

OPERATING INSTRUCTIONS



R-325

AUDIO/VIDEO RECEIVER

INTRODUCTION


UNPACKING AND INSTALLATION

Congratulations on Your Purchase!

Your new high fidelity Receiver is designed to deliver maximum enjoyment and years of trouble free service. Please take a few moments to read this manual thoroughly. It will explain the features and operation of your unit and help ensure a trouble free installation.

Please unpack your unit carefully. We recommend that you save the carton and packing material. They will be helpful if you ever need to move your unit and may be required if you ever need to return it for service. Your unit is designed to be placed in a horizontal position and it is important to allow at least two inches of space behind your unit for adequate ventilation and cabling convenience.

To avoid a damage, never place the unit near radiators, in front of heating vents, in direct sunlight, or in excessively humid or dusty locations. Connect your complementary components as illustrated in the following section.



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.



This symbol 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.



This symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

WARNING

To reduce the risk of fire or electric shock, do not expose this appliance to rain or moisture.

Caution : Do not block ventilation openings or stack other equipment on the top.

FOR U.S.A.

■ **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.

■ **FCC INFORMATION**

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 generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. 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 receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio TV technician for help.

CAUTION: Any changes or modifications in construction of this device which are not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

READ THIS BEFORE OPERATING YOUR UNIT

FOR U.S.A. AND CANADA 120 V

FOR YOUR SAFETY

Units shipped to the U.S.A. and Canada are designed for operation on 120 V AC only.

Safety precaution with use of a polarized AC plug. However, some products may be supplied with a nonpolarized plug.

CAUTION : To prevent electric shock, match wide blade of plug to wide slot, fully insert.

ATTENTION : Pour éviter les choc électriques, introduire la lame la plug large de la borne correspondante de la prise et pousse jusqu'au fond.

FOR AUSTRALIA AND EUROPE 220 V/230 V/240 V

FOR YOUR SAFETY

Units shipped to Australia are designed for operation on 240 V AC only.

To ensure safe operation the three-pin plug supplied must be inserted only into a standard three-pin power point which is effectively earthed through the normal household wiring. Extension cords used with the equipment must be three-core and be correctly wired to provide connection to earth. Improper extension cords are a major cause of fatalities. The fact that the equipment operates satisfactorily does not imply that the power point is earthed and that the installation is completely safe. For your safety, if in any doubt about the effective earthing of the power point, consult a qualified electrician.

PAN-EUROPEAN UNIFIED VOLTAGE

All units are suitable for use on supplies 220-240 V AC.

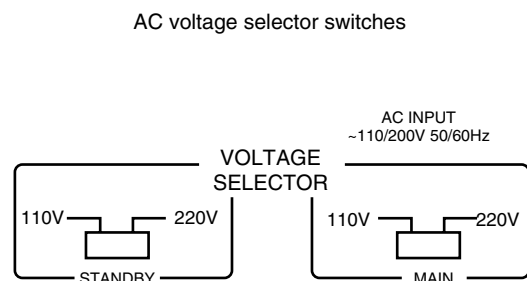
FOR OTHER COUNTRIES 120 V/220 V

FOR YOUR SAFETY

Units shipped to countries other than the above countries are equipped with an AC voltage selector switch on the rear panel. Refer to the following paragraph for the proper setting of this switch.

AC VOLTAGE SELECTION

This unit operates on 110-220 V AC. The AC voltage selector switches Type A on the rear panel are set to the voltage that prevails in the area to which the unit is shipped. Before connecting the power cord to your AC outlet, make sure that the setting position of these switches match your line voltage. If not, They must be set to your voltage in accordance with the following direction.



Move switch levers to match your line voltage with a small screwdriver or other pointed tool.

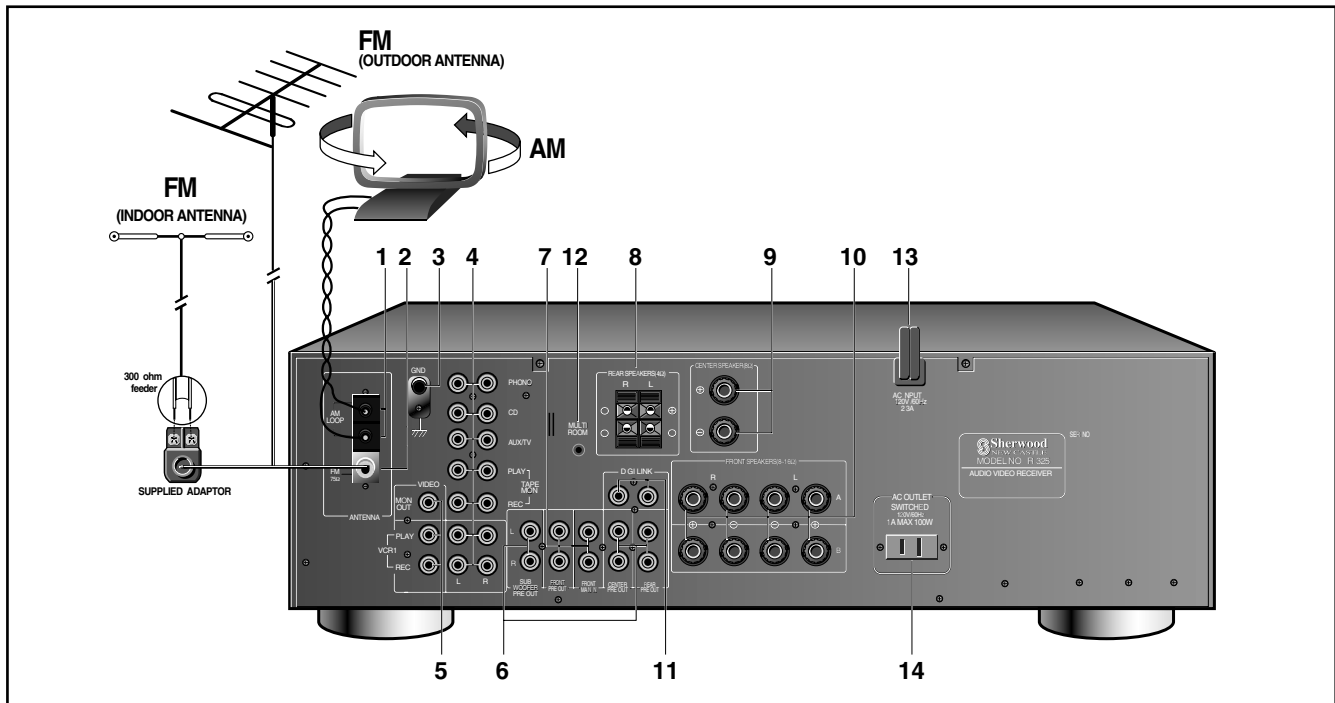
Please make the following connections (where applicable).

Notes!

- **SWITCH OFF THE RECEIVER BEFORE MAKING ANY CONNECTIONS.**
- Do not connect the receiver to the AC outlet when making connections.
- Be sure to connect the white plugs to the L (left) and the red plugs to the R (right) jacks when making connections.

Important note for connecting equipment that does not have IN/OUT markings on the input and output jacks:

R-325	Device to be connected e.g. cassette deck.
PLAY →	PLAY or OUT
REC →	REC or IN



CONNECTIONS

1. FM INDOOR ANTENNA

Connect the supplied antenna to the FM antenna terminals, as shown.

Change the position of the antenna until you get the best reception of your favorite FM stations.

FM OUTDOOR ANTENNA

A 75Ω outdoor FM antenna may be used to further improve the reception.

Disconnect the indoor antenna before replacing it with the outdoor one.

2. AM LOOP ANTENNA

Tune in your favorite AM station and position the loop antenna for best reception. Try other stations and find the position that gives best overall reception. When this unit is mounted in a rack or placed on a shelf with insufficient space behind, hang the antenna on a wall in the direction which gives best reception.

3. SYSTEM GROUND TERMINAL

When using a turntable, connect the ground lead from your TURNTABLE to this terminal.

4. AUDIO IN/OUT

- **PHONO IN** – input jacks for connecting a turntable.
 - Connect these jacks to the output jacks of a turntable with MM (Moving Magnet) type cartridge.
- **CD IN** – input jacks for connecting a Compact Disc player.
 - Connect these jacks to the OUTPUT jacks of the CD player.

- **AUX/TV IN** – input jacks for connecting the fixed audio output jacks of a TV set or any other source you want to hear; an additional CD player or a cassette deck.

- **TAPE MON PLAY/REC** – play and rec jacks for connecting a cassette deck, a Digital Compact Cassette deck or another digital recording device.

✦ Connect the PLAY jacks to the PLAY or LINE OUTPUT jacks of the deck.

These jacks may also be connected to the LINE OUTPUT jacks of an audio processor such as an optional graphic equalizer or a Digital Signal Processor.

✦ Connect the REC jacks to the REC or LINE INPUT jacks of the deck.

These jacks may also be connected to the LINE INPUT jacks of an audio processor such as an optional graphic equalizer or a Digital Signal Processor.

- **VCR 1 PLAY/REC** – play(input) and rec(output) jacks for connecting the audio OUTPUT and INPUT jacks of a Hi-Fi stereo VCR.

• Connect the PLAY jacks to the AUDIO PLAY or OUTPUT jacks of the VCR.

• Connect the REC jacks to the AUDIO REC or INPUT jacks of the VCR.

Note : The audio and video inputs and outputs of the VCR must be connected to allow the VCR 2/CAMCORDER inputs on the front of the receiver to be used for recording input.

5. VIDEO IN/OUT

- **MONITOR OUT** – output jack for connecting to the video input of a TV set. The TV set must then be switched to that input.
- **VCR 1 PLAY/REC** – play(input) and rec(output) jacks for connecting the video output and input of a VCR.

6. LOW LEVEL PRE-OUT

- **SUBWOOFER OUT** – output jacks for driving SUBWOOFER.
 - Connect these jacks to SUBWOOFER input jacks of separate amplifier or a powered SUBWOOFER.
- **CENTER PRE-OUT** – output jacks for connecting a separate amplifier to drive the center speaker. Connect these jacks to the input jacks of a separate amplifier for center channel speaker only.
- **REAR PRE-OUT** – output jacks for connecting a separate amplifier to drive the rear speakers. Connect these jacks to the input jacks of a separate amplifier for rear channel speakers only.

7. FRONT PRE-OUT/MAIN-IN

- **PRE OUT** – When a separate power amplifier is used to drive the front speakers.
 - Connect these jacks to inputs of a separate power amplifier.
- **MAIN IN** – When a separate pre-amplifier is used for front channel.
 - Connect these jacks to outputs of a separate pre-amplifier.

Note : When you do not use the PRE OUT or MAIN IN, always connect the PRE OUT and MAIN IN jacks with jumper plugs.

8. REAR SPEAKERS

Terminals for connecting a pair of rear speakers, impedance of 4 Ω each, to obtain a surround sound effect.
Note : Always connect **two** speakers to these terminals.

9. CENTER SPEAKER

Terminals for connecting a center speaker, impedance of 8Ω.

10. FRONT SPEAKERS

Terminals for connecting two pairs of speakers, impedance of 8 – 16Ω (L = left, R = right).
 • One of the wires of a speaker cable is marked with a color or rib. Connect the marked wire to the red terminal, the non-marked wire to the black one.

11. DIGI LINK III SYSTEM CONTROL

(colored green) – remote control jacks for connection to the corresponding DIGI LINK II or III jacks of a Sherwood CD (Compact Disc) or tape player. Connect this jack to the DIGI LINK III jack of the external Sherwood equipment that uses the DIGI LINK II or III remote control system.

These jacks have been added to maintain compatibility with other Sherwood products.

12. MULTI-ROOM IN

Jack for connecting the multi room adaptor. Connect this jack to the output of the multi room adaptor. For information on the multi-room adaptor, contact the xantec Corporation at 1-800-843-5465.

POWER

13. POWER CORD

Connecting the receiver to the wall socket.

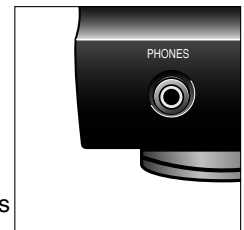
14. OUTLETS

- Switched output for connecting AC power plugs from various units such as cassette deck, CD player, etc. (Maximum capacity is 100 W).

- Stand by mode - Switched AC outlet off
 Power on mode - Switched AC outlet on

CONNECTING HEADPHONES

- Connect a headphones with a 1/4" plug to the PHONES jack.
- Inserting the plug will not disconnect the speakers.
- Turn the speakers off by pressing the SPEAKER switches once, press again to turn speakers on. Also ensure receiver is not in surround modes
- Only in Surround off mode you can enjoy private listening with a headphone.

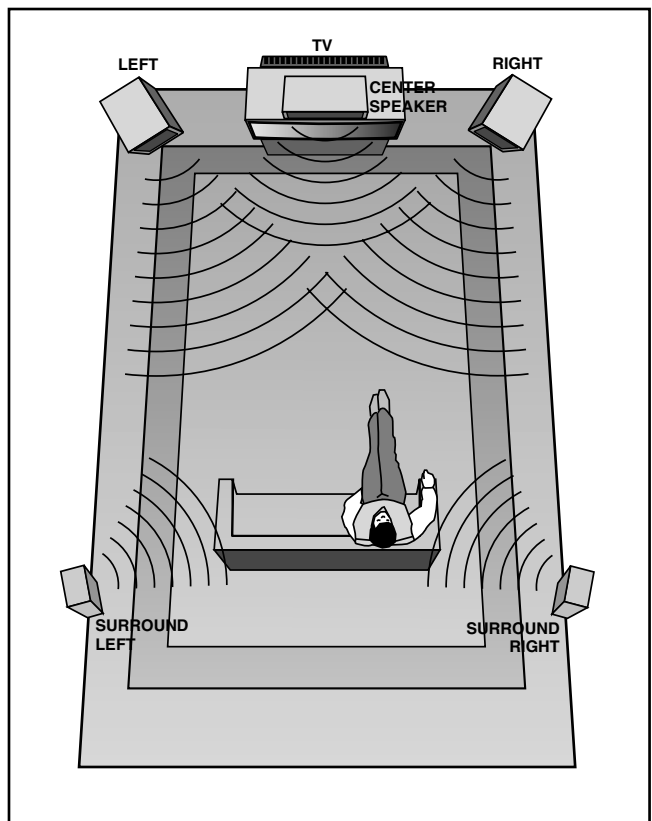


SPEAKER POSITIONING

To obtain the best surround sound effect in your home, place the speakers as shown below.

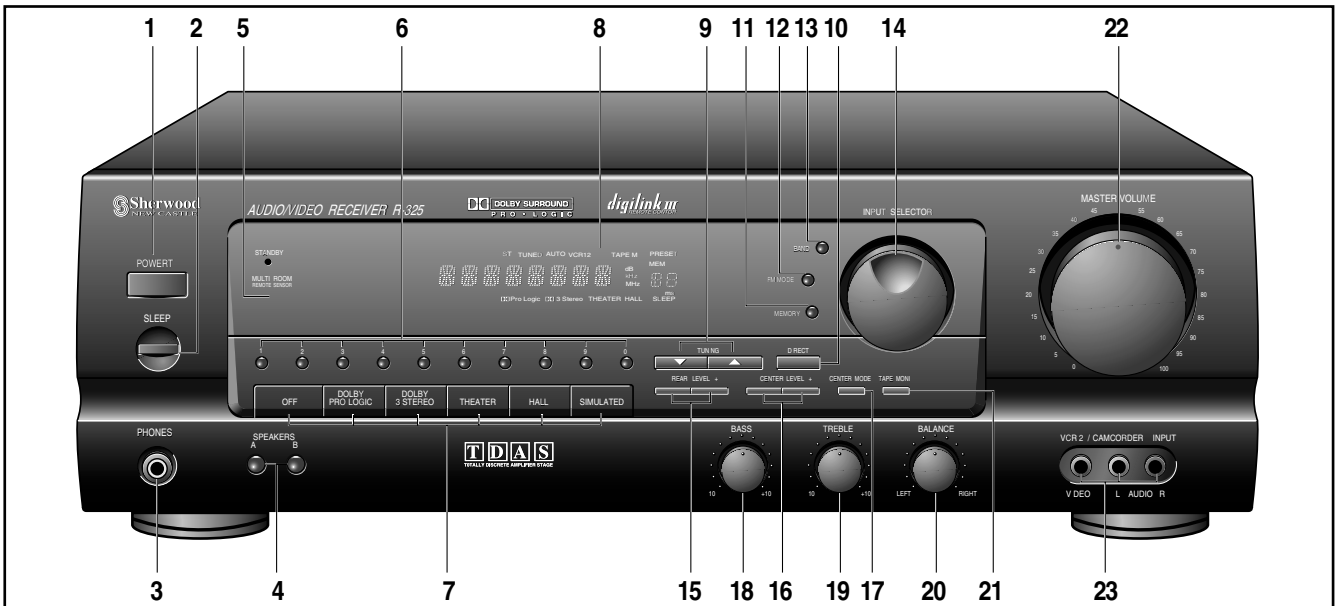
The left and right speakers should be placed about 1 m (40") from the TV set.

The center speaker should be above or below the TV set. The rear speakers should be placed 2~3 feet above the ear level of a seated listener on the direct left and right of them. Refer to the fold-out for additional information.



Note : to avoid interference with the TV picture, use only magnetically shielded front speaker systems.

After making all necessary connections (some may not apply to your system set-up), your system is ready for use. In the next chapter, we will describe how to operate your R-325 receiver.



FRONT PANEL

1. POWER BUTTON

For switching power on and switching on to STANDBY.

2. SLEEP BUTTON

For setting a time period after which the system will automatically be switched to standby.

3. PHONES

For connecting headphones.
Turn A and B SPEAKER switches off for private listening.

4. SPEAKERS A, B SELECTOR SWITCHES

- Press A or B switch to turn on either pair of speakers.
- Press A or B switches to turn on both pairs of speakers.

Note : If the A and B switches are both on, a reduction of the main volume may be experienced and if only one pair of speakers is connected, no sound will be heard.

5. REMOTE SENSOR

Infrared remote control sensor for receiving signals from the remote control.

6. 0-9 DIGIT BUTTONS

For selecting stations in frequency direct mode and for preset tuning in tuner mode.

7. SURROUND MODE BUTTONS

For selecting the surround mode.

OFF, DOLBY PRO LOGIC, DOLBY 3 STEREO, THEATER, HALL, SIMULATED

8. FLUORESCENT DISPLAY

Informs you about the function of the receiver.

9. TUNING ▼/▲ BUTTONS

For adjusting the station frequency.

10. DIRECT BUTTON

Allows you to find the station frequency you want directly.

11. MEMORY BUTTON

For storing preset stations.

12. FM MODE BUTTON

For selecting STEREO or MONO operation in FM mode.

13. BAND BUTTON

For selecting FM or AM.

14. INPUT SELECTOR

For selecting the desired audio or video source.

15. REAR LEVEL -/+ BUTTONS

For adjusting the rear speaker volume in relationship to the MASTER VOLUME in DOLBY PRO LOGIC, THEATER, HALL and SIMULATED modes.

16. CENTER LEVEL -/+ BUTTONS

For adjusting the center speaker volume in relationship to the MASTER VOLUME only in DOLBY PRO LOGIC and DOLBY 3 STEREO modes.

17. CENTER MODE BUTTON

For selecting the desired center mode (NORMAL, WIDE or PHATOM).

18. BASS CONTROL

For adjusting the bass tones.

19. TREBLE CONTROL

For adjusting the high tones.

20. BALANCE CONTROL

For adjusting the balance of the volume between the left and right channel.

21. TAPE MONITOR BUTTON

For monitoring the sound of recording or playback of a cassette deck as a listening source.

22. MASTER VOLUME CONTROL

For adjusting the main volume.

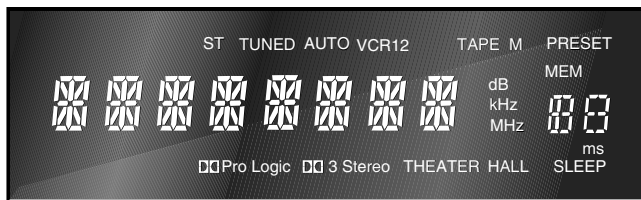
23. VCR 2/CAMCORDER AUDIO/VIDEO INPUT

Connections for an extra VCR, camcorder, video game player or DSS system.

The audio jacks may also be used for an extra audio source like a CD player or cassette deck.

FUNCTION OVERVIEW

DISPLAY



ST
Lights up when a FM stereo transmission is received.

TUNED
Lights up when a FM or AM transmission is received.

AUTO
Lights up when operating auto tuning.

VCR 12, TAPE M
Lights up when the corresponding source is selected.

PRESET
Lights up when in preset mode.



Indicates the selected waveband FM, AM. The frequency of the tuned station is indicated in MHz (for FM) or in kHz (for AM) and also indicates the trim volume level of the center and rear channel.



Indicates the selected PRESET number, SLEEP time (in minutes), DELAY TIME.

MEM
Flashes when the memory has been opened to store a preferred station.

PRO LOGIC, 3 STEREO, THEATER, HALL
Indicates the selected surround mode.

SLEEP
Lights up when the sleep timer is active.



REMOTE CONTROL

The remote control (supplied) can be used to operate functions of the receiver. In addition, it can be used to operate any other Sherwood equipment that uses the DIGI LINK II or III remote control system.

BATTERIES

- Open the battery compartment and insert two batteries as indicated, type R6, UM3 or AA cells.
 - Remove the batteries when they have run down or if the remote control will not be used again for a long period.
- Note :** Do not use rechargeable batteries.

USING THE REMOTE CONTROL

- First select the source you wish to control by pressing one of the seven source select buttons on the remote control (e.g.TAPE M, CD, etc.).
- Then, select the desired function.

AMPLIFIER

1. **POWER** – for power control of this receiver or system. (as described in amplifier chapter titled "POWER ON/STANDBY")
2. **SLEEP** – for setting a time period after which the system will automatically be switched to standby.
4. **SYSTEM DISPLAY** – for dimming displays of Sherwood components connected by DIGI LINK II or III.

12.INPUT SELECTORS

35. **MUTE** – for decreasing the volume.

SURROUND PROCESSOR

28.SURROUND MODE

DOLBY PRO LOGIC, DOLBY 3 STEREO, THEATER, HALL, SIMULATED, OFF – For selecting the different surround modes.

29. **CENTER MODE** – for selecting the desired center mode when in Dolby Pro Logic or Dolby 3 Stereo mode.
30. **TEST TONE** – for checking the output level of the front, center and rear speakers.
31. **DELAY TIME** – for adjusting the delay time of the rear channel.
32. **REAR LEVEL** \vee / \wedge – for adjusting the rear level (in Dolby Pro Logic, Theater, Hall, Simulated mode)
33. **CENTER LEVEL** \vee / \wedge – for adjusting the center level (only in normal mode or wide mode).
34. **MASTER VOLUME** \vee / \wedge – for adjusting the volume.

TUNER

3. **PRESET SCAN** – for scanning the stations memorized in memory.
5. **0-9 DIGITS** – for selecting stations in frequency direct mode and for preset tuning in tuner mode.

CASSETTE DECK

15. **■** – for stopping recording/play.
16. **||** – for interrupting recording/play.
17. **DECK SELECTOR A, B** – for selecting deck A or B.
18. **●** – for recording.
19. **▶** – for starting forward side play.
20. **◀** – for starting reverse side play.
21. **▶▶** – for winding the tape forward.
22. **◀◀** – for winding the tape reverse.

In the DIGI LINK III remote control system, If pressing PLAY on CD or TAPE monitor is selected automatically without selecting the input and PLAY, etc. starts.

COMPACT DISC PLAYER

5. **0-9 DIGITS** – for track selection, press desired button among 10 buttons on the remote control and for disk selection, select disc No.(1~5) within 2 sec. after pressing the DISC button.
6. **DISC** (CD changer only) – for disc selection.
7. **▶** – to begin play.
8. **■** – to stop play/clearing a program.
9. **||** – for pausing play.
10. **◀◀ ▶▶** – for skipping backward and forward.
11. **◀▶** – for searching backward and forward.
13. **INTRO** – to preview each track only for 10 seconds.
14. **REPEAT A <> B** – to play a specific passage repeatedly.

EQUALIZER

23. **PRESET** – for selecting equalizer pattern.
24. **USER** – for adjusting equalizer pattern as desired.
25. **FILE** – for selecting desired equalizer pattern in the preset or user mode.
26. **TAPE M** – for monitoring the sound of recording or playback of cassette desk.
27. **DISPLAY** – for selecting equalizer display.

POWER ON/STANDBY

- press the POWER button on the receiver or the remote control to turn the power on.
- The receiver enters the operating mode, the respective indicators light up and the standby indicator lights off.
- To switch the receiver off, press the POWER button again.
- The receiver enters the standby mode and the standby indicator lights up.
in the standby mode, the receiver is not disconnected from the AC mains and a small amount of current is retained to support the memorized contents and operation readiness.
- If the electricity fails or the AC cord is leaved unplugged for more then 2 weeks, the memorized contents are all cleared

System power on/off using the remote control.

- If the power switch of the component connected by the DIGI LINK II or III is kept pushed and its AC cord is plugged in the SWITCHED OUTLETS, each time the POWER button on the remote control is pressed, its power is turned on or off
- Under the same conditions, if its AC cord is not plugged only in the SWITCHED OUTLET, when the receiver becomes the standby mode, only its display is off.

SOUND CONTROL

Volume

- Adjust the overall volume with the MASTER VOLUME control.

Balance

- Adjust the stereo balance between the left and the right channels with the BALANCE control.

Treble

- Adjust the high tones with the TREBLE control.

Bass

- Adjust the bass tones with the BASS control.

WARNING : Extreme settings at high volume may damage your speakers!

- Use the SURROUND MODE button to select the desired sound effect: **DOLBY PRO LOGIC, DOLBY 3 STEREO, THEATER, HALL or SIMULATED**
- Press **MUTE** on the remote control if you want to silence the speakers temporarily.
- The volume indicator blinks.
- Press again to restore the same listening level as before.

INPUT SELECTION

- Selected the desired on the receiver or the remote control.
- The selected input will appear on the display.
- Each time INPUT SELECTOR is rotated, the input is selected as follow;

⎓ TUNER ⎓ CD ⎓ AUX ⎓ VCR1 ⎓ VCR2 ⎓ PHONO ⎓

- When the TAPE MONITOR button is set to on so that "TAPE M" indicator lights up, other inputs can not be heard from the speakers.
To listen to a input other than TAPE MONITOR, be sure to set the TAPE MONITOR button to off.

TAPE 2 MONITOR function

you can connect either a cassette deck or a graphic equalizer to the receiver's TAPE MONITOR jacks. Only when you listen to the component to there jack, set the TAPE MONITOR button to on.

If you connect a 3-head cassette deck, you can listen to the sound being recorded during recording not the source sound.

For further details, refer to the operating instructions of the component connected.

SURROUND MODE

With the SURROUND MODE button you can select 5 different surround modes: **DOLBY PRO LOGIC, DOLBY 3 STEREO, THEATER, HALL, SIMULATED or OFF.**

DOLBY PRO LOGIC : choose this setting to play back movies and music (especially Laser Discs, video cassettes and TV broadcasts with DOLBY SURROUND sound). Not only does Dolby Pro Logic surround provide you with sound, it also gives you a clear perception of the position and direction of the sound. Make sure your 'Speaker Positioning' is correct. (see 'INSTALLATION')

With a great number of recently made movies, the sound track is specially encoded with the Dolby Surround mode carrying the **DOLBY STEREO** or **DOLBY SURROUND** trademark. The front speakers provide the dialogue and the normal stereo effect, while the rear speakers reproduce the surround signals. This position provides excellent results when watching television programs, video software, video discs or video tapes of stereo television broadcasts encoded with Dolby Surround.

Note : In DOLBY PRO LOGIC mode, the rear speakers are used as "EFFECT SPEAKERS" and may not produce sound at all times.

DOLBY 3 STEREO : Choose this setting to play back movies and music (especially Laser discs, video cassettes and TV broadcasts with DOLBY SURROUND sound)when not using the rear speakers.

You get a clear perception of the position and direction of the sound

DOLBY 3 STEREO combines the front and rear signals so that you can enjoy a regenerated sound field which has comparatively more lively presence and a more expansive feeling from the three front channels (front left, front right and center speakers) than that of ordinary stereo regeneration.

THEATER : Use this when watching movie sources that have a stereo soundtrack to enjoy the effect of being in a movie theater.

HALL : Hall mode works best for recorded concerts and other music programs. In this mode, the front speakers provide a normal stereo effect while the rear speakers provide a reverberated sound. This reverberation helps to simulate the sound you might hear at a live concert.

SIMULATED : The "SIMULATED" creates effects of reverberated and reflected sound from the walls and ceiling similar to a concert hall. These sound effects added to the actual sound from the source make you feel as if you are in a more expanded space. Choose the SIMULATED mode if the source sound signal is mono.

OFF : Turns off the center and rear speakers for normal stereo operation.

Note : Dolby Pro Logic, Dolby 3 Stereo, Theater, Hall and Simulated will not work properly if the signal passes through a graphic equalizer. Please refer to your equalizer operating instructions for guidance on switching off (or defeating) the equation.

SURROUND MODE CONTROL

Each surround mode has programmed values for center-mode, center and rear levels and/or for rear channel time delay (as appropriate).

These values will then be kept in the memory until they are changed again.

The various values that can be adapted in the different surround modes are described next:

DOLBY PRO LOGIC :

- Press DOLBY PRO LOGIC or use the SURROUND MODE button on the remote control.
- Press the CENTER MODE button to select the required center channel mode :
 - NORMAL** – If the center speaker is smaller model, which means it will not reproduce bass as deep or as loud as the left and right speakers.
 - WIDE** – If all three front speakers are identical and capable of reproducing low bass information, and if equal power is available in the left, center and right amplifiers.
 - PHANTOM** – If no center speaker is installed.
- Use the REAR LEVEL buttons to adjust the rear level (related to the front level).
 - REAR 0 dB lights up on the display.
 - The level will be indicated on the display : MIN, -19, ... 0... , +9, MAX.
- Use the DELAY TIME button on the remote control to adjust the delay time of the rear channel.

– The delay time is changed as below, when it is pressed in succession.

→ 15 ms → 20 ms → 25 ms → 30 ms

- Use the CENTER LEVEL buttons to adjust the center level.
 - CENTER 0 dB lights up on the display.
 - The level will be indicated on the display : MIN, -19, ... 0 ... , +9, MAX.

DOLBY 3 STEREO

- Press the DOLBY 3 STEREO or use the SURROUND MODE button on the remote control.
- CENTER MODE : In Dolby 3 Stereo mode, you can only select NORMAL and WIDE.
- REAR LEVEL : Adjusting the rear level is not available in Dolby 3 Stereo mode.
- CENTER LEVEL : Use the CENTER LEVEL buttons to adjust the center level as described above.
- DELAY TIME : adjusting the delay time of the rear channel is not available in Dolby 3 stereo mode.

THEATER, HALL, SIMULATED

- Press the THEATER, HALL or SIMULATED respectively or use the SURROUND MODE button on the remote control.
- CENTER MODE and CENTER LEVEL are not available in these modes.
- Use the REAR LEVEL buttons to adjust the rear level (equal to the front level)
 - REAR 0 dB lights up on the display.
 - The level will be indicated on the display : MIN, -19, ... 0 ... , +9, MAX.
- Use the DELAY TIME button on the remote control to adjust the delay time of the rear channel as described above.
 - The delay time is changed as below, when it is pressed in succession.

→ 5 ms → 10 ms → 15 ms → 20 ms
30 ms ← 25 ms ←

TEST TONE


Use the TEST TONE function on the remote control to obtain the correct balance between the levels of the left, right, center and rear speakers in the DOLBY PRO LOGIC and DOLBY 3 STEREO mode.

DOLBY PRO LOGIC

- Press the TEST TONE button on your remote control.
- You will hear a test tone from the left (*FL*), center (*C*), right (*FR*) and rear (*R*) speakers in turn, in repeating a cycle.
- While sitting in the usual listening position, adjust the level of the center and the surround channels to get the same sound level with the front channel.
 - The levels will be indicated on the display .
- When you are satisfied with the levels, press the TEST TONE button on your remote control again to turn off the test tone.

DOLBY 3 STEREO

In the Dolby 3 Stereo mode you can adjust only the levels of the left, right and center speakers.

- Manufactured under license from Dolby Laboratories Licensing Corporation. "Dolby",  and "PRO LOGIC" are trademarks of Dolby Laboratories Licensing Corporation.

GENERAL

- Select the waveband by pressing the BAND button.
- Tune to a radio station or select a preset number.
The correct procedure is described in the following chapters.
- While tuning, the audio signal will be muted to eliminate interfering background noises.
Once a station is found, the audio signal will be set to normal volume again.
- When ST appears on the display, you are receiving an FM stereo transmission.
- A disturbing noise, due to a weak FM stereo signal, can be suppressed by pressing FM MODE.
- ST will disappear on the display and you will hear the FM program in mono.

TUNING

AUTOMATIC TUNING

- Press TUNING (▼/▲) for more than 1 second.
- AUTO appears on the display. The tuner will now search until a station of sufficient strength has been found. The display shows the tuned frequency.
- If the station found is not the desired one, simply repeat this operation.
- Weak stations are skipped during automatic tuning.
They can be tuned manually.

MANUAL TUNING

Manual tuning is useful when you already know the frequency of the desired transmitter (e.g. from your program guide).

- Briefly press TUNING (▼/▲) until the right frequency has been reached
- Tuning intervals ;

BAND	USA/CANADA	EUROPE/AUSTRALIA
FM	200 KHz	50 KHz
AM	10 KHz	9 KHz

FREQUENCY DIRECT INPUT

- Select the desired band(FM or AM).
- Press DIRECT button.
- Press the corresponding digit buttons within 5 seconds for each step.
- Refer to wave range and step for each band.
Example) FM 89.15 MHz
- Select FM.
- Press DIRECT button.
- Press button "8" within 5 seconds.
- Press button "9" within 5 seconds.
- Press button "1" within 5 seconds.
- Press button "5" within 5 seconds.

PRESET STATIONS

You can store 30 preferred stations in the memory of the tuner. This enables you to find your favorite stations quickly and easily.

Programming of preset stations

- Tune to the frequency to be stored(as described under TUNING)
- If the display shows no preset number, the frequency shown has not yet been stored in the memory.
- Press MEMORY to enter the frequency in memory.
- MEM starts flashing for about 5 seconds and PRESET lights up.
- Press the desired number from 1 to 30 while MEM is flashing.
- The preset station has now been stored in the memory.
A stored frequency is erased from the memory by storing another frequency in its place.

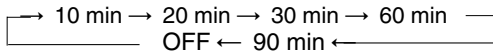
TUNING TO PRESET STATIONS

- Select the desired preset number by pressing digit buttons.
- The selected station will be tuned in and it will display the preset number and the tuned frequency.

SLEEP

The sleep mode allows the system to continue to operate for a specified period of time before automatically shutting off.

- Press the SLEEP button.
 - The display shows the indication SLEEP 10.
 - This means that the system will be switched to standby after 10 minutes.
 - Each time the button is pressed, the setting is changed as below.



Notes:

- During an active sleep timer period, you can reset the SLEEP time again by pressing the SLEEP button.
- A sleep timer period will be cancelled when you switch your system to standby (using the POWER button on your remote control).

RECORDING WITH A CASSETTE DECK

- Select the desired input to be recorded.
- Start recording on the cassette deck connected to TAPE MONITOR.
- Start play on the desired input.
 - For tape monitor function, refer to amplifier titled "TAPE MONITOR function".

DUBBING FROM VCR2 TO VCR1

- Select VCR2 as program source to be recorded.
- Start recording on the VCR connected to VCR1.
- Start playback on the VCR connected to VCR2.
 - For tape monitor function, refer to amplifier titled "TAPE MONITOR function".

When dubbing from VCR2 to VCR1, you can replace the audio signal from VCR2 with the signal from an audio source, e.g. a CD player.

- First select VCR2 as program source to be recorded.
- Then select the required audio source.
- Start recording on the VCR connected to VCR1.
- Start playing back on the selected audio source and on the VCR connected to VCR2.
 - You can now watch the picture from VCR2 on your TV and listen to the sound from the audio source while recording.

MODEL	R-325
POWER AMPLIFIER SECTION	
POWER OUTPUT (8 Ohms)	
STEREO MODE (20Hz-20kHz)	90W x 2
THD	0.05%
IM DISTORTION	0.05%
POWER OUTPUT (8 Ohms)	
SURROUND MODE (LEFT, CENTER, RIGHT)	80W x 3
REAR	80W
PREAMPLIFIER SECTION	
INPUT SENSITIVITY/IMPADANCE	
PHONO (47K Ohms)	2.5mV
LINE (CD, TAPE, VIDEO, @ 47K Ohms)	150mV
SIGNAL TO NOISE RATIO	
PHONO	77dB
LINE (CD,TAPE,VIDEO)	100dB
TONE CONTROLS	
BASS (100Hz)	+,-10dB
TREBLE (10kHz)	+,-10dB
CINEMA BASS	
BASS @ 80Hz LEFT /RIGHT, CENTER	
FREQUENCY RESPONSE	
PHONO (20Hz-20kHz,RIAA)	+,-0.5dB
LINE (CD, TAPE, VIDEO, 10Hz-100Hz)	+0,-1.5dB
FM TUNER SECTION	
USABLE SENSITIVITY (MONO)	10.5dBf
50dB QUIETING SENSITIVITY	
MONO	15dBf
STEREO	36.2dBf
SIGNAL TO NOISE RATIO 65dBf,MONO/STEREO	80dB/73dB
THD @ 65dBf, 1kHz, MONO/STEREO	0.15%/0.25%
FREQUENCY RESPONSE (30Hz-15Hz)	+,-1dB
STEREO SEPARATION (1kHz)	50dB
CAPTURE RATIO	1.25dB
ALTERNATE CHANNEL SENSITIVITY (@ 98MHZ, +/-400Hz)	70dB
IMAGE REJECTION RATIO	80dB
IF REJECTIOR RATIO	120dB
SPURIOUS REJECTION RATIO	70dB
AM TUNER SECTION	
USABLE SENSITIVITY (400u V/m)	12.5uV
SIGNAL TO NOISE RATIO	50dB
SELECTIVITY	30dB
DIMENSIONS and WEIGHTS (Unit)	
HEIGHT (INCHES)	5 5/8
WIDTH (INCHES)	17 3/8
DEPTH (INCHES)	11 7/8
WEIGHT (LBS)	

Notes:

- Design and specifications subject to change without notice for improvement.

MAINTENANCE

- Do not leave the unit in direct sunlight or other places where high temperatures can occur for any length of time, such as in the vicinity of a heating source.
- Do not expose the equipment to humidity or rain.
- A chamois leather cloth, slightly moistened with water is sufficient for cleaning the cabinet.
- Do not use cleaning agents containing alcohol, spirits, ammonia or abrasive.

If a fault occurs, run through the points listed below before taking your receiver for repair.

If the fault persists, attempt to solve it by *switching the receiver off and on again*. If this fails to resolve the situation, consult your dealer. *Under no circumstances should you repair the receiver yourself as this will invalidate the guarantee!*

PROBLEM

- POSSIBLE CAUSE
- REMEDY

NO POWER

- *The AC power cord is disconnected.*
 - Connect the cord securely.
- *Poor connection at the wall socket or the wall socket is inactive.*
 - Check the wall socket using a lamp or another appliance.

NO SOUND FROM THE FRONT SPEAKERS

- *Speaker cables are disconnected.*
 - Check the speaker connections.
- *Volume is too low.*
 - Adjust the volume.
- *Front speakers are not switched on.*
 - Press the SPEAKER switch(es) to switch on the front speakers.

NO SOUND FROM THE REAR SPEAKERS

- *Surround mode is switched off.*
 - Select a surround mode.
- *Volume and rear level are too low.*
 - Adjust the volume.
- *A monaural source is used.*
 - Select a stereo, surround source or select the simulated surround mode.
- *Dolby 3 Stereo mode is selected.*
 - Switch off Dolby 3 Stereo mode.
- *Dolby Pro Logic source is not present.*
 - Make sure that your video device is in the stereo mode.

NO SOUND FROM THE CENTER SPEAKER

- *Dolby Pro Logic or Dolby 3 Stereo mode is not selected.*
 - Select Dolby Pro Logic or Dolby 3 Stereo mode.
- *Volume and center level are too low.*
 - Adjust the volume and center level.
- *The center mode is set to phantom mode.*
 - Set the center mode to normal or wide.

NO SOUND IS HEARD, EVEN WHEN A INPUT SELECTOR IS MADE

- *The MUTE button is pressed.*
 - Press MUTE again to cancel the MUTE function.
- *Volume is too low.*
 - Adjust the volume.
- *Connections between the components are incorrect.*
 - Make connections correctly.

THE REMOTE CONTROL UNIT DOES NOT OPERATE

- *No batteries loaded or dead batteries.*
 - Replace the batteries.
- *The IR sensor is obstructed.*
 - Remove the obstacle.

STATIONS CANNOT BE RECEIVED

- *No antenna connected.*
 - Connect an antenna.
- *The desired station frequency is not tuned in.*
 - Tune in the desired station frequency.
- *Antenna in wrong position.*
 - Move antenna and retry turning.
- *Surrounding area causing interference.*
 - Lengthen or elevate antenna

PRESET STATIONS CANNOT BE RECEIVED

- *An incorrect station frequency has been memorized.*
 - Memorize the correct station frequency.
- *The memorized stations are cleared.*
 - Memorize the stations again.

POOR FM RECEPTION

- *No antenna connected.*
 - Connect an antenna.
- *The antenna is not positioned for the best reception.*
 - Change the position of the antenna.

CONTINUOUS HISSING NOISE DURING FM RECEPTION, ESPECIALLY WHEN A STEREO BROADCAST IS RECEIVED

- *Weak signal.*
 - Change the position of the antenna.
 - Install an outdoor antenna. Use an antenna with 3, 4 or 5 elements if the broadcast station is far away.

CONTINUOUS OR INTERMITTENT HISSING NOISE DURING AM RECEPTION, ESPECIALLY AT NIGHT

- *Noise is caused by motors, fluorescent lamps or lightning, etc.*
 - Keep the receiver away from noise sources.
 - Install an outdoor AM antenna.

HUM CAN BE HEARD DURING AM RECEPTION

- *The AC power cord may be too close to the AM loop antenna or the antenna wire.*
 - Position the AC power cord away from the antenna wire and the AM loop antenna.
 - Adjust the position of the AM loop antenna.

OTHER SYSTEM COMPONENTS DO NOT REACT TO REMOTE CONTROL COMMANDS

- *DIGI LINK III connections are not made properly.*
 - Make proper DIGI LINK III connections.

O P E R A T I N G I N S T R U C T I O N S



R-325
AUDIO/VIDEO
RECEIVER