

D-88

SERVICE MANUAL

US Model
AEP Model
UK Model
E Model



Discman

SPECIFICATIONS

CD section

System
Laser diode properties

Compact disc digital audio system

Material: GaAlAs

Wavelength: 780 nm

Emission duration: Continuous

Laser output: Max. 44.6 μW*

* This output is the value measured at a distance of about 200 mm from the objective lens surface on the Optical Pick-up Block.

Spindle speed

500 r.p.m. to 200 r.p.m. (CLV)

Error correction

Sony Super Strategy Cross Interleave Reed Solomon Code

D-A conversion

16-bit linear 2fs digital filter

Frequency response

20–20,000 Hz

Outputs (at 9 V input level)

Headphones (stereo minijack)
9 mW + 9 mW at 32 ohms

General

Power requirements

Supplied rechargeable battery pack BP-2

DC IN 9 V jack accepts:

Supplied AC power adaptor for use on 120 V AC, 60 Hz

1.7 W DC

Power consumption

Approx. 94.0 × 29.9 × 98.5 mm (3 3/4 × 1 1/16 × 4) (w/h/d)

Dimension

not incl. inclined part (depth), projecting parts and controls

Approx. 94.5 × 32.9 × 99 mm (3 3/4 × 1 5/16 × 4) (w/h/d)

incl. projecting parts and controls

Weight

Approx. 300 g (10.6 oz), not incl. rechargeable battery pack and case

Approx. 400 g (14.2 oz) incl. rechargeable battery pack and case

Supplied accessories

AC power adaptor (1)

Rechargeable battery pack (1)

Carrying bag (1)

Connecting cord (1) (stereo miniplug ↔ two phono plugs)

Battery pack case (1)

Headphones (1)

CAUTION

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

COMPACT DISC COMPACT PLAYER
SONY®

Notes

Use only the supplied AC power adaptor or the recommended battery cord manufactured by Sony. Polarity of the plugs of other manufacturers may be different.

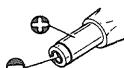
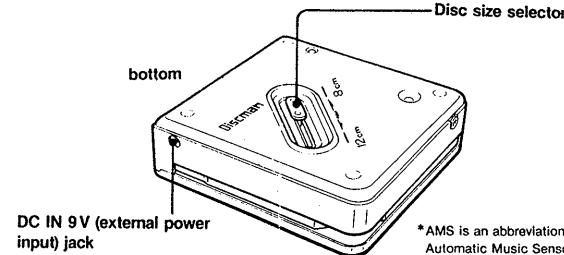
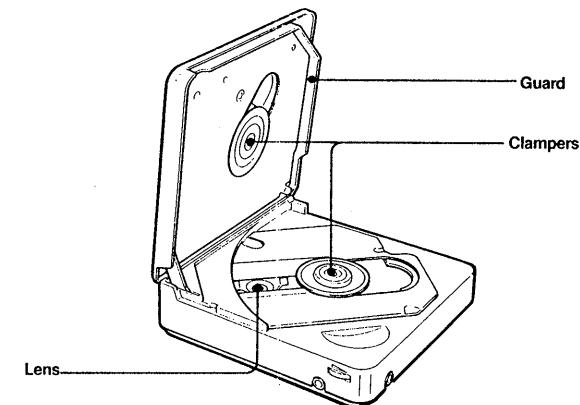
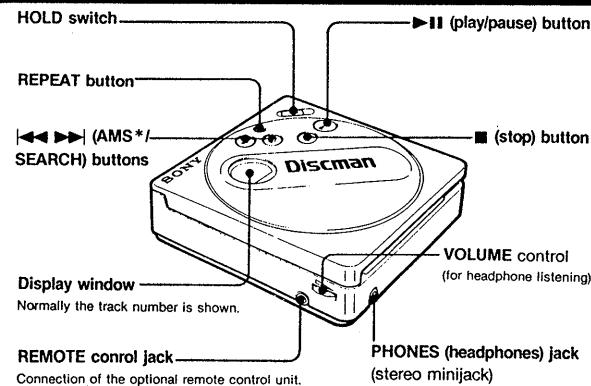


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Location and Function of Controls



* AMS is an abbreviation of Automatic Music Sensor.

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.

SERVICING NOTES

NOTES ON HANDLING THE OPTICAL PICK-UP BLOCK

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.

Flexible Circuit Board Repairing

1. Keep the temperature of the soldering iron at $270^{\circ} \pm 10^{\circ}\text{C}$ during repairing.
2. Do not touch the soldering iron more than 4 seconds or 3 times on the same conductor of the circuit board.
3. Do not 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.

How to use the heat shiel connector

Removal:

Remove the heat shiel connector by a pair of tweezers and wipe off stains by thinner.
(Never re-use a disconnect heat shiel connector.)

Assembly:

Arrange the pattern of PC board, LCD panel and heat shiel connector, and heat and press the arranged portion by soldering iron.

- Not use the solder.
- Heat and press at less than 200°C .

Example method:

Put the separation paper of the both-side adhesive tape on the heat shiel connector and heat and press separation paper with the conventional soldering iron.

- Heat and press the black pattern portion of heat shiel connector mainly.

Before Replacing the Optical Block

Please be sure to check thoroughly the parameters as per the "Optical Block Checking Procedures" (Part No.: 9-960-027-11) issued separately before replacing the optical block.

Note and specifications required to check are given below.

- FOK output: IC501 (9) pin
When checking FOK, remove the lead wire to disc motor and ansolder and open IC801 (19) pin.
- S carve P-to-P value: 2.95 Vp-p
- Adjusted part for focus gain adjustment: RV503
- RF signal P-to-P value: 0.75 – 1.4 Vp-p
- Traverse signal P-to-P value: 1.8 Vp-p
- The grating holder can not repair.
- Adjusted part for tracking gain adjustment: RV504

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 30 cm away from the objective lens.

Laser Diode Check Procedure

The laser diode on this set will not emit unless the top panel is closed and S701 (leaf SW type) is turned on.

The laser diode is checked using the current value which flows to the laser diode inside the UPF.

Procedure 1 (service mode or normal operation)

Check the laser diode emission with the eye.

1. Open upper panel.
2. Remove bottom panel and S701 on.
3. Press the $\blacktriangleright \blacksquare$ key.
(In service mode, this operation is not necessary.)
4. Observe the objective lens and confirm that the laser diode is emitting light. At this time, the laser diode goes on about 10 seconds due to focus serach. If it does not, APC circuit or UPF is defective.

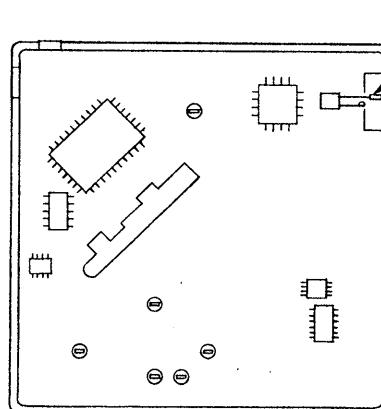
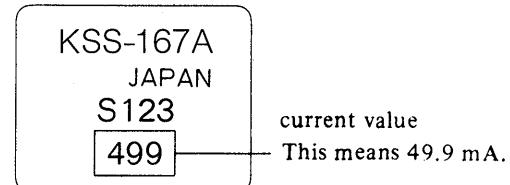


Fig. 1 Turning S701 on

Procedrue 2 (service mode or normal operation)

Check by the current with flows in the laser diode.

1. Close the top panel.
2. Remove the main board and read the current value on the label affixed to the UPF.
(Label on UPF)



The current value varies with the set.

3. Connect a VOM as shown in Fig. 2.
4. Press the $\blacktriangleright \blacksquare$ key.
5. Calculate the current by the VOM reading.
 $VOM\ reading\ (V) \div 10 = current\ (A)$
ex. VOM reading = 0.49 V
 $0.49 \div 10 = 0.049\ (A) = 49\ (mA)$
6. Confirm that the ammeter reading is within the range given below.
value on label $+5_{-11}$ mA (25°C)
variation relative to temperature:
 $0.4\ \text{mA}/^{\circ}\text{C}$
(Current increases when temperature rises and decreases when it drops.)
If the value is more than the range given, APC circuit has been defective or the laser diode has deteriorated. If it is less, APC circuit or UPF is defective.

- main board -

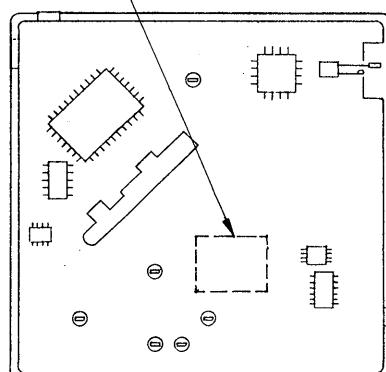
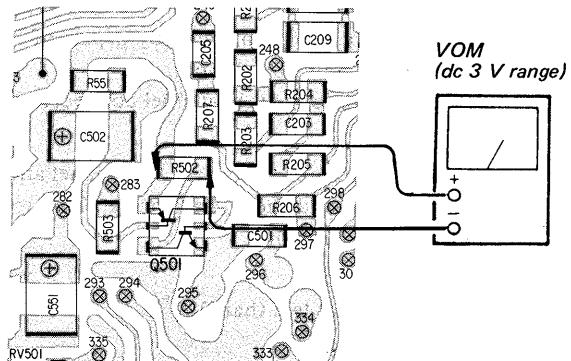


Fig. 2 VOM Connection

SEE ADDITIONAL INFORMATION

SERVICE MODE (service program)

This set has built-in service program in the micro-computer as usual sets.

The operation method of service program is explained below.

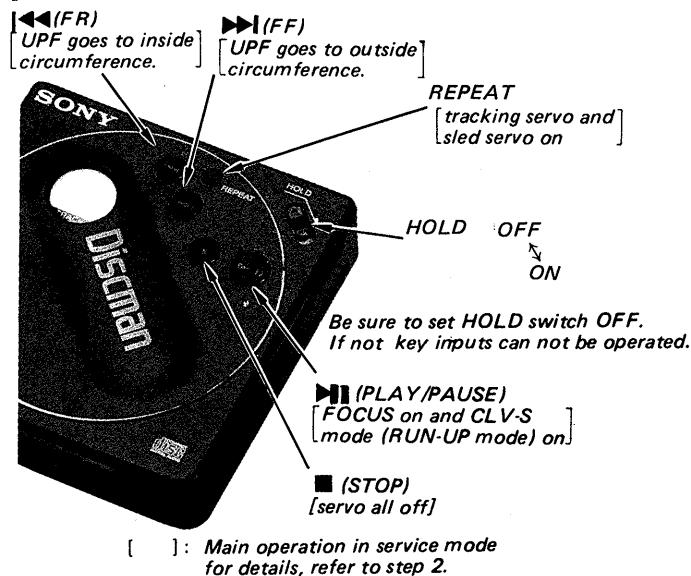


Fig. 3 Key Positions

Step 1 (Service Mode setting method)

1. Turn the HOLD switch OFF with the external power supply not plugged in (no power applied to set) and press the >> key.
 2. Solder jumper BATT-E point.
 3. Remove BATT-W lead wire (BLK).
 4. Plug in external power supply.
- This puts the set into service mode.

— main board —

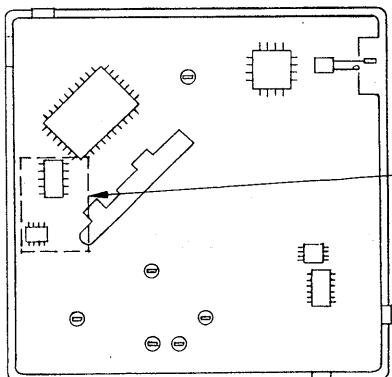


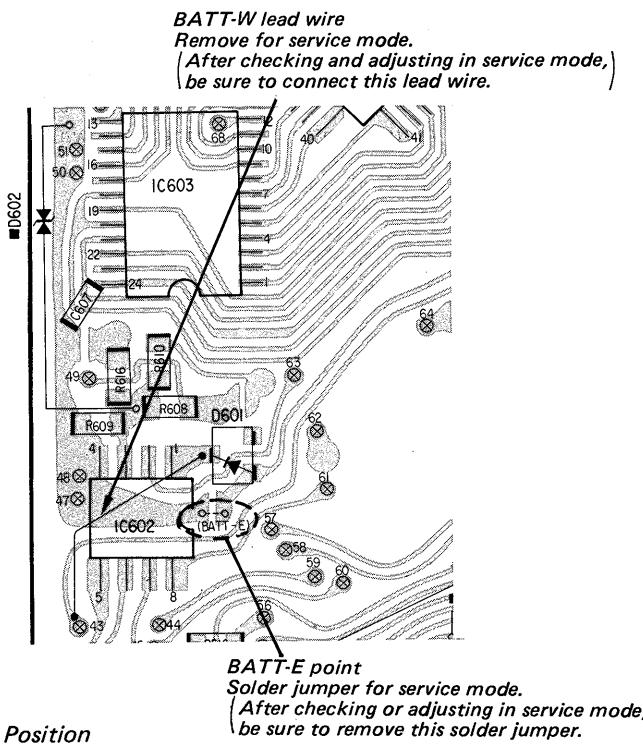
Fig. 4 BATT-E Point Position

Step 2 (Service Mode operation)

1. When service mode is set, the display will change 6 times, and those 6 changes will be repeated over and over. With this the LCD display should be present in service mode. Even if LCD does not display, other operations will be performed.
2. When >> or << key is pressed, the UPF moves to the inside or outside circumference. Tracking servo and sled servo go off when this is done. Press KEY-MODE to turn on the tracking servo if necessary.
3. When >> key is pressed, CLV-S (pull-in mode) starts while performing focus search. When there is no disc installed, focus search is repeated several times while disc motor is rotating.
4. When REPEAT key is pressed, tracking servo, sled servo and CLV-A (servo during PLAY) go ON.
5. When 3 and 4 are performed, the disc begins to play. At this time, the top panel should be closed and S701 are to be ON.
6. All servo (focus, tracking, sled and spindle) go off when ■ key is pressed. But disc motor continues rotating for a while by inertia.

Step 3 (Service Mode release)

1. First be sure to unplug the external power supply, then remove the BATT-E point solder jumper and connect BATT-W lead wire.
2. The set will now operate normally.



SECTION 1

ELECTRICAL ADJUSTMENTS

Notes on Adjustment

1. Perform adjustments in service mode. Be sure to release service mode after completing adjustment. (Refer to "Service Mode (service program)" on page 5.)
2. Perform adjustments in the order given.
3. Use YEDS-18 disc (part No.: 3-702-101-01) unless otherwise indicated.
4. Power supply voltage: DC 9 V
HOLD switch: OFF
VOLUME control: min.
Disc size selector: 12 cm

PREPARATION

Put the set into service mode (see page 5) and perform the following checks. Repair if there are any abnormalities.

● Sled Motor Check

1. Open the top panel.
2. Press the **▶▶**, **◀◀** keys and make sure that the UPF moves smoothly, without catching, from the inmost → outmost → inmost circumference.

▶▶ : UPF moves outward

◀◀ : UPF moves inward

● Focus Search Check

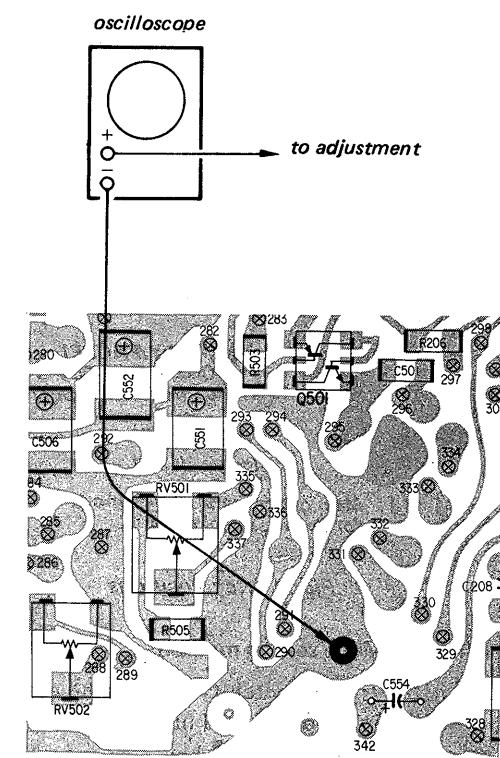
1. Open the top panel.
 2. Press the **▶▶** key. (Focus search is performed continuously.)
 3. Observe the UPF objective lens and check that it moves smoothly up and down with no catching or noises.
 4. Press the **■** key.
- Check that focus search operation stops. If it does not stop, press the **■** key again longer than before. But disc motor continues rotating for a while by inertia.

VC (1/2 Vcc) Connecting Point

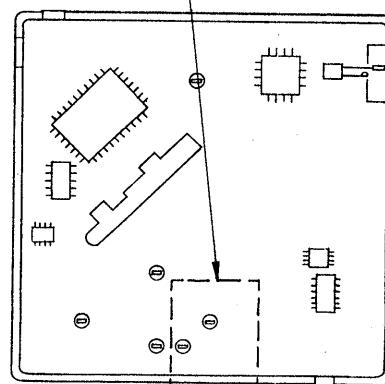
FOCUS BIAS ADJUSTMENT

TRACKING BALANCE ADJUSTMENT

When the adjustments above are performed, connect the **(-)** side of oscilloscope to the point below.

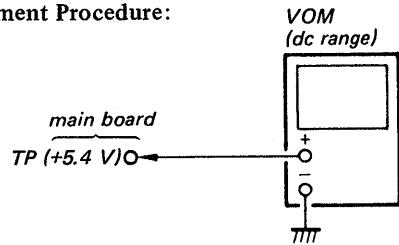


— main board —



+5.4 V Adjustment

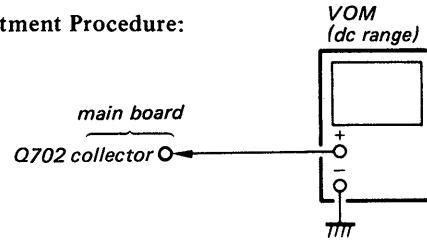
Adjustment Procedure:



1. Put the set into service mode (see page 5).
 2. Connect the VOM to main board TP (+5.4 V).
 3. Adjust RV401 for $+5.4 \pm 0.1$ V reading on the VOM.
 4. After adjustment, release service mode (see page 5).

+3.4 V Adjustment

Adjustment Procedure:

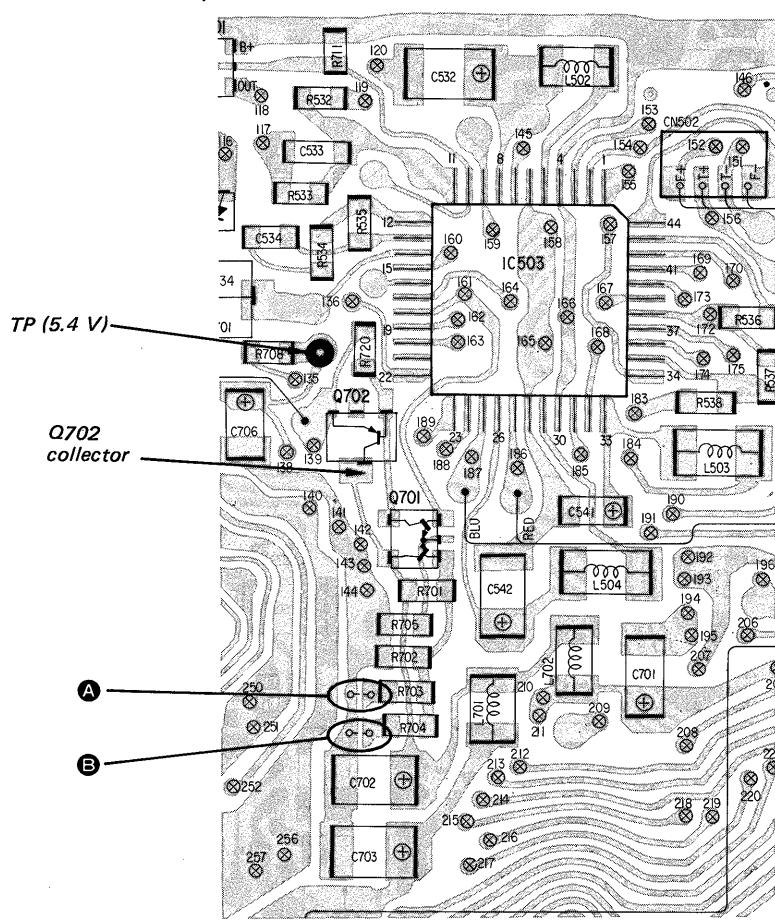
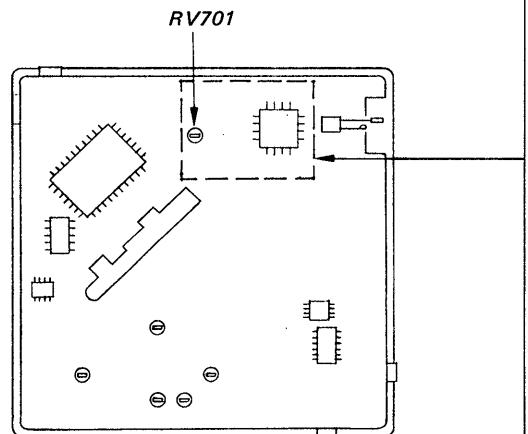


1. Put the set into service mode (see page 5).
 2. Connect the VOM to main board Q702 collector.
 3. Adjust the pattern connecting (**A** or **B**) to obtain 3.4 to 3.6 V reading on the VOM.

pattern connection		VOM reading
A	B	
X	X	down
O	X	
O	O	up

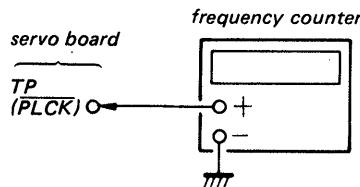
4. After adjustment, release service mode (see page 5)

Adjustment Location: main board

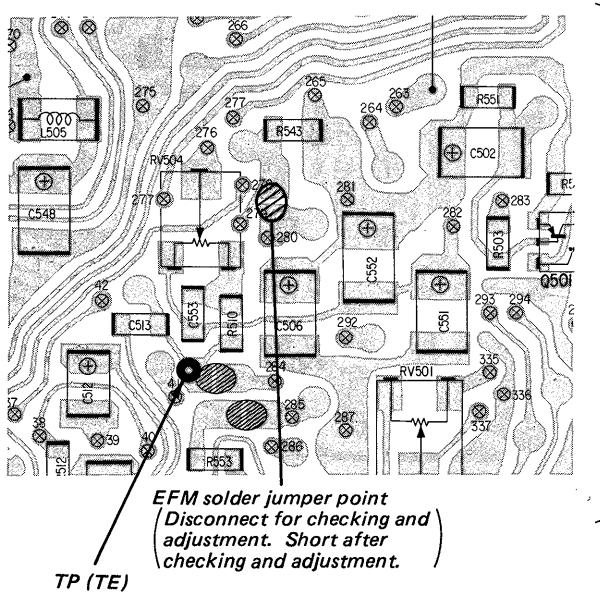
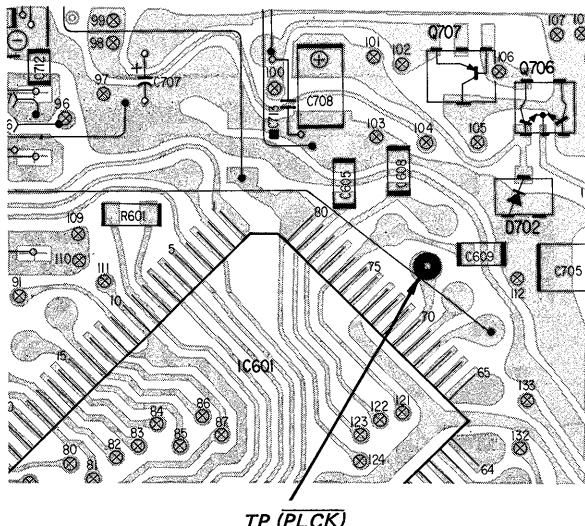


PLL Free Run Frequency Check and Adjustment

Check/Adjustment Procedure:



1. Disconnect the EFM solder jumper point in the diagram below.
2. Connect a frequency counter to main board test point TP (PLCK).
3. Put the set into service mode (see page 5).
4. Check that the frequency counter reading is 4.3218 ± 0.01 MHz. If not, adjust RV505 so that it is 4.3218 ± 0.01 MHz.
5. After adjustment, release service mode (see page 5).
6. Short the jumper point disconnected in step 1.

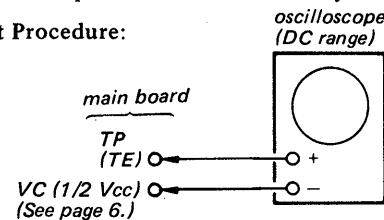


Tracking Balance Adjustment

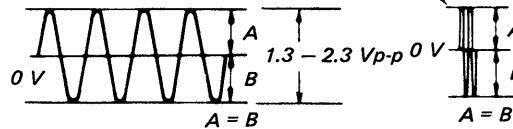
Conditions:

The set should be placed either horizontally.

Adjustment Procedure:

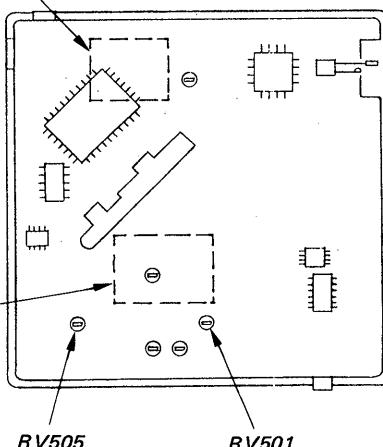


1. Connect the oscilloscope to main board TP (TE).
2. Put the set into service mode (see page 5).
3. Press the $\blacktriangleright\blacktriangleleft$ keys to move the UPF to the center.
4. Insert the disc (YEDS-18) and close the top panel.
5. Press the $\blacktriangleright\blacksquare$ key.
It will go from focus search to focus on, and CLV pull-in mode state. Tracking and sled are OFF.
6. Adjust RV501 so that the oscilloscope waveform is symmetrical on the top and bottom in relation to 0 V.
Note: Take sweep time as long as possible to obtain best waveform.



7. Unplug the external power supply to stop spindle motor from rotating.
8. After adjustment, release service mode (see page 5).

Adjustment Location: main board

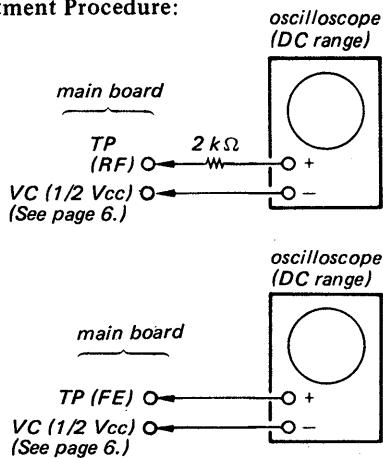


Focus Bias Adjustment

Conditions:

The set should be placed either horizontally.

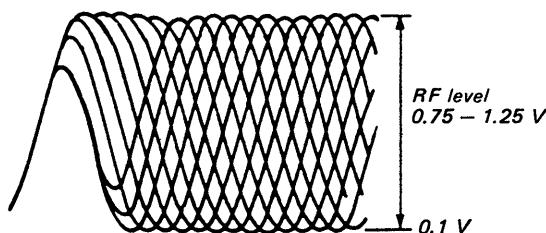
Adjustment Procedure:



1. Put the set into service mode (see page 5).
2. Connect the oscilloscope to main board test point TP (RF).
3. Press the **▶▶** and **◀◀** keys to move the UPF to the center. (Move the UPF to the music area on the disc to enable easy visibility of the eye pattern).
4. Insert the disc (YEDS-18) and close the top panel.
5. Press the **▶▶▶** key.
(It will go from focus search to focus on, and CLV pull-in mode state. Tracking and sled are OFF.)
6. Press the REPEAT key. (Tracking and sled go ON.)
7. Adjust RV502 so that the oscilloscope waveform eye pattern is good. A good eye pattern means that the diamond shape (\diamond) in the center of the waveform can be clearly distinguished.

• RF Signal Reference Waveform (eye pattern)

VOLT/DIV: 200 mV
TIME/DIV: 500 nS



When observing the eye pattern, set the oscilloscope for AC range and raise vertical sensitivity.

8. Unplug the external power supply to stop spindle motor from rotating and remove the disc.

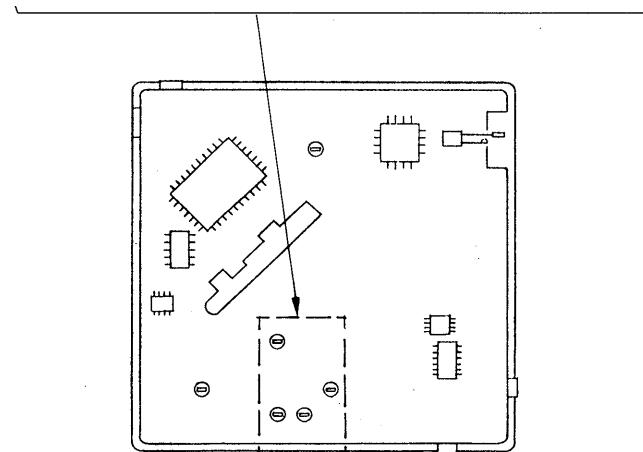
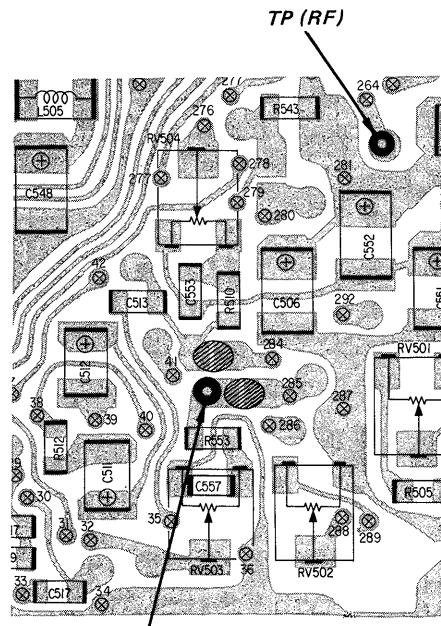
9. Remove the disc and connect the oscilloscope to main board IC502 (48) (FE) and connect the external power supply.

10. Adjust RV502 again referring to the table followed.

oscilloscope reading	adjustment
more than 200 mV	Not adjust again.
less than 200 mV	Adjust RV502 again for 220 mV reading on oscilloscope.

11. After adjustment, release service mode (see page 5).

Adjustment Location: main board



Reference**Focus/Tracking Gain Adjustment**

A frequency response analyzer or CD jig 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 followup (vertical and horizontal) 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 high, the noise when the 2-axis device operates increases.
- When gain is low, it is more susceptible to mechanical shock and skipping occurs more easily.

This adjustment is to be performed when replacing the following parts:

- optical pick-up block
- RV503 (focus gain VR)
- RV504 (tracking gain VR)

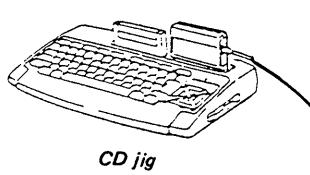
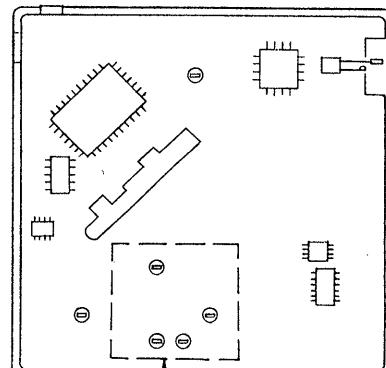
Be careful not to move RV503 (focus gain volume) and RV504 (tracking gain volume) ordinarily.

On this set, it is very difficult to simplify this adjustment. For those sets on which symptoms such as "occasional skipping" are hard to discover, or it is hard to tell if the set has been repaired, use the CD jig and perform this adjustment. Refer to the diagram below for connection of the CD jig. The adjustment procedure is described in the separate CD Jig Instruction Manual.

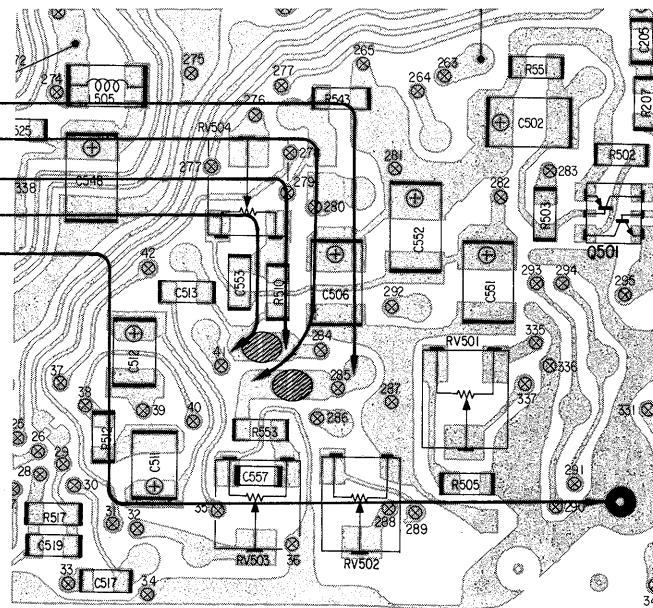
CD Jig Connecting Procedure:

Remove the solder jumpers at the TE and FE locations and connect the DC jig.

— main board —

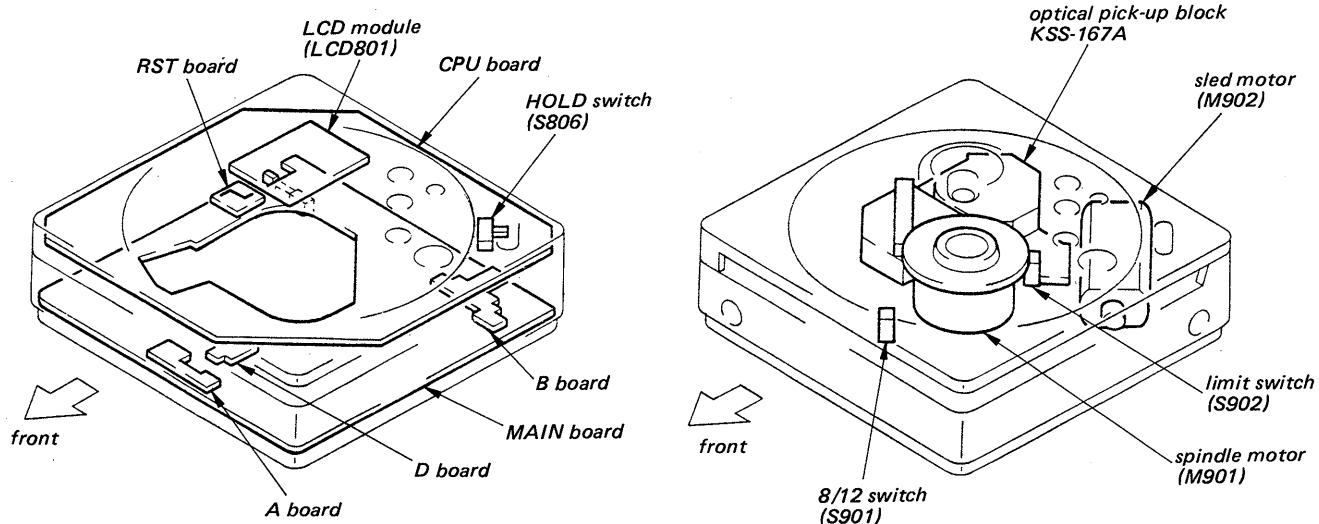


BRN
RED
ORG
YEL
WHT

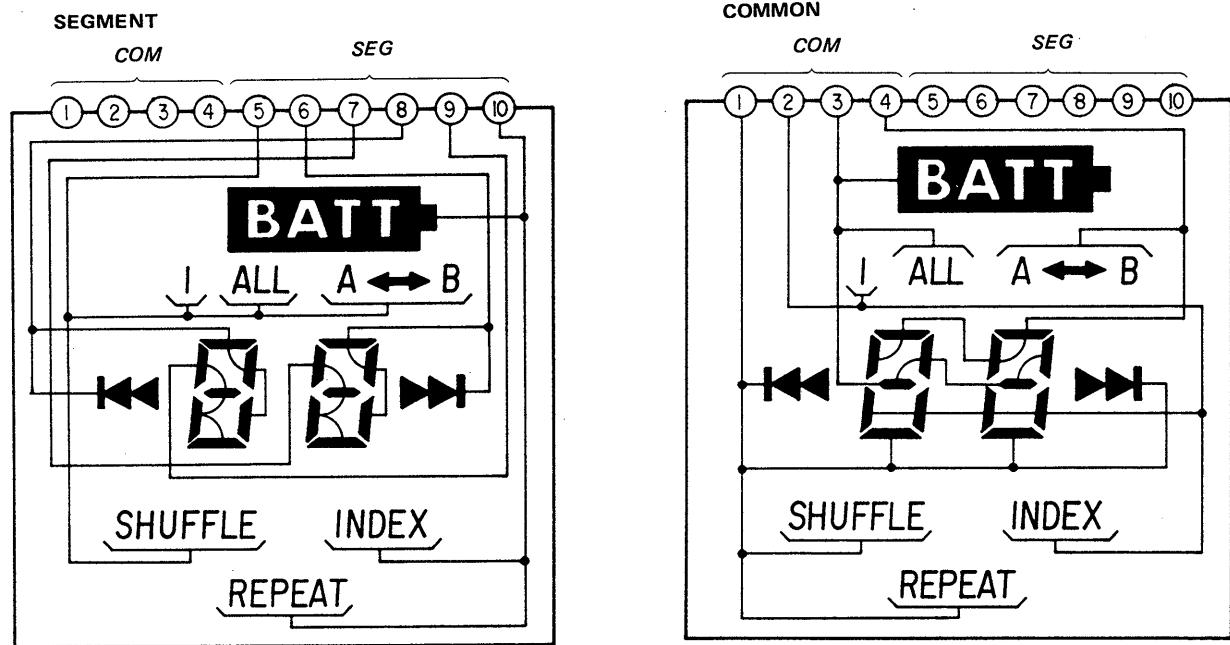


SECTION 2 DIAGRAMS

2-1. PC BOARD/SWITCH/MOTOR LAYOUTS

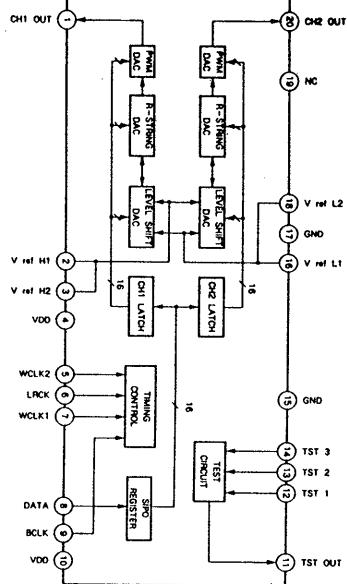


2-2. LCD MODULE

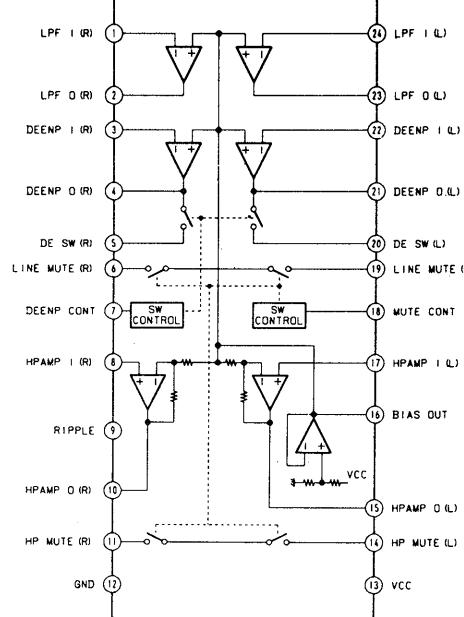


2-3. IC BLOCK DIAGRAMS

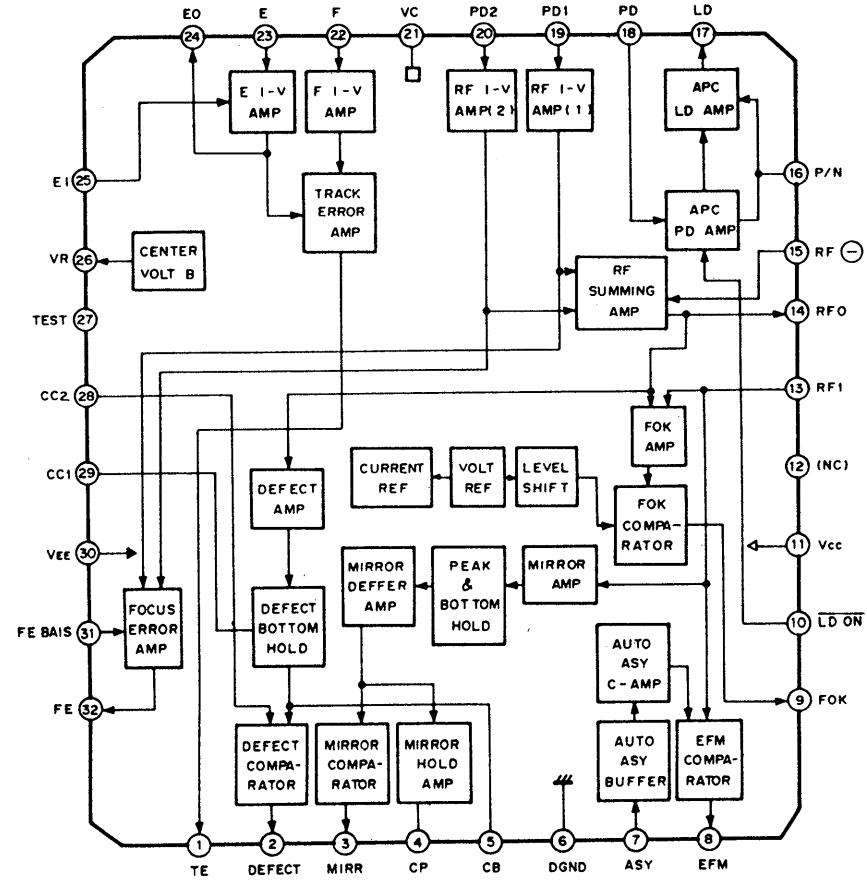
IC301 CXD1161M



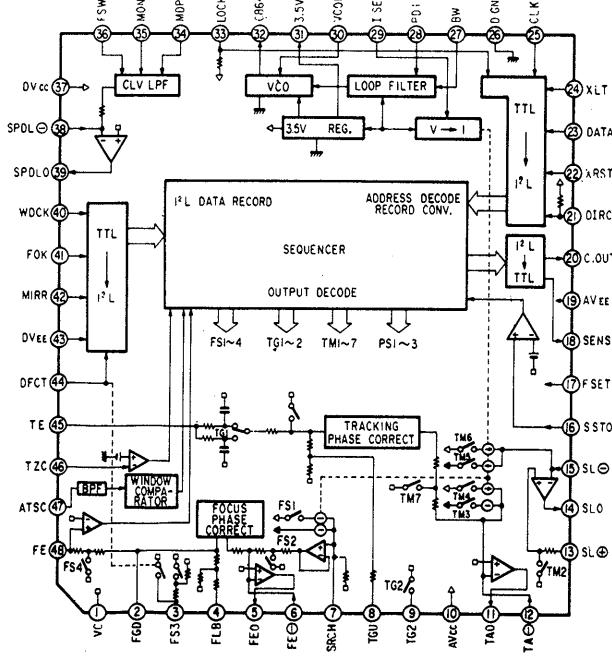
IC302 M51568FP



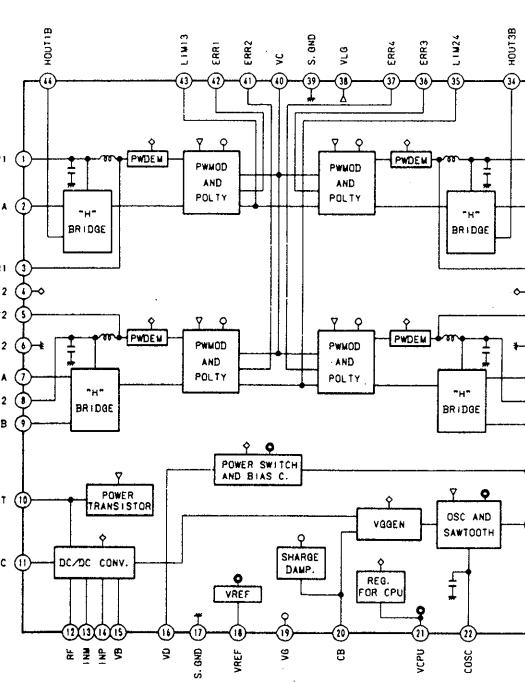
IC501 CXA1271Q



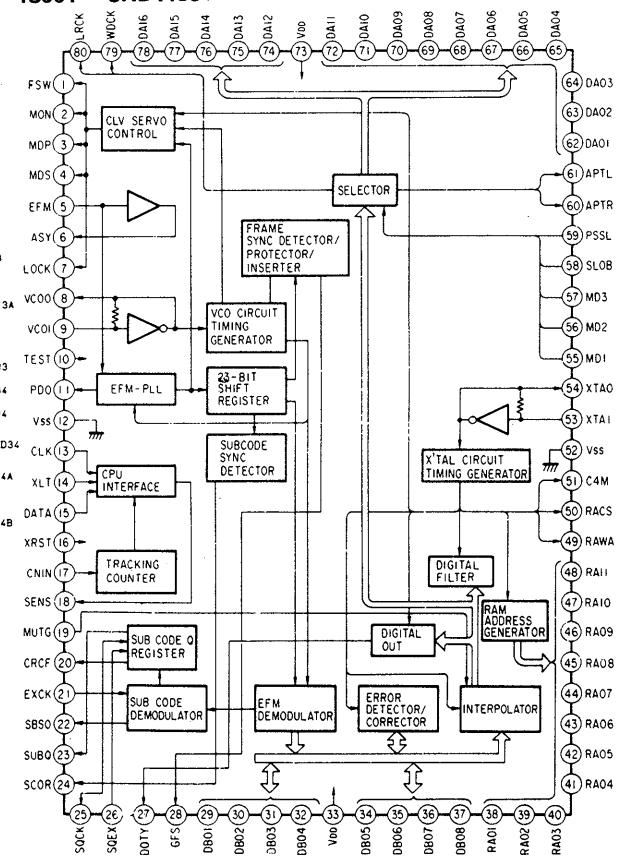
IC502 CXA1272R



IC504 MPC1715



IC601 CXD1135Q

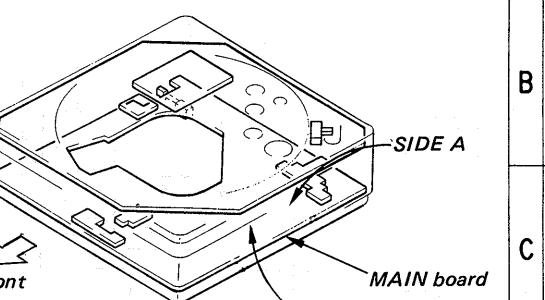


2-4. PRINTED WIRING BOARDS

• See page 22 for Semiconductor Lead Layouts.

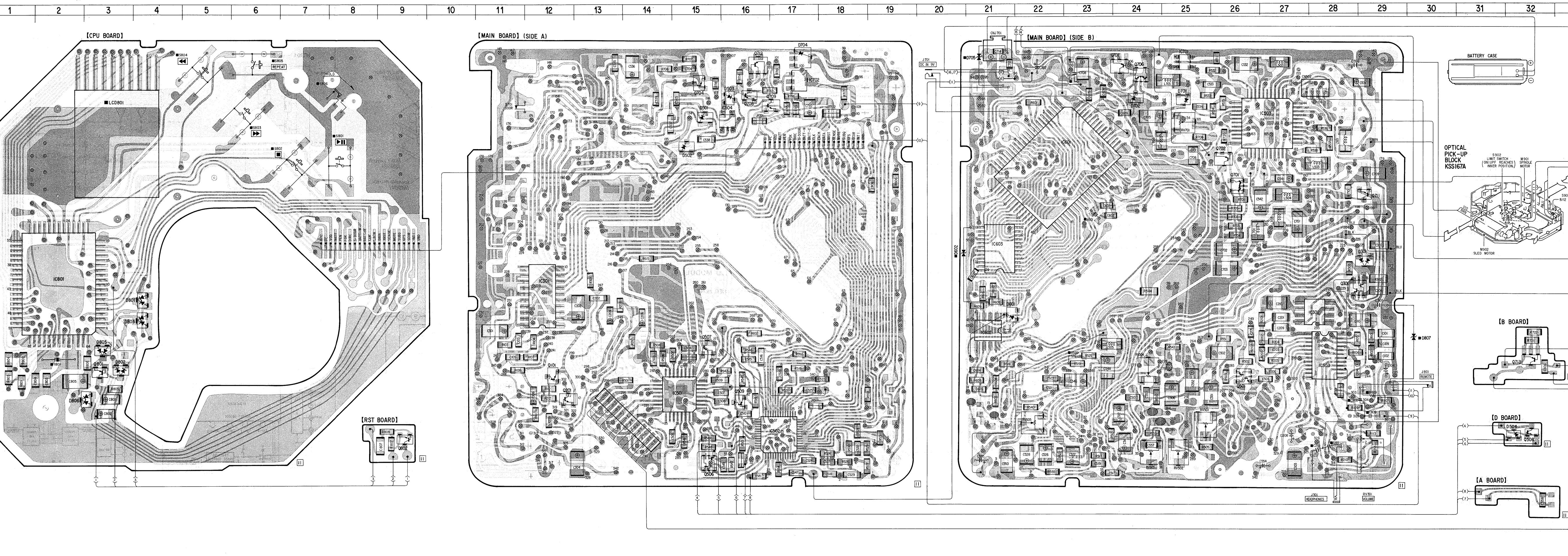
Note:

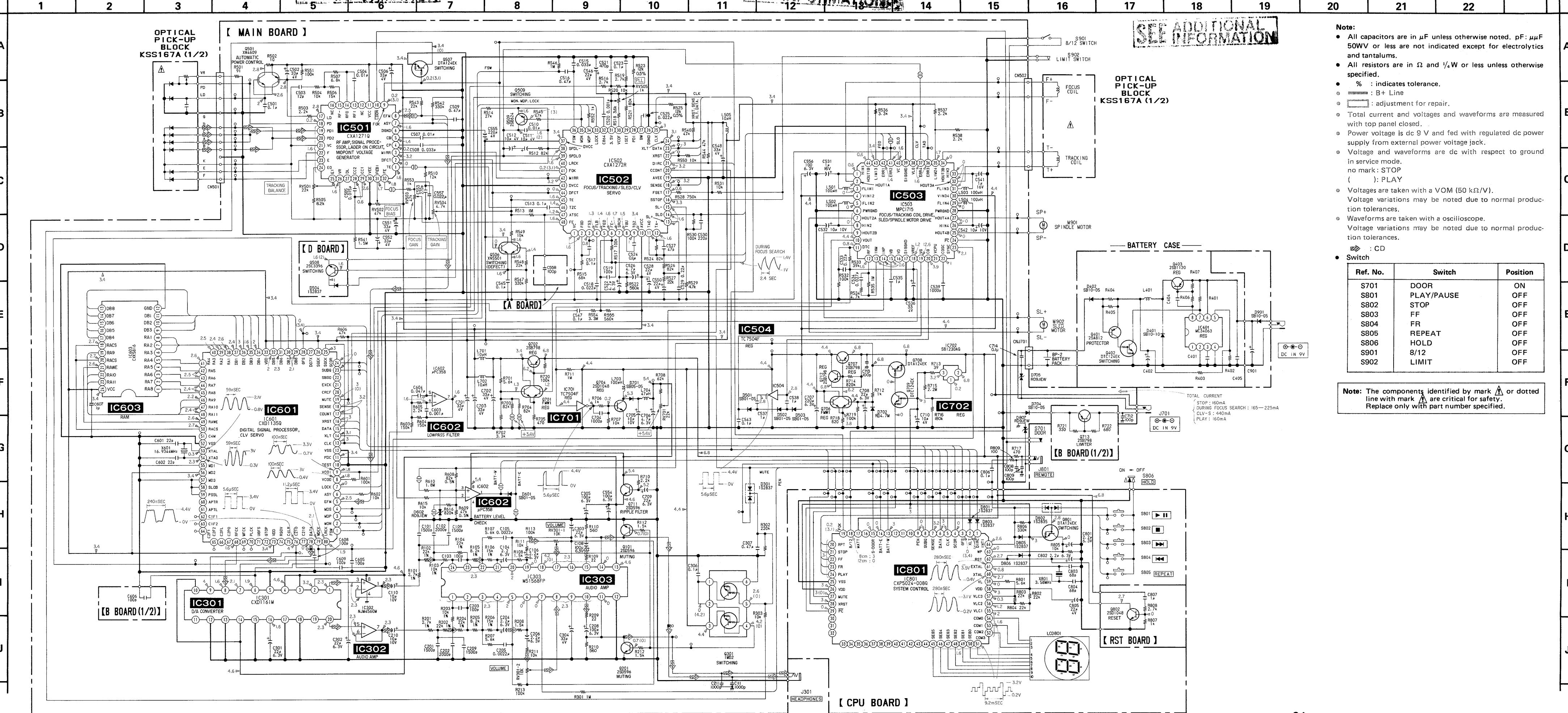
- ○ : parts extracted from the component side.
- ■ : parts mounted on the conductor side.
- ⊕ : Through hole.
- : Pattern on the side which is seen.
- : Pattern of the rear side.



• SEMICONDUCTOR LOCATION

Ref. No.	Location	Ref. No.	Location
D301	F-29	Q101	H-12
D501	C-15	Q201	H-12
D502	C-15	Q301	F-29
D503	B-16	Q501	H-26
D504	I-32	Q506	J-15
D601	G-21	Q507	G-15
D602	E-20	Q508	I-32
D701	B-25	Q509	H-16
D702	B-24	Q701	D-26
D704	A-17	Q702	C-26
D705	A-21	Q704	B-15
D801	F-4	Q706	B-24
D802	H-3	Q707	B-24
D803	G-4	Q708	B-16
D805	G-3	Q709	B-17
D806	H-3	Q711	D-29
D807	G-30	Q712	B-16
IC301	F-12	Q713	H-32
IC302	G-28	Q801	H-3
IC303	G-28	Q802	I-9
IC501	H-15		
IC502	I-17		
IC503	C-27		
IC504	C-16		
IC601	D-22		
IC602	G-21		
IC603	E-21		
IC701	A-25		
IC702	B-17		
IC801	F-2		





• All capacitors are in μF unless otherwise noted. pF : μF 50WV or less are not indicated except for electrolytics and tantalums.

• All resistors are in Ω and $1/4\text{W}$ or less unless otherwise specified.

• % : indicates tolerance.

— : B+ Line

○ : adjustment for repair.

○ Total current and voltages and waveforms are measured with top panel closed.

○ Power voltage is dc 9 V and fed with regulated dc power supply from external power voltage jack.

○ Voltage and waveforms are dc with respect to ground in service mode.
no mark: STOP
(): PLAY

○ Voltages are taken with a VOM (50 $\text{k}\Omega/\text{V}$).
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.

CD

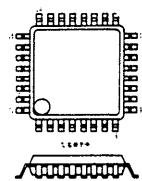
Switch

Ref. No.	Switch	Position
S701	DOOR	ON
S801	PLAY/PAUSE	OFF
S802	STOP	OFF
S803	FF	OFF
S804	FR	OFF
S805	REPEAT	OFF
S806	HOLD	OFF
S901	8/12	OFF
S902	LIMIT	OFF

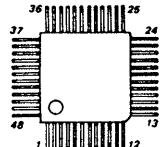
Note: The components identified by mark ▲ or dotted line with mark ▲ are critical for safety. Replace only with part number specified.

● Semiconductor Lead Layouts

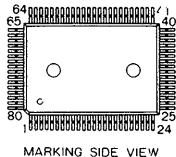
CXA1271Q



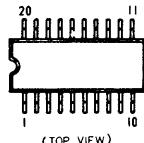
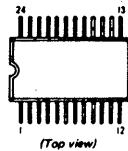
CXA1272R4



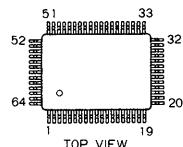
CXD1135Q



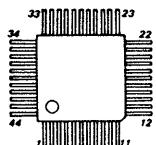
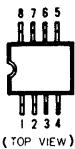
CXD1161M-3

CXK5816MA-15L
M51568FP
PCM60P

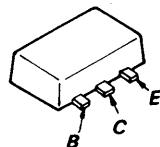
CXP5024-051Q



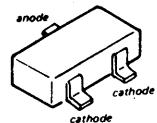
MPC1715

NJM4560M
 μ PC358G2

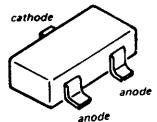
2SB798



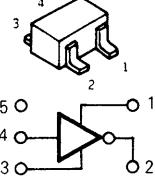
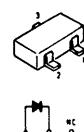
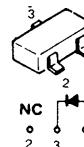
1S2835



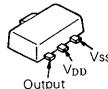
1S2837



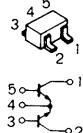
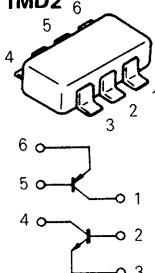
TC7S04F-TE85R

RD4.7M-B2
SB01-05CPSB05-05CP
SB10-05PCPDTA124EK
DTC124EK
2SB624-BV4
2SD1048
2SD596

S-81230AG-RB



FMW1

XN4609
XN5501
1MD2

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SECTION 3

EXPLODED VIEWS

NOTE:

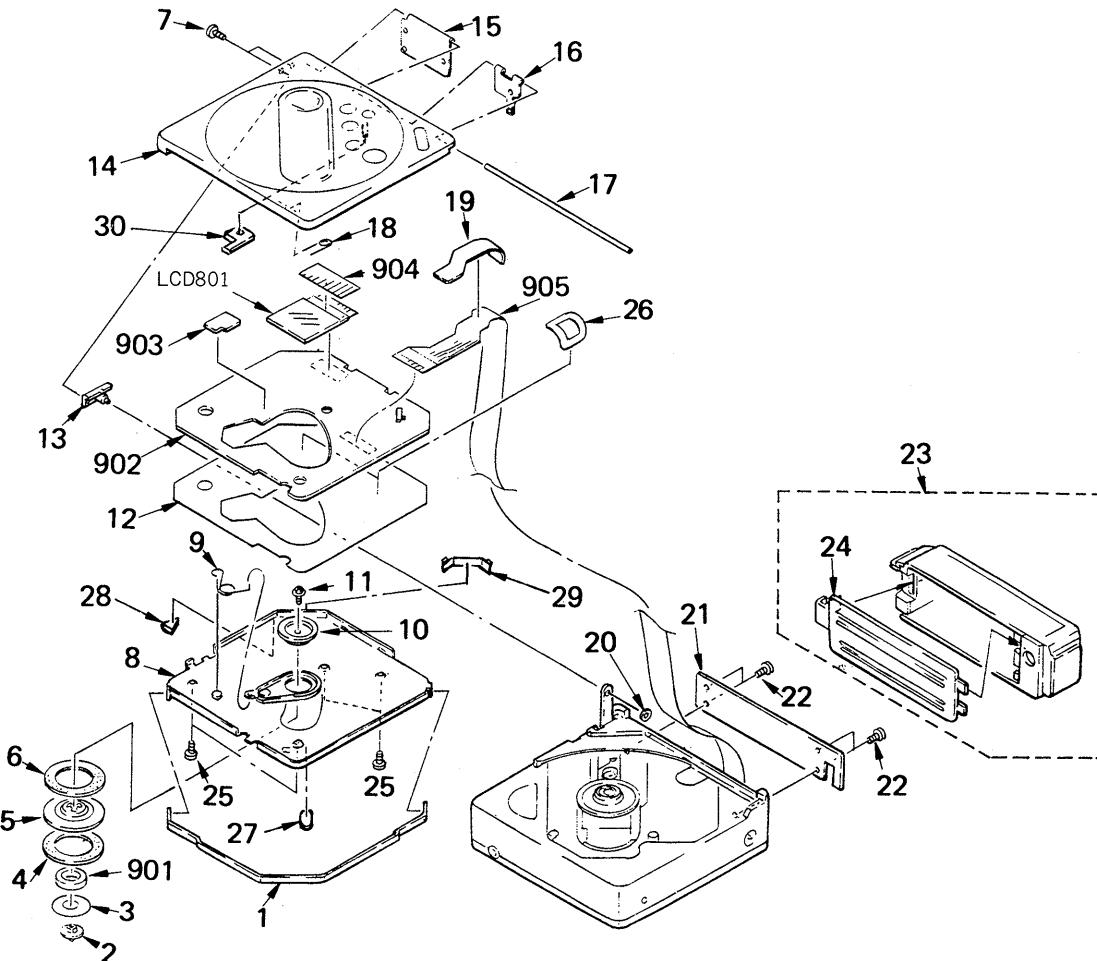
- The mechanical parts with no reference number in the exploded views are not supplied.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked “★” are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

• Due to standardization, parts with part number suffix -XX and -X may be different from the parts specified in the components used on the set.

• Color Indication of Appearance Parts
Example:

(RED) ... KNOB, BALANCE (WHITE)
 ↑ ↑
 Cabinet's Color Parts Color

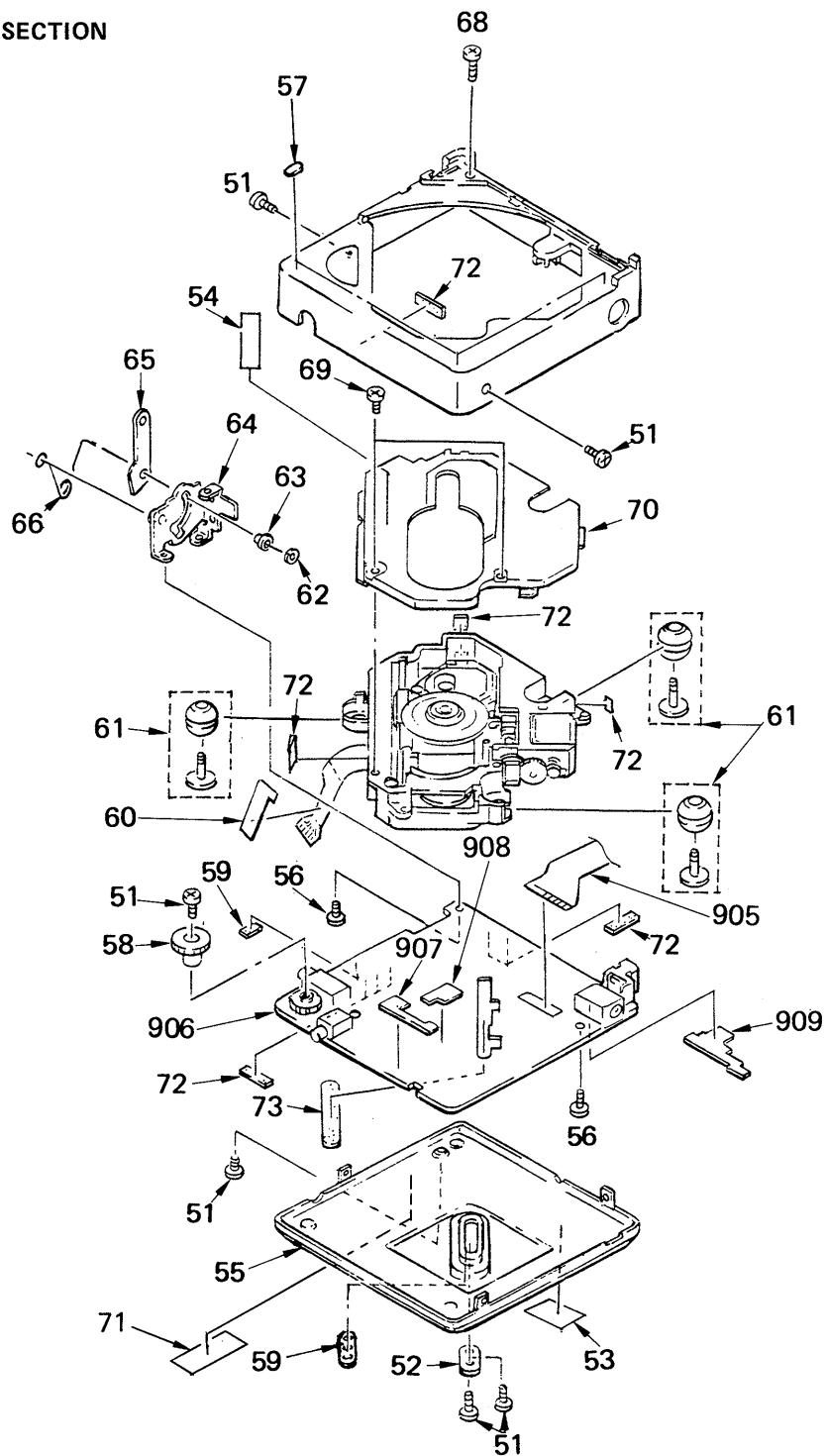
The components identified by mark or dotted line with mark are critical for safety.
Replace only with part number specified.

(1) TOP PANEL SECTION

No.	Part No.	Description	Remarks	No.	Part No.	Description	Remarks
1	4-926-509-01	ADAPTER		19	4-926-557-01	SHEET, INSULATING, CPU UP FLEXIBLE	
2	4-926-513-01	SHAFT, CENTER		20	3-681-678-00	WASHER, SLIT	
3	4-924-184-01	WASHER (CHUCKING)		21	4-926-514-01	SLIDER (A)	
4	4-917-011-11	RUBBER, FRICTION		22	3-703-816-22	SCREW (M1.4X5.0), SPECIAL HEAD	
5	4-924-127-01	PLATE (A), CHUCK		23	A-3045-020-A	CASE ASSY, BATTERY	24
6	4-926-570-01	WASHER (A)		24	4-926-516-01	LID, BATTERY CASE	
7	3-703-816-72	SCREW (M1.4X3.0), SPECIAL HEAD		25	3-703-816-02	SCREW (M1.4X2.0), SPECIAL HEAD	
8	X-4917-744-1	COVER ASSY, UPPER PANEL		26	4-926-552-01	SHEET, ADHESIVE, CPU PC BOARD	
9	4-926-299-01	SPRING		27	4-926-561-01	RUBBER (B), RETAINER, DISC	
10	4-926-294-01	PLATE (B), CHUCK		28	4-926-568-01	RUBBER, RETAINER, P COVER	
11	X-4917-748-1	SCREW ASSY, CHUCKING RETAINER		29	4-926-539-01	CLAW, LOCK	
12	4-926-553-01	SHEET, INSULATING, CPU PC BOARD		30	4-926-583-01	CONDUCTOR	
13	X-4917-745-1	PLATE ASSY, PANEL		901	1-452-473-11	MAGNET	
14	X-4917-743-1	PANEL ASSY, UPPER		902	*1-626-981-11	PC BOARD, CPU	
15	4-926-501-01	HINGE (L)		903	*1-627-209-11	PC BOARD, RST	
16	4-926-541-01	HINGE (R)		904	1-565-564-11	CONNECTOR, HEAT SHIEL	
17	4-926-502-01	SHAFT, FULCRUM		905	1-626-985-11	PC BOARD, FLEXIBLE	
18	4-926-537-11	SPRING		LCD801	1-808-440-11	DISPLAY PANEL, LIQUID CRYSTAL	

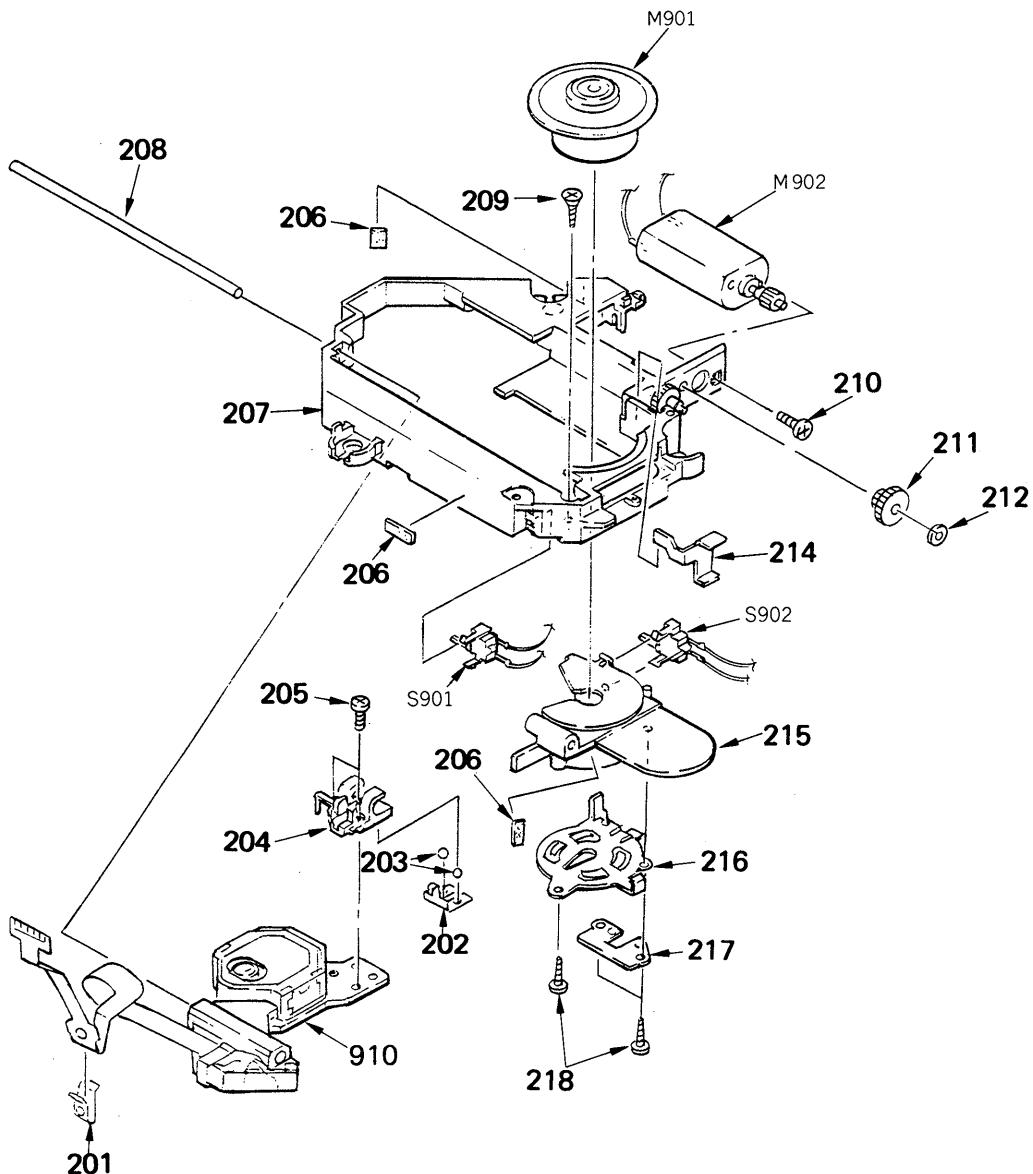
REVISED

(2) GENERAL SECTION



No.	Part No.	Description	Remarks	No.	Part No.	Description	Remarks
51	3-703-816-72	SCREW (M1.4X3.0), SPECIAL HEAD		66	4-926-538-01	SPRING	
54	4-908-711-01	LABEL, CAUTION, LENS		67	4-926-286-01	CABINET	
55	X-4917-747-1	PANEL ASSY, LOWER		68	3-703-816-22	SCREW (M1.4X5.0), SPECIAL HEAD	
56	4-908-792-31	SCREW (B2) (M2X4), TAPPING		69	3-895-823-01	SCREW (B1.4X2.3), TAPPING	
57	4-926-543-01	RUBBER, DISC RETAINER		70	X-4917-749-1	COVER ASSY, MD	
58	4-926-510-01	KNOB, VOLUME		71	4-926-591-01	(AEP,UK)...LABEL, CLASS 1	
59	4-926-560-01	SHEET, BLIND		72	3-831-441-XX	CUSHION	
60	4-926-559-01	PAPER, SHIELD, PAL FLEXIBLE		73	4-926-525-01	SHEET, BLIND, BOTTOM	
61	X-4917-723-1	INSULATOR ASSY		905	1-626-985-11	PC BOARD, FLEXIBLE	
62	3-681-678-00	WASHER, SLIT		906	A-3015-650-A	PC BOARD ASSY, MAIN	
63	4-926-505-01	ROLLER		907	*1-627-296-11	PC BOARD, A	
64	X-4917-741-1	BRACKET ASSY, SWITCHING		908	*1-627-341-11	PC BOARD, D	
65	X-4917-742-1	ARM ASSY, SWITCHING		909	*1-627-297-11	PC BOARD, B	
52	4-926-511-01	BUTTON, SELECTION					
53	*4-926-555-01	LABEL, MODEL NUMBER					

(3) MECHANISM SECTION (CDM-88)



No.	Part No.	Description	Remarks	No.	Part No.	Description	Remarks
201	4-917-622-01	RETAINER, FLEXIBLE		212	3-315-384-11	WASHER, STOPPER	
202	4-921-296-01	SPRING		214	4-926-276-01	SPRING	
203	7-671-111-11	STEEL, BOUL 1.5MM		215	X-4917-740-1	TABLE ASSY, FITTING, MOTOR	
204	4-926-283-01	RACK (A)		216	4-926-282-01	RETAINER, MOTOR	
205	7-627-552-38	SCREW, PRECISION +P 1.7X3		217	X-4917-746-1	BRACKET ASSY, KNOB	
206	3-831-441-XX	CUSHION		218	4-912-432-01	SCREW (B1.4X5), TAPPING	
207	X-4905-163-1	CHASSIS ASSY, MD		910	A-8-848-111-11	PIK-UP, OPTICS KSS-167A	
208	4-926-277-01	SHAFT (A)		M901	A-3133-351-A	MOTOR ASSY, CLV	
209	7-685-205-14	SCREW (B2X8), TAPPING, (+) (K)		M902	A-3133-334-A	MOTOR SUB ASSY, FEED	
210	7-627-553-38	SCREW, PRECISION +P 2X3		S901	1-571-099-11	SWITCH	
211	4-921-292-01	GEAR (B)		S902	1-571-099-11	SWITCH	

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

SECTION 4

ELECTRICAL PARTS LIST

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.
- Items marked “★” are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- If there are two or more same circuits in a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

CAPACITORS:MF: μ F, PF: $\mu\mu$ F.**RESISTORS**

- All resistors are in ohms.
- F: nonflammable

COILS

- MMH: mH, UH: μ H

SEMICONDUCTORSIn each case, U: μ , for example:UA...: μ A..., UPA...: μ PA...,UPC...: μ PC, UPD...: μ PD...

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

Ref.No.	Part No.	Description				Ref.No.	Part No.	Description			
901	1-452-473-11	MAGNET				C510	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
902	*1-626-981-11	PC BOARD, CPU				C511	1-135-104-00	TANTAL. CHIP	10MF	20%	4V
903	*1-627-209-11	PC BOARD, RST				C512	1-135-104-00	TANTAL. CHIP	10MF	20%	4V
904	1-565-564-11	CONNECTOR, HEAT SHIEL				C513	1-163-038-00	CERAMIC CHIP	0.1MF		25V
905	1-626-985-11	PC BOARD, FLEXIBLE				C515	1-163-989-11	CERAMIC CHIP	0.033MF	10%	25V
906	A-3015-650-A	PC BOARD ASSY, MAIN				C516	1-162-637-11	CERAMIC CHIP	0.47MF		16V
907	*1-627-296-11	PC BOARD, A				C517	1-163-038-00	CERAMIC CHIP	0.1MF		25V
908	*1-627-341-11	PC BOARD, D				C518	1-163-037-11	CERAMIC CHIP	0.022MF	10%	25V
909	*1-627-297-11	PC BOARD, B				C519	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
910	▲.8-848-111-11	PIK-UP, OPTICS KSS-167A				C520	1-163-141-00	CERAMIC CHIP	0.001MF	5%	50V
C101	1-163-209-00	CERAMIC CHIP 0.0015MF	5%	50V		C521	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C102	1-163-212-00	CERAMIC CHIP 0.002MF	5%	50V		C522	1-135-130-11	TANTAL. CHIP	4.7MF	20%	6.3V
C103	1-163-117-00	CERAMIC CHIP 100PF	5%	50V		C523	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C104	1-135-099-00	TANTAL. CHIP 2.2MF	20%	6.3V		C524	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C105	1-163-013-00	CERAMIC CHIP 0.0022MF	10%	50V		C525	1-163-037-11	CERAMIC CHIP	0.022MF	10%	25V
C106	1-135-099-00	TANTAL. CHIP 2.2MF	20%	6.3V		C526	1-135-130-11	TANTAL. CHIP	4.7MF	20%	6.3V
C108	1-124-225-00	ELECT 100MF	20%	6.3V		C527	1-163-109-00	CERAMIC CHIP	47PF	5%	50V
C109	1-163-209-00	CERAMIC CHIP 0.0015MF	5%	50V		C528	1-135-131-11	TANTAL. CHIP	22MF	10%	4V
C110	1-135-174-11	TANTAL. CHIP 10MF	20%	10V		C529	1-163-081-00	CERAMIC CHIP	0.22MF		25V
C111	1-162-294-31	CERAMIC 0.001MF	10%	50V		C530	1-163-125-00	CERAMIC CHIP	220PF	5%	50V
C201	1-163-209-00	CERAMIC CHIP 0.0015MF	5%	50V		C531	1-135-091-00	TANTAL. CHIP	1MF	20%	16V
C202	1-163-212-00	CERAMIC CHIP 0.002MF	5%	50V		C532	1-135-174-11	TANTAL. CHIP	10MF	20%	10V
C203	1-163-117-00	CERAMIC CHIP 100PF	5%	50V		C533	1-163-081-00	CERAMIC CHIP	0.22MF		25V
C204	1-135-099-00	TANTAL. CHIP 2.2MF	20%	6.3V		C534	1-163-986-00	CERAMIC CHIP	0.027MF	10%	25V
C205	1-163-013-00	CERAMIC CHIP 0.0022MF	10%	50V		C535	1-162-638-11	CERAMIC CHIP	1MF		16V
C206	1-135-099-00	TANTAL. CHIP 2.2MF	20%	6.3V		C536	1-135-105-00	TANTAL. CHIP	33MF	20%	4V
C208	1-124-225-00	ELECT 100MF	20%	6.3V		C537	1-162-638-11	CERAMIC CHIP	1MF		16V
C209	1-163-209-00	CERAMIC CHIP 0.0015MF	5%	50V		C538	1-162-638-11	CERAMIC CHIP	1MF		16V
C210	1-135-174-11	TANTAL. CHIP 10MF	20%	10V		C539	1-163-141-00	CERAMIC CHIP	0.001MF	5%	50V
C211	1-162-294-31	CERAMIC 0.001MF	10%	50V		C541	1-135-091-00	TANTAL. CHIP	1MF	20%	16V
C301	1-135-101-21	TANTAL. CHIP 22MF	20%	6.3V		C542	1-135-174-11	TANTAL. CHIP	10MF	20%	10V
C302	1-135-101-21	TANTAL. CHIP 22MF	20%	6.3V		C543	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C303	1-135-101-21	TANTAL. CHIP 22MF	20%	6.3V		C545	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C304	1-135-105-00	TANTAL. CHIP 33MF	20%	4V		C546	1-135-131-11	TANTAL. CHIP	22MF	10%	4V
C305	1-124-225-00	ELECT 100MF	20%	6.3V		C547	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C306	1-163-077-00	CERAMIC CHIP 0.1MF		50V		C548	1-135-105-00	TANTAL. CHIP	33MF	20%	4V
C307	1-162-637-11	CERAMIC CHIP 0.47MF		16V		C550	1-135-131-11	TANTAL. CHIP	22MF	10%	4V
C501	1-163-038-00	CERAMIC CHIP 0.1MF		25V		C551	1-135-105-00	TANTAL. CHIP	33MF	20%	4V
C502	1-135-105-00	TANTAL. CHIP 33MF	20%	4V		C552	1-135-105-00	TANTAL. CHIP	33MF	20%	4V
C503	1-163-095-00	CERAMIC CHIP 12PF	5%	50V		C553	1-163-127-00	CERAMIC CHIP	270PF	5%	50V
C504	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V		C554	1-124-225-00	ELECT	100MF	20%	6.3V
C505	1-163-023-00	CERAMIC CHIP 0.015MF	10%	50V		C555	1-124-434-00	ELECT	220MF	20%	4V
C506	1-135-105-00	TANTAL. CHIP 33MF	20%	4V		C556	1-124-225-00	ELECT	100MF	20%	6.3V
C507	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V		C557	1-163-037-11	CERAMIC CHIP	0.022MF	10%	25V
C508	1-163-989-11	CERAMIC CHIP 0.033MF	10%	25V		C558	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C509	1-162-637-11	CERAMIC CHIP 0.47MF		16V							

Ref.No.	Part No.	Description			Ref.No.	Part No.	Description
C601	1-163-101-00	CERAMIC CHIP 22PF	5%	50V	D802	8-719-100-03	DIODE 1S2835
C602	1-163-101-00	CERAMIC CHIP 22PF	5%	50V	D803	8-719-100-05	DIODE 1S2837
C603	1-163-141-00	CERAMIC CHIP 0.001MF	5%	50V	D805	8-719-100-05	DIODE 1S2837
C604	1-163-809-11	CERAMIC CHIP 0.047MF	10%	25V	D806	8-719-100-05	DIODE 1S2837
C605	1-163-117-00	CERAMIC CHIP 100PF	5%	50V	D807	8-719-108-12	DIODE RD9.1EW
C606	1-163-117-00	CERAMIC CHIP 100PF	5%	50V	IC301	8-759-805-34	IC CXD1161M-3
C607	1-162-638-11	CERAMIC 1MF		16V	IC302	8-759-745-64	IC NJM4560M
C608	1-163-117-00	CERAMIC CHIP 100PF	5%	50V	IC303	8-759-630-75	IC M51568FP
C609	1-163-117-00	CERAMIC CHIP 100PF	5%	50V	IC501	8-752-033-55	IC CXA1271Q
C701	1-135-105-00	TANTAL. CHIP 33MF	20%	4V	IC502	8-752-034-64	IC CXA1272R4
C702	1-135-105-00	TANTAL. CHIP 33MF	20%	4V	IC503	8-759-030-17	IC MPC1715FU
C703	1-135-105-00	TANTAL. CHIP 33MF	20%	4V	IC504	8-759-230-43	IC TC7S04F
C704	1-163-141-00	CERAMIC CHIP 0.001MF	5%	50V	IC601	8-752-947-61	IC CXD1135Q
C705	1-135-174-11	TANTAL. CHIP 10MF	20%	10V	IC602	8-759-100-94	IC UPC358G2
C706	1-135-130-11	TANTAL. CHIP 4.7MF	20%	6.3V	IC603	8-752-328-67	IC CXK5816MA-15L
C707	1-126-369-11	ELECT 220MF	20%	6.3V	IC701	8-759-230-43	IC TC7S04F
C708	1-135-101-21	TANTAL. CHIP 22MF	20%	6.3V	IC702	8-759-939-41	IC S-81230AG-RB
C709	1-135-101-21	TANTAL. CHIP 22MF	20%	6.3V	IC801	8-752-805-42	IC CXP5024-051Q
C710	1-135-104-00	TANTAL. CHIP 10MF	20%	4V	J301	1-563-280-11	JACK (HEADPHONES)
C712	1-163-117-00	CERAMIC CHIP 100PF	5%	50V	J701	1-562-961-11	JACK (DC IN 9V)
C713	1-162-282-31	CERAMIC 100PF	10%	50V	J801	1-563-280-31	JACK (REMOTE)
C714	1-163-038-00	CERAMIC CHIP 0.1MF		25V	JR301	1-216-295-00	METAL GLAZE 0 5% 1/10W
C801	1-135-099-00	TANTAL. CHIP 2.2MF	20%	6.3V	JR501	1-216-295-00	METAL GLAZE 0 5% 1/10W
C802	1-135-099-00	TANTAL. CHIP 2.2MF	20%	6.3V	JR503	1-216-295-00	METAL GLAZE 0 5% 1/10W
C803	1-163-113-00	CERAMIC CHIP 68PF	5%	50V	JR504	1-216-295-00	METAL GLAZE 0 5% 1/10W
C804	1-163-113-00	CERAMIC CHIP 68PF	5%	50V	JR701	1-216-295-00	METAL GLAZE 0 5% 1/10W
C805	1-135-131-11	TANTAL. CHIP 22MF	10%	4V	JR702	1-216-296-00	METAL GLAZE 0 5% 1/8W
C806	1-163-038-00	CERAMIC CHIP 0.1MF		25V	L501	1-412-039-51	INDUCTOR CHIP 100UH
C807	1-162-638-11	CERAMIC CHIP 1MF		16V	L502	1-412-038-11	INDUCTOR CHIP 100UH
C808	1-162-282-31	CERAMIC 100PF	10%	50V	L503	1-412-039-51	INDUCTOR CHIP 100UH
C809	1-162-282-31	CERAMIC 100PF	10%	50V	L504	1-412-039-51	INDUCTOR CHIP 100UH
CN501	1-563-546-11	HOUSING, CONNECTOR 12P			L505	1-412-036-11	INDUCTOR CHIP 10UH
CN502	1-563-552-11	SOCKET, CONNECTOR 4P			L701	1-412-036-11	INDUCTOR CHIP 10UH
CNJ701	1-535-724-11	TERMINAL, BATTERY			L702	1-412-036-11	INDUCTOR CHIP 10UH
D301	8-719-100-05	DIODE 1S2837			L703	1-412-039-51	INDUCTOR CHIP 100UH
D501	8-719-938-72	DIODE SB01-05CP			L704	1-412-037-11	INDUCTOR CHIP 47UH
D502	8-719-938-72	DIODE SB01-05CP			LCD801	1-808-440-11	DISPLAY PANEL, LIQUID CRYSTAL
D503	8-719-938-72	DIODE SB01-05CP			M901	A-3133-351-A	MOTOR ASSY, CLV
D504	8-719-100-05	DIODE 1S2837			M902	A-3133-334-A	MOTOR SUB ASSY, FEED
D601	8-719-938-72	DIODE SB01-05CP			Q101	8-729-159-64	TRANSISTOR 2SD596
D602	8-719-108-12	DIODE RD9.1EW			Q201	8-729-159-64	TRANSISTOR 2SD596
D701	8-719-938-75	DIODE SB05-05CP			Q301	8-729-907-39	TRANSISTOR IMD2
D702	8-719-105-73	DIODE RD4.7M-B2			Q501	8-729-402-90	TRANSISTOR XN4609
D704	8-719-938-78	DIODE SB10-05PCP			Q506	8-729-402-75	TRANSISTOR XN5501
D705	8-719-108-12	DIODE RD9.1EW			Q507	8-729-901-05	TRANSISTOR DTA124EK
D801	8-719-100-03	DIODE 1S2837					

Ref.No.	Part No.	Description					Ref.No.	Part No.	Description				
Q508	8-729-805-43	TRANSISTOR	2SC3396				R502	1-216-001-00	METAL GLAZE	10	5%	1/10W	
Q509	8-729-162-44	TRANSISTOR	2SB624-BV4				R503	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
Q701	8-729-903-10	TRANSISTOR	FMW1				R504	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
Q702	8-729-101-07	TRANSISTOR	2SB798				R505	1-216-071-00	METAL GLAZE	8.2K	5%	1/10W	
Q704	8-729-800-36	TRANSISTOR	2SD1048				R506	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
Q706	8-729-903-10	TRANSISTOR	FMW1				R507	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W	
Q707	8-729-101-07	TRANSISTOR	2SB798				R510	1-216-075-00	METAL GLAZE	12K	5%	1/10W	
Q708	8-729-901-05	TRANSISTOR	DTA124EK				R512	1-216-095-00	METAL GLAZE	82K	5%	1/10W	
Q709	8-729-901-00	TRANSISTOR	DTC124EK				R513	1-216-121-00	METAL GLAZE	1M	5%	1/10W	
Q711	8-729-162-44	TRANSISTOR	2SD596				R514	1-216-083-00	METAL GLAZE	27K	5%	1/10W	
Q712	8-729-101-07	TRANSISTOR	2SB798				R515	1-216-093-00	METAL GLAZE	68K	5%	1/10W	
Q713	8-729-101-07	TRANSISTOR	2SB798				R516	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W	
Q801	8-729-901-05	TRANSISTOR	DTA124EK				R517	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
Q802	8-729-800-36	TRANSISTOR	2SD1048				R518	1-216-062-00	METAL GLAZE	3.6K	5%	1/10W	
R101	1-216-596-11	METAL GLAZE	2.7K	1%		1/10W	R519	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W	
R102	1-216-334-11	METAL GLAZE	22K	1%		1/10W	R520	1-249-429-11	CARBON	10K	5%	1/4W	
R103	1-216-324-11	METAL GLAZE	10K	1%		1/10W	R521	1-216-103-00	METAL GLAZE	180K	5%	1/10W	
R104	1-216-334-11	METAL GLAZE	22K	1%		1/10W	R522	1-216-115-00	METAL GLAZE	560K	5%	1/10W	
R105	1-216-156-11	METAL GLAZE	8.2K	1%		1/10W	R523	1-216-677-11	METAL CHIP	12K	0.50%	1/10W	
R106	1-216-333-11	METAL GLAZE	15K	1%		1/10W	R524	1-216-095-00	METAL GLAZE	82K	5%	1/10W	
R107	1-216-067-00	METAL GLAZE	5.6K	5%		1/10W	R525	1-216-677-11	METAL CHIP	12K	0.50%	1/10W	
R108	1-216-053-00	METAL GLAZE	1.5K	5%		1/10W	R526	1-216-095-00	METAL GLAZE	82K	5%	1/10W	
R109	1-216-009-00	METAL GLAZE	22	5%		1/10W	R527	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R110	1-216-043-00	METAL GLAZE	560	5%		1/10W	R528	1-216-118-00	METAL GLAZE	750K	5%	1/10W	
R111	1-216-073-00	METAL GLAZE	10K	5%		1/10W	R529	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R112	1-216-053-00	METAL GLAZE	1.5K	5%		1/10W	R530	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R113	1-216-097-00	METAL GLAZE	100K	5%		1/10W	R531	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R201	1-216-596-11	METAL GLAZE	2.7K	1%		1/10W	R532	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R202	1-216-334-11	METAL GLAZE	22K	1%		1/10W	R533	1-216-748-11	METAL GLAZE	39K	5%	1/10W	
R203	1-216-324-11	METAL GLAZE	10K	1%		1/10W	R534	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R204	1-216-334-11	METAL GLAZE	22K	1%		1/10W	R535	1-216-121-00	METAL GLAZE	1M	5%	1/10W	
R205	1-216-156-11	METAL GLAZE	8.2K	1%		1/10W	R536	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R206	1-216-333-11	METAL GLAZE	15K	1%		1/10W	R537	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R207	1-216-067-00	METAL GLAZE	5.6K	5%		1/10W	R538	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R208	1-216-053-00	METAL GLAZE	1.5K	5%		1/10W	R540	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R209	1-216-009-00	METAL GLAZE	22	5%		1/10W	R541	1-216-125-00	METAL GLAZE	1.5M	5%	1/10W	
R210	1-216-043-00	METAL GLAZE	560	5%		1/10W	R542	1-216-109-00	METAL GLAZE	330K	5%	1/10W	
R211	1-216-073-00	METAL GLAZE	10K	5%		1/10W	R543	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R212	1-216-053-00	METAL GLAZE	1.5K	5%		1/10W	R544	1-216-238-00	METAL GLAZE	47K	5%	1/8W	
R213	1-216-097-00	METAL GLAZE	100K	5%		1/10W	R545	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R301	1-216-121-00	METAL GLAZE	1M	5%		1/10W	R546	1-216-121-00	METAL GLAZE	1M	5%	1/10W	
R302	1-216-254-00	METAL GLAZE	220K	5%		1/8W	R547	1-216-109-00	METAL GLAZE	330K	5%	1/10W	
R303	1-216-073-00	METAL GLAZE	10K	5%		1/10W	R548	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R501	1-216-024-00	METAL GLAZE	91	5%		1/10W	R549	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
							R550	1-216-073-00	METAL GLAZE	10K	5%	1/10W	

ACCESSORY & PACKING MATERIAL

*4-926-549-01 (US).....IN

8-952-408-90 HEADPHONE MDR-E464L SET

A-3045-020-A CASE ASSY, BATTERY

9-953-253-11

**Sony Corporation
Audio Group**

—30—

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D-88

SONY® SERVICE MANUAL

*US Model
AEP Model
UK Model
E Model*

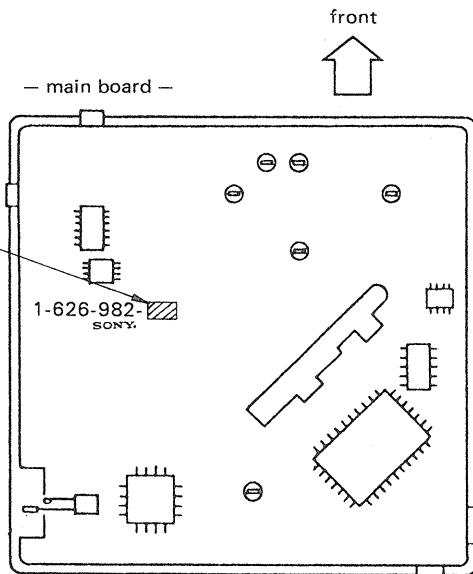
SUPPLEMENT-1

File this supplement with the service manual.

Subject: Change Main and CPU Board

NEW/FORMER DISTINCTION

former	-11
	-12
new	-13
	-14



- Service mode setting method and release have been changed by this change.

Page 5 : Changed portion

SERVICE MODE (service program)

This set has built-in service program in the micro-computer as usual sets.

The operation method of service program is explained below.

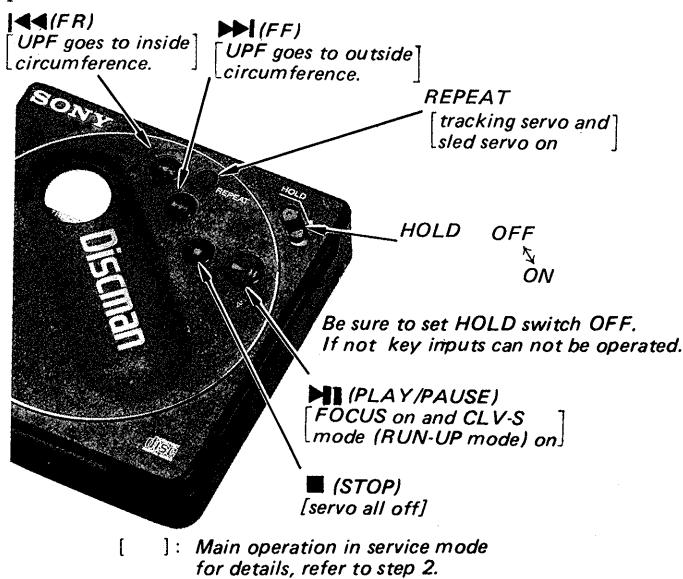


Fig. 3 Key Positions

Step 1 (Service Mode setting method)

- Turn the HOLD switch OFF with the external power supply not plugged in (no power applied to set) and press the >< key.
- Solder jumper BATT-E point.
(IC801 pin ⑯ (BATT-E) pin is grounded.)
- Remove BATT-W point solder jumper.
- Plug in external power supply.
This puts the set into service mode.

— main board —

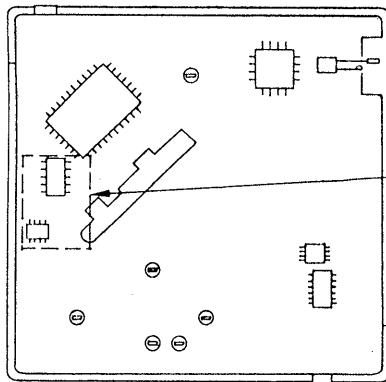


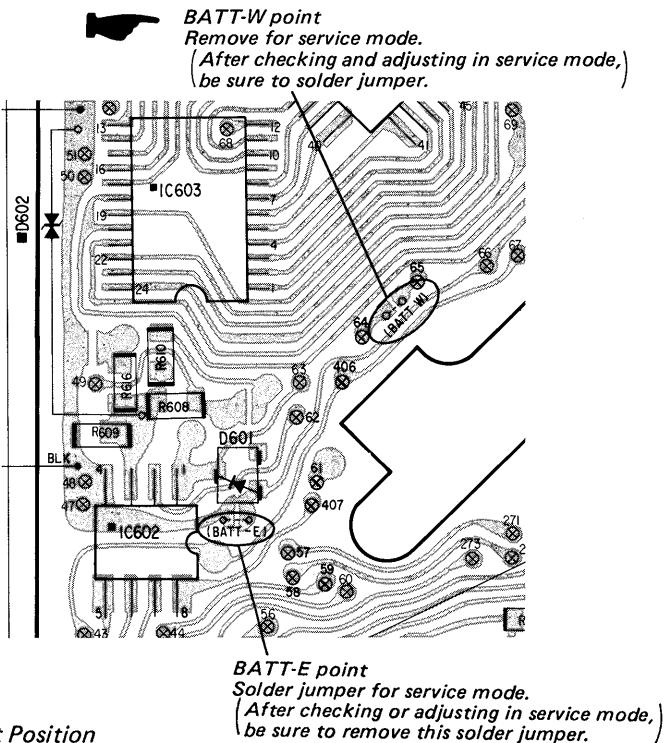
Fig. 4 BATT-E Point Position

Step 2 (Service Mode operation)

- When service mode is set, the display will change 6 times, and those 6 changes will be repeated over and over.
With this the LCD display should be present in service mode. Even if LCD does not display, other operations will be performed.
- When > or < key is pressed, the UPF moves to the inside or outside circumference. Tracking servo and sled servo go off when this is done. press KEY-MODE to turn on the tracking servo if necessary.
- When >< key is pressed, CLV-S (pull-in mode) starts while performing focus search. When there is no disc installed, focus search is repeated several times while disc motor is rotating.
- When REPEAT key is pressed, tracking servo, sled servo and CLV-A (servo during PLAY) go ON.
- When 3 and 4 are performed, the disc begins to play. At this time, the top panel should be closed and S701 are to be ON.
- All servo (focus, tracking, sled and spindle) go off when ■ key is pressed. But disc motor continues rotating for a while by inertia.

Step 3 (Service Mode release)

- First be sure to unplug the external power supply, then remove the BATT-E point solder jumper and solder jumper BATT-W point.
- The set will now operate normally.



● Changed Parts List

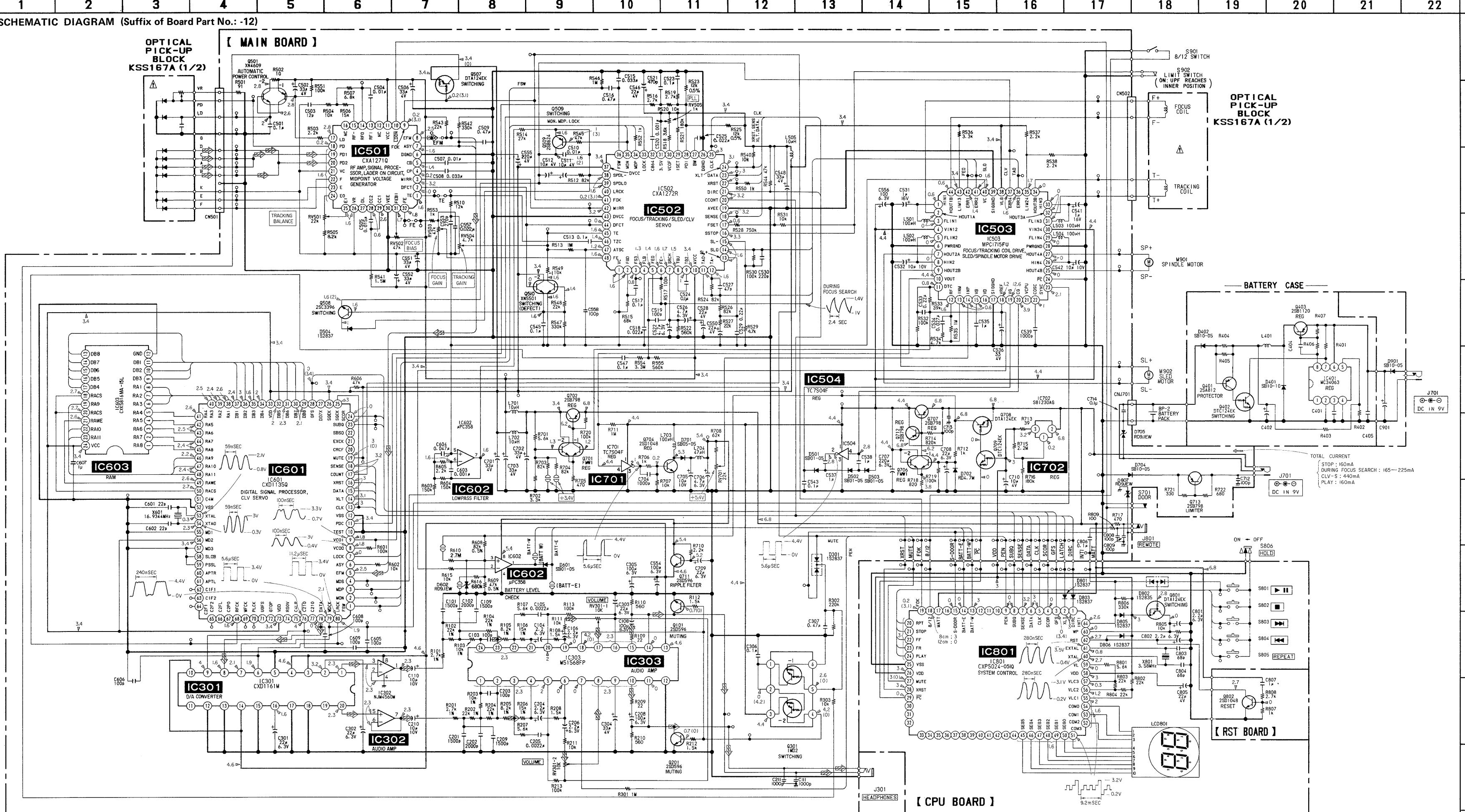
Ref. No.	Suffix of board part No.: -11	Suffix of board part No.: -12	suffix of board part No.: -13, -14
C559	_____	_____	1-163-037-11 CERAMIC CHIP 0.022 μ F
C560	_____	_____	1-163-037-11 CERAMIC CHIP 0.022 μ F
C561	_____	_____	1-163-141-11 CERAMIC CHIP 0.001 μ F
D505	_____	_____	8-719-100-05 DIODE 1S2837
D602	8-719-108-12 DIODE RD9.1EW	_____	_____
JR601	_____	_____	1-216-295-00 METAL GLAZE CHIP 0 Ω 1/10W
R540	47k Ω	_____	1-216-073-00 METAL GLAZE CHIP 10k Ω 1/10W
R550	10k Ω	_____	1-216-049-00 METAL GLAZE CHIP 1k Ω 1/10W
R610	1.8M Ω	_____	1-216-131-11 METAL GLAZE CHIP 2.7M Ω 1/10W
R616	820k Ω	_____	1-216-117-00 METAL GLAZE CHIP 60k Ω 1/10W
R630	_____	_____	1-216-127-11 METAL GLAZE CHIP 1.8M Ω 1/10W
R730	_____	_____	1-216-107-00 METAL GLAZE CHIP 270k Ω 1/10W

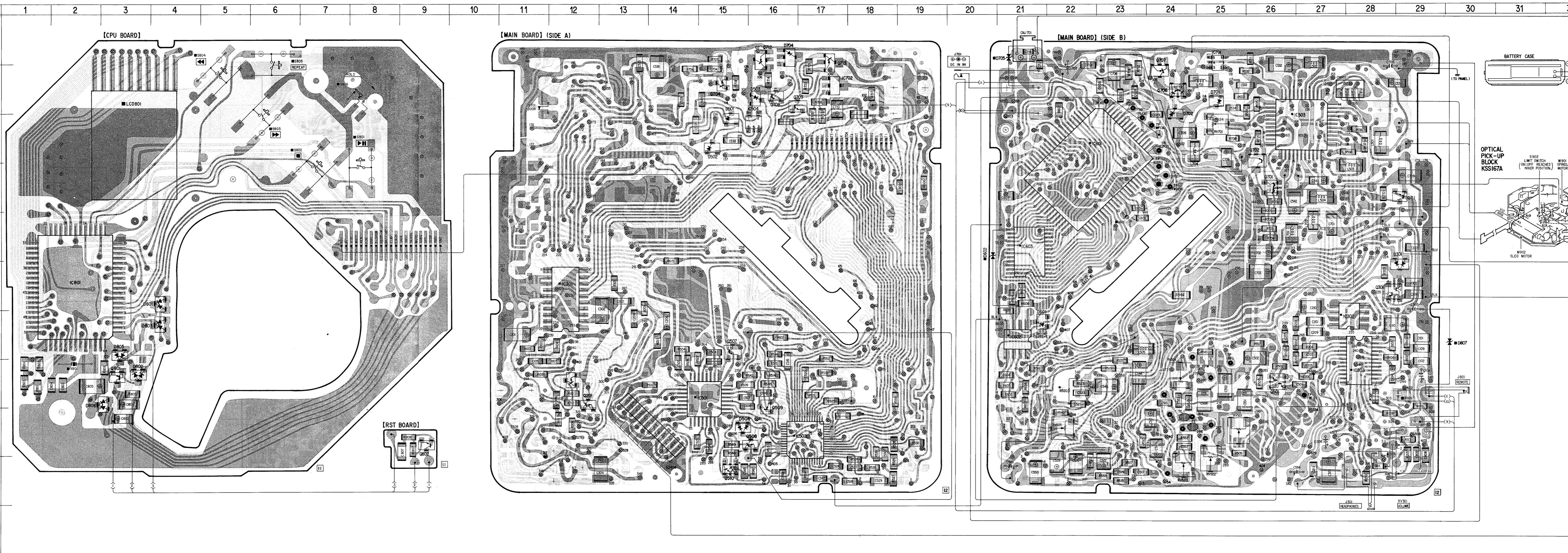
SCHEMATIC DIAGRAM (Suffix of Board Part No.: -12)

- Note:**
- All capacitors are in μF unless otherwise noted. μF : $\mu\mu\text{F}$ 50W or less are not indicated except for electrolytics and tantalums.
 - All resistors are in Ω and $1/4\text{W}$ or less unless otherwise specified.
 - % : indicates tolerance.
 - : B+ Line
 - [] : adjustment for repair.
 - Total current and voltages and waveforms are measured with top panel closed.
 - Power voltage is dc 9 V and fed with regulated dc power supply from external power voltage jack.
 - Voltage and waveforms are dc with respect to ground in service mode.
 - no mark: STOP
(): PLAY
 - Voltages are taken with a VOM (50 $k\Omega/\text{V}$). 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.
 - CD
 - Switch

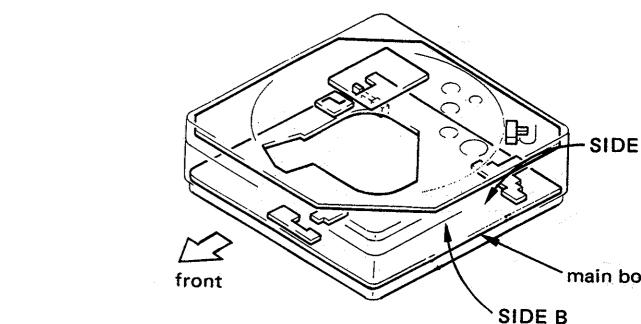
Ref. No.	Switch	Position
S701	DOOR	ON
S801	PLAY/PAUSE	OFF
S802	STOP	OFF
S803	FF	OFF
S804	FR	OFF
S805	REPEAT	OFF
S806	HOLD	OFF
S901	8/12	8cm
S902	LIMIT	OFF

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





- — : parts extracted from the component side.
- ■ : parts mounted on the conductor side.
- ⊗ : Through hole.
- ◉ : Pattern on the side which is seen.
- ◉ : Pattern of the rear side.

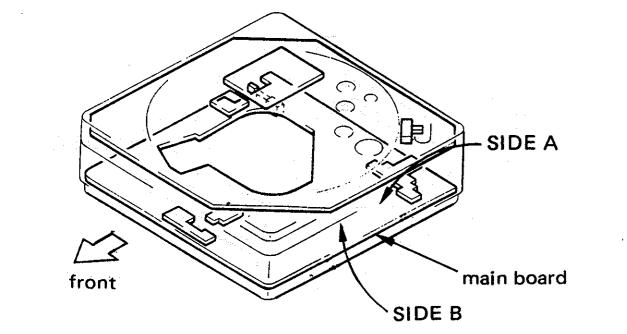


● Semiconductor Location

Ref. No.	Location	Ref. No.	Location
D301	E-29	Q101	H-12
D501	B-15	Q201	H-12
D502	C-15	Q301	F-28
D503	B-16	Q501	H-26
D504	I-15	Q507	G-15
D601	F-21	Q508	I-16
D602	E-20	Q509	H-16
D701	B-25	Q510	J-15
D702	C-24	Q701	D-26
D704	A-16	Q702	C-26
D705	A-21	Q704	B-15
D801	F-3	Q706	B-24
D802	H-3	Q707	A-24
D803	G-3	Q708	B-16
D805	G-3	Q709	B-16
D806	H-2	Q711	D-29
D807	G-30	Q712	A-16
		Q713	A-17
IC301	F-12	Q801	H-3
IC302	G-28	Q802	I-9
IC303	H-28		
IC501	H-15		
IC502	I-17		
IC503	C-27		
IC504	B-16		
IC601	C-22		
IC602	G-21		
IC603	E-21		
IC701	A-25		
IC702	B-17		
IC801	F-2		

PRINTED WIRING BOARDS (Suffix of Board Part No.: -13, -14)

- Note:
- : parts extracted from the component side.
 - : parts mounted on the conductor side.
 - ⊗ : Through hole.
 - ▨ : Pattern on the side which is seen.
 - ▨▨ : Pattern of the rear side.



● Semiconductor Location

Ref. No.	Location	Ref. No.	Location
D301	E-29	Q101	H-12
D501	B-15	Q201	H-12
D502	C-15	Q301	F-28
D503	B-16	Q501	H-26
D504	I-15	Q507	G-15
D505	G-25	Q508	I-16
D601	F-21	Q509	H-16
D701	B-25	Q510	J-15
D702	C-24	Q701	D-26
D704	A-16	Q702	C-26
D705	A-21	Q704	B-15
D801	F-3	Q706	B-24
D802	G-3	Q707	B-24
D803	G-3	Q708	B-16
D805	G-3	Q709	B-17
D806	I-2	Q711	D-29
D807	G-30	Q712	B-24
IC301	F-12	Q713	A-17
IC302	G-28	Q801	H-3
IC303	H-28	Q802	I-5
IC501	H-15		
IC502	I-17		
IC503	C-27		
IC504	C-16		
IC601	C-22		
IC602	G-21		
IC603	E-21		
IC701	A-25		
IC702	B-17		
IC801	F-2		

