

SHARP SERVICE MANUAL

No. S1801MDS301//

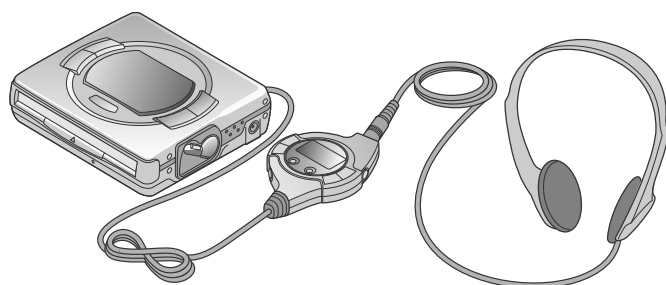


Illustration: MD-S301



MD-S301 MD-S301W

• In the interests of user-safety the set should be restored to its original condition and only parts identical to those specified should be used.

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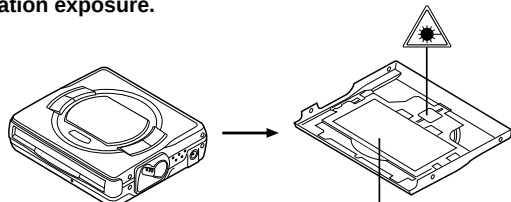
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SAFETY PRECAUTION FOR SERVICE MANUAL (MD-S301W ONLY)

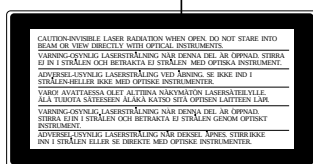
Precaution to be taken when replacing and servicing the Laser Pickup.

The AEL (Accessible Emission Level) of Laser Power Output for this model is specified to be lower than Class I Requirements. However, the following precautions must be observed during servicing to protect your eyes against exposure to the Laser:-

- (1) When the cabinet has been removed, the power is turned on without a compact disc, and the Pickup is on a position outer than the lead-in position, the Laser will light for several seconds to detect a disc. Do not look into the Pickup Lens.
- (2) The Laser Power Output of the Pickup inside the unit and replacement service parts have already been adjusted prior to shipping.
- (3) No adjustment to the Laser Power should be attempted when replacing or servicing the Pickup.
- (4) Under no circumstances look directly into the Pickup Lens at any time.
- (5) CAUTION - Use of controls or adjustments, or performance of procedures other than those specified herein may result in hazardous radiation exposure.



Laser Diode Properties
 Material: GaAlAs
 Wavelength: 785 nm
 Emission Duration: continuous
 Laser Output: max. 0.73 mW



VAROITUS! LAITTEEN KÄYTTÄMINEN MUULLA KUIN TÄSSÄ KÄYTTÖOHJEESSA MAINITULLA TAVALLA SAATTAA ALTISTAA KÄYTTÄJÄN TURVALLISUUSLUOKAN 1 YLITTÄVÄLLE NÄKYMÄTTÖMÄLLE LASERSÄTEILYLLE.

VARNING - OM APPARATEN ANVÄNDS PÅ ANNAT SÄTT ÄN I DENNA BRUKSANVISNING SPECIFICERAS, KAN ANVÄNDAREN UTSÄTTAS FÖR OSYNLIG LASERSTRÅLNING, SOM ÖVERSKRIDER GRÄNSEN FÖR LASERKLASS 1.

FOR A COMPLETE DESCRIPTION OF THE OPERATION OF THIS UNIT, PLEASE REFER TO THE OPERATION MANUAL.

SPECIFICATIONS

General

Power source: (MD-S301)
 DC 3.6 V (rechargeable lithium-ion battery x 1)
 DC 5 V (AC adaptor)
 AC 120 V, 60 Hz
 DC 1.5 V: Optionally available battery case, AD-S30BC (commercially available, "AA" size, alkaline battery x 1)
 DC 4.5 V: Optionally available car adaptor, AD-CA20X (for cars with a 12-24V DC negative ground electrical system)

Power source: (MD-S301W)
 DC 3.6 V (rechargeable lithium-ion battery x 1)
 DC 5 V (AC adaptor)
 AC 110 - 240 V, 50/60 Hz
 DC 1.5 V: Optionally available battery case, AD-S30BC (commercially available, "AA" size, alkaline battery x 1)
 DC 4.5 V: Optionally available car adaptor, AD-CA20X (for cars with a 12-24V DC negative ground electrical system)

Power consumption: 0.15 A (AC adaptor)
 4 W

Output power: RMS; 10 mW (5 mW + 5 mW) (0.2 % T.H.D.)

Charging time: Approx. 3 hours
 (When using the AC adaptor included with the unit)

Battery life (MD-S301):

When using the rechargeable battery (fully charged) included with the unit	When using one, commercially available, high capacity, "AA" size, alkaline battery (in the separately available battery case)	When using one, commercially available, high capacity, "AA" size, battery with the rechargeable battery (fully charged)
Approx. 6 hours	Approx. 3.5 hours	Approx. 9.5 hours

Battery life (MD-S301W):

When using the rechargeable battery (fully charged) included with the unit	When using one, commercially available, high capacity, "AA" size, alkaline battery (in the separately available battery case)	When using one, commercially available, high capacity, "AA" size, battery with the rechargeable battery (fully charged)
Approx. 6 hours	Approx. 4 hours	Approx. 10 hours

- Volume level: "VOL 15"
- The above values are the standard values when the unit is charged and used at an ambient temperature of 68°F (20 °C).
- The playing time when using an alkaline battery may be different, depending on the type and manufacturer of the battery and on the operating temperature.

Output level:

	Specified output	Maximum output level	Load impedance
Headphones	—	5 mW + 5 mW	32 ohms
LINE	250 mV (-12 dB)	—	50 kohms

Dimensions:

Width: 3-7/16" (87 mm)
 Height: 31/32" (24 mm)
 Depth: 3-3/32" (78 mm)

Weight:

0.41 lbs. (184 g) with rechargeable battery

Output socket: (MD-S301)

Output socket: (MD-S301W)

Headphones (impedance: 19 ohms)/ remote control unit
 Headphones (impedance: 32 ohms)/ remote control unit

Mini Disc Player

Type:

Portable MiniDisc player

Signal readout:

Non-contact, 3-beam semi-conductor laser pick-up

Audio channels:

2

Frequency response:

20 - 20,000 Hz (± 3 dB)

Rotation speed:

Approx. 400 - 900 rpm

Error correction:

ACIRC (Advanced Cross Interleave Reed-Solomon Code)

Coding:

ATRAC (Adaptive Transform Acoustic Coding)

D/A converter:

1 bit

Sampling frequency:

44.1kHz

Modulation system:

EFM (Eight to Fourteen Modulation)

Wow and flutter:

Unmeasurable (less than ±0.001% W. peak)

Specifications for this model are subject to change without prior notice.

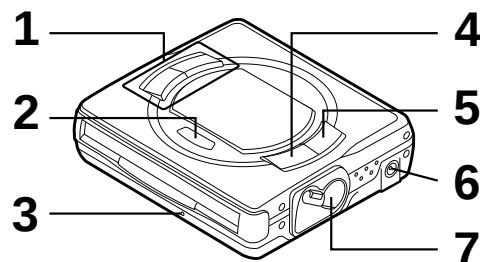
BATTERY DISPOSAL (MD-S301 ONLY)

Contains nickel cadmium (or sealed lead) battery. Must be recycled or disposed of properly. Remove the battery from the product and contact federal or state environmental agencies for information on recycling and disposal options.

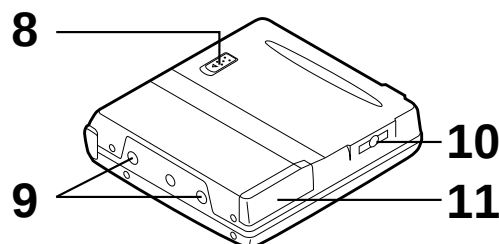
NAME OF PARTS

■ Main unit

1. Volume Buttons: +, -
2. Stop/Power Off/Charge Button: ■:OFF
3. Power Indicator
4. Fast Reverse Button: ◀◀
5. Play/Fast Forward Button: ▶▶▶▶
6. 5V DC Input Socket
7. Eject Lever

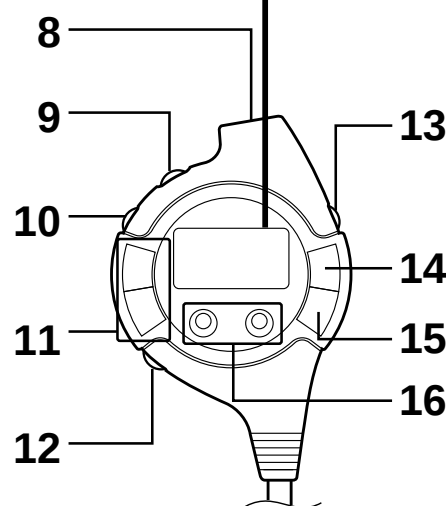
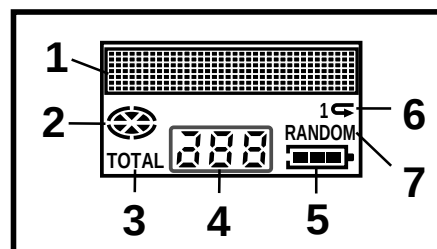


8. Hold Switch
9. Battery Case Connection Terminals
10. Headphones Socket
11. Rechargeable Lithium-Ion Battery Compartment



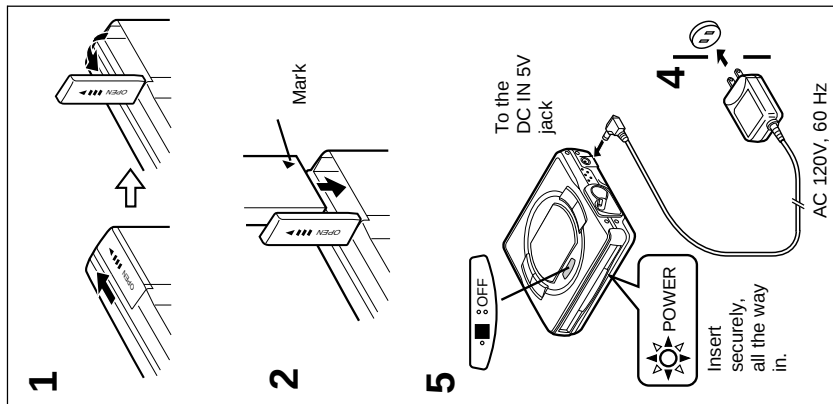
■ Remote control unit

1. Character/Time Information Display
2. Disc Mode Indicator
3. Total Track Number Display
4. Track Number Indicator
5. Battery Indicator:
6. Repeat Indicator:
7. Random Indicator
8. Headphones Socket
9. Hold Switch
10. Play Mode Button
11. Volume Buttons: +, -
12. Bass Button
13. Display Button
14. Play/Pause Button: ▶||
15. Stop/Power Off Button: ■
16. Fast Reverse/Fast Forward Buttons: ◀◀▶▶▶▶



POWER SOURCE

This unit can be used with 4 different power sources: a rechargeable battery, an AC adaptor, an optionally available battery case (AD-S30BC), and an optionally available car adaptor (AD-CA20X).



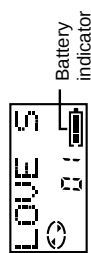
Notes:

- After charging is complete, the AC adaptor may be left connected.
- (For example, when charging at night) The battery will not be charged whenever the power to the main unit is turned on.
- If the operation in step 5 is performed without inserting the rechargeable battery, the POWER indicator will flash for 5 seconds. This is normal.
- Do not force open the rechargeable battery cover too far.
- Do not attach the optionally available battery case when charging the internal battery.

CONVENIENT OPERATION OF THE UNIT

■ Checking the remaining amount of battery charge

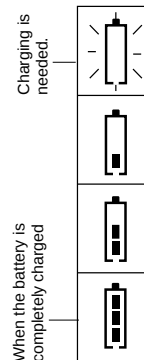
The remaining amount of battery charge is shown by the battery indicator () on the remote control display during operation.



Notes:

- When the AC adaptor included with this unit or an optionally available car adaptor is used, the battery indicator will not be shown.
 - The number of bars shown in the battery indicator may increase or decrease, depending on the operation being performed. This is normal.
 - When the rechargeable battery and the alkaline battery are used at the same time, the rechargeable battery is used first, and then the alkaline battery.
- Since the battery indicator shows the remaining amount of the particular battery being used, the number of bars will increase when the unit switches to the alkaline battery.

How to read the battery indicator



TROUBLESHOOTING

Many potential "problems" can be resolved by the owner without calling a service technician. If something seems to be wrong with this product, check the following before calling your authorized SHARP dealer or service center.

PROBLEM	CAUSE
The unit does not turn on.	● Is the AC adaptor disconnected? ● Is the battery exhausted? ● Is the unit in the safety mode? ● Has condensation formed inside the unit? ● Is the unit being influenced by mechanical shock or by static electricity?
No sound is heard from the headphones.	● Is the volume set too low? ● Is the remote control unit or the headphones plugged in? ● Are you trying to play a MiniDisc with data on it instead of a MiniDisc containing music?
When the operation buttons are pressed, the unit does not respond.	● Is the unit in the safety mode? ● Is the battery exhausted? ● Is the remote control unit plug or the headphone plug inserted firmly? ● Has condensation formed inside the unit? ● Is the unit being influenced by mechanical shock or by static electricity?
Some sounds are skipped.	● Is the battery exhausted? ● Is the unit being subjected to excessive vibration?

■ If trouble occurs

When this product is subjected to strong external interference (mechanical shock, excessive static electricity, abnormal supply voltage due to lightning, etc.) or if it is operated incorrectly, it may malfunction. If such a problem occurs, do the following:

1. Unplug the AC adaptor from the AC outlet.
2. Remove the battery.

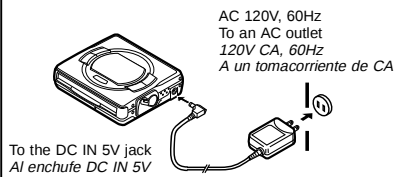
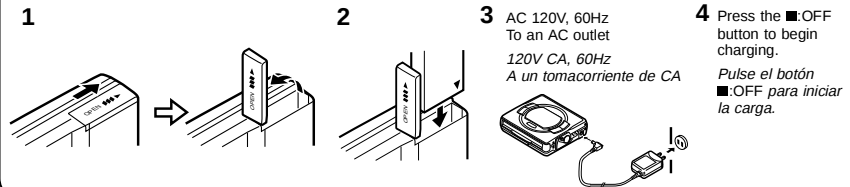
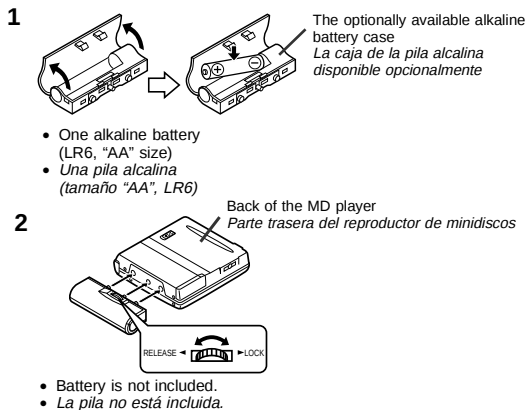
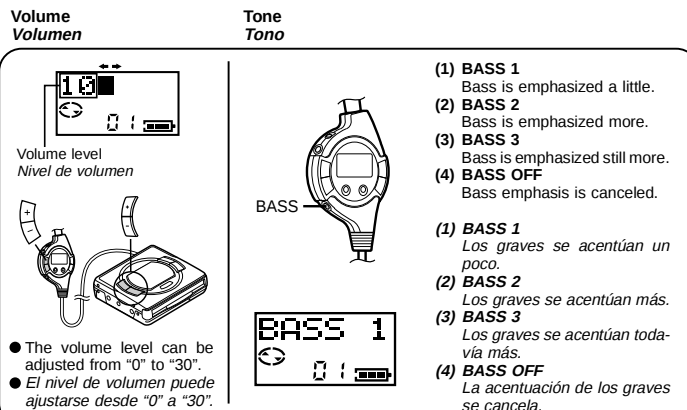
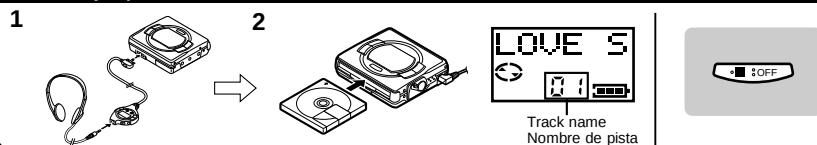
3. Leave the unit completely unpowered for approximately 30 seconds.
4. Plug the AC adaptor back into the AC outlet and retry the operation.

If strange sounds, smell or smoke come out of the unit or an object is dropped into the unit, remove the AC adaptor from the AC socket immediately and contact an authorized Sharp service center.

ERROR MESSAGES

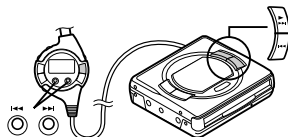
When an error message is displayed on the display, proceed as follows:

Display	Meaning	Remedy
BLANK	● Nothing is recorded.	● Replace the disc with a recorded disc.
E-DISC	● The disc is damaged or the music information is not written properly on the disc.	● Replace the disc.
E-SYS	● The unit is malfunctioning and will require service.	● For service, contact your local Sharp authorized servicer.
E-TEMP	● The temperature is too high.	● Turn off the power, and wait for a while.
E-TOC E-UTOC	● The disc is damaged.	● Replace the disc.
Lo BATT	● The battery has run down.	● Charge the rechargeable battery or replace the alkaline battery (or use the AC adaptor for power).
No DISC	● A disc has not been loaded.	● Load a disc.
POWER?	● Improper power is being supplied.	● Use one of the specified power sources.
?DISC	● There is an error in the signal from the disc.	● Replace the disc.

SHARP**PORTABLE MINIDISC PLAYER**
MD-S301**Quick-Guide**
Guía rápida**AC power**
Alimentación de CA**Rechargeable battery power**
Alimentación de la batería recargable**Alkaline battery power**
Alimentación de la pila alcalina**Sound control**
Control del sonido**Loading and playing a MiniDisc**
Inserción y reproducción de un minidisco

■ **APSS**
(Auto Program Search System)

■ **APSS**
(Sistema de búsqueda automática de programas)

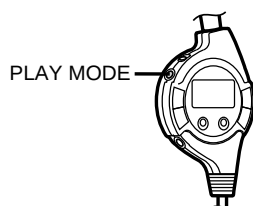


To move to the beginning of the next track:
Press the **▶/▶(▶▶)** button during playback.

To re-start the track being played:
Press the **◀◀** button during playback.

Para pasar al principio de la pista siguiente:
Pulse el botón **▶/▶(▶▶)** durante la reproducción.

Para reiniciar la pista que se está reproduciendo:
Pulse el botón **◀◀** durante la reproducción.

■ **Random play or Repeat play**■ **Reproducción aleatoria o reproducción repetida**

During playback or while in the stop mode, press the **PLAY MODE** button repeatedly to select the playback mode.

RANDOM Random play
↓
G Repeat play of all of the tracks
↓
1G Repeat play of a single track
↓
No display Normal playback

Durante la reproducción o en el modo de parada, pulse repetidamente el botón **PLAY MODE** para seleccionar el modo de reproducción.

RANDOM Reproducción aleatoria
↓
G Reproducción repetida de todas las pistas
↓
1G Reproducción repetida de una sola pista
↓
Sin visualización --- Reproducción normal

■ **Important**

- Do not wear your headphones when you are crossing streets or near traffic.
- Do not use your headphones while driving a motor vehicle, it may create a dangerous traffic hazard and may be illegal. Remember to obey all of the safety rules in your area.
- Do not play the unit at a high volume. Hearing experts advise against extended play at high volume levels.
- If you experience ringing in your ears, reduce the volume or discontinue use.

■ **Importante**

- No se ponga auriculares cuando atraviese calles ni cuando esté cerca del tráfico.
- No emplee los auriculares mientras conduce un vehículo, porque puede crear situaciones peligrosas en el tráfico y puede ser ilegal. Recuerde que debe respetar las reglas de seguridad de su zona.
- No reproduzca sonido en el aparato a altos niveles de volumen. Los expertos dicen que es perjudicial la reproducción continuada a altos niveles de volumen.
- Si nota tinnitus en los oídos, reduzca el volumen o no utilice el aparato.

■ **Volume setting**

Reduce the volume before starting to play. MiniDiscs, compared to ordinary cassette tapes, have very little noise. If the volume is adjusted according to your usual expectations of noise, you may damage your hearing due to the high volume.

■ **Ajuste del volumen**

Reduzca el volumen antes de iniciar la reproducción. Los minidisks, en comparación con las cintas de casete normales, tienen muy poco ruido. Si se ajusta el volumen de acuerdo con el ruido que puede esperarse normalmente, podría dañarse los oídos debido al alto volumen.

DISASSEMBLY

Caution on Disassembly

Follow the below-mentioned notes when disassembling the unit and reassembling it, to keep it safe and ensure excellent performance:

1. Take the battery and minidisc out of the unit.
2. When disassembling the machine, be sure to withdraw the power plug from the socket in advance.
3. When disassemble the parts, remove the nylon band or wire holder as necessary.

To assemble after repair, be sure to arrange the wires as they were.

If a screw of different length is fitted to the MD mechanism (the screw of the part to be fitted to the MD mechanism chassis), it may contact the optical pickup, resulting in malfunction.

4. When repairing, pay due attention to electrostatic charges of IC.

STEP	REMOVAL	PROCEDURE	FIGURE
1	Bottom Cover	1. Battery Cover (A1) x1 2. Screw (A2) x6	7-1
2	Top Cabinet	1. Screw (B1) x4 2. Flexible PWB (B2) x1	7-1
3	Main PWB	1. Screw (C1) x1 2. Flexible PWB (C2) x2 3. Soldering (C3) x3	7-2
4	Mechanism Unit	1. Lift the back side, and remove in the arrow direction.	7-3

Note:

Carefully handle the main PWB and flexible PWB.

So as to prevent electrostatic damage of optical pickup after removing the flexible PWB (*1) for optical pickup from the connector, wrap the front end of flexible PWB in conductive aluminum foil.

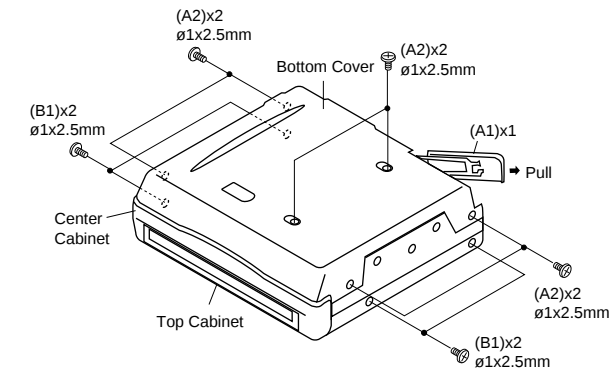


Figure 7-1

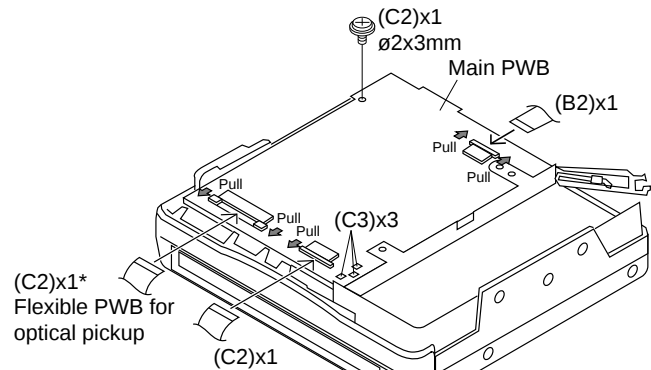


Figure 7-2

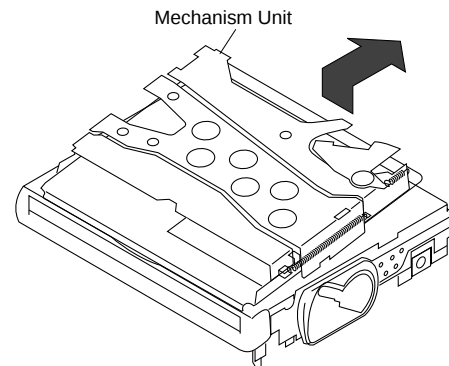
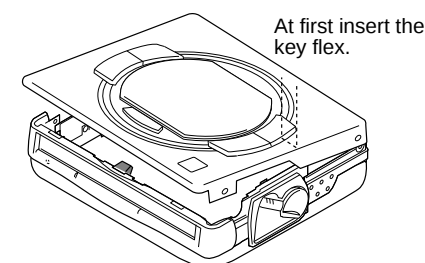


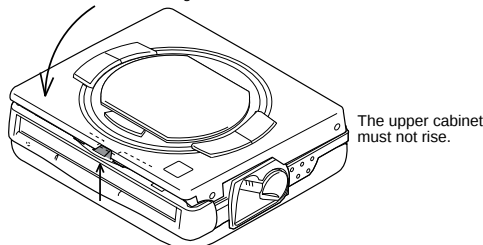
Figure 7-3

INSTALLING THE TOP CABINET

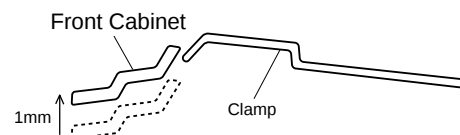
①



Lower the front side, rotating it.



②



Bend upward the front cabinet opening, pass the front end of clamp.

③

Fit together the front and upper cabinets.

REMOVING AND REINSTALLING THE MAIN PARTS

Remove the mechanism according to the disassembling methods 1 to 4. (See Page 7.)

How to remove the spindle motor (See Fig. 8-1.)

1. Remove the flexible PWB solder joint (A1) x 4. (4 places)
2. Remove the screws (A2) x 3 pcs., and remove the Spindle motor.

* When installing the spindle motor, gently press in the arrow direction (in view of grating).

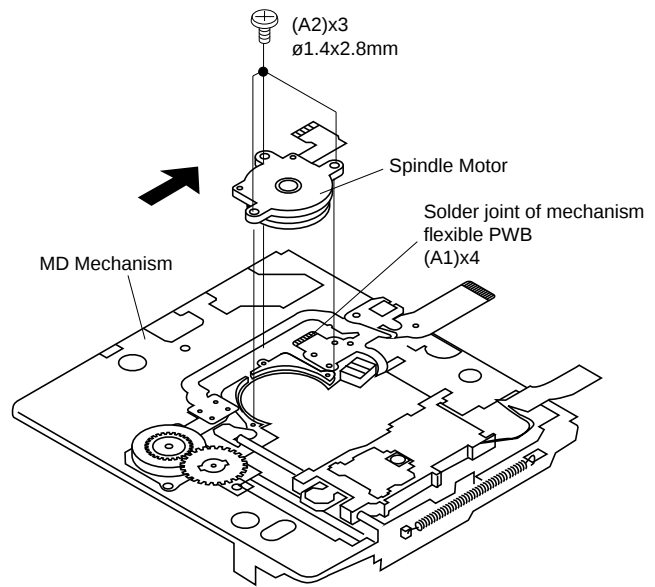


Figure 8-1

How to remove the sled motor (See Fig. 8-2.)

1. Remove the stop washer (B1) x 1 pc. and remove the gear (B2) x 1 pc.
2. Remove the screw (B3) x 3 pc.
3. Remove the flex PWB soldering joint (B4) x 3 places, and remove the sled motor.

Note:

Be careful so that the motor gear is not damaged.
(If the gear is damaged, abnormal sound is emitted when searching is performed.)

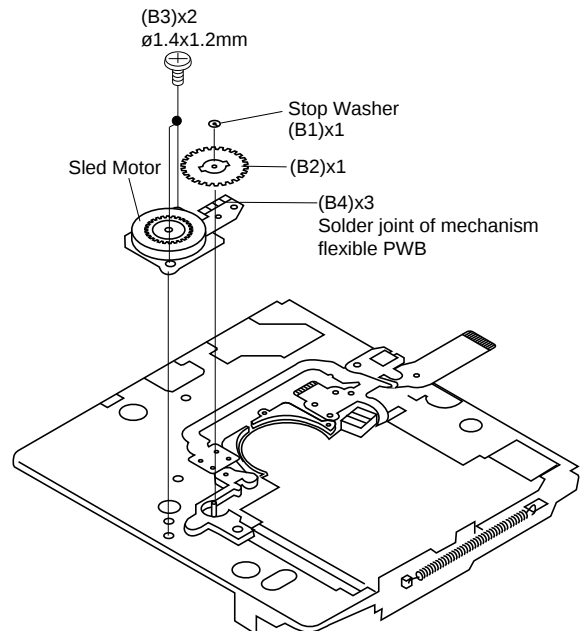


Figure 8-2

How to reinstall the optical pickup unit (See Fig. 8-3.)

1. Remove the screws (C1) x 1 pcs.
2. Slowly raise the optical pickup.

Note:

Be careful so that the motor gear is not damaged.
(If the gear is damaged, abnormal sound is emitted when searching is performed.)

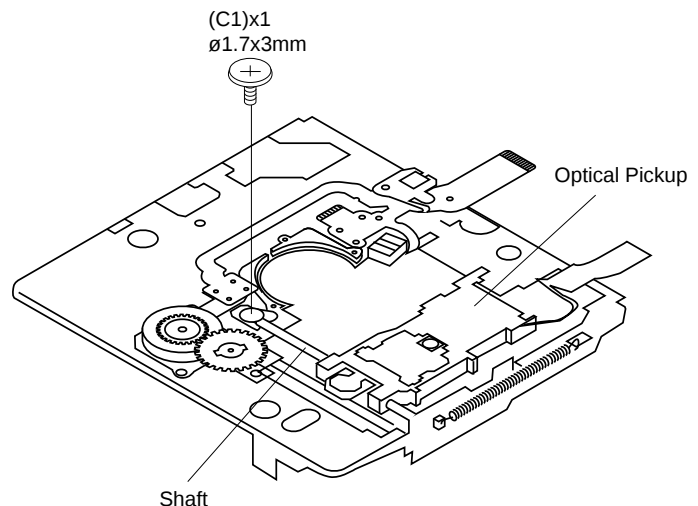


Figure 8-3

ADJUSTMENT

- The checking method for main PWB is explained as shown below.
- Raise the main PWB and connect the remote controller and AC adapter.
As a result the operation can be checked. It is required to check by this method.
- Accordingly, we don't make extension jig of MD-S301.

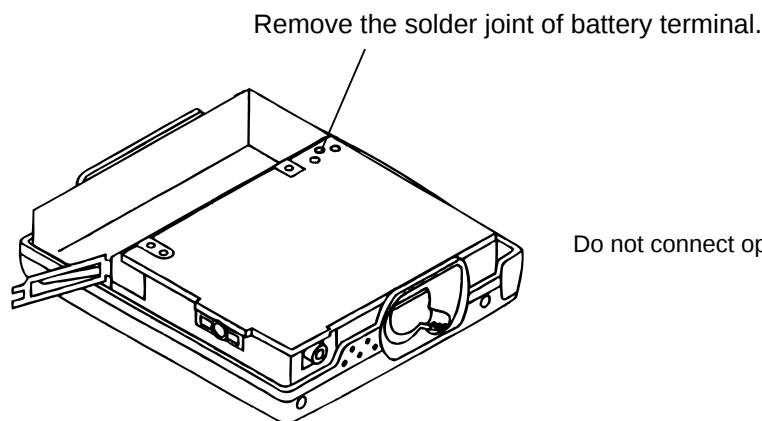


Figure 9-1

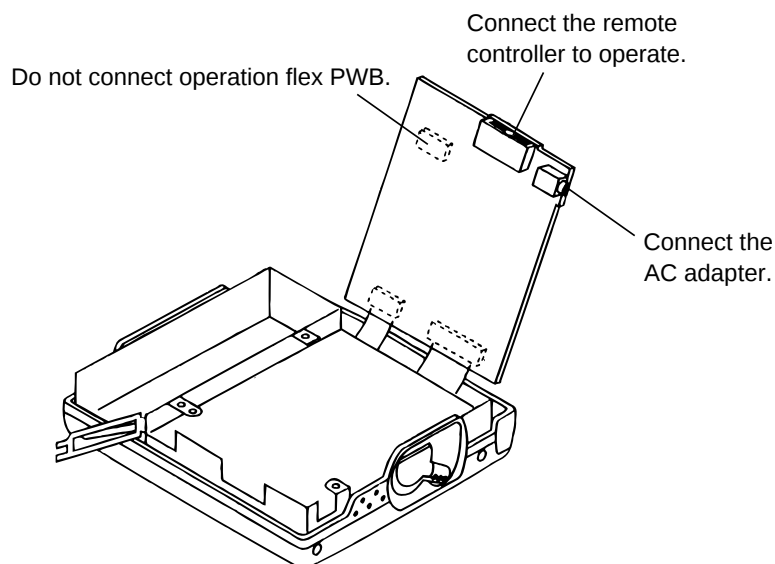


Figure 9-2

● Preparation for adjustment (use the low reflection disc on which music has been recorded)

MD adjustment needs two types of disc, namely recording disc (low reflection disc) and Playback only disc (high reflection disc).

	Type	Test disc	Parts No.
1	High reflection disc	MMD-110 (TEAC TEST MD)	88GMMD-110
2	Low reflection disc	MMD-212 (TEAC TEST MD)	88GMMD-212

● How to enter the TEST MODE (In STANDBY state)

- ① Holding down the PLAY MODE button of remote control unit, press the VOL button and button of main unit.
- ② Charge control "ON"
- ③ Indication of microcomputer version for one second []

: Microcomputer ROM version
f : EEPROM version

- ④ All LCD lighting for 2 seconds
- ⑤ TEST MODE STOP "_TEST_"

* When the button is pressed while the indication ③ and ④ appears, the mode is changed to TEST MODE STOP state.

* If the button is pressed while indication ③ to ⑤ appears, the EEPROM rewrite-enable area is updated, and the mode is changed to STAND-BY state.

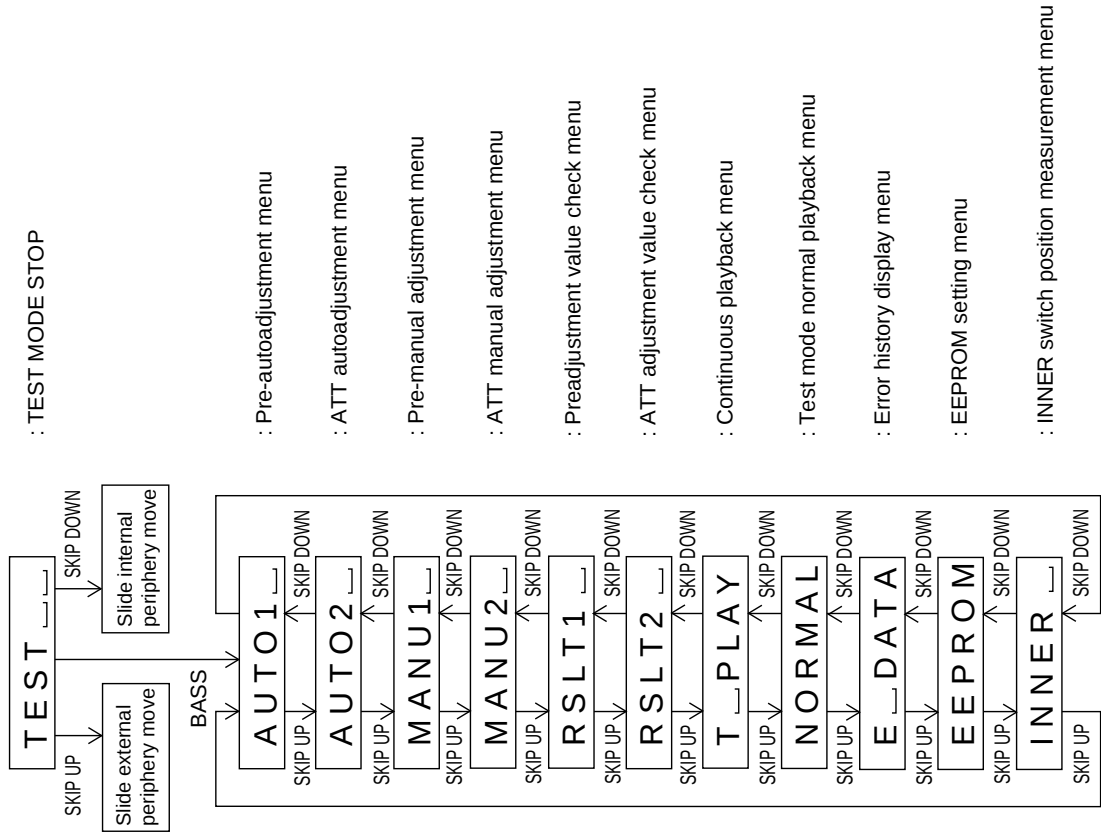
● How to leave the TEST MODE

- ① In the TEST MODE STOP state, version indication state and full-lighting state press the button.
- ② Initialization of normal mode setting.
(BASS setting, VOL setting, etc.)
- ③ EEPROM rewrite-enable area updating and adjustment error setting.
(all items are adjusted when power is turned on in the normal mode)
- ④ Change to standby state.

● Preliminary automatic adjustment or EEPROM rewriting

- ① Short-circuit TP435 and TP421.
- ② Perform preliminary automatic adjustment or EEPROM rewriting.
- ③ Press the button to set the standby state.
- ④ Release short-circuiting of TP435 and TP421.

TEST MODE MENU

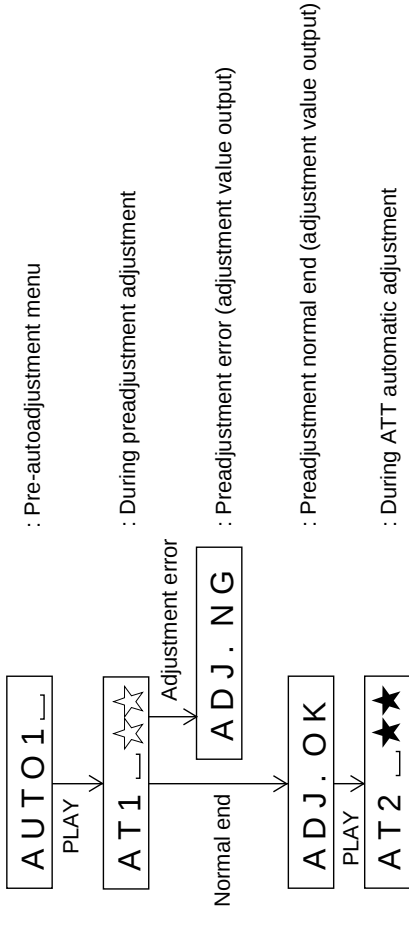


- When the "STOP" button is pressed in specific menu, the TEST MODE STOP state is set.

PREAUTOMATIC ADJUSTMENT

* Caution

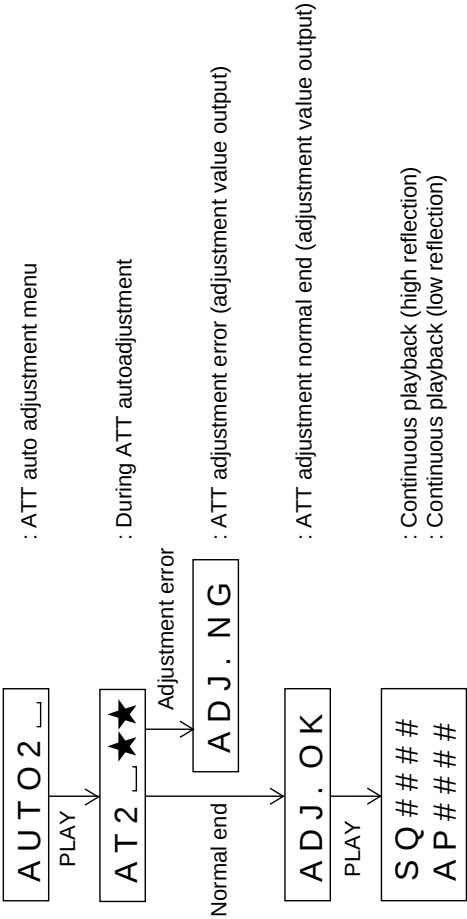
- (1) After replacing the PWB, mechanism unit or pickup, be sure to perform the preliminary automatic adjustment.
At this time unprotect the EEPROM in advance.



- When the "STOP" button is pressed in specific menu, the TEST MODE STOP state is set.
- "☆☆☆" represent the adjustment number as follows.

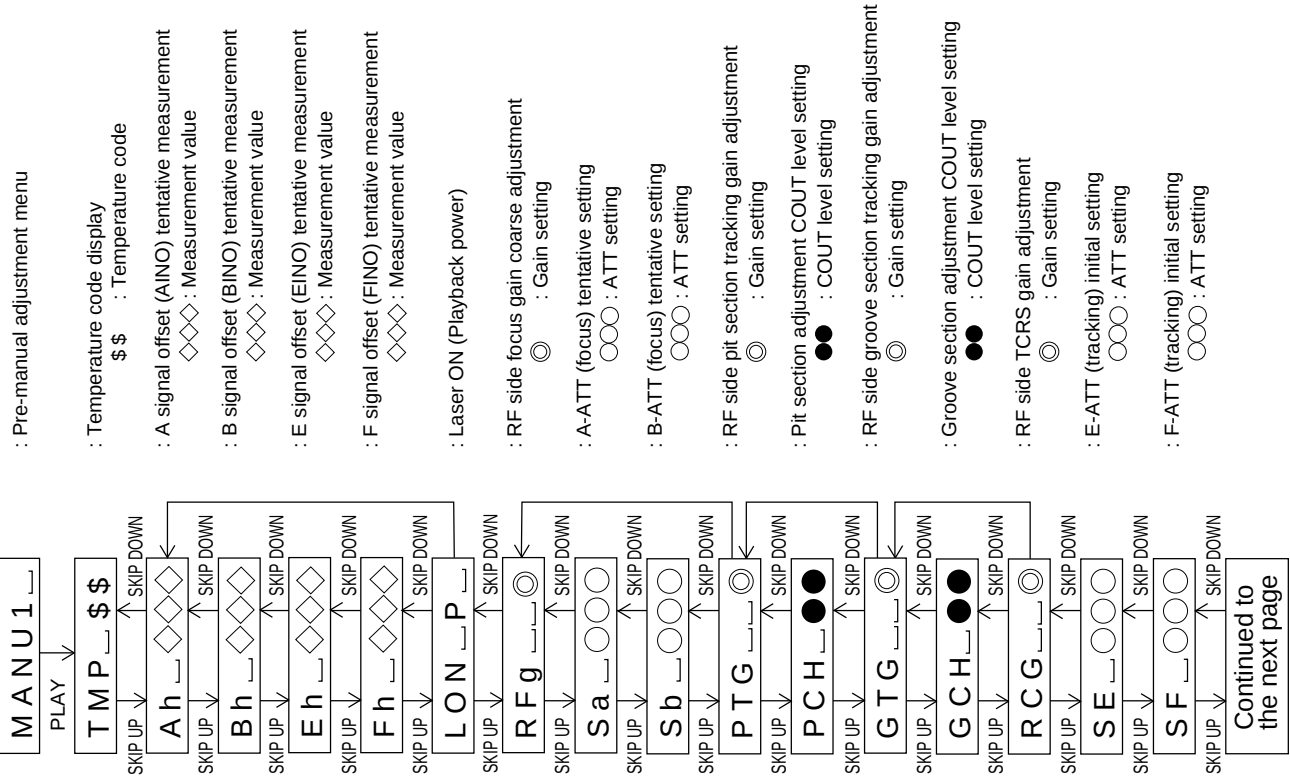
- 0 0 : Innermost periphery move
- 0 2 : ABEF offset tentative measurement
- 0 4 : RF side focus gain coarse adjustment
- 0 5 : Focus ATT tentative setting
- 0 6 : RF side bit section tracking gain adjustment
- 0 7 : COUT level setting for pit section adjustment
- 0 8 : External periphery move
- 0 9 : RF side groove section tracking gain adjustment
- 1 0 : COUT level setting for groove section adjustment
- 1 1 : RF side TCRS gain adjustment
- 1 2 : Tracking ATT initial setting
- 1 3 : RF side focus gain minor adjustment
- 1 4 : Focus ATT initial setting
- 1 5 : S gain "High" ABEF offset measurement
- 1 6 : TCRS offset measurement
- 1 7 : S gain "Low" ABEF offset measurement

ATT AUTO ADJUSTMENT

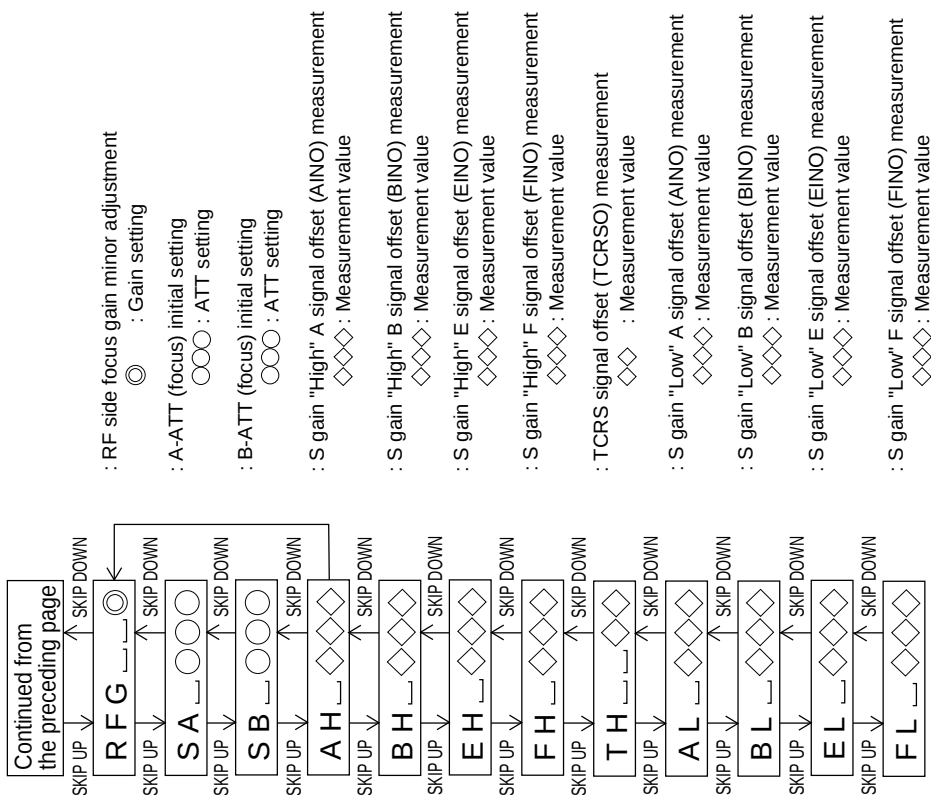
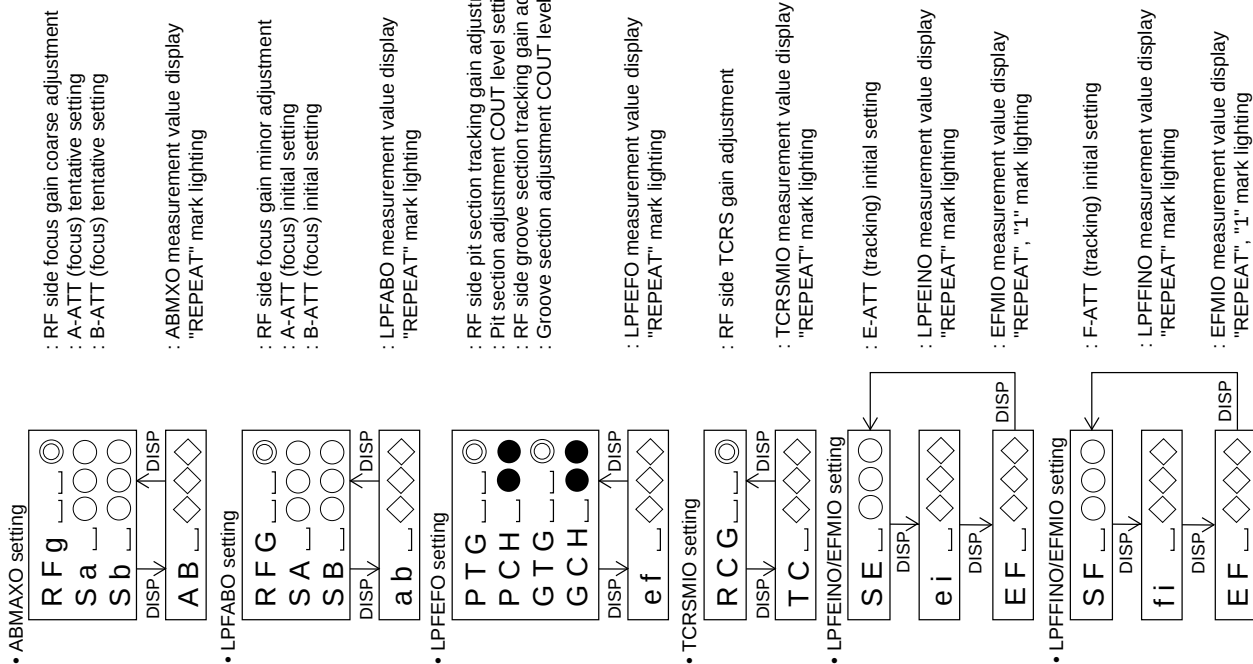


- When the "STOP" button is pressed in specific menu, the TEST MODE STOP state is set.
- "★★★" represent the adjustment number as follows.
 - 0 0 : Innermost periphery move
 - 0 3 : Pit section tracking ATT setting
 - 0 4 : Pit section focus ATT setting
 - 0 6 : External periphery move (low reflection only)
 - 0 7 : TCRS ATT setting (low reflection only)
 - 0 8 : Groove section tracking ATT setting (low reflection only)
 - 0 9 : Groove section focus ATT setting (low reflection only)

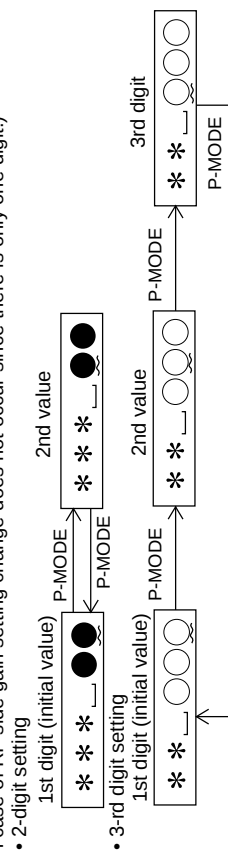
PRE-MANUAL ADJUSTMENT



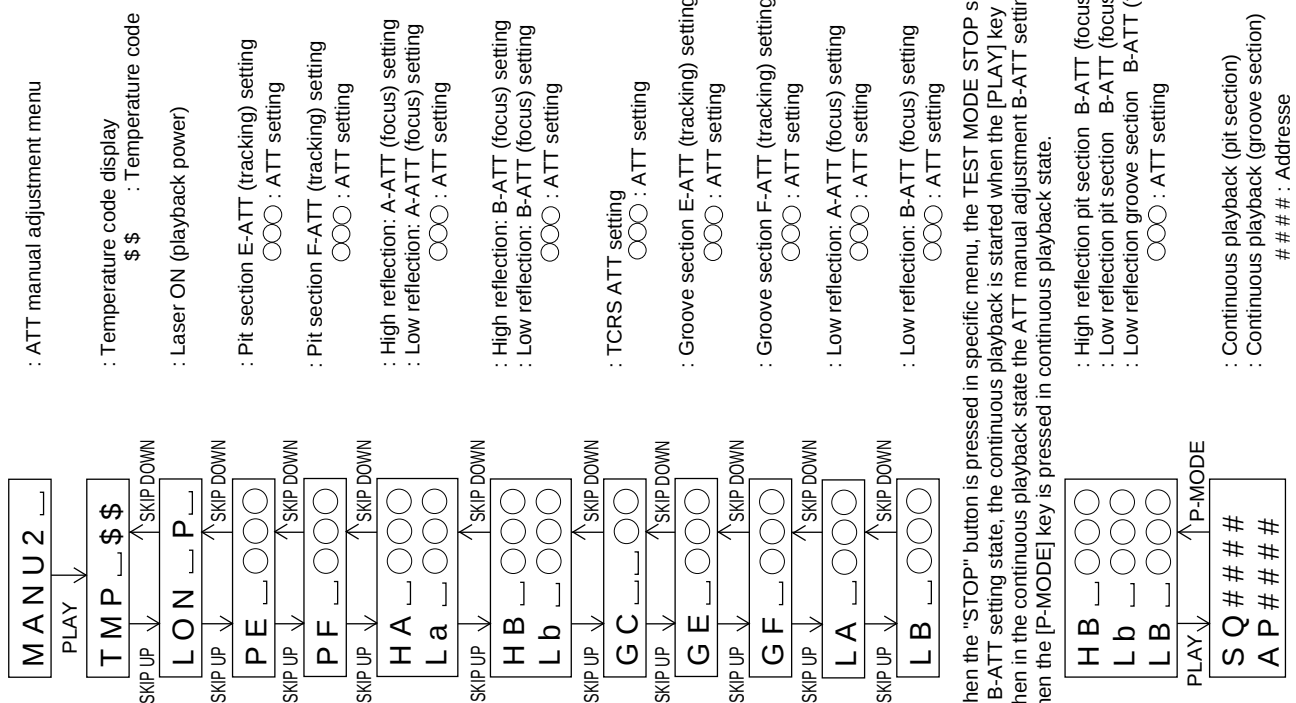
- In the setting display state the value of selected digit changes in the range of "0 H to F H" when [VOL UP/DOWN] key is pressed.
However, the RF side gain setting changed in the range of "0 H to 6 H".
- When the [DISP] key is pressed, the display changes as follows.



- When the "STOP" button is pressed in specific menu, the TEST MODE STOP state is set.
- In the specific setting display state the setting change digit changes when the [P-MODE] key is pressed.
(In case of RF side gain setting change does not occur since there is only one digit.)



ATT MANUAL ADJUSTMENT

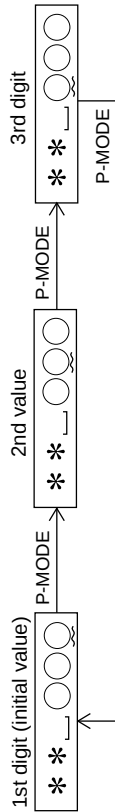


- When the "STOP" button is pressed in specific menu, the TEST MODE STOP state is set.
- In B-ATT setting state, the continuous playback is started when the [PLAY] key is pressed. When in the continuous playback state the ATT manual adjustment B-ATT setting state is started when the [P-MODE] key is pressed in continuous playback state.

High reflection pit section B-ATT (focus) setting
 Low reflection pit section B-ATT (focus) setting
 Low reflection groove section B-ATT (focus) setting
 ○○○ : ATT setting

Continuous playback (pit section)
 Continuous playback (groove section)
 # # # : Adresse

- In the specific setting display state the setting change digit changes when the [P-MODE] key is pressed.



- In the specific setting display state the selection digit value changes in the range of "0h to Fh" when [VOL UP/DOWN] key is operated.
- When the [DISP] key is pressed, the display changes as follows.
- LPFABO setting

H	A				
H	B				
L	a				
L	b				
L	A				
L	B				

DISP ↓ ↑ DISP

a b ◇ ◇ ◇ ◇

: High reflection pit section A-ATT (focus) setting
 : High reflection pit section B-ATT (focus) setting
 : Low reflection pit section A-ATT (focus) setting
 : Low reflection pit section B-ATT (focus) setting
 : Low reflection groove section A-ATT (focus) setting
 : Low reflection groove section B-ATT (focus) setting

: LPFABO measurement value display
 "REPEAT" mark lighting

: TCRS ATT setting

: TCRSMIO measurement value display
 "REPEAT" mark lighting

: Pit section E-ATT (tracking) setting
 : Groove section E-ATT (tracking) setting

: LPFEINO measurement value display
 "REPEAT" mark lighting

: EFMIIO measurement value display
 "REPEAT", "1" mark lighting

: Pit section F-ATT (tracking) setting
 : Groove section F-ATT (tracking) setting

: LPFFINO measurement value display
 "REPEAT" mark lighting

: EFMIIO measurement value display
 "REPEAT", "1" mark lighting

• LPFABO setting

G	C				
---	---	--	--	--	--

DISP ↓ ↑ DISP

T C ◇ ◇ ◇ ◇

• LPFEINO/EFMIIO setting

P	E				
G	E				

DISP ↓ ↑ DISP

e i ◇ ◇ ◇ ◇

• LPFEINO/EFMIIO setting

E	F				
---	---	--	--	--	--

DISP ↓ ↑ DISP

E F ◇ ◇ ◇ ◇

• LPFFINO/EFMIIO setting

P	F				
G	F				

DISP ↓ ↑ DISP

f i ◇ ◇ ◇ ◇

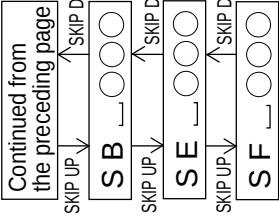
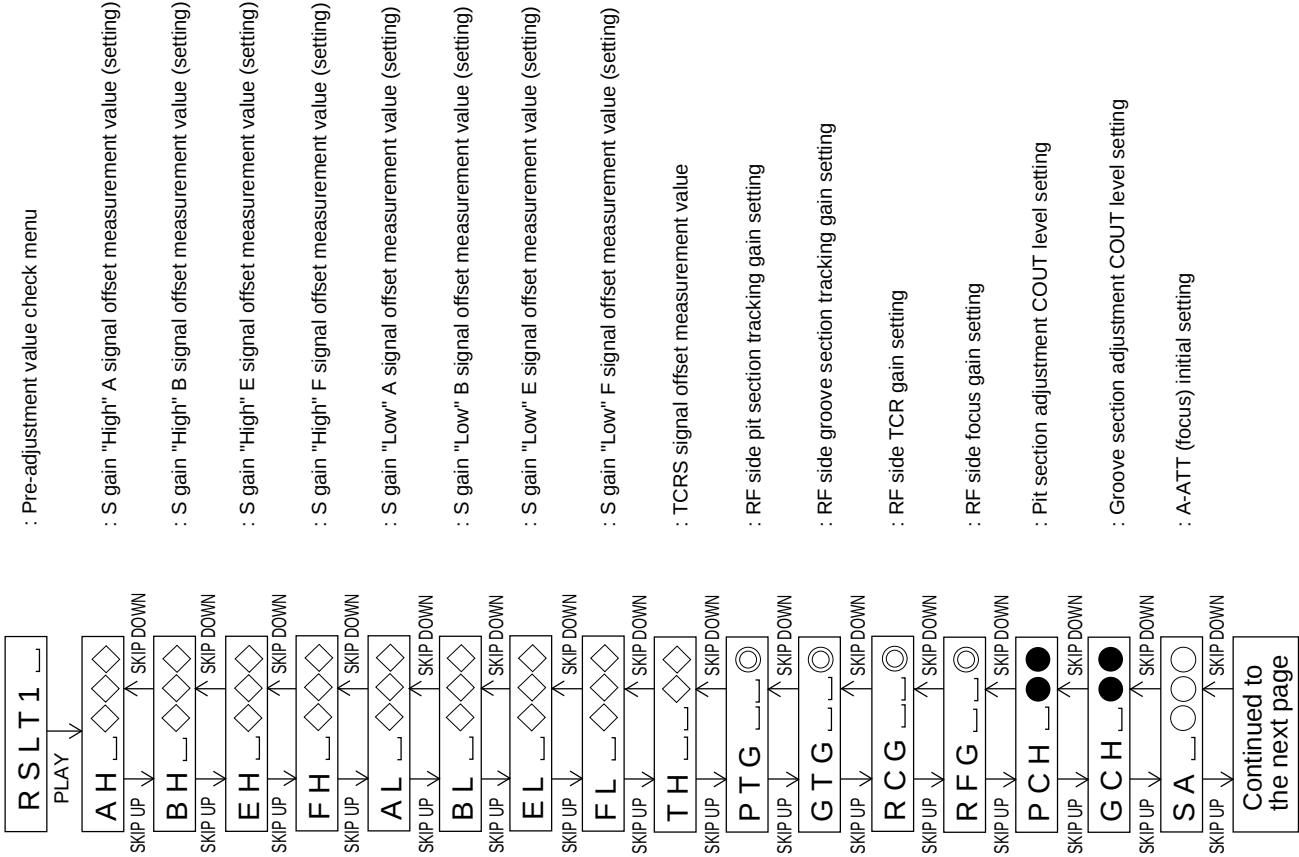
• LPFFINO/EFMIIO setting

E	F				
---	---	--	--	--	--

DISP ↓ ↑ DISP

E F ◇ ◇ ◇ ◇

PRE-ADJUSTMENT VALUE CHECK

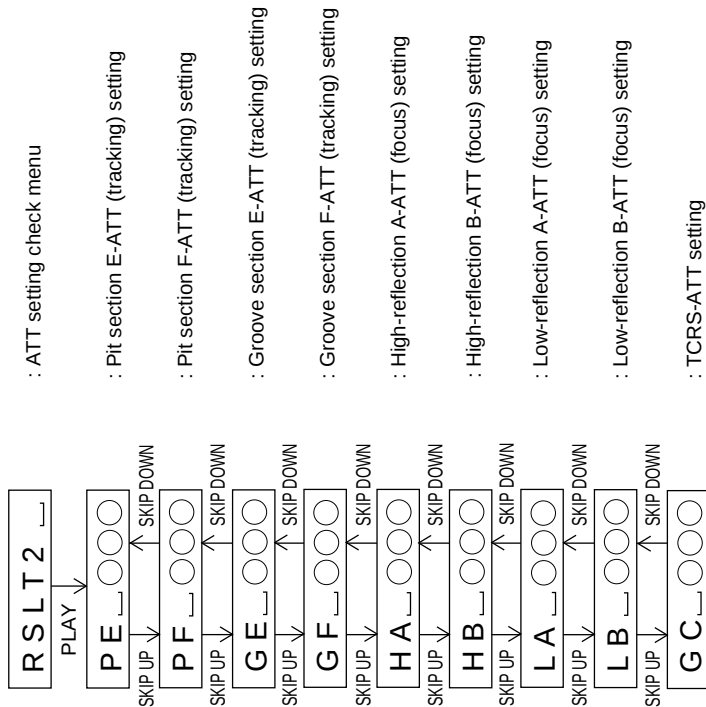


- : B-ATT (focus) initial setting
- : E-ATT (tracking) initial setting
- : F-ATT (tracking) initial setting

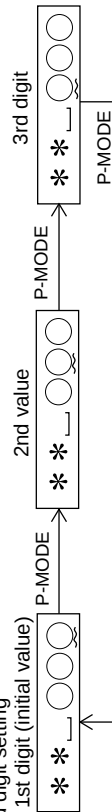
- When the "STOP" button is pressed in specific menu, the TEST MODE STOP state is set.
 - In the specific setting display state the setting change digit changes when the [P-MODE] key is pressed. (For RF side gain setting only one digit is provided. Therefore change does not occur.)
 - 2-digit setting
 - 1st digit (initial value)
 - 2nd value
 - 3-rd digit setting
 - 1st digit (initial value)
 - 2nd value
 - 3rd digit
- P-MODE
- P-MODE
- P-MODE
- P-MODE
- P-MODE

- In the specific setting display state the value of selected digit changes in the range of "0 H to F H" when the [VOL UP/DOWN] key is pressed. However, the RF side gain setting changes in the range of "0 H to 6 H".

ATT SETTING CHECK



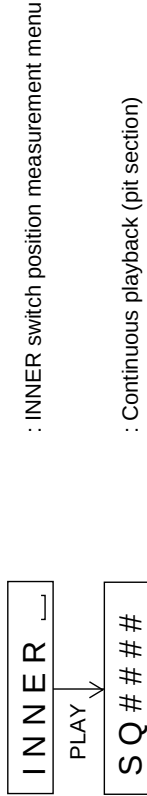
- When the "STOP" button is pressed in specific menu, the TEST MODE STOP state is set.
- In the specific setting display state the setting change digit changes when the [P-MODE] key is pressed.
 - 3-rd digit setting
- In the specific setting display state the value of selection digit changes in the range of "0 H to F H" when the [VOL UP/DOWN] key is pressed.



CONTINUOUS PLAYBACK

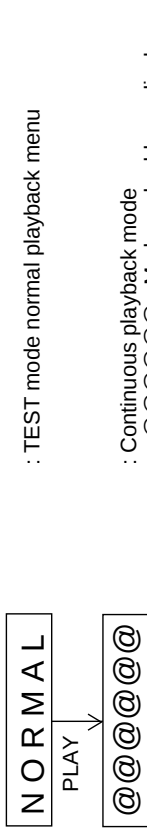
- Continuous playback from current pickup position
 - Continuous playback menu
- Continuous playback (pit section)
 - Continuous playback (groove section) ### : Address
- Continuous playback from any address
 - Continuous playback menu
 - Start address setting
 - Continuous playback (pit section)
 - Continuous playback (groove section) ### : Address
- When the "STOP" button is pressed in specific menu, the TEST MODE STOP state is set.
- In the start address set state the start address changes as follows when the [DISP] key is pressed.
 - 0 0 5 0 H (initial value)
 - 0 3 C 0 H
 - 0 7 0 0 H
 - 0 8 A 0 H
- In the start address set state the start address changes as follows when the [BASS] key is pressed.
 - 1st digit (initial value)
 - 2nd value
 - 3rd digit
- In the start address set state the value of selection digit changes in the range of "0 H to F H" when the [SKIP UP/DOWN] key is pressed.
- In the continuous playback state the state is changed to ATT manual adjustment B-ATT setting state when the [P-MODE] key is pressed.
 - Continuous playback (pit section)
 - Continuous playback (groove section) ### : Address
 - High-reflection pit section B-ATT (focus) setting
 - High-reflection groove section B-ATT (focus) setting ### : ATT setting
- In the continuous playback state the number of jump lines changes as follows shown the [BASS] key is pressed.
 - 1st line (initial value)
 - 10 lines
 - 400 lines
- If the [SKIP UP] key is pressed in the continuous playback state, the specified number or lines is jumped in the external periphery direction.
 - If the key is held down, the jump continuous with a 100 ms cycle.
- If the [SKIP DOWN] key is pressed in the continuous playback state, the specified number or lines is jumped in the external periphery direction.
 - If the key is held down, the jump continuous with a 100 ms cycle.

INNER SWITCH POSITION MEASUREMENT



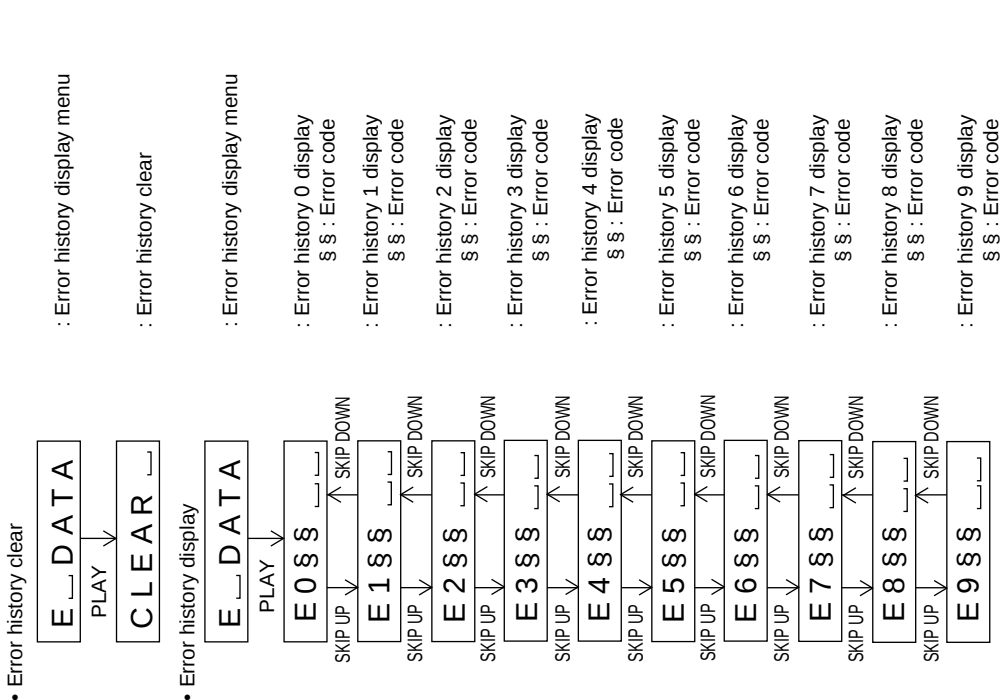
- When the "STOP" button is pressed in specific menu, the TEST MODE STOP state is set.

TEST MODE NORMAL PLAYBACK

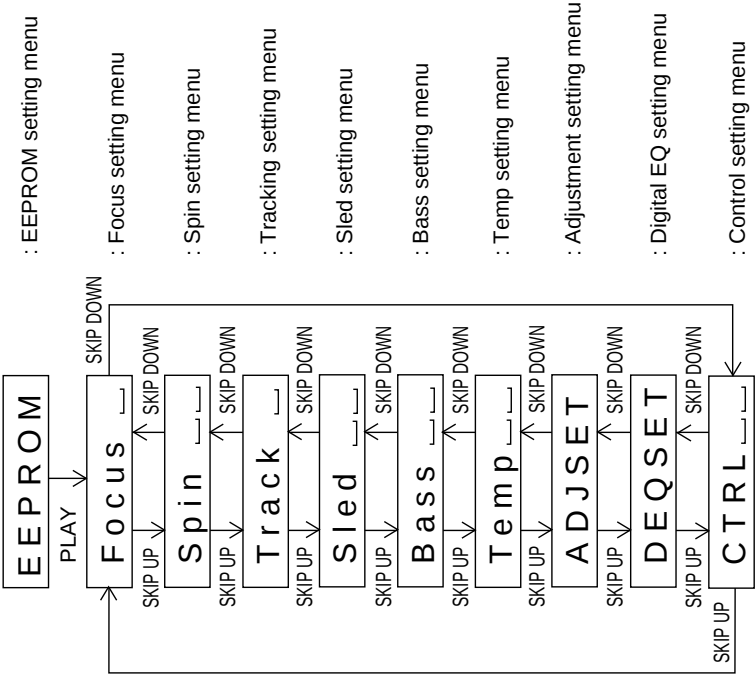


- When the "STOP" button is pressed in specific menu, the TEST MODE STOP state is set.

ERROR HISTORY DISPLAY

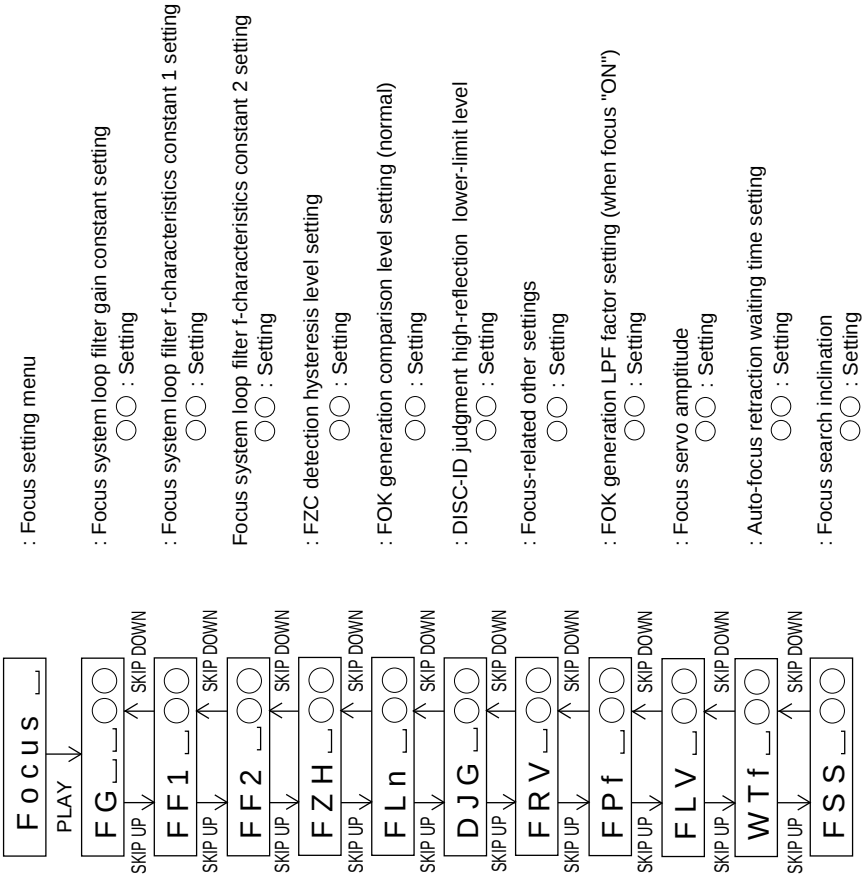


EEPROM SETTING



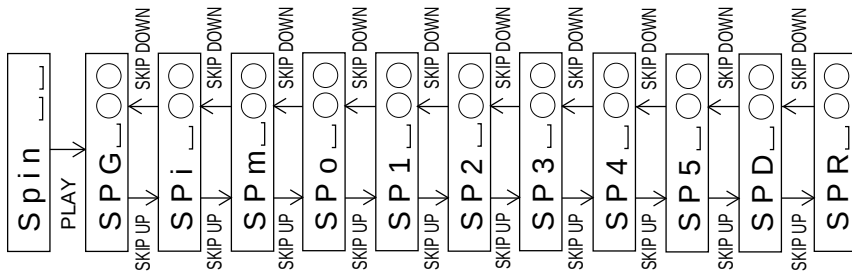
- When the "STOP" button is pressed in specific menu, the TEST MODE STOP state is set.
- To rewrite the data of EEPROM, it is necessary to unprotect the EEPROM.

FOCUS SETTING



- When the "STOP" button is pressed in specific menu, the TEST MODE STOP state is set.
- In the specific state pressing the [DISP] key causes change to "focus setting menu".
- In the specific state the setting changed in the range of "00 H to FF H" when the [VOL UP/DOWN] key is pressed.
(The upper limit varies depending on the items)

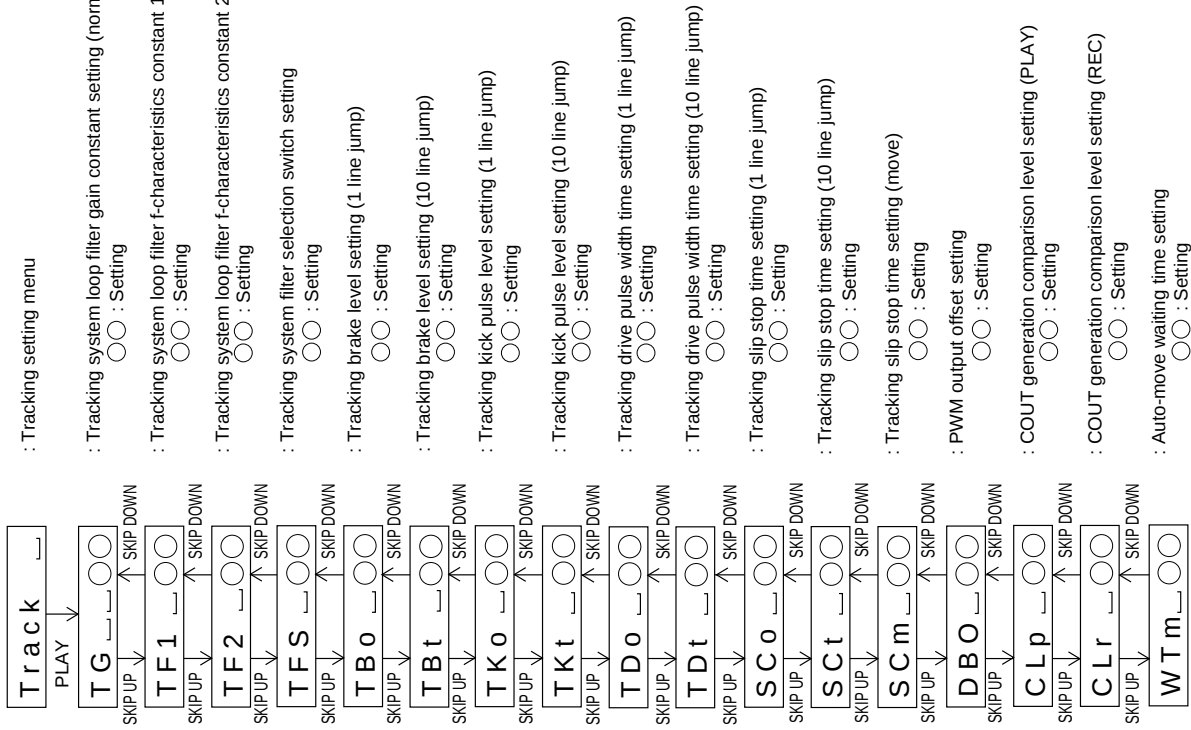
SPIN SETTING



- : Spin setting menu
- : Spin system loop filter gain constant setting (until servo is turned on)
 - : Setting
- : Spin system loop filter again constant setting (after servo is turned on, internal periphery)
 - : Setting
- : Spin system loop filter gain constant setting (after servo is turned on, center)
 - : Setting
- : Spin system loop filter gain constant setting (after servo is turned on, external periphery)
 - : Setting
- : Spin system loop filter f-characteristics constant 1 setting
 - : Setting
- : Spin system loop filter f-characteristics constant 2 setting
 - : Setting
- : Spin system loop filter f-characteristics constant 3 setting
 - : Setting
- : Spin system loop filter f-characteristics constant 4 setting
 - : Setting
- : Spin system loop filter f-characteristics constant 5 setting
 - : Setting
- : Spin drive PWM duty limiter setting
 - : Setting
- : Spin-related other settings
 - : Setting

- When the "STOP" button is pressed in specific menu, the TEST MODE STOP state is set.
- In the specific state pressing the [DISP] key causes change to "focus setting menu".
- In specific state the setting changed in the range of "00 H to FF H" when the [VOL UP/DOWN] key is pressed. (The upper limit varies depending on the items)

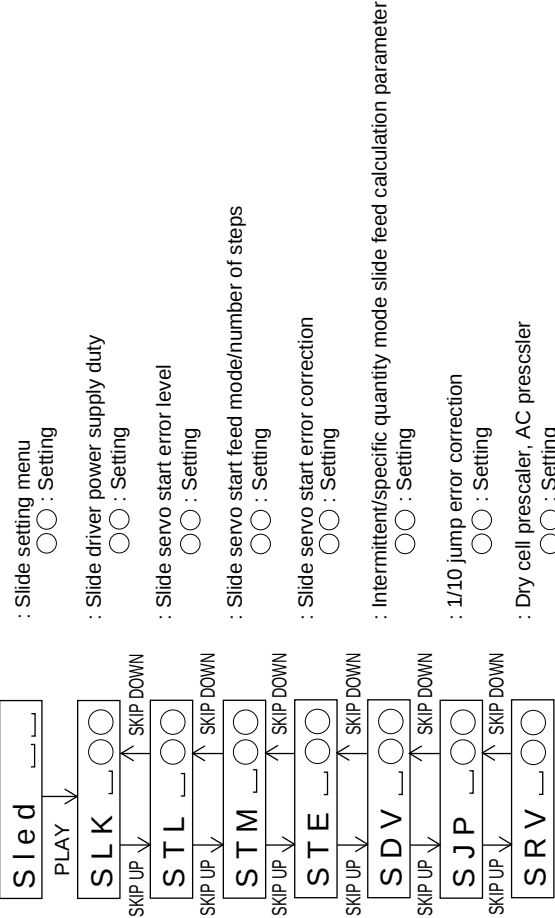
TRACKING SETTING



- : Tracking setting menu
- : Tracking system loop filter gain constant setting (normal)
 - : Setting
- : Tracking system loop filter f-characteristics constant 1 setting (normal)
 - : Setting
- : Tracking system loop filter f-characteristics constant 2 setting (normal)
 - : Setting
- : Tracking system filter selection switch setting
 - : Setting
- : Tracking brake level setting (1 line jump)
 - : Setting
- : Tracking brake level setting (10 line jump)
 - : Setting
- : Tracking kick pulse level setting (1 line jump)
 - : Setting
- : Tracking kick pulse level setting (10 line jump)
 - : Setting
- : Tracking drive pulse width time setting (1 line jump)
 - : Setting
- : Tracking drive pulse width time setting (10 line jump)
 - : Setting
- : Tracking slip stop time setting (1 line jump)
 - : Setting
- : Tracking slip stop time setting (10 line jump)
 - : Setting
- : Tracking slip stop time setting (move)
 - : Setting
- : PWM output offset setting
 - : Setting
- : COUT generation comparison level setting (PLAY)
 - : Setting
- : COUT generation comparison level setting (REC)
 - : Setting
- : Auto-move waiting time setting
 - : Setting

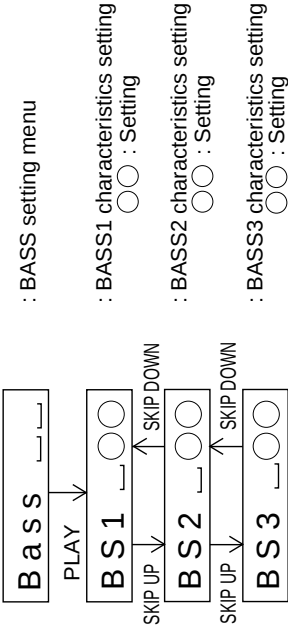
- When the "STOP" button is pressed in specific menu, the TEST MODE STOP state is set.
- In the specific state pressing the [DISP] key causes change to "focus setting menu".
- In the specific state the setting changes in the range of "00 H to FF H" when the [VOL UP/DOWN] key is pressed. (The upper limit varies depending on the items)

SLED SETTING



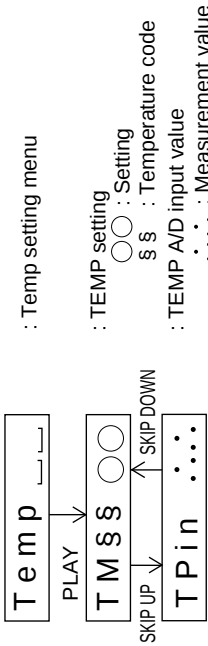
- When the "STOP" button is pressed in specific menu, the TEST MODE STOP state is set.
- In the specific state pressing the [DISP] key causes change to "focus setting menu".
- In the specific state the setting changed in the range of "00 H to FF H" when the [VOL UP/DOWN] key is pressed.
(The upper limit varies depending on the items)

BASS SETTING



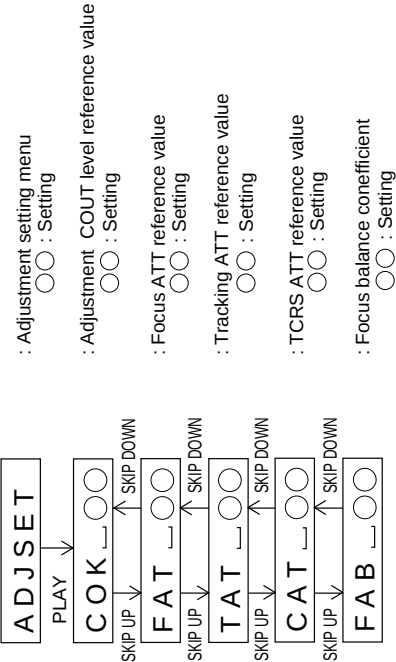
- When the "STOP" button is pressed in specific menu, the TEST MODE STOP state is set.
- In the specific state pressing the [DISP] key causes change to "focus setting menu".
- In the specific state the setting changed in the range of "00 H to FF H" when the [VOL UP/DOWN] key is pressed.
(The upper limit varies depending on the items)

TEMP SETTING

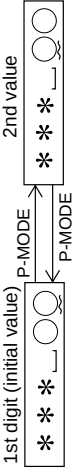


- When the "STOP" button is pressed in specific menu, the TEST MODE STOP state is set.
- In the specific state pressing the [DISP] key causes change to "focus setting menu".
- In the specific state the setting changed in the range of "00 H to FF H" when the [VOL UP/DOWN] key is pressed.
(The upper limit varies depending on the items)

ADJUSTMENT SETTING

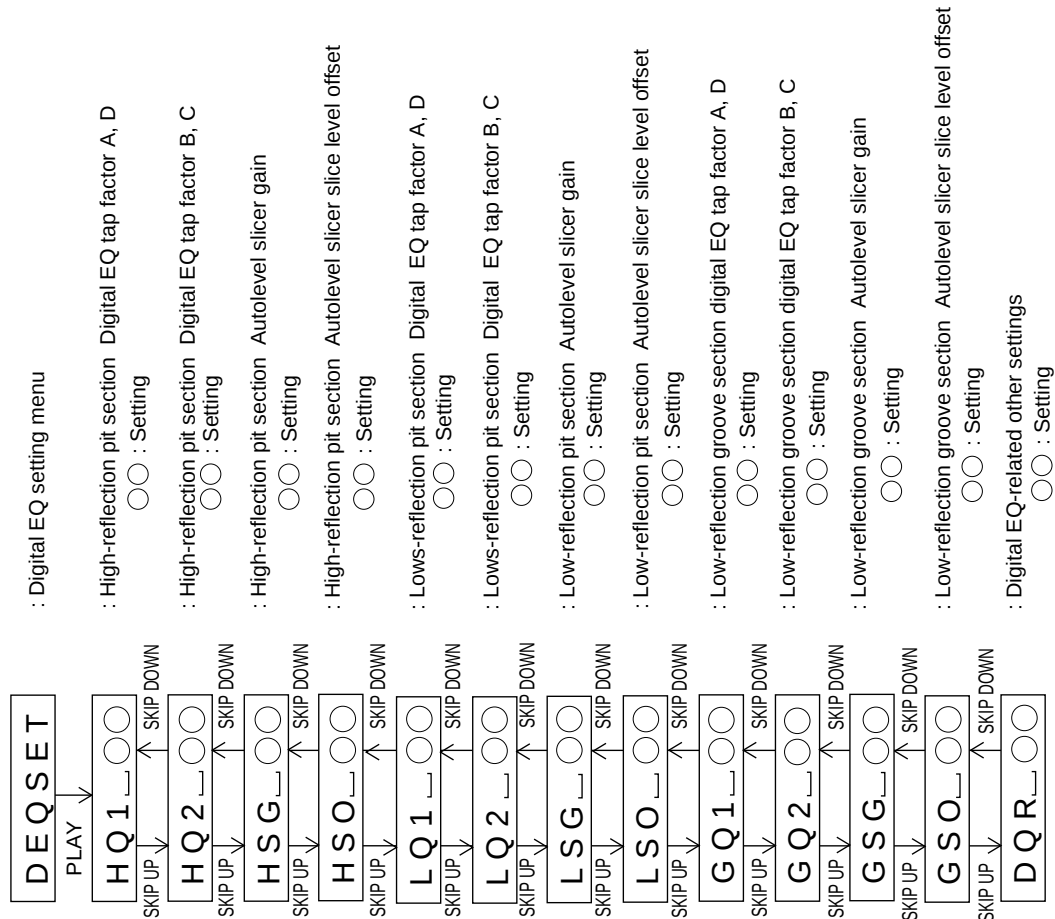


- When the "STOP" button is pressed in specific menu, the TEST MODE STOP state is set.
- In specific state pressing the [DISP] key causes change to "focus setting menu".
- In the specific setting display state the setting change digit changes when the [P-MODE] key is pressed.



- In the specific state the setting changes in the range of "0 H to F H" when the [VOL UP/DOWN] key is pressed.

DIGITAL EQ SETTING

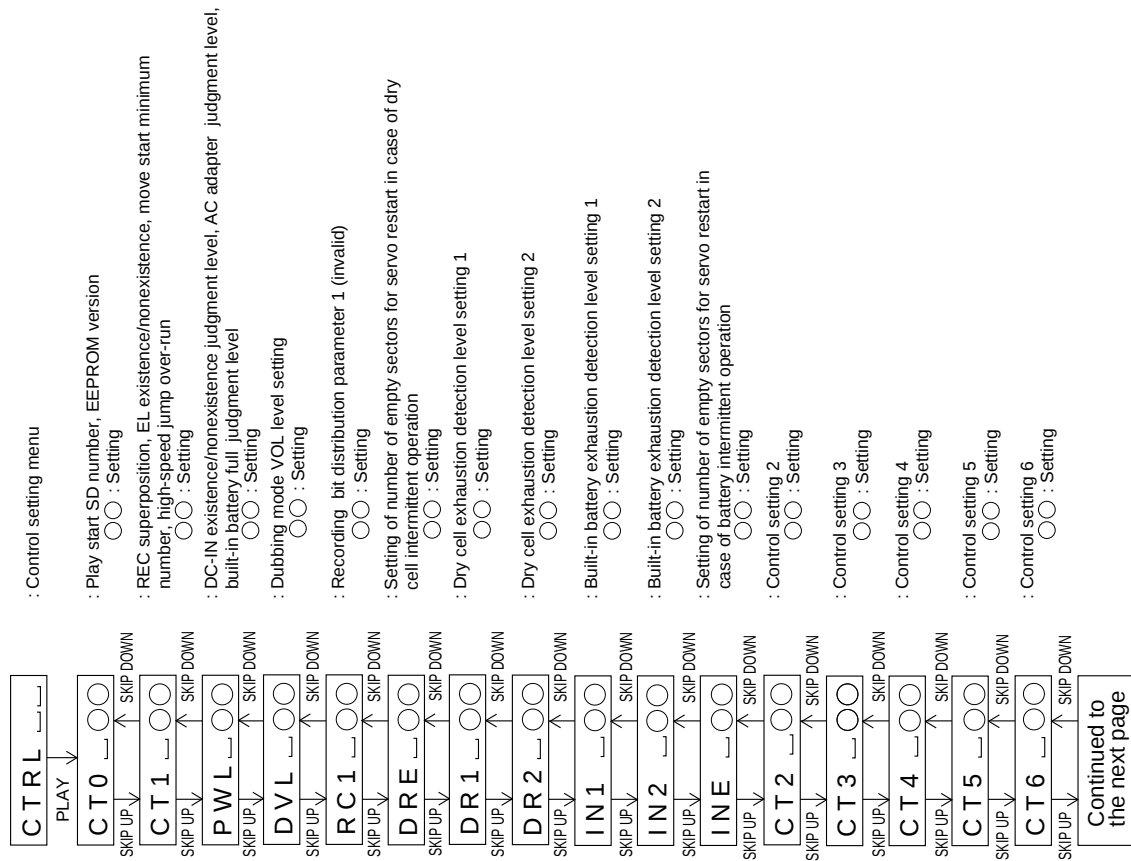


- When the "STOP" button is pressed in specific menu, the TEST MODE STOP state is set.
- In specific state pressing the [DISP] key causes change to "focus setting menu".
- In the specific setting display state the setting change digit changes when the [P-MODE] key is pressed.



- In the specific state the setting changes in the range of "0 H to F H" when the [VOL UP/DOWN] key is pressed.

CONTROL SETTING



Continued from
the preceding page

SKIP UP ↓

CT 7 _ _ _

SKIP DOWN ↑

Control setting 7
_ _ : Setting

SKIP UP ↓

SPM _ _ _

SKIP DOWN ↑

Special mode selection data (unprotect area)
_ _ : Setting

SKIP UP ↓

MSL _ _ _

SKIP DOWN ↑

Monitor selection data (unprotect area)
_ _ : Setting

SKIP UP ↓

RSL _ _ _

SKIP DOWN ↑

Control-related other setting data (unprotect area)
_ _ : Setting

1st digit (initial value)
* * * _ _ _

2nd value
* * * _ _ _

P-MODE ←

P-MODE →

• When the "STOP" button is pressed in specific menu, the TEST MODE STOP state is set.

• In specific state pressing the [DISP] key causes change to "focus setting menu".

• In the specific setting display state the setting change digit changes when the [P-MODE] key is pressed.

• In the specific state the setting changes in the range of "0 H to F H" when the [VOL UP/DOWN] key is pressed.

Note)
In case of EFM output monitoring (eye pattern) with TP201, change "MSL" to 80 from 00.
Before shipment MSL = 00.

E²-PROM DATA LIST (ROM Version : f)

Focus setting

Address	High-order 8-bit		Low-order 8-bit	
	Item	Initial Setting	Item	Initial Setting
00H	FG	40H	FF1	70H
01H	FF2	F0H	FHZ	DBH
02H	FLn	09H	DJG	14H
03H	FRV	00H	FPf	88H
04H	FLV	40H	WTf	20H
05H	FSS	02H	FSM	※※H

Tracking setting

Address	High-order 8-bit		Low-order 8-bit	
	Item	Initial Setting	Item	Initial Setting
06H	TG	47H	TF1	70H
07H	TF2	E0H	TFS	00H
08H	TBo	1EH	TBt	33H
09H	TKo	26H	TKt	15H
0AH	TD o	BBH	TD t	1EH
0BH	SC o	00H	SC t	40H
0CH	SC m	53H	DBO	00H
0DH	CLp	12H	CLr	24H
0EH	WT m	90H	TRM	※※H

Spindle setting

Address	High-order 8-bit		Low-order 8-bit	
	Item	Initial Setting	Item	Initial Setting
0FH	SPG	1AH	SPi	D0H
10H	SPm	A0H	SPo	68H
11H	SP1	10H	SP2	60H
12H	SP3	F2H	SP4	F2H
13H	SP5	10H	SPD	7FH
14H	SPR	00H	SPM	※※H

Sled setting

Address	High-order 8-bit		Low-order 8-bit	
	Item	Initial Setting	Item	Initial Setting
15H	SLK	50H	STL	28H
16H	STM	06H	STE	28H
17H	SDV	66H	SJP	06H
18H	SRV	09H	SLM	※※H

BASS setting

Address	High-order 8-bit		Low-order 8-bit	
	Item	Initial Setting	Item	Initial Setting
19H	BS1	A2H	BS2	C4H
1AH	BS3	E4H	BSM	※※H

TEMP setting

Address	High-order 8-bit		Low-order 8-bit	
	Item	Initial Setting	Item	Initial Setting
1BH	TM	★★H	TMM	※※H

Adjustment setting

Address	High-order 8-bit		Low-order 8-bit	
	Item	Initial Setting	Item	Initial Setting
1CH	COK	A0H	FAT	C0H
1DH	TAT	3EH	CAT	20H
1EH	FAB	00H	FAB	※※H

Digital EQ setting

Address	High-order 8-bit		Low-order 8-bit	
	Item	Initial Setting	Item	Initial Setting
30H	HQ1	90H	HQ2	90H
31H	HSG	11H	HSO	FDH
32H	LQ1	90H	LQ2	90H
33H	LSG	11H	LSO	00H
34H	GQ1	94H	GQ2	8AH
35H	GSG	11H	GSO	00H
36H	DQR	00H	EQM	※※H

Control setting

Address	High-order 8-bit		Low-order 8-bit	
	Item	Initial Setting	Item	Initial Setting
37H	CTO	44H	CT1	D0H
38H	PWL	13H	RCO	1BH
39H	RC1	00H	DRE	6EH
3AH	DR1	10H	DR2	46H
3BH	IN1	32H	IN2	49H
3CH	INE	6EH	CT2	14H
3DH	CT3	80H	CT4	00H
3EH	CT5	00H	CT6	00H
3FH	CT7	00H	CTM	※※H

※※H: Calculate the check sum to set.

★★H: After measuring temperature set the value obtained from the correction table.

TEST mode version display: ○○○○●◎

○○○ : Microcomputer ROM version

● : EEPROM version

◎ : Destination setting

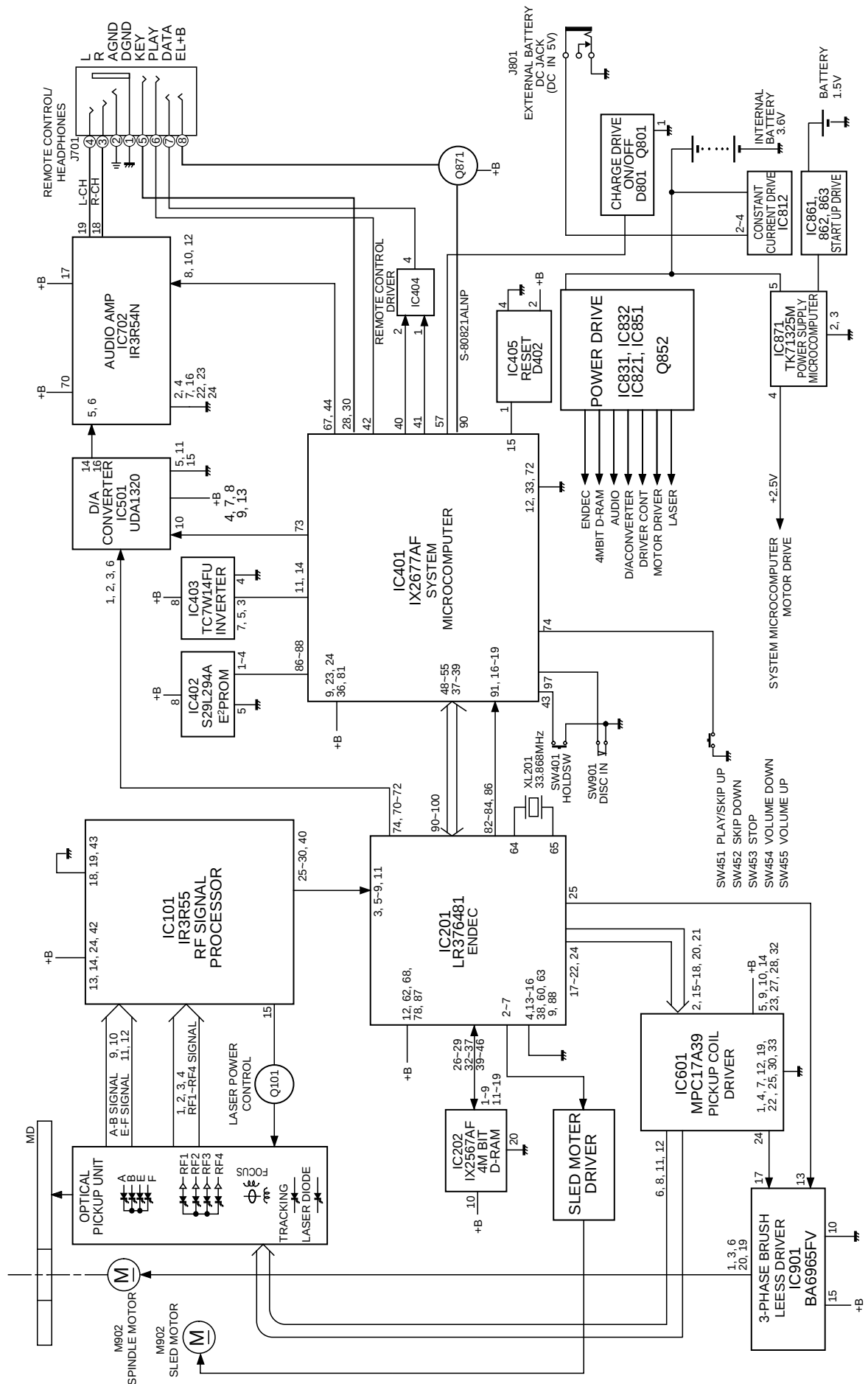


Figure 23 BLOCK DIAGRAM

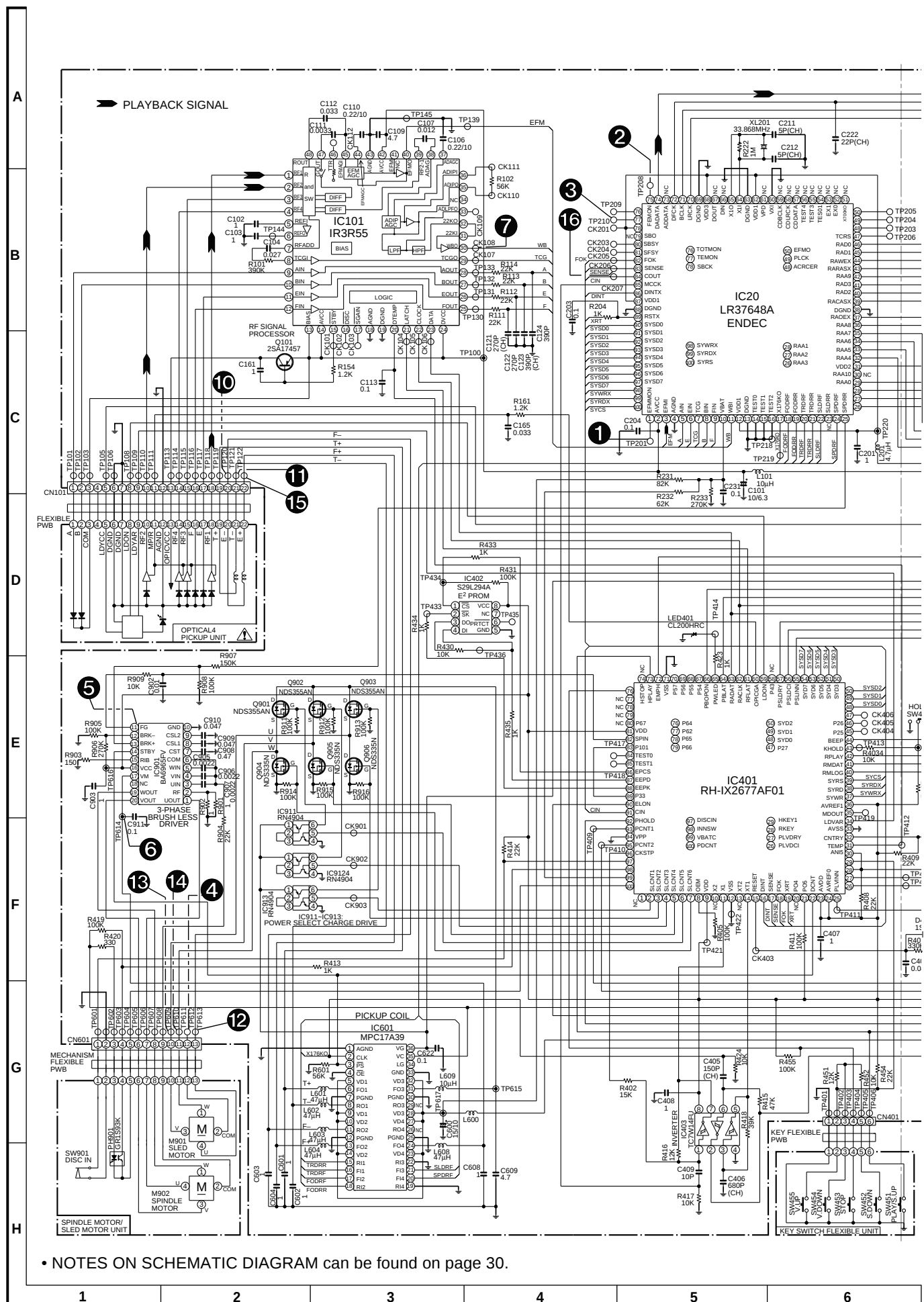
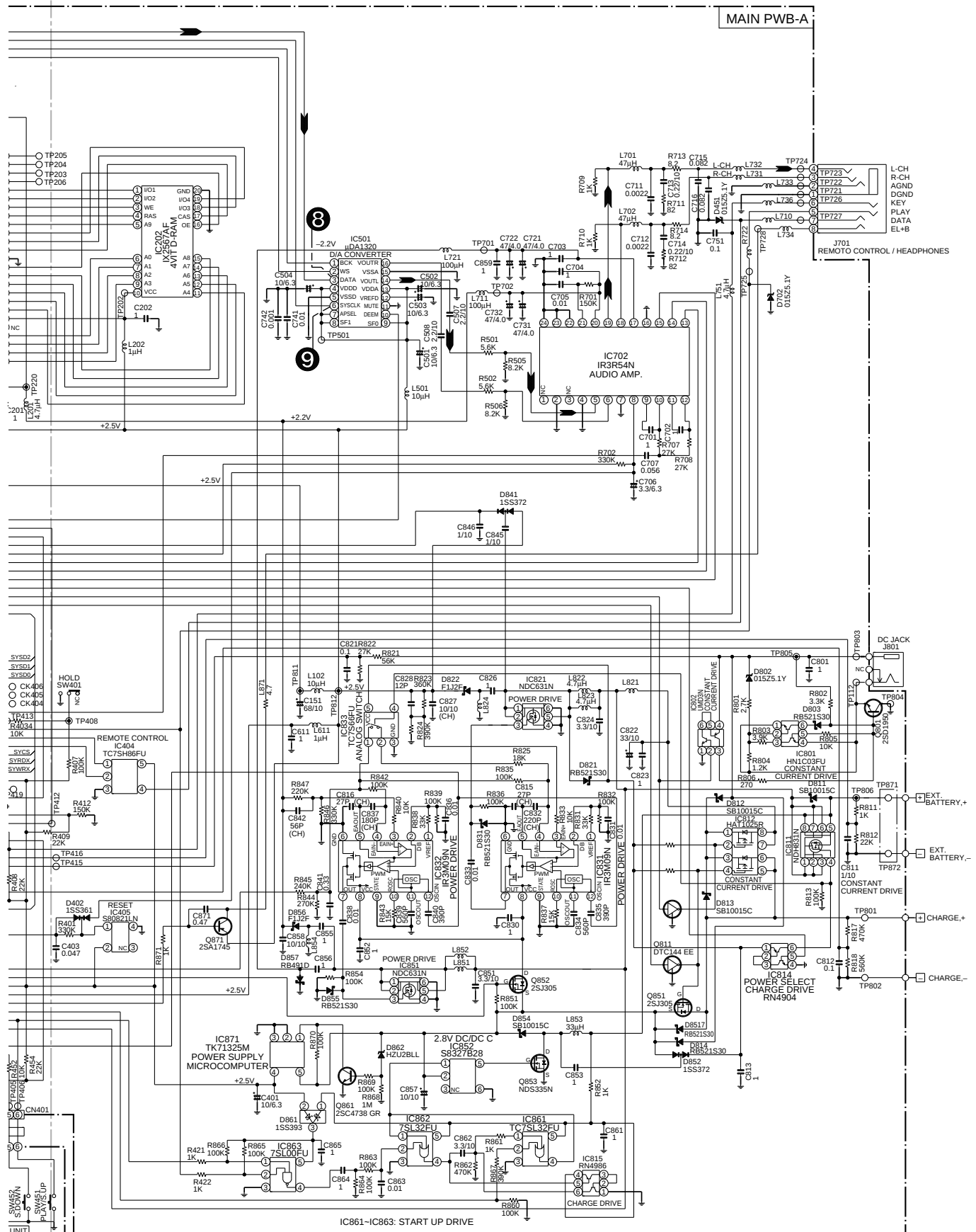
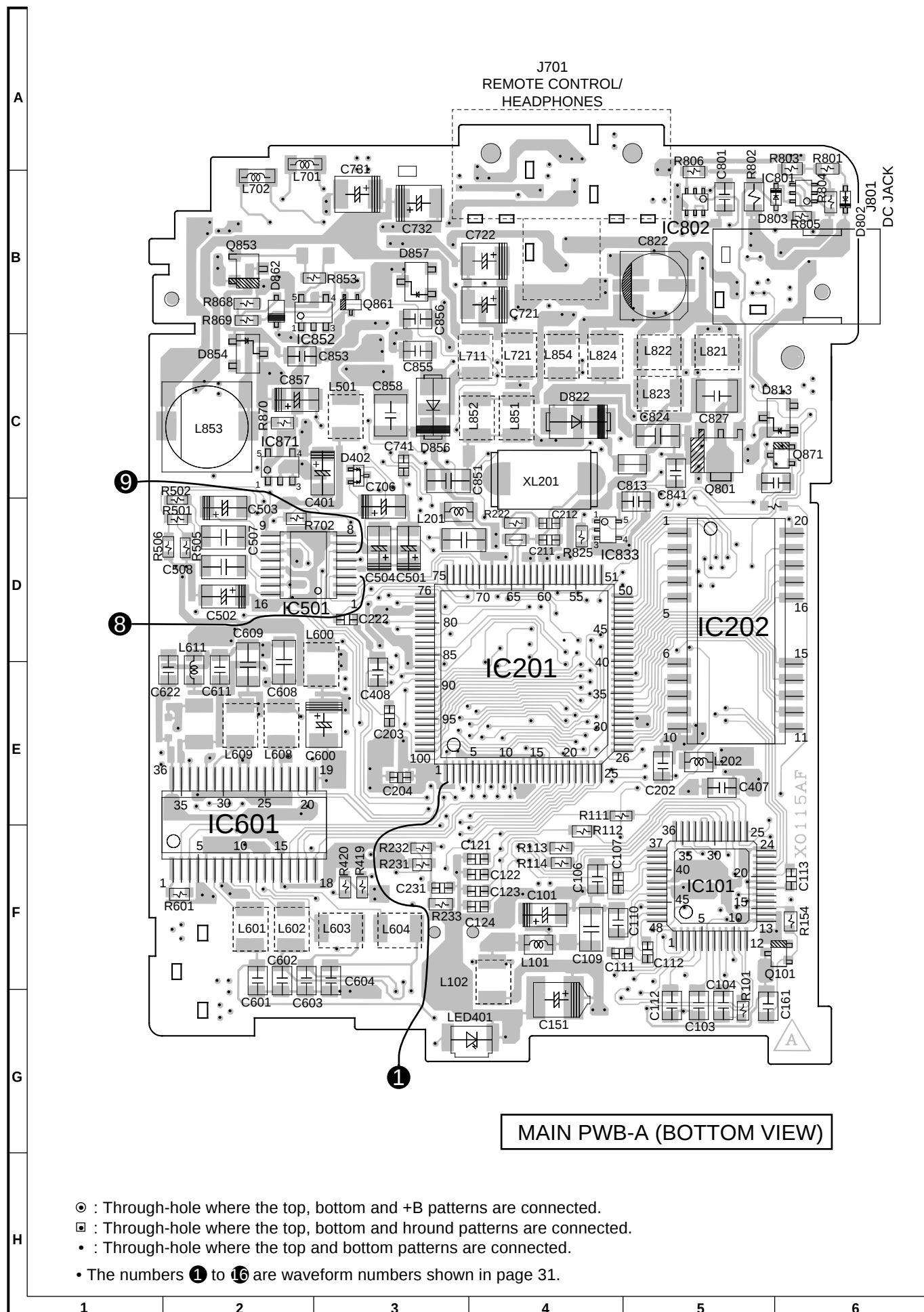


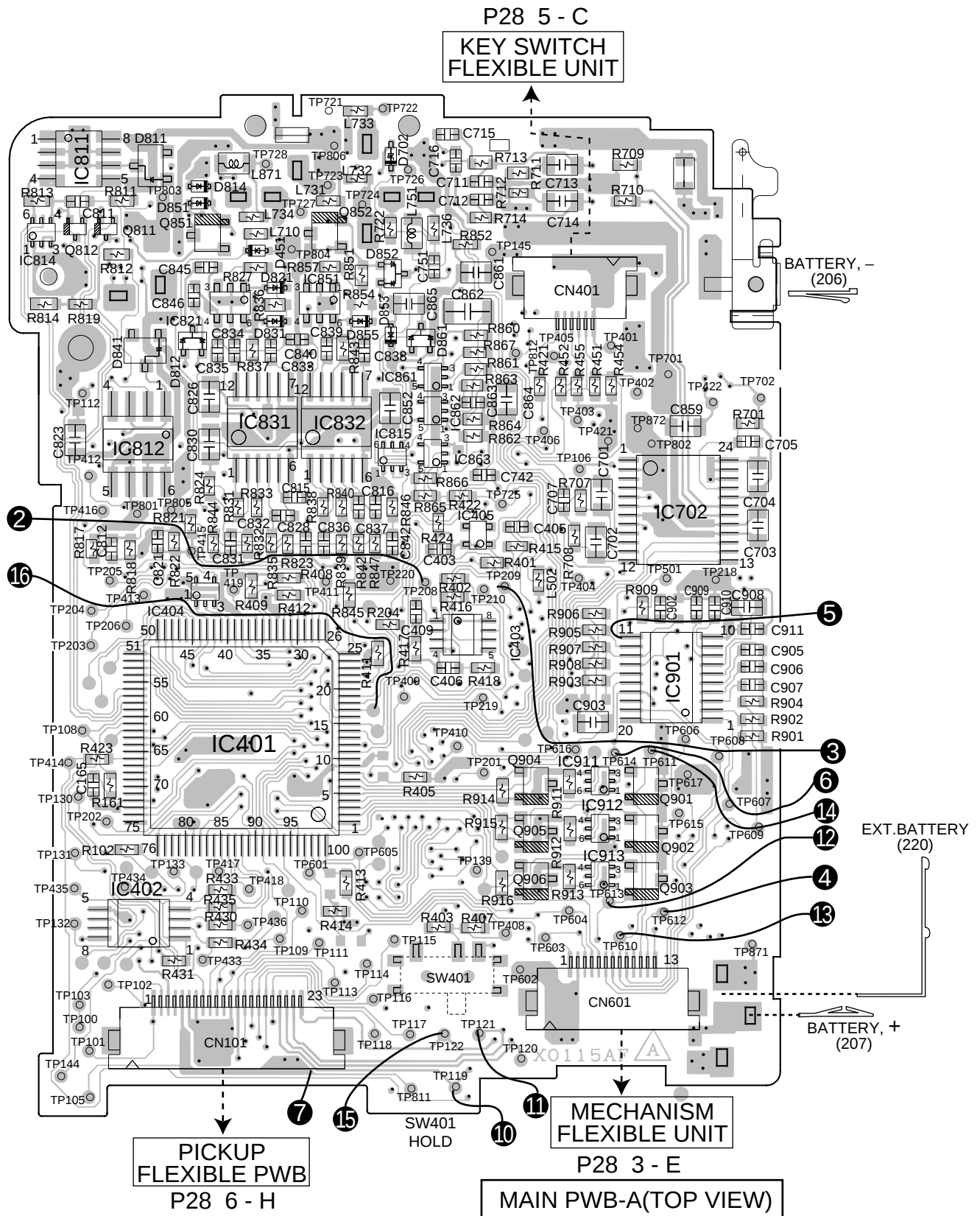
Figure 24 SCHEMATIC DIAGRAM (1/2)



• The numbers ① to ⑬ are waveform numbers shown in page 31.

Figure 25 SCHEMATIC DIAGRAM (2/2)





7	8	9	10	11	12
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Figure 27 WIRING OF P.W.BOARD (2/3)

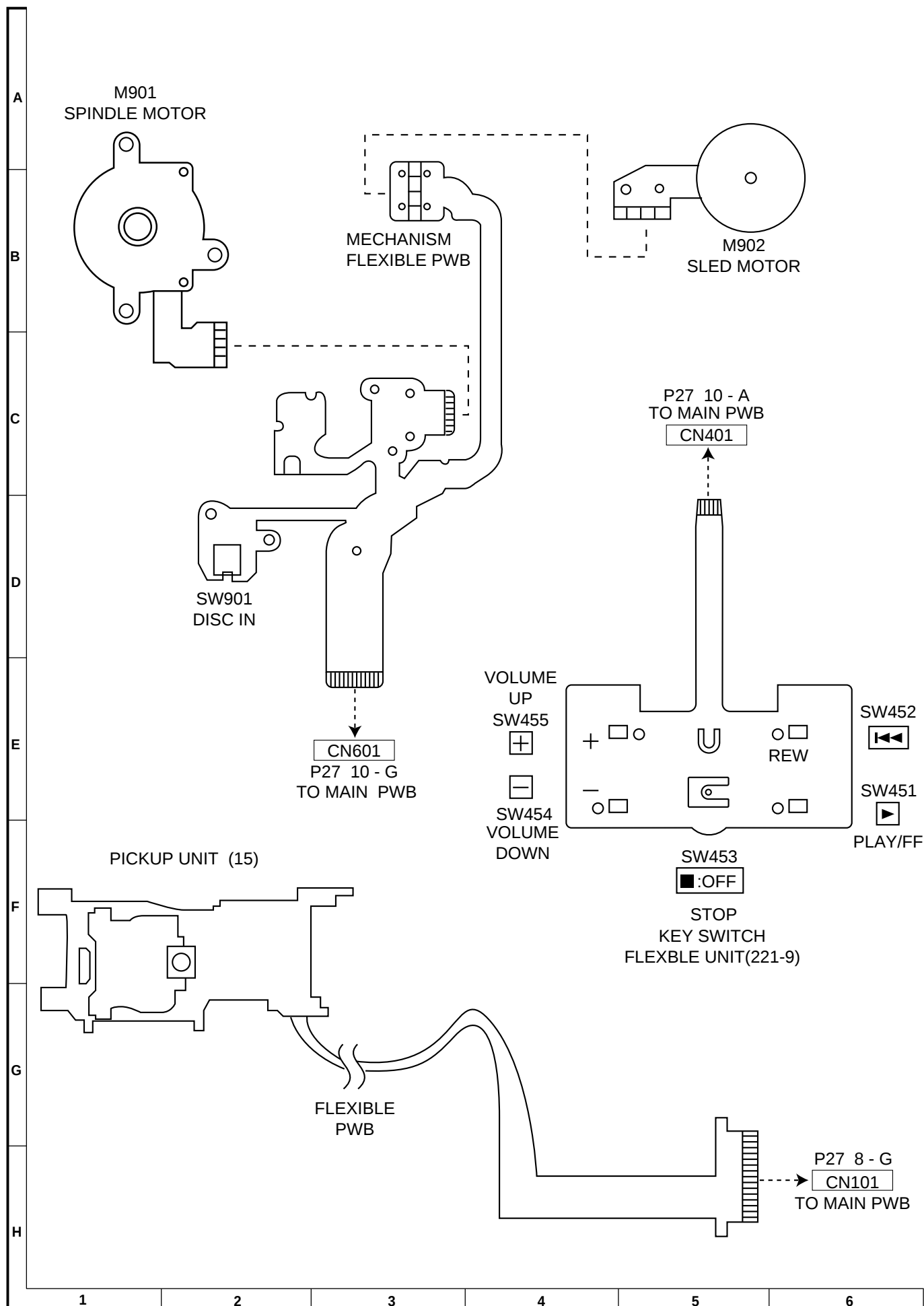


Figure 28 WIRING OF P.W.BOARD (3/3)

VOLTAGE

IC101	
PIN NO.	VOLTAGE
1	0.71V
2	0.71V
3	0.71V
4	0.71V
5	1.27V
6	1.27V
7	0.71V
8	1.27V
9	1.28V
10	1.28V
11	1.27V
12	1.27V
13	2.53V
14	2.53V
15	0V
16	2.53V
17	2.53V
18	0V
19	0V
20	1.48V
21	2.51V
22	0V
23	0V
24	2.53V
25	1.27V
26	1.27V
27	1.28V
28	1.28V
29	1.27V
30	1.39V
31	1.27V
32	1.27V
33	1.28V
34	0V
35	1.27V
36	0V
37	0V
38	1.27V
39	1.27V
40	1.28V
41	1.27V
42	2.53V
43	0V
44	0V
45	1.27V
46	0V
47	1.27V
48	0V

IC201			
PIN NO.	VOLTAGE	PIN NO.	VOLTAGE
1	0.94V	51	1.01V
2	2.53V	52	0V
3	1.28V	53	0V
4	0V	54	0V
5	1.27V	55	0V
6	1.27V	56	0V
7	1.27V	57	0V
8	1.27V	58	0V
9	1.27V	59	0V
10	2.22V	60	0V
11	1.38V	61	0V
12	2.03V	62	2.03V
13	0V	63	0V
14	0V	64	0.9V
15	0V	65	0.8V
16	0V	66	0V
17	1V	67	0V
18	0V	68	2.02V
19	0V	69	0V
20	0V	70	1V
21	0V	71	1V
22	0V	72	1V
23	0V	73	0V
24	0V	74	0V
25	0V	75	1V
26	0.5V	76	1V
27	0.6V	77	1V
28	0.58V	78	2.02V
29	1.4V	79	0V
30	0.92V	80	2.02V
31	2.54V	81	1V
32	0.6V	82	2.02V
33	0.99V	83	0V
34	0.99V	84	0V
35	0.81V	85	1V
36	0.8V	86	2.02V
37	1.82V	87	2.02V
38	0V	88	0V
39	2.07V	89	2.5V
40	1.62V	90	0V
41	1.67V	91	0V
42	0.92V	92	0V
43	1.74V	93	0V
44	2.53V	94	0V
45	1.7V	95	0V
46	1.52V	96	0V
47	0V	97	0V
48	1.94V	98	2.51V
49	1V	99	2.5V
50	0.92V	100	0V

IC202	
PIN NO.	VOLTAGE
1	0V
2	0V
3	2.41V
4	0V
5	1.13V
6	1.4V
7	0.58V
8	0.6V
9	0.6V
10	2.54V
11	0.62V
12	0.8V
13	0.8V
14	0.8V
15	0.8V
16	1.82V
17	1.96V
18	1.3V
19	1.7V
20	0V

IC401			
PIN NO.	VOLTAGE	PIN NO.	VOLTAGE
1	2.52V	51	0V
2	0V	52	0V
3	2.51V	53	0V
4	0V	54	0V
5	2.51V	55	0V
6	0V	56	2.51V
7	2.51V	57	2.51V
8	0V	58	0V
9	2.52V	59	0V
10	1.383V	60	0V
11	1.252V	61	0V
12	0V	62	2.51V
13	1.481V	63	0V
14	1.19V	64	0V
15	2.44V	65	2.51V
16	2.02V	66	2.4V
17	0V	67	2.51V
18	2.02V	68	0V
19	2.51V	69	0V
20	0V	70	0V
21	2.52V	71	0V
22	0V	72	0V
23	2.52V	73	0V
24	2.52V	74	2.46V
25	0V	75	0V
26	1.69V	76	2.49V
27	0.68V	77	0V
28	2.28V	78	0V
29	2.51V	79	0V
30	2.28V	80	0V
31	1.48V	81	2.52V
32	2.51V	82	2.52V
33	0V	83	1.26V
34	0V	84	2.51V
35	0V	85	0V
36	2.52V	86	2.52V
37	2.51V	87	0V
38	2.51V	88	0V
39	0V	89	1.26V
40	2.51V	90	1.77V
41	0.27V	91	0V
42	2.25V	92	2.51V
43	2.49V	93	2.52V
44	2.51V	94	0V
45	0V	95	0V
46	0V	96	1.25V
47	0V	97	2.51V
48	0V	98	0.43V
49	0V	99	0V
50	0V	100	0.31V

IC402	
PIN NO.	VOLTAGE
1	0V
2	0V
3	0V
4	0V
5	0V
6	2.52V
7	0V
8	2.52V

IC403	
PIN NO.	VOLTAGE
1	1.2V
2	1.26V
3	1.19V
4	0V
5	1.19V
6	1.25V
7	1.25V
8	2.52V

IC404	
PIN NO.	VOLTAGE
1	0V
2	2.51V
3	0V
4	2.2V
5	2.52V

IC501	
PIN NO.	VOLTAGE
1	0V
2	1V
3	0V
4	2.54V
5	0V
6	0.99V
7	2.54V
8	2.54V
9	2.54V
10	0V
11	0V
12	1.26V
13	2.54V
14	1.25V
15	0V
16	1.25V

IC601	
PIN NO.	VOLTAGE
1	0V
2	1V
3	2.5V
4	0V
5	4.78V
6	0V
7	0V
8	0V
9	4.78V
10	4.71V
11	0V
12	0V
13	0V
14	4.71V
15	0V
16	0V
17	0V
18	0V
19	0V
20	0V
21	0V
22	0V
23	4.73V
24	0V
25	0V
26	0V
27	0V
28	4.69V
29	4.69V
30	2.8V
31	0V
32	4.7V
33	0V
34	0V
35	2.54V
36	9.8V

IC701	
PIN NO.	VOLTAGE
1	0V
2	0V
3	0V
4	0V
5	0V
6	0V
7	0V
8	0.94V
9	0V
10	0V
11	0V
12	0V
13	2.51V
14	0V
15	0V
16	0V
17	-2.26V
18	0V
19	0V
20	2.03V
21	0.77V
22	0V
23	0V
24	0V

IC811	
PIN NO.	VOLTAGE
1	4.75V
2	4.75V
3	4.74V
4	0V
5	0.69V
6	4.77V
7	4.74V
8	0.7V

IC812	
PIN NO.	VOLTAGE
1	4.82V
2	0V
3	4.83V
4	0V
5	4.86V
6	4.83V
7	4.84V
8	4.75V

IC814	
PIN NO.	VOLTAGE
1	7.6V
2	7.5V
3	7.5V
4	0V
5	0V
6	0V

IC815	
PIN NO.	VOLTAGE
1	0V
2	0V
3	0V
4	0.7V
5	0.7V
6	0V

IC821	
PIN NO.	VOLTAGE
1	4.7V
2	4.7V
3	0V
4	0V
5	4.7V
6	0V

IC831	
PIN NO.	VOLTAGE
1	1.26V
2	0.94V
3	1.32V
4	1.29V
5	1.16V
6	0V
7	0.24V
8	4.98V
9	0V
10	0.4V
11	1V
12	1V

IC832	
PIN NO.	VOLTAGE
1	120V
2	0.94V
3	1.32V
4	1.29V
5	1.16V
6	0V
7	0.21V
8	4.78V
9	0V
10	0.4V
11	1V
12	1V

IC851	
PIN NO.	VOLTAGE
1	4.7V
2	4.7V
3	0V
4	0V
5	4.7V
6	0V

IC852	
PIN NO.	VOLTAGE
1	0.66V
2	4.65V
3	0V
4	0V
5	0V

IC861	
PIN NO.	VOLTAGE
1	0V
2	1.32V
3	0V
4	0.73V
5	0.73V

IC862	
PIN NO.	VOLTAGE
1	0.74V
2	0V
3	0V
4	0.74V
5	0.74V

IC863	
PIN NO.	VOLTAGE
1	2.46V
2	2.26V
3	0V
4	2.44V
5	2.48V

IC871	
PIN NO.	VOLTAGE
1	0V
2	0V
3	0V
4	2.51V
5	4.69V

IC901	
PIN NO.	VOLTAGE
1	0V
2	0V
3	0V
4	0V
5	0V
6	0V
7	0.6-1V
8	2.47V
9	1.89,2.16V
10	0V
11	2.51V
12	0.69V
13	0V
14	2.5V
15	0V
16	2.52V
17	0V
18	0V
19	0V
20	0V

IC911	
PIN NO.	VOLTAGE
1	9.74V
2	9.67V
3	9.67V
4	0V
5	0V
6	0V

IC912	
PIN NO.	VOLTAGE
1	9.74V
2	9.67V
3	9.67V
4	0V
5	0V
6	0V

IC913	
PIN NO.	VOLTAGE
1	9.74V
2	9.67V
3	9.67V
4	0V
5	0V
6	0V

NOTES ON SCHEMATIC DIAGRAM

- Resistor:
To differentiate the units of resistors, such symbol as K and M are used: the symbol K means 1000 ohm and the symbol M means 1000 kohm and the resistor without any symbol is ohm-type resistor. Besides, the one with "Fusible" is a fuse type.
- Capacitor:
To indicate the unit of capacitor, a symbol P is used: this symbol P means micro-micro-farad and the unit of the capacitor without such a symbol is microfarad. As to electrolytic capacitor, the expression "capacitance/withstand voltage" is used.
(CH), (TH), (RH), (UJ): Temperature compensation
(ML): Mylar type

- The indicated voltage in each section is the one measured by Digital Multimeter between such a section and the chassis with no signal given.
- Parts marked with "⚠" (⚠) are important for maintaining the safety of the set. Be sure to replace these parts with specified ones for maintaining the safety and performance of the set.
- The wiring diagram and the PWB drawing may be changed to reflect improvements in the design without prior notice. They may differ a little the unit you have.

REF. NO	DESCRIPTION	POSITION
SW401	HOLD	OFF—ON
SW451	PLAY/FF	OFF—ON
SW452	REW	OFF—ON
SW453	STOP	OFF—ON
SW454	VOLUME DOWN	OFF—ON
SW455	VOLUME UP	OFF—ON
SW901	DISC IN	OFF—ON

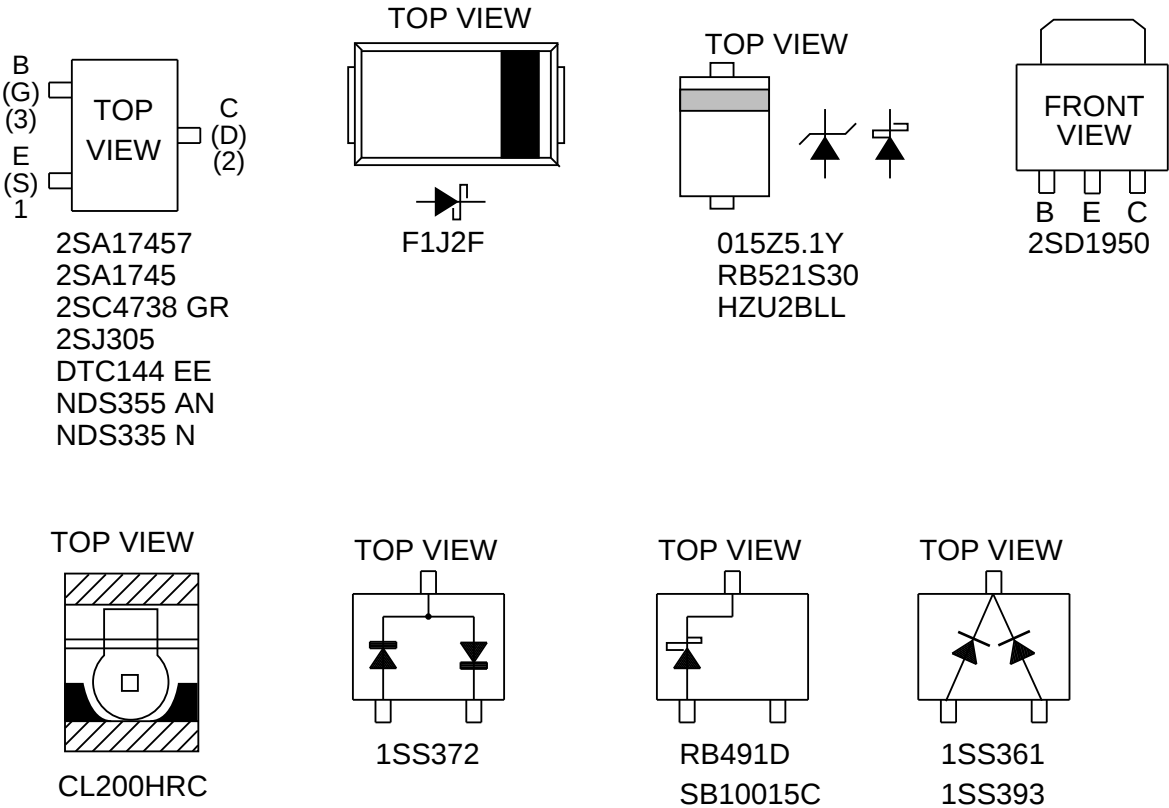
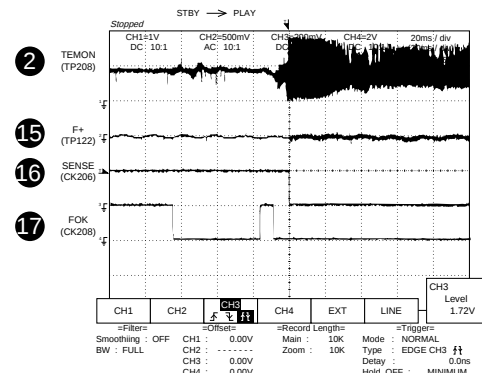
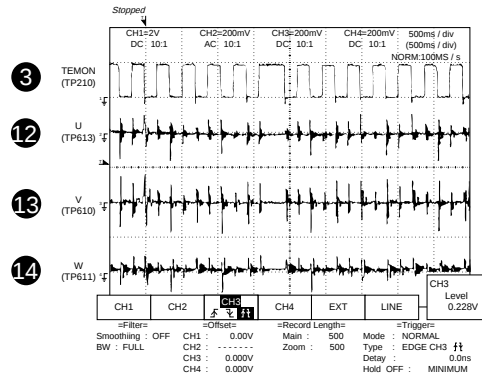
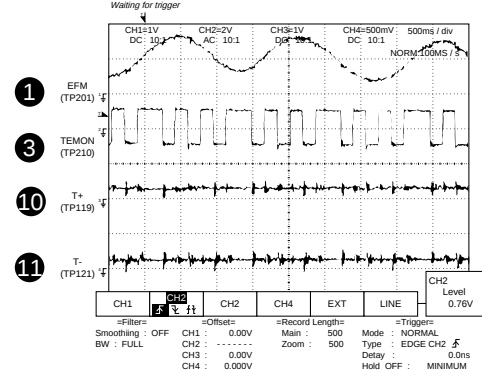
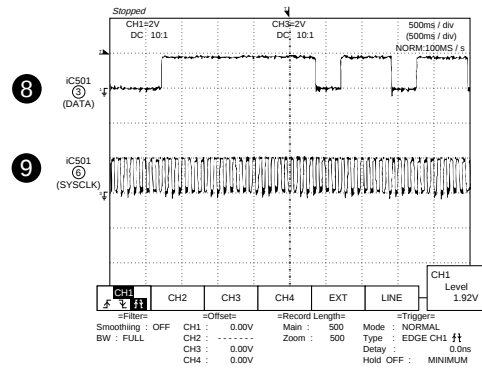
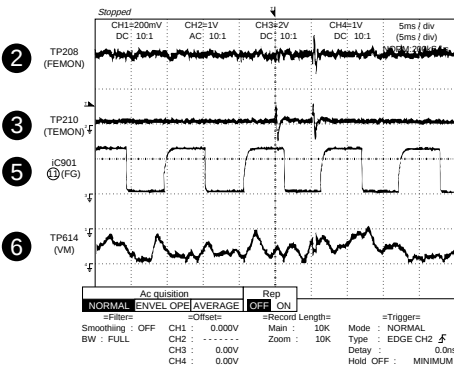
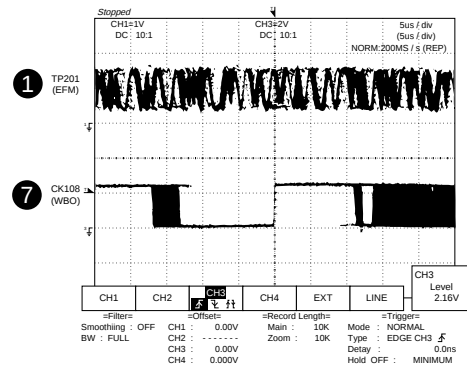
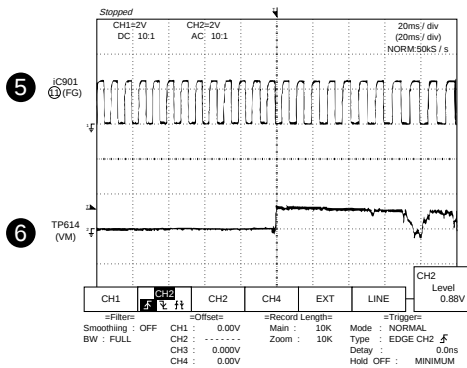
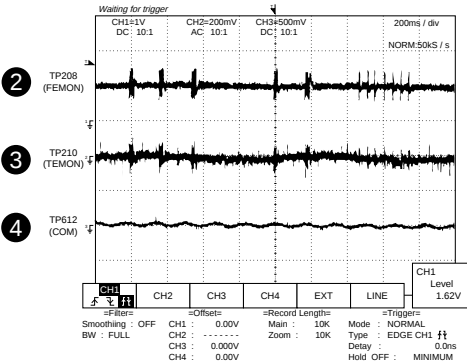
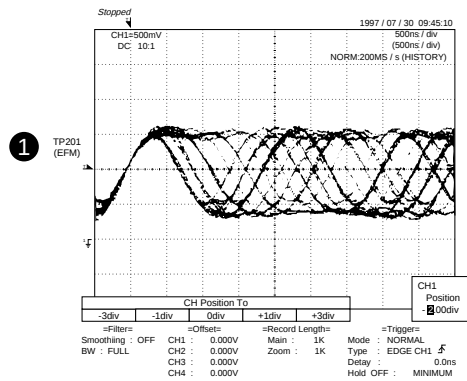


Figure 30 TYPES OF TRANSISTOR AND LED

WAVEFORMS OF MD CIRCUIT



TROUBLESHOOTING

It is advisable to use the TEST mode (refer to Error Data Display Mode, P22) indicating the causes of troubles before starting repair. Causes of operation errors (up to 10 errors) are recorded as error codes. This information is useful for repair.

When does not function

When the CD section does not operate When the objective lens of the optical pickup is dirty, this section may not operate. Clean the objective lens, and check the playback operation. When this section does not operate even after the above step is taken, check the following items.

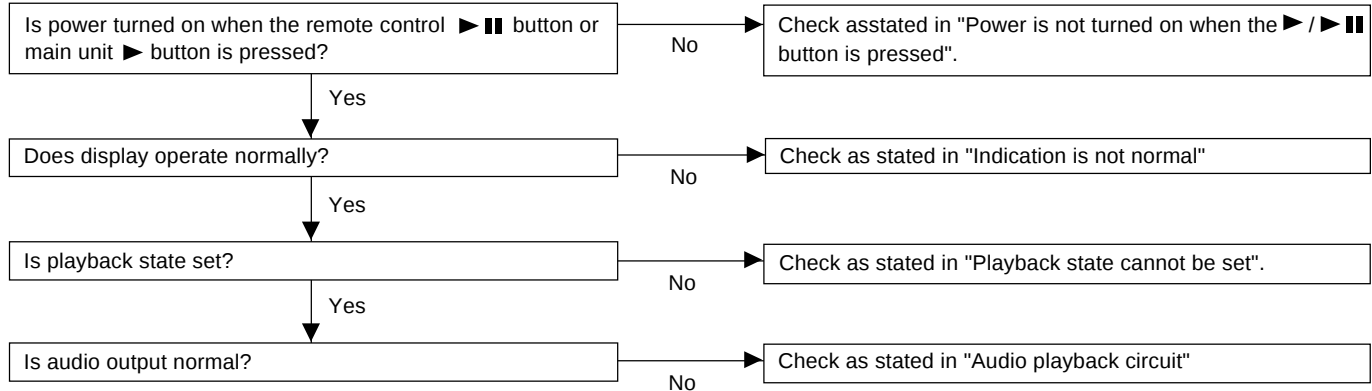
Remove the cabinet and follow the troubleshooting instructions.

"Track skipping and/or no TOC (Table Of Contents) may be caused by build up of dust or other foreign matter on the laser pickup lens. Before attempting any adjustment make certain that the lens is clean. If not, clean it as mentioned below."

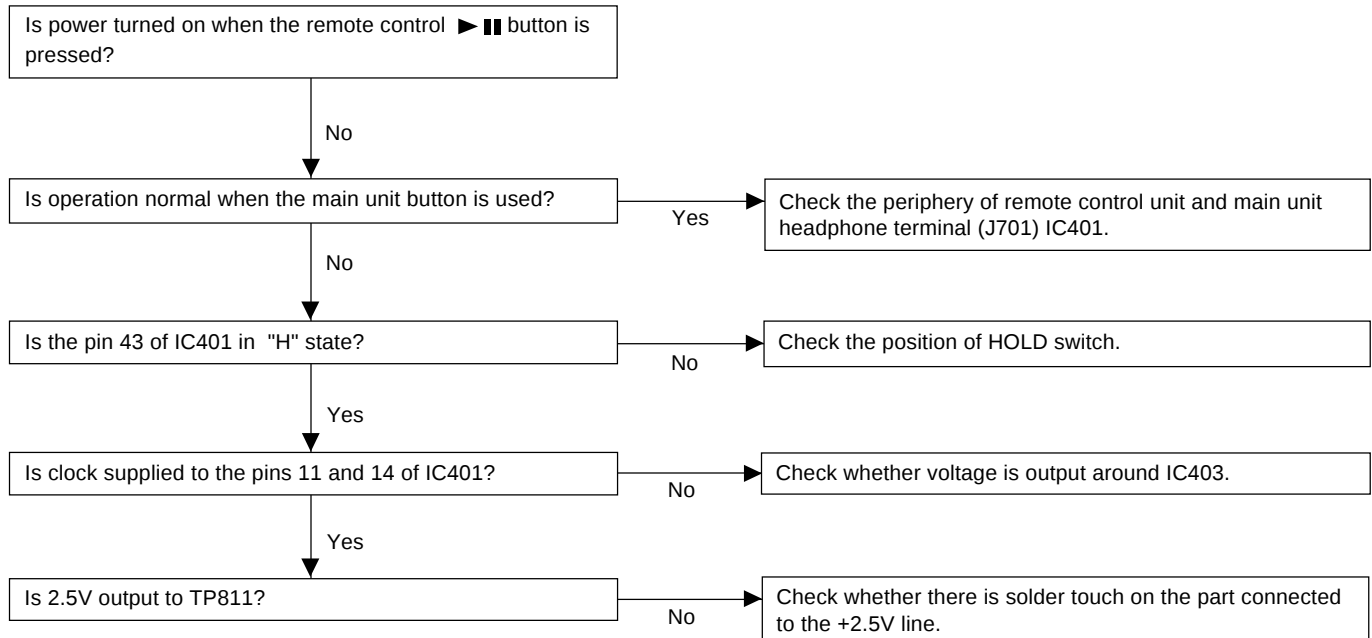
Turn the power off.

Gently clean the lens with a lens cleaning tissue and a small amount of isopropyl alcohol.

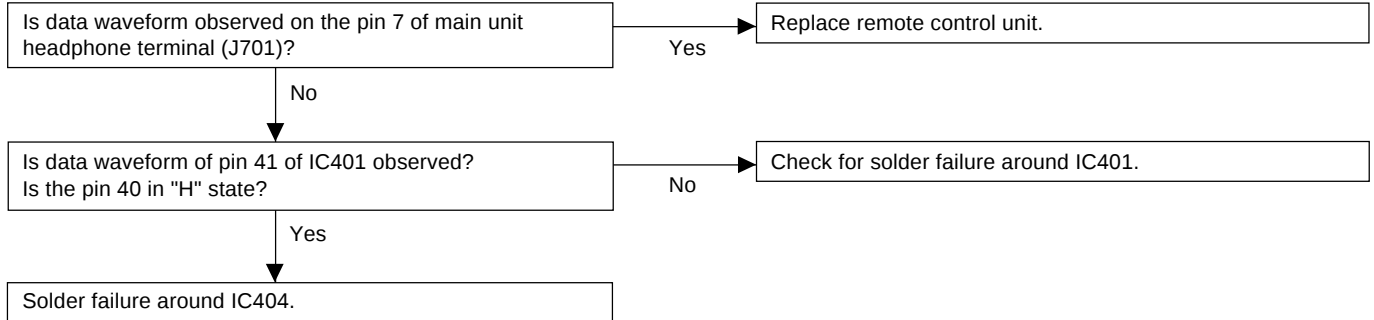
Do not touch the lens with the bare hand.



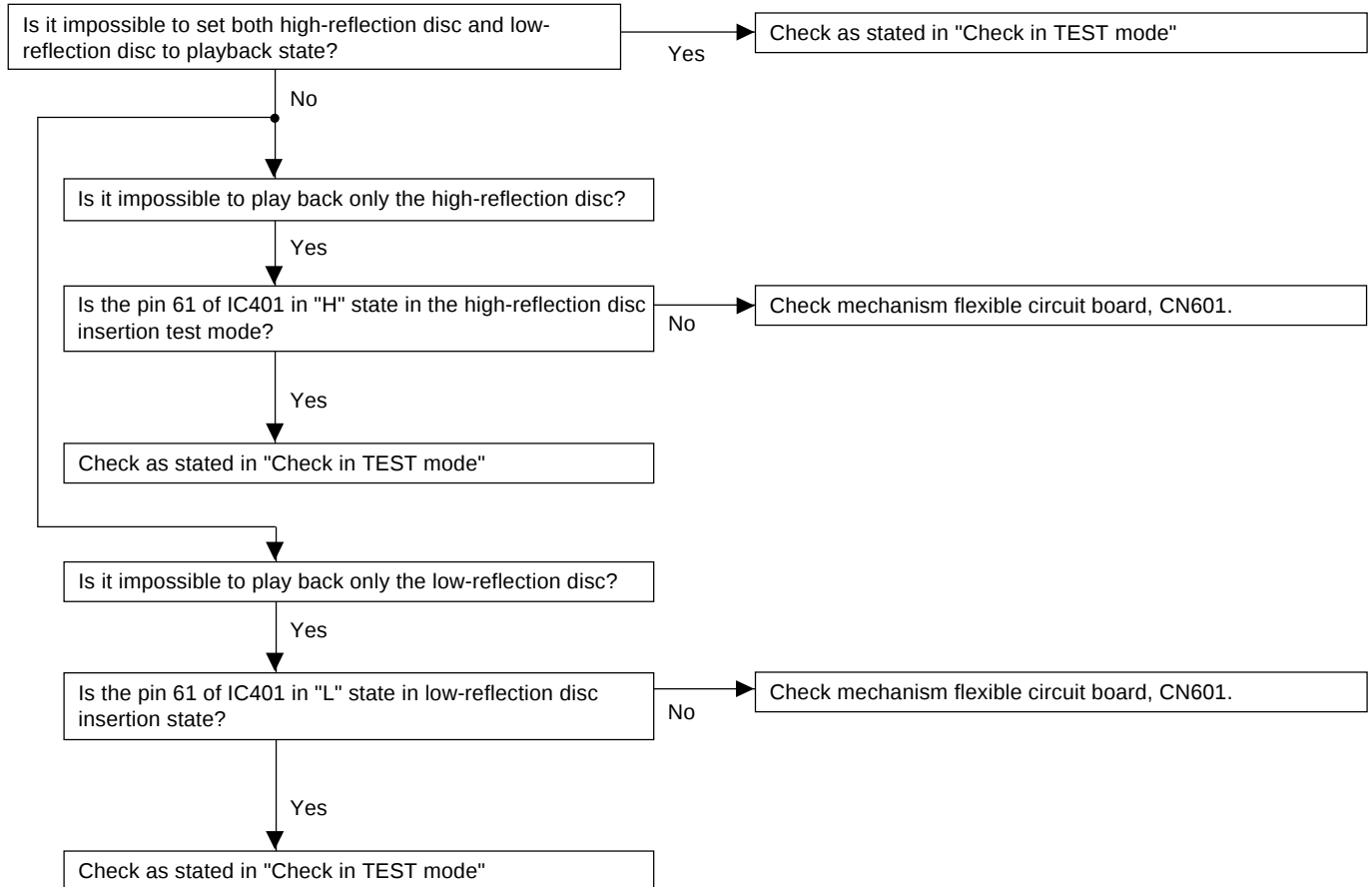
• Power is not turned on when the ► / ►|| button is pressed.



• "Indication is not normal"



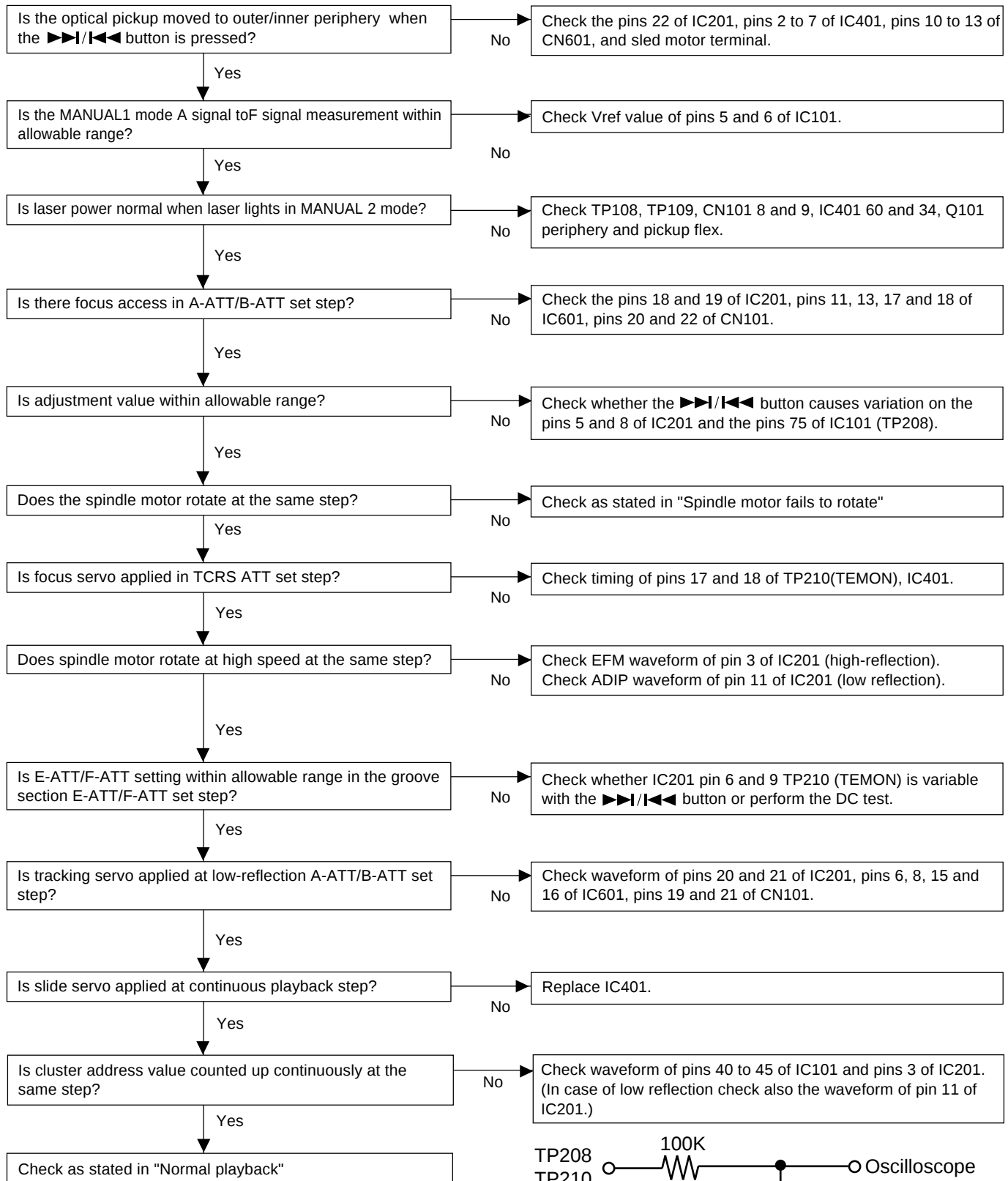
• "Playback state cannot be set"



• "Check in TEST mode"

After once performing the automatic adjustment in the AUTO2 MODE, using the low-reflection disc, and then check in MANUAL1 or 2 mode.

Waveform of EFM (TP201), FEOU (TP208), and TEOU (TP210) are observed at the same time.



Note)

As output of FEOU (TP208) and TEOU (TP210) is PWM output, observe the waveform through the LPF as shown in Figure 34.

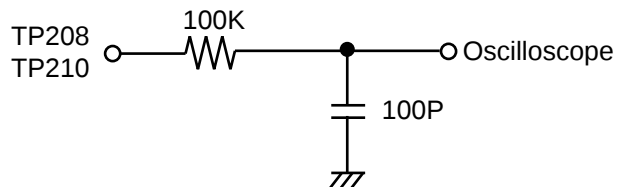
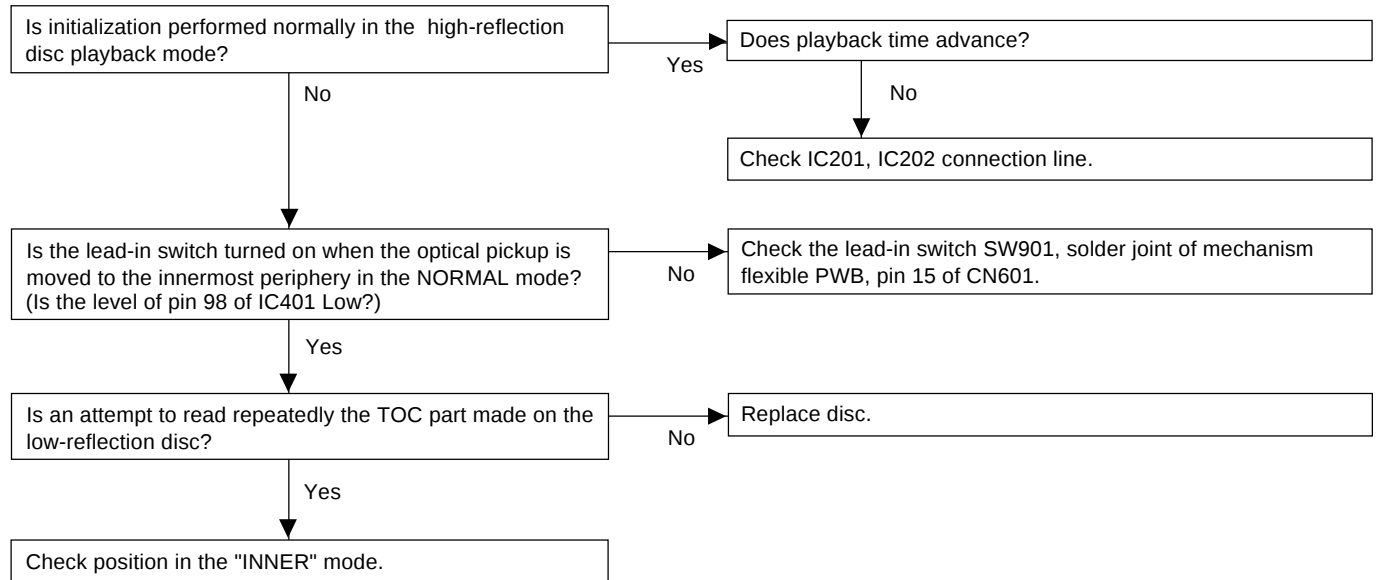


Figure 34

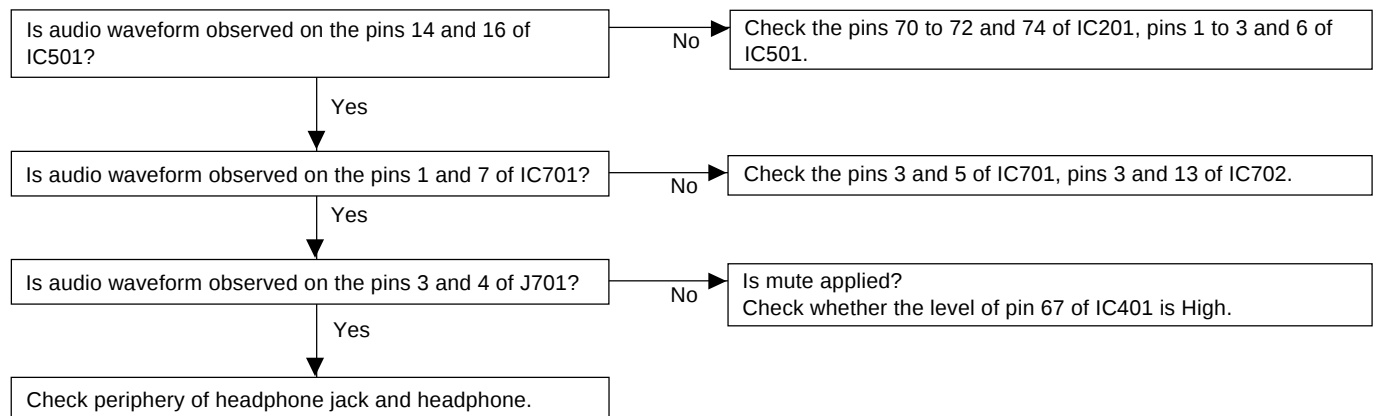
• "Normal playback"

When the address up to the cluster address has been proved to be normal in the TEST mode.

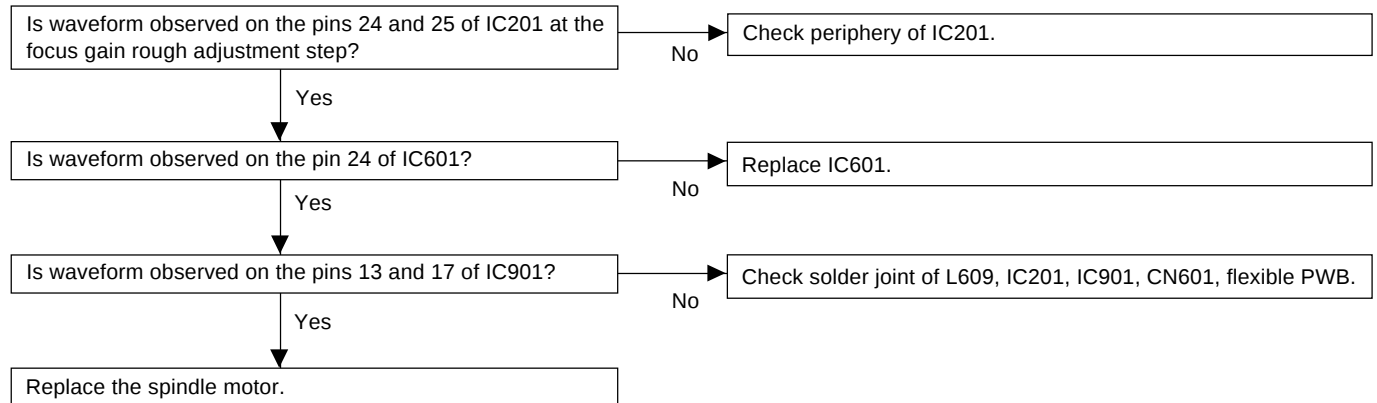


• "Audio playback circuit"

When sound is not output although playback time display advances during continuous playback.



• "Spindle motor fails to rotate"



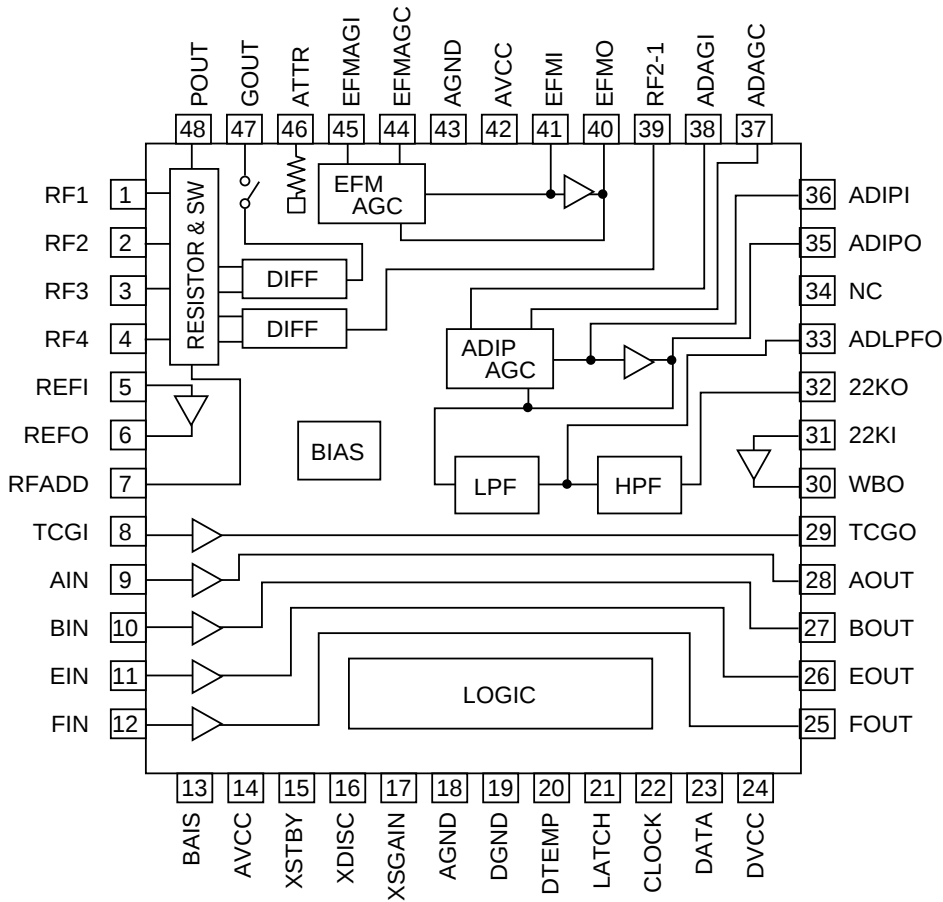
FUNCTION TABLE OF IC

IC101 VHiiR3R55//1 (IR3R55): RF signal processing

Pin No.	Terminal Name	Function
1	RF1	RF signal input terminal 1 Input of optical pickup RF signal input
2	RF2	RF signal input terminal 2 Input of optical pickup RF signal input
3	RE3	RF signal input terminal 3 Input of optical pickup RF signal input
4	RF4	RF signal input terminal 4 Input of optical pickup RF signal input
5	REFI	Reference voltage amplifier input terminal
6	REFO	Reference voltage amplifier output terminal
7	RFADD	RF1 to 4 resistance addition output terminal
8	TCGI	Groove state track cross detection singaol amp input terminal
9	AIN	Servo signal amp (focus servo system) inversion input terminal
10	BIN	Servo signal amp (focus servo system) inversion input terminal
11	EIN	Servo signal amp (tracking servo system) inversion input terminal
12	FIN	Servo signal amp (tracking servo system) inversion input terminal
13	BIAS	Bias input terminal
14	AVCC	Analog section power terminal
15	XSTBY	Logic signal output terminal (STBY signal inversion singaol is output)
16*	XDISC	Logic signal output terminal (DISC signal inversion singaol is output)
17*	XSGAIN	Logic signal output terminal (SGAIN signal inversion singaol is output)
18	AGND	Analog section GND terminal
19	DGND	Digital section GND terminal
20	DTEMP	Chip temperature detection terminal
21	LATCH	Latch signal input terminal
22	CLOCK	Clock signal input terminal
23	DATA	Serial data input terminal
24	DVCC	Digital section power terminal
25	FOUT	Servo signal amp (tracking servo system) output terminal
26	EOUT	Servo signal amp (tracking servo system) output terminal
27	BOUT	Servo signal amp (focus servo system) output terminal
28	AOUT	Servo signal amp (focus servo system) output terminal
29	TCGO	Groove state track cross detection signal amp output terminal
30	WBO	Comparator output terminal for ADIP signal 2-gradation
31	22KI	Comparator input terminal for ADIP signal 2-gradation
32	22KO	ADIP signal HPF amp output terminal
33*	ADLPFO	ADIP signal LPF amp output terminal
34*	NC	Not used
35	ADIPO	ADIP signal preamp output terminal
36	ADIPI	ADIP AGC amp output terminal
37	ADAGC	ADIP signal AGC smoothing capacitor connecting terminal
38	ADAGI	ADIP signal AGC amplifier input terminal
39	RF2-1	RF1 and RF2 differential signal
40	EFMO	RF signal preamplifier output terminal
41*	EFMI	RF signal AGC amplifier output terminal
42	AVCC	Analog section power terminal
43	AGND	Analog section GND terminal
44	EFMAGC	Terminal to connect smoothing capacitor for EFM signal AGC
45	EFMAGI	EFM signal AGC amplifier output terminal
46	ATTR	Pin 47 and 48 output signal attenuation terminal
47	GOUT	Groove state RF1+RF2-RF3-RF4 signal output
48	POUT	Pit state RF1 to 4 resistance addition output

In this unit, the terminal with asterisk mark (*) is (open) terminal which is not connected to the outside.

IC101 VHiiR3R55//1 (IR3R55): RF signal processing



IC201 VHiiLR376481-1 (LR376481): LSI signal processing

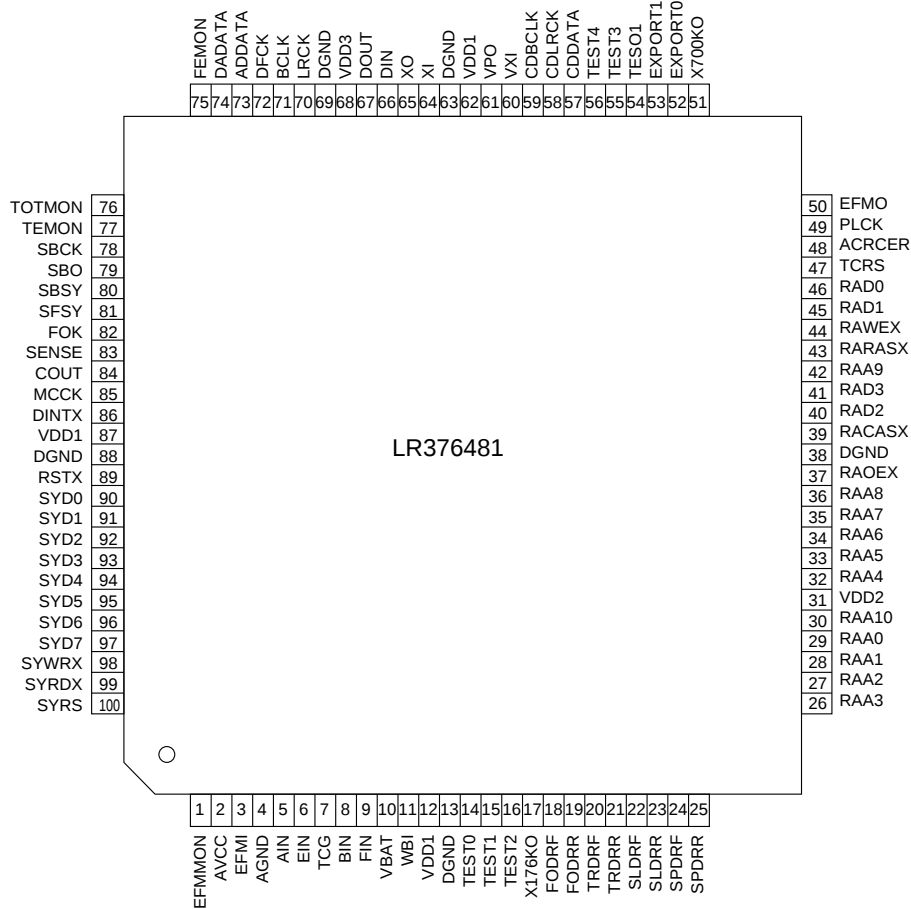


Figure 37 BLOCK DIAGRAM OF IC

MD-S301/S301W**IC201 VHiLR376481-1 (LR376481): LSI Signal Processor (1/2)**

Pin No.	Terminal Name	Input/Output	Function
1	EFMMON	Output	EFM monitor output
2	AVCC	—	Analog power
3	EFMI	Input	EFM signal input from RF amplifier
4	AGND	—	Analog GND
5	AIN	Input	Focus error signal A
6	EIN	Input	Tracking error signal E
7	TCG	Input	Track cross signal
8	BIN	Input	Focus error signal B
9	FIN	Input	Tracking error signal F
10	VBAT	Input	Constant voltage servo power voltage detection signal
11	WBI	Input	ADIP wobble signal
12	VDD1	—	Digital power
13	DGND	—	Digital GND
14, 15	TEST0, TEST1	Input	Test input. To be connected to GND usually
16	TEST2	Input	Test input. Endecoder/servo mode and ATRAC mode selection To be connected to GND usually when used
17	X176KO	Output	Clock output. $f = 176.4 \text{ kHz}$ (4fs)
18	FODRF	Output	Focus servo forward output. PWM
19	FODRR	Output	Focus servo reverse output. PWM
20	TRDRF	Output	Tracking servo forward output. PWM
21	TRDRR	Output	Tracking servo reverse output. PWM
22	SLDRF	Output	Slide servo forward output. PWM
23*	SLDRR	Output	Slide servo reverse output. PWM
24	SPDRF	Output	Spindle servo forward output or spindle servo output. PWM
25	SPDRR	Output	Spindle servo reverse output or spindle rotation forward/reverse selection
26-28	RAA3-RAA1	Output	Address output to external D-RAM, ADR3-ADR1
29	RAA0	Output	Address output to external D-RAM, ADR0 (LSB)
30*	RAA10	Output	Address output to external D-RAM, ADR10 (MSB)
31	VDD2	—	DRAM interface power
32-36	RAA4-RAA8	Output	Address output to external D-RAM, ADR4-ADR8
37	RAOEX	Output	Data output enable signal output to external D-RAM
38	DGND	—	Digital GND
39	RACASX	Output	Column address strobe signal output to external D-RAM
40	RAD2	Input/Output	Data input/output from and to external D-RAM, D2
41	RAD3	Input/Output	Data input/output from and to external D-RAM, D3 (MSB)
42	RAA9	Output	Address output to external D-RAM, ADR9
43	RARASX	Output	Low address strobe signal output to external D-RAM
44	RAWEX	Output	Data write enable signal output to external D-RAM
45	RAD1	Input/Output	Data input/output to and from external D-RAM, D1
46	RAD0	Input/Output	Data input/output to and from external D-RAM, D0 (LSB)
47*	TCRS	Output	Track cross signal
48*	ACRCER	Output	ADIP CRC error flag monitor output
49*	PLCK	Output	Playback state EFM PLL clock output
50*	EFMO	Output	Recording state EFM signal output. Playback state CIF (CI error flag) monitor output
51*	X700KO	Output	Clock output. $f = 705.6 \text{ kHz}$. Clock is not output when RSTX = 0.
52*	EXPORT0	Output	Microcomputer extension port 0
53*	EXPORT1	Output	Microcomputer extension port 1
54*	TESO1	Output	PLLLR Microcomputer extension port 2 for selection
55*	TEST3	Input/Output	PLLOSC Microcomputer extension port 3 for selection
56*	TEST4	Input/Output	EXTCLK Microcomputer extension port 4 for selection
57*	CDDATA	Input/Output	High-speed dubbing CD data input. Microcomputer extension port 5 for selection
58*	CDLRCK	Input/Output	High-speed dubbing CD LR clock input. Microcomputer extension port 6 for selection
59*	CDBCLK	Input/Output	High-speed CD bit clock input. Microcomputer extension port 7 for selection

In this unit, the terminal with asterisk mark (*) is (open) terminal which is not connected to the outside.

IC201 VHiLR376481-1 (LR376481): LSI Signal Processor (2/2)

Pin No.	Terminal Name	Input/Output	Function
60	VX1	Input	Vari-pitch PLL clock input
61*	VPO	Output	Vari-pitch PLL phase error output
62	VDD1	—	Digital Power
63	DGND	—	Digital GND
64	XI	Input	Oscillation circuit input 33.8688M
65	XO	Output	Oscillation circuit output 33.8688M
66*	DIN	Input	Digital input signal
67*	DOUT	Output	Digital output signal
68	VDD3	—	Internal PLL power
69	DGND	—	Digital GND
70	LRCK	Output	Audio data Lch/Rch selection output
71	BLCK	Output	Audio data shift clock
72	DFCK	Output	AD/DA converter digital filter clock 256 Fs
73*	ADDATA	Input	Audio data input
74	DADATA	Output	Audio data output
75*	FEMON	Output	Focus error signal monitor output
76*	TOTMON	Output	Total signal monitor output
77*	TEMON	Output	Tracking error signal monitor output
78	SBCK	Input	DIN sub-code read clock. EIAJ CP-309 format
79*	SBO	Output	DIN sub-code serial data. EIAJ CP-309 format
80*	SBSY	Output	DIN sub-code block sync signal. EIAJ CP-309 format
81*	SFSY	Output	DIN sub-code frame sync signal. EIAJ CP-309 format
82	FOK	Output	Focus OK detection signal. "0": Focus OK
83	SENSE	Output	Servo status detection signal. "1": Auto-move, auto-jump, auto-focus retraction
84	COUT	Output	Track cross signal output
85	MCCK	Output	Microcomputer clock output. Clock is output even when RSTX = 0.
86	DINTX	Input	System controller interface interruption request output terminal
87	VDD1	—	Digital power
88	DGND	—	Digital GND
89	RSTX	Input	Chip reset input, L: Reset (note)
90	SYD0	Input/Output	System controller interface data buss terminal (LSB)
91-96	SYD1-6	Input/Output	System controller interface data buss terminal
97	SYD7	Input/Output	System controller interface data buss terminal (MSB)
98	SYWRX	Input	System controller interface register write pulse input
99	SYRDX	Input	System controller interface register read pulse input
100	SYRS	Input	System controller interface register selection input

Note: Set RSTX to L when power is turned on or after power is turned on.

In this unit, the terminal with asterisk mark (*) is (open) terminal which is not connected to the outside.

IC401 RH-iX2677AF03 (IX2677AF): System Microcomputer (1/2)

Pin No.	Port Name	Terminal Name	Input/Output	Function
1*	P120	SWPUP	Output	Pull-up output
2	RTP1	SLCNT1	Output	Sled motor drive output (UH)
3	RTP2	SLCNT2	Output	Sled motor drive output (UL)
4	RTP3	SLCNT3	Output	Sled motor drive output (VH)
5	RTP4	SLCNT4	Output	Sled motor drive output (VL)
6	RTP5	SLCNT5	Output	Sled motor drive output (WH)
7	RTP6	SLCNT6	Output	Sled motor drive output (WL)
8	P127	OEM	Input	Product brand identification input
9	VDD	VDD	—	Positive power
10*	X2	X2	—	Not used
11	X1	X1	—	Main system clock input
12	VSS	VSS	—	Ground potential
13*	XT2	XT2	—	Not used
14	XT1	XT1	—	Subsystem clock input
15	RESET	RESET	Input	Microcomputer hard reset input
16	INTP0	DINT	Input	System LSI interruption request input
17	P01	SENSE	Input	System LSI servo sensor input
18	P02	FOK	Input	Focus OK signal input
19	P03	XRST	Output	System LSI hard reset output
20*	P04	P04	Output	Not used
21	P05	VLIM	Output	Volume limiting switch input
22	P06	DCNT	Output	Mechanism driver enable output
23	AVDD	AVDD	—	A/D converter analog positive power
24	AVREF0	AVREF0	—	A/D converter reference voltage input
25	ANI0	PLVINN	Input	Built-in battery voltage detection input
26	ANI1	PLVDCI	Input	DC jack voltage detection input
27	ANI2	PLVDRY	Input	Dry cell voltage detection input
28	ANI3	RKEY	Input	Remote controller key operation detection input
29	ANI4	HKEY1	Input	Main unit key operation detection input
30	P15	RTRG	Input	Start-up request from composite machine
31	ANI6	TEMP	Input	Ambient temperature detection input
32	ANI7	CNTRY	Input	Product destination identification input
33	AVSS	AVSS	—	A/D converter ground potential
34	AN00	LDVAR	Output	P.U. laser power setting output
35*	AN01	MDOUT	Output	Internal operation mode output
36	AVREF1	AVREF1	—	D/A converter references voltage input
37	P70	SYWR	Output	System LSI write enable output
38	P71	SYRD	Output	System LSI read enable output
39	P72	SYRS	Output	System LSI register selection output
40	P20	PMLOG	Output	Display data output logic selection output
41	SO1	RMDAT	Output	Remote controller display/composite machine data output
42	P22	RPLAY	Input	Remote controller PLAY key operation detection output
43	P23	KHOLD	Input	Main unit key hold switch input
44	P24/BUZ	BEEP	Output	Beep tone pulse output
45*-47*	P25-P27	P25-P27	Output	Not used
48-55	P80-P87	SYD0-SYD7	Input/Output	System LSI parallel data bus
56	P40	PSLINN	Output	Built-in charger. Power selection output
57	P41	PSLDCI	Output	DC jack Power selection output
58	P42	PSLDRY	Output	Dry cell. Power selection output
59*	P43	P43	Output	Not used
60	P44	LDON	output	P.U. laser ON/OFF control output
61	P45	OPICGA	Output	P.U. detection sensitivity selection output

In this unit, the terminal with asterisk mark (*) is (open) terminal which is not connected to the outside.

IC401 RH-iX2677AF03 (IX2677AF): System Microcomputer (2/2)

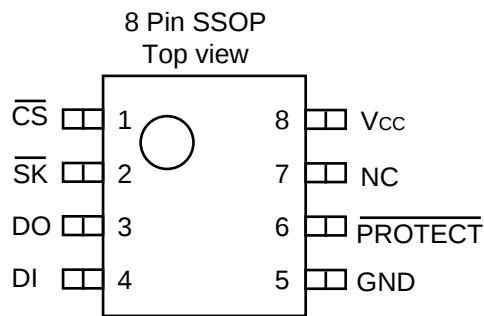
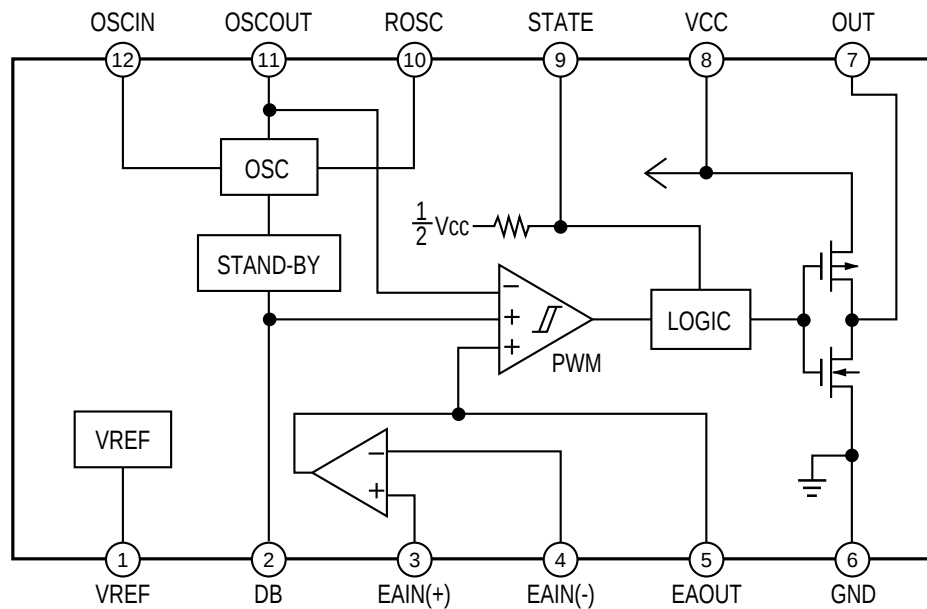
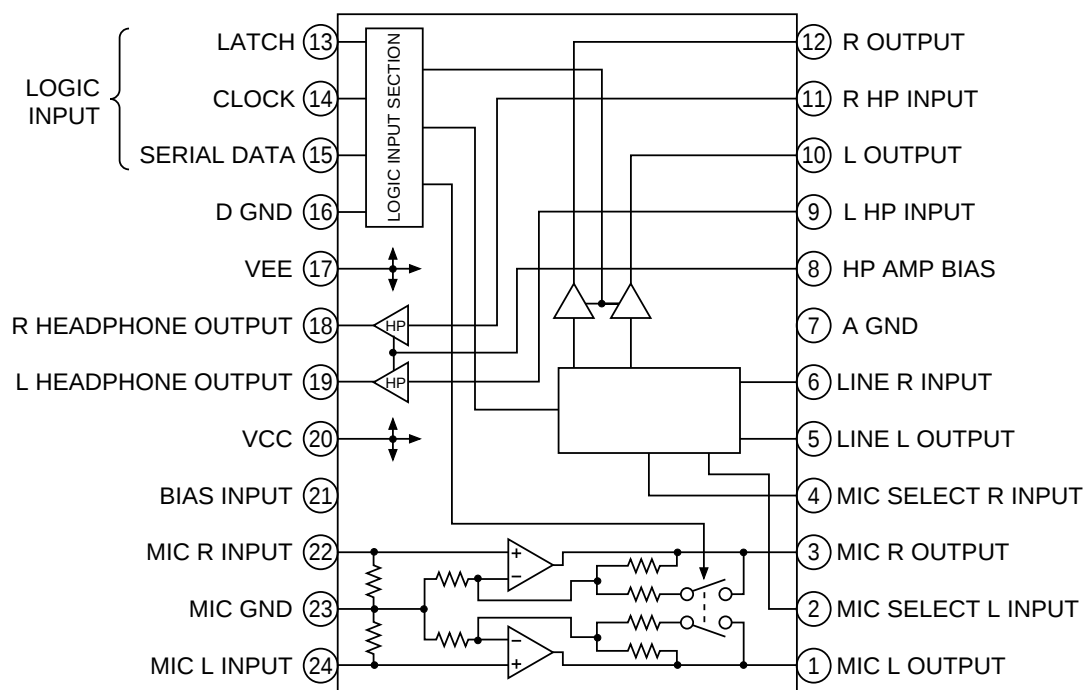
Pin No.	Port Name	Terminal Name	Input/Output	Function
62	P46	RFLAT	Output	RF amp IC data latch output
63	P47	RACLK	Output	RF/audio IC data clock output
64	P50	RADAT	Output	RF/audio IC serial data output
65	P51	PBLAT	Output	Audio IC data latch output
66	P52	PWLED	Output	Power indicator output
67	P53	PBOPON	Output	Audio IC output stage control output
68*-71*	P54-P57	P54-P57	Output	Not used
72	VSS	VSS	—	Ground potential
73	P60	EMPH	Output	Audio emphasis control output
74	P61	HPLAY	Input	Main unit PLAY key operation detection input
75*	P62	P62	Output	Not used
76	P63	HSTOP	Input	Main unit STOP key operation detection input
77*-80*	P64-P67	P64-P67	Output	Not used
81	VDD	VDD	—	Positive power
82	TI5	SPIN	Input	Spindle motor FG pulse detection input
83	P101	P101	Output	Sled motor control spare
84*	P102	TEST0	Input	Test mode setting input 0
85*	P103	TEST1	Input	Test mode setting input 1
86	P30	EPCS	Output	EEPROM chip select output
87	P31	EEPD	Input/Output	EEPROM serial data input/output
88	P32	EEPK	Output	EEPROM serial clock output
89	P33	P33	Output	Sled motor control spare
90	P34	ELON	Output	Remote control EL light control output
91	T100	CIN	Input	Track cross signal detection input
92	P36	PHOLD	Output	Dry cell power ON holding output
93	P37	PCNT1	Output	Power IC VREF supply control output
94	TEST/VPP	VPP	—	TEST/F-ROM write power input
95	P90	PCNT2	Output	Power IC VCC supply control output
96	P91	CKSTP	Output	Main clock stop control output
97	P92	DISCIN	Input	Disc insertion detection input
98	P93	INNSW	Input	Mechanism inner SW position detection input
99	P94	VBATC	Output	Constant voltage servo reference power selection
100	P95	PDCNT	Output	PD current control output for inner detection

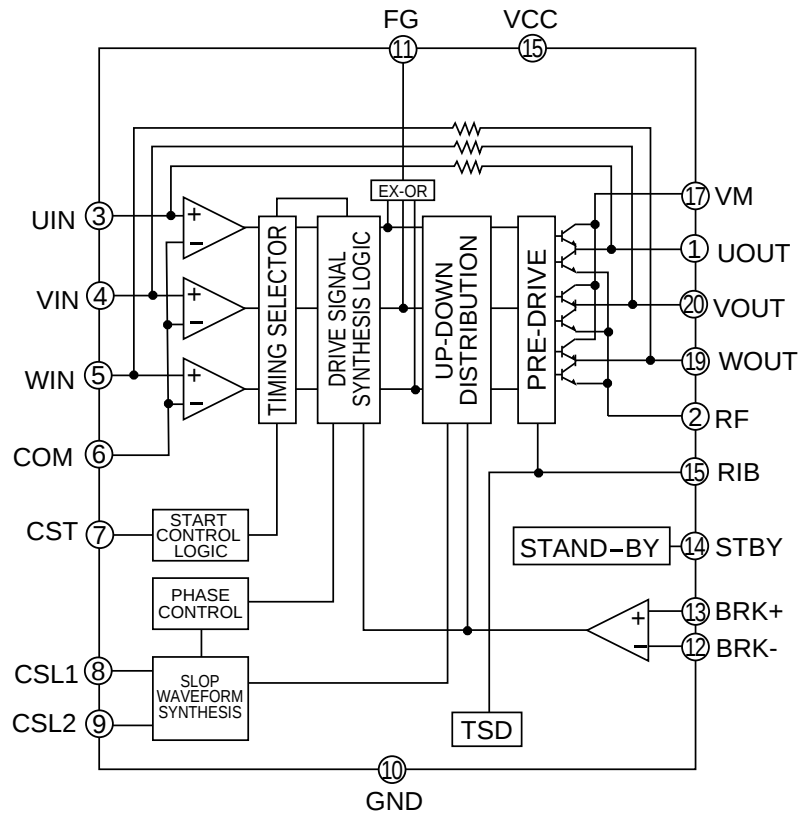
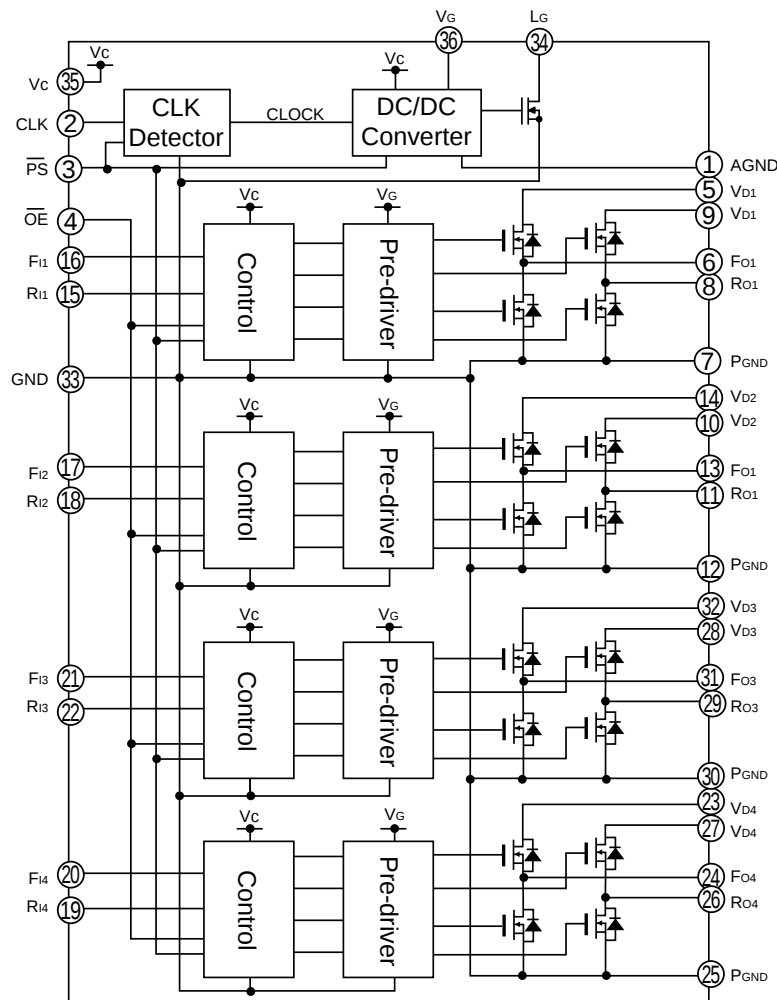
In this unit, the terminal with asterisk mark (*) is (open) terminal which is not connected to the outside.

IC402 VHiS29L294A-1 (S29L294A): E²-PROM

Pin No.	Terminal Name	Function
1	$\overline{CS}$	Chip selection input
2	$\overline{SK}$	Serial clock input
3	DO	Serial data output
4	DI	Serial data input
5	GND	Ground
6	$\overline{PROTECT}$	Memory protect control input
7*	NC	Not used
8	VCC	Power

In this unit, the terminal with asterisk mark (*) is (open) terminal which is not connected to the outside.

IC402 VHiS29L294A-1 (S29L294A): E²-PROM**IC831, IC832 VHiR3M09N/-1 (IR3M09N): Power Driver****IC702 VHiR3R54N/-1 (IR3R54N): Audio Amp.****Figure 42 BLOCK DIAGRAM OF IC**

IC901 VHiBA6965FV-1 (BA6965FV): 3-Phase Brush Leess Driver**IC601 VHiMPC17A39-1 (MPC17A39): Motor Driver****Figure 43 BLOCK DIAGRAM OF IC**

SHARP PARTS GUIDE

MODEL **MD-S301**
MD-S301W

“HOW TO ORDER REPLACEMENT PARTS”

To have your order filled promptly and correctly, please furnish the following information.

1. MODEL NUMBER
2. REF. No.
3. PART NO.
4. DESCRIPTION

★ MARK: SPARE PARTS-DELIVERY SECTION

For U.S.A. only

Contact your nearest SHARP Parts Distributor to order.

For location of SHARP Parts Distributor,
Please call Toll-Free;
1-800-BE-SHARP

Explanation of capacitors/resistors parts codes

Capacitors

- VCC Ceramic type
- VCK Ceramic type
- VCT Semiconductor type
- VC •• MF Cylindrical type (without lead wire)
- VC •• MN Cylindrical type (without lead wire)
- VC •• TV Square type (without lead wire)
- VC •• TQ Square type (without lead wire)
- VC •• CY Square type (without lead wire)
- VC •• CZ Square type (without lead wire)
- VC J .. The 13th character represents capacity difference.
("J" ±5%, "K" ±10%, "M" ±20%, "N" ±30%,
"C" ±0.25 pF, "D" ±0.5 pF, "Z" +80-20%.)

If there are no indications for the electrolytic capacitors, error is ±20%.

Resistors

- VRD Carbon-film type
- VRS Carbon-film type
- VRN Metal-film type
- VR •• MF Cylindrical type (without lead wire)
- VR •• MN Cylindrical type (without lead wire)
- VR •• TV Square type (without lead wire)
- VR •• TQ Square type (without lead wire)
- VR •• CY Square type (without lead wire)
- VR •• CZ Square type (without lead wire)
- VR J .. The 13th character represents error.
("J" ±5%, "F" ±1%, "D" ±0.5%.)

If there are no indications for other parts, the resistors are ±5% carbon-film type.

NOTE:

Parts marked with “” are important for maintaining the safety of the set.
Be sure to replace parts with specified ones for maintaining the safety and performance of the set.

MD-S301/S301W

NO.	PART CODE	★	PRICE RANK	DESCRIPTION
INTEGRATED CIRCUITS				
IC101	VHII3R55//1	J	AQ	RF Signal Processor,IR3R55
IC201	VHILR376481-1	J	BD	ENDEC,LR376481
IC202	RH-IX2567AFZZ	J	BA	4bit D-RAM,IX2567AF
IC401	RH-IX2677AF03	J	AX	System Microcomputer, IX2677AF
IC402	VHIS29L294A-1	J	AH	E ² -PROM,S29L294A
IC403	VHITC7W14FU-1	J	AF	Inverter,TC7W14FU
IC404	VHI7SH86FU/-1	J	AE	Remote Control Driver, TC7SH86FU
IC405	VHIS80821LN-1	J	AE	Reset,S80821LN
IC501	VHIUDA1320/-1	J	AM	D/A Converter,UDA1320
IC601	VHIMPC17A39-1	J	AQ	Pickup Coil Driver,MPC17A39
IC702	VHII3R54N/-1	J	AQ	Audio Amp.,IR3R54N
IC801	VHIIHN1C03FU-1	J	AD	Constant Current Drive, HN1C03FU
IC802	VHIUMD3N///-1	J	AC	Constant Current Drive,UMD3N
IC811	VHINDH831N/-1	J	AH	Constant Current Drive, NDH831N
IC812	VHIIHAT1025R-1	J	AK	Constant Current Drive, HAT1025R
IC814	VHIRN4904//1	J	AD	Power Select Charge Drive, RN4904
IC815	VHIRN4986//1	J	AD	Charge Drive,RN4986
IC821	VHINDC631N/-1	J	AG	Power Drive,NDC631N
IC831,832	VHII3R3M09N/-1	J	AL	Power Drive,IR3M09N
IC833	VHITC7S66FU-1	J	AD	Analog Switch,TC7S66FU
IC851	VHINDC631N/-1	J	AG	Power Drive,NDC631N
IC852	VHIS8327B28-1	J	AG	2.8V DC/DC Converter, S8327B28
IC861,862	VHI7SL32FU/-1	J	AE	Start Up Drive,TC7SL32FU
IC863	VHI7SL00FU/-1	J	AE	Start Up Drive,TC7SL00FU
IC871	VHITK71325M-1	J	AE	Power Supply Microcomputer, TK71325M
IC901	VHIBA6965FV-1	J	AN	3-Phase Brush Leess Driver, BA6965FV
IC911~913	VHIRN4904//1	J	AD	Power Select Charge Drive, RN4904
TRANSISTORS				
Q101	VS2SA17457/-1	J	AB	Silicon,PNP,2SA17457
Q801	VS2SD1950//1	J	AD	Silicon,NPN,2SD1950
Q811,812	VSDTC144EE/-1	J	AB	Digital,NPN,DTC144 EE
Q851,852	VS2SJ305//1	J	AF	FET,2SJ305
Q853	VHINDS335N/-1	J	AF	N Channel FET,NDS335N
Q861	VS2SC4738GR-1	J	AC	Silicon,NPN,2SC4738 GR
Q871	VS2SA1745//1	J	AC	Silicon,PNP,2SA1745
Q901~903	VHINDS355AN-1	J	AE	N Channel FET,NDS355AN
Q904~906	VHINDS335N/-1	J	AF	N Channel FET,NDS335N
DIODES				
D402	VHD1SS361//1	J	AB	Silicon,1SS361
D451	VHE015Z5R1Y-1	J	AD	Zener,5.1V,015Z5.1Y
D702	VHE015Z5R1Y-1	J	AD	Zener,5.1V,015Z5.1Y
D802	VHE015Z5R1Y-1	J	AD	Zener,5.1V,015Z5.1Y
D803	VHDB521S30-1	J	AC	Silicon,RB521S30
D811,812	VHDSB10015C-1	J	AD	Silicon,SB10015C
D813	VHDSB10015C-1	J	AD	Silicon,SB10015C
D814	VHDB521S30-1	J	AC	Silicon,RB521S30
D821	VHDB521S30-1	J	AC	Silicon,RB521S30
D822	VHDF1J2F//1	J	AE	Silicon,F1J2F
D831	VHDB521S30-1	J	AC	Silicon,RB521S30
D841	VHD1SS372//1	J	AD	Silicon,1SS372
D851	VHDB521S30-1	J	AC	Silicon,RB521S30
D852	VHD1SS372//1	J	AD	Silicon,1SS372
D854	VHDSB10015C-1	J	AD	Silicon,SB10015C
D855	VHDB521S30-1	J	AC	Silicon,RB521S30
D856	VHDF1J2F//1	J	AE	Silicon,F1J2F
D857	VHDB491D//1	J	AD	Silicon,RB491D
D861	VHD1SS393//1	J	AC	Silicon,1SS393
D862	VHEHZU2BLL/-1	J	AD	Zener,HZU2BLL
LED401	VHPCL200HRC-1	J	AD	LED,Red,CL200HRC
PH901	VHPGP1S93K/-1	J	AF	Photo Interrupter,GP1S93K
COILS				
L101	VPBNN100M0000	J	AC	10 μH
L102	RCILC0333AFZZ	J	AC	10 μH,Choke
L201	VPBNN4R7M0000	J	AC	4.7 μH

NO.	PARTS CODE	★	PRICE RANK	DESCRIPTION
L202	VPBNN1R0M0000	J	AC	1 μH
L501	RCILC0333AFZZ	J	AC	10 μH,Choke
L600	RCILC0331AFZZ	J	AC	2.2 μH,Choke
L601~604	RCILR0559AFZZ	J	AC	47 μH
L608	RCILR0559AFZZ	J	AC	47 μH
L609	RCILC0333AFZZ	J	AC	10 μH,Choke
L611	VPBNN1R0M0000	J	AC	1 μH
L701,702	RCILC0344AFZZ	J	AC	47 μH,Choke
L710	RCILC0290AFZZ	J	AC	Tip Solid Induction,200mA
L711	RCILC0246AFZZ	J	AC	100 μH,Choke
L721	RCILC0246AFZZ	J	AC	100 μH,Choke
L731,732	RCILC0353AFZZ	J	AB	Tip Solid Induction,100mA
L733	RCILC0352AFZZ	J	AB	Tip Impeder,150mA
L734	RCILC0290AFZZ	J	AC	Tip Solid Induction,200mA
L736	RCILC0290AFZZ	J	AC	Tip Solid Induction,200mA
L751	VPBNN4R7M0000	J	AC	4.7 μH
L821	RCILC0330AFZZ	J	AC	1 μH,Choke
L822,823	RCILC0332AFZZ	J	AC	4.7 μH,Choke
L824	RCILC0333AFZZ	J	AC	10 μH,Choke
L851	RCILC0333AFZZ	J	AC	10 μH,Choke
L852	RCILC0332AFZZ	J	AC	4.7 μH,Choke
L853	RCILC0348AFZZ	J	AE	33 μH,Choke
L854	RCILC0333AFZZ	J	AC	10 μH,Choke
L871	VRS-TV2AB4R7J	J	AA	4.7 ohms,1/10W
VIBRATOR				
XL201	RCRSC0021AFZZ	J	AG	Crystal,33.8688 MHz
CAPACITORS				
C101	VCSAFA0JJ106M	J	AD	10 μF,6.3V,Electrolytic,Tantalum
C102,103	RC-KZ1183AFZZ	J	AC	1 μF,10V
C104	VCKYTV1EB273K	J	AB	0.027 μF,25V
C106	RC-KZ1204AFZZ	J	AB	0.22 μF,10V
C107	VCKYCY1EB123K	J	AA	0.012 μF,25V
C109	RC-KZ1181AFZZ	J	AE	4.7 μF,10V
C110	RC-KZ1204AFZZ	J	AB	0.22 μF,10V
C111	VCKYCY1HB332K	J	AA	0.0033 μF,50V
C112	VCKYCY1CB333K	J	AA	0.033 μF,16V
C113	VCKYCY1CB104K	J	AB	0.1 μF,16V
C121,122	VCCCCY1HH271J	J	AA	270 pF (CH),50V
C123,124	VCCSCY1HL391J	J	AA	390 pF,50V
C151	VCSAPM1AJ686M	J	AH	68 μF,10V,Electrolytic,Tantalume
C161	RC-KZ1183AFZZ	J	AC	1 μF,10V
C165	VCKYCY1CB333K	J	AA	0.033 μF,16V
C201	RC-KZ1171AFZZ	J	AC	1 μF,16V
C202	VCKYTV1CF105Z	J	AB	1 μF,16V
C203,204	VCKYCY1CB104K	J	AB	0.1 μF,16V
C211,212	VCCCCY1HH5R0C	J	AA	5 pF (CH),50V
C222	VCCCCY1HH220J	J	AA	22 pF (CH),50V
C231	VCKYCY1CB104K	J	AB	0.1 μF,16V
C401	VCSAFA0JJ106M	J	AD	10 μF,6.3V,Electrolytic,Tantalum
C403	VCKYCY1CB473K	J	AD	0.047 μF,16V
C405	VCCCCY1HH151J	J	AA	150 pF (CH),50V
C406	VCKYCY1HB681K	J	AA	680 pF,50V
C407,408	VCKYTV1CF105Z	J	AB	1 μF,16V
C409	VCCCCY1HH100D	J	AA	10 pF (CH),50V
C501~504	VCSAFA0JJ106M	J	AD	10 μF,6.3V,Electrolytic,Tantalum
C507,508	RC-KZ1185AFZZ	J	AD	2.2 μF,10V
C600	VCSAFB1AJ156M	J	AE	15 μF,10V,Electrolytic,Tantalum
C601~604	RC-KZ1183AFZZ	J	AC	1 μF,10V
C608	RC-KZ1171AFZZ	J	AC	1 μF,16V
C609	RC-KZ1181AFZZ	J	AE	4.7 μF,10V
C611	RC-KZ1183AFZZ	J	AC	1 μF,10V
C622	VCKYTV1CB104K	J	AA	0.1 μF,16V
C701,702	VCKYTV1CF105Z	J	AB	1 μF,16V
C703,704	RC-KZ1183AFZZ	J	AC	1 μF,10V
C705	VCKYCY1EB103K	J	AA	0.01 μF,25V
C706	VCSAFA0JJ335M	J	AD	3.3 μF,6.3V,Electrolytic,Tantalum
C707	VCKYCY1CB563K	J	AB	0.056 μF,16V
C711,712	VCKYCY1HB222K	J	AA	0.0022 μF,50V
C713,714	RC-KZ1204AFZZ	J	AB	0.22 μF,10V
C715,716	VCKYCY1CB823K	J	AB	0.083 μF,16V
C721,722	VCSAFE0GJ476M	J	AE	47 μF,4.0V,Electrolytic, Tantalume
C731,732	VCSAFE0GJ476M	J	AE	47 μF,4.0V,Electrolytic, Tantalume
C741	VCKYCY1EB103K	J	AA	0.01 μF,25V
C742	VCKYCY1HB102K	J	AA	1000 pF,50V
C751	VCKYCY1CB104K	J	AB	0.1 μF,16V
C801	RC-KZ1183AFZZ	J	AC	1 μF,10V

NO.	PART CODE	★	PRICE RANK	DESCRIPTION	NO.	PARTS CODE	★	PRICE RANK	DESCRIPTION
C811	RC-KZ1168AFZZ	J	AC	1 μF,10V	R455	VRS-CY1JB104J	J	AA	100 kohm,1/16W
C812	VCKYCY1CB104K	J	AB	0.1 μF,16V	R501,502	VRS-CY1JB562J	J	AA	5.6 kohms,1/16W
C813	RC-KZ1183AFZZ	J	AC	1 μF,10V	R505,506	VRS-CY1JB822J	J	AA	8.2 kohms,1/16W
C815,816	VCCCCY1HH270J	J	AA	27 pF (CH),50V	R601	VRS-CY1JB563J	J	AA	56 kohms,1/16W
C821	VCKYCY1CB104K	J	AB	0.1 μF,16V	R701	VRS-CY1JB154J	J	AA	150 kohms,1/16W
C822	VCEAPS336AF1A	J	AC	33 μF,10V,Electrolytic	R702	VRS-CY1JB334J	J	AA	330 kohms,1/16W
C823	RC-KZ1183AFZZ	J	AC	1 μF,10V	R707,708	VRS-CY1JB273J	J	AA	27 kohms,1/16W
C824	RC-KZ1186AFZZ	J	AD	3.3 μF,10V	R709,710	VRS-CY1JB102J	J	AA	1 kohm,1/16W
C826	RC-KZ1183AFZZ	J	AC	1 μF,10V	R711,712	VRS-CY1JB820J	J	AA	82 ohms,1/16W
C827	RC-KZ1290AFZZ	J	AG	10 μF,10V	R713,714	VRS-CY1JB8R2J	J	AA	8.2 ohms,1/16W
C828	VCCCCY1HH120J	J	AA	12 pF (CH),50V	R722	RCILC0290AFZZ	J	AC	Tip Solid Induction,200mA
C830	RC-KZ1183AFZZ	J	AC	1 μF,10V	R801	VRS-CY1JB272D	J	AA	2.7 kohms,1/16W
C831	VCKYCY1EB103K	J	AA	0.01 μF,25V	R802	VRS-TV2AB332J	J	AA	3.3 kohms,1/10W
C832	VCCCCY1HH221J	J	AA	220 pF (CH),50V	R803	VRS-CY1JB392D	J	AA	3.9 kohms,1/16W
C833	VCKYCY1EB103K	J	AA	0.01 μF,25V	R804	VRS-CY1JB122D	J	AA	1.2 kohms,1/16W
C834	VCCSCY1HL561J	J	AA	560 pF,50V	R805	VRS-CY1JB103J	J	AA	10 kohm,1/16W
C835	VCCSCY1HL391J	J	AA	390 pF,50V	R806	VRS-CY1JB271J	J	AA	270 ohms,1/16W
C836	VCKYCY1EB103K	J	AA	0.01 μF,25V	R811	VRS-CY1JB102D	J	AA	1 kohms,1/16W
C837	VCCCCY1HH181J	J	AA	180 pF (CH),50V	R812	VRS-CY1JB223D	J	AA	22 kohms,1/16W
C838	VCKYCY1EB103K	J	AA	0.01 μF,25V	R813,814	VRS-CY1JB104J	J	AA	100 kohm,1/16W
C839	VCCSCY1HL561J	J	AA	560 pF,50V	R817	VRS-CY1JB474D	J	AA	470 kohms,1/16W
C840	VCCSCY1HL391J	J	AA	390 pF,50V	R818	VRS-CY1JB564D	J	AA	560 kohms,1/16W
C841	RC-KZ1205AFZZ	J	AB	0.33 μF,10V	R819	VRS-CY1JB104J	J	AA	100 kohm,1/16W
C842	VCCCCY1HH560J	J	AA	56 pF (CH),50V	R821	VRS-CY1JB563D	J	AA	56 kohms,1/16W
C845,846	RC-KZ1168AFZZ	J	AC	1 μF,10V	R822	VRS-CY1JB273D	J	AA	27 kohms,1/16W
C851	RC-KZ1186AFZZ	J	AD	3.3 μF,10V	R823	VRS-CY1JB364D	J	AA	360 kohms,1/16W
C852,853	RC-KZ1183AFZZ	J	AC	1 μF,10V	R824	VRS-CY1JB394D	J	AA	390 kohms,1/16W
C855,856	RC-KZ1183AFZZ	J	AC	1 μF,10V	R825	VRS-CY1JB183J	J	AA	18 kohms,1/16W
C857	VCSAFA1A3106M	J	AD	10 μF,10V,Electrolytic,Tantalum	R831	VRS-CY1JB333J	J	AA	33 kohms,1/16W
C858	RC-KZ1290AFZZ	J	AG	10 μF,10V	R832	VRS-CY1JB104J	J	AA	100 kohm,1/16W
C859	RC-KZ1183AFZZ	J	AC	1 μF,10V	R833	VRS-CY1JB103J	J	AA	10 kohm,1/16W
C861	RC-KZ1183AFZZ	J	AC	1 μF,10V	R835,836	VRS-CY1JB104J	J	AA	100 kohm,1/16W
C862	RC-KZ1186AFZZ	J	AD	3.3 μF,10V	R837	VRS-CY1JB153D	J	AA	15 kohms,1/16W
C863	VCKYCY1EB103K	J	AA	0.01 μF,25V	R838	VRS-CY1JB333J	J	AA	33 kohms,1/16W
C864,865	RC-KZ1183AFZZ	J	AC	1 μF,10V	R839	VRS-CY1JB104J	J	AA	100 kohm,1/16W
C871	RC-KZ1206AFZZ	J	AC	0.47 μF,10V	R840	VRS-CY1JB103J	J	AA	10 kohm,1/16W
C902	VCKYCY1EB103K	J	AA	0.01 μF,25V	R842	VRS-CY1JB104J	J	AA	100 kohm,1/16W
C903	RC-KZ1183AFZZ	J	AC	1 μF,10V	R843	VRS-CY1JB153D	J	AA	15 kohms,1/16W
C905-907	VCKYCY1HB222K	J	AA	0.0022 μF,50V	R844	VRS-CY1JB274D	J	AA	270 kohms,1/16W
C908	RC-KZ1206AFZZ	J	AC	0.47 μF,10V	R845	VRS-CY1JB244D	J	AA	240 kohms,1/16W
C909,910	VCKYCY1CB473K	J	AA	0.047 μF,16V	R846	VRS-CY1JB334D	J	AA	330 kohms,1/16W
C911	VCKYCY1CB104K	J	AB	0.1 μF,16V	R847	VRS-CY1JB224D	J	AA	220 kohms,1/16W
RESISTORS					R851	VRS-CY1JB104J	J	AA	100 kohm,1/16W
	VRS-CY1JB000J	J	AA	0 ohm,Jumper,0.8×1.55mm, Green	R852	VRS-CY1JB102J	J	AA	1 kohm,1/16W
	VRS-TV2AB000J	J	AA	0 ohm,Jumper,1.25×2mm,Green	R854	VRS-CY1JB104J	J	AA	100 kohm,1/16W
R101	VRS-CY1JB394J	J	AA	390 kohms,1/16W	R860	VRS-CY1JB104J	J	AA	100 kohm,1/16W
R102	VRS-CY1JB563J	J	AA	56 kohms,1/16W	R861	VRS-CY1JB102J	J	AA	1 kohm,1/16W
R111-114	VRS-CY1JB223J	J	AA	22 kohms,1/16W	R862	VRS-CY1JB474J	J	AA	470 kohms,1/16W
R154	VRS-CY1JB122J	J	AA	1.2 kohms,1/16W	R863-866	VRS-CY1JB104J	J	AA	100 kohm,1/16W
R161	VRS-CY1JB122J	J	AA	1.2 kohms,1/16W	R867	VRS-CY1JB394J	J	AA	390 kohms,1/16W
R204	VRS-CY1JB102J	J	AA	1 kohm,1/16W	R868	VRS-CY1JB105J	J	AA	1 Mohm,1/16W
R222	VRS-CY1JB105J	J	AA	1 Mohm,1/16W	R869,870	VRS-CY1JB104J	J	AA	100 kohm,1/16W
R231	VRS-CY1JB823D	J	AA	82 kohms,1/16W	R871	VRS-CY1JB102J	J	AA	1 kohm,1/16W
R232	VRS-CY1JB623F	J	AA	62 kohms,1/16W	R901,902	VRS-CY1JB1R0J	J	AA	1 ohm,1/16W
R233	VRS-CY1JB274D	J	AA	270 kohms,1/16W	R903	VRS-CY1JB151J	J	AA	150 ohms,1/16W
R401	VRS-CY1JB334J	J	AA	330 kohms,1/16W	R904	VRS-CY1JB223J	J	AA	22 kohms,1/16W
R402	VRS-CY1JB153J	J	AA	15 kohms,1/16W	R905	VRS-CY1JB104J	J	AA	100 kohm,1/16W
R403	VRS-CY1JB103J	J	AA	10 kohm,1/16W	R906	VRS-CY1JB274J	J	AA	270 kohms,1/16W
R405	VRS-CY1JB104J	J	AA	100 kohm,1/16W	R907	VRS-CY1JB154J	J	AA	150 kohms,1/16W
R407	VRS-CY1JB104J	J	AA	100 kohm,1/16W	R908	VRS-CY1JB104J	J	AA	100 kohm,1/16W
R408,409	VRS-CY1JB223J	J	AA	22 kohms,1/16W	R909	VRS-CY1JB103J	J	AA	10 kohm,1/16W
R411	VRS-CY1JB104J	J	AA	100 kohm,1/16W	R911-916	VRS-CY1JB104J	J	AA	100 kohm,1/16W
R412	VRS-CY1JB154J	J	AA	150 kohms,1/16W	OTHER CIRCUITRY PARTS				
R413	VRS-CY1JB102J	J	AA	1 kohm,1/16W	CN101	QCNCW801XAFZZ	J	AH	Socket,22Pin
R414	VRS-CY1JB223J	J	AA	22 kohms,1/16W	CN401	QCNCW801FAFZZ	J	AE	Socket,6Pin
R415	VRS-CY1JB473J	J	AA	47 kohms,1/16W	CN601	QCNCW818NAFZZ	J	AG	Socket,13Pin
R416	VRS-CY1JB123J	J	AA	12 kohms,1/16W	J701	QJAKM0201AFZZ	J	AH	Jack,Remote Control/Head- phones
R417	VRS-CY1JB103J	J	AA	10 kohm,1/16W	J801	QJAKC0136AFZZ	J	AD	Jack,DC
R418	VRS-CY1JB393J	J	AA	39 kohms,1/16W	M901	RMOTV0500AFZZ	J	AT	Spindle Motor Ass'y
R419	VRS-CY1JB104J	J	AA	100 kohm,1/16W	M902	RMOTS0104AFZZ	J	AR	Sled Motor Ass'y
R420	VRS-CY1JB331J	J	AA	330 ohms,1/16W	SW401	QSW-S0948AFZZ	J	AC	Switch,Slide Type [HOLD]
R421-423	VRS-CY1JB102J	J	AA	1 kohm,1/16W	SW451	—————	—	—	Switch,Key Type [Play/FF] (Ref No.221-9 Cabinet Exploded View)
R424	VRS-CY1JB103J	J	AA	10 kohm,1/16W	SW452	—————	—	—	Switch,Key Type [REW] (Ref No.221-9 Cabinet Exploded View)
R430	VRS-CY1JB103J	J	AA	10 kohm,1/16W					
R431	VRS-CY1JB104J	J	AA	100 kohm,1/16W					
R433-435	VRS-CY1JB102J	J	AA	1 kohm,1/16W					
R451	VRS-CY1JB123J	J	AA	12 kohms,1/16W					
R452	VRS-CY1JB103J	J	AA	10 kohm,1/16W					
R454	VRS-CY1JB223J	J	AA	22 kohms,1/16W					

MD-S301/S301W

NO.	PART CODE	★ PRICE RANK	DESCRIPTION
SW453	_____	—	Switch,Key Type [Stop] (Ref No.221-9 Cabinet Exploded View)
SW454	_____	—	Switch,Key Type [Volume Down] (Ref No.221-9 Cabinet Exploded View)
SW455	_____	—	Switch,Key Type [Volume Up] (Ref No.221-9 Cabinet Exploded View)
SW901	QSW-M0169AFZZ	J AD	Switch,Push Type [Disc In]
MECHANICAL PARTS			
1	NGERH0589AFZZ	J AC	Wheel,Drive
2	NSFTD0327AFZZ	J AE	Shaft,Drive
3	LHLDX3135AFM1	J AH	Cartridge Holder Ass'y
4	MSPRT1605AFFJ	J AB	Spring,Cancel Lever
5	MLEVF2595AFFW	J AD	Lever,Eject
6	LCHSM0930AFM1	J AM	Main Chassis Ass'y
7	PCUSG0599AFZZ	J AB	Cushion
8	QPWBH0305AFM1	J AN	Mechanism Flexible PWB Ass'y
8- 1	_____	—	Motor Base Ass'y,with Flexible PWB (Not Replacement Item)
8- 2(SW901)	QSW-M0169AFZZ	J AD	Switch,Push Type [Disc In]
8- 3(PH901)	VHPGP1S93K/-1	J AF	Photo Interrupter,GP1S93K
9	XSPSN14P01800	J AA	Screw,ø1.4×1.8mm
10	LX-JZ0154AFZZ	J AA	Screw,ø1.4×2.8mm
11	MSPRP0878AFFJ	J AB	Plate Spring
12	LX-BZ0823AFZZ	J AA	Screw,ø1.4×1.2mm
13	NGERH0588AFZZ	J AD	Gear,Drive
14	LX-WZ9290AFZZ	J AA	Washer,ø0.8×ø2.4×0.25mm
15	RCTRH8174AFZZ	J BQ	Optical Pickup Unit
16	MSPRP0877AFFJ	J AC	Spring,Drive Grip
17	LX-BZ0800AFZZ	J AA	Screw,ø1.4×2.5mm
18	NSFTM0292AFFW	J AC	Shaft,Guide
19	LX-JZ0144AFZZ	J AA	Screw,ø1.7×3mm
20	MSPRT1604AFFJ	J AB	Spring,Eject Lever
21	LX-BZ0804AFFF	J AA	Screw,ø1.4×2.2mm
22	PCUSG0650AFZZ	J AB	Cushion
M901	RMOTV0500AFZZ	J AT	Spindle Motor Ass'y
M902	RMOTS0104AFZZ	J AR	Sled Motor Ass'y

CABINET PARTS

201	CCABB2841AF01	J AS	Front Cabinet
201- 1	_____	—	Front Cabinet (Not Replacement Item)
201- 2	GFTAC3135AFSA	J AG	Cover,MD
201- 3	LANGZ0335AFFW	J AB	Bracket,Disc Guide
201- 4	PCUSG0638AFZZ	J AA	Rubber,Preventive Vibration
201- 5	PGIDM0256AFSA	J AB	Guide (Left)
202	CCABD4353AF01	J AW	Bottom Cabinet Ass'y [301]
202	CCABD4356AF01	J	Bottom Cabinet Ass'y [301W]
202- 1	_____	—	Bottom Cabinet (Not Replacement Item)
202- 2	GCOVA2218AFSA	J AB	Cover,DC Jack
202- 3	GCOVA2219AFSA	J AB	Cover,LED
202- 4	JKNBZ2040AFSA	J AD	Knob,Hold
202- 5	PSHET0367AFZZ	J AA	Sheet,Insulator,Bottom Cabinet
203	GFTAB1347AFSA	J AC	Cover,Battery
205	GCOVA2216AFSA	J AD	Cover,Eject
206	QTANZ9147AFFQ	J AC	Terminal,-,Rechargeable Battery
207	QTANZ9148AFFQ	J AC	Terminal,+,Rechargeable Battery
208	JKNBK0526AFSA	J AE	Knob,Eject
209	LANGK0932AFM1	J AM	Bracket,Main Frame Ass'y
210	PCUSG0640AFZZ	J AB	Cushion,Mechanism
211	PSHET0373AFZZ	J AC	Sheet
213	LANGZ0342AFM1	J AN	Bracket,Eject
214	PCUSG0633AFZZ	J AA	Rubber,Preventive Vibration
215	PCUSG0634AFZZ	J AA	Rubber,Preventive Vibration
216	GCABA2841AFSA	J AE	Center Cabinet
217	PCUSG0534AFZZ	J AC	Rubber,Preventive Vibration
219	PSHET0376AFZZ	J AA	Sheet,Ext.Battery Terminal
220	QTANZ9152AFFQ	J AG	Ext.Battery Terminal
221	CCABC4328AF07	J BD	Top Cabinet Ass'y [301W]
221	CCABC4328AF13	J BB	Top Cabinet Ass'y [301]
221- 1	_____	—	Top Cabinet (Not Replacement Item)
221- 2	HDECQ0527AFSA	J AM	Decoration Plate
221- 3	PSHEZ0814AFZZ	J AC	Sheet,Decoration Plate
221- 4	JKNBZ2041AFSA	J AH	Knob,Operation

NO.	PARTS CODE	★ PRICE RANK	DESCRIPTION
221- 5	LANGK0933AFFW	J AF	Bracket,Operation Knob
221- 7	PSHEZ0839AFZZ	J AC	Sheet,Bracket
221- 8	PCUSG0643AFZZ	J AA	Rubber,Preventive Vibration
221- 9	RUNTK0441AFZZ	J AL	Key Switch Flexible PWB Ass'y
222	PCUSG0642AFZZ	J AA	Cushion,Terminal
223	PFLT-1129AFZZ	J AB	PU Felt [301W Only]
224	PFLT-1127AFZZ	J AA	PU Felt
225	TLABM0592AFZZ	J AD	Feature Label [301W]
225	TLABM0605AFZZ	J AD	Feature Label [301]
226	PSHEZ0856AFZZ	J AB	Sheet,Mechanism
227	TLABS0464AFZZ	J AB	Label,Laser Caution [301W Only]
228	TLABS0465AFZZ	J AB	Label,Laser [301W Only]
229	PGUMS0728AFZZ	J AB	Cushion,PWB [301W Only]
230	PCUSG0655AFZZ	J AB	Cushion,Motor
231	PSHEZ0851AFZZ	J AC	Bracket,Eject Knob
601	LX-BZ0908AFFC	J AB	Screw,ø1.4×2mm
602	LX-BZ0877AFF3	J AA	Screw,ø1.4×1.5mm
603	LX-CZ0107AFFF	J AA	Screw,ø1.4×2.5mm
604	LX-BZ0908AFFC	J AB	Screw,ø1.4×2mm [301]
604	LX-BZ0967AFFC	J	Screw,ø1.4×2mm [301W]
605	LX-CZ0126AFFF	J AA	Screw,ø1.4×2mm
606	LX-BZ0805AFFN	J AB	Screw,ø1.7×2.5mm

PACKING PARTS [FOR MD-S301W]

SPAKA2679AFZZ	J AD	Packing Add.,Unit
SPAKC6562AFZZ	J AL	Packing Case
SPAKZ0465AFZZ	J	Pad,AC Adaptor
SPAKZ0466AFZZ	J	Spacer,Unit
SPAKZ0475AFZZ	J	Spacer,Operation Manual
SSAKH0314AFZZ	J AD	Polyethylene Bag,Unit

ACCESSORIES

△	RADPA3406AFZZ	J BE	AC Adapter [301]
△	RADPA8404AFZZ	J BK	AC Adaptor [301W]
	RRMCW0024AFZZ	J BB	Remote Control
	TCAUH0341AFZZ	J AD	Caution,Headphones [301 Only]
	TINSK0353AFZZ	J AH	Operation Manual [301W]
	TINSZ1357AFZZ	J AE	Operation Manual [301]
	TINSZ1358AFZZ	J AC	Quick Guide [301 Only]
	UBAGC0076AFSA	J AH	Carrying Case
	UBATI0060AFSA	J BH	Rechargeable,Battery
	RPHOH0168AFZZ	J BB	Headphones [301]
	RPHOH0176AFZZ	J AR	Headphones [301W]
	PCAPH8107AFZZ	J AD	Cushion,Headphones [301W Only]

P.W.B. ASSEMBLY (Not Replacement Item)

PWB-A	DCYO-3036AF93	J —	Main
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OTHER SERVICE PARTS

88GMMD-110	J BV	High Reflection Disc MMD-110 (TEAC Test MD)
88GMMD-212	J BU	Low Reflection Disc MMD-212 (TEAC Test MD)

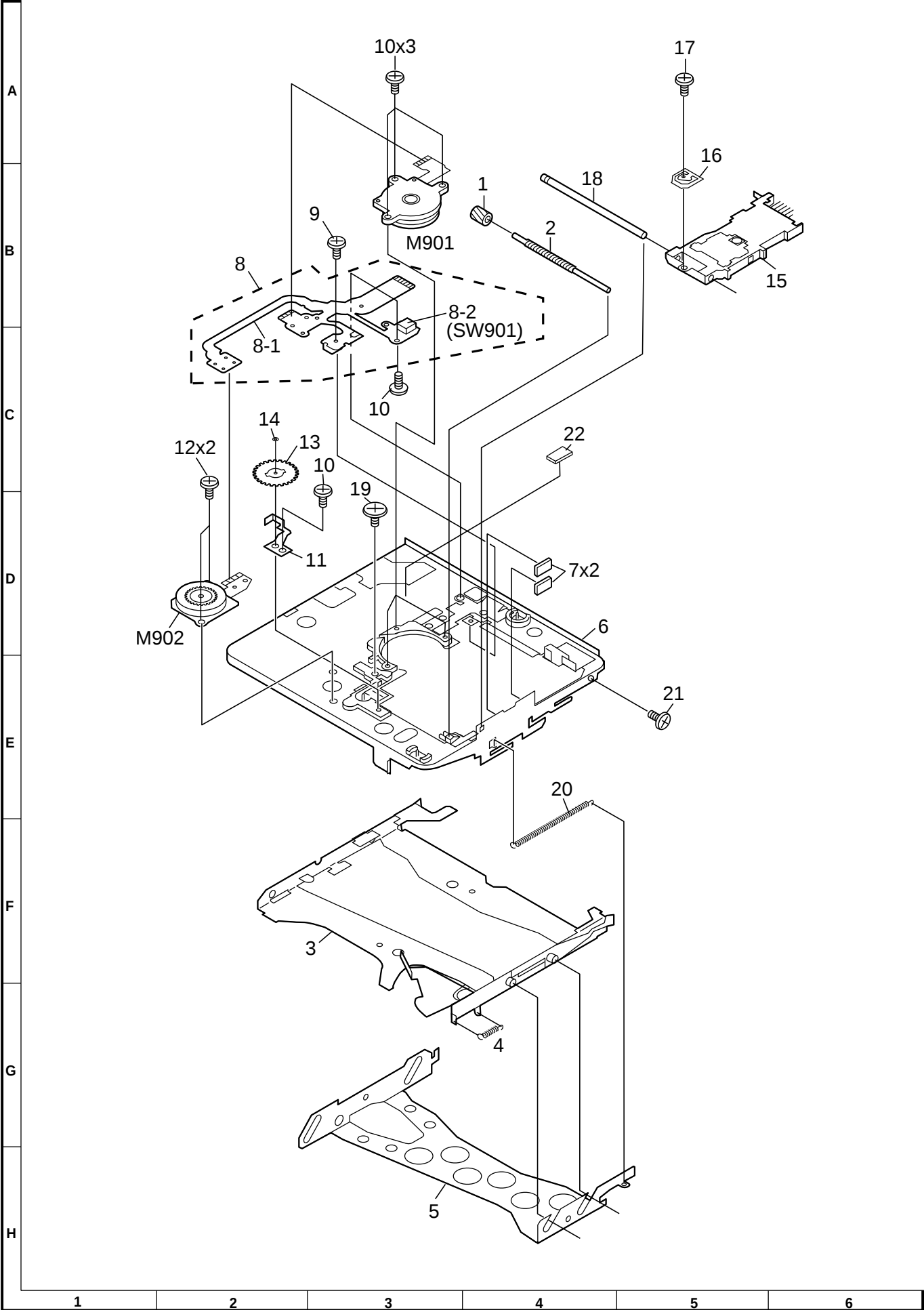


Figure 4 MD MECHANISM EXPLODED VIEW

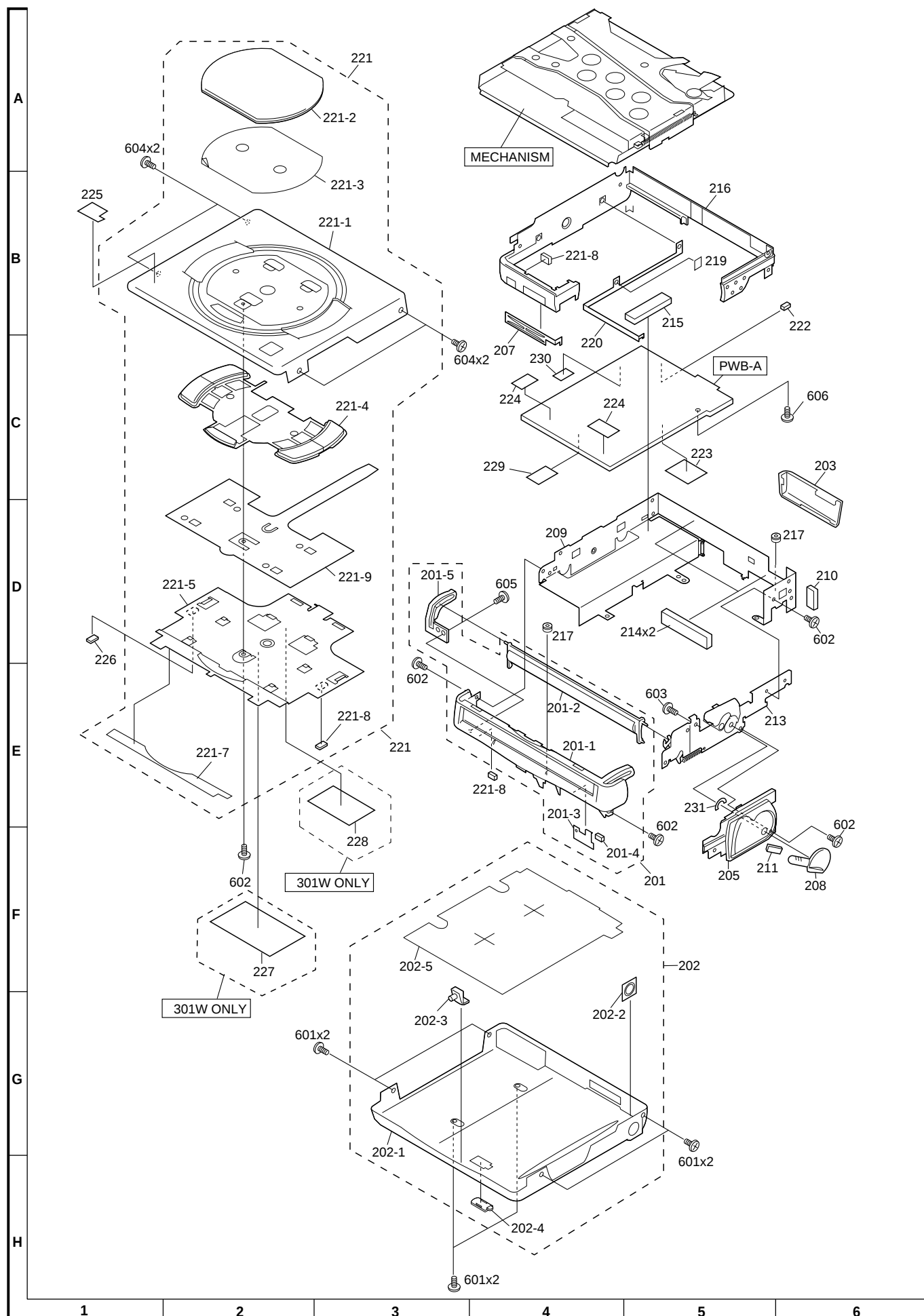
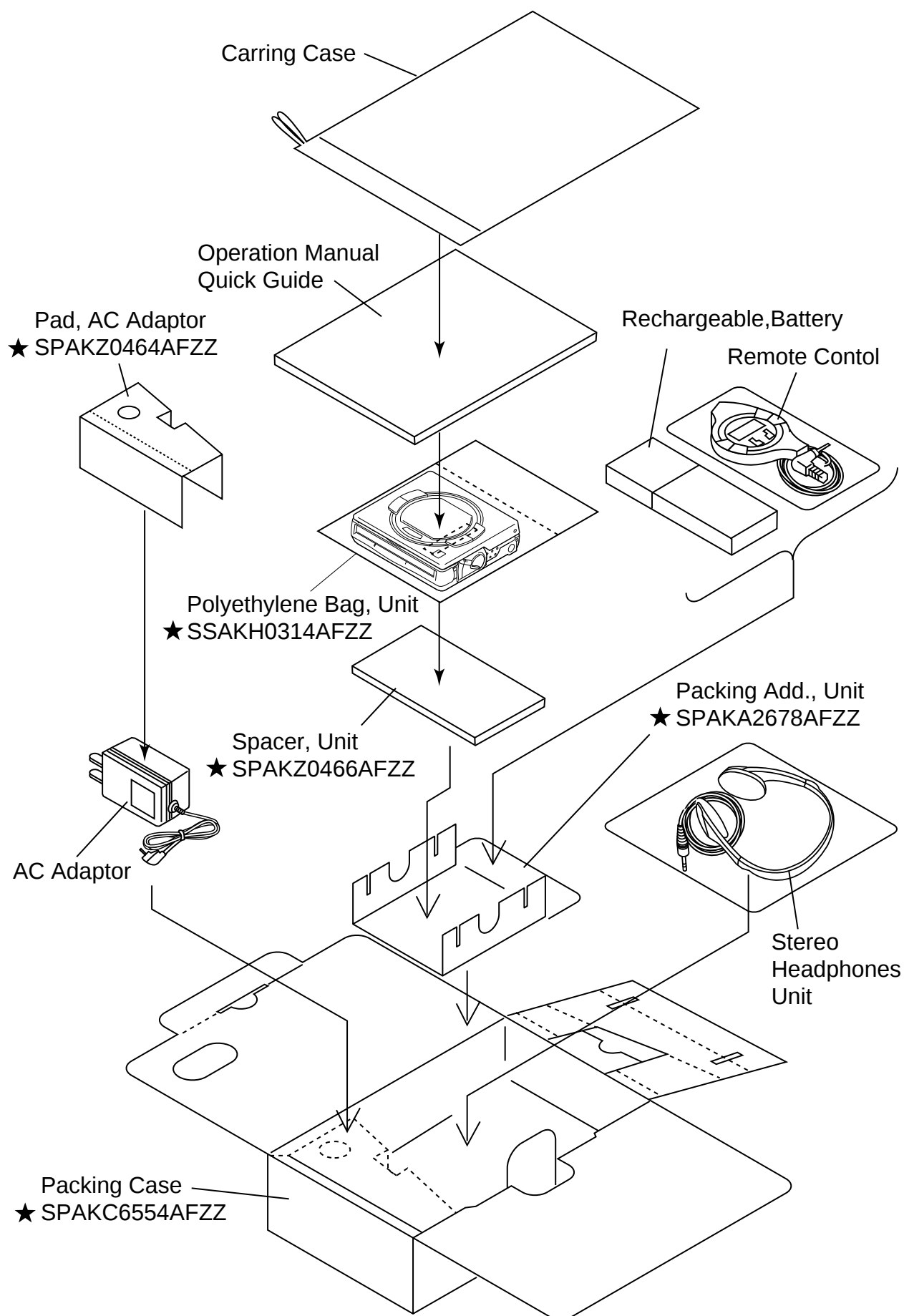


Figure 5 CABINET EXPLODED VIEW

PACKING OF THE SET (MD-S301 ONLY)



★ : Not Replacement Item

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