

HCD-CP505

SERVICE MANUAL

Ver. 1.7 2009.12



AEP Model
UK Model
E Model
Chinese Model



HCD-CP505 is the Amplifier, CD player, MD deck, Tape player and Tuner section in CMT-CP505MD.

CD Section	Model Name Using Similar Mechanism	NEW
	CD Mechanism Type	CDM55G-30BBD61B
	Base Unit Type	BU-30BBD61B
	Optical Pick-up Type	A-MAX. 3
MD Section	Model Name Using Similar Mechanism	NEW
	MD Mechanism Type	MDM-7S2C
	Optical Pick-up Type	KMS-262E
Tape deck Section	Model Name Using Similar Mechanism	NEW
	Tape Transport Mechanism Type	CMAL1Z-221A

SPECIFICATIONS

Amplifier section

European model:
DIN power output (rated): 30 + 30 W
(6 ohms at 1 kHz, DIN)
Continuous RMS power output (reference):
35 + 35 W
(6 ohms at 1 kHz, 10% THD)
Music power output (reference):
70 + 70 W

Other models:
The following measured at 230 V AC, 60 Hz
DIN power output (rated): 25 + 25 W
(6 ohms at 1 kHz, DIN)
Continuous RMS power output (reference):
30 + 30 W
(6 ohms at 1 kHz, 10% THD)
The following measured at 220 V AC, 60 Hz
DIN power output (rated): 22 + 22 W
(6 ohms at 1 kHz, DIN)
Continuous RMS power output (reference):
28 + 28 W
(6 ohms at 1 kHz, 10% THD)

Inputs
ANALOG IN: (phono jacks) Sensitivity 250 mV, impedance 47 kilohms
DIGITAL OPTICAL IN (supported sampling frequencies: 32 kHz, 44.1 kHz and 48 kHz)

Outputs
PHONES: Accepts headphones with an impedance of 8 ohms or more
SPEAKER: accepts impedance of 6 to 16 ohms.

CD player section

System Compact disc and digital audio system
Laser Semiconductor laser ($\lambda=780$ nm)
Emission duration: continuous
Frequency response 2 Hz – 20 kHz

MD deck section

System Minidisc digital audio system
Laser Semiconductor laser ($\lambda=780$ nm)
Emission duration: continuous
44.1 kHz
5 Hz – 20 kHz

Tape deck section

Recording system 4-track 2-channel stereo
Frequency response 50 – 13,000 Hz (± 3 dB), using Sony TYPE I cassettes

— Continued on next page —

MICRO HI-FI COMPONENT SYSTEM

9-874-070-08

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Audio&Video Business Group

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SONY®

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**: LEAD FREE MARK**

Unleaded solder has the following characteristics.

- Unleaded solder melts at a temperature about 40°C higher than ordinary solder.
Ordinary soldering irons can be used but the iron tip has to be applied to the solder joint for a slightly longer time.
Soldering irons using a temperature regulator should be set to about 350°C.
Caution: The printed pattern (copper foil) may peel away if the heated tip is applied for too long, so be careful!
- Strong viscosity
Unleaded solder is more viscous (sticky, less prone to flow) than ordinary solder so use caution not to let solder bridges occur such as on IC pins, etc.
- Usable with ordinary solder
It is best to use only unleaded solder but unleaded solder may also be added to ordinary solder.

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK $\triangle$ OR DOTTED LINE WITH MARK $\triangle$ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

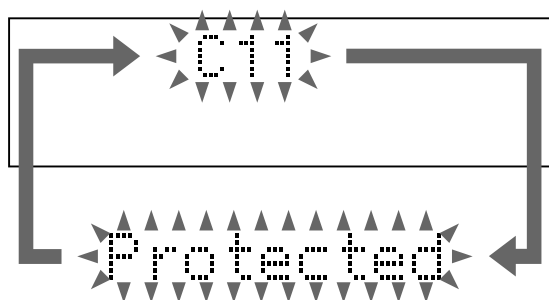
与安全有关的零部件须知

在原理图上用阴影及 $\triangle$ 标记来识别的零部件在安全操作上是具有关键性的。这些零部件要用本手册中所示的部件号对应的索尼零部件进行更换。

在安全操作上具有关键性的电路调整与索尼公司出版的维修手册完全一致。在更换关键零部件时或怀疑动作失常时，请进行这些调整操作。

Self-diagnosis display

This system has a Self-diagnosis display function to let you know if there is a system malfunction. The display shows a code made up of three or five letters and a message alternately to show you the problem. To solve the problem refer to the following list. If any problem persists, consult your nearest Sony dealer.



C11/Protected

The MD is protected against erasure.

- Remove the MD and slide the tab to close the slot (see page 17).

C12/Cannot Copy

You tried to record a CD with a format that the system does not support, such as a CD-ROM.

- Remove the disc and turn off the system once, then turn it on again.

C13/REC Error

Recording could not be performed properly.

- Move the system to a stable place, and start recording over from the beginning.

The MD is dirty or scratched, or the MD does not meet the standards.

- Replace the MD and start recording over from the beginning.

C13/Read Error

The MD deck cannot read the disc information properly.

- Remove the MD once, then insert it again.

C14/TOC Error

The MD deck cannot read the disc information properly.

- Replace the MD.
- Erase all the recorded contents of the MD using the All Erase Function (see page 34).

C41/Cannot Copy

The sound source is a copy of a commercially available music software or CD-R.

- The Serial Copy Management System prevents making a digital copy (see page 64). In addition, you cannot copy from a CD-R.

C71/Check OPT-IN

No component is connected to the DIGITAL OPTICAL IN jack, or you tried to record from the digital component which is not connected correctly.

- Connect the optional digital component correctly to the DIGITAL OPTICAL IN jack using the digital optical cable (not supplied) (see page 53).

The power of the connected component is not turned on.

- Check if the power of the connected digital component is on. Refer to the operating instructions supplied with the component.

The digital optical cable is disconnected, or the power of the connected component is turned off while recording the digital audio from the component connected to the DIGITAL OPTICAL IN jack.

- Connect the digital optical cable, or turn on the power of the connected component.

E0001/MEMORY NG

The component has internal problem.

- Consult your nearest Sony dealer.

E0101/LASER NG

There is a problem with the laser pickup.

- The laser pickup may be damaged. Consult your nearest Sony dealer.

E0201/LOADING NG

There is a problem with the loading.

- Consult your nearest Sony dealer.

Messages

One of the following messages may appear or flash in the display during operation.

MD

Assign None

All the tracks on an MD are registered into groups.

Auto Cut

The MD deck is pausing the recording because silence continued for 30 seconds or more during digital recording (see page 25).

Blank Disc

The inserted recordable MD is new, or all tracks on the MD have been erased.

Cannot Edit

- A pre-mastered MD is in the deck.
- You tried to edit in Program or Shuffle Play mode.
- The track is recorded in MDLP mode.

Cannot REC

- A pre-mastered MD is in the deck.
- The function is switched to MD.

Cannot SYNC!

- There is no disc in the MD deck, or the MD is protected against erasure (see page 17).
- There is no time remaining on the MD.

Complete!

The editing operation of the MD is completed.

Disc Full!

There is no time remaining on the MD.

Eject

The MD deck is ejecting the MD.

Group Full!

An attempt was made to create a new group in excess of the maximum number of groups, or there are insufficient characters for updating the group management information.

Impossible

- You tried to make an impossible editing operation.
- You cannot combine or erase the tracks due to the system limitations of MDs.

Incomplete!

Adjustment of the recording level after recording or Fade-in and Fade-out procedures have failed since the system was either subject to vibration or there is a damaged or dirty disc in the tray.

Initialize

The power was off for a long time, so the system is initializing itself.

Name Full

There is no more space to store track, disc or group titles.

No Change

While attempting to change the recording level after recording, you pressed ENTER/YES on the remote without actually changing the recording level, so no change was made.

No Disc

There is no disc in the MD deck.

OVER

You have reached the end of the MD while turning ◀◀/▶▶ clockwise (or pressing ▶▶ on the remote) during playback or playing pause.

Push STOP!

You pressed PLAY MODE during play.

—Rehearsal—

The MD is playing the specified point for confirmation during the A-B Erase Function and the Divide Function (pages 34 and 36).

Retry

A reading failure has occurred, and the system is trying to read the data again.

S.F Edit!

You attempted to perform another operation while in S.F Edit (changing the recording level after recording, Fade-in, Fade-out) mode.

S.F Edit NOW

You pressed I/⏻ while in S.F Edit (changing the recording level after recording, Fade-in, Fade-out) mode.

continued

Self-diagnosis display (continued)

Smart Space

The signal was input again after silence continued for 3 or more but less than 30 seconds during digital recording, and the silence was cut to 3 seconds.

Step Full!

You tried to program 26 or more tracks (steps).

TOC Reading

The MD deck is reading the TOC information of the MD.

TOC Writing

The MD deck is writing the information of recorded or edited contents.

Track End

You have reached the end of the track while adjusting the dividing point during the Divide Function.

Tr Protected

You attempted to erase a protected track.

CD

No Disc

There is no CD in the player.

OVER

You have reached the end of the CD while turning ◀◀/▶▶ clockwise (or pressing ▶▶ on the remote) during play or pause.

Push STOP!

You pressed PLAY MODE during play.

Step Full!

You tried to program 26 or more tracks (steps).

TAPE

Cannot SYNC!

There is no tape in the tape deck, or the tab has been removed from the cassette.

No Tab

You cannot record the tape because the tab has been removed from the cassette.

No Tape

There is no tape in the tape deck.

Note 1: About “R”

As this unit has only a few buttons, some operations require the use of remote commander (RM-SCP500/provided with unit) buttons. These operations are indicated as “R” in this manual.

Example: **MENU/NO “R”** ...Press the **MENU/NO** button of the remote commander.

Note 2: Incorrect operations may be performed if the test mode is not entered properly.

In this case, press the **I/O** button to turn the power off, and retry to enter the test mode.

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

Note: Use the self-diagnostics function in the "error history display mode" of the test mode. The least required procedure is described below. Do not enter any other modes by mistake. If you have entered any other modes accidentally, press the **MENU/NO “R”** button to exit the mode.

1. Press the **I/O** button to turn on the power.
2. Press the **FUNCTION** button to select the “MD” function.
3. While pressing the **■** button and the **ENTER/START** button at the same time, press the **FUNCTION** button.
4. Press the **▶▶ “R”** button to display “[Service]”. Then press the **ENTER/YES “R”** button.
5. Press the **▶▶ “R”** button to display “Err Display”.
6. Press the **ENTER/YES “R”** button to enter the error history display mode and “op rec tm” appears.
7. Select the desired contents that you want to display or to execute using the **◀◀ “R”** button or the **▶▶ “R”** button.
8. Press the **REC MODE** button to display or to execute the selected contents.
9. Press the **REC MODE** button again to return to step 7.
10. Press the **MENU/NO “R”** button. The message “Err Display” appears and you exit the error history mode.
11. Press the **REPEAT** button twice to exit the test mode.
12. Press the **I/O** button to turn off the power.

Items of Error History Mode Items and Contents

Selecting the Test Mode

Display	History
op rec tm	Displays the accumulated recording time. When the accumulated recording time is more than 1 minute, displays the hour and minute When less than 1 minute, displays “Under 1 min” The display time indicates the time when the laser is set to high power more, which is about 1/4 of the actual recording time.
op play tm	Displays the accumulated playback time. When the accumulated playback time is more than 1 minute, displays the hour and minute When less than 1 minute, displays “Under 1 min”
spdl rp tm	Displays the accumulated rotating time of the spindle motor. When the accumulated rotating time is more than 1 minute, displays the hour and minute When less than 1 minute, displays “Under 1 min”
retry err	Displays the accumulated number of retry errors during recording and playback Displays “r p ”. is the number of errors during recording. is the number of errors during playback. This is displayed in hexadecimal from 00 to FF.
total err	Displays the total number of errors Displays “total ”. This is displayed in hexadecimal from 00 to FF.
err history	Displays the past ten errors. Displays “0x ErrCd@@”. X is the history number. The younger the number, the more recent is the history (00 is the latest). @@ is the error code. Select the error history number by pressing the ◀◀ “R” or ▶▶ “R” button.
retry adrs	Displays the past five retry addresses. Displays “ ADRS ”, is the history number, is the cluster with the retry error. Select the error history number by pressing the ◀◀ “R” or ▶▶ “R” button.
er refresh	Mode for erasing the error and retry address histories Procedure 1. Press the REC MODE button when displayed as “er refresh”. 2. When the display changes to “er refresh?”, press the ENTER/YES “R” button When “Complete!!” is displayed, it means erasure has completed. Be sure to check the following after executing this mode. *Data has been erased. *Perform recording and playback, and check that the mechanism is normal.
op change	Mode for erasing the accumulated time of op rec tm, op play tm. Use these histories as a guide line for the time of replacement of the optical pick-up. If the optical pick-up has been replaced, perform this procedure and erase the past history. Procedure 1. Press the REC MODE button when displayed as “op change”. 2. When the display changes to “op change?”, press the ENTER/YES “R” button. When “Complete!!” is displayed, it means erasure has completed.
spdl change	Mode for erasing the accumulated spdl rp tm time Use these histories as the guide line for the time of replacement of the spindle motor. If the spindle motor has been replaced, perform this procedure and erase the past history. Procedure 1. Press the REC MODE button when displayed as “spdl change” 2. When the display changes to “spdl change?”, press the ENTER/YES “R” button. When “Complete!!” is displayed, it means erasure has completed.

Table of Error Codes

Error Code	Description
10	Could not perform loading
11	The changer error occurred
12	Loading switches combined incorrectly
20	Timed out without reading the top of PTOC
21	Could read top of PTOC, but detected error
22	Timed out without accessing UTOC
23	Timed out without reading UTOC
24	Error in UTOC
30	Could not start playback
31	Error in sector
40	A cause of retry occurred during normal recording
41	Retried due to DRAM overflow
42	Retry occurred during TOC writing
43	Retry aborted during S.F editing
50	Other than access processing, and could not read address.
51	Focus NG occurred and overran.

SECTION 1 SERVICING NOTE

Jig For Checking BD (MD) Board Waveform

The special jig (J-2501-196-A) is useful for checking the waveform of the BD board. The names of terminals and the checking items to be performed are shown as follows.

GND : Ground

I+3V : For measuring Iop (Check the deterioration of the optical pick-up laser)

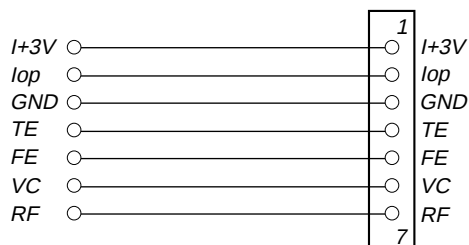
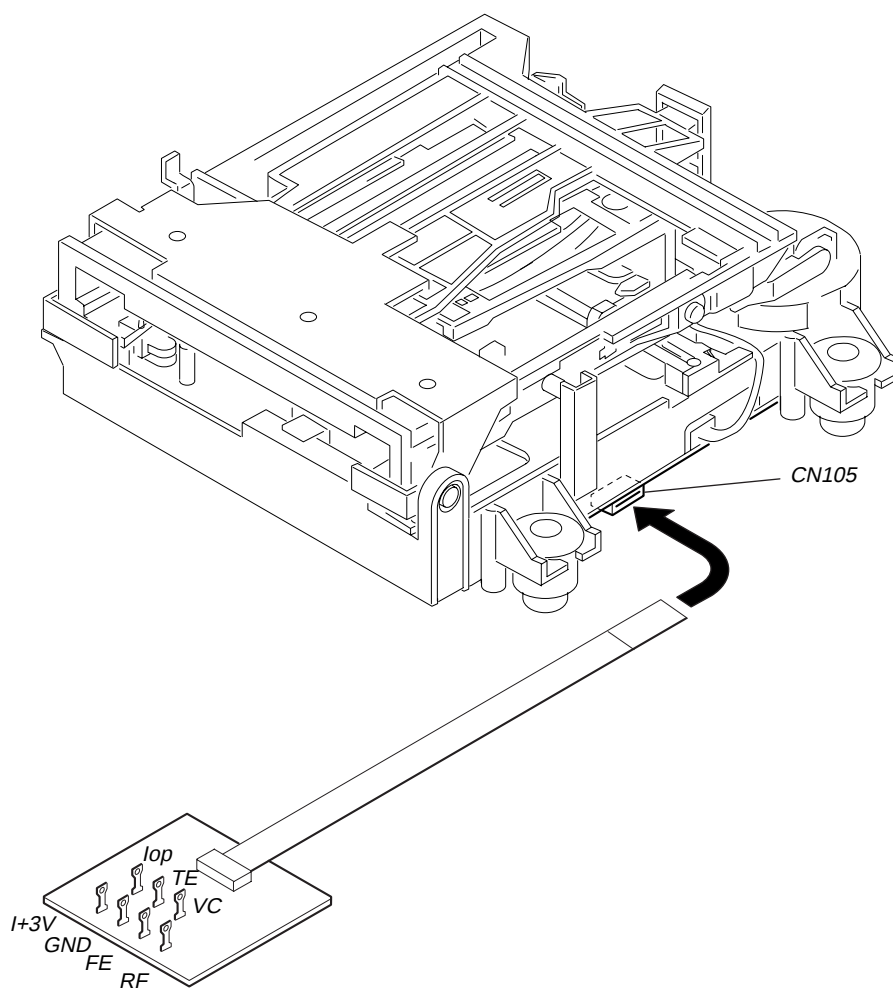
Iop : For measuring Iop (Check the deterioration of the optical pick-up laser)

TE : TRK error signal (Traverse adjustment)

VC : Reference level for checking the signal

RF : RF signal (Check jitter)

FE : Focus error signal



for MDM-7S2C

• Disc Tray Lock

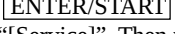
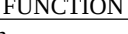
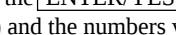
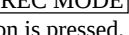
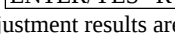
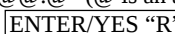
If the disc tray does not open and the message "LOCKED" appears, press the two buttons of **ENTER/START** and **▲ DVD** at the same time for 5 seconds or longer.

Then the lock is released, the message "UNLOCKED" appears for 2 seconds and the disc tray opens.

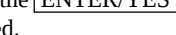
Iop DATA RECORDING AND DISPLAY WHEN OPTICAL PICK-UP AND NON-VOLATILE MEMORY (IC195 OF BD BOARD) ARE REPLACED

The Iop value labeled on the optical pick-up can be stored in the non-volatile memory. By storing the value, it will eliminate the need to look at the value on the label of the optical pick-up. When replacing the optical pick-up or non-volatile memory (IC195 of BD (MD) board), store the Iop value on the optical pick-up according to the following procedure.

Record Procedure:

1. Press the  button to turn on the power.
2. Press the  button to select the “MD” function.
3. While pressing the  button and the  button at the same time, press the  button.
4. Press the  “R” button to display “[Service]”. Then press the  “R” button.
5. Press the  “R” button to display “Iop Write” (C05) and press the  “R” button.
6. The display becomes “Ref=@@@.@” (@ is an arbitrary number) and the numbers which can be changed will blink.
7. Input the Iop value written on the optical pick-up.
To select the number : Press the  “R” button or the  “R” button.
To select the digit : Press the  button.
8. When the  “R” button is pressed, the display becomes “Measu=@@@.@” (@ is an arbitrary number).
9. As the adjustment results are stored for the 6 value. Leave it as it is and press the  “R” button.
10. “Complete!” will be displayed momentarily. The value will be stored in the non-volatile memory and the display will become “Iop Write” (C05).
11. Press the  “R” button to exit the mode.
12. Press the  button to turn off the power.

Display Procedure:

1. Press the  button to turn on the power.
2. Press the  button to select the “MD” function.
3. While pressing the  button and the  button at the same time, press the  button.
4. Press the  “R” button to display “[Service]”. Then press the  “R” button.
5. Press the  “R” button to display “Iop Read” (C26) and press the  “R” button.
6. “@@@./###.#” is displayed and the recorded contents are displayed.
@@@. : indicates the Iop value labeled on the optical pick-up
###.# : indicates the Iop value after adjustment
7. To end, press the  “R” button to display “Iop Read” (C26). Then press the  “R” button.
8. Press the  button to turn off the power.

Checks Prior to Parts Replacement and Adjustments in MD

Before performing repairs, perform the following checks to determine the faulty locations up to a certain extent. Details of the procedures are described in “Section 5 Electrical Adjustments”.

	Criteria for Determination (Unsatisfactory if specified value is not satisfied)	Measure if unsatisfactory
Laser power check (6-2 : See page 34)	0.93 mW power Specified value : 0.84 to 0.92 mW (KMS-262A) 0.90 to 0.96 mW (KMS-262E) 8.65 mW power Specified value : 8.1 to 8.7 mW (KMS-262A) 8.4 to 8.9 mW (KMS-262E)	- Clean the optical pick-up - Adjust again - Replace the optical pick-up
	Iop (at 8.65 mW) Labeled on the optical pick-up Iop value $\pm$ 10mA	Replace the optical pick-up
Auto check (6-4 : See page 35)	Unsatisfactory if displayed as “NG : XXXX”NG (XXXX are arbitrary numbers)	Replace the optical pick-up
Temperature compensation offset check (6-1 : See page 34)	Unsatisfactory if displayed as “T=@@ (##) [NG]” NG (@@, ## are both arbitrary numbers)	- Check for disconnection of the circuits around D101 (BD (MD) board) - Check the signals around IC101, IC151, CN102, CN103 (BD (MD) board)

Note:

The criteria for determination above is intended merely to determine if satisfactory or not, and does not serve as the specified value for adjustments. When performing adjustments, use the specified values for adjustments.

This section is extracted
from instruction manual.

Main unit

ALPHABETICAL ORDER

A - G

- BASS [26] (47)
CD ►|| [16] (9, 10, 22)
DIRECTION [2] (21, 44, 45-47)
Disc tray [24] (9)
Display window [31]
DSG [27] (47)
ENTER/START [6] (20, 21, 45, 46)
FM MODE [3] (43)
FUNCTION [1] (9, 13, 16, 19, 21-23, 25, 44, 47, 54)
GROUP ON/OFF [21] (15, 16, 18-20, 29-32)
GROUP SKIP [20] (16, 19, 20, 29, 30, 32)

M - V

- MD slot [28] (13)
MD ►|| [13] (13, 14, 16, 21)
PHONES jack [23]
PLAY MODE [2] (9-11, 13, 15, 28)
REC MODE [4] (20-22, 26)
Remote sensor [29]
REPEAT [3] (10, 14)
SYNCHRO [5] (20, 21, 45, 46)
TAPE ◀► [7] (44-46)
TREBLE [25] (47)
TUNER BAND [11] (41-43)
TUNING +/- [19] (41-43)
TUNING MODE [2] (41-43)
VOLUME [22]

BUTTON DESCRIPTIONS

- I/⏻ (power) [30]
◀◀/▶▶ [19]
◀◀◀/▶▶▶ [19]

TAPE

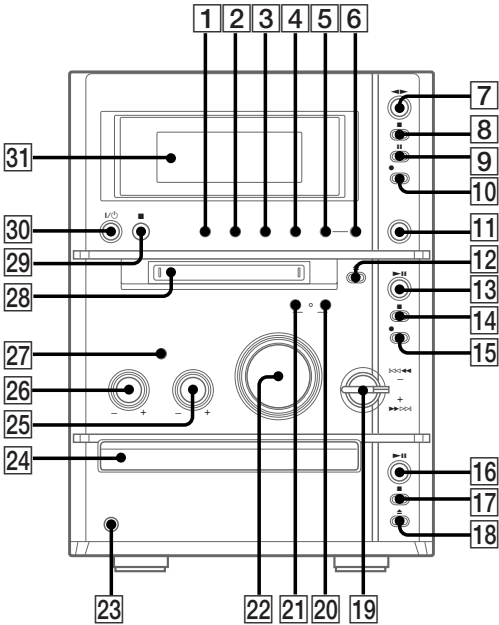
- || [9]
■ [8]
●REC [10]

MD

- ▲ [12]
■ [14]
●REC [15]

CD

- ▲ [18]
■ [17]



Remote Control

ALPHABETICAL ORDER

A - F

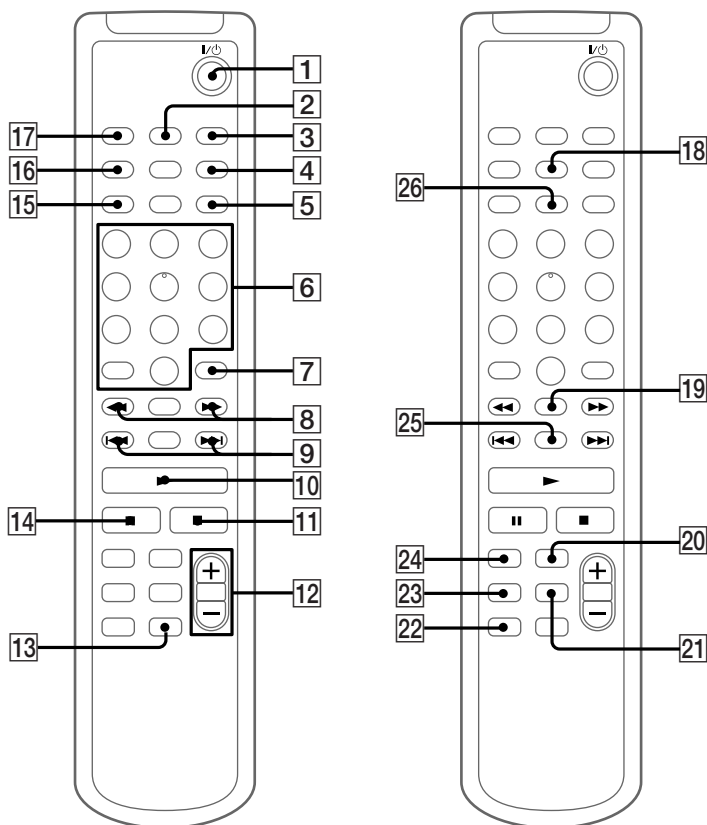
BASS/TRE **4** (47)
 CD **23** (10-13)
 CLEAR **7** (10, 15, 30, 43)
 CLOCK/TIMER SELECT **2** (49, 50)
 CLOCK/TIMER SET **3** (8, 48, 49)
 CURSOR $\leftarrow/\rightarrow$ **8** (8, 12, 29, 30)
 DISPLAY **25** (11, 15, 22, 44, 50-52)
 DSG **13** (47)
 ENTER/YES **5** (8, 10, 12, 13, 15, 22-26, 28-43, 48-50)
 FUNCTION **22** (9, 13, 16, 19, 21-23, 25, 44, 47, 54)

M - V

MD **24** (15, 24, 25, 28, 29, 31-37, 39, 40)
 MENU/NO **15** (12, 13, 23-26, 28, 30-41, 43)
 NAME EDIT/SELECT **26** (11, 29, 43)
 Numeric buttons **6** (10, 12, 14, 29, 42)
 PLAY MODE **16** (9-11, 13, 15, 28)
 REPEAT **18** (10, 14)
 SCROLL **19** (12, 30, 52)
 SLEEP **17** (48)
 TAPE **21**
 TUNER BAND **20** (41-43)
 VOLUME +/- **12**

BUTTON DESCRIPTIONS

I/⏻ (power) **1**
 ▶ **10**
 || **14**
 ■ **11**
 ◀▶ **8**
 ◀◀▶▶ **9**



Setting the clock

- 1** Press I/⏻ to turn on the system.
- 2** Press CLOCK/TIMER SET on the remote.
- 3** Press ◀◀ or ▶▶ on the remote repeatedly to set the hour.
- 4** Press ENTER/YES or CURSOR→ on the remote.
- 5** Press ◀◀ or ▶▶ on the remote repeatedly to set the minute.
- 6** Press ENTER/YES on the remote.
The clock starts working.

If you make a mistake

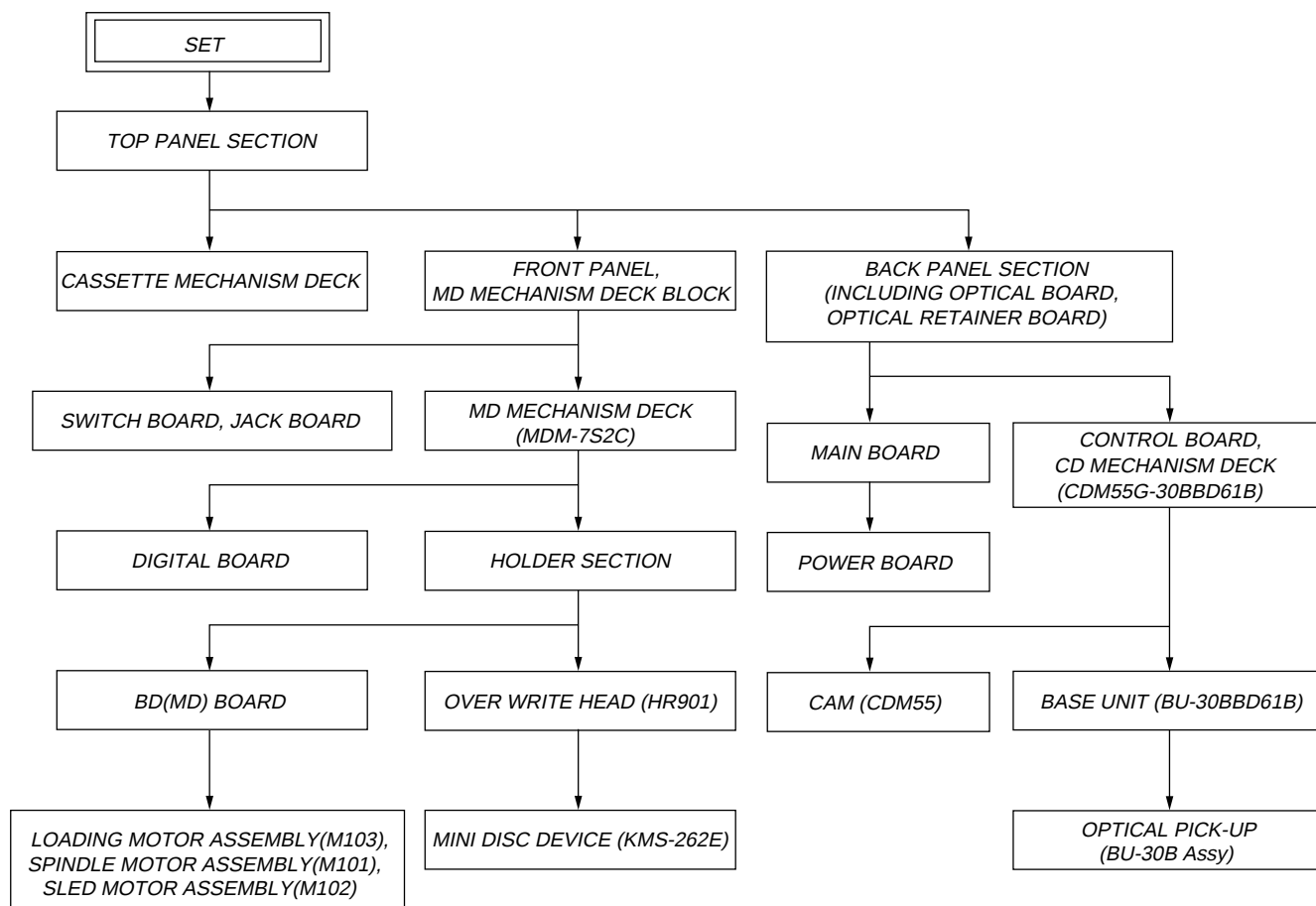
Press ←CURSOR or CURSOR→ on the remote repeatedly until the incorrect item flashes, then set it again.

To adjust the clock

- 1** Press CLOCK/TIMER SET on the remote.
- 2** Press ◀◀ or ▶▶ on the remote to select “CLOCK SET”, then press ENTER/YES on the remote.
- 3** Do the same procedures as step 3 to 6 above.

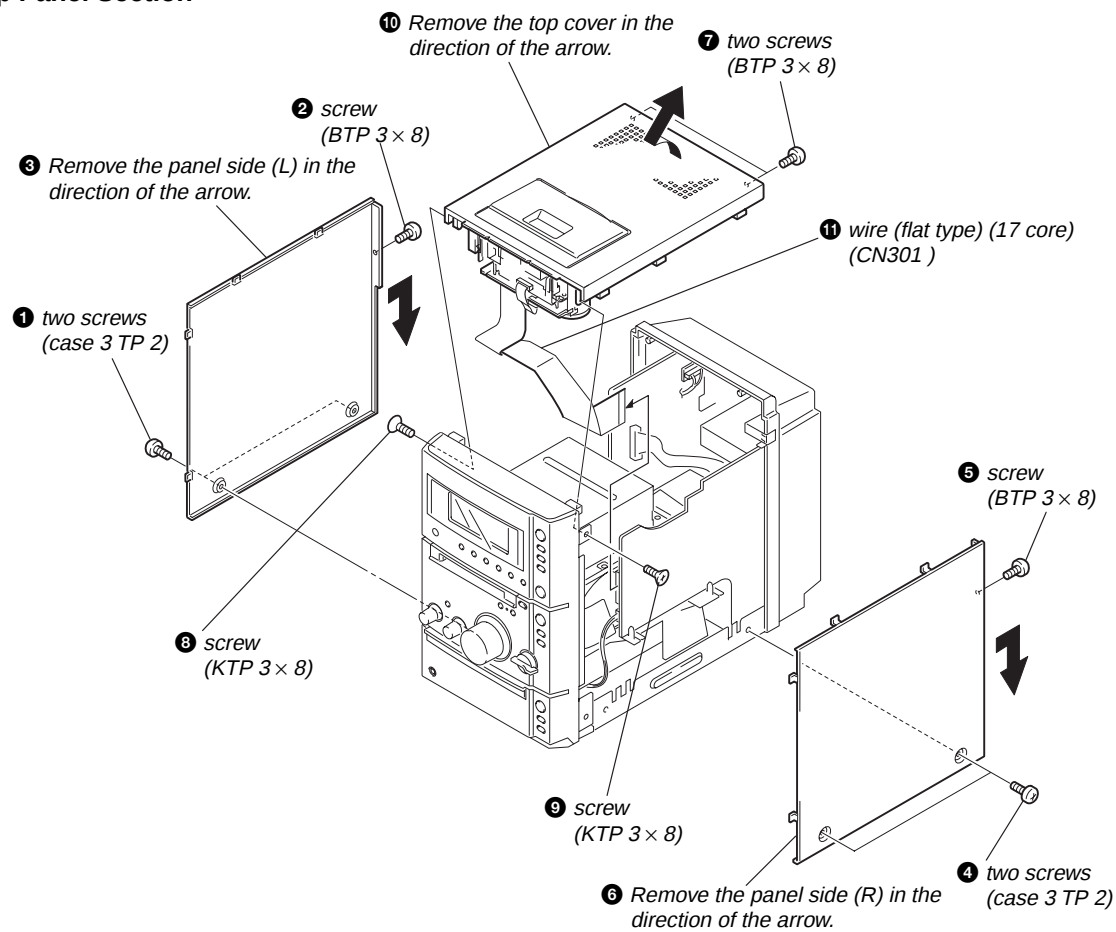
SECTION 3 DISASSEMBLY

- The equipment can be removed using the following procedure.

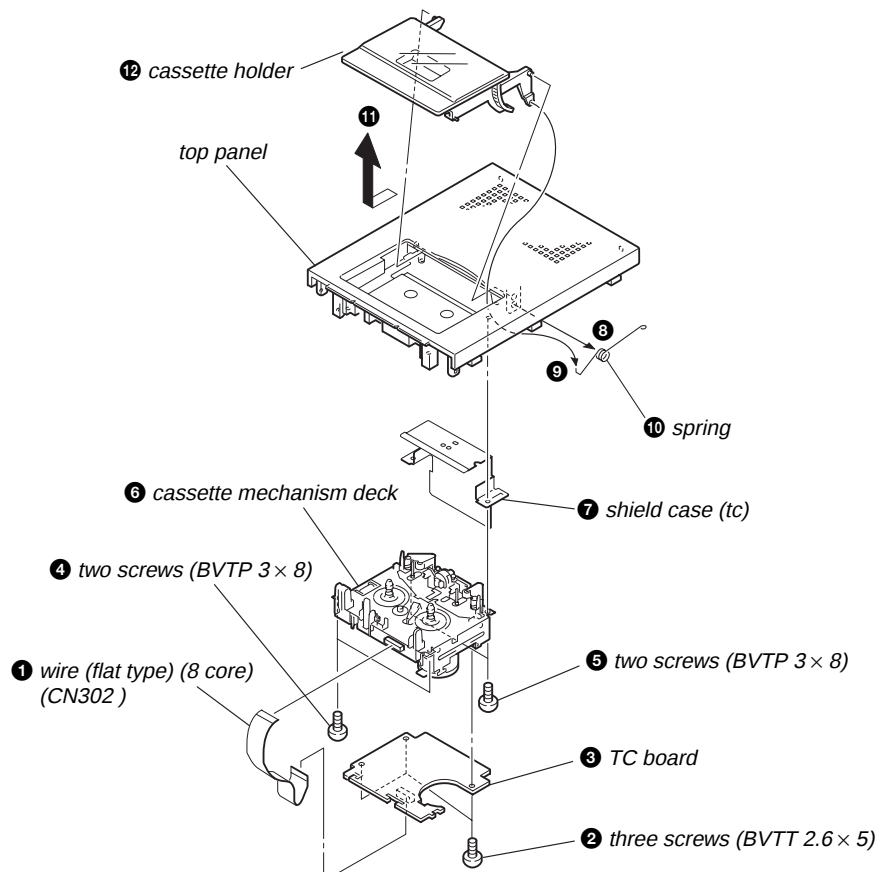


Note: Follow the disassembly procedure in the numerical order given.

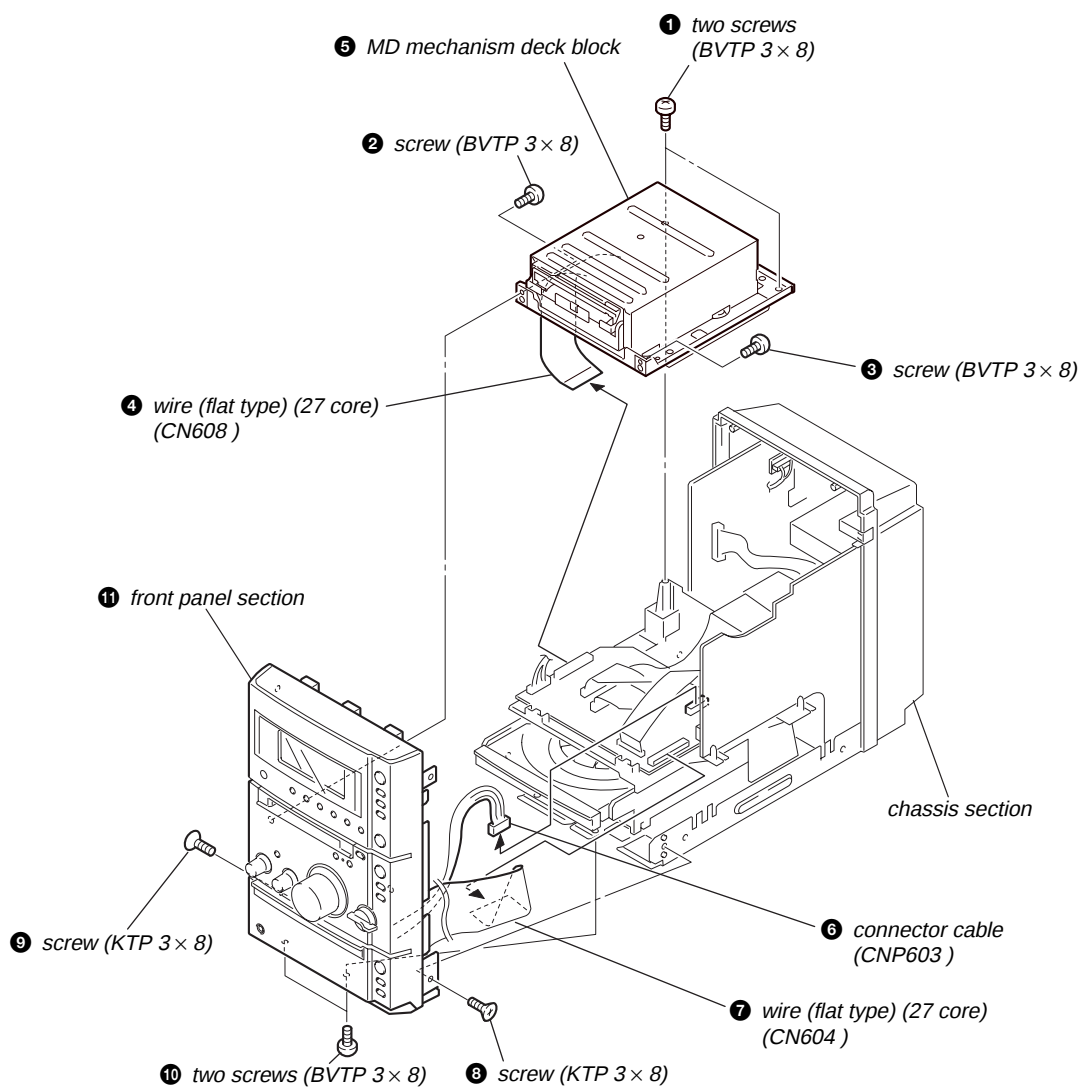
3-1. Top Panel Section



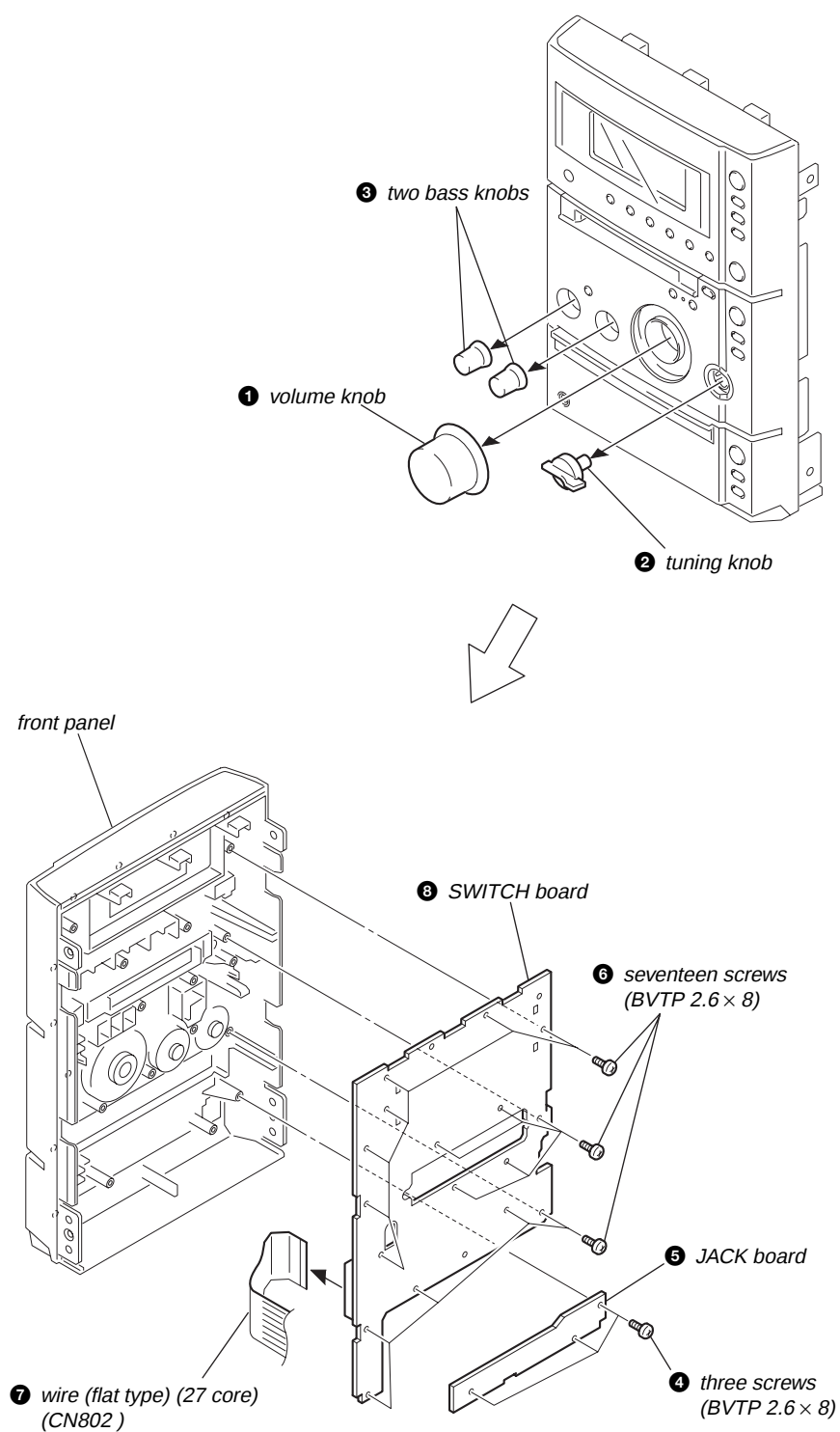
3-2. Cassette Mechanism Deck



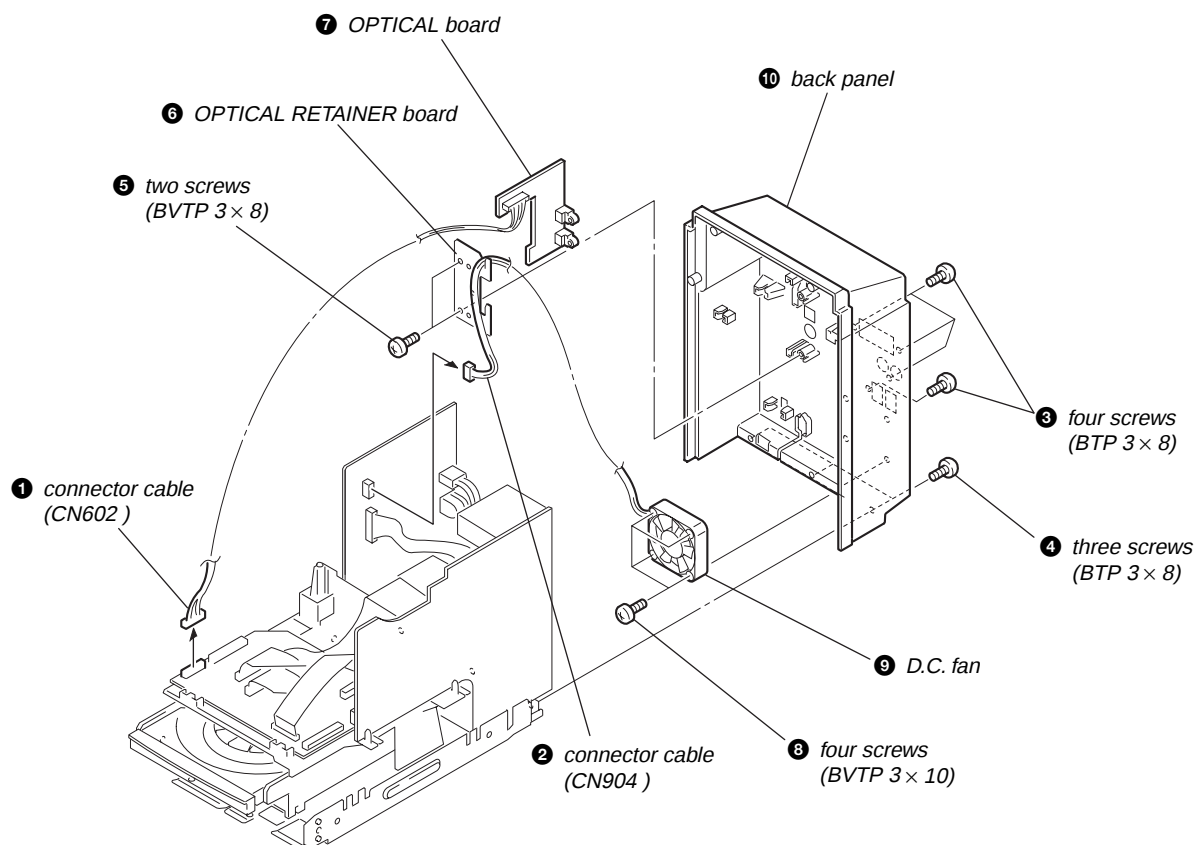
3-3. Front Panel, MD Mechanism Deck Block



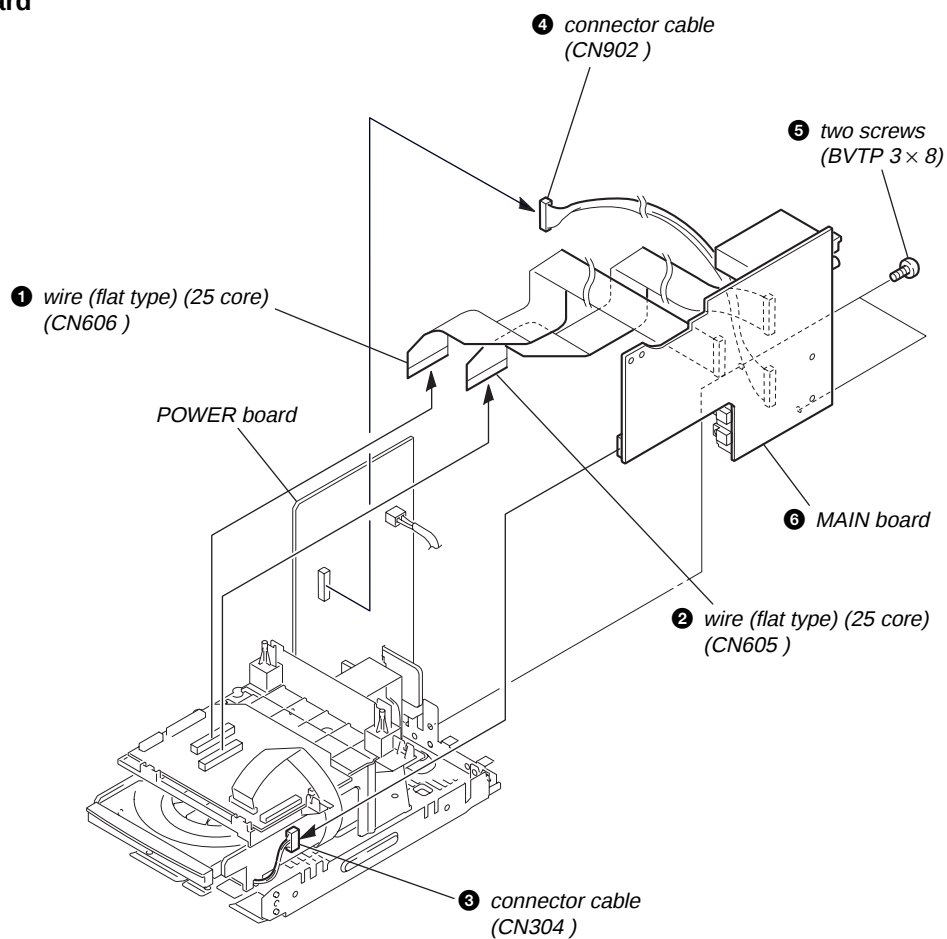
3-4. SWITCH Board, JACK Board



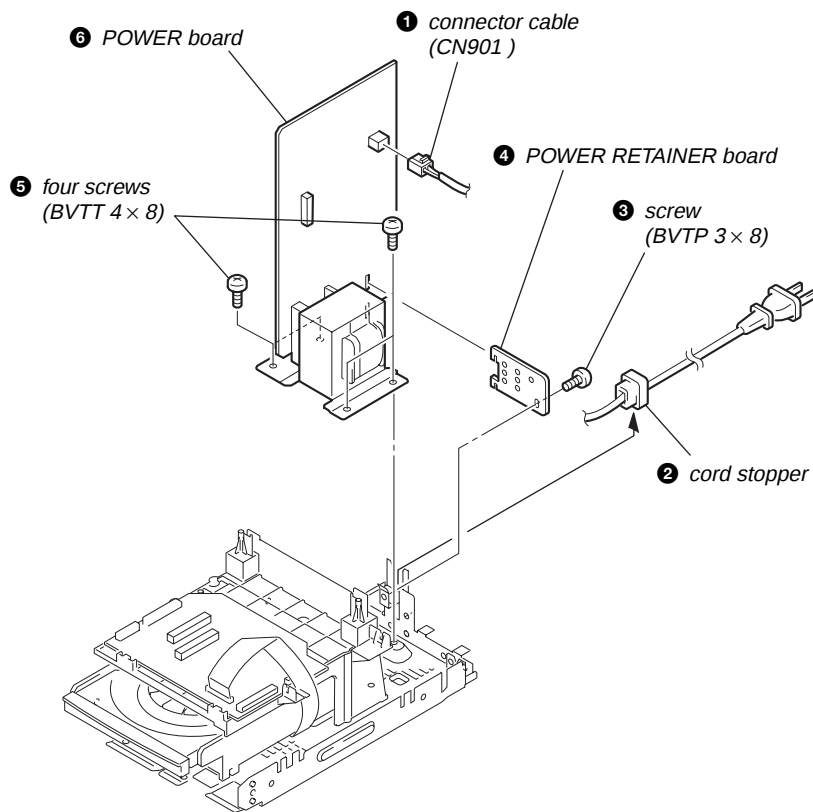
3-5. Back Panel Section (Including OPTICAL Board, OPTICAL RETAINER Board)



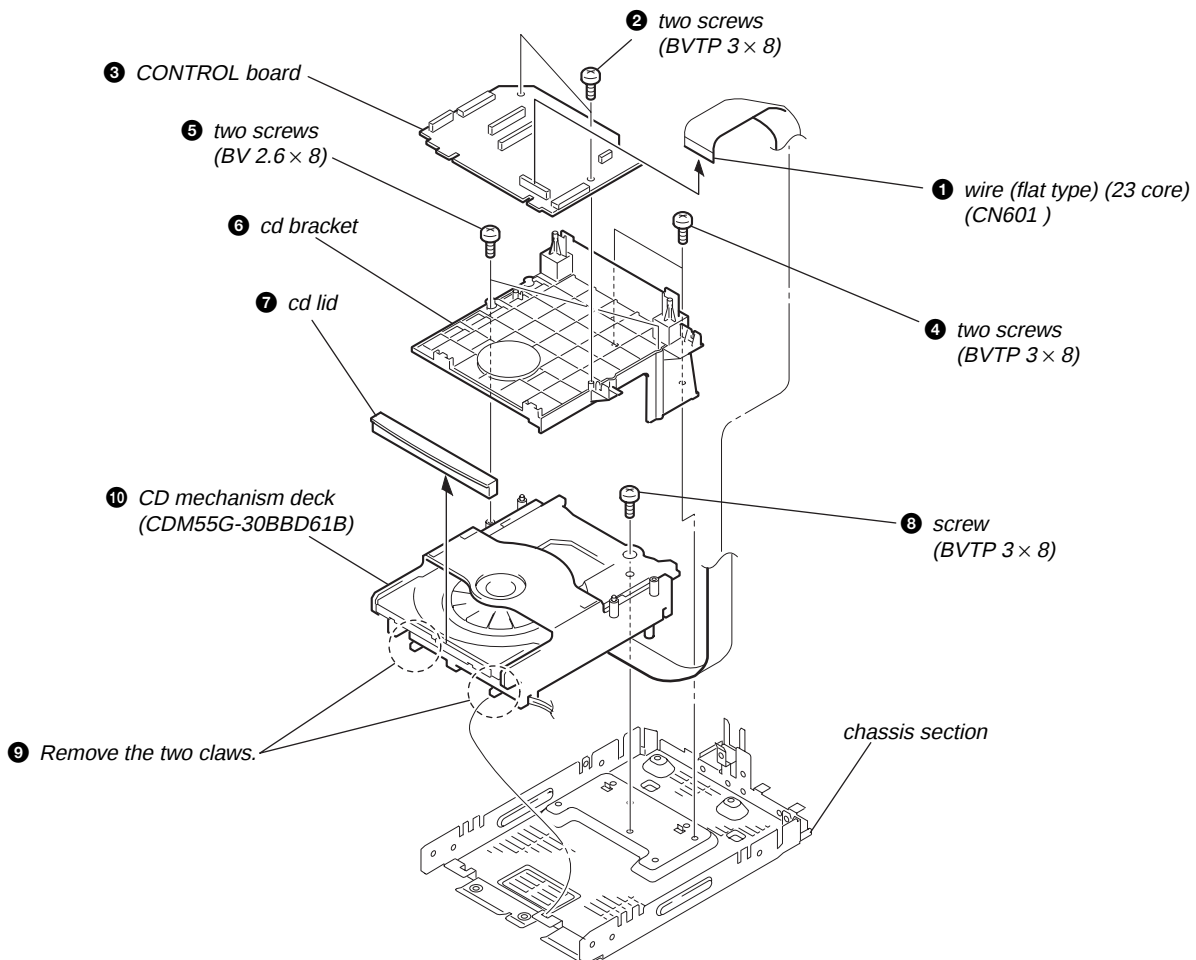
3-6. MAIN Board



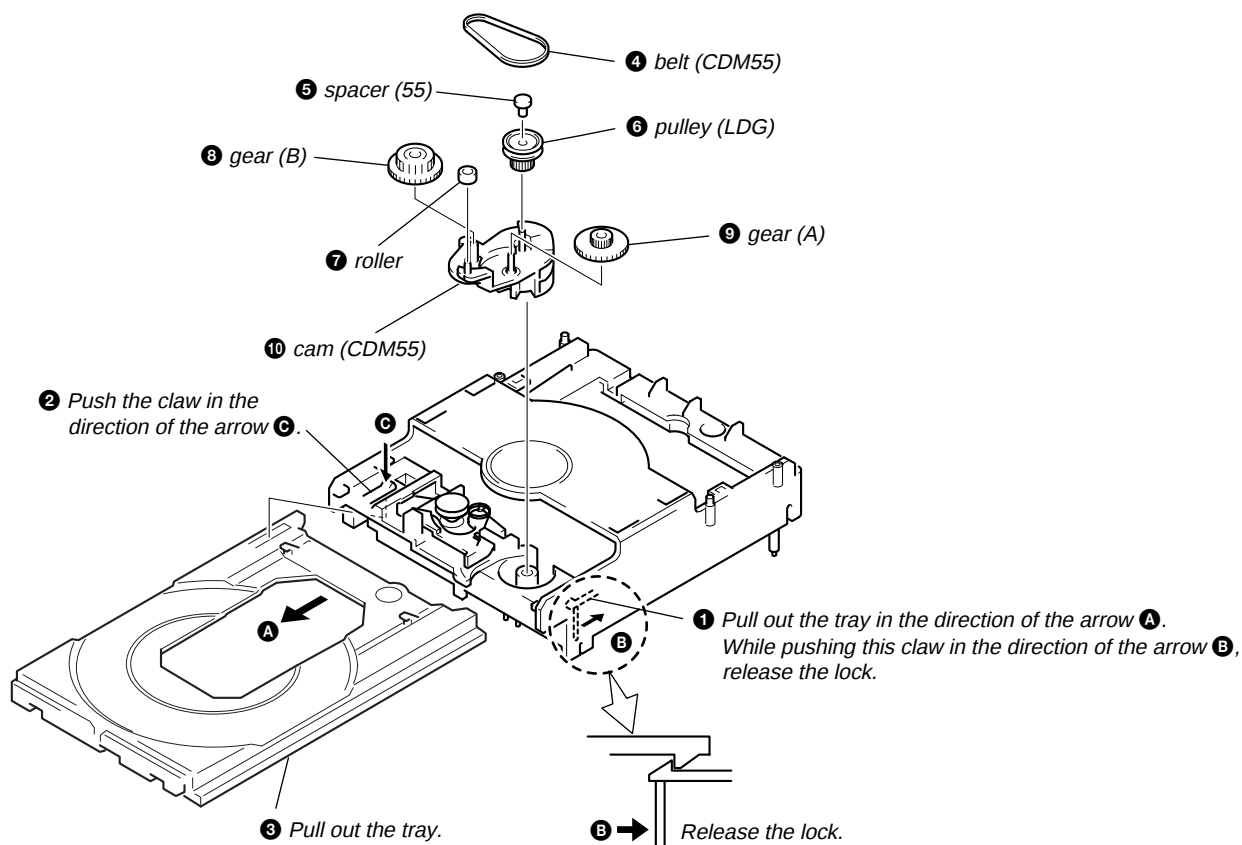
3-7. POWER Board



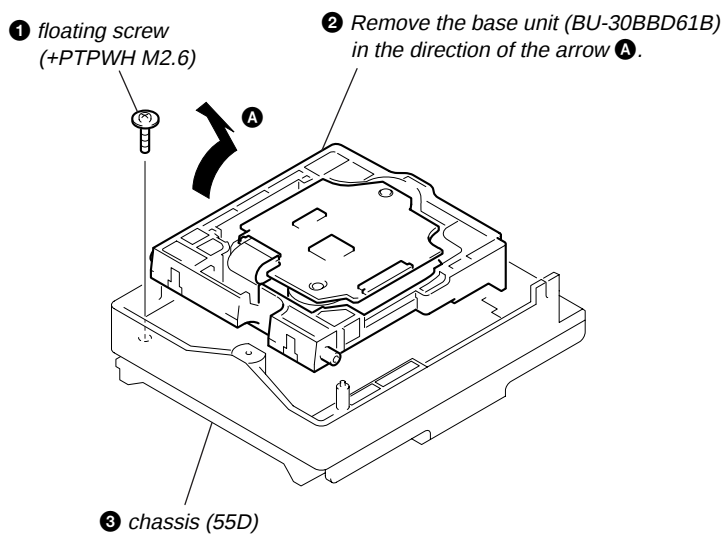
3-8. CONTROL Board, CD Mechanism Deck (CDM55G-30BBD61B)



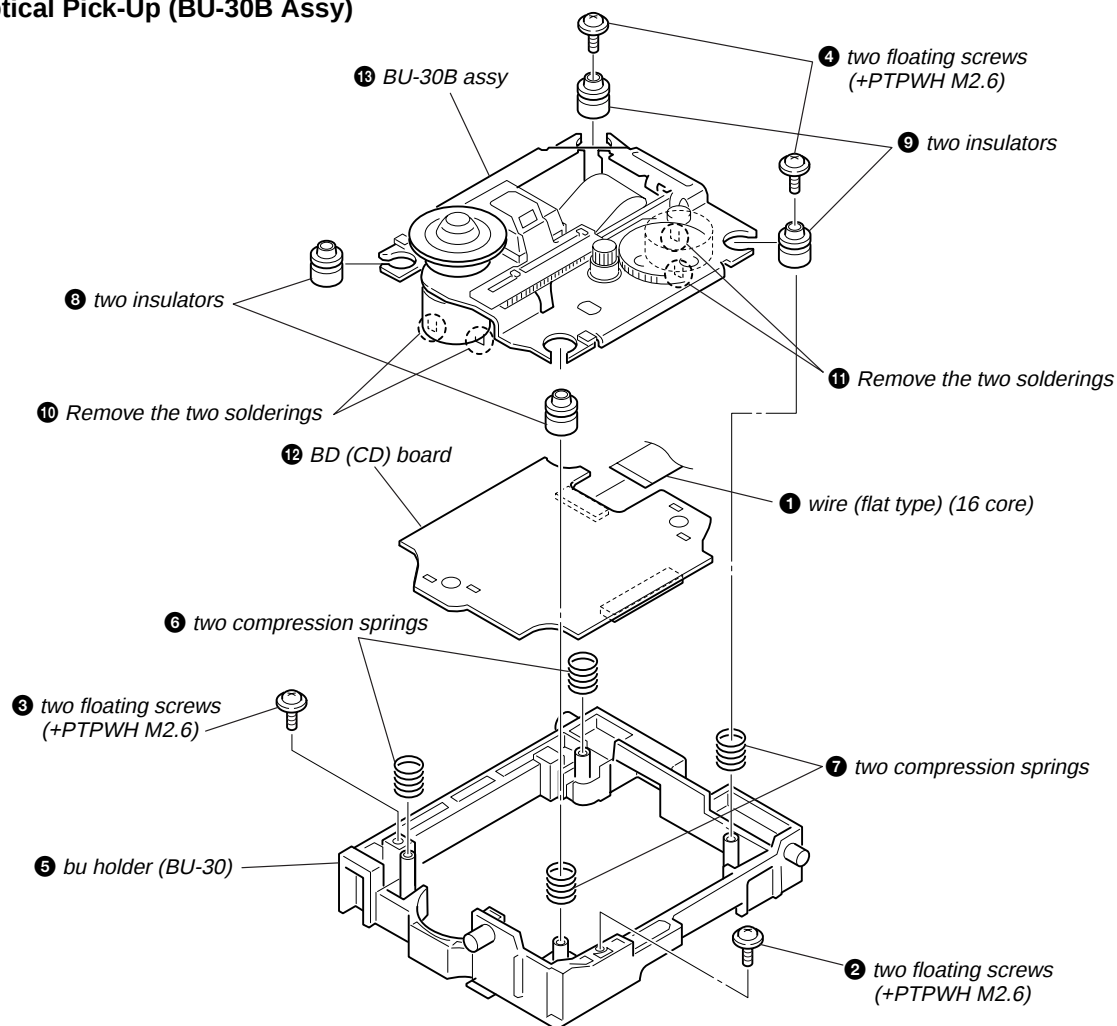
3-9. Cam (CDM55)



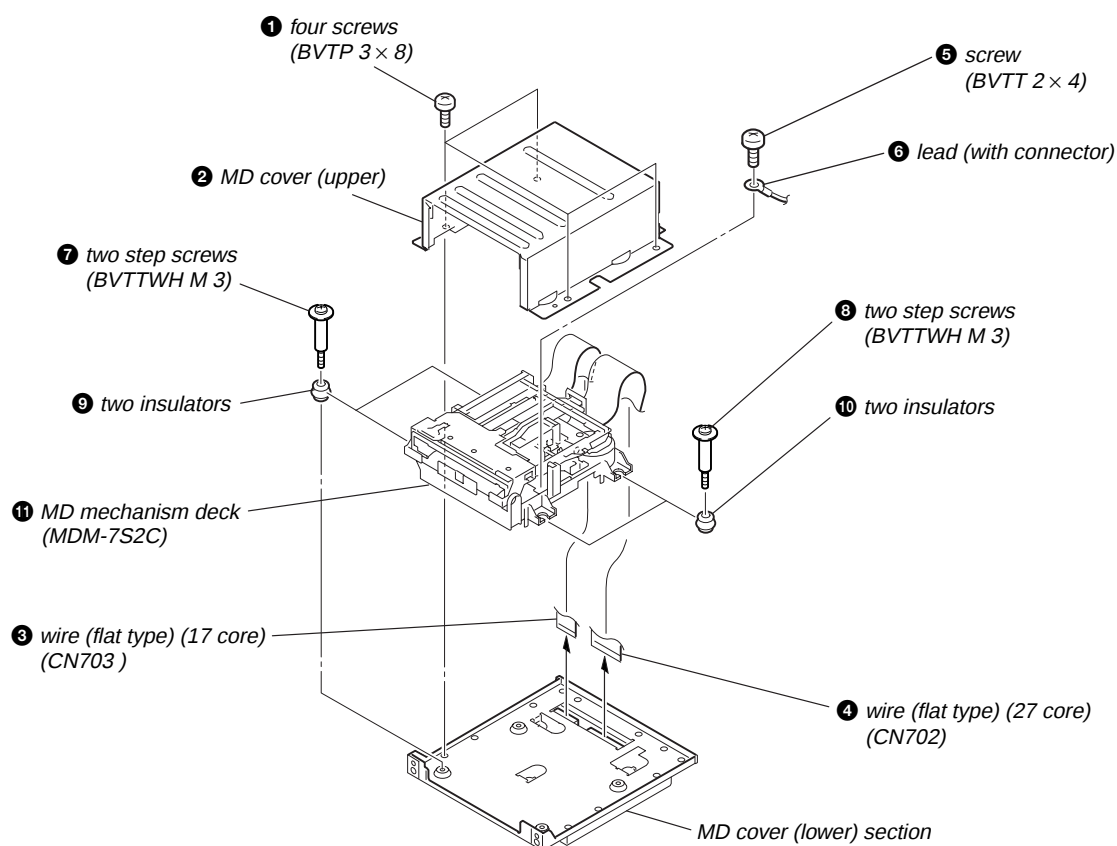
3-10. Base Unit (BU-30BBD61B)

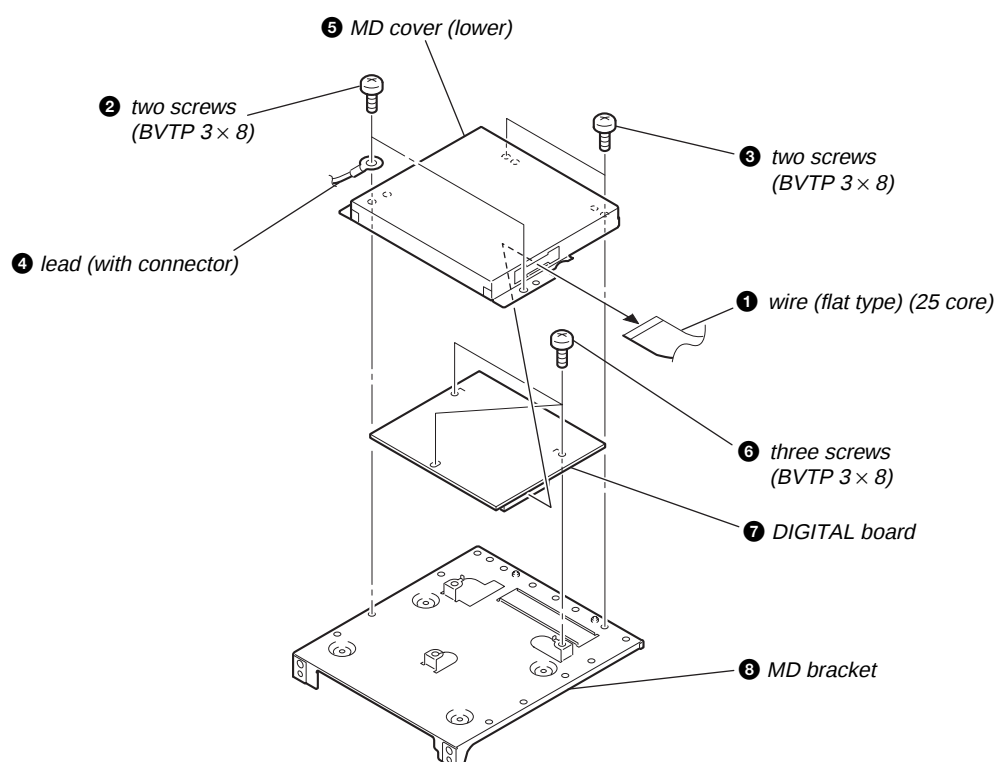
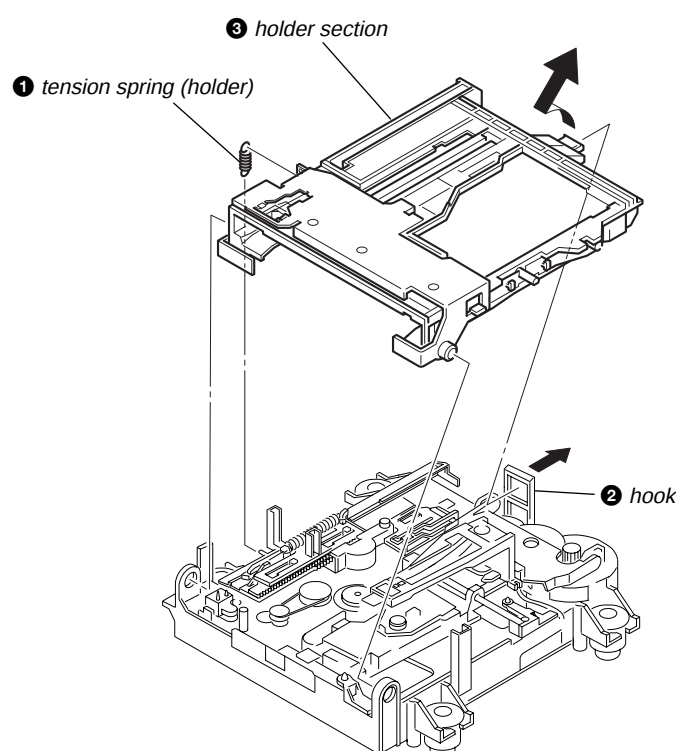


3-11. Optical Pick-Up (BU-30B Assy)

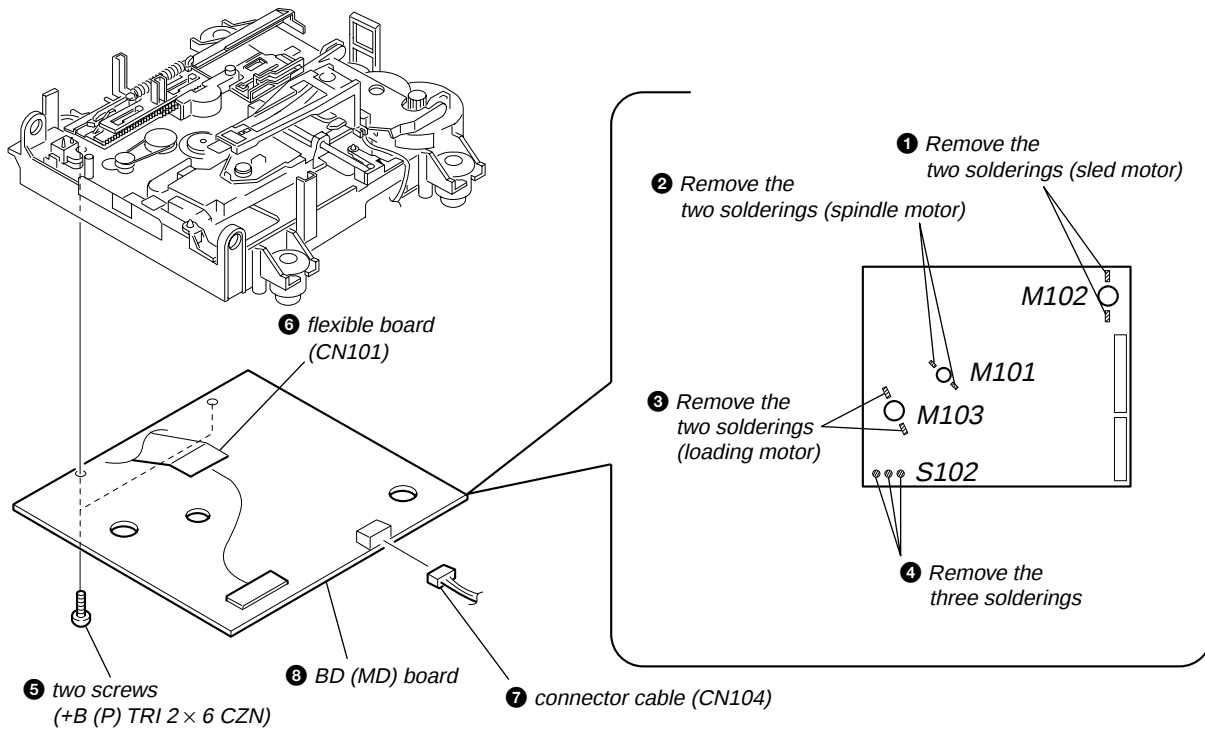


3-12. MD Mechanism Deck (MDM-7S2C)

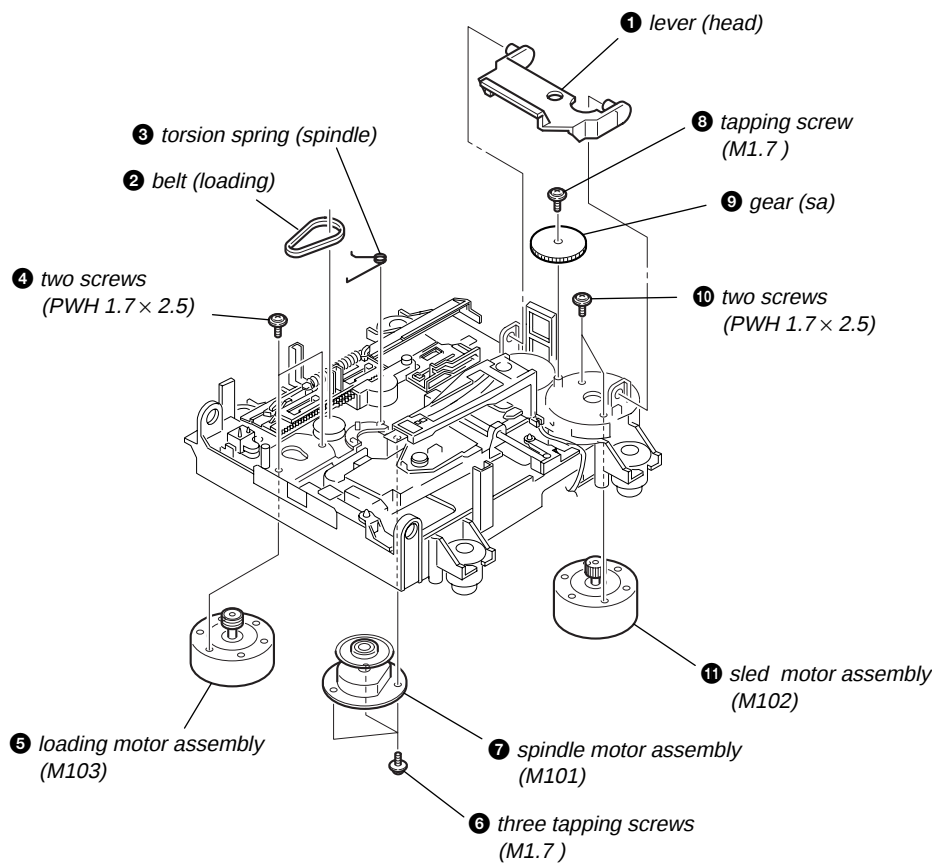


3-13. DIGITAL Board**3-14. Holder Section**

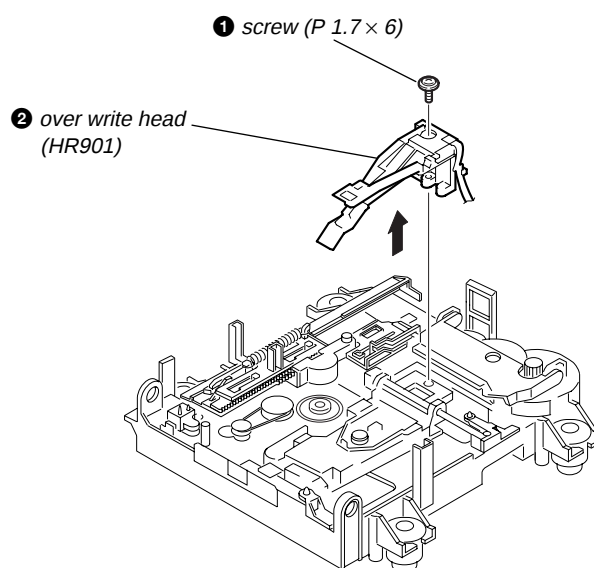
3-15. BD (MD) Board



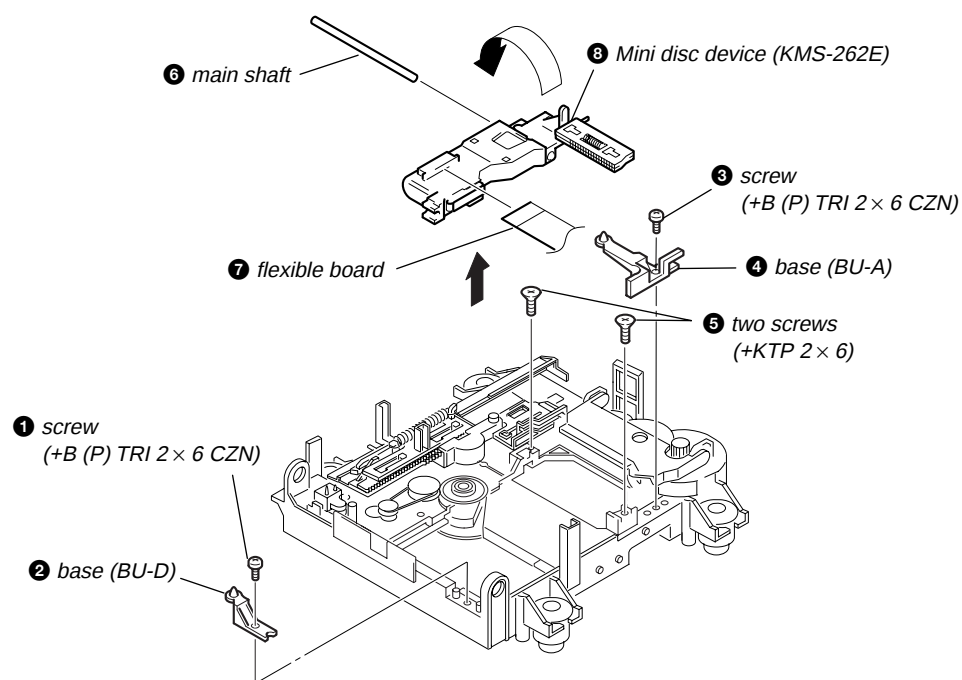
3-16. Loading Motor Assembly (M103), Spindle Motor Assembly (M101), Sled Motor Assembly (M102)



3-17. Over Wright Head (HR901)



3-18. Mini Disc Device (KMS-262E)



SECTION 4

TEST MODE

Note 1: About “R”

As this unit has only a few buttons, some operations require the use of remote commander (RM-SCP500/provided with unit) buttons. These operations are indicated as “R” in this manual.

Example: [MENU/NO “R”] ...Press the [MENU/NO] button of the remote commander.

Note 2: Incorrect operations may be performed if the test mode is not entered properly.

In this case, press the [I/⏻] button to turn the power off, and retry to enter the test mode.

1. Cold Reset

- The cold reset clears all data including preset data stored in the RAM to initial conditions. Execute this mode when returning the set to the customers.

Procedure:

- Press [I/⏻] button to turn the power on.
- Press three buttons [■], [ENTER/START] and [I/⏻] simultaneously.
- When this button is operated, all of the settings other than CD are reset. Then the POWER is turned off and the watch display appears.

2. Panel Test Mode

- This mode is used to check the software version, LCD, LED and keyboard.

Procedure:

- Press the [I/⏻] button to turn on the power.
- Press the [FUNCTION] button to enter mode other than “TUNER”.
- Press three buttons [■] (TAPE), [ENTER/START] and [■] (CD) simultaneously.
- LEDs and LCD are all turned on.

2-1. Version check

- When entering the software version display mode, press [REPEAT] button. The model name (“CP505MD”) and destination are displayed, and the [MD], [CD] and [TAPE] segments flash.
- Each time [REPEAT] button is pressed, the display changes “MC, GC, CD, CDD, CDMA, CDMB, BDA, BDB, ST, TA, TM, TC and MD” (returns to MC) in this order, and returns to the top of the version display.
- When [REC MODE] button is pressed while the version numbers are being displayed, year, month and day of the software creation appear. When [REC MODE] button is pressed again, the display returns to the software version display. When [REPEAT] button is pressed while year, month and day of the software creation are being displayed, the year, month and day of creation of the software versions are displayed in the same order of version display.

2-2. Key check

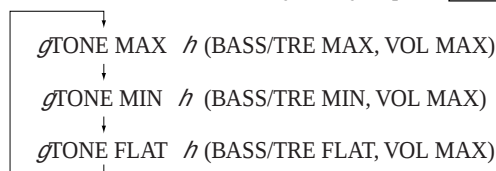
- Press [PLAY MODE] button, and the key check mode is activated. In the key check mode, the LCD displays “K 0 J 0 V 0”. Each time a button is pressed, “K 0” value increases. However, once a button is pressed, it is no longer taken into account. It is end at “K24J 0V 0”.
A turn of [BASS] knob or [TREBLE] knob changes the value of “J” between 0 and 9. If it turns to the right, a value will increase, and if it turns to the left, a value will decrease. A turn of [VOLUME] knob changes value of “V” between 0 and 9. If it turns to the right, a value will increase, and if it turns to the left, a value will decrease.
- To exit from this mode, press three buttons in the same manner as step 3, or disconnect the power cord.

3. Common Test Mode**Procedure:**

- Press [I/⏻] button to turn the power on.
- Press three buttons [■] (TAPE), [ENTER/START] and [■] (MD) simultaneously.
- The set goes to the common test mode and the [MD] and [TAPE] segments flash.

3-1. Amp Test Mode

- In the common test mode, every time you press [BASS/TRE “R”] button, the following items changes in the order as shown below.



- When [VOLUME] knob is turn clockwise or [VOLUME + “R”] button is pressed, VOLUME goes MAX.
- When [VOLUME] knob is turn counterclockwise or [VOLUME – “R”] button is pressed, VOLUME goes MIN.
- To exit from this mode, press [I/⏻] button or disconnect the power cord.

3-2. Tape Test

- Check the set is in the common test mode.
- Insert a recordable cassette tape.
- Play back the recorded MD.
- Press [● REC] (TAPE) button.
- Select the recording direction with [TAPE ◀▶] button.
- Press [||] (TAPE) button to start recording.
- When [◀▶] knob against the tape recording direction is turn, the tape returns to the recording started point and the set starts playback.

8. To exit from this mode, press  button or disconnect the power cord.

4. CD Ship Mode (Setting the Position for Transportation)

1. Press  button to turn the power on.
2. Press  to change the function to "CD".
3. Press two buttons ,  and turn of the  knob simultaneously.
4. The CD mechanism goes to the transportation mode.
5. When "LOCK" is displayed, disconnect the power cord.
6. The lock is released when the power turns on next.

5. Ship Mode (Setting the Position for Transportation)

This mode is the combination of CD SHIP mode and Cold reset.

In this mode, the MD reset is not activated.

1. Press  button to turn the power on.
2. Press three buttons ,  and turn of the  knob simultaneously.
3. When "LOCK" is displayed, disconnect the power cord.
4. The lock is released when the power turns on next.

6. Disc Tray Lock

Procedure:

1. Press the  button to turn the set on.
2. Select the function "CD".
3. A disc is put in and a tray is closed.
4. Press two buttons of  and  (CD) simultaneously for five seconds.
5. The message "LOCKED" is displayed and the tray is locked. (Even if exiting from this mode, the tray is still locked.)
6. Press two buttons of  and  (CD) simultaneously for five seconds again.
7. The message "UNLOCKED" is displayed and the tray is unlocked.
8. To exit from this mode, press the  button to turn the set off.

MD TEST MODE

1. Precautions For Use of Test Mode

- As operations related to loading will be performed regardless of the test mode operations being performed, be sure to check that the disc is stopped before setting and removing it.
Even if the  (MD) button is pressed while the disc is rotating during continuous playback, continuous recording, etc., the disc will not stop rotating.
Therefore, it will be ejected while rotating.
Be sure to press the  (MD) button after pressing the **MENU/NO "R"** button and the rotation of disc is stopped.

1-1. Recording Laser Emission Mode and Operating Buttons

- Continuous recording mode (CREC 2MODE) (C37)
- Laser power check mode (LDPWR CHECK) (C13)
- Laser power adjustment mode (LDPWR ADJUST) (C04)
- Comparison with initial Iop value written in nonvolatile memory (Iop Compare) (C27)
- Write current Iop value in read nonvolatile memory using microprocessor (Iop NV Save) (C06)
- Traverse (MO) check (EF MO CHECK) (C14)
- Traverse (MO) adjustment (EF MO ADJUST) (C07)
- When pressing the  (MD) button.

2. Setting the Test Mode

Procedure :

- Press the  button to turn the power on.
- Press the **FUNCTION** button to enter "MD" mode.
- Press three buttons of , **ENTER/START**, and **FUNCTION** simultaneously.
When the test mode is set, "[Check]" will be displayed. Pressing the  "R" or  "R" button between the following three groups; ... [Check]  [Service]  [Develop]  ...

Note: Do not use the test mode in the [Develop] group.

If used, the unit may not operate normally.

If the [Develop] group is set accidentally, press the **MENU/NO "R"** button immediately to exit the [Develop] group.

3. Releasing the Test Mode

Press the **REPEAT "R"** button once or the **REPEAT** button twice and  button to turn the power off, the set goes to the standby mode.

4. Basic Operations of the Test Mode

All operations are performed using the  "R",  "R", **ENTER/YES "R"**, **MENU/NO "R"** and **REC MODE** buttons.
The functions of these buttons are as follows.

Function name	Function
ENTER/YES "R" button	Proceeds onto the next step. Finalizes input
MENU/NO "R" button	Returns to previous step. Stops operations
 "R",  "R" buttons	Changes parameters and modes
REC MODE button	Selects the sub menu

5. Selecting the Test Mode

There are 26 types of test modes as shown below. The groups can be switched by pressing the  "R" or  "R" button. After selecting the group to be used, press the **ENTER/YES "R"** button. After setting a certain group, pressing the  "R" or  "R" button switches modes shown below.

Refer to "Group" in the table for details can be selected.

All items used for servicing can be treated using group [Service]. So be carefully not to enter other groups by mistake.

Note: Do not use the test mode in the [Develop] group.

If used, the unit may not operate normally.

If the [Develop] group is set accidentally, press the **MENU/NO "R"** button immediately to exit the [Develop] group.

Display	No.	Details	Mark	Group	
				Check	Service
AUTO CHECK	C01	Automatic self-diagnosis			○
Err Display	C02	Error history display, clear			○
TEMP ADJUST	C03	Temperature compensation offset adjustment			○
LDPWR ADJUST	C04	Laser power adjustment			○
Iop Write	C05	Iop data writing			○
Iop NV Save	C06	Writes current Iop value in read nonvolatile memory using microprocessor			○
EF MO ADJUST	C07	Traverse (MO) adjustment			○
EF CD ADJUST	C08	Traverse (CD) adjustment			○
FBIAS ADJUST	C09	Focus bias adjustment			○
AG Set (MO)	C10	Auto gain output level adjustment (MO)			○
AG Set (CD)	C11	Auto gain output level adjustment (CD)			○
TEMP CHECK	C12	Temperature compensation offset check		○	○
LDPWR CHECK	C13	Laser power check		○	○
EF MO CHECK	C14	Traverse (MO) check		○	○
EF CD CHECK	C15	Traverse (CD) check		○	○
FBIAS CHECK	C16	Focus bias check		○	○
ScurveCHECK	C17	S-curve check	×	○	
VERIFYMODE	C18	Nonvolatile memory check	×	○	
DETRK CHECK	C19	Detrack check	×	○	
0920 CHECK	C25	Most circumference check	×	○	
Iop Read	C26	Iop data display		○	○
Iop Compare	C27	Comparison with initial Iop value written in nonvolatile memory		○	○
ADJ CLEAR	C28	Initialization of nonvolatile memory for adjustment values			○
INFORMATION	C31	Display of microprocessor version, etc.		○	○
CPLAY 2MODE	C36	Continuous playback mode		○	○
CREC 2MODE	C37	Continuous recording mode		○	○

- For details of each adjustment mode, refer to “Section 5 Electrical Adjustments”.
- About “Err Display” (C02), please refer to a page 7 self-diagnostic function.
- If a different mode has been selected by mistake, press the **MENU/NO “R”** button to release that mode.
- Modes with (×) in the Mark column are not used for servicing and therefore are not described in detail. If these modes are set accidentally, press the **MENU/NO “R”** button to release the mode immediately.

5-1. Operating the Continuous Playback Mode

1. Entering the continuous playback mode

- Set the disc in the unit. (Whichever recordable discs or discs for playback only are available)
- Press the **◀◀ “R”** or **▶▶ “R”** button to display “CPLAY 2MODE” (C36).
- Press the **ENTER/YES “R”** button to change the display to “CPLAY2MID”.
- When access completes, the display changes to “C = □□□□ AD = □□”.

Note: The numbers “□” display d show you error rates and ADER.

2. Changing the parts to be played back

- Press the **ENTER/YES “R”** button during continuous playback to change the display as below.

“CPLAY 2MID” → “CPLAY 2OUT” → “CPLAY 2IN”

When pressed another time, the parts to be played back can be moved.

- When access completes, the display changes to “C = □□□□ AD = □□”.

Note: The numbers “□” display d show you error rates and ADER.

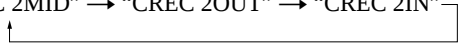
3. Ending the continuous playback mode

- Press the **MENU/NO “R”** button. The display will change to “CPLAY 2MODE” (C36).
- Press the **▲ (MD)** button and take out the disc.

Note : The playback start addresses for IN, MID, and OUT are as follows.

IN : 40h cluster
MID : 300h cluster
OUT : 700h cluster

5-2. Operating the Continuous Recording Mode (Use only when performing self-recording/playback check)

1. Entering the continuous recording mode
 - (1) Set a recordable disc in the unit.
 - (2) Press the **◀◀ “R”** or **▶▶ “R”** button to display “CREC 2MODE” (C37).
 - (3) Press the **ENTER/YES “R”** button to change the display to “CREC 2MID”.
 - (4) When access completes, the display changes to “CREC 1()” and “**MD**” lights up.
 Note: The numbers “ ” displayed shows you the recording position addresses.
2. Changing the parts to be recorded
 - (1) When the **ENTER/YES “R”** button is pressed during continuous recording, the display changes as below.
 “CREC 2MID” → “CREC 2OUT” → “CREC 2IN”


When pressed another time, the parts to be recorded can be changed. “**MD**” goes off.
 - (2) When access completes, the display changes to “CREC 2()” and “**MD**” lights up.
 Note: The numbers “ ” displayed shows you the recording position addresses.
3. Ending the continuous recording mode
 - (1) Press the **MENU/NO “R”** button. The display changes to “CREC 2MODE” (C37) and “**MD**” goes off.
 - (2) Press the **▲ (MD)** button and take out the disc.
 Note 1: The recording start addresses for IN, MID, and OUT are as follows.
 IN : 40h cluster
 MID : 300h cluster
 OUT : 700h cluster
 Note 2: The **MENU/NO “R”** button can be used to stop recording anytime.
 Note 3: Do not perform continuous recording for long periods of time above 5 minutes.
 Note 4: During continuous recording, be careful not to apply vibration.

6. Functions of Other Buttons

Function	Contents
MD ▶▶ 	Sets continuous playback when this is pressed in the STOP state. When this is pressed during continuous playback, tracking power servo turns ON/OFF.
■ (MD)	Stops continuous playback and continuous recording
▶▶ “R”	The sled moves to the outer circumference only when this is pressed
◀◀ “R”	The sled moves to the inner circumference only when this is pressed
PLAY MODE/DIRECTION	Switches the spindle servo mode (CLV S y CLV A)
REC MODE	Switches the pits or grooves each time the button is pressed
▲ (MD)	Ejects the disc
REPEAT	Releases the test mode
CLEAR “R”	Clears the setting of pits and groove, and judges pits and groove again.
● REC (MD)	When it is pressed while servo is turning on, the recording starts from present position.

7. Automatic Self-diagnosis Function

This test mode performs CREC and CPLAY automatically for mainly checking the characteristics of the optical pick-up.

To perform this test mode, the laser power must first be checked.

Perform AUTO CHECK after the laser power check and Iop Compare.

Procedure:

1. Display “AUTO CHECK” and press the **ENTER/YES “R”** button. If “LDPWR ミチェック” is displayed, it means that the laser power check has not been performed. In this case, perform the laser power check and Iop Compare (C27), and then repeat from step1.
2. If a disc is in the mechanical deck, it will be ejected forcibly.
 “DISC IN” will be displayed in this case. Load a test disc (MDW-74/GA-1) which can be recorded.
3. If a disc is loaded at step 2, the check will start automatically.
4. When “XX CHECK” is displayed, the item corresponding to XX will be performed.
 When “06 CHECK” completes, the disc loaded at step 2 will be ejected. “DISC IN” will be displayed. Load the check disc (TDYS-1).
5. When the disc is loaded in step 4, the check will automatically be resumed from “07 CHECK”.
6. After completing to “0C CHECK”, check OK or NG will be displayed. If all items are OK, “CHK ALL OK” will be displayed. If any item is NG, it will be displayed as “NG:xxxx”.

When “CHK ALL OK” is displayed, it means that the optical pick-up is normal. Check the operations of other parts (spindle motor, sled motor, etc.).

When displayed as “NG:xxxx”, it means that the optical pick-up is faulty. In this case, replace the optical pick-up.

SECTION 5 ELECTRICAL ADJUSTMENTS

MD SECTION

Note 1: About “R”

As this unit has only a few buttons, some operations require the use of remote commander (RM-SCP500/provided with unit) buttons. These operations are indicated as “R” in this manual.

Example: **MENU/NO “R”** ...Press the **MENU/NO** button of the remote commander.

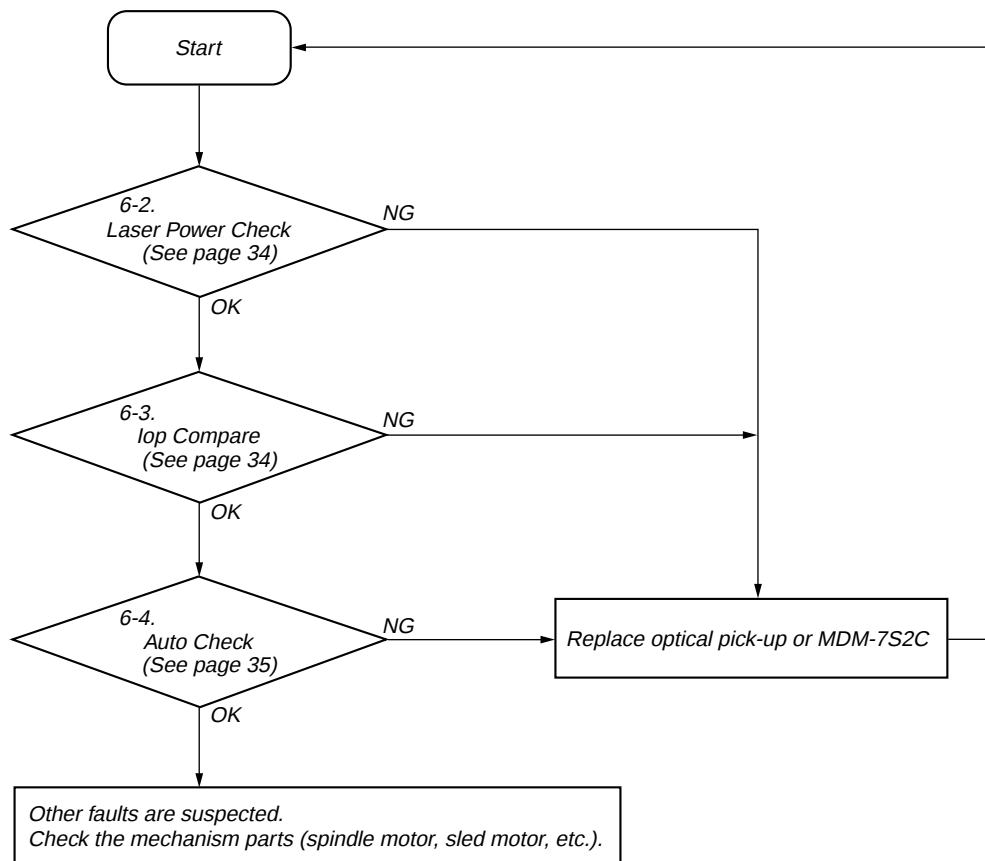
Note 2: Incorrect operations may be performed if the MD test mode is not entered properly.

In this case, press the **I/O** button to turn the power off, and retry to enter the MD test mode.

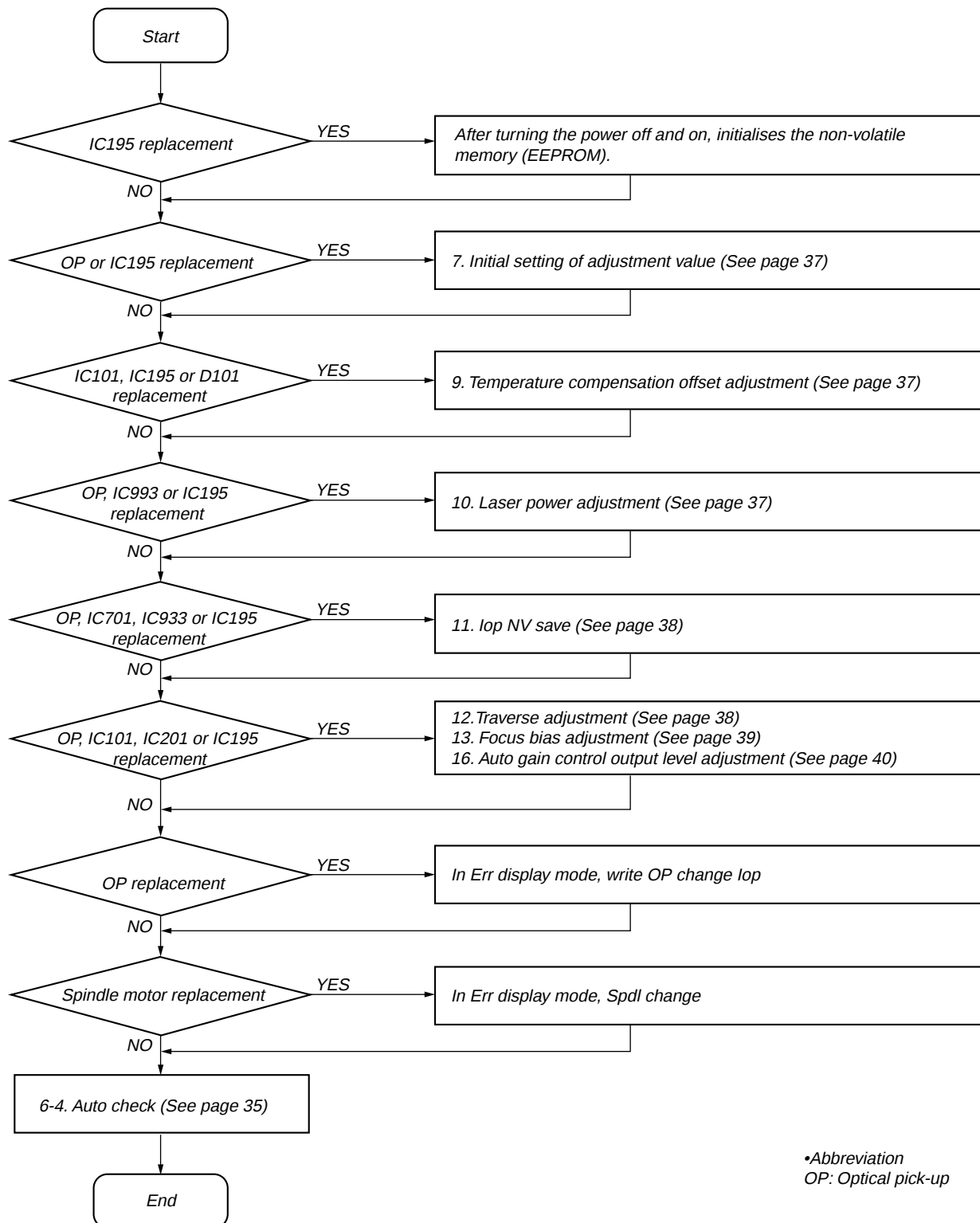
1. Parts Replacement and Adjustment

If malfunctions caused by optical pick-up such as sound skipping are suspected, follow the following check.

Check before replacement



Flow Chart for Adjustment

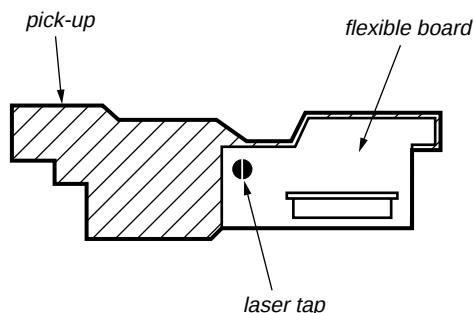


2. Precautions for Checking Laser Diode Emission

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

3. Precautions for Use of Optical Pick-Up (KMS-262A/262E)

As the laser diode in the optical pick-up is easily damaged by static electricity, solder the laser tap of the flexible board when using it. Before disconnecting the connector, desolder first. Before connecting the connector, be careful not to remove the solder. 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

4. Precautions for Adjustments

- When replacing the following parts, perform the adjustments and checks with ○ in the order shown in the following table.
- Set the MD test mode when performing adjustments. After completing the adjustments, exit the MD test mode. Perform the adjustments and checks in "Group Service" of the MD test mode.
- Perform the adjustments to be needed in the order shown.
- Use the following tools and measuring devices.
 - Check Disc (TDYS-1) (Part No. : 4-963-646-01)
 - Test Disk (MDW-74/GA-1) (Part No. : 4-229-747-01)
 - Laser power meter LPM-8001 (Part No. : J-2501-046-A) or MD Laser power meter 8010S (Part No. : J-2501-145-A)*1
 - Oscilloscope (Measure after performing CAL of prove.)
 - Digital voltmeter
 - Thermometer
 - Jig for checking BD board waveform (Part No. : J-2501-196-A)

- 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.)
- Using the above jig enables the waveform to be checked without the need to solder. (Refer to Servicing Notes on page 10.)
- As the disc used will affect the adjustment results, make sure that no dusts nor fingerprints are attached to it.

*1 Laser power meter

When performing laser power checks and adjustment (electrical adjustment), use of the new MD laser power meter 8010S (Part No. J-2501-145-A) instead of the conventional laser power meter is convenient.

It sharply reduces the time and trouble to set the laser power meter sensor onto the objective lens of optical pick-up.

Adjustment	Parts to be replaced						
	Optical Pick-up	IC101	IC701	IC201	IC993	IC195	D101
7. Initial setting of adjustment value	○	×	×	×	×	○	×
8. Recording of Iop information	○	×	×	×	×	○	×
9. Temperature compensation offset adjustment	×	○	×	×	×	○	○
10. Laser power adjustment	○	×	×	×	○	○	×
11. Iop NV Save	○	×	○	×	○	○	×
12. Traverse adjustment	○	○	×	○	×	○	×
13. Focus bias adjustment	○	○	×	○	×	○	×
16. Auto gain adjustment	○	○	×	○	×	○	×
6-4. AUTO CHECK	○	○	×	○	○	○	×

5. Using the Continuously Recorded Disc

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

1. Insert a disc (blank disc) commercially available.
2. Press the **◀◀ "R"** or **▶▶ "R"** button and display "CREC 2MODE" (C37).
3. Press the **ENTER/YES "R"** button again to display "CREC 2 MID".
Display "CREC 2(0300)" and start to recording.
4. Complete recording within 5 minutes.
5. Press the **MENU/NO "R"** button and stop recording .
6. Press the **▲ (MD)** button and remove the disc.

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

Note: Be careful not to apply vibration during continuous recording.

6. Checks Prior to Repairs

These checks are performed before replacing parts according to "approximate specifications" to determine the faulty locations. For details, refer to "Checks Prior to Parts Replacement and Adjustments in MD" (see page 11).

6-1. Temperature Compensation Offset Check

When performing adjustments, set the internal temperature and room temperature to 22°C to 28°C.

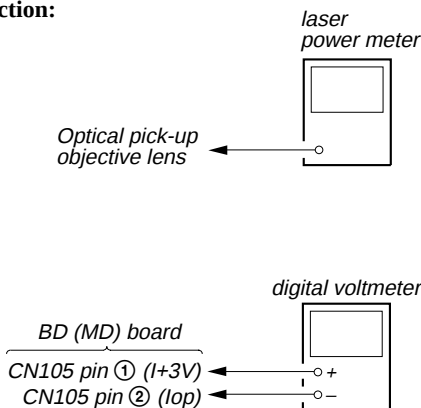
Procedure:

1. Press the **◀◀ "R"** or **▶▶ "R"** button to display "TEMP CHECK" (C12).
2. Press the **ENTER/YES "R"** button.
3. "T=@@ (##) [OK]" should be displayed. If "T=@@ (##) [NG]" is displayed, it means that the results are bad.
(@@ indicates the current value set, and ## indicates the value written in the non-volatile memory.)

6-2. Laser Power Check

Before checking, check the Iop value of the optical pick-up.
Refer to 8. Recording and Displaying the Iop Information (see page 37).

Connection:



Procedure:

1. Set the laser power meter on the objective lens of the optical pick-up. (When it cannot be set properly, press the **◀◀** button or **▶▶** button to move the optical pick-up.)
Connect the digital volt meter to CN105 pin ① (I+3V) and CN105 pin ② (Iop).
2. Then, press the **◀◀ "R"** or **▶▶ "R"** button and display "LDPWR CHECK" (C13).
3. Press the **ENTER/YES "R"** button once and display "L 0.93mW\$[]". Check that the reading of the laser power meter becomes specified value.

Note: Never allow the laser emission at 8.65mW for 1.5 seconds or longer.

Specified Value:

KMS-262A	0.84 to 0.92mW
KMS-262E	0.90 to 0.96mW

4. Press the **ENTER/YES "R"** button once more and display "L 7.25mW\$[]". Check that the reading the laser power meter and digital volt meter satisfy the specified value.

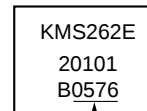
Specified Value:

Laser power meter reading :

KMS-262A	8.10 to 8.70mW
KMS-262E	8.40 to 8.90mW

Digital voltmeter reading : Optical pick-up displayed value ± 10%

(Optical pick-up label)



(For details of the method for checking this value, refer to "8. Recording and Displaying the Iop Information")

Iop=57.6 mA in this case

Iop (mA) = Digital voltmeter reading (mV)/1 (Ω)

5. Press the **MENU/NO "R"** button and display "LDPWR CHECK" (C13) and stop the laser emission.
(The **MENU/NO "R"** button is effective at all times to stop the laser emission.)

Note: After step 4, each time the **ENTER/YES "R"** button is pressed, the display will be switched to "L 0.73mW\$[]" and "L 7.70mW\$[]". Nothing needs to be performed here.

Checking Location: BD board (see page 43)

6-3. Iop Compare

The current Iop value at laser power 8.65mW (KMS-262E) or 8.4mW (KMS-262A) output and reference Iop value (set at shipment) written in the nonvolatile memory are compared, and the rate of increase/decrease will be displayed in percentage.

Note: Perform this function with the optical pick-up set at room temperature.

Procedure:

1. Press the **◀◀ "R"** or **▶▶ "R"** button to display "Iop Compare" (C27).
2. Press the **ENTER/YES "R"** button and start measurements.
3. When measurements complete, the display changes to "± xx% yy".
xx is the percentage of increase/decrease, and OK or NG is displayed at yy to indicate whether the percentage of increase/decrease is within the allowable range.
4. Press the **MENU/NO "R"** button to end.

6-4. Auto Check

This test mode performs CREC and CPLAY automatically for mainly checking the characteristics of the optical pick-up. To perform this test mode, the laser power must first be checked. Perform Auto Check after the laser power check and Iop compare.

Procedure:

1. Display "AUTO CHECK" and press the **ENTER/YES "R"** button. If "LDPWR ミチェック" is displayed, it means that the laser power check has not been performed. In this case, perform the laser power check and Iop Compare, and then repeat from step 1.
2. If a disc is in the mechanical deck, it will be ejected forcibly. "DISC IN" will be displayed in this case. Load a test disc (MDW-74/GA-1) which can be recorded.
3. If a disc is loaded at step 2, the check will start automatically.
4. When "XX CHECK" is displayed, the item corresponding to XX will be performed.
When "06 CHECK" completes, the disc loaded at step 2 will be ejected. "DISC IN" will be displayed. Load the check disc (TDYS-1).
5. When the disc is loaded in the step 4, the check will automatically be resumed from "07 CHECK".
6. After completing to "0C CHECK", check OK or NG will be displayed. If all items are OK, "CHK ALL OK" will be displayed. If any item is NG, it will be displayed as "NG:xxxx".

When "CHK ALL OK" is displayed, it means that the optical pick-up is normal. Check the operations of other parts (spindle motor, sled motor, etc.).

When displayed as "NG:xxxx", it means that the optical pick-up is faulty. In this case, replace the optical pick-up.

6-5. Other Checks

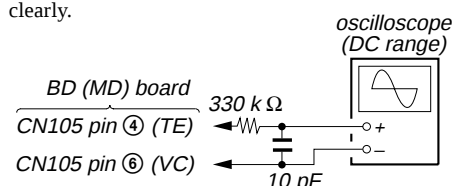
All the following checks are performed by the Auto Check mode. They therefore need not be performed in normal operation.

- 6-6. Traverse Check
- 6-7. Focus Bias Check
- 6-8. C PLAY Check
- 6-9. Self-Recording/Playback Check

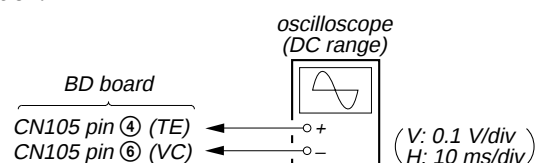
6-6. Traverse Check

Note 1: Data will be erased during MO reading if a recorded disc is used in this adjustment.

Note 2: If the traverse waveform is not clear, connect the oscilloscope as shown in the following figure so that it can be seen more clearly.



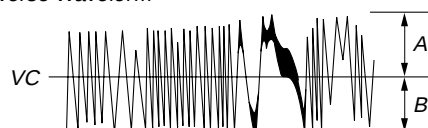
Connection:



Procedure:

1. Connect an oscilloscope to CN105 pin ④ (TE) and CN105 pin ⑥ (VC) on the BD board.
2. Load a disc (any available on the market). (Refer to Note 1)
3. Press the **▶▶** button to move the optical pick-up outside the pit.
4. Press the **◀◀ "R"** or **▶▶ "R"** button to display "EF MO CHECK"(C14).
5. Press the **ENTER/YES "R"** button to display "EFB = ◻◻ MO-R".
(Laser power READ power/Focus servo ON/tracking servo OFF/spindle (S) servo ON)
6. Observe the waveform of the oscilloscope, and check that the specified value is satisfied. Do not press the **◀◀ "R"** or **▶▶ "R"** button.
(Read power traverse checking)

Traverse Waveform

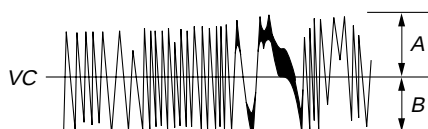


Specified value : Below 10% offset value

$$\text{Offset value (\%)} = \frac{|A - B|}{2(A + B)} \times 100$$

7. Press the **ENTER/YES "R"** button to display "EFB = ◻◻ MO-W".
8. Observe the waveform of the oscilloscope, and check that the specified value is satisfied. Do not press the **◀◀ "R"** or **▶▶ "R"** button.
(Write power traverse checking)

Traverse Waveform

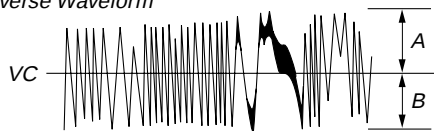


Specified value : Below 10% offset value

$$\text{Offset value (\%)} = \frac{|A - B|}{2(A + B)} \times 100$$

9. Press the **ENTER/YES "R"** button to display "EFB = **00** MO-P".
Then, the optical pick-up moves to the pit area automatically and servo is imposed.
10. Observe the waveform of the oscilloscope, and check that the specified value is satisfied. Do not press the **◀◀ "R"** or **▶▶ "R"** button.

Traverse Waveform

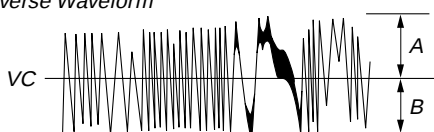


Specified value : Below 10% offset value

$$\text{Offset value (\%)} = \frac{|A - B|}{2(A + B)} \times 100$$

11. Press the **ENTER/YES "R"** button to display "EF MO CHECK" (C14).
The disc stops rotating automatically.
12. Press the **▲ (MD)** button and take out the disc.
13. Load the check disc (TDYS-1).
14. Press the **◀◀ "R"** or **▶▶ "R"** button and display "EF CD CHECK" (C15).
15. Press the **ENTER/YES "R"** button to display "EFB = **00** CD".
Servo is imposed automatically.
16. Observe the waveform of the oscilloscope, and check that the specified value is satisfied. Do not press the **◀◀ "R"** or **▶▶ "R"** button.

Traverse Waveform



Specified value : Below 10% offset value

$$\text{Offset value (\%)} = \frac{|A - B|}{2(A + B)} \times 100$$

17. Press the **ENTER/YES "R"** button to display "EF CD CHECK" (C15).
18. Press the **▲ (MD)** button and take out the check disc (TDYS-1).

Checking Location: BD board (see page 41)

6-7. Focus Bias Check

Change the focus bias and check the focus tolerance amount.

Procedure:

- Load the test disc (MDW-74/GA-1).
- Press the **◀◀ "R"** or **▶▶ "R"** button to display "CPLAY 2MODE" (C36).
- Press the **ENTER/YES "R"** button to display "CPLAY 2MID".
- Press the **MENU/NO "R"** button when "C = **0000** AD = **00**" is displayed.
- Press the **◀◀ "R"** or **▶▶ "R"** button to display "FBIAS CHECK" (C16).
- Press the **ENTER/YES "R"** button to display "**0000/00** c = **00**".
The first four digits indicate the C error rate, the two digits after [/] indicate ADER, and the 2 digits after [c =] indicate the focus bias value.
- Press the **ENTER/YES "R"** button to display "**0000/00** b = **00**".
Check that the C error is about 220 and ADER is below 2.
- Press the **ENTER/YES "R"** button to display "**0000/00** a = **00**".
Check that the C error is about 220 and ADER is below 2.
- Press the **MENU/NO "R"** button, then press the **▲ (MD)** button and take out the test disc.

6-8. C Play Check

MO Error Rate Check

Procedure:

- Load the test disc (MDW-74/GA-1).
- Press the **◀◀ "R"** or **▶▶ "R"** button to display "CPLAY 2MODE" (C36).
- Press the **ENTER/YES "R"** button to display "CPLAY 2MID".
- The display changes to "C = **0000** AD = **00**".
- If the C error rate is below 20, check that ADER is 00.
- Press the **MENU/NO "R"** button to stop playback, then press the **▲ (MD)** button and take out the test disc.

CD Error Rate Check

Procedure:

- Load the check disc (TDYS-1).
- Press the **◀◀ "R"** or **▶▶ "R"** button to display "CPLAY 2MODE" (C36).
- Press the **ENTER/YES "R"** button to display "CPLAY 2MID".
- The display changes to "C = **0000** AD = **00**".
- Check that the C error rate is below 20.
- Press the **MENU/NO "R"** button to stop playback, then press the **▲ (MD)** button and take out the check disc.

6-9. Self-Recording/playback Check

Prepare a continuous recording disc using the unit to be repaired and check the error rate.

Procedure:

- Load a recordable disc (blank disc).
- Press the **◀◀ "R"** or **▶▶ "R"** button to display "CREC 2MODE" (C37).
- Press the **ENTER/YES "R"** button to display "CREC 2MID".
- When recording starts, lights up "**MD**" and display "CREC 2 (@@@@)" (@@@@ is the address).
- About 1 minute later, press the **MENU/NO "R"** button to stop continuous recording.
- Press the **◀◀ "R"** or **▶▶ "R"** button to display "CPLAY 2 MODE" (C36).
- Press the **ENTER/YES "R"** button to display "CPLAY 2MID".
- "C = **0000** AD = **00**" will be displayed.
- Check that the C error becomes below 20 and the AD error below 2.
- Press the **MENU/NO "R"** button to stop playback, then press the **▲ (MD)** button and take out the disc.

7. Initial Setting of Adjustment Value

Note:

Mode which sets the adjustment results recorded in the non-volatile memory to the initial setting value. However the results of the temperature compensation offset adjustment will not change to the initial setting value.

If initial setting is performed, perform all adjustments again excluding the temperature compensation offset adjustment.

For details of the initial setting, refer to "4. Precautions for Adjustments" (See page 33) and execute the initial setting before the adjustment as required.

Procedure:

1. Press the **◀◀ "R"** or **▶▶ "R"** button to display "ADJ CLEAR" (C28).
2. Press the **ENTER/YES "R"** button. "Complete!" will be displayed momentarily and initial setting will be executed, after which "ADJ CLEAR" (C28) will be displayed.

8. Recording and Displaying the Iop Information

The Iop data can be recorded in the non-volatile memory. The Iop value on the optical pick-up label and the Iop value after the adjustment will be recorded. Recording these data eliminates the need to read the label on the optical pick-up.

Recording Procedure:

1. Press the **◀◀ "R"** or **▶▶ "R"** button to display "Iop Write" (C05), and press the **ENTER/YES "R"** button.
2. The display becomes "Ref=@@@.@@" (@ is an arbitrary number) and the numbers which can be changed will blink.
3. Input the Iop value on the optical pick-up label.
To select the number: Press the **◀◀ "R"** or **▶▶ "R"** button.
To select the digit: Press the **REC MODE** button.
4. When the **ENTER/YES "R"** button is pressed, the display becomes "Measu=@@@.@@" (@ is an arbitrary number).
5. As the adjustment results are recorded for the step 4 value. Leave it as it is and press the **ENTER/YES "R"** button.
6. "Complete!!" will be displayed momentarily. The value will be recorded in the non-volatile memory and the display will become "Iop Write" (C05).

Display Procedure:

1. Press the **◀◀ "R"** or **▶▶ "R"** button to display "Iop Read" (C26).
2. Press the **ENTER/YES "R"** button.
3. "@@.@/##.#" is displayed and the recorded contents are displayed.
@@.@ indicates the Iop value on the optical pick-up label.
##.# indicates the Iop value after adjustment.
4. To end, press the **MENU/NO "R"** button to display "Iop Read" (C26).

9. Temperature Compensation Offset Adjustment

Save the temperature data at that time in the non-volatile memory as 25 °C reference data.

Note:

1. Usually, do not perform this adjustment.
2. Perform this adjustment in an ambient temperature of 22 °C to 28 °C. Perform it immediately after the power is turned on when the internal temperature of the unit is the same as the ambient temperature of 22 °C to 28 °C.
3. When D101 has been replaced, perform this adjustment after the temperature of this part has become the ambient temperature.

Procedure:

1. Press the **◀◀ "R"** or **▶▶ "R"** button to display "TEMP ADJUST" (C03).
2. Press the **ENTER/YES "R"** button to select the "TEMP ADJUST" mode.
3. "TEMP = [] [OK]" and the current temperature data will be displayed.
4. To save the data, press the **ENTER/YES "R"** button.
When not saving the data, press the **MENU/NO "R"** button.

5. When the **ENTER/YES "R"** button is pressed, "TEMP = [] SAVE" will be displayed and turned back to "TEMP ADJUST" (C03) display then.

When the **MENU/NO "R"** button is pushed, it returns to the display of "TEMP ADJUST" (C03) immediately.

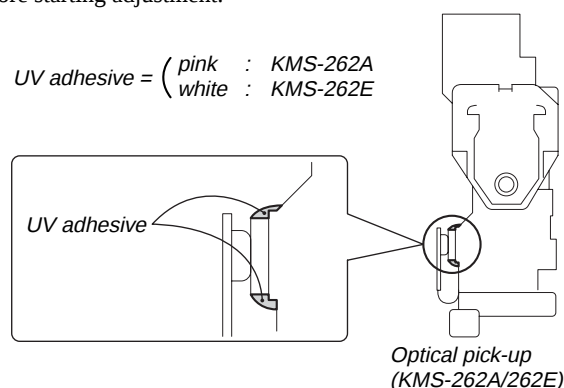
Specified Value:

The "TEMP = []" should be within "E0 - EF", "F0 - FF", "00 - 0F", "10 - 1F" and "20 - 2F".

10. Laser Power Adjustment

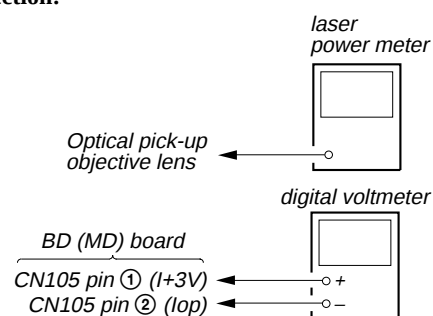
Before starting adjustment:

The adjustment value differs depending on the types (KMS-A260B or KMS-260E) of optical pickup. Be sure to confirm the type name before starting adjustment.



Check the Iop value of the optical pick-up before adjustments. (Refer to 8. Recording and Displaying the Iop Information)

Connection:



Procedure:

1. Insert the laser power meter probe into the disk insertion slot and set it on top of the objective lens of the optical pick-up. (When it cannot be set properly, press the **◀◀ "R"** button or **▶▶ "R"** button to move the optical pick-up)
Connect the digital voltmeter to CN105 pin ① (I+3V) and CN105pin ② (Iop) on the BD board.
2. Press the **◀◀ "R"** or **▶▶ "R"** button to display "LDPWR ADJUST" (C04).
(Laser power : For adjustment)
3. Press the **ENTER/YES "R"** button once to display "L 0.93 mW \$ []".
4. Press the **◀◀ "R"** or **▶▶ "R"** button until the laser power meter reading matches with the specified value.
Press the **ENTER/YES "R"** button after setting the range knob of the laser power meter to 10mW, and save the adjustment results. ("LD SAVE \$ []" will be displayed for a moment)

Specified Value:

KMS-262A	0.85 to 0.91mW
KMS-262E	0.90 to 0.95mW

5. Then "L 8.65 mW \$ []" will be displayed.

- Press the **◀◀ “R”** or **▶▶ “R”** button so that the reading of the laser power meter becomes the specified value, press the **ENTER/YES “R”** button to save it.

Note: Do not perform the emission with 8.65mW more than 15 seconds continuously.

Specified Value:

KMS-262A	8.2 to 8.6mW
KMS-262E	8.5 to 8.8mW

- Then, press the **◀◀ “R”** or **▶▶ “R”** button to display “LDPWR CHECK” (C13).
- Press the **ENTER/YES “R”** button once to display “L 0.93mW\$ □□”. Check that the reading of the laser power meter matches with the specified value.

Specified Value:

KMS-262A	0.84 to 0.92mW
KMS-262E	0.90 to 0.96mW

- Press the **ENTER/YES “R”** button once more to display “L 8.65mW\$ □□”. Check that the reading the laser power meter and digital voltmeter satisfy the specified value. Note down the digital voltmeter reading value.

Specified Value:

Laser power meter reading :

8.10 to 8.70mW (KMS-262A)

8.40 to 8.90mW (KMS-262E)

Digital voltmeter reading : Value on the optical pick-up label $\pm 10\%$
(Optical pick-up label)

KMS262E
20101
B0576

(For details of the method for checking this value, refer to “8. Recording and Displaying the Iop Information”)

$I_{op} = 57.6 \text{ mA}$ in this case

$I_{op} (\text{mA}) = \text{Digital voltmeter reading (mV)} / 1 (\Omega)$

- Press the **MENU/NO “R”** button to display “LDPWR CHECK” (C13) and stop the laser emission. (The **MENU/NO “R”** button is effective at all times to stop the laser emission)
- Press the **◀◀ “R”** or **▶▶ “R”** button to display “Iop Write” (C05).
- Press the **ENTER/YES “R”** button. When the display becomes Ref=@@@.@ (@ is an arbitrary number), press the **ENTER/YES “R”** button to display “Measu=@@@.@” (@ is an arbitrary number).
- The numbers which can be changed will blink. Input the Iop value noted down at step 9.
To select the number : Press the **◀◀ “R”** or **▶▶ “R”** button.
To select the digit : Press the **REC MODE** button.
- When the **ENTER/YES “R”** button is pressed, “Complete!” will be displayed momentarily. The value will be recorded in the non-volatile memory and the display will become “Iop Write” (C05).

Note: After step 9, each time the **ENTER/YES “R”** button is pressed, the display will be switched to “L 0.73mW\$ □□”, “L 7.70mW\$ □□” “L WPホセ\$□□” Nothing needs to be performed here.

11. Iop NV Save

Write the reference values in the nonvolatile memory to perform “Iop compare”. As this involves rewriting the reference values, do not perform this procedure except when adjusting the laser power during replacement of the optical pick-up and when replacing the IC102. Otherwise the optical pick-up check may deteriorate.

Note: Perform this function with the optical pick-up set at room temperature.

Procedure:

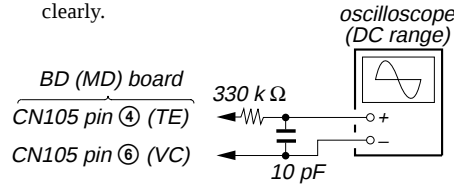
- Press the **◀◀ “R”** or **▶▶ “R”** button to display “Iop NV Save” (C06).
- Press the **ENTER/YES “R”** button and display “Iop [stop]”.

- After the display changes to “Iop =□□save?”, press the **ENTER/YES “R”** button.
- After “Complete!” is displayed momentarily, the display changes to “Iop 8.4 mW”.
- After the display changes to “Iop=□□save?”, press the **ENTER/YES “R”** button.
- When “Complete!” is displayed, it means that Iop NV saving has been completed.

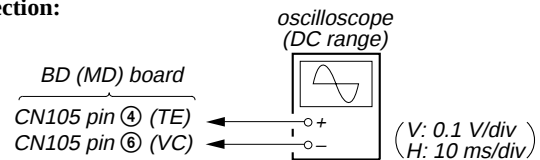
12. Traverse Adjustment

Note 1: Data will be erased during MO reading if a recorded disc is used in this adjustment.

Note 2: If the traverse waveform is not clear, connect the oscilloscope as shown in the following figure so that it can be seen more clearly.



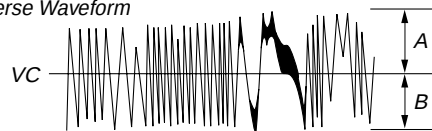
Connection:



Procedure:

- Connect an oscilloscope to CN105 pin ④ (TE) and CN105 pin ⑥ (VC) on the BD (MD) board.
- Load a disc (any available on the market). (Refer to Note 1)
- Press the **▶▶ “R”** button to move the optical pick-up outside the pit.
- Press the **◀◀ “R”** or **▶▶ “R”** button to display “EF MO ADJUST” (C07).
- Press the **ENTER/YES “R”** button to display “EFB = □□ MO-R”.
(Laser power READ power/Focus servo ON/tracking servo OFF/spindle (S) servo ON)
- Press the **◀◀ “R”** or **▶▶ “R”** button so that the waveform of the oscilloscope becomes the specified value.
(When the **◀◀ “R”** or **▶▶ “R”** button is pressed, the □□ of “EFB = □□” changes and the waveform changes) In this adjustment, 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

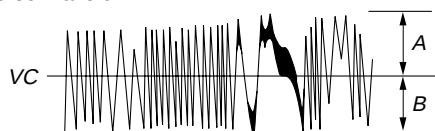


Specification A = B

- Press the **ENTER/YES “R”** button and save the result of adjustment to the non-volatile memory (“EFB = □□ SAVE” will be displayed for a moment. Then “EFB = □□ MO-W” will be displayed).

8. Press the "R" or "R" button so that the waveform of the oscilloscope becomes the specified value.
(When the "R" or "R" button is pressed, the of "EFB = " changes and the waveform changes) In this adjustment, 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)

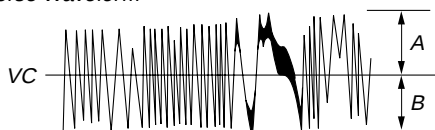
Traverse Waveform



Specification A = B

9. Press the "R" button, and save the adjustment results in the non-volatile memory. ("EFB = SAVE" will be displayed for a moment)
10. "EFB = MO-P" will be displayed.
The optical pick-up moves to the pit area automatically and servo is imposed.
11. Press the "R" or "R" button until the waveform of the oscilloscope moves closer to the specified value.
In this adjustment, waveform varies at intervals of approx. 2%. Adjust the waveform so that the specified value is satisfied as much as possible.

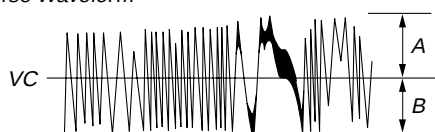
Traverse Waveform



Specification A = B

12. Press the "R" button, and save the adjustment results in the non-volatile memory. ("EFB = SAVE" will be displayed for a moment)
Next "EF MO ADJUST" (C07) is displayed. The disc stops rotating automatically.
13. Press the (MD) button and take out the disc.
14. Load the check disc (TDYS-1).
15. Press the "R" or "R" button to display "EF CD ADJUST" (C08).
16. Press the "R" button to display "EFB = CD". Servo is imposed automatically.
17. Press the "R" or "R" button so that the waveform of the oscilloscope moves closer to the specified value.
In this adjustment, 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 "R" button, display "EFB = SAVE" for a moment and save the adjustment results in the non-volatile memory.
Next "EF CD ADJUST" (C08) will be displayed.

19. Press the (MD) button and take out the check disc.

Adjustment Location: BD (MD) board (see page 41)

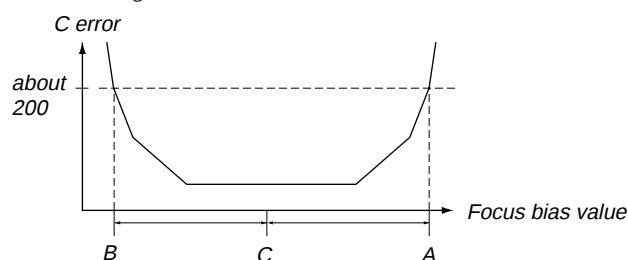
13. Focus Bias Adjustment

Procedure:

- Load the check disc (MDW-74/GA-1).
- Press the "R" or "R" button to display "CPLAY2 MODE" (C36).
- Press the "R" button to display "CPLAY 2MID".
- Press the "R" button when "C = AD = " is displayed.
- Press the "R" or "R" button to display "FBIAS ADJUST" (C09).
- Press the "R" button to display "/a = T".
The first four digits indicate the C error rate, the two digits after "/" indicate ADER, and the 2 digits after "a =" indicate the focus bias value.
- Press the "R" button and find the focus bias value at which the C error rate becomes about 200 (refer to Note 2).
- Press the "R" button to display "/b = T".
- Press the "R" button and find the focus bias value at which the C error rate becomes about 200.
- Press the "R" button to display "/c = T".
- Check that the C error rate is below 20 and ADER is 00. Then press the "R" button.
- If the " " in " - - " is above 20, press the "R" button.
If below 20, press the "R" button and repeat the adjustment from step 2.
- Press the (MD) button and take out the disc.

Note 1: The relation between the C 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 C error rate changes, perform the adjustment using the average value.



14. Error Rate Check

14-1. CD Error Rate Check

Procedure:

1. Load the check disc (TDYS-1).
2. Press the **◀◀ "R"** or **▶▶ "R"** button and display "CPLAY2 MODE" (C36).
3. Press the **ENTER/YES "R"** button twice and display "CPLAY2 MID".
4. The display changes to "C = 0000 AD = 00".
5. Check that the C error rate is below 20.
6. Press the **MENU/NO "R"** button to stop playback, then press the **▲ (MD)** button and take out the check disc.

14-2. MO Error Rate Check

Procedure:

1. Load the continuously-recorded disc. (Refer to "5. USING THE CONTINUOUSLY RECORDED DISC" (See page 34))
2. Press the **◀◀ "R"** or **▶▶ "R"** button to display "CPLAY2 MODE" (C36).
3. Press the **ENTER/YES "R"** button to display "CPLAY2MID".
4. The display changes to "C = 0000 AD = 00".
5. If the C error rate is below 20, check that ADER is 00.
6. Press the **MENU/NO "R"** button to stop playback, then press the **▲ (MD)** button and take out the disc.

15. Focus Bias Check

Change the focus bias and check the focus tolerance amount.

Procedure:

1. Load the continuously-recorded disc. (Refer to "5. USING THE CONTINUOUSLY RECORDED DISC" (See page 34))
2. Press the **◀◀ "R"** or **▶▶ "R"** button to display "CPLAY2 MODE" (C36).
3. Press the **ENTER/YES "R"** button twice to display "CPLAY2 MID".
4. Press the **MENU/NO "R"** button when "C = 0000 AD = 00" is displayed.
5. Press the **◀◀ "R"** or **▶▶ "R"** button to display "FBIAS CHECK" (C16).
6. Press the **ENTER/YES "R"** button to display "0000/00 c = 00".
The first four digits indicate the C error rate, the two digits after "/" indicate ADER, and the 2 digits after "c =" indicate the focus bias value.
7. Press the **ENTER/YES "R"** button and display "0000/00 b = 00".
Check that the C error is below 220 and ADER is below 2.
8. Press the **ENTER/YES "R"** button and display "0000/00 a = 00".
Check that the C error is below 220 and ADER is below 2.
9. Press the **MENU/NO "R"** button, then press the **▲ (MD)** button and take out the disc.

Note: If the C error and ADER are above other than the specified value at points a (step 8. in the above) or b (step 7. in the above), the focus bias adjustment may not have been carried out properly. Adjust perform the beginning again.

16. Auto Gain Control Output Level Adjustment

Be sure to perform this adjustment when the optical pick-up is replaced.

If the adjustment results becomes "Adjust NG!", the optical pick-up may be faulty or the servo system circuits may be abnormal.

16-1. CD Auto Gain Control Output Level Adjustment

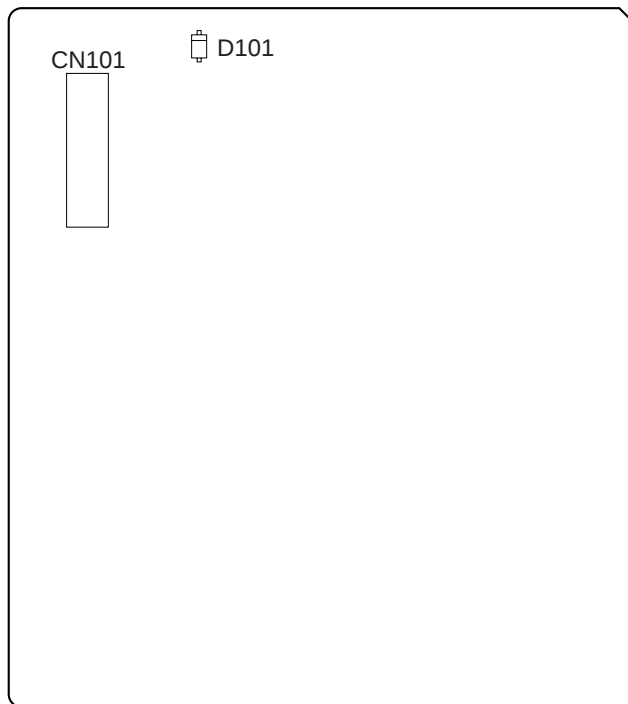
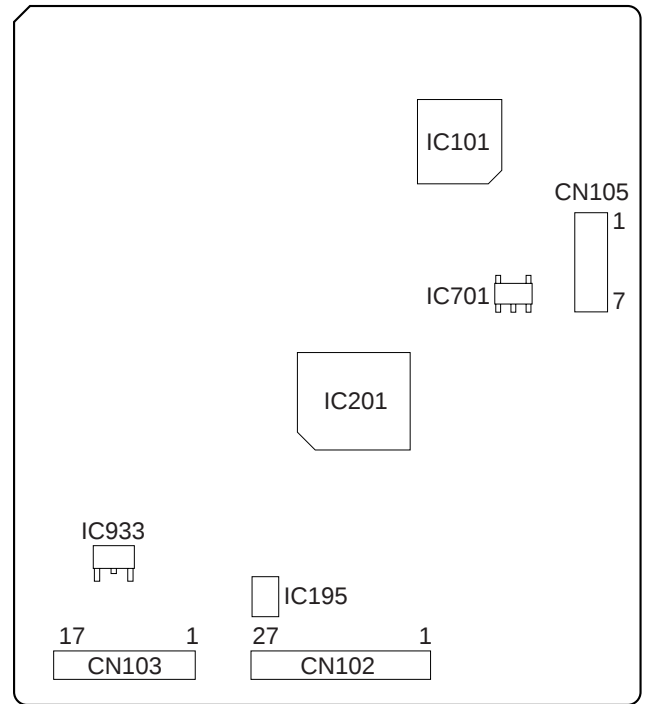
Procedure:

1. Load the check disc (TDYS-1).
2. Press the **◀◀ "R"** or **▶▶ "R"** button to display "AG Set (CD)" (C11).
3. When the **ENTER/YES "R"** button is pressed, the adjustment will be performed automatically.
"Complete!" will then be displayed momentarily when the value is recorded in the non-volatile memory, after which the display changes to "AG Set (CD)" (C11).
4. Press the **▲ (MD)** button and take out the check disc.

16-2. MO Auto Gain Control Output Level Adjustment

Procedure:

1. Load the test disc (MDW-74/GA-1).
2. Press the **◀◀ "R"** or **▶▶ "R"** button to display "AG Set (MO)" (C10).
3. When the **ENTER/YES "R"** button is pressed, the adjustment will be performed automatically.
"Complete!" will then be displayed momentarily when the value is recorded in the non-volatile memory, after which the display changes to "AG Set (MO)" (C10).
4. Press the **▲ (MD)** button and take out the test disc.

Adjustment and checking Location:**– BD (MD) BOARD (Side A) –****– BD (MD) BOARD (Side B) –**

DECK SECTION

0 dB=0.775V

1. Demagnetize the record/playback head with a head demagnetizer.
2. Do not use a magnetized screwdriver for the adjustments.
3. After the adjustments, apply suitable locking compound to the parts adjusted.
4. The adjustments should be performed with the rated power supply voltage unless otherwise noted.
5. The adjustments should be performed in the order given in this service manual. (As a general rule, playback circuit adjustment should be completed before performing recording circuit adjustment.)
6. The adjustments should be performed for both L-CH and R-CH.
7. Switches and controls should be set as follows unless otherwise specified.

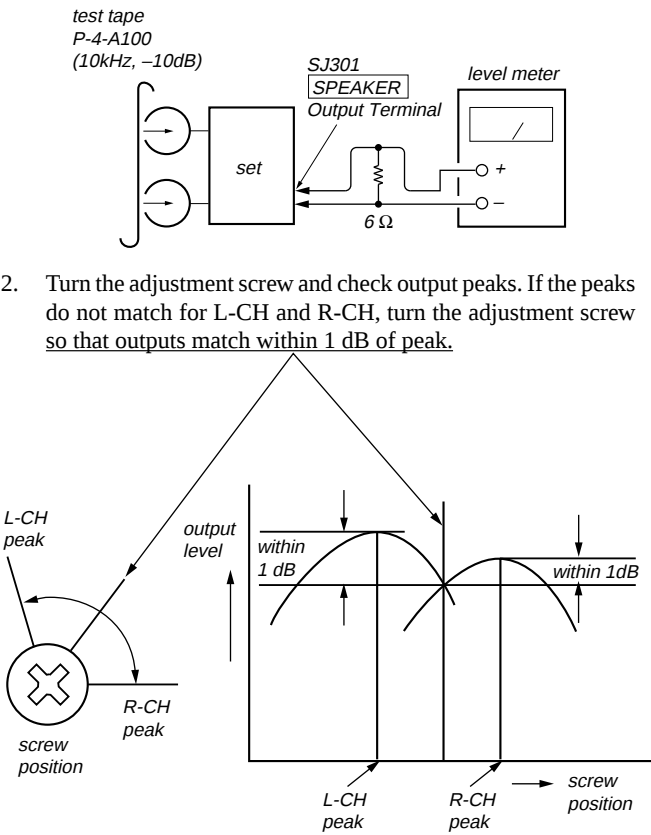
Tape	Signal	Used for
P-4-A100	10 kHz, -10 dB	Azimuth Adjustment
WS-48B	3 kHz, 0 dB	Tape Speed Adjustment
P-4-L300	315 Hz, 0 dB	Level Adjustment

Note: Standard Volume Point is +10 dBs at SPEAKER Output Level (6Ω load resistance) during playbacking P-4-L300 Test Tape. (DSG OFF, TREBLE/BASS CENTER)

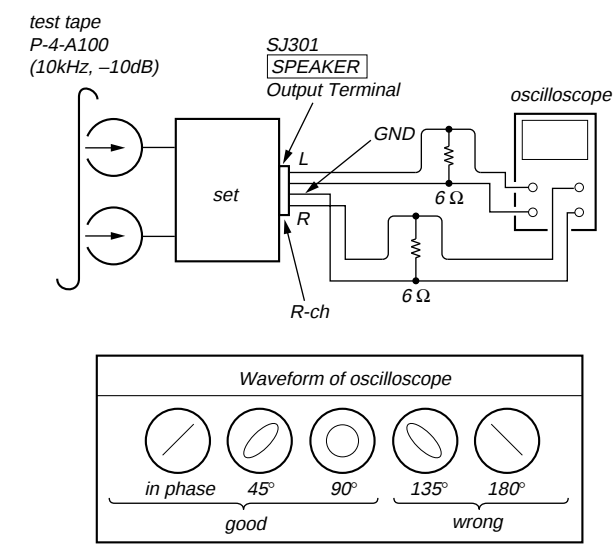
Record/Playback Head Azimuth Adjustment

Procedure:

1. Mode : Playback



3. Mode: Playback



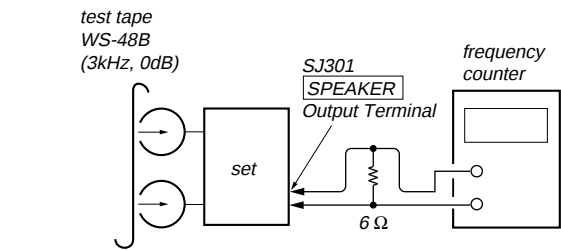
4. After the adjustments, apply suitable locking compound to the parts adjusted.

Adjustment Location: REC/PB Head

Tape Speed Check

Procedure:

1. MODE : FWD Playback.



2. Insert the WS-48B into deck.
3. Press the [REVERSE] button of deck.
4. Check the reading of frequency counter becomes 3000 ± 90 Hz.

Sample Value of Wow and flutter

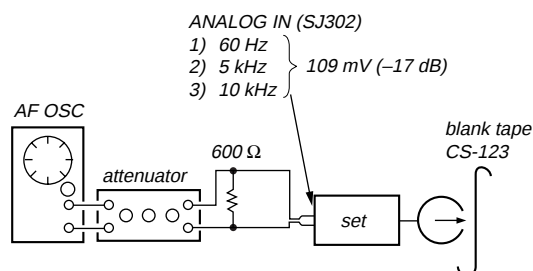
W.RMS (JIS) less than 0.35%
(test tape: WS-48B)

Record Level Check

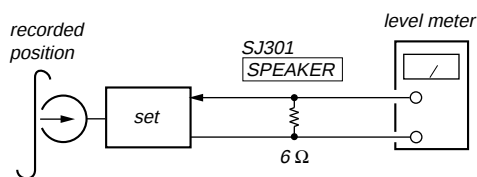
Procedure:

1. Press [FUNCTION] button to select ANALOG IN. (This step is not necessary if the above test mode has already been set.)
2. Insert a tape into deck, press the [REC] (TAPE) button, and then press the [TAPE] button to start recording.

3. Mode: Record



4. Mode: Playback



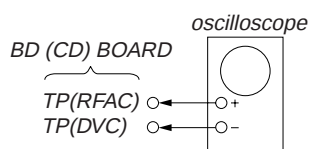
5. The playback output level should be -4.5 ± 3 dB (60 Hz), 1 ± 3 dB (5 kHz) and -3 ± 3 dB (10 kHz).

CD SECTION

Note :

1. CD Block is basically designed to operate without adjustment. Therefore, check each item in order given.
2. Use YEDS-18 disc (3-702-101-01) unless otherwise indicated.
3. Use an oscilloscope with more than $10M\Omega$ impedance.
4. Clean the object lens by an applicator with neutral detergent when the signal level is low than specified value with the following checks.

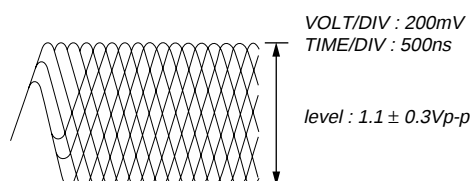
RF Level Check



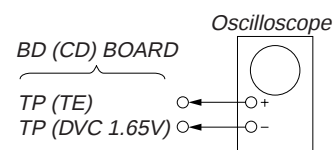
Procedure :

1. Connect oscilloscope to TP (RFAC) and TP (DVC).
2. Turned Power switch on.
3. Load a disc (YEDS-18) and playback the number five track.
4. Confirm that oscilloscope waveform is clear and check RF signal level is correct or not.

Note: Clear RF signal waveform means that the shape “◇” can be clearly distinguished at the center of the waveform.

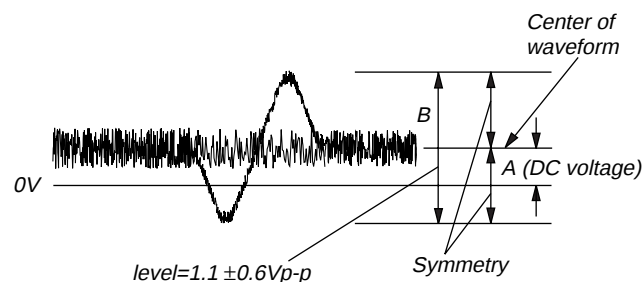


E-F Balance (1 Track jump) Check



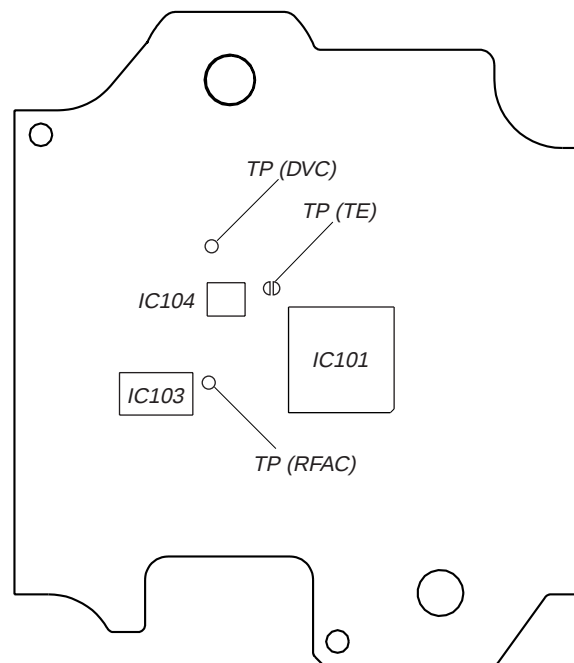
Procedure:

1. Connect oscilloscope to TP (TE) and TP (DVC).
2. Turned Power switch on.
3. Load a disc (YEDS-18) and playback the number five track.
4. Press the [CD ►] button. (Becomes the 1track jump mode.)
5. Confirm that the level B and A (DC voltage) on the oscilloscope waveform.



Specification level: $\frac{A}{B} \times 100 = \text{less than } \pm 22\%$

[BD (CD) BOARD] — SIDE B —



SECTION 6 DIAGRAMS

THIS NOTE IS COMMON FOR PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS.

(In addition to this, the necessary note is printed in each block.)

For schematic diagrams.

Note:

- All capacitors are in μF unless otherwise noted. pF: μF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and $\frac{1}{4}W$ or less unless otherwise specified.
- $\triangle$: internal component.
-  : fusible resistor.
-  : panel designation.

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

-  : B+ Line.
-  : B- Line.
-  : adjustment for repair.
- Voltages and waveforms are dc with respect to ground under no-signal (detuned) conditions.
- Voltages are taken with a VOM (Input impedance $10\text{ M}\Omega$). Voltage variations may be noted due to normal production tolerances.
- BD (CD) board
no mark : CD stop
BD (MD) board
no mark : MD stop
() : MD playback
TC board
no mark : FM
() : TAPE record
Other boards
no mark : FM
< > : CD stop
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.

- Abbreviation
CH : Chinese model
HK : Hong Kong model

• Signal path.

-  : FM
-  : CD
-  : CD DIGITAL IN (OPTICAL)
-  : PB (TAPE)
-  : REC (TAPE)
-  : PB (MD)
-  : REC (MD)

For printed wiring boards.

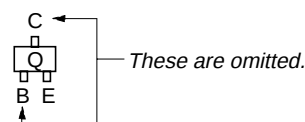
Note:

-  : parts extracted from the component side.
-  : parts extracted from the conductor side.
-  : Through hole.
-  : Pattern from the side which enables seeing.

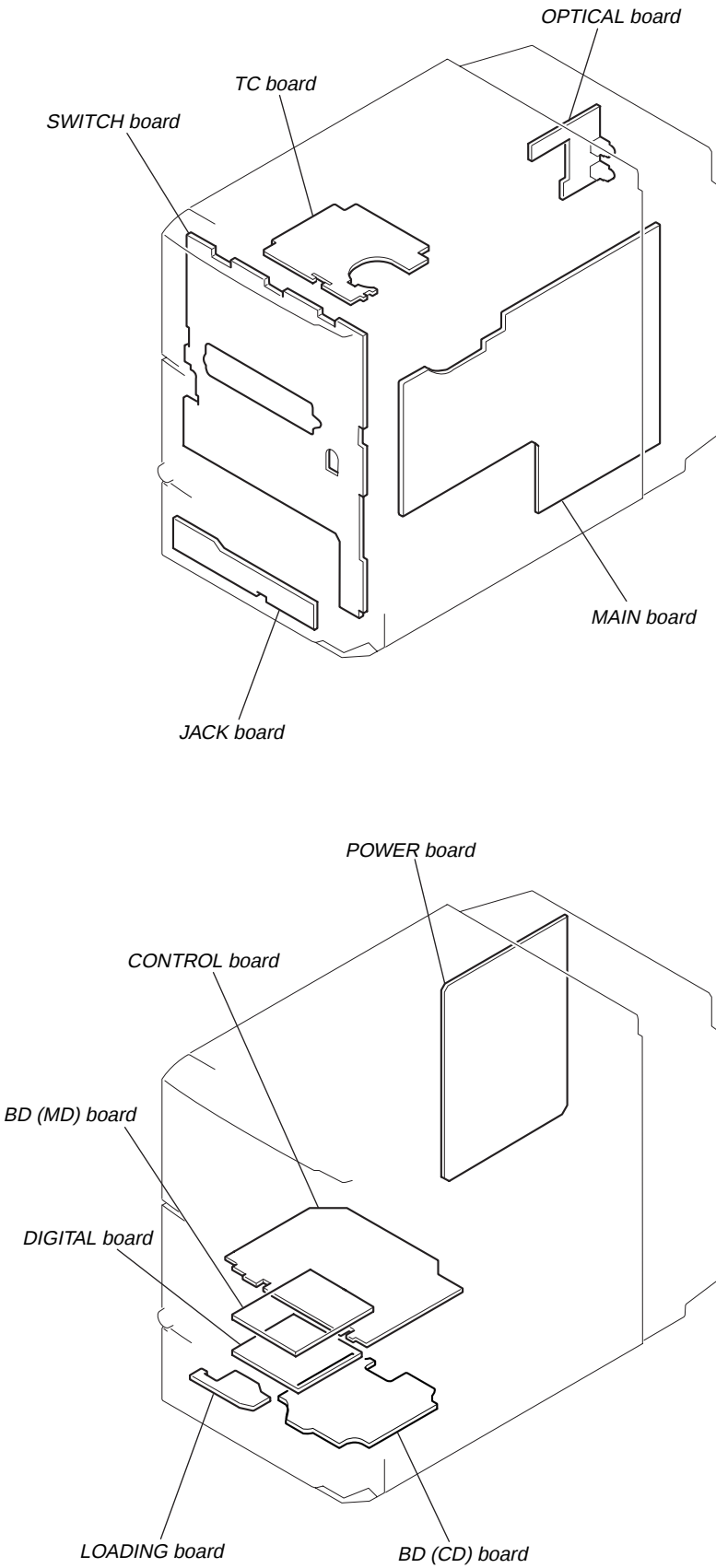
Caution:

Pattern face side: Parts on the pattern face side seen from the pattern face are indicated.
(SIDE B)
Parts face side: Parts on the parts face side seen from the parts face are indicated.
(SIDE A)

• Indication of transistor

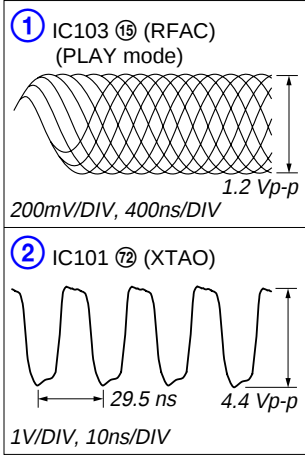


6-1. Circuit Boards Location

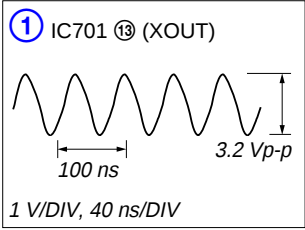


• Waveforms

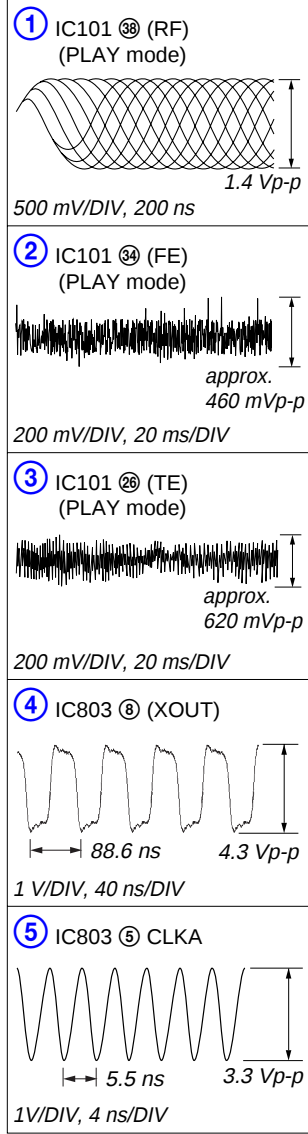
– BD (CD) Board –



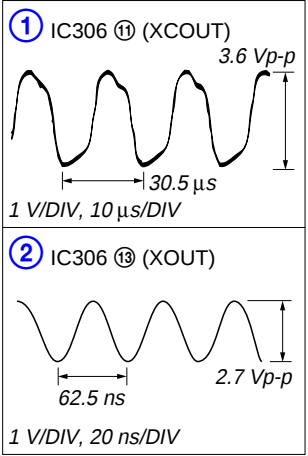
– DIGITAL Board –



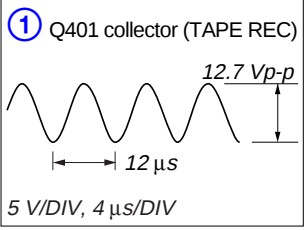
– BD (MD) Board –



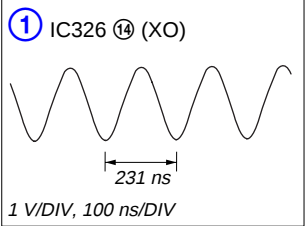
– CONTROL Board –



– TC Board –



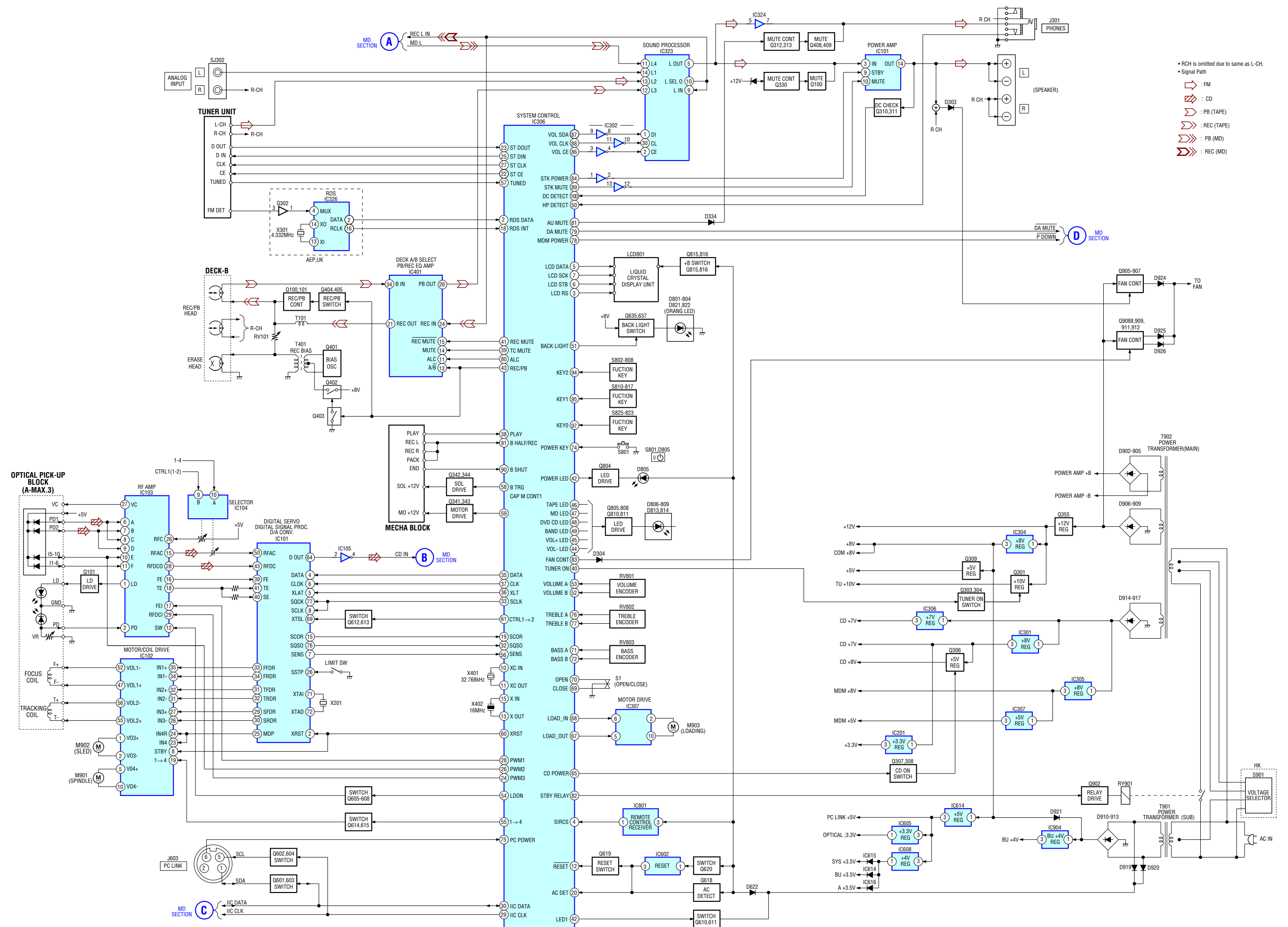
– MAIN Board –



MD Section

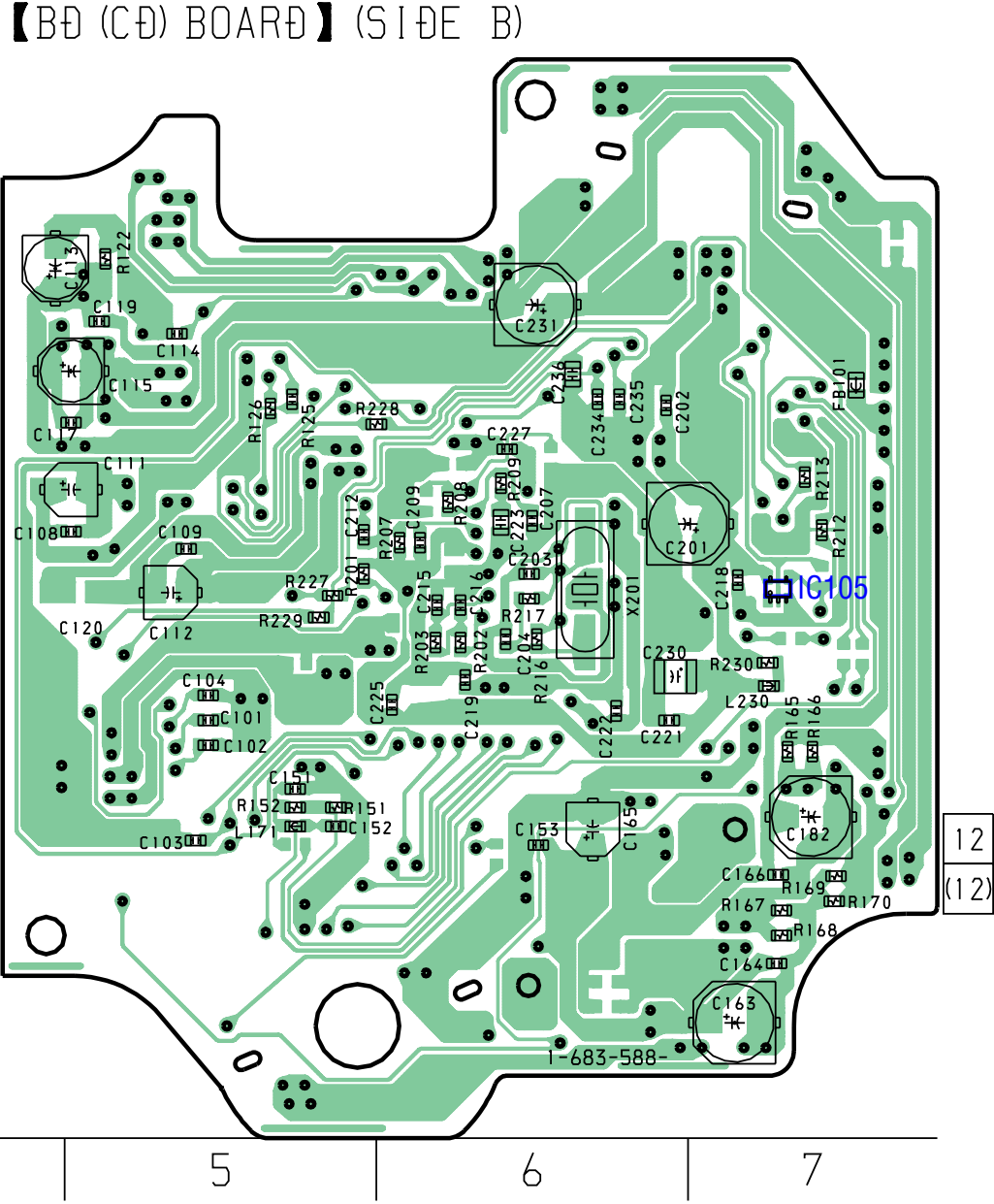
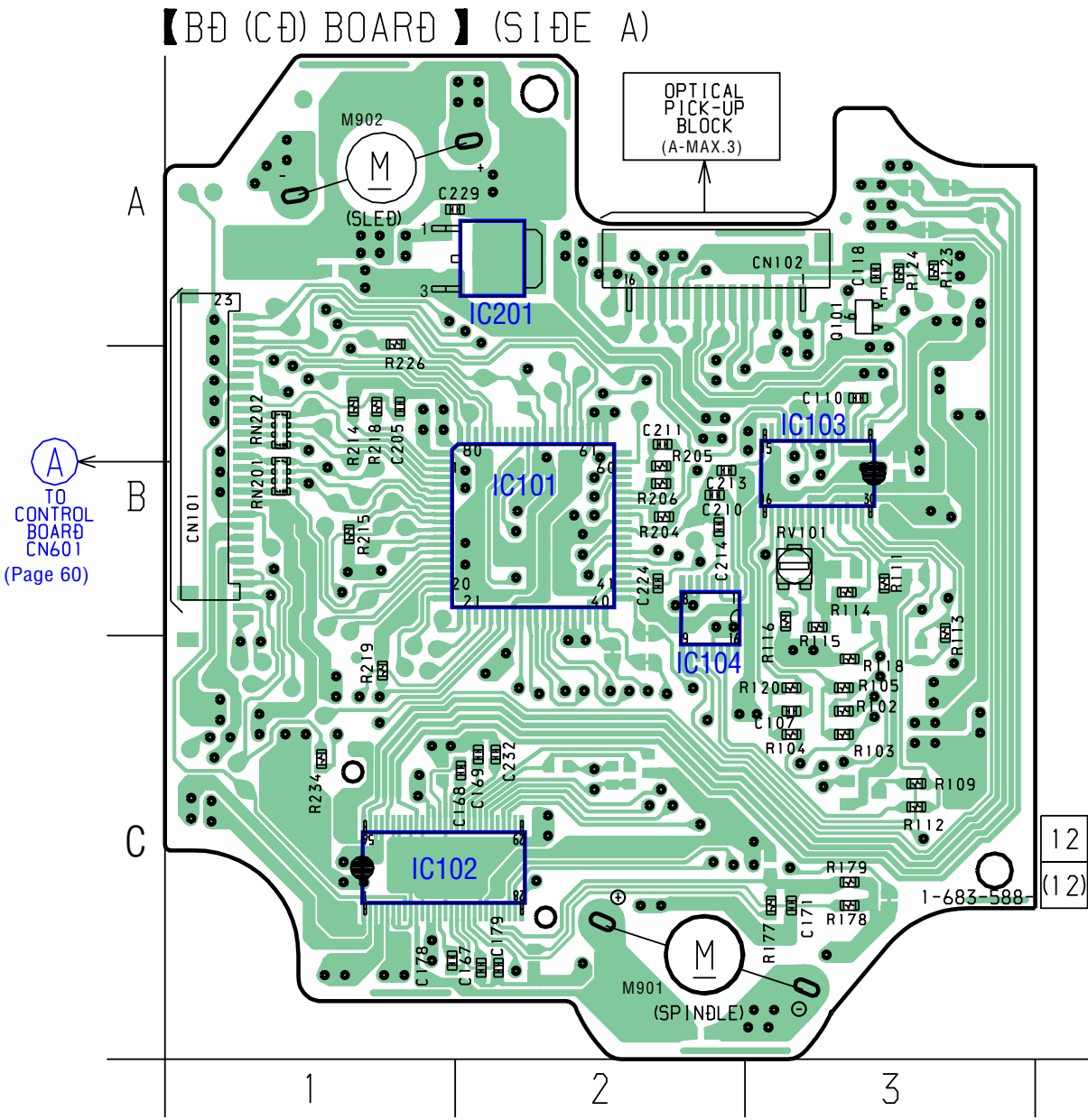


CD and Main Section



6-3. Printed Wiring Board – BD (CD) Board – • See page 45 for Circuit Boards Location.

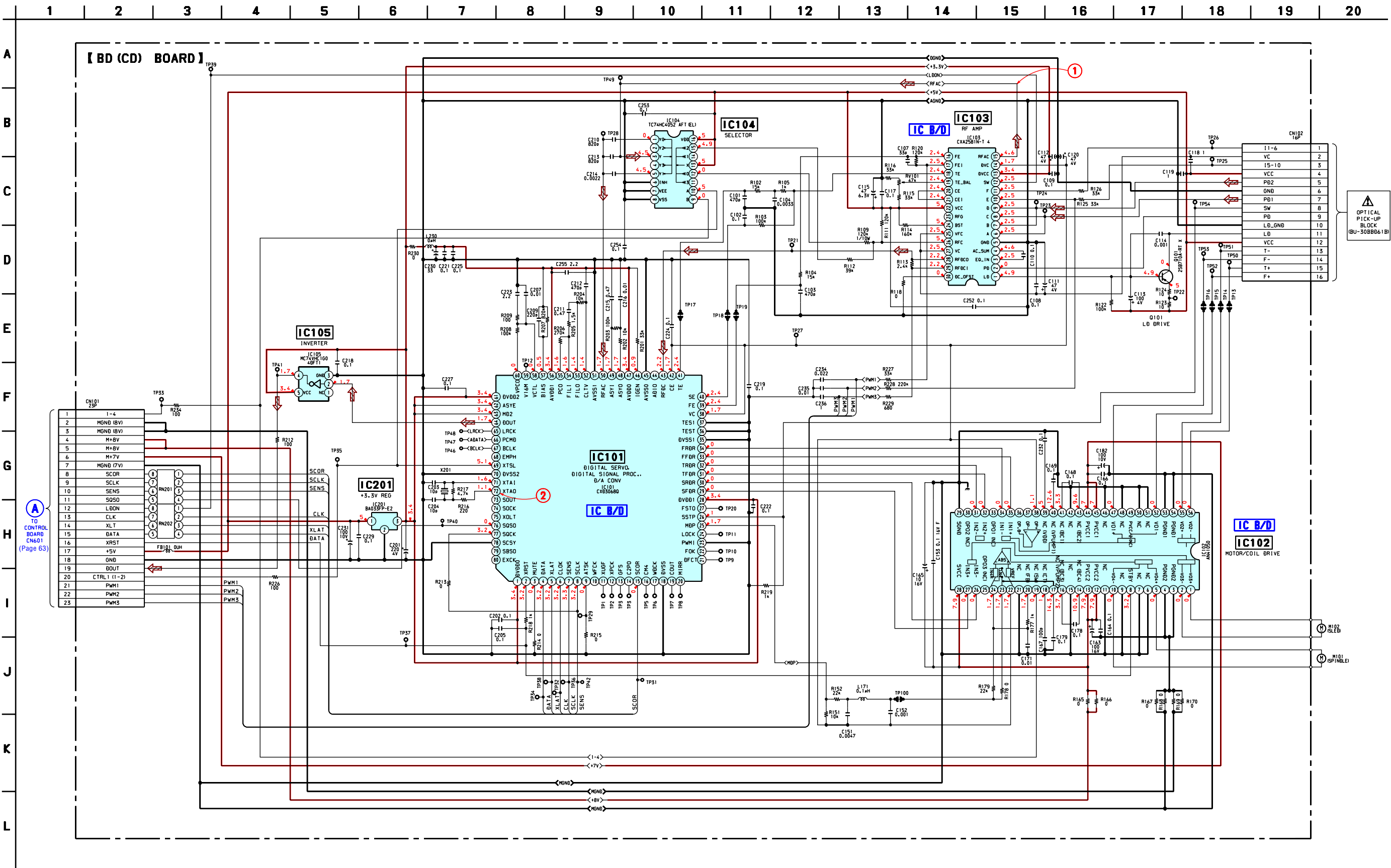
-  : Uses unleaded solder.



• Semiconductor Location

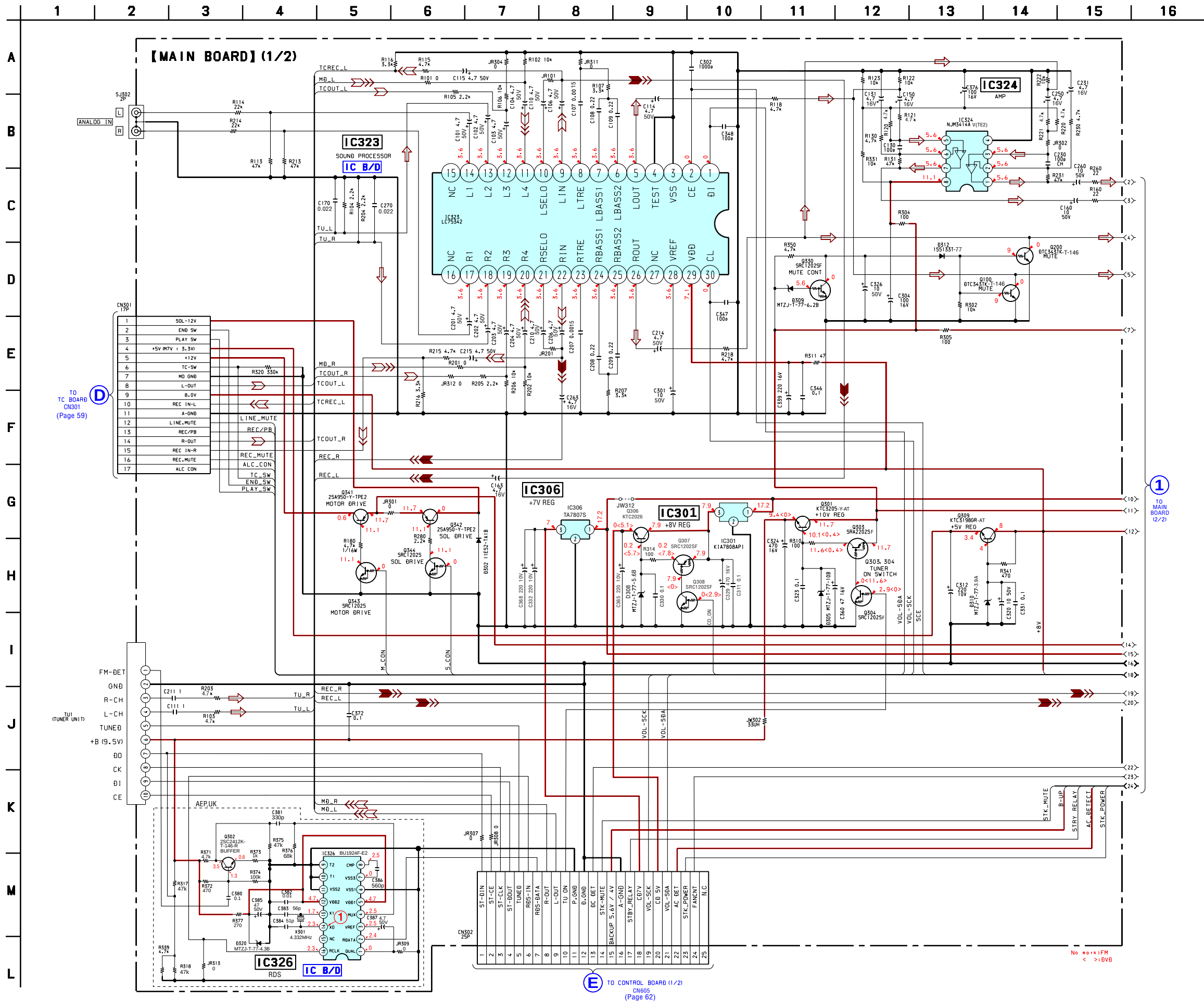
Ref. No.	Location
IC101	B-2
IC102	C-1
IC103	B-3
IC104	C-2
IC105	B-7
IC201	A-2
Q101	A-3

6-4. Schematic Diagram – BD (CD) Board – • See page 70,71,72 for IC Block Diagrams. • See page 45 for Waveforms.

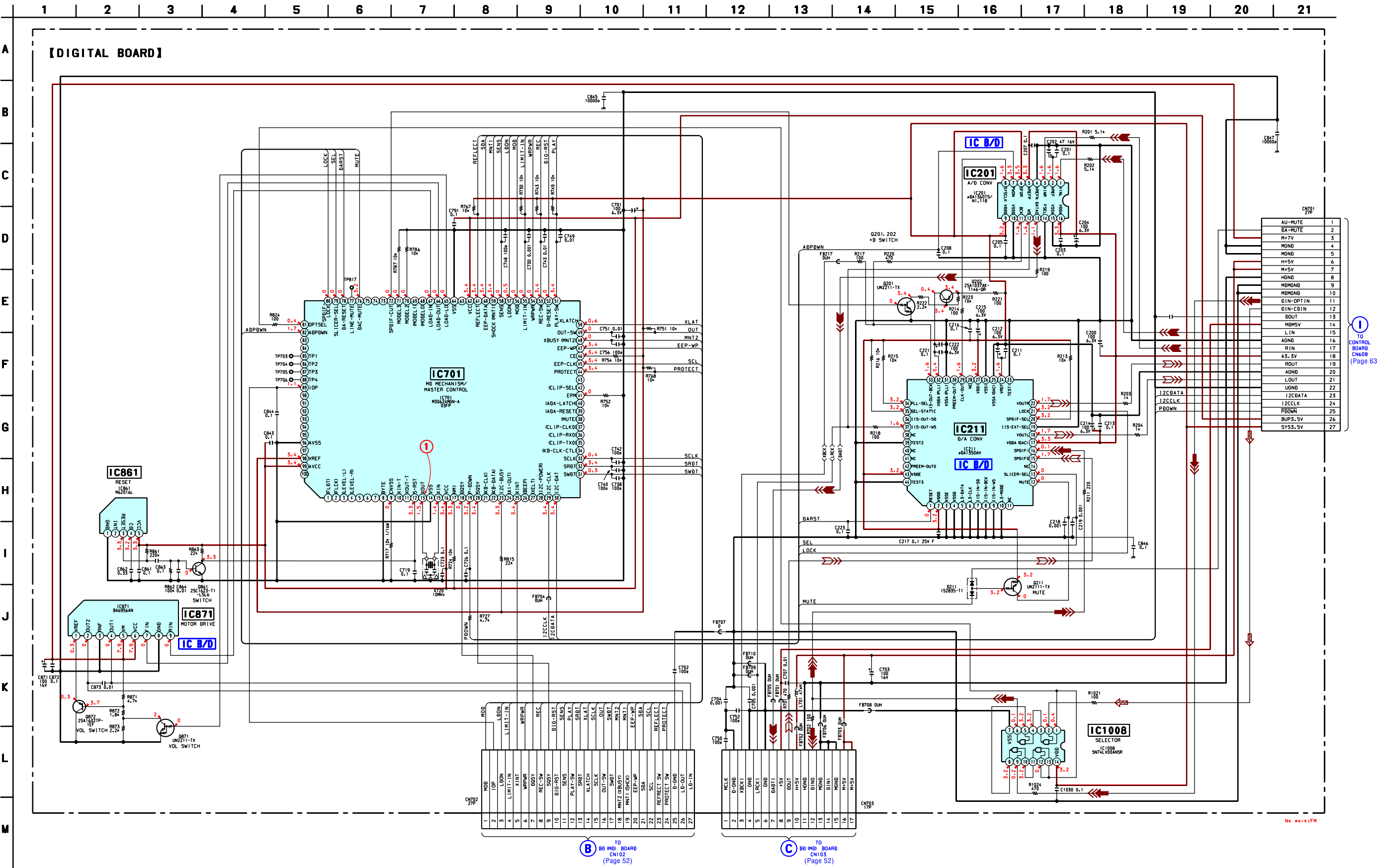




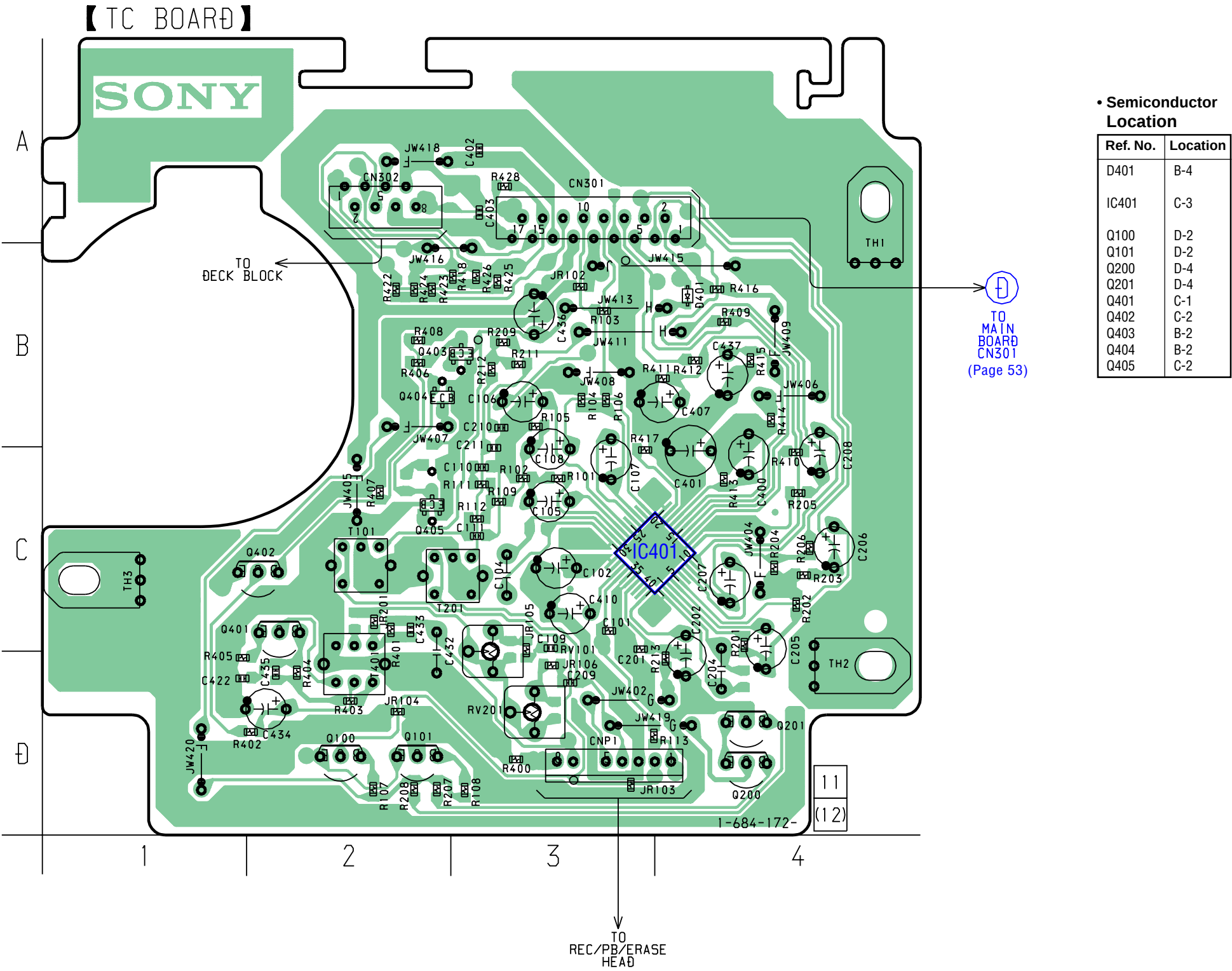
6-9. Schematic Diagram – MAIN Board (1/2) – • See page 75,76 for IC Block Diagrams. • See page 45 for Waveforms.



6-12. Schematic Diagram – DIGITAL Board – • See page 76,77 for IC Block Diagrams. • See page 79 for IC Pin Function Descriptions. • See page 45 for Waveforms.

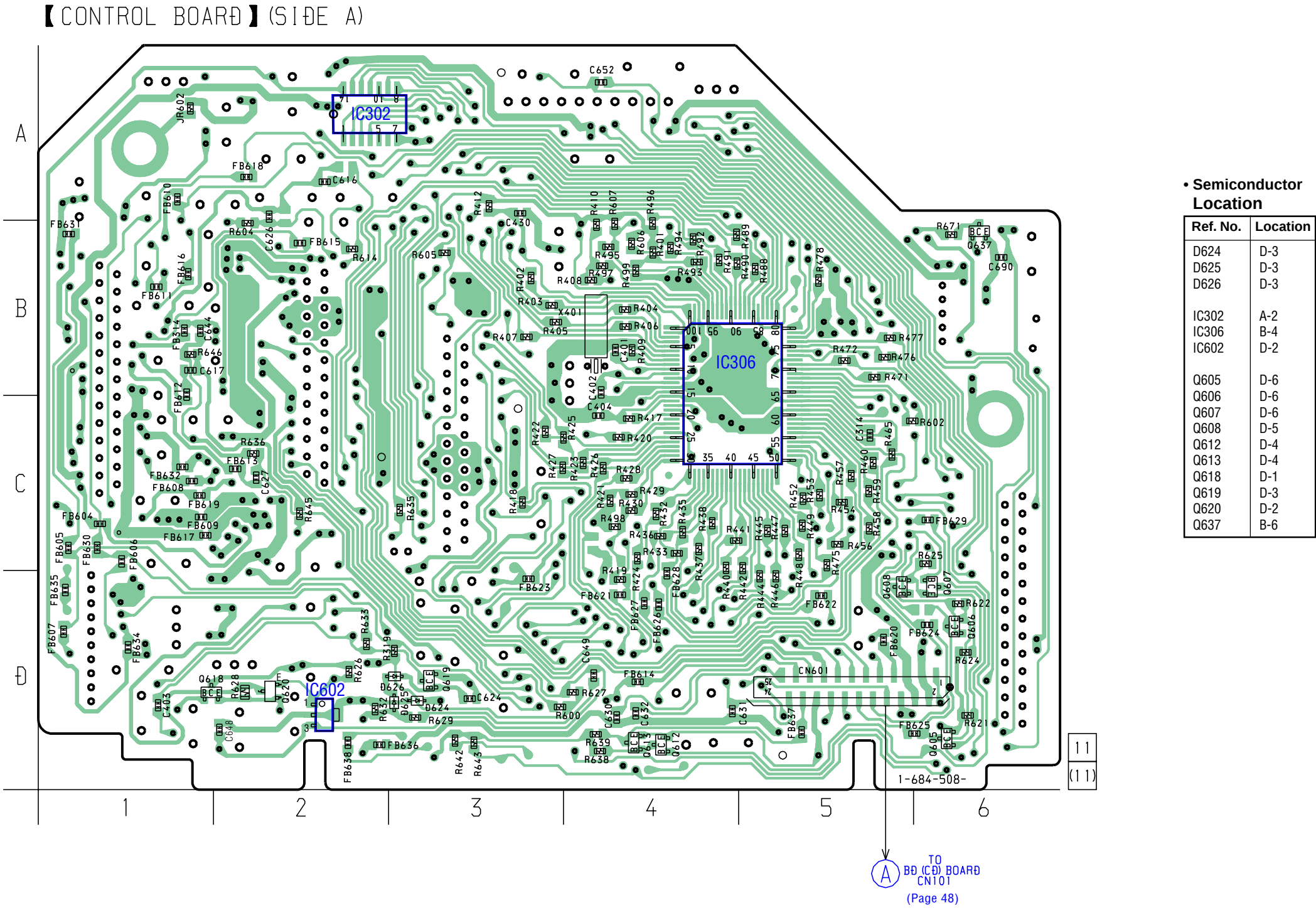


-  : Uses unleaded solder.



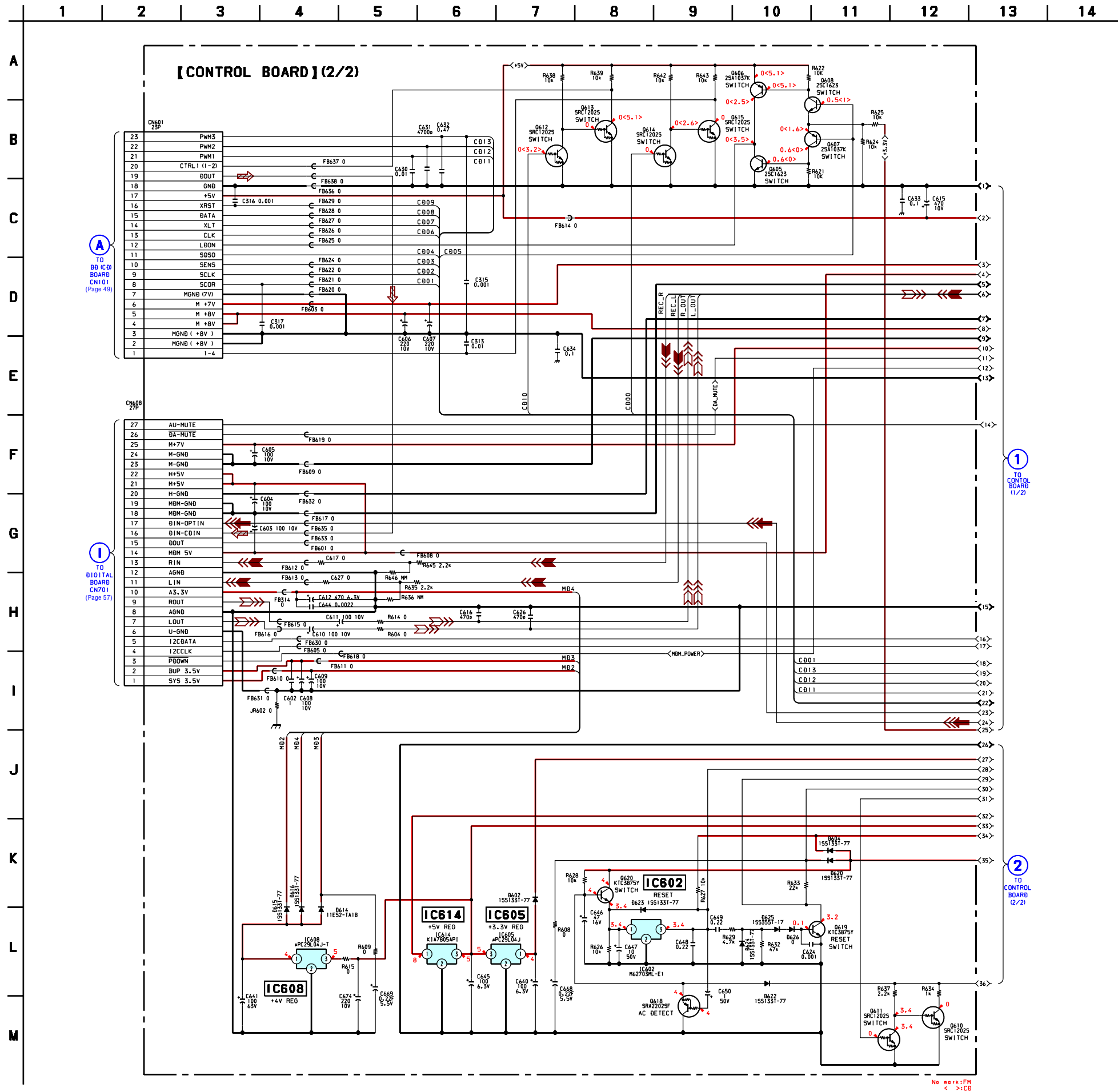
6-15. Printed Wiring Board – Control Section (Side A) – • See page 45 for Circuit Boards Location.

•  : Uses unleaded solder.



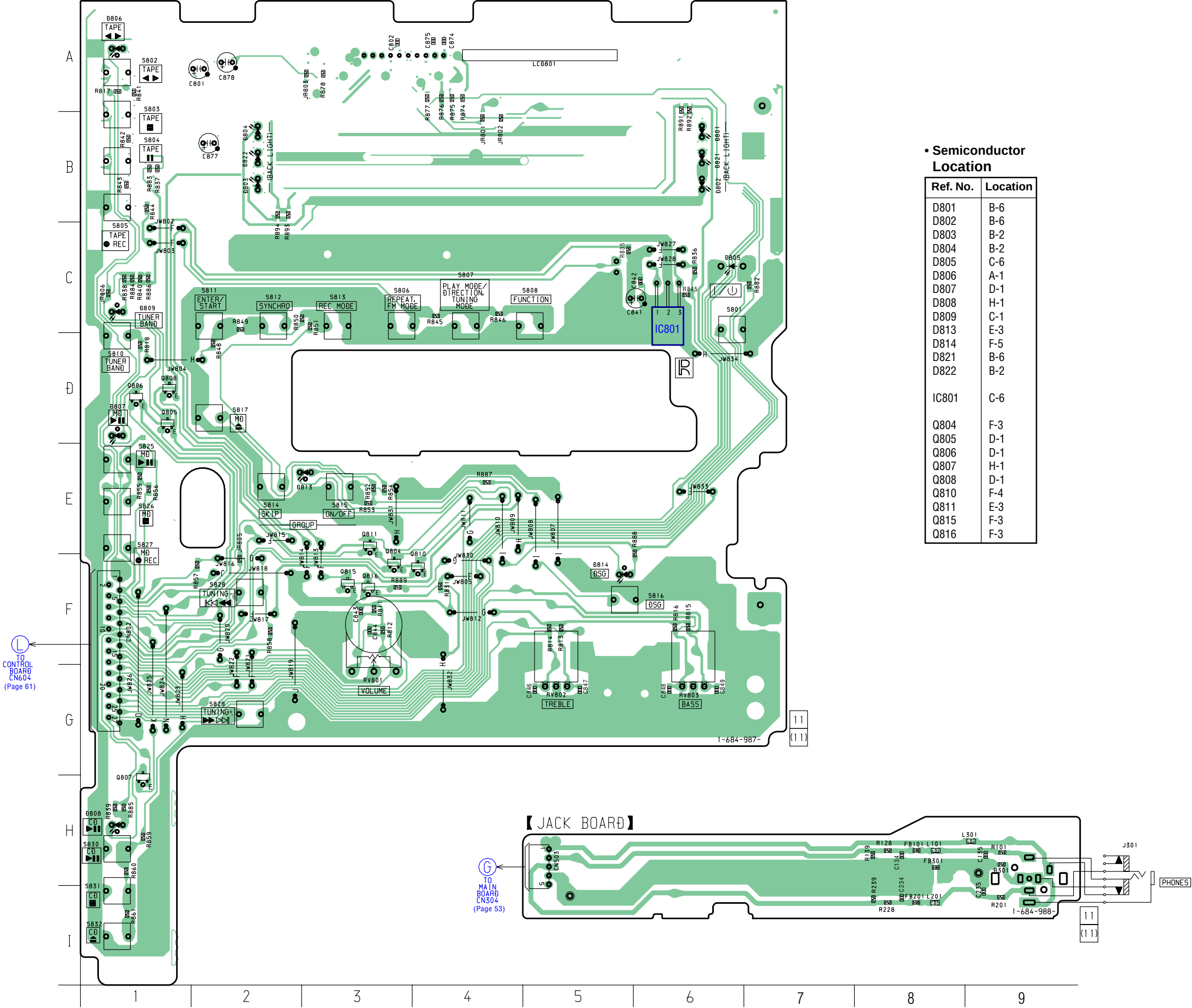


6-18. Schematic Diagram – Control Section (2/2) –



6-19. Printed Wiring Boards – Switch Section – • See page 45 for Circuit Boards Location.

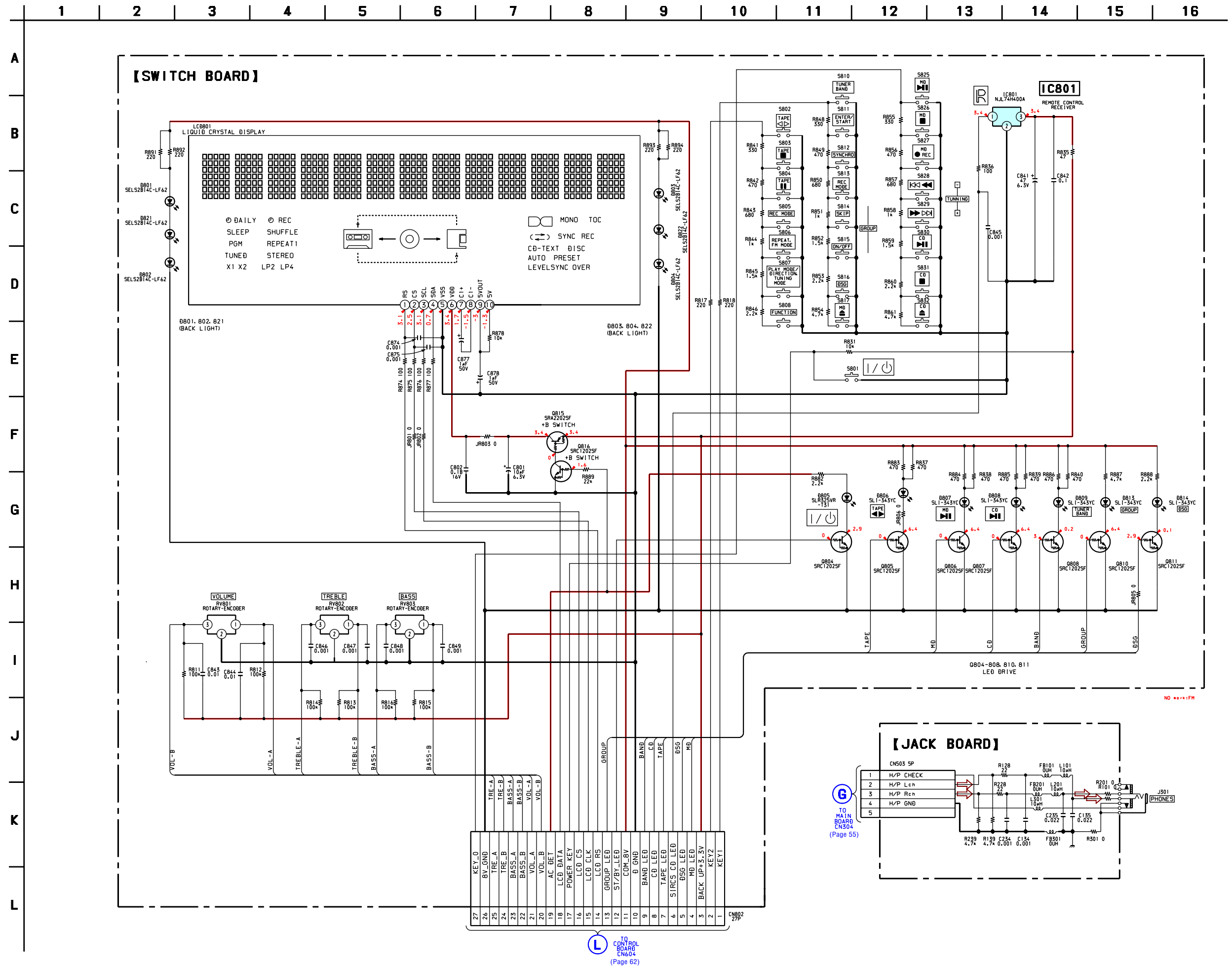
-  : Uses unleaded solder. 【 SWITCH BOARD 】



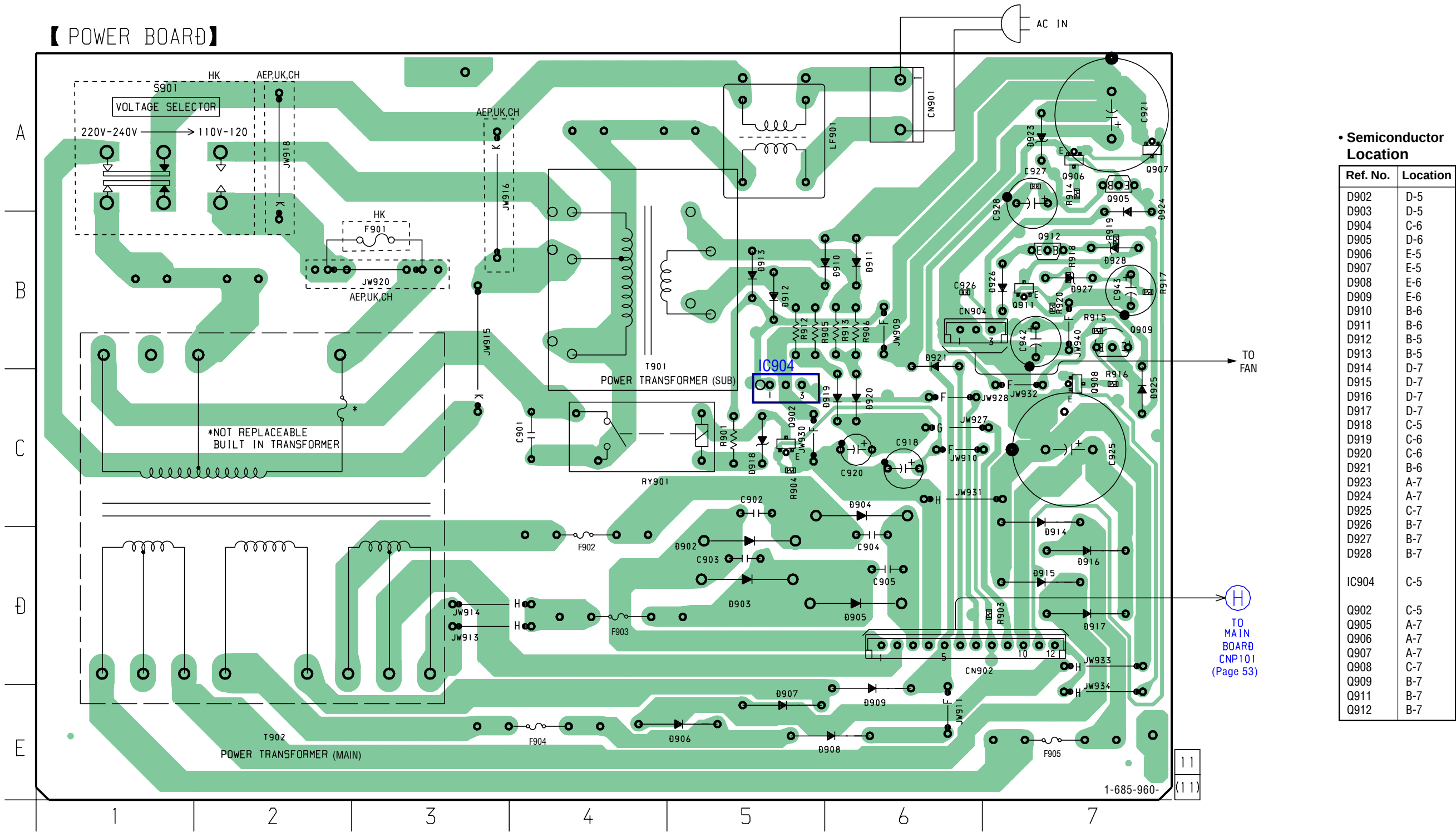
• Semiconductor Location

Ref. No.	Location
D801	B-6
D802	B-6
D803	B-2
D804	B-2
D805	C-6
D806	A-1
D807	D-1
D808	H-1
D809	C-1
D813	E-3
D814	F-5
D821	B-6
D822	B-2
IC801	C-6
Q804	F-3
Q805	D-1
Q806	D-1
Q807	H-1
Q808	D-1
Q810	F-4
Q811	E-3
Q815	F-3
Q816	F-3

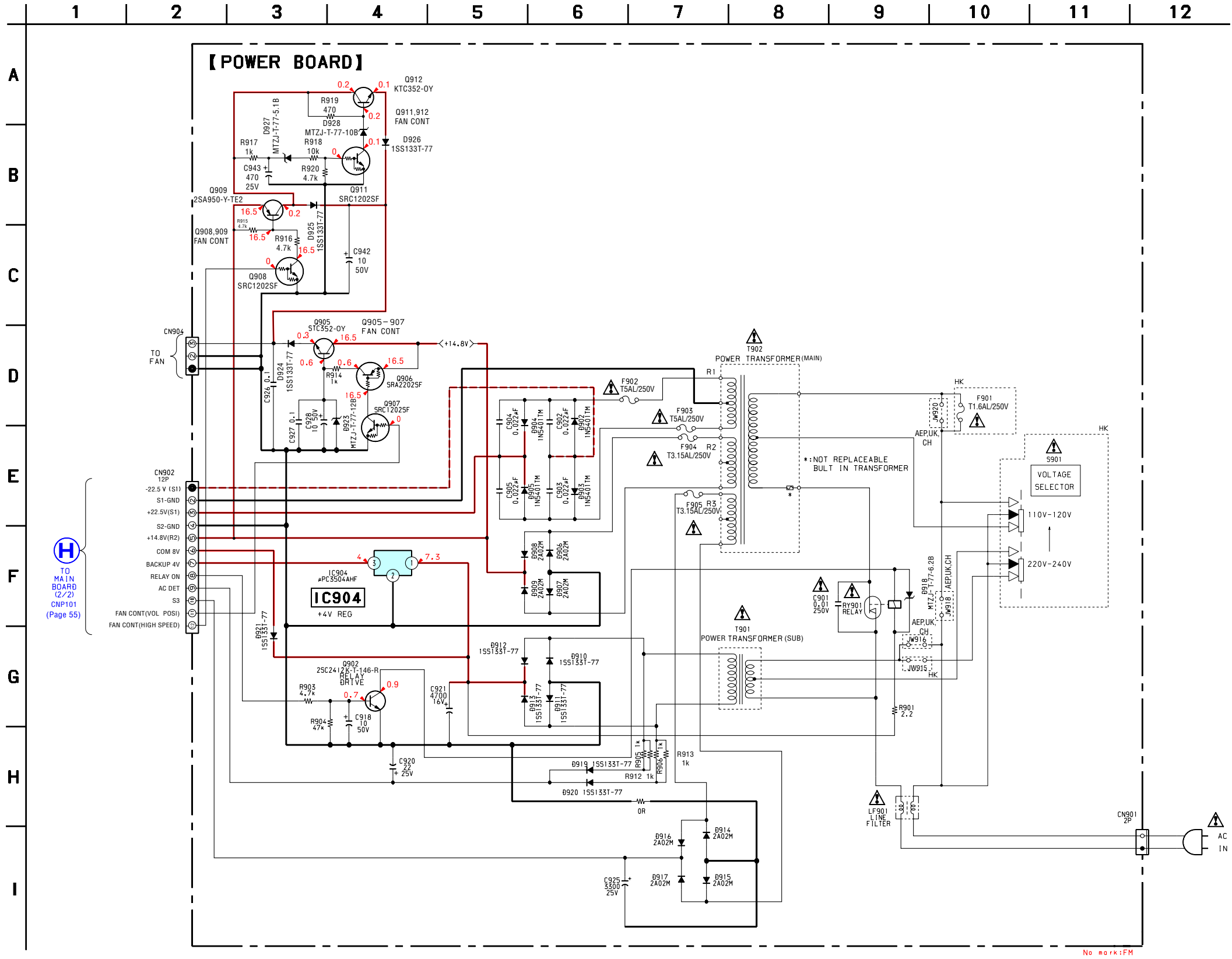
6-20. Schematic Diagram – Switch Section –



•  : Uses unleaded solder.

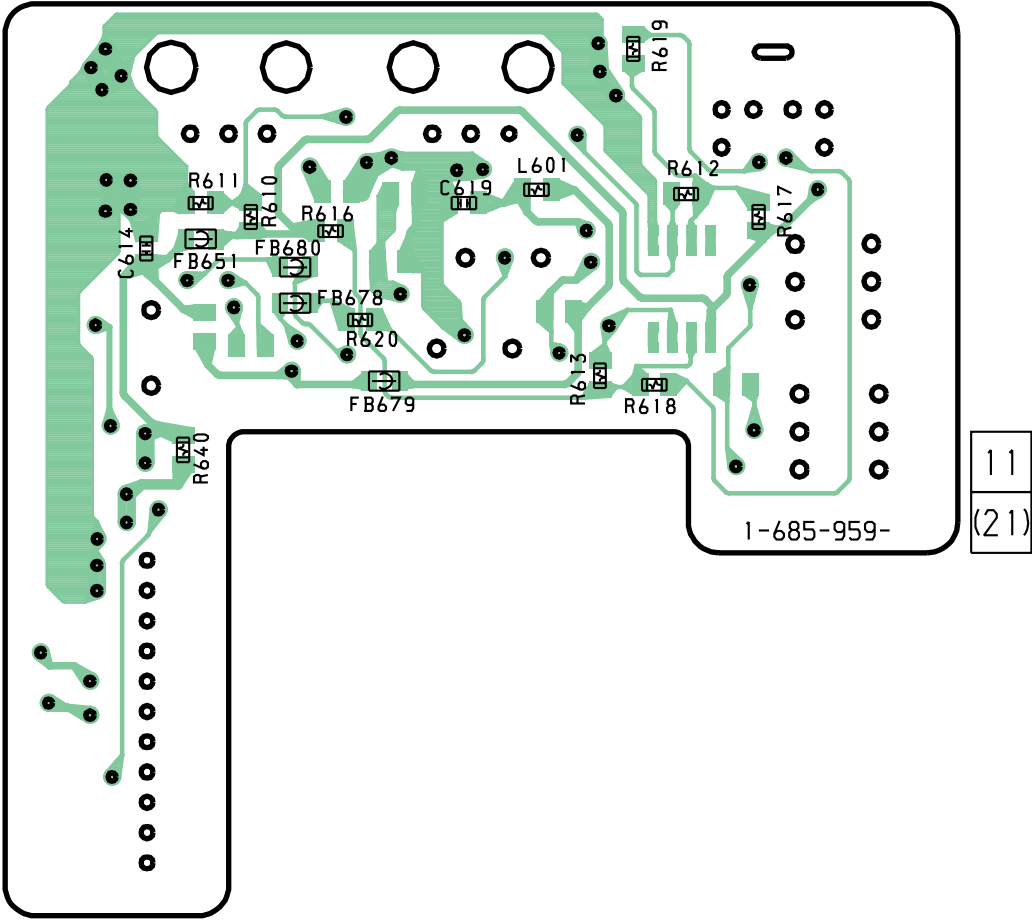


6-22. Schematic Diagram – POWER Board –

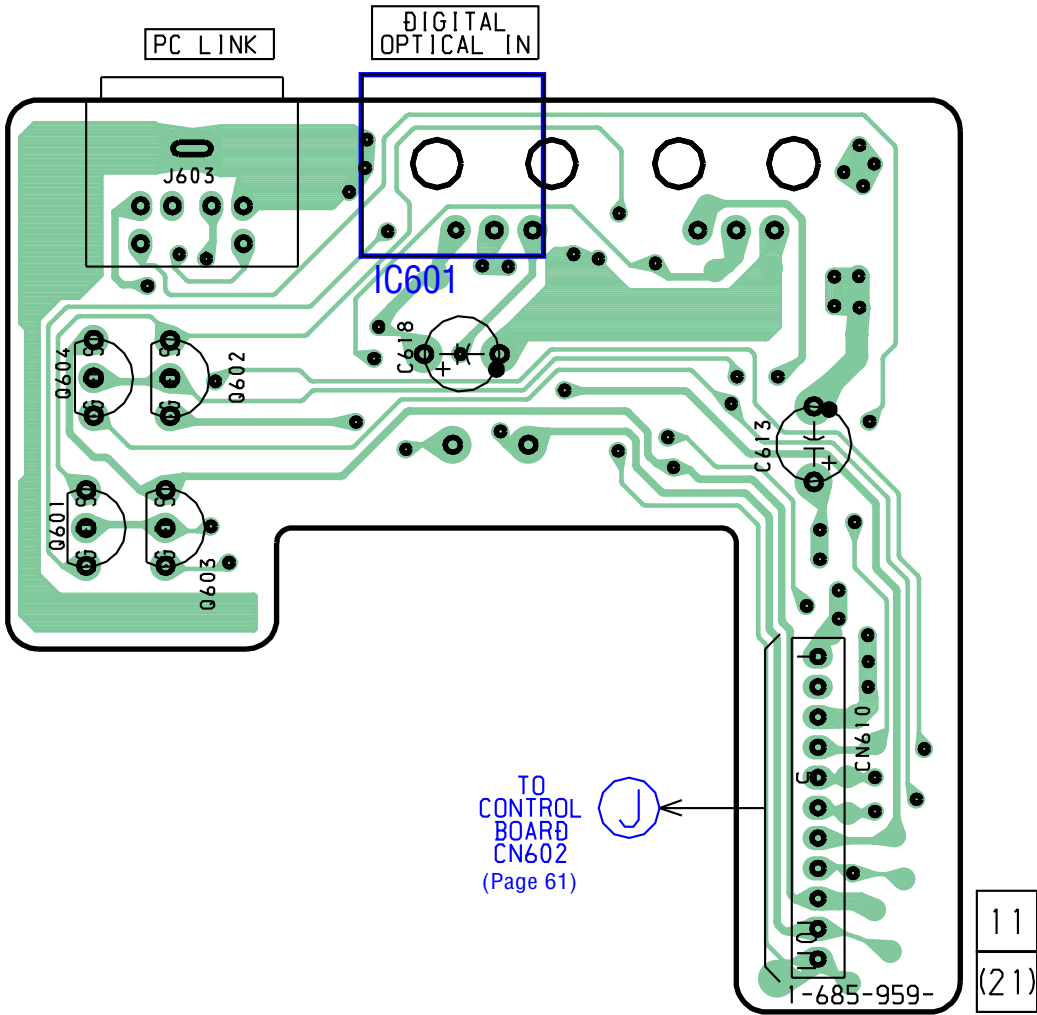


-  : Uses unleaded solder.

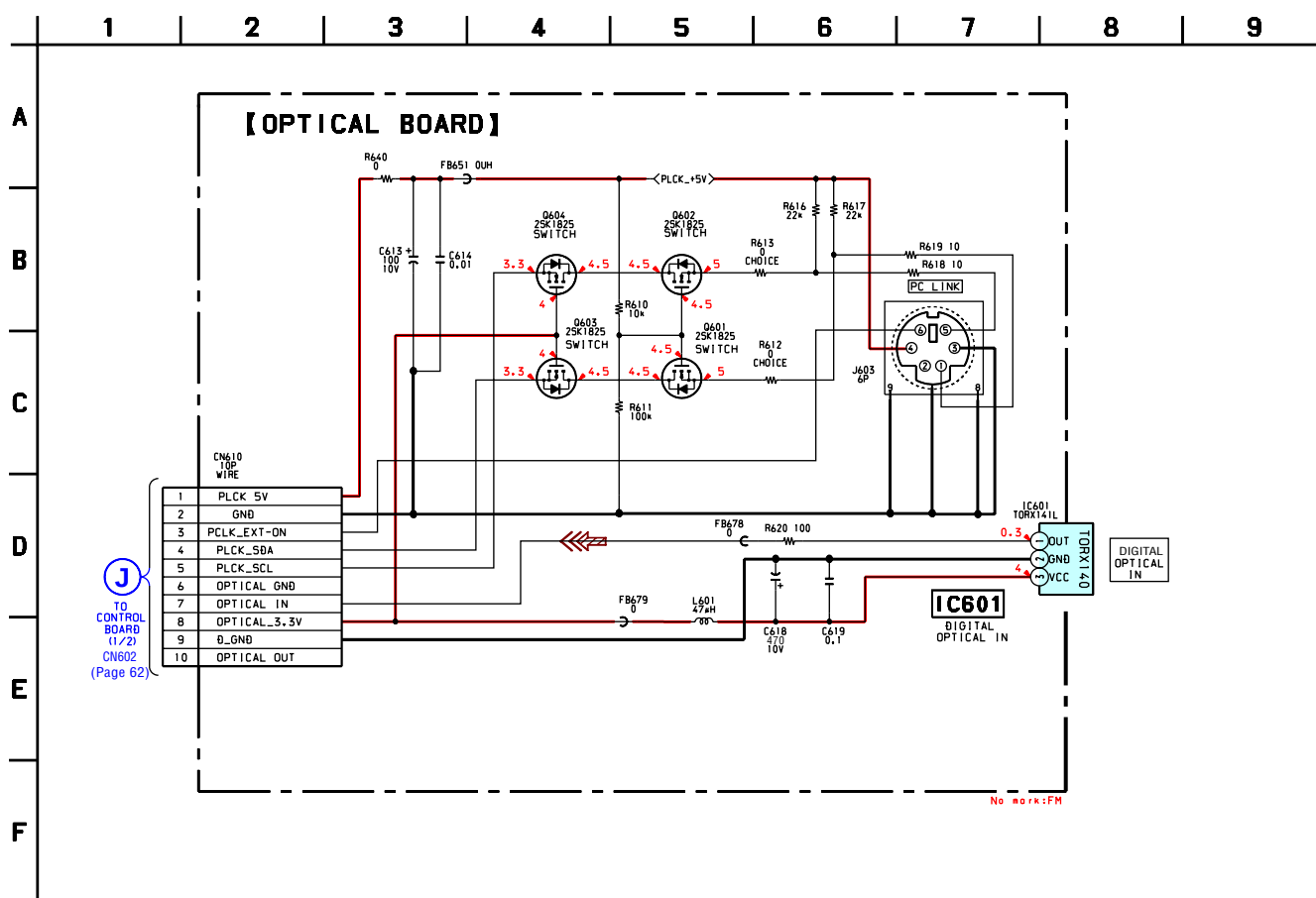
【 OPTICAL BOARD 】 (SIDE A)



【 OPTICAL BOARD 】 (SIDE B)

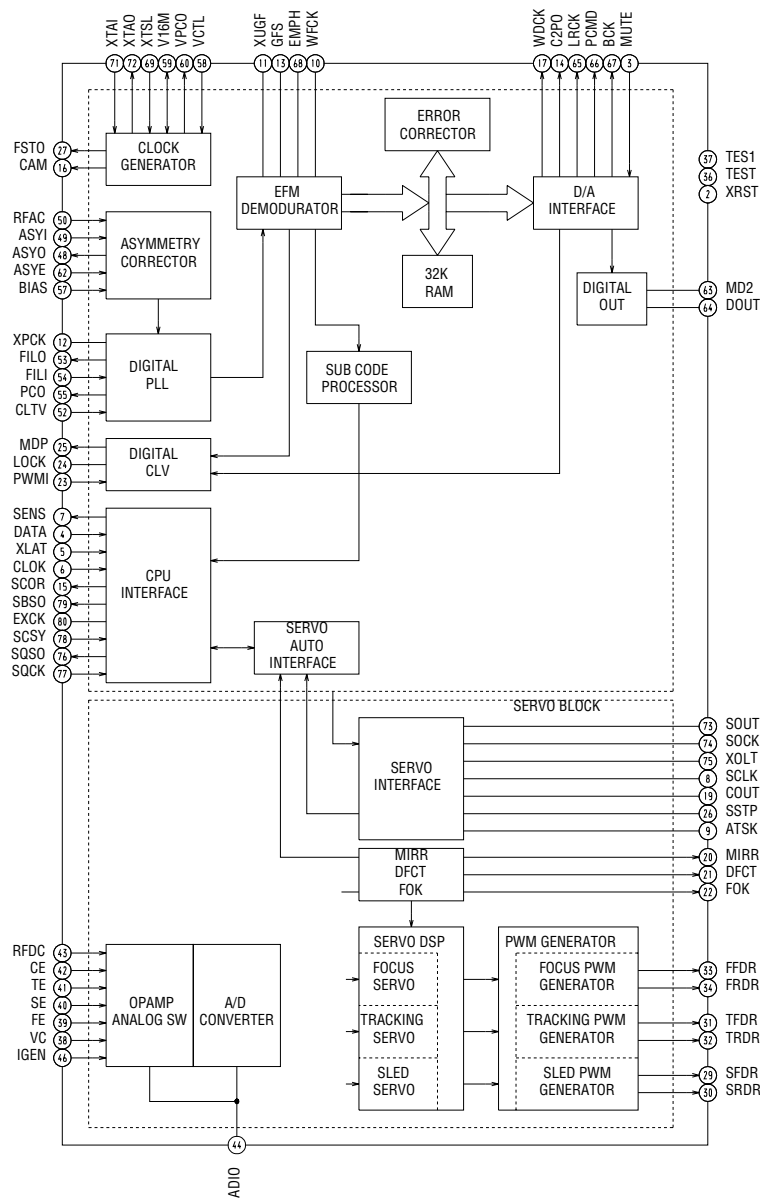


6-24. Schematic Diagram – OPTICAL Board –

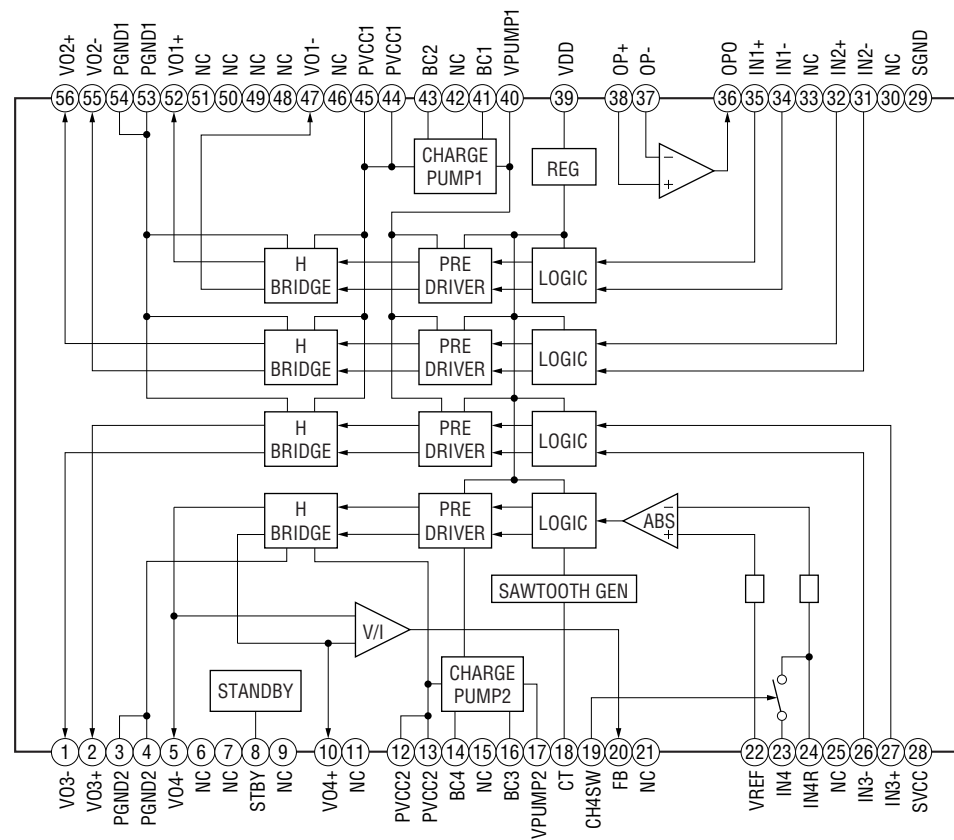


6-25. IC Block Diagrams
– BD (CD) Board –

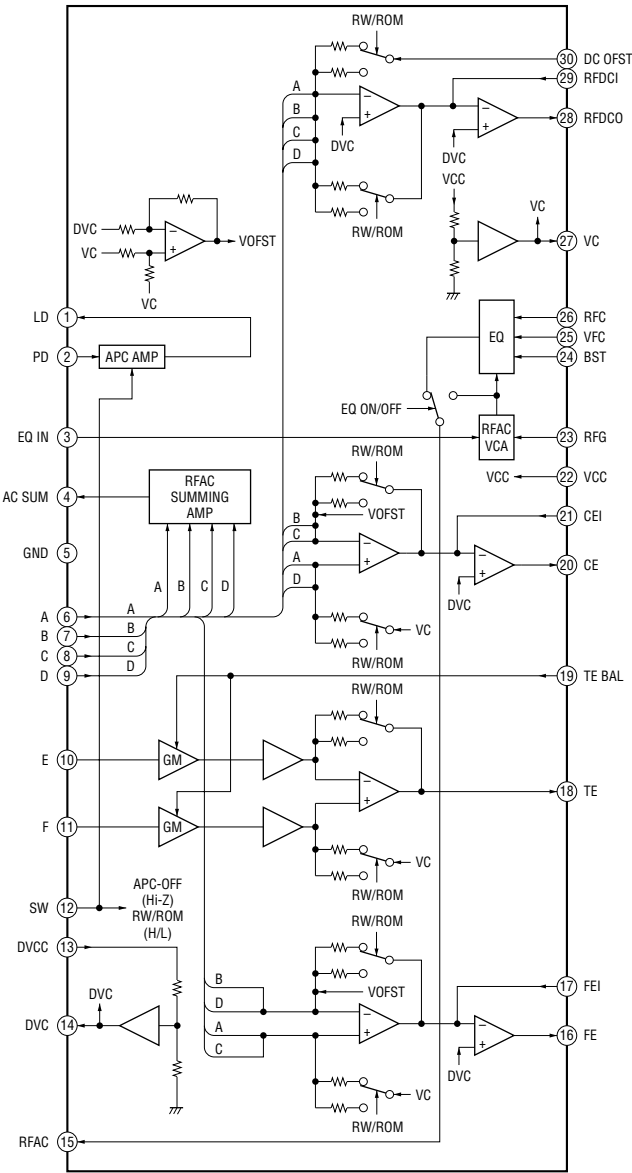
IC101 CXD3068Q



IC102 AN41050

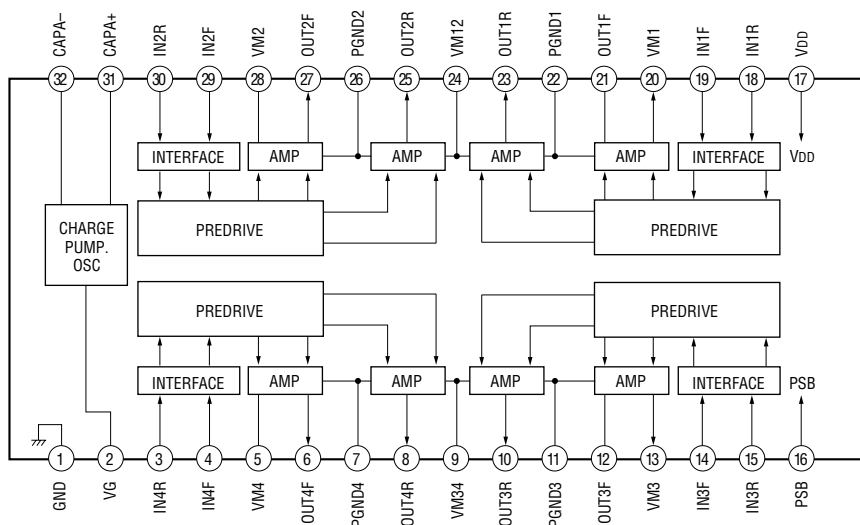


IC103 CXA2581N-T4

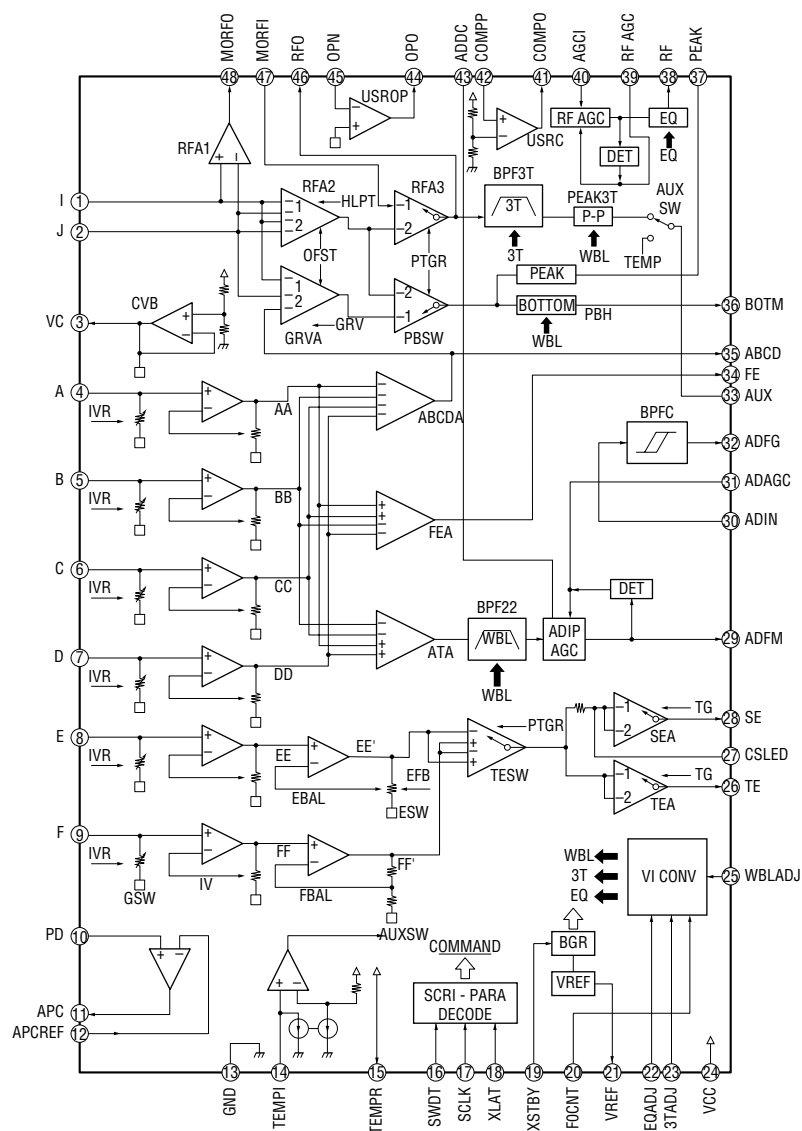


– BD (MD) Board –

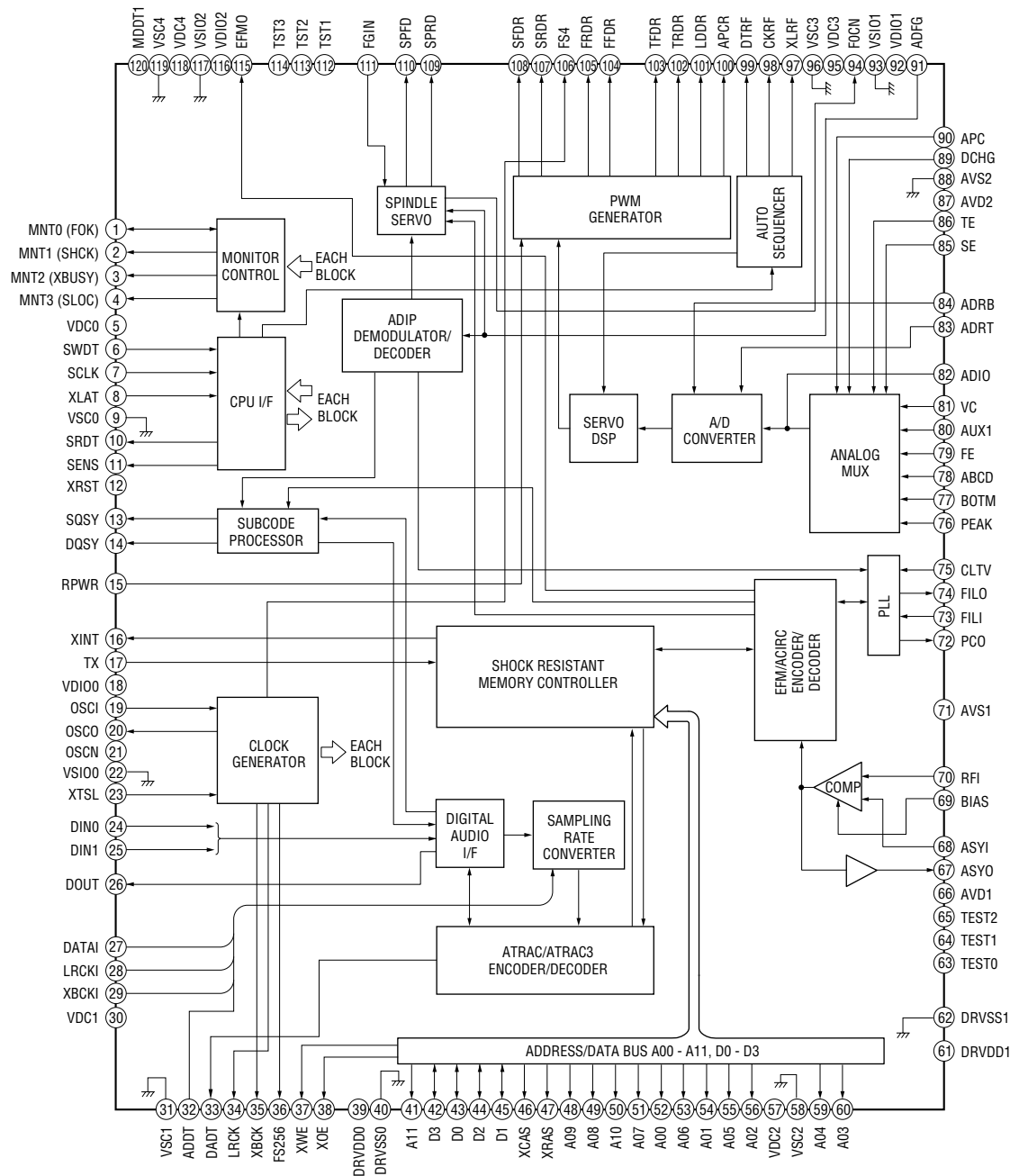
IC401 BH6519FS-E2



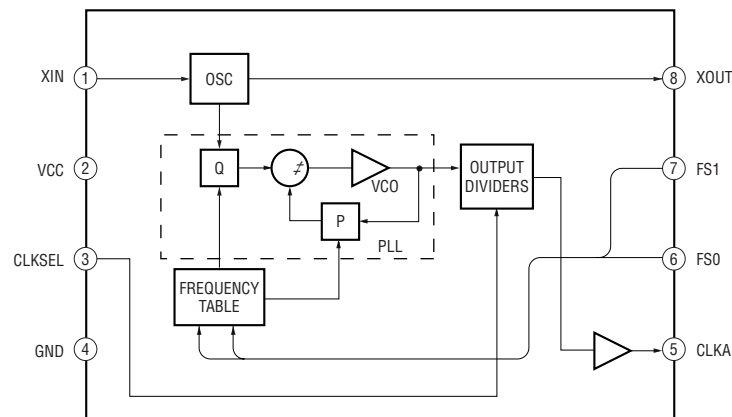
IC101 CXA2523AR



IC201 CXD2664R

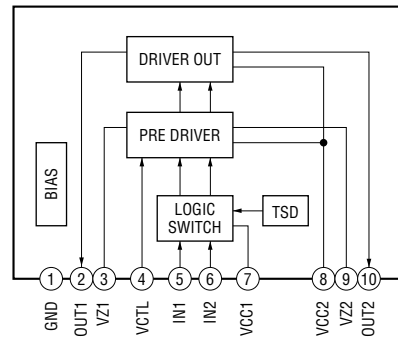


IC803 CY24115-2SCT



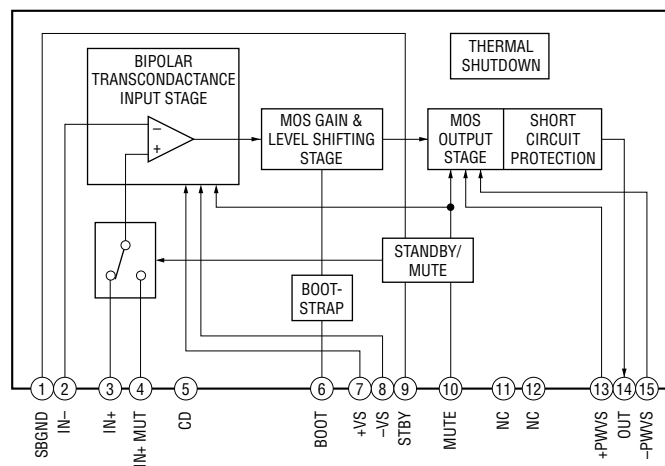
– CONTROL Board –

IC307 KA3082

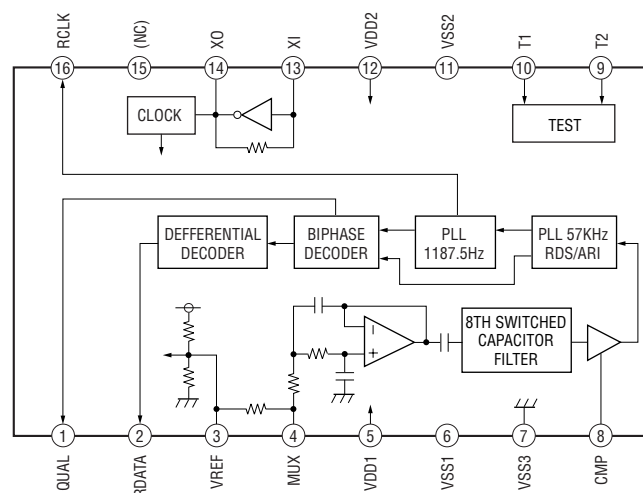


– MAIN Board –

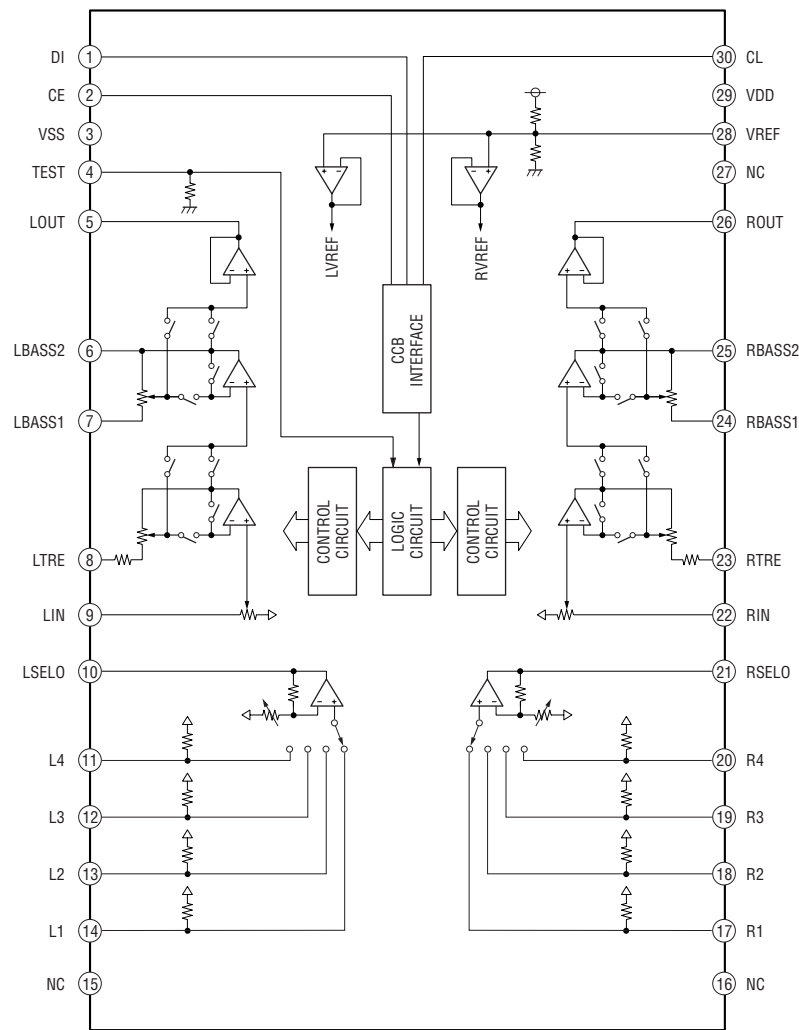
IC101, IC201 TDA7296



IC326 BU1924F-E2

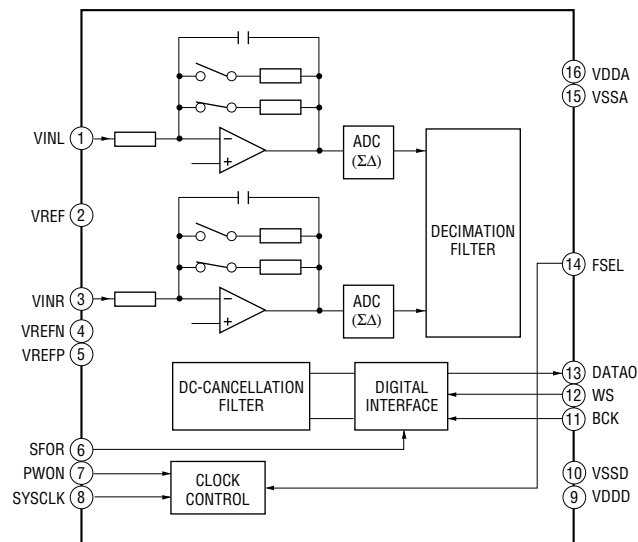


IC323 LC75342

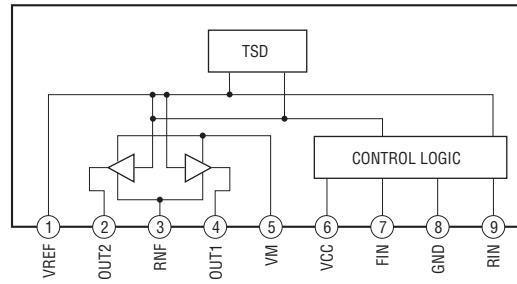
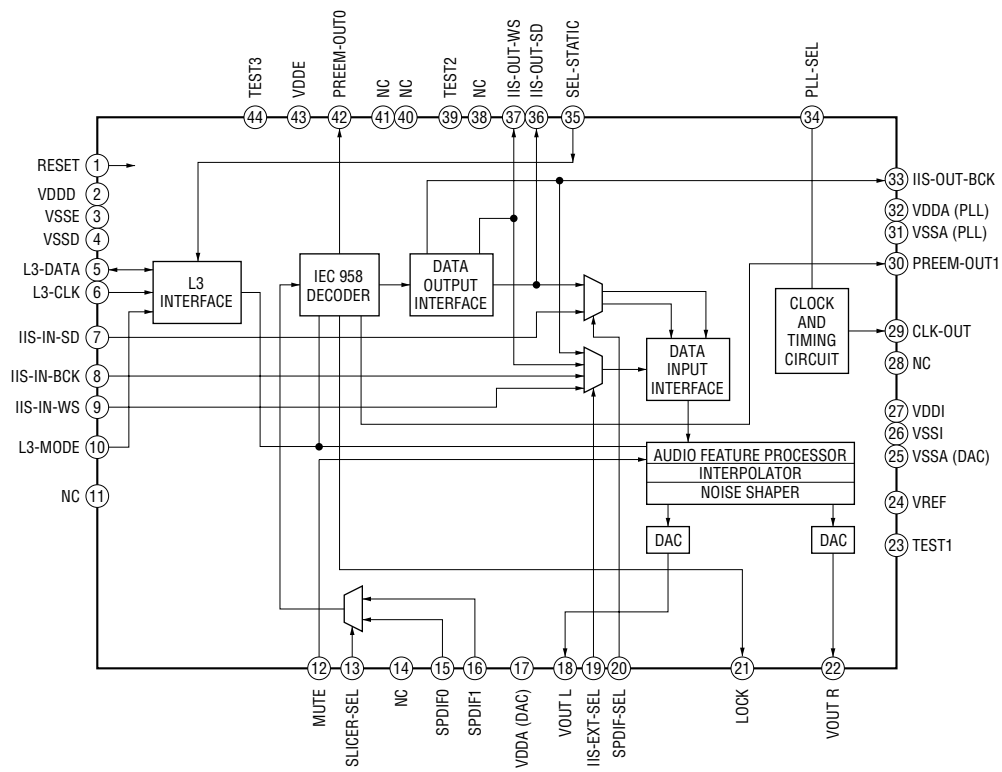


– DIGITAL Board –

IC201 μ DA1360TS/N1.118



IC871 BA6956AN

IC211 μ DA1350AH

6-26. IC Pin Function Description

• IC101 CXA2523AR RF Amplifier (BD (MD) Board)

Pin No.	Pin Name	I/O	Description
1	I	I	I-V converted RF signal I input
2	J	I	I-V converted RF signal J input
3	VC	O	Middle point voltage (+1.5V) generation output
4 to 9	A to F	I	Signal input from the optical pick-up detector
10	PD	I	Light amount monitor input
11	APC	O	Laser APC output
12	APCREF	I	Reference voltage input for setting laser power
13	GND	—	Ground
14	TEMPI	I	Temperature sensor connection
15	TEMPR	O	Reference voltage output for the temperature sensor
16	SWDT	I	Serial data input from the CXD2664R
17	SCLK	I	Serial clock input from the CXD2664R
18	XLAT	I	Latch signal input from the CXD2664R “L”: Latch
19	XSTBY	I	Stand by signal input “L”: Stand by
20	F0CNT	I	Center frequency control voltage input of BPF22, BPF3T, EQ from the CXD2664R
21	VREF	O	Reference voltage output (Not used)
22	EQADJ	I/O	Center frequency setting pin for the internal circuit EQ
23	3TADJ	I/O	Center frequency setting pin for the internal circuit BPF3T
24	Vcc	—	+3V power supply
25	WBLADJ	I/O	Center frequency setting pin for the internal circuit BPF22
26	TE	O	Tracking error signal output to the CXD2664R
27	CSLED	—	External capacitor connection pin for the sled error signal LPF
28	SE	O	Sled error signal output to the CXD2664R
29	ADFM	O	FM signal output of ADIP
30	ADIN	I	ADIP signal comparator input ADFM is connected with AC coupling
31	ADAGC	—	External capacitor connection pin for AGC of ADIP
32	ADFG	O	ADIP duplex signal output to the CXD2664R
33	AUX	O	I3 signal/temperature signal output to the CXD2664R (Switching with a serial command)
34	FE	O	Focus error signal output to the CXD2664R
35	ABCD	O	Light amount signal output to the CXD2664R
36	BOTM	O	RF/ABCD bottom hold signal output to the CXD2664R
37	PEAK	O	RF/ABCD peak hold signal output to the CXD2664R
38	RF	O	RF equalizer output to the CXD2664R
39	RFAGC	—	External capacitor connection pin for the RF AGC circuit
40	AGCI	I	Input to the RF AGC circuit The RF amplifier output is input with AC coupling
41	COMPO	O	User comparator output (Not used)
42	COMPP	I	User comparator input (Fixed at “L”)
43	ADDC	I/O	External capacitor pin for cutting the low band of the ADIP amplifier
44	OPO	O	User operation amplifier output (Not used)
45	OPN	I	User operation amplifier inversion input (Fixed at “L”)
46	RFO	O	RF amplifier output
47	MORFI	I	Groove RF signal is input with AC coupling
48	MORFO	O	Groove RF signal output

• Abbreviation

APC: Auto Power Control

AGC: Auto Gain Control

• IC701 M30624MGN-A03FP Master Control (DIGITAL Board)

Pin No.	Pin Name	I/O	Description
1	(FLDT)	O	Display tube S I/O output data (Not used)
2	(FLCK)	O	Display tube S I/O output clock (Not used)
3	(LEVEL – L)	O	Level meter (L-ch) output (Not used)
4	(LEVEL – R)	O	Level meter (R-ch) output (Not used)
5	—	—	Not used
6	—	—	Not used
7	—	—	Not used
8	BYTE	I	Not used (Connected ground)
9	CNVSS	I	Processor modes switching
10	XIN–T	I	Sub clock input (32.768 kHz) (Not used)
11	XOUT–T	O	Sub clock output (32.768 kHz) (Not used)
12	S – RST	I	System reset input
13	XOUT	O	Main clock output (10 MHz)
14	VSS	—	Ground terminal
15	XIN	I	Main clock input (10 MHz)
16	VCC	I	Power supply (3.3 V)
17	NMI	I	Not used (Connected ground via resistor)
18	DQSY	I	DIGITAL-IN SYNC (DSP)*(REC) system
19	P–DOWN	I	Power-down detection input
20	SQSY	I	SUBQ (pit)/ADIP (MO) SYNC * PLAY system
21	(KB–CLK)	I	Keyboard clock input (Not used)
22	(KB–DATA)	I	Keyboard data input (Not used)
23	I2C–BUSY	I	IIC BUSY input (Not used)
24	(A1–OUT)	O	Control A1 output (Not used)
25	XINT	I	XINT (DSP) input
26	(BEEP)	O	BEEP output (Not used)
27	(XELT)	O	XELT (DSP) (Not used)
28	(I2C–POWER)	O	IIC POWER (Not used)
29	I2C–CLK	I/O	IIC communication clock
30	I2C–DAT	I/O	IIC communication data
31	SWDT	O	DSP/(AD/DA) serial output
32	SRDT	I	DSP serial input
33	SCLK	O	DSP/(DA/AD) serial clock
34	(KB–CLK–CTL)	O	Keyboard clock ON/OFF (Not used)
35	(CLIP–TX0)	O	Not used
36	(CLIP–RX0)	I	Not used
37	(CLIP–CLK0)	O	Not used
38	(MUTE)	O	Not used
39	(ADA–RESET)	O	ADA RESET (Not used)
40	(ADA–LATCH)	O	ADA LATCH (Not used)
41	EPM	I	Serial write (Connected ground via resistor)
42	(CLIP–SEL)	O	AD/clock for clip selection (Not used)
43	—	—	Not used
44	PROTECT	I	Protect input
45	EEP–CLK	O	EEP CLI
46	CE	I	Serial write (Connected ground via resistor)
47	EEP–WP	O	EEP-ROM write protect
48	XBUSY (MNT2)	I	Monitor2 input (DSP)
49	OUT–SW	I	Loading position detection input
50	XLATCH	O	DSP latch output

Pin No.	Pin Name	I/O	Description
51	PLAY-SW	I	Loading position detection input
52	D-RESET	O	Digital circuit boards reset output
53	REC-SW	I	Loading position detection input
54	WRPWR	O	Write power ON/OFF output
55	LIMIT-IN	I	Sled inner-most circumference input
56	MOD	O	High-frequency super-imposition ON/OFF output
57	LDON	O	Laser ON/OFF output
58	SENS	I	SENS terminal input
59	SHOCK(MNT1)	I	Monitor input
60	EEP-DATA	I/O	EEP data
61	REFLECT	I	Disc reflection index detection input
62	VCC	I	Power supply (3.3 V)
63	—	—	Not used (Connected ground)
64	VSS	—	Ground terminal
65	LOAD-LO	O	Loading motor voltage control output
66	LOAD-OUT	O	Loading-out control output
67	LOAD-IN	O	Loading-in control output
68	(MODEL0)	I	Model identification (Not used)
69	(MODEL1)	I	Model identification (Not used)
70	MODEL2	I	Model identification (Not used)
71	MODEL3	I	Model identification (Destination)
72	SPDIF-CUT	O	Optical output cut signal output
73	—	—	Not used
74	—	—	Not used
75	—	—	Not used
76	DAC-MUTE	O	DAC mute output
77	LINE-MUTE	O	LINE mute (Not used)
78	DA-RESET	O	DAC reset output
79	SLICER-SEL	O	IEC958 inputs selection
80	SPDIF-LOCK	I	DAC lock signal input
81	OPTSEL	O	Optical input selection signal output
82	ADPDWN	O	UDA1360 power supply control signal output
83	—	—	Not used
84	—	—	Not used
85	TP1	O	Not used
86	TP2	O	Not used
87	TP3	O	Not used
88	TP4	O	Not used
89	IOP	I	Iop (current) detection input
90	—	—	Not used
91	—	—	Not used
92	—	—	Not used
93	—	—	Not used
94	—	—	Not used
95	—	—	Not used
96	AVSS	—	Ground terminal
97	—	—	Not used
98	VREF	I	Reference voltage input
99	AVCC	I	Power supply (3.3 V)
100	—	—	Not used

• IC306 M30622MGN-B03FP System Control (CONTROL Board)

Pin No.	Pin Name	I/O	Description
1	VIDEO_SEL	O	Not used in this machine (Open)
2	RDS_DATA	I	Not used in this machine
3	LCD_RS	O	LCD reset signal input
4	SIRCS	I	SIRCS signal input
5	LCD_DATA	O	LCD data output
6	LCD_STB	O	LCD chip select signal input
7	LCD_SCK	O	LCD clock signal input
8	BYTE	—	External data bus width selection signal input (Ground)
9	CNVSS	—	Processor mode selection signal input (Fixed at “L”)
10	XCIN	I	Sub clock signal input
11	XCOUT	O	Sub clock signal output
12	RESET	I	System reset signal input
13	XOUT	O	Main system clock signal output
14	VSS	—	Ground terminal
15	XIN	I	Main system clock signal input (16 MHz)
16	VCC	—	Power supply terminal (3.3 V)
17	NMI	I	Not used (Fixed at “H”)
18	RDS-INT	I	Not used
19	SCOR(SYSCS)	I	SCOR signal input
20	AC-DET	I	AC-cut detection signal input “L”: ON, “H”: OFF
21	ST_MUTE	O	Not used (Open)
22	ST_CE	O	Tuner chip enable signal output
23	ST_DOUT	O	Tuner data output
24	PWM3	O	PWM3 signal output
25	ST_DIN	I	Tuner data input
26	PWM2	O	PWM2 signal output
27	ST_CLK	O	Tuner clock signal output
28	PWM1	O	PWM1 signal output
29	IIC-CLK	I/O	IIC communication clock signal
30	IIC-DATA	I/O	IIC communication data
31	TXD1	O	Not used (Open)
32	SQSO	I	SQSO signal input
33	SCLK	O	SENS serial data read-out clock output
34	FM_ON/STEREO	O	Not used (Open)
35	DATA	O	Serial data output
36	XLT	O	Serial data latch signal output
37	CLK	O	Serial data transfer clock output
38	PLAY_SW	I	TCPLAY switch signal input
39	TC_MUTE	O	TC line muting signal output “L”: ON, “H”: OFF
40	TUNER_ON	O	Tuner power control signal output “L”: ON, “H”: OFF
41	REC_MUTE	O	TC recording muting signal output “L”: ON, “H”: OFF
42	LED1	O	LED control signal output
43	R/PB	O	Record/playback control signal output
44 to 49	LED2 to LED7	O	LED control signal output
50	H/P_DETECT	I	Headphones detection signal input
51	BACK_LIGHT	O	Back-light control signal output
52	VOLUME_B	O	Volume signal input from the rotary encoder
53	VOLUME_A	O	Volume signal input from the rotary encoder
54	LD_ON	O	LD_ON signal output to the IC103
55	1-4	O	Speed selection control signal output

Pin No.	Pin Name	I/O	Description
51	PLAY-SW	I	Loading position detection input
52	D-RESET	O	Digital circuit boards reset output
53	REC-SW	I	Loading position detection input
54	WRPWR	O	Write power ON/OFF output
55	LIMIT-IN	I	Sled inner-most circumference input
56	MOD	O	High-frequency super-imposition ON/OFF output
57	LDON	O	Laser ON/OFF output
58	SENS	I	SENS terminal input
59	SHOCK(MNT1)	I	Monitor input
60	EEP-DATA	I/O	EEP data
61	REFLECT	I	Disc reflection index detection input
62	VCC	I	Power supply (3.3 V)
63	—	—	Not used (Connected ground)
64	VSS	—	Ground terminal
65	LOAD-LO	O	Loading motor voltage control output
66	LOAD-OUT	O	Loading-out control output
67	LOAD-IN	O	Loading-in control output
68	(MODEL0)	I	Model identification (Not used)
69	(MODEL1)	I	Model identification (Not used)
70	MODEL2	I	Model identification (Not used)
71	MODEL3	I	Model identification (Destination)
72	SPDIF-CUT	O	Optical output cut signal output
73	—	—	Not used
74	—	—	Not used
75	—	—	Not used
76	DAC-MUTE	O	DAC mute output
77	LINE-MUTE	O	LINE mute (Not used)
78	DA-RESET	O	DAC reset output
79	SLICER-SEL	O	IEC958 inputs selection
80	SPDIF-LOCK	I	DAC lock signal input
81	OPTSEL	O	Optical input selection signal output
82	ADPDWN	O	UDA1360 power supply control signal output
83	—	—	Not used
84	—	—	Not used
85	TP1	O	Not used
86	TP2	O	Not used
87	TP3	O	Not used
88	TP4	O	Not used
89	IOP	I	Iop (current) detection input
90	—	—	Not used
91	—	—	Not used
92	—	—	Not used
93	—	—	Not used
94	—	—	Not used
95	—	—	Not used
96	AVSS	—	Ground terminal
97	—	—	Not used
98	VREF	I	Reference voltage input
99	AVCC	I	Power supply (3.3 V)
100	—	—	Not used

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.

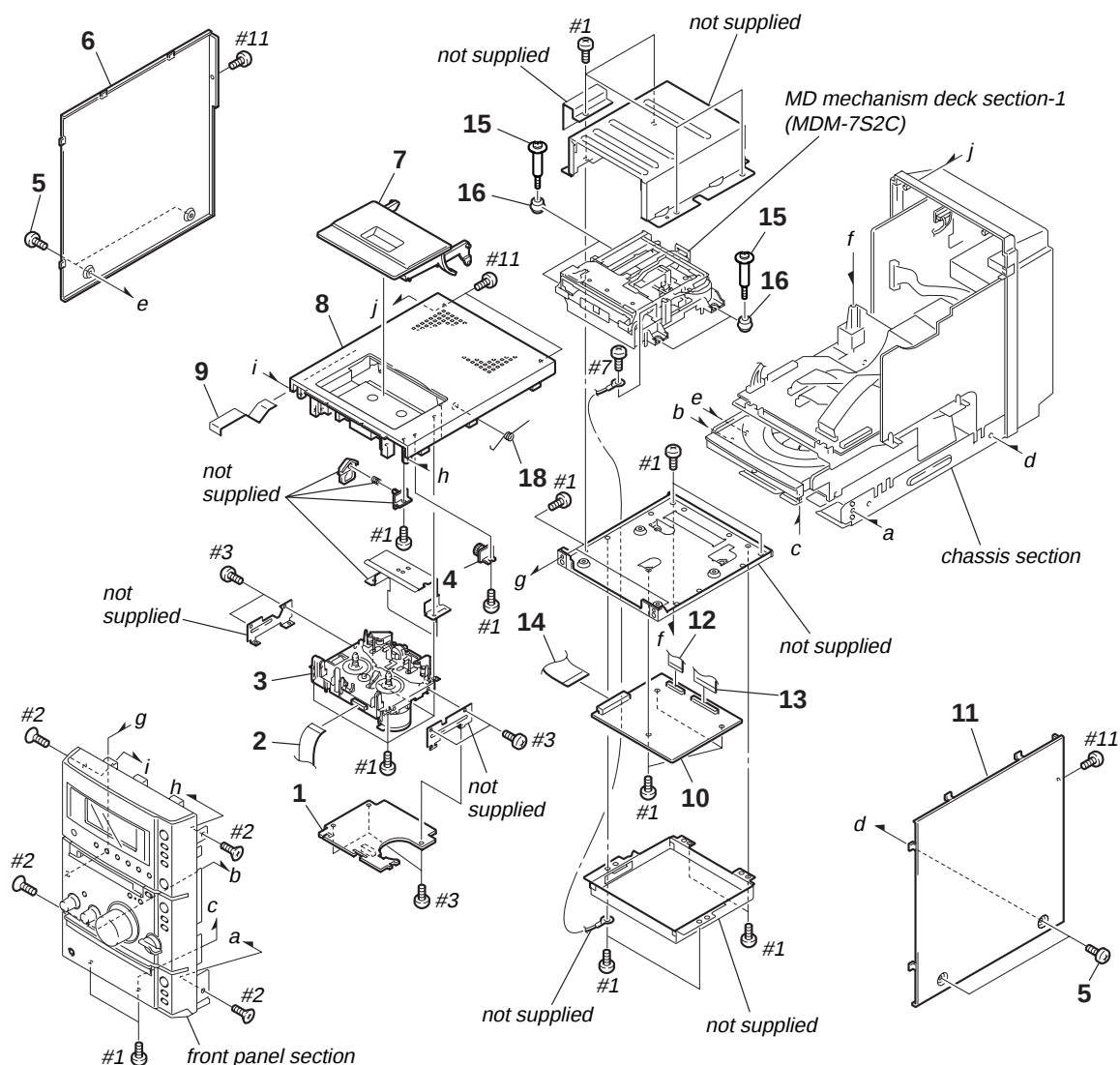
- The mechanical parts with no reference number in the exploded views are not supplied.
- Abbreviation

CH : Chinese model
HK : Hong Kong model

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

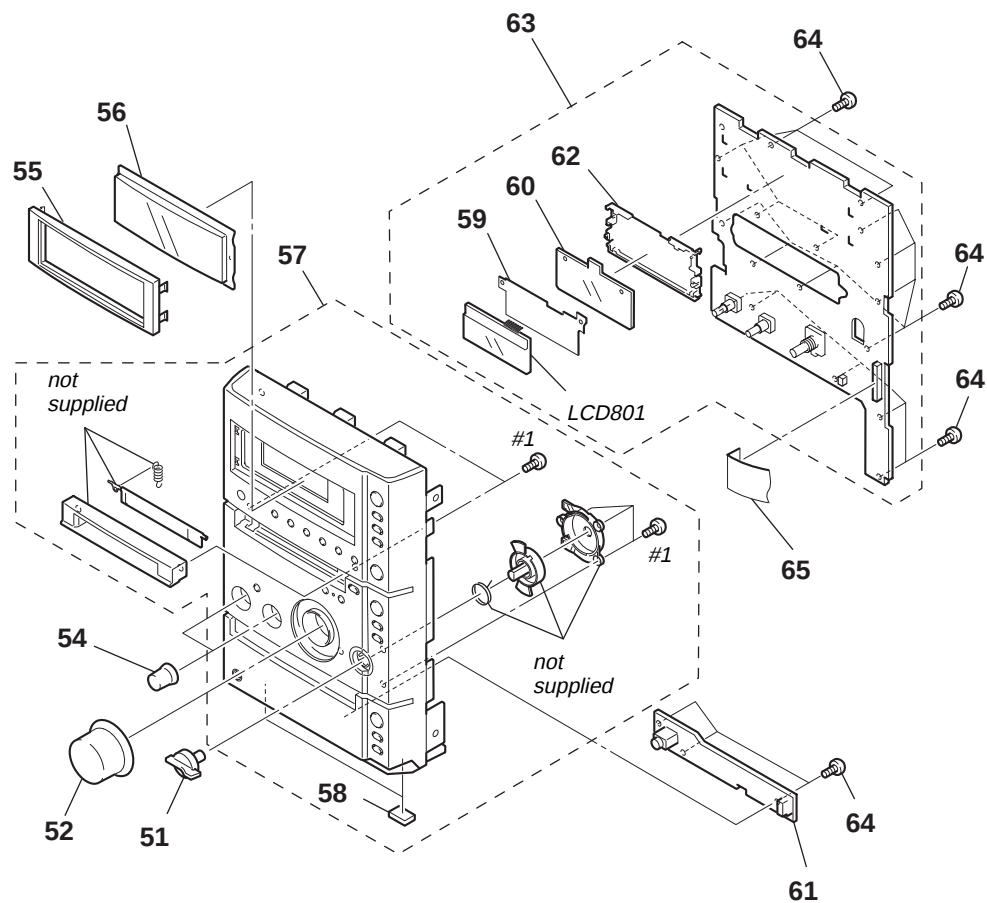
以阴影和 Δ 标志来识别的零部件在安全方面具有关键性。因此只能以规定号码的零部件来更换。

7-1. Overall Section



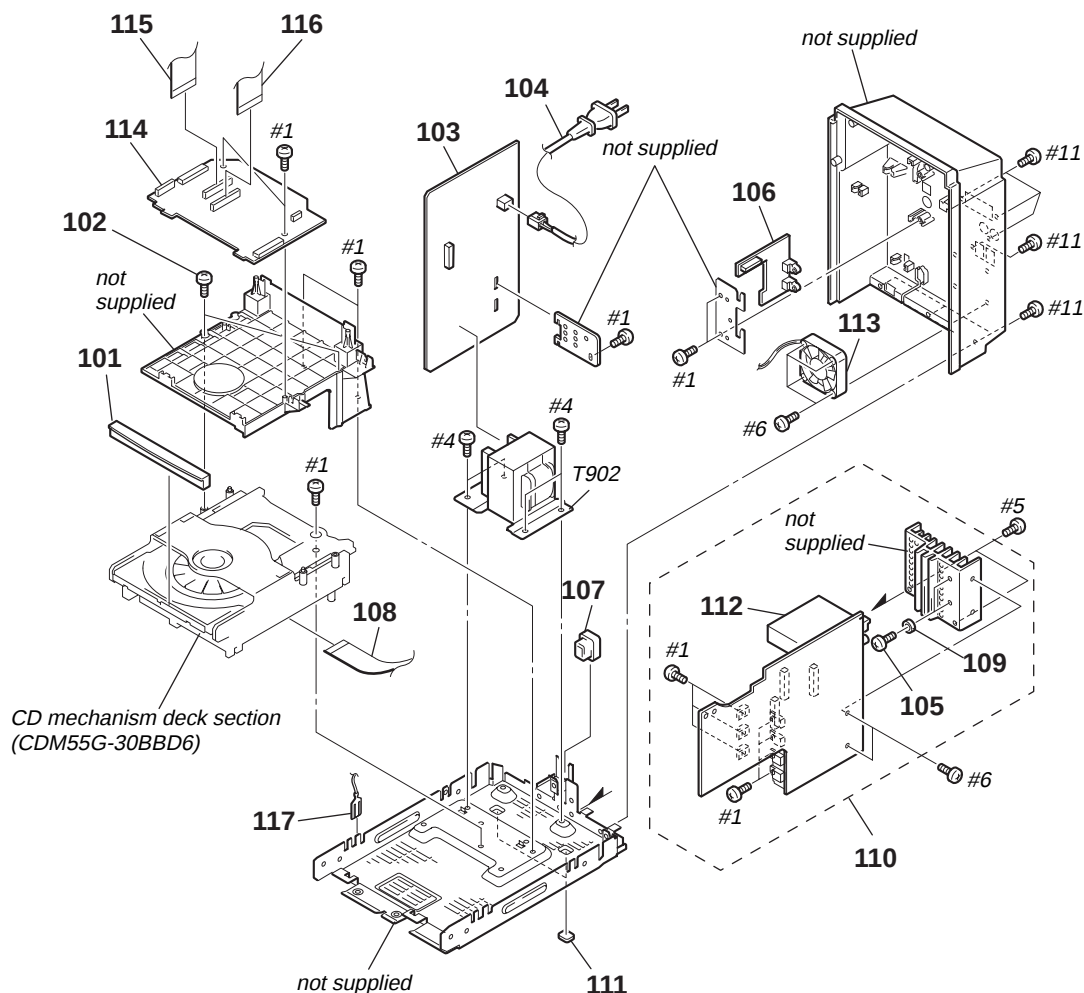
Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
1	A-4729-461-A	TC BOARD, COMPLETE		12	1-824-190-11	WIRE (FLAT TYPE)(FFC)(17 CORE)	
2	1-824-335-11	WIRE (FLAT TYPE) (FFC) (8 CORE)		13	1-824-191-11	WIRE (FLAT TYPE)(FFC)(27 CORE)	
3	1-796-353-21	DECK, MECHANICAL		14	1-824-487-11	WIRE (FLAT TYPE)(FFC)(27 CORE)	
4	3-926-926-01	GEAR, DAMPER		15	4-228-643-21	SCREW (+BVTTWH M3), STEP	
5	4-221-580-01	SCREW, CASE		16	4-228-689-01	INSULATOR	
6	4-240-778-01	PANEL (L), SIDE		18	4-240-786-01	SPRING, CASSETTE	
7	X-4954-832-1	HOLDER SUB ASSY, CASSETTE		#1	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S	
8	4-240-773-01	PANEL, TOP		#2	7-685-246-14	SCREW +KTP 3X8 TYPE2 NON-SLIT	
9	4-234-557-11	SPRING (TAPE)		#3	7-685-861-01	SCREW +BVTT 2.6X5 (S)	
10	A-4729-741-A	DIGITAL BOARD, COMPLETE (AEP, UK, HK)		#7	7-685-851-04	SCREW +BVTT 2X4 (S)	
10	A-4731-047-A	DIGITAL BOARD, COMPLETE (CH)		#11	7-685-546-14	SCREW +BTP 3X8 CR-N	
11	4-240-779-01	PANEL (R), SIDE					

7-2. Front Panel Section



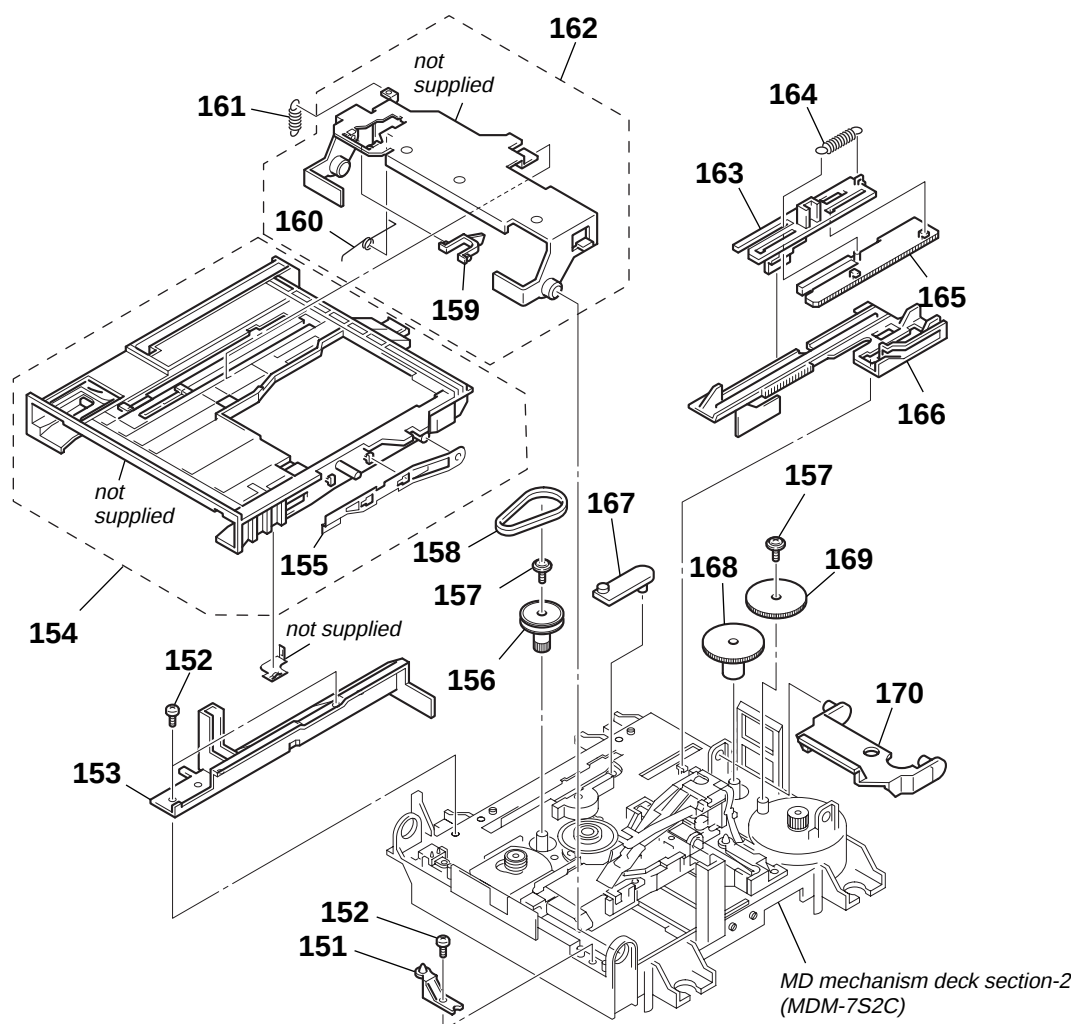
Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
51	4-240-765-01	KNOB, TUNING		60	4-217-319-21	PLATE, LCD LIGHT	
52	4-240-764-01	KNOB, VOLUME		61	1-684-988-11	JACK BOARD	
54	4-240-763-01	KNOB, BASS		62	4-240-767-01	HOLDER, LCD	
55	4-240-756-01	FRAME, LCD		63	A-4729-292-A	SWITCH BOARD, COMPLETE (AEP, UK, HK)	
56	4-240-757-01	WINDOW, LCD		63	A-4731-052-A	SWITCH BOARD, COMPLETE (CH)	
57	X-4954-967-1	PANEL SUB ASSY, FRONT (HK)		64	7-685-134-19	SCREW +P 2.6X8 TYPE2 NON-SLIT	
57	X-4954-970-1	PANEL SUB ASSY, FRONT (AEP, UK, CH)		65	1-824-188-11	WIRE (FLAT TYPE) (27 CORE)	
58	4-232-478-01	FOOT		#1	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S	
59	4-238-692-01	SHEET (LCD)		LCD801	1-804-785-11	DISPLAY PANEL, LIQUID CRYSTAL	

7-3. Back Panel Section



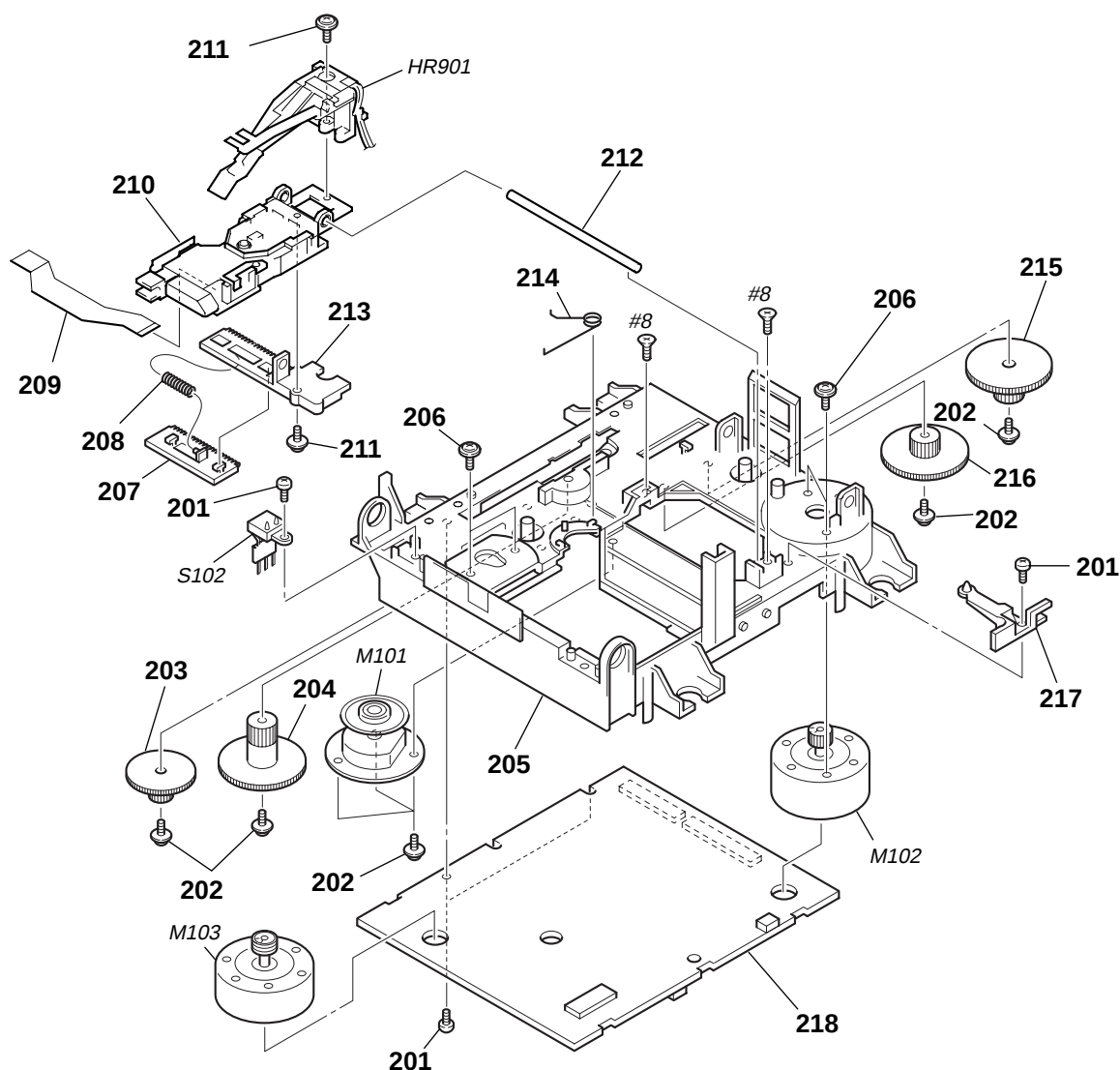
The components identified by mark Δ or dotted line with mark Δ are critical for safety. Replace only with part number specified.	以阴影和 Δ 标志来识别的零部件，在安全方面具有关键性。因此只能以规定号码的零部件来更换。
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7-4. MD Mechanism Deck Section-1 (MDM-7S2C)



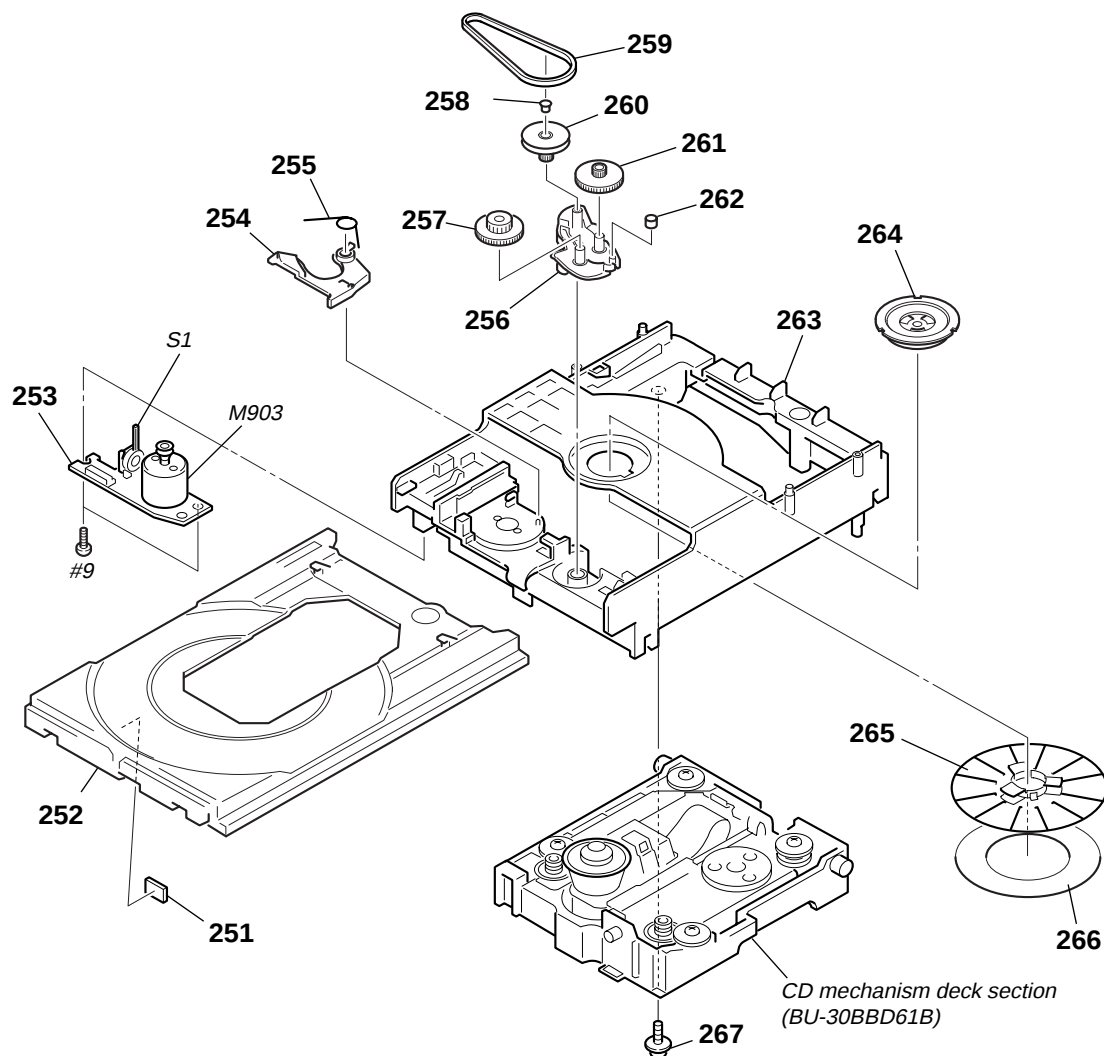
Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
* 151	4-996-267-01	BASE (BU-D)		161	4-227-012-01	SPRING (HOLDER), TENSION	
152	4-231-319-01	SCREW (2X6) CZN, +B (P) TRI		162	A-4680-638-B	PLATE (HOLDER) ASSY, RETAINER	
153	4-226-994-01	GUIDE (L)		163	4-226-996-01	LIMITTER (EJ)	
154	A-4735-075-B	HOLDER ASSY		164	4-227-013-01	SPRING (EJ), TENSION	
155	X-4952-665-1	SPRING (SHT) ASSY, LEAF		165	4-226-995-01	SLIDER (EJ)	
156	4-227-002-01	GEAR, PULLEY		166	4-226-997-04	SLIDER	
157	3-372-761-01	SCREW (M1.7), TAPPING		167	4-226-998-01	LEVER (CHG)	
158	4-227-025-01	BELT (LOADING)		168	4-227-007-01	GEAR (SB)	
159	4-228-923-01	LOCK (HOLDER)		169	4-227-006-01	GEAR (SA)	
160	4-229-533-01	SPRING (STOPPER), TORSION		170	4-226-999-01	LEVER (HEAD)	

7-5. MD Mechanism Deck Section-2 (MDM-7S2C)



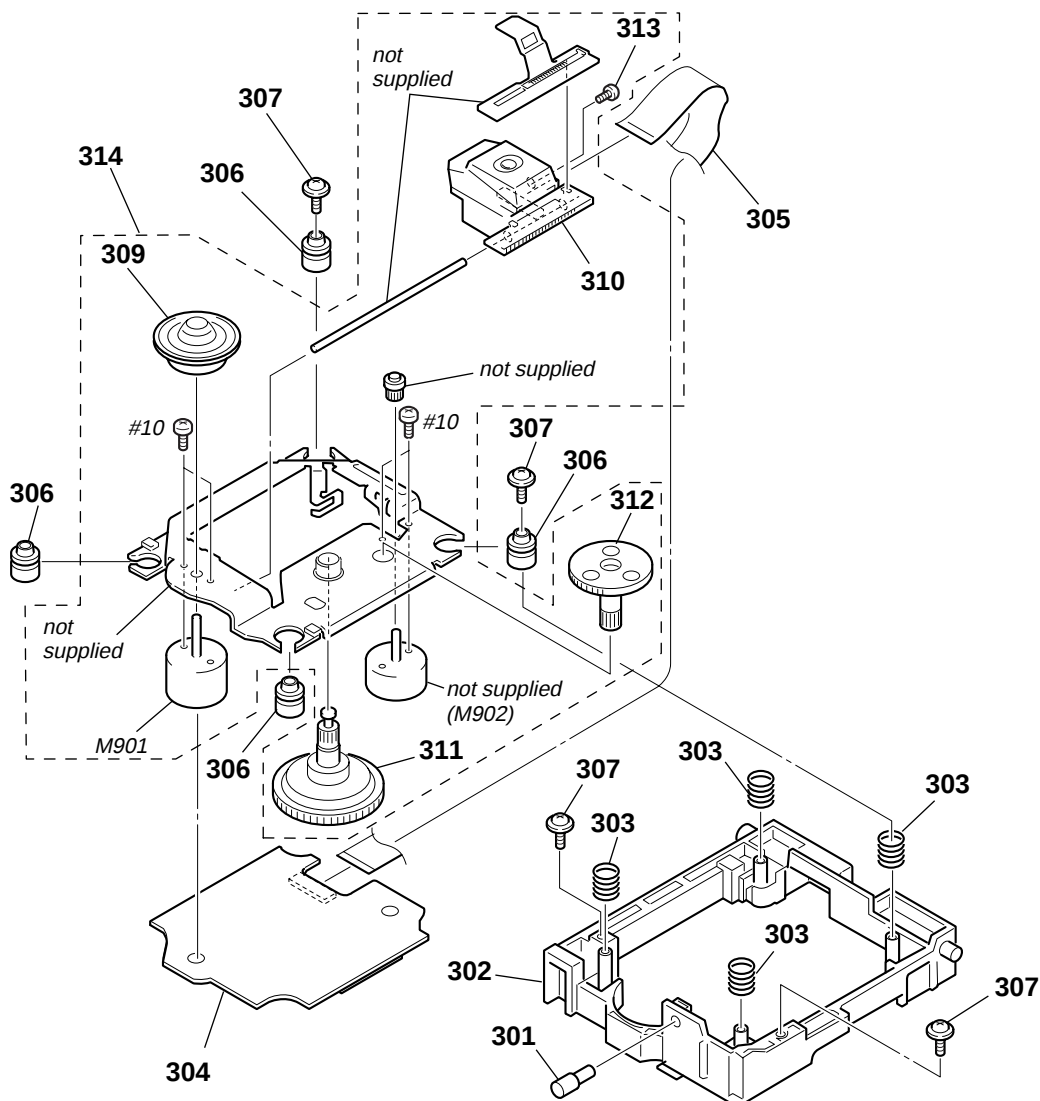
Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
201	4-231-319-01	SCREW (2X6) CZN, +B (P) TRI		215	4-227-008-01	GEAR (SC)	
202	3-372-761-01	SCREW (M1.7), TAPPING		216	4-227-009-01	GEAR (SD)	
203	4-227-004-01	GEAR (LC)		217	4-226-990-04	BASE (BU-A)	
204	4-227-005-01	GEAR (LD)		218	A-4727-928-A	BD(MD) BOARD, COMPLETE	
205	4-226-989-01	CHASSIS		HR901	1-500-670-22	HEAD, OVER WRIGHT	
206	4-211-036-01	SCREW (1.7X2.5), +PWH		M101	A-4735-757-A	MOTOR ASSY, SPINDLE	
207	4-226-993-01	RACK		M102	A-4672-900-A	MOTOR ASSY, SLED	
208	4-227-014-01	SPRING (RACK), COMPRESSION		M103	A-4672-975-A	MOTOR ASSY, LOADING	
209	1-678-514-11	PWB, FLEXIBLE		S102	1-771-957-11	SWITCH, PUSH (2 KEY) (REFRECT/PROTECT)	
△ 210	A-1089-264-A	OPTICAL PICK-UP (KMS-262E)		#8	7-685-204-19	SCREW +KTP 2X6 TYPE2 NON-SLIT	
211	4-988-560-01	SCREW (+P 1.7X6)		The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified. 以阴影和 △ 标志来识别的零部件，在安全方面具有关键性。因此只能以规定号码的零部件来更换。			
212	4-996-265-01	SHAFT, MAIN					
213	4-226-992-01	BASE, SL					
214	4-230-716-01	SPRING (SPDL), TORSION					

7-6. CD Mechanism Deck Section-1 (CDM55G-30BBD61B)



Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
251	4-925-315-31	DAMPER		261	4-220-237-01	GEAR (A)	
252	4-224-894-02	TRAY (CDM55D)		262	4-221-815-01	ROLLER	
253	1-676-599-11	LOADING BOARD		263	4-225-884-02	CHASSIS (55D)	
254	4-220-229-01	LEVER (SW)		264	A-4735-000-A	CAP ASSY, CENTERING	
255	4-220-239-01	SPRING, TORSION		265	X-4952-811-1	PULLEY (AT) ASSY	
256	4-220-233-01	CAM (CDM55)		266	4-231-777-02	SHEET(KH2)	
257	4-220-238-01	GEAR (B)		267	4-227-899-01	SCREW (DIA. 12), FROATING	
258	4-227-598-01	SPACER (55)		M903	A-2004-893-A	MOTOR (LD) ASSY (LOADING)	
259	4-221-816-01	BELT (CDM55)		S1	1-771-799-11	SWITCH, LEVER SLIDE (OPEN/CLOSE)	
260	4-220-234-01	PULLEY (LDG)		#9	7-685-153-19	SCREW +BTP 3X30 TYPE2 N-S	

7-7. CD Mechanism Deck Section-2 (BU-30BBD61B)



Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
301	4-229-358-01	SHAFT (BU21)		309	A-4735-001-A	PULLEY ASSY, DISC	
302	4-238-004-01	HOLDER (BU-30), BU		△ 310	A-4735-189-A	OP ASSY (A-MAX.3)	
303	4-229-004-01	SPRING, COMPRESSION		311	4-233-832-01	GEAR (LB)	
304	A-4727-463-A	BD(CD) BOARD, COMPLETE		312	4-233-831-01	GEAR (LA)	
305	1-782-817-11	WIRE (FLAT TYPE) (16 CORE)		313	3-318-203-62	SCREW (B1.7X4), TAPPING	
306	4-240-866-01	INSULATOR (BU-30B)		314	A-4735-885-A	BU-30B ASSY	
307	4-227-899-01	SCREW (DIA. 12), FROATING		M901	1-763-802-11	MOTOR, DC (SPINDLE)	
				#10	7-627-853-28	SCREW, PRECISION +P 2X3 TYPE3	

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

以阴影和 △ 标志来识别的零部件，在安全方面具有关键性。因此只能以规定号码的零部件来更换。

SECTION 8
ELECTRICAL PARTS LIST

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -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.
- CAPACITORS:
uF: μF
- RESISTORS
All resistors are in ohms.
METAL: metal-film resistor
METAL OXIDE: Metal Oxide-film resistor
F: nonflammable
- SEMICONDUCTORS
In each case, u: μ, for example:
uA...: μA..., uPA..., μPA...,
uPB..., μPB..., uPC..., μPC...,
uPD..., μPD...
- Abbreviation
CH : Chinese model
HK : Hong Kong model

- COILS
uH: μH

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

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

以阴影和 $\triangle$ 标志来识别的零部件在安全方面具有关键性。因此只能以规定号码的零部件来更换。

Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
	A-4727-463-A	BD(CD) BOARD, COMPLETE *****		C213	1-115-414-11	CERAMIC CHIP 820PF	5.00% 25V
		< CAPACITOR >		C214	1-162-966-11	CERAMIC CHIP 0.0022uF	10% 50V
C101	1-164-315-11	CERAMIC CHIP 470PF	5.00% 50V	C215	1-117-863-11	CERAMIC CHIP 0.47uF	10.00% 6.3V
C102	1-107-826-11	CERAMIC CHIP 0.1uF	10.00% 16V	C216	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V
C103	1-164-315-11	CERAMIC CHIP 470PF	5.00% 50V	C218	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C104	1-162-967-11	CERAMIC CHIP 0.0033uF	10% 50V	C219	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C107	1-162-921-11	CERAMIC CHIP 33PF	5% 50V	C221	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C108	1-164-360-11	CERAMIC CHIP 0.1uF	16V	C222	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C109	1-164-360-11	CERAMIC CHIP 0.1uF	16V	C223	1-125-838-11	CERAMIC CHIP 2.2uF	10% 6.3V
C110	1-107-826-11	CERAMIC CHIP 0.1uF	10.00% 16V	C224	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C111	1-126-607-11	ELECT CHIP 47uF	20% 4V	C225	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C112	1-126-607-11	ELECT CHIP 47uF	20% 4V	C227	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C113	1-126-209-11	ELECT CHIP 100uF	20.00% 4V	C229	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C114	1-162-964-11	CERAMIC CHIP 0.001uF	10% 50V	C230	1-113-682-11	TANTAL. CHIP 33uF	20.00% 10V
C115	1-126-205-11	ELECT CHIP 47uF	20% 6.3V	C231	1-128-995-21	ELECT CHIP 100uF	20% 10V
C117	1-164-360-11	CERAMIC CHIP 0.1uF	16V	C232	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C118	1-115-156-11	CERAMIC CHIP 1uF	10V	C234	1-164-227-11	CERAMIC CHIP 0.022uF	10% 25V
C119	1-115-156-11	CERAMIC CHIP 1uF	10V	C235	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V
C120	1-126-607-11	ELECT CHIP 47uF	20% 4V	C236	1-109-982-11	CERAMIC CHIP 1uF	10.00% 10V
C151	1-162-968-11	CERAMIC CHIP 0.0047uF	10% 50V	C252	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C152	1-115-416-11	CERAMIC CHIP 0.001uF	5.00% 25V	C253	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C153	1-164-360-11	CERAMIC CHIP 0.1uF	16V	C254	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C163	1-117-681-11	ELECT CHIP 100uF	20.00% 16V	C255	1-125-838-11	CERAMIC CHIP 2.2uF	10% 6.3V
C164	1-164-360-11	CERAMIC CHIP 0.1uF	16V			< CONNECTOR >	
C165	1-124-779-00	ELECT CHIP 10uF	20% 16V	CN101	1-784-834-21	CONNECTOR,FFC(LIF(NON-ZIF))23P	
C166	1-164-360-11	CERAMIC CHIP 0.1uF	16V	CN102	1-794-424-11	CONNECTOR, FCC/FPC 16P	
C167	1-162-927-11	CERAMIC CHIP 100PF	5% 50V			< FERRITE BEAD >	
C168	1-164-360-11	CERAMIC CHIP 0.1uF	16V	FB101	1-500-445-21	FERRITE 0UH	
C169	1-164-360-11	CERAMIC CHIP 0.1uF	16V			< IC >	
C171	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V	IC101	8-752-408-73	IC CXD3068Q	
C178	1-164-360-11	CERAMIC CHIP 0.1uF	16V	IC102	8-759-713-71	IC AN41050	
C179	1-164-360-11	CERAMIC CHIP 0.1uF	16V	IC103	8-752-089-74	IC CXA2581N-T4	
C182	1-128-995-21	ELECT CHIP 100uF	20% 10V	IC104	8-759-833-99	IC TC74HC4052AFT(EL)	
C201	1-126-246-11	ELECT CHIP 220uF	20% 4V	IC105	8-759-834-29	IC MC74VHC1G04DFT1	
C202	1-164-360-11	CERAMIC CHIP 0.1uF	16V	IC201	8-759-460-72	IC BA033FP-E2	
C203	1-162-915-11	CERAMIC CHIP 10PF	0.5PF 50V			< COIL >	
C204	1-162-915-11	CERAMIC CHIP 10PF	0.5PF 50V	L171	1-412-967-31	INDUCTOR 0.1uH	
C205	1-164-360-11	CERAMIC CHIP 0.1uF	16V	L230	1-469-981-21	FERRITE 0uH	
C207	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V				
C209	1-164-230-11	CERAMIC CHIP 220PF	5.00% 50V				
C210	1-115-414-11	CERAMIC CHIP 820PF	5.00% 25V				
C211	1-117-863-11	CERAMIC CHIP 0.47uF	10.00% 6.3V				
C212	1-164-315-11	CERAMIC CHIP 470PF	5.00% 50V				

HCD-CP505

BD (MD)

Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
C250	1-164-156-11	CERAMIC CHIP 0.1uF	25V	IC152	6-700-052-01	IC MSM51V17400F-50TS-K	
C251	1-164-156-11	CERAMIC CHIP 0.1uF	25V	IC181	8-759-481-17	IC MC74ACT08DTR2	
C252	1-164-156-11	CERAMIC CHIP 0.1uF	25V	☆ IC195	-----	IC BR24C16F-E2	
				IC201	8-752-414-89	IC CXD2664R	
C253	1-164-156-11	CERAMIC CHIP 0.1uF	25V				
C254	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V	IC401	8-759-836-79	IC BH6519FS-E2	
C255	1-164-156-11	CERAMIC CHIP 0.1uF	25V	IC701	8-759-473-51	IC TLV2361CDBV	
C299	1-164-156-11	CERAMIC CHIP 0.1uF	25V	IC803	6-701-793-01	IC CY24115-2SCT	
C301	1-164-156-11	CERAMIC CHIP 0.1uF	25V	IC926	8-759-835-63	IC NJM2391DL1-26(TE1)	
				IC933	8-759-460-72	IC BA033FP-E2	
C302	1-164-156-11	CERAMIC CHIP 0.1uF	25V			< COIL >	
C405	1-164-156-11	CERAMIC CHIP 0.1uF	25V	L8	1-414-760-21	FERRITE	0uH
C406	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V	L10	1-469-981-21	FERRITE	0uH
C407	1-164-156-11	CERAMIC CHIP 0.1uF	25V	L122	1-414-760-21	FERRITE	0uH
C409	1-164-156-11	CERAMIC CHIP 0.1uF	25V	L201	1-414-760-21	FERRITE	0uH
				L202	1-469-981-21	FERRITE	0uH
C410	1-126-206-11	ELECT CHIP 100uF	20% 6.3V				
C411	1-117-720-11	CERAMIC CHIP 4.7uF	10V	L203	1-414-760-21	FERRITE	0uH
C412	1-162-964-11	CERAMIC CHIP 0.001uF	10% 50V	L401	1-400-050-11	FERRITE	0uH
C490	1-164-156-11	CERAMIC CHIP 0.1uF	25V	L402	1-400-050-11	FERRITE	0uH
C501	1-128-795-91	ELECT CHIP 470PF	10% 630V	L501	1-400-050-11	FERRITE	0uH
				L502	1-400-050-11	FERRITE	0uH
C502	1-164-156-11	CERAMIC CHIP 0.1uF	25V				
C503	1-164-156-11	CERAMIC CHIP 0.1uF	25V	L550	1-414-760-21	FERRITE	0uH
C504	1-117-370-11	CERAMIC CHIP 10uF	10V	L601	1-469-981-21	FERRITE	0uH
C505	1-126-206-11	ELECT CHIP 100uF	20% 6.3V	L602	1-469-981-21	FERRITE	0uH
C550	1-135-349-21	ELECT 22uF	20% 20V	L603	1-414-760-21	FERRITE	0uH
				L701	1-414-760-21	FERRITE	0uH
C701	1-164-156-11	CERAMIC CHIP 0.1uF	25V				
C702	1-117-720-11	CERAMIC CHIP 4.7uF	10V	L801	1-414-760-21	FERRITE	0uH
C703	1-164-156-11	CERAMIC CHIP 0.1uF	25V	* L899	1-500-282-11	FERRITE	0uH
C704	1-165-176-11	CERAMIC CHIP 0.047uF	10.00% 16V			< TRANSISTOR >	
C801	1-162-918-11	CERAMIC CHIP 18PF	5.00% 50V				
C802	1-162-917-11	CERAMIC CHIP 15PF	5% 50V	Q181	8-729-048-87	TRANSISTOR	2SJ518AZTR
C803	1-164-156-11	CERAMIC CHIP 0.1uF	25V	Q182	8-729-048-88	TRANSISTOR	2SK2788VYTR
C809	1-117-720-11	CERAMIC CHIP 4.7uF	10V	Q201	8-729-403-36	TRANSISTOR	UN5113-TX
C901	1-126-206-11	ELECT CHIP 100uF	20% 6.3V	Q202	8-729-103-95	TRANSISTOR	2SB798-T1DK
C902	1-164-156-11	CERAMIC CHIP 0.1uF	25V	Q203	8-729-403-36	TRANSISTOR	UN5113-TX
C903	1-126-206-11	ELECT CHIP 100uF	20% 6.3V	Q701	8-729-402-94	TRANSISTOR	UN5214-TX
C904	1-164-156-11	CERAMIC CHIP 0.1uF	25V	Q702	8-729-903-11	TRANSISTOR	FMW1-T-148
C905	1-126-206-11	ELECT CHIP 100uF	20% 6.3V	Q703	8-729-402-94	TRANSISTOR	UN5214-TX
C907	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V	Q704	8-729-026-53	TRANSISTOR	2SA1576A-T106-QR
C908	1-117-370-11	CERAMIC CHIP 10uF	10V			< RESISTOR >	
C909	1-104-852-11	TANTAL. CHIP 22uF	20.00% 10V	R101	1-216-298-00	METAL CHIP	2.2 5% 1/10W
C911	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V	R102	1-219-724-11	METAL CHIP	1 1% 1/4W
C998	1-164-156-11	CERAMIC CHIP 0.1uF	25V	R103	1-216-829-11	METAL CHIP	4.7K 5% 1/16W
C999	1-164-156-11	CERAMIC CHIP 0.1uF	25V	R104	1-216-853-11	METAL CHIP	470K 5% 1/16W
C1102	1-164-156-11	CERAMIC CHIP 0.1uF	25V	R105	1-216-863-11	RES-CHIP	3.3M 5% 1/10W
		< CONNECTOR >		R106	1-216-845-11	METAL CHIP	100K 5% 1/16W
CN101	1-766-833-21	CONNECTOR, FFC/FPC (ZIF) 21P		R107	1-216-819-11	METAL CHIP	680 5% 1/16W
CN102	1-784-835-21	CONNECTOR, FFC(LIF(NON-ZIF))27P		R108	1-216-825-11	METAL CHIP	2.2K 5% 1/16W
CN103	1-784-869-21	CONNECTOR, FFC(LIF(NON-ZIF))17P		R109	1-216-829-11	METAL CHIP	4.7K 5% 1/16W
* CN104	1-580-055-21	PIN, CONNECTOR (SMD) 2P		R110	1-216-853-11	METAL CHIP	470K 5% 1/16W
CN105	1-784-859-21	CONNECTOR, FFC(LIF(NON-ZIF))7P					
				R111	1-216-833-11	METAL CHIP	10K 5% 1/16W
		< DIODE >		R112	1-216-845-11	METAL CHIP	100K 5% 1/16W
D101	8-719-988-61	DIODE 1SS355TE-17		R113	1-216-833-11	METAL CHIP	10K 5% 1/16W
D501	8-719-046-86	DIODE F1J6TP					
D502	8-719-046-86	DIODE F1J6TP					
		< IC >					
IC101	8-752-080-95	IC CXA2523AR					

☆ IC195 is written in and settled EEPROM. Supply with a single article has not been carried out. In case you exchange by BD (MD) board (A-4727-928-A), please put on IC195 currently used with the model again.

BD (MD)

CONTROL

Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
R114	1-216-829-11	METAL CHIP	4.7K 5% 1/16W			< SWITCH >	
R115	1-216-833-11	METAL CHIP	10K 5% 1/16W				
R116	1-216-827-11	METAL CHIP	3.3K 5% 1/16W	S101	1-762-596-21	SWITCH, PUSH (1 KEY) (LIMIT IN)	
R117	1-216-845-11	METAL CHIP	100K 5% 1/16W	S103	1-771-956-21	SWITCH, PUSH (1 KEY) (OUT)	
R118	1-216-825-11	METAL CHIP	2.2K 5% 1/16W	S104	1-771-955-21	SWITCH, PUSH (1 KEY) (PLAY)	
R119	1-216-837-11	METAL CHIP	22K 5% 1/16W	S105	1-771-955-21	SWITCH, PUSH (1 KEY) (REC)	
R120	1-216-839-11	METAL CHIP	33K 5% 1/16W			< VIBRATOR >	
R121	1-216-825-11	METAL CHIP	2.2K 5% 1/16W	X804	1-795-535-21	VIBRATOR, CRYSTAL (11.2896MHz)	
R122	1-216-833-11	METAL CHIP	10K 5% 1/16W			*****	
R201	1-216-815-11	METAL CHIP	330 5% 1/16W	A-4729-745-A		CONTROL BOARD, COMPLETE (AEP, UK)	
R202	1-216-819-11	METAL CHIP	680 5% 1/16W	A-4729-746-A		CONTROL BOARD, COMPLETE (HK)	
R203	1-216-809-11	METAL CHIP	100 5% 1/16W	A-4731-054-A		CONTROL BOARD, COMPLETE (CH)	
R205	1-216-833-11	METAL CHIP	10K 5% 1/16W			*****	
R206	1-216-833-11	METAL CHIP	10K 5% 1/16W				
R207	1-216-811-11	METAL CHIP	150 5% 1/16W	1-824-186-11		WIRE (FLAT TYPE)(FFC)(25 CORE)	
R208	1-216-821-11	METAL CHIP	1K 5% 1/16W	1-824-187-11		WIRE (FLAT TYPE)(FFC)(25 CORE)	
R209	1-216-815-11	METAL CHIP	330 5% 1/16W	1-824-189-11		WIRE (FLAT TYPE)(FFC)(23 CORE)	
R210	1-216-839-11	METAL CHIP	33K 5% 1/16W			< CAPACITOR >	
R211	1-216-857-11	METAL CHIP	1M 5% 1/16W	C313	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
R212	1-216-851-11	METAL CHIP	330K 5% 1/16W	C314	1-107-826-11	CERAMIC CHIP 0.1uF 10.00% 16V	
R214	1-216-845-11	METAL CHIP	100K 5% 1/16W	C315	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
R216	1-216-864-11	METAL CHIP	0 5% 1/16W	C316	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
R217	1-216-833-11	METAL CHIP	10K 5% 1/16W	C317	1-162-927-11	CERAMIC CHIP 100PF 5% 50V	
R218	1-216-864-11	METAL CHIP	0 5% 1/16W	C401	1-164-160-11	CERAMIC CHIP 20PF 5.00% 50V	
R219	1-216-809-11	METAL CHIP	100 5% 1/16W	C402	1-162-919-11	CERAMIC CHIP 22PF 5% 50V	
R223	1-216-833-11	METAL CHIP	10K 5% 1/16W	C403	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
R280	1-216-821-11	METAL CHIP	1K 5% 1/16W	C404	1-107-826-11	CERAMIC CHIP 0.1uF 10.00% 16V	
R298	1-216-809-11	METAL CHIP	100 5% 1/16W	C405	1-162-927-11	CERAMIC CHIP 100PF 5% 50V	
R299	1-216-864-11	METAL CHIP	0 5% 1/16W	C406	1-162-927-11	CERAMIC CHIP 100PF 5% 50V	
R301	1-216-833-11	METAL CHIP	10K 5% 1/16W	C430	1-107-826-11	CERAMIC CHIP 0.1uF 10.00% 16V	
R302	1-216-833-11	METAL CHIP	10K 5% 1/16W	C601	1-124-584-00	ELECT 100uF 20% 10V	
R303	1-216-833-11	METAL CHIP	10K 5% 1/16W	C602	1-125-837-91	CERAMIC CHIP 1uF 10% 6.3V	
R501	1-216-295-91	SHORT CHIP	0	C603	1-124-584-00	ELECT 100uF 20% 10V	
R551	1-216-841-11	METAL CHIP	47K 5% 1/16W	C604	1-124-584-00	ELECT 100uF 20% 10V	
R552	1-216-841-11	METAL CHIP	47K 5% 1/16W	C605	1-124-584-00	ELECT 100uF 20% 10V	
R553	1-216-841-11	METAL CHIP	47K 5% 1/16W	C606	1-126-176-11	ELECT 220uF 20% 10V	
R701	1-216-821-11	METAL CHIP	1K 5% 1/16W	C607	1-126-934-11	ELECT 220uF 20% 10V	
R702	1-216-821-11	METAL CHIP	1K 5% 1/16W	C608	1-124-584-00	ELECT 100uF 20% 10V	
R703	1-216-821-11	METAL CHIP	1K 5% 1/16W	C609	1-124-584-00	ELECT 100uF 20% 10V	
R704	1-216-889-11	METAL CHIP	33K 5% 1/16W	C610	1-124-584-00	ELECT 100uF 20% 10V	
R705	1-216-829-11	METAL CHIP	4.7K 5% 1/16W	C611	1-124-584-00	ELECT 100uF 20% 10V	
R706	1-218-855-11	METAL CHIP	2.2K 0.5% 1/10W	C612	1-126-935-11	ELECT 470uF 20% 6.3V	
R707	1-218-863-11	METAL CHIP	4.7K 0.5% 1/10W	C615	1-126-935-11	ELECT 470uF 20% 6.3V	
R708	1-218-863-11	METAL CHIP	4.7K 0.5% 1/10W	C616	1-162-962-11	CERAMIC CHIP 470PF 10% 50V	
R709	1-218-855-11	METAL CHIP	2.2K 0.5% 1/10W	C617	1-216-864-11	METAL CHIP 0 5% 1/16W	
R710	1-218-887-11	METAL CHIP	47K 0.5% 1/10W	C624	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
R711	1-216-833-11	METAL CHIP	10K 5% 1/16W	C626	1-162-962-11	CERAMIC CHIP 470PF 10% 50V	
R712	1-216-809-11	METAL CHIP	100 5% 1/16W	C627	1-216-864-11	METAL CHIP 0 5% 1/16W	
R713	1-216-833-11	METAL CHIP	10K 5% 1/16W	C628	1-119-774-11	ELECT 100uF 20.00% 16V	
R801	1-216-857-11	METAL CHIP	1M 5% 1/16W	C630	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
R803	1-216-864-11	METAL CHIP	0 5% 1/16W	C631	1-162-968-11	CERAMIC CHIP 0.0047uF 10% 50V	
R805	1-216-807-11	METAL CHIP	68 5% 1/16W	C632	1-125-891-11	CERAMIC CHIP 0.47uF 10.00% 10V	
R810	1-216-823-11	METAL CHIP	1.5K 5% 1/16W	C633	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
R812	1-216-864-11	METAL CHIP	0 5% 1/16W	C634	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
R814	1-216-864-11	METAL CHIP	0 5% 1/16W	C640	1-124-584-00	ELECT 100uF 20% 10V	
				C641	1-124-584-00	ELECT 100uF 20% 10V	
				C644	1-162-966-11	CERAMIC CHIP 0.0022uF 10% 50V	

HCD-CP505

CONTROL	DIGITAL
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Ref. No.	Part No.	Description	Remarks
X402	1-781-107-21	VIBRATOR, SERAMIC (16MHz)	

	A-4729-741-A	DIGITAL BOARD, COMPLETE (AEP, UK, HK)	
	A-4731-047-A	DIGITAL BOARD, COMPLETE (CH)	

< CAPACITOR >			
C200	1-126-206-11	ELECT CHIP 100uF	20% 6.3V
C201	1-164-156-11	CERAMIC CHIP 0.1uF	25V
C202	1-126-204-11	ELECT CHIP 47uF	20% 16V
C203	1-164-156-11	CERAMIC CHIP 0.1uF	25V
C204	1-126-206-11	ELECT CHIP 100uF	20% 6.3V
C205	1-164-156-11	CERAMIC CHIP 0.1uF	25V
C207	1-164-156-11	CERAMIC CHIP 0.1uF	25V
C208	1-164-156-11	CERAMIC CHIP 0.1uF	25V
C211	1-164-156-11	CERAMIC CHIP 0.1uF	25V
C212	1-126-206-11	ELECT CHIP 100uF	20% 6.3V
C213	1-164-156-11	CERAMIC CHIP 0.1uF	25V
C214	1-126-206-11	ELECT CHIP 100uF	20% 6.3V
C215	1-126-206-11	ELECT CHIP 100uF	20% 6.3V
C216	1-164-156-11	CERAMIC CHIP 0.1uF	25V
C217	1-164-156-11	CERAMIC CHIP 0.1uF	25V
C218	1-162-964-11	CERAMIC CHIP 0.001uF	10% 50V
C219	1-162-964-11	CERAMIC CHIP 0.001uF	10% 50V
C221	1-164-156-11	CERAMIC CHIP 0.1uF	25V
C222	1-126-206-11	ELECT CHIP 100uF	20% 6.3V
C223	1-164-156-11	CERAMIC CHIP 0.1uF	25V
C701	1-126-206-11	ELECT CHIP 100uF	20% 6.3V
C702	1-162-927-11	CERAMIC CHIP 100PF	5% 50V
C703	1-117-681-11	ELECT CHIP 100uF	20.00% 16V
C704	1-162-964-11	CERAMIC CHIP 0.001uF	10% 50V
C705	1-162-964-11	CERAMIC CHIP 0.001uF	10% 50V
C707	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V
C719	1-164-156-11	CERAMIC CHIP 0.1uF	25V
C723	1-164-156-11	CERAMIC CHIP 0.1uF	25V
C726	1-164-156-11	CERAMIC CHIP 0.1uF	25V
C730	1-162-964-11	CERAMIC CHIP 0.001uF	10% 50V
C738	1-162-927-11	CERAMIC CHIP 100PF	5% 50V
C740	1-162-927-11	CERAMIC CHIP 100PF	5% 50V
C742	1-162-927-11	CERAMIC CHIP 100PF	5% 50V
C743	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V
C748	1-162-927-11	CERAMIC CHIP 100PF	5% 50V
C749	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V
C750	1-162-927-11	CERAMIC CHIP 0.01uF	10% 25V
C751	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V
C752	1-162-927-11	CERAMIC CHIP 100PF	5% 50V
C756	1-162-927-11	CERAMIC CHIP 100PF	5% 50V
C791	1-164-156-11	CERAMIC CHIP 0.1uF	25V
C843	1-164-156-11	CERAMIC CHIP 0.1uF	25V
C844	1-164-156-11	CERAMIC CHIP 0.1uF	25V
C845	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V
C846	1-164-156-11	CERAMIC CHIP 0.1uF	25V
C847	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V
C861	1-164-156-11	CERAMIC CHIP 0.1uF	25V
C862	1-128-934-91	CERAMIC CHIP 0.33uF	20% 10V
C863	1-164-156-11	CERAMIC CHIP 0.1uF	25V
C864	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V

Ref. No.	Part No.	Description	Remarks
C871	1-117-681-11	ELECT CHIP 100uF	20.00% 16V
C872	1-164-156-11	CERAMIC CHIP 0.1uF	25V
C873	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V
C1030	1-164-156-11	CERAMIC CHIP 0.1uF	25V
< CONNECTOR >			
CN701	1-784-749-11	CONNECTOR, FFC (RIGHT ANGLE NON-ZIF) 27P	
CN702	1-784-384-31	CONNECTOR, FFC/FPC 27P	
CN703	1-784-376-31	CONNECTOR, FFC/FPC 17P	
< DIODE >			
D211	8-719-104-34	DIODE 1S2835-T1	
< FERRITE BEAD >			
FB217	1-469-116-21	FERRITE 0UH	
FB701	1-469-116-21	FERRITE 0UH	
FB702	1-469-116-21	FERRITE 0UH	
FB703	1-469-116-21	FERRITE 0UH	
FB704	1-216-864-11	METAL CHIP 0	5% 1/16W
FB705	1-469-144-21	FERRITE BEED INDUCTOR	
FB706	1-469-144-21	FERRITE BEED INDUCTOR	
FB707	1-216-864-11	METAL CHIP 0	5% 1/16W
FB708	1-469-144-21	FERRITE BEED INDUCTOR	
FB709	1-469-144-21	FERRITE BEED INDUCTOR	
FB710	1-469-144-21	FERRITE BEED INDUCTOR	
< IC >			
IC201	8-759-675-78	IC UDA1360TS/N1.118	
IC211	8-759-675-77	IC UDA1350AH	
IC701	6-801-382-01	IC M30624MGN-A03FP	
IC861	8-759-481-02	IC M62016L	
IC871	8-759-598-69	IC BA6956AN	
IC1008	8-759-548-57	IC SN74LV00ANSR	
< COIL >			
L701	1-412-533-21	INDUCTOR 47uH	
< TRANSISTOR >			
Q201	8-729-421-22	TRANSISTOR UN2211-TX	
Q202	8-729-026-49	TRANSISTOR 2SA1037AK-T146-QR	
Q211	8-729-424-08	TRANSISTOR UN2111-TX	
Q861	8-729-120-28	TRANSISTOR 2SC1623-T1-L5L6	
Q871	8-729-421-22	TRANSISTOR UN2211-TX	
Q872	8-729-602-36	TRANSISTOR 2SA1602TP-1EF	
< RESISTOR >			
R201	1-218-272-11	RES-CHIP 5.1K	5% 1/10W
R202	1-218-272-11	RES-CHIP 5.1K	5% 1/10W
R203	1-216-821-11	METAL CHIP 1K	5% 1/16W
R204	1-216-821-11	METAL CHIP 1K	5% 1/16W
R211	1-216-813-11	METAL CHIP 220	5% 1/16W
R213	1-216-833-11	METAL CHIP 10K	5% 1/16W
R214	1-216-809-11	METAL CHIP 100	5% 1/16W
R215	1-216-833-11	METAL CHIP 10K	5% 1/16W
R216	1-216-833-11	METAL CHIP 10K	5% 1/16W
R217	1-216-809-11	METAL CHIP 100	5% 1/16W

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MAIN

OPTICAL

POWER

Ref. No.	Part No.	Description	Remarks		
R320	1-216-851-11	METAL CHIP	330K	5%	1/16W
R323	1-216-833-11	METAL CHIP	10K	5%	1/16W
R330	1-216-821-11	METAL CHIP	1K	5%	1/16W
R331	1-216-833-11	METAL CHIP	10K	5%	1/16W
R340	1-249-409-11	CARBON	220	5%	1/4W F
R341	1-216-817-11	METAL CHIP	470	5%	1/16W
R350	1-249-425-11	CARBON	4.7K	5%	1/4W F
R364	1-216-805-11	METAL CHIP	47	5%	1/16W
R371	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R372	1-216-853-11	METAL CHIP	470K	5%	(AEP, UK) 1/16W (AEP, UK)
R373	1-216-821-11	METAL CHIP	1K	5%	1/16W (AEP, UK)
R374	1-216-845-11	METAL CHIP	100K	5%	1/16W (AEP, UK)
R375	1-216-841-11	METAL CHIP	47K	5%	1/16W (AEP, UK)
R376	1-216-843-11	METAL CHIP	68K	5%	1/16W (AEP, UK)
R377	1-216-814-11	METAL CHIP	270	5%	1/16W (AEP, UK)
R383	1-216-864-11	METAL CHIP	0	5%	1/16W
< TERMINAL BOARD/JACK >					
SJ301	1-816-048-11	TERMINAL BOARD (SPEAKER)			
SJ302	1-815-045-11	JACK, PIN 2P (ANALOG IN)			
< TERMINAL BOARD >					
TH1	1-537-770-21	TERMINAL BOARD, GROUND			
TH2	1-537-770-21	TERMINAL BOARD, GROUND			
< VIBRATOR >					
X301	1-579-900-21	VIBRATOR, CRYSTAL (4.332MHz) (AEP, UK)			

	A-4729-296-A	OPTICAL BOARD, COMPLETE (AEP, UK, HK)			
	A-4731-055-A	OPTICAL BOARD, COMPLETE (CH)			

< CAPACITOR >					
C613	1-104-665-11	ELECT	100uF	20.00%	10V
C614	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C618	1-126-935-11	ELECT	470uF	20.00%	10V
C619	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V
< FERRITE BEAD >					
FB651	1-469-144-21	FERRITE	0UH		
FB678	1-216-864-11	METAL CHIP	0	5%	1/16W
FB679	1-216-864-11	METAL CHIP	0	5%	1/16W
< IC >					
IC601	6-600-014-01	IC TORX141L			
< JACK >					
J603	1-774-136-41	CONNECTOR, DIN 6P (PC LINK)			

Ref. No.	Part No.	Description	Remarks		
< COIL >					
L601	1-414-196-41	INDUCTOR	47uH		
< TRANSISTOR >					
Q601	8-729-048-96	TRANSISTOR	2SK1825		
Q602	8-729-048-96	TRANSISTOR	2SK1825		
Q603	8-729-048-96	TRANSISTOR	2SK1825		
Q604	8-729-048-96	TRANSISTOR	2SK1825		
< RESISTOR >					
R610	1-216-833-11	METAL CHIP	10K	5%	1/16W
R611	1-216-845-11	METAL CHIP	100K	5%	1/16W
R612	1-216-864-11	METAL CHIP	0	5%	1/16W
R613	1-216-864-11	METAL CHIP	0	5%	1/16W
R616	1-216-837-11	METAL CHIP	22K	5%	1/16W
R617	1-216-837-11	METAL CHIP	22K	5%	1/16W
R618	1-216-797-11	METAL CHIP	10	5%	1/16W
R619	1-216-797-11	METAL CHIP	10	5%	1/16W
R620	1-216-809-11	METAL CHIP	100	5%	1/16W
R640	1-216-864-11	METAL CHIP	0	5%	1/16W

A-4729-753-A		POWER BOARD, COMPLETE (AEP, UK)			
A-4729-754-A		POWER BOARD, COMPLETE (HK)			
A-4731-050-A		POWER BOARD, COMPLETE (CH)			

1-533-313-11		HOLDER, FUSE			
< CAPACITOR >					
△C901	1-113-925-11	CERAMIC	0.01uF	20.00%	250V
C902	1-101-005-00	CERAMIC	22000PF		50V
C903	1-101-005-00	CERAMIC	22000PF		50V
C904	1-101-005-00	CERAMIC	22000PF		50V
C905	1-101-005-00	CERAMIC	22000PF		50V
C918	1-126-964-11	ELECT	10uF	20.00%	50V
C920	1-128-551-11	ELECT	22uF	20.00%	25V
C921	1-126-937-11	ELECT	4700uF	20.00%	16V
C925	1-126-944-11	ELECT	3300uF	20.00%	25V
C926	1-165-319-11	CERAMIC CHIP	0.1uF		50V
C927	1-165-319-11	CERAMIC CHIP	0.1uF		50V
C928	1-126-964-11	ELECT	10uF	20.00%	50V
C942	1-126-964-11	ELECT	10uF	20.00%	50V
C943	1-126-964-11	ELECT	10uF	20.00%	50V
< CONNECTOR >					
CN901	1-564-321-00	PIN, CONNECTOR(3.96MM PITCH)2P			
CN902	1-564-515-11	PIN, CONNECTOR (PC BOARD) 12P			
CN904	1-766-276-11	PIN, CONNECTOR (PC BOARD) 3P			
< DIODE >					
D902	8-719-046-47	DIODE	1N5401TM		
D903	8-719-046-47	DIODE	1N5401TM		
D904	8-719-046-47	DIODE	1N5401TM		
D905	8-719-046-47	DIODE	1N5401TM		
D906	8-719-046-07	DIODE	2A02M		

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

以阴影和 △标志来识别的零部件，在安全方面具有关键性。因此只能以规定号码的零部件来更换。

POWER

SWITCH

Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
D907	8-719-046-07	DIODE 2A02M		R918	1-216-833-11	METAL CHIP 10K 5%	1/16W
D908	8-719-046-07	DIODE 2A02M		R919	1-216-817-11	METAL CHIP 470 5%	1/16W
D909	8-719-046-07	DIODE 2A02M		R920	1-216-829-11	METAL CHIP 4.7K 5%	1/16W
D910	8-719-200-82	DIODE 11ES2-TA2B				< RELAY >	
D911	8-719-200-82	DIODE 11ES2-TA2B		△RY901	1-755-332-11	RELAY	
D912	8-719-200-82	DIODE 11ES2-TA2B				< SWITCH >	
D913	8-719-200-82	DIODE 11ES2-TA2B		△S901	1-786-152-11	SWITCH, SLIDE (VOLTAGE SELECTOR) (HK)	
D914	8-719-046-07	DIODE 2A02M				< TRANSFORMER >	
D915	8-719-046-07	DIODE 2A02M		△T901	1-437-730-11	TRANSFORMER, POWER (SUB) (AEP, UK, CH)	
D916	8-719-046-07	DIODE 2A02M		△T901	1-437-844-11	TRANSFORMER, POWER (SUB) (HK)	
D917	8-719-046-07	DIODE 2A02M		△T902	1-437-806-11	TRANSFORMER, POWER (MAIN) (AEP, UK, CH)	
D918	8-719-109-93	DIODE MTZJ-T-77-6.2B		△T902	1-437-807-11	TRANSFORMER, POWER (MAIN) (HK)	
D919	8-719-991-33	DIODE 1SS133T-77		*****			
D920	8-719-991-33	DIODE 1SS133T-77		A-4729-292-A	SWITCH BOARD, COMPLETE (AEP, UK, HK)		
D921	8-719-991-33	DIODE 1SS133T-77		A-4731-052-A	SWITCH BOARD, COMPLETE (CH)		
D923	8-719-110-31	DIODE MTZJ-T-77-12B				*****	
D924	8-719-991-33	DIODE 1SS133T-77					
D925	8-719-991-33	DIODE 1SS133T-77					
D926	8-719-991-33	DIODE 1SS133T-77					
D927	8-719-109-85	DIODE MTZJ-T-77-5.1B					
D928	8-719-110-17	DIODE MTZJ-T-77-10B					
		< FUSE >		1-824-188-11	WIRE (FLAT TYPE)(FFC)(27 CORE)		
△F901	1-533-467-11	FUSE, GLASS TUBE (DIA.5)(T1.6AL/250V)(HK)		4-217-319-21	PLATE, LCD LIGHT		
△F902	1-533-472-11	FUSE, GLASS TUBE (DIA.5)(T5AL/250V)		4-238-692-01	SHEET (LCD)		
△F903	1-533-472-11	FUSE, GLASS TUBE (DIA.5)(T5AL/250V)		4-240-767-01	HOLDER, LCD		
△F904	1-533-470-11	FUSE, GLASS TUBE (DIA.5)(T3.15AL/250V)				< CAPACITOR >	
△F905	1-533-470-11	FUSE, GLASS TUBE (DIA.5)(T3.15AL/250V)		C801	1-126-157-11	ELECT 10uF 20%	16V
		< IC >		C802	1-107-826-11	CERAMIC CHIP 0.1uF 10.00%	16V
IC904	6-701-760-01	IC uPC3504AHF		C841	1-124-589-11	ELECT 47uF 20%	16V
		< LINE FILTER >		C842	1-165-319-11	CERAMIC CHIP 0.1uF 50V	
△LF901	1-424-150-11	TRANSFORMER, LINE FILTER		C843	1-162-970-11	CERAMIC CHIP 0.01uF 10%	25V
		< TRANSISTOR >		C844	1-162-970-11	CERAMIC CHIP 0.01uF 10%	25V
Q902	8-729-901-81	TRANSISTOR 2SC2412K-T-146-R		C845	1-163-009-91	CERAMIC CHIP 0.001uF 10.00%	50V
Q905	8-729-056-23	TRANSISTOR STC352-OY		C846	1-163-009-91	CERAMIC CHIP 0.001uF 10.00%	50V
Q906	8-729-055-91	TRANSISTOR SRA2202SF		C847	1-163-009-91	CERAMIC CHIP 0.001uF 10.00%	50V
Q907	8-729-055-94	TRANSISTOR SRC1202SF		C848	1-163-009-91	CERAMIC CHIP 0.001uF 10.00%	50V
Q908	8-729-055-94	TRANSISTOR SRC1202SF		C849	1-163-009-91	CERAMIC CHIP 0.001uF 10.00%	50V
Q909	8-729-202-56	TRANSISTOR 2SA950-Y-TPE2		C874	1-163-009-91	CERAMIC CHIP 0.001uF 10.00%	50V
Q911	8-729-055-94	TRANSISTOR SRC1202SF		C875	1-163-009-91	CERAMIC CHIP 0.001uF 10.00%	50V
Q912	8-729-056-23	TRANSISTOR STC352-OY		C877	1-126-160-11	ELECT 1uF 20%	50V
		< RESISTOR >		C878	1-126-160-11	ELECT 1uF 20%	50V
R901	1-249-385-11	CARBON 2.2 5%	1/6W F			< CONNECTOR >	
R903	1-216-829-11	METAL CHIP 4.7K 5%	1/16W	CN802	1-784-788-11	CONNECTOR, FFC 27P	
R904	1-216-841-11	METAL CHIP 47K 5%	1/16W			< DIODE >	
R905	1-249-417-11	CARBON 1K 5%	1/4W F	D801	8-719-075-51	DIODE SELS2B14C-LF62 (BACK LIGHT)	
R906	1-249-417-11	CARBON 1K 5%	1/4W F	D802	8-719-075-51	DIODE SELS2B14C-LF62 (BACK LIGHT)	
R912	1-249-417-11	CARBON 1K 5%	1/4W F	D803	8-719-075-51	DIODE SELS2B14C-LF62 (BACK LIGHT)	
R913	1-249-417-11	CARBON 1K 5%	1/4W F	D804	8-719-075-51	DIODE SELS2B14C-LF62 (BACK LIGHT)	
R914	1-216-821-11	METAL CHIP 1K 5%	1/16W	D805	8-719-074-42	DIODE SLR325VR-T31 (I/⊕)	
R915	1-216-829-11	METAL CHIP 4.7K 5%	1/16W	D806	6-500-076-01	DIODE SLI-343YC (TAPE ◀▶)	
R916	1-216-829-11	METAL CHIP 4.7K 5%	1/16W	D807	6-500-076-01	DIODE SLI-343YC (MD ▶▶)	
R917	1-216-821-11	METAL CHIP 1K 5%	1/16W	D808	6-500-076-01	DIODE SLI-343YC (CD ▶▶)	
				D809	6-500-076-01	DIODE SLI-343YC (TUNER BAND)	
				D813	6-500-076-01	DIODE SLI-343YC (GROUP)	

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

以阴影和 △ 标志来识别的零部件，在安全方面具有关键性。因此只能以规定号码的零部件来更换。

Ref. No.	Part No.	Description	Remarks
R424	1-216-841-11	METAL CHIP 47K 5%	1/16W
R425	1-216-829-11	METAL CHIP 4.7K 5%	1/16W
R426	1-216-829-11	METAL CHIP 4.7K 5%	1/16W
R428	1-216-829-11	METAL CHIP 4.7K 5%	1/16W

< VARIABLE RESISTOR >

RV101	1-225-282-21	RES, ADJ, CARBON 33K
RV201	1-225-282-21	RES, ADJ, CARBON 33K

< TRANSFORMER >

T101	1-419-080-11	COIL
T201	1-419-080-11	COIL
T401	1-433-372-31	TRANSFORMER, BIAS OSCILLATION

< THERMISTOR >

TH1	1-537-770-21	TERMINAL BOARD, GROUND
TH2	1-537-770-21	TERMINAL BOARD, GROUND
TH3	1-537-770-21	TERMINAL BOARD, GROUND

MISCELLANEOUS

2	1-824-335-11	WIRE (FLAT TYPE) (FFC) (8 CORE)
3	1-796-353-21	DECK, MECHANICAL
12	1-824-190-11	WIRE (FLAT TYPE)(FFC)(17 CORE)
13	1-824-191-11	WIRE (FLAT TYPE)(FFC)(27 CORE)
14	1-824-487-11	WIRE (FLAT TYPE)(FFC)(27 CORE)
65	1-824-188-11	WIRE (FLAT TYPE) (27 CORE)
△ 104	1-696-169-12	CORD, POWER
108	1-824-189-11	WIRE (FLAT TYPE) (23 CORE)
113	1-698-997-11	FAN, D.C.
115	1-824-187-11	WIRE (FLAT TYPE) (25 CORE)
116	1-824-186-11	WIRE (FLAT TYPE) (25 CORE)
117	1-823-146-11	LEAD (WITH CONNECTOR)
209	1-678-514-11	PWB, FLEXIBLE
△ 210	A-1089-264-A	OPTICAL PICK-UP (KMS-262E) (for MD)
305	1-782-817-11	WIRE (FLAT TYPE) (16 CORE)
△ 310	A-4735-189-A	OP ASSY (A-MAX.3) (for CD)
HR901	1-500-670-22	HEAD, OVER LIGHT
M101	A-4735-757-A	MOTOR ASSY, SPINDLE
M102	A-4672-900-A	MOTOR ASSY, SLED
M103	A-4672-975-A	MOTOR ASSY, LOADING
M901	1-763-802-11	MOTOR, DC (SPINDLE)
M903	A-2004-893-A	MOTOR (LD) ASSY (LOADING)
S102	1-771-957-11	SWITCH, PUSH (2 KEY) (REFRECT/PROTECT)

ACCESSORIES

△	1-770-019-51	ADAPTOR, CONVERSION PLUG 3P (UK, HK)
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The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.	以阴影和 △ 标志来识别的零部件，在安全方面具有关键性。因此只能以规定号码的零部件来更换。
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MEMO

REVISION HISTORY

Clicking the version allows you to jump to the revised page.

Also, clicking the version at the top of the revised page allows you to jump to the next revised page.

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