KENWOOD

sovereign

Connection and Setup Guide

How To Connect And Set Up Your

VR-5900

Digital Audio/Video Receiver

Before Applying Power

Read this section carefully to ensure safe operation.

VR-5900 is designed for operation as follows.

U.S.A. and Canada .... AC 120 V only

Safety Precautions

Read this section carefully to ensure safe operation.

WARNING :

TO PREVENT FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

⚡ **CAUTION** RISK OF ELECTRIC SHOCK DO NOT OPEN ⚠		CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.
⚡	THE LIGHTNING FLASH WITH ARROWHEAD SYMBOL, WITHIN AN EQUILATERAL TRIANGLE, IS INTENDED TO ALERT THE USER TO THE PRESENCE OF UNINSULATED "DANGEROUS VOLTAGE" WITHIN THE PRODUCT'S ENCLOSURE THAT MAY BE OF SUFFICIENT MAGNITUDE TO CONSTITUTE A RISK OF ELECTRIC SHOCK TO PERSONS.	
⚠	THE EXCLAMATION POINT WITHIN AN EQUILATERAL TRIANGLE IS INTENDED TO ALERT THE USER TO THE PRESENCE OF IMPORTANT OPERATING AND MAINTENANCE (SERVICING) INSTRUCTIONS IN THE LITERATURE ACCOMPANYING THE APPLIANCE.	

Connecting and Setting Up Your New Kenwood Audio-Video Receiver

Welcome to the Connection and Setup Guide for your new Kenwood audio-video receiver.

The VR-5900 offers 3 kinds of 5.1-channel digital surround sound decoding:

- Dolby Digital, for the hundreds of currently available Dolby Digital DVDs and LaserDiscs.
- DTS, a well-established multichannel format in movie theaters, is available for home theater on LaserDisc and DVD.
- MPEG Multichannel, a well-established multichannel format in movie theaters, is available for home theater on LaserDisc and DVD.

The VR-5900 also offers 2 kinds of 6.1-channel digital surround sound decoding:

- THX Surround EX technology reproduces a surround back channel from software which has been specially encoded with Surround EX.
- DTS-ES also creates a 6.1-channel surround environment by adding the surround back signal. The VR-5900 can handle both DTS-ES Discrete 6.1 featuring recording of all channels in the digital discrete format and DTS-ES Matrix 6.1 featuring matrix encoding.

In addition, the VR-5900 offers the following surround features.

- DTS-NEO:6: This converts 2-channel signals into 6.1-channel signals by means of a high-accuracy digital matrix decoder.
- Dolby Pro Logic II: This advanced version of Dolby Pro Logic features improved audio quality and a dedicated music mode that reproduces conventional 2-channel music in 5.1-channel surround sound.

- THX Mode: Several technologies developed by Lucasfilm® that compensate for playing a film soundtrack in a small room (such as in a home), rather than in a large theater (for which it was originally mixed). The THX Mode compensates for overly bright-sounding soundtracks, creates a more spacious surround sound environment and smooths sound movement from speaker to speaker.

32-Bit DRIVE III: Exclusive Kenwood technology that reproduces digital signals with ultra high resolution. Incorporating a high-performance DSP, 32-Bit DRIVE III significantly reduces digital distortion to reproduce stereo audio with extreme faithfulness to the original signal.

HDCD®: This is a new format of high-resolution recording. The VR-5900 is capable of reproducing CDs recorded in the HDCD format with high resolution and wide dynamic range.

Use the VR-5900 to connect all your current audio and video components—the VR-5900 has a variety of connection jacks so you can customize your entertainment setup.

It also includes Kenwood's remarkable PowerTouch III LCD remote—a graphical user interface without having to use your TV!

Other advanced features include 6 S-Video inputs and optical and coaxial digital outputs for digital dubbing to MiniDisc or CD-R.

HDCD®, HDCD®, High Definition Compatible Digital® and Pacific Microsonics™ are either registered trademarks or trademarks of Pacific Microsonics, Inc. in the United States and/or other countries. HDCD system manufactured under license from Pacific Microsonics, Inc. This product is covered by one or more of the following: IN the USA: 5,479,168, 5,638,074, 5,640,161, 5,808,574, 5,838,274, 5,854,600, 5,864,311, 5,872,531, and in Australia: 669114. Other patents pending.

LUTRON® spacer™ Personal Space Light Control
GRAFIK Eye®
makita **JDS** "The Home of Automation" TECHNOLOGIES
X10 **NLES** **Xantech** CUSTOM INSTALLATION PRODUCTS

The above are additional trademarked names appearing in this manual. All other products named are trademarks of their respective companies.
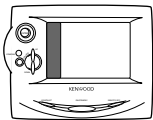
As an ENERGY STAR® Partner, Kenwood Corporation has determined that this products meets the ENERGY STAR® guidelines for energy efficiency. This product can save energy. Saving energy reduces air pollution and lowers utility bills.

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Unpacking

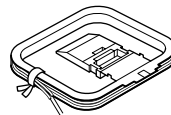Unpack your new receiver carefully and make sure that all the accessories are present:

Remote control unit (PowerTouch III)	Batteries C (R14P) × 4	AM Loop Antenna	FM Antenna	RF remote Antenna

If any accessories are missing, or if the receiver is damaged or fails to operate, notify your dealer immediately. If your receiver was shipped to you directly, notify your shipper immediately. Kenwood recommends that you retain the original carton and packing materials in case you need to move or ship the receiver in the future.

Table of Contents

Table of Contents

Chapter One: Connecting Your Devices

Welcome to the Kenwood VR-5900 Connection and Setup Guide. This chapter guides you through connecting your home entertainment devices to your new Kenwood audio-video receiver.

Once all your devices are connected, you can set up the PowerTouch III (see Chapter Two).

Refer to the following pages for details on connecting these devices:

NOTES

All necessary cables should be provided with your home entertainment device (not with your new receiver). If you do not have the correct cables, you may purchase these cables from any home entertainment store.

To make coaxial digital connections, be sure to use a high-quality digital audio cable, not a standard audio cable.

Do not plug in the receiver or any other device to AC power until all connections have been made. Once all devices have been connected, you may plug them in and provide power.

Important:

Your new receiver requires adequate ventilation to perform reliably. Be sure not to block the ventilation area on the top or back (or both sides) of the receiver with another device. These areas should be:

At least 6 inches (15 cm) from any obstruction.

Do not install your receiver where direct sunlight or high frequency fluorescent lighting can shine directly into the remote sensor. This can cause your new receiver to malfunction.

Before You Begin

This manual covers the most common and standard connections to the receiver. Because of its versatility, you may decide to connect your devices differently.

Video Connections

This receiver incorporates Kenwood's exclusive Universal Video HD, which converts between composite, S-Video and component video formats. This simplifies operation, and maintains the highest possible video quality while requiring only a single connection between the receiver and your TV. Video format conversion is performed according to the following chart:

Video input signal type	Appears at these video outputs
Composite Video	Composite S-Video Component Video
S-Video	Composite S-Video Component Video
Component Video	Component Video

- Component video connections provide the best video quality; S-Video connections provide video quality that is superior to standard composite video connections. We recommend using the highest quality connection possible between the receiver and your TV.

- Since component video inputs are not downconverted to S-Video or composite video, if you want to record components connected via component video inputs you must also connect that component's S-Video or composite video outputs to the receiver.

- If you plan on using the VR-5900 in a Dual-Zone application (see Chapter Four), you must use the composite video connections in addition to any component video and S-Video connections for all source components. Only video sources connected to the receiver with composite video connections can be viewed in the second zone.

1

The following diagram shows the entire back of the VR-5900.

System control jacks

Supplemental infrared receiver and sensor jacks, RELAY CONTROL jack and TV ON/OFF SENSOR jack

RF remote antenna jack

Zone B pre out jacks

Pre out jacks

AC Plugs

2

RS-232C connector*

Video component jacks

Audio component jacks

Binding post Speaker connectors

Digital jacks **
(coaxial and optical)

Antenna jacks
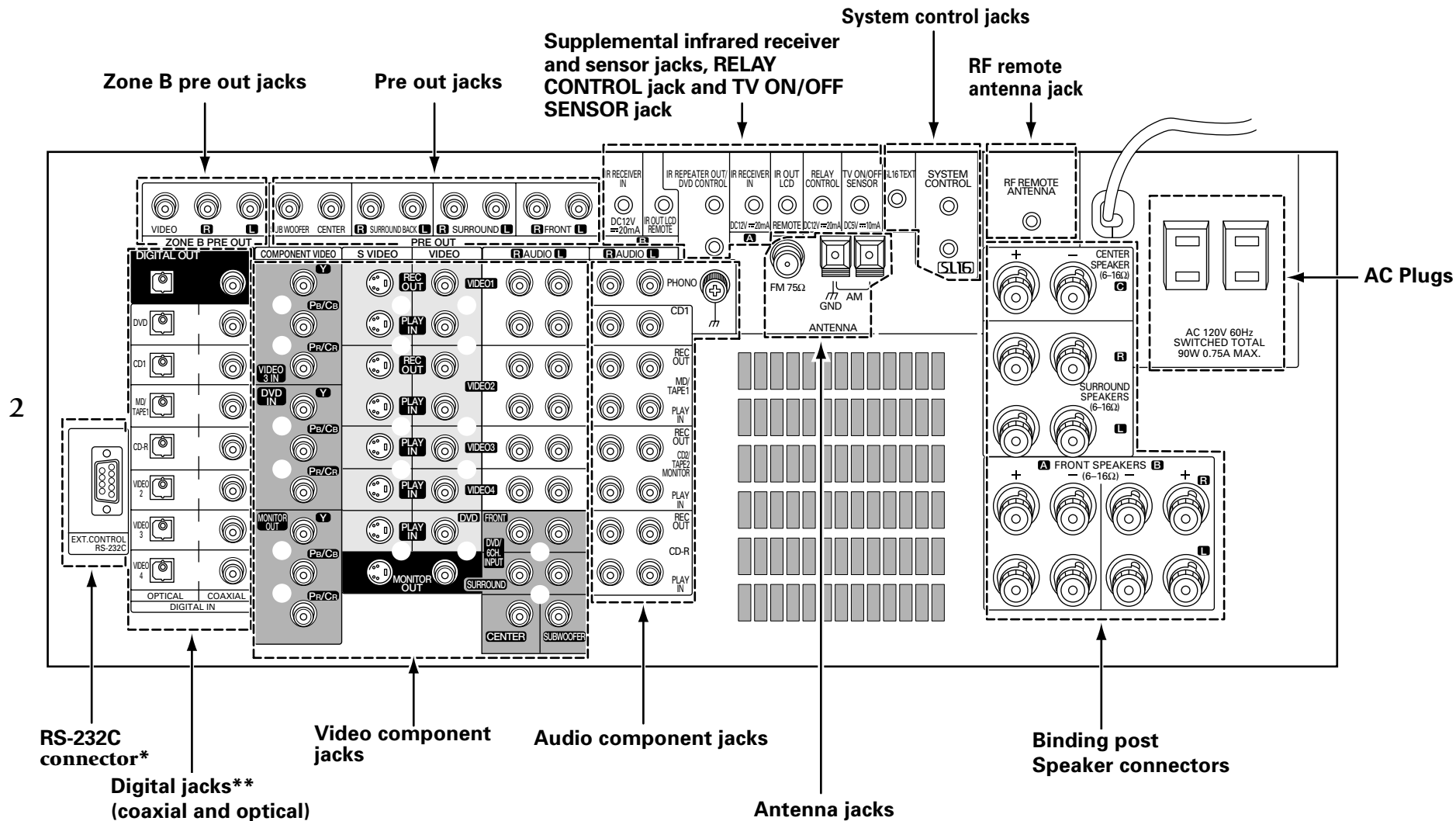
* The RS-232C connector is provided for future capability (to connect a commercially marketed controller having the capability of controlling the VR-5900).

** Note that the digital input jacks are linked to specific audio and video component jacks.
   Make sure that each source device is connected to the proper corresponding audio, video and digital jacks.

Noting Your Devices

Jack Set	Device	Manufacturer	Model #	Setup Code
PHONO				————
CD1				
MD/TAPE1				
CD2/TAPE2 MONITOR				
CD-R				
MONITOR OUT **(TV on PowerTouch III)**				
VIDEO1				
VIDEO2				
VIDEO3				
VIDEO4				
DVD				

3

Use this table and the diagram on the preceding page to plan your connections before you make them, or use it to record your connections as you make them.

You will need this information later, when you set up PowerTouch III (see "Identifying Devices For PowerTouch III Control" on page 40). Recording this information now will save you additional trips behind your home entertainment cabinet. You will fill in the Setup Code column when you are setting up PowerTouch III.

Connecting Your Speakers
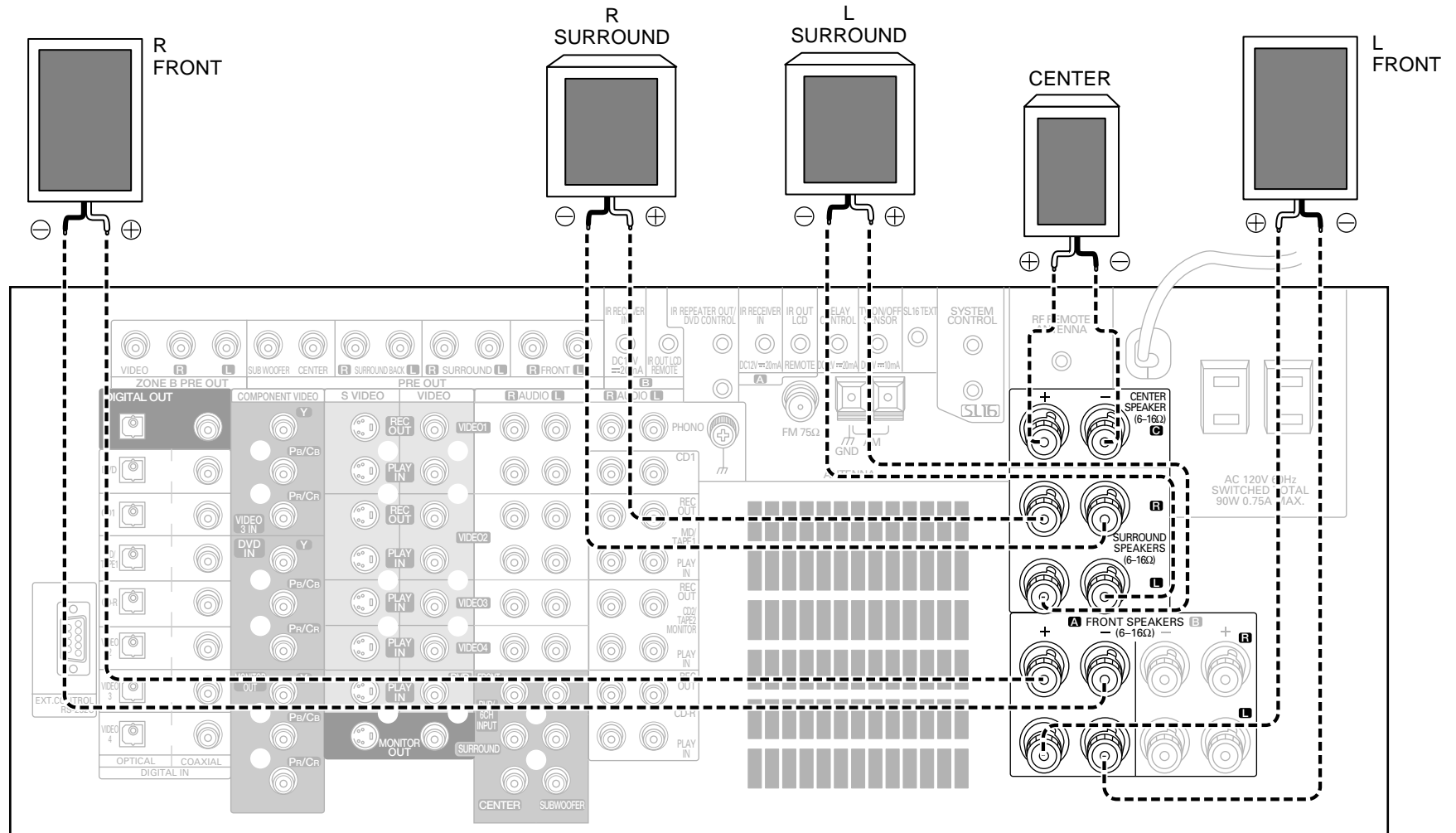
Connecting Your Speakers, continued

Do not plug in the receiver to AC power until all connections have been made.

To Connect Front Speakers Only:

If you only intend to listen to stereo sound (as opposed to surround sound), you may simply connect a single pair of speakers. To do so:

Using Banana Plugs:

1. Tighten the speaker wire binding posts. If you do not tighten the posts, they will not conduct sound properly to the speakers.

2. Insert the plug from the positive jack on the **RIGHT FRONT** speaker into the pin jack on the positive **RIGHT FRONT** post. Repeat for the negative plug.

3. Repeat step 2 for the positive and negative wires on the **LEFT FRONT** speaker.

Using Bare Wires:

1. Loosen the speaker wire binding posts.

2. Insert the wire from the positive jack on the **RIGHT FRONT** speaker into the U-shaped slot in the base of the positive **RIGHT FRONT** post. Lay the wire to the right of the post; that way, when you tighten the binding post, it will naturally twist the wire into the best connection. Tighten the post. Repeat for the negative wire on the **RIGHT FRONT** speaker as shown to the right.

3. Repeat step 2 for the positive and negative wires on the **LEFT FRONT** speaker.

To Connect Front and Surround Sound Speakers:

To listen to the full surround sound that this receiver can put out, connect front speakers, center, left surround, and right surround speakers. To do so:

For the connections of the subwoofer and surround back speakers, see page 6 - 7.

Using Banana Plugs:

1. Tighten the speaker wire binding posts. If you do not tighten the posts, they will not conduct sound properly to the speakers.

2. Follow the steps under "To Connect Front Speakers Only" on this page to connect the **RIGHT** and **LEFT FRONT** speakers.

3. Insert the plug from the positive jack on the **CENTER** speaker into the pin jack on the positive **CENTER** post. Repeat for the negative plug.

4. Insert the plug from the positive jack on the **RIGHT SURROUND** speaker into the pin jack on the positive **RIGHT SURROUND** post. Repeat for the negative plug.

5. Repeat step 4 for the positive and negative wires on the **LEFT SURROUND** speaker.

Using Bare Wires:

1. Loosen the speaker wire binding posts.

2. Follow the steps under "To Connect Front Speakers Only" on this page to connect the **RIGHT** and **LEFT FRONT** speakers.

3. Insert the wire from the positive jack on the **CENTER** speaker into the U-shaped slot in the base of the positive **CENTER** post, as shown to the right.

   Tighten the post. Repeat for the negative wire.

4. Insert the wire from the positive jack on the **RIGHT SUR-ROUND** speaker into the U-shaped slot on the base of the positive **RIGHT SURROUND** post. Tighten the post. Repeat for the negative wire.

5. Repeat step 4 for the positive and negative wires on the **LEFT SURROUND** speaker.

NOTES

Never short circuit the + and - speaker wires.

Do not switch the left and right speaker wires or swap the + and - wires on the binding posts.

The speakers must have a nominal impedance of between 6Ω and 16Ω.

5

Using Bare Wires

1. Loosen post

2. Insert wire

3. Tighten post

Connecting Your Speakers, continued

R SURROUND BACK

L SURROUND BACK

POWERED SUBWOOFER

Power Amp.

6
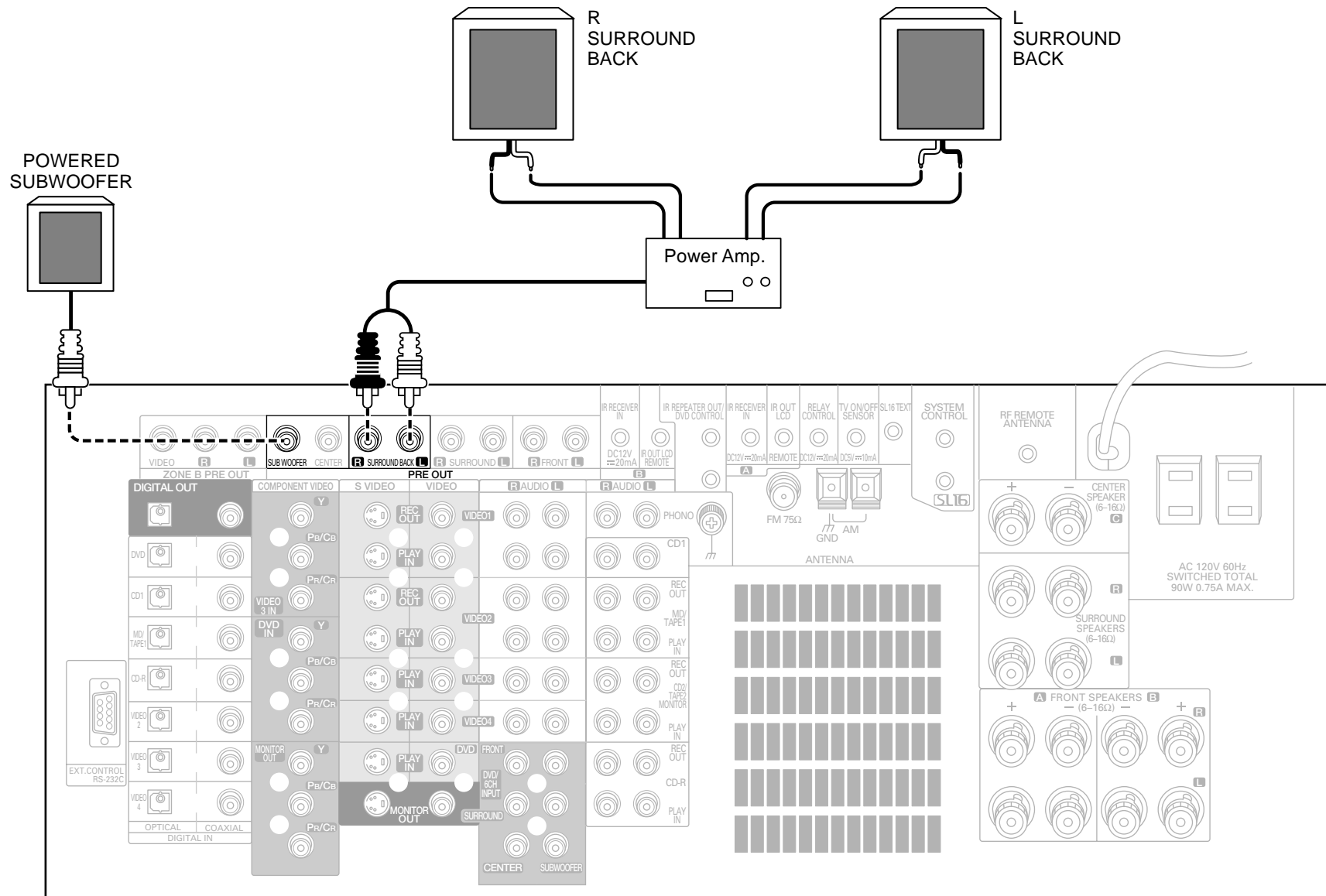
Connecting Your Speakers, continued

Do not plug in the amplifiers or the receiver to AC power until all connections have been made.

What if I Have a Powered Subwoofer?

Simply connect the subwoofer's audio cable to the receiver's **SUBWOOFER PRE OUT** jack as shown to the left.

To Connect Surround Back Speakers:

To reproduce the surround back channels of THX Surround EX, DTS-ES or DTS-NEO:6, you need to use a 2-channel power amplifier to power the surround back speakers.

To connect the surround back speakers:

1. Using RCA audio cables (not supplied), connect the receiver's **SURROUND BACK PRE OUT** jacks to the 2-channel power amplifiers' input jacks as shown to the left.
2. Connect the speakers to the power amplifier according to the amplifiers' instruction manuals.

7

What if I Have an Amplifier?

8
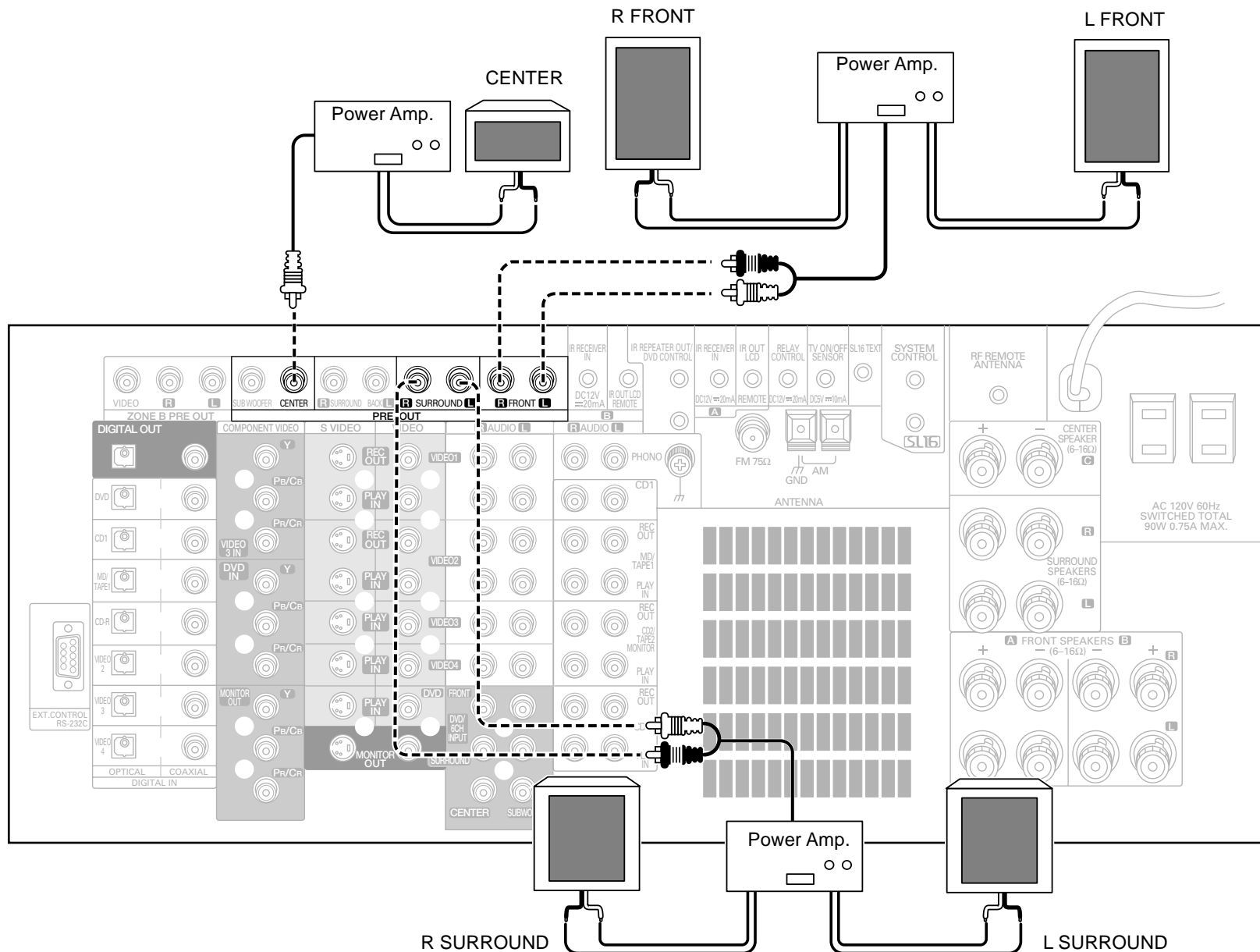
What if I Have an Amplifier?, continued

You can use supplemental power amplifiers for any of the channels instead of the receiver's built-in amplifiers.

Do not plug in the amplifiers or the receiver to AC power until all connections have been made.

To connect supplemental power amplifiers:

1. Using RCA audio cables (not supplied), connect the receiver's **PRE OUT** jacks to the amplifiers' input jacks as shown to the left.

2. Connect the speakers to the power amplifiers according to the amplifiers' instruction manuals.

Connections

Connecting Your TV

10
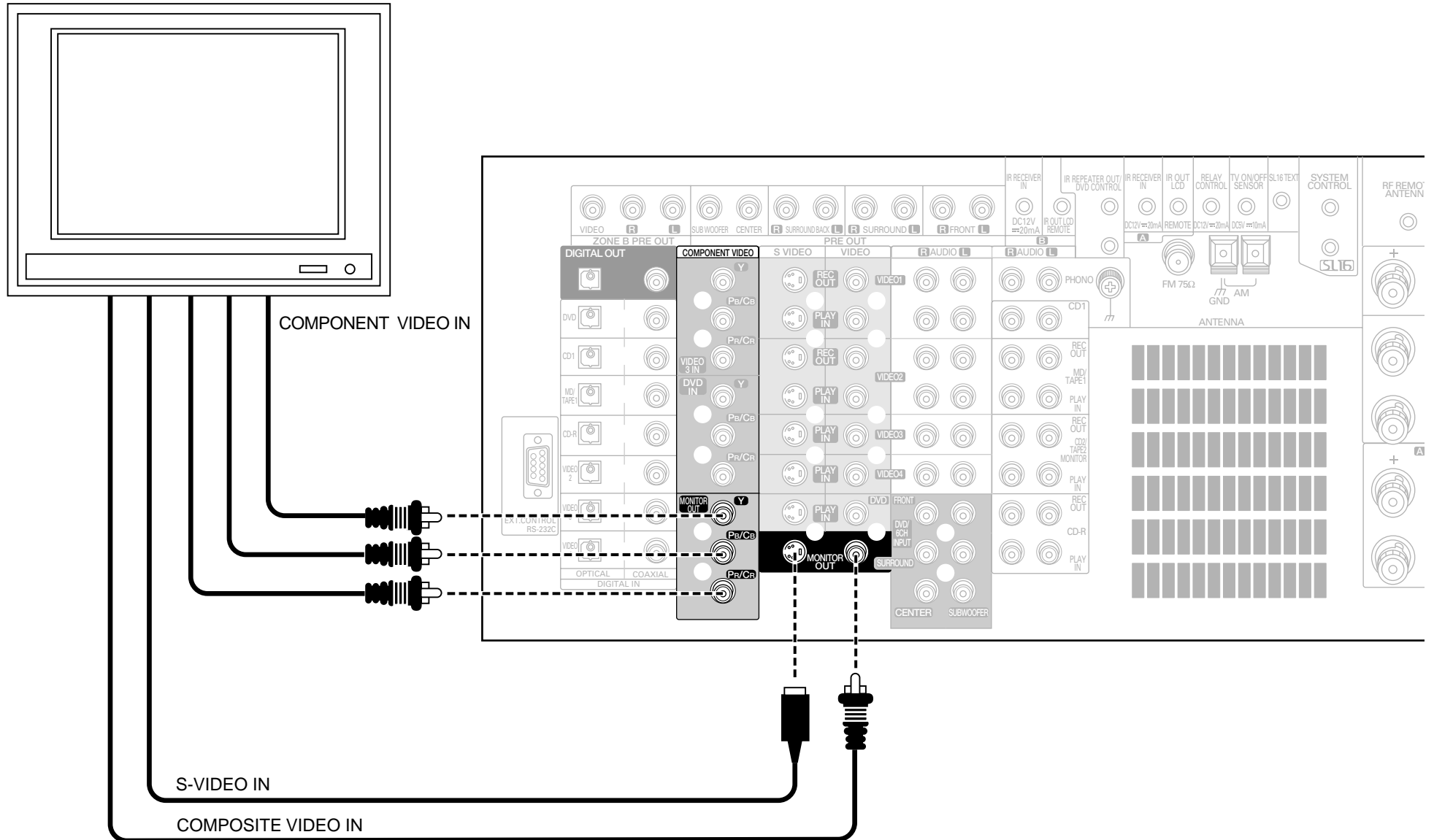
COMPONENT VIDEO IN

S-VIDEO IN

COMPOSITE VIDEO IN

Connecting Your TV, continued

NOTES

Do not plug in the receiver or devices to AC power until you have connected all your devices.

This section focuses on the connections from your TV to the VR-5900. Please refer to your TV's instructions for more detail about its connection jacks and capabilities.

The instructions in this section show how to connect your TV as a monitor for the other video devices you connect (without using it as an audio/video source device itself). To use your TV as an audio/video source device, you must first connect it as described in this section, and also connect its audio/video output jacks as if they were cable TV tuner outputs, as described in "To Connect a Cable TV Tuner with a Composite (RCA) Video Output" on page 13.

To Connect a TV:

1. Review the information under "Before You Begin" on page 1. It contains important notes about the types of video connections you can make.

2. Connect a video cable from your TV's Video IN jack to the receiver's **MONITOR OUT** jack as shown to the left.

3. If your TV does not have any video input connections, you must purchase an RF modulator. The modulator will convert the video signal from the receiver to an RF signal that will work with the TV's antenna connections.

   Connect the receiver to the TV according to the RF modulator's instruction manual.

4. Go to "Noting Your Devices" on page 3 and note which jack you used to connect your TV. In addition, note the brand name and model number of the TV.

If you previously connected your TV directly to your VCR, you must now connect it through your new receiver.

NOTES

With some devices, the **COMPONENT VIDEO** jacks (Y, PB/CB, PR/CR jacks) are indicated as the R-Y, B-Y jacks. For details, refer to the operation instructions for the respective device.

What if I Want to Watch TV without Turning on the Receiver?

The connection described here sets your TV up as a monitor you can use to view media played on your other video devices (such as a VCR or DVD player). You can still watch TV without having to use the receiver.

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Connecting Your Cable TV or Satellite Tuner

COMPONENT VIDEO OUT

DIGITAL OUT-
OPTICAL or COAXIAL

12

Remove protective
cap before
connecting.

S-VIDEO OUT

VIDEO OUT

AUDIO OUT
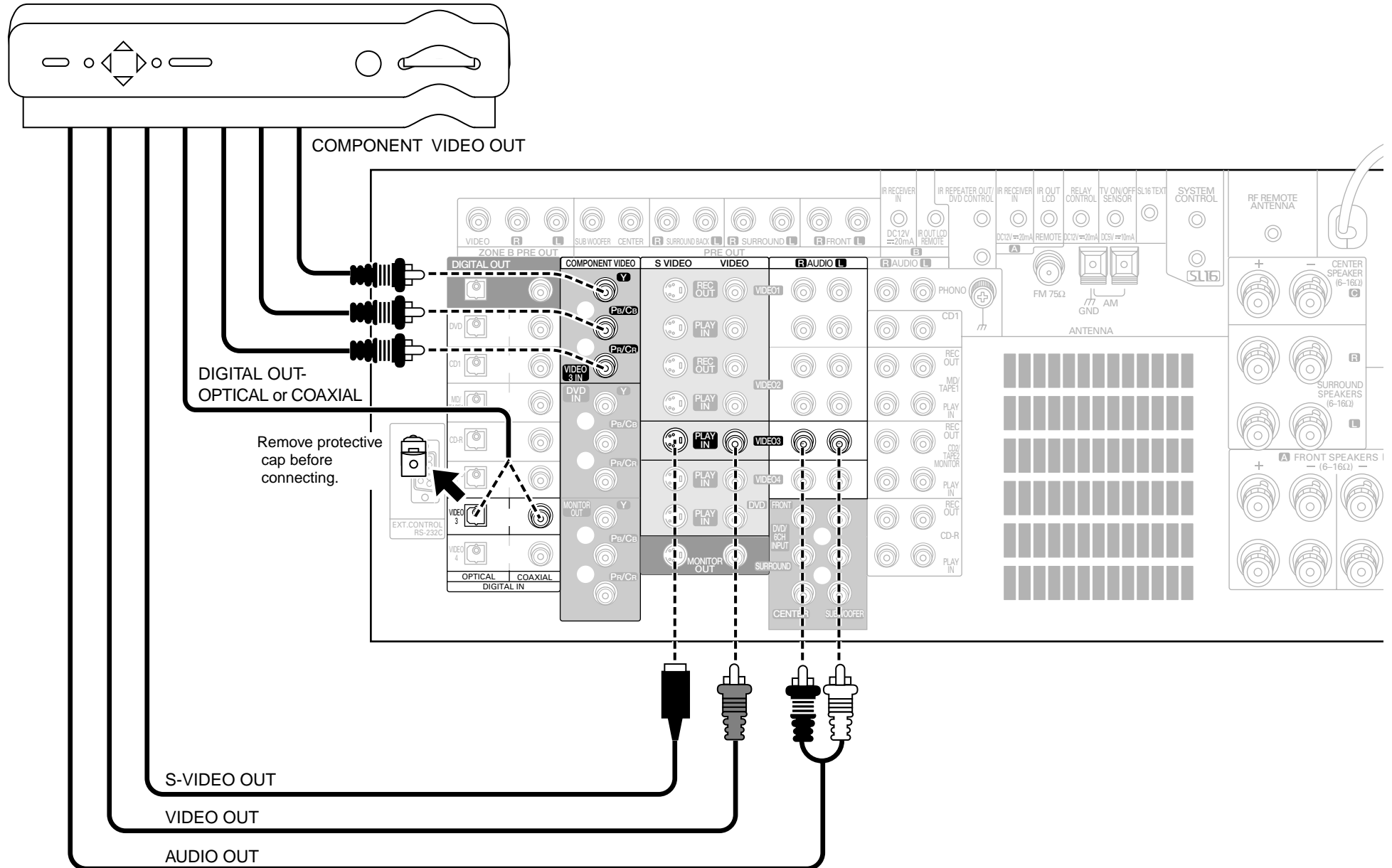
Connecting Your Cable TV or Satellite Tuner, continued

NOTES

Do not plug in the receiver or devices to AC power until you have connected all your devices.

This section focuses on the connections from your cable or satellite tuner to the VR-5900. Please refer to your tuner's instructions for more detail about its connection jacks and capabilities.

The instructions in this section show one of several possible variations on connecting your tuner. For further assistance on optional configurations, contact your cable or satellite provider.

To Connect a Cable TV Tuner with a Composite (RCA) Video Output:

1. Review the information under "Before You Begin" on page 1. It contains important notes about the types of video connections you can make.

2. Connect the audio and video cables from the cable tuner's Audio and Video OUT jacks to the receiver's **VIDEO2**, **VIDEO3**, or **VIDEO4 PLAY IN** jacks as shown to the left.

   When component video cables are connected, the audio and video cables of the cable TV tuner should be connected to the **VIDEO3** jacks of the receiver.

3. Go to "Noting Your Devices" on page 3 and note which jack you used to connect your tuner. In addition, note the brand name and model number of the tuner.

To Connect a Cable TV Tuner without a Composite (RCA) Video Output:

1. Connect the audio cables from the cable tuner's Audio OUT jacks to the receiver's **VIDEO2**, **VIDEO3**, or **VIDEO4 PLAY IN** jacks as shown to the left.

2. Leave the cable tuner's video out (RF jack) connected directly to your VCR or TV (wherever you already have it connected).

3. Go to "Noting Your Devices" on page 3 and note which jack you used to connect your tuner. In addition, note the brand name and model number of the tuner.

To Connect a Satellite Tuner:

1. Review the information under "Before You Begin" on page 1. It contains important notes about the types of video connections you can make.

2. If your satellite tuner has a digital output jack, connect a digital (optical or coaxial) cable between the satellite tuner's digital output jack and the receiver's **VIDEO2**, **VIDEO3** or **VIDEO4** digital input jack as shown in the figure on the left.

   The illustration shows two digital connections, one for coaxial connection and one for optical connection. Your Satellite tuner supports one or the other of these connection methods—**do not** connect both.

3. Connect the audio and video cables from the satellite tuner's Audio and Video OUT jacks to the receiver's **VIDEO2**, **VIDEO3**, or **VIDEO4 PLAY IN** jacks as shown to the left.

   Note that the jack sets are linked, even though they are not adjacent. You **must** connect all of the cables from your satellite receiver to a linked jack set. For example, if you connect the analog cables to **VIDEO2** and the digital optical cable to **VIDEO3**, your receiver will not work correctly.

   When component video cables are connected, the audio and video cables of the cable TV tuner should be connected to the **VIDEO3** jacks of the receiver.

4. Go to "Noting Your Devices" on page 3 and note which jack you used to connect your tuner. In addition, note the brand name and model number of the tuner.

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NOTES

To play Dolby Digital or DTS-encoded software in multi-channel configuration, you must connect the source device via a digital connection.

Connecting Your VCR(s)
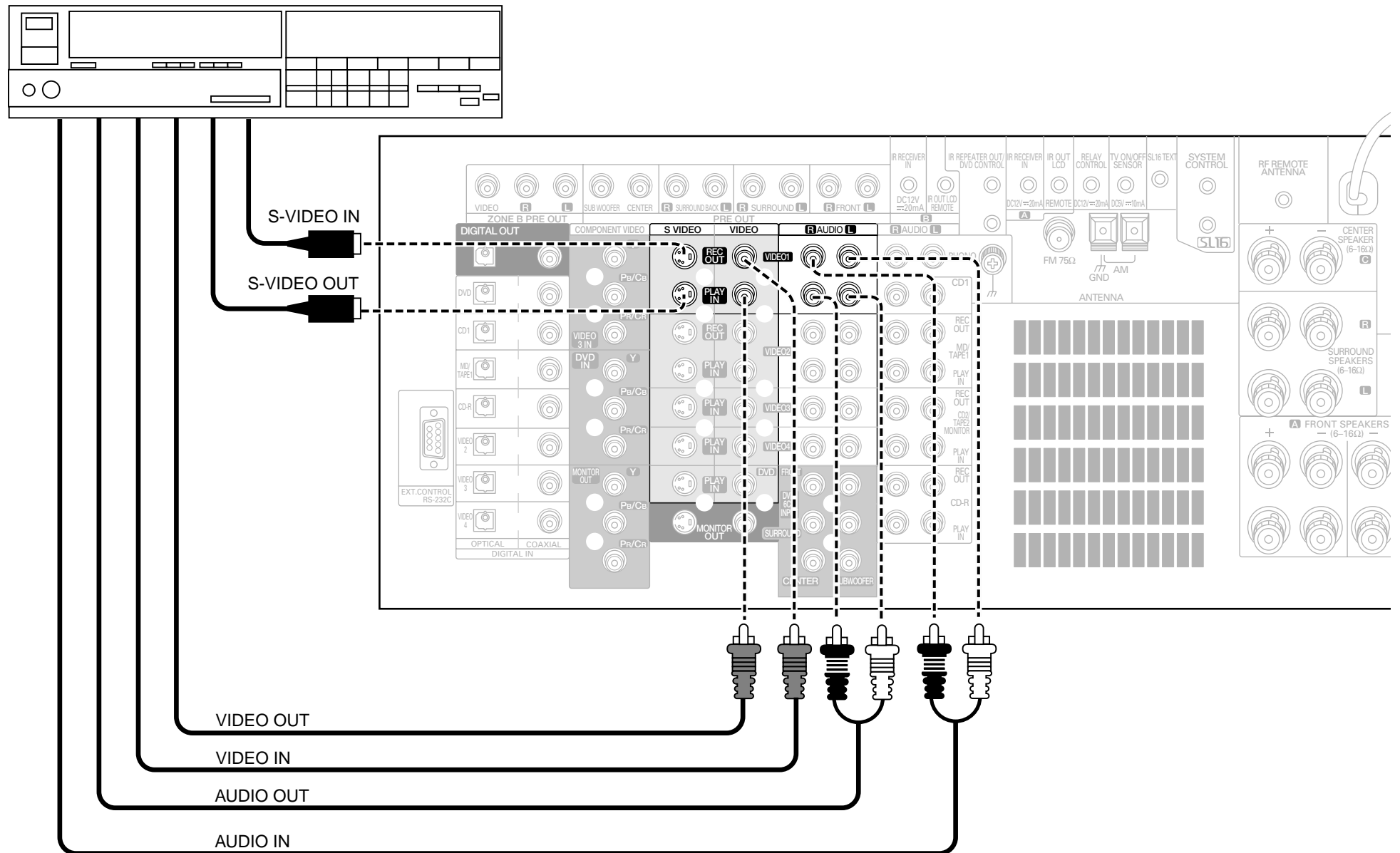
S-VIDEO IN

S-VIDEO OUT

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VIDEO OUT

VIDEO IN

AUDIO OUT

AUDIO IN

Connecting Your VCR(s), continued

NOTES

Do not plug in the receiver to AC power until you have connected all your devices.

This section focuses on the connections from your VCR to the VR-5900. Please refer to your VCR's instructions for more detail about its connection jacks and capabilities.

The instructions in this section show one of several possible variations on connecting your VCR. For further assistance on optional configurations, contact the store where you purchased your receiver.
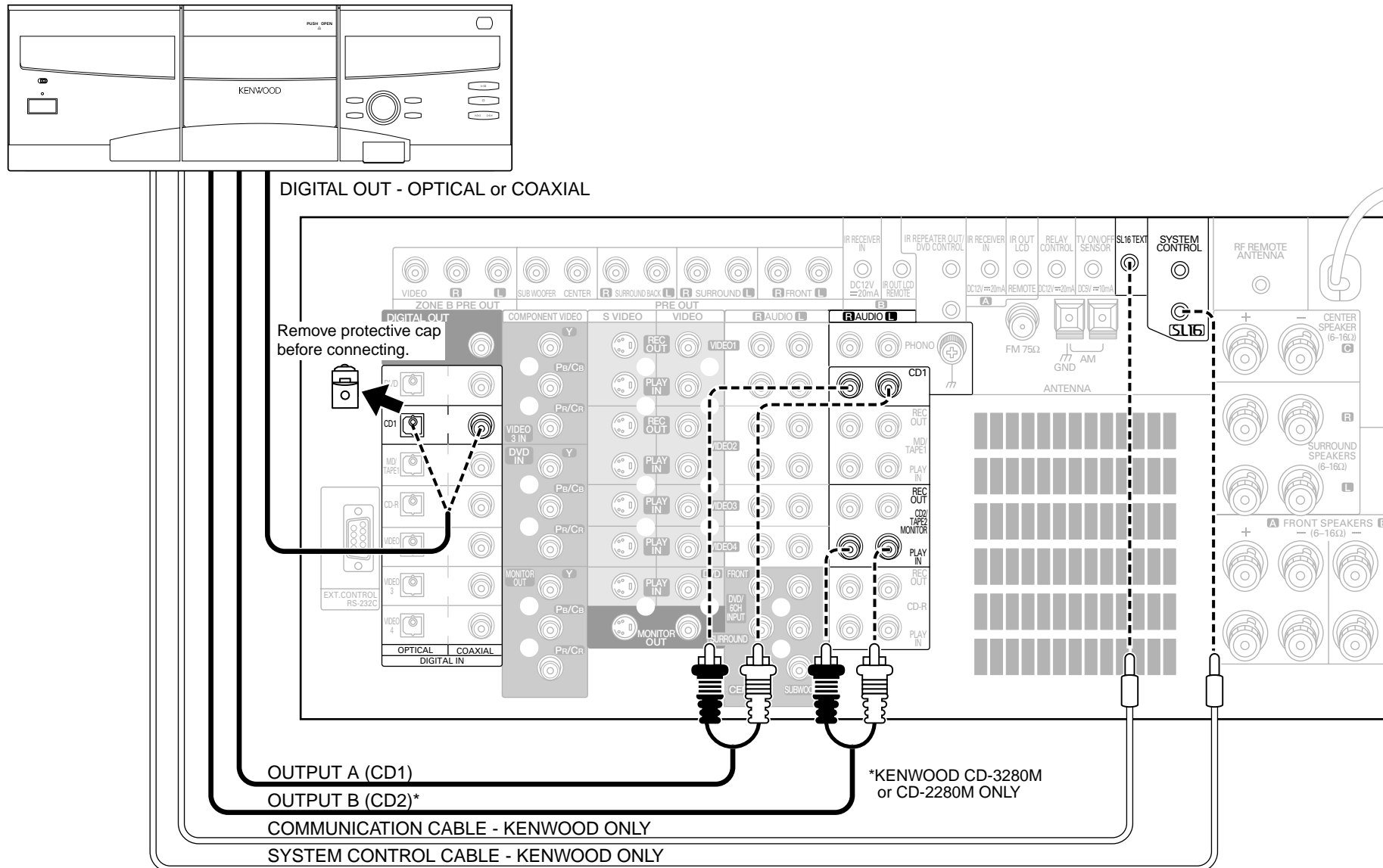
To Connect a Primary VCR:

1. Review the information under "Before You Begin" on page 1. It contains important notes about the types of video connections you can make.

2. Connect the audio and video cables from the VCR's Audio and Video jacks to the receiver's **VIDEO1 REC OUT** and **PLAY IN** jacks as shown to the left.

3. Be sure to connect the VCR VIDEO IN cable to the jack labeled REC OUT and the VIDEO OUT cable to the jack labeled PLAY IN.

4. Go to "Noting Your Devices" on page 3 and note which jack you used to connect your VCR. In addition, note the brand name and model number of the VCR.

To Connect a Secondary VCR:

1. Review the information under "Before You Begin" on page 1. It contains important notes about the types of video connections you can make.

2. Connect the audio and video cables from the VCR's Audio and Video jacks to the receiver's **VIDEO2** jacks.

3. Go to "Noting Your Devices" on page 3 and note which jack you used to connect your VCR. In addition, note the brand name and model number of the VCR.

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Connecting Your Primary CD Player

DIGITAL OUT - OPTICAL or COAXIAL

Remove protective cap
before connecting.

16

OUTPUT A (CD1)

OUTPUT B (CD2)*

COMMUNICATION CABLE - KENWOOD ONLY

SYSTEM CONTROL CABLE - KENWOOD ONLY

*KENWOOD CD-3280M
or CD-2280M ONLY

Connecting Your Primary CD Player, continued

NOTES

Do not plug in the receiver to AC power until you have connected all your devices.

This section focuses on the connections from your 200-Disc CD Changer to the VR-5900. Please refer to your changer's instructions for more detail about its connection jacks and capabilities.

Each set of instructions in this section shows one of several possible variations on connecting your CD player(s). For further assistance on optional configurations, contact the store where you purchased your CD player(s).

The illustration shows a Kenwood 200-Disc CD Changer. Your CD player may look different.

The Kenwood CD-3280M and CD-2280M 200-Disc Changers contain two CD transports. You must connect these devices as though they were two CD players.

What if I Have a Video CD-Compatible CD Player?

Connect the audio and video cables from the CD player to any unused Video jack set.

Do not connect the system control cable in this instance.

To Connect a Kenwood 200-Disc CD Changer:

1. Connect one set of audio cables from the 200-Disc Changer to the receiver's **CD1** jacks. If you have a CD-3280M or CD-2280M, connect Output A to the receiver's **CD1** jacks and Output B to the receiver's **CD2/ TAPE2 MONITOR PLAY IN** jacks as shown to the left.

2. Connect the digital cable from the changer to the receiver's **CD1** digital jack as shown to the left.

    The illustration shows two digital connections, one for coaxial connection and one for optical connection. Your CD player supports one or the other of these connection methods—**do not** connect both.

3. Connect the system control cable from the changer to the **SYSTEM CONTROL** jack as shown to the left.

    Be sure that the SL16/XS8 switch on the changer is set to SL16.

    If you are connecting more than one Kenwood device with a system control cable, see "What if I Have Several Kenwood Devices (System Control Chaining)?" on page 32 for more information.

4. Connect the SL16 text cable (communication cable) from the changer to the receiver's **SL16 TEXT** jack as shown to the left.

5. Go to "Noting Your Devices" on page 3 and note which jacks you used to connect your CD changer. In addition, note the brand name and model number of the CD Changer.

To Connect Any Other Primary CD Player or Changer:

1. Connect the audio cables from the CD player's audio jacks to the receiver's **CD1** jack set as shown to the left.

2. Connect the digital cable from the CD player's digital jack to the receiver's **CD1** digital jack as shown to the left.

    The illustration shows two digital connections, one for coaxial connection and one for optical connection. Your CD player supports one or the other of these connection methods—**do not** connect both.

3. If you are connecting a Kenwood CD Player with system control, connect the system control cable from the CD player to the **SYSTEM CONTROL** jack as shown to the left.

    Be sure that the SL16/XS8 switch on the player/changer is set to SL16.

    If you are connecting more than one Kenwood device with a system control cable, see "What if I Have Several Kenwood Devices (System Control Chaining)?" on page 32 for more information.

4. Go to "Noting Your Devices" on page 3 and note which jacks you used to connect your CD player/changer. In addition, note the brand name and model number of the CD player or changer.
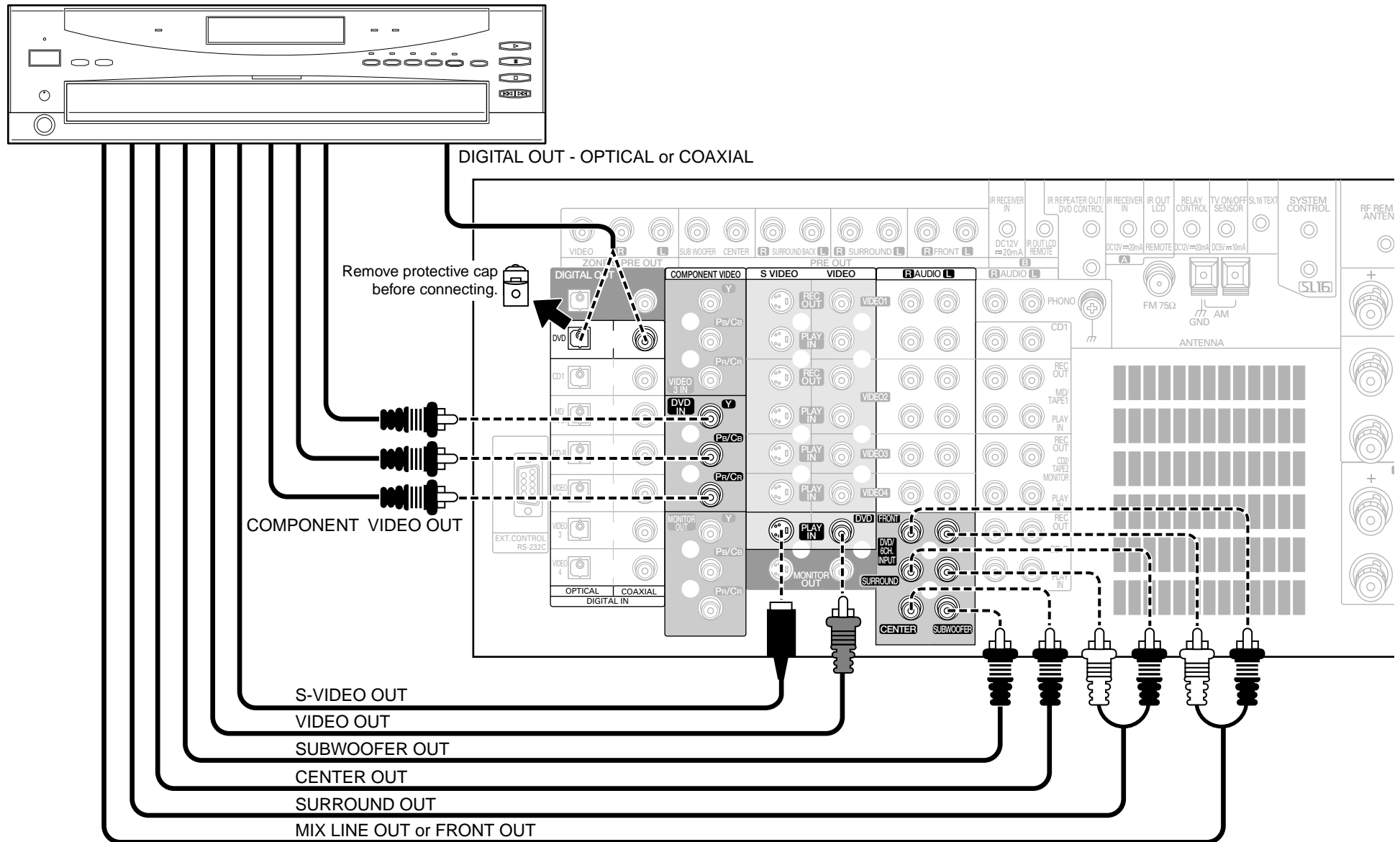
To Connect a Secondary CD Player:

See "Connecting Your Secondary CD Player or Tape Deck" on page 24.

Do not connect the system control cable in this instance.

NOTES

To play an HDCD disc in the HDCD format or a DTS-encoded disc in multi-channel configuration, you must connect the source device via a digital connection.

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Connecting Your DVD Player

DIGITAL OUT - OPTICAL or COAXIAL

Remove protective cap before connecting.

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COMPONENT VIDEO OUT

S-VIDEO OUT

VIDEO OUT

SUBWOOFER OUT

CENTER OUT

SURROUND OUT

MIX LINE OUT or FRONT OUT

Connecting Your DVD Player, continued

NOTES

Do not plug in the receiver to AC power until you have connected all your devices.

This section focuses on the connections from your DVD player to the VR-5900. Please refer to your DVD player's instructions for more detail about its connection jacks and capabilities.

The instructions in this section show one of several possible variations on connecting your DVD player. For further assistance on optional configurations, contact the store where you purchased your receiver.

To Connect a DVD Player:

1. Review the information under "Before You Begin" on page 1. It contains important notes about the types of video connections you can make.

2. Connect the video cables from the DVD's Video jacks to the receiver's **DVD PLAY IN** jacks as shown to the left.

   If your DVD and TV have the COMPONENT VIDEO jacks, you can also connect them as shown on the left.

3. Connect the audio cables from the DVD's audio jacks (AUDIO OUT, FRONT or MIX LINE OUT) to the receiver's **FRONT** jacks of **DVD/6CH. INPUT**.

   When the DVD player provides the DVD 6ch (DVD 5.1 ch) outputs, connect them to the **FRONT**, **SURROUND**, **CENTER** and **SUBWOOFER** input jacks. (optional)

4. Connect the digital cable (either optical or coaxial) from the DVD's digital jack to the appropriate digital jack on the receiver as shown to the left.

   The illustration shows two digital connections, one for coaxial connection and one for optical connection. Your DVD player supports one or the other of these connection methods—**do not** connect both.

5. Go to "Noting Your Devices" on page 3 and note which jacks you used to connect your DVD player. In addition, note the brand name and model number of the DVD player.

NOTES

To play Dolby Digital or DTS-encoded software in multichannel configuration, you must connect the source device via a digital connection.
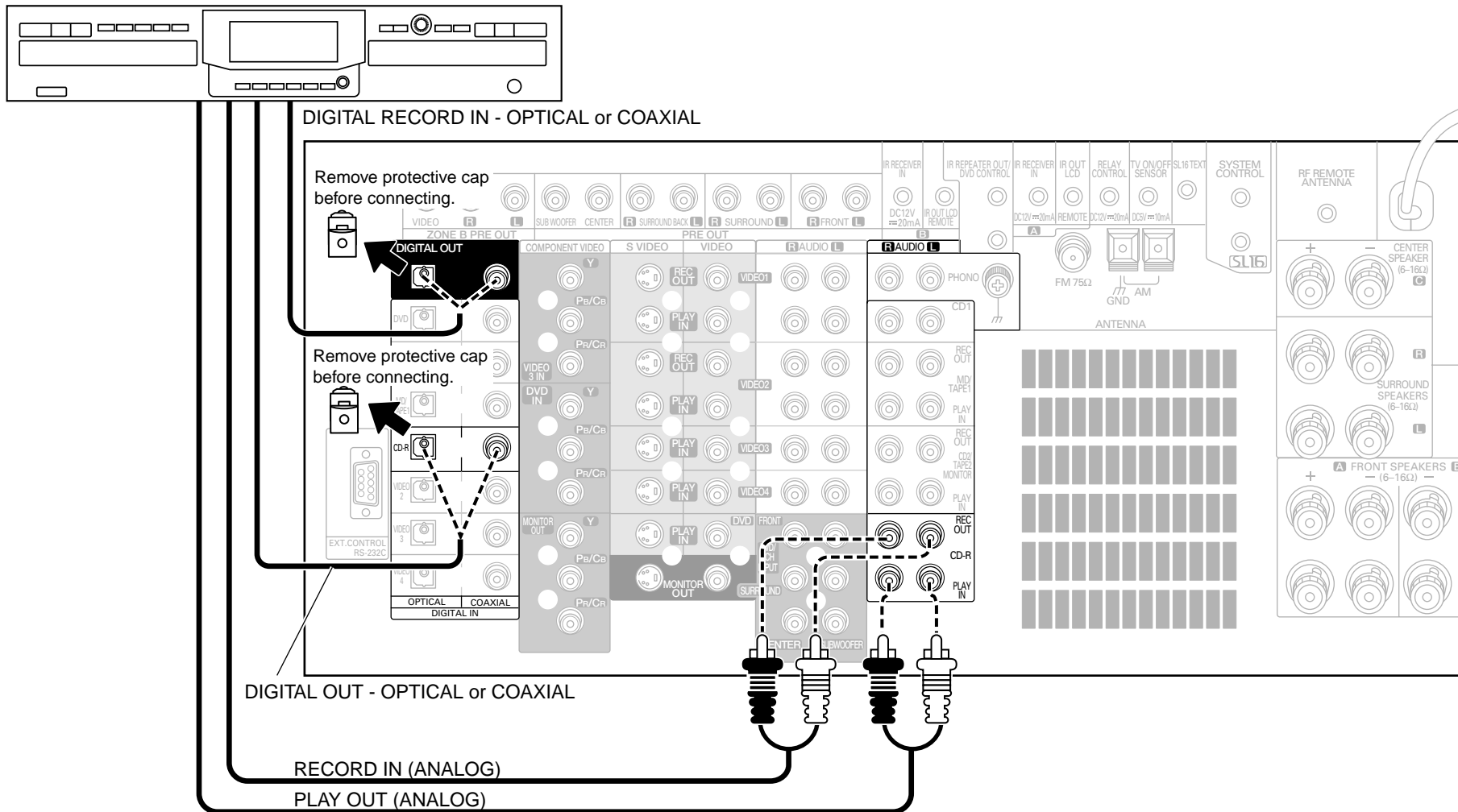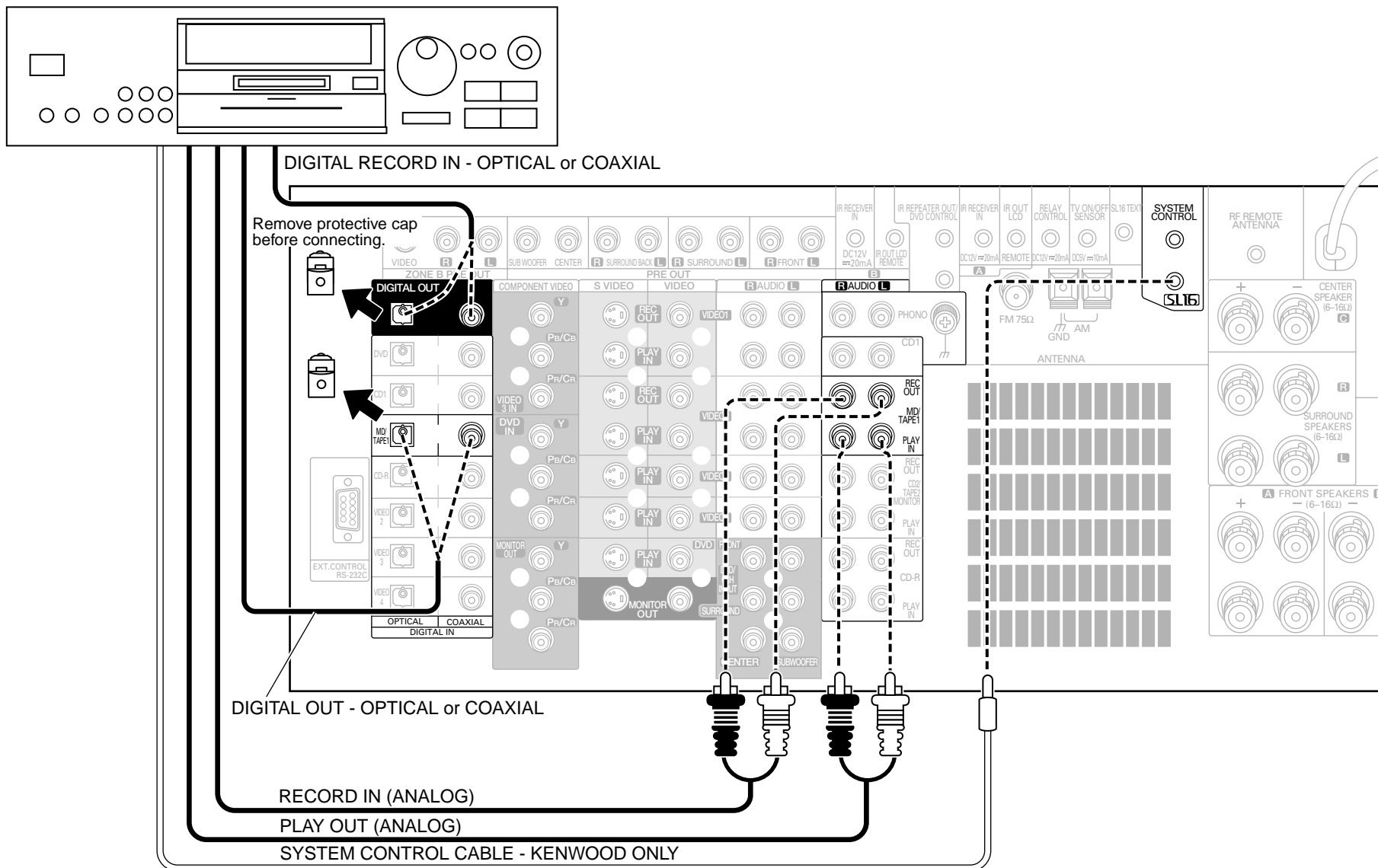
The digital inputs of the VR-5900 are not compatible with a stereo signal with 192 kHz sampling frequency or a multichannel signal with 96 kHz sampling frequency. These signals should be input to the analog **DVD/6CH.** input jacks.

19

DTS disclaimer clause

DTS Digital Surround™ is a discrete 5.1 channel digital audio format available on CD, LD, and DVD software which consequently cannot be decoded and played back inside most CD, LD, or DVD players. For this reason, when DTS-encoded software is played back through the analog outputs of the CD, LD, or DVD player, excessive noise will be exhibited. To avoid possible damage to the audio system, proper precautions should taken by the consumer if the analog outputs are connected directly to an amplification system. To enjoy DTS Digital Surround™ playback, an external 5.1 channel DTS Digital Surround™ decoder system must be connected to the digital output (S/PDIF, AES/EBU, or TosLink) of the CD, LD or DVD player.

This unit is equipped with DTS Digital Surround™ decoder.

Connecting Your CD-R Recorder

DIGITAL RECORD IN - OPTICAL or COAXIAL

Remove protective cap
before connecting.

Remove protective cap
before connecting.

DIGITAL OUT - OPTICAL or COAXIAL

RECORD IN (ANALOG)

PLAY OUT (ANALOG)

20

Connecting Your CD-R Recorder, continued

NOTES

Do not plug in the receiver to AC power until you have connected all your devices.

This section focuses on the connections from your CD-R recorder to the VR-5900. Please refer to your CD-R recorder instructions for more detail about its connection jacks and capabilities.

Each set of instructions in this section shows one of several possible variations on connecting your CD-R recorder. For further assistance on optional configurations, contact the store where you purchased your CD-R recorder.

### To Connect a CD-R Recorder:

1. Connect the audio cable from the CD-R recorder's Play OUT jacks to the receiver's **CD-R PLAY IN** jacks as shown to the left.

2. Connect the audio cable from the CD-R recorder's Rec IN jacks to the receiver's **CD-R REC OUT** jacks, as shown to the left.

3. Connect the digital cable (either optical or coaxial) from the CD-R's digital jack to the appropriate digital jack on the receiver as shown to the left.

   The illustration shows two digital connections, one for coaxial connection and one for optical connection. Your CD-R recorder supports one or the other of these connection methods—**do not** connect both.

   You only need to connect to the digital output jack if you will be recording from sources that are connected to a digital input jack, such as a CD or DVD player.

4. Go to "Noting Your Devices" on page 3 and note which jacks you used to connect your CD-R recorder. In addition, note the brand name and model number of the CD-R recorder.

21

Connecting Your MD Recorder or Primary Tape Deck

DIGITAL RECORD IN - OPTICAL or COAXIAL

Remove protective cap
before connecting.

DIGITAL OUT - OPTICAL or COAXIAL

RECORD IN (ANALOG)

PLAY OUT (ANALOG)

SYSTEM CONTROL CABLE - KENWOOD ONLY

22

Connecting Your MD Recorder or Primary Tape Deck, continued

♪NOTES♪

Do not plug in the receiver to AC power until you have connected all your devices.

This section focuses on the connections from your MD recorder or tape deck to the VR-5900. Please refer to your MD recorder or tape deck's instructions for more detail about its connection jacks and capabilities.

Each set of instructions in this section shows one of several possible variations on connecting your MD recorder or tape deck. For further assistance on optional configurations, contact the store where you purchased your MD recorder or tape deck.

To Connect an MD Recorder:

1. Connect the audio cable from the MD recorder's Play OUT jacks to the receiver's **MD/TAPE1 PLAY IN** jacks as shown to the left.

2. Connect the audio cable from the MD recorder's Rec IN jacks to the receiver's **MD/TAPE1 REC OUT** jacks, as shown to the left.

3. Connect the digital cable (either optical or coaxial) from the MD's digital jack to the appropriate digital jack on the receiver as shown to the left.

   The illustration shows two digital connections, one for coaxial connection and one for optical connection. Your MD recorder supports one or the other of these connection methods—**do not** connect both.

   You only need to connect to the digital output jack if you will be recording from sources that are connected to a digital input jack, such as a CD or DVD player.

4. If you are connecting a Kenwood MD recorder, connect the system control cable from the MD recorder to the receiver.

   If you are connecting more than one Kenwood device with a system control cable, see "What if I Have Several Kenwood Devices (System Control Chaining)?" on page 32.

5. Go to "Noting Your Devices" on page 3 and note which jacks you used to connect your MD recorder. In addition, note the brand name and model number of the MD recorder.

To Connect a Primary Tape Deck:

1. Connect the audio cable from the tape deck's Play OUT jacks to the receiver's **MD/TAPE1 PLAY IN** jacks as shown to the left.

2. Connect the audio cable from the tape deck's Rec IN jacks to the receiver's **MD/TAPE1 REC OUT** jacks as shown to the left.

3. If you are connecting a Kenwood tape deck with system control, connect the system control cable from the tape deck to the receiver. Be sure that the SL16/XS8 switch on the tape deck is set to SL16.

   If you are connecting more than one Kenwood device with a system control cable, see "What if I Have Several Kenwood Devices (System Control Chaining)?" on page 32.

4. Go to "Noting Your Devices" on page 3 and note which jacks you used to connect your tape deck. In addition, note the brand name and model number of the tape deck.

To Connect a Secondary Tape Deck:

See "Connecting Your Secondary CD Player or Tape Deck" on page 24.

23

Connecting Your Secondary CD Player or Tape Deck

TAPE RECORD IN

CD OUTPUT OR TAPE PLAY OUT
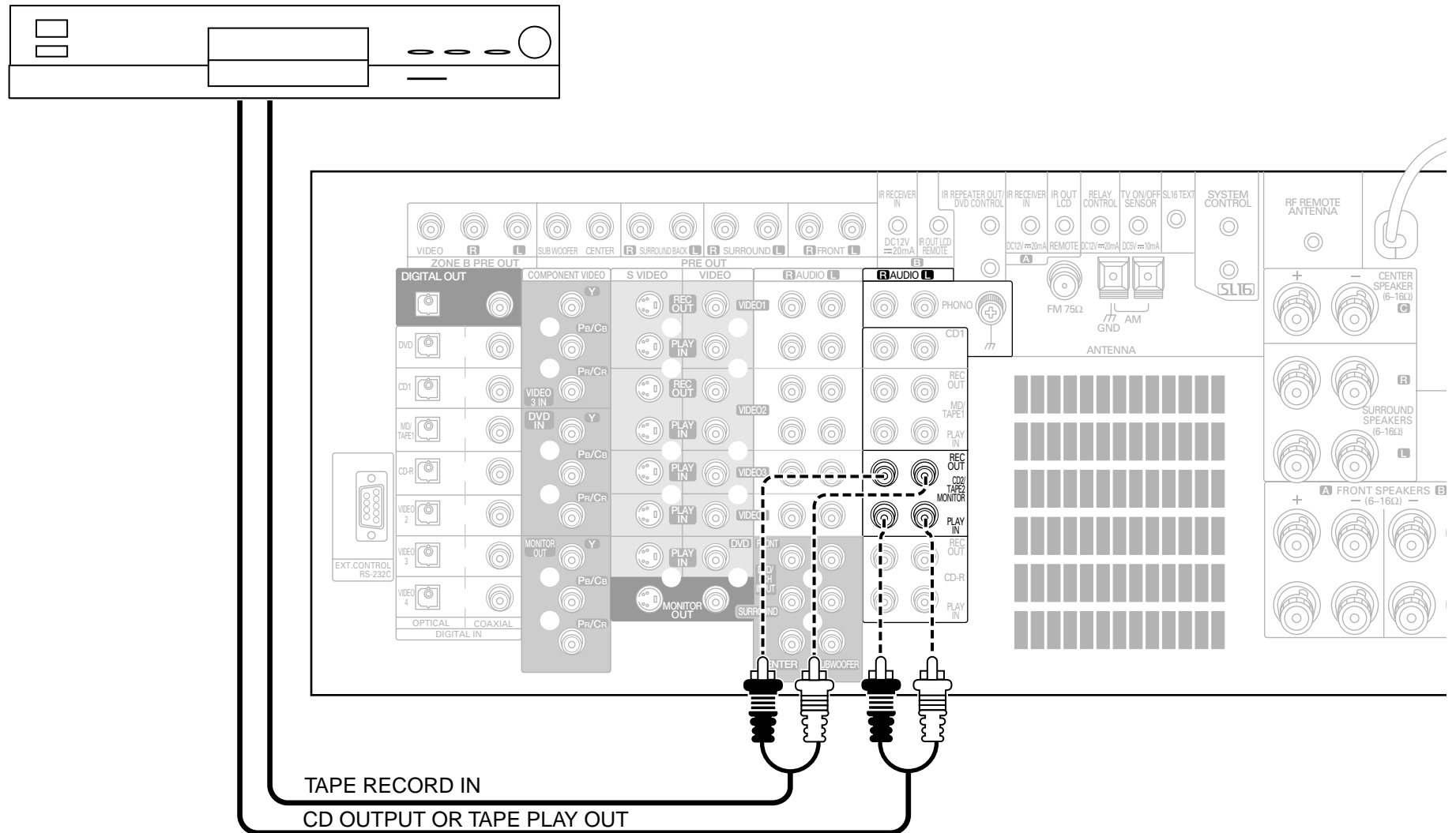
Connecting Your Secondary CD Player or Tape Deck, continued

NOTES

Do not plug in the receiver to AC power until you have connected all your devices.

This section focuses on the connections from your CD player or tape deck to the VR-5900. Please refer to your CD player or tape deck's instructions for more detail about its connection jacks and capabilities.

Each set of instructions in this section shows one of several possible variations on connecting your CD player or tape deck. For further assistance on optional configurations, contact the store where you purchased your CD player or tape deck.

Do not connect a system control cable from any unit connected via the **CD2/TAPE2 MONITOR** jacks.

To Connect a Secondary CD Player:

1. Connect the audio cables from the CD player's audio jacks to the receiver's **CD2/TAPE2 MONITOR PLAY IN** jack set as shown to the left.

    Do not connect the system control cable from the second CD player, even if it supports system control.

2. Go to "Noting Your Devices" on page 3 and note which jacks you used to connect your CD player. In addition, note the brand name and model number of the CD player.

If you connect a second tape deck, you cannot connect a second CD player.

To Connect a Secondary Tape Deck:

1. Connect the audio cable from the tape deck's Play OUT jacks to the receiver's **CD2/TAPE2 MONITOR PLAY IN** jacks.

2. Connect the audio cable from the tape deck's Rec IN jacks to the receiver's **CD2/TAPE2 MONITOR REC OUT** jacks.

    Do not connect the system control cable from the second tape deck, even if it supports system control.

3. Go to "Noting Your Devices" on page 3 and note which jacks you used to connect your tape deck. In addition, note the brand name and model number of the tape deck.

If you connect a second CD player, you cannot connect a second tape deck.

25

Connecting Your Laser Disc Player (with AC-3 RF Output)

26

AC-3
RF OUT

DIGITAL
OUT
OPTICAL
or COAXIAL

Remove protective cap
before inserting

RF DEMODULATOR

DIGITAL OUT

S- VIDEO OUT

VIDEO OUT

AUDIO OUT
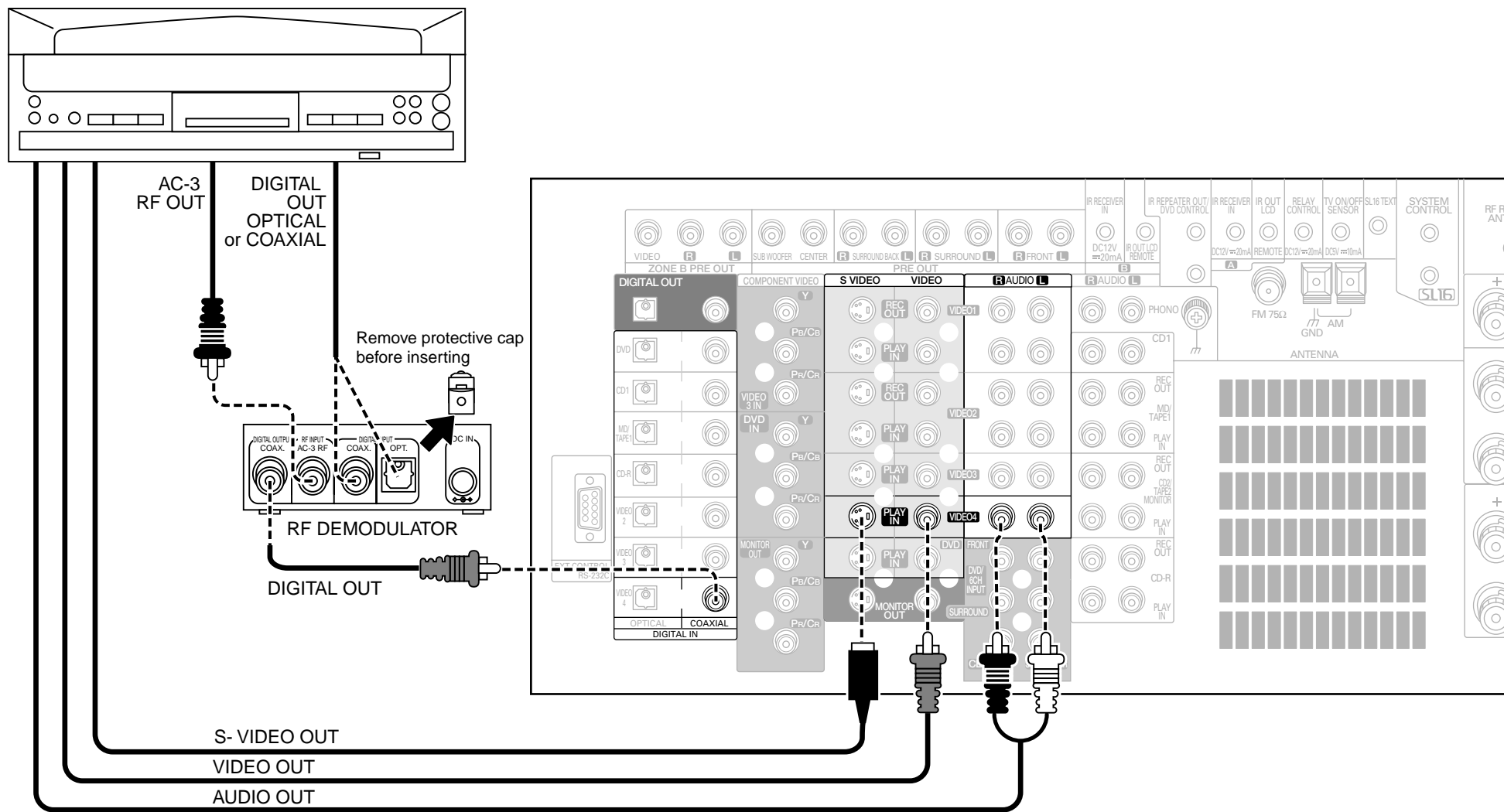
Connecting Your Laser Disc Player (with AC-3 RF Output), continued

NOTES

Do not plug in the receiver to AC power until you have connected all your devices.

You must purchase an RF Demodulator (such as the Kenwood DEM-9991D available from one of our parts distributors) if you plan to operate a player with a Dolby Digital (AC-3) RF output with this receiver.

These instructions describe how to connect a laser disc player with an AC-3 RF output. If your laser disc player does not have an AC-3 RF output, see "Connecting Your Laser Disc Player (without AC-3 RF Output)" on page 28. Please refer to your laser disc player's instructions for more detail about its connection jacks and capabilities.

The instructions in this section show one of several possible variations on connecting your laser disc player. For further assistance on optional configurations, contact the store where you purchased your receiver.

To Connect an AC-3 RF Output Laser Disc Player:

1. Review the information under "Before You Begin" on page 1. It contains important notes about the types of video connections you can make.

2. Connect the audio cables from the laser disc player's Audio OUT jacks to the receiver's **AUDIO** jacks (**VIDEO 4 PLAY IN**) as shown to the left.

   Do not connect the digital cable (optical or coaxial) yet; it must be connected via the demodulator as described in the following steps.

3. Connect the AC-3 RF coaxial cable from the laser disc player's AC-3 RF OUT jack to the demodulator's **RF IN-PUT AC-3 RF** jack as shown to the left.

4. Connect the digital cable (either optical or coaxial) from the laser disc player's digital jack to the appropriate **DIGITAL INPUT** jack on the demodulator as shown to the left.

5. Connect the digital cable from the demodulator's **DIGITAL OUTPUT** jack to one of the receiver's **VIDEO4** digital input jacks.

6. Go to "Noting Your Devices" on page 3 and note which jacks you used to connect your laser disc player. In addition, note the brand name and model number of the laser disc player.

NOTES

To play Dolby Digital* or DTS-encoded software in multi-channel configuration, you must connect the source device via a digital connection.

*When playing a LaserDisc recorded in the Dolby Digital format, connect the AC-3 RF output to the receiver.

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Connecting Your Laser Disc Player (without AC-3 RF Output)

28

DIGITAL OUT OPTICAL or COAXIAL

Remove protective cap
before inserting

S- VIDEO OUT

VIDEO OUT

AUDIO OUT
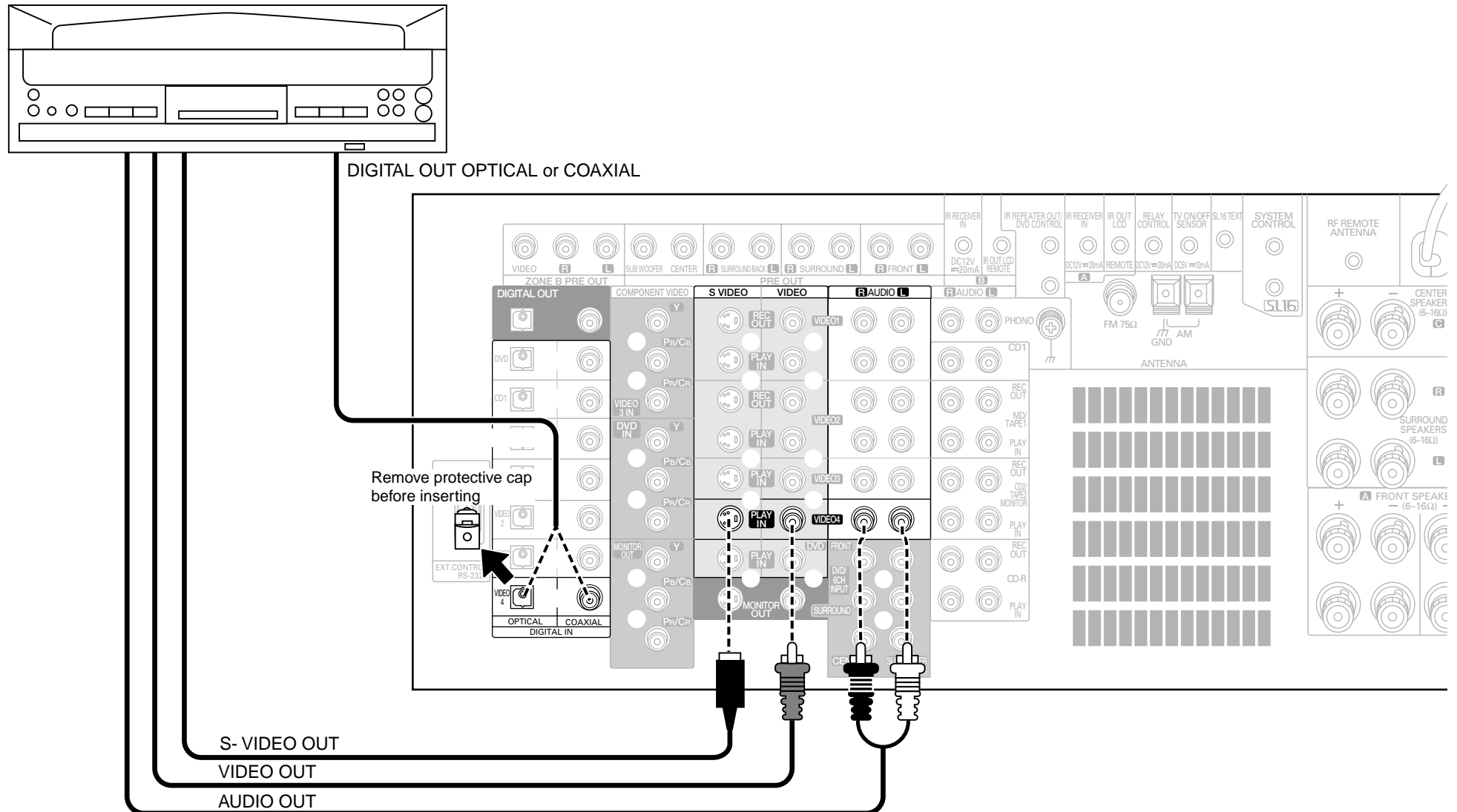
Connecting Your Laser Disc Player (without AC-3 RF Output), continued

NOTES

Do not plug in the receiver to AC power until you have connected all your devices.

These instructions describe how to connect a laser disc player with a PCM Digital output. If your player has a Dolby Digital (AC-3) RF out, see "Connecting Your Laser Disc Player (with AC-3 RF Output)" on page 26. This configuration does not allow Dolby Digital laser discs to be played. Please refer to your laser disc player's instructions for more detail about its connection jacks and capabilities.

The instructions in this section show one of several possible variations on connecting your laser disc player. For further assistance on optional configurations, contact the store where you purchased your receiver.

To Connect a PCM Digital Output Laser Disc Player:

1. Review the information under "Before You Begin" on page 1. It contains important notes about the types of video connections you can make.

2. Connect the audio cables from the laser disc player's Audio OUT jacks to the receiver's **AUDIO** jacks (**VIDEO 4 PLAY IN**) as shown to the left.

3. Connect the video cable from the laser disc player's Video OUT jack to the receiver's **VIDEO PLAY IN** jack as shown to the left.

   Note that the jack sets are linked, even though they are not adjacent. You **must** connect all of the cables from your laser disc player to a linked jack set. If you connect the analog cables to **VIDEO3** and the digital optical cable to **VIDEO4**, your receiver will not work correctly.

4. Connect the digital cable (either optical or coaxial) from the laser disc player's digital jack to the appropriate digital jack on the receiver as shown to the left. Your laser disc player supports only one of the digital connection methods—**do not** connect both.

5. Go to "Noting Your Devices" on page 3 and note which jacks you used to connect your laser disc player. In addition, note the brand name and model number of the laser disc player.

NOTES

When playing DTS-encoded software in multichannel configuration, the connected audio signal should be the digital signal.

29

Connecting Your Turntable/Record Player
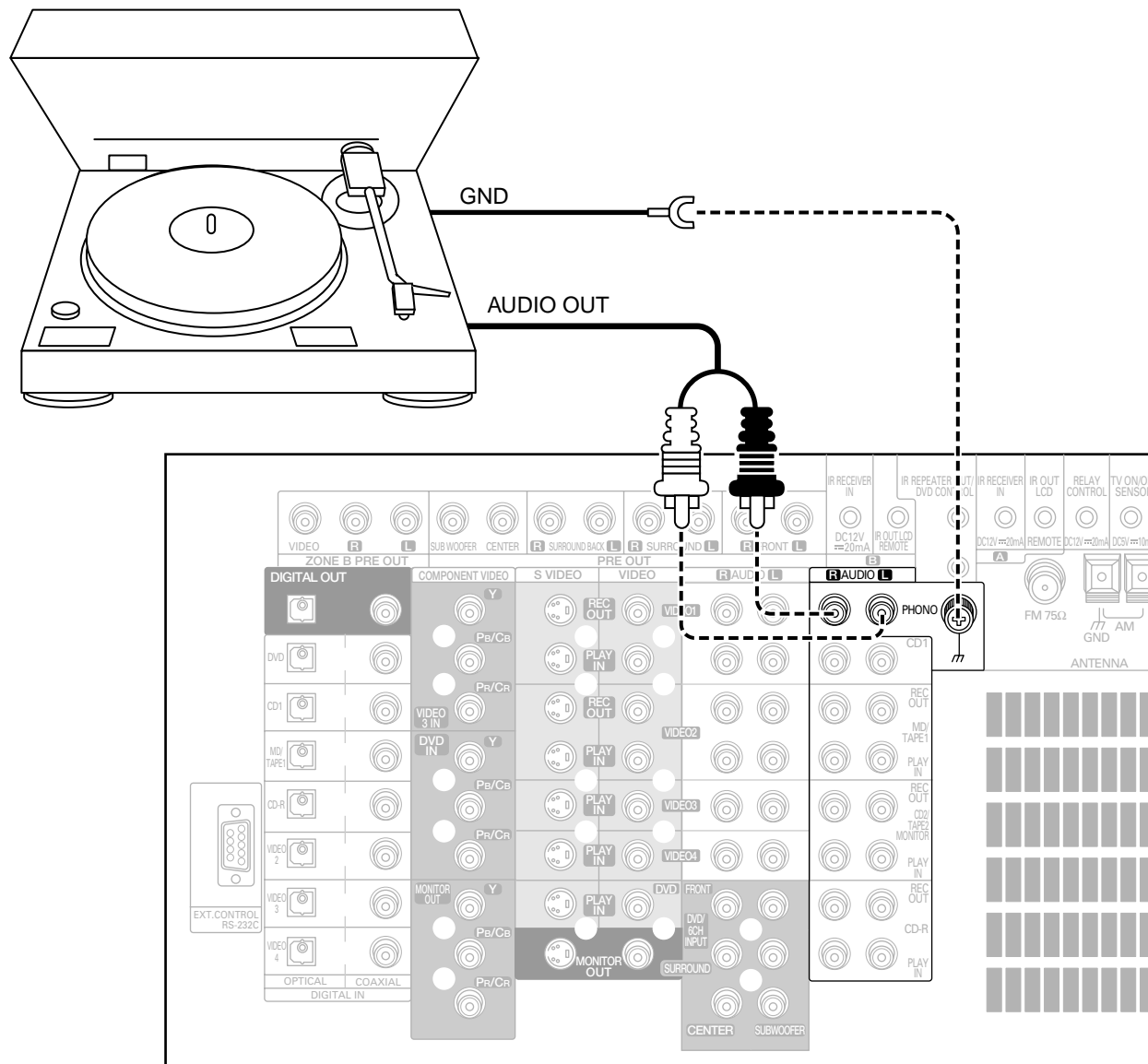
GND

AUDIO OUT

30

NOTES

Do not plug in the receiver to AC power until you have connected all your devices.

This section focuses on the connections from your turntable/record player to the VR-5900. Please refer to your turntable/record player's instructions for more detail about its connection jacks and capabilities.

To Connect a Turntable/Record Player:

1. Connect the audio cables from the turntable audio output jacks to the receiver's **PHONO R** and **L** jacks.
2. If your turntable includes a ground cable, connect the ground cable to the receiver's ⏚ (ground) jack.

Connecting a Camcorder or Additional VCR

This section focuses on the connections from your camcorder or VCR to the front of the VR-5900. Please refer to your camcorder or VCR's instructions for more detail about its connection jacks and capabilities.

These instructions describe how to connect a camcorder or VCR quickly and probably temporarily to the front of the receiver. If you want a less cluttered and more permanent connection, see "Can I Connect an Additional VCR Permanently?", below.

To Connect a Camcorder or Additional VCR:

Connect the audio and video cables from the camcorder or VCR's Audio and Video jacks to the receiver's front panel jacks as shown to the left.

Can I Connect an Additional VCR Permanently?

Yes. To do so, follow the instructions under "To Connect a Secondary VCR:" on page 15.

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CD2/TAPE2 MONITOR   CLIP INDICATOR

VOLUME CONTROL

DOOR OPEN/CLOSE

DOWN   UP

AV AUX

S VIDEO   VIDEO   L - AUDIO - R

(or additional VCR)

AUDIO OUT

VIDEO OUT

S-VIDEO OUT
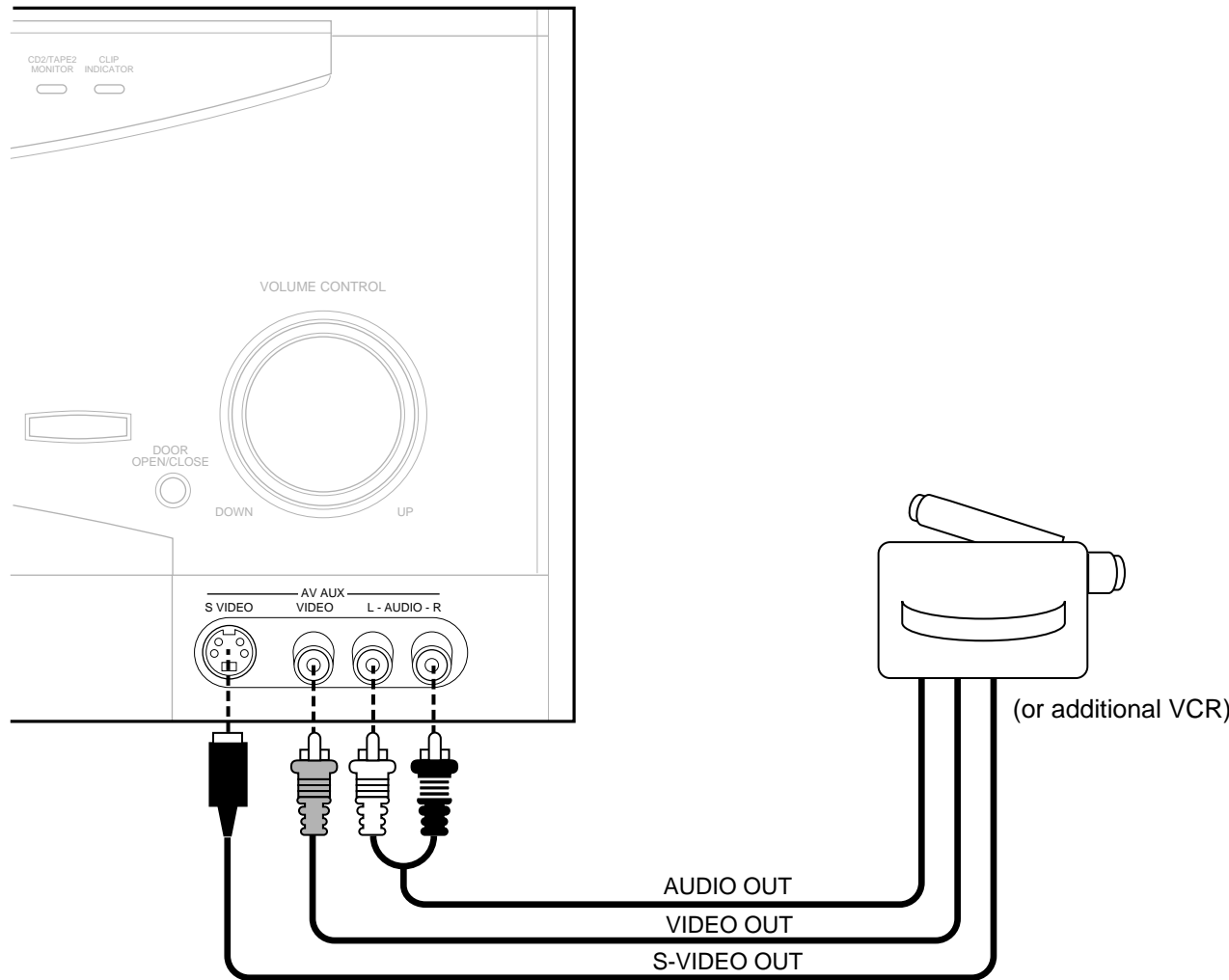
What if I Have Several Kenwood Devices (System Control Chaining)?

Connecting system control cords after connecting a Kenwood audio component system lets you take advantage of convenient system control operations.

This unit is compatible only with the [SL16] mode. The system control operation is not available if the unit is connected in the [XS8] connection mode.

If your component has a mode select switch, set the switch to the [SL16] mode.

- You can connect the system control cord to either system control jack of the unit.
- Do this operation after completing all connections. (Ensure that the power plug is not connected.)

32

SYSTEM CONTROL cord

Receiver

CD Player

MD Recorder or Tape Deck

Other [SL 16] compatible device
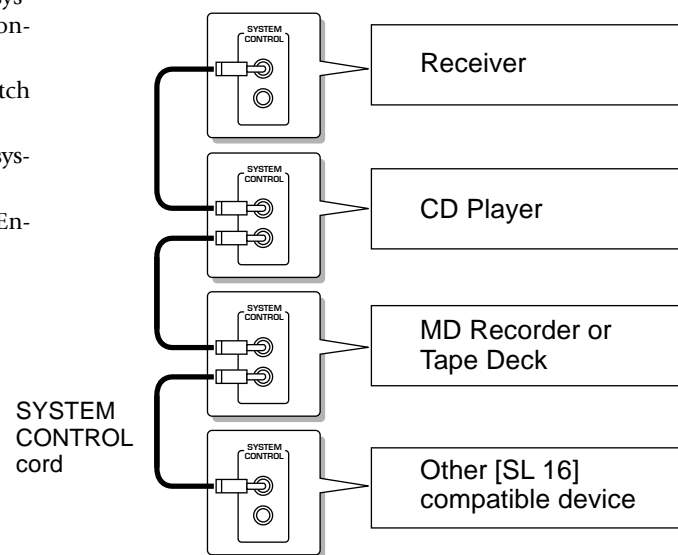
♪NOTES

Make sure the units are connected to the correct jacks on the receiver—for example, no device connected to the **CD2/ TAPE2 MONITOR** jacks can use a system control cable.

Some CD players and cassette decks do not support the SL16 system control mode. Do not include these devices in a set of chained connections.

Do not connect system control cables to any device not specified by Kenwood. Using a system control cable with a device that does not support them can damage the device.

Make sure system control plugs are firmly seated in the appropriate jacks.

System Control connection allows you to:

- control connected devices via PowerTouch III.
- See the current status of the selected source device, such as *Play* or *Stop* on PowerTouch III's screen.
- switch the receiver's input automatically to a connected device when you start playback from that device
- synchronize recording a CD automatically when you start playback from the connected CD player

Connecting the Antennas
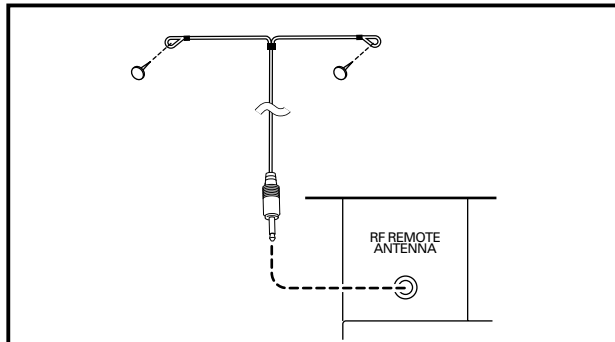
RF Remote Antenna

The PowerTouch III controller for the VR-5900 communicates with the receiver via RF transmission. To properly receive the RF remote signal, connect the provided RF Remote Antenna as described below.

1. Insert the jack of the provided RF Remote Antenna into the receiver's **RF REMOTE ANTENNA** jack.
2. Distribute the antenna wire horizontally and fix it.

Distribute the antenna away from the metallic panel.

FM Indoor Antenna

Your new receiver also comes with an FM indoor antenna for FM radio reception. To connect the FM antenna:

1. Attach the antenna sheath to the pole in the center of the receiver's FM antenna jack, as shown above. When you attach the sheath for the first time, you may need to exert quite a bit of pressure.
2. Adjust the antenna as necessary to improve reception.
3. Tack the looped end of the antenna in the location that provides the best reception.

FM Outdoor Antenna
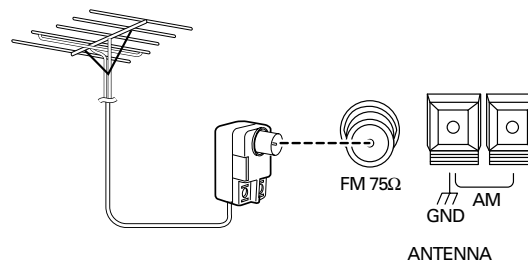
Kenwood recommends a permanently installed outdoor FM antenna for best FM reception. To connect an outdoor FM antenna:

1. Connect the antenna wire to a standard, commercially available antenna adapter as shown above.
2. Connect the adapter to the receiver's FM antenna jack.

AM Loop Antenna
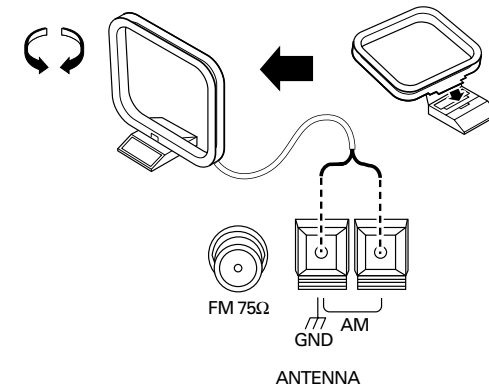
Your new receiver comes with an AM loop antenna for AM radio reception. To connect the AM antenna:

1. Insert the antenna loop into the base and position the loop.
2. Open the receiver's antenna terminal levers.
3. Insert the antenna's wires into the terminal as shown above.
4. Close the antenna terminal levers to lock the wires in place.
5. Adjust the antenna loop as necessary to improve reception.

NOTES

To prevent hum interference, keep the AM antenna wires away from speaker wires, AC power cords, the TV chassis, and the receiver.

What if I Have Cable Radio?

If you have cable radio, contact your cable provider for assistance with connecting to the VR-5900.

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Chapter Two: Setting Up PowerTouch III

Your new PowerTouch III controls your new receiver and can be set up to control most components attached to it. PowerTouch III appears and functions a little differently from traditional remotes. It incorporates sophisticated engineering and design to allow you to simply touch the screen to press buttons and operate controls. You can touch the screen with your finger or with the stylus stored at the top of PowerTouch III.

Because it can control so many different devices, it presents a separate set of controls for each device on an LCD screen. Touch an icon on the screen to access further menus or controls for devices.

Only devices previously identified and connected to the receiver will have controls appear on the display screen. If a device's control icons are "missing" on your display screen, make sure you have identified the device to PowerTouch III. This chapter describes identifying devices to PowerTouch III.

This chapter contains the following sections:

Installing the Batteries

Before you can set up any PowerTouch III item, you need to install batteries.

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- The batteries that came with your new PowerTouch III are intended for you to use for an operation check—they may not last as long as ordinary batteries. We recommend replacing them with alkaline batteries for normal use.

To install the batteries:

1. Press down and back on the battery cover to remove it.

2. Insert four C (LR14) batteries as shown:
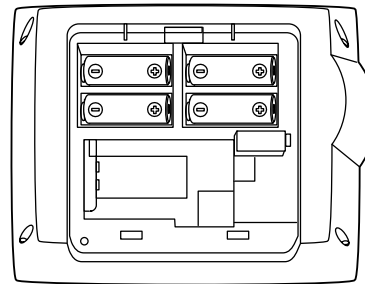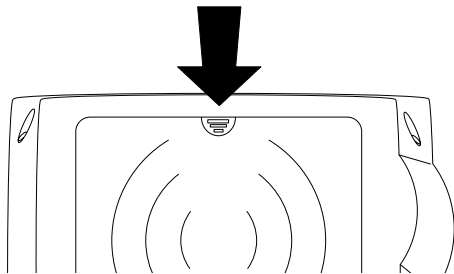
3. Close the cover.

If you use PowerTouch III outside of it's range (see "How is PowerTouch III Powered?" on page 5 of the *Users' Guide*) PowerTouch III's display may show incorrect information.

When your batteries begin to run low, PowerTouch III displays a Low Battery message. Clear the message by touching check mark icon (✔) and replace all batteries as described here.

Maximize the life of your batteries by turning the Backlight off if you are not trying to use PowerTouch III in the dark. For more information on the Backlight, see page 73 of the *Users' Guide*.

If you cannot see anything on the screen after replacing batteries, try to adjust the screen contrast. See 74 page of the *Users' Guide*.

NOTES

Under some circumstances (for example, if you plan to use multiple remotes), you can set PowerTouch III up to communicate via a hardwired cable and be powered by an AC adapter/wall cube. If you choose this setup option, you should contact the store where you purchased your receiver or a qualified, competent custom installer. For more information, call 1-800-KENWOOD or visit the Kenwood Web site at http://www.kenwoodusa.com.

If you are installing the receiver in a home entertainment closet, a simpler installation option is to use the IR-9991 External Infrared Receiver. For more information, see "To Connect a Kenwood IR-9991 IR Transceiver:" on page 55.

Calibrating the Touch Screen

After you install the batteries or reset PowerTouch III, you need to calibrate the touch screen. The touch screen responds to pressure from the included stylus or your finger:
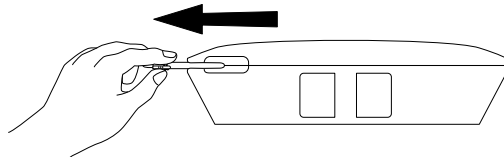
If you are replacing batteries and complete the battery replacement within 3 minutes, you do not need to calibrate the screen; calibration is stored in memory.

If the screen's performance begins to change, you can recalibrate it without resetting PowerTouch III by pressing Calib. on the Setup menu. For more information about accessing this menu, see "Identifying Devices For PowerTouch III Control" on page 40.

To calibrate the touch screen, use the stylus to touch the center of each of the calibration points displayed:

Calibration
PLEASE INDIVIDUAL TOUCH
THE CENTER OF THE FOUR
BUTTONS LOCATED IN THE
CORNERS OF THE DISPLAY
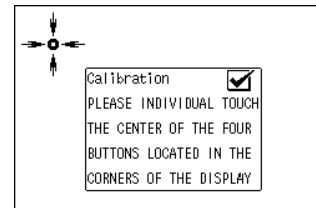
When you touch each calibration point, you should hear a beep and see the next point, indicating that area of the screen is now calibrated. If you do not hear a beep, touch the calibration point until you do.

The touch screen is sensitive to pressure, not to movement. Press firmly but gently on any touch screen element. The screen will not respond if you simply brush the stylus or your finger along the surface.

Resetting PowerTouch III

If you want to reconfigure PowerTouch III, you can reset it. You do not need to do this unless you experience a problem.

1. Open the cover.

2. Use the stylus to press the blue button at the bottom of the battery case:
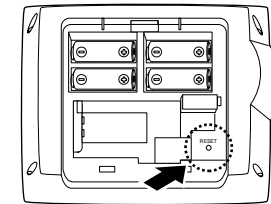
The items you set up in this chapter will remain in PowerTouch III. If you want to make it to the factory–set default condition, please follow the instructions on page 104 of the *Users' Guide*.

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Selecting the Model Type

After "Calibrating the Touch Screen", the "Selecting the Model Type" display appears automatically.

The model type selection is performed to let the PowerTouch III recognize the type of the receiver you have.

Once the model type is selected, it does not have to be selected again even after PowerTouch III is reset.

To set the model type:

1. Press the receiver's **ON STANDBY** button to turn it **ON**.

2. Aim the PowerTouch III towards the receiver and press the [Type] in the display.

3. The receiver automatically transmits its type code to PowerTouch III. When the PowerTouch III stores it, the model type selection is complete.

Now the new PowerTouch III is available for operation.

• If the model type cannot be selected automatically because the receiver is not **ON**, etc., the model type can be selected manually. In this case, select the "Model 1" in step 2 above.

If you committed mistake in the model type selection, restart it as follows.

• While holding the **CONFIRM** and **VOLUME DOWN** buttons together, press and release the **RESET** button under the battery cover (see above diagram). Do not release the **CONFIRM** and **VOLUME DOWN** buttons until a short beep indicating the completion of setting is heard.

After the above, all settings are reset to the factory settings.

Remote Setup

Navigating The PowerTouch III Interface

The PowerTouch III has four basic menus as shown below:

HOME1

HOME2

SETUP

EDIT

There are two ways for moving across these four basic menus:

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- Touch character or icon "HOME1", "HOME2", "SETUP" or "EDIT" in the screen using the stylus or your finger.
- Touch the desired icon in the Quick Access menu on the left of the touch-screen.

HOME1   HOME2   SETUP   EDIT

Quick Access menu
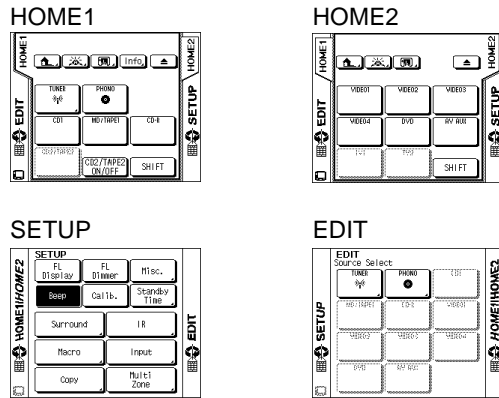
For the rest of this chapter, you will be using the various settings on the Setup menu. The Setup menu includes the following settings and their subsettings:

- IR (See "Identifying Devices For PowerTouch III Control" on page 40)

  This menu setting allows you to identify your connected devices to PowerTouch III.

- Input (See the VR-5900 Users' Guide).

- Multi Zone (See "Chapter Four: Setting Up Multiple Zones" on page 50).

  This menu setting allows you to activate dual-zone control, and to select which zone you want to control with PowerTouch III.

- Copy

  This menu will allow you to copy all the settings stored in your PowerTouch III to a second PowerTouch III. Instructions are included in a separately sold PowerTouch III package. (Only for some areas)

- Macro (See the VR-5900 Users' Guide)

  This menu setting allows you to create custom macros that perform several operations (such as turning a device on, changing the receiver's input, and changing a TV station) with a single touch.

- Surround (See "Setting Up Speakers" on page 37)

  These menu settings allow you to set up you receiver to work properly with the number and types of speakers in your system.

To change the time until the screen goes out:

In order to reduce the battery consumption, the PowerTouch III has been designed so that the screen goes out when there is no operation for a given time. This time can be changed.

1 Touch (SETUP) to call up the SETUP screen.

2 Touch Standby Time to call up the Standby Time setting screen.

3 Touch ◁ or ▷ to set the desired time. The time until the screen goes out can be changed to any value from 5 to 30 seconds.

4 Touch ✔ to return to the original screen.
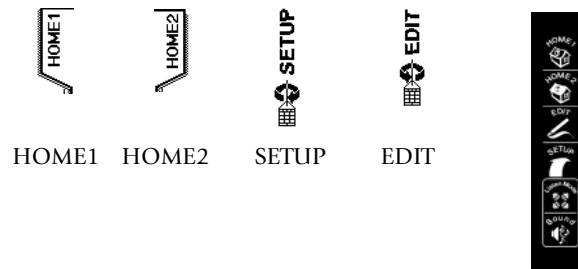
Setting Up Speakers

Before you can begin using the receiver to control your home entertainment system, you must set up PowerTouch III to operate your speakers effectively. There are four areas of speaker setup:

- Selecting the Speakers
- Adjusting the Speaker Distances
- Balancing the Speaker Volumes
- Bass Peak Level

You can set up your speakers in the order presented here (via the Next button) or individually, selecting each option from the Surround menu.

The receiver must be on, speakers must be connected, and Speaker A on the front panel must be turned on before you can set up speakers.

Speaker Placement

An example of installation is shown here.
Use this figure as a reference for installing the system according to the types of your speakers and conditions of your listening room.
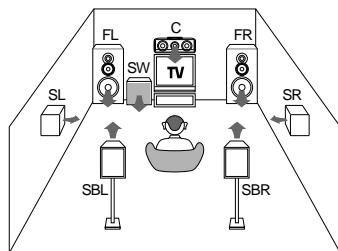
FL/FR (Front speakers) : Place to the front left and right of the listening position. Front speakers are required for all surround modes.

C (Center speaker) : Place front and center. This speaker stabilizes the sound image and helps recreate sound motion.

SW (Subwoofer) : Reproduces powerful deep bass sounds.

SL/SR (Surround speakers) : Place to the direct left and right, or slightly behind, the listening position at even heights, at least 3.3 ft (1 meter) above the ears of the listeners.

SBL/SBR (Surround back speakers) : The SBL/SBR speakers are required to reproduce 6.1-channel signals (THX Surround EX, DTS-ES). Place them on the left and right behind the listening position and at the same height as the SL/SR speakers.

To begin setting up speakers:

1. Touch (SETUP) on the Quick Access menu to access the Setup menu:
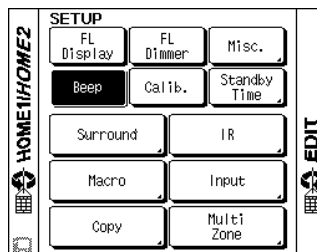
2. Touch [Surround] on the Setup settings.
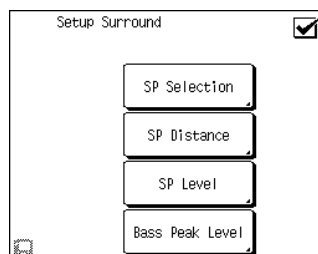
Selecting the Speakers

1. Touch [SP Selection] on the Setup Surround menu to open the Speaker Selection menu.

2. Kenwood provides two ways to set up your speakers:

   Quick Setup: Use this method for a simplified setup where you identify whether a speaker is present and let the receiver automatically determine the appropriate speaker settings.
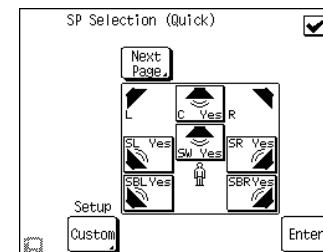
a. Aim PowerTouch III at the receiver. If the speaker is present, touch the speaker button until "Yes" appears in the button. (SW=subwoofer, C=center, SL=surround left, SR=surround right, SBL=surround back left and SBR=surround back right)

If you selected Yes for the subwoofer, all of the bass below 80Hz is removed from all the other speakers in your system and is sent to the subwoofer in all listening modes. This improves your speakers' power handling and reduces overall distortion.

Speaker combinations that can be selected with Quick Setup

Subwoofer	Center speaker	Surround speakers	Surround back speakers
Yes →	Yes	Yes →	Yes / No
No	No	No →	No

b. Touch [Enter] to save your settings.

c. Touch [Next Page] to move to the next setting or touch ☑ to return to the Setup Surround menu.

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Custom setup: Use this method for a more customized setup where you determine more of the speaker settings, such as the bandwidth of the sound sent to each speaker. Custom setup configures the following: SW=subwoofer, L=front left, R=front right, C=center, SL=surround left, SR=surround right, SBL=surround back left and SBR=surround back right.

a. Touch [Custom] on the Speaker Selection menu:
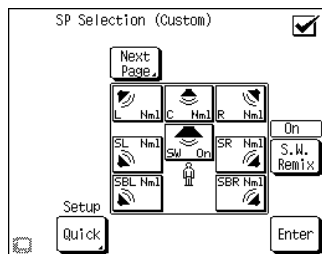
b. Aim PowerTouch III at the receiver and touch the speaker button until the correct setting appears (see below).

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The front left and right buttons, the surround left and right buttons and the surround back left and right buttons are linked; if you touch one, you change the settings for both.

- **Off** means you are not using the speaker. (Not available for front speakers).
- **On** means that you are using the speaker. (Only available for subwoofer).
- Select **Nml** (= Normal/THX) if the speaker is not capable of producing clean, deep bass energy at output levels that match those produced by a typical powered subwoofer. All bass below 80Hz in that channel is removed from that speaker and is sent to the subwoofer (or sent to the front speakers if subwoofer is set to off) in all listening modes. Most speakers should be considered **Nml.**

If you have THX certified speakers, select the Nml setting.

- Select **Lrg** (= Large) if the speaker is capable of producing clean, deep bass energy at output levels that match those produced by a typical powered subwoofer. All bass below 80Hz in that channel is left in that speaker in all listening modes.

Note : If you set the front or center speaker to **Lrg**, the subwoofer may not output audio depending on the setups of the input signal, speakers and listen mode.

Speaker combinations that can be selected with custom setup

Subwoofer	Front speakers	Center speaker	Surround speakers	Surround back speakers
On	Nml	Nml / Off	Nml	Nml / Off
			Off	Off
	Lrg	Nml / Lrg / Off	Nml / Lrg	Nml / Lrg / Off
			Off	Off
Off	Lrg	Nml / Lrg / Off	Nml / Lrg	Nml / Lrg / Off
			Off	Off
		Nml / Lrg / Off	Nml / Lrg	Nml / Lrg / Off
			Off	Off

c. If you have a subwoofer as part of your home theater speaker system and have set your left & right front speakers to **Lrg**, **SW Re-Mix** mode gives you the flexibility to choose how bass information is distributed to your speakers. (As mentioned above, most speakers will perform best when set to **Nml**.)

If the **Re-Mix Off**-THX option is selected, bass from the front left and front right channels will go ONLY to the front left and front right speakers. The subwoofer will only receive a bass signal from the LFE channel of Dolby Digital and DTS programs, and from any channels with speakers that you have designated as Nml. *This selection is preferred by THX.*

If the **Re-Mix On** option is selected, you will send the bass from the front left and right channels to the front left & right speakers AND the subwoofer simultaneously. While this setting keeps your subwoofer active in all listening modes, it can also cause the bass to sound indistinct (or "muddy") because it is now coming from up to 3 different speakers at once.

If your home theater speaker system includes a subwoofer and you have set your front left & right

speakers to '**Lrg**', we suggest that you initially use the **Re-Mix Off**-THX setting. If this produces weak-sounding bass in your room, change to the **Re-Mix On** setting.

d. Touch [Enter] to save your settings.

e. Touch [Next Page] to move to the next speaker setting or touch ☑ to return to the Setup Surround menu.

When activating the THX operation, it is recommended to set **SW Re-Mix Off**-THX so that the THX operation can match correctly the human sense of audition.

Adjusting the Speaker Distances

1. Measure the distance from each speaker to the seat you most often use and note it below:

Speaker	Distance (ft or m)
Front left	
Center	
Front right	
Surround right	
Surround back right	
Surround back left	
Surround left	
Subwoofer	

2. If you are not already there, touch [SP Distance] on the Setup Surround menu to open the Speaker Distance menu:
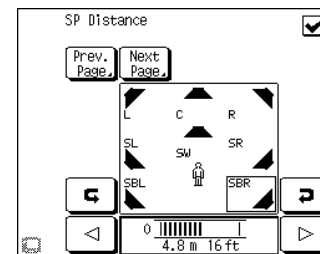
3. Touch ◁ or ▷ to set the distance for the front left speaker.

4. Touch ⤆ or ⤇ to select the next speaker.

5. Repeat steps 3 and 4 for each speaker.

6. Touch Next Page to move to the next speaker setting or touch ☑ to return to the Setup Surround menu.

Balancing the Speaker Volumes

In this step you will balance the volume levels of all the system's speakers except the subwoofer for your room and listening position. (To set the subwoofer level, see "Setting the Subwoofer Level" on this page.) When all the speakers are set at the same volume level, your system will create a more realistic, spacious surround sound environment.

You can balance the speakers by ear, or you can use a sound level meter. Using a meter lets you balance your system more accurately, and lets you set the reference playback level. (See "Balancing the Speaker Levels with a Sound Level Meter" on page 46)

When setting the speaker levels, be careful against the high-level test tone that is produced.

1. Eliminate as many external noise sources as possible.

2. Sit in the place where you and your guests are most likely to sit while watching movies or listening to music.

3. If you are not already there, touch SP Level on the Setup Surround menu to open the Speaker Level menu:
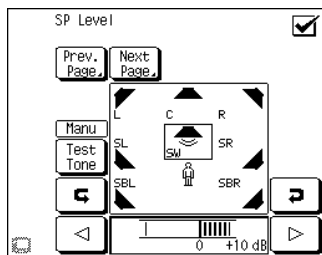
4. Touch Test Tone until the Test Tone display reads "Manu".

5. Test noise will play from the front left speaker. Carefully listen to the volume level of the noise.

6. Touch ⤆ or ⤇ to select the next speaker.

7. Carefully listen to the volume level of the test noise. If the noise is a different volume than the noise from the front left speaker, use ◁ or ▷ to adjust the volume so that the volume matches the volume from the front left speaker.

   (Do not be concerned with the volume number readout on the Level display—this is for reference purposes only. Use your ears to determine if the two speakers are playing at the same volume).

8. Repeat steps 6 and 7 until all the system's speakers (except the subwoofer) play at the same volume.

9. To confirm the volume levels, touch Test Tone until the Test Tone display reads "Auto". The test noise will automatically cycle between all of the speakers. Fine-tune the channel levels as necessary.

10. When all the channels sound like they're the same volume, you've balanced your system.

11. To turn off the test noise, touch Test Tone until the Test Tone display reads "Off".

    Setting the Subwoofer Level: Because of the way humans hear, the test noise the Speaker Level menu sends through the subwoofer will not sound as loud as it really is. (The Speaker Level menu subwoofer test noise is designed to be used with a sound pressure level meter for balancing. See "Balancing the Speaker Levels with a Sound Level Meter" on page 46)

    Because of this, you cannot use that test noise to properly calibrate the level of your subwoofer by ear. To set the subwoofer level, listen to familiar music or films that have strong bass content and adjust the subwoofer level until it sounds balanced with the rest of the speakers.

12. Touch Next Page to move to the next speaker setting or touch ☑ to return to the Setup Surround menu.

Bass Peak Level

The LFE (bass effects) channel of Dolby Digital and DTS programs can contain up to 10dB more energy than the other channels, which is enough to damage some speakers. The VR-5900 has a bass limiter circuit that keeps the output to your subwoofer (or left & right speakers, if your system doesn't have a subwoofer) within safe limits.

1. Touch Bass Peak Level on the Setup Surround setting menu, or touch Next Page on the Speaker Level menu.

2. Touch Test Tone on the Bass Peak Level setting menu.

   The test tone is output. (displayed "-30 dB")

   You will hear the bass peak test tone, and the display will read -30dB. (The test tone level is not affected by the receiver's volume control.)
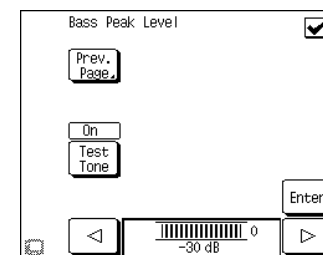
3. Touch the ▷ slowly and repeatedly to increase the speaker volume until you just begin to hear audible distress from the woofer (distortion, clicking, "bottoming").

4. Touch the ◁ once or twice to decrease the speaker volume to the level just before the distress began.

5. Touch the Enter to save the setting.

6. Touch the ☑ to return to the Setup Surround menu.

NOTES

Do not output the test tone for a long period while the speaker's sound is distorted.
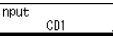
Identifying Devices For PowerTouch III Control

Once your speakers are set up and configured, you must identify your component devices to PowerTouch III. PowerTouch III can be set up to control any device: if the device code is not already part of PowerTouch III's extensive library, you can use the Learn feature to teach the device's commands to PowerTouch III. You can also use this Learn function to expand the control capabilities of existing codes. For more information, see "To Customize the PowerTouch III Screen" on page 43.

How Do I Identify Devices?
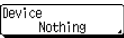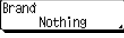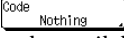
1. Make sure you have installed batteries and chosen a model type (see page 34 - 35).

2. Touch ![SETUP icon] (SETUP) on the Quick Access menu to access the Setup menu.

3. Touch [IR] on the Setup menu to access the IR Setup menu:

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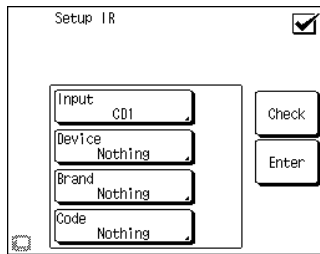
4. Refer to "Noting Your Devices" on page 3 where you noted which device was connected to which jack set.

5. Touch [Input CD1] to open the list of available jack sets:
   - **CD1**
   - **CD2/TAPE2**
   - **MD/TAPE1**
   - **CD-R**
   - **VIDEO1** through **VIDEO4**
   - **DVD**

- **AV AUX**
- **TV1** and **TV2** (these allow PowerTouch III to control your TV or cable tuner, even if it isn't connected to one of the receiver's input jack sets).

Touch the name of the jack set you want to set up.

6. Touch [Device Nothing] to select the type of device you have connected to the jack set.

7. Touch [Brand Nothing] to select the device's brand.

8. Touch [Code Nothing]. You can now choose from a list of all the codes available for the device. Touch the first code on the list.
   - If the Kenwood devices are connected with a system control cable, be sure to select the code preceded by "Sys-" or "System". This instructs PowerTouch III to send all commands for the device to the receiver, which will control the device via the system control cable.
   - If you have a Kenwood Dual-Play 200-Disc CD Changer, you will need to set both CD1 and CD2/TAPE2 to the correct code for this device ("Sys-Mega").

9. Touch [Check]. This instructs PowerTouch III to send a "power" test signal to the device. If your device turns on, the code you entered was correct. If it does not turn on, try the next code in the list. Continue until one of the codes works. If none of the codes work, see "To Customize the PowerTouch III Screen" on page 43.

   If you enter a code preceded by "Sys-" or "System" on step 8, skip this step.

10. When you have a code that works, touch [Enter]. Check off that device on your list.

Repeat steps 5 through 10 for each input until you are finished identifying devices to PowerTouch III. When you are done, turn to "How Do I Operate Devices?" on page 35 of the *Users' Guide* and note which icon corresponds to which connected device.

How Do I Replace a Setup Code with a New One?
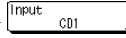
If you purchase a new device to replace an existing device, you will need to identify the new device to PowerTouch III. To do so:

1. Connect the device as described in the appropriate section of Chapter One of this manual.

2. Follow the steps under "How Do I Identify Devices?" on this page for that input.

The new code will replace the old code.

How Do I Delete Setup Codes?

If you disconnect a device and do not plan to replace it, you may want to delete the setup code from PowerTouch III. To do so:

1. Follow the steps under "How Do I Identify Devices?" on this page to select a jack set.

2. Touch [Input CD1]. Scroll to the device "Nothing" then touch it. That device is no longer controlled by PowerTouch III.

Example of device button display

When a device is identified, its icon will be displayed among the device buttons. The TUNER and PHONO icons are displayed by default.

Example with the CD1 device button:

Icon of identified device (CD)

This mark indicates that pressing the icon button of the identified device (CD) displays the next screen (the control screen) for the device.

Storing Radio Stations in Memory (optional)

Your new PowerTouch III provides two ways to store radio stations:

- Manual Memory, which allows you to enter and store specific stations.
- RDS Automatic Memory, which searches for stations broadcasting an RDS signal and automatically stores them in the first available storage button.

There are 40 preset storage buttons available.

Search for and store RDS stations first, then set stations manually. The search function automatically assigns RDS stations to the first storage button, overwriting any stations already stored there.

You can overwrite RDS stations with manually stored stations.

Storing RDS Stations Automatically

1. Touch 🏠 (HOME1) on the Quick Access menu to access the HOME1 menu:
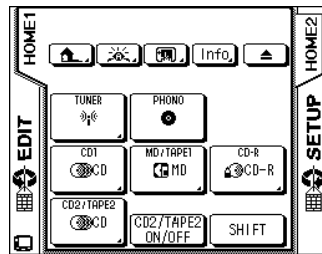
2. Touch [TUNER] on the HOME1 menu to access the Tuner controls:
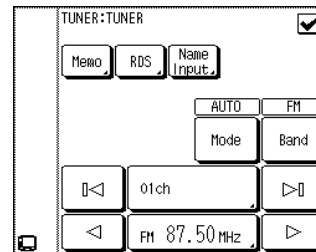
3. Touch [Band] to choose FM.

4. Touch [Memo].
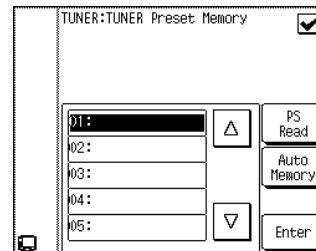
5. Touch [Auto Memory]. The receiver locates and stores any FM stations broadcasting an RDS signal. This process can take a few minutes to complete; please be patient. While the receiver is searching, "AUTO MEMORY" display blinks.

RDS stations are stored in the order they are found, up to 40 stations. If the search finds fewer than 40 stations, the receiver may automatically store other FM stations in the open storage buttons.

If you are repeating the RDS search, any existing preset stations (whether automatically or manually stored) will be replaced by the results of the new search.

Storing RDS Station Name (PS Read)

- To perform PS Read, you must first perform the RDS auto memory procedure.

1. Touch 🏠 (HOME1) on the Quick Access menu to access the HOME1 menu:

2. Touch [TUNER] on the HOME1 menu to access the Tuner controls:

3. Touch Memo .

TUNER:TUNER Preset Memory ☑

01:
02:
03:
04:
05:

△ ▽

PS Read
Auto Memory
Enter

4. Touch PS Read .
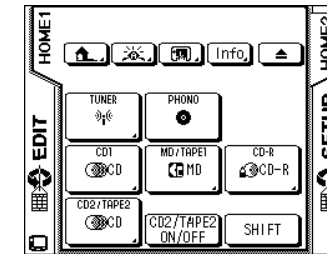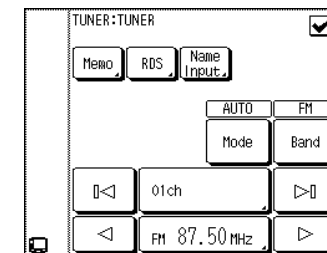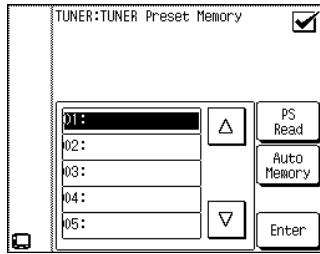
5. Confirm the station name list and touch Enter if it is OK. If you do not want to finalize the list, touch ☑ to return to the previous screen.

The station names are written in the preset channel list.

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Storing Stations Manually

1. Touch ⬛ (HOME1) on the Quick Access menu to access the HOME1 menu:

HOME1   HOME2
🔺 🔆 📺 Info ⏏
TUNER ᛝᚷᛝ   PHONO ⊙
EDIT   SETUP
CD1 ⊚CD   MD/TAPE1 ⊞MD   CD-R ⊚CD-R
CD2/TAPE2 ⊚CD   CD2/TAPE2 ON/OFF   SHIFT

2. Touch TUNER ᛝᚷᛝ on the HOME1 menu to access the Tuner controls:

TUNER:TUNER ☑

Memo RDS Name Input
FM
Mode Band
◁   ----   ▷
◁   FM100.00 MHz   ▷
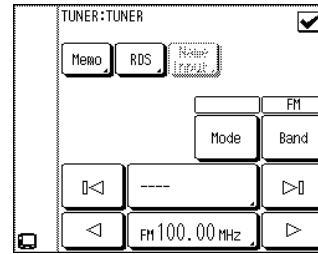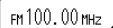
3. Touch Band to choose the receiving band.

4. Touch Mode to switch between Auto tuning and Manual tuning. Select Manual if you experience interference due to weak radio signals.

5. Choose the station you want to store using one of the following methods:

• Touch ◁ or ▷ until the station's broadcast frequency appears.

• Touch FM100.00 MHz and enter the broadcast frequency using the 10-key pad. (e.g.; To select FM 87.5 MHz, enter 8, 7, 5, 0, and Enter)

Touch ☑ (check icon) to return to the TUNER control menu.

6. Touch Memo .

TUNER:TUNER Preset Memory ☑

01:Luck 5
02:TALK FM
03:K-WAVE
04:VFM
05:

△ ▽

PS Read
Auto Memory
Enter
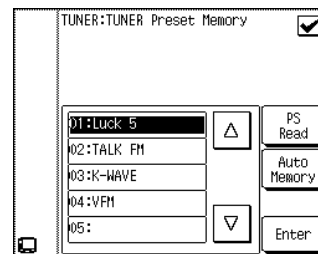
7. Touch a storage button. Use △ or ▽ to access more storage buttons.

If you choose a storage button that already has a station assigned, the new station will replace the previously-stored station.

8. Touch Enter to tune to the newly saved station and return to the Tuner controls.

9. Repeat steps 3 through 8 for each station you want to store.

Touch ☑ to return to the TUNER control menu.

Name input of the preset station.

Touch Name Input to enter a name for the station in the TUNER menu:

Preset Name Input ☑

_
Enter
1 2 3 4 5 6 7 8 9 0 _ =
Q W E R T Y U I O P
A S D F G H J K L ; '
Z X C V B N M , . /
character   ← → AC BS
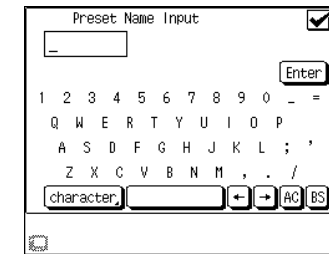
• Use the stylus to select characters from the keyboard.

• Touch character to access other characters.

• Touch ⬚ to insert a space.

• Touch ← or → to move back and forth between the characters.

• Touch BS (backspace) to clear the last character you entered. Touch AC (all clear) to delete all the characters in the line.

• Touch Enter to save your title.
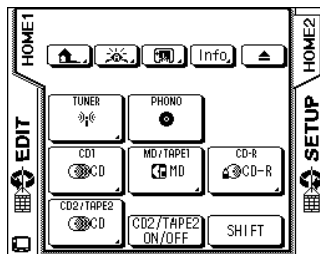
To Customize the PowerTouch III Screen

PowerTouch III can be completely customized to suit your own needs. You can change almost everything about the way screens look and the function of almost any button.

1. Name ( ) : The name of the selected item can be changed.

2. Size ( ) : The size of the selected item can be changed.

3. Move ( ) : The selected item can be moved.

4. Cut ( ) : The selected item can be cut. The cut item can be pasted in another position.

5. Copy ( ) : The selected item can be copied and pasted in another position.

6. Paste ( ) : Pastes the cut or copied item in the specified position.

7. Delete ( ) : The selected item can be deleted.

8. Learn ( ) : A new function can be programmed in an item on the touch panel or in a hard key.

9. Gallery ( ) : An item stored in a gallery can be pasted in a desired position.

10. Jump ( ) : The jump button allows you to access a button's sub-menus (if it has any) so they can be customized.

For example, if you touch the icon to activate the jump mode during customization, you can access the TUNER screen from the [TUNER] button.

11. Default ( ) : The screen can be reset to its default configuration.

12. Undo ( ) : Returns a customized operation to the condition before customization.

Renaming an Item

1. Go to the screen you want to customize and touch the icon. (Customization cannot be performed on screens where the icon is grayed out.)
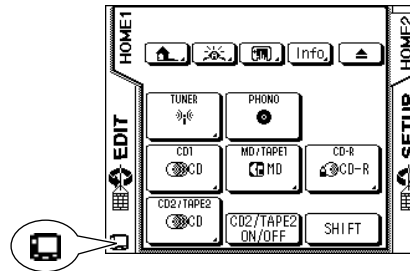
2. Customization icons are displayed, with the icon highlighted to indicate the Name mode. If the icon is not highlighted, touch it so that it is highlighted.

Customization icons
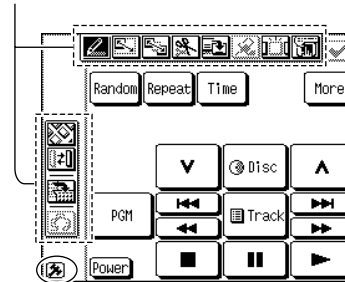
 Touch this icon to exit from customization and return to the normal mode.

3. Touch the item you want to rename. The keyboard screen will appear.
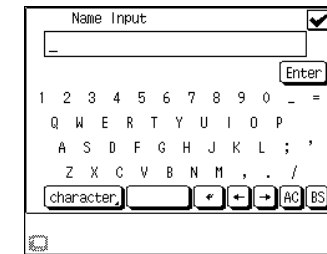
The character entry space on the upper part of the keyboard shows the name currently given to the icon. To change the name, delete it with the BS (backspace) button and enter a new name.

The [character] button displays other characters. For details on the keyboard operation, see page 8 of the *User's Guide*.
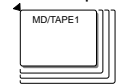
4. Touch the [Enter] button to enter the name.

5. To continue customization, touch another item then proceed to the next operation.

Touch the icon to exit from customization.

Changing an Item's Size

1. Go to the screen you want to customize and touch the icon. (Customization cannot be performed on screens where the icon is grayed out.)

2. When the customization icons are displayed, touch the icon so that it is highlighted (Size mode).

3. Touch the item you want to resize. The selected item will blink.

4. Change the item's size using the joystick.

To decrease the height

To decrease the width

To increase the width

To increase the height
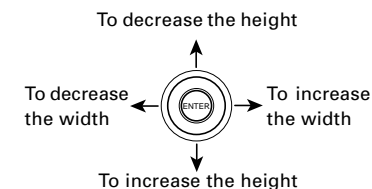
The size is changed with respect to this point.

Example: Resizing the MD/TAPE1 button

Remote Setup

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Moving an Item

1. Go to the screen you want to customize and touch the ▢ icon. (Customization cannot be performed on screens where the ▢ icon is grayed out.)

2. When the customization icons are displayed, touch the 🔄 icon so that it is highlighted (Move mode).

3. Touch the item you want to move. The selected item will blink.

To move upward

To move
leftward ← ⊕ → To move
rightward

To move downward
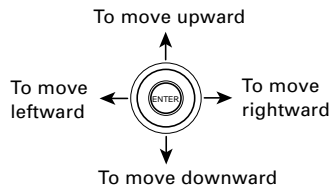
An item cannot be moved to a position where it overlaps another item or is outside the customizable area.

4. To continue customization, touch another item then proceed to the next operation.

Touch the 🏃 icon to exit from customization.

Cutting an Item

1. Go to the screen you want to customize and touch the ▢ icon. (Customization cannot be performed on screens where the ▢ icon is grayed out.)

2. When the customization icons are displayed, touch the ✂ icon so that it is highlighted (Cut mode).

3. Touch the item you want to cut. The selected item is cut.

The cut item can be pasted in another position by using the Paste function (see next column).

Copying an Item

1. Go to the screen you want to customize and touch the ▢ icon. (Customization cannot be performed on screens where the ▢ icon is grayed out.)

2. When the customization icons are displayed, touch the 📋 icon so that it is highlighted (Copy mode).

3. Touch the item you want to copy. The selected item will be copied into memory.

4. Paste the copied item in the desired position by using the Paste function (see below).

Pasting an Item

1. Cut or copy the desired item.

2. Touch the ✒ icon so that it is highlighted (Paste mode).

3. Paste the copied item in the desired position by touching the location where you want to paste the item.

The copied item cannot be pasted in a position where it overlaps another item or is outside the customizable area.

Deleting an Item

1. Go to the screen you want to customize and touch the ▢ icon. (Customization cannot be performed on screens where the ▢ icon is grayed out.)

2. When the customization icons are displayed, touch the 🗑 icon so that it is highlighted (Delete mode).

3. Touch the item you want to delete. The selected item is deleted.

Selecting an Item in the Gallery and Pasting it in the Screen

1. Go to the screen you want to customize and touch the ▢ icon. (Customization cannot be performed on screens where the ▢ icon is grayed out.)

2. When the customization icons are displayed, touch the ▨ icon.

Press the ⌷Next⌷ button to view another gallery display.
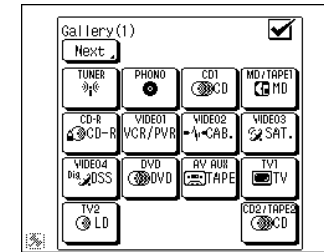
3. Touch the item you want to copy from the Gallery. The previous menu is automatically displayed.

4. Touch the position where you want to paste the selected item. The selected item cannot be pasted in a position where it overlaps another item or is outside the customizable area. If the item you select is a selector item (i.e., an input selector button such as "Tuner" or "CD"), it can be pasted only on the HOME1 or HOME2 screens.

Programming a Function in a Button (Learn)

PowerTouch III can learn functions from almost any standard IR remote.

1. Go to the screen you want to customize and touch the ▢ icon. (Customization cannot be performed on screens where the ▢ icon is grayed out.)

2. When the customization icons are displayed, touch the 📲 icon so that it is highlighted (Learn mode).

3. Select the item into which you want to program the desired function. The buttons which can learn functions are not only those displayed on the screen but also include the **Mute** button, **Volume up/down** buttons, **On/Standby** button and **Joystick**. However, at the menu screen of HOME1 and HOME2, the **Mute** button, the **Volume up/down** buttons, and the **On/Standby** button can not learn any functions.

4. Aim the remote you want to learn from at PowerTouch III and press and hold the button on the device's remote with the command you want PowerTouch III to learn (see diagram on next page):

This may take a few seconds; **do not** move PowerTouch III or the device's remote until PowerTouch III displays the Function Change menu again.

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4 inches (10 cm)
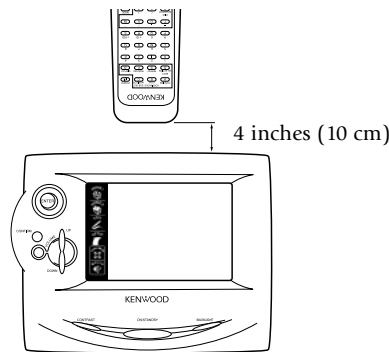
- "Complete" is displayed when learning completes successfully.
- "Error" is displayed when learning fails.

Be sure to use the device's original remote. PowerTouch III will not learn commands from other universal remotes.

Depending on the device's remote control unit, "Learn" may not be possible.

Resetting to the Default Screen

1. Go to the screen you want to customize and touch the 🖵 icon. (Customization cannot be performed on screens where the 🖵 icon is grayed out.)

2. When the customization icons are displayed, touch the 🔀 icon. The screen is reset to its default configuration.

Accessing a Button's Sub-menus (Jump)

When the jump mode is activated during customization, the buttons which have sub-menus can access those sub-menus for customization.

1. Touch the ⏬ icon during customization.

   The ⏬ icon is highlighted to indicate the Jump mode.

In the Jump mode, the buttons which have sub-menus (such as "Tuner" and "CD") will display a small triangle in the lower right-hand corner.

2. Touch the button to display its sub-menu.

3. Touch the ⏬ icon again to customize the sub-menu.

To Undo the Last Operation Performed

Touch the 🔄 icon immediately after performing the operation that you want to undo. The operation will be canceled.

Locking Customization Results with a Password

You can activate a password to prevent others from customizing PowerTouch III.

To lock customization:

1. Touch 🔧 (SETUP) on the Quick Access menu to access the Setup menu.

2. Touch [Misc.].

3. Touch [Lock].
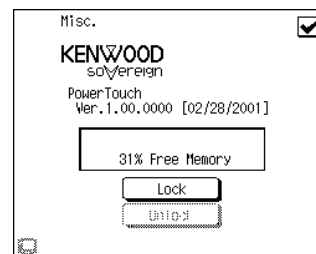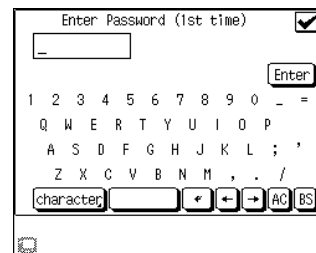
4. Enter a password and touch the [Enter].

5. When the Enter Password screen is displayed for the second time, enter the same password as step 4 again and touch the [Enter].

6. Touch ✓ to return to the original screen.

To unlock customization:

1. Touch 🔧 (SETUP) on the Quick Access menu to access the Setup menu.

2. Touch [Misc.].

3. Touch [Unlock].
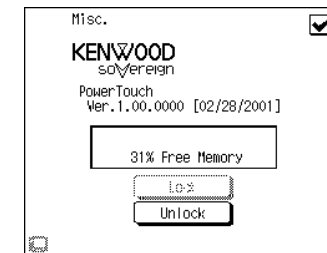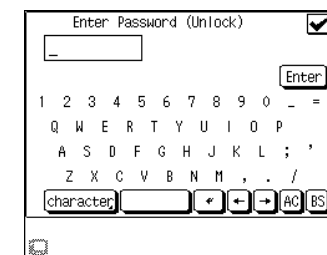
4. Enter your password and touch the [Enter].
   The customization will be unlocked.

5. Touch ✓ to return to the original screen.

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Balancing the Speaker Levels with a Sound Level Meter

Note: These instructions assume you are using a Radio Shack SPL meter, model 33-2050.

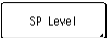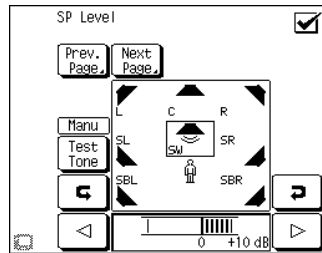1. Eliminate as many external noise sources as possible

2. Sit in the place where you and your guests will sit while watching movies or listening to music

3. If you are not already there, touch [SP Level] on the Setup Surround menu to open the Speaker Level menu:

4. Touch [Test Tone] until the Test Tone display reads "Manu". The receiver's volume control will automatically be set to 0dB and test noise will play from the front left speaker.

5. On the SPL meter, choose 70dB on the large dial, and set the meter controls to "C" and "Slow".

6. Hold the meter at arm's length and ear height. Use the [◁] or [▷] buttons to adjust the speaker's level so that the needle on the meter points between 4 and 6 (75dB). You can adjust the speaker's level by 1dB each time you touch one of the buttons.

7. Repeat step 7 for each speaker in the system (including the subwoofer). Use the [⇄] button to advance to the next speaker.

8. When all of the speakers in the system play the test noise at 75dB on the SPL meter, touch [Test Tone] until the Test Tone display reads "Off".

Reference Playback Level

Your system will now play carefully-transferred film soundtracks at the volumes intended by their makers when you set the VR-5900's volume control to 0dB. You can, of course, set the volume level to your own preferences.

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RF Remote Control Function

Changing the RF Transmission Frequency

The RF remote function may be affected by radio interference, etc. In this case, the transmission frequency can be changed.

To change the RF remote transmission frequency:

1. Open the battery cover on the rear.

2. Change the RF switch setting.

After changing PowerTouch III's RF frequency, you also must change the receiver's RF reception frequency.

3. To change the receiver's RF reception frequency.

• Press and hold the **RF BAND** button (**TAPE2/CD2 / MONITOR** button) behind the receiver's panel door for more than 2 seconds. Each time you do this, it switches the RF reception frequency as follows.

① "RF BAND 1"

② "RF BAND 2"

Select the same band as the position number of the RF switch of the PowerTouch III.

NOTES

The control distance of the RF remote signal is about 30 ft (10 meters) provided there is no obstacle.

The following factors can maximize the operation of your PowerTouch III.

1. Aim PowerTouch III toward the area where the receiver is located.

2. Do not position the receiver near metal (such as heat ducts). Metal can absorb RF signals.

3. Make sure the batteries in PowerTouch III are fully charged. Weak batteries will affect the range of PowerTouch III.

4. Make sure that PowerTouch III's range is not being affected by other radio frequency transmissions.

5. Position the RF antenna to achieve maximum RF range.

The tests for range limits of the PowerTouch III and the receiver were conducted in open-air distance tests. Actual distance of the signal will be based on the construction of the building the unit is being used in as well as other factors such as outside RF interference.

Chapter Three: Using Receiver's Front Panel to Set Up the Speakers and Radio Stations

You can also perform the Speaker Setup and program pre-set radio stations using the receiver's front panel. (If you have already set up the speakers or programmed radio stations using PowerTouch III you don't have to repeat the procedures using the front panel.)

Since you still must use PowerTouch III to identify and set up your source devices for control, we recommend that you use it for all setup procedures.

- Do not operate PowerTouch III while you are performing Speaker Setup on the receiver's front panel.
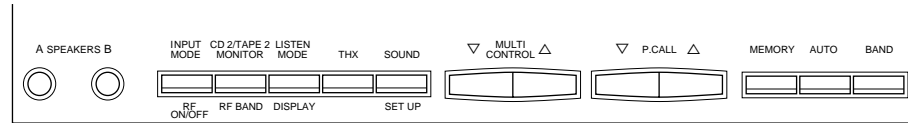
Preparation for setup

Most of the front panel control buttons are located inside the panel door. Make the following preparation for setup on the receiver. Open the panel door by pressing the **DOOR OPEN/CLOSE** button.
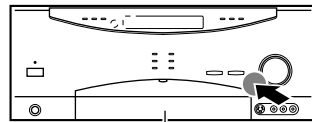
Press the **DOOR OPEN/CLOSE** button to open the panel door. To close it, press the button again.

Panel door

Button layout

Speaker Setup

1. Press the **SET UP** button (**SOUND** button) until **SUBWOOFER ON** appears on the receiver's display (for more than 2 seconds).

   A. If your system has a powered subwoofer, leave the receiver set this way and proceed to step 2.

   B. If your system does not have a powered subwoofer, press either **MULTI CONTROL** ($\triangledown/\triangle$) button once. The receiver's display will read **SUBWOOFER OFF**.

2. Press the **SET UP** button once more. The receiver's display will read **FRONT NML/THX**.

   A. If your left & right front speakers are not capable of producing clean, deep bass energy at output levels that match those produced by a typical powered subwoofer, leave the receiver set this way and proceed to step 3. (Most left & right speakers should be considered **NML/THX**.)

   B. If your left & right speakers are very large, and capable of reproducing clean, deep bass energy at output levels that match those produced by a typical powered subwoofer, press either **MULTI CONTROL** ($\triangledown/\triangle$) button once. The receiver's display will read **FRONT LARGE**.

   NOTE: If you set your front speakers to **LARGE**, the subwoofer may not output audio depending on the setups of the rest of the speakers, the input signal and the listen mode. See step 6.

3. Press the **SET UP** button once more. The receiver's display will read **CENTER NML/THX**.

   A. If your center speaker is not capable of producing clean, deep bass energy at output levels that match those produced by a typical powered subwoofer, leave the receiver set this way and proceed to step 4. (Just about all center speakers should be considered **NML/THX**.)

   B. If your center speaker is very large, and capable of reproducing clean, deep bass energy at output levels that match those produced by a typical powered subwoofer, press either **MULTI CONTROL** ($\triangledown/\triangle$) button repeatedly until the receiver's display reads **CENTER LARGE**.

   C. If your speaker system doesn't have a center speaker, press either **MULTI CONTROL** ($\triangledown/\triangle$) button repeatedly until the receiver's display reads **CENTER OFF**.

   NOTE: If your front speakers are set to **NML/THX**, you can only set the center speaker to **NML/THX** or **OFF**.

4. Press the **SET UP** button once more. The receiver's display will read **SURR NML/THX**.

   A. If your surround speakers are not capable of producing clean, deep bass energy at output levels that match those produced by a typical powered subwoofer, leave the receiver set this way and pro-

Receiver Setup

ceed to step 5. (Just about all surround speakers should be considered **NML/THX**.)

B. If your surround speakers are very large, and capable of reproducing clean, deep bass energy at output levels that match those produced by a typical powered subwoofer, press either **MULTI CONTROL** (∇/$\triangle$) button repeatedly until the receiver's display reads **SURR LARGE**.

C. If your speaker system doesn't have surround speakers, press either **MULTI CONTROL** (∇/$\triangle$) button repeatedly until the receiver's display reads **SURR OFF**.

NOTE: If your front speakers are set to **NML/THX**, you can only set the surround speakers to **NML/THX** or **OFF**.

5. Press the **SET UP** button once more. The receiver's display will read **S.BACK NML/THX**.

NOTE: If your surround speakers are set to **OFF**, the surround back speakers are automatically set to OFF and the receiver skips to step 6.

A. If your surround back speakers are not capable of producing clean, deep bass energy at output levels that match those produced by a typical powered subwoofer, leave the receiver set this way and proceed to step 6. (Just about all surround back speakers should be considered **NML/THX**.)

B. If your surround back speakers are very large, and capable of reproducing clean, deep bass energy at output levels that match those produced by a typical powered subwoofer, press either **MULTI CONTROL** (∇/$\triangle$) button repeatedly until the receiver's display reads **S.BACK LARGE**.

C. If your speaker system doesn't have surround back speakers, press either **MULTI CONTROL** (∇/$\triangle$) button once. The receiver's display will read **S.BACK OFF**.

NOTE: If your front speakers are set to **NML/THX**, you can only set the surround back speakers to **NML/THX** or **OFF**.

6. Press the **SET UP** button once more. The display will read **SW RE-MIX OFF**.

NOTE: If your subwoofer is set to off, **SW RE-MIX** is automatically set to off and the receiver skips to the next setup.

If you have a subwoofer as part of your home theater speaker system and have set your left & right front speakers to **FRONT LARGE**, **SW RE-MIX** mode gives you the flexibility to choose how bass information is distributed to your speakers. (As mentioned previously, most speakers will perform best when set to **NML/THX**.)

7. Use the **MULTI CONTROL** (∇/$\triangle$) buttons to select the desired **SW RE-MIX** mode:

• If **SW RE-MIX OFF** is selected, bass from the front left and front right channels will go ONLY to the front left and front right speakers. The subwoofer will only receive a bass signal from the LFE channel of Dolby Digital and DTS programs, and from any channels with speakers that you have designated as **NML/THX**. This selection is preferred by **THX**.

• If **SW RE-MIX ON** is selected, you will send the bass from the front left and right channels to the front left & right speakers AND the subwoofer simultaneously. While this setting keeps your subwoofer active in all listening modes, it can also cause the bass to sound indistinct (or "muddy") because it is now coming from up to 3 different speakers at once.

If your home theater speaker system includes a subwoofer and you have set your front left & right speakers to **FRONT LARGE**, we suggest that you initially use the **SW RE-MIX OFF** setting. If this produces weak-sounding bass in your room, change to the **SW RE-MIX ON** setting.

8. Balancing the speaker volumes

You can use your ears to adjust the volume balance between the speakers in the system. See page 39 for details.

A. Minimize external noise in the listening room.

B. Position yourself in a place where you usually listen to music or view video.

C. Press the **SET UP** button repeatedly until "TEST TONE OFF" is displayed.

D. Press the **MULTI CONTROL** (∇/$\triangle$) button to select **ON**, then press the **SET UP** button.

When setting the speaker levels, be careful against the high-level test tone that is produced.

The speaker volume adjustment display appears and test noise is generated from the front left speaker ("L 0 dB" displayed). Listen to the volume of the noise carefully.

E. When the test noise moves to the center speaker and "C 0 dB" is displayed, adjust the volume to the same level as the front left speaker by pressing the **MULTI CONTROL** (∇/$\triangle$) button.

F. Similarly, adjust the volumes of the "R" (front right), "SR" (surround right), "SBR" (surround back right), "SBL" (surround back left) and "SL" (surround left) speakers.

Do not adjust the "SW" (Subwoofer) volume using the test noise. It should be adjusted while listening to ordinary music.

G. Press the **SET UP** button once more. The receiver's display will read **BASS PEAK OFF**.

Since the LFE (bass effects) channel of Dolby Digital and DTS programs can contain up to 10dB more energy than the other channels, which is enough to damage some speakers. The VR-5900 has a bass limiter circuit that keeps the output to your subwoofer (or left & right speakers, if your system doesn't have a subwoofer) within safe limits.

H. Press either **MULTI CONTROL** (▽/△) button. You will hear the bass peak test tone, and the display will read -30dB. (The test tone level is not affected by the receiver's volume control.)

I. Press the **MULTI CONTROL** (△) button slowly and repeatedly to increase the speaker volume until you just begin to hear audible distress from the woofer (distortion, clicking, "bottoming").

J. Press the **MULTI CONTROL** (▽) button once or twice to decrease the speaker volume to the level just before the distress began.

K. Press the **SET UP** button to save the setting and proceed to "Setting the speaker distances" below.

9. Setting the speaker distances

   Measure the distance between each speaker and the listening position you frequently use. See page 38 for details.

   A. After step K in procedure 8 above, the speaker distance setting display appears.

   B. When "L   3.0m/10ft" is displayed, correct the distance of the front left speaker from you using the **MULTI CONTROL** (▽/△) button.

   C. Press the **SET UP** button to display "C   3.0m/10ft" and correct the distance of the center speaker from you using the **MULTI CONTROL** (▽/△) button.

   D. Similarly, set the distances of the "R" (front right), "SR" (surround right), "SBR" (surround back right), "SBL" (surround back left), "SL" (surround left) and "SW" (Subwoofer) speakers.

   E. Press the **SET UP** button repeatedly until "SETUP FIXED" is displayed.

Storing Radio Stations in Memory (optional)

Radio stations can be preset in the memory in the receiver and recalled by a one-touch operation.

The memory in the receiver cannot store the station names. To store the station names, use PowerTouch III. (For details, see "Storing Radio Stations in Memory (optional)" on page 41.)

Storing RDS Stations Automatically:

1. Press the **INPUT SELECTOR** (◁ or ▷) button to select the Tuner input.

2. Press the **BAND** button to select the FM band.

3. Press and hold the **MEMORY** button for more than 2 seconds. The receiver locates and stores any FM stations broadcasting an RDS signal. This process can take a few minutes to complete. While the receiver is searching, the display blinks "AUTO MEMORY".

Storing Stations Manually:

1. Press the **INPUT SELECTOR** (◁ or ▷) button to select the Tuner input.

2. Press the **BAND** button to choose the receiving band.

3. Press the **AUTO** button to select **AUTO TUNING** or **MANUAL TUNING**.

4. Press the **MULTI CONTROL** (▽/△) button to tune the station you want to store.

5. Press the **MEMORY** button.

6. Press the **P.CALL** (▽/△) button to display the desired preset number.

7. Press the **MEMORY** button again to store the stations as that preset.

8. To preset other stations, repeat steps 2 to 7 for each station you want to store.

Receiver Setup

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Chapter Four: Setting Up Multiple Zones

The VR-5900 offers dual-zone output and control, which enables you to use a single receiver to control devices and speakers for two zones (rooms). Due to its advanced features and controls, you can play music in one zone while watching a movie in the other!

Depending on your tastes and budget, you can set up one of the following "sound scenarios" to make full use of the Receiver's capabilities:

No additional amplifier for Zone B: You can use the Receiver's Speaker B output for Zone B. This allows you to listen to full surround sound in Zone A only, or in stereo in Zone A when Zone B is active. The sound in Zone B will always be in stereo.

Stereo amplifier for Zone B: You can use an additional stereo amplifier for Zone B (connected to the Receiver's Zone B Preouts). This allows you to listen to full surround sound in Zone A even if you are also listening in Zone B. The sound in Zone B will always be in stereo.

Multiple zones require you to run wires and cabling from the primary zone (Zone A) where your Receiver is installed to another zone (Zone B) where an IR Receiver, a second set of speakers, and possibly a second TV/Monitor is installed:

ZONE A
(Main System)

TV

ZONE B

IR
RECEIVER
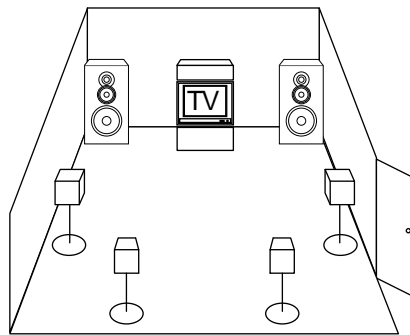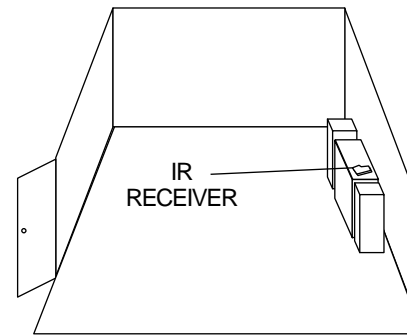
This chapter discusses some of the connection configurations and additional PowerTouch setup necessary if you want to take full advantage of the Receiver's multiple-zone capabilities. It contains the following sections:

NOTES

To control the receiver from Zone B an optional IR receiver is required (see "Connecting the External Infrared Receivers and IR Repeaters" on page 54).

The optional Kenwood IR-9991 makes full use of PowerTouch III's bi-directional communication capability.

Making Connections

This section describes how to connect speakers in the two zones to support the different scenarios. Before you read this section, Kenwood recommends reading "Connecting Your Speakers" on page 4 of this manual. In addition, this section discusses how to connect a second TV/Monitor and how to connect an IR Receiver, IR Repeaters, Relays, and a TV On/Off Sensor (for use with Perfect Macro).

Scenario 1: Surround Sound in Zone A only/Stereo in Zone A and Stereo in Zone B (Using the Receiver's Speaker B Outputs)
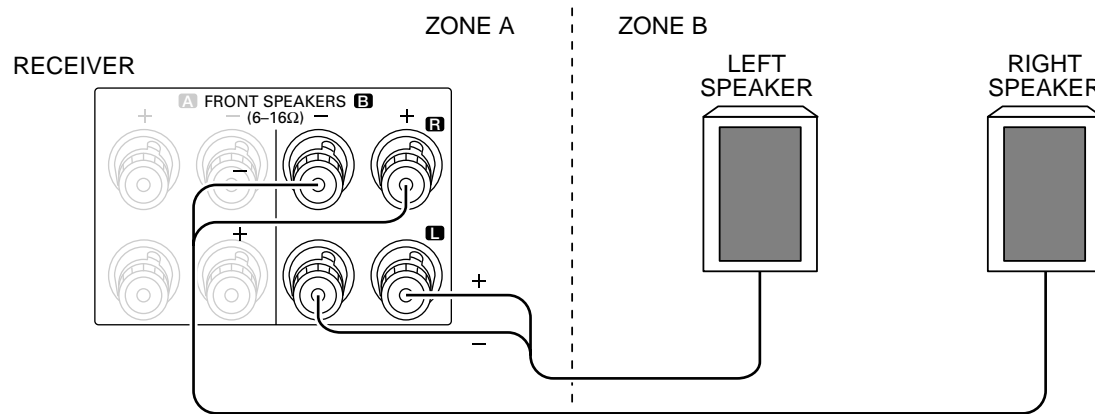
The five amplifiers built into the receiver meet your sound needs for both zones. The built-in amplifiers allow you to listen to full surround sound if you are listening in Zone A only, or stereo in Zone A if both zones are active. You will always hear stereo in Zone B. Make the speaker connections as shown in the illustration under "To Connect Front and Surround Sound Speakers:" on page 5, being sure to also connect the Zone B speakers to the **SPEAKER B** binding post.

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Scenario 2: Surround Sound in Zone A and Stereo in Zone B (Using a Stereo Amplifier in Zone B)
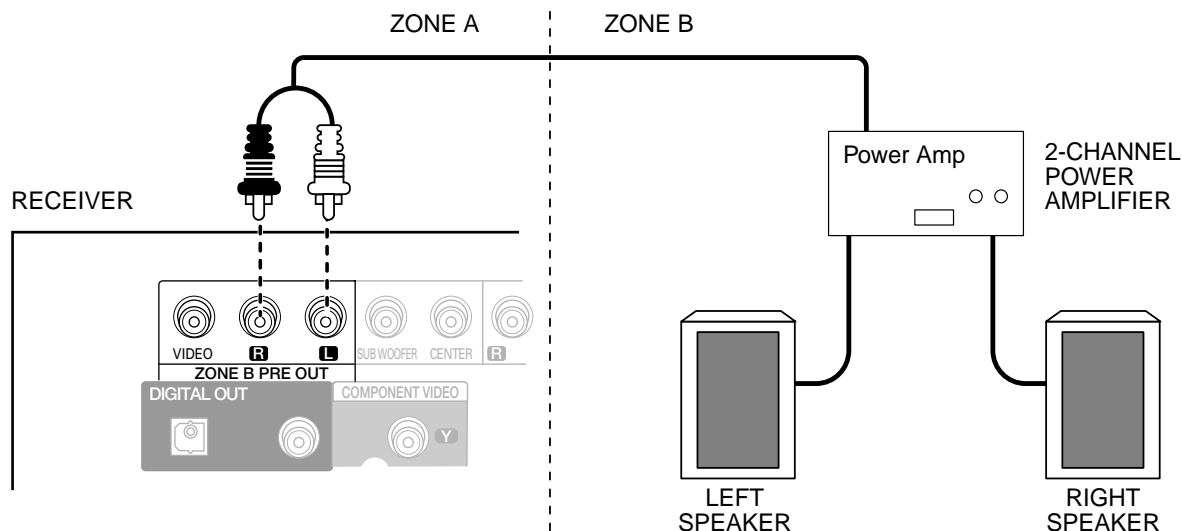
You use an additional stereo amplifier for Zone B. This allows you to listen to full surround sound in Zone A even if both zones are active. You will always hear stereo in Zone B. Make the speaker and amplifier connections as shown in the illustration.

Both Scenarios: Connecting a Second TV/Monitor

If you plan to watch movies, or any other visual entertainment activity in Zone B, you must connect an additional TV/Monitor. To do so, connect a standard composite video cable from the Zone B TV to the **ZONE B PRE OUT VIDEO** jack.

The above is possible only when the composite signals are input. See "Video Connections" on page 1.

Setting Up PowerTouch III

You can operate equipment from two different zones using your Kenwood PowerTouch III. To do so:

1. Make sure you have identified all the connected devices to PowerTouch III. For more information on identifying devices, see "Identifying Devices For PowerTouch III Control" on page 40 of this manual.

2. Touch the ⬚ (SETUP) on the Quick Access menu to access the Setup menu:
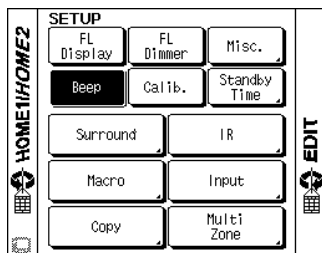
3. Touch ⬚ Multi Zone to access multi-zone commands:
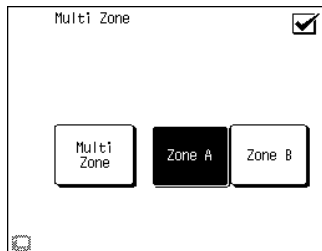
4. Touch the ⬚ Multi Zone to highlight it.

5. Touch ⬚ Zone A to control zone A or touch ⬚ Zone B to control zone B. The selected zone will be highlighted.

Your PowerTouch is now set up to operate devices in multiple zones. Which zone it controls depends on which zone you select. For more information on selecting zones, see "How Do I Switch Control Modes?" on page 91 of the *Users' Guide*.

♫NOTES

If you plan on using the VR-5900 in a Dual-Zone application, you must use the composite video connections in addition to any S-Video connections. Only video sources connected with composite connectors can be viewed in the second zone (Zone B).

You must use the analog audio cable connections. (Digital inputs are not sent to Zone B.)

Multiple Zones

Connecting the External Infrared Receivers and IR Repeaters
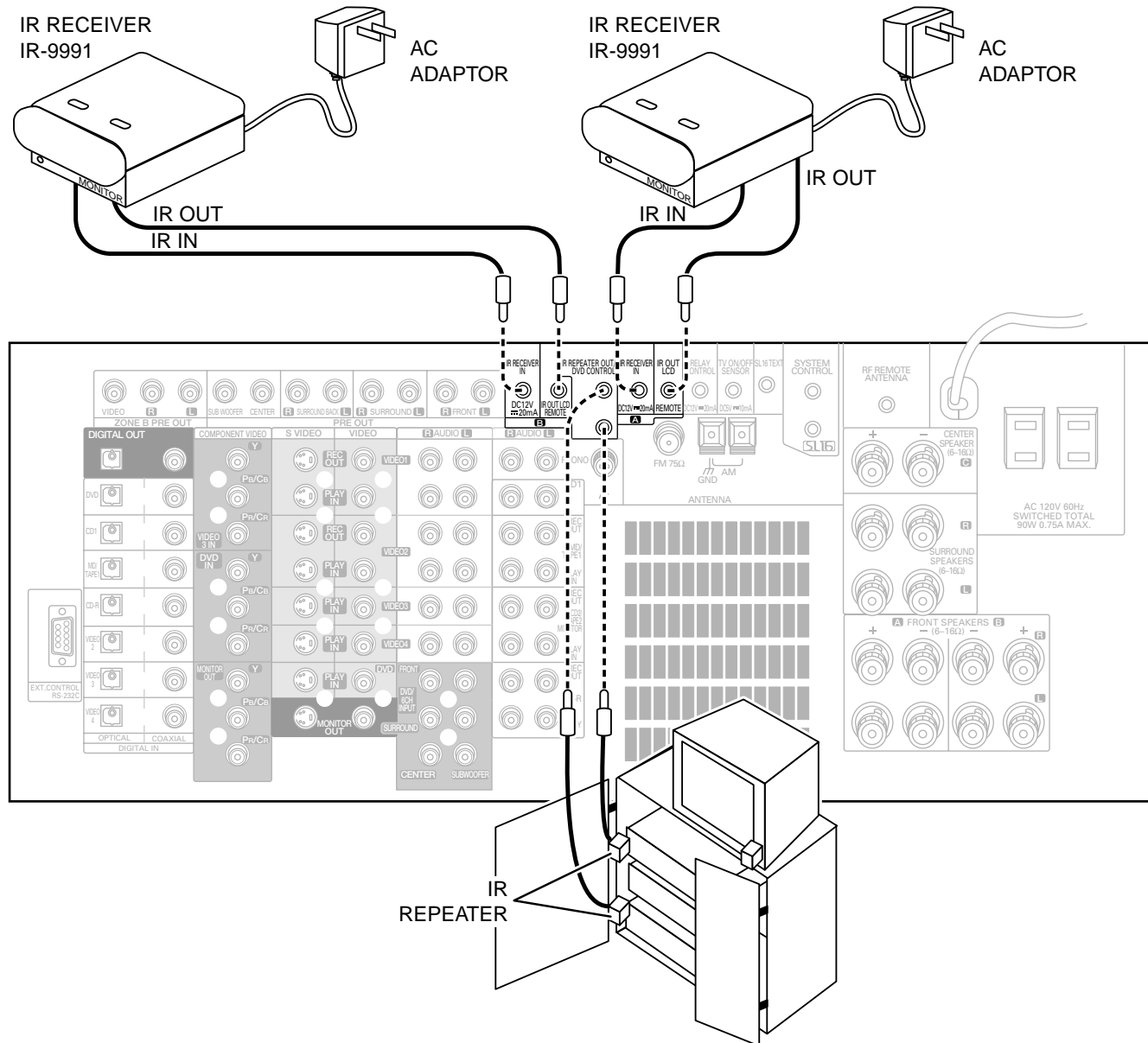
Connecting the External Infrared Receivers and IR Repeaters, continued

For any situation where want to control the VR-5900 via IR (such as in a dual-zone system, or if there is extreme RF interference), you can connect an external IR transceiver to the VR-5900 and use PowerTouch III's IR communication instead of RF.

Kenwood's optional IR-9991 IR transceiver supports PowerTouch III's 2-way communication and will supply system status feedback to PowerTouch III. You can substitute Xantech (291-80, 480-30 or 490-30 series) IR receivers for the IR-9991, however these devices are one-way only, and will not supply system status feedback to PowerTouch III.

To connect a Kenwood IR-9991 IR Transceiver

1. Connect the IR-9991's IR IN cable to the VR-5900's **B IR RECEIVER IN** jack. This jack supports a 12V 20 mA signal.

2. Connect the IR-9991's IR OUT cable to the VR-5900's **B IR OUT LCD REMOTE** jack.

3. Connect the IR-9991's power supply to it, but **do not** plug the power supply into an AC outlet until all connections have been made to the VR-5900.

To connect any other IR Receiver

1. Connect the IR receiver's output cable to the VR-5900's **B IR RECEIVER IN** jack. This jack supports a 12V 20mA signal.

2. If required, connect the IR receiver's power supply to it, but do not plug the power supply into an AC outlet until all connections have been made to the VR-5900.

   For you already have an IR transceiver or repeater connected to the **B IR RECEIVER** jacks and you need to install a second IR transceiver or repeater to substitute for the VR-5900's front-panel IR receiver (such as if the VR-5900 is mounted in a closet or cabinet), you can use the **A IR RECEIVER IN** and **A IR OUT LCD REMOTE** jacks. However, before using PowerTouch III in this situation you must first turn the VR-5900's RF receiver off.

To turn the VR-5900's RF Receiver off

- Press and hold the **RF ON/OFF** (**INPUT MODE**) button on the VR-5900's front panel (behind the panel door) for more than 2 seconds. The display will read RF OFF.

- If the VR-5900's RF receiver is off, you do not need to install the RF remote antenna. (See page 33.)

To turn the VR-5900's RF Receiver back on

- Press and hold the **RF ON/OFF** (**INPUT MODE**) button on the VR-5900's front panel (behind the panel door) for more than 2 seconds. The display will read RF ON.
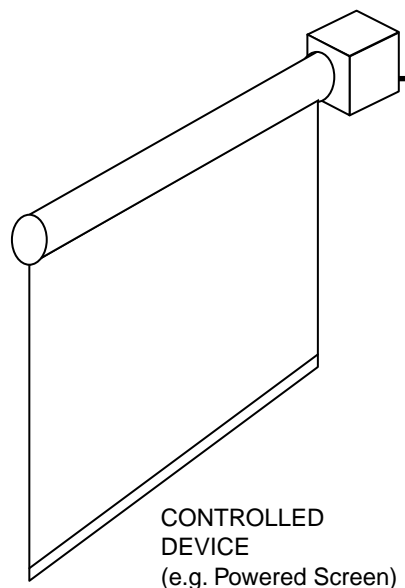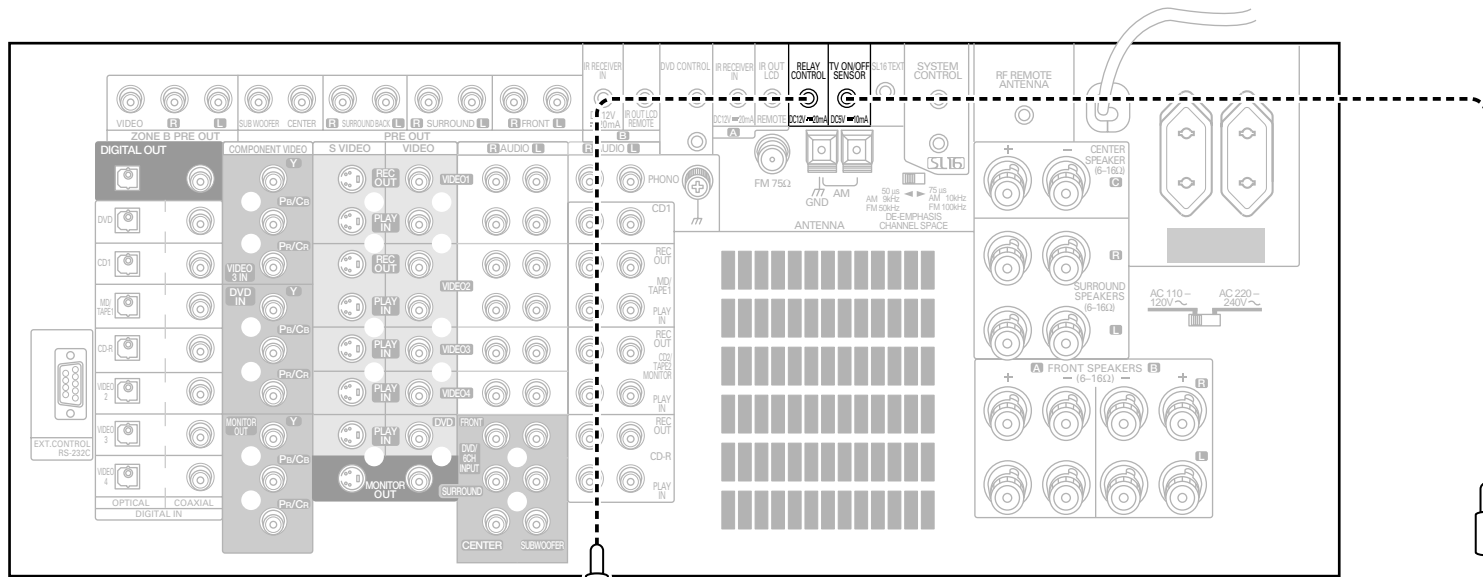
To Connect IR Repeaters

IR repeaters enable you to control other devices that are located in cabinets or behind glass doors. To connect IR repeaters:

1. Connect the IR repeater to the device as described in the repeater's manual.

2. Connect the IR repeater cable(s) to the Receiver's **IR REPEATER OUT** jack(s).

IR repeaters send a signal similar to the device's own remote control. Xantech repeaters (models 282-00, 286-00, or 283-00) are compatible with your new audio-video receiver.

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Multiple Zones

Connecting and Setting Up On/Off Sensors or Relay Controls

Multiple Zones

RELAY
CONTROL

CONTROLLED
DEVICE
(e.g. Powered Screen)

TV ON/OFF
SENSOR

	status	
	Power Off	Power On
To Tip	0V	Switched between 0 V and 12 V by a button on one of PowerTouch III's screens (see page 82 of the VR-5900 *Users' Guide*).
To Ring	0V	+12V When the VR-5900's power is switched on.
To Sleeve	Ground	Ground
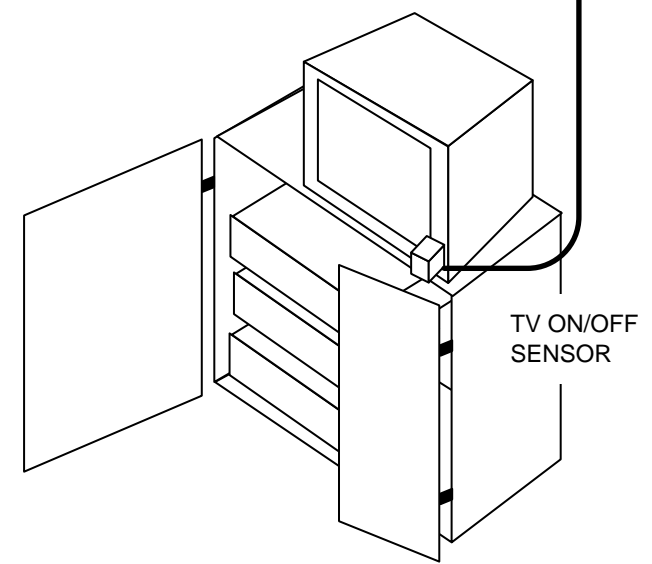
Connecting and Setting Up On/Off Sensors or Relay Controls, continued

The VR-5900 supports 2 types of additional external controls:

- A relay control that enables you to operate external relay-control devices (such as the Xantech 590-0 programmable controller, via Xantech's 599-00 pulse switching module).

- A TV ON/OFF sensor that enables you to use the Perfect Macro feature (described further in the U*sers' Guide*) to accurately sense whether the TV is already on or off and adjust accordingly.

To Connect Relay Controls:

1. Consult the relay control's manual for compatibility information and installation instructions before connecting it to your new receiver. If you install the control incorrectly or connect an incompatible control to the receiver, you may damage the control and your new receiver.

2. Connect the control cable to the receiver's **RELAY CONTROL** jack. This jack supports a 12V, 20mA signal.

Do not connect multiple Xantech 599-00 switching modules to each other or to the receiver, as this can exceed the maximum current capacity of the jack and damage your receiver.

To Connect TV ON/OFF Sensors:

1. Connect the sensor to the TV as described in the sensor's manual.

2. Connect the sensor cable to the receiver's **TV ON/ OFF SENSOR** jack. This jack supports a 5V, 10mA signal.

JDS:PSS-TV or NILES:LS-1, APC-2 sensors are compatible with your new receiver.

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Multiple Zones

Chapter Five: Warnings and Specifications

Read this page carefully to ensure safe operation.

Warnings

FCC WARNING

This equipment may generate or use radio frequency energy. Changes or modifications to this equipment may cause harmful interference unless the modifications are expressly approved in the instruction manual. The user could lose the authority to operate this equipment if an unauthorized change or modification is made.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment may cause harmful interference to radio communications if it is not installed and used in accordance with the instructions. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from the one that the receiver is connected to.
- Consult the dealer or an experienced radio/TV technician for help.

FCC Compliance Notice

Audio-video Receiver, VR-5900

This device comply with Part 15 of FCC Rules.

Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

KENWOOD U.S.A. CORPORATION

2201 East Dominguez St., Long Beach, CA 90801-5745

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IC(Industry Canada) Notice

Operation is subject to the following two conditions: (1) This device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Note to CATV System Installer:

This reminder is provided to call the CATV system installer's attention to Article 820-40 of the NEC that provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical.

NOTE: Do not use contact cleaning agents because they could cause a malfunction. Be especially careful not to use contact cleaning agents containing oil, since they may deform the plastic components.

VR-5900 Specifications

Audio Section

Rated Output Power during stereo operation
130 watts per channel minimum RMS, both channels driven, at 6 Ω from 20 Hz to 20 kHz with no more than 0.03% total harmonic distortion (FTC).

Effective Output Power during surround operation
1 kHz, 0.06% T.H.D. at 6 Ω, all channel driven
(Front, Center, Surround) .... 130 W × 5

Total Harmonic Distortion .... 0.005 % (1 kHz, 65 W, 6 Ω)

Frequency Response (IHF'66)
Line (CD1, MD/TAPE, CD2/TAPE2 MONITOR, CD-R, VIDEO 1 - 4, DVD/6CH.) .... 7 Hz ~ 100 kHz, 0 dB, -3 dB

Signal to Noise Ratio (IHF '66)
PHONO (MM) .... 76 dB
CD1 .... 98 dB

Input Sensitivity / Impedance
PHONO (MM) .... 4.0 mV / 47 kΩ
CD1 .... 300 mV / 47 kΩ
DVD/6CH. .... 300 mV / 47 kΩ

Output Level / Impedance
TAPE REC .... 300 mV / 2.2 kΩ
PRE OUT **(Front, Center, Surround, Surround back)**
.... 1 V / 470 Ω
PRE OUT **(Subwoofer)** .... 1.8 V / 470 Ω

Tone Control
Bass .... ± 7 dB (at 100 Hz)
Treble .... ± 7 dB (at 10 kHz)

Loudness Control
Volume at -30 dB level .... +6 dB (100 Hz), +3 dB (10 kHz)

Digital Audio Section

Sampling Frequency .... 32 kHz, 44.1 kHz, 48 kHz, 96 kHz
Input Level / Impedance / Wavelength
Optical .... -15 dBm ~ -21 dBm, 660 nm ±30 nm
Coaxial .... 0.5 Vp-p / 75 Ω

Output Level / Impedance / Wavelength
Optical .... -15 dBm ~ -21 dBm, 660 nm ±30 nm
Coaxial .... 0.5 Vp-p / 75 Ω

Video Section

Video Inputs / Outputs
Video (composite) .... 1 Vp-p / 75 Ω
S Video (luminance signal) .... 1 Vp-p / 75 Ω
(chrominance signal) .... 0.286 Vp-p / 75 Ω
Component (luminance signal) .... 1 Vp-p / 75 Ω
(PB/PR-signal) .... ±0.324 Vp-p / 75 Ω

FM Tuner Section

Tuning Frequency Range .... 87.5 MHz ~ 108 MHz

Usable Sensitivity (Mono)
.... 1.2 μV (75 Ω) / 12.2 dBf (75 kHz dev., sinad 30 dB)

50dB Quieting Sensitivity
Stereo .... 22.4 μV (75Ω) / 38.2 dBf

Total Harmonic Distortion (1 kHz)
Mono .... 0.3 % (71.2 dBf input)
Stereo .... 0.5 % (71.2 dBf input)

Signal to Noise Ratio (1 kHz, 75 kHz DEV.)
Mono .... 75 dB (71.2 dBf input)
Stereo .... 70 dB (71.2 dBf input)

Stereo Separation (1 kHz) .... 40 dB

Selectivity (±400 kHz) .... 70 dB

Frequency Response .... 30 Hz ~ 15 kHz, +0.5 dB, -3.0 dB

AM Tuner Section

Tuning Frequency Range
10kHz step .... 530 kHz ~ 1,700 kHz

Usable Sensitivity (30 % mod., S/N 20 dB)
.... 16 μV / (500 μV/m)

Signal to Noise Ratio (30 % mod. 1 mV input) .... 50 dB

Relay and IR In/Out Section

Relay Control Terminal
Maximum Output Current .... 20 mA
Operating Voltage .... 12 V
Output Impedance .... 470 Ω

IR Receiver In Terminal
Maximum Output Current .... 20 mA
Operating Voltage .... 12 V
Output Impedance .... 470 Ω

IR Out LCD Remote Terminal
Maximum Output Current .... 20 mA
Operating Voltage .... 5 V
Output Impedance .... 470 Ω

IR Repeater Control Terminal
Maximum Output Current .... 20 mA
Operating Voltage .... 12 V
Output Impedance .... 470 Ω

SHAPE OF PLUG TO BE CONNECTED:

IR Receiver In and IR Out LCD Remote	IR Repeater Out
Stereo mini plug	Mono mini plug
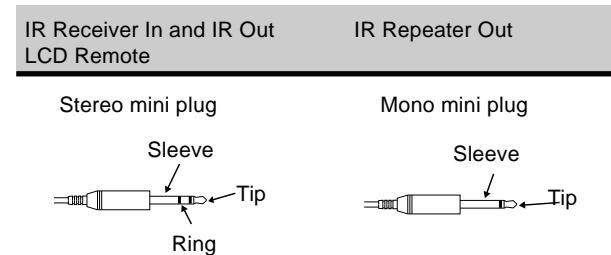
IR IN/OUT SPECIFICATION:

	Terminal	
	IR Receiver In	IR Out LCD Remote
To Tip	Signal	Signal
To Ring	Ground	——
To Sleeve	+12V	Ground

RELAY CONTROL SPECIFICATION:

	status		
	Power Off	Power On	When a specific button on one of PowerTouch III's screen is pressed.
To Tip	0V	0V	+12V
To Ring	0V	+12V	——
To Sleeve	Ground	Ground	Ground

General

Power consumption .... 6.2 A
AC outlet
Switched .... 2 (total 90 W, 0.75 A max.)
Dimensions .... W: 440 mm (17-5/16″)
H : 191 mm (7-1/2″)
D : 416 mm (16-3/8″)

Weight (Net) .... 19.9 kg (43.8 lb)

Kenwood follows a policy of continuous advancements in development. For this reason, specifications may be changed without notice.

Full performance may not be exhibited in extremely cold locations (below 0 deg. C).

Specifications

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KENWOOD

For your records

Record the serial number, found on the back of the unit, in the spaces designated on the warranty card, and the space provided below. Refer to the model and serial numbers whenever you call upon your dealer for information or service on this product.

Model _____ Serial Number _____