prevention

In the equipment which uses an optical pick up (laser diode), an optical pick up is destroyed by the static electricity of the work environment.
Please do the earth processing and work.

1) Earth of work stand
Please pull the conductive material (conductive sheet) or the iron plate to the depository place of the traverse unit (optical pick up), and take the earth to ground.
2) Human body earth
Please use the anti-static wrist strap to exhaust the electrified static electricity to the human body.



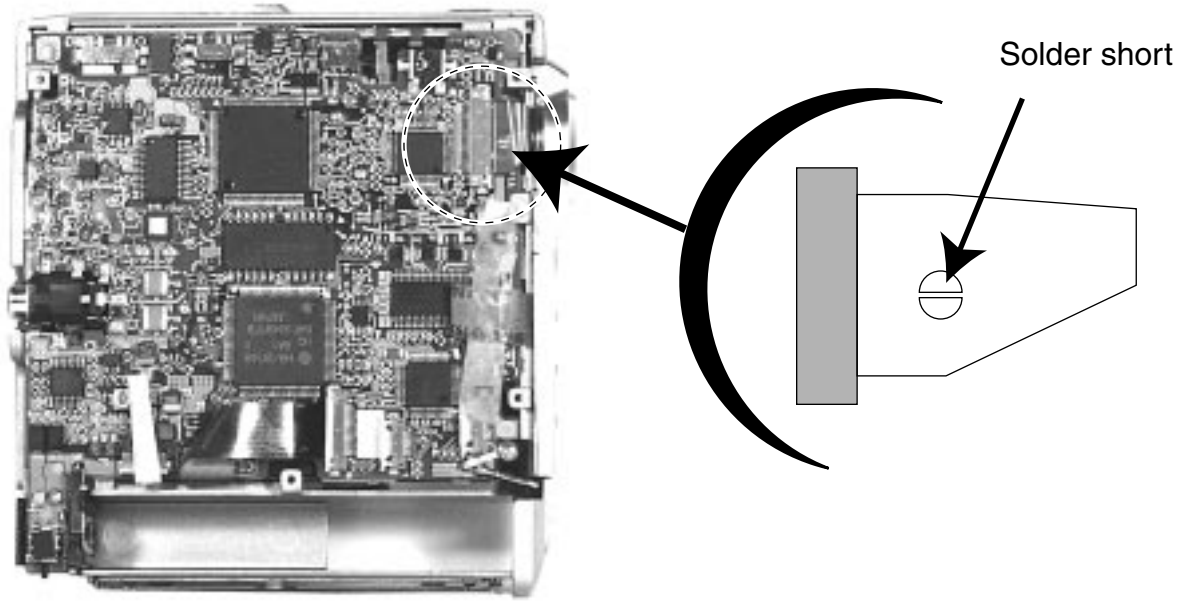
3. Handling the optical pick up

1) Please return according to a correct procedure based on short processing after exchanging parts.
2) Do not use a tester to check the condition of the laser diode in the optical pick up .The tester 's internal power source can easily destroy the laser diode.

4. Attention when unit is disassembled

Please refer to "Disassembling method" for how to detach .

1) Please be sure to solder before a flexible wire is removed from connector on a main printed circuit board as shown.
if you removes without soldering.the MD picking up assembly might destroy
2) When installing , solder in the part of short round should be removed after a flexible wire is connected with connector.



Disassembly method

<Main body>

■ Removing the MD door assembly and the bottom cover (See Fig. 1 to 6)

1. Turn over the body and remove the six screws **A** attaching the bottom cover.

2. Release the joint **a** outside and remove the bottom cover.

ATTENTION:	When reattaching the bottom cover, fit the hole knobs **b** to the hold switches on the main board correctly (See Fig.1 and 2).

3. Disconnect the flexible wires from connector CN522 and CN571 on the main board.

ATTENTION:	Peel off the adhesive tapes attaching the flexible wires. Whenreconnecting the flexible wires to the connectors, fix them with adhesive tapes (SeeFig.2).

4. Turn the MD door assembly up and open the door by sliding the door lever.

5. Remove the one screw **B** and the two screws **C** attaching the MD door assembly.

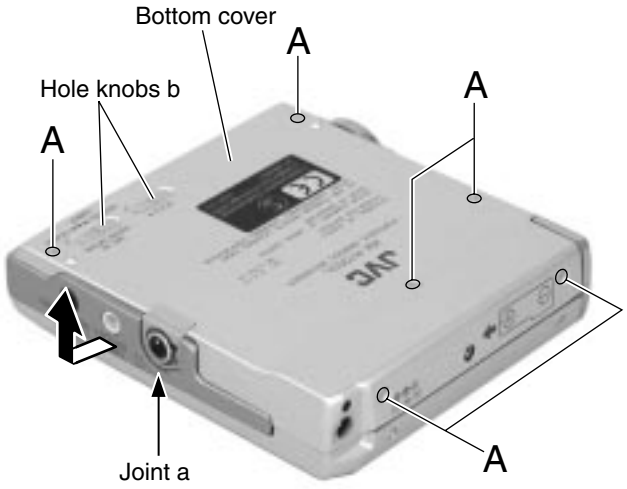


Fig.1

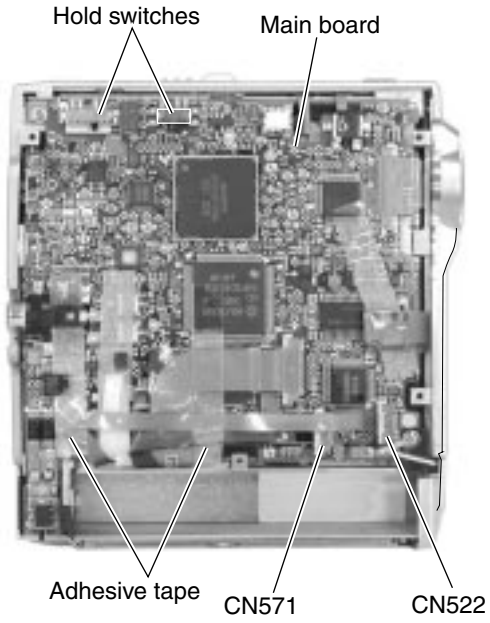


Fig.2

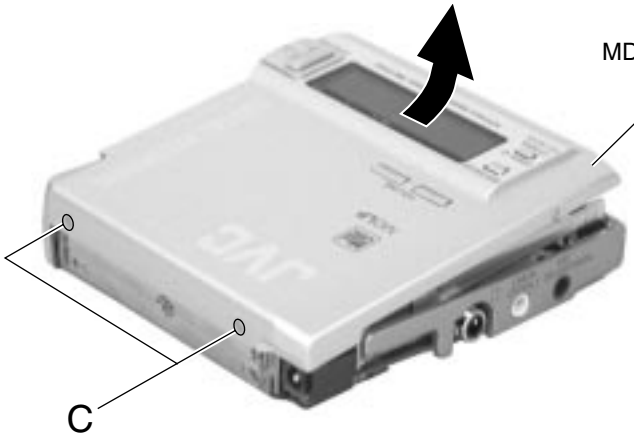


Fig.4

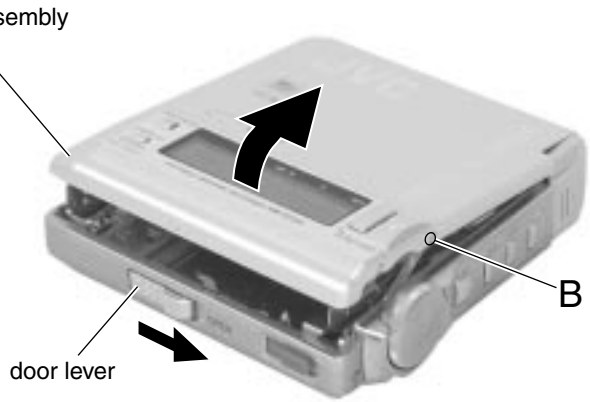


Fig.3

6. Unhook the joint tab **c** on the left side, then the right side of the MD door.

7. Remove the MD door assembly from the body while pulling out the flexible wires another end of which has already disconnected as shown in Fig.7.

ATTENTION:	When pulling out the flexible wires, get it through the opening of themain board and the cabinet.

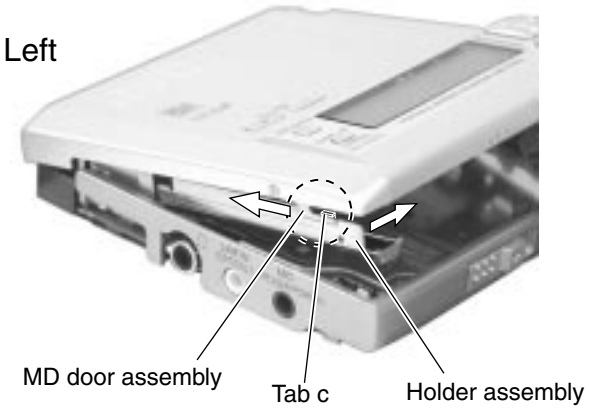


Fig.5

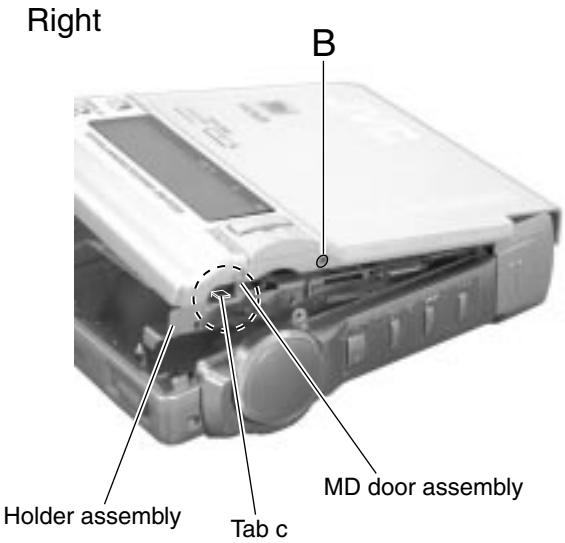


Fig.6

■ Removing the main board

(See Fig.7 to 10)

- Prior to performing the following procedures, remove the bottom cover.

ATTENTION:	Before disconnecting the flexible wire extending from the pickup, makesure to solder the short circuit round to prevent damage to the pickup.

1. Turn the body and disconnect the flexible wire from connector CN522, CN571, CN-401 and CN701 onthe main board respectively.

ATTENTION:	Peel off the adhesive tapes attaching the flexible wires. Whenreconnecting the flexible wires to the connectors, fix them with adhesive tapes (SeeFig.2).

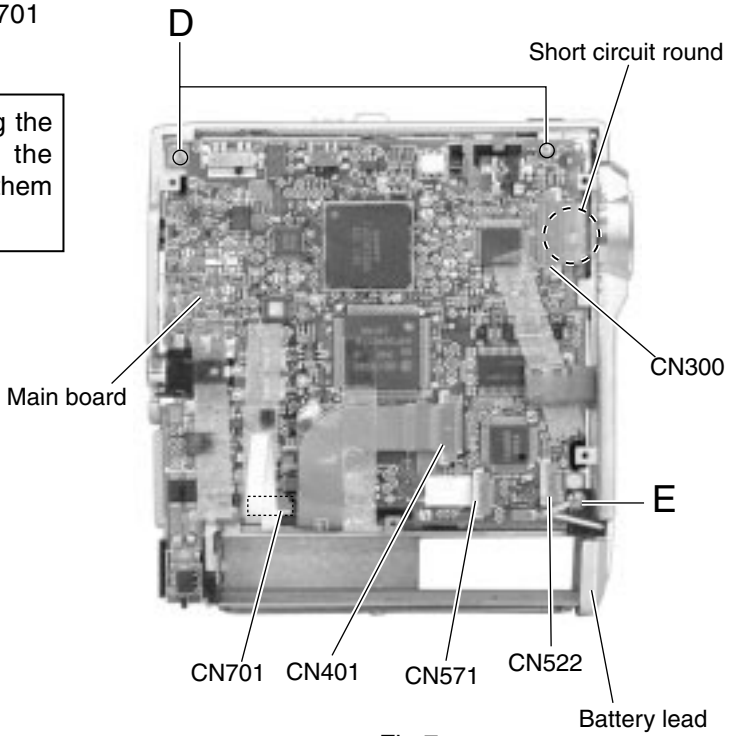


Fig.7

2. Remove the two screws **D** and the one screw **E** attaching the main board.

3. Move the battery lead on the side of the body in the direction of the arrow and removethe screw **F** attaching the main board and the cabinet assembly.

4. Remove the main body in the direction of the arrow while releasing the part **d**, thenpart **e** of the cabinet assembly from the flame assembly.

ATTENTION: When reassembling, connect the flexible wire extending from the pickupto the connector on the main board and unsolder the short circuit round.

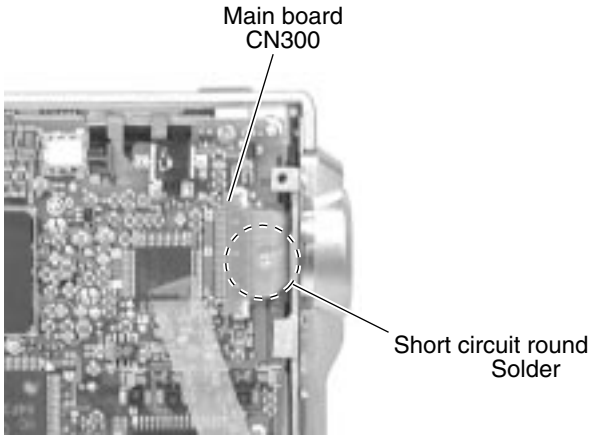


Fig.8

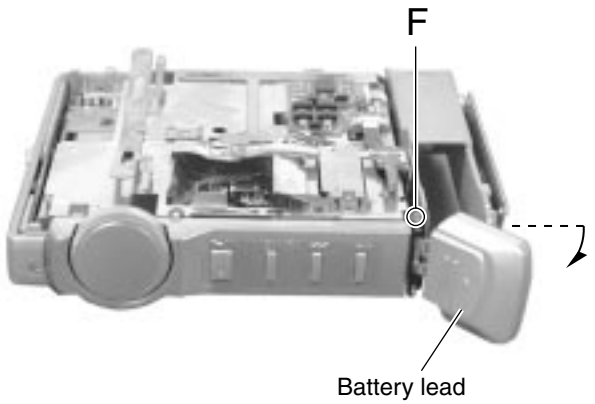


Fig.9

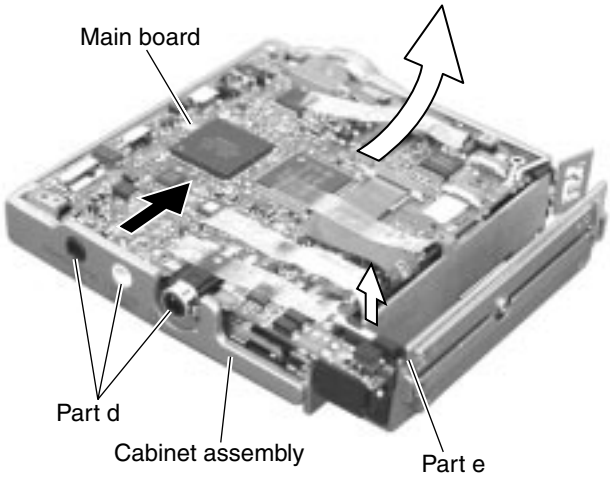


Fig.10

■ Removing the MD mechanism assembly (See Fig.11)

- Prior to performing the following procedures, remove the MD door assembly, thebottom cover and the main board.

1. Remove the two screws **G** and detach the MD mechanism assembly from the cabinetassembly.

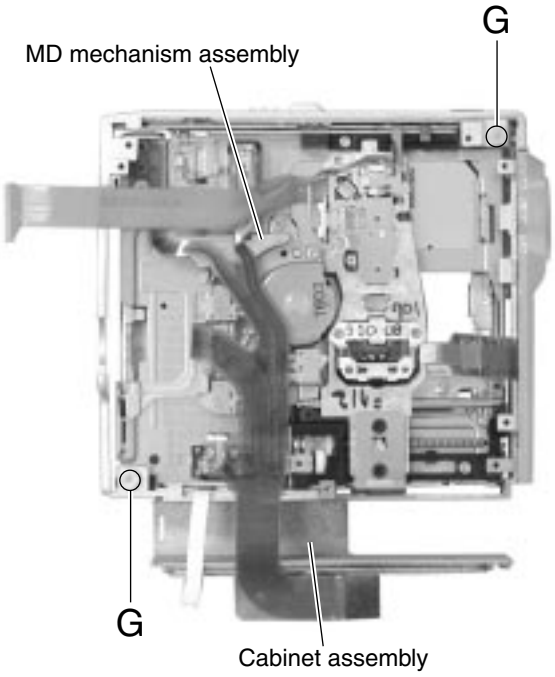


Fig.11

■Removing the jog assembly (See Fig.7 and 11)

・ Prior to performing the following procedures, remove the MD door assembly and the bottom cover.

1. Disconnect the flexible wire from connector CN--- on the main board (See Fig.7).

2. Remove the screw **H** attaching the jog assembly on the right side of the cabinet assembly.

3. Slide and release the three joints **f** attaching the jog assembly, and pull out the jog assembly fromthe part **g** on the cabinet assembly.

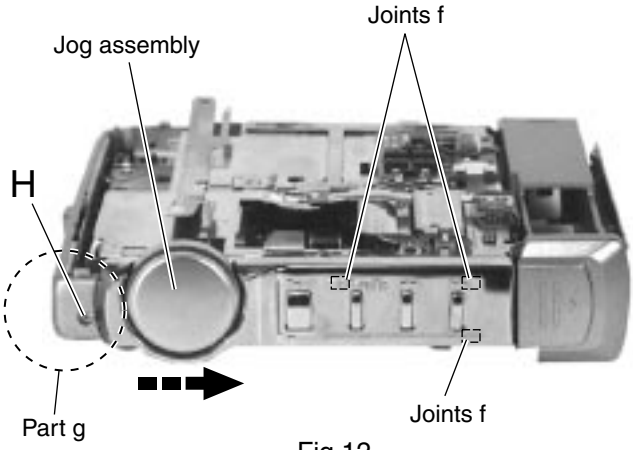


Fig.12

■Removing the LCD assembly and the 5 key sheet (See Fig.12 to 15)

・ Prior to performing the following procedures, remove the MD door assembly and the bottom cover.

1. Remove the two screws **I** and the one screw **J** attaching the door plate on the inside of the MDdoor assembly. Peel off the adhesive tape attaching the flexible wire.

2. Pull out the door plate assembly in the direction of the arrow from the part h on the MD doorassembly.

3. Remove the LCD assembly and the 5 key sheet from the door plate assembly (They are attachedwith the adhesive tapes).

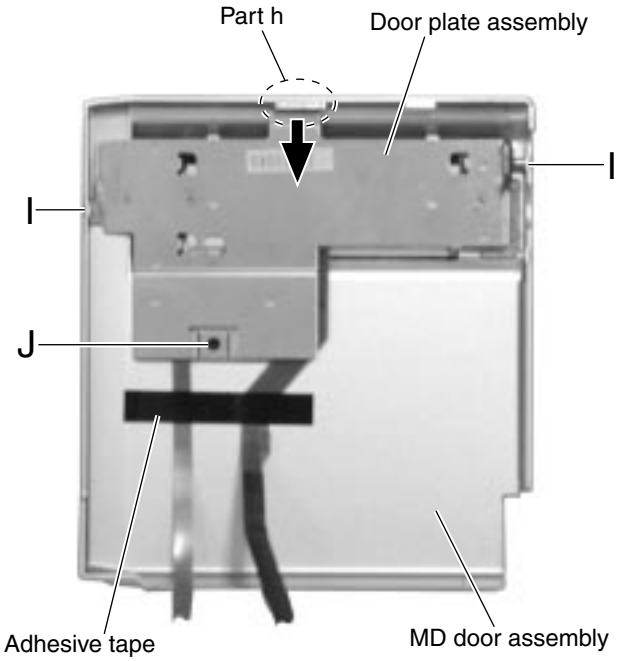


Fig.13

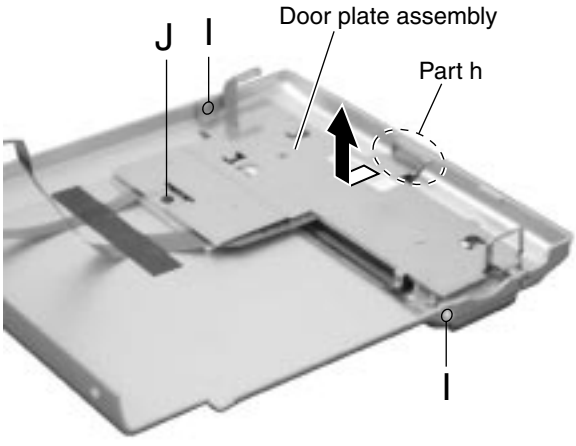


Fig.14

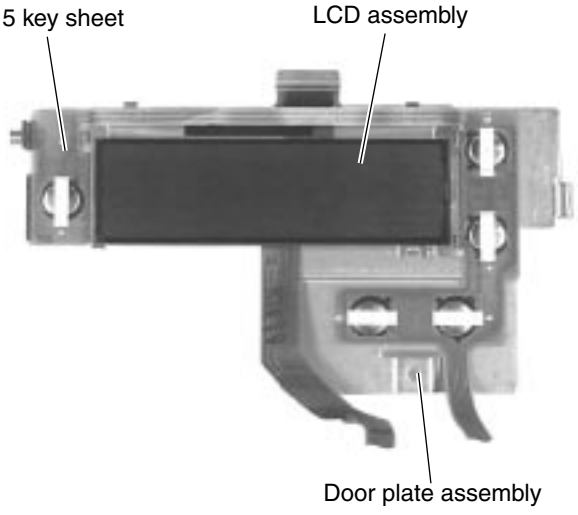


Fig.15

< Removal of the MD mechanism >

■ Removing the Magnetic head board (See Fig.1 and 2)

1. Disconnect the magnetic head flexible harness from the connector of the magnetic head board on the holder assembly.

2. Remove the screw A attaching the magnetic head board and pull out the magnetic head board from the slit (a) in the direction of the arrow.

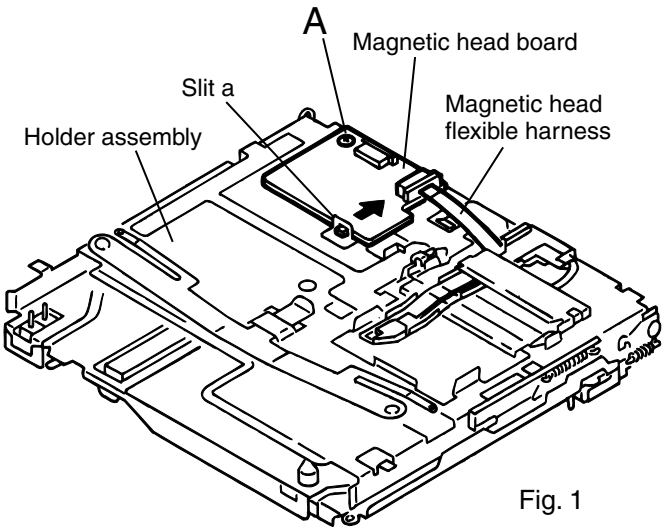


Fig. 1

■ Removing the Magnetic head assembly (See Fig.2 to 5)

1. Disconnect the magnetic head flexible harness from the connector of the magnetic head board on the holder assembly.

2. Push the convex part b on the right side of the head protector in the direction of the arrow. Lift the right edge of the head protector (See Fig.4).

3. Pull the left tab of the head protector from the slit (See Fig.5).

4. Remove the two B screws attaching the magnetic head assembly on the underside of the chassis assembly.

5. Pull out the magnetic head assembly in the direction of the arrow while paying attention to the magnetic head.

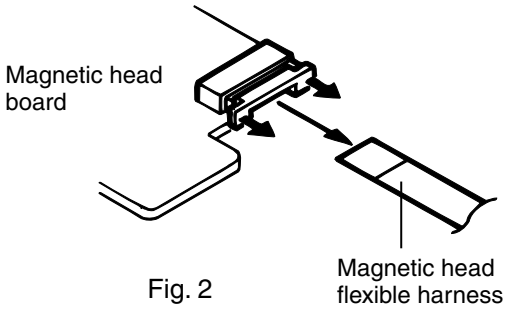


Fig. 2

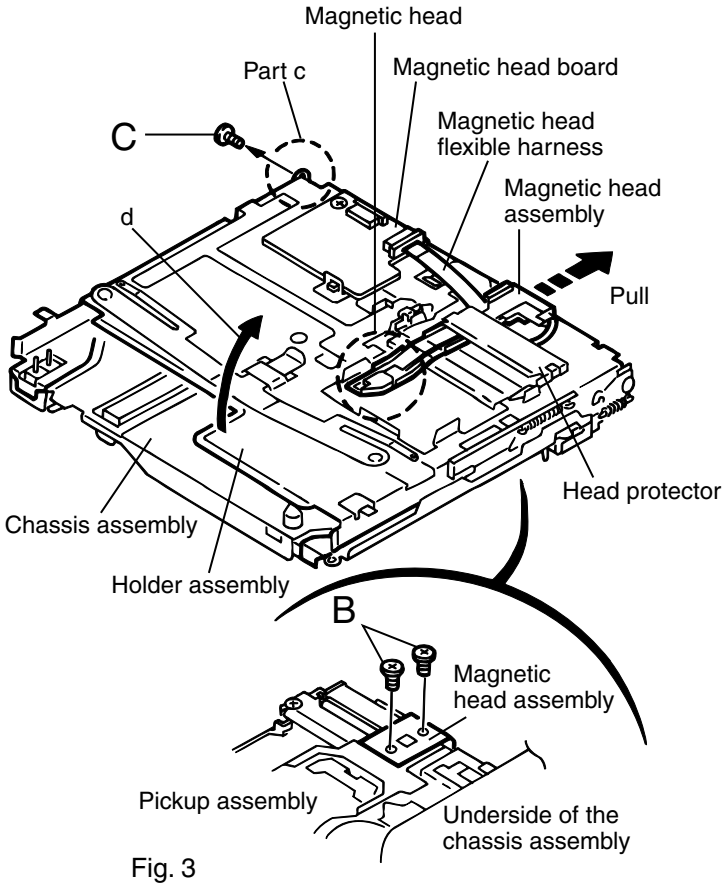


Fig. 3

CAUTION: When reassembling the magnetic head assembly, reverse the order of the removing procedure.

1. Attach the magnetic head assembly by cramping the MD mechanism assembly. Then, fix the magnetic head assembly to the pickup assembly on the underside of the chassis assembly by tightening the two B screws.

2. Attach the left edge of the head protector and the right edge.

3. Connect the magnetic head flexible harness to the connector on the magnetic head board.

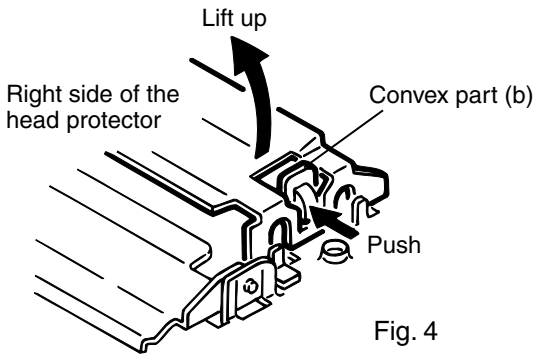


Fig. 4

■ Removing the Holder assembly (See Fig.3 and 6)

- Prior to performing the following procedure, remove the magnetic head assembly.

1. Remove the screw C of the chassis assembly part c and lift the edge of the holder assembly in the direction of the arrow d (See Fig.3).

2. Move the part e of the holder assembly in the direction of the arrow to release the U-shaped notch from the shaft.

3. Pull the part f of the holder assembly in the direction of the arrow to release it from the shaft.

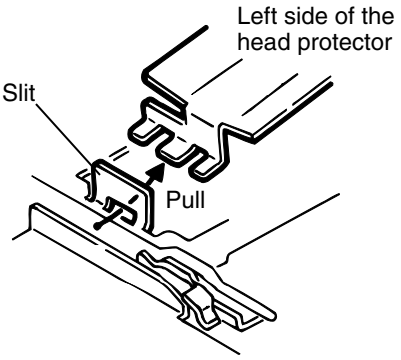


Fig. 5

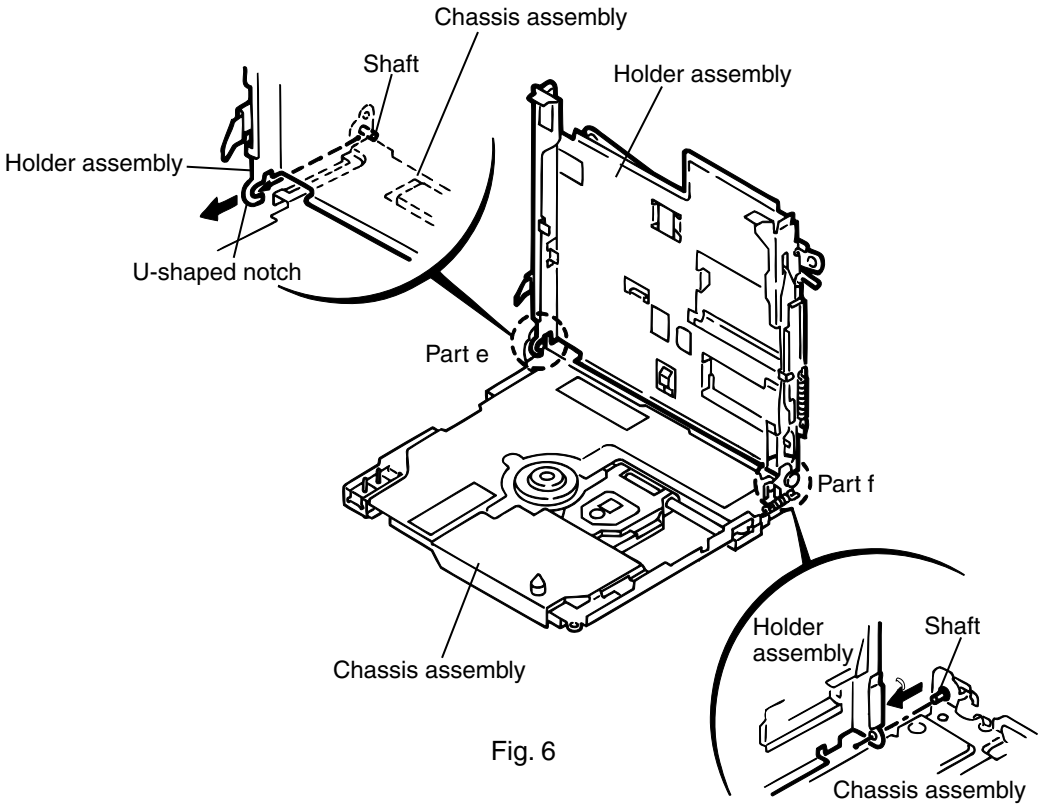


Fig. 6

■ Removing the Pickup unit

(See Fig.7 and 8)

- Prior to performing the following procedure, remove the magnetic head assembly.

1. Remove the two D screws fixing the main shaft of the pickup unit on the underside of the chassis assembly. Remove the pickup unit by pulling out the part g in the direction of the arrow.

2. Remove the screw E attaching the lead spring on the pickup unit.

3. Remove the main shaft from the pickup unit.

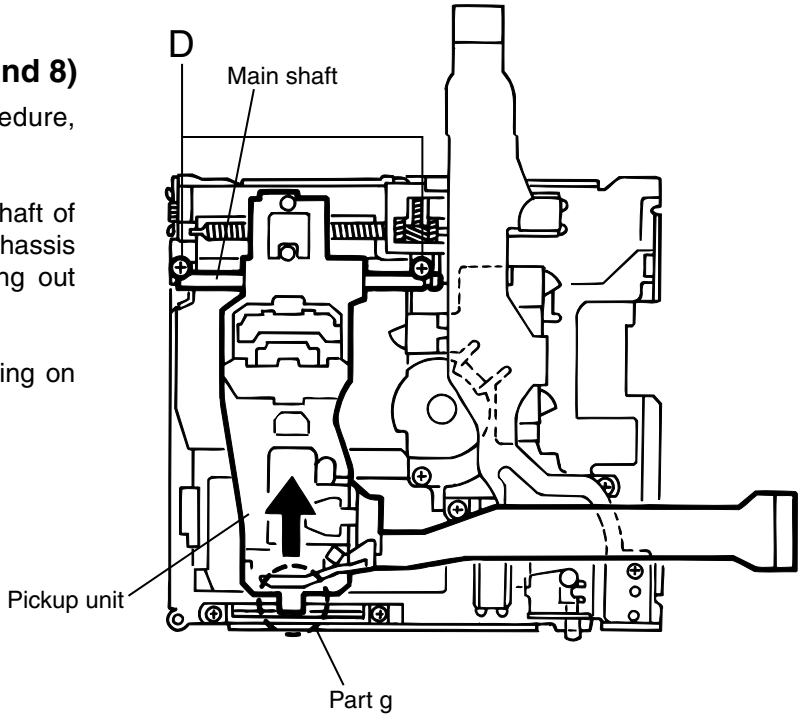


Fig. 7

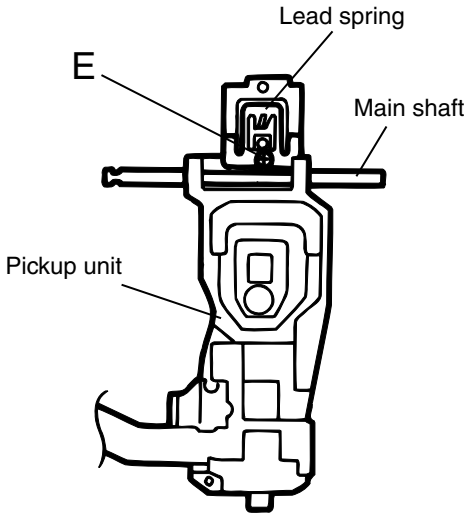


Fig. 8

■ Removing the Flexible harness assembly and the Protective/reflective switch assembly (See Sig.9 to 11)

1. Peel the double-sided tape attaching the flexible harness on the feed motor on the underside of the chassis assembly.

2. Unsolder the flexible harnesses connected to the part h of the spindle motor, the part i of the feed motor and the part j of the lift motor.

3. Remove the two F screws attaching the flexible harness assembly and the protect/ reflect switch assembly respectively.

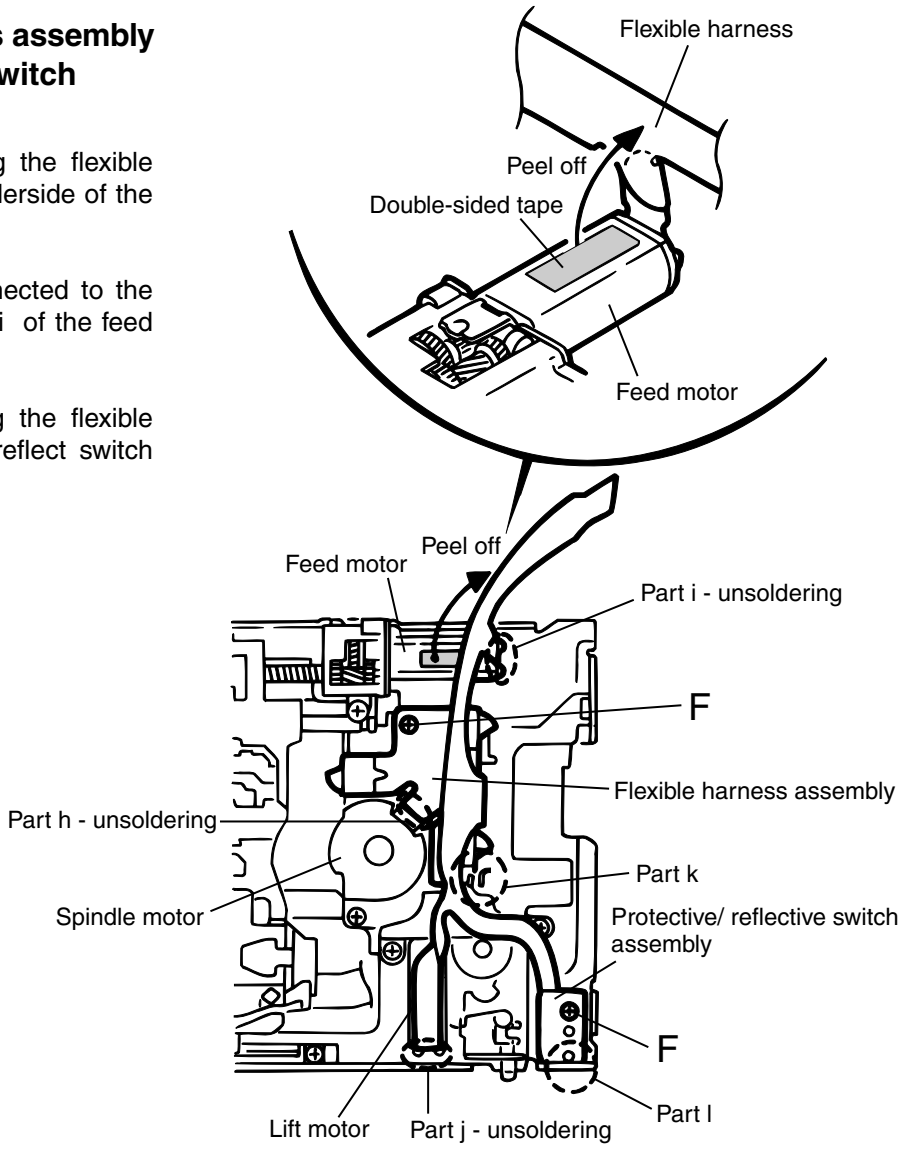


Fig. 9

4. Pull out the part k and l in the direction of the arrows respectively and remove the flexible harness assembly and the protective / reflective switch assembly.

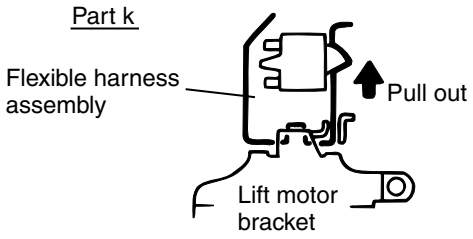


Fig. 10

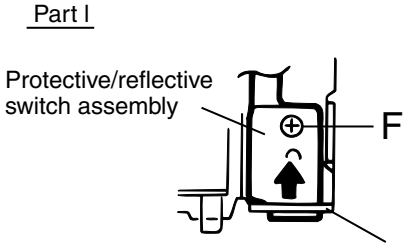


Fig. 11

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

1. Unsolder the part j of the flexible harness connected to the lift motor on the underside of the chassis assembly.

2. Remove the two G screws attaching the lift motor bracket.

3. Remove the lift motor with the lift motor bracket by pulling out the part k.

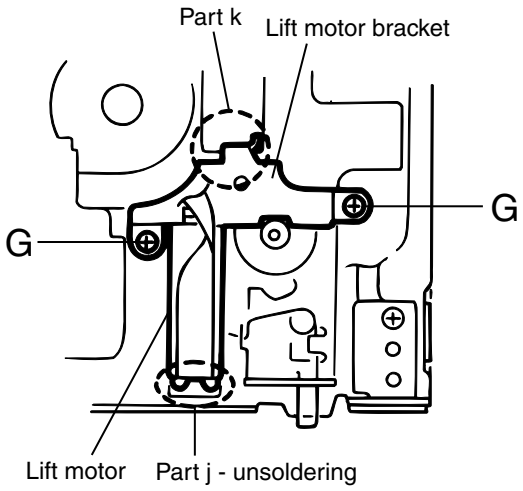


Fig. 12

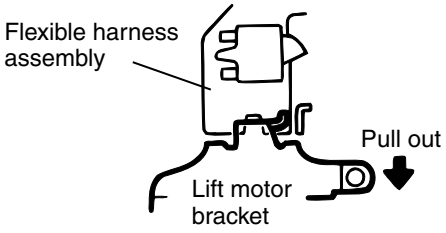


Fig. 13

■ Removing the Spindle motor (See Fig.14)

- Prior to performing the following procedure, remove the flexible harness assembly.

1. Remove the three H screws attaching the spindle motor on the underside of the chassis assembly.

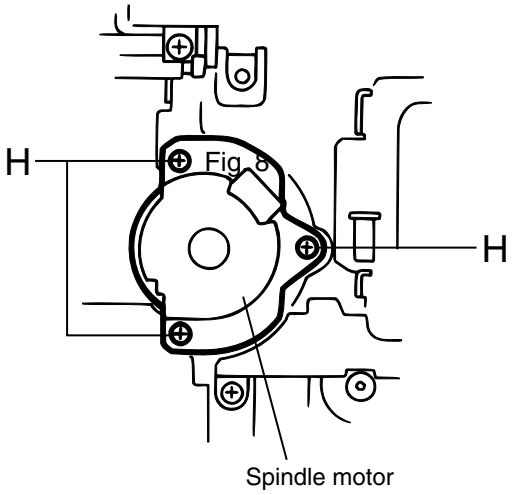


Fig. 14

■ Removing the Feed motor

(See Fig.15 and 16)

- Prior to performing the following procedure, remove the magnetic head assembly and the pickup unit.

1. Peel the double-sided tape attaching the flexible harness on the feed motor on the underside of the chassis assembly.

2. Unsolder the part i of the flexible harness connected to the feed motor.

3. Remove the two I screws attaching the feed motor base, then the feed motor base and the feed motor.

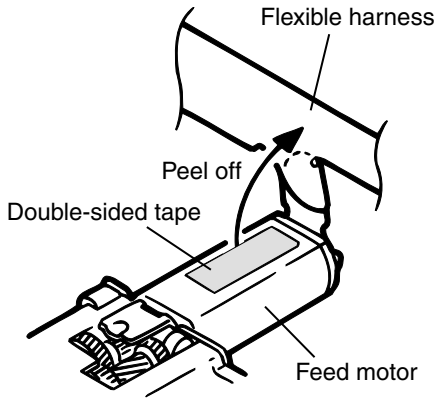


Fig. 15

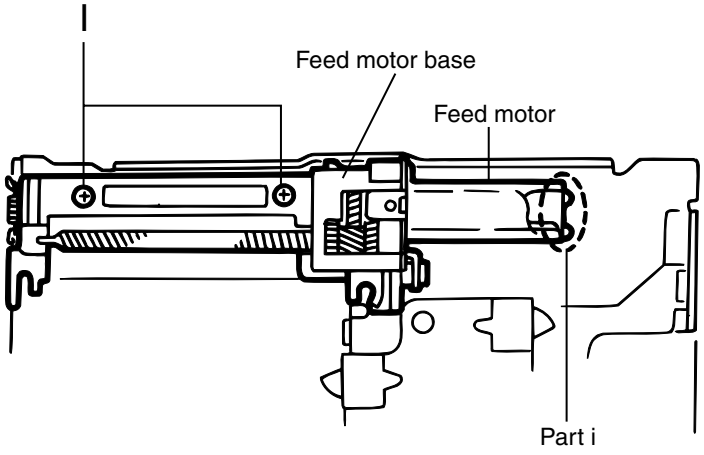


Fig. 16

* When connecting the flexible harness to the feed motor, use the double-sided tape to stick them fast. (See Fig.17)

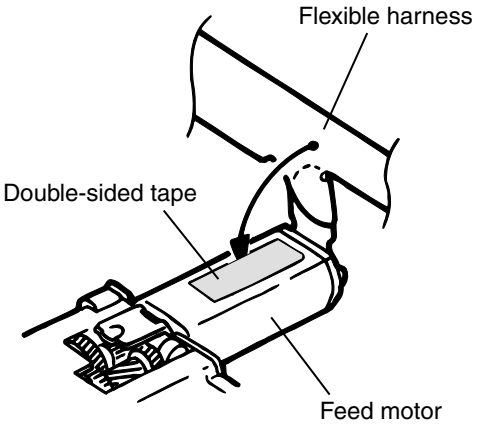
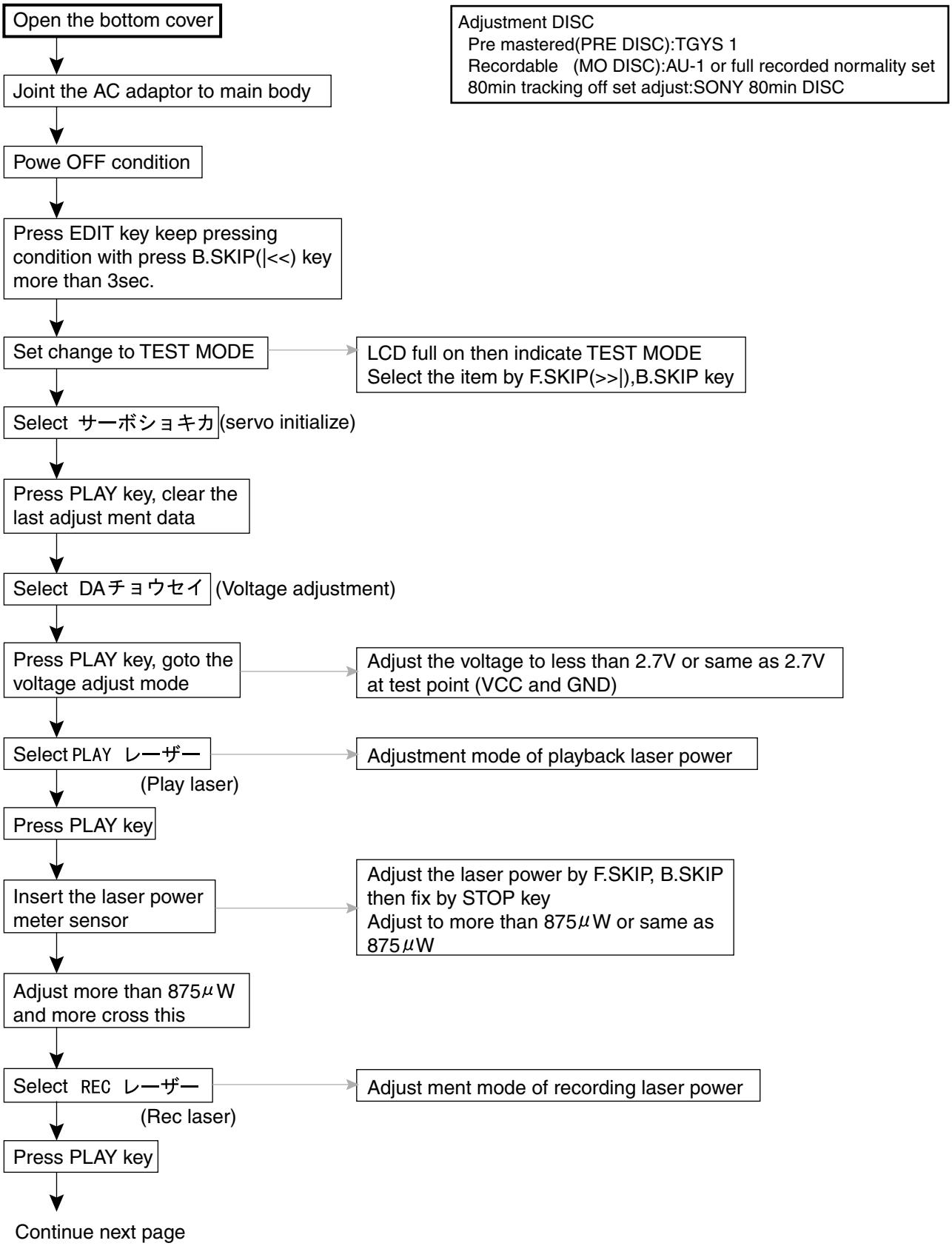


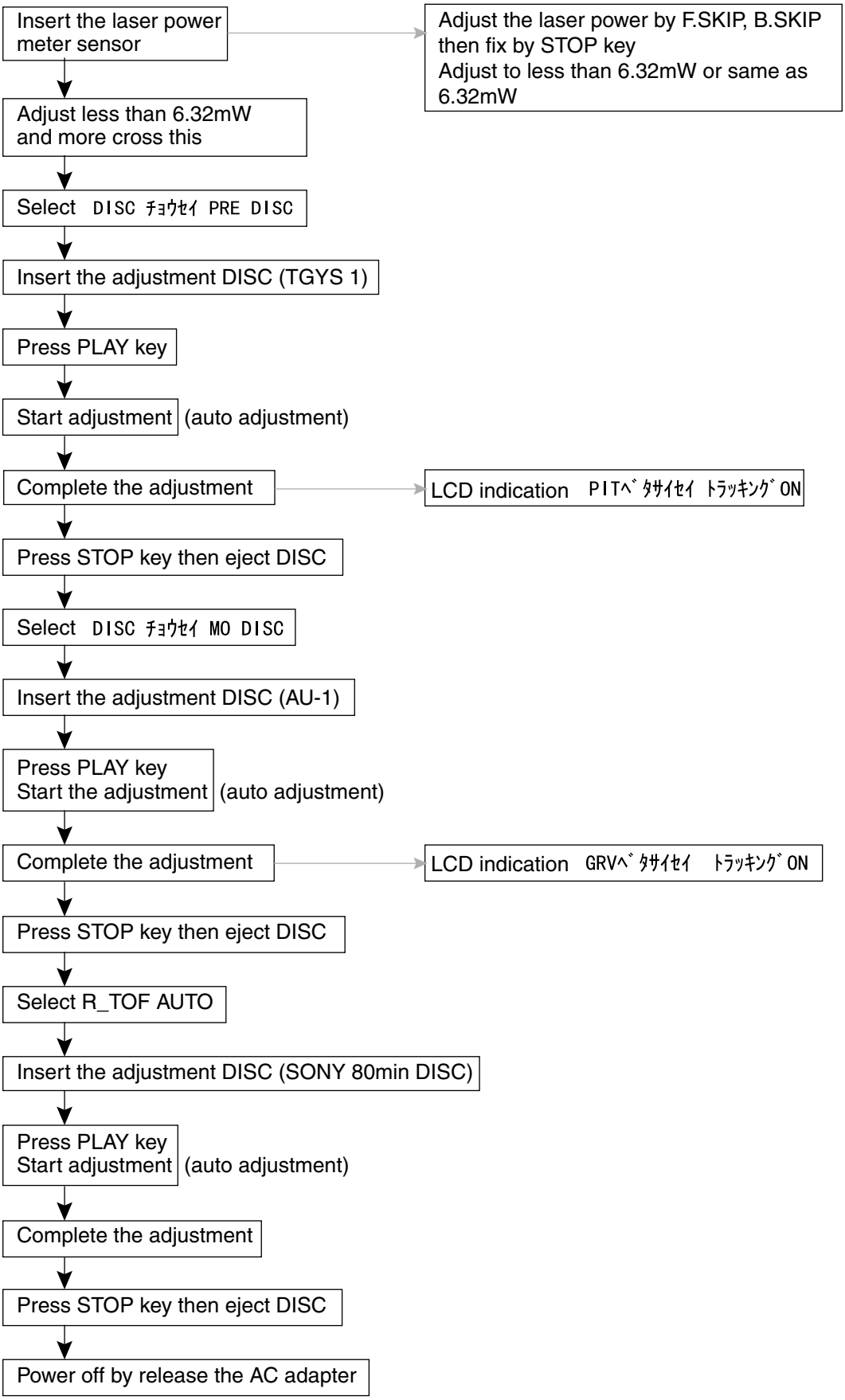
Fig. 17

Adjustment method

(Adjustment should done when change the PICKUP, mechanism, Printed circuit board.)



From the previous page

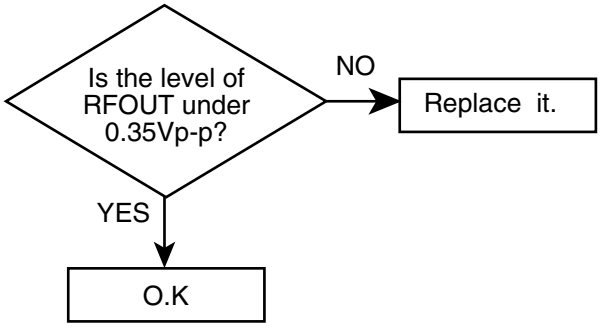


Maintenance of laser pickup

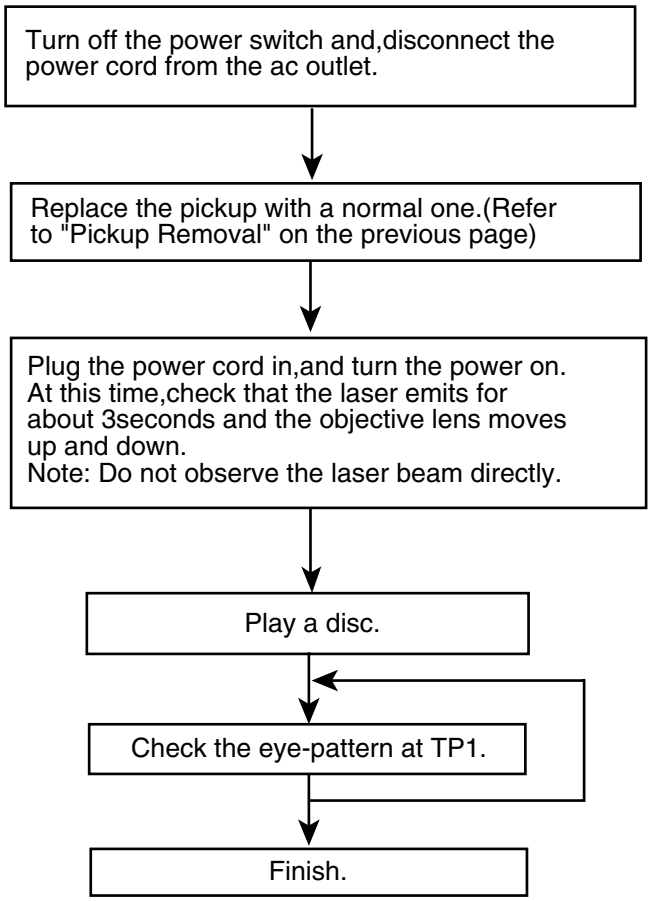
(1) Cleaning the pick up lens
Before you replace the pick up, please try to clean the lens with a alcohol soaked cotton swab.

(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 below.



Replacement of laser pickup

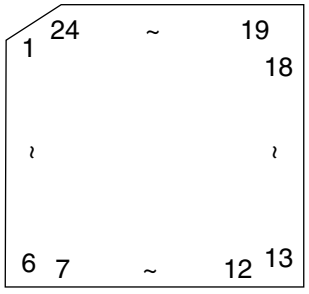


(3) Semi-fixed resistor on the APC PC board The semi-fixed resistor on the APC printed circuit board which is attached to the pickup is used to adjust the laser power.Since this adjustment should be performed to match the characteristics of the whole optical block, do not touch the semi-fixed resistor.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

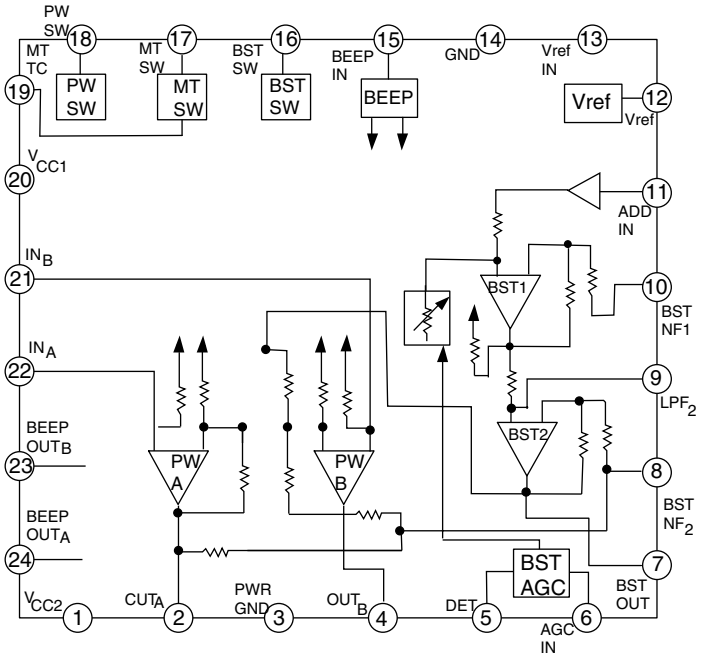
Description of major ICs

■ JCV8002-W (IC851) : Head phone amp

1. Pin layout



2. Block diagram

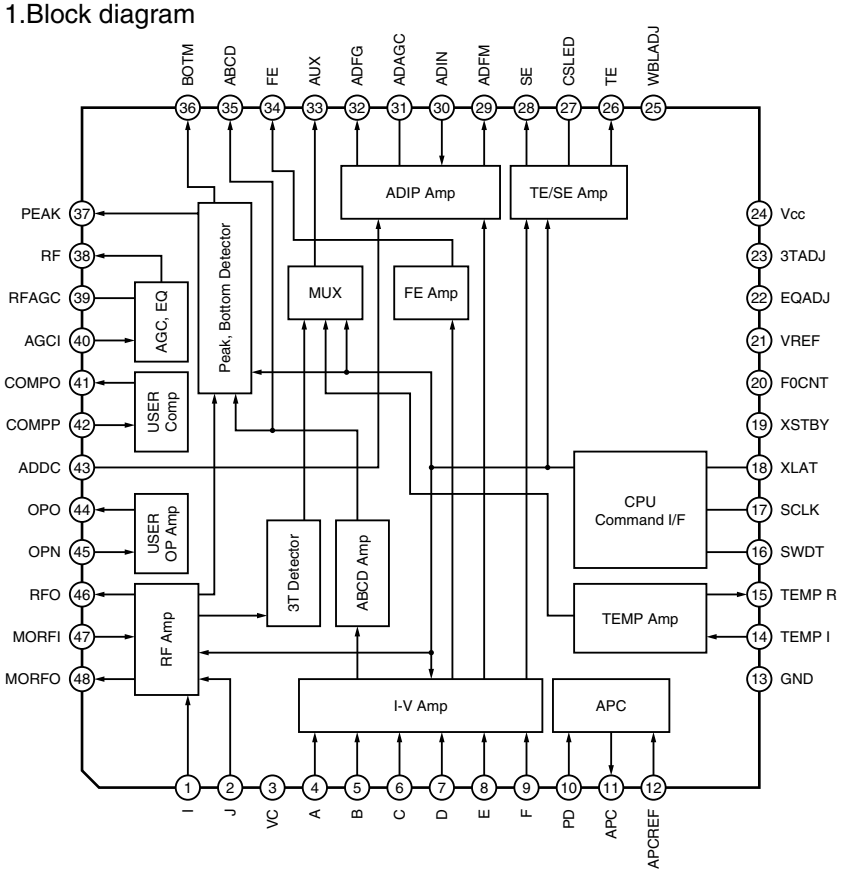


3. Pin function

Pin no.	Symbol	FUNCTION
1	V_{CC2}	V_{CC2} (+B) in power amplifier output steps
2	OUT_A	Power amplifier output
3	PWR GND	GND in power amplifier output steps
4	OUT_B	Power amplifier output
5	DET	Smoothness of level detection of boost AGC
6	AGC IN	BST amplifier input signal level variable control by input lever to boost AGC input terminal
7	BST OUT	Output terminal of BST amplifier2
8	BST NF_2	Terminal NF of BST amplifier2
9	LPF_2	Output BST amplifier1
10	BST NF_1	NF of BST amplifier1
11	ADD IN	ADD amplifier input
12	V_{ref}	Standard potential circuit
13	V_{ref}IN	Standard potential circuit
14	GND	Power part input steps GND
15	BEEP IN	Beep input terminal
16	BST SW	Beep output terminal
17	MT SW	Mute switch
18	PW SW	Power On/OFF switch
19	MT TC	Mute smoothing Power mute switch
20	V_{CC1}	Main parts V_{CC}
21	IN_B	Power amplifier input
22	IN_A	Power amplifier input
23	BEEP OUT_B	Beep output terminal
24	BEEP OUT_A	Beep output terminal

■ CXA2523AR (IC300) : MD servo

1.Block diagram



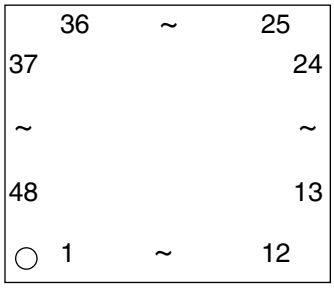
2.Pin function

Pin No.	Symbol	I/O	Function
1	I	I	I-V converted RF signal I input.
2	J	I	I-V converted RF signal J input.
3	VC	O	Vcc/2 voltage output.
4	A	I	A current input for main beam servo signal.
5	B	I	B current input for main beam servo signal.
6	C	I	C current input for main beam servo signal.
7	D	I	D current input for main beam servo signal.
8	E	I	E current input for side beam servo signal.
9	F	I	F current input for side beam servo signal.
10	PD	I	Reflection light quantity monitor signal input.
11	APC	O	Laser APC output.
12	APCREF	I	Reference voltage input for the laser power intensity setting.
13	GND	-	Connect to GND.
14	TEMPI	I	Connects the temperature sensor.
15	TEMP R	I	Connects the temperature sensor. outputs the reference voltage.
16	SWDT	I	Data input for microcomputer serial interface.
17	SCLK	I	Shift clock input for microcomputer serial interface.
18	XLAT	I	Latch signal input for microcomputer serial interface.Latched when low.
19	XSTBY	I	Standby setting pin. Normal operation when high Standby when low.
20	F0CNT	I	Internal current source setting pin.

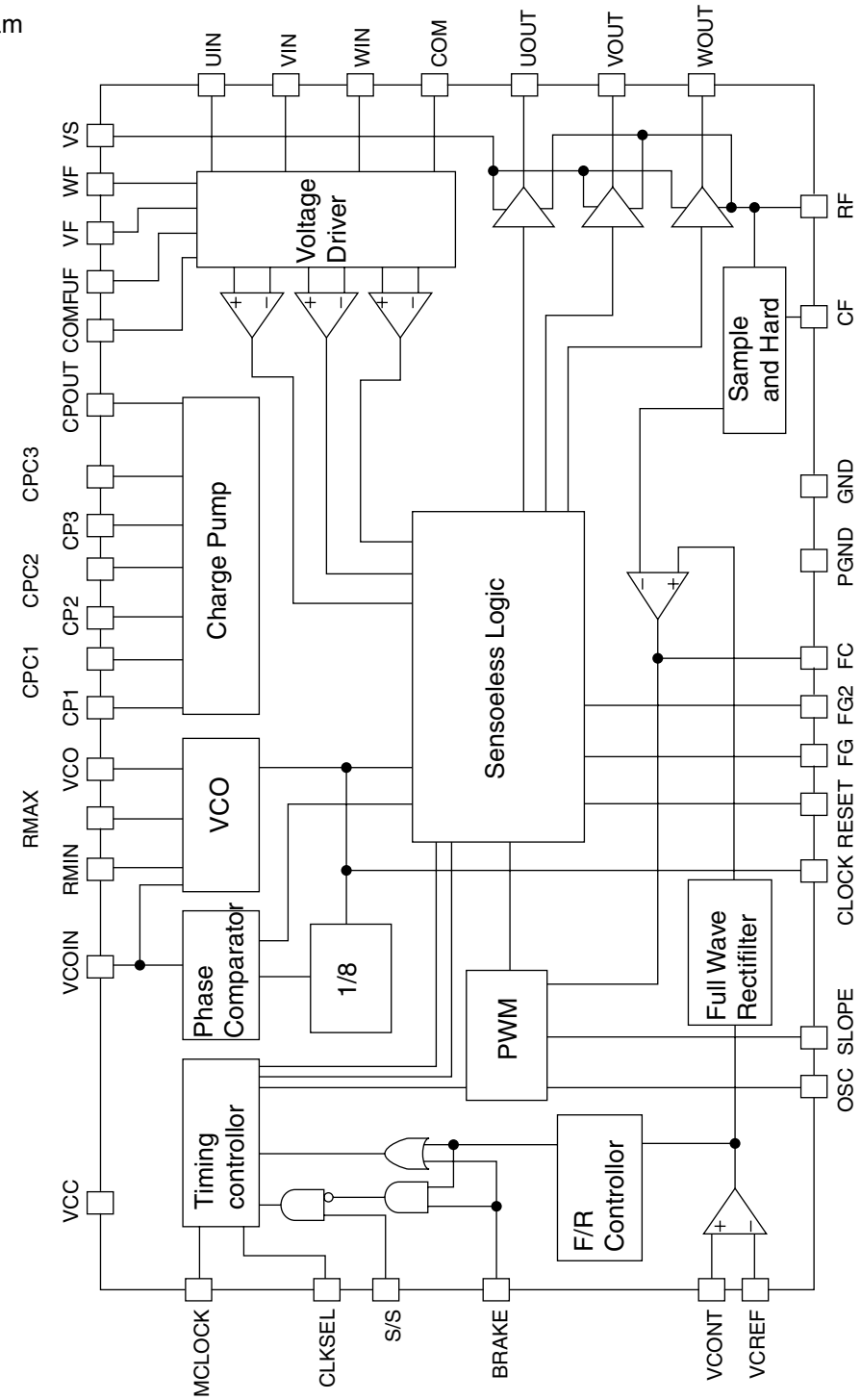
Pin No.	Symbol	I/O	Function
21	VREF	O	Reference voltage output.
22	EQADJ	I/O	Equalizer center frequency setting pin.
23	3TADJ	I/O	BPF3T center frequency setting pin.
24	Vcc	-	Power supply.
25	WBLADJ	I/O	BPF22 center frequency setting pin.
26	TE	O	Tracking error signal output.
27	CSLED	-	Connects the sled error signal LPF capacitor.
28	SE	O	Sled error signal output.
29	ADFM	O	ADIP FM signal output.
30	ADIN	I	ADIP signal comparator input.
31	ADAGC	-	Connects the ADIPAGC capacitor.
32	ADFG	O	ADIP2 binary value signal output.
33	AUX	O	13 output / temperature signal output. Switched with serial commands.
34	FE	O	Focus error signal output.
35	ABCD	O	Reflection light quantity signal output for the main beam servo detector.
36	BOTM	O	RF/ABCD bottom hold signal output.
37	PEAK	O	Peak hold signal output for the RF/ABCD signals.
38	RF	O	RF equalizer output.
39	RFAGC	-	Connects the RFAGC capacitor.
40	AGCI	I	RFAGC input.
41	COMPO	O	User comparator output.
42	COMPP	I	User comparator non-inverted input.
43	ADDC	I/O	Connects the capacitor for ADIP amplifier feedback circuit.
44	OPO	O	User operational amplifier output.
45	OPN	I	User operational amplifier inverted input.
46	RFO	O	RF amplifier output. Eye pattern checkpoint.
47	MORFI	I	Input of the groove RF signal with AC coupling.
48	MORFO	O	Groove RF signal output.

■ CXA8059Q (IC450) : Motor driver

1. Pin layout



2. Block diagram

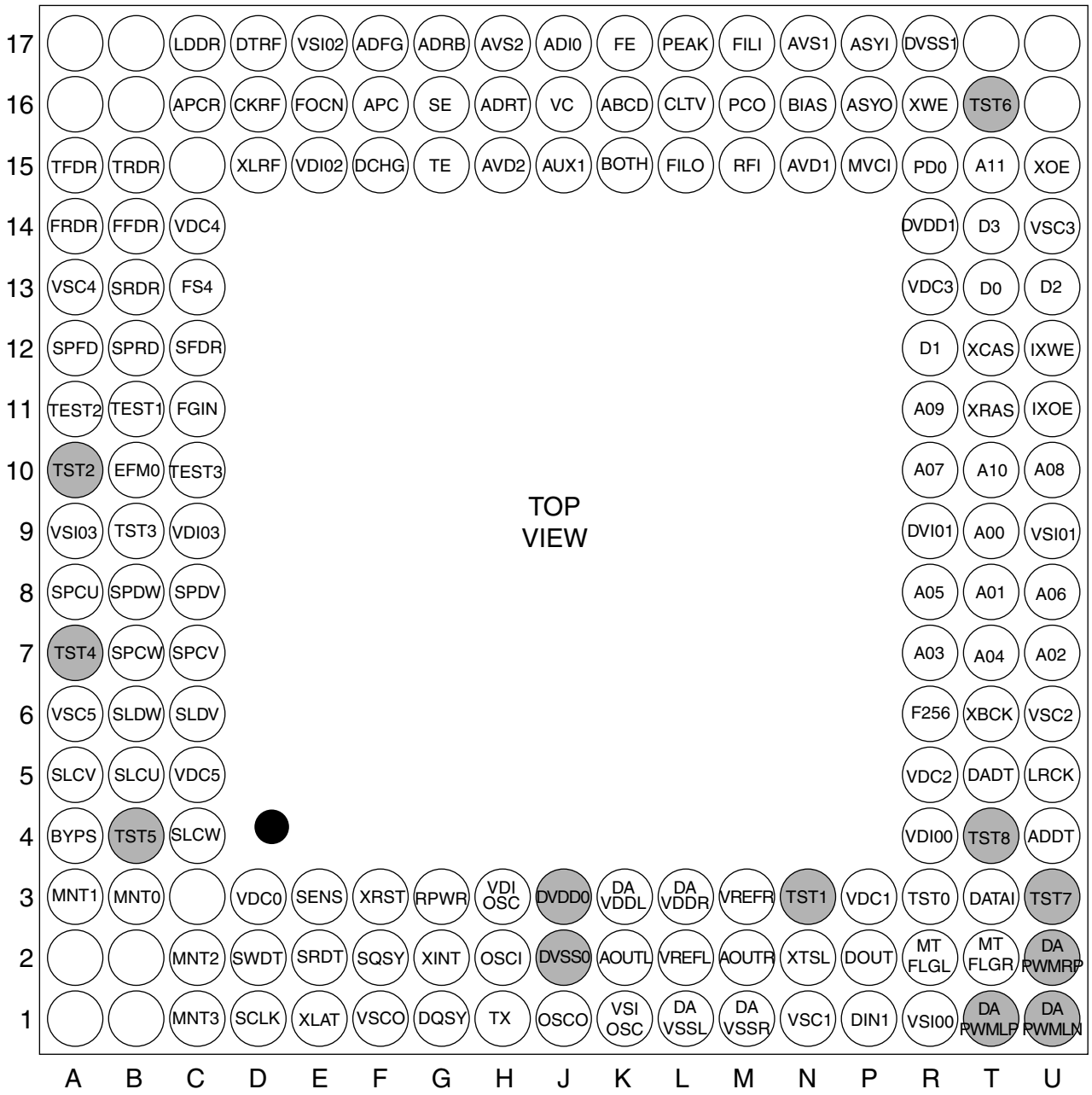


3.Pin function

Pin no.	Symbol	Function
1	PGND	The GND to guard the power stage.
2	COM	The terminal to detect the voltage.
3	VS	The terminal to supply the voltage for the power stage.
4	CPOUT	The terminal to connect the capacitor in the final charge pump.
5	CPC3	The terminal to connect the capacitor in the third charge pump.
6	CP3	The terminal to connect the capacitor in the third charge pump.
7	CPC2	The terminal to connect the capacitor in the second charge pump.
8	CP2	The terminal to connect the capacitor in the second charge pump.
9	CPC1	The terminal to connect the capacitor in the first charge pump.
10	CP1	The terminal to connect the capacitor in the first charge pump.
11	GND	The GND for the part except the power section.
12	S/S	The terminal for start and stop.
13	BRAKE	The terminal for braking.
14	VCONT	The terminal for controlling velocity.
15	VCREF	The terminal as referable voltage of controlling velocity.
16	FC	The terminal to compensate the frequency characteristics of the loop controlling velocity.
17	CF	The terminal of sampling and holding for detecting motor current.
18	FG	The terminal to output FG pulse.
19	FG2	The terminal to output FG pulse divided Pin15 signal by 2.
20	VCO	The terminal to set oscillation frequency of VCO.
21	RMAX	The terminal to set maximum oscillation frequency of VCO.
22	RMIN	The terminal to set minimum oscillation frequency of VCO.
23	VCOIN	The terminal to control oscillation frequency of VCO.
24	CLKSEL	The terminal to select inside and outside clock.
25	OSC	The terminal to oscillation sawtooth for PWM signal.
26	SLOPE	The terminal to oscillation sawtooth for soft-switching signal.
27	CLOCK	The terminal to monitor CLOCK signal.
28	GND	The GND for the part except the power section.
29	WF	The terminal to shape waveform of motor voltage.
30	VF	The terminal to shape waveform of motor voltage.
31	UF	The terminal to shape waveform of motor voltage.
32	COMF	The terminal to shape waveform of motor voltage.
33	VCC	The terminal to supply the voltage except the power section.
34	MCLOCK	The terminal to input clock.
35	VS	The terminal to supply the voltage for the power stage.
36	RESET	The terminal to reset a register for checking the movement.
37	RF	The terminal to monitor current.
38	NC	Non connect
39	NC	Non connect
40	WIN	The terminal to sense the back electro magnetic force of coils.
41	WOUT	The terminal to supply the motor current.
42	VIN	The terminal to sense the back electro magnetic force of coils.
43	VOUT	The terminal to supply the motor current.
44	UIN	The terminal to sense the back electro magnetic force of coils.
45	UOUT	The terminal to supply the motor current.
46	NC	Non connect
47	NC	Non connect
48	RF	The terminal to monitor current.

■ CXD2672GA(IC351):DSP

1.Pin layout



2.Pin function (1)

Pin No.	Symbol	I/O	Function
A-1	NC	-	Open
A-2	NC	-	Open
A-3	MNT1	O	Monitor output
B-1	NC	-	Open
B-2	NC	-	Open
B-3	MNT0	I/O	Monitor in/output
C-1	MNT3	O	Monitor output
C-2	MNT2	O	Monitor output
C-3	NC	-	Open
D-1	SCLK	I	Micon serial bus clock input
D-2	SWDT	I	Micon serial bus data write input
D-3	VDC0	-	Internal logic VDD(1.8V)

2.Pin function(2)

Pin No.	Symbol	I/O	Function
E-1	XLAT	I	Micon serial bus latch input
E-2	SRDT	O	Micon serial bus data read out output
E-3	SENS	O	Internal output of micon serial bus address
F-1	VSC0	-	Internal logic GND
F-2	SQSY	O	PTGR=0 ADIPsink output / PTGR=1 DISC SUB-Q sink output
F-3	XRST	I	Reset input L:reset
G-1	DQSY	O	Ubit SUB-Q sink output from digital audio input from MD or CD
G-2	XINT	O	Request status output L:request status
G-3	RPWR	I	Laser power select input (H=rec power / L=playback power)
H-1	TX	I	Output permit input of recorded data
H-2	OSCI	I	X'tal osc circuit input
H-3	VDIOSC	-	OSC sel VDD (2.5V)
J-1	OSCO	O	X'tal osc circuit output
J-2	DVSS0	-	Internal 16bit DRAM GND
J-3	DVDD0	-	Internal 16bit DRAM GND
K-1	VSIOSC	-	OSC sel GND
K-2	AOUTL	O	Internal DAC Lch output
K-3	DAVDDL	-	Internal DAC VDD (Lch,2.5V)
L-1	DAVSSL	-	Internal DAC GND
L-2	VREFL	O	Internal DAC GND VREF(Lch)
L-3	DAVDDR	-	Internal DAC VDD (Rch,2.5V)
M-1	DAVSSR	-	Internal DAC GND (Rch)
M-2	AOUTR	O	Internal DAC Rch output
M-3	VREFR	O	Internal DAC VREF (Rch)
N-1	VSC1	-	Internal logic GND
N-2	XTSL	I	X'tal frequency select (L=45.1584MHz/H=22.5792MHz)
N-3	TST1	I	Test terminal Connect to GND
P-1	DIN1	I	Digital audio input Outer I/F mode EXRQ input
P-2	DOUT	O	Digital audio output
P-3	VDC1	-	Internal logic VDD (1.8V)
U-1	DAPWMLN	O	Internal DAC PWM output L-
T-1	DAPWMLP	O	Internal DAC PWM output L+
R-1	VSIO0	-	2.5V I/O VSS
U-2	DAPWMRP	O	Internal DAC PWM output R+
T-2	MTFLGR	O	Internal DAC zero detect flag (Rch)
R-2	MTFLGL	O	Internal DAC zero detect flag (Lch)
U-3	TST7	I	Test terminal Connect to GND
T-3	DATAI	I	Serial data input
R-3	TST0	O	Open
U-4	ADDT	I	Data input from A/D converter
T-4	TST8	I	Test terminal Connect to GND
R-4	VDIO0	-	2.5V I/O VDD
U-5	LRCK	O	LR clock(44.1kHz) for A/D, internal DAC
T-5	DADT	O	Data output for internal DAC / Internal DAC PWM output R-
R-5	VDC2	-	Internal logic VDD (1.8V)
U-6	VSC2	-	Internal logic GND
T-6	XBCK	O	A/D, internal DAC bit clock (2.8224MHz)
R-6	F256	O	11.2896MHz clock output (X'tal)
U-7	A02	O	External DRAM address output
T-7	A04	O	External DRAM address output
R-7	A03	O	External DRAM address output
U-8	A06	O	External DRAM address output
T-8	A01	O	External DRAM address output
R-8	A05	O	External DRAM address output

2.Pin function (3)

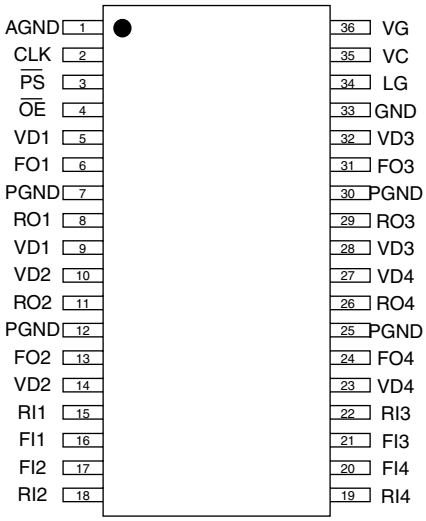
Pin No.	Symbol	I/O	Function
U-9	VSIO1	-	2.5V I/O sel Vss
T-9	A00	O	External DRAM address output
R-9	ADIO1	-	2.5V I/O sel VDD
U-10	A08	O	External DRAM address output
T-10	A10	O	External DRAM address output
R-10	A07	O	External DRAM address output
U-11	IXOE	O	Open
T-11	XRAS	O	External DRAM RAS output
R-11	A09	O	External DRAM address output
U-12	IXWE	O	Open
T-12	XCAS	O	External DRAM CAS output
R-12	D1	I/O	External DRAM data input/output
U-13	D2	I/O	External DRAM data input/output
T-13	D0	I/O	External DRAM data input/output
R-13	VDC3	-	Internal logic VDD
U-14	VSC3	-	Internal logic GND
T-14	D3	I/O	External DRAM data input/output
R-14	DVDD1	-	Internal 16Mbit DRAM VDD
U-17	NC	-	Open
U-16	NC	-	Open
U-15	XOE	O	External DRAM output chip enable output
T-17	NC	-	Open
T-16	TST6	O	Open
T-15	A11	O	Open
R-17	DVSS1	-	Internal 16Mbit DRAM GND
R-16	XWE	O	External DRAM write enable output
R-15	PDO	O	Analog PLL phase compare output
P-17	ASYI	I	Playback EFM comparator slice level input
P-16	ASYO	O	Playback EFM binarization signal output
P-15	MVCI	I	Clock input from external VCO
N-17	AVS1	-	Analog GND
N-16	BIAS	I	Playback EFM comparator bias current input
N-15	AVD1	O	Analog power supply (2.5V)
M-17	FILI	I	Filter input for playback EFM system mastering PLL
M-16	PCO	I	Phase comparison output for playback EFM system mastering PLL
M-15	RFI	I	Playback EFM RF signal input
L-17	PEAK	O	Peak holding input optical amount signal
L-16	CLTV	I	Internal VCO control voltage input for playback EFM system mastering PLL
L-15	FILO	I	Filter output for playback EFN system mastering PLL
K-17	FE	I	Focus error signal input
K-16	ABCD	O	Optical amount signal input
K-15	BOTOM	I	Bottom holding input of optical amount signal
J-17	ADIO	I	Open
J-16	VC	-	Middle point voltage input
J-15	AUX1	I	Assistance A/D input
H-17	AVS2	-	Analog GND
H-16	ADRT	I	A/D converter operation range upper bound voltage input
H-15	AVD2	-	Analog power supply (2.5V)
G-17	ADRB	I	A/D converter operation range lower bound voltage input
G-16	SE	I	Sled error input
G-15	TE	I	Tracking error input
F-17	ADFG	I	ADIP binary-coded FM signal input
F-16	APC	I	Error signal input for laser digital APC
F-15	DCHG	I	Connects with an analog power supply of low impedance

2.Pin function (4)

Pin No.	Symbol	I/O	Function
E-17	VSIO2	-	2.5V I/O Vss
E-16	F0CN	O	Filter cutoff control output
E-15	VDIO2	-	2.5V I/O VDD
D-17	DTRF	O	Controller data output
D-16	CKRF	O	Controller clock output
D-15	XLRF	O	Controller latch output
A-17	NC	-	Open
B-17	NC	-	Open
C-17	LDDR	O	Laser digital APC PWM output
A-16	NC	-	Open
B-16	NC	-	Open
C-16	APCR	O	Laser APC reference PWM output
A-15	TFDR	O	Tracking servo drive PWM output (+)
B-15	TRDR	O	Tracking servo drive PWM output (-)
C-15	NC	-	Open
A-14	FRDR	O	Focus servo drive PWM output (-)
B-14	FFDR	O	Focus servo drive PWM output (+)
C-14	VDC4	-	Internal logic VDD (1.8V)
A-13	VSC4	-	Internal logic GND
B-13	SRDR	O	Sled servo drive PWM output (-)
C-13	FS4	O	176.4kHz clock output (X'tal system)
A-12	SPFD	O	Spindle servo drive output
B-12	SPRD	O	Spindle servo drive output
C-12	SFRD	O	Sled servo drive PWM output (+)
A-11	TEST2	I	Test terminal Connect to GND
B-11	TEST1	I	Test terminal Connect to GND
C-11	FGIN	I	Spindle CAV servo FG input
A-10	TST2	O	Test terminal Open
B-10	EFMO	O	EFM output at recording
C-10	TEST3	I	Test terminal Connect to GND
A-9	VSIO3	-	2.5V I/O Vss
B-9	TST3	O	Test terminal Open
C-9	VDIO3	-	2.5V I/O VDD
A-8	SPCU	I	Blush less spindle motor drive comparate input (U)
B-8	SPDW	O	Blush less spindle motor 3 phase drive truth output (W)
C-8	SPDV	O	Blush less spindle motor 3 phase drive truth output (V)
A-7	TST4	O	Test terminal Open
B-7	SPCW	I	Blush less spindle motor drive comparete input (W)
C-7	SPCV	I	Blush less spindle motor drive comparate input (V)
A-6	VSC5	-	Internal logic GND
B-6	SLDW	O	Blush less sled motor 3 phase drive truth output (W)
C-6	SLDV	O	Blush less sled motor 3 phase drive truth output (V)
A-5	SLCV	I	Blush less sled motor 3 phase drive comparate input (V)
B-5	SLCU	I	Blush less sled motor 3 phase drive comparate input (U)
C-5	VDC5	-	Internal logic VDD (1.8V)
A-4	BYPS	O	Open
B-4	TST5	O	Test terminal Open
C-4	SLCW	I/O	Blush less sled motor 3 phase drive comparate input

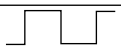
■ MPC17A139MTB-X (IC400) : 4ch bridge driver

1. Pin layout



2. Pin function

Clock detector

CLK	$\overline{PS}$	OSC.circuit
X	H	Auto
	H	Synchronization
X	L	Stop

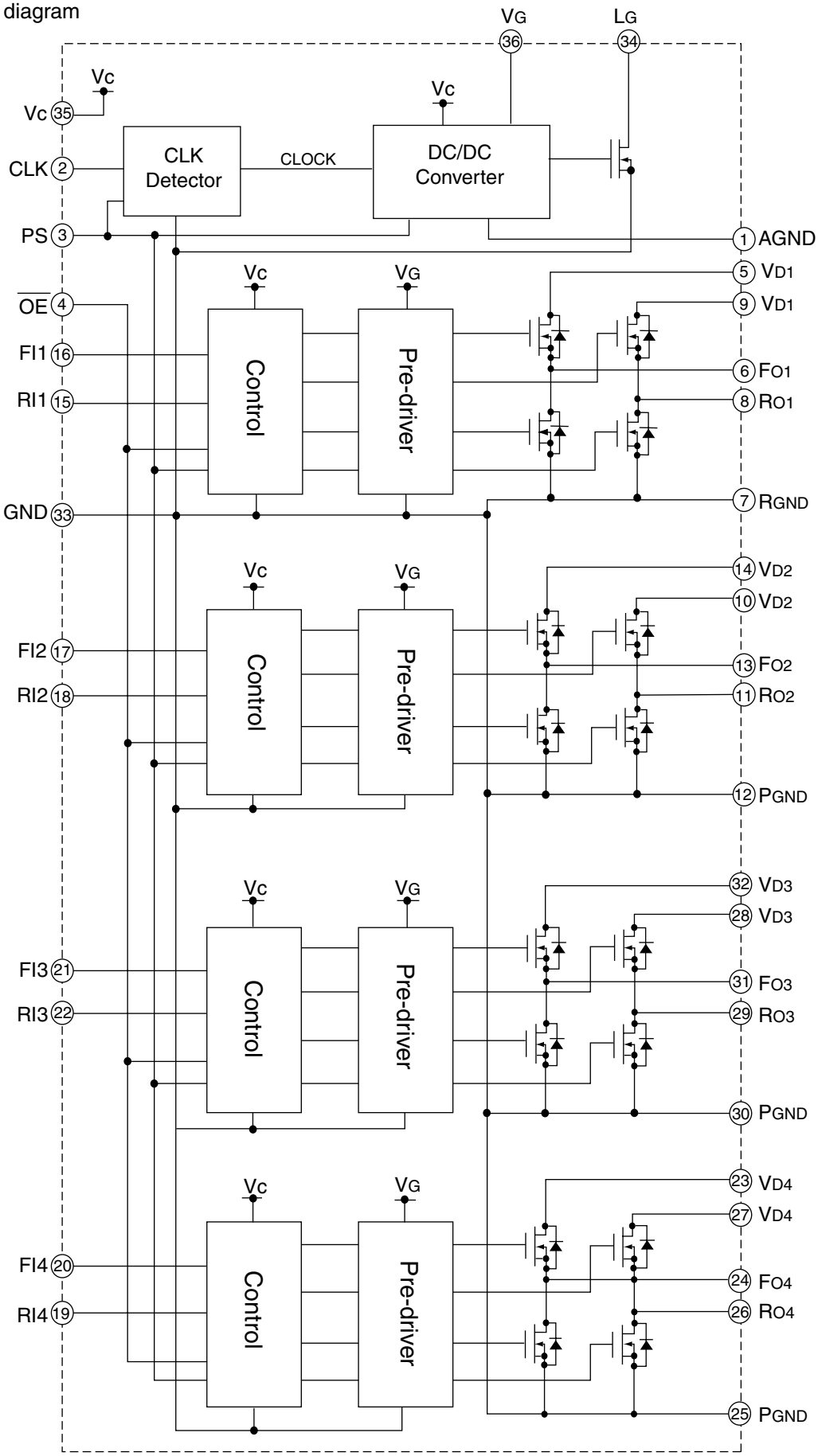
Driver

$\overline{PS}$, $\overline{OE}$		INPUT		OUTPUT 1~4	
$\overline{PS}$	$\overline{OE}$	FI	RI	FO	RO
H	L	L	L	L	L
H	L	L	H	L	H
H	L	H	L	H	L
H	L	H	H	L	L
H	H	X	X	L	L
L	X	X	X	Z	Z

X:Don't care
Z:High impedance

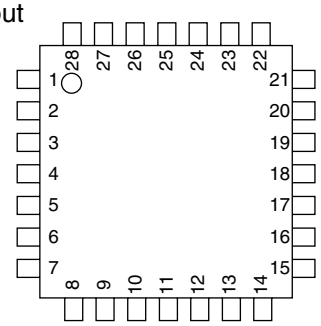
3.Block diagram

MPC17A139MTB-X

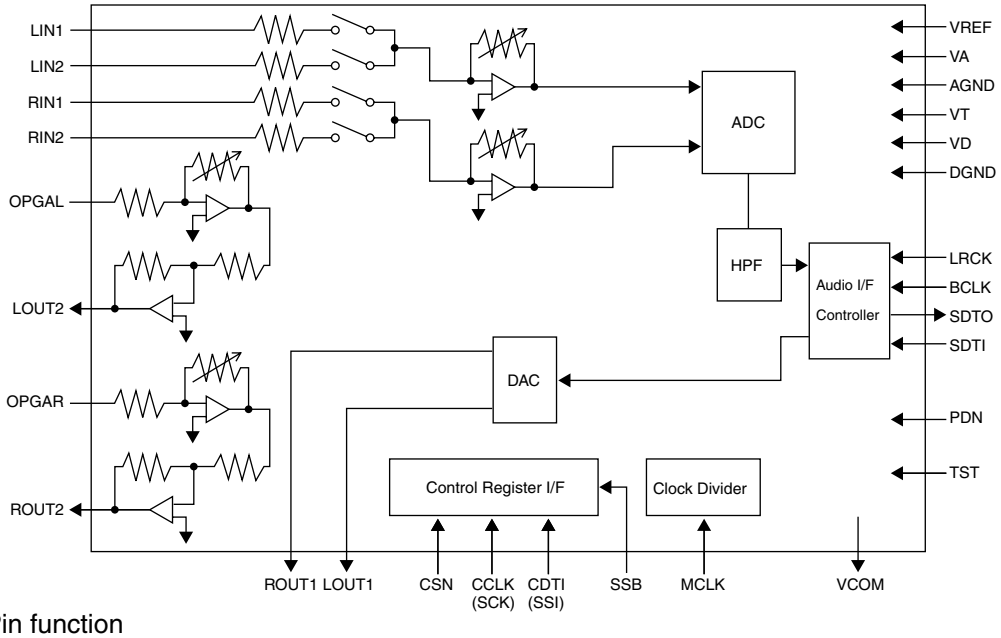


■ AK4562VN-W (IC801) : A/D, D/A comverter

1. Pin layout



2. Block diagram

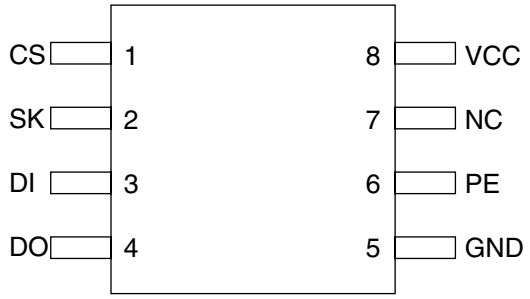


3. Pin function

No.	Pin Name	I/O	Function
1	OPGAR	I	Rch OPGA Input Pin
2	LOUT2	O	Lch OPGA Output Pin
3	ROUT2	O	Rch OPGA Output Pin
4	LIN1	I	Lch #1 Input Pin
5	RIN1	I	Rch #1 Input Pin
6	LIN2	I	Lch #2 Input Pin
7	RIN2	I	Rch #2 Input Pin
8	VCOM	-	Analog Common Voltage Output Pin, 0.45 x VA
9	AGND	-	Analog Ground Pin
10	VA	-	Analog Power Supply Pin, +2.5V
11	VREF	-	Analog voltage Reference Input Pin. Used as a voltage reference of ADC & DAC. VREF is connected externally to filterd VA.
12	VD	-	Digital power supply Pin, +2.5V
13	DGND	-	Digital Ground Pin
14	VT	-	Digital Interface Power Suooly Pin
15	SDTO	O	Audio Serial Data Output Pin
16	SDTI	I	Audio Serial Data Intput Pin
17	BCLK	I	Audio Serial Data Clock Pin
18	TST	I	Test Mode Pin, Fixed to "L"
19	MCLK	I	Master Clock Input Pin
20	LRCK	I	Input/Output Channel Clock Pin
21	CDTI	I	Control Data Input Pin, SSB Mode : SSI
22	CCLK	I	Control Clock Input Pin, SSB Mode : SCK
23	CSN	I	Chip Select Pin, SSB Mode : "H"
24	PDN	I	Resect & Power Down Pin, "L" : Power down & Reset, "H" : Normal Operation
25	SSB	I	Control I/F Mode Select Pin, "L" : AKM Mode, "H" : SSB Mode
26	LOUT1	O	Lch DAC Output Pin
27	OPGAL	I	Lch OPGA Input Pin
28	ROUT1	O	Rch DAC Option Pin

■ AK93C55BH-W (IC502) : EEPROM

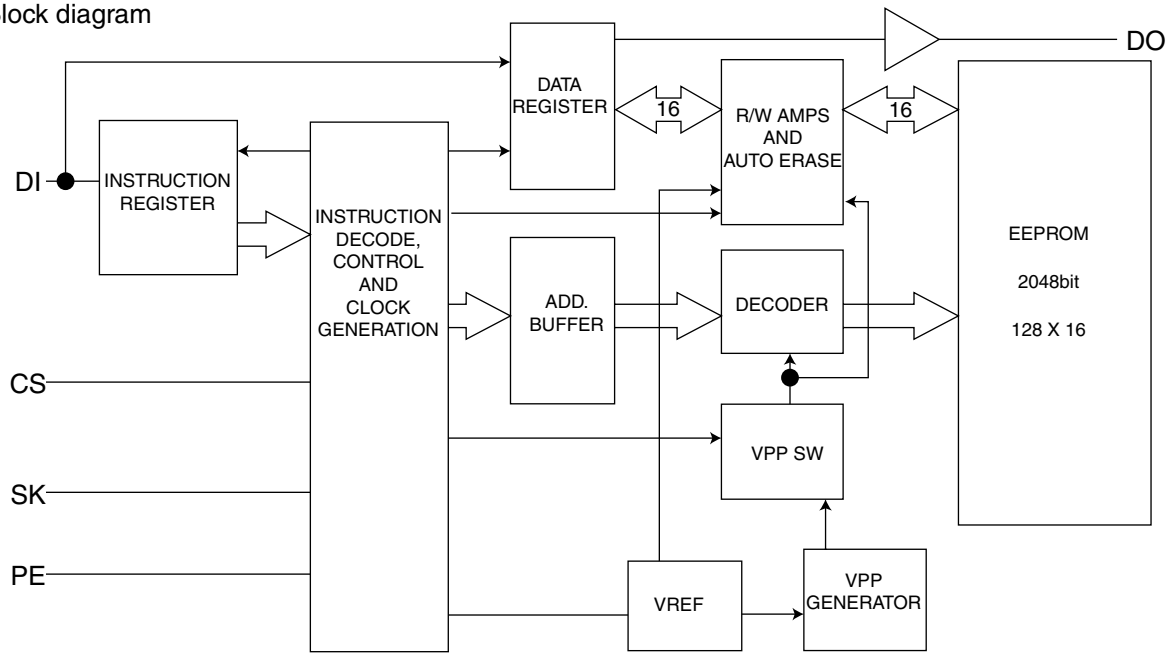
1. Pin layout



2.Pin function

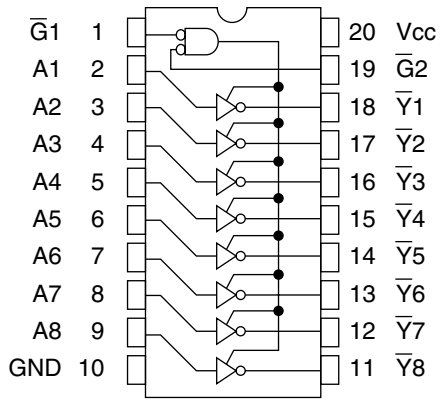
Pin name	Fnction
CS	Chip select
SK	Serial data clock
DI	Serial data input
DO	Serial data output
PE	Program enable
VCC	Ground
GND	Power supply
NC	Not connected

3. Block diagram



■ SN74AHCT540PW-X (IC601) : Buffer

1. Pin layout, Block diagram

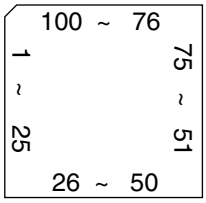


2. Truth value table

Input			Output
$\overline{G1}$	$\overline{G2}$	An	Yn
H	X	X	Z
X	H	X	Z
L	L	H	H
L	L	L	L

■ HD6433048SV67X (IC501) : CPU

1. Pin layout

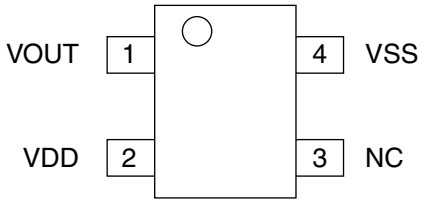


2. Pin function

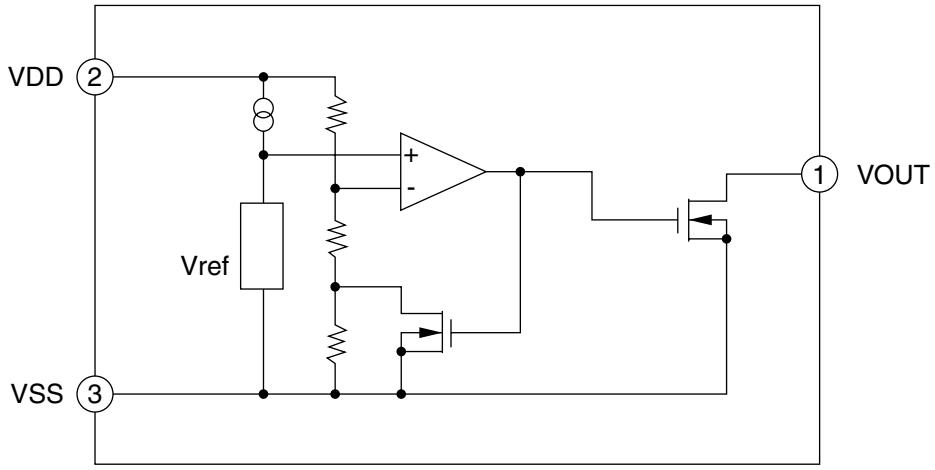
Pin No.	Symbol	I/O	Pin function	Pin No.	Symbol	I/O	Pin function
1	VCC	-	Power supply terminal	51	DATA	O	Data output for Debag/Test mode
2	XRST2	O	RF reset	52	CLK	O	Clock output for Debag/Test mode
3	SWDT2	O	Data output for RF	53	LAT	O	Latch output for Debag/Test mode
4	SCLK2	O	Clock output for RF	54	JOG+	I	JOG pulse input
5	XLAT2	O	Latch output for RF	55	JOG-	I	JOG pulse input
6	RECP	O	Rec power	56	-	-	Non use
7	TX	O	Permission of recorded data output	57	GND	-	Ground
8	XRST	O	LSI reset output	58	SYSCNY	O	5V power supply control
9	XLAT	O	Latch output	59	CHRGE	O	Charge control signal
10	RESO	-	Non use	60	REMOFF	O	Power supply control for remote control
11	VSS	-	Ground	61	Φ	-	Non use
12	RMTX	O	Status output to remote control	62	STBY	-	Standby signal input terminal
13	SWDT	O	CXA2652 data output	63	RES	-	Reset signal input terminal
14	RMRX	I	Command input from remote control	64	NMI	-	Power supply
15	SRDT	I	CXA2652 data input	65	VSS	-	Ground
16	RFOFF	O	RF power ON/OFF control	66	EXTAL	-	X'tal osc. connect terminal
17	SCLK	O	CDXA2652 serial clock	67	XTAL	-	X'tal osc. connect terminal
18	RFVCTL	O	RF ON sub signal output	68	VCC	-	Power supply
19	LDON	O	Laser output	69	CS2	O	EEPROM2 chip select terminal
20	MHON	O	Magnetic head driver ON/OFF	70	SCL	O	Clock for EEPROM
21	SLOFF	O	Sled control power supply	71	DI	O	Data output for EEPROM
22	GND	-	Ground	72	CS	O	Chip select terminal for EEPROM1
23	PS	O	4CH, CLV driver power save	73	MD0	-	Power supply
24	-	-	Non use	74	MD1	-	Power supply
25	MM+	O	Magnetic head UP signal output	75	MD2	-	Power supply
26	MM-	O	Magnetic head DOWN signal output	76	AVCC	-	Power supply
27	SSTOP	I	Sled rest position detection input	77	VREF	-	Reference voltage
28	MREF	I	Reflex ratio select switch input	78	KEY1	I	KEY 1 A/D
29	MPROT	I	Write prohibition switch input	79	KEY2	I	KEY 2 A/D
30	MHUP	I	Magnetic head position detection input	80	EXTBATT	I	A/D external battery voltage detect
31	MHDN	I	Magnetic head position detection input	81	BATTERY		Battery leavings level detect
32	OPEN	I	OPEN/CLOSE detection	82	BATSTATUS	I	Supply voltage detect
33	AC_XDC	I	AC/BATTERY select input	83	TEMP	I	Temp. detect thermistor connect terminal
34	MWUP	O	LSI, Magnetic head driver power supply control	84	RPLY	I	Remote controller PLAY key input
35	VCC	-	Power supply	85	HOLD	I	HOLD detection input
36	FFCLR	O	FF clear of start circuit	86	AVSS	-	Ground
37	ACB	O	Active bass control	87	XINT		Squeeze request
38	L3LCK	O	Clock output for AD/DA	88	DQSY	I	CXA2652 DQSY
39	L3MODE	O	Mode setting for AD/DA	89	SQSY	I	Sub code Q/Adip sync.
40	L3DATA	I/O	Data output for AD/DA	90	DOM/EXP	I	DO/EXP select setting input
41	MUTE	O	Driver mute signal output	91	MNT2	I	LSI monitor signal input
42	MICIN	I	Mic connect detection	92	GND	-	Ground
43	OPTIN	I	Optical cable connect detection	93	MNT0	I	LSI monitor signal input
44	GND	-	Ground	94	MNT1	I	LSI monitor signal input
45	-	-	Non use	95	BEEP	I/O	BEED output
46	ADPWR/DIR	O	Power save control output of A/D section	96	MNT3	I	LSI monitor signal output
47	PSW	O	Driver power supply control signal output	97	SENS	I	Connect to CXA2652 SENS terminal
48	LCDDATA	O	Data output for LCD	98	DO	I	Data input for EEPROM
49	LCDCLK	O	clock output for LCD	99	AC/DC	O	Chargeable battery select SW control
50	LCDLAT	O	Latch output for LCD	100	-	-	Non use

■ IC-PST3424U-X (IC504) : Reset

1. Pin layout



2. Block diagram

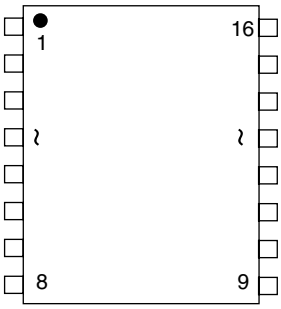


3. Pin function

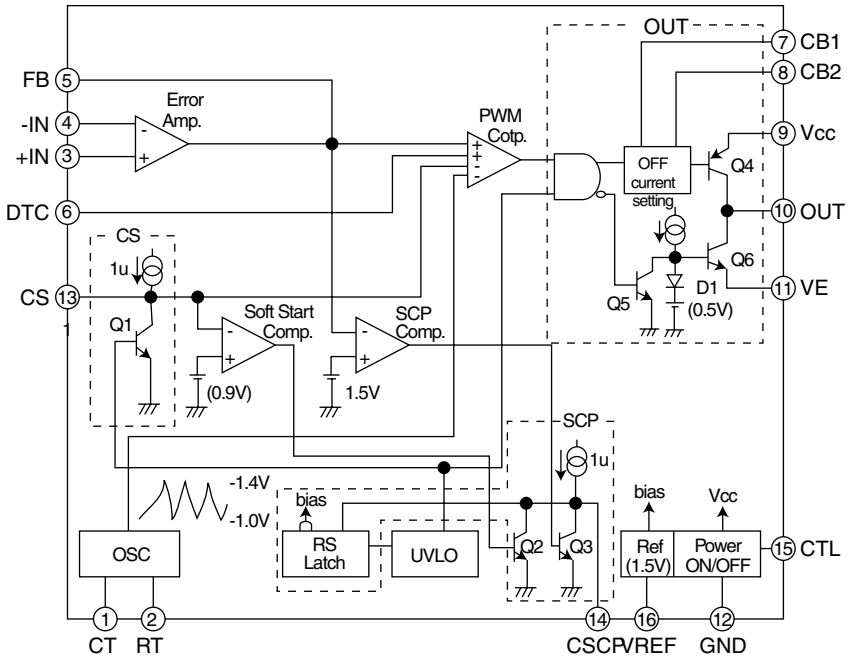
No.	Pin Name	Function
1	Vout	Reset Signal Output PIN
2	VDD	VDD PIN / Voltage Detect PIN
3	NC	Non connect
4	VSS	VSS PIN

■ MB3817PFV-X (IC911) : Switching regurator controller

1. Pin layout



2. Block diagram

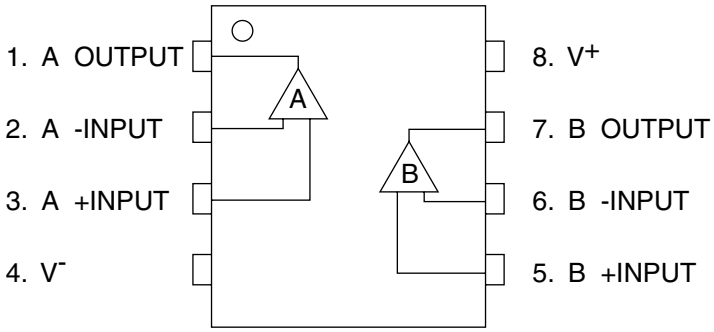


3. Pin function

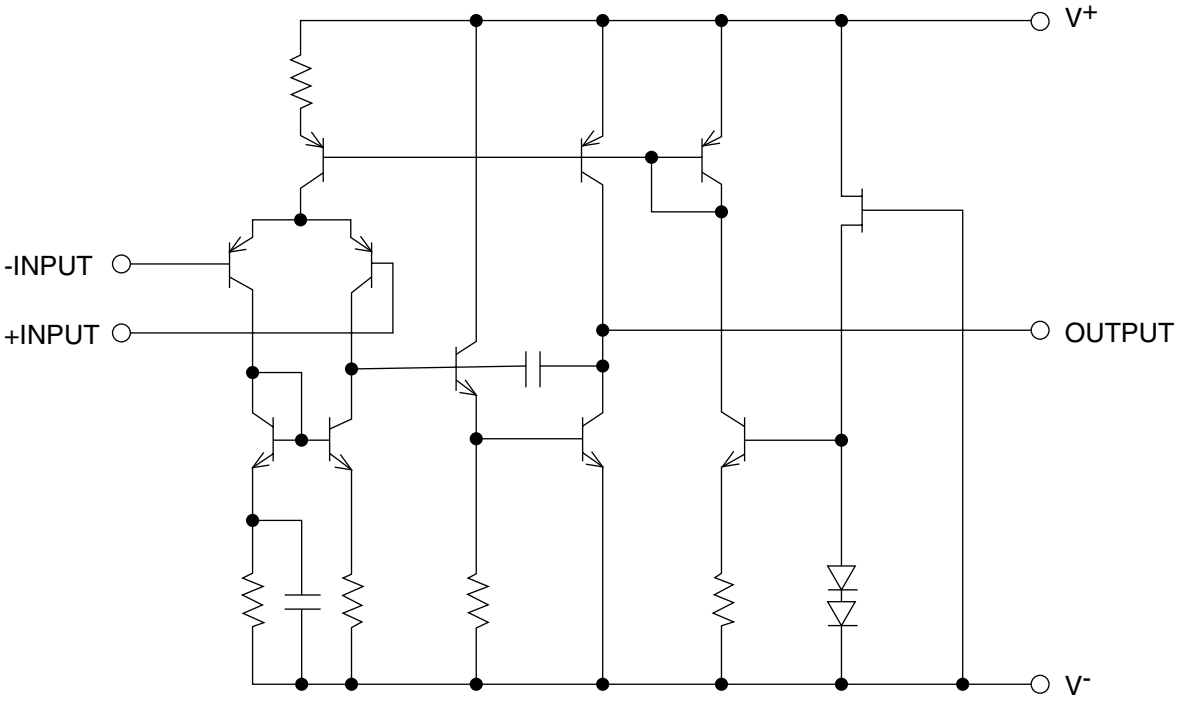
Pin no.	Symbol	I/O	Function
1	CT	-	This pin connects to a capacitor for setting the triangular-wave frequency
2	RT	-	This pin connects to a resistor for setting the triangular-wave frequency
3	+IN	I	Error amplifier non-inverted input pin
4	-IN	I	Error amplifier inverted input pin
5	FB	O	Error amplifier output pin
6	DTC	I	Dead time control pin
7	CBI	-	Boot capacitor connection pin
8	CB2	-	Boot capacitor connection pin
9	Vcc	-	Power supply pin
10	OUT	O	Totem-pole type output pin
11	VE	-	Output current setting pin
12	GND	-	Ground pin
13	CS	-	Soft start setting capacitor connection pin
14	CSCP	-	Short detection setting capacitor connection pin
15	CTL	I	Power supply control pin .When this pin is High ,IC is inactive state .When this pin is Low , IC is standby state.
16	VREF	O	Reference voltage output pin

■ NJM2115V-W (IC821) : Regulator

1. Pin layout

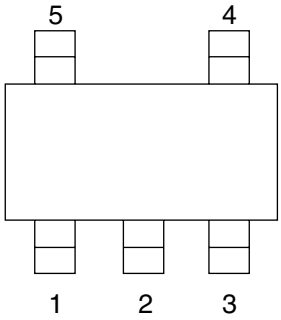


2. Block diagram

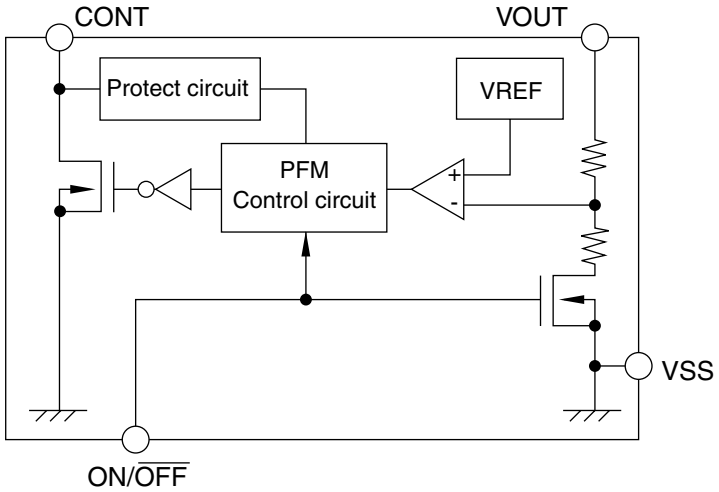


■ S-8321AAMPDNA-W (IC931) : Switching

1. Pin layout



2. Block diagram

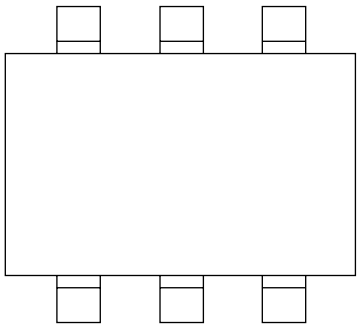


3. Pin function

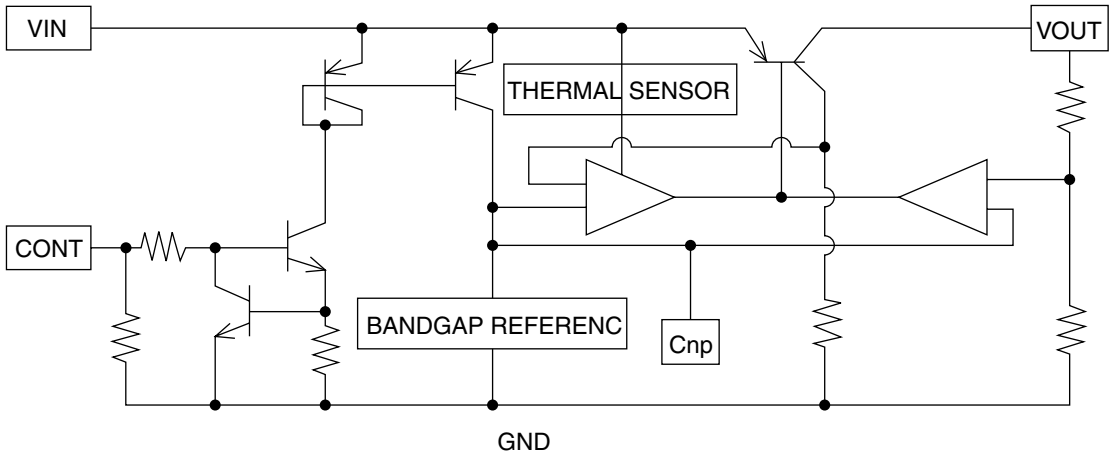
No.	Pin Name	Function
1	ON/OFF	Power off terminal
2	VOUT	Voltage output terminal
3	———	(N.C.)
4	VSS	Terminal
5	CONT	Ext indnctor Connection terminal

■ TK1125BMC-X (IC802) : Regulator

1. Pin layout

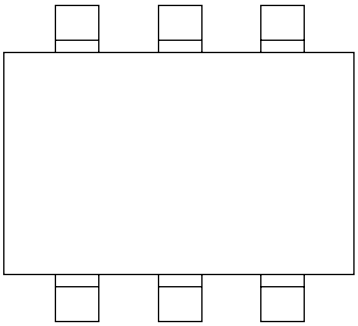


2. Block diagram

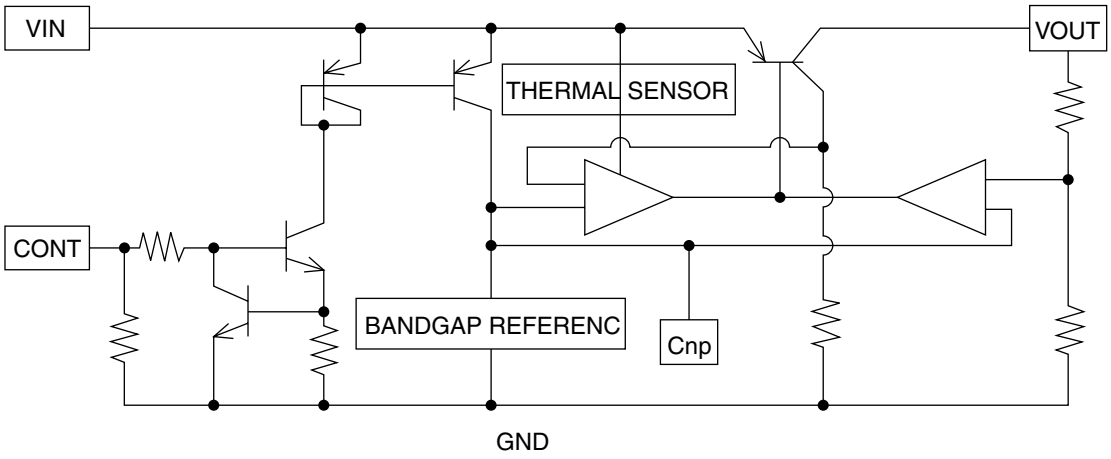


■ TK1124BMC-X (IC341) : Regulator

1. Pin layout

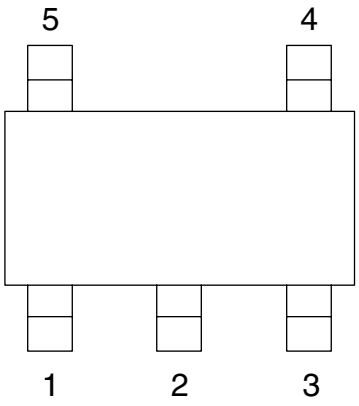


2. Block diagram

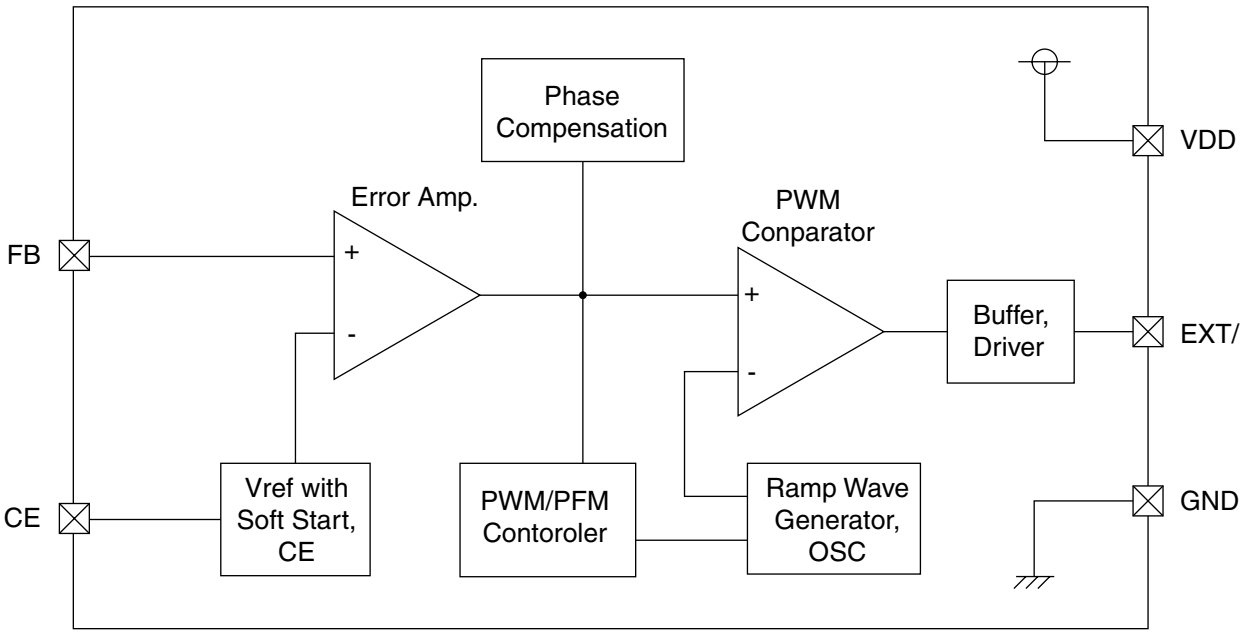


■ XC6366B102M-X (IC921) : Regulator

1. Pin layout



2. Block diagram



3. Pin function

No.	Pin Name	Function
1	EXT/	EXT transistor connect
2	VDD	Power supply
3	GND	GND
4	CE	Chip enable
5	FB	Output voltage setting

< MEMO >

< MEMO >

JVC

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