

# JVC

## SERVICE MANUAL

### COMPACT COMPONENT SYSTEM

#### FX-F3000/FX-F3000R :AX-F3000

FM/AM TUNER

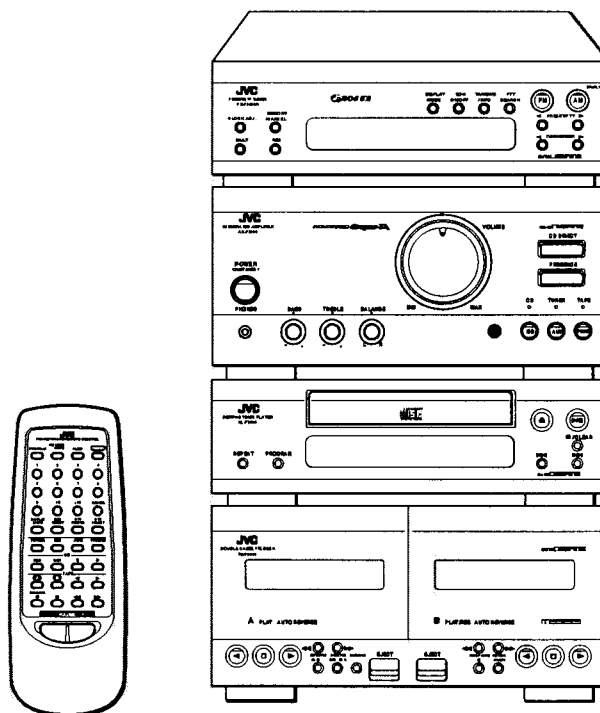
INTEGRATED AMPLIFIER

#### XL-F3000

COMPACT DISC PLAYER

#### :TD-F3000

DOUBLE CASSETTE DECK



Pick up	OPTIMA-6
CD signal processor	MN66270RB

#### Area Suffix

BS	....	the U.K.
C	....	Canada
EF	....	Continental Europe Except Germany & Italy
EN	....	Nordic Countries
G	....	Germany
J	....	the U.S.A
UB	....	Hong Kong
US	....	Singapore
UT	....	Taiwan
U	....	Universal Except All of Above

**COMPACT**  
**disc**  
DIGITAL AUDIO

**Note:** Press S510 on ENH-296-1 for checking only AX-F3000 unit or units except FX-F3000/FX-F3000R.  
Discharge C404 after services.

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### **Safety Precautions**

1. The design of this product contains special hardware and many circuits and components specially for safety purposes. For continued protection, no changes should be made to the original design unless authorised in writing by the manufacturer. Replacement parts must be identical to those used in the original circuits.
2. Any unauthorised design alterations or additions will void the manufacturer's guarantee ; furthermore the manufacturer cannot accept responsibility for personal injury or property damage resulting therefrom.
3. Essential safety critical components are identified by ( $\triangle$ ) on the Parts List and by shading on the schematics ,and must never be replaced by parts other than those listed in the manual. Please note however that many electrical and mechanical parts in the product have special safety related characteristics . These characteristics are often not evident from visual inspection . Parts other than specified by the manufacturer may not have the same safety characteristics as the recommended replacement parts shown in the Parts List of the service manual and may create shock , fire , or other hazards .
4. The leads in the products are routed and dressed with ties, clamps, tubings, barriers and the like to be separated from live parts, high temperature parts, moving parts and/or sharp edges for the prevention of electric shock and fire hazard. When service is required, the original lead routing and dress should be observed, and it should be confirmed that they have been returned to normal, after re-assembling.

### **Warning**

1. Service should be performed by qualified personnel only.
2. This equipment has been designed and manufactured to meet international safety standards.
3. It is the legal responsibility of the repairer to ensure that these safety standards are maintained.
4. Repairs must be made in accordance with the relevant safety standards.
5. It is essential that safety critical components are replaced by approved parts.
6. If mains voltage selector is provided, check setting for local voltage .

## Important for Laser Products

1. **CLASS 1 LASER PRODUCT**
2. **DANGER** : Invisible laser radiation when open and interlock failed or defeated. Avoid direct exposure to beam.
3. **CAUTION** : There are no serviceable parts inside the Laser Unit. Do not disassemble the Laser Unit. Replace the complete Laser Unit if it malfunctions.
4. **CAUTION** : The compact disc player uses invisible laser radiation and is equipped with safety switches which prevent emission of radiation when the drawer is open and the safety interlocks have failed or are defeated. It is dangerous to defeat the safety switches.
5. **CAUTION** : If safety switches malfunction, the laser is able to function.
6. **CAUTION** : Use of controls, adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.
7. **CAUTION** : The compact disc player provides a laser diode of wavelength 780-790nm and optical output power typical 3mW at the laser diode.

**WARNING** : Osynlig laserstrålning när denna del är öppnad och spärren är urkopplad. Betrakta ej strålen.

**VARO** : Avattaessa ja suojalukitus ohitettaessa olet alttiina näkymättömälle lasersäteilylle. Älä katso säteeseen.

**ADVARSEL** : Usynlig laserstrålning ved åbning, når sikkerhedsafbrydere er ude af funktion. Undgå udsættelse for stråling.

**ADVARSEL** : Usynlig laserstrålning ved åbning, når sikkerhedsbryteren er avslott. unngå utsettelse for stråling.

### REPRODUCTION AND POSITION OF LABELS

#### WARNING LABEL

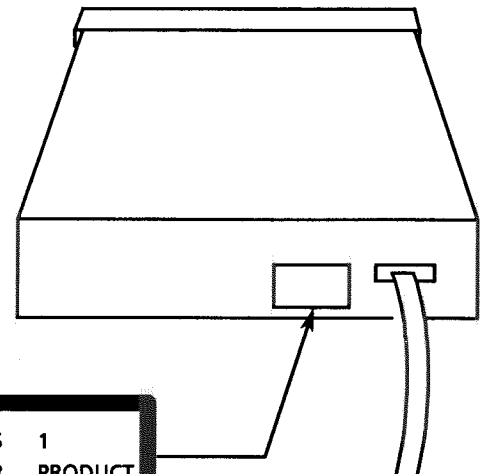
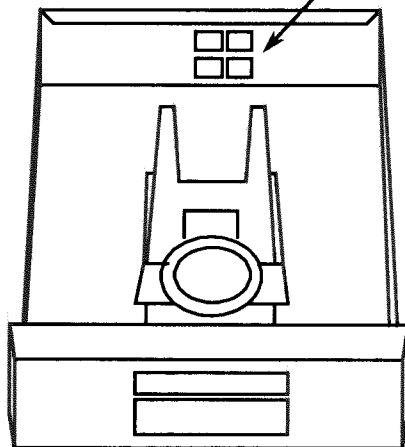
(Except for the U. S. A.)

**DANGER**: invisible laser radiation when open and interlock failed or defeated. AVOID DIRECT EXPOSURE TO BEAM. (e)

**WARNING**: Osynlig laserstrålning när denna del är öppnad och spärren är urkopplad. Betrakta ej strålen. (s)

**ADVARSEL**: Usynlig laserstrålning ved åbning, når sikkerhedsafbrydere er ude af funktion. Undgå udsættelse for stråling. (d)

**VARO**: Avattaessa ja suojalukitus ohitettaessa olet alttiina näkymättömälle lasersäteilylle. Älä katso säteeseen. (f)



#### CLASSIFICATION LABEL

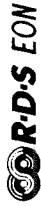
(Except for the U. S. A. and Canada)

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## Introduction

Here are some of the things that make your components (hereafter, called "System") easy to use.

- The controls and operations have been redesigned to make them easy to use so you can spend your time listening to music.
- With the One Touch Play feature of JVC's COMPU PLAY, you can turn on the System and start the tuner, the cassette deck, or the CD player with a single touch. If the System is not ready, such as no CD or tape in place, the System still turns on and then pauses so you can put in a CD or tape.
- Three tuners, Recording, Daily, and Sleep Timers, are extremely easy to set so you can really use them.
- A home-use RDS tuner offers most of the RDS services. These services include the display of station names and program types, and scanning stations by using the program types.



### How This Manual Is Organized

- This manual explains how to use the following four components.
  - FM/MW/LW Tuner FX-F3000R
  - Integrated Amplifier AX-F3000
  - Compact Disc Player XL-F3000
  - Double Cassette Deck TD-F3000
- This manual mainly explains operations using the buttons and controls on the front panels. If operation using the Remote Control is different from that using the buttons on the front panels, it is then explained.

### IMPORTANT CAUTIONS

- 1 Installation of the System**
  - Select a place which is level, dry and neither too hot nor too cold (between 5°C and 35°C or 41°F and 95°F).
  - Leave sufficient distance between the System and your TV.
  - Keep the speakers away from TV to avoid interference with TV.
  - Do not use the System in a place subject to vibrations.
- 2 Power cord**
  - Do not handle the power cord with wet hands!
  - The small amount of the power (11 watts) is always consumed as long as the power cord is connected to the wall outlet.
  - When unplugging from the wall outlet, always pull the plug, not the power cord.
- 3 Malfunctions, etc.**
  - There are no user serviceable parts inside. If anything goes wrong, unplug the power cord and consult your dealer.
  - Do not insert any metallic object into the cabinets.



# Getting Started

## Accessories

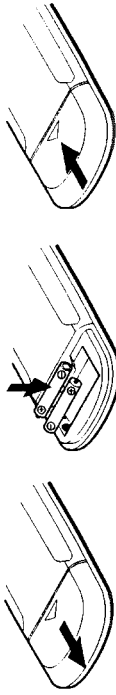
Check to be sure you have all of the following things, which are supplied with the System:

- FM Wire Antenna (1)
- AM (MW/LW) Loop Antenna (1)
- Remote Control (1)
- Batteries (2)
- External Wire (1)

If any are missing, contact your dealer immediately.

## Putting Batteries in the Remote Control

Match the polarity (+ and -) on the batteries with the + and - markings on the battery compartment.



R03 (UM-4)/AAA (24F)

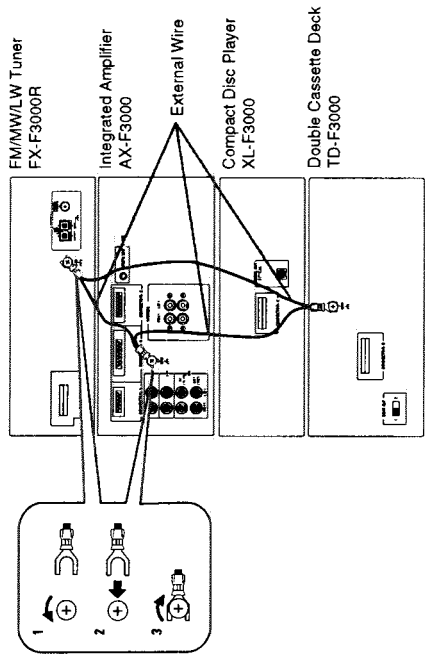
If the range or effectiveness of the Remote Control decreases, replace the batteries. Use two R03 (UM-4)/AAA (24F) type dry-cell batteries.

### CAUTION

- To avoid battery leakage or explosion:
- Remove batteries when the Remote Control is not used for a long time.
- When you need to replace the batteries, replace both batteries at the same time with new ones.
- Do not use an old battery together with a new one.
- Do not use different types of batteries together.
- Do not expose batteries to heat or flame.

## Connecting the External Wire

To prevent malfunction, connect the supplied wire as illustrated below.

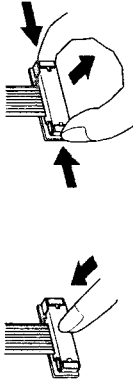
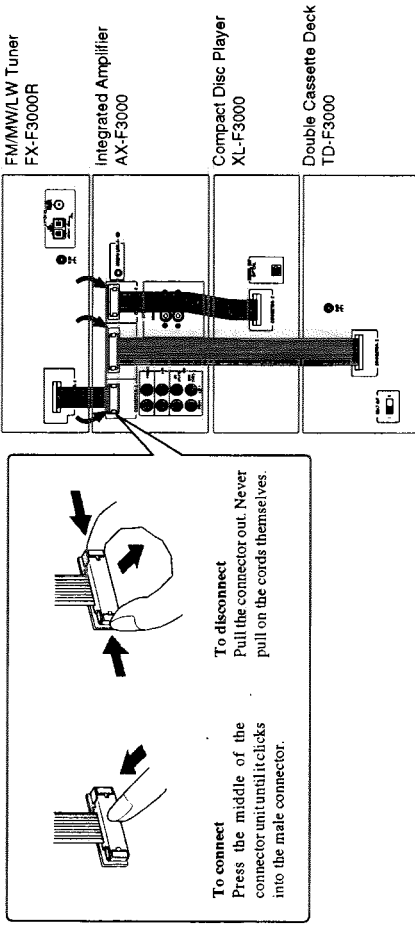


### CAUTION

First make all connections before plugging the System into the AC power outlet.

## Connecting the System Control Cords

Connect the components with the system control cords as illustrated below.



**To connect**  
Press the middle of the connector unit until it clicks into the male connector.

**To disconnect**  
Pull the connector out. Never pull on the cords themselves.

### Note

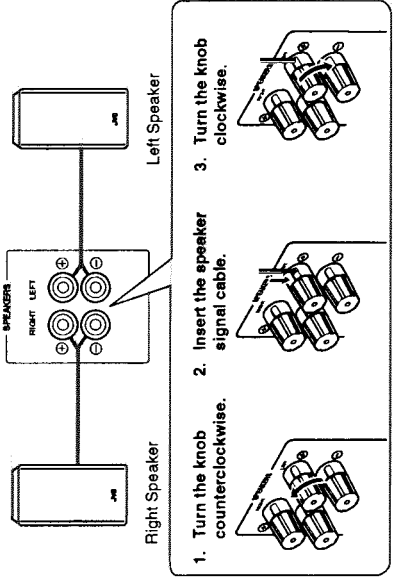
When connecting the components with the system control cords, make sure to connect the terminals having the same names like "CONNECTOR-A" or "CONNECTOR-B".

## Connecting the Speakers



Twist and remove the insulation at the end of each speaker signal cable first, and then, connect the speakers to the SPEAKERS terminals by using the cables.

For each speaker, connect the black (-) and red (+) terminals on the rear panel to the black (-) and red (+) terminals marked on the speakers.

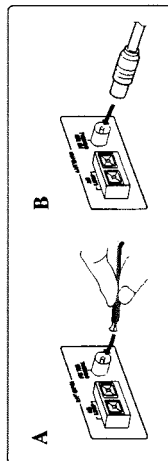


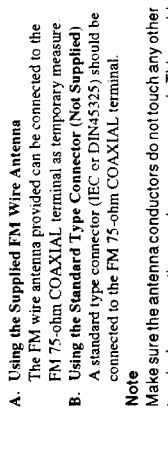
### CAUTIONS

- Use speakers with the same speaker impedance indicated by the speaker terminals.
- If the TV is installed near speakers, irregular colors may result. In this case, set the TV away from the speakers.

1-6

Connecting the FM Antenna

**A** 

**B** 

**FM Wire Antenna**

**Outside FM Antenna Wire**

Extend the supplied FM wire antenna horizontally.

If reception is poor, connect the outside antenna.

Before attaching a 75-ohm coaxial cable (the kind with a round wire going to an outside antenna), disconnect the supplied FM wire antenna.

**CAUTION**  
To avoid noise, keep antennas away from metallic parts of the System, connecting cords and the AC power cord.

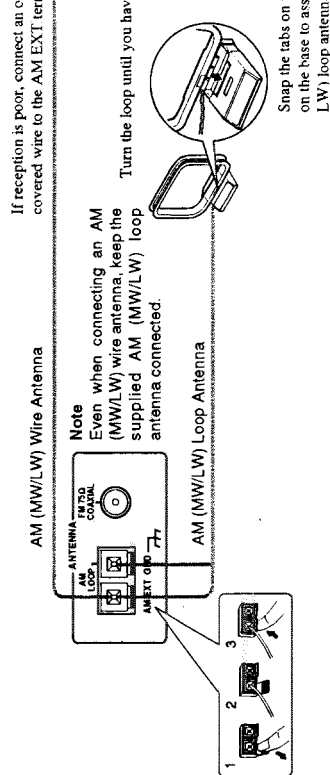
Connecting the AM (MW/LW) Antenna

**AM (MW/LW) Wire Antenna**

If reception is poor, connect an outdoor single vinyl-covered wire to the AM EXT terminal.

**Note**  
Even when connecting an AM (MW/LW) wire antenna, keep the supplied AM (MW/LW) loop antenna connected.

**AM (MW/LW) Loop Antenna**



Turn the loop until you have the best reception.

Snap the tabs on the loop into the slots on the base to assemble the AM (MW/LW) loop antenna.

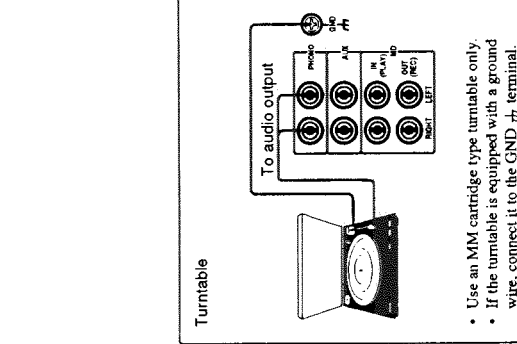
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**CAUTION**

First make all connections before plugging the System into the AC power outlet.

Connecting the Minidisc Recorder and Other Equipment

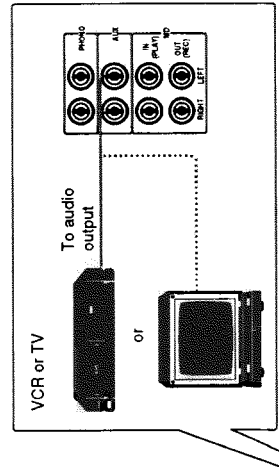
**Turntable**



- Use an MM cartridge type turntable only.
- If the turntable is equipped with a ground wire, connect it to the GND terminal.

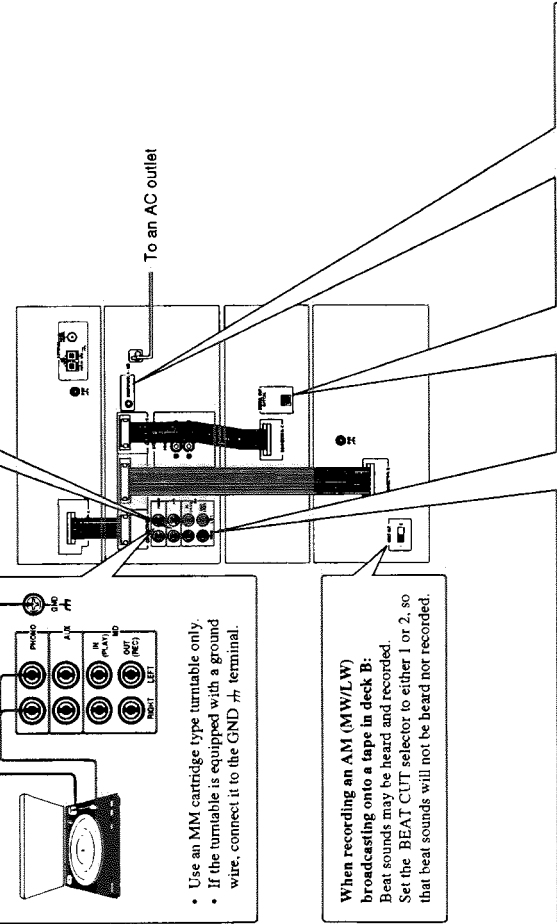
**When recording an AM (MW/LW) broadcasting onto a tape in deck B:**  
Beat sounds may be heard and recorded. Set the BEAT CUT selector to either 1 or 2, so that beat sounds will not be heard nor recorded.

**VCR or TV**



**To an AC outlet**

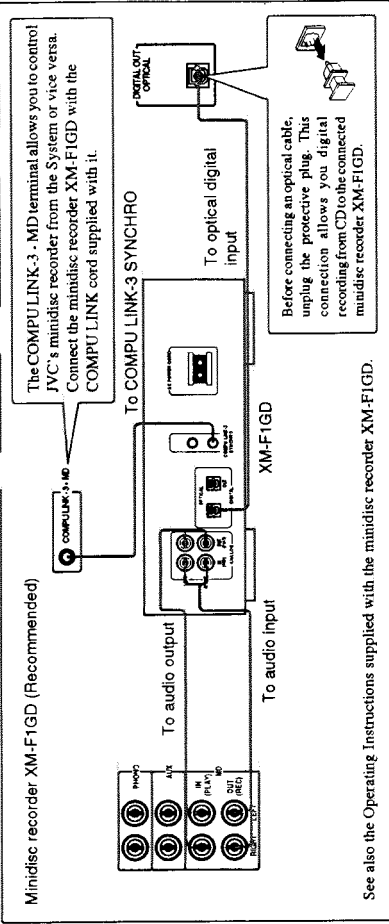
**Minidisc recorder XM-F1GD (Recommended)**



The COMPU LINK-3 MD terminal allows you to control JVC's minidisc recorder from the System or vice versa. Connect the minidisc recorder XM-F1GD with the COMPU LINK cord supplied with it.

**COMPU LINK-3 MD**

**To COMPU LINK-3 SYNCHRO**



**To audio output**

**To optical digital input**

**XM-F1GD**

Before connecting an optical cable, unplug the protective plug. This connection allows you digital recording from CD to the connected minidisc recorder XM-F1GD.

See also the Operating Instructions supplied with the minidisc recorder XM-F1GD.

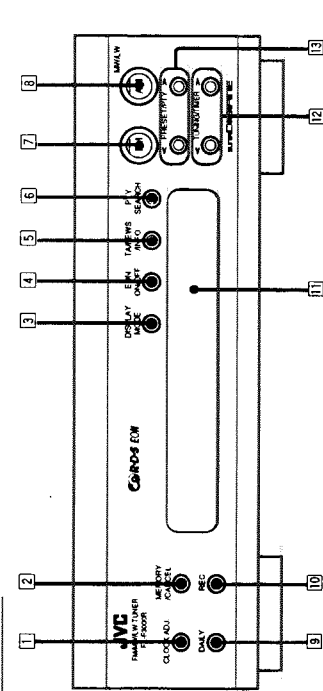
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**Switches, Buttons and Controls**

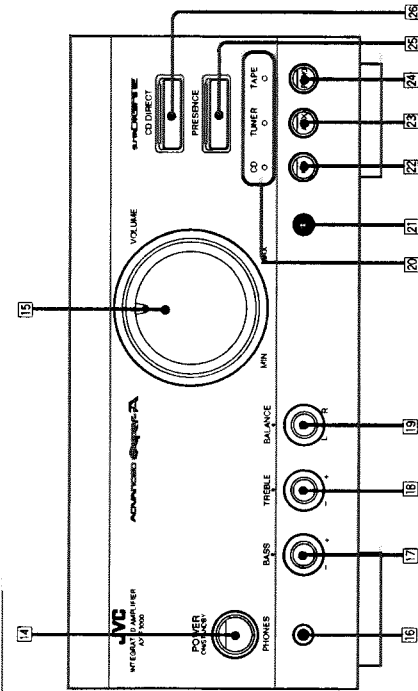
Become familiar with the buttons and controls on the front panels before use.

**Front Panel**

**FMMW/LW Tuner FX-F3000R**



**Integrated Amplifier AX-F3000**



Refer to the pages in parentheses for details.

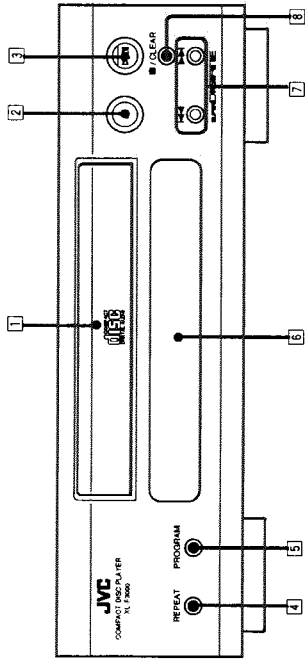
**FMMW/LW Tuner FX-F3000R**

- 1 CLOCK ADJ. button (29)
- 2 MEMORY/CANCEL button (13, 14)
- 3 DISPLAY MODE button (15)
- 4 EON ON/OFF button (16)
- 5 T/NEWS/INFO button (16)
- 6 PTY SEARCH button (16)
- 7 FM button and indicator (13)
- 8 AM (MW/LW) button and indicator (13)
- 9 DAILY button (30)
- 10 REC button (29)
- 11 Display (10)
- 12 TUNING/TIMER </> buttons (13, 29)
- 13 PRESET/PTY </> buttons (14, 16)

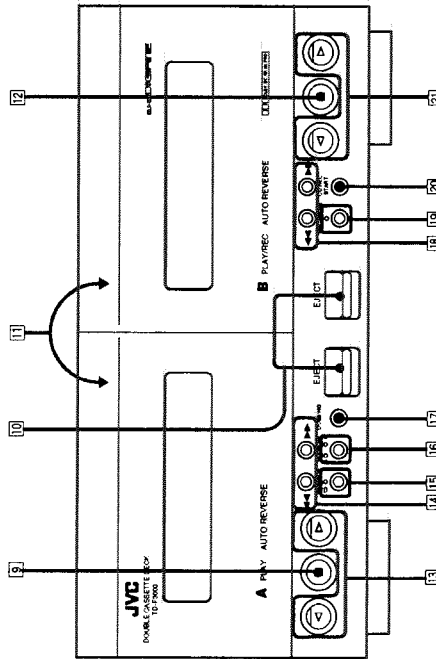
**Integrated Amplifier AX-F3000**

- 14 POWER button and ON/STANDBY indicator (11)
- 15 VOLUME control and indicator (11)
- 16 PHONES jack (12)
- 17 BASS control (11)
- 18 TREBLE control (11)
- 19 BALANCE control (11)
- 20 Source indicators (CD/TUNER/TAPE)
- 21 Remote sensor
- 22 MD button and indicator (24)
- 23 AUX button and indicator (24)
- 24 PHONO button and indicator (12)
- 25 PRESENCE button and indicator (12)
- 26 CD DIRECT button and indicator (12)

**Compact Disc Player XL-F3000**



**Double Cassette Deck TD-F3000**



Refer to the pages in parentheses for details.

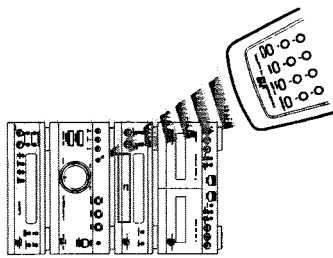
**Compact Disc Player XL-F3000**

- 1 CD tray (18)
- 2 (Open/Close) button (18)
- 3 (Play/Pause) button and indicator (18)
- 4 REPEAT button (20)
- 5 PROGRAM button (20)
- 6 Display (10)
- 7 (Skip Left/Skip Right or Fast Forward/Fast Reverse) buttons (18)
- 8 (Stop)/CLEAR button (18, 20)

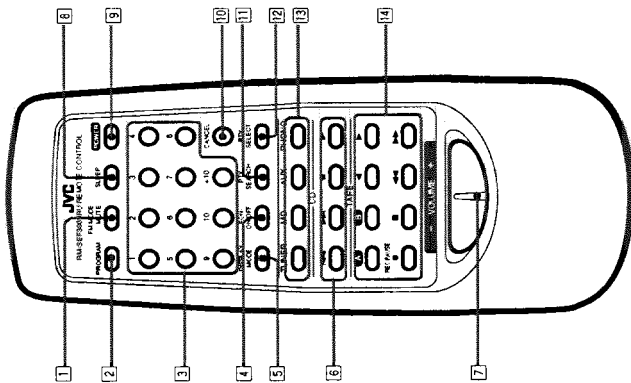
**Double Cassette Deck TD-F3000**

- 9 (Stop) button (for Deck A) (21)
- 10 EJECT buttons (21)
- 11 Cassette Holders
- 12 (Stop) button (for Deck B) (21)
- 13 </> (Play Forward/Play Reverse) buttons and indicators (for Deck A) (21)
- 14 < </> (Fast Left/Fast Right) buttons (for Deck A) (22)
- 15 REVERSE button and indicator (23)
- 16 DOLBY NR button and indicators (21)
- 17 DUBBING button (28)
- 18 < </> (Fast Left/Fast Right) buttons (for Deck B) (22)
- 19 REC PAUSE button and indicator (26)
- 20 CD REC START button (27)
- 21 </> (Play Forward/Play Reverse) buttons and indicators (for Deck B) (21)

Remote Control



When using the Remote Control, aim it to the remote sensor on the front panel.



- 1 FM MODE MUTE button (13)
- 2 PROGRAM button (15)
- 3 10 key pad (14, 19)
- 4 EON ON/OFF button (16)
- 5 DISPLAY MODE button (15)
- 6 CD player control section (18)
  - ▶ (Play) button (18)
  - (Stop) button (18)
  - ◀/▶ (Skip Left/Skip Right) buttons (18)
- 7 VOLUME button (+/-) (11)
- 8 SLEEP button (32)
- 9 POWER button (11)
- 10 CANCEL button (20)
- 11 PTY SEARCH button (16)
- 12 PTY SELECT button (16)
- 13 Source selecting buttons (TUNER/MD/AUX/PHONO) (13, 24)
- 14 Cassette deck control section (21)
  - ▶ (Play) button (for Deck A) (21)
  - (Stop) button (for Deck B) (21)
  - ◀/▶ (Play) buttons (21)
  - (Stop) button (21)
  - ◀/▶ (Fast Left/Fast Right) buttons (22)
  - REC PAUSE ● button (for Deck B only) (26)

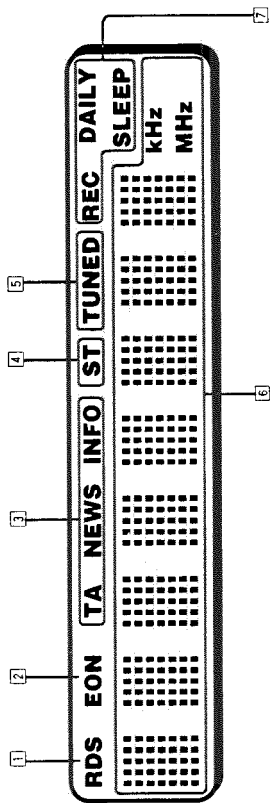
Refer to the pages in parentheses for details.

Note

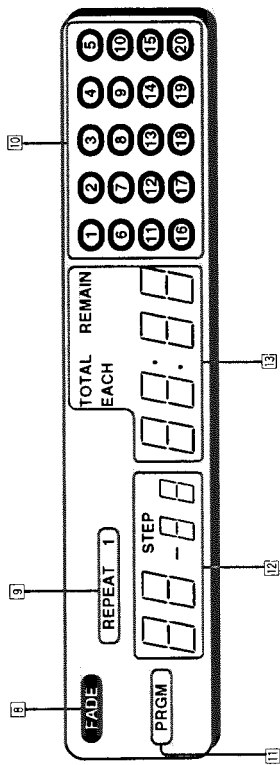
When you use the Remote Control, be sure which source the Remote Control is activated for.

- Before controlling the tuner and using the 10 key pad to select preset stations, press TUNER first on the Remote Control.
- Before controlling the CD player and using the 10 key pad to select CD tracks, press ▶, then ■ on the CD control section first.
- Before controlling the cassette deck, press ▶ or ■ on the cassette deck control section first to select which deck to use.

Tuner Display



CD Player Display



Refer to the pages in parentheses for details.

Tuner Display

- 1 RDS indicator (15)
- 2 EON indicator (16)
- 3 EON Standby reception indicator (T/NEWS/INFO) (16)
- 4 ST (Stereo) indicator (13)
- 5 TUNED indicator (13)
- 6 Clock, frequency, timer-on time, timer-off time display (13, 29)
- 7 Timer indicators (29, 30, 32)

CD Player Display

- 8 FADE indicator (27)
- 9 REPEAT indicator (20)
- 10 Track number display
- 11 PRGM (Program) indicator (19)
- 12 Track and program step display
- 13 Playing time, remaining time display

## Using the Amplifier

Here are some basic things to use this System. If something in a later procedure is unclear to you, check back here.

### Turning the System On and Off

POWER  
ON/STANDBY



Press POWER so that the ON/STANDBY indicator goes off.

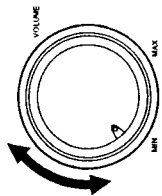
- The System comes on ready to do whatever it was doing when the power was last shut off.

### Turning the System Off

Press POWER again so that the ON/STANDBY indicator lights up and the display blanks, except for the clock indication.

- The small amount of the power (11 watts) is always consumed even in standby mode.
- To turn off the System completely, unplug the AC power cord from the AC outlet. When you unplug the AC power cord, the preset stations of the tuner will be erased in a few days.

### Controlling the Sound



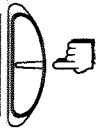
The same set of buttons and knobs control the sound, no matter which sound source is producing it.

#### Volume Control

Rotate the VOLUME control clockwise to increase the volume, counterclockwise to reduce it.

#### On the Remote Control:

Press VOLUME + to increase the volume, VOLUME - to reduce it.



BALANCE



BASS



TREBLE

#### Speaker Balance Control

If the sounds you hear from the right and left speakers are not well-balanced, you can adjust the speaker output balance with the BALANCE control.

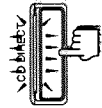
#### Bass Control

Rotate the BASS control clockwise to increase bass reinforcement, counterclockwise to reduce bass reinforcement.

#### Treble Control

Rotate the TREBLE control clockwise to increase treble reinforcement, counterclockwise to reduce treble reinforcement.

### Using the CD DIRECT Function



This function is useful when you want to listen to a CD with higher sound quality. The playback signal from the CD player is output directly, without passing through the BASS, TREBLE, BALANCE control circuits, and PRESENCE circuit.

To use this function, press CD DIRECT so that the indicator lights up.

To cancel this function, press CD DIRECT again so that the indicator goes off.

### Notes

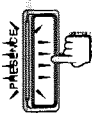
- If you press CD DIRECT while the power is on, CD play starts with a CD loaded.
- The CD DIRECT function and the PRESENCE function cannot be used at the same time. If you press CD DIRECT while using the PRESENCE function, the PRESENCE function will be canceled.

### Using the PRESENCE Function

This function is useful when you listen to music at low volume or with small speaker systems.

To use this function, press PRESENCE so that the indicator lights up.

To cancel this function, press PRESENCE again so that the indicator goes off.



### Note

The PRESENCE function and the CD DIRECT function cannot be used at the same time. If you press PRESENCE while using the CD DIRECT function, the CD DIRECT function will be canceled.

### Listening with Headphones

A standard pair of headphones can be connected at the PHONES jack on the front panel. No sound can be heard from the speakers.

### CAUTION

Be sure to turn down the volume before connecting or putting on headphones, as high volume can damage both the headphones and your hearing.

## Using the Tuner

You can listen to both FM and AM (MW/LW) stations. Stations can be tuned manually, automatically, or from preset memory. Before listening to the radio, check that both the FM and AM (MW/LW) antennas are firmly connected. (See page 5.)

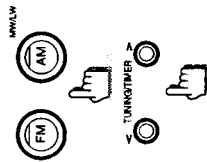
### One Touch Radio



Just press AM (MW/LW) to turn on the System and start playing the most recent AM (MW/LW) station tuned in, or press FM to start the most recent FM station playing. If you press TUNER on the Remote Control instead, you can start playing the most recent station tuned in.

- You can switch from any other sound source to the tuner by pressing either AM (MW/LW) or FM.

### Tuning in Stations Manually



- Press FM or AM (MW/LW) to turn on the System.
- Press and release TUNING/TIMER < or > to move from station to station until you find the one you want.

OR  
 Hold down TUNING/TIMER < or > the frequency starts changing on the display. As soon as a station is tuned in, the TUNED indicator lights up on the display and the frequency stops changing.  
 Repeat this procedure until a station you want is tuned in.

### Receiving in Stereo or Monaural



When an FM stereo broadcast is hard to receive or noisy:

- Press FM MODE MUTE on the Remote Control so that "FM MONO" appears on the display and reception improves, although you lose the stereo effect. In this state, you will hear some noise while tuning into a station.
- To restore the stereo effect, press FM MODE MUTE again so that the "FM AUTO" appears on the display. In this state, when a program is broadcast in stereo, the ST (Stereo) indicator lights up on the display and you will hear the stereo sound; when in monaural, the ST indicator goes off and you will hear the monaural sound. Furthermore, in this state you will not hear noise while tuning in stations.

### Presetting Stations in Memory

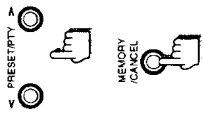
Once stations are assigned to channel numbers, any of these stations can quickly be called up.

- You can preset a total of 40 stations, either FM or AM (MW/LW).
- In order to use RDS broadcasting effectively, you need to preset stations in memory. Both PTY Search and EON function (which will be explained later) are applicable only to the preset FM stations.
- In some cases, test frequencies have been already memorized for the tuner since the factory examined the tuner preset function before shipment. This is not a malfunction. You can preset the stations you want into memory by following the presetting method.

#### IMPORTANT

When you want to preset FM stations in stereo:  
 Press FM MODE MUTE on the Remote Control so that "FM AUTO" appears on the display before presetting stations.

- Tune in the station you want to preset (see above).
- Press MEMORY/CANCEL.  
 "memo P\_ \_" appears on the display for about 5 seconds.



- Press PRESET/PTY < or > to assign a channel number while "P\_ \_" is blinking on the display.
- Press MEMORY/CANCEL.  
 "stored" appears on the display.
  - If you store a new station on a used number, the new station erases the previously stored one.
- Repeat steps 1 to 4 for each station you want to store in memory.

#### CAUTION

If the System is unplugged or if a power failure occurs, the preset stations will be erased in a few days. If this happens, preset the stations again.

### Tuning in Preset Stations

This method is possible after presetting stations by yourself.

- Press FM or AM (MW/LW).

- Press once and release PRESET/PTY > (or <) to go to the next (or previous) preset station, or hold PRESET/PTY < or > to cycle through the preset station: release the button when the preset station you want appears on the display.  
 The stations you have not preset are skipped.

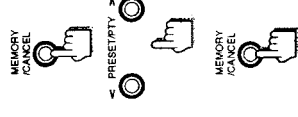
### You can use the Remote Control to tune in preset stations

- Press TUNER so that you can receive the most recent station tuned in.
- Select the station by entering the preset number you want using the 10 key pad.
  - Example: For number 5, press 5. For number 15, press +10 then 5. For number 20, press +10 then 10.
  - If you select the stations you have not preset, "canceled" appears on the display.

### Erasing the Preset Stations

You can also use the MEMORY/CANCEL button to cancel the preset stations.

- Hold down MEMORY/CANCEL for about 5 seconds.  
 "canc. P\_ \_" appears on the display.
- Press PRESET/PTY < or > to assign a channel number while "P\_ \_" is blinking on the display.
- Press MEMORY/CANCEL.  
 "canceled" appears on the display.
- Repeat steps 1 to 3 for each station you want to erase.



**Receiving FM Stations with RDS (Radio Data System)**



RDS is a broadcasting service a growing number of FM stations are now providing. It allows the FM stations to send additional signals along with their regular program signals. For example, the stations send their station names and information about what type of program they broadcast, such as sports or music, etc.

When tuned to an FM station providing the RDS service, the RDS indicator lights up on the display, the station frequency (and then the station name if sent) is displayed. One convenient RDS service is "Enhanced Other Networks (EON)". This allows the tuner to automatically switch to a program of your choice when one starts in your broadcast area.

- Not all FM stations provide RDS service, nor do all RDS stations provide the same services. If in doubt, check with local radio stations for details on RDS services in your area.

**Note**  
RDS may not operate correctly if the station tuned is not transmitting data properly or if the signal strength is weak.

**What Information RDS Can Provide**

The following RDS services are available and you can see the following RDS information by pressing DISPLAY MODE.

**RDS Service Available**

PS (Program Service name)  
Identifies each station by a name.

Clock Time (Non-RDS service)  
Displays the time.

RT (Radio Text)  
Allows the RDS station to send text messages that appear on the tuner display.

PTY (Program Type)  
Identifies the type of RDS program.

- While RDS information is being received from a station, "wait PS", "wait PTY", or "wait RT" may appear on the display.

The program types are as follows:

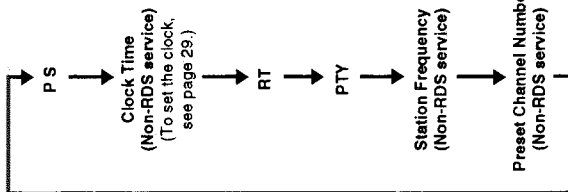
- TRAFFIC:** Traffic announcement (usually called "TA")
- NEWS:** News
- INFO:** Programs on medical service, weather forecast, etc.
- POP M:** Pop music
- ROCK M:** Rock music
- M.O.R. M:** Middle-of-the-road music (usually called "easy listening")
- LIGHT M:** Light music
- CLASSICS:** Classics
- OTHER M:** Other music
- AFFAIRS:** Topical program expanding on current news or affairs
- SPORT:** Sports events
- EDUCATE:** Educational programs
- DRAMA:** Radio plays
- CULTURE:** Programs on national or regional culture
- SCIENCE:** Programs on natural sciences and technology
- VARIED:** Other programs like comedies or ceremonies
- NONE:** Undefined

**ALARM:** Emergency broadcasts

**Station Frequency (Non-RDS service)**  
Displays station frequencies.

**Preset Channel Number (Non-RDS service)**  
Displays preset channel numbers.

**Note**  
If you press DISPLAY MODE while receiving non-RDS FM stations or AM (MW/LW) stations, the display only shows the clock time, station frequency, and preset channel number in sequence.



**Searching for Programs by PTY Codes**

One of the advantages of the RDS service is that you can locate a particular kind of program by specifying the PTY (Program Type) codes.

- PTY Search can be used even while receiving AM (MW/LW) broadcasts or while playing the other source.
- PTY Search is applicable to preset FM stations only.

**1. Press PTY SEARCH.**

"PTY" and "select" alternates on the display.

**2. Press PRESET/PTY < or > (or PTY SELECT on the Remote Control) to select a PTY (Program Type) code.**

When you press PRESET/PTY < or > on the front panel, the PTY codes change in the following order (when using the Remote Control, they change only rightward):  
**TRAFFIC ↔ NEWS ↔ INFO ↔ POP M ↔ ROCK M ↔ M.O.R. M ↔ LIGHT M ↔ CLASSICS ↔ OTHER M ↔ AFFAIRS ↔ SPORT ↔ EDUCATE ↔ DRAMA ↔ CULTURE ↔ SCIENCE ↔ VARIED ↔ NONE ↔** (back to the beginning)

**3. Press PTY SEARCH again while the selected PTY code remains on the display.**

Searching starts.  
The selected PTY code blinks during PTY Search.

**Notes**

- Once the station broadcasting the selected PTY code is found, searching stops. Then the station is tuned in and the preset channel number appears on the display. The preset channel number stays blinking for 10 seconds before searching ends.
- If you press PTY SEARCH again during this period, search for the same PTY code will restart. PTY Search is only completed when the indicated preset channel number stops blinking and stays lit.
- If stations broadcasting a program of the selected PTY code is not found, "No PGM" appears on the display after going through the preset channels.

**Setting EON Standby Reception**

With the EON (Enhanced Other Networks) code, the System can perform a standby reception which enables you to obtain desired PTY code(s) available from other stations.

- The EON indicator will light up only while receiving stations with an EON code.
- You can set EON Standby reception with either band (FM or AM (MW/LW)) received.

EON Standby reception is not applicable in the following cases:

- While playing the other sources.
- While receiving non-RDS FM stations and AM (MW/LW) stations. (EON indicator will not light up.)

**1. Press EON ON/OFF so that "EON MODE" appears on the display.**

Indicator of the PTY code(s) (TA/NEWS/INFO) previously selected lights up.

**2. Select PTY code(s) you want by pressing TA/NEWS/INFO.**

TA: Traffic announcement in your area.

NEWS: News

INFO: Programs on medical service, weather forecast, etc.

Each time you press TA/NEWS/INFO, the EON Standby reception (TA/NEWS/INFO) indicator changes as follows:

"TA NEWS INFO" → "TA INFO" → "TA NEWS INFO" → "TA NEWS" → (back to the beginning)

As soon as your selection is entered, the tuner goes into the EON Standby reception mode.



On the front panel



From the Remote Control



# Using the CD Player

Here are the basic things you need to know to play a CD and locate the different selections on it. Each selection is called a track, so when we are talking about locating a track, we are also talking about how you find a certain song or performance.

## Basics of Using the CD Player



The quickest way to start a CD is with One Touch Play:

- Press **>|||** (Play) on the CD player (or **▶** on the CD player control section of the Remote Control). If a CD is already loaded, the System automatically turns on and starts playing the CD.
- If no CD is loaded, the CD tray comes out so you can put in a CD, with printed side up. Then press **>|||** (or **▶** on the CD player control section). The tray closes and the CD starts playing.
- If you press **⏏** (Open), the System automatically turns on and the CD tray comes out.

### IMPORTANT

When you use the Remote Control, Remember you have to press **▶**, then **■** on the CD player control section to activate the 10 key pad for the CD player.

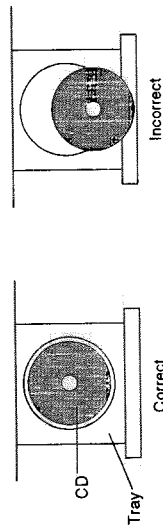
## Playing a CD



1. Press **⏏** (Open).
2. Put a CD, with printed side up, into the tray.  
When using an 8 cm CD, place it on the inner circle of the tray.

### CAUTION

Place the disc correctly on the circle of the tray.



On the front panel



From the Remote Control

3. Press **>|||** (or **▶** on the CD player control section of the Remote Control).
  - The CD tray closes automatically.
  - The display shows the track being played and the length of time since it started.

To stop the CD, press **■**/CLEAR (or **■** on the CD player control section of the Remote Control).

To pause the play, press **>|||** (Pause) on the front panel while the CD is playing.

To resume playing, press **>|||** (Play) again. (The Pause function cannot be used with **▶** on the CD player control section of the Remote Control.)

To remove a CD, press **⏏** (Open), take the CD out, and press **⏏** (Close) again to close the tray. Keep the tray closed except during loading and unloading to protect the mechanism from dust and damage.

### Finding the Track or a Particular Point You Want

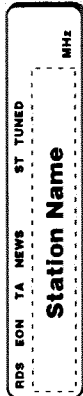
You can easily find the CD track and particular point you want by the following procedure:

- Each time you press briefly and release **◀** or **▶** (Skip Left or Skip Right) the track changes by one.
  - Press and release **▶** to go ahead one track at a time.
  - Press and release **◀** to go back one track at a time.
- Hold down **◀** or **▶** (when the CD player is stopped) allows you to change tracks continuously.
- Hold down **◀** or **▶** (Fast Forward or Fast Reverse) on the front panel during play will fast forward or fast reverse the CD so you can quickly find the particular point of a track you want to listen to. (The Fast Forward and Fast Reverse functions cannot be used from the Remote Control.)



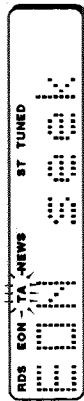
While the tuner is for EON Standby reception, the display changes as follows:

1. While waiting for EON data of your selection.

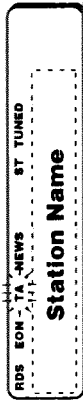


### Notes

- If no EON data is received, the tuner remains in this mode.
  - If the information you are waiting for is available from the current station, the indicator of the received PTY code will blink.
2. When the information of desired PTY data is received, the tuner tunes into the station sending the PTY data (sound is muted).

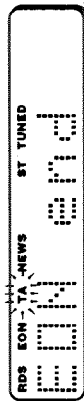


3. When the station is tuned in, the indicator of received PTY code starts blinking.



If the reception is failed, the previous station name and "EON seek" alternates on the display, and then, the indicator of the PTY code goes off and "EON fail" appears. The tuner then goes back to the station previously tuned.

4. When broadcasting of the desired PTY code ends, "EON end" appears and the tuner automatically goes back to the station previously tuned in.



To cancel the EON Standby reception, press EON ON/OFF (or TA/NEWS/INFO) while receiving the station tuned by EON Standby reception.

### Notes

- EON broadcasts of some stations may not be compatible with the System. In the case of an incompatible EON broadcast, the EON indicator on the display may not light up.
- While receiving a program of the selected PTY code(s) by EON Standby reception, the station will not change to other stations even if a program of the same type is available from them.
- When a timer (recording or daily) starts operating while the EON Standby reception is operating, the EON Standby reception will be canceled, and the source selected by the timer will be played.
- While a timer (recording or daily) is operating, the EON Standby reception will not function.

### ALARM Function

When an ALARM (Emergency) broadcast is being received, the tuner tunes in the station broadcasting the ALARM signal. "ALARM" and the station frequency will alternate on the display for your attention.

- ALARM function cannot work in the following cases:
  - While playing the other sources.
  - While receiving non-RDS FM stations and AM (M/W/LW) stations.



**Programming the CD from the front panel by the following procedure:**

1. **Press PROGRAM.**  
The PRGM indicator lights up on the display.
2. **Press ◀▶ or ▶▶ (Skip Left or Skip Right) to select the track you want.**
3. **Press PROGRAM to store the selected track.**
4. **Repeat steps 2 and 3 until you enter all the tracks you want to play.**  
You can repeat the same tracks if you want.
5. **Press ▶/▶ (Play) to start playing the tracks in the order you have programmed.**



To stop the CD during programmed play, press ■/CLEAR.

To erase the program, press ■/CLEAR after you stop playing.

**Before you start playing, you can do the following:**

- If you want to change the entire program, press ■/CLEAR on the front panel (or PROGRAM on the Remote Control). You can also erase the entire program by pressing ◀ (Open).
- If you want to erase the last track, press CANCEL on the Remote Control. Each time you press CANCEL, the last track in the program will be erased.
- To add a track to your program, just press the number you want to add using the Remote Control. (This is also possible during play.)

**Repeating a Selection or the Entire Disc**

You can have either all tracks or the individual track currently playing repeat as many times as you like by pressing REPEAT.

- Each time you press REPEAT, it cycles in the following order:

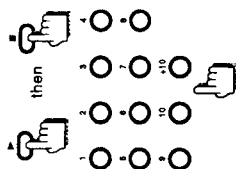
- REPEAT → REPEAT 1 → Off (The REPEAT indicator goes off.) → (go back to the beginning)
- REPEAT Repeat all tracks in order or according to the program you have made.
- REPEAT 1 Repeat the currently playing track.
- Off Repeat is canceled.



**Locating a Track with the Remote Control Directly**

Using the 10 key pad on the Remote Control allows you to go directly to the beginning of any track.

1. **Press ▶, then ■ on the CD player control section.**  
This activates the 10 key pad for controlling the CD player.
2. **Enter the number of the track you want using the 10 key pad.**  
Example: For track 5, press 5. For track 15, press +10 then 5. For track 20, press +10 then 10.
3. **As long as a CD is loaded and the System is on, the CD starts playing from the selected track.**



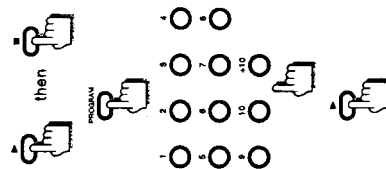
**Programming the Playing Order of the Tracks**

You can arrange the tracks to play in any order you like. The Remote Control is very useful for this because you can select tracks by number with the 10 key pad. You can also use the buttons on the front panel.

- You can program up to 32 tracks in any desired order.
- You can only make or change a program when the CD player is stopped.

**Programming the CD track order from the Remote Control by the following procedure:**

1. **Press ▶, then ■ on the CD player control section.**  
This activates the 10 key pad for controlling the CD player.
2. **Press PROGRAM.**  
The PRGM indicator lights up on the display.
3. **Press the number of the first track, then the number of the second track, and so on until you enter all the track numbers you want to play.**  
• Example: For track 5, press 5. For track 15, press +10 then 5. For track 20, press +10 then 10.  
• You can repeat the same tracks if you want.
4. **Press ▶ on the CD player control section to start playing the tracks in the order you have programmed.**



To stop the CD during programmed play, press ■.

To erase the program, press PROGRAM after you stop playing.

## Using the Cassette Deck (Listening to a Tape)

You can play, record and dub audio tapes by using the cassette deck.

- To record or dub, see Recording on page 25.
- With Automatic Tape Type Detection, you can listen to Type I, II and IV tapes without changing any settings.
- Most tapes are now recorded with the Dolby NR system (B or C), so first check which type of the Dolby NR system is used on the tape.

### IMPORTANT

When you use the Remote Control, Remember you have to press **◀** or **▶** on the cassette deck control section to select which deck to use.

### One Touch Play

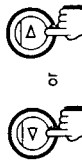


### Regular Play

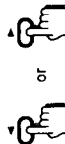
By pressing either ▶ or ◀ on either deck A or B, the System automatically turns on, and if a tape is in the deck, it starts playing. If no tape is loaded, the System turns on and wait for further instructions.

When power is already on, you can use these basic procedures:

1. Press EJECT for the deck you want to use.
2. When the cassette holder opens, put the cassette tape in, with the exposed part of the tape down toward the base of the holder.  
If the cassette holder does not open, turn the System off once and turn it on again, then press EJECT.
3. Close the cassette holder gently.
4. Press DOLBY NR repeatedly to set the same Dolby NR system as was used for recording the tape.
5. Press ◀ (or ▶ on the cassette deck control section of the Remote Control) to play the reverse side, or ▶ (or ◀ on the cassette deck control section) to play the front side.
  - Tape starts playing.
  - The indicator on the pressed button (◀ or ▶) starts blinking slowly, showing which way the tape is running.



On the front panel



From the Remote Control

To stop playing, press ◻ (or ■ on the cassette deck control section of the Remote Control). The indicator on the button (◀ or ▶) stops blinking, showing which way the tape was running last.

To remove the tape, press EJECT.

### Fast Left and Fast Right

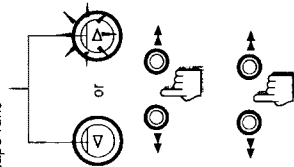
- While the tape is stopped, press ◀◀ and the tape will wind rapidly onto the left side of the cassette tape without playing.
- While the tape is stopped, press ▶▶ and the tape will wind rapidly onto the right side of the cassette tape without playing.

### CAUTION

The use of C-120 (120 minutes turn around) or thinner tape is not recommended, since characteristic deterioration may occur and these tapes easily jam in the pinch and the capstan.

### Music Scan

Shows the direction the tape runs



You can use Music Scan to locate the beginning of a song. Music Scan searches for blank portions that usually separate recorded songs, then plays the next song.

#### Finding the Beginning of the Next Song

During play, press ◀◀ or ▶▶ in the same direction as the tape play. Searching stops automatically at the beginning of the next song, and the next song starts automatically.

#### Finding the Beginning of the Current Song

During play, press ◀◀ or ▶▶ in the opposite direction to the tape play. Searching stops automatically at the beginning of the current song, and the current song starts automatically.

### Notes

- Music Scan works by detecting a 4-second long blank between each song, so it will not work well in the following cases.
  - No blank at the beginning of a song.
  - Noise (often caused by much use or poor quality dubbing) which fills the blank with noise.
  - Long, very soft passages or pauses in a song.
- Music Scan only works on one tape at a time.
  - If you use Music Scan on deck A during recording on deck B, deck B enters recording pause mode (except during "CD to Tape Recording").
  - If you start recording on deck B while Music Scan is used on deck A, Music Scan stops.

## Other Useful Features of the Cassette Deck



### Reverse Mode

Use Reverse Mode to make the tape automatically reverse at the end of a side and start playing the other side. Press REVERSE to change Reverse Mode from on (when the indicator is lit) to off and vice versa.

### Continuous Play (only available when Reverse Mode is on)

Use Continuous Play to play the tapes in both deck A and B.

### When Reverse Mode is set to on (the indicator is lit):

When the reverse side (<) of a tape finishes playing on one deck, the System always checks to see if a tape is in the other deck. If there is, it automatically starts playing. This happens regardless of which deck starts first.



### Dolby Noise Reduction

Press DOLBY NR to switch Dolby Noise Reduction (B or C) on (the selected one's indicator lights up) or off (both indicators go off). If a tape is recorded with the Dolby NR system, playing it back with the same Dolby NR on. It will reduce tape noise and improve the clarity of the sound.

### Dolby HX PRO

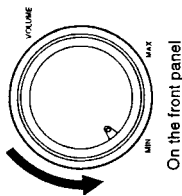
Dolby HX PRO provides linearity in high-range frequency response during recording. Tapes recorded with this System retain the same characteristic even played back with any other deck. With Dolby HX PRO, the effective bias current is controlled in response to fluctuations in high-range frequency of the input signal, ensuring dynamic sound recording with minimal distortion and noise.

*Dolby noise reduction and HX Pro headroom extension manufactured under license from Dolby Laboratories Licensing Corporation. HX Pro originated by Bang & Olufsen. "DOLBY", the double-D symbol and "HX PRO" are trademarks of Dolby Laboratories Licensing Corporation.*

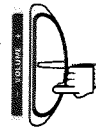
## Listening to the Turntable or Other Equipment through Your System

By playing the sound from a minidisc recorder, a turntable or other connected equipment through the System, you can often dramatically improve the quality, and gain control over how the music or program sounds.

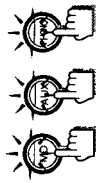
1. Connect the other equipment as shown on page 6.
2. Turn down the volume using the VOLUME control on the front panel (or VOLUME – on the Remote Control).
3. Press MD, AUX or PHONO .  
The System is turned on and MD, AUX or PHONO indicator lights up.
4. Switch on the connected equipment and start playing.  
See the manuals supplied with the other equipment.



On the front panel



From the Remote Control



To cancel the MD, AUX or PHONO setting, change the source by starting any one of sound sources, such as the tuner or CD player.

## Using JVC's Minidisc Recorder Connected to the COMPU LINK-3 - MD Terminal

When your minidisc recorder is JVC's XM-F10D, you can connect it to the COMPU LINK-3 - MD terminal. You can control the minidisc recorder from the System or vice versa. About the connection, see page 6.

### What you can do:

**Automatic power on/off function:**  
When you turn on or off the System, the minidisc recorder automatically turns on or off.  
**Playing the minidisc recorder:**

When you press MD on the System or ▷/⏪ (Play) on the minidisc recorder in standby mode, the System and minidisc recorder turn on and start playing if a minidisc is already loaded.

**Recording from the minidisc recorder,** see page 26.

### Recording onto the minidisc:

1. Prepare the CD or cassette tape you want to record from.
2. Prepare the minidisc in the minidisc recorder.
3. Press REC PAUSE on the minidisc recorder.
4. Press ▷/⏪ (for the CD) or ◁/▷ (for the cassette tape) on the front panel.  
As soon as the System starts playing, the minidisc recorder starts recording.

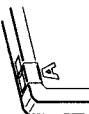


Recording onto cassette tape from any of the sound sources is easy and the System does most of the work. Just have a tape in deck B, have the source ready, make one or two settings, and you are ready to record.

For each source the procedure is a little different and now we explain just what to do for each one. If you forget, just come back to the each section. But first, here are a few things to make your recordings better.

## Things to Know before You Start Recording

- It may be unlawful to record or playback copyrighted material without the consent of the copyright owner.
- To reduce hiss noise, press DOLBY NR to select either B or C. (See page 23.)
- The recording level, which is the volume at which the new tape is being made, is automatically set correctly, so it is not affected by the VOLUME control on the front panel (or VOLUME - or + on the Remote Control). Thus, you can adjust the sound you are actually listening without changing the recording. If you do not want to listen to the sound, you can turn down the volume using the VOLUME control on the front panel (or VOLUME - on the Remote Control).
- The BASS/TREBLE controls, and the CD DIRECT/PRESENCE function cannot be used for recording.
- Cassette tapes have a special feature so you will not accidentally record over a tape you want to save. Two small tabs on the back, one for side A and one for side B, can be removed to prevent erasure or re-recording. To record on a cassette with the tabs removed, you must cover the holes with tape first. However, when a Type II tape is used, only cover part of the hole as shown below, since the other part of the hole is used to detect the tape type.



- Type I, II and IV tapes can be used for recording.

### CAUTION

If recordings you make have excessive noise or static, the System may be too close to a TV during the recording. Either turn off the TV or increase the distance between the TV and the System.

## Standard Recording

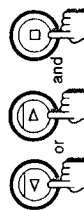
This is the basic method for recording any source. The System also has special ways for recording CD to tape, and tape to tape, which save you time and effort, as well as give you some special effects. However, when you need to add a selection to a tape, you have made, or are combining selections from several sources on one tape, use the method we describe here. You can record from a minidisc recorder, a turntable or other sources with this procedure.

### Recording any Sound Source to Tape

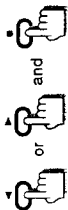
Follow the procedure to record from any sound source onto a tape in deck B.

#### IMPORTANT

When you use the Remote Control: Remember you have to press **▶** or **▶** on the cassette deck control section to select which deck to use. Press **▶** first before starting the following procedure.



On the front panel



From the Remote Control



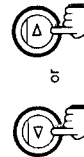
1. Put the cassette tape to record onto into deck B.
2. Press **▶** (or **▶** on the cassette deck control section of the Remote Control) or **▶** (or **▶** on the cassette deck control section) and **▶** (or **▶** on the cassette deck control section), then **▶** (or **▶** on the cassette deck control section).
  - When you want to record on the front side (A), press **▶** (or **▶** on the cassette deck control section), then **▶** (or **▶** on the cassette deck control section).
  - When you want to record on the reverse side (B), press **▶** (or **▶** on the cassette deck control section), then **▶** (or **▶** on the cassette deck control section).

### 3. Press REC PAUSE.

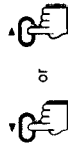
The REC PAUSE indicator lights up.

When you want to record on both sides of the tape, press REVERSE on the cassette deck to set Reverse Mode on and be sure to start recording from the front side (A). If you start recording from the reverse side (B), the deck stops after recording the reverse side (B) without going to the front side (A), even if Reverse Mode is on.

4. Prepare the source, for example, tuning in a radio station, turning on the connected equipment and then, start playing the source.
  - When you want to record from the CD player or minidisc recorder, you need to do the next step first.
  - When you want to record from JVC's minidisc recorder XM-FJGD connected with COMPU LINK cord, you do not need to do the next step since recording starts automatically.



On the front panel



From the Remote Control

5. To start recording, press either **▶** (or **▶** on the cassette deck control section of the Remote Control) or **▶** (or **▶** on the cassette deck control section) (the same button you have pressed in step 2).

To stop recording any time during the process, press **▶** on deck B (or **▶** on the cassette deck control section).

To pause recording any time during the process, press REC PAUSE again.

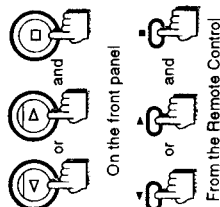
To resume recording, press **▶** (or **▶** on the cassette deck control section of the Remote Control) (the same button you have pressed in step 5).

**CD to Tape Recording**

Everything on the CD goes onto the tape in the order it is on the CD or according to an order you have set in a program. To make a program, see page 19. During "CD to Tape Recording", you cannot change the sound sources.

**IMPORTANT**  
When you use the Remote Control, Remember you have to press **◀** or **▶** on the cassette deck control section to select which deck to use. Press **▶** first before starting the following procedure.

1. Put the cassette tape in deck B.  
Press REVERSE so that the REVERSE indicator lights up if you want to record on both sides of the tape.
2. Load the CD into the CD Player.  
If the CD is already loaded, be sure the System is on.



3. Press **◀** (or **▶** on the cassette deck control section of the Remote Control) or **▷** (or **▶** on the cassette deck control section) and **□** (or **■** on the cassette deck control section) to select the side for recording.
  - When you want to record on the front side (A), press **▷** (or **▶** on the cassette deck control section), then **□** (or **■** on the cassette deck control section).
  - When you want to record on the reverse side (B), press **◀** (or **▶** on the cassette deck control section), then **□** (or **■** on the cassette deck control section).

4. Press **CD REC START** on the cassette deck.  
The FADE indicator lights up on the CD display.
  - As soon as deck B starts recording, the CD starts playing. At the end of the tape, the System automatically goes back to the beginning of the last track and records it, this time gently fading out at the end. If you set Reverse Mode on, the reverse side (B) starts with the last track on the front side (A) and will be faded out at the end again. (A 10 second blank is created on the beginning of the reverse side (B).)
  - For "CD to Tape Recording", using more than one disc, use a blank tape. If you use a prerecorded tape, prerecorded material may not be erased between newly-recorded tracks.

To stop recording any time during the process, press either **■**/CLEAR on the CD player (or **■** on the CD player control section of the Remote Control) or **□** on deck B.  
When you press **■**/CLEAR (or **■** on the cassette deck control section), you can make a 4-second blank at the end of recording.

**CAUTION**  
**◀** (Skip Left) or **▶** (Skip Right), and REPEAT will work during "CD to Tape Recording". If you press these buttons, recording will be interrupted.

**Tape to Tape Recording (Dubbing)**

Recording from one tape to another is called dubbing.

- Dolby NR is inactive in dubbing mode regardless of the setting of the DOLBY NR. The dubbed tape automatically contains the same processing as the source tape. The DOLBY NR indicator goes off automatically.
- It is preferable that the tape type (Type I, II and IV) you record from be the same as the tape type you record onto.
- To dub both sides of a tape, start from the front side (A) for both deck A and B, and press REVERSE so that the REVERSE indicator lights up.

1. Put the cassette tape you want to copy from into deck A for playback.
2. Put the cassette tape you want to copy onto into deck B for recording.  
The cassette tape in deck B will be erased as the new sound from the cassette tape in deck A is recorded.



3. Press DUBBING.  
Deck A starts playing and deck B starts recording.
  - When dubbing, you can also listen to the another source such as the radio or the CD player.

To stop dubbing, press **□** for deck B.

**Recording selections from several different tapes**

When you want to take selections from several different tapes and combine them on one tape during dubbing, follow these steps:

1. Press **□** on deck A.  
This causes deck A to stop, so you can change tapes, and deck B makes pauses.
2. Change the cassette tape in deck A.
3. Press DUBBING to start deck A playing and deck B recording again.



On deck A



## Using the Timer

The timers let you control recording and playing sources automatically. Three types of timers are available:

- Recording (REC) Timer**—Unattended recording of radio broadcasts that works only once.
- Daily Timer**—The System turns on and plays a source at a particular time every day.
- Sleep Timer**—Fall asleep and have your System turn off automatically after a certain length of time.

## Setting the Clock

The timers depend on the clock. If the clock is right, the timers will work like you expect, but if the time is incorrect on the clock then the timers will also be incorrect.

**Special Notice:** The clock must be set, or the timers cannot be set!

So, let's set the clock first.

You can set the clock whether the System is on or off.

### 1. Press CLOCK ADJ.



### 2. Set the hours by pressing TUNING/TIMER < or >.

Pressing > increases the hour, and pressing < decreases it.

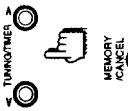


### 3. Press MEMORY/CANCEL.



### 4. Set the minutes by pressing TUNING/TIMER < or >.

Pressing > increases the minute, and pressing < decreases it.



### 5. Press MEMORY/CANCEL again.

The clock is set and starts from zero second.



**CAUTION**  
If the System is unplugged or if a power failure occurs, the clock loses its setting, the tuner display shows "0:00", and it must be reset.

## Setting the Recording (REC) Timer

With the recording timer you can make a tape of a radio broadcast automatically even when you are not there to start the System. For the tuner to work correctly, you need to make sure that the tape you want to record onto must be in deck B when you want to record.

- You can set the recording timer whether the System is on or off.
- When you want to record on both sides of the cassette tape, press REVERSE, with the power tuned on, so that the REVERSE indicator lights up.

### 1. Press REC.

The REC indicator blinks on the tuner display.



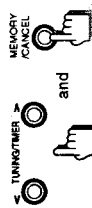
### 2. Set the time you want to start recording.

Use TUNING/TIMER < or > and MEMORY/CANCEL just like setting the clock. See instructions above.

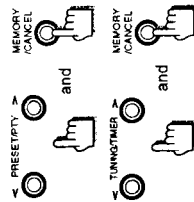


### 3. Set the time you want to stop recording.

Use TUNING/TIMER < or > and MEMORY/CANCEL just like setting the clock. See instructions above.



### 4. Select a preset channel with PRESET/PTY < or > and MEMORY/CANCEL.



### 5. Select the equipment (either deck B or minidisc recorder XM-F1GD) you want to use for recording with TUNING/TIMER < or > and MEMORY/CANCEL.

Each time you press TUNING/TIMER < or >, the System gives you one of the following:

**TAPE?** Records onto a tape  
**MD?** For connecting and operating the minidisc recorder, see page 6 of this manual and the manuals supplied with the minidisc recorder.

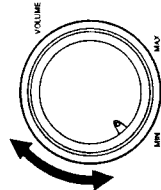
When you select TAPE as the equipment, you need to check that tape direction is correct. This is important especially when Reverse Mode is off.  
Set Reverse Mode on and start recording from the front side (A) if you want to record on both sides of the tape.

### 6. Press REC again.

The REC indicator stops blinking and remains lit. The display, then, shows the settings you have done in step 2 to 5.

- Notice that the REC indicator lights up on the display whenever the timer is set.
- A few seconds before the on-time for the recording, (the System automatically turns on if it is off and) the REC indicator blinks on the display. When the on-time comes, recording starts. When the off-time comes, recording stops and the System automatically turns off.
- Once the recording timer has worked, the REC indicator goes off. (The recording timer also turns off. However, the contents stored in the timer will not be erased.)

### 7. Adjust the volume with the VOLUME control (or VOLUME - or + on the Remote Control).



To cancel the recording timer, press REC so that the REC indicator on the display goes off.

To change the timer settings, repeat the setting procedure from the beginning and change the contents as you want.

To erase all the contents stored in the timer:

1. Press REC so that on-time for the timer blinks on the display.
2. Hold down MEMORY/CANCEL.
3. Press REC again.

#### Note

If you change the source while the recording timer is operating, the recording timer will be canceled but the recording continues.

#### CAUTION

If the System is unplugged or if a power failure occurs, the timer setting will be erased. If settings are erased, reset the timer settings.

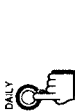
## Setting the Daily Timer

With the timer you can play the sound source at the specified time without recording them. The daily timer executes the timer operation at the specified time every day.

- You can set the daily timer whether the System is on or off.

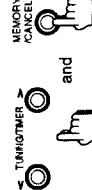
### 1. Press DAILY

The DAILY indicator blinks on the tuner display.



### 2. Set the time you want the sound source to turn on.

Use TUNING/TIMER < or > and MEMORY/CANCEL just like setting the clock.



### Setting the Sleep Timer

Using this timer, you can fall asleep to music and know your System will turn off by itself rather than play all night.

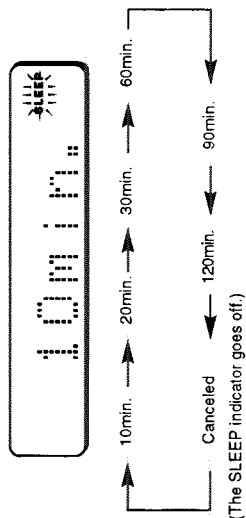
- ☐ You can only set the sleep timer when the System is on.

**1. Press SLEEP on the Remote Control while playing a source.**

The SLEEP indicator blinks on the tuner display.

**2. Set the length of time you want the source to play before shutting off.**

Each time you press SLEEP while the SLEEP indicator is blinking, it changes the number of minutes shown on the display in the following sequence:



**3. When the number of minutes you want is shown on the display, just wait about 5 seconds until the SLEEP indicator stops blinking, and remains lit.**

The System is now set to turn off after the number of minutes you set.

To cancel the sleep timer, press SLEEP until the SLEEP indicator goes off on the display. When you turn off the System, the sleep timer is also canceled.

To change the shut-off time, press SLEEP until the number of minutes you want appears on the display.

To check the remaining time, after setting the sleep timer, you can check the time remaining until the System turns off.

Pressing SLEEP shows you the remaining time in minutes on the display for about 5 seconds.



**3. Set the time you want the sound source to shut off.**

Use TUNING/TIMER < or > and MEMORY/CANCEL just like setting the clock.

**4. Select the sound source to play with TUNING/TIMER < or > and MEMORY/CANCEL.**

Each time you press TUNING/TIMER < or >, the System gives you one of the following:

- P, -- ch Tunes into a preset station
  - CD Plays a CD from the beginning
  - TAPE Plays a tape
  - MD Plays a minidisc recorder from the beginning
- For connecting and operating the minidisc recorder, see page 6 of this manual and the manuals supplied with the minidisc recorder.

- When you select the tuner as the source, you need to designate a preset station by pressing PRESET/PTY < or >.
- When you select TAPE as the source:
  - You need to check that the tape direction is correct. This is important especially when Reverse Mode is off.
  - Deck B has priority, so if tapes are in both decks, the tape in deck B plays first.
- Set Reverse Mode on if you want to play both sides of the tape.

**5. Press DAILY again.**

The DAILY indicator stops blinking and remains lit. The display, then, shows the settings you have done in step 2 to 4.

- Notice that the DAILY indicator lights up on the display whenever the tuner is set, and the DAILY indicator blinks on the display. When the on-time comes, playback starts using the selected source. When the off-time comes, playback stops and the System automatically turns off.

**6. Adjust the volume with the VOLUME control (or VOLUME – or + on the Remote Control).**

To cancel the daily timer, press DAILY so that the DAILY indicator on the display goes off.

To change the timer settings, repeat the setting procedure from the beginning and change the contents as you want.

To erase all the contents stored in the timer:

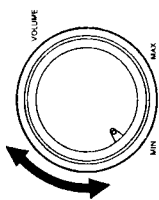
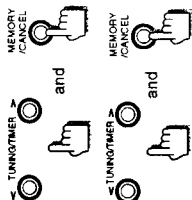
1. Press DAILY so that on-time for the timer blinks on the display.
2. Hold down MEMORY/CANCEL.
3. Press DAILY again.

**Note**

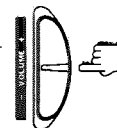
If you change the source while the daily timer is operating, the daily timer will be canceled.

**CAUTION**

If the System is unplugged or if a power failure occurs, the timer setting will be erased. If settings are erased, reset the timer settings.



On the front panel



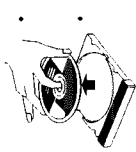
From the Remote Control

# Care and Maintenance—General Notes

## Compact Discs

Handle your compact discs, cassette tapes, and cassette deck carefully, and they will last a long time.

- Remove the CD from the case by holding it at the edges while pressing the center hole lightly. Do not touch the shiny surface of the CD, or bend the CD.



- Place the CD into the open tray with the printed side up.



- Put the CD back in its case after use to prevent warping.
- Be careful not to scratch the surface of the CD when placing it back in the case.
- Avoid exposure to direct sunlight, temperature extremes, and moisture.



- A dirty CD may not play correctly. If a CD does become dirty, wipe it with a soft cloth in a straight line from center to edge.



**CAUTION**

Do not use any solvent (for example, conventional record cleaner, spray, thinner, benzine, etc.) to clean a CD.

## Moisture Condensation

Moisture may condense on the lens inside the CD player in the following cases:

- After starting the heating in the room
- In a damp room
- If the System is brought directly from a cold to a warm place.

Should this occur, the System may malfunction. In this case, leave the System turned on for a few hours until the moisture evaporates, unplug the AC power cord, and then plug it in again.

In general, you will have the best performance by keeping your tapes, CDs, and the mechanism clean.

- Store tapes and CDs in their cases, and keep them in cabinets or on shelves.
- Keep the cassette holders and the CD tray closed when not in use.



## Cassette Tapes

- If the tape is loose in its cassette, take up the slack by inserting a pencil in one of the reels and rotating.
- If the tape is loose it may get stretched, cut, or caught in the cassette.



- Do not touch the tape surface.



- Do not store the tape:
  - In dusty places
  - In direct sunlight or heat
  - In moist areas
  - On a TV or speaker
  - Near a magnet

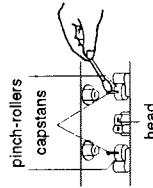


## Cassette Deck

- If the heads, capstans, and pinch-rollers of the cassette deck become dirty, the following will occur:

- Impaired sound quality
- Discontinuous sound
- Fading
- Incomplete erasure
- Difficulty in recording

- Clean the heads, capstans, and pinch-rollers using a cotton swab moistened with alcohol.



- If the heads become magnetized, they will produce noise or loose high frequencies.

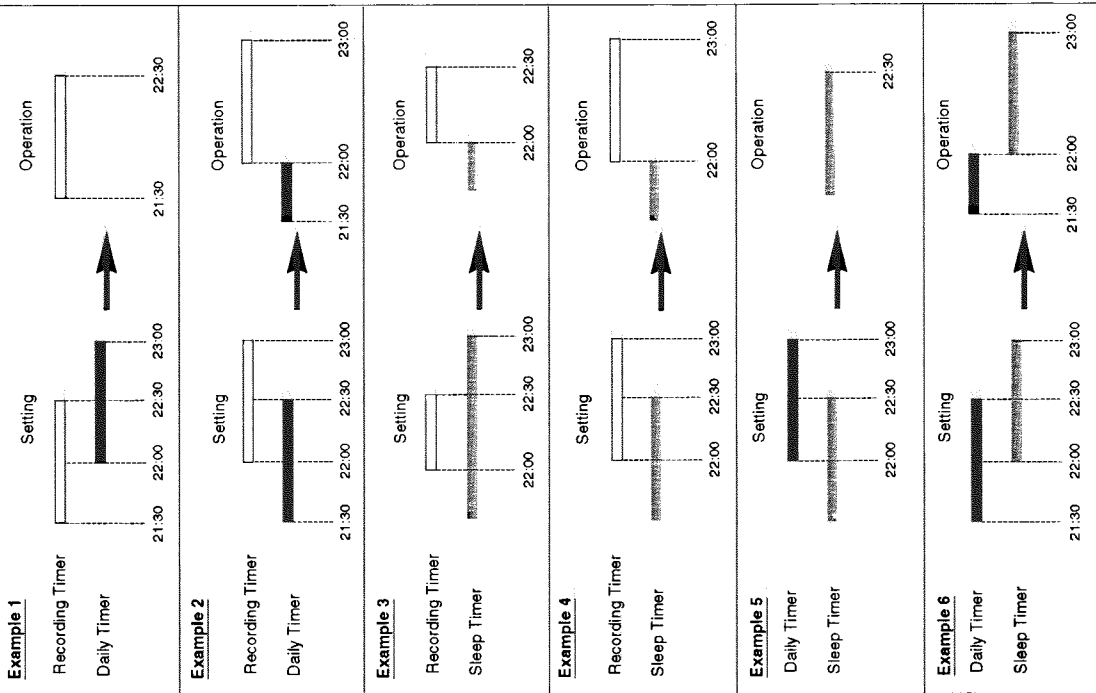
- To demagnetize the heads, turn off the System, and use a head demagnetizer (available at electronics and record shops).

## Timer Priority

Since each timer can be set independently, you may have wondered what happens if the settings overlap. Here are the priorities for each timer.

### Recording Timer > Sleep Timer > Daily Timer

- The recording timer always has priority. This means that:
  - If the recording and daily timer has the same starting time, the recording timer will be activated.
  - If another timer is set to come on during a time when the recording timer is operating, the other timer just will not come on at all, so you will always get the entire program on a tape.
  - If the recording timer is set to come on while another timer is operating, the other timer will shut off about 10 seconds before the recording timer is set to come on, and the recording timer will then take over.





## Troubleshooting

- If you are having a problem with your System, check this list for a possible solution before calling for service.
- If you cannot solve the problem from the hints given here, or the System has been physically damaged, call a qualified person, such as your dealer, for service.

Symptom	Possible Cause	ACTION
No sound is heard.	Connections are incorrect, or loose.	Check all connections and make corrections. (See pages 4 to 6.)
Impossible to record.	Cassette record protect tabs are removed.	Cover holes on back edge of cassette with tape.
Hard to listen to broadcasts because of noise.	The antenna is disconnected. The loop antenna is too close to the system. The wire antenna is not properly extended and positioned.	Reconnect the antenna securely. Change the position and direction of the loop antenna. Extend wire antenna at the best reception position.
The CD sound is discontinuous.	The CD is scratched or dirty.	Clean or replace the CD.
Unable to operate the Remote Control.	The path between the Remote Control and the sensor on the front panel is blocked. The batteries are discharged.	Remove the obstruction. Replace the batteries.
The CD tray cannot be operated.	The AC power cord is not plugged in.	Plug in the AC power cord.
The CD does not play.	The CD is upside down.	Put the CD in with the printed side up.
Operations are disabled.	The built-in microprocessor may malfunction due to external electrical interference.	Unplug the System then plug it back in.
The cassette holder cannot be opened.	The System was turned off because the tuner was operated while the tape was running.	Turn on the System.
The FM station tuned alternates between the currently selected one and another when using the EON Standby reception.	An incorrect EON signal is being sent.	Press EON ON/OFF to cancel the EON Standby reception.

## Specifications

### Integrated Amplifier AX-F3000

Output Power (IEC 268-3/DIN)  
Front Speakers

40 watts per channel, min. RMS, both channels driven, into 4 ohms at 1 kHz with no more than 0.9% total harmonic distortion.

Input Sensitivity/Impedance (1 kHz)  
MD  
AUX  
PHONO

610 mV/50 kohms  
300 mV/50 kohms  
3.0 mV/47 kohms

Output Load/Impedance (1 kHz)

MD  
260 mV/380 ohms

Speaker Impedance

4 – 16 ohms

Power Requirements

AC 230 V<sup>~</sup>, 50 Hz

Power Consumption

140 watts

11 watts (in standby mode)

Dimensions (Approx.)

245 x 120 x 328 mm (w/h/d)  
(9 11/16 x 4 3/4 x 12 15/16 in.)

Mass (Approx.)

5.1 kg (11.3 lbs)

### FMMW/LW Tuner EX-F3000R

FM Tuner

Tuning Range

87.5 – 108.0 MHz

AM (MW/LW) Tuner

MW-Tuning Range

522 – 1,629 kHz

LW-Tuning Range

144 – 288 kHz

Dimensions (Approx.)

245 x 81 x 303 mm (w/h/d)  
(9 11/16 x 3 1/4 x 11 15/16 in.)

Mass (Approx.)

1.7 kg (3.8 lbs)

### Double Cassette Deck TD-F3000

Frequency Response

30 – 17,000 Hz

Metal (Type IV):

30 – 16,000 Hz

CrO<sub>2</sub> (Type II):

30 – 15,000 Hz

Normal (Type I):

0.09% (WRMS) 0.2% (DIN)

Wow and Flutter

245 x 120 x 292 mm (w/h/d)  
(9 11/16 x 4 3/4 x 11 1/2 in.)

Dimensions (Approx.)

3.0 kg (6.7 lbs)

### Compact Disc Player XL-F3000

Wow and Flutter

Unmeasurable

Digital output

OPTICAL DIGITAL OUT

245 x 81 x 300 mm (w/h/d)  
(9 11/16 x 3 1/4 x 11 13/16 in.)

Dimensions (Approx.)

2.2 kg (4.9 lbs)

### Supplied Accessories

FM Wire Antenna (1)

AM (MW/LW) Loop Antenna (1)

Remote Control (1)

Batteries (2)

External Wire (1)

Design and specifications are subject to change without notice.

— MEMO —

# AX-F3000

**Note: Press S510 on ENH-296-1 for checking only AX-F3000 unit or units except FX-F3000/FX-F3000R.  
Discharge C404 after services.**

## Contents

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# Description of Major LSIs

## ■ MN171202J6S (IC501) : System controller

### Terminal Layout

VDD	1	64	OSC IN
CD.IND	2	63	OSC OUT
TUNER.IND	3	62	GND
TAPE.IND	4	61	
MD.IND	5	60	
PHONO.IND	6	59	
AUX.IND	7	58	POWER ON
POWER ON.IND	8	57	SPK-RELAY
VOLUME.IND	9	56	MUTE
DIRECT.IND	10	55	DIRECT ON/OFF
PRESENCE.IND	11	54	PRESENCE
	12	53	VOL.DOWN
	13	52	VOL.UP
	14	51	H.P.IN
	15	50	P.CONT
	16	49	
	17	48	
GND	18	47	
	19	46	PROTECT IN
	20	45	INH
	21	44	RM.IN
	22	43	RESET
	23	42	DATA
	24	41	STB
	25	40	SCLK
	26	39	AUX KEY
DCS IN	27	38	PHONO KEY
DCS OUT	28	37	MD KEY
	29	36	
AX PON	30	35	
DIRECT KEY IN	31	34	
POWER KEY IN	32	33	PRESENCE KEY

### KEY SW. INPUT

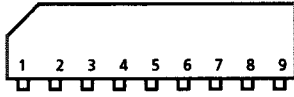
Symbol	Function
S501	PRESENCE
S502	CD DIRECT
S503	POWER
S507	MD
S508	PHONO
S509	AUX
S510	AX POWER

### Terminal Description

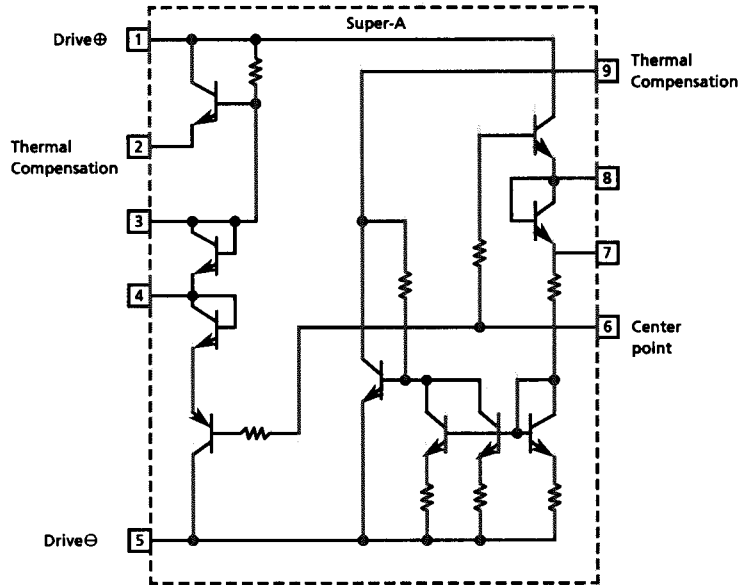
Pin No.	Symbol	I/O	Function	Pin NO.	Symbol	I/O	Function
1	VDD	--	Power supply	33	PRESENCE KEY	I	PRESENCE key input
2	CD.IND	O	Indicator signal output	34		--	Pull up
3	TUNER.IND	O	Indicator signal output	35		--	Pull up
4	TAPE.IND	O	Indicator signal output	36		--	Pull up
5	MD.IND	O	Indicator signal output	37	MD KEY	I	MD key input
6	PHONO.IND	O	Indicator signal output	38	PHONO KEY	I	PHONO key input
7	AUX.IND	O	Indicator signal output	39	AUX	I	AUX key input
8	POWER ON.IND	O	Indicator signal output	40	SCLK	O	Switth clock signal input
9	VOLUME.IND	O	Indicator signal output	41	STB	O	Switth strobe signal input
10	DIRECT.IND	O	Indicator signal output	42	DATA	O	Switth data signal input
11	PRESENCE.IND	O	Indicator signal output	43	RESET	I	Reset signal input
12		--	Pull up	44	RM IN	I	Remort control signal input
13		--	Pull up	45	INH	I	Inhbit signal input
14		--	Pull up	46	PROTECT IN	I	PROTECT control signal input
15		--	Pull up	47		--	GND
16		--	Pull up	48		--	GND
17		--	Pull up	49		--	GND
18	GND	--	GND	50	P.CONT	O	DECK power control signal
19		--	Pull up	51	H.P.IN	I	H.P. ON/OFF control signal
20		--	Pull up	52	VOL.UP	O	VOL. up control signal
21		--	Pull up	53	VOL.DOWN	O	VOL. down control signal
22		--	Pull up	54	PRESENCE	O	PRESENCE ON/OFF control signal
23		--	Pull up	55	DIRECT ON/OFF	O	CD DIRECT ON/OFF control signal
24		--	Pull up	56	MUTE	O	SOURCE MUTE control signal
25		--	Pull up	57	SPK-RELAY	O	SPK-RELAY control signal
26		--	Pull up	58	POWER ON	O	POWER ON/OFF control signal
27	DCS IN	I	Compulink input	59		--	GND
28	DCS OUT	O	Compulink output	60		--	GND
29		--	Pull up	61		--	Not used
30	AX PON	I	AX-F3000 Power on key input	62	GND	--	GND
31	DIRECT KEY IN	I	CD DIRECT key input	63	OSC OUT	O	Oscillation terminal
32	POWER KEY IN	I	POWER keyinput	64	OSC IN	I	Oscillation terminal

■ VC5022-2(IC751,752) :SUPER A

1. Terminal Layout

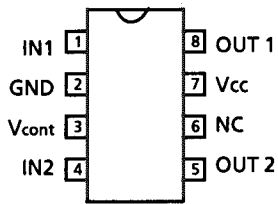


2. Block Diagram

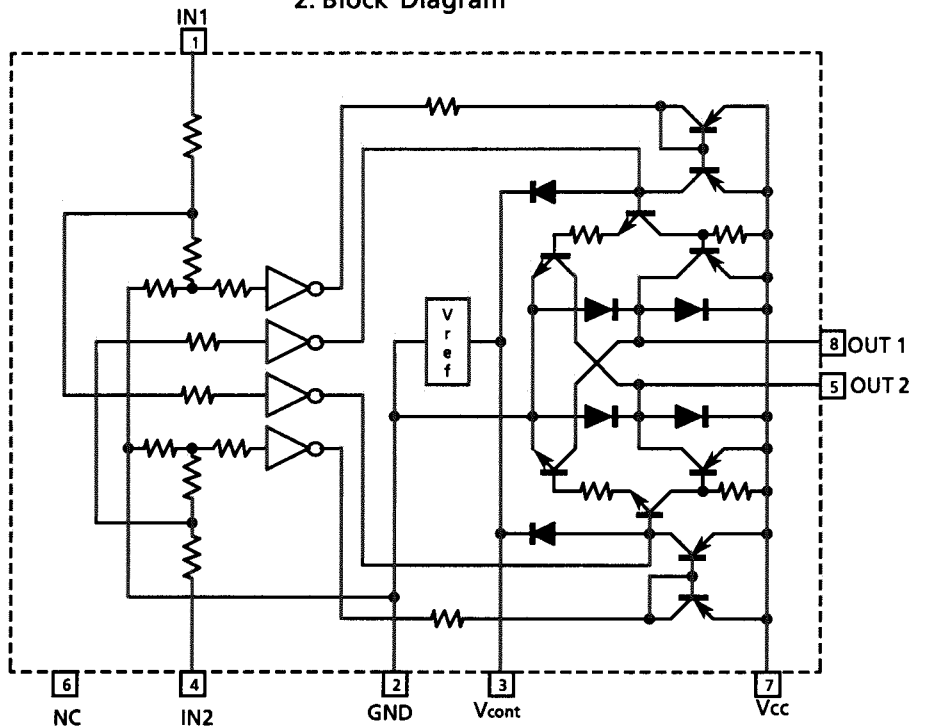


■ LB1639-CV (IC351) : DC Motor driver

1. Terminal Layout



2. Block Diagram

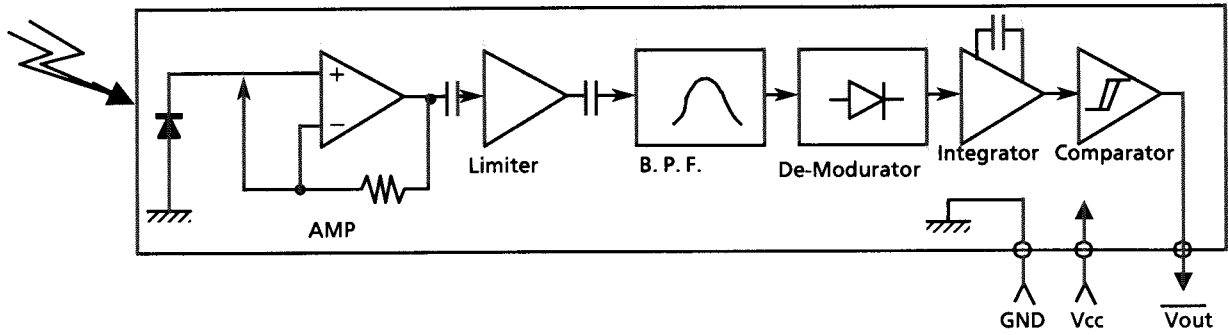


Pin Functions

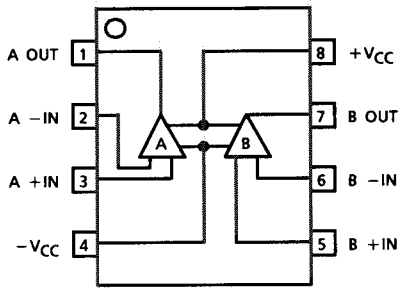
IN 1	IN 2	OUT 1	OUT 2	MOTOR
H	L	H	L	CLOCKWISE
L	H	L	H	COUNTER-CLOCKWISE
H	H	OFF	OFF	WAITING
L	L	OFF	OFF	WAITING

# AX-F3000

## ■ NJH32H380A (IC502) : Remocon Module IC



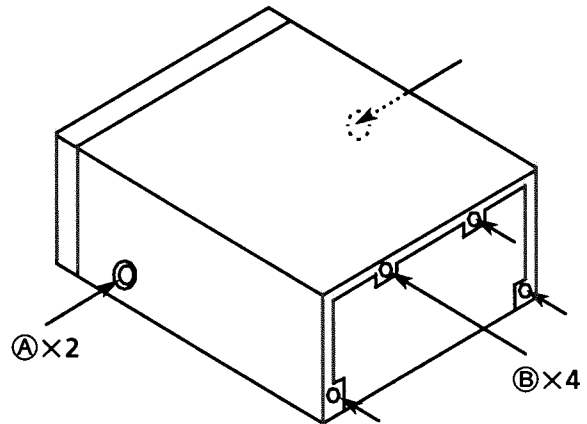
## ■ NJM4580DD (IC101), NJM4558 (IC363) VC4580DD (IC231,301,361) : Dual OP Amp.



## Disassembly Procedures

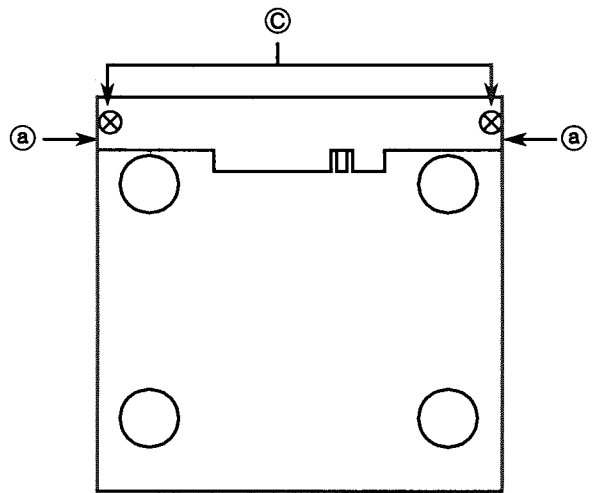
### (1) Removing the top cover

1. Remove 2 screws ④ fastening both sides of top cover, and 4 screws ⑤ fastening the rear side.
2. Remove the top cover.



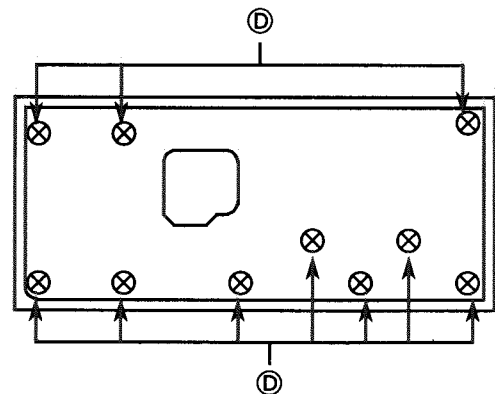
### (2) Removing the Front Panel Assembly

1. Remove the top cover.
2. Pull out the Master volume knob, and Remove the nut fastening the Master volume.
3. Cut the tie band, and Disconnect the connectors .(CN201,CN203)
4. Remove 2 screws ③ and 2 hooks ⑥ fastening bottom of the front panel assembly.



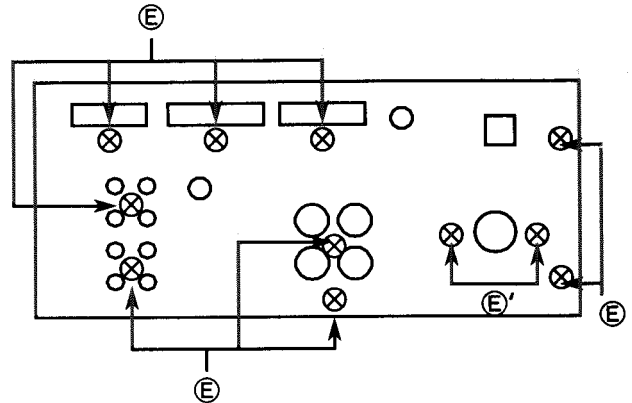
### (3) Removing the Control PCB (ENB-241-1)

1. Remove the top cover.
2. Remove the front panel assembly.
3. Pull out the Treble knob, Bass knob and Balance knob.
4. Remove 10 screws ④ fastening the control PCB to remove it.

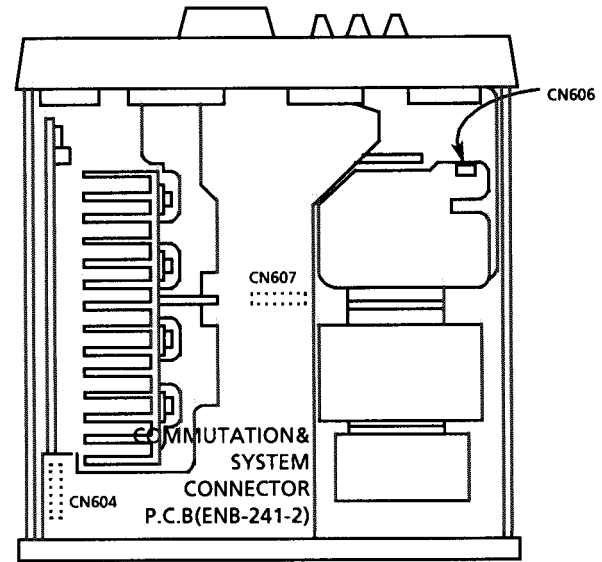


④ ... SDSG3008N    ⑤ ... GBSG3008CC    ③ ... SDSG3008CC    ④ ... SDSF2608Z

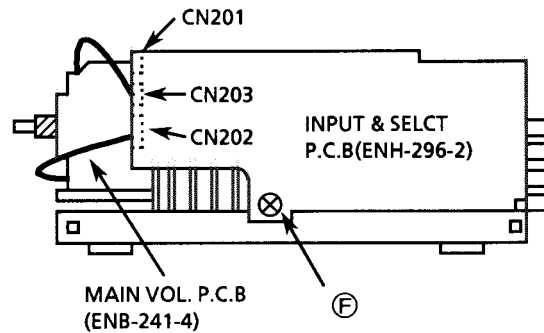
- (4) Removing the Rear panel
1. Remove the top cover.
  2. Remove the 9 screws (E).  
(Universal type: Remove the 2 screws (E'))
  3. Remove the rear panel.



- (5) Removing the Commutation & system connector P.C.B (ENB-241-2)
1. Remove the top cover.
  2. Remove the rear panel.
  3. Disconnect the CN606, CN607, CN604.
  4. Remove the Commutation & system connector P.C.B.



- (6) Removing the Input & select P.C.B (ENH-296-2)
1. Remove the top cover and front panel ass'y.
  2. Remove the rear panel.
  3. Remove the Commutation & system connector P.C.B.
  4. Remove the a screw (F).

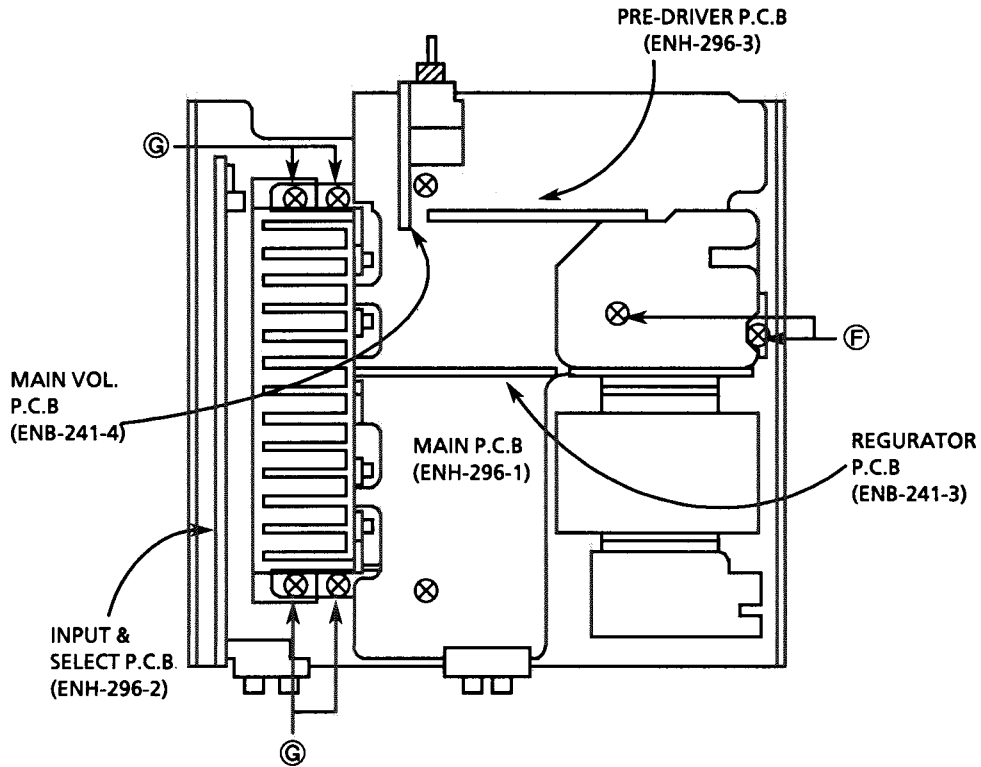


(E) .. E73273-003      (F) ... SBSG3008CC



**(7) Removing the Main P.C.B (ENH-296-1)**

1. Remove the top cover and front panel ass'y.
2. Remove the rear panel.
3. Remove the Commutation & system connector P.C.B.
4. Remove the 2 screws ⑥ holding the main P.C.B, and the 4 screws ③ holding the heat sink bracket.
5. Remove the heat sink with the main P.C.B.

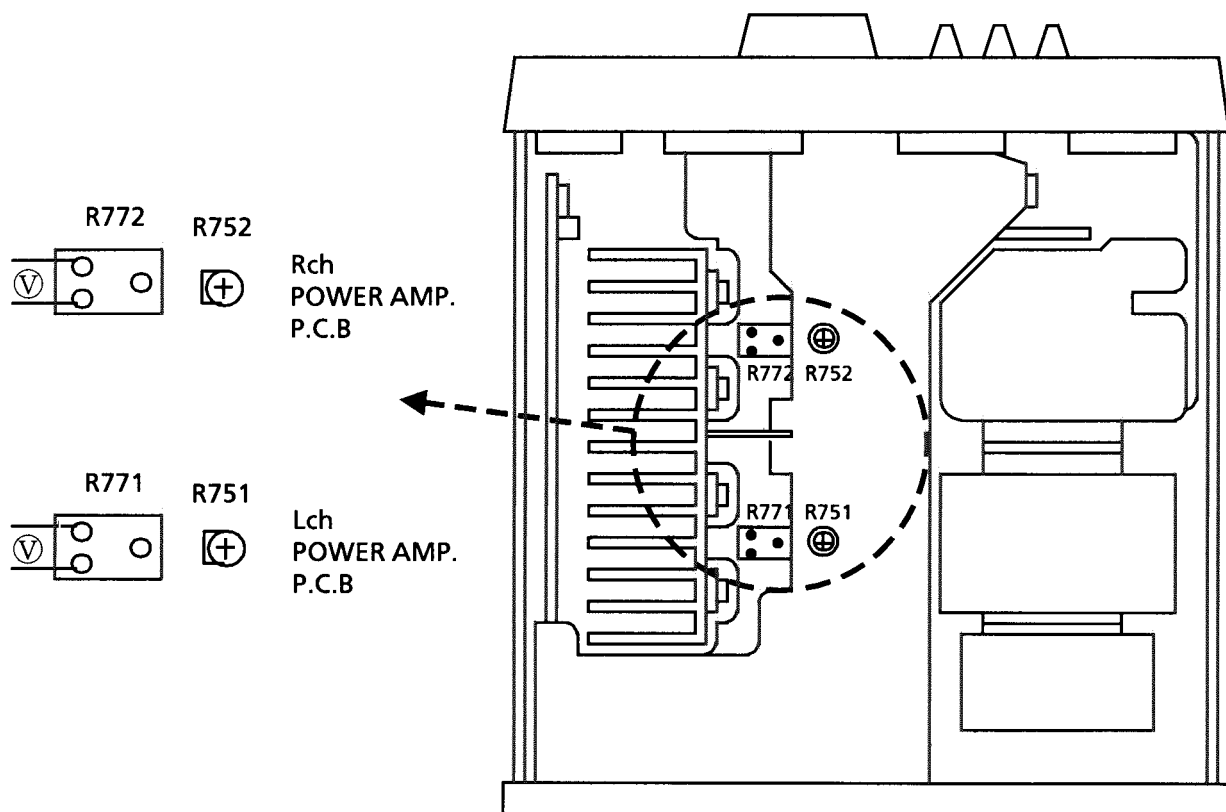


⑥ .. SBSG3008CC    ③ ... SBST3006CC

## ADJUSTMENT PROCEDURES

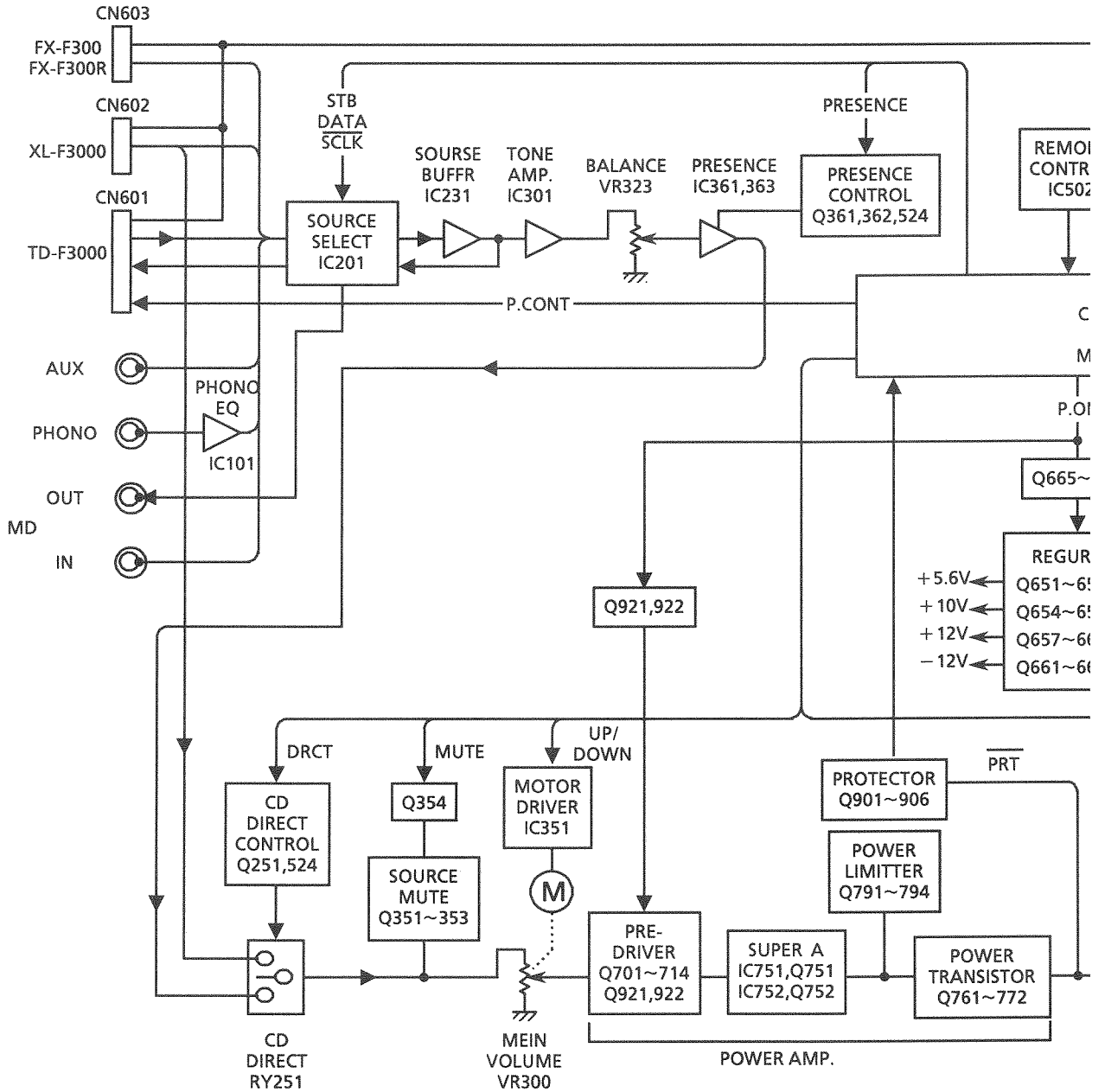
### ■ Idling Current

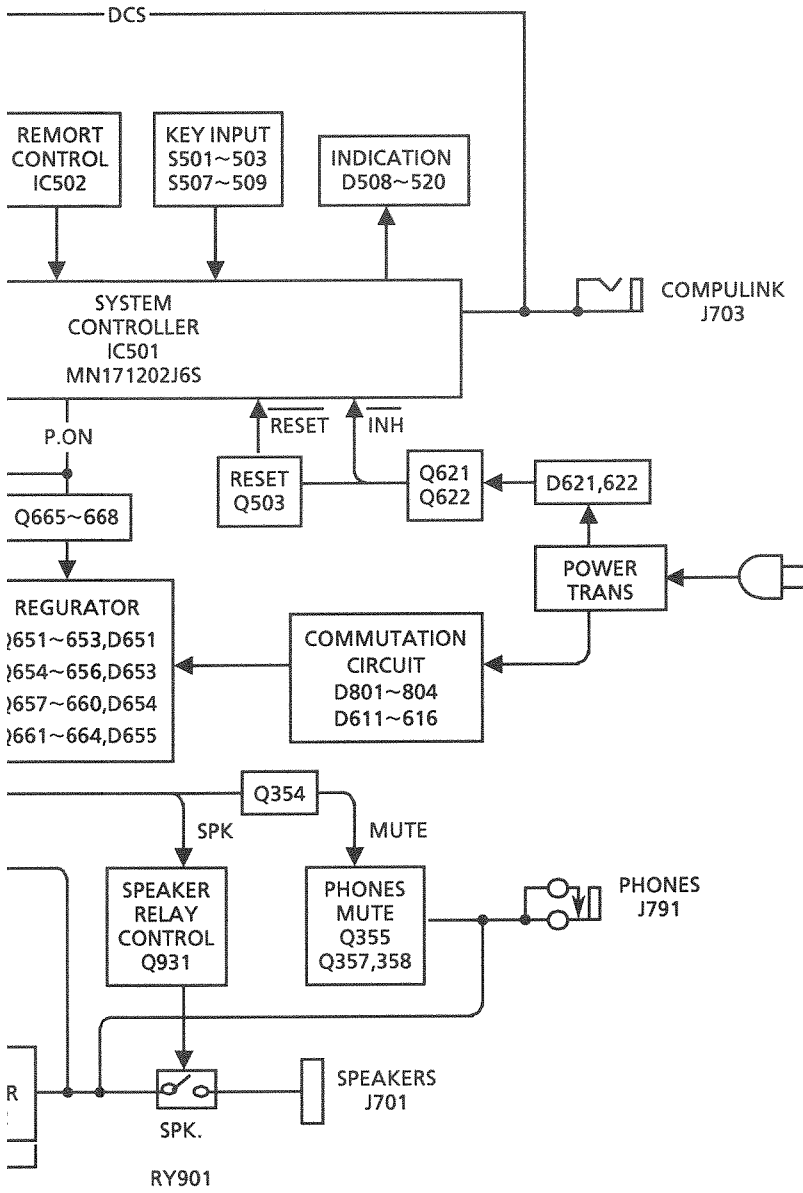
- (1) Set the volume control to minimum during this adjustment.
- (2) Turn R751 and R752 fully counterclockwise before the power is switch on.
- (3) Always start from cold, and allow 5 minutes to warm up before adjustment.  
If the heatsink is already warm from previous use the correct adjustment can not be made.
- (4) Connect a DC voltmeter to R771 resistor's leads for left channel, or to R772 for right channel.
- (5) Adjust R751 for left channel, or R752 for right channel, so that the DC voltmeter becomes 2.2 mV ~ 22mV.





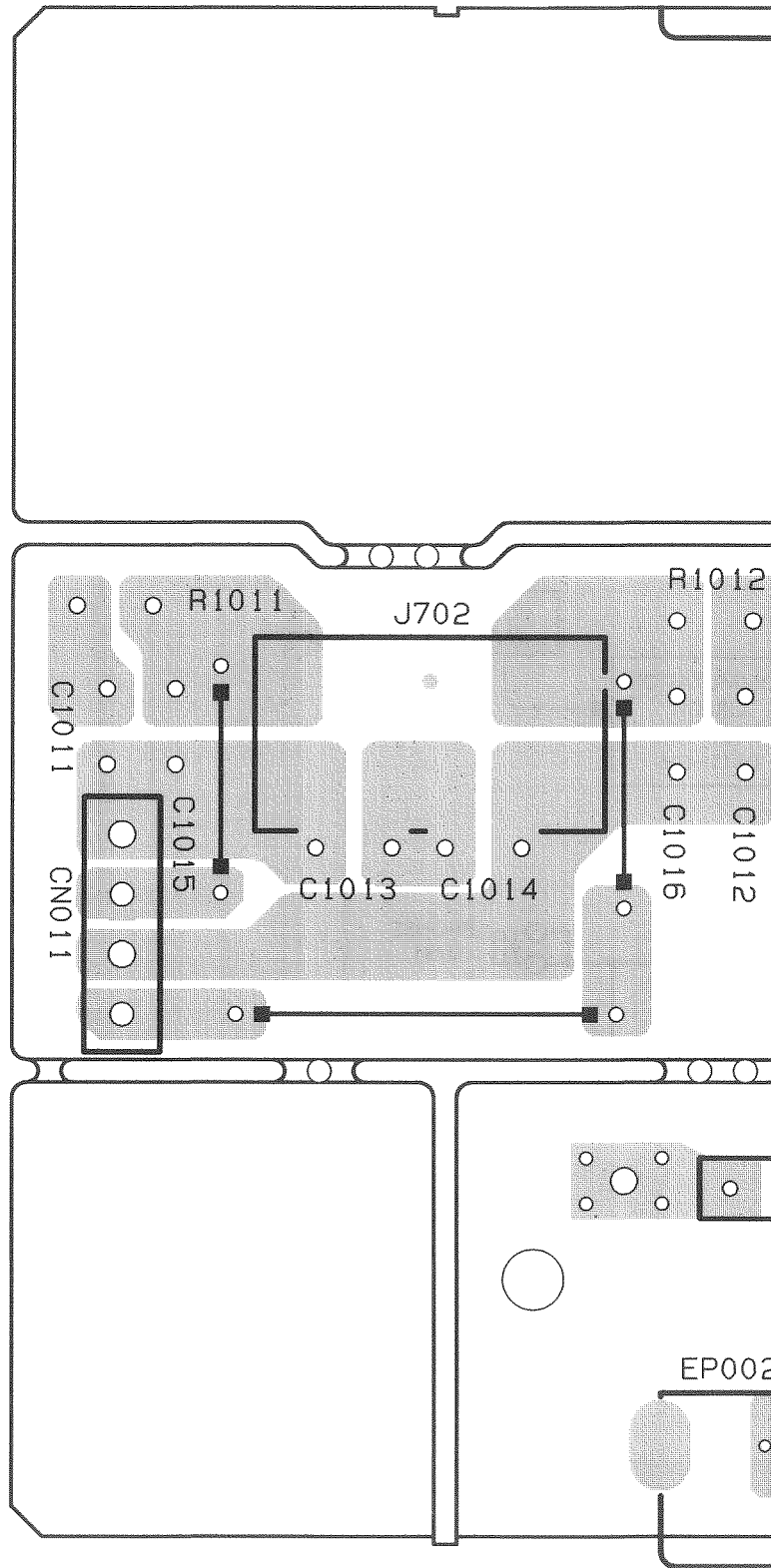
# Block Diagram

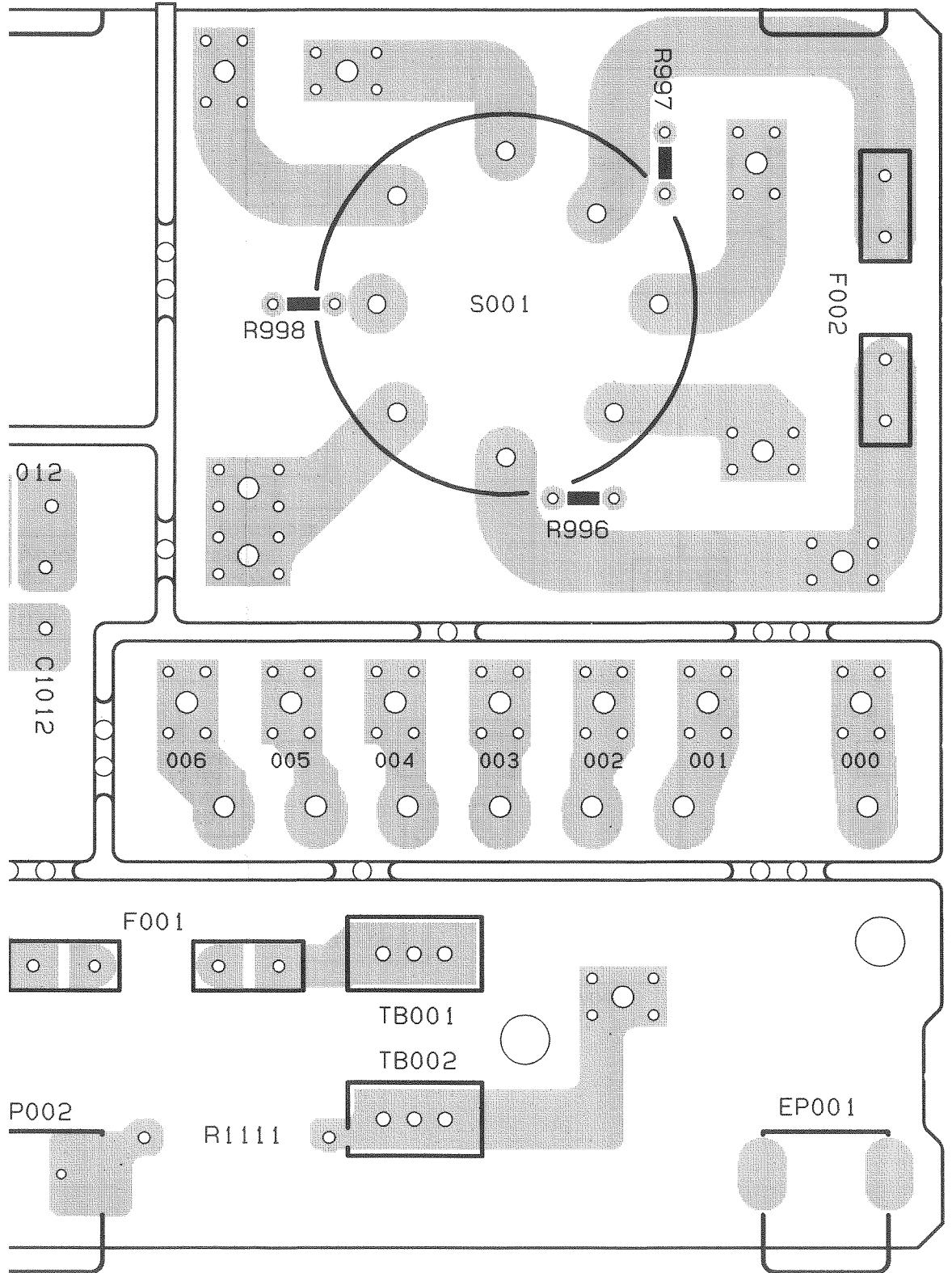




**Printed Circuit Boards**

■ Power Supply P.C.B(END-104)

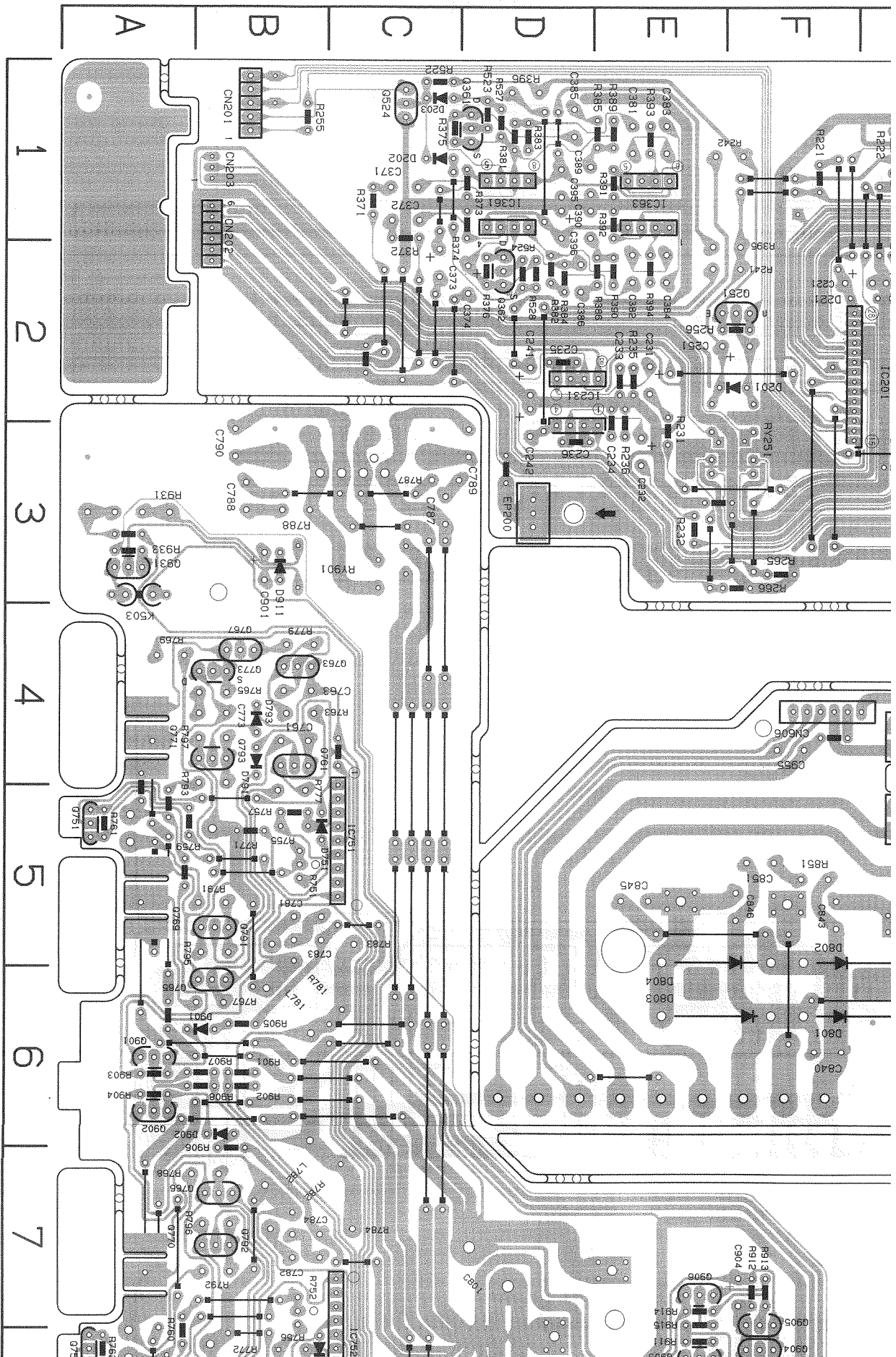




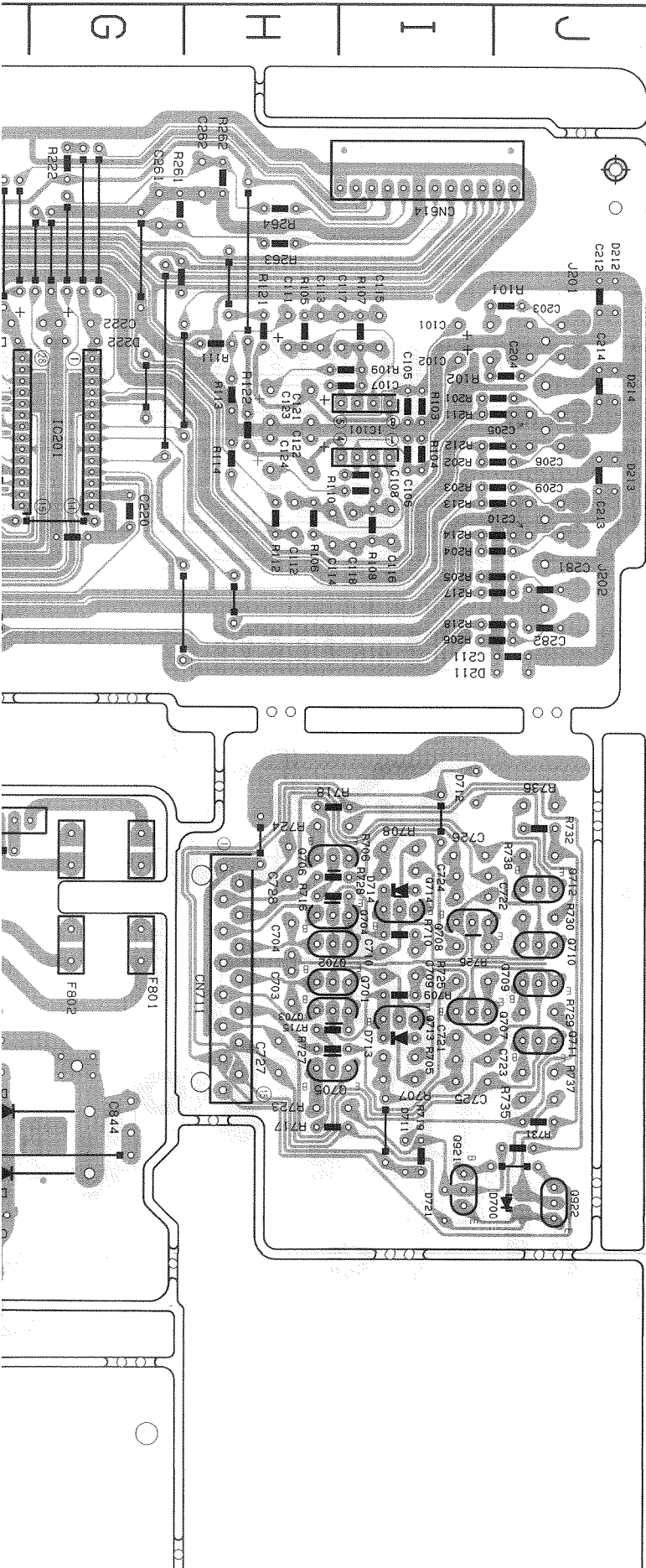


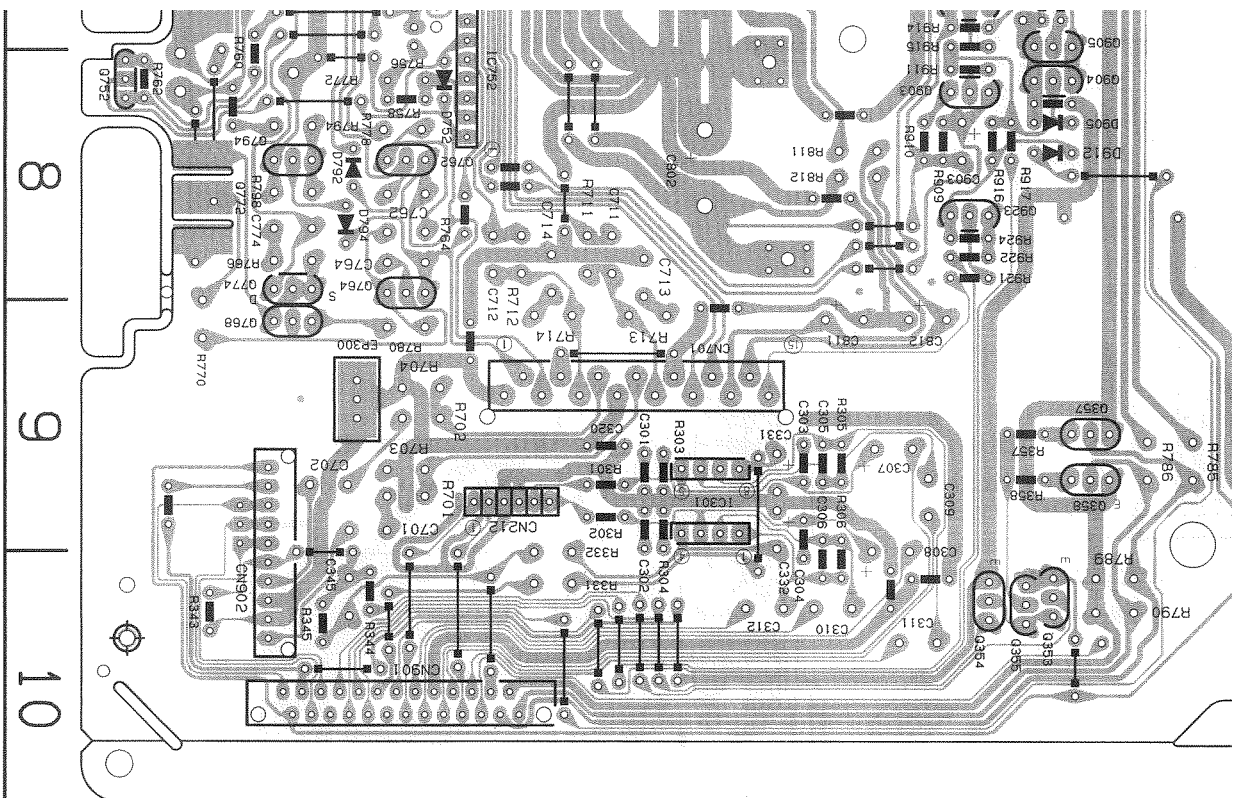






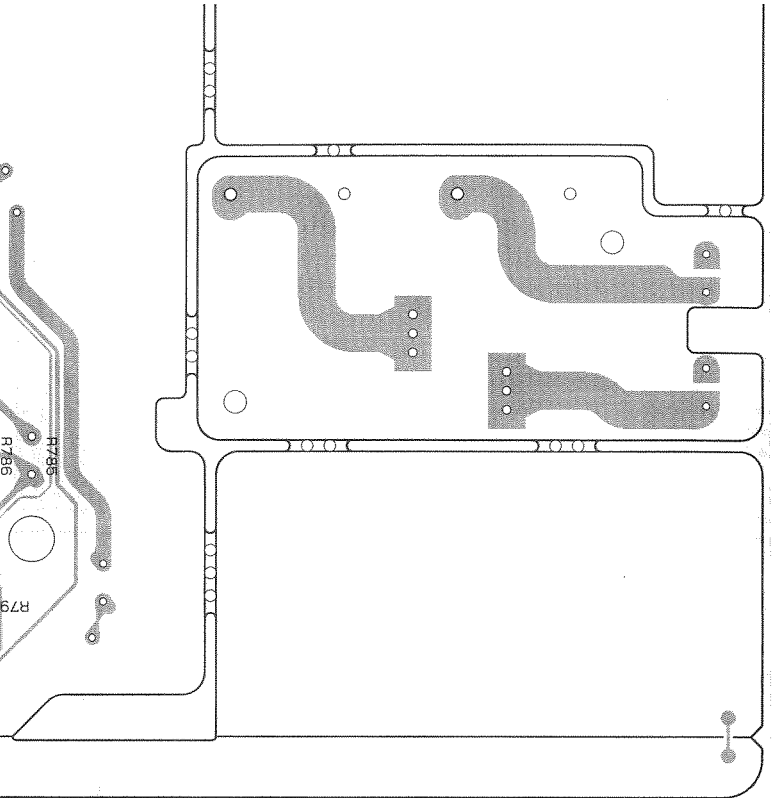
Input Selector and Power Amplifier P.C. BOARD (ENH-296)





C234	3 E	C811	11 E	Q357	12 F	R214	4 I	R718	5 I	R914	10 E
C235	3 D	C812	11 E	Q358	12 F	R217	4 J	R719	7 I	R915	10 E
C236	3 D	C840	8 F	Q361	1 D	R218	4 I	R723	7 H	R916	10 E
C241	3 D	C843	7 F	Q362	2 D	R221	1 F	R724	5 H	R917	10 F
C242	3 D	C844	7 G	Q524	1 C	R222	1 G	R725	6 I	R921	11 E
C251	3 E	C845	7 E	Q701	6 H	R231	3 E	R726	6 I	R922	11 E
C261	1 G	C846	7 F	Q702	6 H	R232	4 E	R727	7 H	R924	11 E
C282	1 H	C851	6 F	Q703	7 H	R235	3 E	R728	6 H	R931	4 A
C281	4 J	C901	4 B	Q704	6 H	R236	3 E	R729	7 J	R931A	4 A
C282	4 J	C903	10 E	Q705	7 H	R241	2 E	R730	6 J	R933	4 A
C301	12 D	C904	10 F	Q706	6 H	R242	1 E	R731	7 J	R9251	3 F
C302	13 D	C955	6 F	Q707	7 I	R255	1 B	R732	5 J	PY901	4 B
C303	12 D	CN001	4 C	Q708	6 I	R256	3 E	R735	7 J	SS10	13 G
C304	13 D	CN201	1 B	Q709	6 J	R261	1 G	R736	5 J	T001	11 I
C305	12 E	CN202	2 B	Q710	6 J	R262	1 H	R737	7 J	T002	11 H
C306	13 E	CN203	1 B	Q711	7 J	R263	2 H	R738	6 J	TB001	12 I
C307	12 E	CN212	12 C	Q712	6 J	R264	1 H	R751	7 B	TB002	12 I
C308	13 E	CN606	5 F	Q713	7 I	R265	4 F	R752	10 B	TW801	7 G
C309	12 E	CN614	1 J	Q714	6 I	R266	4 E	R755	6 B	TW802	7 F
C310	13 E	CN701	12 D	Q751	6 A	R301	12 C	R756	10 B	TW803	7 E
C311	13 E	CN711	7 H	Q752	10 A	R302	12 C	R757	6 B		
C312	13 D	CN901	14 C	Q761	6 B	R303	12 D	R758	10 B		
C320	12 C	CN902	13 B	Q762	11 B	R304	12 D	R759	6 A		
C331	12 D	D201	3 F	Q763	5 B	R305	12 E	R760	10 A		
C332	12 D	D202	1 C	Q764	11 B	R306	13 E	R761	6 A		
C345	13 B	D203	1 C	Q765	7 B	R331	13 C	R762	10 A		
C371	1 C	D211	4 J	Q766	9 B	R332	13 C	R763	5 B		
C372	2 C	D212	2 J	Q767	5 B	R343	13 A	R764	11 B		
C373	2 C	D213	3 J	Q768	11 B	R344	13 B	R765	5 B		
C374	2 D	D214	3 J	Q769	7 A	R345	13 B	R766	11 B		
C381	1 E	D221	2 G	Q770	9 A	R357	12 F	R767	8 B		
C382	2 E	D222	2 G	Q771	5 A	R358	12 F	R768	9 B		
C383	1 E	D700	8 J	Q772	11 A	R371	2 C	R769	5 A		
C384	2 E	D711	7 I	Q773	5 B	R372	2 C	R770	12 A		
C385	1 D	D712	5 I	Q774	11 B	R373	2 D	R771	6 B		
C386	2 D	D713	7 I	Q791	7 B	R374	2 D	R772	10 B		
C389	1 D	D714	6 I	Q792	9 B	R375	1 C	R777	6 B		
C390	2 D	D721	8 I	Q793	6 B	R376	2 D	R778	10 B		
C395	1 D	D751	6 B	Q794	11 B	R381	1 D	R779	5 B		
C396	2 D	D752	10 B	Q901	8 A	R382	2 D	R780	11 B		

Location List (ENH-296)



Symbol	X	Y	Symbol	X	Y	Symbol	X	Y	Symbol	X	Y	Symbol	X	Y	Symbol	X	Y
C101	2	I	C701	13	B	D791	6	B	Q902	8	A	R833	1	D	R781	7	B
C102	2	I	C702	12	B	D792	11	B	Q903	10	E	R384	2	D	R782	9	B
C105	3	I	C703	7	H	D793	6	B	Q904	10	F	R385	1	E	R783	7	B
C106	3	I	C704	6	H	D794	11	B	Q905	10	F	R386	2	E	R784	9	B
C107	3	H	C709	6	I	D801	8	F	Q906	10	E	R389	1	E	R785	12	G
C108	3	I	C710	6	I	D802	7	F	Q921	8	I	R390	2	E	R786	12	F
C111	2	H	C711	11	C	D803	8	E	Q922	8	J	R391	2	E	R787	4	C
C112	3	H	C712	11	C	D804	7	E	Q923	11	E	R392	2	E	R788	4	B
C113	2	H	C713	11	D	D901	8	B	Q931	4	A	R393	1	E	R789	13	F
C114	4	H	C714	11	C	D902	9	B	R101	2	J	R394	2	E	R790	13	F
C115	2	I	C721	7	I	D905	10	F	R102	2	I	R395	2	F	R791	7	B
C116	3	I	C722	6	I	D911	4	B	R103	3	I	R396	1	D	R792	10	B
C117	2	I	C723	7	I	D912	11	F	R104	3	I	R522	1	C	R793	6	B
C118	3	I	C724	6	I	F001	12	J	R105	2	H	R523	1	D	R794	10	B
C121	3	H	C725	7	I	F801	6	G	R106	4	H	R524	2	D	R795	7	B
C122	3	H	C726	6	I	F802	6	G	R107	2	I	R527	1	D	R796	9	B
C123	3	H	C727	7	H	IC101	3	I	R108	3	I	R528	2	D	R797	6	B
C124	3	H	C728	6	H	IC201	2	G	R109	2	H	R701	12	B	R798	11	B
C203	2	J	C761	6	B	IC231	3	E	R110	3	I	R702	12	B	R811	11	E
C204	2	J	C762	11	B	IC301	13	D	R111	2	H	R703	12	B	R812	11	E
C205	3	J	C763	5	B	IC361	2	D	R112	4	H	R704	12	B	R851	7	F
C206	3	J	C764	11	B	IC363	2	E	R113	3	H	R705	7	I	R901	8	B
C209	3	J	C773	5	B	IC751	6	C	R114	3	H	R706	6	I	R902	8	B
C210	4	J	C774	11	B	IC752	10	C	R121	2	H	R707	7	I	R903	8	A
C211	4	J	C781	7	B	J201	2	J	R122	3	H	R708	6	I	R904	8	A
C212	2	J	C782	9	B	J202	3	J	R201	3	J	R709	6	I	R905	8	B
C213	3	J	C783	7	B	J701	3	C	R202	3	J	R710	6	I	R906	9	B
C214	3	J	C784	9	B	K503	4	A	R203	3	J	R711	11	C	R907	8	B
C220	3	G	C787	4	C	L781	7	B	R204	4	J	R712	11	C	R908	8	B
C221	2	F	C788	4	B	L782	9	B	R205	4	J	R713	11	D	R909	11	E
C222	2	G	C789	3	D	Q251	2	F	R206	4	J	R714	11	C	R910	11	E
C231	3	E	C790	3	B	Q353	13	F	R211	3	J	R715	7	H	R911	10	E
C232	3	E	C801	9	D	Q354	13	E	R212	3	I	R716	6	H	R912	10	F
C233	3	E	C802	10	D	Q355	13	F	R213	3	J	R717	7	I	R913	10	F
C234	3	E	C811	11	E	Q357	12	F	R214	4	I	R718	5	I	R914	10	E
C235	3	D	C812	11	E	Q358	12	F	R217	4	J	R719	7	I	R915	10	E



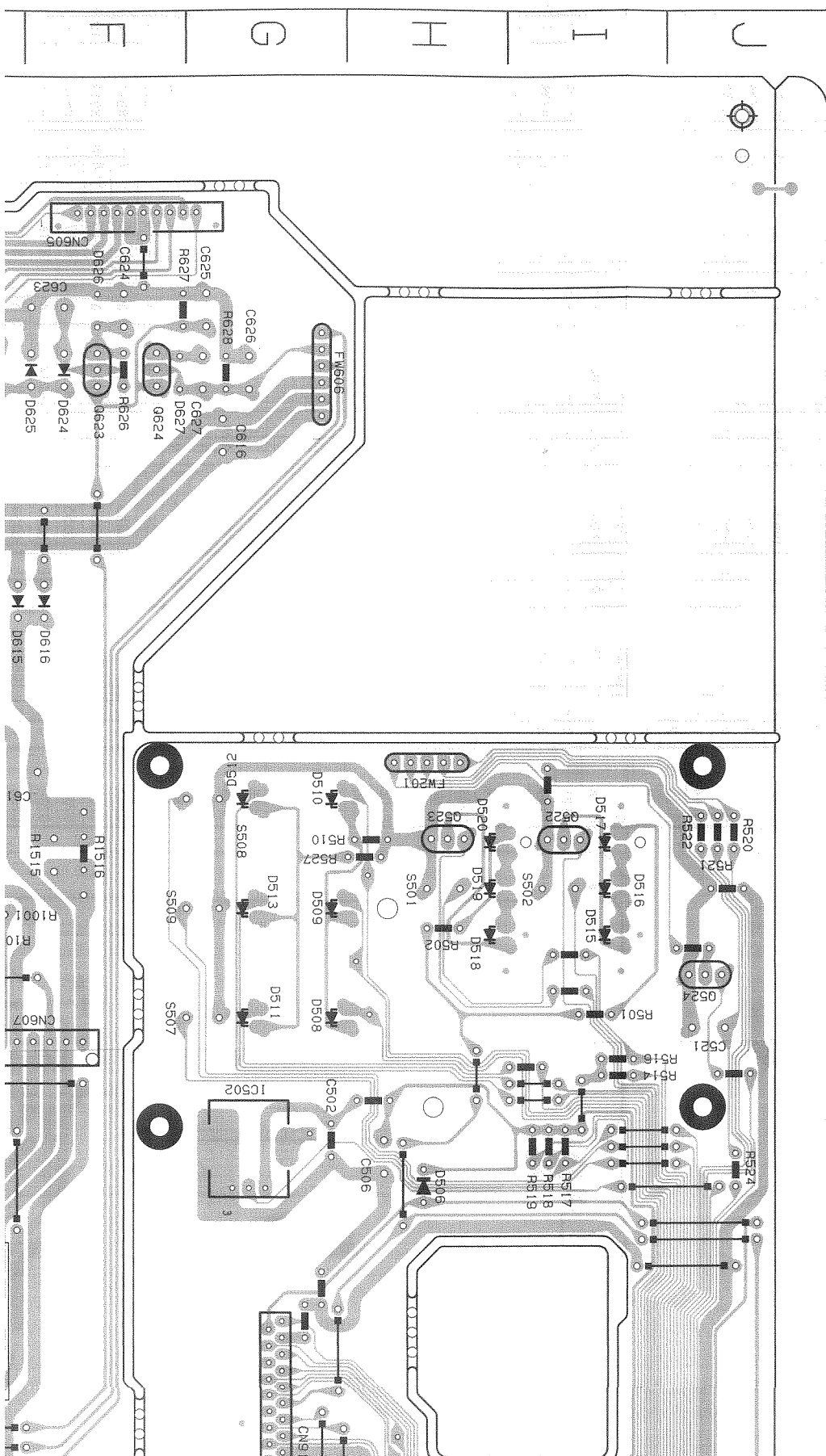


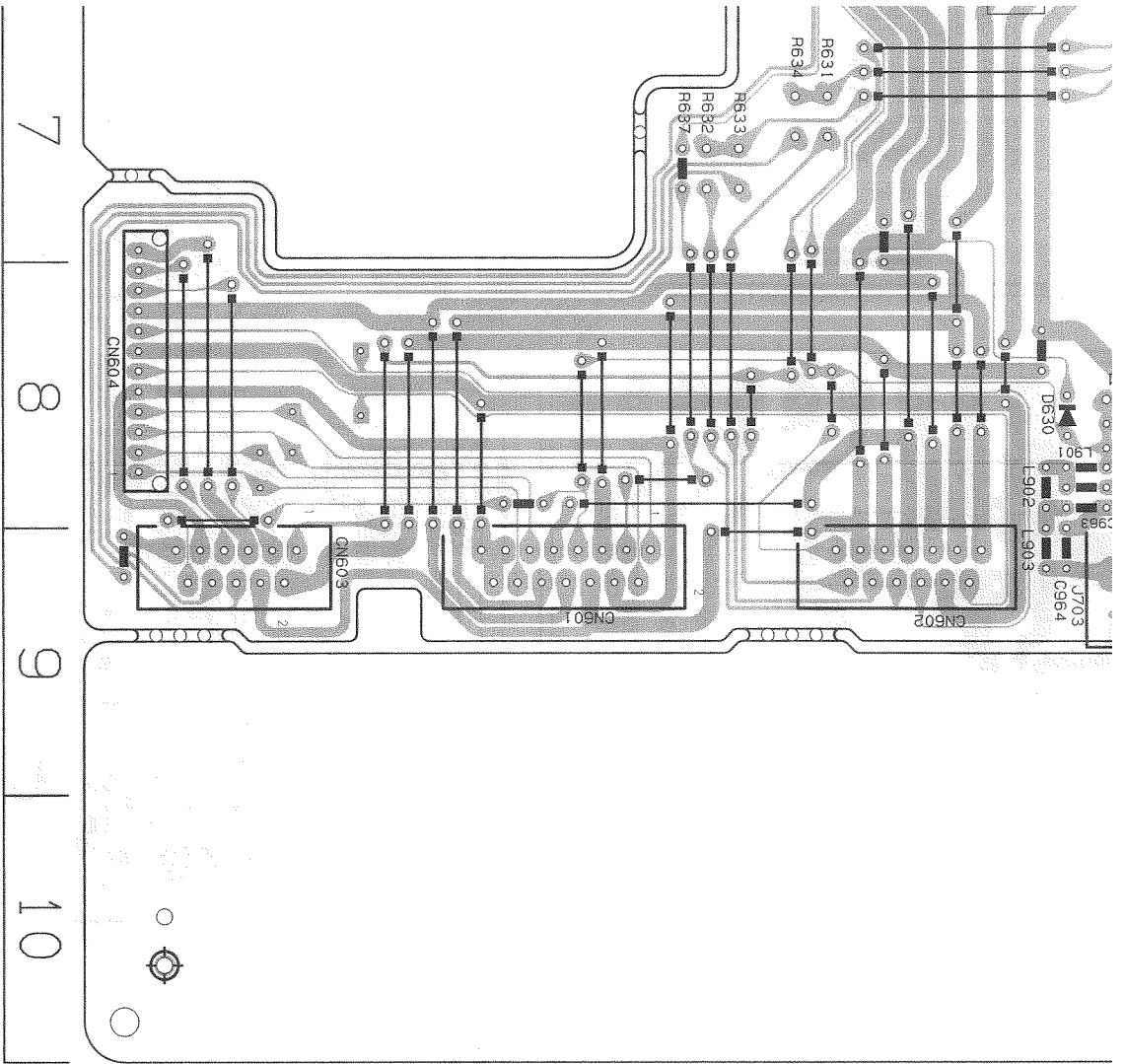




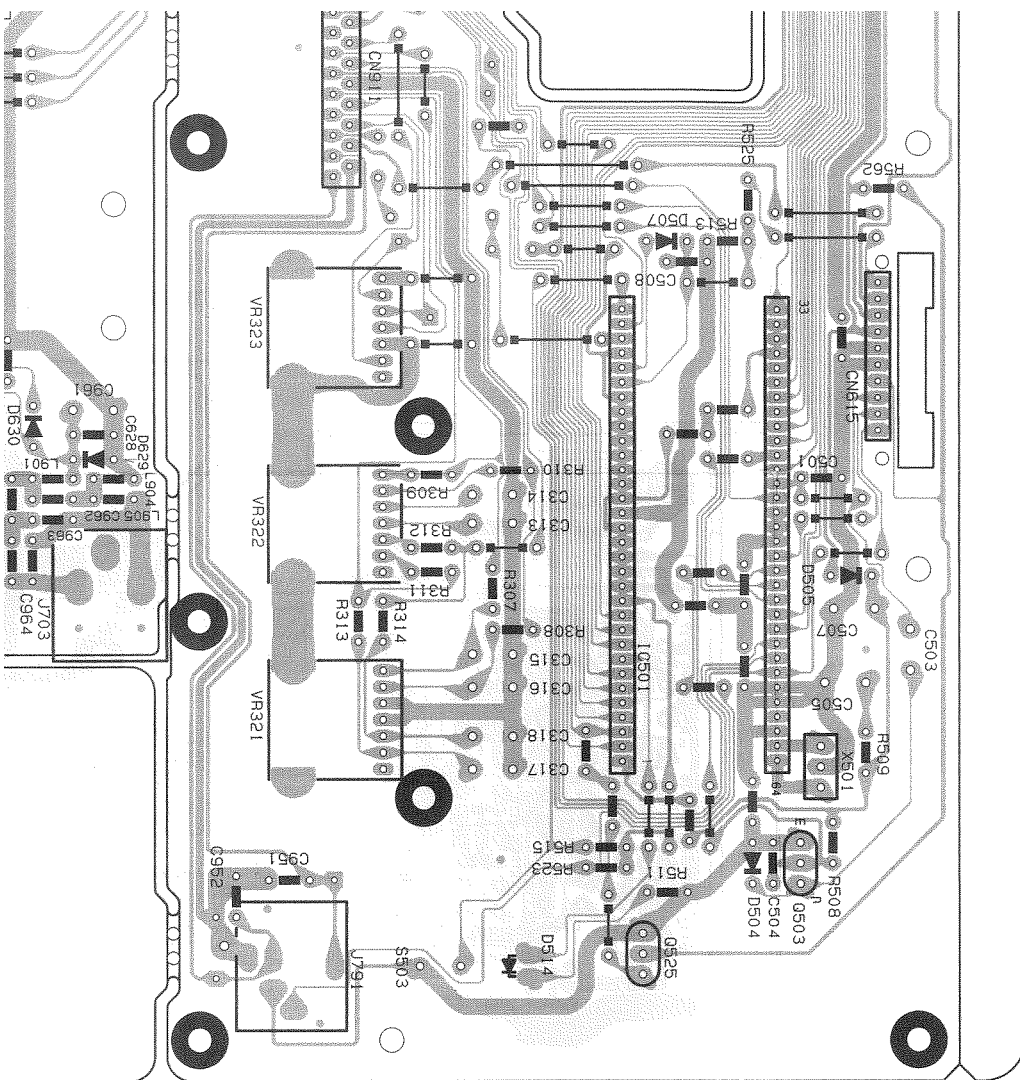


■ System Control and Power Supply P.C.B(ENB-241)





C623	2 F	D616	2 E	Q666	4 B	R653	5 B
C624	1 F	D617	2 E	Q667	4 B	R654	5 C
C625	1 G	D621	2 D	Q668	4 B	R655	5 B
C626	2 G	D622	2 D	R1001	4 E	R656	5 B
C627	2 G	D623	2 D	R1002	4 E	R657	5 B
C628	8 F	D624	2 F	R1515	4 F	R658	5 C
C661	5 C	D625	2 F	R1516	4 F	R659	4 B
C662	5 C	D626	2 F	R307	8 H	R660	4 B
C663	5 B	D627	2 F	R308	8 H	R661	4 C
C664	5 C	D629	8 F	R309	8 G	R662	4 C
C665	5 B	D630	8 F	R310	8 H	R663	4 B
C666	5 B	D631	1 E	R311	8 H	R664	4 B
C667	4 C	D651	5 C	R312	8 G	R665	4 B
C668	4 B	D652	5 B	R313	8 G	R666	4 B
C659	4 B	D653	5 C	R314	8 G	R667	4 C
C660	4 C	D654	4 B	R341	3 B	R668	4 C
C661	4 B	D655	4 B	R342	3 B	R669	4 B
C662	4 B	D656	4 B	R350	3 A	R670	4 B
C951	9 G	D657	3 B	R351	3 B	R681	5 A
C952	10 G	D658	5 B	R352	3 B	R682	5 A
C961	8 F	FW201	4 H	R361	2 B	R999	7 H
C962	8 E	FW606	2 G	R362	2 B	S501	4 H
C963	8 E	IC351	2 A	R501	5 I	S502	4 I
C964	8 E	IC501	9 H	R502	4 H	S503	10 H
CN213	3 B	IC502	5 G	R508	9 J	S507	5 G
CN601	8 C	J703	8 F	R509	9 J	S508	4 G
CN602	8 E	J791	10 G	R510	4 H	S509	4 G
CN603	8 B	L901	8 E	R511	9 I	TW111	10 F
CN604	8 A	L902	8 E	R513	7 I	X501	9 I
CN605	1 G	L903	8 E	R514	5 I		
CN607	5 E	L904	8 F	R515	9 H		
CN615	7 J	L905	8 F	R516	5 I		
CN617	3 B	Q351	3 B	R517	5 I		
CN911	7 G	Q352	3 B	R518	5 I		
CN912	1 B	Q503	9 I	R519	5 I		

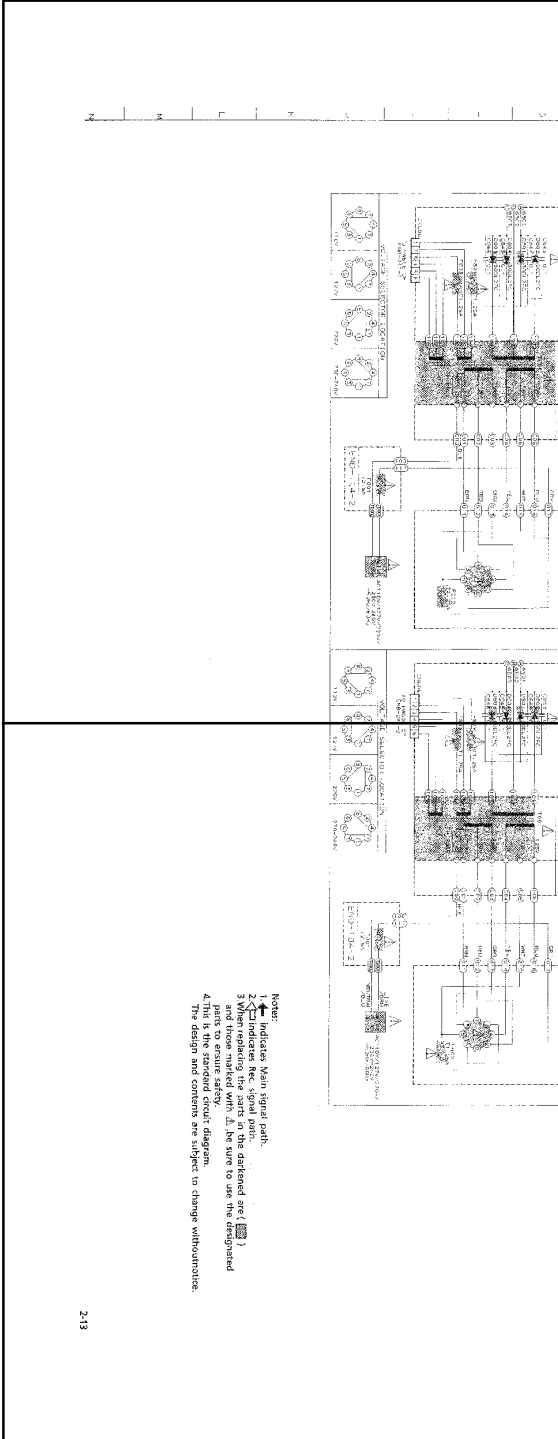


Location List (ENB-241)

Symbol	X	Y	Symbol	X	Y	Symbol	X	Y	Symbol	X	Y
C313	8 H	D355	2 A	0522	4 I	R520	4 J				
C314	8 H	D504	9 I	0523	4 H	R521	4 J				
C315	9 H	D505	8 J	0524	4 J	R522	4 J				
C316	9 H	D506	5 H	0525	10 I	R523	9 H				
C317	9 H	D507	7 I	0621	2 E	R524	5 J				
C318	9 H	D508	5 H	0622	2 D	R525	7 I				
C355	2 A	D509	4 H	0623	2 F	R527	4 H				
C356	2 A	D510	4 H	0624	2 F	R562	7 J				
C501	8 I	D511	5 G	0651	5 C	R621	3 D				
C502	5 G	D512	4 G	0652	5 C	R622	2 E				
C503	8 J	D513	4 G	0653	5 C	R623	2 E				
C504	9 I	D514	10 H	0654	5 C	R624	2 E				
C505	9 J	D515	4 I	0655	5 C	R625	2 E				
C506	5 H	D516	4 I	0656	5 C	R626	2 F				
C507	8 J	D517	4 I	0657	4 C	R627	1 F				
C508	7 I	D518	4 H	0658	4 C	R628	2 G				
C521	5 J	D519	4 H	0659	4 C	R631	7 D				
C611	3 E	D520	4 H	0660	4 C	R632	7 D				
C612	3 E	D611	3 E	0661	4 C	R633	7 D				
C613	4 F	D612	3 E	0662	4 C	R634	7 D				
C616	2 G	D613	3 D	0663	4 C	R637	7 D				
C621	2 D	D614	3 D	0664	4 C	R651	5 C				
C622	2 E	D615	3 E	0665	4 B	R652	5 B				
C623	2 F	D616	3 F	0666	4 B	R653	5 B				
C624	1 F	D617	2 E	0667	4 B	R654	5 C				
C625	1 G	D621	2 D	0668	4 B	R655	5 B				

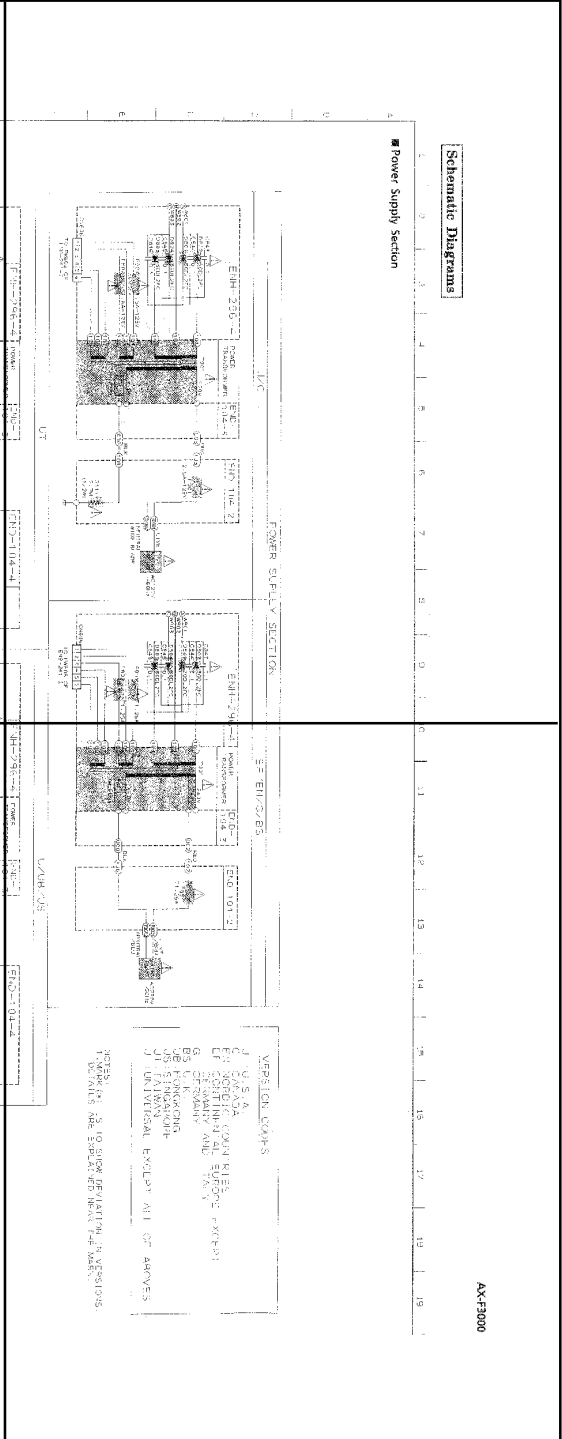


P2-13-a



P2-13-c

P2-13-b



P2-13-d

**Schematic Diagrams**

■ Power Supply Section

AX-F3000

POWER SUPPLY SECTION

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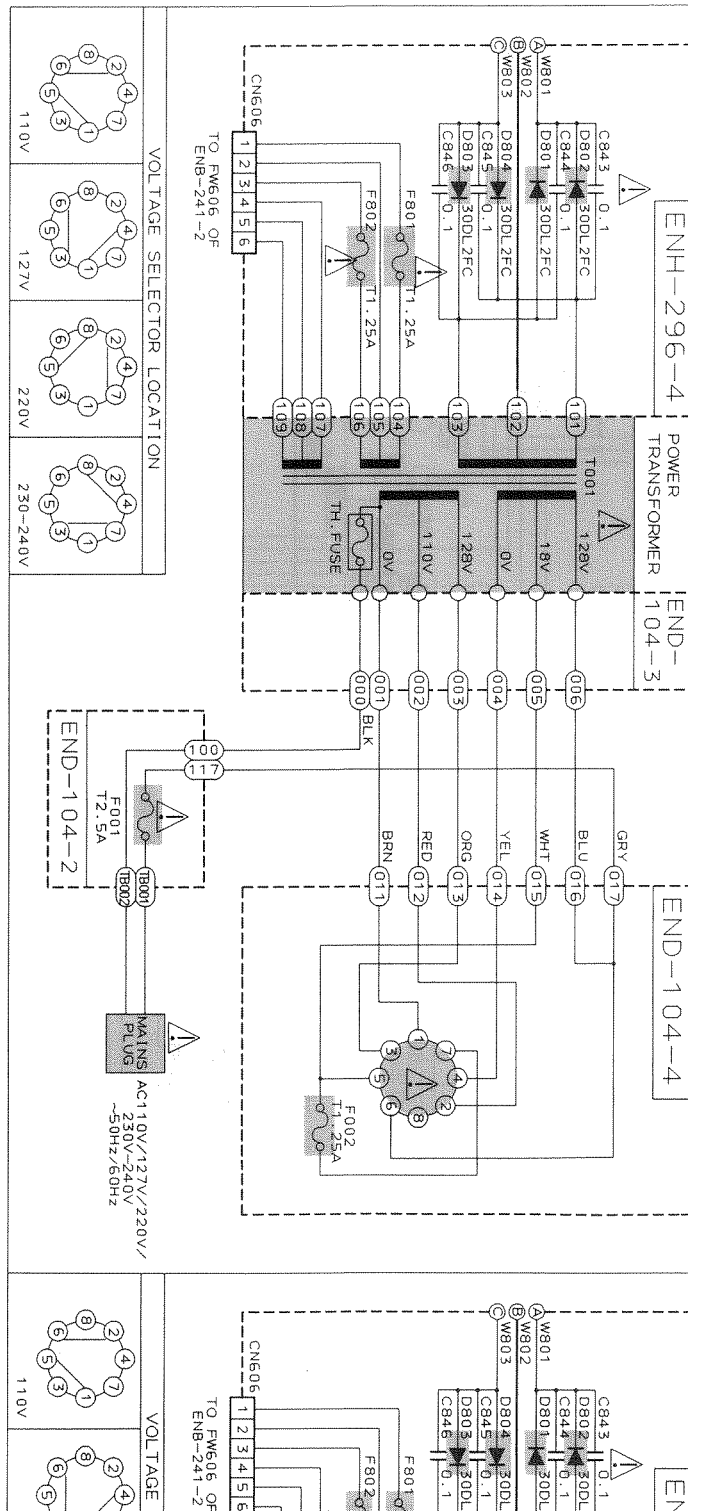
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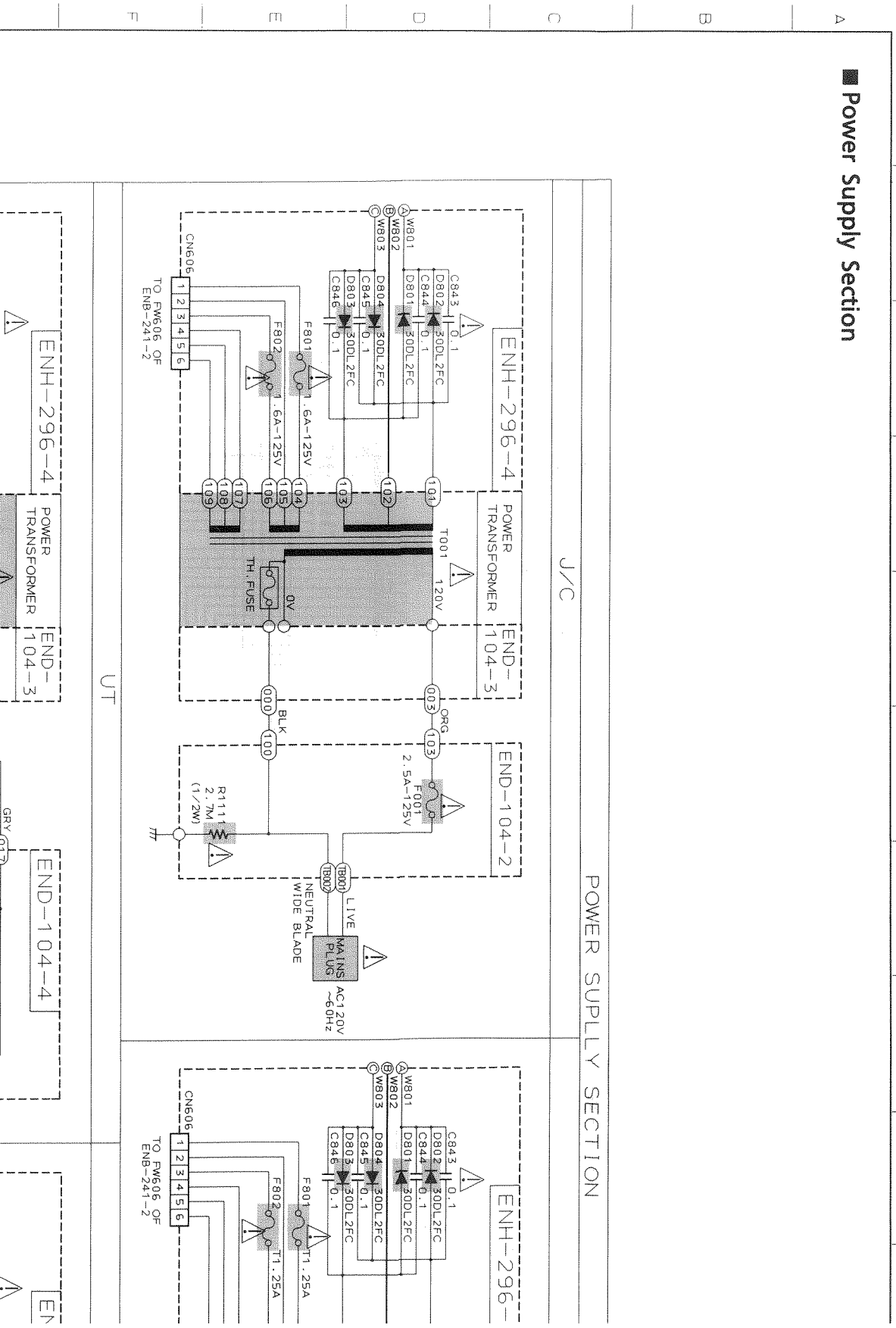
L7

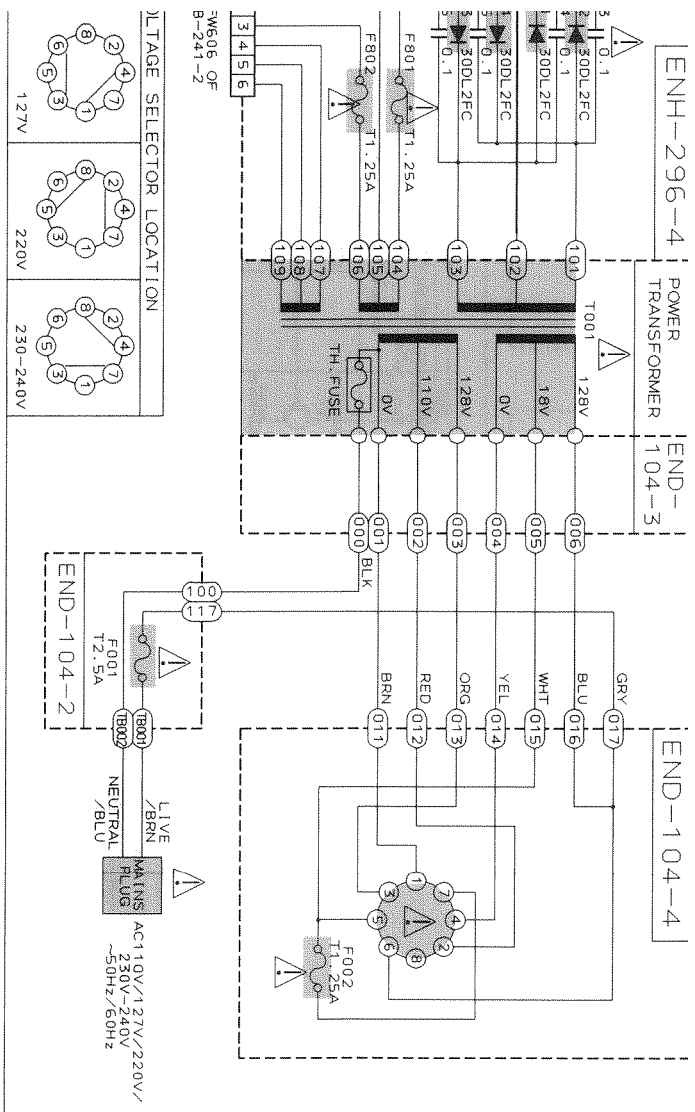






# Schematic Diagrams

## Power Supply Section

1 2 3 4 5 6 7 8 9 10



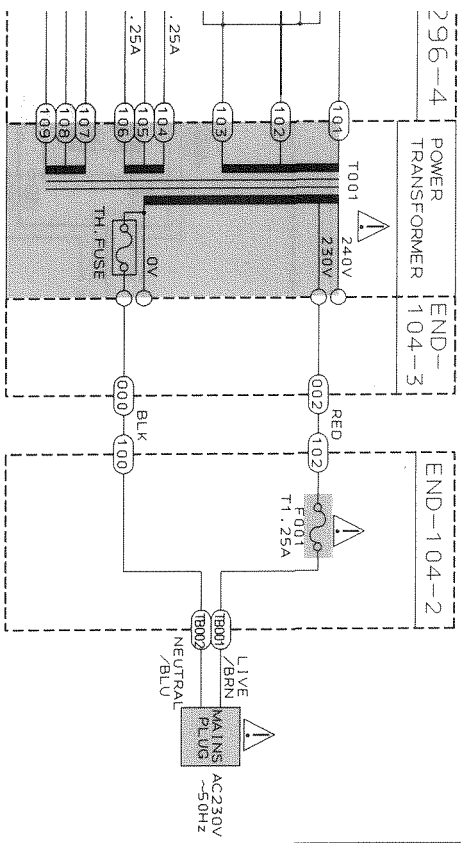


- Notes:
1.  indicates Main signal path.
  2.  indicates Rec. signal path.
  3. When replacing the parts in the darkened are (  ) and those marked with  , be sure to use the designated parts to ensure safety.
  4. This is the standard circuit diagram. The design and contents are subject to change without notice.

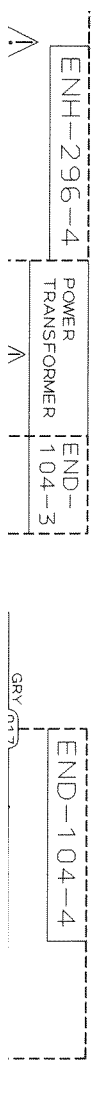


10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19

EF/EN/G/BS



U/UB/US



VERSION CODES

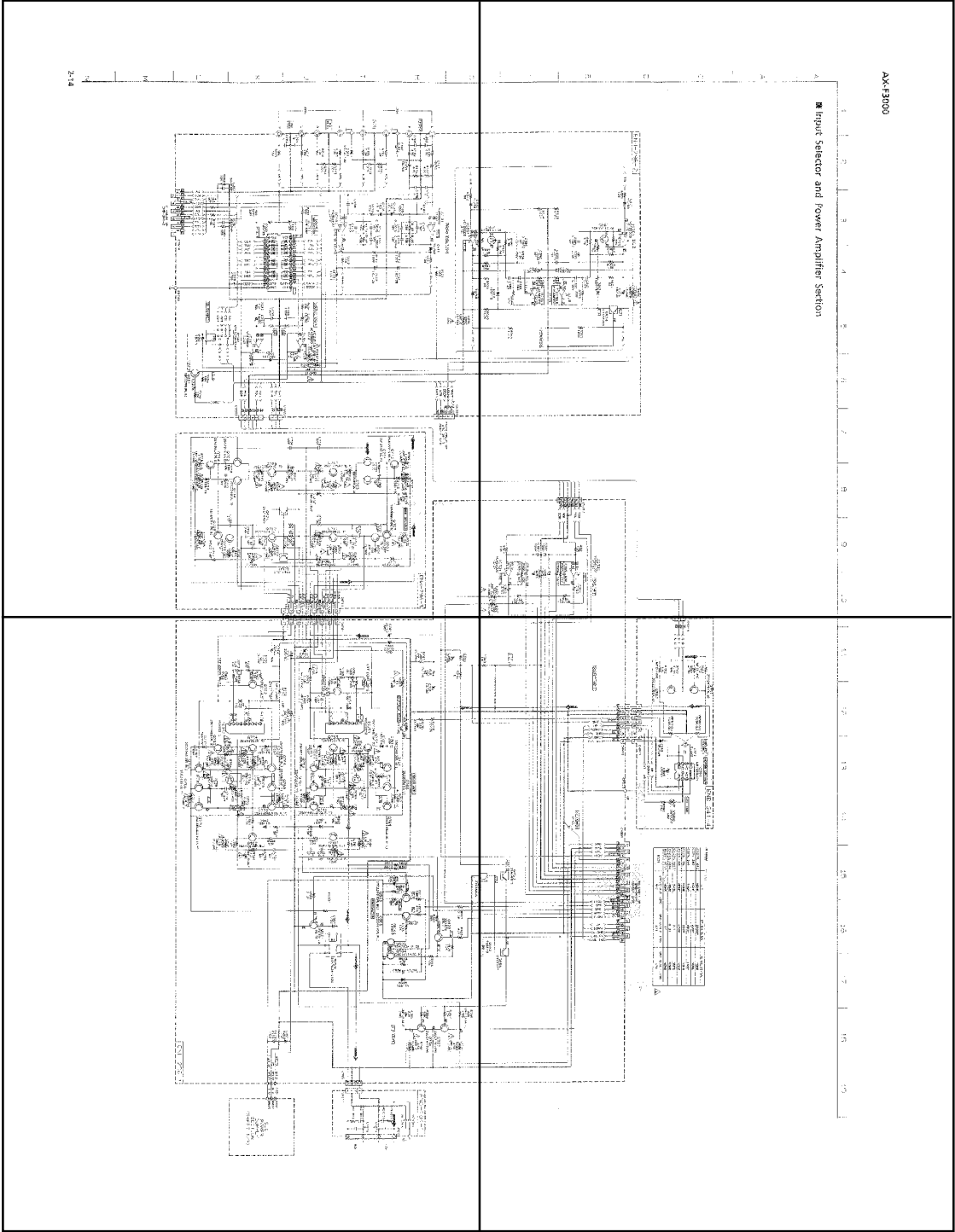
J : U.S.A.  
 C : CANADA  
 EN : NORDIC COUNTRIES  
 EF : CONTINENTAL EUROPE EXCEPT GERMANY AND ITALY  
 G : GERMANY  
 BS : U.K.  
 UB : HONGKONG  
 US : SINGAPORE  
 UT : TAIWAN  
 U : UNIVERSAL EXCEPT ALL OF ABOVE

NOTES:  
 1. MARK (\*) IS TO SHOW DEVIATION IN VERSIONS.  
 DETAILS ARE EXPLAINED NEAR THE MARK.



P2-14-a

P2-14-b

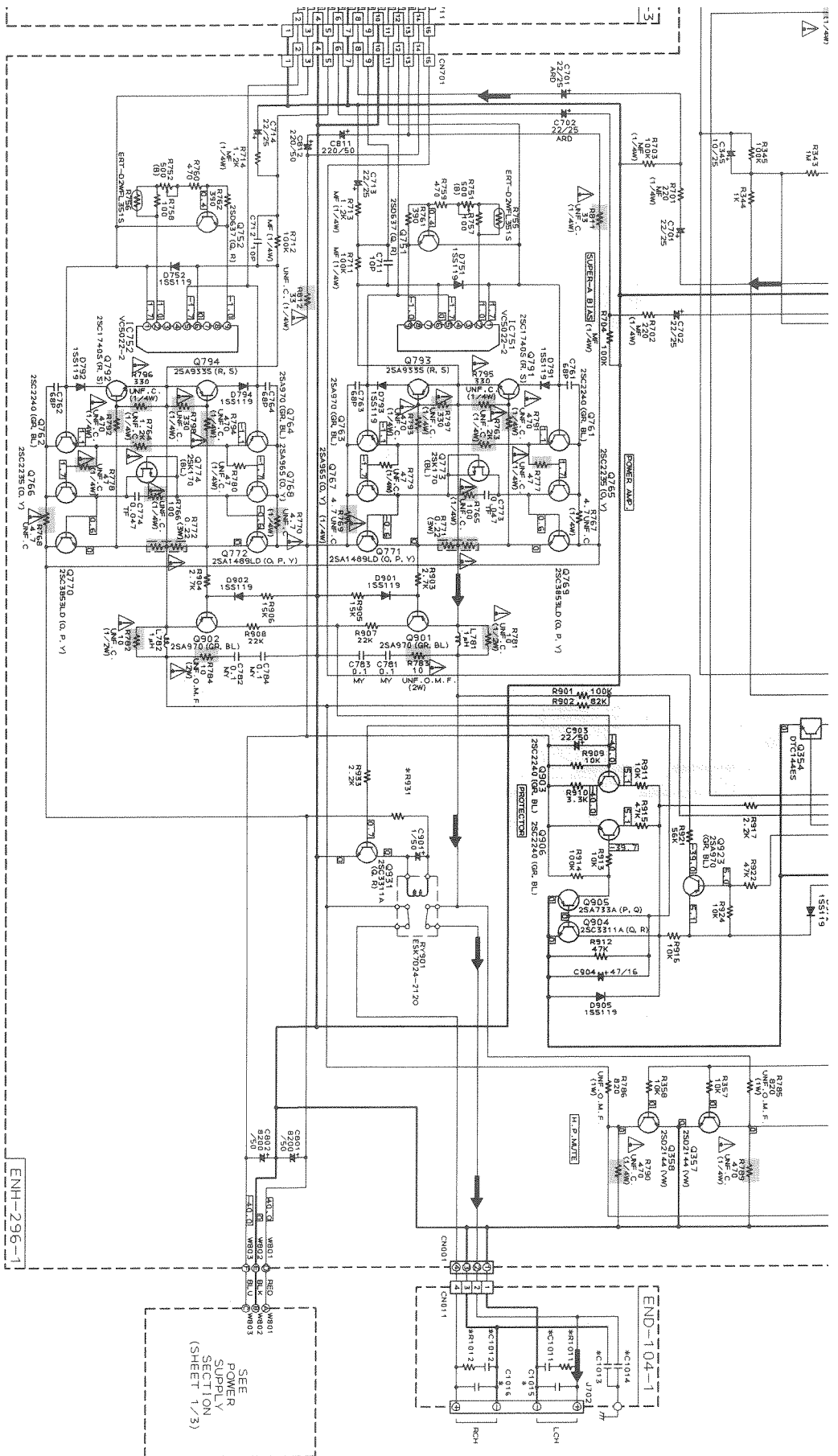


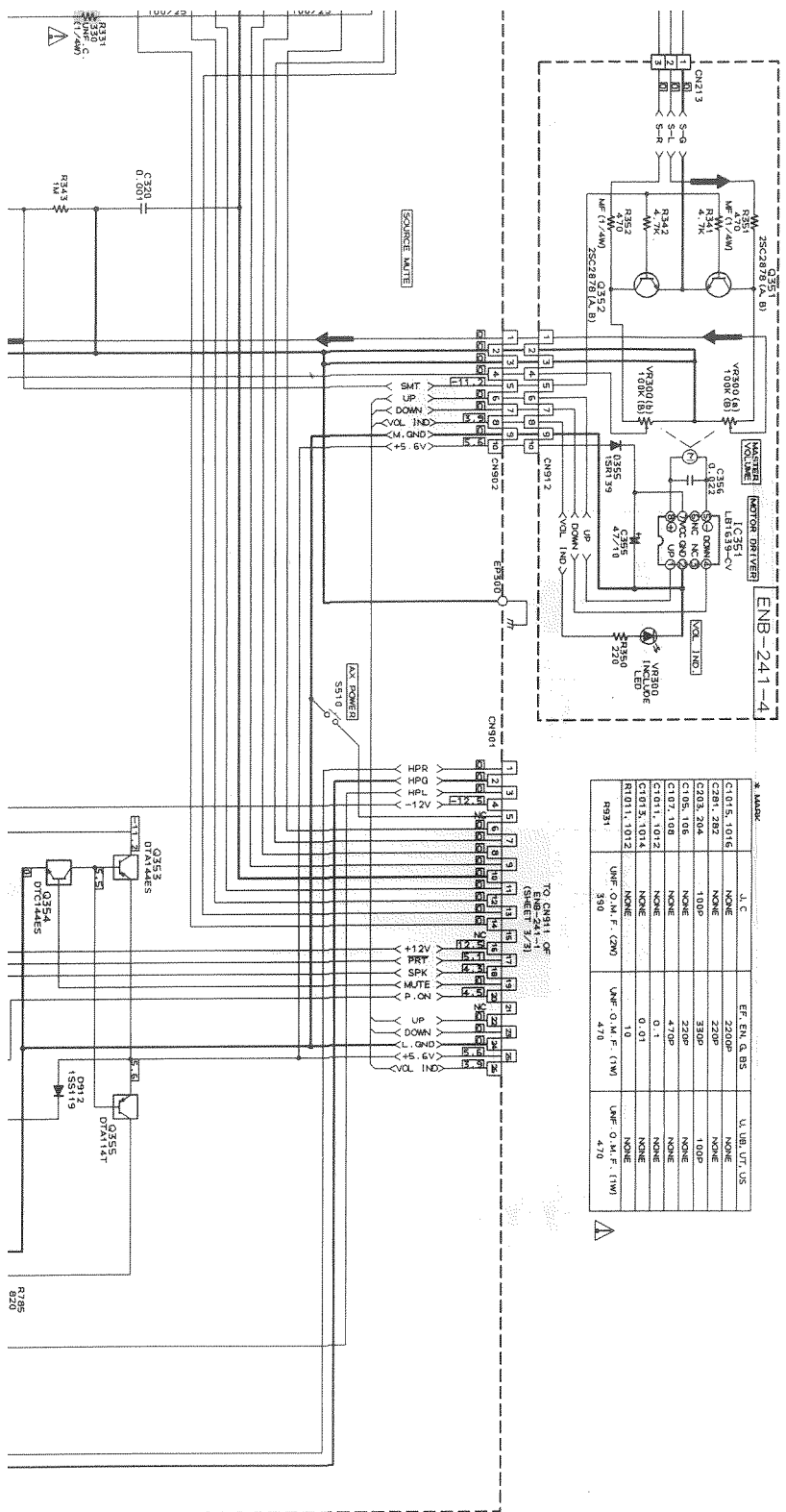
P2-14-c

P2-14-d







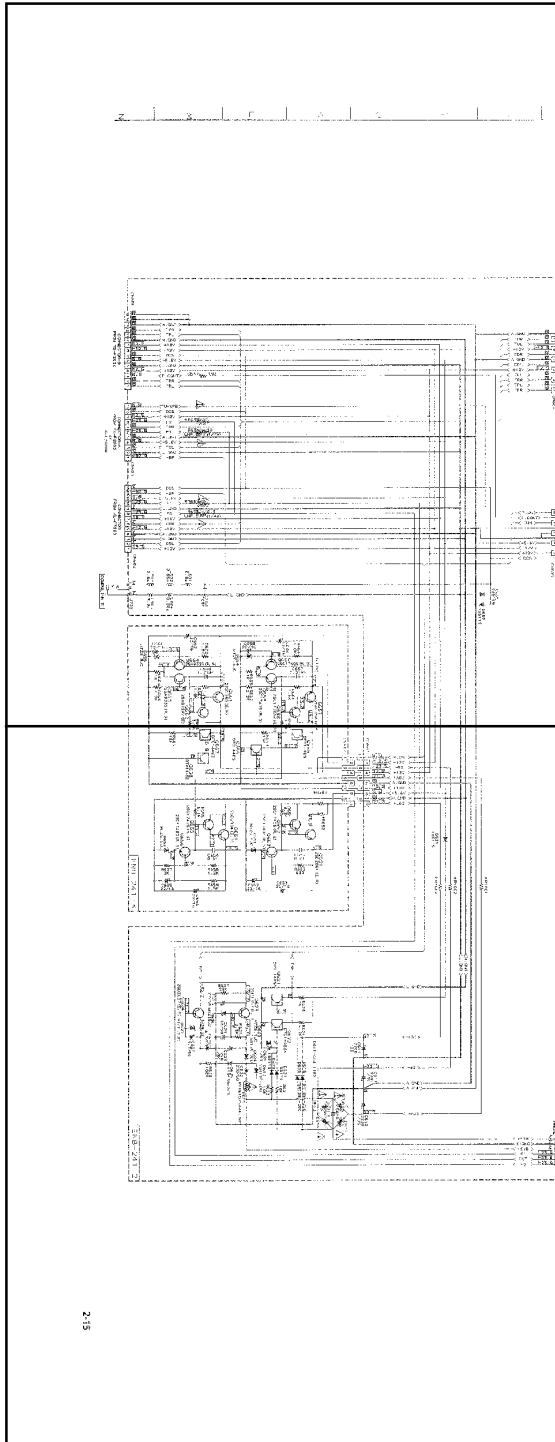


M. MARK	L.C.	EF. ENL. Q. BS	U. UB. U.T. US
C1015, 1016	NONE	220P	NONE
C201, 202	NONE	220P	NONE
C203, 204	100P	330P	100P
C107, 108	NONE	220P	NONE
C107, 108	NONE	470P	NONE
C1011, 1012	NONE	0.1	NONE
C1013, 1014	NONE	0.01	NONE
R1011, 1012	NONE	10	NONE
R931	UMF-Q.M.F. (2W)	UMF-Q.M.F. (1W)	UMF-Q.M.F. (1W)
	350	470	470



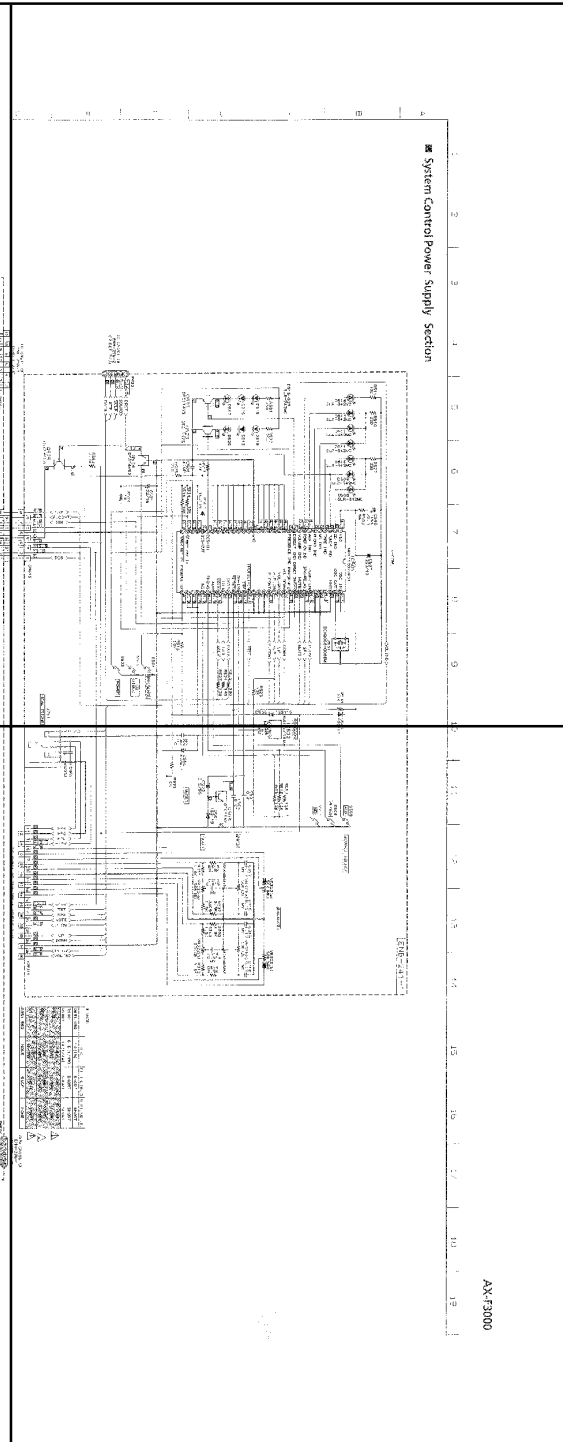


P2-15-a



2-13

P2-15-b



AX-F3000

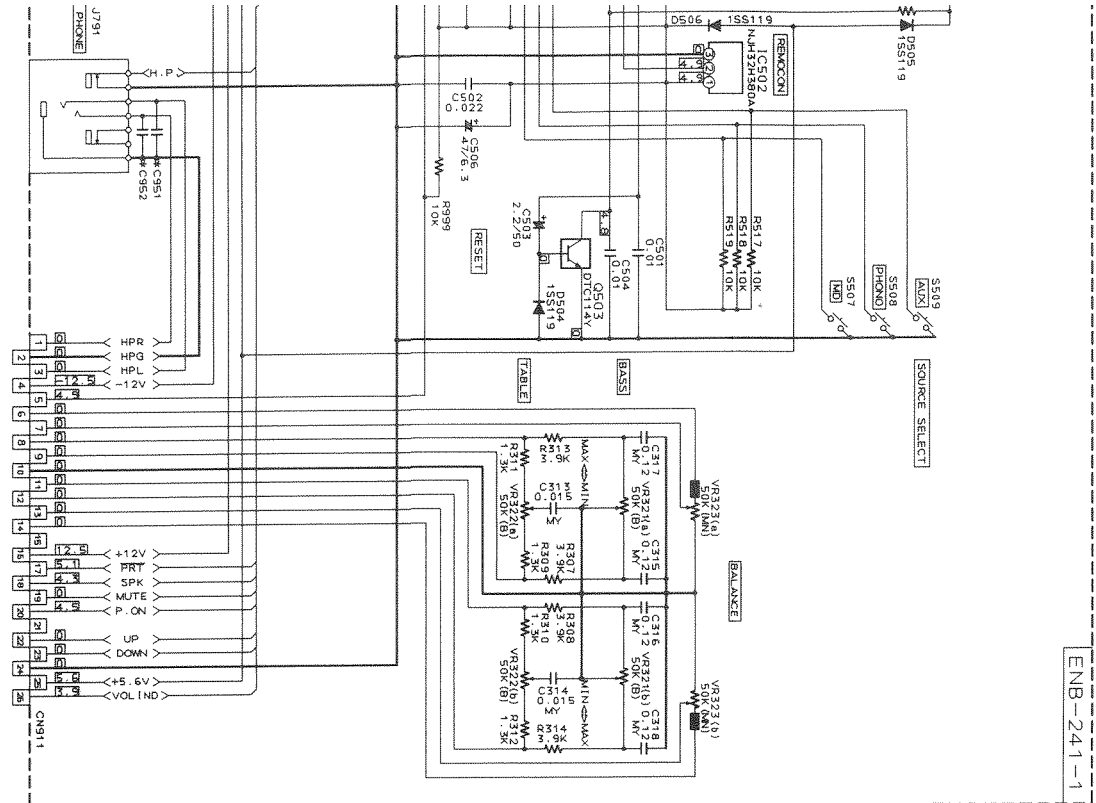
P2-15-c

P2-15-d









\* MARK

R6B1, 6B2	J.C	EF, EN, BS, G, U, UT, UB, US	SHORT
R1001	6.8(1/4W)	SHORT	SHORT
R1002	10(1/4W)	SHORT	SHORT
R6S1	2.7(1/4W)	4.7(1/4W)	SHORT
R6S3	8.2(1/4W)	11(1/4W)	SHORT
R1S1S	1.0(1/2W)	SHORT	SHORT
R9S1, 9S2	NONE	560P	NONE

FROM CN606 OF ENH-296-4 (SHEET 1/3)

FROM CN606 OF ENH-296-1 (SHEET 2/3)





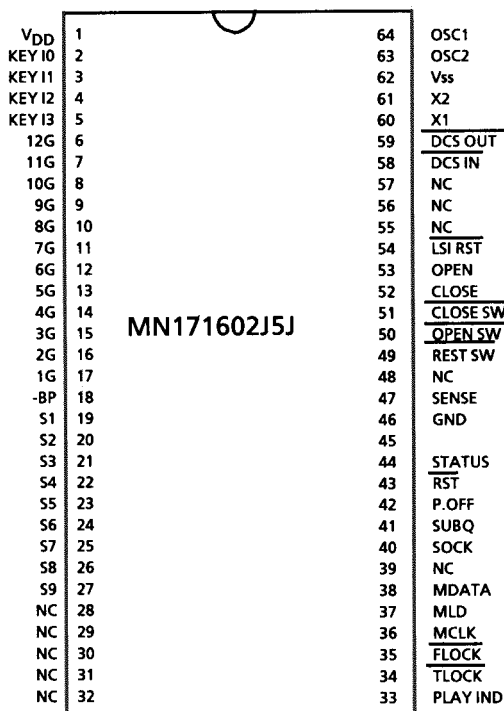
# XL-F3000

## Contents

<i>Description of Major ICs</i> .....	3-2
<i>Internal Connection of Display</i> .....	3-8
<i>Disassembly Procedures</i> .....	3-9
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■ MN171602JJX1 (IC901) : CD SYSTEM CONTROLLER

1. Terminal Layout



2.Key Matrix

	KEY I 0	KEY I 1	KEY I 2	KEY I 3
G4	■/CLEAR (S904)	▶/   (908)	REPEAT (S912)	--
G6	--	▲ (S906)	--	◀◀ (S914)
G7	--	PROGRAM (S905)	--	▶▶ (S913)

Pin Functions

Pin NO.	Symbol	I/O	Function	Pin NO.	Symbol	I/O	Function
1	V <sub>DD</sub>	--	+5V	33	PLAY IND	O	"PLAY" indicator control signa
2	KEY I0	I	Key input	34	TLOCK	I	Tracking Lock with "L"
3	KEY I1	I	Key input	35	FLOCK	I	Focus Lock with "L"
4	KEY I2	I	Key input	36	MCLK	O	Command Clock Signal
5	KEY I3	I	Key input	37	MLD	O	Command Load Signal
6	12G	O	FL Grid control signal	38	MDATA	O	Command Data Signal
7	11G	O	FL Grid control signal	39	NC	-	Not used
8	10G	O	FL Grid control signal	40	SOCK	O	External clock for Sub Code Q register
9	9G	O	FL Grid control signal	41	SUBQ	I	Sub code Q code input
10	8G	O	FL Grid control signal	42	P.OFF	O	Power off signal output (L:ON,H:OFF)
11	7G	O	FL Grid control signal(Key output)	43	RST	I	Reset signal input
12	6G	O	FL Grid control signal(Key output)	44	STATUS	I	Status signal input
13	5G	O	FL Grid control signal	45		-	GND
14	4G	O	FL Grid control signal(Key output)	46	GND	-	GND
15	3G	O	FL Grid control signal	47	SENSE	I	Sense signal input
16	2G	O	FL Grid control signal	48	NC	-	Not used
17	1G	O	FL Grid control signal	49	RESET SW	I	RESET SW active: low
18	-BP	I	FL Power	50	OPEN SW	I	OPEN SW active: low
19	S1	O	FL anode control signal	51	CLOSE SW	I	CLOSE SW active: low
20	S2	O	FL anode control signal	52	CLOSE	O	CLOSE signal output
21	S3	O	FL anode control signal	53	OPEN	O	OPEN signal output
22	S4	O	FL anode control signal	54	LSIRST	O	CD reset signal output (L:RESET)
23	S5	O	FL anode control signal	55	NC	-	Not used
24	S6	O	FL anode control signal	56	NC	-	Not used
25	S7	O	FL anode control signal	57	NC	-	Not used
26	S8	O	FL anode control signal	58	DCS IN	I	Compulink signal input
27	S9	O	FL anode control signal	59	DCS OUT	O	Compulink signal output
28	NC	-	Not used	60	X1	-	Connected to Ground
29	NC	-	Not used	61	X2	-	Not connection
30	NC	-	Not used	62	V <sub>SS</sub>	-	GND
31	NC	-	Not used	63	OSC2	O	Clock oscillation output
32	NC	-	Not used	64	OSC1	I	Clock oscillation input

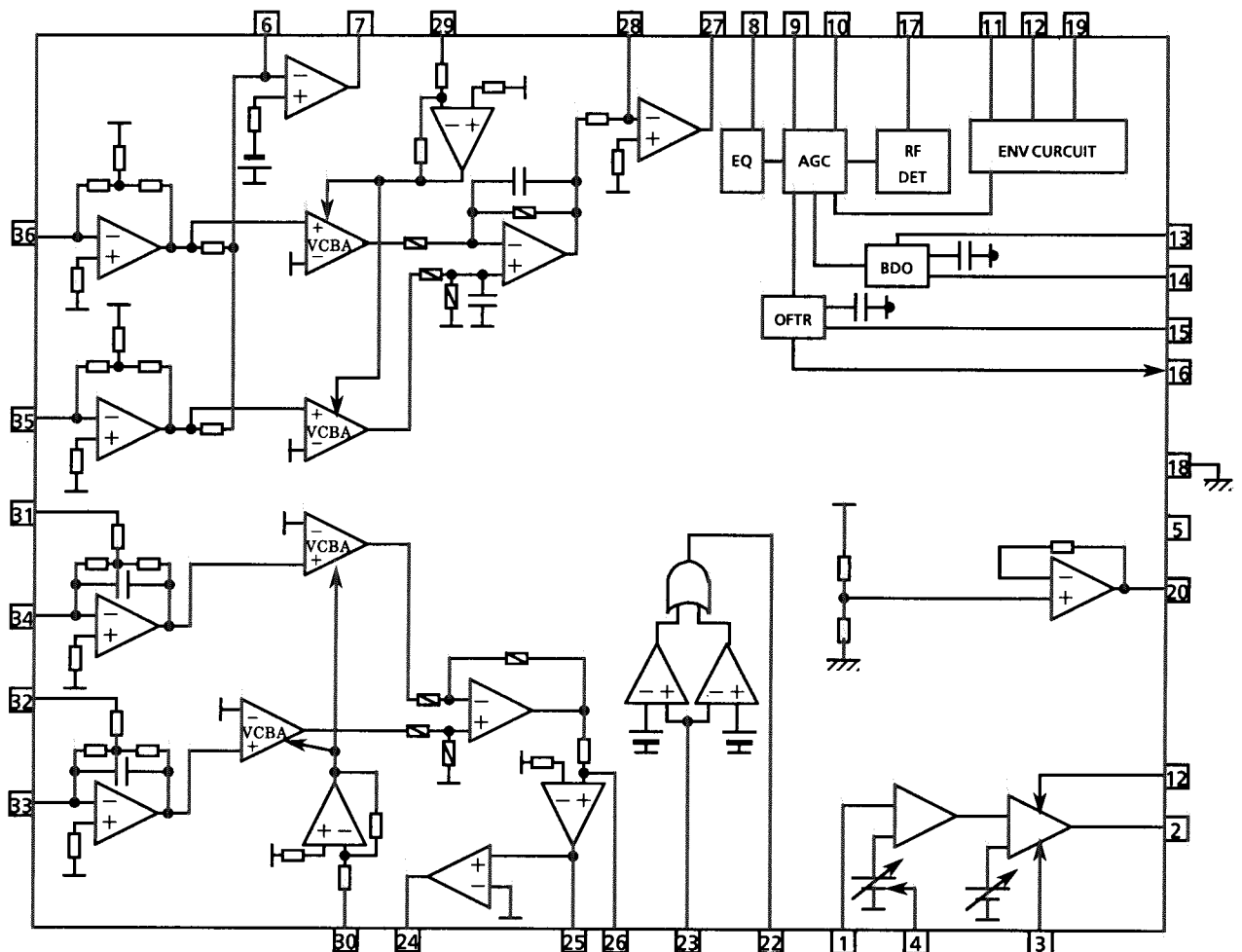


■ AN8806SB (IC501) : RF & SERVO AMP

1. Terminal Layout

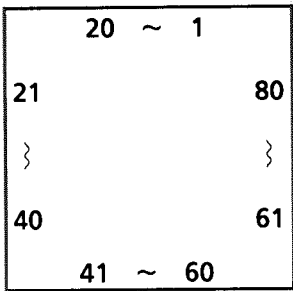
PD	1	36 PDAC
LD	2	35 PDBD
LDON	3	34 PDE
LDP	4	33 PDF
VCC	5	32 PDER
RF-	6	31 PDFR
RF OUT	7	30 TBAL
RF IN	8	29 FBAL
C.AGC	9	28 FE-
ARF	10	27 FE OUT
C.ENV	11	26 TE-
C.EA	12	25 TE OUT
CS BDO	13	24 CROSS
BDO	14	23 TE BPF
CS BRT	15	22 VDET
OFTR	16	21 LD OFF
NRFDET	17	20 VREF
GND	18	19 ENV

2. Block Diagram

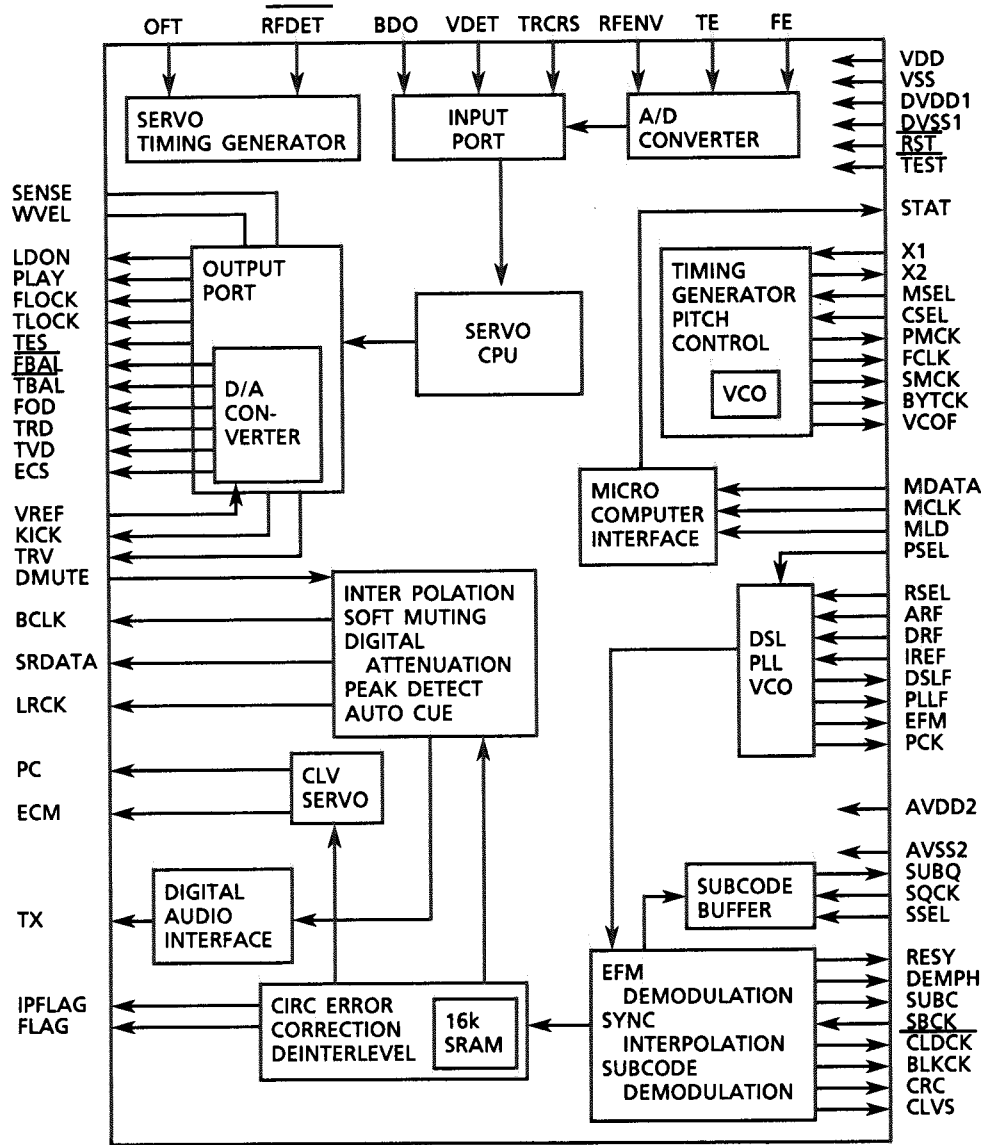


■ MN662720RB (IC401) : DIGITAL SERVO & DIGITAL SIGNAL PROCESSER

1. Terminal Layout



2. Block Diagram



## 3. Description

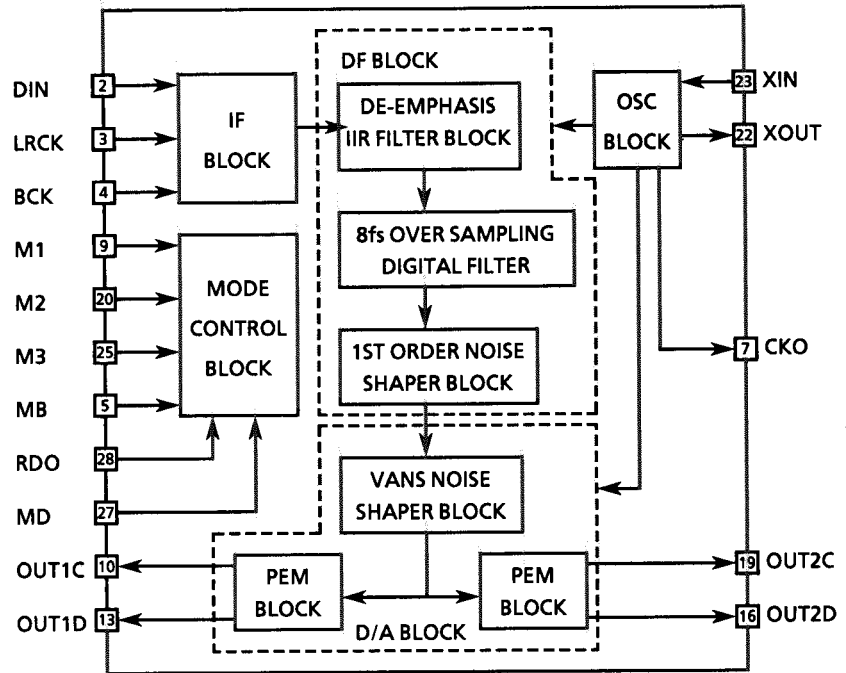
Pin No.	symbol	I/O	Description	Pin No.	symbol	I/O	Description
1	BCLK	O	Bit clock output pin for SRDATA	41	TES	—	Not used
2	LRCK	O	L/R distinction signal output	42	PLAY	—	"
3	SRDATA	O	Serial data output	43	WVEL	—	"
4	DVDD1	—	Power supply(Digital)	44	ARF	I	RF signal input
5	DVSS1	—	Connected to GND(Digital)	45	IREF	I	Reference current input pin
6	TX	O	Digital audio interface signal	46	DRF	I	Bias pin for DSL
7	MCLK	I	μ-com command clock signal input (Data is latched at signal's rising point)	47	DSLIF	I/O	Loop filter pin for DSL
8	MDATA	I	μ-com command data input	48	PLLIF	I/O	Loop filter pin for PLL
9	MLD	I	μ-com command load signal input	49	VCOF	—	Not used
10	SENSE	O	Sense signal output (OFT,FESL,NACEND,NAJEND,POSAD,SFG)	50	AVDD2	—	Power supply (Analog)
11	FLOCK	O	Lock signal for Focus L : pull	51	AVSS2	—	Connected to GND(Analog)
12	TLOCK	O	Lock signal for Tracking L : pull	52	EFM	—	Not used
13	BLKCK	O	Subcode · block · clock signal output	53	PCK	—	"
14	SQCK	I	Outside lock for sub-code Q resister input	54	PDO	—	"
15	SUBQ	O	Sub-code Q-code output	55	SUBC	O	Subcode serial output data output
16	DMUTE	I	Muting input (H : MUTE)	56	SBCK	—	Clock input for subcode serial output
17	STATUS	O	Status signal (CRC,CUE,CLVS,TTSTOP,ECLV,SQOK)	57	VSS	—	Connected to GND(for X'tal cscillation circuit)
18	RST	I	Reset signal input (L :Reset)	58	X1	I	Input of 16.9344MHz X'tal oscillation circuit
19	SMCK	—	Not used	59	X2	—	Not used
20	PMCK	—	Not used	60	VDD	—	Power supply(for X'tal cscillation circuit)
21	TRV	O	Traverse enforced output	61	BYTCK	—	Not used
22	TVD	O	Traverse drive output	62	CLDCK	O	Subcode · Frame · Clock signal output
23	PC	—	Not used	63	FCLK	O	X'tal frame clock output
24	ECM	O	Spindle motor drive signal (Enforced mode output) 3-State	64	IPPLAG	O	Interpolation flag output H : Interpolation
25	ECS	O	Spindle motor drive signal (Servo error signal output)	65	FLAG	—	Flag output
26	KICK	O	Kick pulse output	66	CLVS	—	Not used
27	TRD	O	Tracking drive output	67	CRC	—	"
28	FOD	O	Focus drive output	68	DEMPH	O	De-emphasis ON signal (H : ON)
29	VREF	I	Reference voltage input pin for D/A output block(TVD,FOD,FBAL,TBAL)	69	RESY	—	Not used
30	FBAL	O	Focus Balance adjust signal output	70	NC1	—	"
31	TBAL	O	Tracking Balance adjust signal output	71	TEST	—	Pull up (+5V)
32	FE	I	Focus error signal input(Analog input)	72	AVDD1	—	Power supply (Digital)
33	TE	I	Tracking error signal input(Analog input)	73	NC2	—	Not used
34	RFENV	I	RF envelope signal input(Analog input)	74	AVSS1	—	Connected to GND
35	VDET	I	Vibration detect signal input(H : detect)	75	NC3	—	Not used
36	OFT	I	Off track signal input(H : off track)	76	RSEL	I	Rf signal polarity appointed pin Light level "H" → RSEL = H Light level "L" → RSEL = L
37	TRCRS	I	Track cross signal input	77	CSEL	I	X'tal oscillation frequency appointed pin L : 16.9344MHz H : 33.8688MHz
38	RFDET	I	RF detect signal input (L : detect)	78	PSEL	I	Terminal of Test
39	BDO	I	BDO input pin (H : drop out)	79	MSEL	I	SMCK pin output of frequency select terminal L : SMCK + 4.2336MHZ H : SMCK + 8.4672MHZ
40	LDON	O	Laser ON signal output (H : on)	80	SSEL	—	SUBQ terminal output mode select pin H : Mode for Q code buffer

■ MN35503 (IC750) : D / A CONVERTER

1. Terminal Layout

MA	1	28	RDO
DIN	2	27	MD
LRCK	3	26	MC
BCK	4	25	M3
MB	5	24	DVDD1
DVDD2	6	23	XIN
CKO	7	22	XOUT
DVSS2	8	21	DVSS1
M1	9	20	M2
OUT1C	10	19	OUT2C
NC	11	18	NC
AVDD1	12	17	AVDD2
OUT1D	13	16	OUT2D
AVSS1	14	15	AVSS2

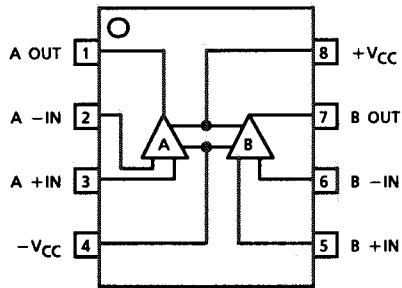
2. Block Diagram



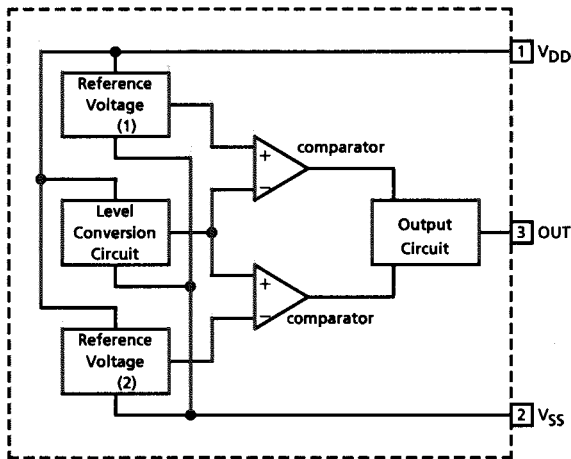
3. Description

Pin No	Symbol	I/O	Description	Pin No	Symbol	I/O	Description
1	MA	--	Connected to ground	15	AVSS2	--	Analog ground 2
2	DIN	I	Data input	16	OUT2D	O	2D PEM output
3	LRCK	I	LR clock input	17	AVDD2	--	Analog power supply 2
4	BCK	I	Bit clock input	18	NC	--	Non connection
5	MB	I	De-emphasis ON signal	19	OUT2C	O	2C PEM output
6	DVDD2	--	Digital power supply 2	20	M2	--	Connected to ground
7	CKO	I	Clock output	21	DVSS1	--	Digital ground pin 1
8	DVSS2	--	Digital ground 2	22	XOUT	O	Crystal oscillator output
9	M1	--	Connected to ground	23	XIN	I	Crystal oscillator input
10	OUT1C	O	1C PEM output	24	DVDD1	--	Digital power supply 1
11	NC	--	Non connection	25	M3	--	Connected to ground
12	AVDD1	--	Analog power supply 1	26	MC	--	Connected to ground
13	OUT1D	O	1D PEM output	27	MD	I	Reset signal / Digital Att. control signal input
14	AVSS1	--	Analog ground 1	28	RDO	--	Not used

■ VC4580D (IC751) : Dual OP Amp.



■ MN1281 (P.Q) : IC902 RESET IC

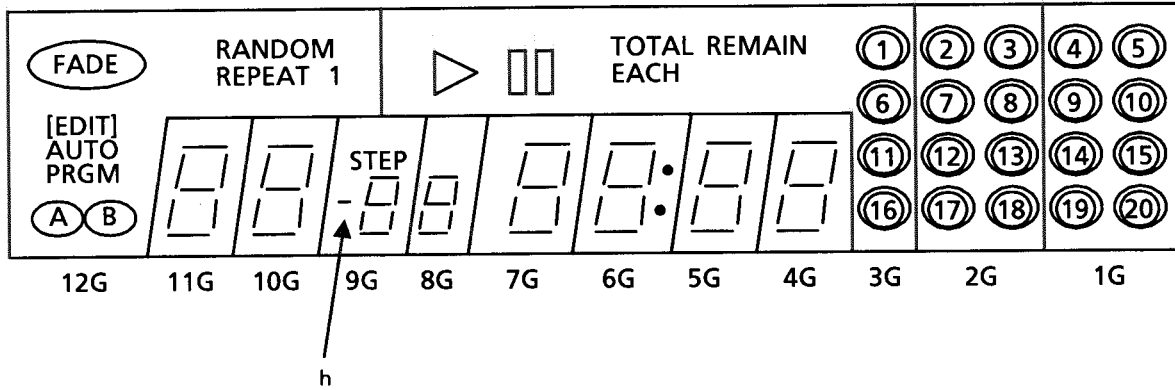


Pin No.	Pin Name	Functions
1	V <sub>DD</sub>	Power supply
2	V <sub>SS</sub>	Ground
3	OUT	Reset signal output : Low level is output when resetting : High level is output when cancelling the reset.

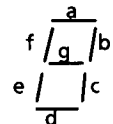
## Internal Connections of FL Display

### ■ ELU0001-178:(DI901)

#### 1. Grid Layout



#### 2. Pin Connections



TERMINAL NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
ELECTRODE	F1	F1	NP	12G	11G	10G	9G	8G	7G	6G	5G	4G	3G	2G	1G	NP	NP	NP

TERMINAL NO.	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37
ELECTRODE	NP	NP	NP	NP	NP	NP	NP	S1	S2	S3	S4	S5	S6	S7	S8	S9	NP	F2	F2

(Note) F : Filament G : Grid NP : NoPin NC : No Connection P1~P9 : Anode

#### 3. Anode Designation

	12G	11G	10G	9G	8G	7G	6G	5G	4G	3G	2G	1G
S1	FADE	a	a	a	a	a	a	a	a	(1)	(2)	(4)
S2	[EDIT]	b	b	b	b	b	b	b	b	(6)	(7)	(9)
S3	AUTO	c	c	c	c	c	c	c	c	(11)	(12)	(14)
S4	PRGM	d	d	d	d	d	d	d	d	(16)	(17)	(19)
S5	(A)	e	e	e	e	e	e	e	e	▶	(3)	(5)
S6	(B)	f	f	f	f	f	f	f	f		(8)	(10)
S7	RANDOM	g	g	g	g	g	g	g	g	TOTAL	(13)	(15)
S8	REPEAT	----	----	STEP	----	----	●●	----	----	EACH	(18)	(20)
S9	1	----	----	(-)	----	----	----	----	----	REMAIN	----	----

## Disassembly Procedures

### (1) Top cover removal

1. Remove the 4 screws **H** on the rear side and 2 screws **A** on both sides of the cover.
2. Remove the cover.

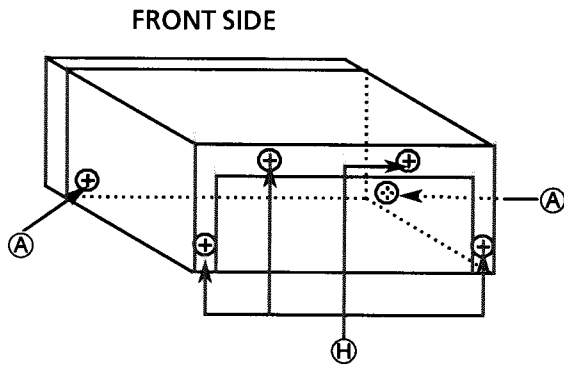


Fig. 1

### (2) Rear panel removal

1. Remove the top cover.
2. Remove the 2 screws **B**.  
Disconnect the CN601. (Fig.3)
3. Remove the rear panel.

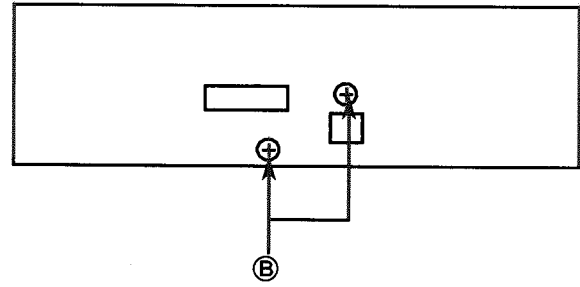


Fig. 2

### (3) Tray assembly removal

1. Remove the top cover.
2. Remove the a screw **C**.
3. Tune the screw located under the mechanism to remove the tray out of the loading mechanism.
4. Remove the tray.

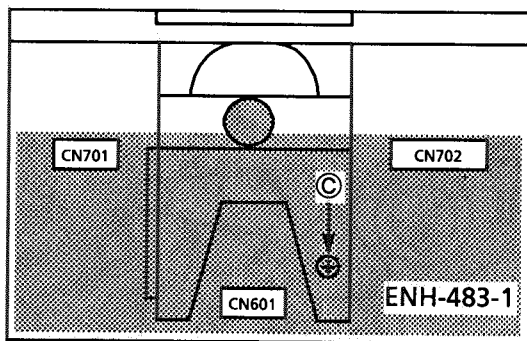


Fig. 3 UP SIDE

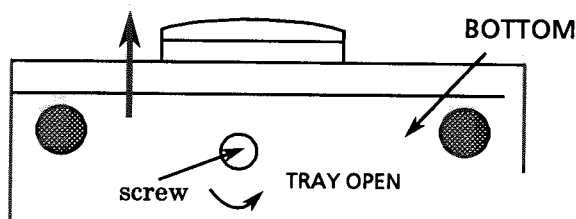


Fig. 4

### (4) Front panel assembly removal

1. Remove the top cover and tray assembly.
2. Disconnect the CN701 and CN702. (Fig.3)
3. Remove the 2 screws **D**.
4. Release the hooks **a** holding the front panel, and remove the front panel assembly.

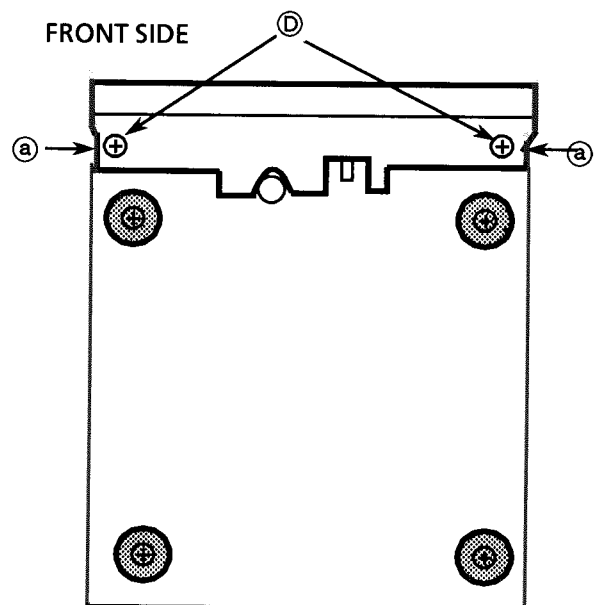


Fig. 5

- A** .. SD5G3008N    **B** ... E73273-003    **C** ... SBSF3008Z    **D** ... SD5G3008CC  
**H** .. GBSB3008CC

- (5) CD mechanism assembly removal
1. Remove the top cover and tray assembly.
  2. Remove the 2 screws ③ to remove the clamp assembly.
  3. Remove the 3 screws ⑤ holding the CD mechanism assembly.
  4. Disconnect the CN102, CN103 and CN104.
  5. Remove it.

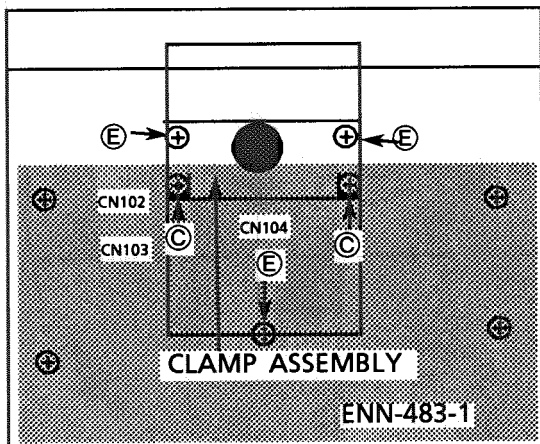


Fig.6

- (6) Main PCB(ENN-483-1) removal
1. Remove the top cover, tray assembly, rear panel and CD mechanism assembly.
  2. Remove the 4 screws ⑥ holding the Main PCB (ENN-483-1).
  3. Remove it.

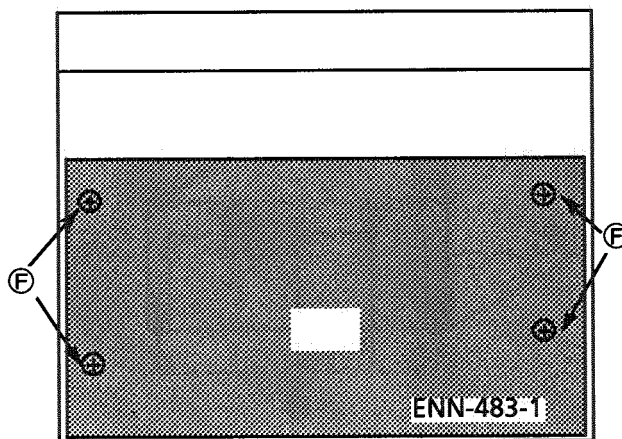


Fig.7

- (7) Front PCB(ENN-483-2) removal
1. Remove the top cover, tray assembly and front panel assembly.
  2. Remove the 5 screw ⑦.
  3. Remove the Front PCB (ENN-483-2).

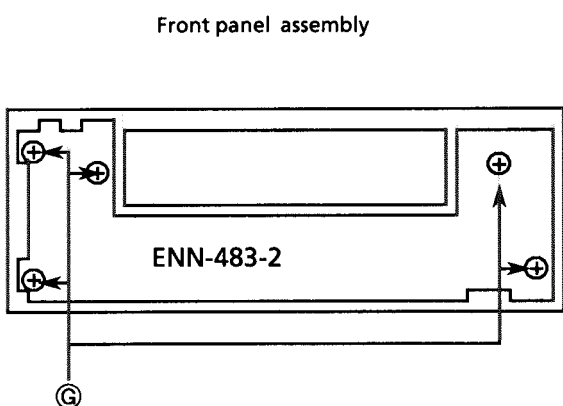


Fig. 8

- (8) Installing the CD tray
1. Insert the CD tray after checking that traverse mechanism assembly is positioned slantingly.
  2. If it is set horizontally, press the cam plate until it stops so that the traverse mechanism assembly slants. (See an arrow in the following figure.)

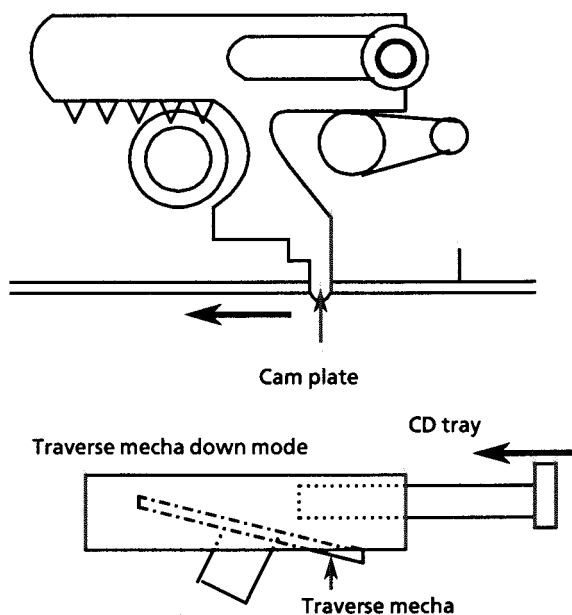


Fig. 9

③ .. SBSF3008Z    ⑤ ... SBST3008Z    ⑥ ... SBSG3006CC    ⑦ ... SDSF2608Z



**(9) Pickup removal**

1. Remove the CD mechanism assembly.
2. Release the shaft to remove the pickup. (Fig 10)

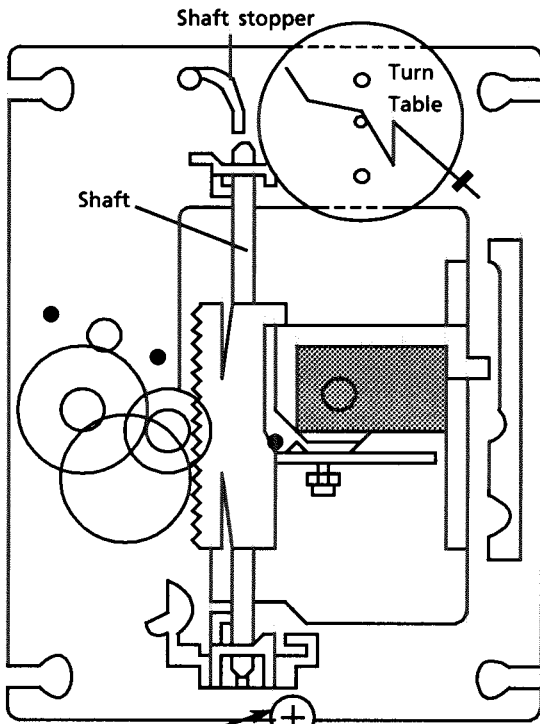


Fig 10 CD mechanism assembly

**(10) Spindle motor removal**

1. Remove the CD mechanism assembly.
2. Remove the turntable, and remove the two screws (N) retaining the spindle motor.
3. Remove the a screw retaining the spindle and feed motor P.C. Board and unsolder it.

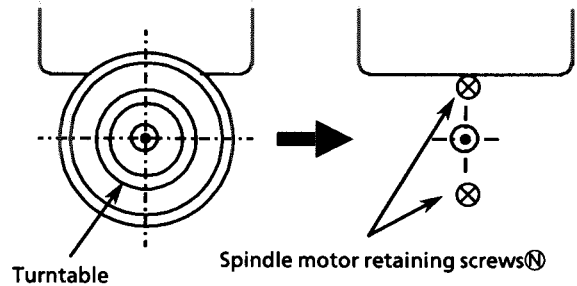


Fig 11

- (12)After inserting the turntable, bond the motor shaft and turntable together (at the section marked by an arrow in fig 13 on the left below).

**(11) Spindle motor installation**

1. Tighten the 2 screws to the same torque.
2. Fasten the spindle and feed motor P.C. board with the screw and solder.
3. Install the turntable. When installing, press straight down at the center of the turntable until the distance from the surface of the mechanism base to the turntable is exactly  $19.4 \pm 0.1\text{mm}$ .

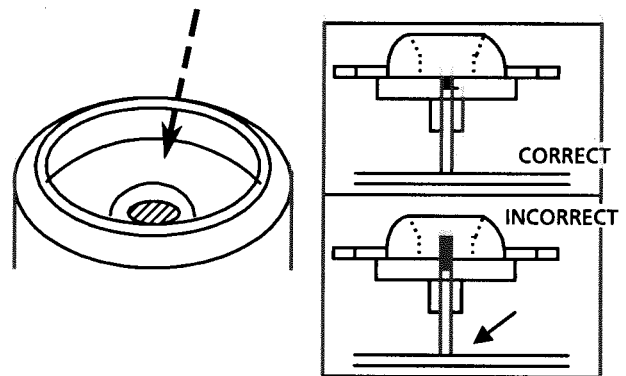


Fig 13

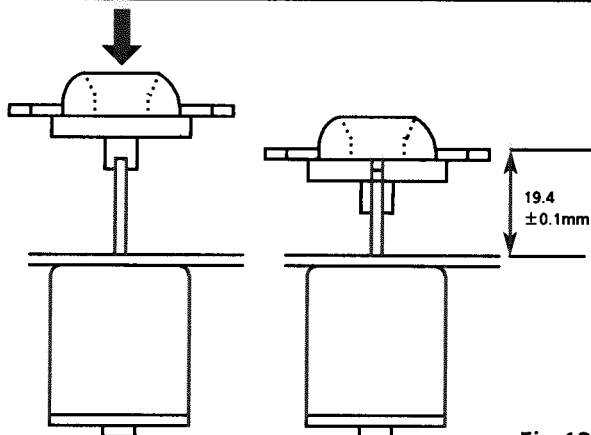
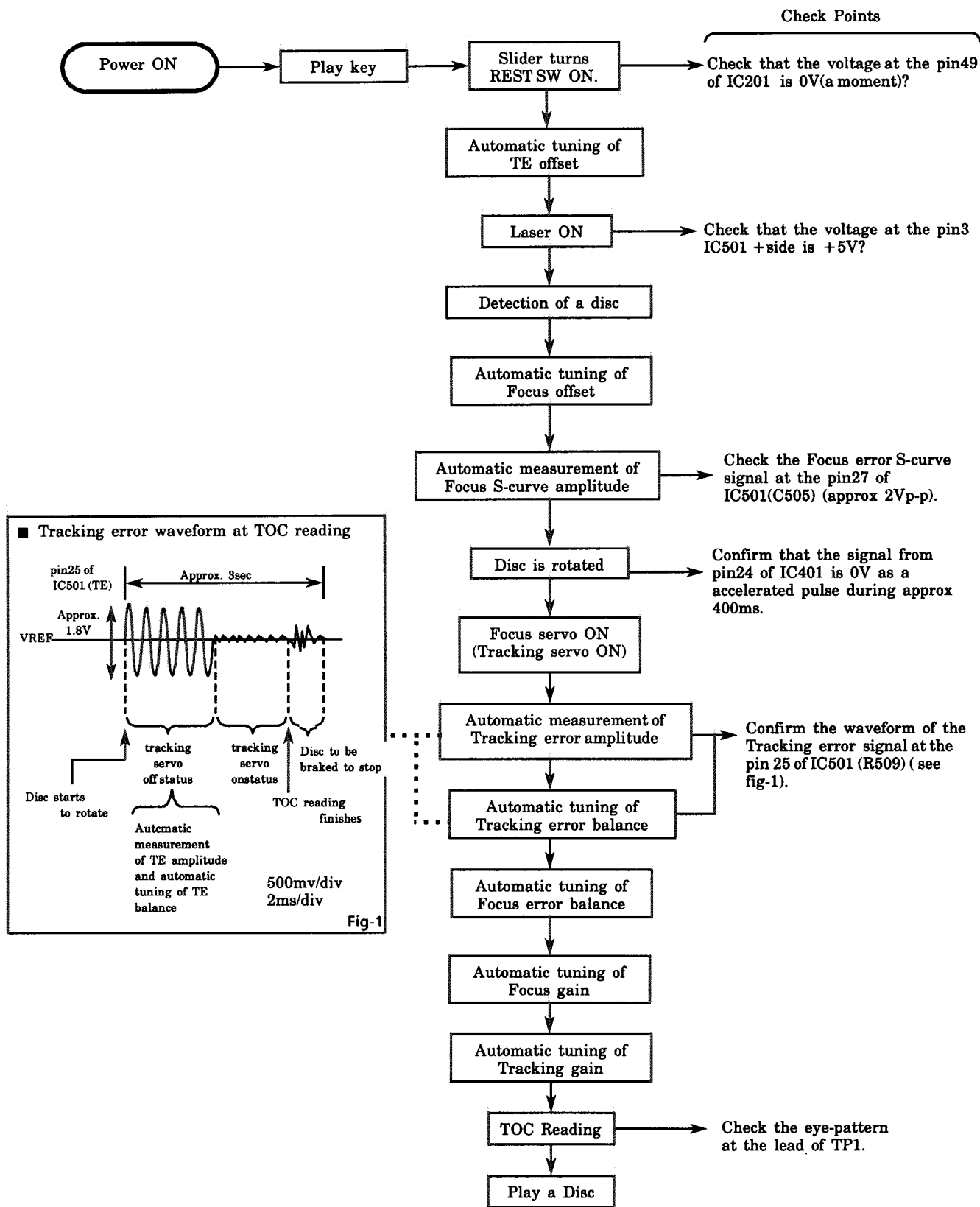


Fig 12

- (13)Use "LOCKTITE" #460 bonding agent, and apply as little as possible. Take care not to allow any excess bonding agent to get onto the turntable. Be extremely careful not to allow bonding agent to adhere to the motor bearing (the section marked by an allow in fig 13 on the right).

(M) .. E406293-001 (N) ... SDSP2003N

# Flow of Functional Operation Until TOC is Read



## Maintenance of Laser Pickup

### (1) Cleaning the pick up lens

Before you replace the pick up, please try to clean the lens with a alcohol soaked cotton swab.

### (2) Life of the laser diode (Fig.1)

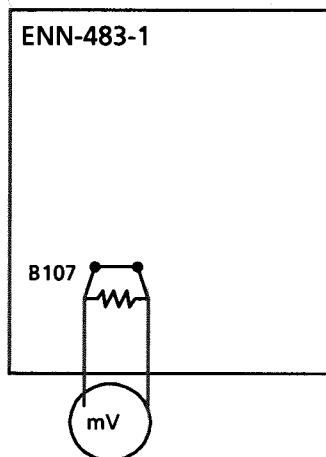
When the life of the laser diode has expired, the following symptoms will appear.

- (1) The level of RF output (EFM output: amplitude of eye pattern) will be low.
- (2) The drive current required by the laser diode will be increased. In such a case, check the life of the laser diode following the flowchart below.

### (3) Measurement of laser diode drive current (Fig.2)

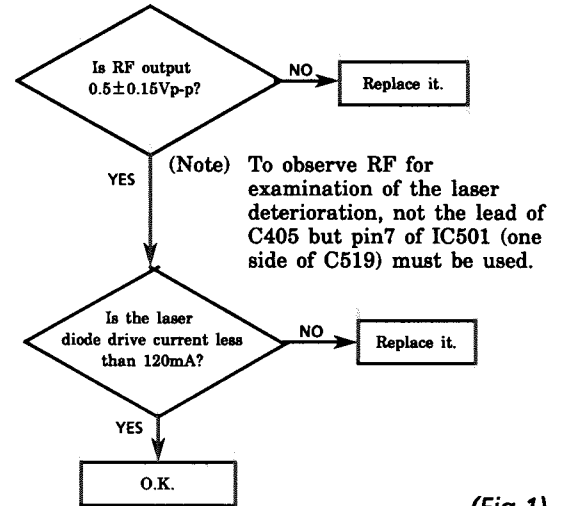
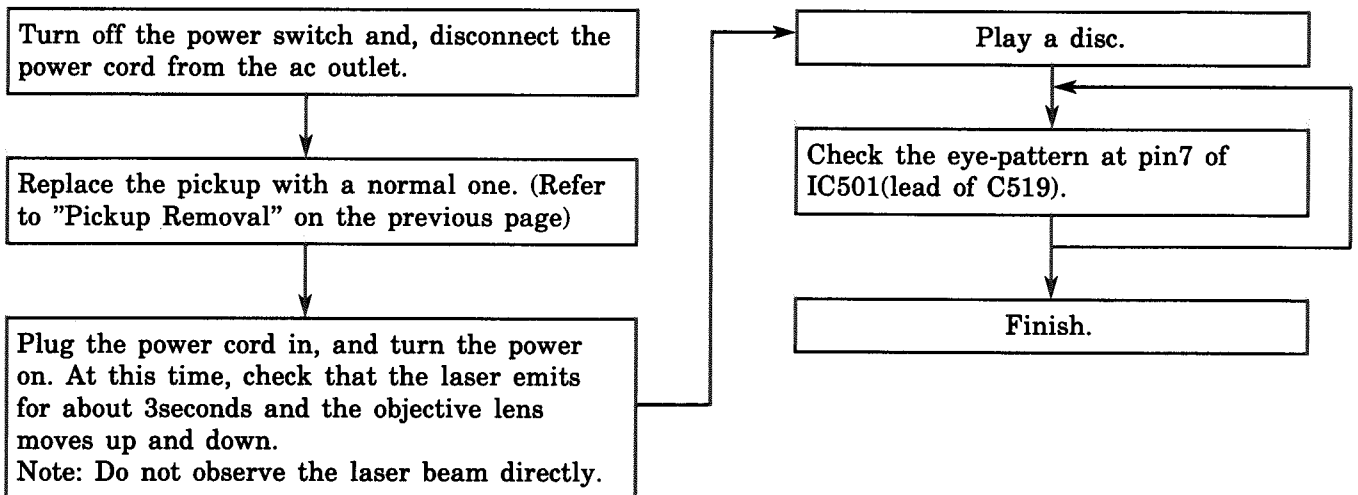
Cut the jump wire (B107) and add a 1Ω resistor. (See the following Fig,2)

Measure the voltage across the resistor (1Ω) with a milli-voltmeter. When the voltage is more than 120mV, it shows that the life of the laser diode has expired.



(Fig.2)

## Replacement of Laser Pickup



(Fig.1)

### (4) Semi-fixed resistor on the APC PC board

The semi-fixed resistor on the APC printed circuit board which is attached to the pickup is used to adjust the laser power. Since this adjustment should be performed to match the characteristics of the whole optical block, do not touch the semi-fixed resistor.

If the laser power is lower than the specified value, the laser diode is almost worn out, and the laser pickup should be replaced.

If the semi-fixed resistor is adjusted while the pickup is functioning normally, the laser pickup may be damaged due to excessive current.

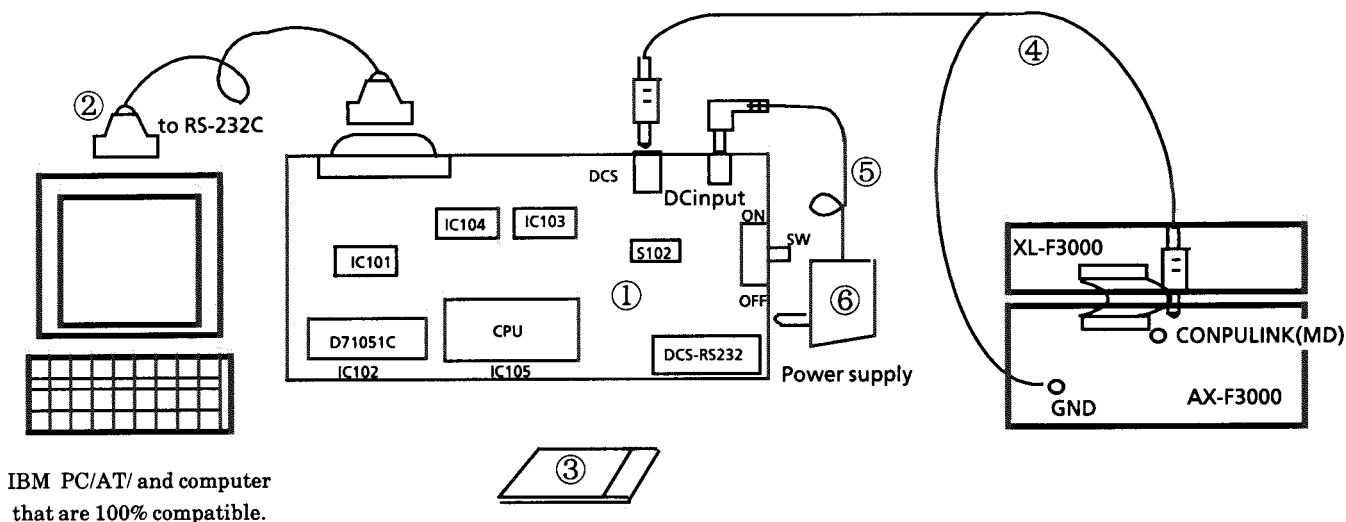
## Self-diagnosis for pickup

From DCS output, this model reads automatically adjusted data for CD so that the pickup can be judged defective or not. Following shows its details.

### 1. Necessary items

- ① DCS → 232C Converting board (No.EBSJ1022)
- ② 232C cord (straight)
- ③ Floppy disc for self-diagnosis (No.EBSJ1022)
- ④ DCS cord
- ⑤ Cord of Power supply (E407992-001)
- ⑥ Power supply DC 6.3V (AA-SV11J--America/Canada) (AA-SV11Bs--the UK)  
(AA-SV11G--Germany) (AA-SV11EF--Continental Europe) (AA-SV11U--the  
Other aria)
- ⑦ CD (without scratches or damage)

### 2. Connection



### 3. Procedure to use CD self-diagnosis jig by IBM PC

Two com pins are frequently adopted in recent IBM AT and its substitute RS232C port. This jig can also use both COM1 and COM2. DEFAULT is COM1. Indicate "2" to the option only for COM2.

When COM1 is used,...

I AUTO 01

When COM2 is used,...

I AUTO 02

[ NOTE ] Press ESC key to stop processing during the operation.

Contents of the attached floppy IBM self-diagnosis program VER.1.00 Execution file.  
(Mistake the conection/Mistake the polarity)

## 4. Judgment

To judge whether pickup is defective or not, firstly process of automatic adjustment is checked by automatic adjustment flag. And, the value(automatic adjustment value for focus gain) displayed on the screen is used for its final judgment.

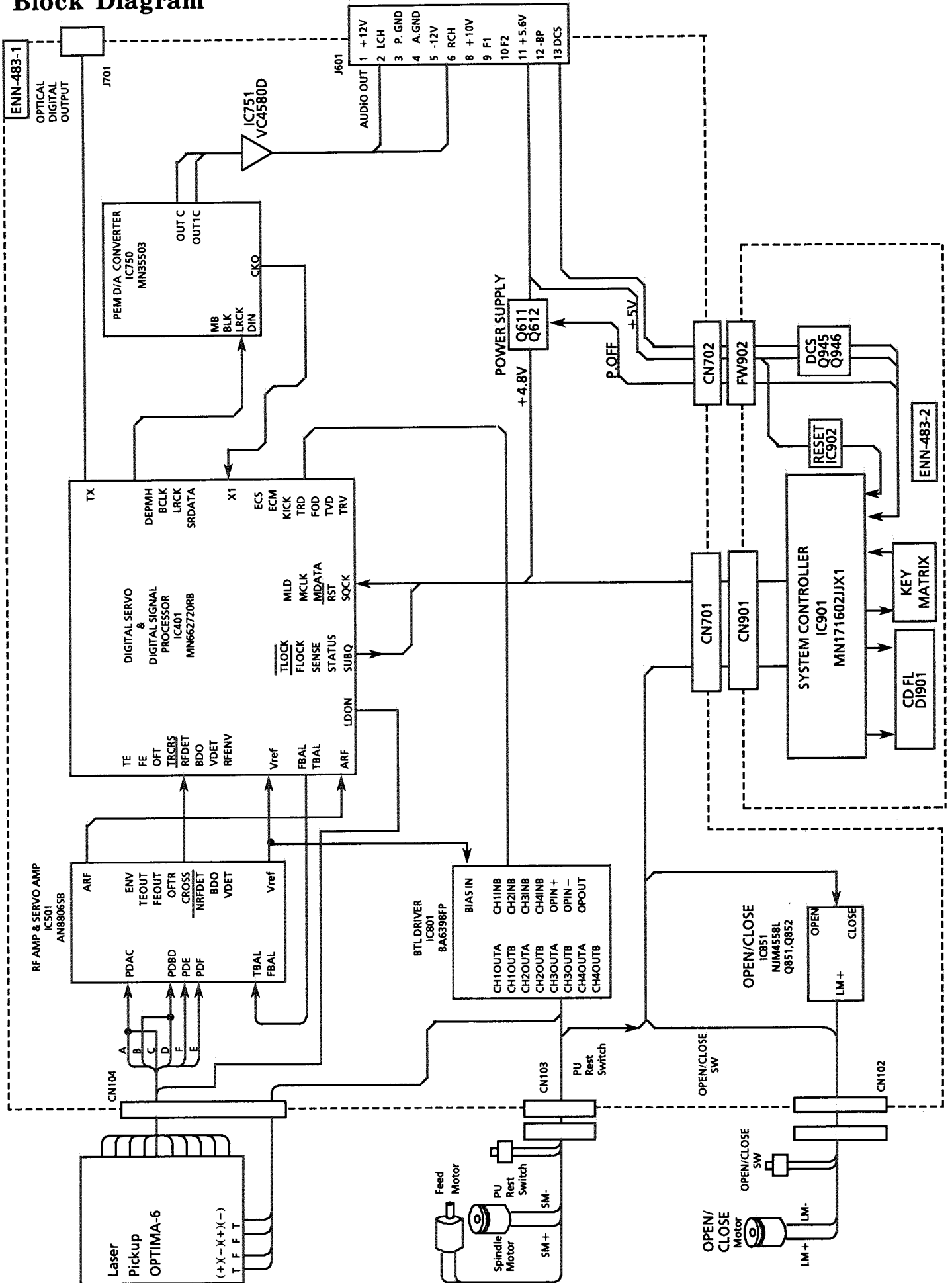
It is supposed that the pickup is defective or the signal path is faulty if the Flag 1 or Flag 0 indicates not "F" but a figure.

(See the following example.)

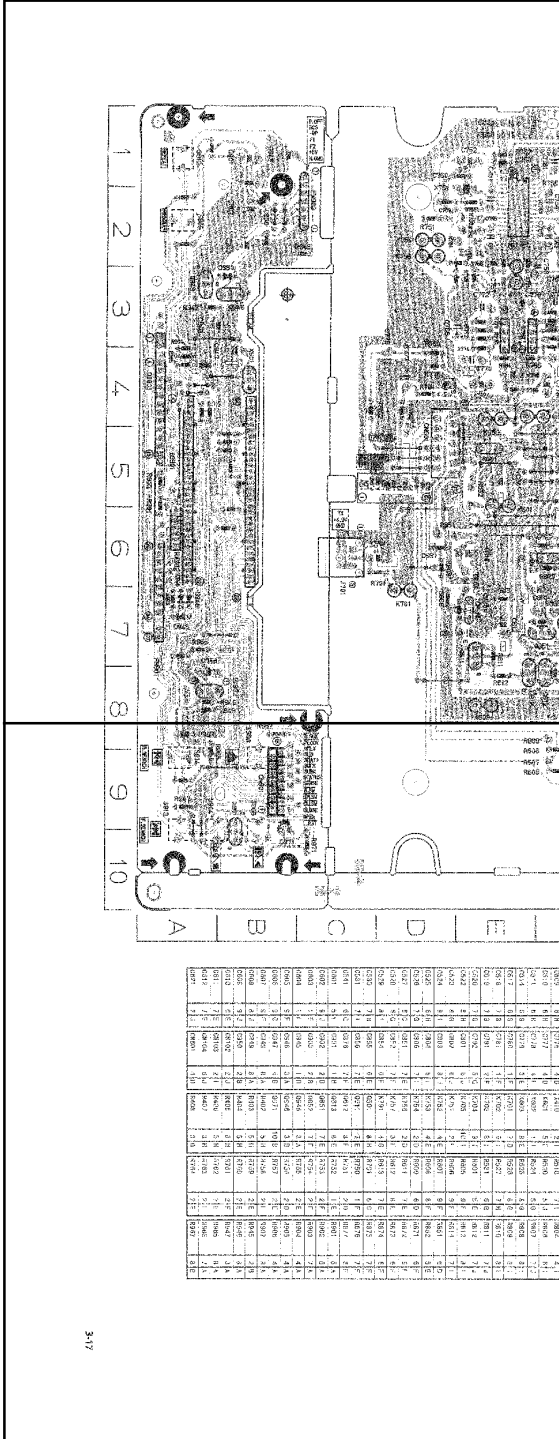
Flag 1	Flag 0	Details	Supposed cause
0	0	Automatic adjustment for tracking offset is failed.	The automatic adjustment is not completed. (Trouble in circuit.)
0	1	Automatic adjustment for focus offset is failed. (Disc does not rotate.)	The lens does not move. (Power supply is not turned on. Wire is cut.)
0	3	Automatic rough adjustment for focus gain is failed.	
0	7	Automatic rough adjustment for tracking gain is failed. (The focus and tracking gain are not locked though the disc rotates.)	Laser deterioration (low RF signal output). Offset beam.
0	F	Disc rotates, focus and tracking gain are locked and automatic rough adjustment for tracking gain is also completed though automatic adjustment for tracking balance is failed.	Laser deterioration (low RF signal output). Offset beam.
1	F	Automatic adjustment for focus balance is failed. (TOC is not read though the disc rotates.)	RF signal output is low. Tracking loop is not turned on. RF jitter is too much.
3	F	Automatic rough adjustment for focus gain is failed.	
7	F	Automatic rough adjustment for tracking gain is failed.	
F	F	All automatic adjustments are completed.	

The pickup is judged defective though the Flag 0 and Flag 1 indicate "F" and those adjustments are completed if the adjustment value exceeds 19dB.

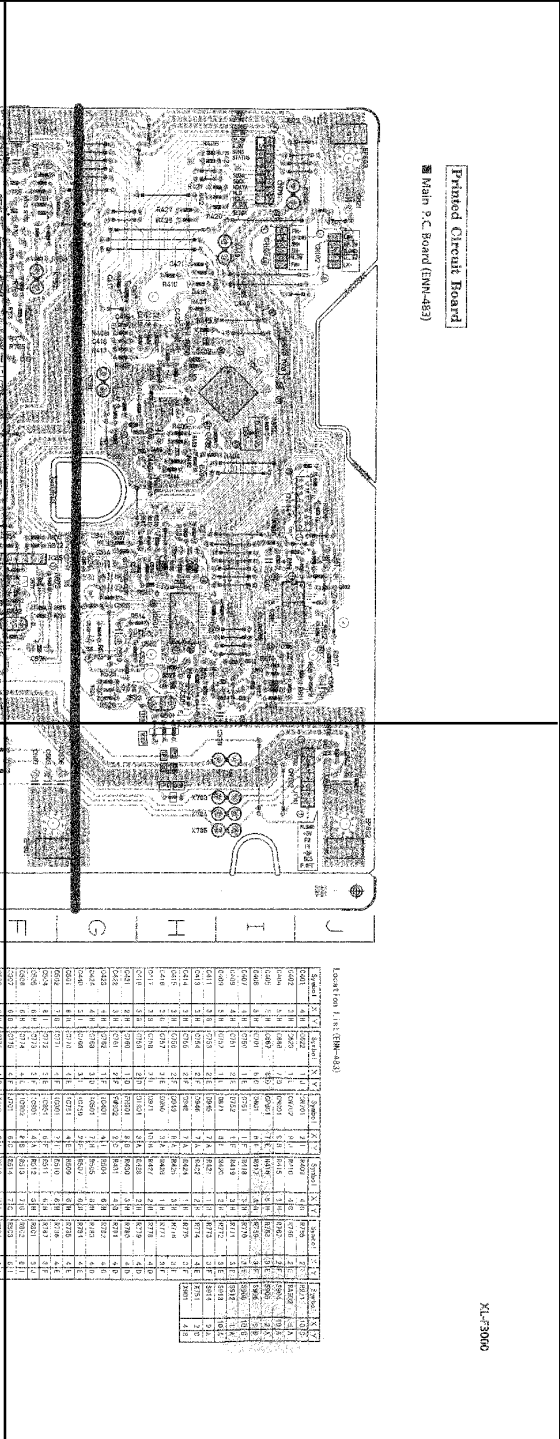
# Block Diagram



P3-17-a

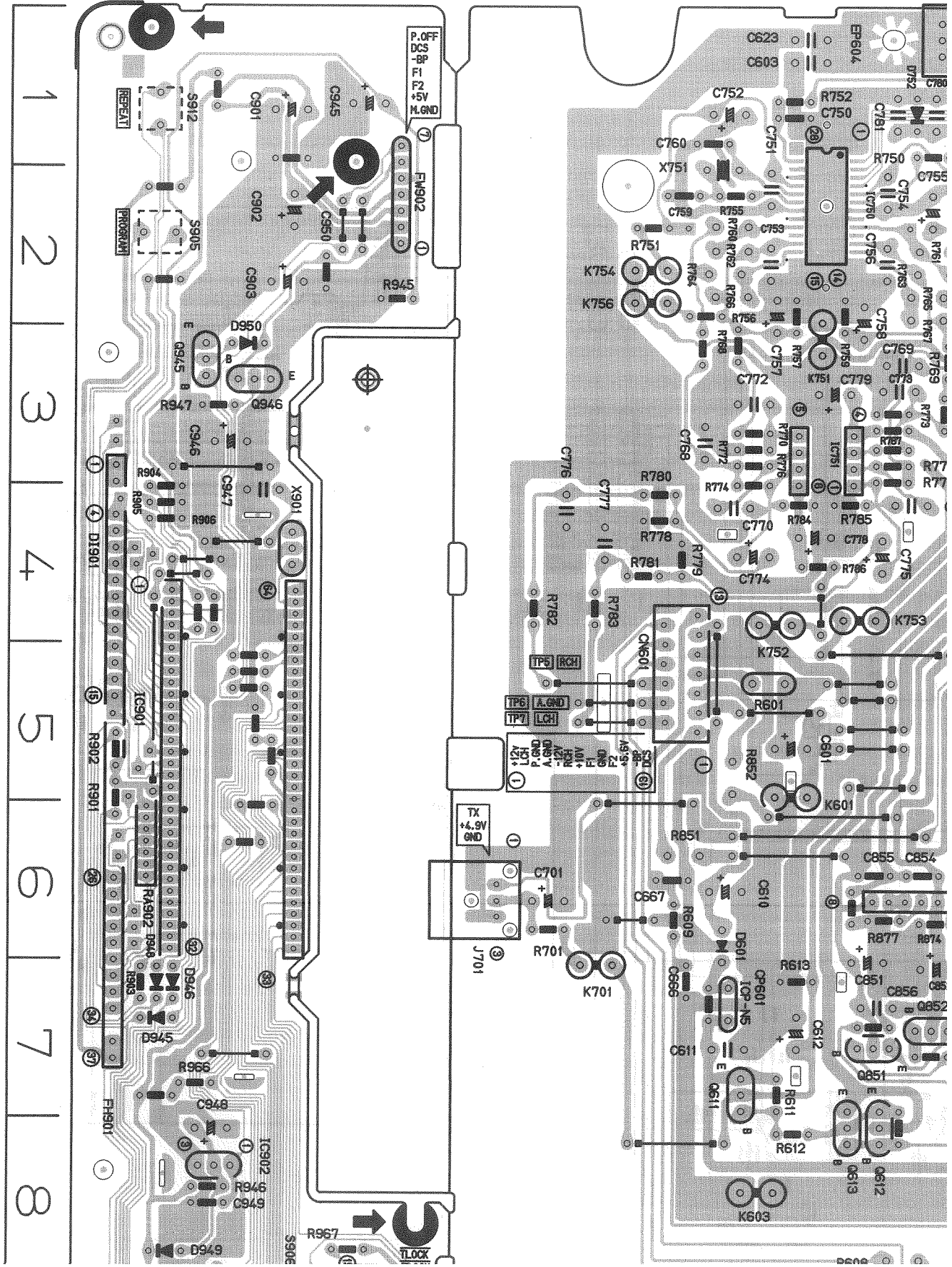


P3-17-b



P3-17-c

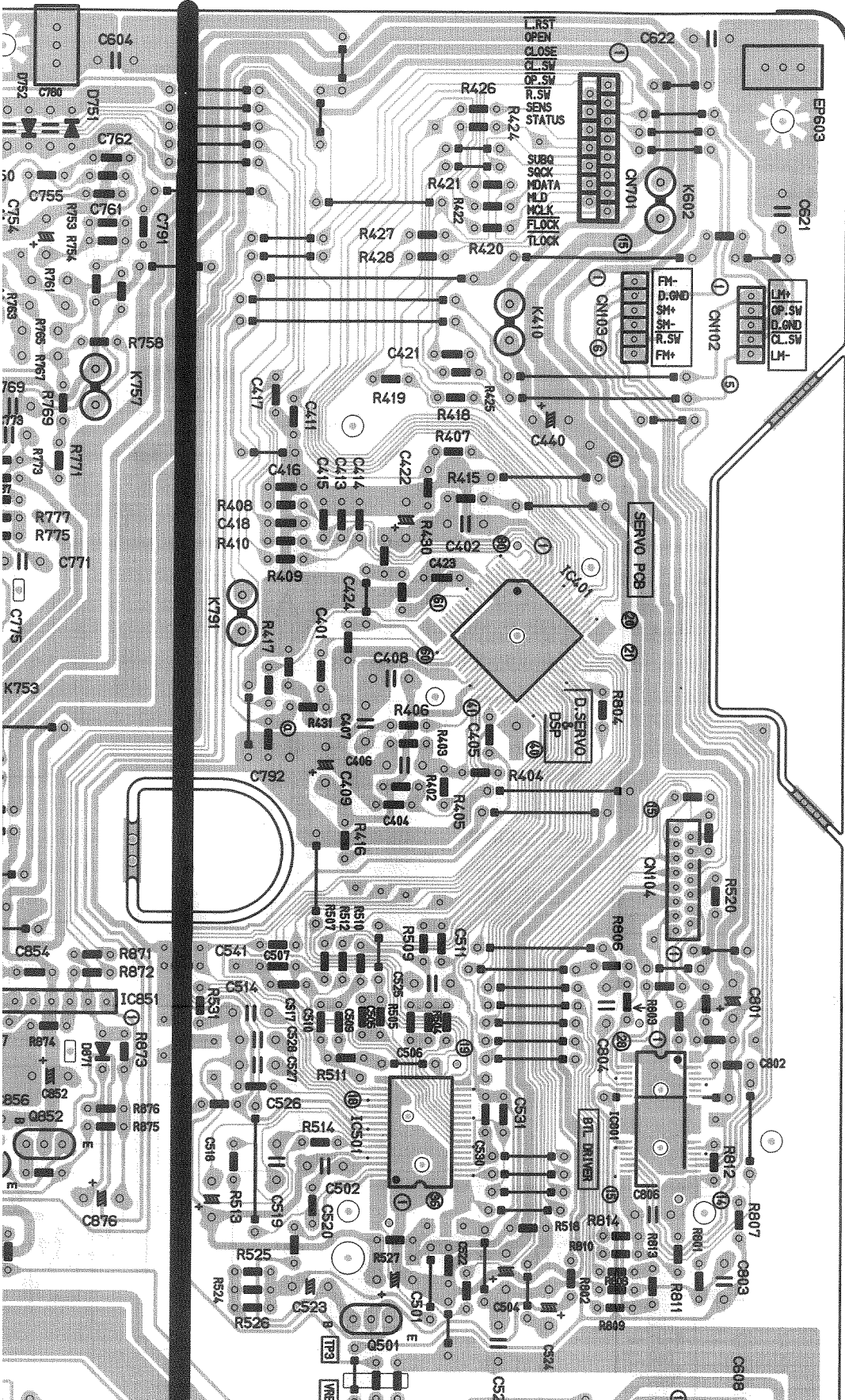
P3-17-d

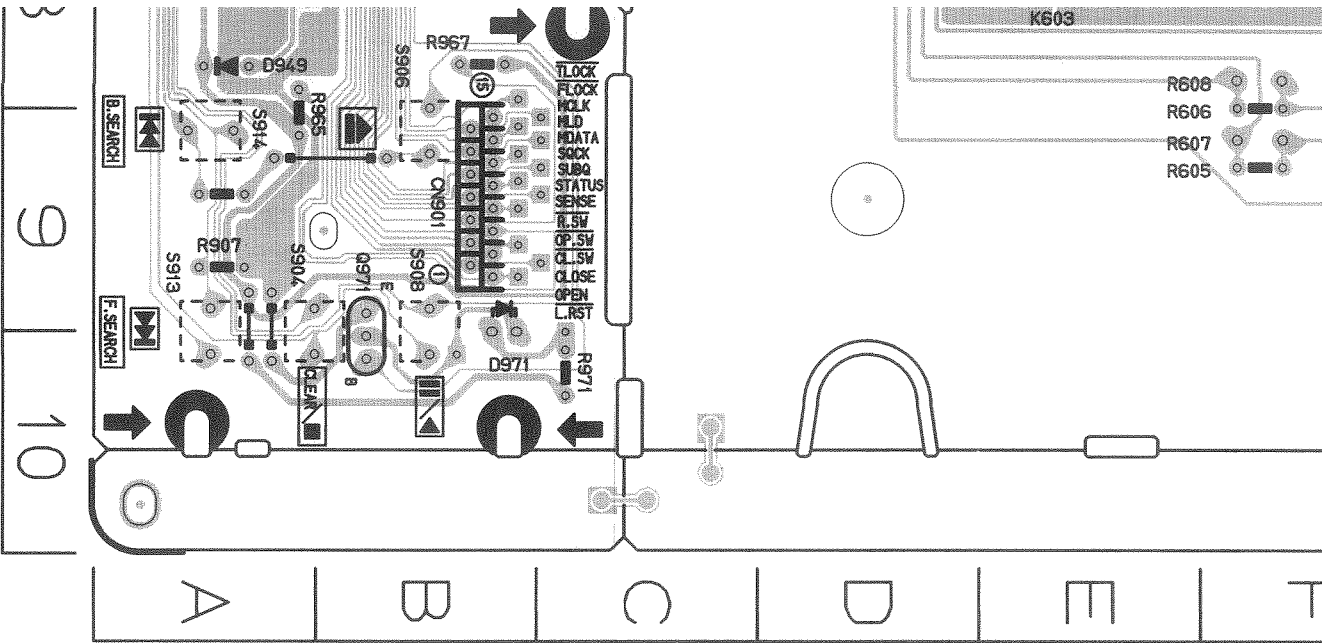




# Printed Circuit Board

■ Main P.C. Board (ENN-483)



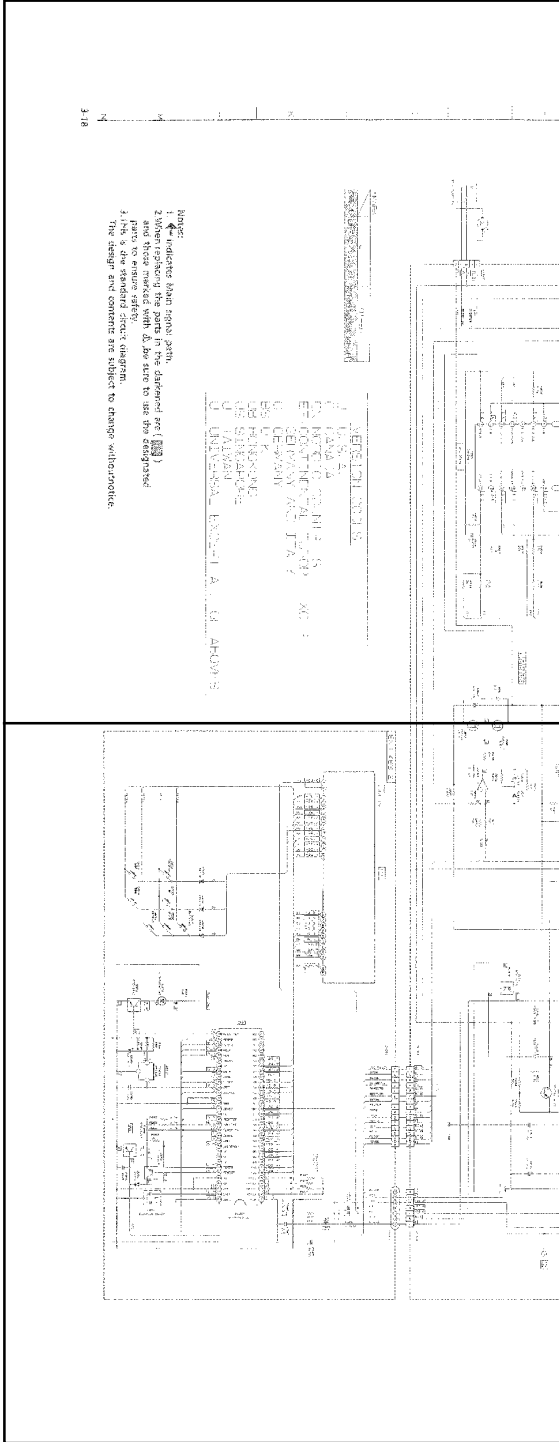


0607	6 G	C775	4 F	J701	6 C	R514	7 G	R803	6 I
0509	6 H	C776	4 D	K410	2 I	R518	7 I	R804	4 I
0510	6 H	C777	4 D	K601	5 E	R520	5 J	R806	6 I
0511	6 H	C778	4 E	K602	1 I	R524	8 G	R807	7 J
0514	6 G	C779	3 E	K603	8 E	R525	8 G	R808	8 I
0517	6 G	C780	1 F	K701	7 D	R526	8 G	R809	8 I
0518	7 G	C781	1 F	K702	9 I	R527	7 H	R810	8 I
0519	7 G	C791	2 F	K703	9 I	R531	6 G	R811	7 J
0520	7 G	C792	5 G	K704	9 I	R601	5 E	R812	7 J
0522	8 H	C801	6 J	K705	10 I	R605	9 F	R813	8 I
0523	8 G	C802	6 J	K751	2 E	R606	9 F	R814	7 I
0524	8 I	C803	8 J	K752	4 E	R607	9 F	R851	6 D
0525	6 H	C804	6 I	K753	4 E	R608	8 F	R852	5 E
0526	7 G	C806	7 I	K754	2 D	R609	6 D	R871	6 F
0527	6 G	C851	7 E	K756	2 D	R611	7 E	R872	6 F
0528	6 G	C852	7 F	K757	3 F	R612	8 E	R873	6 F
0529	8 I	C854	6 F	K791	4 G	R613	7 E	R874	6 F
0530	7 H	C855	6 E	0501	8 H	R701	6 C	R875	7 F
0531	7 I	C856	7 E	0611	7 E	R750	1 F	R876	7 F
0541	6 G	C876	7 F	0612	8 F	R751	2 D	R877	6 F
0601	5 E	C901	1 B	0613	8 E	R752	1 E	R901	5 A
0602	9 J	C902	2 B	0851	7 E	R753	2 F	R902	5 A
0603	1 E	C903	2 B	0852	7 F	R754	2 F	R903	7 A
0604	1 F	C945	1 B	0945	3 A	R755	2 E	R904	4 A
0605	9 F	C946	3 A	0946	3 B	R756	2 D	R905	4 A
0606	9 G	C947	4 B	0971	10 B	R757	2 E	R906	4 A
0607	9 F	C948	8 A	R402	5 H	R758	2 F	R907	9 A
0608	8 J	C949	8 A	R403	5 H	R759	2 E	R945	2 B
0609	9 J	C950	2 B	R404	5 H	R760	2 E	R946	8 A
0610	6 E	CN102	2 J	R405	5 H	R761	2 F	R947	3 A
0611	7 E	CN103	2 I	R406	5 H	R762	2 E	R965	8 A
0612	7 E	CN104	6 J	R407	3 H	R763	2 F	R966	7 A
0621	2 J	CN601	4 D	R408	3 G	R764	2 E	R967	8 B

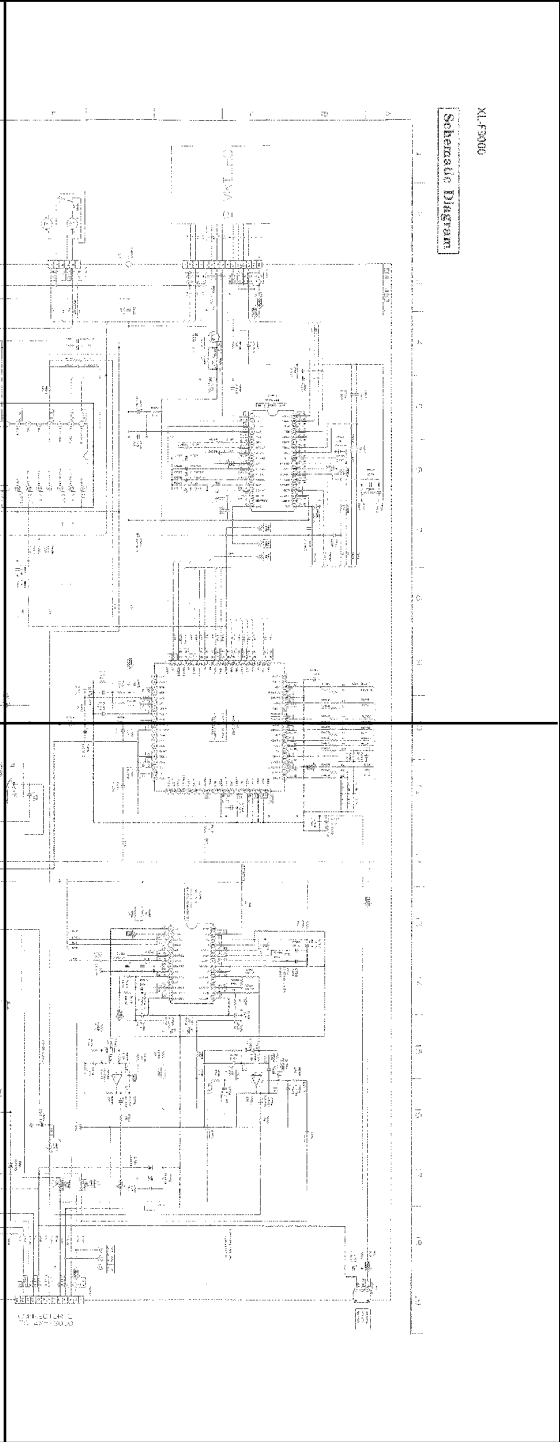




P3-18-a



P3-18-b

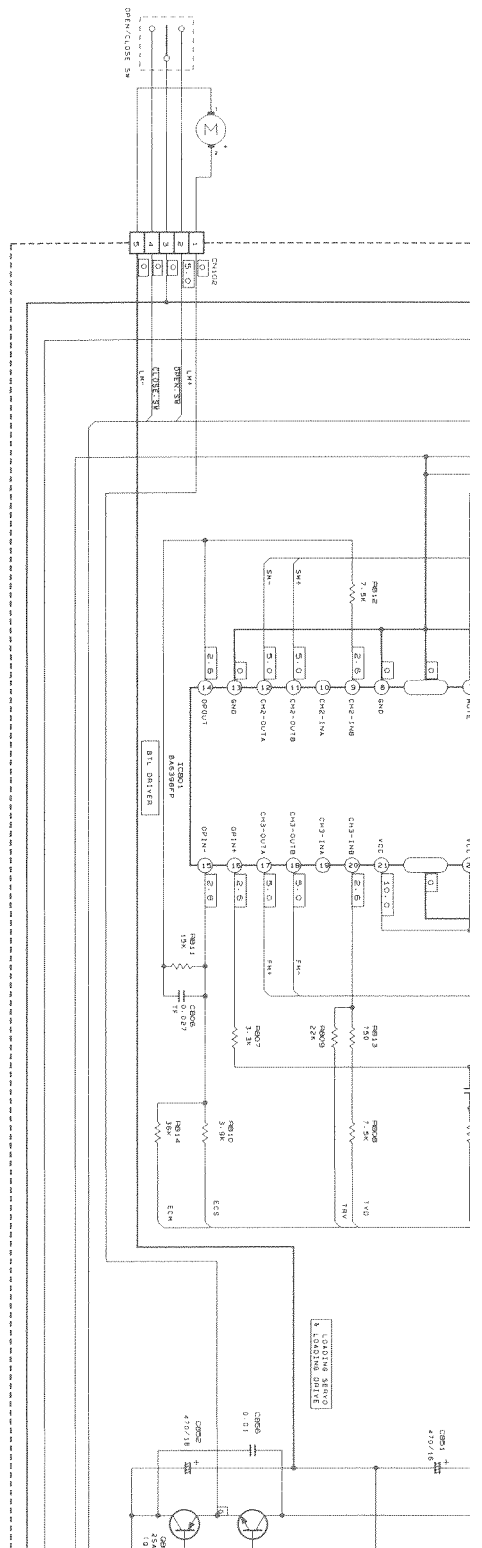


P3-18-c



P3-18-d



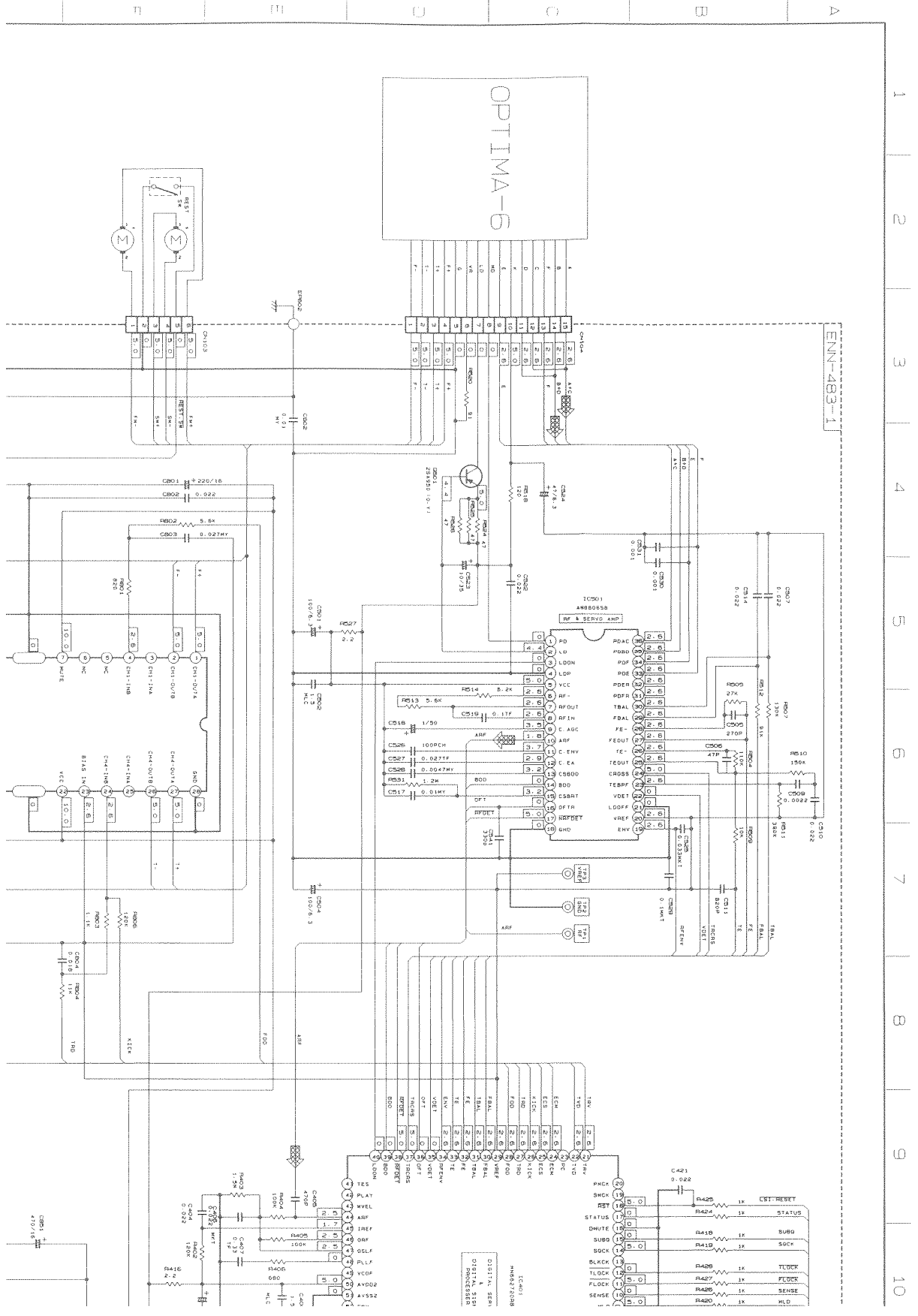


*MARK	J	OTHER
R801	UNF. C. (1/2W)	PTH61625AR4R7M

VERSION CODES	
J	: U.S.A.
C	: CANADA
EN	: NORDIC COUNTRIES
EF	: CONTINENTAL EUROPE EXCEPT GERMANY AND ITALY
G	: GERMANY
BS	: U.K.
UB	: HONGKONG
US	: SINGAPORE
UT	: TAIWAN
U	: UNIVERSAL EXCEPT ALL OF ABOVE

- Notes:
1. indicates Main signal path.
  2. When replacing the parts in the darkened are ( ) and those marked with , be sure to use the designated parts to ensure safety.
  3. This is the standard circuit diagram. The design and contents are subject to change without notice.

Schematic Diagram











# TD-F3000

## Contents

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# Description of Major LSIs

■ HD614081SE39 (IC203) : Deck controller

## Terminal Layout

NR LED	1	64	A.FWD. LED
NR LED(C)	2	63	A. REV. LED
A SPEED UP	3	62	B FWD. LED
B SPEED UP	4	61	B.REV. LED
MUSIC IN	5	60	REC LED
B.FWD.REEL MOTOR	6	59	REV. MODE
B.REV.REEL MOTOR	7	58	BIAS
B REV CAM MOTOR	8	57	NR OFF
B FWD CAM MOTOR	9	56	REC MUTE
A CAM SW-2	10	55	DCS IN
A CAM SW-1	11	54	DCS OUT
A CAM SW-0	12	53	GND
A PULSE IN	13	52	4.19MHzOSC IN
B CAM SW-2	14	51	4.19MHzOSC IN
B CAM SW-1	15	50	TO VCC
B CAM SW-0	16	49	RESET IN
B PULSE IN	17	48	KEY&SW IN-4
POWER OFF IN	18	47	KEY&SW IN-3
GND	19	46	KEY&SW IN-2
A FWD REEL MOTOR	20	45	KEY&SW IN-1
A REV REEL MOTOR	21	44	KEY OUT-4
A REV CAM MOTOR	22	43	KEY OUT-3
A FWD CAM MOTOR	23	42	KEY OUT-2
NR REC	24	41	KEY OUT-1
A MUTE	25	40	SWOUT-2
B MUTE	26	39	SWOUT-1
PLAY MUTE	27	38	HI-SPEED DUBBING
CAP.MOTOR ON	28	37	H.S.CrO2
REC	29	36	H.S. ME
FADE CTRL.	30	35	H.S.NORM.
BEQ	31	34	CrO2
+5V	32	33	METAL

## Key matrix

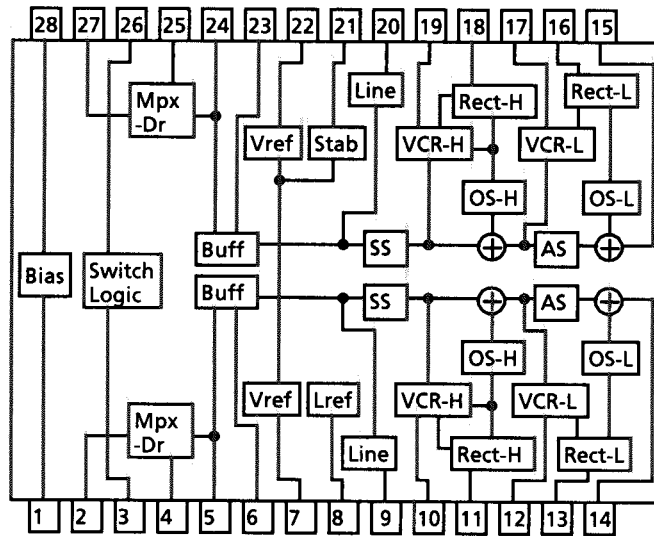
	KEY&SW-1 (PIN45)	KEY&SW-2 (PIN46)	KEY&SW-3 (PIN47)	KEY&SW-4 (PIN48)
KEY OUT 1 (PIN41)	A ◀ (S300)	A ◀◀ (S301)	A ▶▶ (S302)	A ▶ (S303)
KEY OUT 2 (PIN42)	B ◀ (S310)	B ◀◀ (S311)	B ▶▶ (S312)	B ▶ (S313)
KEY OUT 3 (PIN43)	A ■ (S320)	B ■ (S321)	REC PAUSE (S322)	—
KEY OUT 4 (PIN44)	A▶▶B (S330)	DOLBY (S331)	REV. MODE (S332)	CD REC (S333)
SW OUT 1 (PIN39)	—	B CrO2	METAL	—
SW OUT 2 (PIN40)	B PACK	REV REC	FWD REC	A PACK

## Terminal Description

Pin NO.	Symbol	I/O	Function	Pin NO.	Symbol	I/O	Function
1	NR LED	O	Dolby B indicator signal output	33	METAL	O	Metal tape , normal speed record
2	NR LED(C)	O	Dolby C indicator signal output	34	CrO <sub>2</sub>	O	CrO <sub>2</sub> tape , normal speed record
3	A S UP	O	Reel speed up control (Deck A)	35	HS NORM	O	Not used
4	B S UP	O	Reel speed up control (Deck B)	36	HS METAL	O	Metal tape , high speed record
5	MUSIC IN	I	Music scan signal input	37	HS CrO2	O	CrO2 tape , high speed record
6	B FRM	O	Reel control signal for forward (Deck B)	38	HI DUB	O	Not used
7	B RRM	O	Reel control signal for reverse (Deck B)	39	SW O1	O	Keypad output for leaf switch
8	B RCM	O	Cam control signal for reverse (Deck B)	40	SW O2	O	Keypad output for leaf switch
9	B FCM	O	Cam control signal for forward (Deck B)	41	KEY O1	O	Key matrix output
10	A CSW2	I	Cam data input	42	KEY O2	O	Key matrix output
11	A CSW1	I	Cam data input	43	KEY O3	O	Key matrix output
12	A CSW0	I	Cam data input	44	KEY O4	O	Key matrix output
13	A.PULS IN	I	Reel pulse input from deck A	45	KEY/SW 11	I	Key matrix input
14	B CSW2	I	Cam data input	46	KEY/SW 12	I	Key matrix input
15	B CSW1	I	Cam data input	47	KEY/SW 13	I	Key matrix input
16	B CSW0	I	Cam data input	48	KEY/SW 14	I	Key matrix input
17	B.PULSE IN	I	Reel pulse input from deck B	49	RESET	I	Reset input
18	P.CONT	I	Inhibit input from system controller	50	TO VCC	--	Connected to VCC
19	GND	--	GND	51	OSC	--	Oscillation terminal
20	A FRM	O	Reel control signal for forward (Deck A)	52	OSC	--	Oscillation terminal
21	A RRM	O	Reel control signal for reverse (Deck A)	53	GND	--	GND
22	A RCM	O	Cam control signal for reverse (Deck A)	54	DCS OUT	O	Compulink output
23	A FCM	O	Cam control signal for forward (Deck A)	55	DCS IN	I	Compulink input
24	NR REC	O	It is "H" when recording with NR on	56	REC MUTE	O	Recording mute control
25	A MUTE	O	It is "H" when deck A is not playing	57	NR OFF	O	NR on/off control
26	B MUTE	O	It is "H" when deck B is not playing	58	BIAS	O	Bias on/off control
27	PLAY MU	O	Deck mute	59	REV MODE	O	Indication control for reverse mode
28	CAP CONT	O	Capstan on/off control	60	REC LED	O	Indication control for record
29	REC	O	It is "H" when recording	61	BREV LED	O	Indication control for reverse playback
30	FADE CON	O	It is "H" when recording with fade	62	BFWD LED	O	Indication control for forward playback
31	BEQ	O	It is "L" when CrO2 tape is in deck B	63	AREV LED	O	Indication control for reverse playback
32	+5V	--	Power supply	64	AFWD LED	O	Indication control for forward playback

■ AN7374K (IC201) : Dolby IC

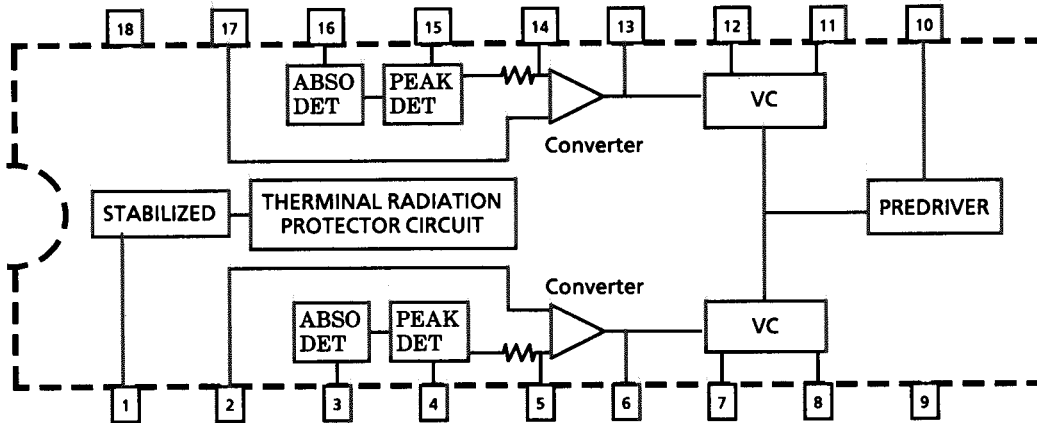
1. Block Diagram



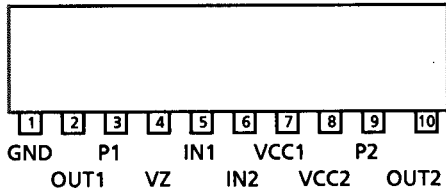
2. Pin function

Pin No	Symbol	Function	Pin No	Symbol	Function
1	GND	GND	15	REC OUT-L	Ch. B REC-OUT
2	REC IN-R	Ch. A REC-IN	16		Ch. B LLS control signal rectifier
3	OFF/B/C	C-type/B-type/OFF NR switch	17		Ch. B LLS control resistance
4	PB IN-R	Ch. A PB-IN	18		Ch. B HLS control signal rectifier
5		Ch. A MPX filter sriver output	19		Ch. B HLS control resistance
6		Ch. A Processor input	20	PB OUT-L	Ch. B LINE -OUT
7		Ch. A reference voltage output	21		Reference voltage input
8		Reference curent generator	22		Ch. B reference voltage output
9	PB OUT-R	Ch. A LINE -OUT	23		Ch. B Processor input
10		Ch. A HLS control resistance	24		Ch. B MPX filter sriver output
11		Ch. A HLS control signal rectifier	25	PB IN-L	Ch. B PB-IN
12		Ch. A LLS control resistance	26	PB/REC	PB/REC/PBmpx Mode switch
13		Ch. A LLS control signal rectifier	27	REC IN-L	Ch. B REC-IN
14	REC OUT-R	Ch. A REC-OUT	28	Vcc	Vcc

■  $\mu$ PC1297CA (IC341) : Dolby HX PRO System IC



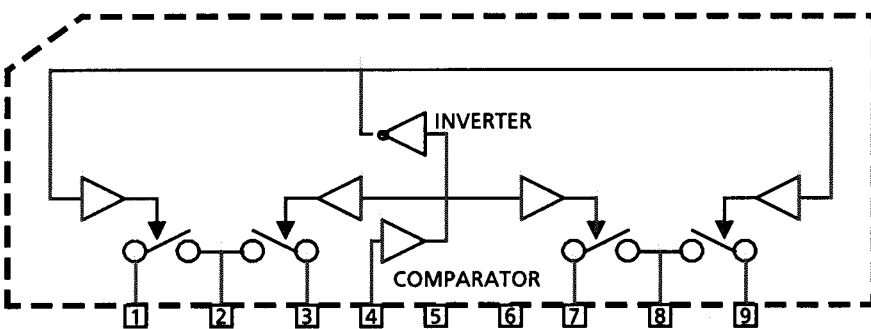
■ LB1641 (IC204~207) : DC Motor Driver



Input		Output		Mode
IN1	IN2	OUT1	OUT2	
0	0	0	0	Brake
1	0	1	0	CLOCKWISE
0	1	0	1	COUNTER-CLOCKWISE
1	1	0	0	Brake

$\infty$  : Hi impedance

■  $\mu$ PC1330 HA (IC304) : HEAD SWITCH

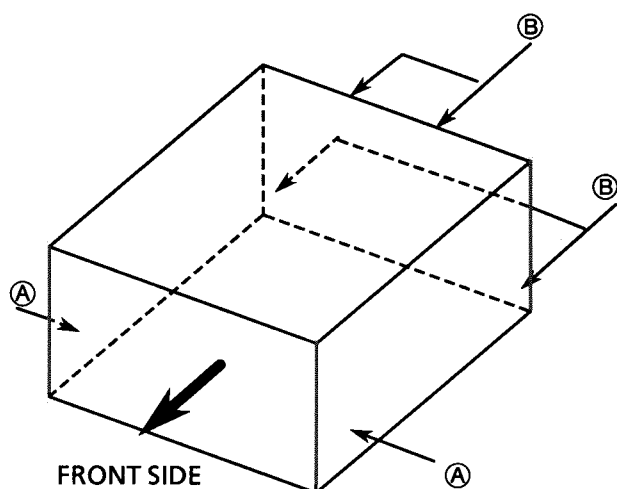


	4pin
PB	L
REC	H

## Disassembly Procedures

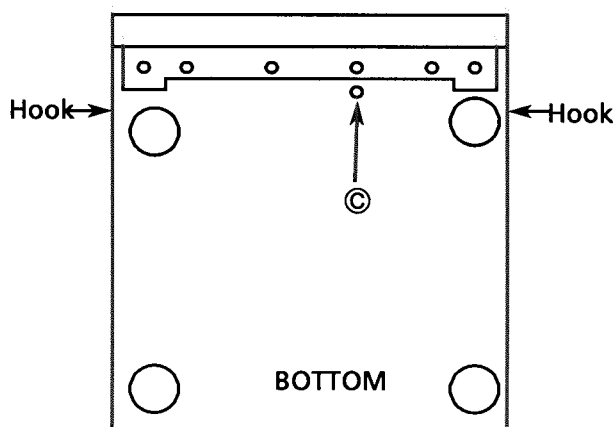
**(1) Removing the top cover**

1. Remove 6 screws (A) and (B) fastening the rear and sides of the top cover to remove the cover.



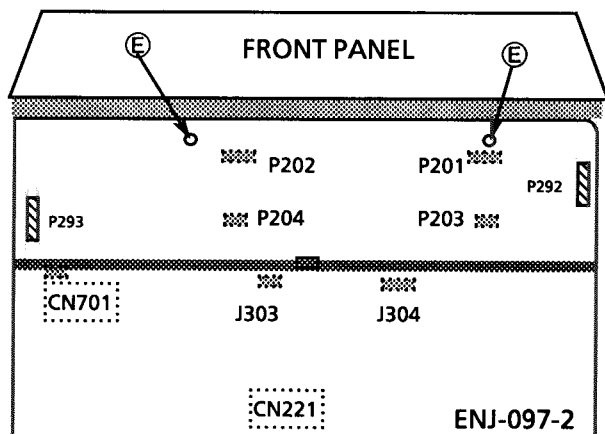
**(2) Removing the Front panel assembly with same P.C.Bard**

1. Remove the top cover.
3. Disconnect the connectors CN221.
4. Remove a screw (C) and 2 hooks fastening the assembly with chassis to remove the assembly.



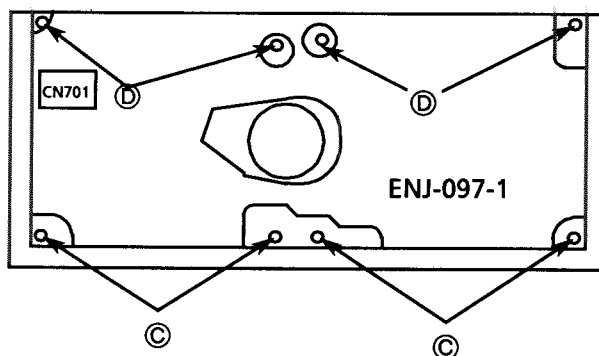
**(3) Removing the Deck control circuit board (ENJ-097-2)**

1. Remove the top cover.
2. Remove the 2 screws (E) fixing the circuit board.
3. Disconnect the connectors P292,293 and CN701.



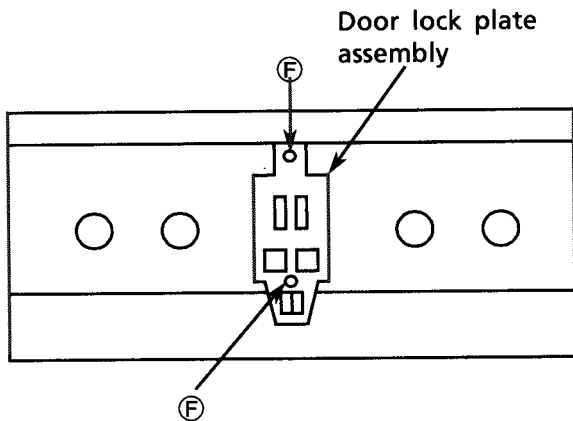
**(4) Removing the mechanism assembly (ENJ-097-1)**

1. Remove the top cover, frontpanel assembly and deck control circuit board.
2. Remove 8 screws (C) and (D) fastening mechanism assembly

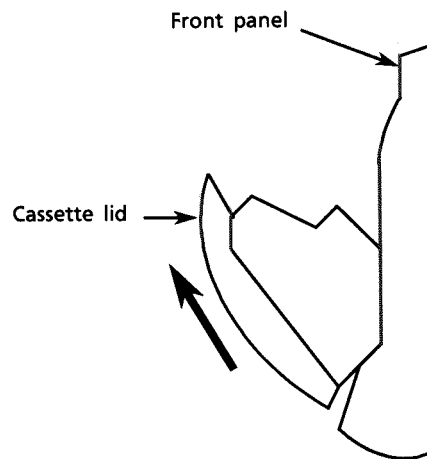


- (A) .. SD5G3008N      (B) ... GBSG3008CC      (C) ... SBST3006Z      (D) ... SBSF3008Z  
 (E) .. SDST2604Z

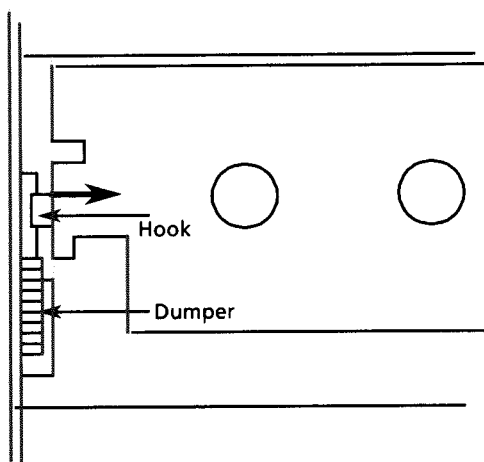
- (5) Removing the door lock plate assembly
1. Remove the mechanism assembly.
  2. Remove the 2 screws (F) fixing the assembly.
  3. Open the cassette doors to remove the assembly.



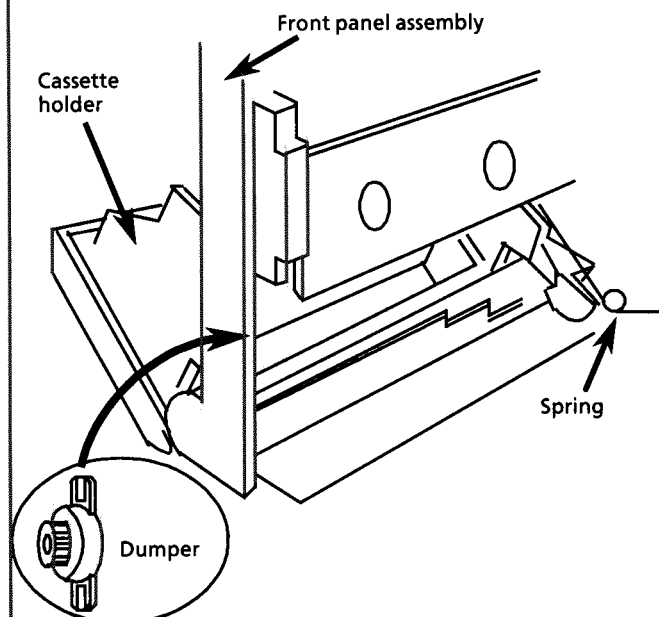
- (6) Removing the cassette lids
1. Push the eject button to open the cassette doors.
  2. Slide the lids up to remove them.



- (7) Removing the dumpers
1. Remove the mechanism assembly.
  2. Press the hook and release it to remove the dumper. (See an arrow)



- (8) Removing the Cassette holder
1. Remove the mechanism assembly.
  2. Open the cassette door.
  3. Remove the spring.
  4. Remove the cassette holder.



(F) .. SDSF2608Z