SONY

COMPACT DISC PLAYER

CDP-D12

SERVICE MANUAL

1st Edition

⚠警告

このマニュアルは，サービス専用です。
お客様が，このマニュアルに記載された設置や保守，点検，修理などを行うと感電や火災，人身事故につながることがあります。
危険をさけるため，サービストレーニングを受けた技術者のみご使用ください。

⚠WARNING

This manual is intended for qualified service personnel only.
To reduce the risk of electric shock, fire or injury, do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so. Refer all servicing to qualified service personnel.

⚠WARNUNG

Die Anleitung ist nur für qualifiziertes Fachpersonal bestimmt.
Alle Wartungsarbeiten dürfen nur von qualifiziertem Fachpersonal ausgeführt werden. Um die Gefahr eines elektrischen Schlages, Feuergefahr und Verletzungen zu vermeiden, sind bei Wartungsarbeiten strikt die Angaben in der Anleitung zu befolgen. Andere als die angegeben Wartungsarbeiten dürfen nur von Personen ausgeführt werden, die eine spezielle Befähigung dazu besitzen.

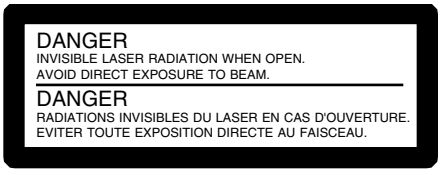
⚠AVERTISSEMENT

Ce manual est destiné uniquement aux personnes compétentes en charge de l’entretien. Afin de réduire les risques de décharge électrique, d’incendie ou de blessure n’effectuer que les réparations indiquées dans le mode d’emploi à moins d’être qualifié pour en effectuer d’autres. Pour toute réparation faire appel à une personne compétente uniquement.

CAUTION

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

For UC Model



This label is located on the top panel of the unit.

Laser Diode Properties
Wave length : 780 nm
Emission duration : Continuous
Laser output power: 30 mW (max.)

For European Model

This CDP-D12 is classified as a CLASS 1 LASER PRODUCT.
The CLASS 1 LASER PRODUCT label is located on the top panel.

CAUTION_CLASS 1M INVISIBLE LASER RADIATION WHEN OPEN.
DO NOT VIEW DIRECTLY WITH OPTICAL INSTRUMENTS.

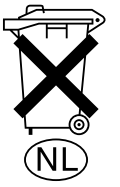
Laser diode properties
Class 1M
IEC60825-1:1993+A1:1997+A2:2001
EN60825-1: 1994+A11:1996+A2:2001
Wavelenght: 780 nm
Emission duration: Continuous
Laser output power: 30 mW (max.)

This caution label is located inside the unit.

For the customers in the Netherlands
Voor de klanten in Nederland

Hoe u de batterijen moet verwijderen, leest u in de Operatiehandleiding.

Gooi de batterij niet weg maar lever deze in als klein chemisch afval (KCA).



Für Kunden in Deutschland

Entsorgungshinweis: Bitte werfen Sie nur entladene Batterien in die Sammelboxen beim Handel oder den Kommunen. Entladen sind Batterien in der Regel dann, wenn das Gerät abschaltet und signalisiert “Batterie leer” oder nach längerer Gebrauchsdauer der Batterien “nicht mehr einwandfrei funktioniert”. Um sicherzugehen, kleben Sie die Batteriepole z.B. mit einem Klebestreifen ab oder geben Sie die Batterien einzeln in einen Plastikbeutel.

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1. Service Overview

2. Spare Parts

3. Semiconductor Pin Assignments

4. Block Diagram

5. Board Layouts

6. Schematic Diagrams

Manual Structure

Purpose of this manual

This manual is the service manual of Compact Disc Player CDP-D12.
This manual is intended for use by trained system and service engineers, and describes the information required for parts-level service.

Related manuals

Beside this Service Manual, the following manuals are available for the unit.
For obtaining, contact your local Sony Sales Office/Service Center.

- **Operating Instructions (Supplied with CDP-D12)**
  This manual describes how to operate the CDP-D12.

- **"Semiconductor Pin Assignments" CD-ROM (Available on request)**
  This "Semiconductor Pin Assignments" CD-ROM allows you to search for semiconductors used in B&P Company equipment.
  Semiconductors that cannot be searched for on this CD-ROM are listed in the service manual for the corresponding unit. The service manual contains a complete list of all semiconductors and their ID Nos., and thus should be used together with the CD-ROM.
  Part number: 9-968-546-XX

Contents

The following are summaries of the each section for understanding the manual.

Section 1 Service Overview

Describes the basic information (removal of outside panels, location of main parts, rack mounting and installation procedure) required for service, replacement of main parts, initial setting procedure, etc.

Section 2 Spare Parts

Describes the exploded views of the target parts of service, mechanical parts list and electrical parts list.

Section 3 Semiconductor Pin Assignments

Contains information on semiconductors used for the unit.
It includes a complete list of the semiconductors and their ID Nos. for retrieving information on “Semiconductor Pin Assignments” CD-ROM, which is available separately.
Please refer to this section together with the “Semiconductor Pin Assignments” CD-ROM.
Information on the semiconductors not contained in the CD-ROM at the time of issue of this manual, if any, is given in this section as well.

Section 4 Block Diagram

Describes overall block diagram and circuit description.

Section 5 Board Layouts

Describes board layouts for every circuit board.

Section 6 Schematic Diagrams

Describes schematic diagrams for every circuit board and frame wiring.

Section 1
Service Overview

1-1. Installation

1-1-1. Operating Environment

Operation temperature :	+0 °C to +40 °C (Functions guaranteed)
Storage temperature :	−20 °C to +60 °C
Mass :	Approx. 4.0 kg
Power supply voltage :	AC 100 V (for J) AC 120 V (for UC) AC 230 V (AC 220 V to 240 V) (for CE) AC 220 V (for CN)
Power supply frequency :	50/60 Hz (for J/CE/CN) 60 Hz (for UC)
Power consumption :	16 W (for J and CE) 18 W (for UC and CN)

Do not install in the following places:

- Areas exposed to direct sunlight or other strong light
- Dusty areas
- Areas with strong electric or magnetic fields
- Areas near heat sources
- Areas subject to vibration
- Areas with much electrical noise
- Areas with much static noise

Note for installation

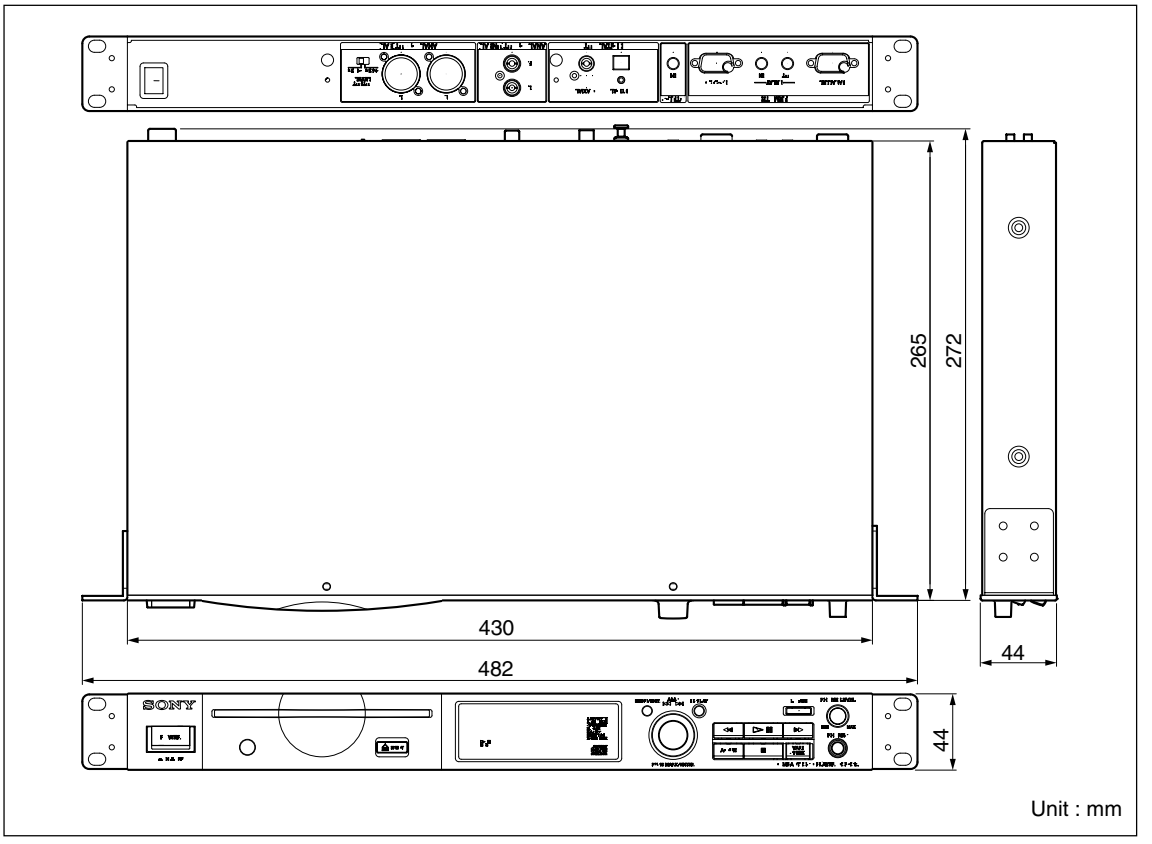
The unit has been designed to be used upright. Therefore do not place it on its side nor tilt it.

CAUTION

Laser beam

When servicing, do not approach the laser exit with the eye too closely. In case it is necessary to confirm laser beam emission, be sure to observe from a distance of more than 30 cm from the surface of the objective lens on the optical pick-up block.

1-1-2. Installation Space



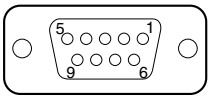
1-1-3. Matching Connectors and Cables

When connecting cables to the connectors on the connector panel, use the connectors (or cables) or their equivalent at the end of the connecting cables.

CDP-D12		**Matching connector and cable**	
Connector	**Name**	**Name**	**Sony part No.**
PARALLEL	D-sub 9-pin, Female	D-sub 9-pin, Male	1-568-182-11 (connector) 1-766-771-11 (shell)
RELAY IN/OUT	Stereo mini jack	Stereo mini plug	SONY RK-G136 or equivalent
RS232C	D-sub 9-pin, Male	D-sub 9-pin, Female	1-568-181-11 (connector) 1-563-375-11 (shell)
CTRL-S	Mini jack (ϕ3.5)	Control-S connecting cable	Accessory of CDP-D12
OPTICAL	Square optical connector	Optical digital connecting cable	–
COAXIAL	Pin jack	Pin plug	–
ANALOG OUTPUT (UNBAL) L/R	Pin jack	Pin plug	–
ANALOG OUTPUT (BAL) L/R	XLR 3P, MALE	XLR 3P, FEMALE	1-508-083-11 CANNON XLR-3-11C or equivalent

1-1-4. Input/Output Signal of Connectors

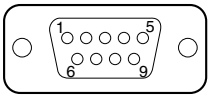
PARALLEL terminal : D-sub 9-pin, female
For the signal specifications and other details, refer to "Connecting to the PARALLEL Terminal" of the CDP-D12 Operating Instructions.
Default pin assignment of the connectors when shipped from the factory is shown below.



– EXT VIEW –

Pin No.	I/O	Function	Name in the MENU mode
1	I	PLAY	P.Input1
2	I	PAUSE	P.Input2
3	I	STOP	P.Input3
4	I	AMS+	P.Input4
5	I	AMS–	P.Input5
6	GND	–	–
7	O	PLAY	P.Output1
8	O	PAUSE	P.Output2
9	O	NO DISC	P.Output3

RS-232C : D-sub 9-pin, male
Signal specifications : Conforming to RS-232C



– EXT VIEW –

Pin No.	I/O	Signal name
1	I	DCD
2	I	RXD
3	O	TXD
4	O	DTR
5	–	GND
6	I	DSR
7	O	RTS
8	I	CTS
9	I	RI

DIGITAL OUT OPTICAL : Square optical connector
Digital audio signal output of the AES/EBU format
Output level : −18 dBm, radiating wavelength : 660 mm

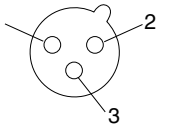
DIGITAL OUT COAXIAL : Phone jack
Digital audio signal output of the AES/EBU format
Output leve l: 0.5 Vp-p ±20%
Load impedance : 75 Ω

ANALOG OUT (UNBAL) L/R : Phone jack
Analog audio signal output (unbalanced)
Maximum output level +8 dBu (0 dBu = 0.775 Vrms)
Load impedance : 10 kΩ or more

ANALOG OUT (BAL) L/R : XLR type, 3-pins, male
Analog audio signal output (balanced)
Reference output level +4 dBu
Maximum output level +10/+24 dBu (selectable)
Load impedance : 600 Ω

– Outside view – Male

1. GND
2. HOT
3. COLD

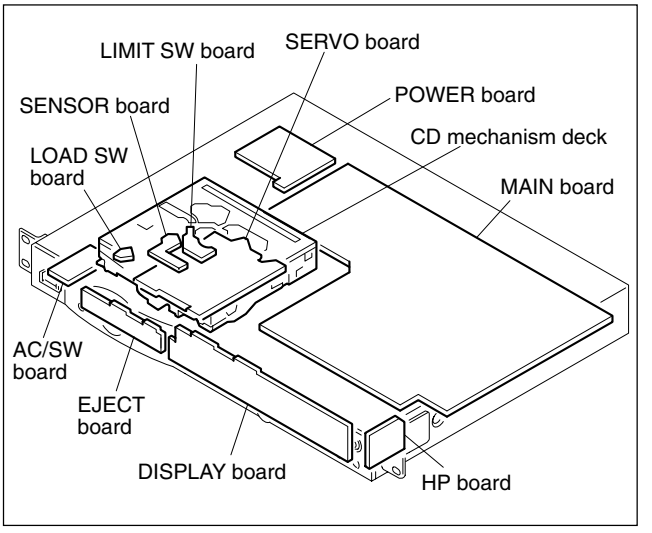


PHONES : Stereo phone jack
Analog audio signal output
Maximum output level 0 to 10 mW, variable level
Load impedance : 32 Ω

1-1-5. Rack Mount

CDP-D12 can be mounted in the EIA standard 19-inch rack. Remove the four feet in the bottom and mount it in the rack. To remove the four feet in the bottom, extract the plastic pin that is inserted in the center of each foot with a pair of tweezers or the like. After removing the pin, remove the foot.

1-2. Main Parts and Circuit Boards Layouts



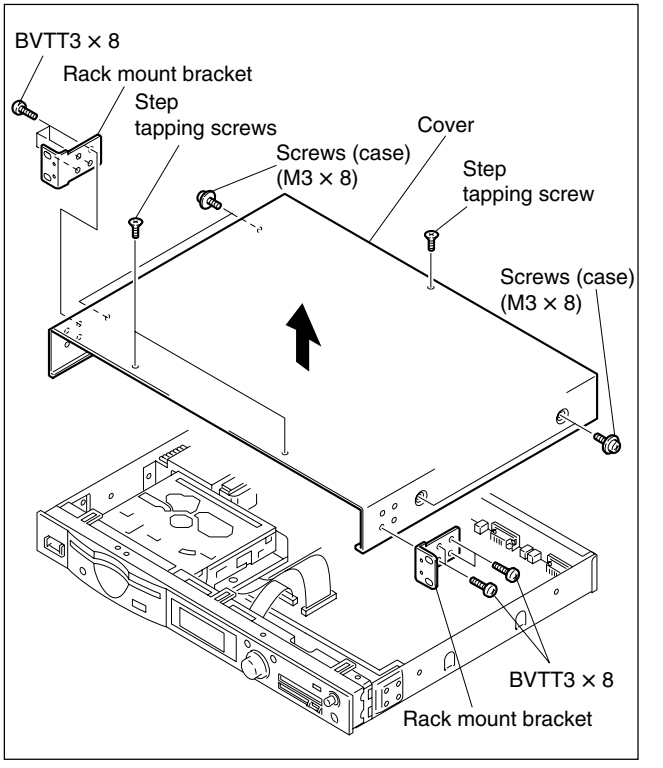
1-3. Removing the Cabinet

Note

Before starting the parts replacement, turn off the power and disconnect the plug from the outlet.

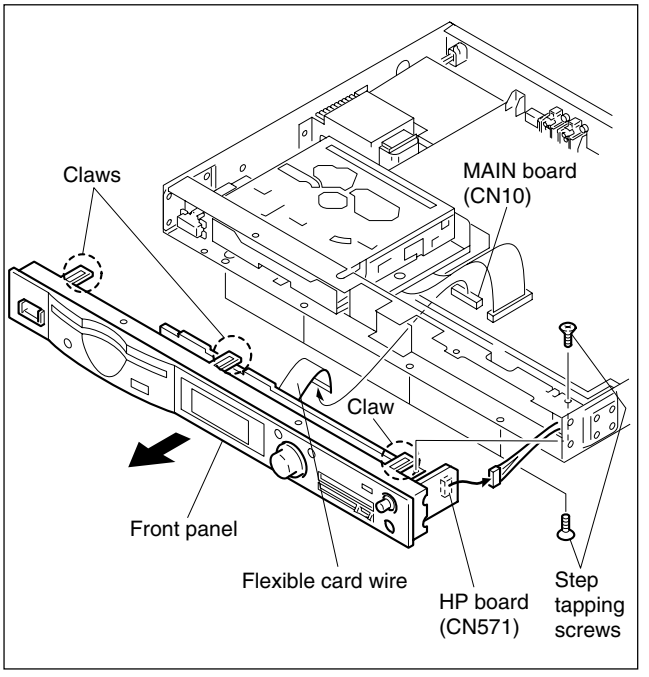
1-3-1. Cover

1. Remove the eight screws (BVTT3 × 8) and remove the rack mount bracket.
2. Remove the four screws (case) (M3 × 8), remove the three step tapping screws (M3 × 8), and remove the cover in the direction of the arrow.



1-3-2. Front Panel

1. Remove the cover. (Refer to Section 1-3-1.)
2. Disconnect the flexible card wire from the connector (CN10) on the MAIN board.
3. Disconnect the connector (CN571) on the HP board.
4. Remove the five step tapping screws, disengage the claws at the three positions, and remove front panel in the direction of the arrow.



1-4. Replacement of Main Parts

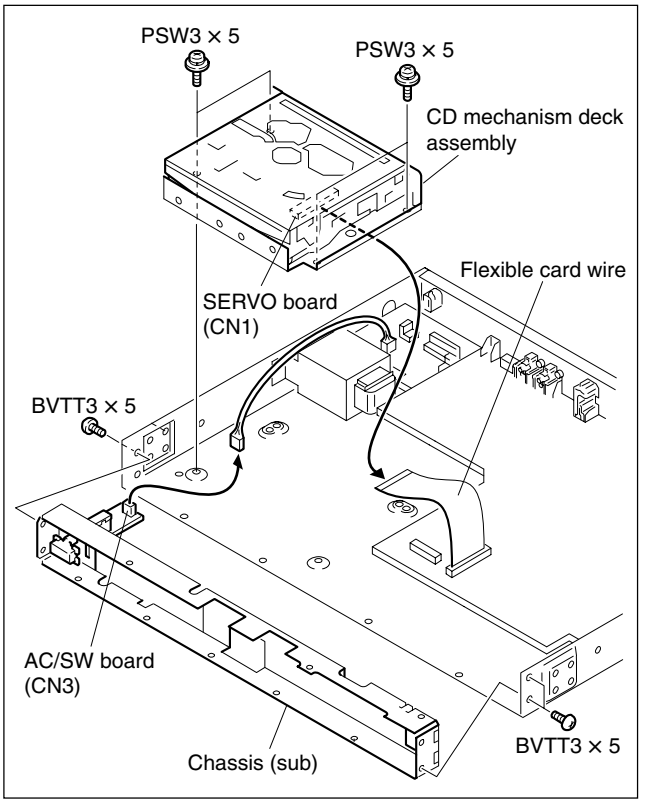
Note

Before starting the parts replacement, turn off the power and disconnect the plug from the outlet.

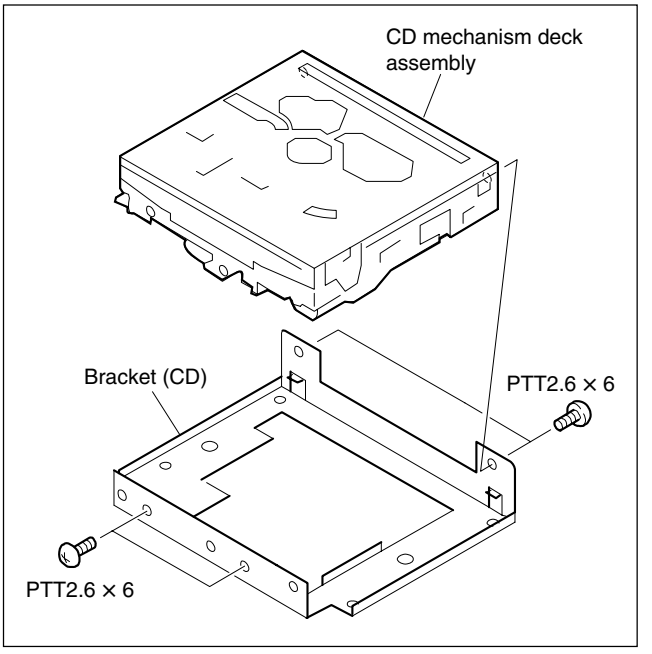
1-4-1. Removing and Installing the CD Mechanism Deck Assembly (MG-398SC-121) and Internal Parts

1. CD mechanism deck assembly (MG-398SC-121)

1. Remove the cover and the front panel. (Refer to 1-3 “Removing the Cabinet”.)
2. Disconnect the harness from the connector (CN3) on the AC/SW board.
3. Remove the four screws (BVTT3 × 5) and remove the chassis (SUB).
4. Remove the four screws (PSW3 × 5) and remove the CD mechanism deck assembly.
5. Disconnect the flexible card wire from the connector (CN1) on the SERVO board.

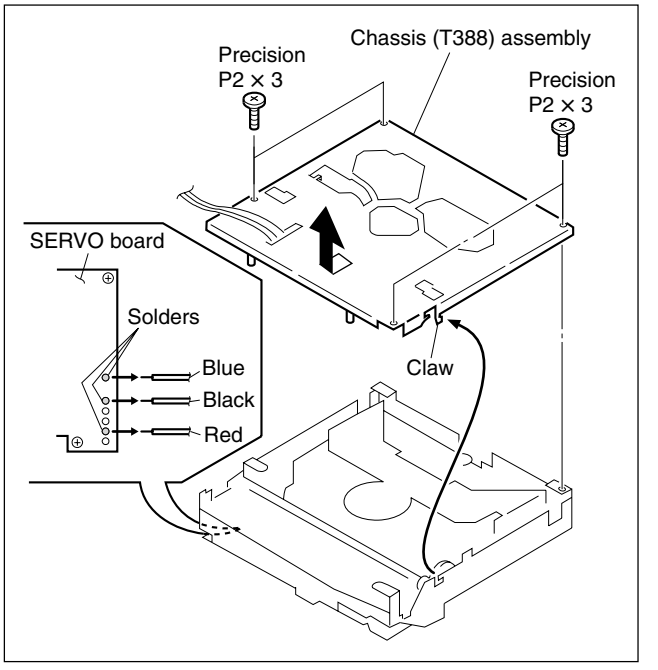


6. Remove the four screws and remove the bracket (CD).
7. Install the CD mechanism deck assembly by reversing steps 1 to 6 of removal.



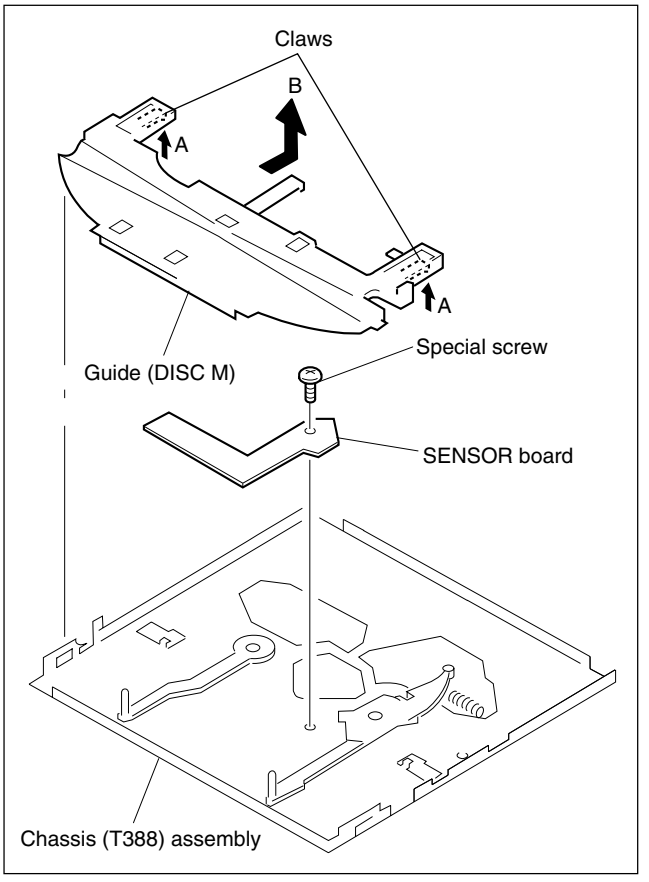
2. Chassis (T388) assembly

1. Remove the CD mechanism deck assembly. (Refer to item 1 of Section 1-4-1.)
2. Remove soldering at the three positions on the SERVO board.
3. Remove the four precision screws (P2 × 3) and remove the chassis (T388) assembly in the direction of the arrow in the way of disengaging the claws.
4. Remove the SERVO board and the guide (DISC M). (Refer to item 3 of Section 1-4-1.)
5. Install the SERVO board and the guide (DISC M) removing the step 3 in the new chassis (T388) assembly. (Refer to item 3 of Section 1-4-1.)
6. Install the chassis (T388) assembly by reversing steps 1 to 3 of removal.



3. SENSOR board

1. Remove the CD mechanism deck assembly. (Refer to item 1 of Section 1-4-1.)
2. Remove the chassis (T388) assembly. (Refer to item 2 of Section 1-4-1.)
3. Push the two claws of the guide (DISC M) in the direction of arrow A and remove the guide (DISC M) in the direction arrow B.
4. Remove the screw and remove the SENSOR board.
5. Install the new SENSOR board by reversing the steps of removal.



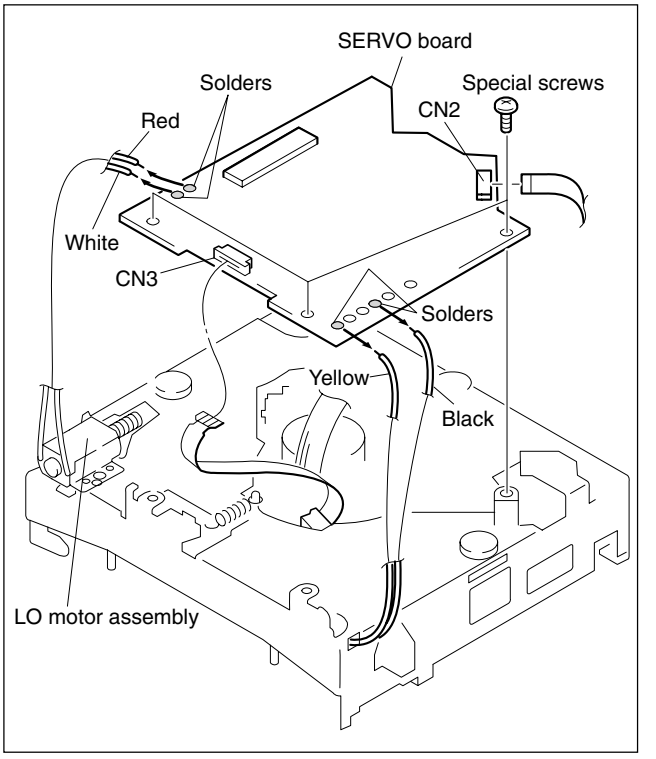
4. SERVO board

1. Remove the CD mechanism deck assembly. (Refer to item 1 of Section 1-4-1.)

Note

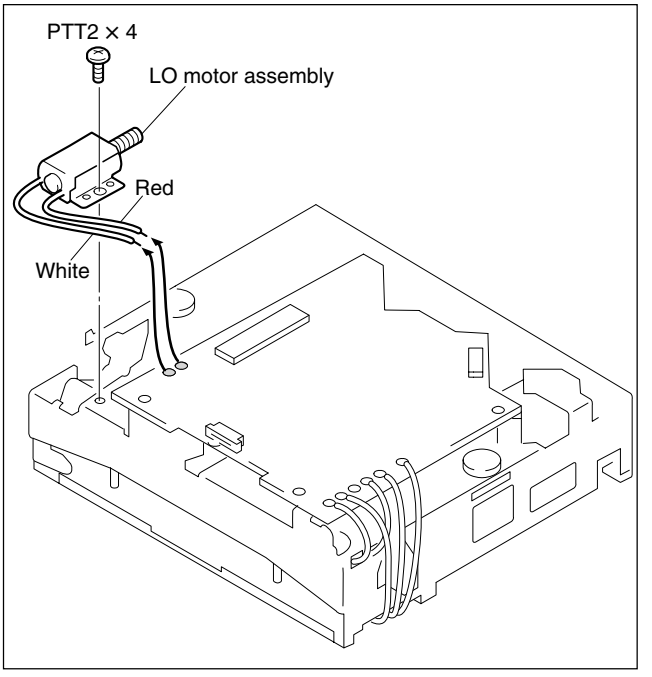
If the chassis (T388) assembly is still installed when removing the SERVO board, remove soldering of the chassis (T388) assembly. (Refer to item 2 of Section 1-4-1.)

2. Remove soldering of the LO motor assembly at the two positions.
3. Remove soldering of the SERVO board at the two positions.
4. Disconnect the two cables from the connectors (CN2, CN3) on the SERVO board.
5. Remove the three screws and remove the SERVO board.
6. Install the new SERVO board by reversing the steps of removal.

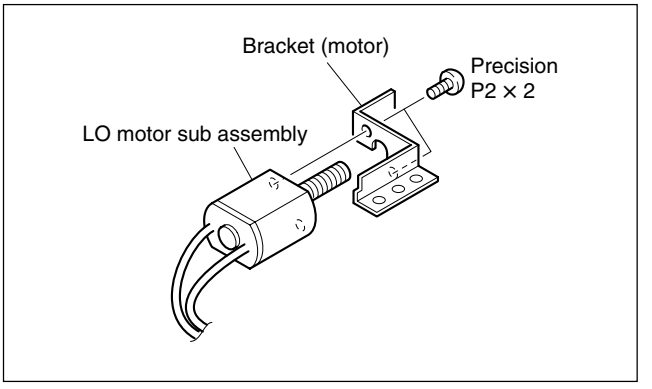


5. LO Motor sub assembly

1. Remove the CD mechanism deck assembly. (Refer to item 1 of Section 1-4-1.)
2. Remove soldering of the LO motor assembly at the two positions.
3. Remove the screw and remove the LO motor assembly.

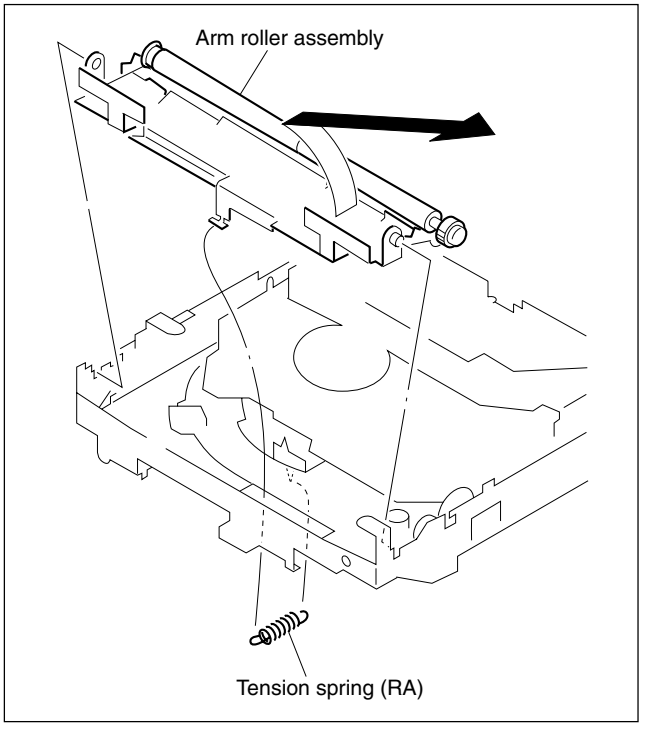


4. Remove the two precision screws and remove the LO motor sub assembly from the bracket (motor).
5. Install the new LO motor sub assembly by reversing the steps of removal.



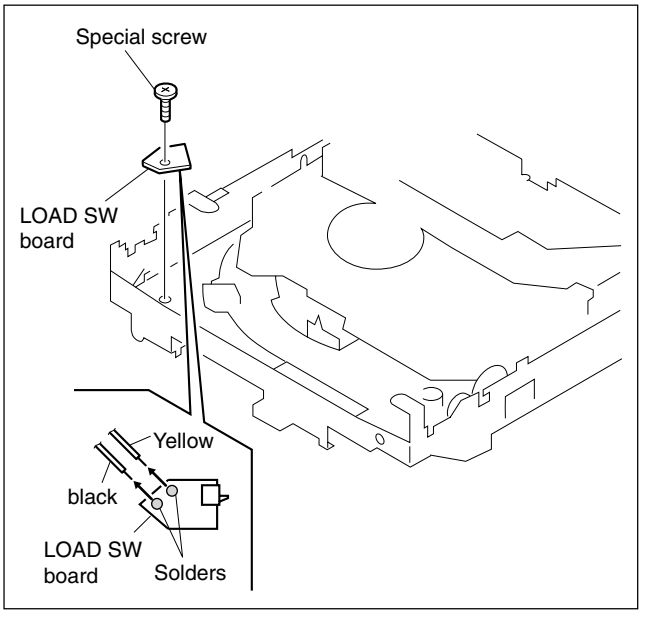
6. Arm roller assembly

1. Remove the CD mechanism deck assembly. (Refer to item 1 of Section 1-4-1.)
2. Remove the chassis (T388) assembly. (Refer to item 2 of Section 1-4-1.)
3. Remove the tension coil spring (RA).
4. Remove the arm roller assembly in the direction of the arrow.
5. Install the new arm roller assembly by reversing the steps of removal.



7. LOAD SW board

1. Remove the CD mechanism deck assembly. (Refer to item 1 of Section 1-4-1.)
2. Remove the chassis (T388) assembly. (Refer to item 2 of Section 1-4-1.)
3. Remove the screw and remove the arm roller assembly. (Refer to item 6 of Section 1-4-1.)
4. Remove soldering at the two positions of the LOAD SW board.
5. Remove the screw and remove the LOAD SW board.
6. Install the new LOAD SW board by reversing the steps of removal.



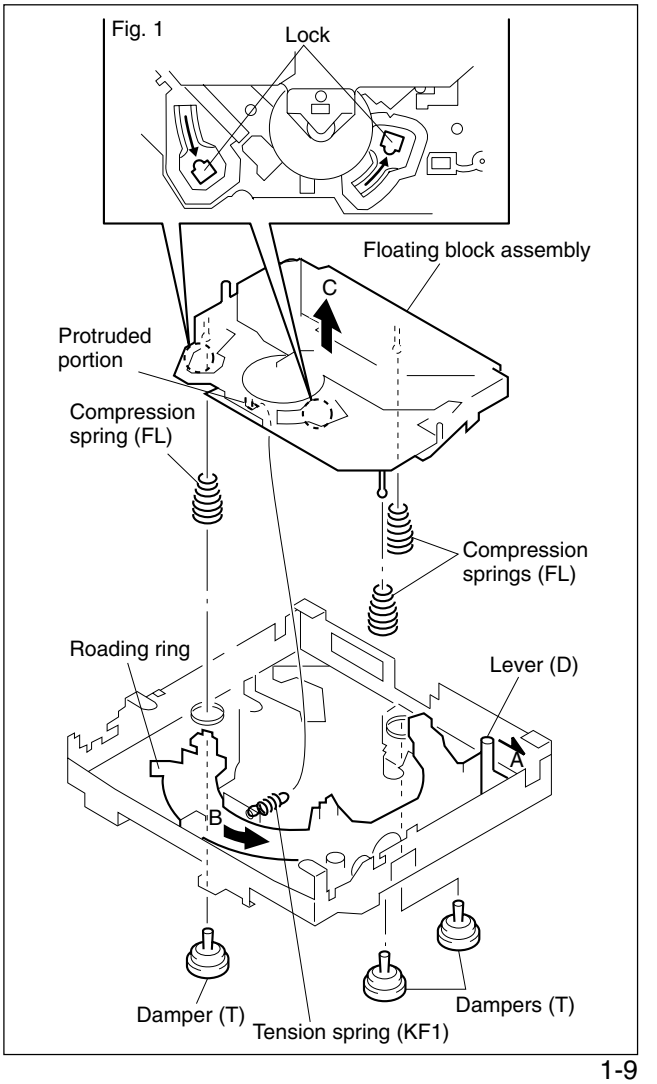
8. Floating block assembly

1. Remove the CD mechanism deck assembly. (Refer to item 1 of Section 1-4-1.)
2. Remove the chassis (T388) assembly. (Refer to item 2 of Section 1-4-1.)
3. Remove the SERVO board. (Refer to item 4 of Section 1-4-1.)
4. Remove the LO motor assembly. (Refer to item 5 of Section 1-4-1.)
5. Remove the tension coil spring (KF1) from the protruded portion of the floating block assembly.
6. Remove the three dampers (T).
7. While pulling the lever (D) in the direction of arrow A, rotate the loading ring in the direction of arrow B and release the lock.
8. Remove the floating block assembly in the direction of arrow C.

Note

When the floating block assembly is removed, the compression coil spring (FL) comes off at the same time. Be careful not to lose the compression coil spring (FL).

9. Install the new floating block assembly by reversing the steps of removal.

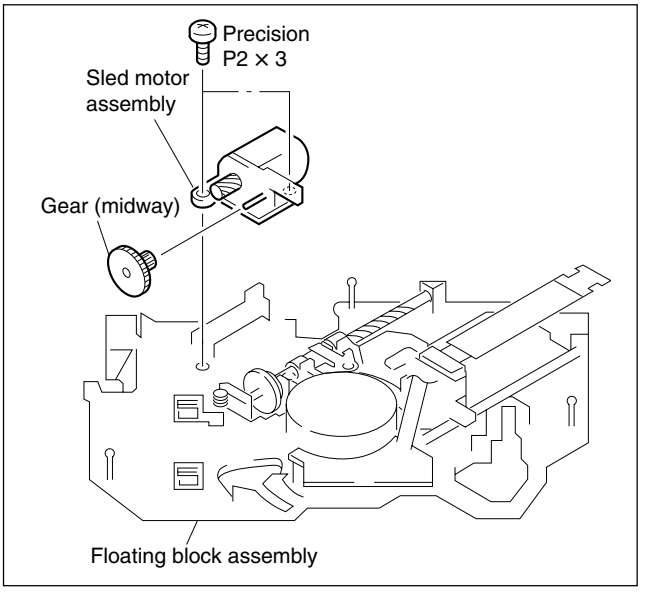


9. Sled motor

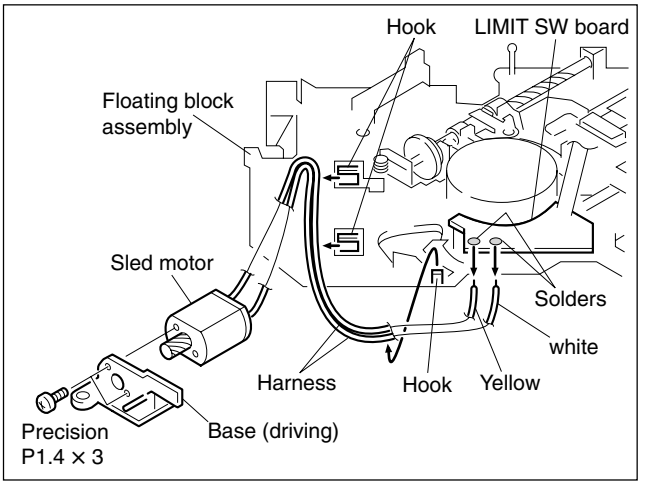
1. Remove the CD mechanism deck assembly. (Refer to item 1 of Section 1-4-1.)
2. Remove the chassis (T388) assembly. (Refer to item 2 of Section 1-4-1.)
3. Remove the SERVO board. (Refer to item 4 of Section 1-4-1.)
4. Remove the LO motor assembly. (Refer to item 5 of Section 1-4-1.)
5. Remove the floating block assembly. (Refer to item 8 of Section 1-4-1.)
6. Remove the two precision screws and remove the sled motor assembly.

Note

When the sled motor assembly is removed, the gear (midway) comes off at the same time. Be careful not to lose the gear (midway).

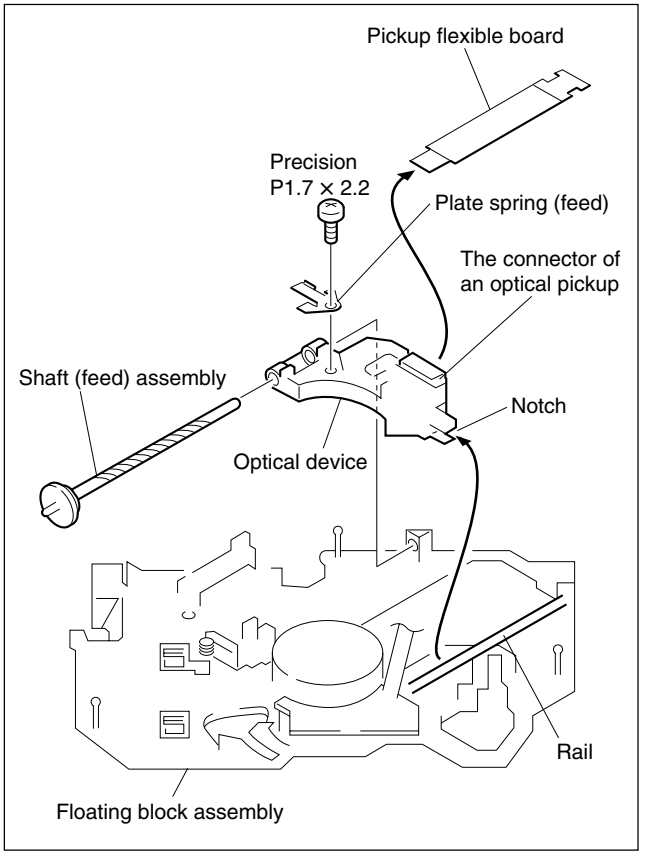


7. Disconnect the harness from the three hooks of the floating block assembly, and remove soldering from the LIMIT SW board.
8. Remove the two precision screws and remove the sled motor from the base (driving).
9. Install the new sled motor by reversing the steps of removal.



10. Optical pickup

1. Remove the CD mechanism deck assembly. (Refer to item 1 of Section 1-4-1.)
2. Remove the chassis (T388) assembly. (Refer to item 2 of Section 1-4-1.)
3. Remove the SERVO board. (Refer to item 4 of Section 1-4-1.)
4. Remove the LO motor assembly. (Refer to item 5 of Section 1-4-1.)
5. Remove the floating block assembly. (Refer to item 8 of Section 1-4-1.)
6. Remove the sled motor assembly. (Refer to item 9 of Section 1-4-1.)
7. Disconnect the pickup flexible board from the connector of the optical device.
8. Remove the screw and remove the plate spring (feed).
9. Extract the shaft (feed) assembly from the optical device, and remove the notch portion of the optical device from the rail.
10. Install the new optical device by reversing the steps of removal.



1-4-2. Replacing the Power Fuse

WARNING

Components marked ⚠ are critical to safe operation. Therefore, specified parts should be used in the case of replacement.

CAUTION

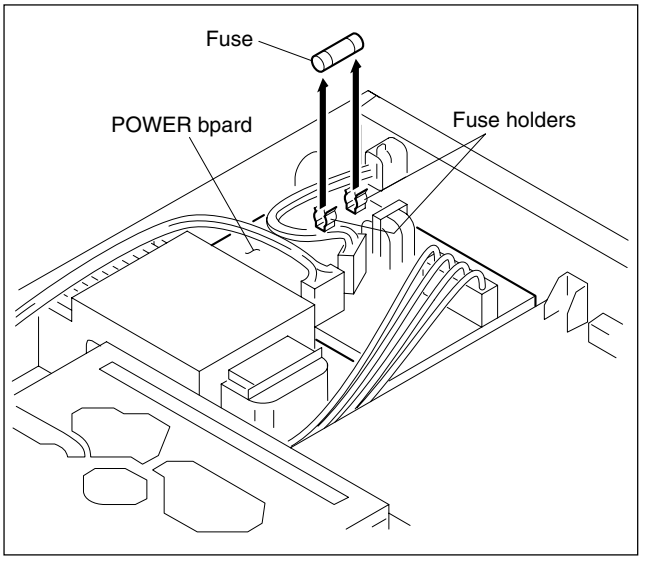
Before replacing the power fuse, make sure that the power cord of the unit is disconnected from the AC outlet to prevent the electric shock.

Note

If a trouble occurs on the unit by flowing the over-current, the fuse will blow.
The fuse should be replaced with following parts after removing the foreign matter.

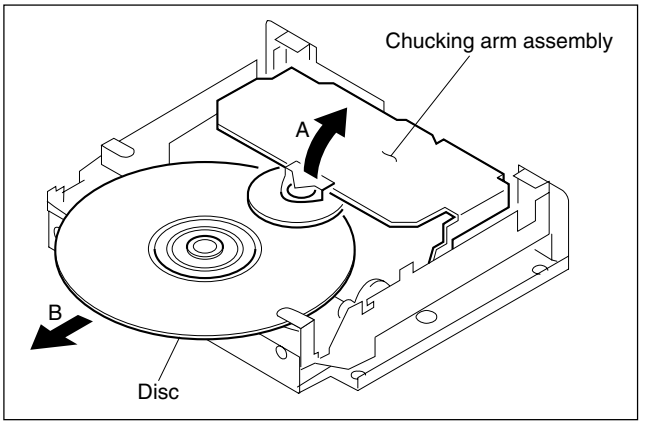
Ref No.	Board name	Sony part No.
F1	POWER board	⚠ 1-533-449-11 (for J/U) ⚠ 1-532-215-00 (for CE/CN)

1. Remove the cover.
   (Refer to 1-3. “Removing the Cabinet”.)
2. Remove the fuse from the fuse holder on the POWER board.
3. Install the new fuse by reversing the steps of removal.



1-5. How to Eject a Disc in the Case of Emergency

1. Turn off the power and disconnect the power cord from the AC outlet.
2. Remove the cover and the front panel.
   (Refer to 1-3. “Removing the Cabinet”.)
3. Remove the chassis (SUB) by performing steps 2 and 3 of Section 1-4-1 item 1. “Removing and Installing the CD mechanism deck assembly (MG-398SC-121)”.
4. Remove the chassis (T388) assembly by performing step 3 of Section 1-4-1 item 2. “Chassis (T388) Assembly”.
5. Raise the chucking arm assembly in the direction of arrow A, and remove the disc in the direction of arrow B.



1-6. Initializing the Setups

Various setups can be initialized to the default setups when shipped from the factory as follows.

1. Turn off the POWER switch.
2. While pressing the STOP (■) key and the MENU/EXIT button at the same time, turn on the POWER switch.
3. The message “Factory Preset” appears on the display and various setups are initialized to the default setups automatically.
4. The initialization completes in about four seconds and the setups are initialized to the default setups.

1-7. Mounting Screw of the RS-232C and PARALLEL Connectors

The following screws are used for mounting the RS-232C and PARALLEL connectors.

Connector	Mounting screws
RS-232C	No.4 - 40 UNC inch-screw (equivalent to JST JFS-4S-B1W)
PARALLEL	M2.6 P=0.45 millimeter-screw (equivalent to JAE D20418-JF)

Note

The above screws are supplied with the respective connectors. Therefore, they are not supplied as the service parts. If the screws alone are required, purchase them on the commercial market.

1-8. Unleaded Solder

Boards requiring use of unleaded solder are printed with a lead free mark (LF) indicating the solder contains no lead. (Caution: Some printed circuit boards may not come printed with the lead free mark due to their particular size.)

 : LEAD FREE MARK

Notes

- Be sure to use the unleaded solder for the printed circuit board printed with the lead free mark.
- The unleaded solder melts at a temperature about 40 ° higher than the ordinary solder, therefore, it is recommended to use the soldering iron having a temperature regulator.
- The ordinary soldering iron can be used but the iron tip has to be applied to the solder joint for a slightly longer time. The printed pattern (copper foil) may peel away if the heated tip is applied for too long, so be careful.

Section 2
Spare Parts

2-1. Notes on Repair Parts

1. Safety Related Components Warning

WARNING

Components marked ⚠ are critical to safe operation. Therefore, specified parts should be used in the case of replacement.

2. Standardization of Parts

Some repair parts supplied by Sony differ from those used for the unit. These are because of parts commonality and improvement.
Parts list has the present standardized repair parts.

3. Stock of Parts

Parts marked with “o” at SP (Supply Code) column of the spare parts list may not be stocked. Therefore, the delivery date will be delayed.

4. Harness

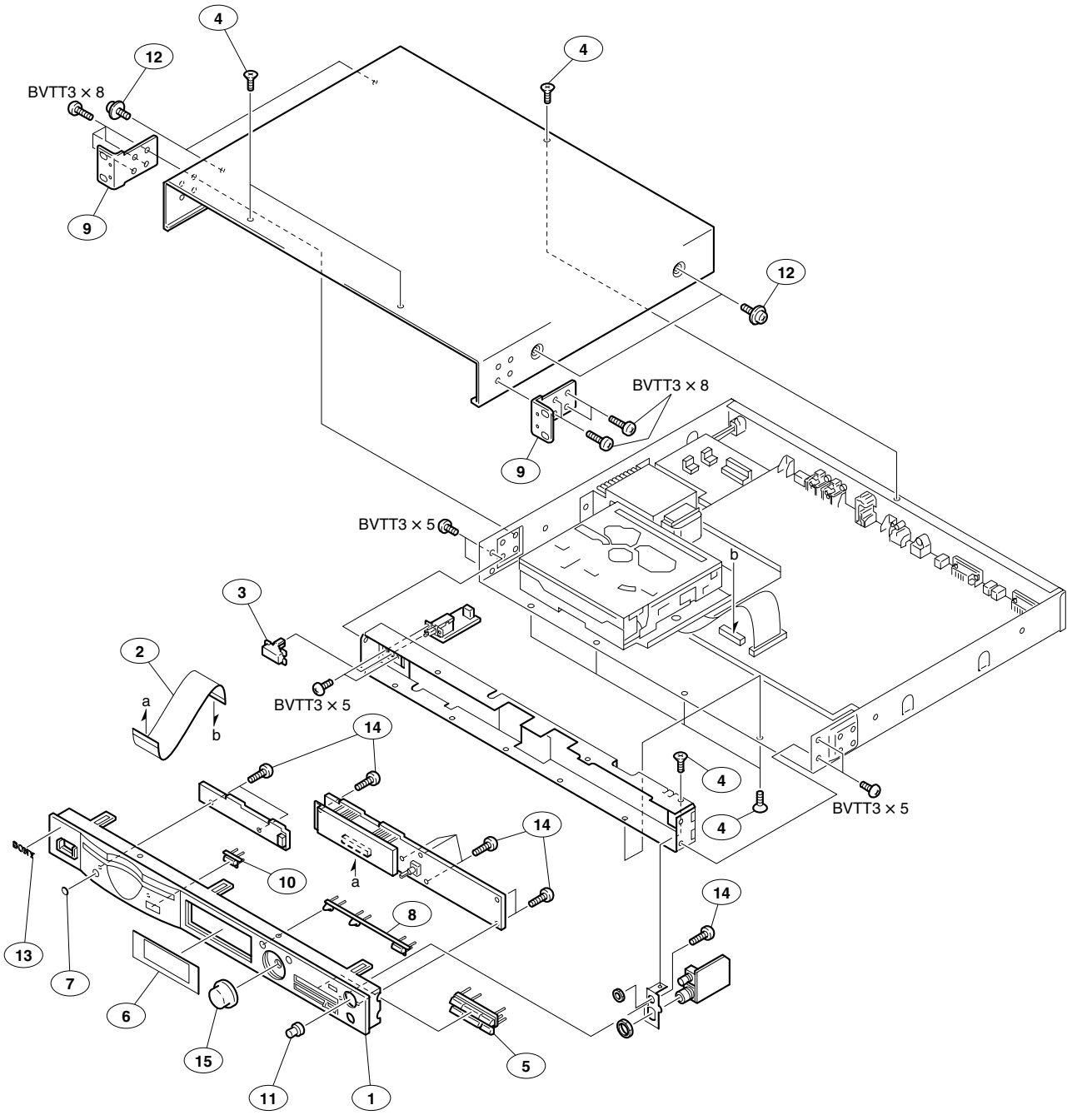
Harnesses with no part number are not registered as spare parts.
In need of repair, get components shown in the list and repair using them.

5. Destination Representation

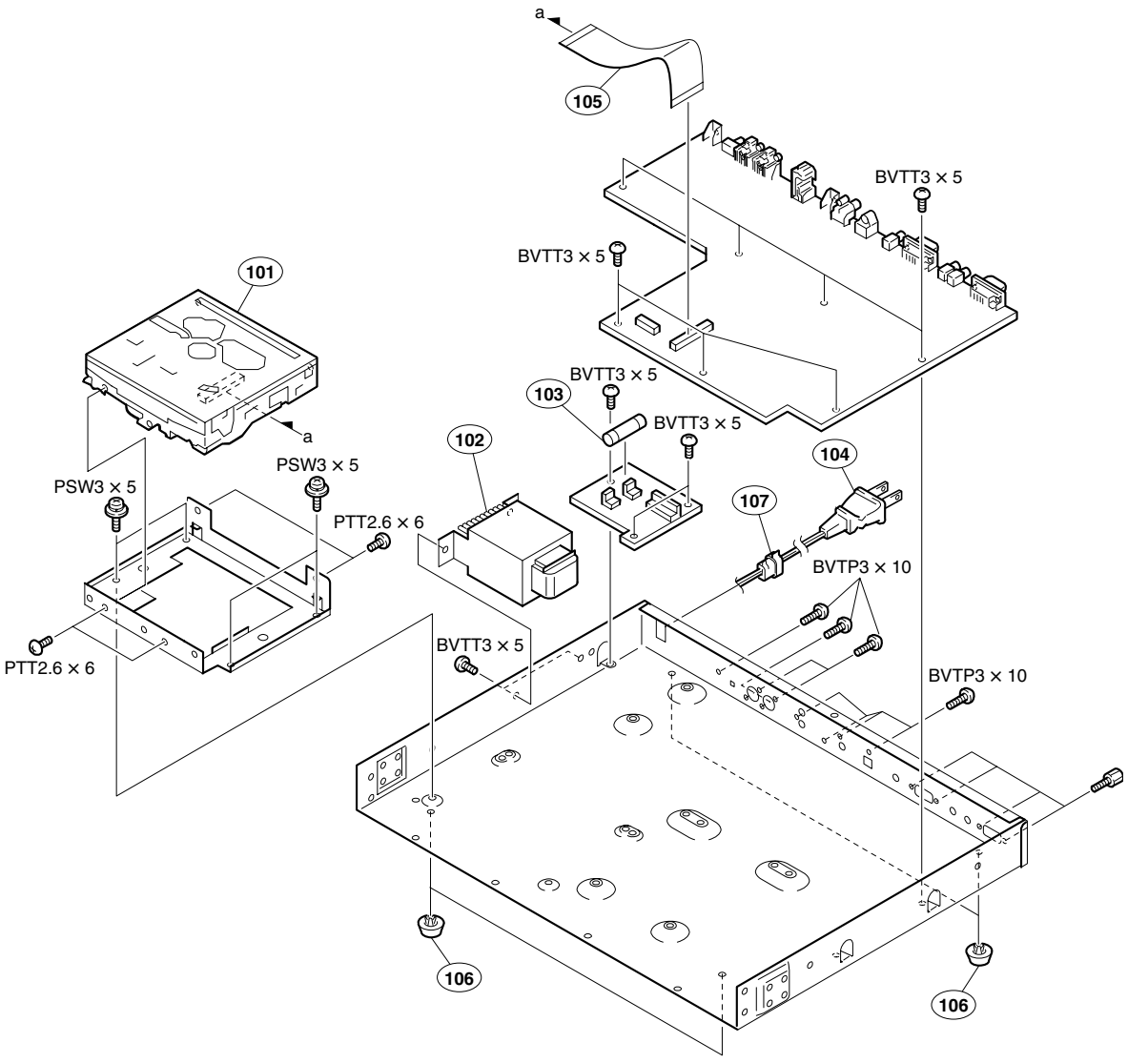
The part indicated “For UC/CE/CN” in the spare parts list is used in the unit written below.

For UC: The part is used in a unit for the U.S.A. and Canada.
For CE: The part is used in a unit for the European.
For CN: The part is used in a unit for the China.

2-2. Exploded Views

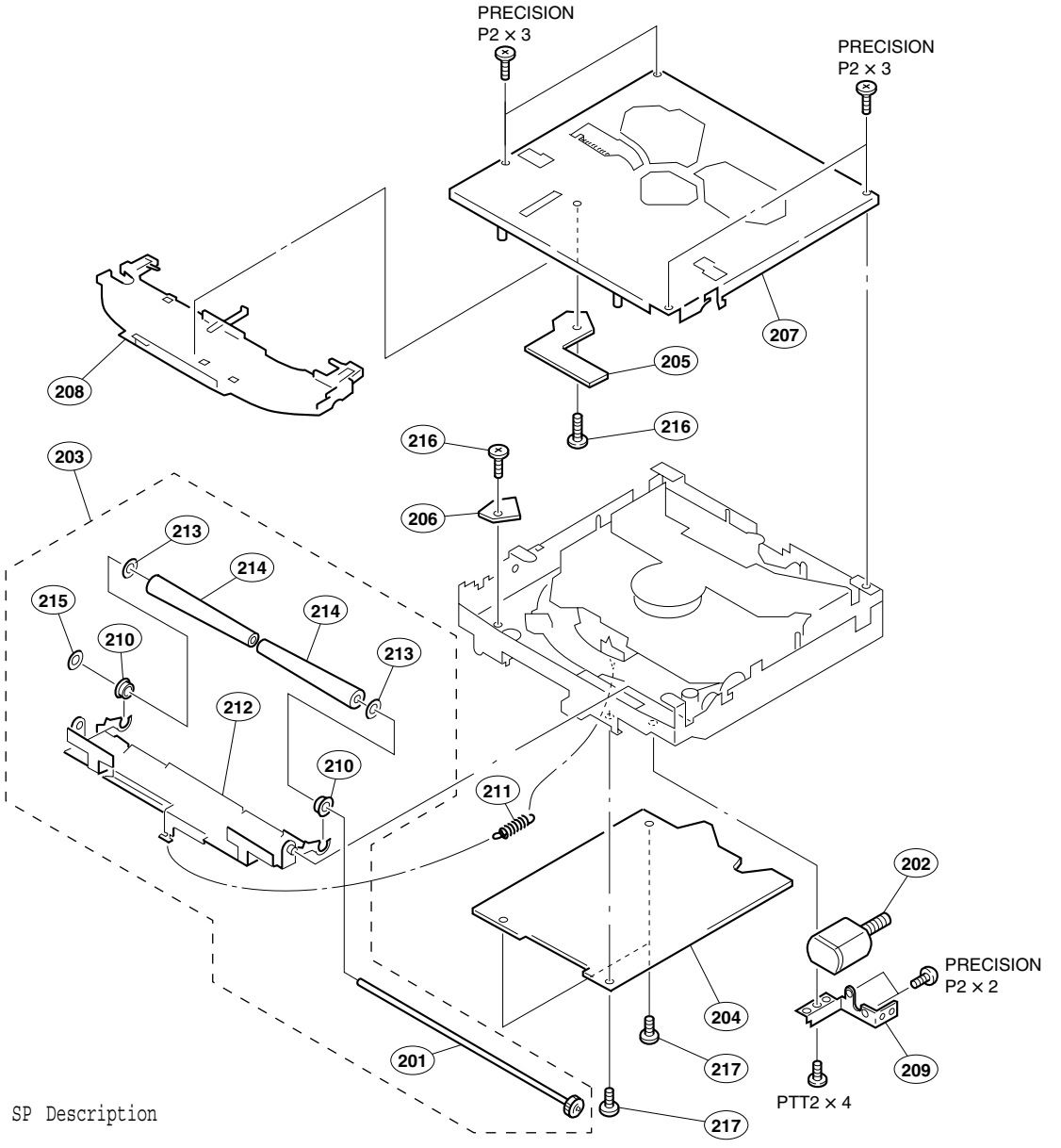


No.	Part No.	SP	Description
1	X-2335-620-1	s	PANEL ASSY, FRONT
2	1-827-546-11	s	CABLE, FLEXIBLE FLAT (19 CORE)
3	2-335-924-31	s	BUTTON
4	2-338-688-01	s	SCREW, STEP TAPPING
5	2-346-661-11	s	BUTTON (P)
6	2-347-869-01	s	PLATE, WINDOW
7	2-347-872-01	s	FILTER (IR)
8	2-347-875-01	s	BUTTON (AMS)
9	2-347-878-01	s	BRACKET, RACK MOUNT
10	2-347-881-01	s	BUTTON (EJECT)
11	3-367-431-01	s	KNOB,BAL
12	3-704-366-01	s	SCREW, CASE M3X8 (EP-FE/ZNBK)
13	4-942-568-41	s	EMBLEM (N0.5),SONY
14	4-951-620-01	s	SCREW(2.6X8)+BVTP(TAPPING)(ST)
15	4-983-657-01	s	KNOB (AMS)
	7-685-870-09	s	SCREW BVTT 3X5
	7-685-872-09	s	SCREW,+BVTT 3X8

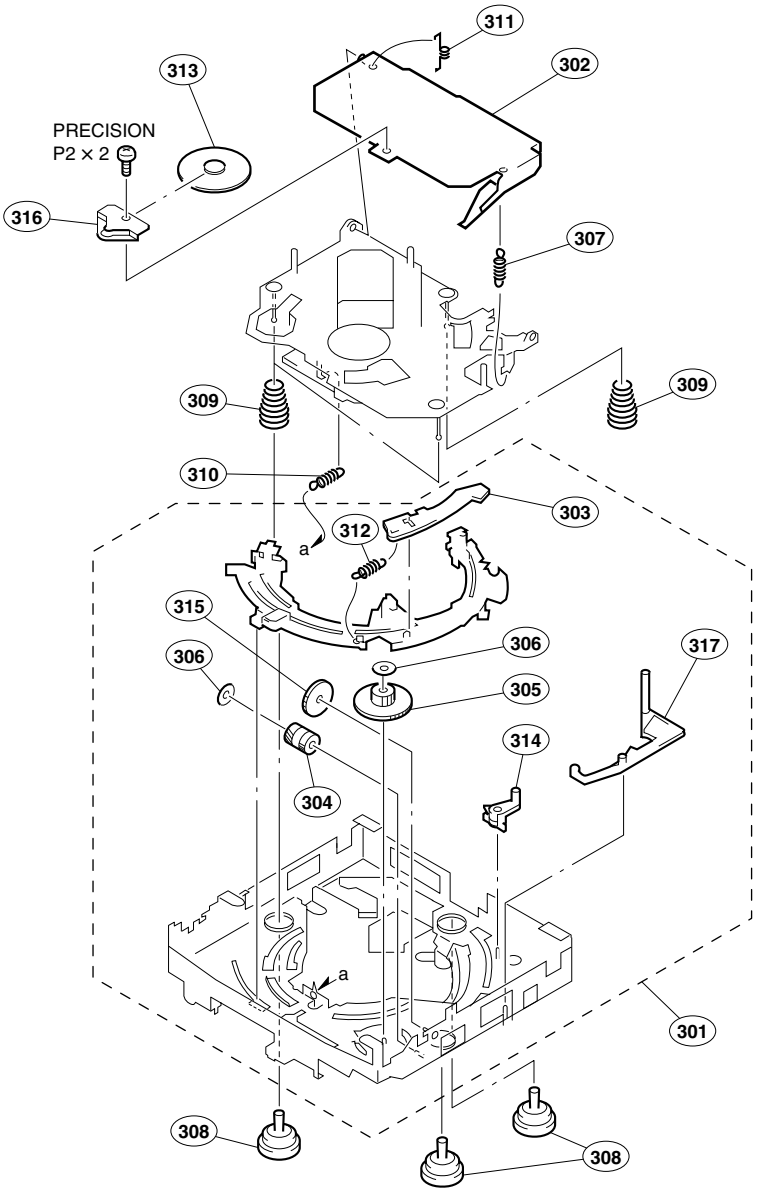


No.	Part No.	SP	Description
101	A-2104-006-A	s	MD ASSY (RP)
102	⚠1-443-084-11	s	TRANSFORMER, POWER
103	⚠1-532-215-00	s	FUSE, TIME-LAG 0.8A/250V (L=20) (For CE model/CN model)
	⚠1-533-449-11	s	FUSE, GLASS TUBE (DIA. 5) (For UC model)
104	⚠1-696-169-12	s	CORD, POWER (AEP) (For CE model)
	⚠1-782-510-11	s	CORD, POWER (CN) (For CN model)
	⚠1-738-531-11	s	CORD, POWER (U/C) (For UC model)
105	1-827-545-11	s	CABLE, FLEXIBLE FLAT (30 CORE)
106	3-670-155-11	s	FOOT
107	4-217-350-01	s	STOPPER, CORD
	7-682-946-09	s	SCREW +PSW 3X5
	7-685-647-79	s	SCREW +BVTP3X10
	7-685-792-09	s	SCREW,+PTT 2.6X6
	7-685-870-09	s	SCREW BVTT 3X5

Mechanism Deck-1

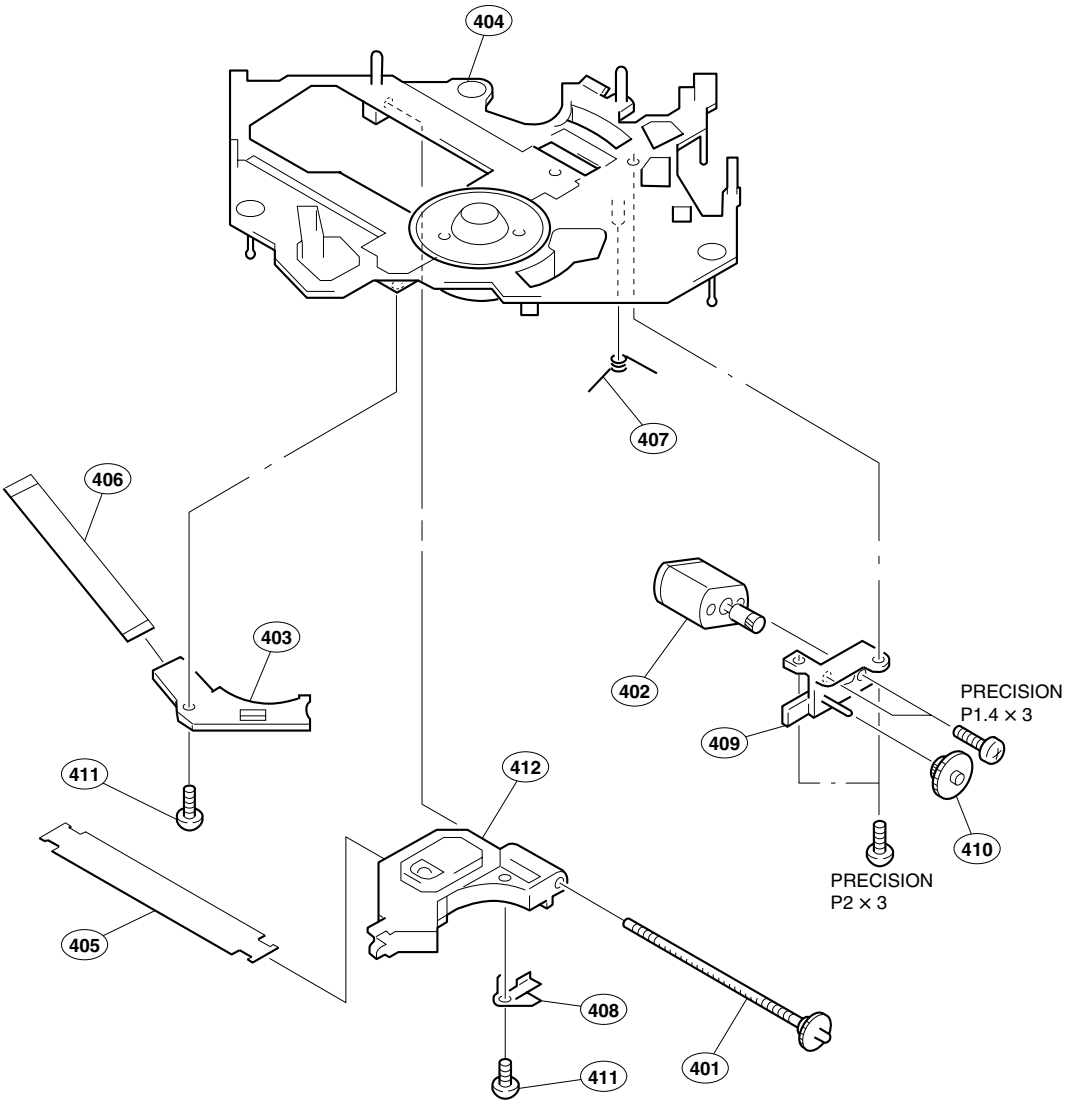


No.	Part No.	SP	Description
201	A-3301-980-A	s	SHAFT ROLLER ASSY
202	A-3315-039-A	s	MOTOR SUB ASSY, LD
203	A-3315-040-A	s	ROLLER ASSY, ARM
204	A-4587-953-A	s	MOUNTED CIRCUIT BOARD, SERVO
205	A-4591-506-A	s	MOUNTED CIRCUIT BOARD, SENSOR
206	A-4591-507-A	s	MOUNTED CIRCUIT BOARD, SW LOAD
207	X-3378-870-4	s	CHASSIS (T388) ASSY
208	3-032-474-11	s	GUIDE (DISC M)
209	3-039-629-01	o	BRACKET (MOTOR)
210	3-040-022-01	s	RETAINER (RA), SHAFT
211	3-040-034-01	s	SPRING (RA), TENSION
212	3-040-040-21	s	ARM (ROLLER)
213	3-040-042-01	s	WASHER
214	3-040-044-01	s	ROLLER (S)
215	3-043-880-01	s	RING (RA) RETAINING (PETP)
216	3-241-292-11	s	SCREW, SPECIA
217	3-241-292-31	s	SCREW, SPECIAL
	7-627-553-17	s	SCREW,PRECISION +P2X2
	7-627-553-37	s	SCREW,PRECISION +P 2X3
	7-685-781-09	s	SCREW,+PTT 2X4



No.	Part No.	SP	Description
301	A-3315-245-C	s	CHASSIS (M) ASSY
302	X-3378-471-1	s	ARM ASSY, CHUCKING
303	3-007-536-05	o	LEVER (TR)
304	3-007-537-11	s	WHEEL (U), WORM
305	3-014-727-01	s	WHEEL (LW), WORM
306	3-018-272-01	s	WASHER
307	3-040-026-01	s	SPRING (CH), TENSION
308	3-040-031-01	s	DAMPER (T)
309	3-040-032-01	s	SPRING (FL), COMPRESSION
310	3-040-033-01	s	SPRING (KF1), TENSION
311	3-048-258-01	s	SPRING (8) (K)
312	3-220-180-01	s	SPRING (TR2) TENSION
313	3-913-404-01	s	RETAINER (DISC)
314	3-931-881-11	s	LEVER (LOCK)
315	3-931-882-02	s	GEAR (MDL)
316	3-931-894-01	s	BRACKET (CP)
317	3-935-828-01	s	LEVER (D)
	7-627-553-17	s	SCREW,PRECISION +P2X2

Mechanism Deck-3



No.	Part No.	SP	Description
401	A-3301-983-A	s	SHAFT (FEED) ASSY
402	A-3301-985-A	s	MOTOR ASSY, SLED
403	A-4591-509-A	s	MOUNRED CIRCUIT BOARD, SW LIMIT
404	X-3378-961-1	s	SERVICE ASSY CHASSIS(OP)
405	1-676-707-11	s	PWB, PICK UP FLEXIBLE
406	1-823-951-11	s	FLEXIBEL FLAT CABLE 6P
407	3-040-029-01	s	SPRING (SL), TORSION
408	3-040-030-01	s	SPRING (FEED), PLATE
409	3-040-045-01	s	BASE (DRIVING)
410	3-040-194-01	s	GEAR (SL MIDWAY)
411	3-909-607-01	s	SCREW
412	⚠8-820-165-06	s	DEVICE, OPTICAL KSS-721A/C-RP
	7-627-553-37	s	SCREW,PRECISION +P 2X3
	7-627-850-28	s	SCREW,PRECISION +P1.4X3

2-3. Electrical Parts List

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AC/SW BOARD
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 Ref. No.
 or Q'ty  Part No.    SP Description

 C1    ⚠ 1-113-925-11 s CAPACITOR,CERAMIC 10000PF/250V

 CN3     1-564-321-00 s PIN,CONNECTOR 2P

 S1    ⚠ 1-572-267-21 s SWITCH,AC POWER
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DISPLAY BOARD
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 Ref. No.
 or Q'ty  Part No.    SP Description

 CN7      1-779-556-11 s CONNECTOR,FFC(LIF(NON-ZIF))19P
 CN782    1-518-714-21 s INDICATOR TUBE, FLUORESCENT

 JR101    1-216-864-11 s CONDUCTOR, CHIP (1608)

 R701     1-762-875-21 s SWITCH, KEYBOARD
 R702     1-762-875-21 s SWITCH, KEYBOARD
 R703     1-762-875-21 s SWITCH, KEYBOARD
 R704     1-762-875-21 s SWITCH, KEYBOARD
 R705     1-762-875-21 s SWITCH, KEYBOARD

 R706     1-762-875-21 s SWITCH, KEYBOARD
 R707     1-762-875-21 s SWITCH, KEYBOARD
 R708     1-762-875-21 s SWITCH, KEYBOARD
 R709     1-762-875-21 s SWITCH, KEYBOARD

 S710     1-473-779-11 s ENCODER, ROTARY (SWITCH)
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EJECT BOARD
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 Ref. No.
 or Q'ty  Part No.    SP Description

 C792     1-131-992-11 s CAP, CERAMIC 100000PF F 1608
 C793     1-131-992-11 s CAP, CERAMIC 100000PF F 1608

 CN791    1-568-942-11 o PIN,CONECTOR (4P)

 IC702    8-749-016-97 s IC NJL62H400A

 R790     1-216-809-11 s RESISTOR,CHIP 100 1/10W 1608
 R792     1-216-805-11 s RESISTOR,CHIP 47 1/10W 1608

 S791     1-762-875-21 s SWITCH, KEYBOARD
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HP BOARD
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 Ref. No.
 or Q'ty  Part No.    SP Description

 C751     1-115-416-11 s CAPACITOR,CERAMIC 1000PF/25V
 C752     1-115-416-11 s CAPACITOR,CERAMIC 1000PF/25V
 C753     1-131-992-11 s CAP, CERAMIC 100000PF F 1608

 CN571    1-568-941-11 o PIN, CONNECTOR (3P)

 J751     1-770-904-11 s JACK (LARGE TYPE)(6.3MM)

 R751     1-216-801-11 s RESISTOR,CHIP 22 1/10W 1608
 R752     1-216-801-11 s RESISTOR,CHIP 22 1/10W 1608

 RV751    1-225-302-11 s RESISTOR VAR, CARBON 1K/1K
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LOAD BOARD
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 Ref. No.
 or Q'ty  Part No.    SP Description

 1pc      A-4591-507-A s MOUNTED CIRCUIT BOARD, LOAD
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MAIN BOARD

Ref. No. or Q'ty	Part No.	SP	Description
3pcs	7-685-647-79	s	SCREW +BVTP3X10(EP-FE/ZNBK/CM2
C21	1-164-159-21	s	CAPACITOR,CERAMIC 0.1MF(S-)
C23	1-136-165-00	s	CAPACITOR,FILM 0.1MF/50V (PP)
C25	1-128-551-11	s	CAPACITOR ELECT 22MF/63V
C26	1-125-784-11	s	CAPACITOR, ELECT 15000MF/25V
C28	1-164-159-21	s	CAPACITOR,CERAMIC 0.1MF(S-)
C30	1-164-159-21	s	CAPACITOR,CERAMIC 0.1MF(S-)
C32	1-136-165-00	s	CAPACITOR,FILM 0.1MF/50V (PP)
C33	1-136-165-00	s	CAPACITOR,FILM 0.1MF/50V (PP)
C34	1-135-747-51	s	CAPACITOR,, ELECT 3300MF 35V
C35	1-135-747-51	s	CAPACITOR,, ELECT 3300MF 35V
C36	1-136-165-00	s	CAPACITOR,FILM 0.1MF/50V (PP)
C37	1-136-165-00	s	CAPACITOR,FILM 0.1MF/50V (PP)
C40	1-126-971-11	s	CAPACITOR ELECT 470MF/50V
C41	1-126-964-11	s	CAPACITOR, ELECT 10MF/50V
C42	1-126-962-11	s	CAP,ELECT 3.3MF/50V
C43	1-126-964-11	s	CAPACITOR, ELECT 10MF/50V
C44	1-126-916-11	s	CAPACITOR,ELECT 1000MF/6.3V
C45	1-126-768-11	s	CAPACITOR,ELECT 2200MF/16V
C46	1-164-159-21	s	CAPACITOR,CERAMIC 0.1MF(S-)
C47	1-104-656-11	s	CAPACITOR ELECT 2200MF/6.3V
C48	1-126-964-11	s	CAPACITOR, ELECT 10MF/50V
C50	1-164-159-21	s	CAPACITOR,CERAMIC 0.1MF(S-)
C70	1-136-165-00	s	CAPACITOR,FILM 0.1MF/50V (PP)
C101	1-164-315-11	s	CAPACITOR,CERAMIC 470PF/50V CH
C102	1-119-827-11	s	CAPACITOR, ELECT 47MF/50V (AU)
C104	1-127-724-91	s	CAPACITOR, ELECT 100MF/25V
C105	1-131-992-11	s	CAP, CERAMIC 100000PF F 1608
C106	1-162-959-11	s	CAPACITOR,CERAMIC 330PF/50V SL
C108	1-162-967-11	s	CAPACITOR,CERAMIC 3300PF/50V B
C109	1-162-959-11	s	CAPACITOR,CERAMIC 330PF/50V SL
C110	1-162-970-11	s	CAPACITOR CERAMIC 0.01MF/25V B
C111	1-164-159-21	s	CAPACITOR,CERAMIC 0.1MF(S-)
C112	1-164-159-21	s	CAPACITOR,CERAMIC 0.1MF(S-)
C113	1-164-315-11	s	CAPACITOR,CERAMIC 470PF/50V CH
C114	1-164-315-11	s	CAPACITOR,CERAMIC 470PF/50V CH
C115	1-127-725-91	s	CAPACITOR, ELECT 220MF
C116	1-119-827-11	s	CAPACITOR, ELECT 47MF/50V (AU)
C117	1-131-992-11	s	CAP, CERAMIC 100000PF F 1608
C118	1-126-768-11	s	CAPACITOR,ELECT 2200MF/16V
C119	1-128-858-11	s	CAPACITOR,ELECT 22MF/50V (AU)
C120	1-128-551-11	s	CAPACITOR ELECT 22MF/63V
C121	1-126-934-11	s	CAPACITOR, ELECT 220MF/16V
C151	1-128-858-11	s	CAPACITOR,ELECT 22MF/50V (AU)
C152	1-119-824-11	s	CAPACITOR, ELECT 10MF/50V
C153	1-137-503-11	s	CAPACITOR FILM 100PF/100V(PP)
C154	1-162-215-31	s	CAPACITOR,CERAMIC 47PF/50V(SL)
C155	1-127-725-91	s	CAPACITOR, ELECT 220MF
C156	1-127-725-91	s	CAPACITOR, ELECT 220MF
C201	1-164-315-11	s	CAPACITOR,CERAMIC 470PF/50V CH
C202	1-119-827-11	s	CAPACITOR, ELECT 47MF/50V (AU)
C204	1-162-959-11	s	CAPACITOR,CERAMIC 330PF/50V SL
C205	1-162-959-11	s	CAPACITOR,CERAMIC 330PF/50V SL
C206	1-162-967-11	s	CAPACITOR,CERAMIC 3300PF/50V B
C207	1-164-315-11	s	CAPACITOR,CERAMIC 470PF/50V CH
C208	1-164-315-11	s	CAPACITOR,CERAMIC 470PF/50V CH
C220	1-128-551-11	s	CAPACITOR ELECT 22MF/63V
C221	1-126-934-11	s	CAPACITOR,ELECT 220MF/16V

(MAIN BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
C228	1-126-768-11	s	CAPACITOR,ELECT 2200MF/16V
C251	1-128-858-11	s	CAPACITOR,ELECT 22MF/50V (AU)
C252	1-119-824-11	s	CAPACITOR, ELECT 10MF/50V
C253	1-137-503-11	s	CAPACITOR FILM 100PF/100V(PP)
C254	1-162-215-31	s	CAPACITOR,CERAMIC 47PF/50V(SL)
C255	1-127-725-91	s	CAPACITOR, ELECT 220MF
C256	1-127-725-91	s	CAPACITOR, ELECT 220MF
C401	1-115-416-11	s	CAPACITOR,CERAMIC 1000PF/25V
C402	1-131-992-11	s	CAP, CERAMIC 100000PF F 1608
C403	1-162-919-11	s	CAPACITOR,CERAMIC 22PF/50V CH
C404	1-162-919-11	s	CAPACITOR,CERAMIC 22PF/50V CH
C405	1-131-992-11	s	CAP, CERAMIC 100000PF F 1608
C406	1-126-933-11	s	CAPACITOR,ELECT 100MF/16V
C407	1-131-992-11	s	CAP, CERAMIC 100000PF F 1608
C408	1-126-933-11	s	CAPACITOR,ELECT 100MF/16V
C409	1-131-992-11	s	CAP, CERAMIC 100000PF F 1608
C410	1-126-933-11	s	CAPACITOR,ELECT 100MF/16V
C411	1-126-933-11	s	CAPACITOR,ELECT 100MF/16V
C412	1-126-929-11	s	CAPACITOR, ELECT 4700MF/10V
C413	1-115-156-11	s	CAPACITOR,CERAMIC 1MF/10V(1608
C414	1-162-928-11	s	CAPACITOR,CERAMIC 120PF/50V CH
C415	1-136-153-00	s	CAPACITOR,FILM 0.01MF/50V
C416	1-137-194-11	s	CAPACITOR FILM 0.47MF/50V
C417	1-126-926-11	s	CAPACITOR,ELECT 1000MF/10V
C418	1-131-992-11	s	CAP, CERAMIC 100000PF F 1608
C419	1-126-933-11	s	CAPACITOR,ELECT 100MF/16V
C420	1-131-992-11	s	CAP, CERAMIC 100000PF F 1608
C421	1-131-992-11	s	CAP, CERAMIC 100000PF F 1608
C423	1-128-555-91	s	CAPACITOR ELECT 470MF/63V
C424	1-126-964-11	s	CAPACITOR, ELECT 10MF/50V
C425	1-131-992-11	s	CAP, CERAMIC 100000PF F 1608
C426	1-131-992-11	s	CAP, CERAMIC 100000PF F 1608
C427	1-115-416-11	s	CAPACITOR,CERAMIC 1000PF/25V
C428	1-115-416-11	s	CAPACITOR,CERAMIC 1000PF/25V
C429	1-162-967-11	s	CAPACITOR,CERAMIC 3300PF/50V B
C430	1-162-970-11	s	CAPACITOR CERAMIC 0.01MF/25V B
C439	1-115-416-11	s	CAPACITOR,CERAMIC 1000PF/25V
C441	1-115-416-11	s	CAPACITOR,CERAMIC 1000PF/25V
C443	1-115-416-11	s	CAPACITOR,CERAMIC 1000PF/25V
C445	1-115-416-11	s	CAPACITOR,CERAMIC 1000PF/25V
C446	1-126-933-11	s	CAPACITOR,ELECT 100MF/16V
C447	1-115-416-11	s	CAPACITOR,CERAMIC 1000PF/25V
C501	1-131-992-11	s	CAP, CERAMIC 100000PF F 1608
C502	1-131-992-11	s	CAP, CERAMIC 100000PF F 1608
C503	1-164-159-21	s	CAPACITOR,CERAMIC 0.1MF(S-)
C512	1-126-933-11	s	CAPACITOR,ELECT 100MF/16V
C513	1-131-992-11	s	CAP, CERAMIC 100000PF F 1608
C514	1-164-159-21	s	CAPACITOR,CERAMIC 0.1MF(S-)
C515	1-162-927-11	s	CAPACITOR,CERAMIC 100PF/50V CH
C516	1-162-927-11	s	CAPACITOR,CERAMIC 100PF/50V CH
C517	1-164-159-21	s	CAPACITOR,CERAMIC 0.1MF(S-)
C518	1-164-159-21	s	CAPACITOR,CERAMIC 0.1MF(S-)
C519	1-162-923-11	s	CAPACITOR,CERAMIC 47PF/50V CH
C520	1-136-177-00	s	CAPACITOR,FILM 1MF/50V
C601	1-162-927-11	s	CAPACITOR,CERAMIC 100PF/50V CH
C602	1-126-933-11	s	CAPACITOR,ELECT 100MF/16V
C611	1-131-992-11	s	CAP, CERAMIC 100000PF F 1608
C612	1-131-992-11	s	CAP, CERAMIC 100000PF F 1608
C613	1-131-992-11	s	CAP, CERAMIC 100000PF F 1608

(MAIN BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
C614	1-131-992-11	s	CAP, CERAMIC 100000PF F 1608
C615	1-131-992-11	s	CAP, CERAMIC 100000PF F 1608
C616	1-131-992-11	s	CAP, CERAMIC 100000PF F 1608
C661	1-131-992-11	s	CAP, CERAMIC 100000PF F 1608
C662	1-131-992-11	s	CAP, CERAMIC 100000PF F 1608
C665	1-131-992-11	s	CAP, CERAMIC 100000PF F 1608
C691	1-162-927-11	s	CAPACITOR,CERAMIC 100PF/50V CH
C901	1-131-992-11	s	CAP, CERAMIC 100000PF F 1608
C902	1-131-992-11	s	CAP, CERAMIC 100000PF F 1608
C903	1-131-992-11	s	CAP, CERAMIC 100000PF F 1608
C904	1-131-992-11	s	CAP, CERAMIC 100000PF F 1608
C905	1-131-992-11	s	CAP, CERAMIC 100000PF F 1608
C906	1-126-916-11	s	CAPACITOR,ELECT 1000MF/6.3V
C907	1-164-159-21	s	CAPACITOR,CERAMIC 0.1MF(S-)
CN10	1-779-287-11	s	CONNECTOR,FFC(LIF(NON-ZIF))19P
CN22	1-565-731-11	s	PLUG,CONNECTOR 5P
CN23	1-566-690-11	s	PLUG,CONNECTOR (2-5MM)2P
CN24	1-564-778-11	o	PLUG,CONNECTOR 4P
CN151	1-778-326-11	o	CONNECTOR (PLUG)
CN251	1-778-326-11	o	CONNECTOR (PLUG)
CN404	1-779-298-11	s	CONNECTOR,FFC(LIF(NON-ZIF))30P
CN602	1-573-566-11	s	CONNECTOR (DELC-J9SAF-1029)
CN901	1-568-426-11	s	CONNECTOR, D-SUB (9 CORE)
D22	8-719-991-33	s	DIODE 1SS133T-77
D24	8-719-046-07	s	DIODE 2A02
D27	8-719-046-07	s	DIODE 2A02
D28	8-719-046-07	s	DIODE 2A02
D29	8-719-046-07	s	DIODE 2A02
D30	8-719-046-07	s	DIODE 2A02
D31	8-719-046-07	s	DIODE 2A02
D32	8-719-046-07	s	DIODE 2A02
D39	8-719-991-33	s	DIODE 1SS133T-77
D40	8-719-991-33	s	DIODE 1SS133T-77
D41	8-719-991-33	s	DIODE 1SS133T-77
D42	8-719-991-33	s	DIODE 1SS133T-77
D43	8-719-991-33	s	DIODE 1SS133T-77
D45	8-719-109-89	s	DIODE RD5.6ES-B2
D50	8-719-046-07	s	DIODE 2A02
D151	8-719-083-69	s	DIODE UDZSTE-1724B
D152	8-719-083-69	s	DIODE UDZSTE-1724B
D153	8-719-083-69	s	DIODE UDZSTE-1724B
D154	8-719-083-69	s	DIODE UDZSTE-1724B
D155	8-719-991-33	s	DIODE 1SS133T-77
D251	8-719-083-69	s	DIODE UDZSTE-1724B
D252	8-719-083-69	s	DIODE UDZSTE-1724B
D253	8-719-083-69	s	DIODE UDZSTE-1724B
D254	8-719-083-69	s	DIODE UDZSTE-1724B
D402	8-719-991-33	s	DIODE 1SS133T-77
D403	8-719-109-97	s	DIODE RD6.8ES-B2
D405	8-719-200-82	s	DIODE 11ES2 (RECTI)
D407	8-719-991-33	s	DIODE 1SS133T-77
D408	8-719-983-38	s	DIODE MTZJ-T-77-36B
D409	8-719-921-63	s	DIODE MTZJ-7.5B
D512	8-719-109-97	s	DIODE RD6.8ES-B2
D601	8-719-977-12	s	DIODE DTZ6.8B
D602	8-719-109-97	s	DIODE RD6.8ES-B2
D603	8-719-109-97	s	DIODE RD6.8ES-B2
D604	8-719-109-97	s	DIODE RD6.8ES-B2

(MAIN BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
D605	8-719-109-97	s	DIODE RD6.8ES-B2
D606	8-719-109-97	s	DIODE RD6.8ES-B2
D607	8-719-083-69	s	DIODE UDZSTE-1724B
D608	8-719-083-69	s	DIODE UDZSTE-1724B
D609	8-719-083-69	s	DIODE UDZSTE-1724B
D610	8-719-977-12	s	DIODE DTZ6.8B
D611	8-719-977-12	s	DIODE DTZ6.8B
D661	8-719-977-12	s	DIODE DTZ6.8B
D662	8-719-977-12	s	DIODE DTZ6.8B
D691	8-719-977-12	s	DIODE DTZ6.8B
D692	8-719-083-57	s	DIODE UDZSTE-173.6B
D901	8-719-083-69	s	DIODE UDZSTE-1724B
D902	8-719-083-69	s	DIODE UDZSTE-1724B
D903	8-719-083-69	s	DIODE UDZSTE-1724B
D904	8-719-083-69	s	DIODE UDZSTE-1724B
FL151	1-216-864-11	s	CONDUCTOR, CHIP (1608)
FL152	1-216-864-11	s	CONDUCTOR, CHIP (1608)
FL251	1-216-864-11	s	CONDUCTOR, CHIP (1608)
FL252	1-216-864-11	s	CONDUCTOR, CHIP (1608)
FL901	1-216-864-11	s	CONDUCTOR, CHIP (1608)
FL902	1-216-864-11	s	CONDUCTOR, CHIP (1608)
IC21	8-759-426-96	s	IC LA5620
IC24	8-759-701-80	s	IC NJM7815FA
IC25	8-759-701-89	s	IC NJM7915FA
IC101	6-705-291-01	s	IC ICS541MT
IC102	6-701-111-01	s	IC AK4382AVT-E2
IC103	8-759-385-17	s	IC NJM4580E (TE2)
IC104	8-759-041-46	s	IC L78M05TLL-SONY-TL
IC121	8-759-385-17	s	IC NJM4580E (TE2)
IC151	8-759-385-17	s	IC NJM4580E (TE2)
IC152	8-759-385-17	s	IC NJM4580E (TE2)
IC252	8-759-385-17	s	IC NJM4580E (TE2)
IC401	6-803-709-01	s	IC MB90553APF-G-250-BND
IC402	6-703-671-01	o	IC BR9040F-WE2
IC403	8-759-484-37	s	IC SM5902AF
IC404	6-704-474-01	s	IC MSM514400E-60TS-K
IC405	8-759-158-96	s	IC TC9246F (TP1)
IC501	8-749-923-04	s	IC TOTX178A
IC502	8-759-271-86	s	IC TC7SH04FU
IC503	8-759-271-86	s	IC TC7SH04FU
IC601	8-759-673-43	s	IC MM74HC04MTCX
IC602	8-759-673-43	s	IC MM74HC04MTCX
IC901	8-759-557-32	s	IC ADM202EARN-REEL
J101	1-815-577-12	s	JACK, PIN 2P
J501	1-794-972-11	s	JACK, PIN 1P
J601	1-764-188-21	s	JACK (SMALL TYPE) (DIA. 3.5)
J603	1-507-678-51	s	JACK
J604	1-507-678-51	s	JACK
JR401	1-216-864-11	s	CONDUCTOR, CHIP (1608)
JR601	1-216-864-11	s	CONDUCTOR, CHIP (1608)
L103	1-414-142-11	s	MICRO INDUCTOR 1UH
L104	1-414-142-11	s	MICRO INDUCTOR 1UH
PH601	8-719-800-42	s	PHOTO COUPLER TLP521-1
PH602	8-719-800-42	s	PHOTO COUPLER TLP521-1
Q21	8-729-038-68	s	TRANSISTOR KRC103S
Q22	8-729-038-54	s	TRANSISTOR KRA102S

(MAIN BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
Q23	8-729-038-54	s	TRANSISTOR KRA102S
Q24	8-729-141-30	s	TRANSISTOR 2SC3623A-LK
Q25	8-729-106-68	s	TRANSISTOR 2SD1615A-GP
Q101	8-729-141-30	s	TRANSISTOR 2SC3623A-LK
Q102	8-729-141-30	s	TRANSISTOR 2SC3623A-LK
Q201	8-729-141-30	s	TRANSISTOR 2SC3623A-LK
Q202	8-729-141-30	s	TRANSISTOR 2SC3623A-LK
Q402	8-729-019-00	s	TRANSISTOR 2SD2394-G
Q403	8-729-019-00	s	TRANSISTOR 2SD2394-G
Q601	8-729-901-81	s	TRANSISTOR 2SC2412K-T-146-R
Q602	8-729-106-68	s	TRANSISTOR 2SD1615A-GP
Q603	8-729-106-68	s	TRANSISTOR 2SD1615A-GP
Q604	8-729-106-68	s	TRANSISTOR 2SD1615A-GP
Q605	8-729-106-68	s	TRANSISTOR 2SD1615A-GP
Q606	8-729-106-68	s	TRANSISTOR 2SD1615A-GP
Q610	8-729-901-81	s	TRANSISTOR 2SC2412K-T-146-R
Q611	8-729-901-81	s	TRANSISTOR 2SC2412K-T-146-R
Q691	8-729-901-81	s	TRANSISTOR 2SC2412K-T-146-R
R21	1-215-863-11	s	RESISTOR,METAL 100/1W
R22	1-249-417-11	s	RESISTOR,CARBON 1K 1/4W(SMALL)
R23	1-215-863-11	s	RESISTOR,METAL 100/1W
R24	1-249-429-11	s	RESISTOR,CARBON(SMALL)10K 1/4W
R25	1-249-429-11	s	RESISTOR,CARBON(SMALL)10K 1/4W
R26	1-249-429-11	s	RESISTOR,CARBON(SMALL)10K 1/4W
R27	1-249-429-11	s	RESISTOR,CARBON(SMALL)10K 1/4W
R30	1-249-429-11	s	RESISTOR,CARBON(SMALL)10K 1/4W
R31	1-249-429-11	s	RESISTOR,CARBON(SMALL)10K 1/4W
R33	1-249-429-11	s	RESISTOR,CARBON(SMALL)10K 1/4W
R34	1-249-417-11	s	RESISTOR,CARBON 1K 1/4W(SMALL)
R35	1-249-417-11	s	RESISTOR,CARBON 1K 1/4W(SMALL)
R101	1-249-409-11	s	RESISTOR,CARBON 220 1/4W SMALL
R102	1-216-821-11	s	RESISTOR,CHIP 1.0K 1/10W(1608)
R103	1-216-821-11	s	RESISTOR,CHIP 1.0K 1/10W(1608)
R104	1-216-821-11	s	RESISTOR,CHIP 1.0K 1/10W(1608)
R105	1-247-807-31	s	RESISTOR,CARBON 100 1/4W
R106	1-249-429-11	s	RESISTOR,CARBON(SMALL)10K 1/4W
R107	1-216-813-11	s	RESISTOR, CHIP 220 1/10W 1608
R108	1-218-272-11	s	RESISTOR,CHIP 5.1K 1/16W(1608)
R109	1-216-813-11	s	RESISTOR, CHIP 220 1/10W 1608
R110	1-216-829-11	s	RESISTOR,CHIP 4.7K 1/10W(1608)
R111	1-216-829-11	s	RESISTOR,CHIP 4.7K 1/10W(1608)
R112	1-218-272-11	s	RESISTOR,CHIP 5.1K 1/16W(1608)
R115	1-249-441-11	s	RESISTOR,CARBON 100K 1/4W
R117	1-216-864-11	s	CONDUCTOR, CHIP (1608)
R118	1-216-864-11	s	CONDUCTOR, CHIP (1608)
R119	1-216-819-11	s	RESISTOR,CHIP 680 1/10W 1608
R120	1-216-815-11	s	RESISTOR,CHIP 330 1/10W 1608
R121	1-216-809-11	s	RESISTOR,CHIP 100 1/10W 1608
R122	1-216-845-11	s	RESISTOR,CHIP 100K 1/10W(1608)
R123	1-216-809-11	s	RESISTOR,CHIP 100 1/10W 1608
R124	1-249-409-11	s	RESISTOR,CARBON 220 1/4W SMALL
R151	1-249-418-11	s	RESISTOR,CARBON 1.2K 1/4W
R152	1-247-818-91	s	RESISTOR, CHIP 300
R153	1-249-437-11	s	RESISTOR,CARBON 47K 1/4W SMALL
R154	1-249-417-11	s	RESISTOR,CARBON 1K 1/4W(SMALL)
R155	1-249-421-11	s	RESISTOR,CARBON 2.2K 1/4W
R156	1-215-440-00	s	RESISTOR,METAL FILM 6.2K 1/4W
R157	1-215-435-00	s	RESISTOR,METAL FILM 3.9K 1/4W

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Ref. No. or Q'ty	Part No.	SP	Description
R158	1-215-435-00	s	RESISTOR,METAL FILM 3.9K 1/4W
R159	1-215-435-00	s	RESISTOR,METAL FILM 3.9K 1/4W
R160	1-215-435-00	s	RESISTOR,METAL FILM 3.9K 1/4W
R161	1-215-440-00	s	RESISTOR,METAL FILM 6.2K 1/4W
R162	1-215-441-00	s	RESISTOR,METAL FILM 6.8K 1/4W
R163	1-215-477-00	s	RESISTOR,METAL FILM 220K 1/4W
R164	1-215-441-00	s	RESISTOR,METAL FILM 6.8K 1/4W
R165	1-215-440-00	s	RESISTOR,METAL FILM 6.2K 1/4W
R166	1-215-389-00	s	RESISTOR METAL FILM 47 1/4 W
R167	1-215-389-00	s	RESISTOR METAL FILM 47 1/4 W
R168	1-249-429-11	s	RESISTOR,CARBON(SMALL)10K 1/4W
R169	1-249-429-11	s	RESISTOR,CARBON(SMALL)10K 1/4W
R201	1-249-409-11	s	RESISTOR,CARBON 220 1/4W SMALL
R202	1-216-821-11	s	RESISTOR,CHIP 1.0K 1/10W(1608)
R203	1-216-821-11	s	RESISTOR,CHIP 1.0K 1/10W(1608)
R204	1-216-821-11	s	RESISTOR,CHIP 1.0K 1/10W(1608)
R205	1-247-807-31	s	RESISTOR,CARBON 100 1/4W
R206	1-249-429-11	s	RESISTOR,CARBON(SMALL)10K 1/4W
R207	1-216-813-11	s	RESISTOR, CHIP 220 1/10W 1608
R208	1-218-272-11	s	RESISTOR,CHIP 5.1K 1/16W(1608)
R209	1-216-813-11	s	RESISTOR, CHIP 220 1/10W 1608
R210	1-216-829-11	s	RESISTOR,CHIP 4.7K 1/10W(1608)
R211	1-216-829-11	s	RESISTOR,CHIP 4.7K 1/10W(1608)
R212	1-218-272-11	s	RESISTOR,CHIP 5.1K 1/16W(1608)
R221	1-216-809-11	s	RESISTOR,CHIP 100 1/10W 1608
R222	1-216-845-11	s	RESISTOR,CHIP 100K 1/10W(1608)
R223	1-216-809-11	s	RESISTOR,CHIP 100 1/10W 1608
R224	1-249-409-11	s	RESISTOR,CARBON 220 1/4W SMALL
R251	1-249-418-11	s	RESISTOR,CARBON 1.2K 1/4W
R252	1-247-818-91	s	RESISTOR, CHIP 300
R253	1-249-437-11	s	RESISTOR,CARBON 47K 1/4W SMALL
R254	1-249-417-11	s	RESISTOR,CARBON 1K 1/4W(SMALL)
R255	1-249-421-11	s	RESISTOR,CARBON 2.2K 1/4W
R256	1-215-440-00	s	RESISTOR,METAL FILM 6.2K 1/4W
R257	1-215-435-00	s	RESISTOR,METAL FILM 3.9K 1/4W
R258	1-215-435-00	s	RESISTOR,METAL FILM 3.9K 1/4W
R259	1-215-435-00	s	RESISTOR,METAL FILM 3.9K 1/4W
R260	1-215-435-00	s	RESISTOR,METAL FILM 3.9K 1/4W
R261	1-215-440-00	s	RESISTOR,METAL FILM 6.2K 1/4W
R262	1-215-441-00	s	RESISTOR,METAL FILM 6.8K 1/4W
R263	1-215-477-00	s	RESISTOR,METAL FILM 220K 1/4W
R264	1-215-441-00	s	RESISTOR,METAL FILM 6.8K 1/4W
R265	1-215-440-00	s	RESISTOR,METAL FILM 6.2K 1/4W
R266	1-215-389-00	s	RESISTOR METAL FILM 47 1/4 W
R267	1-215-389-00	s	RESISTOR METAL FILM 47 1/4 W
R268	1-249-429-11	s	RESISTOR,CARBON(SMALL)10K 1/4W
R269	1-249-429-11	s	RESISTOR,CARBON(SMALL)10K 1/4W
R402	1-216-833-11	s	RESISTOR,CHIP 10K 1/10W (1608)
R403	1-216-833-11	s	RESISTOR,CHIP 10K 1/10W (1608)
R404	1-216-833-11	s	RESISTOR,CHIP 10K 1/10W (1608)
R405	1-216-823-11	s	RESISTOR, CHIP 1.5K 1/10W
R406	1-216-849-11	s	RESISTOR,CHIP 220K 1/16W 1608
R407	1-216-809-11	s	RESISTOR,CHIP 100 1/10W 1608
R409	1-216-833-11	s	RESISTOR,CHIP 10K 1/10W (1608)
R410	1-216-864-11	s	CONDUCTOR, CHIP (1608)
R411	1-249-429-11	s	RESISTOR,CARBON(SMALL)10K 1/4W
R412	1-216-833-11	s	RESISTOR,CHIP 10K 1/10W (1608)
R413	1-249-429-11	s	RESISTOR,CARBON(SMALL)10K 1/4W
R414	1-216-833-11	s	RESISTOR,CHIP 10K 1/10W (1608)

(MAIN BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R416	1-216-833-11	s	RESISTOR,CHIP 10K 1/10W (1608)
R417	1-249-417-11	s	RESISTOR,CARBON 1K 1/4W(SMALL)
R418	1-216-821-11	s	RESISTOR,CHIP 1.0K 1/10W(1608)
R419	1-249-417-11	s	RESISTOR,CARBON 1K 1/4W(SMALL)
R421	1-216-833-11	s	RESISTOR,CHIP 10K 1/10W (1608)
R422	1-216-821-11	s	RESISTOR,CHIP 1.0K 1/10W(1608)
R423	1-216-821-11	s	RESISTOR,CHIP 1.0K 1/10W(1608)
R424	1-249-417-11	s	RESISTOR,CARBON 1K 1/4W(SMALL)
R425	1-216-864-11	s	CONDUCTOR, CHIP (1608)
R427	1-216-864-11	s	CONDUCTOR, CHIP (1608)
R428	1-216-864-11	s	CONDUCTOR, CHIP (1608)
R429	1-216-864-11	s	CONDUCTOR, CHIP (1608)
R430	1-216-864-11	s	CONDUCTOR, CHIP (1608)
R431	1-216-845-11	s	RESISTOR,CHIP 100K 1/10W(1608)
R433	1-216-864-11	s	CONDUCTOR, CHIP (1608)
R434	1-216-864-11	s	CONDUCTOR, CHIP (1608)
R435	1-249-417-11	s	RESISTOR,CARBON 1K 1/4W(SMALL)
R436	1-249-417-11	s	RESISTOR,CARBON 1K 1/4W(SMALL)
R437	1-249-417-11	s	RESISTOR,CARBON 1K 1/4W(SMALL)
R438	1-216-864-11	s	CONDUCTOR, CHIP (1608)
R439	1-216-833-11	s	RESISTOR,CHIP 10K 1/10W (1608)
R441	1-216-833-11	s	RESISTOR,CHIP 10K 1/10W (1608)
R442	1-216-833-11	s	RESISTOR,CHIP 10K 1/10W (1608)
R443	1-216-849-11	s	RESISTOR,CHIP 220K 1/16W 1608
R444	1-216-849-11	s	RESISTOR,CHIP 220K 1/16W 1608
R445	1-216-849-11	s	RESISTOR,CHIP 220K 1/16W 1608
R452	1-216-864-11	s	CONDUCTOR, CHIP (1608)
R453	1-216-864-11	s	CONDUCTOR, CHIP (1608)
R454	1-216-864-11	s	CONDUCTOR, CHIP (1608)
R455	1-216-833-11	s	RESISTOR,CHIP 10K 1/10W (1608)
R456	1-249-426-11	s	RES,CARBON 5.6K 1/4W (SMALL)
R457	1-215-861-00	s	RESISTOR,METAL FILM 47/1W
R459	1-215-861-00	s	RESISTOR,METAL FILM 47/1W
R460	1-216-864-11	s	CONDUCTOR, CHIP (1608)
R463	1-249-413-11	s	RESISTOR,CARBON 470 1/4W SMALL
R464	1-216-833-11	s	RESISTOR,CHIP 10K 1/10W (1608)
R512	1-247-807-31	s	RESISTOR,CARBON 100 1/4W
R513	1-247-804-11	s	RESISTOR,CARBON 75 1/4W
R514	1-216-829-11	s	RESISTOR,CHIP 4.7K 1/10W(1608)
R601	1-216-821-11	s	RESISTOR,CHIP 1.0K 1/10W(1608)
R602	1-216-841-11	s	RESISTOR, CHIP 47K 1/10W 1608
R603	1-216-841-11	s	RESISTOR, CHIP 47K 1/10W 1608
R605	1-216-833-11	s	RESISTOR,CHIP 10K 1/10W (1608)
R606	1-216-809-11	s	RESISTOR,CHIP 100 1/10W 1608
R611	1-249-417-11	s	RESISTOR,CARBON 1K 1/4W(SMALL)
R612	1-249-417-11	s	RESISTOR,CARBON 1K 1/4W(SMALL)
R613	1-216-827-11	s	RESISTOR, CHIP 3.3K 1/10W 1608
R614	1-249-417-11	s	RESISTOR,CARBON 1K 1/4W(SMALL)
R615	1-249-417-11	s	RESISTOR,CARBON 1K 1/4W(SMALL)
R616	1-216-827-11	s	RESISTOR, CHIP 3.3K 1/10W 1608
R617	1-249-417-11	s	RESISTOR,CARBON 1K 1/4W(SMALL)
R618	1-249-417-11	s	RESISTOR,CARBON 1K 1/4W(SMALL)
R619	1-216-827-11	s	RESISTOR, CHIP 3.3K 1/10W 1608
R620	1-249-417-11	s	RESISTOR,CARBON 1K 1/4W(SMALL)
R621	1-249-417-11	s	RESISTOR,CARBON 1K 1/4W(SMALL)
R622	1-216-827-11	s	RESISTOR, CHIP 3.3K 1/10W 1608
R623	1-249-417-11	s	RESISTOR,CARBON 1K 1/4W(SMALL)
R624	1-249-417-11	s	RESISTOR,CARBON 1K 1/4W(SMALL)
R625	1-216-827-11	s	RESISTOR, CHIP 3.3K 1/10W 1608

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Ref. No. or Q'ty	Part No.	SP	Description
R626	1-247-807-31	s	RESISTOR,CARBON 100 1/4W
R627	1-247-807-31	s	RESISTOR,CARBON 100 1/4W
R628	1-247-807-31	s	RESISTOR,CARBON 100 1/4W
R629	1-247-807-31	s	RESISTOR,CARBON 100 1/4W
R630	1-247-807-31	s	RESISTOR,CARBON 100 1/4W
R631	1-216-833-11	s	RESISTOR,CHIP 10K 1/10W (1608)
R632	1-216-833-11	s	RESISTOR,CHIP 10K 1/10W (1608)
R633	1-216-833-11	s	RESISTOR,CHIP 10K 1/10W (1608)
R634	1-216-837-11	s	RESISTOR,CHIP 22K 1/16W 1608
R635	1-216-837-11	s	RESISTOR,CHIP 22K 1/16W 1608
R639	1-249-411-11	s	RES,CARBON 330 1/4W SMALL
R640	1-249-411-11	s	RES,CARBON 330 1/4W SMALL
R641	1-249-417-11	s	RESISTOR,CARBON 1K 1/4W(SMALL)
R643	1-249-417-11	s	RESISTOR,CARBON 1K 1/4W(SMALL)
R645	1-249-417-11	s	RESISTOR,CARBON 1K 1/4W(SMALL)
R647	1-216-821-11	s	RESISTOR,CHIP 1.0K 1/10W(1608)
R648	1-216-833-11	s	RESISTOR,CHIP 10K 1/10W (1608)
R649	1-216-821-11	s	RESISTOR,CHIP 1.0K 1/10W(1608)
R650	1-216-833-11	s	RESISTOR,CHIP 10K 1/10W (1608)
R661	1-216-821-11	s	RESISTOR,CHIP 1.0K 1/10W(1608)
R662	1-216-821-11	s	RESISTOR,CHIP 1.0K 1/10W(1608)
R663	1-216-827-11	s	RESISTOR, CHIP 3.3K 1/10W 1608
R664	1-216-821-11	s	RESISTOR,CHIP 1.0K 1/10W(1608)
R665	1-216-821-11	s	RESISTOR,CHIP 1.0K 1/10W(1608)
R666	1-216-827-11	s	RESISTOR, CHIP 3.3K 1/10W 1608
R673	1-216-809-11	s	RESISTOR,CHIP 100 1/10W 1608
R674	1-216-809-11	s	RESISTOR,CHIP 100 1/10W 1608
R680	1-216-864-11	s	CONDUCTOR, CHIP (1608)
R681	1-216-864-11	s	CONDUCTOR, CHIP (1608)
R682	1-216-809-11	s	RESISTOR,CHIP 100 1/10W 1608
R683	1-216-809-11	s	RESISTOR,CHIP 100 1/10W 1608
R691	1-216-821-11	s	RESISTOR,CHIP 1.0K 1/10W(1608)
R692	1-216-845-11	s	RESISTOR,CHIP 100K 1/10W(1608)
R693	1-216-841-11	s	RESISTOR, CHIP 47K 1/10W 1608
R694	1-216-833-11	s	RESISTOR,CHIP 10K 1/10W (1608)
R695	1-216-809-11	s	RESISTOR,CHIP 100 1/10W 1608
R801	1-216-833-11	s	RESISTOR,CHIP 10K 1/10W (1608)
R802	1-216-864-11	s	CONDUCTOR, CHIP (1608)
R803	1-216-833-11	s	RESISTOR,CHIP 10K 1/10W (1608)
R805	1-216-833-11	s	RESISTOR,CHIP 10K 1/10W (1608)
R806	1-216-833-11	s	RESISTOR,CHIP 10K 1/10W (1608)
R901	1-216-809-11	s	RESISTOR,CHIP 100 1/10W 1608
R902	1-216-809-11	s	RESISTOR,CHIP 100 1/10W 1608
R903	1-249-429-11	s	RESISTOR,CARBON(SMALL)10K 1/4W
R932	1-216-833-11	s	RESISTOR,CHIP 10K 1/10W (1608)
RY151	1-515-614-11	s	RELAY (12V)
S151	1-570-707-11	s	SWITCH,SLIDE (2-2-2)(S)
T501	1-409-594-11	s	COIL (WITH CORE)
X401	1-813-100-11	s	VIBRATOR, CRYSTAL

POWER BOARD

Ref. No. or Q'ty	Part No.	SP	Description
CN1	1-568-226-11	o	PIN, CONNECTOR 2P (for CE,UC)
CN1	1-580-230-31	o	PIN,CONNECTOR 2P (for J,CN)
CN2	1-564-321-21	o	PIN,CONNECTOR 2P
CN4	1-568-106-11	s	PIN,CONNECTOR 7P (for J)
CN5	1-568-106-11	s	PIN,CONNECTOR 7P (for UC)
CN6	1-568-106-11	s	PIN,CONNECTOR 7P (for CE,CN)
FH1	1-533-233-11	s	HOLDER, FUSE
FH2	1-533-233-11	s	HOLDER, FUSE
L1	⚠ 1-424-150-11	s	TRANSFORMER,LINE FILTER

SENSOR BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-4591-506-A	s	MOUNTED CIRCUIT BOARD, SENSOR
C10	1-163-038-91	s	CAPACITOR,CHIP CERAMIC 0.1MF
C11	1-163-038-91	s	CAPACITOR,CHIP CERAMIC 0.1MF
D10	8-719-045-75	s	LED CL-200IR-X-TU
D11	8-719-045-75	s	LED CL-200IR-X-TU
D12	8-719-045-75	s	LED CL-200IR-X-TU
R10	1-216-045-00	s	RESISTOR,CHIP 680 1/10W(2012)
R11	1-216-045-00	s	RESISTOR,CHIP 680 1/10W(2012)
R12	1-216-045-00	s	RESISTOR,CHIP 680 1/10W(2012)
R13	1-216-025-00	s	RESISTOR,CHIP 100 1/10W(2012)

SERVO BOARD

Ref. No. or Q'ty	Part No.	SP	Description
C1	1-162-970-11	s	CAPACITOR CERAMIC 0.01MF/25V B
C3	1-162-970-11	s	CAPACITOR CERAMIC 0.01MF/25V B
C4	1-126-209-11	s	CAPACITOR,ELECT 100MF/4V
C5	1-162-970-11	s	CAPACITOR CERAMIC 0.01MF/25V B
C6	1-125-837-91	s	CAPACITOR,CHIP CERAMIC1MF/6.3V
C8	1-107-826-11	s	CAPACITOR,CHIP CERAMIC 0.1MF
C9	1-162-924-11	s	CAPACITOR,CERAMIC 56PF/50V CH
C10	1-162-924-11	s	CAPACITOR,CERAMIC 56PF/50V CH
C11	1-162-909-11	s	CAPACITOR,CERAMIC 4PF/50V CH
C12	1-162-909-11	s	CAPACITOR,CERAMIC 4PF/50V CH
C14	1-125-837-91	s	CAPACITOR,CHIP CERAMIC1MF/6.3V
C15	1-162-970-11	s	CAPACITOR CERAMIC 0.01MF/25V B
C16	1-162-970-11	s	CAPACITOR CERAMIC 0.01MF/25V B
C17	1-162-970-11	s	CAPACITOR CERAMIC 0.01MF/25V B
C18	1-162-966-11	s	CAPACITOR,CERAMIC 2200PF/50V B
C19	1-107-826-11	s	CAPACITOR,CHIP CERAMIC 0.1MF
C20	1-107-826-11	s	CAPACITOR,CHIP CERAMIC 0.1MF
C21	1-162-970-11	s	CAPACITOR CERAMIC 0.01MF/25V B
C22	1-162-970-11	s	CAPACITOR CERAMIC 0.01MF/25V B
C23	1-162-970-11	s	CAPACITOR CERAMIC 0.01MF/25V B
C24	1-162-970-11	s	CAPACITOR CERAMIC 0.01MF/25V B
C25	1-162-970-11	s	CAPACITOR CERAMIC 0.01MF/25V B
C30	1-162-970-11	s	CAPACITOR CERAMIC 0.01MF/25V B
C34	1-162-970-11	s	CAPACITOR CERAMIC 0.01MF/25V B
C35	1-162-970-11	s	CAPACITOR CERAMIC 0.01MF/25V B
C36	1-162-970-11	s	CAPACITOR CERAMIC 0.01MF/25V B
C38	1-162-970-11	s	CAPACITOR CERAMIC 0.01MF/25V B
C43	1-162-967-11	s	CAPACITOR,CERAMIC 3300PF/50V B
C44	1-125-837-91	s	CAPACITOR,CHIP CERAMIC1MF/6.3V
C45	1-162-970-11	s	CAPACITOR CERAMIC 0.01MF/25V B
C58	1-107-826-11	s	CAPACITOR,CHIP CERAMIC 0.1MF
CN1	1-750-161-21	o	CONNECTOR, FPC 30P
CN2	1-794-153-21	s	CONNECTOR, FPC(0.5MM PITCH)16P
CN3	1-816-275-11	s	CONNECTOR, FFC/FPC 6P
FB1	1-216-864-11	s	CONDUCTOR, CHIP (1608)
FB2	1-216-864-11	s	CONDUCTOR, CHIP (1608)
FB3	1-216-864-11	s	CONDUCTOR, CHIP (1608)
IC1	8-759-699-98	s	IC UPD63711GC-8EU
IC2	8-759-658-87	s	IC BA5810FP-E2
Q1	8-729-904-87	s	TRANSISTOR 2SB1197K-R
Q6	8-729-037-94	s	TRANSISTOR CPT-230S-C-TD-BC
Q7	8-729-037-94	s	TRANSISTOR CPT-230S-C-TD-BC
Q8	8-729-037-94	s	TRANSISTOR CPT-230S-C-TD-BC
R3	1-216-797-11	s	RESISTOR,CHIP 10 1/10W 1608
R4	1-218-344-11	s	RESISTOR,CHIP 7.5K 1/16W(1608)
R7	1-216-839-11	s	RESISTOR,CHIP 33K 1/10W 1608
R8	1-216-833-11	s	RESISTOR,CHIP 10K 1/10W (1608)
R9	1-216-840-11	s	RESISTOR,CHIP 39K 1/10W 1608
R10	1-216-835-11	s	RESISTOR,CHIP 15K 1/10W
R12	1-216-837-11	s	RESISTOR,CHIP 22K 1/16W 1608
R14	1-216-841-11	s	RESISTOR, CHIP 47K 1/10W 1608
R15	1-216-841-11	s	RESISTOR, CHIP 47K 1/10W 1608
R17	1-216-809-11	s	RESISTOR,CHIP 100 1/10W 1608
R18	1-216-809-11	s	RESISTOR,CHIP 100 1/10W 1608
R19	1-216-864-11	s	CONDUCTOR, CHIP (1608)
R20	1-216-809-11	s	RESISTOR,CHIP 100 1/10W 1608
R21	1-216-833-11	s	RESISTOR,CHIP 10K 1/10W (1608)

(SERVO BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R22	1-216-864-11	s	CONDUCTOR, CHIP (1608)
R24	1-216-864-11	s	CONDUCTOR, CHIP (1608)
R25	1-216-864-11	s	CONDUCTOR, CHIP (1608)
R26	1-216-797-11	s	RESISTOR,CHIP 10 1/10W 1608
R29	1-216-833-11	s	RESISTOR,CHIP 10K 1/10W (1608)
R30	1-216-833-11	s	RESISTOR,CHIP 10K 1/10W (1608)
R50	1-216-864-11	s	CONDUCTOR, CHIP (1608)
R51	1-216-817-11	s	RESISTOR,CHIP 470 1/10W 1608
R52	1-216-817-11	s	RESISTOR,CHIP 470 1/10W 1608
R53	1-216-864-11	s	CONDUCTOR, CHIP (1608)
R56	1-216-864-11	s	CONDUCTOR, CHIP (1608)
X1	1-795-520-11	s	VIBRATOR, CERAMIC

SW BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-4591-509-A	s	MOUNTED CIRCUIT BOARD, SW
CN13	1-816-275-11	s	CONNECTOR, FFC/FPC 6P

FRAME

Ref. No. or Q'ty	Part No.	SP	Description
1pc	⚠ 1-443-084-11	s	TRANSFORMER, POWER
1pc	⚠ 1-532-215-00	s	FUSE, TIME-LAG 0.8A/250V (for CE,CN)
1pc	⚠ 1-533-449-11	s	FUSE, GLASS TUBE (DIA. 5) (for J,UC)
1pc	⚠ 1-696-169-12	s	CORD, POWER (for CE)
1pc	⚠ 1-738-531-11	s	CORD, POWER (for UC)
1pc	⚠ 1-782-510-11	s	CORD, POWER (for CN)
1pc	⚠ 1-824-534-11	s	CORD, POWER (TRACKING) (for J)
1pc	⚠ 8-820-165-06	s	DEVICE, OPTICAL KSS-721A/C-RP
HN101	1-827-546-11	s	CABLE, FLEXIBLE FLAT (19 CORE) (CN10/MAIN board to CN7/DISPLAY board)
HN102	1-827-545-11	s	CABLE, FLEXIBLE FLAT (30 CORE) (CN404/MAIN board to CN1/SERVO board)
HN103	1-676-707-11	s	PWB, PICK UP FLEXIBLE (CN2/SERVO board to OPTICAL PICK-UP block)
HN104	1-823-951-11	s	FLEXIBEL FLAT CABLE 6P (CN3/SERVO board to CN13/SW board)

2-4. Supplied Accessories

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-468-446-11	s	REMOTE COMMANDER (RM-DS11)
1pc	1-827-547-11	s	CORD, CONNECTION
1pc	2-347-892-01	s	CD-ROM, OPERATING INSTRUCTIONS

Section 3
Semiconductor Pin Assignments

The following describes the semiconductor types used in this unit.
For semiconductors marked with page numbers in the index, refer to the corresponding pages in this section. However, in some cases incompatible types are also listed, therefore, when a part is to be replaced, also refer to the Spare Parts section.
In addition, for semiconductors with ID Nos., refer to the separate CD-ROM titled “Semiconductor Pin Assignments” (Sony Part No. 9-968-546-xx) that allows searching for parts by semiconductor type or ID No.
The semiconductors in the manual or on the CD-ROM are listed by equivalent types. Thus the external view or the index mark indication may differ from the actual type.
Pin assignments and block diagrams are based on the IC manufacturer’s data book.

本機に使用されている半導体型名の一覧を下記に示します。
索引中，ページが記載されている半導体は，本章の該当ページを参照してください。ただし，互換性のない型名を併記している場合がありますので，部品を交換するときは，Spare Partsの章を参照してください。
また，ID番号が記載されている半導体は，別途発行の “Semiconductor Pin Assignments” CD−ROM版 (ソニー部品番号：9−968−546−xx)を参照してください。
半導体型名またはID番号から検索ができます。
マニュアルまたはCD−ROMに掲載されている半導体は，それぞれの機能を等価的に表わしたものです。
外観やインデックスマークの表示方法が実物と異なる場合があります。
ピン配置およびブロック図はICメーカーのデータブックに従いました。

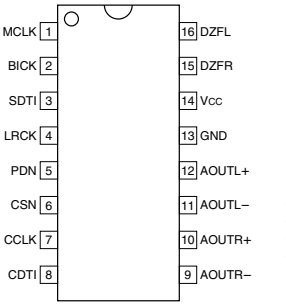
DIODE

2A02
2A02M

IC

AK4382AVT-E2 (AKM)

2-CHANNEL AUDIO D/A CONVERTER
—TOP VIEW—

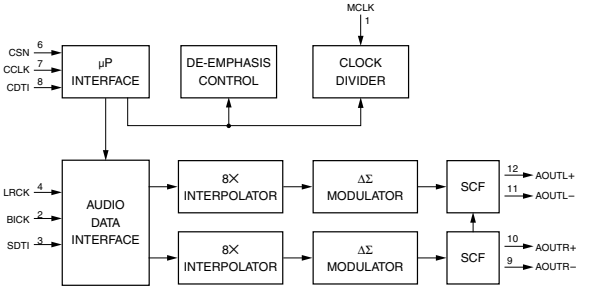


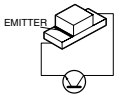
INPUTS

BICK	:	AUDIO SERIAL DATA CLOCK
CCLK	:	CONTROL DATA
CDTI	:	CONTROL DATA IN SERIAL MODE
CSN	:	CHIP SELECT
LRCK	:	L/R CLOCK
MCLK	:	MASTER CLOCK
PDN	:	POWER DOWN MODE
SDTI	:	AUDIO SERIAL DATA

OUTPUTS

AOUTL+	:	L-CHANNEL POSITIVE ANALOG
AOUTL–	:	L-CHANNEL NEGATIVE ANALOG
AOUTR+	:	R-CHANNEL POSITIVE ANALOG
AOUTR–	:	R-CHANNEL NEGATIVE ANALOG
DZFL	:	L-CHANNEL DATA ZERO DETECT
DZFR	:	R-CHANNEL DATA ZERO DETECT

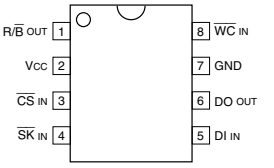




CPT-230S-C-TD-BC (SANYO)

BR9040F-WE2 (ROHM)

4 K (256 × 16)-BIT EEPROM
—TOP VIEW—

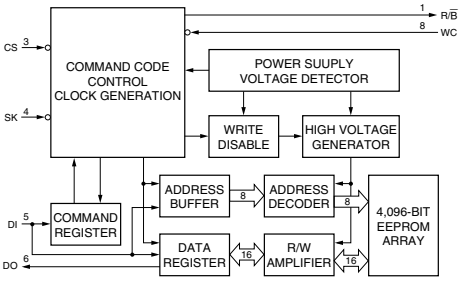


INPUTS

CS	:	CHIP SELECT
DI	:	OPERATING CODE, ADDRESS, AND SREIAL DATA
SK	:	SERIAL DATA CLOCK
WC	:	WRITE CONTROL

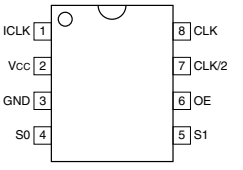
OUTPUTS

DO	:	SERIAL DATA
R/B	:	READY/BUSY STATUS SIGNAL



ICS541MT (ICS)

PLL CLOCK DIVIDER
—TOP VIEW—

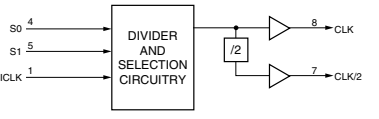


INPUTS

OE	:	OUTPUT ENABLE
ICLK	:	CLOCK
S0, S1	:	SELECT FOR OUTPUT CLOCK

OUTPUTS

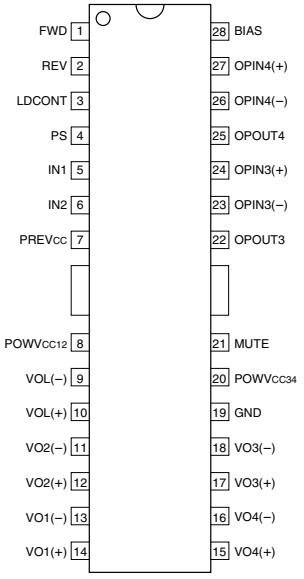
CLK, CLK/2 : CLOCK



BA5810FP-E2 (ROHM)

DRIVER FOR CD/CD-ROM

—TOP VIEW—



INPUTS

FWD	:	LOADING DRIVER FOWARD
IN1, IN2	:	DRIVER CHANNEL
LDCONT	:	LOADING DRIVER OUTPUT VOLTAGE CONTROL
OPIN3+, OPIN4+	:	CHANNEL AMPLIFIER NON-REVERSE
OPIN3–, OPIN4–	:	CHANNEL AMPLIFIER REVERSE
REV	:	LOADING DRIVER REVERSE

OUTPUTS

OPOUT3, OPOUT4	:	CHANNEL AMPLIFIER
VOL(+)	:	LOADING DRIVER, POSITIVE
VOL(–)	:	LOADING DRIVER, NEGATIVE
VO1(+) - VO4(+)	:	DRIVER CHANNEL, POSITIVE
VO1(–) - VO4(–)	:	DRIVER CHANNEL, NEGATIVE

OTHERS

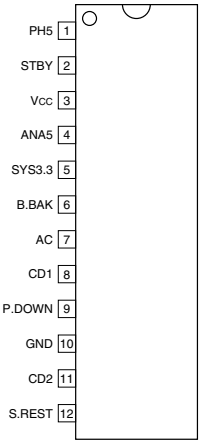
BIAS	:	BIAS
MUTE	:	MUTE CONTROL
POWVCC12, POWVCC34	:	CHANNEL POWER SUPPLY
PREVCC	:	PREVIOUS, LOADING POWER SUPPLY
PS	:	POWER SAVE CONTROL

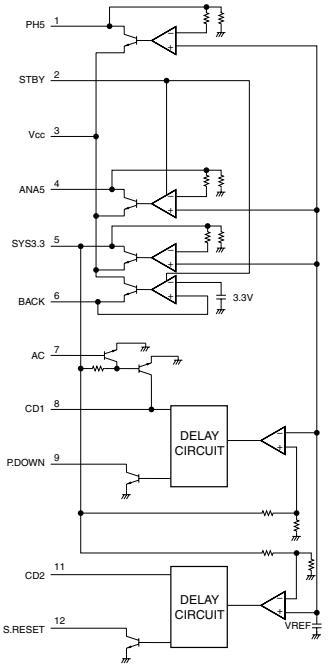
PIN NO.	I/O	SIGNAL	PIN NO.	I/O	SIGNAL
1	I	FWD	15	O	VO4(+)
2	I	REV	16	O	VO4(–)
3	I	LDCONT	17	O	VO3(+)
4	—	PS	18	O	VO3(–)
5	I	IN1	19	—	GND
6	I	IN2	20	—	POWVCC34
7	—	PREVCC	21	—	MUTE
8	—	POWVCC12	22	O	OPOUT3
9	O	VOL(–)	23	I	OPIN3(–)
10	O	VOL(+)	24	I	OPIN3(+)
11	O	VO2(–)	25	O	OPOUT4
12	O	VO2(+)	26	I	OPIN4(–)
13	O	VO1(–)	27	I	OPIN4(+)
14	O	VO1(+)	28	—	BIAS

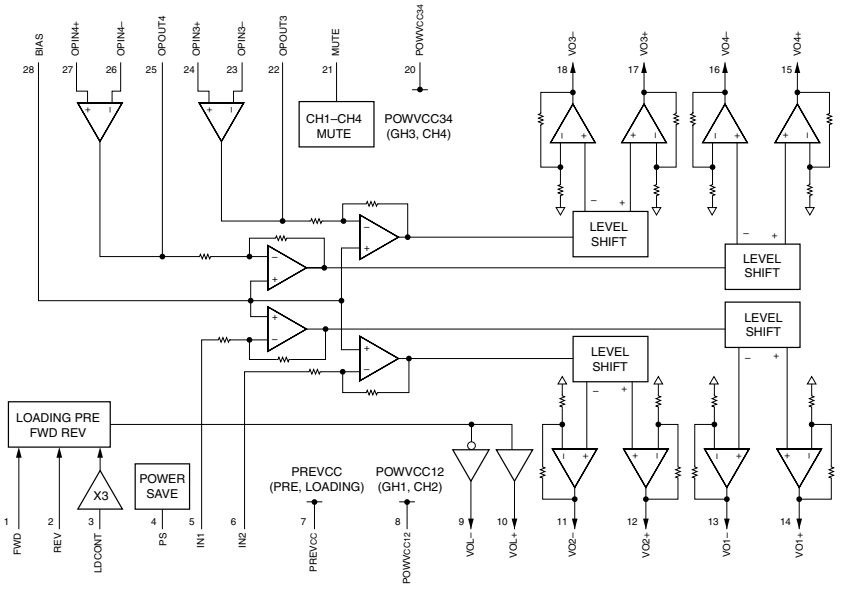
LA5620 (SANYO)

REGULATOR FOR MULTIPLE POWER SUPPLY SYSTEM

—TOP VIEW—

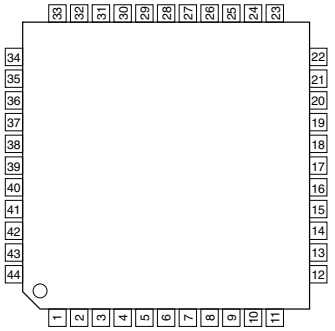






SM5902AF (NPC)

SHOCK PROOF MEMORY CONTROLLER FOR CD PLAYER
—TOP VIEW—



PIN NO.	I/O	SIGNAL	PIN NO.	I/O	SIGNAL
1	—	VCC2	23	I	YDMUTE
2	I/O	UC1	24	I	YMLD
3	I/O	UC2	25	I	YMDATA
4	I/O	UC3	26	I	YMCLK
5	I/O	UC4	27	O	A10/CAS2
6	I/O	UC5	28	O	CAS
7	O	DIT	29	I/O	D2
8	I	TEST	30	I/O	D3
9	I	CLK	31	I/O	D0
10	—	GND	32	I/O	D1
11	I	YSRDATA	33	O	WE
12	I	YLRCK	34	O	RAS
13	I	YSCK	35	O	A9
14	O	ZSCK	36	O	A8
15	O	ZLRCK	37	O	A7
16	O	ZSRDATA	38	O	A6
17	I	YFLAG	39	O	A5
18	I	YFCLK	40	O	A4
19	I	YBLKCK	41	O	A0
20	I	RESET	42	O	A1
21	O	ZSENSE	43	O	A2
22	—	VCC1	44	O	A3

INPUTS

CLK	:	16.9344 MHz CLOCK
RESET	:	SYSTEM RESET
TEST	:	TEST
YBLKCK	:	SUBCODE BLOCK CLOCK
YDMUTE	:	FORCED MUTE
YFCLK	:	CRYSTAL-CONTORLLED FRAME CLOCK
YFLAG	:	SIGNAL PORCESSOR IC RAM OVERFLOW FLAG
YLRCK	:	AUDIO SERIAL LR CLOCK
YMCLK	:	MICROCONTROLLER INTERFACE SHIFT CLOCK
YMDATA	:	MICROCONTROLLER INTERFACE SERIAL DATA
YMLD	:	MICROCONTROLLER INTERFACE LATCH CLOCK
YSCK	:	AUDIO SERIAL BIT CLOCK
YSRDATA	:	AUDIO SERIAL DATA

OUTPUTS

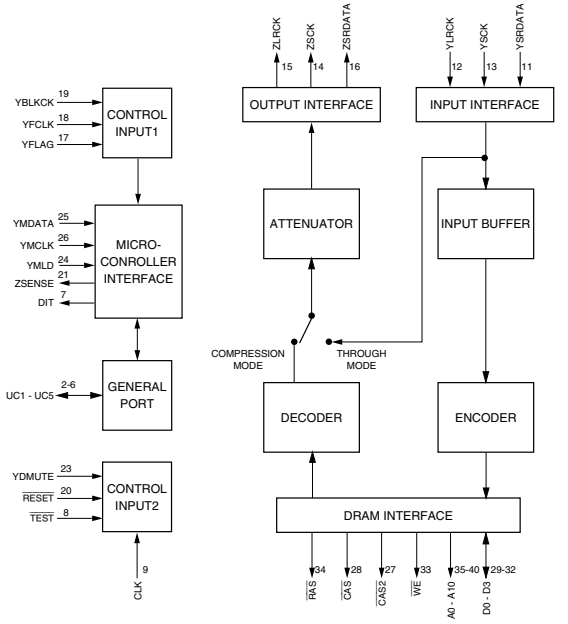
A0 - A10	:	DRAM ADDRESS
CAS	:	DRAM CAS CONTROL
CAS2	:	DRAM2 CAS CONTROL
DIT	:	DIGITAL AUDIO INTERFACE
RAS	:	DRAM RAS CONTROL
WE	:	DRAM WE CONTROL
ZLRCK	:	AUDIO SERIAL LR CLOCK
ZSCK	:	AUDIO SERIAL BIT CLOCK
ZSENSE	:	MICROCONTROLLER INTERFACE STATUS
ZSRDATA	:	AUDIO SERIAL DATA

INPUTS/OUTPUTS

D0 - D3	:	DRAM DATA
UC1 - UC5	:	MICROCONTROLLER INTERFACE EXTENSION

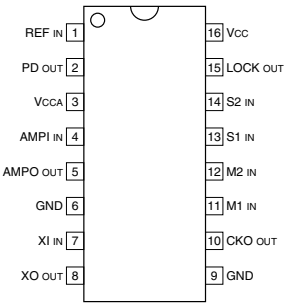
OTHERS

VCC1, VCC2	:	SUPPLY



TC9246F(TP1) (TOSHIBA)

DIGITAL AUDIO CLOCK GENERATOR
—TOP VIEW—



INPUTS

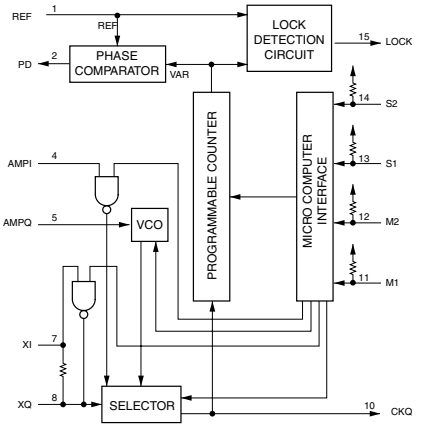
AMPI	:	LPF OR OSCILLATOR 1 OPERATIONAL AMPLIFIER
M1, M2	:	MODE SELECT
S1, S2	:	PARALLEL MODE/SERIAL MODE
REF	:	REFERENCE
XI	:	OSCILLATOR 3 OPERATIONAL AMPLIFIER

OUTPUTS

AMPO	:	LPF OR OSCILLATOR 1 OPERATIONAL AMPLIFIE
CKO	:	OSCILLATED CLOCK
LOCK	:	LOCK DETECT
PD	:	PHASE ERROR
XO	:	OSCILLATOR 3 OPERATIONAL AMPLIFIER

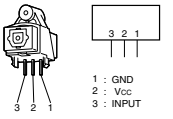
OTHER

VCCA	:	ANALOG SUPPLY VOLTAGE



TOTX178A (TOSHIBA)

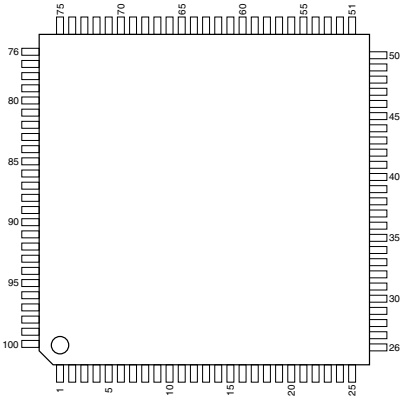
TRANSMITTER MODULE FOR DIGITAL AUDIO



UPD63711GC-8EU (NEC)

DIGITAL SERVO/DATA PROCESSOR FOR CD

—TOP VIEW—



PIN NO.	I/O	SIGNAL	PIN NO.	I/O	SIGNAL	PIN NO.	I/O	SIGNAL	PIN NO.	I/O	SIGNAL
1	—	D.GND	26	—	D.Vcc	51	—	D.Vcc	76	I	AGCI
2	O	FROK	27	O	EMPH	52	O	PACK	77	O	RFO
3	I	$\overline{RST}$	28	O	FLAG	53	O	TSO	78	—	EQ2
4	I	AD	29	I	DIN	54	I	TSI	79	—	EQ1
5	I	$\overline{STB}$	30	O	DOUT	55	I	$\overline{TSCK}$	80	I	RF–
6	I	$\overline{SCK}$	31	I	SCKIN	56	I	TSTB	81	—	A.GND
7	O	SO	32	O	SCKO	57	—	D.GND	82	I	A
8	I	SI	33	I	LRCKIN	58	I	TEST0	83	I	C
9	I	$\overline{XTALEN}$	34	O	LRCK	59	I	TEST1	84	I	B
10	—	Vcc	35	O	HOLD/WDCK	60	O	ATEST	85	I	D
11	—	DA.Vcc	36	O	TX	61	—	A.GND	86	I	F
12	O	ROUT	37	—	D.GND	62	O	FD	87	I	E
13	—	DA.GND	38	O	C16M	63	O	TD	88	—	A.Vcc
14	I	REGC	39	I	LIMIT	64	O	SD	89	O	REFOUT
15	—	DA.GND	40	—	D.Vcc	65	O	MD	90	I	FE–
16	O	LOUT	41	O	LOCK	66	O	DAC0	91	I/O	FEO
17	—	DA.Vcc	42	O	RFCK	67	O	DAC1	92	I	TE–
18	O	R+	43	O	MIRR/WFCK	68	O	DAC2	93	I/O	TEO
19	O	R–	44	O	PLCK	69	O	DAC3	94	I/O	TE2
20	O	L–	45	—	D.GND	70	—	A.Vcc	95	I	TEC
21	O	L+	46	O	C1D1	71	O	EFM	96	—	A.GND
22	—	X.Vcc	47	O	C1D2	72	I	ASY	97	I	PD
23	O	XTAL	48	O	C2D1	73	—	C3T	98	O	LD
24	I	$\overline{XTAL}$	49	O	C2D2	74	I	RFI	99	I	PN
25	—	X.GND	50	O	C2D3	75	O	AGCO	100	—	A.Vcc

INPUTS

AD	: COMMAND/PARAMETOR JUDGEMENT
A, B, C, D, E, F	: PHOTO DETECTOR
AGCI	: RF-AGC AMPLIFIER
ASY	: REFERENCE VOLTAGE FOR EFM COMPARATOR
DIN	: SERIAL DATA TO BUILT-IN DAC
FE–	: FOCUS ERROR AMPLIFIER REVERSE
LIMIT	: OUTPUT THE STATUS TO BIT 5 OF STATUS OUTPUT
LRCKIN	: LRCK TO BUILT-IN DAC
PD	: PD DETECT FOR LD OUTPUT MONITOR
PN	: SETTING CONTOL POLARITY FOR APC CIRCUIT
REGC	: CAPACITOR CONNECTION FOR SCF REGULATOR
RF–	: RF SUMMING AMPLIFIER REVERSE
RFI	: RF SIGNAL FOR GENERATING EFM DATA
$\overline{RST}$	: RESET
$\overline{SCK}$	: SERIAL CLOCK
SCKIN	: SERIAL CLOCK TO BUILT-IN DAC
$\overline{SI}$	: SERIAL
$\overline{STB}$	: DATA STROBE
TE–	: TRACKING ERROR AMPLIFIER REVERSE
TEC	: TRACKING COMPARATOR
TEST0, TEST1	: TEST
$\overline{TSCK}$	: SERIAL CLOCK FOR CD-TEXT
TSI	: SERIAL FOR CD-TEXT CONTROL PARAMETOR
$\overline{TSTB}$	: PARAMETOR STROBE FOR CD-TEXT
$\overline{XTAL}$	: CRYSTAL
$\overline{XTALEN}$	: CRYSTAL CONTROL

OUTPUTS

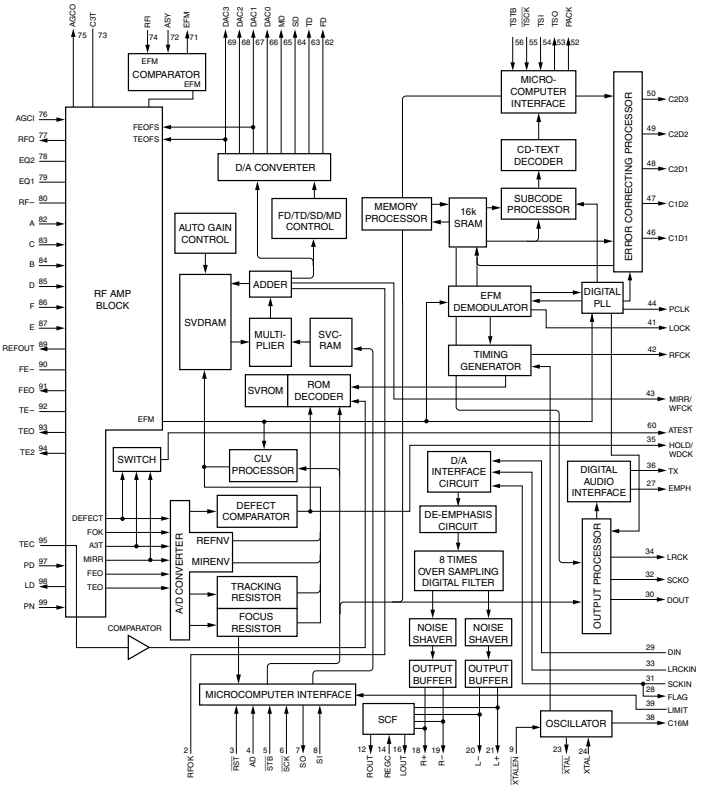
AGCO	: RF SIGNAL AFTER GAIN ADJUSTMENT
ATEST	: TEST
C1D1, C1D2	: C1 ERROR CORRECT RESULT
C2D1, C2D2, C2D3	: C2 ERROR CORRECT RESULT
C16M	: BUFFER FOR OSCILLATOR CLOCK
DAC0 - DAC3	: DAC FOR ADJUSTMENT
DOUT	: SERIAL SOUND DATA
EFM	: EFM SIGNAL
EMPH	: PRE-EMPHASIS
FD	: FOCUS DRIVE
FLAG	: FLAG
HOLD	: DEFECT DETECT
L+, L–	: L-CHANNEL SOUND DATA
LD	: LD CONTROL CURRENT
LOCK	: EFM SYNCHRONIZATION DETECT
LOUT	: L-CHANNEL AUDIO
LRCK	: DISTINGUISH SOUND DATA TO R-CHANNEL AND L-CHANNEL
MD	: SPINDLE DRIVE
MIRR	: MIRROR
PACK	: PACK SYNCHRONIZATION FOR CD-TEXT
PLCK	: BIT CLOCK MONITOR
R+, R–	: R-CHANNEL SOUND DATA
REFOUT	: REFERENCE
RFCK	: FRAME SYNCHRONIZATION FOR XTAL
RFO	: RF SUMMING AMPLIFIER
RFOK	: RFOK SIGNAL
ROUT	: R-CHANNEL AUDIO
SCKO	: CLOCK
SD	: THREAD DRIVE
SO	: SERIAL DATA AND STATUS SIGNAL
TD	: TRACKING DRIVE
TSO	: SERIAL FOR CD-TEXT DATA
TX	: DATA FOR DIGITAL AUDIO INTERFACE
WDCK	: 2 TIMES FREQUENCY OF LRCK
WFCK	: FRAME SYNCHRONIZATION FOR PLL
XTAL	: CRYSTAL

INPUTS/OUTPUTS

FEO	: FOCUS ERROR AMPLIFIER
TEO	: TRACKING ERROR AMPLIFIER
TE2	: TRACKING ERROR AFTER AMPLIFICATION

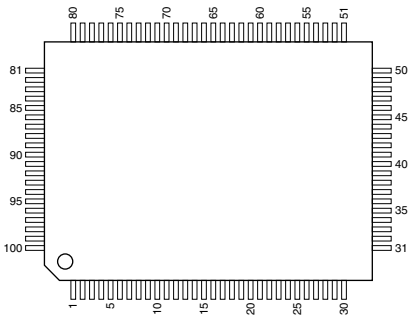
OTHERS

A.GND	: GROUND FOR ANALOG CIRCUIT
A.Vcc	: POWER SUPPLY FOR ANALOG CIRCUIT
C3T	: CAPACITOR FOR 3T DETECT
D.GND	: GROUND FOR LOGIC CIRCUIT
D.Vcc	: POWER SUPPLY FOR LOGIC CIRCUIT
DA.GND	: GROUND FOR D/A CONVERTER
DA.Vcc	: POWER SUPPLY FOR D/A CONVERTER
EQ1, EQ2	: EQUALIZER FOR RF AMPLIFIER
X.GND	: GROUND FOR CRYSTAL
X.Vcc	: POWER SUPPLY FOR CRYSTAL



CPU Pin Descroption : IC401

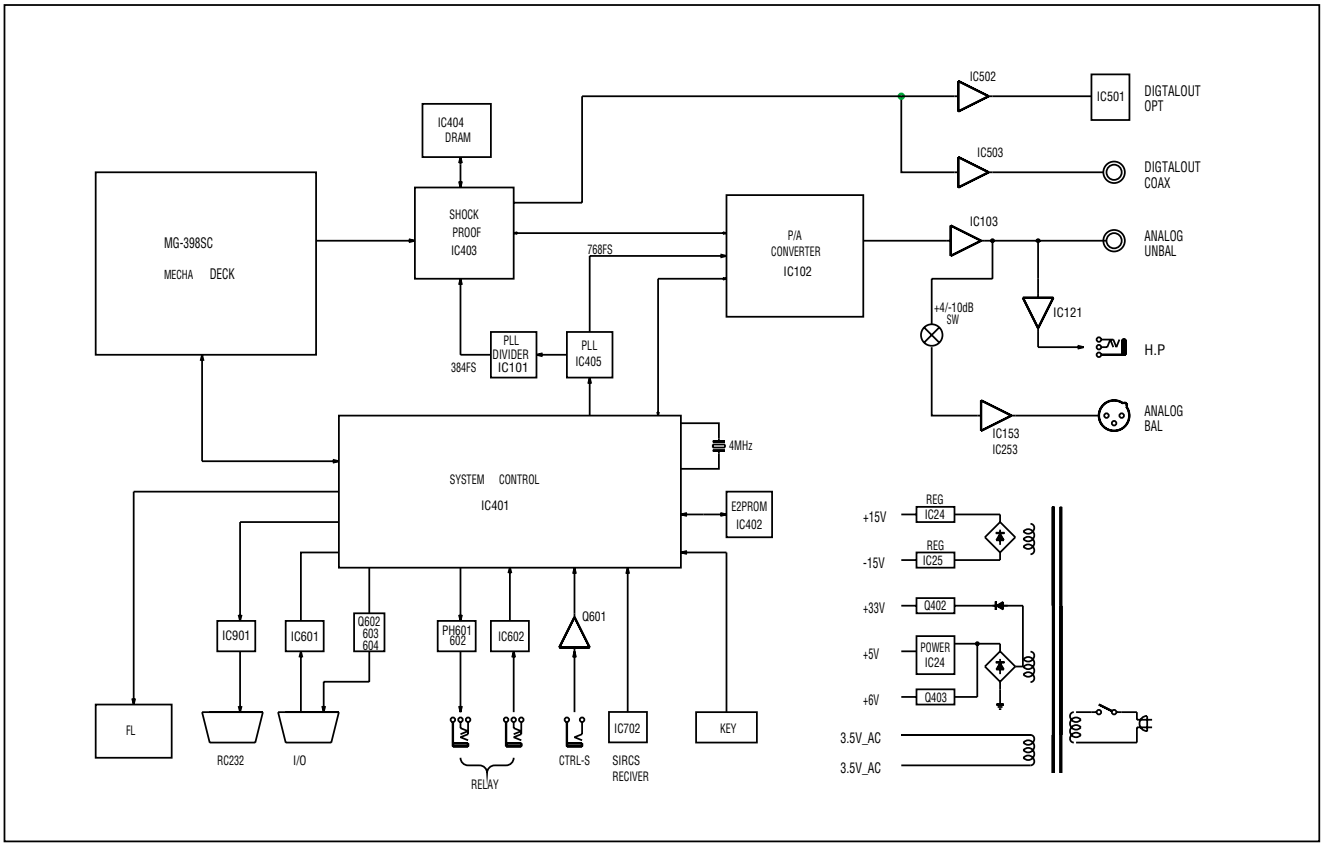
MB90553APF-G-250-BND
—TOP VIEW—



PIN	SIGNAL	I/O	DESCRIPTION
1	LOARDIN	O	DISC LODING EJECT MOTOR CONTROL (LOADING)
2	LOADOUT	O	DISC LODING EJECT MOTOR CONTROL (EJECT)
3	CD_RST	O	RESET CD SIGNAL PROCESSOR/ SERVO
4	TSTB	O	CD TEXT INFORMATION NO STROBE
5	STB	O	CD STROBE
6	A0	O	PARAMETER/COMMAND JUDGEMENT
7	PACK	I	CD PACK
8	RFOK	I	CD RF_OK
9	DISCDETECT	I	SELF SWITCH DETECT
10	DISCSET	I	D_SWITCH WHEN CD IN/OUTDETECT
12	LOADEND	I	PH1 SWITCH CHECK
13	DISCIN	I	PH2 SWITCH CHECK
14	SINGLEFULL	I	PH3 SWITCH CHECK
15	LIMITSW	I	LIMIT SWITCH CHECK
16	SPCRST	O	SHOCK PROOF CONTROLLER RESET
17	SPCLAT	O	SHOCK PROOF CONTROLLER LATCH
19	232C OUT	O	UART DATA OUTPUT
20	232C IN	I	UART DATA INPUT
21	TSCK	O	CD TEXT INFORMATION CLOCK
22	TDSPSO	O	CD TEXT INFORMATION SERIAL DATA
24	TDSPSI	I	CD TEXT INFORMATION SERIAL DATA
26	DISPCLK	O	FL DISPLAY MODULE CLOCK
27	C	—	CAPACITANCE
28	DISPDOUT	O	FL DISPLAY MODULE DATA
29	DISPDIN	I	FL DISPLAY MODULE DATA
30	DISPLAT	O	FL DISPLAY MODULE DATA LATCH
34	AVSS	—	A/D CONVERTER POWER SUPPLY
35	AVRH	—	A/D CONVERTER EXTERNAL REFERENCE
36	AVRL	—	A/D CONVERTER EXTERNAL REFERENCE
37	AVSS	—	A/D CONVERTER POWER SUPPLY
38-40	KEY1-KEY3	I	KEY VOLTAGE
47	POWERDOWN	I	POWER DOWN CHECK
48	ENCODEMAIN	I	ENDODE
49-51	MD0 - MD2	—	SYSTEM MODE SELECT
52	HST	—	HARDWARE STANDBY
53	X_SBSY	I	CD SUBCODE SYNC
56	PARA-POWEROUT	O	PARALLEL PORT NO_DISC
57	PARA-PLAYOUT	O	PARALLEL PORT PLAY OUTPUT
58	PARA-PAUSEOUT	O	PARALLEL PORT PAUSE OUTPUT
59	PARA-PLAYIN	I	PARALLEL PORT PLAY INPUT
60	PARA-PAUSEIN	I	PARALLEL PORT PAUSE INPUT
61	CCL_FS	O	CLOCK CONTROLLER CLOCK
62	PARA-STOPIN	I	PARALLEL PORT STOP
63	PARA-AMSINCIN	I	PARALLEL PORT AMS+
64	PARA-AMSDECIN	I	PARALLEL PORT AMS–
67	SIRCSSELECT	I	REMOTE CONTROL/CTRL-S CONVERSION
68	WIREDPORTIN	I	CTRL-S
69	PAUSEOUT	O	RELAY PAUSE
70	DISPBK	O	FL DISPLAY MODULE BK DATA
71	ENDOUT	O	RELAY END
72	PAUSEIN	I	RELAY PAUSE
73	PLAYIN	I	RELAY PLAYBACK
74	AMUTE	O	ANALOG MUTE
75	EEPCS	O	EEPROM CHIP SELECT
76	ENCODESUB	I	ENCODER
77	RST	—	RESET
78	EEPDI	I	EEPROM DATA
79	EEPDO	O	EEPROM DATA
80	EEPCLK	O	EEPROM SERIAL CLOCK
82-83	X0 - X1	—	OSCILLATOR
87	IRPORTIN	I	REMOTE CONTROL
88	SPCCLK	O	SHOCK PROOF CONTROLLER CLOCK
89	SPCDATAOUT	O	SHOCK PROOF CONTROLLER DATA
90	SPCDATAIN	I	SHOCK PROOF CONTROLLER DATA
91	CDMON	O	CD MECHANISM POWER ON
92	CDON	O	CD POWER ON
93	DFRST	O	DIGITAL FILTER RESET
94	DFLAT	O	DIGITAL FILTER LATCH
95	DFDATA	O	DIGITAL FILTER DATA
96	DFCLK	O	DIGITAL FILTER CLOCK
97	PLLDATA	O	CLOCK CONTROLLER DATA
98	PLLCLEAR	O	CLOCK CONTROLLER CLEAR
99	PLLCLK	O	CLOCK CONTROLLER CLOCK
100	PLLLOCK	I	LOCKING OK/NO JUDGEMENT
23,81	VCC	—	POWER SUPPLY
11,41, 81	GND	—	GROUND
18,25, 31-33, 41,43-46, 54,55,65, 66,85,86	NC	—	NO CONNECTION

Section 4
Block Diagram

Overall



Circuit Description

The compact disc player CDP-D12 consists of the five circuit boards are described below excluding the option boards.

- MAIN board (System control, clock and audio circuits)
- SERVO board (Servo control)
- POWER board (Power supply)
- DISPLAY board (Display and function keys)
- HP board (Headphones)

1. MAIN board

The MAIN board consists of the 128 kbyte ROM, 4 kbyte RAM, interrupt controller, keyboard display, parallel interface, etc. The CPU system clock is 4 MHz. The audio data is converted by passing through the digital filter and D/A converter, and is output from the LINE output connector.

2. SERVO board

The RF signal that is picked up from the CD mechanism deck (MG-398SC) passes through the EFM comparator, is decoded and receives the error correction in the digital signal processing block. The audio data is output to the MAIN board.

3. POWER board

The AC primary power that is input from the AC inlet to CN3 via the POWER switch passes through the line filter (C3) and enters the power transformer via CN4 (for J destination) or CN5 (for UC destination) or CN6 (for CE/CN destination). The AC primary power input is converted to the AC secondary power by the power transformer and enters the MAIN board via CN24.

4. DISPLAY board

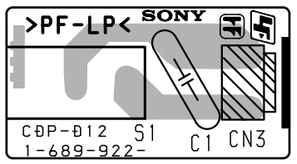
The DISPLAY board consists of the entry keys and FL (fluorescent tube) that displays the disc data (such as time information, etc.)

5. HP board

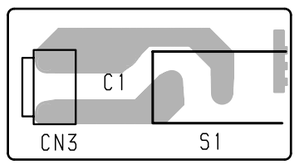
The HP (headphone) board consists of the headphones amplifier, potentiometer for level control and the output jack.

AC/SW, DISPLAY, EJECT, HP

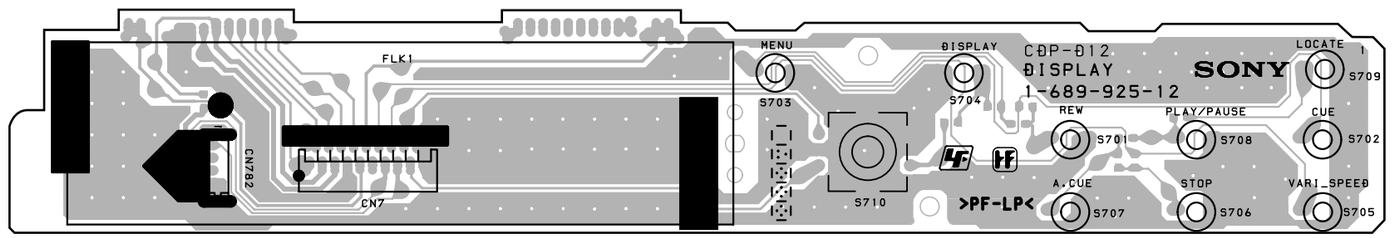
Section 5
Board Layouts



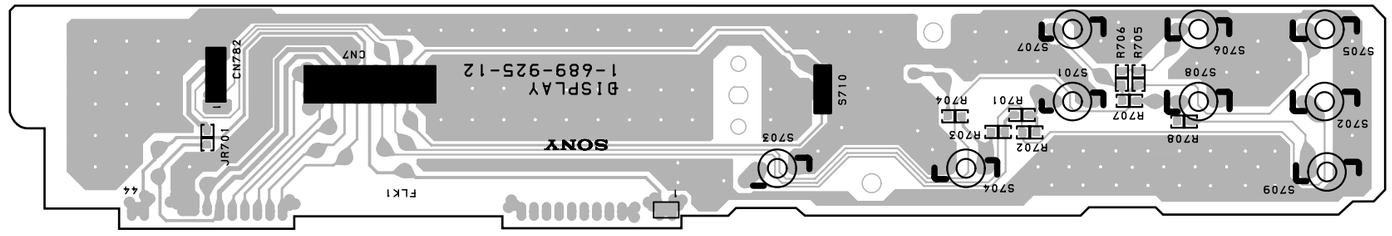
AC/SW A SIDE (Component side)
B SIDE (Solder) Pattern
SUFFIX: -12 (for UC)
: -22 (for CE, CN)
: -32 (for J)



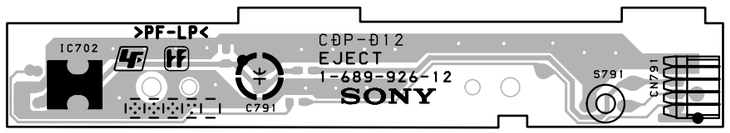
AC/SW B SIDE (Solder side)
B SIDE (Solder) Pattern
SUFFIX: -12 (for UC)
: -22 (for CE, CN)
: -32 (for J)



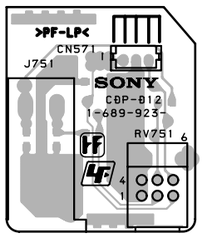
DISPLAY A SIDE (Component side)
B SIDE (Solder) Pattern
SUFFIX: -12



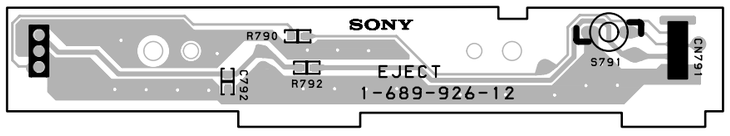
DISPLAY B SIDE (Solder side)
B SIDE (Solder) Pattern
SUFFIX: -12



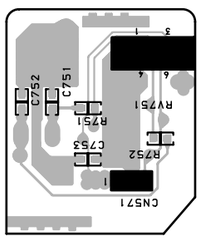
EJECT A SIDE (Component side)
B SIDE (Solder) Pattern
SUFFIX: -12



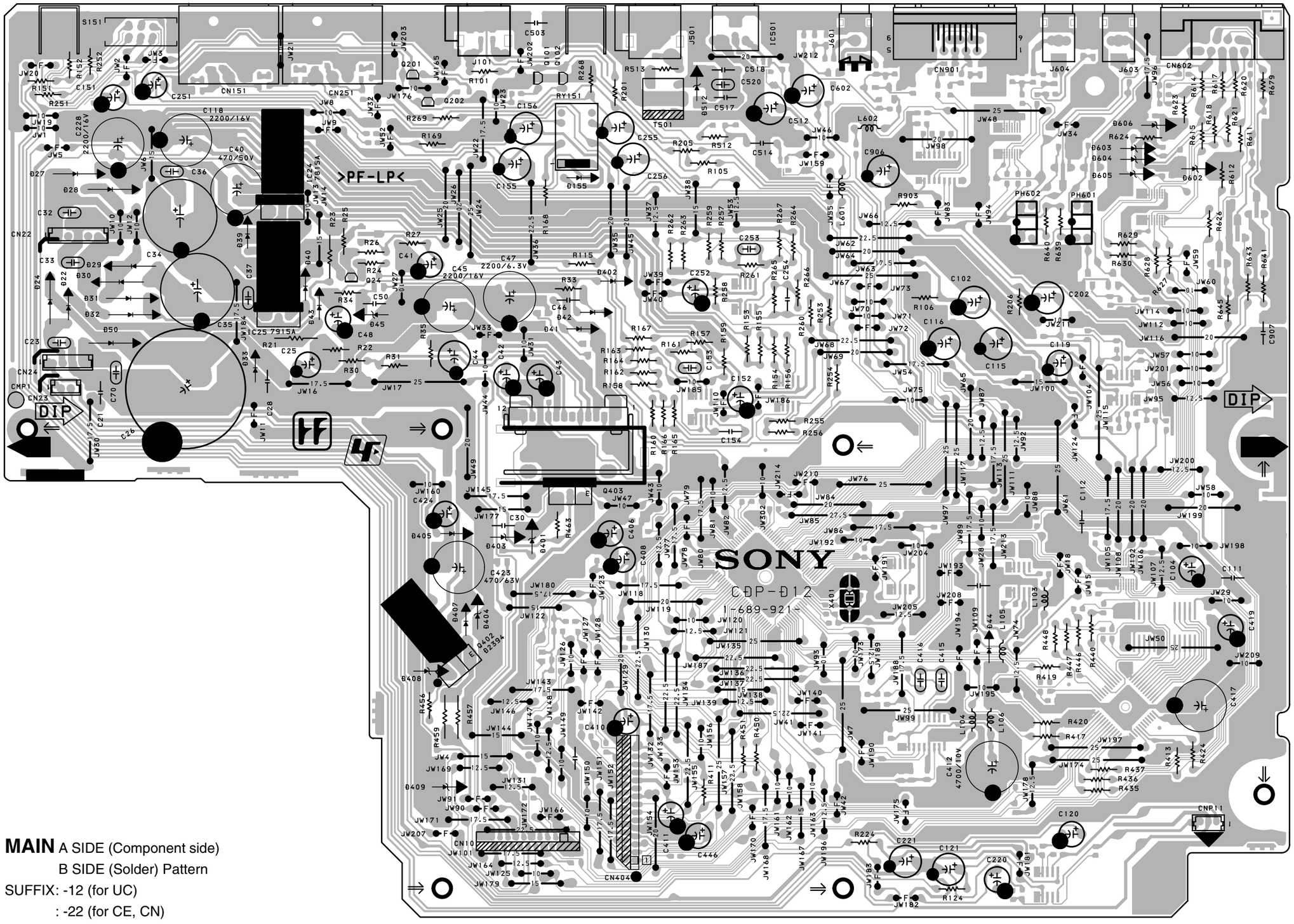
HP A SIDE (Component side)
B SIDE (Solder) Pattern
SUFFIX: -12 (for UC)
: -22 (for CE, CN)
: -32 (for J)



EJECT B SIDE (Solder side)
B SIDE (Solder) Pattern
SUFFIX: -12

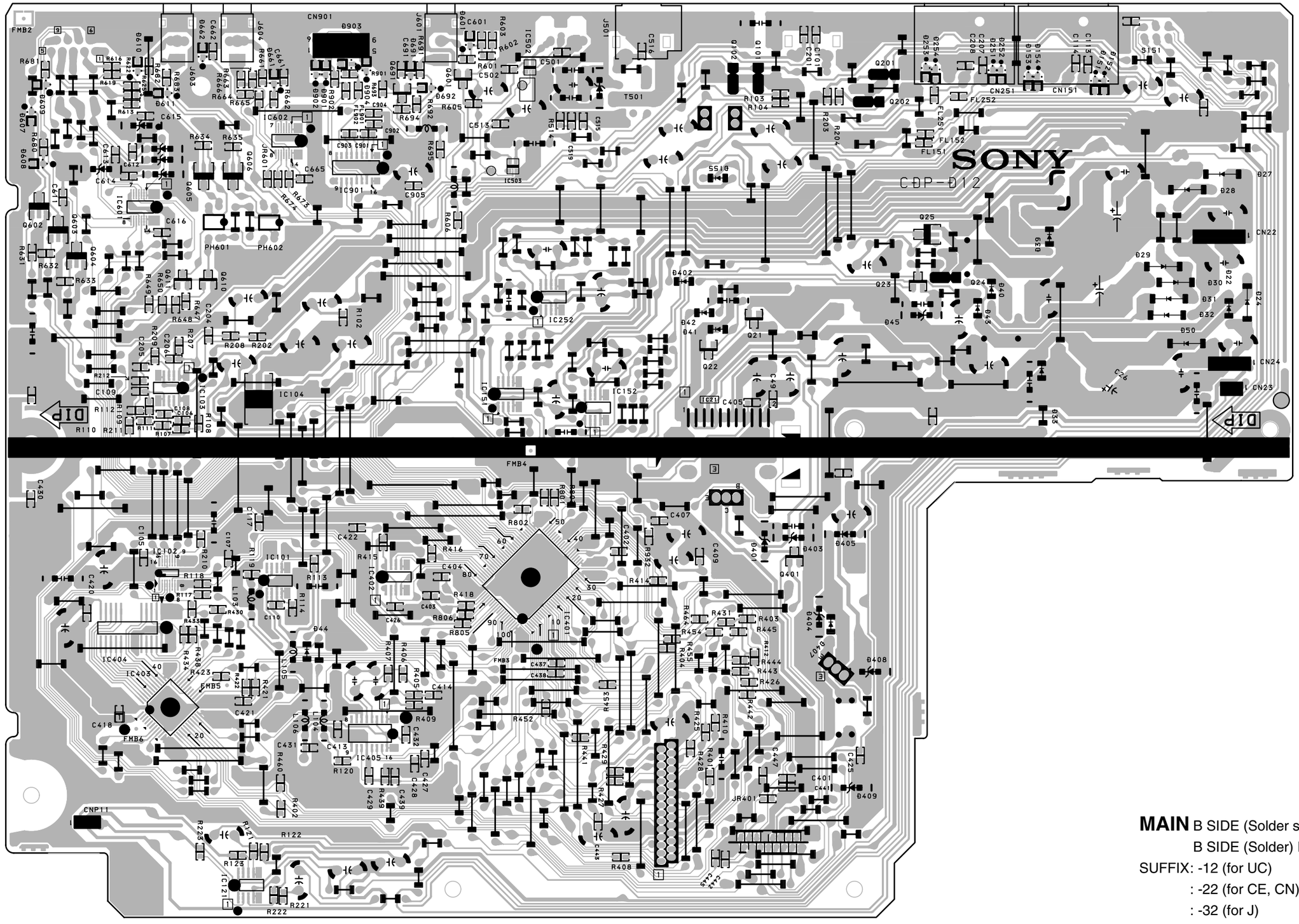


HP B SIDE (Solder side)
B SIDE (Solder) Pattern
SUFFIX: -12 (for UC)
: -22 (for CE, CN)
: -32 (for J)

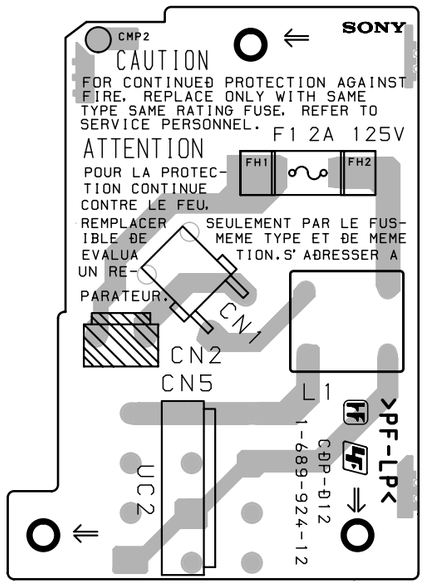


MAIN A SIDE (Component side)
B SIDE (Solder) Pattern

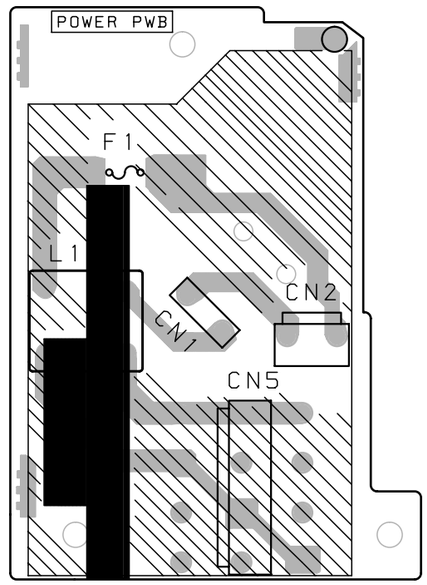
SUFFIX: -12 (for UC)
: -22 (for CE, CN)
: -32 (for J)



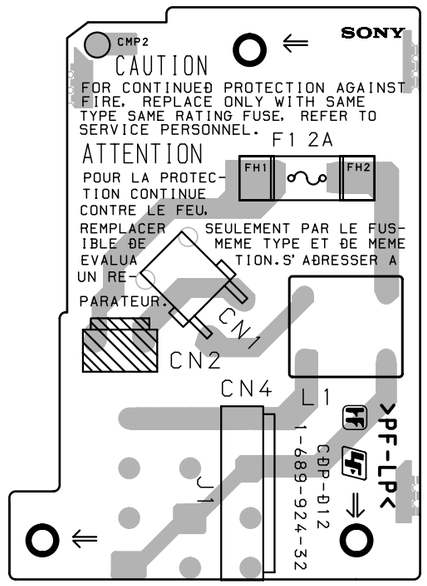
MAIN B SIDE (Solder side)
B SIDE (Solder) Pattern
SUFFIX: -12 (for UC)
: -22 (for CE, CN)
: -32 (for J)



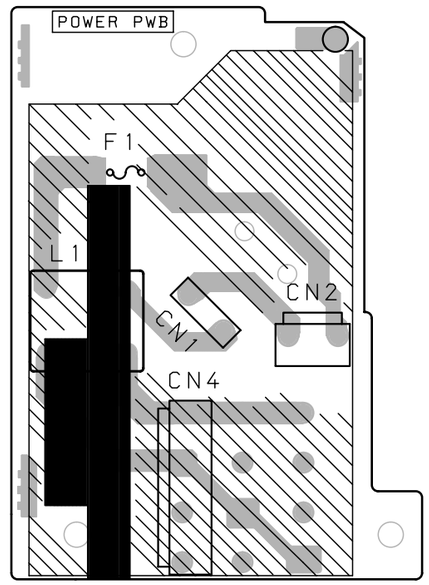
POWER A SIDE (Component side)
B SIDE (Solder) Pattern
SUFFIX: -12 (for UC)



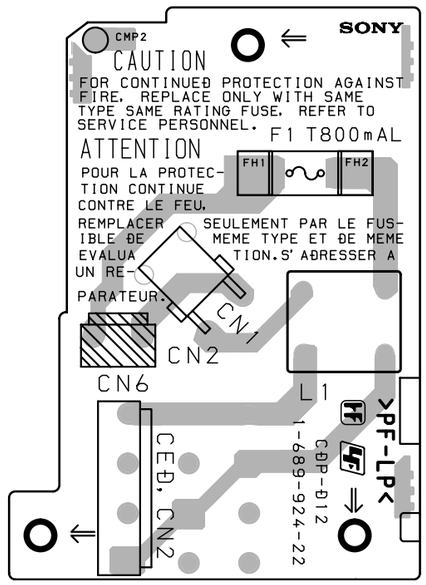
POWER B SIDE (Solder side)
B SIDE (Solder) Pattern
SUFFIX: -12 (for UC)



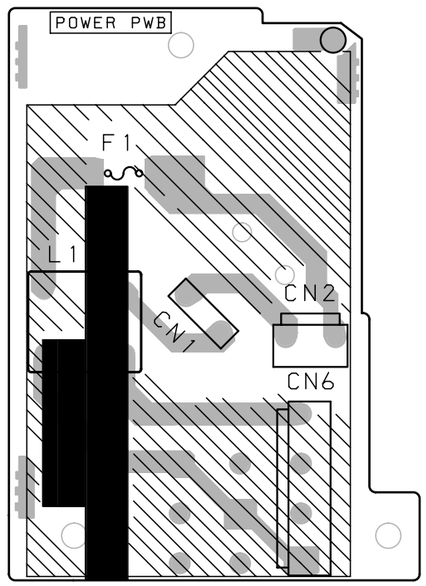
POWER A SIDE (Component side)
B SIDE (Solder) Pattern
SUFFIX: -32 (for J)



POWER B SIDE (Solder side)
B SIDE (Solder) Pattern
SUFFIX: -32 (for J)

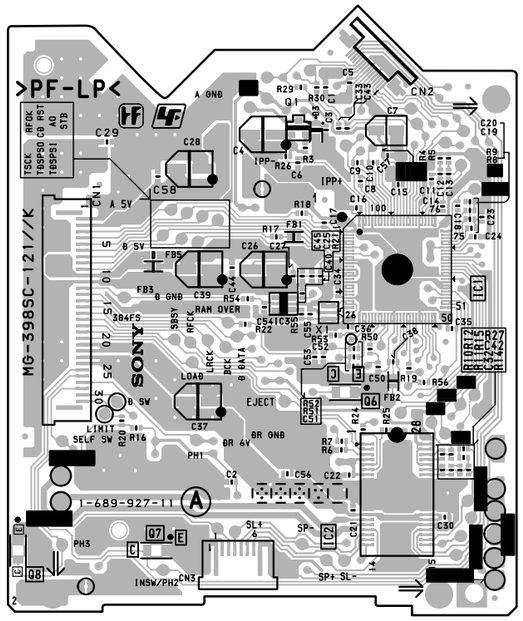


POWER A SIDE (Component side)
B SIDE (Solder) Pattern
SUFFIX: -22 (for CE, CN)

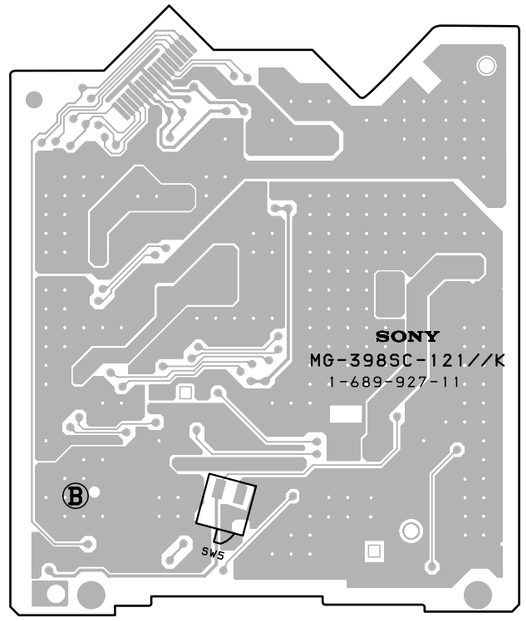


POWER B SIDE (Solder side)
B SIDE (Solder) Pattern
SUFFIX: -22 (for CE, CN)

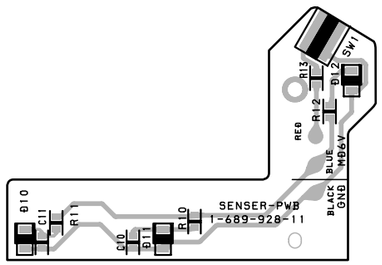
SERVO, SENSOR, SW, LOAD



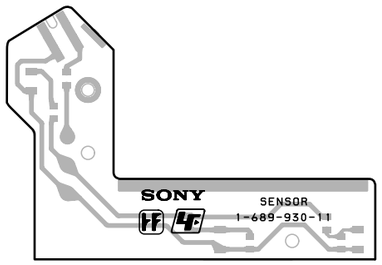
SERVO A SIDE
SUFFIX: -11



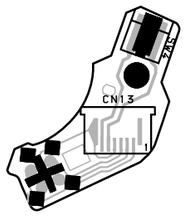
SERVO B SIDE
SUFFIX: -11



SENSOR A SIDE (Component side)
B SIDE (Solder) Pattern
SUFFIX: -11



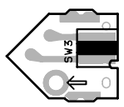
SENSOR B SIDE (Solder side)
B SIDE (Solder) Pattern
SUFFIX: -11



SW A SIDE (Component side)
B SIDE (Solder) Pattern
SUFFIX: -11

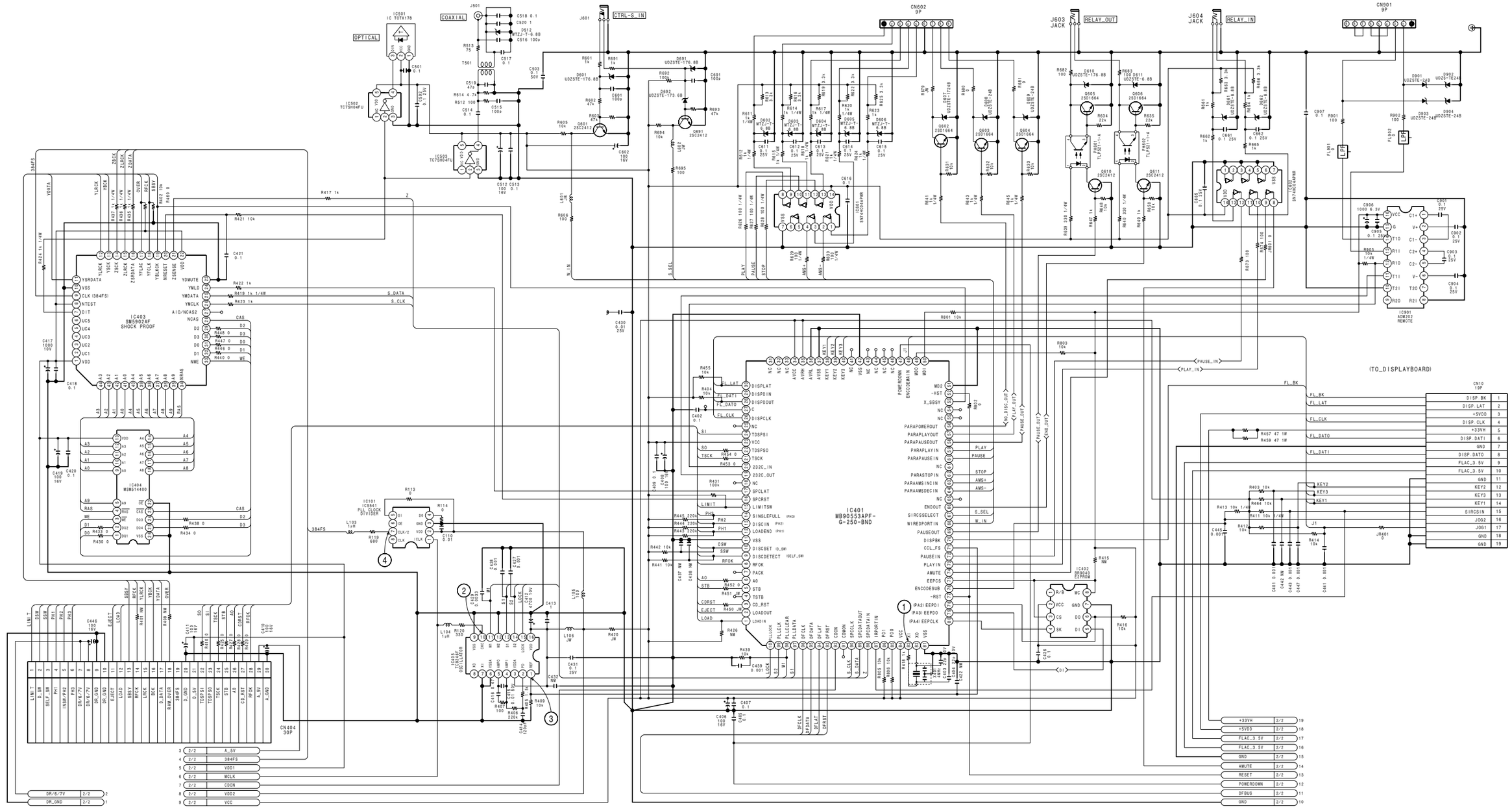
SW B SIDE (Solder side)
B SIDE (Solder) Pattern
SUFFIX: -11

LOAD A SIDE (Component side)
B SIDE (Solder) Pattern
SUFFIX: -11



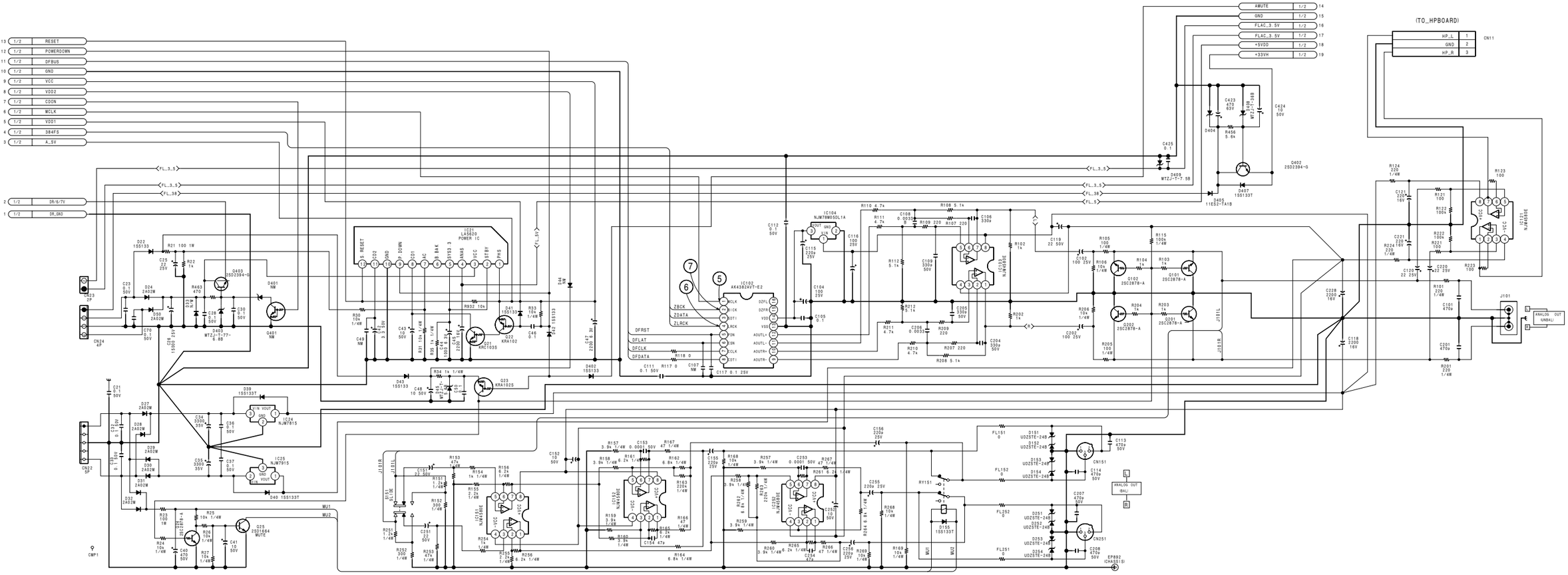
LOAD B SIDE (Solder side)
B SIDE (Solder) Pattern
SUFFIX: -11

Section 6
Schematic Diagrams



MAIN (1/2)

BOARD NO. 1-689-921-12 (for UC)
1-689-921-22 (for CE/CN)
1-689-921-32 (for J)



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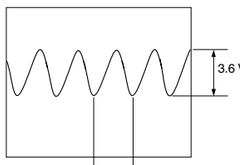

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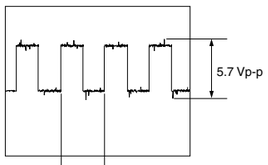

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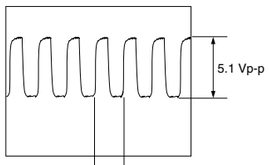
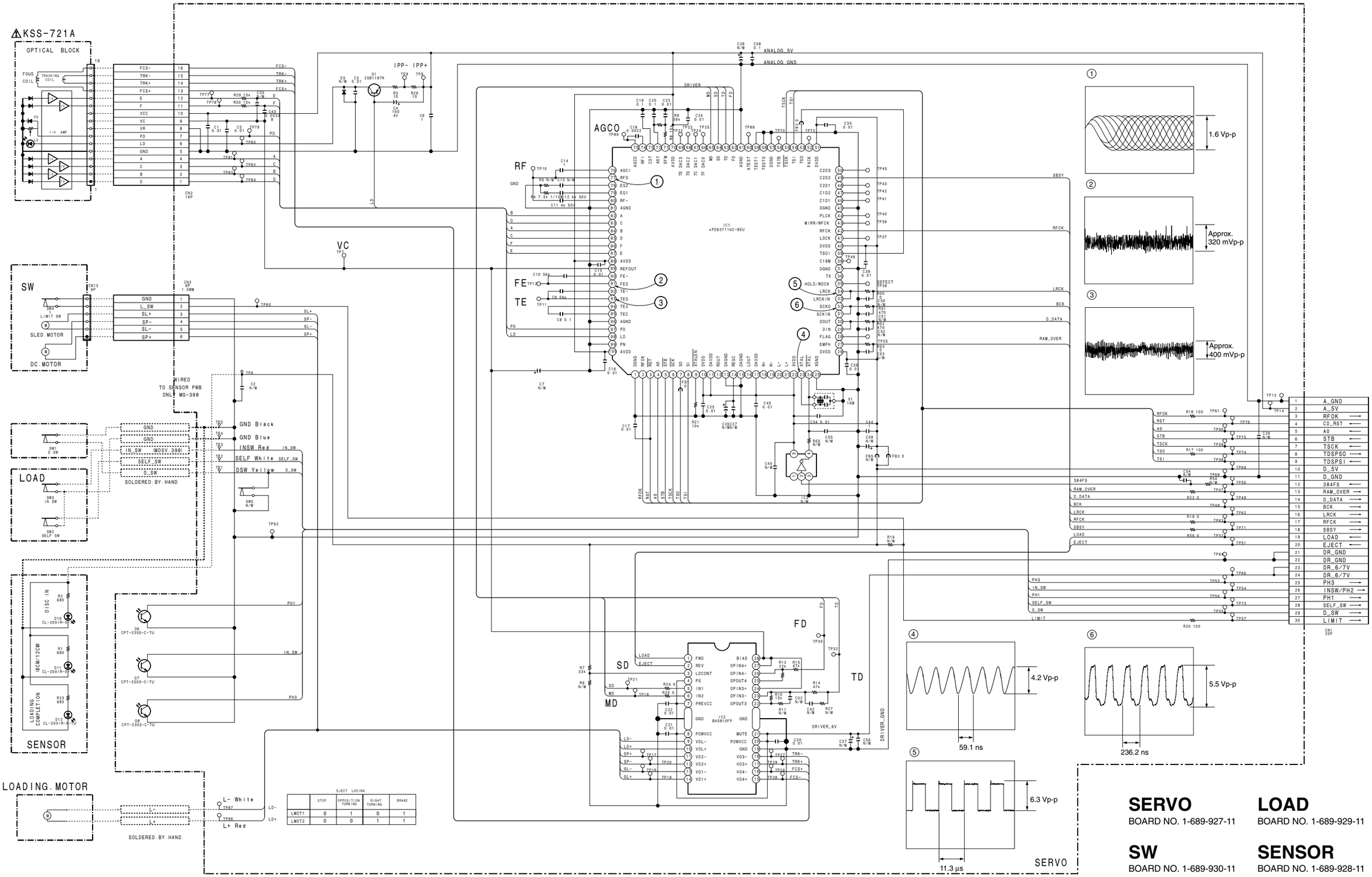


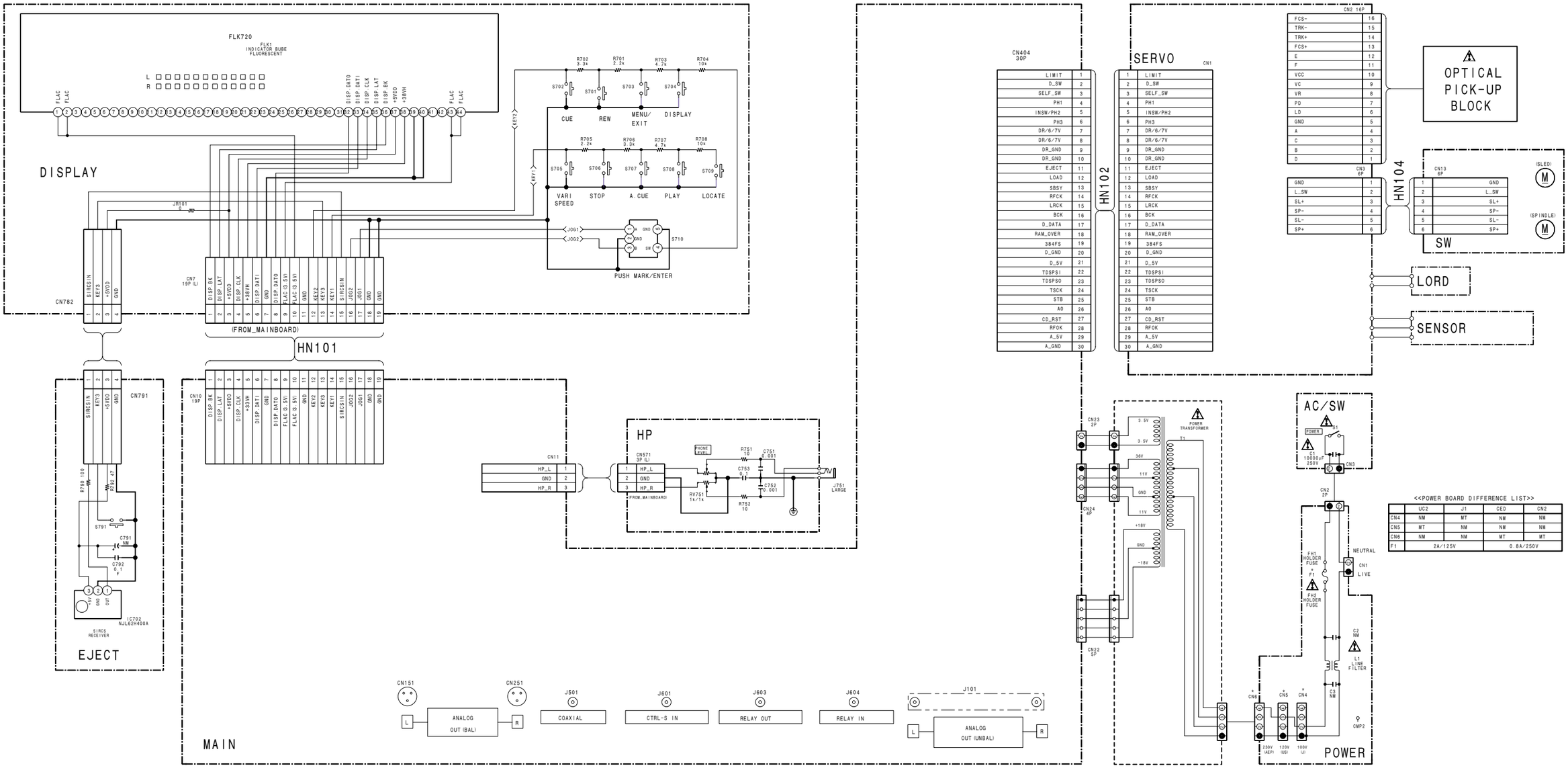
MAIN (2/2)

BOARD NO. 1-689-921-22 (for UC)
1-689-921-22 (for CE/CN)
1-689-921-32 (for J)


KSS-721A
OPTICAL BLOCK
CN2 16P
SW
SLED MOTOR
DC MOTOR
LIMIT SW
CN3 6P 1.0MM
WIRED TO SENSOR PWB ONLY MG-398
GND Black
GND Blue
INSW Red
SELF White
DSW Yellow
SOLDERED BY HAND
LOAD
SENSOR
DISC IN
8CM/12CM
LOADING COMPLETION
LOADING MOTOR
L- White
L+ Red
EJECT LODING
STOP
OPPOSITION TURNING
RIGHT TURNING
BRAKE
LMOT1
LMOT2
RF
FE
TE
SD
MD
FD
TD
VC
AGCO
DRIVER
IC1 μPD637110C-8EU
IC2 BA5810FP
ANALOG_5V
ANALOG GND
DRIVER_6V
DRIVER_GND
SBSY
RFCK
LRCK
BCK
D_DATA
RAM_OVER
1.6 Vp-p
Approx. 320 mVp-p
Approx. 400 mVp-p
4.2 Vp-p
59.1 ns
5.5 Vp-p
236.2 ns
6.3 Vp-p
11.3 μs
SERVO
SERVO
BOARD NO. 1-689-927-11
LOAD
BOARD NO. 1-689-929-11
SW
BOARD NO. 1-689-930-11
SENSOR
BOARD NO. 1-689-928-11

CDP-D12

Frame Wiring DISPLAY/EJECT/HP/POWER/AC/SW



<<POWER BOARD DIFFERENCE LIST>>

	UC2	J1	CED	CN2
CN4	NM	MT	NM	NM
CN5	MT	NM	NM	NM
CN6	NM	NM	MT	MT
F1	2A/125V		0.8A/250V	

Frame Wiring

DISPLAY
BOARD NO. 1-689-925-12

EJECT
BOARD NO. 1-689-926-12

HP
BOARD NO. 1-689-923-12 (for UC)
1-689-923-22 (for CE/CN)
1-689-923-32 (for J)

AC/SW
BOARD NO. 1-689-922-12 (for UC)
1-689-922-22 (for CE/CN)
1-689-922-32 (for J)

POWER
BOARD NO. 1-689-924-12 (for UC)
1-689-924-22 (for CE/CN)
1-689-924-32 (for J)

6-4

CDP-D12

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer :

Check the metal trim, “metallized” knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

LEAKAGE TEST

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5 mA. Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers’ instructions to use these instruments.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.
3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The “limit” indication is 0.75 V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 2 V AC range are suitable. (See Fig. A)

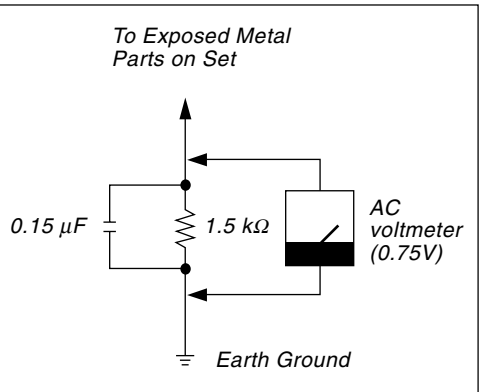


Fig A. Using an AC voltmeter to check AC leakage.

CDP-D12 (UC, CE, CN) E
9-976-920-01

Sony Corporation

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