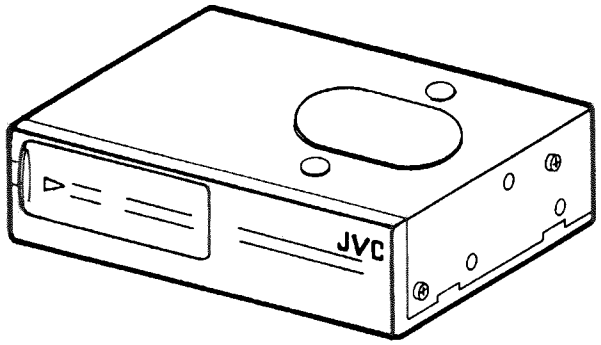
JVC

SERVICE MANUAL

COMPACT DISC AUTOMATIC CHANGER

KD-MK68RF C/J/JT



COMPACT disc DIGITAL AUDIO

Area Suffix	
C	Canada
J	U.S.A.
JT	Taiwan

Contents (CD CHANGER SECTION)

Contents (CD CHANGER CONTROLLER SECTION)

No. 49251
February 1995

■ Safety Precautions

J (USA) Only
Important for Laser Products

1. CLASS 1 LASER PRODUCT
2. DANGER: Invisible laser radiation when open and interlock failed or defeated. Avoid direct exposure to beam.
3. CAUTION: Do not open the bottom cover. There are no user serviceable parts inside the unit; leave all servicing to qualified service personnel.
4. CAUTION: The compact disc player uses invisible laser radiation and is equipped with safety switches which prevent emission of radiation when unloading cartridge and the safety interlocks have failed or are defeated. It is dangerous to defeat the safety switches.
5. CAUTION: Use of controls of adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.
6. CAUTION: The laser is able to function, if safety switches are out of function. The laser light is invisible, avoid exposure, do not disassemble the laser unit, but replace the complete unit.

B/E/G Only
Important for Laser Products

1. CLASS 1 LASER PRODUCT
2. DANGER: Invisible laser radiation when open and interlock failed or defeated. Avoid direct exposure to beam.
3. CAUTION: Do not open the bottom cover. There are no user serviceable parts inside the unit; leave all servicing to qualified service personnel.
4. CAUTION: The compact disc player uses invisible laser radiation and is equipped with safety switches which prevent emission of radiation when unloading cartridge and the safety interlocks have failed or are defeated. It is dangerous to defeat the safety switches.
5. CAUTION: Use of controls of adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

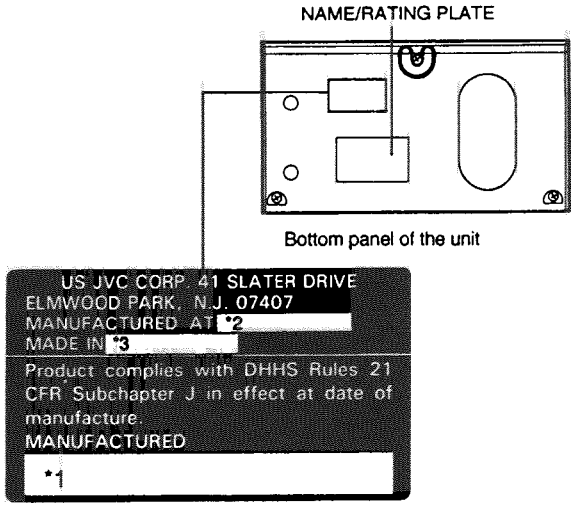
ADVERSEL: Usynlig laserstråling ved åbning. når sikkerhedsafbrydere er ude af funktion. Undgå udsættelse for stråling.

VAROITUS: Varmuuskytkimen oliessa pois päältä kun laite avataan, siellä kehittyy näkymätöbtä lasersäteilä. Älä pane itseäsi säteilyn altiiksi.

VARNING: Osynlig laserståining uppstår vid komponentens öppning när säkerhetsbrytaren är frånslagen.

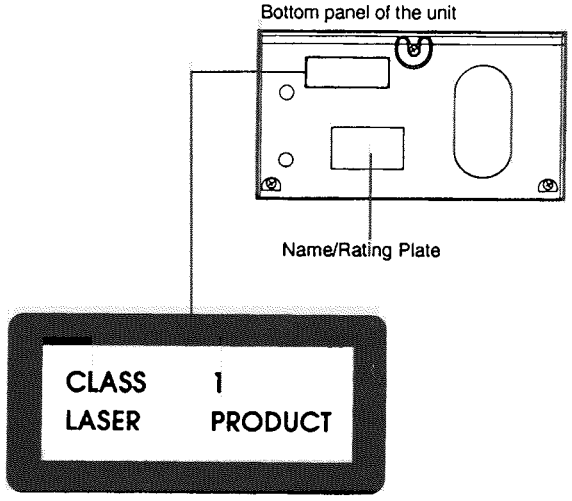
ADVARSEL: Usynling laserstråling ved åpning når sikkerhetsbryteren er ude af funktion Unngå utsettelse for stråling.

Identification And Certification Labels

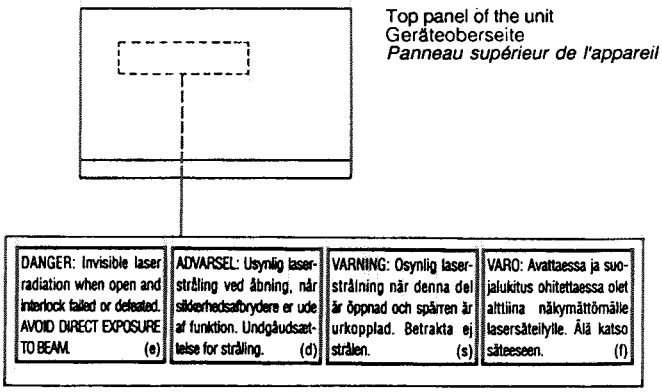


Notes
*1 The date of manufacture.
*2 The ID code of manufacturing plant.
*3 Marking of country origin.

Position And Reproduction Of Labels



Obs:
Apparaten innehåller laserkomponent av högre laserklass än klass 1.



CD CHANGER SECTION

■ Instructions(Extracts)

SPECIFICATIONS

CD CHANGER SECTION
Frequency response: 5 – 20,000 Hz
Dynamic range: 93 dB
S/N ratio: 96 dB
Distortion: 0.006 %
Wow & flutter: Less than measurable limit
Output terminal: Analog (8 pin x 1), 1.5 V (Full scale)/Less than 1 kΩ
GENERAL
Power requirement
Operating voltage: DC 14.4 V (11 V – 16 V Allowable)
Grounding system: Negative ground
Dimensions (W x H x D):
274 x 75 x 178 mm
(10-13/16" x 3" x 7-1/16")
Gross Weight: 3.6 kg (8.0 lbs)

Design and specifications subject to change without notice.

INSTALLATION

- Before installation, be sure to remove the screw and holder (shown by Ⓐ) for transportation. Now, stick the seals provided over the holes in the bottom of the unit. (Fig. a)

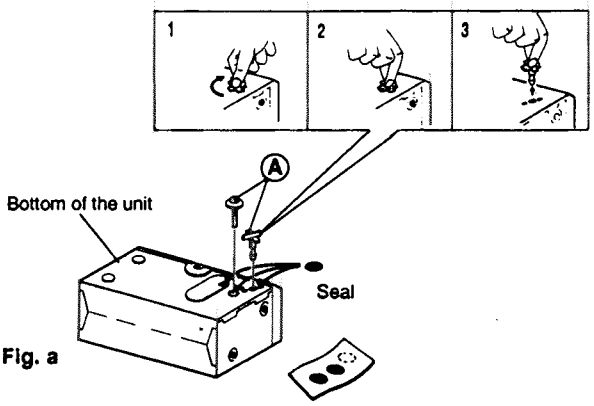


Fig. a

1. **Avoid installing in the following places**
   - Where it would be exposed to direct sunlight or heat directly from the heater or in an extremely hot place.
   - Where it would be subject to rain, water splashes or excessive humidity.
   - Where it would be subject to dust.
   - Where it would be positioned on an incline or unstable place.
   - Above connection cords or on the floor under which there is piping.
   - Where it could damage the car's fittings (spare tire, etc.) in or under the trunk.
2. Before drilling holes in the trunk to install the unit, make sure that there is a sufficient space under the trunk so that you do not drill holes in the fuel tank, etc.
3. Firmly install the unit using the provided screws.

(Example of installation A)

- **When installing on the floor of the trunk, etc. using the mounting base**

1. Stick spacer on the bottom of the mounting base. (Fig. b)
2. Remove the carpet from the place where the unit is to be installed and mark the position of the mounting base, then stick the mounting base on the floor. (Fig. c)

Note:
When sticking the mounting base on the floor, wipe off the surface dirt, oil, etc. and avoid installing on a concave or convex surface.

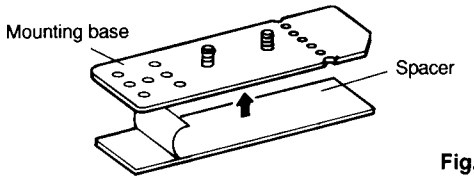


Fig. b

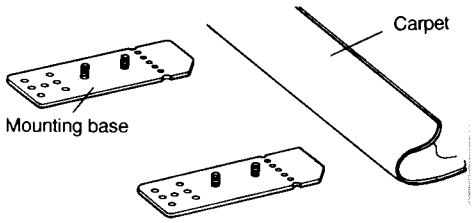
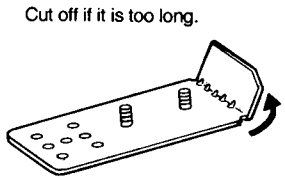


Fig. c



- **It is recommended that you install the unit directly using tapping screws when mistracking occurs. (See page 8.)**

3. Cut the carpet so the bolts fit through it. (Fig. d)

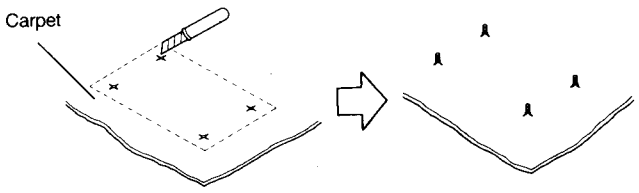


Fig. d

4. Install the mounting brackets on the side panels of the unit using screws (M4 x 8 mm). (Fig. e)

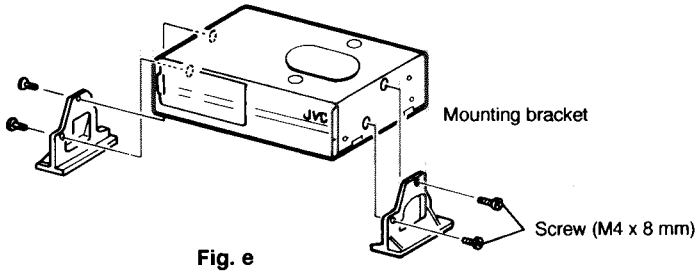
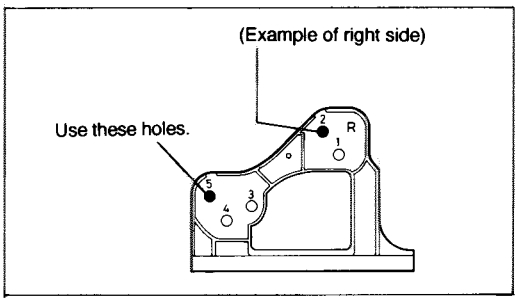


Fig. e



5. Place the unit on the carpet so that the bolts fit in the holes of the mounting bracket and install using washers and nuts (M5). (Fig. f)

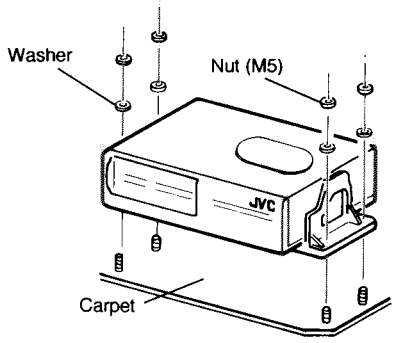


Fig. f

(Example of installation B)

- **When installing on the floor of the trunk, etc. using tapping screws**

1. Install the mounting brackets on the side panels of the unit using screws (M4 x 8 mm) referring to the diagram. (Fig. e)
2. Install the unit on the floor of the trunk using tapping screws. (Fig. g)

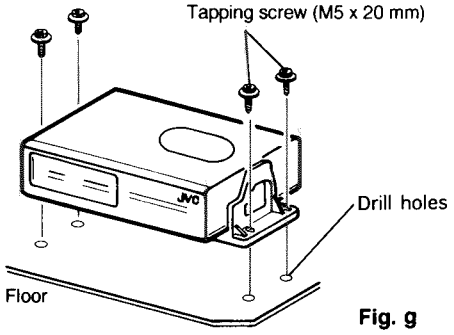
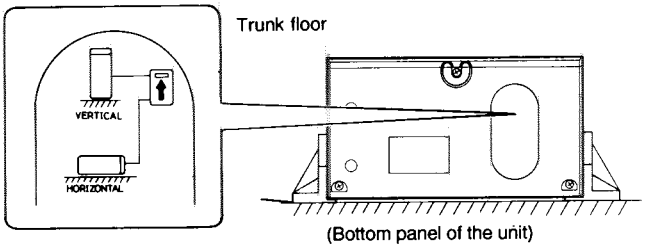
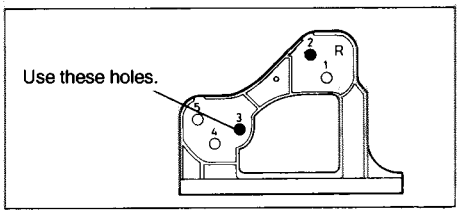


Fig. g

(Example of other installations)

- **When installing the CD changer upright on the trunk floor. (Fig. h)**





Notes:

1. To install, refer to the above "Example of installation A or B".
2. When the CD changer is installed upright, set the selector located at the bottom to the "VERTICAL" position. (When it is installed horizontally, be sure to set the selector to the "HORIZONTAL" position.)
   - When installing upright, securely install to the trunk floor.

- **When installing the CD changer to hang in the trunk space. (Fig i)**

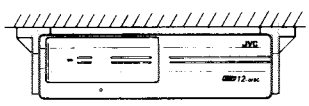
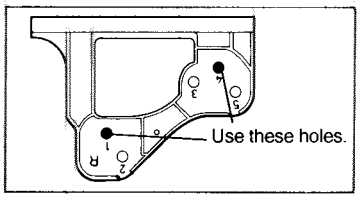
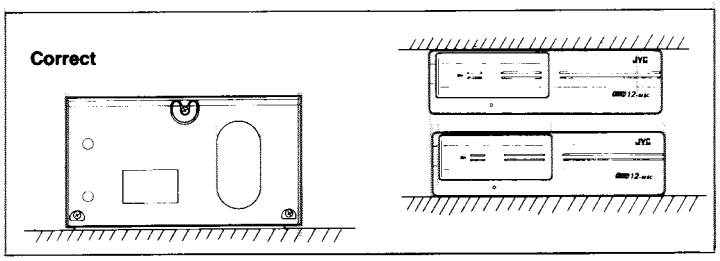
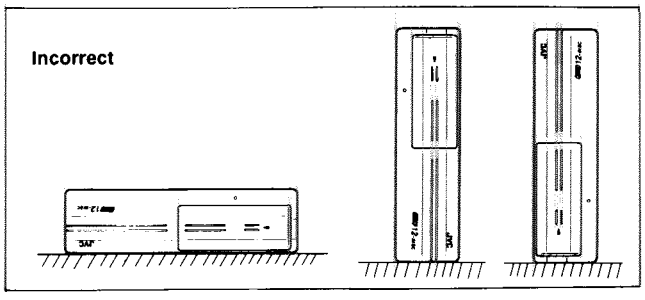


Fig. i



Note:
To install, refer to the above "Example of installation A or B".





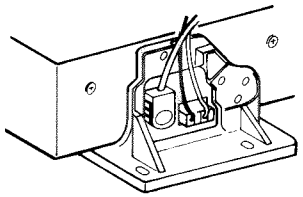
ELECTRICAL CONNECTIONS

To prevent short circuits from occurring, while making connections, keep the battery's negative terminal disconnected.
We recommend that you make all electrical connections (see Fig. k) before installing the unit. If you're not sure of your ability to correctly install this unit, have it installed by a qualified service technician.

Note:
This unit is designed for 12 volts DC, Negative Ground. If your vehicle does not have a 12 volt negative ground electrical system, you need a voltage inverter which can be bought from a JVC car audio dealer.

- Be sure to ground this unit to the car's chassis.

Connections



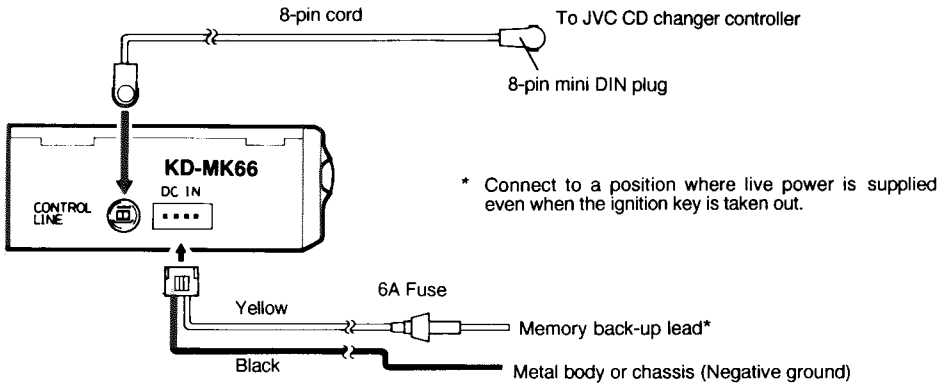


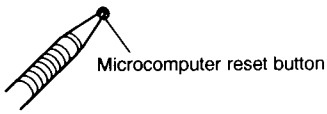
Fig. k

Note:
- The CD magazine cannot be ejected when the memory back-up lead or cord is disconnected or the fuse is blown.

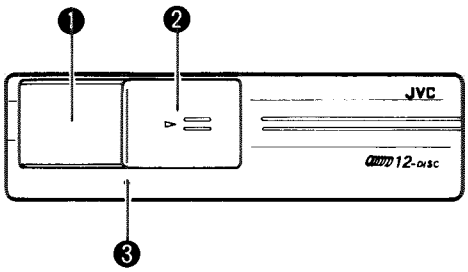
Microcomputer reset button

After completing installation and connection, load the magazine and press the reset button using a ball-point pen or other pointed instrument to reset the microcomputer.

Normally do not use this button. However, when the power supply is interrupted such as for replacement of the car's battery, press this button. Also press it when the built-in microcomputer does not operate properly due to noise or when the changer does not function correctly when the controller is operated.



LOCATION OF CONTROLS



1. CD magazine slot
2. Door
3. Microcomputer reset button

HANDLING COMPACT DISCS AND MAGAZINES

How to handle magazines

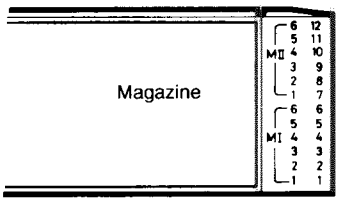
- **Care in handling magazines**

1. **Always keep twelve disc trays loaded in the magazine.**
2. When removing or inserting disc trays, hold the magazine horizontally.
3. Place compact discs on trays before inserting them in a magazine. Never put discs directly into magazines.
4. Do not expose it to high temperatures or direct sunlight.
5. Do not disassemble magazines.
6. Take care not to drop or hit magazines. Do not apply excessive pressure to disc trays which have been removed from magazines.
7. Never apply solvents such as benzine, thinner and insecticide to the magazine or disc trays. These solvents may erode their surfaces.

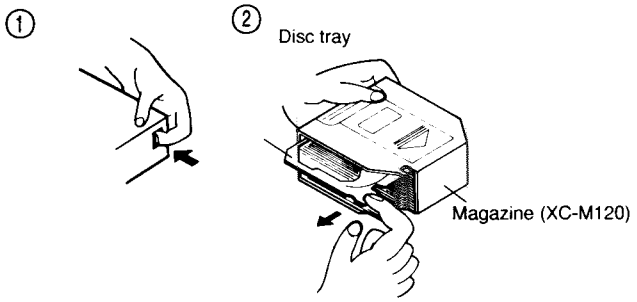
* Additional magazine (XC-M120) must be purchased separately.

- **How to load discs**

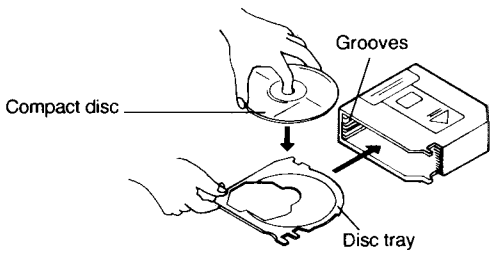
• The discs are in numerical order, with 1 at the bottom and 12 at the top. Load discs in the magazine in the required order.



1. Disc trays can be removed from magazines.
   ① While pressing the RELEASE button....
   ② Slide the disc tray partly out.



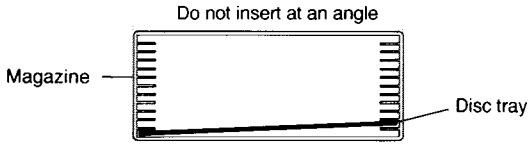
2. Pull the disc tray completely out of the magazine and place a CD on it with its label side up.



3. Line up the disc tray with the grooves in the magazine, and push the disc tray all the way in. Never bend or force the disc tray into the magazine. It is not necessary to depress the disc tray RELEASE button when inserting the disc tray.
   - Check that the disc tray is securely inserted into the magazine. If a CD becomes disengaged from the disc tray, reposition it on the disc tray.

Notes:

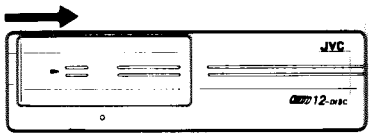
- If a disc tray is inserted at an angle, it may cause a malfunction.



- There are openings in the disc trays through which signals are read from the discs. These openings leave part of the shiny side of the disc exposed. Be careful not to touch the shiny surface of the disc.
- It is not possible to play a compact disc if it is installed upside down.
- Be sure to insert the twelve disc trays when using the magazine. If not, the CD changer may not operate correctle.

How to load a magazine

1. Open the door.



2. Load a magazine.
   - **Load a magazine into the CD changer with the "△" mark on top (Fig. I) and the CD insertion side to the right.**
   - If a magazine's label partly peels off, it may cause a malfunction. If this happens, remove the label or stick it on firmly again.

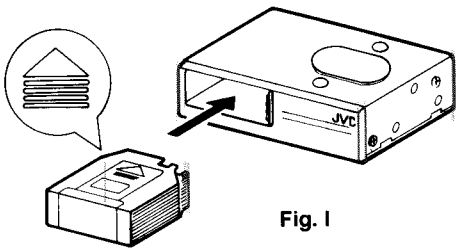


Fig. I

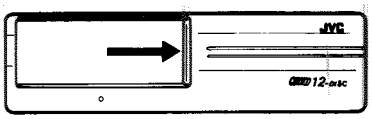
Caution:

- **Do not insert your hands or any foreign object into the loading slot as you may be injured or cause malfunctions or damage.**

3. Close the door.
   - The door should be closed other than when a magazine is loaded or unloaded.

How to unload a magazine

To unload a magazin, open the door fully to the right side to eject the magazine.



Note:
When the magazine cannot be ejected, push in the magazine and play the 12th disc once more; when play has ended, repeat the above procedure (i.e., open the door).

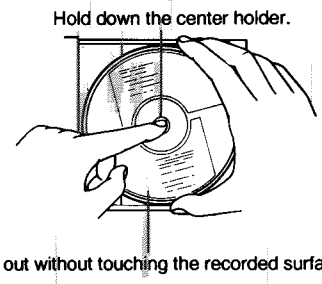
- **Listening to CDs**
  - This unit does not have operation buttons to play CDs. CD operations can be performed using the JVC CD changer controller, etc. connected to this unit.
    For CD operations, refer to the instructions of the CD Changer Controller.

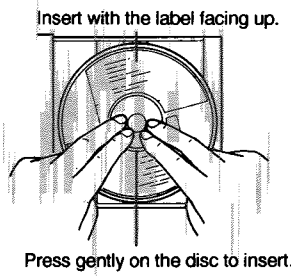
How to handle CDs

- Use compact discs with the mark shown.

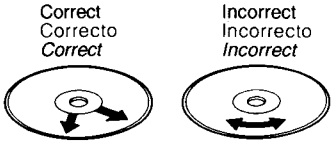
- Do not touch the recorded surface of the disc (reflective side, opposite to the label) when handling the discs.

- **Storage**
  Make sure to keep discs in their cases. If discs are piled on top of one another without their cases, they may be damaged. Do not put discs where they will be exposed to direct sunlight or in a place subject to high temperatures and humidity. Avoid leaving discs in your car.





- **Maintenance of discs**
- When fingerprints and dirt adhere to a disc, wipe the disc clean with a soft, dry cloth, wiping from the inside towards the edge. If it is difficult to clean, wipe the disc with a cloth moistened with water.
- Do not use record cleaners, benzine, alcohol or antistatic agents.
- Do not damage the label side or stick paper or adhesive to the surface.



1 Location of main parts

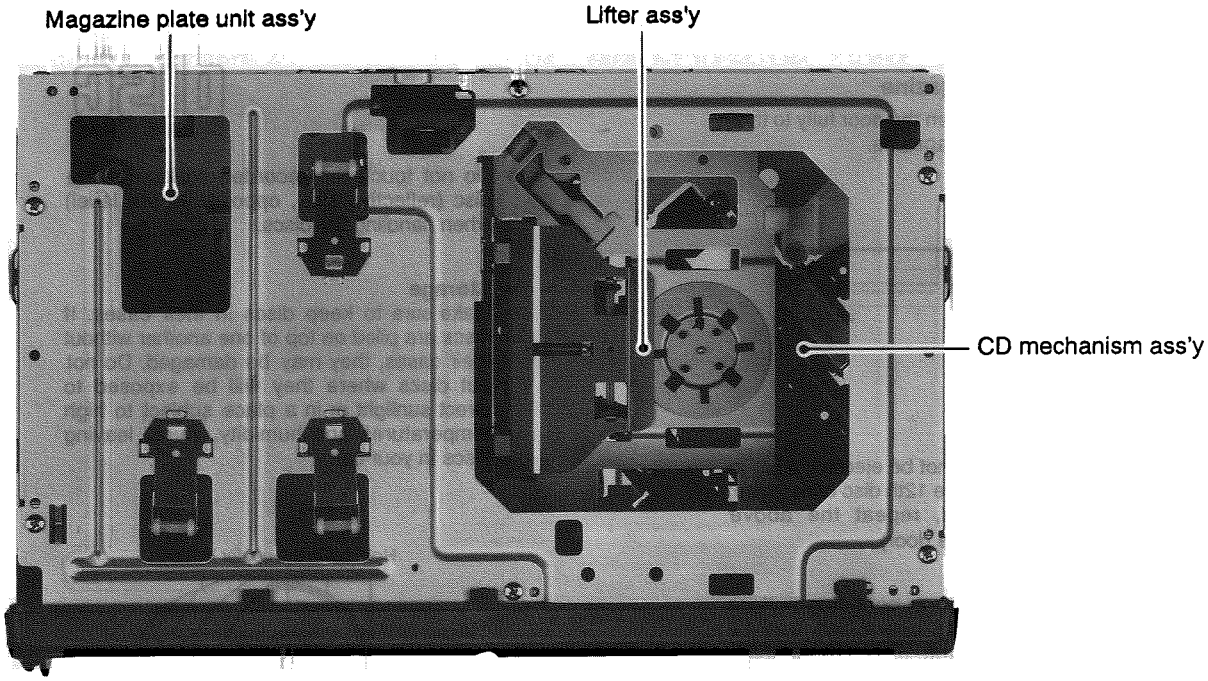


Fig.1 – 1

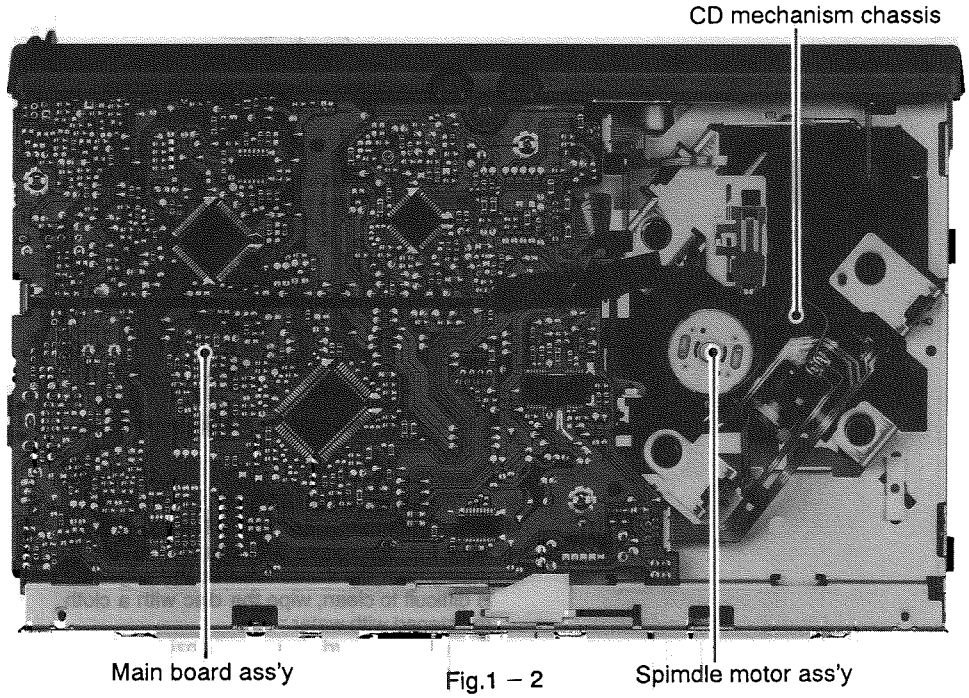


Fig.1 – 2

◆ CD mechanism ass'y

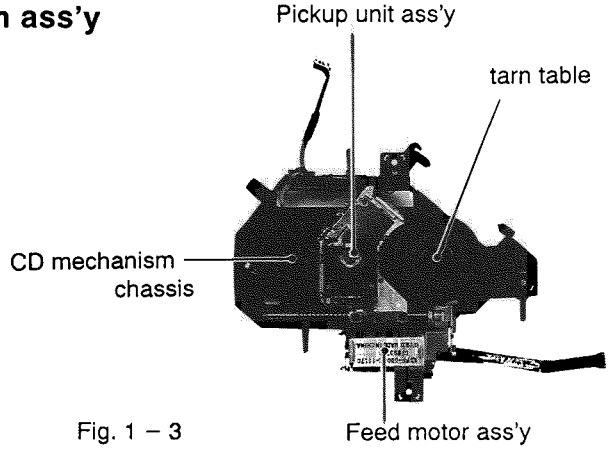


Fig. 1 – 3

■ Positioning diagram of switches and motors, etc.

◆ Top view

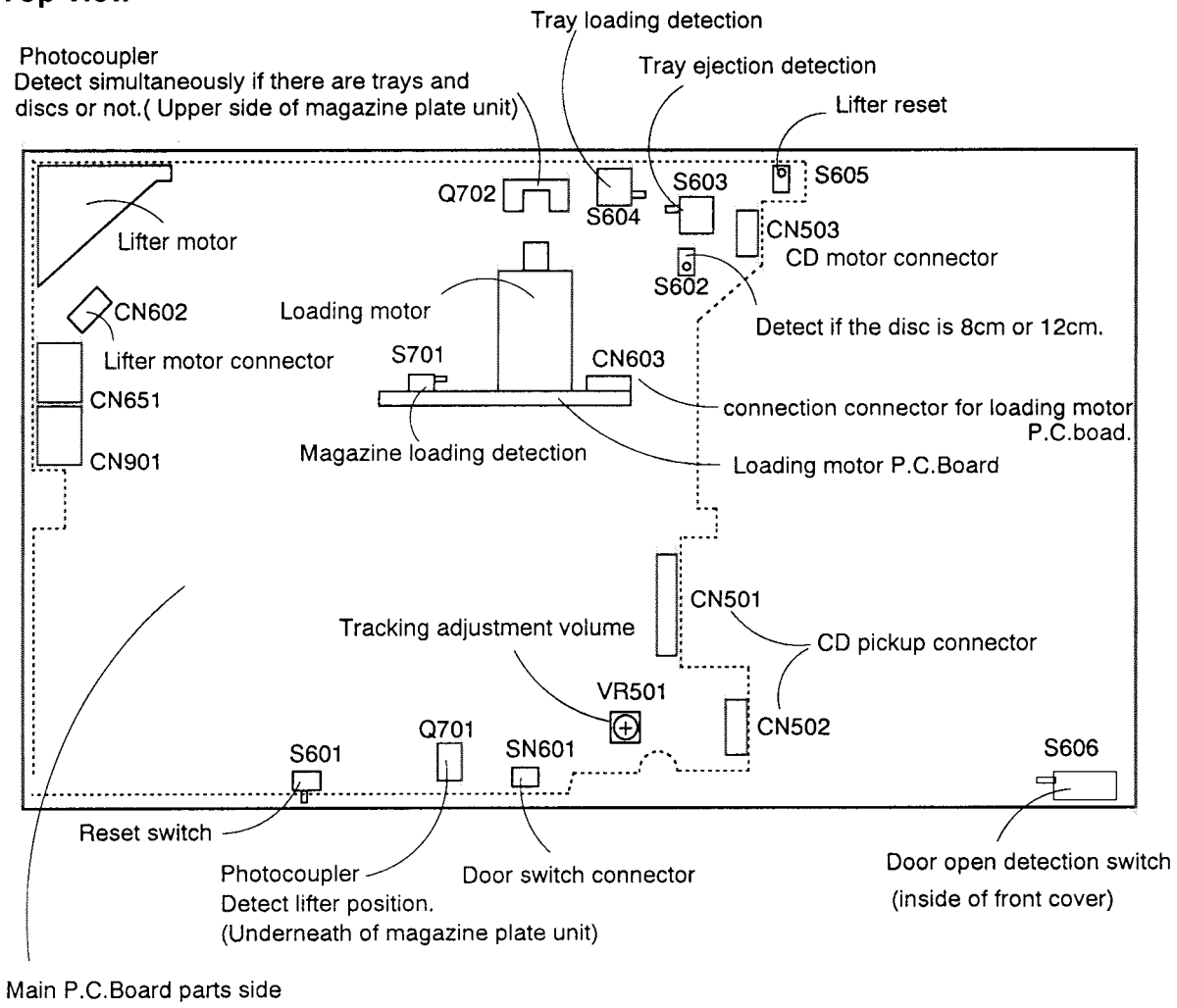


Fig. 1 – 4

★ Lifter motor and Q702 photocoupler can be seen from the top view.Other parts are indicated by cord, but not seen.

2 Removal of main parts

Procedures for removal of parts(Described considering assembly)

◆ Main P.C.B. Ass'y

Remove the four screws retaining the top cover, bottom cover, front panel ass'y and main P.C.B. Remove the flexible wire from the CD mechanism ass'y.

◆ Lifter Ass'y

Remove the top cover, bottom cover, front panel ass'y, top plate ass'y, rear panel ass'y and lifter ass'y.

◆ CD Mechanism

Remove the top cover, bottom cover, front panel ass'y, top plate ass'y, rear panel ass'y, lifter ass'y and CD mechanism ass'y.

◆ Magazine Plate Unit

Remove the top cover, bottom cover, front panel ass'y, top plate ass'y, rear panel ass'y and lifter ass'y and magazine plate unit.

◆ Loading Gear Ass'y

Remove the top cover, bottom cover, front panel ass'y, top plate ass'y, rear panel ass'y, lifter ass'y, magazine plate unit ass'y and loading gear ass'y.

Disassembly procedure for KD-MK66

■ External case sections

◆ Top Cover (see Fig.2-1~Fig. 2-2)

1. Remove four retaining screws ① from the left and right.
2. Remove one screw ⑰ retaining the front side of top cover.
3. Remove by pushing the right side of top cover inward to lift it up.

◆ Bottom Cover (see Fig.2-3)

1. Remove two screws ② retaining the bottom cover.
2. Remove one screw ③ retaining center section of bottom cover.

◆ Front Panel (see Fig.2-4~Fig. 2-6)

1. Slightly pull out the panel while disengaging the right and left tabs [A].
2. Remove the door switch connector (CN601) from the front panel door in the center of main P.C.B.

Left side view

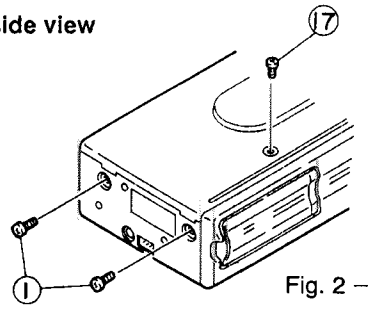


Fig. 2 – 1

Right side view

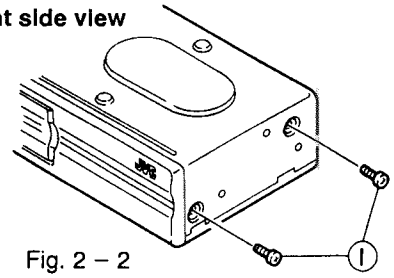


Fig. 2 – 2

Bottom view

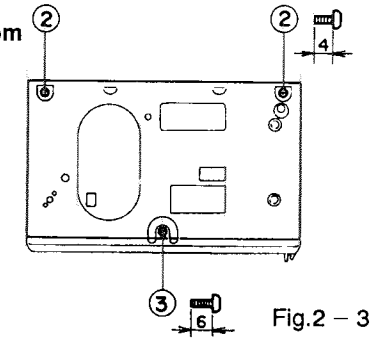


Fig.2 – 3

Right side view

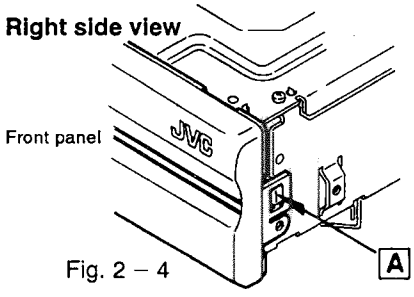


Fig. 2 – 4

Left side view

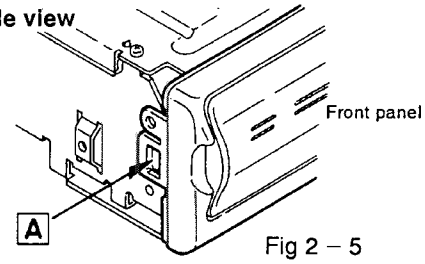


Fig 2 – 5

Magazin loading section

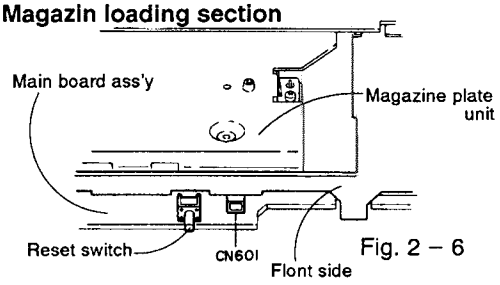


Fig. 2 – 6

■ Mechanism section (remove in the following order)

◆ Top Plate Ass'y (see Fig. 2-7)

1. Remove the six screws ⑥ retaining the top plate.
2. Lift up the top plate and slide it to the front so that the safety rod is vertical, then remove it from the right side.

◆ Rear Panel (see Fig. 2-7~Fig. 2-10)

1. Remove the lifter tension arm spring.
2. Remove the one E-washer ⑦ of lifter section.
3. Remove the lifter tension arm.

Note:

With the unit's front side facing you and the unit placed on its bottom, float the reset switch connected to the main P.C.B.

4. Turn the lifter motor clockwise from the main P.C.B. to elevate it to the uppermost position. (The torque of lifter motor is small.)
5. Remove three screws ⑧ retaining the rear panel to remove it.
6. Remove the flexible P.C.B. for the lifter ass'y sensor from the lifter motor P.C.B connector.
7. Remove the front side arm of lifter ass'y, then pull the lifter ass'y towards the magazine slot and remove it from the rear loading arm.

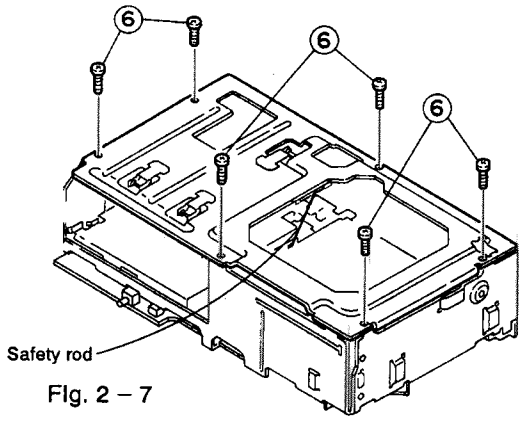


Fig. 2 – 7

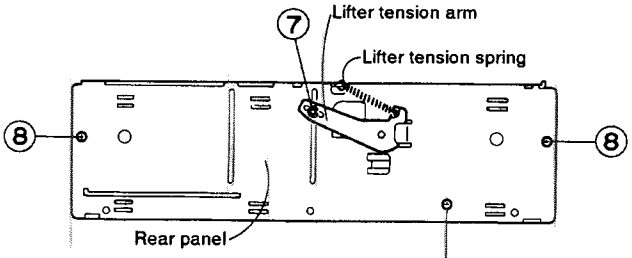


Fig. 2 – 8

Rear bottom view

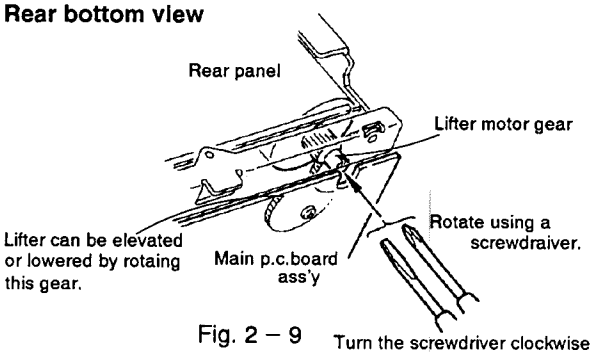


Fig. 2 – 9

Rear side view

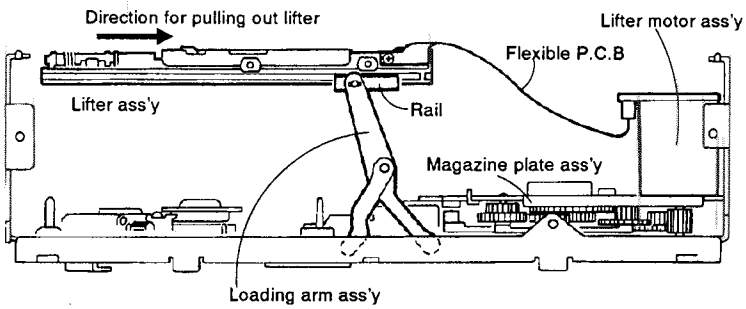


Fig. 2 – 10

◆ Magazine Plate Unit (see Fig. 2-11)

1. Remove three screws ⑨ and ⑩ retaining the magazine plate unit.
2. Lift up the magazine plate unit to remove the lifter motor from the main P.C.B. connector.

◆ Loading Gear Ass'y (see Fig. 2-12)

1. Remove one screw ⑪ retaining the loading gear and remove the connector between the main P.C.B. and motor P.C.B.

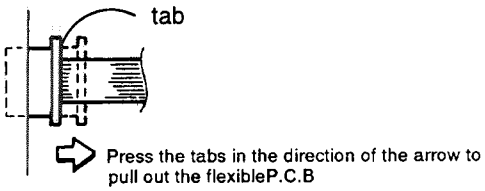
Note:

When the loading gear is removed, the internal gear is disengaged, so care should be taken when handling the gears. (Do not reassemble the gears by placing them in the wrong direction.)

2. Turn the slider gear counterclockwise (indicated by the arrow) and remove one screw ⑫ retaining the sensor.
3. Remove two screws ⑬ retaining the main P.C.B. to disengage the sensor.

◆ CD Mechanism Ass'y (see Fig. 2-11~Fig. 2-13)

1. Remove CD mechanism's three flexible wires (CN501, CN502, CN503) from the main P.C.B. ass'y. (Press the tabs in both side panels.)



2. Remove four tension springs between the CD mechanism and chassis.
3. Facing the front of the unit, remove the three screws ⑭ retaining the damper.
4. Remove the stopper by pressing section ⓐ indicated by the arrow to disengage the CD chassis hold arm.
5. Lift the chassis slightly and remove the CD mechanism ass'y, **(Be careful -- the coil springs are easily removed.)**

◆ Main P.C.B. Ass'y

1. Remove four screws ⑬ and ⑮ retaining the main P.C.B. ass'y.
2. Remove the one screw ⑯ reatining the transister.

Top View

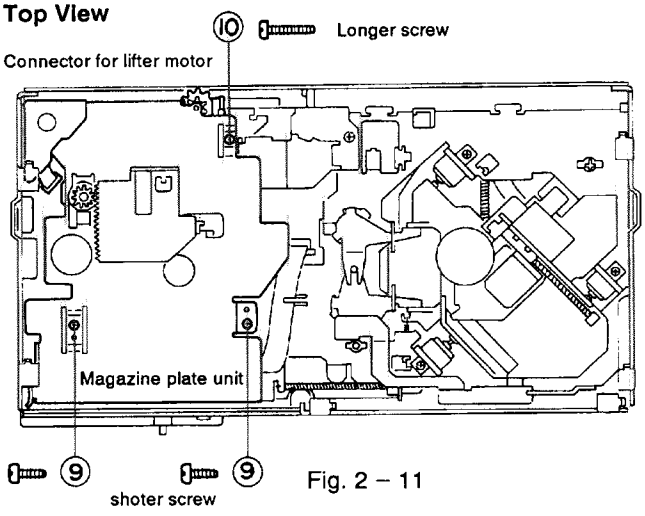


Fig. 2 – 11

Top View

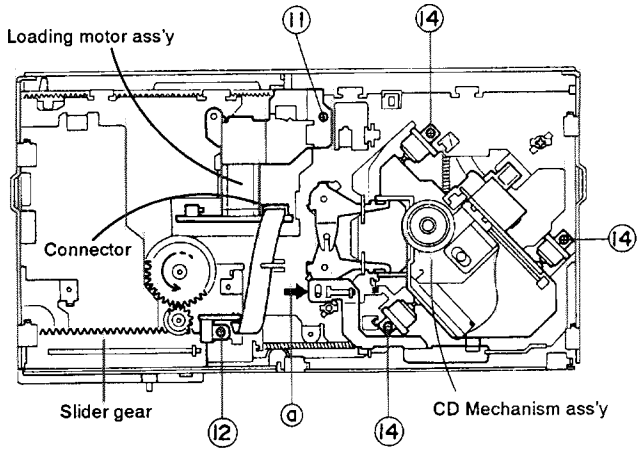


Fig. 2 – 12

Bottom View

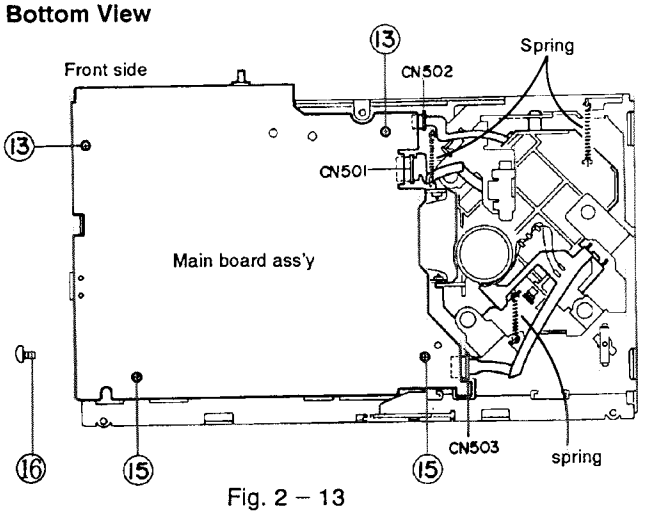


Fig. 2 – 13

■ Note When assembly

◆ Up/down gear position during chassis assembly

Install the center holes of the up/down gear and slider gear so that they are vertically aligned.

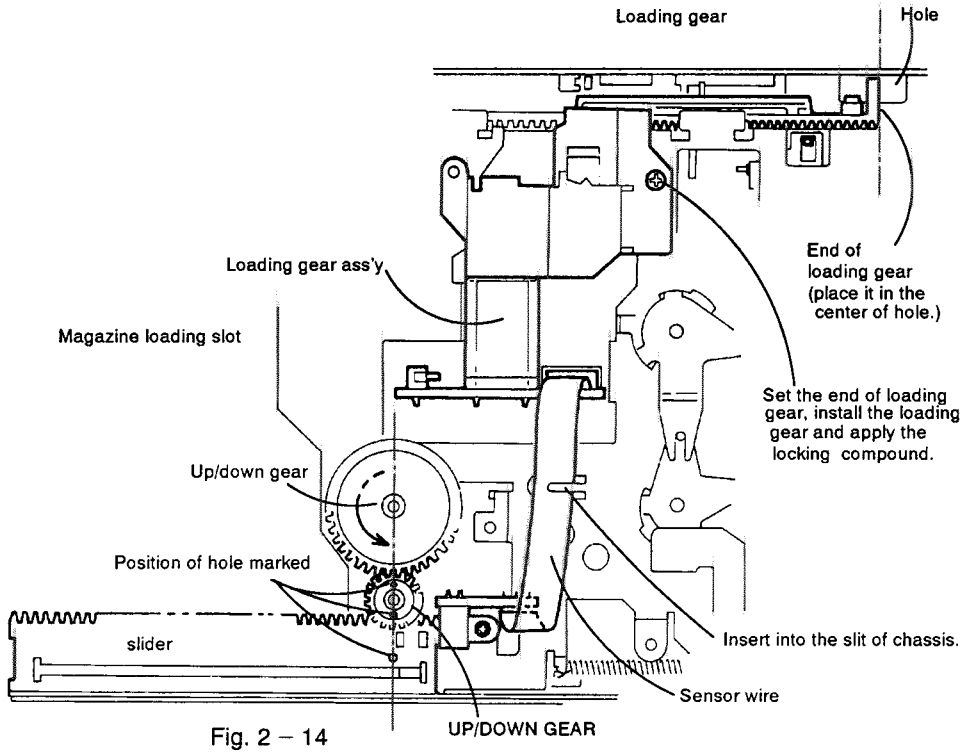


Fig. 2 – 14

◆ Gear position when assembling the magazine plate unit

1. Align the gear positions of magazine plate unit ass'y with each other and install the gears in the chassis.
2. Note when installing the chassis.

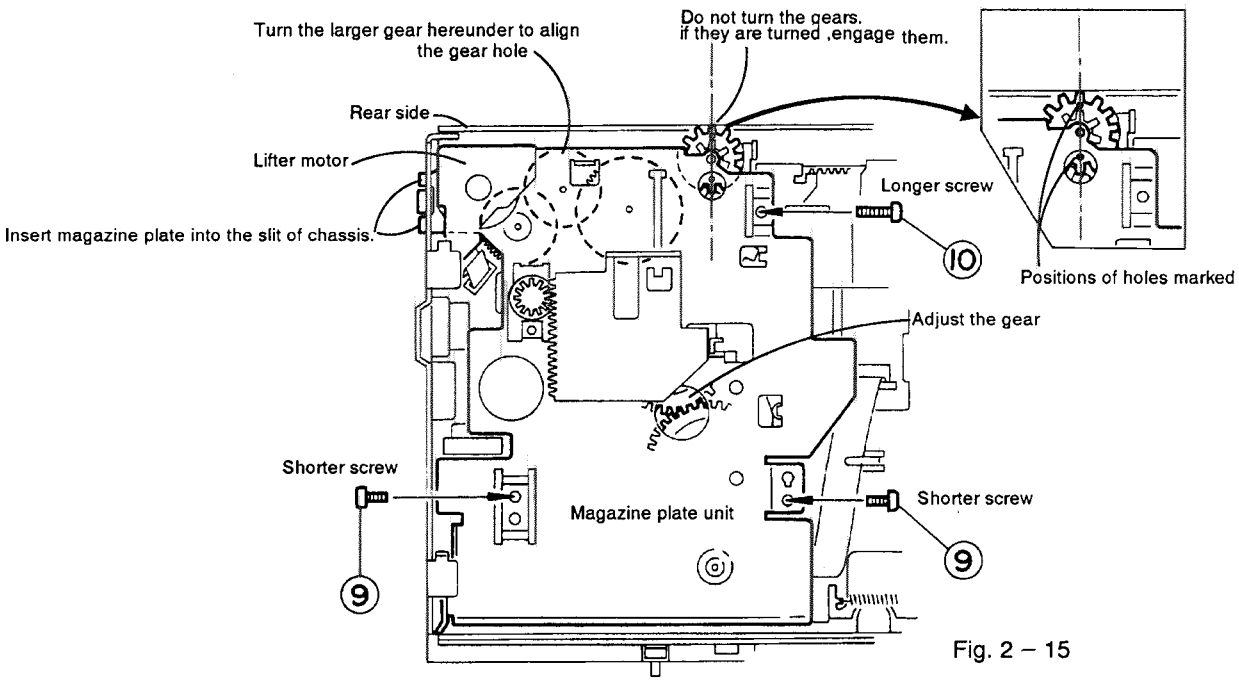


Fig. 2 – 15

◆ CD Mechanism Ass'y

Procedure

1. Check that four suspension springs ㉜ and ㉝ are installed onto the CD mechanism chassis.
2. Check dampers' ㉚ installation and direction.
3. Press the flexible P.C.B. in the specified position.
4. Install section Ⓐ onto the chassis.
5. Set suspension spring Ⓒ in the chassis hole.
6. Assemble the CD mechanism unit while pressing section Ⓑ and set the remaining three suspensions according to the chassis guide.
7. Install the damper to the chassis.

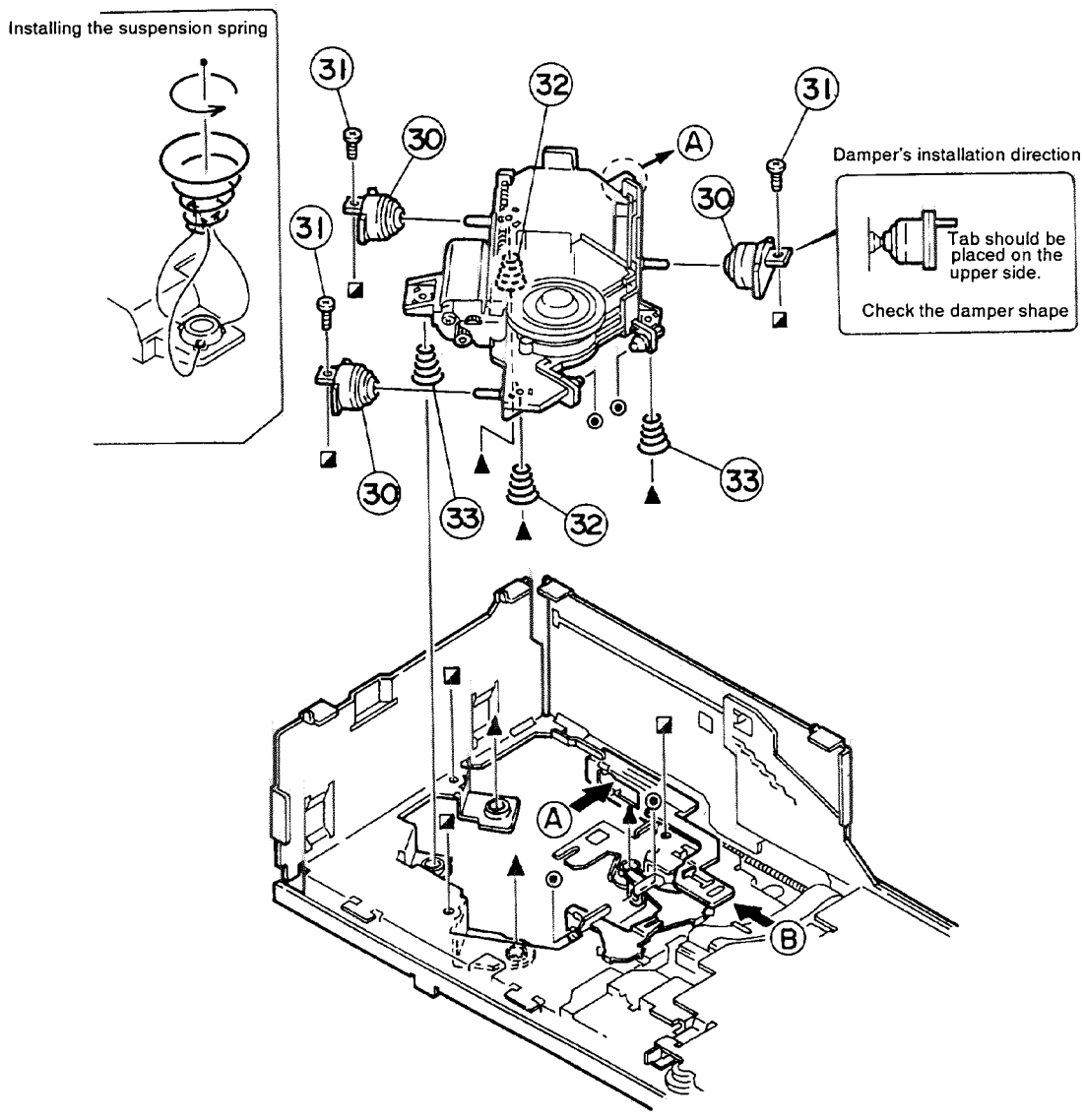


Fig. 2 – 16

◆ Installing the Lifter and Rear Panel

1. Check the gear position of magazine plate.
2. Press the lifter into the hook, then install the lifter's front side to the uppermost position.
3. Install the lifter sensor flexible onto the motor P.C.B.
4. Set the rear panel slider to the near CD mechanism.
5. Use your finger to fix the rear panel ass'y slider.
6. Engage the lifter at the uppermost position of rear panel ass'y.
7. Install the rear panel and check that the end of slider gear and gear mark are aligned.

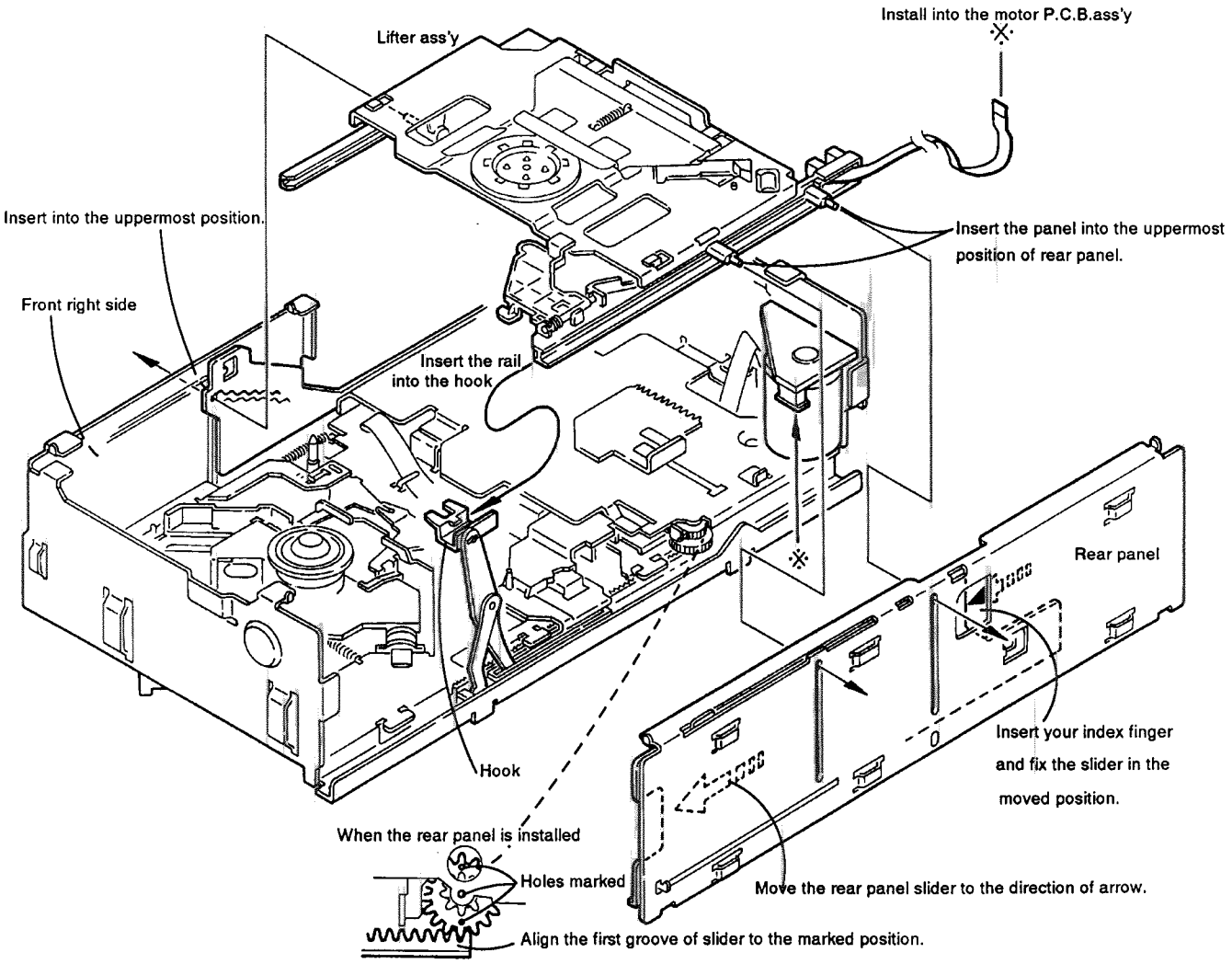


Fig. 2 – 17

3 Main adjustment

■ Main adjustment instruments

- ◆ Oscilloscope (Digital oscilloscope (100 MHz))
- ◆ Electronic voltage meter
- ◆ Digital test
- ◆ Tracking offset meter
- ◆ Pulse jitter meter

■ CD measuring disc

- ◆ Standard test disc : JVC CTS-1000
  or
  : MTD-D1

■ Adjustment position view

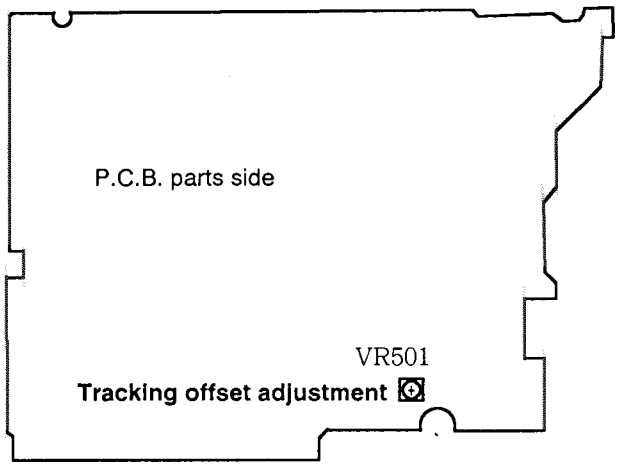


Fig. 3 – 1

■ P.C.B.test point view(pattern side)

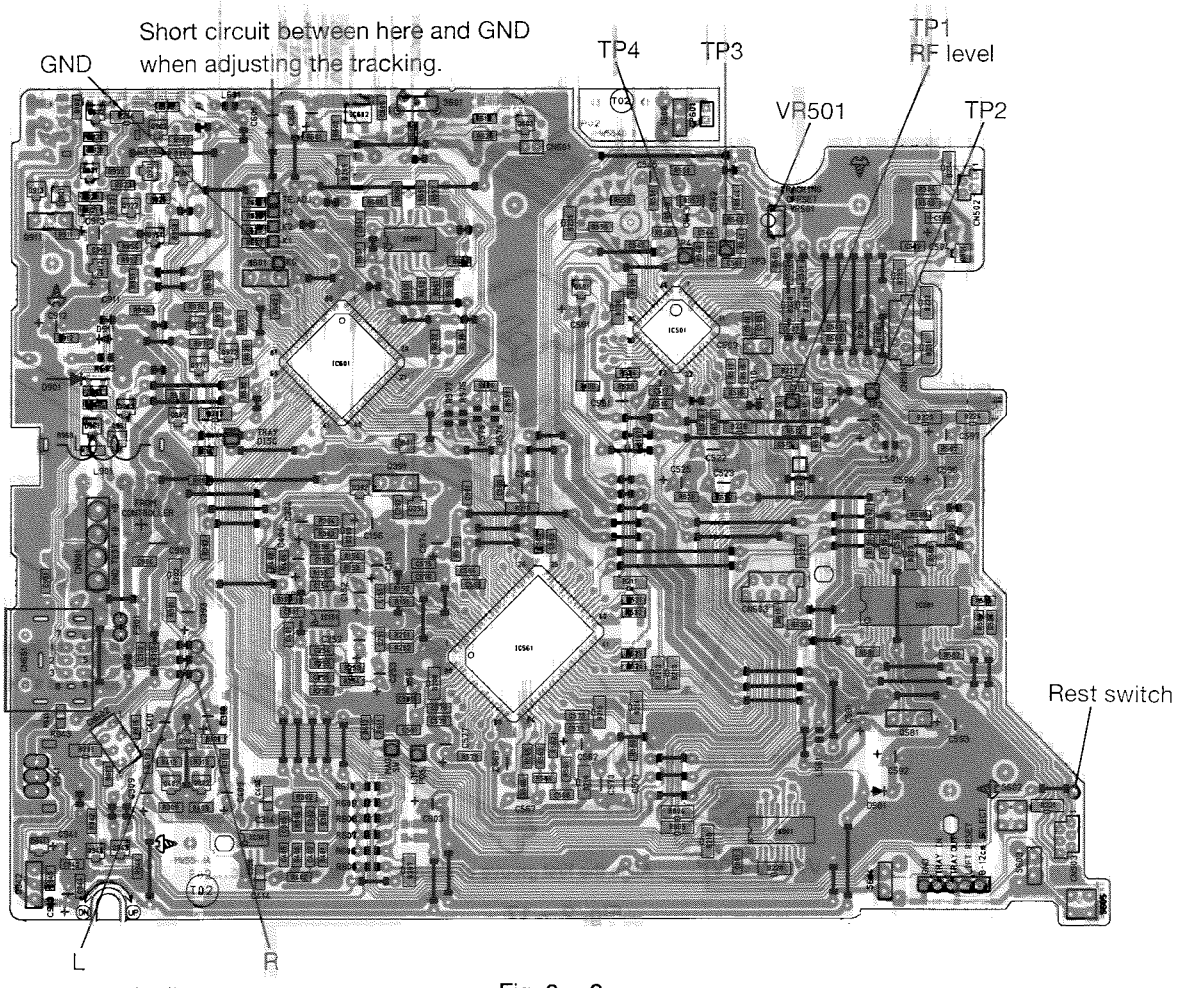
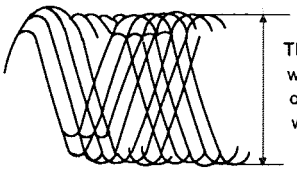
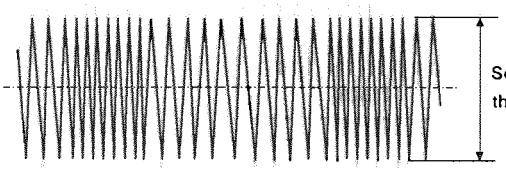


Fig. 3 – 2

Items	Conditions	Adjustment and Confirmation procedure	Standard Value	Adjusting
1. Jitter check	Measuring instrument Oscilloscope Test point TP1: Hot side TP2: GND side	Connect the jitter meter between TP1 and TP2 and when test disc (track 1) is played, confirm that the meter reading is 26n-sec or less.	26n-sec or less	
2. RF level (eye pattern) check	Measuring instrument Oscilloscope	Connect the oscilloscope between TP1 and TP2 and when test disc (track 1) is played, confirm that peak-to-peak value of oscilloscope waveform is within 1.2V +0.3V. Eye-pattern waveform  The maximum value of this waveform should be in the range of specifications and the waveform should be clear	within 1.2V +0.3V.	
3. Tracking offset adjustment	Measuring instrument Oscilloscope	1. Connect the oscilloscope between TP2 and TP3. 2. Play test disc (track 1). 3. Short circuit between TP4 and TP2 during CD play. 4. Connect pin 79 (TP:TE ADJ) of IC601 ((microprocessor) to the GND. 5. Adjust VR501 so that the waveform is vertically symmetrical with respect to zero level. (Use a direct coupling oscilloscope input.) Tracking offset waveform  Set the center of P-P to the zero level	Set the center value of waveform to the zero level.	VR501
4. Play output level checking	Measuring equipment Electronic voltage meter	When test disc (track 1) is played, check that the output level is 1.45V +0.3V (with 20-kohm load).	1.45V ± 0.3V	
5. Outermost circumference		Directly access the outer circumference track 31, check that play is performed normally and that abnormalities including sound skipping do not occur.		
6. Operation checking from outer to inner circumference		Skip from the outer circumference track to track 1 and check the time until play starts. Normally it is less than 10 seconds.	Less than 10 seconds	

4 Troubleshooting chart of CD player section

■ Flowchart Readings of TOC (Table of Contents)

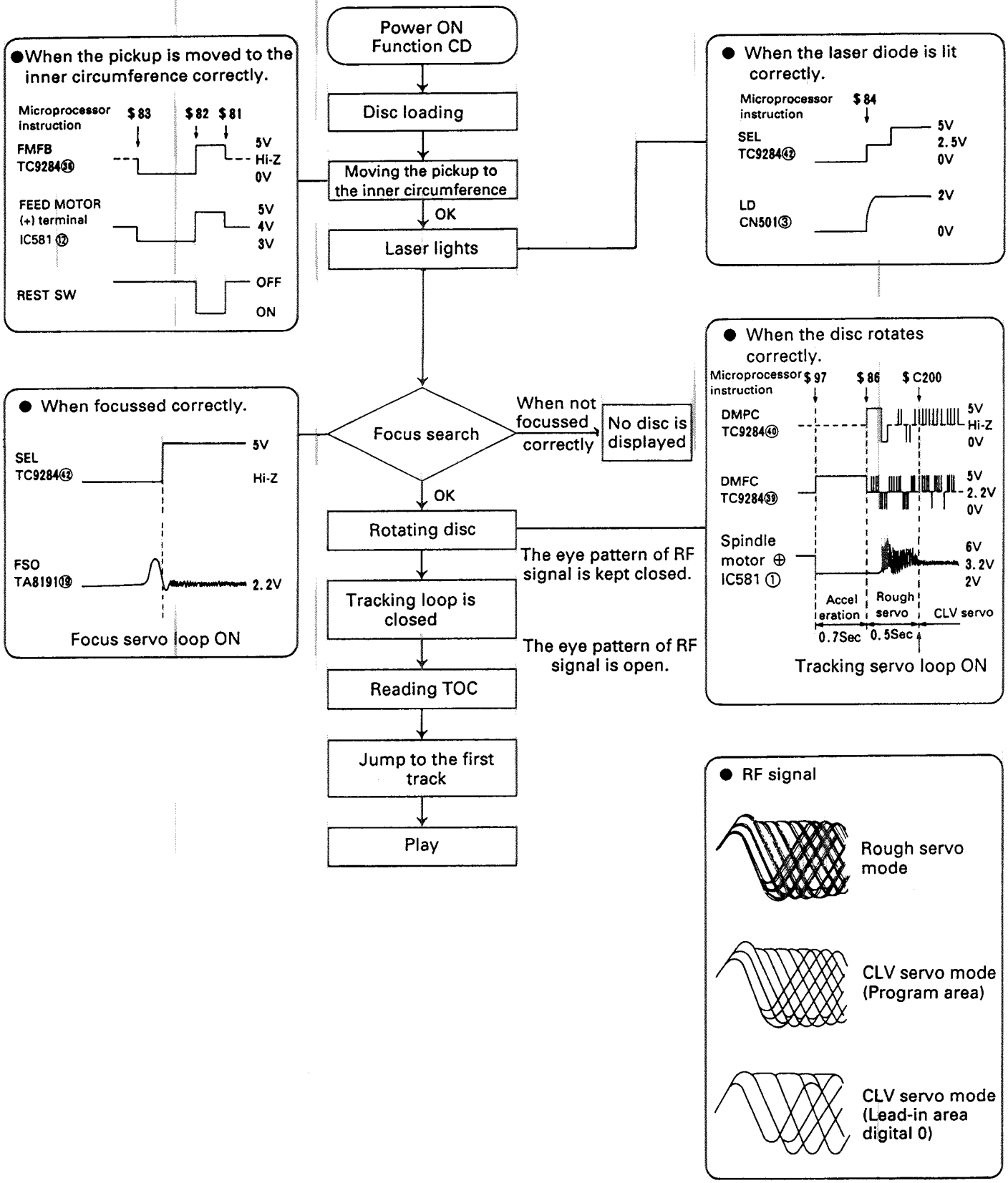


Fig. 4-1

■ General Section

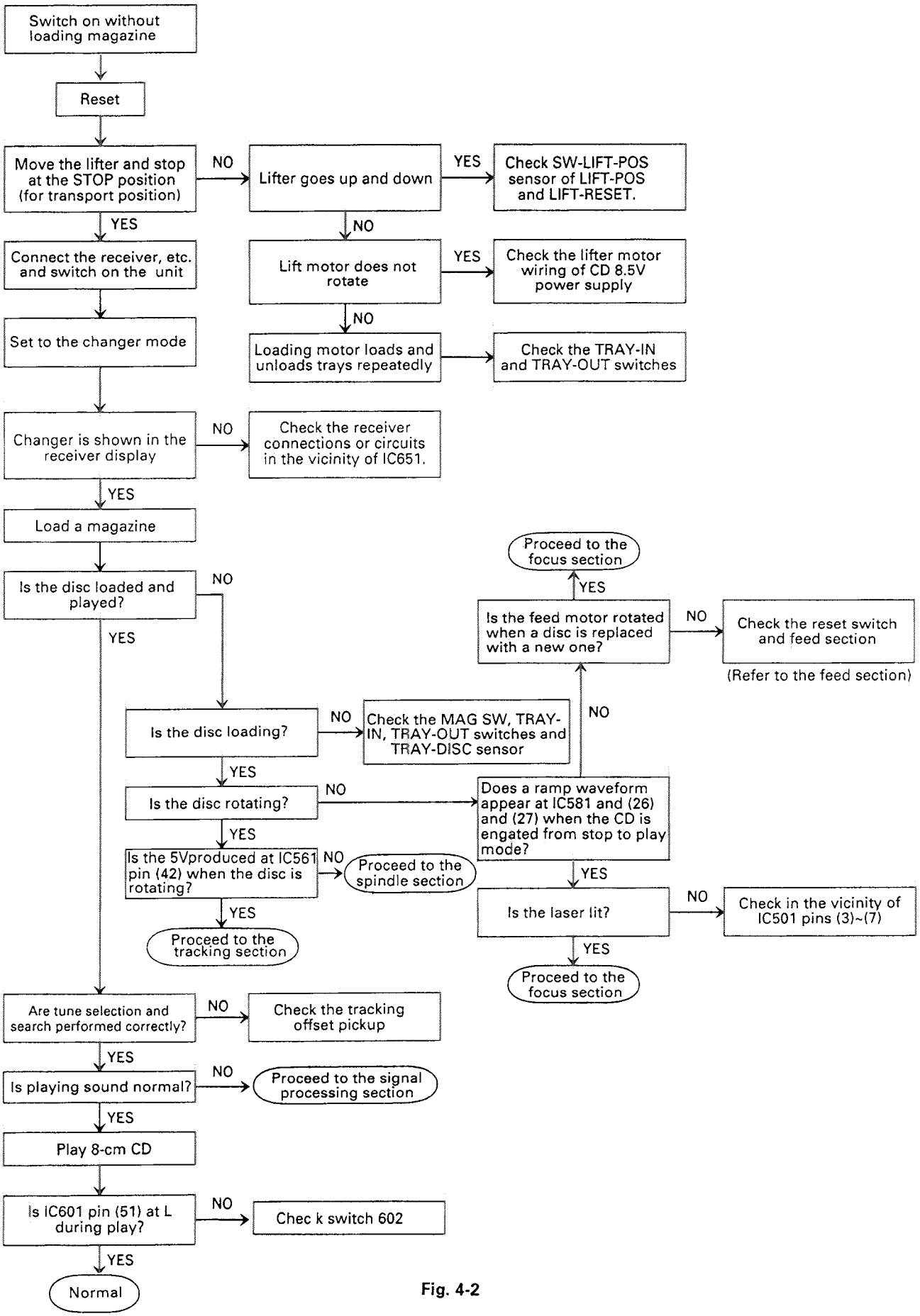


Fig. 4-2

■ Feed Section

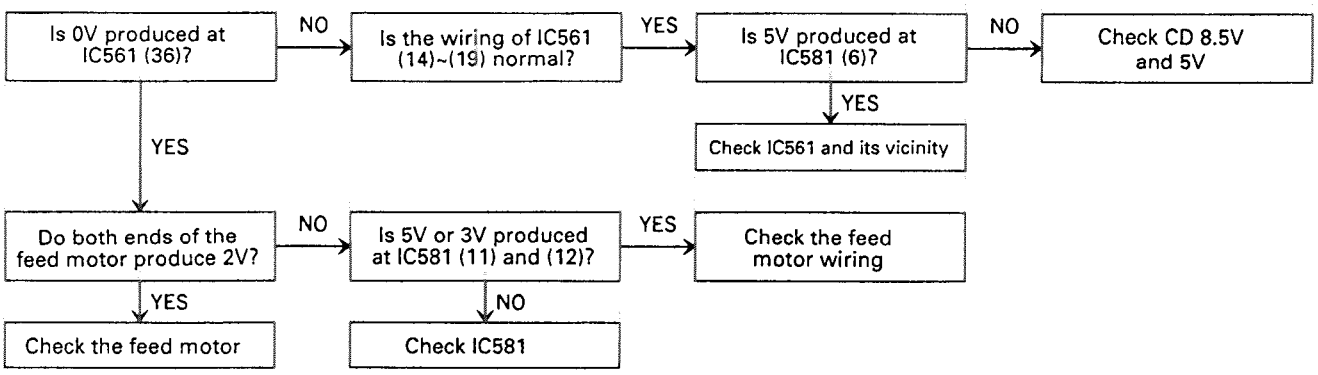


Fig. 4-3

■ Focus Section

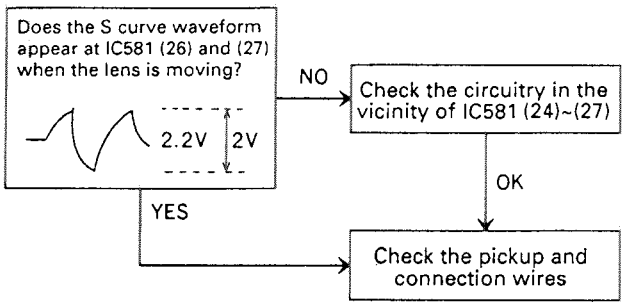


Fig. 4-4

■ Spindle Motor Section

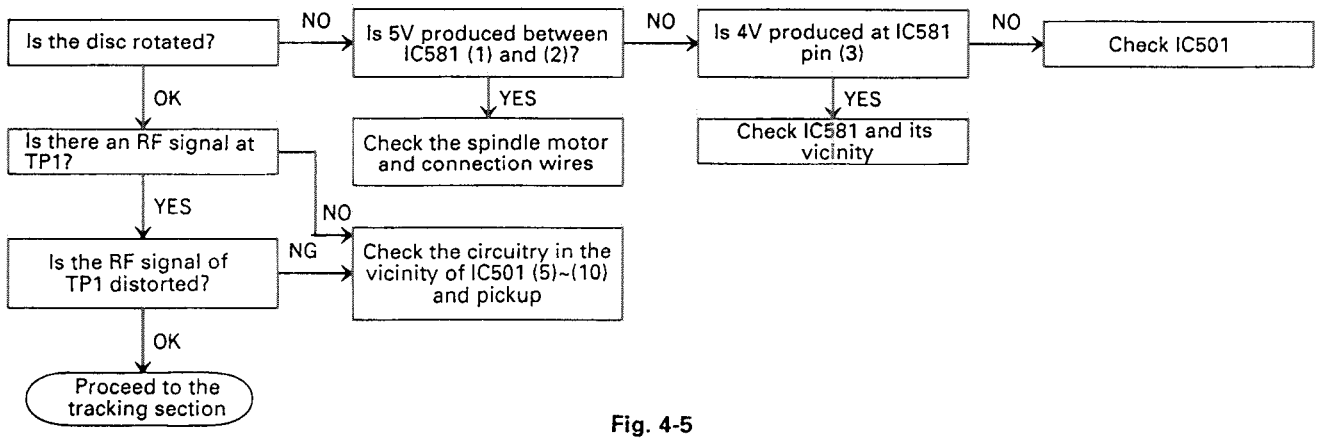


Fig. 4-5

■ Tracking Section

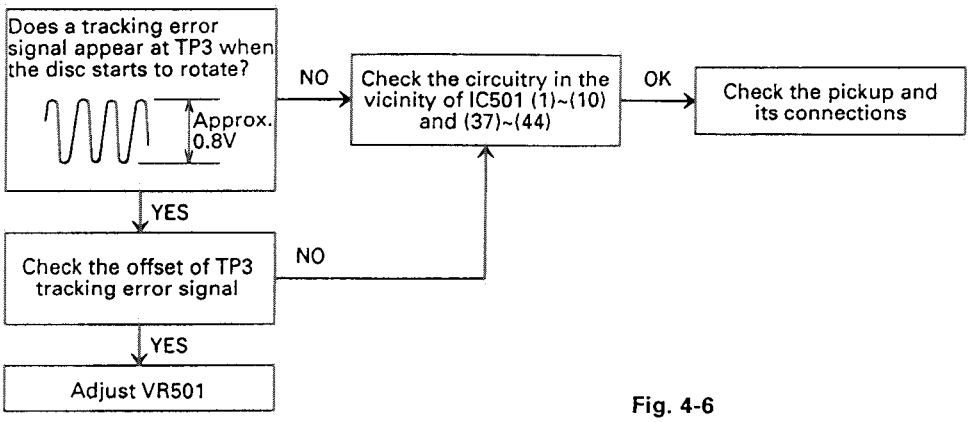


Fig. 4-6

■ Signal Processing Section

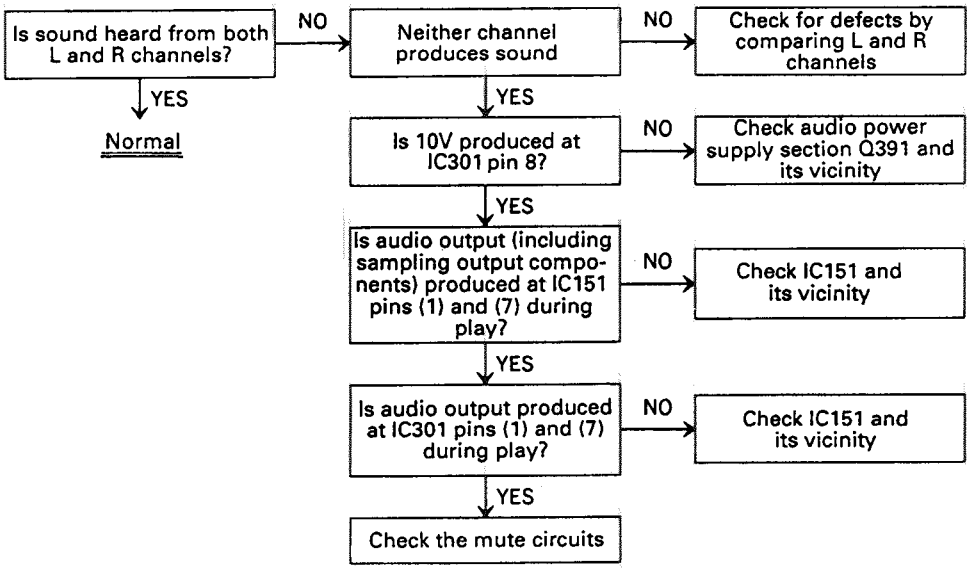


Fig. 4-7

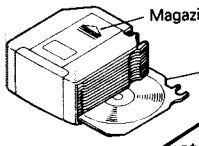
KD-MK66 repair method for error indication

Error indication	Repair method
◆ E1: Eject error	The magazine cannot be ejected until S701 (magazine SW) is switched off. Can the magazine be ejected? OK →①, NG → ② ① Even when the magazine is ejected completely, magazine SW S701 is not switched off. ② Check if the magazine is caught by the mechanism.
◆ E2: Lifter motor error	The lifter does not come up or down when changing a disc or ejecting the magazine. After resetting, does the lifter move? OK →③, NG →④ ③ When the lifter passes through the required disc position, check the lift position input (IC601 pin 44 to Q701). When the lifter does not reach the required disc position, check the mechanism (mainly lifting mechanism). ④ Check if the drive voltage is applied to the motor terminal. If the voltage is applied, check the lifting mechanism. If not, separate the motor from the circuit and check again if the voltage is applied. When the voltage is applied, check that the lift motor's armature resistance (resistance across the motor terminals) is about 12 ohms. If it is extremely low, the motor is defective.
◆ E3: Tray motor error	Does error occur when the disc is pulled out from the magazine? Or does it occur when the disc is returned to the magazine? If it occurs when the disc is pulled out, check if the MAG SW and TRAY OUT SW are set to ON. If it occurs when the disc is returned, check as follows. Does the mechanism operate to return the required tray? OK →⑤ NG →⑥, ⑦ ⑤ Is a signal input to the TRAY IN input (IC601 pin 54)? (L when the tray is returned.) If no signal is input, check the pattern and SW. ⑥ When the lifter stops at the desired disc position, is the voltage applied to the tray motor terminal? When the voltage is applied, check the tray return mechanism. If not, check the motor driver, computer - controlled line and tray motor's armature resistance(about 20 ohms). ⑦ When the lifter does not reach the desired disc position, check the TRAY/DISC sensor.
◆ E4: Pickup return error	When ejecting, does the feed return the inside periphery? OK →⑧ NG →⑨, ⑩ ⑧ Check the Rest SW. ⑨ If the feed gear turns, check the feed mechanism. ⑩ If the feed gear does not turn, check the motor driver and pattern.

Magazine is not ejected. ← Take it out forcibly.

To perform easily →

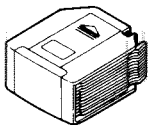
Remove the top/bottom cover.



During tray storage

Is the tray stored in the magazine? Check with your eyes.

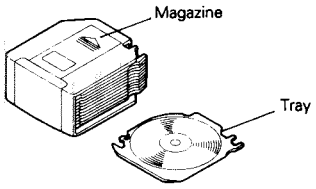
YES


Tray storage complete

NO

Is the tray being stored? Is it completely ejected.

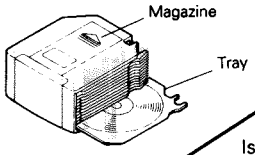
Completely ejected.

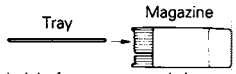


When the tray is ejected.

Turn the lifter motor with the driver to adjust the height and check the scale. (With the power turned on, when this is performed electrically, the tray is stored automatically to the 4th slot.)

During storage.

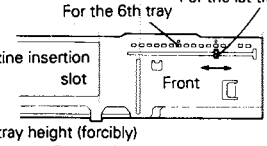




The height for tray storage is incorrect.

Is the tray aligned with the height of the storage slot in the magazine? Does the magazine hit the tray?

The height unmatched.

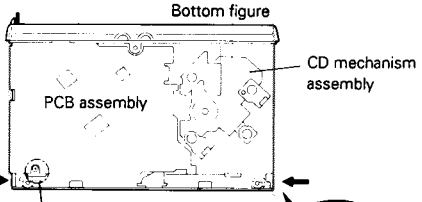


Method to match the tray height (forcibly)

The height for tray storage is adequate.

The height matched.

Bottom figure



Push the loading rack ⑫ to eject the tray from the magazine.

Push the loading rack ⑫ to store the tray in the magazine.

When there is not magazine.

Check if the tray height matches the storage position. If matched, push the loading rack ⑫ to store the tray in the magazine.

Eleject the magazine forcibly by inserting the steel measure, etc. under the magazine. (It is pushed out with a spring.)

When the magazine is first taken out, check that the tray is set to more than second slot. If so, push the loading rack ⑫ to eject the tray.

When the tray is at the first slot.

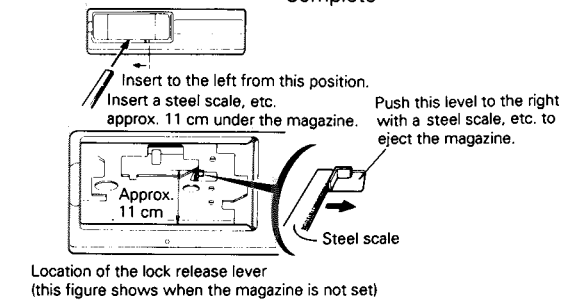
Turn the lifter motor with the driver to set the tray for more than second slot. Then, push the loading rack ⑫ to eject the tray.

Complete

Complete

Method to eject the magazine forcibly.

Complete



Location of the lock release lever (this figure shows when the magazine is not set)

5 Descrptions of pin function

■ IC 601 UPD78052GC Microprocessor

Pin No.	Port names	I/O	Pin name	Descriptions	Connection to	Active
1	P15/ANI5	I		(Connect to GND)		
2	P16/ANI6	I		(Connect to GND)		
3	P17/ANI7	I		(Connect to GND)		
4	AVSS	–	GND	GND		
5	P130/AN00	I		(Connect to GND)		
6	P131/AN01	I		(Connect to GND)		
7	AVREF1	–	VCC	5V power supply		
8	P70/SI2/RXD	I		(Connect to GND)		
9	P71/SO2/TXD	I		(Connect to GND)		
10	P72/SCK2/ASCK	I		(Connect to GND)		
11	P20/SI1	I		(Connect to GND)		
12	P21/SO1	I		(Connect to GND)		
13	P22/SCK1	I		(Connect to GND)		
14	P23/STB	I		(Connect to GND)		
15	P24/BUSY	O	JB_I/O	JVC BUS in/output control (L: Input)	74HC126	
16	P25/SI0/SB0	I	JB_SI	JVC BUS data input	74HC126	
17	P26/SO0/SB1	O	JB_SO	JVC BUS data output	74HC126	
18	P27 /SCK0	I/O	JB_SCK	JVC BUS clock in/output	74HC126	
19	P40/AD0	I		(Connect to GND)		
20	P41/AD1	I		(Connect to GND)		
21	P42/AD2	I		(Connect to GND)		
22	P43/AD3	I		(Connect to GND)		
23	P44/AD4	I		(Connect to GND)		
24	P45/AD5	I		(Connect to GND)		
25	P46/AD6	I		(Connect to GND)		
26	P47/AD7	I		(Connect to GND)		
27	P50/A8	I	EJ_MODE	Eject mode (L: EJECT. Without switch)		
28	P51/A9	I	TEMP_DET	Temperature detection pin (L: High temperature)		
29	P52/A10	O	PWR_CONT	Power control		H
30	P53/A11	O	EJ_LED	Eject or power display		H
31	P54/A12	I		(Connect to GND)		
32	P55/A13	I		(Connect to GND)		
33	VSS	–	GND	GND		
34	P56/A14	O	BUCK	CD LSI data clock	TC9284	
35	P57/A15	O	CCE	CD LSI chip enable	TC9284	
36	P60	I/O	BUS3	CD LSI data 3 (Open drain output)	TC9284	
37	P61	I/O	BUS2	CD LSI data 2 (Open drain output)	TC9284	
38	P62	I/O	BUS1	CD LSI data 1 (Open drain output)	TC9284	
39	P63	I/O	BUS0	CD LSI data 0 (Open drain output)	TC9284	
40	P64/RD	O		(Open)		
41	P65/WR	O		(Open)		
42	P66/WAIT	O	LSI_RESET	CD LSI reset	TC9284	L
43	P67/ASTB	O		(Open)		
44	P30/TO0	I	LIFT_POS	Lifter height detection sensor	Mechanism	
45	P31/TO1	I	MAG_SW	Magazine switch L: when loading	Mechanism	
46	P32/TO2	O	TRAY_M_1	Tray motor control	LB1831	
47	P33/TI1	O	TRAY_M_2	Tray motor control	LB1831	
48	P34/TI2	O	LIFT_M_2	Lift motor control	LB1831	
49	P35/PCL	O	LIFT_M_1	Lift motor control	LB1831	
50	P36/BUZ	I	REST_SW	Rest switch L: Home position	Mechanism	L
51	P37	I	8/12_SW	8-cm CD detection switch L: 8 cm	Mechanism	
52	P120/RTP0	I	LIFT_RES	Lifter reset switch	Mechanism	H
53	P121/RTP1	I	TRAY_OUT	Tray eject switch L: Ejection	Mechanism	L
54	P122/RTP2	I	TRAY_IN	Tray insertion switch L: Insertion completion	Mechanism	L
55	P123/RTP3	I	TRAY_DISC	Tray disc detection sensor	Mechanism	
56	P124/RTP4	O	_NATIVE	Native mode display (H: Native mode)		H
57	P125/RTP5	O	A_MUTE	Audio mute signal		L
58	P126/RTP6	O	MUTE_PWR	Power control for mute		H
59	P127/RTP7	O	CD_ON	CD power control H: ON		H
60	RESET	I	RESET	Reset input		L
61	P00/INTP0/T00	I	TEST_RUN	Test running pin (for line test)		L
62	P01/INTP1/T01	O	JB_BUSout	BUS output for JVC BUS		H
63	P02/INTP2	I	PWR_SW	CONT + B detection input		H
64	P03/INTP3	I	PWR_DET	Power voltage detection input		H
65	P04/INTP4	I	EJECT_SW	Eject switch (When EJ mode is L, it can be also used as a DOOR SW)		L
66	P05/INTP5	I	DOOR_SW	Door switch		L
67	P06/INTP6	I	JB_INT	Interruption of JVC BUS communication	74HC126	H
68	VDD	–	VCC	5V power supply		
69	X2	O	X2	Oscillator (4.000 MHz)		
70	X1	I	X1	Oscillator (4.000 MHz)		
71	IC (VPP)	–	GND	GND		
72	XT2	O	XT2	(Open) * Set the subclock feedback resistor to off.		
73	XT1/P07	I	XT1	(Connect to GND)		
74	AVDD	–	VCC	5V power supply		
75	AVREF0	–	ON_B	5V power supply when power is switched on.		
76	P10/ANI0	I	KEY1	Key input 1 (A/D input) (for line test)		
77	P11/ANI1	I	KEY2	Key input 2 (A/D input) (for line test)		
78	P12/ANI2	I	KEY3	Key input 3 (A/D input) (for line test)		
79	P13/ANI3	I	TE_ADJ	For tracking adjustment. L: Q timer off		
80	P14/ANI4	I		(Connect to GND)		

6 Block diagram

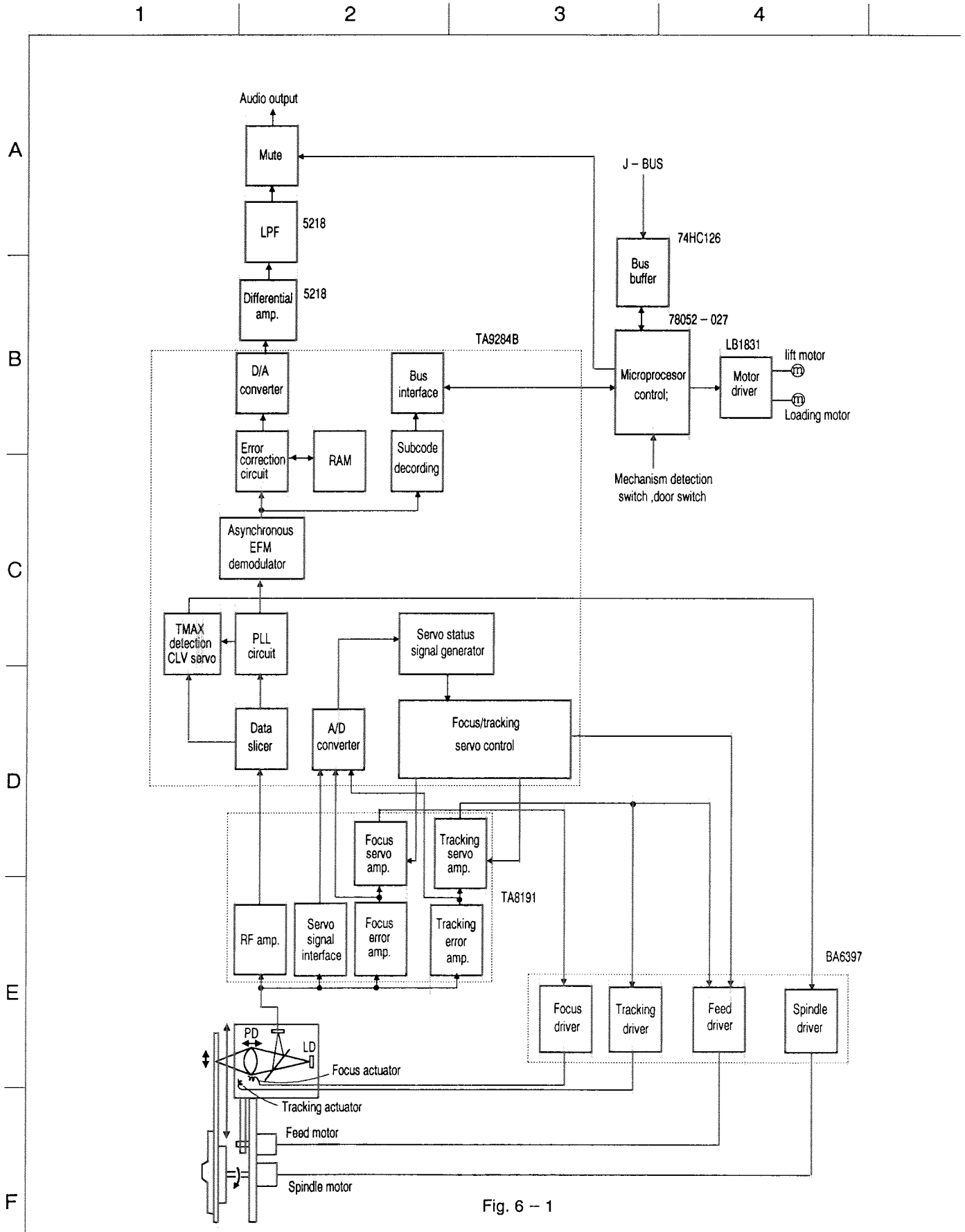


Fig. 6 – 1

7 Wiring connections

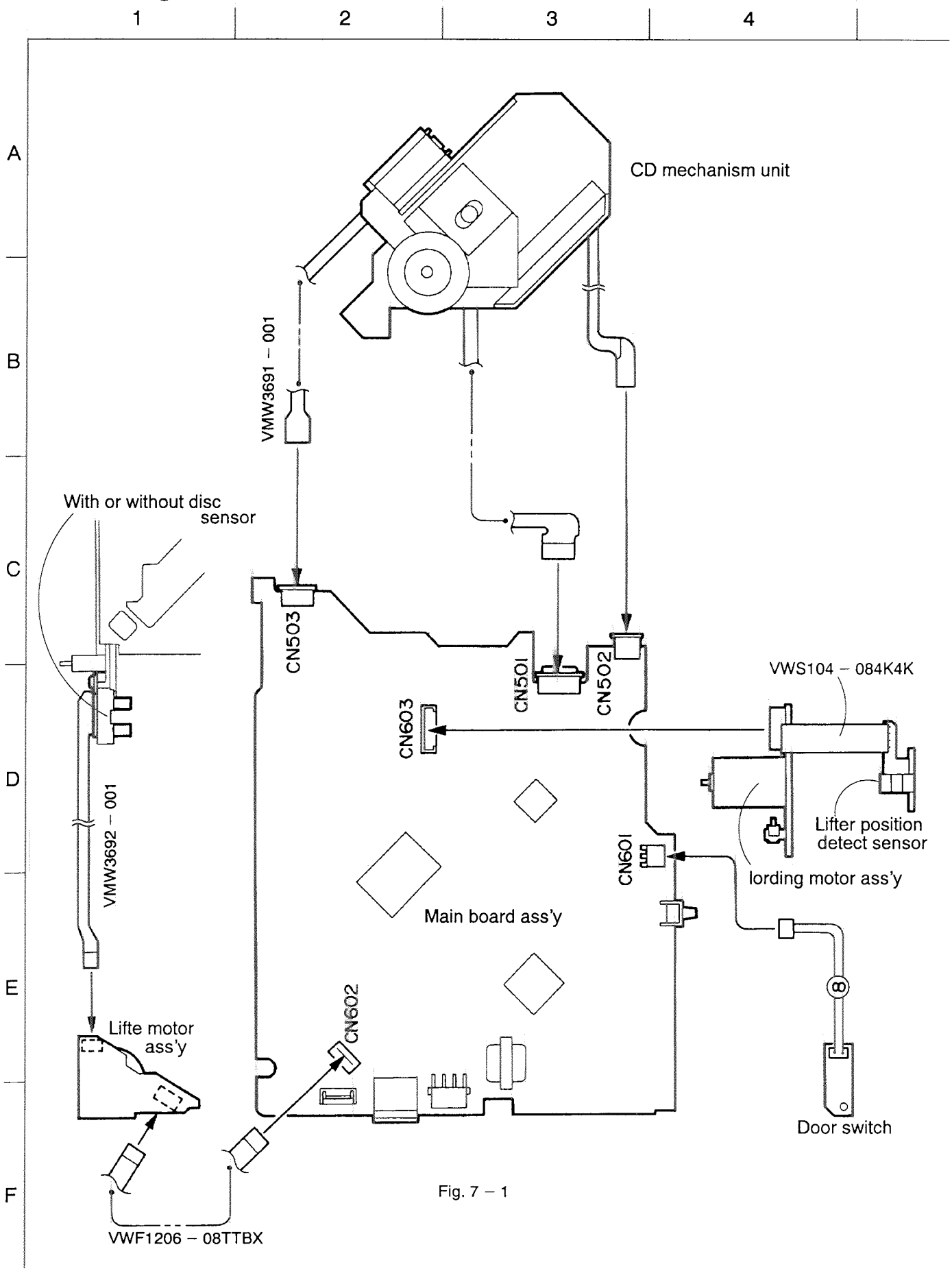
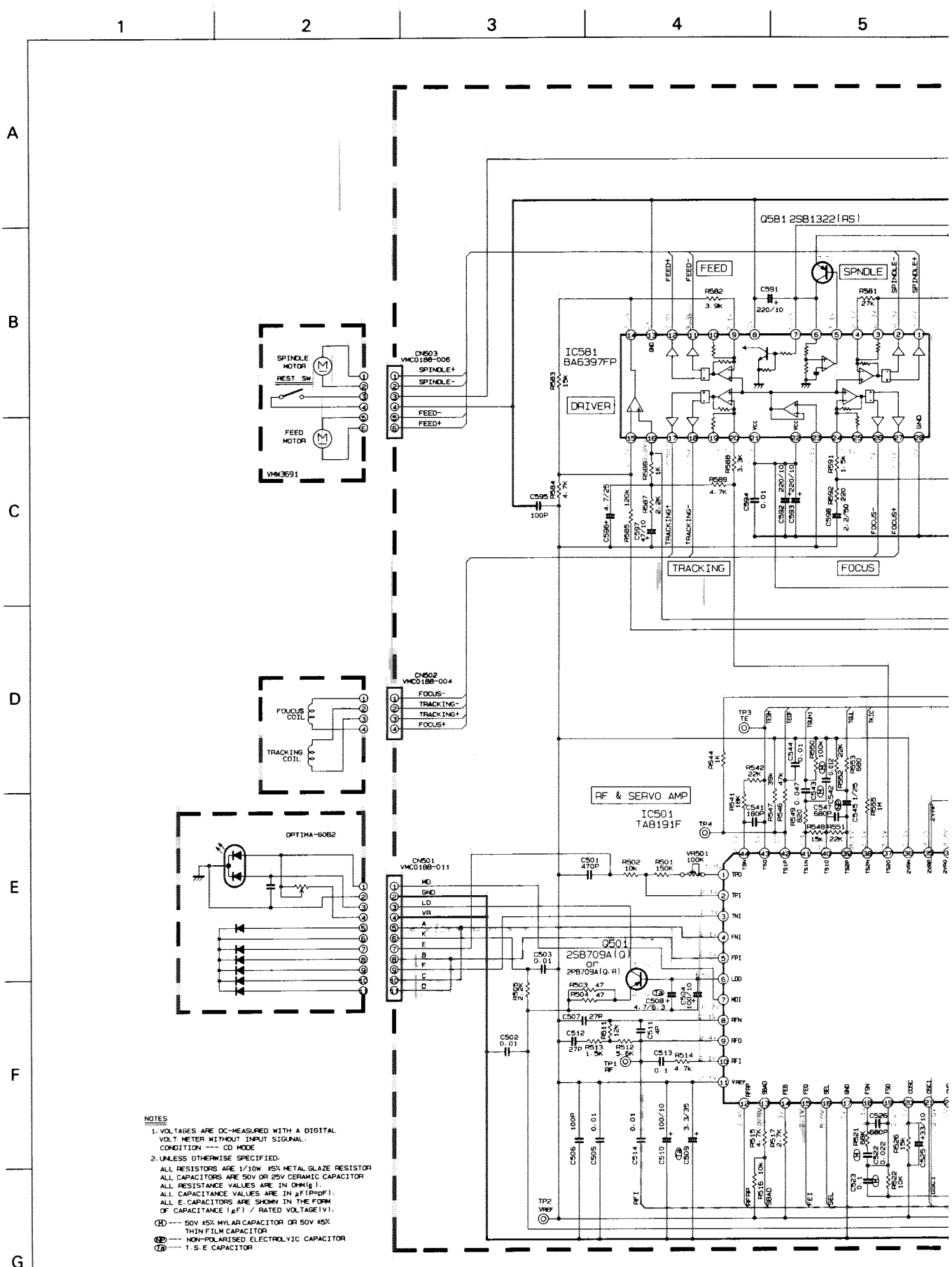


Fig. 7 – 1

8 Standard schematic diagram



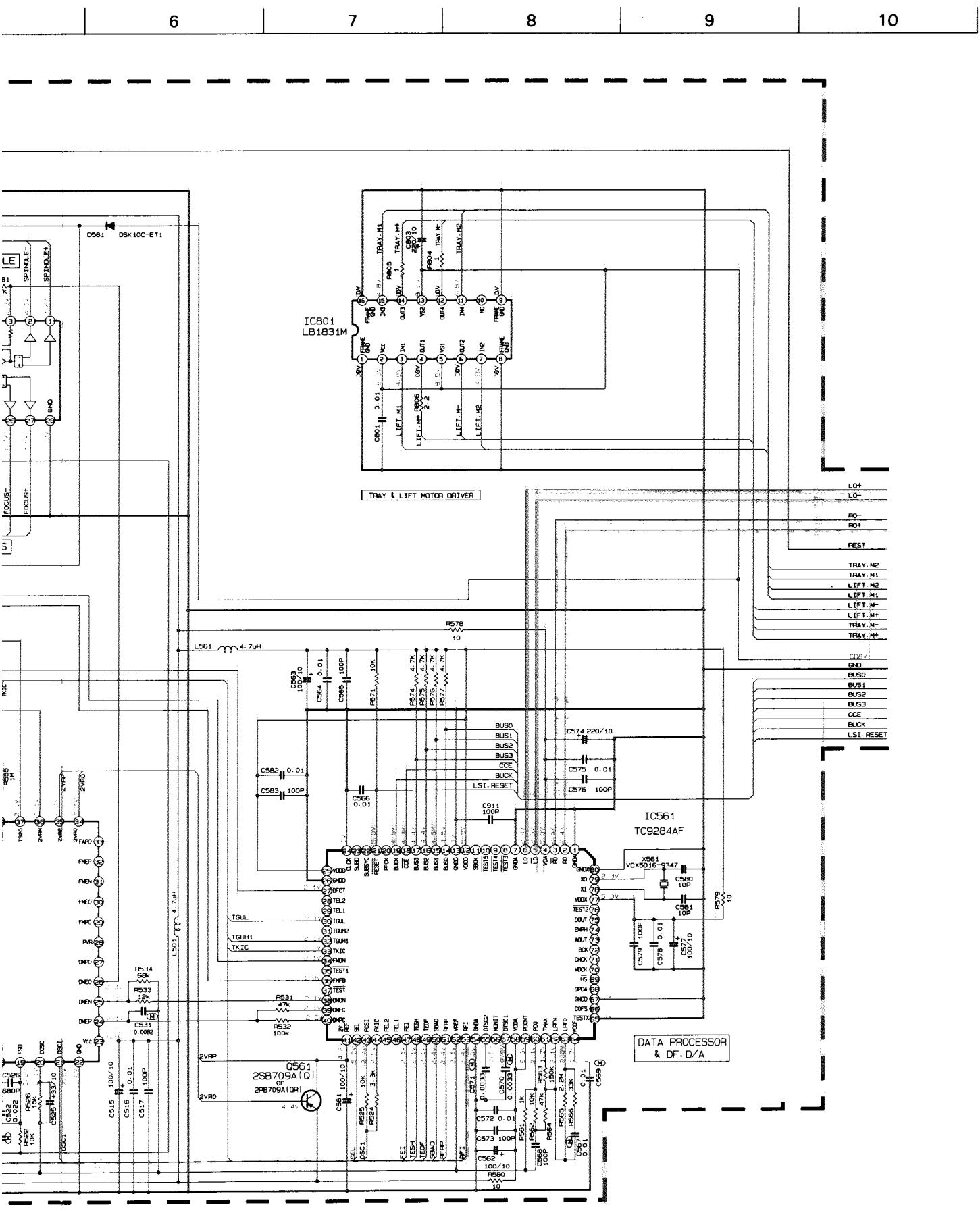
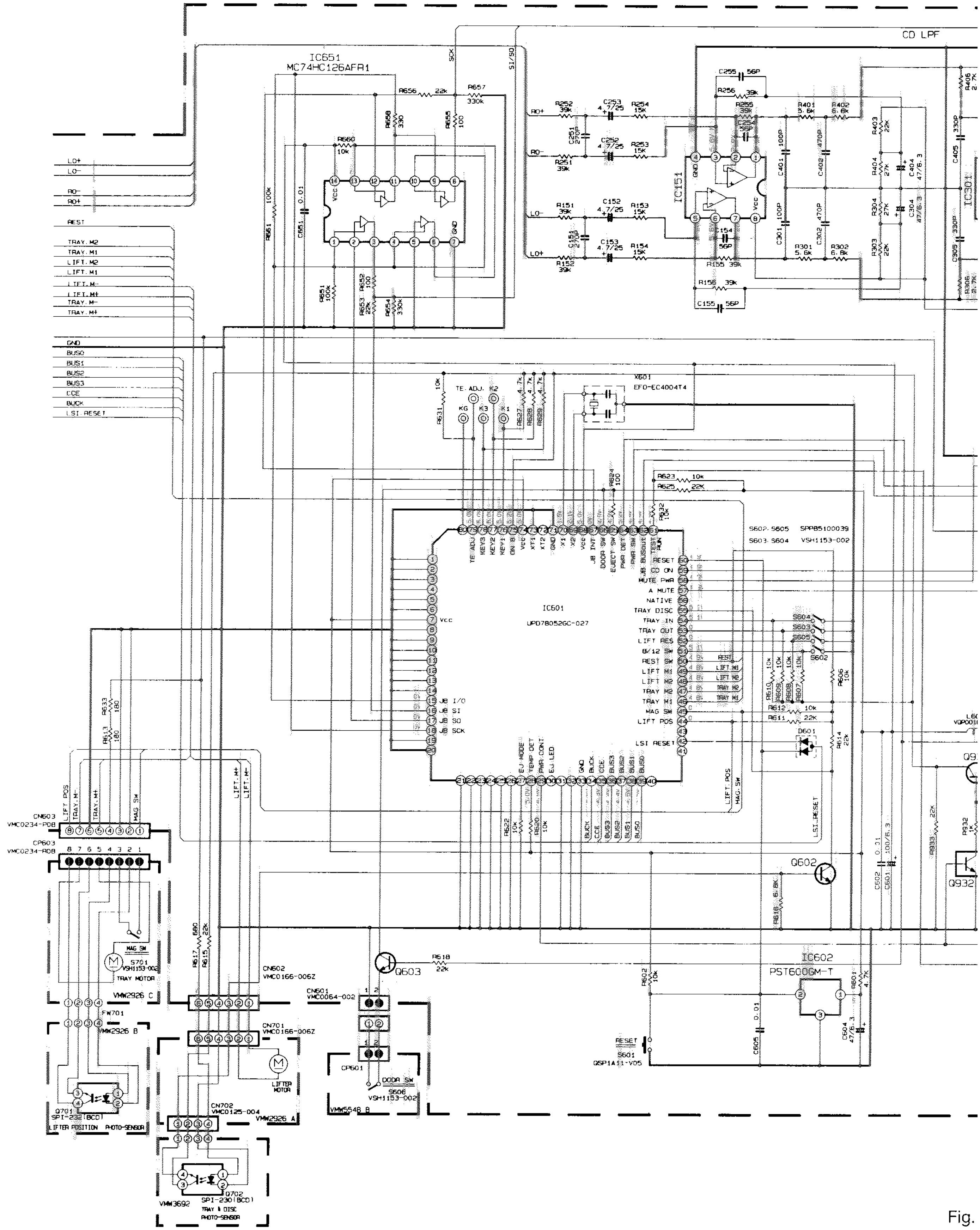

6
7
8
9
10
IC801
LB1831M
TRAY & LIFT MOTOR DRIVER
IC561
TC9284AF
DATA PROCESSOR
& DF. D/A
Q561
2SB709A(Q)
or
2SB709A(QR)
X561
VCX5016-9347
L561 4.7uH
L503 4.7uH
R578 10
R579 10
R580 10
C574 220/10
C575 0.01
C576 100P
C580 10P
C581 10P
C582 0.01
C583 100P
C911 100P
R534 68K
R533 1M
R531 47K
R532 100K
C531 0.0082
C515 100/10
C516 0.01
C517 100P
C526 680P
C522 0.022
R526 15K
R522 10K
R524 3.3K
R525 10K
C561 100/10
C562 100/10
C570 0.0033
C571 0.0033
C572 0.01
C573 100P
C568 100P
C569 0.01
R563 150K
R564 47K
R565 2.2M
R566 33K
R561 1K
R562 10K
C579 100P
C578 0.01
C577 100/10
C563 100/10
C564 0.01
C565 100P
R571 10K
R574 4.7K
R575 4.7K
R576 4.7K
R577 4.7K
C566 0.01
C567 0.01
C801 0.01
R805 2.2
C803 220/10
R803 1
R804 1
R806 1
D581 DSK10C-ET1
SPINDLE-
SPINDLE+
FOCUS-
FOCUS+
LO+
LO-
RO-
RO+
RESET
TRAY.M2
TRAY.M1
LIFT.M2
LIFT.M1
LIFT.M-
LIFT.M+
TRAY.M-
TRAY.M+
CDRV
GND
BUS0
BUS1
BUS2
BUS3
CCE
BUCK
LSI.RESET
TGUL
TGUH1
TXIC
2VRP
2VRO
Digital signal line
Analog signal line
L
R

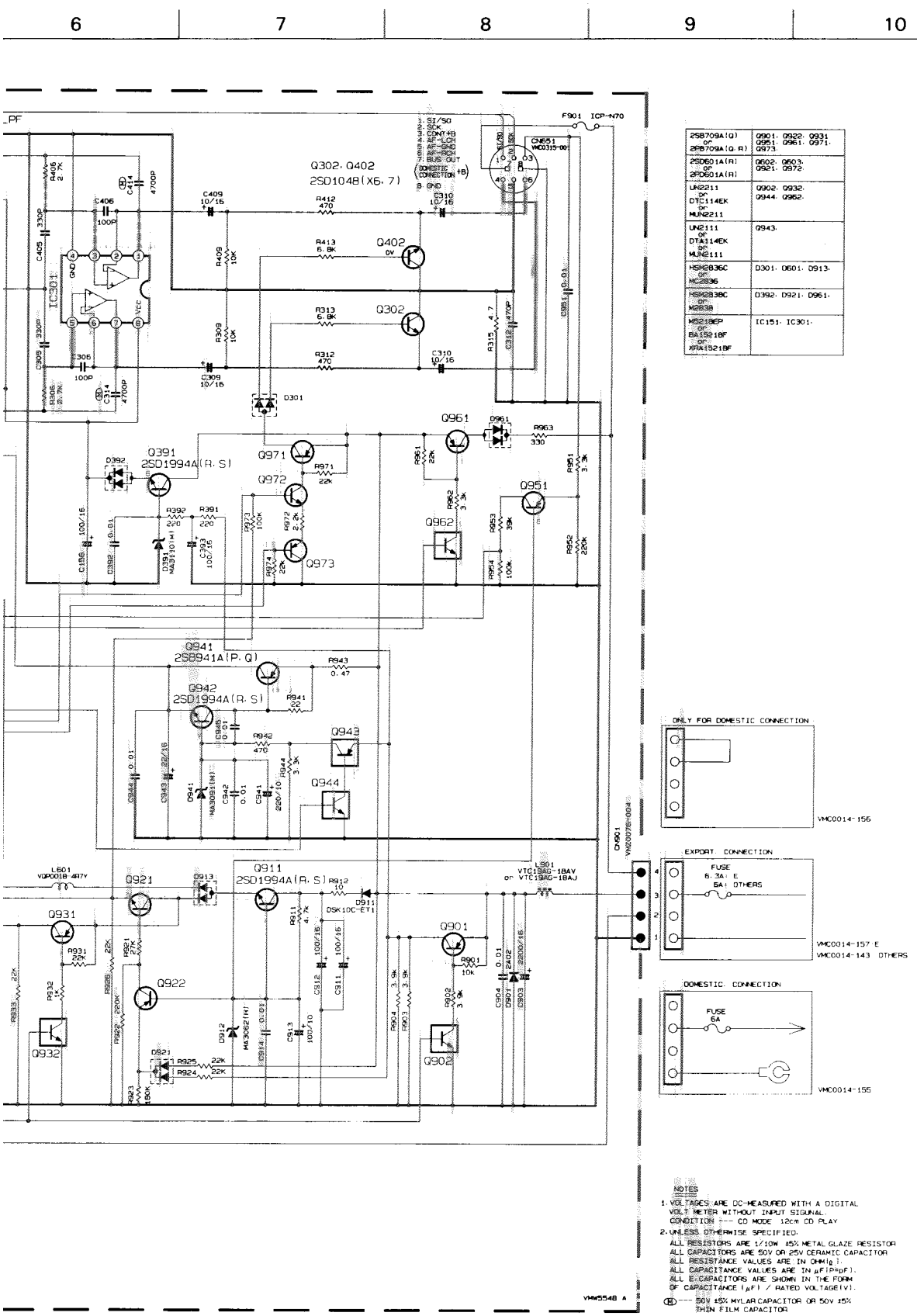
Fig. 8 – 1

1	2	3	4	5



CD LPF
IC651
MC74HC126AFR1
IC151
IC301
IC601
UPD78052GC-027
X601
EFO-EC4004T4
S602, S605 SPPB5100039
S603, S604 VSH1153-002
IC602
PST600GM-T
Q602
Q603
Q932
D601
RESET
S601
QSP1A11-V05
CN603
VMC0234-P08
CP603
VMC0234-R08
MAG SW
S701
VSH1153-002
TRAY MOTOR
VMW2926 C
FW701
VMW2926 B
Q701
SPI-232(BCD)
LIFTER POSITION PHOTO-SENSOR
CN602
VMC0166-006Z
CN701
VMC0166-006Z
LIFTER MOTOR
CN702
VMC0125-004
VMW2926 A
VMW3692
Q702
SPI-230(BCD)
TRAY & DISC PHOTO-SENSOR
CN601
VMC0064-002
CP601
DOOR SW
S606
VSH1153-002
VMW5548 B
LO+
LO-
RO-
RO+
REST
TRAY.M2
TRAY.M1
LIFT.M2
LIFT.M1
LIFT.M-
LIFT.M+
TRAY.M-
TRAY.M+
GND
BUS0
BUS1
BUS2
BUS3
CCE
BUCK
LSI RESET

Fig.



2SB709A(Q) or 2SB709A(Q. R)	Q901. Q922. Q931. Q951. Q961. Q971. Q973.
2SD601A(R) or 2PD601A(R)	Q602. Q603. Q921. Q972.
UN2211 or DTC114EK or MUN2211	Q902. Q932. Q944. Q962.
UN2111 or DTA114EK or MUN2111	Q943.
HSM2836C or MC2836	D301. D601. D913.
HSM2838C or MC2838	D392. D921. D961.
MS2186P or BA15218F or XRA1521BF	IC151. IC301.

NOTES

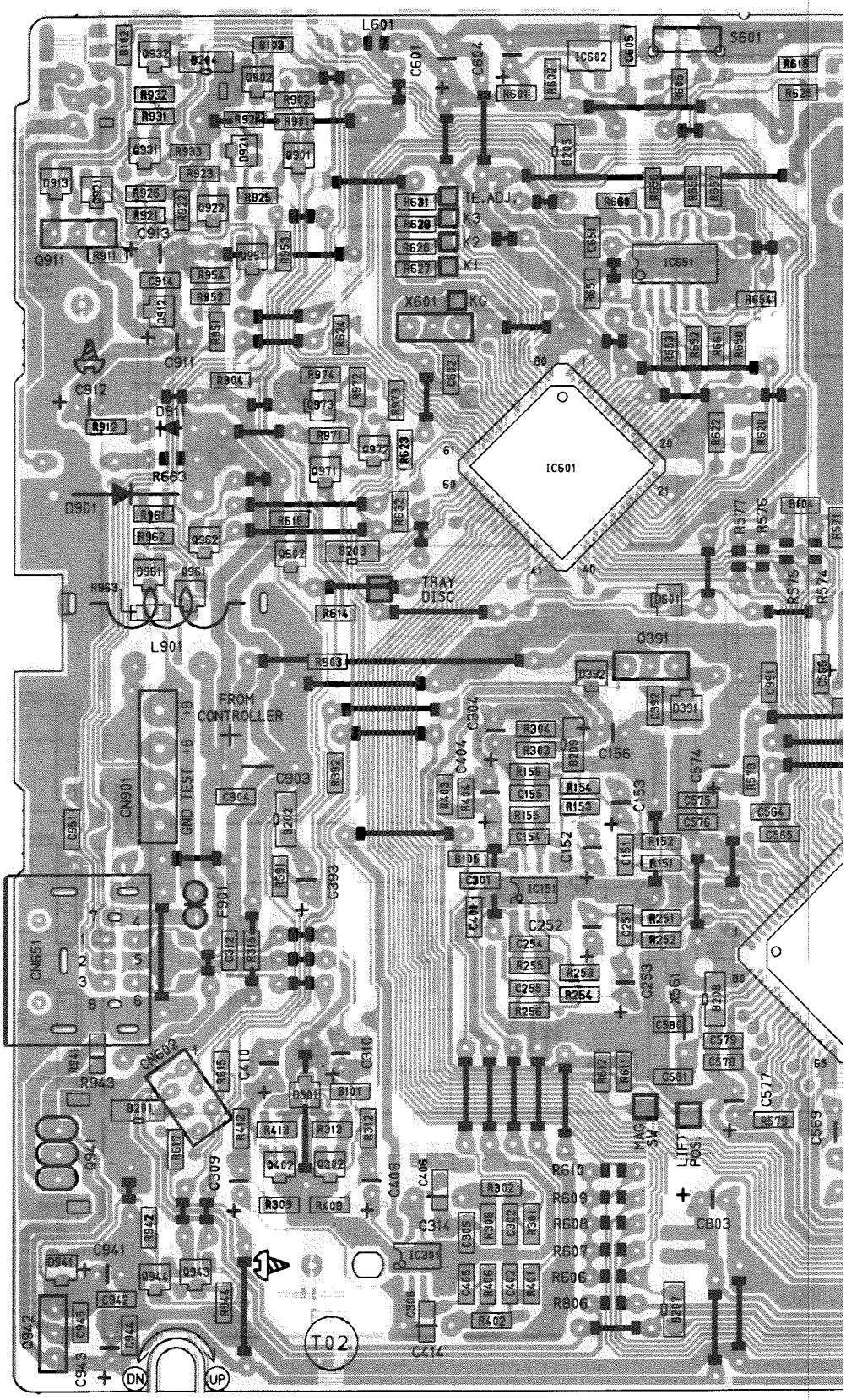
1. VOLTAGES ARE DC-MEASURED WITH A DIGITAL VOLT METER WITHOUT INPUT SIGNAL.
   CONDITION :--- CD MODE 12cm CD PLAY
2. UNLESS OTHERWISE SPECIFIED.
   ALL RESISTORS ARE 1/10W ±5% METAL GLAZE RESISTOR
   ALL CAPACITORS ARE 50V OR 25V CERAMIC CAPACITOR
   ALL RESISTANCE VALUES ARE IN OHM(Ω).
   ALL CAPACITANCE VALUES ARE IN μF(P=pF).
   ALL E-CAPACITORS ARE SHOWN IN THE FORM OF CAPACITANCE(μF) / RATED VOLTAGE(V).
   (M) --- 50V ±5% MYLAR CAPACITOR OR 50V ±5% THIN FILM CAPACITOR

L R Analog signal line

Fig. 8 – 2

9 Location of p.c.board parts

■ Main Board



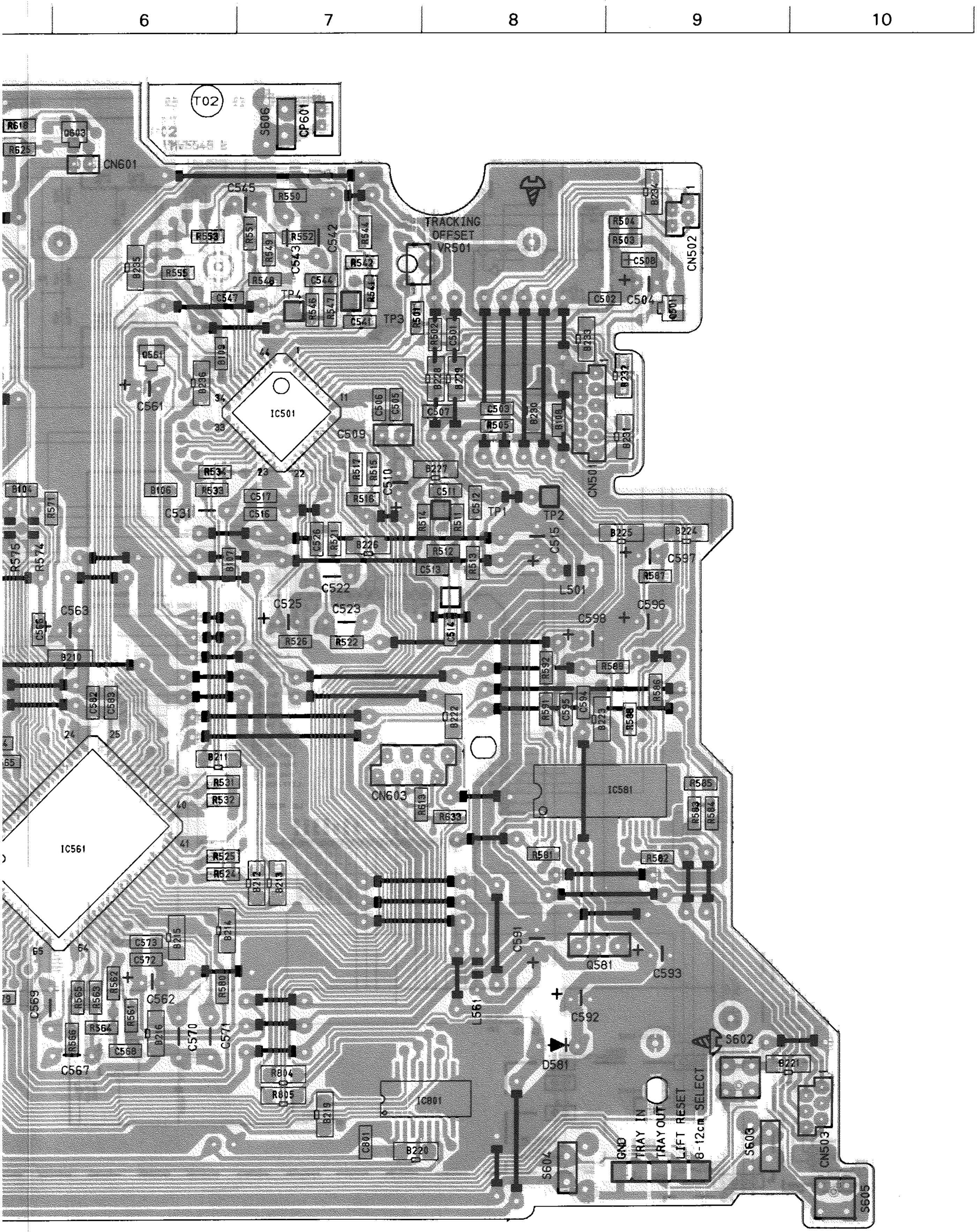

6
7
8
9
10
T02
S606
CP601
R618
R625
Q603
CN601
C545
R550
TRACKING
OFFSET
VR501
R553
R551
R552
C542
R544
C543
R549
R542
B235
R555
R548
C544
R504
R503
C508
CN502
B234
C547
TP4
R546
R547
R541
C541
TP3
R501
C502
C504
Q501
Q561
B109
R502
C501
B233
B236
B228
B229
B232
C561
IC501
C506
C505
C507
C503
B230
B108
R505
C509
CN501
B231
R534
R517
R516
C510
B227
B104
B106
R533
C517
C511
C512
R571
C531
C516
R518
R514
R511
TP1
TP2
B225
B224
C515
C526
R521
B226
R512
R513
R575
R574
C513
C597
B107
R587
C522
L501
C525
C523
C596
C563
C565
C598
R526
R522
C514
B210
R592
R589
C582
C583
R591
C595
C594
B223
R586
R588
B222
B211
CN603
R531
R532
R619
R633
IC581
R585
R583
R584
IC561
R525
R524
B212
B213
R581
R582
B214
B215
C573
C572
C591
Q581
C593
R562
R565
R563
C562
R580
C569
R561
L561
C592
R566
R564
B216
C570
C571
S602
C568
C567
D581
B221
R804
R805
B219
IC801
S603
CN503
C801
B220
S604
GND
TRAY IN
TRAY OUT
LIFT RESET
8-12cm SELECT
S605

Fig. 9 – 1

● Main bord parts list

BLOCK NO. 01

⚠	REF.	PARTS NO.	PARTS NAME	REMARKS	SUFFIX
	B 101	NRSA02J-ORONY	MG RESISTOR	5% 1/10W	
	B 102	NRSA02J-ORONY	MG RESISTOR	5% 1/10W	
	B 103	NRSA02J-ORONY	MG RESISTOR	5% 1/10W	
	B 104	NRSA02J-ORONY	MG RESISTOR	5% 1/10W	
	B 105	NRSA02J-ORONY	MG RESISTOR	5% 1/10W	
	B 106	NRSA02J-ORONY	MG RESISTOR	5% 1/10W	
	B 107	NRSA02J-ORONY	MG RESISTOR	5% 1/10W	
	B 108	NRSA02J-ORONY	MG RESISTOR	5% 1/10W	
	B 109	NRSA02J-ORONY	MG RESISTOR	5% 1/10W	
	B 201	NRS181J-ORONY	MG RESISTOR	5% 1/8W	
	B 202	NRS181J-ORONY	MG RESISTOR	5% 1/8W	
	B 203	NRS181J-ORONY	MG RESISTOR	5% 1/8W	
	B 204	NRS181J-ORONY	MG RESISTOR	5% 1/8W	
	B 205	NRS181J-ORONY	MG RESISTOR	5% 1/8W	
	B 207	NRS181J-ORONY	MG RESISTOR	5% 1/8W	
	B 208	NRS181J-ORONY	MG RESISTOR	5% 1/8W	
	B 209	NRS181J-ORONY	MG RESISTOR	5% 1/8W	
	B 210	NRS181J-ORONY	MG RESISTOR	5% 1/8W	
	B 211	NRS181J-ORONY	MG RESISTOR	5% 1/8W	
	B 212	NRS181J-ORONY	MG RESISTOR	5% 1/8W	
	B 213	NRS181J-ORONY	MG RESISTOR	5% 1/8W	
	B 214	NRS181J-ORONY	MG RESISTOR	5% 1/8W	
	B 215	NRS181J-ORONY	MG RESISTOR	5% 1/8W	
	B 216	NRS181J-ORONY	MG RESISTOR	5% 1/8W	
	B 219	NRS181J-ORONY	MG RESISTOR	5% 1/8W	
	B 220	NRS181J-ORONY	MG RESISTOR	5% 1/8W	
	B 221	NRS181J-ORONY	MG RESISTOR	5% 1/8W	
	B 222	NRS181J-ORONY	MG RESISTOR	5% 1/8W	
	B 223	NRS181J-ORONY	MG RESISTOR	5% 1/8W	
	B 224	NRS181J-ORONY	MG RESISTOR	5% 1/8W	
	B 225	NRS181J-ORONY	MG RESISTOR	5% 1/8W	
	B 226	NRS181J-ORONY	MG RESISTOR	5% 1/8W	
	B 227	NRS181J-ORONY	MG RESISTOR	5% 1/8W	
	B 228	NRS181J-ORONY	MG RESISTOR	5% 1/8W	
	B 229	NRS181J-ORONY	MG RESISTOR	5% 1/8W	
	B 230	NRS181J-ORONY	MG RESISTOR	5% 1/8W	
	B 231	NRS181J-ORONY	MG RESISTOR	5% 1/8W	
	B 232	NRS181J-ORONY	MG RESISTOR	5% 1/8W	
	B 233	NRS181J-ORONY	MG RESISTOR	5% 1/8W	
	B 234	NRS181J-ORONY	MG RESISTOR	5% 1/8W	
	B 235	NRS181J-ORONY	MG RESISTOR	5% 1/8W	
	B 236	NRS181J-ORONY	MG RESISTOR	5% 1/8W	
	C 151	NCS21HJ-271AY	C CAPACITOR	270PF 5% 50V	
	C 152	QER41EM-475VM	E CAPACITOR	4.7MF 20% 25V	
	C 153	QER41EM-475VM	E CAPACITOR	4.7MF 20% 25V	
	C 154	NCS21HJ-560AY	C CAPACITOR	56PF 5% 50V	
	C 155	NCS21HJ-560AY	C CAPACITOR	56PF 5% 50V	
	C 156	QERF1CM-107ZM	E CAPACITOR	100MF 20% 16V	
	C 251	NCS21HJ-271AY	C CAPACITOR	270PF 5% 50V	
	C 252	QER41EM-475VM	E CAPACITOR	4.7MF 20% 25V	
	C 253	QER41EM-475VM	E CAPACITOR	4.7MF 20% 25V	
	C 254	NCS21HJ-560AY	C CAPACITOR	56PF 5% 50V	
	C 255	NCS21HJ-560AY	C CAPACITOR	56PF 5% 50V	
	C 301	NCS21HJ-101AY	C CAPACITOR	100PF 5% 50V	
	C 302	NCS21HJ-471AY	C CAPACITOR	470PF 5% 50V	

BLOCK NO. 01

⚠	REF.	PARTS NO.	PARTS NAME	REMARKS	SUFFIX
	C 304	QERF0JM-476ZN	E CAPACITOR	47MF 20% 6.3V	
	C 305	NCS21HJ-331AY	C CAPACITOR	330PF 5% 50V	
	C 306	NCS21HJ-101AY	C CAPACITOR	100PF 5% 50V	
	C 309	QER41CM-106	E CAPACITOR	10MF 20% 16V	
	C 310	QER41CM-106	E CAPACITOR	10MF 20% 16V	
	C 312	NCS21HJ-471AY	C CAPACITOR	470PF 5% 50V	
	C 314	QFLA1HJ-472ZM	M CAPASITOR	4700PF 5% 50V	
	C 392	NCB21HK-103AY	C CAPACITOR	.010MF 10% 50V	
	C 393	QERF1CM-107ZM	E CAPACITOR	100MF 20% 16V	
	C 401	NCS21HJ-101AY	C CAPACITOR	100PF 5% 50V	
	C 402	NCS21HJ-471AY	C CAPACITOR	470PF 5% 50V	
	C 404	QERF0JM-476ZN	E CAPACITOR	47MF 20% 6.3V	
	C 405	NCS21HJ-331AY	C CAPACITOR	330PF 5% 50V	
	C 406	NCS21HJ-101AY	C CAPACITOR	100PF 5% 50V	
	C 409	QER41CM-106	E CAPACITOR	10MF 20% 16V	
	C 410	QER41CM-106	E CAPACITOR	10MF 20% 16V	
	C 414	QFLA1HJ-472ZM	M CAPASITOR	4700PF 5% 50V	
	C 501	NCT21CH-471AY	C CAPACITOR	470PF +50:-10%	
	C 502	NCB21HK-103AY	C CAPACITOR	.010MF 10% 50V	
	C 503	NCB21HK-103AY	C CAPACITOR	.010MF 10% 50V	
	C 504	QER41AM-107	E CAPACITOR	100MF 20% 10V	
	C 505	NCB21HK-103AY	C CAPACITOR	.010MF 10% 50V	
	C 506	NCS21HJ-101AY	C CAPACITOR	100PF 5% 50V	
	C 507	NCS21HJ-270AY	C CAPACITOR	SPINDLE REVERSE	
	C 508	NEF20JM-475RY	TS.E.CAPACITOR	4.7MF 20% 6.3V	
	C 509	QEE41VM-335B	TS.E.CAPACITOR	3.3MF 20% 35V	
	C 510	QER41AM-107	E CAPACITOR	100MF 20% 10V	
	C 511	NCS21HC-4R0AY	C CAPACITOR	4.0PF 50V	
	C 512	NCT21CH-270AY	C CAPACITOR	27PF +50:-10% 1	
	C 513	NCB21HK-104	C CAPACITOR	.10MF 10% 25V	
	C 514	NCB21HK-103AY	C CAPACITOR	.010MF 10% 50V	
	C 515	QER41AM-107	E CAPACITOR	100MF 20% 10V	
	C 516	NCB21HK-103AY	C CAPACITOR	.010MF 10% 50V	
	C 517	NCS21HJ-101AY	C CAPACITOR	100PF 5% 50V	
	C 522	QFV81HJ-223	FILM CAPACITOR	.022MF 5% 50V	
	C 523	QFV41HJ-104ZM	FILM CAPACITOR	.10MF 5% 50V	
	C 525	QERF1AM-336ZN	E CAPACITOR	33MF 20% 10V	
	C 526	NCS21HJ-681AY	C CAPACITOR	680PF 5% 50V	
	C 531	QFLA1HJ-822ZM	M.CAPACITOR	8200PF 5% 50V	
	C 541	NCS21HJ-181AY	C CAPACITOR	180PF 5% 50V	
	C 542	QFV41HJ-123ZM	FILM CAPACITOR	.012MF 5% 50V	
	C 543	QFV81HJ-473	FILM CAPACITOR	.047MF 5% 50V	
	C 544	NCB21HK-103AY	C CAPACITOR	.010MF 10% 50V	
	C 545	QEPJ1HM-105ZM	NP.E.CAPACITOR	1.0MF 20% 50V	
	C 547	NCS21HJ-681AY	C CAPACITOR	680PF 5% 50V	
	C 561	QER41AM-107	E CAPACITOR	100MF 20% 10V	
	C 562	QER41AM-107	E CAPACITOR	100MF 20% 10V	
	C 563	QER41AM-107	E CAPACITOR	100MF 20% 10V	
	C 564	NCB21HK-103AY	C CAPACITOR	.010MF 10% 50V	
	C 565	NCS21HJ-101AY	C CAPACITOR	100PF 5% 50V	
	C 566	NCB21HK-103AY	C CAPACITOR	.010MF 10% 50V	
	C 567	QFV71HJ-103	FILM CAPACITOR	.010MF 5% 50V	
	C 568	NCS21HJ-101AY	C CAPACITOR	100PF 5% 50V	
	C 569	QFV71HJ-103	FILM CAPACITOR	.010MF 5% 50V	
	C 570	QFLA1HJ-332ZM	M CAPACITOR	3300PF 5% 50V	

BLOCK NO. 01

⚠	REF.	PARTS NO.	PARTS NAME	REMARKS	SUFFIX
	C 571	QFLA1HJ-332ZM	M CAPACITOR	3300PF 5% 50V	
	C 572	NCB21HK-103AY	C CAPACITOR	.010MF 10% 50V	
	C 573	NCS21HJ-101AY	C CAPACITOR	100PF 5% 50V	
	C 574	QERF1AM-227ZM	E CAPACITOR	220MF 20% 10V	
	C 575	NCB21HK-103AY	C CAPACITOR	.010MF 10% 50V	
	C 576	NCS21HJ-101AY	C CAPACITOR	100PF 5% 50V	
	C 577	QER41AM-107	E CAPACITOR	100MF 20% 10V	
	C 578	NCB21HK-103AY	C CAPACITOR	.010MF 10% 50V	
	C 579	NCS21HJ-101AY	C CAPACITOR	100PF 5% 50V	
	C 580	NCS21HJ-100AY	C CAPACITOR	10PF 50V	
	C 581	NCS21HJ-100AY	C CAPACITOR	10PF 50V	
	C 582	NCB21HK-103AY	C CAPACITOR	.010MF 10% 50V	
	C 583	NCS21HJ-101AY	C CAPACITOR	100PF 5% 50V	
	C 591	QERF1AM-227ZM	E CAPACITOR	220MF 20% 10V	
	C 592	QERF1AM-227ZM	E CAPACITOR	220MF 20% 10V	
	C 593	QERF1AM-227ZM	E CAPACITOR	220MF 20% 10V	
	C 594	NCB21HK-103AY	C CAPACITOR	.010MF 10% 50V	
	C 595	NCS21HJ-101AY	C CAPACITOR	100PF 5% 50V	
	C 596	QER41EM-475VM	E CAPACITOR	4.7MF 20% 25V	
	C 597	QERF1AM-476ZN	E CAPACITOR	47MF 20% 10V	
	C 598	QER41HM-225	E CAPACITOR	2.2MF 20% 50V	
	C 601	QER40JM-107	E CAPACITOR	100MF 20% 6.3V	
	C 602	NCB21HK-103AY	C CAPACITOR	.010MF 10% 50V	
	C 604	QERF0JM-476ZN	E CAPACITOR	47MF 20% 6.3V	
	C 605	NCB21HK-103AY	C CAPACITOR	.010MF 10% 50V	
	C 651	NCB21HK-103AY	C CAPACITOR	.010MF 10% 50V	
	C 801	NCB21HK-103AY	C CAPACITOR	.010MF 10% 50V	
	C 803	QERF1AM-227ZM	E CAPACITOR	220MF 20% 10V	
	C 903	QET41CR-228L16	E CAPACITOR	2200MF +30:-10%	
	C 904	NCB21HK-103AY	C CAPACITOR	.010MF 10% 50V	
	C 911	QERF1CM-107ZM	E CAPACITOR	100MF 20% 16V	
	C 912	QERF1CM-107ZM	E CAPACITOR	100MF 20% 16V	
	C 913	QER41AM-107	E CAPACITOR	100MF 20% 10V	
	C 914	NCB21HK-103AY	C CAPACITOR	.010MF 10% 50V	
	C 941	QERF1AM-227ZM	E CAPACITOR	220MF 20% 10V	
	C 942	NCB21HK-103AY	C CAPACITOR	.010MF 10% 50V	
	C 943	QER41CM-226VM	E CAPACITOR	22MF 20% 16V	
	C 944	NCB21HK-103AY	C CAPACITOR	.010MF 10% 50V	
	C 945	NCB21HK-103AY	C CAPACITOR	.010MF 10% 50V	
	C 951	NCB21HK-103AY	C CAPACITOR	.010MF 10% 50V	
	C 991	NCS21HJ-101AY	C CAPACITOR	100PF 5% 50V	
	CN501	VMC0188-011	CONNECTOR		
	CN502	VMC0188-004	CONNECTOR		
	CN503	VMC0188-006	CONNECTOR		
	CN601	VMC0064-002	CONNECTOR		
	CN602	VMC0163-006	CONNECTOR		
	CN603	VMC0234-P08	CONNECTOR		
	CN651	VMC0315-001	8P CONNECTOR		
	CN901	VMZ0076-004	CONNECTOR		
	D 301	HSM2836C	DIODE		
	D 391	MA3110(M)	ZENER DIODE		
	D 392	HSM2838C	DIODE		
	D 581	DSK10C-E	DIODE		
	D 601	HSM2836C	DIODE		
	D 901	2A02	DIODE		

BLOCK NO. 01

⚠	REF.	PARTS NO.	PARTS NAME	REMARKS	SUFFIX
	D 911	DSK10C-E	DIODE		
	D 912	MA3062(H)	ZENER DIODE		
	D 913	HSM2836C	DIODE		
	D 921	HSM2838C	DIODE		
	D 941	MA3091(M)	ZENER DIODE		
	D 961	HSM2838C	DIODE		
	IC151	M5218AFP	IC		
	IC301	M5218AFP	IC		
	IC501	TA8191F	IC		
	IC561	TC9284BF	IC		
	IC581	BA6397FP-T1	IC		
	IC601	UPD78052GC-027	IC (MICOM)		
	IC602	PST529GM-T	IC		
	IC651	MC74HC126AFR1	IC		
	IC801	LB1831M-TPT1	IC		
	L 501	VQP0018-4R7	INDUCTOR		
	L 561	VQP0018-4R7	INDUCTOR		
	L 601	VQP0018-4R7	INDUCTOR		
	L 901	VTC19AG-18AV	CHOKE COIL		
	Q 302	2SD1048X7T-HL	TRANSISTOR		
	Q 391	2SD1994A(R,S)TA	TRANSISTOR		
	Q 402	2SD1048X7T-HL	TRANSISTOR		
	Q 501	2SB709A(Q)	TRANSISTOR		
	Q 561	2SB709A(Q)	TRANSISTOR		
	Q 581	2SB1322(RS)	TRANSISTOR		
	Q 602	2SD601A(R)	TRANSISTOR		
	Q 603	2SD601A(R)	TRANSISTOR		
	Q 901	2SB709A(Q)	TRANSISTOR		
	Q 902	MUN2211T1	TRANSISTOR		
	Q 911	2SD1994A(R,S)TA	TRANSISTOR		
	Q 921	2SD601A(R)	TRANSISTOR		
	Q 922	2SB709A(Q)	TRANSISTOR		
	Q 931	2SB709A(Q)	TRANSISTOR		
	Q 932	MUN2211T1	TRANSISTOR		
	Q 941	2SB941A(P,Q)	TRANSISTOR		
	Q 942	2SD1994A(R,S)TA	TRANSISTOR		
	Q 943	MUN2111T1	TRANSISTOR		
	Q 944	MUN2211T1	TRANSISTOR		
	Q 951	2SB709A(Q)	TRANSISTOR		
	Q 961	2SB709A(Q)	TRANSISTOR		
	Q 962	MUN2211T1	TRANSISTOR		
	Q 971	2SB709A(Q)	TRANSISTOR		
	Q 972	2SD601A(R)	TRANSISTOR		
	Q 973	2SB709A(Q)	TRANSISTOR		
	R 151	NRSA02J-393NY	MG RESISTOR	39K 5% 1/10W	
	R 152	NRSA02J-393NY	MG RESISTOR	39K 5% 1/10W	
	R 153	NRSA02J-153NY	MG RESISTOR	15K 5% 1/10W	
	R 154	NRSA02J-153NY	MG RESISTOR	15K 5% 1/10W	
	R 155	NRSA02J-393NY	MG RESISTOR	39K 5% 1/10W	
	R 156	NRSA02J-393NY	MG RESISTOR	39K 5% 1/10W	
	R 251	NRSA02J-393NY	MG RESISTOR	39K 5% 1/10W	
	R 252	NRSA02J-393NY	MG RESISTOR	39K 5% 1/10W	
	R 253	NRSA02J-153NY	MG RESISTOR	15K 5% 1/10W	
	R 254	NRSA02J-153NY	MG RESISTOR	15K 5% 1/10W	
	R 255	NRSA02J-393NY	MG RESISTOR	39K 5% 1/10W	

BLOCK NO. 01

⚠	REF.	PARTS NO.	PARTS NAME	REMARKS	SUFFIX
	R 256	NRSA02J-393NY	MG RESISTOR	39K 5% 1/10W	
	R 301	NRSA02J-562NY	MG RESISTOR	5.6K 5% 1/10W	
	R 302	NRSA02J-682NY	MG RESISTOR	6.8K 5% 1/10W	
	R 303	NRSA02J-223NY	MG RESISTOR	22K 5% 1/10W	
	R 304	NRSA02J-273NY	MG RESISTOR	27K 5% 1/10W	
	R 306	NRSA02J-272NY	MG RESISTOR	2.7K 5% 1/10W	
	R 309	NRSA02J-103NY	MG RESISTOR	10K 5% 1/10W	
	R 312	NRSA02J-471NY	MG RESISTOR	470 5% 1/10W	
	R 313	NRSA02J-682NY	MG RESISTOR	6.8K 5% 1/10W	
	R 315	NRSA02J-4R7NY	MG RESISTOR	4.7 5% 1/10W	
	R 391	NRSA02J-221NY	MG RESISTOR	220 5% 1/10W	
	R 392	NRSA02J-221NY	MG RESISTOR	220 5% 1/10W	
	R 401	NRSA02J-562NY	MG RESISTOR	5.6K 5% 1/10W	
	R 402	NRSA02J-682NY	MG RESISTOR	6.8K 5% 1/10W	
	R 403	NRSA02J-223NY	MG RESISTOR	22K 5% 1/10W	
	R 404	NRSA02J-273NY	MG RESISTOR	27K 5% 1/10W	
	R 406	NRSA02J-272NY	MG RESISTOR	2.7K 5% 1/10W	
	R 409	NRSA02J-103NY	MG RESISTOR	10K 5% 1/10W	
	R 412	NRSA02J-471NY	MG RESISTOR	470 5% 1/10W	
	R 413	NRSA02J-682NY	MG RESISTOR	6.8K 5% 1/10W	
	R 501	NRSA02J-154NY	MG RESISTOR	150K 5% 1/10W	
	R 502	NRSA02J-103NY	MG RESISTOR	10K 5% 1/10W	
	R 503	NRSA02J-470NY	MG RESISTOR	47 5% 1/10W	
	R 504	NRSA02J-470NY	MG RESISTOR	47 5% 1/10W	
	R 505	NRSA02J-222NY	MG RESISTOR	2.2K 5% 1/10W	
	R 511	NRSA02J-123NY	MG RESISTOR	12K 5% 1/10W	
	R 512	NRSA02J-562NY	MG RESISTOR	5.6K 5% 1/10W	
	R 513	NRSA02J-152NY	MG RESISTOR	1.5K 5% 1/10W	
	R 514	NRSA02J-472NY	MG RESISTOR	4.7K 5% 1/10W	
	R 515	NRSA02J-472NY	MG RESISTOR	ｻｽﾍﾟｵﾄﾄﾋﾟｶｲﾜｸ	
	R 516	NRSA02J-103NY	MG RESISTOR	10K 5% 1/10W	
	R 517	NRSA02J-272NY	MG RESISTOR	2.7K 5% 1/10W	
	R 521	NRSA02J-683NY	MG RESISTOR	68K 5% 1/10W	
	R 522	NRSA02J-103NY	MG RESISTOR	10K 5% 1/10W	
	R 524	NRSA02J-332NY	MG RESISTOR	3.3K 5% 1/10W	
	R 525	NRSA02J-103NY	MG RESISTOR	10K 5% 1/10W	
	R 526	NRSA02J-153NY	MG RESISTOR	15K 5% 1/10W	
	R 531	NRSA02J-473NY	MG RESISTOR	47K 5% 1/10W	
	R 532	NRSA02J-104NY	MG RESISTOR	100K 5% 1/10W	
	R 533	NRSA02J-123NY	MG RESISTOR	12K 5% 1/10W	
	R 534	NRSA02J-683NY	MG RESISTOR	68K 5% 1/10W	
	R 541	NRSA02J-183NY	MG RESISTOR	18K 5% 1/10W	
	R 542	NRSA02J-223NY	MG RESISTOR	22K 5% 1/10W	
	R 544	NRSA02J-102NY	MG RESISTOR	1.0K 5% 1/10W	
	R 546	NRSA02J-473NY	MG RESISTOR	47K 5% 1/10W	
	R 547	NRSA02J-393NY	MG RESISTOR	39K 5% 1/10W	
	R 548	NRSA02J-153NY	MG RESISTOR	15K 5% 1/10W	
	R 549	NRSA02J-821NY	MG RESISTOR	820 5% 1/10W	
	R 550	NRSA02J-104NY	MG RESISTOR	100K 5% 1/10W	
	R 551	NRSA02J-223NY	MG RESISTOR	22K 5% 1/10W	
	R 552	NRSA02J-223NY	MG RESISTOR	22K 5% 1/10W	
	R 553	NRSA02J-681NY	MG RESISTOR	680 5% 1/10W	
	R 555	NRSA02J-105NY	MG RESISTOR	1.0M 5% 1/10W	
	R 561	NRSA02J-102NY	MG RESISTOR	1.0K 5% 1/10W	
	R 562	NRSA02J-103NY	MG RESISTOR	10K 5% 1/10W	

BLOCK NO. 01

⚠	REF.	PARTS NO.	PARTS NAME	REMARKS	SUFFIX
	R 563	NRSA02J-154NY	MG RESISTOR	150K 5% 1/10W	
	R 564	NRSA02J-473NY	MG RESISTOR	47K 5% 1/10W	
	R 565	NRSA02J-225NY	MG RESISTOR	2.2M 5% 1/10W	
	R 566	NRSA02J-333NY	MG RESISTOR	33K 5% 1/10W	
	R 571	NRSA02J-103NY	MG RESISTOR	10K 5% 1/10W	
	R 574	QRD161J-472	CARBON RESISTOR	4.7K 5% 1/6W	
	R 575	QRD161J-472	CARBON RESISTOR	4.7K 5% 1/6W	
	R 576	QRD161J-472	CARBON RESISTOR	4.7K 5% 1/6W	
	R 577	QRD161J-472	CARBON RESISTOR	4.7K 5% 1/6W	
	R 578	NRSA02J-100NY	MG RESISTOR	10 5% 1/10W	
	R 579	NRSA02J-100NY	MG RESISTOR	10 5% 1/10W	
	R 580	NRSA02J-100NY	MG RESISTOR	10 5% 1/10W	
	R 581	NRSA02J-273NY	MG RESISTOR	27K 5% 1/10W	
	R 582	NRSA02J-392NY	MG RESISTOR	3.9K 5% 1/10W	
	R 583	NRSA02J-153NY	MG RESISTOR	15K 5% 1/10W	
	R 584	NRSA02J-472NY	MG RESISTOR	4.7K 5% 1/10W	
	R 585	NRSA02J-124NY	MG RESISTOR	120K 5% 1/10W	
	R 586	NRSA02J-102NY	MG RESISTOR	1.0K 5% 1/10W	
	R 587	NRSA02J-222NY	MG RESISTOR	2.2K 5% 1/10W	
	R 588	NRSA02J-332NY	MG RESISTOR	3.3K 5% 1/10W	
	R 589	NRSA02J-472NY	MG RESISTOR	4.7K 5% 1/10W	
	R 591	NRSA02J-152NY	MG RESISTOR	1.5K 5% 1/10W	
	R 592	NRSA02J-221NY	MG RESISTOR	220 5% 1/10W	
	R 601	NRSA02J-472NY	MG RESISTOR	4.7K 5% 1/10W	
	R 602	NRSA02J-103NY	MG RESISTOR	10K 5% 1/10W	
	R 605	NRSA02J-0R0NY	MG RESISTOR	5% 1/10W	
	R 606	QRD161J-103	CARBON RESISTOR	10K 5% 1/6W	
	R 607	QRD161J-103	CARBON RESISTOR	10K 5% 1/6W	
	R 608	QRD161J-103	CARBON RESISTOR	10K 5% 1/6W	
	R 609	QRD161J-103	CARBON RESISTOR	10K 5% 1/6W	
	R 610	QRD161J-103	CARBON RESISTOR	10K 5% 1/6W	
	R 611	NRSA02J-223NY	MG RESISTOR	22K 5% 1/10W	
	R 612	NRSA02J-103NY	MG RESISTOR	10K 5% 1/10W	
	R 613	NRSA02J-181NY	MG RESISTOR	180 5% 1/10W	
	R 614	NRSA02J-223NY	MG RESISTOR	22K 5% 1/10W	
	R 615	NRSA02J-223NY	MG RESISTOR	22K 5% 1/10W	
	R 616	NRSA02J-682NY	MG RESISTOR	6.8K 5% 1/10W	
	R 617	NRSA02J-681NY	MG RESISTOR	680 5% 1/10W	
	R 618	NRSA02J-223NY	MG RESISTOR	22K 5% 1/10W	
	R 620	NRSA02J-103NY	MG RESISTOR	10K 5% 1/10W	
	R 622	NRSA02J-103NY	MG RESISTOR	10K 5% 1/10W	
	R 623	NRSA02J-103NY	MG RESISTOR	10K 5% 1/10W	
	R 624	NRSA02J-101NY	MG RESISTOR	100 5% 1/10W	
	R 625	NRSA02J-223NY	MG RESISTOR	22K 5% 1/10W	
	R 627	NRSA02J-472NY	MG RESISTOR	4.7K 5% 1/10W	
	R 628	NRSA02J-472NY	MG RESISTOR	4.7K 5% 1/10W	
	R 629	NRSA02J-472NY	MG RESISTOR	4.7K 5% 1/10W	
	R 631	NRSA02J-103NY	MG RESISTOR	10K 5% 1/10W	
	R 632	NRSA02J-103NY	MG RESISTOR	10K 5% 1/10W	
	R 633	NRSA02J-181NY	MG RESISTOR	180 5% 1/10W	
	R 651	NRSA02J-104NY	MG RESISTOR	100K 5% 1/10W	
	R 652	NRSA02J-101NY	MG RESISTOR	100 5% 1/10W	
	R 653	NRSA02J-223NY	MG RESISTOR	22K 5% 1/10W	
	R 654	NRSA02J-334NY	MG RESISTOR	330K 5% 1/10W	
	R 655	NRSA02J-101NY	MG RESISTOR	100 5% 1/10W	

BLOCK NO. 01

⚠	REF.	PARTS NO.	PARTS NAME	REMARKS	SUFFIX
	R 656	NRSA02J-223NY	MG RESISTOR	22K 5% 1/10W	
	R 657	NRSA02J-334NY	MG RESISTOR	330K 5% 1/10W	
	R 658	NRSA02J-331NY	MG RESISTOR	330 5% 1/10W	
	R 660	NRSA02J-103NY	MG RESISTOR	10K 5% 1/10W	
	R 661	NRSA02J-104NY	MG RESISTOR	100K 5% 1/10W	
	R 804	NRS181J-1RONY	MG RESISTOR	1.0 5% 1/8W	
	R 805	NRS181J-1RONY	MG RESISTOR	1.0 5% 1/8W	
	R 806	QRD161J-2R2	CARBON RESISTOR	B323 ノ イ	
	R 901	NRSA02J-103NY	MG RESISTOR	10K 5% 1/10W	
	R 902	NRSA02J-392NY	MG RESISTOR	3.9K 5% 1/10W	
	R 903	NRSA02J-392NY	MG RESISTOR	3.9K 5% 1/10W	
	R 904	NRSA02J-392NY	MG RESISTOR	3.9K 5% 1/10W	
	R 911	NRSA02J-472NY	MG RESISTOR	4.7K 5% 1/10W	
	R 912	NRSA02J-100NY	MG RESISTOR	10 5% 1/10W	
	R 921	NRSA02J-273NY	MG RESISTOR	27K 5% 1/10W	
	R 922	NRSA02J-224NY	MG RESISTOR	220K 5% 1/10W	
	R 923	NRSA02J-184NY	MG RESISTOR	180K 5% 1/10W	
	R 924	NRSA02J-223NY	MG RESISTOR	22K 5% 1/10W	
	R 925	NRSA02J-223NY	MG RESISTOR	22K 5% 1/10W	
	R 926	NRSA02J-223NY	MG RESISTOR	22K 5% 1/10W	
	R 931	NRSA02J-223NY	MG RESISTOR	22K 5% 1/10W	
	R 932	NRSA02J-102NY	MG RESISTOR	1.0K 5% 1/10W	
	R 933	NRSA02J-223NY	MG RESISTOR	22K 5% 1/10W	
	R 941	NRSA02J-220NY	MG RESISTOR	22 5% 1/10W	
	R 942	NRSA02J-471NY	MG RESISTOR	470 5% 1/10W	
	R 943	QRX01DJ-R47X	M.F.RESISTOR	5% 1/1W	
	R 944	NRSA02J-332NY	MG RESISTOR	3.3K 5% 1/10W	
	R 951	NRSA02J-332NY	MG RESISTOR	3.3K 5% 1/10W	
	R 952	NRSA02J-224NY	MG RESISTOR	220K 5% 1/10W	
	R 953	NRSA02J-393NY	MG RESISTOR	39K 5% 1/10W	
	R 954	NRSA02J-104NY	MG RESISTOR	100K 5% 1/10W	
	R 961	NRSA02J-223NY	MG RESISTOR	22K 5% 1/10W	
	R 962	NRSA02J-332NY	MG RESISTOR	3.3K 5% 1/10W	
	R 963	NRSA02J-331NY	MG RESISTOR	330 5% 1/10W	
	R 971	NRSA02J-223NY	MG RESISTOR	22K 5% 1/10W	
	R 972	NRSA02J-222NY	MG RESISTOR	2.2K 5% 1/10W	
	R 973	NRSA02J-104NY	MG RESISTOR	100K 5% 1/10W	
	R 974	NRSA02J-223NY	MG RESISTOR	22K 5% 1/10W	
	S 601	QSQ1A11-V05	TACT SWITCH	ｱﾙﾌﾟｽ SKHHLQ000	
	S 602	VSH1154-002	SWITCH	8/12 SW	
	S 603	VSH1153-002	SWITCH	TRAY OUT SW	
	S 604	VSH1153-002	SWITCH	TRAY IN SW	
	S 605	VSH1154-002	SWITCH	LIFT POS SW	
	VR501	QVZ3523-104	V.RESISTOR		
	X 561	VCX5016-934Z	CRYSTAL		
	X 601	EFO-EC4004T4	CERA LOCK		

■ Mechanism board

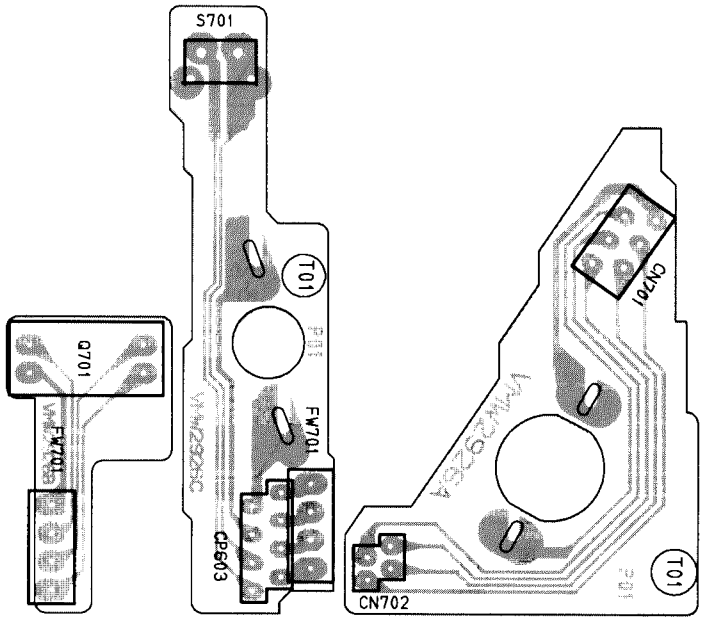


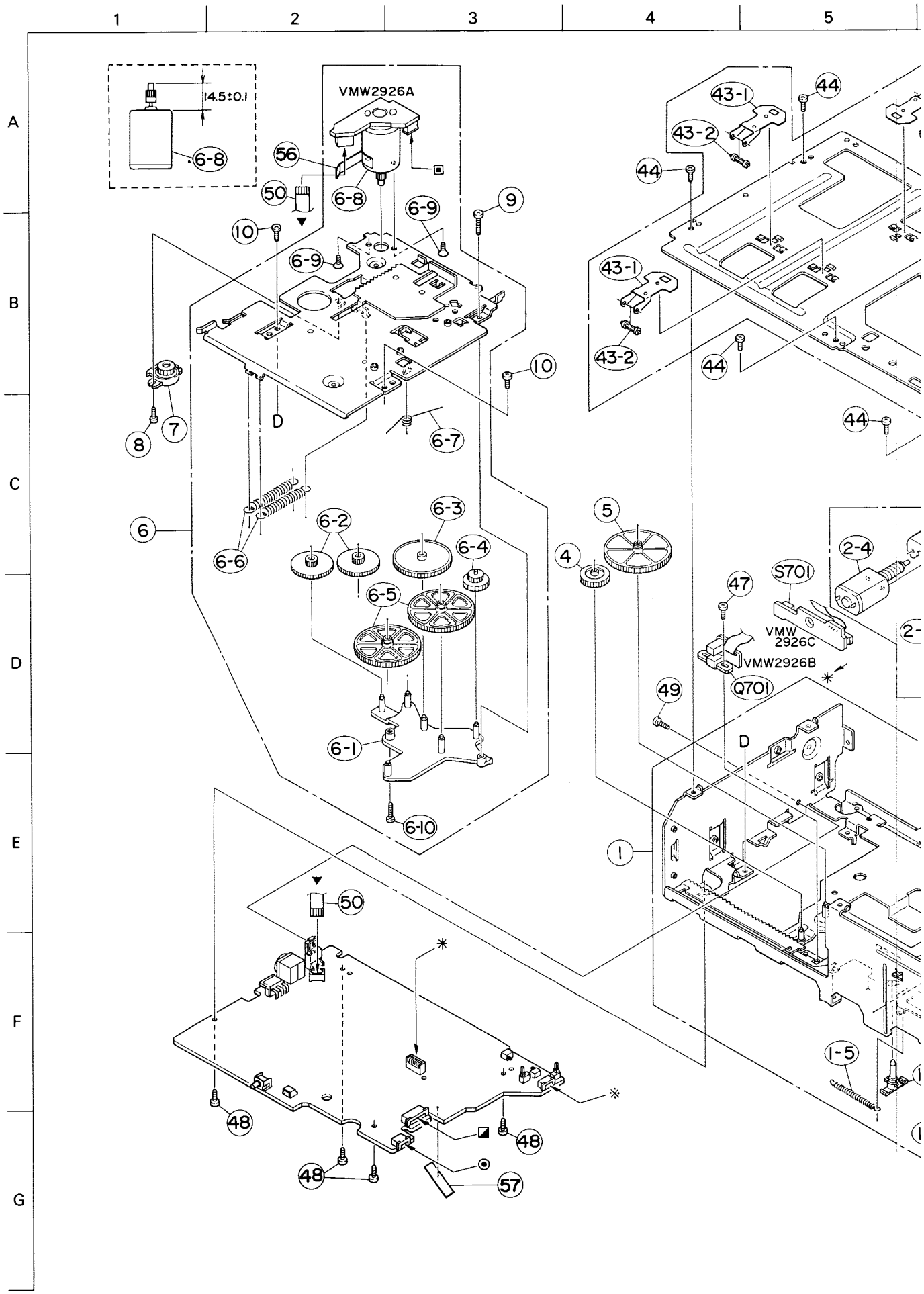
Fig. 9 – 2

● Mechanism board parts list

BLOCK NO. 02

⚠	REF.	PARTS NO.	PARTS NAME	REMARKS	SUFFIX
	CN701	VMC0163-006	CONNECTOR		
	CN702	VMC0125-004	CONNECTOR		
	CP603	VMC0234-R08	CONNECTOR		
	Q 701	SPI-232(B,C,D)	PHOTOINTERRUPT		
	Q 702	SPI-230(B,C,D)	PHOTOINTERRUPT		
	S 701	VSH1153-001	SWITCH		

10 Exploded view of mechanism component parts



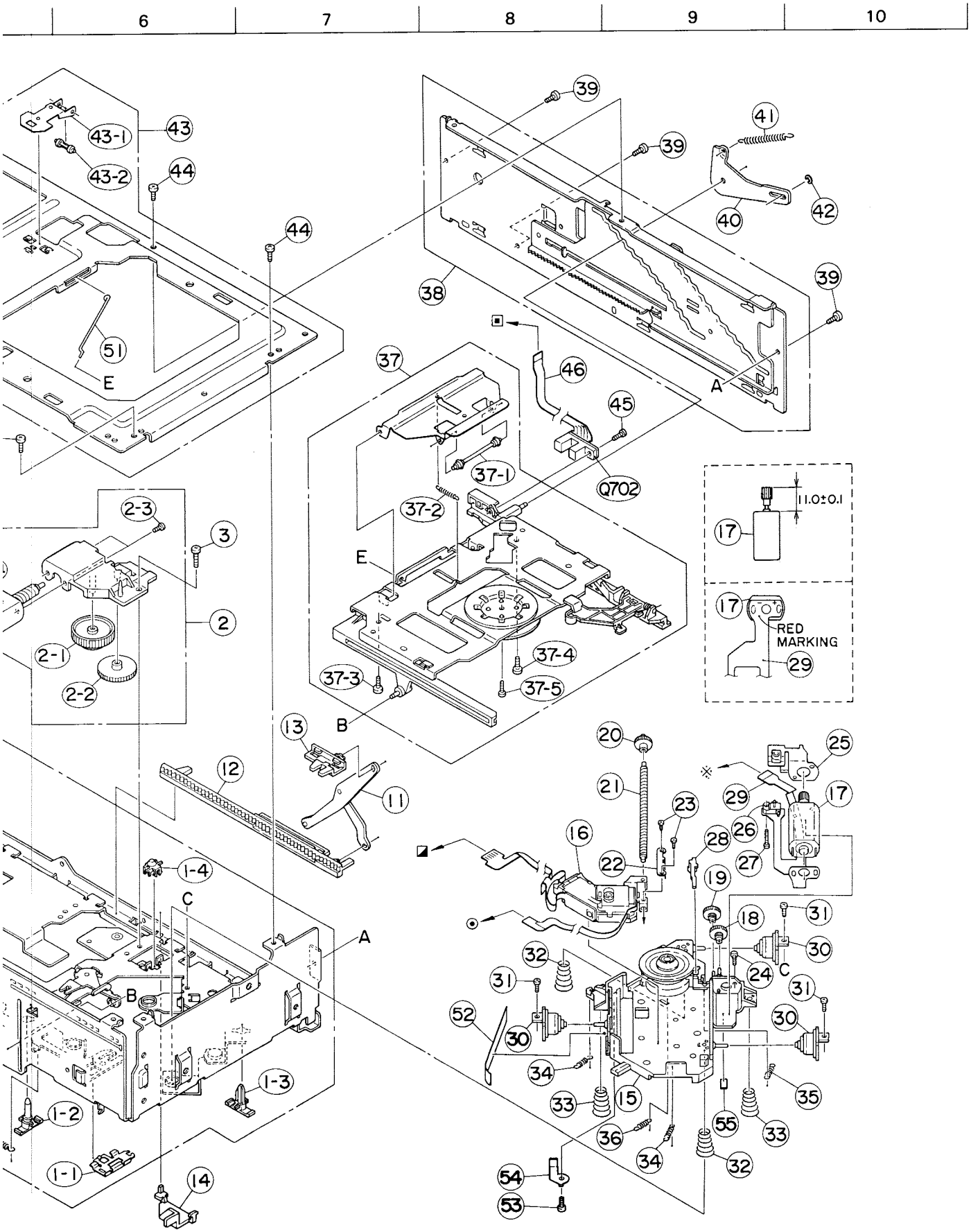


Fig. 10 – 1

● Mechanism component parts list

BLOCK NO. M2MM

⚠	REF.	PARTS NO.	PARTS NAME	REMARKS	QTY	SUFFIX	CLR
	1	VKL1425-00B	CHASS FRAME ASY		1		
	1-1	VKL7740-001	V-H SELECTOR		1		
	1-2	VKS5492-001	TRAY GUIDE(1)		1		
	1-3	VKS5493-002	TRAY GUIDE(2)		1		
	1-4	VKS5494-001	CD8 DETECTOR		1		
	1-5	VKW5135-005	TENSION SPRING	(T.LOCK SLIDER)	1		
	2	VKS3675-00A	LOADING GEAR AS		1		
	2-1	VKR4729-001	LOADING GEAR		1		
	2-2	VKS5345-001	JOINT GEAR		1		
	2-3	SPSH2030M	MINI SCREW		2		
	2-4	PWN10EB12A-SA1	DC.MOTOR	(TRAY LOADING)	1		
	3	SDST2605Z	SCREW		1		
	4	VKR4730-001	UP DOWN GEAR		1		
	5	VKR4739-001	SLIDER GEAR		1		
	6	VKL2729-00A	MAG PLATE UNIT		1		
	6-1	VKS2236-001	UP DOWN GEAR BA		1		
	6-10	SDST2008Z	SCREW		1		
	6-2	VKR3001-002T	GEAR 2		2		
	6-3	VKR4732-001	CONNECT GEAR		1		
	6-4	VKR4730-001	UP DOWN GEAR		1		
	6-5	VKR4731-001	SLIDER GEAR		2		
	6-6	VKW5136-002	TENSION SPRING		2		
	6-7	VKW5137-001	TORSION SPRING		1		
	6-8	MXN13FB12F-SA7	DC MOTOR ASS'Y	(UP DOWN)	1		
	6-9	SDSP3003Z	SCREW		2		
	7	VKZ4737-001	DAMPER		1		
	8	SDST2005Z	SCREW	FOR DAMPER	1		
	9	SDST2610Z	SCREW	M PLATE	1		
	Q 701	SPI-232(B,C,D)	PHOTOINTERRUPT		1		
	Q 702	SPI-230(B,C,D)	PHOTOINTERRUPT		1		
	S 701	VSH1153-001	LEAF SWITCH		1		
	10	SDST2605Z	SCREW	M PLATE UNIT	2		
	11	VKL7736-00A	LOADING ARM ASY		1		
	12	VKS2237-001	LOADING RACK		1		
	13	VKS5495-003	HOOK		1		
	14	VKS5496-003	LOADING SW.ACT.		1		
	15	VKS3678-00B	TRA MECHA ASS'Y		1		
⚠	16	OPTIMA-60B2	P.U.UNIT		1		
	17	FF050SK11170SA1	DC MOTOR	(FEED)	1		
	18	VKR4733-001	MIDDLE GEAR		1		
	19	VKR4737-001	THIRD GEAR		1		
	20	VKR4736-001	S.SHAFT GEAR		1		
	21	VKZ4732-002	SCREW SHAFT		1		
	22	VKL7756-001	RACK PLATE		1		
	23	SPSK1720M	MINI SCREW		2		
	24	SDSP2004Z	SCREW	FOR FEED MOTOR	1		
	25	VKY4698-002	S.SHAFT SPRING		1		
	26	VSH1142-001	SWITCH		1		
	27	VKZ4248-208	MINI SCREW		1		
	28	VKS5500-001	REST SWITCH ACT		1		
	29	VMW3691-001	PW BOARD		1		
	30	VKZ4733-001	DAMPER		3		
	31	SDST2005Z	SCREW		3		
	32	VKW5138-002	SUSPENSION SP.		2		

BLOCK NO. M2MM

⚠	REF.	PARTS NO.	PARTS NAME	REMARKS	QTY	SUFFIX	CLR
	33	VKW5138-004	SUSPENSION SP.		2		
	34	VKW5139-002	TENSION SPRING		2		
	35	VKW5145-002	TENSION SPRING		1		
	36	VKW5140-002	SELECTOR SP.		1		
	37	VKM3804-00D	LIFTER ASS'Y		1		
	37-1	VKZ4563-002	O-RING		2		
	37-2	VKW5141-002	TENSION SPRING		1		
	37-3	SDST2605Z	SCREW		1		
	37-4	SDST2605Z	SCREW		1		
	37-5	SPST2004Z	SCREW		1		
	38	VKM3807-00A	REAR CHASS ASSY		1		
	39	SDST2603Z	SCREW		3		
	40	VKL7742-001	LIFTER TENS.ARM		1		
	41	VKW5142-002	TENSION SPRING		1		
	42	REE1500X	E.RING		1		
	43	VKM3811-00A	TOP PLATE ASS'Y		1		
	43-1	VKY4699-001	MAGAZINE SPRING		3		
	43-2	VKR4734-001	MAGAZINE ROLLER		3		
	44	SDST2603Z	SCREW	TOP PLATE	6		
	45	VKZ4276-001	SPECIAL SCREW		1		
	46	VMW3692-001	PW BOARD		1		
	47	SDST2605Z	SCREW		1		
	48	SDST2605Z	SCREW		4		
	49	SWSP2606Z	SCREW		1		
	50	VWF1206-08TTBX	TAF CARD		1		
	51	VKZ4744-001	SAFTY ROD		1		
	52	VYSA1R3-041	SPACER		1		
	53	SPSH1765N	MINI SCREW		1		
	54	VKL7765-001	P.S.SPRING		1		
	55	VYTT473-005	DOUBLE FACE		1		
	56	VYSB1R3-011	SPACER		1		
	57	VYSA1R4-050	SPACER		1		

11 Exploded view of enclosure component parts

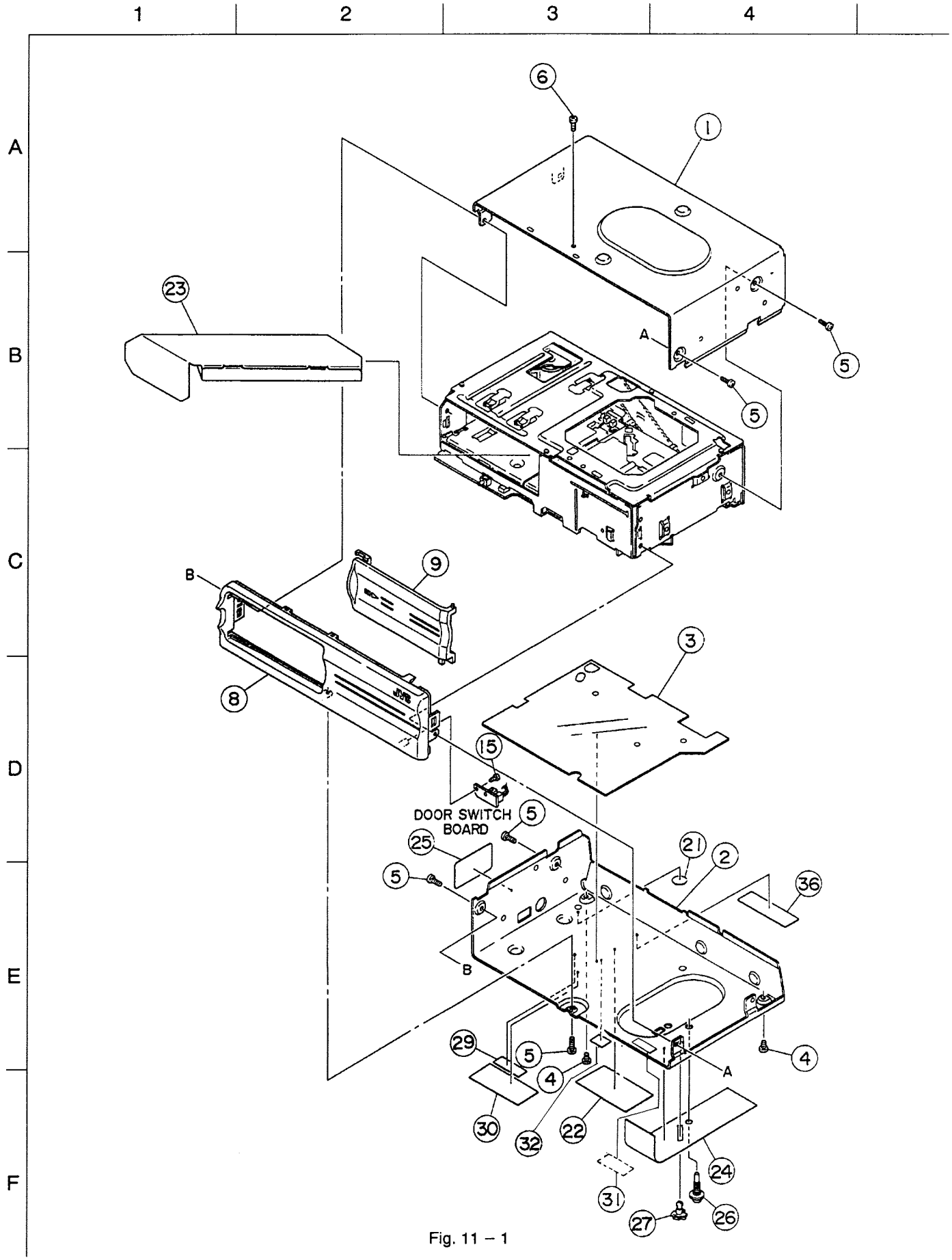


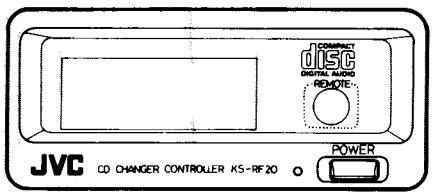
Fig. 11 – 1

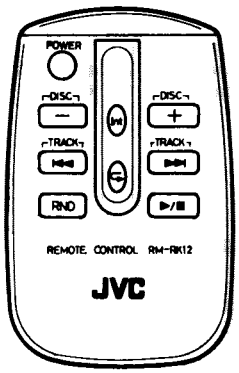
● Enclosure component parts list

BLOCK NO. M1MM

⚠	REF.	* PARTS NO.	PARTS NAME	REMARKS	QTY	SUFFIX	CLR
	1	VJG1301-001	TOP COVER		1		
	2	VJG1302-002	BOTTOM COVER		1		
	3	VMA3220-002	INSULATOR		1		
	4	SDST2604M	SCREW	TOP+BOTTOM	2		
	5	VKZ4759-001	SPECIAL SCREW	BOT+TOP+MECHA	5		
	6	SDST2003M	SCREW		1		
	8	VJG1344-001	FRONT PANEL		1		
	9	VJT2355-001	DOOR		1		
	15	SDSF2004Z	SCREW	FRONT+SW PWB	1		
	21	VYSS2R2-028	SPACER		1		
	22	VYN3580-001SA	NAME PLATE		1	C	
		VYN3580-001SA	NAME PLATE		1	J	
		VYN3580-011	NAME PLATE		1	JT	
	23	VPK3319-002	MECHA HOLDER		1		
	24	VND5027-003	CAUTION SHEET		1		
	25	VND5028-001	CAUTION LABEL	SIDE&BOTTOM	1		
	26	VKZ4739-001	SPECIAL SCREW		1		
	27	VKS5502-002	TRA.MECHA HOLDE		1		
	29	E407097-002	HYATT L.LABEL		1		
	30	VND4922-001	CAUTION LABEL		1		
	31	VYN3533-011	NAME PLATE		1	JT	
	32	VPZ4011-001	SERIAL LABEL		1		
	36	VND4999-001	FCC LABEL (3)		1		

CD CHANGER CONTROLLER SECTION





COMPACT disc DIGITAL AUDIO

■ Instructions (Extracts)

FEATURES

- 3-way receiver interface (1. Antenna input, 2. AUX terminal, 3. Cassette adapter)

The KS-RF20 converts the line out signal from a CD changer to FM signals (88.7 MHz or 89.1 MHz) which are supplied to a receiver's antenna (aerial) terminal. It allows connection of a CD changer to a cassette car receiver, etc. without line in terminals for the connection of a CD changer. These signals are received by the FM tuner of the cassette car receiver, etc. and the CD sound is reproduced.

- Since the KS-RF20 has a line-out terminal, it can be connected to a cassette car receiver with a line-in or AUX terminal, and also via a cassette adapter.

SPECIFICATIONS

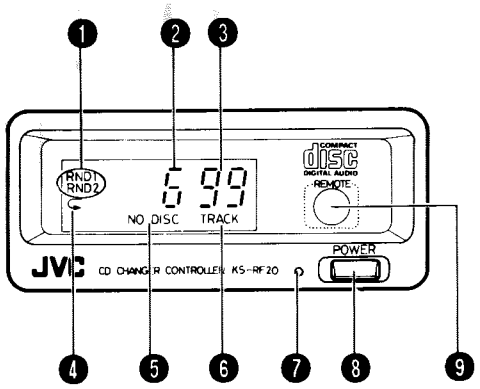
FM MODULATOR BOX SECTION
Selectable output frequency : 88.7 MHz/89.1 MHz
Line-Output Level/Impedance : 1.5 V/1 kΩ

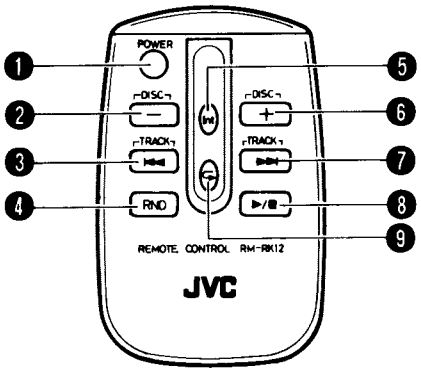
GENERAL
Power Requirements
Operating Voltage : DC 14.4 V (11 V - 16 V allowable)
Grounding System : Negative Ground
Dimensions (W x H x D)
FM modulator box : 112 x 28 x 75 mm (4-7/16" x 1-1/8" x 3")
Display unit : 88 x 38 x 17 mm (3-1/2" x 1-1/2" x 11/16")
Remote Controller : 60 x 98 x 17 mm (2-3/8" x 3-7/8" x 11/16")
Net Weight
FM modulator box : 300 g (0.67 lbs)
Display unit : 105 g (0.24 lbs)
Remote Controller : 60 g (0.14 lbs) (with batteries)

Design and specifications subject to change without notice.

If a kit is necessary for your car, consult your telephone directory for the nearest car audio speciality shop.

LOCATION OF CONTROLS





(Display unit)
1. Random play indicator (RND1, RND2)
2. Disc number indicator (1 - 18)
3. Track number indicator (1 - 99)
4. Repeat playback indicator (⟲)
5. DISC indicator
6. TRACK indicator
7. Microcomputer reset button
8. POWER button
   Make sure that the unit is switched ON when the microcomputer reset button is pressed. (Since the power is switched OFF when the microcomputer reset button is pressed, press the POWER button again to switch ON the unit.)
9. REMOTE sensor section

(Remote control unit)
1. Power button
2. Disc select (–) button
3. Skip/Search (TRACK/ ⏮) button
4. Random (RND) button
5. Intro (Int) button
6. Disc select (+) button
7. Skip/Search (TRACK/ ⏭) button
8. Play (►)/Stop (■) button
9. Repeat (⟲) button

- Installing batteries in the remote control unit.

ELECTRICAL CONNECTIONS

To prevent short circuits from occurring, while making connections, keep the battery's negative terminal disconnected. We recommend that you make all electrical connections (see Fig. b) before installing the unit. If you're not sure of your ability to install this unit correctly, have it installed by a qualified service technician.

Note:
This unit is designed for use in cars with a 12-volt DC, negative ground power supply. If your vehicle does not have a 12-volt negative ground electrical system, you will need a voltage inverter which can be bought from a JVC car audio dealer.

- Be sure to ground this unit to the car's chassis.

Microcomputer reset button

After completing installation and connection, press this button using the tip of a ball-point pen, etc. to reset the microcomputer. Normally do not use this button, however, press it when the power supply has been interrupted such as for replacement of the car's battery. Also press it when the built-in microcomputer does not operate normally due to noise, etc. and when this unit does not operate correctly when any of its buttons is pressed.

A. Connections

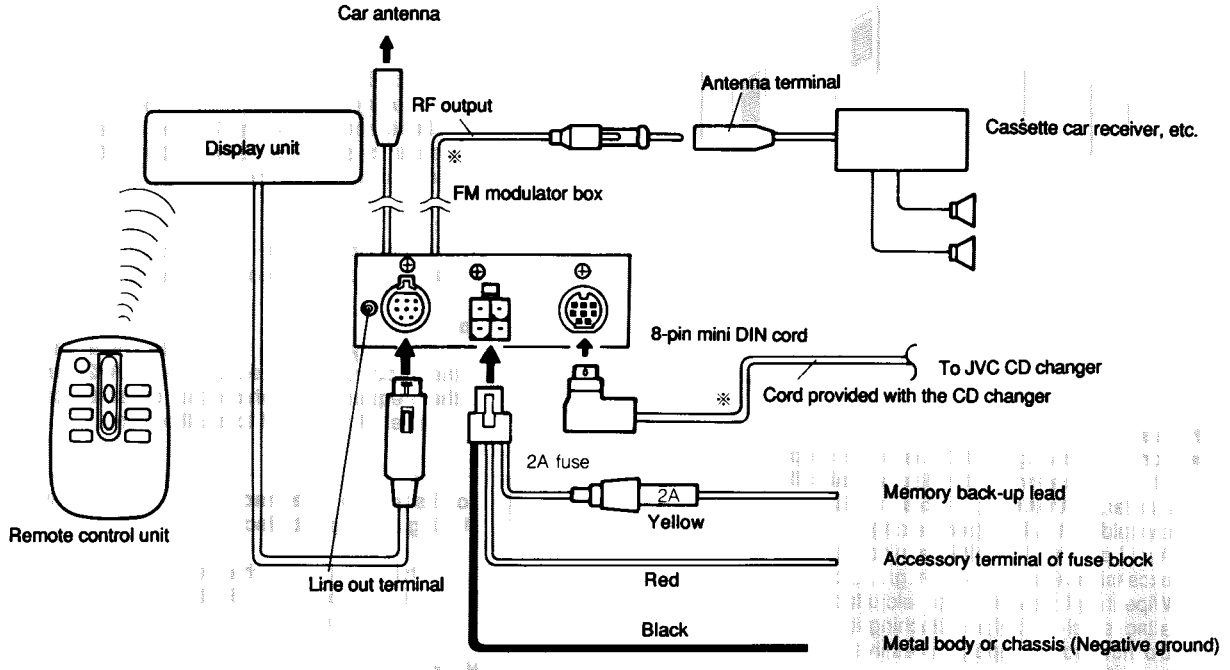


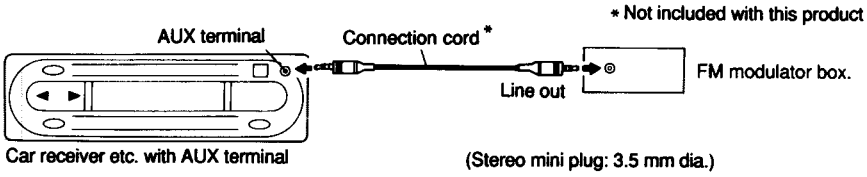
Fig. b

B. Memory back-up lead

Connect this lead to a position where live power is supplied even when the ignition key is taken out.

C. Line-out terminal

- **This terminal can be used to connect with the line-in or AUX terminal of a cassette car receiver. It is also used for the connection of a cassette adaptor.**



(The example shows a KS-RF20 being connected to a car receiver via the AUX terminal)

INSTALLATION

The display unit can be installed separately from the FM modulator box, for ease of operation.

- **Installing the FM modulator box**
  Install under the seat or the like, avoiding the car's heater vents.

Note:
When the installation position has been determined, confirm that the cords are sufficiently long.

- **Installing the display unit**
  Install as shown in Fig. a on a flat surface (dashboard, console, etc.) where it can be attached securely and where it can be operated easily, using Velcro tape.

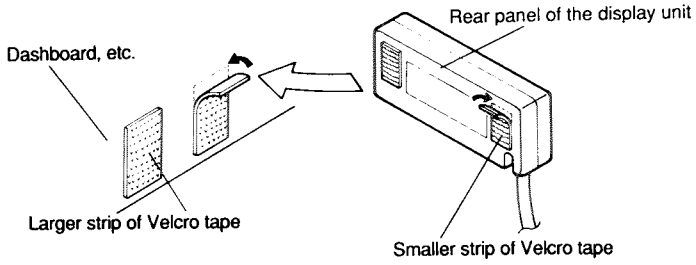


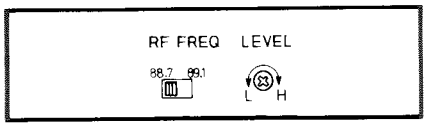
Fig. a

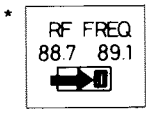
Notes:
- For safe driving, install the unit in a place where operation of the display unit will not interfere with driving. (Avoid installing where it would be too high (roof, etc.).)
- Avoid placing the unit in a place subject to excessive heat, direct sunlight, etc.
- Wipe the place where the Velcro tape is to be attached clean before attaching it.
- Do not drop or apply excessive shocks to the unit.
- Do not disassemble the unit.

PLAYING COMPACT DISCS

1. Switch ON the display unit of the KS-RF20.
2. Switch ON the cassette car receiver, etc.
3. Select the FM band.
4. Tune to 88.7 MHz*.
5. Play a compact disc.
6. Adjust the volume and tone as required.

* When the sound is distorted or noise can be heard during CD playback, switch the frequency selector on the KS-RF20 to 89.1 MHz. When you do this, tune the cassette car receiver, etc. to 89.1 MHz.





RF frequency selector

RF LEVEL control

** RF LEVEL control
The volume can be adjusted using the LEVEL volume control during CD play. When high-frequency sound is distorted during CD play, turn down the volume.

Note:
When adjusting the RF LEVEL control, do not press too hard to prevent damage to the unit.

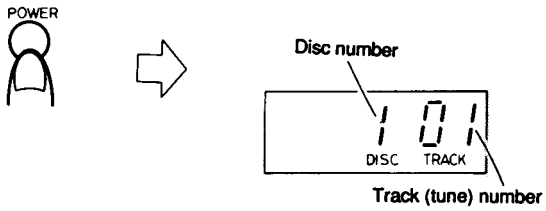
Note:
- Before playing a CD, be sure to check that the frequency selected on the KS-RF20 and the frequency to which the cassette car receiver etc. is tuned to are the same.

To listen to the radio (or tape) after playing a compact disc

1. Switch OFF the CD changer.
2. Tune to the required station (or play a cassette tape).

Notes:
1. When you want to listen to the radio, you must switch OFF the CD changer. Otherwise, noise may be generated and the broadcast may not be heard satisfactorily.
2. Lower the volume level before stopping disc playback, otherwise noise may be generated.
3. When the KS-RF20 is connected, tuner reception may be degraded to a certain extent.

To play all tracks (example: assuming 12 discs are loaded in the magazine)



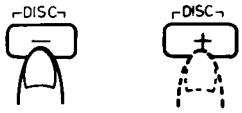
❶ Switch ON.
The display window lights.
CD play starts when the disc number and track number indicators light.
❷ Adjust the volume of the cassette car receiver to which the unit is connected.

- When all the tunes on the first disc have been played, the second disc starts automatically from the first tuned.

- **To stop in the middle of a disc**
During playback, press the ►/■ button to stop play. The display shows "– –".
When pressed again, playback resumes from the point where it was interrupted.

DISC SELECT BUTTON

During playback, press the DISC select button to listen to another compact disc.



- **Example: When the third CD is currently playing...**
Each time the (+) side is pressed, the 4th, 5th, 6th ... 12th and 1st disc ... will be selected in sequence.
Each time the (–) side is pressed, the 2nd, 1st and 12th disc ... will be selected in sequence.
(When this unit is connected to the XL-MG1800, disc selection is performed from the 1st disc to 18th disc to 17th disc ...)
(When this unit is connected to the XL-MK500, disc selection is performed from the 1st disc to 6th disc to 5th disc...)

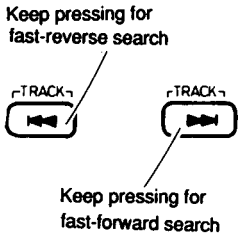
- During disc selection, the disc number and track number indicators blink.

SKIP PLAYBACK

To listen to the next tune ...
Press the ►►| button once to skip to the beginning of the next tune.

To listen to the previous tune ...
Press the |◄◄ button to skip to the beginning of the tune being played back and press again to skip to the beginning of the previous tune.

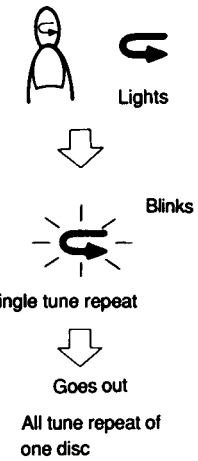
SEARCH PLAYBACK (to locate the required position on the disc)



- The required position can be located using fast-forward or reverse search during playback.
- Hold down the button; search playback starts slowly and then gradually increases in speed.
- Since low-volume sound (about one quarter of the playback level) can be heard in both modes, release the button when the required position is located.

REPEAT PLAYBACK

Press the ⊆ button before or during playback. It is possible to perform the repeat playback of single tune or all tunes of one disc in the magazine. Each time the ⊆ button is pressed, the repeat mode changes as follows.



- **Single tune repeat**
The current or specified tune will be played back repeatedly.
- **All tune repeat of one disc**
All tunes on the current or specified CD will be played back repeatedly.

INTRO SCAN OPERATIONS

Use these functions to play back the first 15 seconds of tracks. (When this unit is connected to the KD-MK70) With intro scan operations, either the first 15 seconds of all tracks of all discs in the magazine are intro-scanned, or just the first track of all discs in the magazine. Each time the Int button is pressed, the mode changes from TRACK scan (for all tracks) to DISC scan (for the first tracks of each disc) to clear.

TRACK scan: (Track No. blinks)

All tracks on all discs in the magazine are intro-scanned. When the required track is located, press the INT button two times to enter normal mode.

DISC scan: (Disc No. blinks)

Only the first tracks on all discs in the magazine are intro-scanned. When the required disc is located, press the Int button once to enter normal play mode.

RANDOM PLAYBACK

Each time the RND button is pressed, the mode is changed from the RND 1 mode to the RND 2 mode to the clear mode, in this order.
RND 1:
Plays all tunes on the disc currently being played back in random order.
RND 2:
Randomly play all the tunes on all the discs in the magazine.

1 Location of Main Parts

■ FM Modulator Section

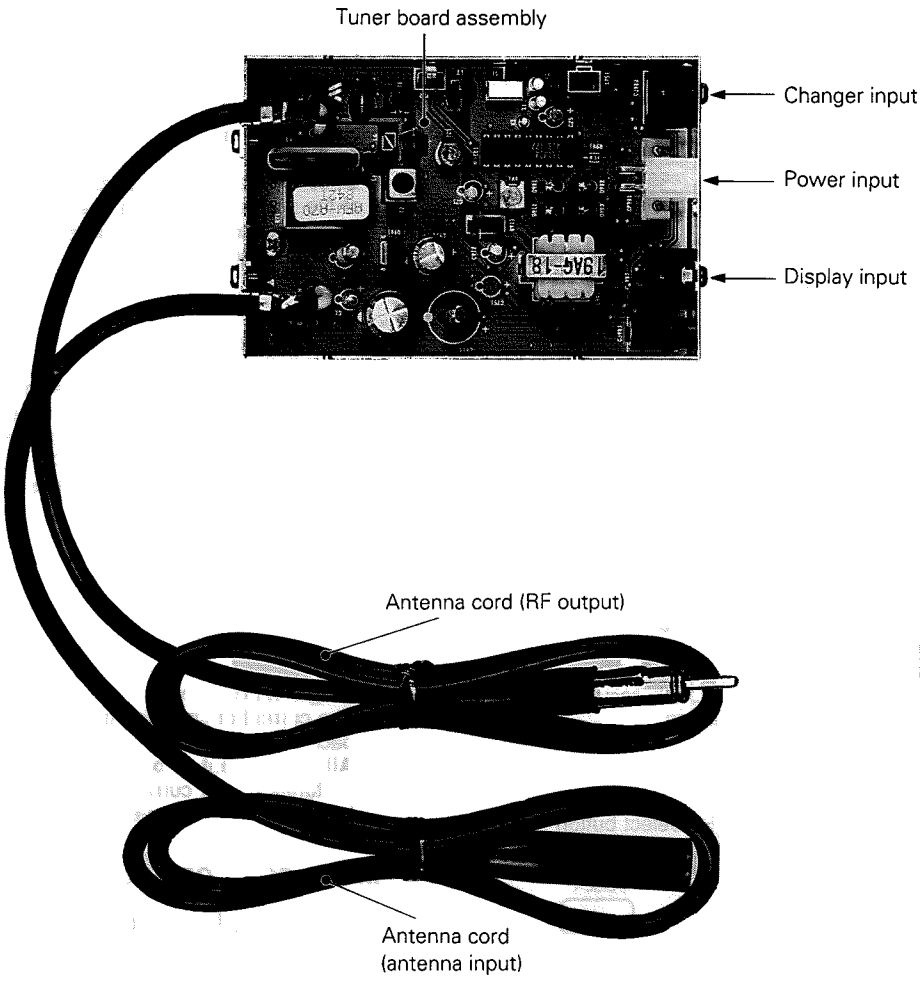


Fig. 1-1

■ Display Section

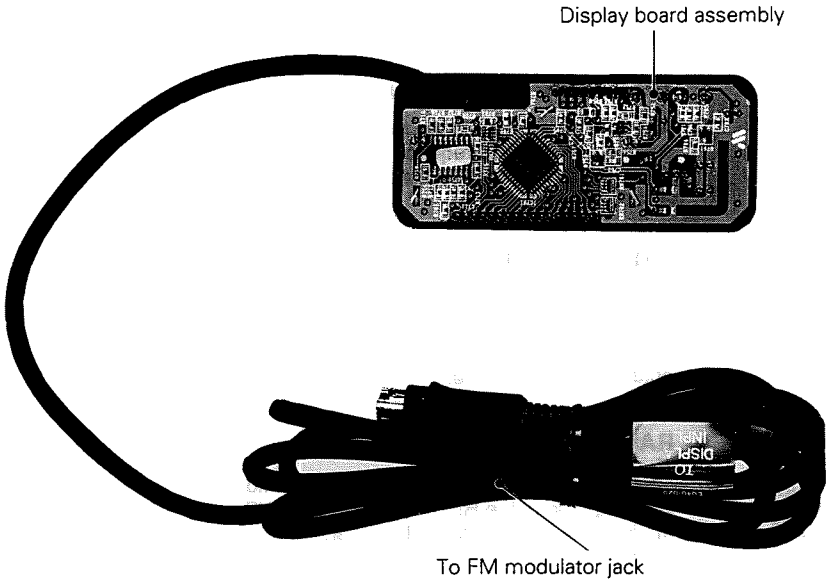


Fig. 1-2

■ Remote Control

Fig. 1-3

2 Removal of Main Parts and Exploded View

■ Display Section

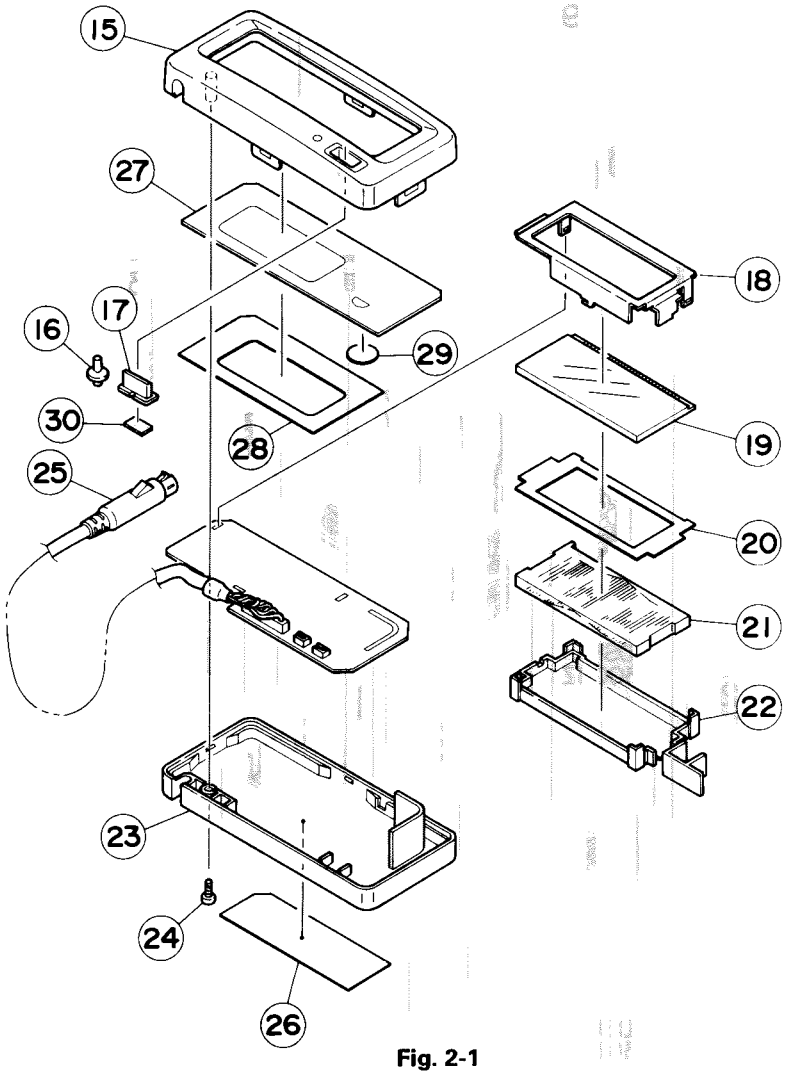


Fig. 2-1

● Display section parts list

BLOCK NO. M3MM

⚠	REF.	PARTS NO.	PARTS NAME	REMARKS	QTY	SUFFIX	CLR
	15	15-6467-01A	FRONT COVER		1		
	16	VXP5102-001	RESET BUTTON		1		
	17	VXP5153-003	PUSH BUTTON		1		
	18	15-5703-02A	LCD HOLDER		1		
	19	VGL1138-001	LCD	LCD1	1		
	20	15-5707-00A	LCD BLIND		1		
	21	15-5704-02A	LCD LENS		1		
	22	15-5705-01A	LCD CASE		1		
	23	15-5702-01A	REAR COVER		1		
	24	SPST2006N	SCREW		1		
	25	VMP3255-002S	8P CORD ASSY		1		
	26	VND4627-002	CAUTION LABEL		1		
	27	15-5706-02B	WINDOW PLATE		1		
	28	15-5782-00A	SHEET		1		
	29	VYTT589-001	SHEET		1		
	30	VYTH524-001	BUTTON CUSHON		1		

Note: The exploded view and parts list of the remote control unit RM-RK12 is omitted since it is not the subject of servicing.

■ FM modulator section

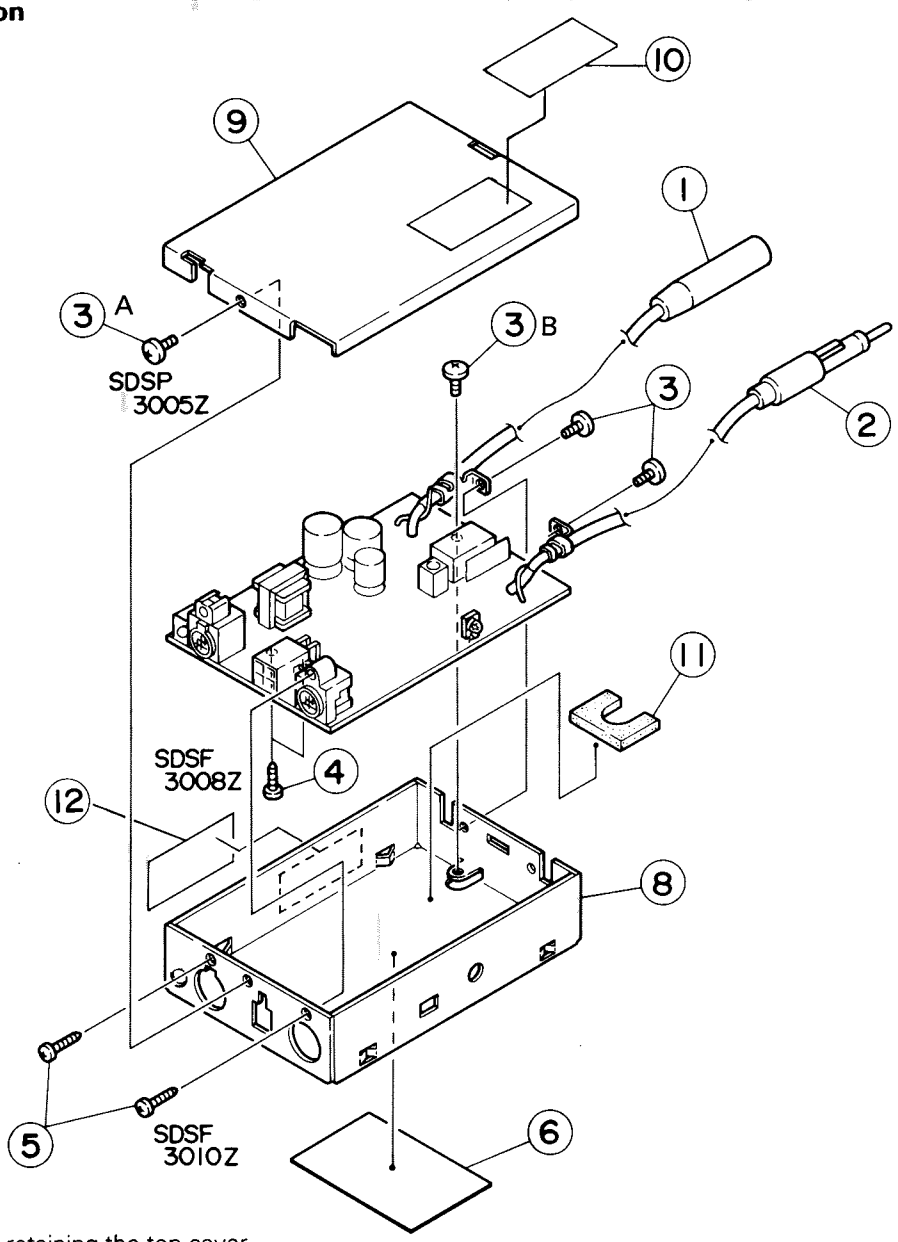


Fig. 2-2

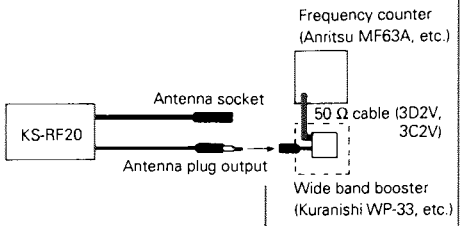
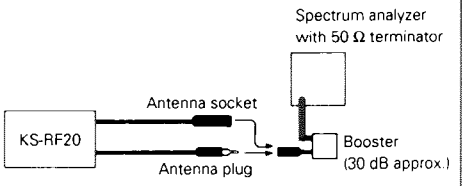
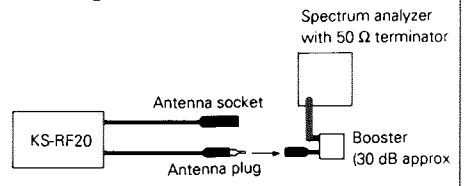
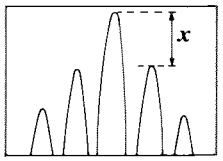
1) Remove one screw ③A retaining the top cover.
2) Remove two screws ⑤ retaining the jacks respectively.
3) Remove one screw ③B retaining the board.
4) Disconnect the controller cord from the case, and then raise the board.
   It is recommended to remove two screws ③ retaining the antenna for easy removing the board.

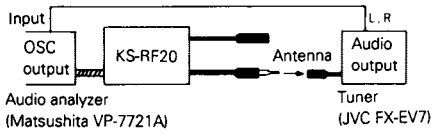
● FM modulator section parts list

BLOCK NO. M4MM

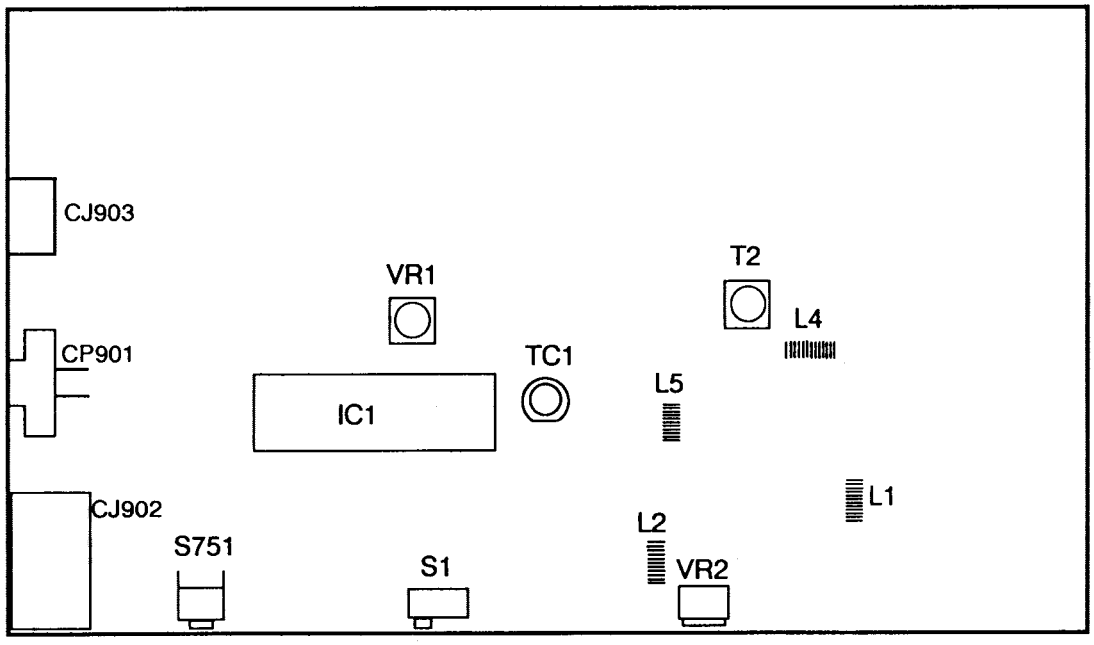
⚠	REF.	PARTS NO.	PARTS NAME	REMARKS	QTY	SUFFIX	CLR
	1	VMP0029-028	ANT.CORD		1		
	2	VMP0029-029	ANT.CORD		1		
	3	0014-308	SCREW		4		
	4	0014-761	SCREW		2		
	5	0014-803	SCREW		2		
	6	15-6306-07L	NAME PLATE	15-6306-07L	1		
	8	15-6350-01B	BOTTOM CASE		1		
	9	15-6351-02B	TOP COVER		1		
	10	VND4999-001	FCC LABEL		1		
	11	15-5418-00A	STOPPER		1		
	12	E407097-002	CAUTION LABEL		1		

3 Main Adjustments

Item	Adjusting condition	Adjustment and Check Procedures	Standard value	Adjusting point
1. Transmission frequency	The set is activated. (Impress +14.4 V to the ACC memory of CP901 while turning on the power with the LCD controller.)	1) Set the mode for Pause with the remote control unit. 2) Connect the ANT. OUT cable to an Frequency Counter as shown in the figure below. On the occasion of poor sensitivity at the Frequency Counter, connect a booster. 3) Tune the transmission frequency by adjusting T2. Set S1 to the L-ch and tune to 88.7 MHz, the frequency on the H-ch is set to 89.1 MHz. On the other hand, when the H-ch is set to 89.1 MHz first, the L-ch frequency is set to 88.7 MHz.	Transmission frequency: L-ch: 88.7 MHz H-ch: 89.1 MHz < Wiring for measurement > 	T2
2. Spurius (Antenna leak level)	The set is activated. (Impress +14.4 V to the ACC memory of CP901 while turning on the power with the LCD controller.)	1) After wiring as shown above, activate the set and enter its mode to Pause with the remote control unit (antenna plug side). 2) Adjust respective L values of air-core coils L1, L2, L3, L5 and L6 by opening and closing them. 3) Change the inclination of L1 to adjust the spurius level of the FM band. (Adjustment of inclination of L1 affects on antenna leak level.) 4) Connect the ANT. socket with the spectrum analyzer, and confirm that the antenna leak level is within the allowance of the specifications. If not, repeat the step 3) with care of the spurius. 5) After adjustment of the spurius and antenna leak level, repeat the step 1).	< Wiring for measurement > 	Inclination of L1
3. Pilot FM deviation		1) After wiring as shown above, narrow the range of the spectrum analyzer to obtain such a waveform as shown below. [Example] (with MS62B spectrum analyzer) • Vertical scale: 5 dB/div. • Band width: 3 kHz • Scan width: 10 kHz/div. • Scan time: 2 ms/div. 2) Set the output difference between the spectrum of the center frequency and the spectrum whose frequency is 19 kHz apart from the former to −14 dB. Conversion equation between pilot FM deviation and output difference is as follows. $f = 19 \times \log^{-1}\{(6 - X)/20\}$ kHz.	Output difference: −14 dB < Wiring for measurement >  	—

Item	Adjusting condition	Adjustment and Check Procedures	Standard value	Adjusting point
4. Stereo separation		1) After wiring as shown above, activate the set and enter its mode to Pause with the remote control unit. 2) Insert a 30 kHz L.P.F. between the audio analyzer and the set. 3) Impress 300 mVrms (approx. −14.3 dBm with 600 Ω terminator) to L-ch of CP902 and measure the level difference of the demodulation output. 4) With the same input, adjust the level difference of the R-ch demodulation output to 35 dB approx. 5) Impress 300 mVrms to R-ch of CP902 and measure the level difference of the demodulation output. 6) With the same input, confirm that the level difference of the L-ch demodulation output is 30 dB or more. If not, repeat the adjustment from the step 3).	Level difference of demodulation output on R-ch: 35 dB approx. Level difference of demodulation output on L-ch: 30 dB approx. < Wiring for measurement > 	

■ Location of Adjustment



4 Standard Schematic Diagram

■ FM Modulator Section Circuit

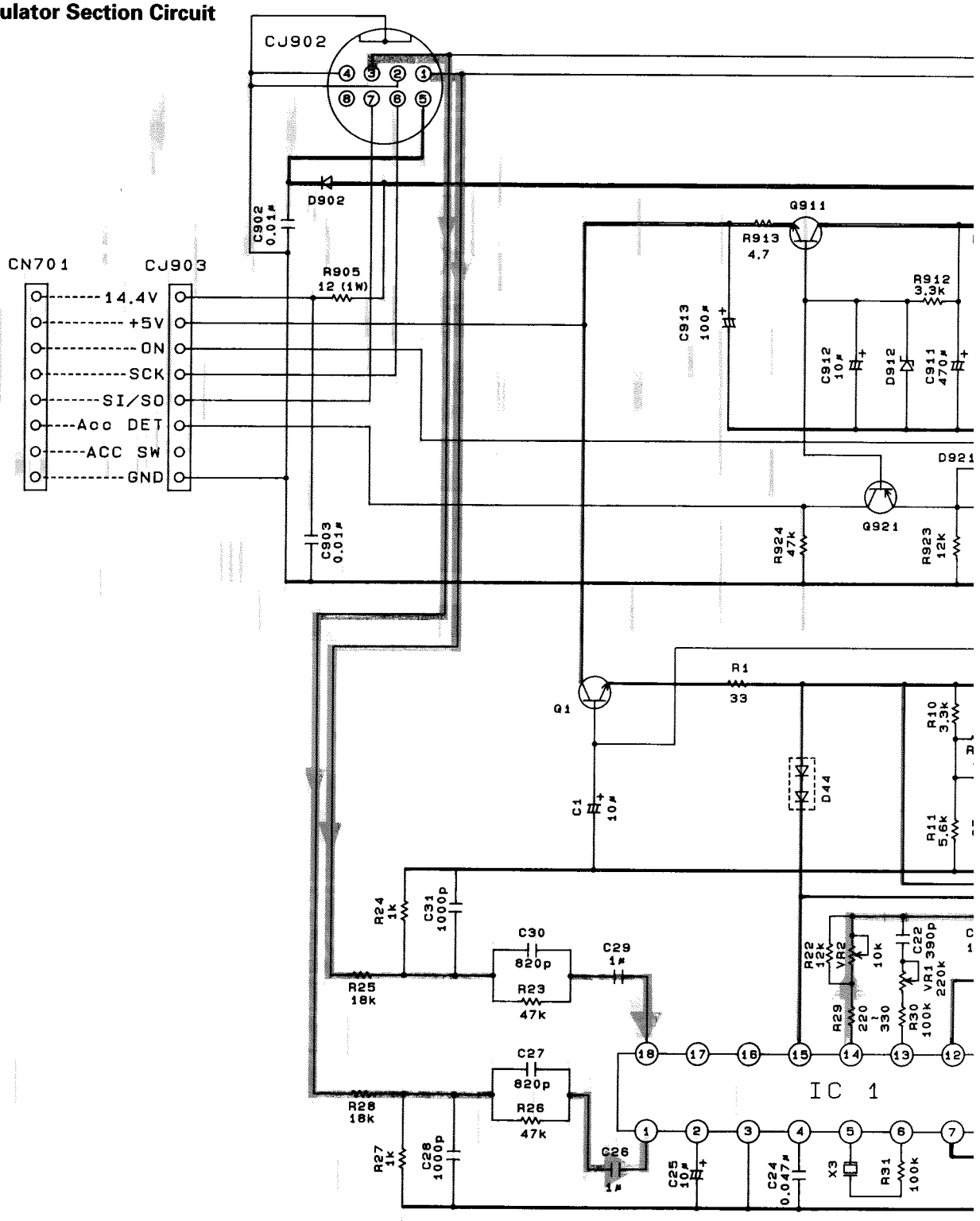
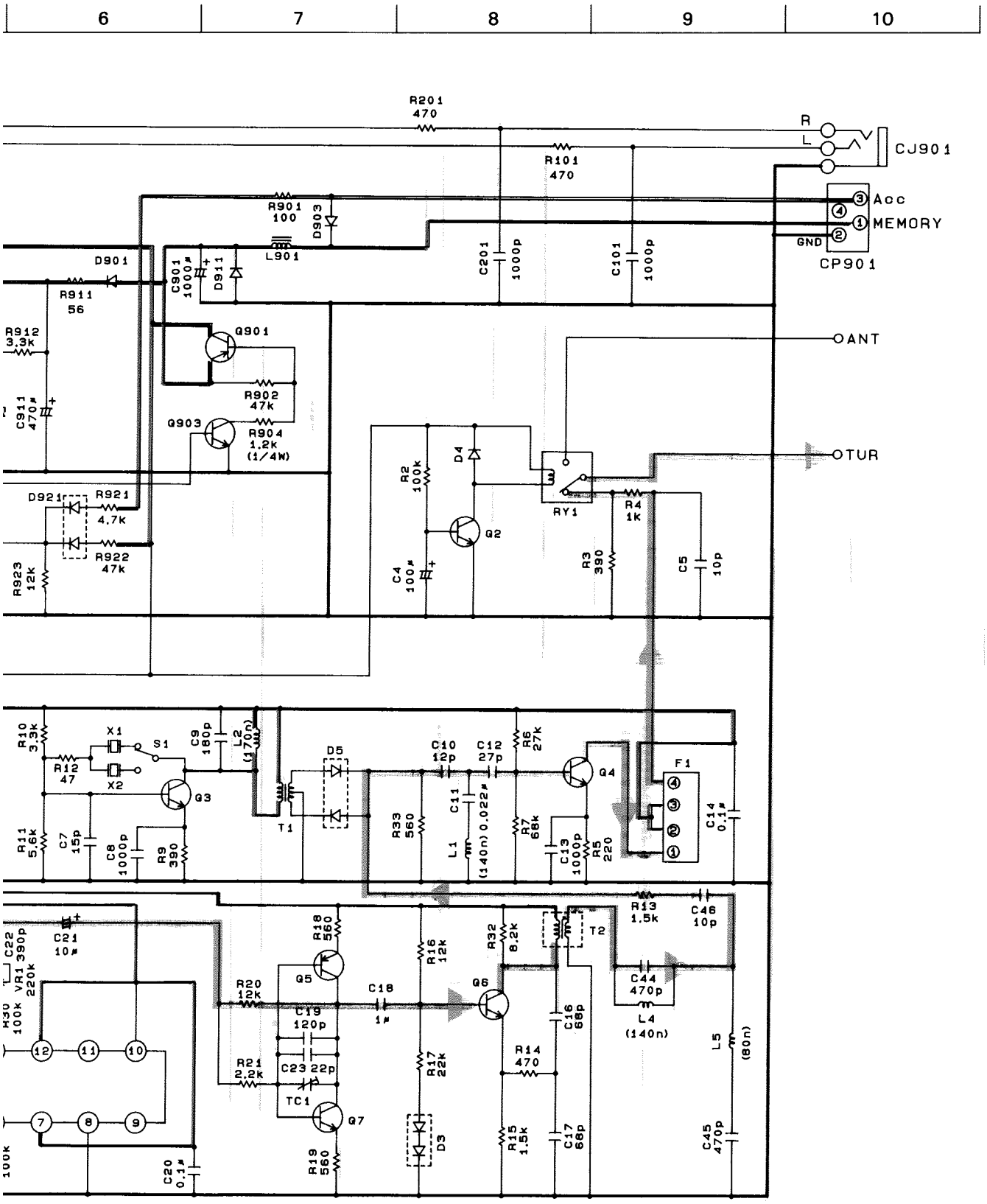


Fig. 4-1



CD signal

ACC line

■ Display Section Circuit

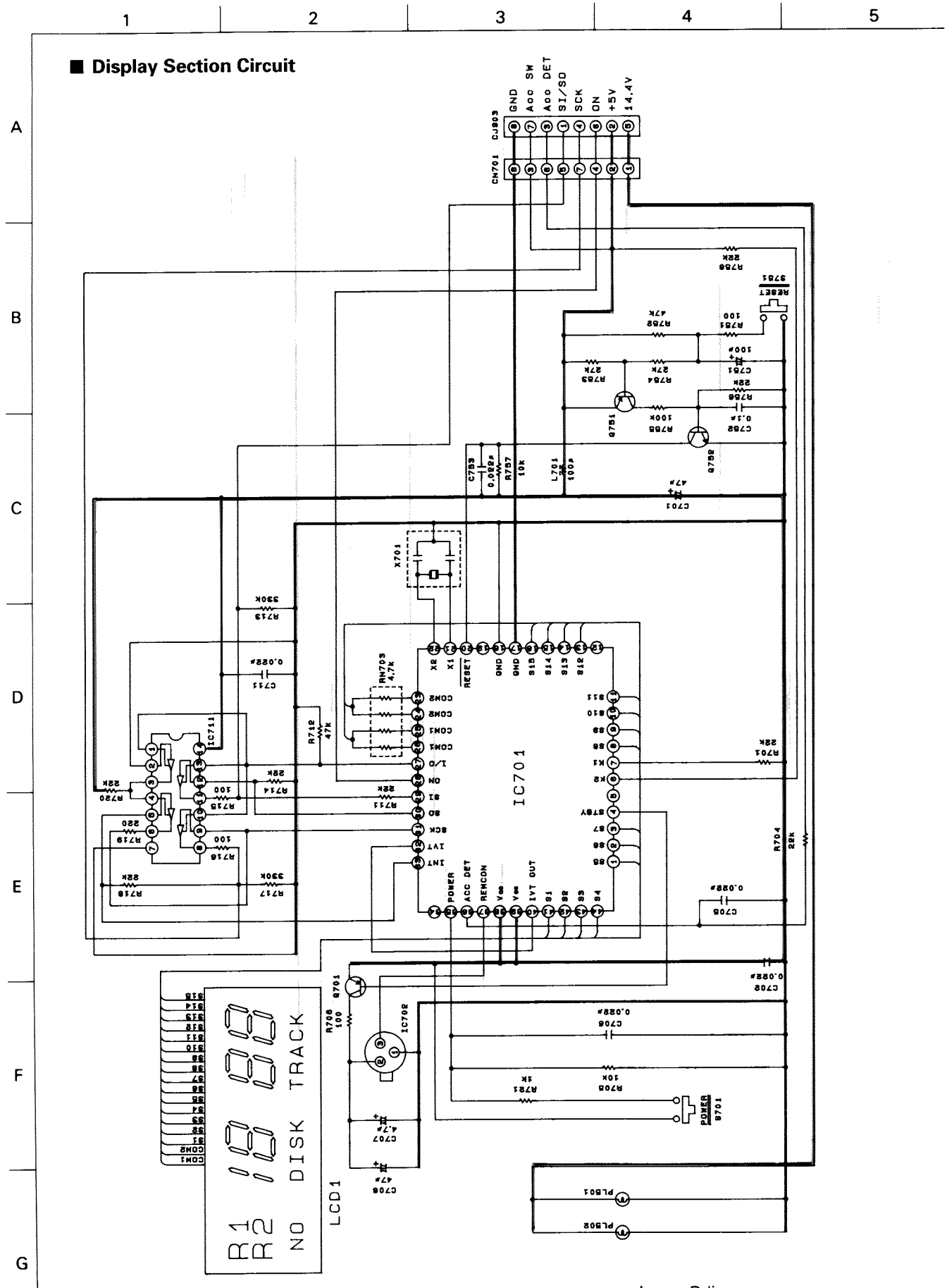


Fig. 4-2

+B line

5 Location of P.C. Board Parts and Parts List

1 2 3 4 5

A B C D E F G

■ **FM Modulator Section Board**

Top view

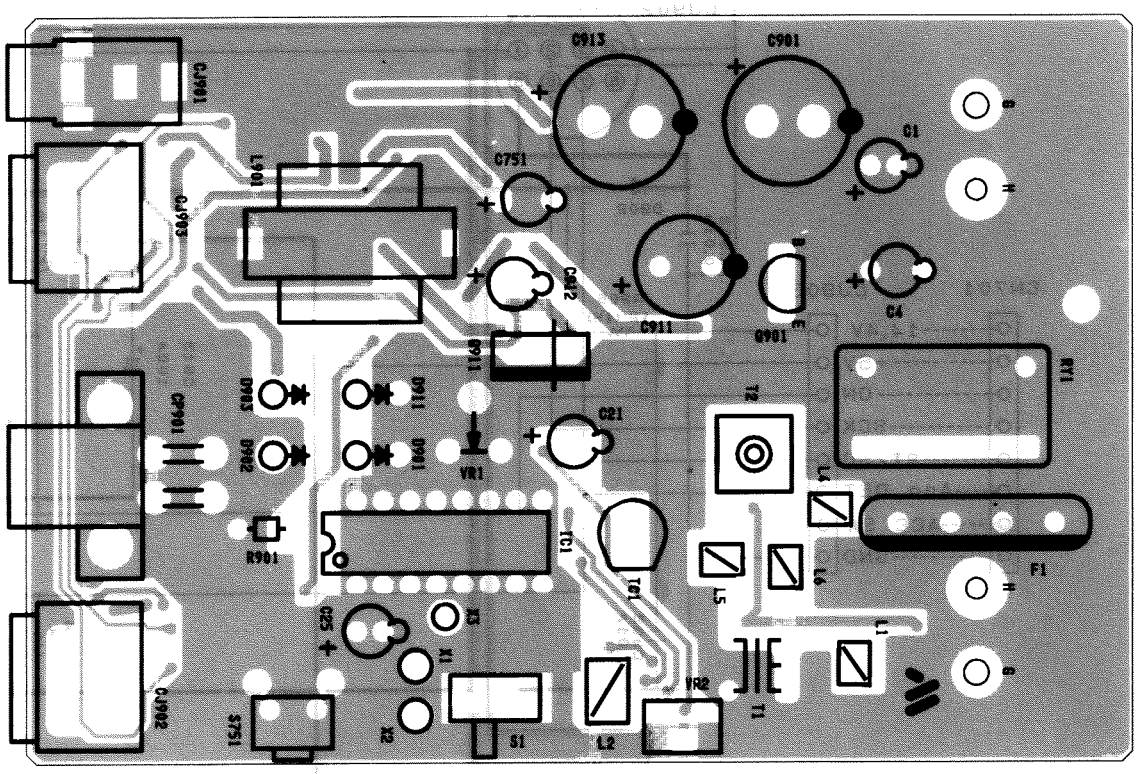


Fig. 5-1

Bottom view

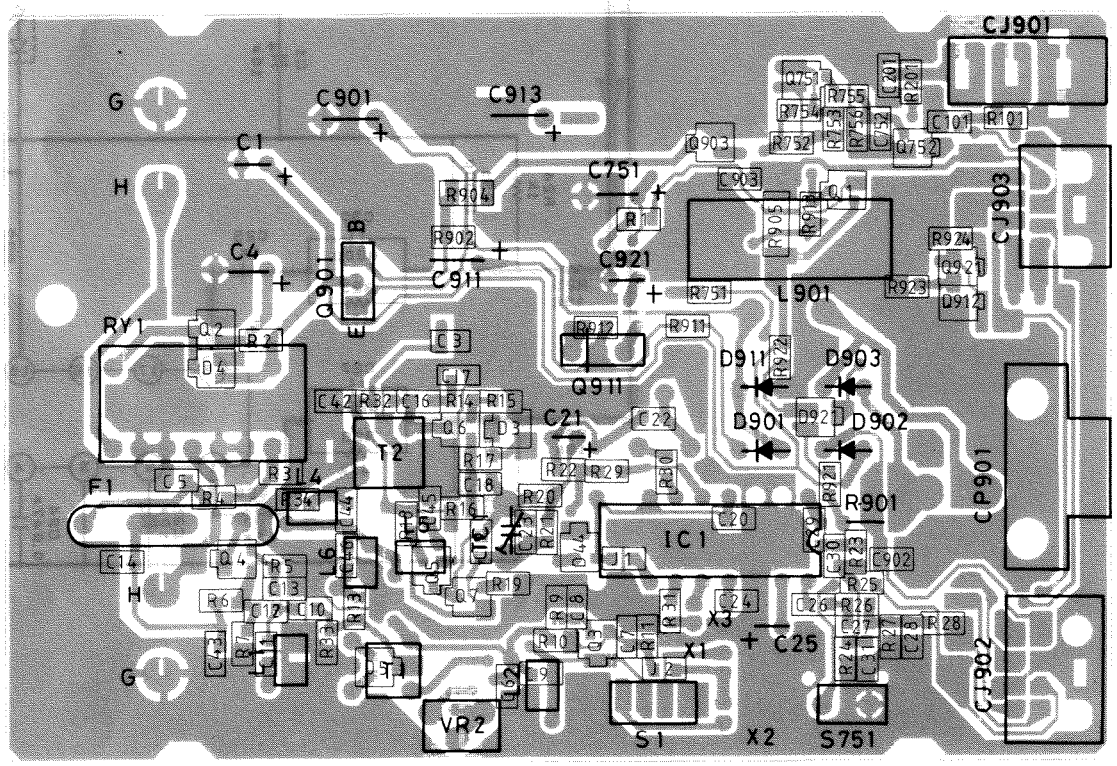


Fig. 5-2

BLOCK NO. 03

⚠	REF.	PARTS NO.	PARTS NAME	REMARKS	SUFFIX
	C 1	QEK41CM-106	E CAPACITOR	10MF 20% 16V	
	C 4	QET41CM-107	E CAPACITOR	100MF 20% 16V	
	C 5	NCS21HJ-100AY	C CAPACITOR	10PF 5% 50V	
	C 7	NCS21HJ-151AY	C CAPACITOR	150PF 5% 50V	
	C 8	0037-044	C CAPACITOR		
	C 9	9320-241-8-14	C CAPACITOR	180PF +50:-10%	
	C 10	NCT21CH-120AY	C CAPACITOR	12PF +50:-10% 1	
	C 11	0153-361	C CAPASITOR		
	C 12	NCT21CH-270AY	C CAPACITOR	27PF +50:-10% 1	
	C 13	0037-044	C CAPACITOR		
	C 14	0153-387	C CAPACITOR		
	C 16	0034-942	C CAPACITOR		
	C 17	0034-942	C CAPACITOR		
	C 18	0037-853	C CAPACITOR		
	C 19	NCS21HJ-121AY	C CAPACITOR	120PF 5% 50V	
	C 20	0153-387	C CAPACITOR		
	C 21	QEK41CM-106	E CAPACITOR	10MF 20% 16V	
	C 22	NCS21HJ-391AY	C CAPACITOR	390PF 5% 50V	
	C 23	NCS21HJ-220AY	C CAPACITOR	22PF 5% 50V	
	C 24	0153-379	C CAPACITOR		
	C 25	QEK41CM-106	E CAPACITOR	10MF 20% 16V	
	C 26	0037-853	C CAPACITOR		
	C 27	NCS21HJ-821AY	C CAPACITOR	820PF 5% 50V	
	C 28	0037-044	C CAPACITOR		
	C 29	0037-853	C CAPACITOR		
	C 30	NCS21HJ-821AY	C CAPACITOR	820PF 5% 50V	
	C 31	0037-044	C CAPACITOR		
	C 44	NCT21CH-471AY	C CAPACITOR	470PF +50:-10%	
	C 45	NCT21CH-471AY	C CAPACITOR	470PF +50:-10%	
	C 46	NCT21CH-100AY	C CAPACITOR	10PF +50:-10% 1	
	C 101	0037-044	C CAPACITOR		
	C 201	0037-044	C CAPACITOR		
	C 901	QETB1CM-108	E CAPACITOR	1000MF 20% 16V	
	C 902	0043-471	C CAPACITOR		
	C 903	0043-471	C CAPACITOR		
	C 911	QET41CM-477	E CAPACITOR	470MF 20% 16V	
	C 912	QEK41CM-106	E CAPACITOR	10MF 20% 16V	
	C 913	QET41CM-107	E CAPACITOR	100MF 20% 16V	
	CJ901	15-5755-01A	STEREO JACK		
	CJ902	VMJ4038-001	MINI DIN JACK		
	CJ903	VMJ4037-001	8P JACK		
	CP901	VMC0225-004	CONN.TERMINAL		
	D 3	1SS226	DIODE		
	D 4	HSM223C	DIODE		
	D 5	HSM198S	DIODE		
	D 44	1SS226	DIODE		
	D 901	1SR139-100	DIODE		
	D 902	1SR139-100	DIODE		
	D 903	1SR139-100	DIODE		
	D 911	1SR139-100	DIODE		
	D 912	HZM5.6NB3	DIODE		
	D 921	HSM2838C	DIODE		
	F 1	0416-0202-036	CERAMIC FILTER		
	IC 1	BA1404	IC		
	J 1	NRSA02J-0RONY	MG RESISTOR	5% 1/10W	

BLOCK NO. 03

⚠	REF.	PARTS NO.	PARTS NAME	REMARKS	SUFFIX
	L 1	15-5813-03G	OSC.COIL		
	L 2	15-5813-03C	OSC.COIL		
	L 4	15-5813-03F	OSC.COIL		
	L 5	15-5813-03B	OSC.COIL		
	L 901	VTC19AG-18AV	CHOCK COIL		
	Q 1	DTC114YKWK1	TRANSISTOR		
	Q 2	2SD601A(R)	TRANSISTOR		
	Q 3	2SC2757	TRANSISTOR		
	Q 4	2SC2714(O)	TRANSISTOR		
	Q 5	2SA1162	TRANSISTOR		
	Q 6	2SC2619	TRANSISTOR		
	Q 7	2SD601A(R)	TRANSISTOR		
	Q 901	2SB1212	TRANSISTOR		
	Q 911	2SD1994	TRANSISTOR		
	Q 921	2SA1162	TRANSISTOR		
	R 1	NRSA02J-330NY	MG RESISTOR	33 5% 1/10W	
	R 2	NRSA02J-104NY	MG RESISTOR	100K 5% 1/10W	
	R 3	NRSA02J-391NY	MG RESISTOR	390 5% 1/10W	
	R 4	NRSA02J-102NY	MG RESISTOR	1.0K 5% 1/10W	
	R 5	NRSA02J-221NY	MG RESISTOR	220 5% 1/10W	
	R 6	NRSA02J-273NY	MG RESISTOR	27K 5% 1/10W	
	R 7	NRSA02J-683NY	MG RESISTOR	68K 5% 1/10W	
	R 9	NRSA02J-391NY	MG RESISTOR	390 5% 1/10W	
	R 10	NRSA02J-332NY	MG RESISTOR	3.3K 5% 1/10W	
	R 11	NRSA02J-562NY	MG RESISTOR	5.6K 5% 1/10W	
	R 12	NRSA02J-470NY	MG RESISTOR	47 5% 1/10W	
	R 13	NRSA02J-152NY	MG RESISTOR	1.5K 5% 1/10W	
	R 14	NRSA02J-471NY	MG RESISTOR	470 5% 1/10W	
	R 15	NRSA02J-152NY	MG RESISTOR	1.5K 5% 1/10W	
	R 16	NRSA02J-123NY	MG RESISTOR	12K 5% 1/10W	
	R 17	NRSA02J-223NY	MG RESISTOR	22K 5% 1/10W	
	R 18	NRSA02J-561NY	MG RESISTOR	560 5% 1/10W	
	R 19	NRSA02J-561NY	MG RESISTOR	560 5% 1/10W	
	R 20	NRSA02J-123NY	MG RESISTOR	12K 5% 1/10W	
	R 21	NRSA02J-222NY	MG RESISTOR	2.2K 5% 1/10W	
	R 22	NRSA02J-123NY	MG RESISTOR	12K 5% 1/10W	
	R 23	NRSA02J-473NY	MG RESISTOR	47K 5% 1/10W	
	R 24	NRSA02J-102NY	MG RESISTOR	1.0K 5% 1/10W	
	R 25	NRSA02J-183NY	MG RESISTOR	18K 5% 1/10W	
	R 26	NRSA02J-473NY	MG RESISTOR	47K 5% 1/10W	
	R 27	NRSA02J-102NY	MG RESISTOR	1.0K 5% 1/10W	
	R 28	NRSA02J-183NY	MG RESISTOR	18K 5% 1/10W	
	R 29	NRSA02J-271NY	MG RESISTOR	270 5% 1/10W	
	R 30	NRSA02J-104NY	MG RESISTOR	100K 5% 1/10W	
	R 31	NRSA02J-104NY	MG RESISTOR	100K 5% 1/10W	
	R 32	NRSA02J-822NY	MG RESISTOR	8.2K 5% 1/10W	
	R 33	NRSA02J-561NY	MG RESISTOR	560 5% 1/10W	
	R 101	NRSA02J-471NY	MG RESISTOR	470 5% 1/10W	
	R 201	NRSA02J-471NY	MG RESISTOR	470 5% 1/10W	
	R 901	0129-254	RESISTOR		
	R 902	NRSA02J-473NY	MG RESISTOR	47K 5% 1/10W	
	R 904	0133-975	RESISTOR		
	R 905	0151-621	RESISTOR		
	R 911	NRSA02J-560NY	MG RESISTOR	56 5% 1/10W	
	R 912	NRSA02J-332NY	MG RESISTOR	3.3K 5% 1/10W	

BLOCK NO. 03

⚠	REF.	PARTS NO.	PARTS NAME	REMARKS	SUFFIX
	R 913	NRSA02J-4R7NY	MG RESISTOR	4.7 5% 1/10W	
	R 921	NRSA02J-472NY	MG RESISTOR	4.7K 5% 1/10W	
	R 922	NRSA02J-473NY	MG RESISTOR	47K 5% 1/10W	
	R 923	NRSA02J-123NY	MG RESISTOR	12K 5% 1/10W	
	R 924	NRSA02J-473NY	MG RESISTOR	47K 5% 1/10W	
	RY 1	1116-2101-032	RELAY		
	S 1	1116-3101-062	TACT SWITCH		
	T 1	55-1067-02A	TRANSF.		
	T 2	R12-H554-00X	OSC.TRANSF.		
	TC 1	TZ03R300FR169	V CAPACITOR		
	VR 1	0216-2340-006	V RESISTOR		
	VR 2	0216-2341-070	V RESISTOR		
	X 1	0716-0201-029	CRYSTAL		
	X 2	0716-0201-028	CRYSTAL		
	X 3	0716-0201-027	CRYSTAL		

■ Display Section Board

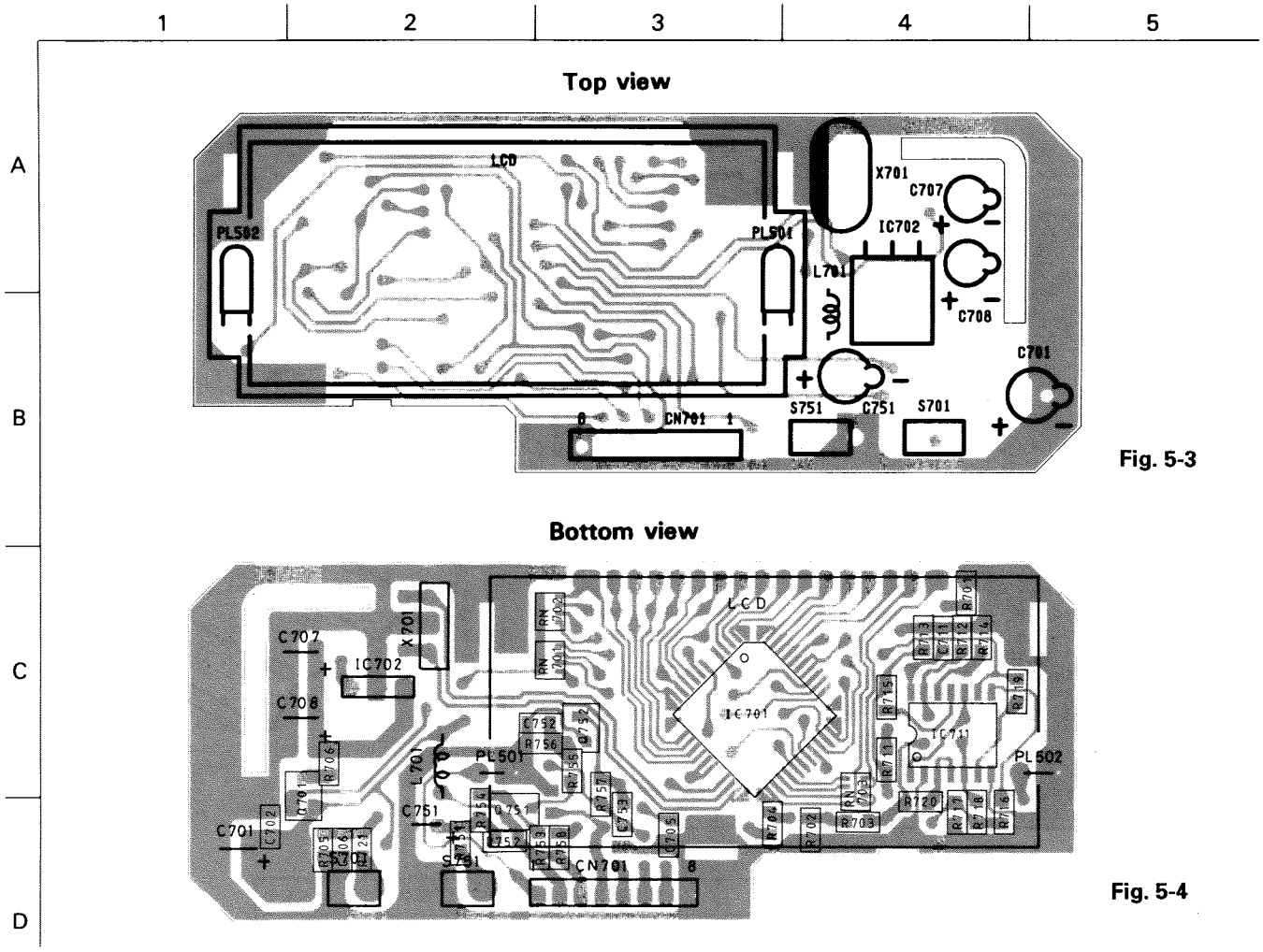


Fig. 5-3

Fig. 5-4

● Display Section Board Parts List

BLOCK NO. 04

REF.	PARTS NO.	PARTS NAME	REMARKS	SUFFIX
C 701	QEK40JM-476	E CAPACITOR	47MF 20% 6.3V	
C 702	0153-361	C CAPACITOR		
C 705	0153-361	C CAPACITOR		
C 706	0153-361	C CAPACITOR		
C 707	QEK51HM-475	E CAPACITOR	4.7MF 20% 50V	
C 708	QEK40JM-476	E CAPACITOR	47MF 20% 6.3V	
C 711	0153-361	C CAPACITOR		
C 751	QET41CM-107	E CAPACITOR	100MF 20% 16V	
C 752	0153-387	C CAPACITOR		
C 753	0153-361	C CAPACITOR		
IC701	UPD750068-622	IC		
IC702	RPM-638CBL	IC		
IC711	MC74HC126AF	IC		
L 701	0162-768	COIL		
LCD 1	VGL1138-001	LCD.PANEL		
PL501	VGZ0001-055	LAMP		
PL502	VGZ0001-055	LAMP		
Q 701	DTA124EK	TRANSISTOR		
Q 751	2SA1162	TRANSISTOR		
Q 752	2SD601A(R)	TRANSISTOR		
R 701	NRSA02J-223NY	MG RESISTOR	22K 5% 1/10W	
R 704	NRSA02J-223NY	MG RESISTOR	22K 5% 1/10W	
R 705	NRSA02J-103NY	MG RESISTOR	10K 5% 1/10W	
R 706	NRSA02J-101NY	MG RESISTOR	100 5% 1/10W	
R 711	NRSA02J-223NY	MG RESISTOR	22K 5% 1/10W	
R 712	NRSA02J-473NY	MG RESISTOR	47K 5% 1/10W	
R 713	NRSA02J-334NY	MG RESISTOR	330K 5% 1/10W	
R 714	NRSA02J-223NY	MG RESISTOR	22K 5% 1/10W	
R 715	NRSA02J-101NY	MG RESISTOR	100 5% 1/10W	
R 716	NRSA02J-101NY	MG RESISTOR	100 5% 1/10W	
R 717	NRSA02J-334NY	MG RESISTOR	330K 5% 1/10W	
R 718	NRSA02J-223NY	MG RESISTOR	22K 5% 1/10W	
R 719	NRSA02J-221NY	MG RESISTOR	220 5% 1/10W	
R 720	NRSA02J-223NY	MG RESISTOR	22K 5% 1/10W	
R 721	NRSA02J-102NY	MG RESISTOR	1.0K 5% 1/10W	
R 751	NRSA02J-101NY	MG RESISTOR	100 5% 1/10W	
R 752	NRSA02J-473NY	MG RESISTOR	47K 5% 1/10W	
R 753	NRSA02J-273NY	MG RESISTOR	27K 5% 1/10W	
R 754	NRSA02J-273NY	MG RESISTOR	27K 5% 1/10W	
R 755	NRSA02J-104NY	MG RESISTOR	100K 5% 1/10W	
R 756	NRSA02J-223NY	MG RESISTOR	22K 5% 1/10W	
R 757	NRSA02J-103NY	MG RESISTOR	10K 5% 1/10W	
R 758	NRSA02J-223NY	MG RESISTOR	22K 5% 1/10W	
RN703	0216-2031-001	RESISTOR		
S 701	15-2690-00A	TACT SWITCH		
S 751	15-2690-00A	TACT SWITCH		
X 701	0716-0102-005	CRYSTAL		

6 Packing

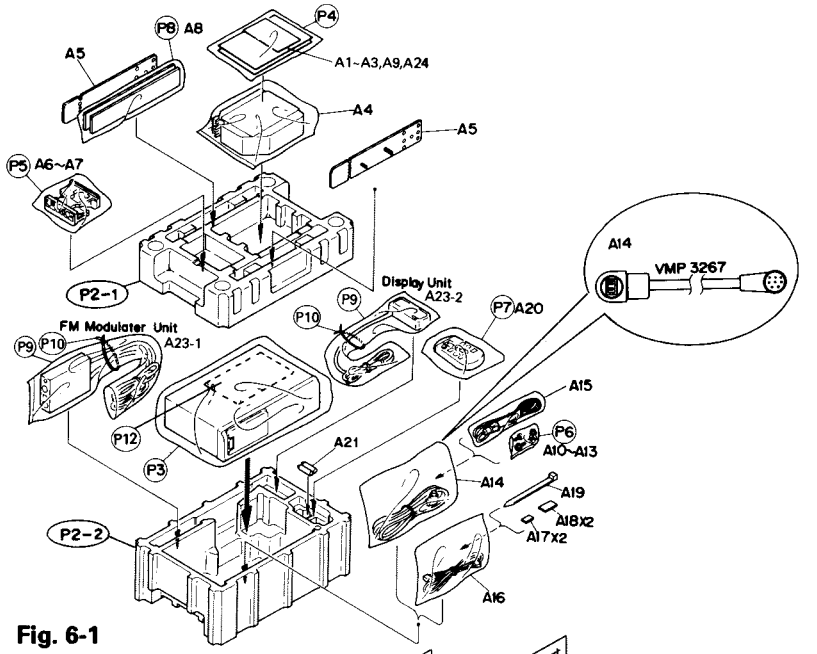
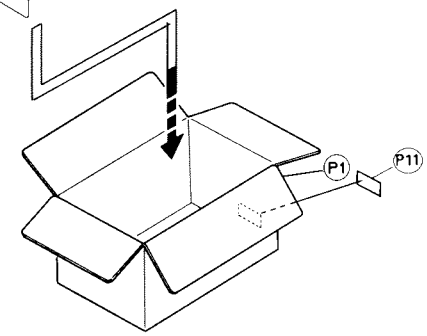


Fig. 6-1



● Packing Parts List

BLOCK NO. M5MM□□□

⚠	REF.	PARTS NO.	PARTS NAME	REMARKS	QTY
	P 1	VPC3602-001	CARTON		1
	P 2	VPH1669-001	CUSHION(U)	P2-1 UPPER	1
		VPH1669-002	CUSHION(L)	P2-2 LOWER	1
	P 3	VPE3005-066	POLY BAG	FOR UNIT	1
	P 4	QPGA017-02505	POLY BAG		1
	P 5	QPGA015-02503	POLY BAG	MOUNT HOLDER	1
	P 6	QPGA008-01205	POLY BAG	SCREW SA	1
	P 7	QPGA008-01903	POLY COVER	FOR REMOTE CONT	1
	P 8	QPGA007-03003	ENVELOPE	FOR SPACER	1
	P 9	15-5430-02C	POLY BAG		2
	P 10	Q04141H	WIRE CLAMP		2
	P 11	VND3115-001	LABEL	FOR VND3111-057	1
	P 12	VNC2400-104	INST SHEET		1

● Accessories

BLOCK NO. M5MM□□□

⚠	REF.	PARTS NO.	PARTS NAME	REMARKS	QTY	SUFFIX	CLR
	A 1	VNN3580-631	INSTRUCTIONS		1		
		VNN3559-632	INSTRUCTIONS	KS-RF20C	1		
	A 2	BT-20059D	WARRANTY CARD		1	J	
		BT-20025M	WARRANTY CARD		1	C	
	A 3	BT-20071B	SVC CENTER LIST		1	C	
		BT-20137	SERVICE NETWORK		1	J	
	A 4	VYA3007-00J	MAGAZINE ASS'Y	POLYBAG+SEEL	1		
	A 5	VKM3821-00A	MOUNT BASE ASSY	MOUNT BASE+BOLT	2		
	A 6	VKS3691-001	MOUNT HOLDER(L)		1		
	A 7	VKS3692-001	MOUNT HOLDER(R)		1		
	A 8	VYSH103-096	SPACER	FOR MOUNT BASE	2		
	A 9	VYTT652-001	SEAL		1		
	A 10	SDSP4008Z	SCREW		4		
	A 11	VKZ4328-001	LOCK NUT	M5	4		
	A 12	WNS5000Z	WASHER		4		
	A 13	VKZ4029-003	SCREW	M5 X 20	4		
	A 14	VMP3267-001	8P DIN BUS CORD		1		
	A 15	VMC0014-143	POWER CORD		1		
	A 16	VMC0014-165	4P CORD ASS'Y		1		
	A 17	VYTT546-004	SHEET(B)		2		
	A 18	VYTT547-004	SHEET(A)		2		
	A 19	QHX5080-001	WIRE CLAMP		1		
	A 20	JV-0062-13	REMOCON UNIT		1		
	A 21	R03BPA-2ST	BATTERY	FOR REMOCON	2		
	A 23	VGZ0144-001	CD CONTROLER+RF		1		
	A 24	VNC2400-103	INST SHEET		1		
	KIT 1	KDMK70K-SCREW1	SCREW PARTS KIT	A10-A13	1		

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