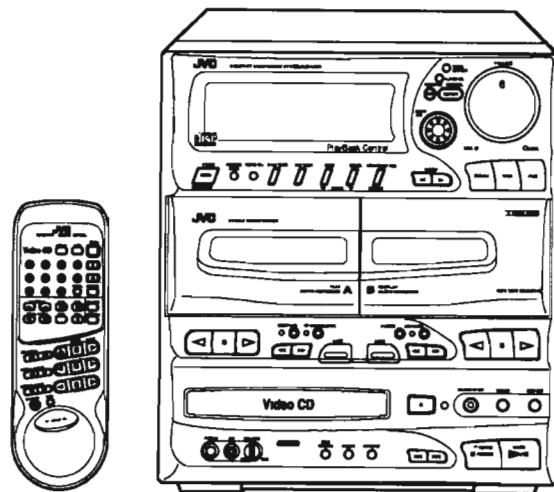


# JVC

# SERVICE MANUAL

## COMPACT COMPONENT SYSTEM

# CA-V800



PlayBack Control



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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 authorized in writing by the manufacturer. Replacement parts must be identical to those used in the original circuits. Services should be performed by qualified personnel only.
2. Alterations of the design or circuitry of the product should not be made. Any design alterations of the product should not be made. Any design alterations or additions will void the manufacturer's warranty and will further relieve the manufacture of responsibility for personal injury or property damage resulting therefrom.
3. Many electrical and mechanical parts in the products have special safety-related characteristics. These characteristics are often not evident from visual inspection nor can the protection afforded by them necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in the Parts List of Service Manual. Electrical components having such features are identified by shading on the schematics and by ( $\Delta$ ) on the Parts List in the Service Manual. The use of a substitute replacement which does not have the same safety characteristics as the recommended replacement parts shown in the Parts List of Service Manual 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.

### 5. Leakage current check (Electrical shock hazard testing)

After re-assembling the product, always perform an isolation check on the exposed metal parts of the product (antenna terminals, knobs, metal cabinet, screw heads, headphone jack, control shafts, etc.) to be sure the product is safe to operate without danger of electrical shock.

Do not use a line isolation transformer during this check.

- Plug the AC line cord directly into the AC outlet. Using a "Leakage Current Tester", measure the leakage current from each exposed metal parts of the cabinet, particularly any exposed metal part having a return path to the chassis, to a known good earth ground. Any leakage current must not exceed 0.5mA AC (r.m.s.).

#### ● Alternate check method

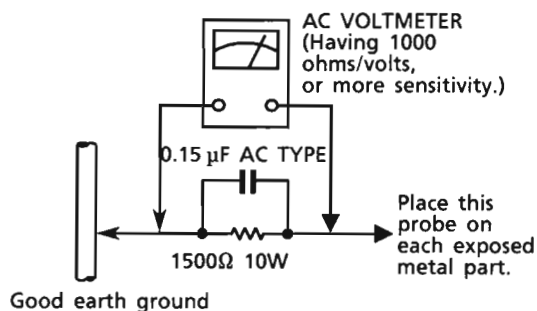
Plug the AC line cord directly into the AC outlet. Use an AC voltmeter having, 1,000 ohms per volt or more sensitivity in the following manner. Connect a 1,500 $\Omega$  10 W resistor paralleled by a 0.15  $\mu$ F AC-type capacitor between an exposed metal part and a known good earth ground.

Measure the AC voltage across the resistor with the AC voltmeter.

Move the resistor connection to each exposed metal part, particularly any exposed metal part having a return path to the chassis, and measure the AC voltage across the resistor.

Now, reverse the plug in the AC outlet and repeat each measurement. Any voltage measured must not exceed 0.75 V AC (r.m.s.).

This corresponds to 0.5 mA AC (r.m.s.).



## Warning

1. This equipment has been designed and manufactured to meet international safety standards.
2. It is the legal responsibility of the repairer to ensure that these safety standards are maintained.
3. Repairs must be made in accordance with the relevant safety standards.
4. It is essential that safety critical components are replaced by approved parts.
5. 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.

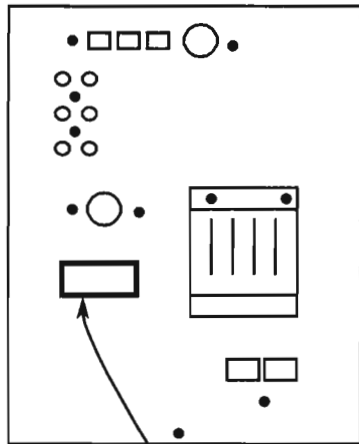
**WARNING** : Osynlig laserstrålning när denna del är öppnad och spärren är urkopplad. Betrakta ej strålen.

**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.

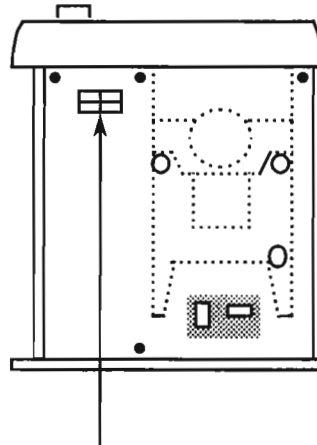
**ADVARSEL** : Usynlig laserstrålning ved åbning, når sikkerhedsbryteren er avslott. unngå utsettelse for stråling.

## REPRODUCTION AND POSITION OF LABELS



CLASS 1  
 LASER PRODUCT

**CLASSIFICATION LABEL**



**WARNING LABEL**

**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 stålen. (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)

## TECHNICAL EXPLANATION

### 1. What is video CD ?

Video CD makes it possible to playback digital moving picture and sound for maximumly 74 minutes on 12cm disc and it is expected to use them widely in future for Karaoke, cinema, music, education and so on.

Its Standard is based on the International Standard of MPEG1.

MPEG1 is abbreviation of Moving Picture Image Coding Experts Group which extensively standardizes the digital high efficiency (compression) and multiple method for audio and video data by experts in Electronics, Computer, Communications, Broadcast and so on.

This video CD was established on Mar. '93 by Philips and JVC and standardized based on "Karaoke CD" worldwide licensed.

The Karaoke CD has been already used for business in Japan.

### 2. Main features

- ① Adopting the technique of high efficiency coding for moving picture and sound data, this 12cm video CD can playback video screen in high quality and audio for 74minutes like CD-DA.
- ② Picture software can be converted to video CD by compression and editing.
- ③ CD-I player with the digital video expansion cartridge can reproduce the video disc.
- ④ Video CD can adopt every broadcasting measures in the world (NTSC, PAL and SECAM).
- ⑤ Video CDs are durable and easy to be handled and manufactured as same as previous CDs.

### 3. Outline of specification

[Basic] · Based on CD Bridge Standard.

· Physical format : Based on CD-ROM Format (Yellow Book)

· Video data : Based on MPEG1 (1/100 compression)

· Audio data : Based on MPEG1 Layer II  
(approx. 1/6 compression, sampling frequency 44.1kHz)

[Option] · Still picture : Standard level and highly accurate level

· Playback control : Playback function with control recorded on CD.

### 4. High efficiency coding

#### (1) What is this technique ?

Previous 12cm disc can not record data for more than 40 seconds because of a large amount of data resulted from digitalizing pictures, though, audio sound had already been digitalized.

The high efficiency coding made it possible to record those data on a disc by compressing and restore them at playback.

The high efficiency coding made it possible to record those data on a disc by compressing and restore them at playback.

This newly developed technique is not only for audio visual but also for Communications such as TV telephone and the basic to realize multimedia by processing letters, audio sound and picture by computer. Its International Standard is the MPEG.

## (2) Theory

One screen is divided into several blocks and the amount of picture data is calculated for each blocks to compress effectively.

- On one screen, the simpler the original picture, the larger the compression can be done. For example, a lot of blocks become entirely blue when the sky is pictured. And, this time the data is largely reduced.
- When the screen is moving, the difference between actual screen and the screen which change is predicted from the former one is picked up and transmitted. For example, only transmitting movement of an airplane can picture the flying plane over a mountain.

## 5. Difference between DV and video CD.

JVC has developed DV, that is, Standard for CD Moving Picture Karaoke and established and standardized with Philips on Mar. '93 to license Standard for CD Karaoke.

Four companies added Panasonic and Sony have established Standard for video CD and asked its adoption to hardware and software industries to cooperate its popularizing and promotion.

The video CD Standard is the one which the functions for playback control and still picture playback are added to CD Karaoke Standard.

The purpose of video CD is to apply the CD moving picture widely not only for Karaoke but also cinema, music, education and products introduction.

## 6. Resolution

[Basic]      · 30 frames / sec.    Resolution : 352×240 dot

[Still picture mode]      Highly accurate level:      Approx. 2,000times of (704×480)dot  
can be got.

Standard level : 352×240 dot

## 7. Playback control

Selecting the number displayed on the screen allows video playback in the order previously set by the video CD manufacturer.

Video is reproduced according to the address and its contents which are stored in PLAY, SELECTION and END inside PSD file recorded on the disc.

\* PSD ..... Play Sequence Descriptor

The PSD file has maximumly 512K and can store 32K lists in maximum.

As same as PSD file, LOT file which describes each list's starting address inside PSD file is recorded in video CD information for track 1. (See Fig.-1.)

\* LOT ..... List ID Offset Table

### 7-1 PLAY list

#### 1. Basic operation

Plural sequences are reproduced in the order which is described on the list.  
Maximumly, 255 sequences can be described.

#### 2. Applied operation

- Skip (NEXT, PREVIOUS, RETURN)
- Setting playback time
- Setting time to transmit sequence
- Automatic stop

### 7-2 Selection list

#### 1. Basic operation

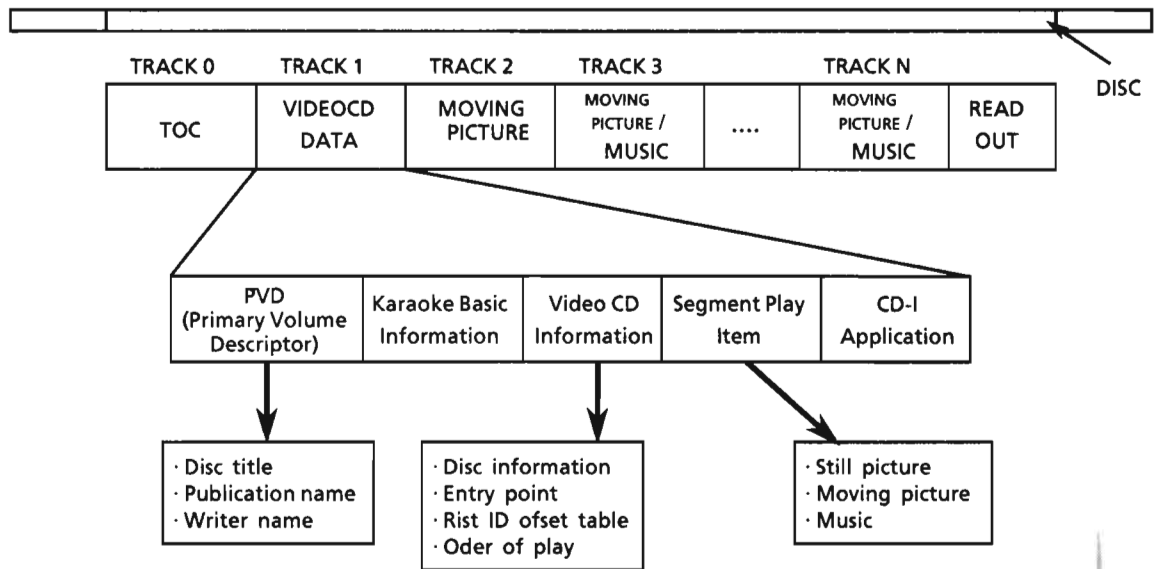
Corresponding address for PLAY list is described according to the selection number of still or moving picture's menu.

#### 2. Applied operation

- Switching menu (NEXT, PREVIOUS, RETURN, DEFAULT)
- Setting initial value for selecting item number
- Processing time out
- Repeated playback of sequence

### 7-3 End list

List to finish application's execution.



[ Figure1 ] Structure of video CD

- Data for still and moving pictures which are used for playback control function are solely recorded on track1.
  - For playback of storage media like video CD, trick mode is required such as fast forward, rewinding, intermediate playback, reversed playback since all data have been already prepared.
- GOP(Group of Pictures) structure was developed for video CD to realize those trick modes. 1 picture is not enough for completed information for video CD since coded picture data is based on its before and after data. Random access is possible by using GOP as a unit which data are gathered altogether for a few pictures. Sequence header is used for the random access's heading. That is, entry point in GOP units are prepared on some spots of MPEG bit stream. Generally, 1 GOP is pictures for approx. 0.5sec.(15pictures). It prevents malfunction such as stopped picture caused by pause of each initial tracks after dividing a track. Entry points can be set after track2. Each track can set maximumly 99points and 500points can be set on one disc(100~599points). Entry points has similar role as CD index. Therefore, they are adopted for moving pictures in cinema.



English

# Specifications

**General**  
 Power requirement  
 AC 110/127/220/230-240 V<sub>~</sub>, adjustable with the voltage selector, 50/60 Hz  
 Power consumption  
 140 watts (at operation)  
 13 watts (at standby)  
 Dimensions (approx.)  
 245 x 270 x 302.5 mm (W/H/D)  
 (9<sup>11</sup>/<sub>16</sub> x 10<sup>11</sup>/<sub>16</sub> x 11<sup>13</sup>/<sub>16</sub> in.)  
 Mass (approx.)  
 6.3 kg (13.9 lbs)

**Supplied accessories**

- FM feeder antenna (1)
- AM loop antenna (1)
- Antenna adaptor (1)
- Remote control unit (1)
- Batteries R03(UM-4)/AAA(24F) (2)
- Video cord (1)
- AC plug adaptor (1)

Design and specifications are subject to change without notice.

**Amplifier**  
 Output Power (IEC 268-3/DIN)  
 30 watts per channel, min. RMS, both channels driven into 6 ohms at 1 kHz with no more than 0.9% total harmonic distortion.  
 Audio input sensitivity/impedance (at 1 kHz)  
 VCR IN 300 mV/50 kohms  
 AUX 300 mV/50 kohms  
 MIC 2.4 mV/10 kohms  
 Audio output level/impedance (at 1 kHz)  
 VCR OUT 150 mV/3 kohms  
 Video output level (at 1 Vp-p input)  
 VIDEO OUT 1 Vp-p  
 Speakers/Impedance  
 6 ohms

**Tuner**

FM tuning range  
 87.50 — 108.00 MHz  
 AM tuning range  
 531 — 1,602 kHz (at 9 kHz channel spacing)  
 530 — 1,600 kHz (at 10 kHz channel spacing)

**Cassette deck**

Frequency response  
 CxOs (type II): 30 — 16,000 Hz  
 Normal (type I): 30 — 15,000 Hz  
 Wow and flutter  
 0.09% (WRMS)/0.2% (DIN)

**CD player**

Wow and flutter  
 Unmeasurable  
 Available disc type  
 Audio CD, CD-G, video CD both with and without the PBC function



English

# Troubleshooting

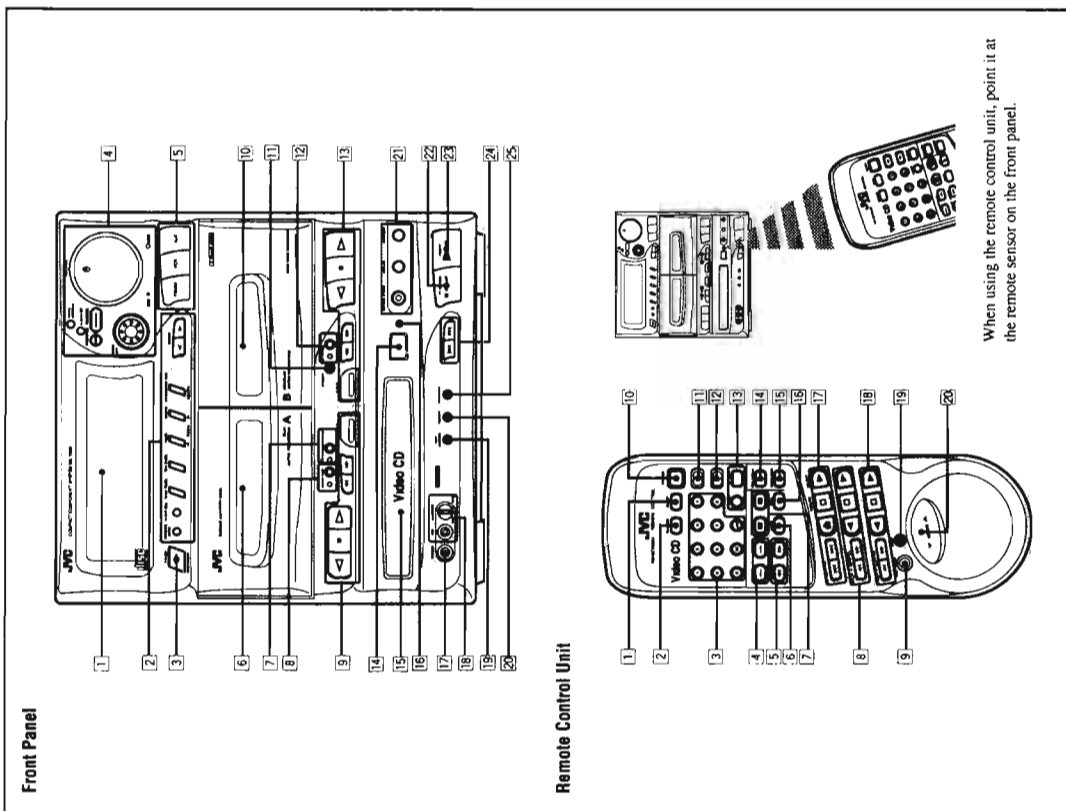
If you are having a problem with your unit, check this list for a possible solution calling for service. If you cannot solve the problem from the hints given here, or the unit has been physically damaged, call a qualified person, such as your dealer, for service.

Symptom	Cause	Action
No sound is heard.	Connections are incorrect or loose.	Check all connections and make corrections. (See pages 5 to 10).
Hard to listen to broadcasts because of noise.	<ul style="list-style-type: none"> <li>• Antennas are disconnected.</li> <li>• The AM loop antenna is too close to the unit.</li> <li>• The FM feeder antenna is not properly extended and positioned.</li> </ul>	<ul style="list-style-type: none"> <li>• Reconnect the antennas correctly and securely.</li> <li>• Change the position and direction of the AM loop antenna.</li> <li>• Extend the FM feeder antenna at the best position.</li> </ul>
The disc sound is discontinuous.	The disc is scratched or dirty.	Clean or replace the disc. (See page 36.)
The disc sound loses stereo effect.	The CD L-MONO mode is activated.	Press CD L-MONO on the remote control unit to restore the stereo effect.
The pictures from the CD player is distorted.	When you pause or advance the pictures manually, the pictures are distorted. This is not a malfunction.	_____
The disc tray does not open or close.	The AC power cord is not plugged in.	Plug the AC power cord.
The disc does not play.	The disc is placed upside down.	Place the disc with the label side up.
The cassette holders cannot be opened.	Power supply from the AC power cord has been cut off while the tape was running.	Turn on the unit.
Impossible to record.	Small taps on the back of the cassette are removed.	Cover the holes with adhesive tape.
Operations are disabled.	The built-in microprocessor may malfunction due to external electrical interference.	Unplug the AC power cord and then plug it back in.
Unable to operate the unit from the remote control unit.	<ul style="list-style-type: none"> <li>• The path between the remote control unit and the remote sensor on the unit is blocked.</li> <li>• The batteries are exhausted.</li> </ul>	<ul style="list-style-type: none"> <li>• Remove the obstruction.</li> <li>• Replace the batteries.</li> </ul>



# Location of the Buttons and Controls

Become familiar with the buttons and controls on your CA-V800.



See pages in the parentheses for details.

## Front Panel

### Amplifier section

- 1 Display
- 2 Tuner operating buttons (13 - 14)
- 3 Timer operating buttons (33 - 35)
- 4 POWER button and ON/STANDBY indicator (11)
- 5 Sound adjusting buttons (11 - 12, 29)
- 6 Source selecting buttons (FM/AM, VCR, AUX) (11, 13)

### Cassette deck section

- 6 Cassette holder for deck A (15 - 16)
- 7 REVERSE MODE button and indicator (15)
- 8 DOLBY B NR button and indicator (15, 25)
- 9 Deck A operating buttons (15 - 16)
- 10 Cassette holder for deck B (15 - 16, 25 - 26)
- 11 DUBBING button (26)
- 12 REC PAUSE button and indicator (25)
- 13 Deck B operating buttons (15 - 16, 25 - 26)

### CD player section

- 14  $\blacktriangle$  (open/close) button (17)
- 15 Disc tray (17)
- 16 Remote sensor
- 17 PHONES jack (11)
- 18 MIC jack and MIC LEVEL control (29 - 32)
- 19 CD-G CHANNEL button (30)
- 20 REPEAT button (24)
- 21 CD edit recording buttons (27 - 28)
- 22  $\blacksquare$  (stop)/CLEAR button (17)
- 23 RETURN button (18)
- 24  $\triangleright$ /II (play/pause) button (17)
- 25  $\ll$  (skip left/skip right) buttons (19)
- 26 PROGRAM button (23)

## Remote Control Unit

- 1 SLEEP button (35)
- 2 AUX/VCR button (11)
- 3 Number buttons\* (14, 19)
- 4 INDEX  $\dashv$  and  $\dashv$  buttons (19)
- 5 MANUAL SEARCH  $\ll$  and  $\gg$  (left/right) buttons (19)
- 6 SLOW button (22)
- 7 PREV  $\leftarrow$ /NEXT  $\rightarrow$  buttons (20)
- 8 DECK A CONTROL section (15 - 16)
  - $\triangleright$  (play rightward) button,  $\triangleleft$  (play leftward) button,  $\square$  (stop) button,  $\ll$  (fast left/fast right) buttons
- 9 REC PAUSE button (25)
- 10 POWER button (11)
- 11 FM button (13)
- 12 AM button (13)
- 13 PROGRAM and CANCEL (program cancel) buttons (23, 24)
- 14 CD L-MONO button (29 - 31)
- 15 SOUND MODE button (12)
- 16 STILL II button (22)
- 17 CD CONTROL section (17 - 20)
  - $\triangleright$  (play) button,  $\square$  (stop) button,  $\triangle$  (open/close) button,  $\ll$  (skip left/skip right) buttons
- 18 DECK B CONTROL section (15 - 16, 25 - 26)
  - $\triangleright$  (play rightward) button,  $\triangleleft$  (play leftward) button,  $\square$  (stop) button,  $\ll$  (fast left/fast right) buttons
- 19 ECHO button (29 - 31)
- 20 VOLUME button (11)

- To select preset channels using these buttons, press FM or AM first. To select disc tracks, press PROGRAM or the buttons on the CD CONTROL section first.

# Getting Started

English

## Unpacking

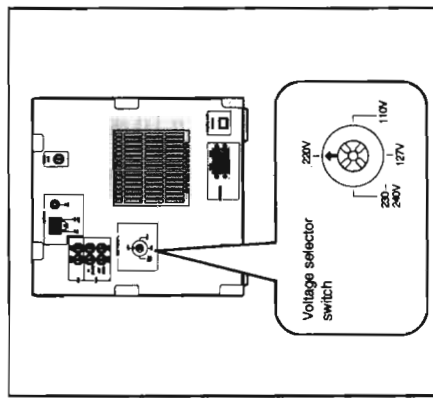
After unpacking, check to be sure that you have all the following items:

- AM loop antenna (1)
- FM feeder antenna (1)
- Antenna adaptor (1)
- Remote control unit (1)
- Batteries (2)
- Video cord (1)
- AC plug adaptor (1)

If any is missing, consult your dealer immediately.

## Adjusting the Voltage Selector Switch

Before plugging in the unit, set the correct voltage for your area with the voltage selector switch on the rear of the unit.



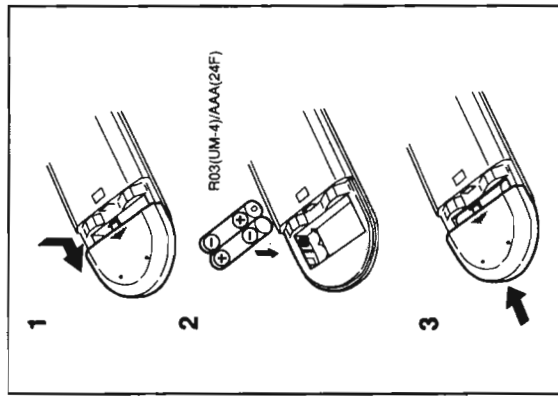
Use a screwdriver to rotate the voltage selector switch so the voltage number the arrow is pointing at is the same as the voltage where you are plugging in the unit.

- DO NOT plug in before setting the voltage selector switch on the rear of the unit and all connection procedures are complete.

## Putting the Batteries into the Remote Control Unit

Insert the batteries — R03(UM-4)/AAA(24F) — into the remote control unit, by matching the polarity (+ and -) on the batteries with the + and - markings on the battery compartment.

When the remote control unit can no longer operate the unit, replace all the batteries at the same time.

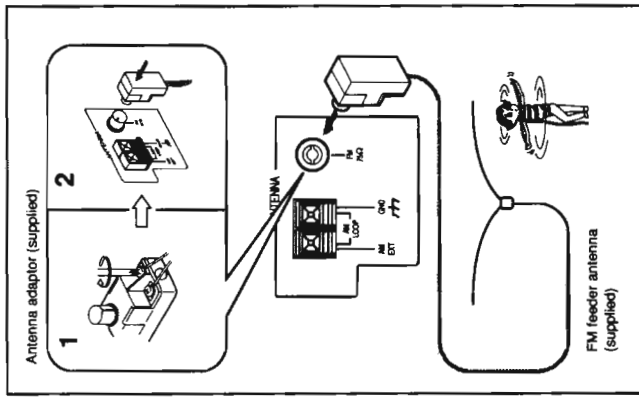


- DO NOT use an old battery together with a new one.
- DO NOT use different types of batteries together.
- DO NOT expose batteries to heat or flame.
- DO NOT leave the batteries in the battery compartment when you are not going to use the remote control unit for an extended period of time. Otherwise, it will be damaged from battery leakage.

Continued

## Connecting Antennas

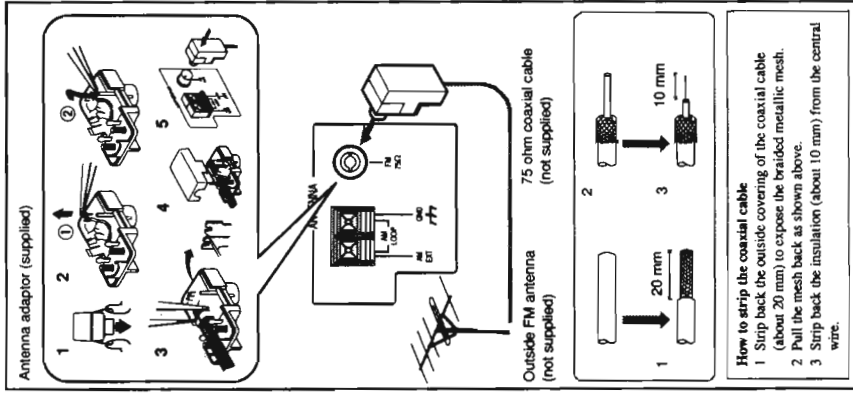
### FM antenna



- 1 Attach the FM feeder antenna to the antenna adaptor as illustrated above.
- 2 Connect the antenna adaptor to the FM 75 ohm terminal.
- 3 Unfold and extend the FM feeder antenna.
- 4 Fasten it up in the position which gives you the best reception.

### To connect an outside FM antenna

When reception is poor, you can connect an FM outside antenna (not supplied). Before connecting it, disconnect the FM feeder antenna.



- How to strip the coaxial cable**
- 1 Strip back the outside covering of the coaxial cable (about 20 mm) to expose the braided metallic mesh.
  - 2 Pull the mesh back as shown above.
  - 3 Strip back the insulation (about 10 mm) from the central wire.

(Continued)

Continued

- 4 Close the speaker terminal on the rear of the unit or just release your finger from the terminal on the speaker.

Use only speakers with the same speaker impedance as indicated by the speaker terminals on the rear of the unit.

**Connecting Other Equipment**

You can connect the following equipment to this unit:

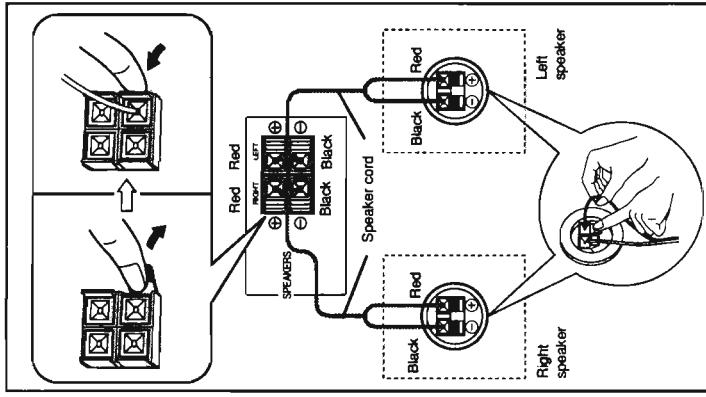
- TV with a video input jack — used as a monitor of VCR playback or video CD playback.
  - VCR — used as a sound playback and sound recording device.
  - Audio/video equipment such as a laser disc player — used only as a playback device.
  - Audio/video equipment with an optical digital input terminal — used only as a digital recording device.
- When you connect and use these equipment, refer also to the manuals supplied with them.

Be sure that the plugs of the audio/video cords and the jacks on the rear of the unit are color coded: White plugs are for left audio signals, and red ones for right audio signal, and yellow ones for video signals.

- DO NOT connect other equipment while power is on.
- DO NOT plug in all equipment until all connections are complete.

**Connecting Speakers**

You can connect the speakers using the speaker cords.



- 1 Remove the insulation at the end of each cord and twist the core of the cord.
- 2 Open the speaker terminal.
- 3 Insert the end of the speaker cord to the terminal. For each speaker, connect one end of the speaker cord to the speaker terminals on the rear of the unit and one end to the speaker. Match the polarity of the speaker terminals: Red (+) to red (+) and black (-) to black (-).

Continued

- 1 Connect the AM loop antenna to the AM LOOP terminals as illustrated.

- 2 Turn the AM loop antenna until you have the best reception.

**To connect an outside AM antenna**

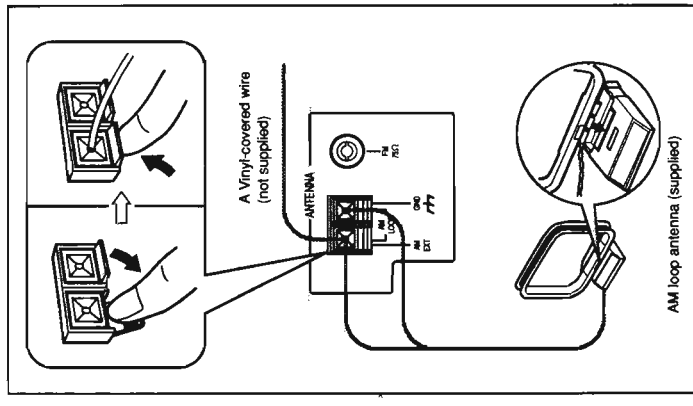
When reception is poor, connect a single vinyl-covered wire to the AM EXT terminal. (The AM loop antenna must remain connected.)



- For better reception of both FM and AM terminals and connecting cords.
- Make sure the antenna conductors do not touch any other terminals and connecting cords.
- Keep the antennas away from metallic parts of the unit, connecting cords, and the AC power cord.

- 1 Open the claws of the antenna adaptor (at both sides) and remove the cover.
- 2 Move the conductor wire from ① to ② using the tweezers or similar tool.
- 3 Fix the coaxial cable and its core in place. See "How to strip the coaxial cable" within the illustration before fixing it.
- 4 Connect the antenna adaptor to the FM 75 ohm terminal.

**AM antenna**



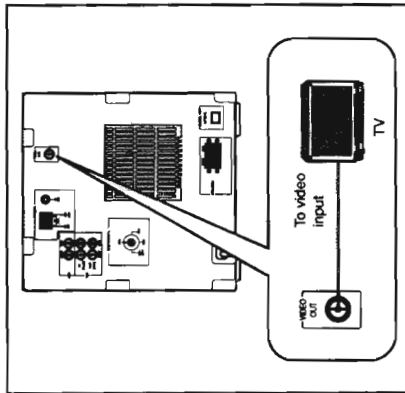
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English



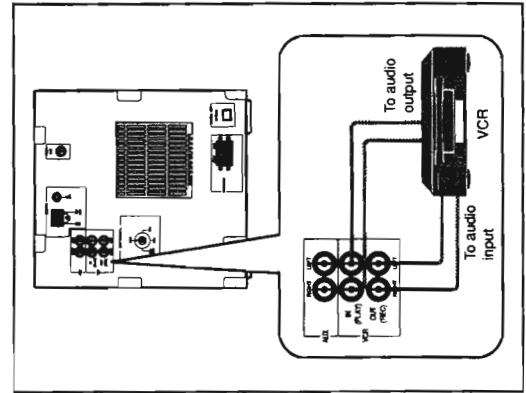
Continued

**To connect a TV**



Connect the video input jack on the TV and the VIDEO OUT jack, using the supplied video cord. To view a video CD, you need to connect an NTSC-compatible TV.

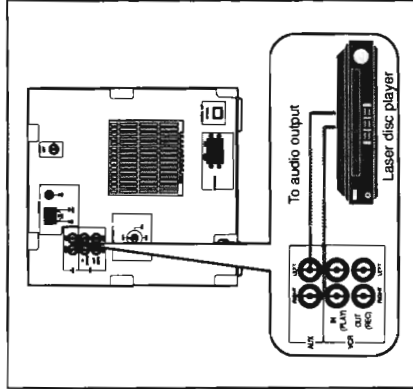
**To connect a VCR**



By using the audio cords (not supplied), connect:

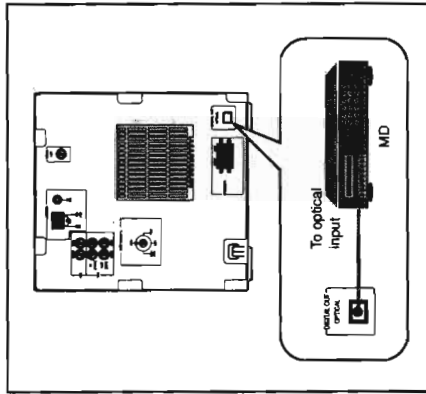
- Between the audio input jacks on the VCR and the VCR OUT (REC) jacks.
- Between the audio output jacks on the VCR and the VCR IN (PLAY) jacks.

**To connect audio/video equipment such as a laser disc player**



Connect the audio output jacks on the other equipment and the AUX jacks, using an audio cord (not supplied).

**To connect audio/video equipment with a digital optical input terminal**

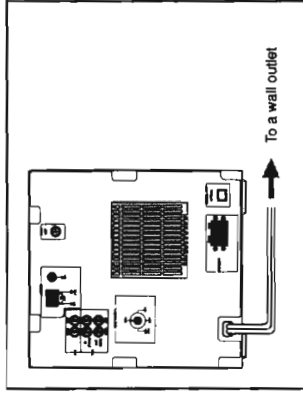


Before connecting the other equipment, remove the protective plug from the terminal. Connect the digital optical terminal on the other equipment and the DIGITAL OUT OPTICAL terminal, using a digital optical cord (not supplied).



Protective plug

NOW, you can plug in the unit and other connected equipment FINALLY.



If the wall outlet does not match the AC plug, use the supplied AC plug adaptor.

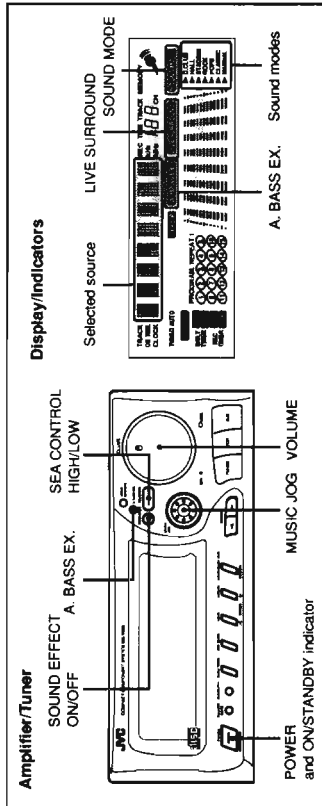


**When recording onto the MD through this terminal**

- You can record only audio signals of conventional CDs and CD-Gs through this terminal.
- It is not recommended to use the automatic marking function of the MD player since marking signal cannot be recorded correctly between recorded tracks. It is preferable to use manual marking while recording.

# Basic and Common Operations

Here are the basic and common things that apply to all the functions of the CA-V800.



## Turning Power and Selecting the Sources

When you press the play button for a particular source, the unit automatically turns on and starts playing the source.

To select the auxiliary equipment as the source, press VCR or AUX so that the unit automatically turns on.

When using the remote control unit, press AUX/VCR. Each time you press the button, the source alternates between AUX and VCR. (Pressing AUX/VCR cannot turn on the unit automatically.)

To turn on the unit without playing, press POWER so that the ON/STANDBY indicator turns off.

To turn off the unit, press POWER again so that the ON/STANDBY indicator lights red. A little power (1.3 watts) is always consumed even while the unit is in standby mode.

To switch off the power supply completely, unplug the AC power cord from the AC outlet.

**Notes** When you unplug the AC power cord or power failure occurs the clock is reset to 0:00 right away, while the tuner preset stations will be erased in a few days. See page 14 and 33.



## 2 Press SEA CONTROL HIGH/LOW.



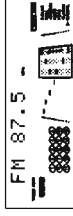
Turn MUSIC JOG to select the level of the lower frequencies (out of 6 preset levels).



Press SEA CONTROL HIGH/LOW again.



Turn MUSIC JOG to select the level of the higher frequencies (out of 6 preset levels).



Press SEA CONTROL HIGH/LOW for the third time, or wait for about 10 seconds. The sound mode you have created are stored in memory.

To use your own sound mode Select MANUAL when using the sound modes. See "Selecting the Sound Modes" above.



When you unplug the AC power cord or power failure occurs Your own sound mode will be erased.

## Selecting the Sound Modes

You can use only one mode at a time selecting from the Live Surround or SEA (Sound Effect Amplifier) modes both for playback and for recording.

To select the sound modes, turn MUSIC JOG until the sound mode you want appears in the display. The SOUND MODE indicator lights up. (When selecting one of the Live Surround modes, the LIVE SURROUND indicator also lights up.)

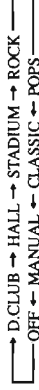
### Live Surround modes

- D.CLUB:** Increase resonance and bass. Enhance the mid-frequency range which human voice is mostly made up of, like in a concert hall.
- HALL:** Adds clarity and spreads the sound, like in an outdoor stadium.
- SEA effects**
- ROCK:** Gives a feeling of a live atmosphere. Good for acoustic music.
- CLASSIC:** Adds depth and brilliance to the sound.
- MANUAL:** Your individual mode stored in memory. See "Creating Your Own Sound Mode — MANUAL Mode" below.

To cancel the effect, press SOUND EFFECT ON/OFF. Each time you press the button the selected mode turns on and off alternately.

### When using the remote control unit

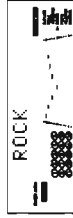
Press SOUND MODE repeatedly until the sound mode you want appears in the display. Each time you press the button, the modes change as follows:



## Creating Your Own Sound Mode — MANUAL Mode

You can create and store your own sound mode.

1 Turn MUSIC JOG until the sound mode you want to modify appears in the display.



## Adjusting the Volume

Turn VOLUME clockwise to increase the volume or counterclockwise to decrease it.

When using the remote control unit, press VOLUME ▲ to increase the volume or press VOLUME ▼ to decrease it.



For private listening Connect a pair of headphones to the PHONES jack. No sound comes out of the speakers. Be sure to turn down the volume before connecting or pulling headphones

DO NOT turn on the unit and/or start playing any source without setting VOLUME to MIN; otherwise, the sudden blast of sound can damage your hearing, speakers and/or headphones.

## Reinforcing the Bass Sound

The richness and fullness of the bass sound is maintained regardless of how low you set the volume. You can use this effect only for playback.

To get the effect, press A. BASS EX. (Active Bass Extension) so that the A. BASS EX. indicator lights up in the display.

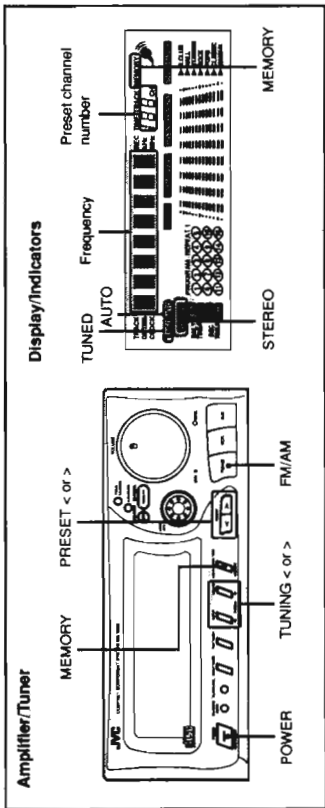
To cancel the effect, press the button again so that the indicator goes off.



# Listening to FM and AM Broadcasts

Before listening to FM and AM broadcasts, check the following:

- Both the FM and AM antennas are firmly connected.
- Check the AM tuner interval spacing (9 kHz or 10 kHz) for your area (see below).



## Setting the AM Tuner Interval Spacing

Some countries space AM stations 9 kHz apart, and some countries use 10 kHz spacing. When shipped, the built-in AM tuner is set to 9 kHz spacing.

To set the AM tuner to the 10 kHz spacing, be sure that the unit is turned off, but is plugged into a wall outlet. Hold down PRESET > and then press POWER. "10KHz-SP" appears in the display.

To set it back to the 9 kHz spacing, be sure that the unit is turned off, but is plugged into a wall outlet. Hold down PRESET < and then press POWER. "9KHz-SP" appears in the display.

## Tuning in a Station

**1 Press FM/AM.**  
The unit automatically turns on and tunes in the most recent station (either FM or AM). Each time you press the button, the band alternates between FM and AM.

**2 Press and hold TUNING < or >.**  
The unit starts searching stations and stops when a station of sufficient signal strength is tuned in. The TUNED indicator lights up in the display. If a program is broadcast in stereo, the STEREO indicator also lights up.

To stop during searching, press TUNING < or >.

## Presetting Stations

You can preset 10 stations each for FM and AM.

**1 Press FM/AM and TUNING < or > to tune in the station you want to preset.**  
See "Tuning in a Station" on the previous page.

**2 Press MEMORY.**  
The MEMORY indicator blinks for about 5 seconds.

**3 Press PRESET < or > to select a channel number while the MEMORY indicator is blinking in the display.**

**4 Press MEMORY again.**  
The MEMORY indicator goes off in the display.

## To erase the preset stations

Storing a new station on a used number erases the previously stored one.



When you unplug the AC power cord or power failure occurs, the preset stations will be erased in a few days. If this happens, preset the stations again.

## Tuning in a Preset Station

**1 Press FM/AM.**  
The unit automatically turns on and tunes in the most recent station (either FM or AM). Each time you press the button, the band alternates between FM and AM.

**2 Press and hold PRESET < or > until the channel number you want appears in the display.**



When you press PRESET < or > briefly and repeatedly, the preset station changes one by one.

## When using the remote control unit

You can select a preset station directly by specifying its channel number.

**1 Press FM or AM.**  
The unit automatically turns on and then:

- When you press FM, the most recent FM station is tuned in.
- When you press AM, the most recent AM station is tuned in.

**2 Press the number button (1 — 10) to select the channel number you want.**

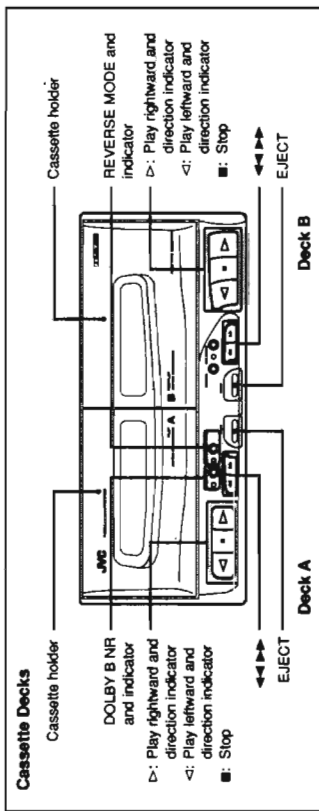


When you use the number buttons on the remote control unit, be sure that you have selected either FM or AM using the FM or AM button on the remote control unit. If you have selected it using the FM/AM button on the unit, you cannot specify the preset channel numbers by using the number buttons.

# Playing Back a Tape

English

You can play back type I, type II, and type IV tapes without changing any settings. However, before you start play, you need to check the type of the Dolby NR\* system used for the tape you play. Only the Dolby B NR is incorporated into this unit.



## Playing Back a Tape in Deck A or B

By pressing either ▷ or ◁ on either deck A or B, you can turn on the unit, and start playing back a tape if a tape is in the deck.

- 1 Press EJECT for the deck you want to use.
- 2 Put the cassette in, with the exposed part of the tape down.
- 3 Close the cassette holder gently.
- 4 Press ▷ or ◁.
  - ▷ : plays the front side.
  - ◁ : plays the reverse side.
 The direction indicator on the pressed button starts blinking and tape play starts. When the tape plays to the end, the deck automatically stops if the Reverse Mode is not on. (See "To play both sides repeatedly — Reverse Mode.")

To stop during play, press ■. To fast wind to the left or to the right, press ◀◀ or ▶▶ while the tape is not running. To remove the cassette, press EJECT.

**To play a tape recorded with the Dolby NR system**  
Press DOLBY B NR to activate the Dolby B NR system. The DOLBY B NR indicator lights red. The system works for both decks at the same time.

To cancel the Dolby NR system, press the button again so that the indicator turns off.

**To play both sides repeatedly — Reverse Mode**  
Press REVERSE MODE so that the REVERSE MODE indicator lights red. Reverse Mode works for both decks at the same time.

The tape automatically reverses at the end of a side and start playing the other side, and repeats the same process. To cancel Reverse Mode, press the button again so that the indicator turns off.

The use of the C-120 or thinner tape is not recommended, since characteristic deterioration may occur and this tape easily jams in the punch-rollers and the capstans.

\* Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation. "DOLBY" and the double-D symbol are trademarks of Dolby Laboratories Licensing Corporation.



English

## Playing Back Tapes in Deck A and B Continuously — Continuous Play

You can play tapes in deck A and B continuously.

- 1 Press EJECT for both decks.
- 2 Put the cassettes into both decks, with the exposed part of the tape down.
- 3 Close the cassette holders gently.
- 4 Press ▷ or ◁ on the deck you want to play first.
  - ▷ : plays the front side.
  - ◁ : play the reverse side.
 The direction indicator on the pressed button starts blinking and tape play starts. When a tape finishes playing, the unit checks to see if a tape is in the other deck. If one is there, it automatically starts playing it.

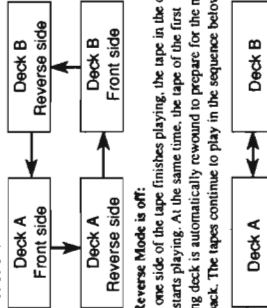
To stop during play, press ■ on the currently playing deck.



### How Continuous Play actually works

When Reverse Mode is on:

- After the reverse side of the tape finishes playing, the tape in the other deck starts playing. The tapes continue to play in the sequence below.



When Reverse Mode is off:

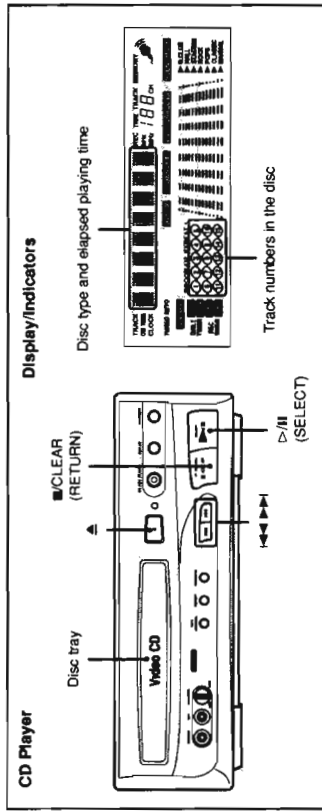
- After one side of the tape finishes playing, the tape in the other deck starts playing. At the same time, the tape of the first playing deck is automatically rewound to prepare for the next playback. The tapes continue to play in the sequence below.



# Playing Back a CD or a Video CD

English

You can play back video CDs, CD-Gs (both of the NTSC system) as well as conventional audio CDs. When you play back video CDs or CD-Gs, make sure that the color system of your TV is set to NTSC position or that you are using the NTSC TV.



Using the built-in CD player, you can play back the following discs.

<b>Video CD</b> 	Audio signals and video signals are recorded. You can play this disc as the same as you are playing a conventional audio CD. (Version 1.1)
<b>PlayBack Control</b>	If a video CD has the "PlayBack Control" mark (hereafter, called PBC), you can enjoy the playback of the disc using the menu display — you can select the scene you want to view on the menu display — and super fine still pictures. (Version 2.0)
<b>Conventional audio CD</b> 	Only audio signals are recorded.
<b>CD-G (CD Graphics)</b> 	Graphics are recorded in the area called sub-code area of the conventional audio CD. You can enjoy graphics as well as music recorded. However, the quality of the graphics is limited.

## Playing Back an Audio CD

You can play audio CDs using the CD player.

- 1 Press  $\blacktriangle$ .**  
The unit automatically turns on and disc tray comes out.
- 2 Place a disc correctly on the circle of the disc tray, with its label side up.**  
  
Good
- 3 Press  $\triangleright/\text{II}$  (or  $\triangleright$ ) on the CD CONTROL section on the remote control unit.**  
The disc tray closes.  
To stop during play, press  $\blacksquare$ /CLEAR. To stop play and remove the disc, press  $\blacktriangle$ .

Continued

English

## To play a video CD with the PBC function — Menu Play

With the PBC function of the disc, you can enjoy interactive playback of the disc using the menu displayed on the TV screen. Refer also to the instructions for the disc.

- 1 Turn on the TV and select the video input so that you can view the pictures from the CD player.**  
Refer also to the manual supplied for your TV.
- 2 Press  $\blacktriangle$ .**  
The unit automatically turns on and disc tray comes out.
- 3 Place a disc correctly on the circle of the disc tray, with its label side up.**
- 4 Press SELECT.**  
The disc tray closes.  
"VIDEO CD" and then "PBC" appears in the display. (For some discs, "PBC" will not appear soon after "VIDEO CD.")

## 5 When the menu appears on the TV screen, select the item you want by using the number buttons on the remote control unit.

When you want to use the number buttons on the remote control unit, make sure that you start playing a disc using the buttons on the remote control unit. Repeat this step, following the instructions displayed in the menu on the TV screen. See "Basic Operations for Menu Play" on page 20 for more details.

To stop Menu Play, select the item in the menu (such as "End" or "Quit") which can quit playback. If there is not such a selection, press and hold RETURN for more than 2 seconds.

To stop play and remove the disc, press  $\blacktriangle$ .

- notes** If you change the source from the CD player to others while TV is turned on
- When you select the cassette deck or other connected source, the CD player remains turned on. So, the blue screen will appear on the TV screen.
- When you select FM or AM, the CD player is turned off. So, the blue screen will not appear on the TV screen.

**notes** If you do not advance from the menu for about 10 minutes  
The CD player automatically stops, the menu disappears and the blue screen appears on the TV screen.

**notes** When you use an 8 cm (3-inch) CD  
Place it on the inner circle of the disc tray.

**notes** When you press  $\triangleright/\text{II}$  (or  $\triangleright$ ) on the remote control unit with no disc on the disc tray, "NO DISC" appears and the disc tray comes out.

## Playing Back a Video CD or CD-G

You can play video CDs either with or without the PBC function as well as CD-Gs.

### To play the Entire Disc — Continuous Play

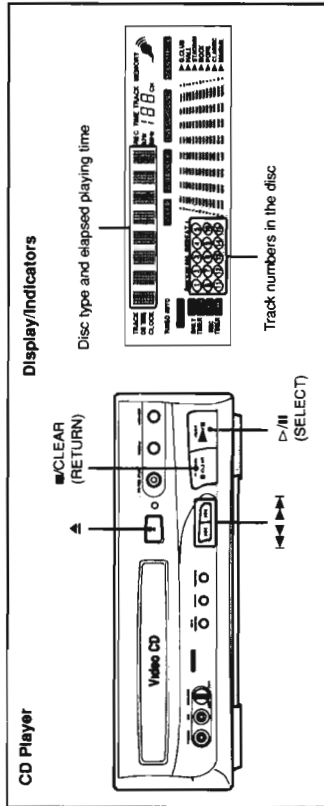
You can use the following procedures to play a video CD without the PBC function and a CD-G.

- 1 Turn on the TV and select the video input so that you can view the pictures from the CD player.**  
Refer also to the manual supplied for your TV.
- 2 Press  $\blacktriangle$ .**  
The unit automatically turns on and disc tray comes out.
- 3 Place a disc correctly on the circle of the disc tray, with its label side up.**
- 4 Press  $\triangleright/\text{II}$  (or  $\triangleright$ ) on the CD CONTROL section on the remote control unit.**  
The disc tray closes.
  - When you play a video CD, "VIDEO CD" appears in the display.
  - When you play a CD-G, "GRAPHICS" appears in the display.

To stop during play, press  $\blacksquare$ /CLEAR.

The blue screen appears on the TV screen.  
To stop play and remove the disc, press  $\blacktriangle$ .





**Basic Operations for Menu Play**

While playing a video CD with the PBC function using Menu Play, you can use the following operations. If you want to know more about the PBC function and Menu Play, see "Basic Concept of the PBC Function" on the next page.

**To select item numbers on the menu**

When you want to use the number buttons on the remote control unit, make sure that you start playing a disc using the buttons on the remote control unit. Press the number buttons on the remote control unit to select the menu item number you want. For example:

- To select the number 5, press 5.
- To select the number 15, press +10 then 5.
- To select the number 20, press +10, then 10.
- To select the number 32, press +10 three times, then 2.

**To view the unshown portion (continuation) of the menu**

If the menu has more items than it can show on the TV screen at one time, press NEXT (▶) on the remote control unit, so the remaining items are shown on the TV screen.

To view the previously shown portion of the menu, press PREVIOUS (◀) on the remote control unit.

**To go back to the previous menu**

Press RETURN.

**To locate a particular point in a track while viewing moving pictures**

Press and hold MANUAL SEARCH (◀◀) or (▶▶) on the remote control unit. When you do these operations, the picture on the TV screen may be distorted. MANUAL SEARCH (◀◀) : fast reverses the pictures. MANUAL SEARCH (▶▶) : fast forwards the pictures.

**To play a video CD with the PBC function in Continuous Play**

Even if a video CD has the PBC function, you can cancel the PBC function and play the disc in Continuous Play.

- 1 Turn on the TV and select the video input so that you can view the pictures from the CD player.**  
Refer also to the manual supplied for your TV.
- 2 Press ▲.**  
The unit automatically turns on and disc tray comes out.
- 3 Place a disc correctly on the circle of the disc tray, with its label side up.**
- 4 Press SELECT.**  
The disc tray closes. "VIDEO CD" and then "PBC" appears in the display. (For some discs, "PBC" will not appear soon after "VIDEO CD.")
- 5 Press and hold RETURN for more than 2 seconds until the blue screen appears on the TV screen.**
- 6 Press the number button of the track you want to start playing with.**  
For example, to start from the beginning, press 1.

**To stop during play and restore Menu Play, press and hold RETURN for more than 2 seconds until the blue screen appears on the TV screen.**

If you try to start playing again, the video CD plays in Menu Play this time.

**When you play back a video CD with the PBC function in Continuous Play**  
The pictures you can view in Continuous Play are different from those you can view in Menu Play.

**Basic Operations for Continuous Play**

While playing a CD, CD-G, and video CD without the PBC function, you can do the following operations. When you do these operations while playing a CD-G or video CD, the picture on the TV screen may be distorted.

**To stop play for a moment**

Press ▷/II once or STILL II on the remote control unit. When playing a CD-G or a video CD, you can view a still picture on the TV screen.

If you pause a CD-G or a video CD for about 5 minutes, the CD player automatically stops, the still picture disappears, and the blue screen appears on the TV screen.

**To resume play, press ▷/II again or ▷ on the CD CONTROL section on the remote control unit.**

**To go to another track**

Press ◀◀ or ▶▶ repeatedly.  
◀◀ : goes back to the current or previous tracks.  
▶▶ : skips to the next or succeeding tracks.  
You can use these buttons to select the first playing track before you start playing.

**When you can change the tracks continuously**  
Press and hold ◀◀ or ▶▶ on the remote control unit.

**To locate a particular point in a track**

Press and hold MANUAL SEARCH (◀◀) or (▶▶) on the remote control unit. MANUAL SEARCH (◀◀) : fast reverses the disc. MANUAL SEARCH (▶▶) : fast forwards the disc.

**When you can press INDEX (—) or — to locate a particular point if the disc has indexes recorded**  
An index is a pre-recorded mark to locate a particular point in a disc. If a disc has indexes recorded, it is mentioned on the printed surface of the disc or on the disc's package.

**To go to another track directly using the remote control unit**

When you want to use the number buttons on the remote control unit, make sure that you start playing a disc using the buttons on the remote control unit.

Press the number buttons on the remote control unit to select the track number you want.

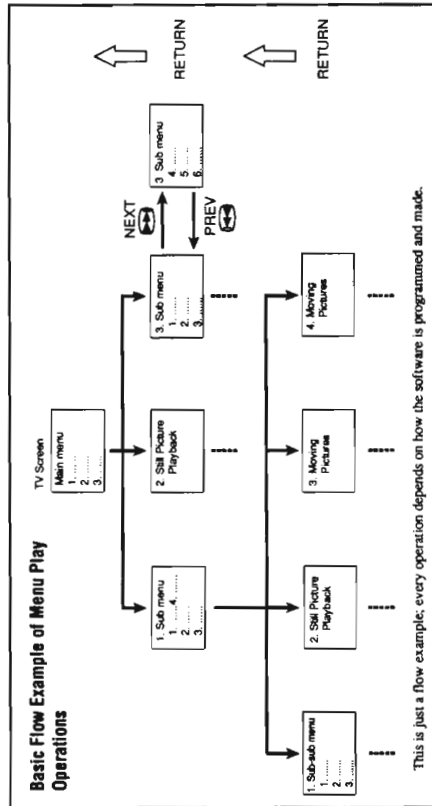
- For example:
- To select the track number 5, press 5.
- To select the track number 15, press +10 then 5.
- To select the track number 20, press +10, then 10.
- To select the track number 32, press +10 three times, then 2.



English

Continued

English



This is just a flow example; every operation depends on how the software is programmed and made.

### Basic Concept of the PBC Function

What is the PBC (PlayBack Control) function?

The PBC function, opening a new video CD age, allows you to enjoy the interactive playback of the disc as you want to play it back by using the menu, and to enjoy super fine still pictures having four times better quality than the moving pictures.  
So, Menu Play and super fine still pictures feature the PBC function.

### Basic flow of Menu Play operations

When you start playing a video CD with the PBC function, the menu appears on the TV screen.  
This menu will be a still picture (a list of items you can select), moving pictures, or a divided screen. It depends on how the software is programmed and made.

- When a list of items appears on the TV screen, you can select a number of the item you want to play back. (If the list of items cannot be displayed on the TV screen at one time, pressing NEXT will show its continuation.)
- When moving pictures appear on the TV screen, you can select a moving picture by pressing SELECT while the moving picture you want to view is being played back.



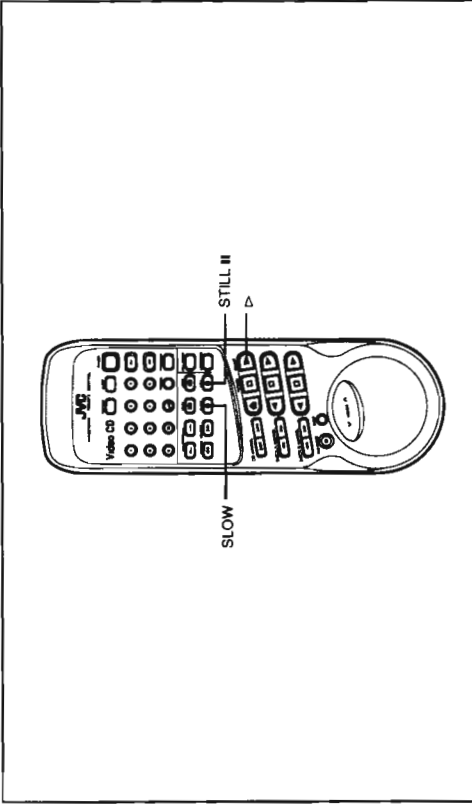
- When the first item you have selected finishes playing, the next menu or the previous menu screen will appear on the TV screen, you can select another number of the item you want to play back next.
- If you want to go back to the previous screens, press RETURN. Each time you press the button, you can go back to the previous screens one by one.



- If you want to stop play, press and hold RETURN for more than 2 seconds.



If you do not advance from the menu for about 10 minutes  
The CD player automatically stops, the menu disappears and the blue screen appears on the TV screen.



### Special Plays for a Video CD

You can use the following special play modes for video CDs both with and without the PBC function only by using the remote control unit.

#### To use slow motion playback

During playback, press SLOW.  
Each time you press the button, the slow motion speed decreases in 3 levels.  
During slow motion playback, no sound comes out.



If you do not advance the still picture for about 5 minutes  
The CD player automatically stops, the still picture disappears and the blue screen appears on the TV screen.



If you cannot restore normal playback after using the slow motion or frame-by-frame playback  
You can solve the problem using one of the following methods.  
• Press PREV and then restart play.  
• Press RETURN to go back to the menu and then restart play.

To resume normal playback, press ▷ on the CD CONTROL section.

#### To use frame-by-frame playback

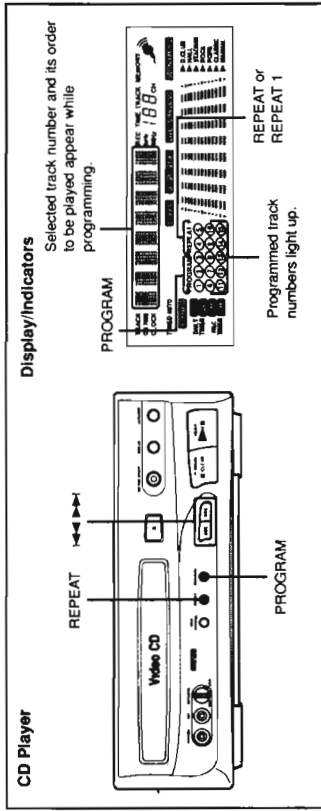
During playback, press STILL II.  
When you press the button first, play pauses and you see a still picture on the TV screen. Then each time you press the button, still pictures advance by one frame.  
During frame-by-frame playback, no sound comes out.

To resume normal playback, press ▷ on the CD CONTROL section.

# Playing a Disc in Other Play Modes

English

You can also use the other play modes such as Program Play and Repeat Play.



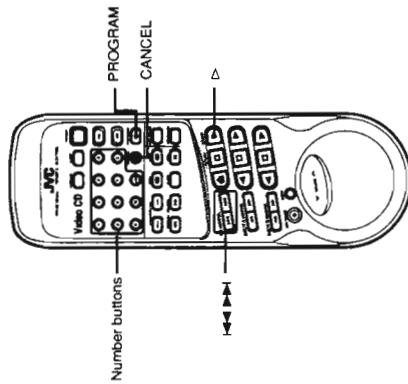
## Programming the Playing Order of the Tracks — Program Play

You can arrange the order in which the tracks play before you start playing. You can program up to 32 tracks. By using the remote control unit, you can easily program tracks.

When using the remote control unit:

- 1 Press PROGRAM so that "PROGRAM" appears in the display.
- 2 Press the number buttons of the tracks in the order you want to play.
  - Currently selected track
  - Order to be played
  - Selected tracks

To select numbers greater than 10, use +10 button.  
 For example:  
 To select track 15, press +10 then 5.  
 To select track 20, press +10, then 10.  
 To select track 32, press +10 three times, then 2.
- 3 Press ▷ on the CD CONTROL section.
  - The tracks are played in the order you have designated.



To stop during play, press □ on the CD CONTROL section.  
To cancel Program Play and erase the program, press PROGRAM on the remote control unit when the player is not playing.



English

## Repeating Play — Repeat Play

You can repeat the whole disc or a track in any play modes (except when playing a video CD with the PBC function).

To repeat play, press REPEAT during play.

Each time you press the button, the display changes to show the following:



When REPEAT lights up in the display:

In Continuous Play — all tracks in the disc are played repeatedly.

In Program Play — all programmed tracks are played repeatedly.

When REPEAT 1 lights up in the display:

In Continuous Play and Program Play, the current track is repeated.

To cancel Repeat Play, press REPEAT repeatedly until neither REPEAT nor REPEAT 1 is lit in the display.

When using the buttons on the main unit:

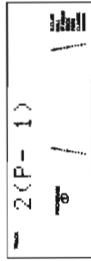
- 1 Press PROGRAM so that "PROGRAM" appears in the display.



- 2 Press ◀ or ▶ to select the track number



- 3 Press PROGRAM again to store the selected track.



- 4 Repeat Steps 2 and 3 to program other tracks you want.



- 5 Press ▷/II.

The tracks are played in the order you have designated.

To stop during play, press ■/CLEAR.

To cancel Program Play and erase the program, press ■/CLEAR again (when the player is not playing).

### To check the program contents

(Possible only on the remote control unit.)

Before playing, you can check the program contents by pressing ◀ or ▶ on the remote control unit.

▶: shows the programmed tracks in the programmed order.

◀: shows them in the reverse order.

### To modify the program

(Possible only on the remote control unit.)

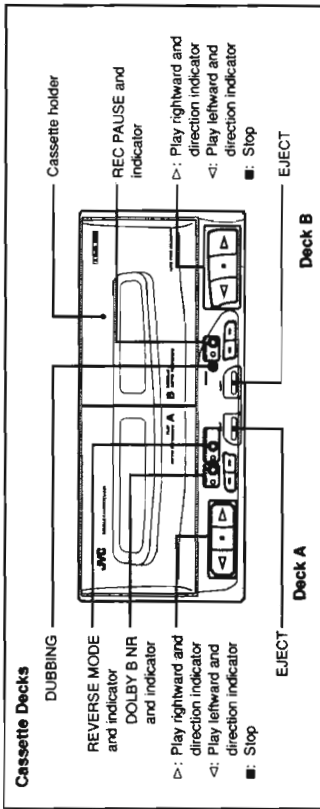
Before playing, you can erase the last programmed track by pressing CANCEL on the remote control unit. Each time you press the button, the last programmed track is erased from the program.

To add a track in the program before or during play, press the number buttons of tracks you want to add.



# Recording

You can record using deck B, connected VCR and connected digital recording equipment.



## Recording Tapes on Deck B

You can use type I and II tapes for recording.

- 1 Press EJECT for the deck B.
- 2 Put in the cassette to record onto, with the exposed part of the tape down.
- 3 Close the cassette holder gently.
- 4 Press REC PAUSE so that the REC PAUSE indicator lights up.
- 5 Start playing the source — FM, AM, CD player, deck A, or auxiliary equipment connected to VCR and AUX jacks. When the source is deck A, you can also use the dubbing method. (See "Dubbing Tapes.")

- 6 Press ▷ or ◁ for the deck B.
    - ▷ : records on the front side.
    - ◁ : records on the reverse side.
 The direction indicator on the pressed button starts blinking and recording starts. When recording ends, the deck B automatically stops.
- To stop during recording, press ■ for deck B.
- To resume recording, press ▷ or ◁ (the same button you have pressed in Step 6) for deck B.
- To remove the cassette, press EJECT.

## Dubbing Tapes

You cannot dub tapes with any sound mode. It is preferable that the tape type (type I or II) you record from be the same as the tape type you record onto when dubbing tapes.

- 1 Put the source cassette in deck A, and the cassette to record onto in deck B.
- 2 Press ▷ (or ◁) and then ■ both for deck A and deck B to designate the side of the tape to play and to record onto.
  - ▷ : plays or records from the front side.
  - ◁ : plays or records from the reverse side.
- 3 Press DUBBING. Dubbing starts.

To stop during dubbing, press ■ for deck B. To remove the cassette, press EJECT.

**To dub both sides — Reverse Mode**  
 Press REVERSE MODE so that the REVERSE MODE indicator lights red, and start from the front sides for both deck A and B.  
 To cancel Reverse Mode, press the button again so that the indicator turns off.



The Dolby NR system is inactive during dubbing the source tape. The DOLBY B NR indicator automatically turns off.

## Recording on the Connected Equipment

You can record sounds on a video tape on the VCR connected to the VCR jacks on the rear, and also record digital sounds through the DIGITAL OUT OPTICAL terminal.

Before you start recording, refer also to the manuals supplied for the connected equipment.

- 1 Prepare the VCR, or digital equipment connected to the DIGITAL OUT OPTICAL.
- 2 Start playing the source and recording. For recording on VCR: You can select the sources — FM, AM, deck A and B, CD player, and the equipment connected to the AUX jacks. For recording on the digital equipment: You can play only the conventional audio CD and the CD-G as the source.



You cannot adjust the recording level manually. Recording level is fixed.

### To protect your recording

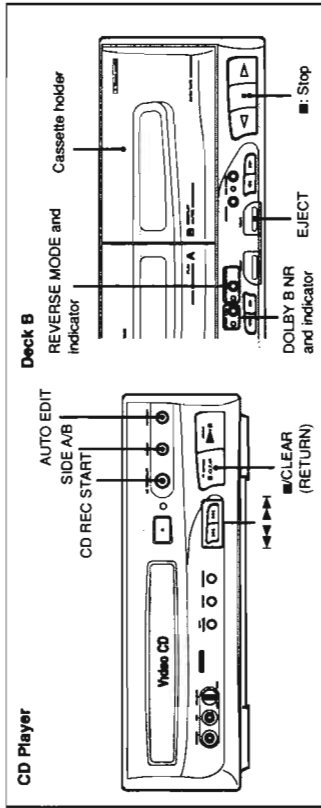
Cassettes have two small tabs on the back to protect unexpected erasure or re-recording. To protect your recording, remove these tabs. To re-record on a protected tape, cover the holes with adhesive tape. When using type II tape, be careful not to cover the holes used to detect the tape type.



- It may be unlawful to record or play back copyrighted material without the consent of the copyrighted owner.
- If recording you make have excessive noise or static, the unit may be too close to a TV. Increase the distance between the TV and the unit.

# CD Edit Recording

You have 2 ways, except the standard method described on page 25, to record from disc (conventional audio CD, CD-G, and video CD without the PBC function) to tape.  
**CD Direct Recording** --- Everything on the disc onto the tape in the order it is on the disc.  
**Auto Edit Recording** --- The unit arranges which tracks to be recorded on which side of the tape, so a track isn't cut off at the end of the tape.



## CD Direct Recording

This is the easiest way of recording a disc.

### How CD Direct Recording Actually works

Deck B records tracks in the order on the disc. If the tape ends while recording a track, deck B rewinds the tape to the beginning of the track and re-records it so that it fades out naturally at the end of the tape.  
 If recording is continued to the reverse side, a 10 second blank is created at the beginning of the reverse side. Then the reverse side starts with the last track recorded on the front side and will fade out at the end of the tape again.

- 1 Put the cassette to record onto in deck B.
- 2 Place a disc correctly on the circle of the disc tray, with its label side up.
- 3 Press CD REC START.  
 "CD REC" appears in the display.  
 Deck B starts recording and the CD player starts playing.

**To stop during CD Direct Recording,** press **DECK B** or **CLEAR** on the CD player.  
 When you press **CLEAR**, you can make a 4-second blank at the end of recording.

**You can record a program you have made using CD Direct Recording.**  
 Before you press CD REC START, make a program as you want. To make a program, see page 23.

**You can use Repeat Play during CD Direct Recording.**  
 To repeat a disc or a track, see page 24.



## Auto Edit Recording

The unit automatically arranges the tracks on a disc to fit the tape. The selection of which tracks go on which side of the tape is based on the lengths of the tracks and the length of the tape.

### How Auto Edit Recording actually works

The unit selects which tracks go on which side of the tape so that the total playing time of the selected tracks is within the tape length and that no track is not cut off while recording.  
 Before recording starts, the deck B automatically rewinds the tape to the beginning of the front side and creates a 10 second blank.  
 If recording is continued to the reverse side, a 10 second blank is also created at the beginning of the reverse side.

- 1 Put the cassette to record onto in deck B.
- 2 Place a disc correctly on the circle of the disc tray, with its label side up.
- 3 Press REVERSE MODE so that the REVERSE MODE indicator lights red.  
 If you want to record on only the front side, do not light the REVERSE MODE indicator.
- 4 Press AUTO EDIT.  
 "EDIT" appears in the display, and then the tape length best to use appears.

To change the tape length, press **REVERSE** or **REVERSE**. The tape length shown in the display cycles as follows so you can select a different tape length.



- 5 Press SIDE A/B.  
 The display shows which tracks go on the front side (A) and which on the reverse side (B).  
 Each time you press the button, the display alternates to show the tracks for the front side (A) and those for the reverse side (B).

- 6 Press CD REC START.  
 "CD REC" appears in the display.  
 Deck B rewinds the tape and starts recording. CD player starts playing about 10 seconds later.
- 7 When recording is complete, press **CLEAR** on the CD player.  
 This cancels the Auto Edit setting.

**To stop during Auto Edit Recording,** press **DECK B** or **CLEAR** on the CD player.  
 When you press **CLEAR**, you can make a 4-second blank at the end of recording.

**To record a tape with the Dolby NR system**  
 Press DOLBY B NR to activate the Dolby B NR system. The DOLBY B NR indicator lights red.  
**To cancel the Dolby NR system,** press the button again so that the indicator turns off.

**To record a tape with the sound modes**  
 Before you start recording, select the sound mode you want. You can record with any one of the preset SEA modes.

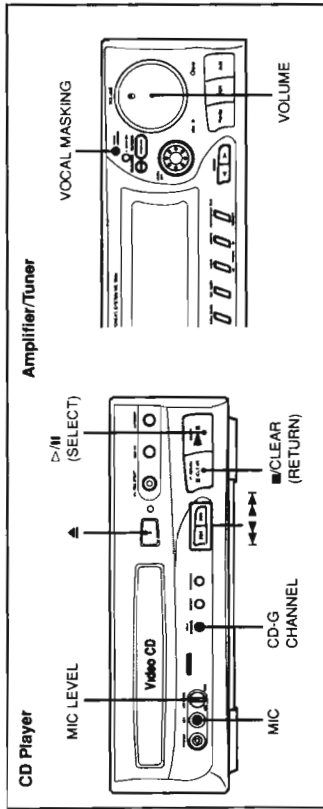
**You can program up to 16 tracks for each side of the tape**  
 However, you cannot program a track the number of which on the disc is greater than 31.

**If you use a tape shorter than the total playing time of selected tracks**  
 The last recorded tracks will be fading out at the ends of both sides.

# Singing Along — Karaoke

English

You can enjoy singing along using conventional audio CDs (or tapes), CD-Gs and video CDs.



## Singing Along with Conventional Audio CDs or Tapes — Vocal Masking

When playing a stereo recorded source such as conventional audio CDs or tapes, you can reduce the lead vocal and replace it by singing into the microphone. Usually stereo recorded CDs are best source for Vocal Masking.

### What Vocal Masking actually does

Vocal Masking reduces the lead vocal (but never erases it). The following sources are not good for enjoying Vocal Masking.

- Monaural sources
- Multiplex karaoke tapes and discs
- Poorly dubbed tapes
- Stereo recorded source, but with only few instruments, with duets, or with strong echo

- 1 Turn down MIC LEVEL fully.
- 2 Connect the microphone (not supplied) into the MIC jack on the front panel.
- 3 Play the source — a CD, a tape, and others. When the source is CD, make sure that the CD L-MONO mode is not activated. If it is activated, press CD L-MONO until "STEREO" appears in the display.



For preventing howling and squealing when using the microphone Adjust MIC LEVEL and VOLUME, and try not to point the microphone at the speakers.



When you are not going to use the microphone Keep MIC LEVEL set to MIN, and disconnect the microphone.

English

Continued

## Singing Along with Multiplex Karaoke Video CDs without the PBC Function or Multiplex Karaoke CD-Gs

If the disc you are going to play is a multiplex karaoke disc, the instrumental parts are recorded on the left channel and the vocal parts are recorded on the right channel. So, you can select the output sounds — whether the instrumental parts only or both of the instrumental parts and vocal parts. Before playing a disc, turn on the TV and select the video input so that you can view the pictures from the CD player.

- 1 Turn down MIC LEVEL fully.
- 2 Connect the microphone (not supplied) into the MIC jack on the front panel.
- 3 Press ▲ The unit automatically turns on and disc tray comes out.
- 4 Place a disc correctly on the circle of the disc tray, with its label side up.
- 5 Press ▷/◁ (or ▷) on the CD CONTROL section on the remote control unit.

- The disc tray closes.
- When you play a video CD, "VIDEO CD" appears in the display and play starts from the first track.
- When you play a CD-G, "GRAPHICS" appears in the display and play starts from the first track.

- 6 Press CD L-MONO on the remote control unit to select the output sound — whether the instrumental parts only or both of the instrumental parts and the vocal parts.

Each time you press the button, sounds change and the display shows as follows:

→ STEREO → Lch MONO

STEREO: Both the instrumental parts and vocal parts  
Lch MONO: Only the instrumental parts.

- 7 Turn MIC LEVEL and VOLUME to adjust the microphone level and the sound output level.
- 8 Singing into the microphone.

To stop during play, press ■/CLEAR. The blue screen appears on the TV screen. To stop play and remove the disc, press ▲. After singing along, restore the stereo effect by pressing CD L-MONO. So, you will not lose the stereo effect when you play a stereo disc next time.

To select the CD graphic channel If the CD-G has several patterns (up to 15) of graphics (they are called "graphic channels"), you can select the one you want. You can find out whether or not the CD-G has graphic channels by looking at its package or the printed surface of the disc.

To change the graphic channel, press CD-G CHANNEL repeatedly until the graphic channel you want appears on the TV screen.

### To apply echo to your voice

Press ECHO on the remote control unit. Each time you press the button, the amount of echo applied changes and the display shows as follows:

→ ECHO 1 → ECHO 2 → ECHO 3 → OFF

ECHO 1: A little echo is applied.  
ECHO 2: More amount of echo than ECHO 1 is applied.  
ECHO 3: Strong echo is applied.  
OFF: No echo is applied.

To select a particular track or to use other basic operations See "Basic Operations for Continuous Play" on page 19.

To use slow motion or frame-by-frame playback for video CDs See "Special Plays for a Video CD" on page 22.

To record your singing along See "Microphone Mixing" on page 32.



You cannot use Vocal Masking on a multiplex karaoke disc.



For preventing howling and squealing when using the microphone Adjust MIC LEVEL and VOLUME, and try not to point the microphone at the speakers.



When you are not going to use the microphone Keep MIC LEVEL set to MIN, and disconnect the microphone.

Continued

### Singing Along with Multiplex Karaoke Video CDs with the PBC Function

Before playing a disc, turn on the TV and select the video input so that you can view the pictures from the CD player.

- 1 Turn down MIC LEVEL fully.
- 2 Connect the microphone (not supplied) into the MIC jack on the front panel.
- 3 Press **▲**. The unit automatically turns on and disc tray comes out.
- 4 Place a disc correctly on the circle of the disc tray, with its label side up.

- 5 Press SELECT. The disc tray closes. "VIDEO CD" and then "PBC" appears in the display. (For some discs, "PBC" will not appear soon after "VIDEO CD.")

- 6 When the menu appears on the TV screen, select the song you want by using the number buttons on the remote control unit.

- 7 Press CD L-MONO on the remote control unit to select the output sound — whether the instrumental parts only or both of the instrumental parts and the vocal parts. Each time you press the button, sound changes and the display shows as follows:  
 → STEREO → Lch MONO →  
 STEREO: Both the instrumental parts and vocal parts  
 Lch MONO: Only the instrumental parts.

- 8 Turn MIC LEVEL and VOLUME to adjust the microphone level and the sound output level.

- 9 Singing into the microphone.

To stop Menu Play, select the item in the menu (such as "End" or "Quit") which can quit playback. If there is not such a selection, press and hold RETURN for more than 2 seconds.

To stop play and remove the disc, press **▲**. After singing along, restore the stereo effect by pressing CD L-MONO. So, you will not lose the stereo effect when you play a stereo disc next time.



### To apply echo to your voice

Press ECHO on the remote control unit. Each time you press the button, the amount of echo applied changes and the display shows as follows:

→ ECHO 1 → ECHO 2 → ECHO 3 → OFF →

ECHO 1: A little echo is applied.  
 ECHO 2: More amount of echo than ECHO 1 is applied.  
 ECHO 3: Strong echo is applied.  
 OFF: No echo is applied.

### To use other basic operations

See "Basic Operations for Menu Play" on page 20.

### To use slow motion or frame-by-frame playback for video CDs

See "Special Plays for a Video CD" on page 22.

### To record your singing along

See "Microphone Mixing."

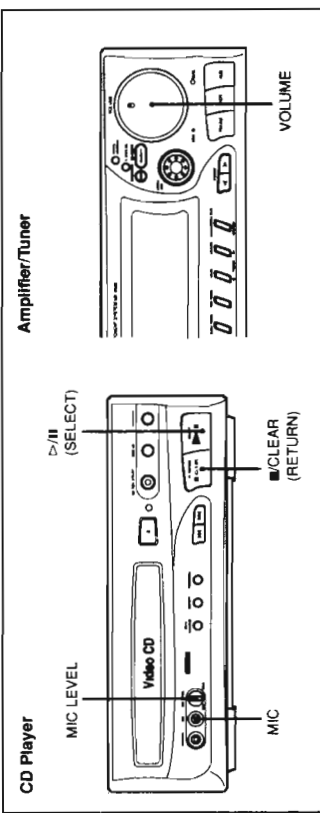
You cannot use Vocal Masking on a multiplex karaoke disc.

For preventing howling and squealing when using the microphone Adjust MIC LEVEL and VOLUME, and try not to point the microphones at the speakers.

When you are not going to use the microphone Keep MIC LEVEL set to MIN, and disconnect the microphone.

## Using the Microphone

You can use the microphone (not supplied) for two kinds of recording.



### Microphone Mixing

You can record sound through the microphone by mixing sound from other sources. When recording on deck B, you cannot use deck A as the playing source. (But you can use deck A as the playing source when recording on the connected VCR.)

- 1 Turn down MIC LEVEL fully.
- 2 Connect the microphone (not supplied) into the MIC jack on the front panel.
- 3 Play the source — a CD, a tape, and others.
- 4 Turn MIC LEVEL and VOLUME to adjust the microphone level and the sound output level.
- 5 Singing into the microphone.
- 6 Start recording. You can record using both deck B and the connected VCR. When recording on deck B, see "Recording Tapes on Deck B" on page 25. When recording on the VCR, refer to the manual supplied for it.

### Recording Only Though the Microphone

You can record sound picked up by the microphone only.

- 1 Turn down MIC LEVEL fully.
- 2 Connect the microphone (not supplied) into the MIC jack on the front panel.
- 3 Press **▷/II** and then press **■/CLEAR** on the CD player.
- 4 Turn MIC LEVEL and VOLUME to adjust the microphone level and the sound output level.
- 5 Singing into the microphone or pick up sound using the microphone.
- 6 Start recording. You can record using both deck B and the connected VCR.

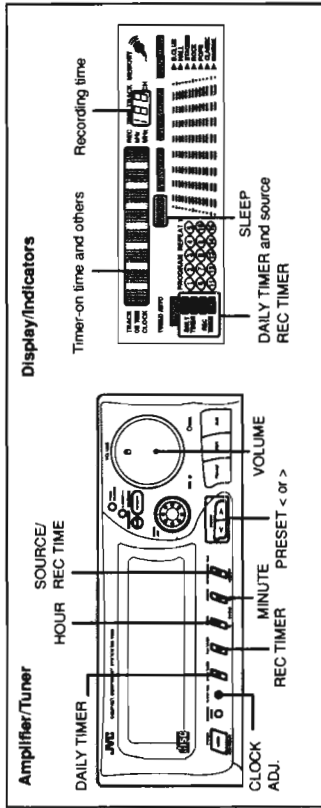
For preventing howling and squealing when using the microphone Adjust MIC LEVEL and VOLUME, and try not to point the microphone at the speakers.

When you are not going to use the microphone Keep MIC LEVEL set to MIN, and disconnect the microphone.



# Using the Timers

There are three timers available — Recording Timer, Daily Timer, and Sleep Timer. Before using the timers, you need to set the clock built in the unit.



## Setting the Clock

- 1 Press **CLOCK ADJ.** (adjust).
- 2 Press **HOUR** repeatedly. Each time you press the button, the hour increases by one. Holding it down advances the hour continuously.
- 3 Press **MINUTE** repeatedly. Each time you press the button, the minute increases by one. Holding it down advances the minute in 10 minute increments continuously.
- 4 Press **CLOCK ADJ.** again. "CLOCK OK" appears in the display. The clock is set and starts from zero seconds.



**If there is a power failure**

The clock loses the setting and the display shows "0:00." You need to reset the clock.

## Using Recording Timer

With Recording Timer, you can make a tape of a radio broadcast automatically. You can set Recording Timer whether the unit is turned on or off.

**How Recording Timer actually works**  
The unit automatically turns on, tunes into the most recent station, and starts recording on deck B when the timer-on time comes. Then, when the timer-off time comes, the unit automatically turns off. The timer-on time and timer-off time remain stored in memory until you reset them or disconnect the AC power cord.

- 1 Press **REC TIMER**. The REC TIMER indicator starts blinking in the display.
- 2 Set the timer-on time while the REC TIMER is blinking. Press HOUR to set the hour, and MINUTE to set the minute.
- 3 Press **SOURCE/REC TIME** to set the recording time length. Each time you press the button, the recording time length increases by one. Holding it down advances the minute in 10 minute increments continuously. You can change the recording time length up to 120 minutes. If you select "--" as the recording time length, the unit will not turn off though it turns on automatically.

Continued

## Using Daily Timer

With Daily Timer, you can wake up to music or favorite radio program. You can set Daily Timer whether the unit is turned on or off.

### How Daily Timer actually works

The unit automatically turns on, and starts playing (or tunes into the most recent station) when the timer-on time comes. Then, after about 60 minutes the unit automatically turns off. The timer settings remain stored in memory until you reset them or disconnect the AC power cord.

- 1 Press **DAILY TIMER**. The DAILY TIMER indicator starts blinking in the display.
- 2 Set the timer-on time while the DAILY TIMER is blinking. Press HOUR to set the hour, and MINUTE to set the minute.
- 3 Press **SOURCE/REC TIME** to set the source. Each time you press the button, the source changes as follows:  
CD → TAPE → FM → AM  
CD: play a disc from the beginning or according to the program you have prepared. To make a program, see page 23.  
TAPE: plays a tape in deck A or B. If tapes are in both decks, the unit plays a tape in deck B first.  
FM: tunes into the most recent FM station.  
AM: tunes into the most recent AM station.
- 4 Press **DAILY TIMER** again or wait for about 8 seconds. "TIMER OK" appears in the display. The DAILY TIMER indicator stops blinking and remains lit in the display.
- 5 Turn **VOLUME** to the appropriate position. So, you will not be surprised and can wake up to music when the timer-on time comes.

To cancel the setting, press DAILY TIMER again so that the DAILY TIMER indicator goes off in the display.



**If you press any button during Daily Timer is operating**  
The unit will not turn off automatically.



Continued

### Using Sleep Timer

With Sleep Timer, you can fall asleep to music. You can set Sleep Timer when the unit is turned on.

#### How Sleep Timer actually works

The unit automatically turns off after the specified time length passes.

- 1 Press SLEEP on the remote control unit.**  
The SLEEP indicator starts blinking in the display. Each time you press the button, the time length changes as follows:  
→ 10 → 20 → 30 → 60 → 90 → 120 → Canceled
- 2 Wait for about 6 seconds after specifying the time length.**  
"TIMER OK" appears in the display. The SLEEP indicator stops blinking, and remains lit.

- To check the remaining time until the shut-off time,** press SLEEP once so that the remaining time until the shut-off time appears for about 5 seconds.
- To change the shut-off time,** press SLEEP repeatedly until the desired time length appears in the display.
- To cancel the setting,** press SLEEP repeatedly so that the SLEEP indicator goes off in the display or turn off the unit.

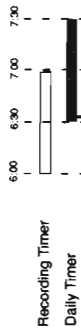


### Timer Priority

Since each timer can be set separately, you may wonder what happens if the setting for these timers overlaps. Here are the priorities for each timer:

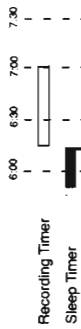
- Recording Timer has priority over Daily Timer and Sleep Timer.**

If Daily Timer is set to come on while Recording Timer is operating, Daily Timer will not come on at all.



does not work.

If Recording Timer is set to come on while Sleep Timer is operating, Sleep Timer will be canceled several seconds before Recording Timer comes on.



canceled.

- Sleep Timer has priority over Daily Timer.**  
If Daily Timer is set to come on while Sleep Timer is operating, Daily Timer will not come on at all.



does not work.

Therefore, the equation is like this —

Recording Timer > Sleep Timer > Daily Timer

## Maintenance

To get the best performance of the unit, keep your discs, tapes, and mechanism clean.

### Handling discs

- Remove the disc from its case by holding it at the edge while pressing the center hole lightly.
- Do not touch the shiny surface of the disc, or bend the disc.
- Put the disc back in its case after use to prevent warping.



- Be careful not to scratch the surface of the disc when placing it back in its case.
- Avoid exposure to direct sunlight, temperature extremes, and moisture.



**To clean the disc**  
Wipe the disc with a soft cloth in a straight line from center to edge.

**DO NOT** use any solvent — such as conventional record cleaner, spray, thinner, or benzine — to clean the disc.



### Handling 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.



- Be careful not to touch the tape surface.



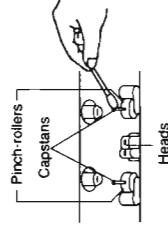
- Avoid the following places to store the tape:
  - In dusty places
  - In direct sunlight or heat
  - In moist areas
  - Near a magnet

### Cassette decks

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

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

**To clean the heads, capstans, and pinch-rollers**  
Use a cotton swab moistened with alcohol.

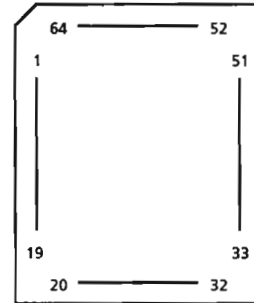


**To demagnetize the heads**  
Turn off the unit, and use a head demagnetizer (available at electronics and record shops).

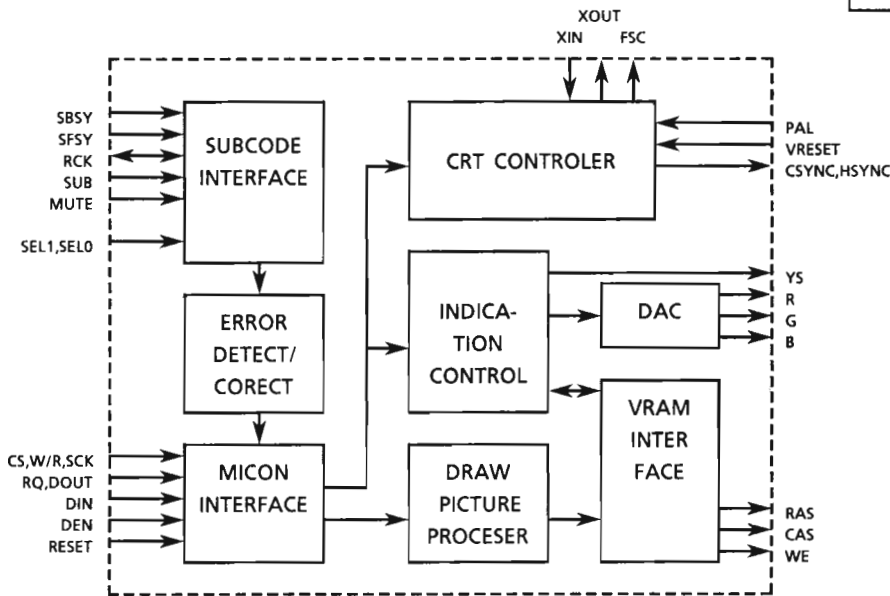
# Description of Major ICs

## ■ YVZ152B-F(IC104) : CD-G DECODER

### 1. Terminal Layout



### 2. Block Diagram



### 3. Pin Function

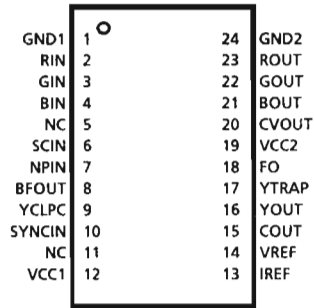
Pin No.	symbol	I/O	Description	Pin No.	symbol	I/O	Description
1	VSS	---	GND(DIGITAL)	33	SCK	I	Micon I/F serial clock input
2	RESET	I	Reset input(low active)	34	W/R	I	Micon I/F read/write select input
3	RAS	O	DRAM I/F RAS	35	RQ	O	Micon I/F subcode read request
4	CAS	O	DRAM I/F CAS	36~49	NC	---	Non connection
5	WE	O	DRAM I/F WE	50	YS	O	Super inpulse timing output
6~9	VD0~VD3	I/O	DRAMI/F data	51	AVSS	---	GND(Analog)
10~17	VA0~VA7	I	DRAM I/F address	52	R	O	RGB output (R)
18,19	SEL0,SEL1	I+	Subcode I/F inter face select	53	G	O	RGB output (G)
20	MUTE	I	Subcode I/F sub code data mute	54	B	O	RGB output (B)
21	SUB	I	Subcode I/F sub code data	55	AVDD	---	+5V(Analog)
22	RCK	I/O	Subcode I/F clock	56	CSYNC	O	Complex comparate signal
23	SFSY	I	Subcode I/F Frame comparater	57	FSC	O	NTSC sub carrier clock signal
24	SBSY	I	Subcode I/F Frame comparater	58	VDD	---	+5V (Digital)
25	TEST0	I+	Lsi test pin(Non conection)	59	VRESET	I+	Vertical timing reset input
26	VDD	---	+5V (Digital)	60	HSYNC	O	Horizontal comparate signal output
27,28	TEST1,2	I+	Lsi test pin(Non connection)	61	DEN	I+	Display on the screen enable(L: ON)
29	DOUT	OT	Micon I/F serial data output	62	PAL	I+	NTSC/PAL select (H: NTSC ,L : PAL)
30	DIN	I	Micon I/F serial data input	63	XIN	I	Connected to the X'tal or outside clock
31	CS	I	Micon I/F chip select	64	XOUT	O	Connected to the X'tal
32	VSS	---	GND(Digital)				

NPTE) I+ : Input terminal to the pull up resistor

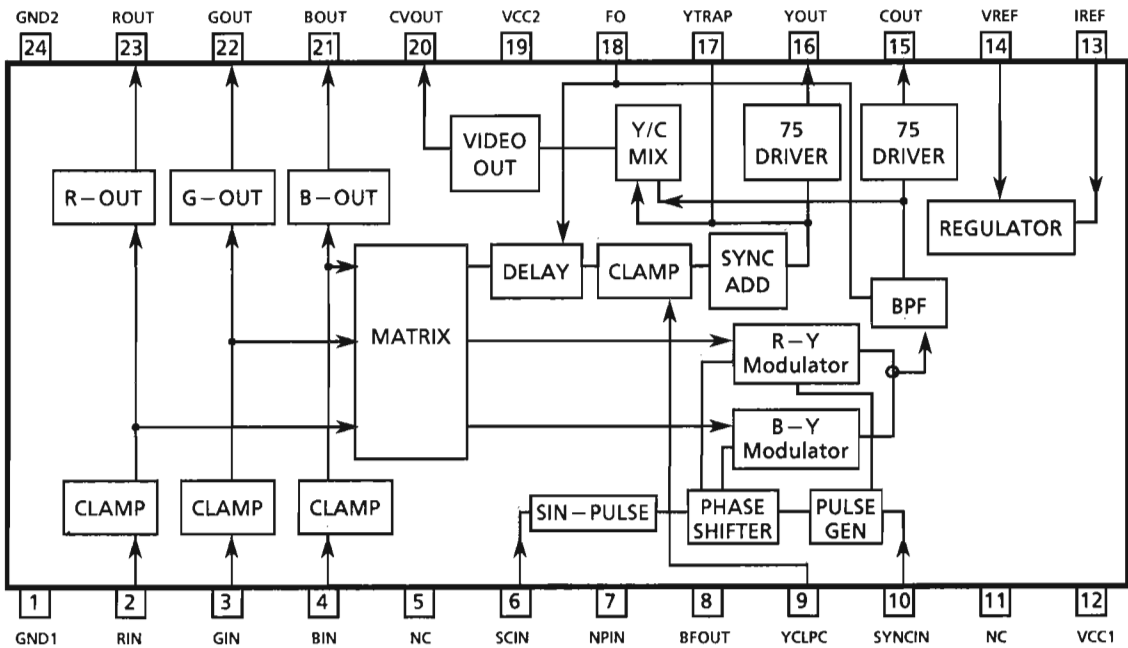
OT:Try state output terminal

■ CXA1645M(IC115) : RGB ENCODER

1. Terminal layout



2. Block Diagram



3. Pin Function

Pin No.	SYMBOL	I/O	Function	Pin No.	Symbol	I/O	Function
1	GND1	--	GND(Exsept RGB,C,Y/C output)	13	IREF	I	Reference current criate terminal of inside
2	RIN	I	Analog R signal input	14	VREF	I	Reference voltage terminal of inside
3	GIN	I	Analog G signal input	15	COUT	O	Chroma signal output
4	BIN	I	Analog B signal input	16	YOUT	O	Y signal output
5	NC	--	Non connect	17	YTRAP	I	Outside parts terminal for cut to cross color
6	SCIN	I	Subcarrier input	18	FO	I	The terminal for inside filter-fo adjust
7	NPIN	I	NTSC/PAL select (High = NTSC)	19	VCC2	--	Power suply ( for RGB,C,Y/C output)
8	BFOUT	O	BF pulse monitor output	20	CVOUT	O	Composite video signal output
9	YCLPC	I	Output terminal for Y signal clamp time constant	21	BOUT	O	Analog R signal output
10	SYNCIN	I	Composite synk signal input	22	GOUT	O	Analog G signal output
11	NC	--	Non connect	23	ROUT	O	Analog B signal output
12	VCC1	--	Power suply (Exsept RGB,C,Y/C output)	24	GND2	--	GND(for RGB,C,Y/C output)

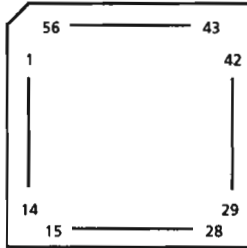
## CA-V800

### ■ HD49307(IC106) : 3channel 8bit D/A convertor

#### 1. Out line

HD49307 is a monolithic CMOS LSI for 8bit D/A conversion with high-speed and low power consumption and it has data I/O and clock for three channels(RGB).

#### 2. Terminal Layout



#### 3. Terminal Functuin

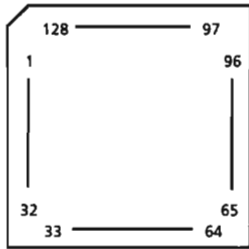
Pin No.	Symbol	I/O	Function	Pin No.	Symbol	I/O	Function
1~5	G4~G8	I	Digital signal of G channel input	30	VRREF	I	Reference voltage input
6	B1	I	Digital signal of B channel input	31	AVSS	--	GND (Analog)
7	NC	--	Non connection	32	AVDD	--	Power suply (Analog)
8~12	B2~B6	I	Digital signal of B channel input	33	BOUT	O	B channel analog signal output
13~15	NC	--	Non connection	34	AVDD	--	Power suply (Analog)
16,17	B7,B8	I	Digital signal of B channel input	35	NC	--	Non connection
18	NC	--	Non connection	36	GOUT	O	G channel analog signal output
19	RCLK	I	R channel clock input	37	AVDD	--	Power suply (Analog)
20	GCLK	I	G channel clock input	38	ROUT	O	R channel analog signal output
21	BCLK	I	B channel clock input	39	AVSS	--	GND (Analog)
22	DVSS	--	GND (Digital)	40	AVDD	--	Power suply (Analog)
23	DVDD	--	Power suply (Digital)	41	DVDD	--	Power suply (Digital)
24	NC	--	Non connection	42	R1	I	Digital signal of R channel input
25	CBU	I	Connected to phase compensation capacity	43,44	NC	--	Non connection
26	CBL	I	By pass capacitor connect terminal	45~51	R2~R8	I	Digital signal of R channel input
27~29	NC	--	Non connection	52~54	G1~G3	I	Digital signal of G channel input
				55,56	NC	--	Non connection

■ CL480(IC101) : MPEG decoder

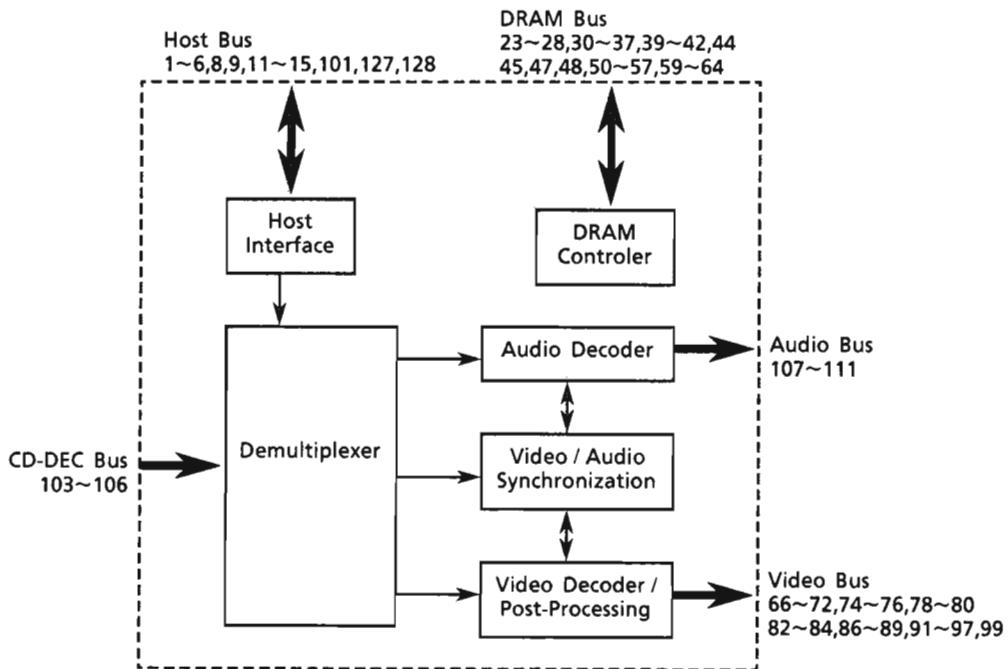
1. Functions

CL480 is MPEG-1 Audio / Video decoder

2. Terminal Layout



3. Block Diagram

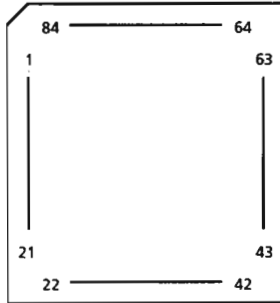


## 4. Terminal Discription

Pin No.	symbol	I/O	Function	Pin No.	symbol	I/O	Function
1	HA2	I	Host address terminal	78~80	VD10~VD12	O	Video data terminal (G2~4/Y2~4)
2	DS	I	Data strobe terminal	81	IO VDD	--	Power supply for Input /Output
3	W/R	I	I/O read terminal	82~84	VD13~VD15	O	Video data terminal (G5~7 / Y5~7)
4	IRQ	O	Interact terminal	85	CKT VSS	--	Connected to GND
5	DTACK	O	Acknowledge data output	86~89	VD16~VD19	O	Video data terminal (B0~B3)
6	HD0	I/O	Host data terminal	90	IO VSS	--	Ground terminal for Input /Output
7	IO VDD	--	Power supply for Input /Output	91~94	VD20~VD23	O	Video data terminal (B4~7)
8,9	HD1,2	I/O	Host data terminal	95	VSYNC	I/O	Vertical comparator / Composite comparator output
10	CKT VSS	--	Connected to GND	96	HSYNC	I/O	Horizontally synchronizing signal
11~15	HD3~HD7	I/O	Host data terminal	97	VOE	I	Video output enable signal
16	IO VSS	--	Ground terminal for Input /Output	98	VCO VDD	--	Power supply of VCO
17	TEST	I	Test terminal	99	VCLK	I/O	Video clock terminal
18	XTL VSS	--	Oscillator ground terminal	100	VCO VSS	--	Ground of VCO
19	XTLIN	I	Oscillator input terminal	101	RESET	I	Reset signal input
20	XTLOUT	O	Oscillator output terminal	102	IO VSS	--	Ground terminal for input/output
21	XTL VDD	--	Power supply for Oscillator	103	C2PO	I	Data error flag input
22	CKT VDD	--	Power supply	104	CDLRCK	I	L / R word clock input
23~28	MD0~MD5	I/O	DRAM data / ROM data terminal	105	CDDATA	I	Bit serial data input
29	IO VDD	--	Power supply for Input /Output	106	CDBCK	I	Bit clock output
30,31	MD6,7	I/O	DRAM data / ROM data terminal	107	DALRCK	O	L / R clock output
32,33	MCE0,1	O	Chip enable output for ROM bank	108	DADATA	O	Bit serial PCM audio signal output
34~37	MD8~MD11	I/O	DRAM data / ROM data terminal	109	DABCK	O	Bit clock output
38	IO VSS	--	Ground terminal for Input /Output	110	IO VDD	--	Power supply for input/output
39~42	MD12~MD15	I/O	DRAM data / ROM address terminal	111	XCK	I	Bit clock input terminal from outside
43	5V VDD	--	Power supply (+5V)	112	CKT VDD	--	Power supply
44	LCAS	O	DRAM LCAS/ROM address terminal	113	PIO12	O	Interact 2 signal output
45	LCASIN	I	DRAM LCAS input	114	PIO11	O	Non connection
46	CKT VSS	--	GND	115	PIO10	I	Host enable signal input
47	MWE	O	DRAM write enable signal output	116	PIO9	I	Boot rom enable signal input
48	UCAS	O	DRAM UCAS/ROM address terminal	117	PIO8	O	Non connection
49	IO VDD	--	Power supply for input/output	118	PIO7	O	DAC emphasis signal output
50	UCAS IN		DRAM UCAS input terminal	119	PIO6	I	CD-DA emphasis signal input
51,52	RA50,1	O	DRAM RAS0,1 terminal	120	PIO5	O	Non connection
53~57	MA9~MA5	O	DRAM data / ROM address terminal	121	PIO4	O	FMV detect signal output
58	IO VSS	--	Ground terminal for Input /Output	122	PIO3	O	CD-DA Video CD select signal output Low : Video CD
59~63	MA4~MA0	O	DRAM data / ROM address terminal	123	5V VDD	--	Power supply (+5V)
64	PIO0	O	ROM address extention terminal	124	PIO2	O	Non connection
65	IO VDD	--	Power supply for Input /Output	125	IO VSS	--	Ground for input/output
66~72	VD0~VD6	O	Video data terminal (R0~6/CrCb0~6/YCrCb0~6)	126	PIO1	O	Non connection
73	IO VSS	--	Ground terminal for Input /Output	127	HA0	I	Host address input
74~76	VD7~VD9	O	Video data terminal (R7/CrCb7/YCrCb7)(G0,1/Y0,1)	128	HA1	I	Host address input
77	CKT VDD	--	Power supply				

## ■ MN171605J5G(IC121) : Host Micon

### 1. Terminal Layout



### 2. Terminal description

Pin No.	Symbol	I/O	Description	Pin No.	Symbol	I/O	Description
1	GND	--	Connected to GND	41~48	SA8~SA15	O	SRAM address signal output
2	ACT INT	I	Interact 2 signal input	49	NC	--	Non connection
3	GND	--	Connected to GND	50~52	HA0~HA2	O	Address signal output for MPEG LSI
4	DTACK	I	Acknowledge DATA signal input	53~55	NC	---	Non connection
5	FMV-DET	I	FMV detection input	56	N/H	O	Normal /High Res signal output
6	GRQ	I	Subcode read request signal input	57	NC	---	Non connection
7	GCS	O	Chip select signal output(IC104)	58~65	HD0~HD7	I/O	Data terminal for MPEG LSI
8	GW/R	O	Read / Write select signal output	66	DA/VCD	I	CD-DA/VCD select signal input
9	MUTE	O	Subcode DATA mute signal output (IC104)	67	NC	--	Non connection
10	SELO	O	Interface select signal output	68	RESET	I	Reset signal input
11	SEL1	O	Interface select signal output	69	X1	--	Non connection
12	GRST	O	Reset signal output (IC104)	70	X2	--	Non connection
13	G/VCD	O	Video switch switching signal output	71	VSS	---	Ground terminal
14	VCO INH	O	VCO inhibit signal output	72	OSC2	--	Non connection
15	W/R	I/O	Read / Write signal input/output	73	OSC1	I	Clock input terminal
16	DS	O	Data strobe signal output	74	VDD	--	Power supply
17	480 RST	O	Reset signal output	75	HREQ	O	Communication signal output
18	VOE	O	Video output enable signal output (IC101)	76	SRCLK	I	Clock input terminal for transfer data from mech.micon
19	NC	--	Non connection	77	M2HDT	O	Serial data output
20	SCS	O	SRAM chip select signal output	78	H2MDT	I	Serial data input
21	SOE	O	SRAM output enable signal output	79	HRDY	O	Communication signal output
22	SR/W	O	SRAM read / write signal output	80	SCLK	O	Serial clock output
23~30	SD1~SD8	I/O	SRAM data input/output terminal	81	SIN	I	Serial data input
31	AVSS	--	Connected to GND	82	SOUT	O	Serial data output
32~39	SA0~SA7	O	SRAM address signal output	83	MREQ	I	Input the transfer request data signal
40	AVDD	--	Power supply	84	IRQ	I	Interact signal input

■ TLC2932IPW (IC112) : PLL Block IC

1. Out line

TLC2932 is a CMOS IC for PLL block and it is composed of VCO which can oscillate up to 60MHz and PFD(Phase Frequency Detector) of edge detecting type.

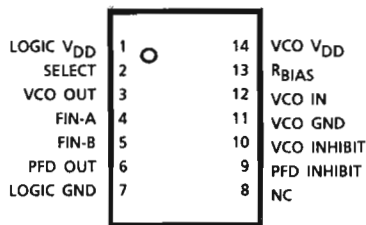
Using one bias resistor decides VCO lock range which is set when PLL block is composed.

Frequency of inhibition makes it possible to reduce power consumption. Output frequency can be divided into two by switching VCO output select pin from external.

PFD with built-in charge pump detects starting point of waveform which is input from reference frequency and external counter.

It enables output pin to be fixed in high impedance from external.

2. Terminal Layout



3. Terminal Description

Pin No.	Symbol	I/O	Description	Pin No.	Symbol	I/O	Description
1	LOGIC V <sub>DD</sub>	--	Power supply for logic circuit	8	NC	--	Non connection
2	SELECT	I	VCO output frequency 1/2 divider-select terminal ("H" = 1/2 divider frequency output)	9	PFD INHIBIT	I	PFD inhibit control terminal ("L" = PFD output active)
3	VCO OUT	O	VCO output	10	VCO INHIBIT	I	PFD inhibit control terminal ("L" = VCO output active)
4	F <sub>IN-A</sub>	I	Input terminal for detected edge difference (standard frequency input)	11	VCO GND	--	VCO Ground
5	F <sub>IN-B</sub>	I	Input terminal for detected edge difference (frequency input outside counter)	12	VCO IN	I	VCO control voltage input
6	PFD OUT	O	PFD output terminal	13	R <sub>BIAS</sub>	I	Connected bias resistor for create to VCO oscillation frequency
7	LOGIC GND	--	Ground for logic circuit	14	VCO V <sub>DD</sub>	--	Power supply for VCO



■  $\mu$ PD424260LE-70(IC103) : 4Mbit ·Dynamic RAM

1. Terminal Layout

VCC	1	40	GND
I/O1	2	39	I/O16
I/O2	3	38	I/O15
I/O3	4	37	I/O14
I/O4	5	36	I/O13
VCC	6	35	GND
I/O5	7	34	I/O12
I/O6	8	33	I/O11
I/O7	9	32	I/O10
I/O8	10	31	I/O9
NC	11	30	NC
NC	12	29	LCAS
WE	13	28	UCAS
RAS	14	27	OE
NC	15	26	A8
A0	16	25	A7
A1	17	24	A6
A2	18	23	A5
A3	19	22	A4
VCC	20	21	GND

2. Terminal Description

Pin No.	symbol	I/O	Description
1	VCC	--	Power supply
2~5	I/O1~I/O4	I/O	Data input/output
6	VCC	--	Power supply
7~10	I/O5~I/O8	I/O	Data input/output
11,12	NC	--	Non connection
13	WE	I	Write enable terminal
14	RAS	I	Load address strove terminal
15	NC	--	Non connection
16~19	A0~A3	I	Address input
20	VCC	--	Power supply
21	GND	--	GND
22~26	A4~A8	I	Address input
27	OE	I	Output enable terminal
28	UCAS	I	Column address strove terminal(upper)
29	LCAS	I	Column address strove terminal(lower)
30	NC	--	Non connection
31~34	I/O9~I/O12	I/O	Data input/output
35	GND	--	GND
36~39	I/O13~I/O16	I/O	Data input/output terminal
40	GND	--	GND

■ LC32464M-80(IC105) : 256Kbit ·Dinamic RAM

1. Terminal Layout

OE	1	24	VSS
I/O1	2	23	I/O4
I/O2	3	22	CAS
WE	4	21	I/O3
RAS	5	20	NC
NC	6	19	NC
NC	7	18	NC
NC	8	17	A0
A6	9	16	A1
A5	10	15	A2
A4	11	14	A3
VCC	12	13	A7

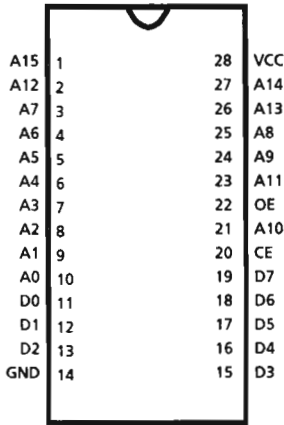
2. Terminal Description

Pin No.	symbol	I/O	Description
1	OE	I	Output enable terminal
2,3	I/O1,2	I/O	Data input/output terminal
4	WE	I	Write enable terminal
5	RAS	I	Load address strove terminal
6~8	NC	--	Non connection
9~11	A6~A4	I	Address input
12	V <sub>CC</sub>	--	Power supply
13~17	A7,A3~A0	I	Address input
18~20	NC	--	Non connection
21	I/O3	I/O	Data input/output
22	CAS	I	Column address strove terminal
23	I/O4	I/O	Data input/output
24	V <sub>SS</sub>	--	GND

■ AT27C256R-001X(IC102) : 256K bit ROM

1. Outline . This ROM is ploglam memory for Host micon (IC121)

2. Pin Layout

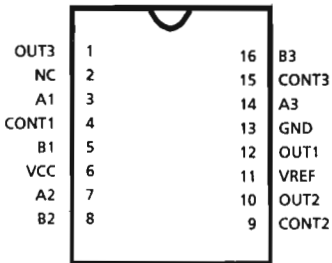


3. Terminal Description

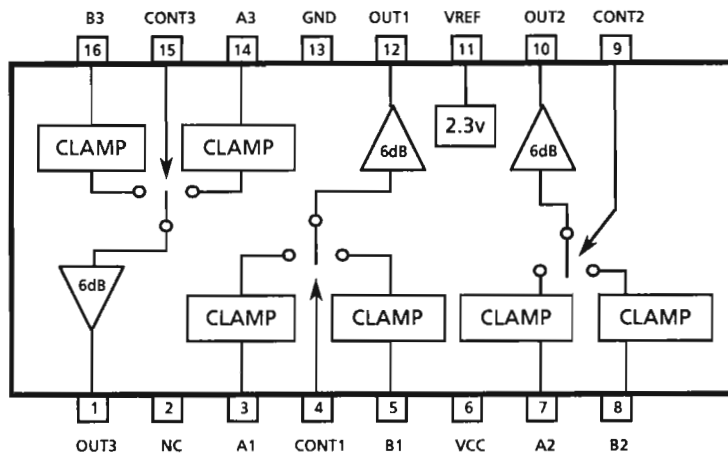
Pin No.	symbol	I/O	Description
1~10	A15,12,7~0	I	Address input
11~13	D0~D2	I/O	Data input/output
14	GND	--	GND
15~19	D3~D7	I/O	Data input/output
20	CE	I	Chip enable terminal
21	A10	I	Address input/output
22	OE	I	Output enable terminal
23~27	A11,9,8,13,14	I	Address input
28	VCC	--	Power suply

■ HA118104FP(IC107) : Video swith

1. Pin Layout



2. Block Diagram

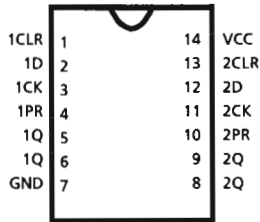


3. Terminal Description

Pin No.	symbol	I/O	Description
1	OUT3	O	Signal output
2	NC	--	Non connection
3	A1	I	Signal input
4	CONT1	I	Input signal control terminal("H" = A1)
5	B1	I	Signal input terminal
6	VCC	--	Power suply
7	A2	I	Signal input terminal
8	B2	I	Signal input terminal
9	CONT2	I	Input signal control terminal("H" = A2)
10	OUT2	O	Signal output terminal
11	VREF	I	Reference voltage input
12	OUT1	O	Signal output terminal
13	GND	--	GND
14	A3	I	Signal input terminal
15	CONT3	I	Input signal control terminal("H" = A3)
16	B3	I	Signal input terminal

■ TC74ACT74FS(IC113) : Dual D Tipe · Frip · Frop

1. Terminal Layout



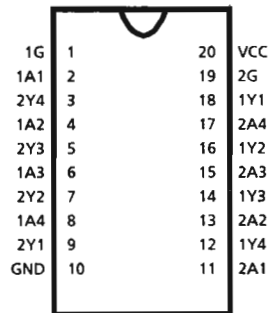
2. Function

INPUTS				OUTPUTS		FUNCTION
$\overline{\text{CLR}}$	$\overline{\text{PR}}$	D	CK	Q	$\overline{\text{Q}}$	
L	H	X	X	L	H	CLEAR
H	L	X	X	H	L	PRESET
L	L	X	X	GNDH	H	---
H	H	L	$\uparrow$	L	H	---
H	H	H	$\uparrow$	H	L	---
H	H	X	$\downarrow$	Qn	$\overline{\text{Qn}}$	NO CHANGE

X:Don't care

■ HD74HCT244FP(IC123) : Line Driver

1. Terminal Layout

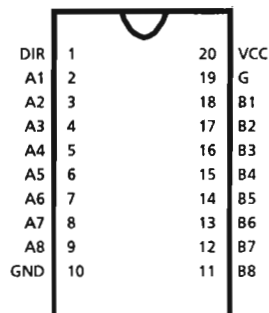


2. Function

1G or 2G	OPERATION
L	1A1~4 data to 1Y1~4 bus 2A1~4 data to 2Y1~4 bus
H	---

■ HD74HCT245FP(IC124) : Bus transceiver

1. Terminal Layout



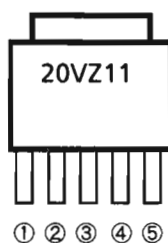
2. Function

G	DIR	OPERATION
L	L	B data to A bus
L	H	A data to B bus
H	X	---

X:Don't care

■ PQ20VZ11(IC061) : Regulator

1. Terminal Layout

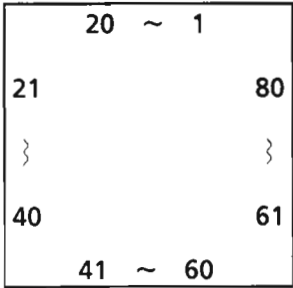


2. Function

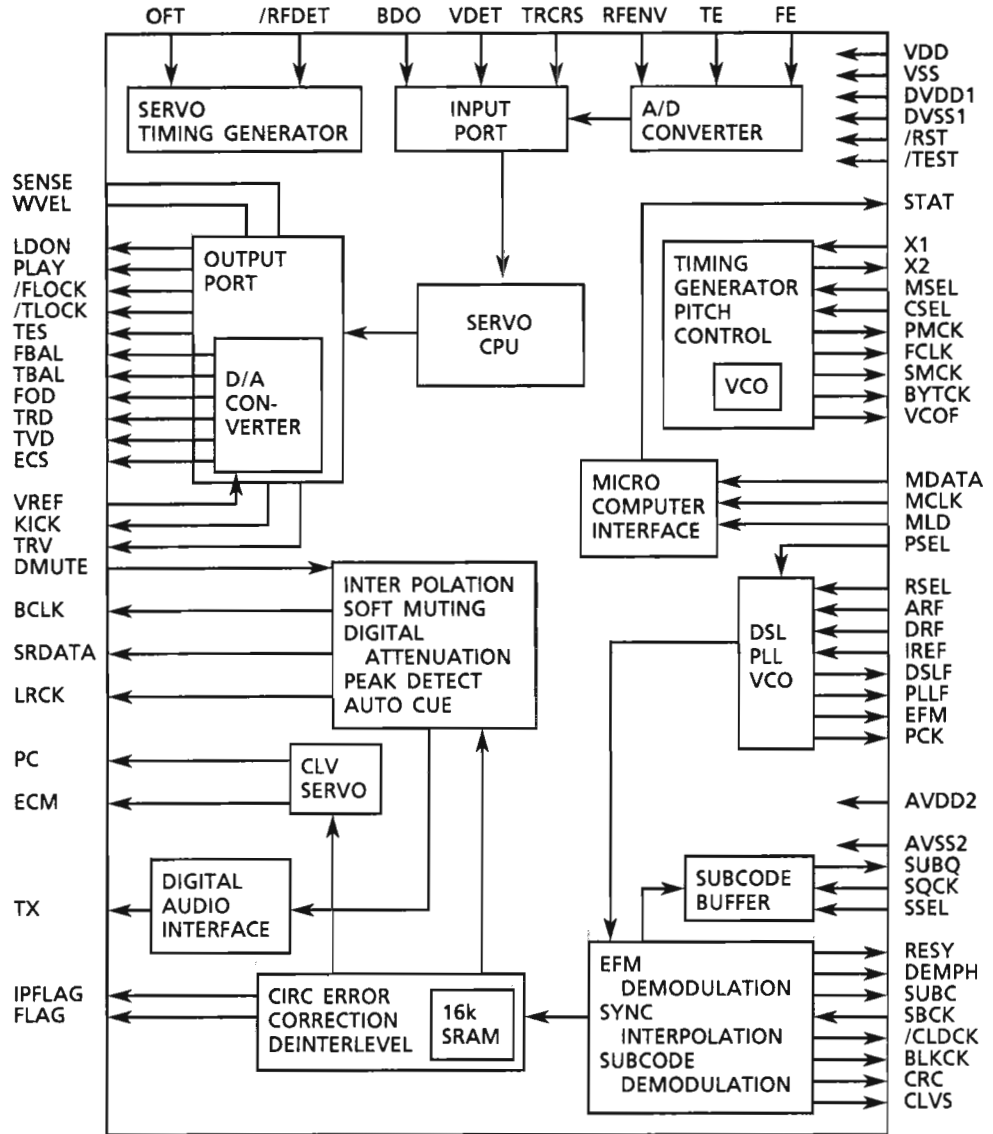
Pin No.	symbol	I/O	description
1	Vin	I	DC input
2	Vc	I	ON/OFF control
3	Vo	O	DC output
4	Vadj	I	Output voltage adjust
5	GND	--	GND

■ MN662720RB (IC650) : 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 output	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 L: Load	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 oscillation 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 oscillation 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	RF ENV	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

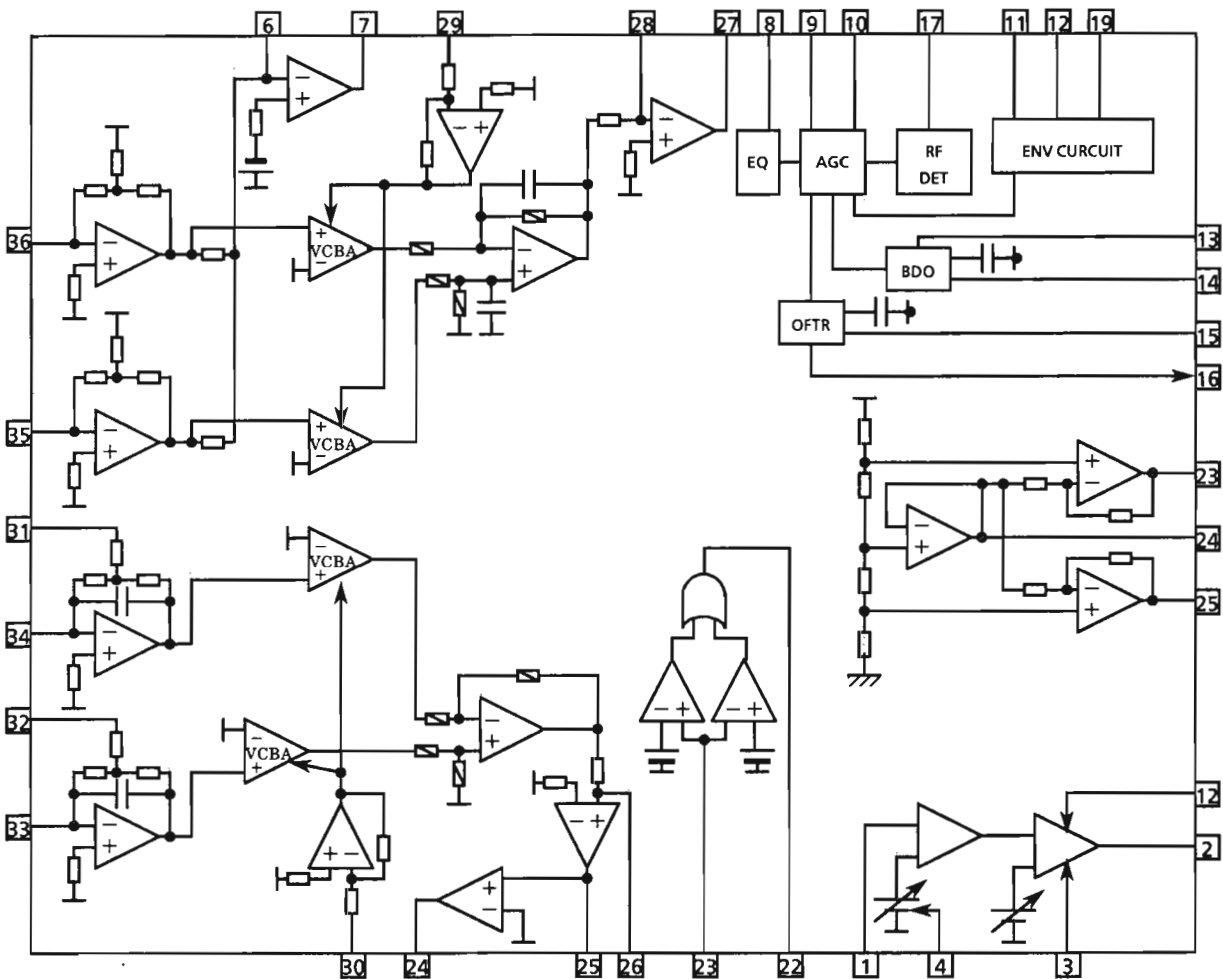
# CA-V800

## ■ AN88065B (IC600) : 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



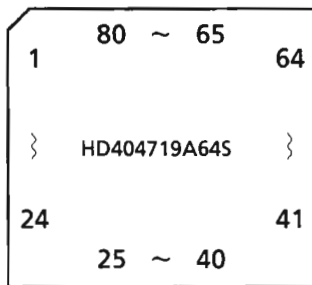
## 3. Description

Pin No.	Symbol	I/O	Functions and operations
1	PD	I	APC amp input terminal
2	LD	O	APC amp output terminal
3	LD ON	I	APC ON/OFF control terminal
4	LDP	--	Connected to ground
5	VCC	--	Power supply
6	RF-	I	Inverse input pin for RF amp
7	RF OUT	O	RF amp output
8	RF IN	I	RF input
9	C.AGC	I/O	Connecting pin of AGC loop filter
10	ARF	O	RF output
11	C.ENV	I/O	A capacitor is connected to this terminal to detect the envelope of RF signal
12	C.EA	I/O	A capacitor is connected to this terminal to detect the envelope of RF signal
13	CS BDO	I/O	A capacitor is connected to detect the lower envelope of the RF signal
14	BDO	O	BDO output pin
15	CS BRT	I/O	A capacitor is connected to detect the lower envelope of the RF signal
16	OFTR	O	Of-track status signal output
17	/NRFDET	O	RF detection signal output
18	GND	--	Ground
19	ENV	O	Envelope output
20	VREF	O	Reference voltage output
21	LD OFF	--	Connect to ground
22	VDET	O	Vibration detection signal output
23	TE BPF	I	Input pin of tracking error through BPF
24	CROSS	O	Tracking error cross output
25	TE OUT	O	Tracking error signal output
26	TE-	I	Inverse input pin for tracking error amp
27	FE OUT	O	Output pin of focus error
28	FE-	I	Inverse input pin for focus error amp
29	FBAL	I	Focus balance control
30	TBAL	I	Tracking balance control
31	PDFR	I/O	F I-V amp gain control
32	PDER	I/O	E I-V amp gain control
33	PDF	I	I-V amp input
34	PDE	I	I-V amp input
35	PD BD	I	I-V amp input
36	PD AC	I	I-V amp input

# CA-V800

## ■ HD404719A64S (IC901) : DECK/AMP controller

### 1. Terminal Layout



### 2. Terminal Functions

Pin No.	Symbol	I/O	Function	Pin No.	Symbol	I/O	Function
1	IN2	I	Leaf switch voltage input (APACK)	41	BFR	O	Reel motor control signal (deck B forward)
2	IN1	I	Leaf switch voltage input (BPACK,R.REC,F.REC)	42	BRR	O	Reel motor control signal (deck B reverse)
3	PRT	I	Input from protector circuit	43	BRC	O	Cam motor control signal (deck B reverse)
4	AD GND	---	Ground for A/D converter	44	BFC	O	Cam motor control signal (deck B forward)
5	A.RES	I	Reset signal input	45	AFR	O	Reel motor control signal (deck A forward)
6	OSC1	---	Oscillation terminal	46	ARR	O	Reel motor control signal (deck A reverse)
7	OSC2	---	Oscillation terminal	47	ARC	O	Cam motor control signal (deck A reverse)
8	GND	---	GND	48	AFC	O	Cam motor control signal (deck A forward)
9	—	---	GND	49	—	---	Connected to GND
10	NC	---	Non connection	50	ACS2	I	Input of mechanism information (deck A)
11	TEST	---	Connected to +5V	51	ACS1	I	Input of mechanism information (deck A)
12	VCC	---	Power supply (+5V)	52	ACS0	I	Input of mechanism information (deck A)
13	NC	---	Connected to +5V	53	BCS2	I	Input of mechanism information (deck B)
14	ECHO1	O	Echo level setting signal output	54	BCS1	I	Input of mechanism information (deck B)
15	ECHO2	O	Echo level setting signal output	55	BCS0	I	Input of mechanism information (deck B)
16	FADE	O	Fade control signal output	56	FM/AM	O	FM/AM select signal output
17	BIAS	O	Bias circuit control	57	JOG 2	I	Jog pulse to input 2
18	CAP	O	Drive signal for the capstan motor ( B )	58	JOG 1	I	Jog pulse to input 1
19	V.IND	O	Volume indicator output	59	DCS IN	I	Compulink signal input
20	NC	---	Not use	60	DCS OUT	O	Compulink signal output
21	APLS	I	Input of reel pulse from holl device (Deck A)	61	RM	I	Input from remote signal detector
22	BPLS	I	Input of reel pulse from holl device (Deck B)	62	SPCLK	O	Clock output to IC802
23	RMT	O	Recording mute control signal output	63	SPDATA	O	SPI data output to IC802
24	NR	O	Noise reduction on/off control signal output	64	SPCS	O	Strobe signal output to IC802
25	REC	O	Dolby IC mode control (REC/PLAY)	65	LATCH	I	Latch signal output for IC402
26	AMC	O	Speed control signal output for deck A	66	CLK	O	Clock output to IC401/IC402
27	BMC	O	Speed control signal output for deck B	67	STB	O	Strobe output to IC401
28		--	+5V(Pull up)	68	DATA	O	Data output to IC401/IC402 (Tone selector)
29	A/B	O	A/B DECK change control signal output	69	POWER	O	Power control signal output (Power on/off)
30	MSI	I	Music scan signal input	70	SPK	O	Speaker relay control signal output
31	P.BMT	O	Play back mute signal output	71	V. DO	O	Master volume control (down signal)
32		--	+5V(Pull up)	72	V. UP	O	Master volume control (up signal)
33	AFI	O	A mecha forward Indication signal output	73	S.MUTE	O	Source mute signal output
34	ARI	O	A mecha reverse Indication signal output	74	HP.IN	I	Head phon detection signal input
35	BFI	O	B mecha forward Indication signal output	75	AD VCC	---	Power supply +5V (A/D)
36	BRI	O	B mecha reverse Indication signal output	76	IN 7	I	AMP switch voltage (KARAOKE AI ,BASS,SOUND,EFFECT ON/OFF, SEA CONTROL HIGHT /LOW)
37	DOLI	O	Dolby Indication signal output	77	IN 6	I	AMP switch voltage(POWER,STEREO/AUTO/MONO,/MD/DCC→VCR,AUX)
38	RECI	O	Rec Pause Indication signal output	78	IN 5	I	DECK switch voltage(A PLAY,STOP,FF,REW)
39	REVI	O	Reverse mode Indication signal output	79	IN 4	I	DECK switch voltage(DOLBY,REV,DUB,REC)
40	P.IND	O	Power Indication signal output	80	IN 3	I	DECK switch voltage(B PLAY,STOP,FF,REW)



■ MN171601J6D1(IC951) : CD Controller

1. Terminal Layout

VDD	1	MN171601J6D1	64	OSC1
HREQ	2		63	OSC2
SRCLK	3		62	VSS
SRDAT	4		61	X2
	5		60	X1
MREQ	6		59	RST
SQCK	7		58	GND
SUBQ	8		57	GND
POWER OFF	9		56	GND
STATUS	10		55	GND
FLOCK	11		54	GND
TLOCK	12		53	GND
COMRDY	13		52	GND
HRDY	14		51	GND
GND	15		50	GND
GND	16		49	DCS OUT
RST	17		48	DCS IN
MCLK	18		47	GND
MDATA	19		46	GND
MLD	20		45	GND
SENSE	21		44	GND
RSTSW	22		43	GND
OPSW	23		42	GND
CLSW	24		41	P.IND
OPEN	25		40	GND
CLOSE	26		39	KO2
DMUTE	27		38	KO1
GND	28		37	KO0
COMREQ/CLK	29		36	KI3
COMDATA	30		35	KI2
GND	31		34	KI1
GND	32		33	KI0

2. Key Matrix

	KEY IN0 (pin33)	KEY IN1 (pin34)	KEY IN2 (pin35)	KEY IN3 (pin36)
KEY OUT 0 (pin37)	REPEAT	OPEN/ CLOSE	CD REC	■/ CLEAR
KEY OUT 1 (pin38)	CD-G CHANNEL	◀◀	SIDE A/B	▶▶/
KEY OUT 2 (pin39)	PROGRAM	▶▶	AUTO EDIT	

3. Terminal Description

Pin	symbol	I/O	Function and Operations	Pin	symbol	I/O	Function and Operations
1	VDD	--	Power supply	33	KI0	I	VCD Key matrix input
2	HREQ	I	Communication signal input to IC121	34	KI1	I	VCD Key matrix input
3	SRCLK	O	Request output to IC121	35	KI2	I	VCD Key matrix input
4	SRDAT	O	Serial data output	36	KI3	I	VCD Key matrix input
5	--	--		37	KO0	O	VCD Key matrix output
6	MREQ	O	Transfer request data to IC121	38	KO1	O	VCD Key matrix output
7	SQCK	O	Clock output for Q-resistor of subcode	39	KO2	O	VCD Key matrix output
8	SUBQ	I	Input Q-data of subcode	40	GND	--	Connected to GND
9	POWER OFF	O	Power control signal output	41	P.IND	O	Power indication signal output
10	STATUS	I	Status signal input (from IC650)	42	--	--	Connected to GND
11	FLOCK	I	Focus lock signal input(from IC650)	43	--	--	Connected to GND
12	TLOCK	I	Tracking signal input(from IC650)	44	--	--	Connected to GND
13	COMRDY	I	Communication signal input to IC801	45	--	--	Connected to GND
14	HRDY	I	Communication signal input to IC121	46	--	--	Connected to GND
15	GND	--	Connected to GND	47	--	--	Connected to GND
16	GND	--	Connected to GND	48	DCS IN	I	DCS signal input
17	RST	O	System reset signal output (IC650,751,121)	49	DCS OUT	O	DCS signal output
18	MCLK	O	Command clock signal to IC650	50	--	--	Connected to GND
19	MDATA	O	Command data signal to IC650	51	--	--	Connected to GND
20	MLD	O	Command load signal to IC650	52	--	--	Connected to GND
21	SENSE	I	Sense signal input from IC650	53	--	--	Connected to GND
22	RSTSW	I	CD mech. rest switch input	54	--	--	Connected to GND
23	OPSW	I	Open switch input	55	--	--	Connected to GND
24	CLSW	I	Close switch input	56	--	--	Connected to GND
25	OPEN	O	Tray open signal output	57	--	--	Connected to GND
26	CLOSE	O	Tray close signal output	58	--	--	Connected to GND
27	DMUTE	O	Muting signal output to IC650	59	RST	I	System reset signal input
28	--	--	Connected to GND	60	X1	--	Connected to GND
29	COMREQ/CLK	I	Transfer data clock input to IC801	61	X2	--	Non connection
30	COMDATA	I	Data input from IC801	62	Vss	--	GND
31	--	--	Connected to GND	63	OSC2	O	Clock oscillation output
32	--	--	Connected to GND	64	OSC1	I	Clock oscillation input

■ MN172412J6C1 (IC801) : Tuner & FL Display controller

## 1. Terminal Layout

63 ~ 43	
64	42
{	}
84	22
1 ~ 21	

## 2. Key Matrix

	K11	K12	K13
6GA	FM / AM	PRESET >	PRESET <
7GA	SOURCE	MINUTE TUNING >	HOURLY TUNING <
8GA	REC TIMER	DAILY	CLOCK ADJ.

## 3. Terminal Description

Pin No.	Symbol	I/O	Function and Operations	Pin No.	Symbol	I/O	Function and Operations
1	P12A	O	FL segment control output	43	COM REQ	O	Request signal output to C951
2	P17A	O	"	44	FM/AM	I	FM/AM select signal input
3	P22A	O	"	45	RDS CLK	--	Not use
4	P27A	O	"	46	RDS DATA	--	"
5	P32A	O	"	47	RDS RST	--	"
6	10GA	O	FL grid control output	48	RDS START	--	"
7	P3A	O	FL segment control output	49	INH IN	I	Inhibit signal input
8	P8A	O	"	50	STEREO	I	STEREO indicator signal input
9	P13A	O	"	51	TUNED	I	TUNED indicator signal input
10	P18A	O	"	52	T.CE	O	Chip enable signal to IC121
11	P23A	O	"	53	fOUT CLK	O	Clock output to IC121
12	P28A	O	"	54	DIN	I	Data input from IC121
13	P33A	O	"	55	D OUT	O	Control data signal to IC121
14	11GA	O	FL grid control output	56	TU MUTE	I	Tuner muting signal input
15	P4A	O	FL segment control output	57	K11	I	Key matrix input
16	P9A	O	"	58	K12	I	"
17	P14A	O	"	59	K13	I	"
18	P19A	O	"	60	K14	I	"
19	P24A	O	"	61	TU TEST	--	Test mode starts when TU TEST pin becomes 'L'
20	P29A	O	"	62	SCL	--	Not use
21	P34A	O	"	63	SBA	--	"
22	P14B	O	"	64	CS0	I	Chip select input
23	VPP	--	FL Power supply	65	CS1	I	"
24	P5A	O	FL segment control output	66	CS2	I	"
25	P10A	O	"	67	CS3	I	"
26	P15A	O	"	68	RESET	I	Reset signal input
27	P20A	O	"	69	X1	--	Connected GND
28	P25A	O	"	70	X2	--	Not use
29	P30A	O	"	71	VSS	--	GND
30	P35A	O	"	72	OSC2	I	Clock oscillation input
31	1GA	O	FL grid control output	73	OSC1	O	Clock oscillation output
32	2GA	O	"	74	VDD	--	Power supply
33	3GA	O	"	75	P1A	O	FL segment control output
34	4GA	O	"	76	P6A	O	"
35	5GA	O	"	77	P11A	O	"
36	6GA	O	"	78	P16A	O	"
37	7GA	O	"	79	P21A	O	"
38	8GA	O	"	80	P26A	O	"
39	DCS IN	I	Compulink signal input	81	P31A	O	"
40	DCS OUT	O	Compulink signal output	82	9GA	O	FL grid control output
41	COM CLK	O	Clock signal output to IC951	83	P2A	O	FL segment control output
42	COM DATA	I	Data input from IC951	84	P7A	O	"

■ HA12171NT ( IC304 ) : DOLBY NR & RECORD EQUALIZER

1. Outline

- Dolby B type NR
- Reoed equalizer
- Interval detection

2. Terminal Layout

GND	1	GND	56
AIN(R)	2	AIN(L)	55
BIN(R)	3	BIN(L)	54
ABO(R)	4	ABO(L)	53
CIN(R)	5	CIN(L)	52
RIN(R)	6	RIN(L)	51
BIAS	7	RIP	50
PBOUT(R)	8	PBOUT(L)	49
DET(R)	9	DET(L)	48
RECOU(T)R	10	RECOU(T)L	47
EQIN(R)	11	EQIN(L)	46
BOOST(R)	12	BOOST(L)	45
EQOUT(R)	13	EQOUT(L)	44
PB A/B	14	BIAS(N)	43
A 120/70	15	BIAS(C)	42
PAS/DOL	16	BIAS(M)	41
NORM/HIGH	17	BIASOUT	40
B 120/70	18	VREF	39
CROM/METAL	19	NOI	38
BIAS ON/OFF	20	FFI	37
RM ON/OFF	21	MS-GND	36
NR ON/OFF	22	MAOUT	35
MS GAIN R/S	23	MSIN	34
REC/PB	24	MSDET	33
LM ON/OFF	25	MS-VCC	32
IREF	26	MSOUT	31
GPCAL	27	D-GND	30
RECCAL	28	VCC	29

3. Terminal Description

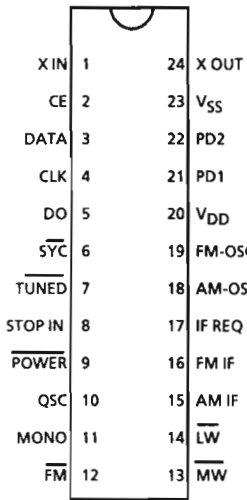
Pin No	Symbol	I/O	Function	Pin No	Symbol	I/O	Function
1	GND	--	GND	29	VCC	--	Power supply
2	AIN(R)	I	Deck A playback input (Rch)	30	D-GND	--	Digital GND
3	BIN(R)	I	Deck B playback input (Rch)	31	MSOUT	O	Music scanning signal output
4	ABO(R)	O	Playback buffer out (Rch)	32	MS-VCC	--	Power supply
5	CIN(R)	I	70μ Buffer input (Rch)	33	MSDET	I	Time constancew setting for music scan
6	RIN(R)	I	Recording input(Rch)	34	MSIN	I	Input for music scan
7	BIAS	I	Dolby bias current input	35	MAOUT	O	Amp output for music scan
8	PBOUT(R)	O	Playback output (Rch)	36	MS-GND	--	GND
9	DET (R)	I	NR time constance (Rch)	37	FFI	I	Feedback input for MS(FF,REW)
10	RECOU(T)R	O	Recording output (Rch)	38	NOI	I	Feedback input for MS
11	EQIN(R)	I	Input for recording equalizer (Rch)	39	VREF	O	Refference for music scan
12	BOOST(R)	I	Time constance for low boost (Rch)	40	BIASOUT	O	Recording bias control
13	EQOUT(R)	O	Equalizer output (Rch)	41	BIAS(M)	I	Bias current input for metal tape
14	PB A/B	I	Deck A/B select	42	BIAS(C)	I	Bias current input for CrO2 tape
15	A 120/70	I	Deck A playback EQ select	43	BIAS(N)	I	Bias current input for normal tape
16	PASS/DOL	I	Dolby signal path select( Through/pass)	44	EQOUT(L)	O	Equalizer output (Lch)
17	NORM/HIGH	I	Dubbing mode select	45	BOOST(L)	I	Time constance for low boost (Lch)
18	B 120/70	I	Deck B playback EQ select	46	EQIN(L)	I	Input for recording equalizer (Lch)
19	CROM/METAL	I	Tape select	47	RECOU(T)L	O	/Recording output (Lch)
20	BIAS ON/OFF	I	Bias ON/OFF control input	48	DET(L)	I	NR time constance (Lch)
21	RM ON/OFF	I	Recording mute ON/OFF control input	49	PBOUT(L)	O	Playback output(Lch)
22	NR ON/OFF	I	NR ON/OFF control input	50	RIP	I	Ripple filter
23	MS GAIN R/S	I	Gain for music scan control	51	RIN(L)	I	Recording input (Lch)
24	REC/PB	I	Recording/Playback control	52	CIN(L)	--	70μ buffer input (Lch)
25	LM ON/OFF	I	Playback mute ON/OFF control	53	ABO(L)	O	Playback buffer out (Lch)
26	IREF	I	Reference current input	54	BIN(L)	I	Deck B playback input (Lch)
27	GPCAL	I	GP calibration	55	AIN(L)	I	Deck A playback input (Lch)
28	RECCAL	I	Recording gain calibration	56	GND	--	GND

■ LC7218JM (IC121) : PLL Synthesizer

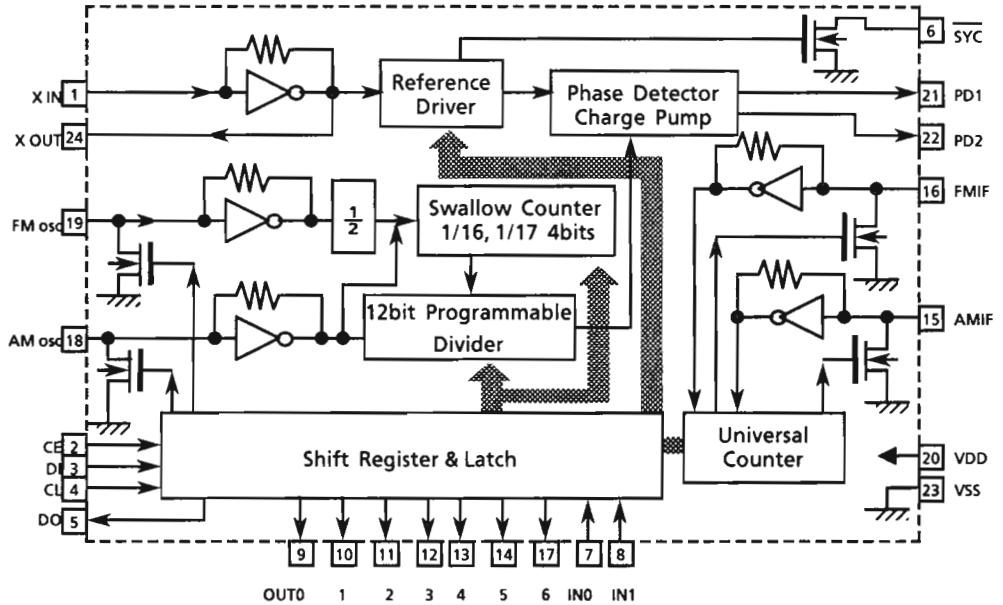
1. The main function descriptions

- (1) It makes the local oscillation frequency by the control data from IC801.
- (2) Decode the control signal and transmit the signal for receiving conditions.
- (3) For the best tuning, count the internal-frequency and transmit the data to IC801.

2. Terminal Layout



3. Block Diagram

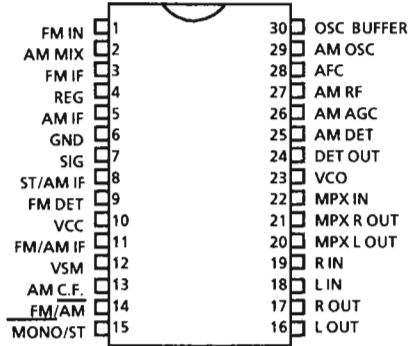


4. Pin Functions

Pin No.	Symbol	I/O	Functions
1,24	X in , X out	I/O	Crystal oscillator (7.2MHz).
2	CE	I	Fix the chip enable to "H" when inputting (DATA) and outputting (DO) the serial data.
3	DATA	I	Receive the control data from the controller (IC801).
4	CK	I	This clock is used to synchronize data when transmitting the data of DATA and DO.
5	DO	O	Transmit the data from LC7218 to the controller which is synchronized with CLK.
6	SYNC	—	Not used.
7	TUNED	I	Receive the tuned signal from IC102 (LA1836) LOW : active.
8	STOP IN	—	Connected to GND
9	POWER	—	Not used.
10	QSC	—	Not used.
11	MONO	O	MONO control output to IC102 . "H" on FM-monaural, "L" on FM-Stereo.
12	FM	O	It is "L" on FM mode.
13	MW	O	It is "L" on MW mode.
14	LW	--	Not used.
15	AM-IF	I	Universal counter input for AM-IF from IC102 (LA1836).
16	FM-IF	I	Universal counter input for FM-IF from IC102(LA1836).
17	IF REQ	O	Output the "IF-signal request" to IC102 when the pin-7 (tuned in) goes to "H".
18	AM OSC	I	Input the local oscillator signal of AM.
19	FM OSC	I	Input the local oscillator signal of FM.
20	V <sub>DD</sub>	—	Power supply.
21	PD1	O	PLL charge pump output : When the local oscillator signal frequency is higher than the reference frequency, high level signals will output. When it is lower than the reference frequency, low level signals will output. When it is same as reference frequency signals, it will be floating.
22	PD2	—	Not used.
23	V <sub>SS</sub>	—	Connected to GND

■ LA1836M (IC102) : FM AM IF AMP & detector

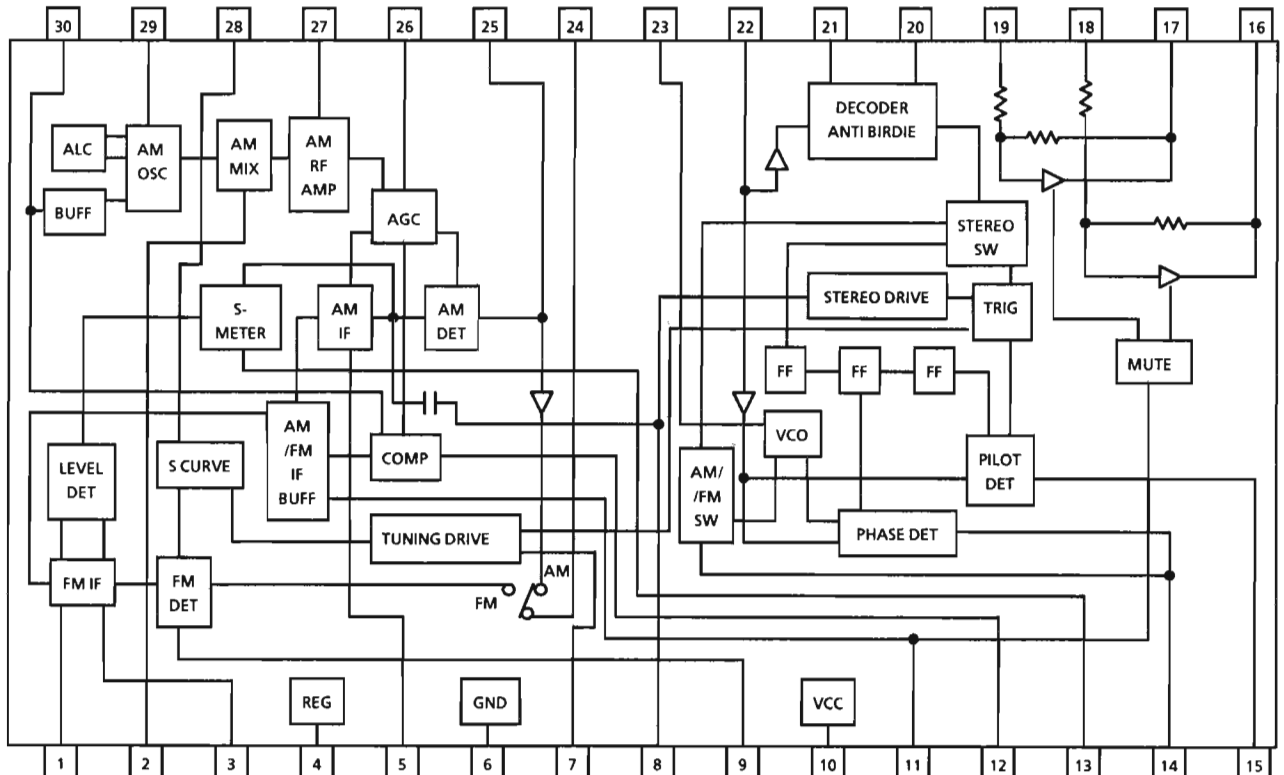
1. Terminal Layout



3. Pin Function

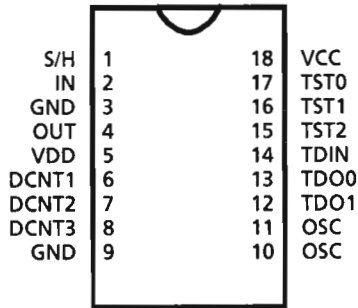
Pin No.	Symbol	I/O	Function
1	FM IN	I	This is an input terminal of FM IF Signal.
2	AM MIX	O	This is an output terminal for AM mixer.
3	FM IF	I	Bypass of FM IF
4	REG	O	Control of FM frequency width
5	AM IF	I	Input of AM IF Signal.
6	GND	—	This is the device ground terminal.
7	SIG	O	When the set is tuning, this terminal becomes "L".
8	ST/AM IF	O	Stereo indicator output. Stereo : "L", Mono : "H"
9	FM DET	—	FM detect transformer.
10	VCC	—	This is the power supply terminal.
11	FM/AM IF	O	When the signal of IF REQ of IC121(LC7218) appear, the signal of FM/AM IF output.
12	VSM	O	S Meter output and adjust AM SD sensitivity.
13	AM C.F.	I	This is a terminal of AM ceramic filter.
14	FM/AM	I	Change over the FM / AM input. "H" : FM, "L" : AM
15	MONO/ST	O	Stereo : "H", Mono : "L"
16	L OUT	O	Left channel signal output.
17	R OUT	O	Right channel signal output
18	L IN	I	Input terminal of the Left channel post AMP.
19	R IN	I	Input terminal of the Right channel post AMP.
20	MPX L OUT	O	Mpx Left channel signal output.
21	MPX R OUT	O	Mpx Right channel signal output.
22	MPX IN	I	Mpx input terminal.
23	VCO	I	Voltage controlled oscillator terminal.
24	DET OUT	O	AM/FM detection output.
25	AM DET	—	AM low cut adjustment.
26	AM AGC	I	This is an AGC voltage input terminal for AM.
27	AM RF	I	This is an input terminal for AM RF signal.
28	AFC	—	This is an output terminal of voltage for FM-AFC.
29	AM OSC	—	This is a terminal of AM Local oscillation circuit.
30	OSC BUFFER	O	AM Local oscillation Signal output.

2. Block Diagram

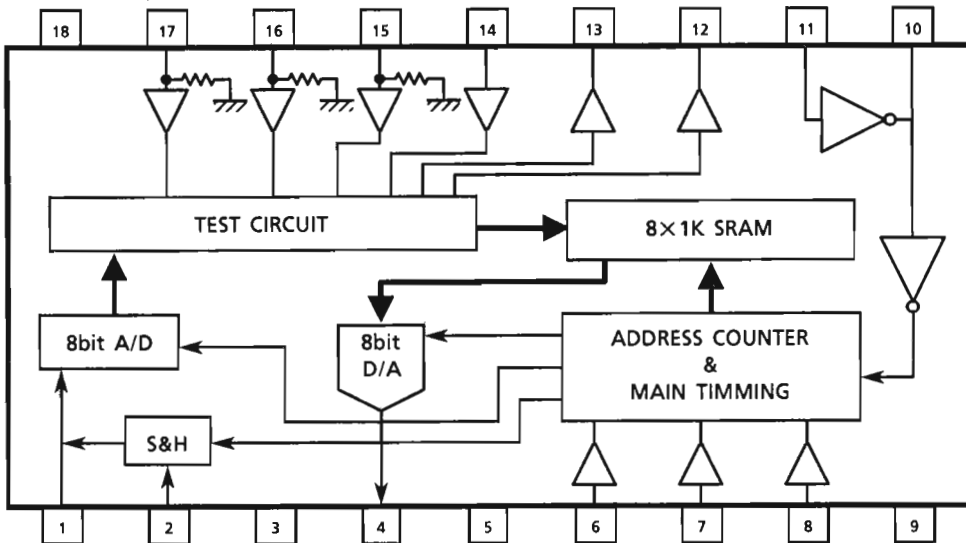


■ BU9251S: IC999 (DIGITAL DELAY)

1. Terminal Layout



2. Block Diagram

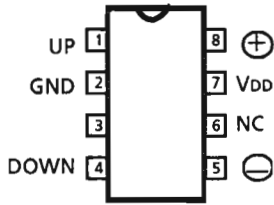


3. Terminal Function

Pin No.	Symbol	Function	Pin No.	Symbol	Function
1	S&H	Capacitor connected pin for sample and hold	10	OSC	Oscillating
2	IN	Input for analog signal	11	OSC	Oscillating
3	GND	GND	12	TDO1	Not use
4	OUT	Output for analog signal	13	TDO0	Not use
5	VDD	Power supply	14	TDIN	Not use
6	DCNT1	Pull up (+5V)	15	TST2	Not use
7	DCNT2	Pull up (+5V)	16	TST1	Not use
8	DCNT3	Pull up (+5V)	17	TST0	Not use
9	GND	GND	18	VCC	Power supply

■ LB1639-CV (IC404) : DC MOTOR DRIVER

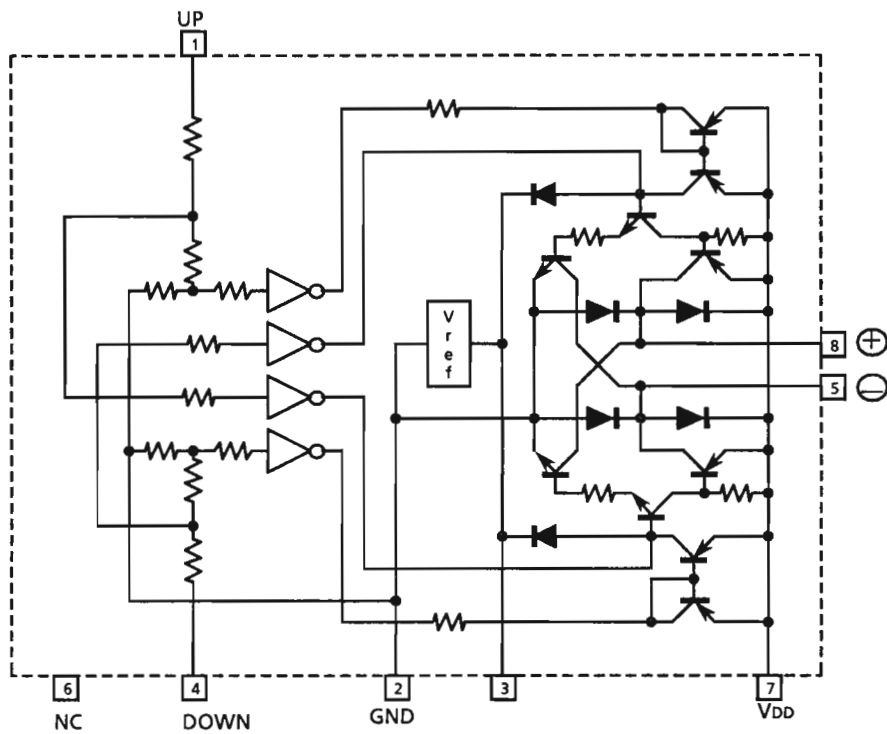
1. Terminal Layout



2. Function

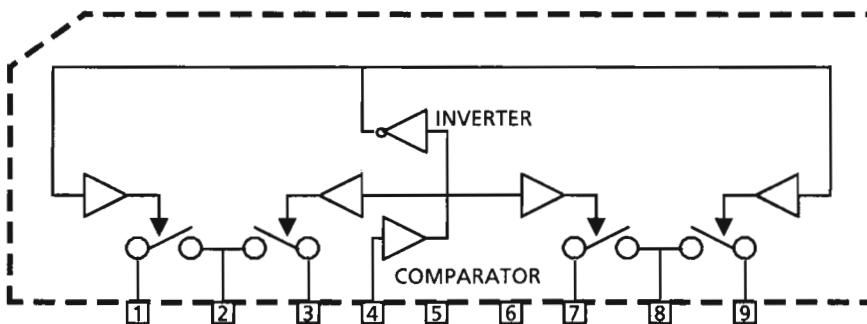
UP	DOWN	⊕	⊖	MODE
H	L	H	L	Clock wise
L	H	L	H	Counter clock wise
H	H	OFF	OFF	Stop
L	L	OFF	OFF	Stop

3. Block Diagram



■ UPC1330HA (IC303) : HEAD SWITCH

1. Terminal Layout & Block Diagram



2. Truth table

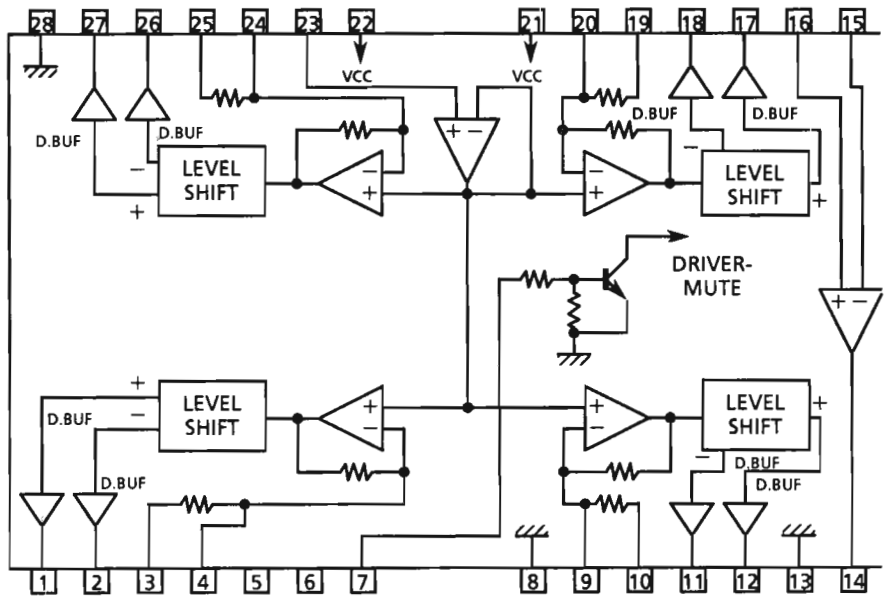
MODE	4pin
Play	L
Rec	H

■ BA6398FP(IC700) : BTL DRIVER

1. Terminal Layout

CH1-OUT A	1	28	GND
CH1-OUT B	2	27	CH4-OUT A
CH1-IN A	3	26	CH4-OUT B
CH1-IN B	4	25	CH4-IN A
NC	5	24	CH4-IN B
NC	6	23	BIAS IN
MUTE	7	22	VCC
GND	8	21	VCC
CH2-IN B	9	20	CH3-IN B
CH2-IN A	10	19	CH3-IN A
CH2-OUT B	11	18	CH3-OUT B
CH2-OUT A	12	17	CH3-OUT A
GND	13	16	OP IN+
OP OUT	14	15	OP IN-

2. Block Diagram

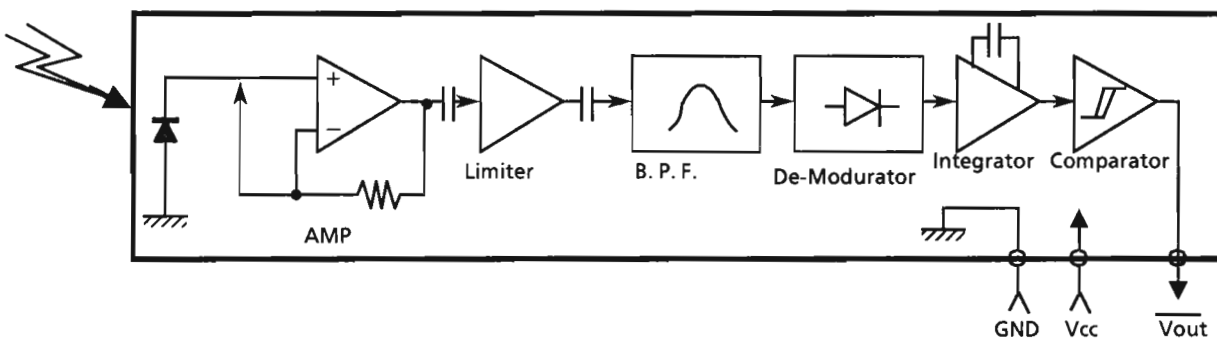


3. Description

Pin No.	Symbol	I/O	Description
1	CH1-OUT A	O	Focus drive output
2	CH1-OUT B	O	
3	CH1-IN A	I	Focus drive input
4	CH1-IN B	-	Non connection
5,6	NC		
10	CH2-IN A		
19	CH3-IN A		
24	CH4-IN B		
7	MUTE	I	Mute signal input pin
9	CH2-IN B	I	Spindle motor drive input
20	CH3-IN B	I	
25	CH4-IN A	I	Tracking drive input

Pin No.	Symbol	I/O	Description
8,13,28	GND	-	GND
11	CH2-OUT B	O	Spindle motor drive output
12	CH2-OUT A	O	
14	OP OUT	O	OP amp output
15,16	OP IN	I	OP amp input
17	CH3-OUT A	O	Feed motor drive output
18	CH3-OUT B		
21,22	Vcc	-	Power supply
23	BIAS IN	I	Input pin of Bias
26	CH4-OUT B	O	Tracking drive output
27	CH4-OUT A		

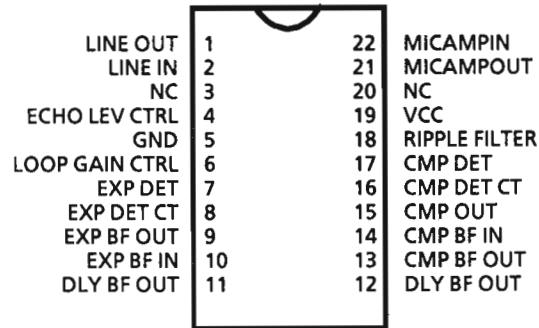
■ NJH32H380A (IC803) : Remort control modul



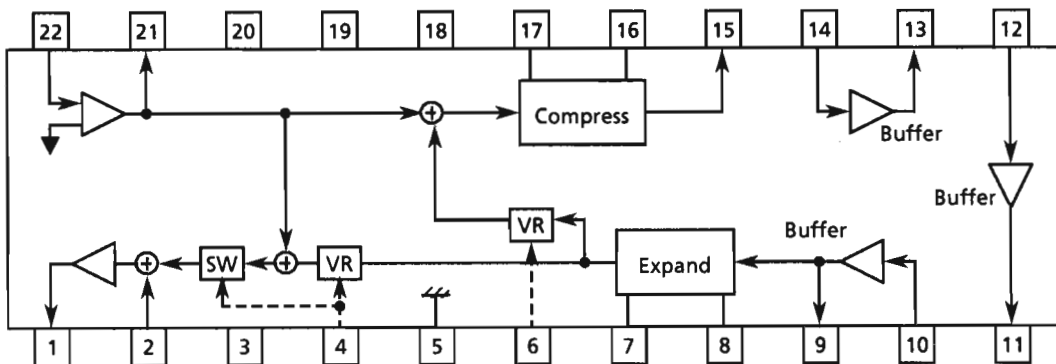


■ BA7725S (IC998) :Echo System Analog compactor

1. Terminal Layout



2. Internal Block Diagram

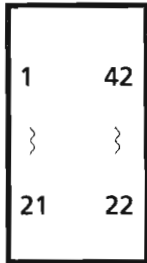


3. Terminal Description

Pin No.	Symbol	I/O	Function	Pin No.	Symbol	I/O	Function
1	LINE OUT	O	Line output	12	DLY BF IN	I	Delay buffer input
2	LINE IN	I	Line input	13	CMP BF OUT	O	Buffer output (Compress circuit side)
3	NC	--	Not used	14	CMP BF IN	I	Buffer input (Compress circuit side)
4	ECHO LEV CTRL	I	Determines echo level. The echo circuit is off when 1 volt is added. The echo level varies according to the voltage from 2 volts to 9 volts.	15	CMP OUT	O	Compress circuit output
5	GND	--	Analog GND	16	CMP DET CT	I	Determines the attack and recovery time of compress circuit
6	LOOP GAIN CTRL	I	Loop gain control terminal. The gain varies according to the voltage from 2 volts to 9 volts.	17	CMP DET	I	Detection terminal for compress circuit
7	EXP DET	I	Detection terminal for expand circuit	18	RIPPLE FILTER	I	A capacitor is connected for ripple elimination filter
8	EXP DET CT	I	Determines the attack and recovery time of expand circuit	19	VCC	--	Power supply
9	EXP BF OUT	O	Buffer output for LPF (Expand circuit side)	20	NC	--	Not used
10	EXP BF IN	I	Buffer input for LPF (Expand circuit side)	21	MIC AMP OUT	O	Mic amp output
11	DLY BF OUT	O	Delay buffer output	22	MIC AMP IN	I	Mic amp input

■ XR1095CP (IC802): FL Display driver

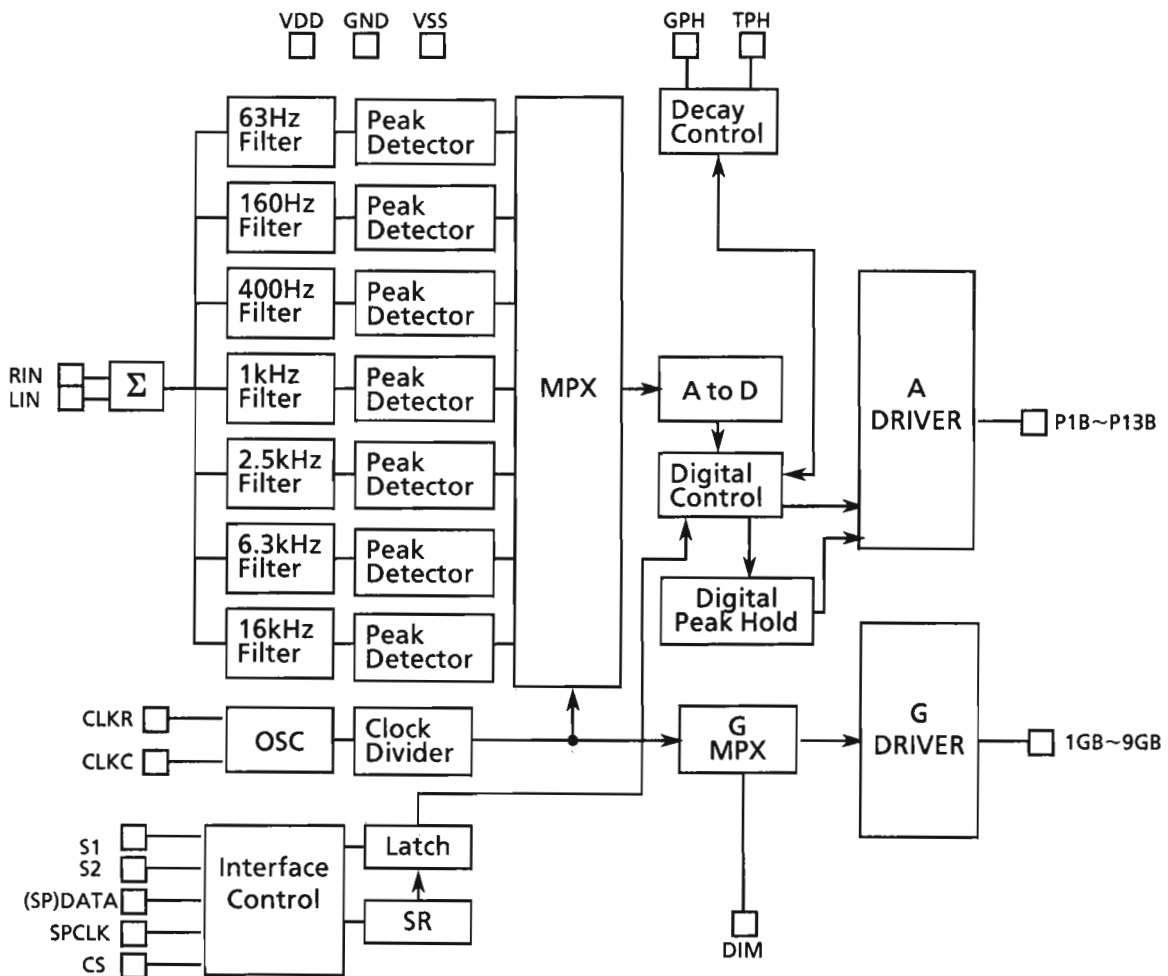
1. Terminal Layout



2. Pin function

Pin No.	I/O	Symbol	Function
1~5,9~16	O	P1B~P13B	Anode terminal
17	I	CS	Chip Select input.
18	I	SPCLK	Serial port clock input.
19	I	(SP)DATA	Serial port data input.
20	I	S1	Chip select 1 pin.
21	I	S2	Chip select 2 pin.
22	I	DIM	Connected to GND
23	—	VSS	Minus supply, -5VDC.
24	—	GND	GND
25	I	RIN	Right channel and left channel mixing input
26	I	LIN	Connected to GND
27	I	GPH	Filter amplitude display duration control. A resistor and timing capacitor from this pin to VSS adjust Peak Hold Decay Time.
28	I	TPH	Total output display on / off control.
30~38	O	1GB~9GB	Grid terminal
40	I	CLKR	Oscillator timing resistor between this pin and CLKC pin.
41	I	CLKC	Oscillator timing capacitor between this pin and VSS.
42	—	VDD	Plus supply, +5VDC.

3. Block Diagram

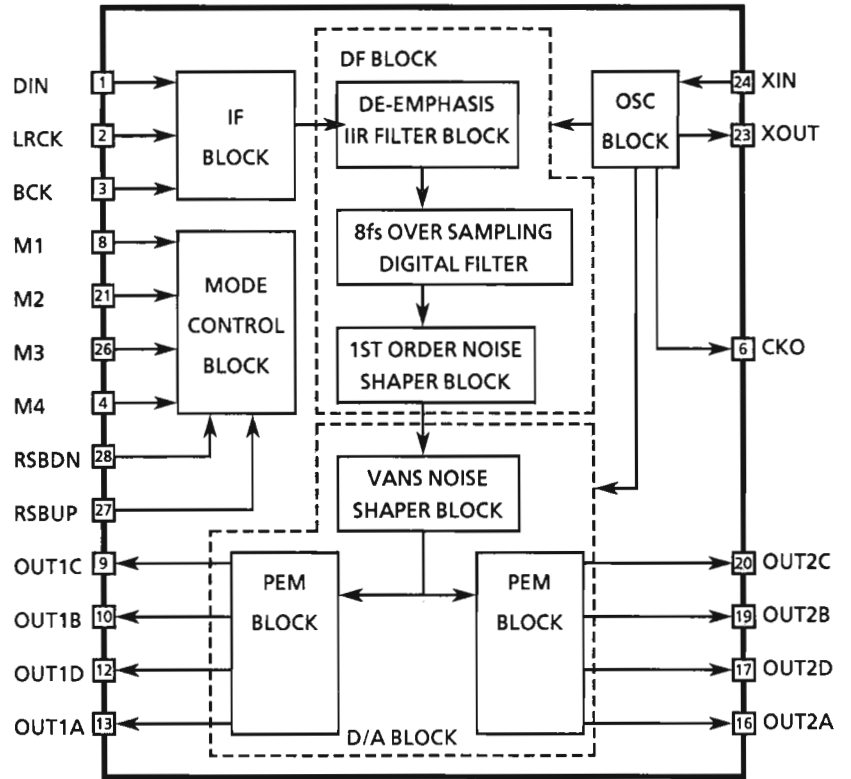


■ MN35502 (IC751) : D/A CONVERTER / DIGITAL FILTER

1. Terminal Layout

DIN	1	28	RSBDN
LRCK	2	27	RSBUP
BCK	3	26	M3
M4	4	25	DVDD1
DVDD2	5	24	XIN
CKO	6	23	XOUT
DVSS2	7	22	DVSS1
M1	8	21	M2
OUT1C	9	20	OUT2C
OUT1B	10	19	OUT2B
AVDD1	11	18	AVDD2
OUT1D	12	17	OUT2D
OUT1A	13	16	OUT2A
AVSS1	14	15	AVSS2

2. Block Diagram



3. Terminal Description

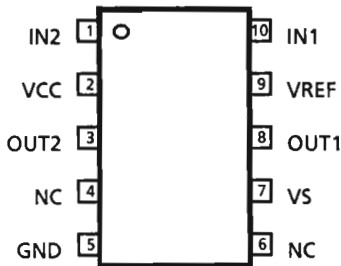
ピン No.	シンボル	I/O	機能概要
1	DIN	I	Serial data input
2	LRCK	I	LR clock input
3	BCK	I	Bit clock input from SRDATA
4	M4	I	Moving mode select pin 4 (Deenfacis ON/OFF,H=ON)
5	DVDD2	--	Power supply 2 of Digital (+5V)
6	CKO	O	Clock output
7	DVSS2	--	Grand 2 of Digital
8	M1	I	Mode select pin 1(Connect to GND)
9,10	OUT1C , OUT1B	O	PEM output signal (channel 1)
11	AVDD1	--	Power supply 1 of Analog (+5V)
12,13	OUT1D ,OUT1A	O	PEM signal output (channel 1)
14	AVSS1	--	Grand 1 of Analog
15	AVSS2	--	Grand 2 of Analog
16,17	OUT2A, OUT2D	O	PEM signal output (channel 2)
18	AVDD2	--	Power supply 2 of Analog (+5V)
19,20	OUT2B, OUT2C	O	PEM signal output (channel 2)
21	M2	I	Mode select pin 2
22	DVSS1	--	Grand 1 of Digital
23,24	XOUT, XIN	--	Connected to X'tal oscillation
25	DVDD1	--	Power supply 1 of Digital (+5V) (Power supply fou oscillation circuit)
26	M3	I	Mode select pin 3( Connected to GND )
27	RS BUP	--	Connected to GND
28	RS BDN	I	Reset pin /Digital attenuation control pin

4. Movement mode

Mode select pin name	Terminal mode		
M2	L	L	H
M3	L	H	L
Bit length input	16	16	20
XIN clock ( fs )	384	192	384
VANS Over sample ( fs )	64	32	64

■ TA8409FTP1 (IC750) : DCMOTOR DRIVER

1. Terminal Layout

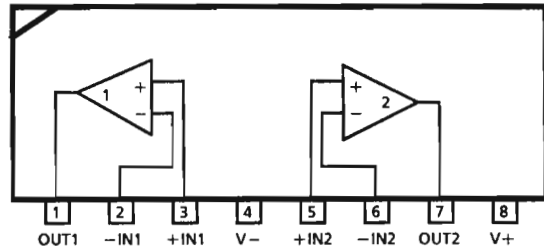


2. FUNCTION

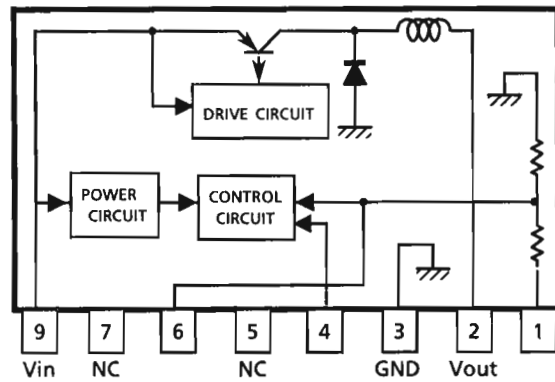
INPUT		OUTPUT		MODE
IN1	IN2	OUT1	OUT2	
0	0	∞	∞	Stop
1	0	H	L	Open
0	1	L	H	Close
1	1	L	L	Brake

∞ High impedance

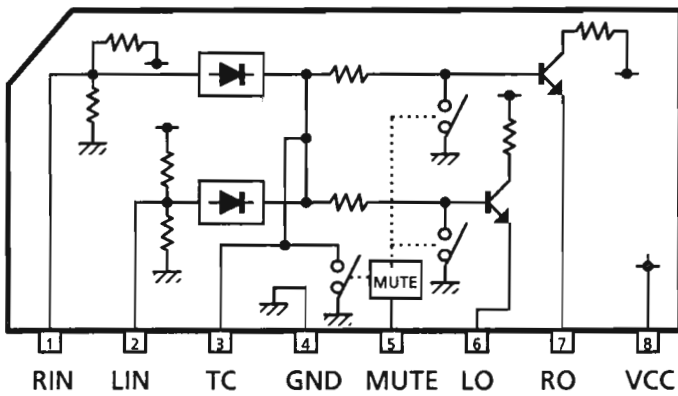
■ BA15218N (IC405) : DUAL OPE AMP  
VC4580LD (IC302)



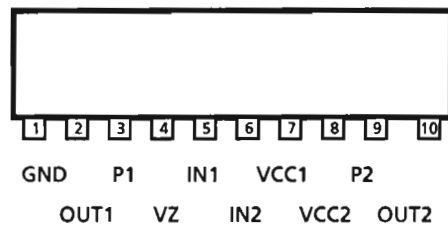
■ BP5020 (IC753) : DC/DC COVERTER(5V/1A)



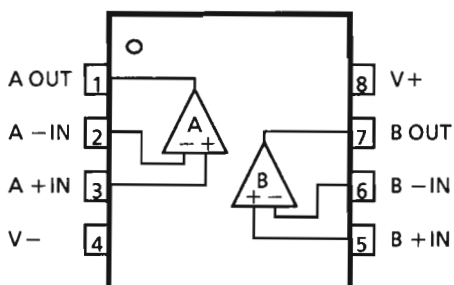
■ BA8221AN (IC353) : ALC



■ LB1641 (IC921~924) : DCMOTOR DRIVER



■ BA15218 (IC752) : DUAL OPE AMP



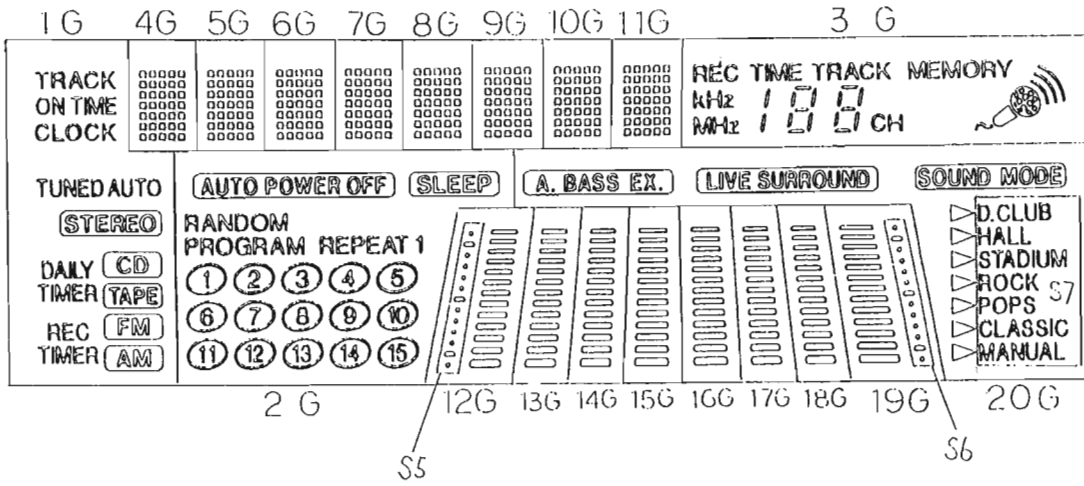
FUNCTION

INPUT		OUTPUT		MODE
IN1	IN2	OUT1	OUT2	
0	0	0	0	Brake
1	0	1	0	Clock wise
0	1	0	1	Counter clock wise
1	1	0	0	Brake

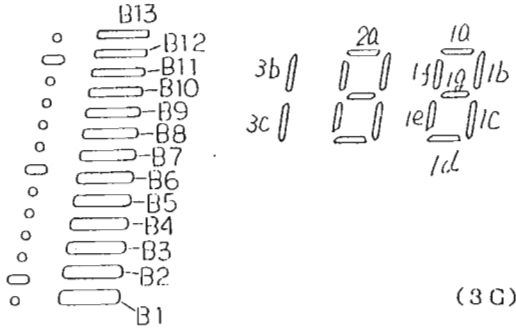
# Internal Connection of the Display

■ ELU0001-189: FL TUBE(FL300)

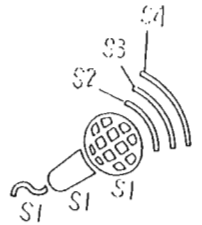
## (1) Grid Layout



(4G~11G)



(12G~19G)



(3G)

## (2) Pin Connections

(UPPER)

TERMINAL NO.	106	105	104	103	102	101	100	99	98	97	96	95	94	93	92	91	90			
ELECTRODE	F1	F1	F1	NP	NP	P	P	P	P	P	P	P	P	P	P	P	P			
TERMINAL NO.	89	88	87	86	85	84	83	82	81	80	79	78	77	76	75	74	73	72	71	70
ELECTRODE	P	P	NC	NC	NC	IC	P	P	P	P	P	P	P	P	P	11G	NC	P	P	P
TERMINAL NO.					69	68	67	66	65	64	63	62	61	60	59	58	57	56	55	54
ELECTRODE					P	P	P	P	P	P	P	P	P	P	P	NP	NP	F2	F2	F2

(LOWER)

TERMINAL NO.					38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53
ELECTRODE					P	P	P	P	P	P	P	P	P	P	P	NP	NP	F2	F2	F2
TERMINAL NO.	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37
ELECTRODE	NC	NC	NC	IC	NC	NC	NC	NC	P	12G	13G	14G	15G	16G	17G	18G	19G	20G	P	P
TERMINAL NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17			
ELECTRODE	F1	F1	F1	NP	NP	8G	7G	6G	5G	4G	3G	2G	1G	NC	NC	NC	NC			

Note . . . . . F : Filament  
 NP : Not pin  
 NC : Non connection  
 G : Grid  
 IC : Internally connected pin

## (3) Anode Designation

	1G	2G	3G	4G~11G
1A	TRACK	①	RECTIME	1
2A	ON TIME	②	TRACK	2
3A	CLOCK	③	MEMORY	3
4A	—	④	—	4
5A	TUNED	AUTO POWER OFF	kHz	5
6A	AUTO	SLEEP	MHz	6
7A	STEREO	—	CH	7
8A	CD	⑤	S1	8
9A	TAPE	⑥	S2	9
10A	FM	⑦	S3	10
11A	AM	⑧	S4	11
12A	DAILY TIMER	RANDOM	3b,3c	12
13A	REC TIMER	PROGRAM	—	13
14A	—	—	—	14
15A	—	⑨	2a	15
16A	—	⑩	2b	16
17A	—	⑪	2c	17
18A	—	⑫	2d	18
19A	—	REPEAT	2e	19
20A	—	1	2f	20
21A	—	—	2g	21
22A	—	⑬	1a	22
23A	—	⑭	1b	23
24A	—	⑮	1c	24
25A	—	—	1d	25
26A	—	—	1e	26
27A	—	—	1f	27
28A	—	—	1g	28
29A	—	—	—	29
30A	—	—	—	30
31A	—	—	—	31
32A	—	—	—	32
33A	—	—	—	33
34A	—	—	—	34
35A	—	—	—	35

	12G	13G~18G	19G	20G
1B	B1	B1	B1	A.BASS EX.
2B	B2	B2	B2	—
3B	B3	B3	B3	LIVE SURROUND
4B	B4	B4	B4	▷(CLASSIC)
5B	B5	B5	B5	▷(MANUAL)
6B	B6	B6	B6	▷(POP)
7B	B7	B7	B7	▷(ROCK)
8B	B8	B8	B8	▷(STADIUM)
9B	B9	B9	B9	▷(HALL)
10B	B10	B10	B10	▷(DISCO)
11B	B11	B11	B11	SOUND MODE
12B	B12	B12	B12	—
13B	B13	B13	B13	—
14B	S5	—	S6	S7

# Disassembly Procedures

**(1) Top cover removal**

1. Remove 6 screws **(B)** on the rear side and 2 screws **(A)** on both sides of the cover.
2. Remove the cover.

**(2) Rear panel removal**

1. Remove the top cover.
2. Remove the 2 screws **(C)** holding the heatsink cover. Remove the 2 screws **(C)** inside the heat sink
3. Remove the 10 screws **(C)** and 4 screws **(D)** (Fig 3)
4. Disconnect the P701, J607. Remove the Video CD PCB.
5. Remove the rear panel.

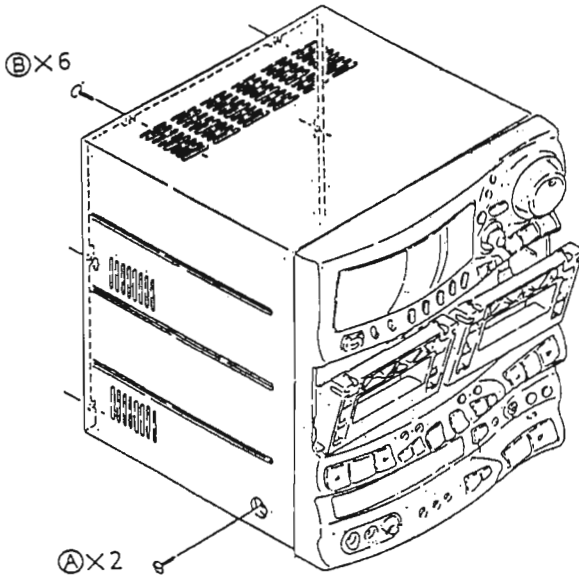


Fig1

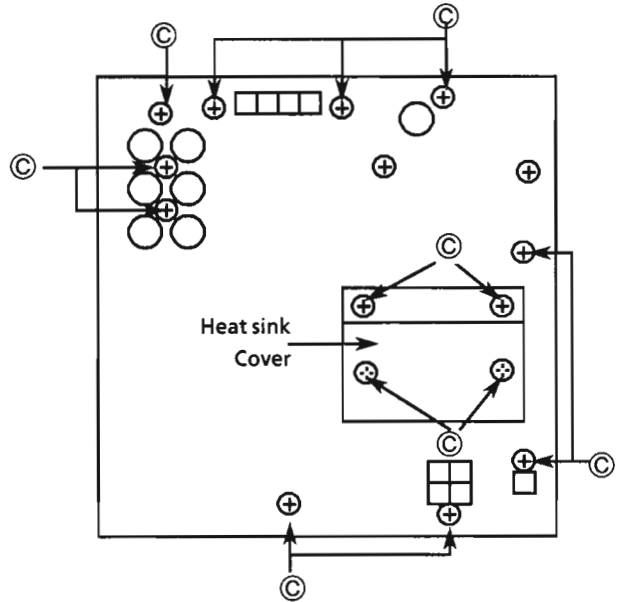


Fig2 Rear view

**(3) Tuner PCB (ENA-159-1) removal**

1. Remove the (1) and (2).
2. Remove J102.
3. Remove JB101.
4. Remove the tuner PCB.

**(4) Main VR and Source select PCB (ENB-195-3) removal**

1. Remove the main volume knob.
2. Remove the NUT for the volume shaft.
3. Remove the P401 and P402 and J401.
5. Remove the Main VR and Source select PCB.

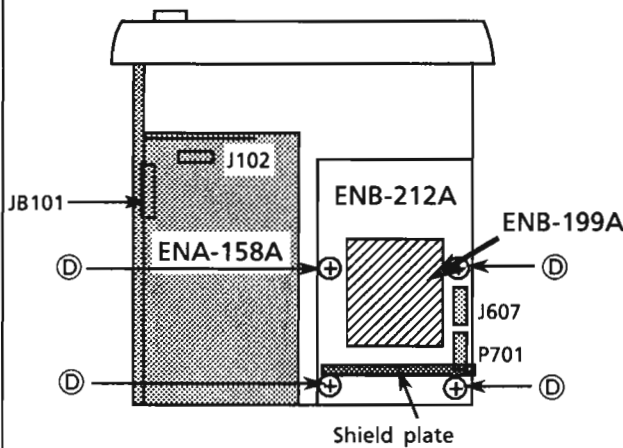


Fig 3 Top view

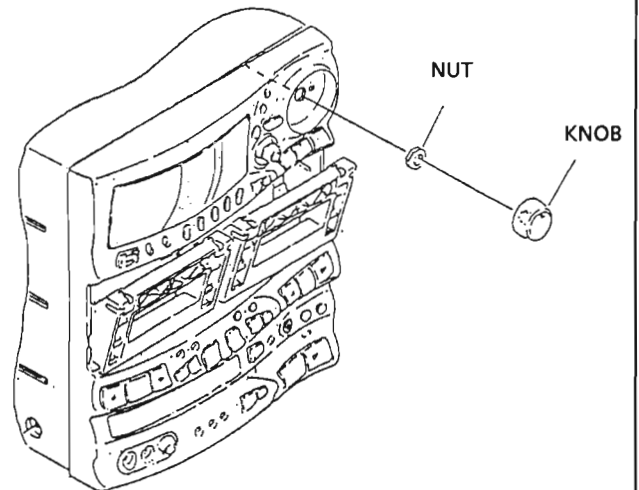


Fig 4 Front view

**(A)** .. SDSG3006M    **(B)** .... GBSG3006CC    **(C)** ... E73273-003    **(D)** ... SBST3006Z

- (5) Main PCB(ENH-265A) /AMP PCB (ENH-265-2,3) removal
1. Remove the (1)(2)(3)(4).
  2. Remove the 4 screws (E).
  3. Remove the J501 J852 and ,JA801,J801,JA601.
  4. Remove the Main PCB and AMP PCB.

- (6) AMP PCB(ENH-265-2) removal
1. Remove the (5).
  2. Disconnect the JA511,JA521.
  2. Remove the AMP PCB

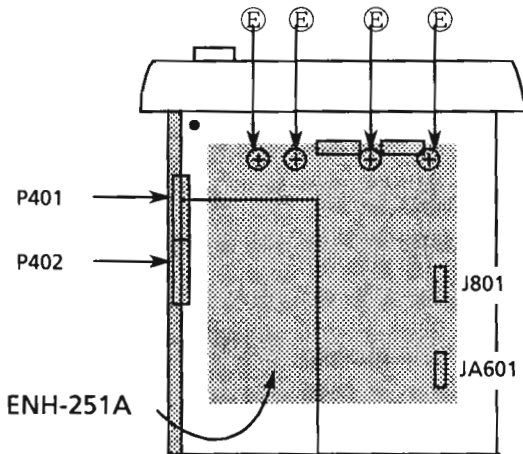


Fig 5 Top view

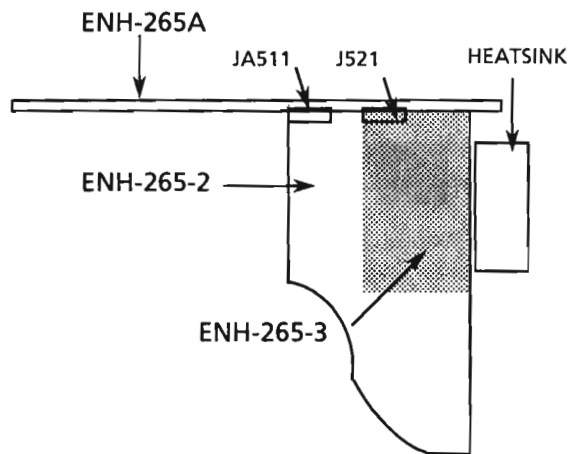


Fig 6 AMP PCB view

- (7) Front panel assembly removal.
1. Remove the (1)(2)and(4) (5).
  2. Remove the 2 screws (F).
  3. Remove the Fook of the bottom side and both side..
  4. Remove the Front panel assembly.

- (8) Front PCB(ENH-265-2) removal
1. Remove the (1)(2)and (4)(5).
  2. Remove the Front panel ass'y.
  3. Remove the 7 screws (G) .
  4. Remove the Front PCB.

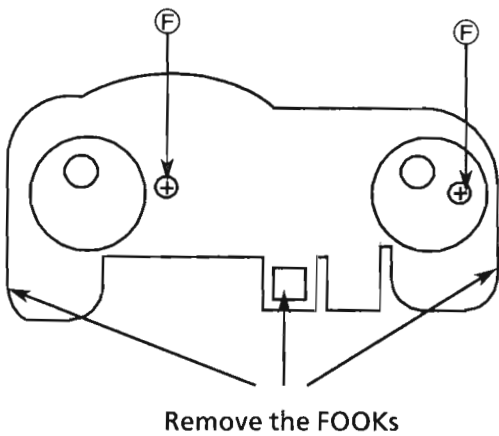


Fig 7 Bottom view

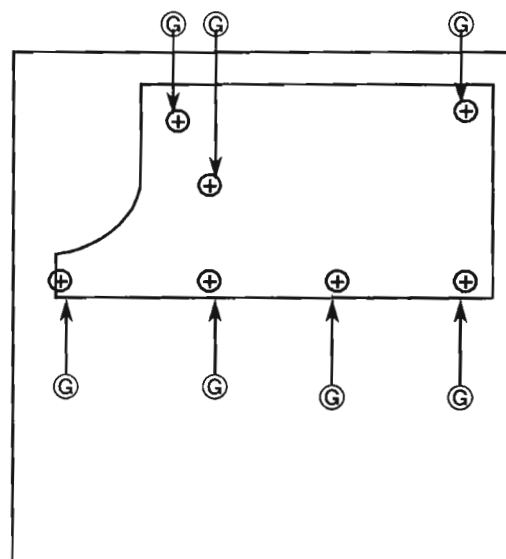


Fig 8 Front panel rear view

(E) .. SPST2604Z      (F) ... GBSG3006CC      (G) ... SDSF2608Z



- (9) Cassette mechanism with the PCB (ENJ-083A) removal
1. Remove the (1),(2)and (3)(4).
  2. Remove the screw ① holding the shield plate.
  3. Remove the 4screws ② and 4screws ③.
  4. Remove the Cassette mechanism.

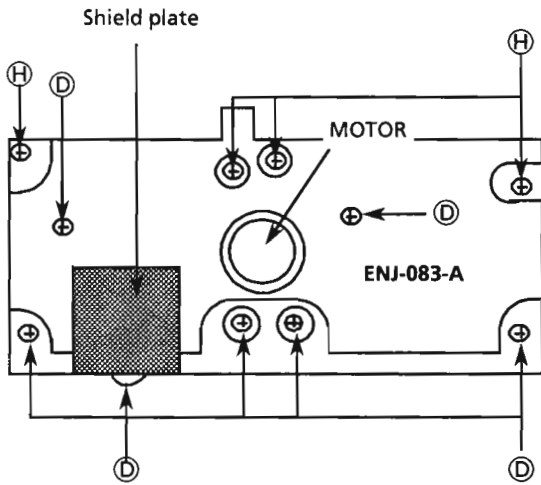


Fig 9 Front panel Rear view

- (10) Cassette holder removal
1. Open the cassette door.
  2. Remove the Cassette mechanism assembly.
  3. Remove the Cassette holder slide up ward.

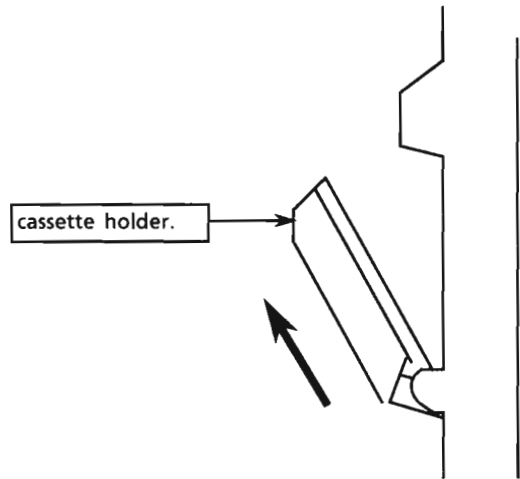


Fig 10 Side view

- (11) Front SW PCB(ENB-195-2) removal
1. Remove the (1),(2),(4)and (5),(7),(9).
  2. Remove the Cassette mechanism assembly.
  3. Remove the 6 screws ④ holding the braket .
  4. Remove the 9 screws ⑤ holding the SW PCB.
  5. Remove the SW PCB .

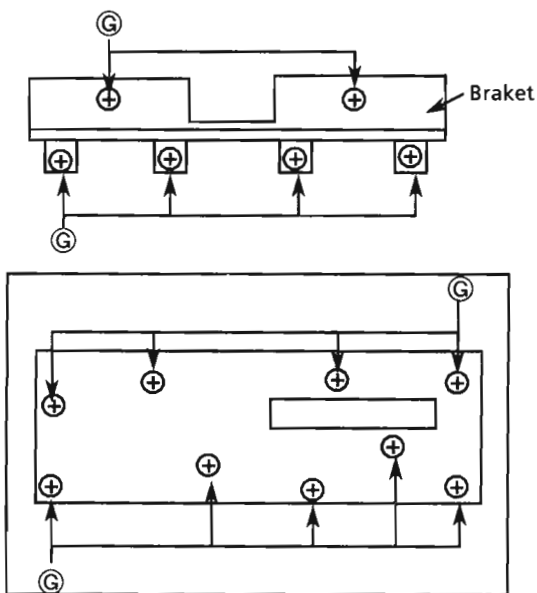


Fig 11 Front panel Rear view

- (12) Cassette door lock plate removal
1. Remove the (1),(2)and (5),(7),(9).
  2. Remove the 2screw ⑥ holding the door lock plate.
  3. Remove the door lock plate.

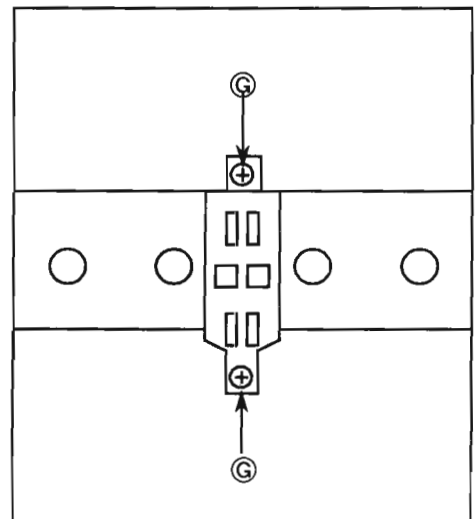


Fig 12 Front panel Rear view

④ .. SDSF2608Z      ② ... SBSF3008Z      ① ... SBST3006Z

(13) Damper removal

1. Remove the cassette mechanism.
2. Remove the spring holding the cassette holder.
3. Press the tab which secures the damper to remove the damper. (See the arrow shown in the figure below)

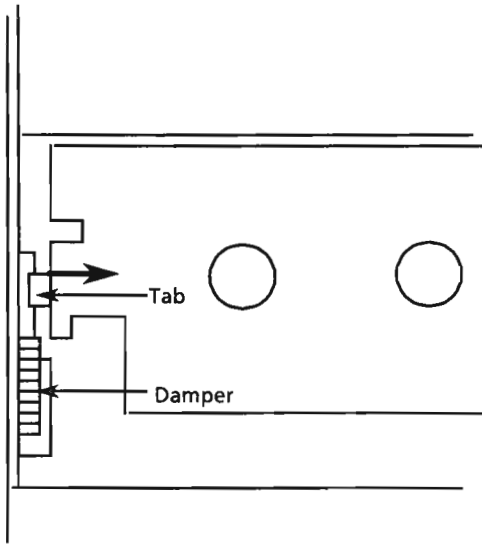


Fig 13 Door damper view

(14) Cassette holder removal

1. Remove the Cassette mechanism assembly.
2. Remove the spring holding the cassette holder.
3. Remove Cassette holder.

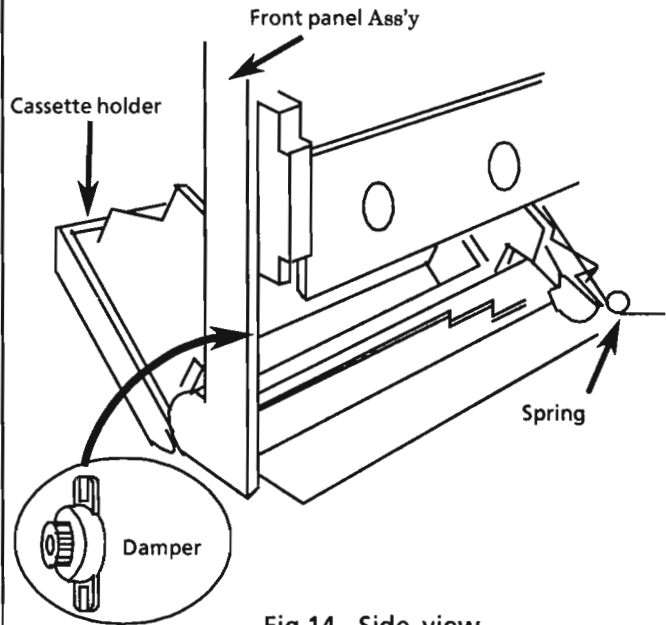


Fig 14 Side view

(15) Capstan motor removal.

1. Remove the cassette mechanism.
2. Remove the cassette deck control PCB.
3. Remove the 7 screws (G) holding the bracket.
4. Remove the capstan motor with the bracket.
5. Remove the 2 screws fixing the motor and the bracket.

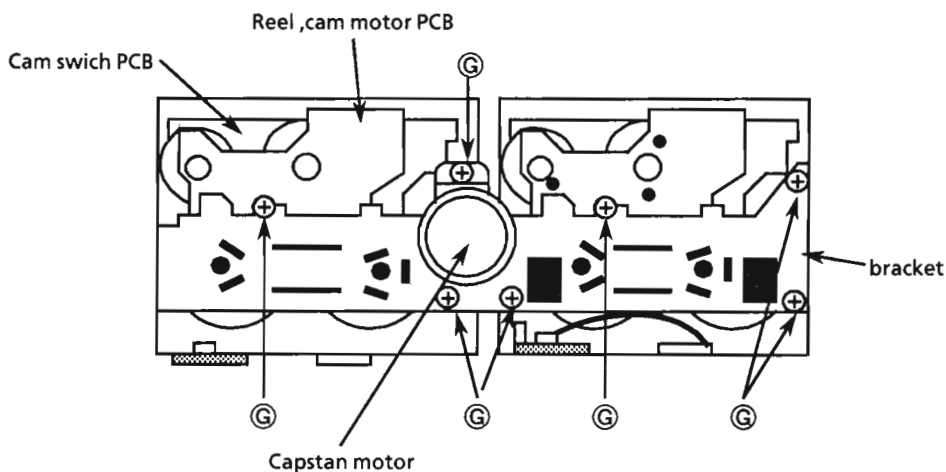


Fig 15 Cassette mechanism bottom view

**(16) Head assembly**

The direction of the head is changed with the head gear. When servicing, install the head gear according to the direction of the head.

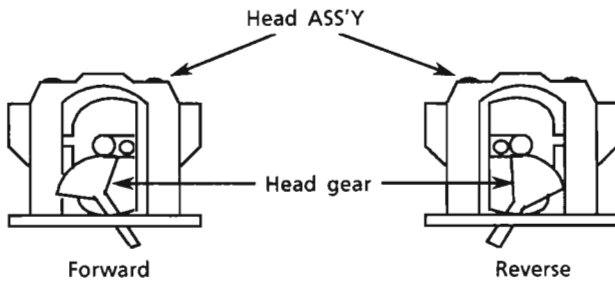


Fig16 Head ass'y side view

**(17) Pinch roller arm assembly removal**

1. Release the hook holding the pinch roller arm assembly to remove the assembly .

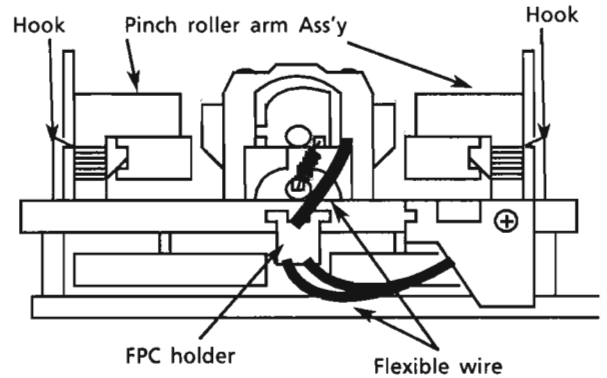


Fig17 Cassette mechanism side view

**(18) Fly wheel removal**

1. Remove the cassette mechanism assembly.
2. Remove the cassette controller PCB.
3. Remove the 7 screws (G) and the bracket

\* The oil on the capstan must be wiped out after re-assembling.

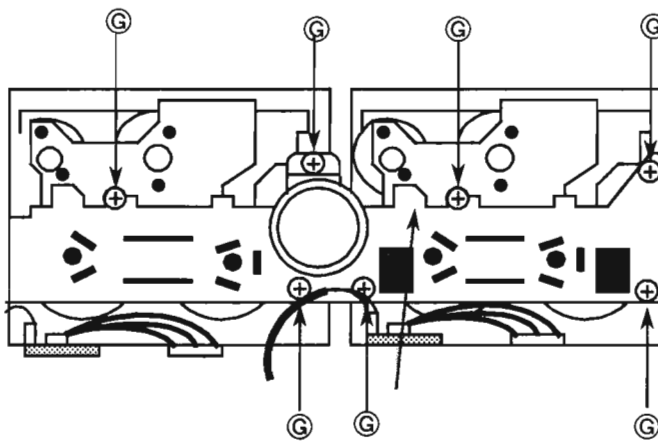


Fig 18 Cassette mechanism bottom view

**(19) Fly wheel assembly**

1. Install the beltB of bossA ,next install the beltA as shown in fig 19 up side.
2. Assemble the bracket with the capstan motor.
3. Hang the beltB of the motor pulley using a tweezers and the like as shown in fig 19 down side .

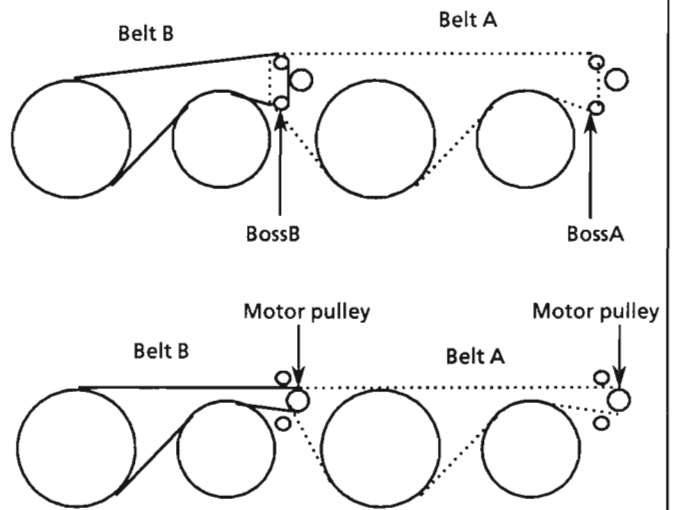


Fig 19 Fly wheel view

(20) Reel and cam motor removal

1. Remove the cassette mechanism assembly.
2. Remove the cassette controller PCB.
3. Remove the (15).
4. Remove the 2screws① and 2screws②.
5. Unsolder the reel and cam motor PCB .
6. Remove thr motor .

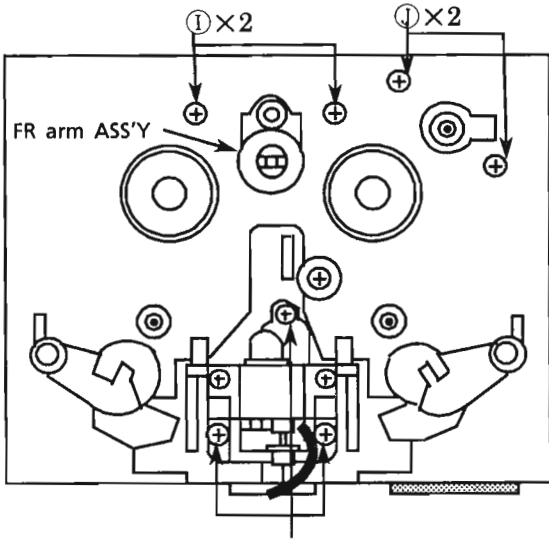


Fig 20 Cassette mecha Top view

(21) Cam SW PCB removal

1. Remove the (18).
2. Remove the reel and cam motor PCB.
3. Remove the screw(SDST2612) and hooks fixing the PCB to remove the cam switch .  
When assembling the cam switch ,install it so that the part ④ meets the part ⑤.

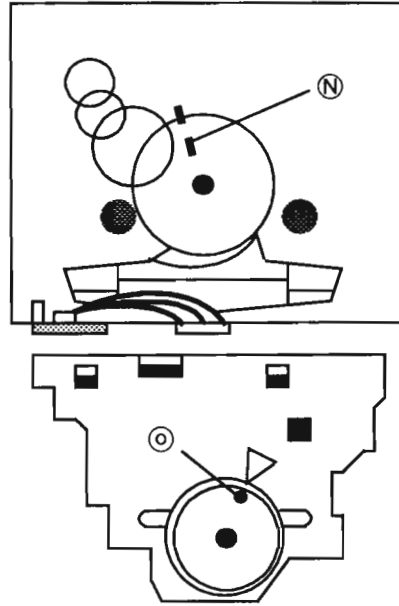


Fig 21 AMP PCB view

(22) Cassette controll PCB(ENJ-083)removal.

1. Remove the (1)(2)and (5).
2. Disconnect the J303,J304.
3. Remove the 3screws ③ holding the Cassette controll PCB and shield plate.
4. Remove the Cassette controll PCB.

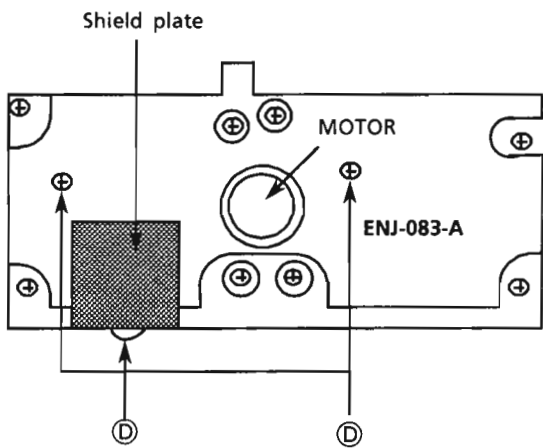


Fig 22 Cassette mechanism Bottom view

(23) Head assembly removal

1. Remove the cassette mechanism assembly.
2. Remove the FPC wire to the Cassette controll PCB.
3. Remove the 3 screws ④ holding the Cassette controll PCB.

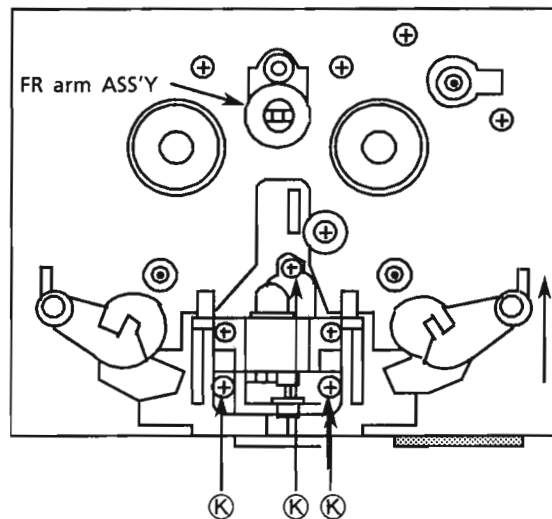


Fig 23 Front panel rear view

① .. VKZ4705-001    ② ... VKZ4705-002    ③ ... SBST3006Z    ④ ... SDST2004Z

(24) CD mechanism removal

1. Remove the (1),(2)and (5).
2. Remove the screw (H) .
3. Tune the screw located under the mechanism to remove the tray out of the loading mecha.
4. Remove the tray.

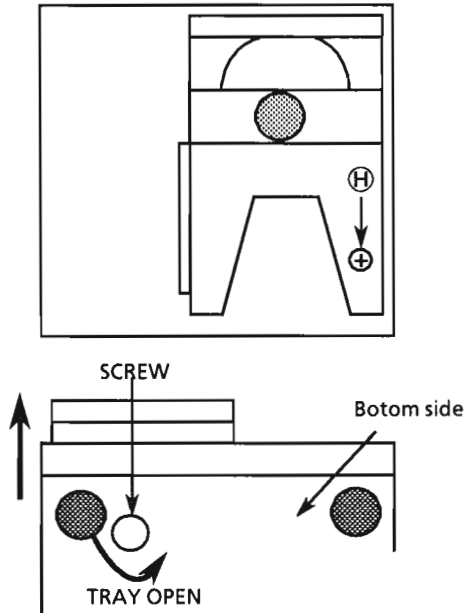


Fig 24 CD mechanism

(25) CD mecha Ass'y removal

1. Remove the (1),(2),(5).
2. Disconnect the P601.
3. Remove the 2 screws (F)to remove the clamp assembly .
4. Remove the 4 screws (D) to remove the CD mecha Ass'y.

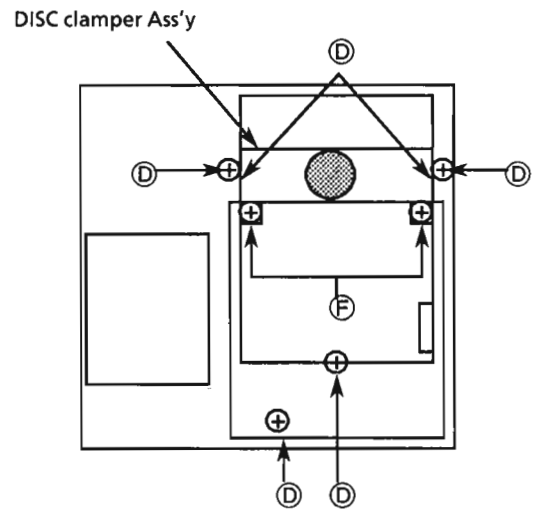


Fig 25 CD mechanism

(26) CD servo PCB removal

1. Remove the (1),(2),(5),(7),(24),(25).
2. Disconect the P602 and P603.
2. Remove the 3screws (G)holding the CD servo PCB.
3. Remove the CD servo PCB .

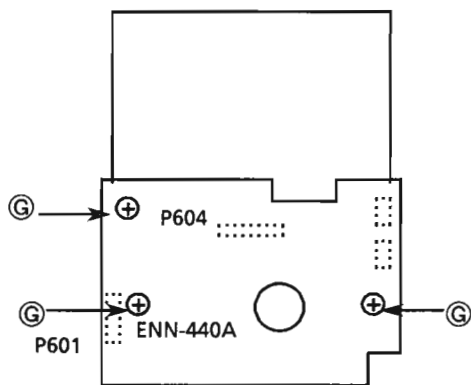


Fig 10 CD mechanism botom view

(10) Installing CD mech. tray

1. Insert the CDmech.tray after checking that the traverse mecha.is positioned slantingly.
2. If it is set horizontally,press the cam plate until it stops so that the traverse mech.slants.(See an arrow in the following figure.)

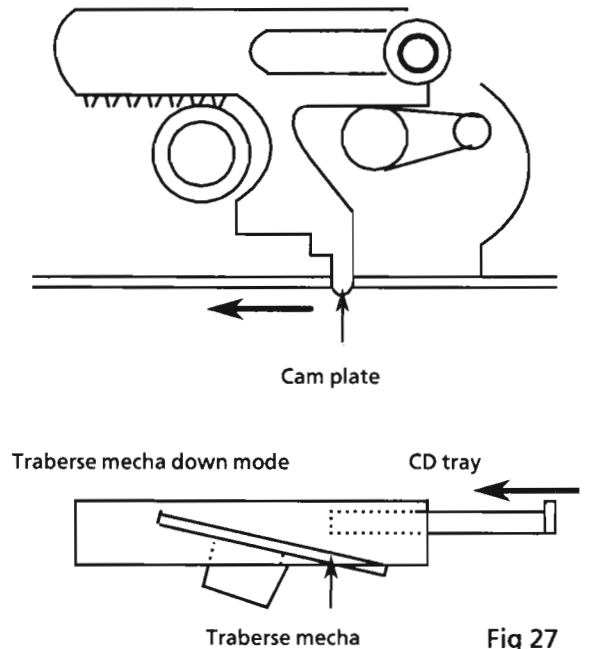


Fig 27

(G) .. SDSF2608Z

(H) ... SBSF3008Z

(D) ... SBST3006Z

(28) Pickup removal

1. Remove the cd mechanism assembly.
2. Release the shaft to remove the pickup (Fig 28).

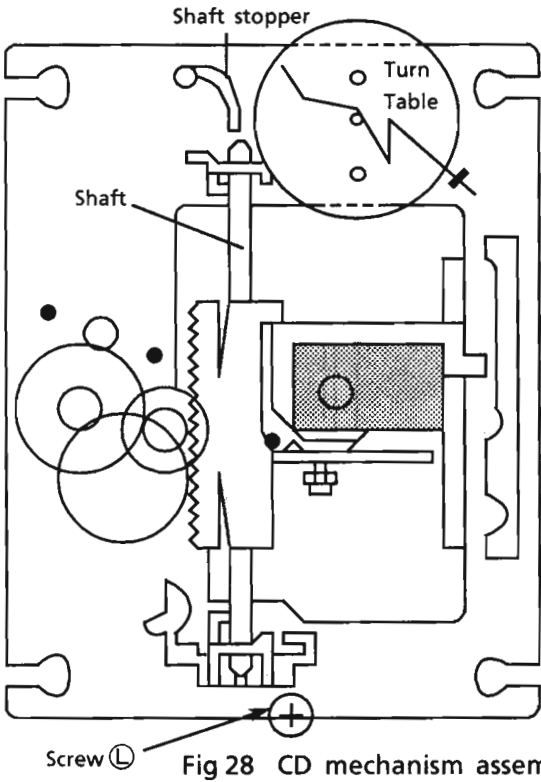


Fig 28 CD mechanism assembly

(29) Spindle motor removal

1. Remove the cd mechanism assembly.
2. Remove the turntable, and remove the two screws retaining the spindle motor.
3. Remove the screws retaining the spindle and feed motor P.C. Board and unsolder it.

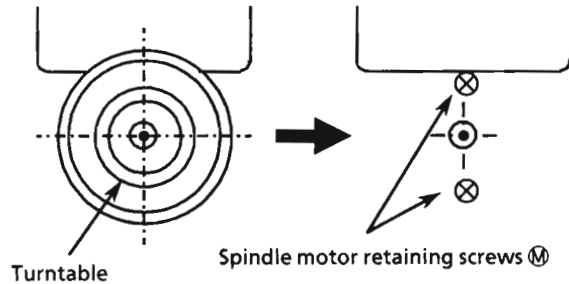


Fig 29

- (31) After inserting the turntable, bond the motor shaft and turntable together (at the section marked by an arrow in fig 31 on the left below).

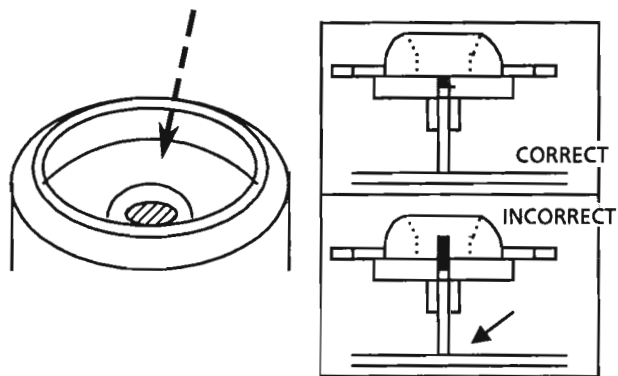


Fig 31

(30) 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  $19.4 \pm 0.1\text{mm}$ .

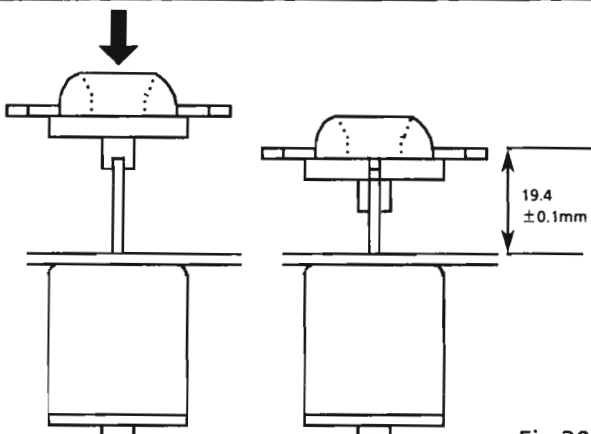


Fig 30

- (32) Use "LOKTTITE" #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 bearings (the section marked by an allow in fig 31 on the right).

# Adjustment Procedures

## ■ Tuner section

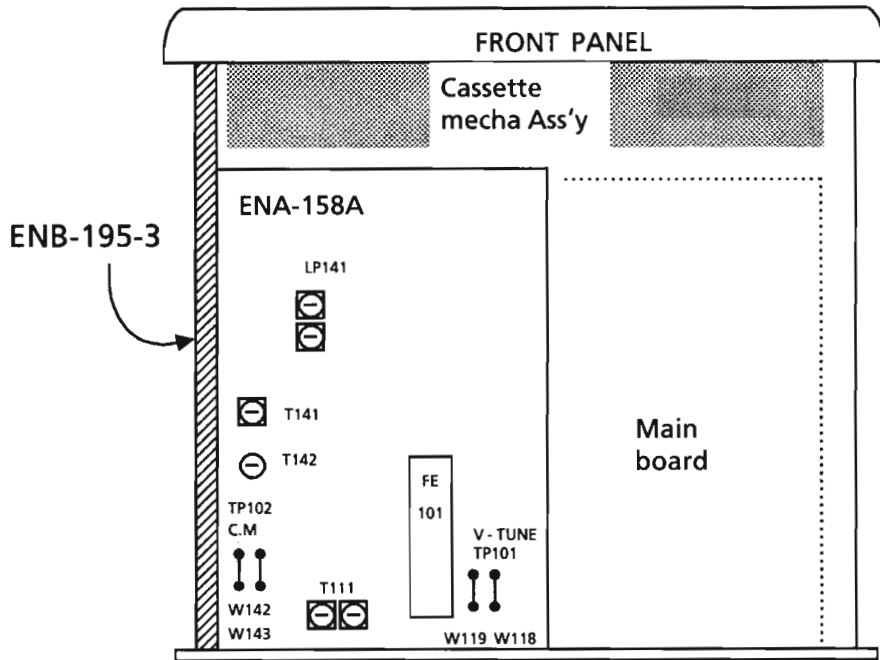


Figure 1

### (1) Clock Adjustment

1. After connecting W814(TEST) and W813(GND) with some wire, connect ac power cord into ac outlet.
2. Confirm that the display is off and remove the wire.
3. Connect a frequency counter to W812(F OUT) and W813.
4. Adjust TC801 so that the frequency becomes  $50000 \pm 0.29\text{Hz}$ .

### (2) Tuning voltage

Confirm the voltages in the table below at TP101. If the voltages are not satisfied, replace T101 for AM or FE101 for FM.

FM Tuning voltage (Unit : V)

Frequency	FM		AM	
	87.5MHz	108MHz	522kHz	1629KHz
Tuning voltage	$1.6 \pm 1.0$	$8.0 \pm 2.0$	$1.0 \pm 0.2$	$7.5 \pm 0.8$

### (3) FM center meter

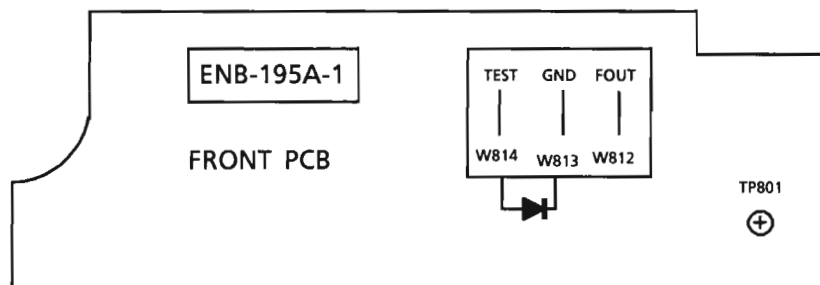


Figure 2

■ Deck section

■ Deck adjustment point

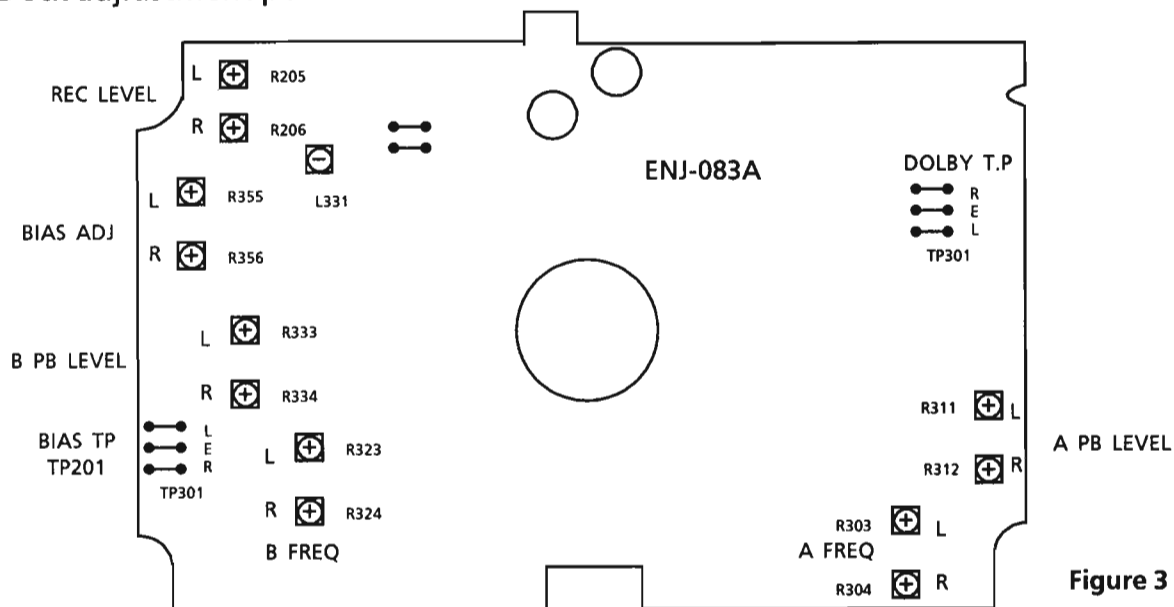


Figure 3

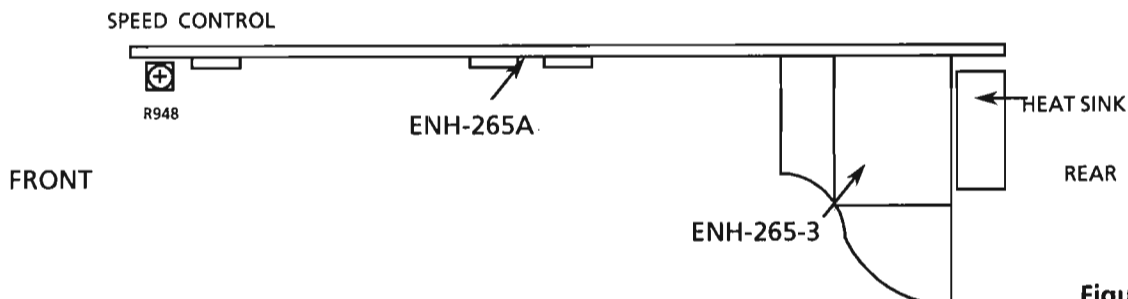


Figure 4

## 1. Measuring instruments

- Audio frequency signal generator ( 0dbs output at the 600 ohm output terminal from 50Hz to 20KHz)
- Electronic voltmeter
- Frequency counter
- Wow & Flutter meter
- Distortion Meter with band pass filter
- Attenuator (600 ohm impedance)
- A resistor with 600Ω

### Standard Tape

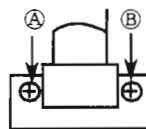
0dbs = 0.775V

Tape No.	Frequency	Level (Wow & Flutter)	Purpose
VTT-703L	10kHz	-10dBs	Head azimuth , Frequency Response
VTT-712	3000Hz	0dBs 0.025%WRMS	Tape Speed , Wow & Flutter
VTT-724	1kHz	-4dBs	Standard Level
TMT-6447	—	—	Blunk Skip
TMT-6247 , TMT-6237	—	—	Music Scan
TS-8	—	—	Recording standard Normal : UR
TS-11	—	—	Recording standard METAL :MA
TS-10	—	—	Recording standard CrO <sub>2</sub> :SA
GTG-N (CT-100M)	—	—	Forward / reverse play torque measuring
TW-2231	—	—	Feed forward / rewind torque measuring
C-120 Tape	—	—	Comfirming the tape running

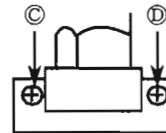


## 2. Adjustment and repairing the mechanism

Item	Adjustment method	Standard value	Remarks
Head azimuth	Deck A 1. Connect an electronic voltmeter to the DOLBY TP (figure 1) to playback VTT-703L. 2. Adjust screw ① so that the indication of the voltmeter becomes maximum when PLAY (▶) is pressed. 3. Adjust screw ② so that the indication of the voltmeter becomes maximum when PLAY (◀) is pressed. Deck B 4. Adjust screw ③ so that the indication of the voltmeter becomes maximum when PLAY (▶) is pressed. 5. Adjust screw ④ so that the indication of the voltmeter becomes maximum when PLAY (◀) is pressed. 6. After making the adjustment, apply screw lock to prevent screws ①, ②, ③ and ④ coming loose.	Maximum	1. <b>Refer to figure 5.</b> 2. When the specified characteristic cannot be obtained because of head wear, excessive magnetization, etc., replace the head assembly and adjust the head azimuth. Also, perform the electric adjustment. 3. When there is the difference of more than 3 ~ 4 dB between left and right output levels, replace the head assembly to avoid complaints.
Playback torque	1. Measure the torque in the playback mode by the torqu meter.	26 ~ 62 g-cm	When the standard torque cannot be obtained, replace the FR arm assembly or motor.
Fast forward torque	1. Measure the torque in the fast forward mode by the torqu meter.	80 ~ 170 g-cm	When the standard torque cannot be obtained, replace the FR arm assembly or motor.
Wow & flutter	1. Connect the wow & flutter meter to the DOLBY TP (figure 1) and play back VTT-712. 2. Its reading should be within 0.2% (WRMS).	Less than 0.2%	As a complaint may occur if the wow & flutter fluctuates by 0.1% even though it is allowed in the standard, repairing is required.
Auto stop			



Deck A



Deck B

Figure 5

## 3. Electrical Adjustments (Make the following adjustments after adjusting the head azimuth.)

In principle, the adjustments should be made in the following sequence.

Set the NR switch to OFF and the BEAT CUT switch to "1".

Adjustments marked with an asterisk (\*) should always be made after the head is replaced

0dBs = 0.775V

Item	Adjustment Method	Adjustment Location	Standard Value	Remarks
1 Tape Speed	1. Connect a frequency counter to the DOLBY TP (figure 1) and play back VTT-712. 2. Normal speed Adjustment 1) Mechanism B Play back deck B to adjust the semi-fixed resistor R948. 2) Mechanism A Play back deck A to confirm that the difference between deck A and deck B is within $\pm 51\text{Hz}$ .	R948	3,000 Hz $\pm 10\text{Hz}$	1) Adjust the normal speed first, and perform the high speed adjustment.

Item	Adjustment Method	Adjustment Location	Standard Value	Remarks
* 2	Standard level (Playback Level) 1. Connect an electronic voltmeter to the DOLBY TP (figure 1). Play back VTT-724 (1 kHz : -4dBs) to adjust the semi-fixed resistors.	Deck A L: R311 R: R312  Deck B L: R333 R: R334	-5.5dBs (411mV)  ± 1dB	1) The playback level varies when the head is replaced so should be adjusted. Use an electronic voltmeter with an impedance of 100 kΩ or more.
* 3	Playback Frequency Response 1. Connect an electronic voltmeter to the DOLBY TP (figure 1). 2. Play VTT-703L (10kHz : -10dBs) and adjust semi-fixed resistors to obtain the standard values.	Deck A L: R303 R: R304  Deck B L: R323 R: R324	-11.5dBs (206mV)  ± 3dB	—
* 4	Recording Bias Frequency 1. Connect a frequency counter to the BIAS TP (figure 1), and perform a recording to adjust bias frequency.	L331	100 kHz +10kHz -5kHz	—
* 5	Record / Play Frequency Response (Bias current) 1. Supply 1kHz and 12.5kHz with 30mV signals to PHONO/AUX terminals respectively to record them. 2. Connect an electronic voltmeter to the DOLBY TP (figure 1) to confirm the recorded values. 3. If the values are not satisfied, adjust the semi-fixed resistors and record the signal again to confirm the recorded values.	L: R355 R: R356	0±2 dB with 1 kHz as the standard.	<b>Refer to figure 6 below.</b> 1) The recording and playback frequency response of a cassette deck are adjusted by adjusting the bias. 2) Perform the adjustment with normal tape and confirm that the values are within the range for metal tape.
* 6	Record / Playback Sensitivity 1. Input a 1 kHz (-8.2dBs: 300mV) signal to PHONO / AUX terminals and record it on the left and right channels. 2. Connect an electronic voltmeter to the DOLBY TP (figure 1) to confirm the recorded values. 3. If the values are not satisfied, adjust the semi-fixed resistors and record the signal again to confirm the recorded values.	L: R205 R: R206	-5.5dBs (411mV)  ± 1dB	Adjust with normal tape and make sure that the left / right level difference is 1.0dB or less
* 7	Erase ratio check 1. Record a music source using the Metal tape. 2. Rewind and erase the recorded section. 3. Confirm nothing can be heard.	—	—	—
* 8	Music Scan 1. Make sure not to work the music scanning operation at the start of tape wind using TMT-6237. 2. Make sure to work the music scanning operation at the end of tape wind using TMT-6247.	—	—	—

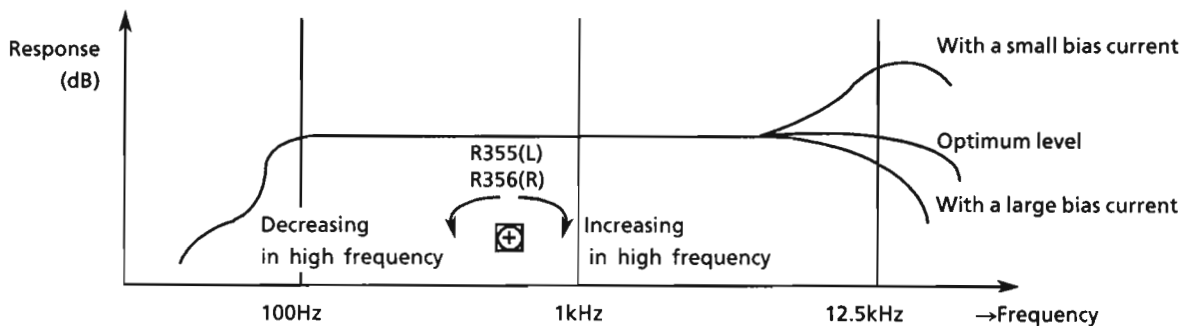
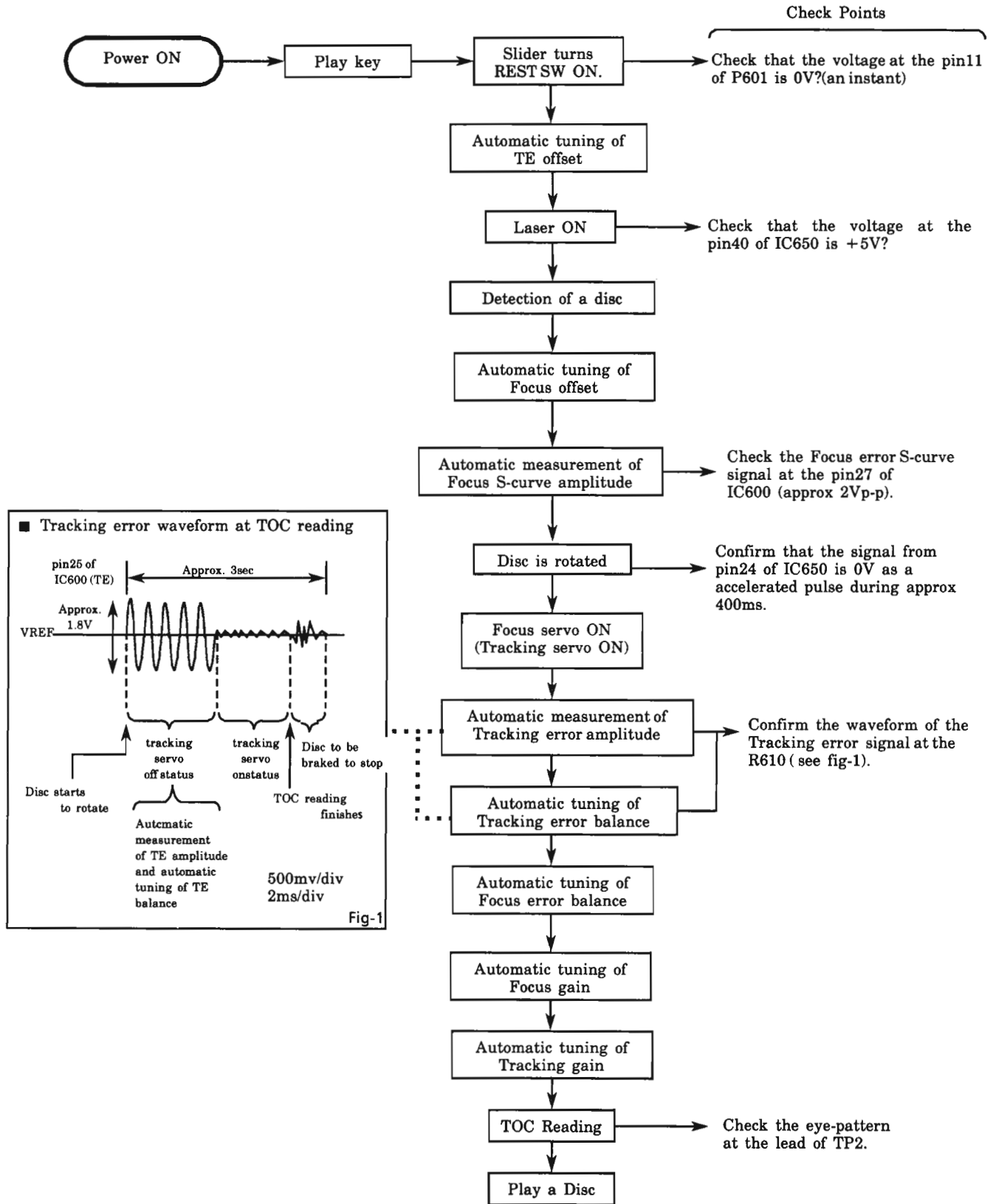


Figure 6

# Flow of Functional Operation Until TOC is Read

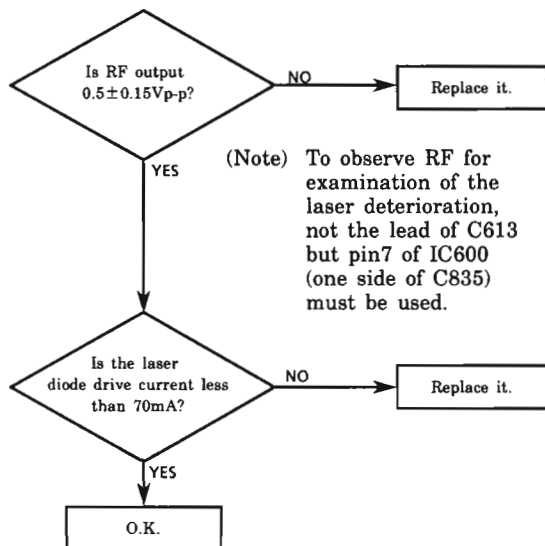


## Maintenance of Laser Pickup

### (1) Life of the laser diode

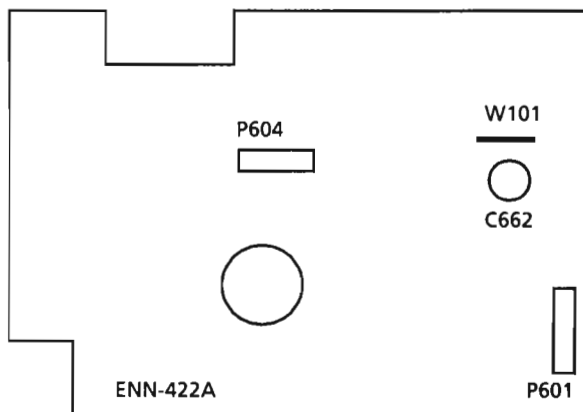
When the life of the laser diode has expired, the following symptoms will appear.

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.



### (2) Measurement of laser diode drive current

Replace the jump wire (W101) shown below with the resistor (1Ω). Measure the voltage across the resistor (1Ω) with a milli-voltmeter. When the voltage is more than 70mV, it shows that the life of the laser diode has expired.



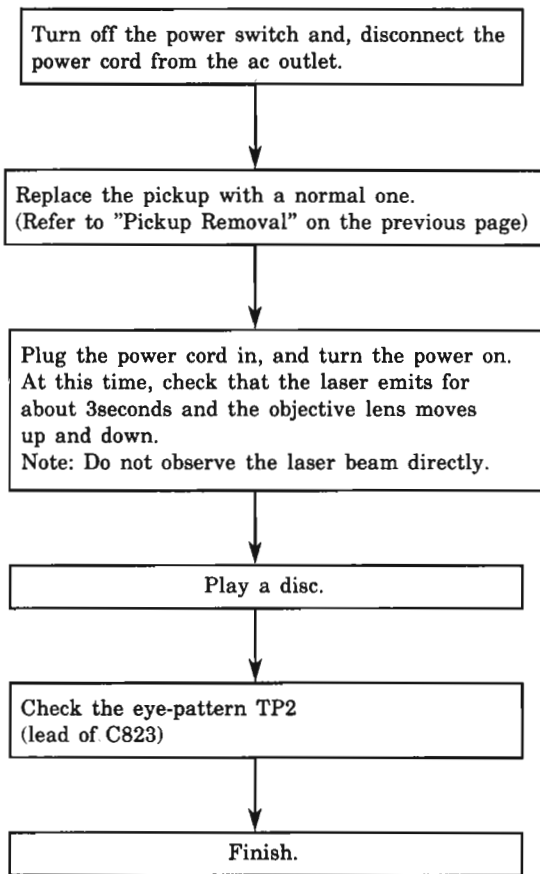
### (3) Semi-fixed resistor on the APC PC board

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.

## Replacement of Laser Pickup



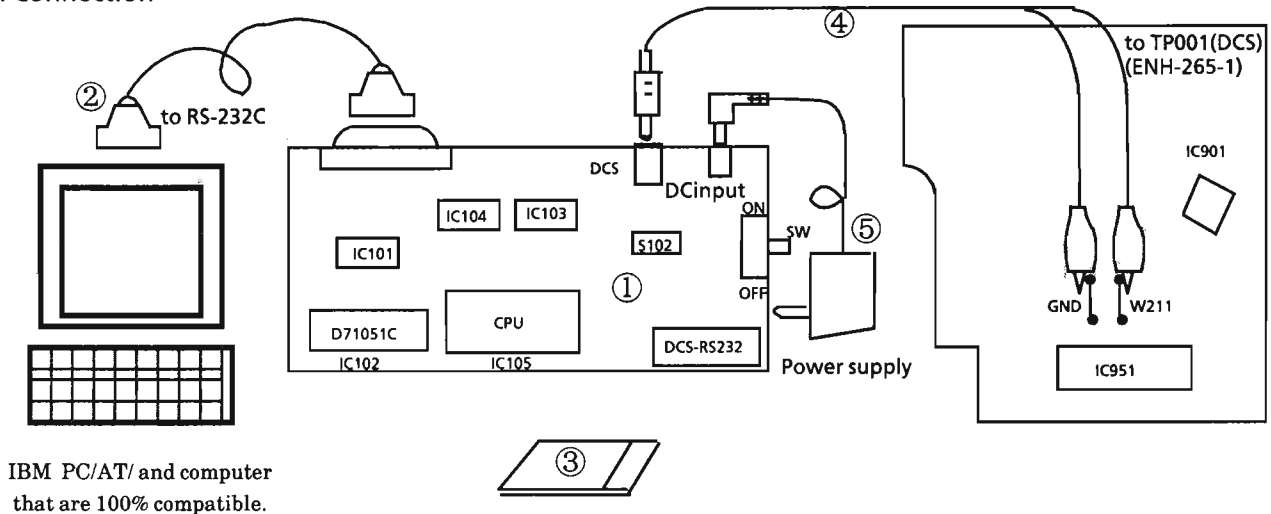
## Self-diagnosis for pickup

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.EBSJ1019)
- ② 232C cord (straight)
- ③ Floppy disc for self-diagnosis (No.EBSJ1021)
- ④ DCS cord
- ⑤ Power supply DC 6.3V (AA-SV11U)
- ⑥ CD (without scratches or damage)

### 2. Connection



For this diagnosis, a device driver for RS232C cord (straight type) is necessary.

(Ex.) C:\DOS MODE COM 1 : 9600, N 8 1

↙      ↘      ↙      ↘      ↙      ↘  
 adapter number(1or2)   band rate   parity   data bit   stop bit

### 3. Procedure

- ① Turn the converting board's switch on after connecting between CA-S200 and the above necessary items  
Set S102(switching DCS positive from/to negative logic) so that LED can emit red(positive logic).
- ② Put a disc on the tray and close it to read TOC.  
Do not press the play button.
- ③ Input "AUTO 01" on personal computer's keyboard and the CD's automatic adjustment value and judgment for the pickup are displayed on the screen.

## 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 Flag1 or Flag0 indicates not "F" but a figure.

(See the following example.)

Flag1	Flag0	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 Flag0 and Flag1 indicate "F" and those adjustments are completed if the adjustment value exceeds 19dB.

[NOTE] This value is only for CA-S200. It can not be used for other models.

## ■ Video CD section

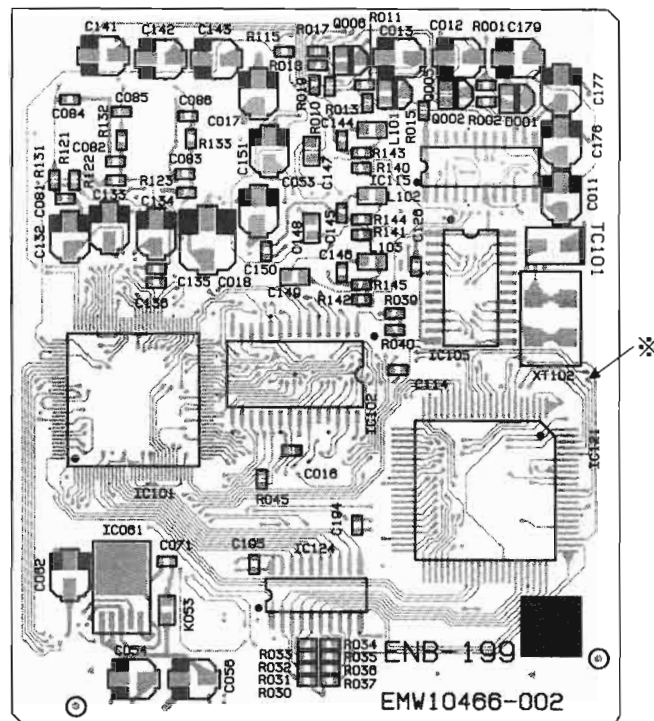
### ■ Sub Caria frequency for coror Adjustment

#### 1. Measuring instruments

- ① Frequency counter
- ② Driver for adjustment

#### 2. Adjustment procedure

- 1) Connect an frequency counter to the 73 pin (IC121) and gnd.
- 2) Adjust TC101 so that the frequency becomes  $3.579545\text{MHz} \pm 5\text{ Hz}$



## ■ Checking Video CD PCB.

Signal for video CD is composed of video CD signal and clock signal which are output from CD section. Those signals are controlled by five kinds of signal which are between system microprocessor and video CD PCB..

### · Video CD signal

This signal is output from CD signal processor LSI to be input to video CD PCB..

CDDAT(pin7)	Signal for music and video CD data	Photo①
CDLRC(pin6)	Word clock signal for L and R channels	Photo②
CDBCK(pin8)	Bit clock signal	Photo③

### · Control signal

This signal is used for communication between system microprocessor and video CD unit CPU.

SRCLK(pin23)	Synchronizing signal for serial data with system controller (5V at power on)	
SRDAT(pin24)	Command in/output data with system controller (5V in play mode / 0V in stop mode)	
HREQ(pin26)	Data transfer timing signal	Photo④
HRDY(pin28)	Timing signal	Photo⑤
MREQ(pin29)	System controller for data transfer demand signal→Video CD unit	Photo⑥

### 1. Finding defective PCB.

- ① At first, check that video CD signal is output from CD PCB.. And, check that the control signal starts to up when the power is on.
- ② If the above ① can not find a defective PCB., plug the jig(video CD short pin EBSJ-1018) into the socket to play a music software after detaching video CD PCB..  
The PCB. is not defective if sound signal is output from output pin.

Short-circuit point means that input pin of video CD signal is short-circuited with the output pin as follows.

pin6 - pin10   pin7 - pin11   pin8 - pin102

### 2. Checking Video CD PCB..

Check which block has such fault by a digital scope(Model NO. DS-B525U) if it is clarified something faulty on video CD PCB..

MPEG decode output of video CD signal, pre-stage video SW output and NTSC encode output can be confirmed with video CD PCB. attached.

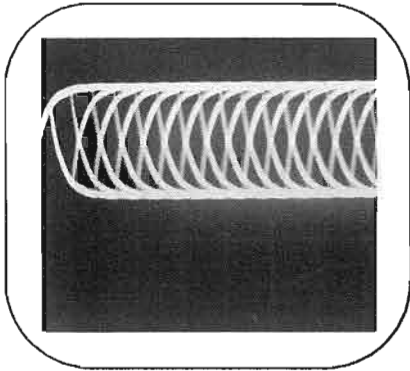
#### [Service hint]

- Pre-stage of the video SW will be defective if video CD or CD-G is faulty. If both of them are faulty, its after-stage will be something faulty.
- CD-G is normal if the blue back ground appears. If not, MPEG decoder or CPU has fault.



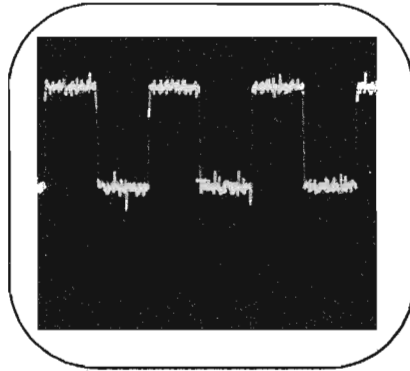
■ Main Waveform at the Video CD PCB.

① CDDAT



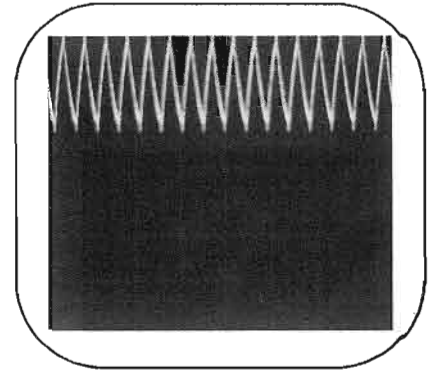
1μsec 2V

② CDLRC

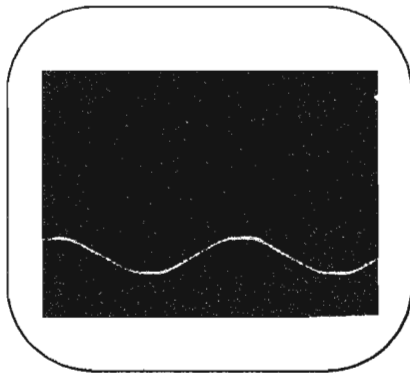


10μsec 2V

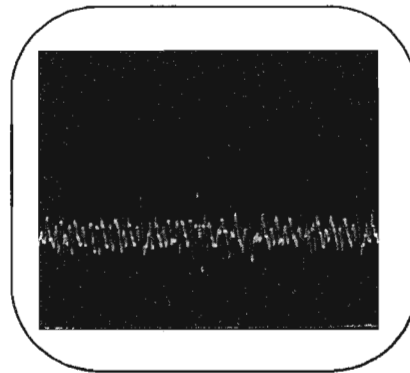
③ CDBCK



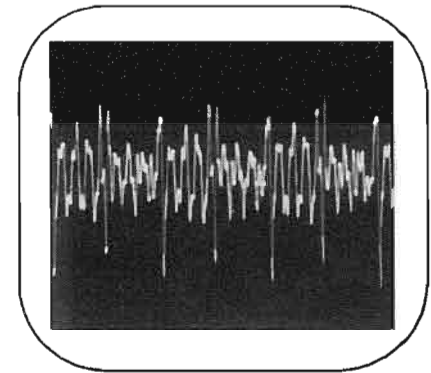
1μsec 1V



5msec 10V



200nsec 0.05V



200nsec 0.1V

■ Check Points at the Video CD PCB (Use the Digital scope).

RGB ENCODER

R IN 2pin



G IN 3pin



B IN 4pin



RGB ENCODER

YOUT 16pin



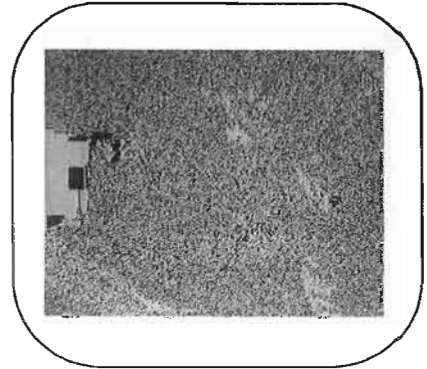
RGB ENCODER

COU 15pin



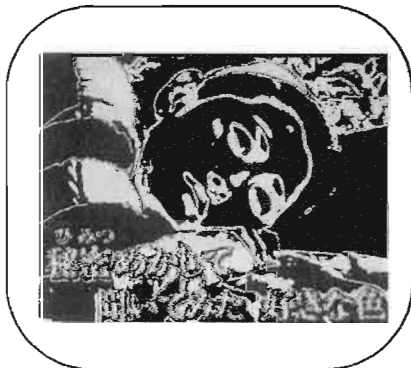
MPEG DECODER

R 66pin



MPEG DECODER

R 71pin



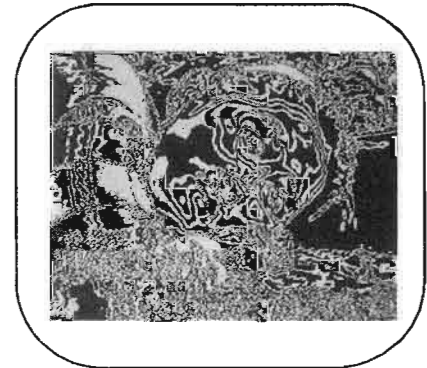
MPEG DECODER

G 75pin



MPEG DECODER

G 80pin



MPEG DECODER

B 88pin



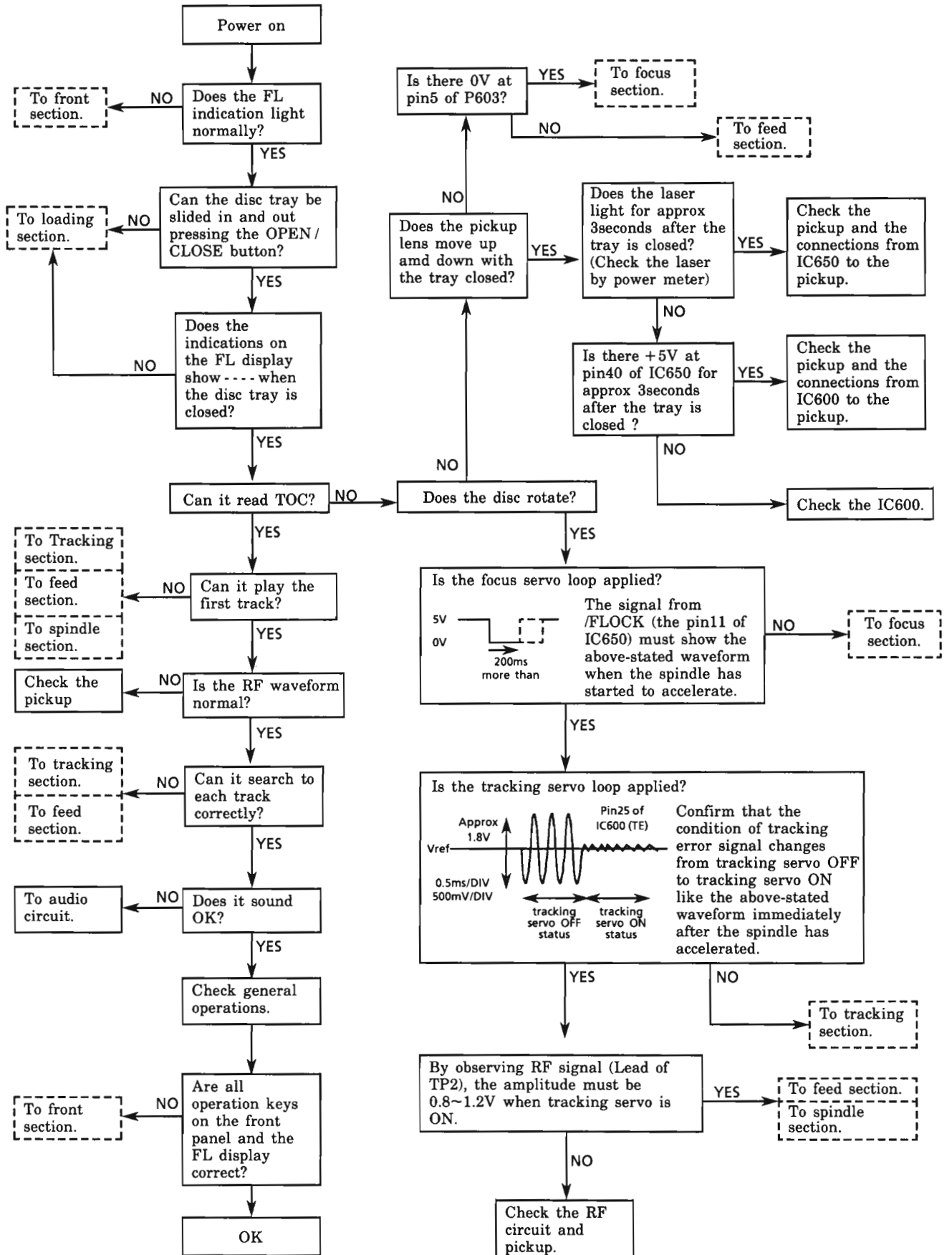
MPEG DECODER

B 93pin

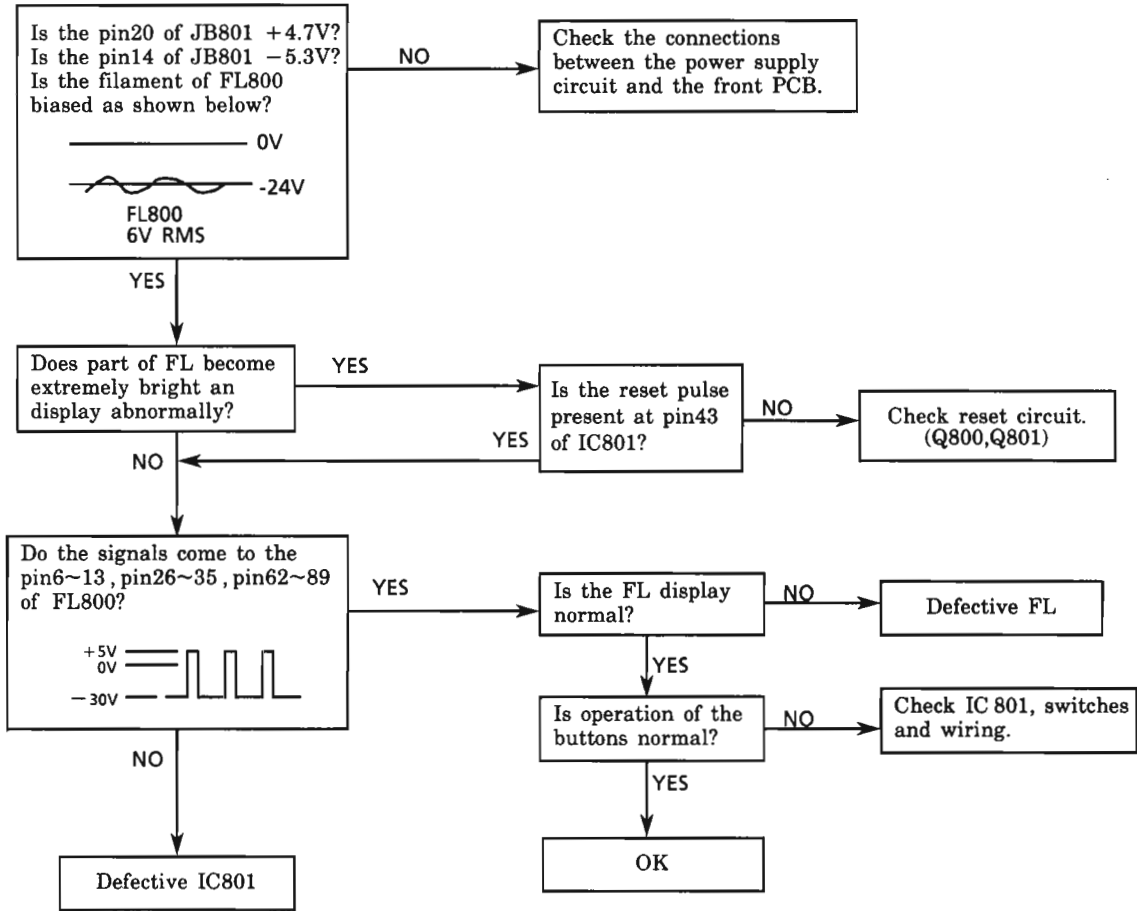


# Troubleshooting

The following shows the status of the various circuits from turning on the power to the start of disc play.

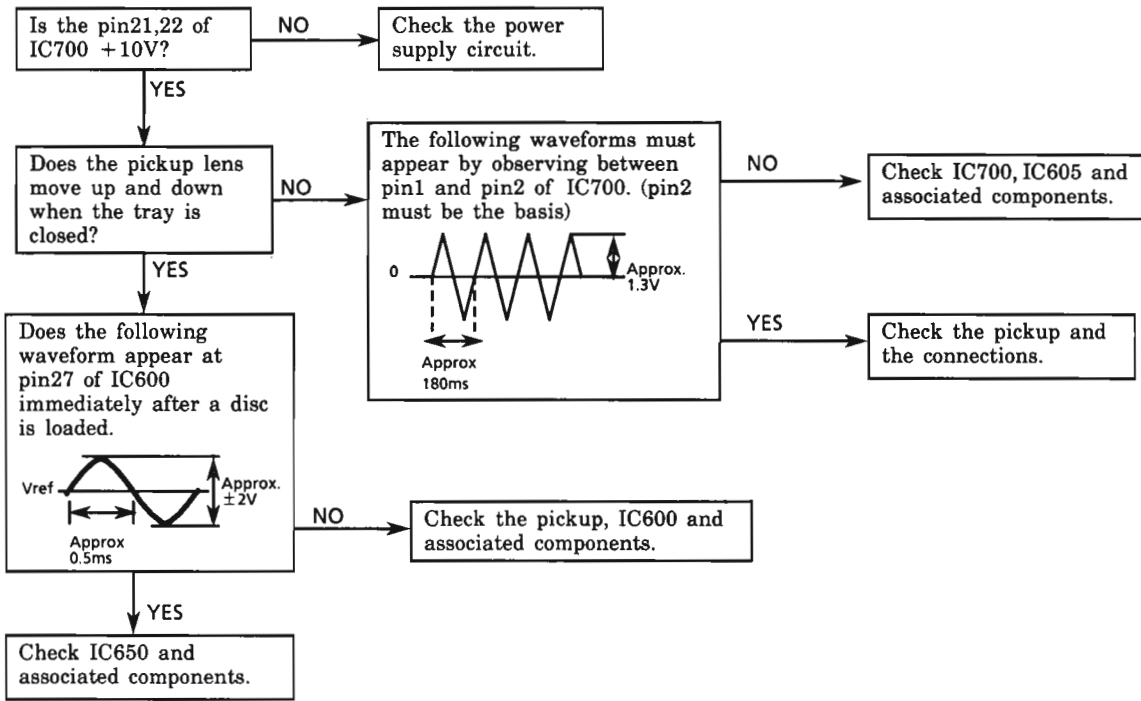


Front Section

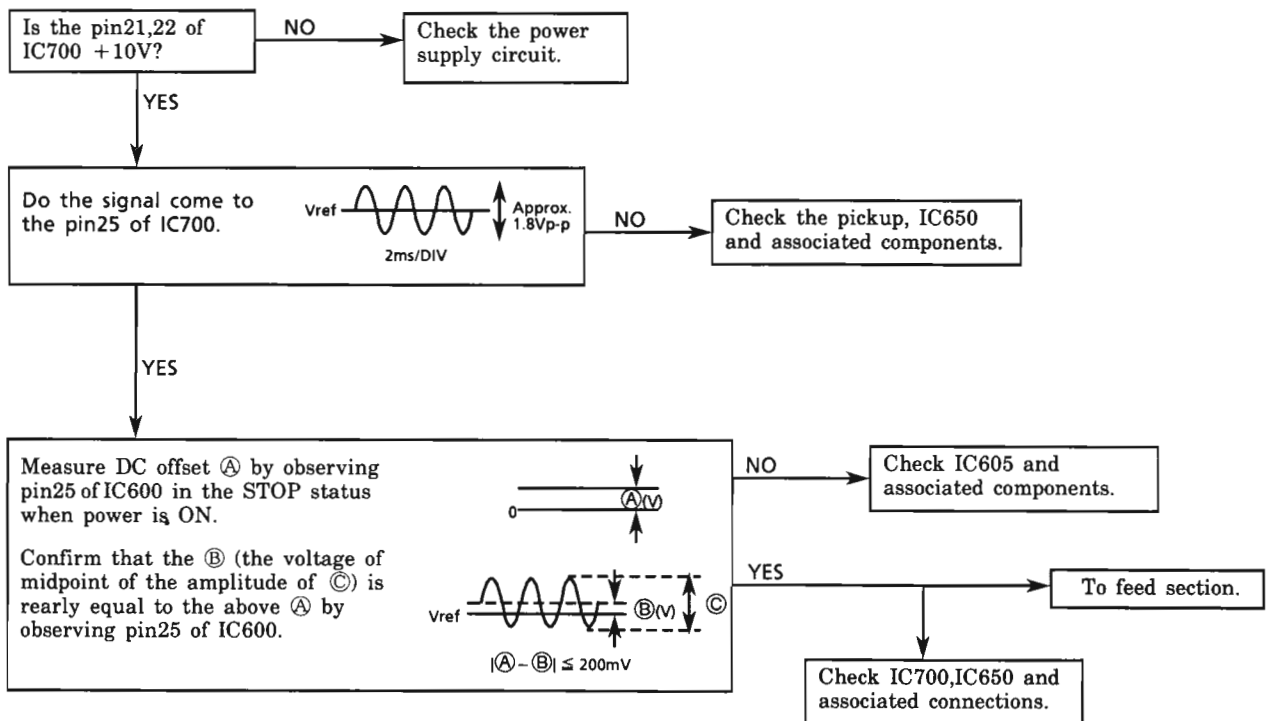


**Focus section**

Note) When checking the voltages between pin1 and pin2 of IC700 with an oscilloscope, do not connect the other probes.

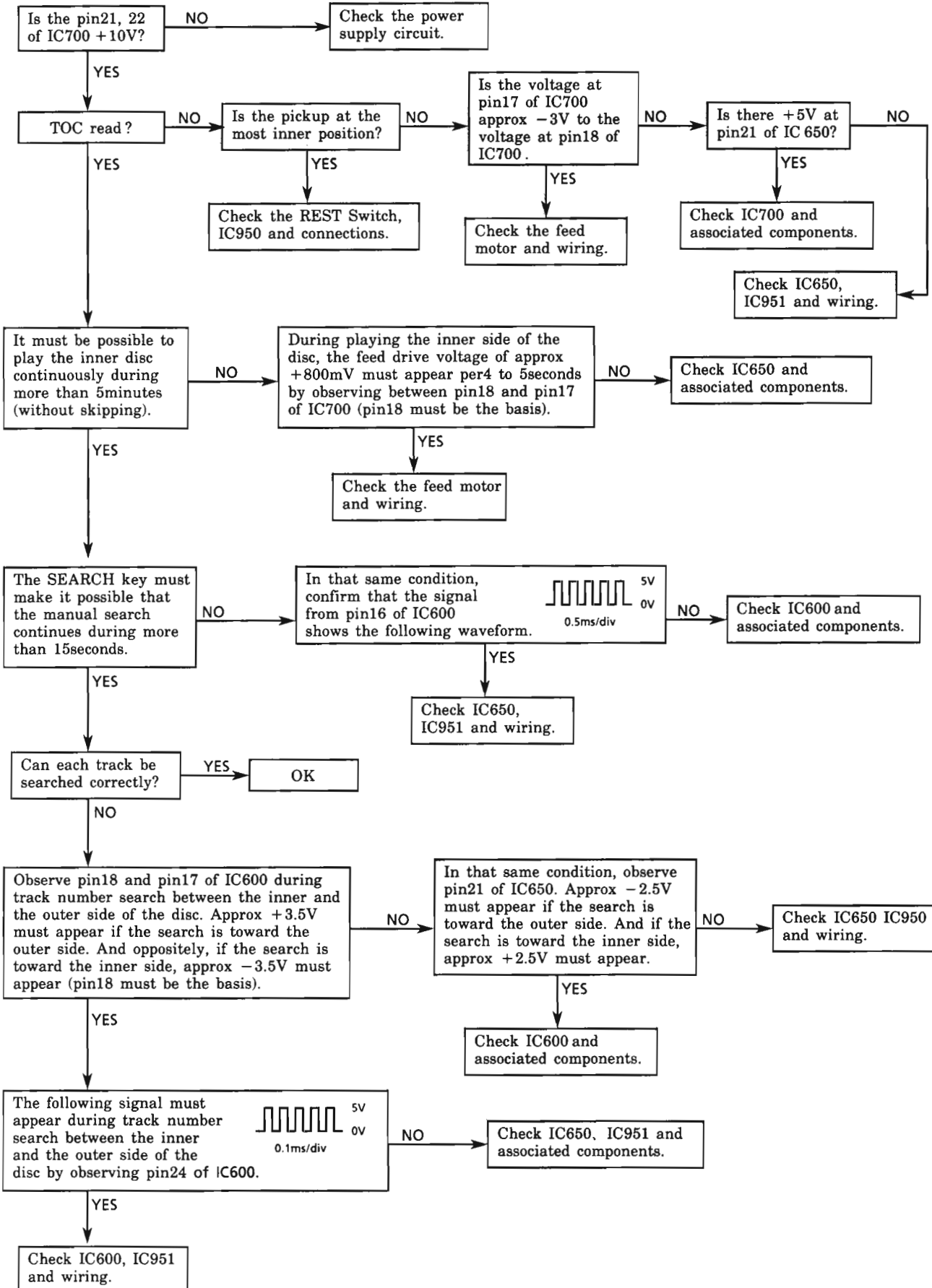


**Tracking section**



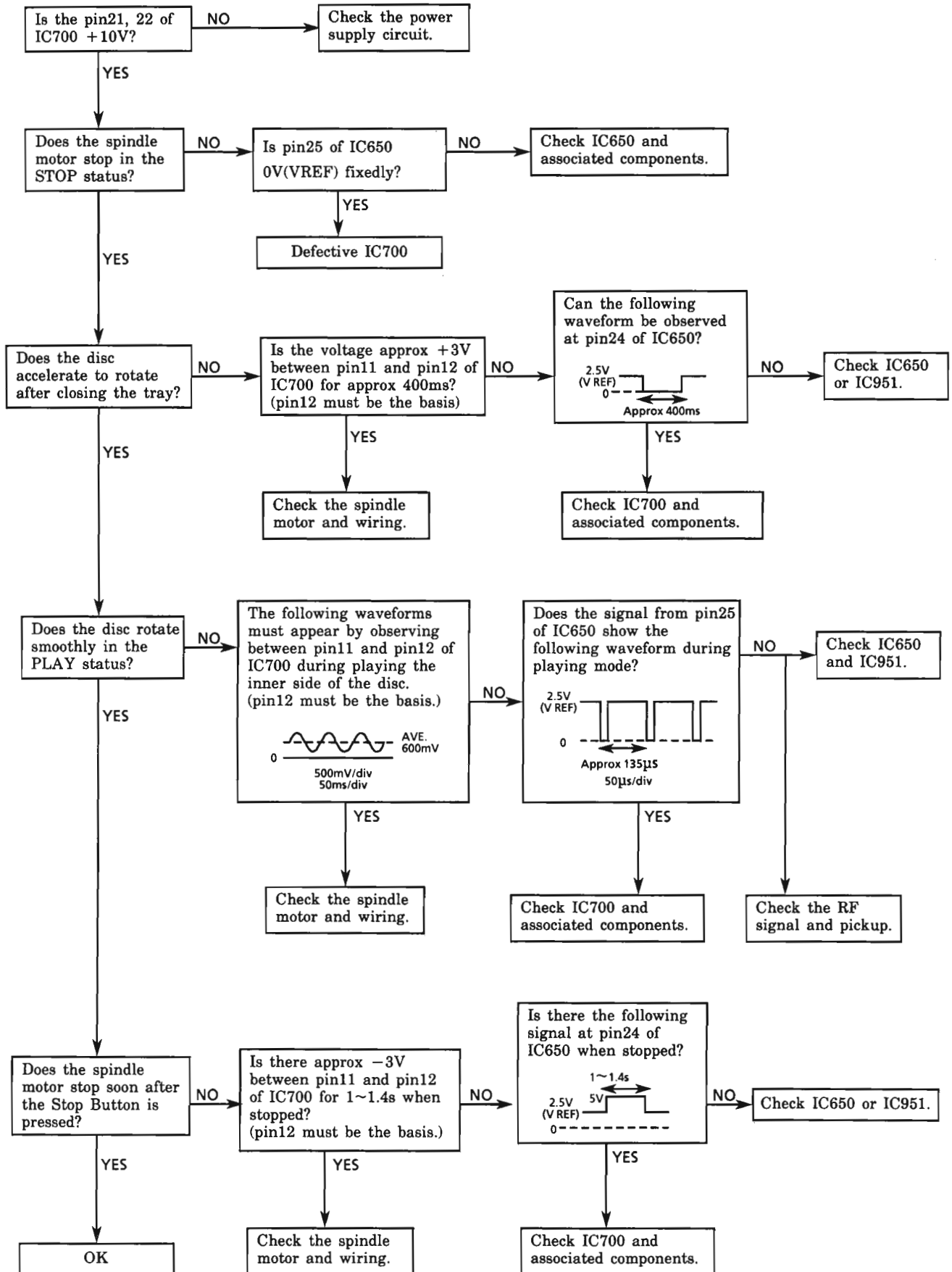
**Feed section**

Note) When checking the voltages between pin18 and pin17 of IC700 with an oscilloscope, do not connect the other probes.



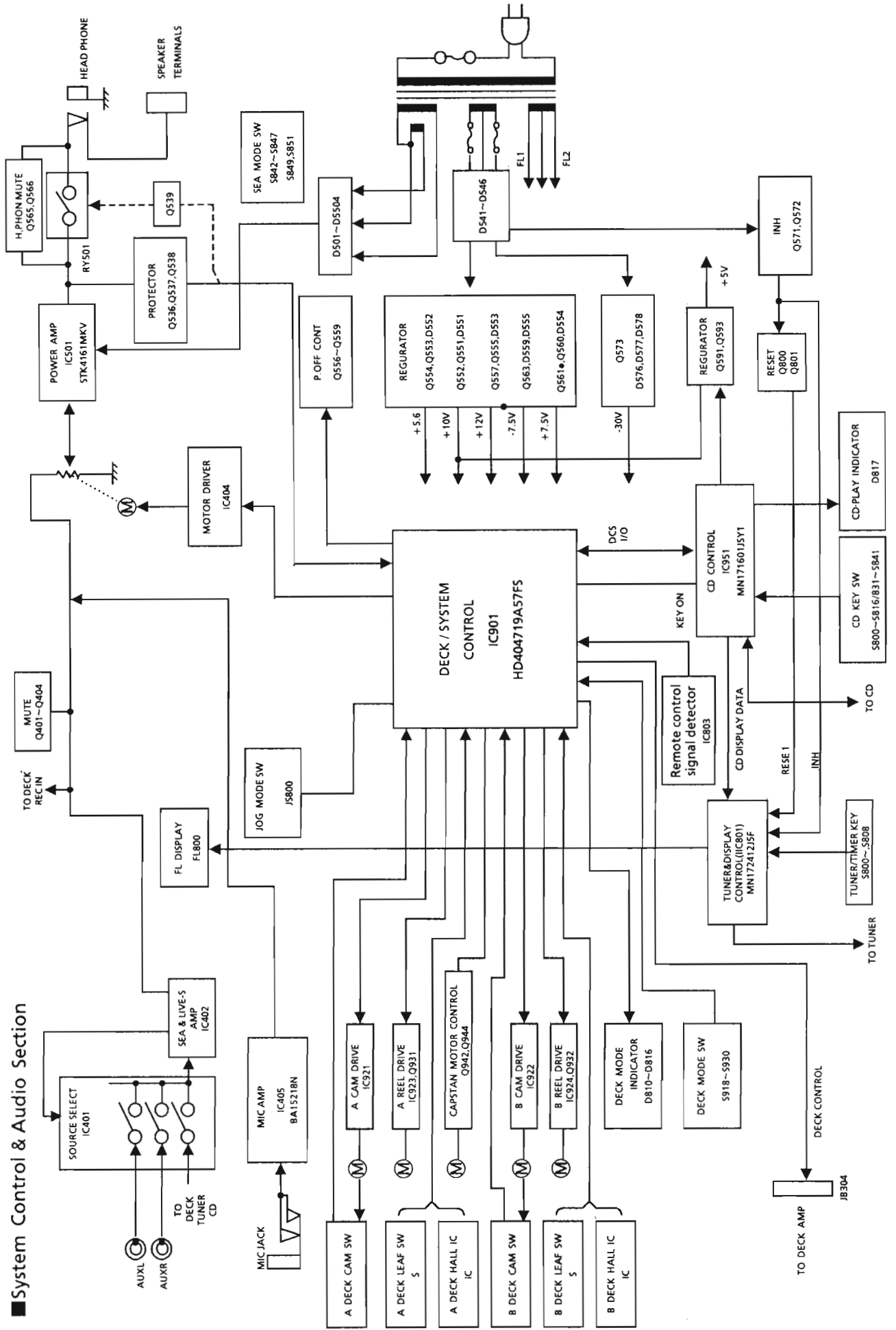
Spindle section

Note) When checking the voltages between pin11 and pin12 of IC700 with an oscilloscope, do not connect the other probes.



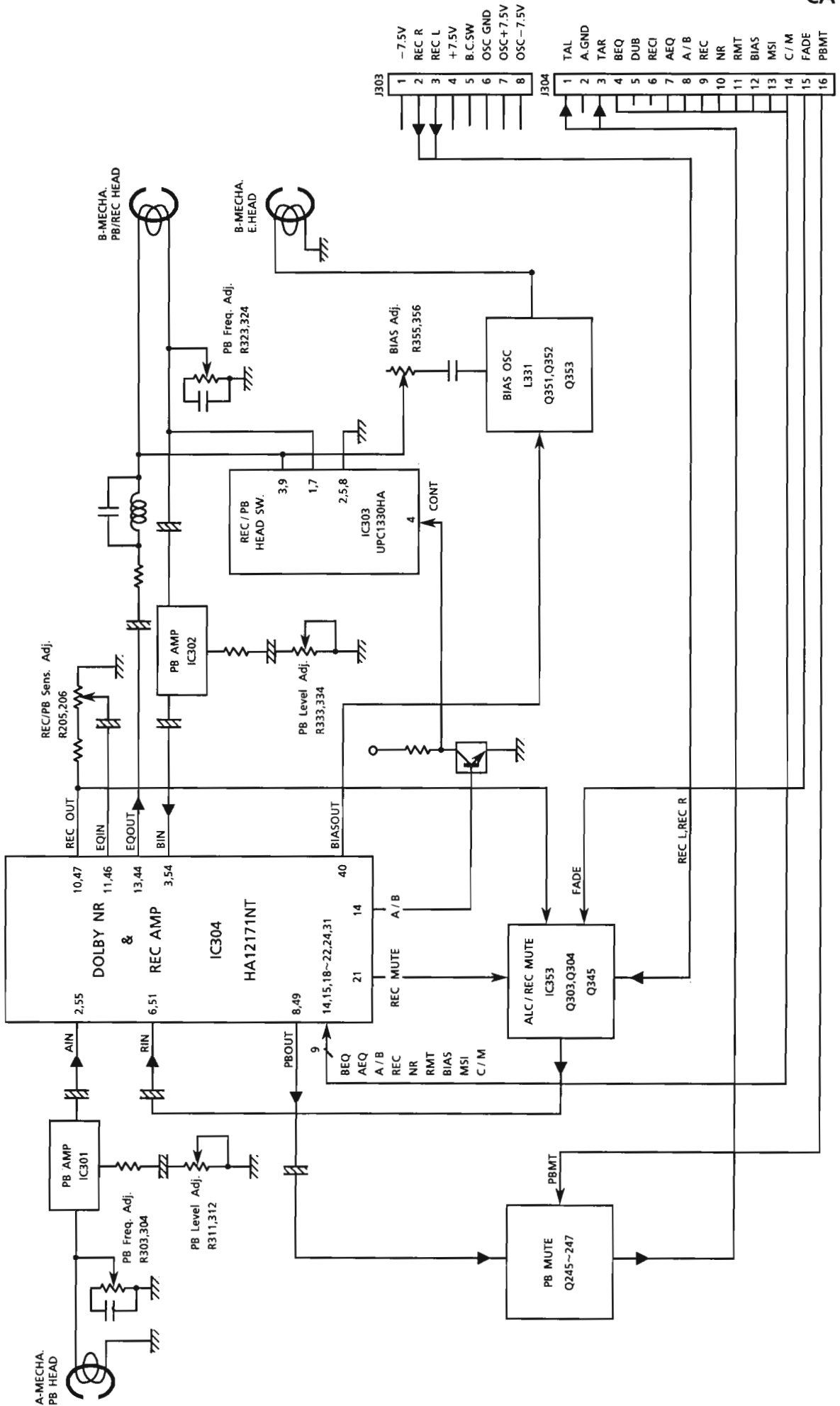
# Block Diagram

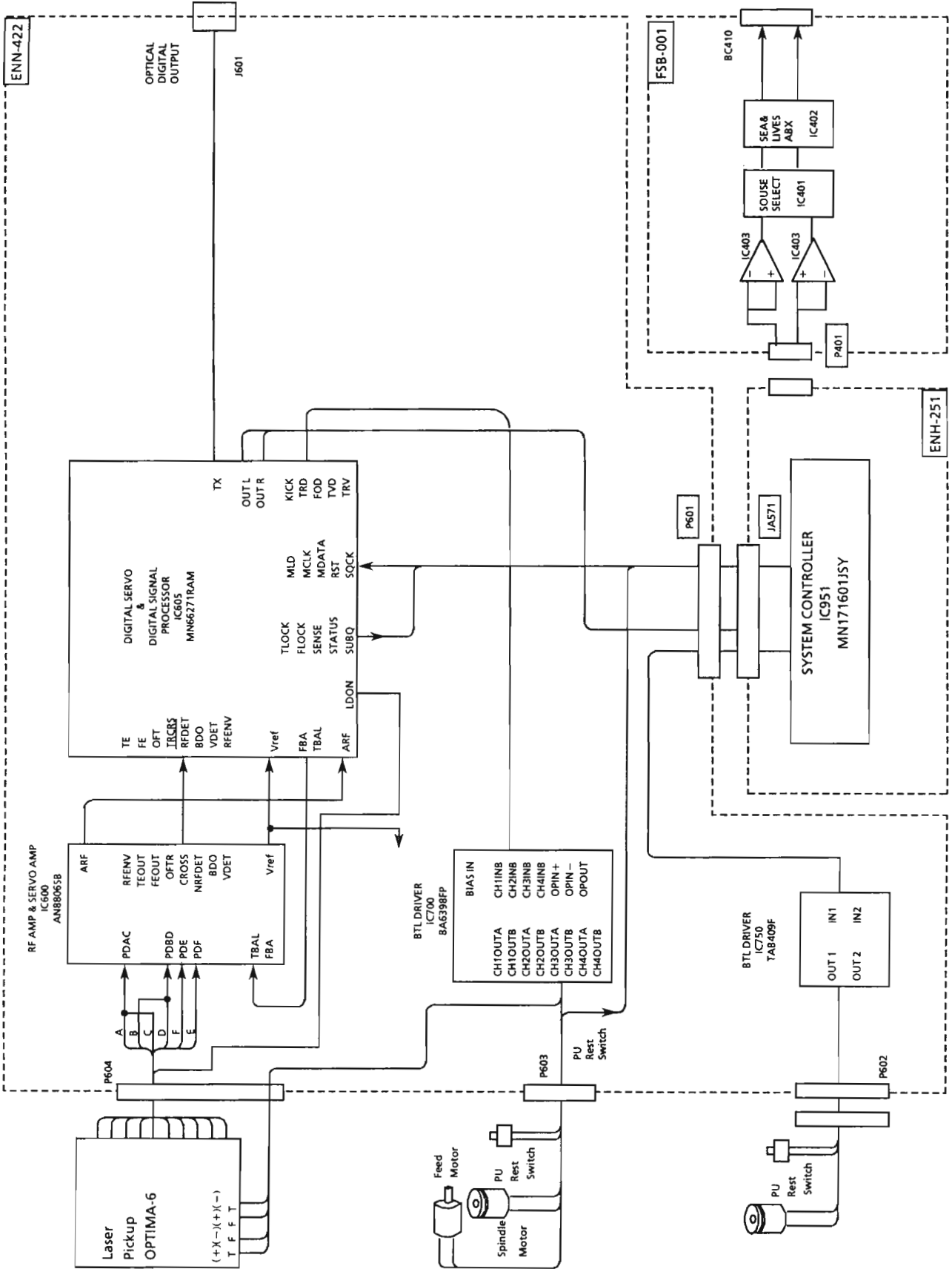
## System Control & Audio Section





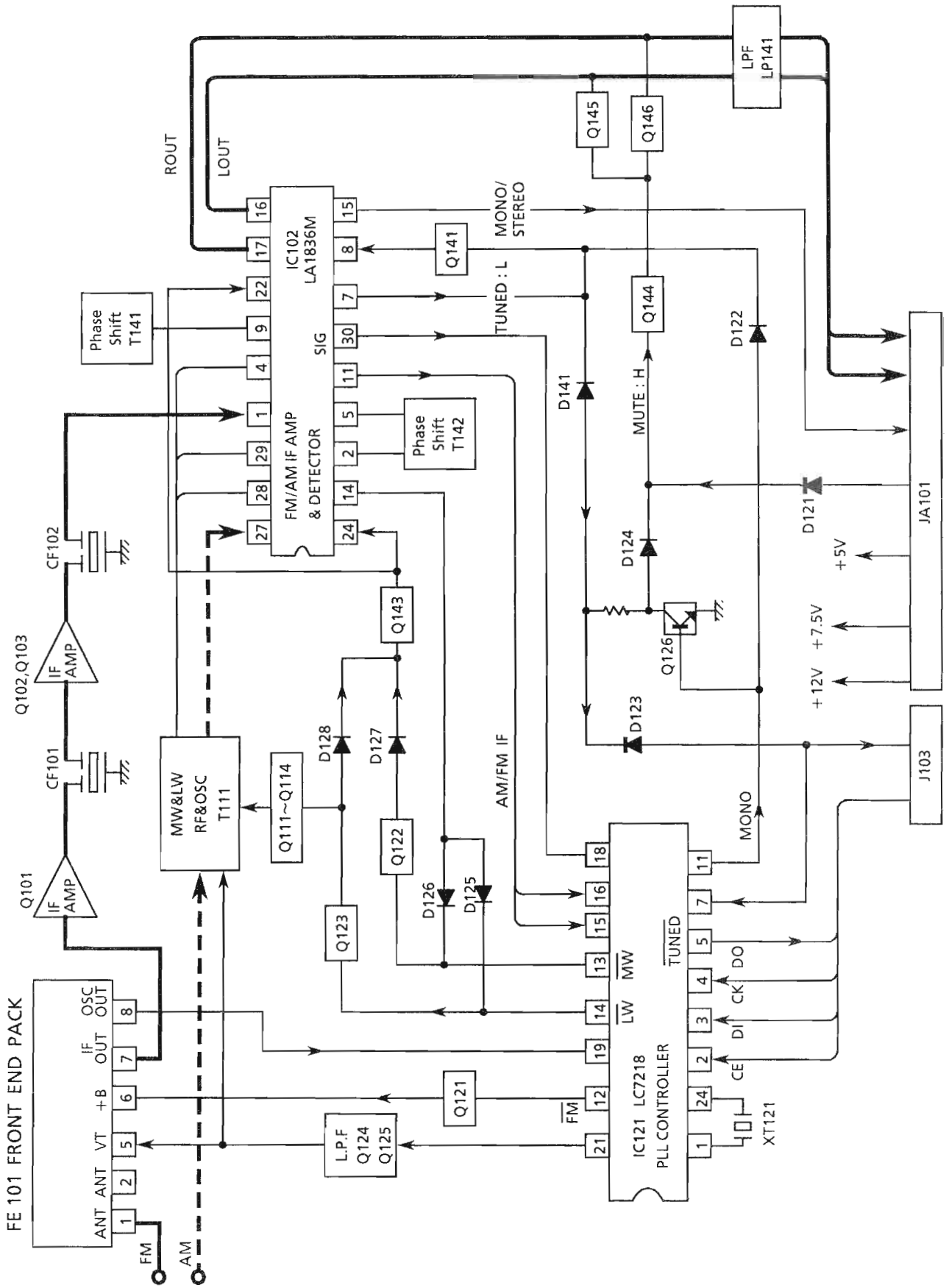
Cassette deck section





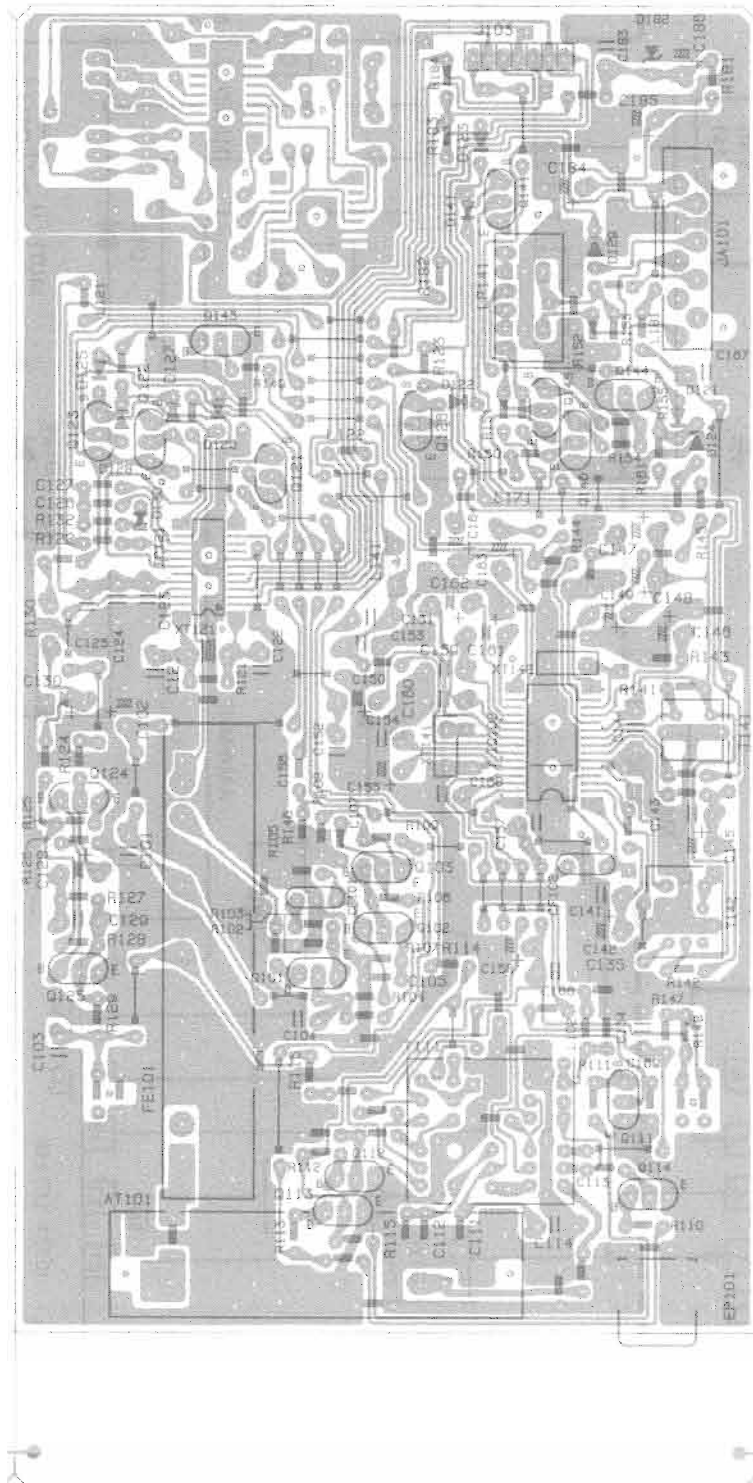
CD Section

■ Tuner Section



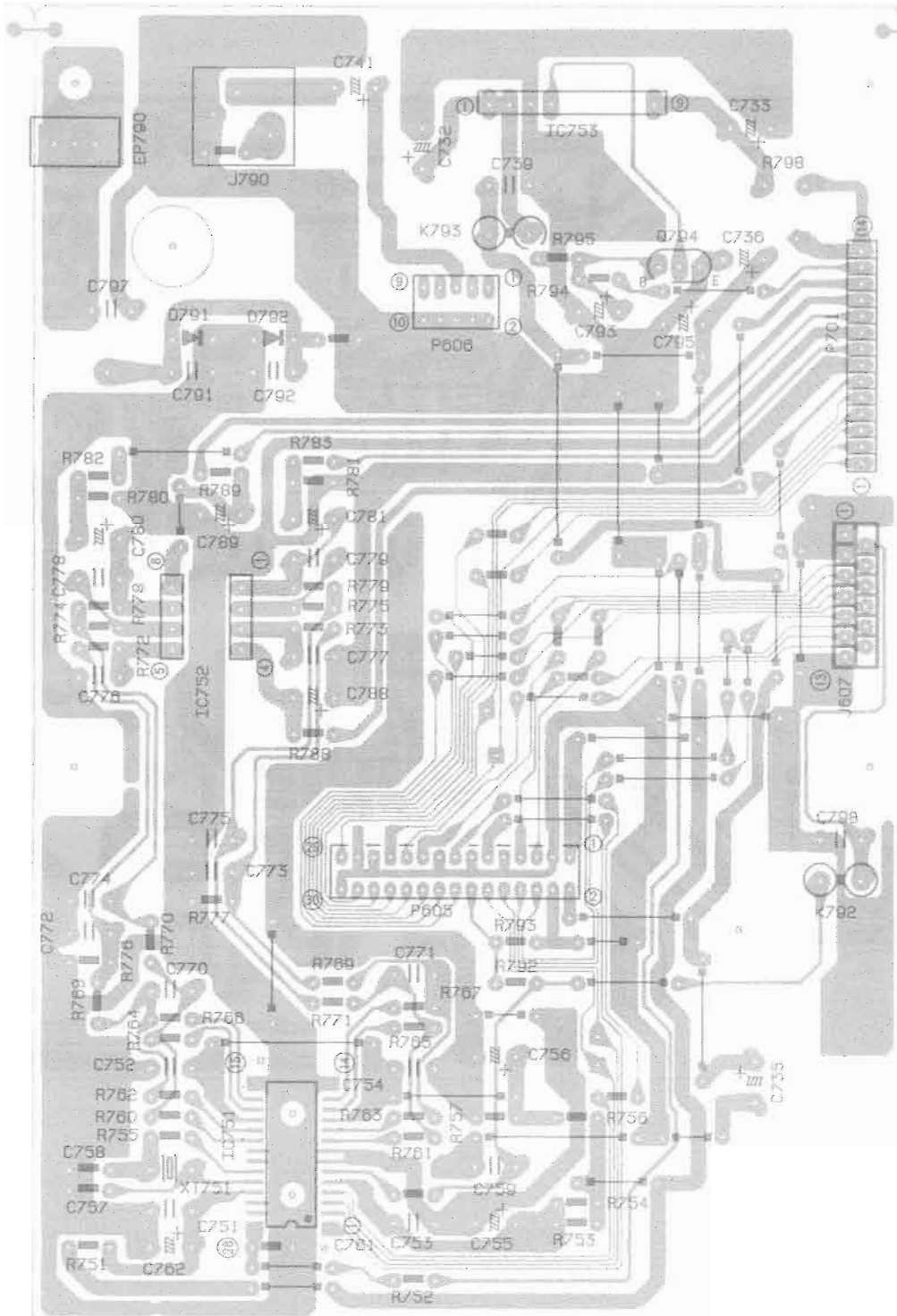
# Printed Circuit Board

■ Tuner P.C. Board (ENA-159)

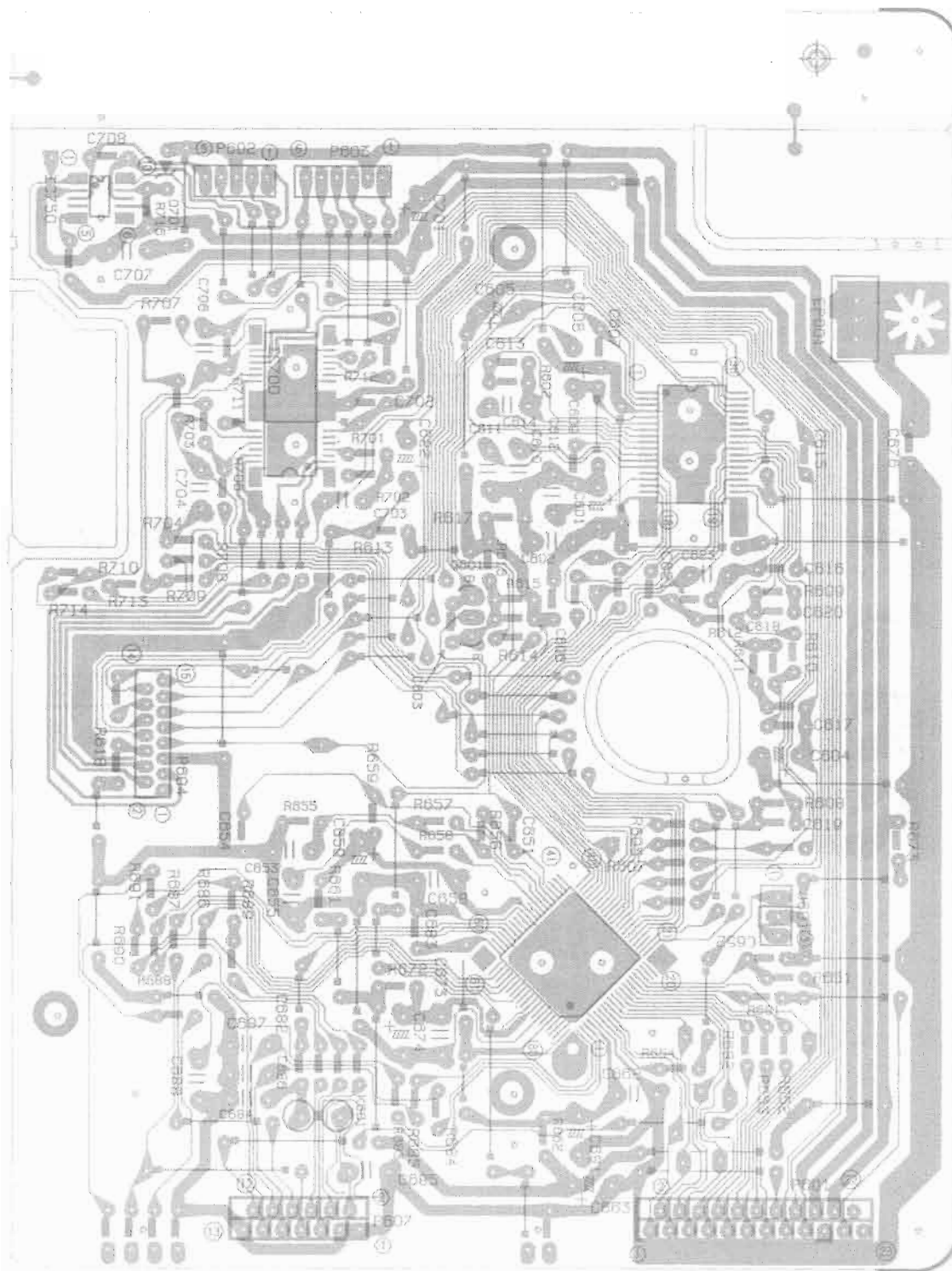




# ■ D/A Converter P.C. Board (ENB-212)

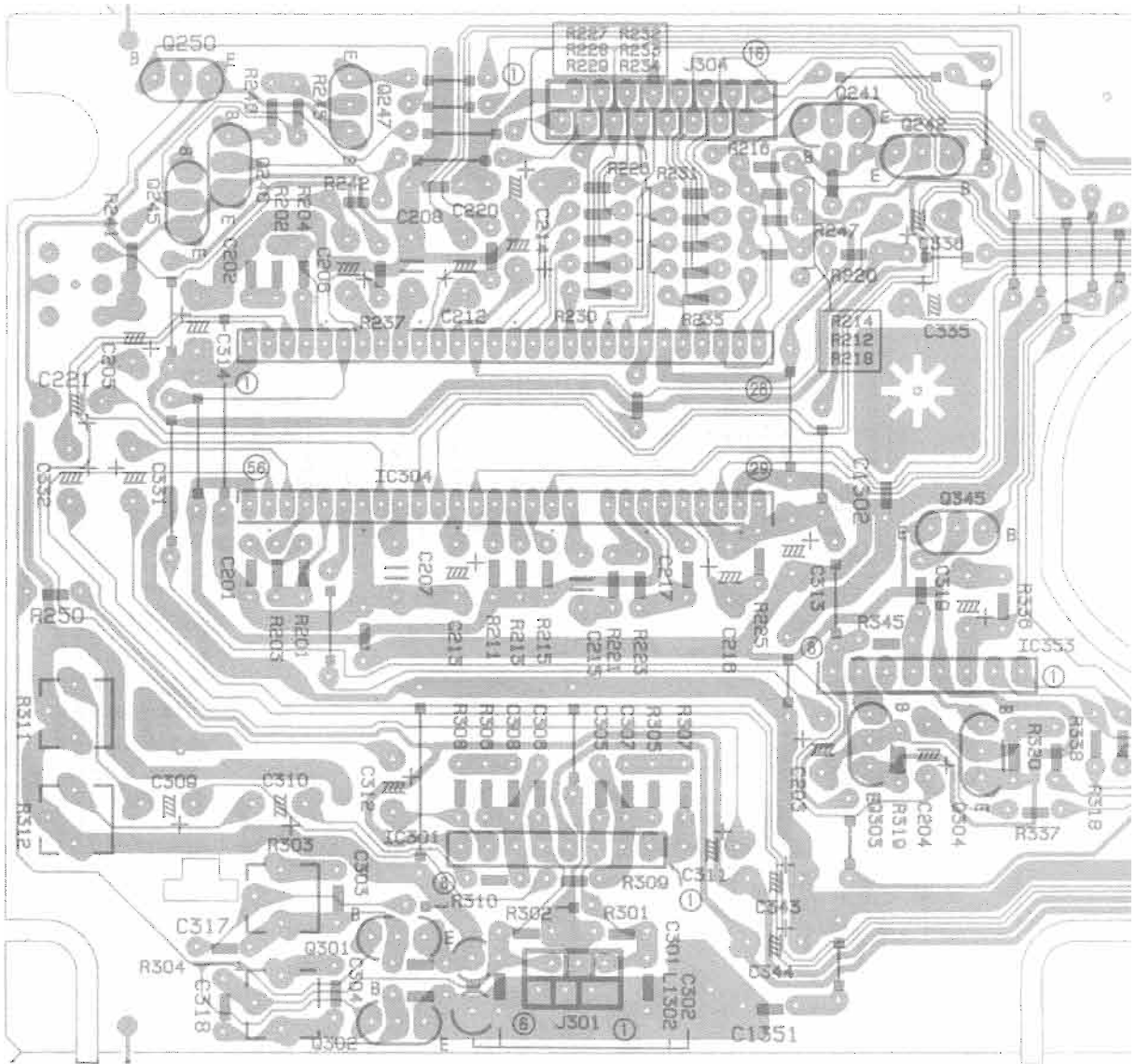


■ CD Servo P.C. Board (ENN-440)

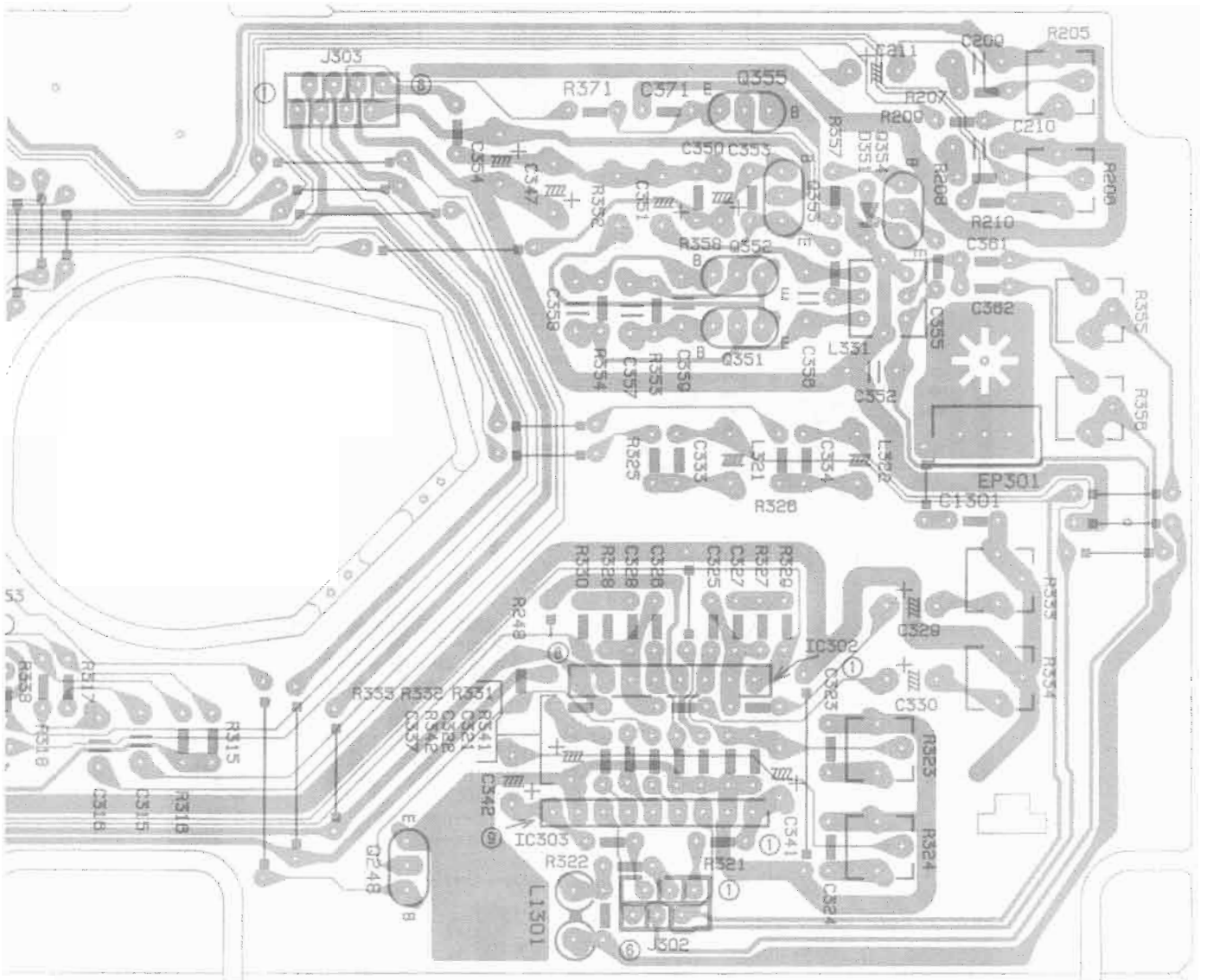


# CA-V800

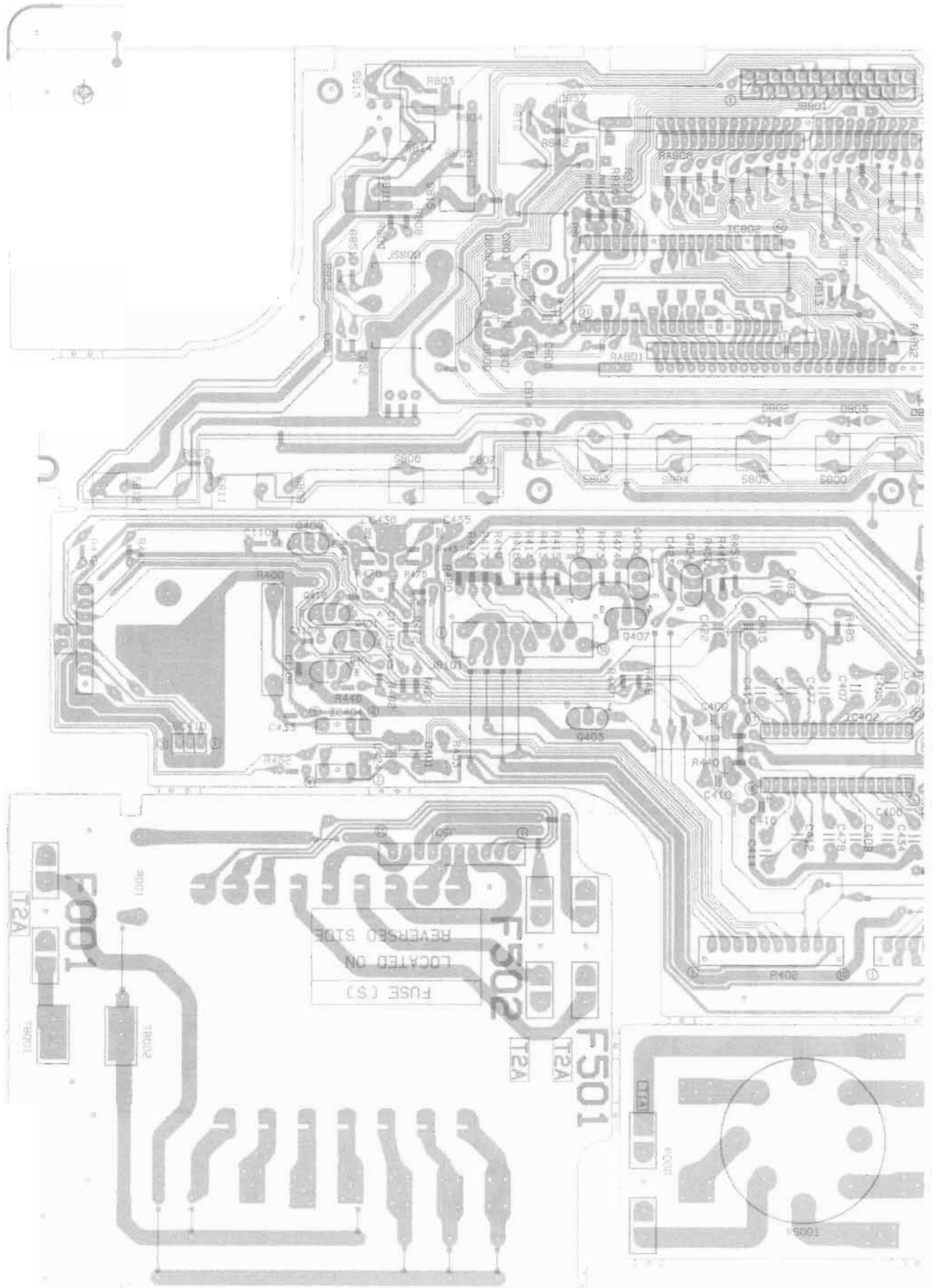
## ■ Cassette Deck P.C. Board (ENJ-083)







■ Front, Input Control&Key Matrix P.C. Board (ENB-195)



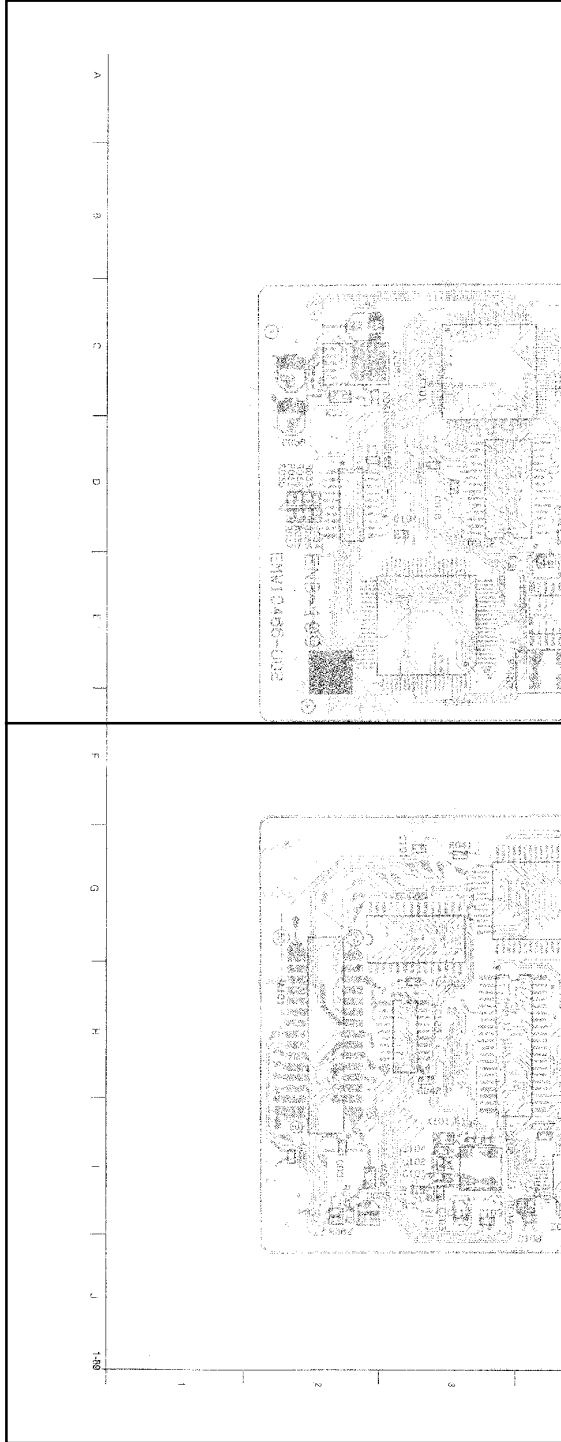




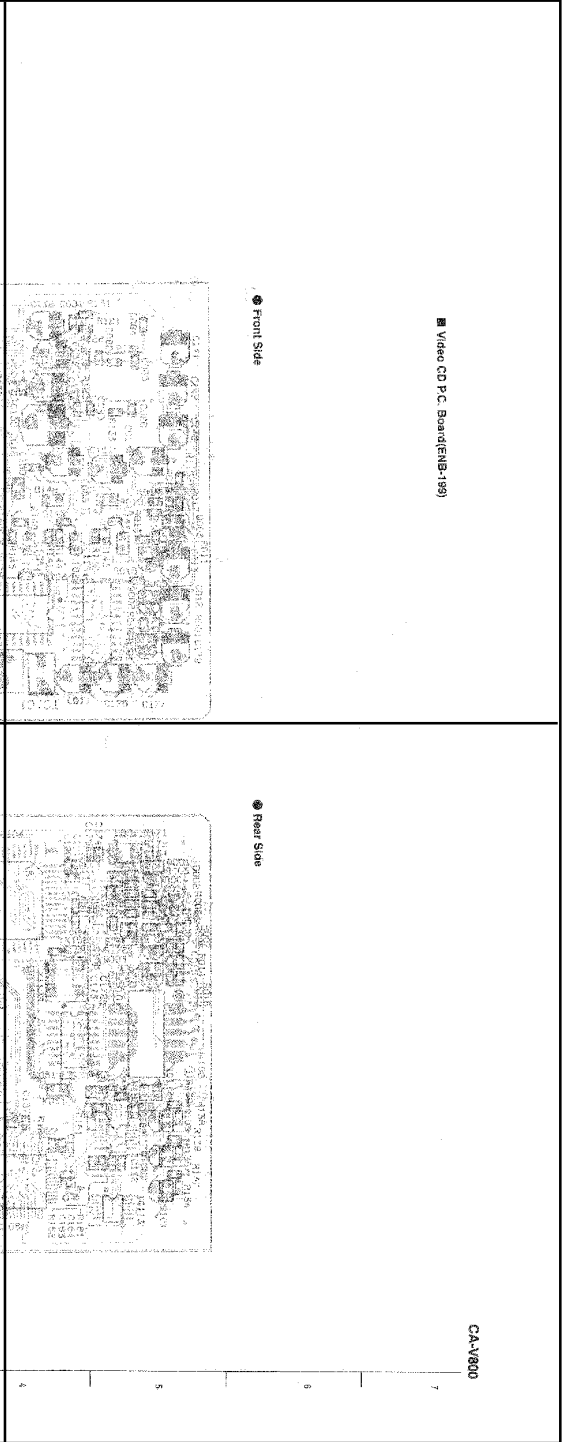




P1-89-a



P1-89-b



P1-89-c



P1-89-d



A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
O  
P  
Q  
R  
S  
T  
U  
V

● Front Side

■ View CD P.C. Board (EMB-199)

● Rear Side

CA-V830

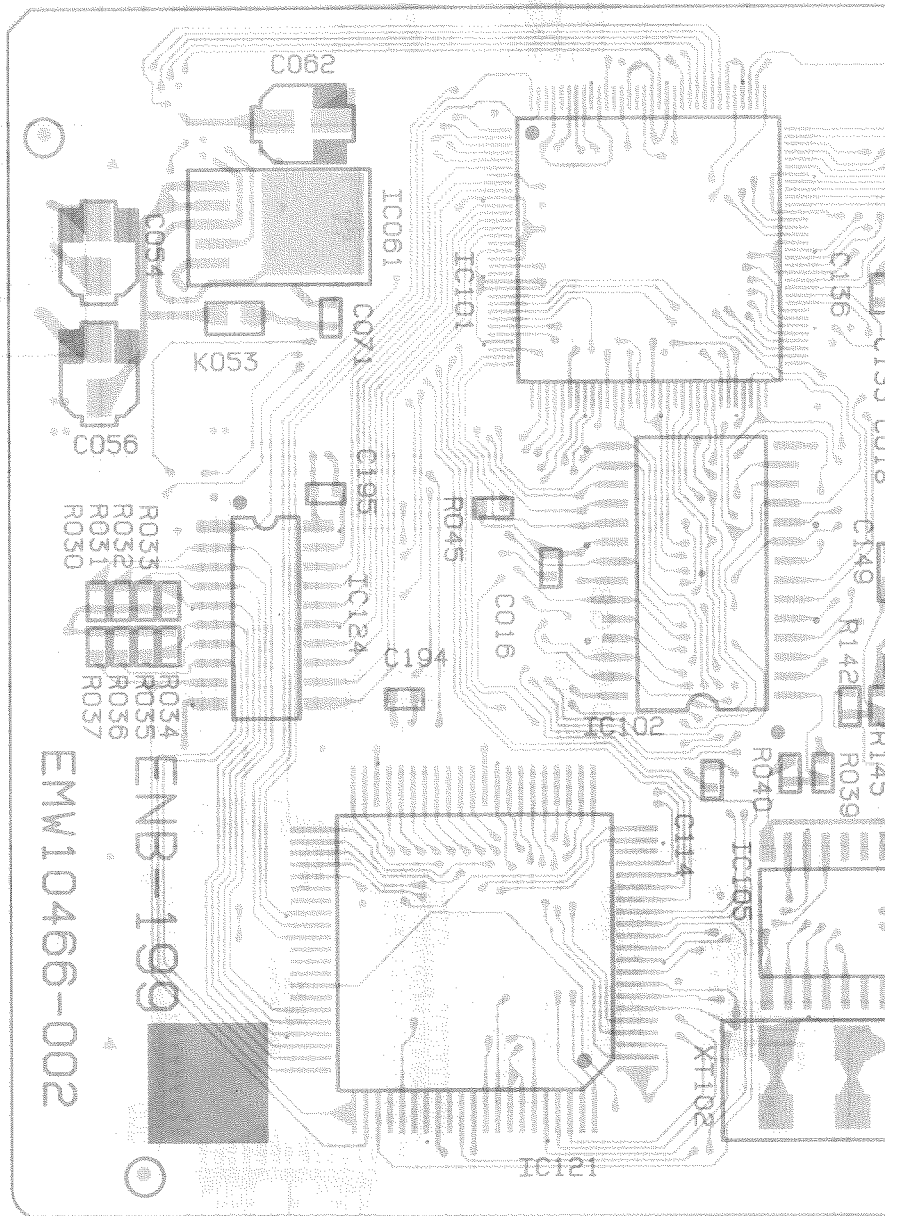
A

B

C

D

E

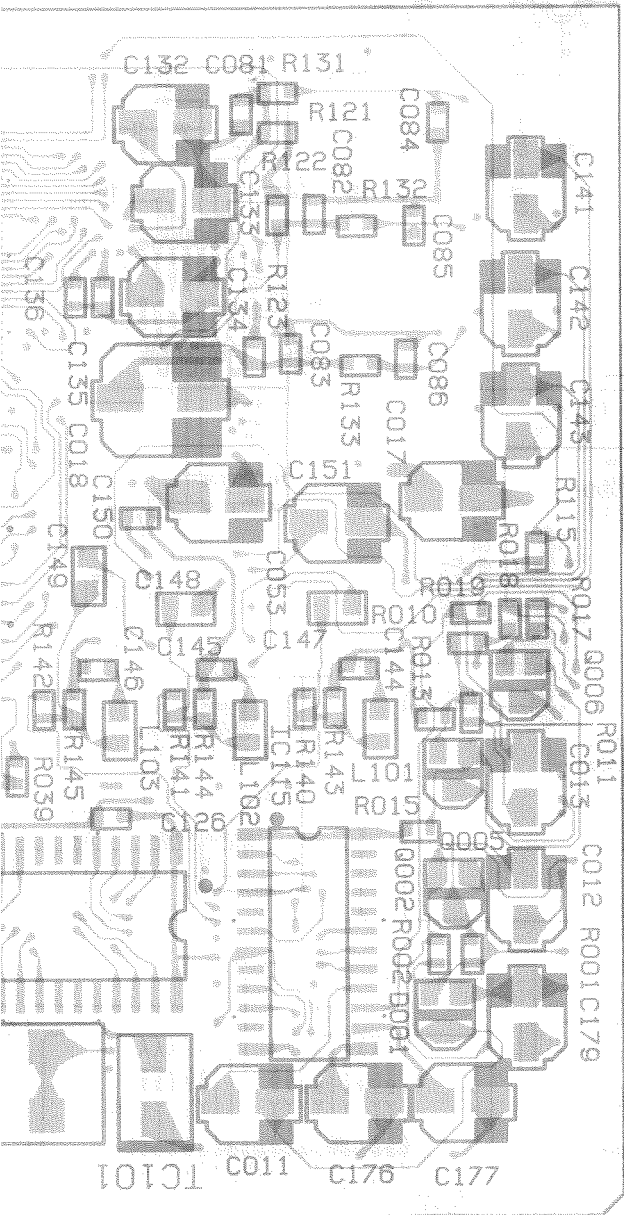


ENB-199  
EMW10466-002

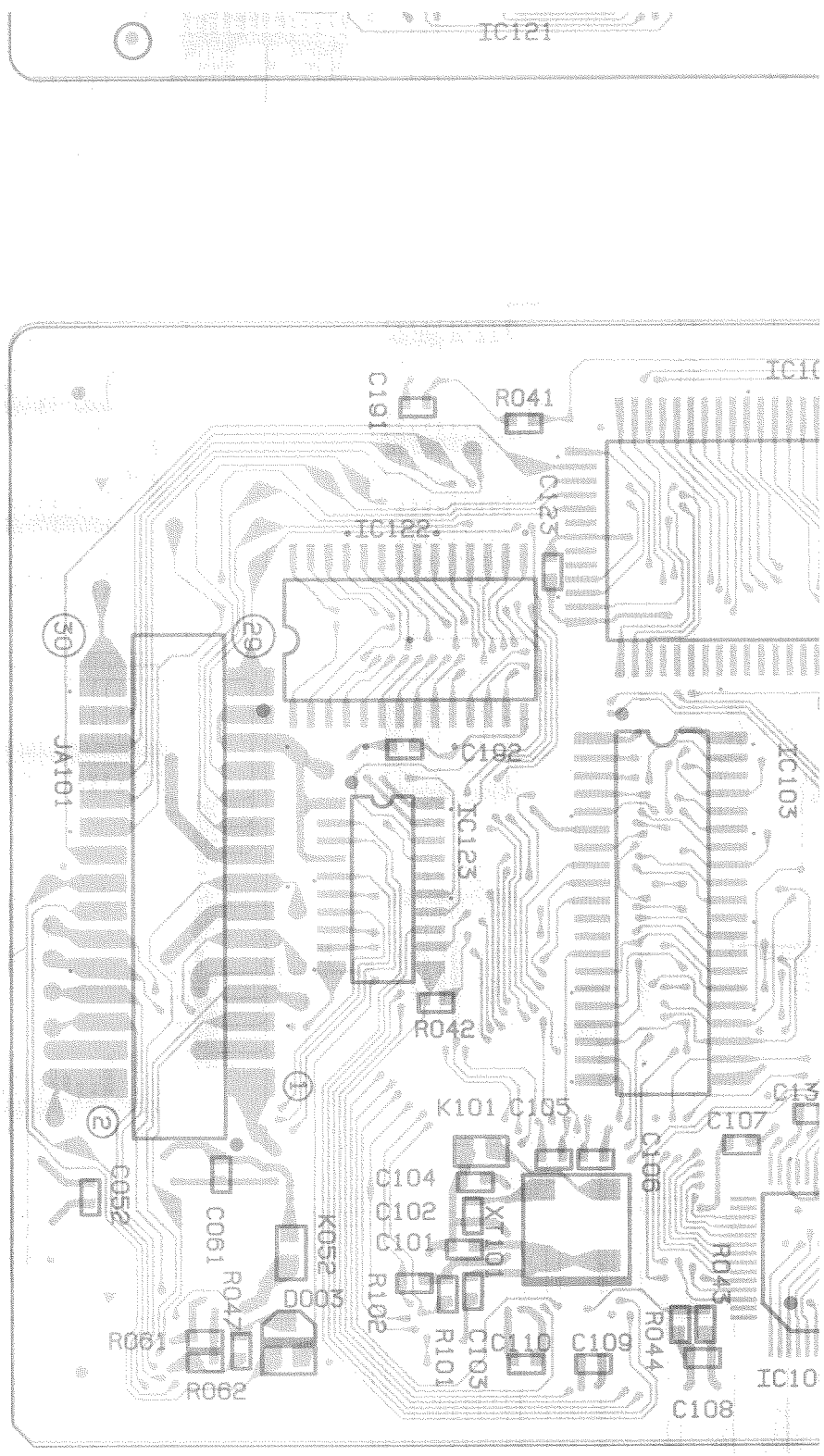


Video CD P.C. Board(ENB-199)

● Front Side



F G H I J 1-89



1

2

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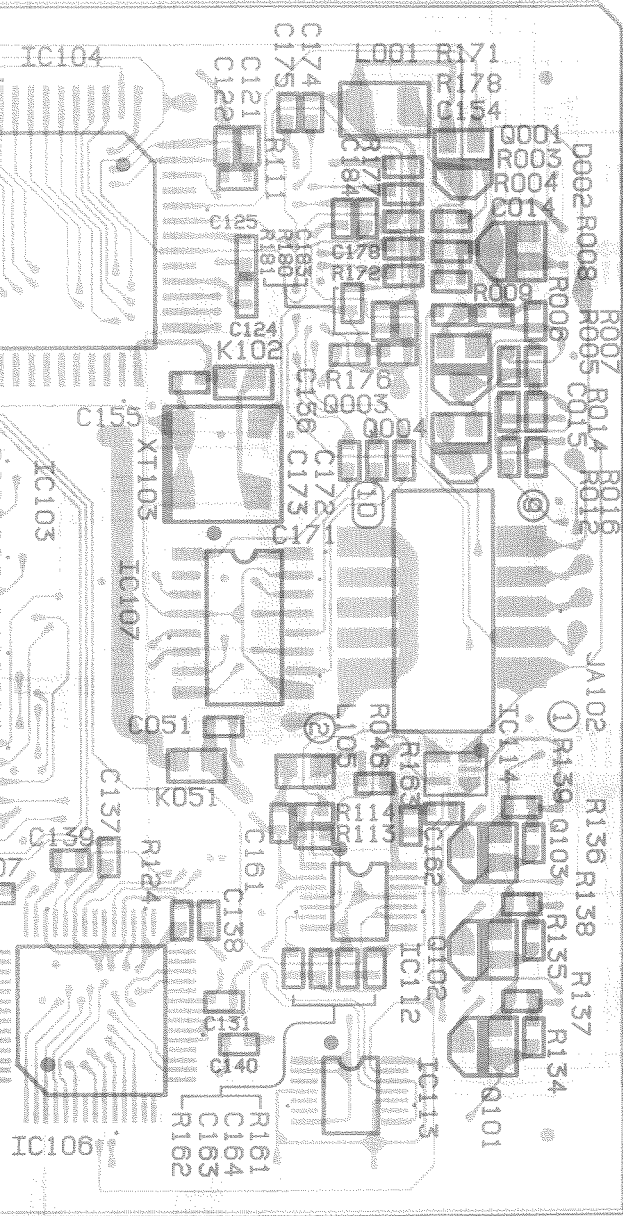
7

6

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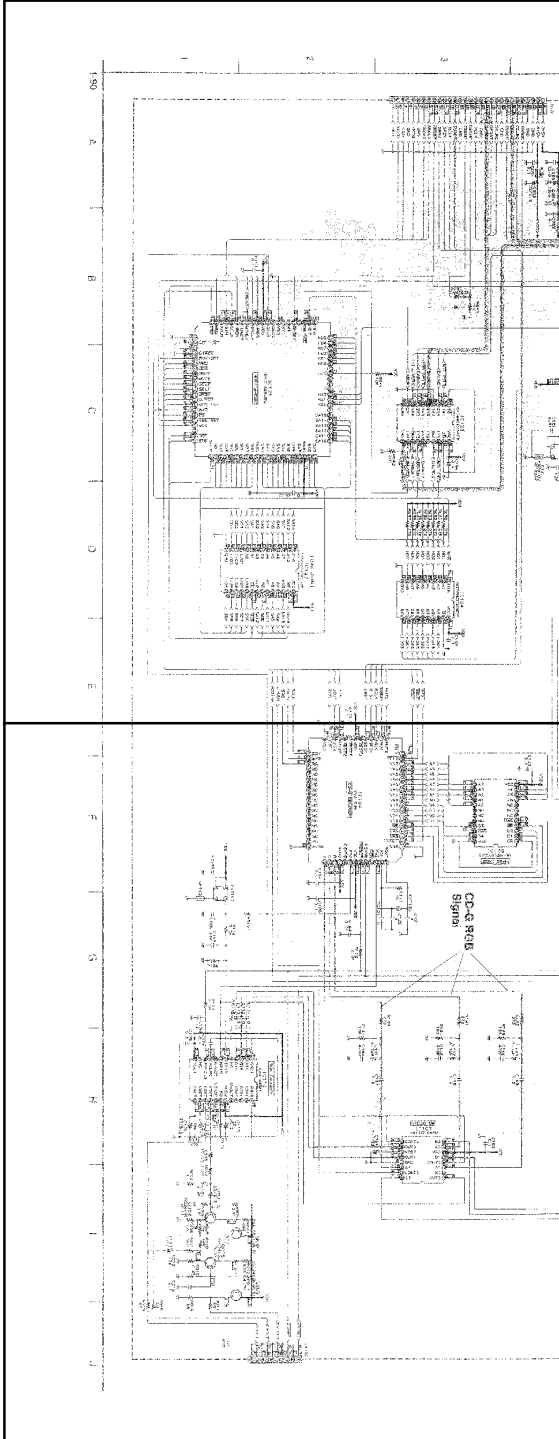
● Rear Side



IC101 C011 C176 C177

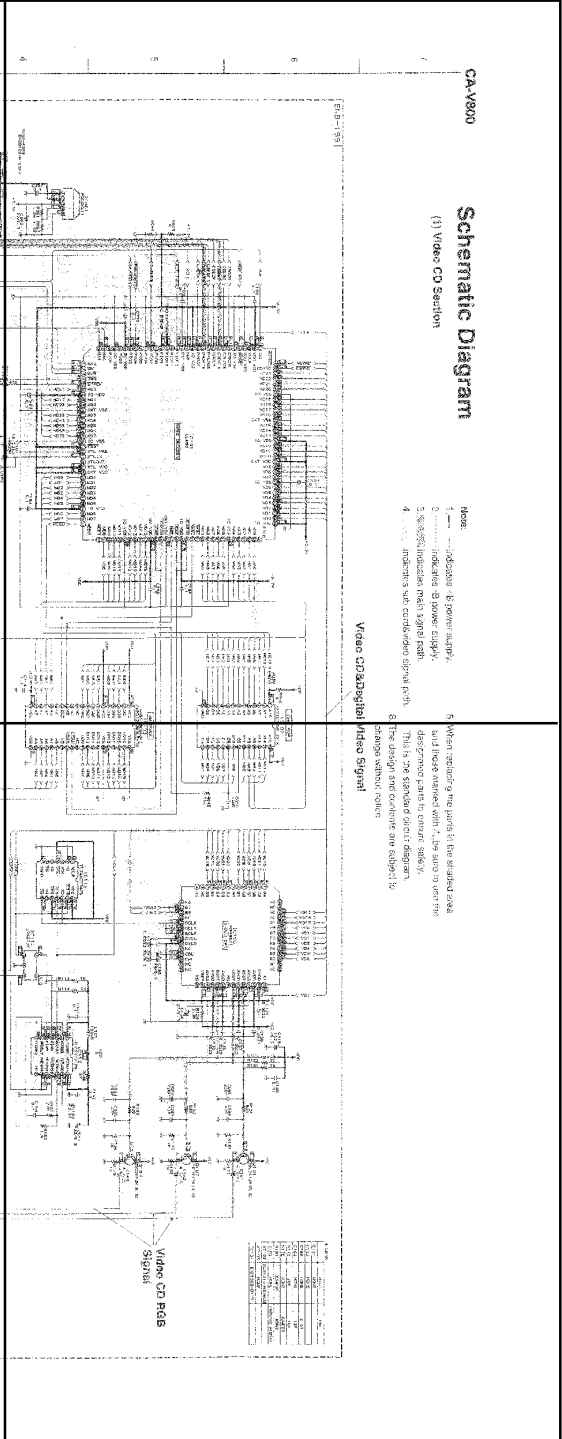


P1-90-a



P1-90-c

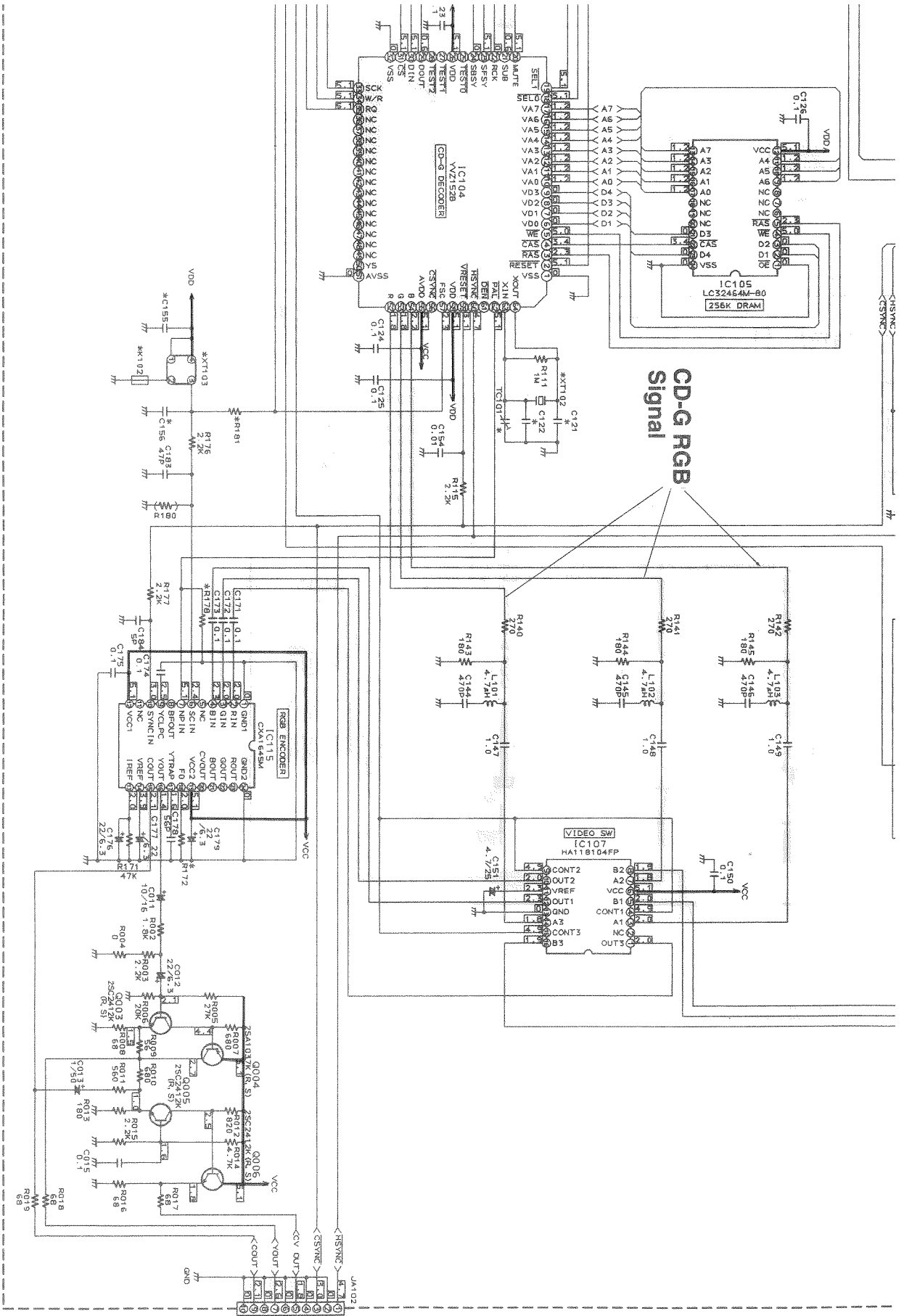
P1-90-b



P1-90-d



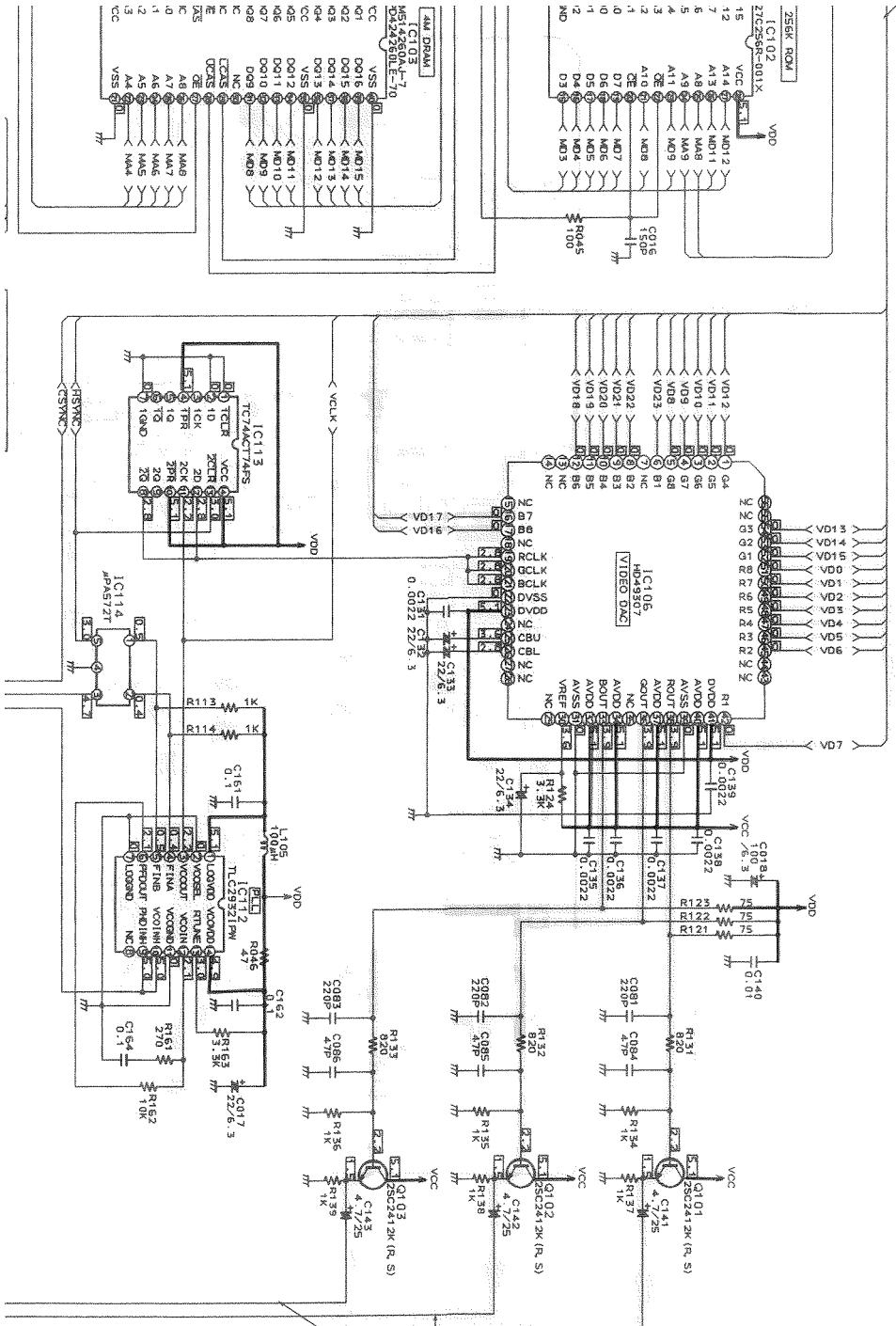






- When replacing the parts in the shaded area and those marked with  $\Delta$ , be sure to use the designated parts to ensure safety.
- This is the standard circuit diagram.
- The design and contents are subject to change without notice.

### al Video Signal



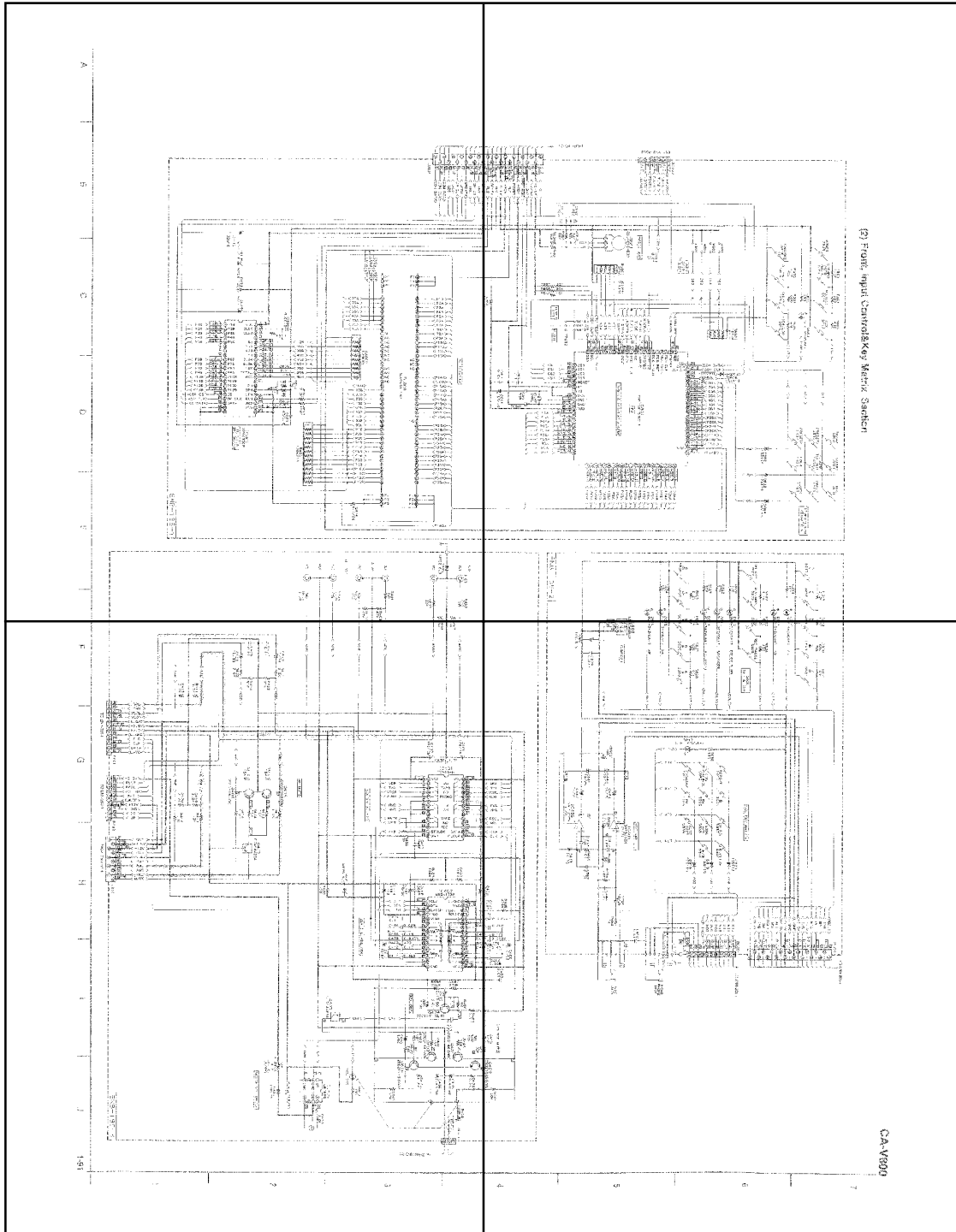
### Video CD RGB Signal

* MARK	NTSC	PAL
C121	NONE	
C122	NONE	
C155	NONE	0.01
C156	NONE	1.2P
R172	NONE	16K
R178	JAMPER	JAMPER
R181	NONE	NONE
X1102	ECKAD14-N0YWA/J3	ENQ8102-N1QZAV
X1103	NONE	
TC101	EN21003-017T	



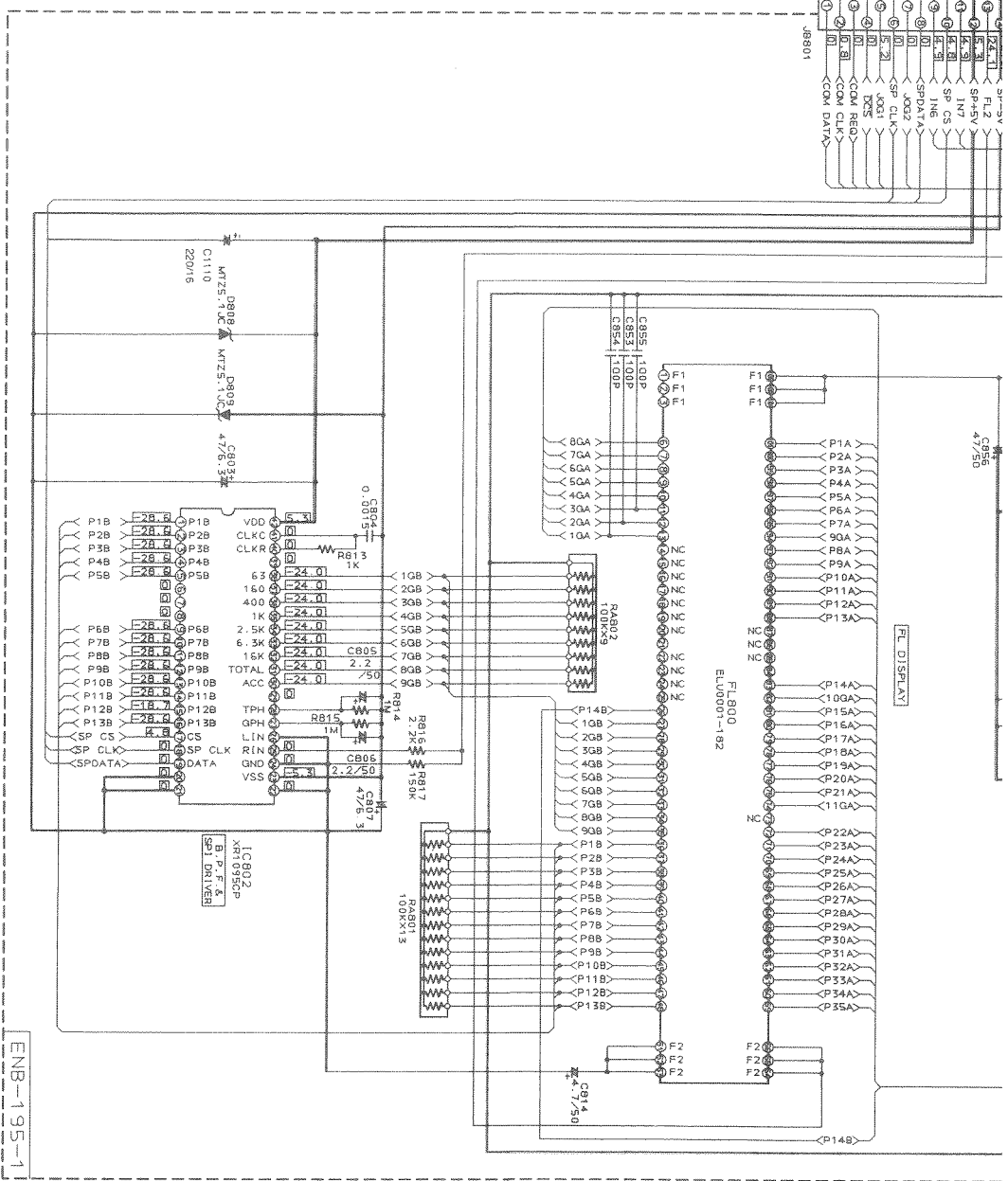
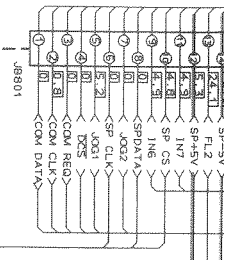
P1-91-a

P1-91-b

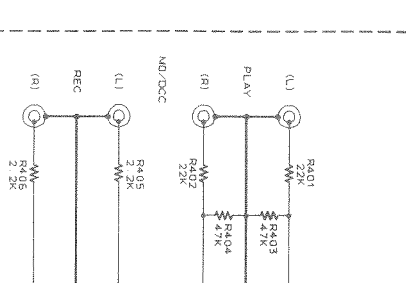
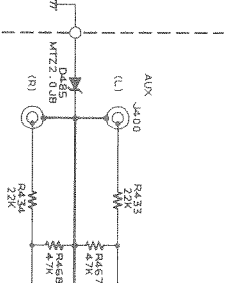


P1-91-c

P1-91-d



ENB-195-1



A

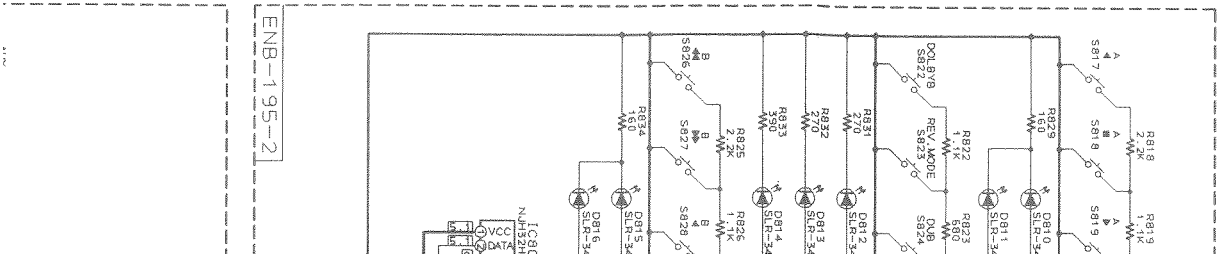
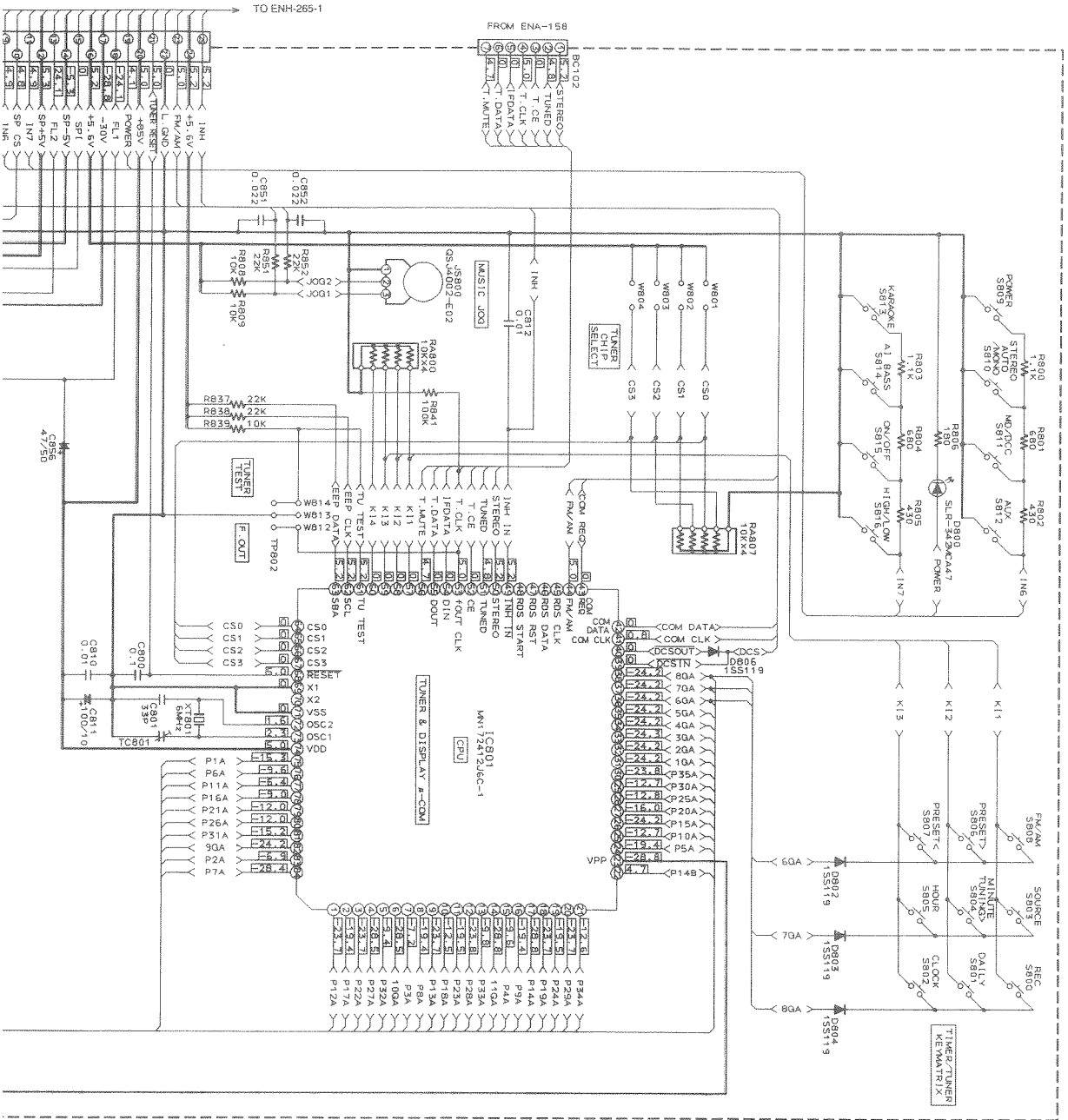
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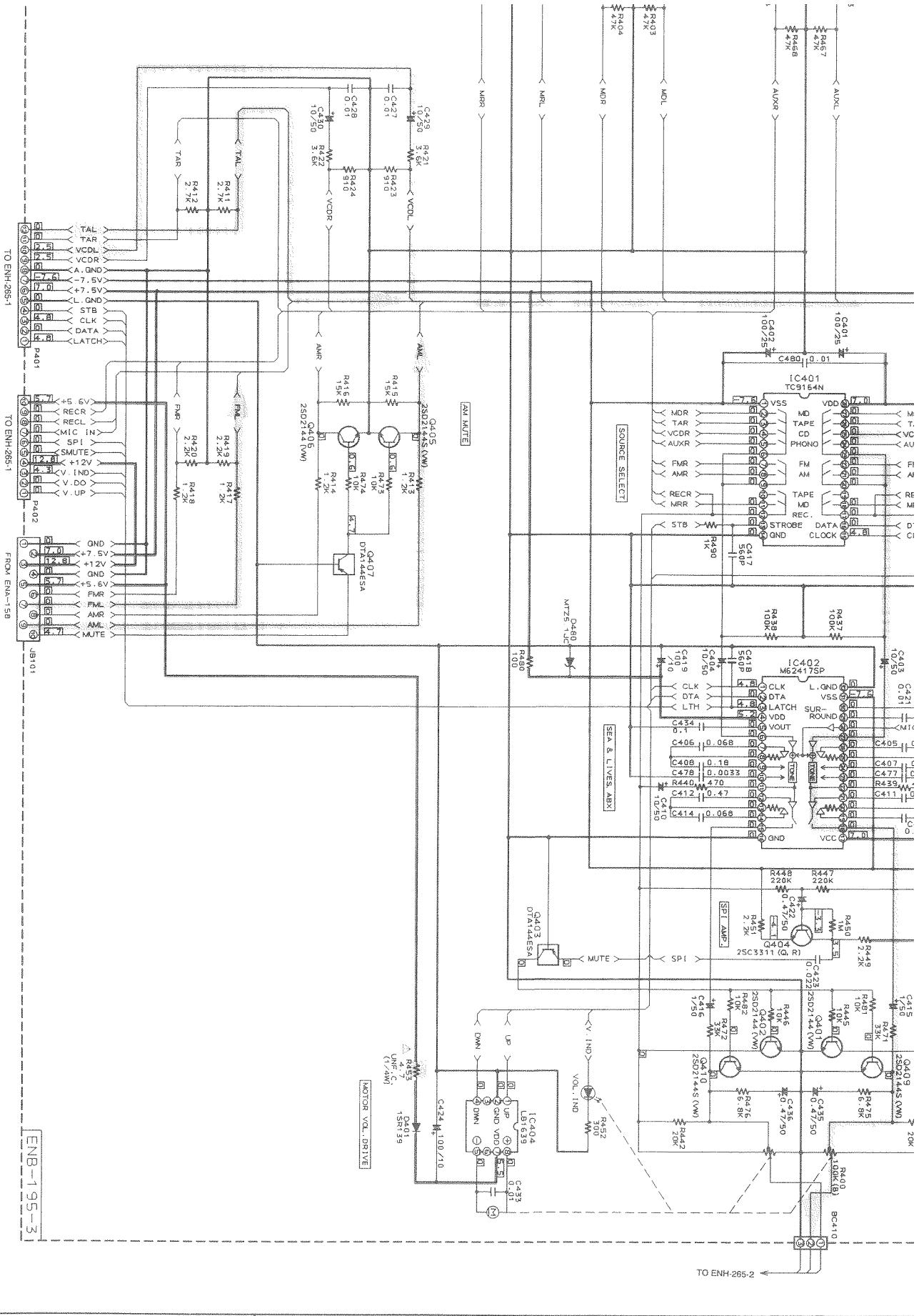
C

D

E

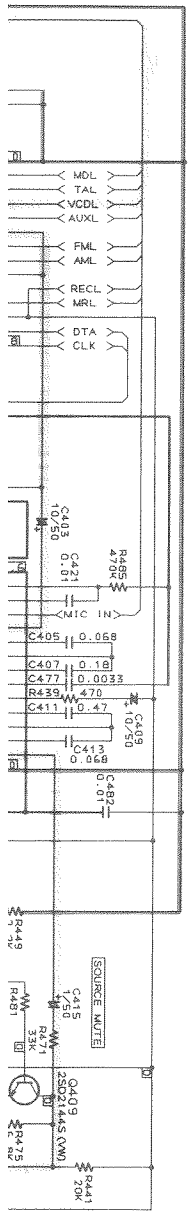
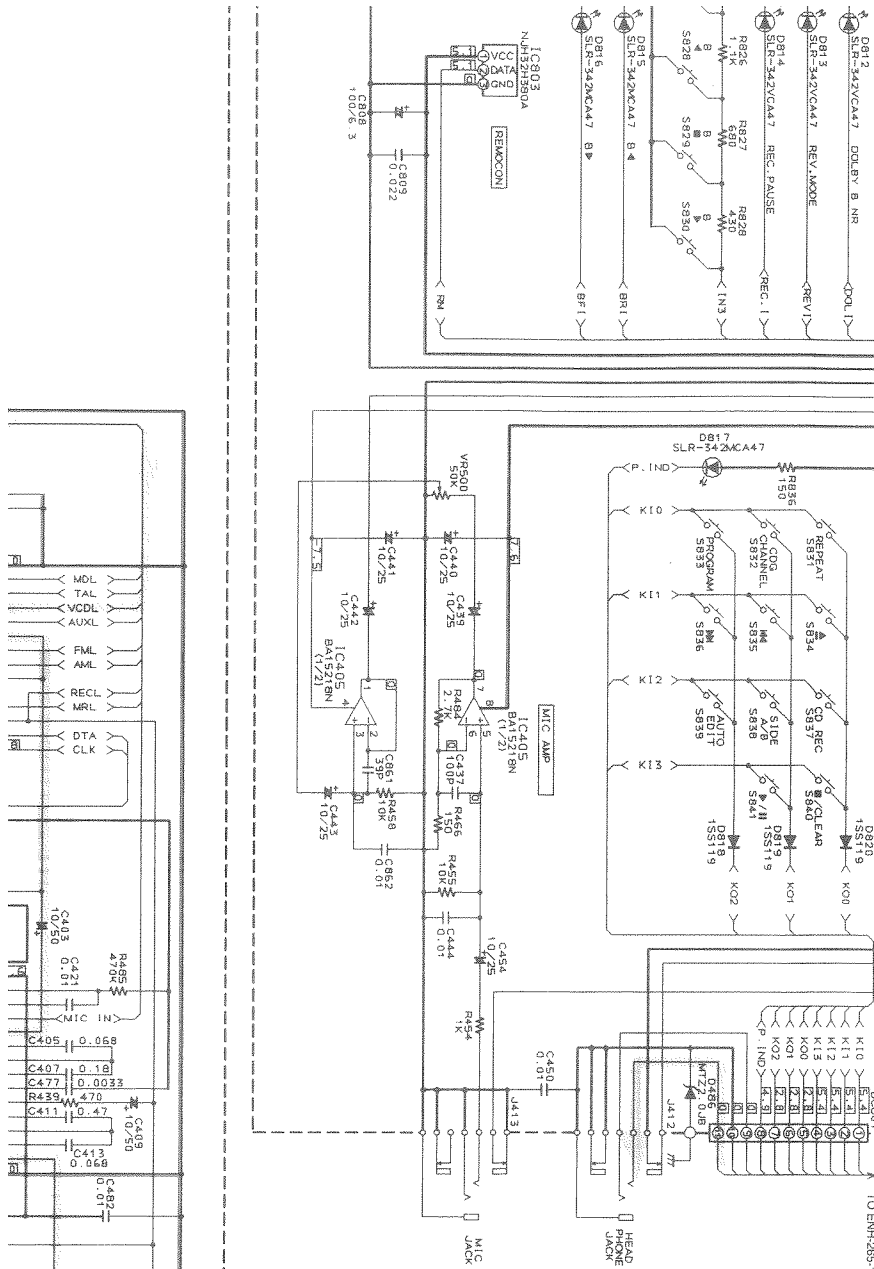
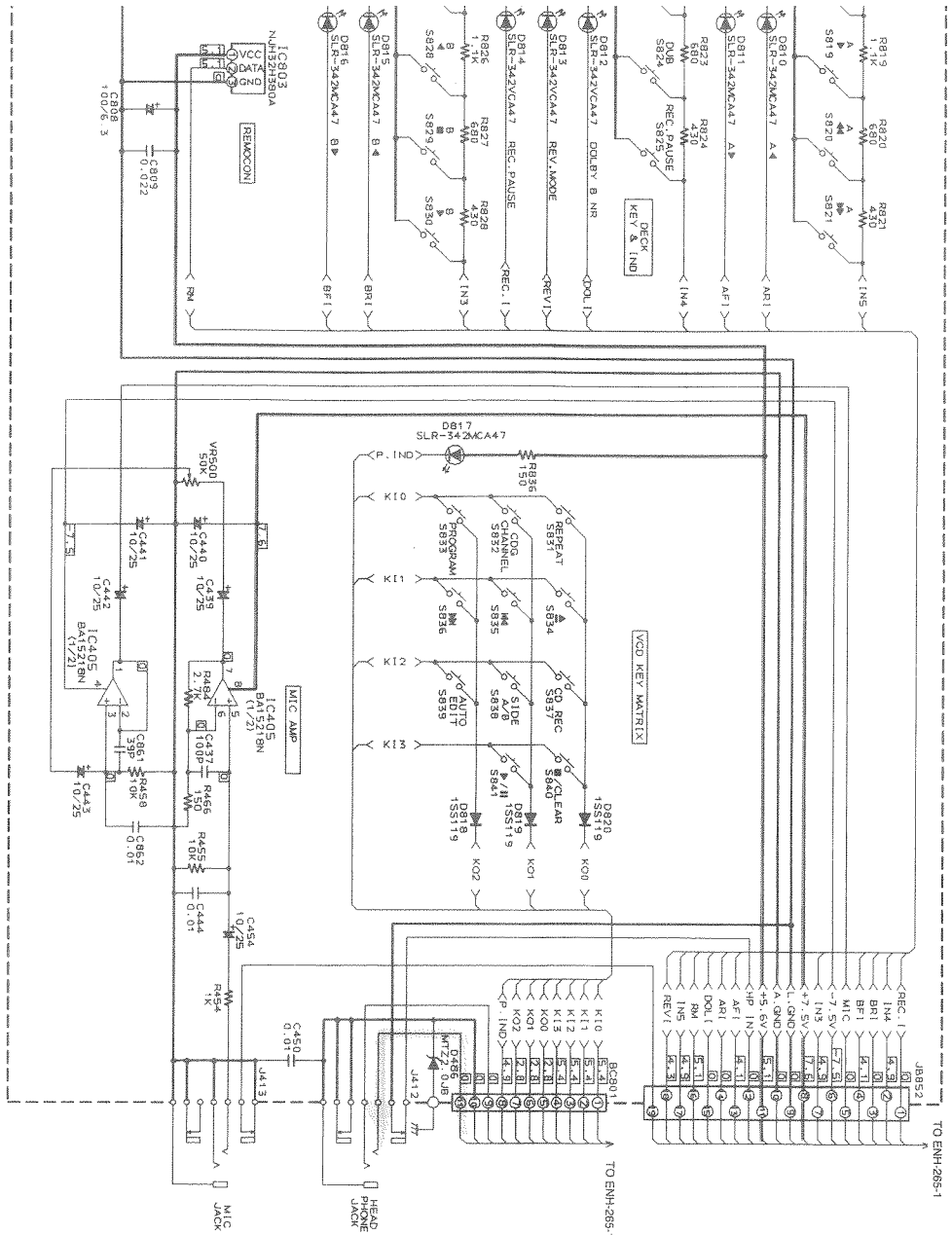
(2) Front, Input Control & Key Matrix Section





F G H I J 1-91

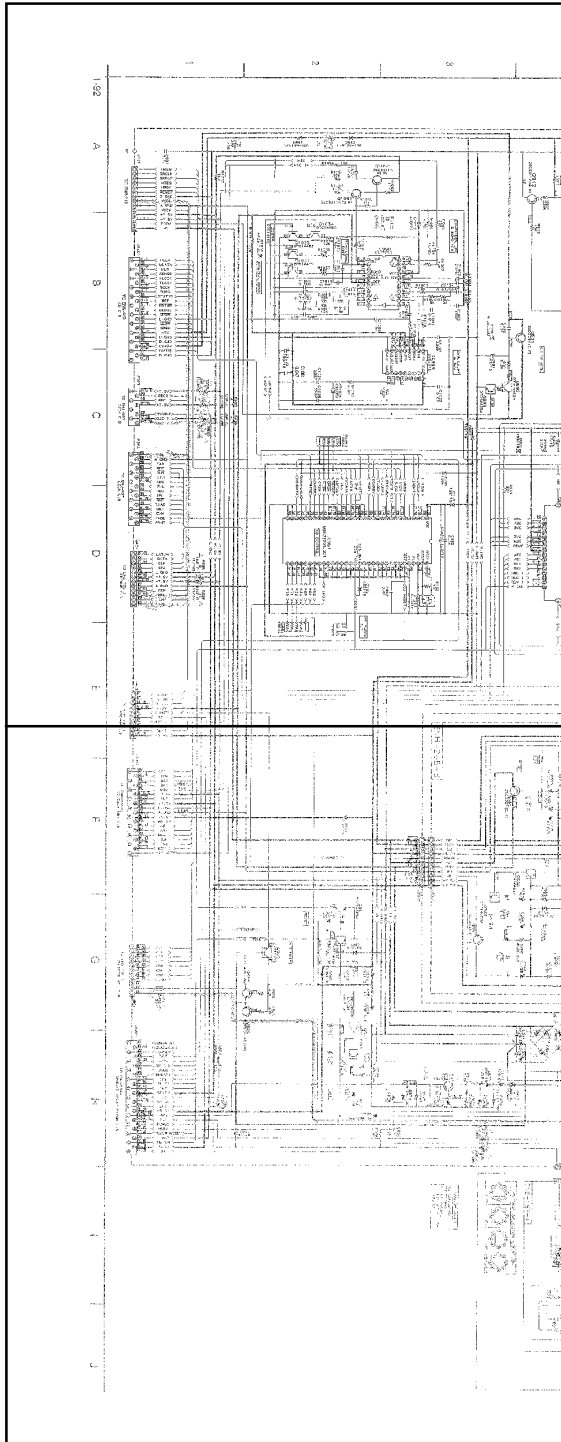
ENB-195-3



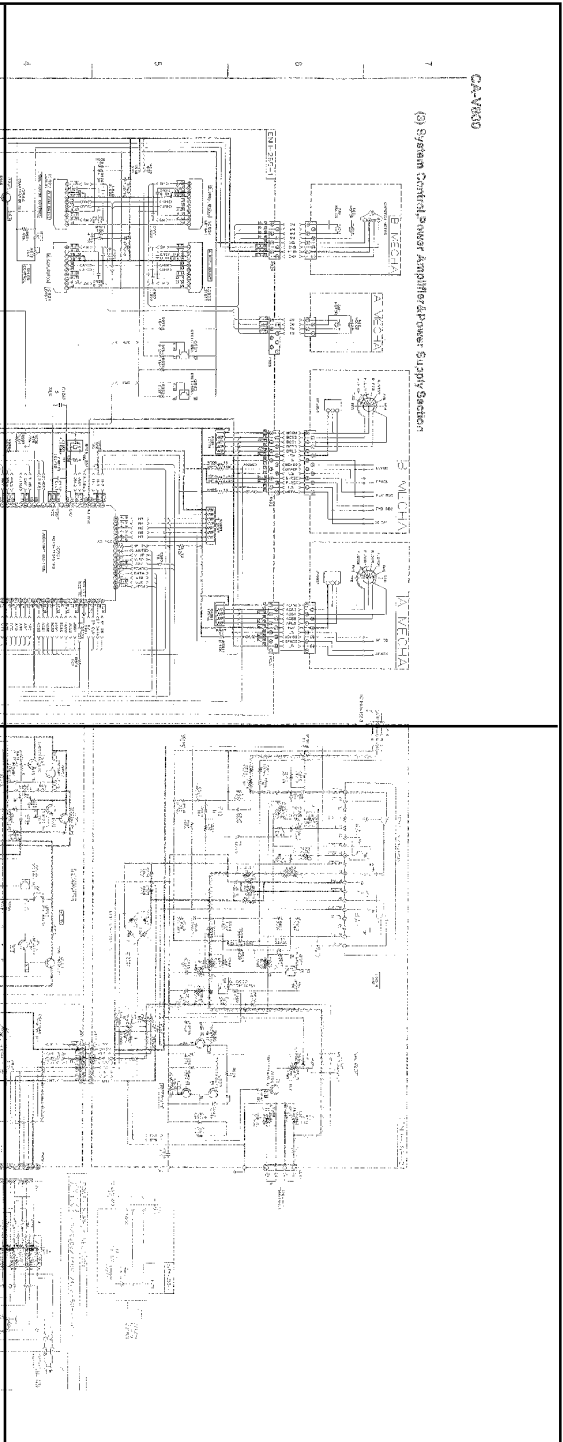




P1-92-a



P1-92-b



P1-92-c

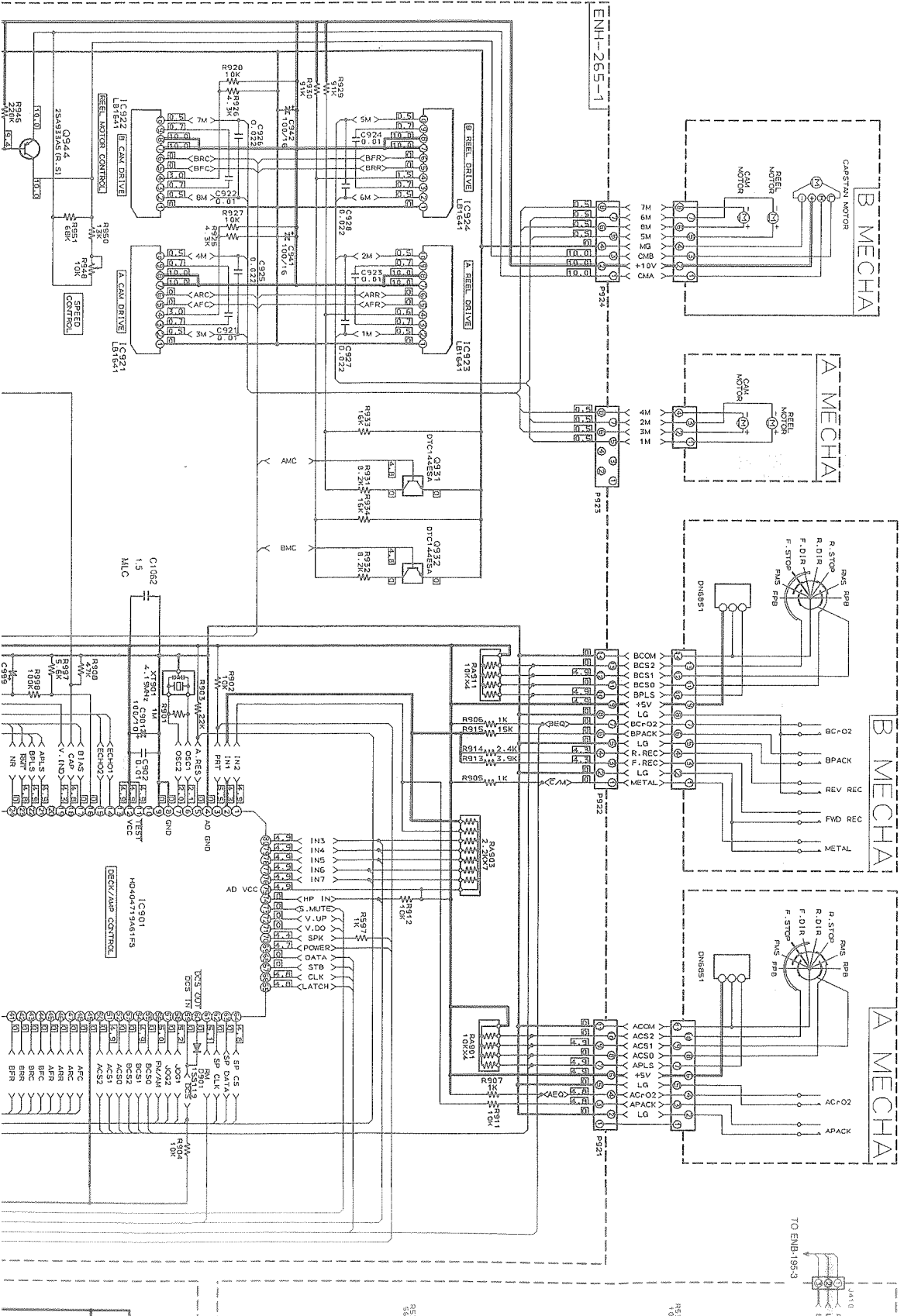


P1-92-d





(3) System Control, Power Amplifier & Power Supply Section



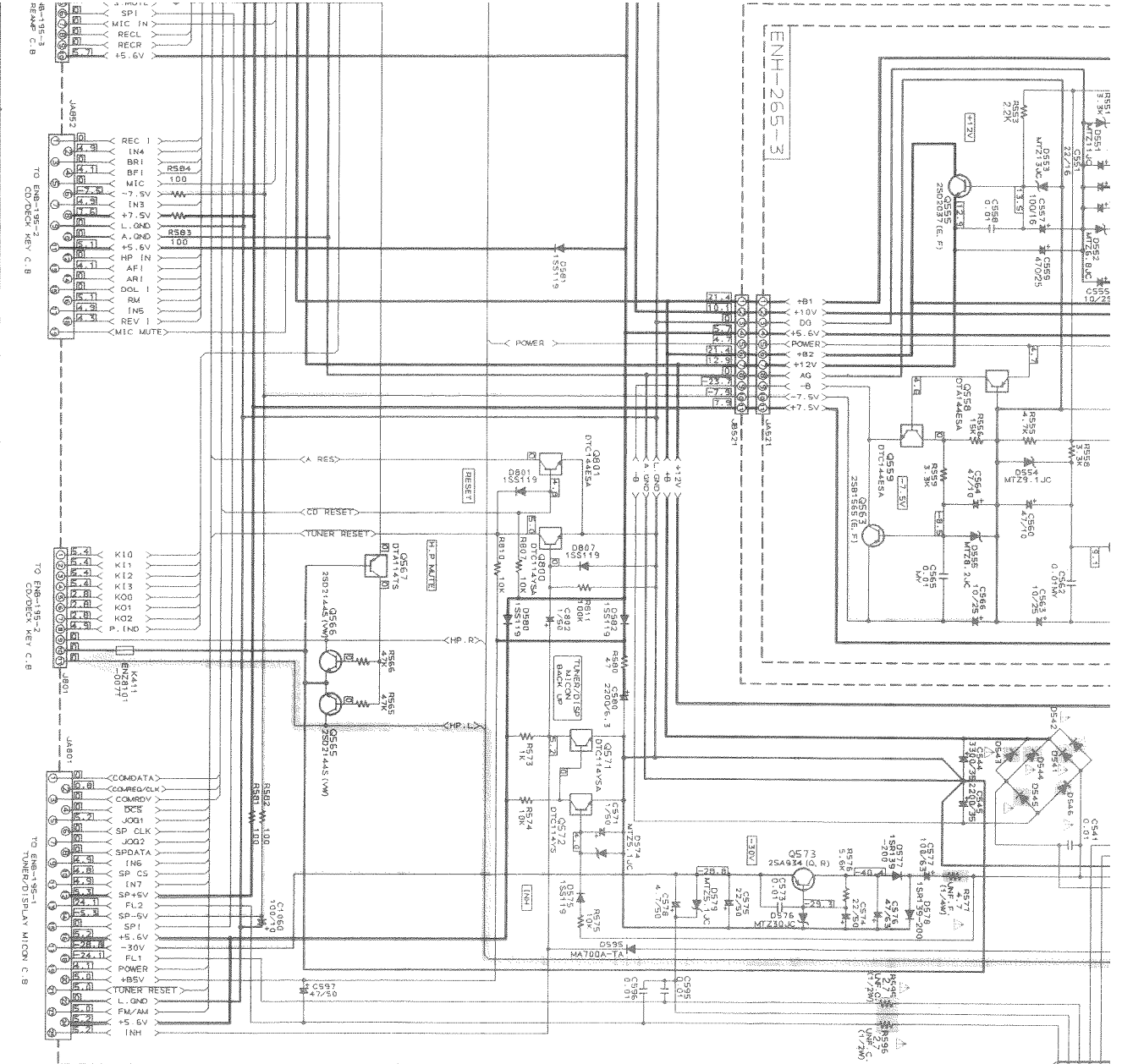
4

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F G H I J



ENH-265-3

ENH-195-3

ENH-195-2

ENH-195-1

ENH-195-4

ENH-195-5

ENH-195-6

ENH-195-7

ENH-195-8

ENH-195-9

ENH-195-10

ENH-195-11

ENH-195-12

ENH-195-13

ENH-195-14

ENH-195-15

ENH-195-16

ENH-195-17

ENH-195-18

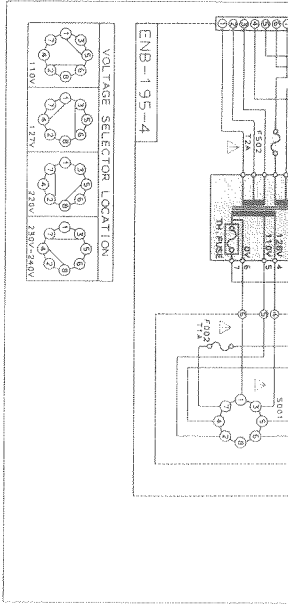
ENH-195-19

ENH-195-20

ENH-195-21

ENH-195-22

VERSION CODES  
 US SINGAPORE  
 UT TAIWAN  
 U EXCEPT ALL OF  
 ABOVE

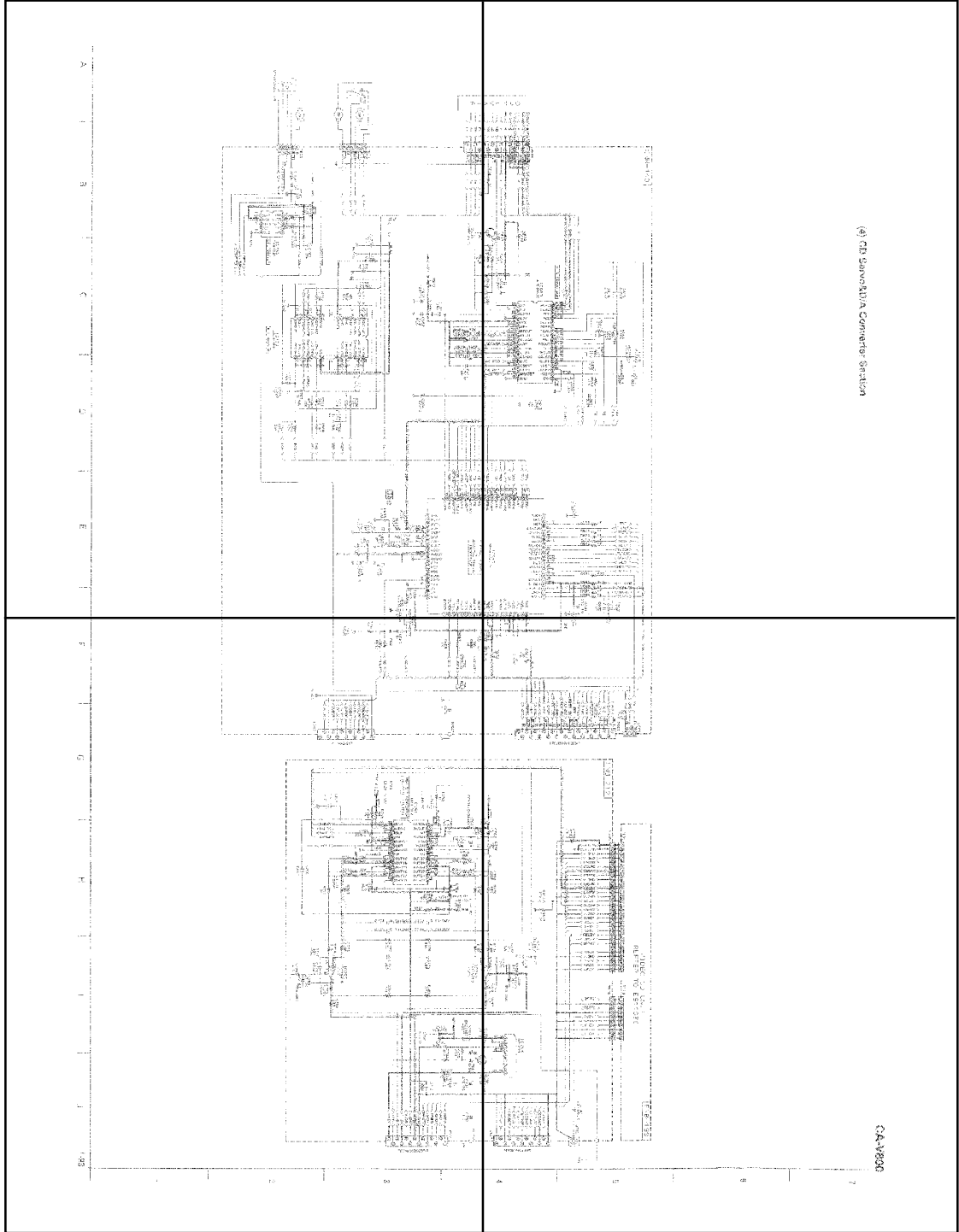






P1-93-a

P1-93-b



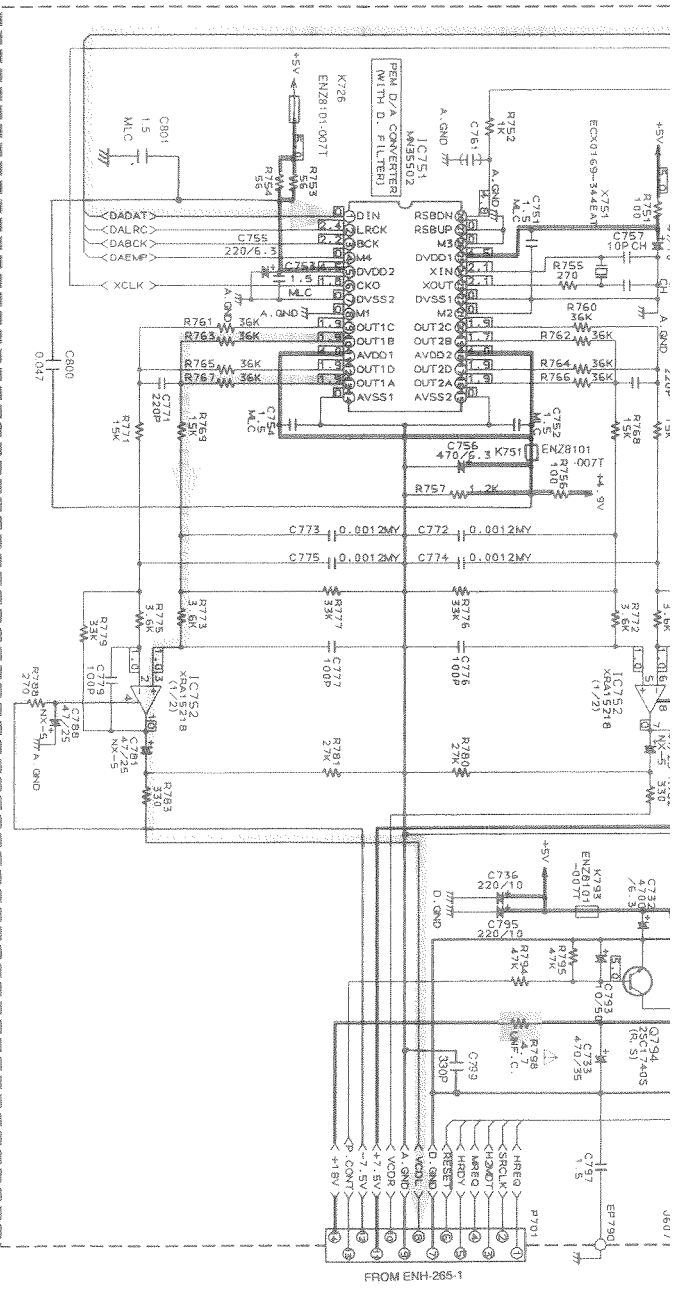
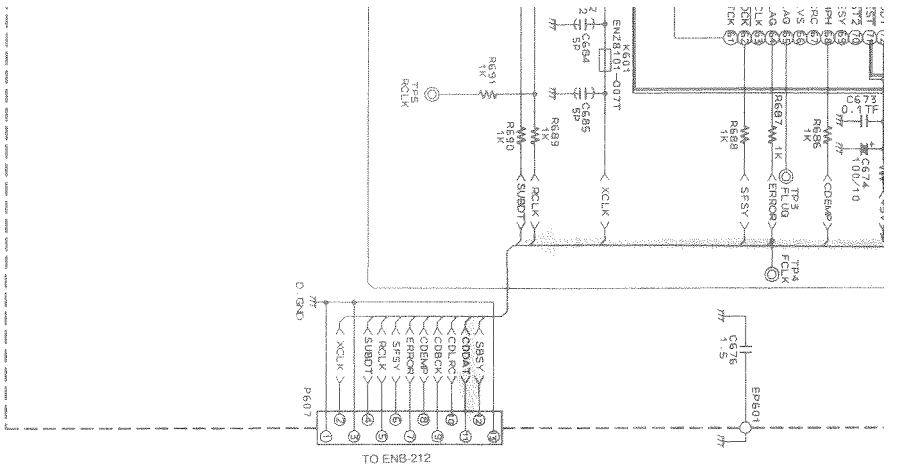
P1-93-c

P1-93-d







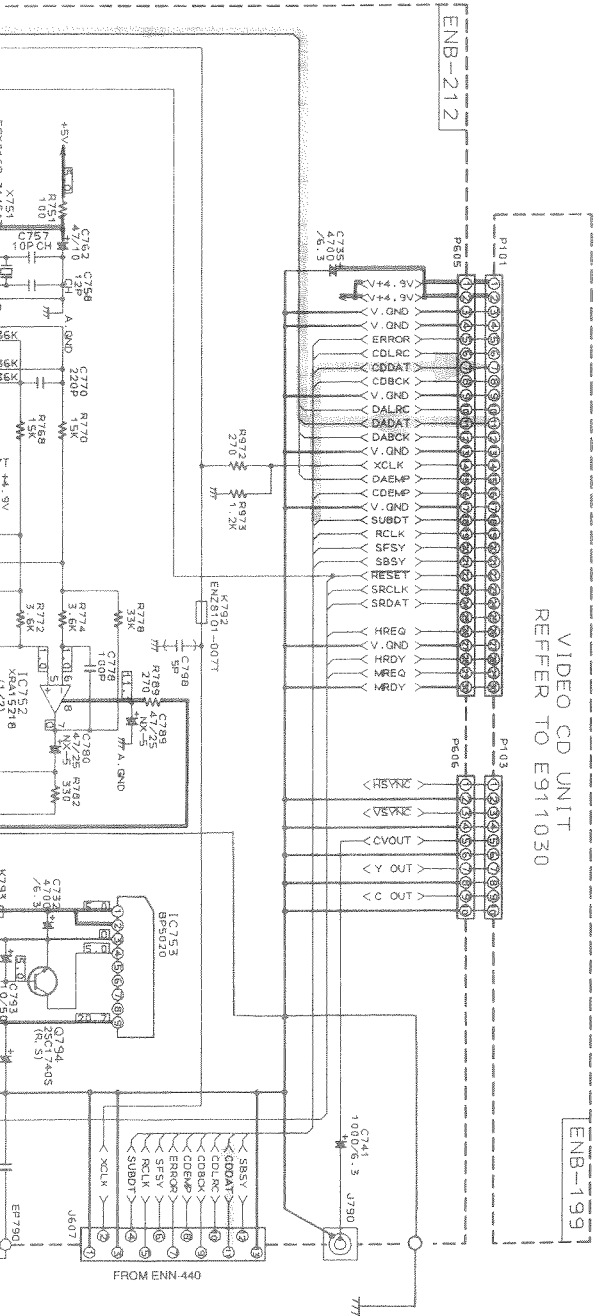
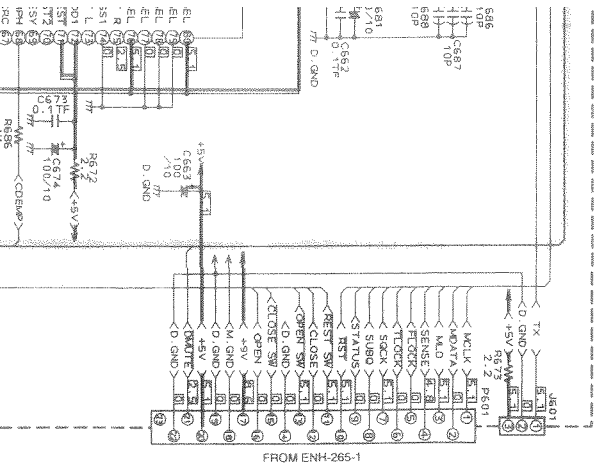


F G H I J 1-93

1

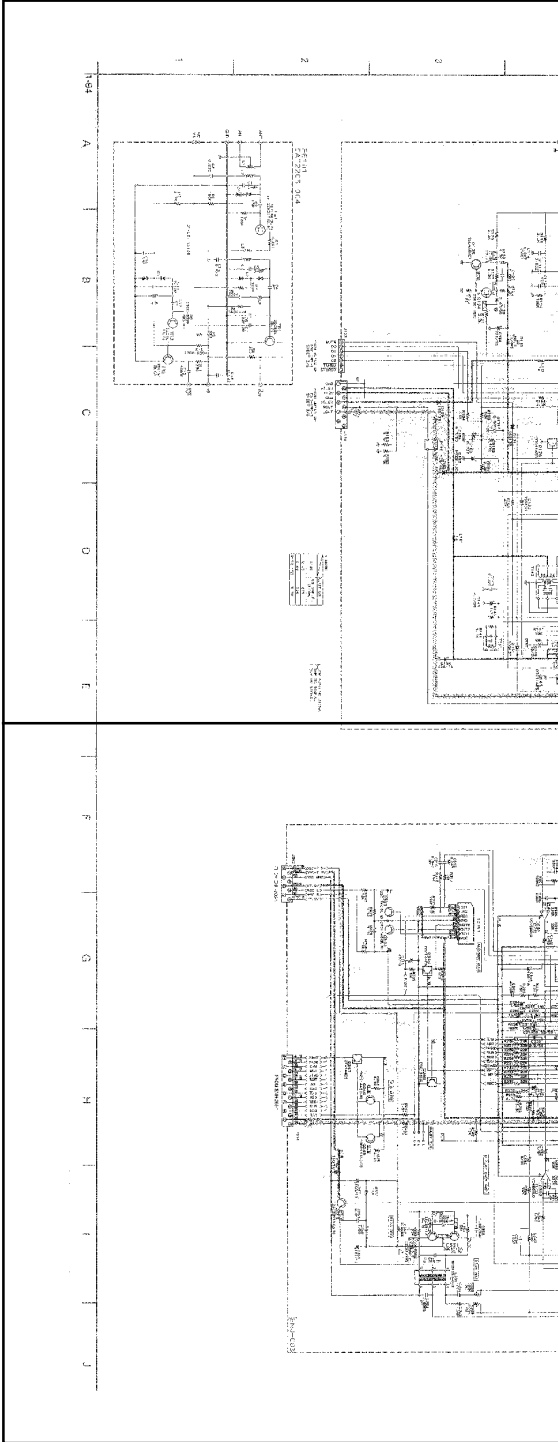
2

3

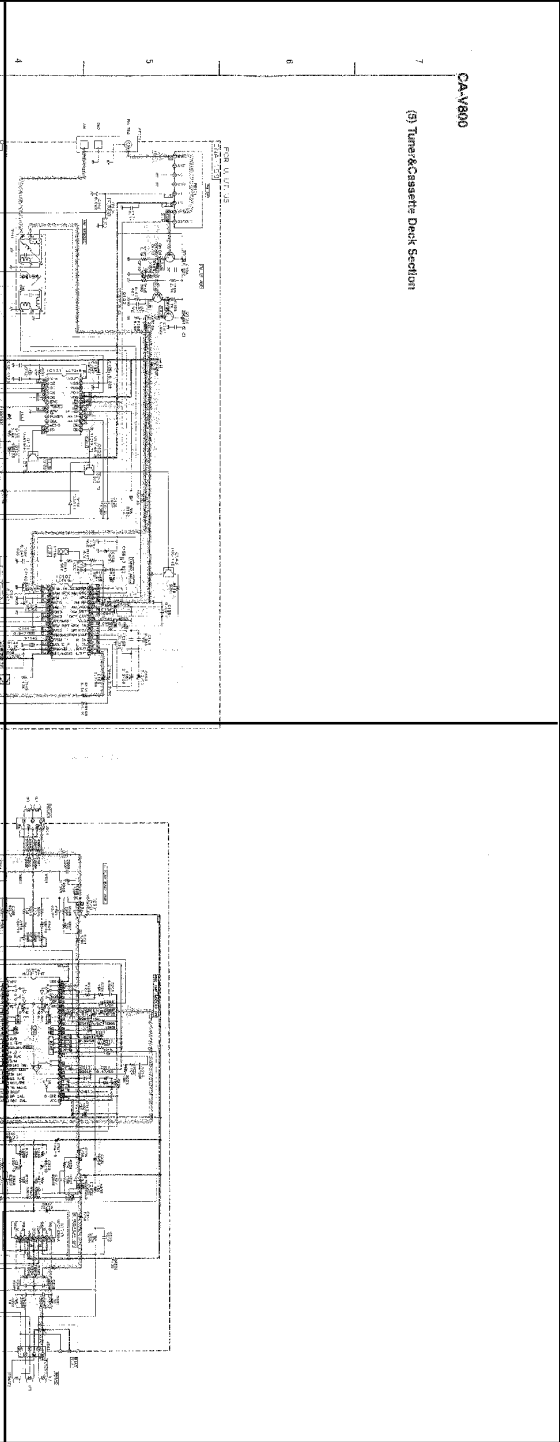




P1-94-a



P1-94-b



P1-94-c

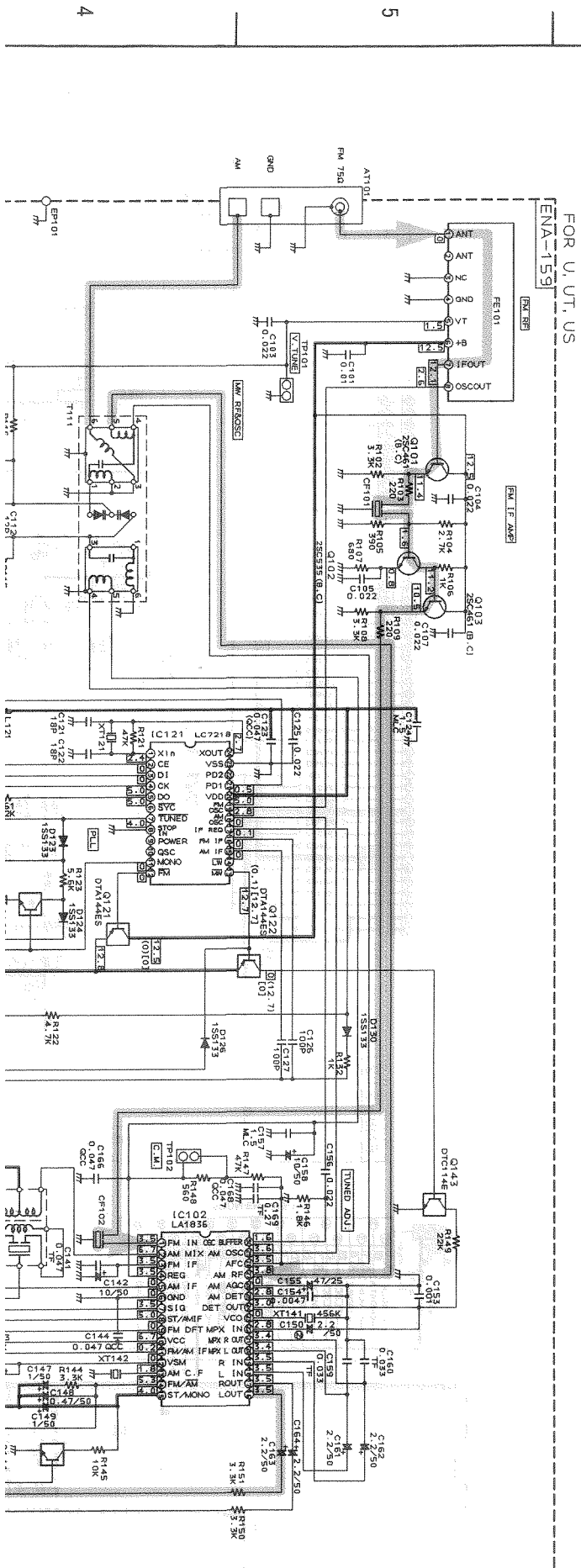


P1-94-d





(5) Tuner & Cassette Deck Section



4

5

6

7

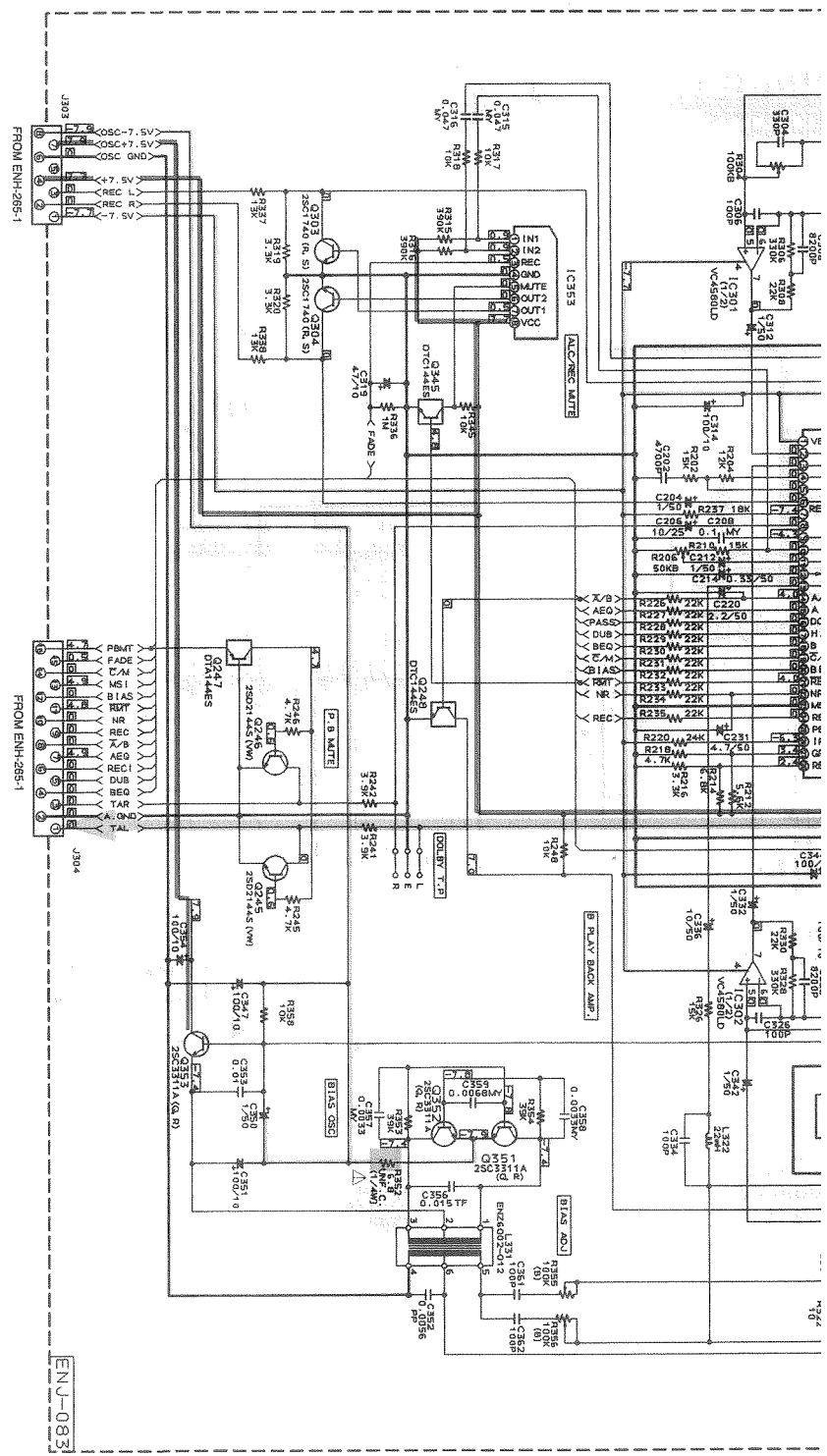
F

G

H

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# PARTS LIST

\* All printed circuit boards and its assemblies are not available as service parts.

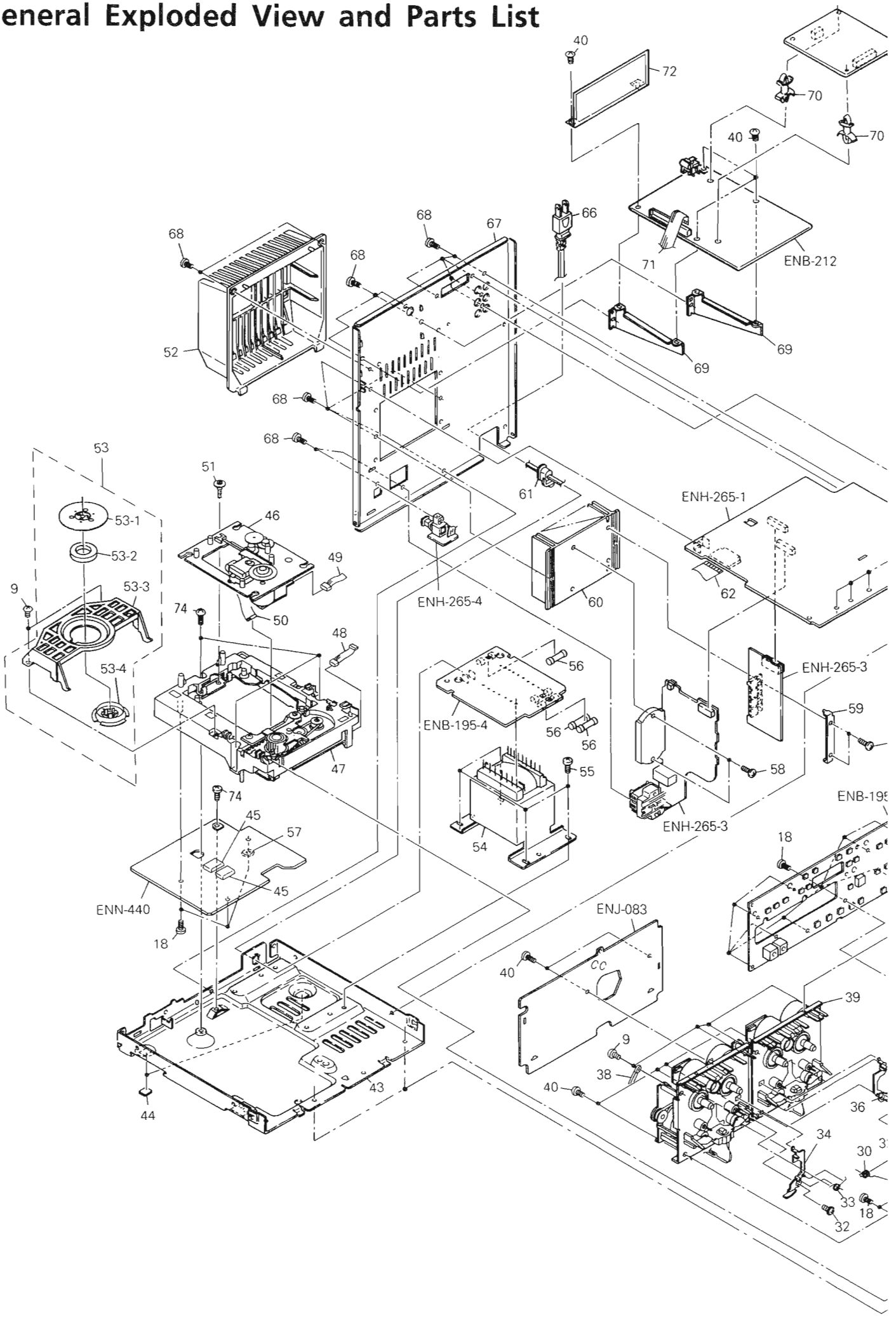
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**CA-V800**



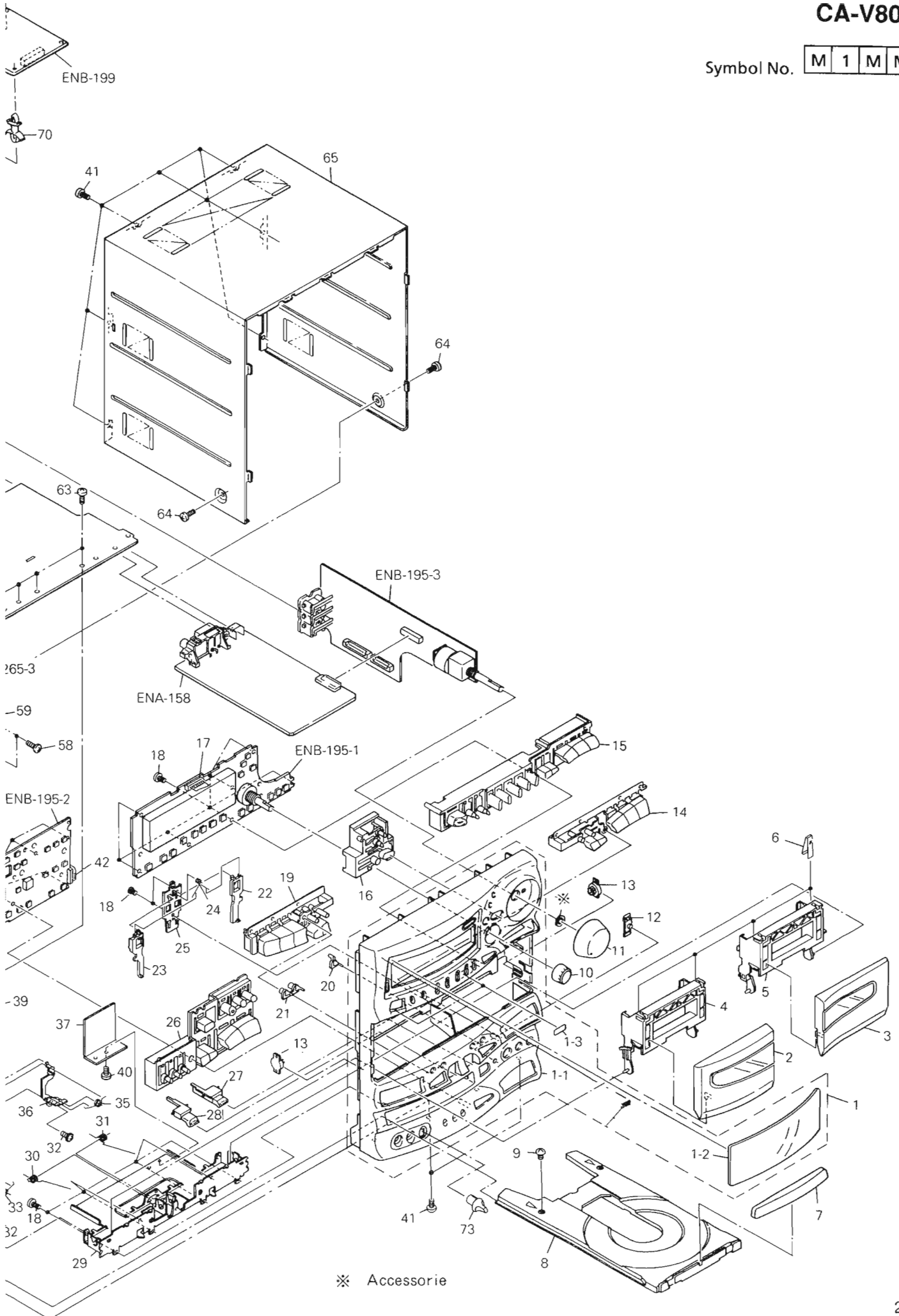
# General Exploded View and Parts List



# CA-V800

Symbol No. 

M	1	M	M
---	---	---	---



# CA-V800

Symbol No. 

M	1	M	M
---	---	---	---

Parts List

⚠	Item	Part Number	Part Name	Q'ty	Description	Area
	1	EFP-CAV800U(S)	FRONT PANEL ASSY	1		
	1-1	E102901-011SS	FRONT PANEL	1		
	1-2	E208234-005SS	WINDOW SCREEN	1		
	1-3	E69777-003	REFLECTION PLATE	2		
	1-4	E406971-221	JVC MARK	1		
	2	FSJT2003-003SA	CASSETTE LID ASSY	1		
	2-1	FSJT2003-003	CASSETTE LID	1		
	2-2	E406971-221	JVC MARK	1		
	3	FSJT2004-003	CASSETTE LID	1		
	4	E207972-004SS	CASSETTE HOLDER	1	HOLDER A	
	5	E207973-004SS	CASSETTE HOLDER	1	HOLDER B	
	6	E406713-001	CASSETTE SPRING	4		
	7	E208236-004SS	CD FITTING	1		
	8	E102358-332SS	CD TRAY	1		
	9	SBSF3008Z	TAPPING SCREW	7		
	10	FSXP3016-002	SELECT KNOB	1		
	11	E309083-005SS	VOLUME KNOB	1		
	12	E408303-001	REMOTE LENS	1		
	13	E304434-005	DAMPER ASSY	2		
	14	E208244-004SS	PUSH BUTTON ASSY	1	DECK B	
	15	E208238-007SS	PUSH BUTTON ASSY	1	AMP/TUNER	
	16	E309079-003SS	PUSH BUTTON	1	SEA	
	17	VWF1225-20TTB	FLAT WIRE ASSY	1		
	18	SDSF2608Z	SCREW	27		
	19	E208241-004SS	PUSH BUTTON ASSY	1	DECK A	
	20	E408306-001	INDICATOR LENS	1	REC	
	21	E408305-001	INDICATOR LENS	1	DOLBY	
	22	E308682-002SS	EJECT LEVER	1		
	23	E308681-002SS	EJECT LEVER	1		
	24	E407798-002	SPRING	1		
	25	E308683-002	EJECT GUIDE	1		
	26	E208247-008SS	PUSH BUTTON ASSY	1	CD	
	27	E309082-003SS	EJECT BUTTON	1		
	28	E309081-003SS	EJECT BUTTON	1		
	29	E208256-001	HOLDER BKT	1		
	30	FSKW4002-001	HOLDER SPRING	1	HOLDER A	
	31	FSKW4003-001	HOLDER SPRING	1	HOLDER B	
	32	SBSF3006Z	TAPPING SCREW	2		
	33	E407801-002	SPRING	1		
	34	E407799-001	EJECT BRACKET	1		
	35	E407802-002	SPRING	1		
	36	E407800-001	EJECT BRACKET	1		
	37	E408393-002SS	SHIELD PLATE	1		
	38	E407469-001SS	WIRE CLAMP	1		
	39	-----	CASS MECHANISM ASSY	1	See page 2-7	
	40	SBST3006Z	TAPPING SCREW	15		
	41	GBSG3008CC	TAPPING SCREW	8		
	42	VWF1219-25TTB	FLAT WIRE ASSY	1		
	43	E102903-001	CHASSIS BASE	1		
	44	E75896-006	FELT SPACER	2	Rear foot	
	45	E75896-001	SPACER	2		
	46	-----	CD MECHANISM ASSY	1	See page 2-6	
	47	-----	LOADING MECHANISM ASSY	1	See page 2-5	
	48	EWS265-B412	SOCKET WIRE ASSY	1		
	49	EWS266-B410	SOCKET WIRE ASSY	1		



⚠	Item	Part Number	Part Name	Q'ty	Description	Area
	50	EWR115M-08BB	FFC CABLE	1		
	51	E406293-001	SPECIAL SCREW	1		
	52	E207356-223SS	REAR COVER	1		
	53	E306837-005	CLAMPER ASSY	1		
	53-1	E306836-003	YOKE PLATE	1		
	53-2	E74897-002	MAGNET	1		
	53-3	E26756-002	CLAMPER BASE	1		
	53-4	E306835-001	CD CLAMPER	1		
	54	ETP1070-36FAJ	POWER TRANSFORMER	1		
	55	E408279-001	SPECIAL SCREW	4		
⚠	56	QMF51E2-1R0J1	FUSE	1	F002	
⚠		QMF51E2-2R0	FUSE	3	F001	
	57	E73967-014	SPACER	1		
	58	SB5G3014CC	SCREW	4		
	59	E406969-221	LEAF SPRING	1		
⚠	60	FSJC3007-001	HEAT SINK	1		
	61	QHS3876-162	CORD STOPPER	1		
	62	VWF1223-20TTB	FLAT WIRE ASSY	1		
	63	SPST2604Z	TAPPING SCREW	4	AMP CB TO	
	64	SDSG3008N	TAPPING SCREW	2		
⚠	65	E208260-004	METAL COVER	1		
⚠	66	QMP3900-200	POWER CORD	1		US
⚠	66	QMP7520-200	POWER CORD	1		U,UT
	67	E102904-016SS	REAR PANEL	1		
	68	E73273-003	SPECIAL SCREW	18		
	69	E309362-001SS	PANEL BRACKET	2		
	70	E307552-001	FASTENER	2		
	71	VWF1213-30TTB	FLAT WIRE ASSY	1		
	72	E408771-002	SHIELD PLATE	1		
	73	FSXP3017-002	VOLUME KNOB	1		
	-	E309384-010	RATING LABEL	1		UT
	-	E406507-001	CAUTION LABEL	1		
	-	E61029-005	NUMBER LABEL	1		
	-	E70891-001	CLASS 1 LABEL	1		
	-	E75139-004	NAME LABEL	1		U
	-	E75139-004	NAME LABEL	1		UT

⚠ : Safety Parts

**The Marks for Designated Areas**

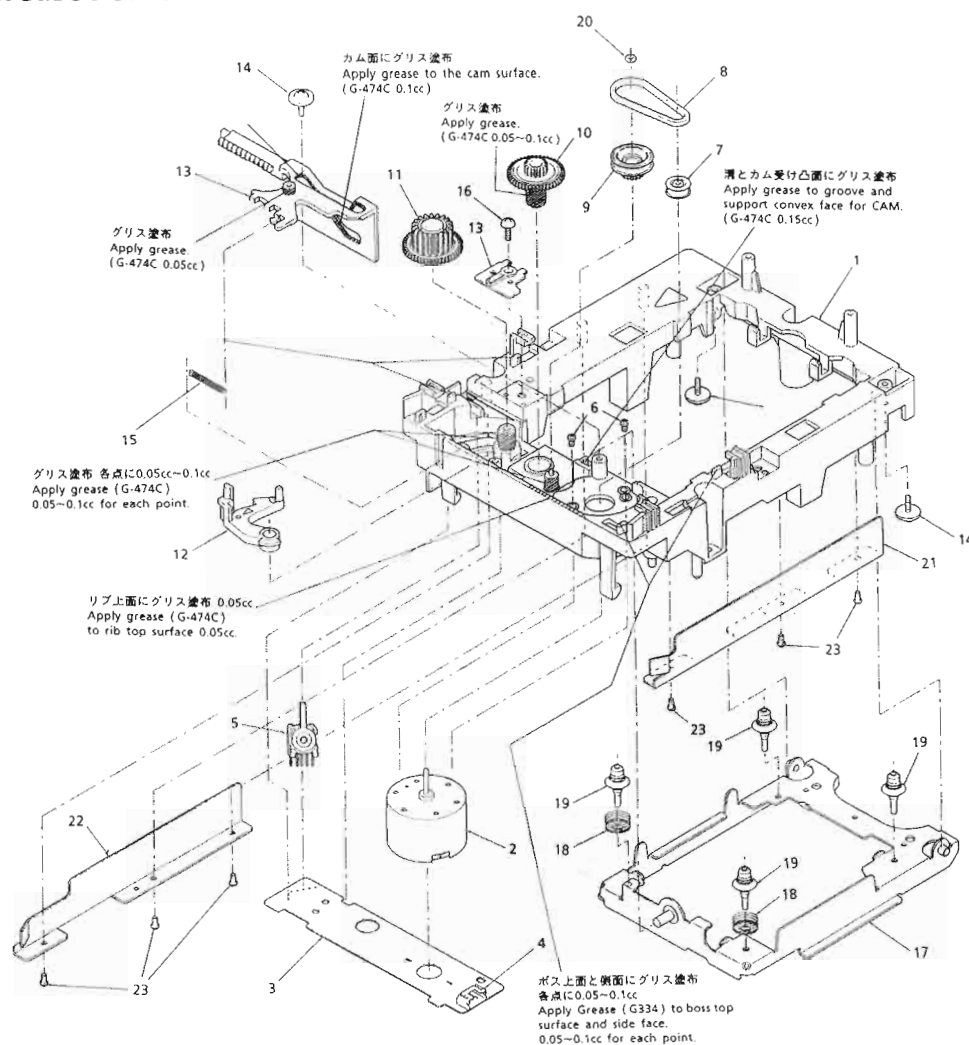
U ..... Universal Type      US ..... Singapore      UT ..... Taiwan

No mark indicates all area.



# Loading Mechanism Ass'y and Parts List

## ■ Grease Point



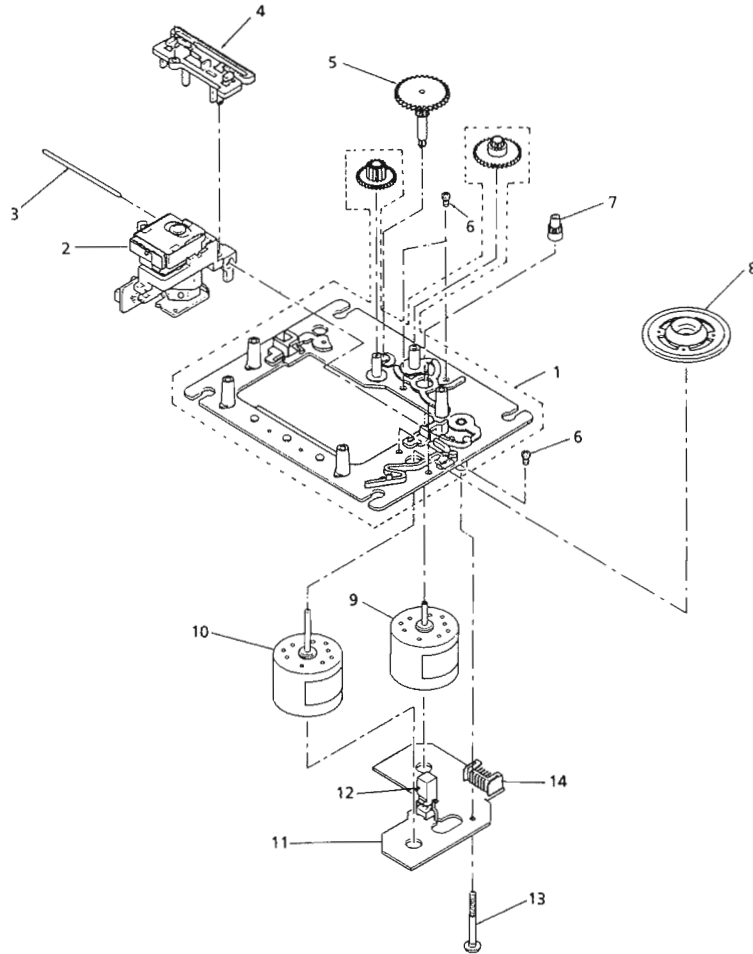
## ■ Parts List (Loading Mechanism Ass'y)

Symbol No. 

M	2	M	M
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Item	Part Number	Part Name	Q'ty	Description	Area
1	E102357-221	LOADING BASE	1		
2	MMN-6F1LB8K	MOTOR	1		
3	EMW10264-002	CIRCUIT BOARD	1		
4	EMV5109-005B	5P PLUG ASSY	1		
5	ESS1200-002	SWITCH	1		
6	SPSK2640Z	SCREW	2		
7	E75984-221	MOTOR PULLEY	1		
8	E75950-002	BELT	1		
9	E75985-221	GEAR (1)	1		
10	E75986-221SS	GEAR (2)	1		
11	E75987-221SS	GEAR (3)	1		
12	E307162-331	LEVER	1		
13	E307252-331	CAM-PLATE	1		
14	E65923-003	SCREW	3		
15	E75989-001	SPRING	1		
16	SBSF3008Z	SCREW	1		
17	E307179-332	ELEVATOR BASE ASSY	1		
18	E406871-001	SPRING	2		
19	E406294-002	INSULATOR	4	BLACK	
20	E60912-005SS	SPEED NUT	1		
21	E308839-001	STAY (R)	1		
22	E308838-001	STAY (L)	1		
23	SBSF2008Z	SCREW	6		

# CD Mechanism Ass'y and Parts List



■ Parts List ( CD Mechanism Ass'y )

Symbol No. 

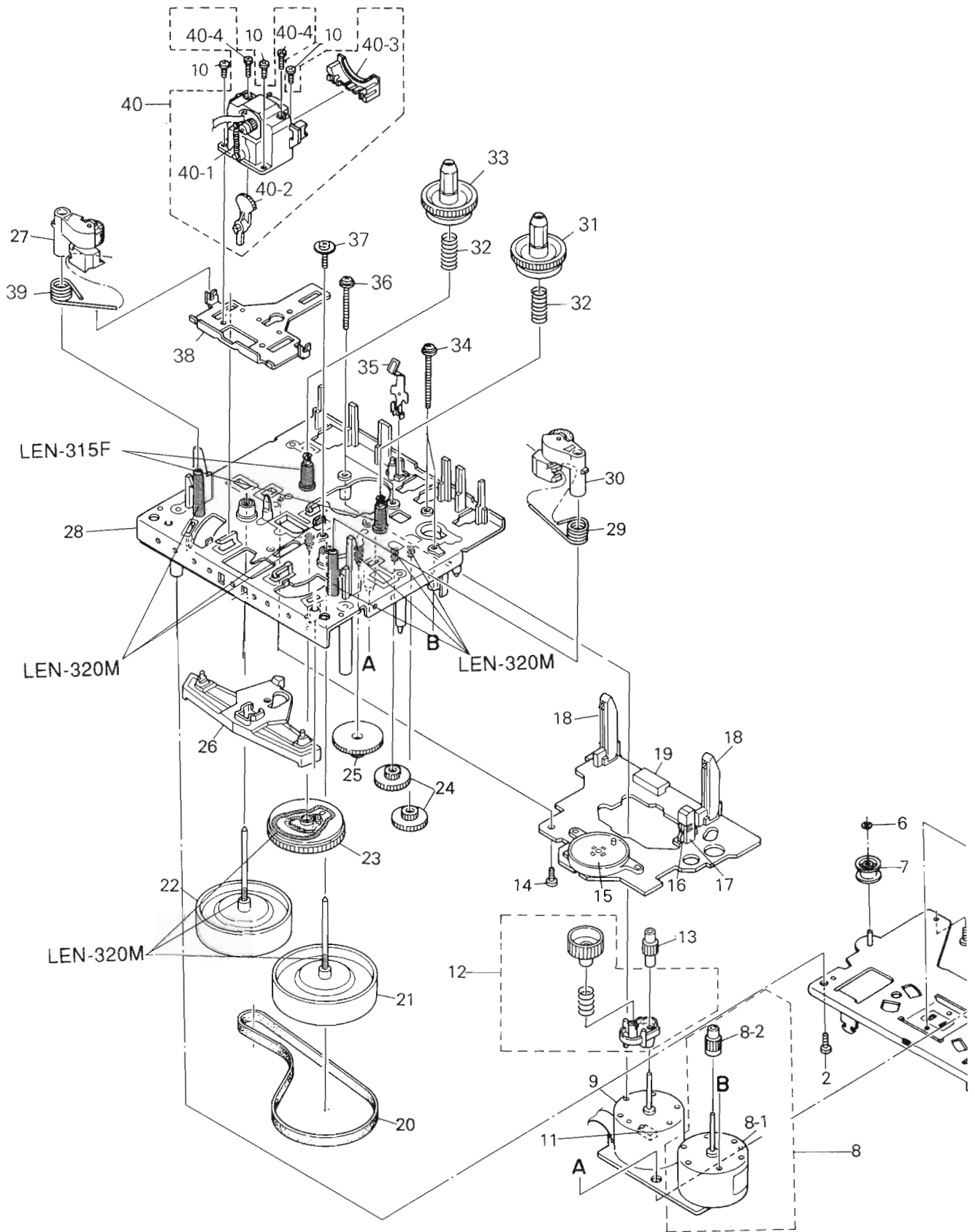
M	3	M	M
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Item	Part Number	Part Name	Q'ty	Description	Area
1	E102501-221SS	MECHANISM BASE ASSY	1		
2	OPTIMA-6S	PICK UP ASSY	1		
3	E406777-001	SHAFT	1		
4	E307746-001	CD RACK	1		
5	E307745-221SS	GEAR (3)	1		
6	SDSP2003N	SCREW	4		
7	E406750-001	PINION GEAR	1		
8	E75807-302	TURN TABLE	1		
9	MDN-4RA3ETA-1	FEED MOTOR	1		
10	E406783-001	SPINDLE MOTOR	1		
11	EMW10190-001(S)	CIRCUIT BOARD	1		
12	ESB1100-005	LEAF SWITCH	1		
13	E75832-001	SCREW	1		
14	EMV5109-006B	PLUG ASSY	1	6PIN	



# Cassette Mechanism Ass'y and Parts List

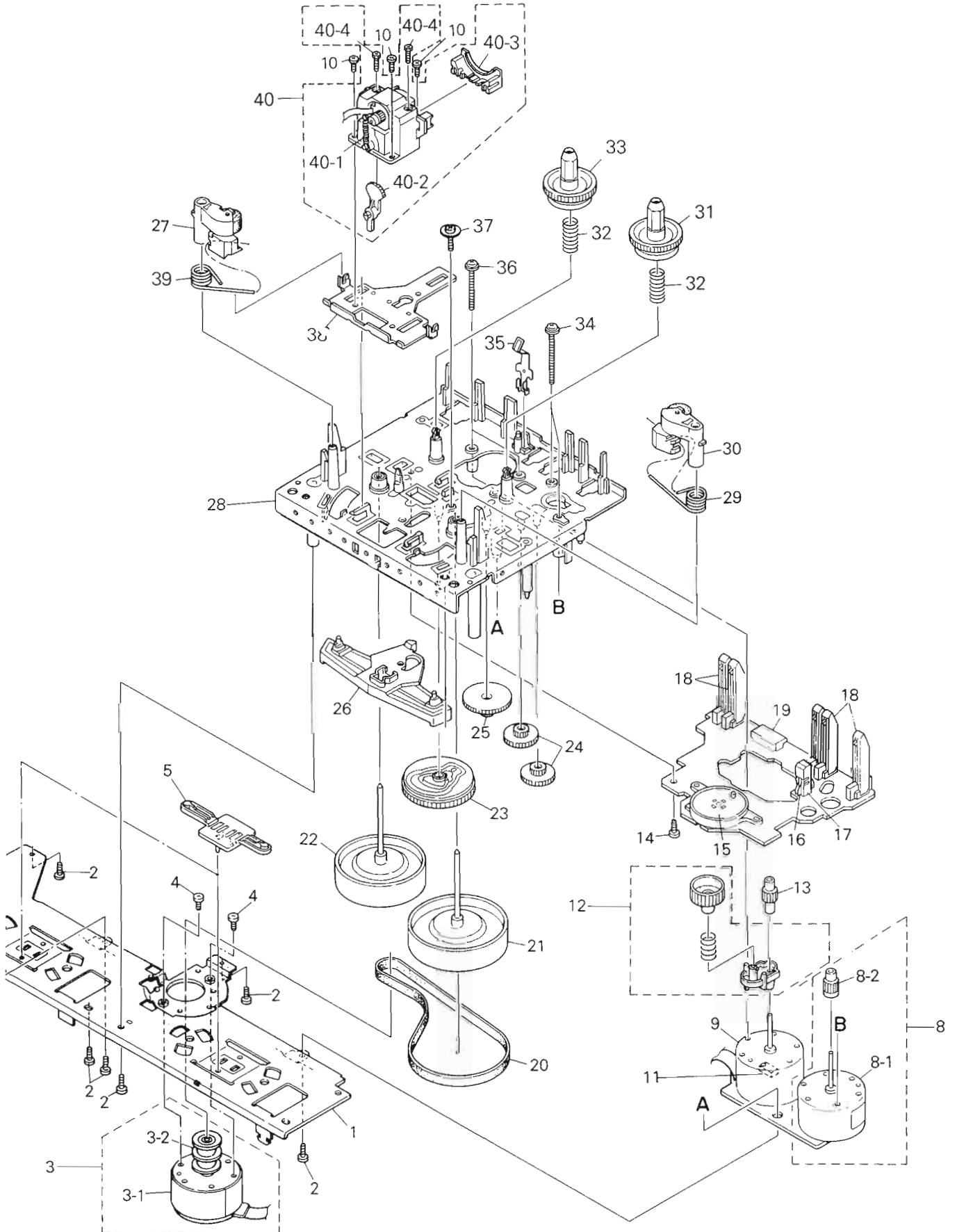
■ Grease Point



# CA-V800

Symbol No. 

M	4	M	M
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# CA-V800

Symbol No. 

M	4	M	M
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## Parts List (Cassette Mechanism Ass'y)

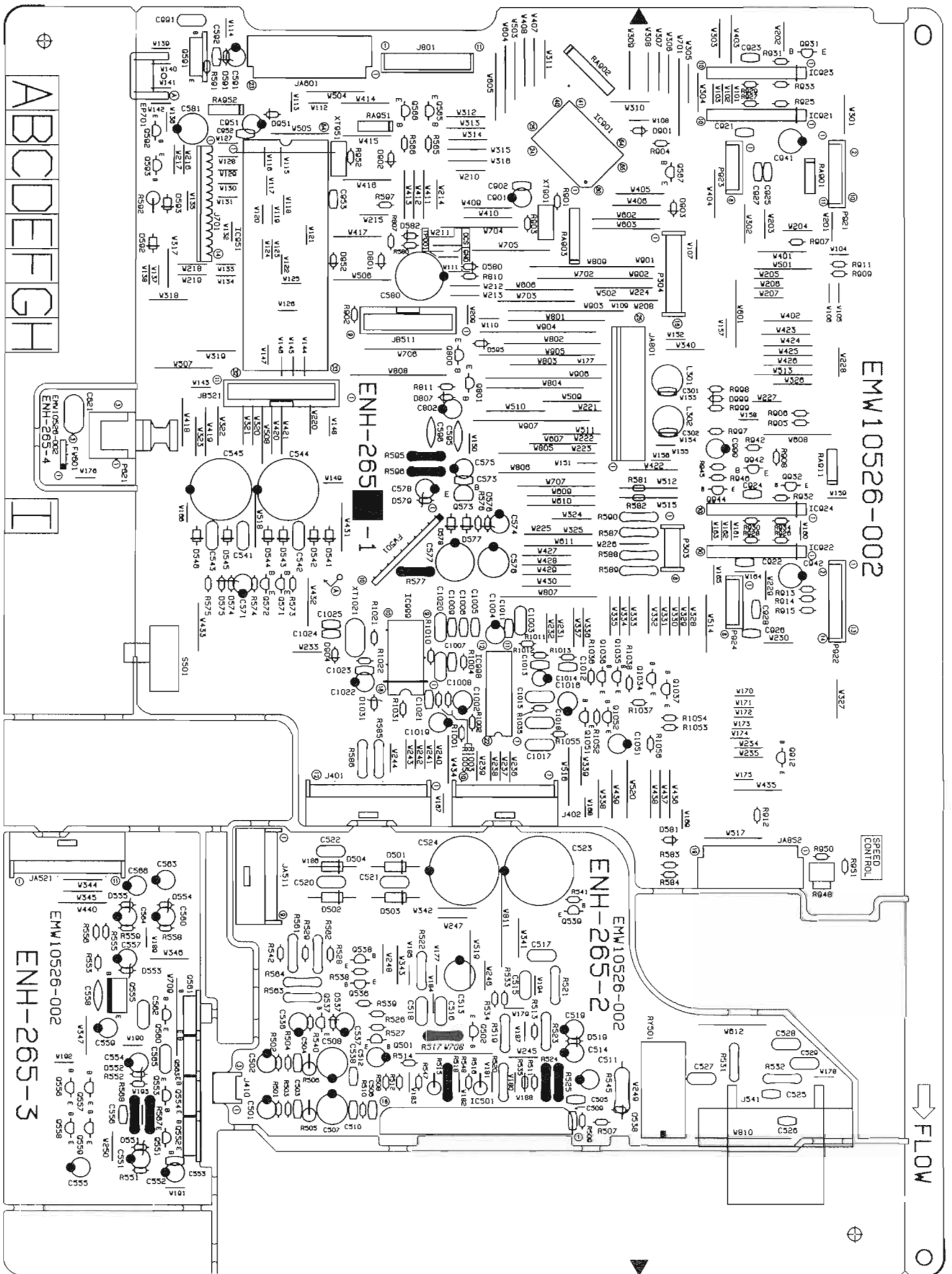
⚠	Item	Part Number	Part Name	Q'ty	Description	Area
	1	VKM3775-00A	GUIDE BRACKET	1		
	2	SDSF2608Z	SCREW	1		
	3	MSI5U2LWA-SA1	DC MOTOR	1		
	3-1	MSI-5U2LWA	DC MOTOR	1		
	3-2	VKR4632-003MM	MOTOR PULLEY	1		
	4	SPSP2603Z	WOOD SCREW	1		
	5	VKS5327-005MM	LOCK PLATE	1		
	6	WDL163525-4	WASHER	1		
	7	VKR4631-005MM	IDLER PULLEY	1		
	8	MSN5D257A-SA1	DC MOTOR	1		
	8-1	MSN-5D257A	DC MOTOR	1		
	8-2	VKS5433-001	ACTUATER MOTOR GEAR	1		
	9	MMN-6F4RA38	DC MOTOR	1		
	10	SDSR2004Z	SCREW	1		
	11	VMC0234-R08	CONNECT TERMINAL	1		
	12	VKS5430-00CMM	F.F/REW.ARM	1		
	13	VKS5432-001	REEL MOTOR GEAR	1		
	14	SDST2612Z	SCREW	1		
	15	VKS3616-00A	CAM SWITCH	1		
	16	DN6851-HI	I.C(M)	1		
	17	VKS3630-001MM	I.C.PROTECTOR	1		
	18	MXS00220MVLO	CASSETTE SWITCH	1		
	19	VMC0234-R11	CONNECT TERMINAL	1		
		VMC0234-R14	CONNECT TERMINAL	1		
	20	VKB3001-064	DRIVE BELT	1		
		VKB3001-065	DRIVE BELT	1		
	21	VKF3184-00H	FLYWHEEL	1		
	22	VKF3186-00H	FLYWHEEL	1		
	23	VKS2224-002	CONTROL CAM	1		
	24	VKS5454-001	ACTUATER GEAR	1		
	25	VKS5455-001	ACTUATER GEAR	1		
	26	VKS3627-001	PINCH ROLLER LEVER	1		
	27	VKP4229-00B	PINCH ROLLER	1		
	28	VKS1134-00B	CHASSIS BASE	1		
	29	VKW5045-003	PINCH ROLLER SPRING	1		
	30	VKP4227-00B	PINCH ROLLER	1		
	31	VKS5428-00B	REEL DISK	1		
	32	VKW5043-001	TENSION SPRING	1		
	33	VKS3617-002	REEL DISK	1		
	34	VKZ4705-102	SCREW	1		
	35	VKY4670-001	SPRING	1		
	36	VKZ4705-101	SCREW	1		
	37	VKZ4708-001	SPECIAL SCREW	1		
	38	VKM3632-001	HEAD BASE	1		
	39	VKW5046-003	PINCH ROLLER SPRING	1		
	40	VKS3682-00BMM	H.MOUNT ASS'Y	1		
		VKS3701-00AMM	H.MOUNT ASS'Y	1		
	40-1	VKW5126-001	HEAD SPRING	1		
	40-2	VKS3670-001	CONNECT GEAR	1		
	40-3	VKS3671-001	HEAD COVER	1		
	40-4	VKZ4730-001	SPECIAL SCREW	1		



# Printed Circuit Board Ass'y and Parts List

■ ENH-256 B Power Supply PC Board Ass'y

M



EMW10526-002

ENH-265-1

EMW10526-002

ENH-265-3

FLOW

A B C D E F G H

EMW10526-002

EMW10526-002

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TRANSISTORS

Δ	ITEM	PART NUMBER	DESCRIPTION	AREA
	Q501	DTA124ES	DIGITAL TRA 0021	
	Q502	DTA124ES	DIGITAL TRA 0021	
	Q536	2SC1740S(R,S)	SI. TRANSIST ROHM	
	Q537	2SC1740S(R,S)	SI. TRANSIST ROHM	
	Q538	2SA933S(RS)	SI. TRANSIST	
	Q539	2SC1740S(R,S)	SI. TRANSIST ROHM	
	Q551	2SC1740S(R,S)	SI. TRANSIST ROHM	
	Q552	2SD2061(F,G)	SI. TRANSIST ROHM	
	Q553	2SC1740S(R,S)	SI. TRANSIST ROHM	
	Q554	2SD2061(F,G)	SI. TRANSIST ROHM	
	Q555	2SD2037(E,F)	SI. TRANSIST ROHM	
	Q556	DTC144ES	DIGITAL TRA ROHM	
	Q557	DTA144ES	DIGITAL TRA ROHM	
	Q558	DTA144ES	DIGITAL TRA ROHM	
	Q559	DTC144ES	DIGITAL TRA ROHM	
	Q560	2SC1740S(R,S)	SI. TRANSIST ROHM	
	Q561	2SD2061(F,G)	SI. TRANSIST ROHM	
	Q563	2SB1187(F,G)	SI. TRANSIST ROHM	
	Q565	2SD2144S(VW)	SI. TRANSIST ROHM	
	Q566	2SD2144S(VW)	SI. TRANSIST ROHM	
	Q567	DTA114TS	DIGITAL TRA ROHM	
	Q571	DTC114YS	DIGITAL TRA ROHM	
	Q572	DTC114YS	DIGITAL TRA ROHM	
	Q573	2SA934(Q,R)	SI. TRANSIST ROHM	
	Q591	2SD2061(F,G)	SI. TRANSIST ROHM	
	Q592	DTA144ES	DIGITAL TRA ROHM	
	Q593	DTC144ES	DIGITAL TRA ROHM	
	Q800	DTC114YS	DIGITAL TRA ROHM	
	Q801	DTC144ES	DIGITAL TRA ROHM	
	Q912	DTC144ES	DIGITAL TRA ROHM	
	Q931	DTC144ES	DIGITAL TRA ROHM	
	Q932	DTC144ES	DIGITAL TRA ROHM	
	Q942	2SC1740S(R,S)	SI. TRANSIST ROHM	
	Q944	2SA933S(RS)	SI. TRANSIST	
	Q1034	DTC144ES	DIGITAL TRA ROHM	
	Q1035	DTC144ES	DIGITAL TRA ROHM	
	Q1036	DTC144ES	DIGITAL TRA ROHM	
	Q1037	DTC144ES	DIGITAL TRA ROHM	
	Q1051	2SC1740S(R,S)	SI. TRANSIST ROHM	
	Q1052	2SC1740S(R,S)	SI. TRANSIST ROHM	

I. C. S.

Δ	ITEM	PART NUMBER	DESCRIPTION	AREA
	IC501	STK4161MK5V	I.C(HYBRID) SANYO	
	IC901	HD404719A64FS	I.C(MICRO-C HITACHI	
	IC921	LB1641	I.C(DIGI-OT SANYO	
	IC922	LB1641	I.C(DIGI-OT SANYO	
	IC923	LB1641	I.C(DIGI-OT SANYO	
	IC924	LB1641	I.C(DIGI-OT SANYO	
	IC951	MN171601J6D1	I.C(MICRO-C MATSUSHITA	
	IC998	BA7725S	I.C(MONO-AN ROHM	
	IC999	BU9251S	I.C(CM) ROHM	

DIODES

Δ	ITEM	PART NUMBER	DESCRIPTION	AREA
	D501	10E2-FD	DIODE NIHONINTER	
	D502	10E2-FD	DIODE NIHONINTER	
	D503	10E2-FD	DIODE NIHONINTER	
	D504	10E2-FD	DIODE NIHONINTER	
	D519	1SS119	SI. DIODE	
	D537	1SS119	SI. DIODE	
	D538	MTZ24JC	ZENER DIODE ROHM	
	D541	1SR35-100	SI. DIODE ROHM	
	D542	1SR35-100	SI. DIODE ROHM	
	D543	1SR35-100	SI. DIODE ROHM	
	D544	1SR35-100	SI. DIODE ROHM	
	D545	1SR35-100	SI. DIODE ROHM	
	D546	1SR35-100	SI. DIODE ROHM	
	D551	MTZ11JC	ZENER DIODE ROHM	
	D552	MTZ6.8JC	ZENER DIODE ROHM	
	D553	MTZ13JC	ZENER DIODE ROHM	
	D554	MTZ9.1JC	ZENER DIODE ROHM	
	D555	MTZ8.2JC	ZENER DIODE ROHM	
	D574	MTZ5.1JC	ZENER DIODE ROHM	
	D575	1SS119	SI. DIODE	
	D576	MTZ30JC	ZENER DIODE ROHM	
	D577	1SR35-100	SI. DIODE ROHM	
	D578	1SR35-100	SI. DIODE ROHM	
	D579	MTZ5.1JC	ZENER DIODE ROHM	
	D580	1SS119	SI. DIODE	
	D581	1SS119	SI. DIODE	
	D582	1SS119	SI. DIODE	
	D591	MTZ5.6JB	ZENER DIODE ROHM	
	D592	1SR35-100	SI. DIODE ROHM	
	D593	1SR35-100	SI. DIODE ROHM	

DIODES

Δ	ITEM	PART NUMBER	DESCRIPTION	AREA
	D595	MA700	SI. DIODE MATSUSHITA	
	D801	1SS119	SI. DIODE	
	D807	1SS119	SI. DIODE	
	D901	1SS119	SI. DIODE	
	D902	1SS119	SI. DIODE	
	D903	1SS119	SI. DIODE	
	D904	1SS119	SI. DIODE	
	D951	1SS119	SI. DIODE	
	D952	1SS119	SI. DIODE	
	D999	1SS119	SI. DIODE	
	D1031	MTZ5.1JC	ZENER DIODE ROHM	

CAPACITORS

Δ	ITEM	PART NUMBER	DESCRIPTION	AREA
	C501	QETB1HM-106	10MF 50V E. CAPACITO	
	C502	QETB1HM-106	10MF 50V E. CAPACITO	
	C503	QCB81HK-221Y	220PF 50V CER. CAPACI	
	C504	QCB81HK-221Y	220PF 50V CER. CAPACI	
	C505	QCB81HK-101Y	100PF 50V CER. CAPACI	
	C506	QCB81HK-101Y	100PF 50V CER. CAPACI	
	C507	EETB1EM-107E	100MF 25V E. CAPACITO	
	C508	EETB1EM-107E	100MF 25V E. CAPACITO	
	C509	QCS81HK-4R7Y	4.7PF 50V CER. CAPACI	
	C510	QCS81HK-4R7Y	4.7PF 50V CER. CAPACI	
	C511	QETB1HM-226E	22MF 50V E. CAPACITO	
	C512	QETB1HM-226E	22MF 50V E. CAPACITO	
	C513	EETB1HM-107E	100MF 50V E. CAPACITO	
	C514	QETB1HM-106	10MF 50V E. CAPACITO	
	C517	QFN81HJ-473	0.047MF 50V METAL. MYLA	
	C518	QFN81HJ-473	0.047MF 50V METAL. MYLA	
	C519	QETB1HM-106	10MF 50V E. CAPACITO	
	C520	QFN82AJ-103	0.01MF 100V MYLAR CAPA	
	C523	EET4202-338E	3300MF E. CAPACITO	
	C524	EET4202-338E	3300MF E. CAPACITO	
	C527	QFN81HJ-223	0.022MF 50V METAL. MYLA	
	C528	QFN81HJ-223	0.022MF 50V METAL. MYLA	
	C529	QFN81HJ-103	0.01MF 50V METAL. MYLA	
	C536	QETB1CM-476	47MF 16V AL E. CAPAC	
	C537	QETB1CM-226	22MF 16V E. CAPACITO	
	C541	QFN82AJ-103	0.01MF 100V MYLAR CAPA	
	C544	QETM1VM-478J7	4700MF 35V E. CAPACITO	
	C545	EET3509-228E	2200MF E. CAPACITO	
	C551	QETB1CM-226	22MF 16V E. CAPACITO	
	C552	QETB1EM-106	10MF 25V AL E. CAPAC	
	C553	QCVB1CM-103Y	0.01MF 16V CER. CAPACI	
	C554	QETB1AM-476	47MF 10V E. CAPACITO	
	C555	QETB1EM-106	10MF 25V AL E. CAPAC	
	C556	QCVB1CM-103Y	0.01MF 16V CER. CAPACI	
	C557	QETB1CM-107	100MF 16V AL E. CAPAC	
	C558	QCF21HP-103A	0.01MF 50V CER. CAPACI	
	C559	QETB1EM-477E	470MF 25V E. CAPACITO	
	C560	QETB1AM-476	47MF 10V E. CAPACITO	
	C562	QFN81HJ-103	0.01MF 50V METAL. MYLA	
	C563	QETB1EM-106	10MF 25V AL E. CAPAC	
	C564	QETB1AM-476	47MF 10V E. CAPACITO	
	C565	QFN81HJ-103	0.01MF 50V METAL. MYLA	
	C566	QETB1EM-106	10MF 25V AL E. CAPAC	
	C571	QETB1HM-225	2.2MF 50V AL E. CAPAC	
	C573	QCVB1CM-103Y	0.01MF 16V CER. CAPACI	
	C574	QETB1HM-226E	22MF 50V E. CAPACITO	
	C575	QETB1HM-226E	22MF 50V E. CAPACITO	
	C576	QETB1JM-476	47MF 63V AL E. CAPAC	
	C577	QETB1JM-107	100MF 63V AL E. CAPAC	
	C578	QETB1HM-475E	4.7MF 50V E. CAPACITO	
	C580	QETB0JM-228	2200MF 6.3V AL E. CAPAC	
	C581	QETB1AM-477	470MF 10V E. CAPACITO	
	C591	QETB1AM-476	47MF 10V E. CAPACITO	
	C592	QCVB1CM-103Y	0.01MF 16V CER. CAPACI	
	C595	QCF21HP-103A	0.01MF 50V CER. CAPACI	
	C596	QCF21HP-103A	0.01MF 50V CER. CAPACI	
	C621	QCZ0202-155	1.5MF 25V CER. RESIST	
	C802	QER51HM-105G	1MF 50V AL E. CAPAC	
	C901	QETB1AM-107	100MF 10V AL E. CAPAC	
	C902	QCVB1CM-103Y	0.01MF 16V CER. CAPACI	
	C921	QCVB1CM-103Y	0.01MF 16V CER. CAPACI	
	C922	QCVB1CM-103Y	0.01MF 16V CER. CAPACI	
	C923	QCVB1CM-103Y	0.01MF 16V CER. CAPACI	
	C924	QCVB1CM-103Y	0.01MF 16V CER. CAPACI	
	C925	QCHB1EZ-223	0.022MF 25V CER. CAPACI	
	C926	QCHB1EZ-223	0.022MF 25V CER. CAPACI	
	C927	QCHB1EZ-223	0.022MF 25V CER. CAPACI	
	C928	QCHB1EZ-223	0.022MF 25V CER. CAPACI	
	C941	QETB1CM-107	100MF 16V AL E. CAPAC	
	C942	QETB1CM-107	100MF 16V AL E. CAPAC	

CAPACITORS

Δ	ITEM	PART NUMBER	DESCRIPTION	AREA
	C951	QETB1AM-107	100MF 10V AL E.CAPAC	
	C952	QCVB1CM-103Y	0.01MF 16V CER.CAPACI	
	C953	QCVB1CM-103Y	0.01MF 16V CER.CAPACI	
	C991	QCZ0202-155	1.5MF 25V CER.RESIST	
	C999	QETB1CM-476	47MF 16V AL E.CAPAC	
	C1002	QETB1CM-107	100MF 16V AL E.CAPAC	
	C1003	QFLB1HJ-104	0.1MF 50V MYLAR CAPA	
	C1004	QETB1HM-474	0.47MF 50V ELECTRO	
	C1005	QCXB1CM-562Y	5600PF 16V CER.CAPACI	
	C1006	QCBB1HK-821Y	820PF 50V CER.CAPACI	
	C1007	QCHB1EZ-223	0.022MF 25V CER.CAPACI	
	C1008	QFLB1HJ-104	0.1MF 50V MYLAR CAPA	
	C1009	QCVB1CM-103Y	0.01MF 16V CER.CAPACI	
	C1011	QCBB1HK-821Y	820PF 50V CER.CAPACI	
	C1012	QCVB1CM-103Y	0.01MF 16V CER.CAPACI	
	C1013	QCHB1EZ-223	0.022MF 25V CER.CAPACI	
	C1014	QETB1HM-474	0.47MF 50V ELECTRO	
	C1015	QFVB1HJ-104	0.1MF 50V THIN FILM	
	C1016	QETB1HM-105	1MF 50V AL E.CAPAC	
	C1017	QFVB1HJ-104	0.1MF 50V THIN FILM	
	C1018	QFLB1HJ-104	0.1MF 50V MYLAR CAPA	
	C1019	QETB1EM-477E	470MF 25V E.CAPACITO	
	C1020	QFLB1HJ-104	0.1MF 50V MYLAR CAPA	
	C1021	QCBB1HK-221Y	220PF 50V CER.CAPACI	
	C1022	QETB1CM-107	100MF 16V AL E.CAPAC	
	C1023	QCVB1CM-103Y	0.01MF 16V CER.CAPACI	
	C1024	QCBB1HK-221Y	220PF 50V CER.CAPACI	
	C1025	QCBB1HK-221Y	220PF 50V CER.CAPACI	
	C1051	QETB1EM-106	10MF 25V AL E.CAPAC	
	C1057	QETB1EM-476	47MF 25V AL E.CAPAC	
	C1059	QETB1EM-106	10MF 25V AL E.CAPAC	
	C1060	QETB1AM-107	100MF 10V AL E.CAPAC	
	C1061	QCF21HP-473A	0.047MF 50V CER.CAPACI	
	C1062	QCZ0202-155	1.5MF 25V CER.RESIST	

RESISTORS

Δ	ITEM	PART NUMBER	DESCRIPTION	AREA
	R501	QRD161J-102	1K 1/6W CARBON RES	
	R502	QRD161J-102	1K 1/6W CARBON RES	
	R503	QRD161J-104	100K 1/6W CARBON RES	
	R504	QRD161J-104	100K 1/6W CARBON RES	
	R505	ERD004J-821Z	820 CARBON RES	
	R506	ERD004J-821Z	820 CARBON RES	
	R507	QRD161J-821	820 1/6W CARBON RES	
	R508	QRD161J-821	820 1/6W CARBON RES	
	R509	QRD161J-104	100K 1/6W CARBON RES	
	R510	QRD161J-104	100K 1/6W CARBON RES	
	R511	QRD161J-242	2.4K 1/6W CARBON RES	
	R512	QRD161J-242	2.4K 1/6W CARBON RES	
	R513	QRD161J-242	2.4K 1/6W CARBON RES	
	R514	QRD161J-242	2.4K 1/6W CARBON RES	
	R515	QRX014J-R22	0.22 1W METAL FILM	
Δ	R516	QRX014J-R22	0.22 1W METAL FILM	
	R517	QRD14CJ-331SX	330 1/4W UNF.CARBON	
Δ	R518	QRZ0077-100	10 1/4W FUSIBLE RE	
Δ	R519	QRD14CJ-222SX	2.2K 1/4W UNF.CARBON	
Δ	R520	QRD14CJ-222SX	2.2K 1/4W UNF.CARBON	
Δ	R521	QRD14CJ-4R7S	4.7 1/4W UNF.CARBON	
Δ	R522	QRD14CJ-4R7S	4.7 1/4W UNF.CARBON	
Δ	R523	QRD14CJ-222SX	2.2K 1/4W UNF.CARBON	
Δ	R524	QRZ0077-100	10 1/4W FUSIBLE RE	
Δ	R525	QRZ0077-100	10 1/4W FUSIBLE RE	
	R526	QRD161J-103	10K 1/6W CARBON RES	
	R527	QRD161J-103	10K 1/6W CARBON RES	
	R528	QRD161J-104	100K 1/6W CARBON RES	
	R529	QRD161J-823	82K 1/6W CARBON RES	
Δ	R531	QRD14CJ-4R7S	4.7 1/4W UNF.CARBON	
Δ	R532	QRD14CJ-4R7S	4.7 1/4W UNF.CARBON	
	R533	QRD161J-563	56K 1/6W CARBON RES	
	R534	QRD167J-154	150K 1/6W CARBON RES	
	R535	QRD161J-103	10K 1/6W CARBON RES	
	R538	QRD161J-103	10K 1/6W CARBON RES	
	R539	QRD161J-103	10K 1/6W CARBON RES	
	R540	QRD161J-104	100K 1/6W CARBON RES	
	R541	QRD167J-152	1.5K 1/6W CARBON RES	
	R542	QRD161J-222	2.2K 1/6W CARBON RES	
	R545	QRG012J-471A	470 1W OXIDE META	
	R547	QRD161J-183	18K 1/6W CARBON RES	
	R548	QRD161J-183	18K 1/6W CARBON RES	
	R551	QRD167J-332	3.3K 1/6W CARBON RES	
	R552	QRD161J-392	3.9K 1/6W CARBON RES	
	R553	QRD161J-222	2.2K 1/6W CARBON RES	
	R555	QRD161J-472	4.7K 1/6W CARBON RES	
	R556	QRD167J-153	15K 1/6W CARBON RES	
	R558	QRD167J-332	3.3K 1/6W CARBON RES	
	R559	QRD167J-332	3.3K 1/6W CARBON RES	
Δ	R561	QRD14CJ-681SX	680 1/4W UNF.CARBON	
Δ	R562	QRD14CJ-681SX	680 1/4W UNF.CARBON	
Δ	R563	QRD14CJ-681SX	680 1/4W UNF.CARBON	
Δ	R564	QRD14CJ-681SX	680 1/4W UNF.CARBON	
	R565	QRD161J-473	47K 1/6W CARBON RES	
	R566	QRD161J-473	47K 1/6W CARBON RES	

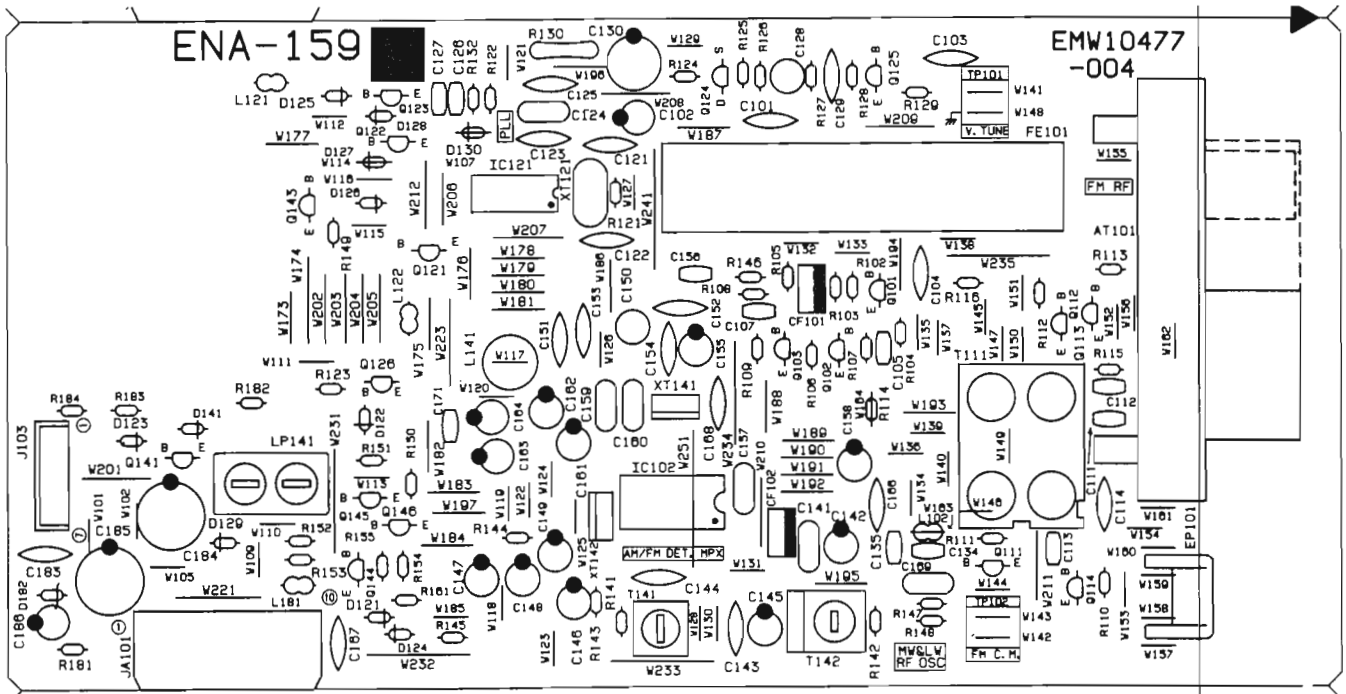
RESISTORS

Δ	ITEM	PART NUMBER	DESCRIPTION	AREA
	R573	QRD161J-102	1K 1/6W CARBON RES	
	R574	QRD161J-472	4.7K 1/6W CARBON RES	
	R575	QRD161J-103	10K 1/6W CARBON RES	
	R576	QRD167J-562	5.6K 1/6W CARBON RES	
	R577	QRZ0077-4R7	4.7 1/4W FUSE RESIS	
	R580	QRD161J-470	47 1/6W CARBON RES	
	R581	QRD161J-101	100 1/6W CARBON RES	
	R582	QRD161J-101	100 1/6W CARBON RES	
	R583	QRD161J-101	100 1/6W CARBON RES	
	R584	QRD161J-101	100 1/6W CARBON RES	
Δ	R585	QRD14CJ-100SX	10 1/4W UNF.CARBON	
Δ	R586	QRD14CJ-100SX	10 1/4W UNF.CARBON	
Δ	R587	QRD14CJ-4R7S	4.7 1/4W UNF.CARBON	
Δ	R588	QRD14CJ-4R7S	4.7 1/4W UNF.CARBON	
Δ	R589	QRD14CJ-4R7S	4.7 1/4W UNF.CARBON	
Δ	R590	QRD14CJ-4R7S	4.7 1/4W UNF.CARBON	
Δ	R591	QRD161J-222	2.2K 1/6W CARBON RES	
Δ	R592	QRX014J-4R7X	4.7 1W METAL FILM	
	R595	QRD12CJ-2R7SX	2.7 1/2W CARBON RES	
	R596	QRD12CJ-2R7SX	2.7 1/2W CARBON RES	
	R597	QRD161J-102	1K 1/6W CARBON RES	
	R807	QRD161J-103	10K 1/6W CARBON RES	
	R810	QRD161J-103	10K 1/6W CARBON RES	
	R811	QRD161J-104	100K 1/6W CARBON RES	
	R901	QRD161J-105	1M 1/6W CARBON RES	
	R902	QRD161J-103	10K 1/6W CARBON RES	
	R903	QRD167J-223	22K 1/6W CARBON RES	
	R904	QRD161J-103	10K 1/6W CARBON RES	
	R905	QRD161J-102	1K 1/6W CARBON RES	
	R906	QRD161J-102	1K 1/6W CARBON RES	
	R907	QRD161J-102	1K 1/6W CARBON RES	
	R908	QRD161J-473	47K 1/6W CARBON RES	
	R909	QRD167J-223	22K 1/6W CARBON RES	
	R911	QRD161J-103	10K 1/6W CARBON RES	
	R912	QRD161J-103	10K 1/6W CARBON RES	
	R913	QRD161J-392	3.9K 1/6W CARBON RES	
	R914	QRD161J-242	2.4K 1/6W CARBON RES	
	R915	QRD167J-153	15K 1/6W CARBON RES	
	R925	QRD161J-432	4.3K 1/6W CARBON RES	
	R926	QRD161J-432	4.3K 1/6W CARBON RES	
	R927	QRD161J-103	10K 1/6W CARBON RES	
	R928	QRD161J-103	10K 1/6W CARBON RES	
	R929	QRD161J-913	91K 1/6W CARBON RES	
	R930	QRD161J-913	91K 1/6W CARBON RES	
	R931	QRD167J-822	8.2K 1/6W CARBON RES	
	R932	QRD167J-822	8.2K 1/6W CARBON RES	
	R933	QRD161J-163	16K 1/6W CARBON RES	
	R934	QRD161J-163	16K 1/6W CARBON RES	
	R942	QRD161J-103	10K 1/6W CARBON RES	
	R945	QRD161J-224	220K 1/6W CARBON RES	
	R946	QRD161J-224	220K 1/6W CARBON RES	
	R948	QVPA603-103A	10K TRIMMER RE	
	R950	QRD161J-133Y	13K 1/6W CARBON RES	
	R951	QRD161J-683	68K 1/6W CARBON RES	
	R952	QRD161J-105	1M 1/6W CARBON RES	
	R997	QRD167J-562	5.6K 1/6W CARBON RES	
	R998	QRD161J-104	100K 1/6W CARBON RES	
	R999	QRD161J-274	270K 1/6W CARBON RES	
RA	RA901	QRB049J-103	10K 1/10W RESISTOR	
RA	RA903	QRB079J-222	2.2K 1/10W NETWORK RE	
RA	RA911	QRB049J-103	10K 1/10W RESISTOR	
RA	RA951	QRB049J-103	10K 1/10W RESISTOR	
RA	RA952	QRB049J-103	10K 1/10W RESISTOR	
R	R1002	QRD161J-123	12K 1/6W CARBON RES	
R	R1003	QRD161J-103	10K 1/6W CARBON RES	
R	R1004	QRD161J-103	10K 1/6W CARBON RES	
R	R1005	QRD161J-103	10K 1/6W CARBON RES	
R	R1010	QRD161J-472	4.7K 1/6W CARBON RES	
R	R1011	QRD161J-103	10K 1/6W CARBON RES	
R	R1012	QRD161J-103	10K 1/6W CARBON RES	
R	R1013	QRD161J-103	10K 1/6W CARBON RES	
R	R1021	QRD161J-105	1M 1/6W CARBON RES	
R	R1022	QRD167J-562	5.6K 1/6W CARBON RES	
R	R1031	QRD161J-221	220 1/6W CARBON RES	
R	R1035	QRD161J-303Y	30K 1/6W CARBON RES	
R	R1036	QRD161J-243	24K 1/6W CARBON RES	
R	R1037	QRD161J-563	56K 1/6W CARBON RES	
R	R1038	QRD161J-123	12K 1/6W CARBON RES	
R	R1052	QRD161J-103	10K 1/6W CARBON RES	
R	R1053	QRD161J-472	4.7K 1/6W CARBON RES	
R	R1054	QRD161J-103	10K 1/6W CARBON RES	
R	R1055	QRD161J-105	1M 1/6W CARBON RES	
R	R1056	QRD161J-221	220 1/6W CARBON RES	
R	R1057	QRD167J-151	150 1/6W CARBON RES	
R	R1058	QRD161J-472	4.7K 1/6W CARBON RES	
R	R1059	QRD167J-223	22K 1/6W CARBON RES	
R	R1100	QRZ0077-220X	22 1/4W FUSIBLE RE	

## OTHERS

ITEM	PART NUMBER	DESCRIPTION	AREA
	EMW10526-003	PRINTED BOA	
	E3400-431	FELT SPACER	
	QWE881-15CCJ	WIRE	
J401	EMV5163-012R	CONNECT TER	
J402	EMV5163-010R	CONNECT TER	
J410	EMV5109-003B	CONNECT TER	
J541	EMB90TV-403A	SPEAKER TER	
J701	EWS32E-A920	SOCKET WIRE	
J801	EMV5142-911	CONNECT TER	
K411	ENZ8101-007	INDUCTOR	
P303	VMC0314-S08	CONNECT TER	
P304	VMC0314-S16	CONNECT TER	
P621	GP1F32T	OPTICAL JAC	
P921	VMC0234-P11	CONNECT TER	
P922	VMC0234-P14	CONNECT TER	
P923	VMC0234-P08	CONNECT TER	
P924	VMC0234-P08	CONNECT TER	
EP701	E70225-003SS	EARTH PLATE	
FS100	E3400-431	FELT SPACER	
FS101	E3400-431	FELT SPACER	
FW501	EWR3AD-20LS	FLAT WIRE A	
FW601	EWR3AD-10LS	FLAT WIRE A	
JA511	EMV5163-009R	CONNECT TER	
JA521	EMV5163-011R	CONNECT TER	
JA601	VMC0161-R23	CONNECT TER	
JA801	EMV7160-025	CONNECT TER	
JA852	VMC0161-R19	CONNECT TER	
JB511	EMV7163-009	CONNECT TER	
JB521	EMV7163-011	CONNECT TER	
RY501	ESK7D24-2120	RELAY	
XT901	ECX0004-194KM	CERAMIC RES	
XT951	ECX0060-000EM	CERAMIC RES	
XT999	ECX0000-400KS	CERAMIC RES	

■ ENA-159 J Tuner PC Board Ass'y



TRANSISTORS

Δ	ITEM	PART NUMBER	DESCRIPTION	AREA
	Q101	2SC461	SI. TRANSIST	
	Q102	2SC535	SI. TRANSIST HITACHI	
	Q103	2SC461	SI. TRANSIST	
	Q121	DTA144ES	DIGITAL TRA ROHM	
	Q122	DTA144ES	DIGITAL TRA ROHM	
	Q124	2SK301(P,Q)	F. E. T.	
	Q125	2SC458(C,D)	SI. TRANSIST HITACHI	
	Q126	DTC114ES	DIGITAL TRA ROHM	
	Q141	DTC114ES	DIGITAL TRA ROHM	
	Q143	DTC114ES	DIGITAL TRA ROHM	

I. C. S.

Δ	ITEM	PART NUMBER	DESCRIPTION	AREA
	IC102	LA1836M	I. C. (MONO-AN SANYO)	
	IC121	LC7218JMX	I. C. (DIGI-MO SANYO)	

DIODES

Δ	ITEM	PART NUMBER	DESCRIPTION	AREA
	D121	1SS133	SI. DIODE ROHM	
	D122	1SS133	SI. DIODE ROHM	
	D123	1SS133	SI. DIODE ROHM	
	D124	1SS133	SI. DIODE ROHM	
	D126	1SS133	SI. DIODE ROHM	
	D129	1SS133	SI. DIODE ROHM	
	D130	1SS133	SI. DIODE ROHM	
	D141	1SS133	SI. DIODE ROHM	
	D182	MTZ5.1JC	ZENER DIODE ROHM	

CAPACITORS

Δ	ITEM	PART NUMBER	DESCRIPTION	AREA
	C101	QCF21HP-103A	0.01MF 50V CER. CAPACI	
	C103	QCF21HP-223A	0.022MF 50V CER. CAPACI	
	C104	QCF21HP-223A	0.022MF 50V CER. CAPACI	
	C105	QCHB1EZ-223	0.022MF 25V CER. CAPACI	
	C107	QCHB1EZ-223	0.022MF 25V CER. CAPACI	
	C111	QCHB1EZ-223	0.022MF 25V CER. CAPACI	
	C112	QCT30CH-120Y	12PF 50V CER. CAPACI	
	C114	QCC21EM-473	0.047MF 25V CER. CAPACI	
	C121	QCS21HJ-180A	18PF 50V CER. CAPACI	
	C122	QCS21HJ-180A	18PF 50V CER. CAPACI	
	C123	QCC21EM-473	0.047MF 25V CER. CAPACI	
	C124	QCZ0202-155	1.5MF 25V CER. RESIST	
	C125	QCF21HP-223A	0.022MF 50V CER. CAPACI	
	C126	QCBB1HK-101Y	100PF 50V CER. CAPACI	
	C127	QCBB1HK-101Y	100PF 50V CER. CAPACI	
	C128	QENB1HM-474	0.47MF 50V NP E. CAPAC	
	C129	QCY31HK-102Z	1000PF 50V CER. CAPACI	
	C130	QETB1CM-227	220MF 16V AL E. CAPAC	
	C141	QFLB1HJ-473	0.047MF 50V MYLAR CAPA	
	C142	QETB1HM-106	10MF 50V E. CAPACITO	
	C143	QCF21HP-223A	0.022MF 50V CER. CAPACI	
	C144	QCC21EM-473	0.047MF 25V CER. CAPACI	
	C145	QETB1HM-475E	4.7MF 50V E. CAPACITO	
	C146	QETB1HM-106	10MF 50V E. CAPACITO	
	C147	QETB1HM-105	1MF 50V AL E. CAPAC	
	C148	QETB1HM-474	0.47MF 50V ELECTRO	
	C149	QETB1HM-105	1MF 50V AL E. CAPAC	
	C150	QETC1HM-225ZN	2.2MF 50V AL E. CAPAC	
	C153	QCY31HK-102Z	1000PF 50V CER. CAPACI	
	C154	QCY31HK-472Z	4700PF 50V CER. CAPACI	
	C155	QETB1EM-476	4.7MF 25V AL E. CAPAC	
	C156	QCHB1EZ-223	0.022MF 25V CER. CAPACI	
	C157	QCZ0202-155	1.5MF 25V CER. RESIST	
	C158	QETB1HM-106	10MF 50V E. CAPACITO	
	C159	QFLB1HJ-333	0.033MF 50V MYLAR CAPA	
	C160	QFLB1HJ-333	0.033MF 50V MYLAR CAPA	
	C161	QETB1HM-225	2.2MF 50V AL E. CAPAC	
	C162	QETB1HM-225	2.2MF 50V AL E. CAPAC	
	C163	QETB1HM-225	2.2MF 50V AL E. CAPAC	
	C164	QETB1HM-225	2.2MF 50V AL E. CAPAC	

## CAPACITORS

Δ	ITEM	PART NUMBER	DESCRIPTION	AREA
	C166	QCC21EM-473	0.047MF 25V CER.CAPACI	
	C168	QCC21EM-473	0.047MF 25V CER.CAPACI	
	C169	QFV81HJ-274	0.27MF 50V T.FILM CAP	
	C171	QCS81HJ-470	47PF 50V CER.CAPACI	
	C179	QCSB1HK-101Y	100PF 50V CER.CAPACI	
	C183	QCF21HP-223A	0.022MF 50V CER.CAPACI	
	C184	QETB1CM-227	220MF 16V AL E.CAPAC	
	C185	QETB1CM-477M	470MF 16V E.CAPACITO	
	C186	QETB1HM-475E	4.7MF 50V E.CAPACITO	

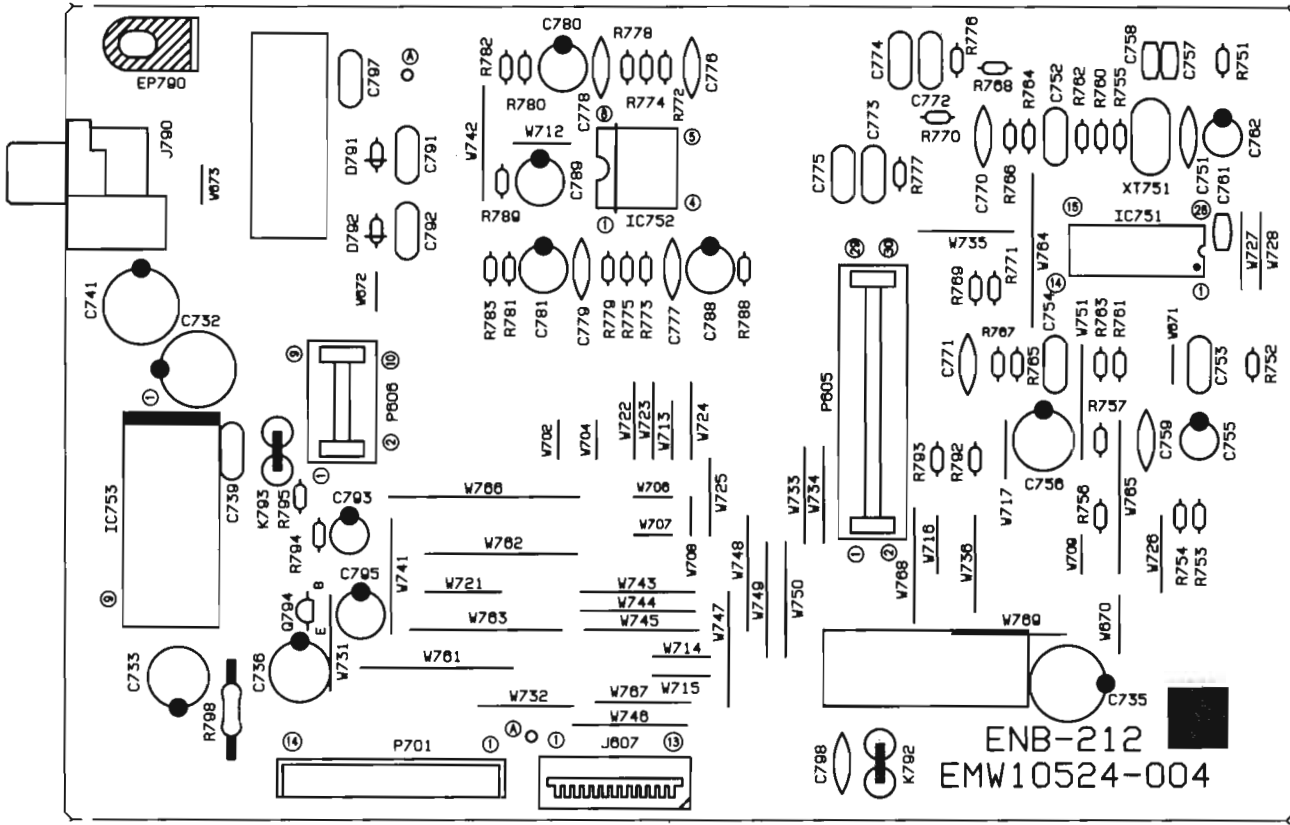
## RESISTORS

Δ	ITEM	PART NUMBER	DESCRIPTION	AREA
	R102	QRD167J-332	3.3K 1/6W CARBON RES	
	R103	QRD161J-221	220 1/6W CARBON RES	
	R104	QRD167J-272	2.7K 1/6W CARBON RES	
	R105	QRD161J-391	390 1/6W CARBON RES	
	R106	QRD161J-102	1K 1/6W CARBON RES	
	R107	QRD161J-681	680 1/6W CARBON RES	
	R108	QRD167J-332	3.3K 1/6W CARBON RES	
	R109	QRD161J-221	220 1/6W CARBON RES	
	R114	QRD161J-103	10K 1/6W CARBON RES	
	R115	QRD161J-104	100K 1/6W CARBON RES	
	R116	QRD161J-222	2.2K 1/6W CARBON RES	
	R121	QRD161J-473	47K 1/6W CARBON RES	
	R122	QRD161J-472	4.7K 1/6W CARBON RES	
	R123	QRD167J-562	5.6K 1/6W CARBON RES	
	R124	QRD161J-222	2.2K 1/6W CARBON RES	
	R125	QRD161J-222	2.2K 1/6W CARBON RES	
	R126	QRD161J-181	180 1/6W CARBON RES	
	R127	QRD167J-822	8.2K 1/6W CARBON RES	
	R128	QRD161J-472	4.7K 1/6W CARBON RES	
	R129	QRD161J-222	2.2K 1/6W CARBON RES	
	R130	QRZ0077-680	68 1/4W FUSIBLE RE	
	R132	QRD161J-102	1K 1/6W CARBON RES	
	R141	QRD161J-392	3.9K 1/6W CARBON RES	
	R142	QRD161J-103	10K 1/6W CARBON RES	
	R143	QRD161J-103	10K 1/6W CARBON RES	
	R144	QRD167J-332	3.3K 1/6W CARBON RES	
	R145	QRD161J-103	10K 1/6W CARBON RES	
	R146	QRD161J-222	2.2K 1/6W CARBON RES	
	R147	QRD161J-473	47K 1/6W CARBON RES	
	R148	QRD161J-561	560 1/6W CARBON RES	
	R149	QRD167J-223	22K 1/6W CARBON RES	
	R150	QRD167J-332	3.3K 1/6W CARBON RES	
	R151	QRD167J-332	3.3K 1/6W CARBON RES	
	R152	QRD167J-332	3.3K 1/6W CARBON RES	
	R153	QRD167J-332	3.3K 1/6W CARBON RES	
	R161	QRD161J-473	47K 1/6W CARBON RES	
	R162	QRD161J-222	2.2K 1/6W CARBON RES	
	R181	QRD161J-222	2.2K 1/6W CARBON RES	
	R182	QRD161J-103	10K 1/6W CARBON RES	
	R183	QRD161J-103	10K 1/6W CARBON RES	
	R184	QRD161J-473	47K 1/6W CARBON RES	

## OTHERS

Δ	ITEM	PART NUMBER	DESCRIPTION	AREA
		EMW10477-004	PRINTED BOA	
		FSXL4005-001	SHIELD PLAT	
		QWE351-06DD	VINYL WIRE	
		QWE351-10DD	VINYL WIRE	
	J103	EMV5109-007A	MALE CONNec	
	L121	EQL4004-1R0	INDUCTOR	
	L181	EQL4004-1R0	INDUCTOR	
	T111	EQR7121-004	RF COIL	
	T141	EQT2140-021	I.F.TRANSFO	
	T142	ECB1560-010	CERAMIC FIL	
	AT101	EMB41YV-302K	ANTENNA TER	
	CF101	ECB2123-006R	CERAMIC FIL	
	CF102	ECB2123-006R	CERAMIC FIL	
	EP101	E70225-003SS	EARTH PLATE	
	FE101	EAF2203-004	FRONT END	
	JA101	EMV7140-L10R	PIN CONNECT	
	LP141	EGF0101-002	LOWPASS FIL	
	SP102	VYH7653-002	I.C.SOCKET	
	SP121	VYH7653-004	I.C.PROTECT	
	XT121	ECX0007-200KWJ1	CRYSTAL	
	XT141	ECXPR46-001A	CRYSTAL	
	XT142	ECB1001-002	CERAMIC FIL	

■ ENB-212 B D/A Converter PC Board Ass'y



TRANSISTORS

ITEM	PART NUMBER	DESCRIPTION	AREA
Q794	2SC1740S(R,S)	SI.TRANSIST ROHM	

I. C. S.

ITEM	PART NUMBER	DESCRIPTION	AREA
IC751	MN35502	I.C(DIGI-MD MATSUSHITA	
IC752	BA15218	I.C(MONO-AN ROHM	
IC753	BP5020	P.W.BOARD M ROHM	

CAPACITORS

ITEM	PART NUMBER	DESCRIPTION	AREA
C732	QETM0JM-478J7	4700MF 6.3V ELECTRO	
C733	QETB1VM-477E	470MF 35V AL E.CAPAC	
C735	QETM0JM-478J7	4700MF 6.3V ELECTRO	
C736	QER51AM-227	220MF 10V AL E.CAPAC	
C739	QCZ0202-155	1.5MF 25V CER.RESIST	
C741	QETB0JM-108N	1000MF 6.3V E.CAPACITO	
C751	QCS21HJ-470	47PF 50V CER.CAPACI	
C752	QCZ0202-155	1.5MF 25V CER.RESIST	
C753	QCZ0202-155	1.5MF 25V CER.RESIST	
C754	QCZ0202-155	1.5MF 25V CER.RESIST	
C755	QETB0JM-227	220MF 6.3V E.CAPACITO	
C756	QETB0JM-477	470MF 6.3V AL E.CAPAC	
C757	QCT30CH-100Y	10PF 50V CER.CAPACI	
C758	QCT30CH-120Y	12PF 50V CER.CAPACI	
C762	QETB1AM-476	47MF 10V E.CAPACITO	

CAPACITORS

ITEM	PART NUMBER	DESCRIPTION	AREA
C772	QFN81HJ-122	1200PF 50V METAL.MYLA	
C773	QFN81HJ-122	1200PF 50V METAL.MYLA	
C774	QFN81HJ-122	1200PF 50V METAL.MYLA	
C775	QFN81HJ-122	1200PF 50V METAL.MYLA	
C776	QCS21HJ-101A	100PF 50V CER.CAPACI	
C777	QCS21HJ-101A	100PF 50V CER.CAPACI	
C778	QCY21HK-101	100PF 50V CER.CAPACI	
C779	QCY21HK-101	100PF 50V CER.CAPACI	
C780	QERS1CM-476	47MF 16V AL E.CAPAC	
C781	QERS1CM-476	47MF 16V AL E.CAPAC	
C788	QERS1CM-476	47MF 16V AL E.CAPAC	
C789	QERS1CM-476	47MF 16V AL E.CAPAC	
C793	QERS1EM-106	10MF 25V E.CAPACITO	
C795	QERS1AM-227	220MF 10V AL E.CAPAC	
C797	QCZ0202-155	1.5MF 25V CER.RESIST	
C800	QCF21HP-473A	0.047MF 50V CER.CAPACI	
C801	QCZ0202-155	1.5MF 25V CER.RESIST	

RESISTORS

ITEM	PART NUMBER	DESCRIPTION	AREA
R751	QRD161J-101	100 1/6W CARBON RES	
R752	QRD161J-102	1K 1/6W CARBON RES	
R753	QRD167J-560	56 1/6W CARBON RES	
R754	QRD167J-560	56 1/6W CARBON RES	
R755	QRD161J-271	270 1/6W CARBON RES	
R756	QRD161J-101	100 1/6W CARBON RES	
R757	QRD161J-122	1.2K 1/6W CARBON RES	
R760	QRD161J-363	36K 1/6W CARBON RES	
R761	QRD161J-363	36K 1/6W CARBON RES	
R762	QRD161J-363	36K 1/6W CARBON RES	
R763	QRD161J-363	36K 1/6W CARBON RES	
R764	QRD161J-363	36K 1/6W CARBON RES	
R765	QRD161J-363	36K 1/6W CARBON RES	
R766	QRD161J-363	36K 1/6W CARBON RES	
R767	QRD161J-363	36K 1/6W CARBON RES	



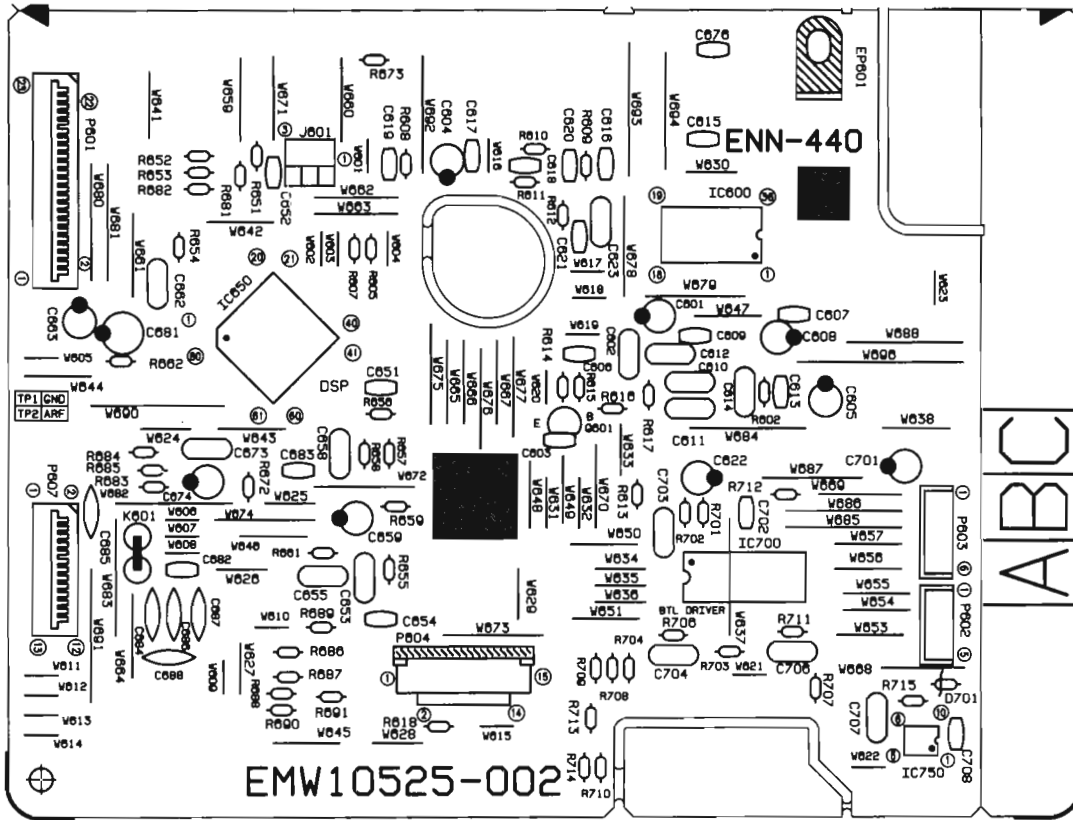
## RESISTORS

△	ITEM	PART NUMBER	DESCRIPTION	AREA
	R768	QRD167J-153	15K 1/6W CARBON RES	
	R769	QRD167J-153	15K 1/6W CARBON RES	
	R770	QRD167J-153	15K 1/6W CARBON RES	
	R771	QRD167J-153	15K 1/6W CARBON RES	
	R772	QRD161J-362	3.6K 1/6W CARBON RES	
	R773	QRD161J-362	3.6K 1/6W CARBON RES	
	R774	QRD161J-362	3.6K 1/6W CARBON RES	
	R775	QRD161J-362	3.6K 1/6W CARBON RES	
	R776	QRD161J-333	33K 1/6W CARBON RES	
	R777	QRD161J-333	33K 1/6W CARBON RES	
	R778	QRD161J-333	33K 1/6W CARBON RES	
	R779	QRD161J-333	33K 1/6W CARBON RES	
	R780	QRD161J-273	27K 1/6W CARBON RES	
	R781	QRD161J-273	27K 1/6W CARBON RES	
	R782	QRD161J-331	330 1/6W CARBON RES	
	R783	QRD161J-331	330 1/6W CARBON RES	
	R788	QRD161J-271	270 1/6W CARBON RES	
	R789	QRD161J-271	270 1/6W CARBON RES	
	R792	QRD161J-271	270 1/6W CARBON RES	
	R793	QRD161J-122	1.2K 1/6W CARBON RES	
	R794	QRD161J-473	47K 1/6W CARBON RES	
	R795	QRD161J-473	47K 1/6W CARBON RES	
△	R798	QRD14CJ-4R7S	4.7 1/4W UNF. CARBON	

## OTHERS

△	ITEM	PART NUMBER	DESCRIPTION	AREA
		EMW10524-004	PRINTED BOA	
		E3400-431	FELT SPACER	
		QCS31HJ-331Z	CER. CAPACIT	
		GWE351-200D	VINYL WIRE	
	J607	VMC0161-013	MALE CONNEC	
	J790	EMN00TV-108A	PIN JACK	
	K726	ENZ8101-007	INDUCTOR	
	K751	ENZ8101-007	INDUCTOR	
	K792	ENZ8101-007	INDUCTOR	
	K793	ENZ8101-007	INDUCTOR	
	P605	EMV5161-030	CONNECT TER	
	P606	EMV5161-010	CONNECT TER	
	P701	EMV5142-914	CONNECT TER	
	EP790	EMZ4002-001Z	EARTH PLATE	
	FS799	E3400-431	FELT SPACER	
	FS800	E3400-431	FELT SPACER	
	FS801	E3400-431	FELT SPACER	
	SP751	VYH7653-002	I.C. SOCKET	
	XT751	ECX0169-344KL	CRYSTAL	

■ ENN-440 A CD Servo PC Board Ass'y



TRANSISTORS

Δ	ITEM	PART NUMBER	DESCRIPTION	AREA
	Q601	2SA950(O,Y)	SI.TRANSIST TOSHIBA	

I. C. S.

Δ	ITEM	PART NUMBER	DESCRIPTION	AREA
	IC600	AN8806SB	I.C(M) MATSUSHITA	
	IC650	MN662720RB	I.C(DIGI-MO MATSUSHITA	
	IC700	BA6398FP	I.C(MONO-AN ROHM	
	IC700	BA6398FPX	I.C(MONO-AN ROHM	
	IC750	TA8409F	I.C(MONO-AN TOSHIBA	

DIODES

Δ	ITEM	PART NUMBER	DESCRIPTION	AREA
	D701	MTZ6.2JB	ZENER DIODE ROHM	

CAPACITORS

Δ	ITEM	PART NUMBER	DESCRIPTION	AREA
	C601	QER50JM-476	47MF 6.3V AL E.CAPAC	
	C602	QC20202-155	1.5MF 25V CER.RESIST	
	C604	QETB1AM-107	100MF 10V AL E.CAPAC	
	C605	QER51EM-106	10MF 25V E.CAPACITO	
	C606	QCHB1EZ-223	0.022MF 25V CER.CAPACI	

CAPACITORS

Δ	ITEM	PART NUMBER	DESCRIPTION	AREA
	C607	QCSB1HJ-680	68PF 50V CER.CAPACI	
	C608	QETB1HM-105	1MF 50V AL E.CAPAC	
	C609	QCB81HK-101Y	100PF 50V CER.CAPACI	
	C610	QFLB1HJ-273	0.027MF 50V MYLAR CAPA	
	C611	QFLB1HJ-472	4700PF 50V MYLAR CAPA	
	C612	QFLB1HJ-332	3300PF 50V MYLAR CAPA	
	C613	QCT30CH-3R3Y	3.3PF 50V CER.CAPACI	
	C614	QFV81HJ-104	0.1MF 50V THIN FILM	
	C615	QCHB1EZ-223	0.022MF 25V CER.CAPACI	
	C616	QCHB1EZ-223	0.022MF 25V CER.CAPACI	
	C617	QCHB1EZ-223	0.022MF 25V CER.CAPACI	
	C618	QCXB1CM-222Y	2200PF 16V CER.CAPACI	
	C619	QCB81HK-271Y	270PF 50V CER.CAPACI	
	C620	QCSB1HJ-470	47PF 50V CER.CAPACI	
	C621	QCG81HK-821	820PF 50V CER.CAPACI	
	C622	QETB1AM-476	47MF 10V E.CAPACITO	
	C623	EFH001J-104	METAL.MYLA	
	C631	QCZ0202-155	1.5MF 25V CER.RESIST	
	C651	QCB81HK-471Y	470PF 50V CER.CAPACI	
	C652	QCHB1EZ-223	0.022MF 25V CER.CAPACI	
	C653	QFLB1HJ-223	0.022MF 50V MYLAR CAPA	
	C654	QCHB1EZ-223	0.022MF 25V CER.CAPACI	
	C655	QFV81HJ-334	0.33MF 50V TF.CAPACIT	
	C658	QFV81HJ-104	0.1MF 50V THIN FILM	
	C662	QFV81HJ-104	0.1MF 50V THIN FILM	
	C663	QEK51CM-107	100MF 16V E.CAPACITO	
	C673	QFV81HJ-104	0.1MF 50V THIN FILM	
	C674	EETBOJM-477E	470MF 6.3V E.CAPACITO	
	C676	QCZ0202-155	1.5MF 25V CER.RESIST	
	C681	QETB1AM-227	220MF 10V E.CAPACITO	
	C682	QCHB1EZ-223	0.022MF 25V CER.CAPACI	
	C701	QEK51CM-107	100MF 16V E.CAPACITO	
	C702	QCH81EZ-223	0.022MF 25V CER.CAPACI	
	C703	QFLB1HJ-273	0.027MF 50V MYLAR CAPA	
	C704	QFLB1HJ-183	0.018MF 50V MYLAR CAPA	
	C706	QFLB1HJ-273	0.027MF 50V MYLAR CAPA	
	C707	QFV81HJ-104	0.1MF 50V THIN FILM	
	C708	QCH81EZ-223	0.022MF 25V CER.CAPACI	

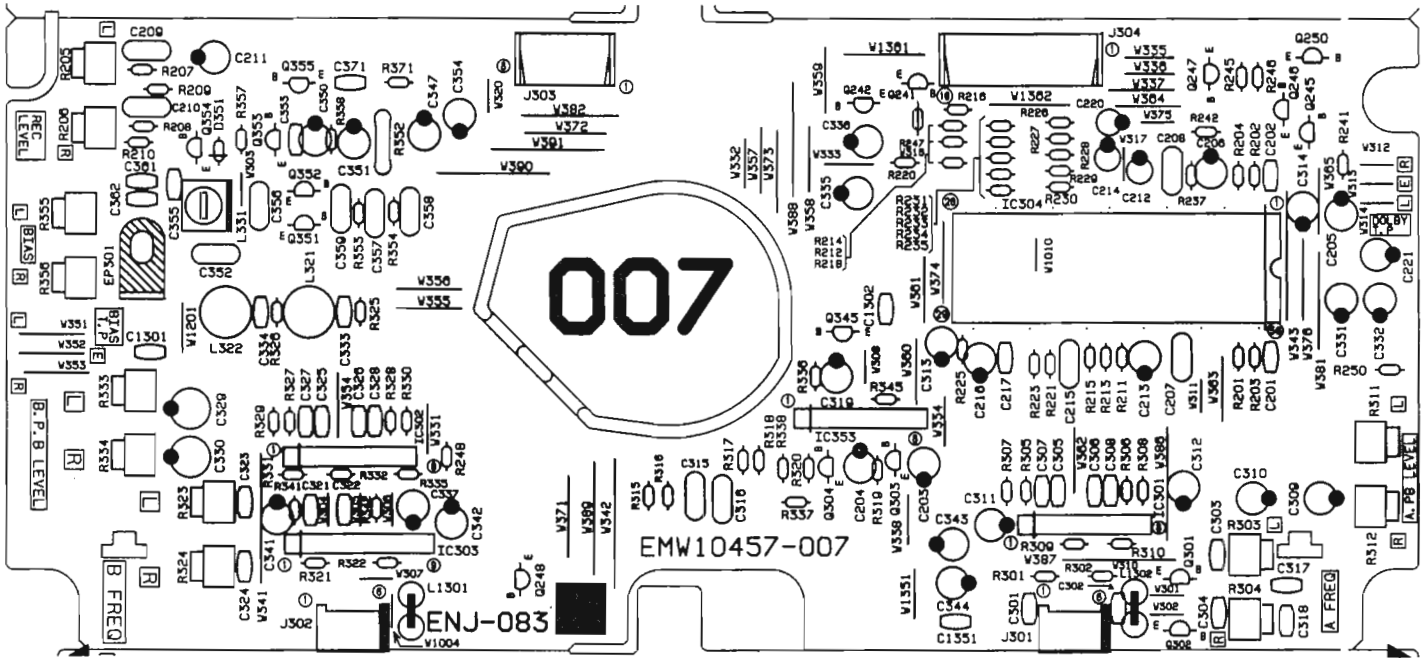
## RESISTORS

Δ	ITEM	PART NUMBER	DESCRIPTION	AREA
	R602	QRD161J-123	12K 1/6W CARBON RES	
	R605	QRD167J-134	130K 1/6W CARBON RES	
	R607	QRD161J-913	91K 1/6W CARBON RES	
	R608	QRD161J-273	27K 1/6W CARBON RES	
	R609	QRD161J-114	110K 1/6W CARBON RES	
	R610	QRD167J-154	150K 1/6W CARBON RES	
	R611	QRD161J-394	390K 1/6W CARBON RES	
	R612	QRD161J-103	10K 1/6W CARBON RES	
	R613	QRD167J-121	120 1/6W CARBON RES	
	R614	QRD161J-470	47 1/6W CARBON RES	
	R615	QRD161J-470	47 1/6W CARBON RES	
	R616	QRD161J-470	47 1/6W CARBON RES	
	R617	QRD161J-2R2	2.2 1/6W CARBON RES	
	R618	QRD161J-910Y	91 1/6W CARBON RES	
	R651	QRD161J-102	1K 1/6W CARBON RES	
	R652	QRD161J-102	1K 1/6W CARBON RES	
	R653	QRD161J-102	1K 1/6W CARBON RES	
	R654	QRD161J-471	470 1/6W CARBON RES	
	R655	QRD167J-155	1.5M 1/6W CARBON RES	
	R656	QRD161J-104	100K 1/6W CARBON RES	
	R657	QRD161J-104	100K 1/6W CARBON RES	
	R658	QRD161J-681	680 1/6W CARBON RES	
	R659	QRD161J-124	120K 1/6W CARBON RES	
	R661	QRD161J-2R2	2.2 1/6W CARBON RES	
	R662	QRD161J-2R2	2.2 1/6W CARBON RES	
	R672	QRD161J-221	220 1/6W CARBON RES	
	R673	QRD161J-2R2	2.2 1/6W CARBON RES	
	R681	QRD161J-102	1K 1/6W CARBON RES	
	R682	QRD161J-102	1K 1/6W CARBON RES	
	R683	QRD161J-102	1K 1/6W CARBON RES	
	R684	QRD161J-102	1K 1/6W CARBON RES	
	R685	QRD161J-102	1K 1/6W CARBON RES	
	R686	QRD161J-102	1K 1/6W CARBON RES	
	R687	QRD161J-102	1K 1/6W CARBON RES	
	R688	QRD161J-102	1K 1/6W CARBON RES	
	R689	QRD161J-102	1K 1/6W CARBON RES	
	R690	QRD161J-102	1K 1/6W CARBON RES	
	R691	QRD161J-102	1K 1/6W CARBON RES	
	R701	QRD161J-821	820 1/6W CARBON RES	
	R702	QRD167J-562	5.6K 1/6W CARBON RES	
	R703	QRD161J-112	1.1K 1/6W CARBON RES	
	R704	QRD167J-113	11K 1/6W CARBON RES	
	R706	QRD161J-124	120K 1/6W CARBON RES	
	R707	QRD167J-332	3.3K 1/6W CARBON RES	
	R708	QRD161J-752	7.5K 1/6W CARBON RES	
	R709	QRD167J-223	22K 1/6W CARBON RES	
	R710	QRD161J-103	10K 1/6W CARBON RES	
	R711	QRD167J-153	15K 1/6W CARBON RES	
	R712	QRD161J-752	7.5K 1/6W CARBON RES	
	R713	QRD167J-751	750 1/6W CARBON RES	
	R714	QRD161J-363	36K 1/6W CARBON RES	
	R715	QRD161J-471	470 1/6W CARBON RES	

## OTHERS

Δ	ITEM	PART NUMBER	DESCRIPTION	AREA
		EMW10525-003	PRINTED BOA	
		E3400-431	FELT SPACER	
	J601	EMV7122-103	CONNECT TER	
	K601	ENZ8101-007	INDUCTOR	
	P601	VMC0161-023	CONNECT TER	
	P602	EMV5109-005A	MALE CONNec	
	P603	EMV5109-006A	CONNECT TER	
	P604	EMV7144-015R	CONNECT TER	
	P607	VMC0161-013	MALE CONNec	
	EP601	EMZ4002-001Z	EARTH PLATE	
	SP600	VYH7653-010	I.C.PROTECT	
	SP700	VYH7653-010	I.C.PROTECT	
	SP750	VYH7653-004	I.C.PROTECT	

■ ENJ-083 A Cassette Deck PC Board Ass'y



TRANSISTORS

Δ	ITEM	PART NUMBER	DESCRIPTION	AREA
	Q245	2SD2144S(VW)	SI. TRANSIST ROHM	
	Q246	2SD2144S(VN)	SI. TRANSIST ROHM	
	Q247	DTA144ES	DIGITAL TRA ROHM	
	Q248	DTC144ES	DIGITAL TRA ROHM	
	Q303	2SC1740S(R,S)	SI. TRANSIST ROHM	
	Q304	2SC1740S(R,S)	SI. TRANSIST ROHM	
	Q345	DTC144ES	DIGITAL TRA ROHM	
	Q351	2SC3311A(Q,R)	SI. TRANSIST MATSUSHITA	
	Q352	2SC3311A(Q,R)	SI. TRANSIST MATSUSHITA	
	Q353	2SC3311A(Q,R)	SI. TRANSIST MATSUSHITA	

I. C. S.

Δ	ITEM	PART NUMBER	DESCRIPTION	AREA
	IC301	NJM4580LD	I.C(MONO-AN DAINICHI	
	IC302	NJM4580LD	I.C(MONO-AN DAINICHI	
	IC303	UPC1330HA	I.C(MONO-AN NEC	
	IC304	HA12171NT	I.C(MONO-AN HITACHI	
	IC353	BA8221AN	I.C(MONO-AN ROHM	

CAPACITORS

Δ	ITEM	PART NUMBER	DESCRIPTION	AREA
	C201	QCXB1CM-472Y	4700PF 16V CER.CAPACI	
	C202	QCXB1CM-472Y	4700PF 16V CER.CAPACI	
	C203	QETB1HM-105	1MF 50V AL E.CAPAC	
	C204	QETB1HM-105	1MF 50V AL E.CAPAC	
	C205	QETB1EM-106	10MF 25V AL E.CAPAC	
	C206	QETB1EM-106	10MF 25V AL E.CAPAC	
	C207	QFV81HJ-104	0.1MF 50V THIN FILM	
	C208	QFV81HJ-104	0.1MF 50V THIN FILM	
	C211	QETB1HM-105	1MF 50V AL E.CAPAC	
	C212	QEK51HM-105G	1MF 50V AL E.CAPAC	
	C213	QER61HM-334Z	0.33MF 50V AL E.CAPAC	
	C214	QER61HM-334Z	0.33MF 50V AL E.CAPAC	
	C215	QFLB1HJ-472	4700PF 50V MYLAR CAPA	
	C216	QETB1HM-474	0.47MF 50V ELECTRO	
	C217	QCXB1CM-222Y	2200PF 16V CER.CAPACI	
	C220	QEK51HM-225G	2.2MF 50V AL E.CAPAC	
	C221	QETB1HM-475E	4.7MF 50V E.CAPACITO	
	C301	QCBB1HK-821Y	820PF 50V CER.CAPACI	
	C302	QCBB1HK-821Y	820PF 50V CER.CAPACI	
	C303	QCBB1HK-331Y	330PF 50V CER.CAPACI	
	C304	QCBB1HK-331Y	330PF 50V CER.CAPACI	
	C305	QCBB1HK-101Y	100PF 50V CER.CAPACI	
	C306	QCBB1HK-101Y	100PF 50V CER.CAPACI	
	C307	QCVB1CM-822Y	8200PF 16V CER.CAPACI	
	C308	QCVB1CM-822Y	8200PF 16V CER.CAPACI	

CAPACITORS

Δ	ITEM	PART NUMBER	DESCRIPTION	AREA
	C309	QETB1AM-107	100MF 10V AL E.CAPAC	
	C310	QETB1AM-107	100MF 10V AL E.CAPAC	
	C311	QETB1HM-105	1MF 50V AL E.CAPAC	
	C312	QETB1HM-105	1MF 50V AL E.CAPAC	
	C313	QETB1AM-107	100MF 10V AL E.CAPAC	
	C314	QETB1AM-107	100MF 10V AL E.CAPAC	
	C315	QFV81HJ-473	0.047MF 50V THIN FILM	
	C316	QFV81HJ-473	0.047MF 50V THIN FILM	
	C319	QETB1AM-476	47MF 10V E.CAPACITO	
	C321	QCXB1CM-122	1200PF 16V POLYPROP.	
	C322	QCXB1CM-122	1200PF 16V POLYPROP.	
	C323	QCBB1HK-331Y	330PF 50V CER.CAPACI	
	C324	QCBB1HK-331Y	330PF 50V CER.CAPACI	
	C325	QCBB1HK-101Y	100PF 50V CER.CAPACI	
	C326	QCBB1HK-101Y	100PF 50V CER.CAPACI	
	C327	QCVB1CM-822Y	8200PF 16V CER.CAPACI	
	C328	QCVB1CM-822Y	8200PF 16V CER.CAPACI	
	C329	QEK51CM-107	100MF 16V E.CAPACITO	
	C330	QEK51CM-107	100MF 16V E.CAPACITO	
	C331	QETB1HM-105	1MF 50V AL E.CAPAC	
	C332	QETB1HM-105	1MF 50V AL E.CAPAC	
	C333	QCBB1HK-101Y	100PF 50V CER.CAPACI	
	C334	QCBB1HK-101Y	100PF 50V CER.CAPACI	
	C335	QETB1EM-106	10MF 25V AL E.CAPAC	
	C336	QETB1EM-106	10MF 25V AL E.CAPAC	
	C337	QEK51CM-226	22MF 16V AL E.CAPAC	
	C341	QERS1HM-105G	1MF 50V AL E.CAPAC	
	C342	QERS1HM-105G	1MF 50V AL E.CAPAC	
	C343	QETB1AM-107	100MF 10V AL E.CAPAC	
	C344	QETB1AM-107	100MF 10V AL E.CAPAC	
	C347	QETB1AM-107	100MF 10V AL E.CAPAC	
	C350	QETB1HM-105	1MF 50V AL E.CAPAC	
	C351	QETB1AM-107	100MF 10V AL E.CAPAC	
	C352	QF31HG-562	5600PF 50V POLYPROP.	
	C353	QCVB1CM-103Y	0.01MF 16V CER.CAPACI	
	C354	QETB1AM-107	100MF 10V AL E.CAPAC	
	C356	QFLB1HJ-153	0.015MF 50V MYLAR CAPA	
	C357	QFLB1HJ-332	3300PF 50V MYLAR CAPA	
	C358	QFLB1HJ-332	3300PF 50V MYLAR CAPA	
	C359	QFLB1HJ-682	6800PF 50V MYLAR CAPA	
	C361	QCBB1HK-101Y	100PF 50V CER.CAPACI	
	C362	QCBB1HK-101Y	100PF 50V CER.CAPACI	

## RESISTORS

Δ	ITEM	PART NUMBER	DESCRIPTION			AREA
	R201	QRD167J-153	15K	1/6W	CARBON RES	
	R202	QRD167J-153	15K	1/6W	CARBON RES	
	R203	QRD161J-123	12K	1/6W	CARBON RES	
	R204	QRD161J-123	12K	1/6W	CARBON RES	
	R205	QVPA603-503A	50K		VARIABLE R	
	R206	QVPA603-503A	50K		VARIABLE R	
	R209	QRD167J-153	15K	1/6W	CARBON RES	
	R210	QRD167J-153	15K	1/6W	CARBON RES	
	R211	QRD161J-823	82K	1/6W	CARBON RES	
	R212	QRD167J-562	5.6K	1/6W	CARBON RES	
	R213	QRD161J-205	20K	1/6W	CARBON RES	
	R214	QRD167J-682	6.8K	1/6W	CARBON RES	
	R215	QRD167J-153	15K	1/6W	CARBON RES	
	R216	QRD167J-332	3.3K	1/6W	CARBON RES	
	R218	QRD161J-472	4.7K	1/6W	CARBON RES	
	R220	QRD161J-243	24K	1/6W	CARBON RES	
	R221	QRD161J-103	10K	1/6W	CARBON RES	
	R223	QRD161J-183	18K	1/6W	CARBON RES	
	R225	QRD161J-184	180K	1/6W	CARBON RES	
	R226	QRD167J-223	22K	1/6W	CARBON RES	
	R227	QRD167J-223	22K	1/6W	CARBON RES	
	R228	QRD167J-223	22K	1/6W	CARBON RES	
	R229	QRD167J-223	22K	1/6W	CARBON RES	
	R230	QRD167J-223	22K	1/6W	CARBON RES	
	R231	QRD167J-223	22K	1/6W	CARBON RES	
	R232	QRD167J-223	22K	1/6W	CARBON RES	
	R233	QRD167J-223	22K	1/6W	CARBON RES	
	R234	QRD167J-223	22K	1/6W	CARBON RES	
	R235	QRD167J-223	22K	1/6W	CARBON RES	
	R237	QRD161J-183	18K	1/6W	CARBON RES	
	R241	QRD161J-392	3.9K	1/6W	CARBON RES	
	R242	QRD161J-392	3.9K	1/6W	CARBON RES	
	R245	QRD161J-472	4.7K	1/6W	CARBON RES	
	R246	QRD161J-472	4.7K	1/6W	CARBON RES	
	R248	QRD161J-103	10K	1/6W	CARBON RES	
	R301	QRD167J-334	330K	1/6W	CARBON RES	
	R302	QRD167J-334	330K	1/6W	CARBON RES	
	R303	QVPA603-104A	100K		TRIMMER RE	
	R304	QVPA603-104A	100K		TRIMMER RE	
	R305	QRD167J-334	330K	1/6W	CARBON RES	
	R306	QRD167J-334	330K	1/6W	CARBON RES	
	R307	QRD161J-203	20K	1/6W	CARBON RES	
	R308	QRD161J-203	20K	1/6W	CARBON RES	
	R309	QRD161J-391	390	1/6W	CARBON RES	
	R310	QRD161J-391	390	1/6W	CARBON RES	
	R311	QVPA603-501A	500		TRIMMER RE	
	R312	QVPA603-501A	500		TRIMMER RE	
	R315	QRD161J-564	560K	1/6W	CARBON RES	
	R316	QRD161J-564	560K	1/6W	CARBON RES	
	R317	QRD161J-103	10K	1/6W	CARBON RES	
	R318	QRD161J-103	10K	1/6W	CARBON RES	
	R319	QRD167J-332	3.3K	1/6W	CARBON RES	
	R320	QRD167J-332	3.3K	1/6W	CARBON RES	
	R321	QRD161J-100	10	1/6W	CARBON RES	
	R322	QRD161J-100	10	1/6W	CARBON RES	
	R323	QVPA603-104A	100K		TRIMMER RE	
	R324	QVPA603-104A	100K		TRIMMER RE	
	R325	QRD167J-153	15K	1/6W	CARBON RES	
	R326	QRD167J-153	15K	1/6W	CARBON RES	
	R327	QRD167J-334	330K	1/6W	CARBON RES	
	R328	QRD167J-334	330K	1/6W	CARBON RES	
	R329	QRD161J-203	20K	1/6W	CARBON RES	
	R330	QRD161J-203	20K	1/6W	CARBON RES	
	R331	QRD167J-151	150	1/6W	CARBON RES	
	R332	QRD167J-151	150	1/6W	CARBON RES	
	R333	QVPA603-501A	500		TRIMMER RE	
	R334	QVPA603-501A	500		TRIMMER RE	
	R335	QRD161J-101	100	1/6W	CARBON RES	
	R336	QRD161J-105	10	1/6W	CARBON RES	
	R337	QRD161J-133Y	13K	1/6W	CARBON RES	
	R338	QRD161J-133Y	13K	1/6W	CARBON RES	
	R341	QRD167J-334	330K	1/6W	CARBON RES	
	R342	QRD167J-334	330K	1/6W	CARBON RES	
	R345	QRD161J-103	10K	1/6W	CARBON RES	
	R352	QRD14CJ-6R8SX	6.8	1/4W	UNF. CARBON	
	R353	QRD161J-393	39K	1/6W	CARBON RES	
	R354	QRD161J-393	39K	1/6W	CARBON RES	
	R355	QVPA603-104A	100K		TRIMMER RE	
	R356	QVPA603-104A	100K		TRIMMER RE	
	R358	QRD161J-103	10K	1/6W	CARBON RES	

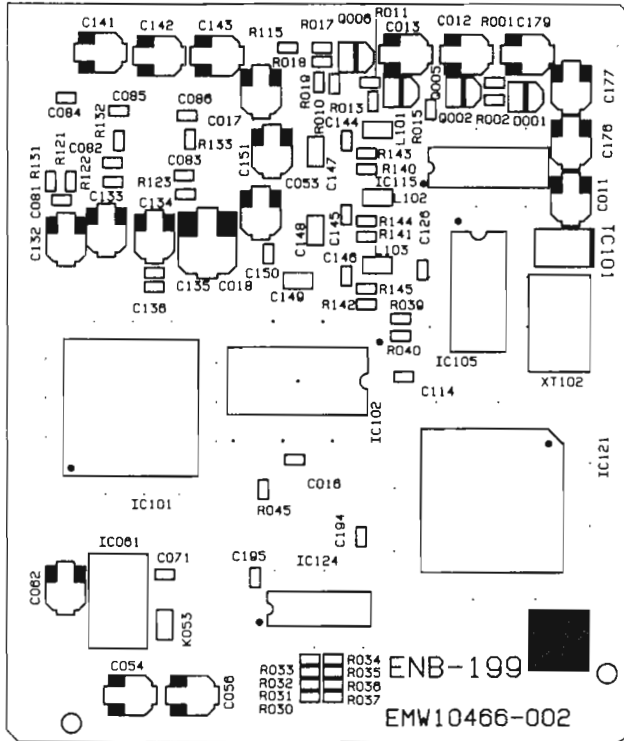
## OTHERS

Δ	ITEM	PART NUMBER	DESCRIPTION	AREA
	J301	EMV10457-007	CIR BOARD	
	J302	EMV7155-106R	CONNECT TER	
	J303	EMV7155-106R	CONNECT TER	
	J303	EMV5132-008R	CONNECT TER	
	J304	EMV5132-016R	CONNECT TER	
	L321	EQL2106-223	INDUCTOR	
	L322	EQL2106-223	INDUCTOR	
	L331	ENZ6002-012	OSCILLATOR	

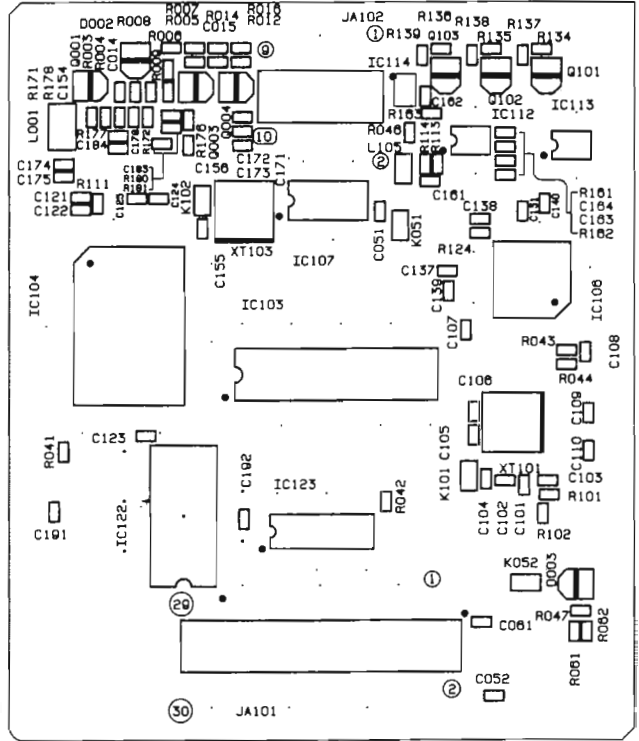
# CA-V800

## ENB-199 [A] Video CD PC Board Ass'y

### ● Surface



### ● Foil



### TRANSISTORS

ITEM	PART NUMBER	DESCRIPTION	AREA
Q001	DTC144EKT146	SILICON	
Q002	2SC242KLN(RS)TS1	TRANSIST ROHM	
Q003	2SC242KLN(RS)TS1	TRANSIST ROHM	
Q004	2SA1037KLN(RS)TS1	TRANSIST ROHM	
Q005	2SC242KLN(RS)TS1	TRANSIST ROHM	
Q006	2SC242KLN(RS)TS1	TRANSIST ROHM	
Q101	2SC242KLN(RS)TS1	TRANSIST ROHM	
Q102	2SC242KLN(RS)TS1	TRANSIST ROHM	
Q103	2SC242KLN(RS)TS1	TRANSIST ROHM	

### I. C. S.

ITEM	PART NUMBER	DESCRIPTION	AREA
IC061	PQ20VZ11X	I.C(M) SHARP	
IC101	CL480	I.C(MICRO-C MATSUSHITA	
IC102	AT27C256R-001X	I.C(M) MITSUBISHI	
IC103	UPD424260LE-70X	I.C(D-RAM) NEC	
IC104	YVZ152B-F	I.C(M) YAMAHA	
IC105	LC32464M-80	I.C	
IC105	LC32464M-80X	I.C(D-RAM) SANYO	
IC106	HD49307	I.C(DIGI-MO HITACHI	
IC107	HA118104FPW	I.C(MONO-AN HITACHI	
IC112	TLC29321PWX	I.C(M) 1679	
IC113	TC74ACT74FSX	I.C(M) TOSHIBA	
IC114	UPA572TX	I.C(M) NEC	
IC115	CXA1645MX	I.C(MONO-AN 1680	
IC121	MN171605J5G5	I.C(MICRO-C MATSUSHITA	
IC122	TC55257CFL-85X	I.C(S-RAM) TOSHIBA	
IC123	HD74HCT244FPW	I.C(DIGI-MO HITACHI	
IC124	HD74HCT245FPW	I.C(DIGI-MO HITACHI	

### DIODES

ITEM	PART NUMBER	DESCRIPTION	AREA
D001	DAN202KT146	SI.DIODE ROHM	
D002	DAN202KT146	SI.DIODE ROHM	
D003	DAN202KT146	SI.DIODE ROHM	

### CAPACITORS

ITEM	PART NUMBER	DESCRIPTION	AREA
C011	NEA21CM-106NZ	10MF 16V AL E.CAPAC	
C012	NEA20JM-226NZ	22MF 6.3V AL E.CAPAC	
C013	NEA21HM-105NZ	1MF 50V AL E.CAPAC	
C014	NCS31HJ-120AY	12PF 50V CER.CAPACI	
C015	NCF31EZ-104AY	0.1MF 25V CER.CAPACI	
C016	NCS31HJ-151AY	150PF 50V CER.CAPACI	
C017	NEA20JM-226NZ	22MF 6.3V AL E.CAPAC	
C018	NEA20JM-107NPM	100MF 6.3V E.CAPACITO	
C051	NCF31EZ-104AY	0.1MF 25V CER.CAPACI	
C052	NCF31EZ-104AY	0.1MF 25V CER.CAPACI	
C053	NEA20JM-226NZ	22MF 6.3V AL E.CAPAC	
C054	NEA20JM-226NZ	22MF 6.3V AL E.CAPAC	
C056	NEA20JM-226NZ	22MF 6.3V AL E.CAPAC	
C061	NCF31EZ-104AY	0.1MF 25V CER.CAPACI	
C062	NEA20JM-226NZ	22MF 6.3V AL E.CAPAC	
C071	NCF31EZ-104AY	0.1MF 25V CER.CAPACI	
C081	NCS31HJ-221AY	220PF 50V CER.CAPACI	
C082	NCS31HJ-221AY	220PF 50V CER.CAPACI	
C083	NCS31HJ-221AY	220PF 50V CER.CAPACI	
C084	NCS31HJ-470AY	47PF 50V CER.CAPACI	
C035	NCS31HJ-470AY	47PF 50V CER.CAPACI	
C086	NCS31HJ-470AY	47PF 50V CER.CAPACI	
C101	NCB31HK-103AY	0.01MF 50V CER.CAPACI	
C102	NCS31HJ-120AY	12PF 50V CER.CAPACI	
C103	NCF31EZ-104AY	0.1MF 25V CER.CAPACI	
C104	NCF31EZ-104AY	0.1MF 25V CER.CAPACI	
C105	NCF31EZ-104AY	0.1MF 25V CER.CAPACI	
C106	NCF31EZ-104AY	0.1MF 25V CER.CAPACI	
C107	NCF31EZ-104AY	0.1MF 25V CER.CAPACI	
C108	NCF31EZ-104AY	0.1MF 25V CER.CAPACI	
C109	NCF31EZ-104AY	0.1MF 25V CER.CAPACI	
C110	NCF31EZ-104AY	0.1MF 25V CER.CAPACI	
C114	NCF31EZ-104AY	0.1MF 25V CER.CAPACI	
C123	NCF31EZ-104AY	0.1MF 25V CER.CAPACI	
C124	NCF31EZ-104AY	0.1MF 25V CER.CAPACI	
C125	NCF31EZ-104AY	0.1MF 25V CER.CAPACI	
C126	NCF31EZ-104AY	0.1MF 25V CER.CAPACI	
C131	NCB31HK-222AY	2200PF 50V CER.CAPACI	
C132	NEA20JM-226NZ	22MF 6.3V AL E.CAPAC	
C133	NEA20JM-226NZ	22MF 6.3V AL E.CAPAC	
C134	NEA20JM-226NZ	22MF 6.3V AL E.CAPAC	
C135	NCB31HK-222AY	2200PF 50V CER.CAPACI	
C136	NCB31HK-222AY	2200PF 50V CER.CAPACI	
C137	NCB31HK-222AY	2200PF 50V CER.CAPACI	
C138	NCB31HK-222AY	2200PF 50V CER.CAPACI	

CAPACITORS

Δ	ITEM	PART NUMBER	DESCRIPTION	AREA
	C139	NCB31HK-222AY	2200PF 50V CER.CAPACI	
	C140	NCB31HK-103AY	0.01MF 50V CER.CAPACI	
	C141	NEA21EM-475NZ	4.7MF 25V AL E.CAPAC	
	C142	NEA21EM-475NZ	4.7MF 25V AL E.CAPAC	
	C143	NEA21EM-475NZ	4.7MF 25V AL E.CAPAC	
	C144	NCS31HJ-471AY	470PF 50V CER.CAPACI	
	C145	NCS31HJ-471AY	470PF 50V CER.CAPACI	
	C146	NCS31HJ-471AY	470PF 50V CER.CAPACI	
	C147	NCF21CZ-105AY	1MF 16V CER.CAPACI	
	C148	NCF21CZ-105AY	1MF 16V CER.CAPACI	
	C149	NCF21CZ-105AY	1MF 16V CER.CAPACI	
	C150	NCF31EZ-104AY	0.1MF 25V CER.CAPACI	
	C151	NEA21EM-475NZ	4.7MF 25V AL E.CAPAC	
	C154	NCB31HK-103AY	0.01MF 50V CER.CAPACI	
	C161	NCF31EZ-104AY	0.1MF 25V CER.CAPACI	
	C162	NCF31EZ-104AY	0.1MF 25V CER.CAPACI	
	C164	NCF31EZ-104AY	0.1MF 25V CER.CAPACI	
	C171	NCF31EZ-104AY	0.1MF 25V CER.CAPACI	
	C172	NCF31EZ-104AY	0.1MF 25V CER.CAPACI	
	C173	NCF31EZ-104AY	0.1MF 25V CER.CAPACI	
	C174	NCF31EZ-104AY	0.1MF 25V CER.CAPACI	
	C175	NCF31EZ-104AY	0.1MF 25V CER.CAPACI	
	C176	NEA20JM-226NZ	22MF 6.3V AL E.CAPAC	
	C177	NEA20JM-226NZ	22MF 6.3V AL E.CAPAC	
	C178	NCS31HJ-560AY	56PF 50V CER.CAPACI	
	C179	NEA20JM-226NZ	22MF 6.3V AL E.CAPAC	
	C183	NCS31HJ-470AY	47PF 50V CER.CAPACI	
	C184	NCT06CH-5R0AY	5PF CER.CAPACI	
	C191	NCF31EZ-104AY	0.1MF 25V CER.CAPACI	
	C192	NCF31EZ-104AY	0.1MF 25V CER.CAPACI	
	C194	NCF31EZ-104AY	0.1MF 25V CER.CAPACI	
	C195	NCF31EZ-104AY	0.1MF 25V CER.CAPACI	
	TC101	ENZ1003-017T	010MF TRIMMER CA	

RESISTORS

Δ	ITEM	PART NUMBER	DESCRIPTION	AREA
	R139	NRSA63J-102NY	METAL GLAZ	
	R140	NRSA63J-271NY	METAL GLAZ	
	R141	NRSA63J-271NY	METAL GLAZ	
	R142	NRSA63J-271NY	METAL GLAZ	
	R143	NRSA63J-181NY	METAL GLAZ	
	R144	NRSA63J-181NY	METAL GLAZ	
	R145	NRSA63J-181NY	METAL GLAZ	
	R161	NRSA63J-102NY	METAL GLAZ	
	R162	NRSA63J-103N	METAL GLAZ	
	R163	NRSA63J-332NY	METAL GLAZ	
	R171	NRSA63J-473NY	METAL GLAZ	
	R172	NRSA63J-203NY	METAL GLAZ	
	R176	NRSA63J-222NY	METAL GLAZ	
	R177	NRSA63J-222NY	METAL GLAZ	
	R181	NRSA63J-ORON	METAL GLAZ	

OTHERS

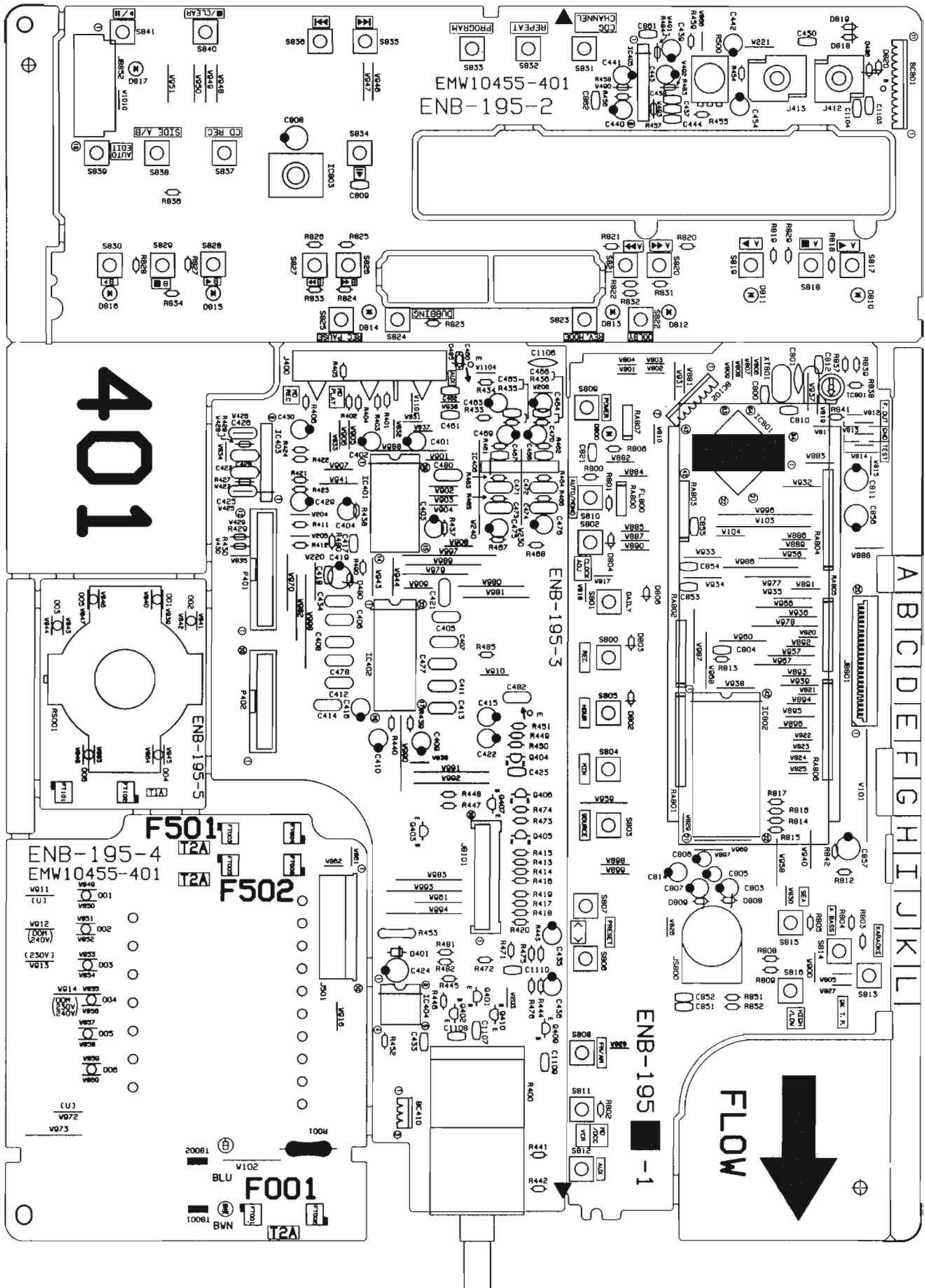
Δ	ITEM	PART NUMBER	DESCRIPTION	AREA
		EMW10466-002	PRINTED BOA	
	K051	ENZ8102-N102AY	FERRITE BEA	
	K052	ENZ8102-N102AY	FERRITE BEA	
	K053	ENZ8102-N102AY	FERRITE BEA	
	K101	ENZ8102-N102AY	FERRITE BEA	
	L001	EQL5004-221T	INDUCTOR	
	L101	VQP1007-4R7Z	INDUCTOR	
	L102	VQP1007-4R7Z	INDUCTOR	
	L103	VQP1007-4R7Z	INDUCTOR	
	L105	VQP1007-101Y	INDUCTOR	
	JA101	EMV7161-1230E	CONNECT TER	
	JA102	EMV7161-1210E	CONNECT TER	
	XT101	VX-2J40-5000W	(I.C.M)	
	XT102	ECXA014-N01WJ3	CRYSTAL	

RESISTORS

Δ	ITEM	PART NUMBER	DESCRIPTION	AREA
	R001	NRSA63J-183NY	METAL GLAZ	
	R002	NRSA63J-182NY	METAL GLAZ	
	R003	NRSA63J-222NY	METAL GLAZ	
	R004	NRSA63J-ORON	METAL GLAZ	
	R005	NRSA63J-273NY	METAL GLAZ	
	R006	NRSA63J-203NY	METAL GLAZ	
	R007	NRSA63J-681NY	METAL GLAZ	
	R008	NRSA63J-680NY	METAL GLAZ	
	R009	NRSA63J-560NY	METAL GLAZ	
	R010	NRSA63J-681NY	METAL GLAZ	
	R011	NRSA63J-561NY	METAL GLAZ	
	R012	NRSA63J-821NY	METAL GLAZ	
	R013	NRSA63J-181NY	METAL GLAZ	
	R014	NRSA63J-472NY	METAL GLAZ	
	R015	NRSA63J-222NY	METAL GLAZ	
	R016	NRSA63J-680NY	METAL GLAZ	
	R017	NRSA63J-680NY	METAL GLAZ	
	R018	NRSA63J-680NY	METAL GLAZ	
	R019	NRSA63J-680NY	METAL GLAZ	
	R030	NRSA63J-273NY	METAL GLAZ	
	R031	NRSA63J-273NY	METAL GLAZ	
	R032	NRSA63J-273NY	METAL GLAZ	
	R033	NRSA63J-273NY	METAL GLAZ	
	R034	NRSA63J-273NY	METAL GLAZ	
	R035	NRSA63J-273NY	METAL GLAZ	
	R036	NRSA63J-273NY	METAL GLAZ	
	R037	NRSA63J-273NY	METAL GLAZ	
	R040	NRSA63J-ORON	METAL GLAZ	
	R041	NRSA63J-103N	METAL GLAZ	
	R042	NRSA63J-103N	METAL GLAZ	
	R043	NRSA63J-ORON	METAL GLAZ	
	R045	NRSA63J-101NY	METAL GLAZ	
	R046	NRSA63J-470NY	METAL GLAZ	
	R047	NRSA63J-103N	METAL GLAZ	
	R048	NRS181J-ORONY	METAL GLAZ	
	R061	NRSA63J-182NY	METAL GLAZ	
	R062	NRSA63J-112NY	METAL GLAZ	
	R101	NRSA63J-472NY	METAL GLAZ	
	R102	NRSA63J-473NY	METAL GLAZ	
	R111	NRSA63J-105NY	METAL GLAZ	
	R113	NRSA63J-102NY	METAL GLAZ	
	R114	NRSA63J-102NY	METAL GLAZ	
	R115	NRSA63J-222NY	METAL GLAZ	
	R121	NRSA63J-750NY	METAL GLAZ	
	R122	NRSA63J-750NY	METAL GLAZ	
	R123	NRSA63J-750NY	METAL GLAZ	
	R124	NRSA63J-332NY	METAL GLAZ	
	R131	NRSA63J-821NY	METAL GLAZ	
	R132	NRSA63J-821NY	METAL GLAZ	
	R133	NRSA63J-821NY	METAL GLAZ	
	R134	NRSA63J-102NY	METAL GLAZ	
	R135	NRSA63J-102NY	METAL GLAZ	
	R136	NRSA63J-102NY	METAL GLAZ	
	R137	NRSA63J-102NY	METAL GLAZ	
	R138	NRSA63J-102NY	METAL GLAZ	

# CA-V800

## ■ ENB-195 □ Key Matrix PC Board Ass'y





## TRANSISTORS

Δ	ITEM	PART NUMBER	DESCRIPTION	AREA
	Q401	2SD2144S(VW)	SI.TRANSIST ROHM	
	Q402	2SD2144S(VW)	SI.TRANSIST ROHM	
	Q403	DTA144ES	DIGITAL TRA ROHM	
	Q404	2SC3311A(Q,R)	SI.TRANSIST MATSUSHITA	
	Q405	2SD2144S(VW)	SI.TRANSIST ROHM	
	Q406	2SD2144S(VW)	SI.TRANSIST ROHM	
	Q407	DTA144ES	DIGITAL TRA ROHM	
	Q409	2SD2144S(VW)	SI.TRANSIST ROHM	
	Q410	2SD2144S(VW)	SI.TRANSIST ROHM	

## I. C. S.

Δ	ITEM	PART NUMBER	DESCRIPTION	AREA
	IC401	TC9164N	I.C.(DIGI-MO TOSHIBA	
	IC402	M62417SP	I.C(M) MITSUBISHI	
	IC404	LB1639-CV	I.C.(DIGI-OT SANYO	
	IC405	BA15218N	I.C(MONO-AN ROHM	
	IC801	MN172412J6C1	I.C(MICRO-C MATSUSHITA	
	IC802	XR1095CP	I.C(MONO-AN EXAR JAPAN	
	IC803	NJH32H380A	I.C(M) DAINICHI	

## DIODES

Δ	ITEM	PART NUMBER	DESCRIPTION	AREA
	D401	1SR139-200	SI.DIODE ROHM	
	D480	MTZ5.1JB	ZENER DIODE ROHM	
	D485	MTZ2.0JB	ZENER DIODE ROHM	
	D486	MTZ2.0JB	ZENER DIODE ROHM	
	D800	SLR-342VC3F	L.E.D. ROHM	
	D802	1SS119	SI.DIODE	
	D803	1SS119	SI.DIODE	
	D804	1SS119	SI.DIODE	
	D806	1SS119	SI.DIODE	
	D808	MTZ5.1JC	ZENER DIODE ROHM	
	D809	MTZ5.1JC	ZENER DIODE ROHM	
	D810	SLR-342MCA47	L.E.D. ROHM	
	D811	SLR-342MCA47	L.E.D. ROHM	
	D812	SLR-342VC3F	L.E.D. ROHM	
	D813	SLR-342VC3F	L.E.D. ROHM	
	D814	SLR-342VC3F	L.E.D. ROHM	
	D815	SLR-342MCA47	L.E.D. ROHM	
	D816	SLR-342MCA47	L.E.D. ROHM	
	D817	SLR-342MCA47	L.E.D. ROHM	
	D818	1SS119	SI.DIODE	
	D819	1SS119	SI.DIODE	
	D820	1SS119	SI.DIODE	

## CAPACITORS

Δ	ITEM	PART NUMBER	DESCRIPTION	AREA
	C401	EETB1EM-107E	100MF 25V E.CAPACITO	
	C402	EETB1EM-107E	100MF 25V E.CAPACITO	
	C403	EET5010-106ZE	10MF E.CAPACITO	
	C404	EET5010-106ZE	10MF E.CAPACITO	
	C405	QFV71HJ-683ZM	0.068MF 50V THIN FILM	
	C406	QFV71HJ-683ZM	0.068MF 50V THIN FILM	
	C407	QFV71HJ-184ZM	0.18MF 50V CAPACITOR	
	C408	QFV71HJ-184ZM	0.18MF 50V CAPACITOR	
	C409	EET5010-106ZE	10MF E.CAPACITO	
	C410	EET5010-106ZE	10MF E.CAPACITO	
	C411	QFV71HJ-474ZM	0.47MF 50V THIN FILM	
	C412	QFV71HJ-474ZM	0.47MF 50V THIN FILM	
	C413	QFV71HJ-683ZM	0.068MF 50V THIN FILM	
	C414	QFV71HJ-683ZM	0.068MF 50V THIN FILM	
	C415	QETB1EM-105	1MF 50V AL E.CAPAC	
	C416	QETB1EM-105	1MF 50V AL E.CAPAC	
	C417	QCB1HK-561Y	560PF 50V CER.CAPACI	
	C418	QCB1HK-561Y	560PF 50V CER.CAPACI	
	C419	QETB1EM-107	100MF 10V AL E.CAPAC	
	C421	QFV81HJ-103	0.01MF 50V THIN FILM	
	C422	QETB1EM-474	0.47MF 50V ELECTRO	
	C423	QCHB1EZ-223	0.022MF 25V CER.CAPACI	
	C424	QETB1EM-107	100MF 10V AL E.CAPAC	
	C427	QFN81HJ-103	0.01MF 50V METAL.MYLA	
	C428	QFN81HJ-103	0.01MF 50V METAL.MYLA	

## CAPACITORS

Δ	ITEM	PART NUMBER	DESCRIPTION	AREA
	C429	EET5010-106ZE	10MF E.CAPACITO	
	C430	EET5010-106ZE	10MF E.CAPACITO	
	C433	QCVB1CM-103Y	0.01MF 16V CER.CAPACI	
	C434	QFV81HJ-104	0.1MF 50V THIN FILM	
	C435	EET5012-474ZE	0.47MF E.CAPACITO	
	C436	EET5012-474ZE	0.47MF E.CAPACITO	
	C437	QCB1HK-101Y	100PF 50V CER.CAPACI	
	C439	QETB1EM-106	10MF 25V AL E.CAPAC	
	C440	QETB1EM-106	10MF 25V AL E.CAPAC	
	C441	QETB1EM-106	10MF 25V AL E.CAPAC	
	C442	QETB1EM-106	10MF 25V AL E.CAPAC	
	C443	QETB1EM-106	10MF 25V AL E.CAPAC	
	C444	QCVB1CM-103Y	0.01MF 16V CER.CAPACI	
	C450	QCVB1CM-103Y	0.01MF 16V CER.CAPACI	
	C454	QETB1EM-106	10MF 25V AL E.CAPAC	
	C477	QFN31HJ-332Z	3300PF 50V MYLAR CAPA	
	C478	QFN31HJ-332Z	3300PF 50V MYLAR CAPA	
	C480	QFN81HJ-103	0.01MF 50V METAL.MYLA	
	C482	QFN81HJ-103	0.01MF 50V METAL.MYLA	
	C800	QCFB1HZ-104Y	0.1MF 50V CER.CAPACI	
	C803	QER50JM-476	47MF 6.3V AL E.CAPAC	
	C804	QCXB1CM-152Y	1500PF 16V CER.CAPACI	
	C805	QEK51HM-225G	2.2MF 50V AL E.CAPAC	
	C806	QEK51HM-225G	2.2MF 50V AL E.CAPAC	
	C807	QER50JM-476	47MF 6.3V AL E.CAPAC	
	C808	QER50JM-107	100MF 6.3V AL E.CAPAC	
	C809	QCHB1EZ-223	0.022MF 25V CER.CAPACI	
	C810	QCVB1CM-103Y	0.01MF 16V CER.CAPACI	
	C811	QER61AM-107Z	100MF 10V AL E.CAPAC	
	C812	QCVB1CM-103Y	0.01MF 16V CER.CAPACI	
	C814	QEK51HM-475	4.7MF 50V AL E.CAPAC	
	C851	QCHB1EZ-223	0.022MF 25V CER.CAPACI	
	C852	QCHB1EZ-223	0.022MF 25V CER.CAPACI	
	C853	QCB1HK-101Y	100PF 50V CER.CAPACI	
	C854	QCB1HK-101Y	100PF 50V CER.CAPACI	
	C855	QCB1HK-101Y	100PF 50V CER.CAPACI	
	C856	QETB1EM-476	47MF 50V E.CAPACITO	
	C857	QETB1EM-476	47MF 50V E.CAPACITO	
	C861	QCSB1HJ-390	39PF 50V CERAMIC	
	C862	QCVB1CM-103Y	0.01MF 16V CER.CAPACI	
	C1110	QETB1CM-227	220MF 16V AL E.CAPAC	
	TC801	ENZ1003-015	0.1MF TRIMMER CA	

## RESISTORS

Δ	ITEM	PART NUMBER	DESCRIPTION	AREA
	R400	QV0B94B-E15C	100K VARIABLE R	
	R401	QRD167J-223	22K 1/6W CARBON RES	
	R402	QRD167J-223	22K 1/6W CARBON RES	
	R403	QRD161J-473	47K 1/6W CARBON RES	
	R404	QRD161J-473	47K 1/6W CARBON RES	
	R405	QRD161J-222	2.2K 1/6W CARBON RES	
	R406	QRD161J-222	2.2K 1/6W CARBON RES	
	R411	QRD167J-272	2.7K 1/6W CARBON RES	
	R412	QRD167J-272	2.7K 1/6W CARBON RES	
	R413	QRD161J-122	1.2K 1/6W CARBON RES	
	R414	QRD161J-122	1.2K 1/6W CARBON RES	
	R415	QRD167J-153	15K 1/6W CARBON RES	
	R416	QRD167J-153	15K 1/6W CARBON RES	
	R417	QRD161J-122	1.2K 1/6W CARBON RES	
	R418	QRD161J-122	1.2K 1/6W CARBON RES	
	R419	QRD161J-222	2.2K 1/6W CARBON RES	
	R420	QRD161J-222	2.2K 1/6W CARBON RES	
	R421	QRD161J-362	3.6K 1/6W CARBON RES	
	R422	QRD161J-362	3.6K 1/6W CARBON RES	
	R423	QRD161J-911	910 1/6W CARBON RES	
	R424	QRD161J-911	910 1/6W CARBON RES	
	R433	QRD167J-223	22K 1/6W CARBON RES	
	R434	QRD167J-223	22K 1/6W CARBON RES	
	R437	QRD161J-104	100K 1/6W CARBON RES	
	R438	QRD161J-104	100K 1/6W CARBON RES	
	R439	QRD161J-471	470 1/6W CARBON RES	
	R440	QRD161J-471	470 1/6W CARBON RES	
	R441	QRD161J-203	20K 1/6W CARBON RES	
	R442	QRD161J-203	20K 1/6W CARBON RES	
	R445	QRD161J-103	10K 1/6W CARBON RES	
	R446	QRD161J-103	10K 1/6W CARBON RES	
	R447	QRD161J-224	220K 1/6W CARBON RES	
	R448	QRD161J-224	220K 1/6W CARBON RES	
	R449	QRD161J-222	2.2K 1/6W CARBON RES	
	R450	QRD161J-105	1M 1/6W CARBON RES	
	R451	QRD161J-222	2.2K 1/6W CARBON RES	
	R452	QRD161J-301	300 1/6W CARBON RES	
	R453	QRD14CJ-4R7S	4.7 1/4W UNF.CARBON	
	R454	QRD161J-102	1K 1/6W CARBON RES	
	R455	QRD161J-103	10K 1/6W CARBON RES	

# CA-V800

## RESISTORS

Δ	ITEM	PART NUMBER	DESCRIPTION	AREA
	R456	QRD167J-151	150 1/6W CARBON RES	
	R457	QRD167J-272	2.7K 1/6W CARBON RES	
	R458	QRD161J-103	10K 1/6W CARBON RES	
	R467	QRD161J-473	47K 1/6W CARBON RES	
	R468	QRD161J-473	47K 1/6W CARBON RES	
	R471	QRD161J-333	33K 1/6W CARBON RES	
	R472	QRD161J-333	33K 1/6W CARBON RES	
	R473	QRD161J-103	10K 1/6W CARBON RES	
	R474	QRD161J-103	10K 1/6W CARBON RES	
	R475	QRD167J-682	6.8K 1/6W CARBON RES	
	R476	QRD167J-682	6.8K 1/6W CARBON RES	
	R480	QRD161J-101	100 1/6W CARBON RES	
	R481	QRD161J-103	10K 1/6W CARBON RES	
	R482	QRD161J-103	10K 1/6W CARBON RES	
	R485	QRD161J-474	470K 1/6W CARBON RES	
	R490	QRD161J-102	1K 1/6W CARBON RES	
	R500	QVAA72B-E54B	50K VARIABLE R	
	R800	QRD161J-112	1.1K 1/6W CARBON RES	
	R801	QRD161J-681	680 1/6W CARBON RES	
	R802	QRD167J-431	430 1/6W CARBON RES	
	R803	QRD161J-112	1.1K 1/6W CARBON RES	
	R804	QRD161J-681	680 1/6W CARBON RES	
	R805	QRD167J-431	430 1/6W CARBON RES	
	R806	QRD161J-181	180 1/6W CARBON RES	
	R808	QRD161J-103	10K 1/6W CARBON RES	
	R809	QRD161J-103	10K 1/6W CARBON RES	
	R812	QRD161J-103	10K 1/6W CARBON RES	
	R813	QRD161J-102	1K 1/6W CARBON RES	
	R814	QRD161J-105	1M 1/6W CARBON RES	
	R815	QRD161J-105	1M 1/6W CARBON RES	
	R816	QRD161J-222	2.2K 1/6W CARBON RES	
	R817	QRD167J-154	150K 1/6W CARBON RES	
	R818	QRD161J-222	2.2K 1/6W CARBON RES	
	R819	QRD161J-112	1.1K 1/6W CARBON RES	
	R820	QRD161J-681	680 1/6W CARBON RES	
	R821	QRD167J-431	430 1/6W CARBON RES	
	R822	QRD161J-112	1.1K 1/6W CARBON RES	
	R823	QRD161J-681	680 1/6W CARBON RES	
	R824	QRD167J-431	430 1/6W CARBON RES	
	R825	QRD161J-222	2.2K 1/6W CARBON RES	
	R826	QRD161J-112	1.1K 1/6W CARBON RES	
	R827	QRD161J-681	680 1/6W CARBON RES	
	R828	QRD167J-431	430 1/6W CARBON RES	
	R829	QRD167J-161	160 1/6W CARBON RES	
	R831	QRD161J-271	270 1/6W CARBON RES	
	R832	QRD161J-271	270 1/6W CARBON RES	
	R833	QRD161J-391	390 1/6W CARBON RES	
	R834	QRD167J-161	160 1/6W CARBON RES	
	R836	QRD167J-151	150 1/6W CARBON RES	
	R837	QRD167J-223	22K 1/6W CARBON RES	
	R838	QRD167J-223	22K 1/6W CARBON RES	
	R839	QRD161J-103	10K 1/6W CARBON RES	
	R841	QRD161J-104	100K 1/6W CARBON RES	
	R842	QRD161J-104	100K 1/6W CARBON RES	
	R851	QRD167J-223	22K 1/6W CARBON RES	
	R852	QRD167J-223	22K 1/6W CARBON RES	
	RA800	QRB049J-103	10K 1/10W RESISTOR	
	RA801	QRB139J-104	100K 1/10W RESISTOR	
	RA802	QRB099J-104	100K 1/10W RESISTOR	
	RA807	QRB049J-103	10K 1/10W RESISTOR	

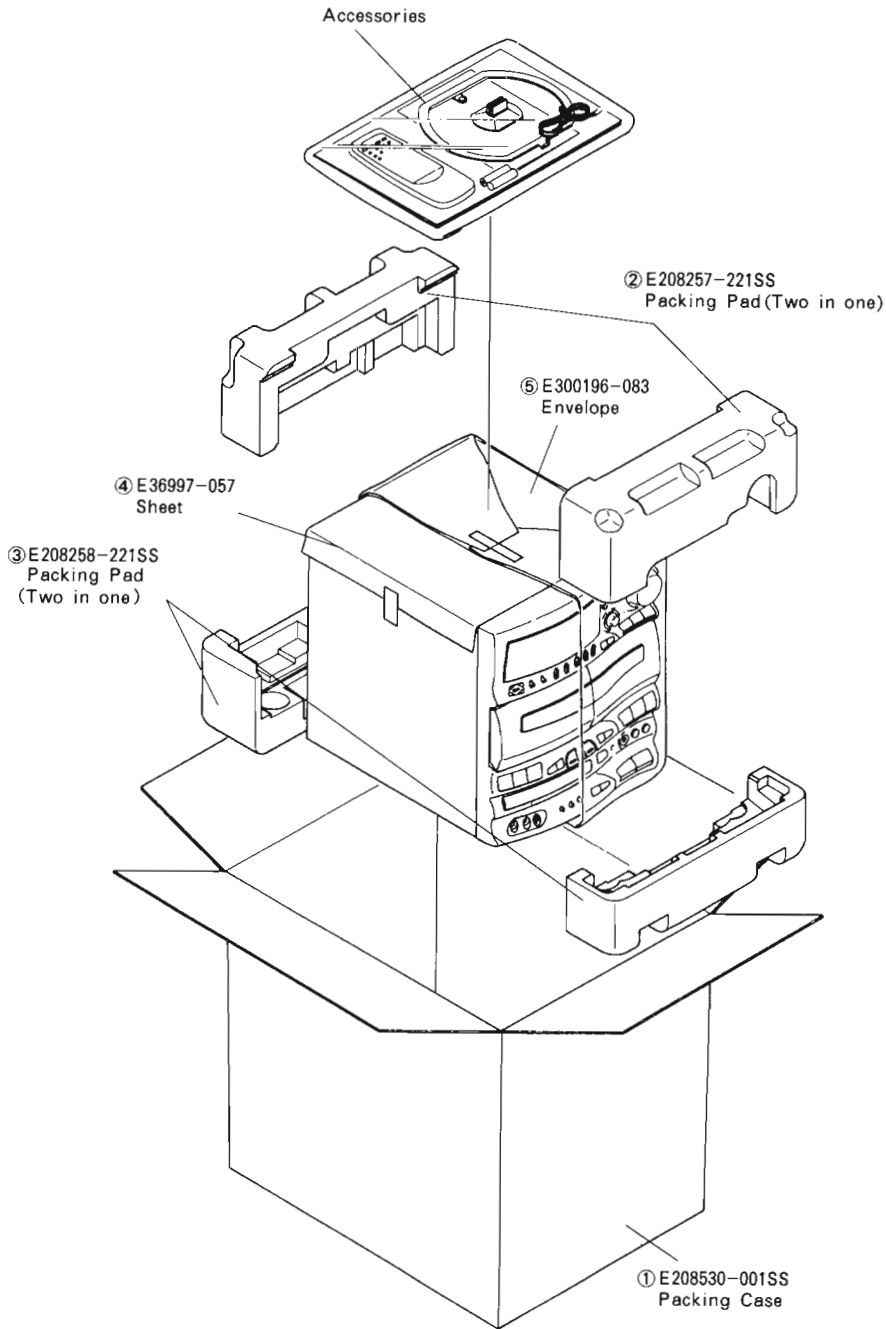
## OTHERS

Δ	ITEM	PART NUMBER	DESCRIPTION	AREA
		EMW10455-401	PRINTED BOA	
		EWT011-078	TERMINAL WI	
		E3400-431	FELT SPACER	
		E406779-001	SPACER	
		QWE351-07RR	VINYL WIRE	
		QWE881-16RR	VINYL WIRE	
		QWE882-16RR	VINYL WIRE	
		QWE883-16RR	VINYL WIRE	
		QWE884-19RR	VINYL WIRE	
		QWE886-18RR	VINYL WIRE	
		QWE888-17RR	VINYL WIRE	
		VYH7653-001	SPRING	
	J400	EMN00TV-612AJ2	PIN JACK	
	J412	QMS3R10-E40S	MICROPHONE	
	J413	QMS3R80-EEOS	HEADPHONE J	
	J501	VMC0107-R10	CONNECT TER	
	P401	EMV7163-012	CONNECT TER	
	P402	EMV7163-010	CONNECT TER	
	S800	ESPO001-023M	TACT SWITCH	
	S801	ESPO001-023M	TACT SWITCH	
	S802	ESPO001-023M	TACT SWITCH	
	S803	ESPO001-023M	TACT SWITCH	
	S804	ESPO001-023M	TACT SWITCH	
	S805	ESPO001-023M	TACT SWITCH	
	S806	ESPO001-023M	TACT SWITCH	
	S807	ESPO001-023M	TACT SWITCH	
	S808	ESPO001-023M	TACT SWITCH	
	S809	ESPO001-023M	TACT SWITCH	
	S810	ESPO001-023M	TACT SWITCH	
	S811	ESPO001-023M	TACT SWITCH	
	S812	ESPO001-023M	TACT SWITCH	
	S813	ESPO001-023M	TACT SWITCH	
	S814	ESPO001-023M	TACT SWITCH	
	S815	ESPO001-023M	TACT SWITCH	
	S816	ESPO001-023M	TACT SWITCH	
	S817	ESPO001-023M	TACT SWITCH	
	S818	ESPO001-023M	TACT SWITCH	
	S819	ESPO001-023M	TACT SWITCH	
	S820	ESPO001-023M	TACT SWITCH	
	S821	ESPO001-023M	TACT SWITCH	
	S822	ESPO001-023M	TACT SWITCH	
	S823	ESPO001-023M	TACT SWITCH	
	S824	ESPO001-023M	TACT SWITCH	
	S825	ESPO001-023M	TACT SWITCH	
	S826	ESPO001-023M	TACT SWITCH	
	S827	ESPO001-023M	TACT SWITCH	
	S828	ESPO001-023M	TACT SWITCH	
	S829	ESPO001-023M	TACT SWITCH	
	S830	ESPO001-023M	TACT SWITCH	
	S831	ESPO001-023M	TACT SWITCH	
	S832	ESPO001-023M	TACT SWITCH	
	S833	ESPO001-023M	TACT SWITCH	
	S834	ESPO001-023M	TACT SWITCH	
	S835	ESPO001-023M	TACT SWITCH	
	S836	ESPO001-023M	TACT SWITCH	
	S837	ESPO001-023M	TACT SWITCH	
	S838	ESPO001-023M	TACT SWITCH	
	S839	ESPO001-023M	TACT SWITCH	
	S840	ESPO001-023M	TACT SWITCH	
	S841	ESPO001-023M	TACT SWITCH	
	BC102	EWS267-F928	SOCKET WIRE	
	BC410	EWS293-0130	SOCKET WIRE	
	BC801	EWS328-A930	SOCKET WIRE	
	FL800	ELU0001-189	FLUORESCENT	
	FS801	E306805-136	FELT SPACER	
	FS802	E306805-137	FELT SPACER	
	FT001	VMZ0087-001Z	FUSE HOLDER	
	FT002	VMZ0087-001Z	FUSE HOLDER	
	FT003	VMZ0087-001Z	FUSE HOLDER	
	FT004	VMZ0087-001Z	FUSE HOLDER	
	FT005	VMZ0087-001Z	FUSE HOLDER	
	FT006	VMZ0037-001Z	FUSE HOLDER	
	FT101	VMZ0087-001Z	FUSE HOLDER	
	FT102	VMZ0087-001Z	FUSE HOLDER	
	JB101	EMV5140-010	VOLUME SOCK	
	JB801	VMC0161-025	CONNECT TER	
	JB852	VMC0161-R19	CONNECT TER	
	JS800	QJ4002-E02	PUSH SWITCH	
	RS001	QSR8001-E01U	ROTARY SWIT	
	T8001	EMZ4001-001	TAB	
	T8002	EMZ4001-001	TAB	
	XT801	ECX0006-000KNJ	CRYSTAL	

# Packing Materials and Part Numbers

Symbol No. 

M	5	M	M
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## Accessories List

Symbol No. 

M	6	M	M
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⚠	Item	Part Number	Part Name	Q'ty	Description	Area
	1	E30580-2259A	INSTRUCTION BOOK	1		
	2	E300196-010	ENVELOPE	1		
	3	EQB4001-015	LOOP ANTENNA	1		
	4	E03614-004	FM FEEDER ANTENNA	1		
	5	EMZ2001-014	ADAPTOR PLUG	1		
⚠	6	ENZ2202-001	SIEMENS PLUG	1		US
⚠		ENZ2203-001	ADAPTOR PLUG	1		U,UT
	7	RM-SEV800U	WIRE-LESS REMOTE CONTROL	1		
	8	R03BPA-2STSA	BATTERY	1		
	9	EWP304-014	VIDEO CORD	1		

⚠ Safety Parts

### The Marks for Designated Areas

U .... Universal Type      US .... Singapore      UT .... Taiwan  
 No mark indicates all area.


CA-V800

**JVC**

VICTOR COMPANY OF JAPAN, LIMITED

AUDIO DIVISION, 1644, SHIMOTSURUMA, YAMATO-SHI, KANAGAWA-KEN, 242, JAPAN

(No.20514)

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