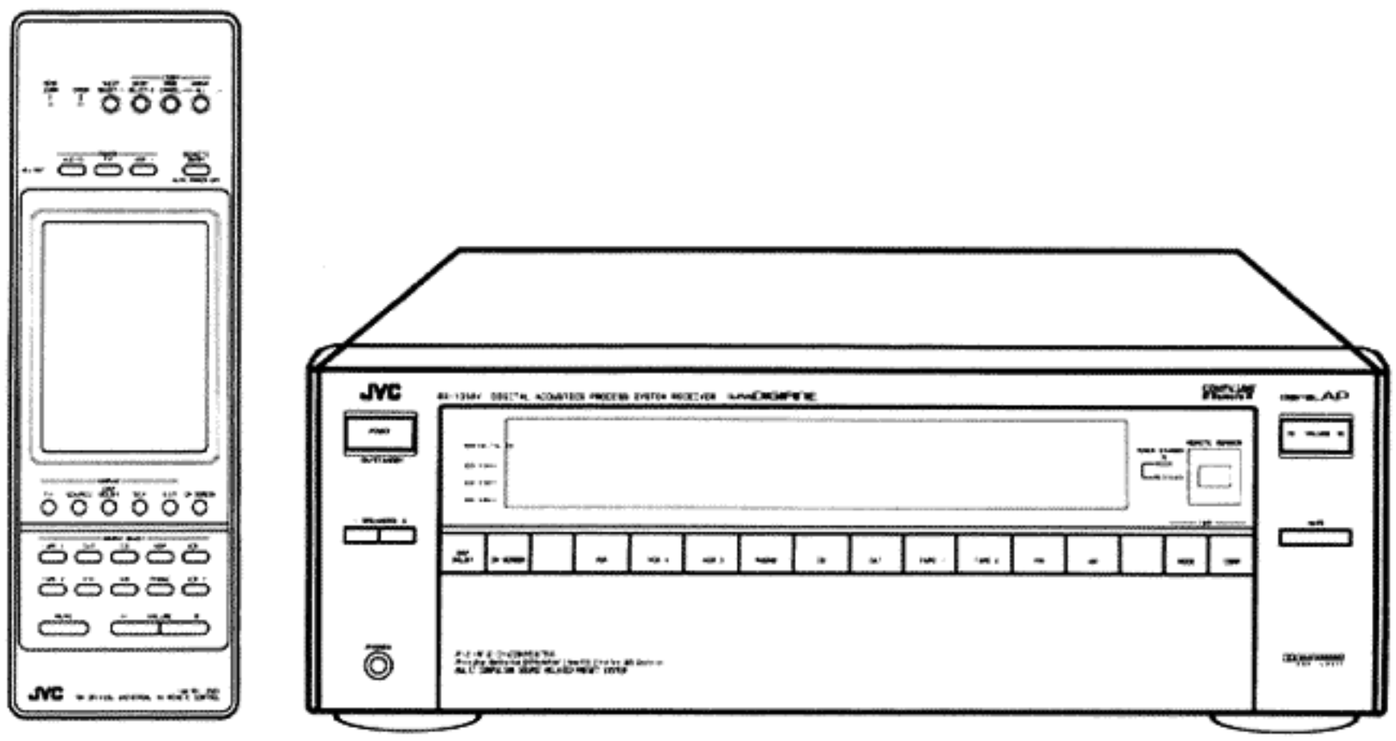
JVC

SERVICE MANUAL

DIGITAL ACOUSTICS PROCESS SYSTEM RECEIVER

RX-1050VTN



AV COMPU LINK

COMPU LINK
Remote
Control Component

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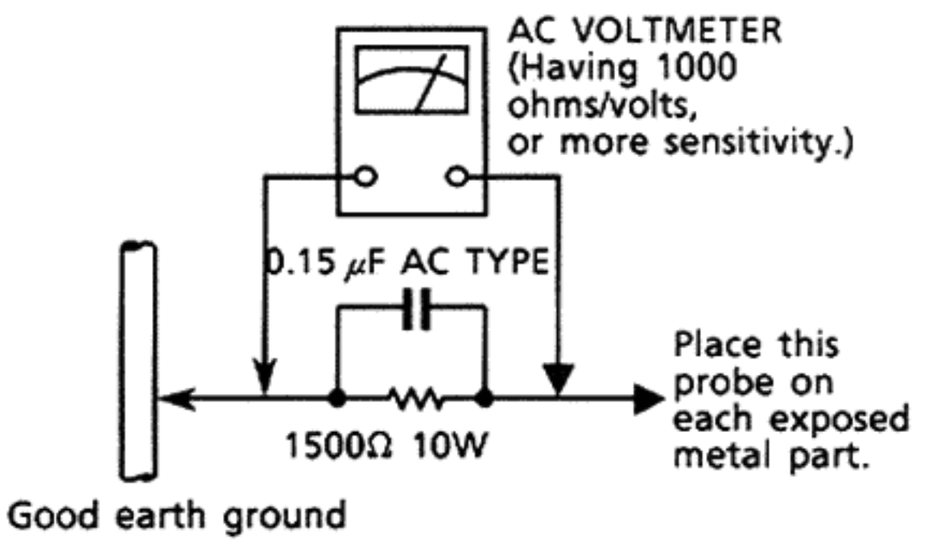
No. 20284
Dec. 1991

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 (⚠) on the Parts List in the Service Manual. The use of a substitute repalcement 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 currnet 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, contorl 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 1,500Ω 10 W resistor paralleled by a 0.15 μF 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 meausre 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.

Introduction

Thank you for purchasing this JVC RX-1050VTN Receiver. We hope it will be a valued addition to your audio/video system. Be sure to read these instructions carefully before operating the receiver.
This manual gives you the basic information you need to set up and use your receiver.
It explains everything you need to know from turning on the power switch to basic trouble-shooting. Please consult your JVC dealer if you have any questions about the receiver.

Use the following guideline to help you follow the instructions in this manual:

- Keys or buttons to be pressed are indicated with all capital letters, like this: POWER button.
- Messages displayed on the display window are enclosed in double quotation marks, like this: "PRO LOGIC".
- Steps that you need to follow to get the correct results are labeled.
- Additional information that is helpful to know, is labeled.

Precautions in use

- The temperature around the receiver must be between 23° and 104° Fahrenheit (–5° and 40° Celsius).
- Do not insert any metallic object into the receiver.

CAUTION:

1. Do not remove screws, covers, or cabinet.
2. Do not expose this appliance to rain or moisture.

COMPU LINK is a computer-linked system by which individual JVC audio components are controlled via a computer. For further details, see page 49.

COMPU LINK Remote Control System

COMPU LINK System

AV COMPU LINK is a computer-linked system by which individual JVC audio and/or video components are controlled via a computer.
Connecting the AV COMPU LINK jacks on the rear panel to a JVC video components for AV COMPU LINK will enable one-touch control of the integrated audio/video system.

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Installation

This part of the manual tells you how to connect your other audio and video components to the receiver.

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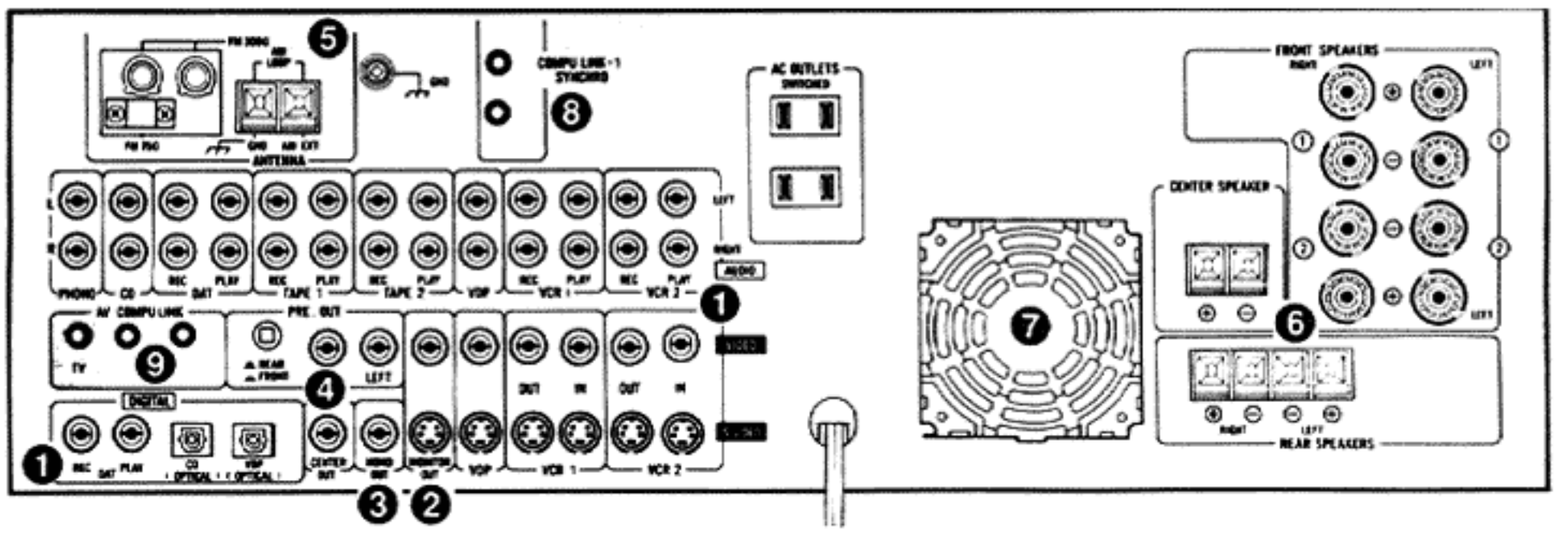
Caution

Before starting installation
- Make sure your hands are dry.
- Turn the power off to all components.
- Read the installation instructions for all components you are going to connect.

Locating the receiver
- Install the receiver in a place that is level and protected from moisture.
- Make sure there is good ventilation around the receiver. Poor ventilation could cause overheating and damage the receiver.

A cooling fan is mounted on the rear panel of the receiver to prevent abnormal temperature rise inside the receiver, thus assuring normal operation of the receiver. The cooling fan starts rotating to supply external cool air to the inside of the receiver when the internal temperature exceeds the specified limit because of long-period operation of the receiver at a high sound level. Do not block the cooling fan and allow some space between the fan and a wall to ensure air flow.

Rear Panel



❶ AUDIO, VIDEO, S-VIDEO, and DIGITAL Jacks

Connect your audio/video components here.

- AUDIO Jacks: Analog audio signals are input and output through these jacks.
- VIDEO Jacks: Video signals (composite) are input and output through these jacks.
- S-VIDEO Jacks: Video signals (S-video) are input and output through these jacks.
- DIGITAL Jacks: Digital audio signals are input and output through these jacks.

❷ MONITOR OUT Jacks

Connect your TV here.

❸ MONO OUT Jack

Connect your subwoofer here via separate power amplifier.

❹ CENTER OUT Jacks, PRE.OUT Jacks, and PRE.OUT Selector Switch

Connect your separate power amplifier here.

❺ ANTENNA terminals

Connect FM and AM antennas here.

❻ FRONT SPEAKERS, CENTER SPEAKER, and REAR SPEAKERS Jacks

Connect your speakers here.

❼ Cooling Fan

A cooling fan is mounted to cool the inside of the receiver.

❽ COMPU LINK-1 SYNCHRO Jacks

Connect your JVC audio components for use with COMPU LINK remote control system here.

❾ AV COMPU LINK Jacks

Connect your JVC video components for use with AV COMPU LINK system here.

Connections

Important! *Ensure that the connections are not reversed. Connect the REC jack on the receiver to the input jack on a source component, and the PLAY jack on the receiver to the output jack on a source component. Otherwise, no sound will be produced or the stereo image will be affected.*

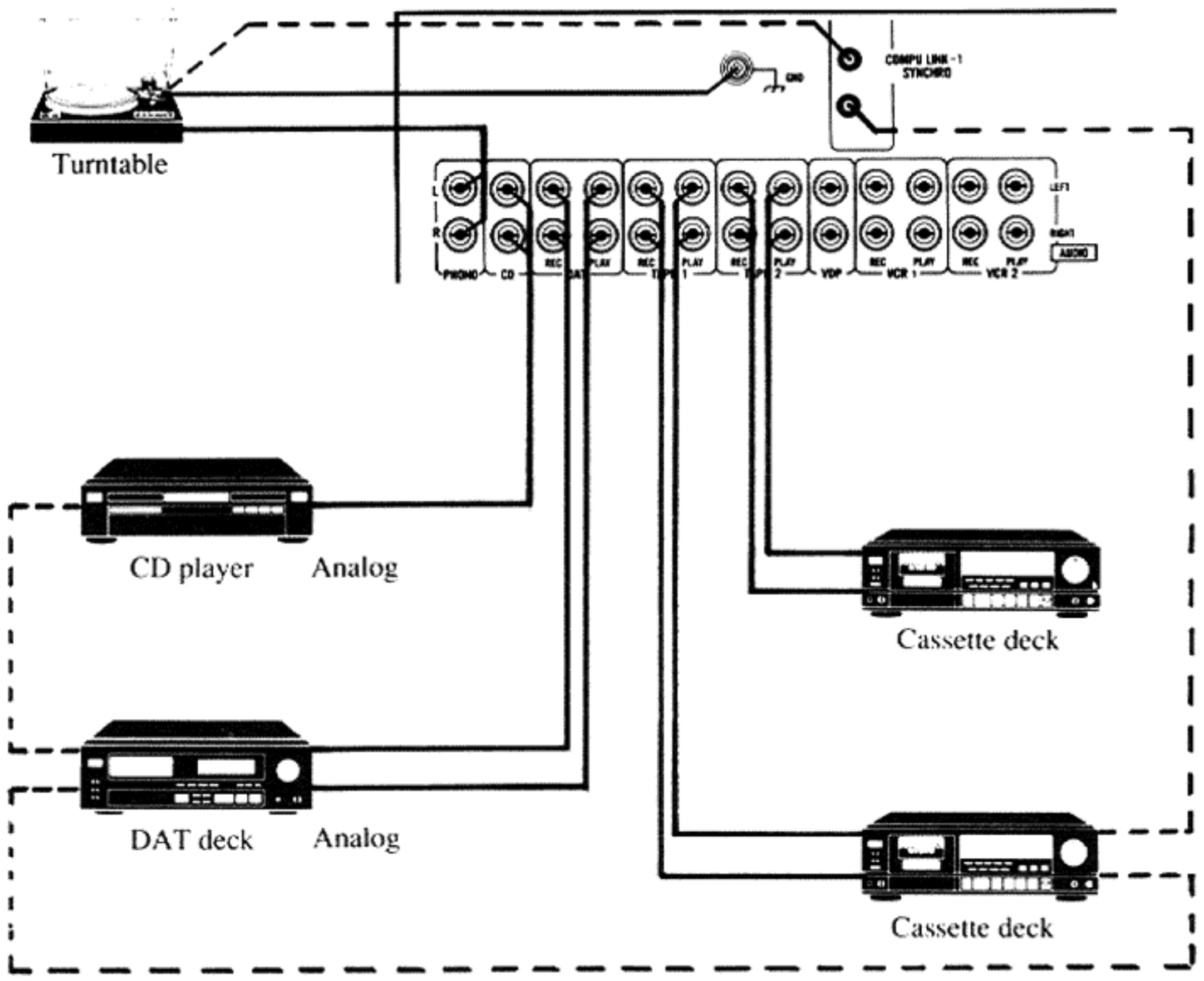
Audio and Video Component Connections

Basic Connections for Audio components

Connect the input/output jacks of your audio components to the AUDIO jacks of the receiver.

When a turntable is connected, press the MM/MC button to set the phono equalizer gain according to the type of the cartridge.
If an MM-type cartridge is used, set this button to the "MM" position. If an MC-type cartridge is used, set this button to the "MC" position. If sounds are distorted because of a too high output level of the MC-type cartridge, set this button to the "MM" position.

Note: *Connect a ground cable, if fitted to your turntable, to the screw marked GND on the rear panel.*

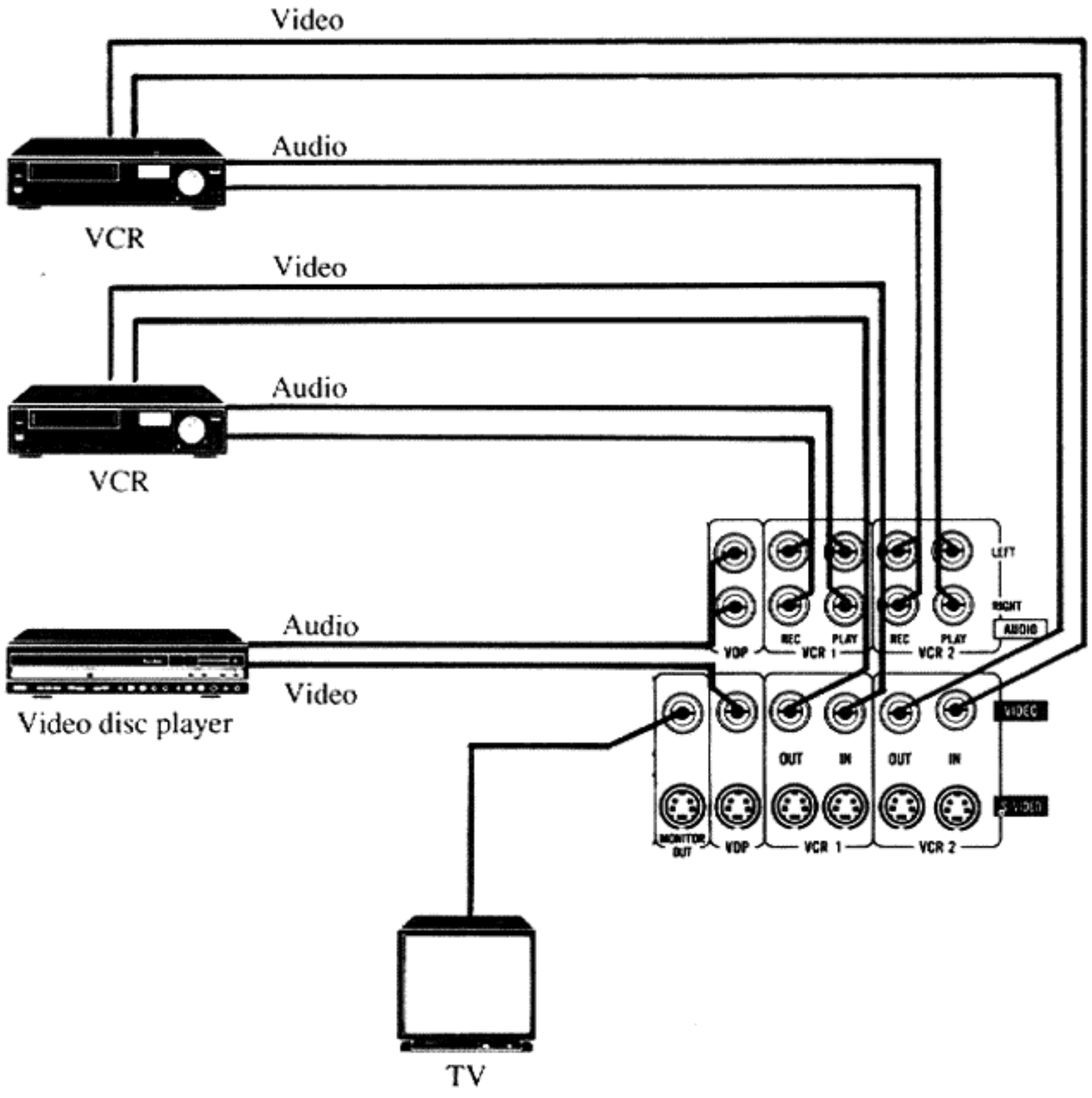


Remote cable for
"COMPU LINK REMOTE CONTROL SYSTEM"

Basic Connections for Video components

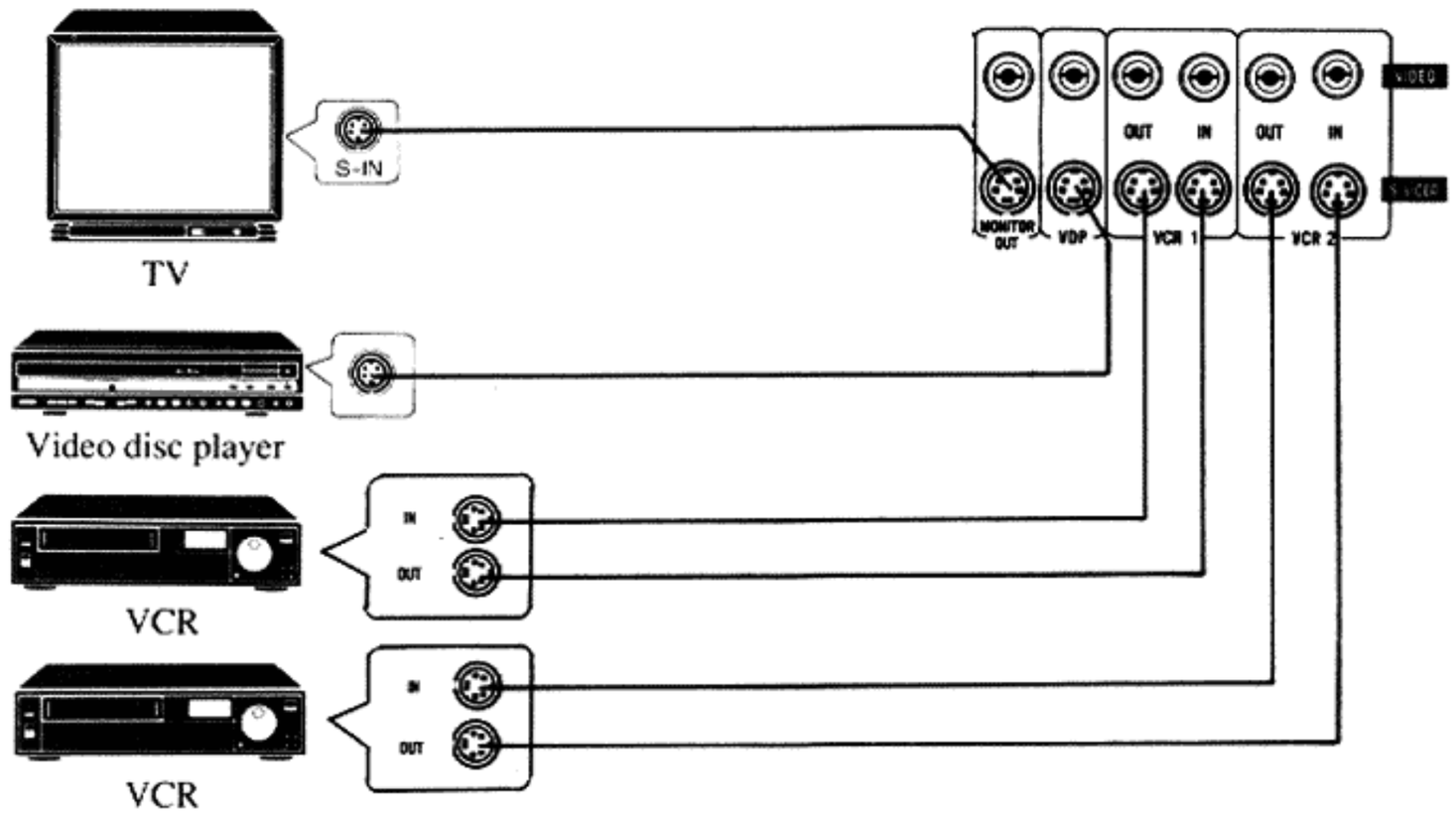
Connect the audio signal jacks of your video components to the AUDIO jacks of the receiver. Connect the video signal(composite) jacks to the VIDEO jacks.

Notes: *Keep the connecting cable for your TV, VCR, and antenna away from the power cord leading from the back of the receiver. The power cord may cause noise or screen interference. It is recommended that coaxial cable is used for connection to the antenna, since it is well shielded against interference.*



Video components with S-video Signal Jacks

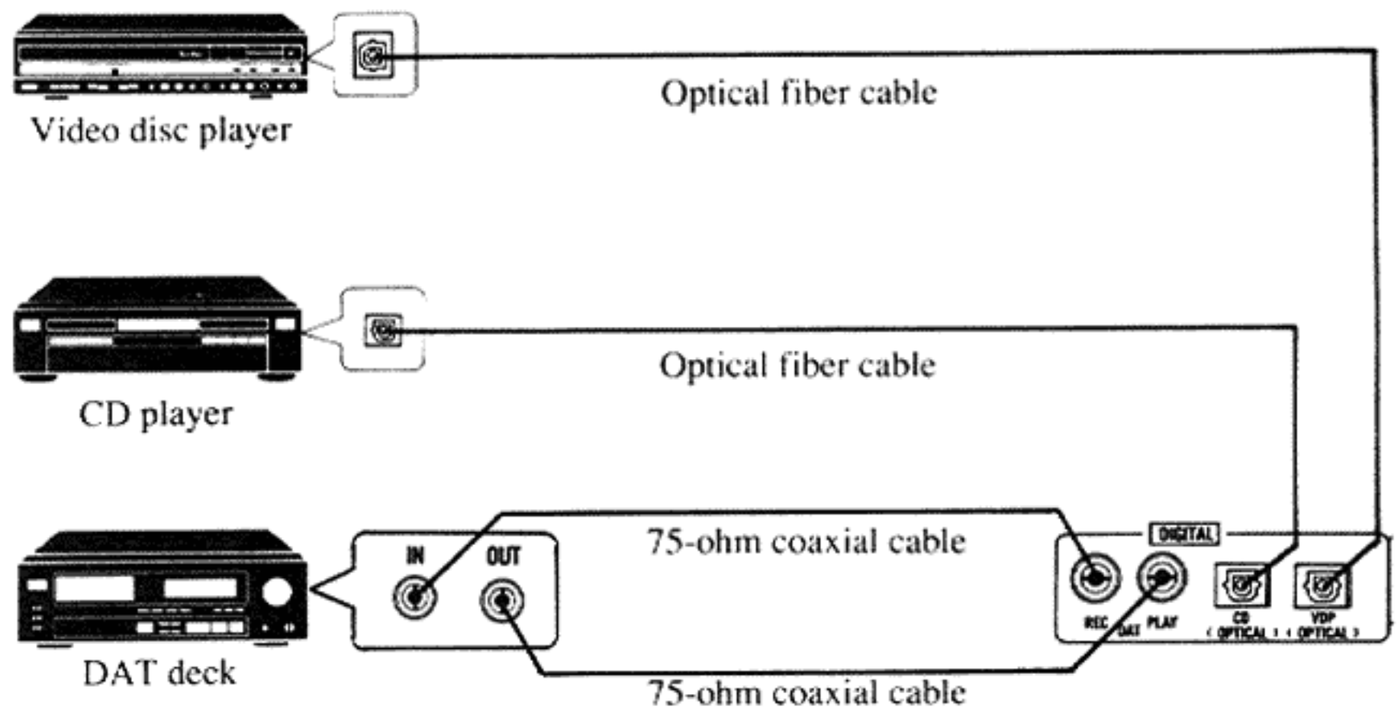
The S-video signal jacks, if fitted to your VCR or video disc player, can be connected to the S-VIDEO jack on the receiver. Use a 75-ohm coaxial cable with an S-video plug for connection to the S-VIDEO jack.



Audio/Video Components with Digital Signal Jacks

Digital signal jacks, if fitted to your compact disc player, DAT deck or video disc player, can be connected to the DIGITAL jacks of the receiver.

Connect an optical fiber cable to the jacks marked OPTICAL. Use a 75-ohm coaxial cable terminated with an RCA PIN plug for connections to other jacks.
Jacks marked OPTICAL are fitted with a protective cap in the factory. Remove the cap before making a connection.



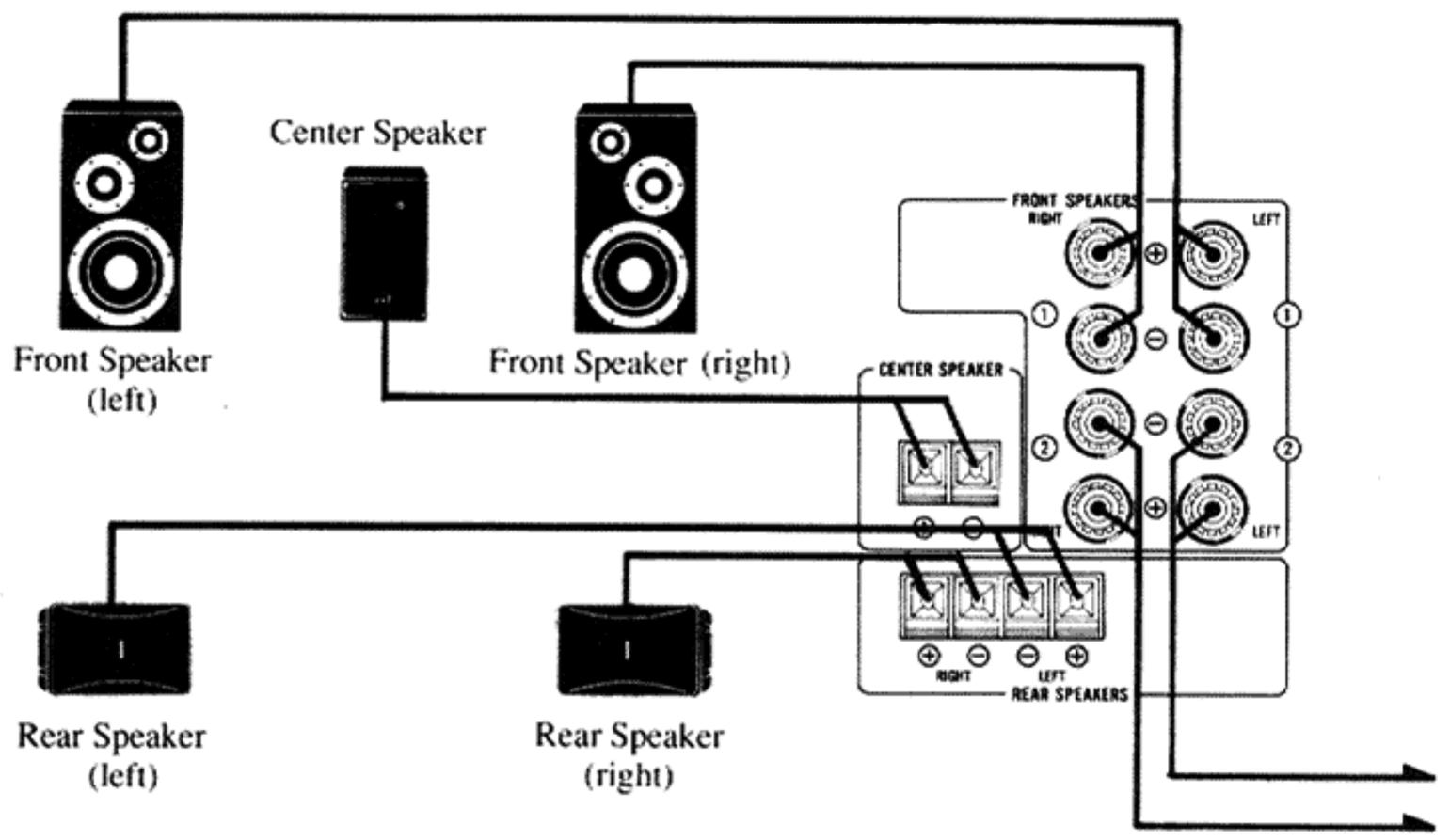
Basic Connections

Speaker Connections

In addition to two ordinary front speakers, connect two rear speakers and a center speaker to produce the effect of the built-in digital surround processor. Up to two sets of front speakers can be connected.

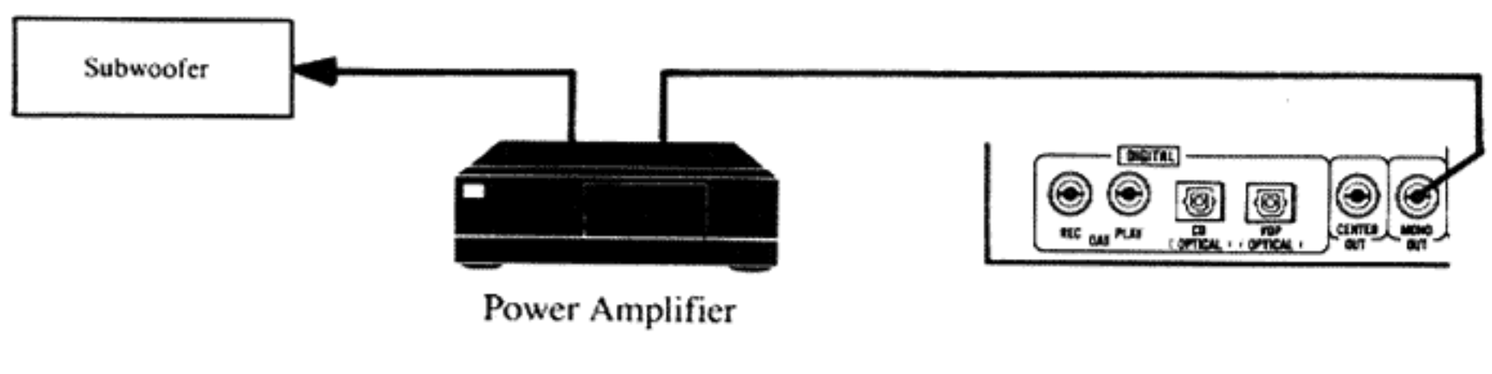
Important! *Check that your speakers are of the impedance marked near the terminals.*

Note: *Since the center speaker is placed beside the television, use a magnet-shielding-type center speaker so that the magnetic field of the speaker does not affect the TV screen.*



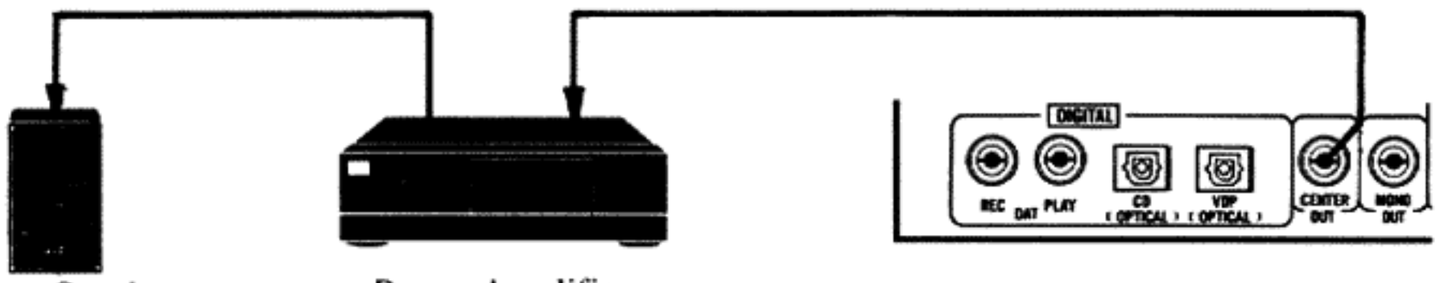
Enhancing Lower Frequencies

Connect the INPUT terminal of the power amplifier to the MONO OUT jack of the receiver and connect a subwoofer to the SPEAKER terminals of the connected power amplifier.



Using Your Separate Power Amplifier

To drive the center speaker using your separate power amplifier, use the CENTER OUT jack of the receiver. Connect the INPUT terminal of the power amplifier to the CENTER OUT jack of the receiver and connect the center speaker to the SPEAKER terminals of the connected power amplifier.



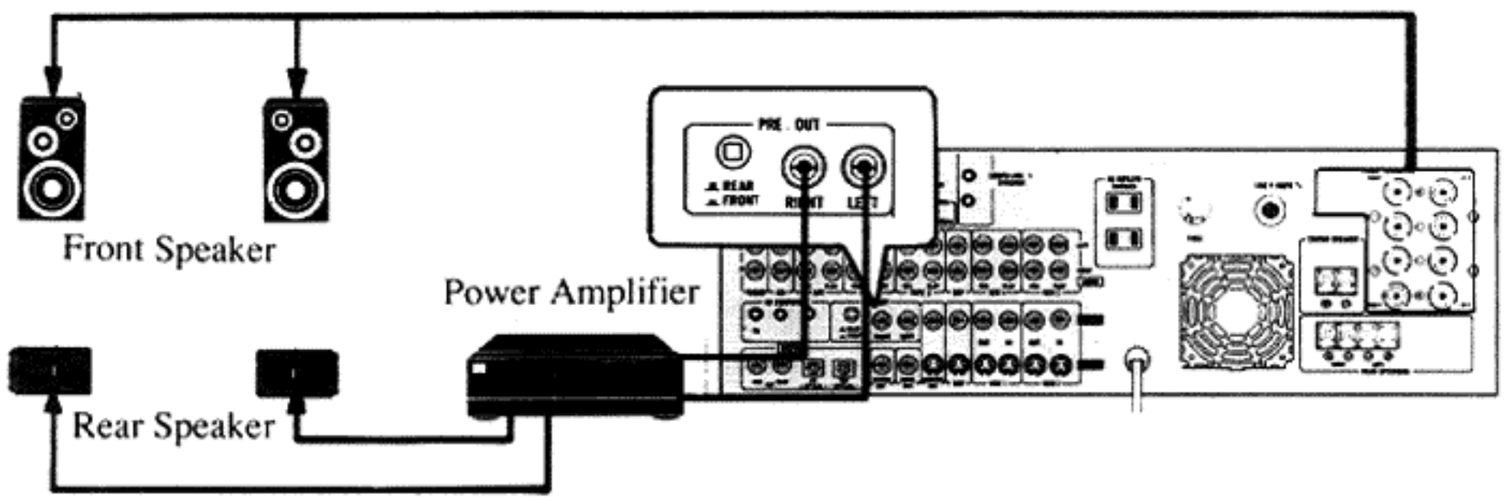
Center Speaker Power Amplifier

To drive front and rear speakers using your separate power amplifier, use the PRE.OUT jack of the receiver.

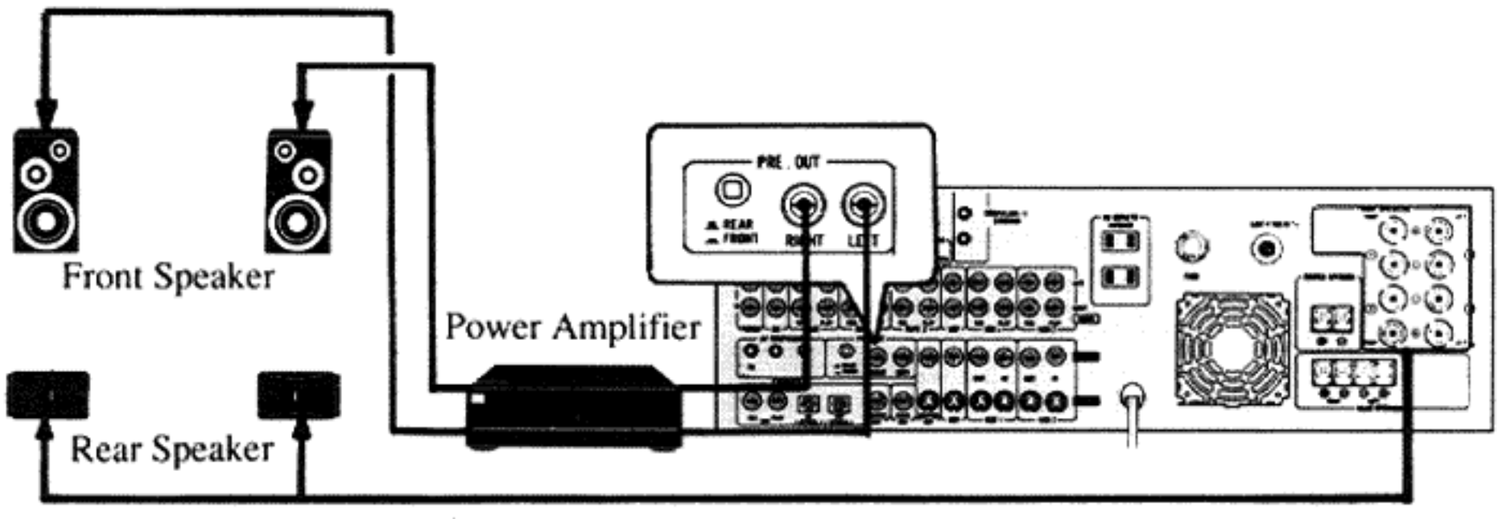
Connect the input terminal of the power amplifier to the PRE.OUT jacks of the receiver and connect speakers to the SPEAKER terminals of the connected amplifier.

Signals from either front or rear channel are output to the PRE.OUT jacks. Use the PRE.OUT selector switch to select either of these channels.

- When the PRE.OUT selector switch is released, rear channel signals are output.
- When the PRE.OUT selector switch is pressed down, front channel signals are output. At this time, rear channel signals are amplified by the built-in power amplifier of the receiver which has been amplifying front channel signals. Then, the amplified rear channel signals are output to the FRONT SPEAKERS terminals of the receiver.



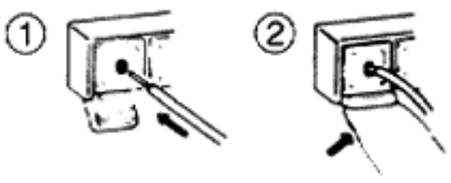
Connections when the PRE.OUT selector switch is released



Connections when the PRE.OUT selector switch is pressed down

AM Antenna Connections

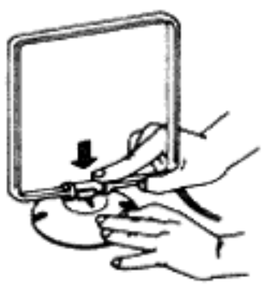
AM antenna terminals

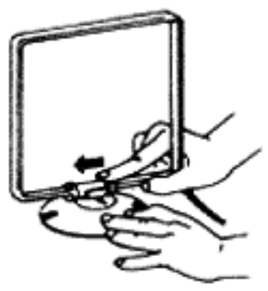


① When connecting AM antenna, open each terminal and insert the end of the antenna wire.

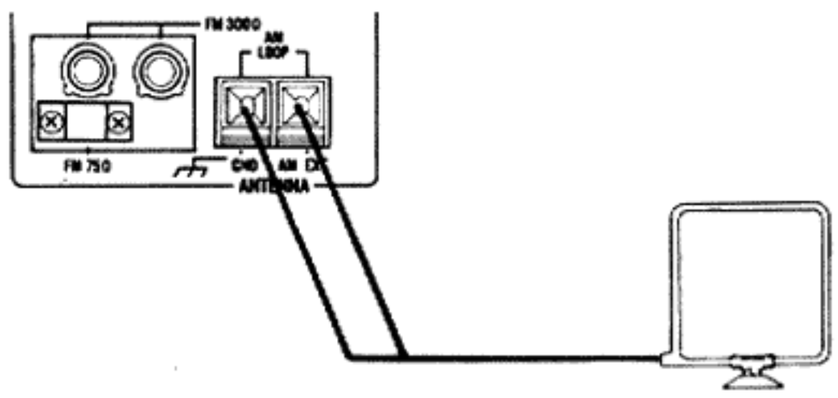
② Close the terminals as shown to clamp the antenna wires in place.

Basic Connections





Connect the enclosed AM loop antenna to the AM LOOP terminals on the back of the receiver. Then, attach the AM loop antenna to the antenna base and adjust its position to get the best reception.

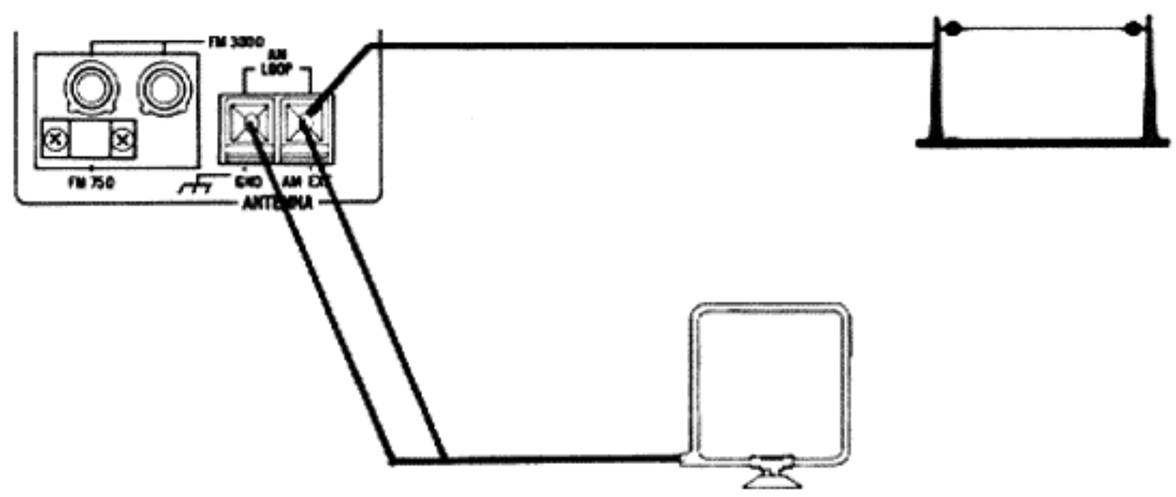


AM Outdoor Antenna

If your AM broadcast reception is unsatisfactory, you should connect an AM outdoor antenna in addition to the loop antenna.
Connect one end of the outdoor single vinyl-covered antenna wire to the AM LOOP terminal marked AM EXT.
The antenna wire should be about 16 to 40 feet (5 to 12 meters) long.

Important! *The AM loop antenna must be installed to receive AM broadcasts. Do not disconnect the loop antenna when installing an outdoor antenna.*

Note: *Except for the connection, make sure no uninsulated antenna wire touches the rear panel of the receiver. Otherwise, the receiver might not pick up AM broadcasts.*



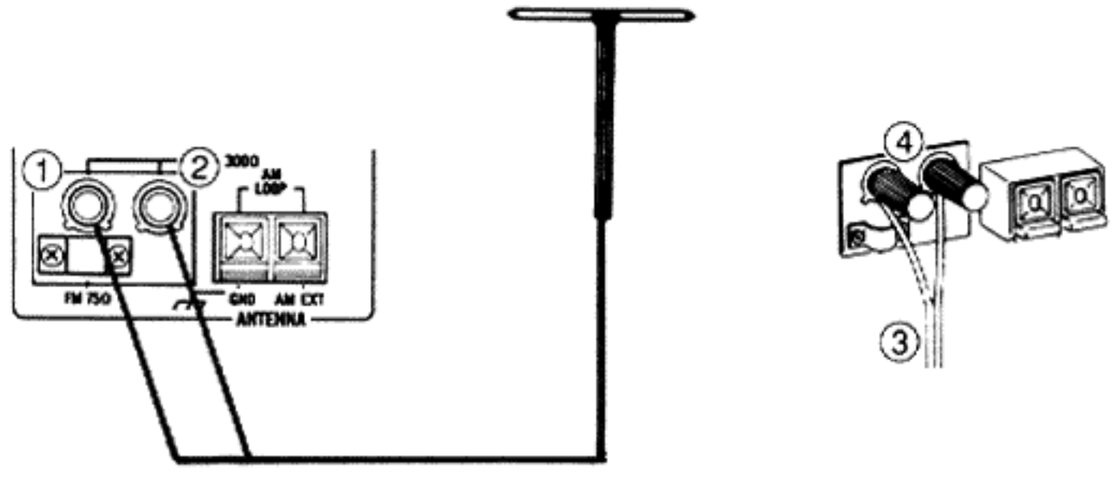
FM Antenna Connections

FM antennas use two types of cable connections: 300-ohm cables have a flat connection to the receiver. 75-ohm cables have a round coaxial connection to the receiver.

Note: *Make sure the antenna conductors do not touch any other terminals on the receiver. This could cause poor reception.*

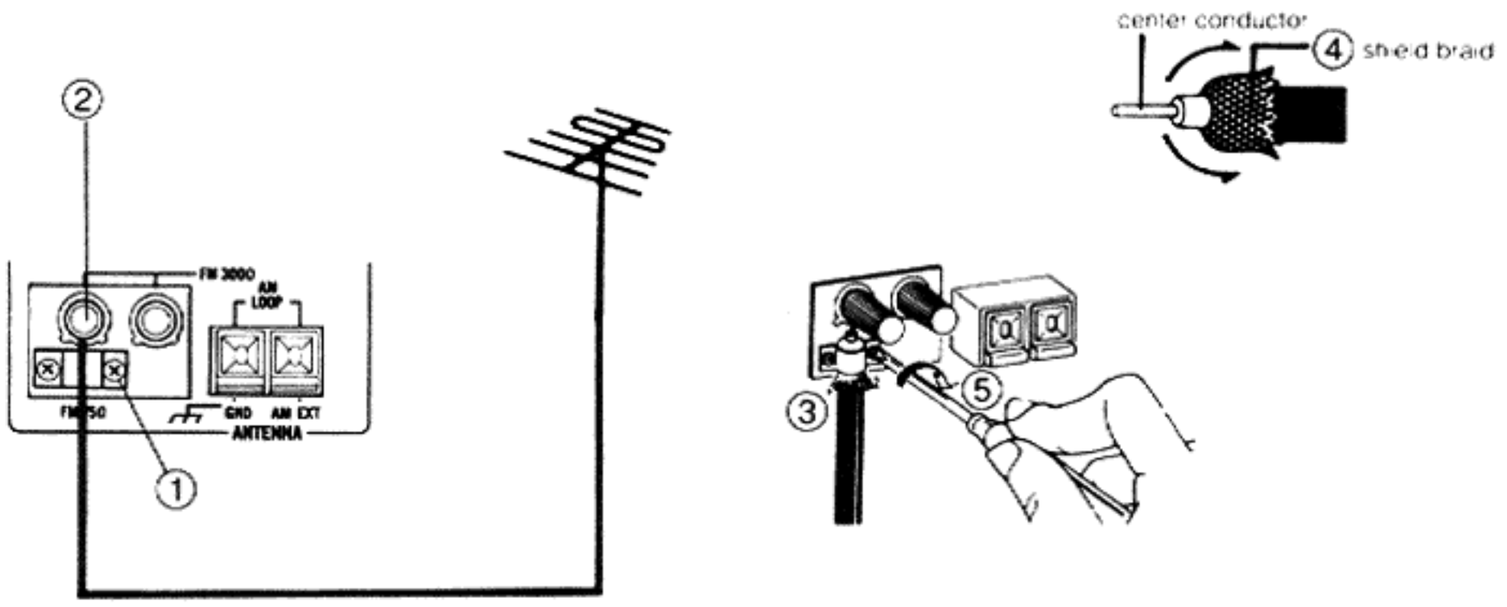
300-Ohm Antenna Cable

① Loosen the cap on the 300/75-ohm terminal on the rear panel of the receiver.
② Loosen the cap on the 300-ohm terminal on the rear panel of the receiver.
③ Connect the two conductors of the antenna cable to the 300/75-ohm terminal and the 300-ohm terminal.
④ Tighten the caps on both terminals.



75-Ohm Antenna Cable

① Loosen the screws holding the bracket to the rear panel of the receiver.
② Loosen the cap of the 300/75-ohm terminal on the rear panel of the receiver.
③ Insert the round antenna cable through the bracket from below.
④ Make sure the shield braid on the cable contacts the bracket, and the center conductor of the cable contacts the 300/75-ohm terminal.
⑤ Tighten the bracket screws and the cap on the 300/75-ohm terminal.



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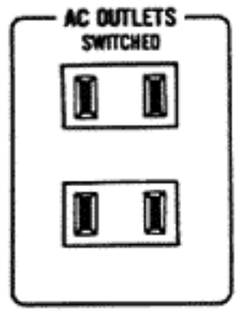
AC Power Connections

AC OUTLETS

You can plug the power cords of other audio components into the AC OUTLETS on the rear of the receiver.



The AC OUTLETS are interlocked with the POWER switch. If the power switches of any audio components connected to these outlets are left on, the components automatically turn on/off as the POWER switch of the receiver is turned on/off.

Imporant! *The total capacity of these AC outlets is marked near the outlets. Check that the audio components you want to connect do not draw more power than the marked capacity.*

Power Cord

Before plugging the power cord into an outlet, ensure that all audio and video com ponents are connected correctly.

Caution:

- *Do not handle the power cord with wet hands.*
- *Do not pull on the power cord to unplug the receiver. Always pull the molded plug at the end of the cord instead.*
- *Do not plug the power cord into an outlet until all audio and video components are connected correctly.*

Contents of the receiver's memory are retained while the power cord is plugged into an outlet. If the power cord is disconnected or a power failure occurs, contents are retained for two or three days.

Operation Outline

This part of the manual introduces you to the controls and indicators on the receiver and on the remote controller. It gives you the basic knowledge needed to make full use of the receiver's range of functions.

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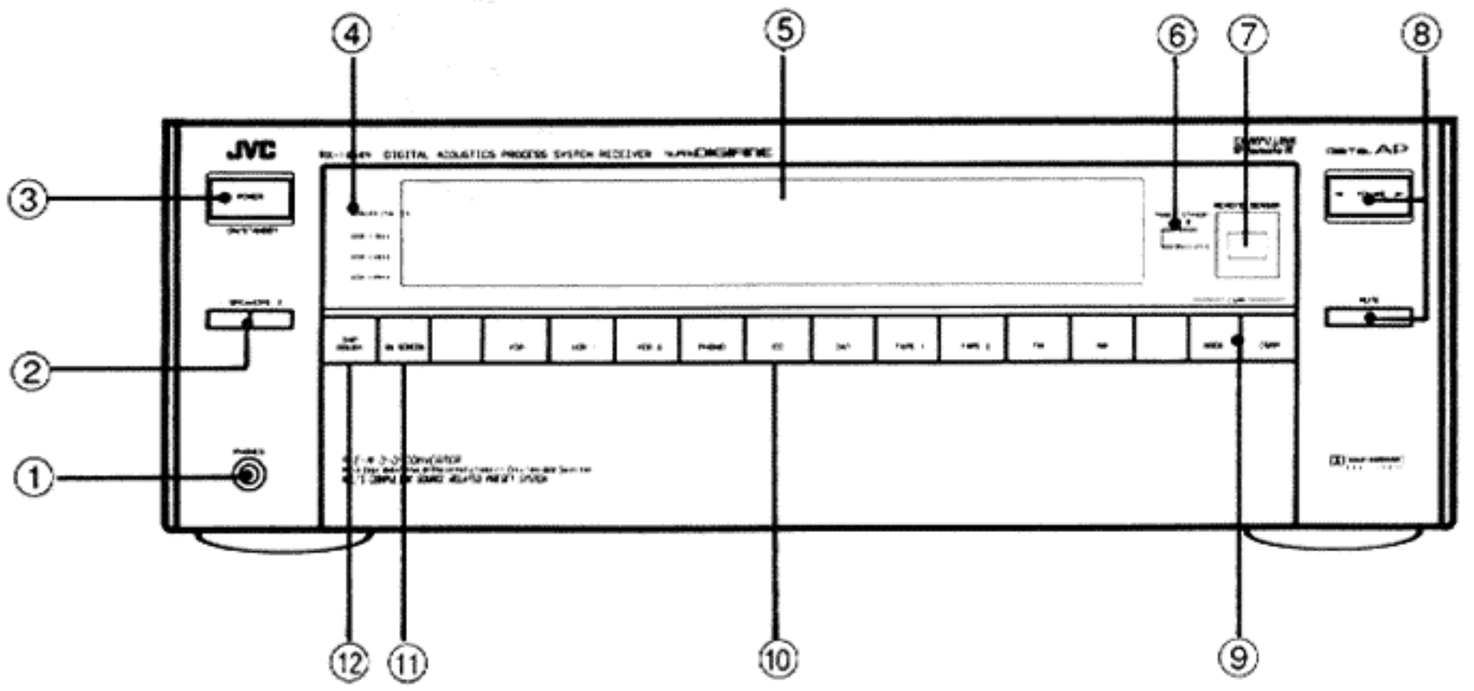
Switches, Controls, and Indicators

Front Panel



① **PHONES Jack:** Insert the stereo headphone jack here.

② **SPEAKERS Switches:** Select either of two pairs of speakers.

③ **POWER Switch:** Press this switch to turn on power to the receiver. Press the switch again to turn off the power and activate STANDBY mode.

Note: *The receiver uses a small amount of power (5 watt) in the standby mode. To disconnect power completely, unplug the power cord.*

④ **DIGITAL IN indicator and Sampling Frequency indicators:** The DIGITAL IN indicator indicates whether the built-in digital-to-analog converter is operating. When it is operating, the Sampling Frequency indicators indicate the sampling frequency.

⑤ **Display Window:** Displays the responses to various operations.

⑥ **RECEIVED and POWER STANDBY indicator:** This indicator lights up when signals are received from the remote controller or when the receiver is in the standby mode.

⑦ **Remote Sensor:** The sensor picks up infrared signals from the remote controller.

⑧ **VOLUME Control key and MUTE Button:** The VOLUME control key adjusts the output level to the speakers and headphones. The MUTE button mutes sound temporarily.

⑨ **CSRP Buttons:** Use these buttons to use the CSRP function.

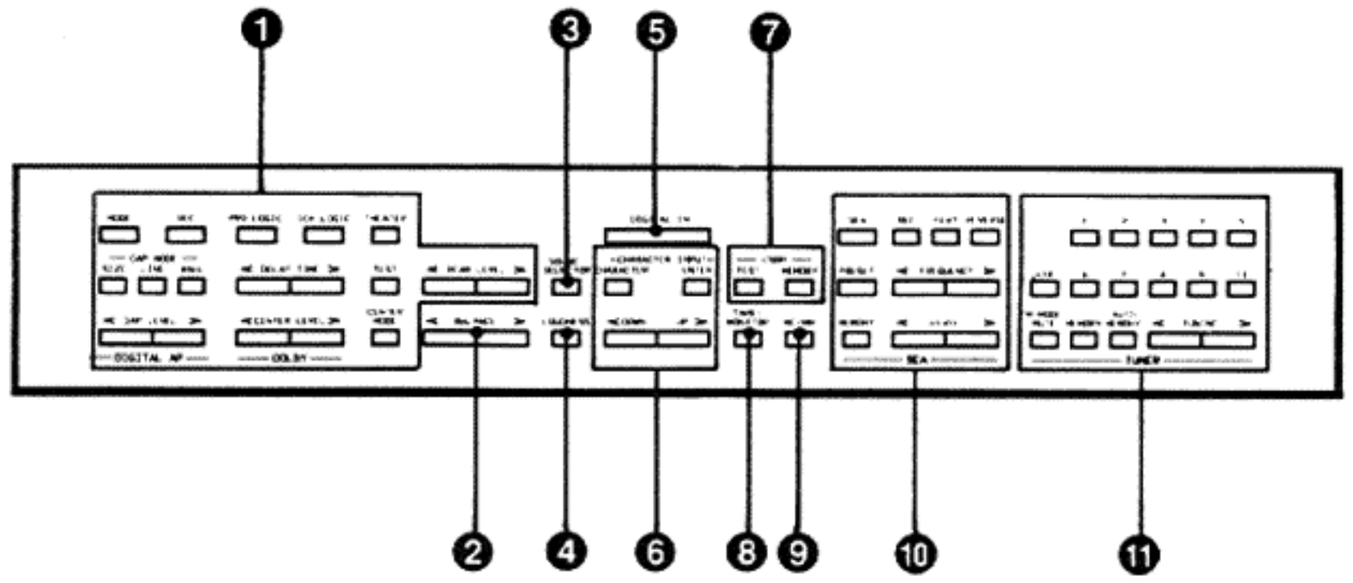
⑩ **Source Selector Buttons:** Use these buttons to select the audio/video source.

⑪ **ON SCREEN Button :** Use the ON SCREEN button to display the receiver's function settings on a monitor connected to the MONITOR OUT jack of the receiver.

⑫ **DAP DOLBY Button:** Press the DAP DOLBY button to turn the built-in surround processor on or off.

Controls behind the Swing-Down Panel

Press the swing-down panel at the position shown to open it. To close the panel, click it back into place.



❶ **Surround Processor Control Buttons:** Use these buttons to set or adjust the surround processor.

❷ **BALANCE Control:** Use this control to balance between the volumes of the left and right front speakers or headphones.

❸ **SOUND SELECTOR button:** Use the SOUND SELECTOR button to choose between different audio/video sources for picture and sound.

❹ **LOUDNESS switch:** Use this switch to turn on or off the loudness function.

❺ **DIGITAL IN button:** Press the DIGITAL IN button to change the input mode of an audio signal: digital or analog.

❻ **Character Input Buttons:** Use these buttons to assign names to various presettings.

❼ **CSRP Control Buttons:** Use these buttons to use the CSRP function.

❽ **TAPE 1 MONITOR Switch:** Use this switch to turn on or off the TAPE1 monitor function.

❾ **MC/MM Button:** Use this button to select a phono equalizer gain.

❿ **S.E.A Control Buttons:** Use these buttons to operate the S.E.A graphic equalizer.

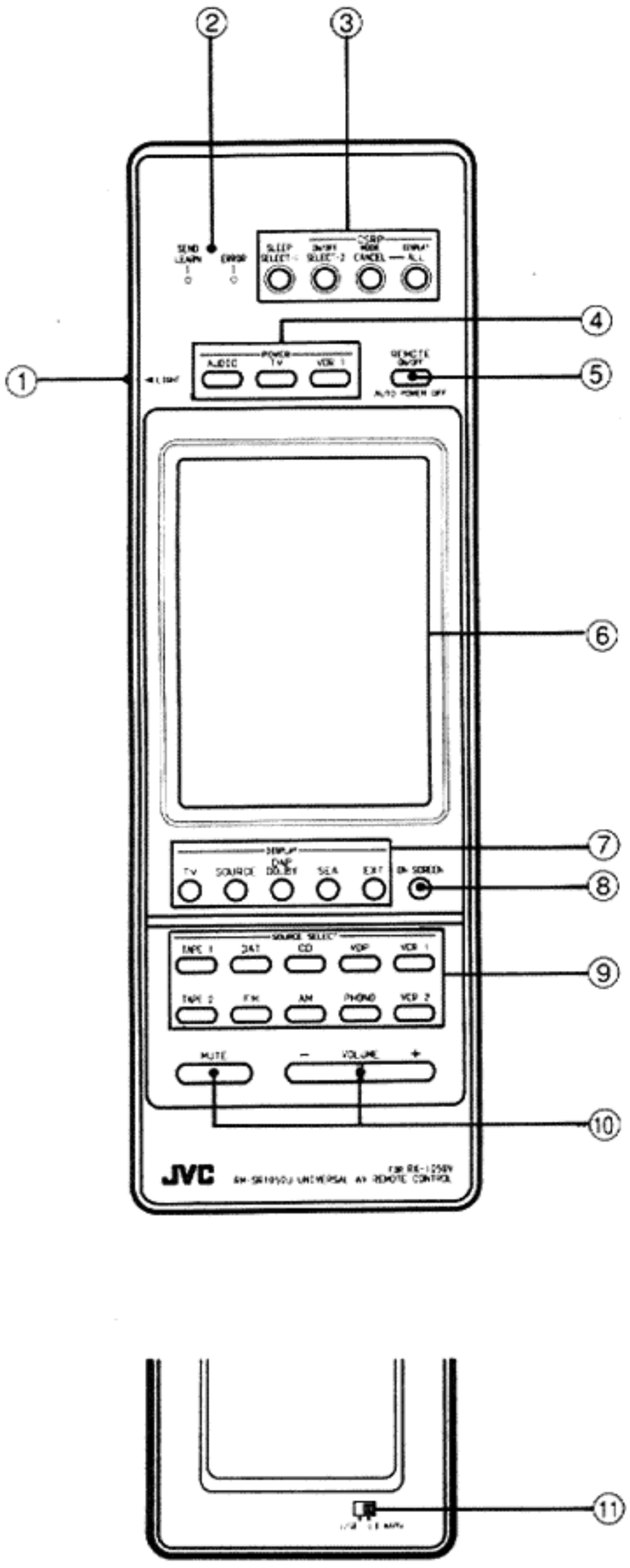
⓫ **Tuner Control Buttons:** Use these buttons to operate the tuner for AM or FM reception.

Remote Controller

The remote controller can be used to control not only the receiver but also other JVC audio and video components. You can also control other manufacturers' audio and video components with this remotecontroller after storing their signals in the remote controller.

Common Controls

Buttons without descriptions function in the same way as those on the receiver.



Rear side

① **Light Button:** While this button is pressed, the touch-panel lights so that you can read the indications in the dark.

② **SEND/LEARN Indicator and ERROR Indicator:** These indicators light up or blink to indicate whether you are operating the remote controller correctly.

③ **SLEEP Button and CSRP Control Buttons:** Use the SLEEP button to set the sleep timer. These buttons also have other functions. (See page 54.)

④ **Power Switches:** Use these buttons to turn on the receiver, TV and VCR or to put them in the standby state.

⑤ **Display on/off Switch:** Use this switch to turn on or off the touch-panel. This display is turned off automatically if the remote controller is not operated for about 1 hour.

⑥ **Touch-Panel:** Touch this panel to operate the source components and built-in signal processors. (See the next page.)

⑦ **Menu Selector Button:** Use this button to select a menu displayed on the touch-panel.

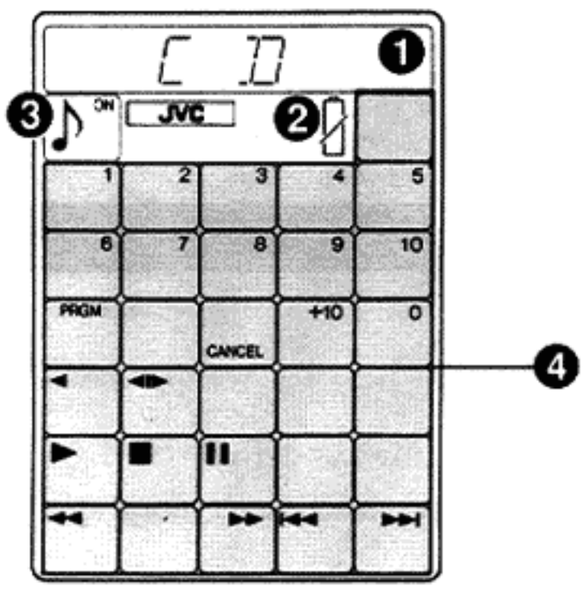
⑧ **ON SCREEN Button**

⑨ **Source Selector Buttons:** Use these buttons to select an input source and display the menu for operating the selected source on the touch-panel.

⑩ **Volume Control Key and Mute Switch**

⑪ **Operation Mode Selector Switch:** Switch between operation modes (USE/LEARN) of the remote controller. Select the USE mode to use the remote controller for controlling components. Select the LEAN mode to have the remote controller learn the signals of other manufacturers' remote controllers.

Touch-Panel



❶ **Title:** This is the title of the operation menu displayed on the touch-panel.

❷ **Battery indicator:** This indicator indicates that it is time to replace batteries.

❸ **Buzzer on/off Key:** Use this key to determine whether the buzzer sound is to be issued when a key or button of the remote controller is pressed.

❹ **Operation menu:** This menu displays the operation menu selected using a source selector button or menu selector button. Each box is an operation key.

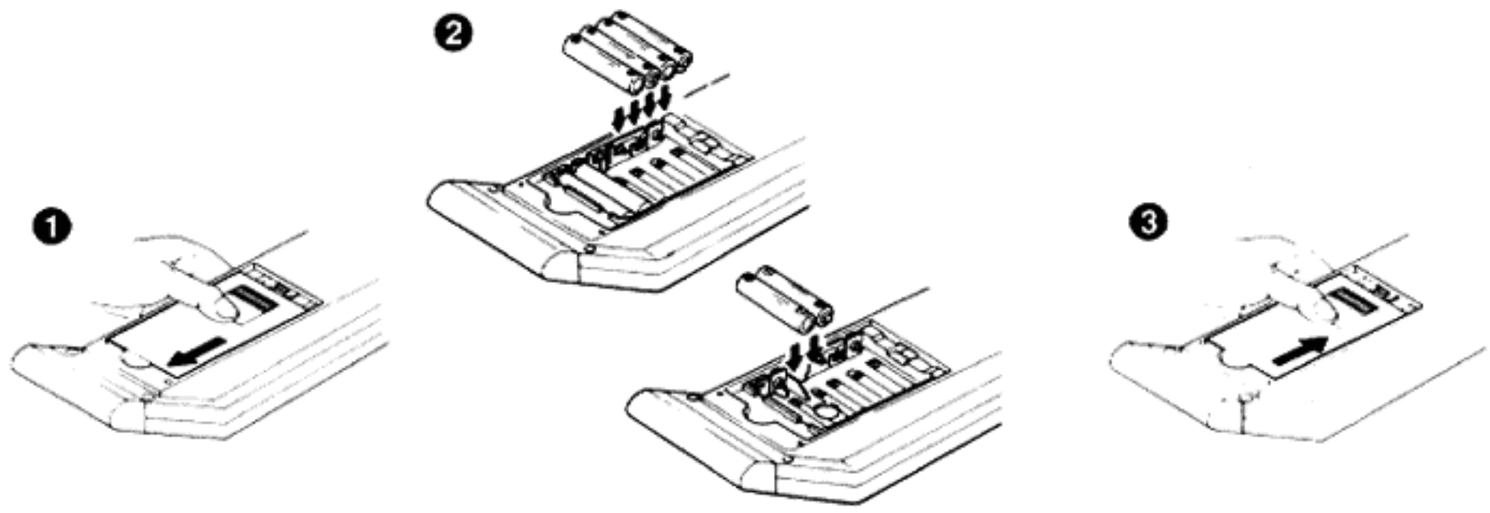
Inserting Batteries

Insert the six batteries supplied into the remote controller following the procedure below.

❶ Slide the battery cover on the back of the remote controller in the direction of the arrow while pressing it.

❷ Insert batteries in the remote controller. Make sure that they are oriented with the proper polarity; (+) to (+) and (–) to (–).

❸ Slide the battery cover back in the direction of the arrow.



Replacing the Batteries

If the battery indicator appears on the touch-panel, it is time to replace the batteries. Use 24F (AAA) long-life dry cells.

Important! *When replacing batteries, set the mode selector switch on the back of the remote controller to the USE position.*

Notes: *Follow the precautions below to avoid leaking or cracking cells.*

- *Orient batteries with proper polarity; (+) to (+) and (–) to (–).*
  Use the correct type of batteries.(Batteries which look similar may differ in voltage.)
- *Do not allow more than 3 minutes for battery replacement to preserve stored data*
- *Replace all six batteries.*
- *Do not attempt to heat or burn the batteies.*
- *If your remote controller is to be left unused for a long time, remove the batteries.*

On-Screen Display

The on-screen display feature shows a list of current operating conditions on the screen of the TV connected to the receiver's MONITOR OUT (VIDEO) jack.
This feature allows you to see what the receiver is doing which sound source is playing through the speakers, what mode the signal processor is in, and so on.

Selecting the Display Mode

Display Modes

The following three display modes are available:

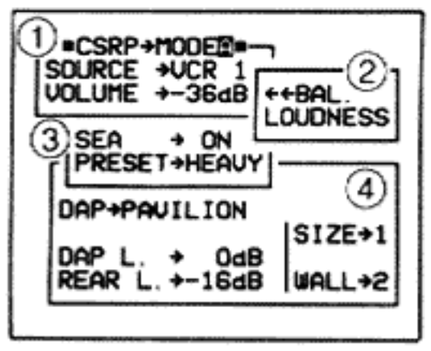
- "ON SCREEN ON" Normal mode: The on-screen display is always active.
- "ON SCREEN ON" S.P.I.* mode: The on-screen display is always active. A sound spectrum is displayed.
- "ON SCREEN 5 SEC" mode: The on-screen display is active for five seconds when the display contents are changed by an operation.

S.P.I = *Spectro Peak Indicator*

Each time you press the ON SCREEN button, the on-screen mode changes as follows:
"ON SCREEN ON" Normal ▷ "ON SCREEN ON" S.P.I. ▷ "ON SCREEN 5 SEC" ▷ "ON SCREEN OFF" (display on TV goes off) ▷ Back to the beginning.

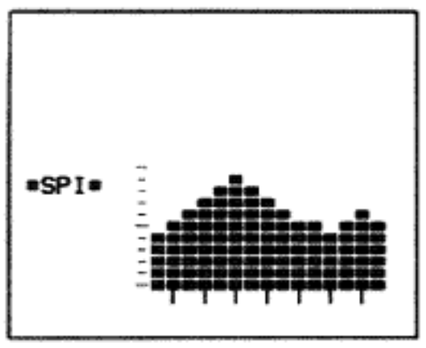
Note: *In the "ON SCREEN 5 SEC" mode , the display on TV goes off after 5 seconds. However, the "ON SCREEN 5 SEC" mode itself remains active. (If you press the ON SCREEN button, "ON SCREEN 5 SEC" will be displayed on TV.)*

Display



In the "ON SCREEN ON" mode, the screen at left appears on the TV.

Block ①: This block shows the selected source and set volume.
Block ②: This block shows balance and loudness settings.
Block ③: his block shows S.E.A. graphic equalizer settings.
Block ④: This block shows surround processor settings.



In the "ON SCREEN ON" SPI mode, the screen at left appears on the TV.

The horizontal axis shows a frequency which increases rightward.
The vertical axis shows a level.

If a video source is being shown on the monitor screen, the on-screen display is superimposed over the image. If not, the on-screen display appears on a blue background.

When the S.E.A. graphic equalizer or surround processor operates, another data is displayed. (For details, see page 27.)

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

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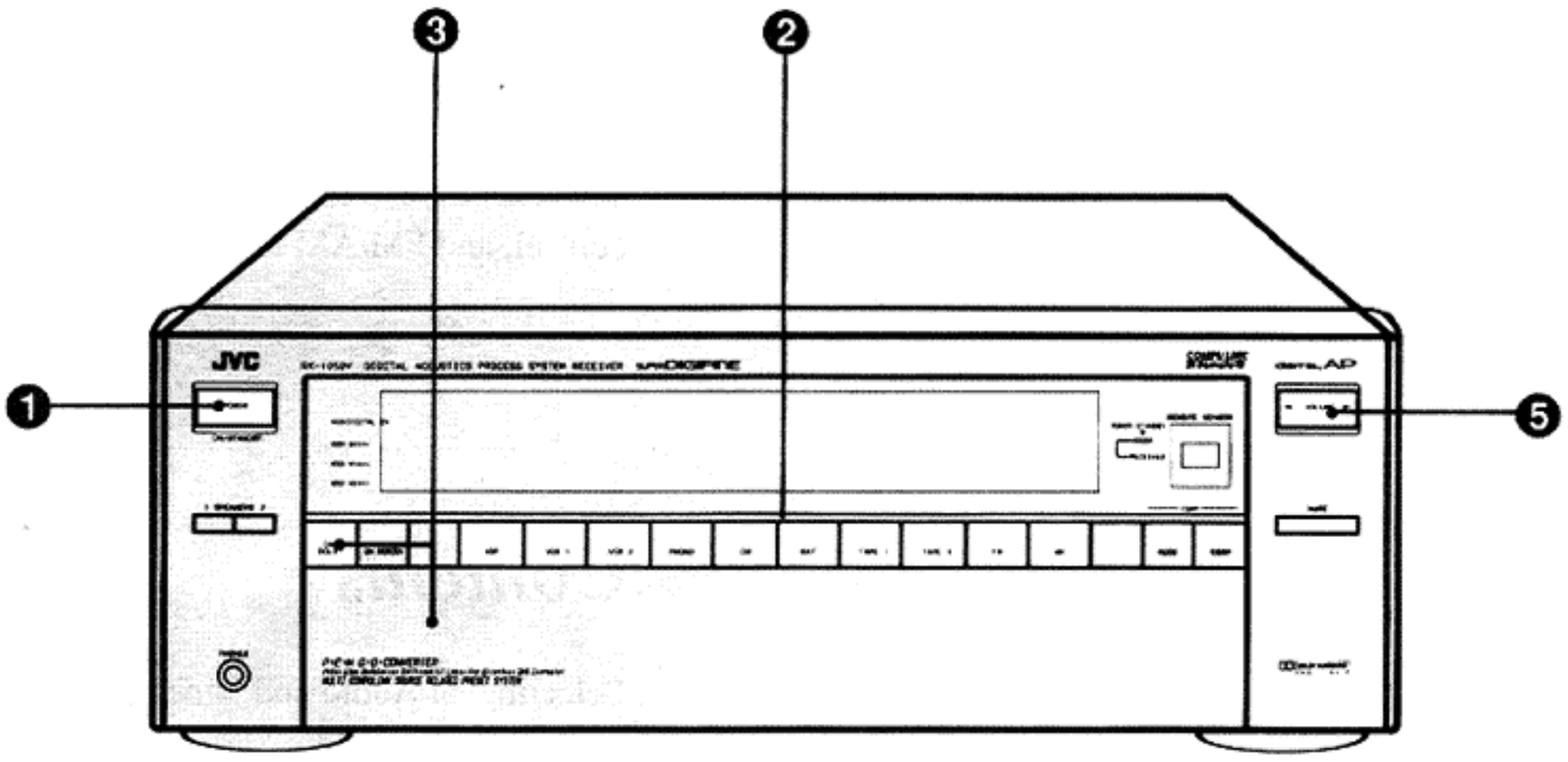
9112 [S]

Basic Operation

Important!

- *To begin with, press SPEAKERS switch 1 or 2 to select the front speakers to listen to.*
- *Before using the remote controller, make sure that the mode selector switch on the back cover is set to the USE position.*
- *Point the remote controller towards the Remote Sensor on the receiver for operation.*



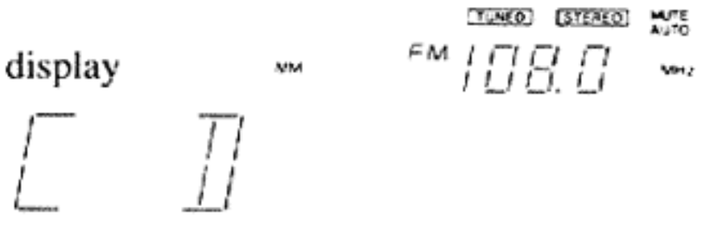
❶ Turning on the power

Press the POWER switch.
The display window will light up.

❷ Selecting an audio/video source

See page 23.

Press one of the source selector buttons to choose the audio/video source you want to hear or see.
The selected audio/video source will appear in the display window.



❸ Using the built-in Signal processors

See page 27.

Using the built-in signal processors, you can equalize sound or produce a three-dimensional acoustic effect.

❹ Operating an audio/video source

See page 45.

You can operate an audio/video source using your remote controller.

❺ Controlling the volume

See page 25.

Control the volume using the VOLUME control button.

Basic Functions

This chapter explains basic functions such as source selection, volume control, and FM/AM reception.

Contents

Selecting an Audio and Video Source....23
- Selecting an Audio/Video Source to Watch or Listen to....23
- Selecting an Audio/Video Source to Record from....24

Controlling Volume....25
- Volume Control....25
- Selecting the Speakers to Listen to....25

Tuner....26
- Tuning....26
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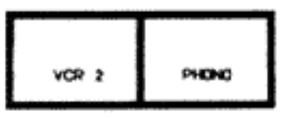
Selecting an Audio/Video Source

The receiver handle two types of sources, audio sources (compact disc, cassette tape, etc.) that output sound only and video sources (video cassette, video disc, etc.) that output pictures and sound. you can select which source you want to watch, listen to , or record from.

Selecting an Audio/Video Source to Watch or Listen To

Use the following three types of buttons to select a source to watch or listen to.

Source Selector buttons



Press the one of the source selector buttons to select the audio/video source you want to watch or listen to.

The TAPE 2 button is different in function from other source selector buttons. Pressing the TAPE 2 button lights the "TAPE 2 MONITOR" light and allows you to listen to the sound of the cassette deck connected to the TAPE 2 jacks. Pressing the TAPE 2 button again extinguishes the "TAPE 2 MONITOR" light and issues the sound of the previously selected source. For details, see "Monitor Function" on the next page.

Note: *When you press the source selector button marked PHONO, make sure that the phono equalizer gain is set according to the type of the cartridge attached to the tone arm. For details, see page 7.*

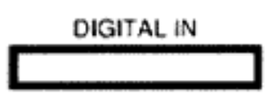
SOUND SELECTOR button

Use the SOUND SELECTOR button to choose different audio/video sources for picture and sound as follows.

① Press one of the source selector buttons to choose the desired video source.
② Press the SOUND SELECTOR button. The "SOUND SELECTOR" light lights and the currently selected video source name is displayed under it.
③ Press one of the source selector buttons to choose the audio source you want to hear sound from.The pictures will be combined with sound from the newly selected audio source.

Note: *If you press the SOUND SELECTOR button again, the "SOUND SELECTOR" light will go out, but sound will continue to come from the audio source.*
To switch back to the video sound, select the same video source again by pressing the appropriate source selector button.

DIGITAL IN button



Use the DIGITAL IN button to change the input mode of an audio signal.

Some source selector buttons are marked in brown. This brown marking denotes that the audio/video source assigned to the button provide both digital and analog audio signals. Each time the DIGITAL IN button is pressed, input alternates between the digital and analog modes. In the digital mode, the DIGITAL IN indicator lights and the built-in D/A converter converts digital input signals to analog signals.

Note: *The sampling frequency of the bult-in D/A converter is automatically adjusted to suit the digital input signal.*

Selecting an Audio/Video Source to Record From

The source being played is automatically selected as the source to record from. When a digital input source is selected, digital signals are output to the DIGITAL jacks marked REC and the analog signals converted by the built-in D/A converter is also output to the AUDIO jacks marked REC.

Important! *A component selected as a source using a source selector button cannot be used for recording. When recording sound from the cassette deck connected to the TAPE 2 jacks, check the source name shown on the display window. If the "TAPE 2 MONITOR" light is lit by pressing the TAPE 2 button, settings of other source selector buttons are valid. Source selector buttons other than the "TAPE 2" button must be set to select components which are not used for recording.*

Monitor Function

Using the monitor function, you can monitor the sound being recorded. You can use this function while recording sound with the cassette deck connected to the TAPE 1 or TAPE 2 jacks.

During recording, signals input to the cassette deck are also output as they are. If the cassette deck has three heads, the signals read by the playback head can be output during recording. If the sound being recorded can be heard, the conditions of the components in use for recording can be checked concurrently. This is enabled by the monitor function.

TAPE 1 monitor function

Pressing the TAPE 1 monitor button allows you to listen to the sound input to the TAPE 1 jacks irrespective of the source selected using a source selector button. The "TAPE 1 MONITOR" light lights on the display window. Pressing the TAPE 1 MONITOR button again extinguishes the "TAPE 1 MONITOR" light and issues the sound of the source selected using a source selector button.

TAPE 2 monitor function

Pressing the TAPE 2 button allows you to listen to the sound input to the TAPE 2 jacks irrespective of the source selected using another source selector button. The "TAPE 2 MONITOR" light lights on the display window. Pressing the TAPE 2 MONITOR button again extinguishes the "TAPE 2 MONITOR" light and issues the sound of the source selected using another source selector button.

Notes:

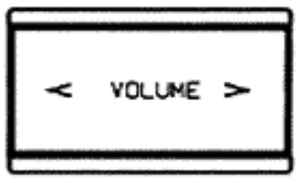
- *The TAPE 2 monitor function and TAPE 1 monitor function cannot be used at the same time. The monitor function selected later has priority.*
- *Signal processors (S.E.A. graphic equalizer and surround processor) are not effective for the sound monitored using the TAPE 1 monitor function.*

Controlling Volume

You can listen to the sound of the selected program source at a desired sound level. Using the loudness function, you can hear dynamic sound even at a low sound level.

Volume Control

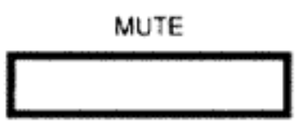
VOLUME Control Key



The VOLUME control key adjusts the level of sound from the front, center, and rear speakers or headphones. Pressing the right side of the key increases the volume and pressing the left side decreases the volume.

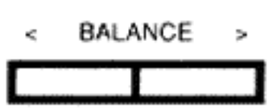
Caution: *Listening to an extremely loud sound may cause a hearing defect. Adjust the volume properly. Especially when using headphones, avoid listening to an extremely loud sound.*

MUTE Button



Pressing the MUTE button displays "MUTE" on the display window and mutes sound of all speakers or headphones. Pressing the MUTE button again clears "MUTE" and issues sound from all speakers or headphones at the previous sound level.

BALANCE Buttons



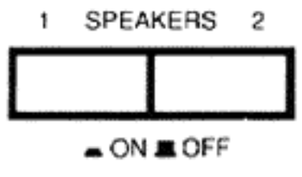
These buttons control the sound balance between the front left and right speakers and between the left and right sides of headphones.
Pressing the right button increases the volume of the right speaker or headphone. Pressing the left button increases the volume of the left speaker or headphone.

LOUDNESS Function

Human ears are hard to hear low and high frequencies at low sound levels. To compensate this hearing characteristic, a loudness function is provided to emphasize low and high frequencies according to the VOLUME control key setting.
Pressing the LOUDNESS button lights the "LOUDNESS" light on the display window and activates the loudness function. Pressing the LOUDNESS button again deactivates the loudness function.

Selecting the Speakers to Listen to

SPEAKER Switches 1 and 2



Pressing the SPEAKER switch 1 or 2 each time outputs or stops signals to the FRONT SPEAKERS 1 or 2 terminals on the rear panel alternately. When the SPEAKER switch 1 or 2 is pressed down, signals are output. When it is released, signals stop. Using these switches, select either of two pairs of front speakers.

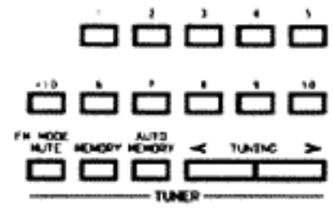
Listening through Headphones only

To listen to sound only through headphones (without issuing sound from speakers), set both SPEAKERS switches 1 and 2 to OFF.

Important! *Make sure that the built-in surround processor is not operating. If it is operating, sound is issued from both or either of rear speakers and center speaker. For details on the surround processor,* *see page 32.*

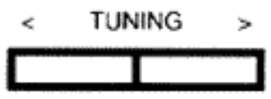
(No. 20284) 1-25

Tuner



The tuner of the receiver can receive AM and FM broadcasts. To receive the AM/FM broadcast, select either AM or FM broadcast using the AM/FM button and tune in the frequency of a desired station using TUNING buttons.

Tuning



Use TUNING buttons to tune in the frequency of the desired station. Pressing the right button increases the frequency and pressing the left button decreases the frequency. Tapping the TUNING button each time changes the frequency in steps of 10 kHz for AM and 0.1 MHz for FM. There are two tuning modes:

Automatic Tuning: If you do not know the frequency of a desired station, select this mode. Pressing the TUNING button continuously starts changing the frequency quickly. If the TUNING button is released, the frequency continues to change and stops at the frequency of the first tuned station.

Manual Tuning: If you know the frequency of a desired station, select this mode. Pressing the TUNING button continuously starts changing the frequency quickly. Release the TUNING button near the desired station and tap it repeatedly up to the frequency of the desired station precisely.

When a station is tuned to, the "TUNED" light lights on the display window.

Once a tuned frequency is preset, it can be directly called using numeric buttons. For details, see page 37.

Note: *In the automatic tuning mode, weak waves of stations are ignored. To pick up even weak waves, select the manual tuning mode.*

Important! *If the receiver is turned to a station but the "TUNED" light does not lights, try adjusting the antenna for better reception.*

Selecting an FM Reception Mode

There are two FM reception modes. Pressing the FM MODE-MUTE switch switches between these modes.

Auto selection mode: The "MUTE-AUTO" light lights on the display window. You can hear stereo sound when a stereo broadcast is received and you can hear monaural sound when a monaural broadcast is received. During reception of a stereo broadcast, the "STEREO" light lights. In the auto selection mode, the muting function is activated to suppress noise between stations.

Monaural mode: The "MUTE-AUTO" light goes off. You can hear only monaural sound if a stereo broadcast is received. When stereo broadcast sound is noisy because of a weak signal, select this mode to listen to noiseless monaural sound.

Note: *In the auto selection mode, sound of a broadcast with a weak signal may be muted. In this case, select a monaural mode.*

Signal Processor

This chapter explains two signal processors, S.E.A. graphic equalizer and surround processor, which are incorporated in the RX-1050VTN.

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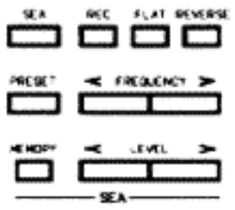
- Hints for Equalizing 30
- Preset Equalizing Patterns 31
- Recording the Sound Processed by S.E.A. Equalizer 31

Surround Processor 32
- Selecting a Program 32
- Selecting a Center Channel Mode 33
- Adjusting a Surround Sound Effect 34
- Modifying Acoustics 35

Outline

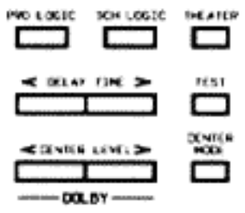
Signal Processor Types

This receiver incorporates two signal processors.



- **S.E.A. Graphic Equalizer**

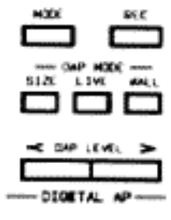
Press the SEA button to listen to the sound processed by the S.E.A graphic equalizer.
Using the S.E.A. graphic equalizer, you can make a desired tone or compensate sound deterioration caused by the conditions of playback components and listening room.
The S.E.A graphic equalizer is effective only for front speakers.



- **Surround Processor**

Press the DAP DOLBY button to listen to the sound processed by the surround processor.
The surround processor provides two groups of programs for a total of 9 sound effects.

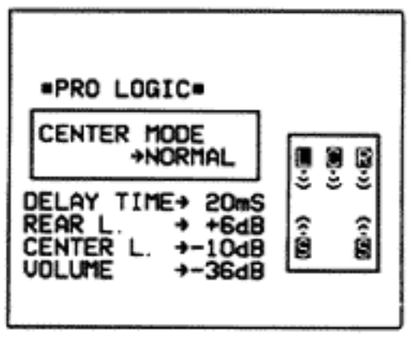
Suround sound effects group: The programs in this group replicate the sound experienced in a movie theater. The front speakers, center speakers, and rear speakers are used to produce this effect.

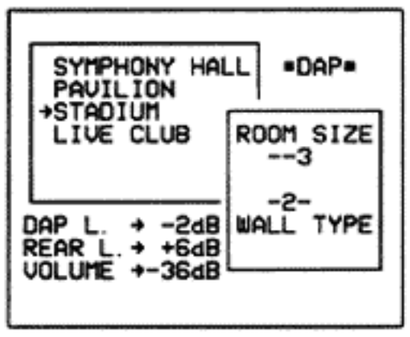


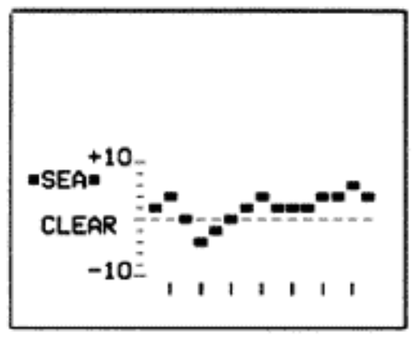
Digital Acoustics Processor (DAP) group: The programs in this group reproduce the acoustics of a concert venue. The front speakers and rear speakers are used to produce this acoustic effect.

On-Screen Display

When the S.E.A. graphic equalizer or surround processor is operated, the on-screen display shows the following:





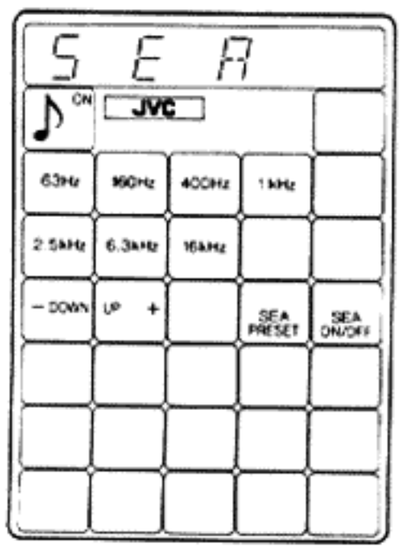


L,R: Front Speakers
C: Center Speaker
S: Rear Speakers
Active speakers are marked with ᯤ.

To return to the original display, use the ON SCREEN button to change the display mode.

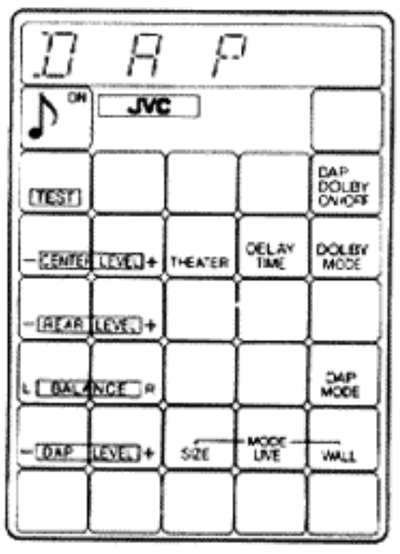
Operating Signal Processors Using the Remote Controller

Pressing a menu selection button (SEA or DAP DOLBY) on the remote controller displays the corresponding menu on the touch-panel.



Pressing the SEA button on the remote controller displays the menu shown at the left.

63 Hz – 16 kHz: Select the frequency zone to be equalized.
–DOWN, UP+: Set the level of boosting or cutting.
SEA PRSET: Select a preset equalizing pattern.
SEA ON/OFF: Turn on/off the S.E.A. graphic equalizer.



Pressing the DAP DOLBY button on the remote controller displays the menu shown at the left.

TEST: Turn on/off the test tone used to adjust center and rear channel levels.
DAP DOLBY ON/OFF: Turn on/off the surround processor.
DOLBY MODE: Switch between "PRO LOGIC" and "3CH LOGIC" programs.
THEATER: Select a program among "THEATER 1" to "THEATER 4"
DELAY TIME: Set the delay time.
DAP MODE: Select a program in the digital surround processor group.
SIZE, LIVE, WALL: Adjust the parameters for modifying acoustics.
CENTER LEVEL: Set the center channel level.
REAR LEVEL: Set the rear channel level.
BALANCE: Adjust the balance between left and right front channels.
DAP LEVEL: Adjust the level of the sound effect of the program in the digital surround processor group.

Using Signal Processors for Recording

The effect of the S.E.A. graphic equalizer can be reflected in recording by pressing the REC button in the SEA section.
The surround processor program in the digital acoustics processor group can be reflected in recording by pressing the REC button in the DIGITAL AP section.

The above REC buttons can be turned on/off separately. However, when both the S.E.A graphic equalizer and a program in the digital acoustics processor group are used, these REC buttons are turned on or off simultaneously; the effect of either the S.E.A graphic equalizer or a program in the digital acoustics processor group cannot be reflected in recording.

When a program in the surround sound effect group is used, the above two REC buttons are not effective.

Note: *The cassette deck connected to the TAPE 2 jack cannot record the sound processed by the signal processor.*

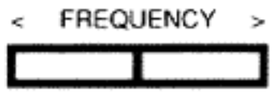
S.E.A. Graphic Equalizer

Press the SEA button to listen to the sound processed by the S.E.A. graphic equalizer.

Equalizing

To equalize sound using the S.E.A graphic equalizer, you must set the frequency zones to be equalized and the levels of boosting and cutting as described below. You can make a desired tone by setting boosting and cutting level for seven frequency zones.

Selecting a Frequency Zone



To select a frequency zone to be equalized, use FREQUENCY buttons.
Center frequencies of frequency zones are: 63 Hz, 160 Hz, 400 Hz, 1 kHz, 2.5 kHz, 6.3 kHz, and 16 kHz. Pressing the right button switches to a higher frequency zone and pressing the left button switches to a lower frequency zone.

Setting a Level

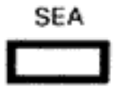
Set the boosting or cutting level for the selected frequency zone. To set a level, use LEVEL buttons. Pressing the right button raises the level and pressing the left button lowers the level. You can set a level in 2 dB units within the range of + 10 dB.

Hints for Equalizing

Equalizing after Resetting All Levels

If you press the FLAT button, you can reset the levels set for all frequency zones to 0 dB. Use this button to equalize sound from the beginning.

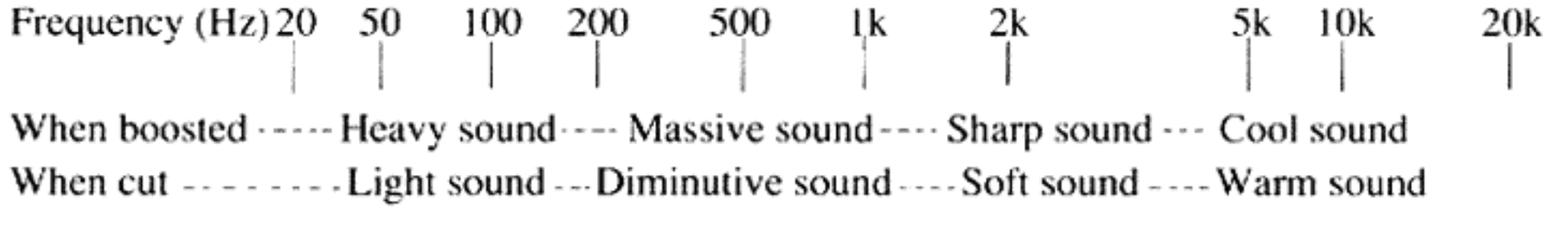
Comparing the Sound Processed by the S.E.A. Equalizer with the Original Sound



To compare the sound processed by the S.E.A equalizer with the original sound during equalizing, press the SEA button. Pressing the SEA button again allows you to hear the equalized sound.

Frequency Zones and Effect of Boosting/Cutting

The following illustration shows the relationships between frequency zones and effect of boosting/cutting. Refer to it when equalizing sound.



Preset Equalizing Patterns

You can select any one of ten preset equalizing patterns.

Selecting a Preset Equalizing Pattern

PRESET

Preset equalizing patterns are assigned letters A to J. Pressing the PRESET button selects and displays the next letter, title, and equalizing pattern on the display window.

Features of Equalizing Patterns

Letters A to E are not assigned to any equalizing patters. You can ássign letters A to E to your desired equalizing patterns. F to J are factory-assigned to typical equalizing patterns. You cannot change these equalizing patterns.

F: The title is "HEAVY". Select this pattern if you want heavy sound. Both high and low frequencies are boosted.

G: The title is "CLEAR". Select this pattern if you want clear sound. Frequencies making sound unclear are cut.

H: The title is "SOFT". Select this pattern if you listen to BGM at a low sound level. Rasping sound is suppressed and low frequencies are boosted.

I: The title is "MOVIE". Select this pattern to listen to the sound track of old movies. The sound in the narrow frequency range can be equalized.

J: The title is "VOCAL". Select this pattern to put singer's voice forward. Presence of human voice increases.

Recording the Sound Processed by S.E.A. Equalizer

REC

The "REC" light goes on or off each time the REC button is pressed. When this light is lit, you can record the sound processed by the S.E.A. equalizer. For details, see page 29.

Note: *The cassette deck connected to the TAPE 2 jack cannot record the sound processed by the signal processor.*

Using the S.E.A Equalizer as a Noise Reduction System

REVERSE

Pressing the REVERSE button reverses the equalization characteristic with reference to 0 dB. You can reduce tape noise by boosting high frequencies during recording and cutting them by pressing the REVERSE button before playback.

Surround Processor

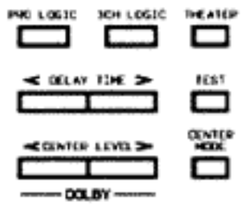
The built-in surround processor enables you to enjoy the 3-dimentional effect experienced in movie theaters and the acoustics of concert hall in your own home.

To obtain the effect of the surround processor, press the DAP DOLBY button.

Selecting a Program

The surround processor provides two groups of programs.

Surround sound effects group



The programs in the surround sound effects group replicate the sound experienced in movie theater when video movies are played.

Press the desired program button

PRO LOGIC: Select this program when you play a source marked DOLBY SURROUND

3CH LOGIC: Select this program when you play a source marked DOLBY SURROUND and rear speakers are not available.

THEATER: Select this program to play a source marked DOLBY SURROUND with its sound spreading wider and deeper behind you. Feel of depth increases in four steps at each press of the button.

Digital Acoustics Processor group

The programs in the digital acoustics processor (DAP) group bring you the effect of a live performance, as in a concert hall, when for example, listening to audio sources.

Press the MODE button on the receiver to select one of the six programs.
Each time you press the button, the program changes as follows.

"SYMPHONY HALL" (SYMPHONY) ► "PAVILION" ► "STADIUM" ►
"LIVE CLUB" ►"CHURCH"► "OPERA HOUSE" ► back to the beginning

"SYMPHONY HALL": A shoe-box type hall accommodating an audience of 2,200 in the Netherlands. This type of hall features fine acoustics.

"PAVILION": An octagonal pavilion with a high ceiling in japan.

"STADIUM": A stadium accommodating about 30,000 peaple. Such stadiums are used for football and ball games as well as rock concerts.

"LIVE CLUB": A club for live music with a low ceiling in Japan. Such clubs are often used for jazz performances.

"CHURCH": A cathedral with a 40-meter-high ceiling in Germany. This cathedral has the special acoustics peculiar to stone buildings.

"OPERA HOUSE": This hall is in Austria. It has a high roof and many layers of seats.

Note: *The effect of a program in the digital acoustics processor group can be reflected in recording. For details, see page 29.*

Selecting a Center Channel Mode

CENTER MODE

Each program in the surround sound effects group has two or three center channel modes. When you select a program, you must also select a center mode.

Note: *The programs in the digital acoustics processor group do not have a center mode.*

Set the center channel mode for each program using the CENTER MODE button. The following center channel modes are available:

"WIDE": Use this mode when the center speaker is as large as the front speaker. The whole of the center channel signal is reproduced through the center speakers.

"NORMAL": Use this mode when the center speaker is smaller than the front speaker. The bass frequencies in the center channel signal are reproduced through the front speakers.

"PHANTOM": Use this mode when no center speaker is used. The whole of the center channel signal is reproduced through the front speakers.

Each time you press the CENTER MODE button, the center channel mode changes as follows.

"WIDE" ► "NORMAL" ► "PHANTON" ► "CENTER OFF" (A center channel signal is not output.) ► back to the beginning.

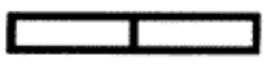
Adjusting the Surround Sound Effect

Each program in the surround sound effect group requires adjustments to product the maximum surround sound effect. Make adjustments for each program as follows:

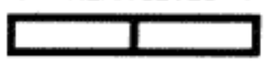
center channel level and rear channel level

TEST

< CENTER LEVEL >



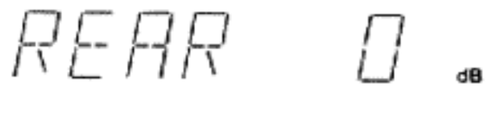
< REAR LEVEL >



Make the adjustments from the listening position using the remote controller.

① Press the TEST button.
The test tone will be heard moving clockwise from speaker to speaker.

② Adjust the center channel level using CENTER LEVEL buttons and adjust the rear channel level using the REAR LEVEL buttons.
You can adjust these levels in 2 dB units within the range of + 20 dB.
Adjust these levels so that sound levels of left and right speakers become the same.



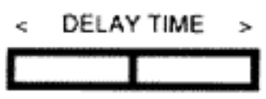
③ Press the TEST button .
The test tone will cease.

***Notes*:**

- *If PHANTOM is selected for a program as the center channel mode, the center channel level need not be adjusted.*
- *If the "3CH LOGIC" program is selected from the surround sound effect group, the REAR LEVEL button is disabled.*
- *The same rear channel level can be set for all surround processor programs.*

Delay Time

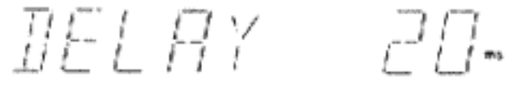
< DELAY TIME >



Set delay time using DELAY TIME buttons. For "PRO LOGIC", delay time can be set in 1 ms units within the range from 15 ms to 30 ms. For "THEATER", it can be set in 2 ms units within the range from 0 ms to 30 ms.

Set delay time according to the relationship between the distance from the listening position to main speakers and the distance from the listening position to surround speakers.

If the distance to surround speakers is farther than the distance to main speakers, set delay time to about 15 ms.
If the distance to surround speakers is almost equal to the distance to main speakers, set delay time to about 20 ms.
If the distance to surround speakers is shorter than the distance to main speakers, set delay time to about 25 ms.



Modifying Acoustics

The programs in the DAP group have ajustable parameters, enabling you to modify the preset acoustics.
Since parameter settings are stored for each program, the latest parameter settings are called each time the program is selected. Adjustable parameters are classified into two types.

Changing the Structure of the Concert Hall to be Simulated

You can change the structure of the concert hall to be simulated by changing the following parameters using SIZE, LIVE, and WALL buttons. Pressing one of these buttons will display the corresponding parameter name on the displayed window.

"ROOM SIZE": You can change the size of the hall to be simulated. Pressing the SIZE button changes the parameter value within the range from 1 to 5 (standard value=3).
As the parameter value increases, the hall size becomes larger.

"LIVENESS": You can change the acoustic depth of the hall to be simulated.
Pressing the LIVE button changes the parameter value within the range from 1 to 5 (standard value=3).
As the parameter value increases, the acoustic depth increases and reverberation lasts longer.

"WALL TYPE": You can change the hardness of the wall of the hall to be simulated.
Pressing the WALL button changes the parameter value within the range from 1 to 3 (standard value=2).
As the parameter value increases, the wall become harder.

Changing the Sound Effect

Using DAP LEVEL buttons, you can adjust the level of the sound which is processed by the digital acoustic processor to be mixed with the source sound.
Pressing the right button increase the level of the sound processed by the digital acoustic processor and pressing the left button decreases it.
The level adjusted in units of 2 dB is displayed on the dispay window. The maximum level is +6 dB and the minimum level is −16 dB. Setting the level to "– – dB" produces no effect of the digital acoustic processor.

Preset Functions

This chapter explains how to preset tuned frequencies and equalizing patterns and the functions of the sleep timer.

Contents

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- Presetting Equalizing patterns 39

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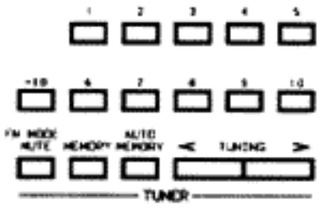
Sleep Timer Function 44

How to Preset

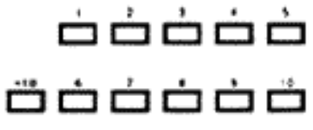
Once you preset turned radio stations and equalizing patterns of the S.E.A. graphic equalizer, you can easily call them later.

Presetting Tuned Frequencies



You can preset up to 40 tuned ratio stations and you can assign channel number 1-40 to these stations. Once a station has been preset, you can tune to that station simply by specifying its channel number using numeric keys.
Two presetting methods are explained below.

How to Use Numeric keys



To indicate numbers 1 to 10, oress the appropriate key. To indicate numbers 11 to 40, you need to use the +10 key and one other key. See the following examples:

To indicate 17: press the +10 key, then the 7 key.
To indicate 20: press the +10 key, then the 10 key.
To indicate 25: press the +10 key twice, then the 5 key.
To indicate 40: press the +10 key three times, then the 10 key.

DOWN, UP: Change the channel number up or down.

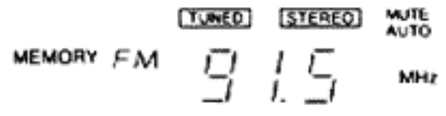
Manual Presetting

You can preset the station you are listening to now as follows:

- For the method of tuning to a station, see page 26.

① Press the MEMORY button.

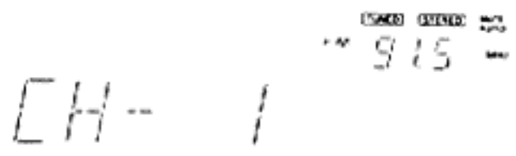
The "MEMORY" light lights on the display window.



② Using numeric keys, enter a number (1-40). This number is the channel number used to call the tuned station later.

Important! *You must enter the channel number while the "MEMORY" light is on. If this light goes off before entering the channel number, press the MEMORY button again.*

When the "MEMORY" light goes off and the channel number is displayed, presetting is completed.



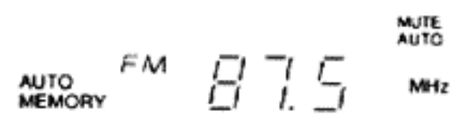
Automatic Presetting

Frequencies are scanned in the ascending order to preset tuned stations automatically. The operational procedure for automatic presetting is as follows:

① Press a source selector button "AM" or "FM".

② Specify the scan start frequency using TUNING buttons.

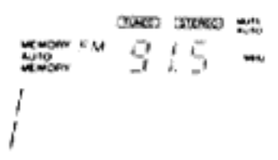
③ Press the AUTO MEMORY button.



The "AUTO MEMORY" light lights in the display window.

④ Using numeric keys, enter the channel number to which the first tuned station is assigned. Tuned stations are assigned channel numbers beginning with the channel number entered here (in the ascending order).

Important! *You must enter the channel number while the "MEMORY" light is on. If this light goes off before entering the channel number, press the AUTO MEMORY button again.*



Frequencies are scanned in the ascending order. When a frequency of a station is tuned in, scanning stops and the "TUNED" light lights. This station is preset about 4 seconds later and the "MEMORY" light lights up.

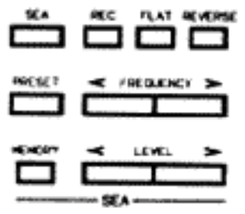
• If you do not want to preset this frequency, press the AUTO MEMORY button before the "MEMORY" light lights. Scanning restarts without presetting the turned frequency.

Scanning restarts.

Scanning continues until another frequency is tuned in, the upper limit of the tuning range is reached, or all 40 channel numbers have been assigned to turned stations.

When auto presetting is completed, the last preset station is received.

Note: *You can assign a title (e.g., station name) to each preset station with five or fewer characters. When a preset station is called, its title is displayed on the display window along with its channel number.* *See page 42.*



Presetting Equalizing Patterns

You can preset up to five equalizing patterns of the S.E.A. graphic equalizer. Each equalizing pattern is assigned a letter (A to E). Once an equalizing pattern has been preset, you can call it directly using the PRESET button.

The operational procedure for presetting equalizing patterns is as follows:

① Press the SEA button to operate the S.E.A. graphic equalizer.

The "SEA" light goes on.

② Using FREQUENCY and LEVEL buttons, create your desired equalizing pattern.

③ Press the MEMORY button.

The "MEMORY" light blinks.

④ Press the PRESET button to select the letter to be assigned to the created equalizing pattern.

Pressing the PRESET button repeatedly selects letters in the following order:

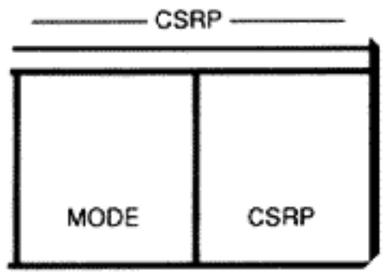
A ► B ► C ► D ► E ► Back to the beginning

⑤ Press the MEMORY button again.

The "MEMORY" light goes off to indicate that equalizing pattern presetting has been completed.

Note: *You can assign a title to each preset equalizing pattern with five or fewer characters. When a preset equalizing pattern is called, its title is displayed on the display window along with its assigned letter.* *See page 42.*

Multi-CSRP Function



Outline

You can assign and store a sound level, tone, and other settings for each source selector button.

What is Multi-CSRP Function?

The optimum settings of a sound level and tone depend on the source component conditions (for example, the cassette deck cannot reproduce high frequencies as compared with the CD player) and the source contents (for example, movie sound track and on-the-spot broadcasting of football). Accordingly, you must change settings each time you select a different source.
The JVC CSRP (Compu-link Source Related Presetting) function is used to assign and store different settings for different source selector buttons. Since the preset settings are called automatically each time you select a different source, you need not make the settings again.
The RX-1050VTN is provided with a multi-CSRP function, an enhanced version of the CSRP function.
With the multi-CSRP function, you can assign three types of settings (modes A to C) for each source selector button.

Note: *For source selector buttons "AM" and "FM", different settings can be stored for different preset channels.*

Important! *For the source selector button "TAPE 2", the multi-CSRP function is not effective.*

Settings Assigned to Each Source Selector Button

The following settings can be assigned to each source selector button in advance:

- Input mode (digital/analog)
- Volume
- Balance
- Loudness function
- S.E.A equalizing pattern
- Surround processor program and various parameters

Note: *The CSRP function allows you to preset the same surround processors with different parameters.*

Demonstration

Pressing the TEST button displays the settings previously assigned to three CSRP modes of each source selector buttons sequentially. This display is made repeatedly. While these settings are displayed, the "CSRP" light blinks. To stop this display, press the TEST button again.

Important! *During demonstration, sound signals are not output to any speaker terminal and headphone jack.*

Using the Multi-CSRP Function

To use the multi-CSRP function, press the CSRP button. The multi-CSRP function is selected and canceled alternately each time the CSRP button is pressed. When the multi-CSRP function is selected, "CSRP" lights on the display window.

Operation

When the multi-CSRP function is selected, the settings previously assigned to the current source are called. The settings are displayed one by one while the "CSRP" lamp is blinking. Then the "CSRP" light lights up.
After this, previously assigned settings are called and displayed each time a different source is selected.

Selecting a Mode

To select a mode, press the MODE button. Pressing the MODE button selects another mode.

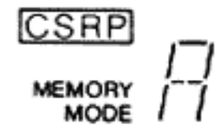
Note: *If another source is selected, the current preset mode does not change until it is changed by pressing the MODE button.*

How to Preset

Adjust the sound level, tone, and so on while listening to source sound. Then, execute the following operations:

① Press the MEMORY button.

The "MEMORY" light blinks on the display window. While this light is blinking for five seconds, start executing the following operations.

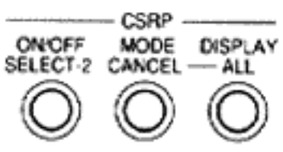


② Press the MODE button to select a preset mode.

③ Press the MEMORY button again.

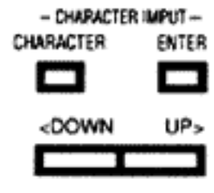
The current receiver settings are assigned to the selected mode and displayed one by one. While they are displayed, the "MEMORY" light blinks quickly.

Confirming the Settings Assigned to the Current Source



Pressing the CSRP DISPLAY button on the remote controller will display the settings previously assigned to the current source one by one on the display window.

Assigning a Title



You can assign a title to a preset channel of the tuner, preset equalizing pattern of the S.E.A. graphic equalizer, and CSRP mode of the multi-CSRP function with five or fewer characters. When each setting is called, its title is displayed on the display window.

Preset Data to which a Title can be Assigned

A title can be assigned to the following preset data:

- Preset channels of tuner (CH-1 to CH-40)
- Preset equalizing patterns of S.E.A. equalizer (A to E)
- CSRP modes of multi-CSRP function (A to C)

How to Assign a Title

Assign a title as follows:

Preparation

Before assigning a title, call the data to which a title is to be assigned.

- Assigning a title to a preset channel of the tuner
  Using numeric keys, select a preset channel (1-40).

Important! *When a preset channel is selected, its channel number is displayed, the volume setting is displayed temporarily, then the channel number is displayed again. After the channel number is displayed again, enter title characters.*

- Assigning a title to a preset equalizing pattern of the S.E.A. graphic equalizer
  Using the PRESET button, select a preset equalizing pattern (A to E).

Important! *When a preset equalizing pattern is selected, temporary titles "SEA-A" to "SEA-E" are displayed for five seconds. While these titles are displayed, start entering title characters. If they disappear, press the PRESET button again.*

- Assigning a title to a CSRP mode (A to C) of the multi-CSRP function
  First press the MEMORY button. Next, press the MODE button to select a CSRP mode (A to C).

Important! *When the MEMORY button is pressed, the "MEMORY" light blinks for five seconds. While the "MEMORY" light is blinking, start entering title characters. If the "MEMORY" light disappears, press the MEMORY button again.*

Entering Title Characters

CHARACTER

After completion of preparation, enter title characters as follows:

① Press the CHARACTER button.

The cursor appears at the first character position. —

If a title was assigned previously, the first character blinks. If you need not change this character, press the CHARACTER button.

< DOWN UP >

② Using DOWN and UP buttons, select the character to be entered.

You can enter the characters shown below.
Pressing the DOWN or UP button selects the next character as shown below.

③ When a desired character appears, press the CHARACTER button.
The cursor moves to the next character position.

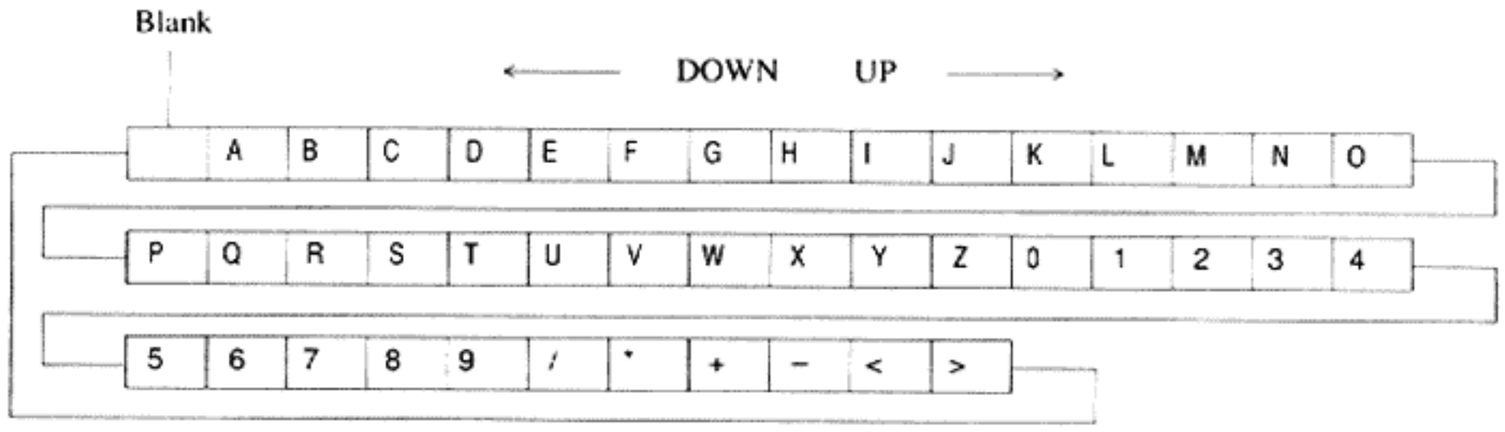
④ You can enter up to five characters by repeating the above steps 2 and 3. Pressing the CHARACTER button after entering the fifth character blinks the first character.

ENTER

⑤ Press the ENTER button to save the entered characters.

Selecting Characters

Pressing the UP or DOWN button selects the next character in the following order:



Sleep Timer Function

SLEEP
SELECT-1

The sleep timer function sets the receiver in the standby mode after the specified time lapse. To use the sleep timer function, operate the remote controller as follows:

① Press the SLEEP button on the remote controller.

"SLEEP OFF" appears.

Important! *While "SLEEP OFF" is displayed for 5 seconds, go to the next step.*

② Pressing the SLEEP button again sets the timer.

Pressing the SLEEP button each time increase the set time. You can set up to 80 minutes in steps of 10 minutes.

③ The set time disappears a while later.

The receiver is automatically put in the standby mode after the specified time lapse.

Note: *After setting the sleep timer, you can check the remaining time in minutes by pressing the SLEEP button. You can prolong the set time by pressing the SLEEP button again.*

Operating Audio and Video Sources

The remote controler supplied with this receiver enables you to control the audio and video sources connected to the receiver as well as the receiver itself.

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Important! *Press touch-panel keys securely and accurately. Especially the keys to which signals of other manufacturers' remote controllers are assigned must be pressed securely.*

Operating JVC Audio/Video Components

You can control JVC audio/video components with the remote controller using the preset signals. A menu has preset signals for other JVC components if "JVC" is displayed under the menu title.

Selecting a Menu

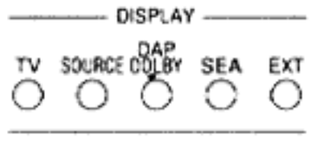
You can use a source selector button on the remote controller or a menu selector button to select a menu.

Selecting a Menu Using a Source Selector Button

When a source is selected using a source selector button, the menu for operating the selected source is displayed on the touch-panel.

Note: *When the source selector button "TAPE 2" is pressed, tape deck 2 is selected but the menu on the touch-panel does not change.*

Selecting a Menu Using a Menu Selector Button



When menu selector button SOURCE is pressed, the menu for operating audio/video source recording components (TAPE 1, DAT, VCR 1, and VCR 2) can be displayed without changing the settings of source selector buttons. Thus, you can record an audio/video source program while monitoring the sound of the source selected using the source selector button.

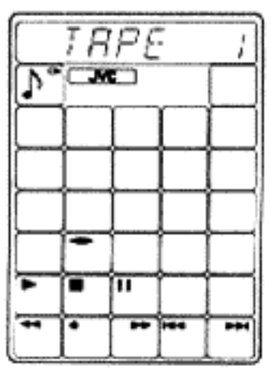
Pressing the SOURCE button each time will select another menu in the following order:

"TAPE 1" ► "DAT" ► "VCR 1" ► "VCR 2" ► Back to the beginning

Menus for Operating Audio Components

There are five menus for operating audio components: TAPE 1, DAT, CD, CHANGER, and PHONO.

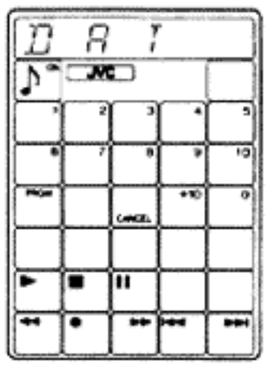
TAPE 1



TAPE 1 indicates the menu for operating a cassette disk.

◄I►: Press to change the direction of play.
►: Play
■: Stop
II: Pause
◄◄: Rewind
●: Record (together with ►)
►►: Fast forward
I◄◄: Music scan (Backward)
►►I: Music scan (Forward)

DAT



DAT indicates the menu for operating the DAT deck.

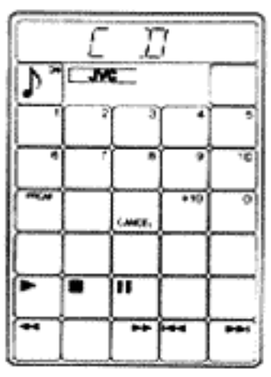
1–10, +10, 0: Specify a program number.
PRGM: Press for programmed play.
CANCEL: Delete the program.
►: Play
■: Stop
II: Pause
◄◄: Rewind
●: Record (together with ►)
►►: Fast forward
I◄◄: Backward search
►►I: Forward search

Turn table

PHONO indicates the menu for operating the turntable.

►: Play
■: Stop

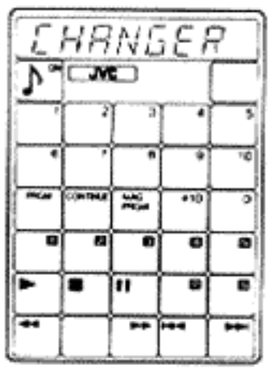
CD player



CD indicates the menu for operating the CD player.

1–10,
+10, 0: Specify a track number.
PRGM: Press for programmed play.
CANCEL: Delete the program.
►: Play
■: Stop
❚❚: Pause
◄◄: Fast backward
►►: Fast forward
|◄◄: Backward search
►►|: Forward search

CD automatic changer



When the source selector button "CD" is pressed, the CHANGER menu is displayed in addition to the CD menu mentioned above. If your CD has an automatic changer feature, the "CHANGER" menu is used to perform the operations peculiar to the CD player with CD changer feature.

1–10,
+10, 0: Specify a track number.
PRGM, CONTINUE, MAG.PRGM:
Select a play mode.
1–6, P: Specify a disk number.
►: Play
■: Stop
❚❚: Pause
◄◄: Rewind
►►: Fast forward
|◄◄: Backward search
►►|: Forward search

To call the CHANGER menu, execute the following operations:

① Set the operation mode selector switch to the LEARN position.

② Press the menu selector button "SOURCE" repeatedly until the title "CHANGER" appears. Pressing the SOURCE button each time will select another menu in the following order:
"CD"► "CHANGER"► "TAPE 1"► "DAT"► "VCR 1"► "VCR 2"► Back to the beginning

③ When the title "CHANGER" appears, set the mode selector button to the USE position.

After this, the above menu is displayed each time the source selector button "CD" is pressed.

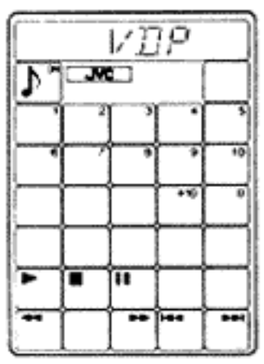
Note: *To display the CD menu, press the mode selector switch to the LEARN position, press the CD source button, then set the mode selector switch to the USE position.*

Menu for Operating Video Components

There are four menus for operating video components: VDP, VCR 1, VCR 2, and TV.

Note: *Source selector buttons "VDP", "VCR 1", and "VCR 2" on the remote controller also have the function to switch the TV's input mode (TV or VIDEO) to VIDEO.*

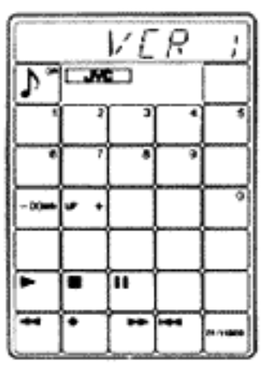
VDP



VDP indicates the menu for operating the video disk player.

1–10, +10, 0: Specify a chapter number.
►: Play
■: Stop
❚❚: Pause
◄◄: Rewind
►►: Fast forward
|◄◄: Reverse chapter feed
►►|: Forward chapter feed

VCR 1



VCR 1 indicates the menu for operating the VCR.

1–9, 0: Specify a TV channel.
DOWN, UP: Change the TV channel up or down.
►: Play
■: Stop
❚❚: Pause/Still
◄◄: Rewind
●: Record (together with ►)
►►: Fast forward
TV/VIDEO: Switch between input modes.

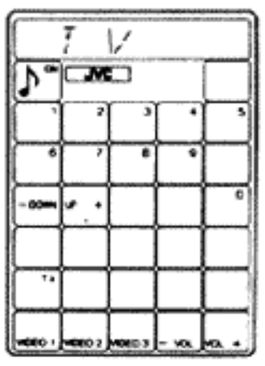
VCR 2

VCR 2 indicates the menu for operating the VCR.

POWER: Turn on/off the VCR.
1–9, 0: Specify a TV channel.
DOWN, UP: Change the TV channel up or down.
►: Play
■: Stop
❚❚: Pause/Still
◄◄: Rewind
●: Record (together with ►)
►►: Fast-Forward
TV/VIDEO:Switch between input modes.

Note: *Some JVC VCRs have two types of remote control codes. VCR 1 corresponds to remote control code A and VCR2 corresponds to remote control code B. If the VCRs connected to the VCR 1 and VCR 2 jacks are set using different codes, they can be controlled separately using the remote controller.*

TV

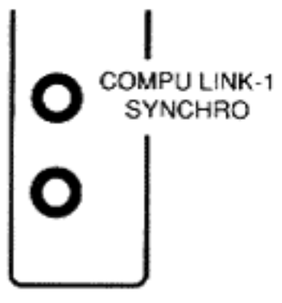


Pressing the menu selector button "TV" displays the following menu on the touch-panel.

1–9, 0 : Specify a TV channel.
TV, VIDEO 1–3 : Switch between input modes.
DOWN, UP : Change the TV channel up or down.
VOL +, – : Adjust the TV receiver volume.

Note: *The menu selector button "TV" has the function to set the TV input mode (TV or VIDEO) to TV in addition to the above function.*

COMPU LINK
Remote
Control System



COMPU LINK Remote Control System

The COMPU LINK Remote Control System automatically interlocks your audio components for simple operation. Connecting the COMPU LINK SYNCHRO- 1 jacks on the back of the receiver to the audio components will enable you to use the three functions below.

Note: *Your CD player should be connected to both the DIGITAL jack on the back of the receiver and also the AUDIO (analog) jacks.*

Equipment Remotre Control

Even if a component has no remote control signal sensor, you can control it via the REMOTE SENSOR on the receiver using the receiver's remote controller. For details, see page 46.

Note: *Direct the remote controller at the REMOTE SENSOR on the receiver.*

Automatic Source Selection

When a component is put in the play state, the corresponding source selector button on the receiver is automatically activated. On the contrary, when one of the source selector button is pressed, the corresponding component automatically begins to play. The component previously playing stops after 5 seconds.

Note: *The source selector button TAPE 2 is excluded from the automatic source selection feature.*

Synchronized Recording

As soon as a compact disc or record is set to play, the tape deck starts recording. To use this feature, follow the procedure below.

① Put a tape in the deck and a disc in the CD player or turntable.

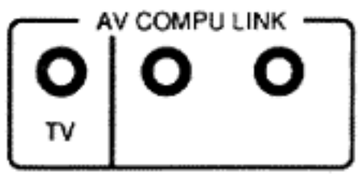
② Simultaneously press the REC and PAUSE button on the tape deck to put it the REC/PAUSE state.
Press the REC button and PAUSE button together, or the synchronized recording feature will not operate.

③ Press the PLAY button on the CD player or turntable.
As soon as the disc starts playing, the tape deck starts recording. When the disc ends, the tape deck switches from the REC/PLAY mode to the REC/PAUSE mode, and stops four seconds later.

Notes:

- *While synchronized recording is active, the source selector button CD or PHONO is activated; other source selector buttons are disabled to prevent recording failure.*
- *If your CD player is operated in the PROGRAM mode, a 4-second mute is recorded between tracks to enable the music scan feature of your tape deck to work.*
- *If the power for any connected equipment is shut off during synchronized recording, the system will not operate properly. in this case, you must start all over again.*

AV COMPU LINK



AV COMPU LINK system

The AV COMPU LINK system automatically interlocks the receiver with video components to enable simpler operation. Connecting the AV COMPU LINK jacks on the rear of the receiver to your video components will enable you to do the following:

- Play a video cassette with a one-touch operation
- Automatically turn on/off the VCR and TV.
- Automatically select the TV input mode

see the following pages for the details of these functions.

Important!

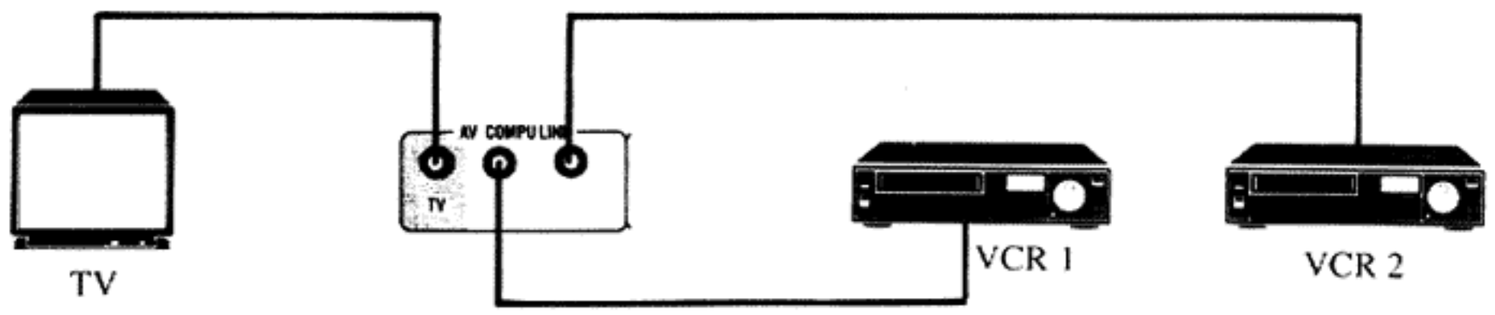
- *When operating the TV by remote control, point the remote control unit at the REMOTE SENSOR of the amplifier. When a remote cable is connected to the AV COMPU LINK jack of the TV, The Remote Control Sensor of the TV is disabled.*
- *When operating the VCR by remote control, point the remote control unit directly at the VCR.*

Connections

For connection, use the shielded audio cable with monaural mini plug (3.5 m m ø) equivalent to the remote cable for COMPU LINK Remote Control System.

There are three AV COMPU LINK jacks. To connect a TV receiver, use the jack marked "TV". To connect a VCR, use either of the remaining two jacks.

After connecting your VCRs to the AV COMPU LINK jacks, set their remote control codes (A/B) before trying to operate them. set the VCR connected to the VCR 1 jacks to remote control code A and a VCR connected to the VCR 2 jacks to B. Refer to the VCR user's manual for details of how to set the remote control code.



Notes:

- *The AV COMPU LINK jacks output control signals for the VCR and TV only. The VCRs and TV must also be connected to the AUDIO, VIDEO, and a S-VIDEO jacks, through which picture and sound signals are transmitted.*
- *Make connections to the AV COMPU LINK jacks, not the COMPU LINK-1 SYNCHRO jacks.*
- *Some VCRs use the same jack for both AV COMPU LINK and SWAP editing. However, the jack cannot be used for both purposes simultaneously. Use it either for AV COMPU LINK or SWAP editing.*

One-touch Video Play

When a video cassette with its safety tab removed is loaded into the VCR, the following actions take place automatically and playing starts.

- The receiver, VCR, and TV are powered up.
- The TV/VIDEO input selector switch is set to VIDEO.
- The corresponding Source Selector button is activated.
- The VCR starts playing.

Note: *If the video cassette still has its safety tab, you must press the play button on the VCR to start operation after the power comes on.*

Turning on or Putting the VCR and TV in Standby State Automatically

The VCR and TV are automatically turned on or put in the standby state together with the receiver.

When the receiver is turned on, whether the VCR and TV are turned on depends on the selected source type.

- When VCR1 or VCR2 is selected as a source, the VCR and TV are turned on together with the receiver.
- When any other source is selected, the VCR and TV are not turned on together with the receiver.

When the receiver is put in the standby mode, the VCR and TV are also put in the standby state.

Note: *If the receiver is put in the standby state, the VCR in the REC mode is not turned off.*

Setting the TV Input Mode Automatically

When the receiver is turned on or sources are switched, the TV input mode (TV or VIDEO) is automatically changed to "VIDEO" to allow you to see the picture of the video source selected on the receiver or the on-screen data.

When both S-VIDEO IN and VIDEO jacks on the back of the TV are connected to the receiver, the jack used to receive signals is selected according to the selected source type.

- If the selected video source is connected to the receiver's S-VIDEO jack, the TV will receive the picture signal from the S-VIDEO IN jack.
- When the selected video source is not connected to the S-VIDEO jack, the TV will receive the picture signal from the VIDEO jack.

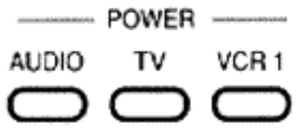
Operating Other Manufacturers' Audio/Video Components

The remote controller of this receiver can learn signals of other manufacturers' remote controllers (learning function). This function enables you to control other manufacturers' components in the same manner as JVC au dio/video components using this remote controller.

Switches and Buttons that can Learn

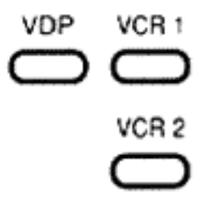
The following switches and buttons can learn signals of other manufacturers' remote controllers:

Power Switches



Power-on/standby signals of other manufacturers' remote controllers can be assigned to the power switches "TV" and "VCR1" on this remote controller.

VDP, VCR 1 and VCR 2 Buttons



Source selector buttons "VDP", "VCR 1", and "VCR 2" issue the signals for selecting receiver sources and the signals for switching the TV input mode to "VIDEO". Using the learning function, these signals can be replaced with the corresponding remote controller signals of other manufacturer's TV.

Touch-Panel Operation Menu

You can add keys to the preset operation menus ("JVC" is displayed under each menu title) or you can make new operation menus suitable for your audio/video components.

Setting the operation mode selector button to the LEARN position displays the menus having the keys that can learn signals of other manufacturers' remote controllers. These keys are blinking. Among these blinking keys, select the keys to be added in the menu and assign remote controller signals of your audio/video components to these keys.

Note: *Operation menus "SEA", "DAP", and "TUNER" are used to execute the receiver functions, so their keys cannot be changed. When the LEARN mode is selected, all keys on the touch-panel disappear.*

In the LEARN mode, pressing the SELECT-1 button selects either of the following menu display modes alternately:

- JVC extended mode: Only some keys can learn signals. Preset key functions cannot be changed and new keys can be added to extend functions. Both "JVC" and "PROGRAMMED" marks are displayed.

- Full open mode: All keys can learn signals. Menus can be created by assigning only new functions. The "JVC" mark disappears and only the "PROGRAMMED" mark appears.

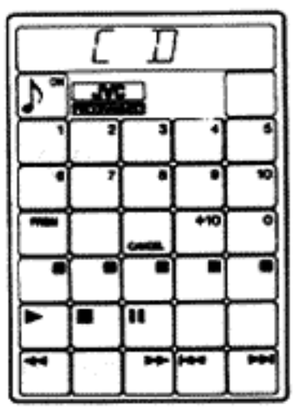
Notes:

- *The JVC extended mode cannot be selected for "TAPE 1", "CHANGER", and "PHONO" menus.*
- *The "CHANGER" menu and "CD" menu are mutually exclusive. If you get one menu learned, you are not allowed to get access to the other menu.*

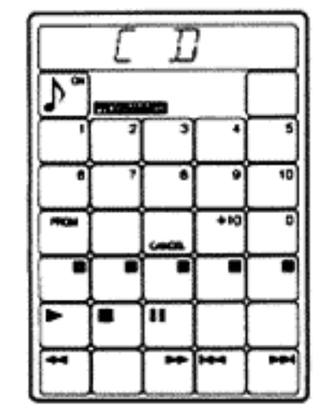
Menus Displayed in LEARN Mode

When the operation mode selector switch is set to the LEARN position, the following menus appear on the touch-panel. The highlighted keys can learn signals. (These keys blink.)

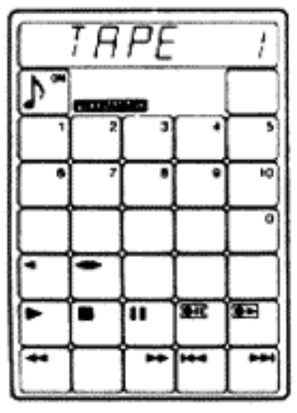
Note: *In the displayed menus, some keys are marked ●II or ●►.*
Assign a recording standby command to the keys marked ●II and assign a recording start command to the keys marked ●►.
Selecting a USE mode will clear these keys and dispay o . The ● key alone is not effective if pressed. It can transmit a recording standby command when pressed together with the II key or transmit a recording start command when pressed together with the ► key.



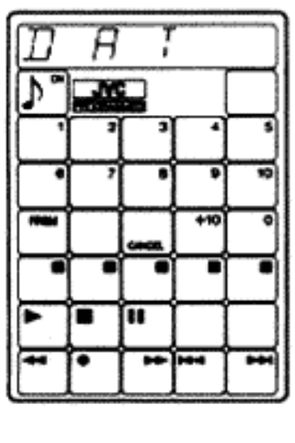
CD



CHANGER

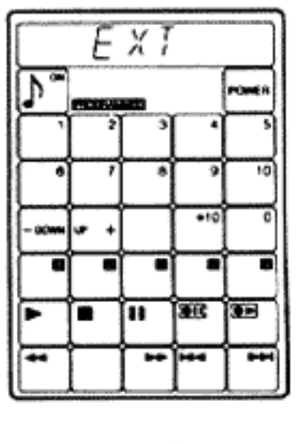


TAPE 1



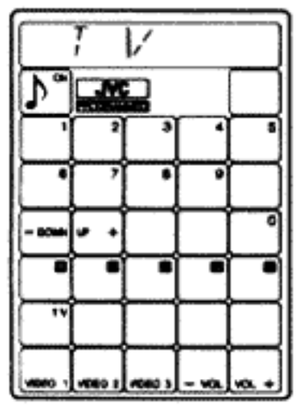
DAT

PHONO

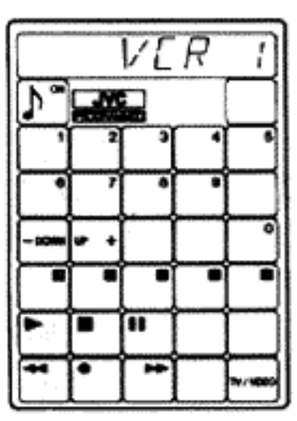


EXT

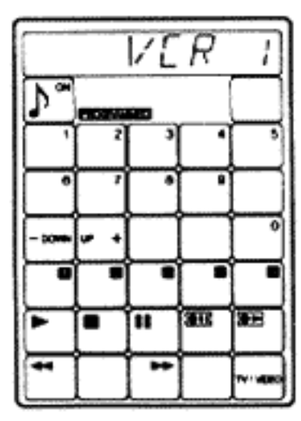
VDP

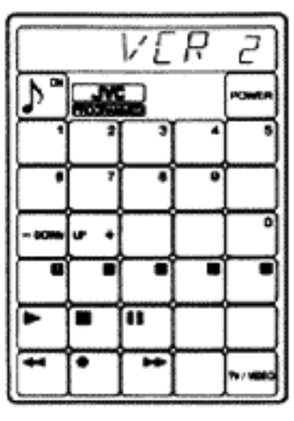


TV

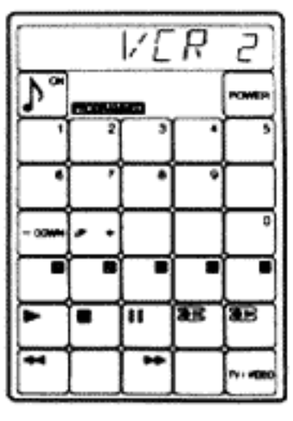


VCR 1





VCR 2



Preparation for learning

Before starting learning, make the following preparations:

1. Setting the Operation Mode

Set the operation mode selector switch on the back of the remote controller to the LEARN position.

2. Selecting a Menu and Operating the SELECT-1 Button

To assign signals to the keys on the touch-panel, select the menu having a desired title by pressing the corresponding button among source selector buttons and operation menu selector buttons (TV and EXT).

If the selected menu has both JVC extended mode and full open mode, select either mode by pressing the SELECT-1 button.

3. Operating the SELECT-2 Button

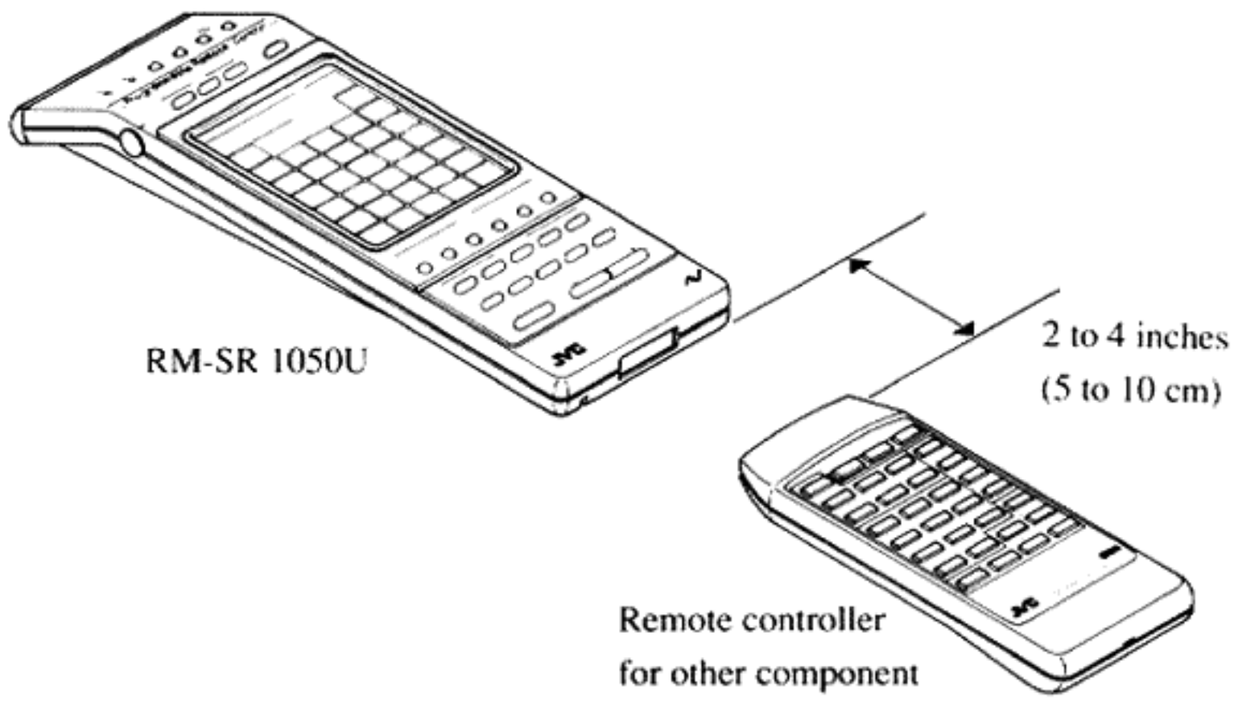
Press the SELECT-2 button to assign signals to three source selector buttons (VDP, VCR 1, and VCR 2) or two power switch buttons (TV and VCR). The menu on the touch-panel disappears.

4. Preparing the Remote Controller to Learn Control Signals

Place the remote controller of the other component and the receiver's remote controller on a level surface with their signal windows facing each other.

Separate the two remote controllers by 2 inches to 4 inches (5 cm to 10 cm). If this spacing is too great or small, learning may not be carried out properly.

Note: *Before starting learning, test the remote control operation using the other component's remote controller to make sure it is ready.*

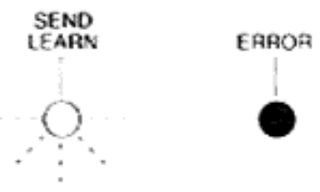


Learning

After completion of preparation, assign other remote controller's signals to the receiver's remote controller. Once a signal is assigned to a key or button, another signal cannot be assigned to it if attempted. Cancel the previously assigned signal as mentioned on the next page, then assign another signal.

Learning

① Press the key/button to which a signal is to be assigned.



The SEND/LEARN indicator starts blinking.
When a key on the touch-panel is pressed, only this key remains on the touch-panel and other keys disappear.

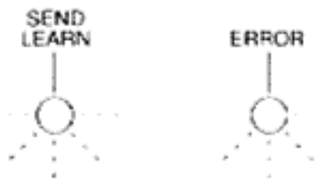
Important! *Go to the next step while the SEND/LEARN indicator is blinking for 7 seconds.*

- If the ERROR indicator lights, it means that the key cannot
  learn a signal. Press a key that can learn a signal.

- If you press a wrong key by mistake, press the correct key after the SEND/LEARN indicator stops blinking.

② Press the button on the other component's remote controller which you want again.

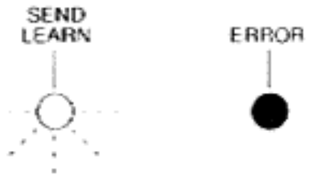
When the SEND/LEARN indicator that has been blinking lights continuously, the ERROR indicator also lights.



Important! *Keep pressing the button while the ERROR indicator remains lit.*

If the ERROR indicator goes off, it means learning has been completed successfully.

- If the ERROR indicator does not go off but the SEND/LEARN indicator goes off, learning has failed. Try learning again.



After a key on the touch panel has finished learning, another key appears and starts blinking. You can make the blinking key learn another signal in the same manner.

- If the memory becomes full, **OVER** is displayed on the touch-panel. No more signals can be assigned to keys.

Learning Error

If learning fails even after three or four attempts, the signal to be assigned does not match the receiver's remote controller.
The remote controller of this receiver can learn most infrared signals except special signals.

If an audio/video component cannot be operated by the key or button that succeeded in learning, retry learning.
Some audio/video components will not accept control signals whichdeviate even slightly from the specifications.

Canceling Learned Signals

There are two methods for canceling a learned signal.

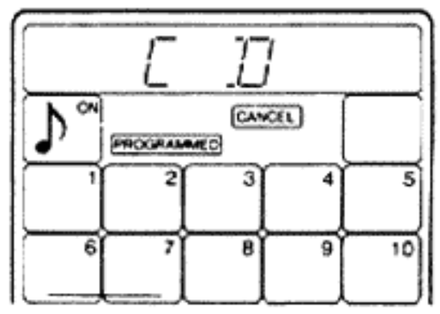
- **DELETE:** A signal assigned to only one key or button is canceled.
- **CLEAR :** Signals assigned to all buttons or one menu are canceled.

Before canceling a learned signal, be sure to finish the preparation for measurement explained on page 54.

① Press the CANCEL button.

The "CANCEL" mark appears on the touch-panel.

Important! *Go to the next step while the "CANCEL" mark is displayed for 7 seconds.*



Note: The "CANCEL" mark does not appear if there is no key that learned a signal.

② To delete a key or button, press it. To clear all buttons or a menu, press the ALL button at the right of the CANCEL button.

Important! *Keep pressing the key or button while the "CANCEL" mark is displayed.*

If the "CANCEL" mark disappear, it means that cancellation has been completed successfully. When deletion ends successfully, a beep sound is issued once. When deletion ends successfully, a beep sound is issued three times.

Note: *After completion of cancellation, set the operation mode selector switch to the USE position to use the remote controller for operating audio/visual components.*

Others

This part of the manual includes a troubleshooting guide and the specifications of the receiver.

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Troubleshooting .....back cover

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Specifications

AUDIO SECTION

Amplifier

Output Power:	
FRONT SPEAKERS	*120 watts per channel, min. RMS, both channels driven into 8 ohms from 20 Hz to 20kHz,with no more than 0.007 % total harmonic distortion.*
CENTER SPEAKER	*70 watts , min. RMS. into 8 ohms at 1 kHz, with no more than 0.7 % * total harmonic distortion.*
REAR SPEAKERS	*30 watts per channel, min. RMS. both channels driven into 8 ohms at 1 kHz, with no more than 0.7* % total harmonic distortion.*
Total Harmonic Distortion (8 ohms, 1 kHz) :	*0.003% * at 120 watts output*
Intermodulation Distortion :	*0.007% at 120watts output*
Frequency Response(8 ohms) :	
PHONO	*20Hz to 20 kHz (±0.5 dB)*
CD, DAT, TAPE 1, TAPE 2, VDP, VCR, VCR 1, VCR 2	*5 Hz to 20 kHz (+0 dB, -1 dB)*
Signal -to Noise Ratio ('66 IHF / '78 IHF) :	
PHONO	*80 dB/80 dB (REC OUT)*
CD, CAT, TAPE 1, TAPE 2, VDP, VCR 1, VCR 2	*100 dB/85 dB*
RIAA Phono Equalization :	*±0.5 dB (20 Hz to 20 kHz)*

Digital to Analog Converter

Sampling Frequencies :	*32 kHz / 44.1 kHz /48 kHz*

S.E.A. Graphic Equalizer:

Center Frequencies :	*63 Hz, 160 Hz, 400 Hz 1 kHz, 2.5 kHz, 6.3kHz, 16 kHz*
Control Range :	*± 10 dB*

FM Tuner (IHF)

Tuning Range :	*87.5 MHz to 108.0 NHz*
Usable Sensitivity :	*10.8 dBf (0.95 μV/75 Ohms)*
50 dB Quieting Sensitivity :	
monaural	*16.3 dBf (1.8 μV/75 ohms)*
stereo	*38.3 dBf (22.5 μV/75 ohms)*
Signal-to-Noise Ratio (IHF-A weighted) :	
monaural	*81 dB at 85 dB at 85 dBf*
stereo	*73 dB at 85 dBf*
Total Harmonic Distortion :	
monaural	*0.15 % at 1 kHz*
stereo	*0.2 : % at 1 kHz*
Stereo Separation at REC OUT :	*40 dB at 1 kH Z*
Capture Ratio (10 mV/300 ohms) :	*1.5 dB*
Alternate Channel Selectivity :	*65 dB : (±400 kHz)*
Image Responce Ratio :	*80 dB at 98 MHz*
IF Responce Ratio :	*85 dB at 98 MHz*
Frequency Responce :	*30 Hz to 15 kHz : (+0.5 dB, -3 dB)*

AM Tuner

Tuning Range :	530 kHz to 1.710 kHz (The U.S.A , Canada) 522 kHz to 1.629 kHz(Continental Europe , the U.K , Italy , Australia) 531 kHz to 1.602 kHz (Universal type with channel space 9kHz) 530 kHz to 1.600 kHz (Universal type with channel space 10kHz)
Usable Sensitivity :	
Loop antenna	300 μV/m at 1 kHz
External antenna	30μV at 1 kHz
Signal-to Noise Ratio :	50 dB at 1 kHz (100mV/M)
Selectivity :	38 dB : (± 10 kHz)
Image Responce Ratio :	40 dB at 1 kHz
IF Responce Ratio :	60 dB
Total Harmonic Distortion :	0.5 % at 1 kHz (100mV/m)

Analog I/O terminals

Input Sensitivity/Impedance (1 kHz) :	
PHONO (MM)	2.5 mV/ 47k ohms
PHONO (MC)	250 μV/ 100 ohms
CD, DAT, TAPE 1, TAPE 2, VDP, VCR 1, VCR 2	230 mV/ 47k ohms
Recording Output Level :	230 mV

Digital I/O terminals

Input Sensitivity/Impedance (1 kHz) ;	
optical	-23 to -14 dBm
coaxial	0.5 Vp-p/ 75 ohms
Recording Output Level/Impedance :	0.5 Vp-p/ 75 ohms

VIDEO SECTION

Signal System

Format :	NTSC type color signal and separated Y/C signals conforming to NTSC.

I/O Terminals 03

Signal-to-Noise Ratio :	45 dB
Crosstalk (3.58 MHz) :	45 dB
Synchronization :	Negative
Input Sensitivity / Impedance :	
VIDEO (Composite)	1 Vp-p/75 ohms
S-VIDEO Y (Luminance)	1 Vp-p/75 ohms
C (Chrominance, Burst)	0.286 Vp-p/75 ohms
Recording Output Level/Impedance :	
VIDEO (Composite	1 Vp-p/ 75 ohms
S-VIDEO Y (Luminance)	1 Vp-p/75 ohms
C(Chrominance, Burst)	0.286 Vp-p/75 ohms

GENERAL

Power Requirements :	AC120V , 60Hz (The U.S.A ,Canada) AC230V , 50Hz (Continental Europe) AC240V , 50Hz (The U.K , Australia) AC110,127,220,240V , 50/60Hz (Universal type)
Power Consumption :	530watts,650VA (The U.S.A ,Canada) 630watts (Continental Europe) 1250watts (The U.K , Australia) 630watts (Universal type)
Dimensions (W x H x D) :	17-13/16 x 6-3/16 x 15-1/2 inches 452 x 156 x 393 mm
Weight :	27.6lbs (12.5kg)

* Measured by JVC Audio Analysis System.
Design and Specifications subject to change without notice.

Troubleshooting

Problem	Possible Cause	Solutions
Receiver does not play;Display window does not light up.	Power cord not plugged in	Plug Power cord into AC outlet.
No sound from the speakers.	Speaker wires not connected properly.	Check speaker wiring. Reconnect if needed.
	SPEAKERS buttons not set correctly.	Press the SPEAKERS buttons in or out as desired.
Sound from one speaker only.	Speaker wires not connected properly.	Check speaker wiring. Reconnect if needed.
	Balance control may be set to one extreme.	Adjust Balance control so both speakers have sound.
Continuous hiss or buzzing during FM reception.	Incoming signal may be too weak.	Adjust antenna. Station may be too far away to receive.
	Incorrect antenna used.	Check with your dealer to make sure you are using the correct type of antenna.
	Antenna not connected properly.	Make sure all antennas are properly connected.
Occasional cracking noise during FM reception.	Ignition noise from automobiles.	Move the antenna further away from the road.
Howling during record playing.	Turntable too close to a speaker.	Move speakers away from the turntable.
No picture appears.	TV not connected properly.	Check TV connections. Reconnect if needed.
The Remote Controller cannot be operated.	There is an obstruction blocking the REMOTE SENSOR on the receiver.	Remove the obstruction.
	The batteries of the Remote Controller are weak.	Replace the battreries.

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1-60 (No. 20284)

Technical Explanations

■ AV Compu Link

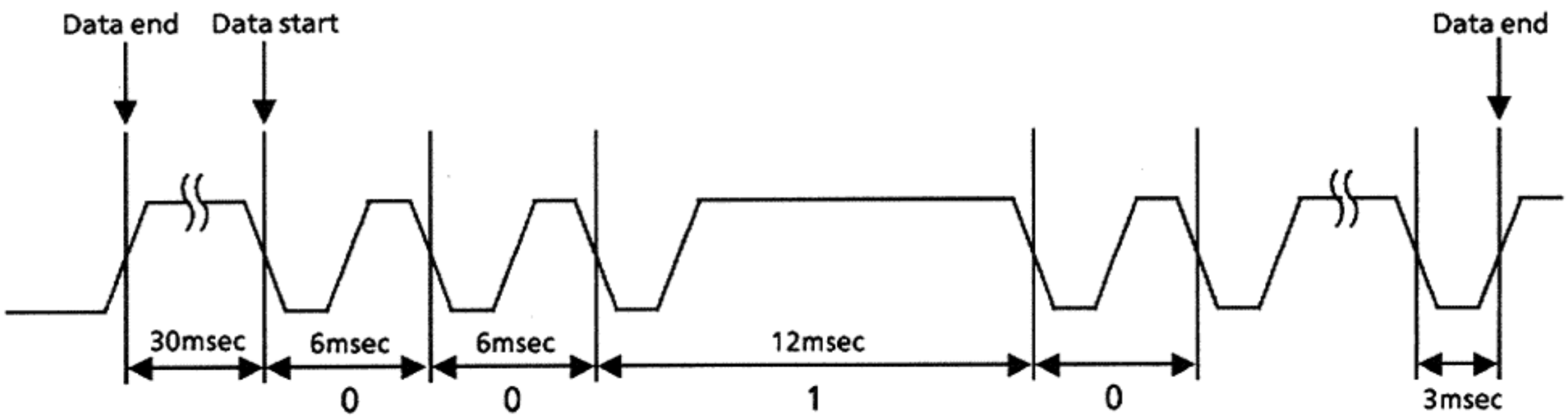
1 Description

AV Compu Link is a system to simplify A/V equipment operation that has been complicated and troublesome with systematization of A/V components.
Take note that A/V Compu Link system is different from conventional " COMPU LINK-1" and " AV control " systems employed in some of video equipment. So,do not use " COMPU LINK-1 SYNCHRO " terminals and ordinary AV control terminal for connection.

2. Signal of AV Compu Link

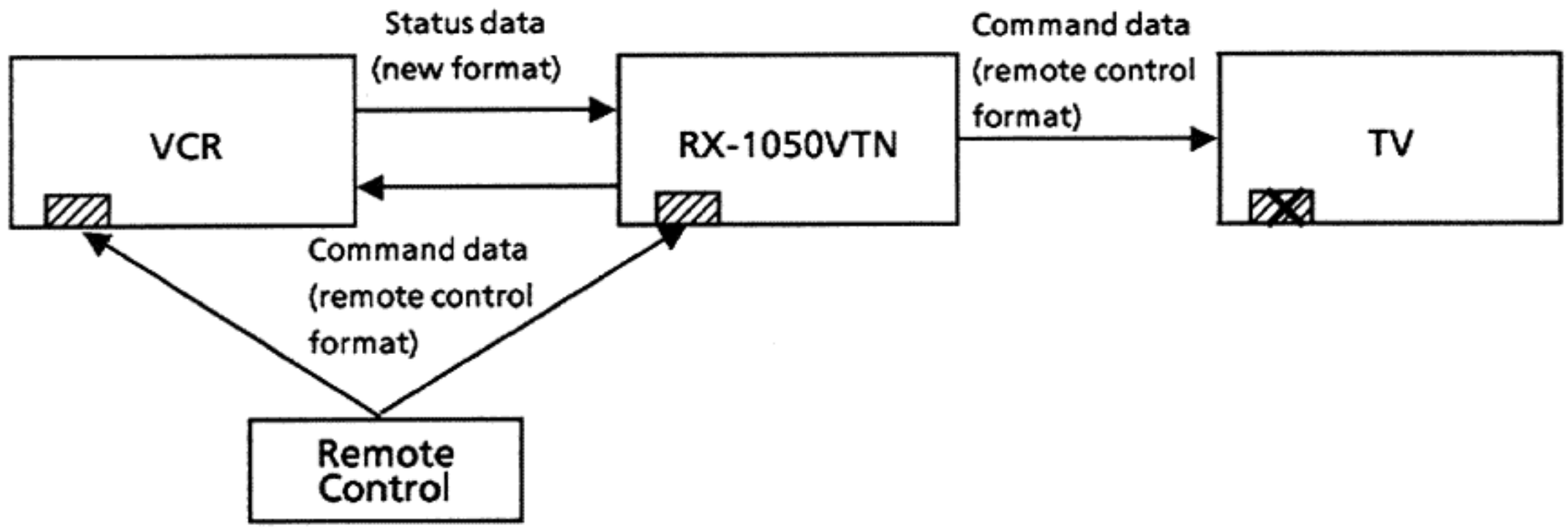
(1) Status information (new format)
RX-1050VTN receives necessary data about change in state from VCR as input of status information.
Input data is composed of 8 bits of which upper 3 bits are for equipment code and lower 5 bits are for status information.
On the other hand , RX-1050VTN outputs command data to VCR and TV through remote control cord (JVC standard).

(2) Specifications of status signal
See the figures below.



Input signal to RX-1050VTN

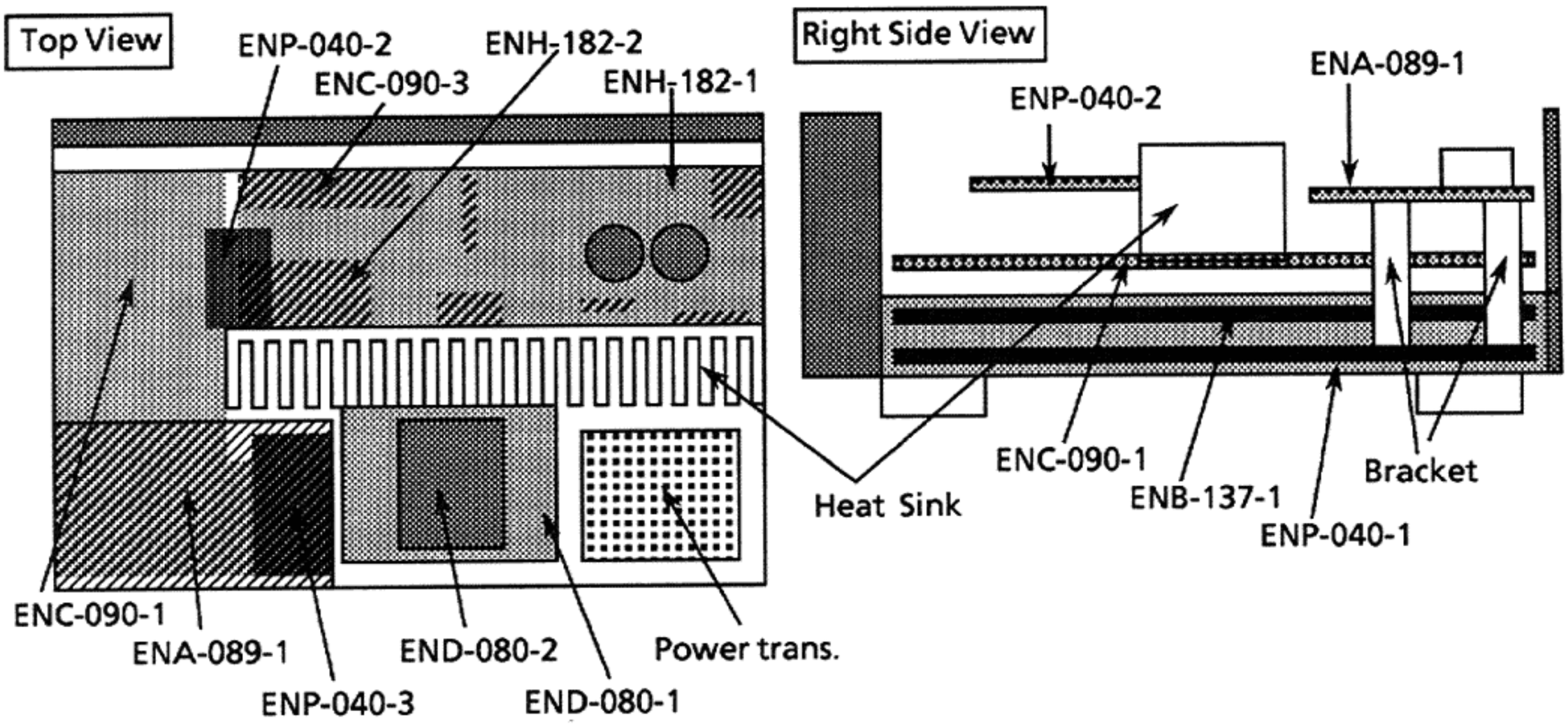
1) Transmission of new data is started (Data start) more than 30 msec after the rise of previous Data end.
2) Data 0 : 6 msec
Data 1 : 12 msec
3) End of data (DATA END) is at the rise of the 9th pulse.



Note : Take note that TV's remote sensor is inactivated when the AV Compu Link terminal is in connection , and the TV is controlled by signal that amplifier recives.

Disassembly Procedures

■ PCB Layout Diagram



■ Removing the top cover

1. Remove the 4 screws on both sides.
2. Remove the 2 screws located on the top of rear panel.
3. Slightly open both sides of the top cover, to the left and right, and raise the rear side. Then slowly lift it up and straight backward.

■ Removing the bottom cover (Fig 3)

1. Remove 17 screws Ⓐ fixing the bottom cover.

■ Removing the front panel (Fig 1,Fig 3)

1. Remove the top cover.
2. Remove the 3 plastic rivets Ⓒ on the upper part of the front panel and 6 screws Ⓑ from the lower part.
3. Remove the front panel.

■ Removing the System & FL control PCB (ENB-137-2) (Fig 4)

1. Remove the top cover.
2. Remove the front panel.
3. Remove the 2 screws Ⓓ.
4. Disconnect the connectors and flat wires. (PA401,PA402,PA462,PB442, PB411,PB412,PB413)

■ Removing the Tuner PCB (ENA-089-1) (Fig 1,Fig 2)

1. Remove the 4 screws Ⓔ on the rear panel and also remove 2 screws Ⓕ fixing the circuit board.
2. Pull off the connectors. (P101,P103)

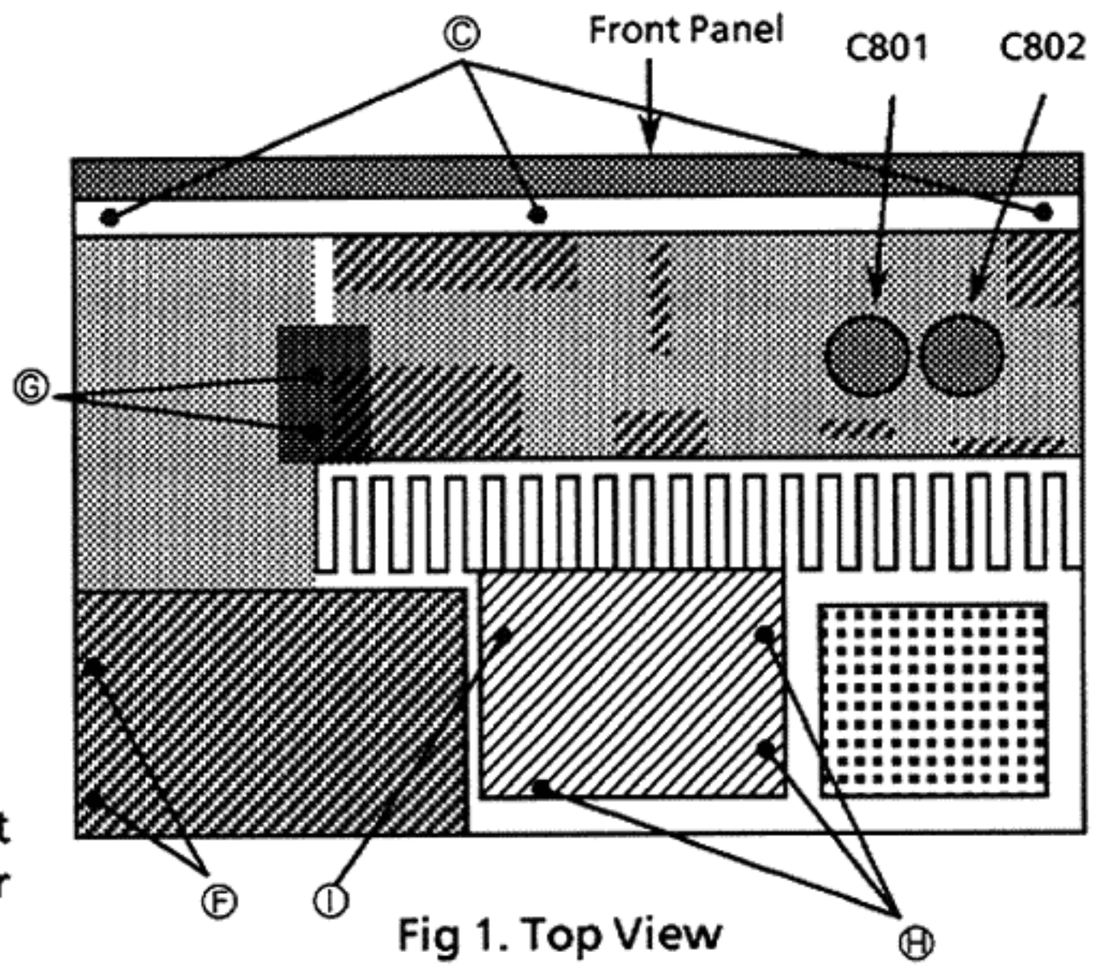


Fig 1. Top View

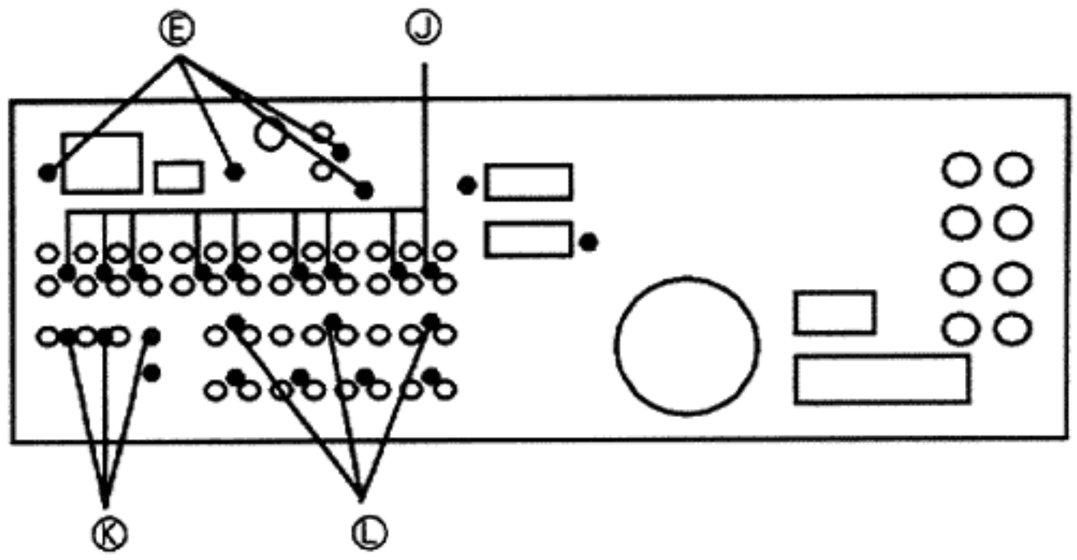


Fig 2. Rear View

■ Removing the Rear Effect P.C.B (ENP-040-2)

1. Remove the 2 plastic rivets Ⓖ.
2. Pull off the connectors.(PA423,PA424,PA425)

■ Removing the Power supply PCB (END-080-1)

1. Remove the 3 screws Ⓗ and the 1 plastic rivet Ⓘ fixing the circuit board.
2. Pull off the connectors. (PA834,PA835,PA653,PA812)
3. Unsolder the wires.

■ Removing the Source select & SEA PCB (ENC-090-1) (Fig 2)

1. Remove the Tuner PCB (ENA-089-1) andthe Power supply PCB (END-080-1).
2. Remove the 9 screws Ⓙ on the rear panel.
3. Remove the 3 screws fixing the circuit board.
4. Pull off the connectors. (PA244,PA302,PA303,PA304,PA305,PA301,PA651)
5. Remove the 2 blackets holding the P.C.Board.

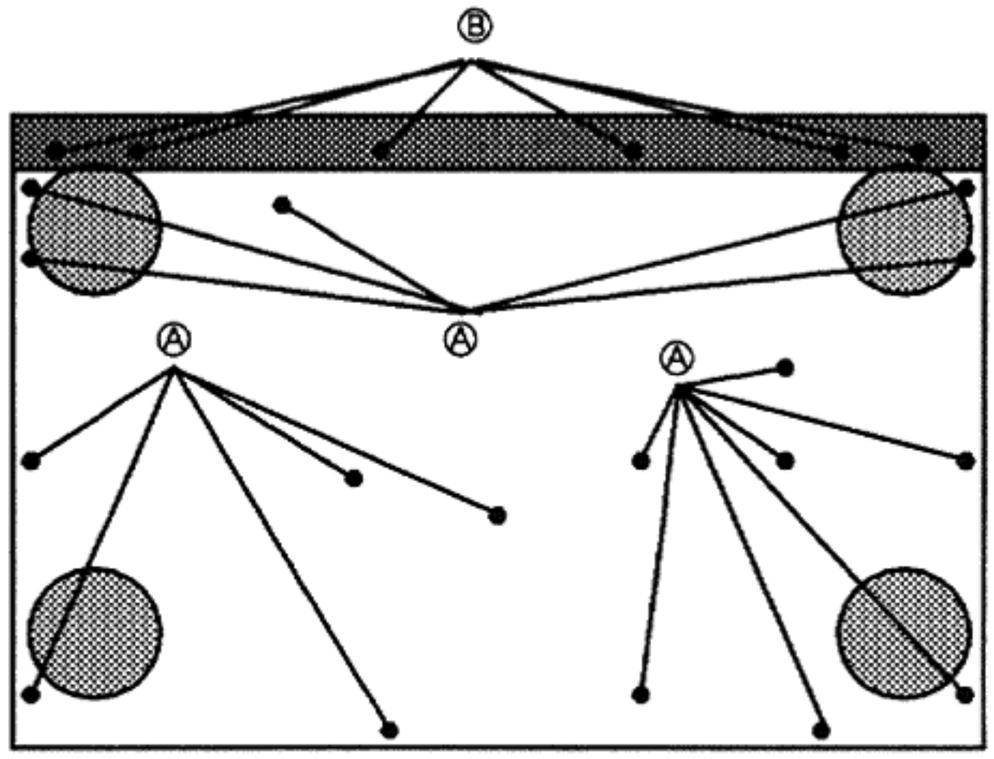


Fig 3. Bottom Cover

■ Removing the Volume control PCB (ENB-137-1) (Fig 2)

1. Remove the Tuner PCB (ENA-089-1) and the Source select & SEA PCB (ENC-090-1).
2. Remove the 3 screws Ⓚ on the rear panel.
3. Remove the 3 screws fixing the circuit board.
4. Pull off the connectors. (PA241,PA243,PA246,PA403,PA658,PA701, PA702)

■ Removing the Video selector PCB (ENP-040-3) (Fig 2)

1. Remove the Tuner PCB (ENA-089-1) .the Source select & SEA PCB (ENC-090-1),and the Power supply PCB (END-080-1).
2. Remove the 3 screws Ⓛ on the rear panel.
3. Remove the 1 screw fixing the circuit board.
4. Pull off the connectors. (PA657,PA654)

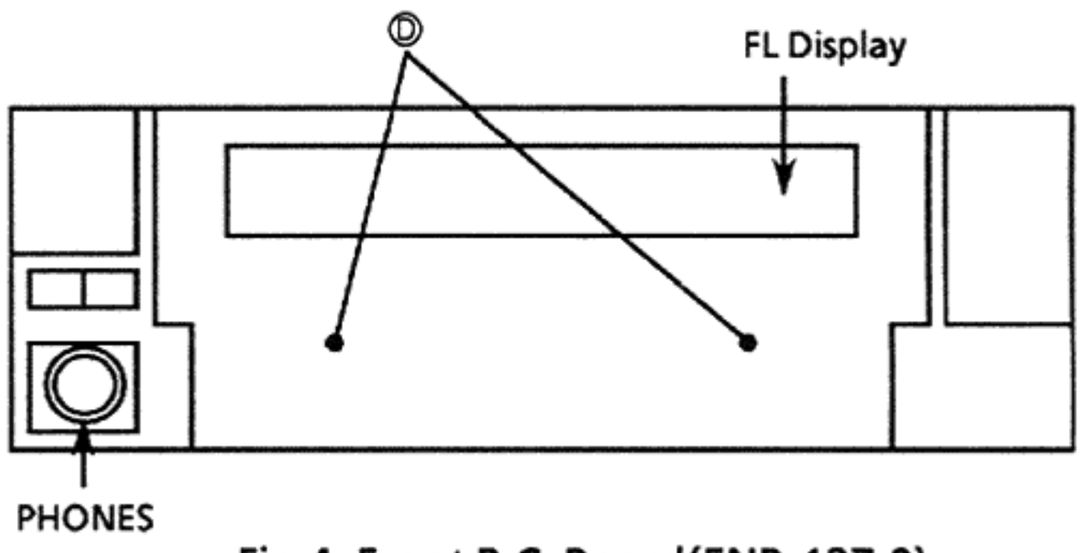


Fig 4. Front P.C. Board(ENB-137-2)

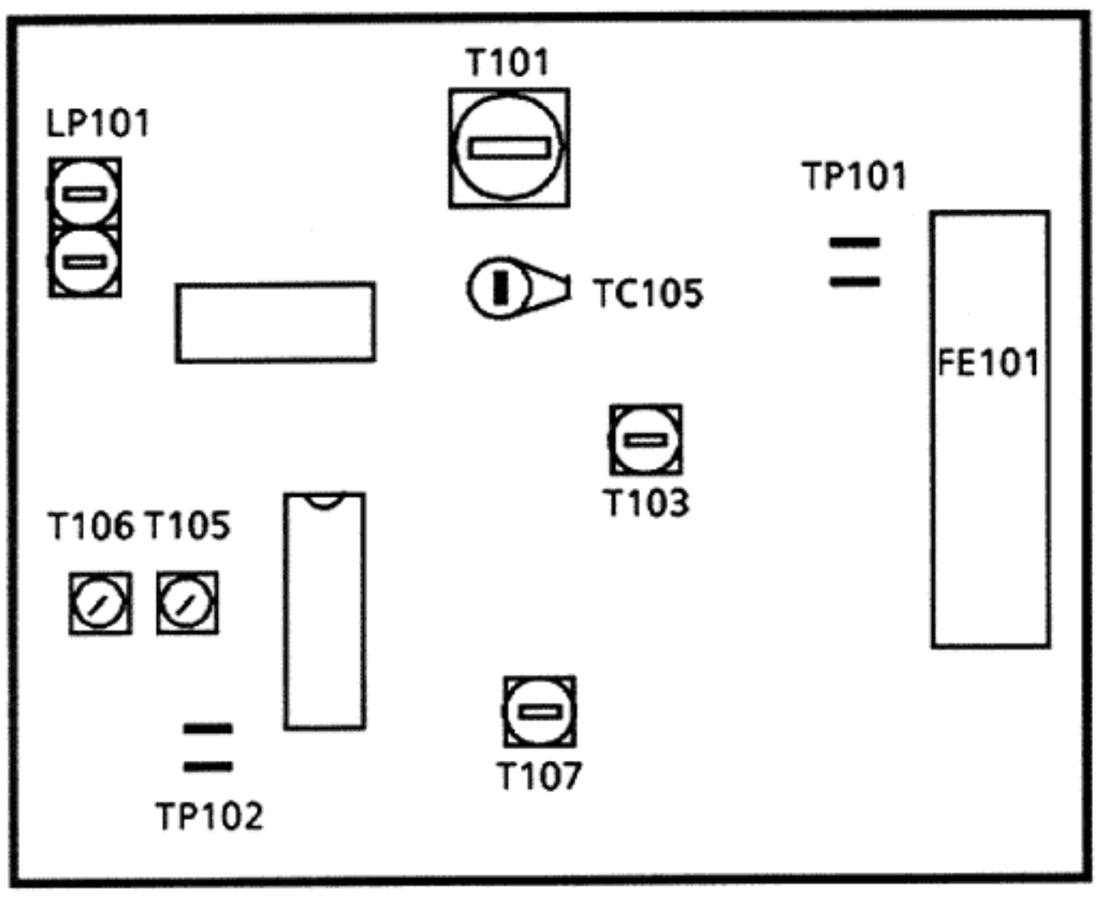
■ Removing the DSP P.C.B.(ENP-040-1)

1. Remove the Tuner PCB(ENA-089-1),Source select & SEA PCB(ENC-090-1) and Video selector PCB (ENP-040-3).
2. Remove the shield bracket.
3. Remove the 7 screws on the rear panel .
4. Remove the 4 screws fixing the P.C.Board.
5. Remove the bracket.
6. Pull off the connectors.(PA421,PA422,PA655)

■ Removing the Fan control & Regulator P.C.B.(END-080-2)

1. Remove the END-080-1.
2. Remove the 4 screws fixing the P.C.Board.
3. Pull off the connectors(PA804,P872).

FM/AM Tuner Alignment Procedures



FRONT

1. FM section

■ FM tuning voltage
(1) Set the frequency display to "108.0MHz".
(2) Confirm that the FM inter-station noise is received.
(3) Confirm that the voltage of test point "TP101" is 8.0 ± 2.0V.
(4) Set the frequency display to"87.5 MHz" and confirm the voltage of test point
"TP101" is 1.6 ± 1.0V.

■ FM detector coil : T105, T106
(1) Connect a digital voltmeter to test point "TP102", and receive to "100.1MHz" signal with SSG ATT 70dB.
(2) Adjust T105 so that the digital voltmeter becomes 0 ± 1.5mV.
(3) At the same time, Adjust T106 so that the monaural distortion of the output becomes minimised.

2. MW section

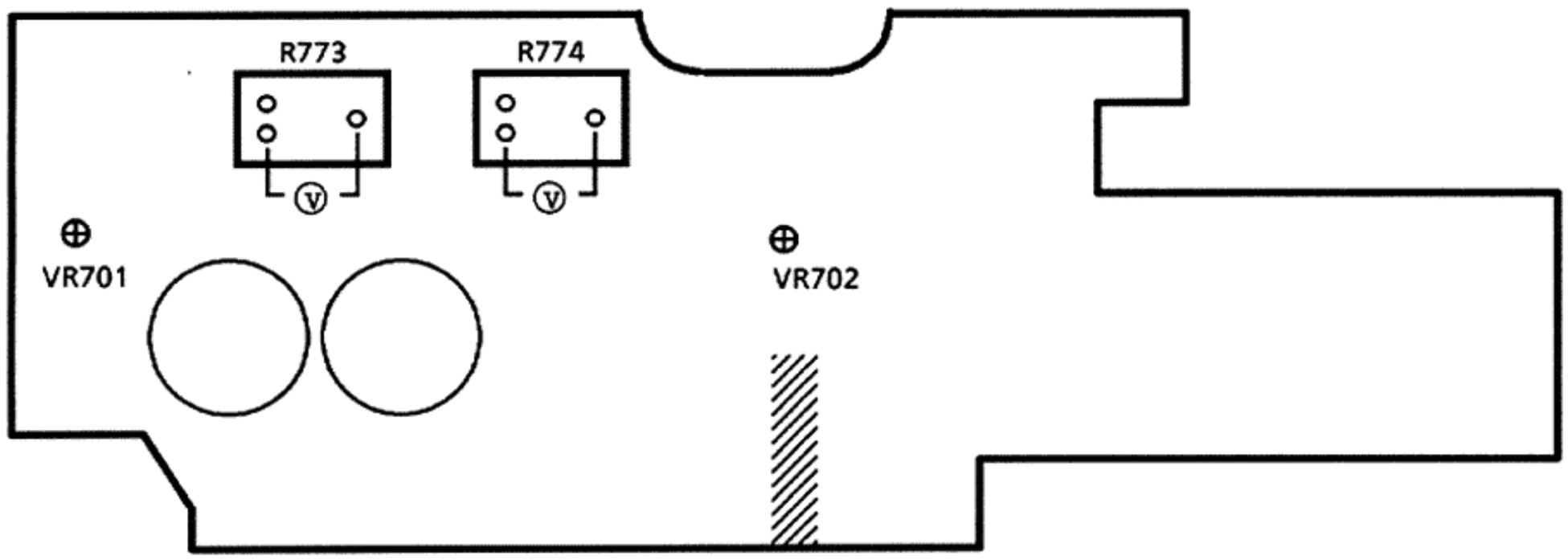
Note ( ) : Australia , the U.K. and Continental Europe
{ } : Channel space 9kHz for universal version
「 」 : Channel space 10kHz for universal version
[ ] : The U.S.A and Canada

■ MW oscillator : T103
(1) Set the frequency display to (522kHz) {531kHz} 「530kHz」 [522kHz] and confirm the voltage of test point "TP101" is (0.9 ± 0.2V) {1.0 ± 0.2V} 「1.0 ± 0.2V」 [1.0 ± 0.2V].
(2) Set the frequency display to (1629kHz) {1602kHz} 「1600kHz」 [1710kHz] and confirm the voltage of test point "TP101" is (7.5 ± 0.8V) {7.2 ± 0.7V} 「7.2 ± 0.7V」 [8.0 ± 0.8V].
(3) If its voltage exceeds the allowance, adjust T103 to obtain the voltage.

■ MW antenna coil : T101
(1) Connect a loop antenna to the "AM Loop" terminal on the rear panel.
(2) Adjust T101 to obtain the best receiving sensitivity at 600kHz or 603kHz.

■ MW antenna trimmer : TC105
(1) Adjust TC105 to obtain the best receiving sensitivity on 1400kHz or 1404kHz.

Power Amplifier Adjustment Procedures



■ Idling Current
(1) Turn VR701 and VR702 fully counterclockwise before the power switch on.
(2) Warm up at least 5 minutes before adjustment.
(3) Must keep the heatsink to prevent overheating before adjustment.
(4) Set the volume control to minimum during this adjustment.
(5) Connect a DC voltmeter to R773 resistor's leads for left channel, or to R774 for right channel.
(6) Adjust VR701 for left channel, or VR702 for right channel, so that the DC voltmeter becomes 2mV ~ 7mV

Description of Major LSIs

■ MN171202JPD (IC461) : System Controller

Pin functions

NO.	symbol	I/O	Function
1	VDD	---	Power supply (+ 5V)
2~17	P24~P9	O	FL segment control output.
18	Vpp	---	– 38V.
19~26	P8~P1	O	FL segment control output.
27	DATA0	I	Data input from IC401.
28	DATA1	I	Data input from IC401.
29	DATA2	I	Data input from IC401.
30	DATA3	I	Data input from IC401.
31	JPC STB	I	Strobe signal input from IC401.
32	JPC REQ	O	Request signal output to IC401.
33	JPC BUSY	I	Busy signal input to IC401.
35	BUSY	I	Busy signal input from IC486.
36	SCK	O	Serial clock output to IC486.
37	STB	O	Strobe signal output to IC486.
38	DATA	O	Data output to IC486.
39	SPI STB	O	Strobe signal output to IC433.
40	SPI CLK	O	Serial clock output to IC433 and IC434.
41	SPI DATA OUT	I	Data input from IC434.
42	SPI DATA IN	O	Data input to IC433 and IC434.
43	$\overline{\text{RST}}$	I	Reset signal input from IC401.
44	IPC CLK	I	Clock signal input from IC401.
45	$\overline{\text{INH}}$	I	Inhibit signal input from IC401.
46	NTSC/$\overline{\text{PAL}}$	I	H : NTSC mode , L : PAL mode
47	SY-DET	I	Sync signal detect input.
48	SPI-CS	O	Chip select signal output to IC434.
49	SW	O	Composite / Component switching signal output
50		---	Not used.
51		---	Not used.
52	POR	O	Reset signal output to IC465
53	CLK	O	Clock signal output to IC465
54	DSP DATA	O	Display data output to IC465
55	LOAD	O	Latch clock signal output to IC465
56	A	O	Data output to IC462.
57	B	O	Data output to IC462.
58	C	O	Data output to IC462.
59	D	O	Data output to IC462.
60		---	Connect to GND.
61		---	Not used.
62		---	Connect to GND.
63	OSC2	O	Connect to ceramic resonator (6.00MHz).
64	OSC1	I	Connect to ceramic resonator (6.00MHz).

■ MN171602JPC (IC401) : System Controller

Pin functions

NO.	symbol	I/O	Function
1	VDD	---	Power supply (+ 5V)
2~9	I/O1~I/O8	I/O	External D-RAM data I/O terminal.
10~21	A0~A10	O	External D-RAM address output terminal.
22	RECEIVED	O	RECEIVED indicatior control signal output.
23~26	DATA0~DATA3	O	Data output to IC461.
27	JPC CLK	O	Clock signal output to IC461.
28	JPC STB	O	Strobe signal output to IC461.
29	JPC REQ	O	Request signal output to IC461.
30	JPC BUSY	O	Busy signal output to IC461.
31	STB1	O	Strobe signal output to IC305,IC302 and IC211.
32	STB2	O	Strobe signal output to IC231 and IC304.
33	STB3	O	Strobe signal output to IC221.
34	STB4	O	Pull down.
35	SEA DI	O	SEA data output to IC504.
36	SEA CLK	O	SEA clock output to IC504.
37	RCK	O	Read clock output to IC291.
38	IC/RST OUT	O	Reset signal output to IC405.
39	WCK/REQ	O	Request signal output to IC405.
40	CLK	O	Clock signal output to IC405 IC302,IC304,IC305,IC211,IC221,IC231 and IC291.
41	INH	O	Inhibit signal output to IC405 and IC461.
42	DATA	O	SPI data output to IC405 and IC461.
43	RESET	I	Reset signal input.
44	$\overline{\text{INH IN}}$	I	Inhibit signal input.
45	REMOCON	I	Remote control signal input.
46	BUSY	I	Busy signal input from IC405.
47	DCS IN2	I	DCS IN2 signal input.
48	DCS OUT2	O	DCS OUT2 signal output.
49	VCR OUT	O	AV compulink signal output for VCR.
50	VCR IN	I	AV compulink signal input for VCR.
51	TV OUT	O	AV compulink signal output for TV.
52	TV CONT	O	Control the remote signal to TV.
53			
54			
55	$\overline{\text{CE}}$	O	Chip enable signal output for external D-RAM.
56	$\overline{\text{WE}}$	O	Write enable signal for external D-RAM.
57	TUNER MUTE	O	Tuner mute signal output.
58	$\overline{\text{HOLD}}$	O	Hold signal output to IC421.
59	$\overline{\text{RST}}$	O	Reset signal output to IC421 and IC461.
60		---	Connect to GND.
61		---	Not used.
62		---	Connect to GND.
63	OSC2	O	Connect to ceramic resonator (6.00MHz).
64	OSC1	I	Connect to ceramic resonator (6.00MHz).

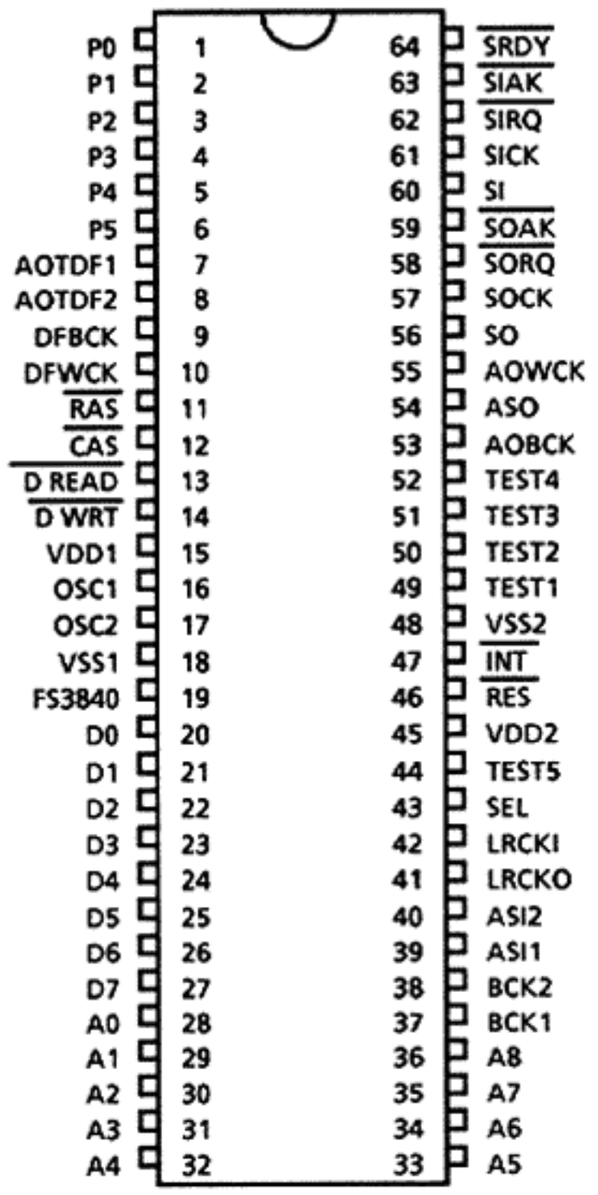
■ MN17581JNO (IC405) : System Controller

Pin functions

NO.	symbol	I/O	Function
1	VCC	---	Power supply (+ 5V)
2	VSS	---	Connect to GND.
3	$\overline{\text{INH}}$	I	Inhibit signal input from IC401.
4	$\overline{\text{REQ}}$	I	Request signal input from IC401.
5	$\overline{\text{REQ}}$	I	Request signal input from IC401.
6	BUSY	O	Busy signal output to IC401.
7	AD RES	---	Not used.
8	$\overline{\text{DSP OFF}}$	---	Not used.
9	$\overline{\text{D.RES}}$	O	Reset signal output to IC670.
10	$\overline{\text{SRDY}}$	O	Ready signal output to IC670.
11	$\overline{\text{STRQ}}$	O	Request signal output to IC670.
12	T.TONE	---	Not used.
13	S1	---	Not used.
14	S2	---	Not used.
15	S3	---	Not used.
16	ANA/DIG	I	Connect to + 5V
17	MUTE	O	Mute signal output.
18	$\overline{\text{CE}}$	O	Chip enable signal output to IC406.
19	A.SW		
20		---	Not used.
21~28	D0~D7	O	External S-RAM data I/O terminal.
29~43	A0~A14	O	External S-RAM address output terminal.
44		---	Not used.
45	$\overline{\text{EXPS}}$	I	Pull up(+ 5V).
46	FS1	I	Connect to GND.
47	FS2	I	Connect to VCC.
48	ERR	---	Connect to GND.
49	TEST	---	Connect to GND.
50	$\overline{\text{SIAK}}$		
51		---	Connect to GND.
52	CLK	I	Clock signal input from IC401.
53	DATA	I	Data input from IC401.
54	S.DATA O	---	Not used.
55	SICK	O	Serial clock output to IC670.
56	$\overline{\text{INH}}$	I	Inhibit signal input from IC401.
57	SI	O	Serial data output to IC670.
58	$\overline{\text{RST}}$	I	Reset signal input from IC401.
59	SYNC	---	Not used.
60	X2	---	Not used.
61	X1	---	Not used.
62	VES	---	Connect to GND.
63	OSC2	O	Connect to ceramic resonator (7.2MHz).
64	OSC1	I	Connect to ceramic resonator (7.2MHz).

■ LC83010N (IC670)
: DSP (Digital Signal Processor)

(1)Terminal layout



(2) Pin functions

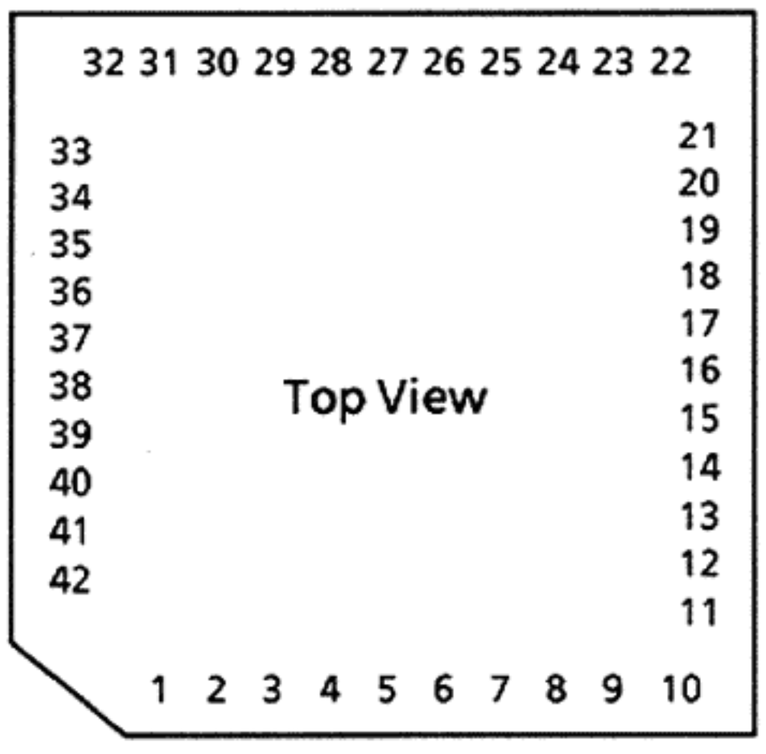
Pin No.	Symbol	I/O	Function
1~6	P0~P5	I/O	Not used
7,8	AOTDF1 / AOTDF2	O	Audio serial data output.
9	DFBCK	O	Bit clock for AOTDF1 / AOTDF2 output.
10	DFWCK	O	Not used
11	RAS	O	ROW ADDRESS STROBE : Signal output when accessing external D-RAM.
12	CAS	O	COLUMN ADDRESS STROBE : Signal output when accessing external D-RAM.
13	D READ	O	Data read signal output when accessing external D-RAM.
14	D WRT	O	Data write signal output when accessing external D-RAM.
15,45	VDD	---	Power supply (+5V)
16	OSC1	I	External clock input. (384fs)
17	OSC2	O	Not used
18,48	VSS	---	Ground
19	FS384O	O	384fs output
20~27	DO~D7	I/O	Data input / output between external D-RAM and these pins.
28~36	A0~A8	O	Address output for external D-RAM.
37	BCK1	I	Bit clock for ASI 1 input.
38	BCK2	I/O	Bit clock for ASI 2 input.
39	ASI 1	I	Audio data input
40	ASI 2	I	Audio data input
41	LRCKO	O	L/R channel selectable signal output.(L:R-ch , H:L-ch)
42	LRCKI	I	L/R channel selectable signal input.(L:R-ch , H:L-ch)
43	SEL	I	Oscillator selectable signal input. (L:external , H:internal)
44	TEST 5	O	Output for TEST.
46	RES	I	Reset input
47	INT	I	Interrupt request signal input.
49~52	TEST1~TEST4	I	Input for test. Connect to ground.
53	AOBCK	O	Bit clock for ASO output
54	ASO	O	Audio data output
55	AOWCK	O	Not used
56	SO	O	Not used
57	SOCK	I	Not used
58	SORQ	I	Request signal input for output
59	SOAK	O	Not used
60	SI	I	Serial data input from control micro computer.
61	SICK	I	Serial clock input for SI input.
62	SIRQ	I	Request signal input for serial input.
63	SIAK	O	Signal output which indicates that the serial input is on the execution.
64	SRDY	I	Ready signal input which indicates that the serial data input from control micro computer is an end.

■ JCE4302A (IC653): Digital filter and D/A Converter

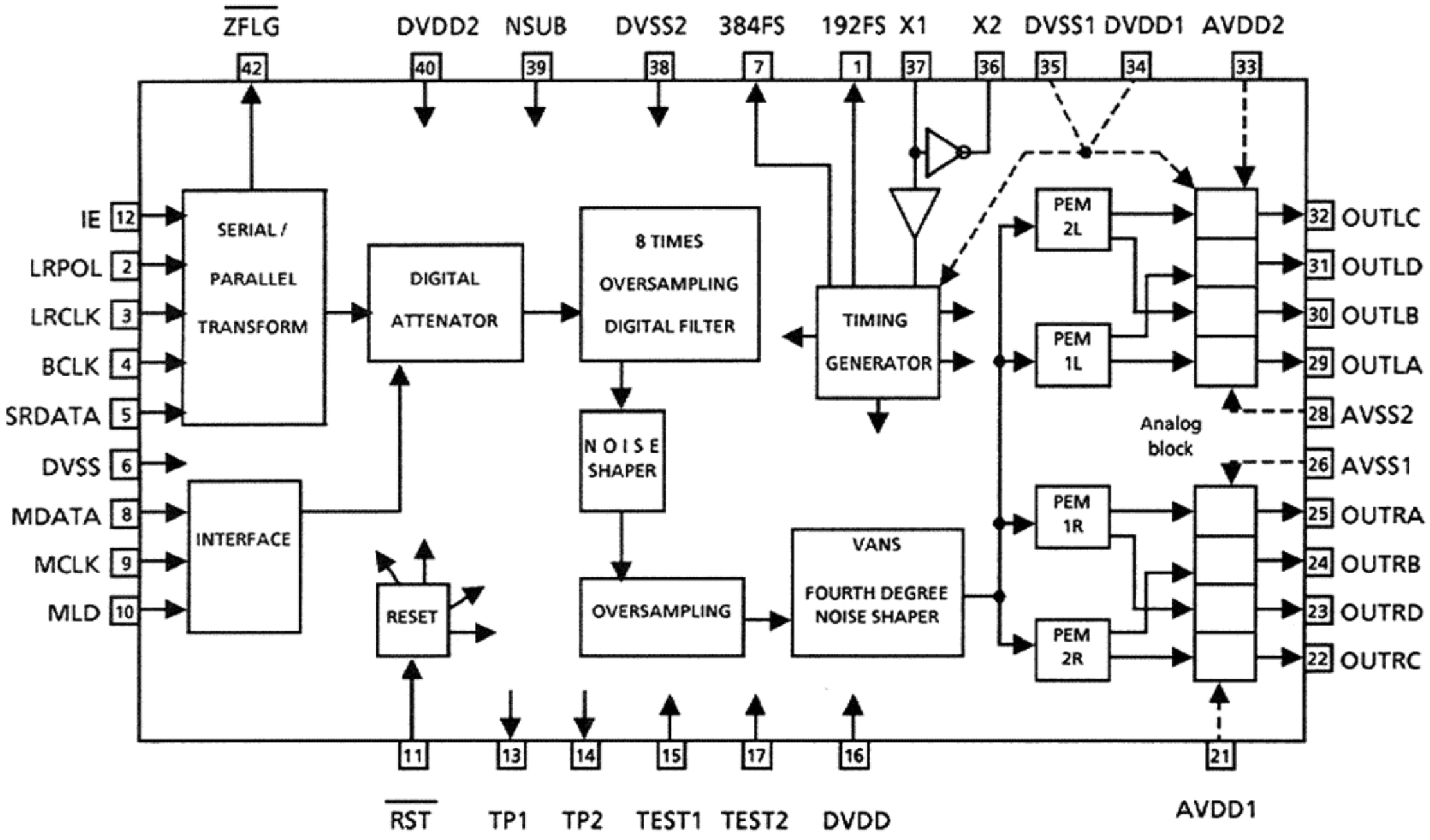
1. Outline

The JCE4302A is a D / A Converter IC with good linearity and high resolution more than 20 bits , and built-in 8 times oversampling digital filter and noise shaping DAC.High resolution data from digital filter is once sampled over sampling and compressed by unsturated fourth degree noise shaper for VANS (Victor Adcvanced Noise Shaper) ,while repress quantization noise of audio range at non problem level (– 120dB). Then it changed pulse wave (A,B,C,D) at changing for crystal clock by PEM(Pulse Edge Moduration) method which has no high frequency distortion, and directly transform to analog signal.
Zero cross and glitch distortion which were generated at rather type DAC are bad for quality; and they are excluded in principle by 1 bit movement of pulse wave so that correct linearity is obtainable.
Pulse wave A,B,C,D are compounded at external, and become analog signals which is faithful to input.

2. Terminal Layout



3. Internal Block Diagram



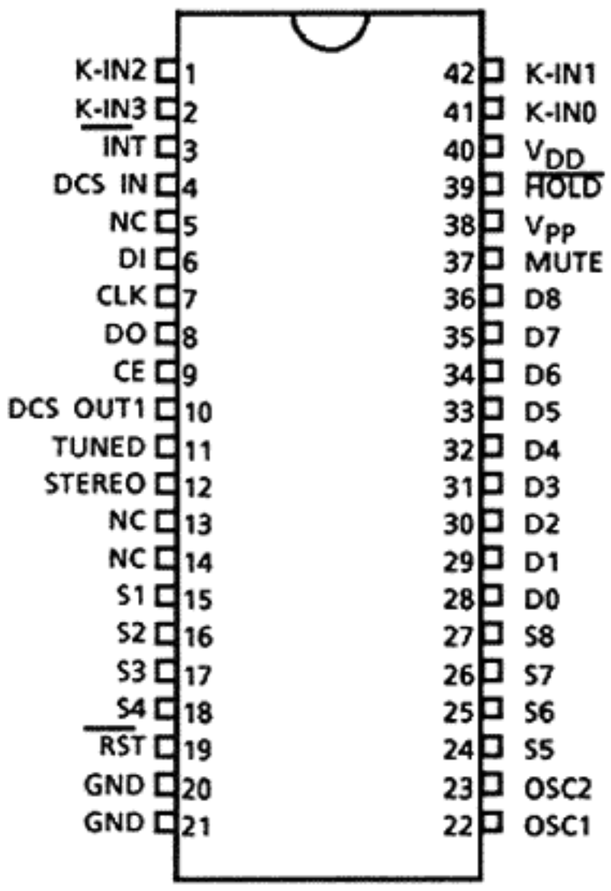
4. Terminal Function

Pin No.	Symbol	I/O	Active	Function
1	192FS	O	—	192fs output pin (Not used)
2	LRPOL	I	H	L-ch / R-ch switching pin.(H: When LRCLK is H, SRDATA is L-ch)
3	LRCLK	I		L / R switching signal of SRDATA.
4	BCLK	I		Bit transfer instruction input. (bit transfer at rise)
5	SRDATA	I		Serial data input.
6	DVSS	—		Digital system ground pin.
7	384FS	O		384fs output pin.
8	MDATA	I	L	Microprocessor command input pin. (Connect to GND)
9	MCLK	I	H	Microprocessor clock input pin. (bit transfer at rise)
10	MLD	I	H	Latch signal of MDATA.
11	$\overline{\text{RST}}$	I		Reset signal input pin. (L : Active)
12	IE	I	L	Changing the format of SRDATA. (Connect to GND)
13	TP1	O	—	Digital filter test outpit pin 1. (Not used)
14	TP2	O	—	Digital filter test outpit pin 2. (Not used)
15	TEST1	I	L	Digital filter test input pin 1. (Connect to GND)
16	DVDD	—	H	Digital system power supply pin. (common fixed electrical potential pin)
17	TEST2	I	L	Digital filter inspection test signal input pin. (Connect to GND)
18	NC		—	(Not used)
19	NC		—	(Not used)
20	NC		—	(Not used)
21	AVDD1	—		Analog system power supply pin.
22	OUT RC	O		Rch output C.
23	OUT RD	O		Rch output D.
24	OUT RB	O		Rch output B.
25	OUT RA	O		Rch output A.
26	AVSS1	—		Analog system ground. (Rch)
27	NC		—	(Not used)
28	AVSS2	—		Analog system ground. (Lch)
29	OUT LA	O		Lch output A.
30	OUT LB	O		Lch output B.
31	OUT LD	O		Lch output D.
32	OUT LC	O		Lch output C.
33	AVDD2	—		Analog system ground.
34	DVDD1	—		Digital system power supply pin.(timming generator section)
35	DVSS1	—		Digital system ground.
36	X2	O		X'tal oscillator pin.
37	X1	I		X'tal oscillator pin. (384fs = 16.9344MHz)
38	DVSS2	—		Digital system ground.
39	NSUB	—	H	Connects to D-Vdd.(silicon substrate fixed electrical potential pin)
40	DVDD2	—		Digital system power supply pin.
41	NC		—	(Not used)
42	$\overline{\text{ZFLG}}$	O		Detect the input data "0". (When input data is "0", ZFLG is L.)

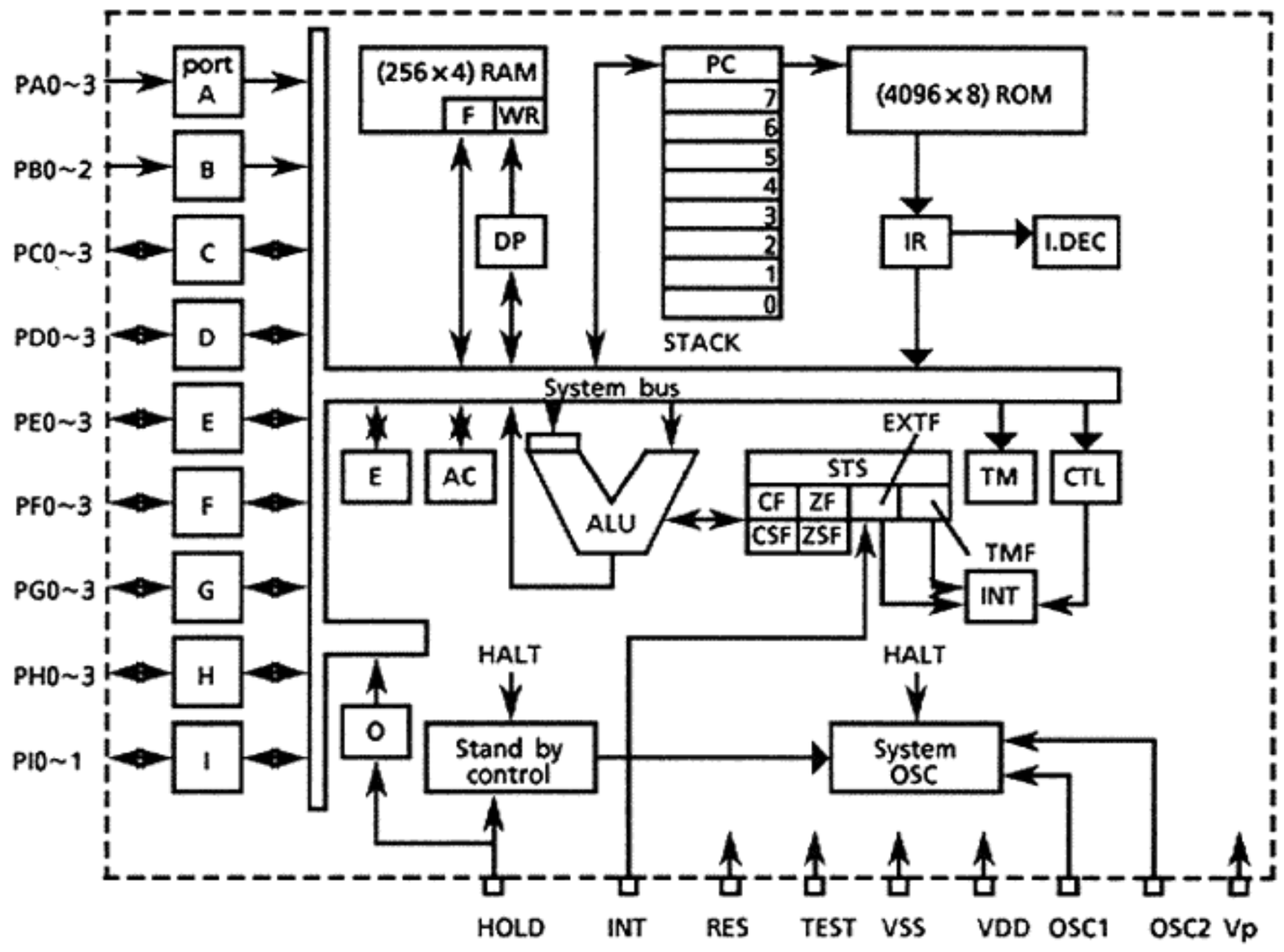
("---" is open)

■ LC6514B-4131 (IC421) : Tuner Control & FL Driver

1. Terminal Layout



2. Block Diagram



3. Key Matrix table

Pin No. IN / OUT	41 (K-IN0)	42 (K-IN1)	1 (K-IN2)	2 (K-IN3)
28 (D0)		MEMORY	AUTO MEMORY	
29 (D1)	FM	AM		AUTO MODE
30 (D2)	TUNING UP	TUNING DOWN		
31 (D3)	1	2	3	4
32 (D4)	5	6	7	8
33 (D5)	9	10	+10	PRESET SCAN

4. Terminal Functions

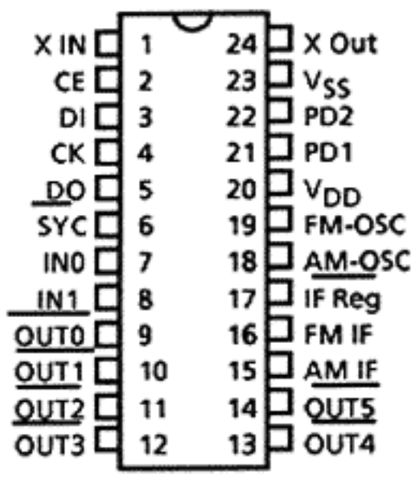
Pin No.	Name	I/O	Function
1	K-IN2	I	Key matrix input.
2	K-IN3	I	Key matrix input.
3	$\overline{INT}$	I	Not used. (Connect to V_{DD}.)
4	A BUS IN	I	COMPU-LINK signal input.
5	NC	—	Non connection.
6	DI	I	Serial data input from PLL (IC102 : LC7218).
7	CLK	O	Serial clock output to PLL (IC102 : LC7218).
8	DO	O	Serial data output to PLL (IC102 : LC7218).
9	CE	O	Chip enable output to PLL (IC102 : LC7218).
10	A BUS OUT	O	COMPU-LINK signal output.
11	TUNED	I	Broadcast receiving when "L" is input.
12	STEREO	I	FM stereo reception when "L" is input.
13, 14	NC	—	Non connection.
15~18	S1~S4	O	Segment drive for FL display.
19	$\overline{RES}$	I	Reset signal input.
20	GND	—	Connect to GND.
21	GND	—	Connect to GND.
22	OSC1	—	1MHz Resonator.
23	OSC2	—	1MHz Resonator.
24~27	S5~S8	O	Segment drive for FL display.
28~31	D0~D3	O	Digit drive for FL display and key matrix output.
32~33	D4~D5	O	Digit drive for FL display and key matrix output.
34	D6	O	Digit drive for FL display.
35	D7	O	Key matrix output.
36	D8	O	Key matrix output.
37	MUTE	O	Muting output.
38	V_P	—	−39V.
39	$\overline{HOLD}$	I	Hold signal input.
40	V_{DD}	—	+5 V.
41	K-IN0	I	Key matrix input.
42	K-IN1	I	Key matrix input.

■ LC7218 (IC102) : PLL Synthesizer

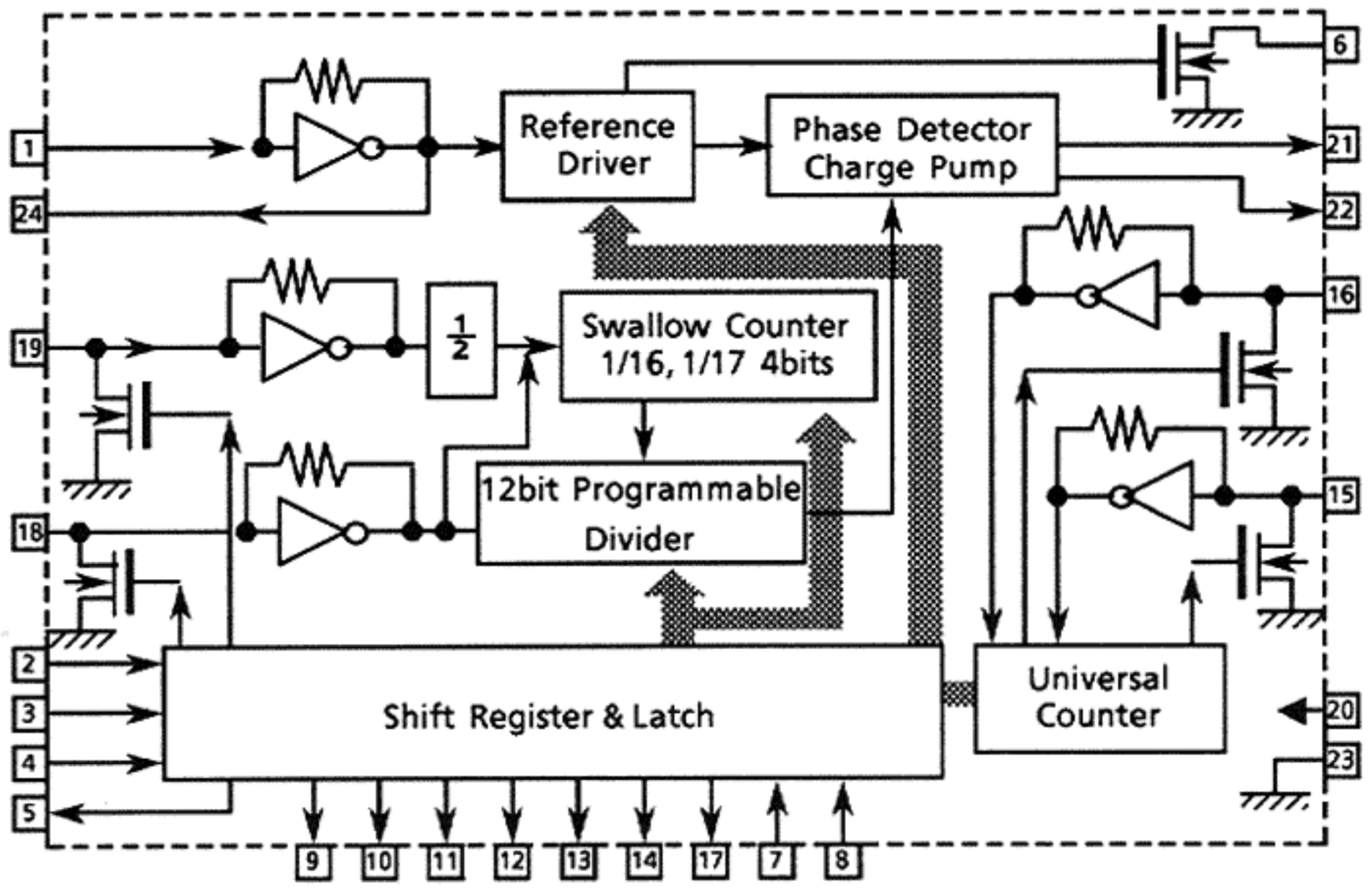
1. The main function descriptions

(1) It makes the local oscillation frequency by the control data from IC102.
(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 IC102.

2. Terminal Layout



3. Block Diagram



4. Pin Functions

Pin No.	Symbol	I/O	Function
1, 24	X in, X out	I/O	Crystal oscillator (7.2MHz).
2	CE	I	Fix the chip enable to "H" when inputting (DI) and outputting (DO) the serial data.
3	DI	I	Receive the control data from the controller (IC421).
4	CK	I	This clock is used to synchronize data when transmitting the data of DI and DO.
5	DO	O	Transmit the data from LC7218 to the controller which is synchronized with CK.
6	SYC	—	Not use
7	Tuned in	I	Receive the tuned signal from IC104 (LA1266A).
8	Stop in	I	Not use
9	POWER	---	Not use
10	QSC	---	Not use
11	MONO	---	MONO
12	FM	O	It is "L" on FM mode.
13	MW	O	It is "L" on AM mode.
14	LW	—	Not use
15	AM-IF	I	Universal counter input for AM-IF from IC104 (LA1266A).
16	FM-IF	I	Universal counter input for FM-IF from IC104(LA1266A).
17	IF REQ	O	Output the "IF-signal request" to IC104 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_{DD}	—	This is a terminal of 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	O	Not use
23	Vss	—	GND

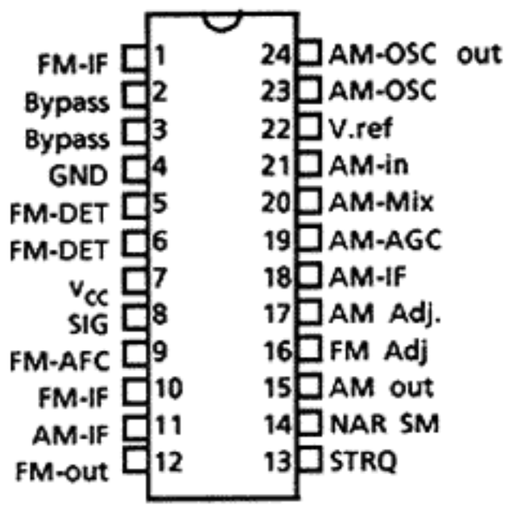
■ LA1266A (IC104) : FM / AM IF AMP & detector

1. The main function descriptions

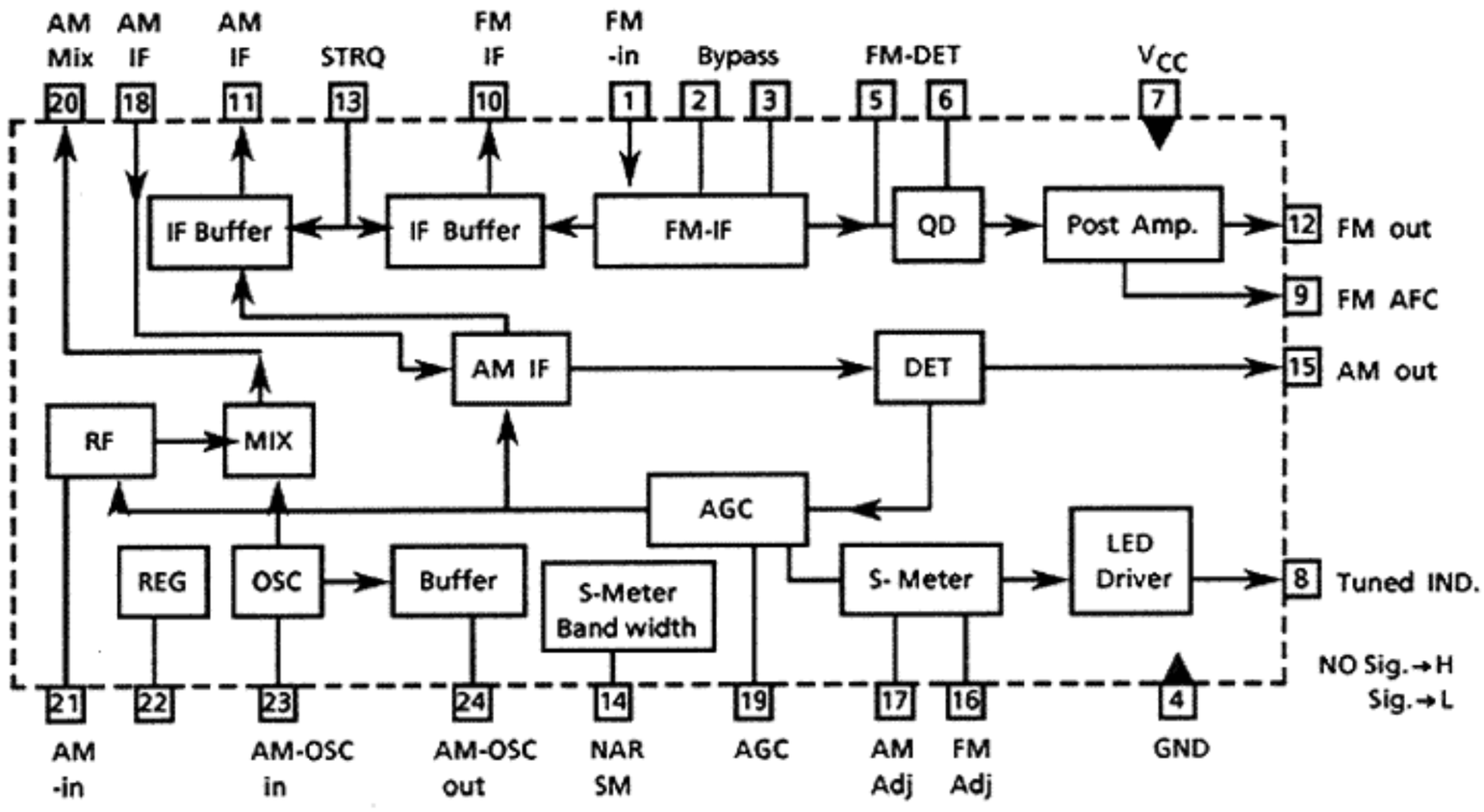
(1) Amplify and detect of FM intermodulation frequencies.

(2) It has local oscillator and mixer for AM, and amplify the AM-IF signal.

2. Top View



3. Block Diagram



4. Pin Functions

Pin No.	Symbol	I/O	Function
1	FM IF	I	This is an input terminal of FM IF Signal.
2, 3	Bypass		Bypass of FM IF Amp.
4	GND		This is the device ground terminal.
5, 6	FM DET		FM detect transformer.
7	V_{CC}		This is the power supply terminal.
8	SIGNAL	O	Mute drive and signal stop drive output when tuning. Active Low
9	FM AFC	O	This is an output terminal of voltage for FM-AFC.
10	FM IF	O	When the IF REQ signal of IC102(LC7218) applies to pin13, the signal of FM IF outputs.
11	AM IF	O	When the IF REQ signal of IC102(LC7218) applies to pin13, the signal of AM IF outputs.
12	FM out	O	FM detection output.
13	STRQ	I	The IF-signals come out from pin10 (FM-IF) or pin11 (AM-IF) while this terminal goes to "High".
14	NAR SM		Control the Band-width of AM signal meter.
15	AM out	O	AM detection output.
16	FM Adj		For adjust the stop level (or mute level) of FM.
17	AM Adj		For adjust the stop level (or mute level) of AM.
18	AM-IF	I	Input of AM IF Signal.
19	AM-AGC	I	This is an AGC voltage Input terminal for AM.
20	AM-MIX	O	This is an output terminal for AM mixer.
21	AM-IN	I	This is an input terminal for AM RF Signal.
22	V.REF		Control the Band-width of FM signal meter.
23	AM-OSC		This is a terminal of AM Local oscillation circuit.
24	AM-OSC out	O	AM Local Oscillation Signal output.

■ LA3401 (IC105) : FM MPX Detector

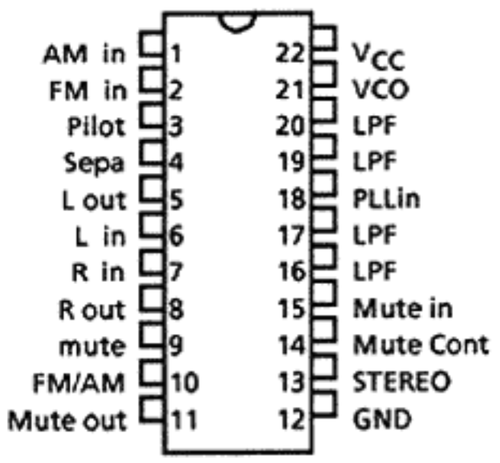
1. The main function descriptions

(1) Detect the FM Multiplex Signal (Stereo signal).

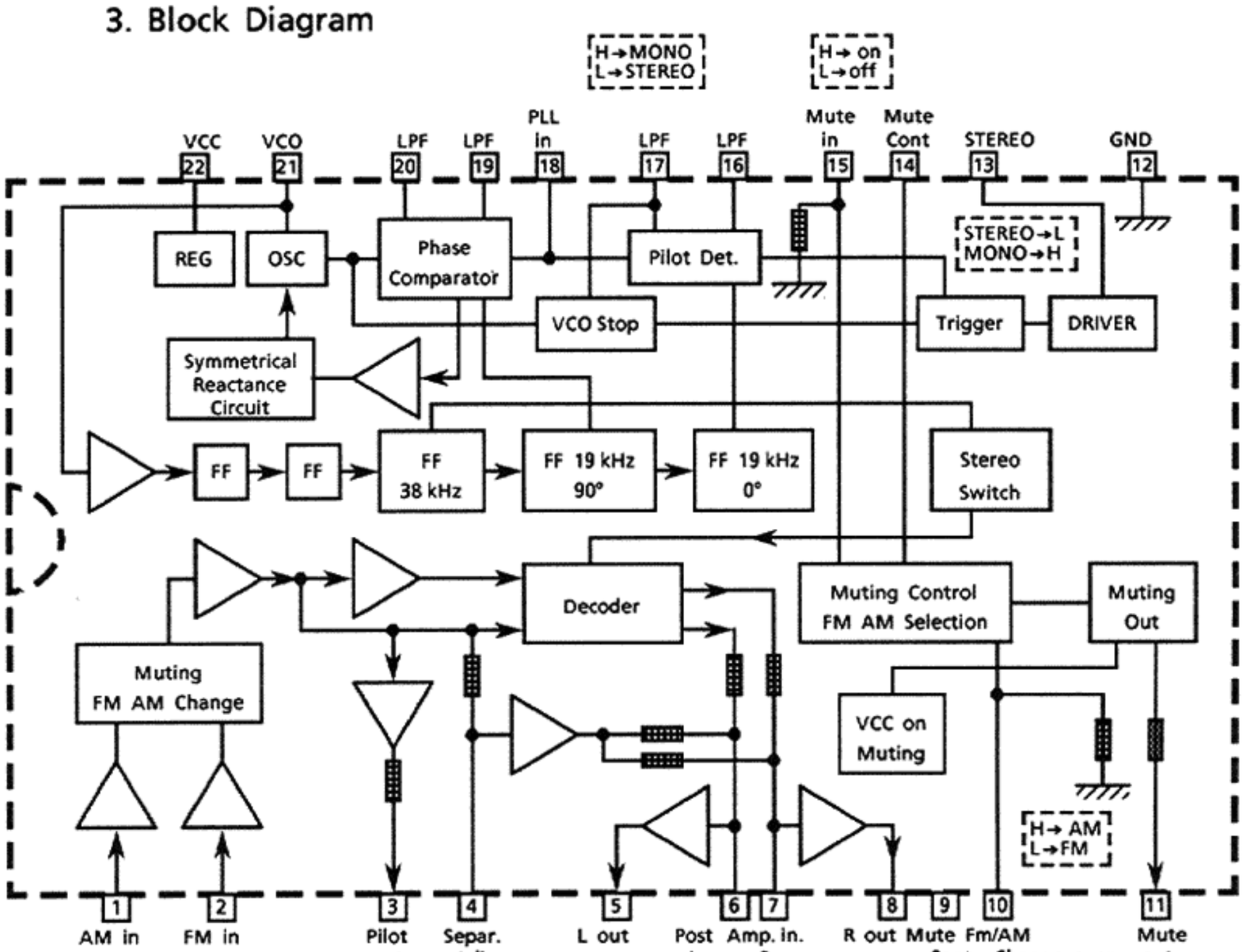
(2) When receiving FM Stereo Signal, it outputs the signal for indicator.

(3) AM / FM Audio Amplifier.

2. Terminal Layout



3. Block Diagram

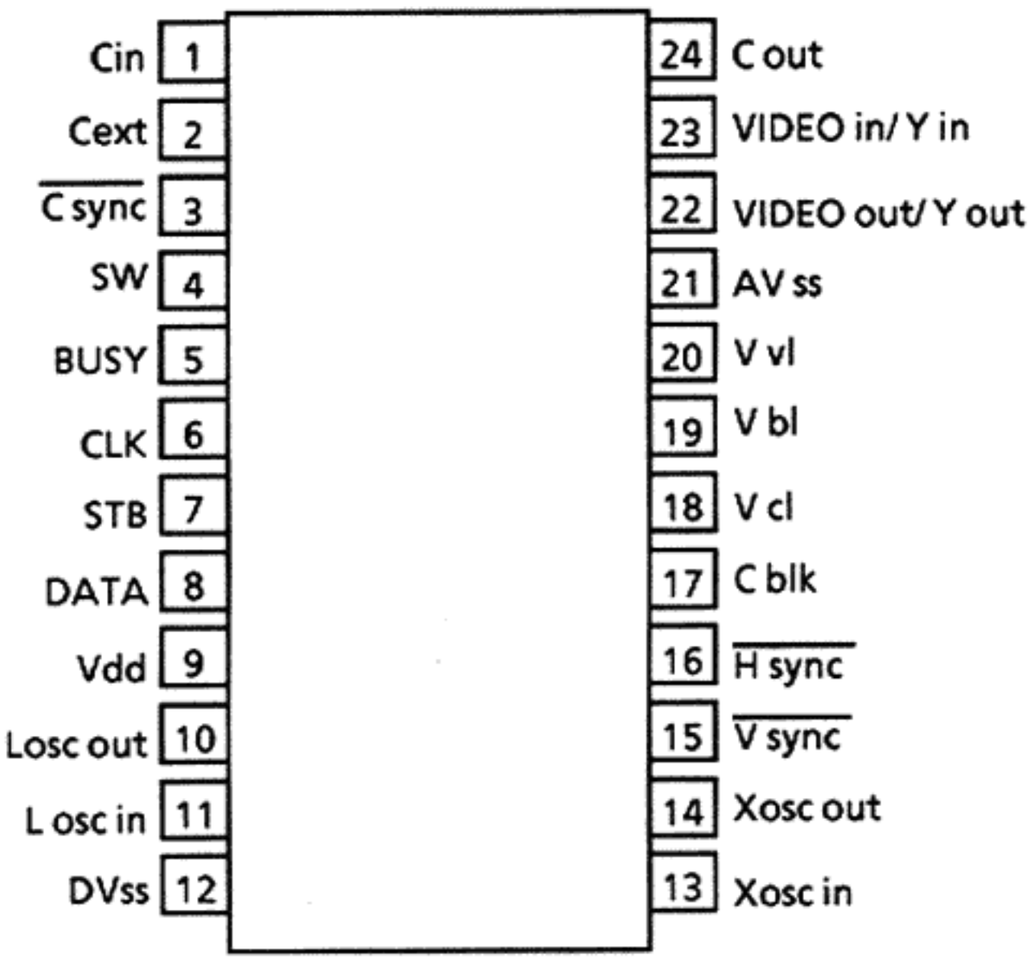


4. Pin Functions

Pin No.	Symbol	I/O	Function
1	AM in	I	This is an input terminal for AM detection signal.
2	FM in	I	This is an input terminal for FM detection signal.
3	Pilot out	O	Output of MPX pilot signal (Connect to Pin18).
4	Sepa. Adj.	---	Separation adjustment.
5	L. out	O	Left channel signal output.
6	L	O	Reversal output of Pin5.
7	R	O	Reversal output of Pin8.
8	R out	O	Right channel signal output
9	Mute Cont	---	The mute time is controlled by the connected capacitor when turning the power switch on.
10	FM / AM	I	Change over the FM / AM input. "H" : AM, "L" : FM
11	Mute out	---	Not use
12	GND	---	Ground terminal.
13	Stereo	O	Stereo indicator output. Stereo : "L", Mono : "H"
14	Mute Cont	---	The mute time is controlled by the connected capacitor when changing over the FM / AM .
15	Mute in	I	MutE signal input. "H" : Mute on, "L" : Mute off.
16	LPF	---	Low pass filter of pilot detector.
17	LPF	---	While this terminal goes to "H", the VCO stop.
18	Pilot in	I	Pilot signal input.
19	LPF	---	Low-pass filter of Pilot signal.
20	LPF	---	Low-pass filter of Pilot signal.
21	VCO	---	Voltage controlled oscillator terminal.
22	V_{CC}	---	Power supply.

■ μPD6452CS(IC486) : ON SCREEN Display Drive IC for S Output

1. Terminal Layout



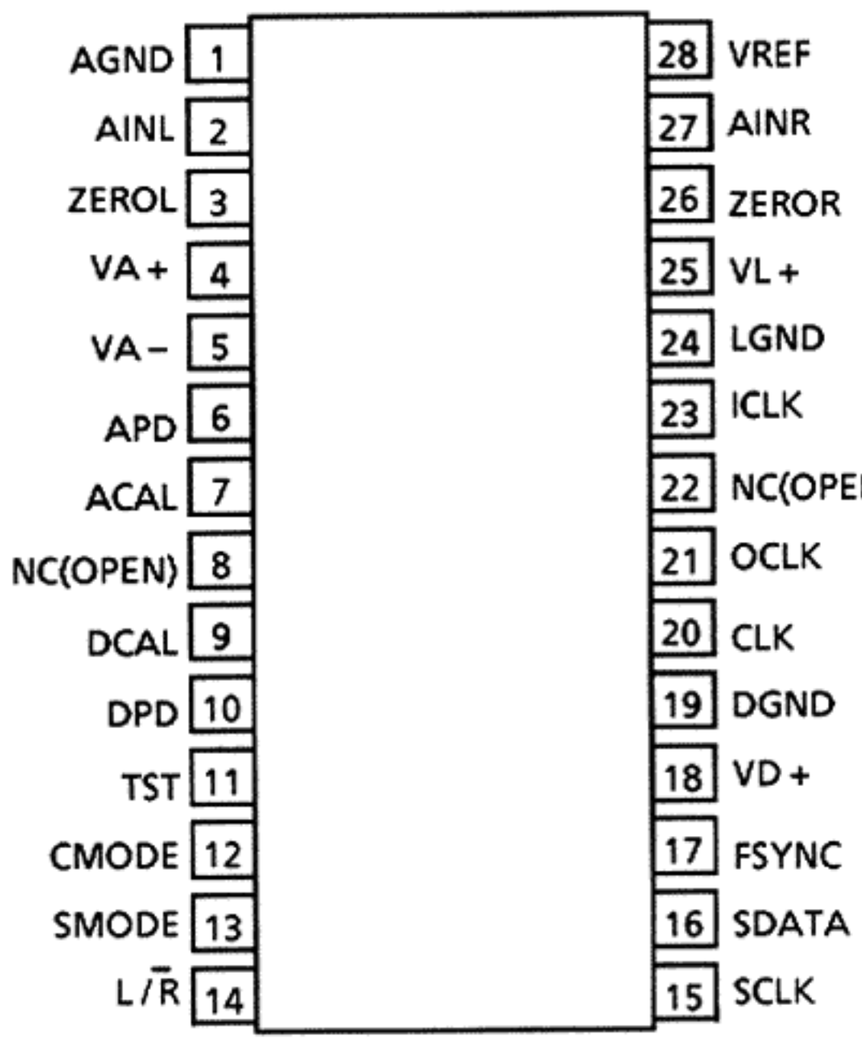
2. Pin Functions

Pin No.	Pin Name	Functions
1	C in	Input terminal of component chrominance signal.
2	C ext	Terminal of external capacitance to prevent crossing of colors.
3	C sync	Composite synchronous signal is output with synchronism negative from this terminal when internal synchronous signal is generated.
4	SW	If high level signal is input,device is set for component signal,and if low level signal is input,device is set for composite signal.
5	BUSY	Input terminal to notify micro computer of possibility of inputting of strobe after strial data have been input. Strobe can be input when low level.
6	CLK	Input terminal of clock for reading data. Data applied to DATA terminal are read at rise of clock.
7	STB	Strobe input terminal used after serial data have been input. 8-bit data are read at rise of pulse applied to STB terminal.
8	DATA	Input terminal of control data. Data are read msynchronized with clock applied to CLK terminal.
9	V dd	Terminal to supply power(+ 5V).
10 11	L osc out L osc in	Terminal to connect coil and capacitor of oscillator to generate dots and clock.
12	G ss	Connected to GND of system.
13 14	X osc in X osc out	Crystal oscillator terminal of oscillator to generate internal synchronous signal.
15	V sync	Input terminal of vertical synchronous signal. Input with active low.
16	H sync	Input terminal of horizontal synchronous signal. Oscillation starts when H-sync is at high level and is synchronized with rise of H-sync. Input with active low.
17	C blk	Output terminal of blanking signal to cut video and chrominance signals when external component is input. Output with active high.
18	V cl	Input terminal for adjustment of level of character signal (white level).
19	V bl	Input terminal for adjustment of level of background signal (black level).
20	V vl	Input terminal for adjustment of level of video /Y signal (sink tip level) made when internal synchronous signal is generated.
21	G ss	Connected to GND of system.
22	Video out / Y out	Output terminal of mixture of Vin/Yin signals and character signal made when external is input,and mixture of composite video signal and character signal when internal synchronous signal is generated and SW = 0 and mixture of component brightness signal and character signal when SW = 1.
23	Video in / Y in	Input terminal of composite video signal or component brightness signal. Input with synchronization negative and video positive.
24	C out	Output terminal of component chrominance signal. This signal opens output when external composite video signal is input and opens output synchronizing with the character and background signal output when external component signal is input. It also opens output when internal synchronous signal is generated and composite video signal ic applied,and its output level is fixed by Vv1 synchronizing with character and background signals when component signal is applied.

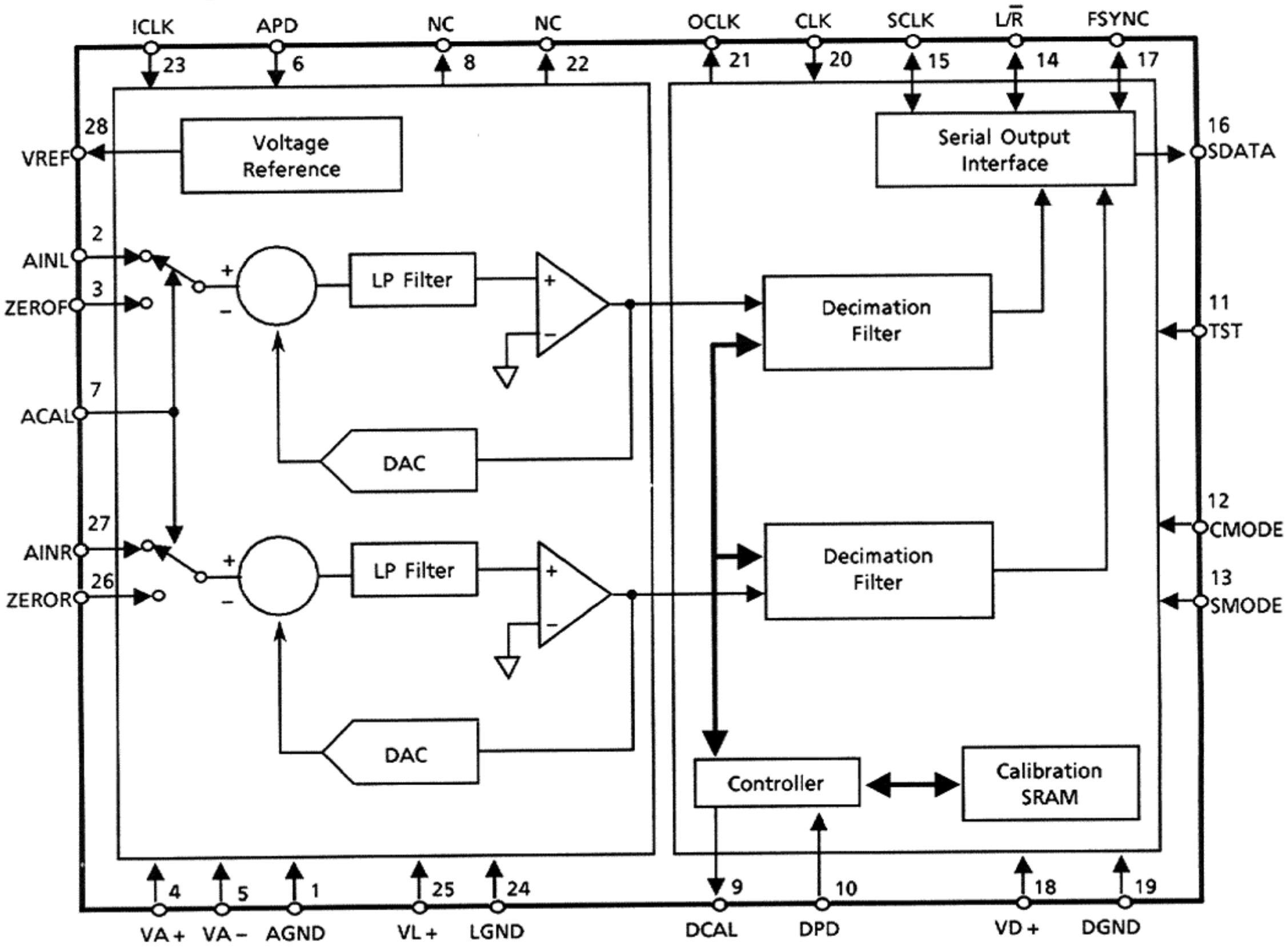
Internal Block Diagram of Other ICs

■ CS5339-KP (IC667) : Analog to Digital Converter

1. Terminal layout

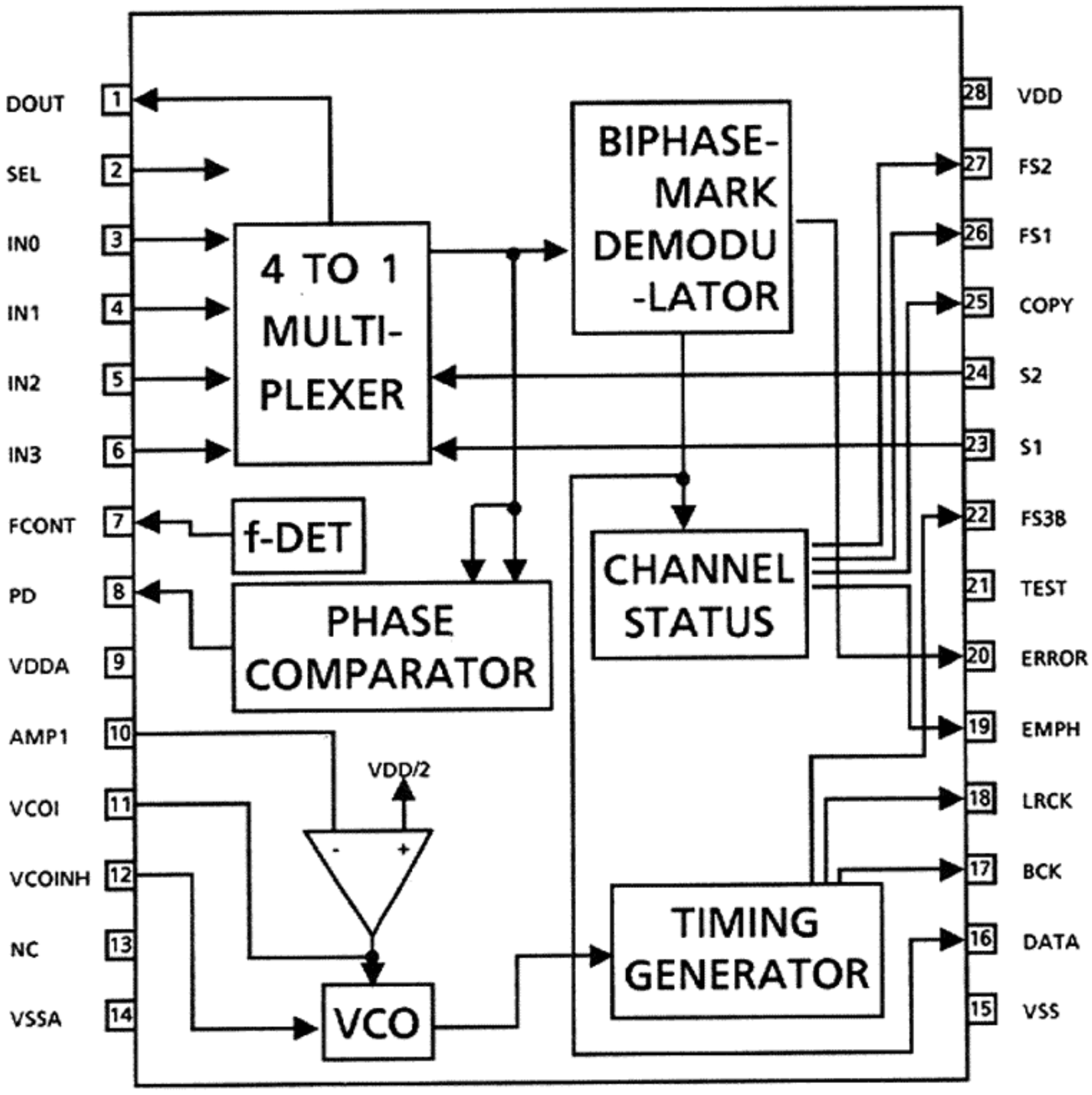


2. Block diagram



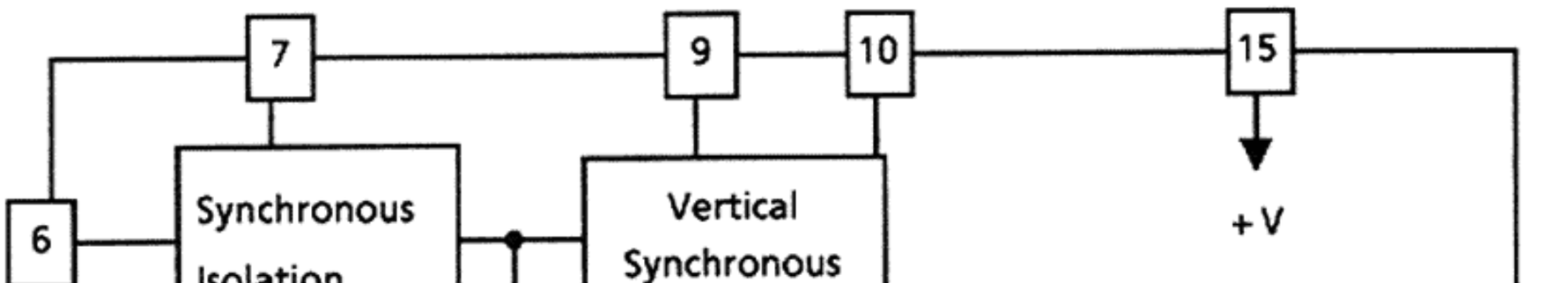
■ TC9245N (IC651) : Digital audio interface

1 . Internal Blockdiagram



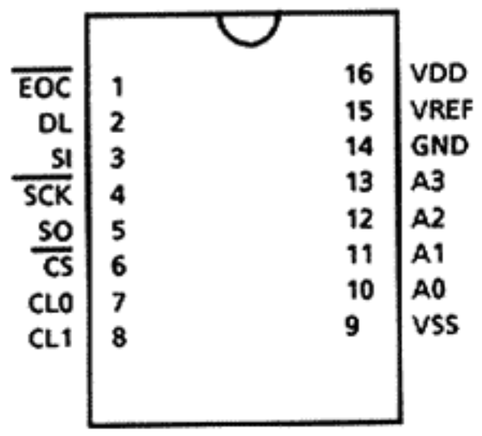
■ NJM2229S (IC485) : Video ON SCREEN Display Drive

1 . Internal Blockdiagram

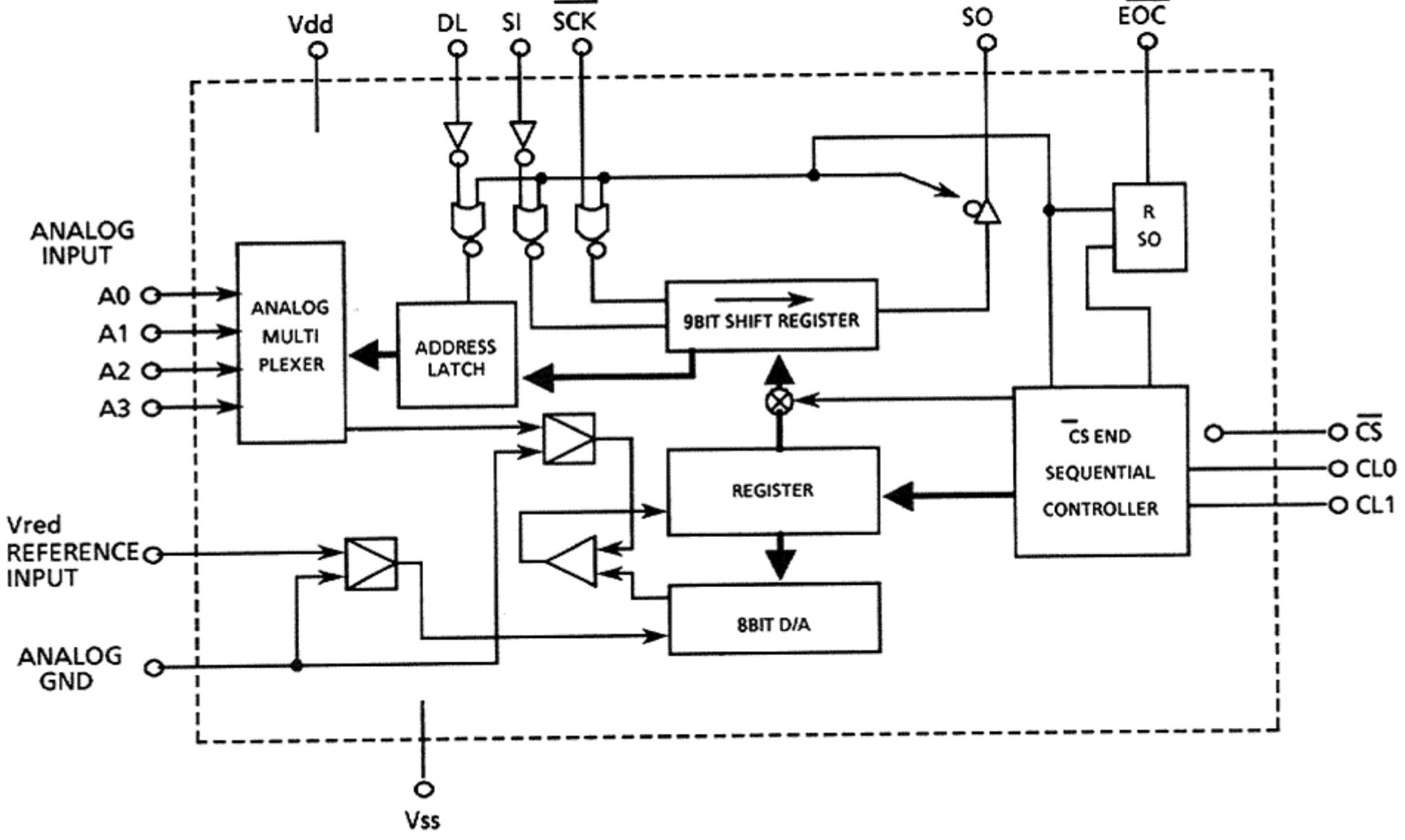


■ μPD7001C(IC434) : A / D Converter

1. Terminal Layout

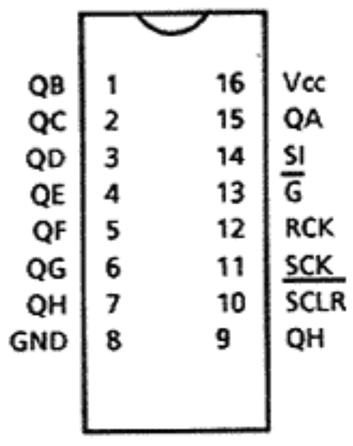


2. Block Diagram



■ TC74HC595AP(IC291) : 8 Bits Shift Register

1. Terminal Layout



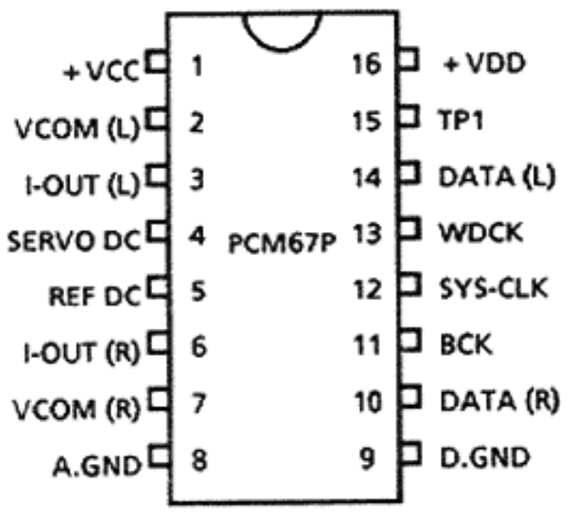
2. Function Table

Inputs					Function
B1	SCK	SCLR	RCK	G	
X	X	X	X	H	Output (QA-QH) disable.
X	X	X	X	L	Output (QA-QH) enable.
X	X	L	X	X	Shift register is cleared.
L	↑	H	X	X	Condition of shift register in initial stage is "L". In the other stages, data from the former stage is stored.
H	↑	H	X	X	Condition of shift register in initial stage is "H". In the other stages, data from the former stage is stored.
X	↓	H	X	X	Shift register does not change.
X	X	X	↑	X	Shift register data is stored in the storage register.
X	X	X	↓	X	Shift register does not change.

X : Don't care

■ PCM67P (IC676,677) : Digital to Analog Converter

1. Terminal Layout

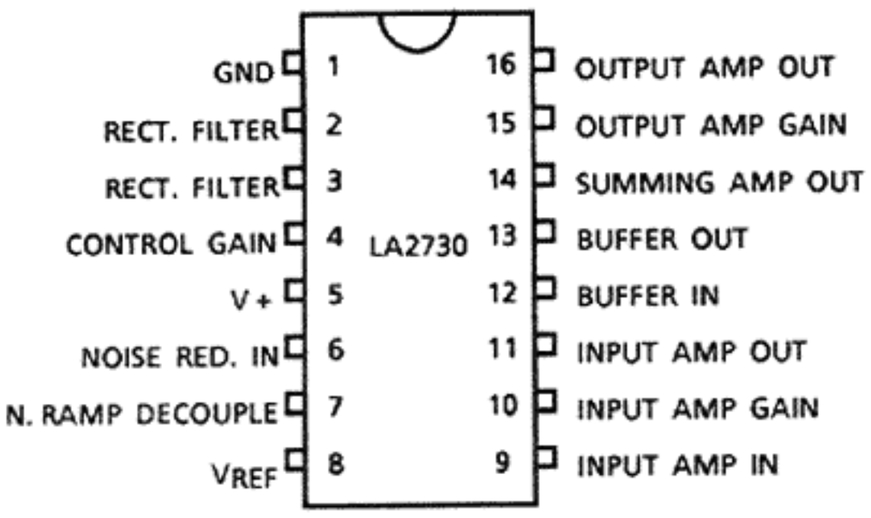


2. Pin Functions

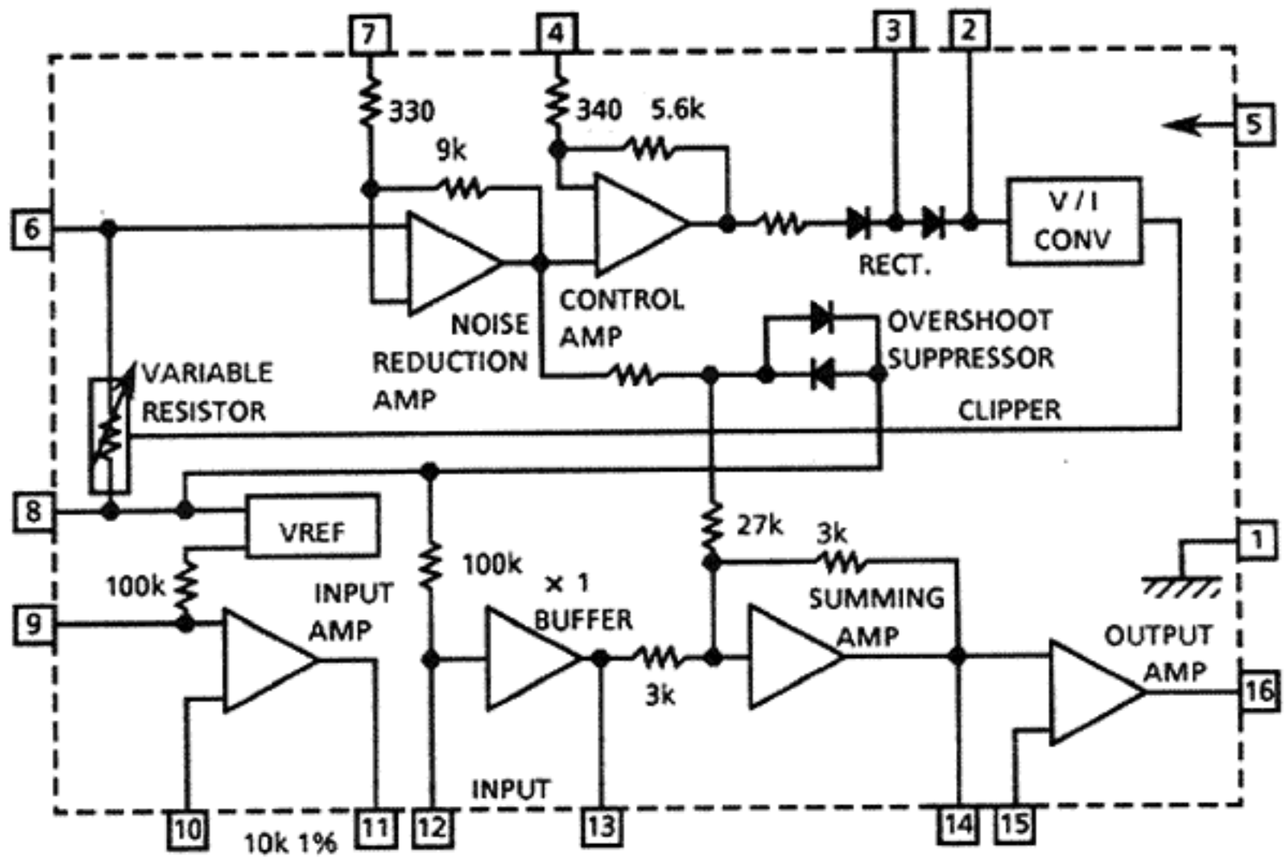
Pin No.	Symbol	I/O	Function
1	$+V_{CC}$	-	Power supply for analog
2	VCOM (L)	-	L-ch V common
3	I-OUT (L)	O	L-ch Current output
4	SERVO DC	-	Servo filter
5	REF DC	-	Reference filter
6	I-OUT (R)	O	R-ch Current output
7	VCOM (R)	-	R-ch V common
8	A.GND	-	Analog ground
9	D.GND	-	Digital ground
10	DATA (R)	I	R-ch data input
11	BCK	I	Bit clock input
12	SYS-CLK	I	System clock input
13	WDCK	I	Word clock input
14	DATA (L)	I	L-ch data input
15	TP 1	-	Test pin
16	$+V_{DD}$	-	Power supply for digital

■ LA2730 (IC684) : Dolby-B Noise Reduction

1. Terminal Layout

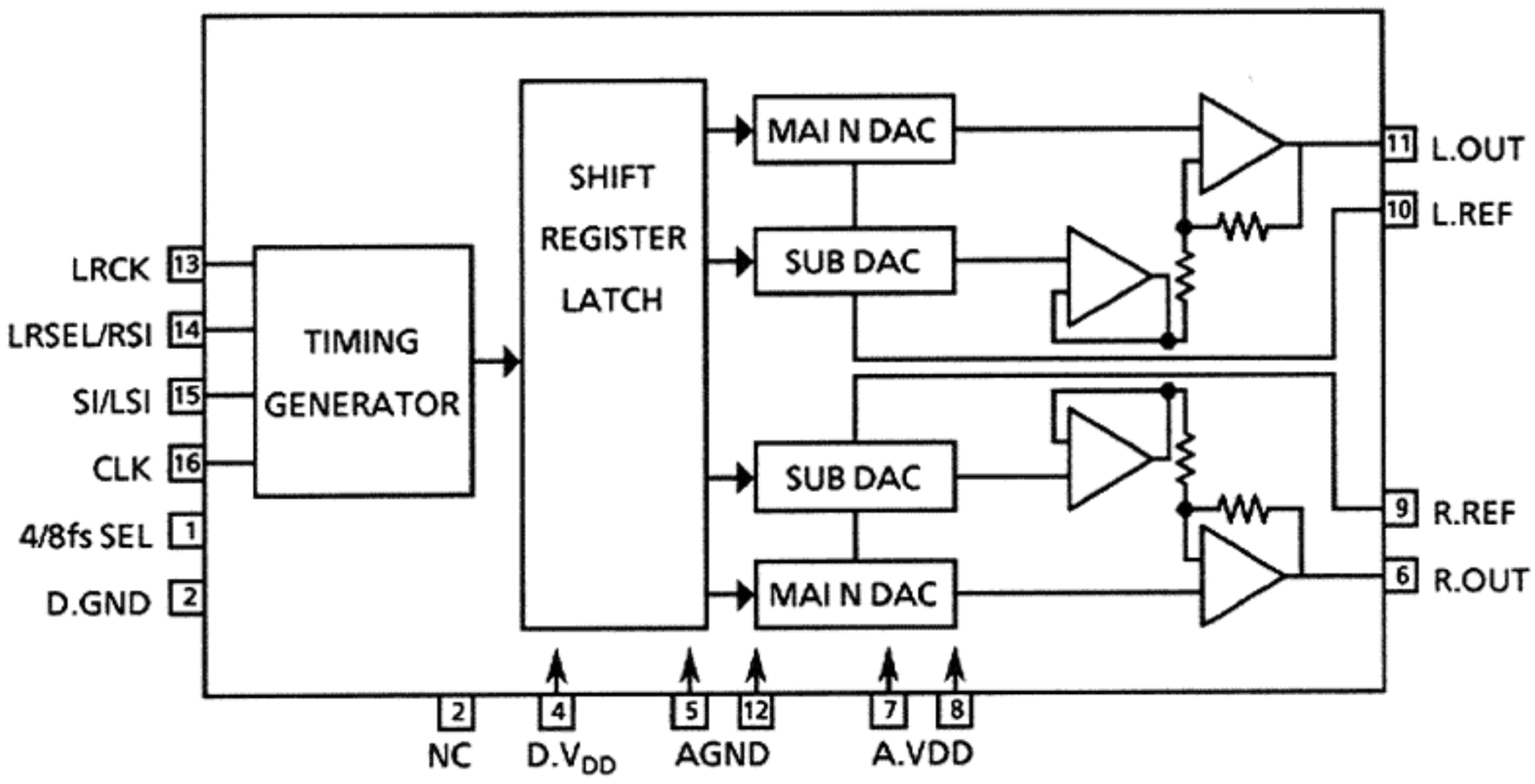


2. Block Diagram



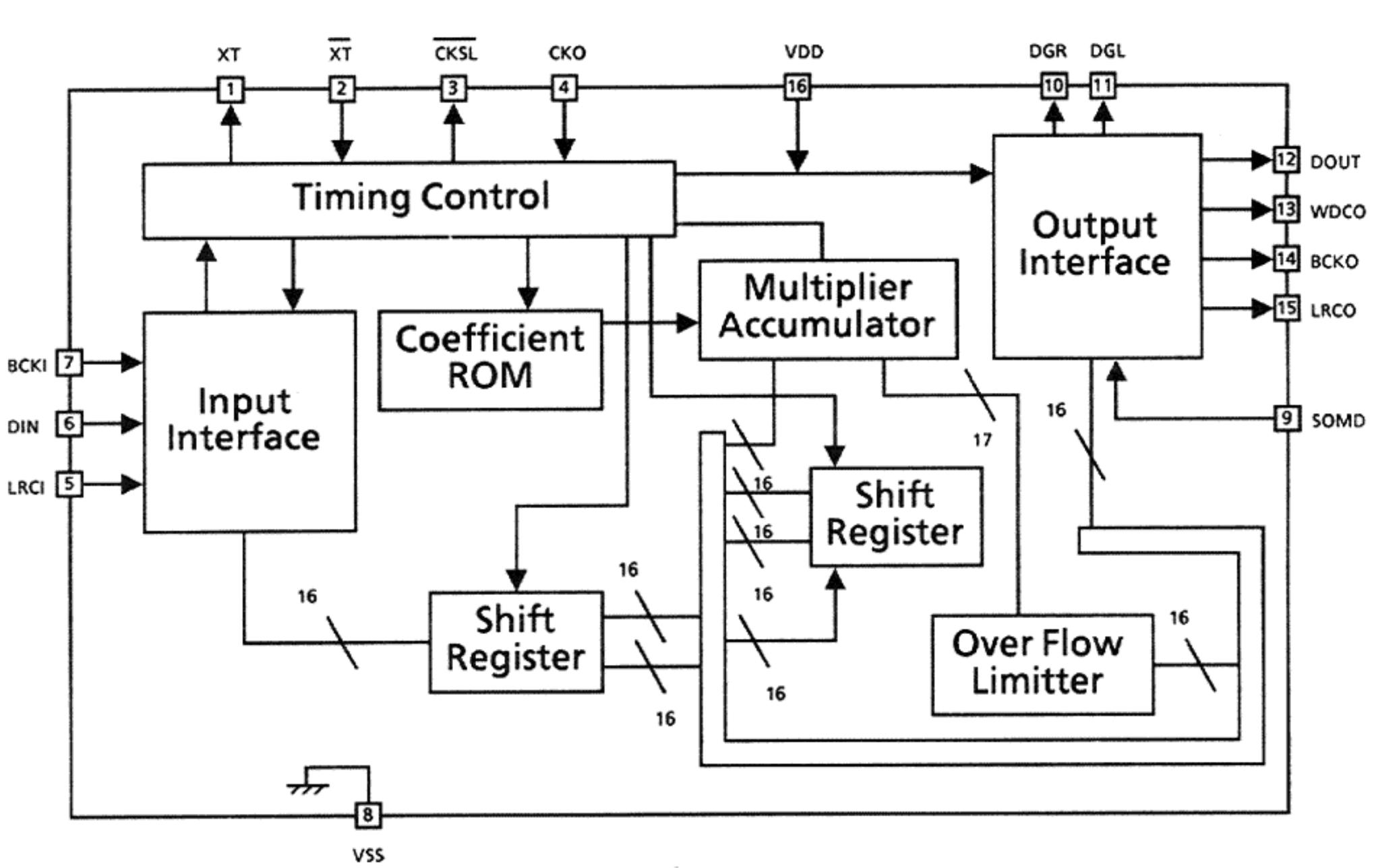
■ μPD6376GX (IC678) : D/A Converter

Block Diagram



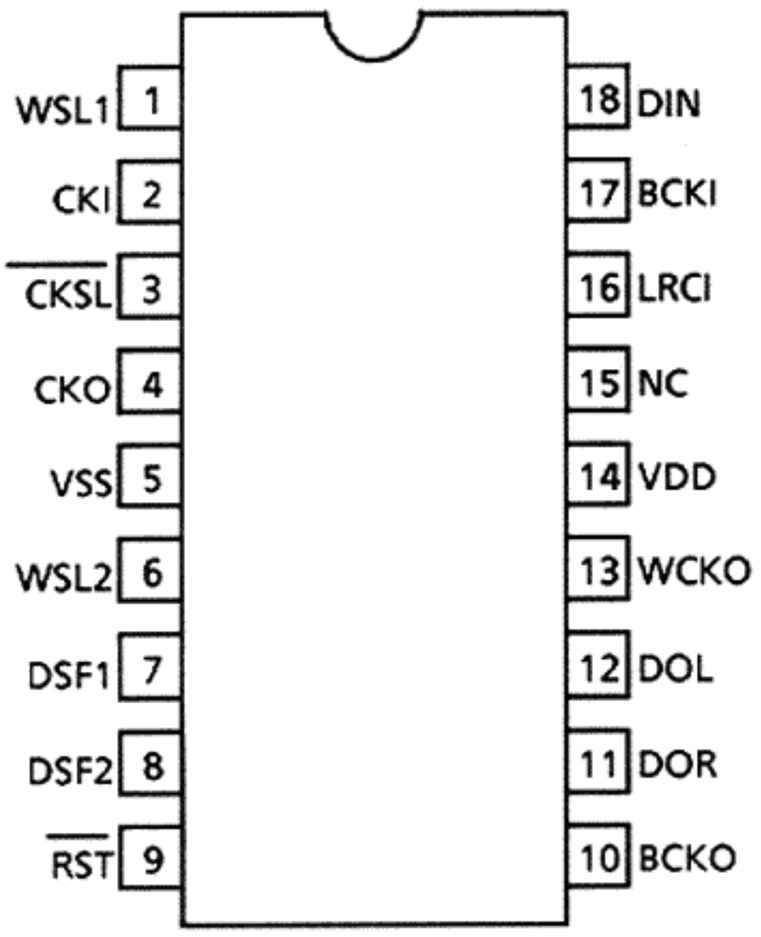
■ SM5807EP (IC675) : Digital Filter

Block Diagram

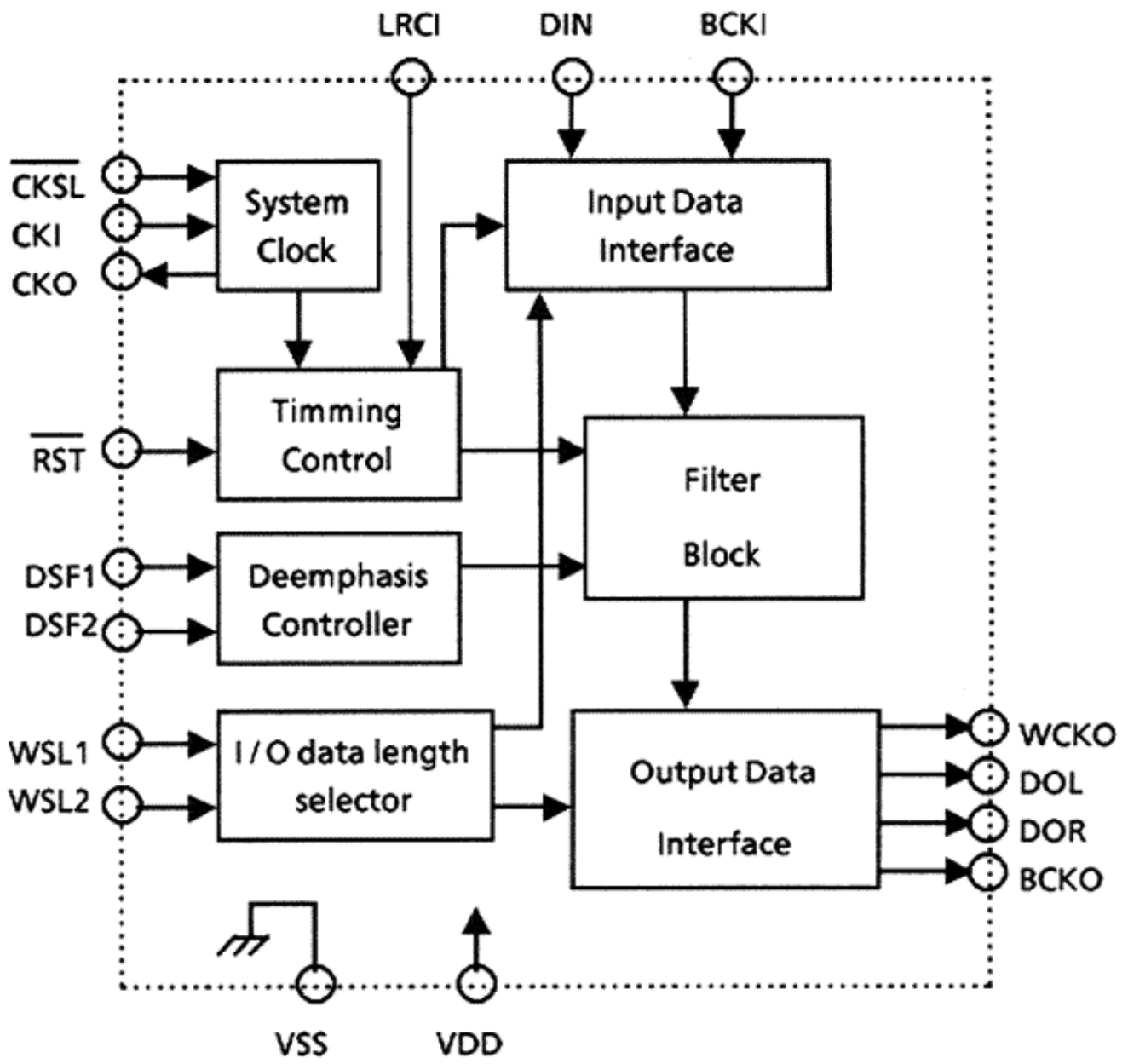


■ SM5840EP (IC674): Digital Filter

1. Terminal Layout

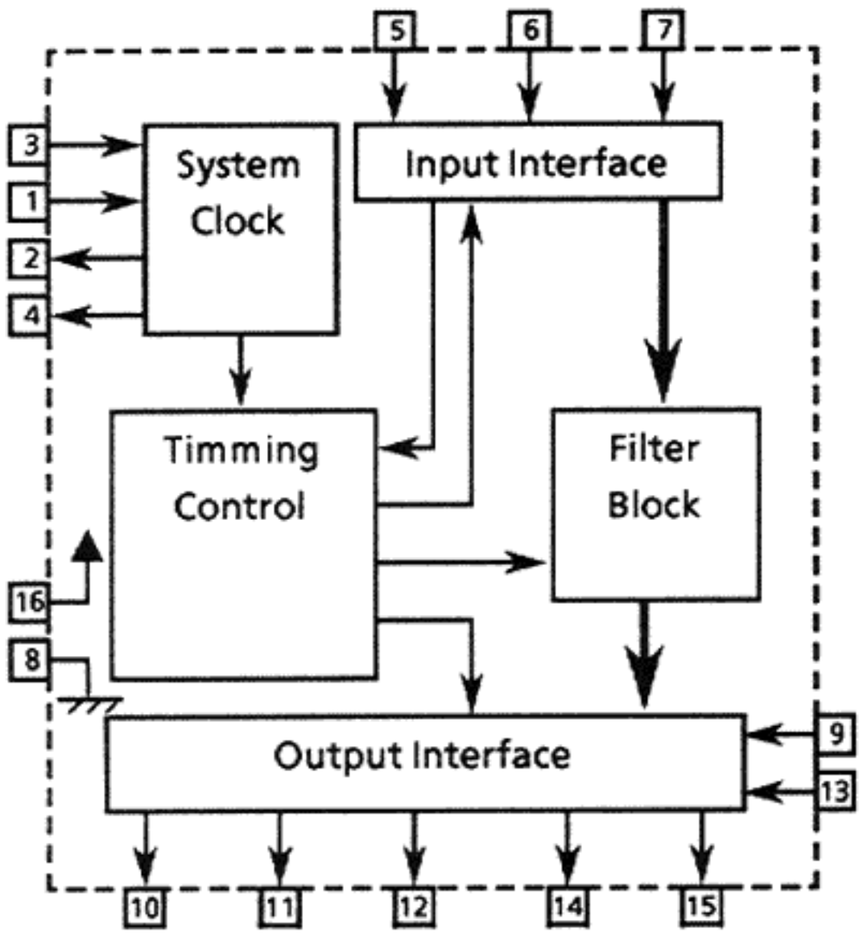


2. Internal Block Diagram



■ SM5818AP(IC404) : 8 Times Over Sampling Digital Filter

1. Terminal Layout

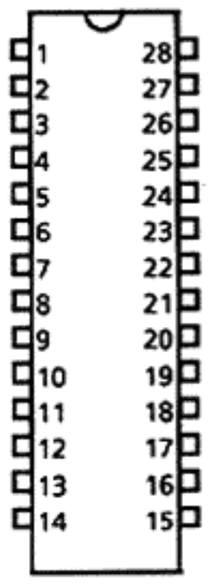


2. Pin Functions

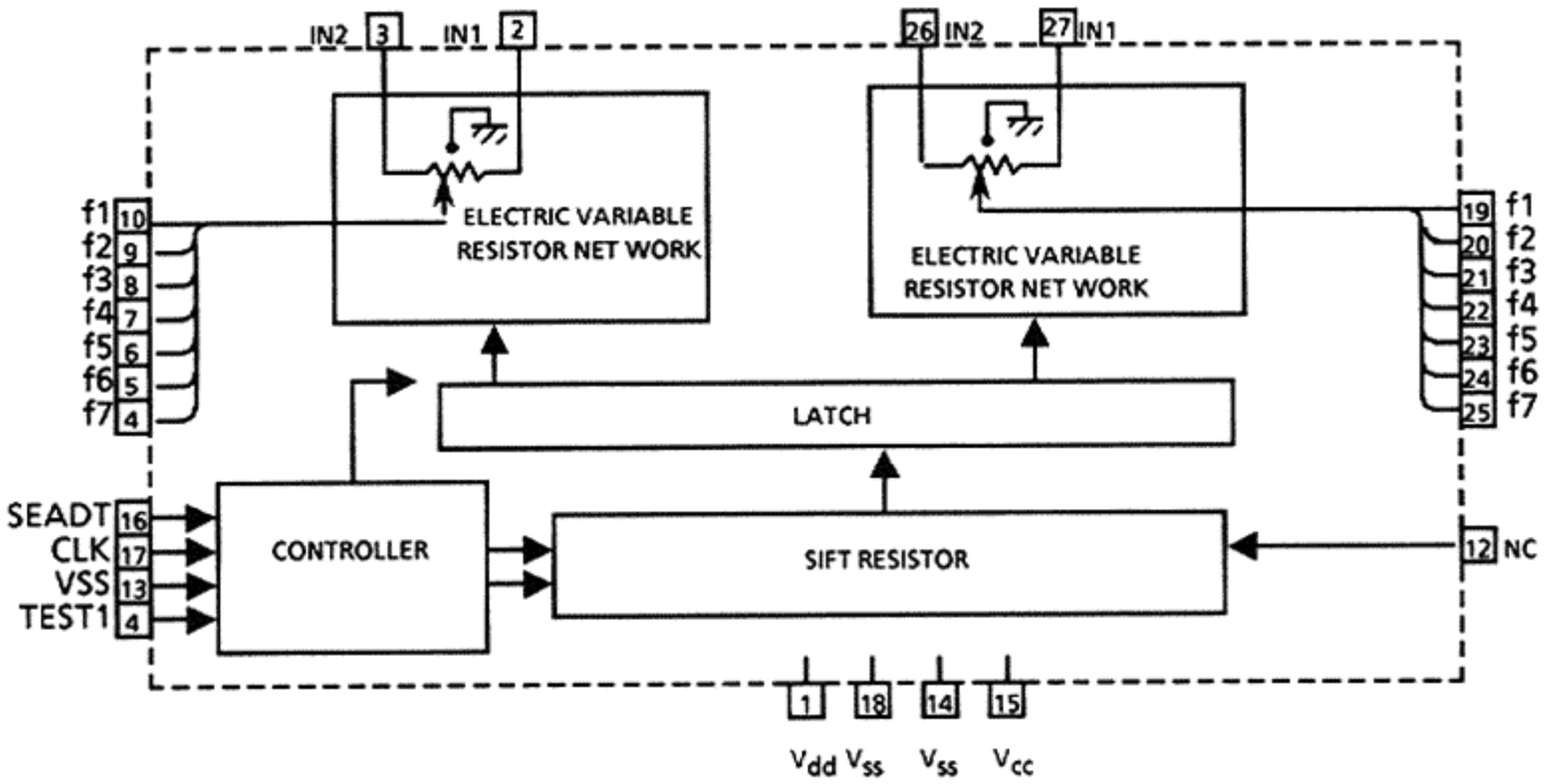
Pin No.	Symbol	I/O	Function
1	XT	I	X'tal input CKSL = H:384fs
2	XT	O	X'tal output CKSL = L:192fs
3	CKSL	I	Changeover the operational frequency
4	CKO	O	Clock output
5	LRCI	I	Sync. clock output of fs
6	DIN	I	Serial data input
7	BCKI	I	Bit clock input
8	VSS	—	GND
9	OMOD1	I	H:18,20 bits output mode / L:16 bits
10	DG	O	Degrich signal output (8fs rate)
11	DOL	O	Lch serial data output
12	DOR	O	Rch serial data output
13	OMOD2	I	(9pin"H") H : 18bits output L : 20bits output (9pin"L") H : 16bits output L : 16bits output
14	WDCO	O	Word clock output (8fs rate)
15	BCKO	O	Bit clock output (192fs rate)
16	VDD	—	Power supply

■ LC7522(IC504) : Variable Resistor for SEA Control

1. Terminal Layout



2. Block Diagram

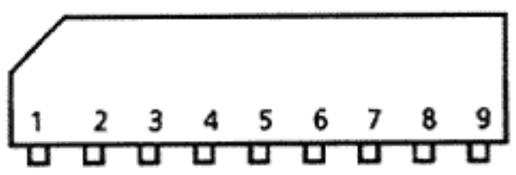


3. Pin Functions

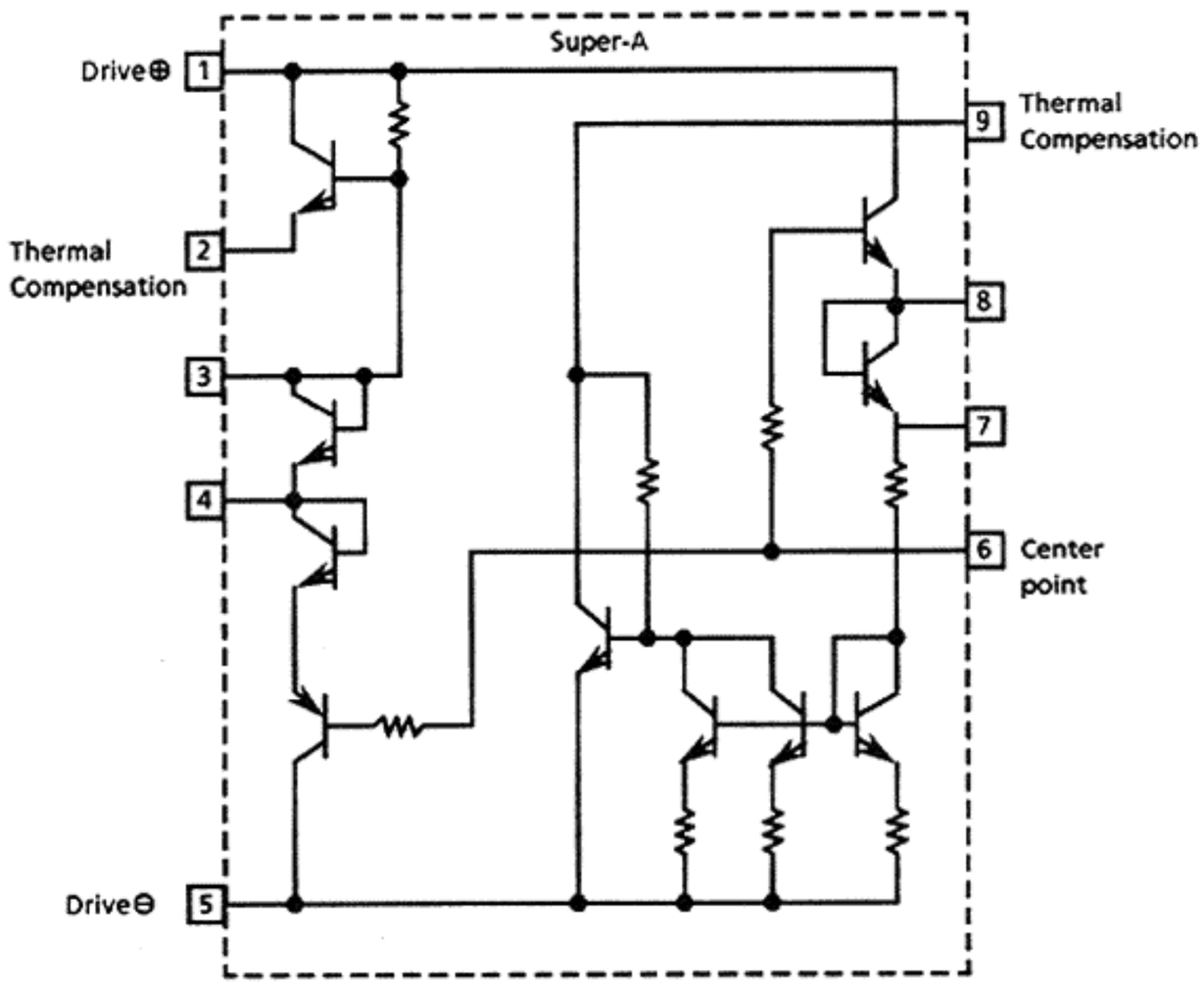
Pin No.	Symbol	Function
1 18 13.14 15	V_{DD} GND V_{SS} V_{CC}	Power supply (+7V) Ground . Power supply (−7V) Power supply (+5V)
2,27 3, 26	IN 1 IN 2	Audio signal input The inversion signal of the operational amplifier inputs to IN 1 normally. The non-inversion signal of the operational amplifier inputs to IN 2 normally.
16	SEA DT	Data input from the CPU. Schmitt inverter type
17	SEA CLK	Clock signal input from the CPU. Schmitt inverter type
4~10 19~25	f1~f7	For connect to band-pass filter. f1~f7x2 (Left and Right)
11 12	NC NC	Not used Not used
28	NC	Not used

■ VC5022-2 (IC701,702) : Super - A

1. Terminal Layout

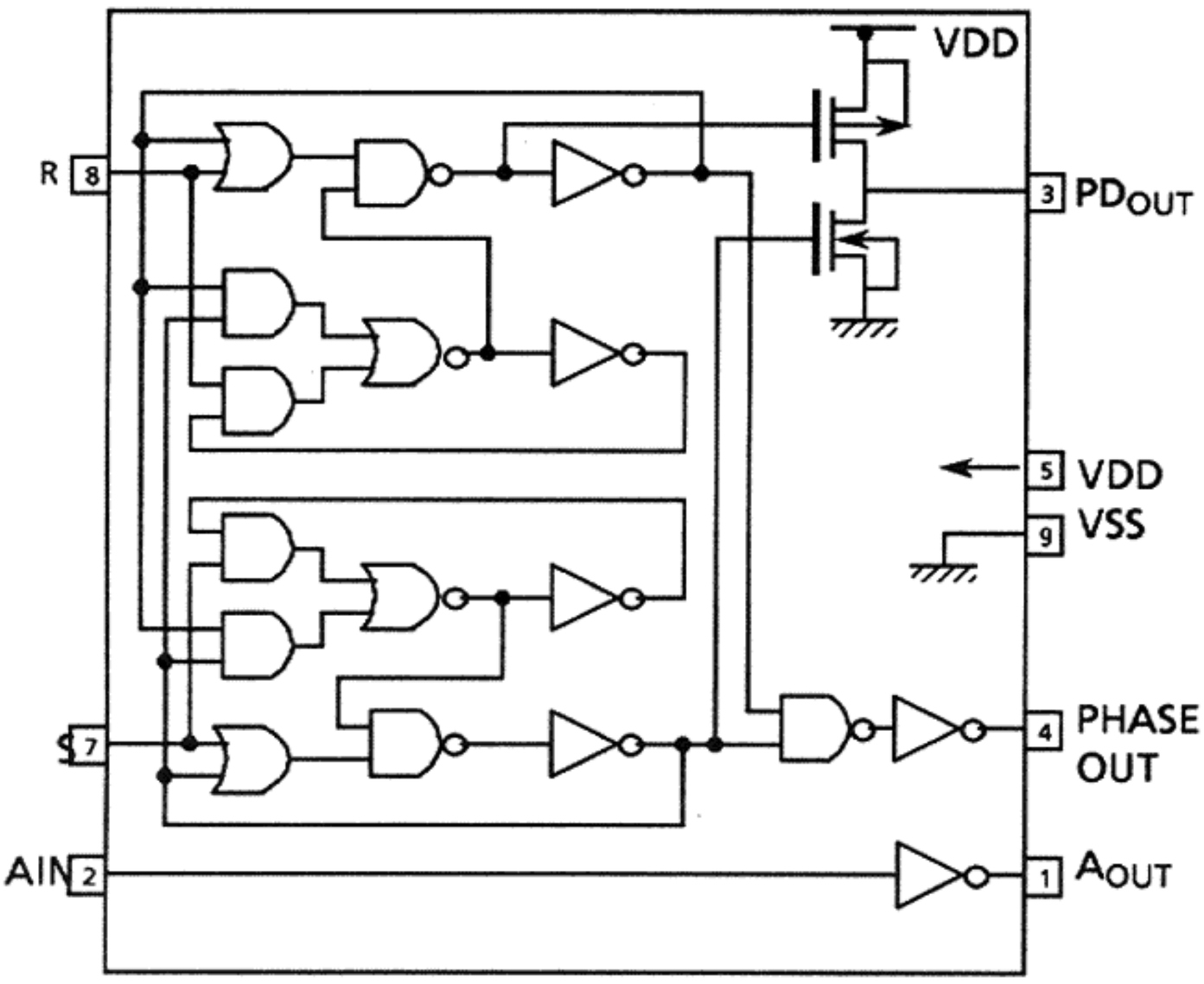


2. Block Diagram



■ TC5081AP(IC657) : Phase detector for the PLL synthesizer

1. Internal Blockdiagram

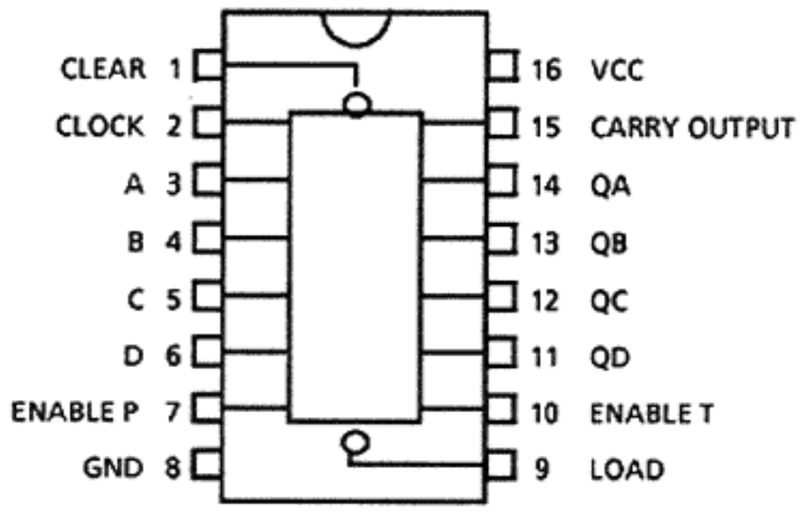


2. Pin Functions

Pin NO	Function
1	Inverted output of AIN
2	Pulse input
3	Output the positive and negative pulses which are proportion to phase difference of input R,S. High impedance both phase of R and S are the same.
4	"L" while it is output from PDout.
5	Power supply
6	Non connection
7	Pulse input (Phase detector input)
8	Pulse input (Phase detector input)
9	GND

■ TC74HC163AP (IC658,659) : Synchronous Presettable 4-Bit Counter

1. Terminal Layout



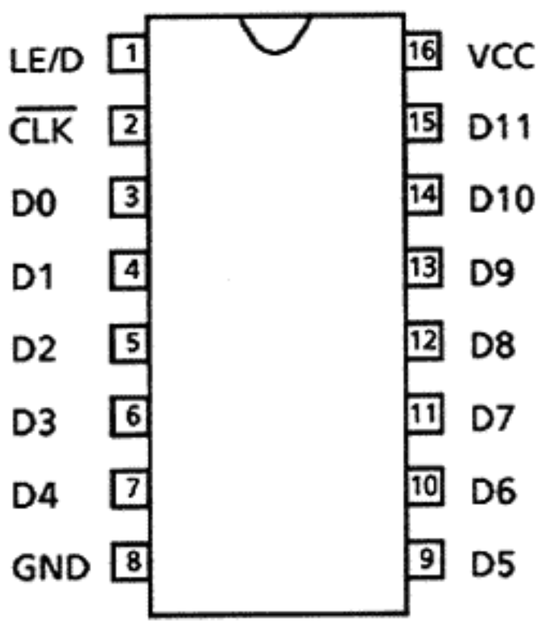
2. Function Table

Inputs					Outputs				Function
CLR	LD	PE	TE	CK	QA	QB	QC	QD	
L	×	×	×	↑	L	L	L	L	Reset to "0"
H	L	×	×	↑	A	B	C	D	Preset data
H	H	×	L	↑	No change				No count
H	H	L	×	↑	No change				No count
H	H	H	H	↑	Count up				Count up
×	H	×	×	↓	No change				No count

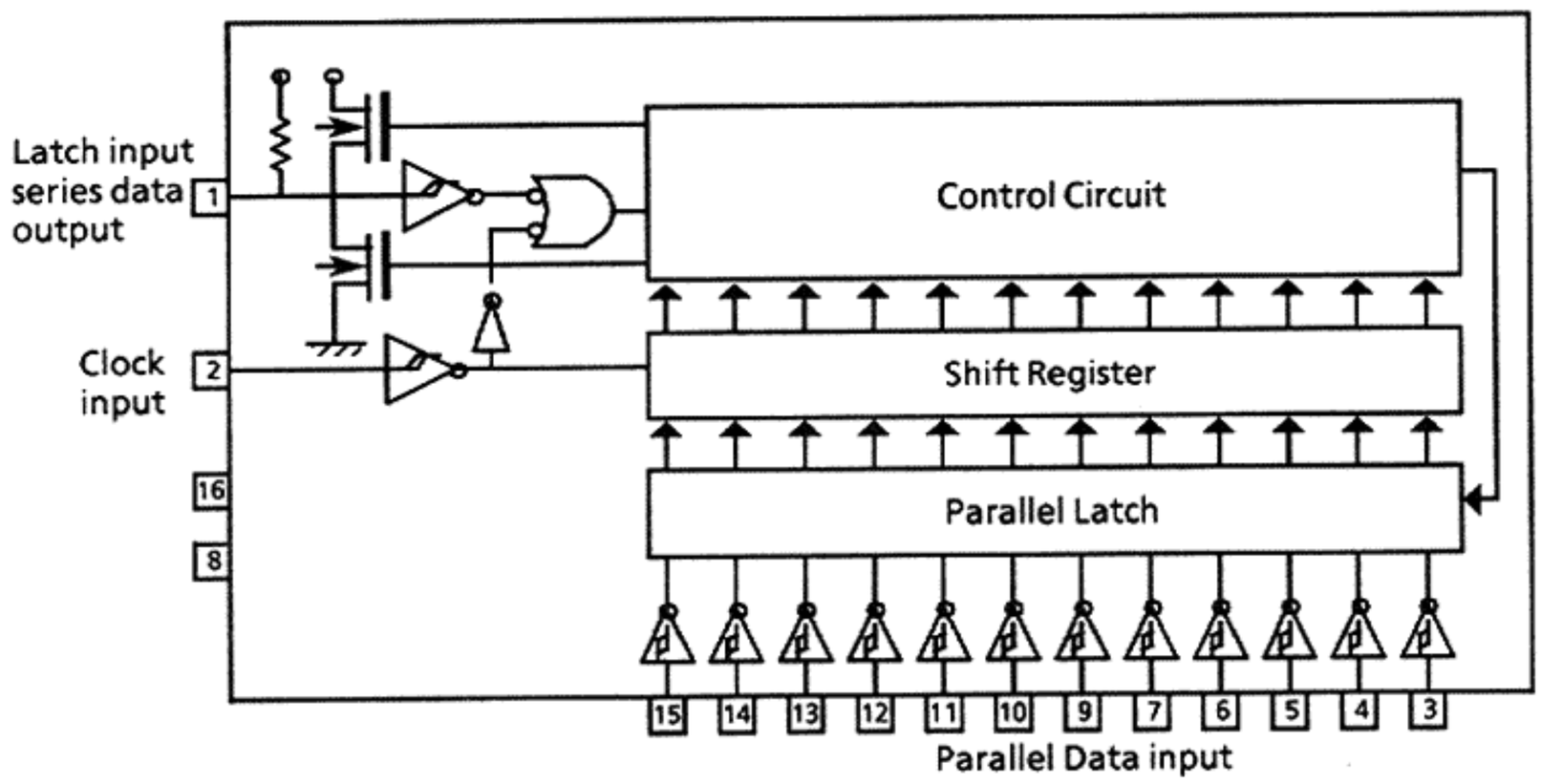
Note × : Don't care
A,B,C,D: Logic level of data inputs

■ M66007P (IC402) : 12 bits Input Expander

1. Terminal Layout

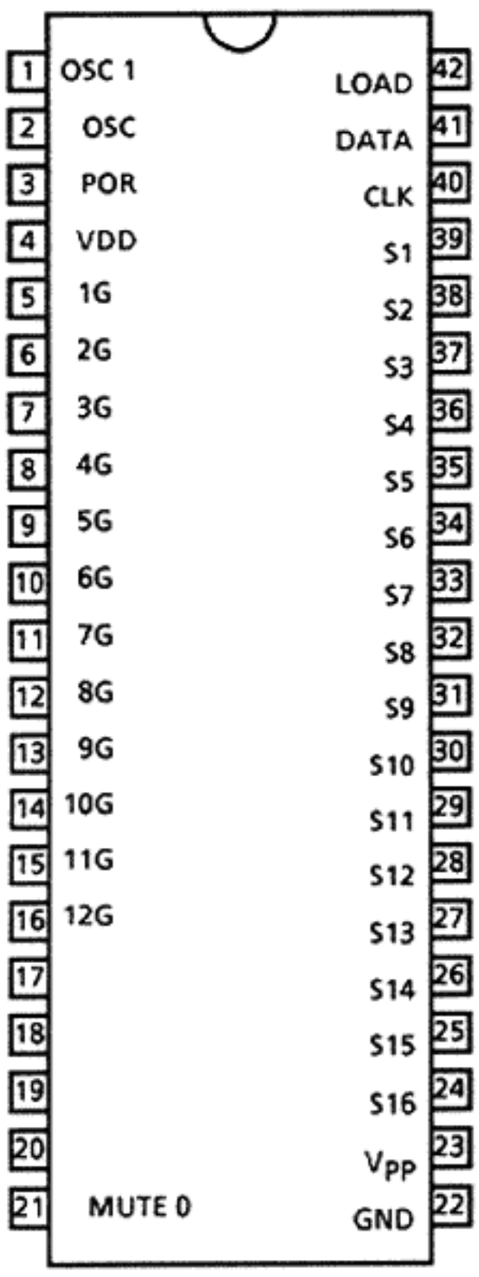


2. Block Diagram



■ MSC7112-01SS (IC465) : Flourescent Dispaly Driver

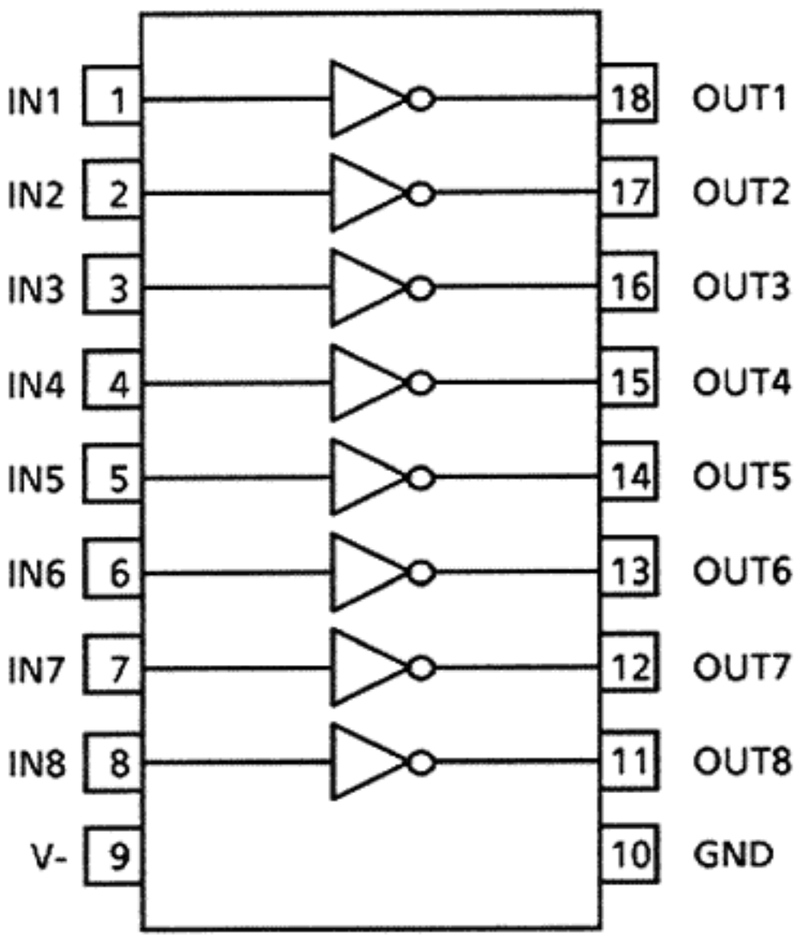
1. Terminal Layout



2. Pin Functions

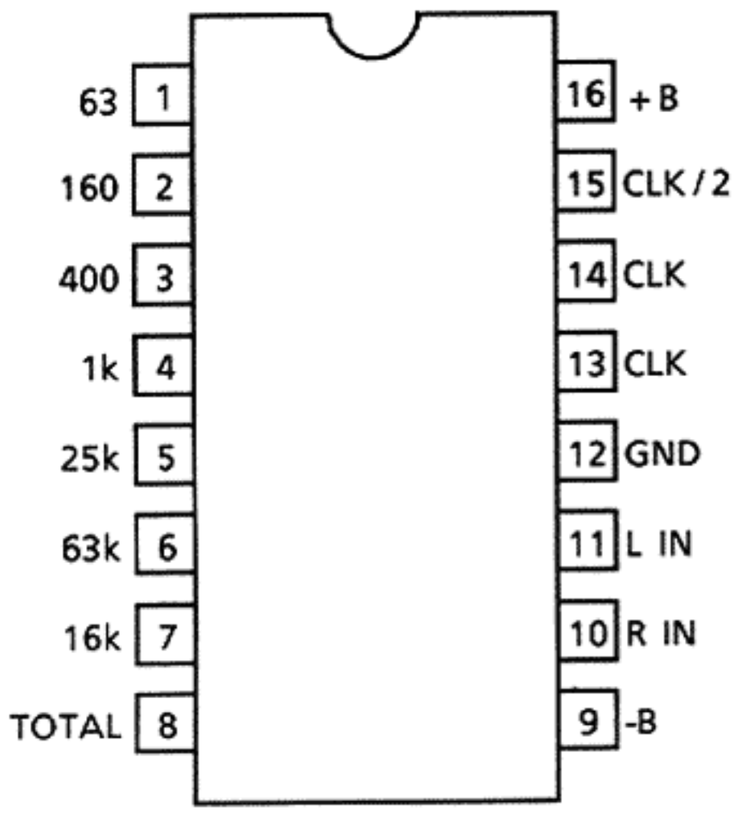
Pin No.	Pin Name	I/O	Functions
1 2	OCS 1 OSC 0	I O	Input to the oscillator circuit. Oscillator circuit is made up by connecting an external capacitor and resistor.
3	$\overline{POR}$	I	Reset signal input to the internal logic circuit when turning on.
4	V_{DD}	–	Power supply.
5~16	D1~D12	O	FL display tube drive signal.
17~21	LED 1~ LED 5	O	LED drive signal : Not use
22	GND	--	GND.
23	V_{PP}	--	$V_{DD} - V_{PP}$: Power supply for the FL drive circuit.
24~39	S1~S16	O	FL display tube drive signal.
40	CLK	I	Clock signal to the shift register.
41	DATA IN	I	Display data to the shift register.
42	LOAD	I	Latch clock signal for the display data.

■ MSL915ARS (IC463,464) : Inverter



■ XR1091DCP (IC432) : Display Filter

1. Terminal Layout

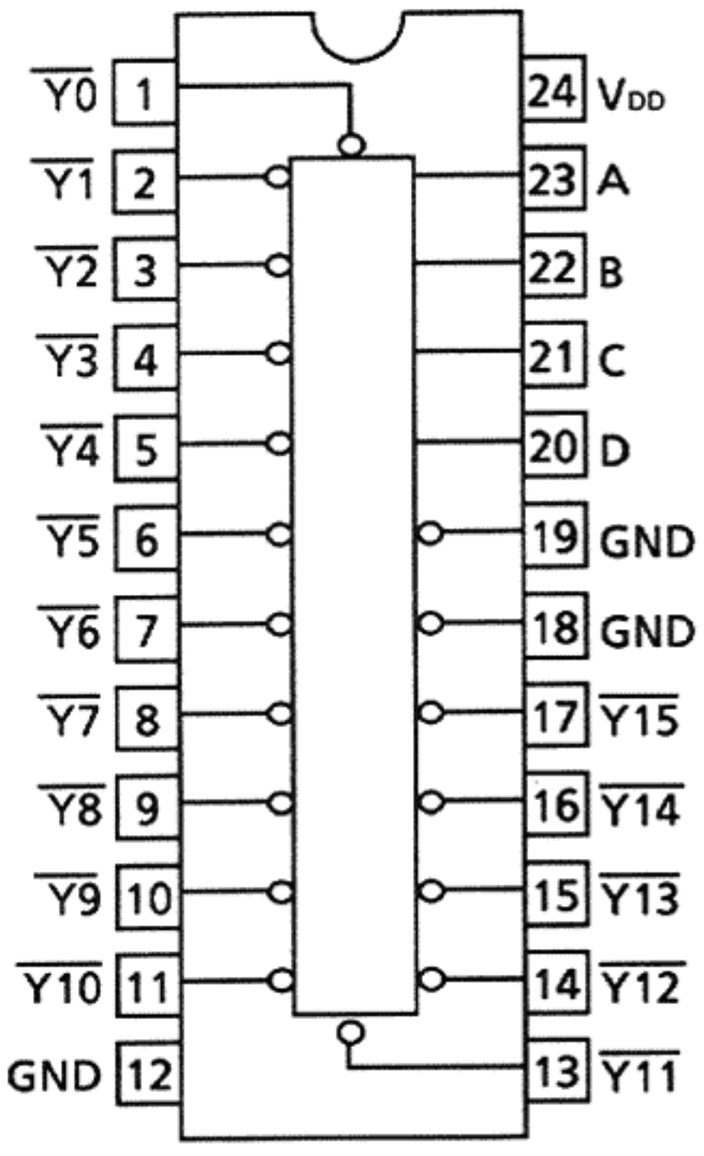


2. Pin Functions

Pin No.	Symbol	Function
1	63	Peak hold output of 63Hz band-pass filter
2	160	Peak hold output of 160Hz band-pass filter
3	400	Peak hold output of 400Hz band-pass filter
4	1k	Peak hold output of 1kHz band-pass filter
5	25k	Peak hold output of 25kHz band-pass filter
6	63k	Peak hold output of 63kHz band-pass filter
7	16k	Peak hold output of 16Hz band-pass filter
8	TOTAL	Total frequency output (peak hold)
9	-B	Power supply (- 6V)
10	R IN	Right channel input
11	L IN	Left channel input
12	GND	Ground
13	CLK	Connecting capacitor for clock
14	CLK	Connecting resistor to pin 13 for clock
15	CLK	Not used
16	+B	Power supply (+ 6V)

■ TC74HC154P (IC462) : Decorder

1. Terminal Layout



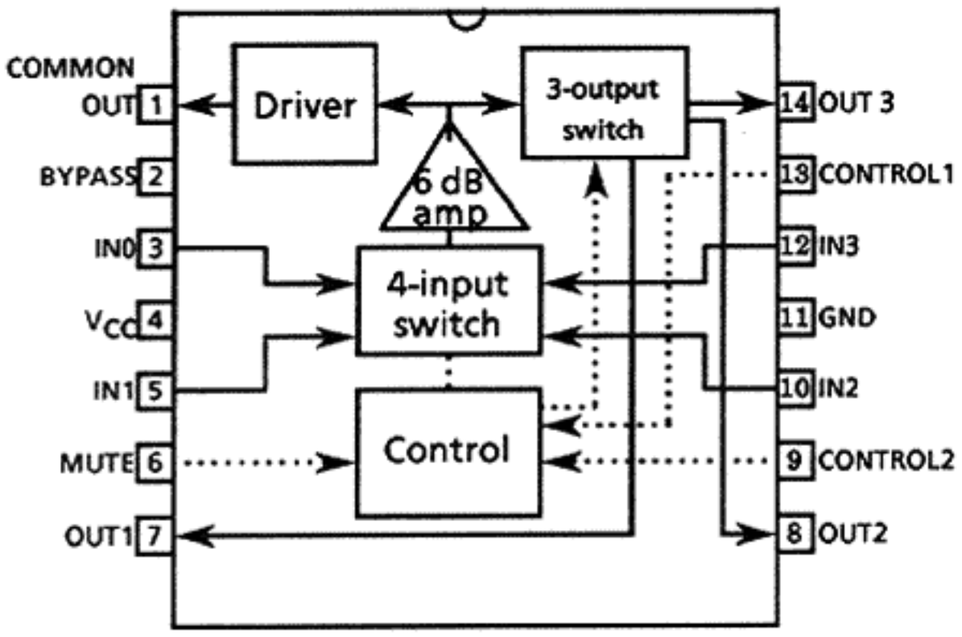
2. Function Table

Input						Output
G1	G2	D	C	B	A	
L	L	L	L	L	L	NC
L	L	L	L	L	H	NC
L	L	L	L	H	L	NC
L	L	L	L	H	H	NC
L	L	L	H	L	L	NC
L	L	L	H	L	H	$\overline{11G}$
L	L	L	H	H	L	$\overline{10G}$
L	L	L	H	H	H	$\overline{9G}$
L	L	H	L	L	L	$\overline{8G}$
L	L	H	L	L	H	$\overline{7G}$
L	L	H	L	H	L	$\overline{6G}$
L	L	H	L	H	H	$\overline{5G}$
L	L	H	H	L	L	$\overline{4G}$
L	L	H	H	L	H	$\overline{3G}$
L	L	H	H	H	L	$\overline{2G}$
L	L	H	H	H	H	$\overline{1G}$
×	H	×	×	×	×	—
H	×	×	×	×	×	—

× : Don't Care

■ LA7951 (IC474,475,483) : 4 inputs-4 outputs Video Switch with 6dB Video Amp.

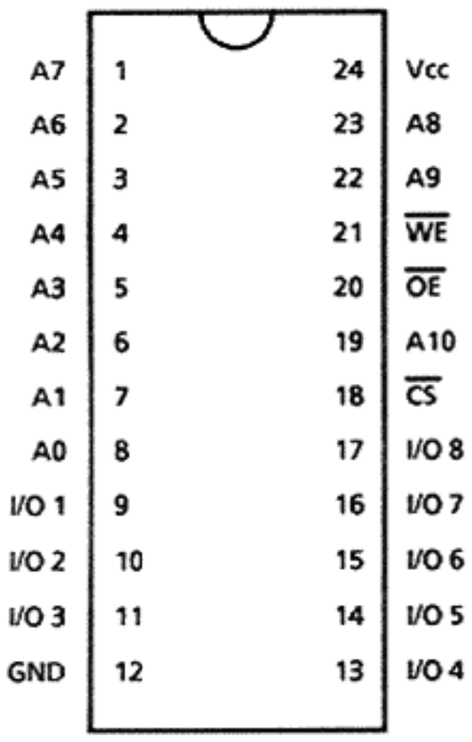
1. Terminal Layout & Block Diagram

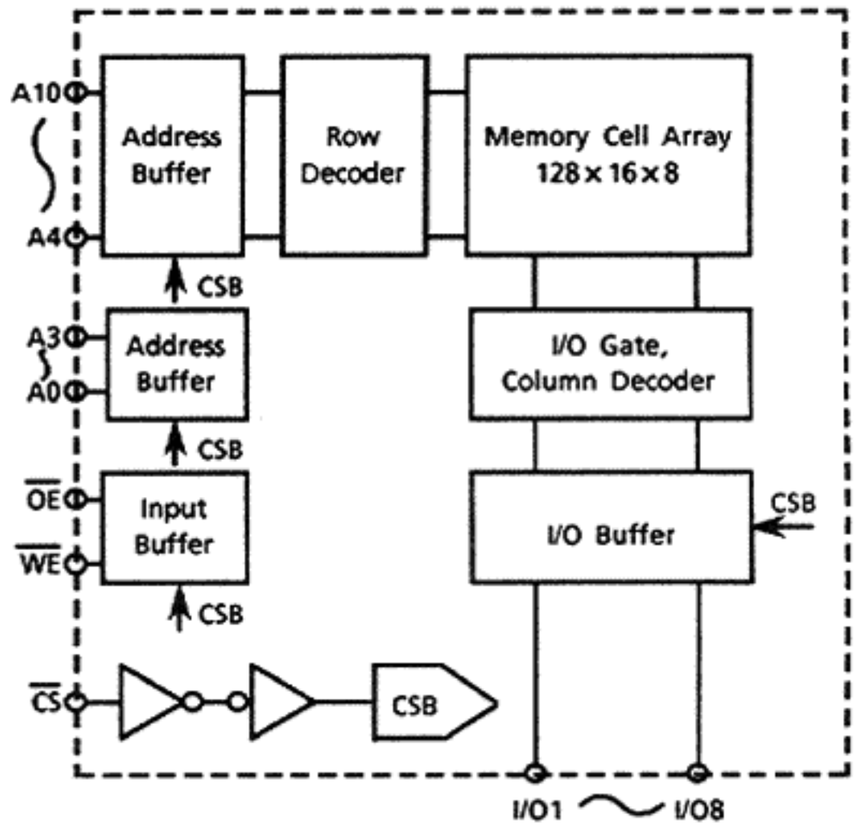


2. Logic Value table

CONTROL			INPUT SIGNAL				OUTPUT SIGNAL			
MUTE (pin6)	1 (pin13)	2 (pin9)	0 (pin3)	1 (pin5)	2 (pin10)	3 (pin12)	COMMON (pin1)	1 (pin7)	2 (pin8)	3 (pin14)
L	-	-	OFF	OFF	OFF	OFF	ON	OFF	OFF	OFF
H	L	L	ON	OFF	OFF	OFF	ON	ON	ON	ON
H	L	H	OFF	ON	OFF	OFF	ON	OFF	ON	ON
H	H	L	OFF	OFF	ON	OFF	ON	ON	OFF	ON
H	H	H	OFF	OFF	OFF	ON	ON	ON	ON	OFF

■ LC3517BS-15 (IC403): Static RAM

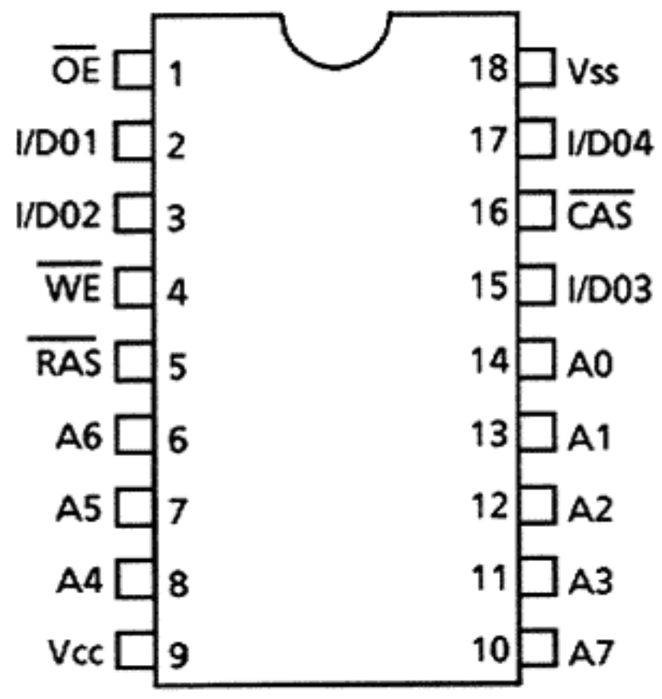




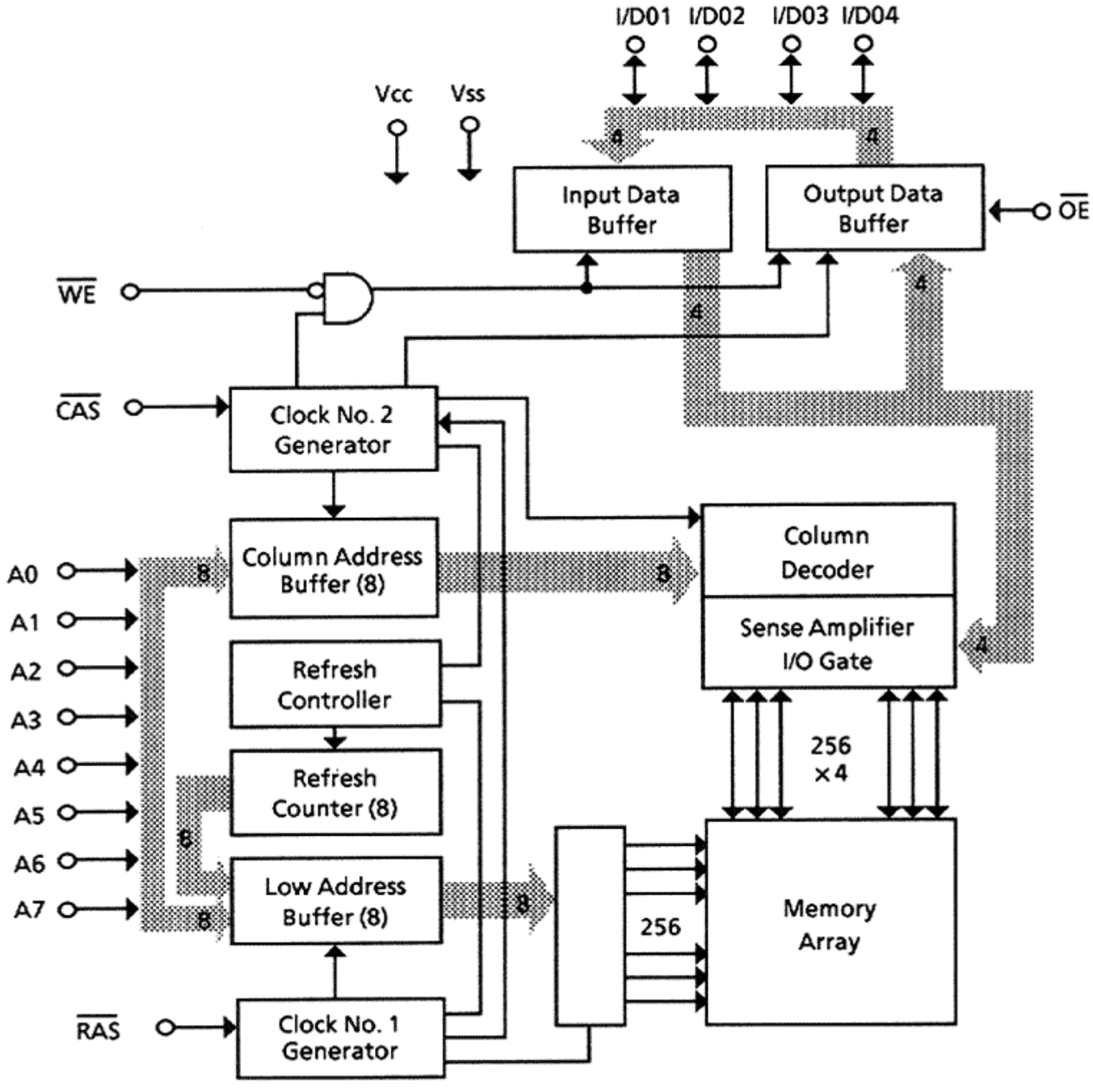
■ TA7317P (IC901,951) : Protector

■ LH2464-12(IC302): 65536words × 4 Bits Dynamic RAM

(1) Terminal Layout

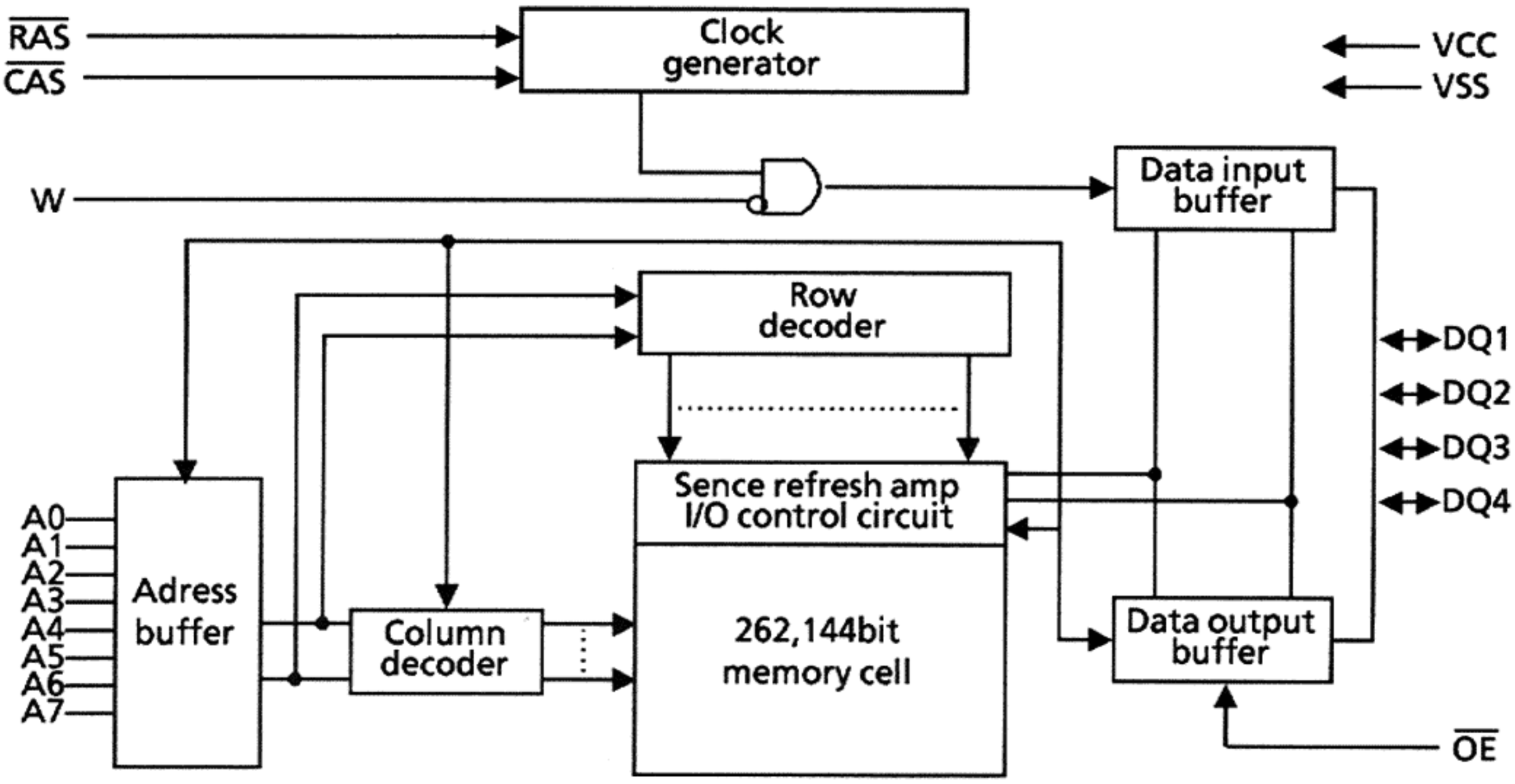


(2) Internal Block Diagram



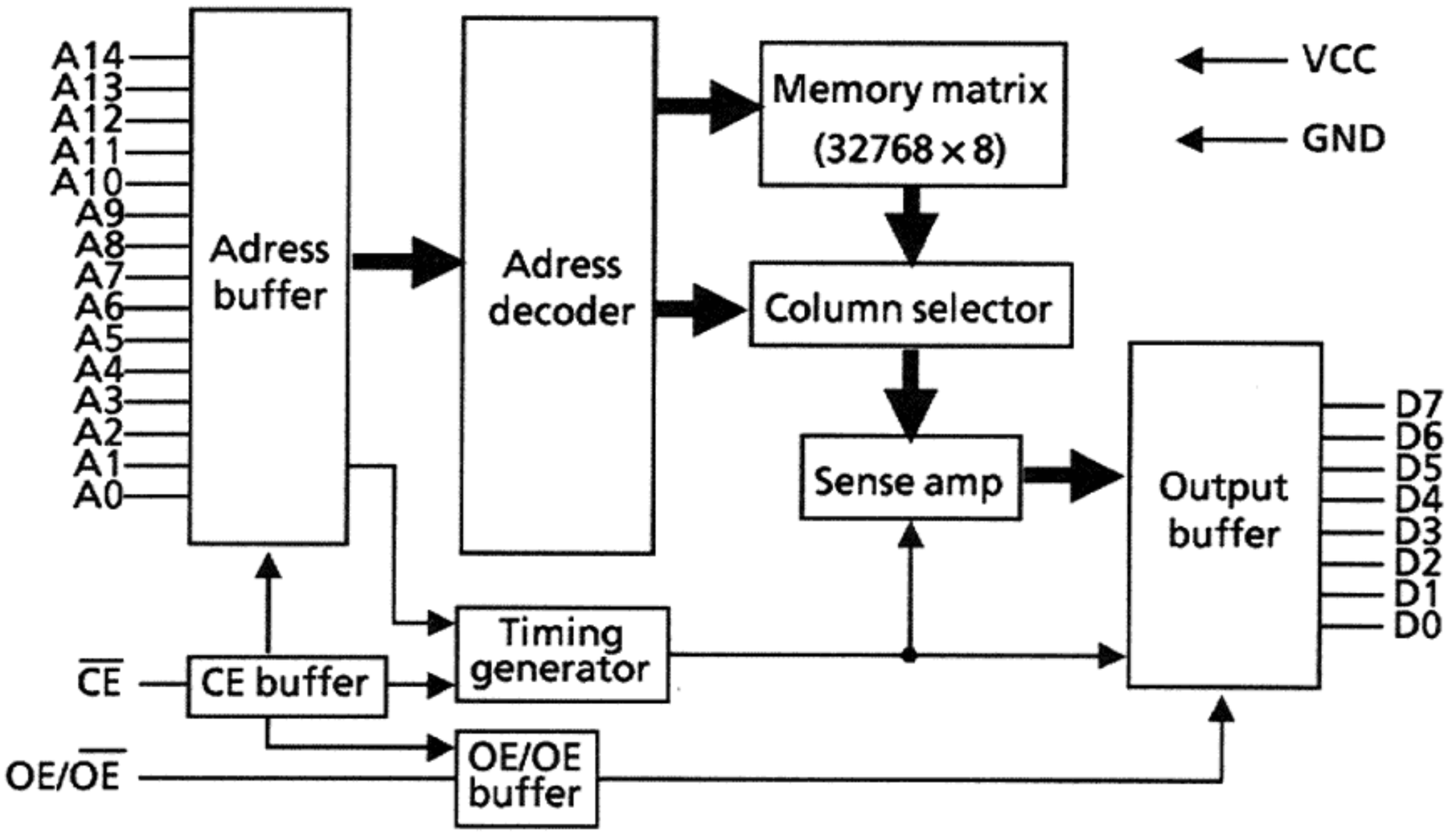
■ LM33464G-12 (IC671,672) : 256K (32K × 8)bit mask ROM

1 . Internal Block Diagram



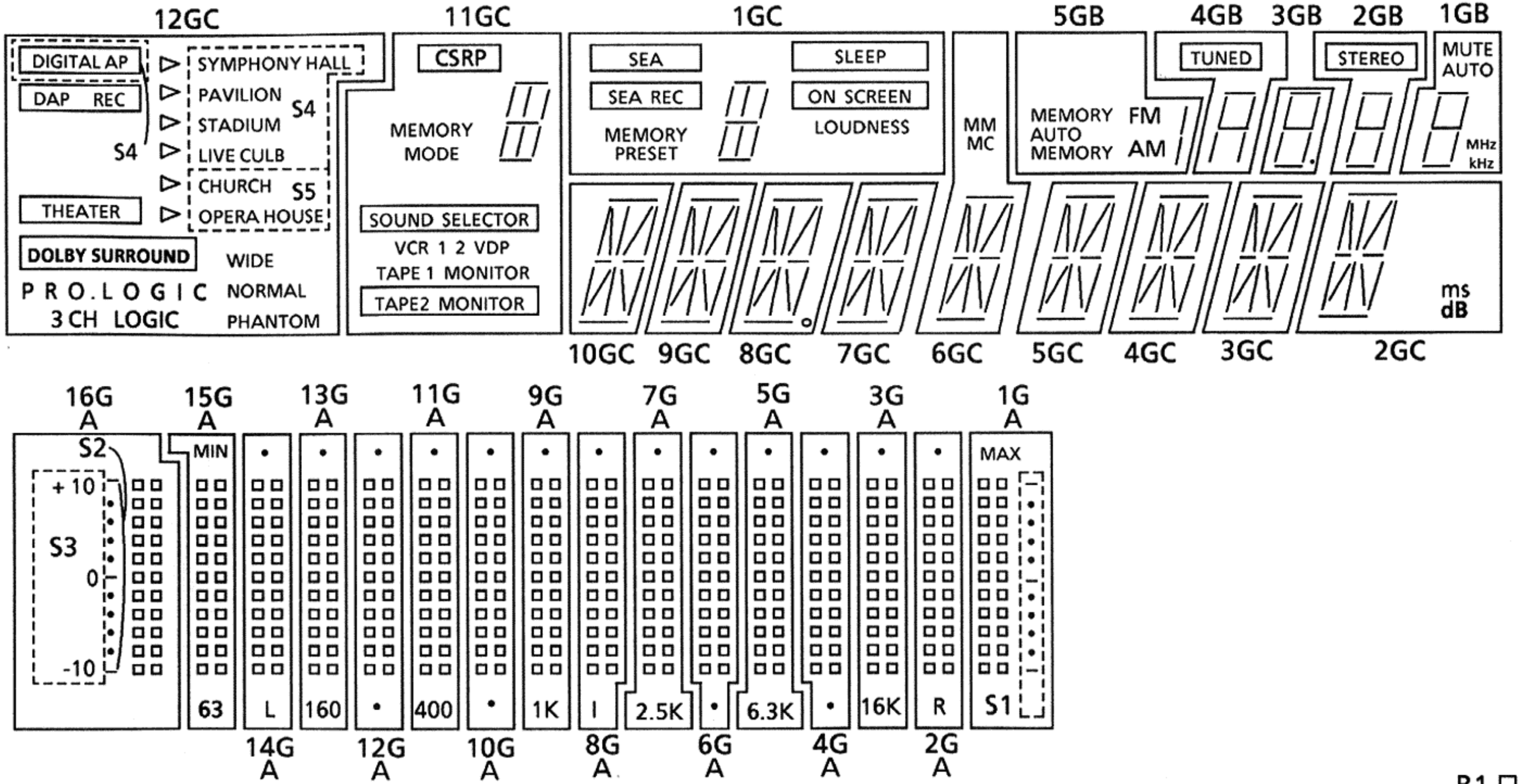
■ LH535931 (IC406) : 256K(64K × 4) bit D-RAM

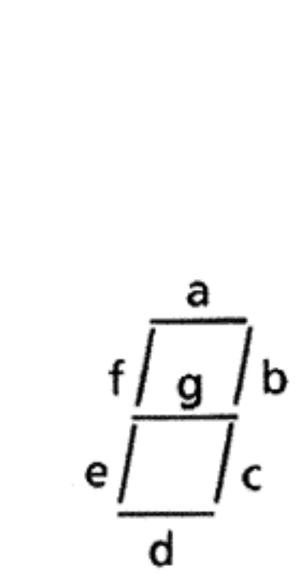
1 . Internal Block Diagram



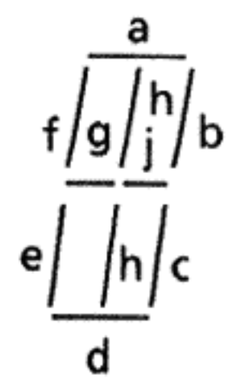
Internal wiring of FL Display

■ Terminal Layout

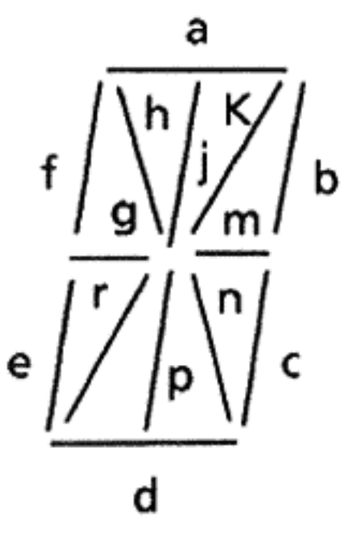




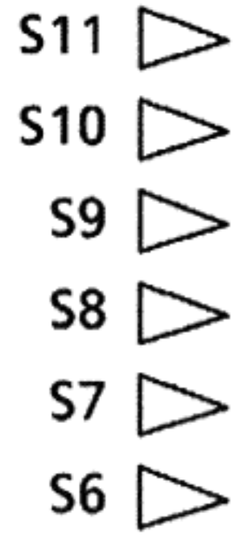
(4GB~1GB)



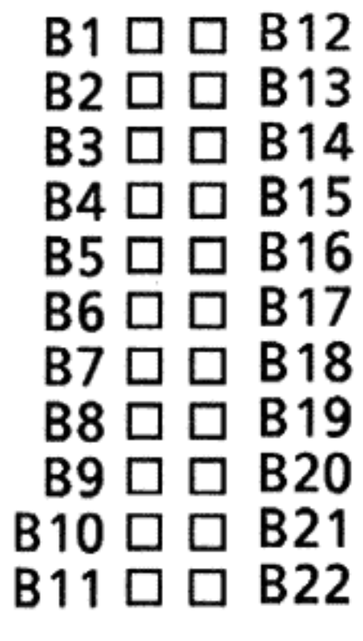
(11GC,1GC)



(10GC~2GC)



(12GC)



(16GA~1GA)

■ Pin Connection

PIN NO	102	101	100	99	98	97	96	95	94	93	92	91	90	89	88	87	86	85	84	83	82	81	80	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65	64
CONNECTION	F 2	F 2	NP	NP	12GC	11GC	10GC	9GC	8GC	7GC	6GC	5GC	4GC	3GC	2GC	1GC	NP	NP	P36	P45	P44	P37	P35	P39	P43	P38	P34	P42	P40	P41	P33	P46	P47	P48	P32	P31	P30	P29	P28
PIN NO	63	62	61	60	59	58	57	56	55	54	53	52	51	50	49	48	47	46	45	44	43	42	41	40	39	38	37	36	35	34	33	32	31	30	29	28	27	26	25
CONNECTION	P 27	P 26	P 25	5GB	4GB	3GB	2GB	1GB	P 1	P 2	P 3	P 4	P 5	P 6	P 7	P 8	P 9	P 10	P 11	DA	NP	NP	NP	NP	P 12	P 13	IC	NP	Fd	Fd	NP	IC	P 14	P 15	P 16	P 17	P 18	P 19	P 20
PIN NO	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1															
CONNECTION	P 21	P 22	P 23	P 24	16GA	15GA	14GA	13GA	12GA	11GA	10GA	9GA	8GA	7GA	6GA	5GA	4GA	3GA	2GA	1GA	NP	NP	F 1	F 1															

NOTE
1) F1,F2 -----Filament
2) NP --------No pin
3) NC --------No connection
4) 1GA~12GA,1GB~5GB,1GC~12GC ---Grid
5) IC ---------Internal connection
6) DA -------Dummy Anode
7) Fd terminals are to be supplied through 24kΩ from Ec.

■ Grid-Anode Assignment (A)

	16GA	15GA	14GA	13GA	12GA	11GA	10GA	9GA	8GA	7GA	6GA	5GA	4GA	3GA	2GA	1GA
P1	B1	B1	B1	B1	B1	B1	B1	B1	B1	B1	B1	B1	B1	B1	B1	B1
P2	B2	B2	B2	B2	B2	B2	B2	B2	B2	B2	B2	B2	B2	B2	B2	B2
P3	B3	B3	B3	B3	B3	B3	B3	B3	B3	B3	B3	B3	B3	B3	B3	B3
P4	B4	B4	B4	B4	B4	B4	B4	B4	B4	B4	B4	B4	B4	B4	B4	B4
P5	B5	B5	B5	B5	B5	B5	B5	B5	B5	B5	B5	B5	B5	B5	B5	B5
P6	B6	B6	B6	B6	B6	B6	B6	B6	B6	B6	B6	B6	B6	B6	B6	B6
P7	B7	B7	B7	B7	B7	B7	B7	B7	B7	B7	B7	B7	B7	B7	B7	B7
P8	B8	B8	B8	B8	B8	B8	B8	B8	B8	B8	B8	B8	B8	B8	B8	B8
P9	B9	B9	B9	B9	B9	B9	B9	B9	B9	B9	B9	B9	B9	B9	B9	B9
P10	B10	B10	B10	B10	B10	B10	B10	B10	B10	B10	B10	B10	B10	B10	B10	B10
P11	B11	B11	B11	B11	B11	B11	B11	B11	B11	B11	B11	B11	B11	B11	B11	B11
P12	S3	MIN	o	o	o (上)	o	o (上)	o	o	o	o (上)	o	o (上)	o	o	**MAX**
S13	B12	B12	B12	B12	B12	B12	B12	B12	B12	B12	B12	B12	B12	B12	B12	B12
P14	B13	B13	B13	B13	B13	B13	B13	B13	B13	B13	B13	B13	B13	B13	B13	B13
S15	B14	B14	B14	B14	B14	B14	B14	B14	B14	B14	B14	B14	B14	B14	B14	B14
P16	B15	B15	B15	B15	B15	B15	B15	B15	B15	B15	B15	B15	B15	B15	B15	B15
P17	B16	B16	B16	B16	B16	B16	B16	B16	B16	B16	B16	B16	B16	B16	B16	B16
P18	B17	B17	B17	B17	B17	B17	B17	B17	B17	B17	B17	B17	B17	B17	B17	B17
P19	B18	B18	B18	B18	B18	B18	B18	B18	B18	B18	B18	B18	B18	B18	B18	B18
P20	B19	B19	B19	B19	B19	B19	B19	B19	B19	B19	B19	B19	B19	B19	B19	B19
P21	B20	B20	B20	B20	B20	B20	B20	B20	B20	B20	B20	B20	B20	B20	B20	B20
P22	B21	B21	B21	B21	B21	B21	B21	B21	B21	B21	B21	B21	B21	B21	B21	B21
P23	B22	B22	B22	B22	B22	B22	B22	B22	B22	B22	B22	B22	B22	B22	B22	B22
P24	S2	**63**	L	**160**	o (下)	**400**	o (下)	**1K**	**1**	**2.5K**	o (下)	**6.3K**	o (下)	**16K**	**R**	S1

■ Grid-Anode assignment (B)

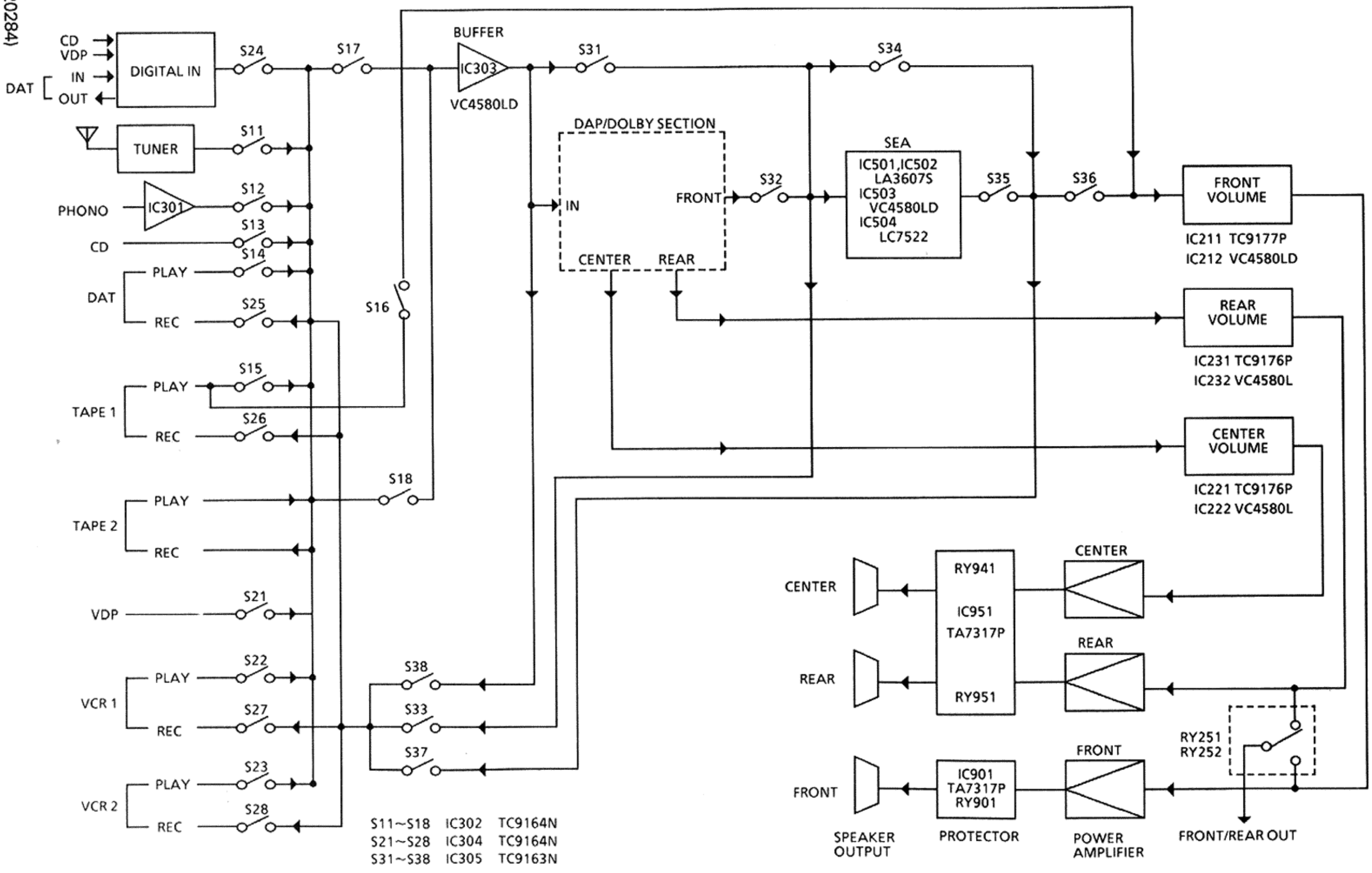
	5GB	4GB	3GB	2GB	1GB
P25	—	TUNED	Dp	STEREO	**MUTE AUTO**
P26	**AUTO MEMORY** (下)	a	a	a	—
P27	—	b	b	b	**MHz**
P28	**MEMORY** (上)	c	c	c	**kHz**
P29	—	d	d	d	g
P30	FM	e	e	e	c,f
P31	AM	f	f	f	b,e
P32	b,c	g	g	g	a,d

■ Grid-Anode assignment (C)

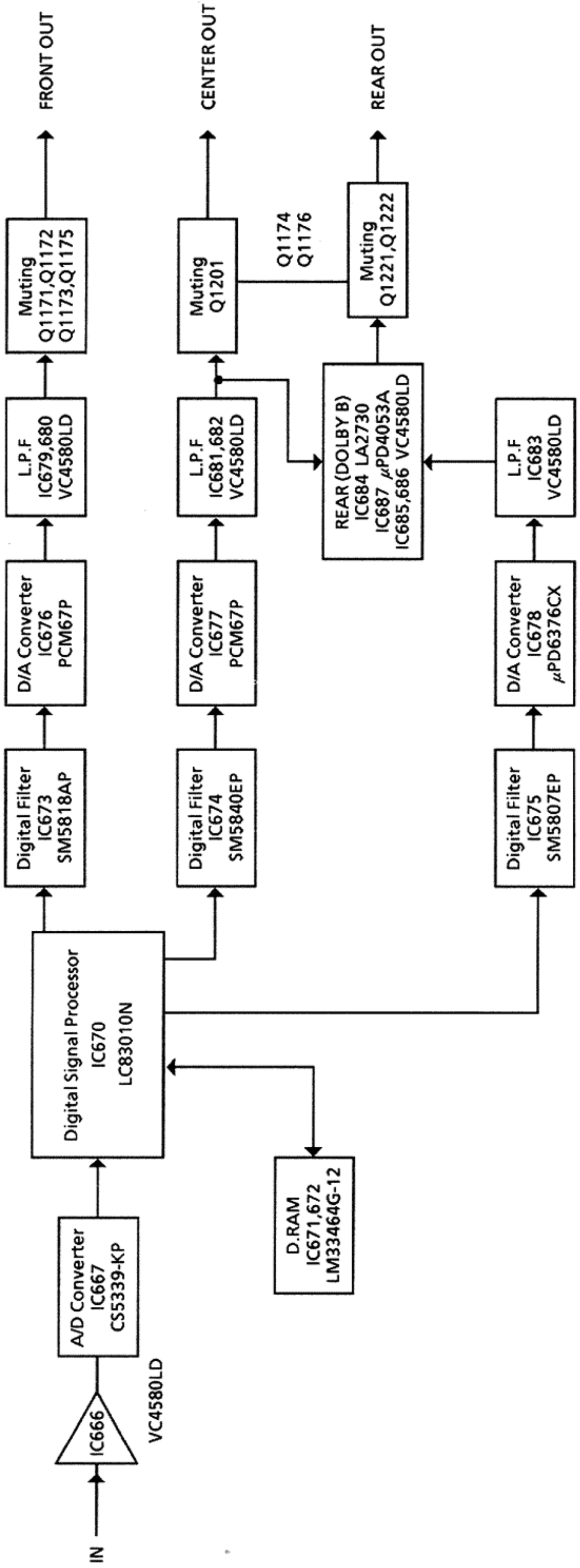
	12GC	11GC	10GC	9GC	8GC	7GC	6GC	5GC	4GC	3GC	2GC	1GC
P33	S4	b,c	a	a	a	a	a	a	a	a	a	a
P34	DAP REC	d	b	b	b	b	b	b	b	b	b	b
P35	THEATER	e.f	c	c	c	c	c	c	c	c	c	c
P36	DOLBY SURROUND	g	d	d	d	d	d	d	d	d	d	d
P37	PRO ·LOGIC	h	e	e	e	e	e	e	e	e	e	e
P38	**3 CH LOGIC**	j	f	f	f	f	f	f	f	f	f	f
P39	**WIDE**	**a MODE**	g	g	g	g	g	g	g	g	g	g
P40	**NORMAL**	CSRP	h	h	h	h	h	h	h	h	h	h
P41	**PHANTOM**	**MEMORY**	j	j	j	j	j	j	j	j	j	j
P42	S5	SOUND SELECTOR	k	k	k	k	k	k	k	k	k	SEA
P43	S6	**VCR**	m	m	m	m	m	m	m	m	m	SEA REC
P44	S7	1	n	n	n	n	n	n	n	n	n	**MEMORY**
P45	S8	2	p	p	p	p	p	p	p	p	p	**PRESET**
P46	S9	**VDP**	r	r	r	r	r	r	r	r	r	SLEEP
P47	S10	**TAPE1 MONITOR**	—	—	Dp	—	MM	—	—	—	ms	ON SCREEN
P48	S11	TAPE 2 MONITER	—	—	—	—	MC	—	—	—	db	LOUDNESS

Block Diagrams

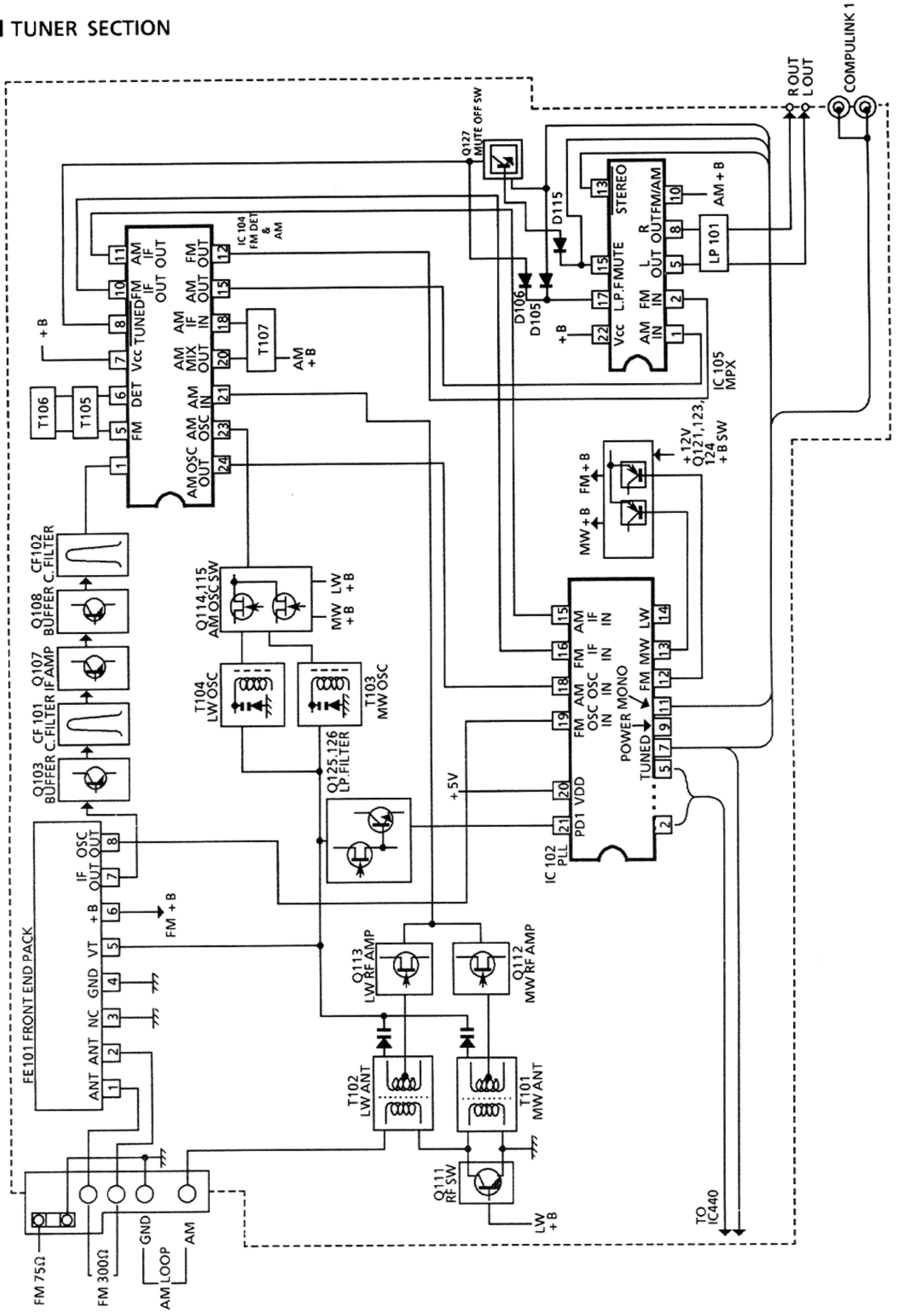
■ AUDIO SIGNAL SECTION



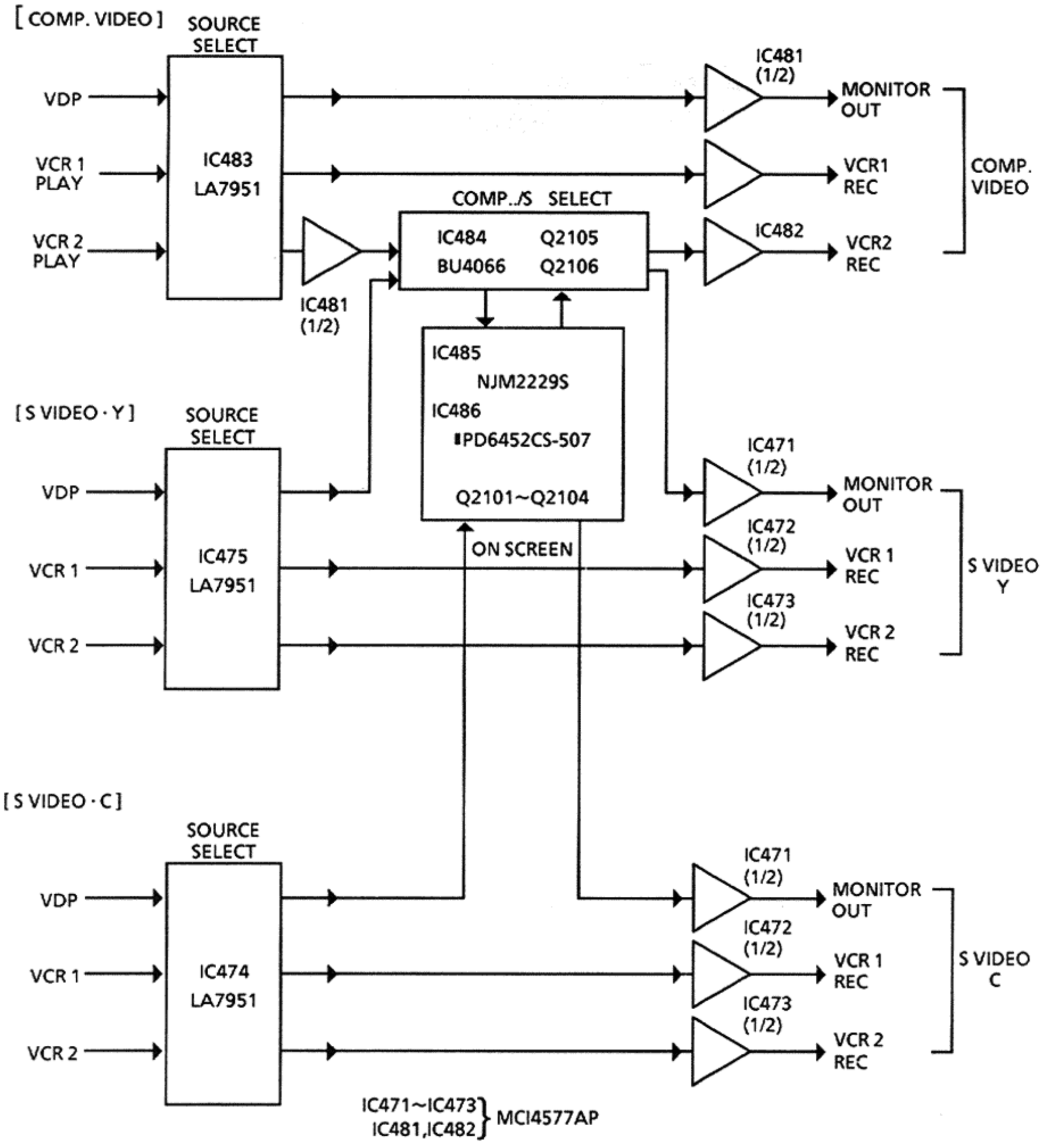
■ DAP/DOLBY SECTION



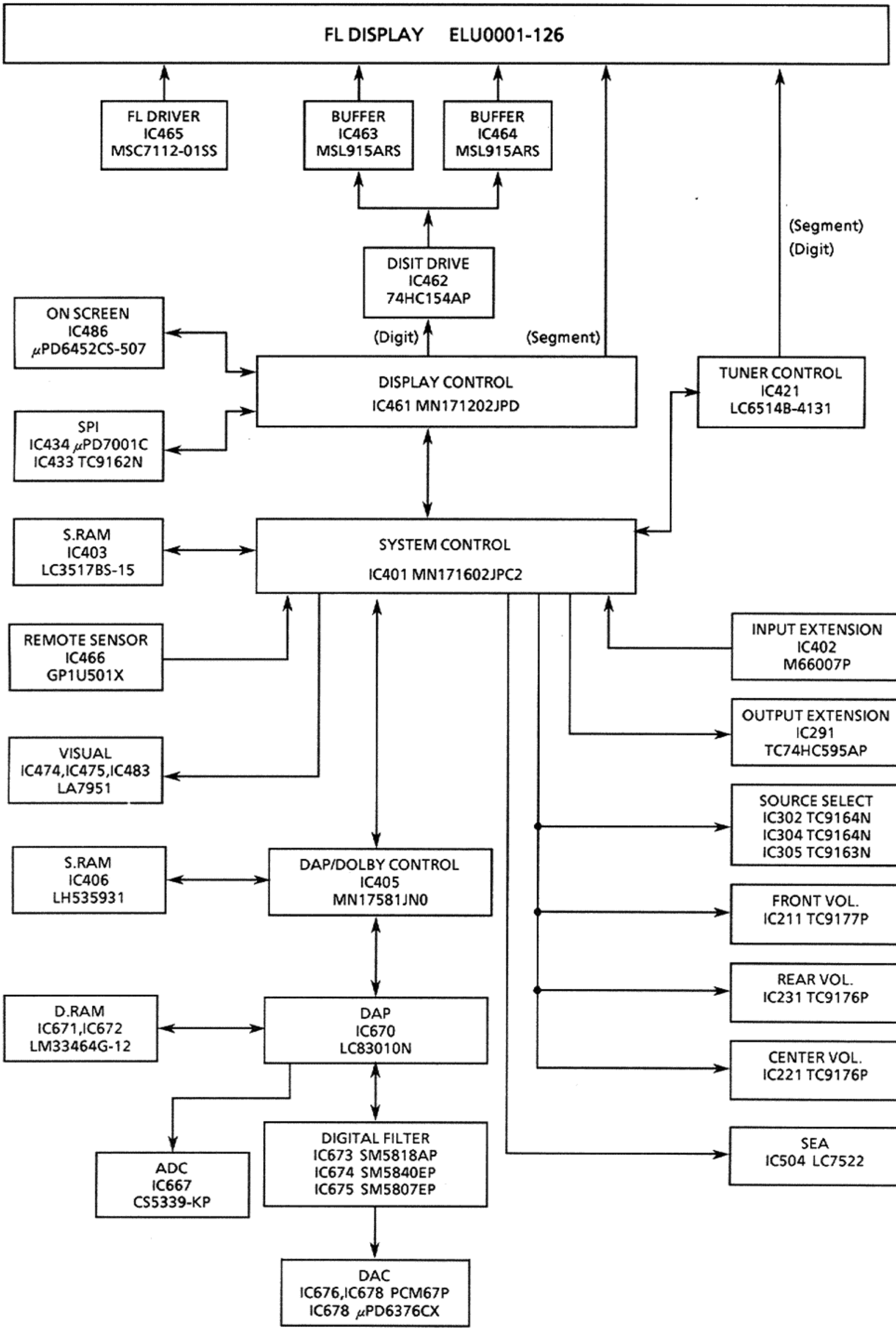
■ TUNER SECTION



■ VISUAL SECTION



■ CONTROL SECTION



■ DC POWER SUPPLY