

# HCD-VZ30AV

## SERVICE MANUAL

Ver 1.3 2003. 11

*E Model  
Chinese Model*



- This set is the Amplifier, CD player, Tape Deck and Tuner section in MHC-VZ30AV.

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CD Section	Model Name Using Similar Mechanism	NEW
	CD Mechanism Type	CDM53F-K2BD37A
	Base Unit Name	BU-K2BD37A
Tape deck Section	Optical Pick-up Name	KSM-213D
	Model Name Using Similar Mechanism	HCD-ZX30AV
	Tape Transport Mechanism Type	TCM-230AWR12

### SPECIFICATIONS

#### Amplifier section

The following measured at AC 120/220/240 V, 50/60 Hz

#### Front Speaker:

DIN power output (rated) 95 + 95 watts  
(8 ohms at 1 kHz, DIN)

Continuous RMS power output (reference)  
120 + 120 watts  
(8 ohms at 1 kHz,  
10% THD)

#### Center Speaker:

DIN power output (rated) 30 watts  
(8 ohms at 1 kHz, DIN)

Continuous RMS power output (reference)  
40 watts  
(8 ohms at 1 kHz,  
10% THD)

#### Rear Speaker:

DIN power output (rated) 30 + 30 watts  
(8 ohms at 1 kHz, DIN)

Continuous RMS power output (reference)  
40 + 40 watts  
(8 ohms at 1 kHz,  
10% THD)

#### Inputs

VIDEO (AUDIO) IN: voltage 250 mV,  
(phono jacks) impedance 47 kilohms  
MD IN: voltage 450 mV,  
(phono jacks) impedance 47 kilohms

#### DVD INPUT:

FRONT IN: voltage 450 mV,  
(phono jacks) impedance 47 kilohms

REAR IN: voltage 450 mV,  
(phono jacks) impedance 47 kilohms

CENTER IN: voltage 450 mV,  
(phono jacks) impedance 47 kilohms

WOOFER IN: voltage 450 mV,  
(phono jacks) impedance 47 kilohms

#### MIC 1/2

(mini jack) Sensitivity 1 mV,  
impedance 10 kilohms

#### Outputs

MD OUT: voltage 250 mV  
(phono jacks) impedance 1 kilohms

VIDEO OUT: max. output level  
(phono jack) 1Vp-p, unbalanced,  
Sync negative, load impedance  
75 ohms

S-VIDEO OUT: Y: 1Vp-p, unbalanced,  
(4-pin/mini-DIN jack) Sync negative,  
C: 0.286Vp-p,  
load impedance 75 ohms

accepts headphones of  
8 ohms or more

FRONT SPEAKER: accepts impedance of 8 to 16 ohms

REAR SPEAKER: accepts impedance of 8 to 16 ohms

CENTER SPEAKER: accepts impedance of 8 to 16 ohms

SUPER WOOFER: Voltage 1 V, impedance 1 kilohms

— Continued on next page —

## MINI HI-FI COMPONENT SYSTEM

9-929-279-14

2003K16-1

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**Sony Corporation**

Home Audio Company

Published by Sony Engineering Corporation

# SONY®

## VIDEO CD/CD player section

System	Compact disc and digital audio system
Laser	Semiconductor laser ( $\lambda=780\text{nm}$ )
Laser output	Emission duration: continuous Max. $44.6 \mu\text{W}^*$ *This output is the value measured at a distance of 200 mm from the objective lens surface on the Optical Pick-up Block with 7 mm aperture.
Wavelength	780 — 790 nm
Frequency response	2 Hz — 20 kHz ( $\pm 0.5$ dB)
Signal-to-noise ratio	More than 90 dB
Dynamic range	More than 90 dB
Video color system format	NTSC, PAL
CD OPTICAL DIGITAL OUT (Square optical connector jack, rear panel)	
Wavelength	660 nm
Output Level	—18 dBm

## Tape player section

Recording system	4-track 2-channel stereo
Frequency response (DOLBY NR OFF)	40 — 13,000 Hz ( $\pm 3$ dB), using Sony TYPE I cassette 40 — 14,000 Hz ( $\pm 3$ dB), using Sony TYPE II cassette

## Tuner section

FM stereo, FM/AM superheterodyne tuner

### FM tuner section

Tuning range	87.5 — 108.0 MHz (50 kHz step)
Antenna	FM lead antenna
Antenna terminals	75 ohm unbalanced
Intermediate frequency	10.7 MHz

### AM tuner section

Tuning range	
Middle Eastern model:	531 — 1,602 kHz (with the interval set at 9 kHz)
Other models:	531 — 1,602 kHz (with the interval set at 9 kHz) 530 — 1,710 kHz (with the interval set at 10 kHz)
Antenna	AM loop antenna
Antenna terminals	External antenna terminal
Intermediate frequency	450 kHz

## General

Power requirements	
Thai and Chinese models:	220 V AC, 50/60 Hz
Other models:	120 V, 220 V or 230 — 240 V AC, 50/60 Hz Adjustable with voltage selector
Power consumption	250 watts
Dimensions (w/h/d)	Approx. 250 x 375 x 395 mm
Mass	Approx. 13.2 kg
Supplied accessories:	AM loop antenna (1) FM lead antenna (1) Remote Commander (1) Batteries (2) Video cable (1) Speaker cords (5) Front speaker pads (8)

Design and specifications are subject to change without notice.

## 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

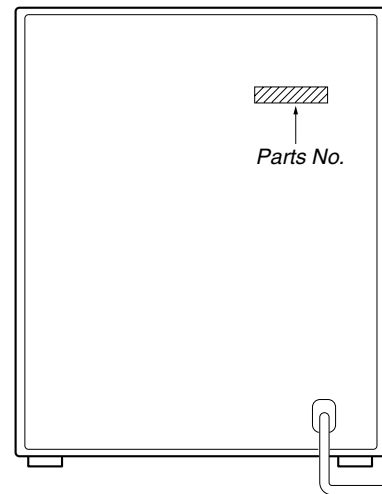
在原理图上用阴影及  $\triangle$  标记来识别的零部件在安全操作上是具有关键性的。这些零部件要用本手册中所示的部件号对应的索尼零部件进行更换。

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。

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## MODEL IDENTIFICATION — BACK PANEL —



PARTS No.	MODEL
4-227-555-0□	EA
4-227-555-1□	MY, SP
4-227-555-2□	HK
4-227-555-3□	TH
4-227-555-4□	CH

### • Abbreviation

- EA : Saudi Arabia model.
- SP : Singapore model.
- MY : Malaysia model.
- TH : Thai model.
- HK : Hong Kong model.
- CH : Chinese model.

## SAFETY CHECK-OUT

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

- Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.
- Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
- Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
- Look for parts which, through functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
- Check the B+ voltage to see it is at the values specified.
- Flexible Circuit Board Repairing
  - Keep the temperature of the soldering iron around 270°C during repairing.
  - Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
  - Be careful not to apply force on the conductor when soldering or unsoldering.

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



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

The following caution label is located inside the unit.



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

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

**NOTES ON LASER DIODE EMISSION CHECK**

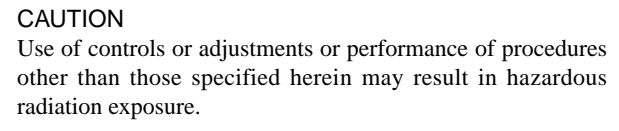
The laser beam on this model is concentrated so as to be focused on the disc reflective surface by the objective lens in the optical pick-up block. Therefore, when checking the laser diode emission, observe from more than 30 cm away from the objective lens.

**Notes on chip component replacement**

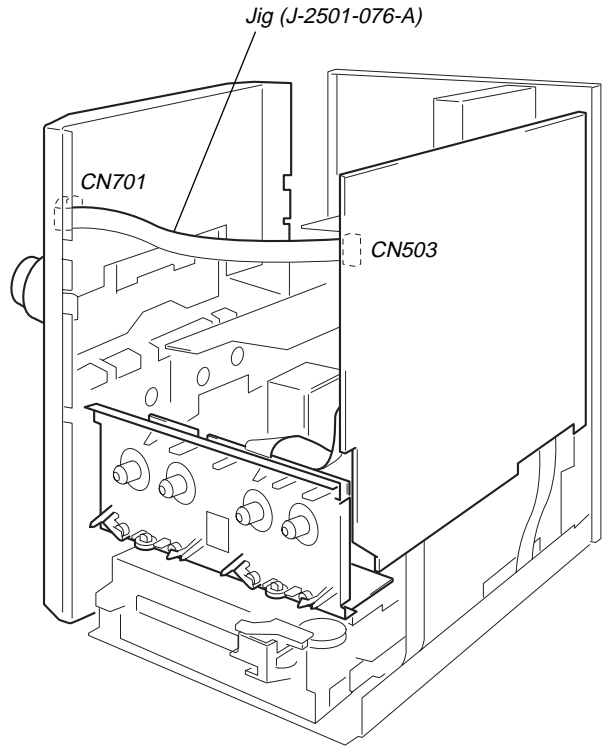
- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.

**Flexible Circuit Board Repairing**

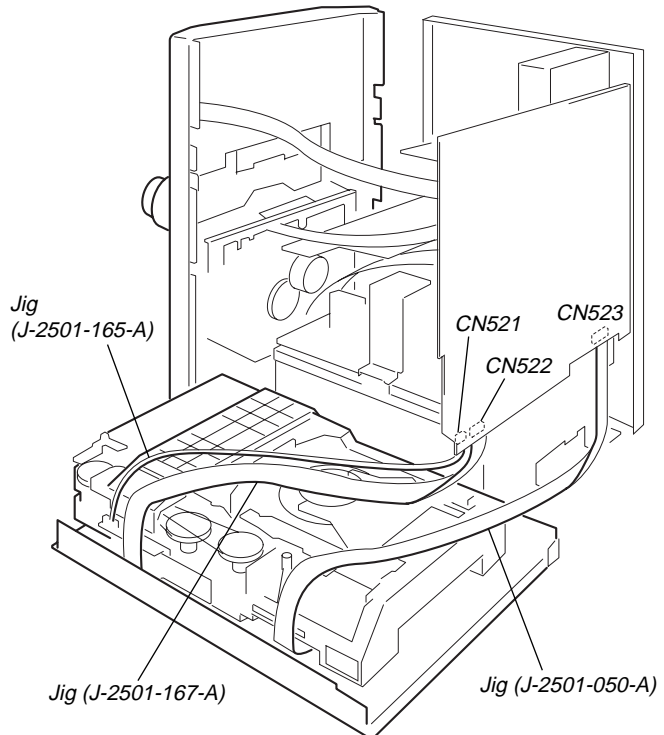
- Keep the temperature of the soldering iron around 270 °C during repairing.
- Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
- Be careful not to apply force on the conductor when soldering or unsoldering.



**SERVICE POSITION**  
• **FRONT PANEL SECTION**



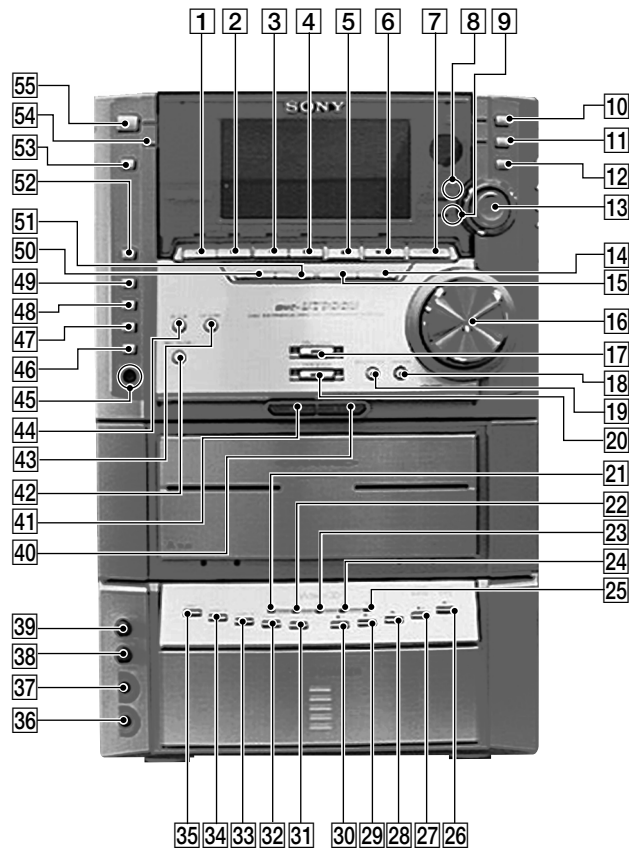
• **CD MECHANISM BLOCK**





# SECTION 1 GENERAL

## LOCATION OF CONTROLS – Front Panel –



- |   |                                       |  |
|---|---------------------------------------|--|
| <b>1</b> ◀ button and indicator (TAPE A)  | <b>21</b> DISC 1 button and indicator | <b>41</b> ▲ A button                           |
| <b>2</b> ▶ button and indicator (TAPE A)  | <b>22</b> DISC 2 button and indicator | <b>42</b> REC PAUSE/START button and indicator |
| <b>3</b> ◀ button and indicator (TAPE B)  | <b>23</b> DISC 3 button and indicator | <b>43</b> CD SYNC button                       |
| <b>4</b> ▶ button and indicator (TAPE B)  | <b>24</b> DISC 4 button and indicator | <b>44</b> HI-DUB button                        |
| <b>5</b> ■ button                         | <b>25</b> DISC 5 button and indicator | <b>45</b> PHONE jack                           |
| <b>6</b> ▶   CD button and indicator      | <b>26</b> ▲ indicator (DISC 5)        | <b>46</b> PREVIOUS button                      |
| <b>7</b> TUNER/BAND button                | <b>27</b> ▲ indicator (DISC 4)        | <b>47</b> NEXT button                          |
| <b>8</b> SET UP MODE indicator            | <b>28</b> ▲ indicator (DISC 3)        | <b>48</b> RETURN button                        |
| <b>9</b> SOUND indicator                  | <b>29</b> ▲ indicator (DISC 2)        | <b>49</b> ENTER button                         |
| <b>10</b> DSP button                      | <b>30</b> ▲ indicator (DISC 1)        | <b>50</b> ▶▶ button                            |
| <b>11</b> V-GROOVE button                 | <b>31</b> DISC 5 button               | <b>51</b> ◀◀ button                            |
| <b>12</b> MODE SELECT button              | <b>32</b> DISC 4 button               | <b>52</b> FUNCTION button                      |
| <b>13</b> PUSH ENTER button               | <b>33</b> DISC 3 button               | <b>53</b> DISPLAY button                       |
| <b>14</b> ▶▶ button (TUNER)               | <b>34</b> DISC 2 button               | <b>54</b> TIMER SELECT indicator               |
| <b>15</b> ◀◀ button (TUNER)               | <b>35</b> DISC 1 button               | <b>55</b> I/⏻ button and indicator             |
| <b>16</b> VOLUME knob                     | <b>36</b> MIC 2 jack                  |  |
| <b>17</b> PRO LOGIC button and indicator  | <b>37</b> MIC 1 jack                  |  |
| <b>18</b> GROOVE button and indicator     | <b>38</b> MIC VOL land                |  |
| <b>19</b> GROOVE-EX button and indicator  | <b>39</b> ECHO VOL land               |  |
| <b>20</b> DVD 5.1 CH button and indicator | <b>40</b> ▲ B button                  |  |

– Rear Panel –

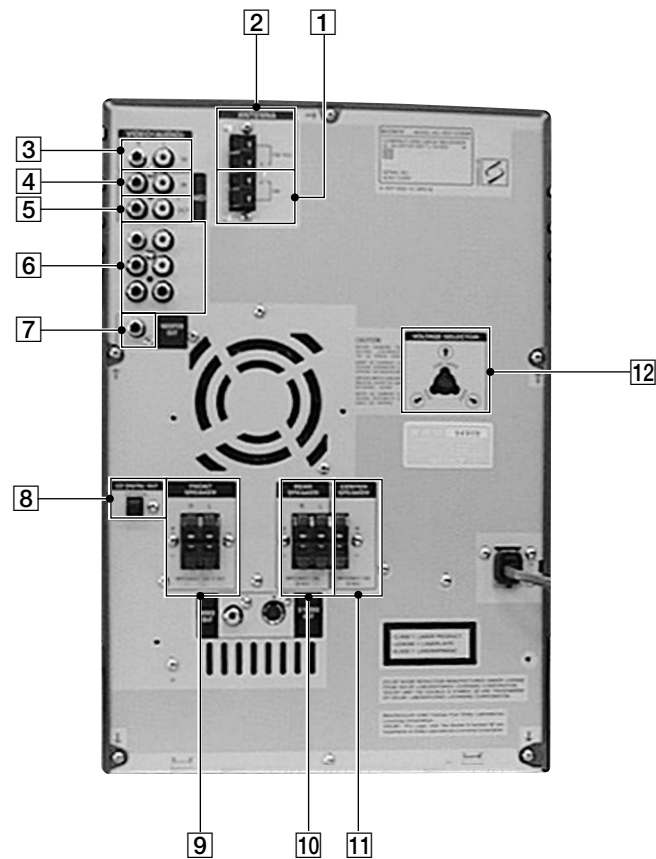


Photo : Malaysia model

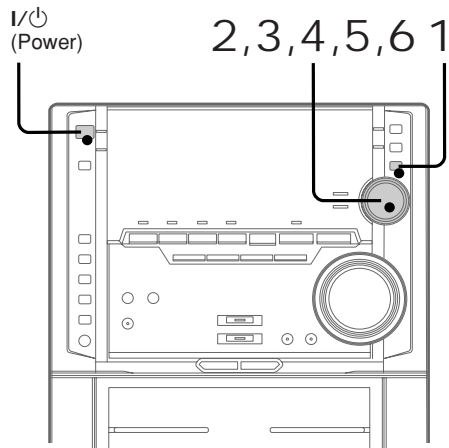
- 1 AM ANTENNA terminals
- 2 FM ANTENNA (75  $\Omega$ ) terminals
- 3 VIDEO IN jacks
- 4 MD IN jacks
- 5 MD OUT jacks
- 6 DVD IN jacks
- 7 WOOFER OUT jacks
- 8 CD DIGITAL OUT connector
- 9 FRONT SPEAKER terminals
- 10 REAR SPEAKER terminals
- 11 CENTER SPEAKER terminals
- 12 VOLTAGE SELECTOR switch

This section is extracted from instruction manual.

## Step 3: Setting the time

You must set the time before using the timer functions.

The clock is on a 12-hour system.



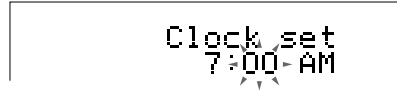
- 1 Press MODE SELECT when the system is turned off.  
"Clock Set ?" appears.

- 2 Press PUSH ENTER.  
The hour indication flashes.



- 3 Move the multi stick toward ▲ or ▼ repeatedly to set the hour.

- 4 Move the multi stick toward ►.  
The minute indication flashes.



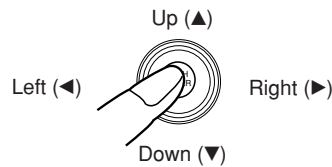
- 5 Move the multi stick toward ▲ or ▼ repeatedly to set the minute.

- 6 Press PUSH ENTER.

To cancel the menu operation  
Press MODE SELECT.

### Tips

- Refer to the illustration to use the multi stick. Place your finger on the center of the multi stick and move in the direction you want (up/down or left/right shown ▲/▼ or ◀/▶ in this manual).

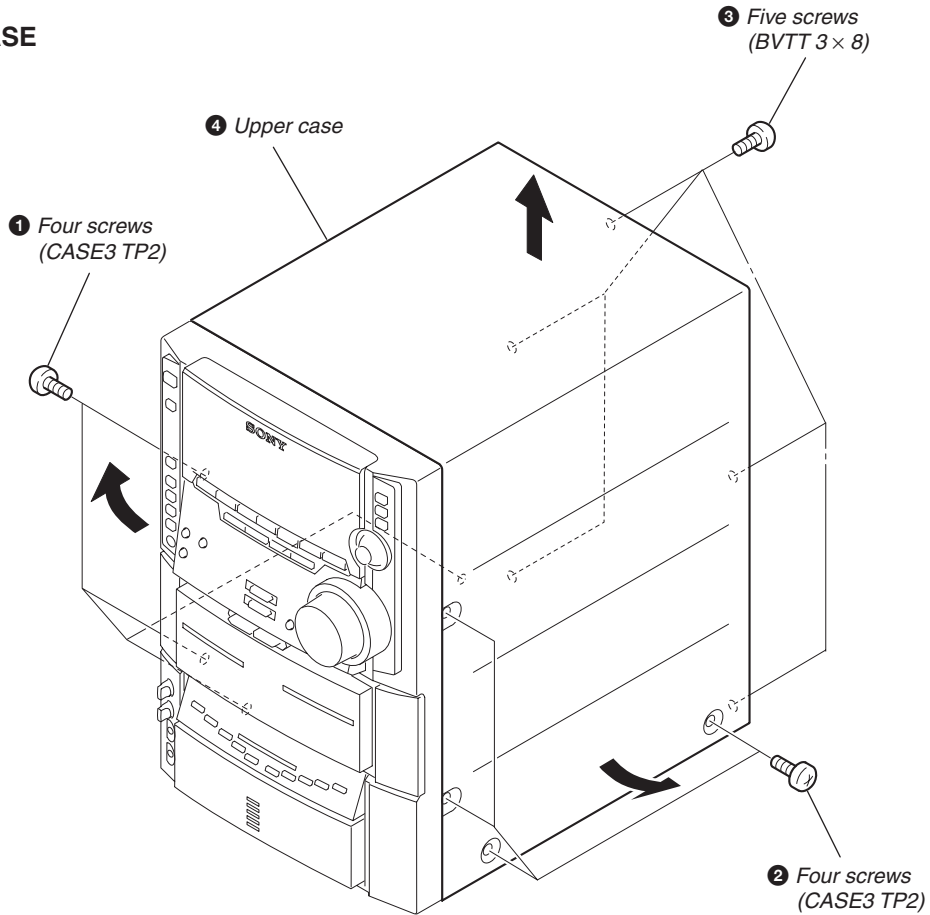


- If you've made a mistake, start over from step 1.

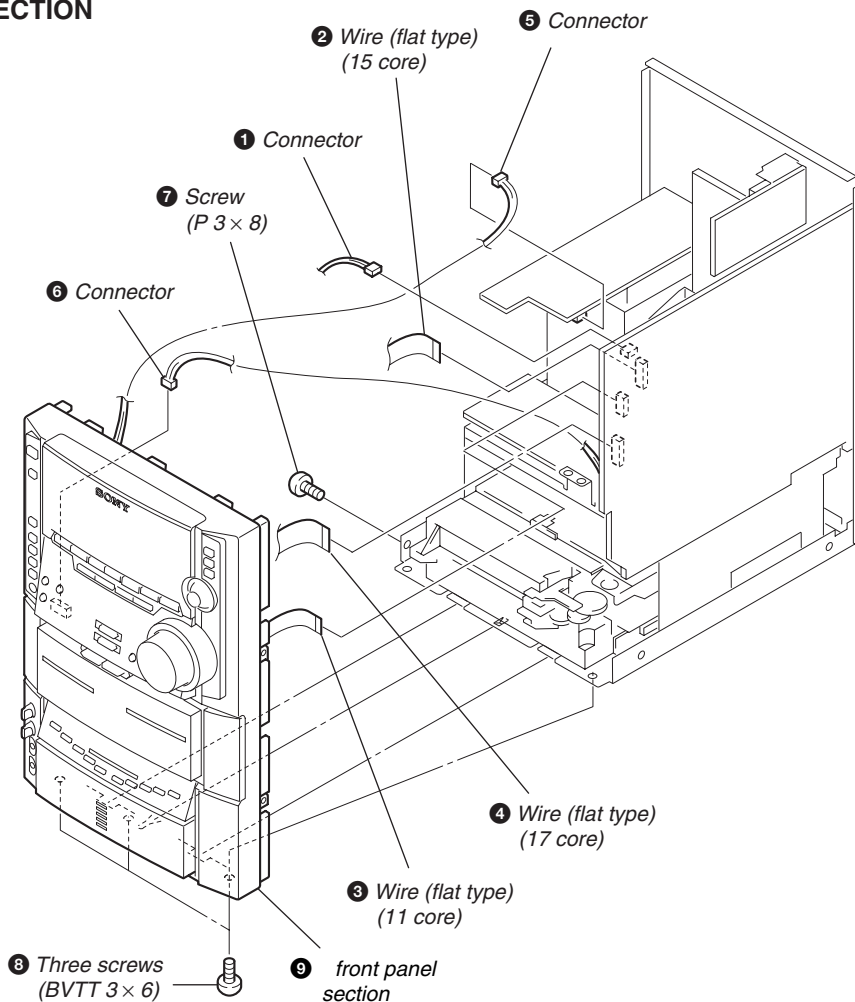
## SECTION 2 DISASSEMBLY

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

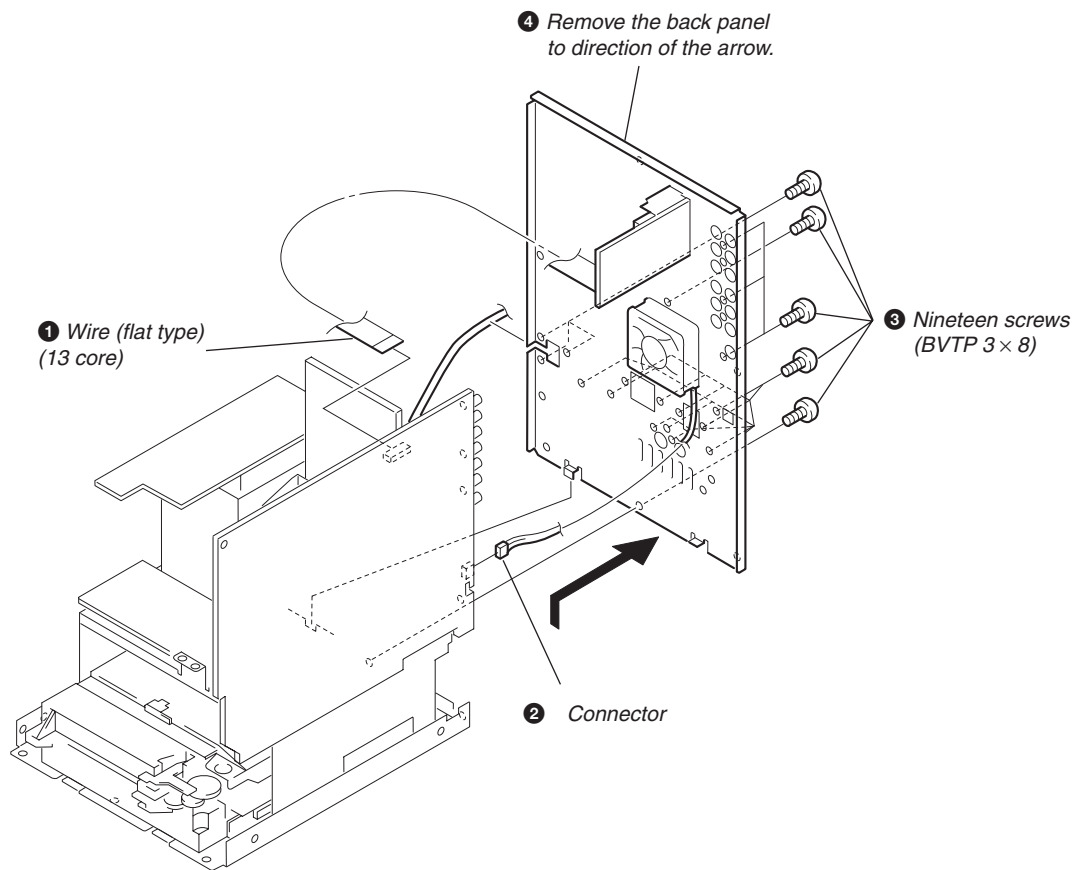
### 2-1. UPPER CASE



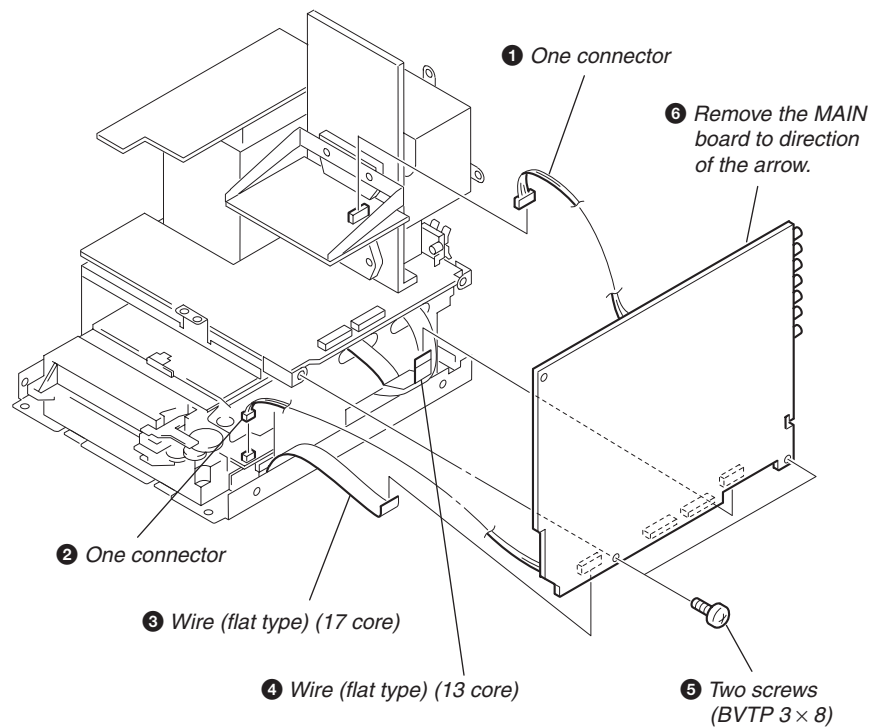
### 2-2. FRONT PANEL SECTION



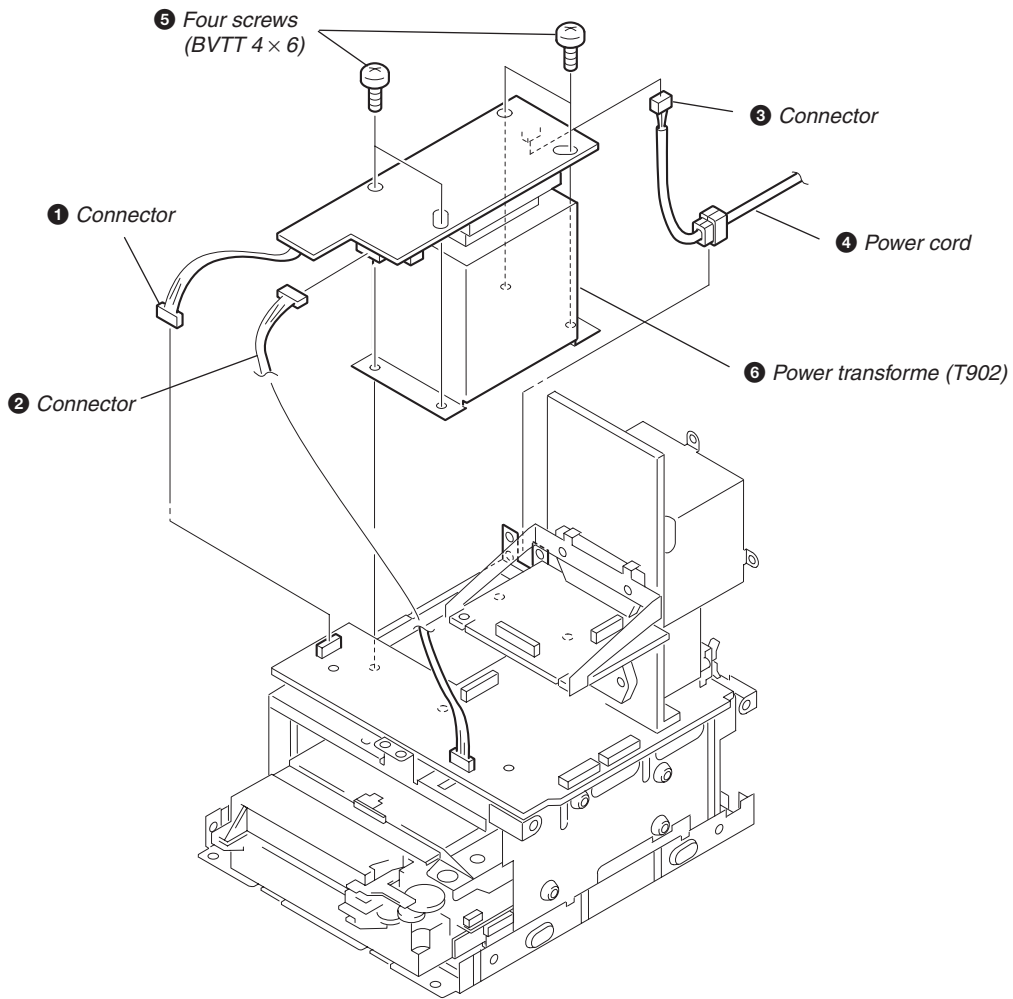
### 2-3. BACK PANEL SECTION



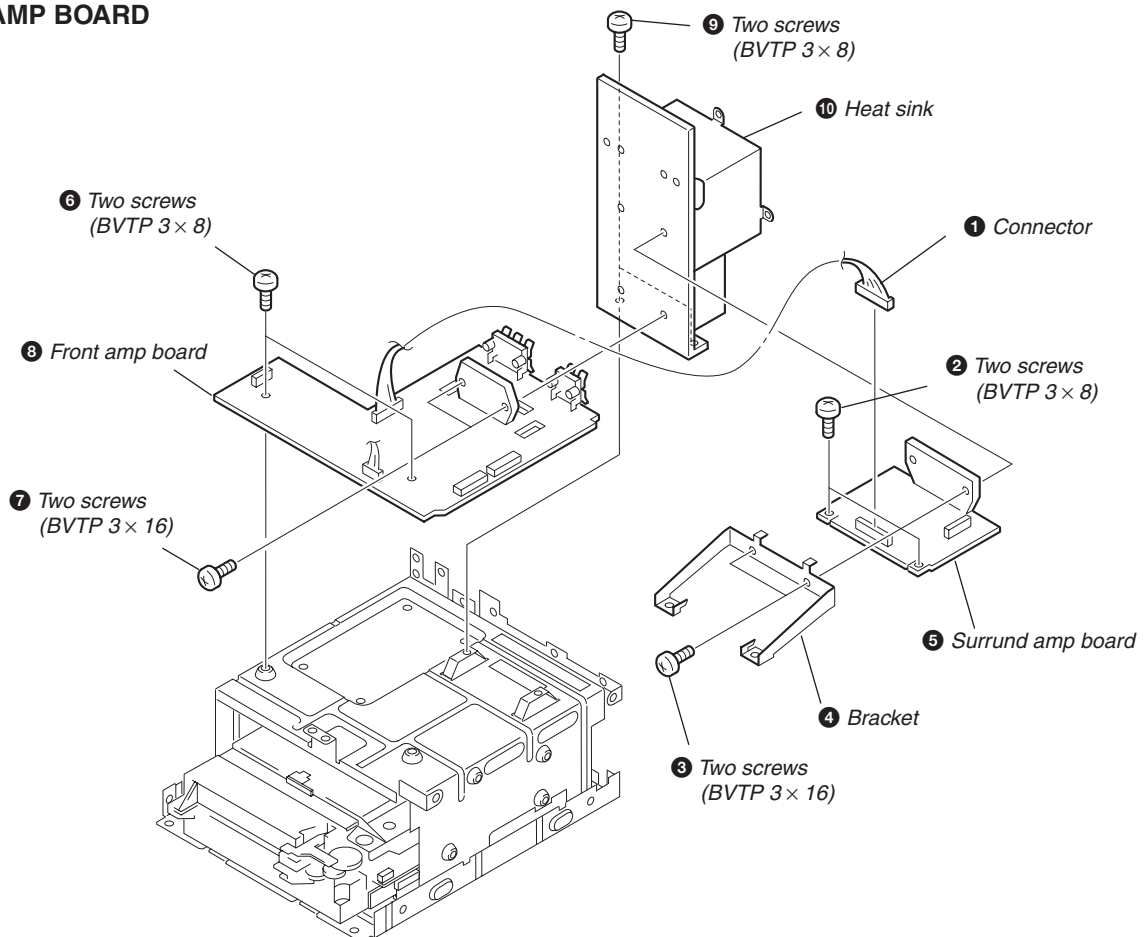
### 2-4. MAIN BOARD



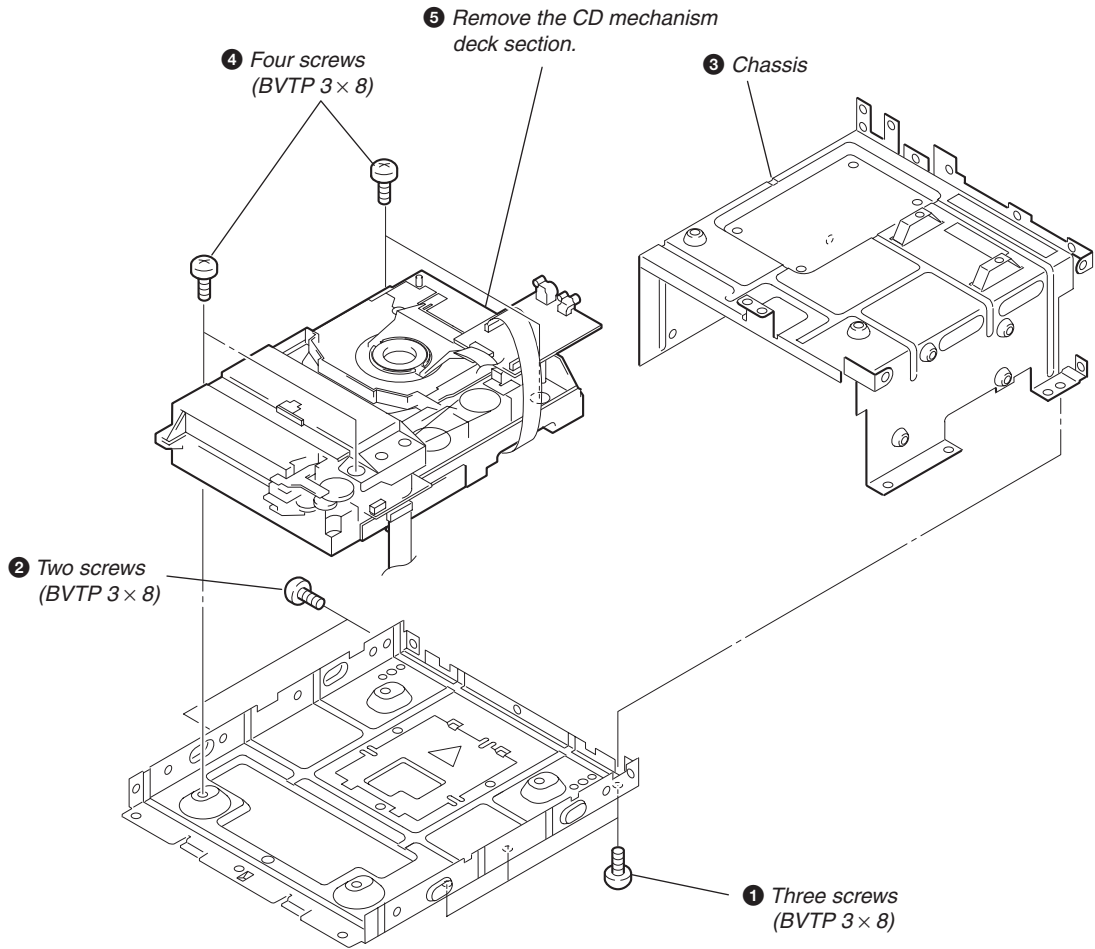
## 2-5. POWER TRANSFORMER (T902)



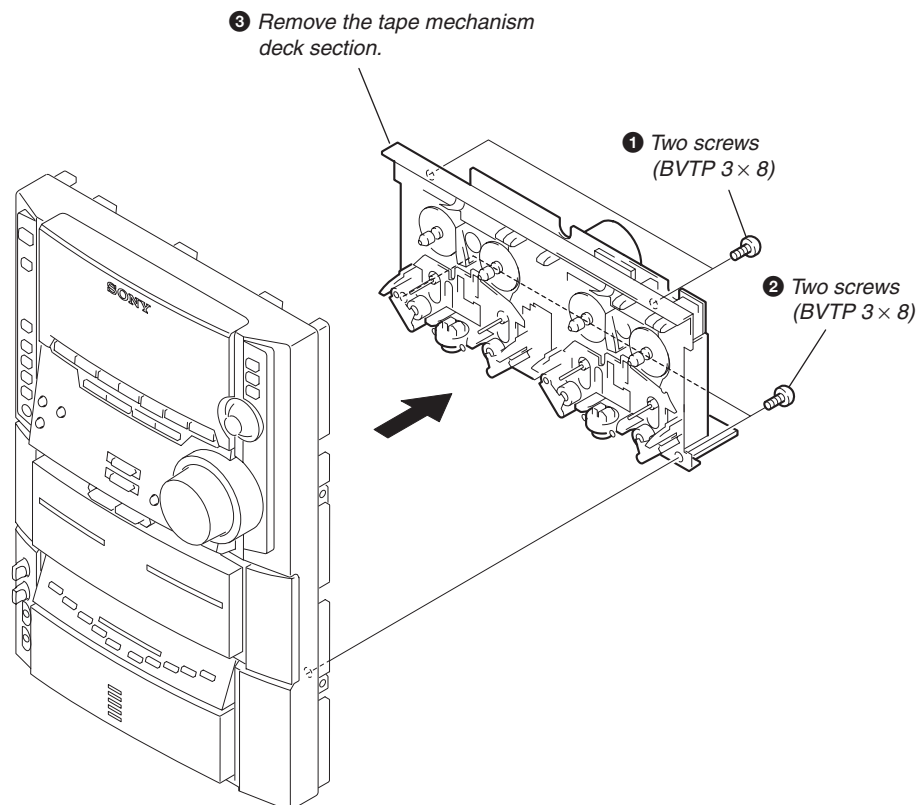
## 2-6. FRONT AMP BOARD



## 2-7. CD MECHANISM DECK (CDM53F-K2BD37A)

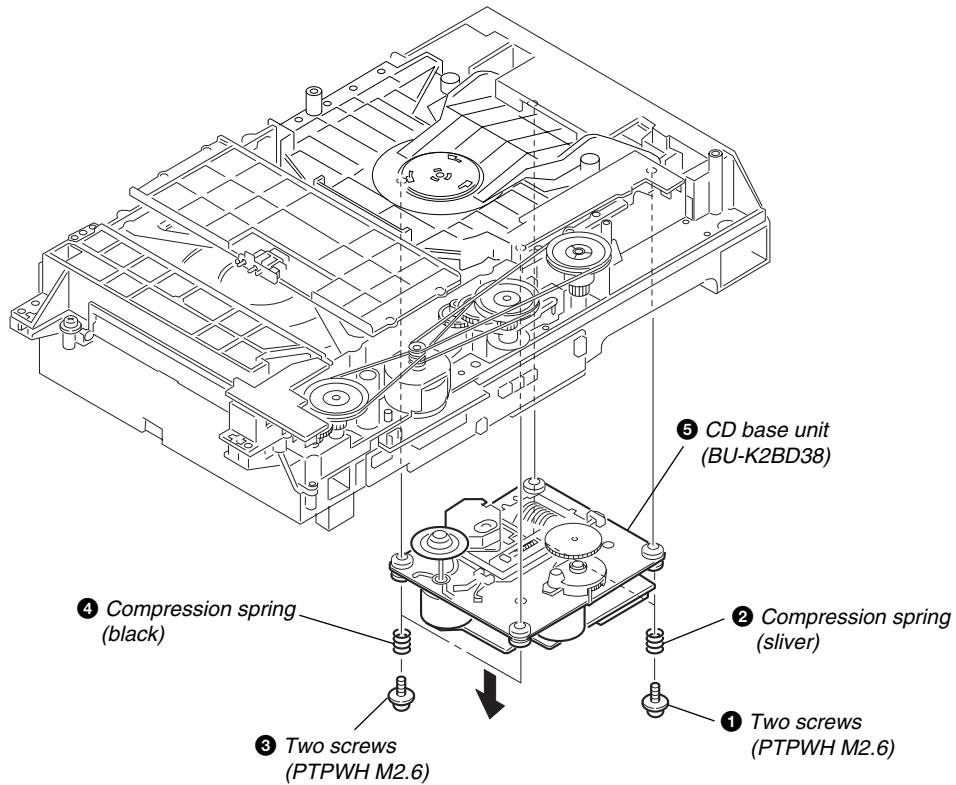


## 2-8. TAPE MECHANISM DECK (TCM-230AWR12)

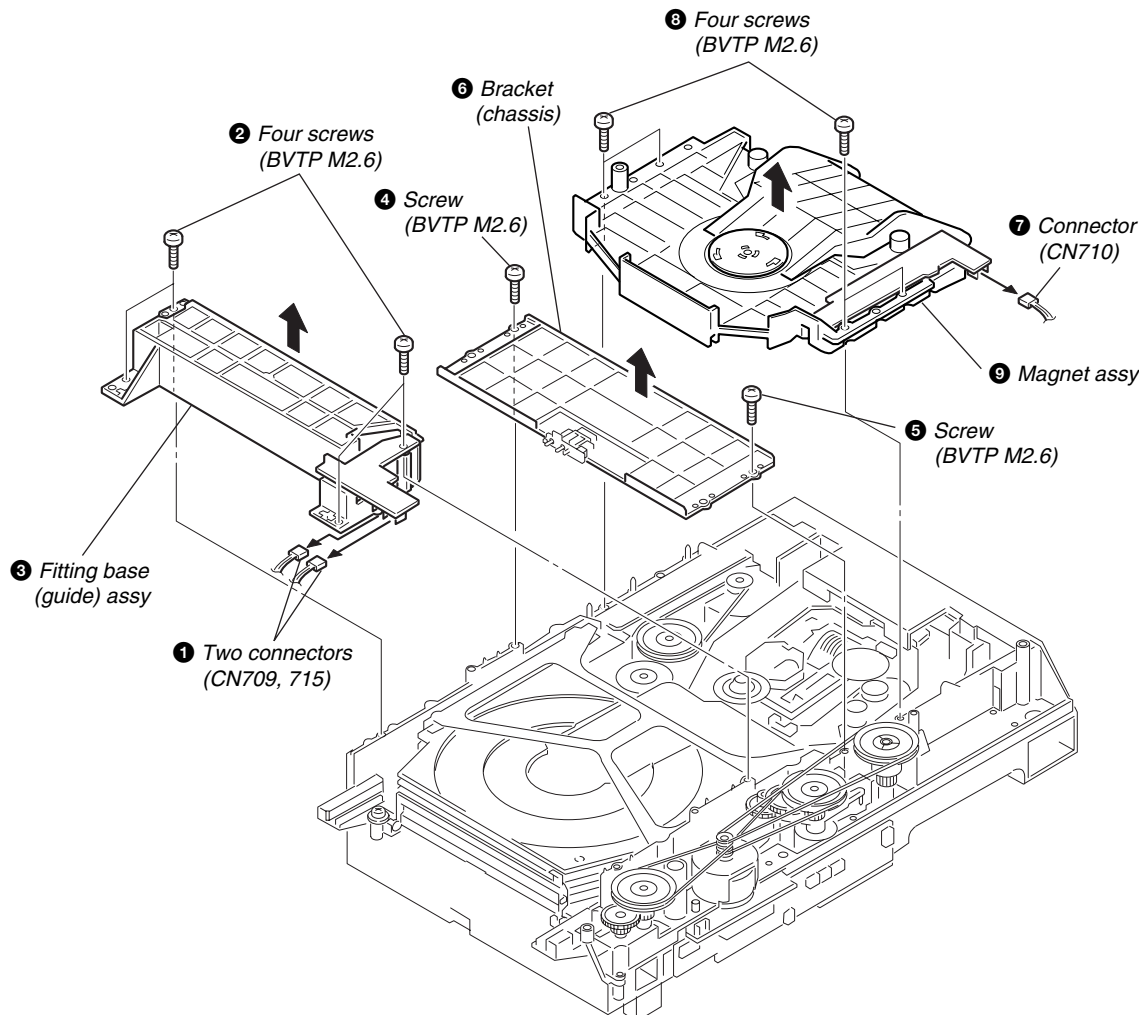




## 2-9. CD BASE UNIT (BU-K2BD37A)

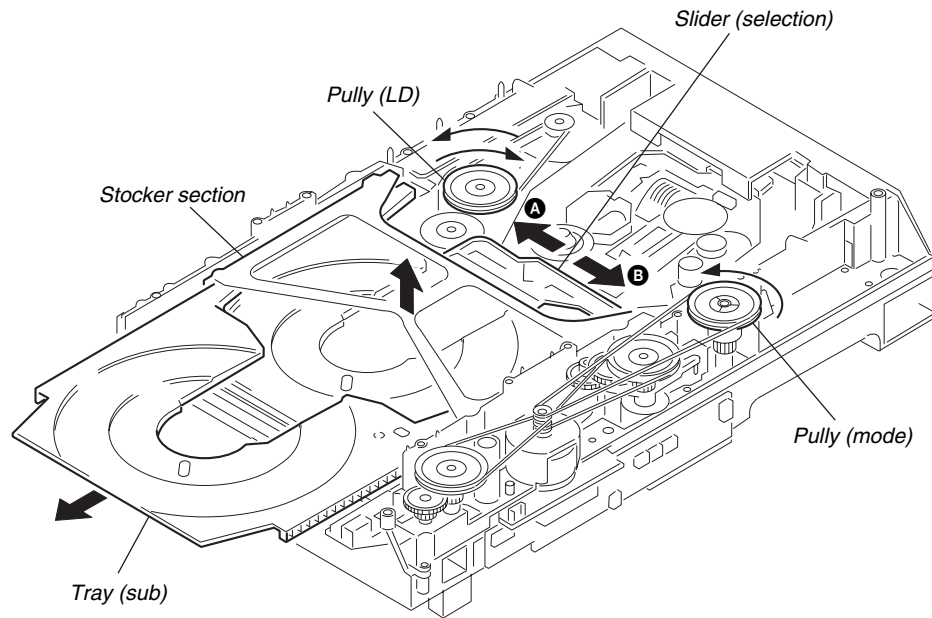


## 2-10. FITTING BASE (GUIDE) ASSY, BRACKET (CHASSIS) AND MAGNET ASSY



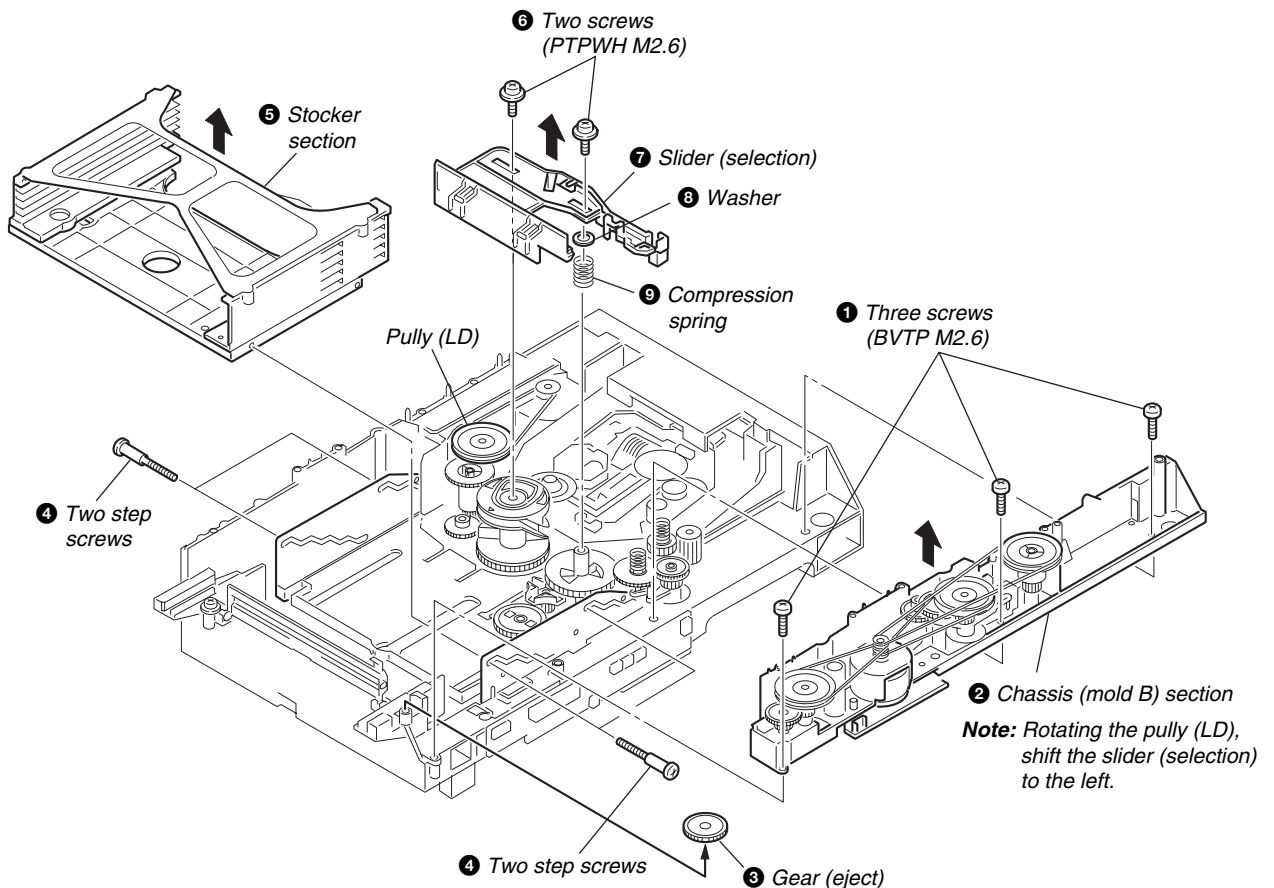
## 2-11. TRAY (SUB)

- ① Rotating the pulley (LD), shift the slider (selection) in the arrow **A** direction.
- ② Rotating the pulley (mode) in the arrow direction, adjust the tray (sub) to be removed.
- ③ Rotating the pulley (LD), shift the slider (selection) in the arrow **B** direction.
- ④ Rotating the pulley (mode) in the arrow direction, remove the tray (sub) to be removed.

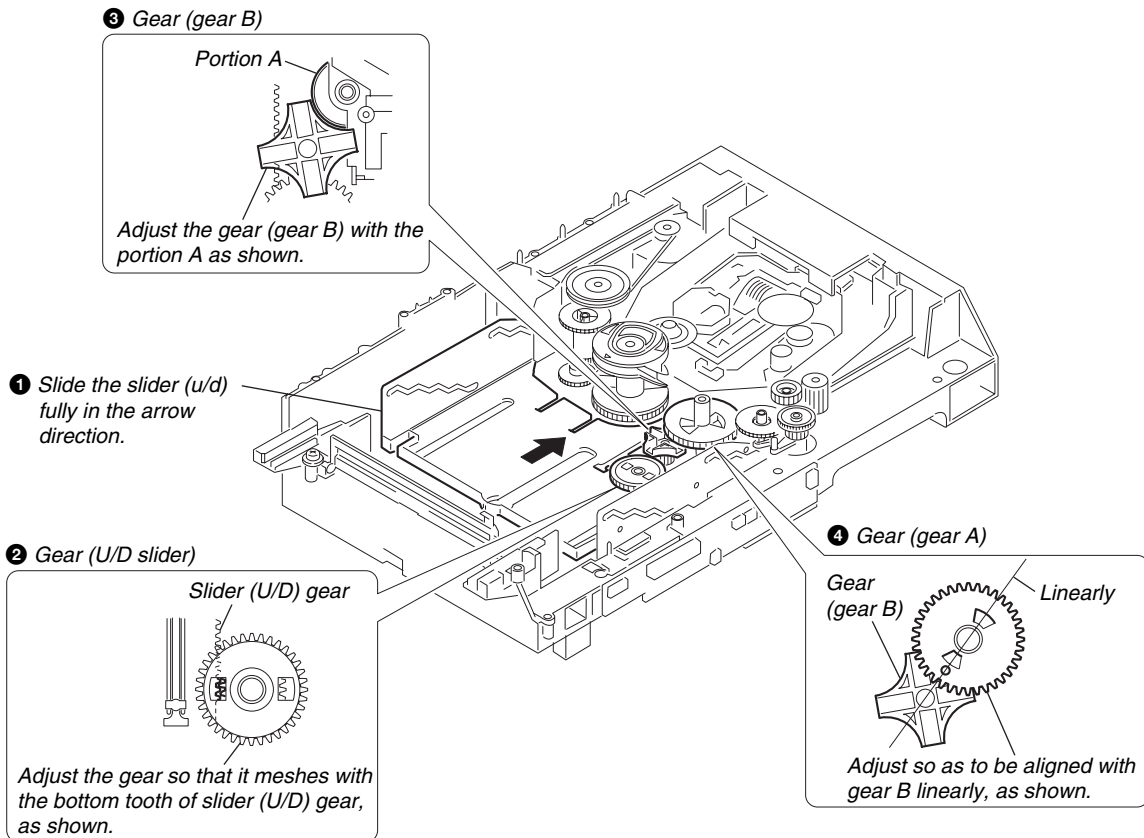


## 2-12. CHASSIS (MOLD B) SECTION, STOCKER SECTION AND SLIDER (SELECTION)

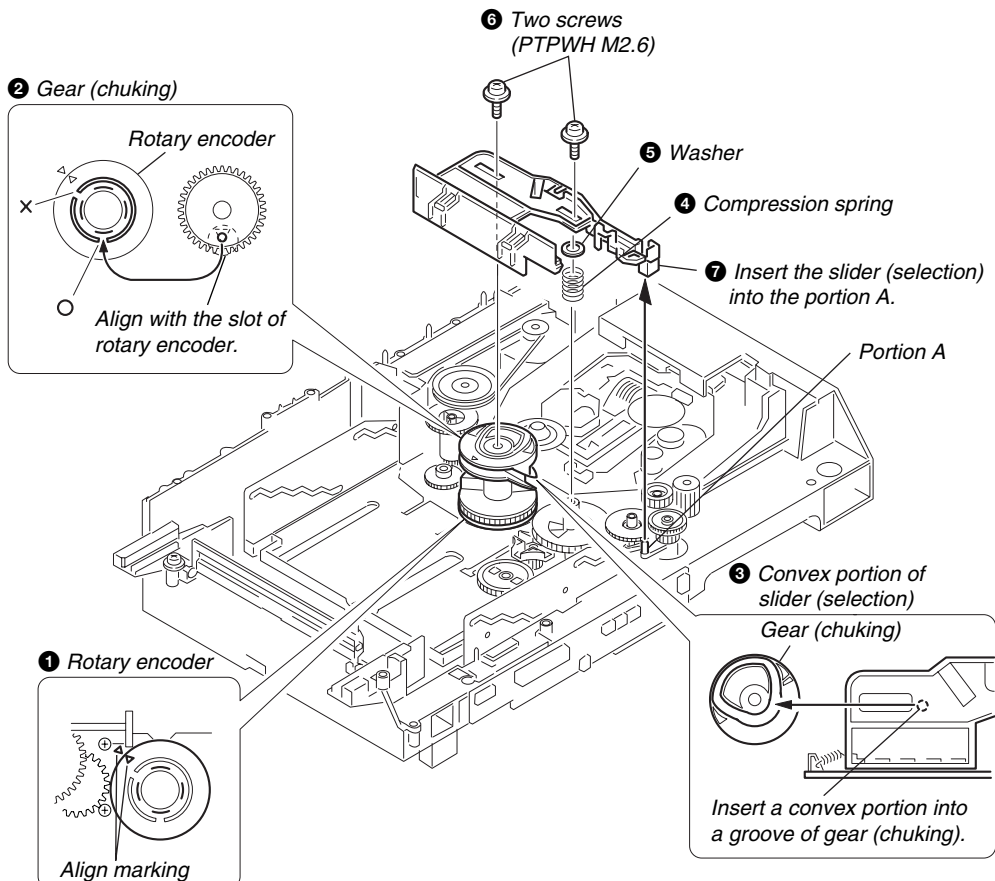
**Note:** In mounting the parts, refer to page 14 and 15.



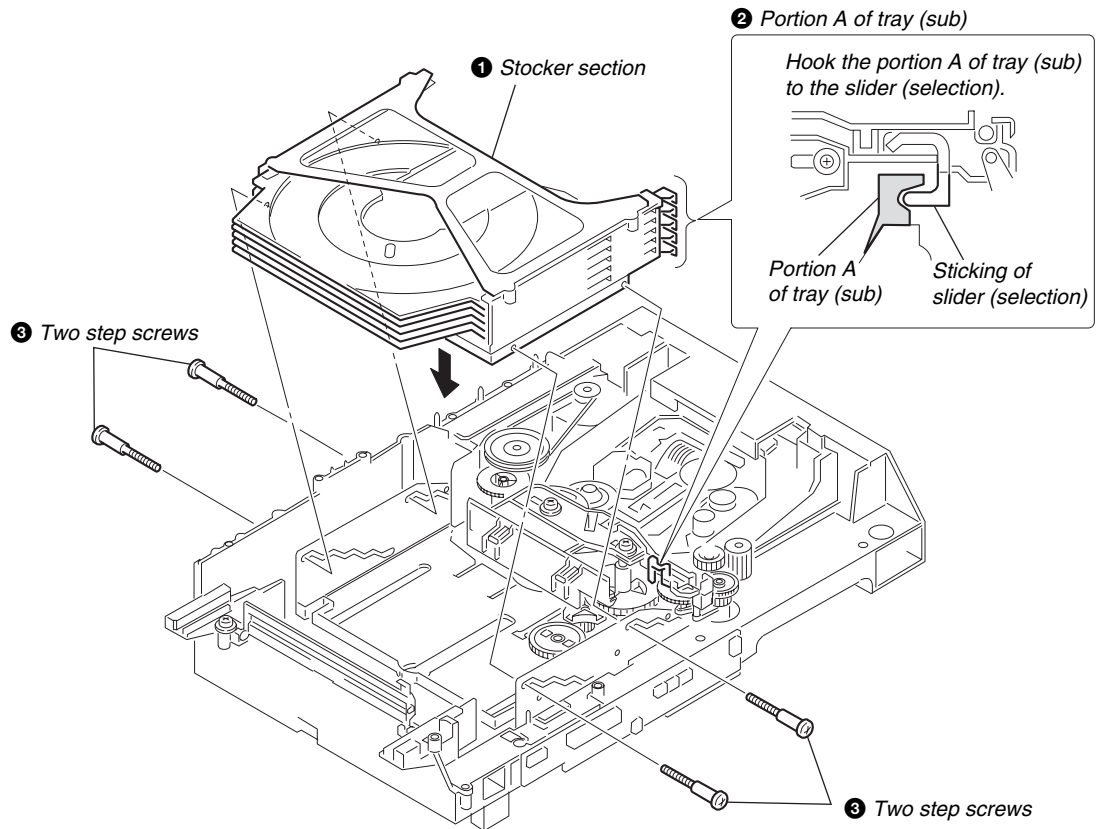
## 2-13. GEARS INSTALLATION



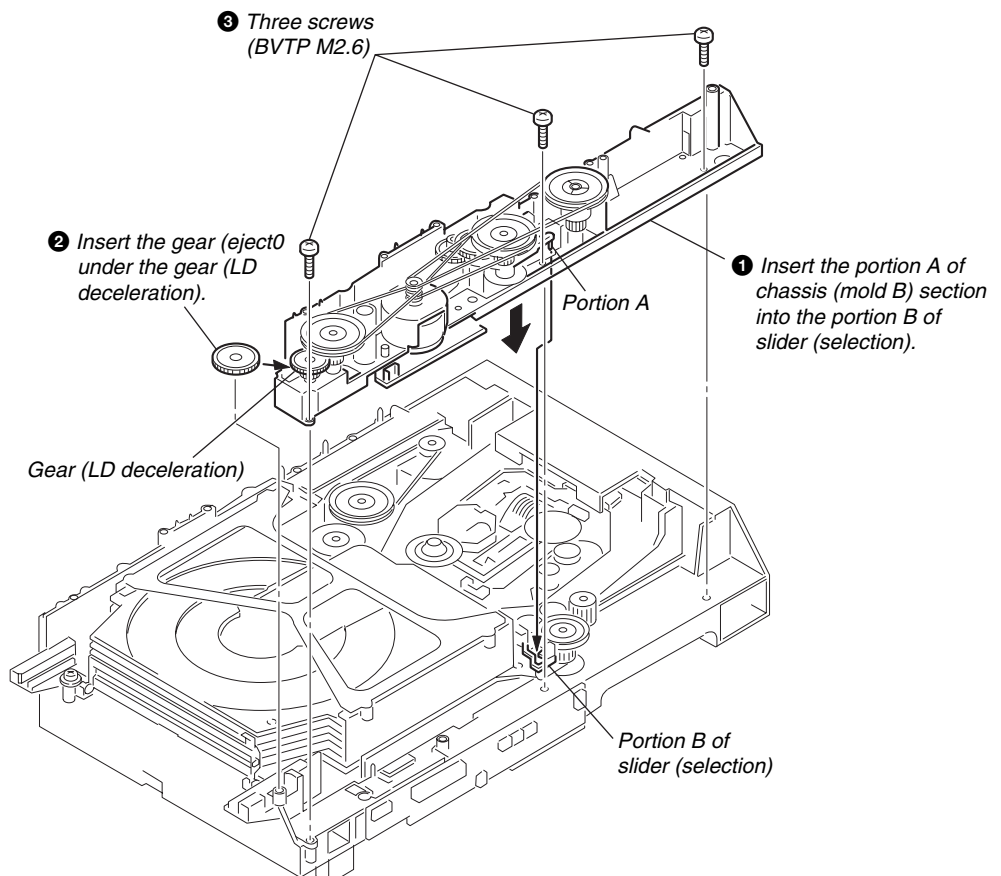
## 2-14. SLIDER (SELECTION) INSTALLATION



## 2-15. STOCKER SECTION INSTALLATION



## 2-16. CHASSIS (MOLD B) SECTION INSTALLATION




## SECTION 3 SERVICE MODE

### [MC 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 customer.



#### Procedure:

1. Press three buttons , **DISPLAY**, and **DISC 5** simultaneously.
2. The fluorescent indicator tube displays "COLD RESET" and the set is reset.

### [CD Ship Mode]

- This mode moves the pickup to the position durable to vibration. Use this mode when returning the set to the customer after repair.


#### Procedure:

1. Press  button to turn the set ON.
2. Press **V-GROOVE** button, and  button simultaneously.
3. After the "STANDBY" display blinks six times, a message "LOCK" is displayed on the fluorescent indicator tube, and the CD ship mode is set.

### [MC Hot Reset]

- This mode resets the set with the preset data kept stored in the memory. The hot reset mode functions same as if the power cord is plugged in and out.




#### Procedure:

1. Press three buttons , **DISPLAY**, and **DISC 1** simultaneously.
2. The fluorescent indicator tube becomes blank instantaneously, and the set is reset.

### [CD Service Mode]

- This mode can run the CD sled motor freely. Use this mode, for instance, when cleaning the pickup.

#### Procedure:

1. Press  button to turn the set ON.
2. Select the function "CD".
3. Press three buttons , **DISPLAY**, and  3 simultaneously.
4. The CD service mode is selected.
5. With the CD in stop status, turn the shuttle knob clockwise to move the pickup to outside track, or turn the shuttle knob counter-clockwise to inside track.
6. To exit from this mode, perform as follows:
  - 1) Move the pickup to the most inside track.
  - 2) Press three buttons in the same manner as step 2.

- Note:**
- Always move the pickup to most inside track when exiting from this mode. Otherwise, a disc will not be unloaded.
  - Do not run the sled motor excessively, otherwise the gear can be chipped.

### [VACS ON/OFF Mode]

- This mode is used to switch ON and OFF the VACS (Variable Attenuation Control System).




#### Procedure:

Press the **ENTER** and  buttons simultaneously. The message "VACS OFF" or "VACS ON" appears.

### [Change-over of AM Tuner Step between 9 kHz and 10 kHz]

- A step of AM channels can be changed over between 9 kHz and 10 kHz.


#### Procedure:

1. Press  button to turn the set ON.
2. Select the function "TUNER", and press **TUNER/BAND** button to select the BAND "AM".
3. Press  button to turn the set OFF.
4. Press **MODE SELECT** and  buttons simultaneously, and the display of fluorescent indicator tube changes to "AM 9 k STEP" or "AM 10 k STEP", and thus the channel step is changed over.

### [GC Test Mode]

- This mode is used to check the software version, FL tube, LED, keyboard and VACS.

#### Procedure:

1. Press three buttons , **ENTER**, and **DISC 2** simultaneously.
2. LEDs and fluorescent indicator tube are all turned on.
3. When you want to enter the software version display mode, press **DISC 1**. The model number and destination are displayed.
4. Each time **DISC 1** is pressed, the display changes starting from MC version, GC version, VC version, CD version, CM version, ST version, TC version, TA version, TM version and BR version in this order, and returns to the model number and destination display.
5. When **DISC 3** is pressed while the version numbers are being displayed except model number and destination, year, month and day of the software creation appear. When **DISC 3** is pressed again, the display returns to the software version display. When **DISC 1** 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.
6. Press **DISC 2** button, and the key check mode is activated.
7. In the key check mode, the fluorescent indicator tube displays "KEY0 VOL0". Each time a button is pressed, "KEY" value increases. However, once a button is pressed, it is no longer taken into account. "VOL" value increases like 1, 2, 3 ... if rotating **VOLUME** knob in "+" direction, or it decreases like 0, 9, 8 ... if rotating in "-" direction.
8. Flopping the **PUSH ENTRY** button to the up position shows the indication "↑", the down position shows "↓", the left position shows "←" and the right position "→".
9. Also when **DISC 3** is pressed after lighting of all LEDs and FL tubes, value of VACS appears.
10. To exit from this mode, press three buttons in the same manner as step 1, or disconnect the power cord.



### [MC Test Mode]

- This mode is used to check operations of the respective sections of Amplifier, Tuner, CD and Tape.

#### Procedure:

1. Press the three buttons of **[■]**, **[DISPLAY]** and **[DISC 3]** simultaneously.
2. A message "TEST MODE" appears on the FL display tube.
3. When **[PUSH ENTRY (CURSOR UP)]** button is pressed, GEQ increases to its maximum and a message "GEQ MAX" appears.
4. When **[PUSH ENTRY (CURSOR DOWN)]** button is pressed, GEQ decreases to its minimum and a message "GEQ MIN" appears.
5. When **[PUSH ENTRY (CURSOR LEFT)]** or **[PUSH ENTRY (CURSOR RIGHT)]** button is pressed, GEQ is set to flat and a message "GEQ FLAT" appears.
6. When the VOLUME control knob is turned clockwise even slightly, the sound volume increases to its maximum and a message "VOLUME MAX" appears for two seconds, then the display returns to the original display.
7. When the VOLUME control knob is turned counter-clockwise even slightly, the sound volume decreases to its minimum and a message "VOLUME MIN" appears for two seconds, then the display returns to the original display.
8. In the test mode, the default-preset channel is called even when the TUNER is selected and an attempt is made to call the preset channel that has been stored in memory, by operating the Shuttle knob. (It means that the memory is cleared.)
9. When CD is selected. Press the **[MODE SELECT]** button and press the **[ENTER]** button in the "Setup Mode". Move the **[PUSH ENTRY]** to the right or left and press the **[ENTER]** button in the "CD Edit Start" mode.  
The disc that is being chucked at this moment becomes the default setting. It means that the default disc only is accessed when any other discs are selected even though the display indication changes accordingly. At the same time, the **[DISC 1]** button to **[DISC 5]** button cannot be accepted. (It means that the tray motor and the turntable motor are disabled of their operation.)
10. When a tape is inserted in Deck B and recording is started, the input source function selects VIDEO automatically.
11. When **[■]** button is pressed to stop recording, the Tape (Deck) B is selected and tape is rewind using the **[◀◀]** button, tape is rewind, tape is stops at around the record-starting position and playback of the recorded portion of the tape is started. If PAUSE is inserted even once during recording, tape is rewind to the position around the PAUSE position and is played back.
12. When the **[HI-DUB]** Button is press during playback of Deck B, either normal speed or high speed can be selected by this button.
13. Select the desired loop as follows. Press the **[MODE SELECT]** button and press the **[ENTER]** button in the "Setup Mode". Move the **[PUSH ENTRY]** button to the right or left and press the **[ENTER]** button in the "Direction setup". Move the **[PUSH ENTRY]** button to the right or left and press **[ENTER]** at "Cycle". Insert a test tape AMS-110A or AMS-RO to Deck A.
14. Press the **[CD SYNC]** button to enter the AMS test mode.
15. After a tape is rewind first, the FF AMS is checked, and the mechanism is shut off after detecting the AMS signal twice.
16. Then the REW AMS is checked and the mechanism is shut off after detecting the AMS signal twice.
17. When the check is complete, a message of either OK or NG appears.
18. When you want to exit this mode, press the **[I/⏻]** button twice. The cold reset is enforced at the same time.

### [Aging Mode]

During the aging mode, both the CD player and tape deck are executed together.

#### • If an error occurs:

Aging stops, and the error state is displayed on the fluorescent display tube.

#### • If no error occurs:

Aging is repeated.

#### Procedure:

1. Press the **[I/⏻]** button to turn the set ON.
2. Load 10 minute tapes with unbent rec-proof tabs in decks A and B.
3. Set CD on the DISC 1 table.
4. Set the CD mode REPEAT to OFF and PLAY MODE to ALL DISCS.  
(Press the **[MODE SELECT]** button and move the **[PUSH ENTRY]** button to set these modes.)
5. Press the **[FUNCTION]** button to switch the function to "CD".
6. Press the three buttons **[■]**, **[DISPLAY]**, and **[DISC 4]** button simultaneously.
7. Aging starts.
8. To end aging, press the **[I/⏻]** button to turn the set OFF.

#### Aging Sequence:

Aging is performed in the following sequence.

#### • Tape Deck

1. The tape in deck A is rewind. "TAPE A AG-1" is displayed.
2. The FWD side of deck A is played for two minutes. "TAPE A AG-2" is displayed.
3. The tape in deck A is fast forwarded. "TAPE A AG-3" is displayed. Fast forward is carried out for 20 seconds or to the tape end.
4. The RVS side of deck A is played for two minutes. "TAPE A AG-4" is displayed.
5. The tape in deck A is rewind. "TAPE A AG-5" is displayed.
6. The FWD side of deck B is played for two minutes. "TAPE B AG-2" is displayed.
7. The tape in deck B is fast forwarded. "TAPE B AG-3" is displayed. Fast forward is carried out for 20 seconds or to the tape end.
8. The RVS side of deck B is played for two minutes. "TAPE B AG-4" is displayed.
9. The tape in deck B is rewind. "TAPE B AG-5" is displayed.
10. Repeated from step 2.

#### • CD

1. DISC 1 is chucked.
2. The TOC is read.
3. The first track is played for 3 seconds.
4. The last track is played for 3 seconds.
5. DISC 1 tray open and close.
6. Repeated from step 1.

• Display when ended abnormally  
When the tape deck is abnormal:

The state when ended abnormally is displayed.  
The contents of display are the same as that during aging.

#### When the CD player is abnormal:






A message indicating that errors such as "CD MEC ERR" have occurred.  
Check the error contents in the following error history display mode.

## [Error History Display Mode]

Mode which enables the history of error occurring in the CD player to be checked.

Execute this mode after ending the aging mode.

### Procedure:

1. Press the  button to turn the set ON.
2. Press the three buttons , **DISPLAY**, and  simultaneously.
3. Select the desired display mode from the following modes by moving the **PUSH ENTRY** button to the right and left.
  - Number of mechanism errors display mode
  - Mechanism error display mode
  - Number of times of NO DISC display mode
  - NO DISC display mode
4. Press the  button to end and turn the set OFF.
5. To erase the error history, perform COLD reset. (Press the three buttons , **DISPLAY**, and **DISC 5** simultaneously).

- Viewing the mechanical error history display  
(Switch the history by moving the **PUSH ENTRY** up and down)

### Display

**CDM E@@@D##\$%!**

**@@** : Error number. 00 is the newest.

**##** : Mechanism error after initialization is complete.

**\$** : 1 or 2 : Mechanism error during the tray loading in between the stocker position and the rear position behind the stocker position.

**%** : 2 : Mechanism error during up and down movement of stocker.

**!** : 2 : Mechanism error of clamper and that during mode switching.

- Viewing the NO DISC ERROR history display  
(Switch the history by moving the **PUSH ENTRY** up and down)

### Display

**No E@@@D##\$%**

**@@** : Error number. 00 is the newest

**##** : Error contents  
 01 : Focus error  
 02 : GFS error  
 03 : Setup error

**\$\$** : Retries  
 00 : NO DISC is determined without attempting chucking retry  
 02 : NO DISC is determined after chucking retry.

**%** : State when determined as NO DISC

**1** : When stopped  
**2** : At setup  
**3** : At TOC READ  
**4** : When accessing  
**5** : When playing  
**6** : When pausing  
**7** : When manual searching (during play)  
**8** : When manual searching (during pausing)

## [VIDEO CD Color-bars Mode]

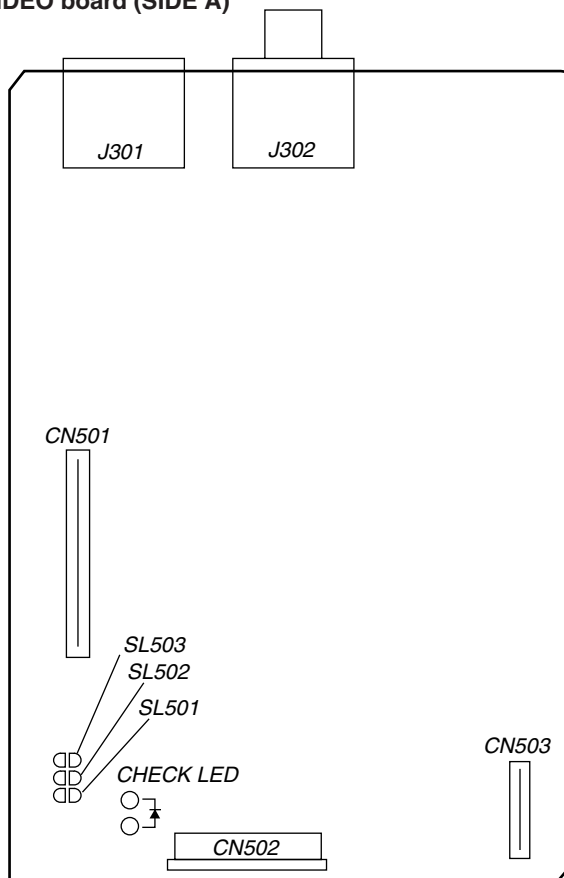
On this mode, the data of the color-bars signal as a picture signal and the 1 kHz sine wave signal as a sound signal are output by the mechanism controller (IC502) for the video CD signal check. When measurement of the voltage and waveform on the VIDEO board, perform it in this mode.

For reference, the color-bars signal can be observed at J302 (VIDEO OUT) using an oscilloscope.

### Procedure:

1. Short the both ends of the land of SL503 of the VIDEO board.
2. Turn the power on. Press the **FUNCTION** button to select CD.
3. The color-bars appears when the CD is in stop status, and it disappears when the CD goes in play status.
4. After measuring, remove the lead wire connected.VIDEO board (SIDE B)

## VIDEO board (SIDE A)





## SECTION 4 MECHANICAL ADJUSTMENTS

### Precaution

1. Clean the following parts with a denatured alcohol-moistened swab:
 

record/playback heads	pinch rollers
erase head	rubber belts
capstan	idlers
2. Demagnetize the record/playback head with a head demagnetizer.
3. Do not use a magnetized screwdriver for the adjustments.
4. After the adjustments, apply suitable locking compound to the parts adjusted.
5. The adjustments should be performed with the rated power supply voltage unless otherwise noted.

### Torque Measurement

Mode	Torque meter	Meter reading
FWD	CQ-102C	3.06 N • m to 6.96 N • m 31 to 71 g • cm (0.43 – 0.98 oz • inch)
FWD back tension	CQ-102C	0.19 N • m to 0.58 N • m 2 to 6 g • cm (0.02 – 0.08 oz • inch)
REV	CQ-102RC	3.06 N • m to 6.96 N • m 31 to 71 g • cm (0.43 – 0.98 oz • inch)
REV back tension	CQ-102RC	0.19 N • m to 0.58 N • m 2 to 6 g • cm (0.02 – 0.08 oz • inch)
FF/REW	CQ-201B	6.96 N • m to 14.02 N • m 71 to 143 g • cm (0.98 – 1.99 oz • inch)
FWD tension	CQ-403A	9.80 N • m 100 g or more (3.53 oz or more)
REV tension	CQ-403R	9.80 N • m 100 g or more (3.53 oz or more)

## SECTION 5 ELECTRICAL ADJUSTMENTS

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.

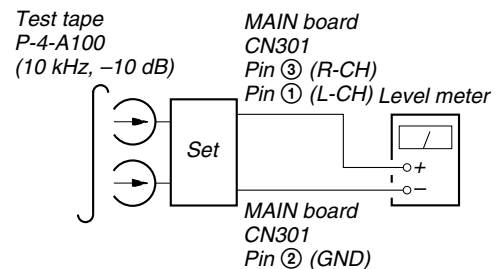
Tape	Signal	Used for
P-4-A100	10 kHz, -10 dB	Azimuth Adjustment
WS-48B	3 kHz, 0 dB	Tape Speed Adjustment
P-4-L300	315 Hz, 0 dB	Level Adjustment

### Record/Playback Head Azimuth Adjustment (Deck A, Deck B)

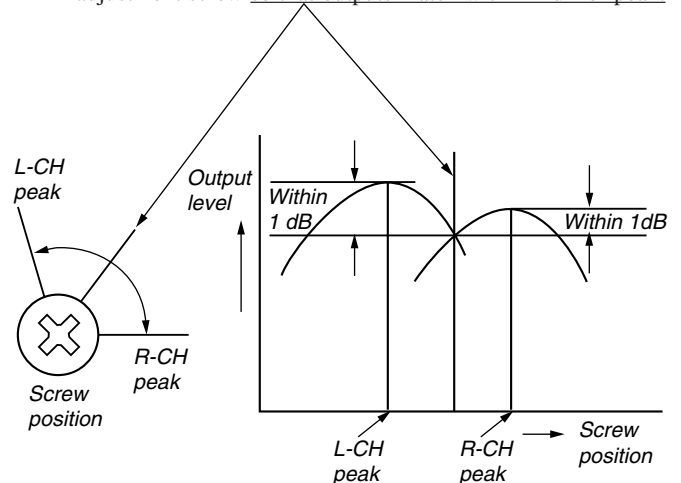
**Note:** Perform this adjustments for both decks.

#### Procedure:

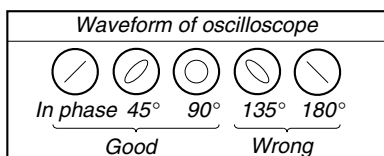
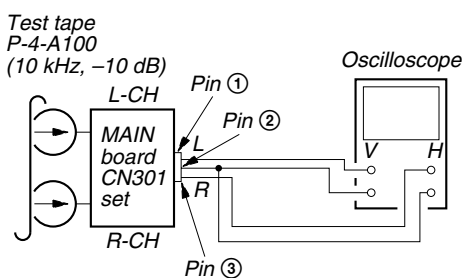
1. Mode : Playback



2. Turn the adjustment screw and check output peaks. If the peaks do not match for L-CH and R-CH, turn the adjustment screw so that outputs match within 1 dB of peak.

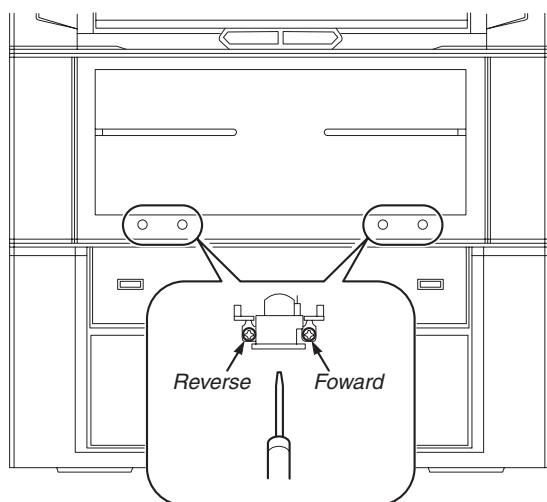


3. Mode: Playback



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

**Adjustment Location:** Playback Head (Deck A)  
Record/Playback/Erase Head (Deck B)



### Tape Speed Adjustment (Deck A, Deck B)

**Note:** Set the test mode using the following method and begin tape speed adjustment.

In the test mode, the speed will switch to double speed or normal speed each time the [HI-DUB] button is pressed.

**Procedure:**

With the [I/O] button ON, press the [ ] button, [DISPLAY] button, and [DISC 3] button simultaneously.

(The "VOLUME" on the fluorescent display tube will blink while in the test mode.)

To exit the test mode, press the [I/O] button.

1. Insert the WS-48B into deck B.
2. Press the [ ] button of deck B.
3. Press the [HI-DUB] button and play the tape at double speed.
4. Adjust RV1001 of the LEAF SW board so that the reading of the frequency counter becomes  $6000 \pm 180$  Hz.
5. Press the [HI-DUB] button and play the tape at normal speed.
6. Adjust RV1002 of the LEAF SW board so that the reading of the frequency counter becomes  $3000 \pm 90$  Hz.

**Adjustment Location:** LEAF SW board

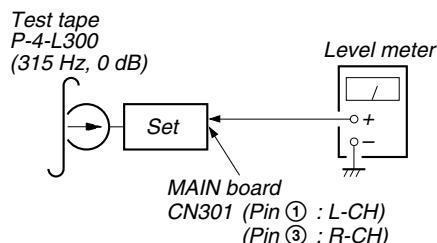
**Sample Value of Wow and flutter**

W.RMS (JIS) less than 0.3%  
(test tape: WS-48B)

### Playback Level Adjustment (Deck A, Deck B)

**Procedure:**

Mode: Playback



Deck A is RV311 (L-CH) and RV411 (R-CH), deck B is RV301 (L-CH) and RV401 (R-CH)

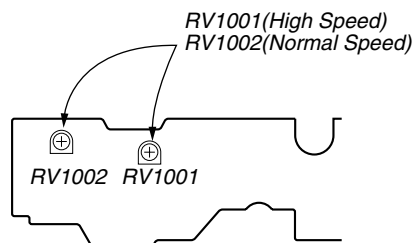
so that adjustment within the following adjustment level.

**Adjustment level:**

CN301 playback level: 301.5 to 338.3 mV (-8.2 to -7.2 dB)  
level difference between the channels: within  $\pm 0.5$  dB

**Adjustment Location:** AUDIO board

### Adjustment Location [LEAF SW BOARD]



## Record Bias Adjustment (Deck B)

### Procedure:

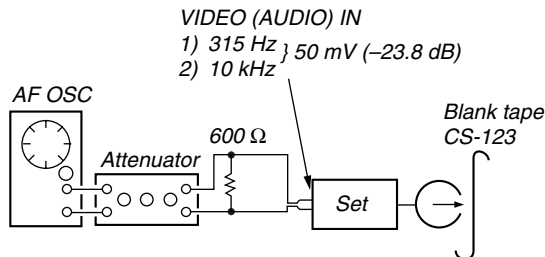
#### INTRODUCTION

When set to the test mode performed in **Tape Speed Adjustment**, when the tape is rewound after recording, the “REC memory mode” which rewinds only the recorded portion and playback is set.

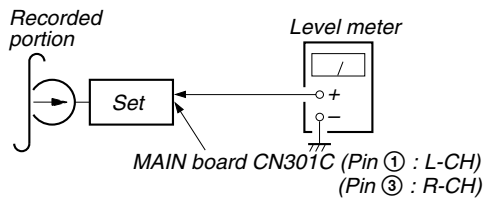
This “REC memory mode” is convenient for performing this adjustment. During recording, the input signal FUNCTION will automatically switch to VIDEO 1.

(After recording, press the button without stopping will return to the position where recording was started.)

1. Press **FUNCTION** button to select VIDEO. (This step is not necessary if the above test mode has already been set.)
2. Insert a tape into deck B, press the **REC PAUSE/START** button, and then press the button to start recording.
3. Mode: Record
4. Mode: Playback



5. Confirm playback the signal recorded in step 2 become adjustment level as follows.



If these levels do not adjustment level, adjust the RV341 (L-CH) and RV441 (R-CH) on the AUDIO board to repeat steps 3 and 4.

**Adjustment level:** The playback output of 10 kHz level difference against 315 Hz reference should be  $\pm 1.0$  dB.

**Adjustment Location:** AUDIO board

## Record Level Adjustment (Deck B)

### Procedure:

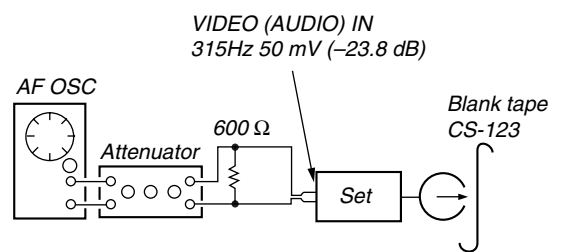
#### INTRODUCTION

When set to the test mode performed in **Tape Speed Adjustment**, when the tape is rewound after recording, the “REC memory mode” which rewinds only the recorded portion and playback is set.

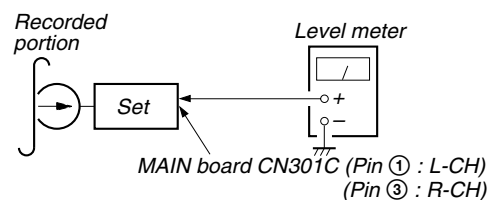
This “REC memory mode” is convenient for performing this adjustment. During recording, the input signal FUNCTION will automatically switch to VIDEO 1.

(After recording, press the button without stopping will return to the position where recording was started.)

1. Press **FUNCTION** button to select VIDEO 1. (This step is not necessary if the above test mode has already been set.)
2. Insert a tape into deck B, press the **REC PAUSE/START** button, and then press the button to start recording.
3. Mode: Record
4. Mode: Playback



5. Confirm playback the signal recorded in step 2 become adjustment level as follows.



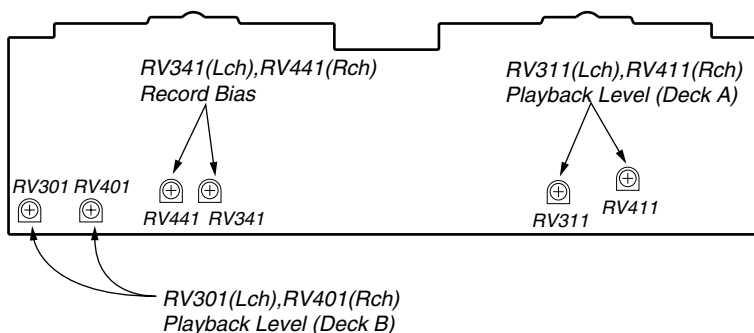
If these levels do not adjustment level, adjust the RV301 (L-CH) and RV351 (R-CH) on the MAIN board to repeat steps 3 and 4.

**Adjustment level:**  
CN403 playback level: 47.2 to 53.0 mV ( $-24.3$  to  $-23.3$  dB)

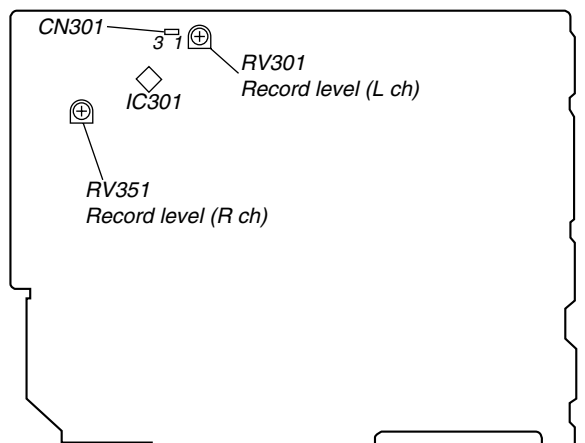
**Adjustment Location:** MAIN board

#### Adjustment Location:

**[AUDIO BOARD]** (Conductor Side)



**[MAIN BOARD]** (Conductor Side)

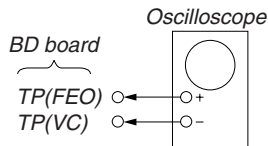


## CD SECTION

### Note :

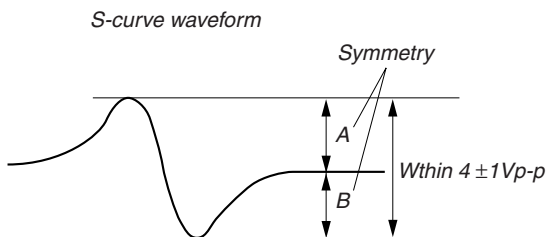
1. CD Block is basically designed to operate without adjustment. Therefore, check each item in order given.
2. Use YEDS-18 disc (3-702-101-01) unless otherwise indicated.
3. Use an oscilloscope with more than 10MΩ impedance.
4. Clean the object lens by an applicator with neutral detergent when the signal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

### S-Curve Check



### Procedure :

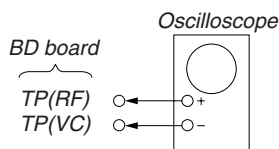
1. Connect oscilloscope to TP (FEO).
2. Connect between TP (FEO) and TP (VC) by lead wire.
3. Connect between TP (AGCCON) and TP (GND) by lead wire.
4. Turn button on.
5. Load a disc (YEDS-18) and actuate the focus search. (In consequence of open and close the disc tray, actuate the focus search)
6. Confirm that the oscilloscope waveform (S-curve) is symmetrical between A and B. And confirm peak to peak level within  $4 \pm 1$  Vp-p.



7. After check, remove the lead wire connected in step 2 and 3.

- Note :**
- Try to measure several times to make sure than the ratio of A : B or B : A is more than 10 : 7.
  - Take sweep time as long as possible and light up the brightness to obtain best waveform.

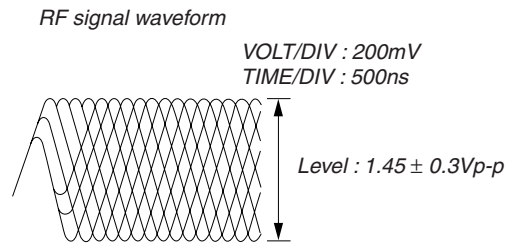
### RF Level Check



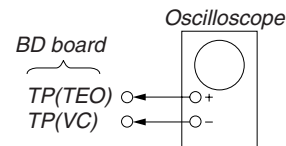
### Procedure :

1. Connect oscilloscope to TP (RF).
2. Connect between TP (AGCCON) and TP (GND) by lead wire.
3. Turned button on.
4. Load a disc (YEDS-18) and playback.
5. Confirm that oscilloscope waveform is clear and check RF signal level is correct or not.
6. After check, remove the lead wire connected in step 2.

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

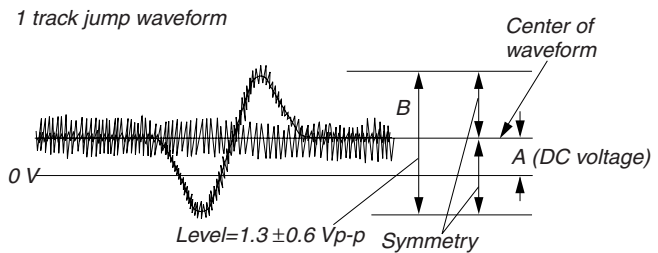


### E-F Balance (1 Track jump) Check



### Procedure :

1. Connect oscilloscope to TP (TEO) and TP (VC).
2. Turned button on.
3. Load a disc (YEDS-18) and playback the number five track.
4. Press the button. (Becomes the 1 track jump mode.)
5. Confirm that the level B and A (DC voltage) on the oscilloscope waveform.

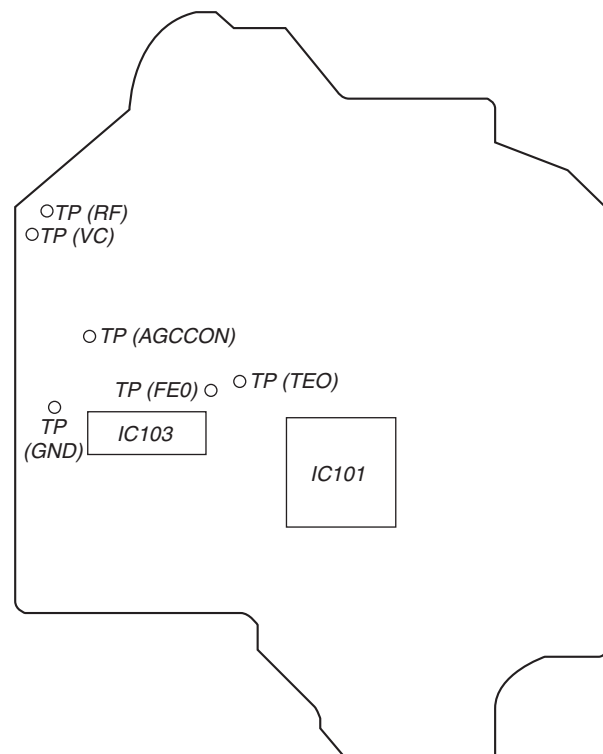


Specified level:  $\frac{A}{B} \times 100 = \text{less than } -22\%$

6. After check, remove the lead wire connected in step 1.

### Adjustment Location:

#### [BD BOARD] (Conductor Side)

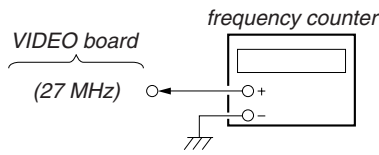


# SECTION 6 DIAGRAMS


## VIDEO SECTION

### Frequency Adjustment

Connection:

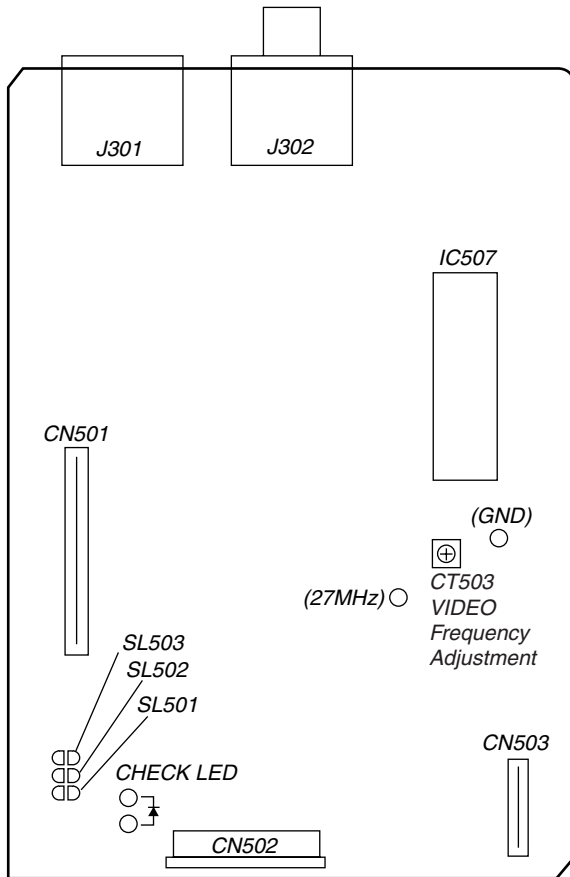


#### Procedure:

1. Connect the frequency counter to check point of the VIDEO board.
2. Turned  button switch on.
3. Press the **FUNCTION** button to select the CD.
4. Adjust CT503 on the VIDEO board so that the frequency counter reading 27.0 MHz  $\pm$  80 Hz at stop status.

#### Adjustment Location:




[VIDEO BOARD] (SIDE A)



### NOTE FOR PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

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





#### Note on Printed Wiring Board:



-  : parts extracted from the component side.
-  : internal component.
-  : Pattern from the side which enables seeing.


#### Caution:











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

#### Note on Schematic Diagram:

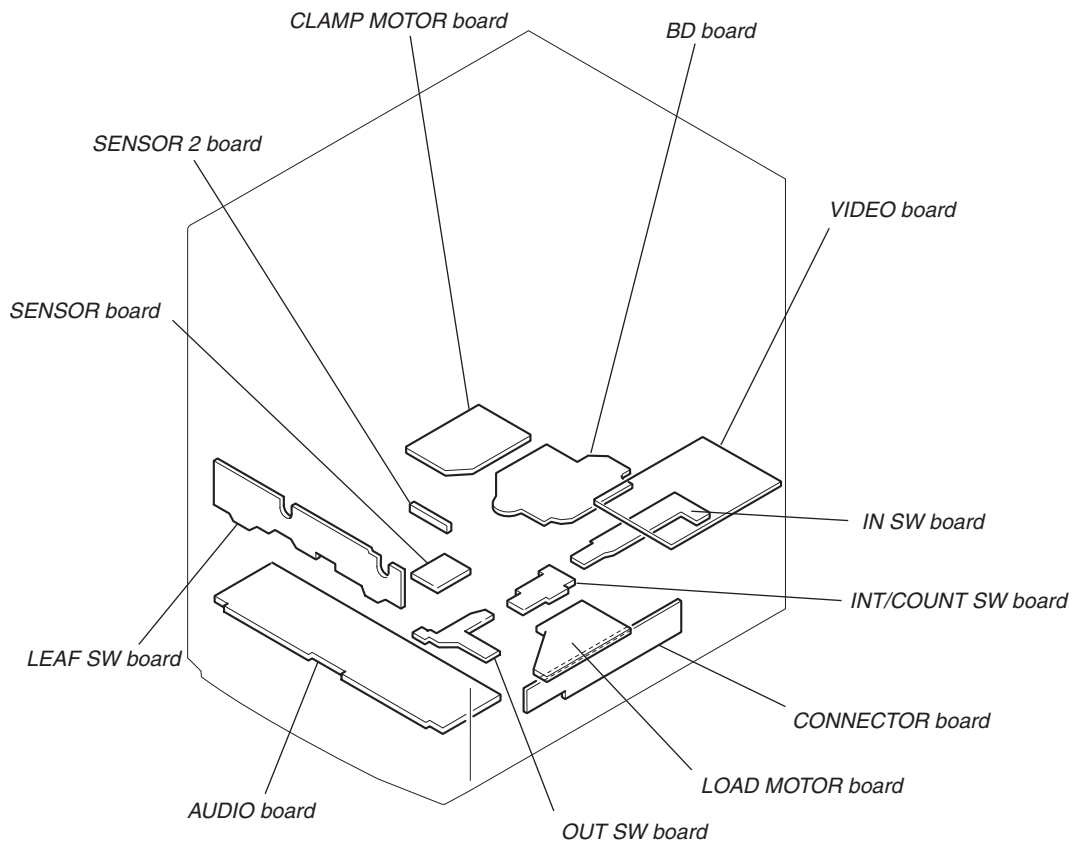
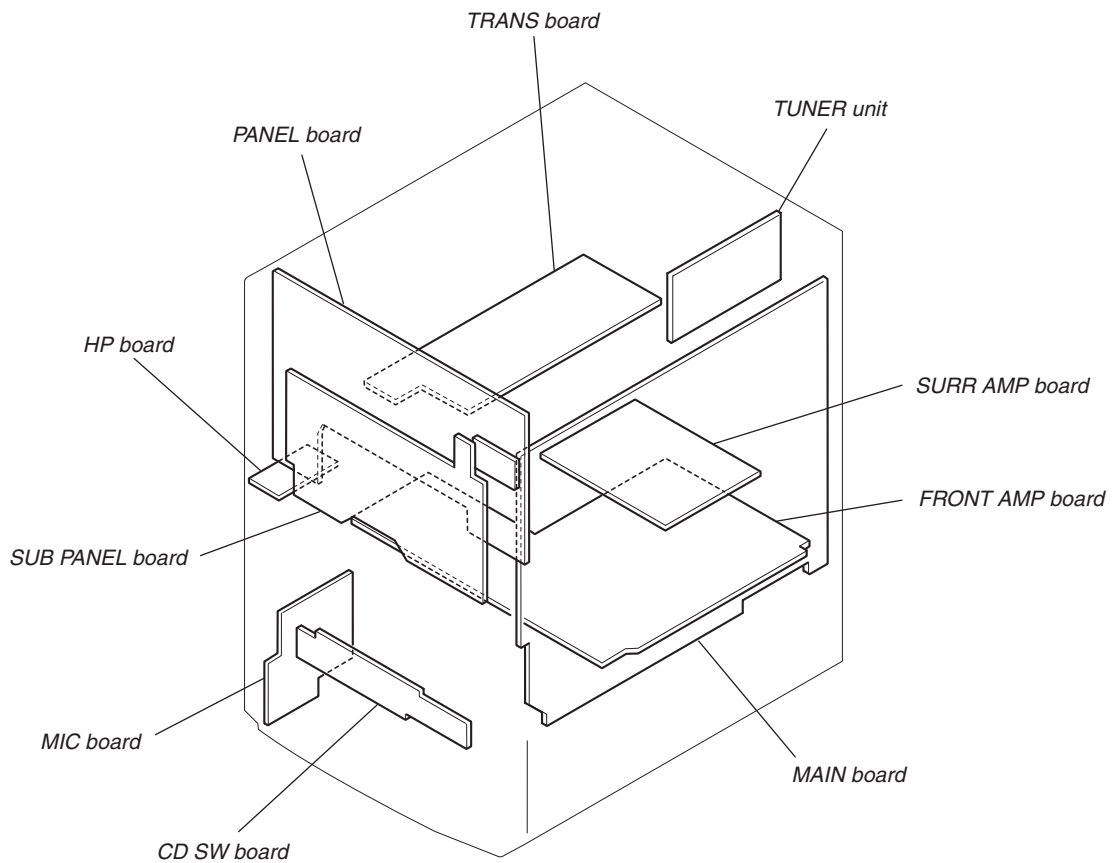
- All capacitors are in  $\mu\text{F}$  unless otherwise noted. pF:  $\mu\text{pF}$  50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in  $\Omega$  and  $1/4\text{W}$  or less unless otherwise specified.
-  : internal component.
-  : nonflammable resistor.
-  : fusible resistor.
-  : panel designation.

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。

-  : B+ Line.
-  : B- Line.
-  : adjustment for repair.
- Voltages are taken with a VOM (Input impedance 10 M $\Omega$ ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with an oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
  -  : TUNER (FM/AM)
  -  : PLAYBACK (DECK A)
  -  : PLAYBACK (DECK B)
  -  : RECORD
  -  : CD PLAY (ANALOG OUT)
  -  : CD PLAY (DIGITAL OUT)
  -  : MIC INPUT
- Abbreviation
  - EA : Saudi Arabia model.
  - SP : Singapore model.
  - MY : Malaysia model.
  - TH : Thai model.
  - HK : Hong Kong model.
  - CH : Chinese model.

## 6-1. CIRCUIT BOARDS LOCATION

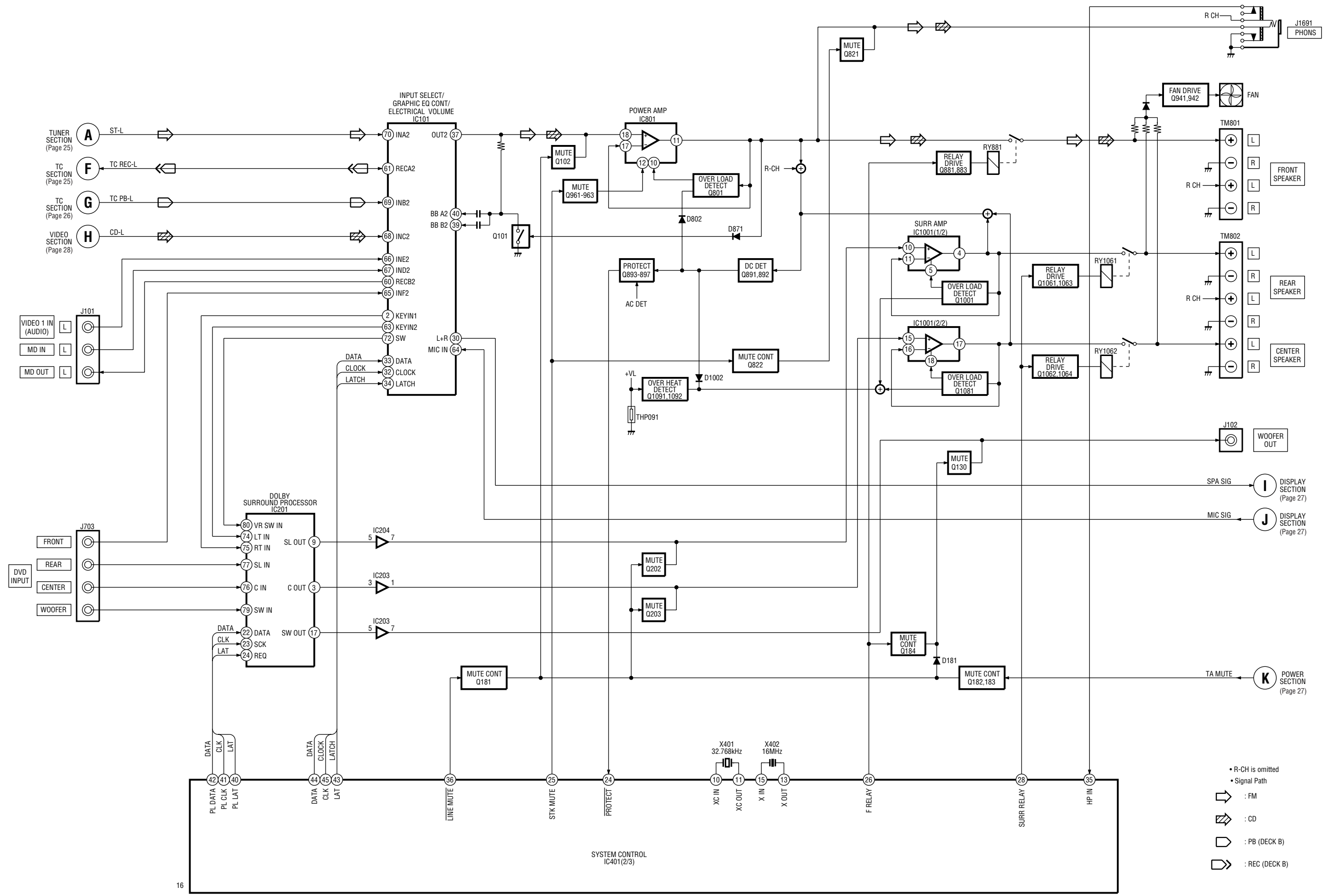






# HCD-VZ30AV

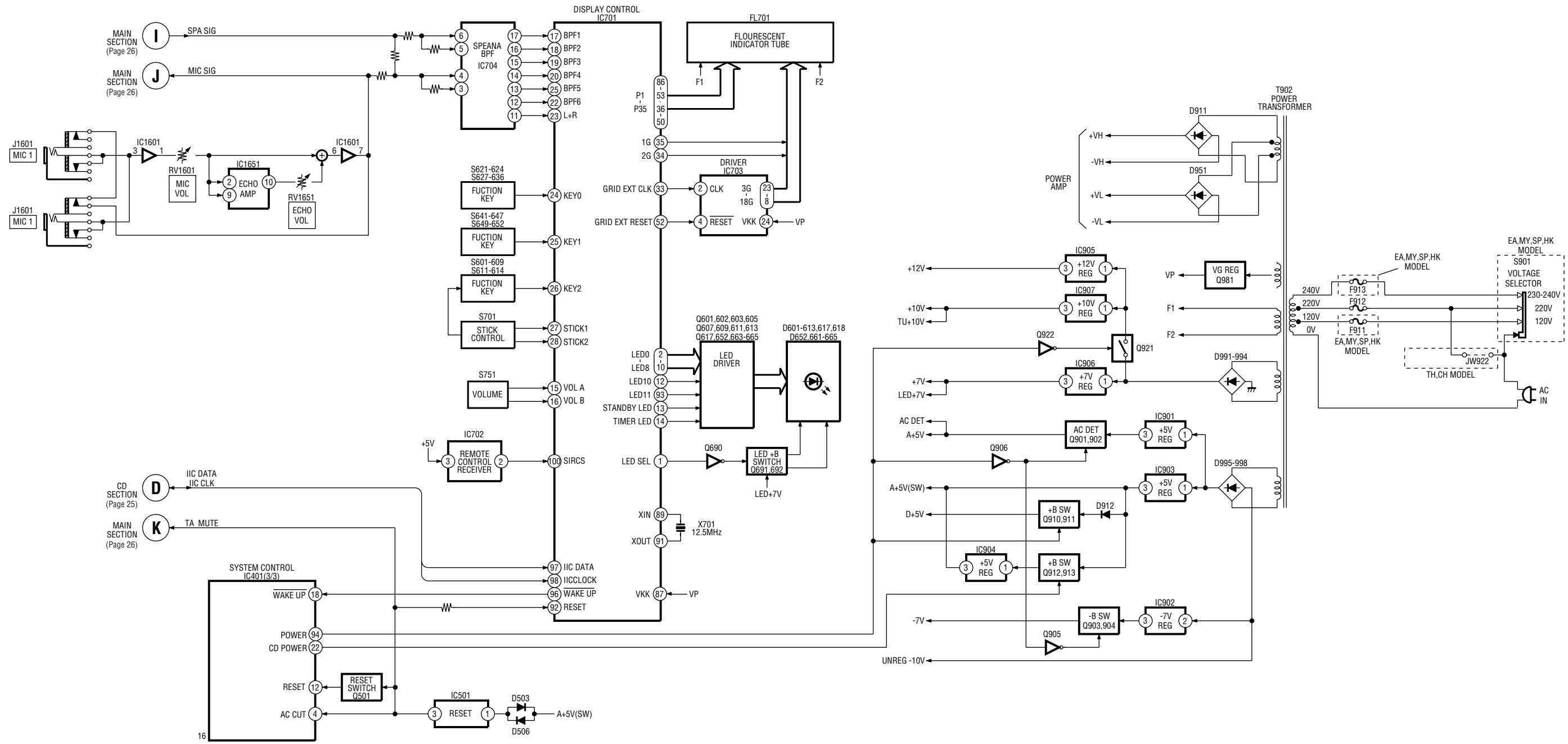
## MAIN SECTION



- R-CH is omitted
- Signal Path
- ➡ : FM
- ➡ : CD
- ➡ : PB (DECK B)
- ➡ : REC (DECK B)

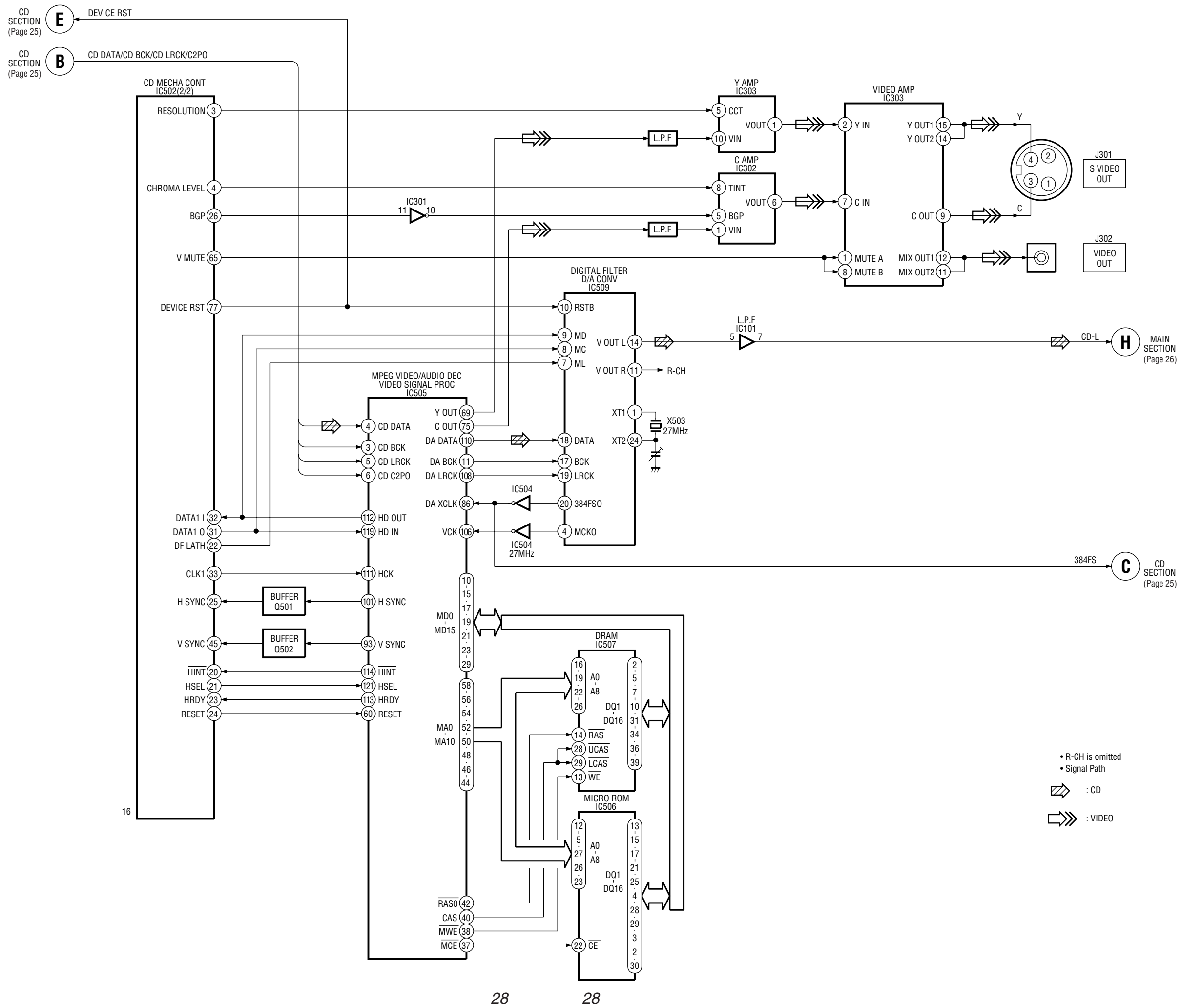
16

DISPLAY/POWER SECTION

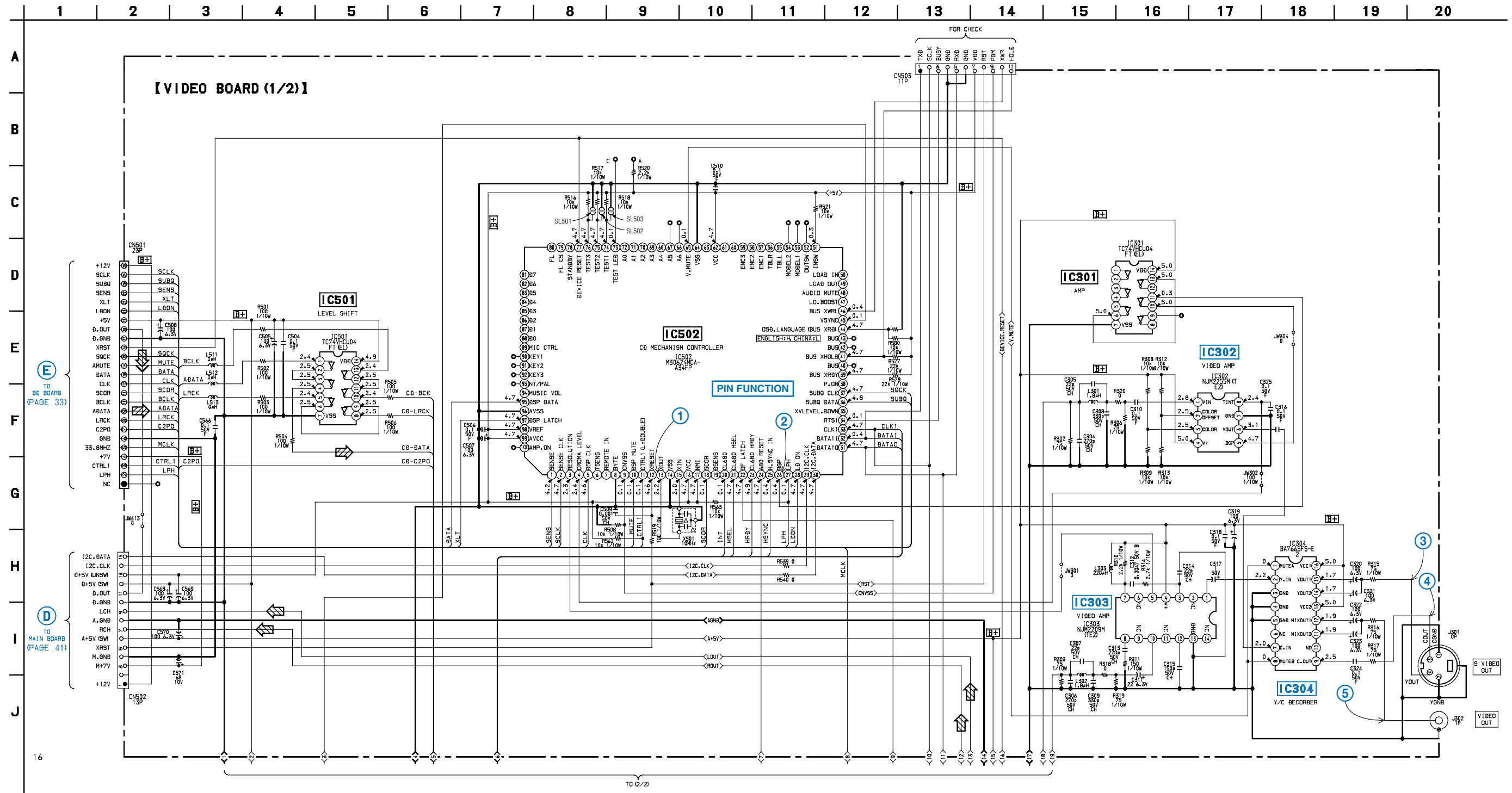


HCD-VZ30AV

VIDEO CD SECTION



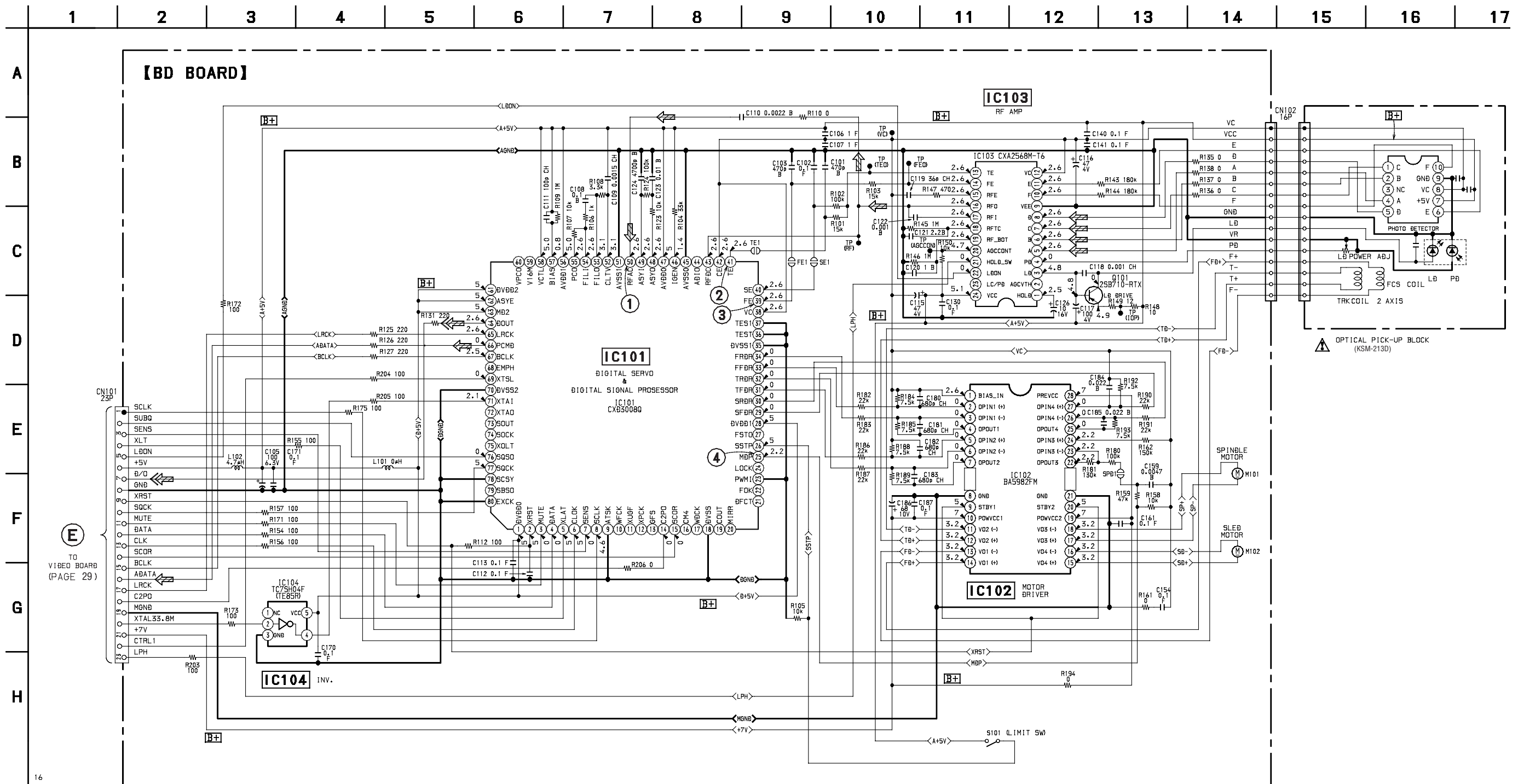
6-3. SCHEMATIC DIAGRAM VIDEO CD SECTION (1/2) • See page 59 for IC Pin Function Description.  
 • See page 54 for IC Block Diagrams.





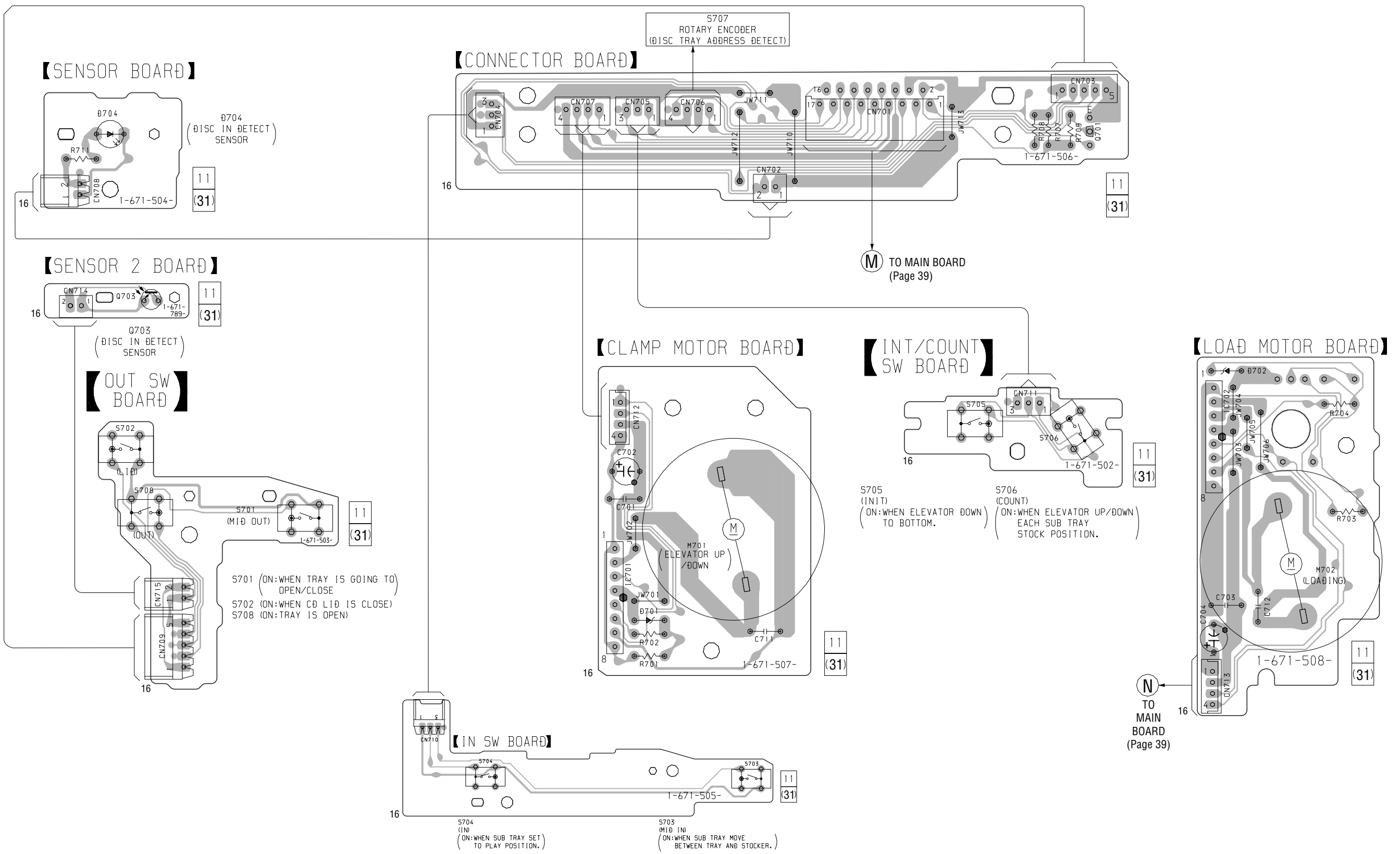
6-7. SCHEMATIC DIAGRAM BD SECTION

- See page 46 for Waveforms.
- See page 54 for IC Block Diagrams.



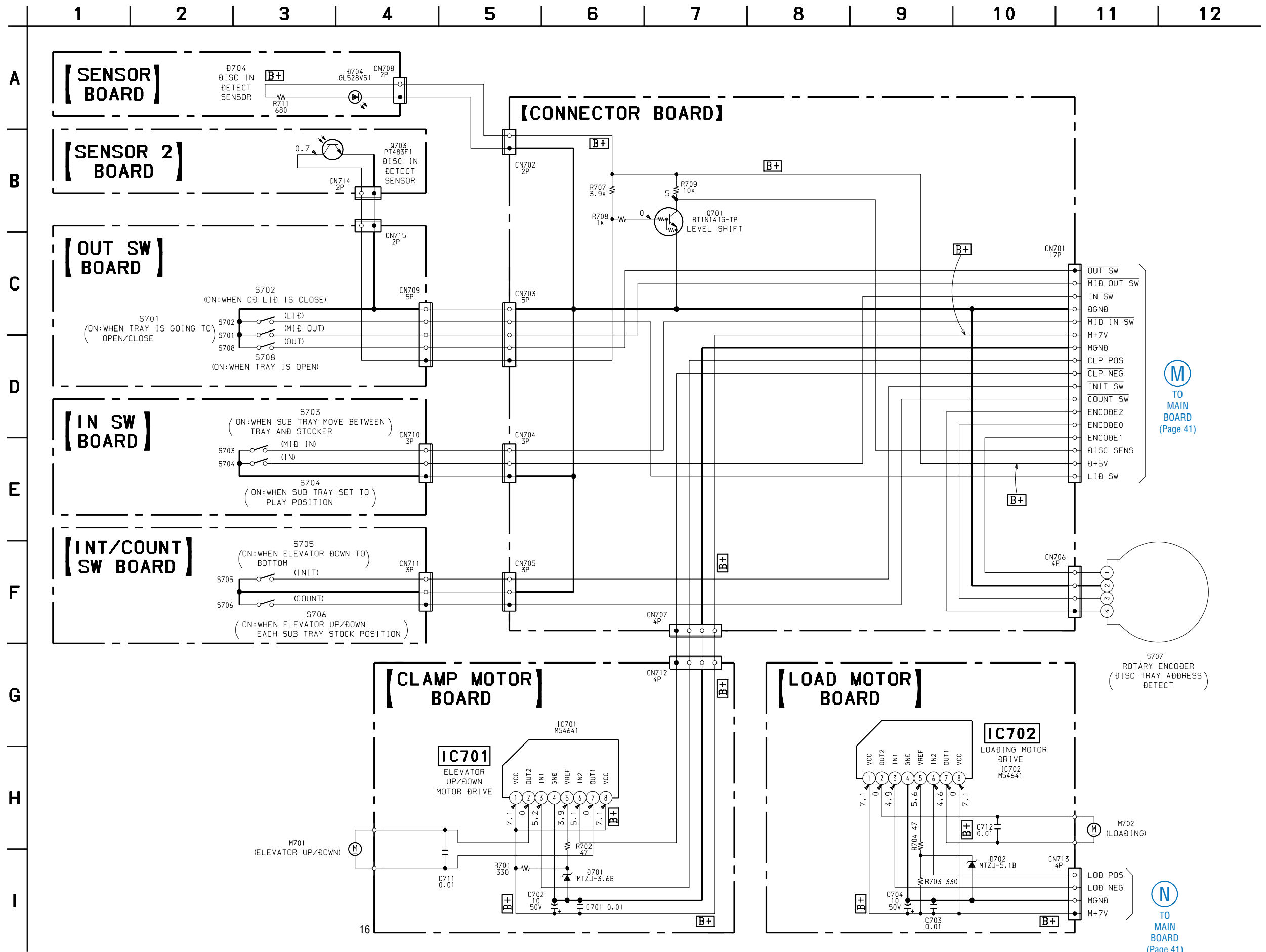
The components identified by mark  $\triangle$  or dotted line with mark  $\triangle$  are critical for safety. Replace only with part number specified.

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。





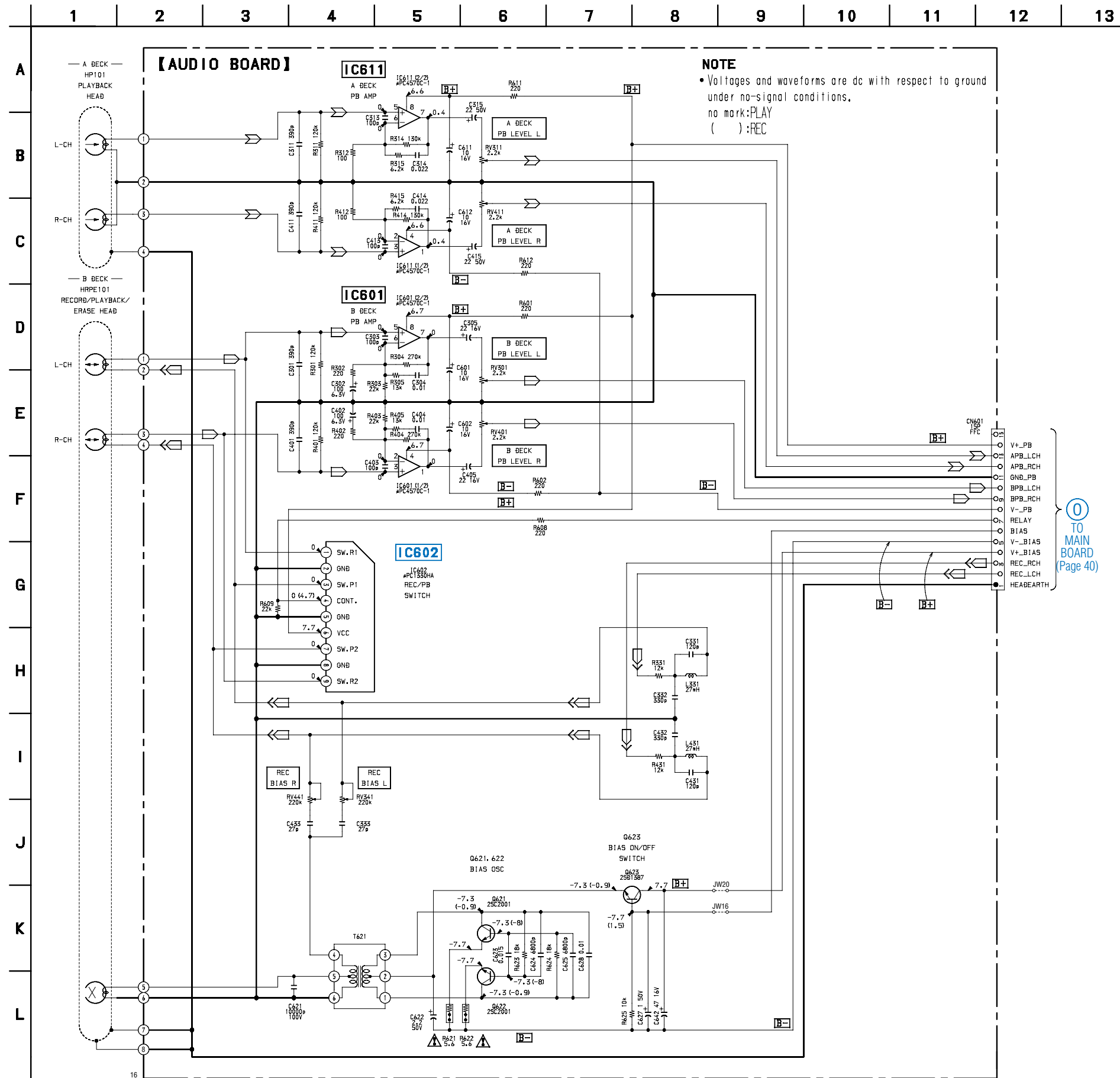
6-9. SCHEMATIC DIAGRAM SENSOR/MOTOR Section



**(M)**  
TO  
MAIN  
BOARD  
(Page 41)

**(N)**  
TO  
MAIN  
BOARD  
(Page 41)

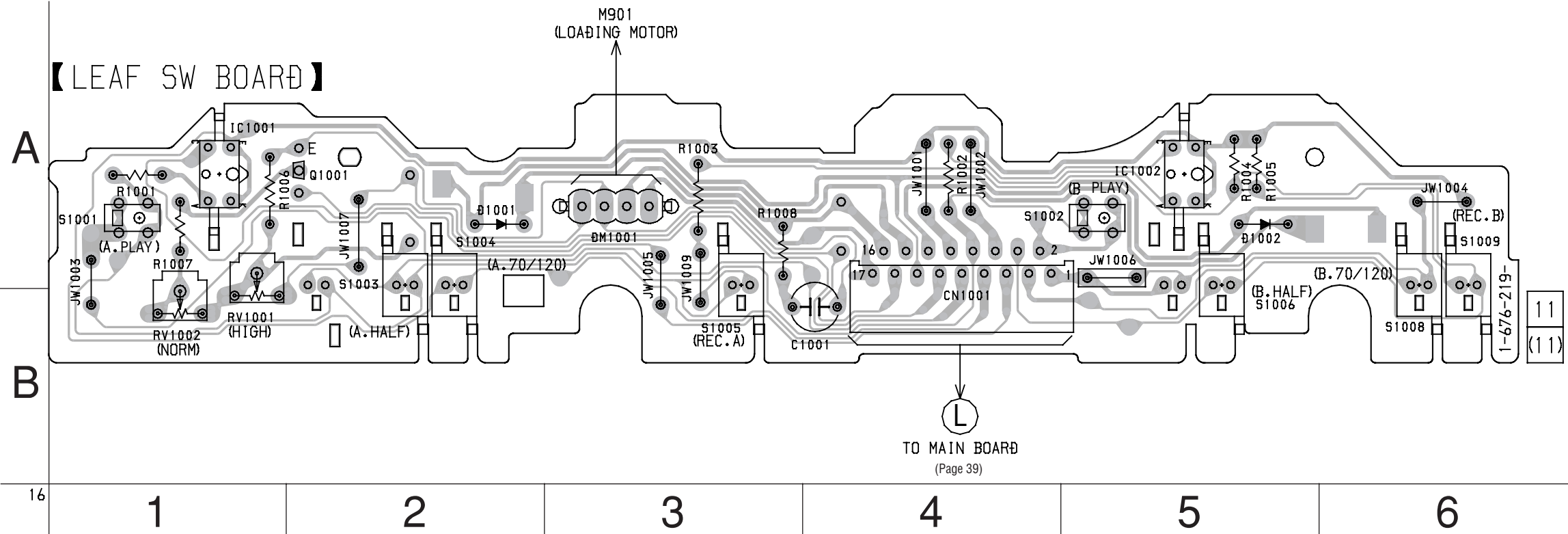
6-11. SCHEMATIC DIAGRAM AUDIO Board • See page 54 for IC Block Diagrams.



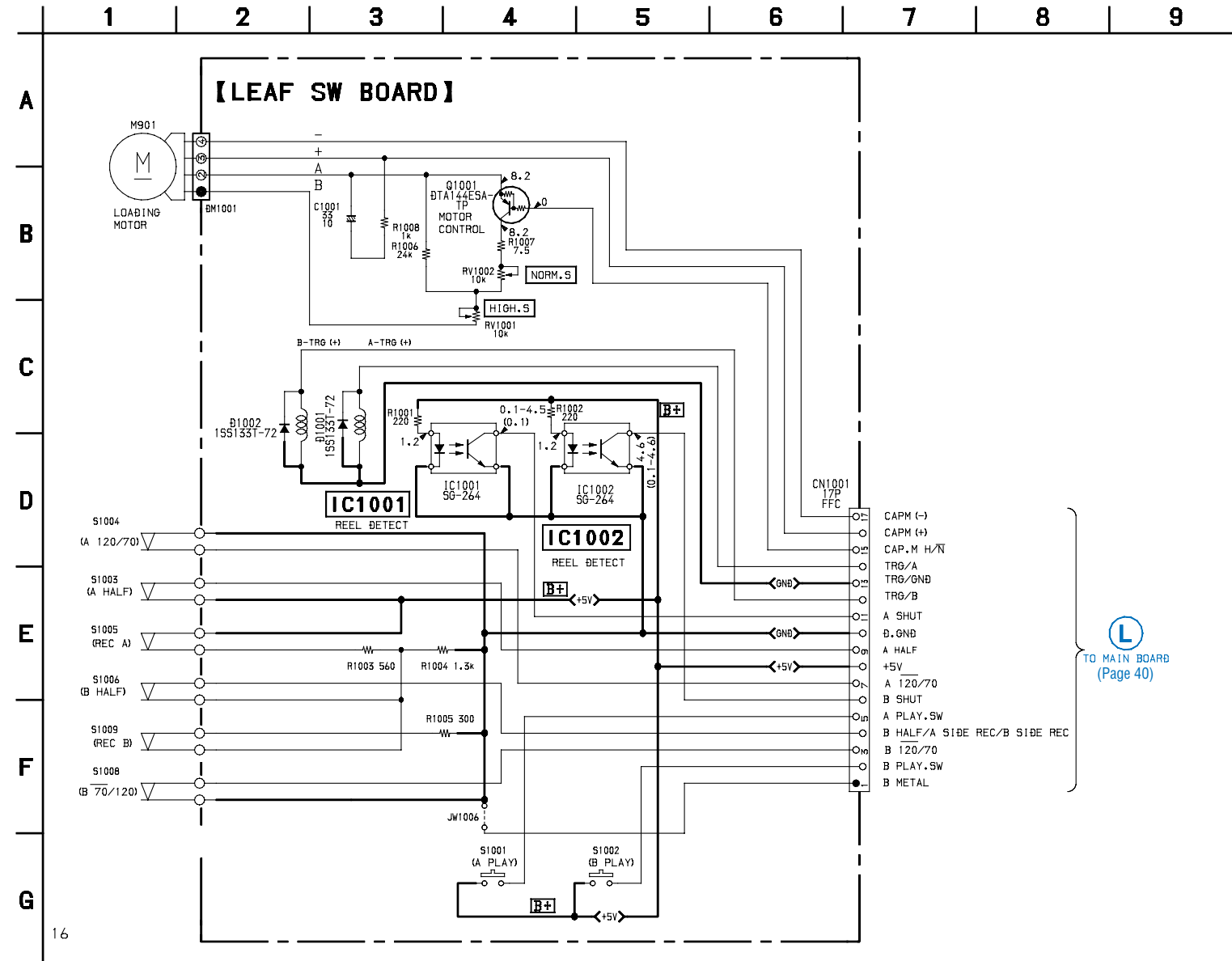
The components identified by mark  $\triangle$  or dotted line with mark  $\triangle$  are critical for safety. Replace only with part number specified.

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。

6-12. PRINTED WIRING BOARD LEAF SW Board • See page 24 for Circuit Boards Location.

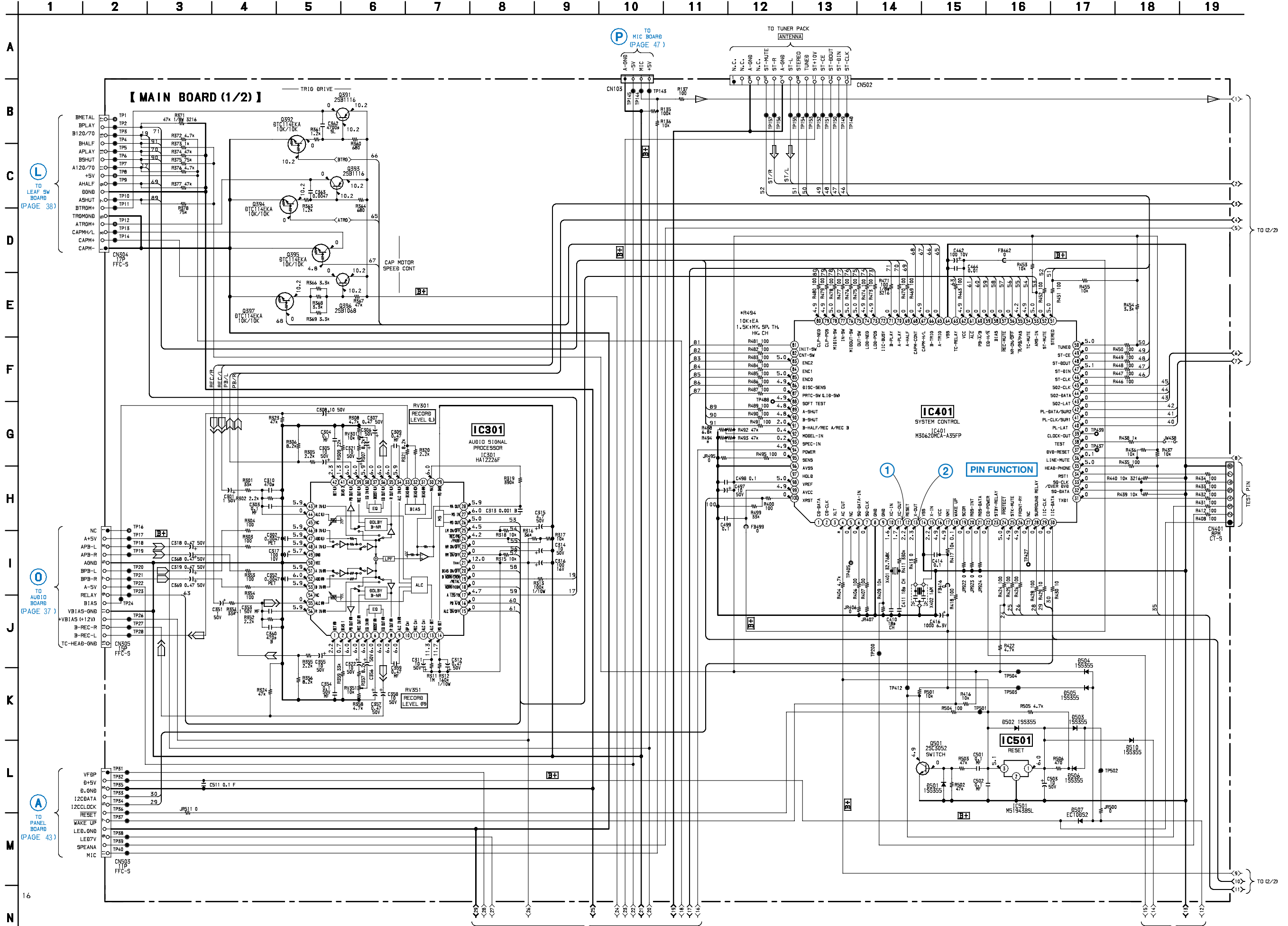


6-13. SCHEMATIC DIAGRAM LEAF SW Board



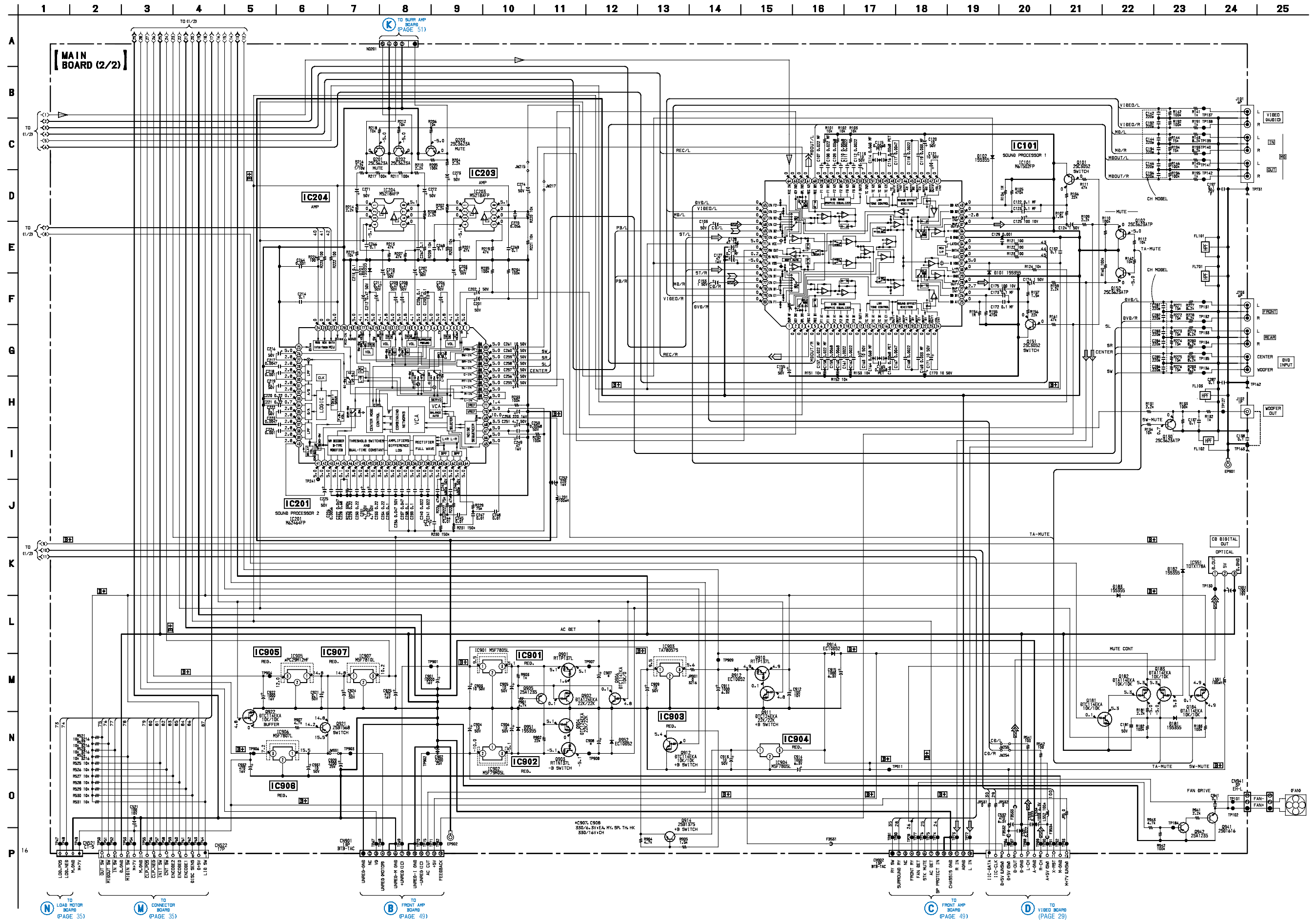
• Voltages are dc with respect to ground under no-signal conditions.  
 no mark : TAPE PLAY  
 ( ) : RECORD

6-15. SCHEMATIC DIAGRAM MAIN Board (1/2) • See page 46 for Waveforms.  
 • See page 56 for IC Pin Function.



• Voltages and waveforms are dc with respect to ground under no-signal (detuned) conditions.  
 no mark : TUNER (FM/AM)

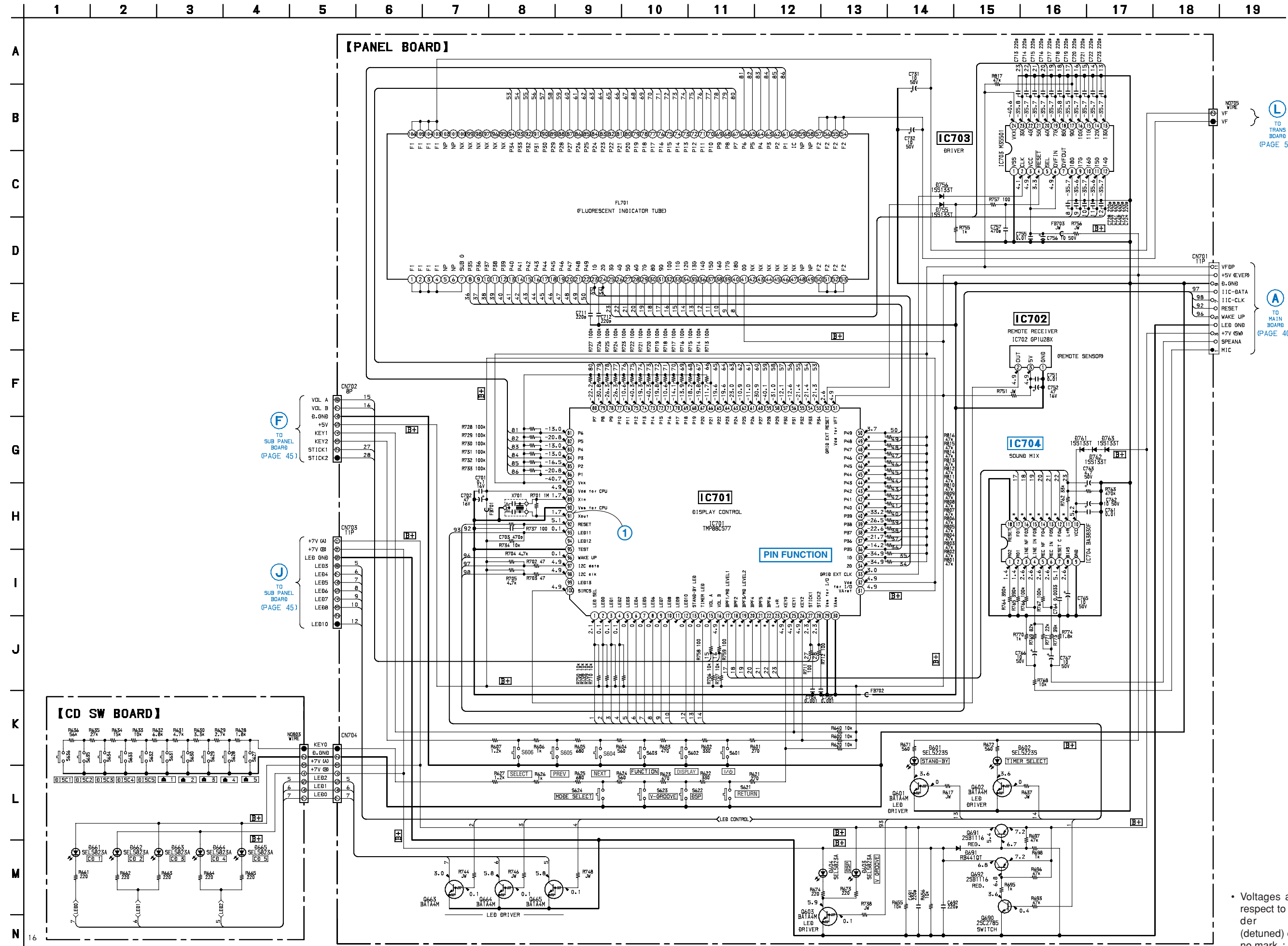
6-17. SCHEMATIC DIAGRAM MAIN Board (2/2)





6-19. SCHEMATIC DIAGRAM PANEL Board

- See page 46 for Waveforms.
- See page 54 for IC Block Diagrams.
- See page 58 for IC Pin Function.



(L) TO TRANS BOARD (PAGE 53)

(A) TO MAIN BOARD (PAGE 40)

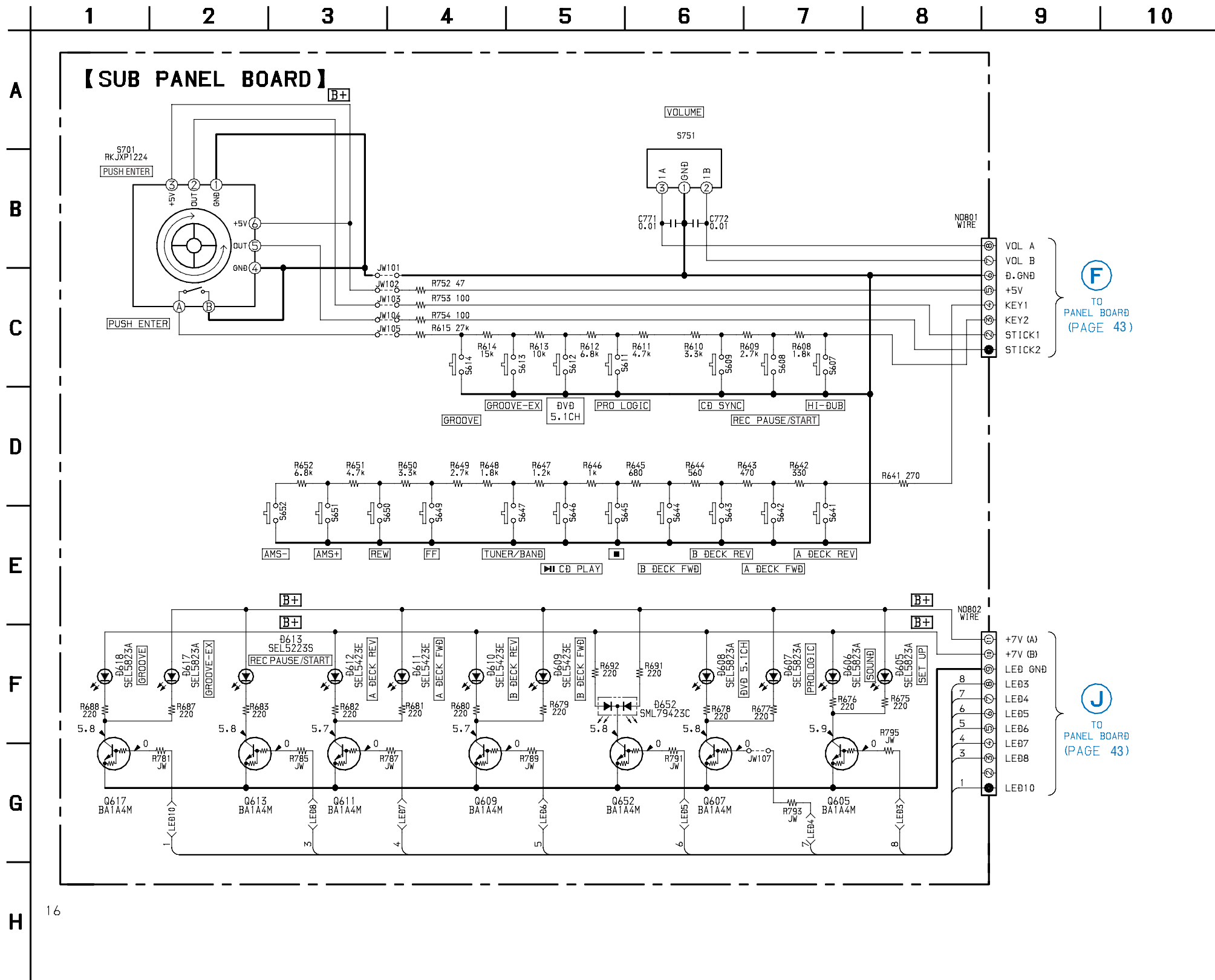
(F) TO SUB PANEL BOARD (PAGE 45)

(J) TO SUB PANEL BOARD (PAGE 45)

PIN FUNCTION

• Voltages are dc with respect to ground under no-signal (detuned) conditions. no mark : FM

6-21. SCHEMATIC DIAGRAM SUB PANEL Board



16

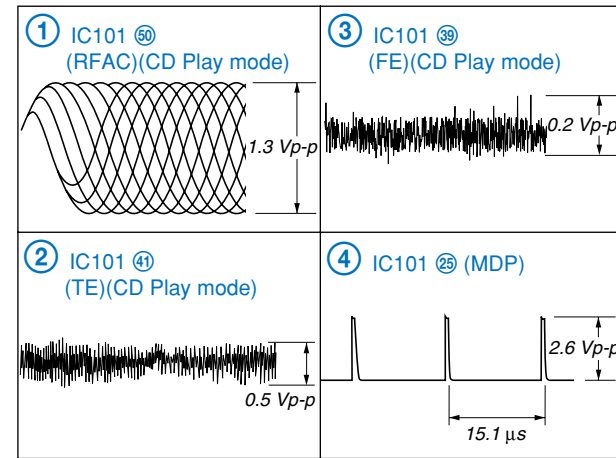
• Voltages are dc with respect to ground under no-signal (detuned) conditions.  
no mark : FM



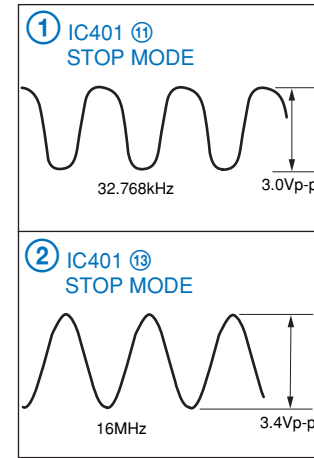
HCD-VZ30AV

6-22. WAVEFORMS

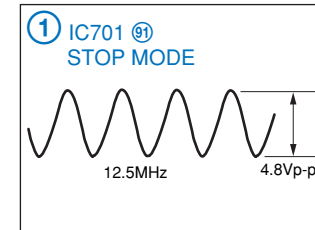
- BD BOARD -



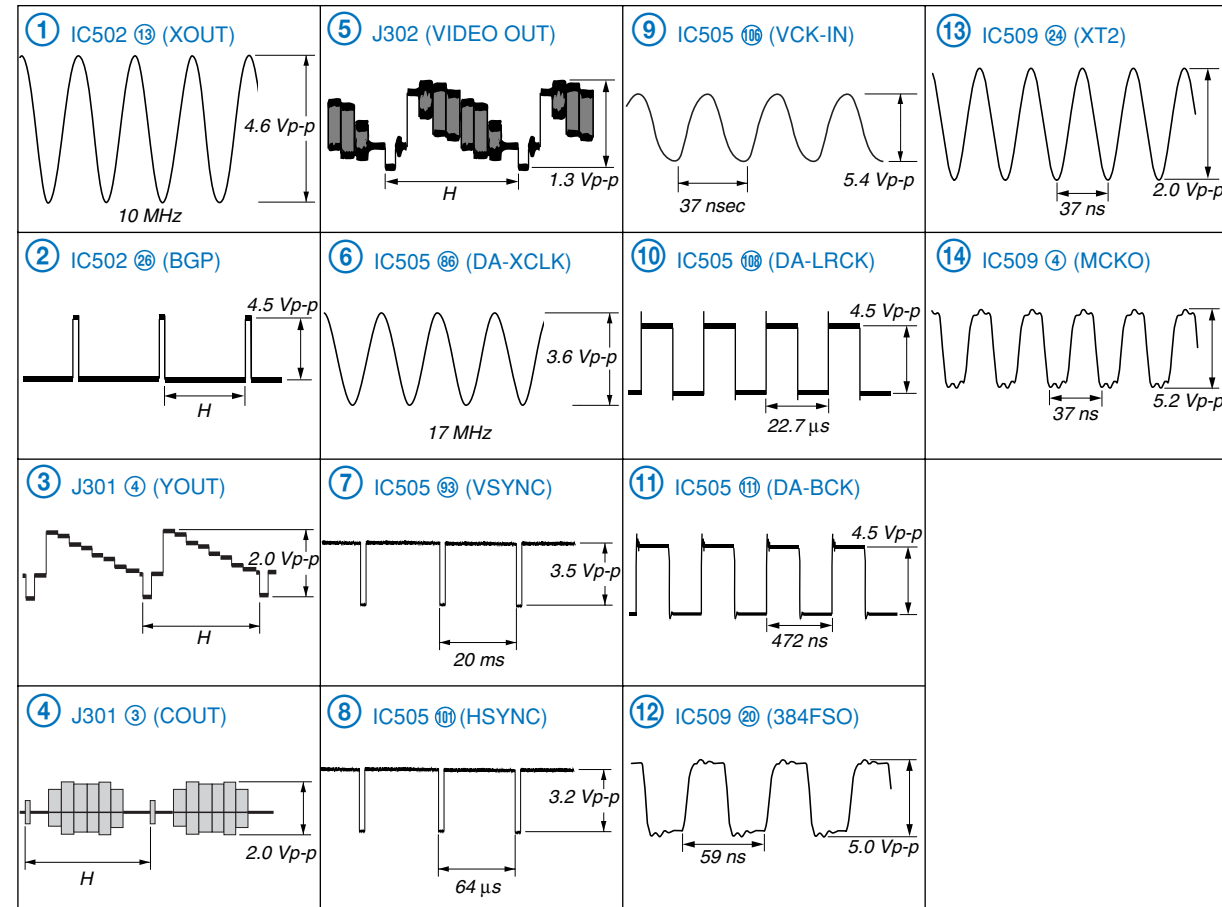
- MAIN BOARD -



- PANEL BOARD -

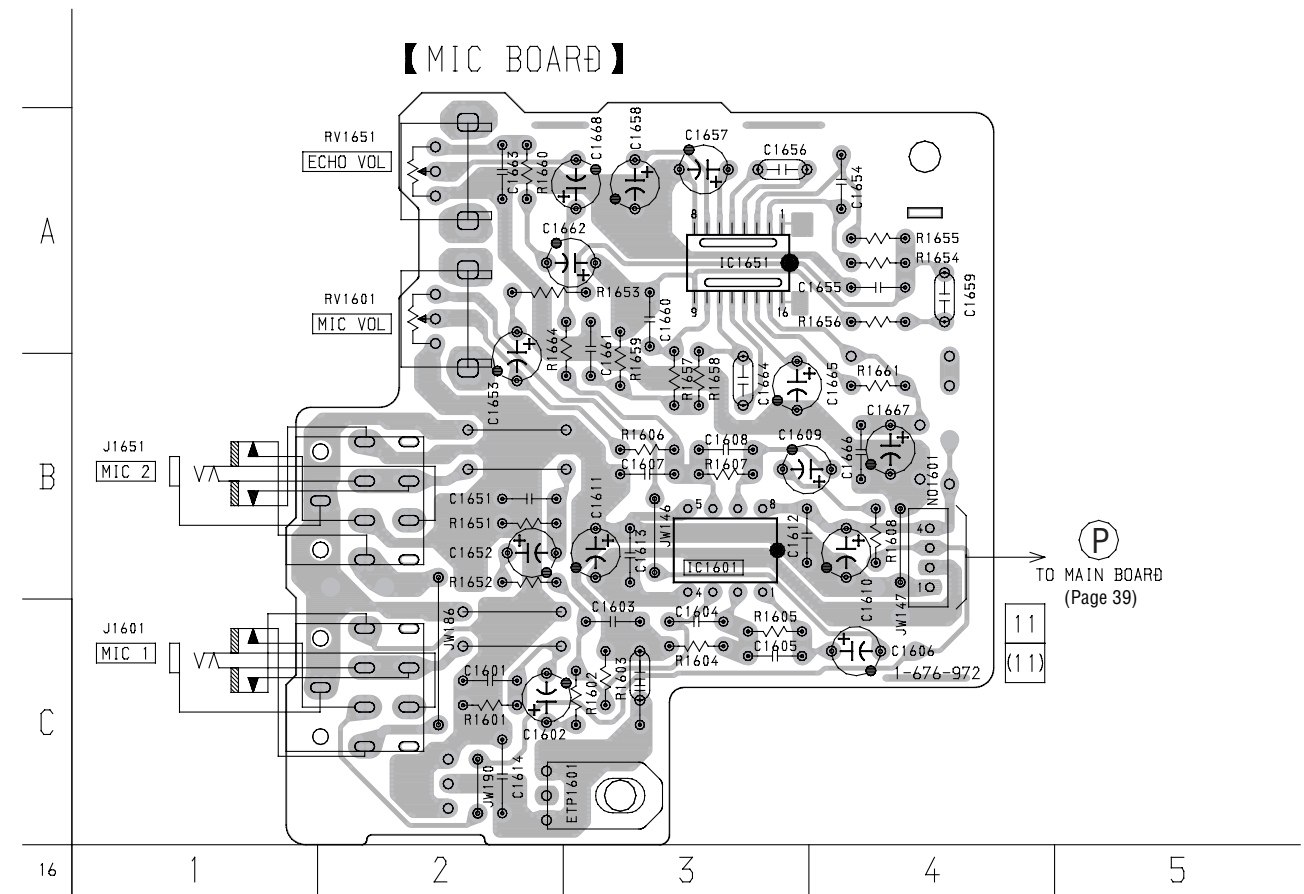


- VIDEO BOARD -

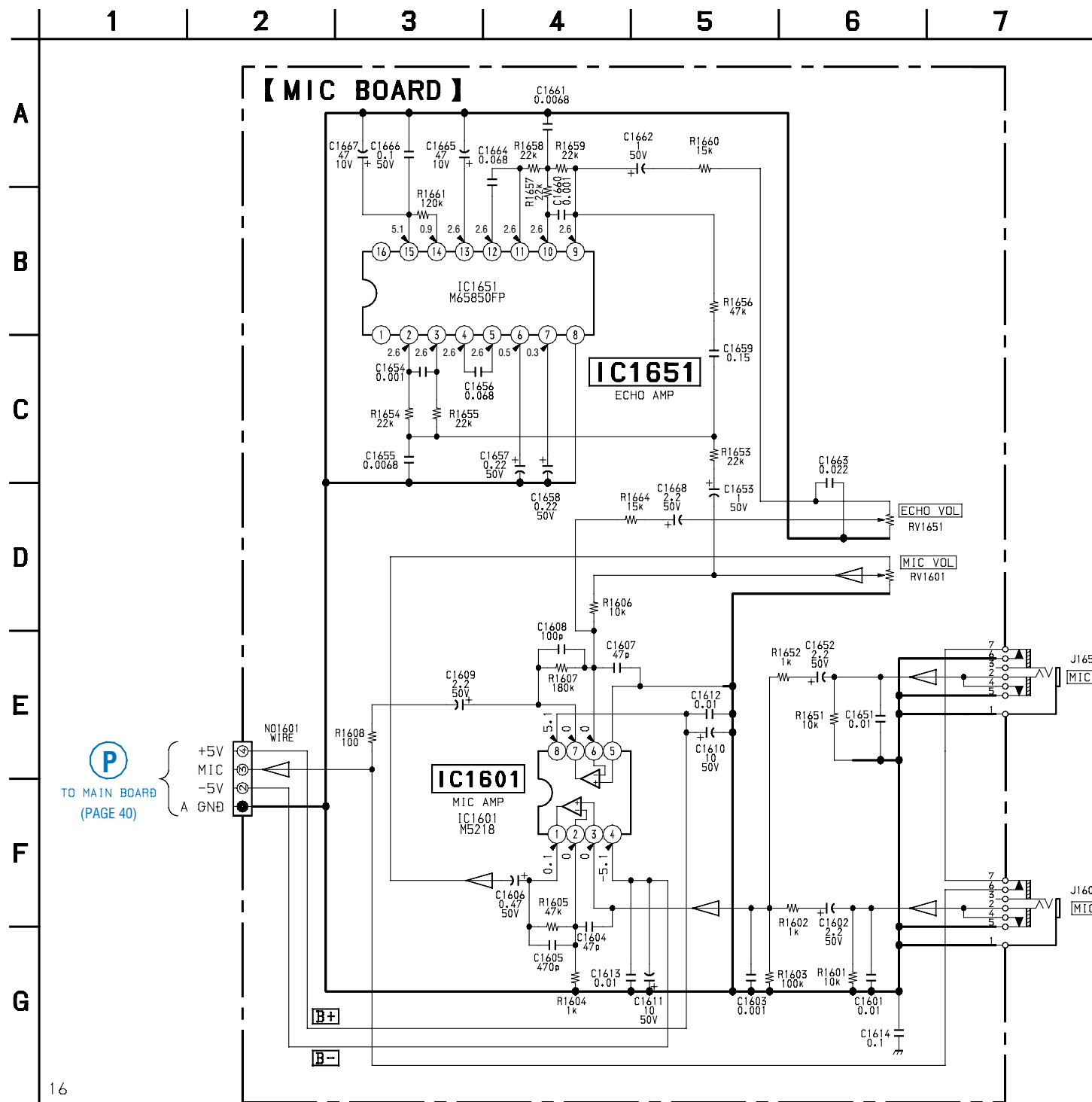


6-23. PRINTED WIRING BOARD MIC Board

• See page 24 for Circuit Boards Location.



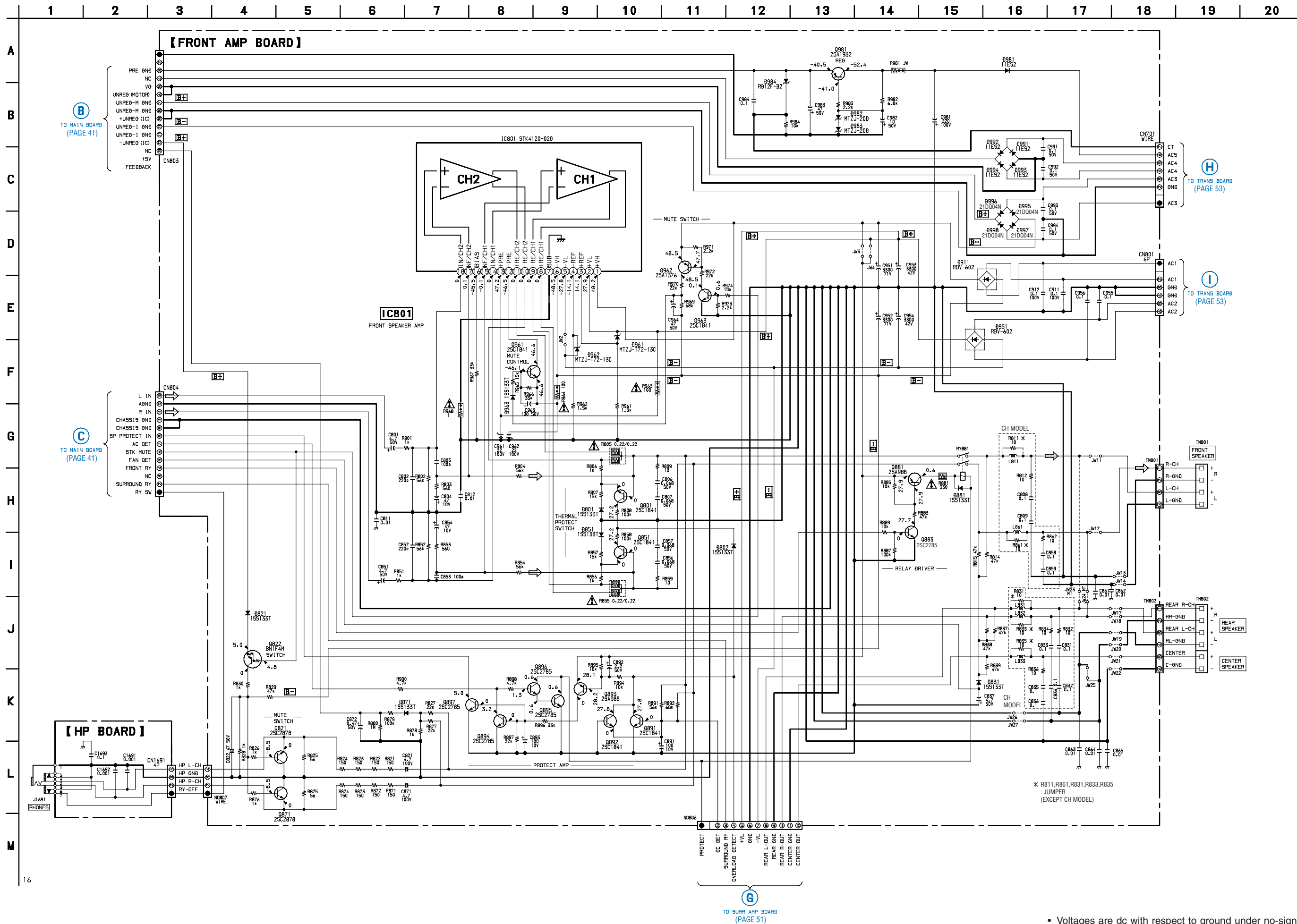
6-24. SCHEMATIC DIAGRAM MIC Board



16

- Voltages are dc with respect to ground under no-signal (detuned) conditions.  
no mark : FM

6-26. SCHEMATIC DIAGRAM FRONT AMP Board



B TO MAIN BOARD (PAGE 41)

C TO MAIN BOARD (PAGE 41)

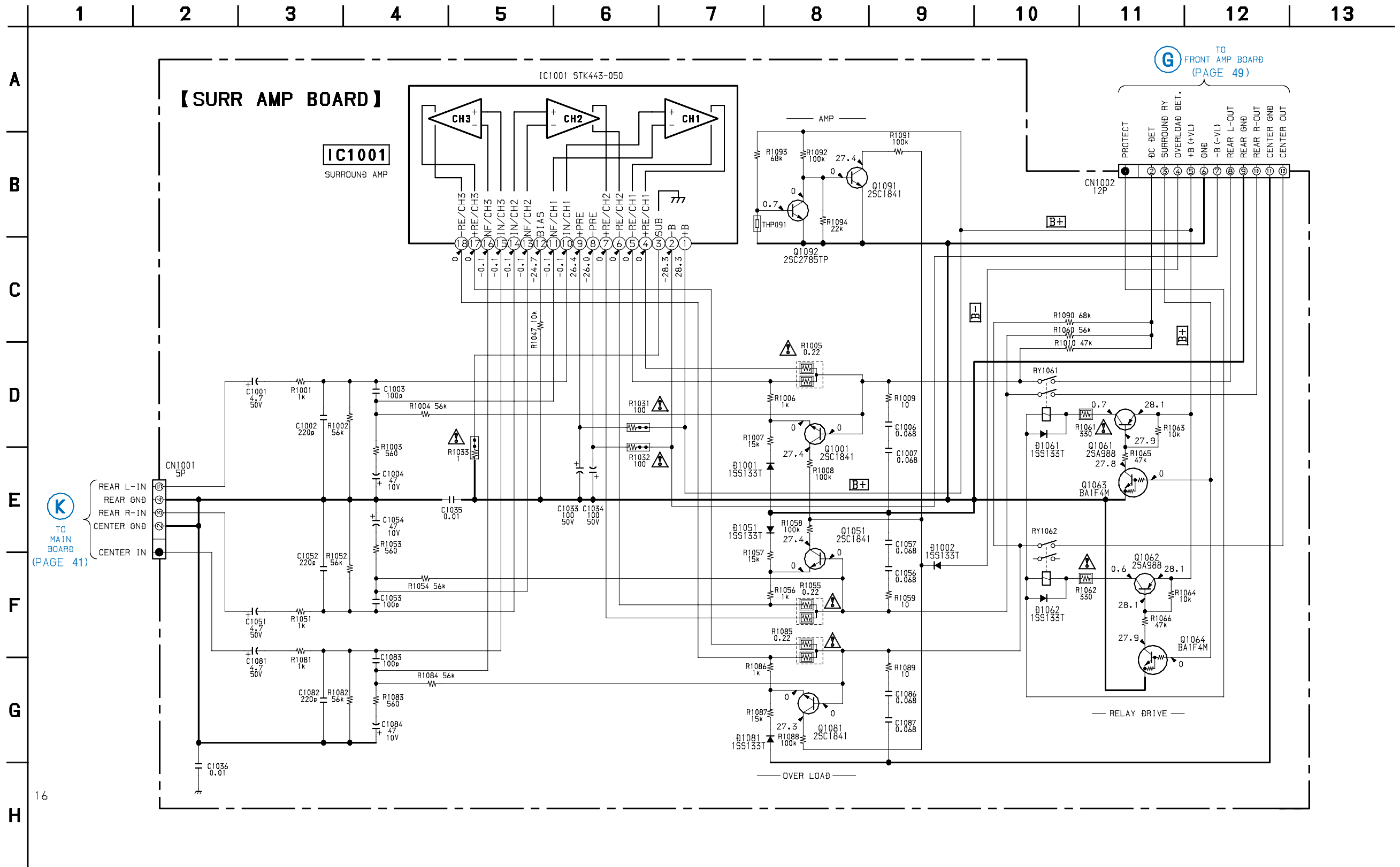
H TO TRANS BOARD (PAGE 53)

I TO TRANS BOARD (PAGE 53)

G TO SURR AMP BOARD (PAGE 51)

• Voltages are dc with respect to ground under no-signal (detuned) conditions.  
no mark : FM

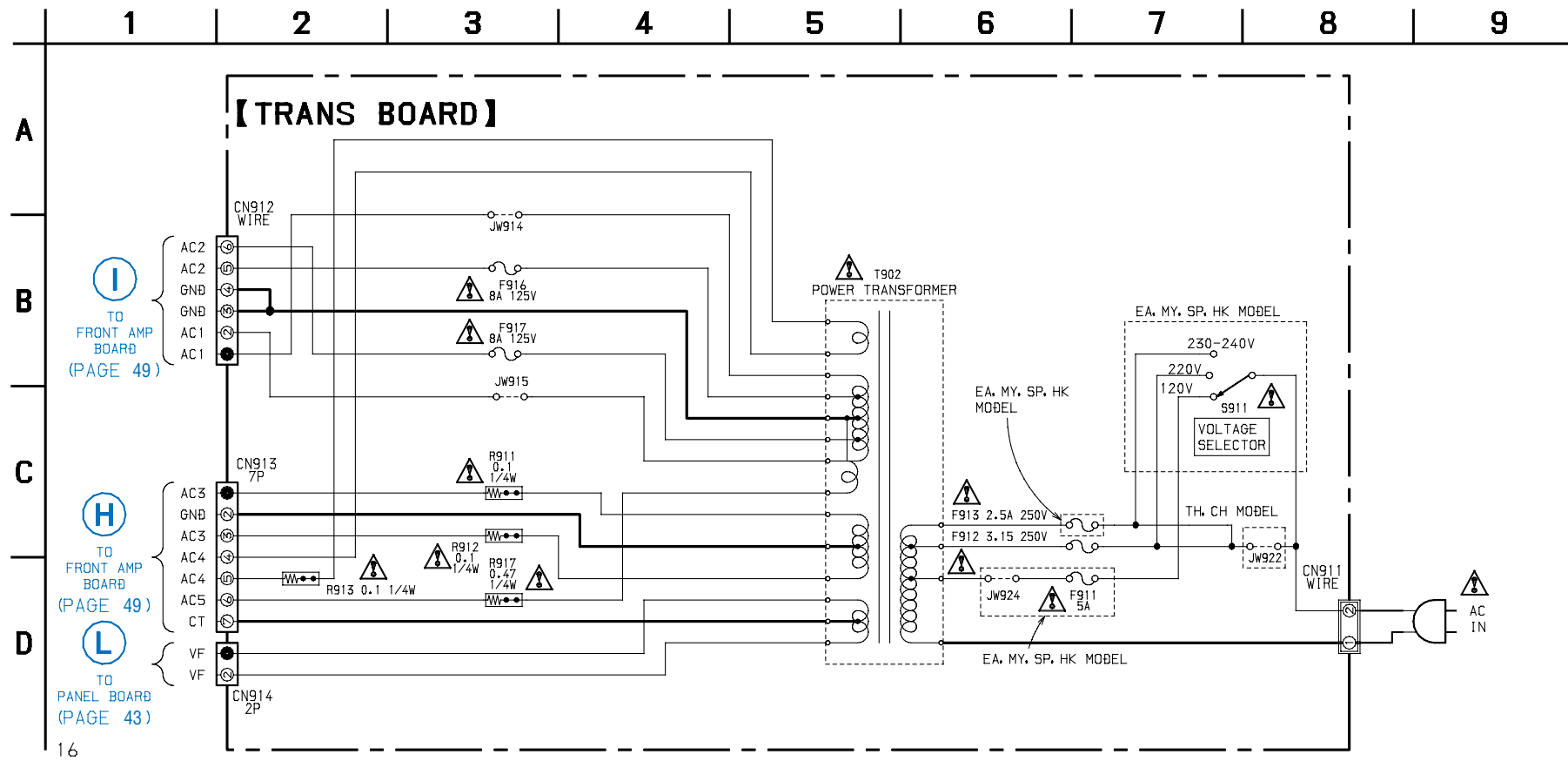
6-28. SCHEMATIC DIAGRAM SURROUND AMP Board



(K) TO MAIN BOARD (PAGE 41)

(G) TO FRONT AMP BOARD (PAGE 49)

6-30. SCHEMATIC DIAGRAM TRANS Board



16

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

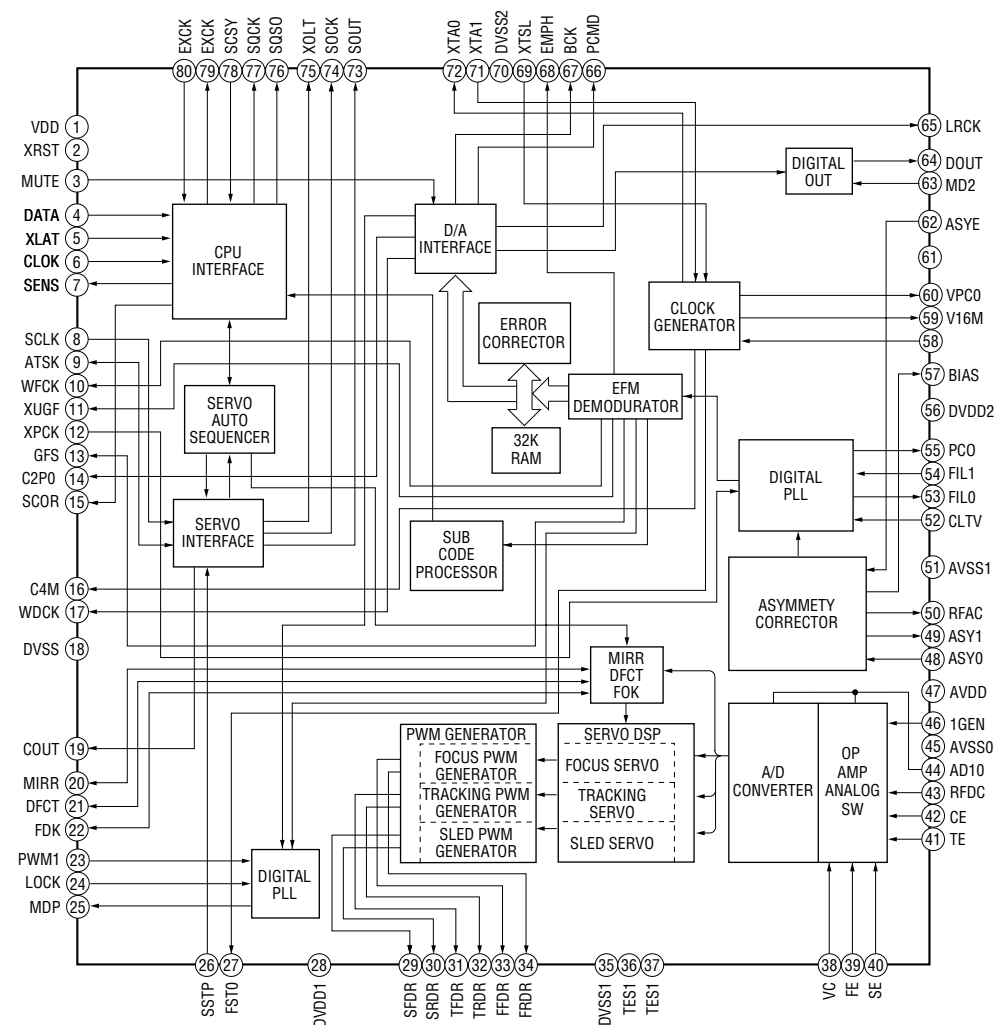
以阴影和  $\triangle$  标志来识别的零部件，在安全方面具有关键性。因此只能以规定号码的零部件来更换。

HCD-VZ30AV

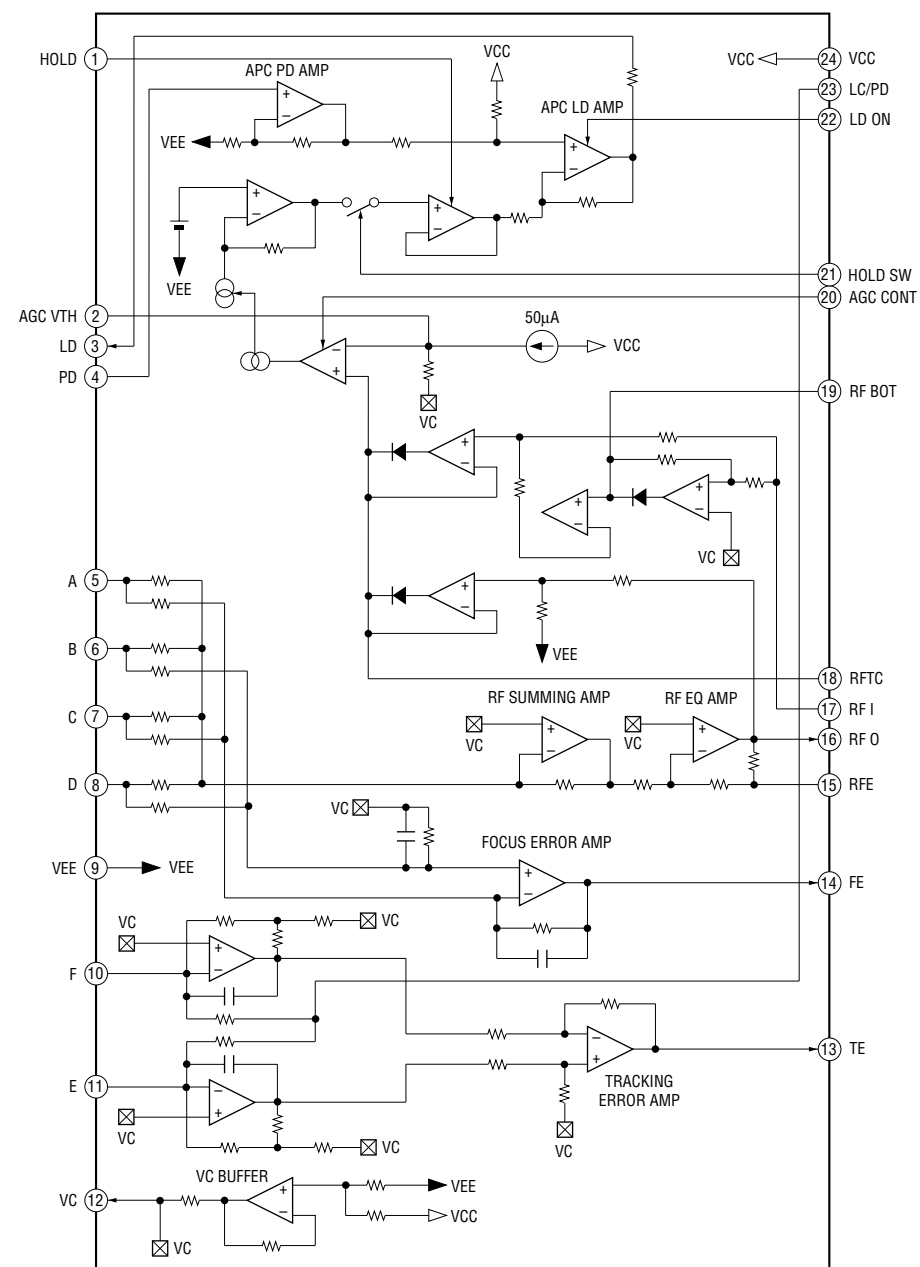
6-31. IC BLOCK DIAGRAMS

– BD Board –

IC101 CXD3008Q

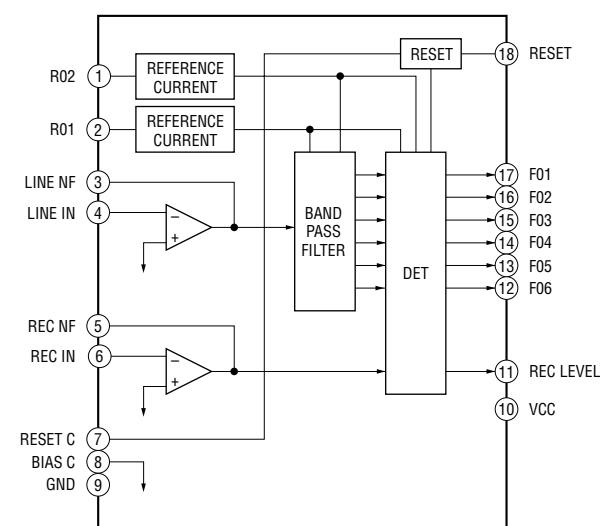


IC103 CXA2568M-T6



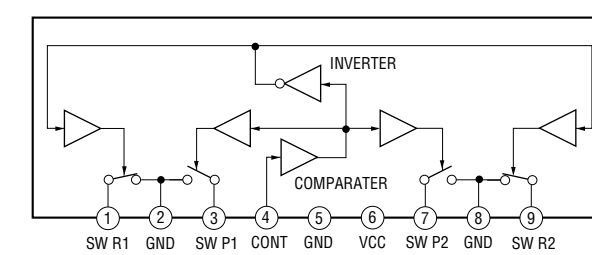
– PANEL Board –

IC704 BA3830F



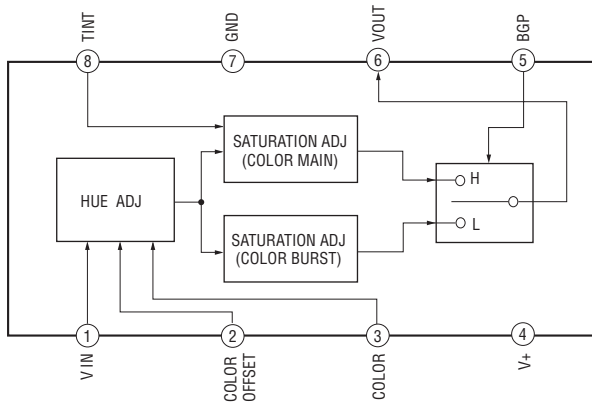
– AUDIO Board –

IC602 µPC1330HA

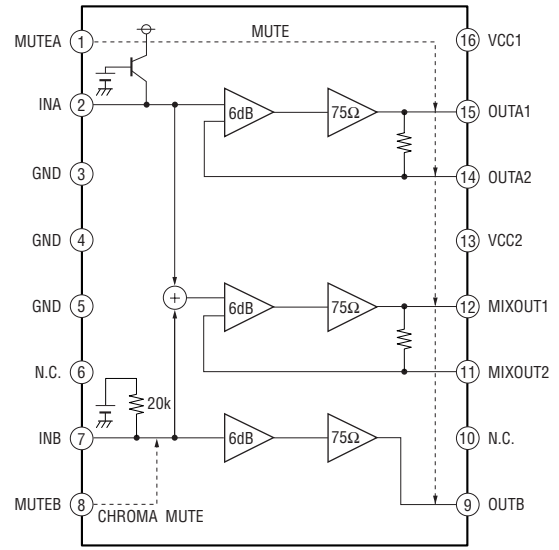


- VIDEO Board -

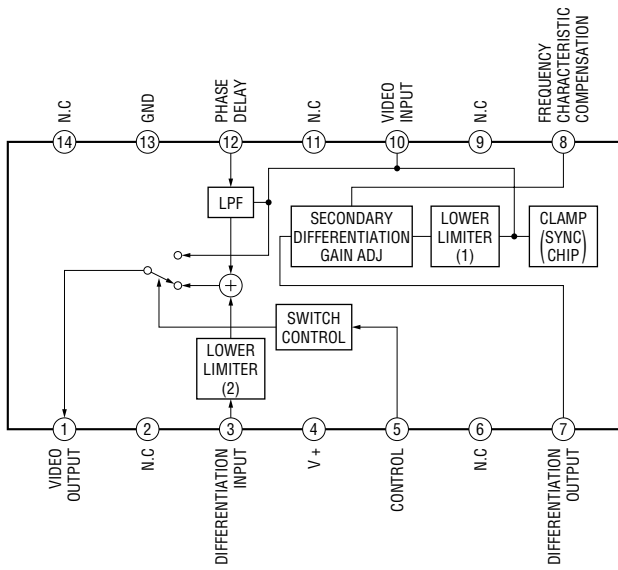
IC302 NJM2255M



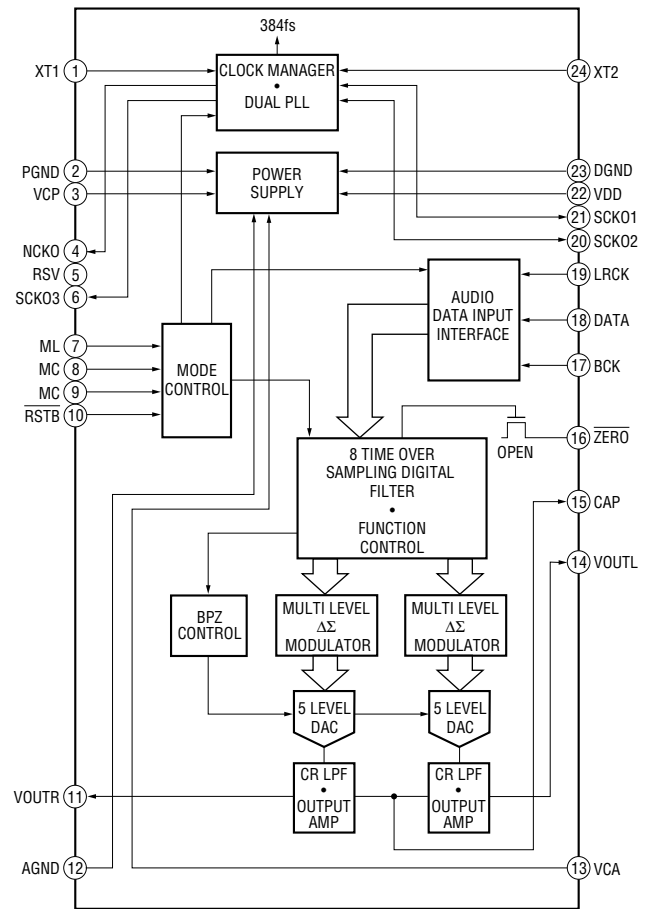
IC304 BA7665FS



IC303 NJM2209M



IC509 PCM1727





## 6-28. IC PIN FUNCTION DESCRIPTION

### • MAIN BOARD IC401 M30620MCA-A35FP

Pin No.	Pin Name	I/O	Description
1	CD_DATA	O	BD data out
2	CD_CLK	O	BD clock
3	XLT	O	BD LAT
4	AC CUT	I	AC cut ON (L) / OFF (H) Check
5	CAN'T USE	O	Not used
6	SQ_DATA_IN	I	BD sub-Q Data in
7	SQ_CLK	I	BD sub-Q Clock
8	BYTE	—	EXT. Data bus width select input
9	CNVss	—	To FLASH connector 8 / Pull-down to Vss
10	Xcin	—	Sub clock in
11	Xcout	—	Sub clock out
12	RESET	—	To FLASH connector 9 / Reset
13	Xout	—	Main system clock out
14	Vss	—	Vss
15	Xin	—	Main system clock in (16 MHz)
16	Vcc	—	Power supply (+5 V)
17	NMI	I	Pull up (Ever +5 V) not used
18	WAKE_UP	I	Wake up (L)
19	SCOR	I	BD sub-Q request
20	RDS-INT	I	RDS INT
21	RDS-DATA	I	RDS data
22	CD-POWER	O	CD-Power ON (H) / OFF (L)
23	STBY-RELAY	O	Standby relay
24	PROTECT	I	Speaker protect ON (L) / OFF (H)
25	STK MUTE	O	STK ON (H) / OFF (L)
26	FRONT-RELAY	O	Front speaker relay
27	FAN CONTROL	I	Fan control (ZMD)
28	REAR-RELAY	O	Rear speaker relay
29	IIC_CLK	I	IIC SCL
30	IIC_DATA	I	IIC SDA
31	TxD1	O	To FLASH connector 2 / LDON (ZMD)
32	RxD1	O	To FLASH connector 7 / 1-2 (ZMD)
33	CLK1	O	To FLASH connector 6 / DVD_OVER (ZDVD) / DA-Mute (ZMD)
34	RTS1	O	To FLASH connector 3 / OPT_SEL (ZMD)
35	HEAD PHONE	I	Headphone detect Yes (H) / No (L)
36	LINE-MUTE	I/O	TA Line-Mute ON (H) / OFF (L)
37	OTM RESET	O	DVD If ucom reset / MDM power down
38	MC TEST	I/O	MC test normal (Open) / Test (L)
39	CLOCK-OUT	O	Clock check
40	PL-LAT	O	Pro-Logic latch
41	PL-CLK/SUR1	O	Pro-Logic clock / Surround 1
42	PL-DATA/SUR2	O	Pro-Logic data / Surround 2
43	502-LAT	O	M61502 latch
44	502-DATA	O	M61502 data
45	502-CLK	O	M61502 clock
46	ST-CLK	O	Tuner clock
47	ST-DIN	I	Tuner data in
48	ST-DOUT	O	Tuner data out
49	ST-CE	O	Tuner chip ENB
50	TUNED	I	Tuned IN (L) / OFF (H)

Pin No.	Pin Name	I/O	Description
51	STEREO	I	Stereo IN (L) / OFF (H)
52	ST-MUTE	O	Tuner mute
53	AMS-IN	I	AMS signal in (L) / OFF (H)
54	TC-MUTE	O	TC line mute on (H) / OFF (L)
55	R/PB/PAS	I	REC (L) / PB (Z) / Pass (H)
56	NR-ON/OFF	O	Dolby NR ON (H) / OFF (L)
57	REC-MUTE	O	REC mute ON (L) / OFF (H)
58	BIAS	O	Bias ON (H) / OFF (L)
59	EQ-H/N	O	EQ High (H) / Normal (L)
60	PB-A/B	O	TC A (L) / B (H) select
61	ALC	O	ALC ON (L) / OFF (H)
62	Vcc	—	Power supply (+5 V)
63	TC-RELAY	O	TC relay ON (H) / OFF (L)
64	Vss	—	Vss
65	A TRG	O	TCM-A trigger out ON (H) / OFF(L)
66	B TRG	O	TCM-B trigger out ON (H) / OFF(L)
67	CAPM-H/L	O	CAP-Motor High (H) / Low (L)
68	CAPM-CNT	O	CAP-Motor H (REV) / L (FWD) / L (Stop)
69	A HALF	I	A deck half
70	A PLAY	I	TCM-A play switch IN
71	B PLAY	I	TCM-B play switch IN
72	IIC-BUSY	I	IIC_Busy
73	LOD-POS	O	CDM53 loading tray motor output
74	LOD-NEG/xHOLD	O	CDM53 loading tray motor output (P down for FLASH)
75	OUT_SW	I	CDM53 loading system switch
76	MIDOUT_SW	I	CDM53 loading system switch
77	IN_SW	I	CDM53 loading system switch
78	MIDIN_SW	I	CDM53 loading system switch
79	CLP-POS	O	CDM53 clamper motor output
80	CLP-NEG	O	CDM53 clamper motor output
81	INIT_SW	I	CDM53 elevator system switch
82	CNT-SW	I	CDM53 elevator system switch
83	ENC2/xWR	I	CDM53 clamper system encoder 2 (PUP for FLASH)
84	ENC1	I	CDM53 clamper system encoder 1
85	ENC0	I	CDM53 clamper system encoder 0
86	DISC-SENS	I	CDM53 disc sensor input
87	PRTC_SW	I	CDM53 protector switch
88	SOFT-TEST	O	Soft check out
89	A SHUT	I	TCM-A reel pulse
90	B SHUT	I	TCM-B reel pulse
91	B HALF/REC A/REC B	I	B Half / REC A / REC B switch
92	MODEL-IN	I	Model IN
93	SPEC-IN	I	Spec IN
94	POWER	O	Power ON (H) / OFF (L)
95	SENS	I	BD sensor input
96	Avss	—	Analog ground
97	HOLD	O	BD laser power control
98	Vref	—	Analog Reference Voltage
99	Avcc	—	Analog Power Supply
100	XRST	O	BD reset

• **PANEL BOARD IC701 TMP88CS77AF-1A85 (FLUORESCENT INDICATOR TUBE DRIVE, LED DRIVE, KET CONTROL)**

Pin No.	Pin Name	I/O	Description
1	LED SEL	O	LED select switch( for dynamic)
2 to 12	LED0 to LED10	O	LED (high active)
13	STANDBY LED	O	Standby LED
14	TIMER LED	O	Timer SEL LED
15	VOLUME A	I	Volume A
16	VOLUME B	I	Volume B
17	Super Low Freq (BPF 0)	I	for KEY in(AD)
18 to 22	BPF1 to BPF5	I	for KEY in(AD)
23	ALL BAND	I	for KEY in(AD)
24 to 26	KEY 0 to KEY2	I	for KEY in(AD)
27	STICK 1	I	Stick control Up / Down
28	STICK 2	I	SStick control Right / Left
29	Vss for I/O	—	Vss
30	VAss	—	VAss
31	VAref	—	VAref
32	Vdd for I/O	—	Vdd
33	GRID EXT CLK	O	for Grid extender
34	2G	O	for FL
35	1G	O	for FL
36 to 50	P35 to P49	O	for FL
51	Vdd for VFT	—	Vdd
52	GRID EXT RESET	O	for Grid extender
53 to 86	P34 to P1	O	for FL
87	Vkk	—	Vkk
88	Vdd for CPU	—	Vdd
89	Xin	I	12.5 MHz (Xin)
90	Vss for CPU	—	Vss
91	Xout	O	12.5 MHz (Xout)
92	RESET	I	Reset (low active)
93	LED11	O	LED (high active)
94	LED12	O	LED (high active)
95	TEST	I	Not used (ground)
96	WAKE UP	O	other ucom wake-up port (PULL UP)
97	I2C data	O	IIC SDA
98	I2C clk	O	IIC SCL
99	LED13	O	LED (high active)
100	SIRCS	I	Remote commander input (input capture)

**VIDEO CD BOARD IC502 M30622MGA-A30FP (CD MECHANISM CONTROLLER)**

Pin No.	Pin Name	I/O	Description
1	SENSE	I	Internal status (SENSE) signal input from the CXD3008Q (IC101)
2	SENSE CLK	O	Sense serial data reading clock signal output to the CXD3008Q (IC101)
3	RESOLUTION	O	Y resolution output
4	CHROMA LEVEL	O	Chroma level output
5	DSP CLK	O	Serial data transfer clock signal output to the CXD3008Q (IC101)
6	TSENS	O	Not used (open)
7	REMOTE IN	I	Remote control signal input terminal Not used (open)
8	BYTE	I	External data bus line byte selection signal input "L": 16 bit, "H": 8 bit (fixed at "L")
9	CN VSS	—	Ground terminal
10	DSP MUTE	O	Muting on/off control signal output to the CXD3008Q (IC101) "H": muting on
11	CTRL1	O	Clock selection signal output to the CXD3008Q (IC101) "L": 16.9344 MHz (double speed), "H": 33.8688 MHz
12	$\overline{\text{XRESET}}$	I	Reset signal input from the system controller (IC501) "L": reset For several hundreds msec. after the power supply rises, "L" is input, then it changes to "H"
13	XOUT	O	Main system clock output terminal (10 MHz)
14	VSS	—	Ground terminal
15	XIN	I	Main system clock input terminal (10 MHz)
16	VCC	—	Power supply terminal (+5V)
17	NMI	I	Non-maskable interrupt input terminal (fixed at "H" in this set)
18	SCOR	I	Subcode sync (S0+S1) detection signal input from the CXD3008Q (IC101)
19	DSSENS	O	Not used (open)
20	$\overline{\text{CL680 HINT}}$	I	Interrupt request signal input from the MPEG video/audio decoder (IC505)
21	CL680 HSEL	O	
22	DF LATCH	O	Serial data latch pulse output to the D/A converter (IC509) "L" active
23	CL680 HRDY	—	
24	$\overline{\text{CL680 RESET}}$	O	Reset signal output to the MPEG video/audio decoder (IC505) "L": reset
25	H.SYNC IN	I	Horizontal sync signal input
26	BGP	O	Burst gate pulse signal output
27	LPH	O	AGC hold signal output
28	LD ON	O	Laser power selection signal output to the CXA2568M (IC103) "H": laser on
29	I2C.CLK	I/O	I <sup>2</sup> C clock signal from CD mechanism control (IC501).
30	I2C.DATA	I/O	I <sup>2</sup> C data signal from CD mechanism control (IC501).
31	DATA I/O	O	Serial data output to the MPEG video/audio decoder (IC506) and D/A converter (IC509)
32	DATA I1	I	Serial data input from the MPEG video/audio decoder (IC506)
33	CLK1	O	Serial data transfer clock signal output to the MPEG video/audio decoder (IC506) and D/A converter (IC509)
34	RTS1	O	RTS signal to serial port (check connector).
35	XVLEVEL.DOWN	O	Not used (open)
36	SUBQ DATA	I	Sub-code Q data input from the CXD3008Q (IC101)
37	SUBQ CLK	O	Sub-code Q data reading clock signal output to the CXD3008Q (IC101)
38	P.ON	O	Power on/off control signal output terminal Not used (open)
39	BUS XRDY	I	Ready signal input terminal Not used (fixed at "H")
40	BUS	O	Not used (open)
41	BUS XHOLD	I	Hold signal input terminal Not used (fixed at "H")
42, 43	BUS	O	Not used (open)
44	OSD.LANGUAGE	I	OSD language select input terminal "H": English, "L": China
45	VSYNC	I	Vertical sync signal input
46	BUS XWRL	O	Bus write signal output.
47	LO.BOOST	O	Not used (open)
48	AUDIO MUTE	O	Audio muting on/off control signal output terminal "L": muting on Not used (open)
49	LOAD OUT	O	Loading motor drive signal output terminal Not used (open)
50	LOAD IN	O	Loading motor drive signal output terminal Not used (open)
51	INSW	I	Disc detection (load in) switch input terminal Not used (fixed at "H")

Pin No.	Pin Name	I/O	Description
52	OUTSW	I	Disc detection (load out) switch input terminal Not used (fixed at "H")
53	MODEL1	I	Destination setting terminal (fixed at "L")
54	MODEL2	I	Destination setting terminal (fixed at "L")
55	TBLL	—	Not used (open)
56	TBLR	—	Not used (open)
57 to 59	ENC1 to ENC3	—	Not used (open)
60, 61		—	Not used (open)
62	VCC	—	Power supply terminal (+5V)
63		—	Not used (open)
64	VSS	—	Ground terminal
65	V.MUTE	O	Video muting on/off control signal output
66 to 72	A6 to A0	O	Address signal output for the external device
73	TEST LED	O	LED drive signal output for the self diagnosis indicator (D502) Normally: "L" (LED on)
74	TEST1	I	Setting terminal for the test mode 1 (for VCD check) Normally: fixed at "H" ("L": test mode)
75	TEST2	I	Setting terminal for the test mode 2 (for SERVO check) Normally: fixed at "H" ("L": test mode)
76	TEST3	I	Setting terminal for the test mode 3 Normally: fixed at "H" ("L": test mode) Not used (fixed at "H")
77	DEVICE RESET	O	System reset signal output to the CXD3008Q (IC101), BA5974FP (IC102) and D/A converter (IC509) "L": reset
78	STANDBY	O	Standby on/off control signal output terminal Not used (open)
79	FL CS	O	Chip select signal output terminal Not used (open)
80	FLBLK	O	Blank control signal output terminal Not used (open)
81 to 88	D7 to D0	I/O	Two-way data bus with the external device Not used (open)
89	MIC CTRL	—	Not used.
90 to 92	KEY1 to KEY3	I	Key input terminal Not used (fixed at "H")
93	NT/PAL	I	Video system select input terminal (open: AUTO)
94	MUSIC VOL	—	Not used.
95	DSP DATA	O	Serial data output to the CXD3008Q (IC101)
96	AVSS	—	Ground terminal (for A/D conversion)
97	DSP LATCH	O	Serial data latch pulse output to the CXD3008Q (IC101)
98	VREF	I	Reference voltage (+5V) input terminal (for A/D conversion)
99	AVCC	—	Power supply terminal (+5V) (for A/D conversion)
100	AMP ON	—	Not used.

## SECTION 7 EXPLODED VIEWS

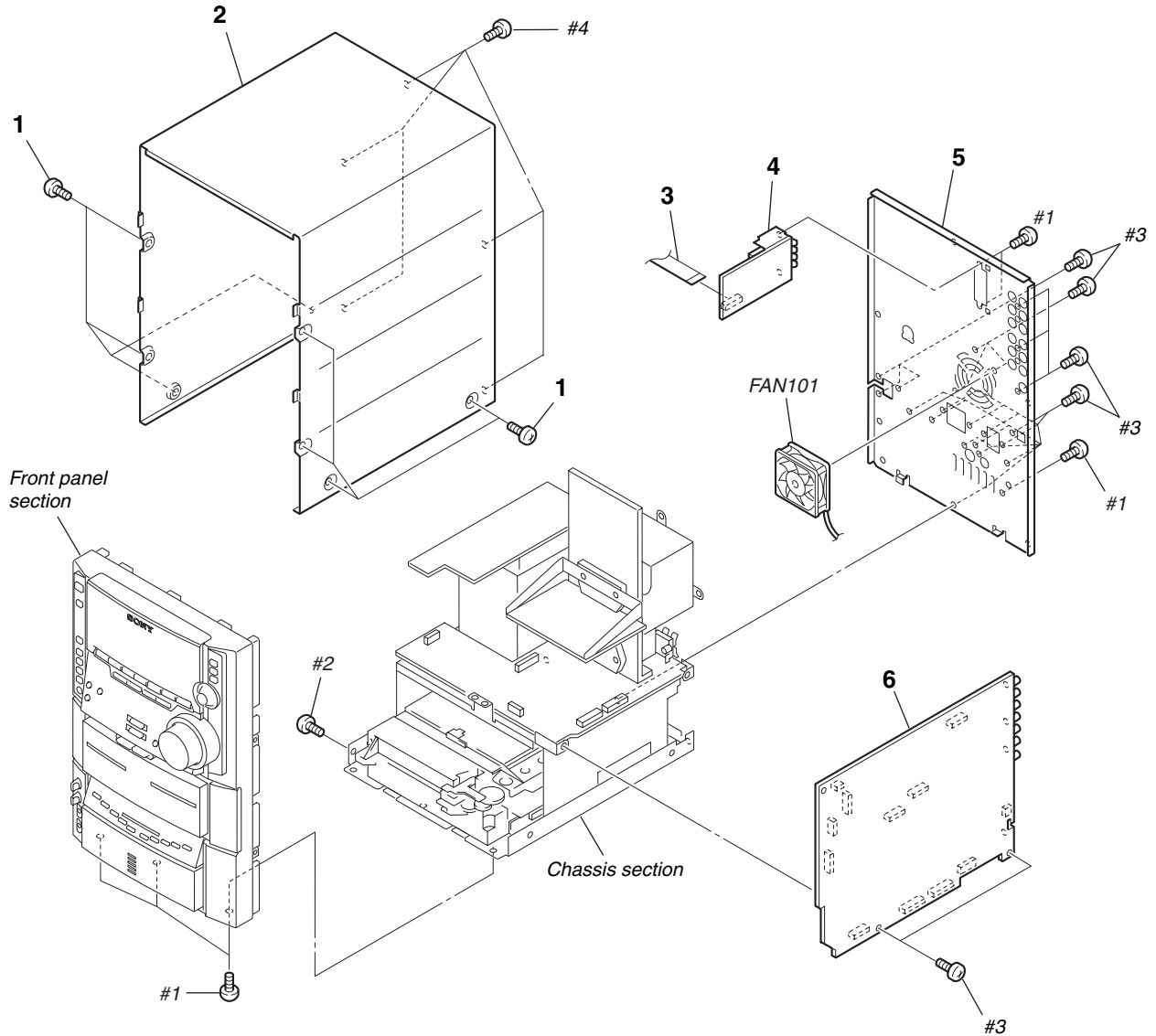
**NOTE:**

- -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.
- Hardware (# mark) list and accessories and packing materials are given in the last of this parts list.
- Abbreviation
  - EA : Saudi Arabia model.
  - SP : Singapore model.
  - MY : Malaysia model.
  - TH : Thai model.
  - HK : Hong Kong model.
  - CH : Chinese model.

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

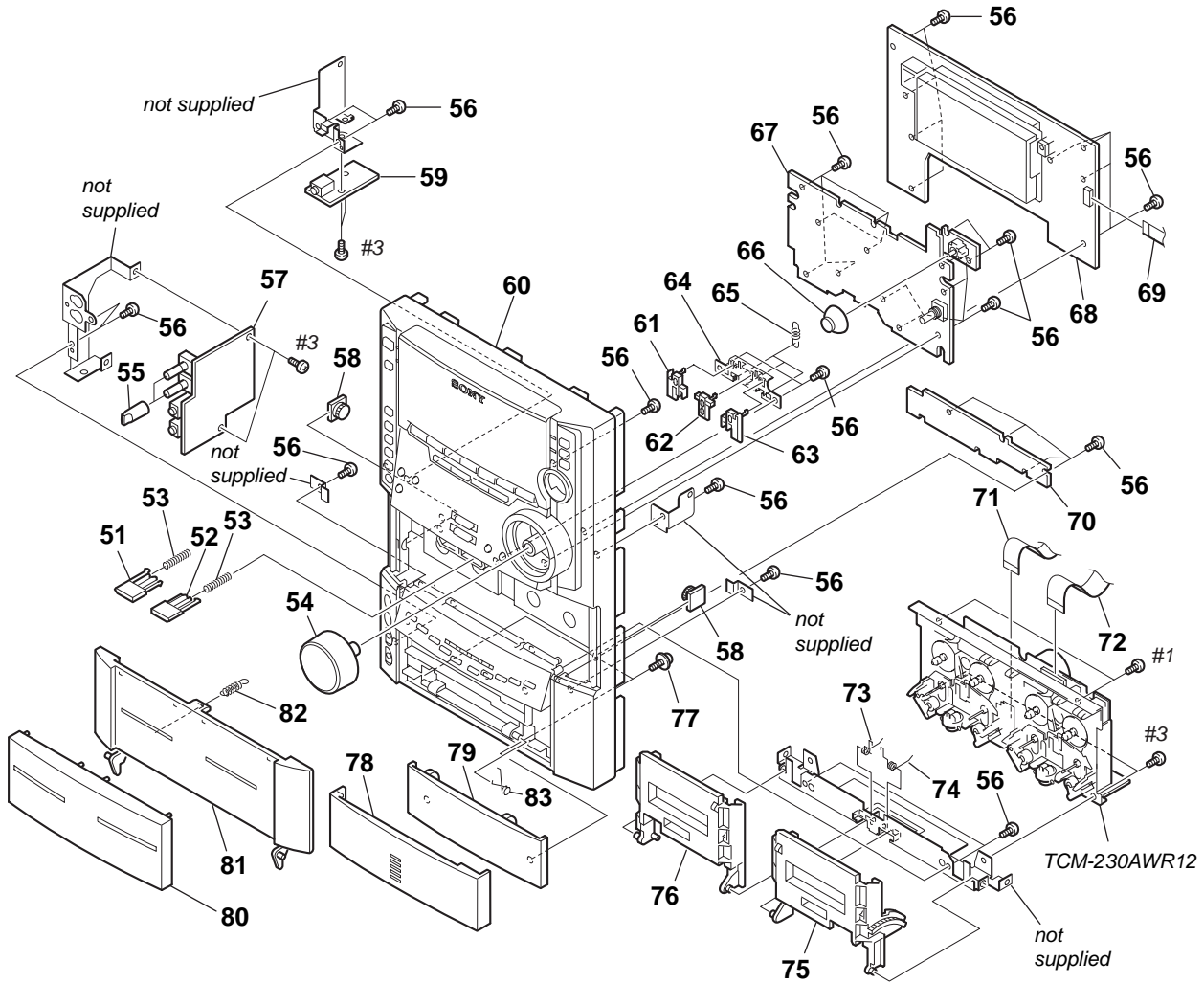
以阴影和  $\Delta$  标志来识别的零部件在安全方面具有关键性。因此只能以规定号码的零部件来更换。

### 7-1. UPPER CASE



Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
1	3-363-099-21	SCREW(CASE 3 TP2)		5	4-227-555-21	PANEL, BACK (HK)	
2	4-226-746-01	UPPER CASE		5	4-227-555-31	PANEL, BACK (TH)	
3	1-769-977-11	WIRE(FLAT TYPE) (13 CORE) (150 mm)	(EA,MY,SP,TH,HK)	5	4-227-555-41	PANEL, BACK (CH)	
3	1-773-009-11	WIRE(FLAT TYPE) (15 CORE) (150 mm)	(CH)	6	A-4473-035-A	MAIN BOARD, COMPLETE (MY,SP,HK)	
4	1-693-488-11	TUNER(FM/AM) (EA,MY,SP,TH,HK)		6	A-4473-270-A	MAIN BOARD, COMPLETE (TH)	
4	1-693-490-11	TUNER(FM/AM) (CH)		6	A-4473-271-A	MAIN BOARD, COMPLETE (EA)	
5	4-227-555-01	PANEL, BACK (EA)		6	A-4473-838-A	MAIN BOARD, COMPLETE (CH)	
5	4-227-555-11	PANEL, BACK (MY,SP)		FAN101	1-763-072-11	FAN, D.C.	

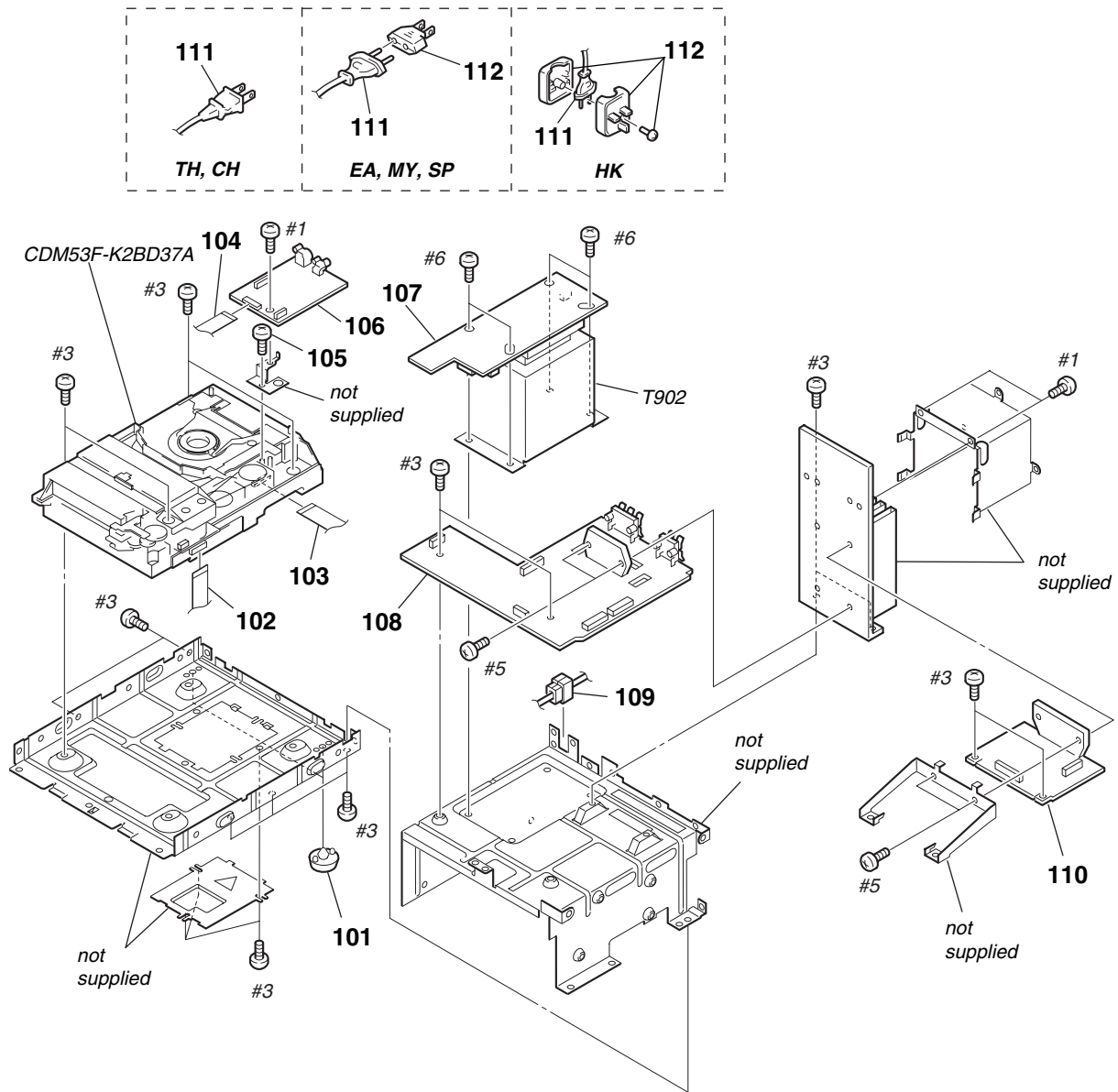
7-2. FRONT PANEL SECTION



Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
51	4-226-734-01	BUTTON (A), EJECT		68	A-4473-030-A	PANEL BOARD, COMPLETE (EA,MY,SP,HK)	
52	4-226-735-01	BUTTON (B), EJECT		68	A-4473-265-A	PANEL BOARD, COMPLETE (TH)	
53	4-226-537-01	SPRING (TC EJECT), COIL		68	A-4473-828-A	PANEL BOARD, COMPLETE (CH)	
54	4-226-715-01	KNOB, VOLUME		69	1-769-938-11	WIRE(FLAT TYPE) (11 CORE)	
55	4-214-385-91	KNOB(MIC)		70	A-4428-661-A	CD SW BOARD, COMPLETE	
56	4-951-620-01	SCREW (2.6X8), +BVTP		71	1-773-022-11	WIRE(FLAT TYPE) (15 CORE) (300 mm)	
57	1-676-972-11	MIC BOARD		72	1-773-045-11	WIRE(FLAT TYPE) (17 CORE) (170 mm)	
58	4-224-104-11	DAMPER		73	4-227-458-01	SPRING (TC A)	
59	1-676-971-11	HP BOARD		74	4-227-459-01	SPRING (TC B)	
60	X-4952-796-1	PANEL ASSY, FRONT		75	X-4952-712-1	HOLDER (B) ASSY, TC	
61	4-226-733-01	LOCK(B)		76	X-4952-711-1	HOLDER (A) ASSY, TC	
62	4-226-731-01	LOCK(LID)		77	4-957-577-01	SCREW PTP WH (2.6X8) (DIA. 10)	
63	4-226-732-01	LOCK(A)		78	4-226-741-01	PANEL (CD), ALUMINUM	
64	4-226-755-01	COVER, LOCK		79	4-226-737-01	LID (CD)	
65	4-227-544-01	SPRING, TENSION		80	4-226-728-01	PANEL (TC), ALUMINUM	
66	4-226-713-01	CURSOR		81	4-226-729-01	LID, TC	
67	A-4428-628-A	SUB PANEL BOARD, COMPLETE (EA,MY,SP,HK)		82	4-227-460-01	SPRING, TENSION	
67	A-4473-239-A	SUB PANEL BOARD, COMPLETE (TH)		83	4-226-897-01	SPRING (CD)	
67	A-4473-822-A	SUB PANEL BOARD, COMPLETE (CH)					



### 7-3. CHASSIS SECTION

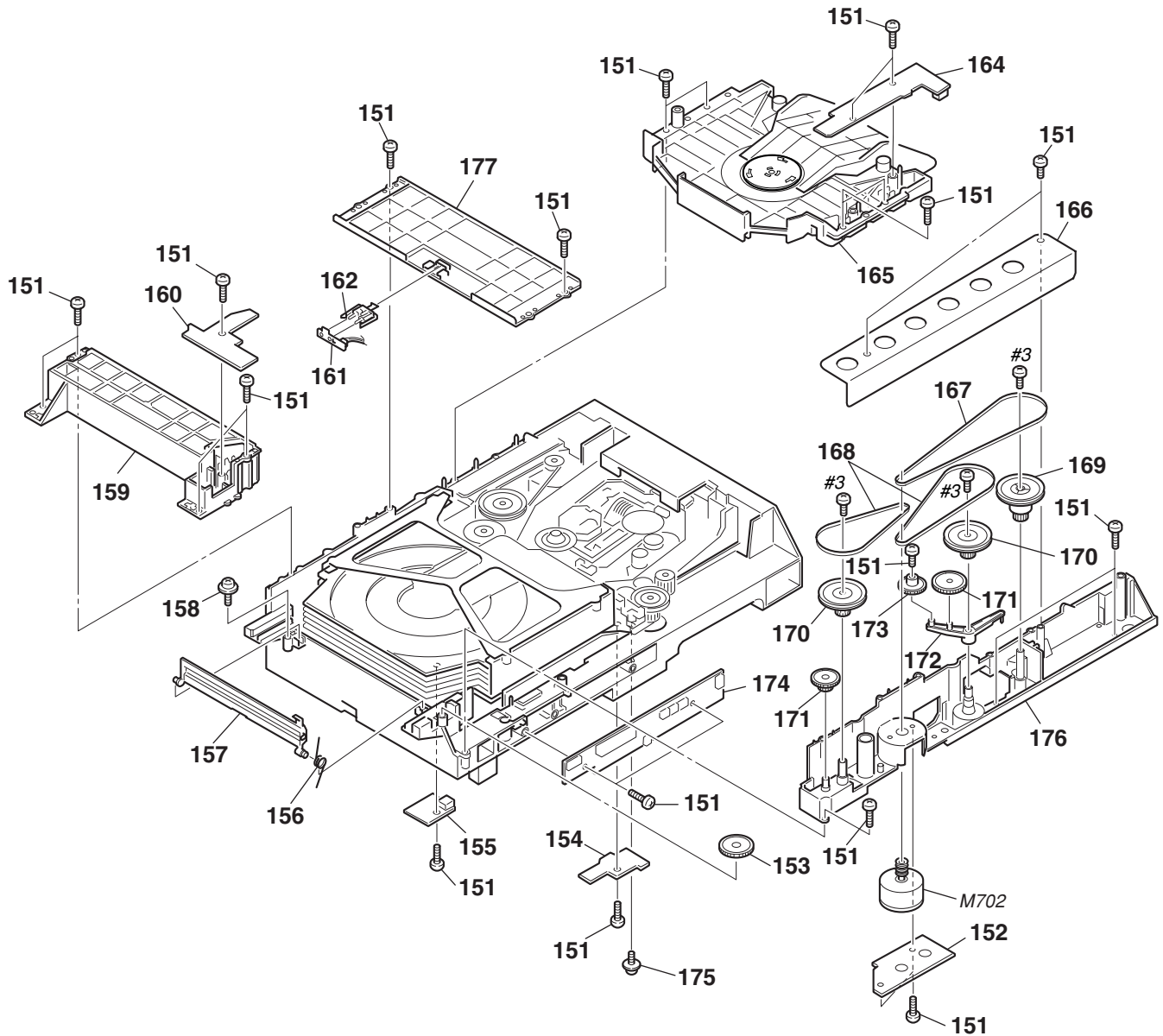


Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
101	4-965-822-01	FOOT		108	A-4473-834-A	FRONT AMP BOARD, COMPLETE (CH)	
102	1-773-041-11	WIRE (FLAT TYPE) (17 CORE) (130 mm)		109	3-703-571-11	BUSHING (S) (4516), CORD (TH)	
103	1-792-796-11	WIRE (FLAT TYPE) (23 CORE)		* 109	3-703-244-00	BUSHING (2104), CORD (EA,MY,SP,HK,CH)	
104	1-792-795-11	WIRE (FLAT TYPE) (13 CORE) (300 mm)		110	A-4428-643-A	SURR AMP BOARD, COMPLETE (EA,MY,SP,HK)	
105	4-951-620-01	SCREW (2.6X8), +BVTP		110	A-4473-251-A	SURR AMP BOARD, COMPLETE (TH)	
106	A-4473-286-A	VIDEO BOARD, COMPLETE (EA,MY,SP,HK)		110	A-4473-831-A	SURR AMP BOARD, COMPLETE (CH)	
106	A-4473-288-A	VIDEO BOARD, COMPLETE (TH)		△ 111	1-690-609-21	CORD, POWER (TH)	
106	A-4473-820-A	VIDEO BOARD, COMPLETE (CH)		△ 111	1-777-071-51	CORD, POWER (EA,MY,SP,HK)	
107	1-676-975-11	TRANS BOARD		△ 111	1-782-464-21	CORD, POWER (CH)	
108	A-4473-032-A	FRONT AMP BOARD, COMPLETE	(EA,MY,SP,HK)	112	1-569-008-21	ADAPTOR, CONVERSION 2P (EA,MY,SP)	
108	A-4473-267-A	FRONT AMP BOARD, COMPLETE (TH)		112	1-770-019-11	ADAPTOR, CONVERSION PLUG 3P (HK)	
				△ T902	1-435-474-11	TRANSFORMER, POWER	

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

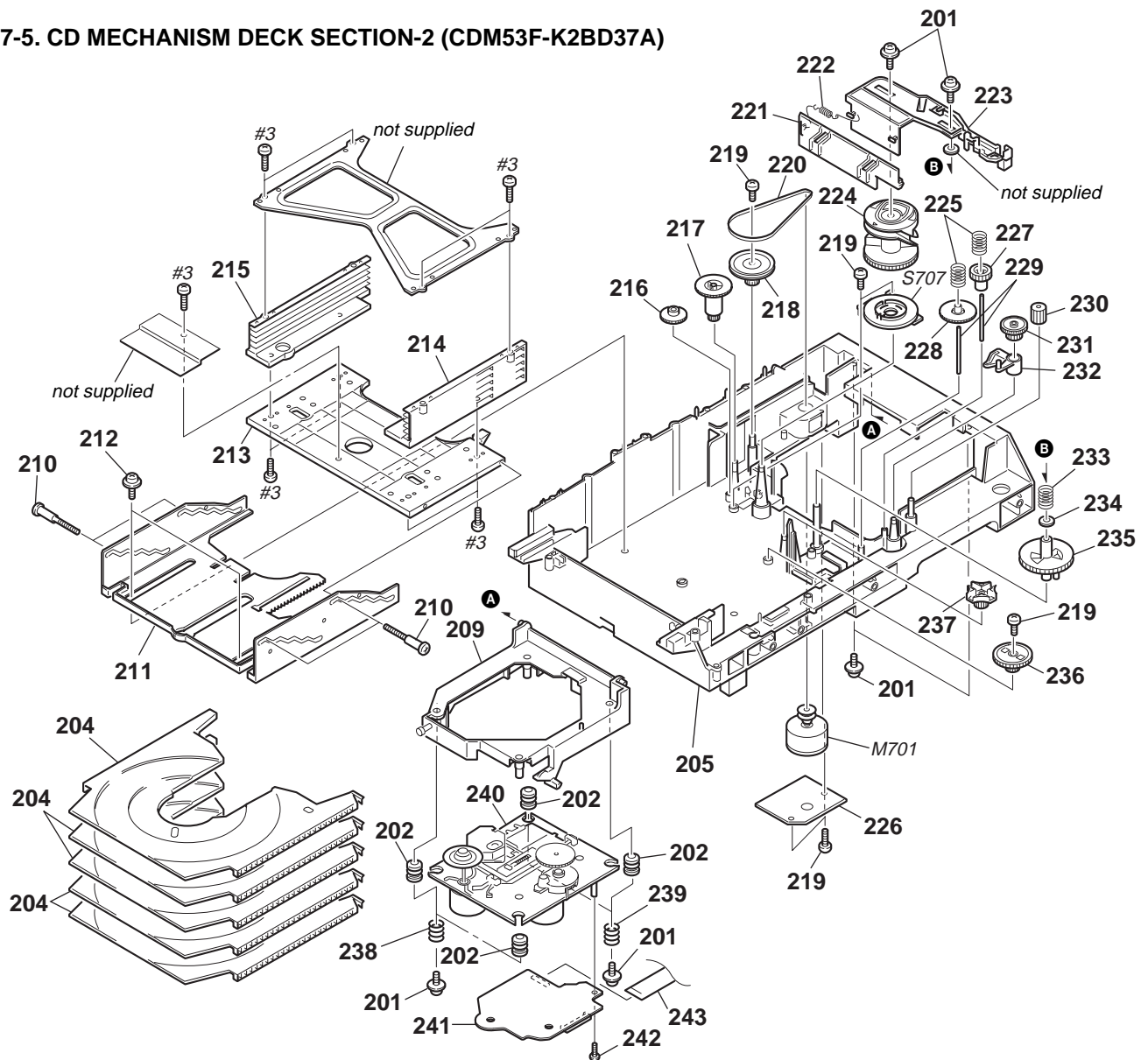
以阴影和 △ 标志来识别的零部件，在安全方面具有关键性。因此只能以规定号码的零部件来更换。

7-4. CD MECHANISM DECK SECTION-1 (CDM53F-K2BD37A)



Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
151	4-218-253-11	SCREW (M2.6), +BTTP		166	4-214-129-01	COVER	
152	1-671-508-11	LOAD MOTOR BOARD		167	4-211-235-01	BELT (COMMUNICATION)	
153	4-220-261-01	GEAR (EJECT)		168	4-211-236-01	BELT (LOADING)	
154	1-671-502-11	INT/COUNT SW BOARD		169	4-211-231-01	PULLEY (MODE)	
155	1-671-504-11	SENSOR BOARD		170	4-211-214-01	PULLEY (LD)	
156	4-212-676-01	SPRING (LID), TORSION		171	4-211-232-01	GEAR (LD DECELERATION)	
157	4-212-674-01	LID(DISC)		172	4-211-228-01	LEVER (GOOSENECK)	
158	4-985-672-01	SCREW (+PTPWH M2.6), FLOATING		173	4-214-130-01	GEAR (TRAY)	
159	A-4672-873-A	BASE (GUIDE) ASSY, FITTING		174	1-671-506-11	CONNECTOR BOARD	
160	1-671-503-11	OUT SW BOARD		175	3-341-549-01	SCREW(2.6X12)(DIA.7.5),+PTP WH	
161	1-671-789-11	SENSOR 2 BOARD		176	4-213-488-04	CHASSIS (MODE B)	
162	4-220-274-01	HOLDER (SENSOR)		177	4-213-579-01	BRACKET (CHASSIS)	
164	1-671-505-11	IN SW BOARD		M702	X-4950-342-1	MOTOR (LOADING) ASSY	
165	A-4672-872-D	BASE (MAGNET) ASSY, FITTING					

7-5. CD MECHANISM DECK SECTION-2 (CDM53F-K2BD37A)

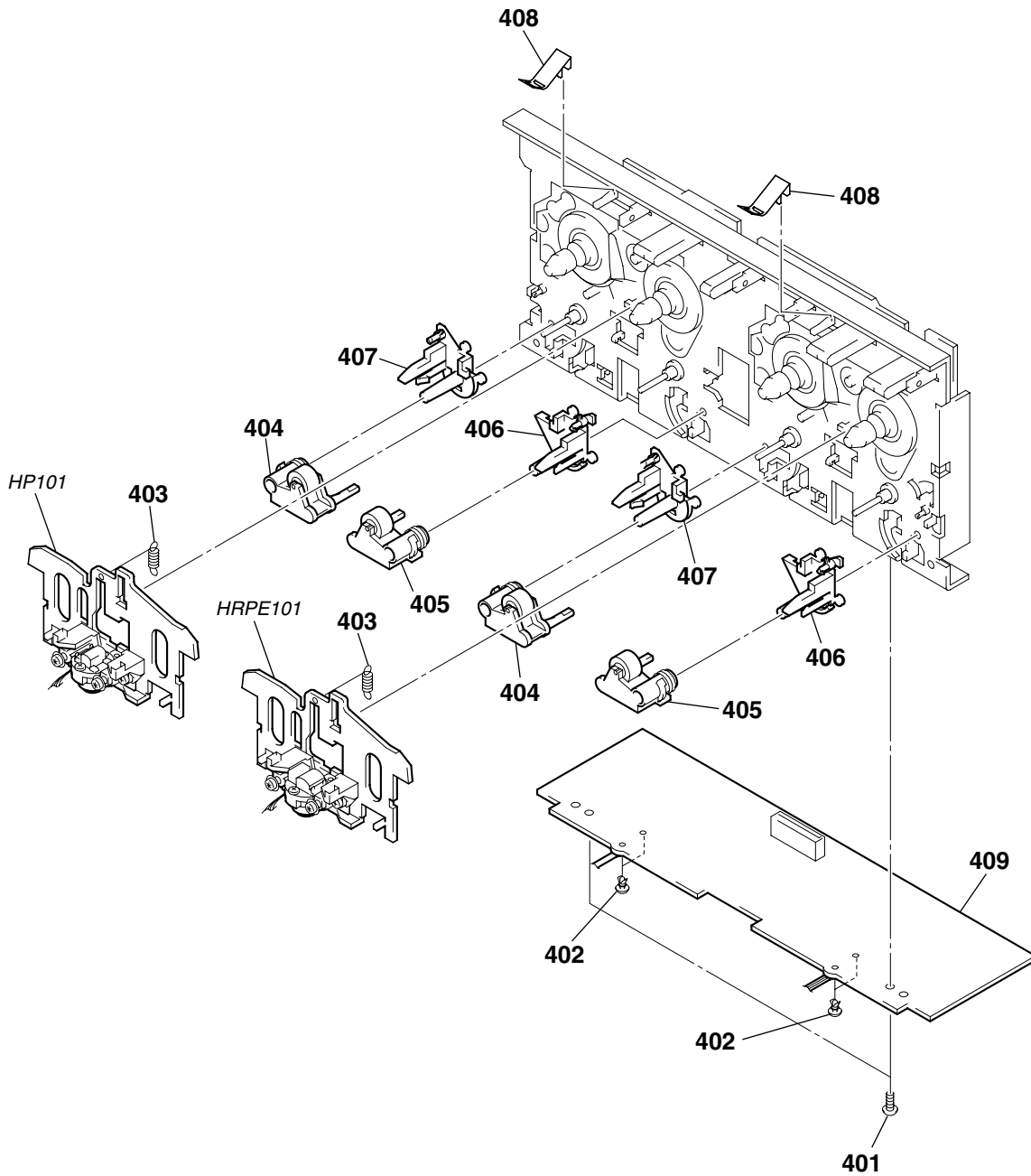


Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
201	4-985-672-01	SCREW (+PTPWH M2.6), FLOATING		226	1-671-507-11	CLAMP MOTOR BOARD	
202	4-220-933-01	INSULATOR		227	4-211-221-01	GEAR (LD MOVABLE)	
204	4-211-212-51	TRAY (SUB)		228	4-211-217-01	GEAR (SELECTION)	
205	4-213-482-02	CHASSIS (MODE A)		229	4-211-242-11	SHAFT (SELECTION GEAR)	
209	X-4950-322-3	HOLDER (BU) ASSY		230	4-211-240-01	GEAR (LD DECELERATION B)	
210	4-211-244-01	SCREW, STEP		231	4-211-216-01	GEAR (RELAY)	
211	4-211-223-01	SLIDER (U/D)		232	4-211-241-01	LEVER (SELECTION)	
212	4-933-134-01	SCREW (M2.6), +PTPWH		233	4-216-879-01	SPRING (GEAR), COIL	
213	4-221-504-01	BASE (STOCKER), FITTING		234	3-701-446-21	WASHER	
214	4-211-211-01	STOCKER (R)		235	4-211-218-01	GEAR (GEAR A)	
215	4-211-210-01	STOCKER (L)		236	4-211-220-01	GEAR (U/D SLIDER)	
216	4-211-215-01	GEAR (EJECT)		237	4-211-219-01	GEAR (GEAR B)	
217	4-211-232-01	GEAR (MODE DECELERATION)		238	4-222-784-01	SPRING (INSULATOR), COMPRESSION	
218	4-211-214-01	PULLEY (LD)		239	4-222-785-01	SPRING (INSULATOR), COMPRESSION	
219	4-218-253-11	SCREW (M2.6), +BTTP		△ 240	A-4735-357-A	BASE ASSY, OP (KSM-213D)	
220	4-211-237-01	BELT (MODE)		241	A-4725-001-A	BD BOARD, COMPLETE	
221	4-212-677-01	SLIDER (SHUTTER)		242	4-951-620-01	SCREW (2.6X8), +BVTP	
222	4-212-678-01	SPRING (SHUTTER), TENSION		243	1-792-024-11	WIRE (FLAT TYPE) (16 CORE)	
223	4-211-233-01	SLIDER (SELECTION)		M701	X-4950-341-1	MOTOR (CLAMP) ASSY (ELEVATOR UP/DOWN)	
224	4-211-230-01	GEAR (CHUCKING)		S707	1-418-045-01	ENCODER, ROTARY	
225	4-211-245-01	SPRING, COMPRESSION				(DISC TRAY ADDRESS DETECT)	

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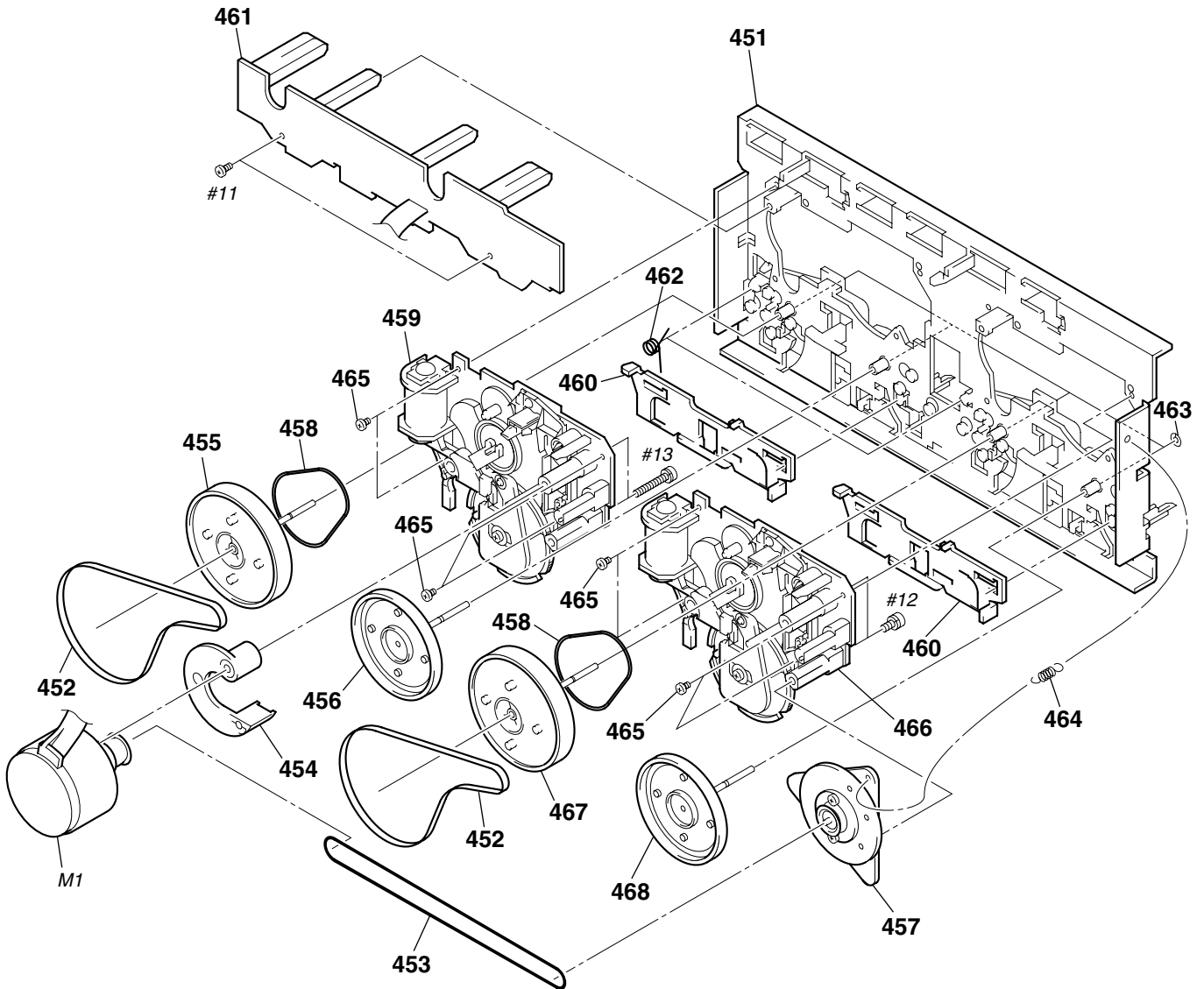
以阴影和 △ 标志来识别的零部件，在安全方面具有关键性。因此只能以规定号码的零部件来更换。

7-6. TAPE MECHANISM DECK SECTION-1 (TCM-230AWR12)



<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Remarks</u>	<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Remarks</u>
401	3-376-464-11	SCREW(+PTT 2.6X6),GROUND POINT		407	3-017-366-01	BASE (PINCH LEVER REV)	
402	3-911-116-42	RIVET, PUSH		408	3-016-567-02	SPRING (CASSETTE), LEAF	
403	3-016-574-01	SPRING (HEAD), TENSION		409	A-2007-845-A	AUDIO BOARD, COMPLETE	
404	X-3374-156-4	PINCH LEVER (REV) ASSY		HP101	A-2004-778-A	BASE (A) ASSY, HEAD	
405	X-3374-155-4	PINCH LEVER (FWD) ASSY		HRPE101	A-2004-779-A	BASE (B) ASSY, HEAD	
406	3-017-365-01	BASE (PINCH LEVER FWD)					

**7-7. TAPE MECHANISM DECK SECTION-2 (TCM-230AWR12)**



Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
451	X-4952-881-1	CHASSIS ASSY, MAIN		461	A-2007-838-A	LEAF SW BOARD, COMPLETE	
452	3-041-946-01	BELT (CAPSTAN B)		462	4-228-450-01	SPRING (REVERSE SLIDER),TORSION	
453	4-227-239-01	BELT (CAPSTAN C)		463	3-019-208-01	WASHER, STOPPER	
454	3-016-568-01	BRACKET (MOTOR)		464	3-027-453-01	SPRING (GROUND), TENSION	
455	X-3378-040-1	FLYWHEEL (A-FWD) ASSY		465	3-030-823-01	SCREW (+BVTT) (2X3.5)	
456	X-3378-041-1	FLYWHEEL (A-REV) ASSY		466	A-2004-753-A	BLOCK (B) ASSY, MECHANICAL	
457	X-3374-157-1	PULLEY ASSY, TENSION		467	X-3378-042-1	FLYWHEEL (B-FWD) ASSY	
458	3-041-947-01	BELT (FR)		468	X-3378-043-1	FLYWHEEL (B-REV) ASSY	
459	A-2004-752-A	BLOCK (A) ASSY, MECHANICAL		M1	X-3378-241-1	MOTOR ASSY (CAPSTAN)	
460	3-016-566-01	SLIDER, REVERSE					