MDS-JA555ES

SERVICE MANUAL

US Model
Canadian Model
AEP Model
UK Model

Photo : GOLD

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Model Name Using Similar Mechanism	MDS-JA20ES
MD Mechanism Type	MDM-6A
Base Unit Type	MBU-5C
Optical Pick-up Type	KMS-260B/J1N

SPECIFICATIONS

System	MiniDisc digital audio system
Disc	MiniDisc
Laser	Semiconductor laser (λ=780 nm)
	Emission duration : continuous
Laser output	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 with 7 mm aperture.
Laser diode properties	
	Material: GaAlAs
Revolutions (CLV)	400 rpm to 900 rpm
Error correction	ACIRC (Advanced Cross Interleave Reed Solomon Code)
Sampling frequency	44.1 kHz
Coding	ATRAC (Adaptive TRansform Acoustic Coding)
Modulation system	EFM (Eight-to-Fourteen Modulation)
Number of channels	2 stereo channels
Frequency response	5 Hz to 20,000 Hz ± 0.3 dB
Signal-to-noise ratio	Over 105 dB during playback
Wow and flutter	Below measurable limit

Inputs

	Jack type	Input impedance	Rated input	Minimum input
LINE (ANALOG) IN	Phono jacks	47 kΩ	500 mVrms	125 mVrms
DIGITAL IN OPT1	Square optical connector jack	Optical wave length 660 nm	—	—
DIGITAL IN OPT2	Square optical connector jack	Optical wave length 660 nm	—	—
DIGITAL IN COAXIAL	Phono jack	75 Ω	0.5 Vp-p ±20%	—

MINIDISC DECK

MICROFILM

SONY ®

Output

	Jack type	Rated output	Load impedance
PHONES	Stereo phone jacks	28 mW	32 Ω
LINE(ANALOG) OUT	Phono jacks	2 Vrms (at 50 kΩ)	Over 10 kΩ
DIGITAL OUT OPTICAL	Square optical connector jack	–18 dBm	Optical Wave length 660 nm
DIGITAL OUT COAXIAL	Phono jack	0.5 Vp-p (at 75 Ω)	75 Ω

General
Power requirements

Where purchased	Power requirements
Continnental Europe and UK	220V – 230V AC, 50/60 Hz
U.S.A. and Canada	120 V AC, 60 Hz

Power consumption   24 W
Dimensions (approx.)(w/h/d) incl. projecting parts and controls
430 × 125.5 × 375.5 mm
(17 × 5 × 13 ^{3}/$_4$ in.)
Mass (approx.)   15.3 kg (33 lbs 11 oz)

Supplied accessories
• Audio connecting cords (2)
• Remote commander (remote) RM-D34M (1)
• R6 (size-AA) batteries (2)

Design and specifications are subject to change without notice.

CAUTION

Danger of explosion if battery is incorrectly replaced.
Replace only with the same or equivalent type recommended by the equipment manufacturer.
Discard used batteries according to manufacture's instructions.

ADVARSEL!

Lithiumbatteri - Eksplosionsfare ved fejlagtig håndtering.
Udskiftning må kun ske med batteri af samme fabrikat og type.
Levér det brugte batteri tilbage til leverandøren.

ADVARSEL

Eksplosjonsfare ved feilakting skifte av batteri.
Benytt samme batteritype eller en tilsvarende type anbefalt av apparatfabrikanten.
Brukte batterier katterier kasseres i henhold til fabrikantens

VARNIG

Explosionsfara vid felaktigt batteribyte.
Använd samma batterityp eller en likvärdig typ som rekommenderas av apparattillverkaren.
Kassera använt batteri enligt gällande föreakrifter.

VAROITUS

Parist voi räjähtää, jos se on virheellisesti asennettu.
Vaihda paristo ainoastaan laitevalmistajan suosittelemaan tyyppiin.
Hävitä käytetty paristo valmistajan ohjeiden mukaisesti.

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks 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

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 microamperes). 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 2V AC range are suitable. (See Fig. A)
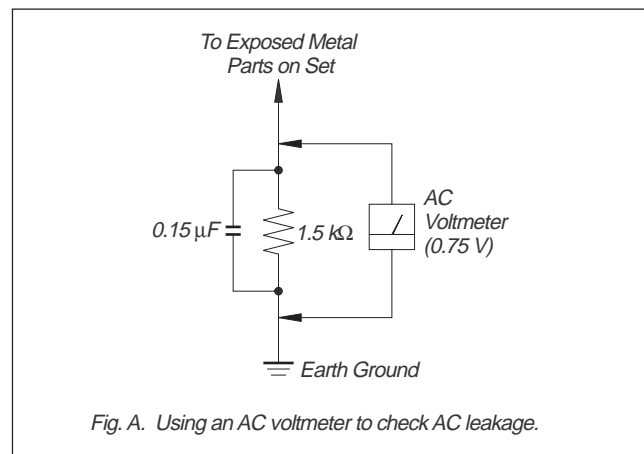

Fig. A. Using an AC voltmeter to check AC leakage.

Laser component in this product is capable of emitting radiation exceeding the limit for Class 1.

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CLASS 1 LASER PRODUCT
LUOKAN 1 LASERLAITE
KLASS 1 LASERAPPARAT
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This appliance is classified as a CLASS 1 LASER product. The CLASS 1 LASER PRODUCT MARKING is located on the rear exterior.

The following caution label is located inside the unit.

CAUTION	;	INVISIBLE LASER RADIATION WHEN OPEN. AVOID EXPOSURE TO BEAM.
ADVARSEL	;	USYNLIG LASERSTRÅLING VED ÅBNING NÅR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION. UNDGÅ UDS ÆTTELSE FOR STRÅLING.
VARO!	;	AVATTAESSA JA SUOJALUKITUS OHITETTAESSA OLET ALTTIINA LASERSÄTEILYLLE.
VARNING	;	LASERSTRÅLING NÅR DENNA DEL ÄR OPPNÅD OCH SPÅRREN ÄR URXOPPLAD.
ADVARSEL	;	USYNLIG LASERSTRÅLING NÅR DEKSEL ÅPNES UNNGÅ EKSPONERING FOR STRÅLEN.

CAUTION
Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.
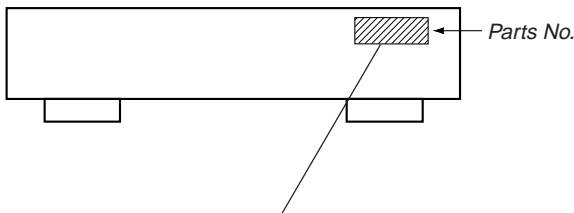
Notes on chip component replacement
• Never reuse a disconnected chip component.
• Notice that the minus side of a tantalum capacitor may be damaged by heat.

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

MODEL IDENTIFICATION — BACK PANEL —

Parts No.

4-220-300-1□ : AEP, UK model
4-220-300-2□ : US model
4-220-300-3□ : Canadian model

TABLE OF CONTENTS

3

The self-diagnosis function consists of the error codes for users and those for service engineers. The error codes for users appear automatically when an error occurs. The error codes for service engineers can be accessed by entering the test mode during servicing and by viewing the error history display. The error codes for users are shown below that are extracted from Operation Manual. For the error codes for service engineers, refer to the subsequent paragraph "How to Operate the Self-diagnosis Function (Error History Display Mode)".
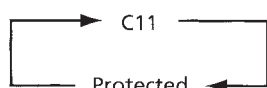
Self-Diagnosis Function

The deck has a self-diagnosis display. This function shows a three-digit display (a combination of a letter and figures) and the corresponding message alternately, so you can check the deck's condition.
If such a display appears, check the following table in order to resolve the problem.
Should any problem persist, consult your nearest Sony dealer.

Self-diagnosis display

Three-digit display/Message	Cause/Remedy
C11/Protected	The inserted MD is record-protected. ➡ Take out the MD, and close the record-protect tab (page 11).
C13/REC Error	The recording was not made properly. ➡ Set the deck in a stable place, and repeat the recording procedure.
	The inserted MD is dirty (with smudges, fingerprints, etc.), scratched, or not up to standards. ➡ Replace the disc, and repeat the recording procedure.
C13/Disc Error	The deck could not read the TOC of the MD properly. ➡ Take out the MD, and insert it again.
C14/Disc Error	The deck could not read the TOC of the MD properly. ➡ Insert another disc. ➡ If possible, erase all tracks on the MD using the All Erase Function on page 36.
C71/Din Unlock	A moment's lighting is due to the signals of the digital program being recorded. This does not affect the recorded material.
	While recording from a digital component connected through the digital input connector, the digital connecting cable was unplugged or the digital component turned off. ➡ Connect the cable or turn the digital component back on.

How to Operate Self-diagnosis Function (Error History Display Mode)

Note: The self-diagnosis function is performed using the "error history display mode" using the test mode. The following procedure describes only the minimum required operating procedure to enter the error history mode. Therefore be careful not to enter any other modes by mistake. If you have entered any other modes by mistake, press the MENU/NO button and exit the mode.

1. While pressing the |◄◄AMS▷▷| knob and the ■ button at the same time, connect the AC power plug to the wall outlet, then remove your hands from the |◄◄AMS▷▷| knob and ■ button at the same time. When the MDS-JA555ES enters the test mode, the message "[Check]" appears and the STANDBY, PITCH CONTROL, and FILTER LEDs turn on.
2. Rotate the |◄◄AMS▷▷| knob until the message "Service" appears. Then press the YES button.
3. Rotate the |◄◄AMS▷▷| knob until the message "ERR DP MODE" appears.
4. Press the YES button to enter the error history mode and the message "total rec" appears.
5. Select the desired item to display or to execute using the |◄◄AMS▷▷| knob.
6. Press the |◄◄AMS▷▷| knob to display or execute the selected item.
7. Pressing the |◄◄AMS▷▷| knob again returns to the display of step 4.
8. To exit the error history mode, press the MENU/NO button. The message "ERR DP MODE" appears to exit the error history mode.
9. To exit the test mode, press the REPEAT button. The test mode display disappears and the PITCH CONTROL and FILTER LEDs are turned off. The MDS-JA555ES enters the standby state exiting the test mode. While pressing the I/⏻ button, turn on the main power. The message "Initialize" flashes and the MDS-JA555ES is initialized.

[Displaying Contents of the Error History]

| Display on screen	Contents of error history
total rec	Displays the recording time. The display appears in "r☐☐☐☐☐ h". This is the accumulated time when the laser is in the "high power" operation. This is about 1/4 of the actual recording time. The time is shown in the range of 0h to 65535h in hexadecimal number.
total play	Displays the playback time. The display appears in "p☐☐☐☐☐ h". This is the accumulated time of actual playback in which pause time is not counted. The time is shown in the range of 0h to 65535h in hexadecimal number.
retry err	Displays the accumulated count of record retry errors and playback retry errors. The display appears in "r☐☐ p☐☐ ". "r" indicates the record retry error count, and "p" indicates the playback retry error count. The retry count is shown in the range of 00 to FF in hexadecimal number.
total err	Displays the total error count. The message "total☐☐ " appears. The count is shown in the range of 00 to FF in hexadecimal number.
err history	Displays the error contents from the latest error to the last ten errors. "0☐ E@@" appears. The history number is shown in ☐ . The smaller number means the newer history. (00 is the newest error.) The error code is indicated by @@. Refer to the following table for the contents of the error codes. The error histories can be switched by rotating the │◄◄AMS►►│ knob.
er refresh	This mode is used to delete the histories of "retry err", "total err", and "err history". Before returning the repaired product to the customer, perform this operation to delete the past error history. To delete the history, press the │◄◄AMS►►│ knob and press the YES button after "er refresh?" appears. "Complete!" appears for a moment and returns to the ERR DP MODE. When this mode is executed, be sure to check the following. • The data have been deleted. • Perform recording and playback. Check that the mechanism operates normally.
tm refresh	This mode is used to delete the histories of "total rec" and "total play". These histories are used as reference when replacing the optical pick-up. When the optical pick-up is replaced, perform this operation to delete the histories. Press the │◄◄AMS►►│ knob. After "tm refresh?" appears, press the YES button to delete the histories. "Complete!" appears for a moment and returns to the ERR DP MODE. When this mode is executed, be sure to check the following. • The data have been deleted. • Perform recording and playback and check that the mechanism operates normally.

Error code table

Error code	Error contents	Error code	Error contents
E00	No errors	E05	Out of FOK
E01	Disc error Cannot read PTOC (Disc is ejected)	E06	Focus does not lock (Out of servo)
		E07	Record retry
E02	Disc error UTOC error (Disc is not ejected)	E08	Record retry error
		E09	Playback retry error (Access error)
E03	Loading error		
E04	Cannot read the address (Out of servo)	E0A	Playback retry error (C2 error)

SECTION 1
SERVICING NOTE

HOW TO OPEN THE DISC TRAY WHEN POWER SWITCH IS TURNED OFF, AND LASER POWER CHECK

① Remove the 16 screws (BVTT3 x 8) from the bottom plate. (Refer to Section 3 "Disassembly" Loading panel.) (page 14)
② Remove the bottom plate.
③ Rotate the pully gear in the direction of the arrow Ⓐ and open the tray in the direction of the arrow Ⓑ.
④ When checking the laser power, remove beforehand the loading panel by removing the two screws (M2.6) and sliding aside the loading panel becouse the cable of the laser power meter can be pinched by the loading panel. (Refer to Section 3 "Disassembly" Loading panel.) (page 14)

Pulley gear

Remove the Loading panel

*Two screws
(M2.6)*

Ⓐ

Ⓑ

Tray assembly
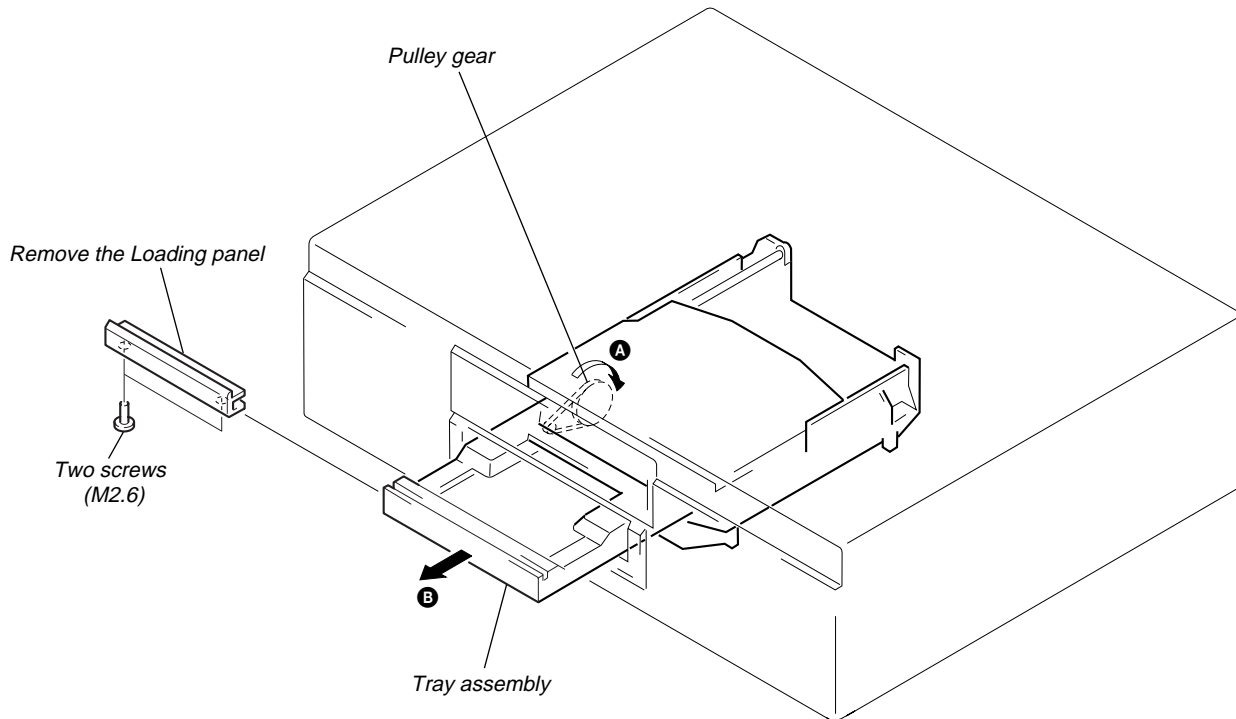
Forced Reset

Use this function when the MDS-JA555ES cannot be operated normally due to hung-up of the microprocessor.
It is recommended to use this function when you cannot exit the test mode or the retry-cause-display mode, or when the normal operation cannot be performed after the MDS-JA555ES is disassembled once then re-assembled.

Procedure : Remove the AC power plug from the wall outlet. Short-circuit pin-① and pin-③ of CN703 on the BT board with a pair of tweezers or the like, to discharge the back-up battery.

[BT board] (Conductor side)

JW790 JW791

1   3

BT701   CN703
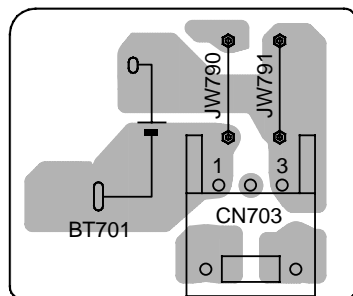
[BD Board Waveform Check Tool]

Use of the exclusive tool (J-2501-149-A) is convenient to check the waveforms on the BD board.

GND : Ground terminal
I+3V : For measuring IOP (Checking deterioration of the optical pickup laser)
IOP : For measuring IOP (Checking deterioration of the optical pickup laser)
TEO : TRK error signal (traverse adjustment)
VC : Reference level for when checking signals
RF : RF signal (jitter check)
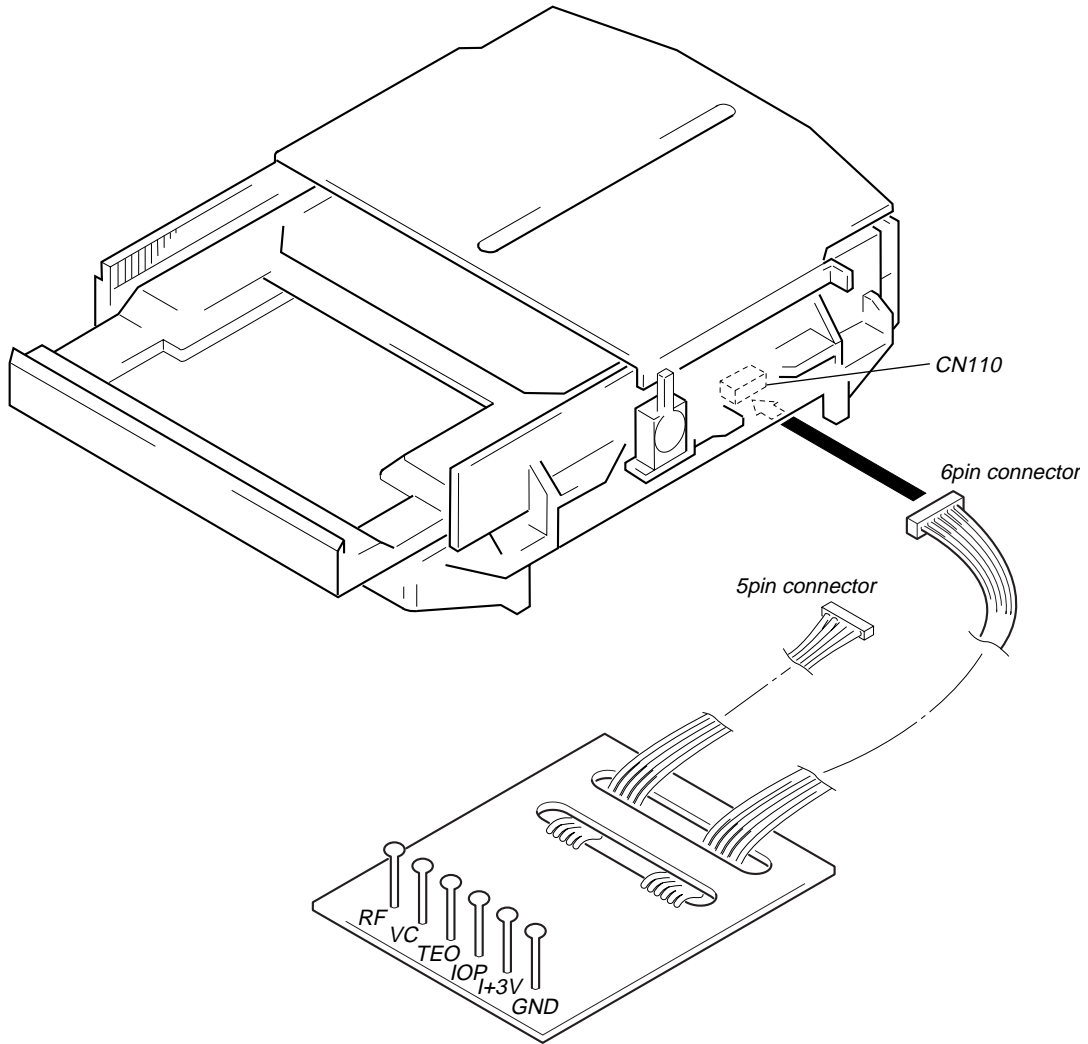
Schematic diagram of the connecting tools

7
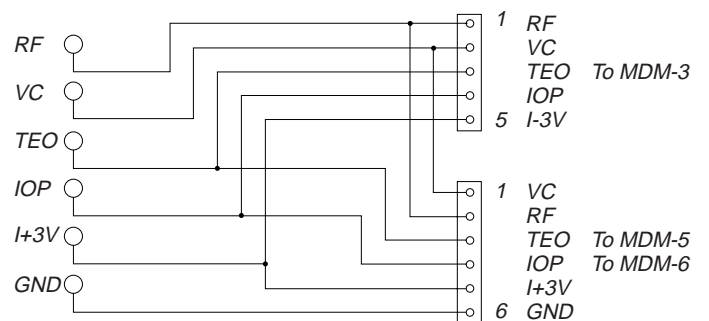
[How to Record and Display the IOP Data When Replacing the Optical Pick-up and Non-volatile Memory (BD Board IC171)]

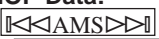The IOP data that is indicated on the optical pick-up, can be saved in the non-volatile memory of the MDS-JA555ES. Saving the IOP data in the memory eliminates the needs to look at the printed value on the label that is attached on the surface of optical pick-up, and enables to view the IOP data on display. When the optical pick-up is replaced or when the non-volatile memory (IC171 on BD board) is replaced, save the IOP value that is printed on the label on the surface of optical pick-up by the following procedure.

How to Record the IOP Data:
1. While pressing the ⏮◁AMS▷⏭ knob and the ■ button at the same time, connect the AC power plug to the wall outlet, then remove your hands from the ⏮◁AMS▷⏭ knob and ■ button at the same time. When the MDS-JA555ES enters the test mode, the message "[Check]" appears.
2. Rotate the ⏮◁AMS▷⏭ knob until the message "Service" appears. Then press the YES button.
3. Rotate the ⏮◁AMS▷⏭ knob until the message "lop Write" (C28) appears. Then press the YES button.
4. "Ref=@@@.@" (@ is arbitrary number) appears and the values that can be changed as desired flash.
5. Input the IOP value that is printed on the optical pick-up.
    Selection of alphanumeric characters : Rotate the ⏮◁AMS▷⏭ knob.
    Selection of digit   : Press the ⏮◁AMS▷⏭ knob.
6. Press the YES button. Then display changes to "Measu= @@@.@" (@ is arbitrary number).
7. The value that is shown step 6, is the result adjustment and should not be saved. So leave the value of step 6 as it is, and press the YES button.
8. The message "Complete!" appears for a moment, and the value is saved in the non-volatile memory. The message "Iop Write" appears.
9. Upon completion of data saving, press the REPEAT button.

How to Display the IOP Data:
1. While pressing the ⏮◁AMS▷⏭ knob and the ■ button at the same time, connect the AC power plug to the wall outlet, then remove your hands from the ⏮◁AMS▷⏭ knob and ■ button at the same time. When the MDS-JA555ES enters the test mode, the message "[Check]" appears.
2. Rotate the ⏮◁AMS▷⏭ knob until the message "Service" appears. Then press the YES button.
3. Rotate the ⏮◁AMS▷⏭ knob until the message "lop Write" (C28) appears. Then press the YES button.
4. The message "@@.@/##.#" appears. The contents that are saved in the non-volatile memory appear.
    @@.@   : The IOP value that is printed on optical pick-up
    ##.#   : The IOP value after adjustment
5. To exit the data display, press the ⏮◁AMS▷⏭ knob or the MENU/NO button to show the message "Iop Read". Then press the REPEAT button.

[Checks before Part Replacement and Adjustment]

Cause of faulty can be approximately located by performing the following checks before starting the repair work. Refer to Section "5. Electrical Adjustment" the check procedure.

	Judgment criterion(NG when the measurement value is out of the specification value)	Remedial measure in case of NG
Laser power check (Refer to section 5-6-2, page 27.)	• 0.9 mW power Specification value: 0.84 to 0.92 mW • 7.0 mW power Specification value: 6.8 to 7.2 mW	• Cleaning the optical pick-up • Readjustment • Replacing the optical pick-up
	• Iop (when 7 mW) The Iop value that is shown on the optical pick-up: +/- 10 mA	• Replacing the optical pick-up
Traverse check (Refer to section 5-6-3, page 28.)	• Traverse waveform Specification value: Offset 10% or less	• Replacing the optical pick-up
Focus bias check (Refer to section 5-6-4, page 29.)	• Checking the error rate Specification value: All points of a, b, and c CI error 220 or less AD error 2 or less	• Replacing the optical pick-up
C PLAY check (Refer to section 5-6-5, page 29.)	• Checking the error rate Specification value: a. When using the test disc (MDW-74/AU-1) CI error 80 or less AD error 2 or less b. When using the check disc (TDYS-1) CI error 50 or less	• Replacing the optical pick-up
Self-recording/playback check (REC/PLAY) (Refer to section 5-6-6, page 29.)	• Checking the error rate in C PLAY Specification value: CI error 80 or less AD error 2 or less	In case of NG all the time: • Replacing the overwrite head • Check disconnection of the circuits around the overwrite head
		In case of intermittent NG: • Check deformation of overwrite head • Check mechanism around the sled
Temperature compensation offset check (Refer to section 5-6-1, page 27.)	• NG when "T=@@(##)(NG" appears (@@ and ## are arbitrary numbers.)	• Check disconnection of the circuits around the D101 (BD board) • Check signals around the IC101, IC121, CN102 and CN103 (BD board)

Note: The judgment criterion is shown for the purpose of judging if the performance is acceptable or not. This is not the specification value for adjustment. Use the specification value for adjustment when the MDS-JA555ES is going to be adjusted.

[Retry Cause Display Mode]
- In this test mode, the retry causes of the MDS-JA555ES during record and stop modes can be displayed on the fluorescent display tube. This mode becomes the "track mode" during playback in which the track information is available. This mode is useful for locating the defective area of the MDS-JA555ES.
- The contents to be displayed are as follows.
  During record and stop modes: Retry cause, number of retries, and number of retry errors
  During playback mode: Information such as disc types under playing back, position of playback and copyright.
  Each information is displayed in hexadecimal number.

Procedure:
1. Load a recordable disc whose contents can be erased, into the MDS-JA555ES.
2. Press the ⌈MENU/NO⌉ button. After the message "Edit Menu" appears on the fluorescent display tube, rotate the ⌈I◁◁AMS▷▷I⌉ knob until the message "All Erase ?" appears.
3. Press the ⌈YES⌉ button. (Alternately the ⌈I◁◁AMS▷▷I⌉ knob can also be pressed.)
4. The message "All Erase ??" appears on the fluorescent display tube. Then the numerals on the music calendar flash.
5. Press the ⌈YES⌉ button, then the message "Complete !!" appears. Press the ⌈■⌉ button immediately, and wait for about 15 seconds while keeping pressing the button. (Alternately the ⌈I◁◁AMS▷▷I⌉ knob can be pressed instead of ⌈YES⌉ button.)
6. When the characters "TOC" have disappeared from the fluorescent display tube, remove your hands from the ⌈■⌉ button.
7. Press the ⌈●REC⌉ button to enter the record standby mode. Then press the ⌈II⌉ button to start recording.
8. When you want to enter the "Track mode", press the ⌈▶⌉ button to start playback.
9. To exit the test mode, press the ⌈I/⏻⌉ button. The message "TOC" flashes, the MDS-JA555ES enters the standby mode and exits the test mode.

Fig. 1 Reading the Test Mode Display (During record and stop modes)
⌈RTs@@c##e**⌉
Display on the fluorescent display tube

  @@ : Cause of retry
  ## : Number of retries
  ** : Number of retry errors

Fig. 2 Reading the Test Mode Display (During playback)
⌈@@ ####** $$⌉
Display on the fluorescent display tube

  @@ : Parts No. (Area name that is given on the TOC)
  ## : Cluster address (physical address on the disc)
  ** : Sector
  $$: Track mode (track information such as copyright information of each part, etc.)

How to read the retry cause display:

Hexadecimal	Higher Bits				Lower Bits				Hexadecimal	Name of retry cause	When 1
	8	4	2	1	8	4	2	1			
Bit	b7	b6	b5	b4	b3	b2	b1	b0			
Binary number	0	0	0	0	0	0	0	1	01	shock	When track jump (shock) is detected
	0	0	0	0	0	0	1	0	02	ader5	When ADER is counted five times or more continuously
	0	0	0	0	0	1	0	0	04	Address is not continuous	When ADIP address is not continuos
	0	0	0	0	1	0	0	0	08	DIN unlock	Detects DIN unlock is detected
	0	0	0	1	0	0	0	0	10	FCS unlock	When focus is unlocked
	0	0	1	0	0	0	0	0	20	IVR rec error	When signal level of the ABCD signal exceeds the specified range
	0	1	0	0	0	0	0	0	40	CLV unlock	When CLV is unlocked
	1	0	0	0	0	0	0	0	80	Access fault	When access operation is not performed normally

Reading the Display:

Convert the hexadecimal display of each digit into binary display. If more than two causes, they will be added.

Example When 42 is displayed:
   Higher bit: 4 = 0100 → b6
   Lower bit: 2 = 0010 → b2
   In this case, the retry cause is combined of "CLV unlock" and "ader5".

Example When A2 is displayed:
   Higher bit: A = 1010 → b7+b5
   Lower bit: 2 = 0010 → b1
   In this case, the retry cause is combined of "ACCESS default", "IVRrec" and "ader5".

The reading of the track mode display is as follows.

Hexadecimal	8	4	2	1	8	4	2	1	Hexadecimal	Contents	
	Higher Bits				Lower Bits						
Bit	b7	b6	b5	b4	b3	b2	b1	b0		When 0	When 1
Binary	0	0	0	0	0	0	0	1	01	Emphasis OFF	Emphasis OFF
	0	0	0	0	0	0	1	0	02	Monaural	Stereo
	0	0	0	0	0	1	0	0	04	2-bit display, normally 01	
	0	0	0	0	1	0	0	0	08	01: Normal audio, Other: Invalid	
	0	0	0	1	0	0	0	0	10	Audio (normal)	Invalid
	0	0	1	0	0	0	0	0	20	Original	Digital copy
	0	1	0	0	0	0	0	0	40	Copyright exists	No copyright
	1	0	0	0	0	0	0	0	80	Writing is prohibited	Writing is allowed

Reading the Display:

Convert the hexadecimal display of each digit into binary display. The several causes are added and displayed.

Example When 84 is displayed:
   Higher bit: 8 = 1000 → b7
   Lower bit: 4 = 0100 → b2
   This example shows that "Emphasis: OFF", "Monaural", "Original", "Copyright exists" and "Writing is allowed" because b2 and b7 are 1 while all other bits are 0.

Example When 07 is displayed:
   Higher bit: 0 = 0000 → all 0
   Lower bit: 7 = 0111 → b0+b1+b2
   This example shows that "Emphasis: ON", "Stereo", "Original", "Copyright exists" and "Writing is prohibited" because b0, b1 and b2 are 1 while all other bits are 0.

Hexadecimal → Binary Conversion Table

| Hexadecimal	Binary	Hexadecimal	Binary
0	0000	8	1000
1	0001	9	1001
2	0010	A	1010
3	0011	B	1011
4	0100	C	1100
5	0101	D	1101
6	0110	E	1110
7	0111	F	1111

SECTION 2
GENERAL

Front Panel
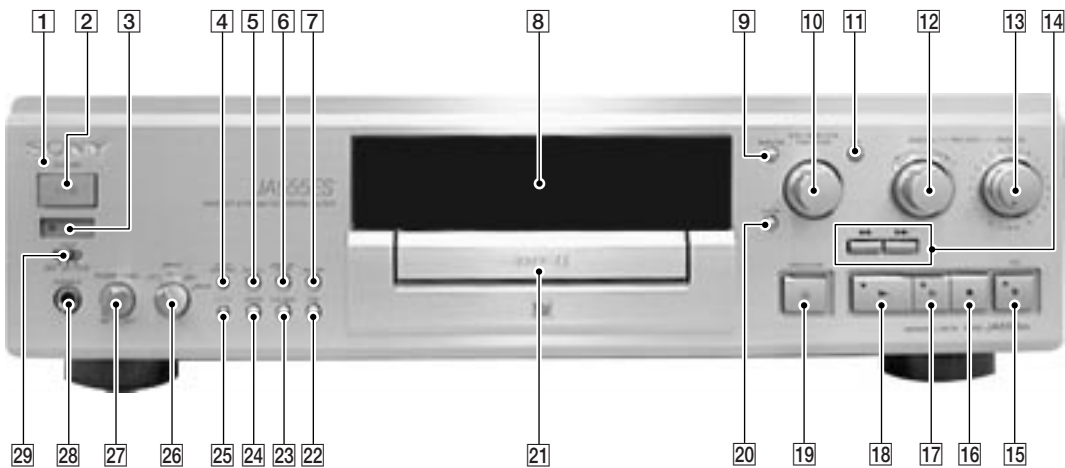
|			
1	SATNDBY indicator	16	■ (STOP) button
2	I/⏻ (POWER) button	17	II (PAUSE) button and indicator
3	Remote sensor	18	▶ (PLAY) button and indicator
4	PITCH CONTROL button	19	⏏ OPEN/CLOSE button
5	SCROLL button	20	CLEAR button
6	DISPLAY/CHAR button	21	Disc Tray
7	REPEAT button	22	TIME button
8	Display window	23	PLAY MODE button
9	MENU/NO button	24	FADER button
10	I◀◀ AMS ▶▶I knob	25	FILTER button
11	YES button	26	INPUT button
12	DIGITAL REC LEVEL knob	27	PHONE LEVEL knob
13	ANALOG REC LEVEL knob	28	PHONE jack
14	◀◀ ▶▶ button	29	TIMER knob
15	● REC button and indicator		

Rear Panel
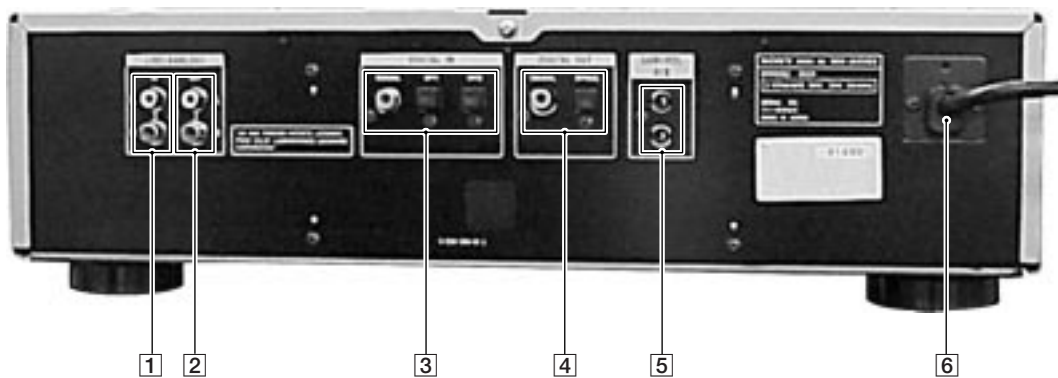
|			
1	LINE (ANALOG) IN jack	4	DIGITAL OUT (COAXIAL/OPT1/OPT2) jack
2	LINE (ANALOG) OUT jack	5	CONTROL A1 II jack
3	DIGITAL IN (COAXIAL/OPT1/OPT2) jack	6	Power Supply cord

Setting the Clock

Once you set the MD deck's internal clock, the MD
deck will automatically record the date and time of all
recordings. When playing a track, you can display the
date and time the track was recorded (see page 24).
Time on this deck is displayed on a 12-hour clock (USA
and Canadian models only) or a 24-hour clock
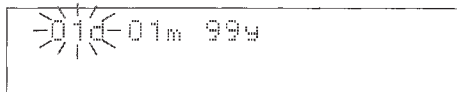(European model only).

MENU/NO |◁◁ AMS ▷▷| YES

◀◀/▶▶

DATE
PRESENT
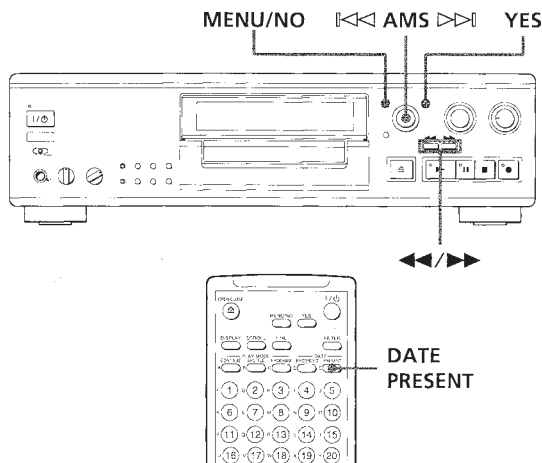
1 While the deck is stopped, press MENU/NO
twice to display "Setup Menu".

2 Turn AMS to select "Setup 16", then press AMS or
YES.
The month (or day) indication starts flashing.
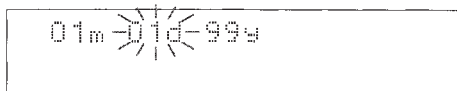
USA and Canadian models

    -01m-01d 99y

European model

    -01d-01m 99y
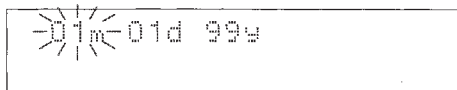
3 Turn AMS to enter the current month (or day),
then press AMS.
The month (or day) indication stops flashing, and
the day (or month) indication starts flashing.

USA and Canadian models

    01m-01d-99y

European model

    01d-01m-99y
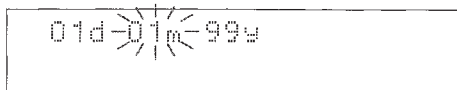
4 Repeat Step 3 to enter the month, day, year, hour,
and minute.

USA and Canadian models

    Fri 12:00AM

European model

    Fri 0:00
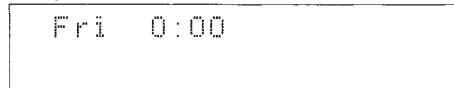
ʒ̈ **For precise time and date stamping of recordings**
Reset the time at least once a week.

Note
If the AC power cord is disconnected for a long time, the
memorized clock settings will disappear and "Initialize" will
flash in the display the next time you plug in and turn on the
deck. If this happens, reset the clock.

Displaying the current date and time 📻

You can display the current date and time any time
even when the deck is in standby status.

Press DATE PRESENT.
Each press of the button changes the display as
follows:

┌→ Current display → Date → Time ┐
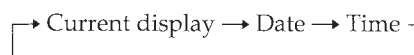
Changing the clock setting(s)

1 Do steps 1 and 2 above.

2 Press AMS or ◀◀/▶▶ repeatedly until the
setting you want to change flashes.

3 Turn AMS to change the setting, then press AMS
or YES.

4 To complete the setting, press AMS or ◀◀/▶▶
repeatedly until all items stop flashing.

13

SECTION 3
DISASSEMBLY

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

3-1. CASE

1 Two screws
(CASE 3 TP2)

3 Remove the upper case
in the direction of the arrow **A**.

1 Screw (CASE 3 TP2)

A

1 Two screws
(CASE 3 TP2)

2 Open the top cover

3-2. LOADING PANEL

3 Rotate the pulley gear
in the direction of the arrow **A**,
and open the tray in the direction
of the arrow **B**.

5 Loading panel

A

4 Two screws
(M2.6)

Tray assembly

B

2 Bottom plate

1 Eight screws
(3 × 8)

1 Six screws
(3 × 8)

3-3. FRONT PANEL ASSEMBLY

❻ Three screws
(BV 3 × 8 CU)

❼ Bracket (F)

❸ Connector
(CN651)

❷ Connector
(CN303)

❶ Flat type wire
(CN800)

❹ Two knobs (VOL)

❽ Front panel assembly

❺ Five screws
(3 × 8)

3-4. MD MECHANISM DECK

❶ Six screws
(3 × 8)

❷ Remove the cover (MDM-T) and
the fixing plate (MDM-T) together.

❹ Two screws
(BVTT3 × 6)

❺ Two lug
terminals

❻ Four screws
(BVTT 3 × 6)

(CN102)

❼ Two flat type wires
(CN102, 103)

(CN103)

❽ Remove the MD
mechanism deck
in the direction of
the arrow **Ⓐ**.

❸ Connector
(CN202)

Ⓐ

15

3-5. TRAY ASSEMBLY

❷ Two screws (BV2.6)

❹ Bracket (top)

❷ Two screws (BV2.6)

❻ Screw (BV2.6)

❼ Stopper (shaft B)

❸ Lug

❺ Three gears (top)

❽ Shaft

❺ Three gears (top)

B

A

❾ Remove the tray asssembly in the direction of the arrow **B**.

❶ Rotate the pully gear in the direction of the arrow **A** and pull the tray assembly.

NOTE FOR INSTALLATION

Slider assembly

Pin

When the tray assembly is attached, move the slider assembly in the direction of the arrow **B** so that the pin is located in the position as shown above. Then attach the tray assembly.

Slider assembly

B

A

Slider (D) assembly

Tray assembly

When the gears (top) (two gears on the front) are attached, pull the tray assembly out in the direction of the arrow **A** and align the rack (L) and slider (D) assembly as shown.

Mark

Rack (L)

Gear (top)

Slider (D) assembly

3-6. BU HOLDER ASSEMBLY

❷ Two scews
(BV2.6)

❸ Two collars
(damper)

❷ Two scews
(BV2.6)

❸ Two collars
(damper)

❹ Two compression
springs

❹ Two compression
springs

❺ BU holder assembly

Fig. A

Slider   *Rib*

❶ Turn the pully gear to align
the slider with ⌒ of the rib.
(Refer to Fig. A.)

3-7. MOTOR (LOADING) ASSEMBLY (M10)

❸ Gear assembly

❷ Two screws
(BV2.6)

❻ Motor (loading) assembly (M10)

❺ Two screws
(B2 × 3)

❹ Belt (loading)

❶ Connector
(CN14)

3-8. BASE UNIT (MBU-5C)

1 Leaf spring (UDL)

2 Leaf spring (UDR)

3 Remove the holder assembly
in the direction of the arrow **A**.

A

5 Base unit

4 Two screws
(BV2.6)

4 Two screws
(BV2.6)

3-9. BD BOARD

5 Two precision screws
(+P1.7 × 2.5)

6 Claw

3 Flexible board
(CN104)

4 Tapping screw
(M1.7)

7 BD board

2 Remove the soldering
from the push switch.

1 Remove the soldering of
the lead wires from
the spindle motor assembly.

3 Flexible board
(CN101)

3-10. OVER LIGHT HEAD (HR901)

❸ Over light head (HR901)

❷ Screw (P1.7 × 6)

❶ Flexible board (CN104)

3-11. MINI DISC DEVICE (KMS-260B/J1N)

❷ Screw +B (B2 × 8)

❸ Leaf spring (shaft)

❹ Main shaft

❺ Remove the mini disc device (KMS-260B/J1N) in the direction of the arrow Ⓐ.

❶ Flexible board (CN104)

Ⓐ

❶ Flexible board (CN101)

SECTION 4
TEST MODE

4-1. Precaution on Using the Test Mode

- Be sure to insert and eject a disc after confirming that the disc in the MDS-JA555ES has come to complete stop because the loading related movements of the mechanism are performed without any relationship with the test mode.
  Disc does not stop rotating even through the ⏏ button is pressed while disc is rotating in the modes such as continuous playback and continuous recording. Therefore, the disc is ejected while it is rotating.
  Be sure to press the MENU/NO button, then press the ⏏ button after a disc has completely stopped of its rotation.

4-1-1. Modes in Which Recording Laser Emits the Light and the Button Operations

- Continuos recording mode (CREC MODE)
- Laser power check mode (LDPWR CHECK)
- Laser power adjustment mode (LDPWR ADJUST)
- Traverse (MO) check (EF MO CHECK)
- Traverse (MO) check (EF MO ADJUST)
- When the ●REC button is pressed

4-2. How to Enter the Test Mode

There are two methods to enter the test mode as follows.

Method 1: Connect the power plug to the outlet while pressing the |◁◁AMS▷▷| knob and ■ button at the same time, and remove the |◁◁AMS▷▷| knob and ■ button at the same time.
When the unit enters the test mode, "[Check]" appears. The four groups can be switched, ...↔ Check ↔Adjust ↔Service ↔Develop ↔..... , by rotating the |◁◁AMS▷▷| knob.

Method 2: Connect the power plug to the outlet while pressing the |◁◁AMS▷▷| knob, and remove the |◁◁AMS▷▷| knob.
When the unit enters the test mode, "TEMP CHECK" appears. When the test mode is entered using this method, the contents of check group at method 1 can be performed.

4-3. Exiting the Test Mode

Press the REPEAT button. The display and LEDs of the pitch control and the filter are turned off. The MDS-JA555ES enters the standby status and exits the test mode.

4-4. Basic Operation of the Test Mode

All operations are performed using the |◁◁AMS▷▷| knob, YES button, and MENU/NO button.
The functions of these button are as follows.

Function	Contents
|◁◁AMS▷▷| knob	Changes parameters and modes
YES button	Proceeds onto the next step. Finalize input.
MENU/NO button	Returns to previous step. Stops operations.

4-5. Selecting the Test Mode

There are 31 types of the test mode. The group can be switched by rotating the ⏮⏪AMS⏩⏭ knob. Select the group to be used and press the YES button. After each group is entered, each mode can be switched by rotating the ⏮⏪AMS⏩⏭ .

For the selected contents, refer to the "Group" column in the list.

The group S can support all test modes for servicing. Be careful not to select other groups if not necessary.

Display	No.	Contents	Mark	Group (*)			
TEMP CHECK	C01	Temperature compensation offset check		C		S	
LDPWR CHECK	C02	Laser power check		C		S	
EF MO CHECK	C03	Traverse (MO) check		C		S	
EF CD CHECK	C04	Traverse (CD) check		C		S	
FBIAS CHECK	C05	Focus bias check		C		S	
ScurveCHECK	C06	S curve check	(×)	C			
VERIFYMODE	C07	Non-volatile memory check	(×)	C			
DETRK CHECK	C08	Detrack check	(×)	C			
TEMP ADJUS	C09	Temperature compensation offset adjustment			A	S	
LDPWR ADJUS	C10	Laser power adjustment			A	S	
EF MO ADJUS	C11	Traverse (MO) adjustment			A	S	
EF CD ADJUS	C12	Traverse (CD) adjustment			A	S	
FBIAS ADJUS	C13	Focus bias adjustment			A	S	
EEP MODE	C14	Non-volatile memory control	(×) (!)				D
ERR DP MODE	C17	Error history display, clear				S	
ADJ CLEAR	C24	Initialization of non-volatile memory of adjustment value		A	S		
AG Set (MO)	C25	Auto gain output level adjustment (MO)			A	S	
AG Set (CD)	C26	Auto gain output level adjustment (CD)			A	S	
Iop Read	C27	IOP data display		C		S	
Iop Write	C28	IOP data writing			A	S	
JA555 @@@@@@	C29	Version display of microprocessor		C		S	
CPLAY MODE	C30	Continuous playback mode		C	A	S	D
CREC MODE	C31	Continuos recording mode		C	A	S	D

(*) Group
C : Check   A : Adjust
S : Service   D : Develop

- For detailed description of each adjustment mode, refer to Section 5 "Electrical Adjustments".
  For "ERR DP MODE" (C17), refer to the self-diagnosis function of page 2.
- If a different adjustment mode has been selected by mistake, press the MENU/NO button to exit from it.
- The items marked (×) in the mark are not used in servicing, therefore they are not detailed. . If select these modes accidentally, press the MENU/NO button immediately to exit from it. If the items marked (!) are selected especially, the unit could be operated wrongly by rewriting the contents of non-volatile memory. Be careful of it.

4-5-1. Operating the Continuos Playback Mode

1. Entering the continues playback mode
   1) Load the disc into the unit. (recordable disc or disc for playback)
      The disc is loaded by pushing the tray.
   2) Rotate the |◁◁AMS▷▷| knob to display "CPLAY MODE" (C30).
   3) Press the |YES| button to change the display to "CPLAY MID".
   4) When access completes, the display changes the display to "C = □□□□ AD =□□ ".
   Note **:** The value of the " □ " displayed on the screen indicates error rate and "ADER".

2. Changing the parts to be played back
   1) Press the |YES| button during continuos playback to change the display as shown and move the played back part.

   "CPLAY MID" → "CPLAY OUT" → "CPLAY IN" ⌐
            ↑_____|

   2) When access completes, the display changes to "C = □□□□ AD =□□ ".
   Note : The value of the " □ " displayed on the screen indicates error rate and "ADER".

3. Ending the continuos playback mode
   1) Press the |MENU/NO| button to change the display to "CPLAY MODE".
   2) Press the |⏏| button to eject the disc.
   Note1 : The playback start addresses for IN, MID, and OUT are as follows.
           IN   : 40h cluster
           MID : 300h cluster
           OUT : 700h cluster

   Note 2 : When the |▶| button is pressed during the continuos playback in order to switch the tracking servo ON and OFF, the message "SERVO ON" appears without displaying "CPLAY MODE" when the |MENU/NO| button is pressed to end the continuos playback mode.
   Also when the servo is turned off, the servo is turned on automatically, the message "SERVO ON" appears and then the mode ends afterward.
   To change the display "SERVO ON" to the normal "mode" display, press the |■| button.

4-5-2. Operating the Continuos Recording Mode (Use this mode for self record/playback check only)

1. Entering the continuos recording mode
   1) Load the recordable disc to the unit.
      The disc is loaded by pushing the tray.
   2) Rotate the ⟨◁◁AMS▷▷⟩ knob to display "CREC MODE" (C31).
   3) Press the ⟨YES⟩ button to change the display to "CREC MID".
   4) When access completes, the display changes the display to "CREC(☐☐☐☐)" and **REC** illuminates.
   Note : The value of the "☐" displayed on the screen indicates the address of the recorded position.

2. Changing the parts to be recorded
   1) Press the ⟨YES⟩ button during continuos playback to change the display as shown and move the played back part. **REC** disappears during moving.

      "CREC MID" → "CREC OUT" → "CREC IN"

   2) When access completes, the display changes to "CREC(☐☐☐☐)" and **REC** disappears.
   Note : The value of the "☐" displayed on the screen indicates the address of the recorded position.

3. Ending the continuos recording mode
   1) Press the ⟨MENU/NO⟩ button. The display changes to "CREC MODE" and **REC** disappears.
   2) To eject the disc, press the ⟨⏏⟩ button.
   Note 1: The playback start addresses for IN, MID, and OUT are as follows.
                 N   : 40h cluster
                 MID   : 300h cluster
                 OUT   : 700h cluster
   Note 2: The ⟨MENU/NO⟩ button can be used to stop recording anytime.
   Note 3: Do not perform continuos recording for long periods of time above 5 minutes.
   Note 4: During continuos recording, be careful not to apply vibration.

4-5-3. No-Volatile Memory Mode (EEP MODE)
This mode reads and writes the contents of the non-volatile memory.
It is not used in servicing. If selecting this mode accidentally, press the ⟨MENU/NO⟩ button immediately to exit it.

4-6. Functions of Other Buttons

Function name	Main contents
►	Sets continuos playback when pressed in the STOP state. When pressed during continuos playback, the tracking servo turns ON/OFF. *Note
■	Stops continuos playback and continuous recording
►►	The sled moves to the outer circumference only when this is pressed
◄◄	The sled moves to the inner circumstance only when this is pressed
SCROLL	Switches between the pit and groove modes when pressed
PLAY MODE	Switches the spindle servo mode (CLV S ↔ CLV A)
DISPLAY/CHAR	Switches the display when pressed
⏏/OPEN/CLOSE	Removes the disc
REPEAT	Exits test mode

Note : If the continuos playback mode ends with the tracking servo OFF, the tracking servo is automatically turned on.
       When the message "SERVO ON" appears at the end, press the ⟨■⟩ button to returns to the normal "mode" display.

4-7. Test Mode Displays

Each time the DISPLAY/CHAR button is pressed, the display changes in the following order.

1. MODE display
   Displays "TEMP CHECK", "CPLAY MODE", etc.
2. Error rate display
   Error rates are displayed as follows.
   C = □□□□ AD = □□
   C = Indicates CI error
   AD = Indicates ADER
3. Address display
   Addresses are displayed as follows.
   (MO: recordable disc, CD: disc for playback only)
   Every pressing of the SCROLL button toggles between the groove display
   and the pit display
   h = □□□□ s = □□□□ (MO pit and CD)
   h = □□□□ a = □□□□ (MO groove)
   h = : Indicates header address
   s = : Indicates SUBQ address
   a = : Indicates ADIP address
Note: The display "-" appears when the servo is not locked.
4. Auto gain display (not used in servicing)
   The auto gain display is shown as follows.
   AG=□□/□□ [□□
5. Detrack check display (not used in servicing)
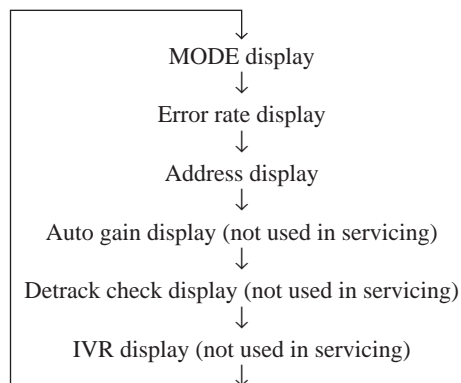   The detrack check display is shown as follows.
   ADR= □□□□□□□
6. IVR display (not used in servicing)
   The IVR display is shown as follows.
   [□□] [□□] [□□

```
            ↓
       MODE display
            ↓
     Error rate display
            ↓
      Address display
            ↓
 Auto gain display (not used in servicing)
            ↓
 Detrack check display (not used in servicing)
            ↓
   IVR display (not used in servicing)
            ↓
```

Meaning of Other Displays

Display	Contents	
	MODE display	Off
▷	During continuos playback (CLV: ON)	STOP (CLV:OFF)
‖	Tracking servo OFF	Tracking servo ON
REC	Recording mode OFF	Recording mode OFF
-SYNC	CLV low speed mode	CLV normal mode
A. SPACE	ABCD adjustment completed	
OVER	Tracking offset cancel ON	Tracking offset cancel OFF
B	Tracking auto gain OK	
A-	Focus auto gain OK	
TRACK	Pit	Groove
DISC	High reflection	Low reflection
SLEEP	CLV-S	CLV-A
CLOCK	CLV LOCK	CLV UNLOCK

SECTION 5
ELECTRICAL ADJUSTMENTS

5-1. On Part Replacement and Adjustment

- Perform the checks and adjustments of the MDM and MBU blocks following the procedure below .
 The procedure is changed depending on the replaced part.

• Abbreviation
OP   : Optical pick-up
OWH   : Overwrite head

```
                    ┌──────────────────────┐
                    │  • Temperature compensation
                    │     offset check
                    │  • Laser power check          OK
                    │  • Traverse check        ──────────►  The error occurs by other cause.
                    │  • Focus bias check                   Perform the mechanism check of
                    │  • C PLAY check                       the sled and spindle system, etc.
                    │  • Self record/playback check
                    └──────────────────────┘
                             │ NG
                             ▼
                    Part Replacement and repairing
                             │
                             ▼
                    OWH is replaced ?  ── YES ──┘
                             │ NO
                             ▼
                    Either OP, IC171, IC101, or
                    IC121 is replaced ?  ── NO ──┐
                             │ YES               │
                             ▼                   │
                    Initial setting of adjustment value
                             │                   │ NO
                             ▼                   │
                    OP or IC171 is replaced ? ── NO ──►
                             │ YES               │
                             ▼                   │
                    Recording the IOP information
                    (IOP value that is recorded in OP)
                             │                   │
                             ▼◄──────────────────┘
                    Either IC171 or D101 is replaced ? ── NO ──┐
                             │ YES                              │
                             ▼                                  │
                    Temperature compensation offset adjustment  │
                             │◄─────────────────────────────────┘
                             ▼
                    • Traverse adjustment
                    • Focus bias adjustment
                    • Error rate adjustment
                    • Auto gain adjustment
```

5-2. Precautions for Checking Laser Diode Emission

To check the emission of the laser diode during adjustments, never view directly from the top as this may lose your eye-sight.

5-3. Precautions for Use of Optical Pick-up (KMS-260B)

As the laser diode in the optical pick-up is easily damaged by static electricity, solder the laser tap on the flexible board of the optical pick-up when using it.

Before disconnecting the connector, disorder the laser tap. Be careful not to remove the solder before connecting the connector. Also take adequate measures to prevent damage by static electricity. Handle the flexible board with care as it breaks easily.
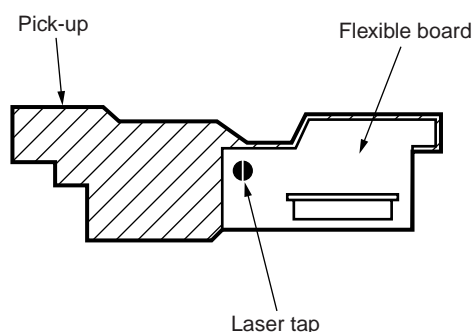
Optical pick-up flexible board

5-4. Precautions for Adjustments

1) When replacing the following parts, perform the adjustments and checks with !! in the order shown in the following table.

	Optical pick-up	BD board			
		IC171	D101	IC101, IC121	IC192
1. Initial setting of adjustment value	○	○	×	○	×
2. Recording IOP information (the value that is written in pick-up)	○	○	×	×	×
3. Temperature compensation offset adjustment	×	○	○	×	×
4. Laser power adjustment	○	○	×	○	○
5. Traverse adjustment	○	○	×	○	×
6. Focus bias adjustment	○	○	×	○	×
7. Error rate adjustment	○	○	×	○	×
8. Auto gain output level adjustment	○	○	×	○	×

2) Set the test mode when performing the adjustments.
   After completing the adjustments, exit the test mode.
   Perform the adjustments and checks in "Group S" of the test mode.
3) Perform the necessary adjustments only in the order given.
4) Use the following tools and measuring devices.
   • Check disc (MD) TDYS-1 (Parts No.: 4-963-646-01)
   • Test disc (MDW-74/AU-1) (Parts No.: 8-892-341-41)
   • Laser power meter LPM-8001 (Parts No.: J-2501-046-A)
   Or
   • MD laser power meter 8010S (Parts No.: J-2501-145-A) (Note)
   • Oscilloscope (Measure after perform the CAL of the probe.)
   • Digital voltmeter
   • Thermometer
   • Tool for checking waveform of BD board (Parts No.: J-2501-149-A)
5) When observing several signals on the oscilloscope, etc., make sure that VC and ground do not connect inside the oscilloscope. (VC and ground will become short-circuited.)
6 When checking the waveform, the check can be performed without soldering by using the tool for checking waveform of BD board.
   (Refer to the Service note (page 6).)
7) Use the tool disc that is free from finger print and dust as they can affect result of adjustment.

Note: Laser power meter
When the laser power check and adjustment of the electrical adjustment are performed, using the new MD laser power meter 8010S (J-2501-145-A) instead of the former laser power meter is recommended.
The procedure of installing the laser meter sensor to the objective lens of pickup is greatly simplified.

5-5. Creating Continuos Recorded Disc

- This disc is used in focus bias adjustment and error rate check. The following describes how to create a continuos recording disc.

1. Load a disc (blank disc) commercially available. the disc is loaded by pushing the tray.
2. Rotate the |◁◁AMS▷▷| knob and display "CREC MODE" (C31).
3. Press the YES button to display "CMEC MID". "CREC (0300)" is displayed for a moment and recording starts.
4. Complete recording within 5 minutes.
5. Press the MENU/NO button to stop recording.
6. Press the ⏏ button to eject the disc.

The above has been how to create a continuos recording data for the focus bias adjustment and error rate check.

Note:
- Be careful not to apply vibration during continuos recording.

5-6. Check before Repairing

This check aims at locating the approximate position of cause of trouble before starting to replace parts using specifications.
For detailed information, refer to [Checks before Part Replacement and Adjustment] of Service note (page 9).

5-6-1. Temperature Compensation Offset Check

Before adjustment, set the internal temperature and the ambient temperature are between 22 and 28 °C.
Checking procedure:
1. Rotate the |◁◁AMS▷▷| knob to display "TEMP CHECK" (C01).
2. Press the YES button.
3. It is OK when "T=@@(##)[OK" appears. It is NG when "T=@@(##)[NG" appears. (@@ is the current value. ## is the value that is written in the non-volatile memory.)

5-6-2. Laser Power Check

Before check:
- Refer to Section 1 "Service note" How to open the disc tray when power switch is turned off, and laser power check.
- Check the IOP value of optical pick-up. (Refer to Section 5-8 "Recording and displaying IOP information".)

Connection:
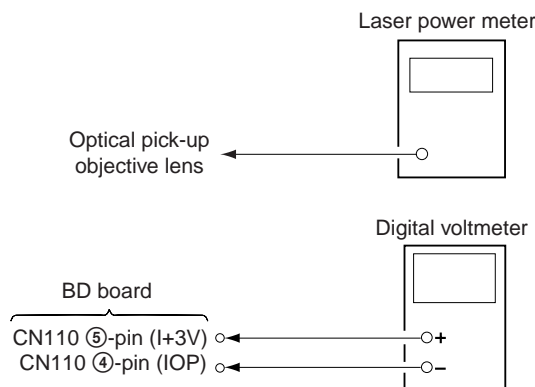
Checking procedure:
1. Insert the laser power meter from the disc inlet and set it on the objective lens of the optical pick-up. (When it cannot be set properly, press the ◀◀ button and ▶▶ button to move the optical pick-up.)
   Connect the digital voltmeter to CN110 ⑤-pin (I+3V) and the CN110 ④-pin (IOP).
2. Rotate the |◁◁AMS▷▷| knob to display "LDPWR CHECK" (C02).
3. Press the YES button once to display "LD 0.9mW $□□".
   Confirm that the reading of the laser power meter is 0.84 to 0.92 mW.
4. Press the YES button once again to display "LD 7.0mW $□□".
   Confirm that the readings of the laser power meter and digital bolt meter satisfy the specified value.

Specification:
Laser power meter reading: 7.0 +/- 0.2 mW
Digital bolt meter reading: Optical pick-up displayed value +/- 10 %

(Optical pick-up label)
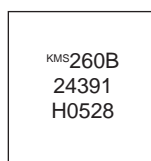
(For the checking procedure of this value, refer to Section 5-8 "Recording and displaying IOP information".)

IOP = 52.8 mA in this case
IOP (mA) = digital bolt meter reading (mV)/1 (W)

5. Press the MENU/NO button to display "LDPWR CHECK" and stop laser emission.
   (The MENU/NO button is effective at all times to stop the laser emission.)

Note 1 : After step 4, the display of "LD 0.7mW$□□" "LD 6.2mW$□□", "LD WPcorrection $□□" is switched every time when pressing the YES button. Operation is not necessary for these displays.

5-6-3. Traverse Check

Note 1 : If the recorded disc is used for this adjustment, the data is deleted. **Note 2** : If the traverse waveform is not clear, connect the oscilloscope as shown below so that it can be seen more clearly.

Oscilloscope (DC range)

BD board

CN110 ③-pin (TEO)

CN110 ①-pin (VC)

330kΩ

10pF

Connection:

Oscilloscope (DC range)

BD board

CN110 ③-pin (TEO)

CN110 ①-pin (VC)

$\left(\begin{array}{l} V : 0.5V/div \\ H : 10ms/div \end{array}\right)$
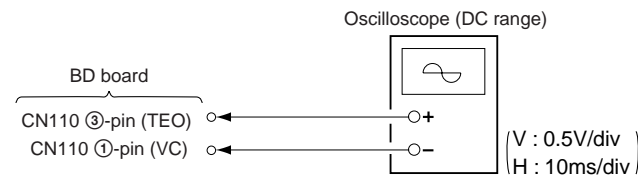
Checking procedure:

1. Connect the oscilloscope to the CN110 ③-pin (TEO) and the CN110 ①-pin (VC) of the BD board.
2. Load a recordable disc (any available on the market). (Refer to Note 1.)
   The disc is loaded by pushing the tray.
3. Press the ▶▶ button to move the optical pick-up outside the pit.
4. Rotate the ⏮◁AMS▷⏭ knob to display "EF MO CHECK" (C03).
5. Press the YES button to display "EFB = □□MO-R".
   (Laser power READ power, focus servo ON, tracking servo OFF, and spindle (S) servo ON are set)
6. Observe the waveform of the oscilloscope and confirm it is within the specified value. Do not rotate the ⏮◁AMS▷⏭ knob at that time.
   (Read power traverse check)

(Traverse Waveform)

VC

A

B

Specification: Offset value 10% or less

Offset value % = $\dfrac{|AB|}{2(A+B)} \times 100$
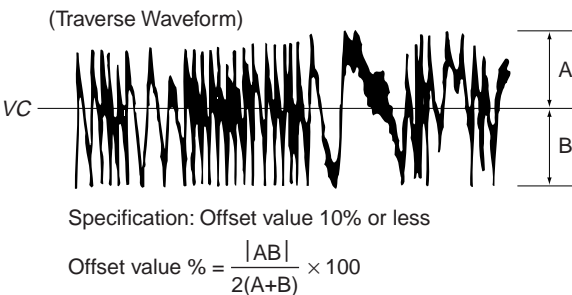
7. Press the YES button to display "EFB = □□MO-W".

8. Observe the waveform of the oscilloscope and confirm it that is within the specified value. Do not rotate the ⏮◁AMS▷⏭ knob at this time.
   (Write power traverse check)

(Traverse Waveform)

VC

A

B

Specification: Offset value 10% or less

Offset value % = $\dfrac{|AB|}{2(A+B)} \times 100$
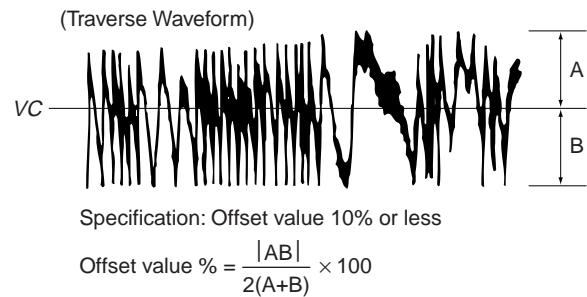
9. Press the YES button to display "EFB = □□MO-P". The optical pick-up moves to the internal circumference of the pit area automatically and servo is imposed.
10. Observe the waveform of the oscilloscope and confirm that it is within the specified value. Do not rotate the ⏮◁AMS▷⏭ knob at this time.

(Traverse Waveform)

VC

A

B

Specification: Offset value 10% or less

Offset value % = $\dfrac{|AB|}{2(A+B)} \times 100$
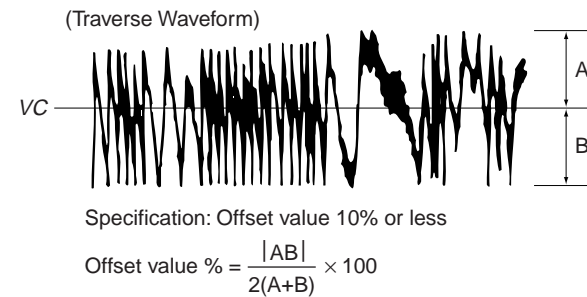
11. Press the YES button to display "EF MO CHECK". The disc stops rotating automatically.
12. Press the ⏏ button to eject the disc.
13. Load the check disc (MD) TDYS-1.
14. Rotate the ⏮◁AMS▷⏭ knob to display "EF CD CHECK" (04).
15. Press the YES button to display "EFB = □□CD". The servo is imposed automatically.
16. Observe the waveform of the oscilloscope and confirm that it is within the specified value. Do not rotate the ⏮◁AMS▷⏭ knob at this time.

(Traverse Waveform)

VC

A

B

Specification: Offset value 10% or less

Offset value % = $\dfrac{|AB|}{2(A+B)} \times 100$
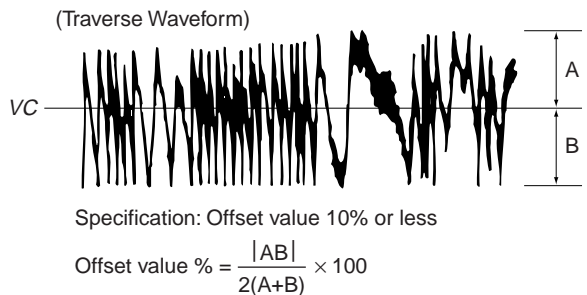
17. Press the YES button to display "EF CD CHECK".
18. Press the ⏏ button to eject the check disc (MD) TDYS-1.

5-6-4. Focus Bias Check

Change the focus bias to check the focus tolerance amount.

Checking procedure:
1. Load the test disc (MDW-74/AU-1).
   The disc is loaded by pushing the tray.
2. Rotate the ⏮◁AMS▷⏭ knob to display "CPLAY MODE" (C30).
3. Press the YES button to display "CPLAY MID".
4. After "C = ☐☐☐☐ AD = ☐☐" appears, press the MENU/NO button.
5. Rotate the ⏮◁AMS▷⏭ knob to display "FBIAS CHECK" (C05).
6. Press the YES button to display " ☐☐☐☐ / ☐☐ c = ☐☐ ".
   The first four digits indicate the C1 error rate, the two digits after "/" indicate ADER, and the two digits after "c = " indicate the focus bias amount.
   Confirm that the C1 error is below 220 and the ADER is below 2.
7. Press the YES button to change the display to "☐☐☐☐ / ☐☐b = ☐☐ ".
   Confirm that the C1 error is below 220 and the ADER is below 2.
8. Press the YES button to change the display to "☐☐☐☐ / ☐☐a = ☐☐ ".
   Confirm that the C1 error is below 220 and the ADER is below 2.
9. Press the MENU/NO button and press the ⏏ button to eject the test disc.

5-6-5. C PLAY Check

MO rate check
Checking procedure:
1. Load a test disc (MDW-74/AU-1).
   The disc is loaded by pushing the tray.
2. Rotate the ⏮◁AMS▷⏭ knob to display "CPLAY MODE" (C30).
3. Press the YES button to display "CPLAY MID".
4. The display is changed to "C = ☐☐☐☐ AD = ☐☐".
5. Confirm that the C1 error rate is below 80 and the ADER is below 2.
6. Press the MENU/NO button to stop playing back. Press the ⏏ button to eject the test disc.

MO rate check
Checking procedure:
1. Load a check disc (TDYS-1).
   The disc is loaded by pushing the tray.
2. Rotate the ⏮◁AMS▷⏭ knob to display "CPLAY MODE" (C30).
3. Press the YES button to display "CPLAY MID".
4. The display is changed to "C = ☐☐☐☐ AD = ☐☐".
5. Confirm that the C1 error rate is below 50.
6. Press the MENU/NO button to stop playing back. Press the ⏏ button to eject the check disc.

5-6-6. Self Record/Playback Check

• The error rate is checked using the self record/playback disc. Manufacture the self record/playback disc by user locally using the MDS-JA555ES that is going to be measured of its error rate by means of continuous recording.

Checking procedure:
1. Load a recordable disc (blank disc) into the unit.
   The disc is loaded by pushing the tray.
2. Rotate the ⏮◁AMS▷⏭ knob to display "CREC MODE" (C31).
3. Press the YES button to display "CPLAY MID".
4. When recording starts, the message **REC** appears and the message changed to "CREC (@@@@" (@@@@ is an address) and recording starts.
5. After one minute, press the MENU/NO button to stop continuos recording.
6. Rotate the ⏮◁AMS▷⏭ knob to display "CREC MODE" (C30).
7. Press the YES button to display "CPLAY MID".
8. Display "C = ☐☐☐☐ AD = ☐☐".
9. Confirm that the C1 error rate is below 80 and the AD error rate is below 2.
10. Press the MENU/NO button to stop playing back. Press the ⏏ button to eject the check disc.

5-7. Returning to Initial Setup of Adjustment Value

Note:
The adjustment result that is stored in the non-volatile memory is all cleared and returned to the initial setup value when procedure is performed. However, the adjustment result of the temperature compensation offset adjustment remains unchanged.
When this procedure is performed, be sure to perform all adjustments from very beginning to the end again except the temperature compensation offset adjustment. Perform this procedure as necessary before starting adjustment referring to section "5-4. Precautions for Adjustments".

Setting procedure:
1. Rotate the ⏮◁AMS▷⏭ knob to display "ADJ CLEAR" (C24).
2. After pressing the YES button, "Complete!" appears for a moment and the initial setting is started. Then, "ADJ CLEAR" appears.

5-8. Recording and Displaying the IOP Information

The IOP data that is indicated on the pickup, can be saved in the non-volatile memory of the MDS-JA555ES. The IOP data that is printed on the optical pickup and the IOP data after adjustment is completed can be saved in the memory. Saving the IOP data in the memory eliminates the needs to look at the printed value on the label that is attached on the surface of optical pick, and enables to view the IOP data on display.

Recording procedure:
1. Rotate the |◁◁AMS▷▷| knob to display "Iop Write" (C28). Press the YES button.
2. "Ref=@@@.@" (@ is arbitrary number.) appears and the values that can be changed flash.
5. Input the value of IOP that is written in the optical pick-up.
   Selecting figure: Rotate the |◁◁AMS▷▷| knob.
   Selecting digit : Press the |◁◁AMS▷▷| knob.
6. Press the YES button and "Measu=@@@.@" (@ is arbitrary number.) appears.
7. The value of step 4 is used to record the adjustment result, so press the YES button.
8. "Complete!" appears for a moment, and the value is recorded in the non-volatile memory. Then, "Iop Write" appears.

Displaying procedure:
1. Rotate the |◁◁AMS▷▷| knob to display "Iop Write" (C27) and press the YES button.
4. "@@.@/##.#" appears and the contents that is recorded are displayed.
   @@.@: The value of IOP that is described in pick-up
   ##.#: The value of IOP after adjustment
5. When the display is completed, press the |◁◁AMS▷▷| knob or MENU/NO button to display "Iop Read".

5-9. Temperature Compensation Offset Adjustment

The temperature data at 25°C is used as the reference data and is saved in the non-volatile memory for offset adjustment.

Note.
1. Do not perform this adjustment normally.
2. Perform this adjustment under the ambient temperature in the range of 22 to 28 °C. Perform this adjustment immediately after the main power is turned on in which the internal temperature of MDS-JA555ES is still the same as the ambient temperature.
3. After replacing the D101, wait the until the temperature of the parts become the same as the ambient temperature and perform this adjustment.

Checking procedure:
1. Rotate the |◁◁AMS▷▷| knob to display "TEMP CHECK" (C09).
2. Press the YES button and select the "TEMP ADJUS" mode.
3. "TEMP=☐☐[OK" and the current temperature data appear.
4. When the data is saved: Press the YES button
   When the data is not saved: Press the MENU/NO button
5. When the YES button is pressed, "TEMP = ☐☐SAVE" and "TEMP ADJUST" appear.
   When the MENU/NO button is pressed, the display is changed to "TEMP ADJUD" immediately.

Specified value:
The value of TEMP = ☐☐ is within E0 to EF, F0 to FF, 00 to 0F, 10 to 1F, and 20 to 2F.

5-10. Laser Power Adjustment

Before adjustment:
Confirm the IOP value of optical pick-up. (Refer to Section 5-8 "Recording and displaying the IOP information".)

Connection:
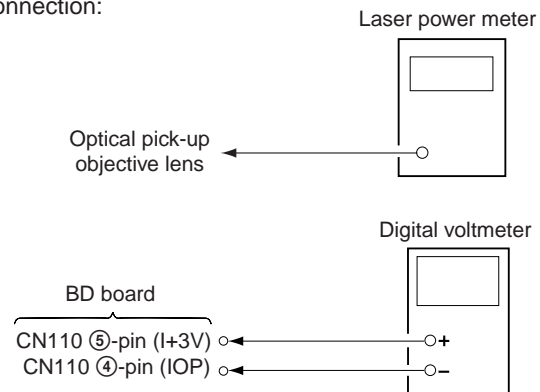
Adjustment procedure:
1. Insert the laser power meter from the disc inlet and set it on the objective lens of the optical pick-up. (When it cannot be set properly, press the ◀◀ button and ▶▶ button to move the optical pick-up.)
Connect the digital voltmeter to CN110 ⑤-pin (I+3V) and the CN110 ④-pin (IOP).

30

2. Rotate the ⎹⎺◁◁AMS▷▷⎹ knob to display "LDPWR CHECK" (C10).
   (laser power: for adjustment)
3. Press the YES button once to display "LD 0.9mW $ ☐☐ ".
4. Set the lens knob of the laser power meter to 10 mW, press the YES button, and save the adjustment results in the non-volatile memory. ("LD SAVE $ ☐☐ " appears for a moment at this time.)
5. "LD 7.0mW $☐☐ " is displayed.
6. Rotate the ⎹⎺◁◁AMS▷▷⎹ knob so that the reading of the laser power meter is 6.9 to 7.1 mW. Press the YES button and save it. ("LD SAVE $ ☐☐" appears for a moment at this time.)
   Note: Do not perform the emission of 7.0 mW continuously for 15 seconds and more.
7. Rotate the ⎹⎺◁◁AMS▷▷⎹ knob to display "LDPWR CHECK" (C02).
8. Press the YES button once to display "LD 0.9mW $☐☐ ".
   The reading of laser power meter is 0.85 to 0.91 mW.
9. Press the YES button once to display "LD 7.0mW $☐☐".
   The reading of laser power meter is within the specified value. Take note of the digital bolt mater reading.

(Optical pick-up label)
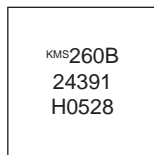
KMS260B
24391
H0528

(For the checking procedure of this value, refer to Section 5-8 "Recording and displaying IOP information".)

IOP = 52.8 mA in this case
IOP (mA) = digital bolt meter reading (mV)/1 (W)

10. Press the MENU/NO button to display "LDPWR CHECK" and stop laser emission.
    (The MENU/NO button is effective at all times to stop the laser emission.)
11. Rotate the ⎹⎺◁◁AMS▷▷⎹ knob to display "lop Write" (C28).
12. Press the YES button and after "Ref=@@@.@" (@ is arbitrary number.) appears press the YES button to display "Measu=@@@.@". (@ is arbitrary number.)
13. The changeable value flashes. Input the IOP value that is written at step 9.
    Selecting figure : Rotate the ⎹⎺◁◁AMS▷▷⎹ knob.
    Selecting digit : Press the ⎹⎺◁◁AMS▷▷⎹ knob.
14. After pressing the YES button, "Complete!" appears for a moment, and the value is recorded in the non-volatile memory. Then, "Iop Write" appears.

Note 1: After step 9, the display of "LD 0.7mW$ ☐☐ " "LD 6.2mW$ ☐☐ ", "LC WPcorrection $ ☐☐ " is switched every time when pressing the YES button. Operation is not necessary for these displays.

5-11. Traverse Adjustment

Note1: If the recorded disc is used for this adjustment, the data is deleted.
Note2: If the traverse waveform is not clear, connect the oscilloscope as shown below so that it can be seen more clearly.

Oscilloscope (DC range)
BD board
CN110 ③-pin (TEO)
CN110 ①-pin (VC)
330kΩ
10pF

Oscilloscope (DC range)
BD board
CN110 ③-pin (TEO)
CN110 ①-pin (VC)
(V : 0.5V/div
H : 10ms/div)
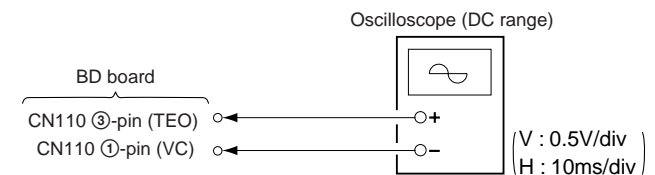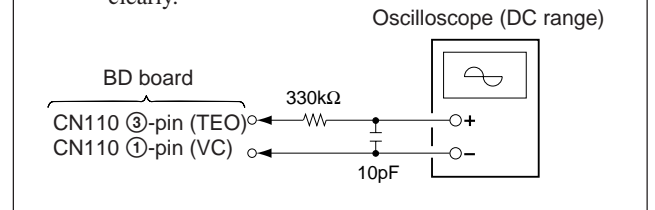
Adjustment procedure:
1. Connect the oscilloscope to the CN110 ③-pin (TEO) and the CN110 ①-pin (VC) of the BD board.
2. Load a recordable disc (any available on the market). (Refer to Note 1.)
   The disc is loaded by pushing the tray.
3. Press the ▶▶ button to move the optical pick-up outside the pit.
4. Rotate the ⎹⎺◁◁AMS▷▷⎹ knob to display "EF MO ADJUS" (C11).
5. Press the YES button to display "EFB = ☐☐ MO-R".
   (Laser power READ power, focus servo ON, tracking servo OFF, and spindle (S) servo ON are set)
6. Rotate the ⎹⎺◁◁AMS▷▷⎹ knob so that the waveform of the oscilloscope is the specified value. (The figure ☐☐ of the " EFB = ☐☐ " and the waveform are changed by rotating the ⎹⎺◁◁AMS▷▷⎹ knob.) In this adjustment. the waveform varies at intervals of approx. 2%. Adjust the waveform so that the specified value is satisfied as much as possible.
   (Read power traverse adjustment)
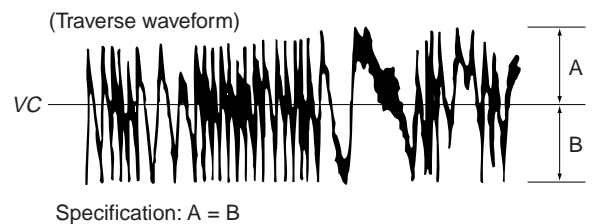
(Traverse waveform)

VC
A
B
Specification: A = B

7. Press the YES button to save the adjustment results in the non-volatile memory. (At this time "EFB = ☐☐ SAV" is displayed for a moment, and then "EFB = ☐☐ MO-W" is displayed.)

8. Rotate the ⏮◁AMS▷⏭ knob so that the waveform of the oscilloscope is the specified value. (The figure □□ of the " EFB = □□ " and the waveform are changed by rotating the ⏮◁AMS▷⏭ knob.) In this adjustment. the waveform varies at intervals of approx. 2%. Adjust the waveform so that the specified value is satisfied as much as possible.
(Write power traverse adjustment)

(Traverse waveform)

Specification: A = B
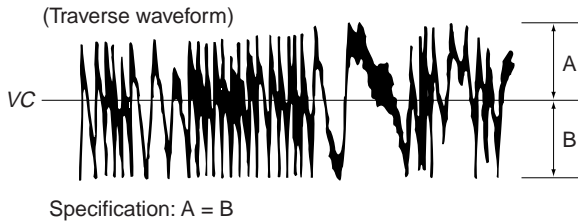
9. Press the YES button to save the adjustment results in the non-volatile memory. (At this time "EFB = □□ SAV" is displayed for a moment)
10. "EFB = MO-P" appears and the optical pick-up moves to the internal circumference of the pit area automatically and servo is imposed.
11. Rotate the ⏮◁AMS▷⏭ knob so that the waveform of the oscilloscope moves closer to the specified value.
In this adjustment. the waveform varies at intervals of approx. 2%. Adjust the waveform so that the specified value is satisfied as much as possible.
(Write power traverse adjustment)

(Traverse waveform)

Specification: A = B
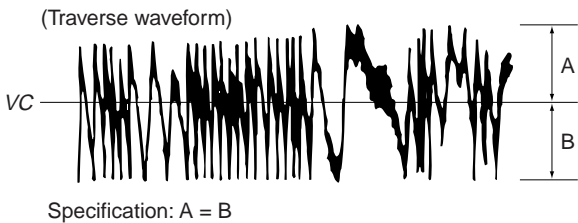
12. Press the YES button to save the adjustment results in the non-volatile memory. (At this time "EFB = □□ SAV" is displayed for a moment)
Then, "EF MO ADJUS" appears and the disc stops rotating automatically.
13. Press the ⏏ button to eject the disc.
14. Load a check disc (TDYS-1).
The disc is loaded by pushing the tray.
15. Rotate the ⏮◁AMS▷⏭ knob to display "EF CD ADJUS" (C12).
16. Press the YES button to display "EFB = □□CD". The servo is imposed automatically.
17. Rotate the ⏮◁AMS▷⏭ knob so that the waveform of the oscilloscope makes closer to the specified value.
In this adjustment. the waveform varies at intervals of approx. 2%. Adjust the waveform so that the specified value is satisfied as much as possible.

(Traverse waveform)

Specification: A = B
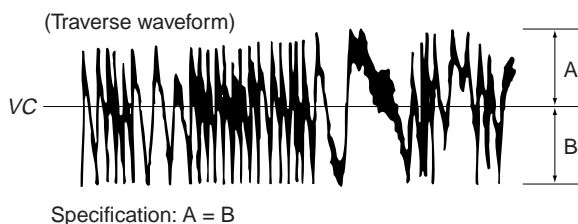
18. Press the YES button to save the adjustment results in the non-volatile memory. (At this time "EFB = □□ SAV" is displayed for a moment)
Then, "EF CD ADJUS" appears and the disc stops rotating automatically.
19. Press the ⏏ button to eject the check disc.

5-12. Focus Bias Adjustment
Adjustment procedure:
1. Load the test disc (MDW-74/AU-1).
The disc is loaded by pushing the tray.
2. Rotate the ⏮◁AMS▷⏭ knob to display "CPLAY MODE" (C30).
3. Press the YES button to display "CPLAY MID".
4. After "C = □□□□ AD = □□" appears, press the MENU/NO button.
5. Rotate the ⏮◁AMS▷⏭ knob to display "FBIAS CHECK" (C13).
6. Press the YES button to display " □□□□ / □□ a = □□".
The first four digits indicate the C1 error rate, the two digits after "/" indicate ADER, and the two digits after "a = " indicate the focus bias amount.
7. Rotate the ⏮◁AMS▷⏭ knob in the clockwise direction and find the focus bias amount at which the C1 error rate becomes approx. 200. (Refer to Note 2.)
8. Press the YES button to display " □□□□ / □□ b =□□ ".
9. Rotate the ⏮◁AMS▷⏭ knob in the counterclockwise direction and find the focus bias amount at which the C1 error rate becomes approx. 200. (Refer to Note 2.)
Adjust the ⏮◁AMS▷⏭ knob so that the C1 error rate becomes almost same value as the value set in step 7.
10. Press the YES button to display " □□□□ / □□ c = □□".
11. Confirm that the C1 error rate is below 50 and the ADER is 00 and press the YES button.
12. If "(□□)" of "□□ - □□ (□□)" is above 20, press the YES button.
If it is below 20, press the MENU/NO button and perform the adjustment from the step 2 again.
13. Press the ⏏ button to eject the test disc.
Note 1: The relation between the C1 error and focus bias is as shown in the following figure. Find points a and b in the following figure using the above adjustment. The focal point position C is automatically calculated from points a and b.
Note 2: As the C1 error rate changes, perform the adjustment using the average value.
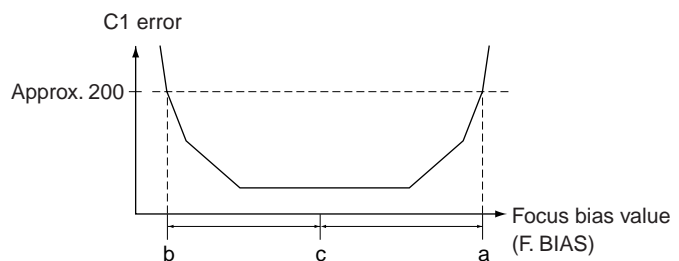
5-13. Error Rate Check
5-13-1. CD Error Rate Check
Checking procedure:
1. Load a check disc (TDYS-1).
   The disc is loaded by pushing the tray.
2. Rotate the |◁◁AMS▷▷| knob to display "CPLAY MODE" (C30).
3. Press the YES button to display "CPLAY MID".
4. The display is changed to "C = ☐☐☐☐AD = ☐☐".
5. Confirm that the C1 error rate is below 20.
6. Press the MENU/NO button to stop playing back, and press the ⏏ button to eject the check disc.

5-13-2. MO Error Rate Check
Checking procedure:
1. Load a test disc (MDW-74/AU-1).
   The disc is loaded by pushing the tray.
2. Rotate the |◁◁AMS▷▷| knob to display "CPLAY MODE" (C30).
3. Press the YES button to display "CPLAY MID".
4. The display is changed to "C = ☐☐☐☐AD = ☐☐".
5. Confirm that the C1 error rate is below 50 and the ADER is below 2.
6. Press the MENU/NO button to stop playing back, and press the ⏏ button to eject the test disc.

5-14. Focus Bias Check
Change the focus bias to check the focus tolerance amount.

Checking procedure:
1. Load the test disc (MDW-74/AU-1).
   The disc is loaded by pushing the tray.
2. Rotate the |◁◁AMS▷▷| knob to display "CPLAY MODE" (C30).
3. Press the YES button to display "CPLAY MID".
4. After "C = ☐☐☐☐AD =☐☐" appears, press the MENU/NO button.
5. Rotate the |◁◁AMS▷▷| knob to display "FBIAS CHECK" (C05).
6. Press the YES button to display "☐☐☐☐/☐☐c = ☐☐".
   The first four digits indicate the C1 error rate, the two digits after "/" indicate ADER, and the two digits after "c = " indicate the focus bias amount.
   Confirm that the C1 error is below 50 and the ADER is below 2.
7. Press the YES button to change the display to "☐☐☐☐ / ☐☐ b = ☐☐".
   Confirm that the C1 error is below 200 and the ADER is below 2.
8. Press the YES button to change the display to "☐☐☐☐ / ☐☐ a = ☐☐".
   Confirm that the C1 error is below 200 and the ADER is below 2.

9. Press the MENU/NO button and press the ⏏ button to eject the test disc.

Note 1 : If the C1 error and ADER are out of the specified value at points a (step 8) or b (step 7), the focus bias adjustment may not have been carried out properly. Perform the adjustment from the beginning again.

5-15. Auto Gain Control Output Level Adjustment
Be sure to perform this adjustment when optical pickup is replaced. When result of adjustment ends with the message "Adjust NG!", the optical pickup may be defective. Perform the adjustment again.

5-15-1. CD Auto Gain Control Output Level Adjustment
Adjustment procedure:
1. Load the test disc (TDYS-1).
   The disc is loaded by pushing the tray.
2. Rotate the |◁◁AMS▷▷| knob to display "AG Set (CD)" (C26).
3. Press the YES button to start automatic adjustment. After the adjustment results are saved in the non-volatile memory and "Complete!" appears, the display is changed to "AG Set (CD) and the adjustments are completed.
4. Press the MENU/NO button and press the !! button to eject the check disc.

5-15-2. MO Auto Gain Control Output Level Adjustment
Adjustment procedure:
1. Load the test disc (MDW-74/AU-1).
   The disc is loaded by pushing the tray.
2. Rotate the |◁◁AMS▷▷| knob to display "AG Set (MO)" (C25).
3. Press the YES button to start automatic adjustment. After the adjustment results are saved in the non-volatile memory and "Complete!" appears, the display is changed to "AG Set (MO) and the adjustments are completed.
4. Press the MENU/NO button and press the ⏏ button to eject the check disc.

5-16. Adjusting Points and Connecting Points

[BD BOARD] (SIDE A)
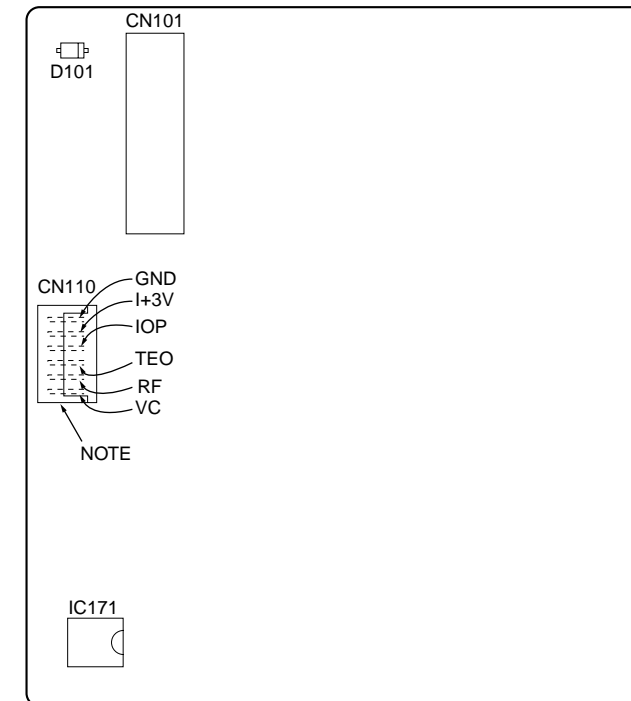
Note: It is recommended to use the tool for BD board waveform check when the waveform is checked.
(Refer to page 7 of Service note.)

[BD BOARD] (SIDE B)
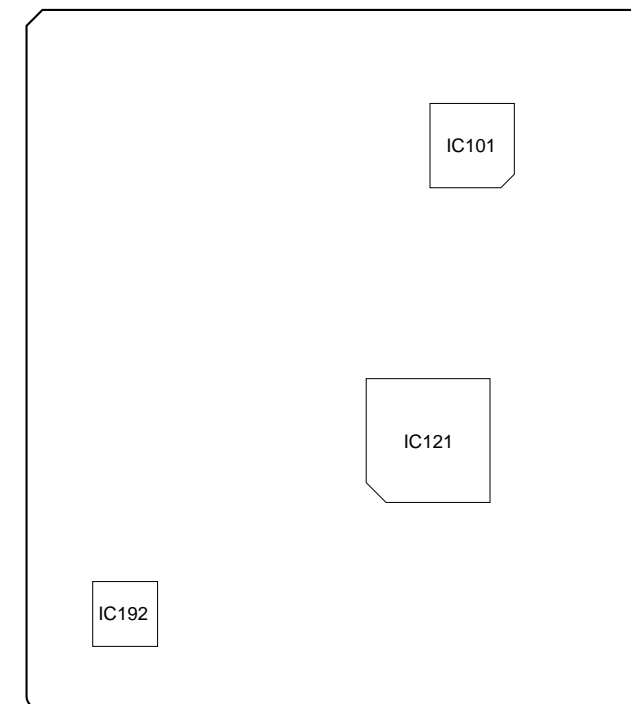
SECTION 6
DIAGRAMS

6-1. BLOCK DIAGRAMS
BD SECTION
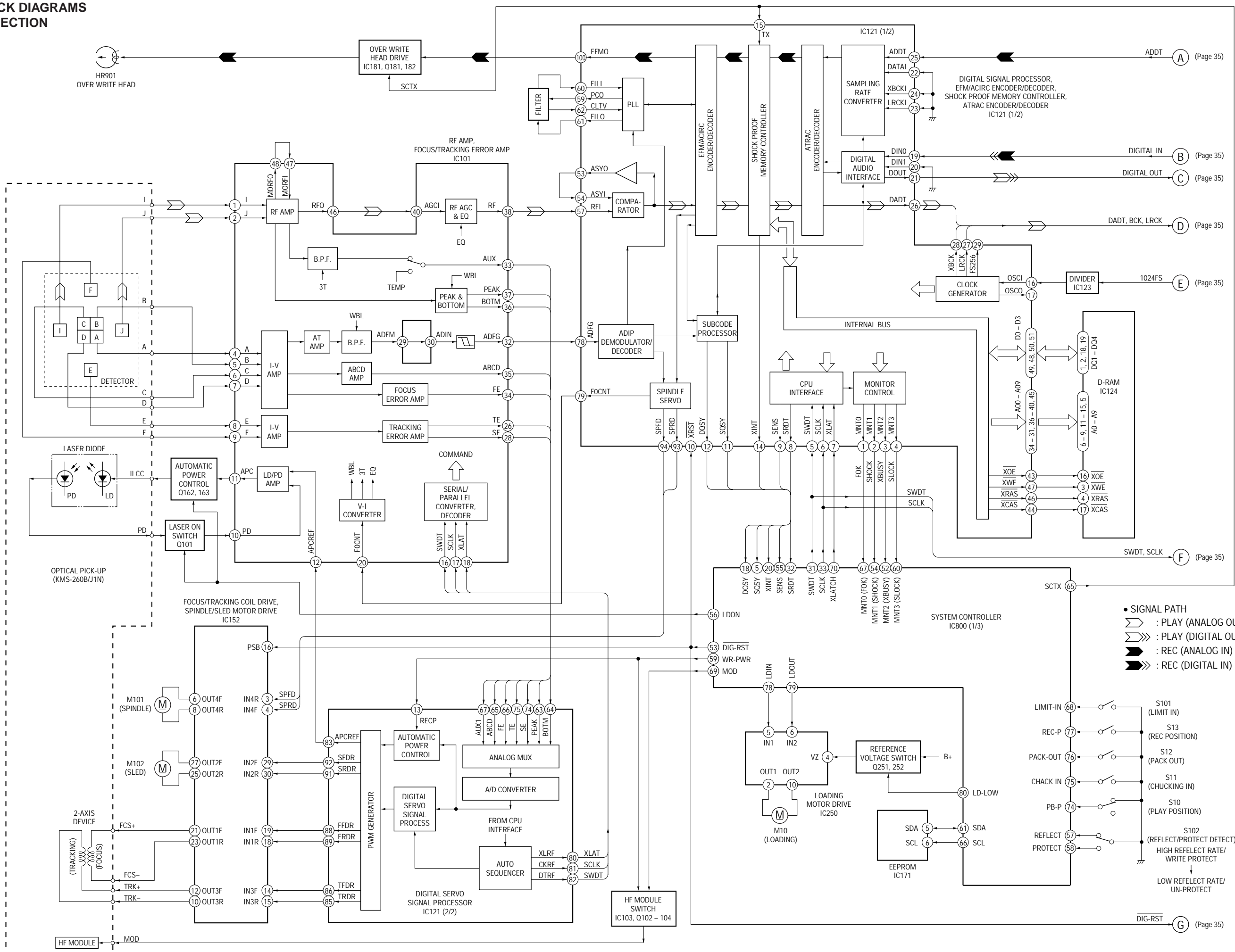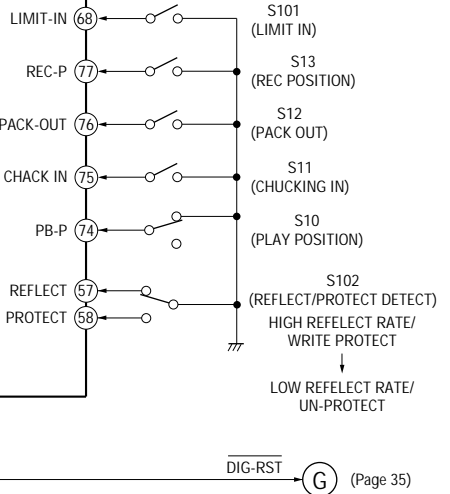
MAIN SECTION

MDS-JA555ES
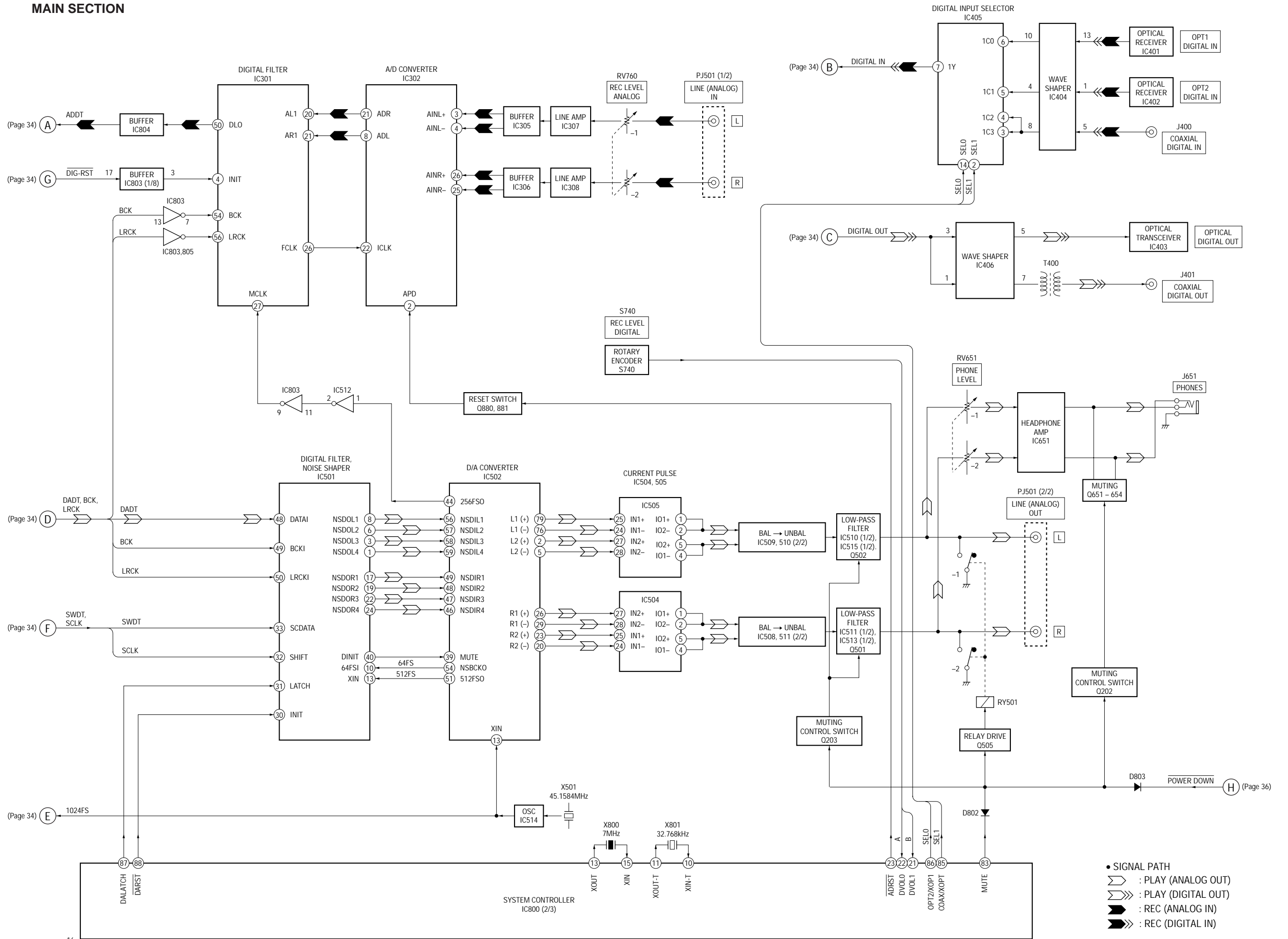
DISPLAY/POWER SUPPLY SECTION

(Page 35)
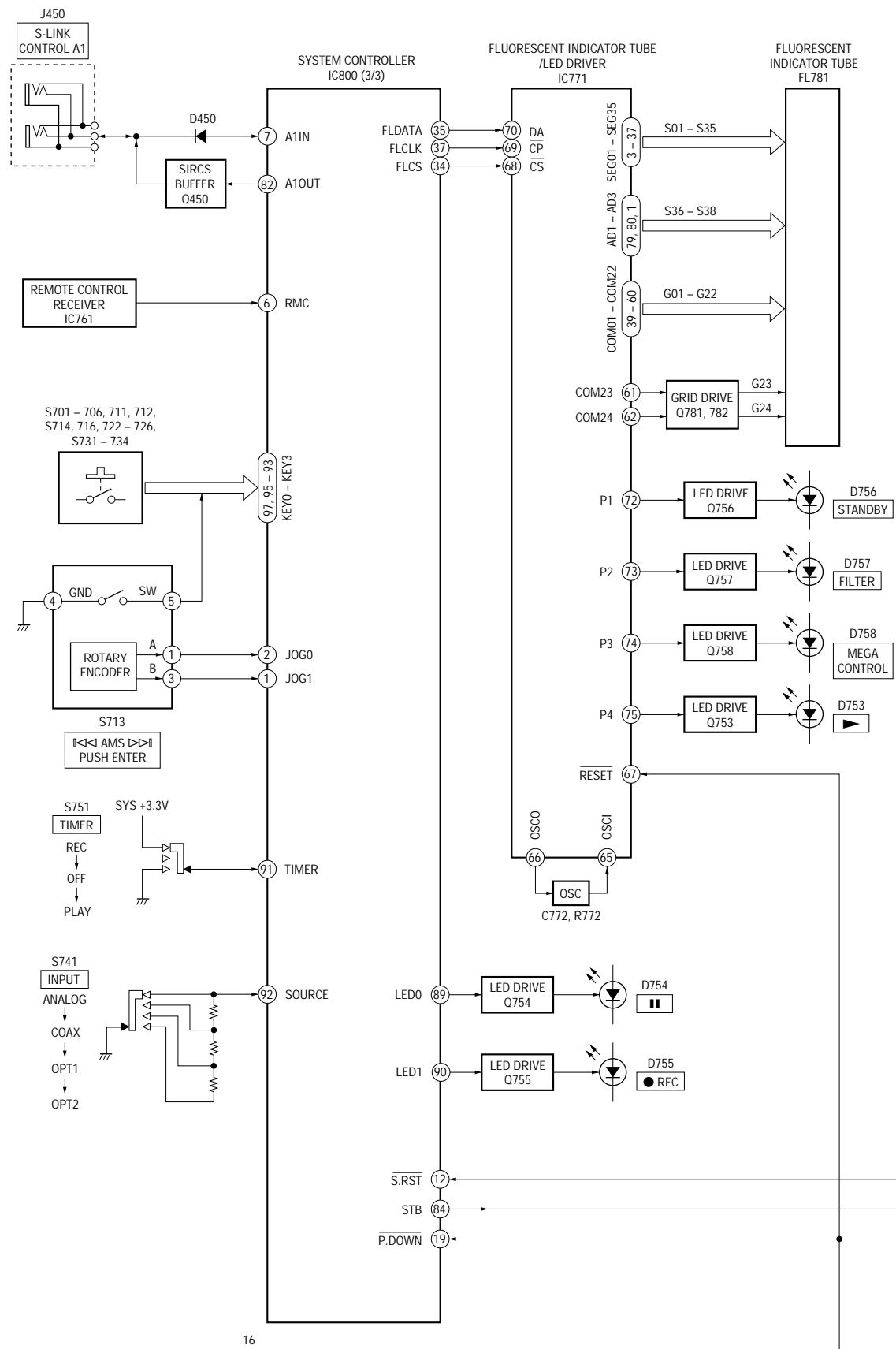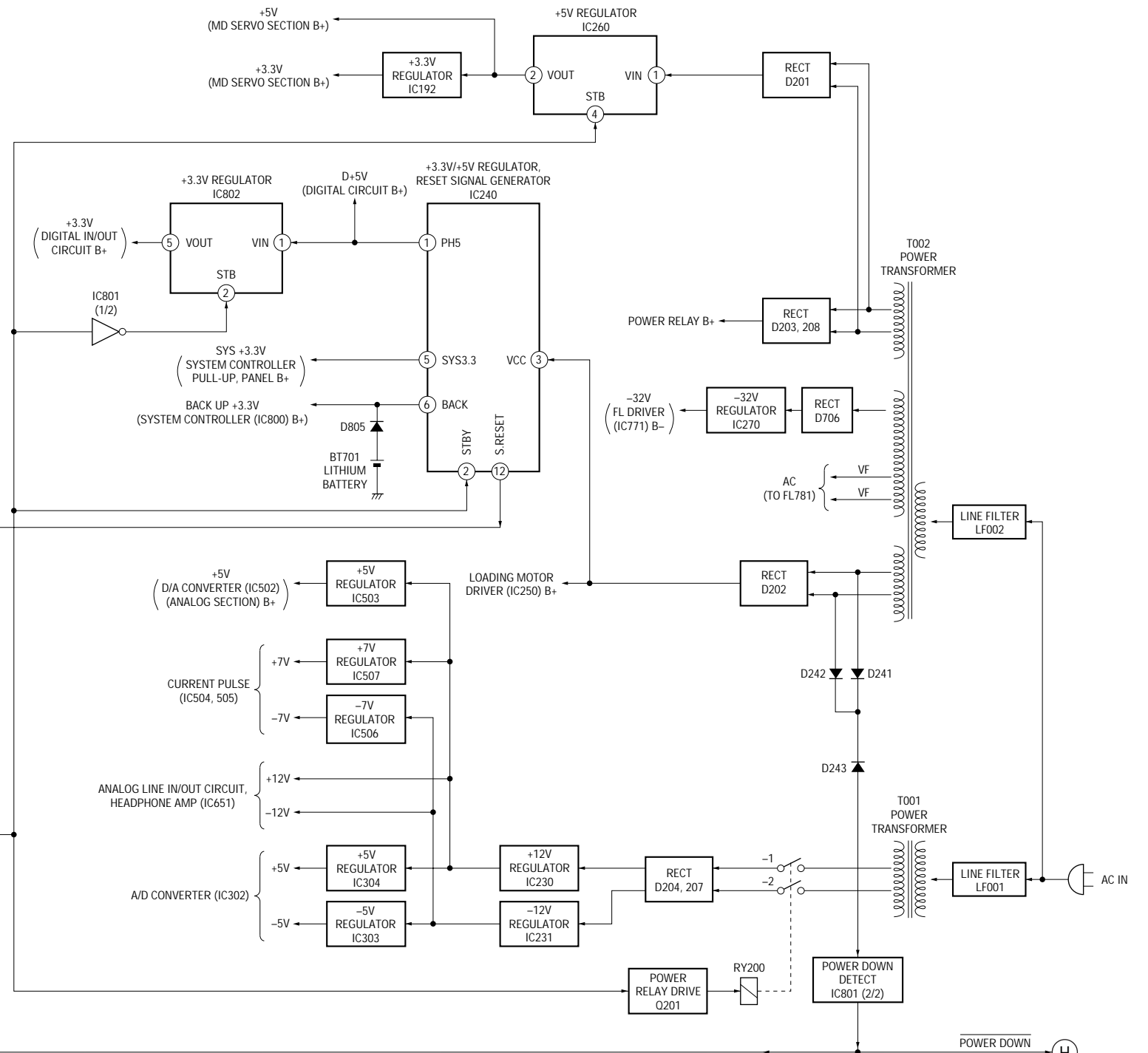
THIS NOTE IS COMMON FOR PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS.
(In addition to this, the necessary note is printed in each block.)

Note on Schematic Diagram:
• All capacitors are in µF unless otherwise noted. pF: µµF
  50 WV or less are not indicated except for electrolytics
  and tantalums.
• All resistors are in Ω and $^1/_4$ W or less unless otherwise
  specified.
• ⬭ : internal component.
• ⌇ : nonflammable resistor.
• ⌇ : fusible resistor.
• ☐ : panel designation.

Note:	Note:
The components identi-fied by mark ⚠ or dotted line with mark ⚠ are criti-cal for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une piéce portant le numéro spécifié.

• $\boxed{B +}$: B+ Line.
• $\boxed{B -}$: B– Line.
• Voltages are taken with a VOM (Input impedance 10 MΩ).
  Voltage variations may be noted due to normal produc-
  tion tolerances.
• Waveforms are taken with a oscilloscope.
  Voltage variations may be noted due to normal produc-
  tion tolerances.
• Signal path.
  ⟫ : PB
  ▶ : REC
  ⟫⟫ : PB (DIGITAL)
  ▶⟫ : REC (DIGITAL)

Note on Printed Wiring Boards:
• ○— : parts extracted from the component side.
• — : parts extracted from the conductor side.
• ▦ : Pattern from the side which enables seeing.
(The other layers' patterns are not indicated.)

Caution:	
Pattern face side: (Conductor Side)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Component Side)	Parts on the parts face side seen from the parts face are indicated.

• Indication of transistor.

These are omitted.
C
Q
B E

Q
B C E
These are omitted.

6-2. CIRCUIT BOARD LOCATION

AC board
BD board
DIGITAL board
MOTOR board
PW board
PSW board
PJ board
AD board
HP board
DA board
BT board
FL board
OUT SWITCH board
POSITION SWITCH board
REC board

37   37
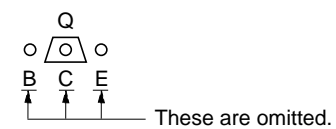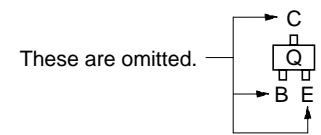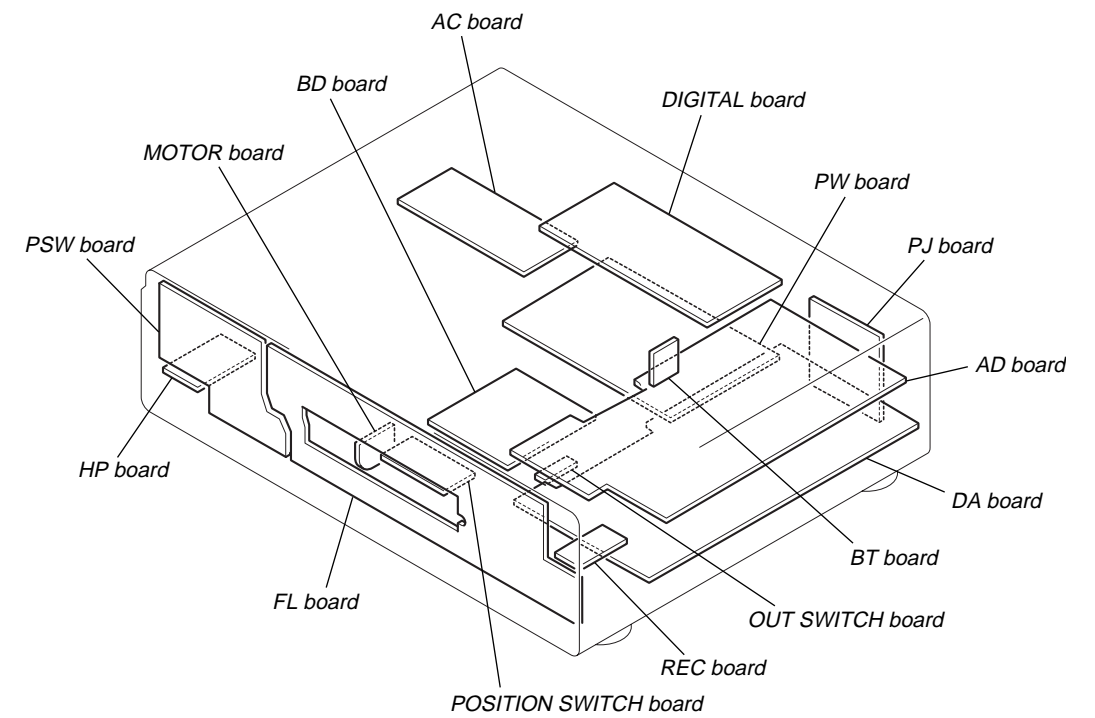
6-3. PRINTED WIRING BOARD   BD SECTION   • Refer to page 37 for Note on Printed Wiring Boards.   • Refer to page 37 for Circuit Board Location.

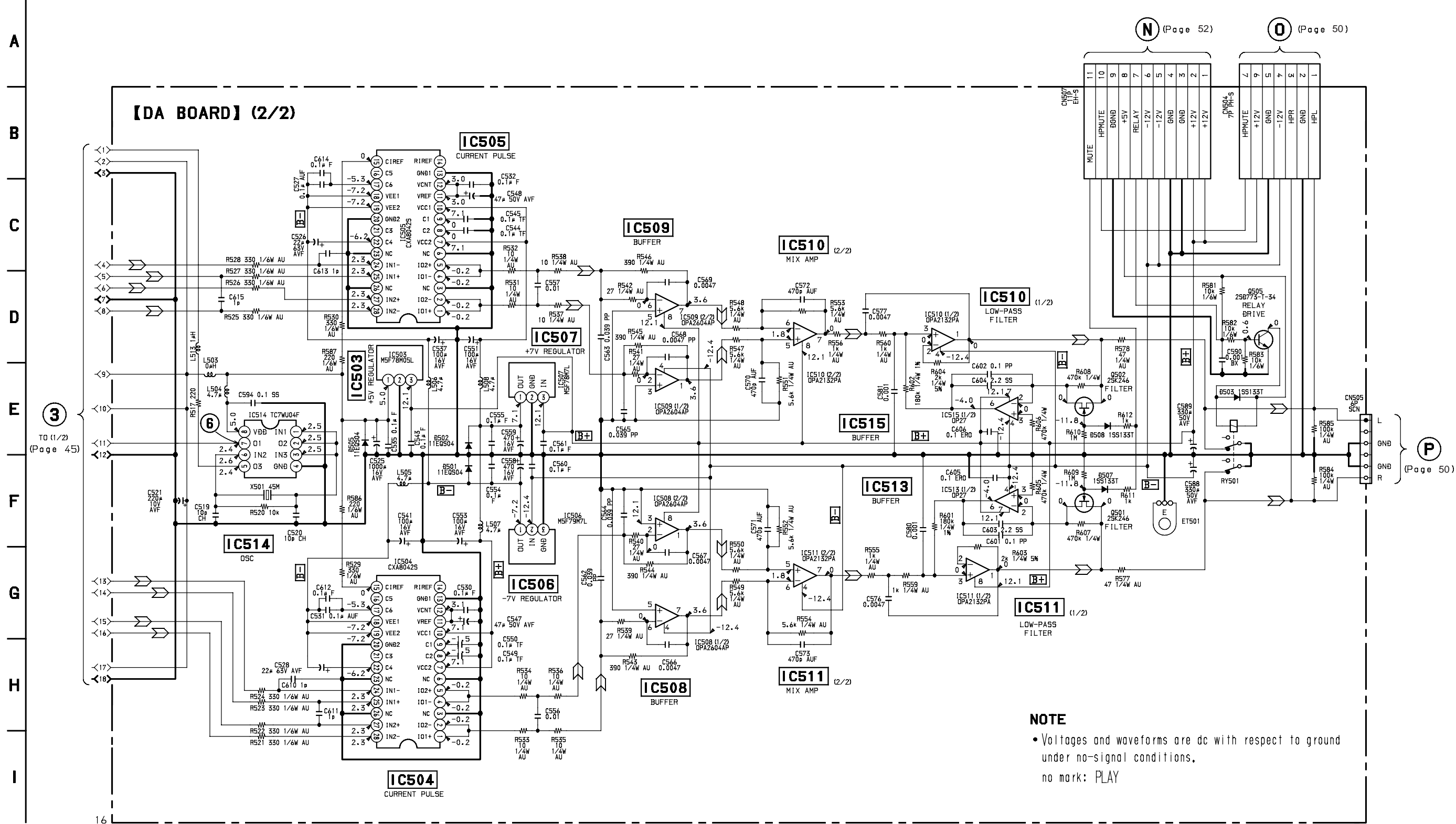**【BD BOARD】**
(COMPONENT SIDE)

HR901
OVER WRITE
HEAD

OPTICAL PICK-UP
BLOCK
(KMS-260B/J1N)

1-668-115-

【BD BOARD】
(CONDUCTOR SIDE)

S102
(REFLECT/PROTECT DETECT)
HIGH REFLECT RATE/
WRITE PROTECT

S102

LOW REFLECT RATE/
UN-PROTECT

1-668-115-
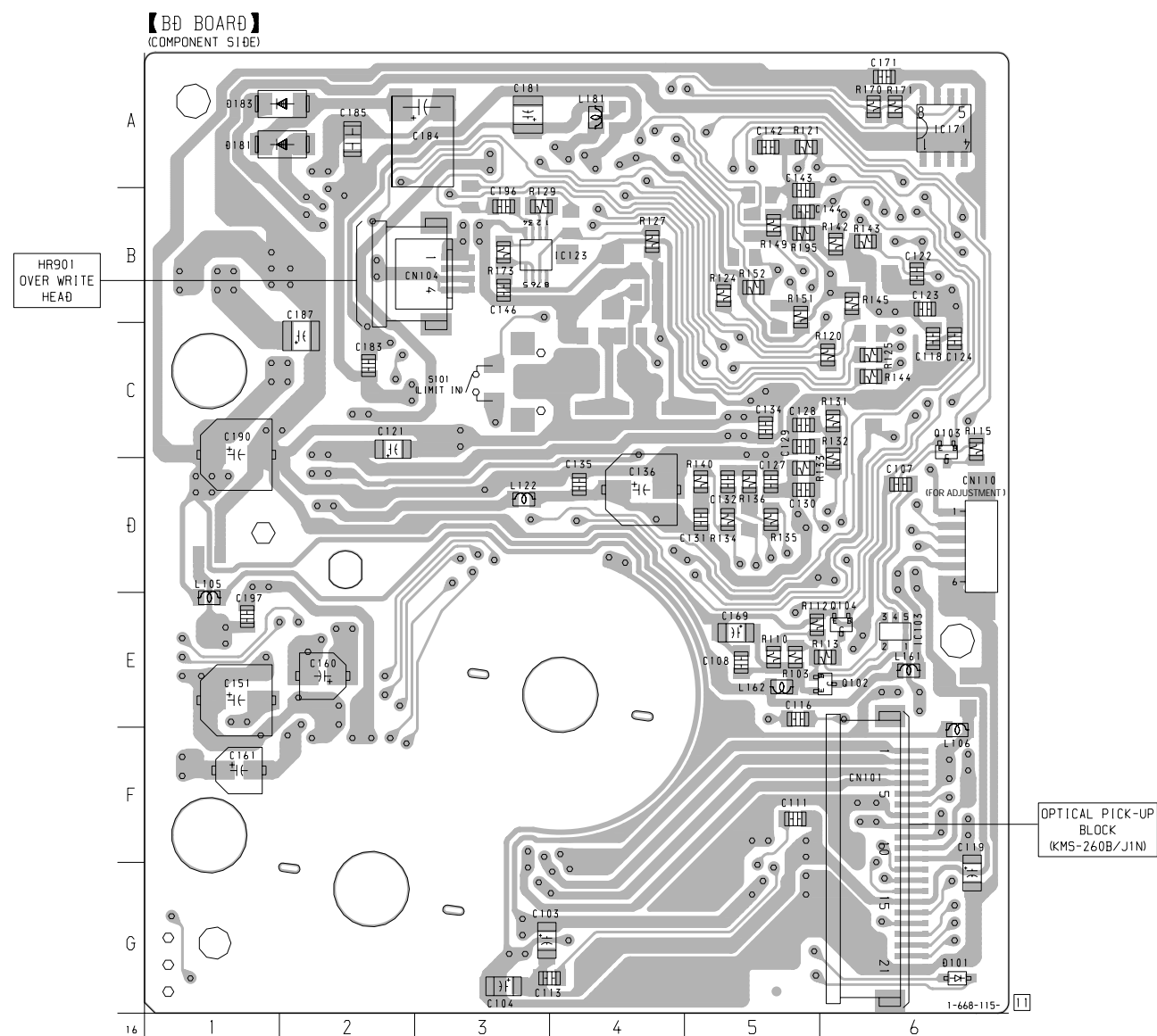
• **Semiconductor Location**

Ref. No.	Location
D101	G-6
D181	A-1
D183	A-1
IC103	E-6
IC123	B-3
IC171	A-6
Q102	E-5
Q103	C-6
Q104	E-6
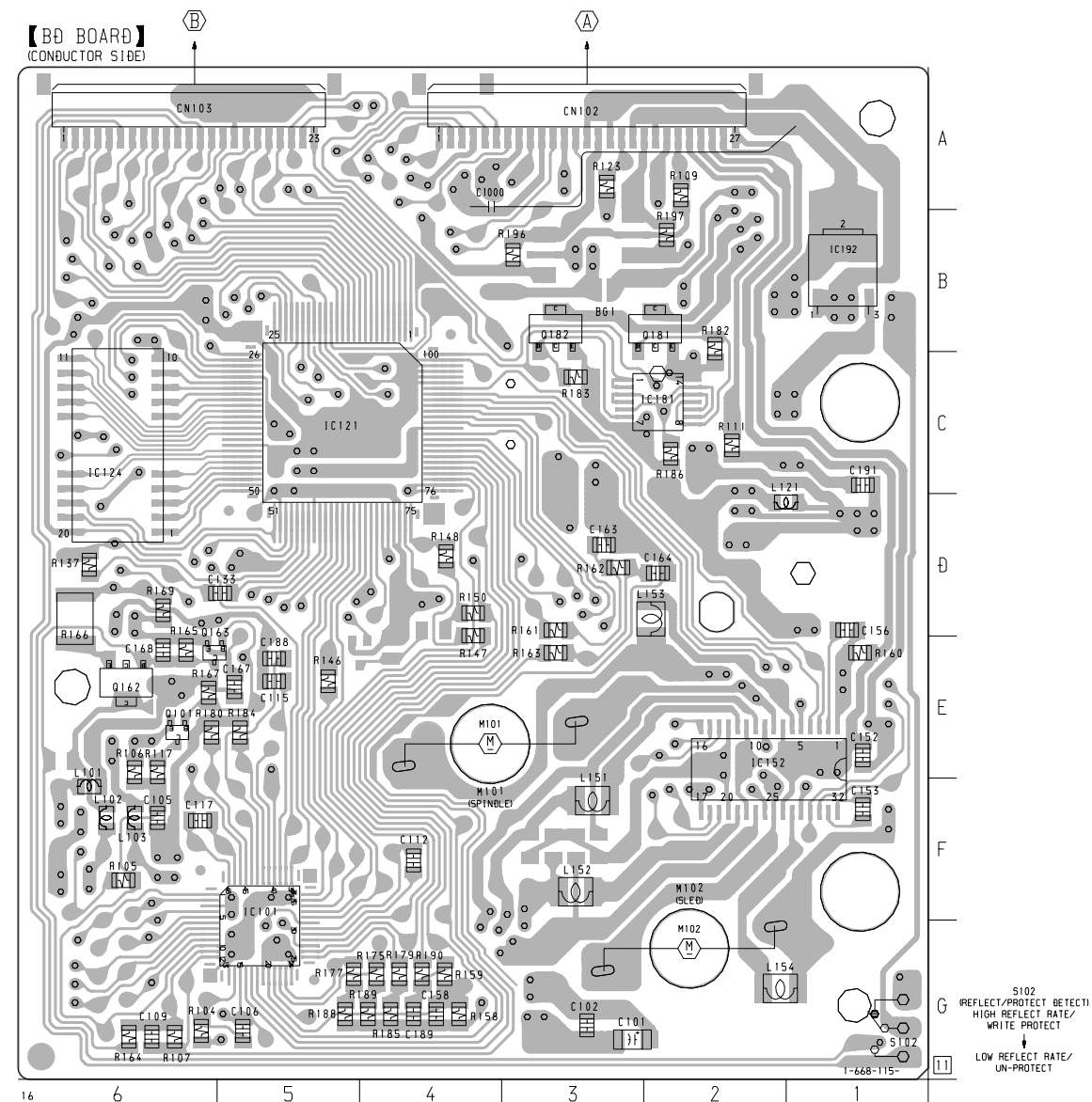
• **Semiconductor Location**

Ref. No.	Location
IC101	G-5
IC121	C-5
IC124	C-6
IC152	E-2
IC181	C-2
IC192	B-1
Q101	E-6
Q162	E-6
Q163	E-5
Q181	B-2
Q182	B-3

6-4. SCHEMATIC DIAGRAM   BD SECTION(1/2)

• Refer to page 37 for Note on Schematic Diagrams.   • Refer to page 56 for Waveforms.
• Refer to page 58 for IC Block Diagram.   • Refer to page 63 for IC Pin Function.

【BD BOARD】(1/2)

IC124 Ð-RAM
IC192 +3.3V REGULATOR
IC171 EEPROM
IC121 DIGITAL SIGNAL PROCESSOR.
IC123 DIVIDER
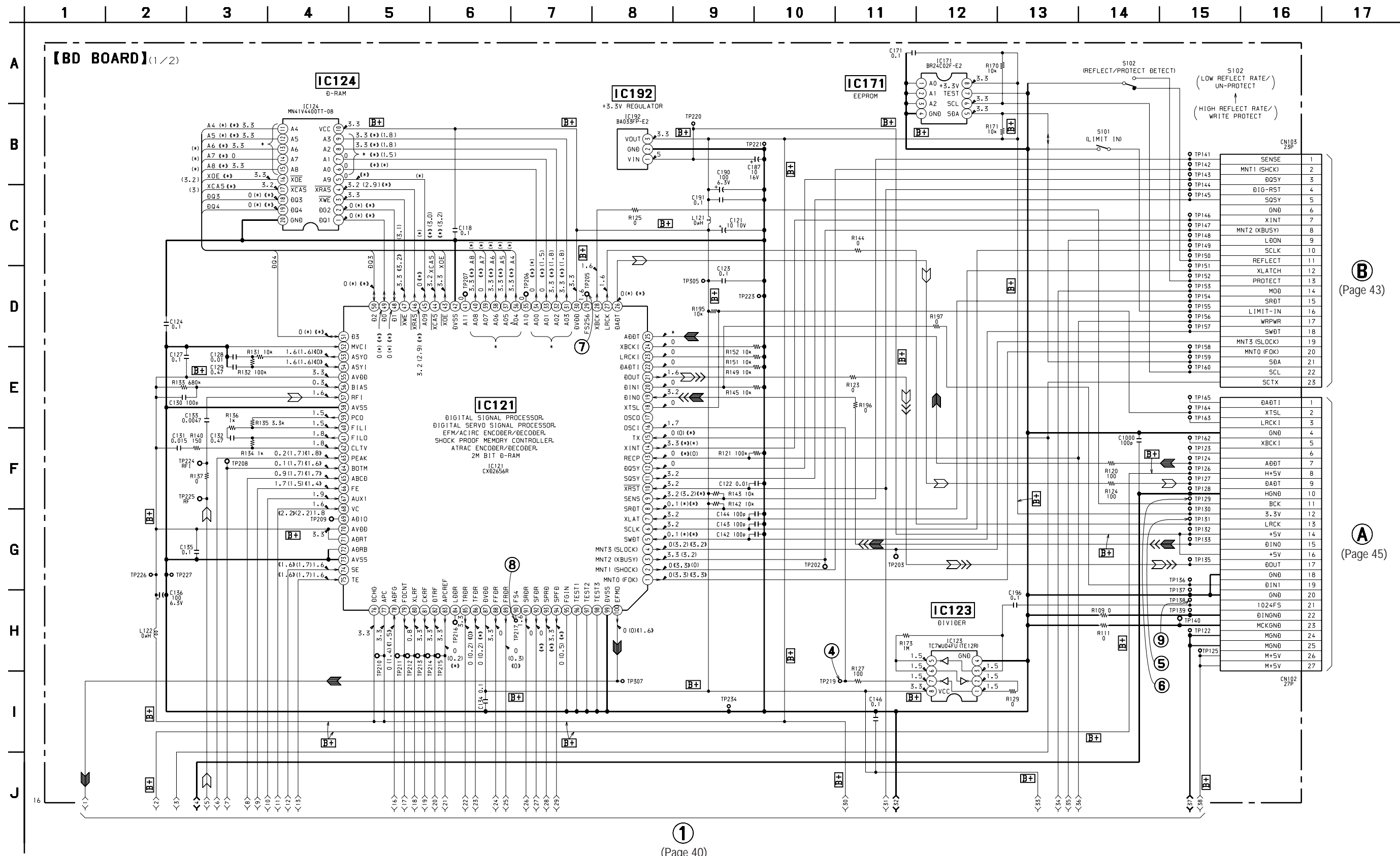
(Page 43)
(Page 45)
(Page 40)

6-5. SCHEMATIC DIAGRAM BD SECTION(2/2) • Refer to page 37 for Note on Schematic Diagrams. • Refer to page 56 for Waveforms.
• Refer to page 57 for IC Block Diagram.   • Refer to page 62 for IC Pin Function.
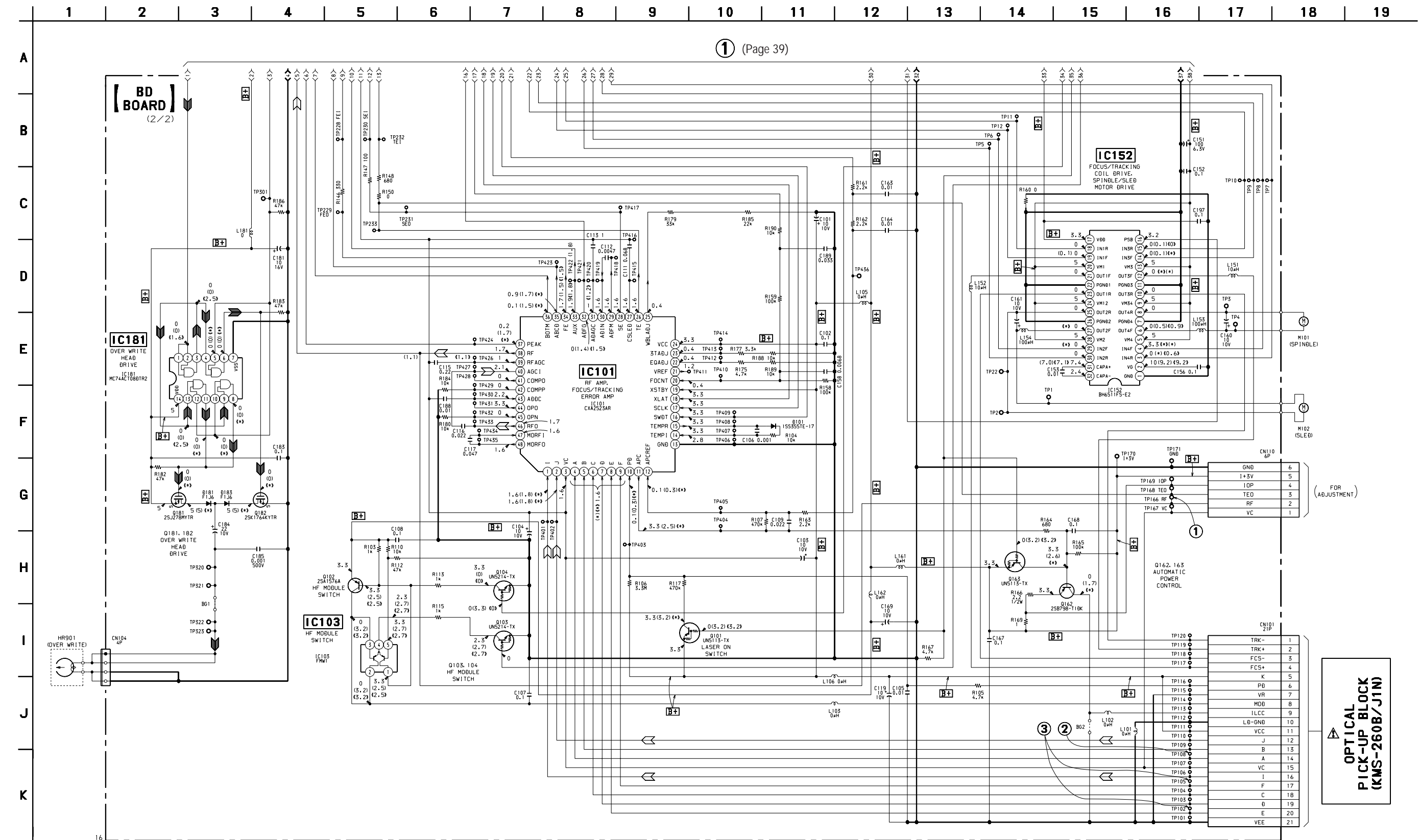
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

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

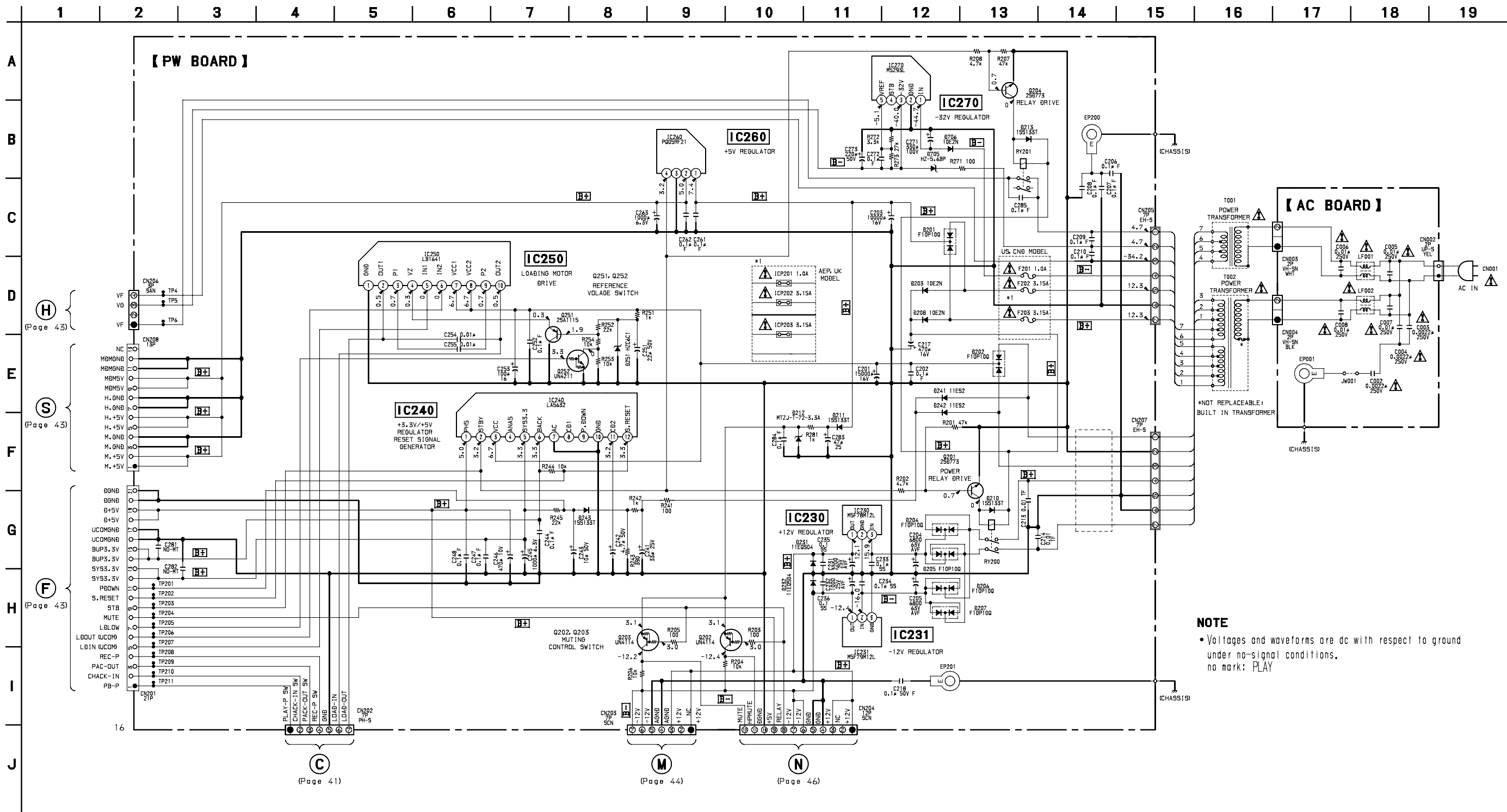40   40

6-6. SCHEMATIC DIAGRAM   BD SWITCH SECTION   • Refer to page 37 for Note on Schematic Diagrams.
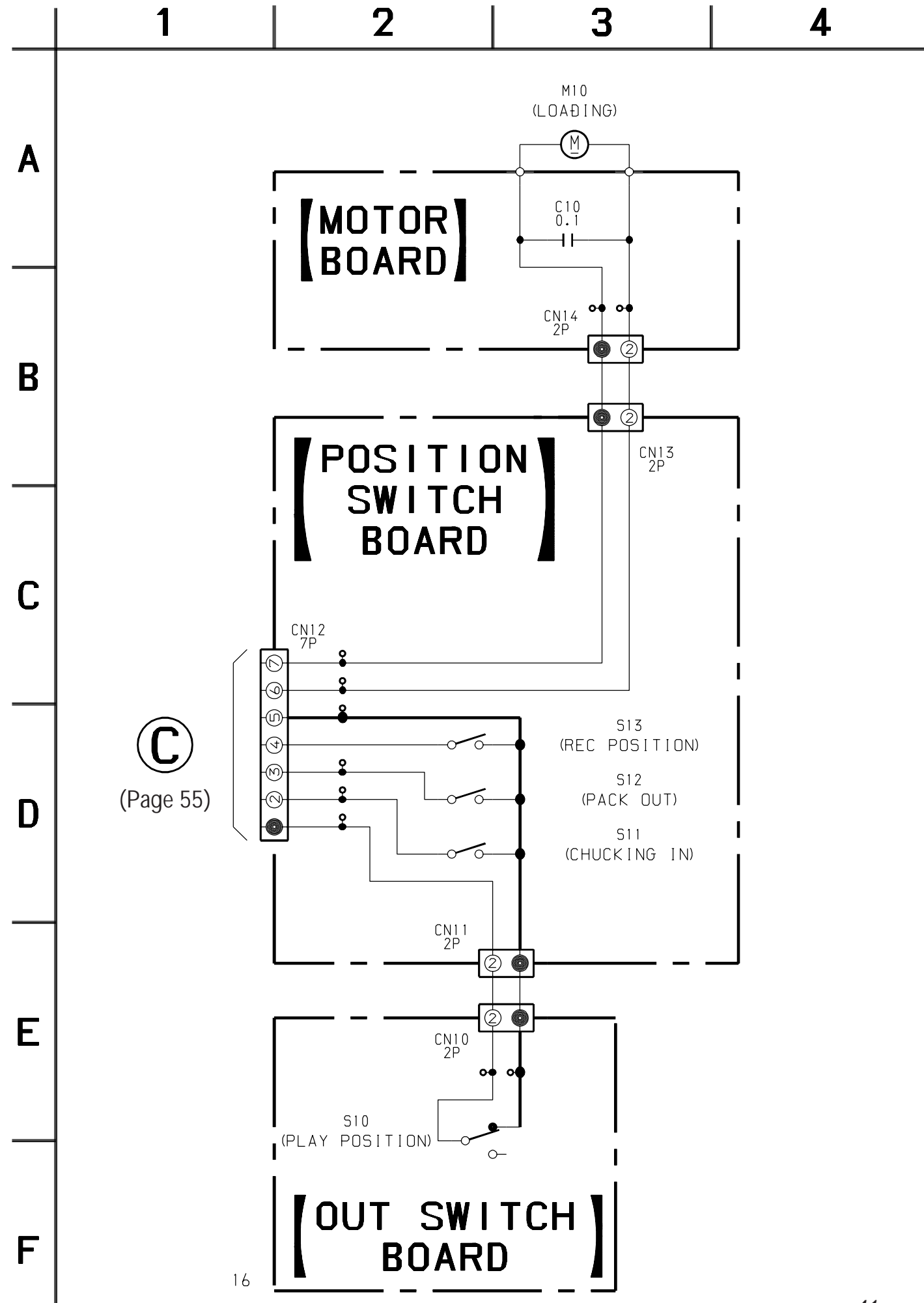
6-7. PRINTED WIRING BOARD   BD SWITCH SECTION   • Refer to page 37 for Note on Printed Wiring Boards.
• Refer to page 37 for Circuit Board Location.

M10
(LOADING)

【MOTOR BOARD】

C10
0.1

CN14
2P

【POSITION SWITCH BOARD】

CN13
2P

CN12
7P

C
(Page 55)

S13
(REC POSITION)

S12
(PACK OUT)

S11
(CHUCKING IN)

CN11
2P

CN10
2P

S10
(PLAY POSITION)

【OUT SWITCH BOARD】

16

【POSITION SWITCH BOARD】

S11
(CHUCKING IN)

S12
(PACK OUT)

C
(Page 54)

S13
REC POSITION

CN11

CN12

CN13

1-669-051-

16

【OUT SWITCH BOARD】

S10
(PLAY POSITION)

1-669-050-

CN10

16

【MOTOR BOARD】

C10

CN14

M10
(LOADING)

1-669-049-

16

41   41
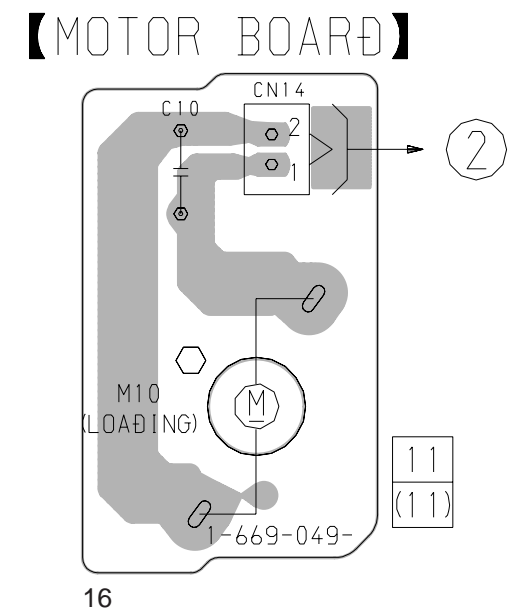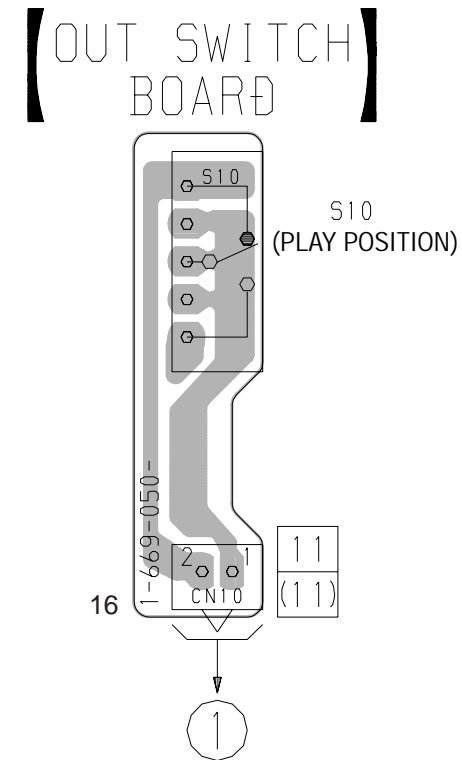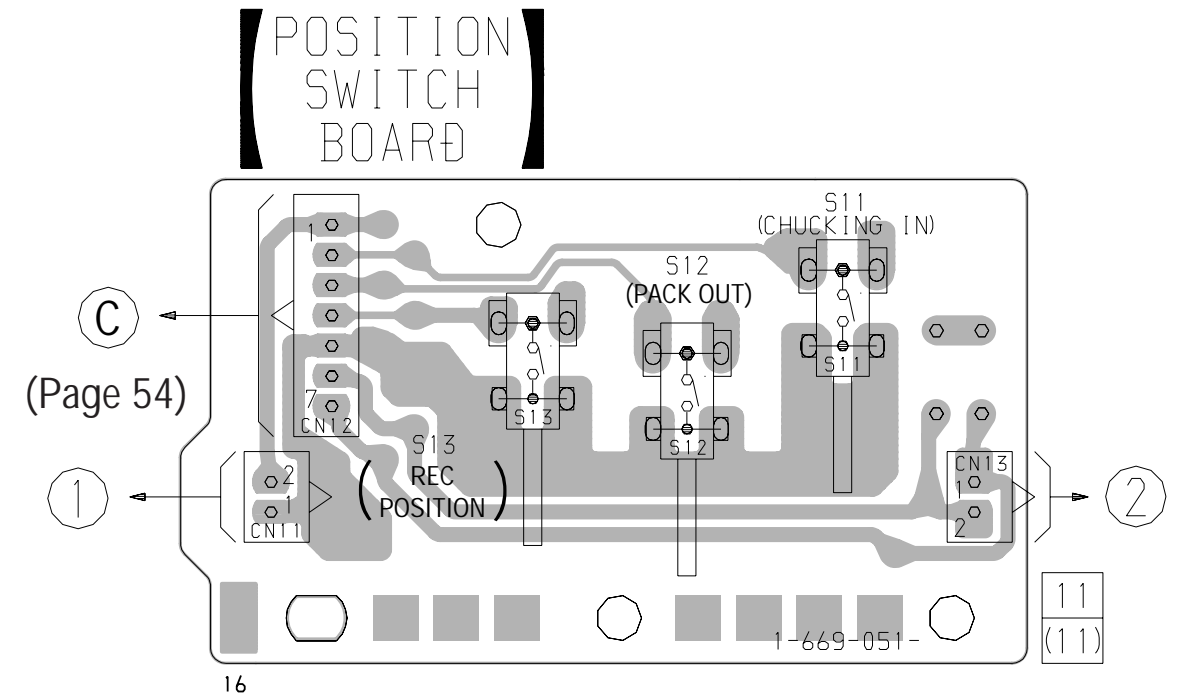
6-8. PRINTED WIRING BOARD   AD SECTION   • Refer to page 37 for Note on Printed Wiring Boards.   • Refer to page 37 for Circuit Board Location.

【AD BOARD】(COMPONENT SIDE)

【AD BOARD】(CONDUCTOR SIDE)

(Page 53) (Page 49) (Page 54)

(Page 53) F

(Page 38) B

(Page 54) I

(Page 49) E

(Page 53) H

TEST

(Page 46) J

1-674-318-

【BT BOARD】
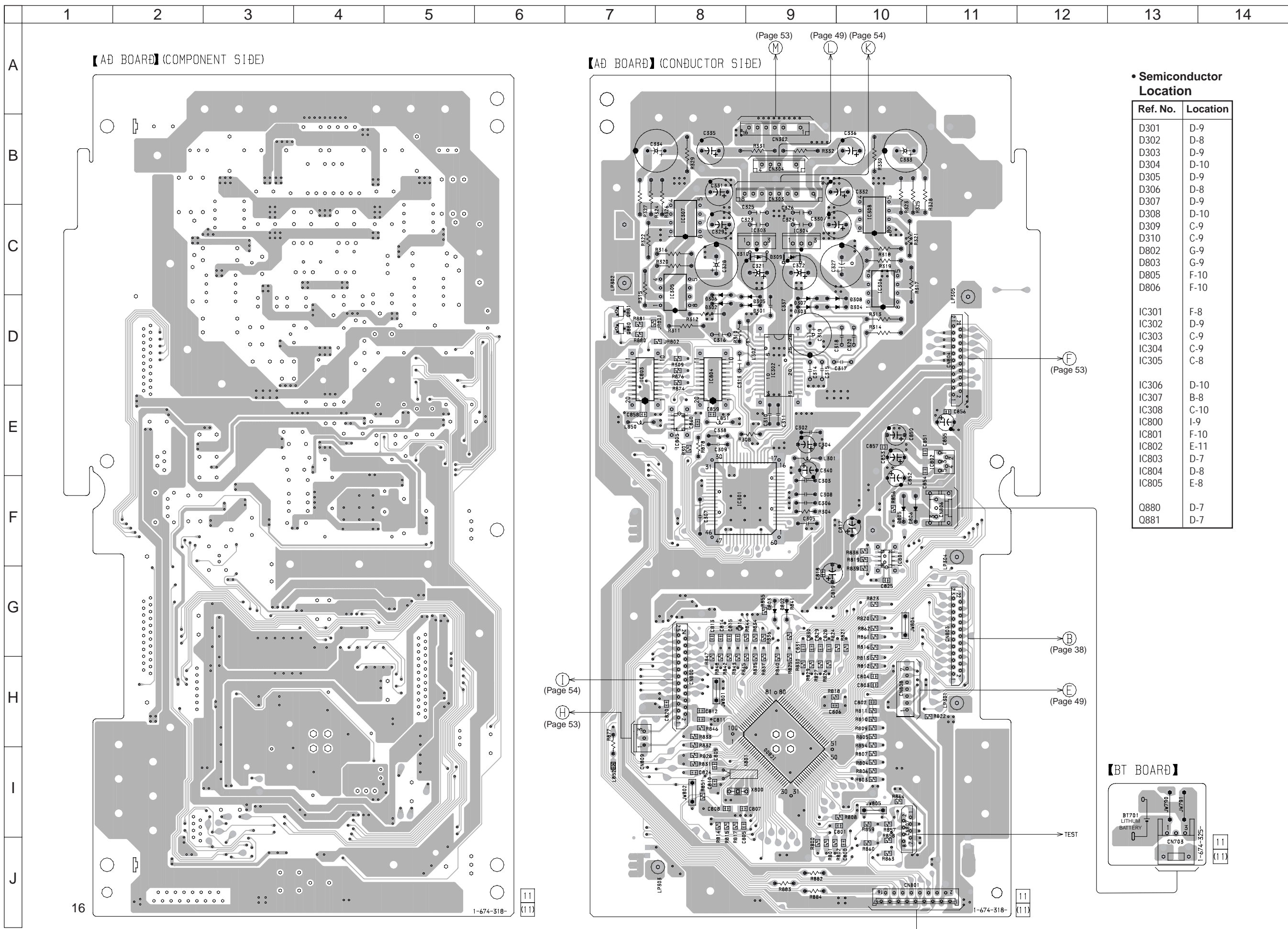
• **Semiconductor Location**

Ref. No.	Location
D301	D-9
D302	D-8
D303	D-9
D304	D-10
D305	D-9
D306	D-8
D307	D-9
D308	D-10
D309	C-9
D310	C-9
D802	G-9
D803	G-9
D805	F-10
D806	F-10
IC301	F-8
IC302	D-9
IC303	C-9
IC304	C-9
IC305	C-8
IC306	D-10
IC307	B-8
IC308	C-10
IC800	I-9
IC801	F-10
IC802	E-11
IC803	D-7
IC804	D-8
IC805	E-8
Q880	D-7
Q881	D-7
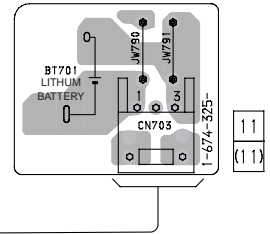
6-9. SCHEMATIC DIAGRAM   AD SECTION(1/2)   • Refer to page 37 for Note on Schematic Diagrams.   • Refer to page 56 for Waveforms.   • Refer to page 68 for IC Pin Function.
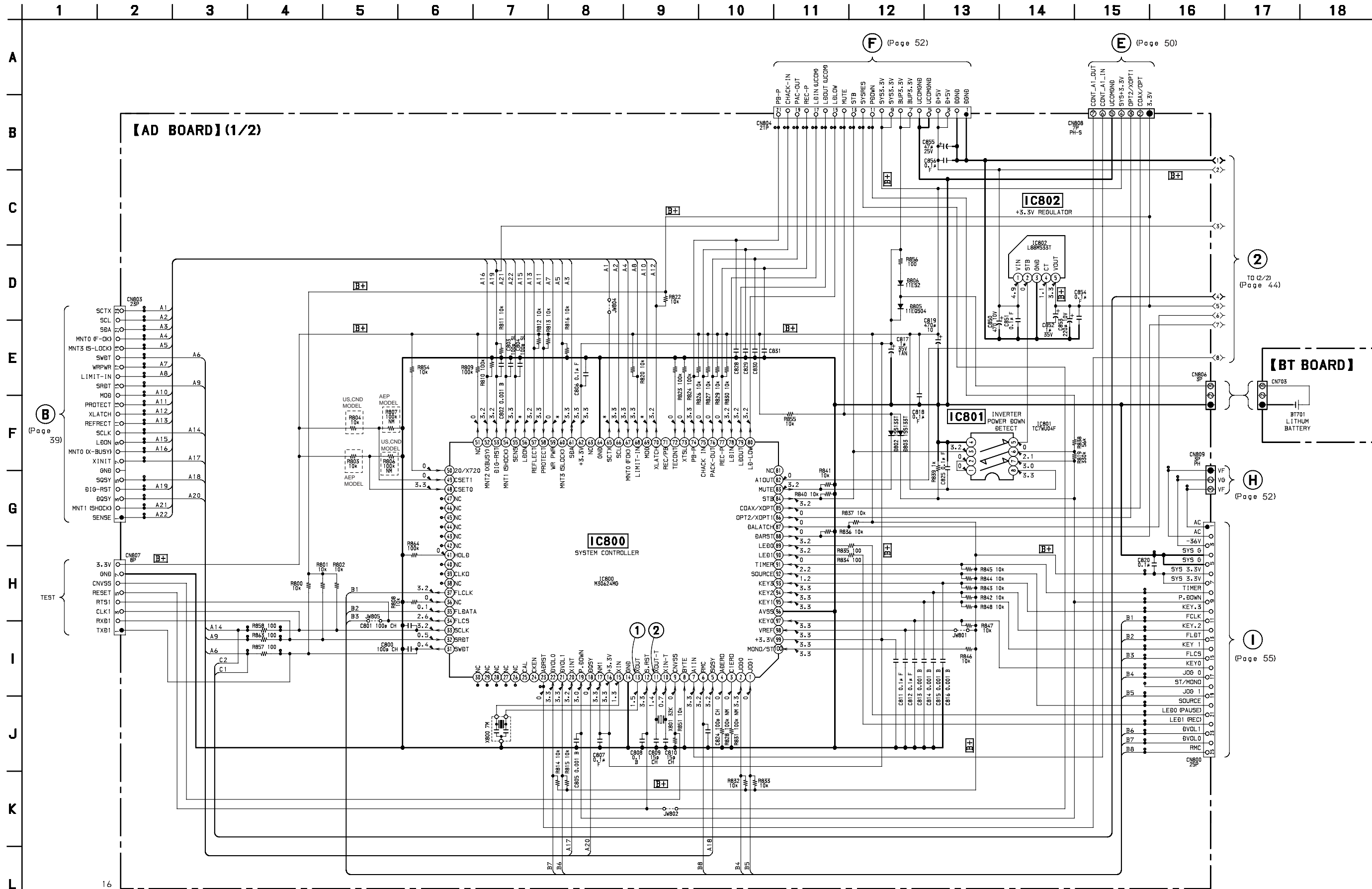
【AD BOARD】(1/2)

【BT BOARD】

IC800
SYSTEM CONTROLLER

IC801
INVERTER POWER DOWN DETECT

IC802
+3.3V REGULATOR

NOTE
• Voltages and waveforms are dc with respect to ground under no-signal conditions.
  no mark: PLAY

MDS-JA555ES

【 AD BOARD 】 (2/2)

NOTE

• Voltages and waveforms are dc with respect to ground under no-signal conditions.

no mark: PLAY

6-11. SCHEMATIC DIAGRAM   DA SECTION(1/2)   • Refer to page 37 for Note on Schematic Diagrams.   • Refer to page 56 for Waveforms.   • Refer to page 59 for IC Block Diagrams.
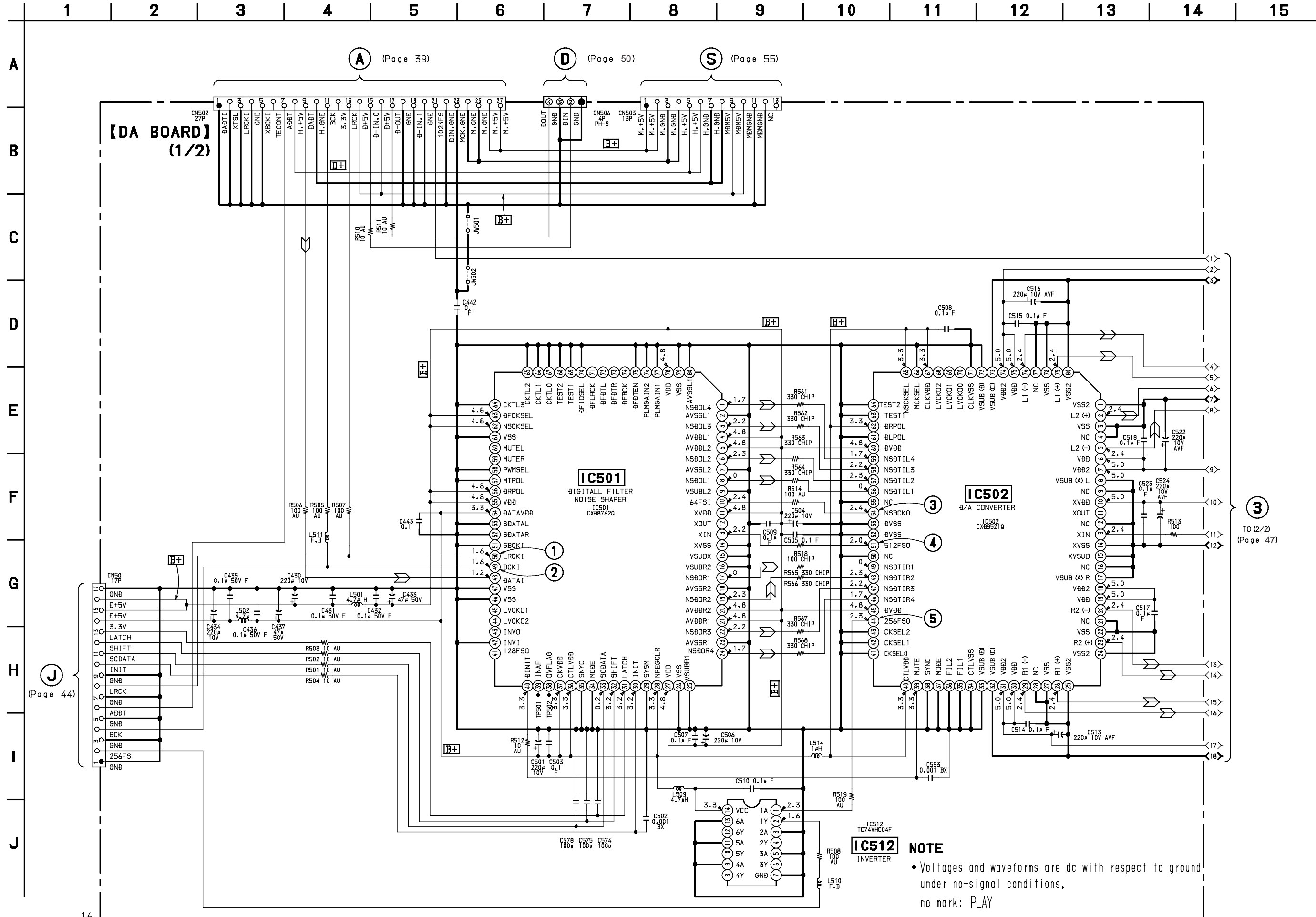
【DA BOARD】
(1/2)

IC501
DIGITALL FILTER
NOISE SHAPER
IC501
CXD8762Q

IC502
D/A CONVERTER
IC502
CXD9521Q

IC512
TC74VHC04F
INVERTER

NOTE
• Voltages and waveforms are dc with respect to ground
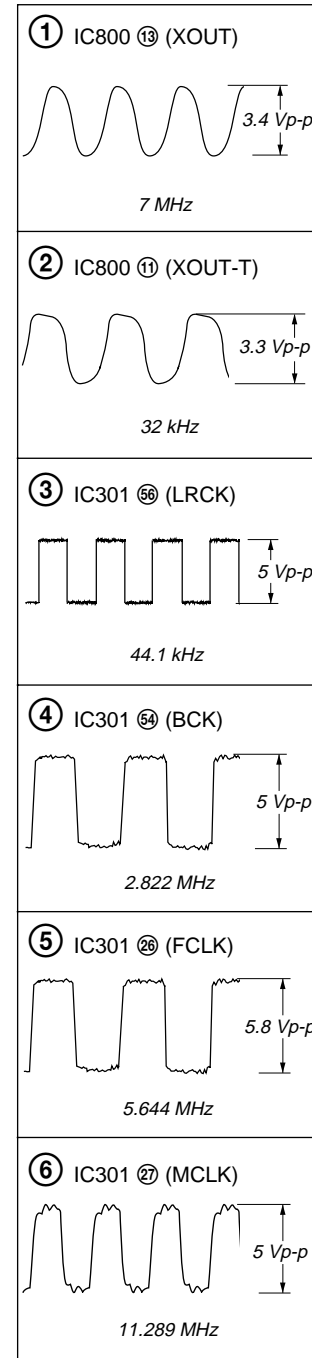under no-signal conditions.
no mark: PLAY

TO (2/2)
(Page 47)

45   45

MDS-JA555ES

6-12. PRINTED WIRING BOARD — DA SECTION

• Refer to page 37 for Note on Printed Wiring Boards. • Refer to page 37 for Circuit Board Location.

• **Semiconductor Location**

Ref. No.	Location
D501	F-10
D502	F-9
D503	J-10
D505	F-11
D507	I-11
D508	I-9
IC501	B-10
IC502	D-10
IC503	F-10
IC504	E-11
IC505	E-8
IC506	F-10
IC507	F-9
IC508	G-11
IC509	G-9
IC510	H-9
IC511	H-11
IC512	C-11
IC513	H-11
IC514	E-9
IC515	H-8
Q501	I-11
Q502	H-8
Q505	J-9

【DA BOARD】(COMPONENT SIDE)

【DA BOARD】(CONDUCTOR SIDE)

46   46
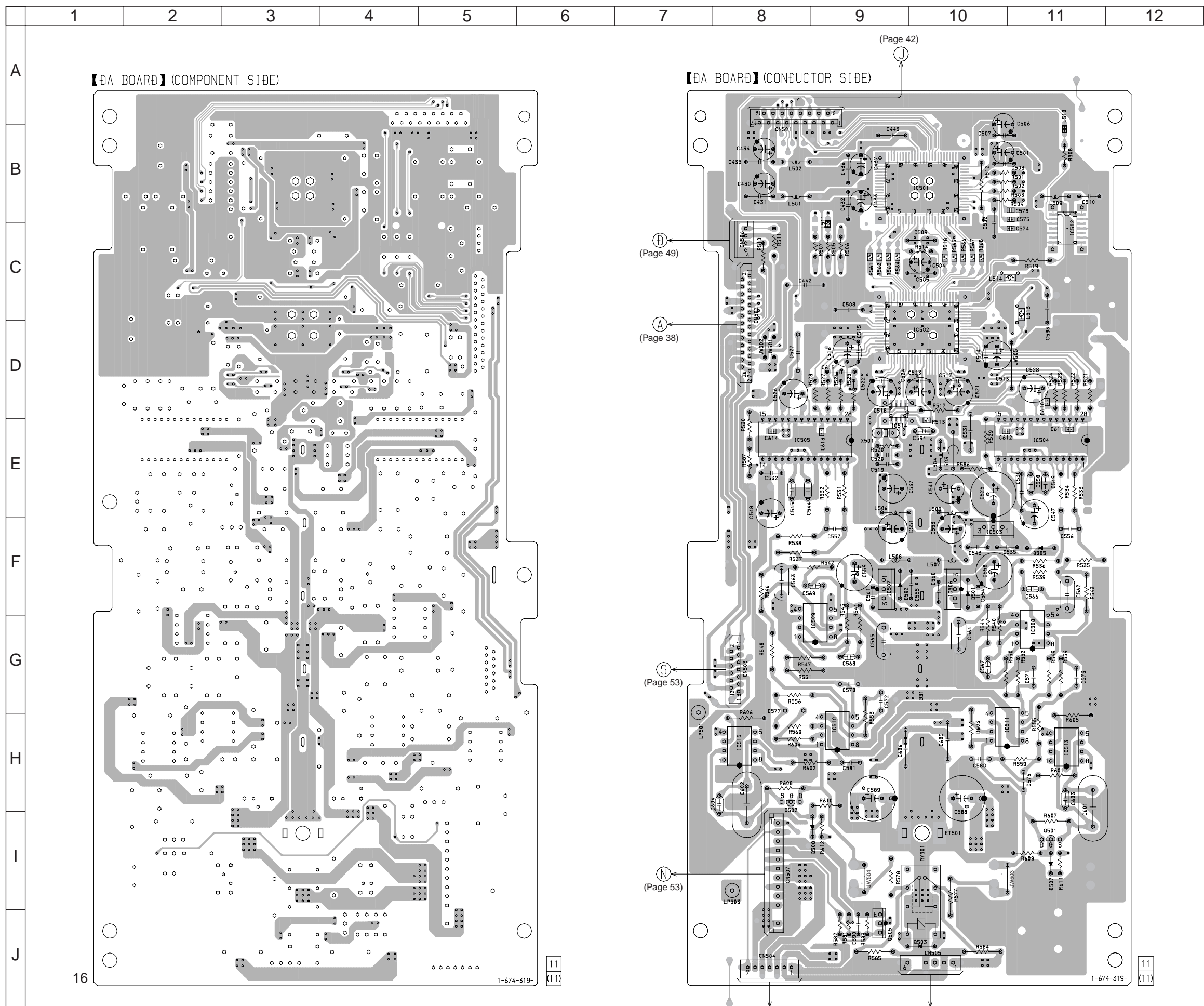
6-13. SCHEMATIC DIAGRAM   DA SECTION(2/2)   • Refer to page 37 for Note on Schematic Diagrams.   • Refer to page 56 for Waveforms.   •Refer to page 60 for IC Block Diagrams.

【DA BOARD】(2/2)

NOTE
• Voltages and waveforms are dc with respect to ground under no-signal conditions.
no mark: PLAY

47   47

MDS-JA555ES

【DIGITAL BOARD】(COMPONENT SIDE)
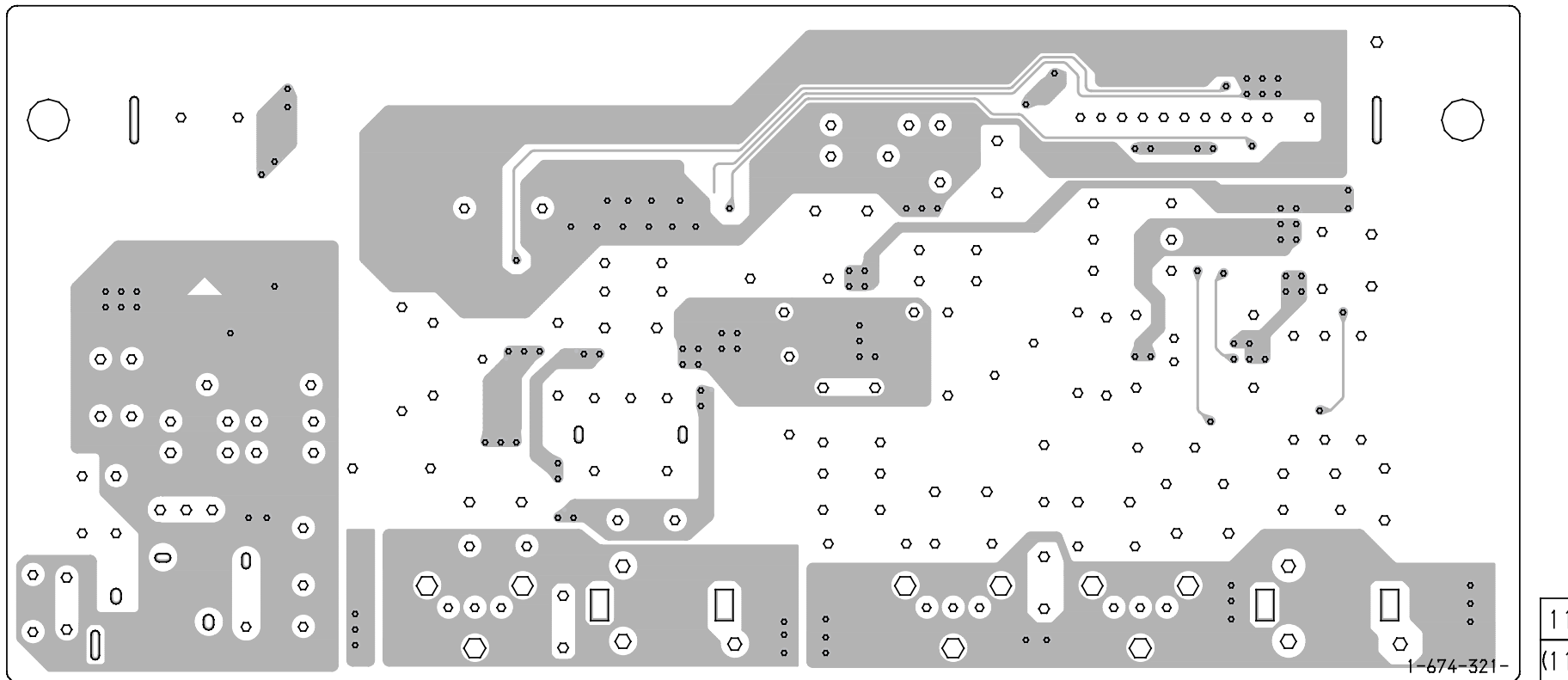
1-674-321-

11
(11)

【PJ BOARD】(COMPONENT SIDE)
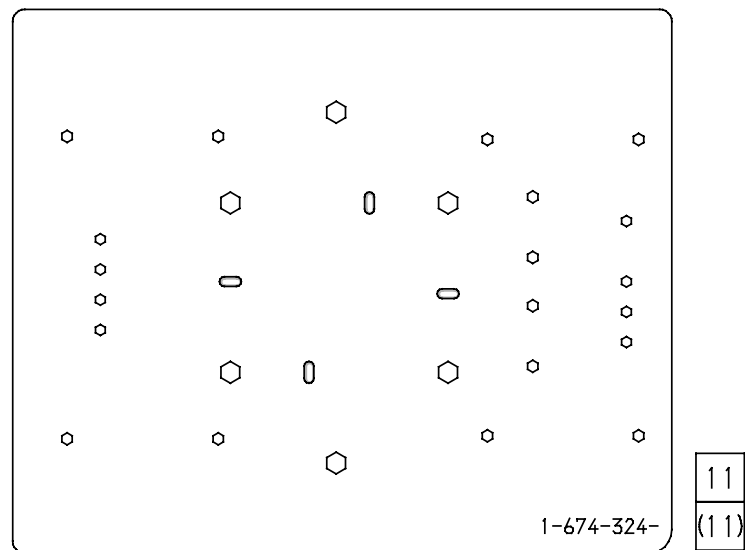
1-674-324-

11
(11)

【HP BOARD】(COMPONENT SIDE)

1-674-323-

11
(11)

【DIGITAL BOARD】(CONDUCTOR SIDE)

(Page 46) (Page 42)

J400 COAXIAL
IC401 OPT1
IC402 OPT2
DIGITAL IN

J401 COAXIAL
IC403 OPTICAL
DIGITAL OUT

J450 S-LINK CONTROL A1

【HP BOARD】(CONDUCTOR SIDE)

J651 PHONES

RV651 PHONE LEVEL

(Page 49)

【PJ BOARD】

(Page 42)

(Page 46)

PJ501
LINE (ANALOG)
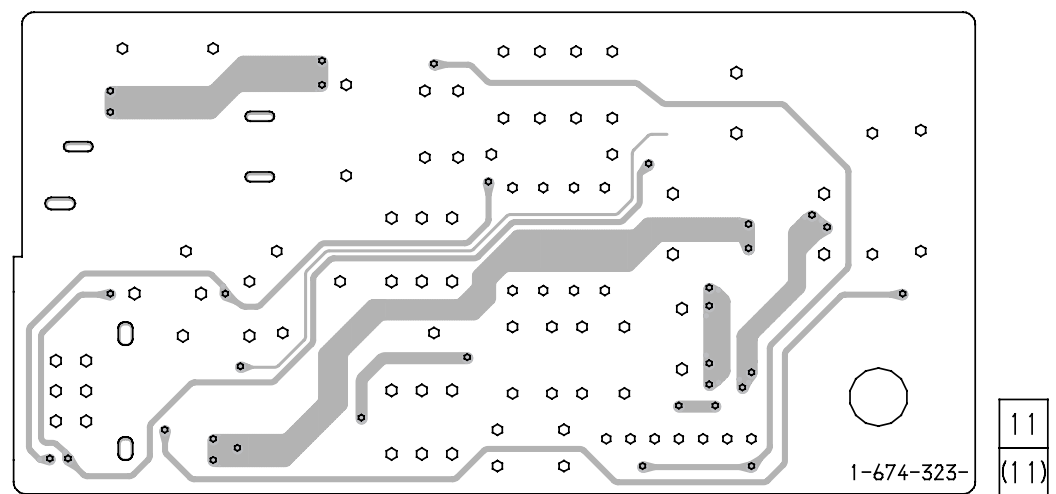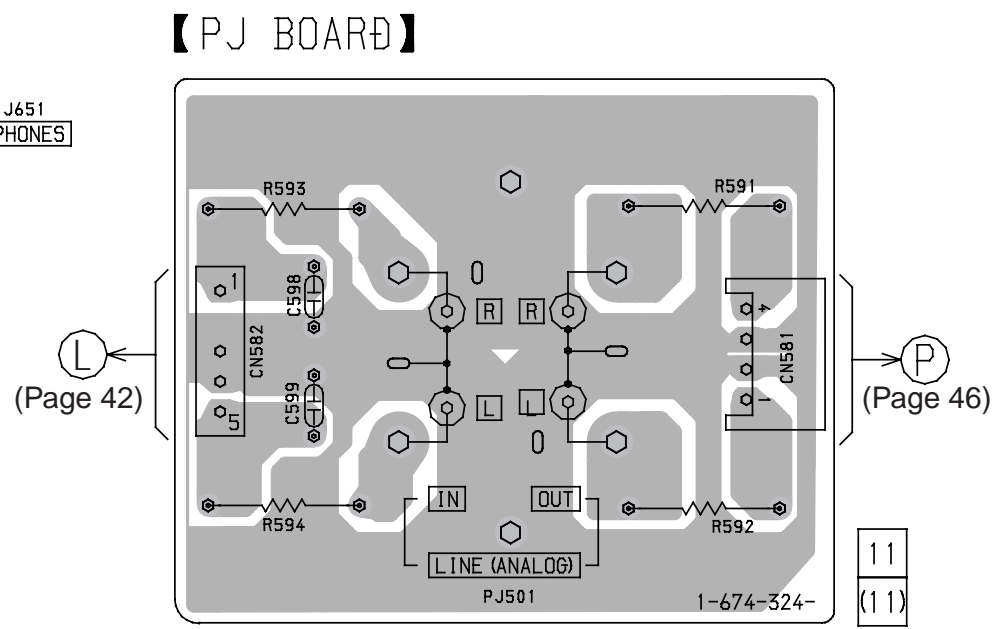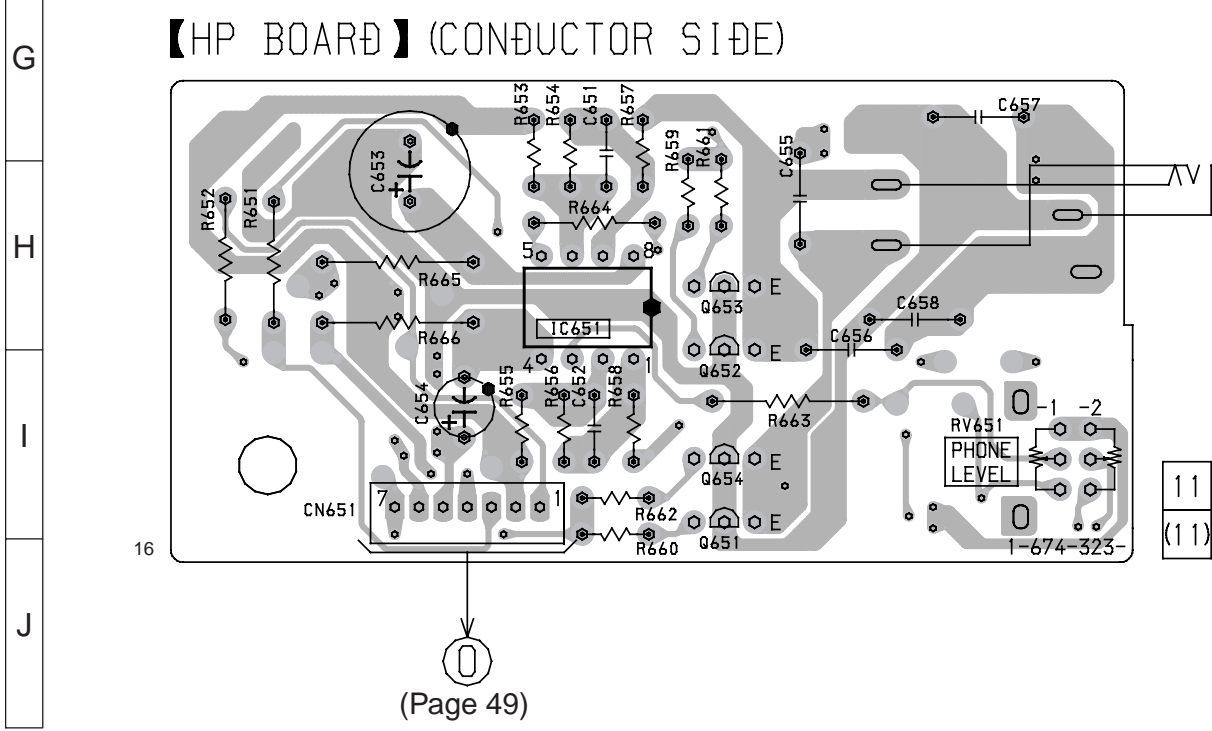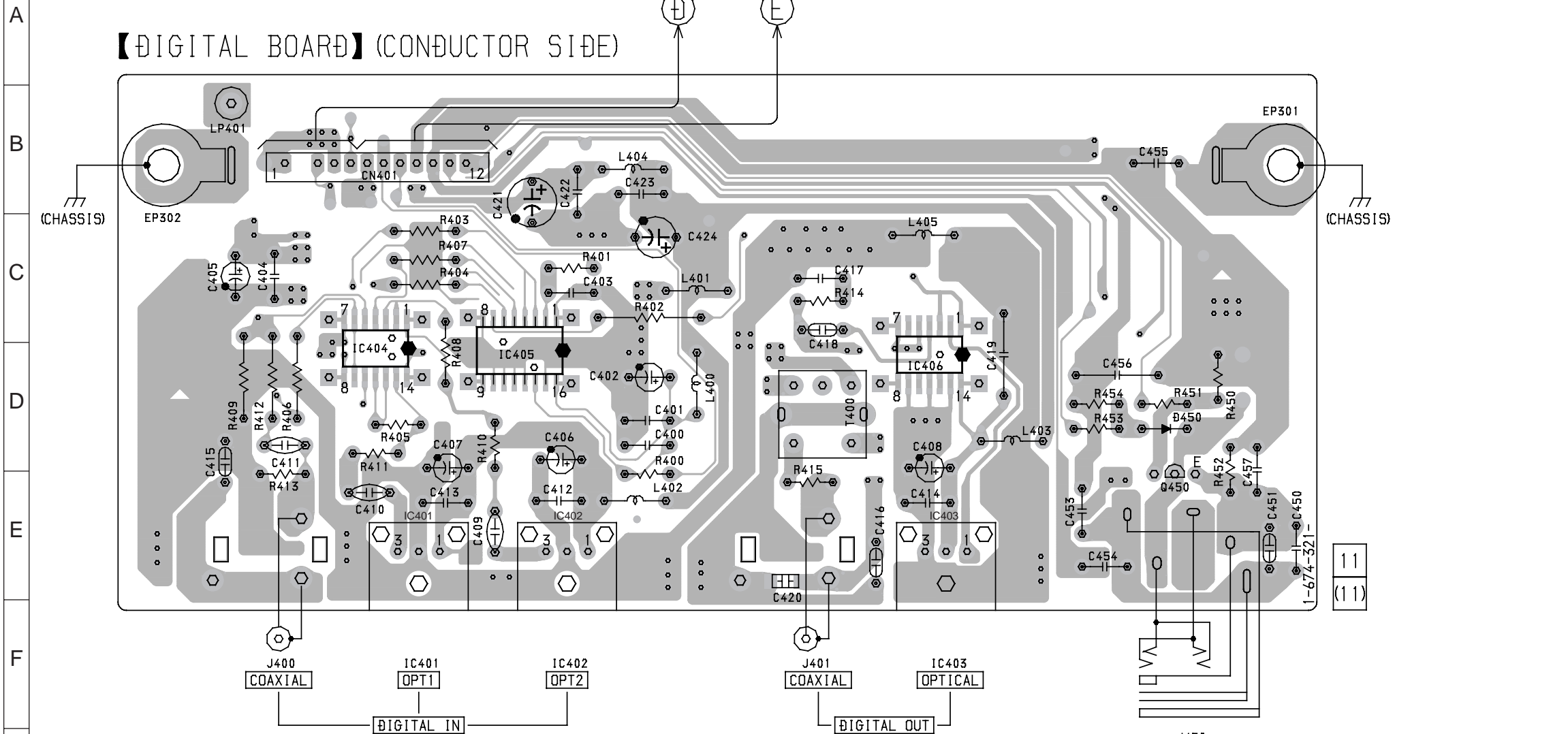
• Semiconductor Location

Ref. No.	Location
D450	D-9
IC401	E-4
IC402	E-5
IC403	E-8
IC404	D-3
IC405	D-4
IC406	D-8
IC651	H-3
Q450	E-10
Q651	J-4
Q652	I-4
Q653	H-4
Q654	I-4

6-15. SCHEMATIC DIAGRAM   DIGITAL SECTION   • Refer to page 37 for Note on Schematic Diagrams.   • Refer to page 61 for IC Block Diagrams.

【DIG BOARD】

IC405
DIGITAL INPUT SELECTOR
IC405 SN74HC153ANS

IC404
WAVE SHAPER
IC404 SN74HCU04ANS

IC406
WAVE SHAPER
IC406 SN74HCU04ANS

IC401
OPTICAL RECEIVER

IC402
OPTICAL RECEIVER

IC403
OPTICAL TRANSCEIVER

OPT1
OPT2
COAXIAL

DIGITAL IN

OPTICAL
COAXIAL

DIGITAL OUT

COAX
OPT2
OPT1

CN401
11P
SAN
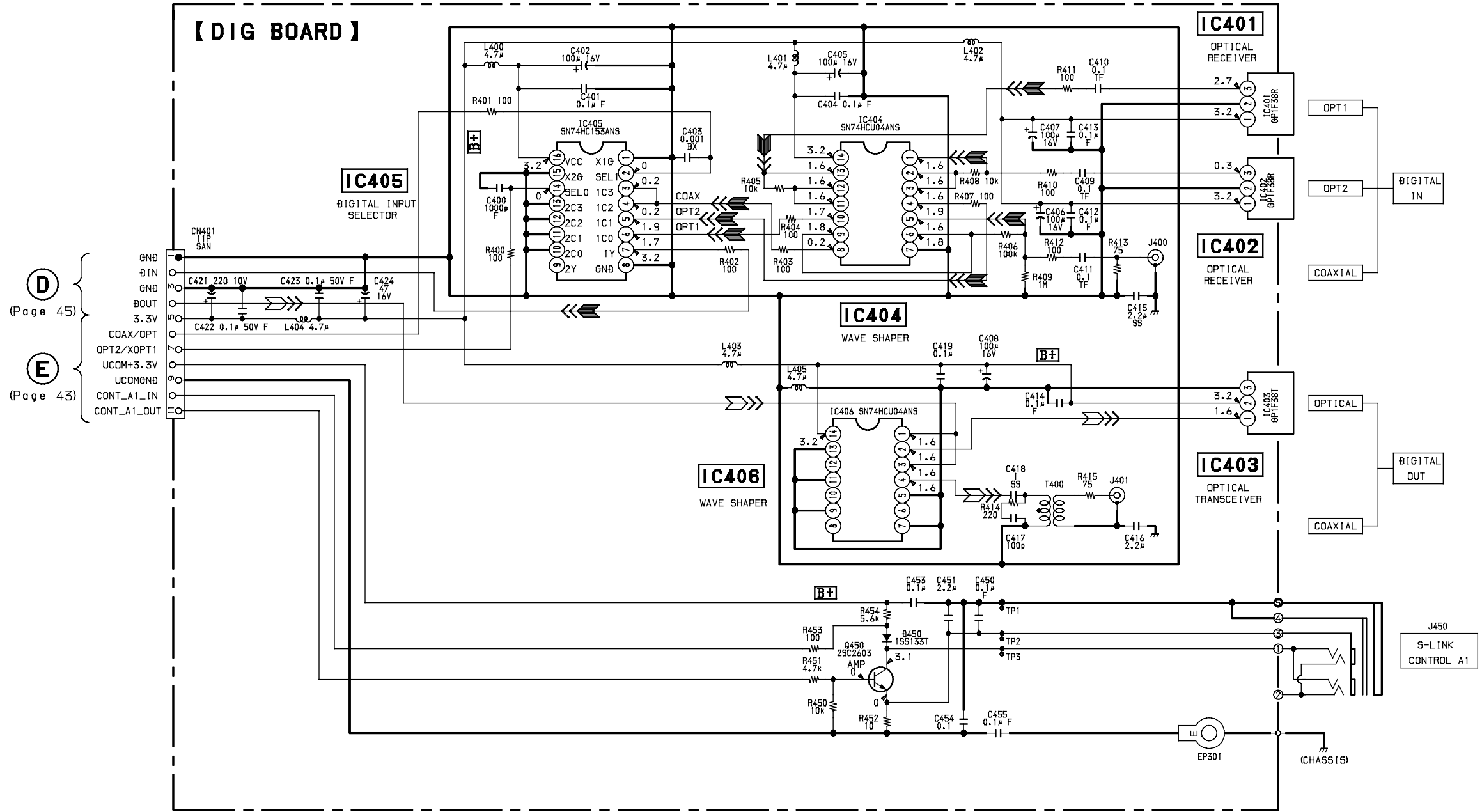
GND
DIN
GND
DOUT
3.3V
COAX/OPT
OPT2/XOPT1
UCOM+3.3V
UCOMGND
CONT_A1_IN
CONT_A1_OUT

D (Page 45)
E (Page 43)

Q450 2SC2603 AMP
J450
S-LINK CONTROL A1

EP301
(CHASSIS)

【HP BOARD】

IC651
HEADPHONE AMP
IC651 NJM4556AB

Q651-Q654
MUTING

CN651
7P PH-S

HPL
GND
HPR
-12V
GND
+12V
HPMUTE
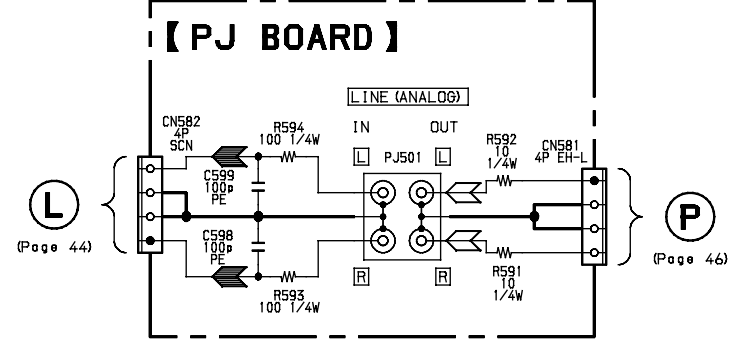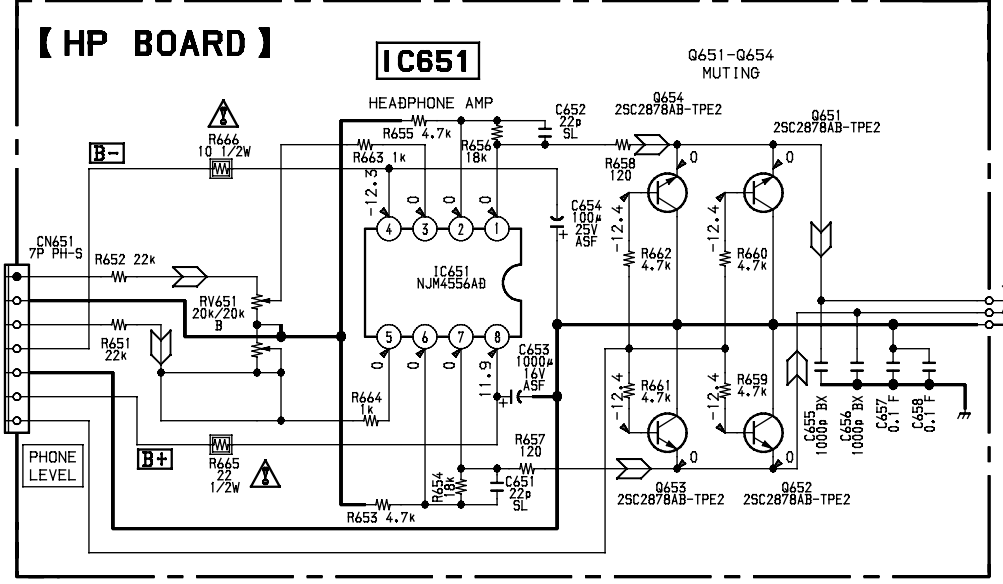
O (Page 46)

PHONE LEVEL

PHONES
J651

【PJ BOARD】

LINE (ANALOG)

CN582
4P SCN
IN   OUT
PJ501
CN581
4P EH-L

L (Page 44)
P (Page 46)

NOTE
• Voltages and waveforms are dc with respect to ground under no-signal conditions.
no mark: PLAY

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

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

16

50   50

6-16. PRINTED WIRING BOARD　AC SECTION　• Refer to page 37 for Note on Printed Wiring Boards.　• Refer to page 37 for Circuit Board Location.

【AC BOARD】(COMPONENT SIDE)　　【AC BOARD】(CONDUCTOR SIDE)

1-674-321-　　11 (11)

1-674-321-　　11 (11)

(Page 53)

(Page 53)

AC IN

(CHASSIS)

51　　51

MDS-JA555ES

【 PW BOARD 】

【 AC BOARD 】

IC270 -32V REGULATOR
IC260 +5V REGULATOR
IC250 LOADING MOTOR DRIVE
IC240 +3.3V/+5V REGULATOR RESET SIGNAL GENERATOR
IC230 +12V REGULATOR
IC231 -12V REGULATOR

Q251, Q252 REFERENCE VOLAGE SWITCH
Q202, Q203 MUTING CONTROL SWITCH

AEP, UK MODEL
US, CNB MODEL

+NOT REPLACEABLE: BUILT IN TRANSFORMER

NOTE
• Voltages and waveforms are dc with respect to ground under no-signal conditions.
no mark: PLAY

(Page 43) H
(Page 43) S
(Page 43) F

(Page 41) C
(Page 44) M
(Page 46) N

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

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

52   52

6-18. PRINTED WIRING BOARD   POWER SECTION   • Refer to page 37 for Note on Printed Wiring Boards.   • Refer to page 37 for Circuit Board Location.

【PW BOARD】(COMPONENT SIDE)

【PW BOARD】(CONDUCTOR SIDE)
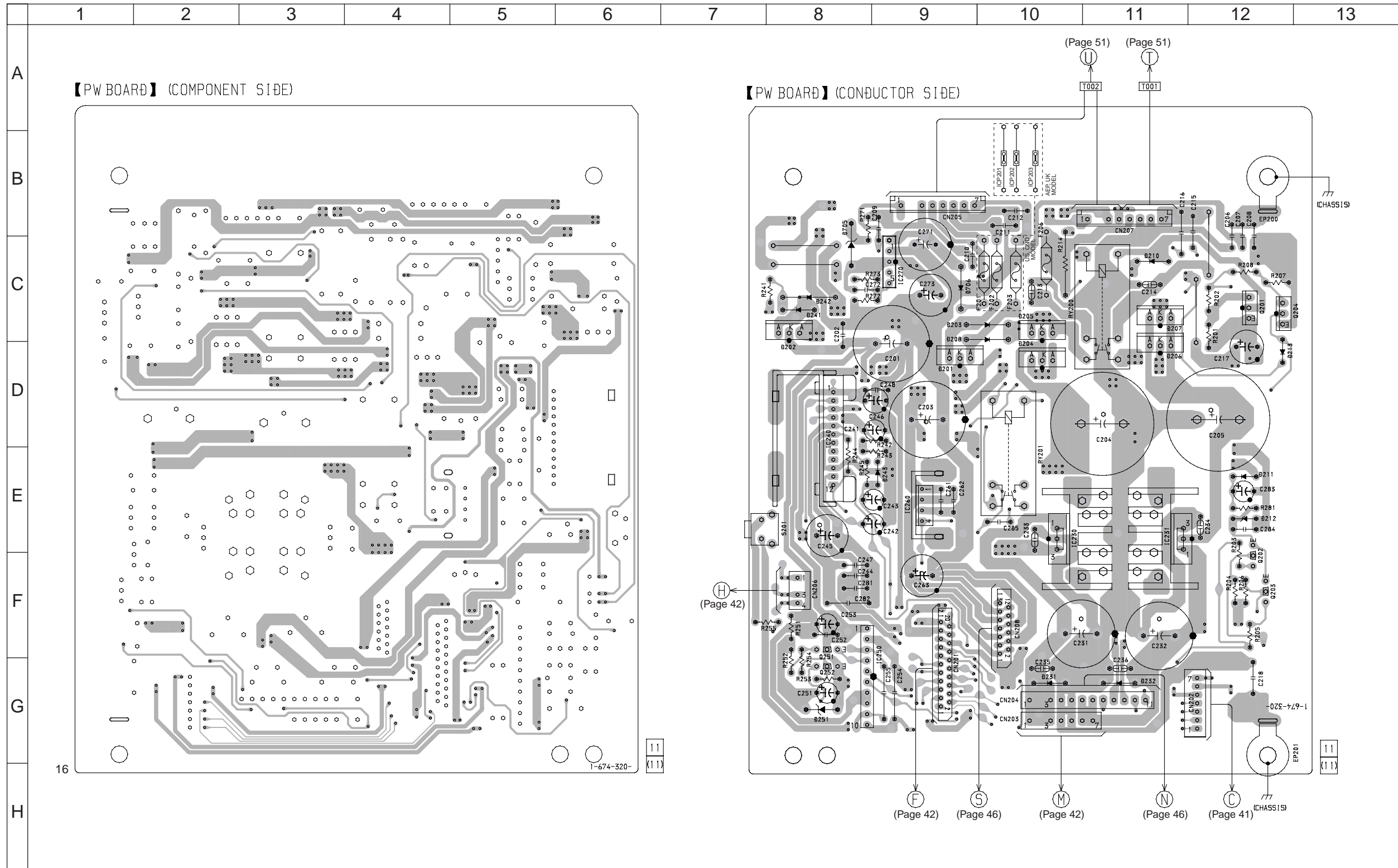
• Semiconductor Location

Ref. No.	Location
D201	D-9
D202	C-8
D203	C-9
D204	D-10
D205	C-10
D206	D-11
D207	C-11
D208	C-9
D210	C-11
D211	E-11
D212	E-12
D213	D-12
D231	G-10
D232	G-11
D241	C-8
D242	C-8
D243	E-9
D251	G-8
D705	B-8
D706	C-9
IC230	E-10
IC231	E-11
IC240	D-8
IC250	F-9
IC260	E-9
IC270	C-9
Q201	C-12
Q202	E-12
Q203	F-12
Q204	C-12
Q251	F-8
Q252	G-8

6-19. PRINTED WIRING BOARD   PANEL SECTION   • Refer to page 37 for Note on Printed Wiring Boards.   • Refer to page 37 for Circuit Board Location.

【 FL BOARD 】

【 PSW BOARD 】

【 REC BOARD 】
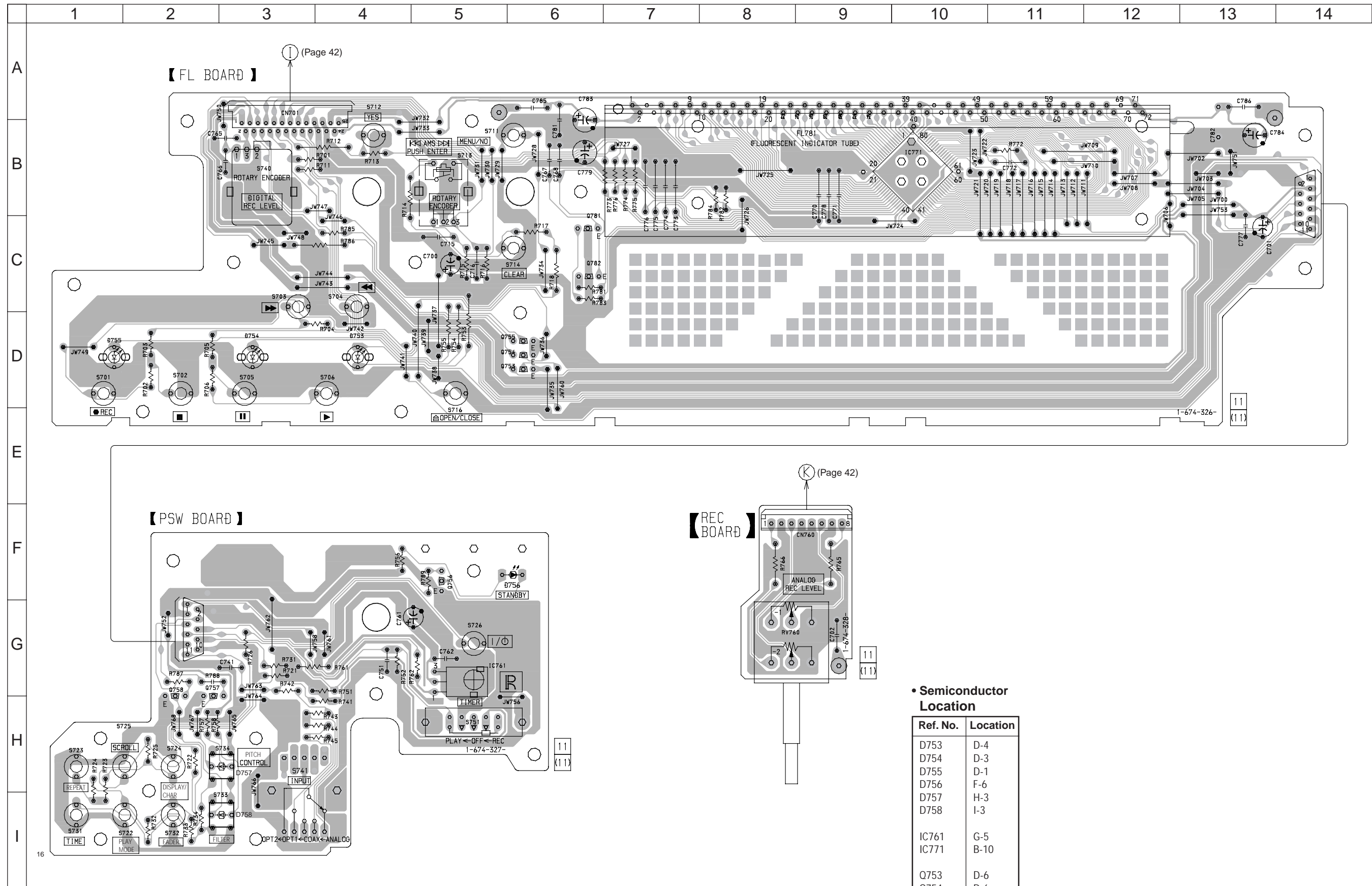
• **Semiconductor Location**

Ref. No.	Location
D753	D-4
D754	D-3
D755	D-1
D756	F-6
D757	H-3
D758	I-3
IC761	G-5
IC771	B-10
Q753	D-6
Q754	D-6
Q755	D-6
Q756	F-5
Q757	G-3
Q758	G-2
Q781	C-6
Q782	C-6

6-20. SCHEMATIC DIAGRAM   PANEL SECTION   • Refer to page 37 for Note on Schematic Diagrams.   • Refer to page 56 for Waveforms.

【PSW BOARD】

【REC BOARD】

【FL BOARD】

NOTE
• Voltages and waveforms are dc with respect to ground under no-signal conditions.
no mark: PLAY

• **Waveforms**

BD SECTION

① TP166 (RF) (Play mode)
1.2 ± 0.2 Vp-p

⑥ TP124 (BCK)
4.0 Vp-p
2.822 MHz

② TP108 (A) (Play mode)
Approx. 0.16 Vp-p

⑦ TP205 (FS256)
4.3 Vp-p
11.29 MHz

③ TP102,T105 (E, F) (Play mode)
Approx. 0.16 Vp-p

⑧ TP217 (FS4)
3.3 Vp-p
176.4 kHz

④ TP219 (OSCI)
2.9 Vp-p
45.15 MHz

⑨ TP138 (1024FS)
2.6 Vp-p
45.15 MHz

⑤ TP131 (LRCK)
3.3 Vp-p
44.1 kHz

AD SECTION

① IC800 ⑬ (XOUT)
3.4 Vp-p
7 MHz

② IC800 ⑪ (XOUT-T)
3.3 Vp-p
32 kHz

③ IC301 ㊼ (LRCK)
5 Vp-p
44.1 kHz

④ IC301 ㊴ (BCK)
5 Vp-p
2.822 MHz

⑤ IC301 ㉖ (FCLK)
5.8 Vp-p
5.644 MHz

⑥ IC301 ㉗ (MCLK)
5 Vp-p
11.289 MHz

DA SECTION

① IC501 ㊿ (LRCKI)
3.4 Vp-p
44.1 kHz

② IC501 ㊾ (BCKI)
3.4 Vp-p
2.822 MHz

③ IC502 ㊾ (NSBCKO)
5 Vp-p
5.644 MHz

④ IC502 �51 (512FSO)
5 Vp-p
22.579 MHz

⑤ IC502 ㊹ (256FSO)
5 Vp-p
11.289 MHz

⑥ IC514 ⑦ (O1)
4Vp-p
45.158 MHz

FL SECTION

① IC771 ㊻ (OSCO)
3.3 Vp-p
2.59 MHz

56   56

6-21. IC BLOCK DIAGRAMS
IC101   CXA2523AR (BD BOARD)
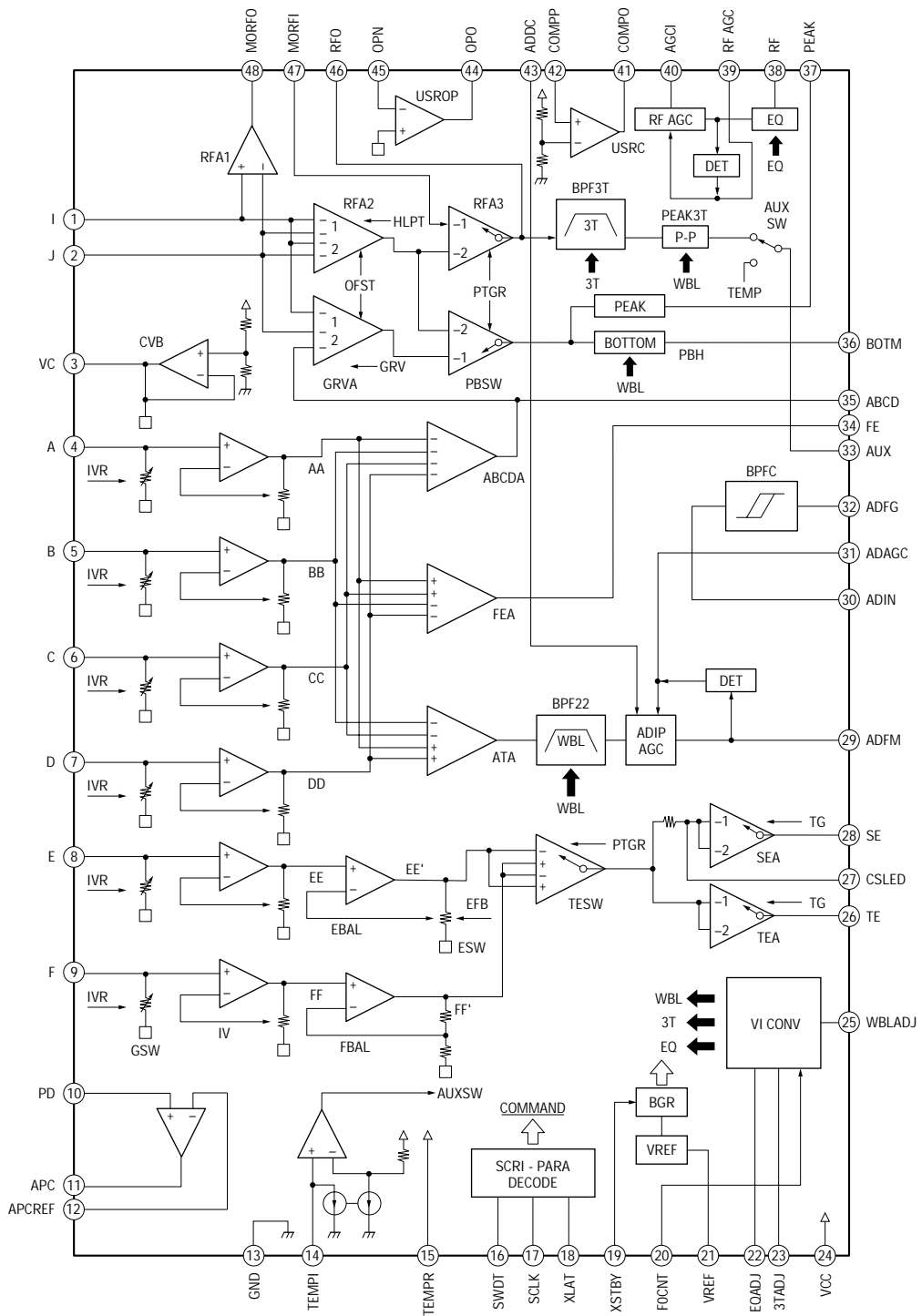
IC121   CXD2656R (BD BOARD)
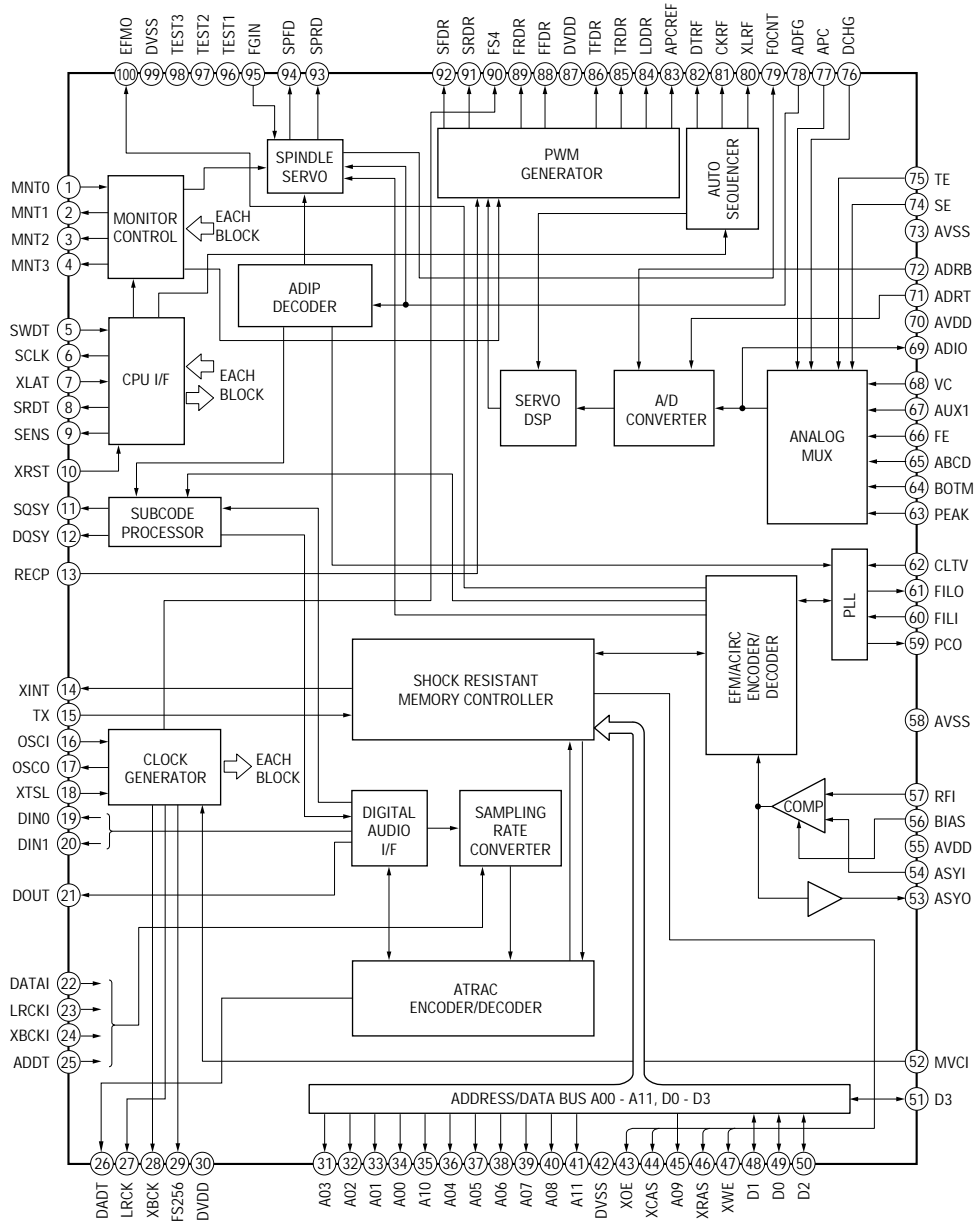
IC152   BH6511FS (BD BOARD)
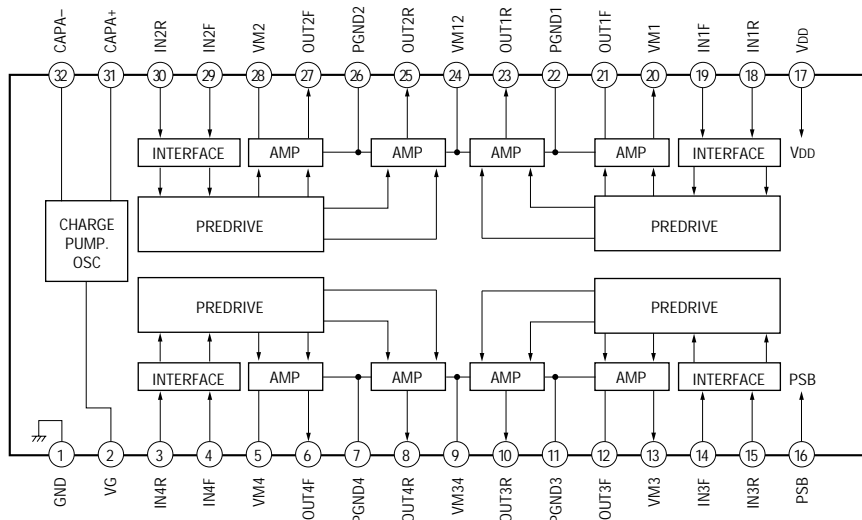
IC302   CXD8493M-E1 (AD BOARD)

AGND 1
APD 2
AINL+ 3
AINL- 4
ACAL 5
LGND 6
VL+ 7
PDML 8
NC 9
NC 10
NC 11
NC 12
NC 13
NC 14

28 VREF +
27 VREF -
26 AINR +
25 AINR -
24 VA -
23 VA +
22 I CKL
21 PDMR
20 NC
19 NC
18 NC
17 NC
16 NC
15 NC

VOLTAGE REFERENCE
LP FILTER
DAC
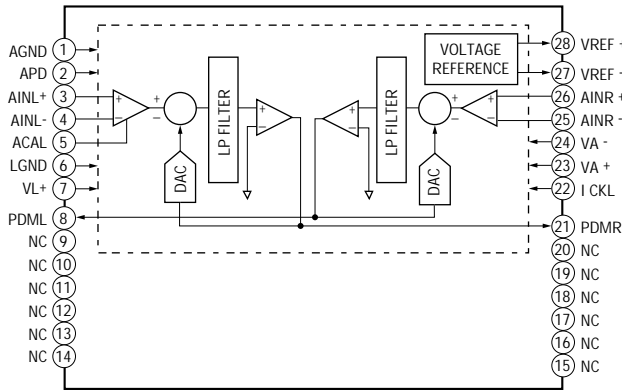
IC803, 804   TC74VHCT244AF(EL) (AD BOARD)

Vcc 20
2G 19
1Y1 18
2A4 17
1Y2 16
2A3 15
1Y3 14
2A3 13
1Y4 12
2A4 11

1G 1
1A1 2
2Y4 3
1A2 4
2Y3 5
1A3 6
2Y2 7
1A4 8
2Y1 9
GND 10

IC501   CXD8762Q (DA BOARD)

CKTL3 64
DFCKSEL 63
NSCKSEL 62
VSS 61
MUTEL 60
MUTER 59
PWMSEL 58
MTPOL 57
DRPOL 56
VDD 55
DATAVDD 54
SDATAL 53
SDATAR 52
SBCKI 51

LRCKI 50
BCKI 49
DATAI 48
VSS 47
VSS 46
LVCKO1 45
LVCKO2 44
INVO 43
INVI 42
128FSO 41

CKTL2 65
CKTL1 66
CKTL0 67
TEST2 68
TEST1 69
DFIOSEL 70
DFLRCK 71
DFDTL 72
DFDTR 73
DFBCK 74
DFDTEN 75
PLMGAIN2 76
PLMGAIN1 77
VDD 78
VSS 79
VSUBL1 80

40 DINIT
39 INAF
38 OVFLAG
37 CKVDD
36 CTLVDD
35 SYNC
34 MODE
33 SCDATA
32 SHIFT
31 LATCH
30 INIT
29 SYSM
28 NREGCLR
27 VDD
26 VSS
25 VSUBR1

SERIAL TEST
S/P
DIGITAL FILTER
P/S
LINEAR INTERPOLATOR
NOISE SHAPER
SEL
PWM
SEL
CLOCK GEN.
SERIAL CONTROL
MUTE /INT

1 NSDOL4
2 AVSSL1
3 NSDOL3
4 AVDDL1
5 AVDDL2
6 NSDOL2
7 AVSSL2
8 NSDOL1
9 VSUBL2
10 64FSI
11 XVDD
12 XOUT
13 XIN
14 XVSS
15 VSUBX
16 VSUBR2
17 NSDOR2
18 AVSSR2
19 NSDOR2
20 AVDDR2
21 AVDDR1
22 NSDOR3
23 AVSSR1
24 NSDOR4

IC502   CXD9521Q (DA BOARD)

IC504, 505   CXA8042AS (DA BOARD)
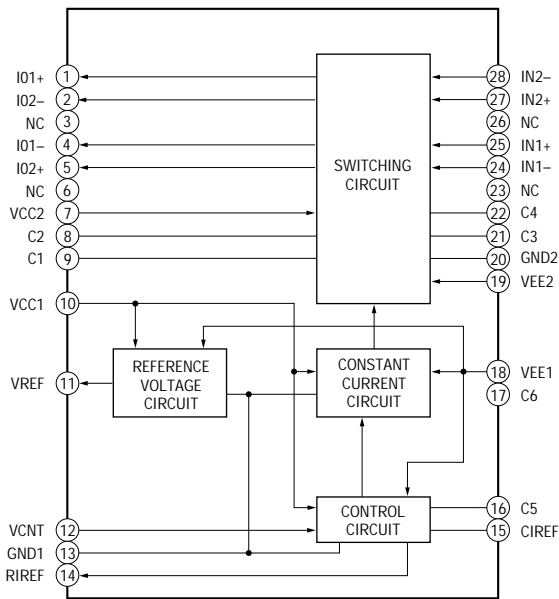
IC405 SN74HC153ANS (DIGITAL BOARD)
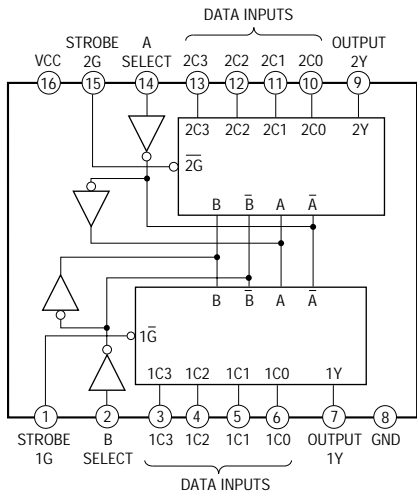
IC240 LA5632 (PW BOARD)
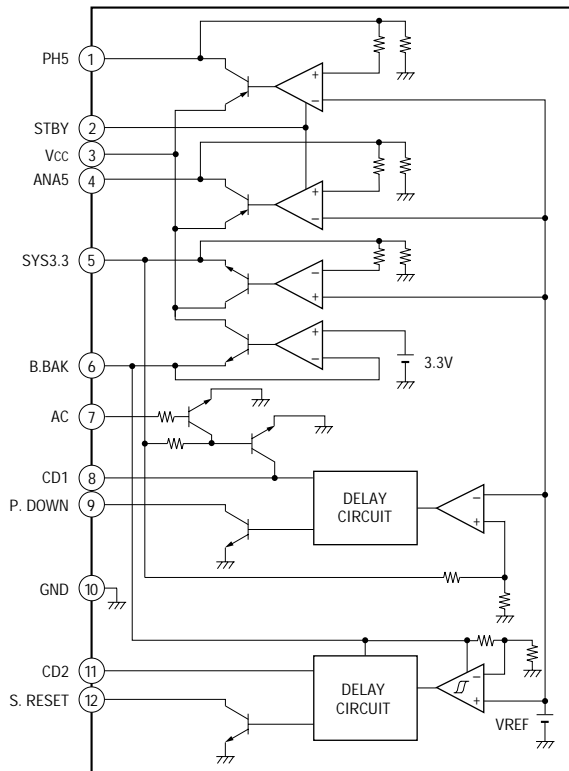
IC250 LB1641 (PW BOARD)
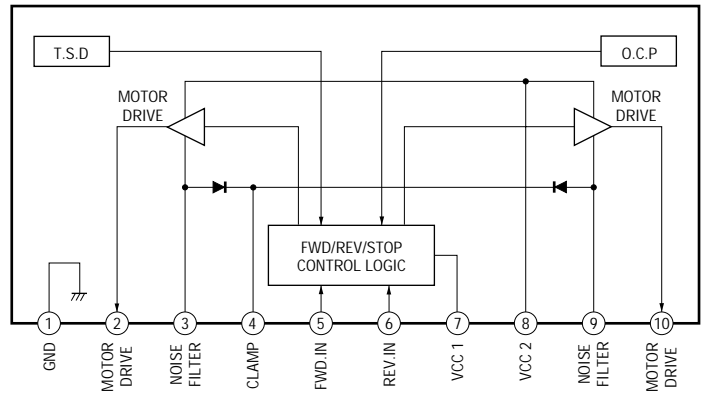
IC270 M5293L (PW BOARD)
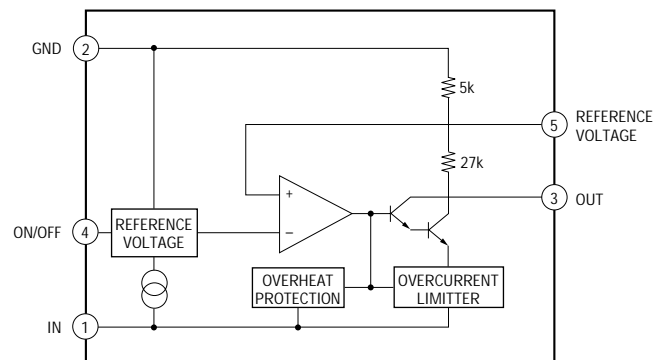
6-22. IC PIN FUNCTION DESCRIPTION
• BD BOARD IC101 CXA2523AR (RF AMPLIFIER, FOCUS/TRACKING ERROR AMPLIFIER)

Pin No.	Pin Name	I/O	Description
1	I	I	RF signal input (I) that is supplied form the optical pickup detector and has already been I-V converted
2	J	I	RF signal input (J) that is supplied form the optical pickup detector and has already been I-V converted
3	VC	O	Middle point voltage (+1.65 V) generation output
4 to 9	A to F	I	Signal input from optical pick-up detector (A to F)
10	PD	I	Light amount monitor input from laser diode of optical pick-up
11	APC	O	Laser amplifier output to automatic power control circuit
12	APCREF	I	Reference voltage input for setting laser power from CXD2656R (IC121)
13	GND	—	Ground
14	TEMPI	I	Temperature sensor connection pin
15	TEMPR	O	Reference voltage output for temperature sensor
16	SWDT	I	Write data signal input from CXD2656R (IC121)
17	SCLK	I	Serial clock signal input from CXD2656R (IC121)
18	XLAT	I	Serial latch signal input from CXD2656R (IC121)
19	$\overline{\text{XSTBY}}$	I	Standby signal input
20	F0CNT	I	Control signal input of center frequency for internal circuit filter (BPF22, BPF3T, EQ) from CXD2656R (IC121)
21	VREF	O	Reference voltage output Not used in this system (Blank terminal)
22	EQADJ	I	Input pin for setting center frequency of internal circuit filter (EQ)
23	3TADJ	I	Input pin for setting center frequency of internal circuit filter (BPF3T)
24	VCC	—	Power supply (+33 V)
25	WBLADJ	I	Input pin for setting center frequency of internal circuit filter (BPF22)
26	TE	O	Tracking error signal output to CXD2656R (IC121)
27	CSLED	I	Connection pin of capacitor for low path filter of sled error
28	SE	O	Sled error signal output to CXD2656R (IC121)
29	ADFM	O	ADIP FM signal output
30	ADIN	I	Inputs ADIP FM signal by AC coupling
31	ADAGC	I	Connection pin of external capacitor for ADIP AGC
32	ADFG	O	ADIP dual FM signal output to CXD2656R (IC121) (2205 kHz ± 1 kHz)
33	AUX	O	Auxiliary signal (I3 signal/temperature signal) output to CXD2656R (IC121)
34	FE	O	Focus error signal output to CXD2656R (IC121)
35	ABCD	O	Light amount signal (ABCD) output to CXD2656R (IC121)
36	BOTM	O	Bottom hold signal output of light amount signal (RF/ABCD) to CXD2656R (IC121)
37	PEAK	O	Peak hold signal output of light amount signal (RF/ABCD) to CXD2656R (IC121)
38	RF	O	Playback EFM RF signal output to CXD2656R (IC121)
39	RFAGC	I	Connection pin of RF AGC circuit external capacitor
40	AGCI	I	Inputs RF signal by AC coupling
41	COMPO	O	Output terminal to user's comparator. Not used. (Blank terminal)
42	COMPP	I	Inverted input terminal from user's comparator. Not used. (Fixed to "L")
43	ADDC	I	The terminal to which external capacitor to cut off low frequency range of the ADIP amplifier, is going to be connected.
44	OPO	O	Output terminal to user's operational amplifier. Not used. (Blank terminal)
45	OPN	I	Inverted input terminal from user's operational amplifier. Not used. (Fixed to "L")
46	RFO	O	Output pin of RF signal
47	MORFI	I	Inputs MO RF signal by AC coupling
48	MORFO	O	Output pin of MO RF signal

• BD BOARD IC121 CXD2656R   (DIGITAL SIGNAL PROCESSOR, DIGITAL SERVO SIGNAL PROCESSOR, EFM/ACIR ENCODER/DECODER, SHOCK-PROOF REMOTE CONTROLLER, ATRAC ENCODER/DECODER)

Pin No.	Pin Name	I/O	Description
1	MNT0 (FOK)	O	Focus OK signal output to system controller (IC800) Outputs "H" when focus is set ("L": NG)
2	MNT1 (SHOCK)	O	Track jump detection signal output to system controller (IC800)
3	MNT2 (XBUSY)	O	Busy monitor signal output to system controller (IC800)
4	MNT3	O	Spindle servo lock status monitoring signal output to system controller (IC800)
5	SWDT	I	Inputs write data signal from system controller (IC800)
6	SCLK	I (S)	Inputs serial clock signal from system controller (IC800)
7	XLAT	I (S)	Inputs serial latch signal from system controller (IC800)
8	SRDT	O (3)	Outputs read data signal to system controller (IC800)
9	SENS	O (3)	Outputs internal status (SENSE) signal to system controller (IC800)
10	$\overline{\text{XRST}}$	I (S)	Inputs reset signal input from system controller (IC800) "L": Reset
11	SQSY	O	Sub code Q sync (SCOR) output to system controller (IC800) Outputs "L" every 133 msec. Outputs "H" mostly
12	DQSY	O	Outputs digital-in U-bit CD format sub code Q sync (SCOR) to system controller (IC800) Outputs "L" every 133 msec. Outputs "H" mostly
13	RECP	I	Laser power switching signal input from system controller (IC800) "L": Playback, "H": Recording
14	XINT	O	Interrupt status output to system controller (IC800)
15	TX	I	Recording data output enable signal input from system controller (IC800). Transmission timing of the write signal is input. (Used also as ON/OFF of magnetic head)
16	OSCI	I	System clock (1024Fs = 451584 MHz) input
17	OSCO	O	System clock (1024Fs = 451584 MHz) output. Not used in this system (Blank terminal)
18	XTSL	I	System clock frequency setting input. "L": 451584 MHz, "H": 22.5792 kHz
19	DIN0	I	Recording system digital audio signal input (for digital optical -1/2 input and coaxial input)
20	DIN1	I	Recording system digital audio signal input. Not used (Fix at "L")
21	DOUT	O	Playback system digital audio signal output (for digital optical output and coaxial input)
22	DATAI	I	Serial data input Not used (Fix at "L")
23	LRCKI	I	L/R sampling clock signal input (44.1 kHz) Not used in this system (Fixed at "L")
24	XBCKI	I	Bit clock signal input of serial input/output (2.8224 kHz) Not used in this system (Fixed at "L")
25	ADDT	I	Recording data signal input from CXD8512Q (IC301)
26	DADT	O	Playback data signal output from CXD8512Q (IC301)
27	LRCK	O	L/R sampling clock signal output (44.1 kHz) to CXD8512Q (IC301) and CXD8762Q (IC501)
28	XBCK	O	Bit clock signal output of serial input/output data (44.1 kHz) to CXD8512Q (IC301) and CXD8762Q (IC501)
29	FS256	O	11.2896 MHz clock signal output Not used (Blank terminal)
30	DVDD	—	Power supply (+5 V) (Digital)
31 to 34	A03 to A00	O	Address signal output to D-RAM (IC124)
35	A10	O	Address signal output to external D-RAM Not used (Blank terminal)
36 to 40	A04 to A08	O	Address signal output to D-RAM (IC124)

* I (S) of I/O is schmitt input, I (A) is analog input, O (3) is 3-state output, O (A) is analog output

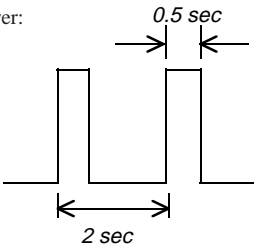| Pin No.	Pin Name	I/O	Description
41	A11	O	Address signal output to external D-RAM Not used (Blank terminal)
42	DVSS	—	Ground (Digital)
43	$\overline{\text{XOE}}$	O	Output enable signal output to D-RAM (IC124) "L": Active
44	$\overline{\text{XCAS}}$	O	Column address strobe signal output to D-RAM (IC124) "L": Active
45	A09	O	Address signal output to D-RAM (IC124)
46	$\overline{\text{XRAS}}$	O	Low address strobe signal output to D-RAM (IC124) "L": Active
47	$\overline{\text{XWE}}$	O	Write enable signal output to D-RAM (IC124) "L": Active
48	D1	I/O	Bi-directional data bus with D-RAM (IC124)
49	D0	I/O	
50	D2	I/O	
51	D3	I/O	
52	MVCI	I (S)	Input to digital-in PLL oscillation from external VCO. Not used (Fix at "L")
53	ASYO	O	Playback EFM full-swing output
54	ASYI	I (A)	Playback EFM asymmetry comparate voltage input
55	AVDD	—	Power supply (+3.3 V) (Analog)
56	BIAS	I (A)	Constant current input to playback EFM asymmetry circuit
57	RFI	I (A)	Playback EFM RF signal input from CXA2523AR (IC101)
58	AVSS	—	Ground (+3.3 V) (Analog)
59	PCO	O (3)	Phase comparator output to master clock of the master PLL of the record/playback EFM system
60	FILI	I (A)	Filter input to master clock of the master PLL of the record/playback EFM system
61	FILO	O (A)	Filter output to master clock of the master PLL of the record/playback EFM system
62	CLTV	I (A)	Internal VCO control voltage input to the master PLL of the record/playback EFM system
63	PEAK	I (A)	Peak hold signal input of light amount signal (RF/ABCD) from CXD2523AR (IC101)
64	BOTM	I (A)	Bottom hold signal input of light amount signal (RF/ABCD) from CXD2523AR (IC101)
65	ABCD	I (A)	Light amount signal (ABCD) from CXD2523AR (IC101)
66	FE	I (A)	Focus error signal input from CXD2523AR (IC101)
67	AUX1	I (A)	Auxiliary signal (I3 signal/temperature signal) output from CXD2523AR (IC101)
68	VC	I (A)	Middle point voltage (+1.65 V) output from CXD2523AR (IC101)
69	ADIO	O (A)	Monitor output of A/D converter input signal. Not used in this system (Blank terminal)
70	AVDD	—	Power supply (+3.3 V) (Analog)
71	ADRT	I (A)	A/D converter operation range upper limit voltage input. (Fixed to "H")
72	ADRB	I (A)	A/D converter operation range lower limit voltage input. (Fixed to "L")
73	AVSS	—	Ground (Analog)
74	SE	I (A)	Sled error signal input from CXD2523AR (IC101)
75	TE	I (A)	Tracking error signal input from CXD2523AR (IC101)
76	DCHG	I (A)	Connected to power line (+3.3 V)
77	APC	I (A)	Error signal input to laser automatic power control. Not used in this system (Fixed to "H")
78	ADFG	I (S)	ADIP dual FM signal input from CXD2523AR (IC101) (22.05 kHz ± 1 kHz)
79	F0CNT	O	Filter f0 control signal output to CXD2523AR (IC101)
80	XLRF	O	Serial latch signal output to CXD2523AR (IC101)
81	CKRF	O	Serial clock signal output to CXD2523AR (IC101)
82	DTRF	O	Write data signal output to CXD2523AR (IC101)
83	APCREF	O	Control signal output for reference voltage generation circuit of laser automatic power control to CXD2523AR (IC101)
84	LDDR	O	PWM signal output for laser automatic power control Not used in this system (Blank terminal)
85	TRDR	O	Tracking servo drive PWM signal output to BH6511FS (IC152) (-)

* I (S) of I/O is schmitt input, I (A) is analog input, O (3) is 3-state output, O (A) is analog output

Pin No.	Pin Name	I/O	Description
86	TFDR	O	Tracking servo drive PWM signal output to BH6511FS (IC152)
87	DVDD	—	Power supply (+3.3 V) (Digital)
88	FFDR	O	Focus servo drive PWM signal output to BH6511FS (IC152) (+)
89	FRDR	O	Focus servo drive PWM signal output to BH6511FS (IC152) (-)
90	FS4	O	176.4 kHz clock signal output (X'tal system) Not used in this system (Blank terminal)
91	SRDR	O	Sled servo drive PWM signal output to BH6511FS (IC152) (-)
92	SFDR	O	Sled servo drive PWM signal output to BH6511FS (IC152) (+)
93	SPRD	O	Spindle servo drive PWM signal output to BH6511FS (IC152) (-)
94	SPFD	O	Spindle servo drive PWM signal output to BH6511FS (IC152) (+)
95	FGIN	I (S)	Input pin for test (Fixed at "L")
96	TEST1	I	Input pin for test (Fixed at "L")
97	TEST2	I	Input pin for test (Fixed at "L")
98	TEST3	I	Input pin for test (Fixed at "L")
99	DVSS	—	Ground (Digital)
100	EFMO	O	EFM signal output for recording to overwrite head driver (IC181)

* I (S) of I/O is schmitt input, I (A) is analog input, O (3) is 3-state output, O (A) is analog output

• AD BOARD IC301 CXD8512Q (DIGITAL FILTER)

Pin No.	Pin Name	I/O	Description
1	TEST	I	Input pin for test (Fixed at "L")
2	NC	—	Not used in this system (Blank terminal)
3	SYNC	I	Sync mode selector input. "L": Slave mode. "H": Master mode. Fixed to "L"
4	INIT	I	Reset signal input from the system controller (IC800) "L": Reset
5	NC	—	Not used in this system (Blank terminal)
6	CLFG	O	Flag output terminal for calibration. Not used in this system (Blank terminal)
7, 8	VDD	—	Power supply (+5 V)
9	LRKI	I	L/R sampling clock signal input Not used (Fixed at "L")
10	BKI	I	Bit clock signal input of serial input/output data. Not used in this system (Fixed at "L")
11	NC	—	Not used in this system (Blank terminal)
12	DLI	I	L channel data input (when 8Fs, 2Fs, and FS) Not used in this system (Fixed at "L")
13	DRI	I	R channel data input (8FS and 2FS) FSYNC input when FS Not used in this system (Fixed at "L")
14	IFLG	O	Sync flag output terminal to the input side. Not used in this system (Blank terminal)
15, 16	NC	—	Not used in this system (Blank terminal)
17	LR	I	FE selection IBIT (㉝-pin) "L" LR selection when "H" Fixed at "L" in this system
18	AL2	I	64FS data (L channel data) input Not used in this system (Fixed at "L")
19	AR2	I	64FS data (R channel data) input Not used in this system (Fixed at "L")
20	AL1	I	64FS data input from A/D converter (IC302) (L channel data)
21	AR1	I	64FS data input from A/D converter (IC302) (R channel data)
22, 23	VSS	—	Ground
24, 25	VSS	—	Ground (For oscillator circuit)
26	FCLK	O	FE clock signal output to A/D converter (IC302) (128FS)
27	MCLK	I	Master clock signal input to D/A converter (IC502) (256FS)
28	VDD	—	Power supply (+5 V) (For oscillator circuit)
29	NC	—	Not used in this system (Blank terminal)
30	IBIT	I	Input terminal to set the input data word length during 64 FS. "L: 1 bit, "H": 4 bits. (Fixed at "L")
31	NC	—	Not used in this system (Blank terminal)
32	VSS	—	Ground
33	SCALE	I	Input terminal to set the scaling amount during 64 FS. "L: x5, "H": x4. (Fixed at "L")
34, 35	ISET1,ISET2	I	Input terminal to set the input sampling frequency. (Fixed both terminals to "L" = 64 FS) ISEL1 / ISEL2 table: ISEL2 "H", ISEL1 "H": 8FS, ISEL1 "L": FS ISEL2 "L", ISEL1 "H": 2FS, ISEL1 "L": 64FS
36	NC	—	Not used in this system (Blank terminal)
37	DITH	I	Input terminal to set the dizzer mode. "L: OFF, "H": ON. (Fixed at "H")
38	BOOST	I	Input terminal to set the frequency compensation function. "L: OFF, "H": ON. (Fixed at "H")
39	VDD	—	Power supply terminal (+ 5V)
40	MODE	I	Mode data input Not used in this system (Fixed at "H")
41	SHIFT	I	Serial data shift clock signal input Not used in this system (Fixed at "H")
42	LATCH	I	Serial data shift latch pulse input Not used in this system (Fixed at "H")

For pins 34, 35 (ISET1, ISET2):

ISEL1 \ ISEL2	"H"	"L"
"H"	8FS	FS
"L"	2FS	64FS

Pin No.	Pin Name	I/O	Description
43	NC	—	Not used in this system (Blank terminal)
44	LC	I	Input terminal to set the low-cut function. "L: OFF, "H": ON. (Fixed at "H")
45	NS	I	Input terminal to set the noise shaving function. "L: OFF, "H": ON. (Fixed at "H")
46	NC	—	Not used in this system. (Blank terminal)
47	OSEL	I	Input pin for setting output sampling frequency "L": FS, "H": 2FS (Fixed at "L" in this system)
48	OBIT	I	Input terminal to set the output data word length. "L: 16 bit, "H": 24 bits. (Fixed at "H")
49	DRO	O	Data output during the 8FS and 2FS modes. WCK output during FS mode. Not used in this system. (Blank terminal)
50	DLO	O	Recording data output to CXD2656R (IC121) of the MD mechanism deck
51	NC	—	Not used in this system (Blank terminal)
52, 53	VSS	—	Ground
54	BCK	I	Bit clock signal input (2.8224 MHz) from MD mechanism deck block CXD2656R (IC121)
55	NC	—	Not used in this system (Blank terminal)
56	LRCK	I	L/R sampling clock signal input (44.1 kHz) from MD mechanism deck block CXD2656R (IC121)
57	OFLG	O	Sync flag output terminal of output side. Not used in this system (Blank terminal)
58	VDD	—	Power supply (+5 V)
59	OVR	O	Overflow flag output of R channel. Not used in this system (Blank terminal)
60	OVL	O	Overflow flag output of L channel. Not used in this system (Blank terminal)

• AD BOARD IC800 M30624MG-215FP (SYSTEM CONTROLLER)

Pin No.	Pin Name	I/O	Description
1	JOG1	I	Jog dial pulse input from rotary encoder (S713 I◁◁AMS▷▷I) (phase B input)
2	JOG0	I	Jog dial pulse input from rotary encoder (S713 I◁◁AMS▷▷I) (phase A input)
3	C1ERO	O	C1 error rate output during test mode (Blank terminal)
4	ADERO	O	ADER output during test mode (Blank terminal)
5	SQSY	I	Sub code Q sync (SCOR) input from CXD2656R (IC121) Input "L" every 13.3 msec "H" is input mostly
6	RMC	I	Remote control receiving signal input form remote control receiver (IC761)
7	A1IN	I	SIRCS remote control signal input for the S-LINK control A1
8	BYTE	I	Input terminal to select the external data bus width. "L: 16 bit, "H": 8 bits. (Fixed at "L")
9	CNVSS	—	Ground
10	XIN-T	I	Sub system clock input (32.768 kHz)
11	XOUT-T	O	Sub system clock input (32.768 kHz)
12	S̅.̅R̅S̅T̅	I	System reset signal input from reset signal generator (IC240) "L": Reset. Input "L" during the several 100 ms after the power startup then change to the "H" input
13	XOUT	O	Main system clock output (7 MHz)
14	GND	—	Ground
15	XIN	I	Main system clock input (7 MHz)
16	+ 3.3 V	—	Power supply (+3.3 V)
17	NMI	I	Non-maskable interrupt input terminal. Fixed at "H")
18	DQSY	I	Sub code Q sync (SCOR) input of digital-in U-bit CD format from CXD2656R (IC121) Input "L" every 13.3 msec "H" is input mostly
19	P̅.̅D̅O̅W̅N̅	I	Power down detection input. Input "L" when power down is detected
20	XINT	I	Interrupt status input from CXD2656R (IC121)
21	DVOL1	I	Jog dial pulse input from rotary encoder (S740 REC LEVEL DEGITAL) (phase B input)
22	DVOL0	I	Jog dial pulse input from rotary encoder (S740 REC LEVEL DEGITAL) (phase A input)
23	A̅D̅R̅S̅T̅	O	Reset signal output to A/D converter (IC302) "L": Reset
24 to 30	NC	O	Not used in this system (Blank terminal)
31	SWDT	O	Write data output to CXD2656R (IC121) and CXD8762Q (IC501)
32	SRDT	I	Read data input from CXD2656R (IC121)
33	SCLK	O	Serial clock signal output to CXD2656R (IC121) and CXD8762Q (IC501)
34	FLCS	O	Chip select signal output to fluorescent display tube/LED drive IC (IC771) "L": Active
35	FLDATA	O	Serial data output for display to fluorescent display tube/LED drive IC (IC771)
36	NC	I	Not used in this system (Fixed at "L")
37	FLCLK	O	Serial data transfer clock signal output for display to fluorescent display tube/LED drive IC (IC771)
38 to 47	NC	O	Not used in this system (Blank terminal)
48	CSET0	I	Initial data input terminal for the watch setting in local time. Fixed to "H"
49	CSET1	I	Initial data input terminal for the watch setting in local time. Fixed to "H"
50	20/X720	I	Initial data input terminal for the loading control method. "H": IN switch is not used. (Fixed at "H")
51	NC	I	Not used in this system (Fixed at "L")
52	MNT2 (XBUSY)	I	Busy monitor signal input from CXD2656R (IC121)
53	D̅I̅G̅-̅R̅S̅T̅	O	Reset signal output to CXD2656R (IC121), BH6511FS (IC152), CXD8512Q (IC301) "L": Reset

Pin No.	Pin Name	I/O	Description
54	MNT1 (SHOCK)	I	Track jump detection signal input from CXD2656R (IC121)
55	SENS	I	Internal status (SENSE) input from CXD2656R (IC121)
56	LDON	O	Laser diode ON/OFF control signal output to automatic power control circuit "H": Laser ON
57	REFLECT	I	Disc reflection rate detection input from the reflect detection switch (S102). "L": High reflection disc. "H": Low reflection disc
58	PROTECT	I	Write protect detection input from the protect detection switch (S102). "H": Write protected
59	WR-PWR	O	Laser power switching signal output to CXD2656R (IC121) and HF module switch circuit "L": Playback "H": Recording
60	MNT3 (SLOCK)	I	Monitor signal input of spindle servo lock from CXD2656R (IC121)
61	SDA	I/O	Bi-directional data bus with non-volatile memory (IC171)
62	+ 3.3 V	O	Power supply (+3.3 V)
63	NC	—	Not used in this system (Blank terminal)
64	GND	O	Ground
65	SCTX	O	Recording data output enable signal output to CXD2656 (IC121). The transmission timing of the writing data is output. (Used as ON/OFF of magnetic head too)
66	SCL	I	Clock signal output to non-volatile memory (IC171)
67	MNT0 (FOK)	I	Focus OK signal is input from CXD2656R (IC121). "H" is input when focus is locked. ("L": NG)
68	LIMIT-IN	O	Input signal from the sled limit in detection switch (S101). "L": Sled limit in (when optical pickup comes to the innermost circumference)
69	MOD	O	Laser modulation selector signal output to the HP module switch circuit. During playback power: "H", During stop: "L", During recording power: *0.5 sec* *2 sec*
70	XLATCH	O	Serial data latch pulse output to CXD2656R (IC121)
71	REC/PB	O	Not used in this system (Blank terminal)
72	TECONT	I	Not used in this system (Fixed at "L")
73	XTSL	I	Not used in this system (Fixed at "L")
74	PB-P	I	Playback position detection switch (S10) input "L": Active
75	CHACK IN	I	Input signal from the playback switch position detect switch (S10). "L": active.
76	PACK-OUT	I	Input signal from disc chucking in detection switch (S11). "L": active
77	REC-P	I	Recording position detection switch (S13) input "L": Active
78	LDIN	O	Loading motor control signal output to motor drive IC (IC250)
79	LDOUT	O	"L": Active *1
80	LD-LOW	O	Loading motor drive voltage control signal output to motor drive IC (IC250) "H": Active
81	NC	O	Not used in this system (Blank terminal)

* 1 Loading motor (M10) control

Pin \ Mode	Loading	Eject	Stop	Brake
LDIN (⑦⑧-pin)	"L"	"H"	"H"	"L"
LDOUT (⑦⑨-pin)	"H"	"L"	"H"	"L"

Pin No.	Pin Name	I/O	Description
82	A1OUT	O	SIRCS remote control signal input for the S-LINK control A1
83	MUTE	O	Audio line muting control signal output "L": Line muting ON
84	STB	O	Strobe control signal output to power supply circuit "L": Standby mode, "H": Power ON
85	COAX/XOPT	O	Selection signal output of optical 1/2 input or coaxial input to digital input signal selector (IC405) L: Digital optical 1/2 input, "H": Coaxial input
86	OPT2/XOPT1	O	Selection signal output of optical 1/2 input to digital input signal selector (IC405) L: Digital optical 1 input, "H": Digital optical 2 input
87	DALATCH	O	Serial data latch pulse output to CXD8762Q (IC501)
88	DARST	O	Reset signal output to CXD8762Q (IC501) "L": Reset
89	LED0	O	Drive signal output to ▌▌ (PAUSE) LED (D754) "L": LED ON
90	LED1	O	Drive signal output to ● REC LED (D755) "L": LED ON
91	TIMER	I	Timer switch (S751) input (A/D input) "L": PLAY, "H": REC (middle point voltage: OFF)
92	SOURCE	I	INPUT switch (S741) input (A/D input)
93	KEY3	I	Key input (A/D input) S731 to S734 (TIME, FADER, FILTER, MEGA CONTROL key input)
94	KEY2	I	Key input (A/D input) S722 to S726 (PLAY/MODE, REPEAT, SCROLL/CLOCK SET, DISPLAY/CHAR, I/⏻ key input)
95	KEY1	I	Key input (A/D input) S711 to S714, S716 (MENU/NO, YES, PUSH ENTER, CLEAR, ⏏ OPEN/CLOSE key input)
96	AVSS	—	Ground (for A/D converter)
97	KEY0	I	Key input (A/D input) S701 to S706 (REC ●, ■, ▶▶, ◀◀, ▌▌, ▶ key input)
98	VREF	I	Reference voltage (+3.3 V) input (for A/D converter)
99	+ 3.3V	—	Power supply (+3.3 V)
100	MONO/ST	I	Recording mode switch input "L": MONO, "H": STEREO Not used in this system (Fixed at "H")

SECTION 7
EXPLODED VIEWS

NOTE:
- -XX, -X mean standardized parts, so they may have some differences from the original one.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Color Indication of Appearance Parts Example: KNOB, BALANCE (WHITE) . . . (RED)

  ↑ Parts of Color ↑ Cabinet's Color

- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list and accessories and packing materials are given in the last of this parts list.
- Abbreviation CND : Canadian model

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

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

7-1. UPPER CASE ASSEMBLY
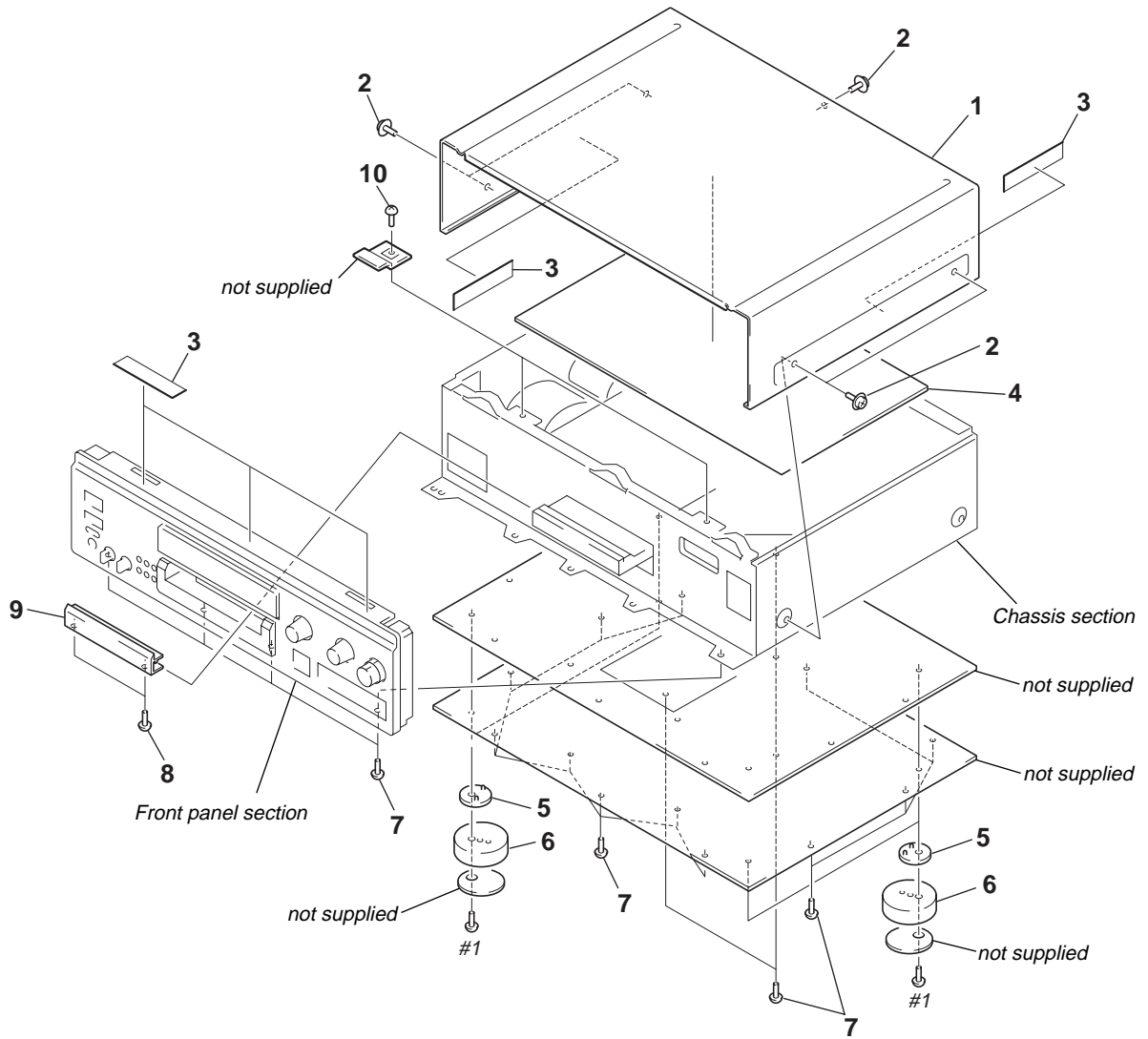
Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
1	4-220-301-01	CASE (GOLD)		6	4-970-487-01	FOOT(F50180S)	
1	4-220-301-11	CASE (BLACK)		7	4-929-074-01	SCREW (3 × 8)	
2	4-210-291-01	SCREW (CASE 3 TP2)(BLACK)		8	3-946-435-11	SCREW (M2.6)(GOLD)	
2	4-210-291-11	SCREW (CASE 3 TP2)(GOLD)		8	3-946-435-21	SCREW(M2.6)(BLACK)	
* 3	4-615-354-01	SPACER		9	4-220-290-01	PANEL, LOADING (GOLD)	
* 4	4-974-014-01	REINFORCEMENT (CASE)		9	4-220-290-11	PANEL, LOADING (BLACK)	
5	4-970-488-01	SPACER (F50180S)		10	4-974-510-01	SCREW (+BW 3 × 8 CU)	

7-2. FRONT PANEL ASSEMBLY
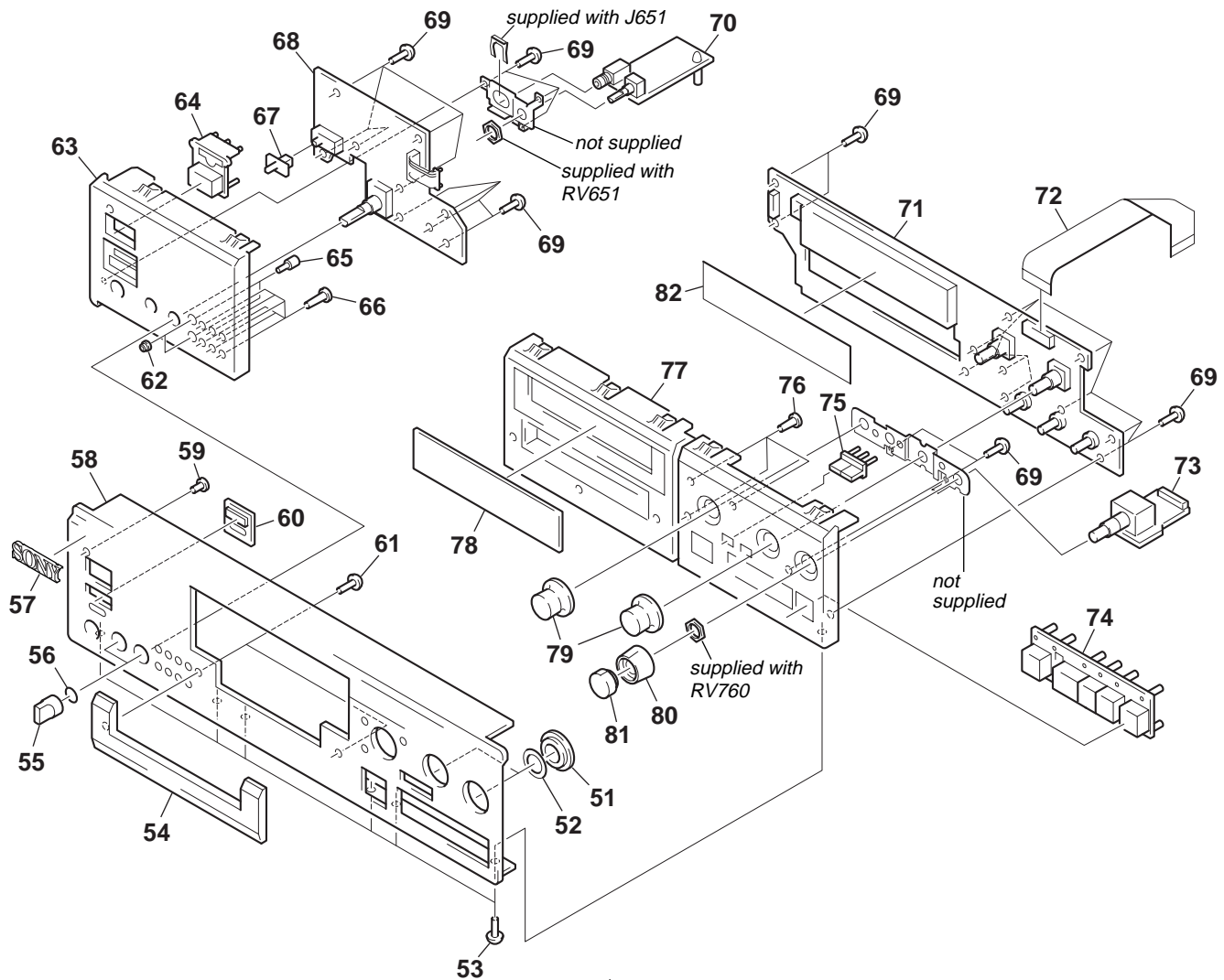
Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
51	4-220-295-01	RING (REC), ORNAMENTAL (GOLD)		68	A-4724-792-A	PSW BOARD, COMPLETE(AEP,UK)	
51	4-220-295-11	RING (REC), ORNAMENTAL (BLACK)		68	A-4724-793-A	PSW BOARD, COMPLETE(US,CND)	
52	4-220-312-01	SHEET (RING), ADHESIVE		69	4-951-620-01	SCREW (2.6 × 8), +BVTP	
53	4-929-074-01	SCREW (3 × 8)		70	1-674-323-11	HP BOARD	
54	4-220-291-01	ESCUTCHEON (MD)(GOLD)		71	A-4724-789-A	FL BOARD, COMPLETE (AEP,UK)	
54	4-220-291-11	ESCUTCHEON (MD)(BLACK)		71	A-4724-790-A	FL BOARD, COMPLETE (US,CND)	
55	4-992-539-01	KNOB (VOL)(GOLD)		72	1-791-547-11	WIRE (FLAT TYPE) (25CORE)	
55	4-992-539-11	KNOB (VOL)(BLACK)		73	1-674-328-11	REC BOARD	
56	3-354-981-01	SPRING (SUS), RING		74	X-4951-690-1	BUTTON (PLAY) ASSY (GOLD)	
57	4-942-568-41	EMBLEM (NO.5), SONY(BLACK)		74	X-4951-691-1	BUTTON (PLAY) ASSY (BLACK)	
58	4-220-325-01	PANEL, FRONT (GOLD)		75	4-220-321-01	BUTTON (FR)(GOLD)	
58	4-220-325-11	PANEL, FRONT (BLACK) (AEP,UK)		75	4-220-321-11	BUTTON (FR)(BLACK)	
58	4-220-325-21	PANEL, FRONT (BLACK) (US,CND)		76	4-220-320-01	BUTTON (EDIT)(GOLD)	
59	4-987-519-01	INDICATOR (D2)		76	4-220-320-11	BUTTON (EDIT)(BLACK)	
60	4-987-520-01	WINDOW (REMOTE CONTROL)(GOLD)		77	4-220-316-01	BASE(R), PANEL (GOLD)	
60	4-987-520-11	WINDOW (REMOTE CONTROL)(BLACK)		77	4-220-316-11	BASE(R), PANEL (BLACK)	
61	3-701-428-31	SCREW, +B 2.6 CLAW		78	4-220-323-01	WINDOW (FL)(GOLD)	
62	4-220-711-01	INDICATOR (FILTER)		78	4-220-323-11	WINDOW (FL)(BLACK)	
63	4-220-315-01	BASE (L), PANEL (GOLD)		79	4-220-292-01	KNOB (AMS)(GOLD)	
63	4-220-315-11	BASE (L), PANEL (BLACK)		79	4-220-292-11	KNOB (AMS)(BLACK)	
64	4-998-737-01	BUTTON (POWER)(GOLD)		80	4-220-293-01	KNOB (REC-L)(GOLD)	
64	4-998-737-11	BUTTON (POWER)(BLACK)		80	4-220-293-11	KNOB (REC-L)(BLACK)	
66	4-220-319-01	BUTTON (MODE)(GOLD)		81	4-220-294-01	KNOB (REC-R)(GOLD)	
66	4-220-319-11	BUTTON (MODE)(BLACK)		81	4-220-294-11	KNOB (REC-R)(BLACK)	
67	4-971-774-01	KNOB (TIMER)(BLACK)		82	4-220-324-01	FILTER (FL)(UK,AEP)	
67	4-971-774-21	KNOB (TIMER)(GOLD)					

7-3. CHASSIS ASSEMBLY
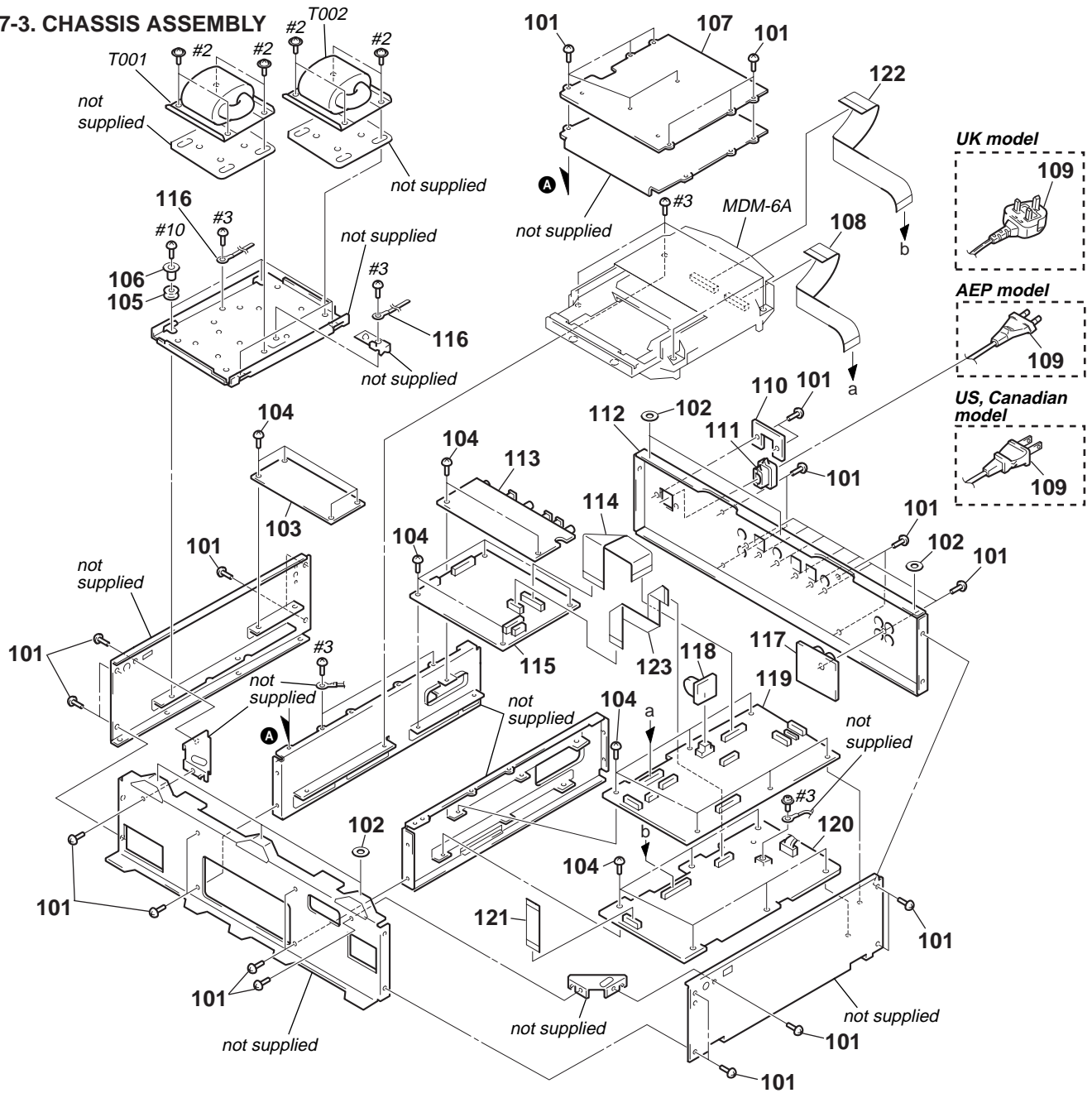
Ref. No.	Part No.	Description	Remarks
101	4-929-074-01	SCREW (3 × 8)	
102	4-971-099-01	WASHER (P)	
103	1-674-321-11	AC BOARD	
104	4-974-510-01	SCREW (+BV 3 × 8 CU)	
* 105	4-888-798-00	BUSHING, RUBBER	
106	4-928-032-01	COLLAR (A)	
107	4-214-292-11	COVER (MDM-T)	
108	1-790-202-11	WIRE (FLAT TYPE) (23 CORE)	
⚠ 109	1-558-568-21	CORD, POWER(AEP)	
⚠ 109	1-559-583-21	CORD, POWER(US,CND)	
⚠ 109	1-696-586-11	CORD, POWER(UK)	
* 110	4-923-873-01	BRACKET, CORD STOPPER	
111	3-703-244-00	BUSHING (2104), CORD	
112	4-220-300-11	PANEL, BACK(UK,AEP)	
112	4-220-300-21	PANEL, BACK(US)	
112	4-220-300-31	PANEL, BACK(CND)	
113	A-4724-810-A	DIG BOARD, COMPLETE(AEP,UK)	
113	A-4724-811-A	DIG BOARD, COMPLETE(US,CND)	
114	1-791-166-11	WIRE(FLAT TYPE) (21 CORE)	

Ref. No.	Part No.	Description	Remarks
115	A-4724-804-A	PW BOARD, COMPLETE(AEP,UK)	
115	A-4724-805-A	PW BOARD, COMPLETE(US,CND)	
* 116	3-703-150-11	CLAMP	
117	1-674-324-11	PJ BOARD	
118	1-674-325-11	BT BOARD	
119	A-4724-798-A	AD BOARD, COMPLETE(AEP,UK)	
119	A-4724-799-A	AD BOARD, COMPLETE(US,CND)	
120	A-4724-801-A	DA BOARD, COMPLETE(AEP,UK)	
120	A-4724-802-A	DA BOARD, COMPLETE(US,CND)	
121	1-790-205-11	WIRE (FLAT TYPE) (17 CORE)	
122	1-791-168-11	WIRE(FLAT TYPE) (27 CORE)	
123	1-791-167-11	WIRE(FLAT TYPE) (13 CORE)	
⚠ T001	1-433-987-11	TRANSFORMER, POWER(US,CND)	
⚠ T001	1-433-989-11	TRANSFORMER, POWER(UK,AEP)	
⚠ T002	1-433-988-11	TRANSFORMER, POWER(US,CND)	
⚠ T002	1-433-990-11	TRANSFORMER, POWER(UK,AEP)	

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

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

7-4. MECHANISM DECK ASSEMBLY-1 (MDM-6A)
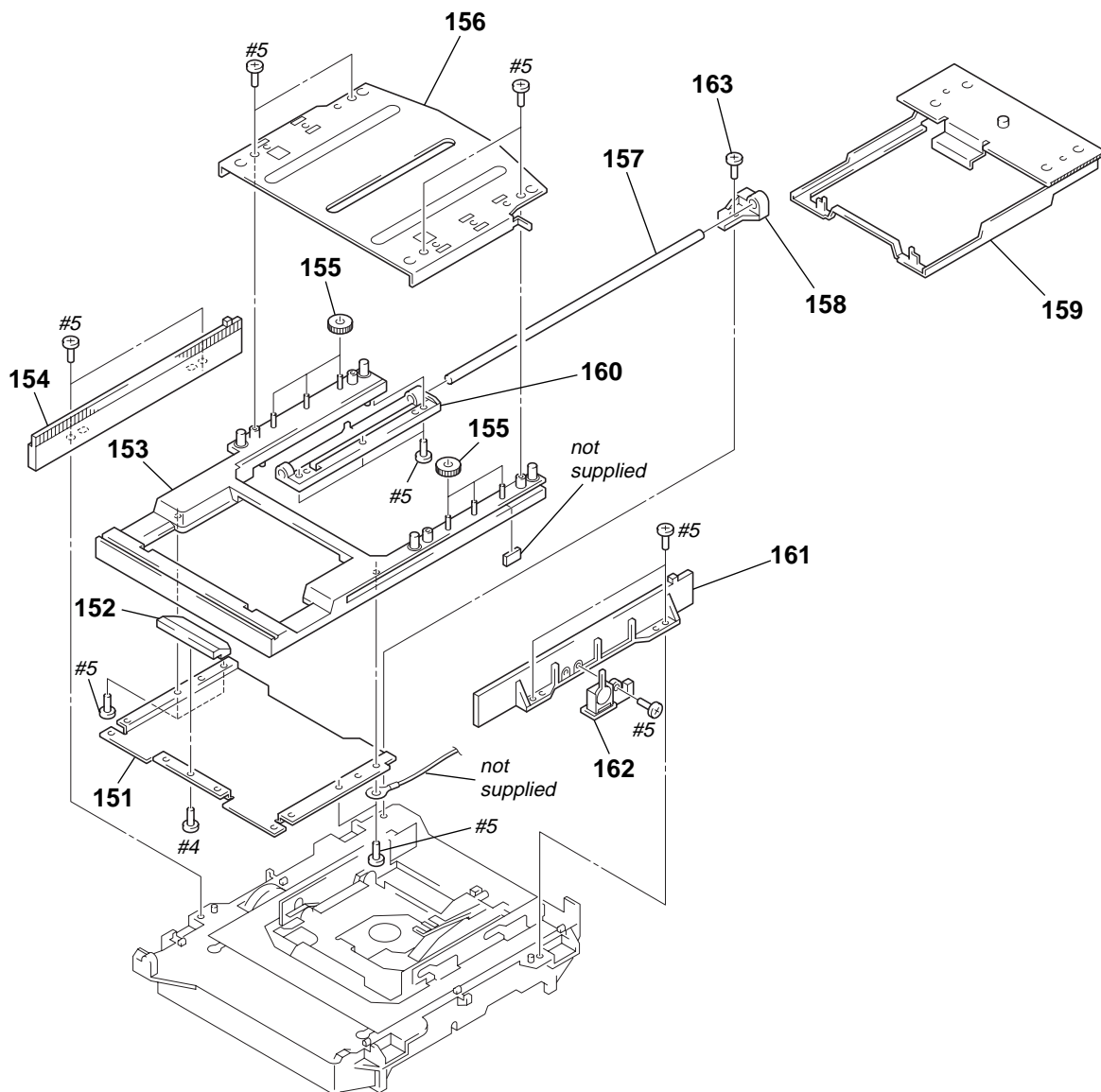
Ref. No.	Part No.	Description	Remarks
* 151	4-999-519-01	BRACKET (TRAY)	
* 152	4-987-267-01	TABLE (EJECT)	
153	4-999-509-01	TRAY	
154	4-999-528-01	RACK (L)	
155	4-999-544-01	GEAR (TOP)	
* 156	4-999-532-01	BRACKET (TOP)	
157	4-999-535-01	SHAFT	

Ref. No.	Part No.	Description	Remarks
158	4-987-271-01	STOPPER (SHAFT B)	
159	X-4949-787-1	SLIDER (D) ASSY	
160	4-999-512-01	GUIDE (SHAFT)	
161	4-999-529-01	RACK (R)	
* 162	1-669-050-11	OUT SWITCH BOARD	
163	4-951-620-41	SCREW (2.6), +BVTP	

7-5. MECHANISM DECK ASSEMBLY-2 (MDM-6A)
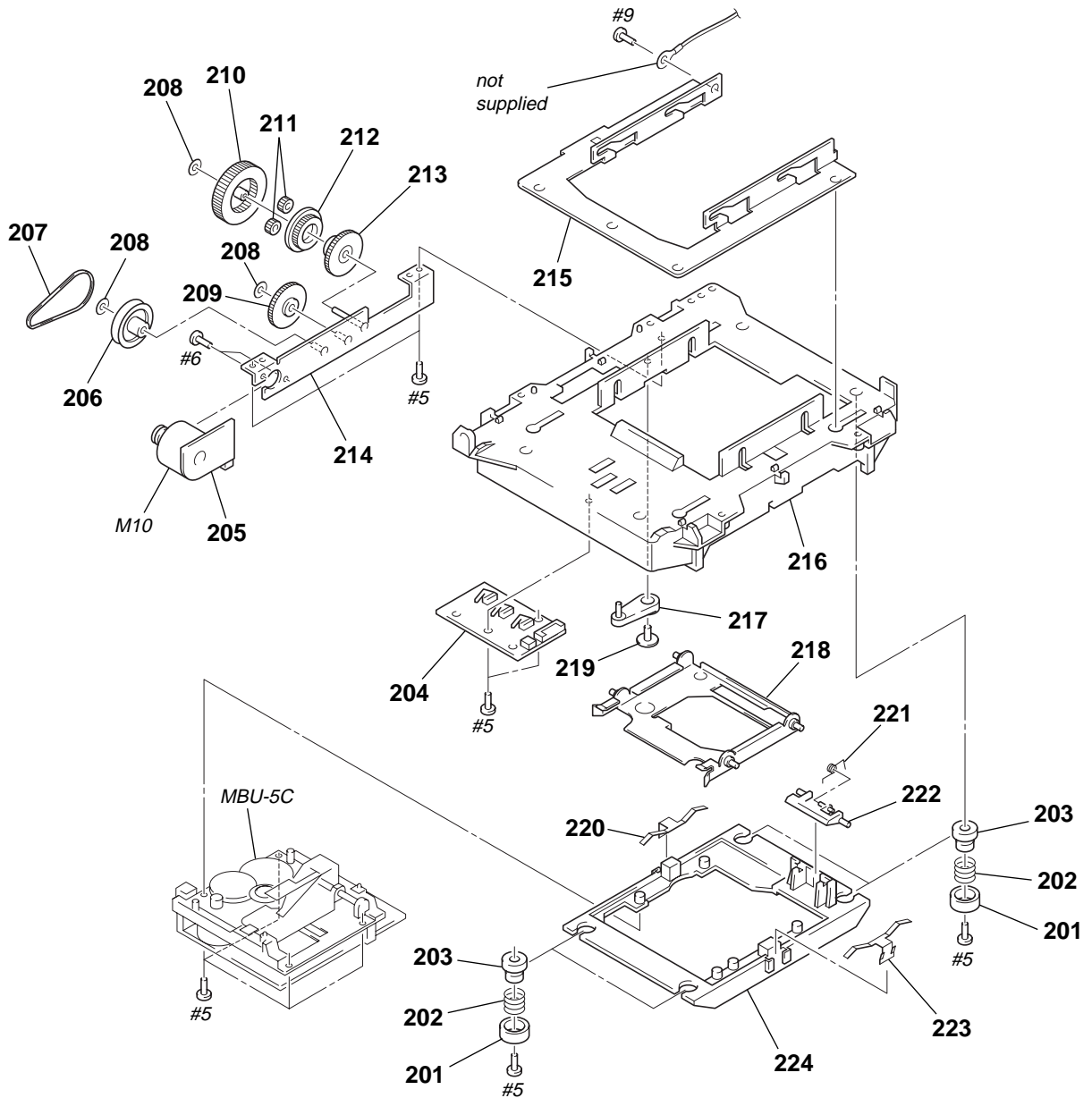
Ref. No.	Part No.	Description	Remarks
201	4-999-541-01	COLLAR (DAMPER)	
202	4-999-539-01	SPRING, COMPRESSION	
203	4-999-540-01	INSULATOR (MD)	
* 204	1-669-051-11	POSITION SWITCH BOARD	
* 205	1-669-049-11	MOTOR BOARD	
206	4-999-513-01	GEAR, PULLEY	
207	4-999-537-01	BELT (LOADING)	
208	4-968-919-31	WASHER, STOPPER	
209	4-999-514-01	GEAR	
210	4-999-515-01	GEAR (A), PLANET	
211	4-999-518-01	GEAR (D), PLANET	
212	4-999-517-01	GEAR (C), PLANET	

Ref. No.	Part No.	Description	Remarks
213	4-999-516-01	GEAR (B), PLANET	
* 214	X-4949-788-1	BRACKET (MOTOR) ASSY	
215	X-4949-786-5	SLIDER ASSY	
216	4-999-527-01	CHASSIS, MECHANICAL	
217	X-4949-790-1	LEVER (LOCK) ASSY	
218	X-4949-789-1	HOLDER ASSY	
219	4-933-134-01	SCREW (+PTPWH M2.6 × 6)	
220	4-999-533-01	SPRING (UDL), LEAF	
221	4-999-524-01	SPRING (OWH), TORSION	
222	4-999-511-01	LEVER (OWH)	
223	4-999-534-01	SPRING (UDR), LEAF	
224	4-999-510-01	HOLDER, BU	
M10	X-4949-791-1	MOTOR (LOADING) ASSY	

7-6. BASE UNIT (MBU-5C)
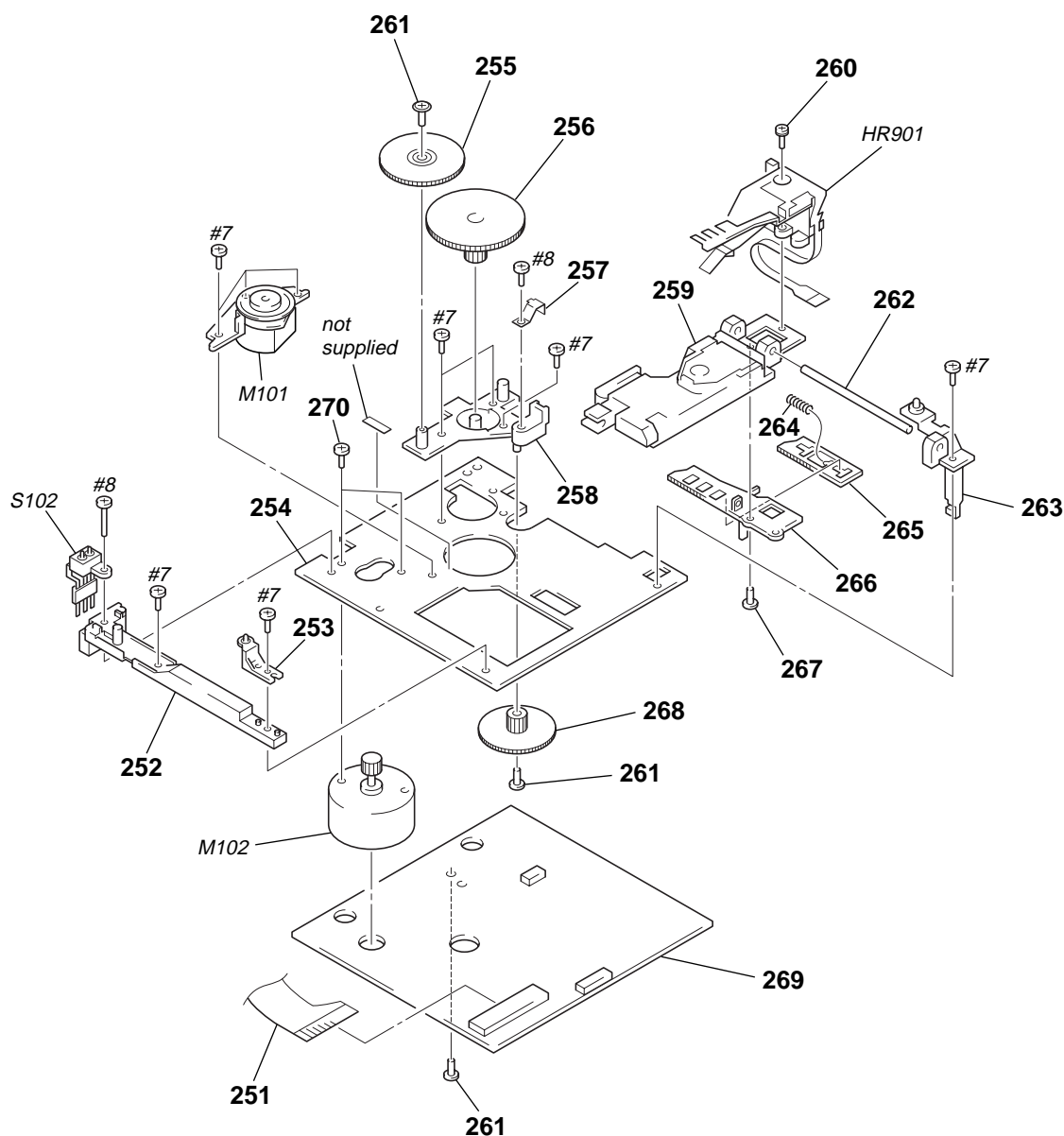
Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
251	1-667-954-11	PC BOARD, FLEXIBLE		* 263	4-210-664-01	BASE (BU-A)	
* 252	4-996-255-01	BASE (BU-C)		264	4-996-258-01	SPRING, COMPRESSION	
* 253	4-996-267-01	BASE (BU-D)		265	4-996-257-01	RACK (SL)	
* 254	4-996-252-01	CHASSIS, BU		266	4-996-256-01	SL (BASE)	
255	4-996-260-01	GEAR (SL-A)		267	4-900-590-01	SCREW, PRECISION SMALL	
256	4-996-261-01	GEAR (SL-B)		268	4-996-262-01	GEAR (SL-C)	
257	4-996-263-01	SPRING (CLV), TORSION		* 269	A-4724-285-A	BD BOARD, COMPLETE	
* 258	4-996-254-01	BASE (BU-B)		270	4-211-036-01	SCREW (1.7 × 2.5), +PWH	
⚠ 259	A-4672-541-A	OPTICAL PICK UP KMS-260B/J1N		HR901	1-500-565-11	HEAD, OVER LIGHT	
260	4-988-560-01	SCREW (+P 1.7 × 6)		M101	A-4672-475-A	MOTOR ASSY, SPINDLE	
261	3-372-761-01	SCREW (M1.7), TAPPING		M102	A-4672-474-A	MOTOR ASSY, SLED	
262	4-996-265-01	SHAFT, MAIN		S102	1-762-148-21	SWITCH, PUSH (2 KEY)	

(REFLECT/PROTECT DET.)

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

NOTE:
- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Abbreviation
  CND : Canadian model

- CAPACITORS:
  uF: μF
- RESISTORS
  All resistors are in ohms.
  METAL: metal-film resistor
  METAL OXIDE: Metal Oxide-film resistor
  F: nonflammable
- COILS
  uH: μH

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

- SEMICONDUCTORS
  In each case, u: μ, for example:
  uA...: μA... , uPA... , μPA... ,
  uPB... , μPB... , uPC... , μPC... ,
  uPD..., μPD...

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

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

Ref. No.	Part No.	Description			Remarks
	1-674-321-11	AC BOARD			
		********			
		< CAPACITOR >			
⚠ C002	1-113-920-11	CERAMIC	0.0022uF	20%	250V
⚠ C003	1-113-920-11	CERAMIC	0.0022uF	20%	250V
⚠ C004	1-113-920-11	CERAMIC	0.0022uF	20%	250V
⚠ C005	1-113-925-11	CERAMIC	0.01uF	20%	250V
⚠ C006	1-113-925-11	CERAMIC	0.01uF	20%	250V
⚠ C007	1-113-925-11	CERAMIC	0.01uF	20%	250V
⚠ C008	1-113-925-11	CERAMIC	0.01uF	20%	250V
		< CONNECTOR >			
* CN002	1-580-230-11	PIN, CONNECTOR (PC BOARD) 2P			
CN003	1-564-321-00	PIN, CONNECTOR 2P			
* CN004	1-564-321-21	PIN, CONNECTOR 2P			
		< PLATE >			
* EP001	4-870-539-00	PLATE, GROUND			
		< LINE FILTER >			
⚠ LF001	1-424-485-11	FILTER, LINE			
⚠ LF002	1-424-485-11	FILTER, LINE			

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Ref. No.	Part No.	Description			Remarks
	A-4724-798-A	AD BOARD, COMPLETE(AEP,UK)			
		*******************			
	A-4724-799-A	AD BOARD, COMPLETE(US,CND)			
		*******************			
		< CAPACITOR >			
C302	1-164-159-11	CERAMIC	0.1uF		50V
C303	1-164-159-11	CERAMIC	0.1uF		50V
C304	1-126-934-11	ELECT	220uF	20%	10V
C305	1-164-159-11	CERAMIC	0.1uF		50V
C306	1-162-294-31	CERAMIC	0.001uF	10%	50V
C307	1-164-159-11	CERAMIC	0.1uF		50V
C308	1-164-159-11	CERAMIC	0.1uF		50V
C309	1-164-159-11	CERAMIC	0.1uF		50V
C310	1-164-159-11	CERAMIC	0.1uF		50V
C311	1-164-159-11	CERAMIC	0.1uF		50V
C313	1-164-732-11	CERAMIC	0.1uF	20%	50V
C314	1-164-732-11	CERAMIC	0.1uF	20%	50V
C315	1-164-732-11	CERAMIC	0.1uF	20%	50V
C316	1-136-820-11	FILM	0.01uF	5%	100V
C317	1-136-820-11	FILM	0.01uF	5%	100V

Ref. No.	Part No.	Description			Remarks
C318	1-164-732-11	CERAMIC	0.1uF	20%	50V
C319	1-110-495-11	ELECT	220uF	20%	25V
C320	1-164-732-11	CERAMIC	0.1uF	20%	50V
C321	1-126-103-11	ELECT	470uF	20%	16V
C322	1-126-103-11	ELECT	470uF	20%	16V
C323	1-164-732-11	CERAMIC	0.1uF	20%	50V
C324	1-164-732-11	CERAMIC	0.1uF	20%	50V
C325	1-164-732-11	CERAMIC	0.1uF	20%	50V
C326	1-164-732-11	CERAMIC	0.1uF	20%	50V
C327	1-128-201-11	ELECT	100uF	20%	50V
C328	1-128-201-11	ELECT	100uF	20%	50V
C329	1-124-698-81	ELECT	100uF	20%	25V
C330	1-124-698-81	ELECT	100uF	20%	25V
C331	1-124-698-81	ELECT	100uF	20%	25V
C332	1-124-698-81	ELECT	100uF	20%	25V
C333	1-110-495-11	ELECT	220uF	20%	25V
C334	1-110-495-11	ELECT	220uF	20%	25V
C335	1-124-698-81	ELECT	100uF	20%	25V
C336	1-124-698-81	ELECT	100uF	20%	25V
C338	1-162-199-31	CERAMIC	10PF	5%	50V
C340	1-126-022-11	ELECT	47uF	20%	25V
C800	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C801	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C802	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C803	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C804	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C805	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C806	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C807	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C808	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C809	1-163-231-11	CERAMIC CHIP	15PF	5%	50V
C810	1-163-231-11	CERAMIC CHIP	15PF	5%	50V
C811	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C812	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C813	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C814	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C815	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C816	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C817	1-131-347-00	TANTALUM	1uF	10%	35V
C818	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C819	1-126-925-11	ELECT	470uF	20%	10V
C820	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C824	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C825	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C850	1-126-925-11	ELECT	470uF	20%	10V

AD

Ref. No.	Part No.	Description			Remarks
C851	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C852	1-131-347-00	TANTALUM	1uF	10%	35V
C853	1-126-934-11	ELECT	220uF	20%	10V
C854	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C855	1-126-022-11	ELECT	47uF	20%	25V
C856	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C858	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C859	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C860	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C861	1-163-038-91	CERAMIC CHIP	0.1uF		25V

< CONNECTOR >

Ref. No.	Part No.	Description
CN302	1-691-768-11	PLUG (MICRO CONNECTOR) 6P
CN303	1-691-770-11	PLUG (MICRO CONNECTOR) 8P
CN304	1-691-766-11	PLUG (MICRO CONNECTOR) 4P
CN800	1-770-653-11	CONNECTOR, FFC/FPC 25P
CN801	1-568-440-11	SOCKET, CONNECTOR 17P
CN803	1-770-651-11	CONNECTOR, FFC/FPC 23P
CN804	1-779-289-11	CONNECTOR,FFC(LIF(NON-ZIF))21P
CN806	1-569-490-11	SOCKET, CONNECTOR 3P
* CN807	1-770-639-11	CONNECTOR, FFC/FPC 8P
* CN808	1-564-709-11	PIN, CONNECTOR (SMALL TYPE) 7P
* CN809	1-564-705-11	PIN, CONNECTOR (SMALL TYPE) 3P

< DIODE >

Ref. No.	Part No.	Description
D301	8-719-911-19	DIODE 1SS133T-72
D302	8-719-911-19	DIODE 1SS133T-72
D303	8-719-911-19	DIODE 1SS133T-72
D304	8-719-911-19	DIODE 1SS133T-72
D305	8-719-911-19	DIODE 1SS133T-72
D306	8-719-911-19	DIODE 1SS133T-72
D307	8-719-911-19	DIODE 1SS133T-72
D308	8-719-911-19	DIODE 1SS133T-72
D309	8-719-210-39	DIODE EC10QS-04-TE12L
D310	8-719-210-39	DIODE EC10QS-04-TE12L
D802	8-719-911-19	DIODE 1SS133T-72
D803	8-719-911-19	DIODE 1SS133T-72
D805	8-719-210-21	DIODE 11EQS04-TA2B
D806	8-719-200-82	DIODE 11ES2-TA2B

< IC >

Ref. No.	Part No.	Description
IC301	8-759-280-17	IC CXD8512Q
IC302	8-759-330-53	IC CXD8493M-E1
IC303	8-759-701-65	IC M5F79M05L
IC304	8-759-604-35	IC M5F78M05L
IC305	8-759-712-02	IC NJM2114D
IC306	8-759-712-02	IC NJM2114D
IC307	8-759-712-02	IC NJM2114D
IC308	8-759-712-02	IC NJM2114D
IC800	8-759-596-80	IC M30624MG-215FP
IC801	8-759-242-70	IC TC7WU04F-TE12L
IC802	8-759-572-68	IC L88MS33T-MA
IC803	8-759-491-36	IC TC74VHCT244AF(EL)
IC804	8-759-174-16	IC TC74VHC244F(EL)
IC805	8-759-242-70	IC TC7WU04F-TE12L

< JUMPER RESISTOR >

Ref. No.	Part No.	Description
JR803	1-216-295-91	SHORT 0
JR804	1-216-295-91	SHORT 0

< COIL >

Ref. No.	Part No.	Description			Remarks
L301	1-408-599-31	INDUCTOR 4.7uH			
L302	1-408-599-31	INDUCTOR 4.7uH			
L850	1-408-599-31	INDUCTOR 4.7uH			
L851	1-408-599-31	INDUCTOR 4.7uH			
L852	1-414-235-22	INDUCTOR CHIP 0UH			

< TRANSISTOR >

Ref. No.	Part No.	Description
Q880	8-729-027-23	TRANSISTOR RT1P141C-TP-1
Q881	8-729-027-43	TRANSISTOR RT1N141C-TP-1

< RESISTOR >

Ref. No.	Part No.	Description			Remarks
R301	1-259-404-11	CARBON	100	5%	1/6W
R304	1-259-380-11	CARBON	10	5%	1/6W
R308	1-259-404-11	CARBON	100	5%	1/6W
R309	1-216-025-91	RES,CHIP	100	5%	1/10W
R310	1-259-404-11	CARBON	100	5%	1/6W
R311	1-249-504-11	CARBON	10	5%	1/4W
R312	1-249-504-11	CARBON	10	5%	1/4W
R313	1-249-504-11	CARBON	10	5%	1/4W
R314	1-249-504-11	CARBON	10	5%	1/4W
R315	1-249-576-11	CARBON	10K	5%	1/4W
R316	1-249-576-11	CARBON	10K	5%	1/4W
R317	1-249-576-11	CARBON	10K	5%	1/4W
R318	1-249-576-11	CARBON	10K	5%	1/4W
R319	1-249-576-11	CARBON	10K	5%	1/4W
R320	1-249-576-11	CARBON	10K	5%	1/4W
R321	1-249-588-91	CARBON	33K	5%	1/4W
R322	1-249-588-91	CARBON	33K	5%	1/4W
R323	1-249-941-11	CARBON	5.6K	5%	1/4W
R324	1-249-941-11	CARBON	5.6K	5%	1/4W
R325	1-249-469-11	CARBON	100K	5%	1/4W
R326	1-249-469-11	CARBON	100K	5%	1/4W
R327	1-249-923-11	CARBON	1K	5%	1/4W
R328	1-249-923-11	CARBON	1K	5%	1/4W
R329	1-249-995-11	CARBON	1M	5%	1/4W
R330	1-249-995-11	CARBON	1M	5%	1/4W
R331	1-249-995-11	CARBON	1M	5%	1/4W
R332	1-249-995-11	CARBON	1M	5%	1/4W
R800	1-216-073-00	METAL CHIP	10K	5%	1/10W
R801	1-216-073-00	METAL CHIP	10K	5%	1/10W
R802	1-216-073-00	METAL CHIP	10K	5%	1/10W
R803	1-216-073-00	METAL CHIP	10K	5%	1/10W (AEP,UK)
R804	1-216-073-00	METAL CHIP	10K	5%	1/10W (US,CND)
R806	1-216-097-91	RES,CHIP	100K	5%	1/10W (US,CND)
R807	1-216-097-91	RES,CHIP	100K	5%	1/10W (AEP,UK)
R808	1-216-073-00	METAL CHIP	10K	5%	1/10W
R809	1-216-097-91	RES,CHIP	100K	5%	1/10W
R810	1-216-097-91	RES,CHIP	100K	5%	1/10W
R811	1-216-073-00	METAL CHIP	10K	5%	1/10W
R812	1-216-073-00	METAL CHIP	10K	5%	1/10W
R813	1-216-073-00	METAL CHIP	10K	5%	1/10W
R814	1-216-073-00	METAL CHIP	10K	5%	1/10W
R815	1-216-073-00	METAL CHIP	10K	5%	1/10W
R816	1-216-073-00	METAL CHIP	10K	5%	1/10W
R819	1-216-109-00	METAL CHIP	330K	5%	1/10W
R820	1-216-073-00	METAL CHIP	10K	5%	1/10W

Ref. No.	Part No.	Description			Remarks	Ref. No.	Part No.	Description			Remarks
R822	1-216-073-00	METAL CHIP	10K	5%	1/10W	C112	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V
R823	1-216-097-91	RES,CHIP	100K	5%	1/10W	C113	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
R824	1-216-097-91	RES,CHIP	100K	5%	1/10W	C115	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
R826	1-216-073-00	METAL CHIP	10K	5%	1/10W	C116	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
R827	1-216-073-00	METAL CHIP	10K	5%	1/10W	C117	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
R829	1-216-073-00	METAL CHIP	10K	5%	1/10W	C118	1-163-038-91	CERAMIC CHIP	0.1uF		25V
R830	1-216-073-00	METAL CHIP	10K	5%	1/10W	C119	1-125-822-11	TANTALUM	10uF	20%	10V
R832	1-216-073-00	METAL CHIP	10K	5%	1/10W	C121	1-125-822-11	TANTALUM	10uF	20%	10V
R833	1-216-073-00	METAL CHIP	10K	5%	1/10W	C122	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
R834	1-216-025-91	RES,CHIP	100	5%	1/10W	C123	1-163-038-91	CERAMIC CHIP	0.1uF		25V
R835	1-216-025-91	RES,CHIP	100	5%	1/10W	C124	1-163-038-91	CERAMIC CHIP	0.1uF		25V
R836	1-216-073-00	METAL CHIP	10K	5%	1/10W	C127	1-163-038-91	CERAMIC CHIP	0.1uF		25V
R837	1-216-073-00	METAL CHIP	10K	5%	1/10W	C128	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
R838	1-216-091-00	METAL CHIP	56K	5%	1/10W	C129	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V
R839	1-216-049-91	RES,CHIP	1K	5%	1/10W	C130	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
R840	1-216-073-00	METAL CHIP	10K	5%	1/10W	C131	1-163-023-00	CERAMIC CHIP	0.015uF	5%	50V
R841	1-216-073-00	METAL CHIP	10K	5%	1/10W	C132	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V
R842	1-216-073-00	METAL CHIP	10K	5%	1/10W	C133	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V
R843	1-216-073-00	METAL CHIP	10K	5%	1/10W	C134	1-163-038-91	CERAMIC CHIP	0.1uF		25V
R844	1-216-073-00	METAL CHIP	10K	5%	1/10W	C135	1-163-038-91	CERAMIC CHIP	0.1uF		25V
R845	1-216-073-00	METAL CHIP	10K	5%	1/10W	C136	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
R846	1-216-073-00	METAL CHIP	10K	5%	1/10W	C142	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
R847	1-216-073-00	METAL CHIP	10K	5%	1/10W	C143	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
R848	1-216-073-00	METAL CHIP	10K	5%	1/10W	C144	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
R851	1-214-917-00	METAL CHIP	10K	1%	0.60W	C146	1-163-038-91	CERAMIC CHIP	0.1uF		25V
R854	1-216-073-00	METAL CHIP	10K	5%	1/10W	C151	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
R855	1-216-073-00	METAL CHIP	10K	5%	1/10W	C152	1-163-038-91	CERAMIC CHIP	0.1uF		25V
R856	1-216-025-91	RES,CHIP	100	5%	1/10W	C153	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
R857	1-216-025-91	RES,CHIP	100	5%	1/10W	C156	1-163-038-91	CERAMIC CHIP	0.1uF		25V
R858	1-216-025-91	RES,CHIP	100	5%	1/10W	C158	1-163-019-00	CERAMIC CHIP	0.0068uF	10%	50V
R863	1-216-025-91	RES,CHIP	100	5%	1/10W	C160	1-104-601-11	ELECT CHIP	10uF	20%	10V
R864	1-216-097-91	RES,CHIP	100K	5%	1/10W	C161	1-104-601-11	ELECT CHIP	10uF	20%	10V
R874	1-216-025-91	RES,CHIP	100	5%	1/10W	C163	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
R876	1-216-025-91	RES,CHIP	100	5%	1/10W	C164	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
R877	1-259-404-11	CARBON	100	5%	1/6W	C167	1-163-038-91	CERAMIC CHIP	0.1uF		25V
R878	1-216-025-91	RES,CHIP	100	5%	1/10W	C168	1-163-038-91	CERAMIC CHIP	0.1uF		25V
R880	1-216-073-00	METAL CHIP	10K	5%	1/10W	C169	1-125-822-11	TANTALUM	10uF	20%	10V
R881	1-216-073-00	METAL CHIP	10K	5%	1/10W	C171	1-163-038-91	CERAMIC CHIP	0.1uF		25V
R882	1-259-404-11	CARBON	100	5%	1/6W	C181	1-104-913-11	TANTAL. CHIP	10uF	20%	16V
R883	1-259-404-11	CARBON	100	5%	1/6W	C183	1-163-038-91	CERAMIC CHIP	0.1uF		25V
R884	1-259-404-11	CARBON	100	5%	1/6W	C184	1-117-970-11	ELECT CHIP	22uF	20%	10V
						C185	1-164-611-11	CERAMIC CHIP	0.001uF	10%	500V
		< VIBRATOR >				C187	1-104-913-11	TANTAL. CHIP	10uF	20%	16V
						C188	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
X800	1-767-778-21	VIBRATOR, CERAMIC 7MHz				C189	1-163-989-11	CERAMIC CHIP	0.033uF	10%	25V
X801	1-567-098-41	VIBRATOR, CRYSTAL 32.768kHz				C190	1-126-206-11	ELECT CHIP	100uF	20%	6.3V

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Ref. No.	Part No.	Description			Remarks
C191	1-163-038-91	CERAMIC CHIP	0.1uF		25V
*	A-4724-285-A	BD BOARD, COMPLETE			
C196	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C197	1-163-038-91	CERAMIC CHIP	0.1uF		25V

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< CAPACITOR >

< CONNECTOR >

Ref. No.	Part No.	Description			Remarks
C101	1-125-822-11	TANTALUM	10uF	20%	10V
C102	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C103	1-125-822-11	TANTALUM	10uF	20%	10V
C104	1-125-822-11	TANTALUM	10uF	20%	10V
C105	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C106	1-163-275-11	CERAMIC CHIP	0.001uF	5%	50V
C107	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C108	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C109	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C111	1-164-344-11	CERAMIC CHIP	0.068uF	10%	25V

Ref. No.	Part No.	Description
CN101	1-569-479-21	CONNECTOR, FPC 21P
CN102	1-784-835-21	CONNECTOR,FFC(LIF(NON-ZIF))27P
CN103	1-784-834-21	CONNECTOR,FFC(LIF(NON-ZIF))23P
CN104	1-770-687-11	CONNECTOR, FFC/FPC 4P
CN110	1-695-440-21	PIN, CONNECTOR (PC BOARD) 6P

< DIODE >

Ref. No.	Part No.	Description
D101	8-719-988-61	DIODE 1SS355TE-17
D181	8-719-046-86	DIODE F1J6TP
D183	8-719-046-86	DIODE F1J6TP

BD

Ref. No.	Part No.	Description			Remarks
		< IC >			
IC101	8-752-080-95	IC CXA2523AR			
IC103	8-729-903-10	TRANSISTOR FMW1-T-148			
IC121	8-752-390-16	IC CXD2656R			
IC123	8-759-096-87	IC TC7WU04FU(TE12R)			
IC124	8-759-498-44	IC MSM51V4400-70TS-K			
IC124	8-759-334-38	IC MN41V4400TT-08			
IC152	8-759-430-25	IC BH6511FS-E2			
IC171	8-759-487-04	IC BR24C02F-E2			
IC181	8-759-481-17	IC MC74ACT08DTR2			
IC192	8-759-460-72	IC BA033FP-E2			
		< COIL >			
L101	1-414-813-11	FERRITE 0uH			
L102	1-414-813-11	FERRITE 0uH			
L103	1-414-813-11	FERRITE 0uH			
L105	1-414-813-11	FERRITE 0uH			
L106	1-414-813-11	FERRITE 0uH			
L121	1-414-813-11	FERRITE 0uH			
L122	1-414-813-11	FERRITE 0uH			
L151	1-412-029-11	INDUCTOR CHIP 10uH			
L152	1-412-029-11	INDUCTOR CHIP 10uH			
L153	1-412-032-11	INDUCTOR CHIP 100uH			
L154	1-412-032-11	INDUCTOR CHIP 100uH			
L161	1-414-813-11	FERRITE 0uH			
L162	1-414-813-11	FERRITE 0uH			
L181	1-216-295-91	SHORT 0			
		< TRANSISTOR >			
Q101	8-729-403-35	TRANSISTOR RN2304-TE85L			
Q101	8-729-028-91	TRANSISTOR RT1P441M-TP-1			
Q101	8-729-403-35	TRANSISTOR UN5113-TX			
Q101	8-729-905-12	TRANSISTOR DTA144EUT106			
Q102	8-729-026-53	TRANSISTOR 2SA1576A-T106-QR			
Q103	8-729-028-99	TRANSISTOR RN1307-TE85L			
Q103	8-729-028-99	TRANSISTOR RT1N144M-TP-1			
Q103	8-729-402-93	TRANSISTOR UN5214-TX			
Q103	8-729-028-99	TRANSISTOR DTC114YUT106			
Q104	8-729-028-99	TRANSISTOR RN1307-TE85L			
Q104	8-729-028-99	TRANSISTOR RT1N144M-TP-1			
Q104	8-729-402-93	TRANSISTOR UN5214-TX			
Q104	8-729-028-99	TRANSISTOR DTC114YUT106			
Q162	8-729-101-07	TRANSISTOR 2SB798-T1DK			
Q163	8-729-403-35	TRANSISTOR RN2304-TE85L			
Q163	8-729-028-91	TRANSISTOR RT1P441M-TP-1			
Q163	8-729-403-35	TRANSISTOR UN5113-TX			
Q163	8-729-905-12	TRANSISTOR DTA144EUT106			
Q181	8-729-018-75	TRANSISTOR 2SJ278MYTR			
Q182	8-729-017-65	TRANSISTOR 2SK1764KYTR			
		< RESISTOR >			
R103	1-216-049-91	RES,CHIP	1K	5%	1/10W
R104	1-216-073-00	METAL CHIP	10K	5%	1/10W
R105	1-216-065-91	RES,CHIP	4.7K	5%	1/10W
R106	1-216-133-00	METAL CHIP	3.3M	5%	1/10W
R107	1-216-113-00	METAL CHIP	470K	5%	1/10W
R109	1-216-295-91	SHORT 0			
R110	1-216-073-00	METAL CHIP	10K	5%	1/10W
R111	1-216-295-91	SHORT 0			
R112	1-216-089-91	RES,CHIP	47K	5%	1/10W
R113	1-216-049-91	RES,CHIP	1K	5%	1/10W

Ref. No.	Part No.	Description			Remarks
R115	1-216-049-91	RES,CHIP	1K	5%	1/10W
R117	1-216-113-00	METAL CHIP	470K	5%	1/10W
R120	1-216-025-91	RES,CHIP	100	5%	1/10W
R121	1-216-097-91	RES,CHIP	100K	5%	1/10W
R123	1-216-295-91	SHORT 0			
R124	1-216-025-91	RES,CHIP	100	5%	1/10W
R125	1-216-295-91	SHORT 0			
R127	1-216-025-91	RES,CHIP	100	5%	1/10W
R129	1-216-295-91	SHORT 0			
R130	1-216-295-91	SHORT 0			
R131	1-216-073-00	METAL CHIP	10K	5%	1/10W
R132	1-216-097-91	RES,CHIP	100K	5%	1/10W
R133	1-216-117-00	METAL CHIP	680K	5%	1/10W
R134	1-216-049-91	RES,CHIP	1K	5%	1/10W
R135	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R136	1-216-049-91	RES,CHIP	1K	5%	1/10W
R137	1-216-295-91	SHORT 0			
R140	1-216-029-00	METAL CHIP	150	5%	1/10W
R142	1-216-073-00	METAL CHIP	10K	5%	1/10W
R143	1-216-073-00	METAL CHIP	10K	5%	1/10W
R144	1-216-295-91	SHORT 0			
R145	1-216-073-00	METAL CHIP	10K	5%	1/10W
R146	1-216-037-00	METAL CHIP	330	5%	1/10W
R147	1-216-025-91	RES,CHIP	100	5%	1/10W
R148	1-216-045-00	METAL CHIP	680	5%	1/10W
R149	1-216-073-00	METAL CHIP	10K	5%	1/10W
R150	1-216-295-91	SHORT 0			
R151	1-216-073-00	METAL CHIP	10K	5%	1/10W
R152	1-216-073-00	METAL CHIP	10K	5%	1/10W
R158	1-216-097-91	RES,CHIP	100K	5%	1/10W
R159	1-216-097-91	RES,CHIP	100K	5%	1/10W
R160	1-216-295-91	SHORT 0			
R161	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R162	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R163	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R164	1-216-045-00	METAL CHIP	680	5%	1/10W
R165	1-216-097-91	RES,CHIP	100K	5%	1/10W
R167	1-216-065-91	RES,CHIP	4.7K	5%	1/10W
R169	1-219-724-11	METAL CHIP	1	1%	1/4W
R170	1-216-073-00	METAL CHIP	10K	5%	1/10W
R171	1-216-073-00	METAL CHIP	10K	5%	1/10W
R173	1-216-121-91	RES,CHIP	1M	5%	1/10W
R175	1-216-065-91	RES,CHIP	4.7K	5%	1/10W
R177	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R179	1-216-085-00	METAL CHIP	33K	5%	1/10W
R180	1-216-073-00	METAL CHIP	10K	5%	1/10W
R182	1-216-089-91	RES,CHIP	47K	5%	1/10W
R183	1-216-089-91	RES,CHIP	47K	5%	1/10W
R184	1-216-073-00	METAL CHIP	10K	5%	1/10W
R185	1-216-081-00	METAL CHIP	22K	5%	1/10W
R186	1-216-089-91	RES,CHIP	47K	5%	1/10W
R188	1-216-073-00	METAL CHIP	10K	5%	1/10W
R189	1-216-073-00	METAL CHIP	10K	5%	1/10W
R190	1-216-073-00	METAL CHIP	10K	5%	1/10W
R195	1-216-073-00	METAL CHIP	10K	5%	1/10W
R196	1-216-295-91	SHORT 0			
R197	1-216-295-91	SHORT 0			
R198	1-216-286-00	RES,CHIP	4.7M	5%	1/8W
R198	1-216-296-91	SHORT 0			

Ref. No.	Part No.	Description			Remarks
		< SWITCH >			
S101	1-762-596-21	SWITCH, PUSH (1 KEY)(LIMIT IN)			
**					
	1-674-325-11	BT BOARD			
		*********			
		< BATTERY >			
BT701	1-528-887-11	BATTERY, LITHIUM SECONDARY			
		< CONNECTOR >			
* CN703	1-569-499-11	PIN, CONNECTOR 3P			
**					
	A-4724-801-A	DA BOARD, COMPLETE(AEP,UK)			
		********************			
	A-4724-802-A	DA BOARD, COMPLETE(US,CND)			
		********************			
		< BUS BAR >			
* BB501	1-560-242-31	BUS BAR 5P			
		< CAPACITOR >			
C430	1-124-699-11	ELECT	220uF	20%	10V
C431	1-164-159-11	CERAMIC	0.1uF		50V
C432	1-164-159-11	CERAMIC	0.1uF		50V
C433	1-124-724-11	ELECT	47uF	20%	50V
C434	1-124-699-11	ELECT	220uF	20%	10V
C435	1-164-159-11	CERAMIC	0.1uF		50V
C436	1-164-159-11	CERAMIC	0.1uF		50V
C437	1-124-724-11	ELECT	47uF	20%	50V
C442	1-164-159-11	CERAMIC	0.1uF		50V
C443	1-164-159-11	CERAMIC	0.1uF		50V
C501	1-124-995-11	ELECT	220uF	20%	10V
C502	1-162-294-31	CERAMIC	0.001uF	10%	50V
C503	1-164-159-11	CERAMIC	0.1uF		50V
C504	1-124-995-11	ELECT	220uF	20%	10V
C505	1-164-159-11	CERAMIC	0.1uF		50V
C506	1-124-995-11	ELECT	220uF	20%	10V
C507	1-164-159-11	CERAMIC	0.1uF		50V
C508	1-164-159-11	CERAMIC	0.1uF		50V
C509	1-164-159-11	CERAMIC	0.1uF		50V
C510	1-164-159-11	CERAMIC	0.1uF		50V
C513	1-124-699-11	ELECT	220uF	20%	10V
C514	1-164-159-11	CERAMIC	0.1uF		50V
C515	1-164-159-11	CERAMIC	0.1uF		50V
C516	1-124-699-11	ELECT	220uF	20%	10V
C517	1-164-159-11	CERAMIC	0.1uF		50V
C518	1-164-159-11	CERAMIC	0.1uF		50V
C519	1-162-199-31	CERAMIC	10PF	5%	50V
C520	1-162-199-31	CERAMIC	10PF	5%	50V
C521	1-124-699-11	ELECT	220uF	20%	10V
C522	1-124-699-11	ELECT	220uF	20%	10V
C523	1-164-159-11	CERAMIC	0.1uF		50V
C524	1-124-699-11	ELECT	220uF	20%	10V
C525	1-124-689-11	ELECT	1000uF	20%	16V
C526	1-128-198-11	ELECT	22uF	20%	63V
C527	1-136-960-11	FILM	0.1uF	10%	160V

Ref. No.	Part No.	Description			Remarks
C528	1-128-198-11	ELECT	22uF	20%	63V
C530	1-164-159-11	CERAMIC	0.1uF		50V
C531	1-136-960-11	FILM	0.1uF	10%	160V
C532	1-164-159-11	CERAMIC	0.1uF		50V
C535	1-164-159-11	CERAMIC	0.1uF		50V
C537	1-126-052-11	ELECT	100uF	20%	16V
C541	1-126-052-11	ELECT	100uF	20%	16V
C543	1-164-159-11	CERAMIC	0.1uF		50V
C544	1-136-165-00	FILM	0.1uF	5%	50V
C545	1-136-165-00	FILM	0.1uF	5%	50V
C547	1-124-724-11	ELECT	47uF	20%	50V
C548	1-124-724-11	ELECT	47uF	20%	50V
C549	1-136-165-00	FILM	0.1uF	5%	50V
C550	1-136-165-00	FILM	0.1uF	5%	50V
C551	1-126-052-11	ELECT	100uF	20%	16V
C553	1-126-052-11	ELECT	100uF	20%	16V
C554	1-164-159-11	CERAMIC	0.1uF		50V
C555	1-164-159-11	CERAMIC	0.1uF		50V
C556	1-136-820-11	FILM	0.01uF	5%	100V
C557	1-136-820-11	FILM	0.01uF	5%	100V
C558	1-126-103-11	ELECT	470uF	20%	16V
C559	1-126-103-11	ELECT	470uF	20%	16V
C560	1-164-159-11	CERAMIC	0.1uF		50V
C561	1-164-159-11	CERAMIC	0.1uF		50V
C562	1-130-849-00	FILM	0.039uF	3%	100V
C563	1-130-849-00	FILM	0.039uF	3%	100V
C564	1-130-849-00	FILM	0.039uF	3%	100V
C565	1-130-849-00	FILM	0.039uF	3%	100V
C566	1-136-233-11	FILM	0.0047uF	3%	100V
C567	1-136-233-11	FILM	0.0047uF	3%	100V
C568	1-136-233-11	FILM	0.0047uF	3%	100V
C569	1-136-233-11	FILM	0.0047uF	3%	100V
C570	1-136-356-11	FILM	470PF	5%	100V
C571	1-136-356-11	FILM	470PF	5%	100V
C572	1-136-356-11	FILM	470PF	5%	100V
C573	1-136-356-11	FILM	470PF	5%	100V
C574	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C575	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C576	1-136-818-11	FILM	0.0047uF	5%	100V
C577	1-136-818-11	FILM	0.0047uF	5%	100V
C578	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C580	1-136-814-11	FILM	0.001uF	5%	100V
C581	1-136-814-11	FILM	0.001uF	5%	100V
C588	1-128-554-11	ELECT	330uF	20%	50V
C589	1-128-554-11	ELECT	330uF	20%	50V
C590	1-162-294-31	CERAMIC	0.001uF	10%	50V
C593	1-162-294-31	CERAMIC	0.001uF	10%	50V
C594	1-164-732-11	CERAMIC	0.1uF	20%	50V
C601	1-136-259-11	FILM	0.1uF	3%	100V
C602	1-136-259-11	FILM	0.1uF	3%	100V
C603	1-104-646-11	CERAMIC	2.2uF	20%	50V
C604	1-104-646-11	CERAMIC	2.2uF	20%	50V
C605	1-136-960-11	FILM	0.1uF	10%	160V
C606	1-136-960-11	FILM	0.1uF	10%	160V
C610	1-163-217-11	CERAMIC CHIP	1PF	0.25PF	50V
C611	1-163-217-11	CERAMIC CHIP	1PF	0.25PF	50V
C612	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C613	1-163-217-11	CERAMIC CHIP	1PF	0.25PF	50V
C614	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C615	1-162-187-31	CERAMIC CHIP	0.1MF		25V

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Ref. No.	Part No.	Description	Remarks
		< CONNECTOR >	
CN501	1-568-440-11	SOCKET, CONNECTOR 17P	
CN502	1-770-655-11	CONNECTOR, FFC/FPC 27P	
CN503	1-793-565-11	CONNECTOR (FFC) 13P	
* CN504	1-564-709-11	PIN, CONNECTOR (SMALL TYPE) 7P	
* CN506	1-564-706-11	PIN, CONNECTOR (SMALL TYPE) 4P	
CN507	1-691-773-11	PLUG (MICRO CONNECTOR) 11P	
		< DIODE >	
D501	8-719-210-21	DIODE 11EQS04-TA2B	
D502	8-719-210-21	DIODE 11EQS04-TA2B	
D503	8-719-911-19	DIODE 1SS133T-72	
D505	8-719-210-21	DIODE 11EQS04-TA2B	
D507	8-719-911-19	DIODE 1SS133T-72	
D508	8-719-911-19	DIODE 1SS133T-72	
		< TERMINAL >	
ET501	4-924-264-01	TERMINAL, MOUNT	
		< IC >	
IC501	8-759-573-17	IC CXD8762Q	
IC501	8-759-573-17	IC CXD8762AQ	
IC502	8-759-596-81	IC CXD9521Q	
IC503	8-759-604-35	IC M5F78M05L	
IC504	8-759-371-51	IC CXA8042AS	
IC505	8-759-371-51	IC CXA8042AS	
IC506	8-759-604-95	IC M5F79M07L	
IC507	8-759-605-00	IC M5F78M07L	
IC508	8-759-259-12	IC OPA2604AP	
IC509	8-759-259-12	IC OPA2604AP	
IC510	8-759-443-33	IC OPA2132PA	
IC511	8-759-443-33	IC OPA2132PA	
IC512	8-759-081-44	IC TC74VHC04F(EL)	
IC513	8-759-053-07	IC OP-27GP	
IC514	8-759-242-70	IC TC7WU04F-TE12L	
IC515	8-759-053-07	IC OP-27GP	
		< COIL >	
L501	1-408-599-31	INDUCTOR 4.7uH	
L502	1-408-599-31	INDUCTOR 4.7uH	
* L503	1-410-858-21	INDUCTOR 0uH	
L504	1-408-599-31	INDUCTOR 4.7uH	
L505	1-408-599-31	INDUCTOR 4.7uH	
L506	1-408-599-31	INDUCTOR 4.7uH	
L507	1-408-599-31	INDUCTOR 4.7uH	
L508	1-408-599-31	INDUCTOR 4.7uH	
L509	1-408-599-31	INDUCTOR 4.7uH	
L510	1-414-235-22	INDUCTOR CHIP 0UH	
L511	1-414-235-22	INDUCTOR CHIP 0UH	
L513	1-412-776-11	INDUCTOR 1UH	
L514	1-414-261-11	INDUCTOR 1UH	
		< TRANSISTOR >	
Q501	8-729-224-61	TRANSISTOR 2SK246YGR-TPE2	
Q502	8-729-224-61	TRANSISTOR 2SK246YGR-TPE2	
Q505	8-729-140-98	TRANSISTOR 2SD773-T-34	

Ref. No.	Part No.	Description			Remarks
		< RESISTOR >			
R501	1-259-380-11	CARBON	10	5%	1/6W
R502	1-259-380-11	CARBON	10	5%	1/6W
R503	1-259-380-11	CARBON	10	5%	1/6W
R504	1-259-380-11	CARBON	10	5%	1/6W
R505	1-259-404-11	CARBON	100	5%	1/6W
R506	1-259-404-11	CARBON	100	5%	1/6W
R507	1-259-404-11	CARBON	100	5%	1/6W
R508	1-259-404-11	CARBON	100	5%	1/6W
R510	1-259-380-11	CARBON	10	5%	1/6W
R511	1-259-380-11	CARBON	10	5%	1/6W
R512	1-259-380-11	CARBON	10	5%	1/6W
R513	1-216-025-91	RES,CHIP	100	5%	1/10W
R514	1-259-404-11	CARBON	100	5%	1/6W
R517	1-259-412-11	CARBON	220	5%	1/6W
R518	1-216-025-91	RES,CHIP	100	5%	1/10W
R519	1-259-404-11	CARBON	100	5%	1/6W
R520	1-259-452-11	CARBON	10K	5%	1/6W
R521	1-259-416-11	CARBON	330	5%	1/6W
R522	1-259-416-11	CARBON	330	5%	1/6W
R523	1-259-416-11	CARBON	330	5%	1/6W
R524	1-259-416-11	CARBON	330	5%	1/6W
R525	1-259-416-11	CARBON	330	5%	1/6W
R526	1-259-416-11	CARBON	330	5%	1/6W
R527	1-259-416-11	CARBON	330	5%	1/6W
R528	1-259-416-11	CARBON	330	5%	1/6W
R529	1-259-416-11	CARBON	330	5%	1/6W
R530	1-259-416-11	CARBON	330	5%	1/6W
R531	1-249-504-11	CARBON	10	5%	1/4W
R532	1-249-504-11	CARBON	10	5%	1/4W
R533	1-249-504-11	CARBON	10	5%	1/4W
R534	1-249-504-11	CARBON	10	5%	1/4W
R535	1-249-504-11	CARBON	10	5%	1/4W
R536	1-249-504-11	CARBON	10	5%	1/4W
R537	1-249-504-11	CARBON	10	5%	1/4W
R538	1-249-504-11	CARBON	10	5%	1/4W
R539	1-249-885-11	CARBON	27	5%	1/4W
R540	1-249-885-11	CARBON	27	5%	1/4W
R541	1-249-885-11	CARBON	27	5%	1/4W
R542	1-249-885-11	CARBON	27	5%	1/4W
R543	1-249-542-11	CARBON	390	5%	1/4W
R544	1-249-542-11	CARBON	390	5%	1/4W
R545	1-249-542-11	CARBON	390	5%	1/4W
R546	1-249-542-11	CARBON	390	5%	1/4W
R547	1-249-941-11	CARBON	5.6K	5%	1/4W
R548	1-249-941-11	CARBON	5.6K	5%	1/4W
R549	1-249-941-11	CARBON	5.6K	5%	1/4W
R550	1-249-941-11	CARBON	5.6K	5%	1/4W
R551	1-249-941-11	CARBON	5.6K	5%	1/4W
R552	1-249-941-11	CARBON	5.6K	5%	1/4W
R553	1-249-941-11	CARBON	5.6K	5%	1/4W
R554	1-249-941-11	CARBON	5.6K	5%	1/4W
R555	1-249-923-11	CARBON	1K	5%	1/4W
R556	1-249-923-11	CARBON	1K	5%	1/4W
R559	1-249-923-11	CARBON	1K	5%	1/4W
R560	1-249-923-11	CARBON	1K	5%	1/4W
R561	1-216-037-00	METAL CHIP	330	5%	1/10W
R562	1-216-037-00	METAL CHIP	330	5%	1/10W
R563	1-216-037-00	METAL CHIP	330	5%	1/10W
R564	1-216-037-00	METAL CHIP	330	5%	1/10W
R565	1-216-037-00	METAL CHIP	330	5%	1/10W

Ref. No.	Part No.	Description			Remarks
R566	1-216-037-00	METAL CHIP	330	5%	1/10W
R567	1-216-037-00	METAL CHIP	330	5%	1/10W
R568	1-216-037-00	METAL CHIP	330	5%	1/10W
R577	1-249-520-11	CARBON	47	5%	1/4W
R578	1-249-520-11	CARBON	47	5%	1/4W
R581	1-259-452-11	CARBON	10K	5%	1/6W
R582	1-259-452-11	CARBON	10K	5%	1/6W
R583	1-259-452-11	CARBON	10K	5%	1/6W
R584	1-249-469-11	CARBON	100K	5%	1/4W
R585	1-249-469-11	CARBON	100K	5%	1/4W
R586	1-259-412-11	CARBON	220	5%	1/6W
R587	1-259-412-11	CARBON	220	5%	1/6W
R601	1-249-977-11	CARBON	180K	1%	1/4W
R602	1-249-977-11	CARBON	180K	1%	1/4W
R603	1-249-931-11	CARBON	2K	5%	1/4W
R604	1-249-931-11	CARBON	2K	5%	1/4W
R605	1-249-616-11	CARBON	470K	5%	1/4W
R606	1-249-616-11	CARBON	470K	5%	1/4W
R607	1-249-616-11	CARBON	470K	5%	1/4W
R608	1-249-616-11	CARBON	470K	5%	1/4W
R609	1-259-500-11	CARBON	1M	5%	1/6W
R610	1-259-500-11	CARBON	1M	5%	1/6W
R611	1-259-428-11	CARBON	1K	5%	1/6W
R612	1-259-428-11	CARBON	1K	5%	1/6W

< RELAY >

| RY501 | 1-515-802-11 | RELAY |

< VIBRATOR >

| X501 | 1-577-686-11 | VIBRATOR, CRYSTAL 45.1584MHz |

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	A-4724-810-A	DIG BOARD, COMPLETE (AEP,UK)
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	A-4724-811-A	DIG BOARD, COMPLETE (US,CND)
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< CAPACITOR >

Ref. No.	Part No.	Description			Remarks
C400	1-162-294-31	CERAMIC	0.001uF	10%	50V
C401	1-164-159-11	CERAMIC	0.1uF		50V
C402	1-126-933-11	ELECT	100uF	20%	16V
C403	1-162-294-31	CERAMIC	0.001uF	10%	50V
C404	1-164-159-11	CERAMIC	0.1uF		50V
C405	1-126-933-11	ELECT	100uF	20%	16V
C406	1-126-933-11	ELECT	100uF	20%	16V
C407	1-126-933-11	ELECT	100uF	20%	16V
C408	1-126-933-11	ELECT	100uF	20%	16V
C409	1-136-165-00	FILM	0.1uF	5%	50V
C410	1-136-165-00	FILM	0.1uF	5%	50V
C411	1-136-165-00	FILM	0.1uF	5%	50V
C412	1-164-159-11	CERAMIC	0.1uF		50V
C413	1-164-159-11	CERAMIC	0.1uF		50V
C414	1-164-159-11	CERAMIC	0.1uF		50V
C415	1-104-646-11	CERAMIC	2.2uF	20%	50V
C416	1-104-646-11	CERAMIC	2.2uF	20%	50V
C417	1-162-282-31	CERAMIC	100PF	10%	50V
C418	1-104-645-11	CERAMIC	1uF	20%	50V
C419	1-164-159-11	CERAMIC	0.1uF		50V
C421	1-126-176-11	ELECT	220uF	20%	10V
C422	1-164-159-11	CERAMIC	0.1uF		50V
C423	1-164-159-11	CERAMIC	0.1uF		50V
C424	1-124-589-11	ELECT	47uF	20%	16V
C450	1-164-159-11	CERAMIC	0.1uF		50V

Ref. No.	Part No.	Description			Remarks
C451	1-104-646-11	CERAMIC	2.2uF	20%	50V
C453	1-164-159-11	CERAMIC	0.1uF		50V
C454	1-164-159-11	CERAMIC	0.1uF		50V
C455	1-164-159-11	CERAMIC	0.1uF		50V

< DIODE >

| D450 | 8-719-911-19 | DIODE 1SS133T-72 |

< PLATE >

| * EP301 | 4-870-539-00 | PLATE, GROUND |
| * EP302 | 4-870-539-00 | PLATE, GROUND |

< IC >

IC401	8-749-012-70	IC GP1F38R(OPT1 DIGITAL IN)
IC402	8-749-012-70	IC GP1F38R(OPT2 DIGITAL IN)
IC403	8-749-012-69	IC GP1F38T(OPT DIGITAL OUT)
IC404	8-759-269-92	IC SN74HCU04ANSR
IC405	8-759-926-17	IC SN74HC153ANSR
IC406	8-759-269-92	IC SN74HCU04ANSR

< JACK >

J400	1-784-432-11	JACK, PIN 1P(COAXIAL DIGITAL IN)
J401	1-784-689-11	JACK, PIN 1P(COAXIAL DIGITAL OUT)
J450	1-779-655-21	JACK (SMALL TYPE) (2 GANG)
		(CONTROL A1 II)

< COIL >

L400	1-408-599-31	INDUCTOR 4.7uH
L401	1-408-599-31	INDUCTOR 4.7uH
L402	1-408-599-31	INDUCTOR 4.7uH
L403	1-408-599-31	INDUCTOR 4.7uH
L404	1-408-599-31	INDUCTOR 4.7uH
L405	1-408-599-31	INDUCTOR 4.7uH

< TRANSISTOR >

| Q450 | 8-729-620-05 | TRANSISTOR 2SC2603TP-EF |

< RESISTOR >

Ref. No.	Part No.	Description			Remarks
R400	1-247-807-31	CARBON	100	5%	1/4W
R401	1-247-807-31	CARBON	100	5%	1/4W
R402	1-247-807-31	CARBON	100	5%	1/4W
R403	1-247-807-31	CARBON	100	5%	1/4W
R404	1-247-807-31	CARBON	100	5%	1/4W
R405	1-249-429-11	CARBON	10K	5%	1/4W
R406	1-249-441-11	CARBON	100K	5%	1/4W
R407	1-247-807-31	CARBON	100	5%	1/4W
R408	1-249-429-11	CARBON	10K	5%	1/4W
R409	1-247-903-00	CARBON	1M	5%	1/4W
R410	1-247-807-31	CARBON	100	5%	1/4W
R411	1-247-807-31	CARBON	100	5%	1/4W
R412	1-247-807-31	CARBON	100	5%	1/4W
R413	1-247-804-11	CARBON	75	5%	1/4W
R414	1-249-409-11	CARBON	220	5%	1/4W F
R415	1-247-804-11	CARBON	75	5%	1/4W
R450	1-249-429-11	CARBON	10K	5%	1/4W
R451	1-249-425-11	CARBON	4.7K	5%	1/4W F
R452	1-249-393-11	CARBON	10	5%	1/4W F
R453	1-247-807-31	CARBON	100	5%	1/4W
R454	1-249-426-11	CARBON	5.6K	5%	1/4W

Ref. No.	Part No.	Description			Remarks
		< TRANSFORMER >			
T400	1-416-701-11	COIL (WITH CORE)			
**					
	A-4724-789-A	FL BOARD, COMPLETE (AEP,UK)			
		******************			
	A-4724-790-A	FL BOARD, COMPLETE (US,CND)			
		******************			
	2-389-320-01	CUSHION			
*	3-362-478-11	HOLDER (T), LED			
*	3-362-478-11	HOLDER (T), LED			
*	4-996-686-11	HOLDER (FL)			
		< CAPACITOR >			
C700	1-124-589-11	ELECT	47uF	20%	16V
C701	1-124-589-11	ELECT	47uF	20%	16V
C765	1-162-290-31	CERAMIC	470PF	10%	50V
C766	1-162-290-31	CERAMIC	470PF	10%	50V
C767	1-162-294-31	CERAMIC	0.001uF	10%	50V
C768	1-162-294-31	CERAMIC	0.001uF	10%	50V
C770	1-164-159-11	CERAMIC	0.1MF		50V
C771	1-162-294-31	CERAMIC	0.001uF	10%	50V
C772	1-162-213-31	CERAMIC	39PF	5%	50V
C773	1-162-294-31	CERAMIC	0.001uF	10%	50V
C774	1-162-282-31	CERAMIC	100PF	10%	50V
C775	1-162-282-31	CERAMIC	100PF	10%	50V
C776	1-162-282-31	CERAMIC	100PF	10%	50V
C777	1-164-159-11	CERAMIC	0.1uF		50V
C778	1-162-294-31	CERAMIC	0.001uF	10%	50V
C781	1-164-159-11	CERAMIC	0.1MF		50V
C782	1-164-159-11	CERAMIC	0.1MF		50V
		< CONNECTOR >			
CN701	1-784-337-11	CONNECTOR (FFC) 25P			
CN751	1-784-642-11	CONNECTOR, BOARD TO BOARD 11P			
		< LED >			
D753	8-719-303-02	LED SEL2510C-D-TP3(▶)			
D754	8-719-301-52	LED SEL2810A-D-TP3(❚❚)			
D755	8-719-301-39	LED SEL2210S-D-TP3(● REC)			
		< FLUORESCENT INDICATOR >			
FL781	1-517-738-11	INDICATOR TUBE, FLUORESCENT			
		< IC >			
IC771	8-759-525-49	IC MSM9201-02GS-K			
		< TRANSISTOR >			
Q753	8-729-900-80	TRANSISTOR UN4211-TA			
Q754	8-729-422-57	TRANSISTOR UN4111-TA			
Q755	8-729-422-57	TRANSISTOR UN4111-TA			
Q781	8-729-620-05	TRANSISTOR 2SC2603TP-EF			
Q782	8-729-620-05	TRANSISTOR 2SC2603TP-EF			
		< RESISTOR >			
R702	1-249-421-11	CARBON	2.2K	5%	1/4W F
R703	1-247-843-11	CARBON	3.3K	5%	1/4W
R704	1-249-425-11	CARBON	4.7K	5%	1/4W F
R705	1-249-429-11	CARBON	10K	5%	1/4W
R706	1-249-435-11	CARBON	33K	5%	1/4W

Ref. No.	Part No.	Description			Remarks
R712	1-249-421-11	CARBON	2.2K	5%	1/4W F
R713	1-247-843-11	CARBON	3.3K	5%	1/4W
R714	1-249-425-11	CARBON	4.7K	5%	1/4W F
R717	1-249-429-11	CARBON	10K	5%	1/4W
R718	1-249-435-11	CARBON	33K	5%	1/4W
R753	1-247-807-31	CARBON	100	5%	1/4W
R754	1-249-406-11	CARBON	120	5%	1/4W F
R755	1-249-409-11	CARBON	220	5%	1/4W F
R772	1-247-843-11	CARBON	3.3K	5%	1/4W
R773	1-247-807-31	CARBON	100	5%	1/4W
R774	1-247-807-31	CARBON	100	5%	1/4W
R775	1-247-807-31	CARBON	100	5%	1/4W
R776	1-247-807-31	CARBON	100	5%	1/4W
R781	1-247-807-31	CARBON	100	5%	1/4W
R782	1-249-441-11	CARBON	100K	5%	1/4W
R783	1-247-807-31	CARBON	100	5%	1/4W
R784	1-249-441-11	CARBON	100K	5%	1/4W
R785	1-247-807-31	CARBON	100	5%	1/4W
R786	1-247-807-31	CARBON	100	5%	1/4W
		< SWITCH >			
S701	1-762-875-21	SWITCH, KEYBOARD(● REC)			
S702	1-762-875-21	SWITCH, KEYBOARD(■)			
S703	1-762-875-21	SWITCH, KEYBOARD(▶▶)			
S704	1-762-875-21	SWITCH, KEYBOARD(◀◀)			
S705	1-762-875-21	SWITCH, KEYBOARD(❚❚)			
S706	1-762-875-21	SWITCH, KEYBOARD(▶)			
S711	1-762-875-21	SWITCH, KEYBOARD(MENU/NO)			
S712	1-762-875-21	SWITCH, KEYBOARD(YES)			
S713	1-473-965-11	ENCODER, ROTARY(AMS)			
S714	1-762-875-21	SWITCH, KEYBOARD(CLEAR)			
S716	1-762-875-21	SWITCH, KEYBOARD(⏏OPEN/CLOSE)			
S740	1-418-520-11	ENCODER, ROTARY(DIGITAL REC LEVEL)			
**					
	1-674-323-11	HP BOARD			
		********			
		< CAPACITOR >			
C651	1-162-207-31	CERAMIC	22PF	5%	50V
C652	1-162-207-31	CERAMIC	22PF	5%	50V
C653	1-126-013-11	ELECT	1000uF	20%	16V
C654	1-126-023-11	ELECT	100uF	20%	25V
C655	1-162-294-31	CERAMIC	0.001uF	10%	50V
C656	1-162-294-31	CERAMIC	0.001uF	10%	50V
C657	1-164-159-11	CERAMIC	0.1uF		50V
C658	1-164-159-11	CERAMIC	0.1uF		50V
		< CONNECTOR >			
* CN651	1-564-709-11	PIN, CONNECTOR (SMALL TYPE) 7P			
		< IC >			
IC651	8-759-359-60	IC NJM4556AD-D			
		< JACK >			
J651	1-770-307-11	JACK (LARGE TYPE)(PHONES)			
		< TRANSISTOR >			
Q651	8-729-231-55	TRANSISTOR 2SC2878AB-TPE2			
Q652	8-729-231-55	TRANSISTOR 2SC2878AB-TPE2			
Q653	8-729-231-55	TRANSISTOR 2SC2878AB-TPE2			
Q654	8-729-231-55	TRANSISTOR 2SC2878AB-TPE2			

Ref. No.	Part No.	Description			Remarks
		< RESISTOR >			
R651	1-259-460-11	CARBON	22K	5%	1/6W
R652	1-259-460-11	CARBON	22K	5%	1/6W
R653	1-259-444-11	CARBON	4.7K	5%	1/6W
R654	1-259-458-11	CARBON	18K	5%	1/6W
R655	1-259-444-11	CARBON	4.7K	5%	1/6W
R656	1-259-458-11	CARBON	18K	5%	1/6W
R657	1-259-406-11	CARBON	120	5%	1/6W
R658	1-259-406-11	CARBON	120	5%	1/6W
R659	1-259-444-11	CARBON	4.7K	5%	1/6W
R660	1-259-444-11	CARBON	4.7K	5%	1/6W
R661	1-259-444-11	CARBON	4.7K	5%	1/6W
R662	1-259-444-11	CARBON	4.7K	5%	1/6W
R663	1-259-428-11	CARBON	1K	5%	1/6W
R664	1-259-428-11	CARBON	1K	5%	1/6W
R665	1-247-731-11	CARBON	22	5%	1/2W F
R666	1-247-727-11	CARBON	10	5%	1/2W F
		< VARIABLE RESISTOR >			
RV651	1-225-492-11	RES, VAR, CARBON 20K/20K(PHONE LEVEL)			

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*	1-669-049-11	MOTOR BOARD			
		************			
		< CAPACITOR >			
C10	1-164-159-11	CERAMIC	0.1uF		50V
		< CONNECTOR >			
CN14	1-506-481-11	PIN, CONNECTOR 2P			

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*	1-669-050-11	OUT SWITCH BOARD			
		*****************			
		< CONNECTOR >			
* CN10	1-568-951-11	PIN, CONNECTOR 2P			
		< SWITCH >			
S10	1-571-300-21	SWITCH, ROTARY(PLAY POSITION)			

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	1-674-324-11	PJ BOARD			
		********			
		< CAPACITOR >			
C598	1-110-335-11	MYLAR	100PF	5%	50V
C599	1-110-335-11	MYLAR	100PF	5%	50V
		< CONNECTOR >			
* CN581	1-564-519-11	PLUG, CONNECTOR 4P			
		< JACK >			
PJ501	1-568-101-11	JACK, PIN 4P(LINE IN/OUT)			
		< RESISTOR >			
R591	1-249-504-11	CARBON	10	5%	1/4W
R592	1-249-504-11	CARBON	10	5%	1/4W
R593	1-249-528-91	CARBON	100	5%	1/4W
R594	1-249-528-91	CARBON	100	5%	1/4W

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Ref. No.	Part No.	Description			Remarks
*	1-669-051-11	POSITION SWITCH BOARD			
		*********************			
		< CONNECTOR >			
CN12	1-564-723-11	PIN, CONNECTOR (SMALL TYPE) 7P			
		< SWITCH >			
S11	1-771-264-11	SWITCH, PUSH(DETECTION)(1 KEY)			
					(CHUCKING IN)
S12	1-771-264-11	SWITCH, PUSH(DETECTION)(1 KEY)			
					(PACK OUT)
S13	1-771-264-11	SWITCH, PUSH(DETECTION)(1 KEY)			
					(REC POSITION)

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	A-4724-792-A	PSW BOARD, COMPLETE (AEP,UK)			
		*********************			
	A-4724-793-A	PSW BOARD, COMPLETE (US,CND)			
		*********************			
		< CAPACITOR >			
C761	1-124-589-11	ELECT	47uF	20%	16V
C762	1-164-159-11	CERAMIC	0.1uF		50V
		< CONNECTOR >			
CN750	1-784-641-11	CONNECTOR, BOARD TO BOARD 11P			
		< LED >			
D756	8-719-046-46	LED SEL5221S-TH8F(STANDBY)			
D757	8-719-303-02	LED SEL2510C-D-TP3(FILTER)			
D758	8-719-301-52	LED SEL2810A-D-TP3(PITCH CONTROL)			
		< IC >			
IC761	8-749-013-92	IC GP1UC7X(REMOTE SENSOR)			
		< TRANSISTOR >			
Q756	8-729-900-80	TRANSISTOR UN4211-TA			
Q757	8-729-900-80	TRANSISTOR UN4211-TA			
Q758	8-729-900-80	TRANSISTOR UN4211-TA			
		< RESISTOR >			
R722	1-249-421-11	CARBON	2.2K	5%	1/4W F
R723	1-247-843-11	CARBON	3.3K	5%	1/4W
R724	1-249-425-11	CARBON	4.7K	5%	1/4W F
R725	1-249-429-11	CARBON	10K	5%	1/4W
R726	1-249-435-11	CARBON	33K	5%	1/4W
R732	1-249-421-11	CARBON	2.2K	5%	1/4W F
R733	1-247-843-11	CARBON	3.3K	5%	1/4W
R734	1-249-425-11	CARBON	4.7K	5%	1/4W F
R742	1-249-426-11	CARBON	5.6K	5%	1/4W
R743	1-249-425-11	CARBON	4.7K	5%	1/4W F
R744	1-249-429-11	CARBON	10K	5%	1/4W
R745	1-249-435-11	CARBON	33K	5%	1/4W
R751	1-249-429-11	CARBON	10K	5%	1/4W
R752	1-249-429-11	CARBON	10K	5%	1/4W
R756	1-249-409-11	CARBON	220	5%	1/4W F
R757	1-249-403-11	CARBON	68	5%	1/4W F
R758	1-249-402-11	CARBON	56	5%	1/4W F
R761	1-249-401-11	CARBON	47	5%	1/4W F
R762	1-247-807-31	CARBON	100	5%	1/4W
R787	1-247-807-31	CARBON	100	5%	1/4W

Ref. No.	Part No.	Description			Remarks
R788	1-247-807-31	CARBON	100	5%	1/4W
R789	1-247-807-31	CARBON	100	5%	1/4W
		< SWITCH >			
S722	1-762-875-21	SWITCH, KEYBOARD(PLAY MODE)			
S723	1-762-875-21	SWITCH, KEYBOARD(REPEAT)			
S724	1-762-875-21	SWITCH, KEYBOARD(SCROLL)			
S725	1-762-875-21	SWITCH, KEYBOARD(DISPLAY/CHAR)			
S726	1-762-875-21	SWITCH, KEYBOARD(I/⏻)			
S731	1-762-875-21	SWITCH, KEYBOARD(TIME)			
S732	1-762-875-21	SWITCH, KEYBOARD(FADER)			
S733	1-570-101-51	SWITCH, KEY BOARD(FILTER)			
S734	1-570-101-21	SWITCH, KEY BOARD(PITCH CONTROL)			
S741	1-771-171-11	SWITCH, ROTARY(INPUT)			
S751	1-572-625-11	SWITCH, SLIDE(TIMER)			

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Ref. No.	Part No.	Description			Remarks
	A-4724-804-A	PW BOARD, COMPLETE (AEP,UK)			
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	A-4724-805-A	PW BOARD, COMPLETE (US,CND)			
		********************			
*	4-363-146-71	HEAT SINK, V.OUT			
*	4-941-237-11	HEAT SINK			
	7-685-646-79	SCREW +BVTP 3 × 8 TYPE2 N-S			
		< CAPACITOR >			
C201	1-117-850-11	ELECT	15000MF	20%	16V
C202	1-164-159-11	CERAMIC	0.1uF		50V
C203	1-126-939-11	ELECT	10000uF	20%	16V
C204	1-127-941-11	ELECT	6800uF	20%	63V
C205	1-127-941-11	ELECT	6800uF	20%	63V
C206	1-164-159-11	CERAMIC	0.1uF		50V
C207	1-164-159-11	CERAMIC	0.1uF		50V
C208	1-164-159-11	CERAMIC	0.1uF		50V
C209	1-164-159-11	CERAMIC	0.1uF		50V
C210	1-164-159-11	CERAMIC	0.1uF		50V
C213	1-136-153-00	FILM	0.01uF	5%	50V
C214	1-136-153-00	FILM	0.01uF	5%	50V
C217	1-126-935-11	ELECT	470uF	20%	16V
C218	1-164-159-11	CERAMIC	0.1uF		50V
C231	1-117-149-21	ELECT	2200uF	20%	25V
C232	1-126-942-61	ELECT	1000uF	20%	25V
C233	1-164-732-11	CERAMIC	0.1uF	20%	50V
C234	1-164-732-11	CERAMIC	0.1uF	20%	50V
C235	1-164-732-11	CERAMIC	0.1uF	20%	50V
C236	1-164-732-11	CERAMIC	0.1uF	20%	50V
C241	1-104-663-11	ELECT	33uF	20%	25V
C242	1-126-963-11	ELECT	4.7uF	20%	50V
C243	1-126-964-11	ELECT	10uF	20%	50V
C244	1-164-159-11	CERAMIC	0.1uF		50V
C245	1-126-916-11	ELECT	1000uF	20%	6.3V
C246	1-126-925-11	ELECT	470uF	20%	10V
C247	1-164-159-11	CERAMIC	0.1uF		50V
C248	1-164-159-11	CERAMIC	0.1uF		50V
C251	1-126-965-11	ELECT	22uF	20%	50V
C252	1-164-159-11	CERAMIC	0.1uF		50V
C253	1-126-933-11	ELECT	100uF	20%	16V
C254	1-162-306-11	CERAMIC	0.01uF	30%	16V
C255	1-162-306-11	CERAMIC	0.01uF	30%	16V
C261	1-164-159-11	CERAMIC	0.1uF		50V
C262	1-164-159-11	CERAMIC	0.1uF		50V

Ref. No.	Part No.	Description			Remarks
C263	1-126-916-11	ELECT	1000uF	20%	6.3
C271	1-107-935-11	ELECT	330uF	20%	100
C272	1-164-159-11	CERAMIC	0.1uF		50V
C273	1-126-969-11	ELECT	220uF	20%	50V
C283	1-126-022-11	ELECT	47uF	20%	25V
C284	1-164-159-11	CERAMIC	0.1uF		50V
C285	1-164-159-11	CERAMIC	0.1uF		50V
		< CONNECTOR >			
CN201	1-779-289-11	CONNECTOR,FFC(LIF(NON-ZIF))21P			
* CN202	1-564-709-11	PIN, CONNECTOR (SMALL TYPE) 7P			
CN205	1-691-769-11	PLUG (MICRO CONNECTOR) 7P			
CN207	1-691-769-11	PLUG (MICRO CONNECTOR) 7P			
CN208	1-779-281-11	CONNECTOR,FFC(LIF(NON-ZIF))13P			
		< DIODE >			
D201	8-719-210-29	DIODE F10P10Q			
D202	8-719-210-29	DIODE F10P10Q			
D203	8-719-200-77	DIODE 10E2N-TA2B			
D204	8-719-210-29	DIODE F10P10Q			
D205	8-719-210-29	DIODE F10P10Q			
D206	8-719-210-29	DIODE F10P10Q			
D207	8-719-210-29	DIODE F10P10Q			
D208	8-719-200-77	DIODE 10E2N-TA2B			
D210	8-719-911-19	DIODE 1SS133T-72			
D211	8-719-911-19	DIODE 1SS133T-72			
D212	8-719-983-62	DIODE MTZJ-T-72-3.3A			
D213	8-719-911-19	DIODE 1SS133T-72			
D231	8-719-210-21	DIODE 11EQS04-TA2B			
D232	8-719-210-21	DIODE 11EQS04-TA2B			
D241	8-719-200-82	DIODE 11ES2-TA2B			
D242	8-719-200-82	DIODE 11ES2-TA2B			
D243	8-719-911-19	DIODE 1SS133T-72			
D251	8-719-933-39	DIODE HZS6C1LTA			
D705	8-719-160-26	DIODE HZ5.6BP-TK			
D706	8-719-200-77	DIODE 10E2N-TA2B			
		< PLATE >			
* EP200	4-870-539-00	PLATE, GROUND			
* EP201	4-870-539-00	PLATE, GROUND			
		< FUSE >			
⚠ F201	1-532-776-21	FUSE, MICRO (SECONDARY) 1A 125V(US,CND)			
⚠ F202	1-532-781-21	FUSE, MICRO (SECONDARY) 3.15A 125V (US,CND)			
⚠ F203	1-532-781-21	FUSE, MICRO (SECONDARY) 3.15A 125V (US,CND)			
		< IC >			
IC230	8-759-604-39	IC M5F78M12L			
IC231	8-759-604-45	IC M5F79M12L			
IC240	8-759-525-48	IC LA5632			
IC250	8-759-822-09	IC LB1641			
IC260	8-759-513-71	IC PQ05RF21			
IC270	8-759-633-42	IC M5293L			
		< IC LINK >			
⚠ ICP201	1-532-839-11	IC LINK 1A 125V(AEP,UK)			
⚠ ICP202	1-532-844-21	IC LINK 3.15A 125V(AEP,UK)			
⚠ ICP203	1-532-844-21	IC LINK 3.15A 125V(AEP,UK)			

Ref. No.	Part No.	Description			Remarks
		< TRANSISTOR >			
Q201	8-729-140-98	TRANSISTOR 2SD773-T-34			
Q202	8-729-902-80	TRANSISTOR UN4114-TA			
Q203	8-729-902-80	TRANSISTOR UN4114-TA			
Q204	8-729-140-98	TRANSISTOR 2SD773-T-34			
Q251	8-729-119-76	TRANSISTOR 2SA1115TP-EF			
Q252	8-729-900-80	TRANSISTOR UN4211-TA			
		< RESISTOR >			
R201	1-249-437-11	CARBON	47K	5%	1/4W
R202	1-249-425-11	CARBON	4.7K	5%	1/4W F
R203	1-247-807-31	CARBON	100	5%	1/4W
R204	1-249-429-11	CARBON	10K	5%	1/4W
R205	1-247-807-31	CARBON	100	5%	1/4W
R206	1-249-429-11	CARBON	10K	5%	1/4W
R207	1-249-437-11	CARBON	47K	5%	1/4W
R208	1-249-425-11	CARBON	4.7K	5%	1/4W F
R241	1-247-807-31	CARBON	100	5%	1/4W
R242	1-249-412-11	CARBON	390	5%	1/4W F
R243	1-249-417-11	CARBON	1K	5%	1/4W F
R244	1-249-429-11	CARBON	10K	5%	1/4W
R245	1-249-433-11	CARBON	22K	5%	1/4W
R251	1-249-417-11	CARBON	1K	5%	1/4W F
R252	1-249-433-11	CARBON	22K	5%	1/4W
R253	1-249-429-11	CARBON	10K	5%	1/4W
R254	1-249-429-11	CARBON	10K	5%	1/4W
R271	1-247-807-31	CARBON	100	5%	1/4W
R272	1-247-843-11	CARBON	3.3K	5%	1/4W
R273	1-249-434-11	CARBON	27K	5%	1/4W
R281	1-249-417-11	CARBON	1K	5%	1/4W F
		< RELAY >			
RY200	1-515-925-11	RELAY			
RY201	1-515-925-11	RELAY			

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	1-674-328-11	REC BOARD

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		< CONNECTOR >
CN760	1-564-511-11	PLUG, CONNECTOR 8P

		< RESISTOR >			
R765	1-249-955-11	CARBON	22K	5%	1/4W
R766	1-249-955-11	CARBON	22K	5%	1/4W

		< VARIABLE RESISTOR >
RV760	1-225-883-11	RES, VAR(ANALOG REC LEVEL)

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Ref. No.	Part No.	Description	Remarks
		MISCELLANEOUS	
		**************	
72	1-791-547-11	WIRE (FLAT TYPE) (25CORE)	
108	1-790-202-11	WIRE (FLAT TYPE) (23 CORE)	
⚠109	1-558-568-21	CORD, POWER(AEP)	
⚠109	1-559-583-21	CORD, POWER(US,CND)	
⚠109	1-696-586-11	CORD, POWER(UK)	
114	1-791-166-11	WIRE (FLAT TYPE) (21 CORE)	
121	1-790-205-11	WIRE (FLAT TYPE) (17 CORE)	
122	1-791-168-11	WIRE (FLAT TYPE) (27 CORE)	
123	1-791-167-11	WIRE (FLAT TYPE) (13 CORE)	
251	1-667-954-11	PC BOARD, FLEXIBLE	
⚠259	A-4672-541-A	OPTICAL PICK-UP KMS-260B/J1N	
HR901	1-500-565-11	HEAD, OVER LIGHT	
M10	X-4949-791-1	MOTOR (LOADING) ASSY	
M101	A-4672-475-A	MOTOR ASSY, SPINDLE	
M102	A-4672-474-A	MOTOR ASSY, SLED	
S102	1-762-148-21	SWITCH, PUSH (2 KEY) (REFLECT/PROTECT DET.)	
⚠T001	1-433-987-11	TRANSFORMER, POWER(US,CND)	
⚠T001	1-433-989-11	TRANSFORMER, POWER(UK,AEP)	
⚠T002	1-433-988-11	TRANSFORMER, POWER(US,CND)	
⚠T002	1-433-990-11	TRANSFORMER, POWER(UK,AEP)	

ACCESSORIES & PACKING MATERIALS
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	1-418-369-11	REMOTE COMMANDER (RM-D33M)
	1-590-925-31	CORD, CONNECTION PIN CABLE (1m)
	1-777-172-11	CORD, CONNECTION MINI PLUG (1m) (CND)
	3-866-900-11	MANUAL, INSTRUCTION (ENGLISH, FRENCH)
	3-866-900-21	MANUAL, INSTRUCTION (GERMAN, SPANISH, ITALIAN)(AEP)
	3-866-900-31	MANUAL, INSTRUCTION (DUTCH, SWEDISH, PORUTUGUESE)(AEP)
	4-983-537-01	COVER, BATTERY(for RM-D33M)

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HARDWARE LIST
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#1	7-685-886-09	SCREW +BVTT 4 × 20 (S)
#2	7-685-880-09	SCREW +BVTT 4 × 6 (S)
#3	7-685-871-01	SCREW +BVTT 3 × 6 (S)
#4	7-685-103-19	SCREW +P 2 × 5 TYPE2 NON-SLIT
#5	7-685-133-19	SCREW (DIA. 2.6) (IT3B)
#6	7-621-772-00	SCREW +B 2 × 3
#7	7-621-772-20	SCREW +B 2 × 5
#8	7-621-772-40	SCREW +B 2 × 8
#9	7-685-850-04	SCREW +BVTT 2 × 3 (S)
#10	7-685-873-09	SCREW +BVTT 3 × 10 (S)

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

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

MDS-JA555ES