CDP-790

SERVICE MANUAL

US Model

Model Name Using Similar Mechanism	CDP-190/390
CD Transport Mechanism Type	CDM14-5BD1
Optical Pick-Up Block Type	BU-5BD1

SPECIFICATIONS

Compact disc player

Frequency response	2 Hz - 20 kHz±0.3 dB
Signal to noise ratio	More than 104 dB
Dynamic range	More than 97 dB
Harmonic distortion	Less than 0.003%
Channel separation	More than 98 dB

Outputs

LINE OUT (phono jacks)	Output level 2 V (at 50 kilohms) Load impedance over 10 kilohms
DIGITAL OUT (OPTICAL) (optical output connector)	Wave length 660 nm Output level −18 dBm
PHONES (stereo phone jack)	Output level max. 15 mW Load impedance 32 ohms

General

Power requirements	120 V AC, 60Hz
Power consumption	14W
Dimensions (approx., including projections)	430×110×280 mm (w/h/d) (17×4$^{3}/_{8}$×11$^{1}/_{8}$ inches)
Weight (approx.)	3.8 kg (8 lbs 7oz)

使用時は添付資料も参照のこと
Refer to the additional documents.

Supplied accessories

Audio cord	1 (2 phono plugs – 2 phono plugs)
Remote commander	1
R6 (size AA) batteries	2

Remote commander (RM-D290)

Remote control system	Infrared control
Power requirements	3 V DC with two R6 (size AA) batteries
Dimensions	Approx. 67×18×175 mm (w/h/d) (2$^{3}/_{4}$×$^{23}/_{32}$×7 inches)
Weight	Approx. 150 g (5.3 oz) Including batteries

Design and specifications subject to change without notice.

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY SHADING AND 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.

COMPACT DISC PLAYER

SONY®

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety check before releasing the set to the customer:
Check the antenna terminals, 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 (500 microampers). 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)

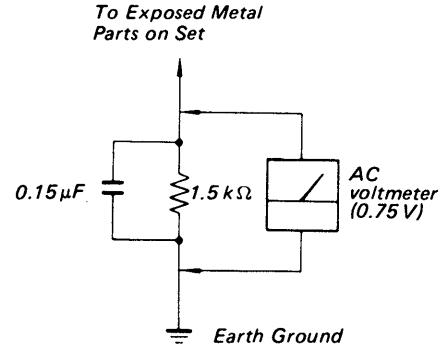


Fig. A. Using an AC voltmeter to check AC leakage.

PROTECTION OF EYES FROM LASER BEAM DURING SERVICING

This set employs a laser. Therefore, be sure to follow carefully the instructions below when servicing.

CAUTION

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

1. Laser Diode Properties
   - Material: GaAlAs
   - Wavelength: 780 mm
   - Emission Duration: continuous
   - Laser Output Power: less than 44.6 μW*
     * This output is the value measured at a distance of 200 mm from the objective lens surface on the Optical Pick-up Block.
2. During service, do not take the Optical Pick-up Block apart, and do not adjust the APC circuit. If there is a breakdown in the APC circuit (including laser diode), replace the entire Optical Pick-up Block (including APC board).

SERVICING NOTE

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

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

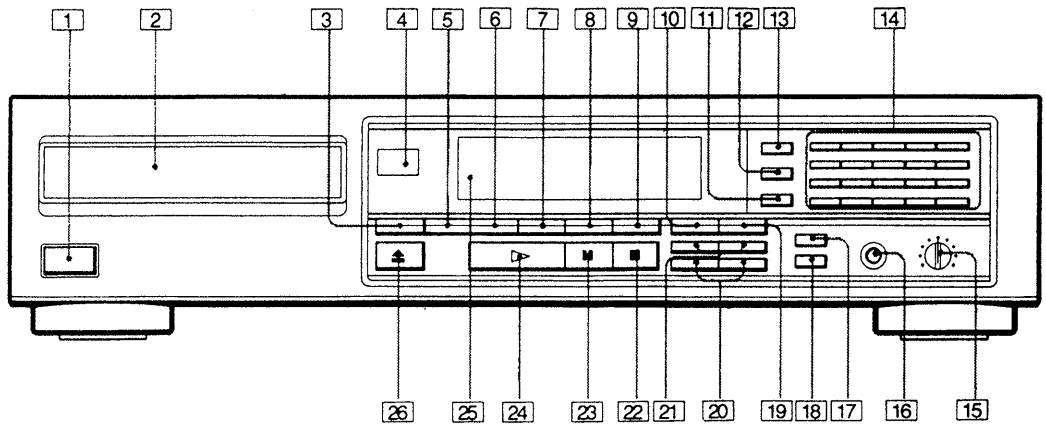
NOTES ON LASER DIODE EMISSION CHECK

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

SECTION 1
GENERAL

1-1. LOCATION OF CONTROLS

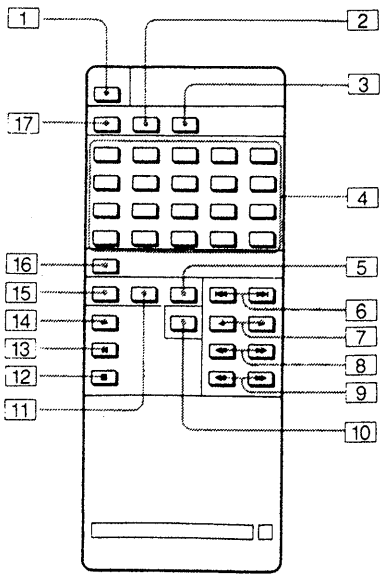
Front Panel



1 POWER switch
2 Disc tray
3 TIME button
4 Remote sensor
5 PEAK SEARCH button
6 REPEAT button
7 FADER (FADE IN/FADE OUT) button
8 CHECK (program check) button
9 CLEAR (program clear) button
10 MULTI PGM (multi-disc program) button
11 PROGRAM button
12 SHUFFLE button
13 CONTINUE button
14 Numeric buttons
15 PHONE LEVEL control
16 PHONES jack
17 EDIT/TIME FADE button
18 TIME SET button
19 >20 (over 20) button
20 ⏮⏭ (AMS*) buttons
21 ◀◀ ▶▶ (manual search) buttons
22 ■ (stop) button
23 ❚❚ (pause) button
24 ▶ (play) button
25 Display window
26 ⏏ (open/close) button

* AMS is an abbreviation of Automatic Music Sensor.

Remote Commander



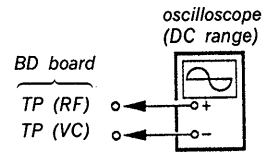
1 ⏏ (open/close) button
2 SHUFFLE button
3 PGM (program) button
4 Numeric buttons
5 AUTO SPACE button
6 ⏮⏭ AMS buttons
7 ⬅ ➡ INDEX buttons
8 ◀◀ ▶▶ (manual search) buttons
9 ◀◀ ▶▶ SLOW (low speed manual search) buttons
10 FADER (FADE IN/FADE OUT) button
11 A ⟷ B repeat button
12 ■ (stop) button
13 ❚❚ (pause) button
14 ▶ (play) button
15 CLEAR/REPEAT (A ⟷ B repeat clear/repeat) button
16 >20 (over 20) button
17 CONTINUE button

SECTION 2
ELECTRICAL ADJUSTMENT

1. Perform adjustments in the order given.
2. Use YEDS-18 disc (3-702-101-1) unless otherwise indicated.
3. Use the oscilloscope with more than 10MΩ impedance.

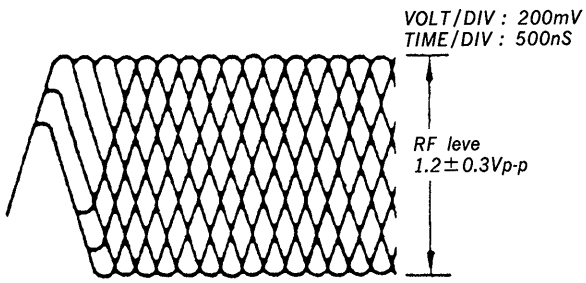
RF Level Check

Procedure :



1. Connect oscilloscope to test point TP (RF) and TP (VC) on BD board.
2. Turn POWER switch on.
3. Put disc (YEDS-18) in and play back.
4. Confirm that RF level and eye pattern is optimum.
   Oputimum eye pattern means that shape "◇" can be clearly distinguished at the center of the wave form.

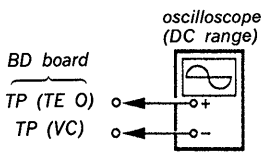
RF signal Reference Waveform (eye pattern)



REFERENCE

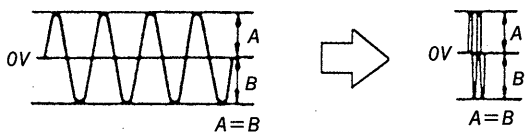
E-F Balance Check

Procedure :



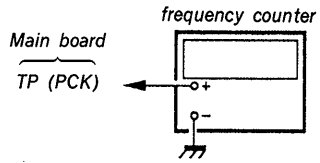
1. Connect test point TP (ADJ) and TP (TES) to ground with lead wire.
2. Connect oscilloscope to test point TP (TE O) and TP (VC) on BD board.
3. Turn POWER switch on.
4. Put disc (YEDS-18) in and play back.
5. Confirm that the oscilloscope waveform is symmetrical on the top and bottom in relation to 0V.
6. After check, remove the lead wire connected in step 1.

Note : Take sweep time as long as possible to obtain best waveform.



RF PLL Free-run Frequency Check

Procedure :



1. Turn POWER switch on.
2. Put disc (YEDS-18) in and play back.
3. Confirm that reading on frequency counter is 4.3218MHz.

Focus/Tracking Gain Adjustment

A frequency responce analyzer is necessary in order to perform this adjustment exactly.

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

Focus/tracking gain determines the pick-up follow-up (vertical and horizontal) relative to mechanical noise and mechanical shock when the 2-axis device operate.

However, as these reciprocate, the adjustment is the point where both are satisfied.

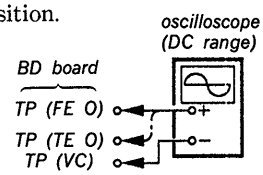
- When gain is raised, the noise when the 2-axis device operates increases.
- When gain is lowered, mechanical shock and skipping occurs more easily.
- When gain adjustment is off, the symptoms below appear.

Gain / Symptoms	Focus	Tracking
• The time until music starts becmes longer for STOP →▷ PLAY or automatic selection. (I◀◀, ▶▶I buttons pressed.) (Normally takes about 1 seconds.)	low	low or high
• Music does not start and disc continues to rotate for STOP →▷ PLAY or automatic selection. (I◀◀, ▶▶I buttons pressed.)	—	low
• Sound is interrupted during PLAY. Or time counter display stops progressing.	—	low
• More noise during 2-axis device operation.	high	high

The following is a simple adjustment method.

—Primary Adjustment—

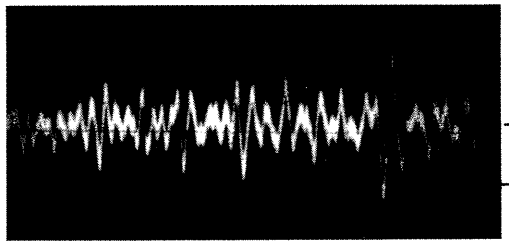
Note : Since exact adjustment cannot be performed, remember the positions of the controls before performing the adjustment.
If the positions after the primary adjustment are only a little different, returs the controls to the original position.



Procedure :

1. Keep the set horizontal.
   (If the set is not horizontal, this adjustment cannot be performed due to the gravity against the 2-axis device.)
2. Insert disc (YEDS-18) and press ▷ PLAY button.
3. Connect oscilloscope to TP (FEO) and TP (VC) on BD board.
4. Adjustment RV101 on BD board so that the waveform is as shown in the figure below. (focus gain adjustment)

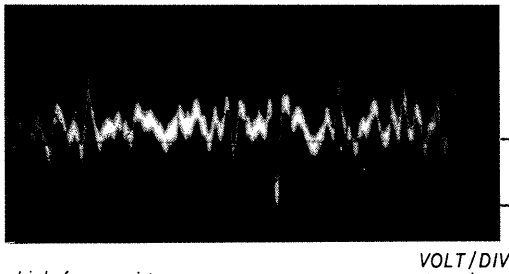
VOLT/DIV : 100mV
TIME/DIV : 2mS



• Incorrent Examples (DC level changes more than on adjusted waveform)

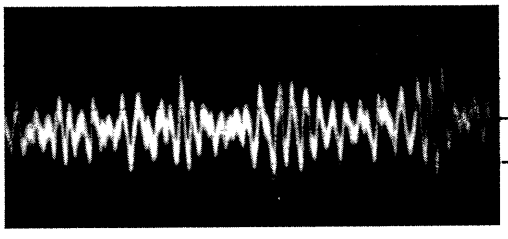
low focus gain

VOLT/DIV : 100mV
TIME/DIV : 2mS

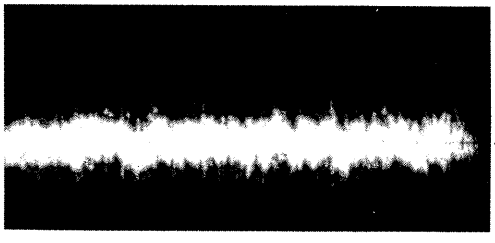


high focus gain

VOLT/DIV : 100mV
TIME/DIV : 2mS

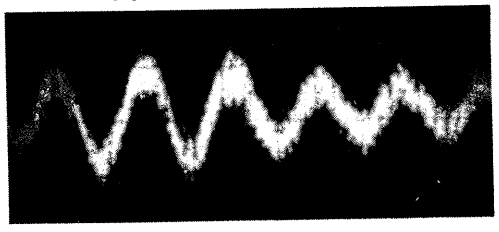


5. Connect oscilloscope to TP (TEO) and TP (VC) on BD board.
6. Adjust RV102 on BD board so that the waveform is as shown the flgure below. (tracking gain adjustment)

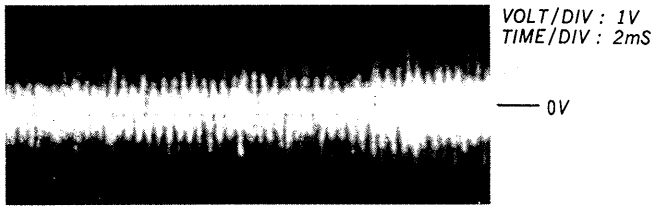


• Incorrect Examples (fundamentia wave appears)

low tracking gain

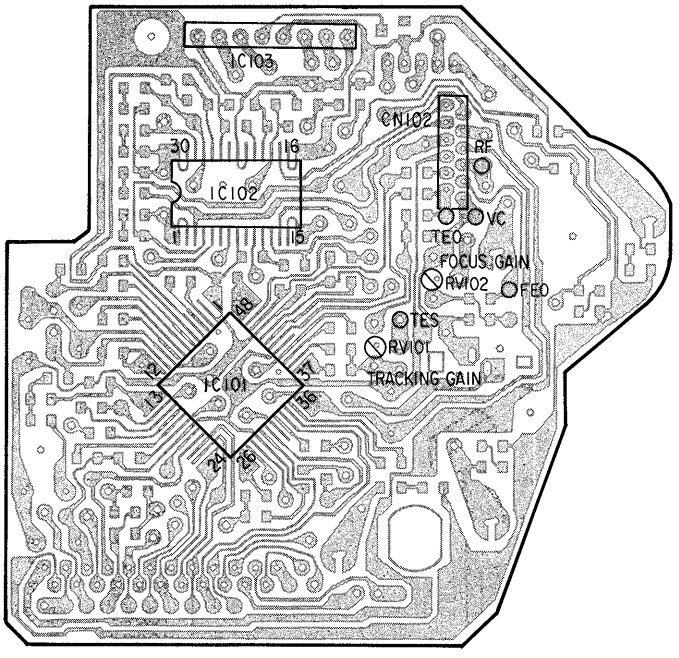


high tracking gain
(high fandamential wave than for low gain)



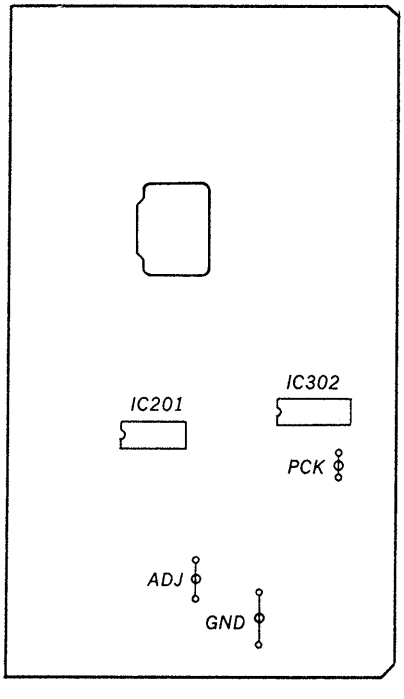
Adjustment Location :

【BD board】



【Main board】

Component side



CDP-790 CDP-790

SECTION 3
DIAGRAMS

3-1. SEMICONDUCTOR LEAD LAYOUTS

BA1L3Z-K
2SA1175-HFE

DTA114ES
DTC114ES
DTC144ES
2SC2458-YGR

DTC114EF

2SB1094-L

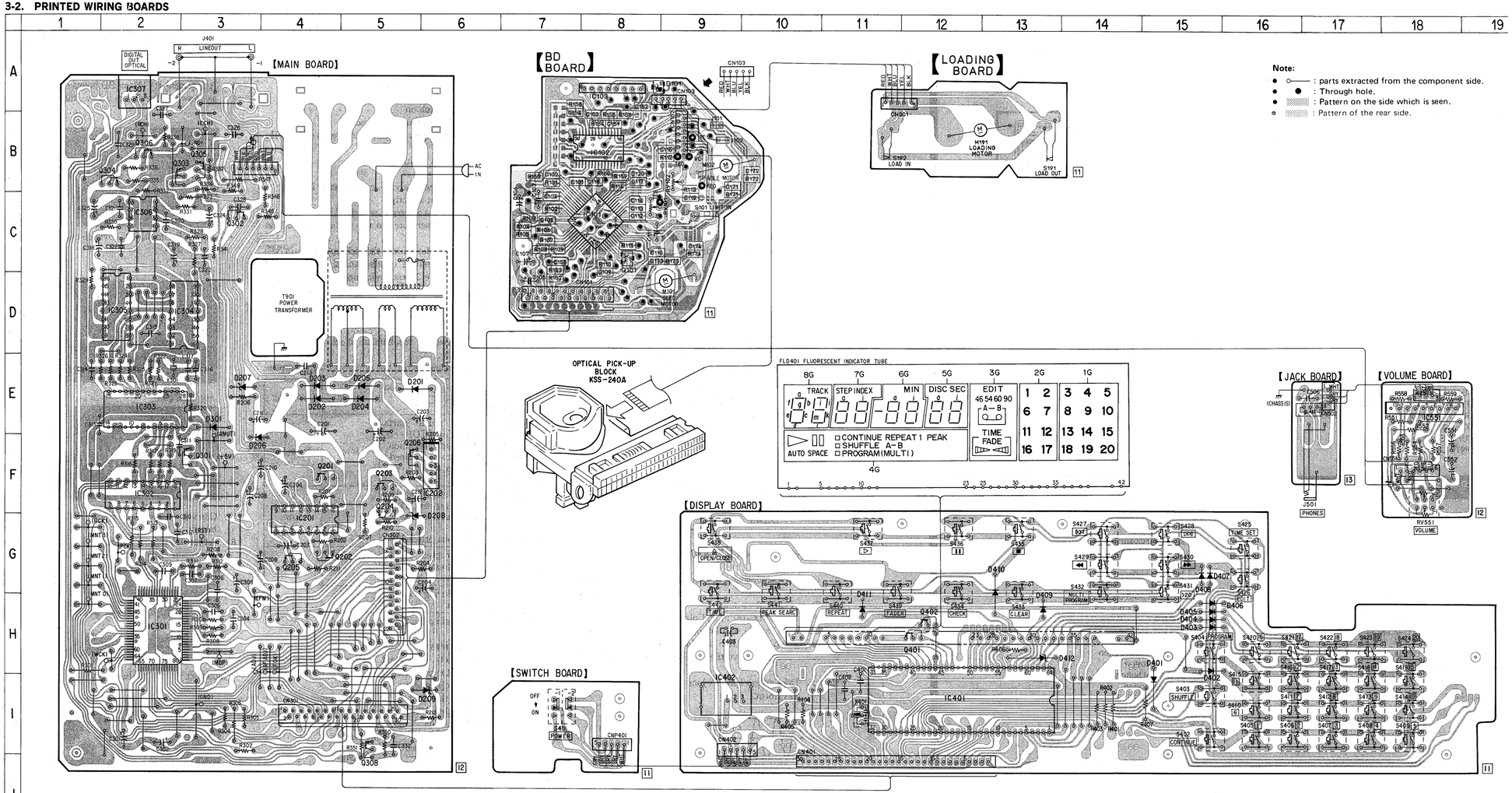
2SD774-34

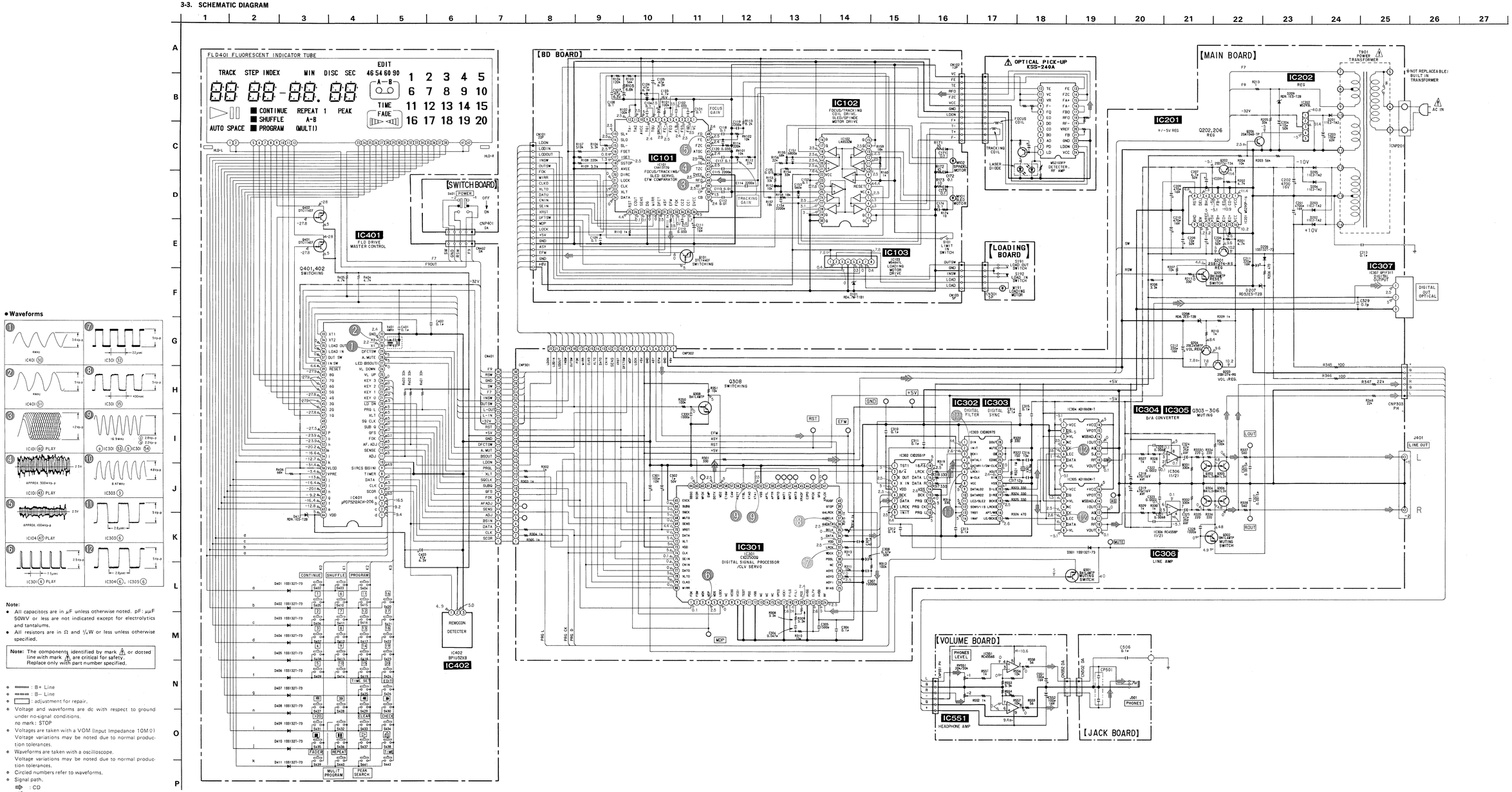
RD5.1ES-B2
RD8.2ES-B2
RD9.1ES-B2
1SS202-1
11ES2

● Semiconductor Location

Ref. No.	Location
D101	A-9
D201	E-5
D202	E-4
D203	E-4
D204	E-5
D205	E-5
D206	F-3
D207	E-3
D208	G-5
D209	I-6
D301	E-3
D401	H-15
D402	H-15
D403	H-15
D404	H-15
D405	H-15
D406	H-15
D407	G-15
D408	G-15
D409	H-13
D410	G-13
D411	H-11
D412	H-13
IC101	C-8
IC102	B-8
IC103	A-8
IC201	G-4
IC202	F-6
IC301	H-2
IC302	F-2
IC303	F-2
IC304	D-3
IC305	D-2
IC306	C-2
IC306	C-2
IC307	A-2
IC401	I-12
IC402	I-9
IC551	E-19
Q101	C-8
Q201	F-4
Q202	G-4
Q203	F-5
Q204	G-5
Q205	G-4
Q206	F-5
Q301	F-3
Q302	C-3
Q303	B-2
Q304	B-2
Q305	B-3
Q306	B-2
Q308	I-5
Q401	H-12
Q402	H-12

3-2. PRINTED WIRING BOARDS





• Waveforms

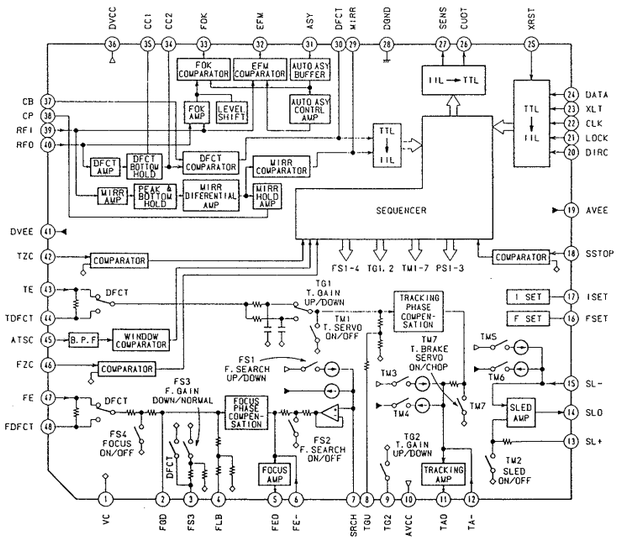
Note:

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

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

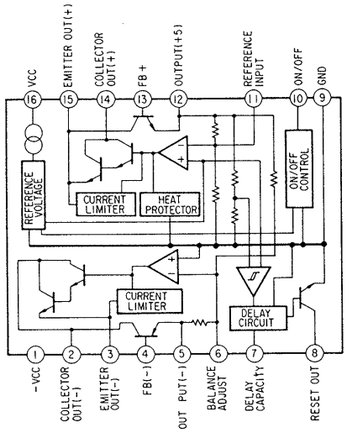
- ▭ : B+ Line
- ▭ : B− Line
- ▭ : adjustment for repair.
- Voltage and waveforms are dc with respect to ground under no-signal conditions. no mark: STOP
- Voltages are taken with a VOM (Input impedance 10MΩ) Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path. ⇨ : CD ⇨ : digital out

IC101 CXA1372Q

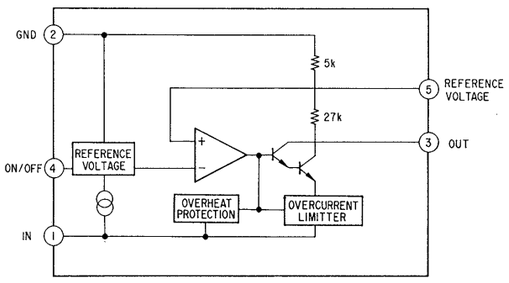


IC103 M54641L

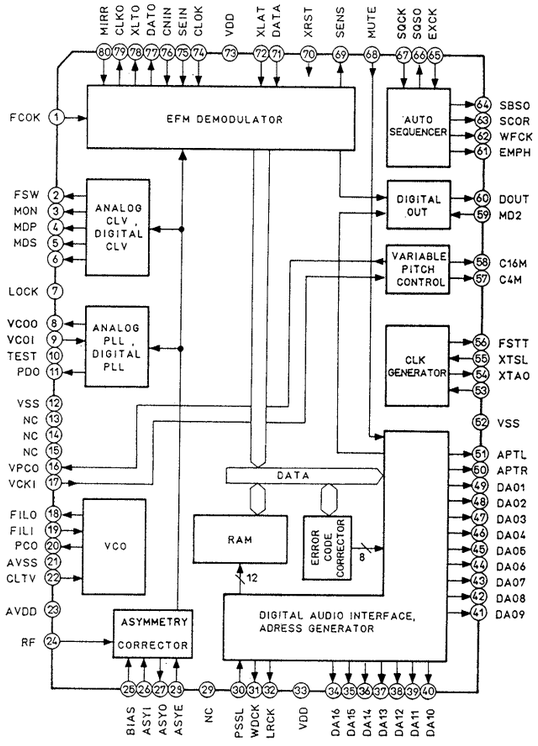
IC201 M5290P-16



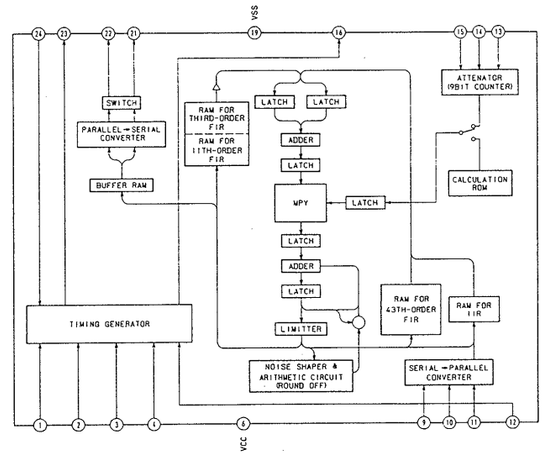
IC202 M5293L



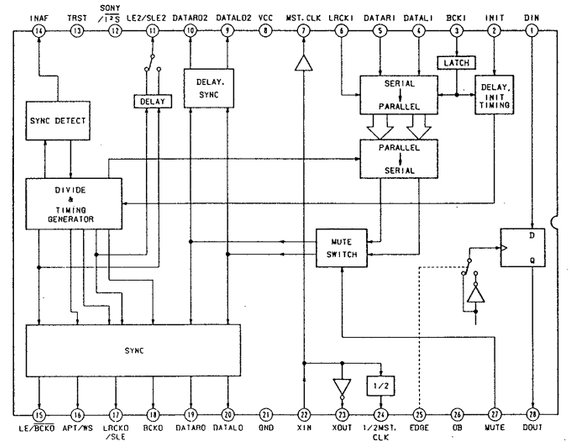
IC301 CXD2500Q



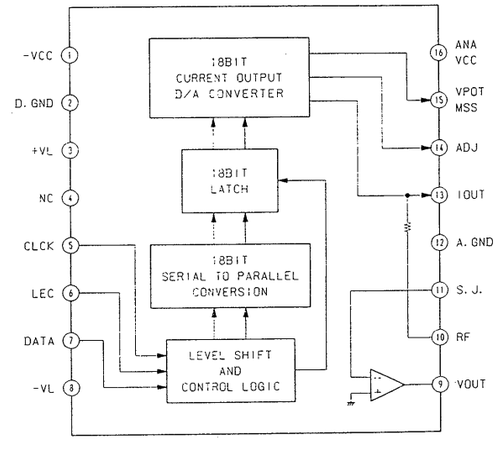
IC302 CXD2551P



IC303 CXD8097S



IC304, 305 AD1860N



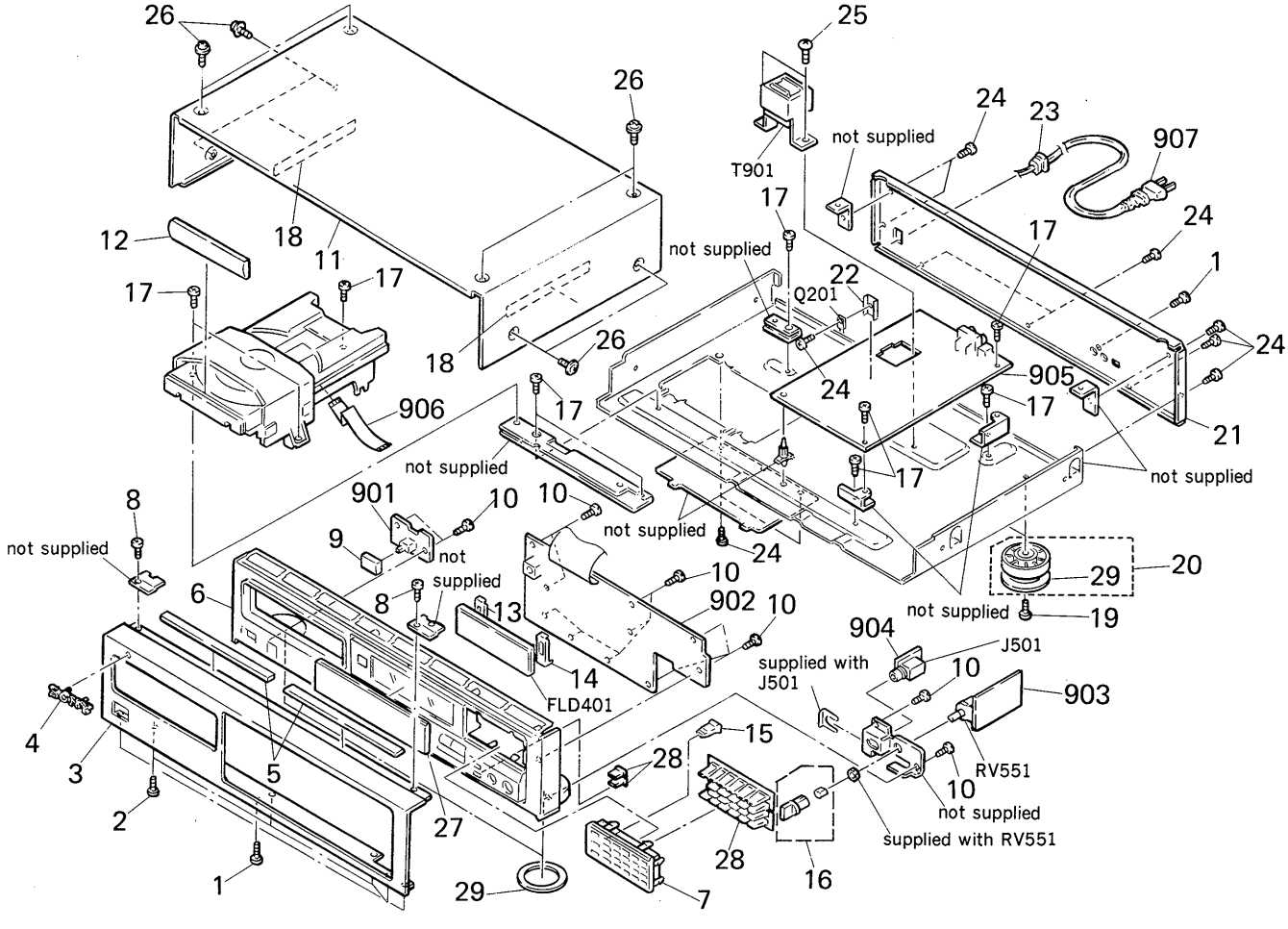
SECTION 4
EXPLODED VIEWS

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.

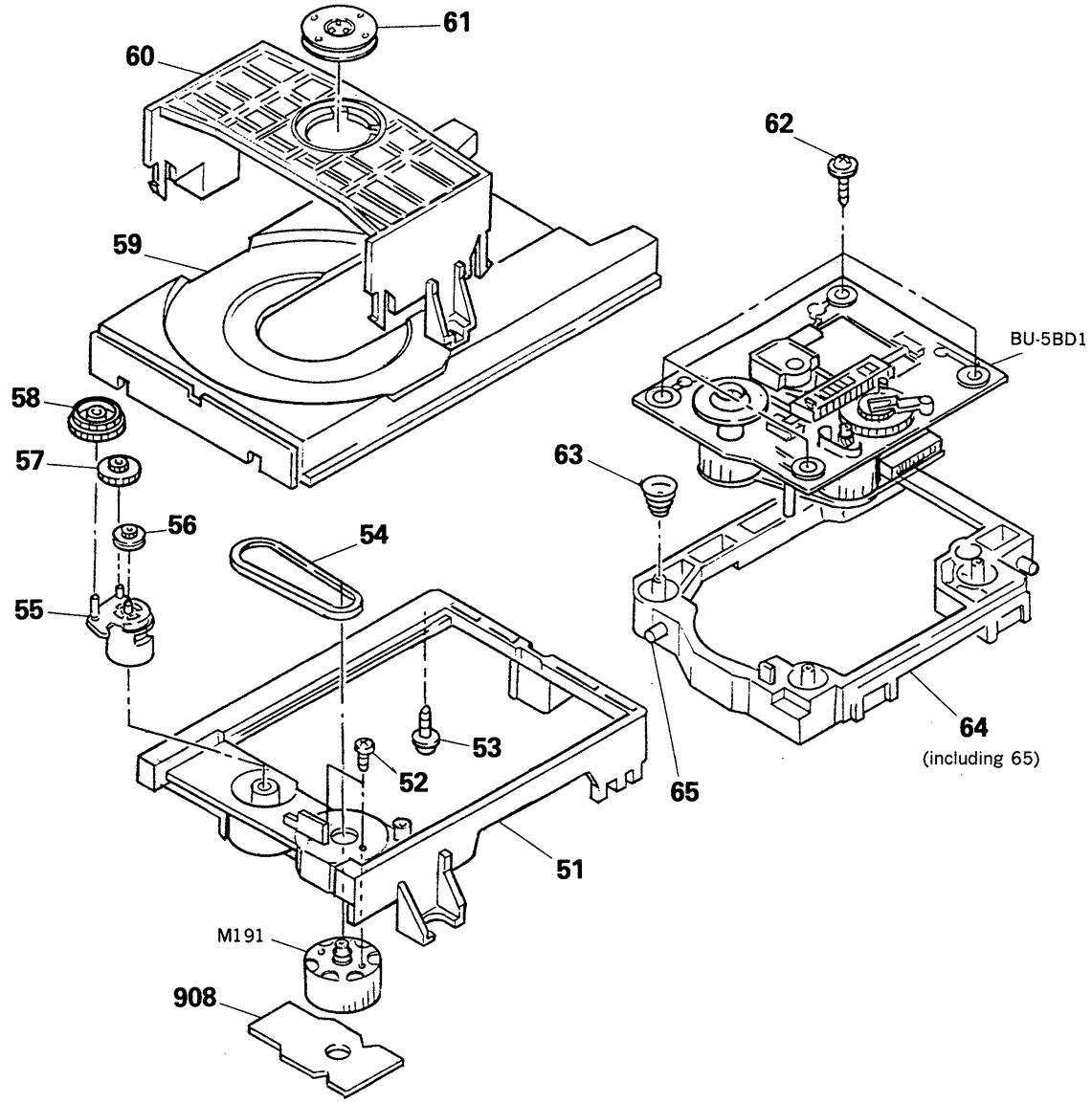
4-1. CHASSIS BLOCK



Ref.No	Part No.	Description	Remarks
1	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S	
2	3-703-685-21	SCREW (+BV 3X8)	
3	4-929-515-12	PANEL (FRONT)	
4	4-908-848-01	EMBLEM, SONY	
5	*4-929-557-01	CUSHION (PANEL)	
6	X-4922-927-1	PANEL (SUB) ASSY	
7	4-929-528-01	ESCUTCHEON (23)	
8	7-685-645-79	SCREW +BVTP 3X6 TYPE2 N-S	
9	4-922-921-01	BUTTON (POWER)	
10	7-685-134-19	SCREW +BTP 2.6X8 TYPE2 N-S	
11	4-929-529-01	CASE	
12	4-929-521-11	PANEL, LOADING	
13	*4-922-524-01	HOLDER (LEFT)	
14	*4-922-523-01	HOLDER (RIGHT)	
15	4-929-531-01	BUTTON (C)	
16	A-4675-298-A	KNOB (HP) ASSY	
17	7-682-547-04	SCREW +BVTT 3X6 (S)	
18	*4-929-561-01	CUSHION (CASE)	
19	7-682-548-09	SCREW +BVTT 3X8 (S)	
20	X-4885-950-1	FOOT ASSY	29
21	*4-929-513-21	PANEL, BACK	

Ref.No	Part No.	Description	Remarks
22	4-902-345-01	HEAT SINK	
23	*3-703-244-00	BUSHING (2104), CORD	
24	7-682-547-09	SCREW +BVTT 3X6 (S)	
25	4-886-821-11	SCREW, S TIGHT, +PTTWH 3X6	
26	3-704-366-31	SCREW (CASE) (M3X6)	
27	4-929-522-01	PLATE, INDICATION	
28	4-929-527-01	BUTTON (M/C)	
29	4-923-836-11	CUSHION	
901	*1-632-491-11	PC BOARD, SWITCH	
902	*A-4617-453-A	MOUNTED PCB, DISP	
903	*1-632-492-11	PC BOARD, VOLUME	
904	*1-632-490-11	PC BOARD, JACK	
905	*A-4617-301-A	MOUNTED PCB, MAIN	
906	1-575-002-11	WIRE, FLAT TYPE (22 CORE)	
907	⚠1-575-105-11	CORD, POWER	
FLD401	1-519-555-11	INDICATOR TUBE, FLUORESCENT	
J501	1-568-519-21	JACK, LARGE TYPE (PHONES)	
Q201	8-729-111-67	TRANSISTOR 2SB1094-L	
RV551	1-238-487-11	RES, VAR, CARBON 20K/20K (PHONE LEVEL)	
T901	⚠1-449-921-11	TRANSFORMER, POWER	

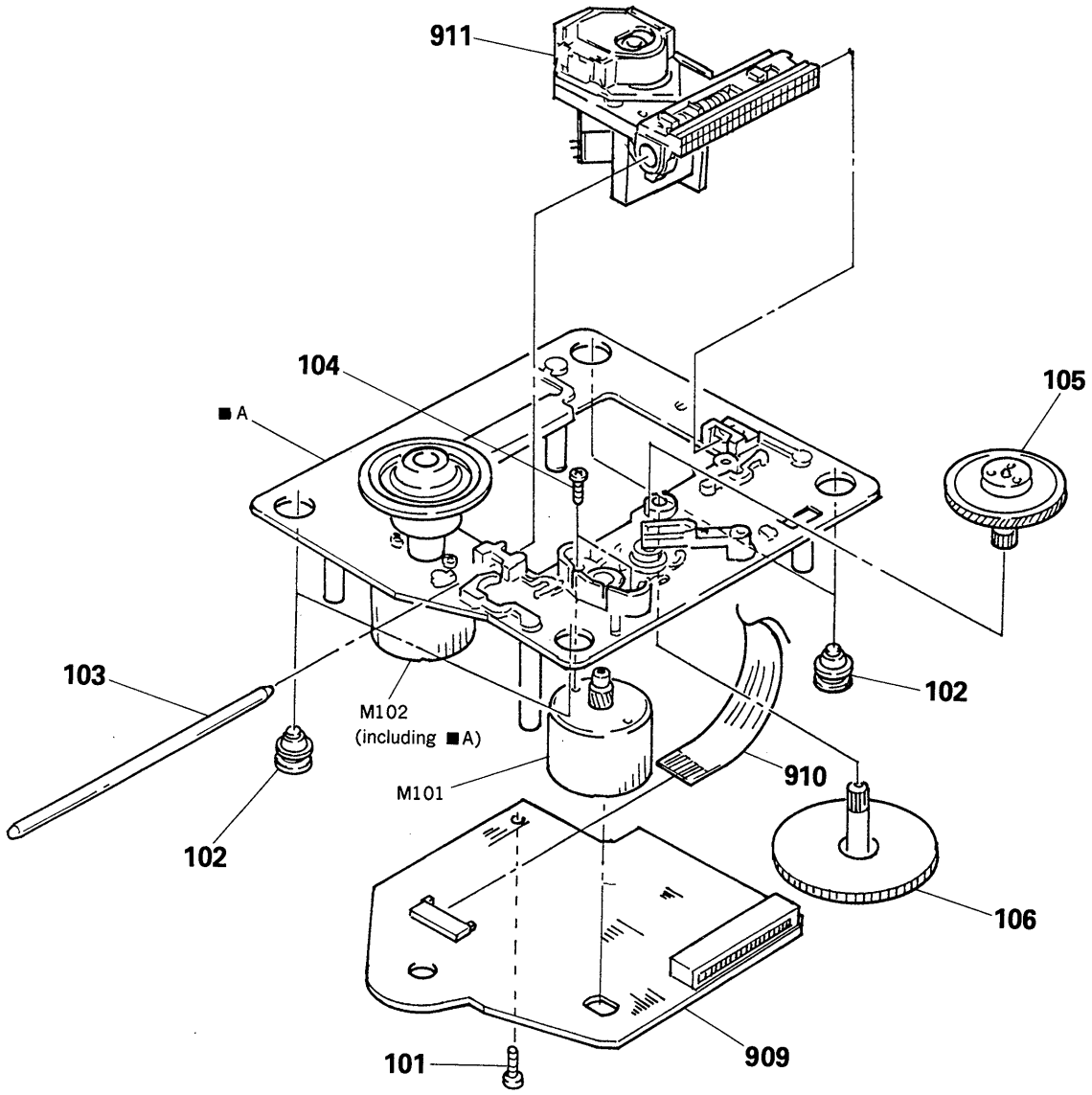
4-2. MD BLOCK (CDM14-5BD1)



Ref.No	Part No.	Description	Remarks
51	4-933-111-01	CHASSIS (MD)	
52	7-621-775-10	SCREW +B 2.6X4	
53	*4-917-583-21	BRACKET, YOKE	
54	4-927-649-01	BELT	
55	4-933-109-01	CAM	
56	4-927-651-01	PULLEY (S)	
57	4-927-628-01	GEAR (C)	
58	4-933-107-01	GEAR (PL)	
59	4-933-112-01	TABLE, DISK	

Ref.No	Part No.	Description	Remarks
60	4-933-110-01	HOLDER (MG)	
61	A-4675-347-A	MG ASSY	
62	4-933-134-01	SCREW (+PTPWH M2.6X6)	
63	4-917-541-01	SPRING (B)	
64	4-933-129-01	HOLDER (BU)	
65	4-933-108-01	SHAFT (CAM)	
908	*1-632-202-11	PC BOARD, LOADING	
M191	A-4604-363-A	MOTOR (L) ASSY	

4-3. OPTICAL PICK-UP BLOCK (BU-5BD1)



Note: 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	Remarks
101	7-685-134-19	SCREW +BTP 2.6X8 TYPE2 N-S	
102	4-933-126-01	INSULATOR (A)	
103	4-917-565-01	SHAFT, SLED	
104	7-621-255-15	SCREW +P 2X3	
105	4-917-567-01	GEAR (M)	
106	4-917-564-01	GEAR (P), FLATNESS	

Ref.No	Part No.	Description	Remarks
909	*A-4617-161-A	MOUNTED PCB, BD	
910	1-575-001-11	WIRE, FLAT TYPE (12 CORE)	
911	⚠8-848-144-11	DEVICE, OPTICAL KSS-240A	
M101	X-4917-504-1	MOTOR ASSY (SLED)	
M102	X-4917-523-1	MOTOR ASSY (SPINDLE)	

SECTION 5
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: μF, PF: μμF.

RESISTORS
- All resistors are in ohms.
- F: nonflammable

COILS
- MMH: mH, UH: μH

SEMICONDUCTORS
In each case, U: μ, for example:
UA...: μA..., UPA...: μPA..., UPC...: μPC, UPD...: μPD...

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			Remarks
901	★1-632-491-11	PC BOARD, SWITCH			
902	★A-4617-453-A	MOUNTED PCB, DISP			
903	★1-632-492-11	PC BOARD, VOLUME			
904	★1-632-490-11	PC BOARD, JACK			
905	★A-4617-301-A	MOUNTED PCB, MAIN			
906	1-575-002-11	WIRE, FLAT TYPE (22 CORE)			
907	⚠1-575-105-11	CORD, POWER			
908	★1-632-202-11	PC BOARD, LOADING			
909	★A-4617-161-A	MOUNTED PCB, BD			
910	1-575-001-11	WIRE, FLAT TYPE (12 CORE)			
911	⚠8-848-144-11	DEVICE, OPTICAL KSS-240A			
		CAPACITOR			
C101	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C102	1-163-989-11	CERAMIC CHIP	0.033MF	10%	25V
C103	1-126-094-11	ELECT	4.7MF	20%	16V
C104	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C105	1-126-154-11	ELECT	47MF	20%	6.3V
C106	1-126-154-11	ELECT	47MF	20%	6.3V
C107	1-126-154-11	ELECT	47MF	20%	6.3V
C108	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C109	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C110	1-163-989-11	CERAMIC CHIP	0.033MF	10%	25V
C111	1-131-367-00	TANTALUM	22MF	20%	16V
C112	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C113	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C114	1-164-161-11	CERAMIC CHIP	0.0022MF	10%	50V
C115	1-164-161-11	CERAMIC CHIP	0.0022MF	10%	50V
C117	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C118	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C119	1-164-161-11	CERAMIC CHIP	0.0022MF	10%	50V
C120	1-163-989-11	CERAMIC CHIP	0.033MF	10%	25V
C151	1-163-019-00	CERAMIC CHIP	0.0068MF	10%	50V
C152	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C153	1-163-006-11	CERAMIC CHIP	560PF	10%	50V
C154	1-164-161-11	CERAMIC CHIP	0.0022MF	10%	50V
C155	1-163-023-00	CERAMIC CHIP	0.015MF	10%	50V
C171	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C172	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C173	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C174	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C201	1-126-842-11	ELECT	4700MF	20%	16V
C202	1-126-842-11	ELECT	4700MF	20%	16V
C203	1-126-880-11	ELECT	100MF	20%	63V
C204	1-126-059-11	ELECT	10MF	20%	50V
C206	1-126-059-11	ELECT	10MF	20%	50V
C207	1-124-045-00	ELECT	4.7MF	20%	50V
C208	1-126-059-11	ELECT	10MF	20%	50V
C209	1-126-012-11	ELECT	470MF	20%	16V
C210	1-126-012-11	ELECT	470MF	20%	16V
C211	1-126-024-11	ELECT	220MF	20%	16V
C212	1-126-024-11	ELECT	220MF	20%	16V
C213	1-164-159-11	CERAMIC	0.1MF		50V

Ref.No	Part No.	Description			Remarks
C301	1-124-994-11	ELECT	100MF	20%	10V
C302	1-126-301-11	ELECT	1MF	20%	50V
C304	1-136-161-00	FILM	0.047MF	5%	50V
C305	1-161-374-11	CERAMIC	0.0015MF	30%	16V
C306	1-164-159-11	CERAMIC	0.1MF		50V
C307	1-162-306-11	CERAMIC	0.01MF	20%	16V
C308	1-126-300-11	ELECT	0.47MF	20%	50V
C309	1-164-159-11	CERAMIC	0.1MF		50V
C310	1-164-159-11	CERAMIC	0.1MF		50V
C311	1-164-159-11	CERAMIC	0.1MF		50V
C312	1-164-159-11	CERAMIC	0.1MF		50V
C313	1-164-159-11	CERAMIC	0.1MF		50V
C314	1-164-159-11	CERAMIC	0.1MF		50V
C315	1-164-159-11	CERAMIC	0.1MF		50V
C316	1-162-202-31	CERAMIC	13PF	5%	50V
C317	1-162-201-31	CERAMIC	12PF	5%	50V
C318	1-126-103-11	ELECT	470MF	20%	16V
C319	1-126-103-11	ELECT	470MF	20%	16V
C320	1-130-481-00	MYLAR	0.0068MF	5%	50V
C321	1-130-481-00	MYLAR	0.0068MF	5%	50V
C322	1-130-475-00	MYLAR	0.0022MF	5%	50V
C323	1-130-475-00	MYLAR	0.0022MF	5%	50V
C324	1-123-332-00	ELECT	47MF	20%	25V
C325	1-123-332-00	ELECT	47MF	20%	25V
C326	1-130-473-00	MYLAR	0.0015MF	5%	50V
C327	1-130-473-00	MYLAR	0.0015MF	5%	50V
C328	1-162-294-31	CERAMIC	0.001MF	10%	50V
C329	1-164-159-11	CERAMIC	0.1MF		50V
C333	1-162-294-31	CERAMIC	0.001MF	10%	50V
C401	1-164-159-11	CERAMIC	0.1MF		50V
C402	1-164-159-11	CERAMIC	0.1MF		50V
C403	1-126-154-11	ELECT	47MF	20%	6.3V
C506	1-164-159-11	CERAMIC	0.1MF		50V
C551	1-126-023-11	ELECT	100MF	20%	16V
C552	1-126-023-11	ELECT	100MF	20%	16V
CN101	1-568-796-11	SOCKET, CONNECTOR 22P			
CN102	1-568-795-11	SOCKET, CONNECTOR 12P			
CN103	★1-564-721-11	PIN, CONNECTOR (SMALL TYPE) 5P			
CN301	★1-564-707-11	PIN, CONNECTOR (SMALL TYPE) 5P			
CN401	1-535-799-11	JUMPER, FILM (WITH TERMINAL)			
CNP201	★1-564-321-00	PIN, CONNECTOR 2P			
CNP301	★1-568-933-11	SOCKET, CONNECTOR 30P			
CNP302	★1-568-822-11	SOCKET, CONNECTOR 22P			
CNP303	★1-564-708-11	PIN, CONNECTOR (SMALL TYPE) 6P			
CNP401	★1-564-339-00	PIN, CONNECTOR 5P			
CNP551	★1-564-708-11	PIN, CONNECTOR (SMALL TYPE) 6P			
CP501	1-233-202-11	COMPOSITION CIRCUIT BLOCK			
D101	8-719-105-72	DIODE RD4.7M-B1			
D201	8-719-200-82	DIODE 11ES2			
D202	8-719-200-82	DIODE 11ES2			
D203	8-719-200-82	DIODE 11ES2			
D204	8-719-200-82	DIODE 11ES2			
D205	8-719-200-82	DIODE 11ES2			

Ref.No	Part No.	Description	Remarks
D206	8-719-107-94	DIODE 1SS202-1	
D207	8-719-109-85	DIODE RD5.1ES-B2	
D208	8-719-110-08	DIODE RD8.2ES-B2	
D209	8-719-110-13	DIODE RD9.1ES-B2	
D301	8-719-107-94	DIODE 1SS202-1	
D401	8-719-107-94	DIODE 1SS202-1	
D402	8-719-107-94	DIODE 1SS202-1	
D403	8-719-107-94	DIODE 1SS202-1	
D404	8-719-107-94	DIODE 1SS202-1	
D405	8-719-107-94	DIODE 1SS202-1	
D406	8-719-107-94	DIODE 1SS202-1	
D407	8-719-107-94	DIODE 1SS202-1	
D408	8-719-107-94	DIODE 1SS202-1	
D409	8-719-107-94	DIODE 1SS202-1	
D410	8-719-107-94	DIODE 1SS202-1	
D411	8-719-107-94	DIODE 1SS202-1	
D412	8-719-110-13	DIODE RD9.1ES-B2	
FLD401	1-519-555-11	INDICATOR TUBE, FLUORESCENT	
IC101	8-752-037-33	IC CXA1372Q	
IC102	8-759-821-94	IC LA6532M	
IC103	8-759-633-65	IC M54641L	
IC201	8-759-630-21	IC M5290P-16	
IC202	8-759-633-42	IC M5293L	
IC301	8-752-333-31	IC CXD2500Q	
IC302	8-752-334-06	IC CXD2551P	
IC303	8-759-990-80	IC CXD8097S	
IC304	8-759-990-58	IC AD1860N-T	
IC305	8-759-990-58	IC AD1860N-T	
IC306	8-759-945-58	IC RC4558P	
IC307	8-759-977-71	IC GP-1F31T (DIGITAL OUT OPTICAL)	
IC401	8-759-150-28	IC UPD75212ACW-206	
IC402	8-749-920-83	IC GP1U52XB	
IC551	8-759-981-89	IC RC4556S	
J101	1-216-295-00	METAL GLAZE 0 5% 1/10W	
J102	1-216-295-00	METAL GLAZE 0 5% 1/10W	
J401	1-566-921-11	JACK, PIN 2P (LINE OUT)	
J501	1-568-519-21	JACK, LARGE TYPE (PHONES)	
M101	X-4917-504-1	MOTOR ASSY (SLED)	
M102	X-4917-523-1	MOTOR ASSY (SPINDLE)	
M191	A-4604-363-A	MOTOR (L) ASSY	
Q101	8-729-901-01	TRANSISTOR DTC144EK	
Q201	8-729-111-67	TRANSISTOR 2SB1094-L	
Q202	8-729-140-96	TRANSISTOR 2SD774-34	
Q203	8-729-111-67	TRANSISTOR 2SB1094-L	
Q204	8-729-230-45	TRANSISTOR 2SC2458-YGR	
Q205	8-729-900-80	TRANSISTOR DTC114ES	
Q206	8-729-119-76	TRANSISTOR 2SA1175-HFE	
Q301	8-729-115-77	TRANSISTOR DTC144ES	
Q302	8-729-900-65	TRANSISTOR DTA144ES	
Q303	8-729-115-88	TRANSISTOR BA1L3Z-K	
Q304	8-729-115-88	TRANSISTOR BA1L3Z-K	
Q305	8-729-115-88	TRANSISTOR BA1L3Z-K	
Q306	8-729-115-88	TRANSISTOR BA1L3Z-K	
Q308	8-729-115-77	TRANSISTOR DTC144ES	
Q401	8-729-900-45	TRANSISTOR DTC114EF	
Q402	8-729-900-45	TRANSISTOR DTC114EF	

RESISTOR

R101	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R102	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R103	1-216-091-00	METAL GLAZE	56K	5%	1/10W
R104	1-216-099-00	METAL GLAZE	120K	5%	1/10W
R105	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W
R106	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W
R107	1-216-114-00	METAL GLAZE	510K	5%	1/10W
R108	1-216-105-00	METAL GLAZE	220K	5%	1/10W
R109	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W
R110	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R111	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R112	1-216-083-00	METAL GLAZE	27K	5%	1/10W
R113	1-216-071-00	METAL GLAZE	8.2K	5%	1/10W
R114	1-216-105-00	METAL GLAZE	220K	5%	1/10W
R152	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R153	1-216-085-00	METAL GLAZE	33K	5%	1/10W
R154	1-216-085-00	METAL GLAZE	33K	5%	1/10W
R155	1-216-093-00	METAL GLAZE	68K	5%	1/10W
R156	1-216-081-00	METAL GLAZE	22K	5%	1/10W
R157	1-216-079-00	METAL GLAZE	18K	5%	1/10W
R158	1-216-079-00	METAL GLAZE	18K	5%	1/10W
R159	1-216-079-00	METAL GLAZE	18K	5%	1/10W
R160	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R171	1-216-001-00	METAL GLAZE	10	5%	1/10W
R172	1-216-001-00	METAL GLAZE	10	5%	1/10W
R173	1-216-001-00	METAL GLAZE	10	5%	1/10W
R174	1-216-001-00	METAL GLAZE	10	5%	1/10W
R201	1-249-425-11	CARBON	4.7K	5%	1/4W
R202	1-249-425-11	CARBON	4.7K	5%	1/4W
R203	1-249-438-11	CARBON	56K	5%	1/4W
R204	1-249-429-11	CARBON	10K	5%	1/4W
R205	1-249-435-11	CARBON	33K	5%	1/4W
R206	1-249-413-11	CARBON	470	5%	1/4W
R207	1-249-429-11	CARBON	10K	5%	1/4W
R208	1-249-423-11	CARBON	3.3K	5%	1/4W
R209	1-249-417-11	CARBON	1K	5%	1/4W
R210	1-249-417-11	CARBON	1K	5%	1/4W
R211	1-249-411-11	CARBON	330	5%	1/4W
R213	1-249-381-11	CARBON	1	5%	1/4W
R301	1-249-411-11	CARBON	330	5%	1/4W
R302	1-249-417-11	CARBON	1K	5%	1/4W
R303	1-249-417-11	CARBON	1K	5%	1/4W
R304	1-249-417-11	CARBON	1K	5%	1/4W
R305	1-249-417-11	CARBON	1K	5%	1/4W
R308	1-249-423-11	CARBON	3.3K	5%	1/4W
R309	1-249-423-11	CARBON	3.3K	5%	1/4W
R310	1-249-429-11	CARBON	10K	5%	1/4W
R311	1-249-429-11	CARBON	10K	5%	1/4W
R312	1-249-441-11	CARBON	100K	5%	1/4W
R313	1-249-417-11	CARBON	1K	5%	1/4W
R314	1-249-417-11	CARBON	1K	5%	1/4W
R315	1-249-417-11	CARBON	1K	5%	1/4W
R316	1-249-411-11	CARBON	330	5%	1/4W
R317	1-249-411-11	CARBON	330	5%	1/4W
R318	1-249-411-11	CARBON	330	5%	1/4W
R319	1-249-417-11	CARBON	1K	5%	1/4W
R320	1-249-411-11	CARBON	330	5%	1/4W
R321	1-247-903-00	CARBON	1M	5%	1/4W
R322	1-249-407-11	CARBON	150	5%	1/4W
R323	1-249-411-11	CARBON	330	5%	1/4W
R324	1-249-411-11	CARBON	330	5%	1/4W
R325	1-249-411-11	CARBON	330	5%	1/4W
R326	1-249-413-11	CARBON	470	5%	1/4W
R327	1-249-417-11	CARBON	1K	5%	1/4W
R328	1-249-417-11	CARBON	1K	5%	1/4W
R329	1-249-417-11	CARBON	1K	5%	1/4W
R330	1-249-417-11	CARBON	1K	5%	1/4W
R331	1-247-891-00	CARBON	330K	5%	1/4W
R332	1-247-891-00	CARBON	330K	5%	1/4W
R333	1-249-409-11	CARBON	220	5%	1/4W

Ref.No	Part No.	Description			Remarks
R334	1-249-409-11	CARBON	220	5%	1/4W
R335	1-249-409-11	CARBON	220	5%	1/4W
R336	1-249-409-11	CARBON	220	5%	1/4W
R337	1-249-414-11	CARBON	560	5%	1/4W
R338	1-249-414-11	CARBON	560	5%	1/4W
R341	1-249-441-11	CARBON	100K	5%	1/4W
R345	1-249-405-11	CARBON	100	5%	1/4W
R346	1-249-405-11	CARBON	100	5%	1/4W
R347	1-249-433-11	CARBON	22K	5%	1/4W
R348	1-249-433-11	CARBON	22K	5%	1/4W
R350	1-249-441-11	CARBON	100K	5%	1/4W
R351	1-249-429-11	CARBON	10K	5%	1/4W
R401	1-249-435-11	CARBON	33K	5%	1/4W
R402	1-249-435-11	CARBON	33K	5%	1/4W
R403	1-249-435-11	CARBON	33K	5%	1/4W
R404	1-249-425-11	CARBON	4.7K	5%	1/4W
R405	1-249-425-11	CARBON	4.7K	5%	1/4W
R406	1-249-439-11	CARBON	68K	5%	1/4W
R551	1-249-417-11	CARBON	1K	5%	1/4W
R552	1-249-417-11	CARBON	1K	5%	1/4W
R553	1-249-423-11	CARBON	3.3K	5%	1/4W
R554	1-249-423-11	CARBON	3.3K	5%	1/4W
R556	1-249-429-11	CARBON	10K	5%	1/4W
R557	1-249-429-11	CARBON	10K	5%	1/4W
R558	1-249-402-11	CARBON	56	5%	1/4W
R559	1-249-402-11	CARBON	56	5%	1/4W
RV101	1-238-016-11	RES, ADJ, CARBON 10K			
RV102	1-238-016-11	RES, ADJ, CARBON 10K			
RV551	1-238-487-11	RES, VAR, CARBON 20K/20K (PHONES LEVEL)			
S101	1-572-085-11	SWITCH, LEAF (LIMIT IN)			
S191	1-572-086-11	SWITCH, LEAF (LOAD OUT)			
S192	1-572-086-11	SWITCH, LEAF (LOAD IN)			
S401	1-571-305-11	SWITCH, PUSH (1 KEY) (POWER)			
S402	1-554-303-21	SWITCH, KEY BOARD (CONTINUE)			
S403	1-554-303-21	SWITCH, KEY BOARD (SHUFFLE)			
S404	1-554-303-21	SWITCH, KEY BOARD (PROGRAM)			
S405	1-554-303-21	SWITCH, KEY BOARD (1)			
S406	1-554-303-21	SWITCH, KEY BOARD (2)			
S407	1-554-303-21	SWITCH, KEY BOARD (3)			
S408	1-554-303-21	SWITCH, KEY BOARD (4)			
S409	1-554-303-21	SWITCH, KEY BOARD (5)			
S410	1-554-303-21	SWITCH, KEY BOARD (6)			
S411	1-554-303-21	SWITCH, KEY BOARD (7)			
S412	1-554-303-21	SWITCH, KEY BOARD (8)			
S413	1-554-303-21	SWITCH, KEY BOARD (9)			
S414	1-554-303-21	SWITCH, KEY BOARD (10)			
S415	1-554-303-21	SWITCH, KEY BOARD (11)			
S416	1-554-303-21	SWITCH, KEY BOARD (12)			
S417	1-554-303-21	SWITCH, KEY BOARD (13)			
S418	1-554-303-21	SWITCH, KEY BOARD (14)			
S419	1-554-303-21	SWITCH, KEY BOARD (15)			
S420	1-554-303-21	SWITCH, KEY BOARD (16)			
S421	1-554-303-21	SWITCH, KEY BOARD (17)			
S422	1-554-303-21	SWITCH, KEY BOARD (18)			
S423	1-554-303-21	SWITCH, KEY BOARD (19)			
S424	1-554-303-21	SWITCH, KEY BOARD (20)			
S425	1-554-303-21	SWITCH, KEY BOARD (TIME SET)			
S426	1-554-303-21	SWITCH, KEY BOARD (EDIT)			
S427	1-554-303-21	SWITCH, KEY BOARD (⏮)			
S428	1-554-303-21	SWITCH, KEY BOARD (⏭)			
S429	1-554-303-21	SWITCH, KEY BOARD (◀◀)			
S430	1-554-303-21	SWITCH, KEY BOARD (▶▶)			
S431	1-554-303-21	SWITCH, KEY BOARD (>20)			
S432	1-554-303-21	SWITCH, KEY BOARD (MULTI PROGRAM)			

Ref.No	Part No.	Description	Remarks
S433	1-554-303-21	SWITCH, KEY BOARD (CLEAR)	
S434	1-554-303-21	SWITCH, KEY BOARD (CHECK)	
S435	1-554-303-21	SWITCH, KEY BOARD (■)	
S436	1-554-303-21	SWITCH, KEY BOARD (❚❚)	
S437	1-554-303-21	SWITCH, KEY BOARD (▷)	
S438	1-554-303-21	SWITCH, KEY BOARD (⏏)	
S439	1-554-303-21	SWITCH, KEY BOARD (FADER)	
S440	1-554-303-21	SWITCH, KEY BOARD (REPEAT)	
S441	1-554-303-21	SWITCH, KEY BOARD (PEAK SEARCH)	
S442	1-554-303-21	SWITCH, KEY BOARD (TIME)	
T901	⚠ 1-449-921-11	TRANSFORMER, POWER	
X301	1-567-926-11	VIBRATOR, CRYSTAL (16.9344MHz)	
X401	1-577-082-11	VIBRATOR, CERAMIC (4MHz)	

ACCESSORIES AND PACKING MATERIALS
****

	1-465-280-11	REMOTE COMMANDER (RM-D290)
	1-559-533-11	CORD, CONNECTION
	3-750-846-21	MANUAL, INSTRUCTION
	4-923-540-01	CUSHION
	4-925-788-01	COVER, BATTERY (FOR RM-D290)
*	4-929-558-21	INDIVIDUAL CARTON

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

9-953-941-11

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SONY
SERVICE MANUAL

US Model

CORRECTION-1

Correct your service manual as shown below.

☛ : indicates corrected portion.

Page	INCORRECT	CORRECT
4	**E-F Balance Check** **Procedure :** 2. Connect test point TP (ADJ) and TP (TES) to ground with lead wire.	**E-F Balance Check** **Procedure :** 2. Connect test point TP (ADJ) to ground and TP (TES) to TP (VC) with lead wire.
5	**Focus/Tracking Adjustment** 4. Adjustment RV101 on BD board so that the waveform is as shown in the figure below. (focus gain adjustment) 6. Adjust RV102 on BD board so that the waveform is as shown the figure below. (tracking gain adjustment)	**Focus/Tracking Adjustment** 4. Adjust RV102 on BD board so that the waveform is as shown in the figure below. (focus gain adjustment) 6. Adjust RV101 on BD board so that the waveform is as shown in the figure below. (tracking gain adjustment)

9-953-941-91

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