D-E301NC

SERVICE MANUAL

US Model
AEP Model
UK Model

The D-E301NC is approximately the same as the D-E301.
Consequently, only differences between D-E301 and D-E301NC are listed.
For other information, please refer to the D-E300AN/E301/E305/E307CK/E307CKT service manual (9-923-150-☐☐) previously issued.

DIFFERENT PARTS LIST
ACCESSORIES & PACKING MATERIALS

Page 33

Ref. No.	Part No.	Description	Remark
	1-751-419-11	CORD, CONNECTION (US)	
	1-473-686-11	ADAPTOR, PLUG (DUAL)	
	3-859-283-25	MANUAL, INSTRUCTION (ENGLISH)	
	3-860-870-21	MANUAL, INSTRUCTION (ENGLISH,SPANISH, FRENCH,GERMAN,ITALIAN,PORTUGUESE, DUTCH,SWEDISH,FINISH)	
	3-861-044-11	MANUAL, INSTRUCTION (ENGLISH,FRENCH)	
	3-861-044-21	MANUAL, INSTRUCTION (AEP) (SPANISH,PORTUGUESE)	
	3-861-044-31	MANUAL, INSTRUCTION (AEP) (GERMAN,ITALIAN)	
	3-861-044-41	MANUAL, INSTRUCTION(AEP) (DUTCH,SWEDISH)	
	3-861-044-51	MANUAL, INSTRUCTION(AEP) (FINISH)	
	4-991-222-01	CASE, CARRYING	
	8-953-216-90	HEADPHONE MDR-NC05 SET	

COMPACT DISC COMPACT PLAYER

SONY®

MICROFILM

97H0271-1
Printed in Japan © 1997.8
Published by Quality Engineering Dept. (Shibaura)

Sony Corporation
Personal A&V Products Company

9-923-247-11

D-E300AN/E301/E305/E307CK/E307CKT

SERVICE MANUAL

US Model
D-E300AN/E301/E305/E307CK/E307CKT

Canadian Model
D-E300AN/E301/E307CK

AEP Model
UK Model
D-E300AN/E301/E305/E307CK

Australian Model
E Model
Chinese Model
D-E301/E305/E307CK

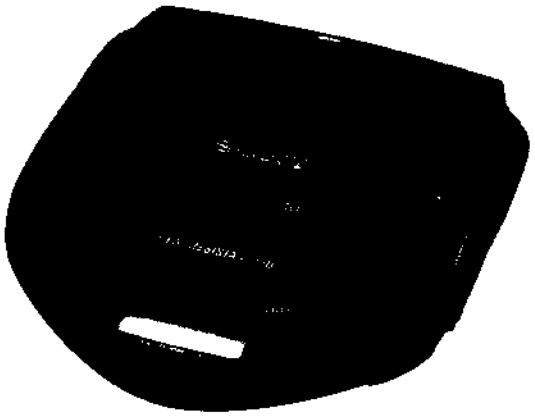


Photo : D-E301

Model Name Using Similar Mechanism	NEW
CD Mechanism Type	CDM-2411AAA
Optical Pick-up Type	DAX-11A

SPECIFICATIONS

System
Compact disc digital audio system
Laser diode properties
Material: GaAlAs
Wavelength: λ = 780 nm
Emission duration: Continuous
Laser output: Less than 44.6 μW (measured at 200 mm away from the objective lens surface)
Error correction
Sony Super Strategy Cross Interleave Reed Solomon Code
D-A conversion
1-bit quartz time-axis control
Frequency response
20 - 20,000 Hz $^{+1}_{-2}$ dB (measured by EIAJ CP-307)
Output (at 4.5 V input level)
Headphones (stereo minijack)
15 mW + 15 mW at 16 ohms
Line output (stereo minijack)
Output level 0.7 V rms at 50 kilohms
Recommended load impedance over 10 kilohms

General

Power requirements
- Sony BP-DM10 Rechargeable battery: 2.4 V DC, Ni-Cd, 650 mAh
  Sony BP-DM20 Rechargeable battery: 2.4 V DC, Ni-MH, 1,200 mAh
- Two LR6 (size AA) batteries: 3 V DC
- AC power adaptor (DC IN 4.5 V jack):
  US, Canadian,
  Central & South America model : 120V, 60Hz
  AEP, E13 (AC220 – 230V area),
  Chinese model : 220 – 230V, 50Hz
  UK model : 230 – 240V, 50Hz
  Saudi Arabia model : 110 – 240V, 50/60Hz
  Australian model : 240V, 50Hz
  E33 (AC100 – 240V area) model :
  100 – 240V, 50/60Hz
- Sony CPM-300P mount plate for use on car battery: 4.5 V DC

Dimensions (w/h/d) (without projecting parts and controls)
Approx. 135 × 30.9 × 159.2 mm (5 ⅜ × 1 ¼ × 6 ⅜ in.)
Mass (without rechargeable battery)
Approx. 250 g (8.8 oz)
Operating temperature
5°C - 35°C (41°F - 95°F)

Supplied accessories

D-E300AN
Stereo headphones (1)
D-E301
AC power adaptor (1)
Stereo headphones (1)
Connecting cord (Phono plug × 2 ↔ stereo miniplug) (1)*
*Not supplied with AEP and UK model.
D-E305
AC power adaptor (1)
Stereo headphones with remote commander (1)*
Stereo headphones (1)**
Rechargeable battery (1)
Connecting cord (Phono plug × 2 ↔ stereo miniplug) (1)***
Carrying case (1)****
*Not supplied with US and Central & South America model.
**Supplied with US and Central & South America model.
***Not supplied with AEP and UK model.
****Supplied with US and Central & South America model.
D-E307CK
AC power adaptor (1)*
Stereo headphones (1)
Connecting cord (Phono plug × 2 ↔ stereo miniplug) (1)**
Car battery cord (1)
Car connecting pack (1)
Spiral tube (1)
Velcro tapes (2)
Spare fuse (1)
*Not supplied with AEP and UK model.
**Not supplied with US, AEP and UK model.
D-E307CKT
AC Power adaptor (1)
Stereo headphones (1)
Car battery cord (1)
Car connecting pack (1)
Spiral tube (1)
Velcro tapes (2)
Spare fuse (1)

Design and specifications are subject to change without notice.

COMPACT DISC COMPACT PLAYER

MICROFILM

SONY

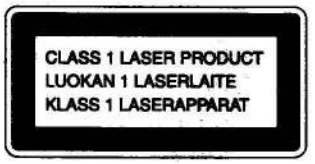
TABLE OF CONTENTS

DANGER

Invisible laser radiation when open and interlock failed or defeated. Avoid direct exposure to beam.

CAUTION

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



This Compact Disc player is classified as a CLASS 1 LASER product.
The CLASS 1 LASER PRODUCT label is located on the bottom exterior.

Flexible Circuit Board Repairing

- Keep the temperature of the soldering iron around 270°C during repairing.
- Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
- Be careful not to apply force on the conductor when soldering or unsoldering.

Notes on chip component replacement

- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

LES COMPOSANTS IDENTIFIÉS PAR UNE MARQUE ⚠ SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.

SECTION 1
SERVICING NOTES

NOTES ON HANDLING THE OPTICAL PICK-UP BLOCK OR BASE UNIT

The laser diode in the optical pick-up block may suffer electrostatic breakdown because of the potential difference generated by the charged electrostatic load, etc. on clothing and the human body. During repair, pay attention to electrostatic breakdown and also use the procedure in the printed matter which is included in the repair parts.
The flexible board is easily damaged and should be handled with care.

NOTES ON LASER DIODE EMISSION CHECK

The laser beam on this model is concentrated so as to be focused on the disc reflective surface by the objective lens in the optical pick-up block. Therefore, when checking the laser diode emission, observe from more than 30cm away from the objective lens.

Before Replacing the Optical pick-up Block

Please be sure to check thoroughly the parameters as par the "Optical pick-up Block Checking Procedure" (Part No. : 9-960-027-11) issued separately before replacing the optical Pick-up block.
Note and specifications required to check are given below.

- FOK output : IC501 ⑫ pin
  When checking FOK, remove the lead wire to disc motor.
- S curve P-to-P value : 1.2±0.3Vp-p IC501 ㉛ pin.
  When checking S curve P-to-P value, remove the lead wire to disc motor.
- Adjusted part for focus gain adjustment : RV503
- RF signal P-to-P value : 0.8 – 1.2Vp-p
- Traverse signal P-to-P value : 1.0 – 2.4Vp-p
- The repairing grating holder is impossible.
- Adjusted part for tracking gain adjustment : RV502

Precautions for Checking Emission of Laser Diode

Laser light of the equipment is focused by the object lens in the optical pick-up so that the light focuses on the reflection surface of the disc. Therefore, be sure to keep your eyes more then 30cm apart from the object lens when you check the emission of laser diode.

Laser Diode Checking Methods

During normal operation of the equipment, emission of the laser diode is prohibited unless the upper panel is closed while turning ON the S801 (push switch type).
The following two checking methods for the laser diode are operable.

Method-1 (In the service mode or normal operation) :
Emission of the laser diode Is visually checked.

1. Open the upper lid.
2. Push the S801 as shown in Fig. 1 .
3. Check the object lens for confirming normal emission of the laser diode. If not emitting, there is a trouble in the automatic power control circuit or the optical pick-up. During normal operation, the laser diode is turned ON about 2.5 seconds for focus searching.

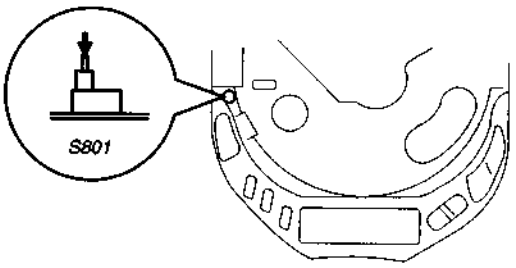
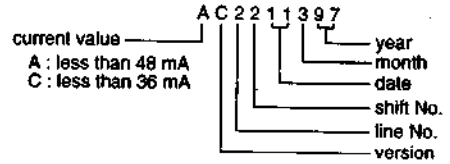


Fig.1 Method to push S801

Method-2 (In the service mode or normal operation) :
Check the value of current flowing in the laser diode.

1. Remove the upper panel.
2. Read the current printed on the rear side of the optical pick-up.
   (Print on the rear side of the optical pick-up)



3. Connect a level meter as shown in Fig. 2
4. Press the ▶II key.
5. Calculate the current value by the reading of the VOM .
   Reading of the tester (V) ÷ 4.7 (Ω) = current value (A)
   (Example) Reading of the VOM of 0.2256 V :
   0.2256 V ÷ 4.7 Ω = 0.048 (A) = 48 mA
6. Check that the current value is within the following range.
   • Current value of the label $^{+5}_{-11}$ mA(25°C)
   Variation by temperature : 0.4mA / °C
   Current increases with temperature increased.
   Current decreases with temperature decreased.
   If the current is more than the range above, there is a truble in the automatic power control circuit or the laser diode is in deterioration.
   If less than the range, a trouble exists in the automatic power control circuit or the optical pick-up.

[MAIN BOARD] (Conductor side)

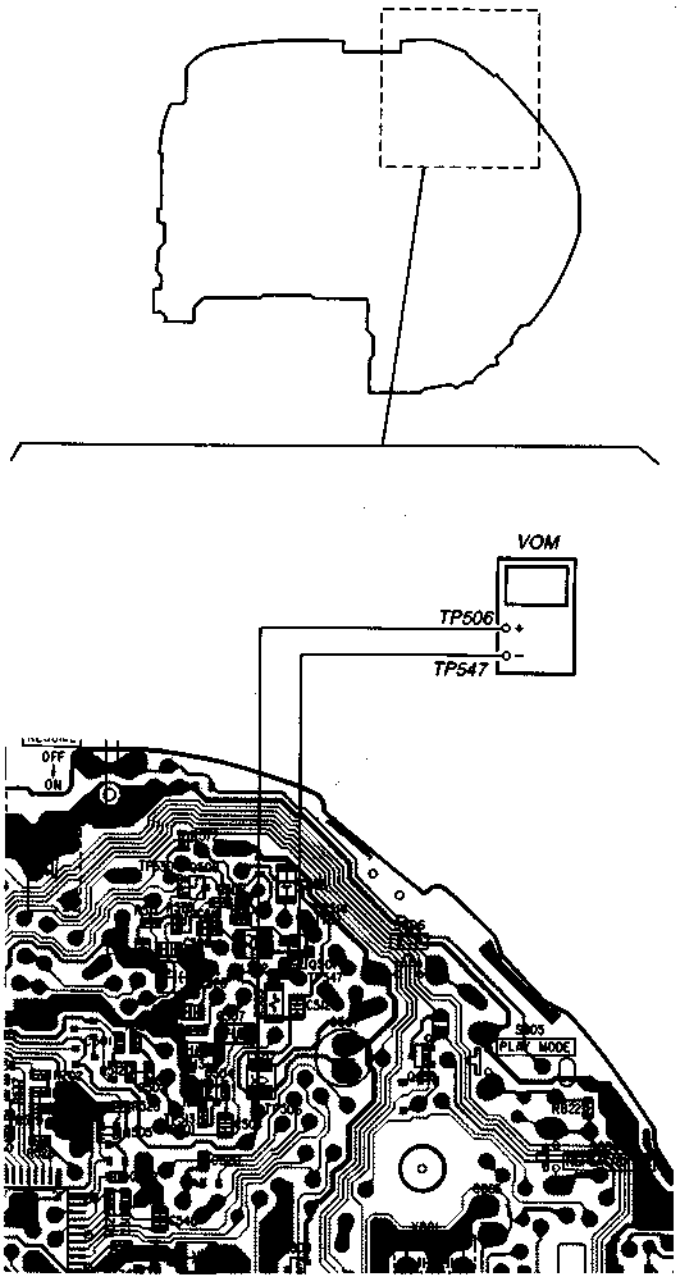
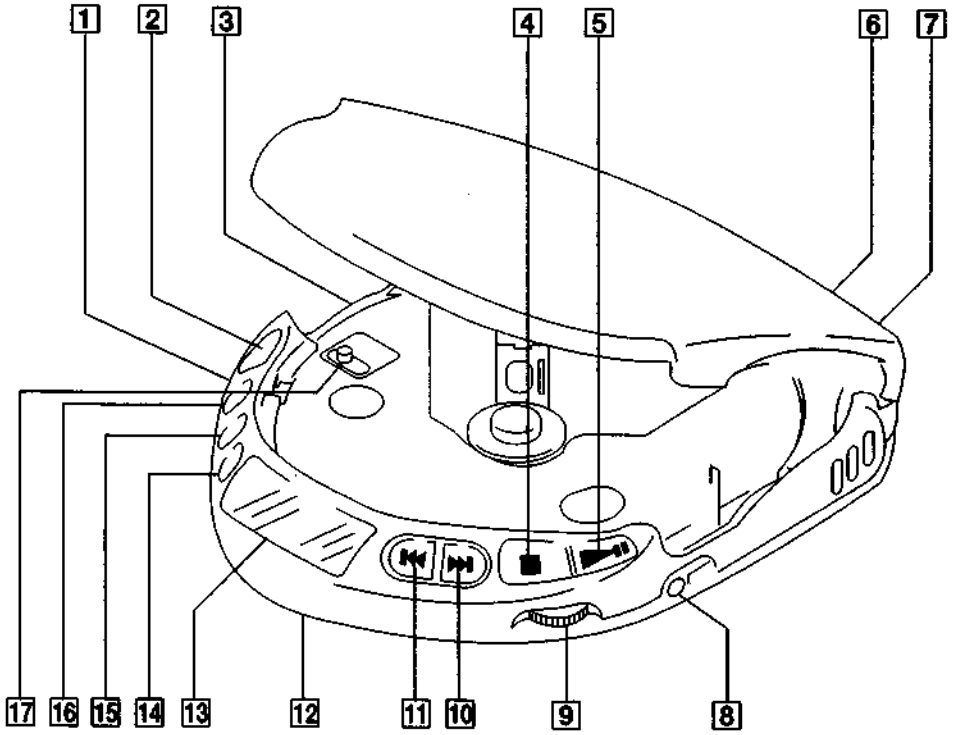


Fig.2 VOM Connecting Location

SECTION 2
GENERAL

LOCATION AND FUNCTION OF CONTROLS



1. HOLD switch
2. OPEN button
3. DIGITAL MEGA BASS button
4. ■ STOP button
5. ▶II Play/pause button
6. DC IN 4.5V jack
7. LINE OUT jack
8. ∩/REMOTE jack
9. VOLUME control
10. ▶▶I FF button
11. I◀◀ FR button
12. AVLS switch
13. Information display panel
14. REPEAT/ENTER button
15. PLAY MODE button
16. ESP (Electronic Shock Protection) button
17. RESUME switch

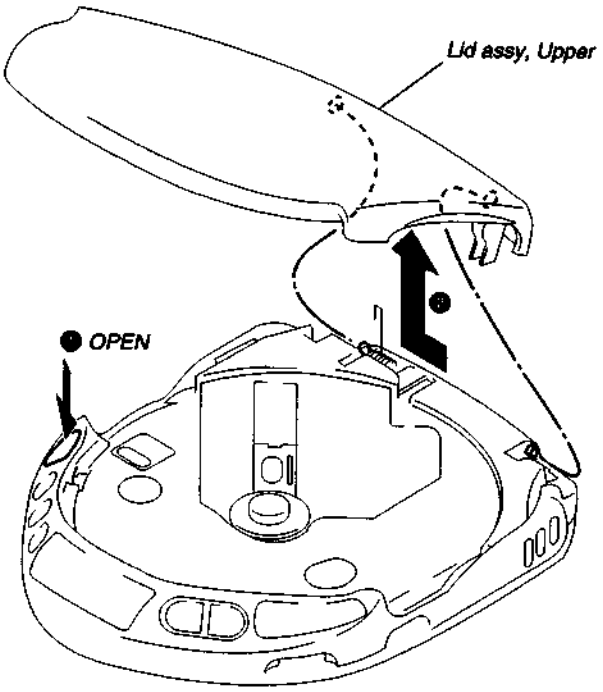
SECTION 3
DISASSEMBLY

● The equipment can be removed using the following procedure.

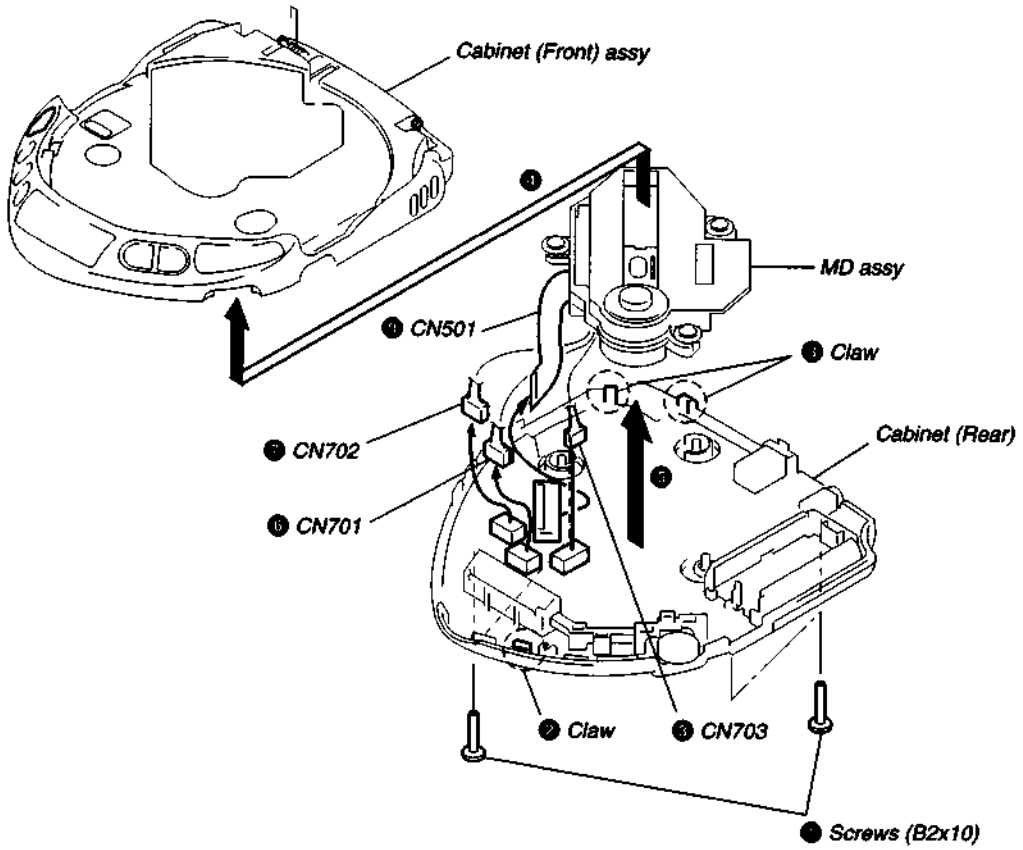
Set → Lid assy, Upper
Set → Cabinet (Front) assy → MD assy → Main board

Note : Follow the disassembly procedure in the numerical order given.

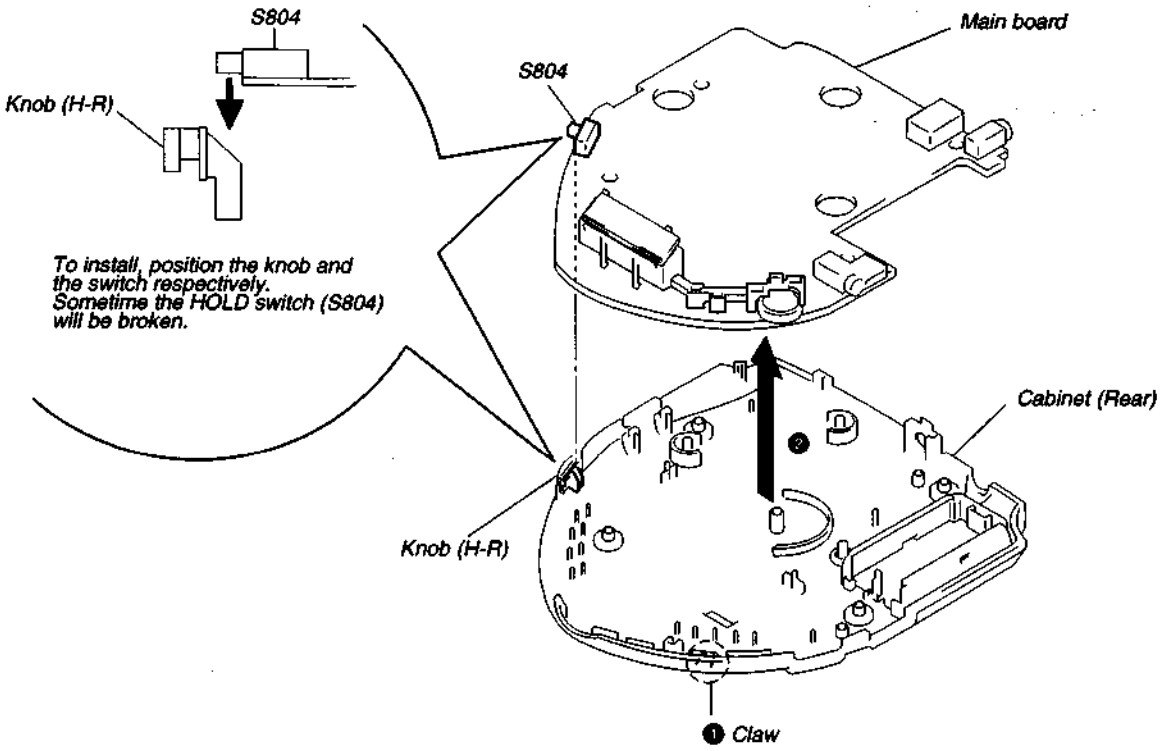
3-1. LID ASSY, UPPER REMOVAL



3-2. CABINET (FRONT) ASSY, MD ASSY REMOVAL



3-3. MAIN BOARD REMOVAL



SECTION 4
SERVICE MODE

Service Mode (service program)

The equipment is provided with a service program built in the microcomputer, like conventional models.
Service program operation methods are described in the following.

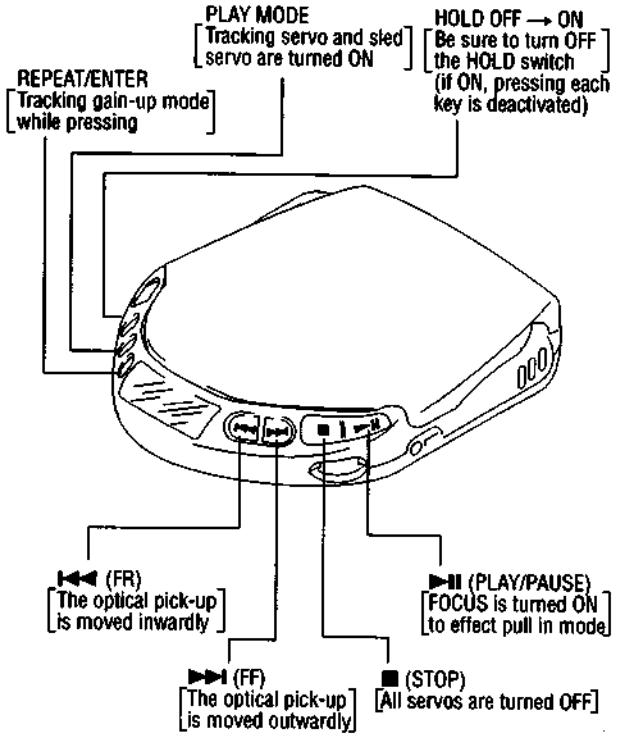


Fig. 3 Layout of each key

• Step 1 (Service mode setting method)

1. Turn OFF the HOLD switch the external power supply disconnected (power is not applied to the set).
2. Solder across the TAP802 (TEST) terminals (pin ⑫, IC801 (TEST) is grounded).
3. Connect an external power supply.
   Thus, the set is switched to the service mode.

• Step 2 (Operation in the service mode)

1. Once the service mode is effected, the LCD displays 5 indications each of which is repeatedly displayed.
   However, the following operations can be activated even if LCD indication is effected.
2. By pressing the ⏭ or ⏮ key, the optical pick-up movable inwardly or outwardly. However, if this is activated, tracking servo and sled servo are turned OFF, so it can be turned ON by pressing the PLAY MODE key, if required.
3. By pressing the REPEAT/ENTER key, the tracking gain-up mode becomes active.
4. By pressing the⏯ key, focus is turned ON from focus searching while entering CLV-S (pull-in mode).
   Without disc, focus searching is repeated continuously.
5. By pressing the PLAY MODE key, tracking servo, sled servo and CLV-A (servo in PLAY) are turned ON.
6. When 4. and 5. are performed, playing begins. No muting is ON in the service mode.
7. By pressing the ■ key, all servos (focus tracking and sled) are turned OFF. However, the disc motor revolves for a while by inertia.

• Step 3 (Resetting service mode)

1. Be sure to disconnect the external power supply and remove the solder bridge at the TEST terminals connected in setting.
2. The set thus becomes available for normal operation.

– MAIN BOARD – (component side)

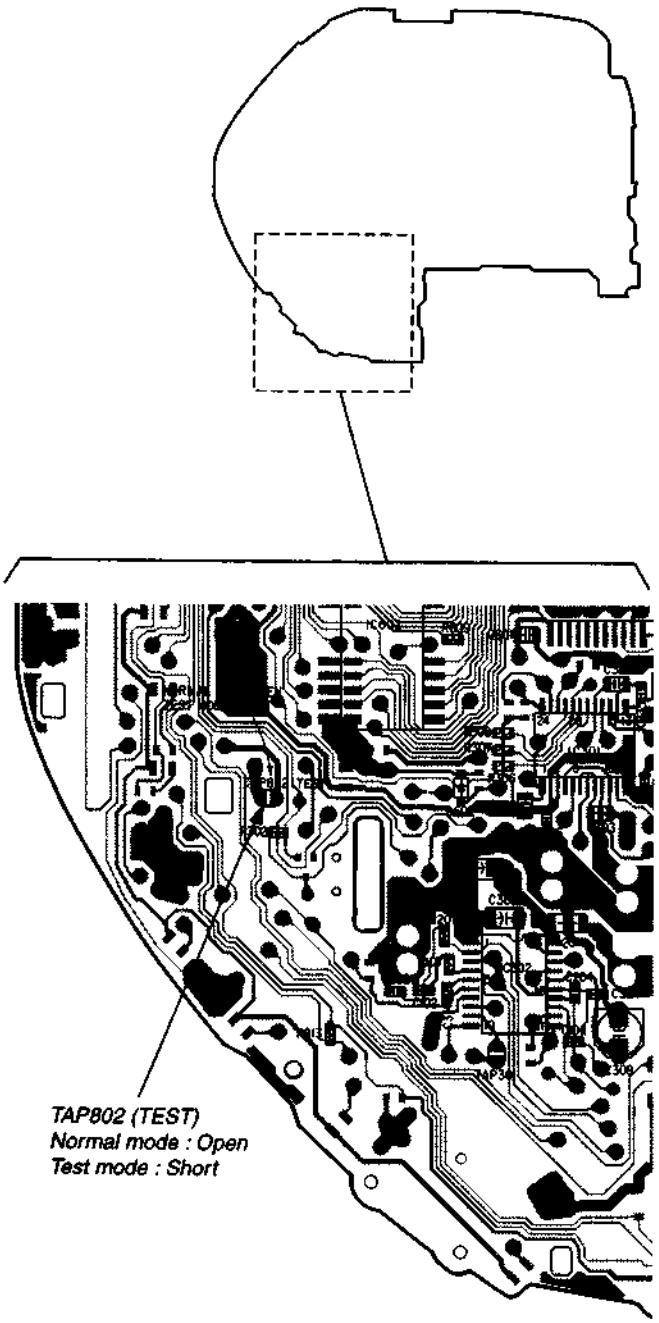


Fig. 4 Location of test terminal

SECTION 5
ADJUSTMENTS

CD SECTION

Precautions for Adjustment

1. Before beginning adjustment, set the equipment to service mode. After the completion of adjustment, be sure to reset the service mode.
   For more information, see "Service Mode (service program)" on page 7.
2. Perform adjustments in the order given.
3. Use the disc (YEDS-18. Part No. 3-702-101-01) unless otherwise indicated.
4. Power supply voltage requirement : DC 4.5 V

HOLD switch	: OFF
VOLUME	: Minimum
BASS BOOST switch	: OFF
AVLS switch	: NORM

Before Beginning Adjustment

Set the equipment to service mode (See page 7) and check the following.
If there in an error, repair the equipment.

• Checking of the sled motor

1. Open the upper panel.
2. Press the ▶▶I and I◀◀ keys and check that the optical pick-up can move smoothly without sluggishness or abnormal noise in innermost periphery → outermost periphery → innermost periphery
   ▶▶I : The optical pick-up moves outwardly
   I◀◀ : The optical pick-up moves inwardly

• Checking of focus searching

1. Open the upper panel.
2. Press the ▶II key. (Focus searching operation is activated continuously).
3. Check the object lens of the optical pick-up for smooth up/down motion without sluggishness or abnormal noise.
4. Press the ■ key.
   Check that focus searching operation is deactivated. If not, again press the ■ key slightly longer.

Tracking Balance Adjustment

Condition :

• Hold the set in horizontal state.

Procedure :

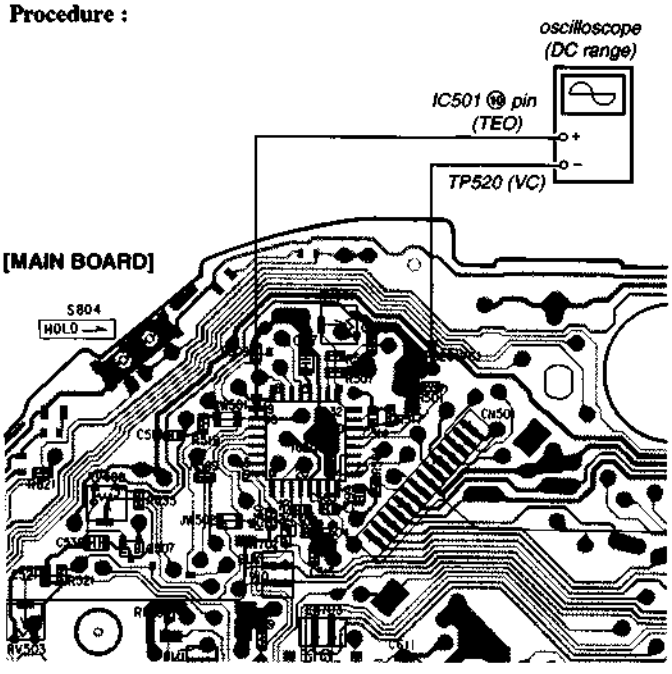


Fig. 5

[MAIN BOARD] (Conductor side)

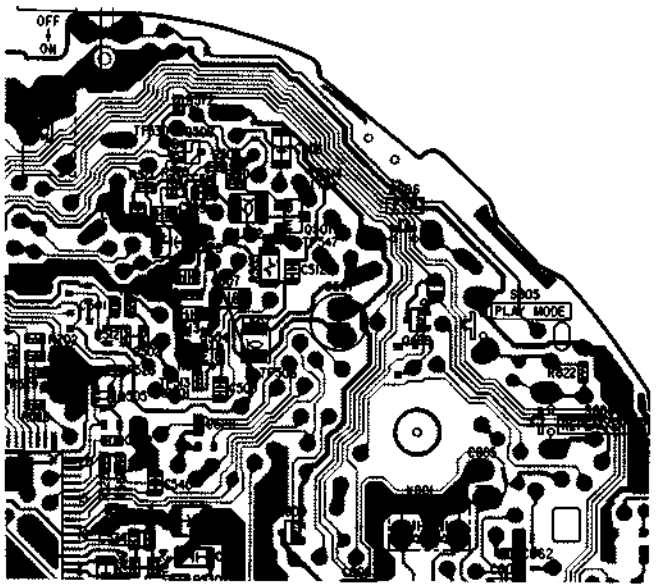
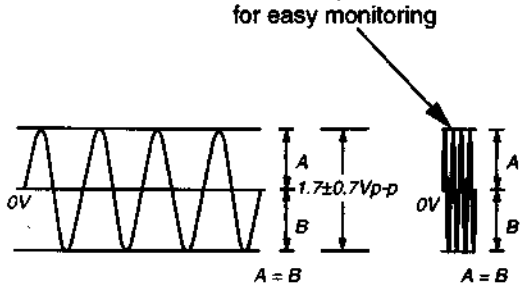


Fig. 6

1. Connect the oscilloscope between IC501 ⑲ pin (TEO) and TP520 (VC) on the MAIN board as shown in Fig. 5.
2. Connect the lead wire between TP530 (Q508, Base) and TP506 (Vcc : IC501 ㉑ pin) as shown in Fig. 6.
3. Set the equipment to service mode stop state (See page 7).
4. Move the optical pick-up by Pressing the ▶▶I and I◀◀ keys.
5. Put the disc (YEDS-18).
6. Press the ▶II key.
   (From focus searching, focus is turned ON while entering CLV drawing-in mode. Tracking and sled are turned OFF.)
7. Adjust RV501 so that the waveform on the oscilloscope becomes up/down symmetrical with an axis of 0V.

Note : Take Long sweep time for easy monitoring

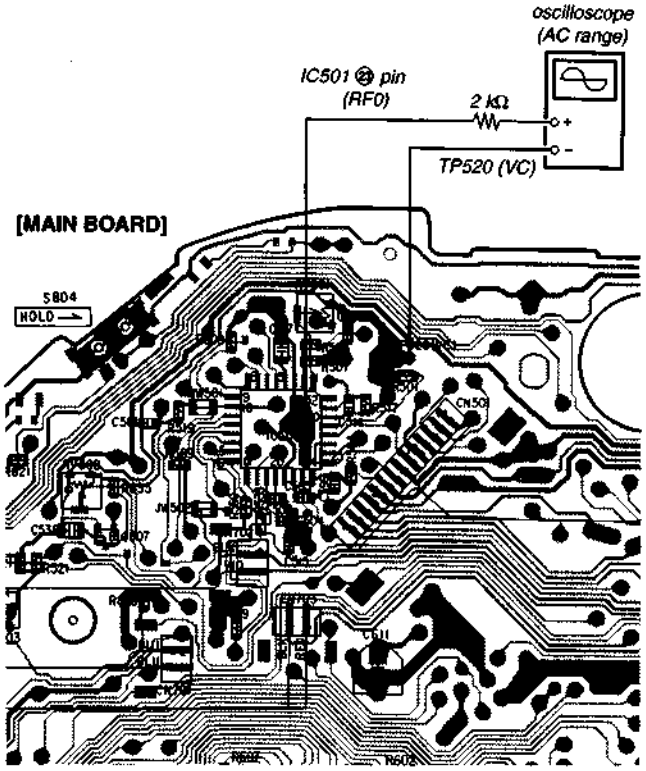


8. Stop removing of the motor by pressing the ■ key.
9. After the completion of adjustment, reset service mode. (See page 7)

Adjustment Location : Main board (page 10)

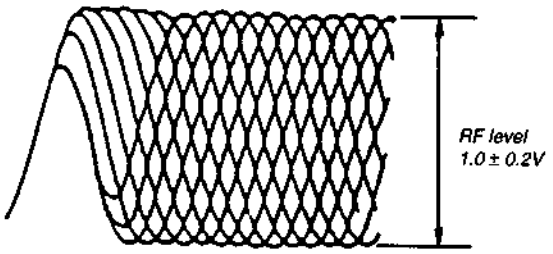
Focus Bias Check
Condition :
- Hold the set in horizontal state.

Procedure :



1. Set the equipment to service mode stop state (See page 7).
2. Connect the oscilloscope between IC501 ㉘ pin (RF0) and TP520 (VC) on the MAIN board.
3. Move the optical pick-up by Pressing the ▶▶I and I◀◀ keys.
4. Put the disc (YEDS-18).
5. Press the ▶II key.
   (From focus searching, focus is turned ON while entering CLV drawing-in mode. Tracking and sled are turned OFF.)
6. Press the PLAY MODE key. (Both tracking and sled are turned ON).
7. Check the oscilloscope waveform is as shown below.
   A good eye pattern means that the diamond shape (◊) in the center of the waveform can be clearly distinguished.

VOLT DIV : 200mV (with the 10 : 1 probe in use)
TIME DIV : 500nS



- **RF Signal Reference Waveform (eye pattern)**
  To watch the eye pattern, set the oscilloscope to AC range and increase the vertical sensitivity of the oscilloscope for easy watching.

8. Stop removing of the motor by pressing the ■ key.
9. After the completion of adjustment, reset service mode. (See page 7)

Focus/Tracking Gain Adjustment
A servo analyzer is necessary in order to perform this adjustment exactly.

However, this gain has a margin, so even if it is slightly off, there is no problem. Therefore, do not perform this adjustment.

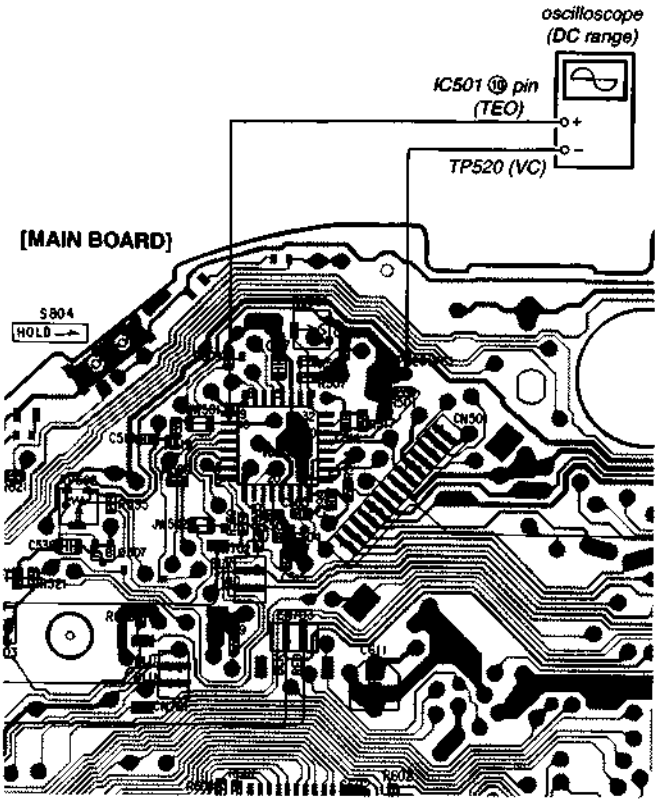
Focus/tracking gain determines the pick-up follow-up relative to mechanical noise and mechanical shock when the 2-axis device operate. However, as these reciprocate, the adjustment is at the point where both are satisfied.
- When gain is rased, the noise when 2-axis device operates increases.
- When gain is lowered, it is more susceptible to mechanical shock and skipping occurs more easily.

This adjustment has to be performed upon replacing any of the following parts :
- Optical pick-up
- RV503 (Focus gain)
- RV502 (Tracking gain)

Normally, be sure not to move RV503 (focus gain) and RV502 (tracking gain).

– Focus Gain Adjustment –
Procedure :
This adjustment is not performed. If focus gain RV503 is turned, set to mechanical center

– Tracking Gain Adjustment –
(perform at normal operation)



1. Place the optical pick-up level, horizontally. (If the optical pick-up is not level, the 2-axis device will be weighted and adjustment cannot be done.)
2. Connect the oscilloscope between IC501 ⑩ pin (TEO) and TP520 (VC) on the MAIN board.
3. Set the disc (YEDS-18) and Press the▶II (▶▶I) key.
4. Turn RV502 slightly clockwise (tracking gain drops) and obtain a waveform with a fundamental wave (waveform has large waves) as in Figure 1 .
5. Turn RV502 slowly counterclockwise (tracking gain rises) until the fundamental wave disappears (no large waves) as in Figure 2.
6. Set RV502 to the position about 30 °counterclockwise form the position obtained in step 5. If RV502 contact point is more than 90 ° counterclockwise from mechanical center, tracking gain is too high. In this case, readjust from step 4.
7. Press ▶II (▶▶I)or I◀◀ keys and observe the 100 track jump waveform. Check that no traverse waveform appears for both ▶II (▶▶I)or I◀◀ directions. (See Figures 3 and 4.) It is acceptable if the traverse waveform appears only now and then, but if it appears constantly raise tracking gain slightly and check step 7 again.
8. Check that there is not abnormal amount of operation noise (white noise) from the 2-axis device. If there is, tracking gain is too high, readjust starting with step 4.

The waveforms are those measured with the oscilloscope set as shown below.

- VOLT/DIV : 50mV
- TIME/DIV : 5mS

● Waveform when tracking gain lowered.
Fundamental wane appears (large waves).

Fig. 1

● Waveform when fundamental wane disappears (no large waves).

Fig. 2

● Waveform when no traverse waveform during 100 track jump.
(Brake application is smooth because of adjustment.)

Fig. 3

● Waveform when no traverse waveform during 100 track jump.
(Brake application is poor because of adjustment.)

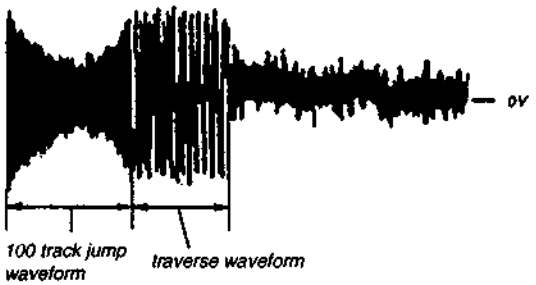
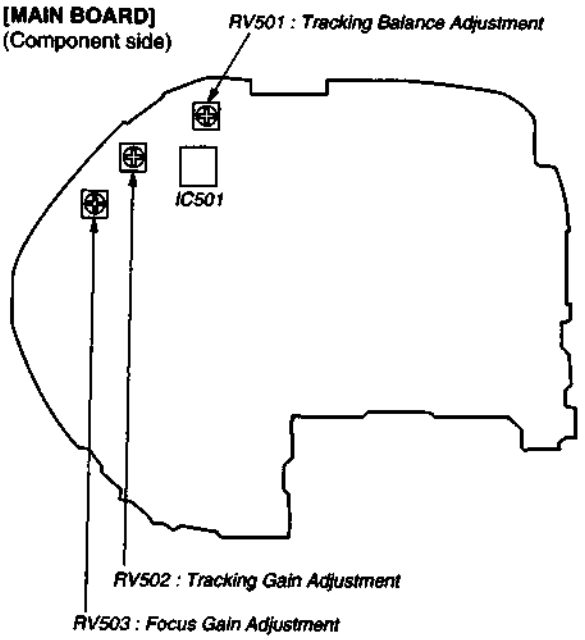


Fig. 4

Adjustment Location :

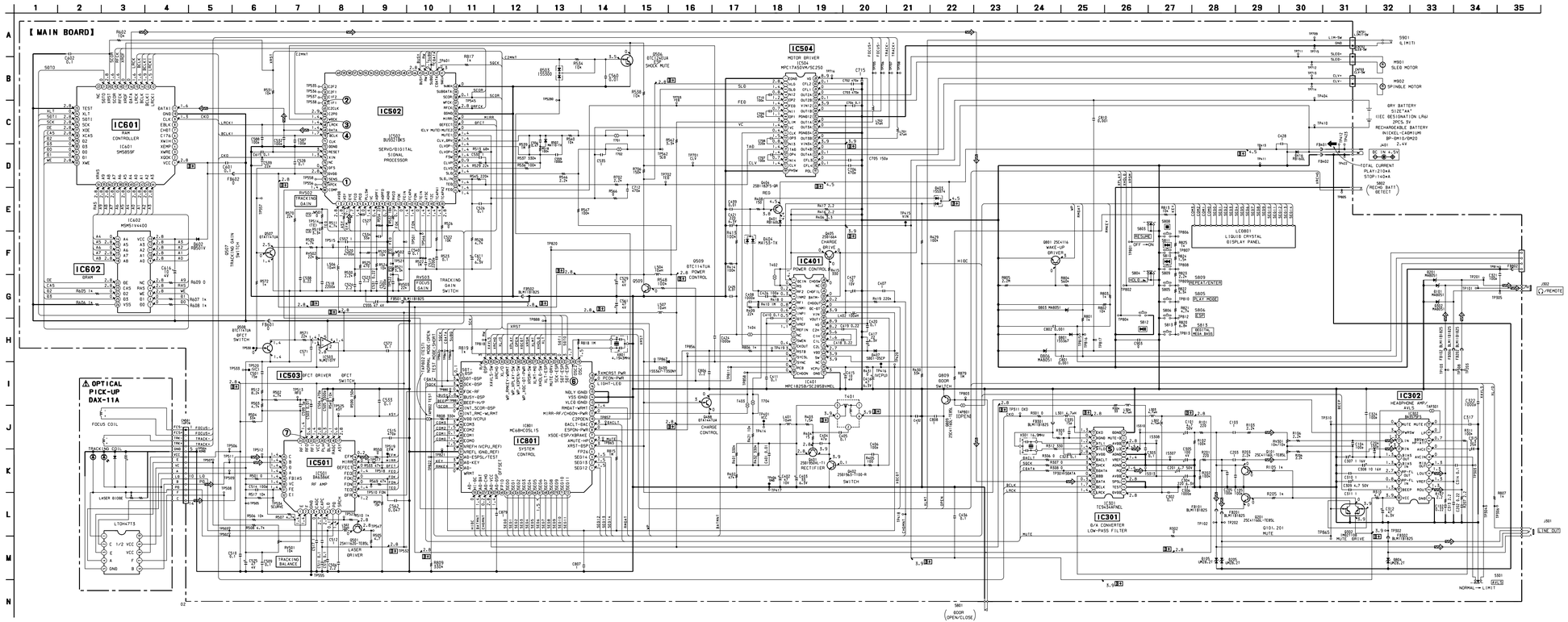


SECTION 6
EXPLANATION OF IC TERMINALS

IC601 MC68HC05L15SC442705CPB (SYSTEM CONTROL)

Pin No.	Pin name	I/O	Description
1 - 3	SEG 12–14	O	LCD segment signal output terminal.
4	FP26	–	Not used (Open).
5	XRST–DSP	O	Reset output terminal.
6	AMUTE –HP	O	Audio mute output terminal.
7	XSOE –ESP/XBRAKE	–	Not used (Open).
8	ESPON–PWE	O	ESP POWER ON control output.
9	DACLT–DAC	I/O	CPU serial data input, latch signal output (For DAC only).
10	C2POEN	O	C2PO signal control output. "L" : stop "H" : searching
11	MIRR–RF/CHGON–PWR	I	Charge ON signal input terminal.
12	RMDAT–WRMT	O	Serial data output to LCD remote controller.
13	VLCD (GND)	–	Connect to ground.
14	VSS (GND)	–	Connect to ground.
15	NDLY (GND)	–	Connect to ground.
16	LIGHT–LED	–	Not used (Open).
17	PCON–PWR	O	Power ON/OFF control output. "L" : ON "H" : OFF
18	XMCRST–PWR	I	System reset input terminal.
19	OSC 1	I	System clock oscillator input terminal (4.1943 MHz).
20	OSC 2	O	System clock oscillator output terminal (4.1943 MHz).
21	SDT–ESP	I	Serial data input from ESP control (IC601).
22	SDT–ESP	O	Serial data output to ESP control (IC601).
23	SCK–ESP	O	Serial clock output to ESP control (IC601).
24	MUTE–DRV	O	Motor drive mute output terminal.
25	XLT–ESP	O	Latch signal output to ESP control (IC601).
26	HOLD–SW	I	Hold switch input termianl. "L" : HOLD ON "H" : HOLD OFF
27	XLMT–MD	I	Limit switch input terminal. "L" : Inside Track
28	XRSM–SW	I	RESUME switch input terminal. "L" : ON "H" : OFF
29	WP XDC–DT PWR	I	DC in voltage detection terminal.
30	WP XOPEN–SW	I	Door open switch input terminal. "L" : Close "H" : Open
31	WP XPLAY–SW	I	Play/pause key input terminal.
32	WP RMKEY WRMT	I	Remote control key input terminal.
33	XL/O DCT	I	LINE OUT jack detection terminal. "L" : Present "H" : No
34	XRCHG–SW	I	Rechargeable battery detection terminal. "L" : Present "H" : No
35	XAVLS–SW	I	AVLS switch input terminal.
36	R/W DSP	O	Read/Write switching signal output terminal. "L" : Read "H" : Write
37	SDT–DSP	I	SUB–Q signal input terminal.
38	SDT–DSP	O	Serial data output to DSP (IC502).
39	SCK–DSP	O	Clock signal to enter SUB–Q signal form DSP (IC502).
40	FOK–RF	I	FOK signal input terminal.

Pin No.	Pin name	I/O	Description
41	BUSY–DSP	I	BUSY signal input terminal from DSP (IC502).
42	BEEP–HP	O	Beep sound output terminal.
43	INT SCOR–DSP	I	Sub code sync SO+SI input terminal.
44	INT RMC–WLRMT	–	Not used (Open).
45	V_{DD} (VCPU)	–	Power supply terminal.
46 – 49	COM 0–3	O	LCD common signal output terminal.
50	VREFH	I	Reference voltage input terminal (connect to V_{DD}).
51	VREFL	–	Connect to ground.
52	AD ESPSL/TEST	I	Test mode terminal. "L" : Test mode "H" : Nomal mode
53	AD–KEY	I	A/D input termainal for main unit key.
54	AD–WRMT	I	A/D input termainal for remote control key.
55	AD–HI DC	I	A/D input termainal for DC IN voltage detection.
56	AD – BAT	I	Rechavgeable battery/dry cell detection input.
57	AD – CHG	I	A/D input terminal for charging voltage monitor.
58	AD – VCC	I	A/D input terminal for VCC voltage monitor.
59	AD – DSP OFFSET	I	A/D input terminal for DSP off-set monitor.
60	FP10	–	Not used (Open).
61 – 72	SEG 0 – 11	O	LCD segment signal output terminal.



● WAVEFORMS

① SERVICE MODE during TRK servo OFF
3.9 Vp-p
4.32MHz
IC502 ㉙ VOLT/DIV : 1 V AC TIME/DIV : 0.1msec

② 1.36 µsec 2.9 Vp-p ESP : OFF
IC502 ㉔ VOLT/DIV : 1 V AC TIME/DIV : 50µsec

③ 22.7 µsec 2.9 Vp-p ESP : OFF
IC502 ㉖ VOLT/DIV : 1 V AC TIME/DIV : 10msec

④ 0.47 µsec 3.0 Vp-p ESP : OFF
IC502 ㉘ VOLT/DIV : 1 V AC TIME/DIV : 0.2msec

⑤ 16.9 MHz 2.6 Vp-p
IC301 ⑯ VOLT/DIV : 1 V AC TIME/DIV : 50nsec

⑥ 4.19MHz 3.0 Vp-p
IC801 ㉑ VOLT/DIV : 1 V AC TIME/DIV : 0.2msec

⑦ 1.0 ± 0.2 Vp-p
IC501 ㉒ VOLT/DIV : 0.2 V AC TIME/DIV : 0.5msec

Note :

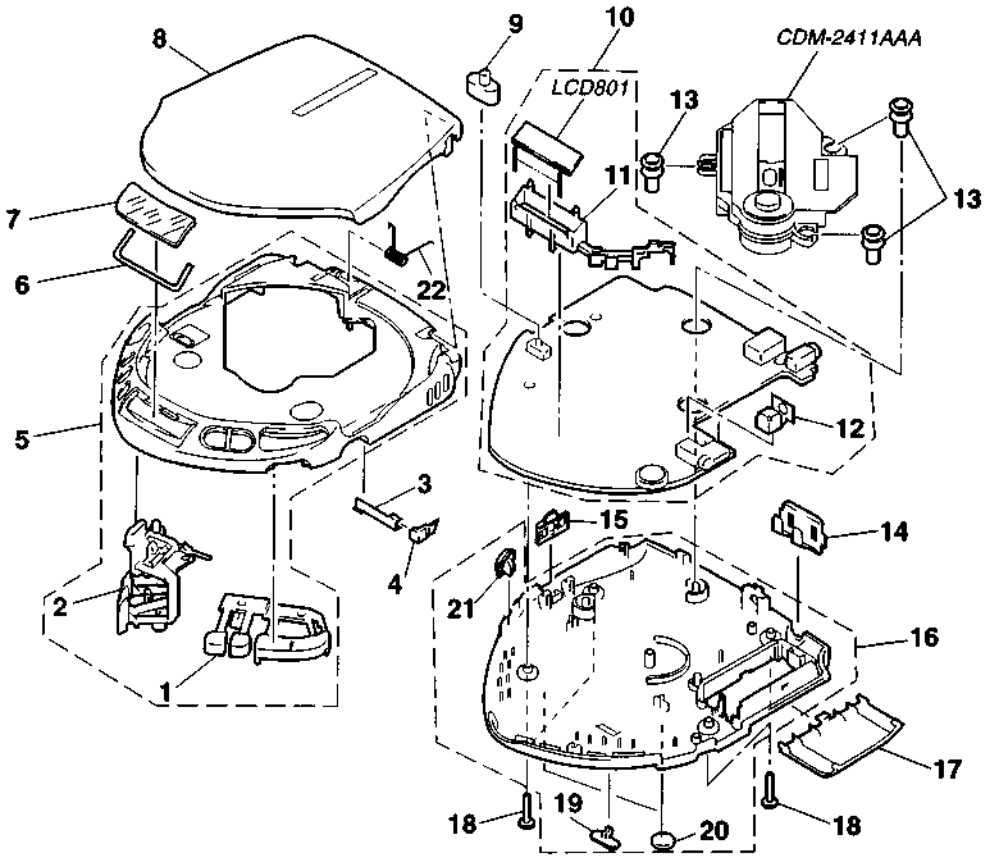
- All capacitors are in µF unless otherwise noted. pF: µµF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in and ¼W or less unless otherwise specified.
- Δ : internal component.

Note :	**Note :**
The components identified by mark Δ or dotted line with mark Δ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque Δ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

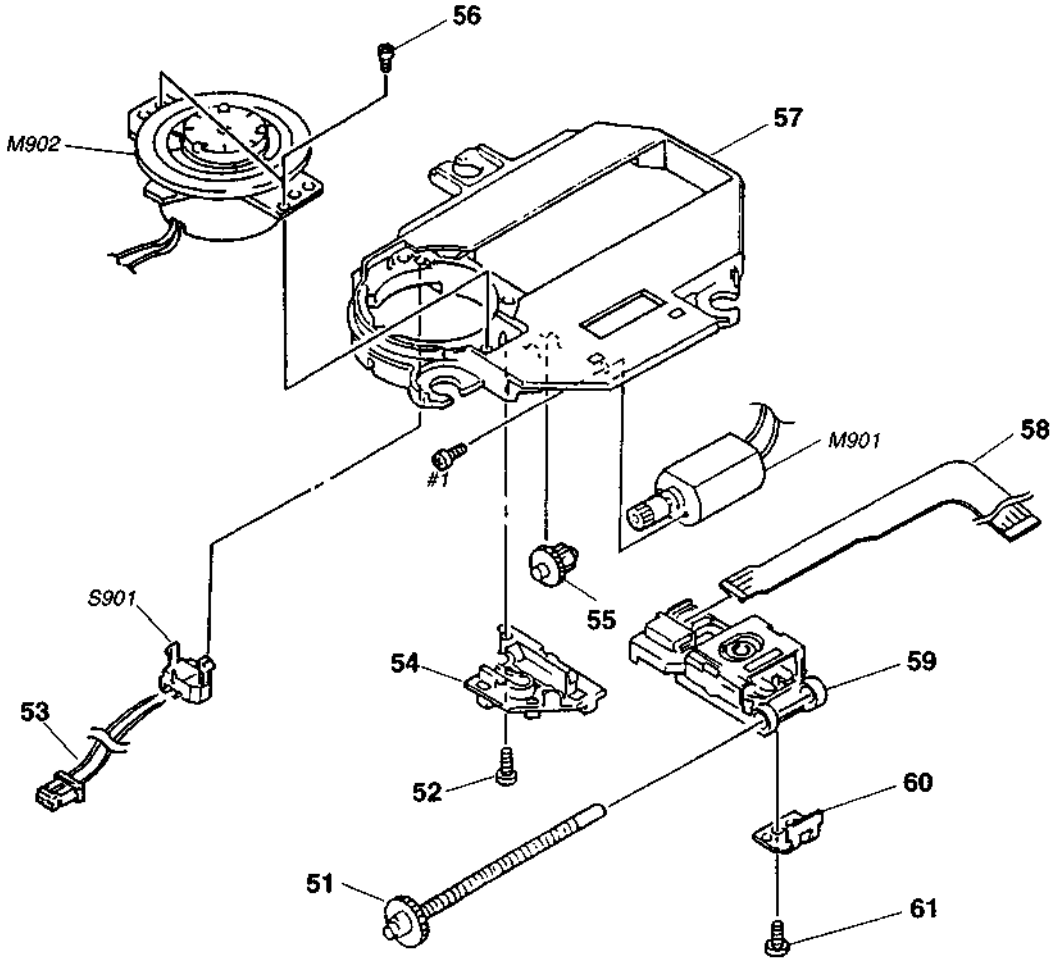
- B+ B+ Line
- : adjustment for repair.

- Power voltage is dc 4.5 V and fed with regulated dc power supply from external power voltage jack (J401).
- Voltage and waveforms are dc with respect to ground under no-signal conditions.
  no mark : STOP
  ( ) : PLAY
- Voltages are taken with a VOM (Input impedance 10M). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
  ⇨ : CD

8-1. CABINET SECTION



8-2.OPTICAL PICK-UP SECTION
(CDM-2411AAA)



D-E300AN/E301/E305/ E307CK/E307CKT

SONY

SERVICE MANUAL

US Model
D-E300AN/E301/E305/E307CK/E307CKT

Canadian Model
D-E300AN/E301/E307CK

AEP Model
UK Model
D-E300AN/E301/E305/E307CK

Australian Model
E Model
Chinese Model
D-E301/E305/E307CK

SUPPLEMENT - 1

File this Supplement with the Service Manual.

Subject :
- **CHANGE OF MAIN BOARD.**
- **EXPLODED VIEWS.**

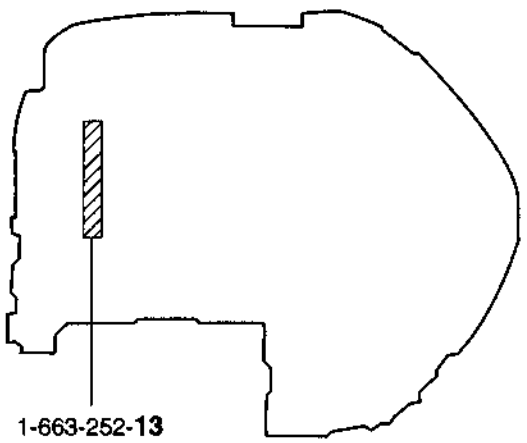
(ECN-CD750459)

- **CHANGE OF MAIN BOARD**

The main board have been changed.
Printed wiring board and schematic diagram of new type, and changed parts list are described in this Supplement-1.
Refer to original service manual (9-923-150-11) previously issued for the other information.

NEW TYPE IDENTIFICATION

[MAIN BOARD] (Side B)



9-923-150-82

Sony Corporation
Personal A&V Products Company

9710293-1
Printed in Japan © 1997.9
Published by Quality Engineering Dept. (Shibaura)

• EXPLODED VIEWS

Page 28

Ref. No.	Former Type		New type		Remark
	Part No.	Description	Part No.	Description	
8	X-4948-042-1	LID ASSY, UPPER (METALLIC BLUE) (E301: EXCEPT US,CND)	X-4948-042-1	LID ASSY, UPPER (METALLIC BLUE) (E301: EXCEPT US,CND,AUS)	Changed
8	X-4948-063-1	LID ASSY, UPPER (METALLIC BLUE) (E305: EXCEPT US,AUS)	X-4948-063-1	LID ASSY, UPPER (METALLIC BLUE) (E305: EXCEPT US,AUS,C&SA)	Changed
8	X-4948-064-1	LID ASSY, UPPER (METALLIC BLUE) (E305: US,AUS)	X-4948-064-1	LID ASSY, UPPER (METALLIC BLUE) (E305: AUS)	Changed
8	X-4948-065-1	LID ASSY, UPPER (GOLD) (E305: EXCEPT US,AUS)	X-4948-065-1	LID ASSY, UPPER (GOLD) (E305: EXCEPT US,AUS,C&SA)	Changed
8	X-4948-176-1	LID ASSY, UPPER (SILVER) (E301:US,CND)	X-4948-176-1	LID ASSY, UPPER (SILVER) (E301:US,CND,AUS)	Changed
8	X-4948-177-1	LID ASSY, UPPER (GOLD) (E301:US,CND)	X-4948-177-1	LID ASSY, UPPER (GOLD) (E301:US,CND,AUS)	Changed
8	X-4948-178-1	LID ASSY, UPPER (BLUE) (E301:US,CND)	X-4948-178-1	LID ASSY, UPPER (BLUE) (E301:US,CND,AUS)	Changed
8	X-4948-179-1	LID ASSY, UPPER (SILVER) (E301: EXCEPT US,CND)	X-4948-179-1	LID ASSY, UPPER (SILVER) (E301: EXCEPT US,CND,AUS)	Changed
8	X-4948-180-1	LID ASSY, UPPER (SILVER) (E305:US,AUS)	X-4948-180-1	LID ASSY, UPPER (SILVER) (E305:AUS)	Changed
8	X-4948-181-1	LID ASSY, UPPER (SILVER) (E305: EXCEPT US,AUS)	X-4948-181-1	LID ASSY, UPPER (SILVER) (E305: EXCEPT US,AUS,C&SA)	Changed
8	X-4948-182-1	LID ASSY, UPPER (SILVER) (E307CK: US,CND,AUS)	X-4948-182-1	LID ASSY, UPPER (SILVER) (E307CKT,C307CK : US,CND,AUS)	Changed
8		————	X-4948-893-1	LID ASSY, UPPER (SILVER) (E305:US)	Added
8		————	X-4948-894-1	LID ASSY, UPPER (SILVER) (E305:C&SA)	Added
8		————	X-4948-900-1	LID ASSY, UPPER (GOLD) (E305:C&SA)	Added
8		————	X-4948-901-1	LID ASSY, UPPER (METALLIC BLUE) (E305:C&SA)	Added
22	4-986-065-01	SPRING, TORSION	4-986-065-01	SPRING, TORSION (US,CND,AUS)	Changed
			4-992-843-01	SPRING, TORSION (EXCEPT US,CND,AUS)	Added

● **WAVEFORMS**

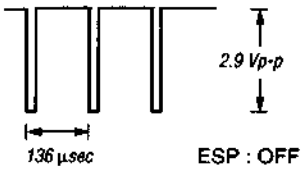
① SERVICE MODE
during TRK servo OFF

IC502 ⑲ VOLT/DIV : 1 V AC
TIME/DIV : 0.1µsec

⑤

IC301 ⑯ VOLT/DIV : 1 V AC
TIME/DIV : 50nsec

②



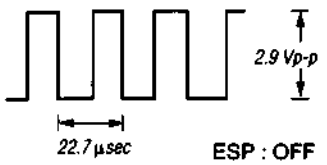
ESP : OFF

IC502 ⑭ VOLT/DIV : 1 V AC
TIME/DIV : 50µsec

⑥

IC801 ⑳ VOLT/DIV : 1 V AC
TIME/DIV : 0.2µsec

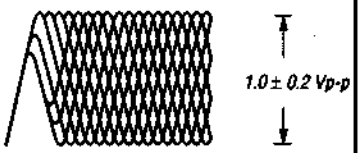
③



ESP : OFF

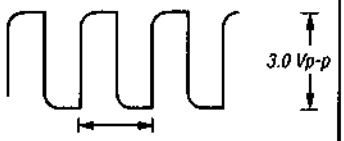
IC502 ⑱ VOLT/DIV : 1 V AC
TIME/DIV : 10µsec

⑦



IC501 ㉓ VOLT/DIV : 0.2 V AC
TIME/DIV : 0.5µsec

④



ESP : OFF

IC502 ⑳ VOLT/DIV : 1 V AC
TIME/DIV : 0.2µsec

D-E300AN/E301/E305/ E307CK/E307CKT

SONY

SERVICE MANUAL

US Model
D-E300AN/E301/E305/E307CK/E307CKT
Canadian Model
D-E300AN/E301/E307CK
AEP Model
UK Model
D-E300AN/E301/E305/E307CK
Australian Model
E Model
Chinese Model
D-E301/E305/E307CK
Tourist Model
D-E305

SUPPLEMENT - 2

File this Supplement with the Service Manual.

Subject :
- **MODEL ADDITION (D-E305 : Tourist model)**
  (Refer to original service manual (9-923-150-11) and supplement-1 (9-923-150-82) previously issued for the other information.)
- **CHANGE OF MAIN BOARD**

(ECN-CD750822)

• MODEL ADDITION

Tourist model has been added for D-E305.
D-E305 (Tourist model) is approximately same as the D-E305 (E33 model).
Consequently, only difference between Tourist model and E33 model are listed.

• DIFFERENCE PARTS LIST

ACCESSORIES & PACKING MATERIALS

Page 33 – 34

- Abbreviation
  JEW : Tourist

Ref. No.	Part No.	Description	Remark
⚠	1-467-550-11	ADAPTOR, AC (AC-E455A) (E33, JEW)	
	1-528-541-11	BATTERY PACK (BP-DM10) (JEW)	
⚠	1-569-007-11	ADAPTOR, CONVERSION 2P (E33,JEW)	
	3-861-668-01	MANUAL, INSTRUCTION (JEW) (JAPANESE)	
	3-861-668-11	MANUAL, INSTRUCTION (JEW) (CHINESE)	
	3-861-668-21	MANUAL, INSTRUCTION (JEW) (ENGLISH)	
	3-861-668-31	MANUAL, INSTRUCTION (JEW) (KOREAN)	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

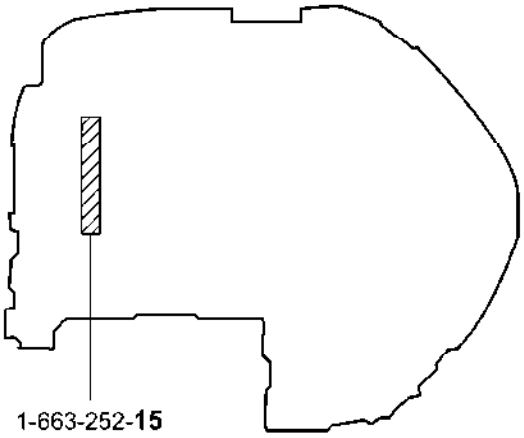
Les composants identifiés par une marque ⚠sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

● CHANGE OF MAIN BOARD

The main board have been changed.
Printed wiring board and schematic diagram of new type, and changed parts list are described in this Supplement-2.
Refer to original service manual (9-923-150-11) and supplement-1 (9-923-150-82) previously issued for the other information.

NEW TYPE IDENTIFICATION

[MAIN BOARD] (Side B)



● CHANGE OF ELECTRICAL PARTS LIST

MAIN (Service Manual see page 30 to 31)

Ref. No.	Former Type					New Type					Remark
	Part No.	Description				Part No.	Description				
C309	1-126-783-11	ELECT	22uF	20%	16V	1-126-794-11	ELECT	4.7uF	20%	50V	Changed
C570	1-164-360-11	CERAMIC CHIP	0.1uF		16V		————				Deleted
C715		————				1-164-346-11	CERAMIC CHIP	1uF		16V	Added
Q509		————				8-729-028-97	TRANSISTOR	DTC114TUA-T106			Added
R548		————				1-216-845-11	METAL CHIP	100K	5%	1/16W	Added