

owner's manual

Audio/Video Receiver

Professional Series



RCA

IMPORTANT SAFETY INSTRUCTIONS

This receiver is made and tested to meet exacting safety standards. It meets both UL and FCC requirements and complies with safety performance standards of the US Department of Health and Human Services.



This symbol is intended to alert you to the presence of dangerous voltage inside the product that can cause shock. Do not open the product's case.

WARNING: TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.



This symbol is intended to alert you to important operating and maintenance instructions in this owner's manual.

	CAUTION RISK OF ELECTRIC SHOCK. DO NOT OPEN.	
CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE THE COVER. NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.		

Careful attention is devoted to quality standards in the manufacture of your receiver, and safety is a major factor in its design. However, safety is also your responsibility.

This section lists important information that will help you properly use and enjoy your receiver and accessories. Read all the included safety and operating instructions before using your receiver, follow them closely, and retain them for future reference.

Heed Warnings — Follow all warnings on the product and in the operating instructions.

Cleaning — Unplug this product from the wall outlet before cleaning. Use only a damp cloth for cleaning. Do not use liquid or aerosol cleaners.

Attachments — Do not use attachments/accessories not recommended by the product manufacturer, as they might create a hazard.

Water and Moisture — Do not use this product near water (for example, near a bathtub, washbowl, kitchen sink, or laundry tub; in a wet basement; or near a swimming pool).

Accessories — Do not place this product on an unstable cart, stand, tripod, bracket, or table. The product may fall, causing serious injury to a child or adult, and serious damage to the product. Use only with a cart, stand, tripod, bracket, or table recommended by the manufacturer or sold with the product. Follow the manufacturer's instructions for mounting, and use a recommended mounting accessory.



Carts — Move the product on a cart carefully. Quick stops, excessive force, and uneven surfaces may cause the product/cart to overturn.

Ventilation — Slots and openings in the cabinet provide ventilation, ensure reliable operation, and protect from overheating. Do not block or cover these openings, and do not place the product on a bed, sofa, rug, or other similar surface. Do not place the product in a built-in bookcase or rack unless it provides proper ventilation as specified by the manufacturer.

IMPORTANT SAFETY INSTRUCTIONS

Power Sources — Operate this product using only the power source indicated on its marking label. If you are not sure of your home's power type, consult your product dealer or local power company.

Polarization — This product is equipped with a polarized AC line plug (a plug having one blade wider than the other). This plug will fit in the power outlet only one way. This is a safety feature. If you cannot insert the plug fully into the outlet, try reversing the plug. If the plug still does not fit, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the polarized plug. If you need an extension, use a polarized cord.

Power-Cord Protection — Route power-supply cords so they are not likely to be walked on or pinched by items placed on or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the product.

Lightning — For added protection for this product during a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet and disconnect the antenna or cable system. This will prevent damage to the product due to lightning and power-line surges.

Overloading — Do not overload wall outlets, extension cords, or integral convenience receptacles, as this can result in a risk of fire or electric shock.

Objects and Liquids — Never push objects of any kind into this product through openings, as they may touch dangerous voltage points or short out parts that could result in a fire or electric shock. Never spill liquid of any kind on the product.

Servicing — Do not attempt to service this product yourself, as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.

Damage Requiring Service — Unplug this product from the wall outlet and refer servicing to qualified service personnel under the following conditions:

- When the power-supply cord or plug is damaged.
- If liquid has been spilled or objects have fallen into the product.
- If the product has been exposed to rain or water.
- If the product does not operate normally by following the operating instructions. Adjust only those controls that are covered by the operating instructions, as an improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the product to normal operation.
- If the product has been dropped or damaged in any way.

- When the product exhibits a distinct change in performance.

Replacement Parts — When replacement parts are required, be sure the service technician uses replacement parts specified by the manufacturer or having the same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock, or other hazards.

Safety Check — Upon completion of service or repairs to this product, ask the service technician to perform safety checks to determine that the product is in proper operating condition.

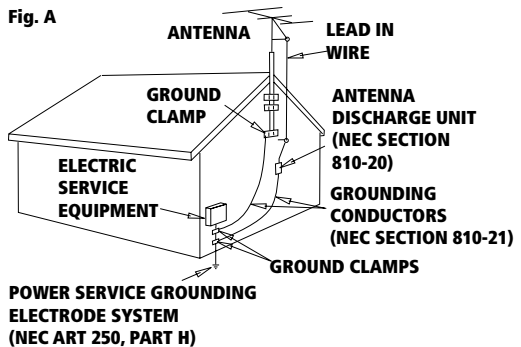
Wall or Ceiling Mount — The product should be mounted to a wall or ceiling only as recommended by the manufacturer.

Heat — The product should be situated away from heat sources such as radiators, heat registers, stoves, or other products (including amplifiers) that produce heat.

Outdoor Antenna Grounding — If an outside antenna or cable system is connected to the product, be sure the antenna or cable system is grounded so as to provide some protection against voltage surges and built-up static charges. Article 810 of the National Electrical Code, ANSI/NFPA 70, provides information with regard to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna discharge unit, size of grounding conductors, location of antenna-discharge unit, connection to grounding electrodes, and requirements for the grounding electrode. See Figure A.

Lightning — For added protection for this product during a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet and disconnect the antenna or cable system. This will prevent damage to the product due to lightning and power-line surges.

Fig. A



NEC — NATIONAL ELECTRICAL CODE

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Introductory Information

Congratulations on buying this fine RCA product.

Please read through these operating instructions so you will know how to operate your model properly. After you have finished reading the instructions, put them away in a safe place for future reference.

Your RCA Audio/Video Receiver has the following benefits.

DTS* (Digital Theater Systems) Decoder Equipped  — DTS is a digital sound system introduced in theaters. Playback of DVDs, LDs, and CDs recorded in DTS audio creates the environment of a theater or the sensation of a concert hall in your home.

Dolby Digital and Dolby Pro Logic II** — No need to worry about program formats! When playing Dolby Digital or Dolby Surround software in the Standard mode, decoding switches automatically according to the input signal. You can also use Dolby Pro Logic II to create a surround sound listening experience with stereo sources. All you have to do is sit back and enjoy!

Advanced Surround Modes — Five sound modes that enhance DTS and Dolby Surround performance by simulating the ambience of listening environments such as a movie theater (MOVIE) or a concert hall (MUSIC). The EXPANDED mode lets you enjoy Dolby Surround encoded software in simulated Dolby Digital. 5-CHANNEL STEREO gives multi-channel sound from stereo sources, and the VIRTUAL REAR CENTER CHANNEL effect gives you an incredible surround sound listening experience by adding a simulated back surround speaker to your setup!

Midnight Listening Mode — Lets you enjoy quality surround sound effects, even at low volumes.

DVD 5.1 Channel Input — A special 5.1 channel input makes the receiver fully compatible with Dolby Digital decoders and DVD players with 5.1 channel outputs.

Energy-Saving Design — This receiver is designed to use minimal electricity when power is switched OFF (in Standby mode).

Remote Control of Other Components — The supplied remote control can be used to operate a variety of other components simply by recalling the appropriate preset code. In addition, the multi-operation functions allow you to perform a variety of operations automatically.

* "DTS" and "DTS Digital Surround" are trademarks of Digital Theater Systems, Inc.
Manufactured under license from Digital Theater Systems, Inc.

** Manufactured under license from Dolby Laboratories.

"Dolby", "Pro Logic" and the double-D symbol are trademarks of Dolby Laboratories.
Confidential unpublished works. © 1992-1997 Dolby Laboratories.

All Rights Reserved.

Supplied Accessories

Please check that you have received the following supplied accessories:

- AM loop antenna
- FM wire antenna
- Remote control
- Owner's manual

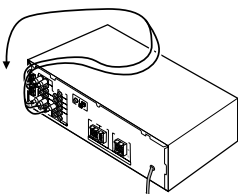
Placing the Receiver

Please note the following points:

- Do not place objects directly on top of this unit. This prevents proper heat dispersal.
- When installing on a rack, shelf, etc., be sure to leave more than 8 inches (20 cm.) of space above the receiver.

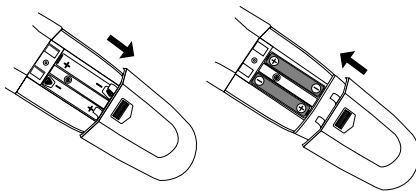
Avoiding Magnetic Interference

Make sure not to bend the cables over the top of this unit (as shown in the illustration). If this happens, the magnetic field produced by the transformers in this unit may cause a humming noise from the speakers.



Installing the Batteries

The remote control operates on two AA batteries (not supplied). We recommend RadioShack alkaline batteries for longest life.



Cautions:

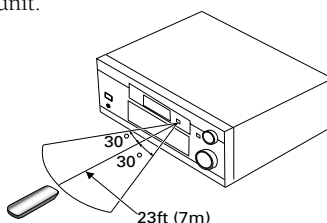
Incorrect use of batteries may result in such hazards as leakage and bursting. Observe the following precautions:

- Never use new and old batteries together.
- Insert the plus and minus sides of the batteries properly according to the marks in the battery case.
- Batteries with the same shape may have different voltages. Do not use different batteries together.
- When disposing of used batteries, please comply with governmental regulations or environmental rules that apply in your country or area.

Operating the Remote Control

The remote control may not work properly if:

- There are obstacles between the remote control and the receiver's remote sensor.
- Direct sunlight or fluorescent light is shining onto the remote sensor.
- The receiver is located near a device that is emitting infrared rays.
- The receiver is operated simultaneously with another infrared remote control unit.



5 Minute Guide

Introduction to Home Theater

You are probably used to using stereo equipment to listen to music, but may not be used to home theater systems that give you many more options (such as surround sound) when listening to soundtracks.

Home theater refers to the use of multiple audio channels to create a surround sound effect, making you feel like you are in the middle of the action or concert. The surround sound you get from a home theater system depends not only on the speakers you have set up in your room, but also on the source and the sound settings of the receiver.

DVD-Video has become the basic source material for home theater due to its size, quality, and ease of use. Depending on the disc, you can have up to seven channels, each being sent to a different speaker in your system. This is what creates a surround sound effect and gives you the feeling of ‘being there’.

This receiver will automatically decode Dolby Digital, DTS, or Dolby Surround DVD-Video discs, according to your speaker setup. In most cases, you will not have to make changes for realistic surround sound, but other possibilities (like listening to a CD with multi-channel surround sound) are explained in “Playing Sources” on page 29.

Note:

Depending on your DVD player or source discs, you may only get digital 2 channel stereo and analog sound. In this case, the listening mode must be set to Standard (it should already be set—see page 31 if you need to do this) if you want multi-channel surround sound.

Listening to Surround Sound

This receiver was designed with the easiest possible setup in mind, so with the following quick setup guide, you should have your system connected for surround sound in no time at all. In most cases, you can simply use the receiver's default settings.

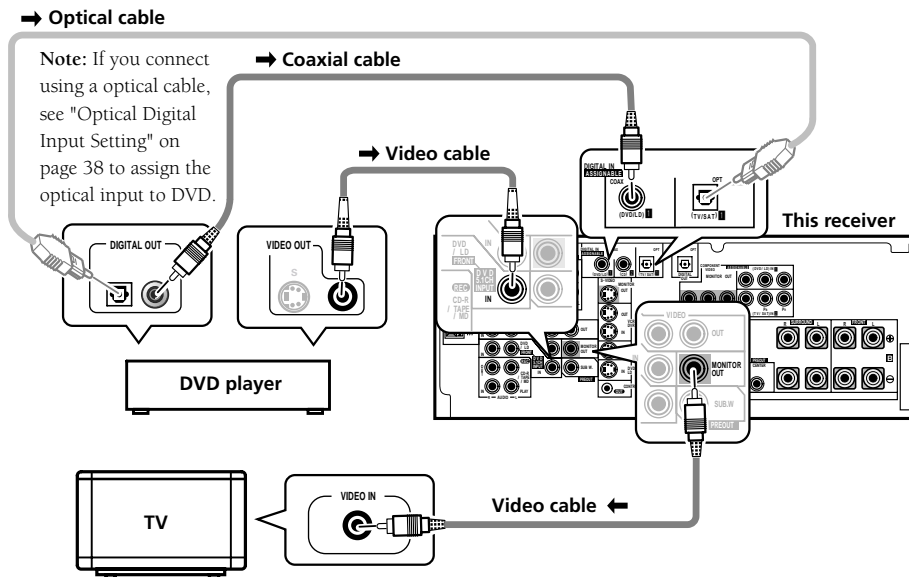
1 Connect your DVD player.

For surround sound, you need to make a digital connection from the DVD player to the receiver. You can do this with either a coaxial, or an optical connection (you do not need to do both). If you connect using an optical cable, you should refer to "Optical Digital Input Setting" on page 38 to assign the optical input to DVD.

Use a video cable to connect the video output on your DVD to the receiver using the jacks shown below.

2 Connect the receiver to your TV.

Use a video cable to connect your receiver to the TV using the jacks as shown below.

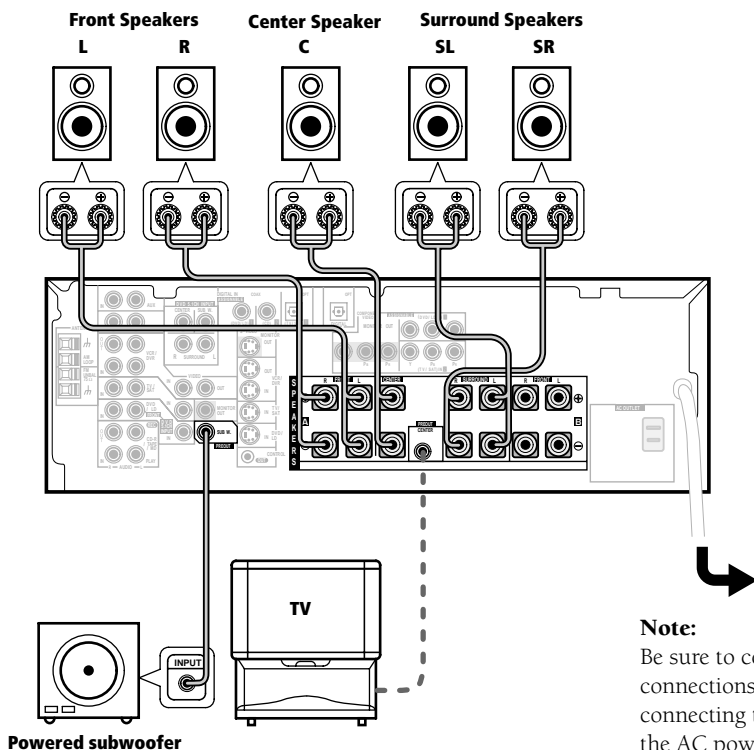


5 Minute Guide

3 Connect your speakers.

A complete setup of six speakers, including the subwoofer, is shown below. Actual home setups may vary. Simply connect the speakers you have as shown. The receiver will work with just a pair of stereo speakers (the front speakers in the diagram), but using at least three speakers (two front and a center) is recommended, and a complete setup is best.

Make sure you connect the speaker on the right to the right terminal and the speaker on the left to the left terminal. Also make sure the positive and negative (+/-) terminals on the receiver match those on the speakers.



Note:
Be sure to complete all connections before connecting this unit to the AC power source.

Note:

When using the speaker on your TV as the center speaker (C), connect the **CENTER PREOUT** jack on this unit to the audio input jack on your TV. In this case the center speaker shown is unnecessary.

4 Plug in the receiver and switch it on, followed by your DVD player, your subwoofer and the TV.

Make sure to set the video input on your TV to this receiver. Check the manual that came with the TV if you do not know how to do this.

Also make sure that **DVD** is showing in the receiver's display, indicating that the DVD input is selected. If it is not, press **DVD** to set the receiver to the DVD input.

5 Press **SETUP** on the front panel to specify your speaker setup and your room size.

Use the **MULTI JOG** dial to select and **ENTER** to confirm your selection. See "Using the Quick Setup" on the next page if you are unsure about the settings.

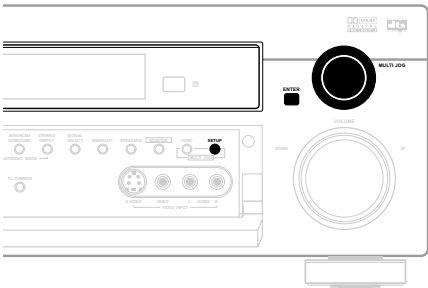
6 Play a DVD, and adjust the volume to your liking.

There are several other sound options you can select. See pages 29-30 and "Choosing Your Receiver Setup" on pages 34-39 for more setup options.

5 Minute Guide

Using the Quick Setup

You can use the Quick Setup to get your system up and running with just a few button presses. The receiver automatically makes the necessary settings after you have selected your speaker setup and room size. If you want to make more specific settings, refer to “Choosing Your Receiver Setup” on pages 34–39. Use the front panel controls for the steps below.



- 1 If the receiver is off, press **POWER** to turn the power on.

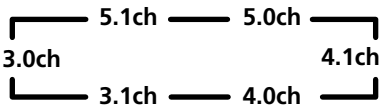
The **STANDBY** indicator goes out.

- 2 Press **SETUP**.

The display prompts you to select your speaker setup.

- 3 Use the **MULTI JOG** dial to choose your speaker setup.

Cycle between the following choices:



Note:

Check the table below to find the speaker setup that corresponds with your system.

	Front Speakers	Center Speaker	Surround Speakers	Sub Woofer
3.0 ch	√	√	×	×
3.1 ch	√	√	×	√
4.0 ch	√	×	√	×
4.1 ch	√	×	√	√
5.0 ch	√	√	√	×
5.1 ch	√	√	√	√

- 4 Press **ENTER**.

The display prompts you to select your room size.

- 5 Use the **MULTI JOG** dial to choose your room size.

Depending on the distance of your surround speakers from the listening position, choose between **Small**, **Medium**, or **Large** (see table below).

	S	M	L
Front	12 ft.	12 ft.	12 ft.
Center	10 ft.	10 ft.	10 ft.
Surround	6 ft.	7 ft.	9 ft.

- 6 Press **ENTER** to confirm your setup.

The display shows the speaker setup and room size that you have selected.

Connecting Your Equipment

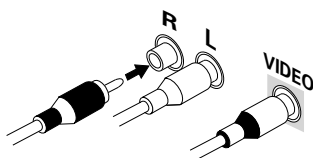
Before making or changing the connections, switch off the power and disconnect the power cord from the AC outlet.

Audio/Video Cables

Use audio/video cables (not supplied) to connect the audio/video components and a video cable to connect the monitor TV.

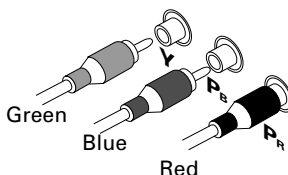
Connect red plugs to **R** (right), white plugs to **L** (left), and the yellow plugs to **VIDEO**.

Be sure to insert completely.



Component Video Cables

Use component video cables to get the best possible color reproduction of your video source. The video signal is divided into the luminance (Y) signal and the color (PB and PR) signals and then output. In this way, interference between the signals is minimized. Connect from the component video jacks on the rear of the receiver to the component video jacks on the video component you are connecting.

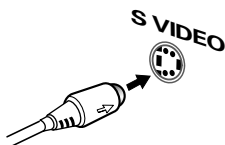


S-Video Cables

Use S-video cables (not supplied) to get clearer picture reproduction than regular video cables.

Connect from an S-video jack on the rear of the receiver to an S-video jack on the video component you are connecting.

Be sure to insert completely.



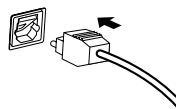
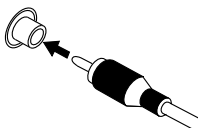
Digital Audio Cables/ Optical Cables

Use coaxial digital audio cables or optical cables (not supplied) to connect digital components to this receiver. Standard video cables can also be used for coaxial connections.

Be sure to insert completely.

**Digital audio coaxial cable
(or standard video cable)**

Optical cable

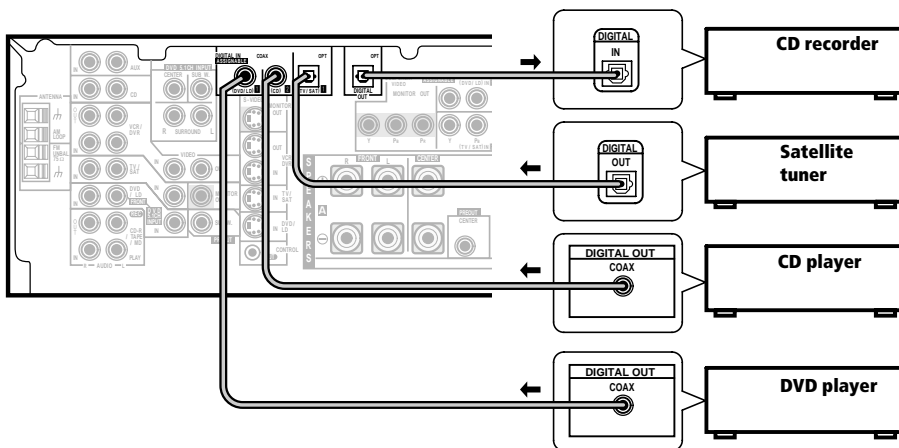


Connecting Digital Components

The easiest way to connect this receiver for surround sound is to use a digital input. You can do this by either coaxial or optical connections (you do not need to do both). The quality of these two types of connections is the same but since some digital components have only one type of digital terminal, it is a matter of matching like terminals (for example, the coaxial output from the component to coaxial input on the receiver). This receiver has three digital inputs (two coaxial and one optical). Connect your digital components as shown below.

Connect the digital output jack marked **DIGITAL OUT** to the optical input on a digital recorder (currently these include MD, DAT and CD-R) to make direct digital recordings with this unit.

When connecting your equipment, always make sure the power is turned off and the power cord is disconnected from the AC outlet. The arrows indicate the direction of the audio signal.



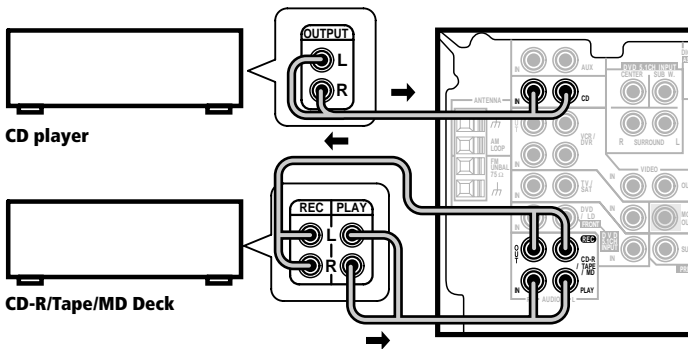
Note:

If you have an LD player, you need to make special connections to ensure you can play **DD** RF format LDs on your system. In this case, connect your DVD/LD or LD player to an RF demodulator using both the **DD** RF output and either a coaxial or optical digital connection, then connect the RF demodulator to this receiver. We also recommend connecting digital components to analog audio jacks. See the component's instruction manual if you are unsure about its input and output jacks.

Connecting Audio Components

For components you want to use to record, you must connect four plugs to the receiver (a set of stereo ins and a set of stereo outs). For components that only play, you only need to connect one set of stereo plugs. You must also connect your digital components to analog audio jacks if you want to record to/from digital components (like an MD) to/from analog components. See page 14 for more on digital connections.

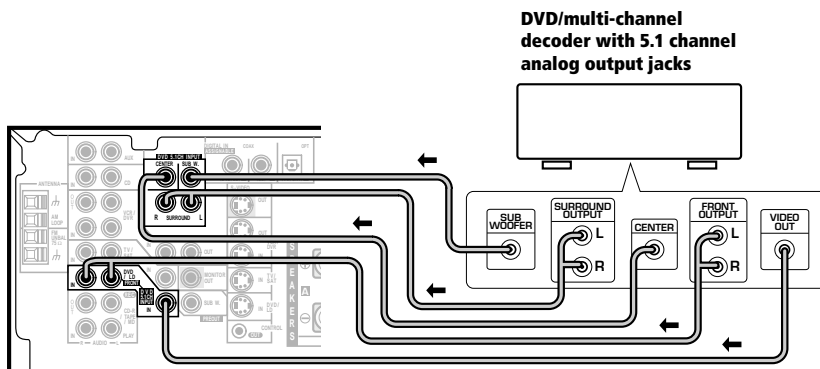
When connecting your equipment, always make sure the power is turned off and the power cord is disconnected from the AC outlet. The arrows indicate the direction of the audio signal.



Connecting DVD 5.1 Channel Components

If you have a DVD player with multi-channel analog outputs, or prefer to use an external decoder, you can connect it to this receiver's multi-channel analog inputs.

When connecting your equipment, always make sure the power is turned off and the power cord is disconnected from the AC outlet. The arrows indicate the direction of the audio signal.



Note:

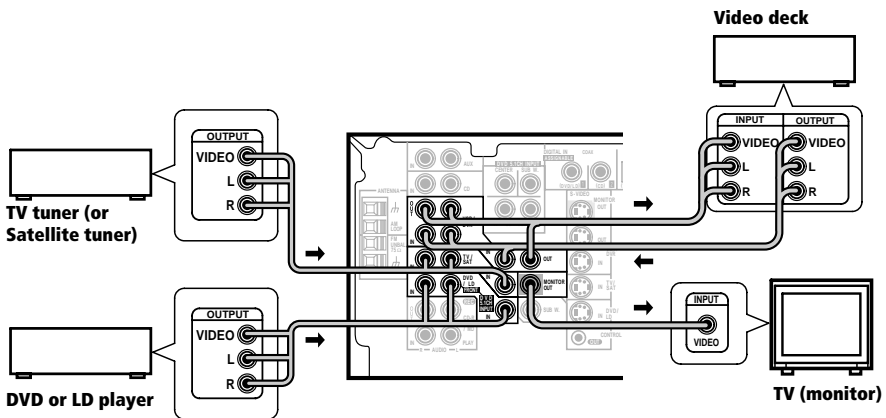
The multi-channel input can only be used when **DVD 5.1 ch** is selected (see page 32).

Connecting Video Components

Connect your video components to the jacks as shown below. With digital video components (like a DVD player), you must use the connections shown on this page for the video signal, but in order to hear a digital source (like a DVD) you should connect the audio to a digital input (see page 14). It is also a good idea to connect your digital components with analog audio connections (see page 15).

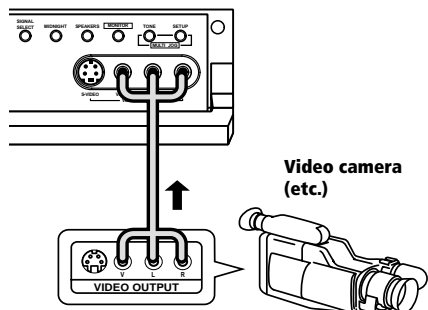
For better quality video, you can use the component video jacks or the S-video jacks on the rear of the receiver instead of the regular video jacks.

When connecting your equipment, always make sure the power is turned off and the power cord is disconnected from the AC outlet. The arrows indicate the direction of the signal.



Connecting to the Front Panel Video Terminal

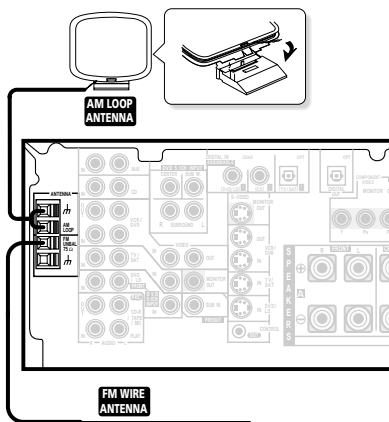
Front video connections are accessed via the front panel input selector as **VIDEO**. There are standard audio/video jacks as well as an S-video jack.



Connecting Your Equipment

Connecting Antennas

Connect the AM loop antenna and the FM wire antenna. To improve reception and sound quality, connect external antennas (see “Using External Antennas”). Always make sure that the receiver is switched off and unplugged from the wall outlet before making or changing any connections.

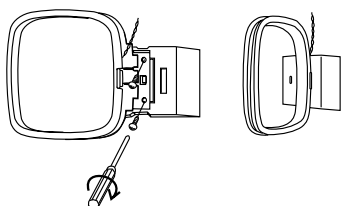


FM Wire Antenna

Connect the FM wire antenna and fully extend it vertically along a window frame or other suitable area.

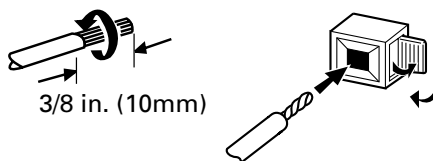
AM Loop Antenna

Assemble the antenna and connect it to the receiver. Attach it to a wall (if desired) and face it in the direction that gives the best reception.



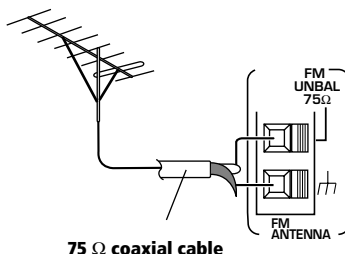
Antenna Snap Connectors

Twist the exposed wire strands together and insert into the hole, then snap the connector shut.



Using External Antennas To Improve FM Reception

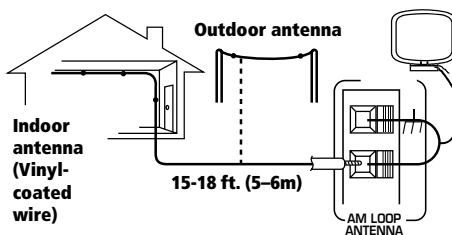
Connect an external FM antenna.



To Improve AM Reception

Connect a 15-18 feet length of vinyl-coated wire to the AM antenna terminal without disconnecting the supplied AM loop antenna.

For the best possible reception, suspend horizontally outdoors.



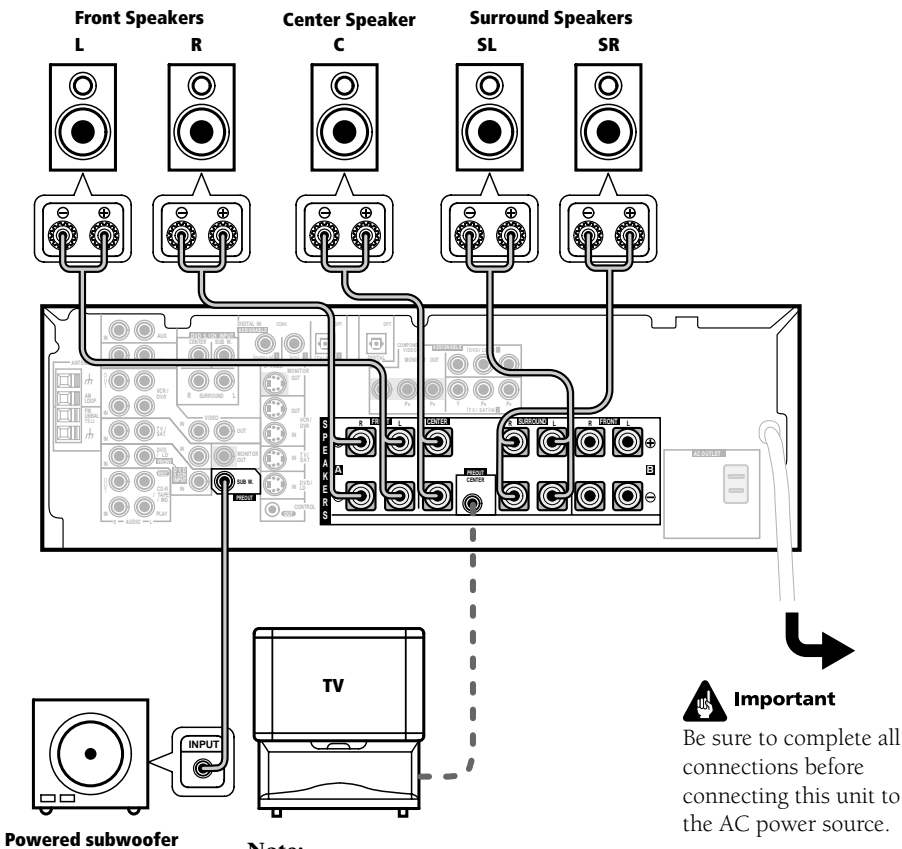
Connecting Speakers

A complete setup of six speakers (including the subwoofer) is shown below, but actual home setups may vary. Connect the speakers as shown below. The receiver will work with just a pair of stereo speakers (the front speakers in the diagram), but using at least three speakers (two front and a center) is recommended, and a complete setup is best.

Make sure you connect the speaker on the right to the right terminal and the speaker on the left to the left terminal. Also make sure the positive and negative (+/–) terminals on the receiver match those on the speakers.

Note:

Use speakers with a nominal impedance of 8 Ω to 16 Ω .



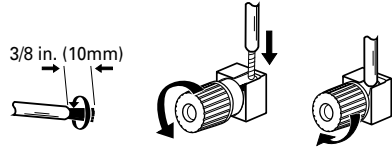
Note:

When using the speaker on your TV as the center speaker (**C**), connect the **CENTER PREOUT** jack on this unit to the audio input jack on your TV. In this case the center speaker shown is unnecessary.

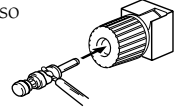
Connecting Your Equipment

Speaker Terminals

- 1 Twist exposed wire strands together.
- 2 Loosen speaker terminal and insert exposed wire.
- 3 Tighten terminal.



The speaker terminals also accept single banana plugs. (Refer to speaker manual for details.)



Caution:

Make sure that all the bare speaker wire is twisted together and inserted fully into the speaker terminal. If any of the bare speaker wire touches the back panel it may cause the power to cut off as a safety measure. Use good quality speaker wire to connect the speakers to the receiver.

A and B Speaker Systems

The receiver has two speaker systems: A and B. A is the main system supporting the full speaker setup. If you switch on both A and B speaker systems, only the front speakers and the subwoofer will be audible. No sound will come from the center or surround speakers, but multi-channel sources will be down-mixed to the active speakers so no sound will be lost. Similarly, if you choose just the B system, you will only hear the front speakers connected to the B system and multi channel sources will be down-mixed to these two speakers.

Hints on Speaker Placement

Speakers are usually designed with a particular placement in mind. Some are designed to be floorstanding, while others should be placed on stands to sound their best. Some should be placed near a wall; others should be placed away from walls. Follow the guidelines on placement that the speaker manufacturer provided with your particular speakers to get the most out of them.

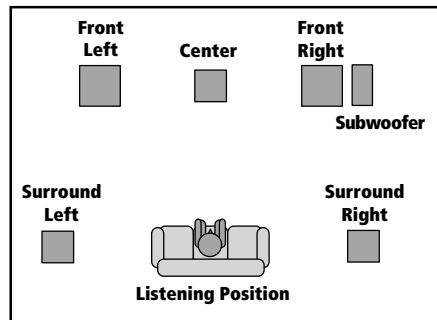
- Place the front left and right speakers at equal distances from the TV.
- When placing speakers near the TV, we recommend using magnetically shielded speakers to prevent possible interference, such as discoloration of the picture when the TV is switched on. If you do not have magnetically shielded speakers and notice discoloration of the TV picture, move the speakers farther away from the TV.
- Place the center speaker above or below the TV so that the sound of the center channel is localized at the TV screen.

Caution:

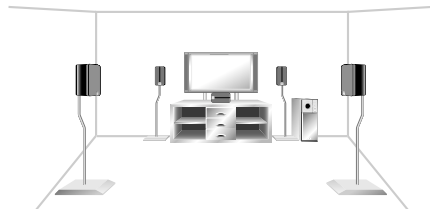
If you choose to install the center speaker on top of the TV, be sure to secure it with putty, or by other suitable means, to reduce the risk of damage or injury resulting from the speaker falling from the TV in the event of external shocks such as earthquakes.

- If possible, place the surround speakers slightly above ear level.
- Try not to place the surround speakers further away from the listening position than the front and center speakers. Doing so can weaken the surround sound effect.
- To achieve the best possible surround sound, install your speakers as shown at right. Be sure all speakers are installed securely to prevent accidents and improve sound quality.

Overhead view of speaker set up



3-D view of speaker set up



Connecting Your Equipment

AC Outlet

Power supplied through this outlet is turned on and off by the receiver's POWER switch.

Total electrical power consumption of connected equipment should not exceed 100 W (0.8 A).

Caution:

Do not connect a heater, TV or any other kind of heavy appliance. Also, make sure no exposed speaker wire is touching the rear panel, as this may cause the receiver to turn off automatically.

Notes:

- This unit should be disconnected by removing the power plug from the wall socket when not in regular use.
- Do not connect appliances with high power consumption such as heaters, irons, or television sets to this AC OUTLET in order to avoid overheating and fire risk. This can also cause the receiver to malfunction.

Power-Cord Caution

Handle the power cord by the plug. Do not pull out the plug by tugging the cord and never touch the power cord when your hands are wet, as this could cause a short circuit or an electric shock. Do not place the unit, a piece of furniture, or anything else heavy on the power cord, or pinch the cord. Never make a knot in the cord or tie it with other cables. The power cord should be routed so it is not likely to be stepped on. A damaged power cord can cause a fire or give you an electrical shock. Check the power cord once in a while. When you find it damaged, contact your local RadioShack store for assistance.

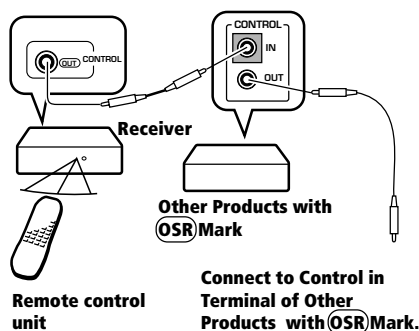
Operating Other Components

By connecting an optional control cable, you can control other equipment with an **OSR** mark using this remote control. Point the remote control towards the remote sensor of the receiver, even when operating other equipment.

The remote control signals are received by the receiver's remote sensor, and sent to the other devices via the **CONTROL OUT** terminal.

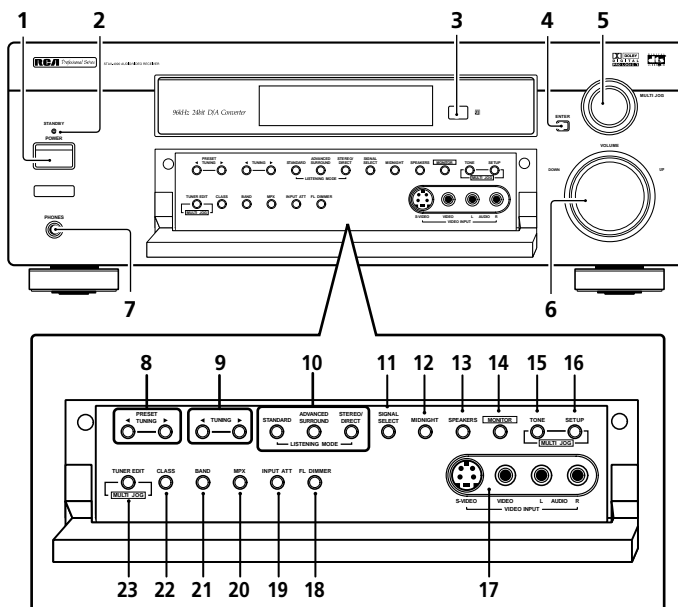
Note:

You can also control components with an **OSR** mark by pointing the receiver's remote control directly at the component. This type of operation does not require control cables.



Controls and Displays

Front Panel



1 POWER button

Switches the receiver between on and standby.

2 STANDBY indicator

Lights when the receiver is in standby.

3 Remote sensor

Receives the signals from the remote control.

4 ENTER button

5 MULTI JOG dial

The **MULTI JOG** dial performs a number of tasks. Use it to select options after pressing **TONE CONTROL**, **QUICK SETUP** or **TUNER EDIT**.

6 MASTER VOLUME

7 PHONES jack

Use to connect headphones. When the headphones are connected, there is no sound output from the speakers.

8 PRESET TUNING buttons (pages 41–42)

Selects station memories when using the tuner.

9 TUNING buttons (page 40)

Selects the frequency when using the tuner.

10 LISTENING MODE buttons

STANDARD (page 29)

Press for Standard decoding and to switch between the various Pro Logic II options.

ADVANCED SURROUND (page 29)

Use to switch between the various surround modes.

STEREO/DIRECT (page 29)

Switches direct playback on or off. This bypasses the tone controls and channel levels for the most accurate reproduction of a source.

Controls and Displays

11 SIGNAL SELECT button (pages 30, 32–33)

Use to select an analog or digital signal.

12 MIDNIGHT button (page 32)

Use Midnight when listening to movie soundtracks at low volume.

13 SPEAKERS button

Use to cycle through the speaker system: **A → B → A+B**

14 MONITOR button

Press to switch tape monitoring on/off.

15 TONE buttons

Press this button to access the bass and treble controls, which you can then adjust with the **MULTI JOG** dial.

16 SETUP button

17 VIDEO INPUT (page 17)

18 FL DIMMER button

Use this button to make the fluorescent display (FL) dimmer or brighter.

19 INPUT ATT button

Use to attenuate (lower) the level of an analog input signal to prevent distortion.

20 MPX button (page 40)

Press to receive a radio broadcast in mono.

21 BAND button (page 40)

Switches between AM and FM radio bands.

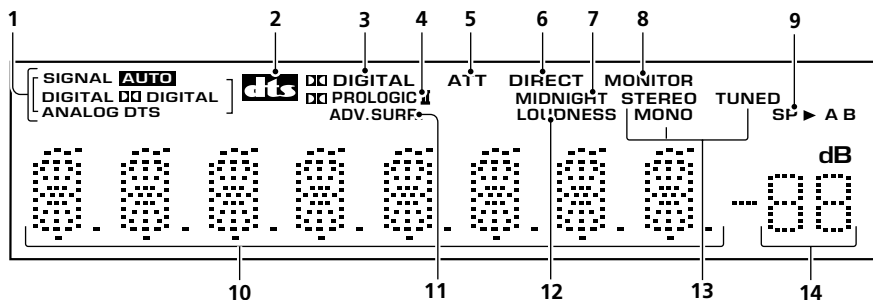
22 CLASS button (pages 41–42)

Switches between the three banks (classes) of station presets.

23 TUNER EDIT button (pages 41–42)

Press to memorize and name a station for recall using the **P-SET** \Leftarrow/\Rightarrow buttons on the remote.

Display



1 SIGNAL SELECT indicators

Lights to indicate the type of input signal assigned for the current component:

AUTO

Lights when AUTO signal select is on.

DIGITAL

Lights when a digital audio signal is detected.

DIGITAL

Lights when a Dolby Digital signal is detected.

ANALOG

Lights when an analog signal is detected.

DTS

Lights when a DTS signal is detected.

2 DTS

When the Standard mode of the receiver is on, this lights to indicate decoding of a DTS signal.

3 DIGITAL

When the Standard mode of the receiver is on, this lights to indicate decoding of a Dolby Digital signal.

4 PRO LOGIC II

When the Standard mode of the receiver is on, this lights to indicate Pro Logic II decoding.

5 ATT

Lights when INPUT ATT is used to attenuate (reduce) the level of the analog input signal.

6 DIRECT

Lights when source direct playback is in use. This function bypasses all tone, balance, DSP and Dolby Surround effects.

7 MIDNIGHT

Lights during Midnight listening.

8 MONITOR

Lights when **MONITOR** is selected (page 43).

9 Speaker indicator

Shows if the speaker system is on or not.

SP▶A indicates the speakers are switched on.

SP▶ indicates the headphones are connected.

10 Character display

11 ADV SURR (Advanced Surround)

Lights when one of the Advanced Surround modes has been selected.

12 LOUDNESS indicator

Lights when the LOUDNESS is on. Use to boost the bass and treble at low volume.

13 TUNER indicators

STEREO:

Lights when a stereo FM broadcast is being received in auto stereo mode.

MONO:

Lights when the mono mode is set using the **MPX** button.

TUNED:

Lights when a broadcast is being received.

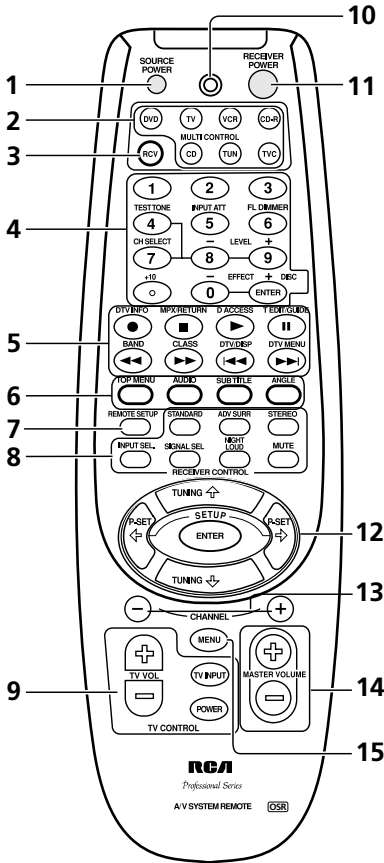
14 Master volume level

Shows the overall volume level. **---dB** indicates the minimum level, and **-0dB** indicates the maximum level.

Notes:

Depending on your level settings for each channel, the maximum level can range between **-10dB** and **0dB**.

Remote Control



1 SOURCE POWER

Press to turn on/off other components connected to the receiver.

2 MULTI CONTROL buttons

Press to select control of other components (see “Controlling the Rest of Your System” on pages 44–61).

3 RCV

Switches the remote to control the receiver (used to select the features above the number buttons. (ex. **INPUT ATT**, **FL DIMMER**)). Also use this button to set up surround sound (pages 34, 39).

4 Number buttons/Receiver controls/ ENTER

Use the number buttons to select a radio frequency directly (page 40) or the tracks on a CD or DVD.

DISC (ENTER)

The button’s use depends on the component selected. It can be used to enter commands for TV or DTV, and can also be used to select a disc in a multi-CD player.

Receiver Controls

Press the **RCV** button first to access the functions above the number buttons. The display flashes when it is not possible to use a function.

TEST TONE (page 39)

Sounds the test tone when setting up the surround sound of the receiver.

INPUT ATT

Attenuates (lowers) the level of an analog input signal to prevent distortion.

FL DIMMER

Dims or brightens the display.

CH SELECT (page 39)

Selects a speaker when setting up the surround sound of the receiver.

LEVEL +/- (page 39)

Adjusts the levels of the surround sound of the receiver.

EFFECT +/- buttons (page 32)

Adds or subtracts the amount of effect with different advanced listening modes (except 5 Ch Stereo and Virtual SB).

5 Component/Tuner controls

The main buttons (►, ■, etc.) are used to control a component after you have selected it using the **MULTI CONTROL** buttons. The tuner/DTV controls above these buttons can be accessed after you have selected the corresponding **MULTI CONTROL** button — TUNER or DVD (when connected to DTV).

DTV INFO

Use to bring up information screens on a digital TV.

MPX/RETURN (page 40)

Switches between stereo and mono reception of FM broadcasts. If the signal is weak then switching to mono will improve the sound quality.

D ACCESS (page 40–41)

After pressing, you can access a radio station directly using the number buttons.

T EDIT/GUIDE (pages 41–42)

Press to memorize and name a station for recall using the **P-SET** ⇐/⇒ buttons. Also displays the guides on a digital TV and acts as a pause button for CDs, tapes, or DVDs.

BAND (page 40)

Switches between the tuner AM and FM bands.

CLASS (pages 41–42)

Switches between the three banks (classes) of radio station presets.

DTV/DISP

Switches a digital TV on/off. It can also be used to switch the display between the station preset name and the frequency for the tuner.

DTV MENU

Displays menus on a digital TV.

6 DVD controls (Press DVD first to access)

These controls will also function as DTV controls, depending on the component you have selected.

TOP MENU

Displays the 'top' menu of a DVD disc.

AUDIO

Changes the audio language or channel.

SUB TITLE

Displays/changes the subtitles included in multilingual DVD-Video discs.

ANGLE

Switches camera angles on discs with multi-angle scenes.

7 REMOTE SETUP (pages 41–47)

Press this button to set up the remote control to control other components.

8 RECEIVER CONTROL buttons

STANDARD (page 29)

Press for Standard decoding and to switch between the various Pro Logic II options.

ADV SURR (page 30)

Use to switch between the various surround modes.

STEREO (page 29)

Switches direct playback on or off. This bypasses the tone controls and channel levels for the most accurate reproduction of a source.

Controls and Displays

SIGNAL SEL (pages 30, 32–33)

Use to select between an analog or digital signal.

INPUT SEL

Use to select the input source.

NIGHT LOUD (page 32)

Switches to Midnight or Loudness listening.

MUTE

Mutes the sound (or restores the sound if it has been muted).

9 TV control buttons

These buttons are for controlling the TV assigned to the **TVC** button. If you have two TVs, assign the main TV to the **TVC** button.

TV VOL +/-

Use to adjust the volume on your TV.

TV INPUT

Use to select the TV function.

POWER

Use to turn on/off the power of the TV.





10 LED display

This display flashes when a command is sent from the remote control.

11 RECEIVER POWER

This switches between standby and on for this receiver.

12 **(TUNING/P-SET +/-) /ENTER**

Use the arrow buttons when setting up your surround sound system (see pages 34–38). Also used to control DVD menus/options and for deck 1 of a double cassette deck player. Use the TUNING  /  buttons to find radio frequencies and use P-SET  /  to find preset stations (page 41–42).

13 CHANNEL +/-

Select radio station presets. Also skip tracks backward or forward on CDs, DVDs, etc.

14 MASTER VOLUME +/-

Use to set the listening volume.

15 MENU button

Displays the disc menu of DVD-Video discs. It also displays TV and DTV menus.

Playing Sources

Introduction to Sound Modes

There are three basic sound options: Stereo/Direct, Standard and Advanced Surround.

Stereo/Direct

When you select **STEREO** or **DIRECT**, you will hear the source through just the front left and right speakers (and possibly your subwoofer depending on your speaker settings). Dolby Digital and DTS multichannel sources are downmixed to stereo.

In **STEREO**, you will hear the audio with your surround settings and you can still use the Midnight, Loudness, and Tone control functions.


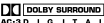
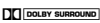
With **DIRECT**, you will bypass all effects and surround settings so that the audio remains as close to the source audio signal as possible.

Note:

If you switch on Midnight listening, Loudness, or the Tone controls when **DIRECT** is selected, the receiver automatically switches to **STEREO**.

Standard Modes

The Standard mode can be used to decode Dolby Digital, DTS, or Dolby Surround sources. The following surround mode options can also add surround sound to regular stereo sources.

You can identify Dolby Digital software by the  or  marks. Most Dolby Surround software is marked , but unmarked software may also incorporate Dolby Surround.

Choose one of the following to add depth to a 2 channel source:

Pro Logic

This mode gives 4.1 channel surround sound. It is less sensitive to the quality of the source material, so may be useful when Pro Logic II Movie/Music modes do not give good results.

Pro Logic II Movie

This mode gives 5.1 channel surround sound. It is suitable for movies, especially those recorded in Dolby Surround. The channel separation and movement of surround effects is comparable to Dolby Digital 5.1.


Pro Logic II Music

This mode gives 5.1 channel surround sound and is suitable for music. The surround effect is more enveloping than Pro Logic II Movie.

Advanced Surround Modes

Advanced Surround modes are designed to be used with multi-channel surround sound audio/visual sources (like DVDs and LDs). Most Advanced Surround modes are designed to be used with film soundtracks, but some modes are also suited for music sources. Try different settings with various soundtracks to see which you like.

Movie

Simulates the relaxed environment of a movie theater, and is suitable for watching movies on sources marked .

() or .

Playing Sources

Music

Simulates the acoustic environment of a large concert hall and is suitable for music or musical sources marked **DOLBY DIGITAL** / **DOLBY SURROUND** / **AC-3 DIGITAL**

or **DTS SURROUND**.

Virtual Rear Center Channel (VIRTL SB)

The Virtual Rear Center Channel effect simulates 6.1 surround channel listening, giving the impression that there are two surround back speakers in your system when listening to a 5.1 channel source.

Expanded

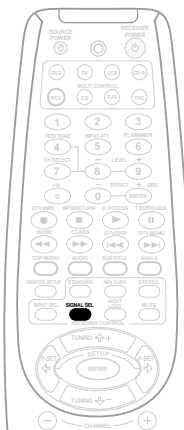
This mode is especially designed to give sound depth to stereo sources. The overall effect builds a dynamic and broad sound space, allowing two-channel (stereo) signals to imitate a five speaker sound. Use with Dolby Pro Logic for a stereo surround effect. You can also use with Dolby Digital sources for a wider stereo field than the Standard modes.

5-Channel Stereo

This can be selected to give multi-channel sound to a stereo source, using all of the speakers in your setup.

Choosing the Input Signal

You need to hook up a component to both analog and digital inputs on the back of the receiver to select between input signals.



- 1 Press **SIGNAL SEL (SIGNAL SELECT)** on the front panel) to select the input signal corresponding to the source component.

Each press switches between **AUTO**, **DVD 5.1 ch**, **ANALOG** and **DIGITAL**. The default is **AUTO**.

DVD 5.1 ch will only appear when **DVD** is selected using the remote or the **MULTI JOG** dial on the front panel.

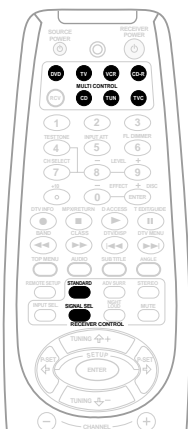
When set to **DIGITAL**, **DOLBY DIGITAL** lights when a Dolby Digital signal is input, and **DTS** lights when a DTS signal is input.

Note:

- This receiver can only play back Dolby Digital, PCM (32kHz, 44kHz, 48kHz, and 96 kHz) and DTS digital signal formats. With other digital signal formats, set to **ANALOG**.
- You may get noise when playing a DTS disc through the analog outputs on a DTS-compatible LD or CD player. For proper playback, set the signal input to **DIGITAL**.

- Some DVD players do not output DTS signals. For more details, refer to the instruction manual supplied with your DVD player.

Listening to Multi-Channel Playback



- 1 Switch on the playback component.
- 2 Select the source you want to playback.
Use the **MULTI CONTROL** buttons on the remote (or **MULTI JOG** dial on the front panel).
- 3 Press **STANDARD**.

If the source is Dolby Digital, DTS, or Dolby Surround encoded, the proper decoding format will automatically be selected and show on the display.

If you are listening to a two channel source, each press changes the display as follows:



- 4 Start playback of the component you selected in step 1.

Using Stereo/Direct

When you select **STEREO** or **DIRECT**, you will hear the source through the front left and right speakers only and possibly your subwoofer, depending on your speaker settings. Dolby Digital and DTS multichannel sources are downmixed to stereo. See page 29 for more on these modes.

Press **STEREO** (**STEREO/DIRECT** on the front panel) repeatedly to switch between the two options.

Note:

If you switch on Midnight listening, Loudness, or the tone controls when **DIRECT** is selected, the receiver automatically switches to **STEREO**.

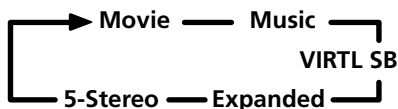
Using Advanced Surround

Dolby Pro Logic, Dolby Digital and DTS signal processing is done automatically corresponding to the input signal.

Press **ADV SURR** (**ADVANCED SURROUND** on the front panel) repeatedly to cycle the sound options.

Playing Sources

Each press changes the display as follows:



Refer to page 29 for more details about each surround effect.

Note:

The Movie, Music, and Expanded effect level can be adjusted in the range of 10 to 90 (the default setting is 70) by pressing **EFFECT +/-**. The effect level can be set for each of these Advanced Surround modes. The Standard and Stereo modes cannot be changed.

Using Loudness and Midnight Listening

The Loudness listening feature can be used to get improved bass and treble from music sources at low volume levels.

The Midnight listening feature allows you to hear effective surround sound of movies at low volume levels. The effect automatically adjusts according to the volume at which you are listening.

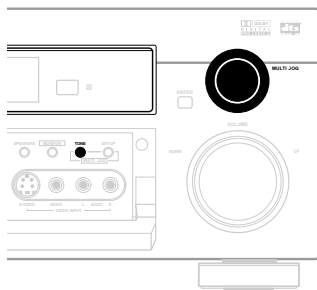
Press **NIGHT LOUD**. (MIDNIGHT on the front panel)

Each press cycles through the effects as follows:



Using the Tone Controls

Depending on what you are listening to, you may want to adjust the bass or treble using the front panel tone control.



- 1 Press **TONE** to select the frequency you want to adjust.

Each press switches between **BASS** and **TREBLE**.

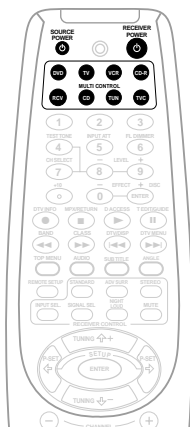
- 2 Use the **MULTI JOG** dial to change the amount of bass or treble as necessary.

Wait about five seconds for your changes to be input automatically.

Note:

- The tone controls can only be used with the Stereo sound mode.
- When the receiver is switched to Direct, using the tone controls automatically switches the receiver to Stereo mode.

Playing Other Sources



- 1 Turn on the power of the playback component.
- 2 Turn on the receiver's power.
- 3 Select the source you want to playback.
Use the **MULTI CONTROL** buttons on the remote (or **MULTI JOG** dial on the front panel).
- 4 Start playback of the component you selected in step 1.

Selecting the Multi-Channel Analog Inputs

If you have connected a decoder or a DVD player with multi-channel analog outputs to this receiver (page 16), you must select the analog multi-channel inputs for surround sound playback.

- 1 Press **DVD** or select it with the **MULTI JOG** dial (on the front panel).
- 2 Press **SIGNAL SEL (SIGNAL SELECT)** on the front panel repeatedly to select **DVD 5.1 ch.**

To cancel playback from the multi-channel inputs, use the **SIGNAL SEL (SIGNAL SELECT)** button to select a different input signal.

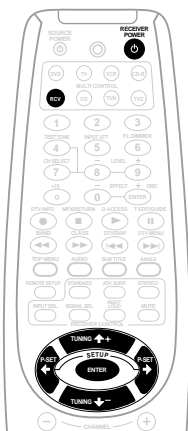
Note:

- When playback from the multi-channel inputs is selected, you cannot use the **SPEAKERS**, **INPUT ATT**, **TONE**, and **NIGHT LOUD** buttons, as well as the Standard, Advanced Surround, and Stereo/Direct sound modes.
- When playback from the multi-channel inputs is selected, only the volume and channel levels can be set.

Setting Up the Receiver

Choosing Your Receiver Setup

To ensure the best possible surround sound, be sure to complete the following setup procedure. This is particularly important when using Dolby surround. You only need to make these settings once (unless you change the placement of your current speaker system or add new speakers). Refer to the following pages for details on each of the settings.



- 1 Press **RECEIVER POWER** to turn the power on.

The **STANDBY** indicator goes out.

- 2 Press **RCV**.

- 3 Use **↔** or **⇒** to choose the option you want to adjust.

It will be easiest to adjust each of the settings in turn, following the order below (and on the following pages). The current setting is shown for each option as you cycle through the display.

- **Speaker setting (page 35)**
Specifies the number and type of speakers you have connected.
- **Subwoofer setting (page 35)**
Specifies how the subwoofer is used.
- **Crossover frequency setting (page 35)**
Determines which frequencies will be sent to the subwoofer (or large speakers).
- **LFE attenuator setting (page 36)**
Specifies the peak level for the LFE channel.
- **Front speaker distance setting (page 36)**
Specifies the distance from your listening position to your front speakers.
- **Center speaker distance setting (page 36)**
Specifies the distance from your listening position to your center speaker.
- **Surround speaker distance setting (page 37)**
Specifies the distance from your listening position to your surround speakers.
- **Dynamic range control setting (page 37)**
Compresses the dynamic range of the sound track.
- **Dual mono setting (page 37)**
Isolates one channel when listening to discs with dual mono encoding.
- **Source component input settings (page 38)**
 - Component video 1 input setting
 - Component video 2 input setting
 - Coaxial digital input 1 setting
 - Coaxial digital input 2 setting
 - Optical digital input 1 setting

4 Use \uparrow or \downarrow to adjust the setting.

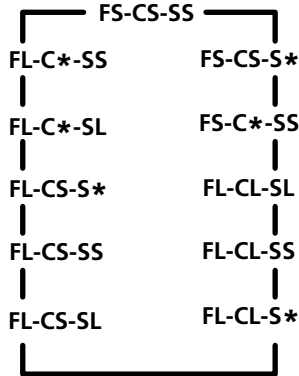
The setting is entered automatically.

5 Repeat steps 3 and 4 to set other surround modes.

6 When you are done, press **ENTER** to exit.

Note:

The receiver automatically exits setup mode after 20 seconds of inactivity.



Speaker Setting

Default setting: **S** (all speakers)

You must let the receiver know how many speakers you have, and how big they are. The size you choose (large or small) determines how much bass is sent from the receiver to the speakers.

In the display, **F**, **C**, and **S** refer to front, center, and surround speakers respectively. Speaker size is denoted as **L** for large speakers, **S** for small speakers, and ***** (asterisk) if no speaker is connected.

Notes:

- If the cone size (diameter) of the speaker is larger than 5 inches, set the speaker size to **L**.
- Cycle through the available choices using \uparrow or \downarrow and choose a configuration that matches your speaker setup.

One of the following configurations should match your setup:

Subwoofer Setting

Default setting: **ON**

You can choose whether the subwoofer is used or not. Use the plus (**PLS**) setting for extra bass.

Use \uparrow or \downarrow to select subwoofer **ON**, **PLS** or **OFF**.

Notes:

- If you chose the small front speaker setting, **SUBWF ON** is automatically set and locked.
- When you select the plus setting, you will get the bass sounds from the subwoofer even if the front speakers are set to large.

Crossover Frequency Setting

Default setting: **100 Hz**

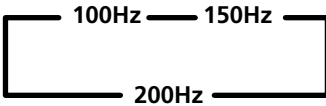
Crossover frequency is the point where the receiver divides the high and low sounds (the frequencies) between the speakers. Since most smaller speakers cannot handle deep bass tones, you can send these sounds

Setting Up the Receiver

to the subwoofer (or if you do not have a subwoofer, the large (**L**) speakers in your system) instead of the speakers set to small (**S**) in your setup. Choose the point at which you want the frequency routed to the subwoofer (or **L** speakers).

We recommend setting this to 200 Hz if your **S** speakers are smaller bookshelf-type speakers.

Use \uparrow or \downarrow to specify the crossover frequency for your small speakers (100 Hz, 150 Hz or 200 Hz).



100 Hz

Sends bass frequencies below 100 Hz to the subwoofer (or **L** speakers).

150 Hz

Sends bass frequencies below 150 Hz to the subwoofer (or **L** speakers).

200 Hz

Sends bass frequencies below 200 Hz to the subwoofer (or **L** speakers).

Notes:

If all speakers (front, center, and surround) are set to **L**, the crossover frequency cannot be set because there are no **S** speakers (***) appears in the display).

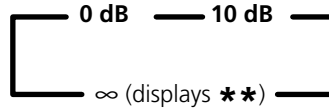
LFE Attenuator Setting

Default setting: **0 dB**

Dolby Digital and DTS audio sources include ultra-low bass tones. Set the LFE attenuator as necessary to prevent the ultra-

low bass tones from distorting the sound from the speakers.

Use \uparrow or \downarrow to set the attenuation level (0 dB, 10 dB or ** dB(∞)).



Note:

When ∞ is selected (** appears in the display), LFE is not available.

Front Speaker Distance Setting

Default setting: **10 ft.**

Sets the distance from the front speakers to the listening position.

Use \uparrow or \downarrow to set the distance of the front speakers from the main listening position (within a 30 foot range).

Center Speaker Distance Setting

Default setting: **10 ft.**

The center speaker is normally placed directly in the front of the listening room and closer to the listening position than the front speakers. This means that the sound from the center speaker will be heard before the front speakers. To prevent this, set the center speaker distance setting to delay the sound from the center speaker so that the sound from the front and center speakers will be heard at the same time.

Use **↑** or **↓** to set the distance of the center speaker from the main listening position (within a 30 foot range).

Note:

When **C*** is selected in the speaker setting, the center speaker distance cannot be set.

Surround Speaker Distance Setting

Default setting: **10 ft.**

Like the center speaker, you should set the distance of the surround speakers accurately to hear sounds coming from both front and surround speakers at the same time.

Use **↑** or **↓** to set the distance of the surround speakers from the main listening position (within a 30 foot range).

Note:

When **S*** is selected in the speaker setting, the surround speaker distance cannot be set.

Dynamic Range Control Setting

Default setting: **OFF.**

Dynamic range is the difference between the loudest and softest sounds in any given signal. With this setting, you can compress the dynamic range, so that low level sounds can be heard more easily (sounding relatively louder) yet louder sounds will not be too overbearing.

Press **↑** or **↓** to set the dynamic range control (**OFF**, **MAX**, or **MID**).

Notes:

- When the volume level is increased, set to **OFF**.
- When listening at low volumes, set to **MAX** for maximum dynamic range compression.
- Dynamic range control is effective only when a Dolby Digital signal is being played back.

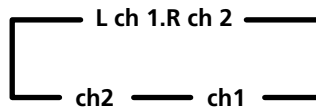
Dual Mono Setting

Default setting: **ch1.**

The dual mono setting can only be used when listening to Dolby Digital discs with dual mono encoding. These discs are not widely used, but are sometimes used when it is necessary to have one language on one channel and a different language on the other. With this setting you can choose which channel in the dual mono setting you want to listen to.

You will hear the channel you have selected (either **ch1** or **ch2**) through your center speaker. (If you do not have a center speaker, you will hear the channel you have selected through both front speakers.) In the **L ch 1.R ch 2** setting, the left front speaker will play channel 1 and the right front speaker will play channel 2.

Use **↑** or **↓** to cycle through the possible dual mono settings.



Setting Up the Receiver

Component Video Input Settings

Here you tell the receiver what components you have connected to the component video jacks on the back of the receiver.

Component video 1:

Default setting: **DVD**

Use ↑ or ↓ to assign the component video 1 input (DVD, TV, VCR or OFF).

Component video 2:

Default setting: **TV**

Use ↑ or ↓ to assign the component video 2 input (DVD, TV, VCR or OFF).

Coaxial Digital Input Settings

Here you tell the receiver what components you have connected to the coaxial **DIGITAL IN** jacks 1 and 2 on the back of the receiver.

Coaxial digital 1:

Default setting: **DVD**

Use ↑ or ↓ to assign the coaxial digital 1 input (DVD, TV, CD, CD-R, VCR or OFF).

Coaxial digital 2:

Default setting: **CD**

Use ↑ or ↓ to assign the coaxial digital 2 input (DVD, TV, CD, CD-R, VCR or OFF).

After you assign a component to a digital jack, whenever you select that component, (for example, a DVD player) the receiver automatically changes to the digital input setting and **DIGITAL** shows in the display.

Optical Digital Input Setting

Here you tell the receiver what components you have connected to the optical **DIGITAL IN** jack(s) on the back of the receiver.

Optical digital 1:

Default setting: **TV**

Use ↑ or ↓ to assign the optical digital 1 input (DVD, TV, CD, CD-R, VCR or OFF).

After you assign a component to a digital jack, whenever you select that component, (for example, a DVD player) the receiver automatically changes to the digital input setting and **DIGITAL** shows on the display.

Setting the Relative Volume Level of Each Channel

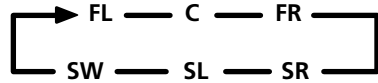
Default setting: **0 dB**.

For best surround sound playback, you should set the relative channel levels from the main listening position. You can set separate levels for each surround mode.



- 1 Press **RCV**.
- 2 Press **STANDARD**.
- 3 Press **TEST TONE** to hear the test tone.

The test tone is heard in the following order (depending on the speaker setting):



Note:

If you do not hear a test tone from one of your speakers, please refer to “Speaker Setting” on page 35 to make sure you have correctly specified your speaker setup.

- 4 Press **MASTER VOLUME +/-** to adjust the volume to an appropriate level.

- 5 Use **LEVEL +/-** to adjust the speaker levels in turn.

You should hear the test tone at the same volume from each speaker when seated in the main listening position. The channel level range is ± 10 dB.

- 6 When you are done, press **TEST TONE** to turn off the test tone.

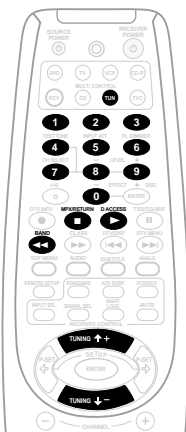
Notes:

- Test tone is only heard in Standard modes.
- Since the subwoofer transmits an ultra-low frequency its sound may seem quieter than it actually is.
- The speaker volume can be adjusted without outputting the test tone by pressing **CH SELECT** and then using **LEVEL +/-**.

Using the Tuner

Listening to the Radio

The following steps show you how to tune in to FM and AM radio broadcasts using the automatic (search) and manual (step) tuning functions. If you already know the frequency of the station you want, see “Tuning Directly to a Station” below. Once you are tuned to a station you can memorize the frequency for recall later—see “Saving Station Presets” on the next page for more on how to do this.



- 1 Press the **TUN** button on the remote control to select the tuner.

You can also use the **MULTI JOG** dial on the front panel.

- 2 Use the **BAND** button to change the band (FM or AM), if necessary.

Each press switches the band between FM and AM.

- 3 Tune to a station.

There are three ways to do this:

Automatic tuning

To search for stations in the currently selected band, press and hold **TUNING** $\downarrow\uparrow$ for about a second. The receiver will start searching for the next station, stopping when it has found one. Repeat to search for other stations.

Manual tuning

To change the frequency one step at a time, press **TUNING** $\downarrow\uparrow$.

High speed tuning

Press and hold **TUNING** $\downarrow\uparrow$ for high speed tuning. Release the button at the frequency you want.

Improving FM Stereo Sound

If the **TUNED** or **STEREO** indicators do not light when tuning to an FM station because the signal is weak, press the **MPX** button to switch the receiver to mono reception. This should improve the sound quality and allow you to enjoy the broadcast.

Tuning Directly to a Station

If you already know the frequency of the station you want to listen to, use the number buttons on the remote control to enter the frequency directly.

- 1 Press the **TUN** button on the remote control to select the tuner.

You can also use the **MULTI JOG** dial on the front panel.

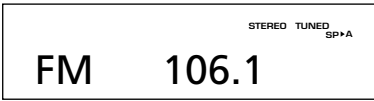
- 2 Use the **BAND** button to change the band (FM or AM), if necessary.

Each press switches the band between FM and AM.

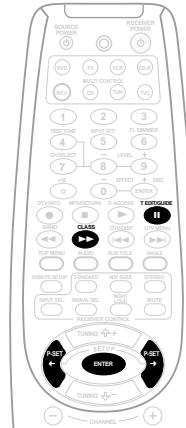
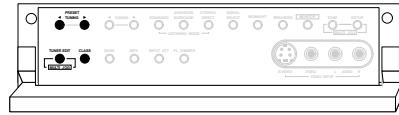
- 3 Press **D ACCESS (Direct Access)**.

4 Use the number buttons to enter the frequency of the radio station.

For example, to tune to **106.1** (FM), press **1, 0, 6, 1**.

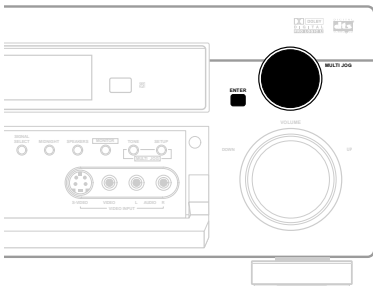


If you make a mistake halfway through, press **D ACCESS** twice to cancel the frequency and start over.



Saving Station Presets

If you often listen to a particular radio station, it is convenient to have the receiver store the frequency for easy recall whenever you want to listen to that station. This saves the effort of manually tuning each time. This unit can memorize up to 30 stations, stored in three banks, or classes, (A, B and C) of 10 stations each. When saving an FM frequency, the **MPX** setting (see "Improving FM Stereo Sound" on the previous page) is also stored. Use the front panel controls to store station presets.

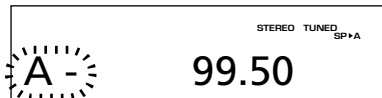


1 Tune to a station you want to memorize.

See Listening to the Radio (previous page) for more on this.

2 Press **T EDIT/GUIDE (TUNER EDIT)**.

The display shows **ST. MEMORY**, then a blinking memory class.



3 Press **CLASS** to select one of the three classes then press **P-SET** \leftarrow/\rightarrow (**PRESET TUNING** \leftarrow/\rightarrow) to select the station preset you want.

You can also use the **MULTI JOG** dial (front panel) to select a station preset.

Using the Tuner

4 Press **ENTER**.

The preset class and number stop blinking and the receiver stores the station you want to listen.

Listening to Station Presets

1 Press **TUN** (remote) or use the **MULTI JOG** dial on the front panel to select the tuner.

2 Press **CLASS** to select the class in which the station is stored.

Press repeatedly to cycle through classes A, B and C.

3 Press **P-SET** \Leftarrow/\Rightarrow (**PRESET TUNING** $\triangleleft/\triangleright$) to select the station preset you want.

Note:

If the receiver is left disconnected from the AC power outlet for an extended period, the station memories will be lost and will have to be reprogrammed.

3 Input the name you want.

Names can be up to four characters long.

- Use the **MULTI JOG** dial (front panel) or the **P-SET** \Leftarrow/\Rightarrow (remote) to select characters.
- Press **ENTER** to confirm a character. If no character is input, a space is input.
- The name is stored when **ENTER** is pressed after choosing the fourth character.

Notes:

- To erase a station name, simply repeat steps 1-3 and input four spaces instead of a name.
- Once you have named a station preset, you can press **DTV/DISP** when listening to a station to switch the display between the name and the frequency.

Naming Station Presets

For easier identification, you can name your station presets.

1 Choose the station preset you want to name.

See “Listening to Station Presets” above for how to do this.

2 Press **T EDIT/GUIDE** (**TUNER EDIT**).

The display shows **ST. NAME**, then a blinking cursor at the first character position.

Making a Recording

Making an Audio or a Video Recording

You can make an audio or a video recording from the built-in tuner, or from an audio or video source connected to the receiver (such as a CD player or TV).

Keep in mind you cannot make a digital recording from an analog source or vice-versa, so make sure the components you are recording to/from are connected in the same way (see pages 14, 15, 17 for more on connections).

If you want to record from a video source, you also need use the same type of connection for the source as for the recorder. For example, you cannot record a component connected using an S-video cord with a recorder connected using a standard video cord (see page 13 for more on video connections).

Note:

The receiver's volume, balance, tone (bass, treble, loudness), and surround effects have no effect on the recorded signal.

1 Select the source you want to record.

Use the **MULTI CONTROL** buttons on the remote (or **MULTI JOG** dial on the front panel).

2 Select the input signal (if necessary).

Press **SIGNAL SEL (SIGNAL SELECT)** to select the input signal corresponding to the source component (see page 30 for more on this).

3 Prepare the source you want to record.

Tune to the radio station, load the CD, video, DVD or other source.

4 Prepare the recorder.

Insert a blank tape, MD, video or other recording medium into the recording device and set the recording levels. Refer to the instructions that came with the recorder if you are unsure how to do this. Most video recorders set the audio recording level automatically—check the component's instruction manual if you are unsure.

5 Start recording, then start playback of the source component.

Monitoring Your Recording

You can listen to (monitor) the recording as it is being made using the **MONITOR** button on the front panel (a cassette deck would have to have a record monitor function).

- Press the **MONITOR** button to switch between the recorded signal and the original source signal.

Controlling the Rest of Your System

Setting the Remote to Control Other Components

There are several ways to set your remote to control the other components in your system. The easiest way to do this is to assign the component's manufacturer preset code (listed on pages 51–61) to one of the **MULTI CONTROL** buttons on the remote control. You can do this directly, or by searching through different preset codes until you find the right one.

The buttons can be set to control the following components:

Button	Controllable Components
DVD	DVD or LD player
TV	TV or Satellite tuner
VCR	VCR or Digital Video Recorder
CD	CD player
CD-R	CD Recorder, Tape deck or MD player
TVC	TV or Cable TV tuner
TUN	FM/AM tuner

Note:

You can cancel or exit any of the steps by pressing and holding **MUTE** for three seconds.

Selecting Preset Codes Directly



- 1 Press and hold **REMOTE SETUP** for three seconds.
The LED lights steadily for two seconds.
- 2 Press the **MULTI CONTROL** button for the component you want to control.
- 3 Use the number buttons to enter the 4 digit preset code (see pages 51–61)

The LED blinks for half a second after you input each digit and lights for two seconds once you have entered a valid code. If the LED blinks three times, it means an invalid code has been input or an error has occurred.

Notes:

- If you assign a preset code for the **TUN** button, you will not be able to control the built-in tuner using the remote. Reset the remote to the built-in tuner by entering the preset code **7008**.
 - To erase the preset code for the current **MULTI CONTROL** button, enter **0000** as the preset code.
- 4 Repeat steps 1 through 3 for the other components you want to control.

Searching for Preset Codes

Another way of entering preset codes is to use the search feature. The remote transmits batches of 10 codes; when you see the component you want to control respond (by turning on or off), you just scan through the last 10 codes until you find the right one.



- 1 Switch on the component you want to control.

If the component is some kind of player (CD player, VCR, etc.), start it playing.

- 2 Press and hold **REMOTE SETUP** for three seconds.

The LED lights steadily for two seconds.

- 3 Press the **MULTI CONTROL** button for the component you want to control.

- 4 Press and hold **SETUP** for three seconds.

A batch of 10 codes is transmitted and the LED blinks during transmission. If the component responds by stopping or switching off, go to the next step, otherwise repeat this step.

- 5 Switch the component back on or restart playback.

- 6 Use **↑** and **↓** to scan through the last 10 codes transmitted to identify the correct code.

Stop when you see the component stop or switch off.

You can also verify you have the correct code by adjusting the volume or testing other controls on the component.

- 7 Press and hold **ENTER** for three seconds to save the preset code.

Erasing a Remote Control Button Setting

This erases one of the buttons you have programmed and restores the button to the factory default.

- 1 Press and hold **REMOTE SETUP** for three seconds.

The LED lights steadily for two seconds.

- 2 Press the **MULTI CONTROL** button for the setting to be erased.

- 3 Press the **RECEIVER POWER** button twice quickly.

The LED blinks to indicate the remote is ready to erase the button setting.

- 4 Press and hold the button to be erased for three seconds.

The LED lights steadily for three seconds and then goes off.

- 5 Repeat Step 4 to erase other button settings.

- 6 Press and hold the **SETUP** button for two seconds to exit.

Clearing All Remote Control Settings

You can clear all presets and restore the factory default settings.

- 1 Press and hold **REMOTE SETUP** for three seconds.

The LED lights steadily for two seconds.

- 2 Press any **MULTI CONTROL** button then use the number buttons to enter **0123**.

The LED lights for two seconds to indicate that the settings have been restored to the factory presets. (If the LED blinks three times, then you made a mistake with the code—try re-entering it.)

Direct Function

Default setting: **ON**

When direct function is on, any component you select using the **MULTI CONTROL** buttons will be selected by both the receiver and the remote control. When you turn direct function off, you can operate the remote control without affecting the receiver.

You can use the direct function feature to control one component using the remote control while using your receiver to play back a different component.

For example, you can use the remote control to set up and listen to a CD on the receiver and then use the remote control to rewind a tape in your VCR.

- 1 Press and hold **REMOTE SETUP** for three seconds.

The LED lights steadily for two seconds.

- 2 Press the **MULTI CONTROL** button for the component you want to control.

- 3 Use the number buttons to enter either **9990** (direct on) or **9995** (direct off).

The LED will light for two seconds to indicate that it has been correctly set. (If the LED blinks three times, then there was a mistake with the code—repeat steps 1-3.)

Note:

You cannot use direct function for **TV INPUT**.

Confirming Preset Codes

Use this feature to check which preset code is assigned to a **MULTI CONTROL** button.

- 1 Press and hold **REMOTE SETUP** for three seconds.
The LED lights steadily for two seconds.
- 2 Press the **MULTI CONTROL** button of the component for which you want to check the preset code.
- 3 Press and hold **ENTER** for two seconds.

Each preset code consists of four digits, for example 1329. Each digit will be represented by a series of blinks on the remote's LED—for example, 3 blinks to represent the digit 3. "0" is represented by 10 blinks.


Controlling the Rest of Your System

Controls for TVs

This remote control can control components after entering the proper codes (see pages 44–46). Use the **MULTI CONTROL** buttons to select the component.

Button (s)	Function	Components
TV	Press to switch the DTV on or off.	DTV
	Press to switch the TV or CATV between standby and on.	Cable TV/Satellite TV/TV
TV INPUT	Press to switch the TV input. (Not possible with all models. If it does not work with the preset code, use the learning feature.)	TV
CHANNEL +/-	Select channels.	Cable TV/Satellite TV/TV/ DTV
TV VOL +/-	Adjust the TV volume.	Cable TV/Satellite TV/TV/ DTV
SOURCE	Press to switch the DTV on or off.	DTV
◀◀	Move to lower numbered channels	Cable TV/Satellite TV/TV
	Choose the RED commands on a DTV menu.	DTV
▶▶	Use to move to higher numbered channels	Cable TV/Satellite TV/TV
	Use to choose the YELLOW commands on a DTV menu.	DTV
	Use as the T EDIT/GUIDE button for navigating	DTV
▶▶	Use to choose the GREEN commands on a DTV menu.	DTV
◀◀	Use to choose the BLUE commands on a DTV menu.	DTV
▶	Use to get INFO on the DTV program.	DTV
■	Use to switch DTV audio tracks	DTV
Number Buttons	Use to select a specific TV channel.	Cable TV/Satellite TV/TV/ DTV
+10 button	Use to add a decimal point when selecting a specific TV channel.	DTV
DISC	Use to enter a channel.	DTV
MENU	Select different menus from the DTV functions.	DTV
	Select the menu screen.	Cable TV/Satellite TV/TV

Controlling the Rest of Your System






Button (s)	Function	Components
 ENTER	Select or adjust and navigate items on the menu screen. ENTER brings up the DTV menus.	DTV
	Press to select or adjust and navigate items on the menu screen.	Cable TV/Satellite TV/TV/DTV
EFFECT +/-	For TV and cable TV use this button to immediately enter a new channel (CHANNEL ENTER function). For satellite TV use this button to exit the menu screen.	Cable TV/Satellite TV/TV/DTV

Note:

The four **TV CONTROL** buttons on the remote control are dedicated to control the TV assigned to the **TVC** button. Thus if you only have one TV to connect to this system assign it to the **TVC MULTI CONTROL** button. If you have two TVs, assign the main TV to the **TVC** button.

Controls for Other Components

This remote control can control these components after entering the proper codes (see pages 44–46). Use the **MULTI CONTROL** buttons to select the component.

Button (s)	Function	Components
SOURCE POWER	Press to switch the component between standby and on.	CD/MD/CD-R/VCR/DVD/LD/DVR player/Cassette deck
	Press to return to the start of the current track. Repeated presses skips to the start of previous tracks.	CD/MD/CD-R/DVD/LD player
	Go back channels (channel -).	VCR/DVR
	Play the reverse side of the tape on a reversible deck.	Cassette deck
	Press to advance to the start of the next track. Repeated presses skips to the start of following tracks.	CD/MD/CD-R/LD player
	Go forward channels (channel +).	VCR
	Play the forward side of the tape on a reversible deck.	Cassette deck
	Pause playback or recording.	CD/MD/CD-R/VCR/DVD/LD/DVR player/Cassette deck
	Hold down for fast forward playback.	CD/MD/CD-R/VCR/DVD/LD/DVR player/Cassette deck
	Hold down for fast reverse playback.	CD/MD/CD-R/VCR/DVD/LD/DVR player/Cassette deck

Controlling the Rest of Your System

Button (s)	Function	Components
▶	Start playback.	CD/MD/CD-R/VCR/DVD/LD/ DVR player/Cassette deck
■	Stop playback (on some models, pressing this when the disc is already stopped will cause the disc tray to open).	CD/MD/CD-R/VCR/DVD/LD/ DVR player/Cassette deck
●	Start recording. To prevent accidental recording, this button must be pressed twice to take effect (the second press must be within 10 seconds of the first).	VCR/DVR player
Number buttons	Directly access tracks on a program source.	CD/MD/CD-R/VCR/LD player
	Use the number buttons to navigate the on-screen display.	DVD/DVR player
+10 button	Select tracks higher than 10. (For example, press +10 then 3 to select track 13.)	CD/MD/CD-R/VCR/LD player
DISC	Choose the disc.	Multiple CD player
	Ejects the disc.	MD player
	Press to switch between the VCR tuner and the TV tuner.	VCR
	Changes sides of the LD.	LD player
MENU	Displays menus concerning the current DVD or DVR you are using.	DVD/DVR player
⏸	Pause the tape.	Cassette deck
⏹	Stop the tape.	Cassette deck
ENTER	Start playback.	Cassette deck
⏮	Fast rewind the tape.	Cassette deck
⏭	Fast forward the tape	Cassette deck
⏮⏭⏸⏹⏭⏮ & ENTER	Navigate DVD menu/options.	DVD/DVR Player

Preset Code List

You should have no problem controlling a component if you find the manufacturer in this list, but you can only set these codes for the button that is assigned to that component. So, for example, the TV codes can only be set to the TV or TVC button. Please note that there are cases where only certain functions may be controllable after assigning the proper preset code, or the codes for the manufacturer in the list will not work for the model that you are using.

TV

Manufacturer	Code		
PHILIPS	1008, 1017, 1020, 1025, 1104, 1115	AMPRO	1126
SONY	1001, 1007, 1016	AMSTRAD	1006, 1017, 1103, 1105
PANASONIC	1023, 1054, 1055, 1075, 1076, 1082, 1087, 1121, 1124	ANITECH	1006, 1029, 1036
TOSHIBA	1015, 1016, 1027, 1031, 1050, 1051, 1085	AOC	1011, 1013
TELEFUNKEN	1005, 1026, 1034, 1038, 1042, 1046, 1075, 1097	ARCAM	1078, 1079
SHARP	1016, 1019, 1041, 1056, 1124	ASBERG	1036
SAMSUNG	1006, 1011, 1013, 1017, 1026, 1027, 1039, 1062, 1079, 1089, 1092, 1102	ASUKA	1080
FERGUSON	1005, 1017, 1033, 1046, 1065, 1084, 1091	ATLANTIC	1073
MITSUBISHI	1011, 1016, 1041, 1045, 1049, 1062, 1114	AUDIOSONIC	1017, 1046
GOLDSTAR	1002, 1011, 1013, 1017, 1019, 1026, 1046, 1062, 1079, 1092	AUDIOVOX	1040, 1064, 1110, 1118
BLAUPUNKT	1066, 1068, 1071, 1075, 1115	AUTOVOX	1036, 1073
RADIOLA	1008, 1017	BANG & OLUFSEN	1116
JVC	1016, 1024, 1030, 1053, 1065, 1067, 1103, 1122	BASIC LINE	1006, 1080
DAEWOO	1006, 1011, 1017, 1019, 1028, 1040, 1050, 1104, 1110, 1118, 1119	BAYSONIC	1064
ORION	1017, 1063, 1083, 1095, 1098, 1099, 1112	BAUR	1007, 1017, 1114, 1115
SIEMENS	1017, 1052, 1066, 1068, 1071, 1075, 1115	BEKO	1102
ADMIRAL	1041, 1055, 1075, 1112	BELCOR	1011
ADYSON	1014, 1079	BELL & HOWELL	1009, 1050
AIKO	1040	BEON	1017
AKAI	1013, 1074	BINATONE	1079
AKURA	1080, 1089	BLUE SKY	1080
ACURA	1006	BLUE STAR	1090
ALARON	1063, 1078	BONDSTEC	1086
ALBA	1006, 1016, 1017, 1080, 1103	BOOTS	1079
ALLORGAN	1095	BPL	1090
ANAM	1004, 1006, 1029, 1054, 1064, 1087, 1108	BSR	1095
ANAM NATIONAL	1054, 1087, 1108	BRADFORD	1064
AMBASSADOR	1061	BRANDT	1046, 1069, 1070, 1072
AMERICA ACTION	1064	BRITANNIA	1078
AMPLIVISION	1079	BROCKWOOD	1011
		BROKSONIC	1083, 1112
		BTC	1080
		BUSH	1006, 1016, 1017, 1080, 1090, 1095, 1103, 1104
		CANDLE	1013, 1026
		CARNIVALE	1013
		CARREFOUR	1016
		CARVER	1025, 1058
		CASCADE	1006
		CATHAY	1017
		CENTURY	1075
		CENTURION	1017
		CELEBRITY	1001
		CCE	1017
		CGE	1034, 1036, 1038, 1086, 1097
		CIMLINE	1006
		CINERAL	1040, 1110
		CITIZEN	1013, 1019, 1026, 1027, 1040

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CLARIVOX	1017	GEC	1017, 1020, 1032, 1072, 1079
CLATRONIC	1036, 1086, 1102	GELOSO	1006, 1075
CME	1007, 1015, 1114	GENEXXA	1055, 1080
CONCERTO	1026	GIBRALTER	1010, 1011, 1013
CONDOR	1098, 1102	GOODMANS	1016, 1017, 1032, 1079, 1103, 1104
CONTEC	1006, 1016, 1064, 1078	GORENJE	1102
CONTINENTAL EDISON	1069, 1070, 1072	GPM	1080
CRAIG	1054	GRAETZ	1055
CROSLEY	1025, 1034, 1036, 1038, 1075	GRANADA	1017, 1032, 1048, 1074, 1079, 1100
CROWN	1006, 1017, 1019, 1036, 1064, 1102, 1106	GRADIENTE	1024, 1026, 1058
CRYSTAL	1109	GRANDIN	1090
CS ELECTRONICS	1078	GRUNDIG	1031, 1066, 1068, 1072, 1115
CTC	1086	GRUNPY	1063, 1064
CURTIS MATHES	1009, 1013, 1019, 1022, 1023, 1025, 1026, 1027, 1041, 1047, 1050, 1057, 1110, 1113, 1129, 1131	HALLMARK	1062
CYBERTRON	1080	HANSEATIC	1017, 1098
CXC	1064	HARLEY DAVIDSON	1063
DAINICHI	1077, 1080	HARVARD	1029, 1064
DANSAI	1017	HARMAN/KARDON	1025
DAYTRON	1006, 1011	HCM	1006, 1090, 1105
DECCA	1017, 1032	HINARI	1006, 1016, 1017, 1080
DE GRAAF	1074	HISAWA	1090, 1111
DENON	1047	HITACHI	1014, 1016, 1018, 1020, 1021, 1026, 1044, 1046, 1047, 1055, 1069, 1070, 1079, 1081, 1097
DIXI	1006, 1017	HUANYU	1078, 1104
DUAL TEC	1079	HYPSON	1017, 1089, 1090
DUMONT	1010, 1011, 1031	ICE	1079, 1089, 1103
DWIN	1125, 1127	ICES	1080
ECE	1017	IMPERIAL	1034, 1036, 1038, 1086, 1102, 1106
ELBE	1088	INDIANA	1017
ELECTROBAND	1001	INFINITY	1025
ELIN	1017	INGELEN	1055
ELITE	1080, 1098	INNO HIT	1032
ELTA	1006	INNOVA	1017
EMERSON	1011, 1018, 1019, 1050, 1061, 1062, 1063, 1064, 1075, 1083, 1090, 1112, 1118, 1119	INTEQ	1010
ENVISION	1013	INTERBUY	1029
ERRES	1008, 1017	INTERFUNK	1017, 1055, 1086, 1114
ETRON	1006, 1120	INTERVISION	1017, 1029, 1043
EXPERT	1073		1079, 1089
FIDELITY	1078	ISUKAI	1080
FINLANDIA	1074	ITS	1103
FINLUX	1017, 1031, 1032, 1044	ITT	1055
FISHER	1050, 1074, 1079, 1096, 1102	JBL	1025
FLINT	1111	JCB	1001
FORMENTI	1017, 1075, 1098	KAISUI	1006, 1078, 1079, 1080, 1090, 1078
FORTRESS	1041	KAMP	1078
FRONTECH	1055, 1086, 1089, 1109	KAPSCH	1055, 1073
FUJITSU	1032, 1063, 1073	KAWASHO	1078
FUNAI	1059, 1063, 1064, 1089, 1095, 1096	KEC	1064
FUTURETECH	1064	KENDO	1017
GE	1012, 1022, 1023, 1041, 1062, 1090, 1110, 1129, 1131	KNEISSEL	1088
		KENWOOD	1011, 1013
		KINGSLEY	1078
		KONIG	1114
		KORPEL	1017
		KOYODA	1006

Controlling the Rest of Your System

KTV	1013, 1019, 1064	OSO	1080
LEYCO	1017, 1032, 1089, 1095	OSUME	1014, 1032, 1052
LG	1026	OTTO	1007, 1114
LIESENK&TTER	1017	OTTO VERSAND	1007, 1016, 1017, 1066, 1075, 1079, 1098, 1115
LLOYTRON	1014	PALLADIUM	1102, 1106
LOEWE	1035, 1114	PANAMA	1079, 1089
LOGIK	1009	PATHE MARCONI	1069, 1070, 1072
LUMA	1073	PATHE CINEMA	1075, 1078, 1084, 1098
LUXMAN	1026	PAUSA	1006
LXI	1022, 1025, 1050, 1051, 1062	PENNEY	1003, 1011, 1012, 1013, 1019, 1022, 1023, 1026, 1027, 1051, 1062, 1131
M ELECTRONIC	1006, 1017, 1029, 1044, 1046, 1055, 1079, 1091, 1104	PERDIO	1098
MAGNAVOX	1013, 1016, 1025, 1063	PHAPSODY	1078
MAGNADYNE	1043, 1086	PHASE	1014
MAGNAFON	1036, 1043, 1075	PHILCO	1011, 1013, 1025, 1034, 1036, 1038, 1047, 1075, 1086, 1112
MAJESTIC	1009	PHONOLA	1008, 1017
MANESTH	1079, 1089, 1098	PILOT	1011, 1013, 1019
MARANTZ	1013, 1017, 1025	PORTLAND	1011, 1019, 1040
MARK	1017	PRISM	1023
MATSUI	1006, 1015, 1016, 1017, 1032, 1074, 1079, 1095, 1103	PROFEX	1006, 1037
MATSUSHITA	1087	PROLINE	1099
MCMICHAEL	1020	PROSOCAN	1022
MEDIATOR	1008, 1017	PROTECH	1006, 1017, 1043, 1079, 1086, 1089, 1106, 1109
MEGATRON	1047, 1062	PROTON	1062, 1113
MEMOREX	1006, 1009, 1026, 1049, 1050, 1062, 1087, 1112	PULSAR	1010, 1011
METZ	1075	PYE	1008
MGA	1011, 1013, 1049, 1062	QUASAR	1023, 1056, 1087
MIDLAND	1010, 1019, 1022, 1023	QUELLE	1007, 1017, 1031, 1034, 1038, 1071, 1075, 1097, 1114, 1115
MINERVA	1031, 1115	QUESTA	1016
MINOKA	1105	R-LINE	1017
MINUTZ	1012	RANK ARENA	1016
MIVAR	1078, 1092, 1093, 1094	RBM	1031
MOTION	1036	RCA	1011, 1018, 1022, 1023, 1039, 1041, 1128, 1129, 1130, 1131, 1132
MOTOROLA	1041	REALISTIC	1011, 1013, 1019, 1026, 1050, 1056, 1062, 1064
MTC	1011, 1013, 1026, 1027, 1078, 1114	REX	1055, 1073, 1088, 1089
MULTITECH	1006, 1036, 1043, 1064, 1078	REVOX	1017
NAD	1051, 1057, 1062	ROADSTAR	1006, 1080, 1089, 1106
NEC	1011, 1013, 1016, 1026, 1058	RUNCO	1010, 1013, 1117
NECKERMANN	1017, 1066, 1075, 1115	SABA	1035, 1046, 1055, 1069, 1070, 1072, 1075, 1091
NEI	1017, 1109	SACCS	1084
NETSAT	1017	SAISHO	1006, 1089, 1109
NICAMAGIC	1078	SALORA	1055
NIKKAI	1014, 1015, 1017, 1032, 1078, 1080, 1089	SAMBERS	1036, 1043, 1075
NIKKO	1013, 1040, 1062	SAMPO	1013, 1019
NOBLIKO	1036, 1043	SAMSUX	1019
NORDMENDE	1046, 1069, 1070, 1075, 1091	SANDRA	1078
NTC	1040	SANSEI	1110
OCEANIC	1055, 1077	SANSUI	1112
ONWA	1064		
OPTIMUS	1050, 1057, 1087		
OPTONICA	1041, 1056		
OSAKI	1014, 1032, 1079, 1080, 1089, 1105		

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SANYO	1016, 1032, 1048, 1050, 1052, 1074, 1075, 1100	TEXET	1078, 1080
SBR	1008, 1017, 1020	THOMSON	1046, 1069, 1070, 1072, 1091
SCHNEIDER	1017, 1080, 1086, 1096, 1103	THORN	1015, 1017, 1032, 1034, 1038, 1065, 1067, 1114
SCIMITSU	1011	TMK	1026, 1061, 1062
SCOTCH	1062	TOMASHI	1090
SCOTT	1011, 1062, 1063, 1064, 1083	TOTEVISION	1019
SEARS	1022, 1025, 1026, 1050, 1051, 1059, 1062, 1063	TRIUMPH	1085
SEG	1016, 1036, 1079, 1089	TUTUNG	1017, 1032, 1079
SEI	1043, 1075, 1095	UHER	1073, 1096, 1098
SEI-SINUDYNE	1007	ULTRA	1067
SELECO	1055, 1073, 1088	ULTRAVOX	1043
SEMIVOX	1064	UNIVERSUM	1017, 1044, 1089, 1102
SEMP	1051	VECTOR RESEARCH	1013
SENTRA	1015	VESTEL	1017
SHOGUN	1011	VICTOR	1016, 1024, 1053, 1087
SHORAI	1095	VIDEOSAT	1086
SSS	1011, 1064	VIDEOTECHNIC	1079
SIAREM	1043, 1075	VIDIKRON	1025
SINDYNE	1043, 1075, 1095	VIDTECH	1011, 1016, 1062
SIGNATURE	1009	VISION	1098
SILVER	1016	VOXSON	1055
SKY	1017	WALTHAM	1079
SKY-WORTH	1017	WATSON	1017, 1098
SOLAVOX	1014, 1055	WATT RADIO	1043
SONITRON	1074	WARDS	1009, 1011, 1012, 1013, 1025, 1026, 1056, 1062, 1063
SONOKO	1006, 1017	WEGA	1016
SONOLOR	1055, 1074, 1077	WHITE WESTINGHOUSE	1017, 1078, 1098, 1112, 1118, 1119
SONTEC	1017	YAMAHA	1011, 1013
SOUNDESIGN	1062, 1063, 1064	YOKO	1017, 1079, 1101, 1109
SOUNDWAVE	1017, 1106	ZANUSSI	1073
SQUAREVIEW	1059	ZENITH	1009, 1010, 1040, 1112
STANDARD	1006, 1079, 1080	PIONEER	1018, 1046, 1055, 1057, 1060, 1091, 1107, 1123, 1124
STARLITE	1064		
STERN	1055, 1073, 1088		
SUNKAI	1095, 1099		
SUPERTECH	1078		
SUPREME	1001		
SUSUMU	1080		
SYLVANIA	1013, 1025		
SYMPHONIC	1059		
SYSLINE	1017		
TANDY	1032, 1041, 1055, 1079, 1080		
TASHIKO	1016, 1020, 1079		
TEC	1079, 1086		
TECHNEMA	1098		
TECHNICS	1023, 1087, 1121		
TECHNOL ACE	1063		
TECHWOOD	1023, 1026		
TEKNIKA	1009, 1011, 1019, 1025, 1026, 1027, 1040, 1049, 1063, 1064		
TELEAVIA	1072		
TELEMEISTER	1098		
TELETECH	1006		
TELETON	1016, 1073, 1079		
TENSAI	1080, 1095, 1098		

MD PLAYER



Manufacturer	Code
SONY	5401
KENWOOD	5402,5407
SHARP	5403
ONKYO	5404
ORION	5406
DENON	5405
PIONEER	5408

LD PLAYER



Manufacturer	Code
AKAI	5222
BBK	5224
CYRUS	5207
DENON	5202
DISCO VISION	5201

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FUNAI	5217	JVC	5011
HITACHI	5201	KENWOOD	5003, 5008, 5029, 5056, 5057, 5062
HONG DENG	5213	KRELL	5021
IDALL	5219	LINN	5021
KEBAO	5215	LUXMAN	5036
MARANTZ	5203, 5205	LXI	5038
MITSUBISHI	5202	MAGNAVOX	5021, 5038
NAD	5202	MARANTZ	5004, 5009, 5017, 5021, 5026
PANASONIC	5210	MATSUI	5021
PHILIPS	5203, 5207, 5209	MCS	5004
RADIOLA	5207	MEMOREX	5022
ROWA	5212	MERIDIAN	5021
SALORA	5203	MICROMEGA	5021
SEGA	5201	MISSION	5021
SHARP	5221	MITSUBISHI	5014, 5020
SHINCO	5211	MTC	5045
SMC	5220	NAD	5001
SONY	5204, 5206, 5216	NAIM	5021
	5218	NIKKO	5024, 5041, 5051
SUPER	5215	NSM	5021
TELEFUNKEN	5202	ONKYO	5012, 5013, 5042, 5059
TOSHIBA	5223	OPTIMUS	5001, 5005, 5008, 5019, 5025, 5038, 5045, 5046, 5048
PIONEER	5201, 5202, 5208		
	5214	ORION	5061

CD PLAYER



Manufacturer	Code	
AIWA	5016, 5021	PANASONIC
AKAI	5014, 5020, 5032	PARASOUND
ANAM	5041	PHILIPS
ARCAM	5021	PMG
AUDIOLAB	5021	POPPY
AUDIOMECA	5021	PROTON
AUDIO TON	5021	QED
BESTAR	5022	QUAD
BURMESTER	5045	QUASAR
CALIFORNIA AUDIO LABS	5004	RCA
CARVER	5021, 5025, 5046	REALISTIC
CONDOR	5018, 5022	REVOX
CURTIS MATHES	5004	ROTEL
CYRUS	5021	SAE
DENON	5002, 5006, 5040, 5060	SANSUI
DKK	5001	SANYO
DUAL	5031	SCHNEIDER
DYNAMIC BASS	5025	SCOTT
EMERSON	5038	SEARS
EROICA	5053, 5054	SHARP
FANTASIA	5051	SHERWOOD
FISHER	5024, 5025	SONY
GARRARD	5044, 5045	SOUDESIGN
GENEXXA	5005, 5038	TASCAM
GOLDSTAR	5043, 5051	TEAC
GRUNDIG	5021	TECHNICS
HARMAN/KARDON	5021, 5023	THORENS
HITACHI	5005	TOSHIBA
INKEL	5015, 5026, 5046	UNIVERSUM
		YAMAHA
		YORX
		VICTOR

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WARDS
PIONEER

5010, 5021
5005, 5030, 5035, 5038, 5048,
5052, 5063

TAPE DECK



Manufacturer	Code
ADC	6013
AIWA	6002, 6022, 6017, 6018
AKAI	6015, 6016
ANAM	6035
ARCAM	6005
CARVER	6002, 6028
DENON	6005, 6039
DUAL	6037
DYNAMIC BASS	6028
EROICA	6041
FISHER	6028
GARRARD	6036
GOLDSTAR	6036
GRUNDIG	6002
HARMON/KARDON	6002, 6014
INKEL	6003
JVC	6027, 6030, 6031
KENWOOD	6003, 6004, 6019, 6024, 6025
KYOCERA	6013
LOTTE	6034
LUXMAN	6029
MAGNAVOX	6002
MARANTZ	6002
MEMOREX	6008, 6009
MITSUBISHI	6016
NAKAMICHI	6020
NIKKO	6035
OLYMPUS	6029
ONKYO	6010, 6011, 6032
OPTIMUS	6001, 6021
PANASONIC	6023
PHILIPS	6002
RCA	6028
RENAISSANCE	6040
REVOX	6002
SAMSUNG	6038
SANSUI	6002
SANYO	6028
SHARP	6019
SONIC	6036
SONY	6012, 6026, 6033
TEAC	6038
TECHNICS	6023
THORENS	6002
VICTOR	6027, 6030
WARDS	6001
YAMAHA	6006, 6007, 6019
PIONEER	6001, 6008, 6009 6021,

DVD PLAYER



Manufacturer	Code
TOSHIBA	5302
SONY	5306
PANASONIC	5301, 5322
KENWOOD	5307
JVC	5311, 5318
SAMSUNG	5313
AKAI	5316
HARMAN/KARDON	5314
MAGNAVOX	5302
MITSUBISHI	5303
ONKYO	5302, 5317, 5319
PROSCAN	5304
RCA	5304
SHARP	5320
THETA DIGITAL	5312
TECHNICS	5301
THOMSON	5310
YAMAHA	5301, 5309
PHILIPS	5302, 5308
ZENITH	5302, 5315
PIONEER	5305, 5312, 5321 5322

AMPLIFIER



Manufacturer	Code
AUDIOLAB	8005
DENON	8002
GRUNDIG	8005
MARANTZ	8005
MICROMEGA	8005
PHILIPS	8005
PIONEER	8004
REVOX	8005
TANDBERG	8003
THORENS	8005
YAMAHA	8001, 8006

MISC AUDIO



Manufacturer	Code
JERROLD	8201, 8203
STARCOM	8201
SCIENTIFIC ATLANTA	8202

RECEIVERS



Manufacturer	Code
ADC	7042
AIWA	7012, 7023, 7031, 7055, 7064
AKAI	7011, 7027
ANAM	7010, 7046
ARCAM	7018, 7048
AUDIOLAB	7059

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CAPETRONIC	7042
CARVER	7055, 7059
CURTIS	7008
DAEWOO	7032
DENON	7001, 7056, 7058
DUAL	7040
EROICA	7005
FANTASIA	7037
FERGUSON	7042
FINE ARTS	7059
FISHER	7028
GARRARD	7032, 7034, 7035
GOLDSTAR	7010
GOODMANS	7027
GP AUDIO	7033
GRUNDIG	7018, 7059
HARMAN/KARDON	7009, 7051
INKEL	7038, 7040
JBL	7009
JVC	7007, 7036, 7042
KENWOOD	7003, 7017, 7025, 7026, 7044, 7053, 7063, 7066
LOTTE	7037, 7039
LUXMAN	7021
MAGNAVOX	7030, 7042, 7055, 7059
MARANTZ	7004, 7018, 7055, 7059
MCINTOSH	7020
MCS	7004
MCSILVER	7037
MICROMEGE	7018, 7059
NIKKO	7032, 7037, 7046
OPTIMUS	7017, 7034, 7042, 7049, 7052
ONKYO	7013, 7029
PALLADIUM	7050
PANASONIC	7004, 7024, 7041
PHILIPS	7018, 7030, 7045, 7048, 7051, 7055, 7059
PHONOTREND	7038
QUASAR	7004
RCA	7006, 7042
RENAISSANCE	7043
REVOX	7018
ROADSTAR	7027
SABA	7042
SAISHO	7027
SAMSUNG	7010
SANSUI	7027, 7055
SANYO	7028
SCHNEIDER	7042
SHARP	7017
SHERWOOD	7038
SOUNDESIGN	7049
SONY	7015, 7054, 7057, 7060
TAE KWANG	7034
TEAC	7010, 7035
TECHNICS	7004, 7062, 7065
TELEFUNKEN	7019, 7024, 7041, 7061, 7062, 7065

THORENS	7018, 7059
UHER	7027, 7042, 7050
VICTOR	7007
WARDS	7002, 7006, 7008
YAMAHA	7016, 7017
PIONEER	7002, 7008, 7014, 7022, 7042, 7047, 7050, 7052

VCR

Manufacturer	Code
PHILIPS	2015, 2035, 2074, 2075
PANASONIC	2015, 2042, 2053, 2054, 2055, 2087
THOMSON	2021, 2064, 2074
SONY	2001, 2009, 2012, 2013, 2014, 2015
JVC	2008, 2021, 2033, 2049, 2050, 2074, 2080
GRUNDIG	2003, 2005, 2007, 2010, 2034, 2035, 2048, 2050, 2054, 2069, 2071, 2075
AKAI	2021, 2029, 2038, 2060, 2063
HITACHI	2001, 2004, 2021, 2022, 2043, 2056, 2057
TOSHIBA	2021, 2023, 2024, 2035, 2074
MITSUBISHI	2023, 2027, 2033, 2035, 2045
SHARP	2027, 2073
ORION	2002, 2004, 2016, 2036, 2046, 2052, 2070, 2072, 2078
SANYO	2025, 2026, 2037, 2057
FERGUSON	2021, 2039, 2064, 2065
BLAUPUNKT	2003, 2005, 2010, 2014, 2041, 2042, 2048, 2054, 2055, 2075
NOKIA	2025, 2037, 2038, 2057
ADMIRAL	2027, 2052
ADVENTURA	2001
AIKO	2059
AIWA	2001, 2017, 2062, 2070, 2072
AKIBA	2034
ALBA	2011, 2034, 2052, 2059, 2063, 2072
AMBASSADOR	2011
AMERICA ACTION	2059
AMERICAN HIGH	2015
AMSTRAD	2001, 2059, 2067, 2068
ANAM	2017, 2042, 2054, 2057, 2059, 2082, 2084
ANAM NATIONAL	2042, 2054, 2087
ANITECH	2034
ASA	2017, 2035
ASHA	2057
ASUKA	2017
AUDIOVOX	2017
BAIRD	2001, 2021, 2037, 2039
BASIC LINE	2011, 2034, 2059
BEAUMARK	2057

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BELL & HOWELL	2037	GO VIDEO	2077, 2081
BRANDT	2047, 2064, 2065	GRAETZ	2005, 2021, 2037, 2057
BRANDT ELECTRONIC	2021	GRANADA	2025, 2035, 2037
BROKSONIC	2002, 2040, 2046, 2052, 2078	GRADIENTE	2001, 2008
BUSH	2034, 2052, 2059, 2072	GRANDIN	2001, 2017, 2034
CALIX	2017	HANSEATIC	2017
CANON	2015	HARMAN/KARDON	2018, 2035
CAPEHART	2011	HARLEY DAVIDSON	2001
CARVER	2035	HARWOOD	2034
CATRON	2011	HCM	2034
CCE	2034, 2059	HEADQUARTER	2025
CGE	2001	HINARI	2004, 2034, 2057, 2072
CIMLINE	2034	HI-Q	2026
CINERAL	2059	HUGHES NETWORK SYSTEMS	2022
CITIZEN	2017, 2059	HYPSON	2034
CLATRONIC	2011	IMPERIAL	2001
COLT	2034	INGERSOL	2004
COMBITECH	2072	INTERFUNK	2035
CONDOR	2011	ITT	2005, 2021, 2025, 2037, 2038, 2057, 2074
CRAIG	2017, 2026, 2034, 2057, 2058	ITV	2017, 2059
CROWN	2011, 2034, 2059	JENSEN	2021
CURTIS MATHES	2015, 2021, 2032, 2042	KAISUI	2034
CYBERNEX	2057	KEC	2017, 2059
CYRUS	2035	KENDO	2038, 2052
DAEWOO	2011, 2024, 2025, 2059, 2083	KENWOOD	2018, 2021, 2033
DANSAI	2034	KLH	2034
DAYTRON	2011	KODAK	2015, 2017
DECCA	2001, 2035	KORPEL	2034
DE GRAAF	2022, 2043	LAYCO	2034
DENON	2022	LENCO	2059
DUAL	2021	LG	2079
DUMONT	2001, 2035, 2037	LLOYD'S	2001, 2051
DYNATECH	2001	LOEWE	2004, 2005, 2017, 2035
ELBE	2018	LOGIK	2004, 2034, 2057
ELCATECH	2034	LUXOR	2023, 2025, 2027, 2037, 2038
ELECTROHOME	2017	LXI	2017
ELECTROPHONIC	2017	M ELECTRONIC	2001
EMEREX	2012	MAGNASONIC	2059
EMERSON	2001, 2002, 2017, 2023, 2040, 2046, 2051, 2052, 2059, 2078, 2083	MAGNAVOX	2001, 2015, 2019, 2035
ESC	2057, 2059	MAGNIN	2057
FIDELITY	2001	MANESTH	2024, 2034
FINLANDIA	2035, 2037	MARANTZ	2003, 2005, 2015, 2035
FINLUX	2001, 2022, 2035, 2037	MARTA	2017
FIRSTLINE	2017, 2023, 2024, 2034, 2052	MATSUI	2004, 2016, 2036, 2052, 2070, 2072
FISHER	2025, 2026, 2030, 2037	MATSUSHITA	2015, 2042, 2055
FRONTECH	2011	MEI	2015
FUJI	2015	MELECTRONIC	2018
FUNAI	2001	MEMOREX	2001, 2015, 2017, 2019, 2025, 2026, 2027, 2037, 2052, 2057, 2062, 2085, 2087, 2088
GARRARD	2001	MEMPHIS	2034
GE	2015, 2027, 2032, 2057	METZ	2003, 2005, 2017, 2042, 2048, 2055, 2069
GEC	2035	MGA	2023, 2057
GENERAL	2011, 2028	MGN TECHNOLOGY	2057
GOLDHAND	2034	MINCRVA	2048
GOLDSTAR	2017, 2018, 2053, 2079		
GOODMANS	2001, 2017, 2034, 2059, 2075		

Controlling the Rest of Your System

MINERVA	2005, 2010, 2048	SABA	2021, 2049, 2050, 2061, 2064, 2065, 2074
MINOLTA	2022	SAISHO	2004, 2016, 2036, 2052
MOTOROLA	2015, 2027	SALORA	2023, 2025, 2038
MTC	2001, 2057	SANKY	2019, 2027
MULTITECH	2001, 2034	SANSUI	2001, 2021, 2033, 2052, 2058, 2078
MURPHY	2001	SAMSUNG	2024, 2057, 2076, 2077
NAD	2031	SAVILLE	2072
NATIONAL	2054	SBR	2035
NEC	2018, 2020, 2021, 2033, 2037	SCHAUB LORENZ	2001, 2005, 2021, 2037
NECKERMANN	2035	SCHNEIDER	2001, 2034, 2035
NESCO	2034	SCOTT	2023, 2024, 2040, 2046
NIKKO	2017	SEARS	2001, 2015, 2017, 2022, 2025, 2026, 2037
NIKON	2014	SEG	2057, 2066
NOBLEX	2057	SEI	2004, 2035
NOKIA	2021, 2025, 2037, 2038, 2057	SELECO	2021
NORDMENDE	2021, 2061, 2064, 2065, 2074	SEMP	2024
OCEANIC	2001, 2021	SENTRA	2011
OKANO	2063, 2070	SHINTOM	2034, 2037
OLYMPUS	2015, 2054	SHOGUN	2057
OPTIMUS	2017, 2027, 2031, 2037, 2042, 2077, 2086, 2087, 2088	SHORAI	2004
OSAKI	2001, 2017, 2034	SIEMENS	2003, 2005, 2010
OTTO VERSAND	2035	2017, 2030, 2035	2037, 2048
PALLADIUM	2005, 2017, 2021, 2034	SILVA	2017
PATHE MARCONI	2021	SINGER	2024, 2034
PATHE CINEMA	2016	SINUDYNE	2004, 2035
PENTAX	2022	SOLAVOX	2011
PENNY	2015, 2017, 2018, 2020, 2022, 2057	SONOLOR	2025
PERDIO	2001	SONTEC	2017
PHILCO	2015, 2018, 2052, 2078	STS	2022
PHONOLA	2035	SUNKAI	2070
PILOT	2017	SUNSTAR	2001
PORTLAND	2011	SUNTRONIC	2001
PROFEX	2066	SYLVANIA	2001, 2015, 2023, 2035
PROFITRONIC	2057	SYMHONIC	2001
PROLINE	2001	TASHIKO	2001
PROSCAN	2032	TATUNG	2001, 2021, 2035
PROTEC	2034	TEAC	2001, 2021
PULSAR	2019	TEC	2011
PYE	2035	TECHNICS	2015, 2042, 2054
QUARTER	2025	TEKNIKA	2001, 2015, 2007, 2017, 2028
QUARTZ	2025	TELEAVIA	2021
QUASAR	2015, 2042, 2087	TELEFUNKEN	2021, 2047, 2058, 2064, 2074
QUELLE	2035	TENOSAL	2034
RADIO SHACK	2001, 2085	TENSAI	2001, 2066
RADIOLA	2035	THOMAS	2001
RADIX	2017	THORN	2016, 2021, 2037
RANDEX	2017	TMK	2051, 2057
RCA	2015, 2022, 2027, 2032, 2038, 2057	TOTEVISION	2017, 2057
REALISTIC	2001, 2015, 2017, 2025, 2026, 2027, 2037	TOWADA	2066
REX	2021, 2074	UHER	2057
RFT	2075	UNITECH	2057
RICOH	2014	UNIVERSUM	2001, 2006, 2010, 2017, 2035, 2038, 2048, 2057, 2067
ROADSTAR	2017, 2034, 2057, 2059	VECTOR	2024
RUNCO	2019	VECTOR RESEARCH	2018, 2020

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VICTOR	2008, 2021, 2033
VIDEO CONCEPTS	2020, 2024
VIDEOSONIC	2057
WARDS	2001, 2015, 2022, 2026, 2027, 2032, 2034, 2035, 2057
WHITE WESTINGHOUSE	2052, 2059
XR-1000	2001
XR-1001	2015
XR-1002	2034
YAMAHA	2018
YAMISHI	2034
YOKAN	2034
YOKO	2011, 2057
ZENITH	2001, 2014, 2019, 2052, 2078
PIONEER	2031, 2033, 2035, 2044, 2056

FINLUX	4005, 4024, 4032, 4037
FRACARRO	4061
FREECOM	4034
FUBE	4030, 4031, 4034
G-SAT	4009
GALAXIS	4019, 4057, 4060
GENERAL INSTRUMENT	4012
GOLD BOX	4059
GOODING	4048
GOODMANS	4010
GRUNDIG	4008, 4010, 4048
HINARI	4009
HIRSCHMANN	4008, 4032, 4039, 4040, 4049
HITACHI	4037
HOUSTON	4053
HUTH	4013, 4015, 4019, 4026
ITT	4005
INVIDEO	4061
INTERVISION	4050
JVC	4048
JOHANSSON	4022
KATHREIN	4004, 4006, 4008, 4011, 4035, 4041
KREISELMEYER	4008
KYOSTAR	4034
LA SAT	4043, 4045
LENCO	4034
LENNOX	4050
LUPUS	4030
LUXOR	4005, 4049
MANHATTAN	4037, 4045, 4050
MARANTZ	4011
MASPRO	4004, 4023
MATSUI	4024, 4048
MEDIASAT	4059
MEDIAMARKT	4015
MINERVA	4048
MORGAN'S	4015, 4043
NAVEX	4022
NEUHAUS	4039
NEUSAT	4057
NEUHAUS	4013
NIKKO	4028
NOKIA	4005, 4032, 4037, 4049, 4054, 4063
NORDMENDE	4029
ORBITECH	4039
OXFORD	4024
PACE	4002, 4009, 4014, 4023, 4037, 4055, 4058
PALLADIUM	4048
PALSAT	4039
PANDA	4037
PHILIPS	4007, 4011, 4020, 4037, 4048, 4059
PHONOTREND	4019, 4050
PIONEER	4021, 4059

SATELLITE TUNER



Manufacturer	Code
ABSAT	4006
AST	4027
ALBA	4029, 4034, 4037, 4052
ALDES	4019
AMSTRAD	4003, 4016, 4025, 4038, 4039, 4042
ANKARO	4013, 4019, 4030, 4044
ANTTRON	4009, 4034
ARMSTRONG	4015
ASTRA	4005
ASTRO	4008, 4039, 4045
AVALON	4031
AXIS	4030, 4046
BT	4053
BEKO	4010
BEST	4030
BLAUPUNKT	4008
BOCA	4015, 4043
BRAIN WAVE	4022
BRITISH SKY BROADCASTING	4058
BUSH	4002
CNT	4045
CAMBRIDGE	4024
CANAL SATELLITE	4059
CANAL+	4059
CHANNEL MASTER	4029
COMLINK	4019
CONNEXIONS	4031
CROWN	4015
CYRUS	4011
D-BOX	4054
DDC	4029
DNT	4011, 4031
ECHOSTAR	4031, 4036, 4061
EMANON	4034
FTE HUMAX	4060
FERGUSON	4002, 4009, 4010, 4023
FIDELITY	4016

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PLANET	4061	CRYPTOVISION	3038
PROMAX	4037	DAEHAN	3043
PROSAT	4019	DAERYUNG	3003
QUADRAL	4029, 4044	DECSAT	3027
RADIOLA	4011	EVERQUESST	3007
RADIX	4031, 4064	FILMNET	3028
RCA	4037, 4059	FRANCE TELECOM	3030
RFT	4011, 4013, 4019	GEC	3011
SAT	4027, 4038	GEMINI	3007
SABA	4023, 4045	GENERAL INSTRUMENT	3004, 3020, 3031, 3046
SABRE	4037	GOLDSTAR	3014, 3047
SAGEM	4056	GRUNDIG	3035
SALORA	4005	HITACHI	3004
SATCOM	4026, 4051	JASCO	3007
SATEC	4009	JERROLD	3002, 3004, 3005, 3006, 3007, 3020, 3031, 3046
SATMASTER	4026	LG ALPS	3044
SATPARTNER	4022, 4034, 4040, 4045	MEMOREX	3001
SCHWAIGER	4009, 4041	MNET	3009, 3028
SEEMANN	4031, 4046	NOW	3041
SEG	4030, 4034	OAK	3009
SIEMENS	4008	PACIFIC	3039
SKYMASTER	4019, 4044, 4051	PANASONIC	3001, 3013
SONY	4017, 4018	PARAGON	3001
STRONG	4062	PULSAR	3001
SUNSTAR	4043	PVP STEREO VISUAL	
TPS	4056	MATRIX	3002
TANTEC	4023, 4037	PIONEER	3010, 3014, 3018, 3036
TECHNISAT	4001, 4039	QUASAR	3001
TECHNILAND	4026	RADIO SHACK	3007
TELEFUNKEN	4034	REMBRANDT	3004
TELEKA	4015, 4052	RUNCO	3001
TELESAT	4051	SAMSUNG	3014, 3040
TONNA	4026, 4053	SATBOX	3024
TRIAD	4027	SIGNAL	3007
TRIASAT	4040	SIGNATURE	3004
UNITOR	4022	STS	3015
UNIVERSUM	4008, 4049	SALORA	3026
VENTANA	4011	SCIENTIFIC	3003, 3032, 3049
VORTEC	4034	SCIENTIFIC ATLANTA	3003, 3008, 3021
VTECH	4027	SEAWOO	3045
WINERSAT	4022	STARCOM	3002, 3007
WISI	4008, 4027, 4031, 4037	STARGATE	3007
XSAT	4006, 4065	STARQUEST	3007
XCOM MULTIMEDIA	4065	TAIHAN	3043
ZEHNDR	4033, 4045, 4047	TELESERVICE	3022
		TELE+1	3028
		TUDI	3023
		TUSA	3007
		TOCOM	3005
		TONGKOOK	3042, 3048
		TOSHIBA	3001
		UNITED CABLE	3002
		VIDEOWAY	3017
		VISCABLE+	3033
		WESTMINSTER	3012
		WOLSEY GENE	3037
		ZENITH	3001, 3034

CABLE TV



Manufacturer	Code
ABC	3002, 3003, 3004, 3006, 3008
ANDOVER	3037
BELL & HOWELL	3006
BIRGMINGHAM CABLE	
COMMUNICATION	3020
BRITISH TELECOM	3002, 3012
CABLETIME	3016, 3019, 3025, 3029
CONTEC	3009
CLYDE	3011

Additional Information

Troubleshooting

Incorrect operations are often mistaken for trouble and malfunctions. If you think that there is something wrong with this component, check the points below. Sometimes the trouble may lie in another component. Investigate the other components and electrical appliances being used. If the trouble cannot be resolved by following the the suggested remedies below, take the unit to your nearest local RadioShack store.

This receiver has been manufactured to the specifications of RadioShack and is covered by a limited warranty from RadioShack. If your receiver is not operating as it should, take it to your local RadioShack store or call 1-800-THE-SHACK for assistance.

Problem	Remedy
The power does not turn on.	<ul style="list-style-type: none">• Connect the power plug to the wall outlet.• Disconnect the power plug from the outlet, and insert again.• Make sure there are no loose strands of speaker wire touching the rear panel. This could cause the receiver to shut off automatically.
No sound is output when a function is selected.	<ul style="list-style-type: none">• Make sure the component is correctly connected (refer to pages 14–22).• Press MUTE on the remote control to turn muting off.• Adjust the MASTER VOLUME.• Press the MONITOR button to turn monitoring off.
No image appears when a function is selected.	<ul style="list-style-type: none">• Make sure the component is connected correctly (refer to pages 14–22).• Select the correct component (use the MULTI JOG buttons).
Considerable noise in radio broadcasts.	<ul style="list-style-type: none">• Tune in the correct frequency.• Connect the antenna (refer to page 18).• Route RF and digital cables away from the antenna terminals and wires.• Fully extend the FM wire antenna, position for best reception, and secure to a wall.• Connect an outdoor FM antenna (refer to page 18).• Adjust the direction and position for best reception.• Connect an additional internal or external AM antenna (refer to page 18).• Turn off the equipment causing the noise or move it away from the receiver.• Place the antenna farther away from the equipment causing the noise.
Broadcast stations cannot be selected automatically.	Connect an outdoor antenna (refer to page 18).

Additional Information

Problem	Remedy
No sound from surround or center speakers.	<ul style="list-style-type: none">• Refer to “Speaker Setting” on page 35 to check the speaker settings.• Refer to “Setting the Relative Volume Level of Each Channel” on page 39 to check the speaker levels.• Connect the speakers properly (refer to pages 19–21).
Noise during playback of a cassette deck.	Move the cassette deck further from your receiver, until the noise disappears.
Sound is produced from other components, but not from LD or DVD player.	<ul style="list-style-type: none">• Set the SIGNAL SELECT to AUTO, DIGITAL or ANALOG according to the type of connections made. (refer to page 30).• Set the digital input settings correctly (refer to page 38).• Make digital connections (refer to page 14) and set the SIGNAL SELECT to DIGITAL (refer to page 30).• Refer to the instruction manual supplied with the DVD player.
No sound is output or a noise is output when software with DTS is played back.	Set the digital volume level of the player to full, or to the neutral position.
When a search is performed by a DTS compatible CD player during playback, noise is output.	This is not a malfunction, but be sure to turn the volume down to prevent the output of loud noise from your speakers.
Cannot operate the remote control.	<ul style="list-style-type: none">• Replace the batteries (refer to page 7).• Operate within 23 feet (7 m), 30° of the remote sensor on the front panel (refer to page 7).• Remove the obstacle or operate from another position.• Avoid exposing the remote sensor on the front panel to direct light.
The display is dark or off.	Press FL DIMMER on the remote control repeatedly to return to the default.

Note:

If the unit does not operate normally due to external effects such as static electricity, disconnect the power plug from the outlet and insert again to return to normal operating conditions.

Specifications

Amplifier Section

Continuous average power output of 100 watts* per channel, min., at 8 ohms, from 20 Hz to 20,000 Hz with no more than 0.2 % total harmonic distortion (front).**

Continuous Power Output

Front 100 W per channel
(1kHz, 1.0 %, 8 Ω)
Center 100 W (1kHz, 1.0 %, 8 Ω)
Surround 100 W per channel
(1kHz, 1.0 %, 8 Ω)

Input (Sensitivity/Impedance)

CD, VCR/DVR, CD-R/TAPE/MD,
DVD/LD, TV/SAT, VIDEO 200 mV/47 k Ω
Frequency Response

CD, VCR/DVR, CD-R/TAPE/MD, DVD/LD,
TV/SAT, VIDEO ... 5 Hz to 100,000 Hz $^{+0}_{-3}$ dB

Output (Level/Impedance)

VCR/DVR REC,
CD-R/TAPE/MD REC 200 mV/2.2 kW
Tone Control
BASS ± 6 dB (100 Hz)
TREBLE ± 6 dB (10 kHz)
LOUDNESS +9 dB/+9 dB
(100 Hz/10 kHz)

Signal-to-Noise Ratio

(IHF, short circuited, A network)

CD, VCR/DVR, CD-R/TAPE/MD,
DVD/LD, TV/SAT, VIDEO 96 dB
Signal-to-Noise Ratio [EIA, at 1 W (1 kHz)]
CD, VCR/DVR, CD-R/TAPE/MD,
DVD/LD, TV/SAT, VIDEO 79 dB

Video Section

Input (Sensitivity/Impedance)

VCR/DVR, DVD/LD, TV/SAT,

VIDEO 1 Vp-p/75 Ω

Output (Level/Impedance)

VCR/DVR 1 Vp-p/75 Ω

Frequency Response

VCR/DVR, DVD/LD, TV/SAT, VIDEO

\Rightarrow MONITOR 5 Hz to 7 MHz $^{+0}_{-3}$ dB

Signal-to-Noise Ratio 55 dB

Cross Talk 55 dB

FM Tuner Section

Frequency Range 87.5 MHz to 108 MHz

Usable Sensitivity Mono: 13.2 dBf, IHF
(1.3 μ V/75 Ω)

50 dB Quieting Sensitivity ... Mono: 20.2 dB
Stere: 38.6 dBf

Signal-to-Noise Ratio Mono: 73 dB
(at 85 dBf)

Stere: 70 dB (at 85 dBf)

Distortion Stere: 0.5 % (1 kHz)

Alternate Channel Selectivity 60 dB
(400 kHz)

Stere Separation 40 dB (1 kHz)

Frequency Response 30 Hz to 15 kHz
(± 1 dB)

Antenna Input (DIN) 75 Ω unbalanced

AM Tuner Section

Frequency Range 530 kHz to 1,700 kHz

Sensitivity (IHF, Loop antenna) 350 μ V/m

Selectivity 25 dB

Signal-to-Noise Ratio 50 dB

Antenna Loop antenna

Miscellaneous

Power Requirements	AC 120 V, 60 Hz
Power Consumption	260 W
In Standby	1 W
AC Outlet	100 W MAX. (SWITCHED)
Dimensions (WHD)	
	16-9/16 x 6-4/16 x 15-6/16 in.
	420 x 158 x 401 mm
Weight (without package)	
.....	19 lb 3 oz (8.7 kg)

Furnished Parts

AM loop antenna	1
FM wire antenna	1
Remote control	1
Owner's manual	1

NOTE:

Specifications and the design are subject to possible modifications without notice, due to improvements.

* Measured pursuant to the Federal Trade Commission's Trade Regulation rule on Power Output Claims for Amplifiers.

** Measured by Audio Spectrum Analyzer.

Additional Information

Limited Two-Year Warranty

This product is warranted by RadioShack against manufacturing defects in material and workmanship under normal use for two (2) years from the date of purchase from RadioShack company-owned stores and authorized RadioShack franchisees and dealers. EXCEPT AS PROVIDED HEREIN, RadioShack MAKES NO EXPRESS WARRANTIES AND ANY IMPLIED WARRANTIES, INCLUDING THOSE OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE LIMITED IN DURATION TO THE DURATION OF THE WRITTEN LIMITED WARRANTIES CONTAINED HEREIN. EXCEPT AS PROVIDED HEREIN, RadioShack SHALL HAVE NO LIABILITY OR RESPONSIBILITY TO CUSTOMER OR ANY OTHER PERSON OR ENTITY WITH RESPECT TO ANY LIABILITY, LOSS OR DAMAGE CAUSED DIRECTLY OR INDIRECTLY BY USE OR PERFORMANCE OF THE PRODUCT OR ARISING OUT OF ANY BREACH OF THIS WARRANTY, INCLUDING, BUT NOT LIMITED TO, ANY DAMAGES RESULTING FROM INCONVENIENCE, LOSS OF TIME, DATA, PROPERTY, REVENUE, OR PROFIT OR ANY INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, EVEN IF RadioShack HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

Some states do not allow limitations on how long an implied warranty lasts or the exclusion or limitation of incidental or consequential damages, so the above limitations or exclusions may not apply to you.

In the event of a product defect during the warranty period, take the product and the RadioShack sales receipt as proof of purchase date to any RadioShack store. RadioShack will, at its option, unless otherwise provided by law: (a) correct the defect by product repair without charge for parts and labor; (b) replace the product with one of the same or similar design; or (c) refund the purchase price. All replaced parts and products, and products on which a refund is made, become the property of RadioShack. New or reconditioned parts and products may be used in the performance of warranty service. Repaired or replaced parts and products are warranted for the remainder of the original warranty period. You will be charged for repair or replacement of the product made after the expiration of the warranty period.

This warranty does not cover: (a) damage or failure caused by or attributable to acts of God, abuse, accident, misuse, improper or abnormal usage, failure to follow instructions, improper installation or maintenance, alteration, lightning or other incidence of excess voltage or current; (b) any repairs other than those provided by a RadioShack Authorized Service Facility; (c) consumables such as fuses or batteries; (d) cosmetic damage; (e) transportation, shipping or insurance costs; or (f) costs of product removal, installation, set-up service adjustment or reinstallation.

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

RadioShack Customer Relations, 200 Taylor Street, 6th Floor, Fort Worth, TX 76102

12/99

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Fort Worth, Texas 76102

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