

D-E440/E441/E441SR/E443/E445/ E446CK/E449CK

SERVICE MANUAL

Ver 1.3 1999.12

With SUPPLEMENT 1
(9-926-932-81)

With SUPPLEMENT 2
(9-926-932-82)



Photo : D-E441

US Model

D-E441/E445/E446CK/E449CK

Canadian Model

D-E441/E445/E446CK

AEP Model

D-E440/E441/E441SR/E443/E445/E446CK

UK Model

D-E441/E441SR/E443/E445/E446CK

E Model

D-E441/E443/E445/E446CK

Australian Model

D-E441/E445/E446CK

Chinese Model

D-E441/E445

Model Name Using Similar Mechanism	NEW
CD Mechanism Type	CDM-2811EAA
Optical Pick-up Type	DAX-11E

SPECIFICATIONS

CD player

System

Compact disc digital audio system

Laser diode properties

Material: GaAlAs

Wavelength : $\lambda = 780 \text{ nm}$

Emission duration: Continuous

Laser output : Less than $44.6 \mu\text{W}$ (This output is the value measured at a distance of 200 mm from the objective lens surface on the optical pick-up block with 7 mm aperture.)

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 $+1$ dB -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 47 kilohms

Recommended load impedance over 10

kilohms

General

Power requirements

For the area code of the model you purchased, check the upper left side of the bar code on the package.

- 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 and South America model: 120 V, 60 Hz
 - AEP, German, French, EE, E13 model: 220 - 230 V, 50/60 Hz
 - UK model: 230 - 240 V, 50 Hz
 - EA model: 110 - 240 V, 50/60 Hz
 - AUS model: 240 V, 50 Hz
 - E33 model: 100 - 240 V, 50/60 Hz
 - Hong Kong model: 220 V, 50/60 Hz
 - Chinese, Argentine model: 220 V, 50 Hz
- Sony CPM-300P mount plate for use on car battery : 4.5V DC

Dimensions (w/h/d) (without projecting parts and controls)

Approx. 129 x 28 x 146 mm
(5¹/₈ x 1¹/₈ x 5³/₄ in.)

Mass (without rechargeable battery)

Approx. 220 g (7.8 oz)

Operating temperature

5°C - 35°C (41°F - 95°F)

Supplied accessories

For the area code of the model you purchased, check the upper left side of the bar code on the package.

D-E440

Earphones (1)

D-E441

AC power adaptor (1)

Headphones (1)*1

Earphones (1)*2

AC plug adaptor (1)*3

*1 Supplied with US model

*2 Not supplied with US model

*3 Supplied with E33, E13 and EA models

– Continued on page 2 –

COMPACT DISC COMPACT PLAYER



SONY®

D-E441SR	AC power adaptor (1)
	Earphones (1)
	Active speaker system (1)
D-E443	AC power adaptor (1)
	Earphones (1)
	Rechargeable battery (1)
	AC plug adaptor (1)*
	* Supplied with E33, E13 and EA models
D-E445	AC power adaptor (1)
	Headphones with remote control (1) *1
	Earphones with remote control (1) *2
	Rechargeable battery (1)
	AC plug adaptor (1)*3
	*1 Supplied with US model
	*2 Not supplied with US model
	*3 Supplied with E13 model
D-E446CK	AC power adaptor (1)
	Headphones (1) *1
	Earphones (1) *2
	Car battery cord (1)
	Car connecting pack (1)
	Velcro tape (2)
	Spare fuse (1)
	Spiral tube (1)
	AC plug adaptor (1)*3
	*1 Supplied with US model
	*2 Not supplied with US model
	*3 Supplied with E33, E13 and EA models
D-E449CK	AC power adaptor (1)
	Rechargeable battery (1)
	Headphones with remote control (1)
	Car battery cord (1)
	Car connecting pack (1)
	Velcro tape (2)
	Spare fuse (1)
	Spiral tube (1)

TABLE OF CONTENTS

Specifications	1
1. SERVICING NOTES	3
2. GENERAL	4
3. DISASSEMBLY	
3-1. Lid Assy, Upper	5
3-2. Cabinet (Front) Assy, Cabinet (Rear) Assy, MD Assy	5
3-3. Main Board	6
4. SERVICE MODE	7
5. ADJUSTMENTS	8
6. DIAGRAMS	
6-1. Explanation of IC Terminals	11
6-2. Block Diagram	13
6-3. Printed Wiring Boards	16
6-4. Schematic Diagram	19
7. EXPLODED VIEWS	
7-1. Cabinet Section	28
7-2. Optical Pick-up Section	30
8. ELECTRICAL PARTS LIST	31

Design and specifications are subject to change without notice.

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK \triangle OR DOTTED LINE WITH MARK \triangle 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!

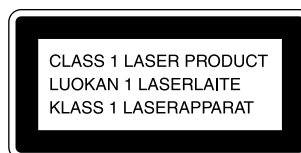
LES COMPOSANTS IDENTIFIÉS PAR UNE MARQUE \triangle SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.

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.

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 per 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 : $1.2 \pm 0.3\text{Vp-p}$ IC501 ⑬ pin. (Connect pin ⑫ of IC501 (TP880) and ⑬ of IC501 (GND) with a jumper wire).
 - 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 : $0.8 - 1.2\text{Vp-p}$
- Traverse signal P-to-P value : $1.0 - 2.4\text{Vp-p}$
- 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 than 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.

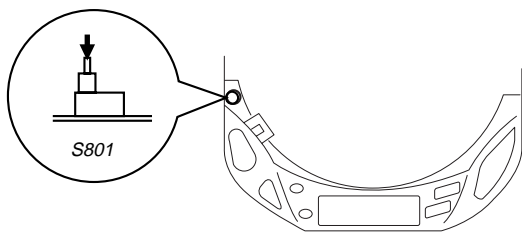
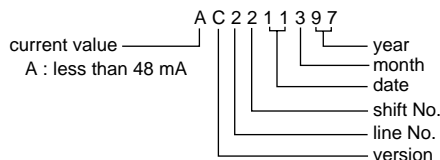


Fig.1 Method to push S801

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 ► key.



5. Calculate the current value by the reading of the digital voltmeter.
 Reading of the tester (V) \div 4.7 (Ω) = current value (A)
 (Example) Reading of the digital voltmeter of 0.2256 V :
 $0.2256\text{ V} \div 4.7\ \Omega = 0.048\text{ (A)} = 48\text{ mA}$
6. Check that the current value is within the following range.
 - Current value of the label $\begin{smallmatrix} +5 \\ -11 \end{smallmatrix}$ mA (25°C)
 - Variation by temperature : $0.4\text{mA} / ^\circ\text{C}$
 - Current increases with temperature increased.
 - Current decreases with temperature decreased.
 If the current is more than the range above, there is a trouble 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)

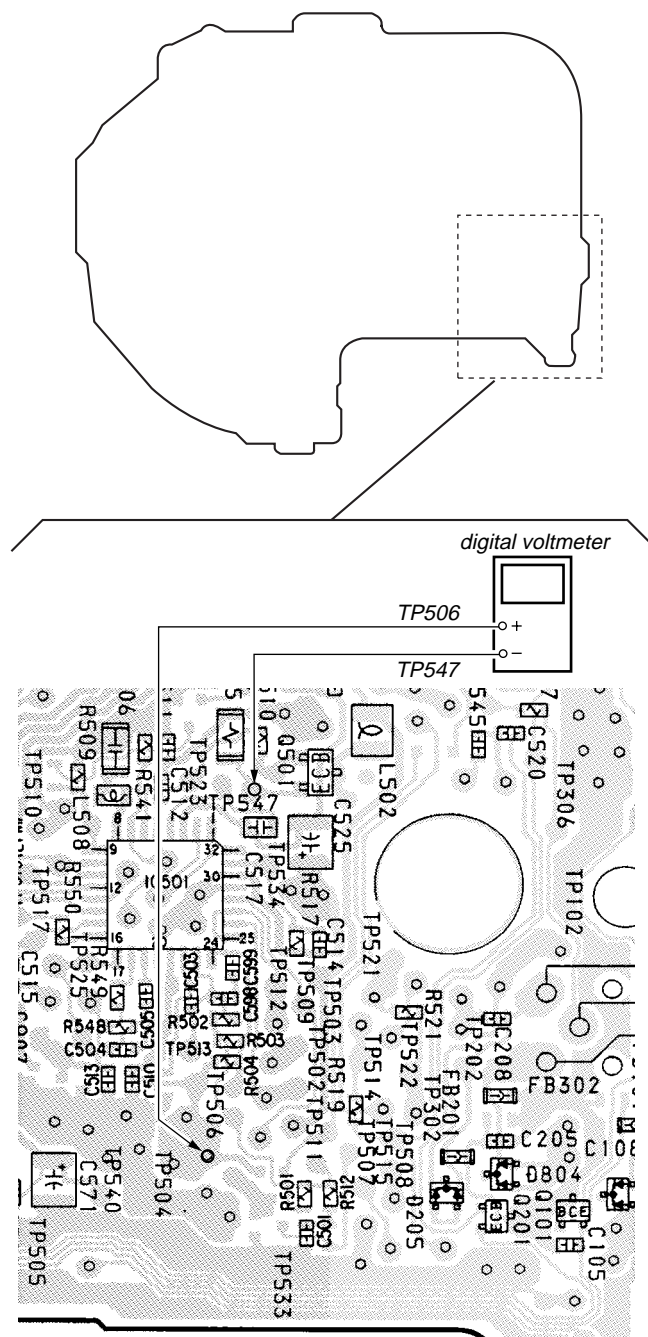
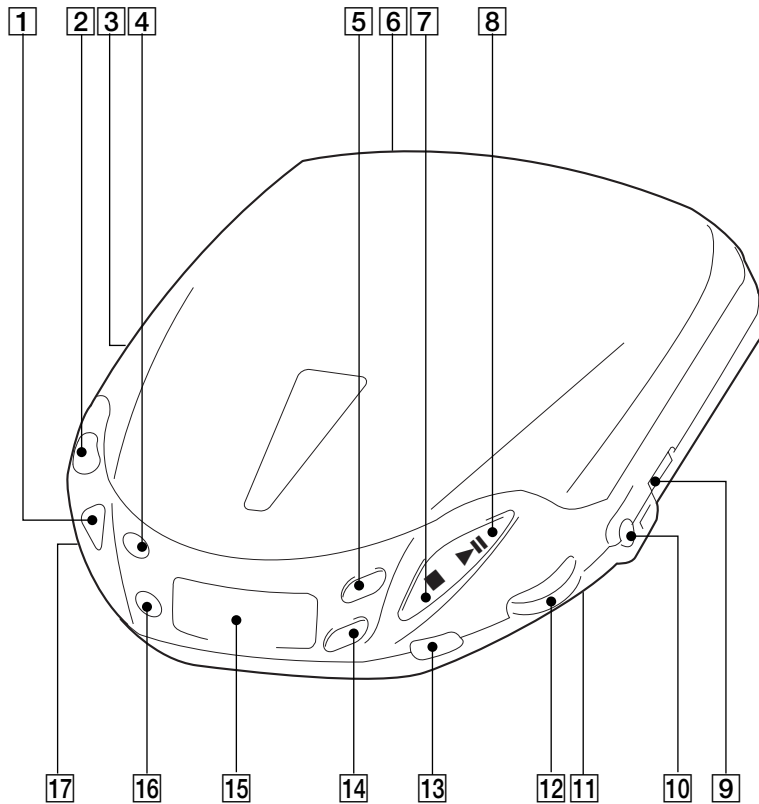


Fig. 2 Digital Voltmeter Connecting Location

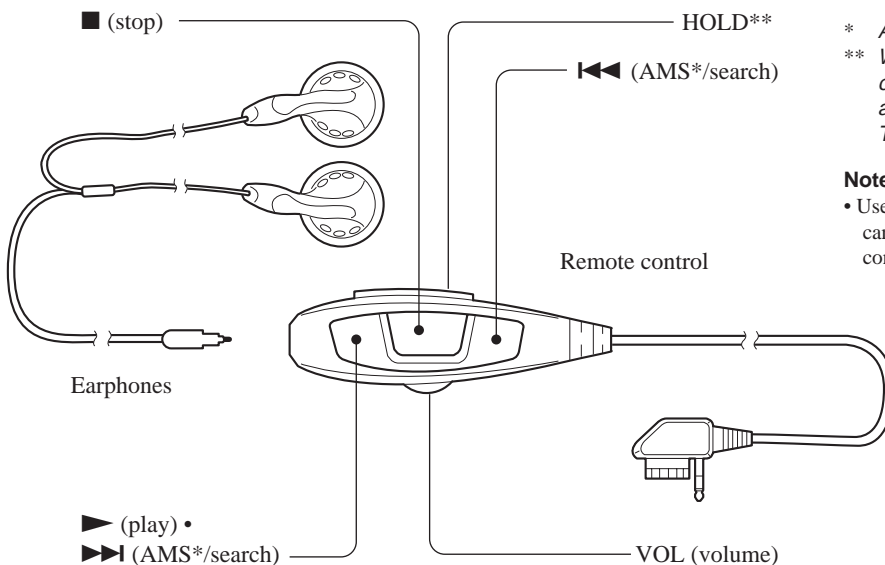
SECTION 2 GENERAL

LOCATION AND FUNCTION OF CONTROLS



- | | |
|---|---|
| <p>1 ESP (Electronic Shock Protection) button</p> <p>2 OPEN button</p> <p>3 DC IN 4.5V jack</p> <p>4 PLAY MODE button</p> <p>5 ►► FF button</p> <p>6 LINE OUT jack</p> <p>7 ■ STOP button</p> <p>8 ► Play/pause button</p> <p>9 OFF-RESUME-ON switch</p> | <p>10 Ⓜ /Remote jack</p> <p>11 AVLS switch</p> <p>12 VOLUME control</p> <p>13 Sound switch</p> <p>14 ◀◀ FR button</p> <p>15 Information display panel</p> <p>16 REPEAT/ENTER button</p> <p>17 HOLD switch</p> |
|---|---|

Volume control RM-DM29 : (D-E445/E449CK)



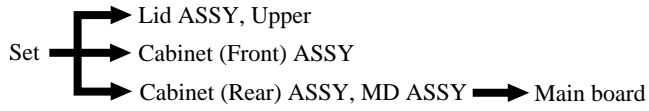
- * Automatic Music Sensor
- ** When you are not using the remote control, slide HOLD in the direction of the arrow to prevent any accidental operation. To unlock, slide HOLD back.

Note

- Use only the supplied remote control. You cannot operate this player with the remote control supplied with other models.

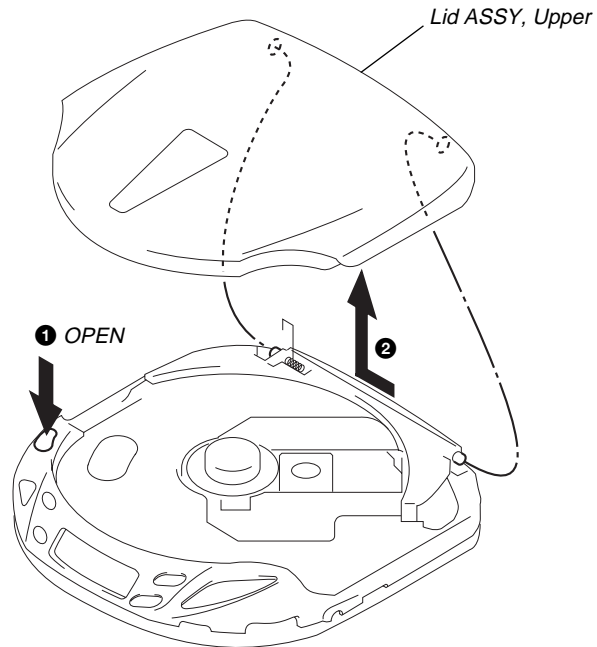
SECTION 3 DISASSEMBLY

- The equipment can be removed using the following procedure.

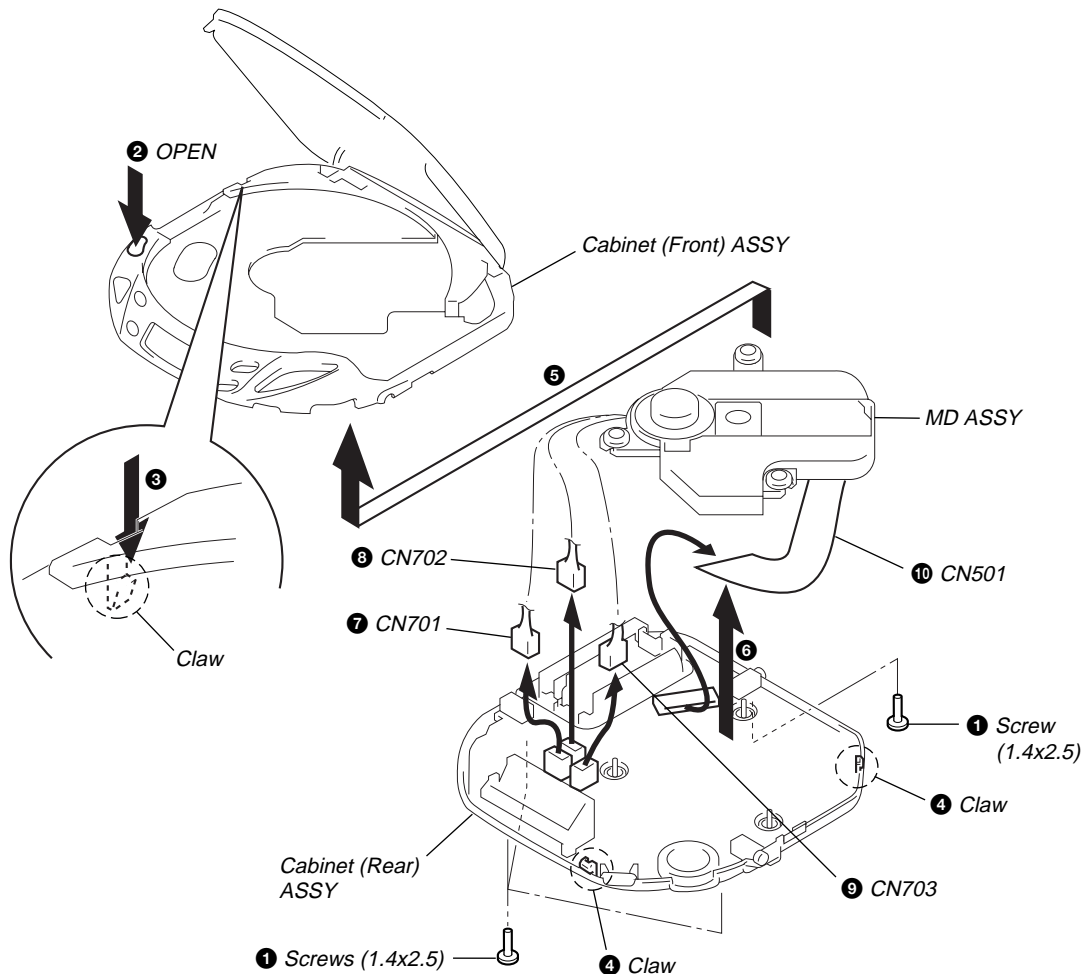


Note : Follow the disassembly procedure in the numerical order given.

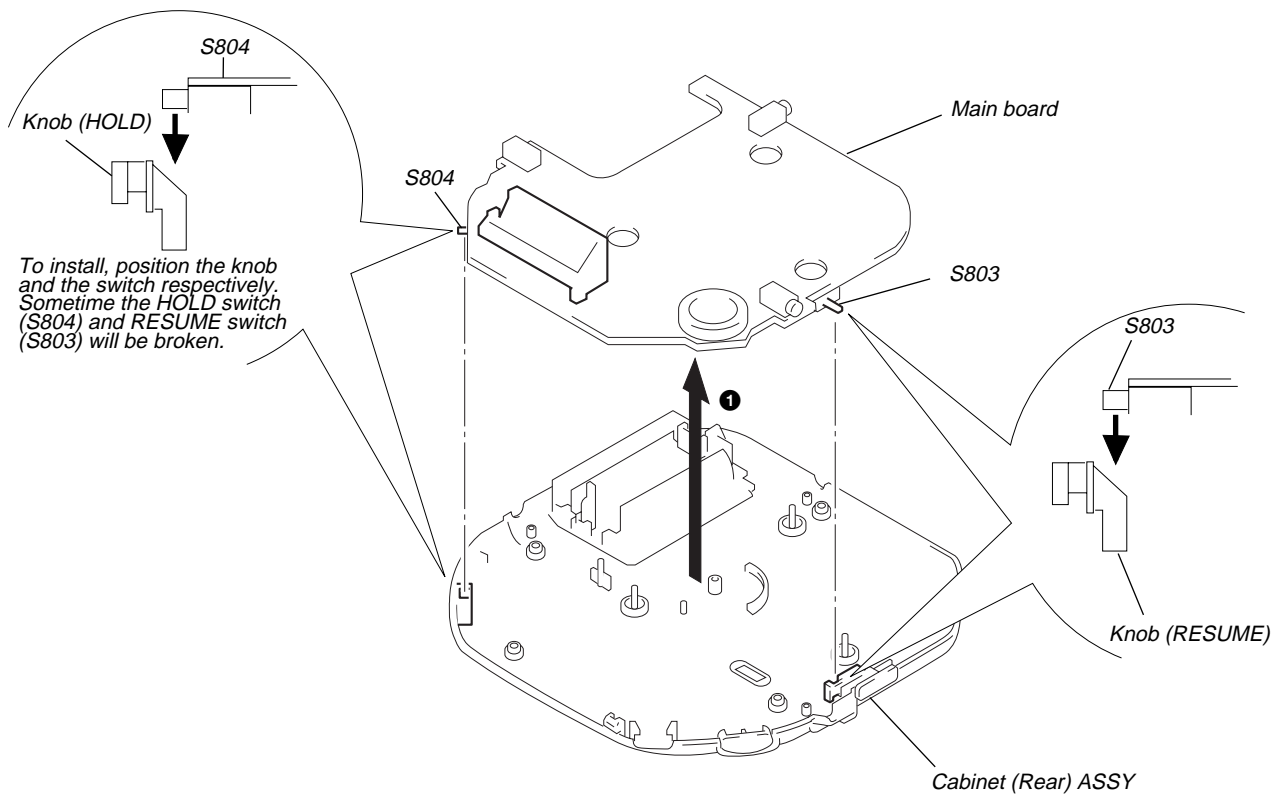
3-1. LID ASSY, UPPER



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



3-3. MAIN BOARD



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.

REPEAT/ENTER

Tracking gain-up mode while pressing

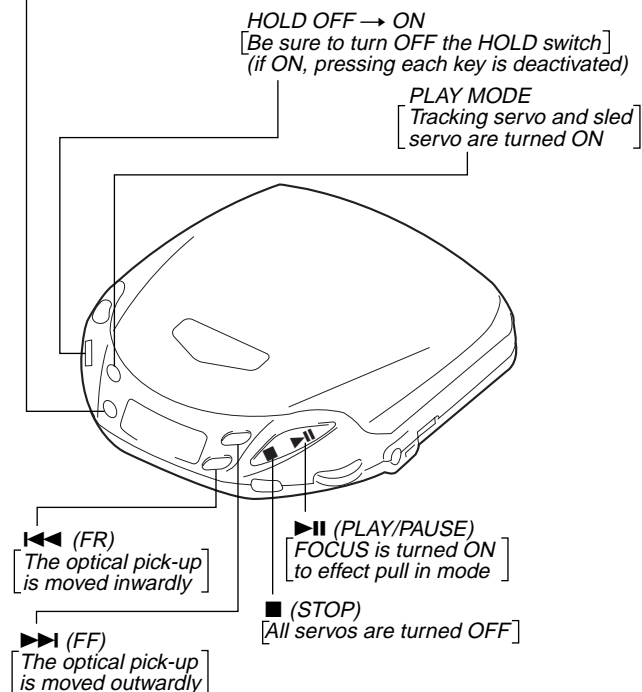


Fig. 3 Layout of each key

• 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 T802 (TEST) terminals (pin ②, 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 – (Side A)

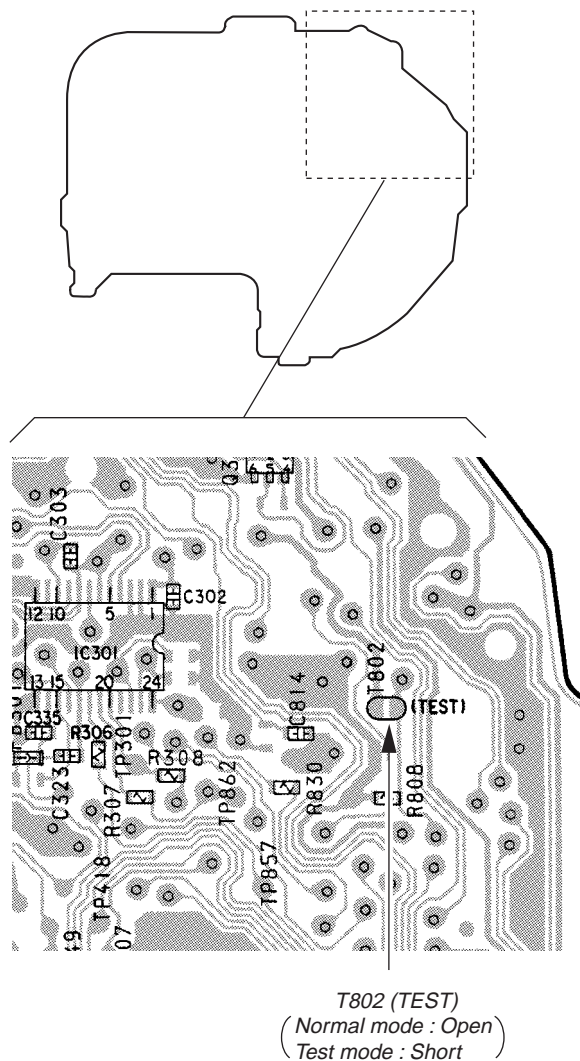


Fig. 4 Location of test terminal

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 raised, 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 –

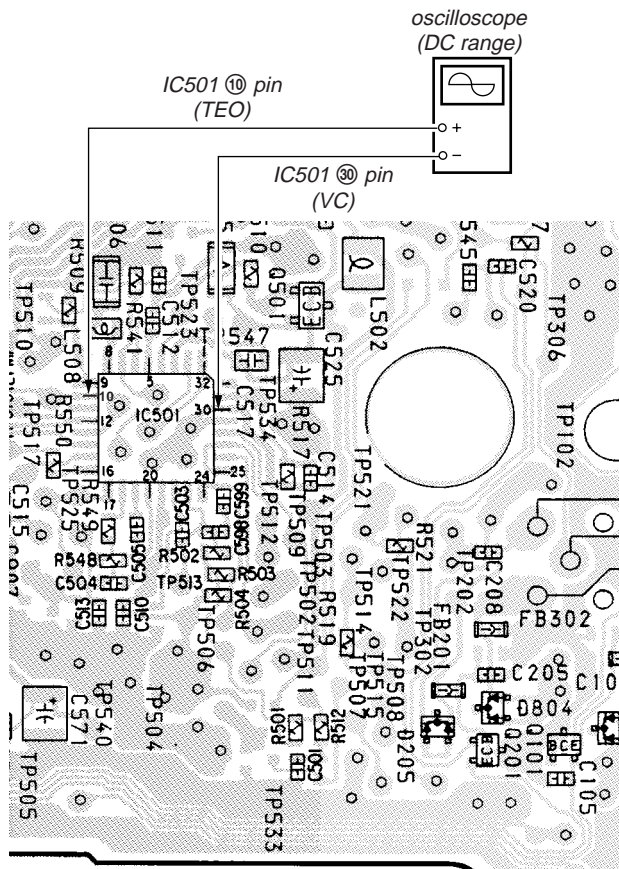
Procedure :

This adjustment is not performed. If focus gain RV503 is turned, set to mechanical center

– Tracking Gain Adjustment –

(perform at normal operation)

[MAIN BOARD] (Side B)



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 ⑩ pin (VC) on the MAIN board.
3. Set the disc (YEDS-18) and Press the ►► (►►) 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 from 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 ►► (►►) or ◀◀ (◀◀) keys and observe the 100 track jump waveform. Check that no traverse waveform appears for both ►► (►►) or ◀◀ (◀◀) 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 no 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 wave appears (large waves).



Fig. 1

- Waveform when fundamental wave disappears (no large waves).



Fig. 2

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



Fig. 3

100 track jump waveform

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

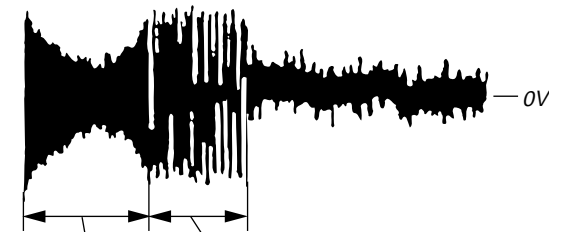
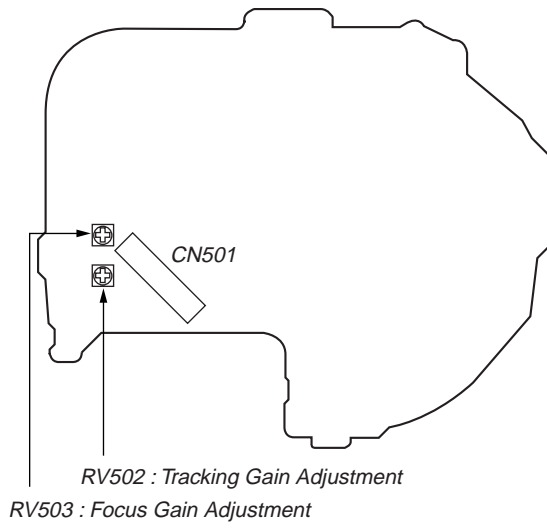


Fig. 4

100 track jump waveform traverse waveform

Adjustment Location :

MAIN BOARD] (Side A)



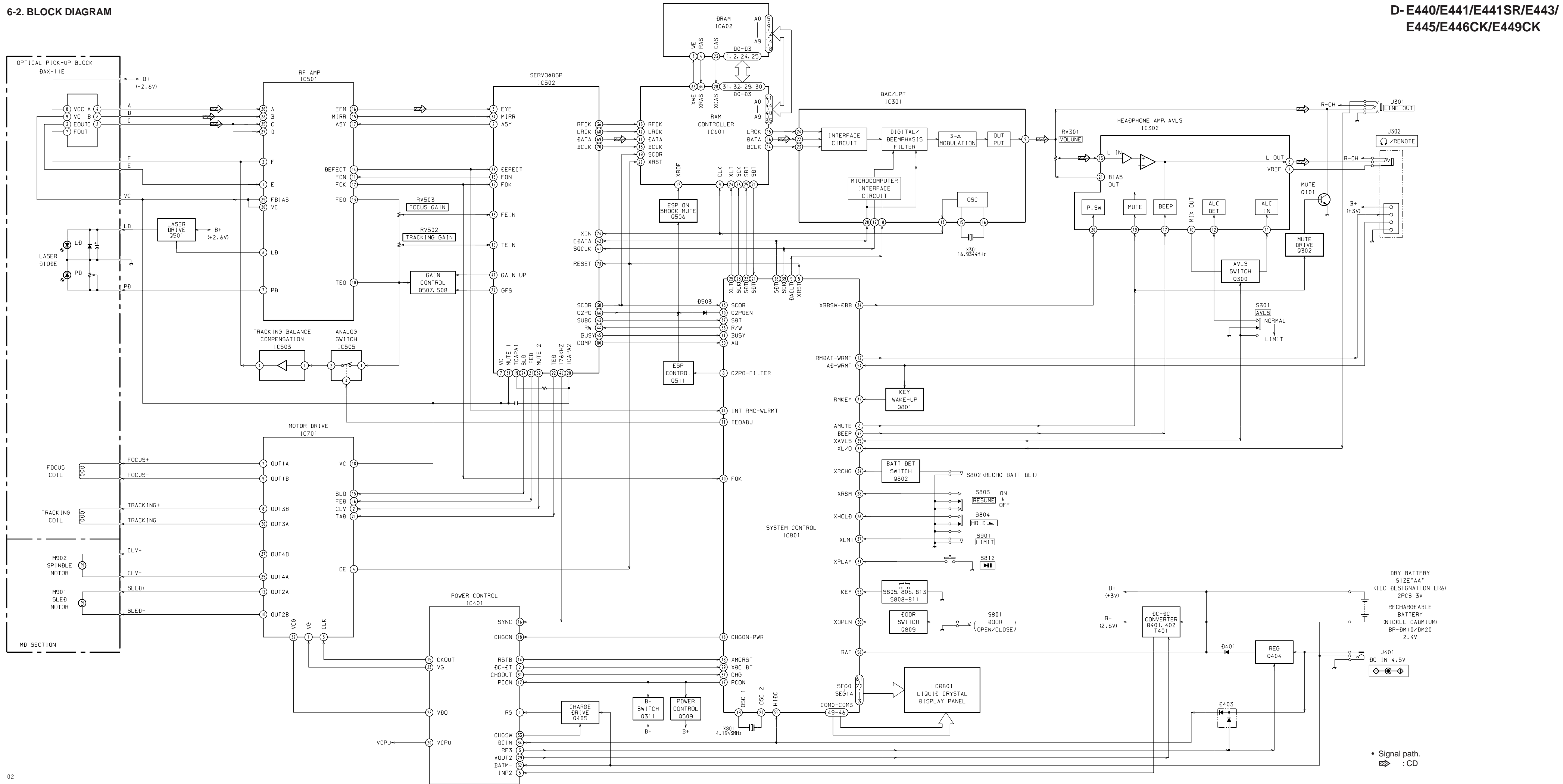
SECTION 6 DIAGRAMS

6-1. EXPLANATION OF IC TERMINALS

IC801 MC68HC05L15SC442718CPB (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	XOE-ESP	O	ESP POWER ON control output.
8	C2PO FILTER	O	C2PO filter 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	TEOAJ – TEO	O	Tracking ADJ switch control output.
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	CHGON – PWR	O	Charge ON/OFF control output.
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	XBBSW – DBB	O	DBB switch control output.
25	XLT–ESP	O	Latch signal output to ESP control (IC601).
26	HOLD–SW	I	Hold switch input terminal. “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) and D/A C (IC301).
39	SCK–DSP	O	Clock signal to enter SUB–Q signal to DSP (IC502) and D/A C (IC301).
40	FOK–RF	I	FOK signal input terminal.
41	BUSY–DSP	I	BUSY signal input terminal from DSP (IC502).
42	BEEP–H/P	O	Beep sound output terminal.
43	INT SCOR–DSP	I	Sub code sync SO+SI input terminal.
44	INT DFCT RF	I	Wireless remote control signal input.
45	VDD (VCPU)	–	Power supply terminal.

Pin No.	Pin name	I/O	Description
46 – 49	COM 3–0	O	LCD common signal output terminal.
50	VREFH	I	Reference voltage input terminal (connect to VDD).
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 terminal for main unit key.
54	AD–WRMT	I	A/D input terminal for remote control key.
55	AD–HI DC	I	A/D input terminal for DC IN voltage detection.
56	AD – BAT	I	Rechargeable battery/dry cell detection input.
57	AD – CHGMNT	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.

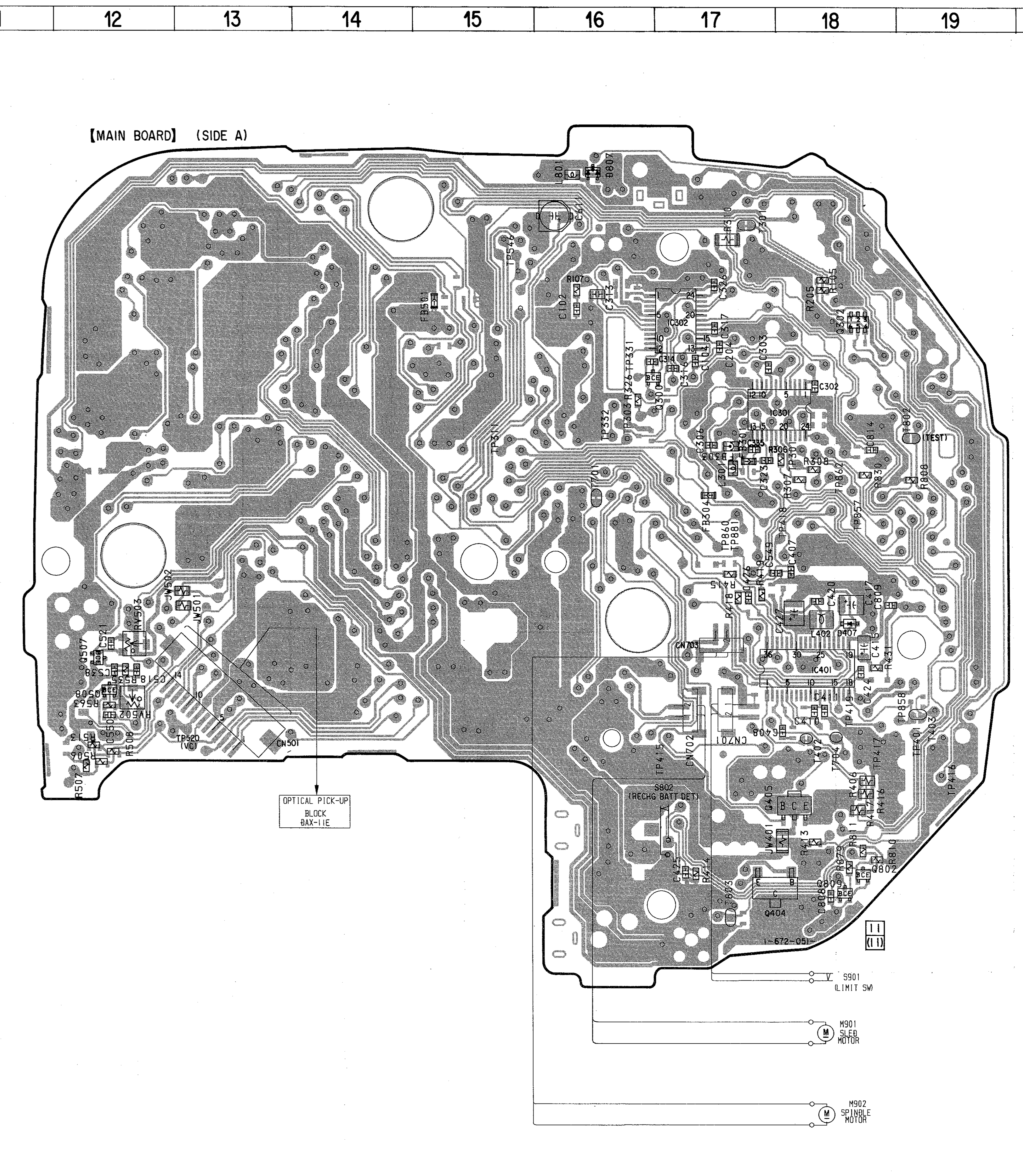
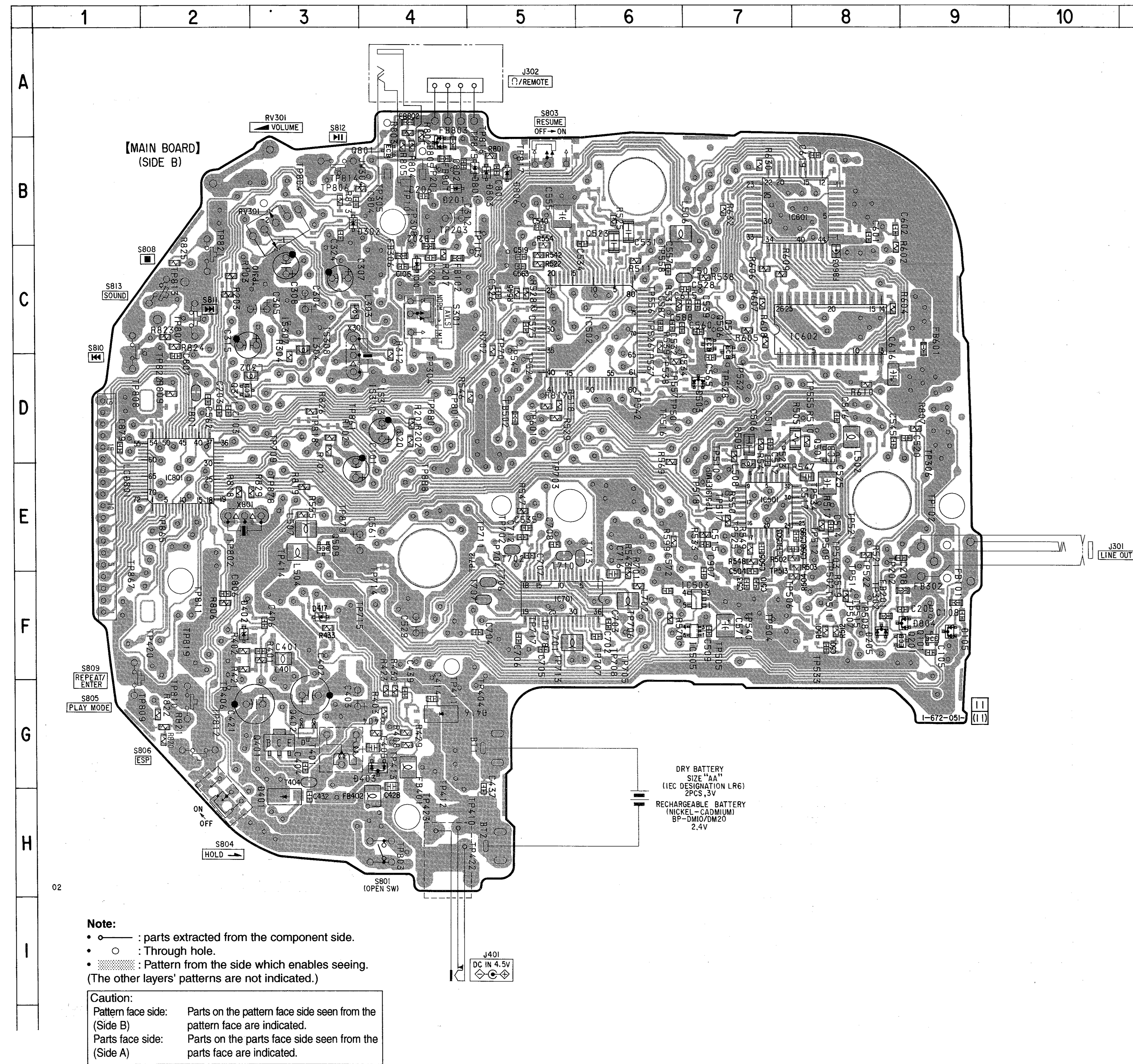


• Signal path.
⇒ : CD

6-3. PRINTED WIRING BOARDS

• Semiconductor Location

Ref. No.	Location
D101	C-4
D105	F-9
D201	B-4
D205	F-8
D302	B-3
D401	H-3
D402	F-2
D403	G-4
D407	E-18
D416	G-4
D417	F-3
D503	D-7
D801	B-5
D803	B-5
D804	F-9
D805	B-4
D806	B-5
D807	B-16
IC301	D-18
IC302	C-17
IC401	F-18
IC501	E-7
IC502	C-6
IC503	F-7
IC505	F-7
IC601	B-8
IC602	C-8
IC701	F-5
IC801	E-2
Q101	F-9
Q201	F-8
Q300	C-16
Q302	C-18
Q311	D-2
Q401	G-3
Q402	G-3
Q404	H-17
Q405	G-18
Q501	D-8
Q506	C-7
Q507	F-12
Q508	F-12
Q509	E-3
Q511	C-7
Q801	B-4
Q802	H-18
Q809	H-18



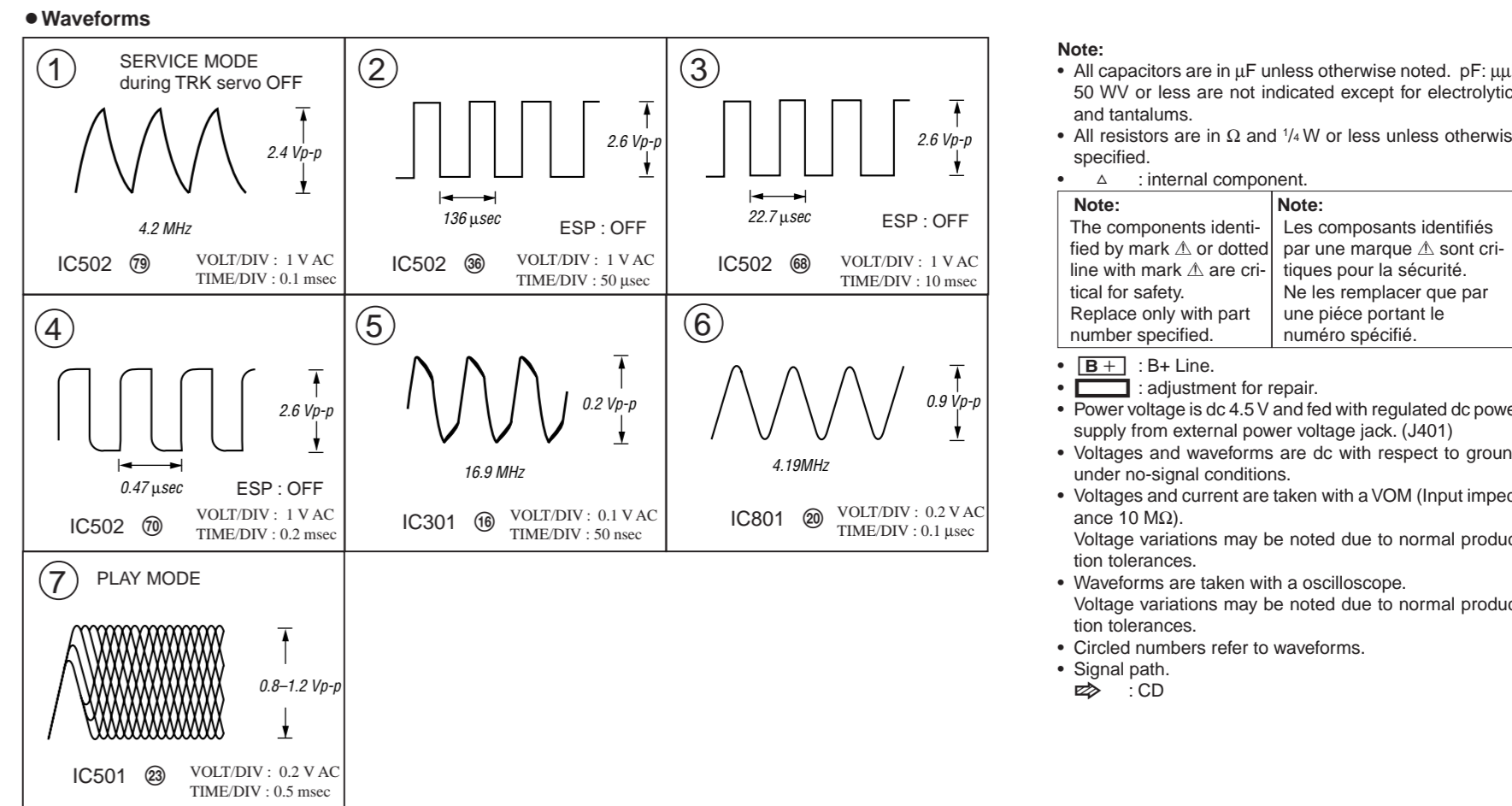
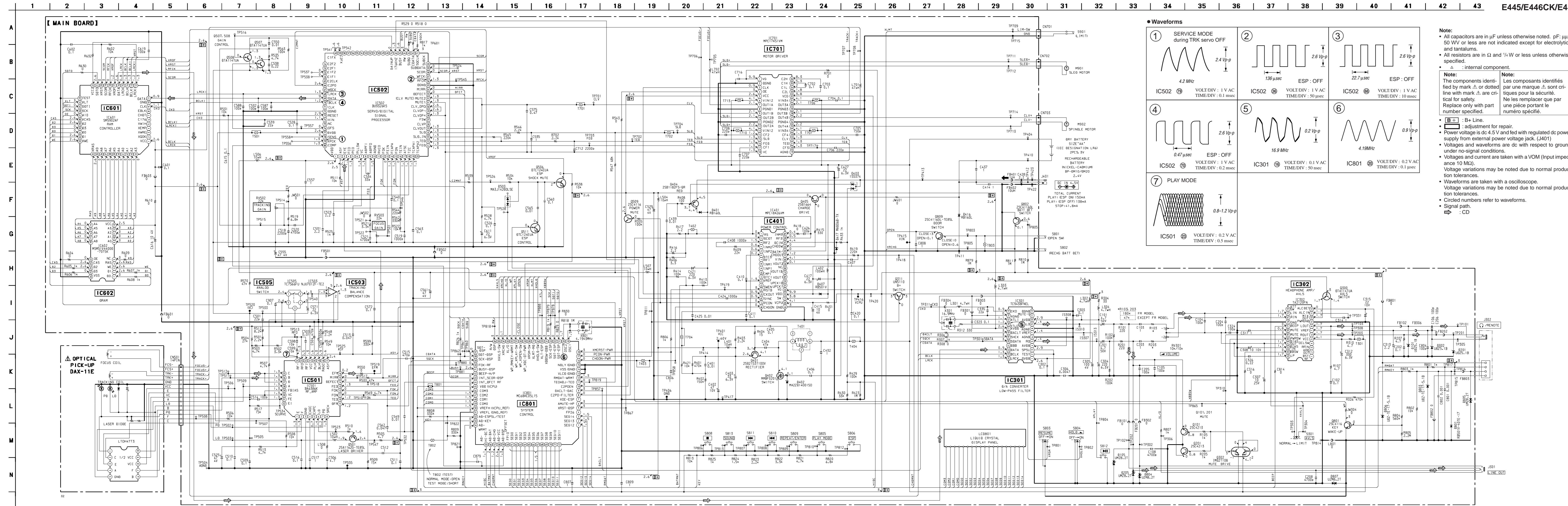
Note:

- : parts extracted from the component side.
- : Through hole.
- : Pattern from the side which enables seeing. (The other layers' patterns are not indicated.)

Caution:

Pattern face side: Parts on the pattern face side seen from the pattern face are indicated.

Parts face side: Parts on the parts face side seen from the parts face are indicated.



Note:

- All capacitors are in μF unless otherwise noted. pF: μF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.
- Δ : internal component.

Note:

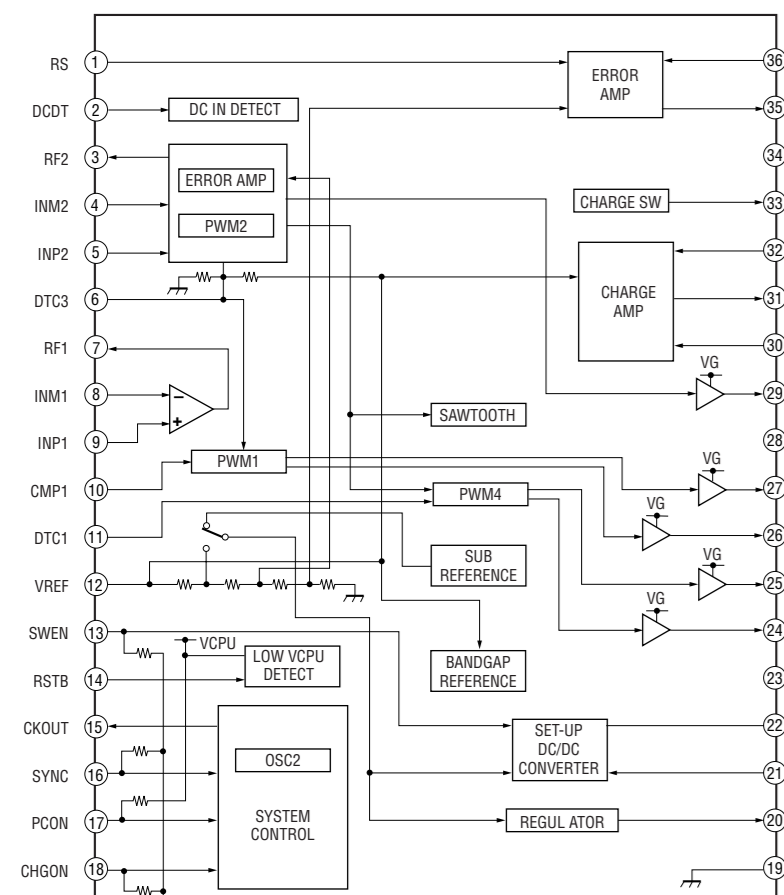
The components identified by mark Δ or dotted line with mark Δ are critical for safety. Replace only with part number specified.

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

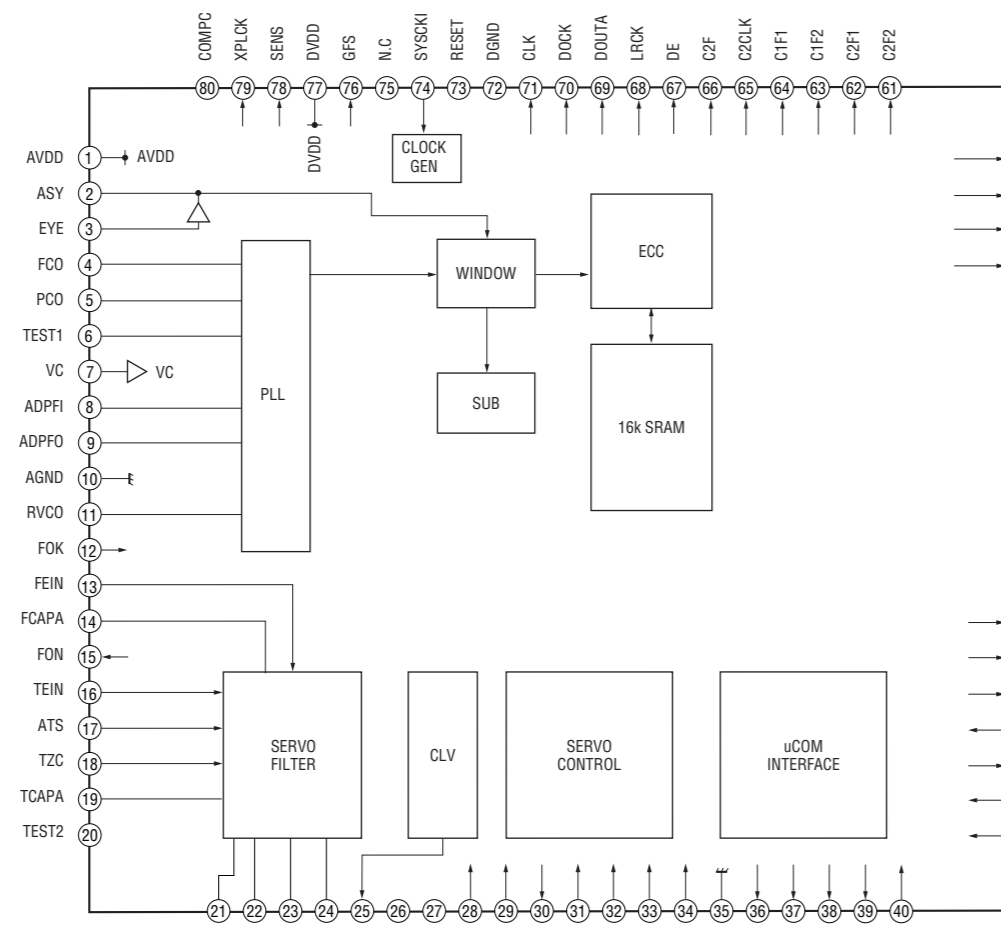
- [B+]: B+ Line.
- []: adjustment for repair.
- Power voltage is dc 4.5 V and fed with regulated dc power supply from external power voltage jack. (J401)
- Voltages and waveforms are dc with respect to ground under no-signal conditions.
- Voltages and current are taken with a VOM (Input impedance 10 MΩ).
- Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with an oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
- ⊞ : CD

● IC Block Diagrams

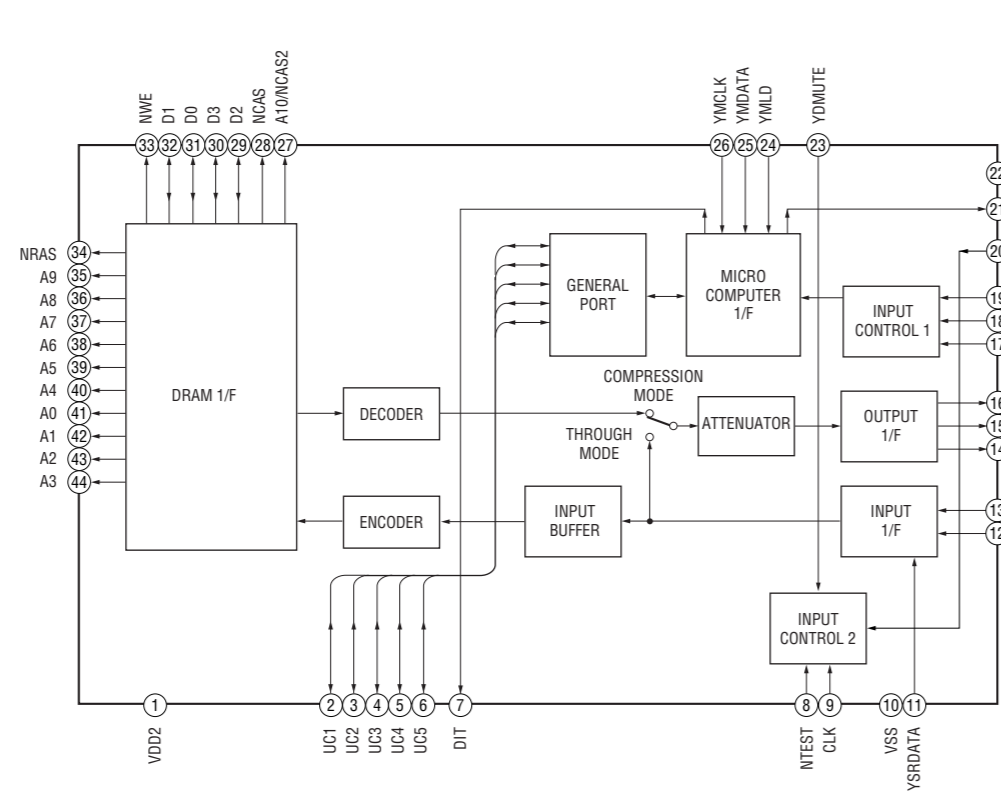
IC401 MPC18A26VMEL



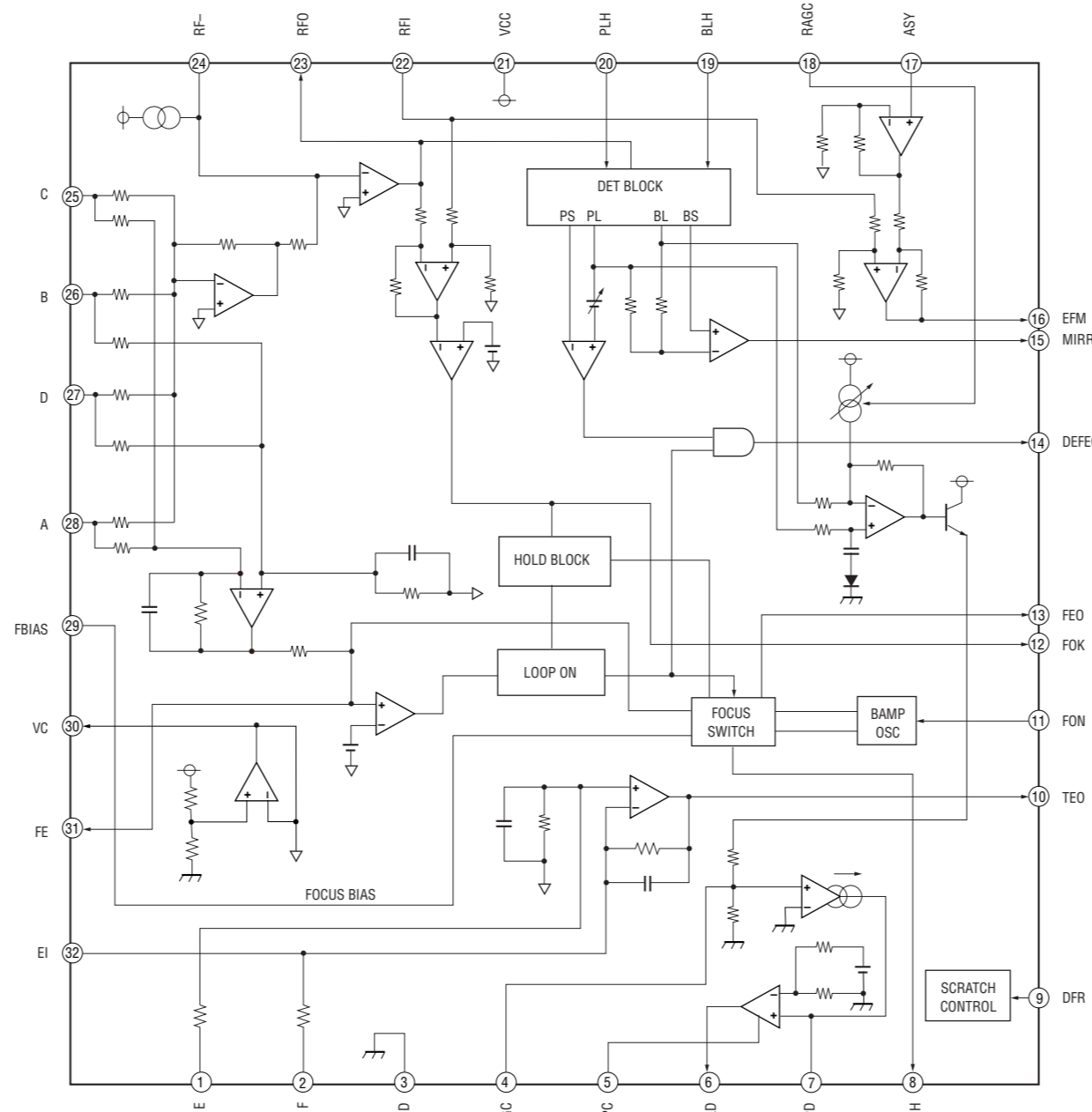
IC502 BU9326KS



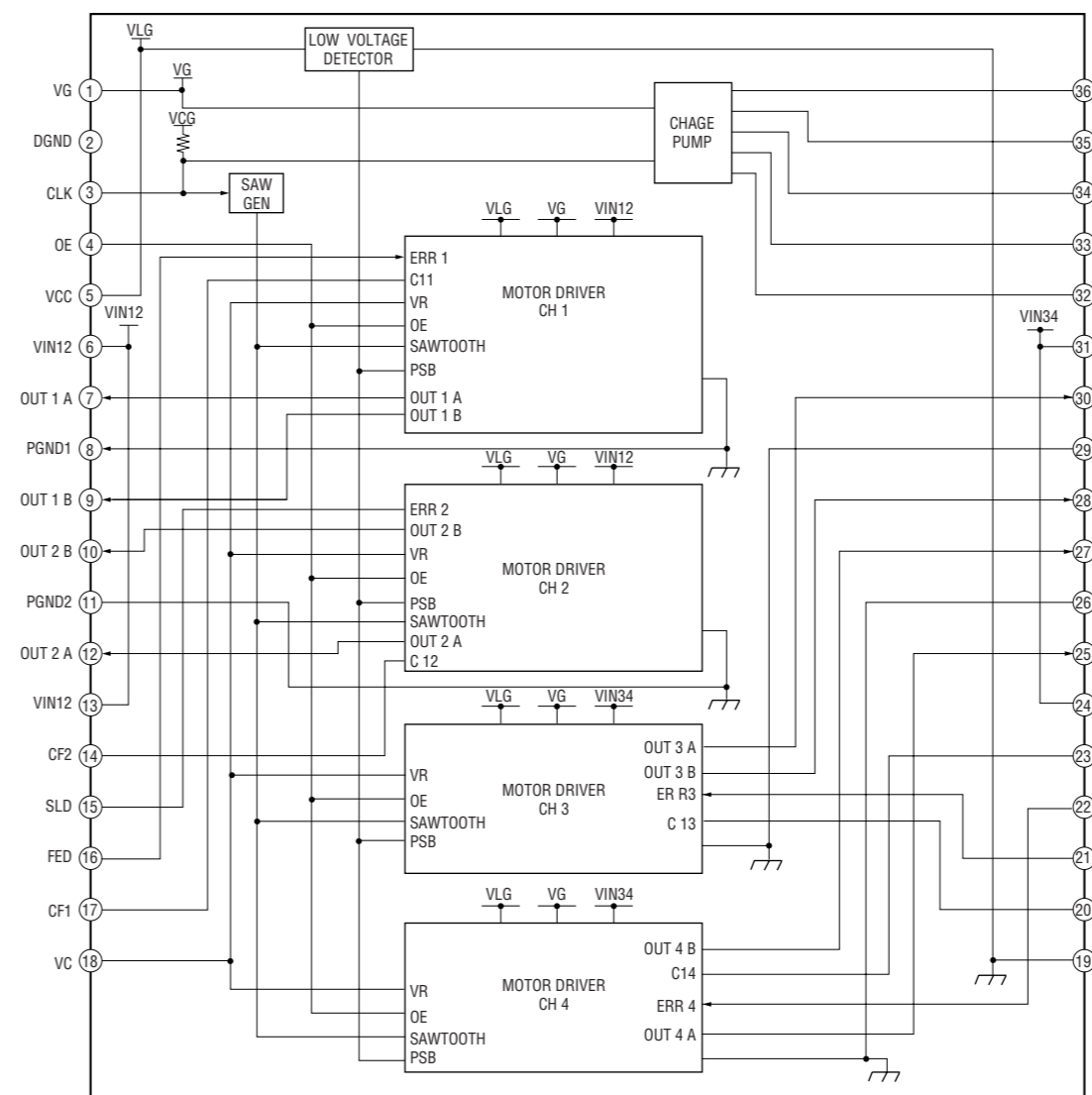
IC601 SM5902BF



IC501 BA6386K



IC701 MPC17A51VMEL



SECTION 7
EXPLODED VIEWS

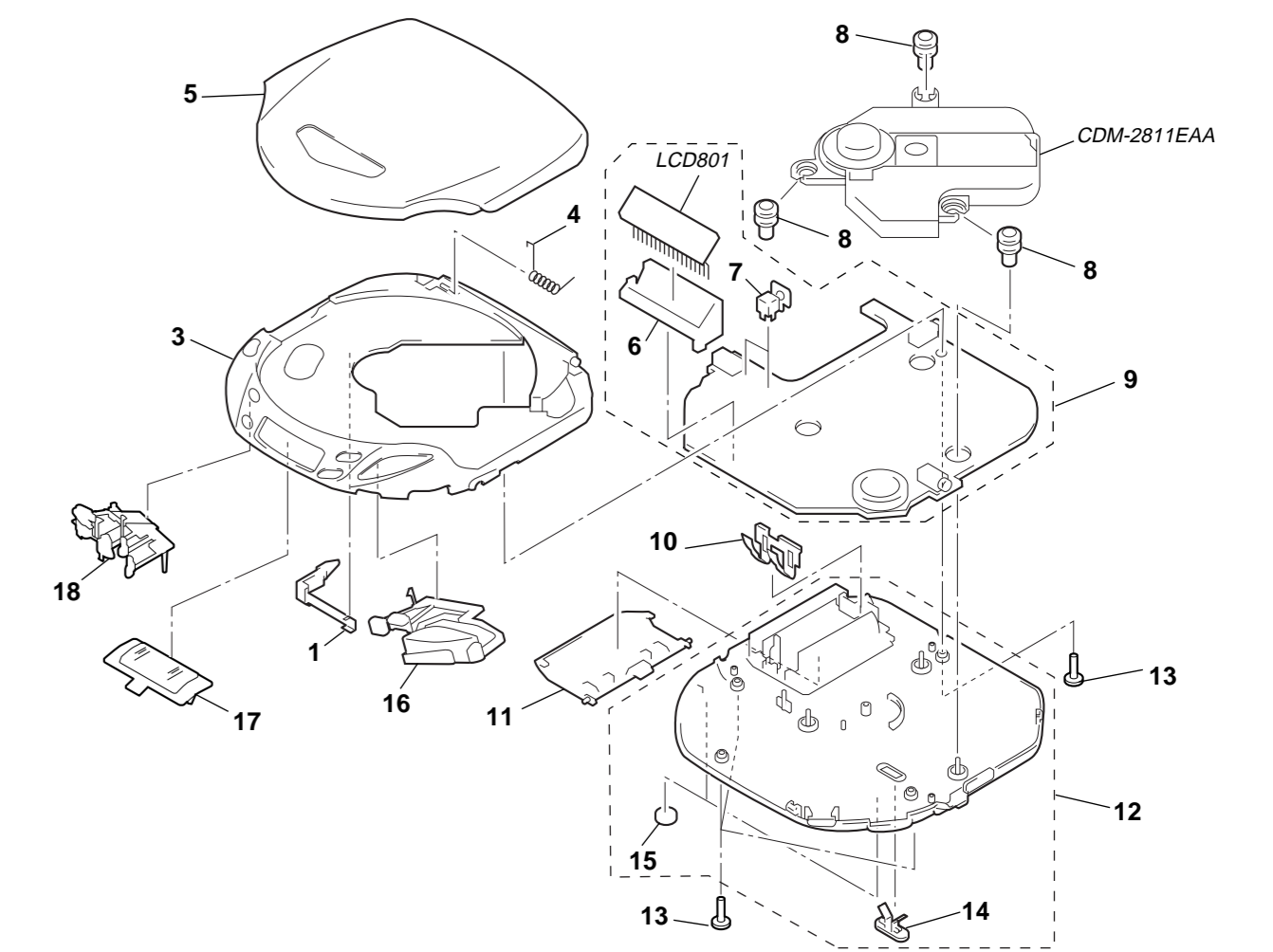
NOTE :

- XX- X mean standardized parts, so they may have some difference from the original one.
- Color indication of Appearance Parts Example : KNOB, BALANCE (WHITE) ● (RED)
- Parts color Cabinet's color
- Items marked " " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Accessories and packing materials are given in the last of this parts list.
- Abbreviation FR : French G : German

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

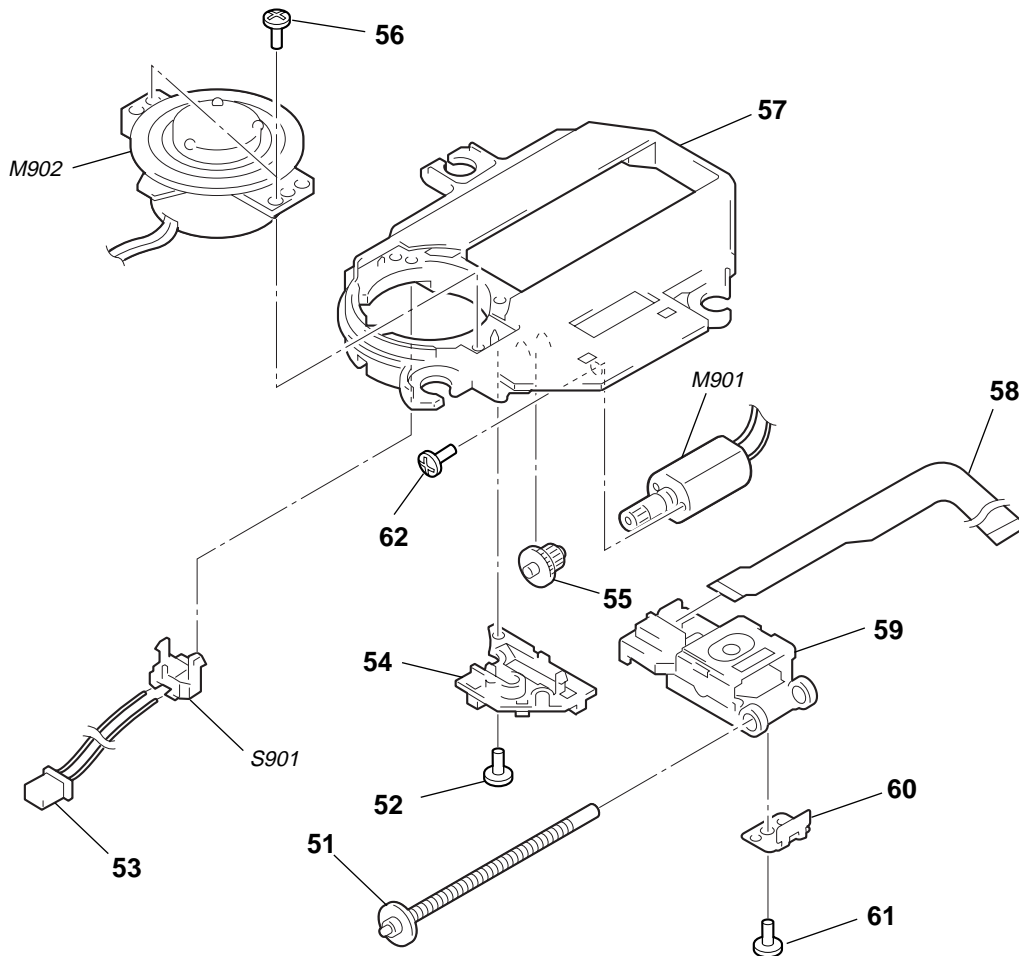
Les composants identifiés par une marque Δ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

7-1. CABINET SECTION



<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Remark</u>	<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Remark</u>
1	X-4950-224-1	DETECTOR ASSY		5	X-4950-797-1	LID ASSY, UPPER(DARK BLUE)(E441)	
3	4-213-871-01	CABINET (FRONT) (BLUE)		5	X-4950-798-1	LID ASSY, UPPER(ORANGE)(E445)	
3	4-213-871-11	CABINET (FRONT) (DARK BLUE)		5	X-4951-159-1	LID ASSY, UPPER(E441SR)	
3	4-213-871-22	CABINET (FRONT) (ORANGE)		6	4-213-876-01	HOLDER (LCD)	
3	4-213-871-31	CABINET (FRONT) (WHITE)		7	4-978-695-01	PLATE,TERMINAL,BATTERY	
3	4-213-871-41	CABINET (FRONT) (SILVER)		8	4-990-219-01	INSULATOR	
4	4-994-981-01	SPRING, TORSION		9	A-3323-101-A	MAIN BOARD,COMPLETE(FR)	
5	X-4950-720-1	LID ASSY, UPPER(SILVER)(E445)		9	A-3323-102-A	MAIN BOARD,COMPLETE(EXCEPT FR)	
5	X-4950-721-1	LID ASSY, UPPER(BLUE)(E445)		10	4-997-109-01	TERMINAL BOARD (RELAY),BATTERY	
5	X-4950-722-1	LID ASSY, UPPER(DARK BLUE)(E445)		11	4-213-873-01	LID,BATTERY CASE	
5	X-4950-723-1	LID ASSY, UPPER(E446CK)		12	X-4950-730-1	CABINET (REAR) SUB ASSY	
5	X-4950-726-1	LID ASSY, UPPER(BLUE)(E443)		13	3-336-395-01	SCREW (B2X10) (G), TAPPING	
5	X-4950-731-1	LID ASSY, UPPER(SILVER)(E440)		14	4-213-879-01	KNOB(AVLS)	
5	X-4950-732-1	LID ASSY, UPPER(BLUE)(E440)		15	4-966-278-01	FOOT, RUBBER	
5	X-4950-733-1	LID ASSY, UPPER(SILVER)(E441)		16	4-213-875-01	BUTTON (OPR)	
5	X-4950-734-1	LID ASSY, UPPER(BLUE)(E441)		17	4-213-877-01	WINDOW (LCD)	
5	X-4950-735-1	LID ASSY, UPPER(ORANGE)(E441)		18	4-213-874-01	BUTTON (OPEN)	
5	X-4950-736-1	LID ASSY, UPPER(WHITE)(E441)		LCD801	1-803-017-11	DISPLAY PANEL, LIQUID CRYSTAL	
5	X-4950-737-1	LID ASSY, UPPER(SILVER)(E443)					
5	X-4950-796-1	LID ASSY, UPPER(E449CK)					

7-2. OPTICAL PICK-UP SECTION



<p>The components identified by mark \triangle or dotted line with mark \triangle are critical for safety. Replace only with part number specified.</p>	<p>Les composants identifiés par une marque \triangle sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.</p>
---	--

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
51	A-3303-970-A	SCREW ASSY,FEED		\triangle 59	X-4950-476-1	OPTICAL PICK-UP (DAX-11E RP)	
52	3-318-203-11	SCREW (B1.7), TAPPING		60	4-972-165-01	RACK	
53	1-690-530-81	LEAD(WITH CONNECTOR)		61	4-973-631-01	SCREW	
54	4-972-163-04	SPRING, SLED		62	7-627-850-17	SCREW,PRECISION +P 1.4X2.5	
55	4-974-003-01	GEAR(B)		M901	A-3303-403-A	MOTOR ASSY, SLED (SLED)	(INCLUDING GEAR)
56	3-719-401-11	SCREW (B1.7), TAPPING		M902	A-3304-989-A	MOTOR ASSY,TURNTABLE (SPINDLE)	
* 57	4-984-320-01	CHASSIS		S901	1-571-099-21	SWITCH (1 KEY)(LIMIT)	
58	1-660-965-11	PC BOARD, SLIDE FLEXIBLE					

SECTION 8 ELECTRICAL PARTS LIST

MAIN

NOTE :

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
All resistors are in ohms
METAL : Metal-film resistor
METAL OXIDE :Metal oxide-film resistor
F : nonflammable
- Items marked “ * ”are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

- SEMICONDUCTORS
In each case, u : μ , for example :
uA.... : μ A.... , uPA.... : μ PA....
uPB.... : μ PB.... , uPC.... : μ PC....
uPD.... : μ PD....
- CAPACITORS
uF : μ F
- COILS
uH : μ H
- Abbreviation
AR : Argentine G : German
AUS : Australian CND : Canadian
FR : French HK : Hong Kong
EA : Saudi Arabia CN : Chinese
EE : East European
AEP : Manual of English is attached
7AEP : Manual of 9 language is attached
C&SA : Central and South America
E13 : AC220-230V area model
E33 : AC100-240V area model

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.

When indicating parts by reference number, please include the board.

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
	A-3323-101-A	MAIN BOARD, COMPLETE (FR) *****		C335	1-162-919-11	CERAMIC CHIP 22PF	5% 50V
	A-3323-102-A	MAIN BOARD, COMPLETE (EXCEPT FR) *****		C401	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V
	4-213-876-01	HOLDER(LCD)		C402	1-126-785-11	ELECT 47uF	20% 10V
	4-978-695-01	PLATE, TERMINAL, BATTERY		C403	1-127-485-00	ELECT 33uF	20% 6.3V
		< CAPACITOR >		C404	1-162-923-11	CERAMIC CHIP 47PF	5% 50V
C101	1-126-794-11	ELECT 4.7uF	20% 50V	C405	1-164-004-11	CERAMIC CHIP 0.1uF	10% 25V
C102	1-164-360-11	CERAMIC CHIP 0.1uF	16V	C406	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C103	1-115-156-11	CERAMIC CHIP 1uF	10V	C407	1-115-156-11	CERAMIC CHIP 1uF	10V
C104	1-162-953-11	CERAMIC CHIP 100PF	5% 50V	C408	1-162-964-11	CERAMIC CHIP 0.001uF	10% 50V
C105	1-162-953-11	CERAMIC CHIP 100PF	5% 50V	C410	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C106	1-162-927-11	CERAMIC CHIP 100PF	5% 50V	C411	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C108	1-162-968-11	CERAMIC CHIP 0.0047uF	10% 50V	C414	1-115-156-11	CERAMIC CHIP 1uF	10V
C201	1-126-794-11	ELECT 4.7uF	20% 50V	C415	1-135-201-11	TANTALUM CHIP 10uF	20% 4V
C202	1-164-360-11	CERAMIC CHIP 0.1uF	16V	C417	1-104-852-11	TANTAL. CHIP 22uF	20% 6.3V
C203	1-115-156-11	CERAMIC CHIP 1uF	10V	C420	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C204	1-162-953-11	CERAMIC CHIP 100PF	5% 50V	C421	1-124-635-00	ELECT 220uF	20% 6.3V
C205	1-162-953-11	CERAMIC CHIP 100PF	5% 50V	C424	1-162-964-11	CERAMIC CHIP 0.001uF	10% 50V
C206	1-162-927-11	CERAMIC CHIP 100PF	5% 50V	C425	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V
C208	1-162-968-11	CERAMIC CHIP 0.0047uF	10% 50V	C426	1-162-953-11	CERAMIC CHIP 100PF	5% 50V
C302	1-164-360-11	CERAMIC CHIP 0.1uF	16V	C427	1-104-852-11	TANTAL. CHIP 22uF	20% 6.3V
C303	1-164-360-11	CERAMIC CHIP 0.1uF	16V	C428	1-164-505-11	CERAMIC CHIP 2.2uF	16V
C304	1-124-635-00	ELECT 220uF	20% 6.3V	C432	1-115-156-11	CERAMIC CHIP 1uF	10V
C305	1-124-584-00	ELECT 100uF	20% 10V	C437	1-115-156-11	CERAMIC CHIP 1uF	10V
C306	1-162-968-11	CERAMIC CHIP 0.0047uF	10% 50V	C439	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V
C307	1-126-795-11	ELECT 10uF	20% 25V	C501	1-162-919-11	CERAMIC CHIP 22PF	5% 50V
C308	1-126-795-11	ELECT 10uF	20% 25V	C503	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V
C312	1-128-057-11	ELECT 330uF	20% 6.3V	C504	1-162-962-11	CERAMIC CHIP 470PF	10% 50V
C313	1-164-505-11	CERAMIC CHIP 2.2uF	16V	C505	1-162-967-11	CERAMIC CHIP 0.0033uF	10% 50V
C314	1-115-156-11	CERAMIC CHIP 1uF	10V	C506	1-164-506-11	CERAMIC CHIP 4.7uF	16V
C315	1-126-514-11	ELECT 22uF	20% 10V	C509	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C316	1-216-864-11	METAL CHIP 0	5% 1/16W	C510	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C317	1-115-156-11	CERAMIC CHIP 1uF	10V	C511	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C323	1-164-360-11	CERAMIC CHIP 0.1uF	16V	C512	1-115-156-11	CERAMIC CHIP 1uF	10V
C324	1-162-953-11	CERAMIC CHIP 100PF	5% 50V	C513	1-165-176-11	CERAMIC CHIP 0.047uF	10% 16V
C326	1-115-467-11	CERAMIC CHIP 0.22uF	10% 10V	C514	1-162-953-11	CERAMIC CHIP 100PF	5% 50V
				C515	1-162-962-11	CERAMIC CHIP 470PF	10% 50V
				C516	1-164-360-11	CERAMIC CHIP 0.1uF	16V
				C517	1-109-982-11	CERAMIC CHIP 1uF	10% 10V
				C518	1-162-966-11	CERAMIC CHIP 0.0022uF	10% 50V
				C519	1-162-964-11	CERAMIC CHIP 0.001uF	10% 50V

MAIN

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
C520	1-162-968-11	CERAMIC CHIP	0.0047uF 10%	50V	CN701	1-695-320-51	PIN, CONNECTOR (1.5MM)(SMD) 2P
C521	1-162-968-11	CERAMIC CHIP	0.0047uF 10%	50V	CN702	1-695-320-31	PIN, CONNECTOR (1.5MM)(SMD) 2P
C523	1-115-565-11	CERAMIC CHIP	2.2uF 10%	10V	CN703	1-695-320-21	PIN, CONNECTOR (1.5MM)(SMD) 2P
C525	1-104-908-11	TANTAL. CHIP	47uF 20%	4V			
C526	1-164-360-11	CERAMIC CHIP	0.1uF	16V		< DIODE >	
C528	1-164-360-11	CERAMIC CHIP	0.1uF	16V	D101	8-719-069-54	DIODE UDZS-TE17-5.1B
C529	1-126-513-11	ELECT	47uF 20%	4V	D105	8-719-039-99	DIODE UMZ8.2T
C531	1-115-565-11	CERAMIC CHIP	2.2uF 10%	10V	D201	8-719-069-54	DIODE UDZS-TE17-5.1B
C532	1-162-953-11	CERAMIC CHIP	100PF 5%	50V	D205	8-719-039-99	DIODE UMZ8.2T
C534	1-162-921-11	CERAMIC CHIP	33PF 5%	50V	D302	8-719-069-54	DIODE UDZS-TE17-5.1B
C535	1-115-156-11	CERAMIC CHIP	1uF	10V	D401	8-719-048-98	DIODE RB160L-40TE25
C538	1-165-128-11	CERAMIC CHIP	0.22uF	16V	D402	8-719-072-70	DIODE MA2ZD14001S0
C539	1-162-919-11	CERAMIC CHIP	22PF 5%	50V	D403	8-719-049-10	DIODE 1SS374-TE85L
C540	1-107-826-91	CERAMIC CHIP	0.1uF 10%	16V	D407	8-719-058-24	DIODE RB501V-40TE-17
C549	1-162-970-11	CERAMIC CHIP	0.01uF 10%	25V	D416	8-719-048-98	DIODE RB160L-40TE25
C550	1-162-974-11	CERAMIC CHIP	0.01uF	50V	D417	8-719-017-58	DIODE MA8068
C555	1-104-908-11	TANTAL. CHIP	47uF 20%	4V	D503	8-719-059-50	DIODE MA3J142D0LSO
C557	1-115-156-11	CERAMIC CHIP	1uF	10V	D801	8-719-058-24	DIODE RB501V-40TE-17
C560	1-107-826-91	CERAMIC CHIP	0.1uF 10%	16V	D803	8-719-069-54	DIODE UDZS-TE17-5.1B
C561	1-126-513-11	ELECT	47uF 20%	4V	D804	8-719-039-99	DIODE UMZ8.2T
C562	1-165-176-11	CERAMIC CHIP	0.047uF 10%	16V	D805	8-719-039-99	DIODE UMZ8.2T
C563	1-107-826-91	CERAMIC CHIP	0.1uF 10%	16V	D806	8-719-069-54	DIODE UDZS-TE17-5.1B
C565	1-162-970-11	CERAMIC CHIP	0.01uF 10%	25V	D807	8-719-039-99	DIODE UMZ8.2T
C571	1-104-852-11	TANTAL. CHIP	22uF 20%	6.3V		< FERRITE BEAD >	
C572	1-164-360-11	CERAMIC CHIP	0.1uF	16V			
C575	1-113-619-11	CERAMIC CHIP	0.47uF	10V	FB101	1-414-595-11	INDUCTOR CHIP
C587	1-162-953-11	CERAMIC CHIP	100PF 5%	50V	FB102	1-414-595-11	INDUCTOR CHIP
C588	1-162-953-11	CERAMIC CHIP	100PF 5%	50V	FB201	1-414-595-11	INDUCTOR CHIP
C598	1-162-915-11	CERAMIC CHIP	10PF 0.5PF	50V	FB202	1-414-595-11	INDUCTOR CHIP
C599	1-162-915-11	CERAMIC CHIP	10PF 0.5PF	50V	FB301	1-414-595-11	INDUCTOR CHIP
C601	1-164-360-11	CERAMIC CHIP	0.1uF	16V	FB302	1-414-595-11	INDUCTOR CHIP
C602	1-164-360-11	CERAMIC CHIP	0.1uF	16V	FB303	1-216-295-00	METAL CHIP 0 5% 1/10W
C611	1-124-778-00	ELECT CHIP	22uF 20%	6.3V	FB304	1-414-595-11	INDUCTOR CHIP
C615	1-164-360-11	CERAMIC CHIP	0.1uF	16V	FB306	1-414-595-11	INDUCTOR CHIP
C616	1-135-201-11	TANTALUM CHIP	10uF 20%	4V	FB401	1-412-026-11	INDUCTOR CHIP 1uH
C619	1-162-927-11	CERAMIC CHIP	100PF 5%	50V	FB402	1-414-398-11	INDUCTOR 10uH
C702	1-107-826-91	CERAMIC CHIP	0.1uF 10%	16V	FB501	1-414-595-11	INDUCTOR CHIP
C703	1-107-826-91	CERAMIC CHIP	0.1uF 10%	16V	FB502	1-414-595-11	INDUCTOR CHIP
C704	1-164-360-11	CERAMIC CHIP	0.1uF	16V	FB601	1-414-595-11	INDUCTOR CHIP
C705	1-162-955-11	CERAMIC CHIP	150PF 5%	50V	FB603	1-216-295-00	METAL CHIP 0 5% 1/10W
C706	1-162-957-11	CERAMIC CHIP	220PF 5%	50V	FB801	1-414-595-11	INDUCTOR CHIP
C707	1-162-957-11	CERAMIC CHIP	220PF 5%	50V	FB802	1-216-864-11	METAL CHIP 0 5% 1/16W
C708	1-162-957-11	CERAMIC CHIP	220PF 5%	50V	FB803	1-414-595-11	INDUCTOR CHIP
C712	1-162-966-11	CERAMIC CHIP	0.0022uF 10%	50V		< IC >	
C716	1-164-346-11	CERAMIC CHIP	1uF	16V			
C801	1-162-964-11	CERAMIC CHIP	0.001uF 10%	50V	IC301	8-759-483-60	IC TC9438FNEL
C802	1-162-964-11	CERAMIC CHIP	0.001uF 10%	50V	IC302	8-759-522-87	IC TA2120FN(EL)
C804	1-162-927-11	CERAMIC CHIP	100PF 5%	50V	IC401	8-759-483-61	IC MPC18A26VMEL
C806	1-115-156-11	CERAMIC CHIP	1uF	10V	IC501	8-759-432-83	IC BA6386K
C807	1-115-156-11	CERAMIC CHIP	1uF	10V	IC502	8-759-563-54	IC BU9326KS
C808	1-115-156-11	CERAMIC CHIP	1uF	10V	IC503	8-759-528-79	IC NJU7012F-TE2
C809	1-115-156-11	CERAMIC CHIP	1uF	10V	IC505	8-759-082-60	IC TC7S66FU
C814	1-216-864-11	METAL CHIP	0 5%	1/16W	IC601	8-759-581-80	IC SM5902BF
C879	1-115-156-11	CERAMIC CHIP	1uF	10V	IC602	8-759-498-44	IC MSM51V4400D-70TSK
C907	1-164-360-11	CERAMIC CHIP	0.1uF	16V	IC701	8-759-483-62	IC MPC17A51VMEL
		< CONNECTOR >			IC801	8-759-575-14	IC MC68HC05L15SC442718CPB
CN501	1-566-530-11	CONNECTOR, FPC (ZIF) 14P					

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
		< JACK >		R103	1-218-901-11	RES,CHIP 180K	0.50% 1/16W (FR)
J301	1-778-696-11	JACK(LINE OUT)		R105	1-216-821-11	METAL CHIP 1K	5% 1/16W
J302	1-580-680-11	JACK(☺/REMOTE)		R107	1-216-793-11	RES,CHIP 4.7	5% 1/16W
J401	1-778-153-21	JACK,DC(POLARITY UNIFIED TYPE)	(DC IN 4.5V)	R201	1-216-813-11	METAL CHIP 220	5% 1/16W
		< JUMPER RESISTOR >		R202	1-216-845-11	METAL CHIP 100K	5% 1/16W
JW304	1-216-864-11	METAL CHIP 0	5% 1/16W	R203	1-216-841-11	METAL CHIP 47K	5% 1/16W (EXCEPT FR)
JW401	1-216-296-00	METAL CHIP 0	5% 1/10W	R203	1-218-901-11	RES,CHIP 180K	0.50% 1/16W (FR)
JW501	1-216-295-00	METAL CHIP 0	5% 1/10W	R205	1-216-821-11	METAL CHIP 1K	5% 1/16W
JW502	1-216-295-00	METAL CHIP 0	5% 1/10W	R207	1-216-793-11	RES,CHIP 4.7	5% 1/16W
		< COIL >		R304	1-216-803-11	METAL CHIP 33	5% 1/16W
L301	1-469-034-11	INDUCTOR 4.7uH		R306	1-216-864-11	METAL CHIP 0	5% 1/16W
L302	1-414-821-11	INDUCTOR 4.7uH		R307	1-216-821-11	METAL CHIP 1K	5% 1/16W
L303	1-414-821-11	INDUCTOR 4.7uH		R308	1-216-864-11	METAL CHIP 0	5% 1/16W
L304	1-414-821-11	INDUCTOR 4.7uH		R310	1-216-142-00	RES,CHIP 4.7	5% 1/8W
L401	1-414-267-11	INDUCTOR 10uH		R312	1-216-815-11	METAL CHIP 330	5% 1/16W
L402	1-414-404-11	INDUCTOR 100uH		R326	1-216-853-11	METAL CHIP 470K	5% 1/16W
L402	1-414-404-11	INDUCTOR 100uH		R401	1-218-911-11	RES,CHIP 470K	0.50% 1/16W
L502	1-414-267-11	INDUCTOR 10uH		R402	1-218-899-11	RES,CHIP 150K	0.50% 1/16W
L504	1-414-267-11	INDUCTOR 10uH		R403	1-216-825-11	METAL CHIP 2.2K	5% 1/16W
L506	1-414-267-11	INDUCTOR 10uH		R404	1-216-799-11	METAL CHIP 15	5% 1/16W
L506	1-414-267-11	INDUCTOR 10uH		R406	1-216-304-11	METAL CHIP 3.3	5% 1/10W
L507	1-414-267-11	INDUCTOR 10uH		R408	1-216-809-11	METAL CHIP 100	5% 1/16W
L508	1-216-295-00	METAL CHIP 0	5% 1/10W	R409	1-216-837-11	METAL CHIP 22K	5% 1/16W
L701	1-414-402-11	INDUCTOR 47uH		R413	1-216-845-11	METAL CHIP 100K	5% 1/16W
L702	1-414-402-11	INDUCTOR 47uH		R414	1-216-845-11	METAL CHIP 100K	5% 1/16W
L801	1-414-916-11	FERRITE		R415	1-216-815-11	METAL CHIP 330	5% 1/16W
		< LIQUID CRYSTAL DISPLAY >		R416	1-216-298-00	METAL CHIP 2.2	5% 1/10W
LCD801	1-803-017-11	DISPLAY PANEL, LIQUID CRYSTAL		R417	1-216-298-00	METAL CHIP 2.2	5% 1/10W
		< TRANSISTOR >		R418	1-216-864-11	METAL CHIP 0	5% 1/16W
Q101	8-729-209-06	TRANSISTOR 2SC4213-A		R419	1-216-849-11	METAL CHIP 220K	5% 1/16W
Q201	8-729-209-06	TRANSISTOR 2SC4213-A		R421	1-216-833-11	METAL CHIP 10K	5% 1/16W
Q300	8-729-028-74	TRANSISTOR DTA114TUA-T106		R423	1-216-857-11	METAL CHIP 1M	5% 1/16W
Q302	8-729-907-39	TRANSISTOR IMD2		R429	1-218-895-11	RES,CHIP 100K	0.50% 1/16W
Q311	8-729-422-51	TRANSISTOR UN5110-QRS		R430	1-218-883-11	RES,CHIP 33K	0.50% 1/16W
Q401	8-729-044-09	TRANSISTOR 2SD2153T100V		R431	1-216-864-11	METAL CHIP 0	5% 1/16W
Q402	8-729-044-10	TRANSISTOR MMBF0201NLT1		R433	1-216-821-11	METAL CHIP 1K	5% 1/16W
Q404	8-729-921-93	TRANSISTOR 2SB1182F5-QR		R501	1-216-825-11	METAL CHIP 2.2K	5% 1/16W
Q405	8-729-920-85	TRANSISTOR 2SD1664-QR		R502	1-216-827-11	METAL CHIP 3.3K	5% 1/16W
Q501	8-729-216-22	TRANSISTOR 2SA1162-G		R503	1-216-829-11	METAL CHIP 4.7K	5% 1/16W
Q506	8-729-029-06	TRANSISTOR DTC124EUA-T106		R504	1-216-839-11	METAL CHIP 33K	5% 1/16W
Q507	8-729-028-74	TRANSISTOR DTA114TUA-T106		R505	1-216-142-00	RES,CHIP 4.7	5% 1/8W
Q508	8-729-028-74	TRANSISTOR DTA114TUA-T106		R506	1-216-833-11	METAL CHIP 10K	5% 1/16W
Q509	8-729-230-63	TRANSISTOR 2SC4116-YG		R507	1-216-829-11	METAL CHIP 4.7K	5% 1/16W
Q511	8-729-029-06	TRANSISTOR DTC124EUA-T106		R508	1-216-833-11	METAL CHIP 10K	5% 1/16W
Q801	8-729-230-63	TRANSISTOR 2SC4116-YG		R509	1-216-835-11	METAL CHIP 15K	5% 1/16W
Q802	8-729-231-74	TRANSISTOR 2SC4116-GL		R510	1-216-821-11	METAL CHIP 1K	5% 1/16W
Q809	8-729-231-74	TRANSISTOR 2SC4116-GL		R511	1-216-833-11	METAL CHIP 10K	5% 1/16W
		< RESISTOR >		R512	1-216-833-11	METAL CHIP 10K	5% 1/16W
R101	1-216-813-11	METAL CHIP 220	5% 1/16W	R513	1-216-829-11	METAL CHIP 4.7K	5% 1/16W
R102	1-216-845-11	METAL CHIP 100K	5% 1/16W	R517	1-216-835-11	METAL CHIP 15K	5% 1/16W
R103	1-216-841-11	METAL CHIP 47K	5% 1/16W (EXCEPT FR)	R518	1-216-864-11	METAL CHIP 0	5% 1/16W
				R519	1-216-831-11	METAL CHIP 6.8K	5% 1/16W
				R521	1-216-827-11	METAL CHIP 3.3K	5% 1/16W
				R522	1-216-833-11	METAL CHIP 10K	5% 1/16W
				R525	1-216-821-11	METAL CHIP 1K	5% 1/16W

MAIN

Ref. No.	Part No.	Description	Remark
R528	1-216-829-11	METAL CHIP	4.7K 5% 1/16W
R529	1-216-864-11	METAL CHIP	0 5% 1/16W
R531	1-216-833-11	METAL CHIP	10K 5% 1/16W
R533	1-216-841-11	METAL CHIP	47K 5% 1/16W
R534	1-216-833-11	METAL CHIP	10K 5% 1/16W
R535	1-216-829-11	METAL CHIP	4.7K 5% 1/16W
R538	1-216-833-11	METAL CHIP	10K 5% 1/16W
R539	1-216-864-11	METAL CHIP	0 5% 1/16W
R542	1-216-851-11	METAL CHIP	330K 5% 1/16W
R543	1-216-864-11	METAL CHIP	0 5% 1/16W
R544	1-216-849-11	METAL CHIP	220K 5% 1/16W
R545	1-216-849-11	METAL CHIP	220K 5% 1/16W
R546	1-216-825-11	METAL CHIP	2.2K 5% 1/16W
R547	1-216-843-11	METAL CHIP	68K 5% 1/16W
R548	1-216-825-11	METAL CHIP	2.2K 5% 1/16W
R549	1-216-833-11	METAL CHIP	10K 5% 1/16W
R550	1-216-864-11	METAL CHIP	0 5% 1/16W
R555	1-216-845-11	METAL CHIP	100K 5% 1/16W
R563	1-216-845-11	METAL CHIP	100K 5% 1/16W
R569	1-216-829-11	METAL CHIP	4.7K 5% 1/16W
R570	1-216-841-11	METAL CHIP	47K 5% 1/16W
R599	1-216-851-11	METAL CHIP	330K 5% 1/16W
R602	1-216-833-11	METAL CHIP	10K 5% 1/16W
R604	1-216-864-11	METAL CHIP	0 5% 1/16W
R605	1-216-821-11	METAL CHIP	1K 5% 1/16W
R606	1-216-821-11	METAL CHIP	1K 5% 1/16W
R607	1-216-821-11	METAL CHIP	1K 5% 1/16W
R608	1-216-821-11	METAL CHIP	1K 5% 1/16W
R609	1-216-864-11	METAL CHIP	0 5% 1/16W
R610	1-216-864-11	METAL CHIP	0 5% 1/16W
R630	1-216-864-11	METAL CHIP	0 5% 1/16W
R632	1-216-864-11	METAL CHIP	0 5% 1/16W
R701	1-216-864-11	METAL CHIP	0 5% 1/16W
R702	1-216-825-11	METAL CHIP	2.2K 5% 1/16W
R801	1-216-821-11	METAL CHIP	1K 5% 1/16W
R802	1-216-833-11	METAL CHIP	10K 5% 1/16W
R803	1-216-821-11	METAL CHIP	1K 5% 1/16W
R804	1-216-854-11	METAL CHIP	560K 5% 1/16W
R805	1-216-861-11	METAL CHIP	2.2M 5% 1/16W
R806	1-216-821-11	METAL CHIP	1K 5% 1/16W
R807	1-216-821-11	METAL CHIP	1K 5% 1/16W
R808	1-216-851-11	METAL CHIP	330K 5% 1/16W
R809	1-216-851-11	METAL CHIP	330K 5% 1/16W
R810	1-216-857-11	METAL CHIP	1M 5% 1/16W
R811	1-216-857-11	METAL CHIP	1M 5% 1/16W
R813	1-216-833-11	METAL CHIP	10K 5% 1/16W
R817	1-216-821-11	METAL CHIP	1K 5% 1/16W
R818	1-216-857-11	METAL CHIP	1M 5% 1/16W
R819	1-216-821-11	METAL CHIP	1K 5% 1/16W
R820	1-216-831-11	METAL CHIP	6.8K 5% 1/16W
R821	1-216-829-11	METAL CHIP	4.7K 5% 1/16W
R822	1-216-827-11	METAL CHIP	3.3K 5% 1/16W
R823	1-216-825-11	METAL CHIP	2.2K 5% 1/16W
R824	1-216-823-11	METAL CHIP	1.5K 5% 1/16W
R825	1-216-821-11	METAL CHIP	1K 5% 1/16W
R826	1-216-821-11	METAL CHIP	1K 5% 1/16W
R829	1-216-864-11	METAL CHIP	0 5% 1/16W

Ref. No.	Part No.	Description	Remark
R830	1-216-864-11	METAL CHIP	0 5% 1/16W
R879	1-216-857-11	METAL CHIP	1M 5% 1/16W
< VARIABLE RESISTOR >			
RV301	1-223-609-21	RES, VAR, CARBON 10K/10K(▲VOLUME)	
RV502	1-223-587-11	RES, ADJ, CARBON 22K(TRACKING GAIN)	
RV503	1-223-587-11	RES, ADJ, CARBON 22K(FOCUS GAIN)	
< SWITCH >			
S301	1-762-078-11	SWITCH, SLIDE(AVLS)	
S801	1-762-822-11	SWITCH, PUSH (1 KEY)(OPEN SW)	
S802	1-571-754-31	SWITCH, PUSH (1 KEY)(RECHG BAT DET)	
S803	1-762-078-11	SWITCH, SLIDE(RESUME)	
S804	1-762-078-11	SWITCH, SLIDE(HOLD ►)	
S805	1-572-199-11	SWITCH, KEYBOARD(PLAY MODE)	
S806	1-572-199-11	SWITCH, KEYBOARD(ESP)	
S808	1-572-199-11	SWITCH, KEYBOARD(■)	
S809	1-572-199-11	SWITCH, KEYBOARD(REPEAT/ENTER)	
S810	1-572-199-11	SWITCH, KEYBOARD(◀▶)	
S811	1-572-199-11	SWITCH, KEYBOARD(▶▶▶)	
S812	1-572-199-11	SWITCH, KEYBOARD(▶▶▶)	
S813	1-554-088-00	SWITCH, KEY BOARD(SOUND)	
< TRANSFORMER >			
T401	1-475-573-11	TRANSFORMER, DC-DC CONVERTER	
< VIBRATOR >			
X301	1-760-307-11	VIBRATOR, CERAMIC(16.9MHz)	
X801	1-577-101-11	VIBRATOR, CERAMIC(4.1943MHz)	

MISCELLANEOUS			

53	1-690-530-81	LEAD(WITH CONNECTOR)	
58	1-660-965-11	PC BOARD, SLIDE FLEXIBLE	
△ 59	X-4950-476-1	OPTICAL PICK-UP (DAX-11E RP)	
LCD801	1-803-017-11	DISPLAY PANEL, LIQUID CRYSTAL	
M901	A-3303-403-A	MOTOR ASSY, SLED (SLED)	(INCLUDING GEAR)
M902	A-3304-989-A	MOTOR ASSY, TURNTABLE (SPINDLE)	
S901	1-571-099-21	SWITCH (1 KEY)(LIMIT)	

ACCESSORIES & PACKING MATERIALS			

△	1-251-696-11	CONNECTING PACK, CAR(E446CK/E449CK)	
△	1-467-007-22	ADAPTOR, AC (AC-E455)(AUS)	
△	1-467-012-11	ADAPTOR, AC (AC-E455)(EA)	
△	1-467-195-11	ADAPTOR, AC (AC-E455A)(US/CND/C&SA)	
△	1-467-550-11	ADAPTOR, AC (AC-E455A)(E33)	
△	1-473-115-11	ADAPTOR, AC (AC-E455D)(UK)	
△	1-473-116-35	ADAPTOR, AC (AC-E455D)(AEP/E13/EE/FR/G)	
	1-475-603-11	REMOTE CONTROL UNIT(RM-DM29)	(E445/E449CK)
△	1-475-622-12	ADAPTOR, AC (AC-E455)(CN)	
△	1-475-623-11	ADAPTOR, AC (AC-E455)(HK)	
△	1-475-969-11	ADAPTOR, AC (AC-E455)(AR)	

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.
--	--

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
	1-528-444-11	BATTERY PACK (BP-DM10) (E443:E13,E33,EA/E445:AUS,CND,CN,E13,EE,HK)				G/E441:AEP,G/E441SR:AEP,G/E443:AEP,G/E445:AEP,G/E446CK:AEP,G)	
	1-528-444-31	BATTERY PACK (BP-DM10)(E445:US/E449CK)		3-865-543-81	MANUAL, INSTRUCTION(ITALIAN)(E440:7AEP		
	1-528-444-81	BATTERY PACK (BP-DM10)(E443:AEP,FR,G,UK/E445:AEP,FR,G,UK)			/E441:AEP/E441SR:AEP/E443:AEP/E445:AEP/E446CK:AEP)		
△	1-532-452-99	FUSE, GLASS CYLINDRICAL(DIA.5)1A 125V (E446CK/E449CK)		3-865-543-91	MANUAL, INSTRUCTION(FINNISH)(E440:7AEP		
					/E441:AEP/E441SR:AEP/E443:AEP/E445:AEP/E446CK:AEP)		
△	1-569-007-11	ADAPTOR, CONVERSION 2P(E33)		3-865-544-11	MANUAL, INSTRUCTION(ENGLISH)(E441:CN,		
△	1-569-008-21	ADAPTOR, CONVERSION 2P(E13/EA)			E13/E443:E13/E445:CN,E13,HK/E446CK:E13)		
	1-784-619-11	CORD DCC-E2455//M SET(E446CK/E449CK)		3-865-544-21	MANUAL, INSTRUCTION(SIMPLIFIED		
	3-856-479-11	MANUAL, INSTRUCTION(SPANISH) (FOR CAR KIT) (E446CK:AR,AEP,E33,C&SA)			CHINESE)(E441:CN/E445:CN)		
	3-856-479-21	MANUAL, INSTRUCTION(ENGLISH) (FOR CAR KIT) (E446CK:AR,AEP,AUS,CND, E33,C&SA,EA,EE,FR,UK,US/E449CK)		3-865-544-31	MANUAL, INSTRUCTION(TRADITIONALCHINESE) (E441:E13/E443:E13/E445:E13, HK/E446CK:E13)		
	3-856-479-31	MANUAL, INSTRUCTION(FRENCH) (FOR CAR KIT) (E446CK:AEP,CND,FR)		3-865-545-11	MANUAL, INSTRUCTION(RUSSIAN)(E441:EE/ E441SR:EE/E445:EE/E446CK:EE)		
	3-856-479-41	MANUAL, INSTRUCTION(DUTCH) (FOR CAR KIT) (E446CK:AEP,EE)		3-865-545-21	MANUAL, INSTRUCTION(POLISH)(E441:EE/ E441SR:EE/E445:EE/E446CK:EE)		
	3-856-479-51	MANUAL, INSTRUCTION(SWEDISH) (FOR CAR KIT) (E446CK:AEP)		3-865-545-31	MANUAL, INSTRUCTION(CZECH)(E441:EE/ E441SR:EE/E445:EE/E446CK:EE)		
	3-856-479-61	MANUAL, INSTRUCTION(PORTUGUESE) (FOR CAR KIT) (E446CK:AR,AEP,C&SA)		3-865-545-41	MANUAL, INSTRUCTION(MAGYAR)(E441:EE/ E441SR:EE/E445:EE/E446CK:EE)		
	3-856-479-71	MANUAL, INSTRUCTION(GERMAN) (FOR CAR KIT) (E446CK:AEP,G)		3-866-293-11	MANUAL, INSTRUCTION(RUSSIAN) (E446CK:EE)		
	3-856-479-81	MANUAL, INSTRUCTION(ITALIAN) (FOR CAR KIT) (E446CK:AEP)		3-866-293-21	MANUAL, INSTRUCTION(CZECH)(E446CK:EE)		
	3-856-479-91	MANUAL, INSTRUCTION(FINNISH) (FOR CAR KIT) (E446CK:AEP)		3-866-293-31	MANUAL, INSTRUCTION(MAGYAR) (E446CK:EE)		
	3-859-336-11	MANUAL, INSTRUCTION(TRADITIONAL CHINESE) (FOR CAR KIT)(E446CK:E13)		3-866-293-41	MANUAL, INSTRUCTION(POLISH)(E446CK:EE)		
	3-859-336-21	MANUAL, INSTRUCTION(ENGLISH) (FOR CAR KIT) (E446CK:E13)		8-953-187-90	HEADPHONE MDR-ED136//K SET(E440/E441: EXCEPT US/E441SR/E443/E446CK:EXCEPT US)		
	3-859-401-21	MANUAL, INSTRUCTION (ENGLISH,FRENCH,GERMAN,DUTCH,SPANISH, ITALIAN,PORTUGUESE,SWEDISH) (FOR SPEAKER SYSTEM) (E441SR:AEP,EE,FR,G,UK)		8-953-272-90	HEADPHONE MDR-ED136SP//K SET (E445:EXCEPT US)		
	3-865-543-11	MANUAL, INSTRUCTION(SPANISH) (E440:7AEP/E441:AEP,AR,E33,C&SA/ E441SR:AEP/E443:AEP,E33/E445:AEP/ E446CK:AR,AEP,E33,C&SA)		8-953-276-90	HEADPHONE MDR-24SP SET (E445:US/E449CK)		
	3-865-543-21	MANUAL, INSTRUCTION(ENGLISH)(E440:AEP, 7AEP,FR/E441:AEP,7AEP,AR,AUS,CND,E33,C&SA,EA, EE,FR,UK,US/E441SR:AEP,EE,FR,UK/E443:AEP, E33,EA,FR,UK/E445:AEP,AUS,CND,EE,FR,UK, US/E446CK:AR,AEP,AUS,CND,E33,C&SA,EA,EE, FR,UK,US/E449CK)		8-953-342-93	HEADPHONE MDR-24/1 SET (E441:US/E446CK:US)		
	3-865-543-31	MANUAL, INSTRUCTION(FRENCH)(E440:7AEP, FR/E441:AEP,CND,FR/E441SR:AEP, FR/E443:AEP,FR/E445:AEP,CND,FR/ E446CK:AEP,CND,FR)					
	3-865-543-41	MANUAL, INSTRUCTION(DUTCH)(E440:7AEP /E441:AEP,EE/E441SR:AEP,EE/ E443:AEP/E445:AEP,EE/E446CK:AEP,EE)					
	3-865-543-51	MANUAL, INSTRUCTION(SWEDISH)(E440: 7AEP/E441:AEP/E441SR:AEP/E443:AEP/ E445:AEP/E446CK:AEP)					
	3-865-543-61	MANUAL, INSTRUCTION(PORTUGUESE) (E440:7AEP/E441:AEP,AR1,C&SA/ E441SR:AEP/E443:AEP/E445:AEP/ E446CK:AR,AEP,C&SA)					
	3-865-543-71	MANUAL, INSTRUCTION(GERMAN)(E440:7AEP,					

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.

D- E440/441/E441SR/E443/
E445/E446CK/E449CK

D-E440/E441/E441SR/E443/E445/ E446CK/E449CK

SONY[®]

SERVICE MANUAL

1999. 04

US Model

D-E441/E445/E446CK/E449CK

Canadian Model

D-E441/E445/E446CK

AEP Model

D-E440/E441/E441SR/E443/E445/E446CK

UK Model

D-E441/E441SR/E443/E445/E446CK

E Model

D-E441/E443/E445/E446CK

Australian Model

D-E441/E445/E446CK

Chinese Model

D-E441/E445

SUPPLEMENT - 1

File this Supplement with the Service Manual.

Subject :

- EAST EUROPEAN MODEL HAS BEEN ADDED FOR D-E440

(ENG-99002)

● **MODEL ADDITION**

The D-E440 (East European model) is approximately the same as the D-E441 (East European model). Only difference between D-E441 (East European model) and D-E440 (East European model) are listed. For other informations, please refer to the previously issued original service manual (9-926-932-11).

● **DIFFERENCE PARTS LIST**

EXPLODED VIEWS

CABINET SECTION (Service Manual See page 29)

Ref. No	D-E441 (East European model)		D-E440 (East European model)	
	Part No.	Description	Part No.	Description
5	X-4950-733-1	LID ASSY, UPPER (SILVER) (E441)	X-4950-731-1	LID ASSY, UPPER (SILVER) (E440)
	X-4950-734-1	LID ASSY, UPPER (BLUE) (E441)	X-4950-732-1	LID ASSY, UPPER (BLUE) (E440)

D-E440/E441/E441SR/E443/E445/ E446CK/E449CK

SONY®

SERVICE MANUAL

1999. 12

US Model

D-E441/E445/E446CK/E449CK

Canadian Model

D-E441/E445/E446CK

AEP Model

D-E440/E441/E441SR/E443/E445/E446CK

UK Model

D-E441/E441SR/E443/E445/E446CK

E Model

D-E441/E443/E445/E446CK

Australian Model

D-E441/E445/E446CK

Chinese Model

D-E441/E445

SUPPLEMENT-2

Fill this Supplement with the Service Manual.

Subject :

- MICROCOMPUTER (IC801) CHANGE
- CIRCUIT CHANGE
- CORRECTION

(SPM-99049)

● **MICROCOMPUTER (IC801) CHANGE**

MAIN (Service Manual See page 32)

Ref. No.	Before Change			After Change		
	Part No.	Description		Part No.	Description	
IC801	8-759-575-14	IC MC68HC05L15SC442718CPB		8-759-596-01	IC MC68HC05L15SC442724CPB	

Since the new microcomputer (IC801) is not compatible with the old one, when replacing IC801, replace with the same version.

● **CIRCUIT CHANGE**

CHANGED ELECTRICAL PARTS LIST

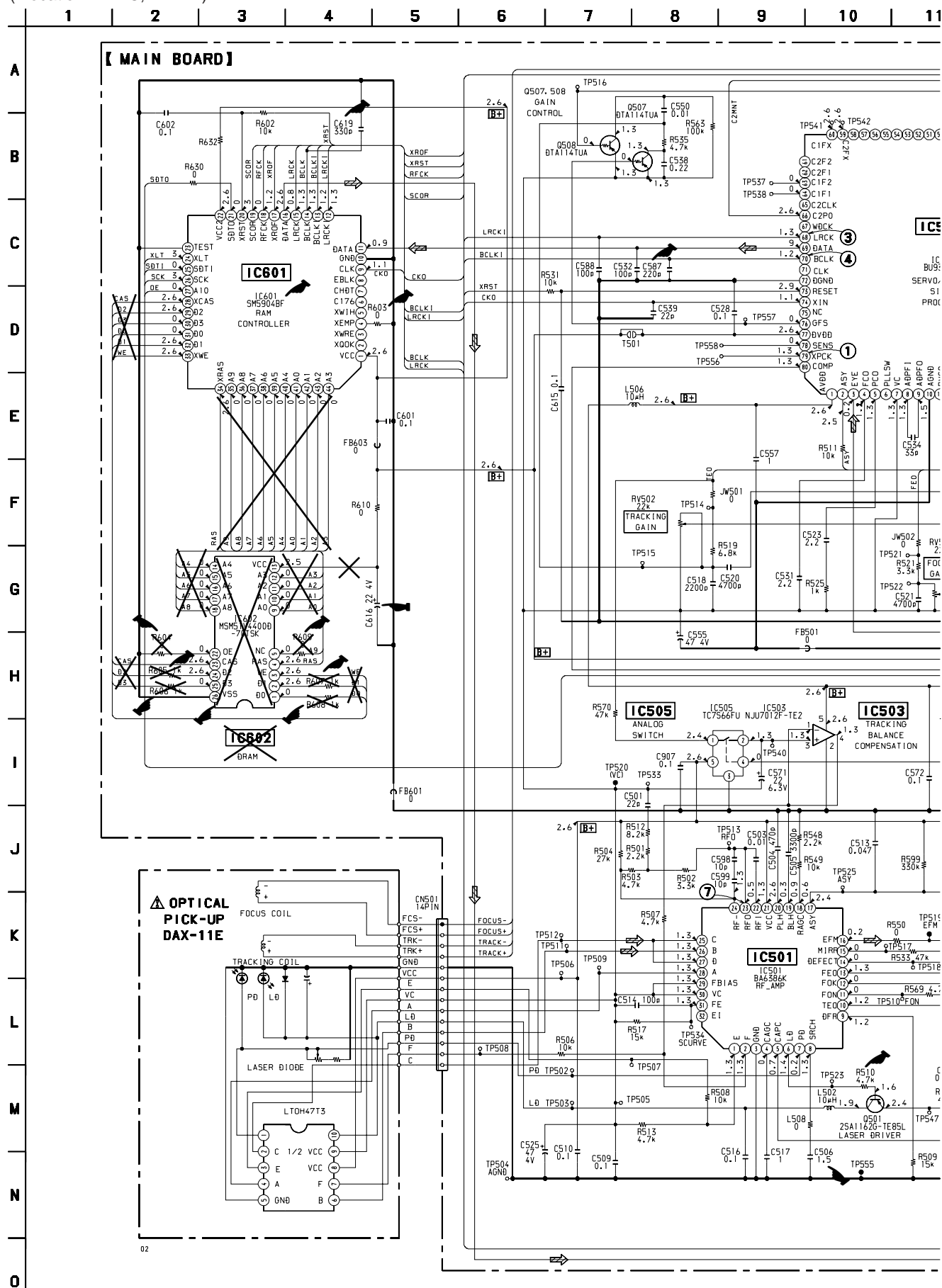
MAIN (Service Manual See page 31 to 34)

Ref. No.	Before Change						After Change					
	Part No.	Description					Part No.	Description				
C413							1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V	
C424	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V							
C428	1-164-505-11	CERAMIC CHIP	2.2uF		16V		1-164-346-11	CERAMIC CHIP	1uF		16V	
C506	1-164-506-11	CERAMIC CHIP	4.7uF		16V		1-135-148-21	TANTALUM CHIP	1.5uF	20%	16V	
C587	1-162-953-11	CERAMIC CHIP	100PF	5%	50V		1-164-816-11	CERAMIC CHIP	220PF	2%	50V	
C616	1-135-201-11	TANTALUM CHIP	10uF	20%	4V		1-135-202-21	TANTALUM CHIP	22uF	20%	4V	
C619	1-162-927-11	CERAMIC CHIP	100PF	5%	50V		1-162-959-11	CERAMIC CHIP	330PF	5%	50V	
C801	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V							
IC601	8-759-581-80	IC SM5902BF					8-759-581-78	IC SM5904BF				
IC602	8-759-498-44	IC MSM51V4400D-70TSK										
IC701	8-759-483-62	IC MPC17A51VMEL					8-759-662-63	IC MPC17A51/ZVMEL				
R423	1-216-857-11	METAL CHIP	1M	5%	1/16W		1-216-853-11	METAL CHIP	470K	5%	1/16W	
R510	1-216-821-11	METAL CHIP	1K	5%	1/16W		1-216-829-11	METAL CHIP	4.7K	5%	1/16W	
R603							1-216-864-11	METAL CHIP	0	5%	1/16W	
R604	1-216-864-11	METAL CHIP	0	5%	1/16W							
R605	1-216-821-11	METAL CHIP	1K	5%	1/16W							
R606	1-216-821-11	METAL CHIP	1K	5%	1/16W							
R607	1-216-821-11	METAL CHIP	1K	5%	1/16W							
R608	1-216-821-11	METAL CHIP	1K	5%	1/16W							
R609	1-216-864-11	METAL CHIP	0	5%	1/16W							
R801	1-216-821-11	METAL CHIP	1K	5%	1/16W							
R804	1-216-854-11	METAL CHIP	560K	5%	1/16W		1-216-853-11	METAL CHIP	470K	5%	1/16W	

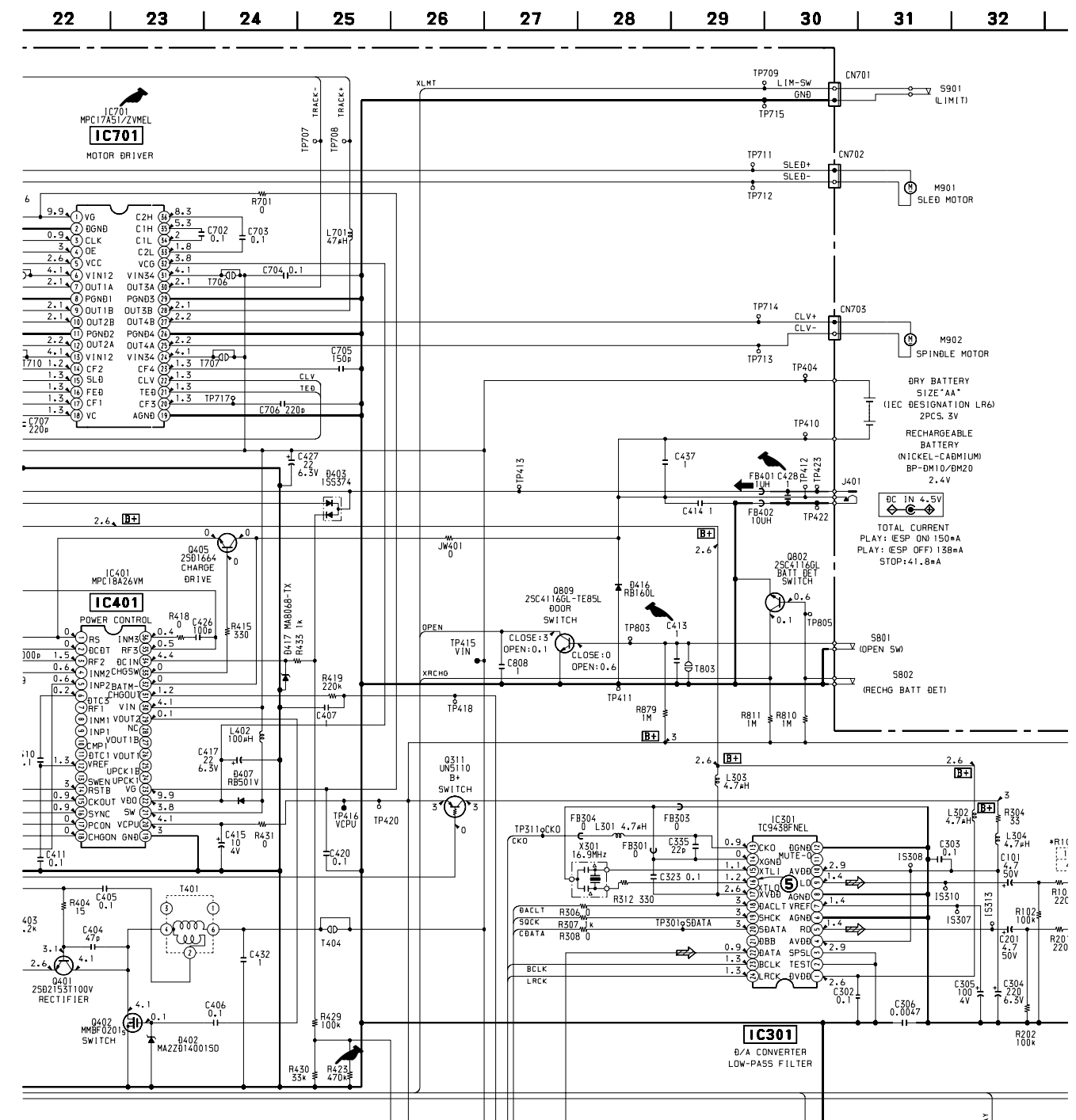
➔ : Indicates added, changed or deleted portion

SCHEMATIC DIAGRAM

Service Manual See page 19
(Location : A - O, 1 - 11)

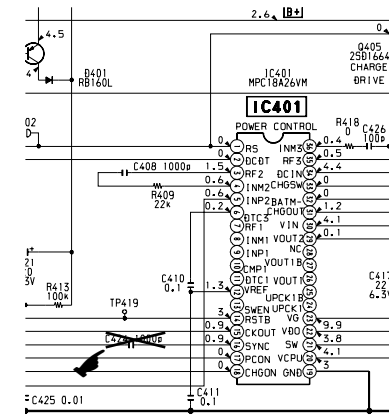


Service Manual See page 21, 22
(Location : A - L, 22 - 32)

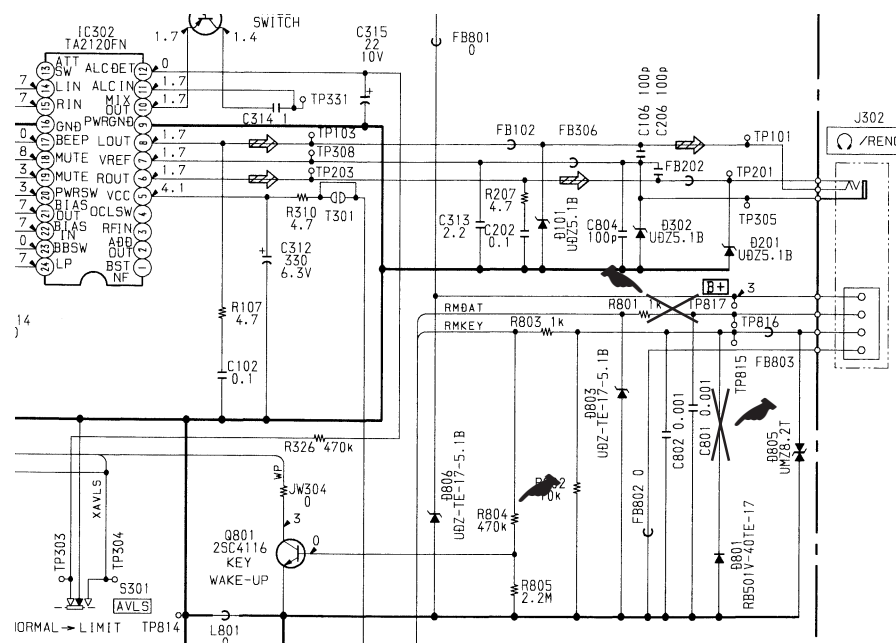


D-E440/E441/E441SR/E443/ E445/E446CK/E449CK

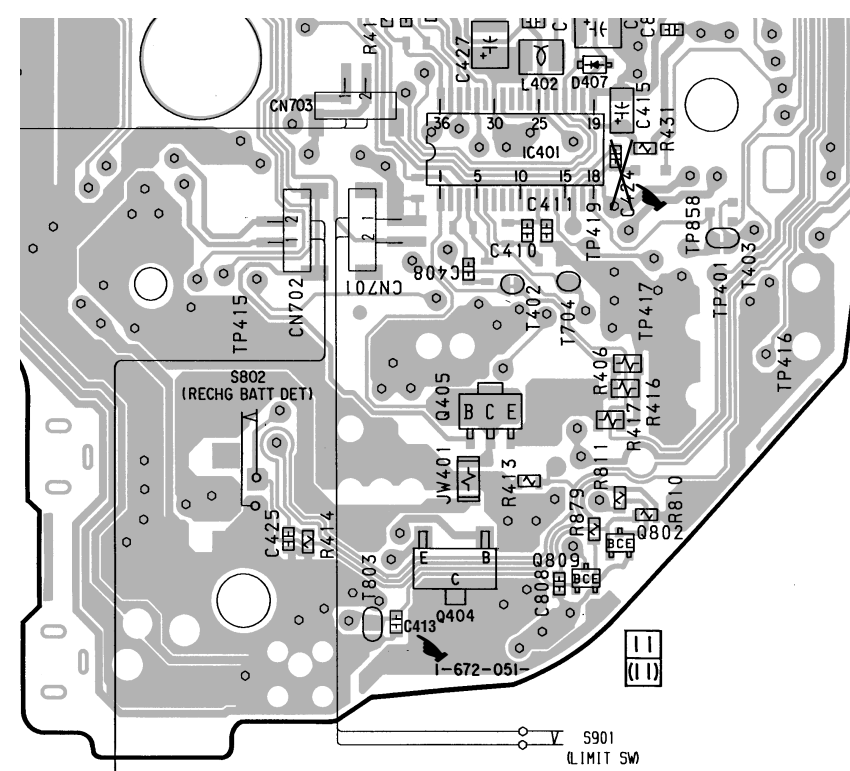
Service Manual See page 21
(Location : F - I , 21 - 23)



Service Manual See page 22, 23
(Location : I - M , 37 - 43)



Service Manual See page 18
(Location : F - H , 15 - 19)

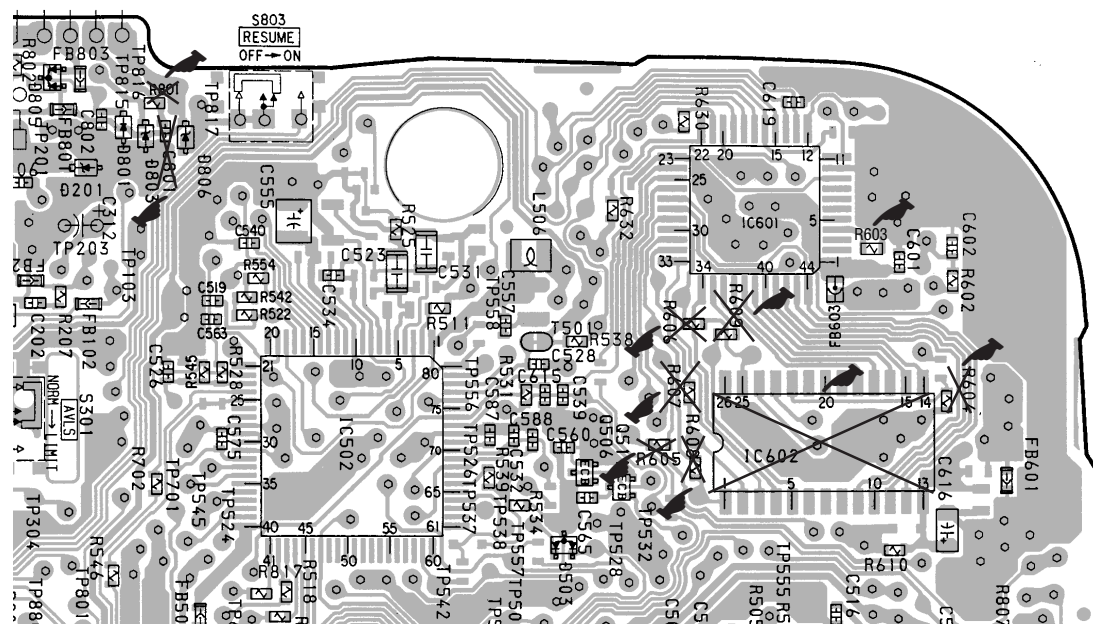


✂ : Indicates added or deleted portion

PRINTED WIRING BOARDS

Service Manual See page 16, 17
(Location : A - D , 4 - 9)

[MAIN BOARD] (SIDE B)

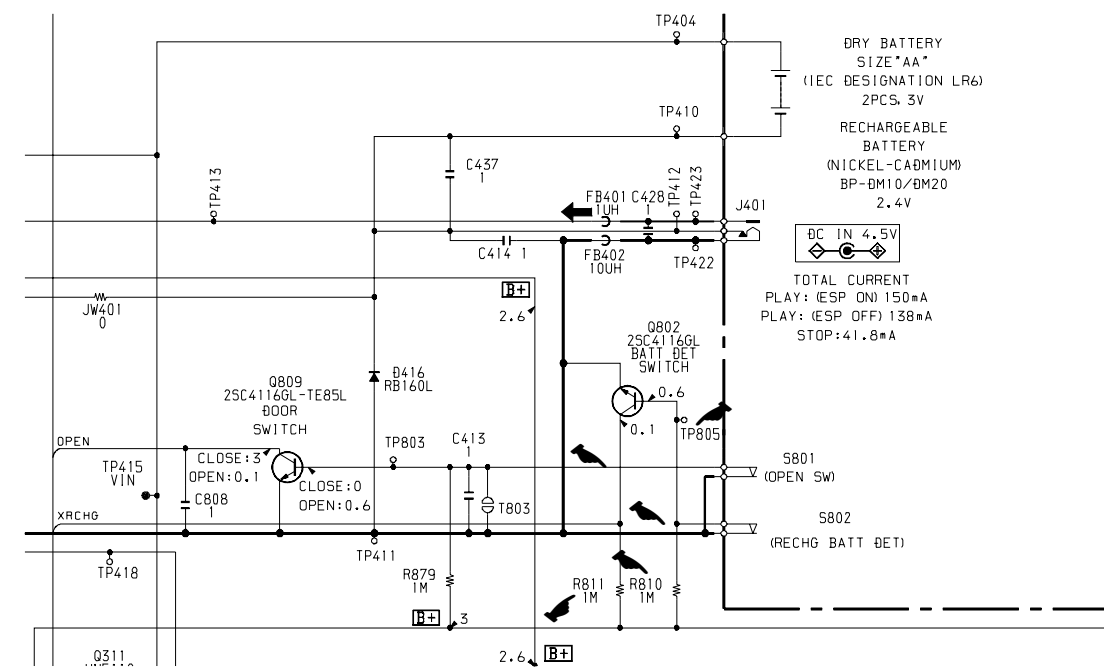


● CORRECTION

✂ : Indicates corrected portion

SCHEMATIC DIAGRAM

Service Manual See page 21, 22
(Location : D - G , 26 - 32)



Sony Corporation
Personal Audio Division Company

1999L0286-1
Printed in Japan © 1999.12
Published by General Engineering Dept.