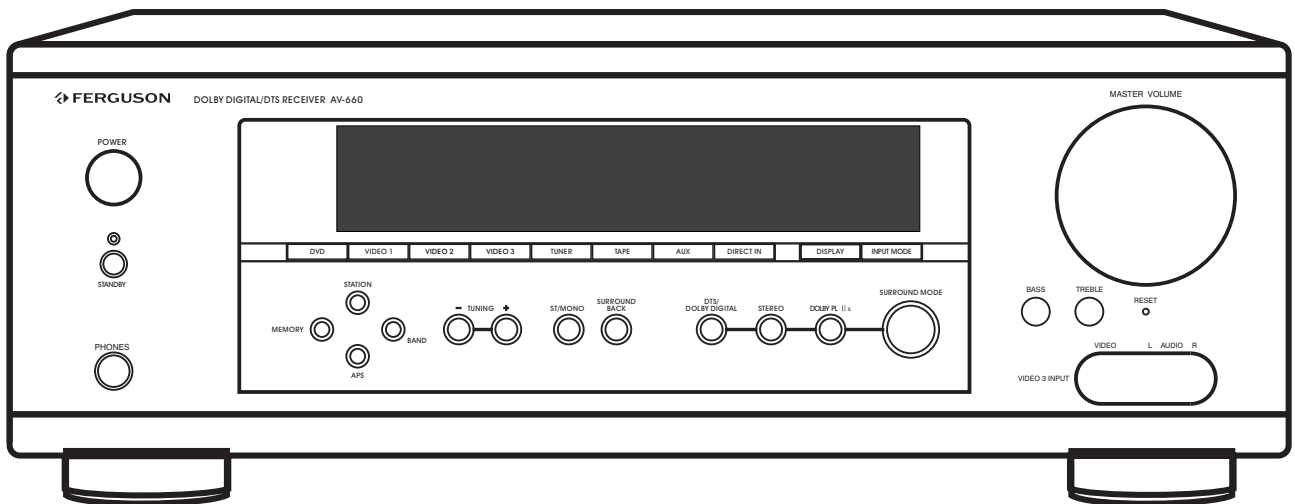


Operator's manual

 **FERGUSON**



AV-660

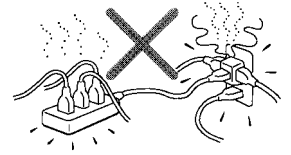
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IMPORTANT SAFETY INSTRUCTION

CAUTION: READ THIS BEFORE OPERATING YOUR UNIT.

1. **READ AND FOLLOW INSTRUCTIONS**---All the safety and operation instructions should be read before the product is operated. Follow all operation instructions.
2. **RETAIN INSTRUCTIONS**---The safety and operation instructions should be retained for future reference.
3. **HEED WARNINGS**---Comply with all warnings on the product and in the operation instructions.
4. **CLEANING**---Unplug this product from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.
5. **GROUNDING or POLARIZATION**---This product may be equipped with a polarized alternating current line plug (a plug having one blade wider than the other). This plug will fit into the power outlet only one way. This is a safety feature. If you are unable to insert the plug fully into the outlet, try reversing the plug. If the plug should still fail to fit, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the polarized plug.
6. **OVERLOADING**---Do not overload wall outlets or extension cord as this can result in a risk of fire or electric shock. Overloaded AC outlets, extension cords, frayed power cords, damaged or cracked wire insulation, and broken plugs are dangerous. They may result in a shock or fire hazard.

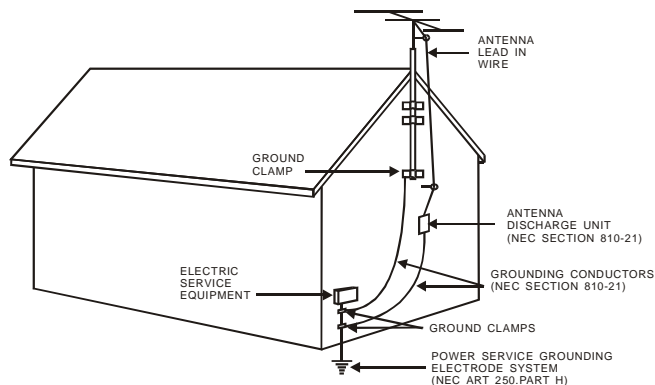


7. **POWER SOURCES**---This product should be operated only from the type of power source indicated on the marking label. If you are not sure of the type of power supply to your home, consult your product dealer or local Power Company. For products intended to operate from battery power, or other sources, refer to the operation instructions.

8. **ACCESSORIES**---Do not place this product on an unstable surface or shelf. The product may fall, causing serious injury to a child or adult as well as serious damage to the product. Any mounting of the product should follow the manufacturer's instructions and use a mounting accessory recommended by the manufacturer. A product and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the product and cart combination to overturn.



9. **OUTDOOR ANTENNA GROUNDING**--- If an outside antenna or cable system is connected to the product, be sure the antenna or cable system is grounded so as to provide some protection against voltage surges and built-up static charges. The example below is for reference only. Correct grounding should always be installed by an electrician.



10. **POWER-CORD PROTECTION**---Power supply cord should be placed so that the power lead is not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at Wall plugs and where the power lead exits from the product.
11. **ATTACHMENTS**---Do not use attachments not recommended by the product manufacturer as they may cause harm to the unit.

IMPORTANT SAFETY INSTRUCTION

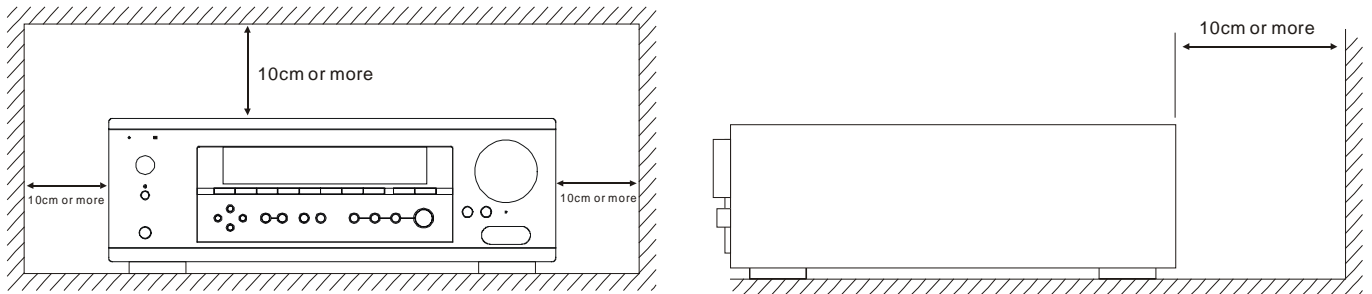
12. CONTACT THE SERVICE DEPARTMENT SHOULD THE BELOW CONDITIONS EXIST—

- a. When the power-supply cord or plug is damaged.
- b. If liquid has been spilled, or objects have fallen into the product.
- c. If the product has been exposed to rain or water.
- d. If the product does not operate normally after following the operation instructions, adjust only those controls that are covered by the operation instructions.
- e. If the product has been dropped or damaged in any way.
- f. When the product exhibits a distinct change in performance.

13. **SERVICING**---Do not attempt to service this product yourself as removing cover may expose you to dangerous voltages or other hazards. Refer all servicing to qualified service personnel.

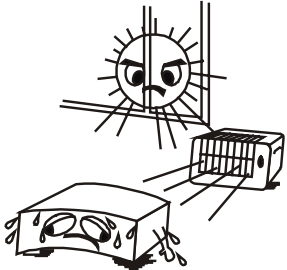
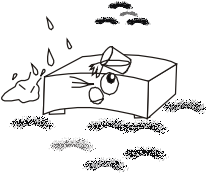
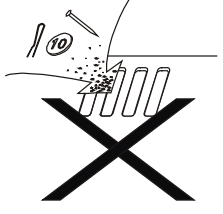
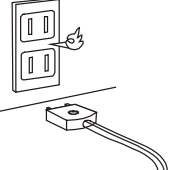
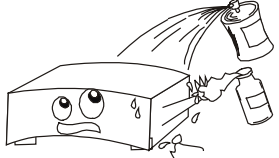
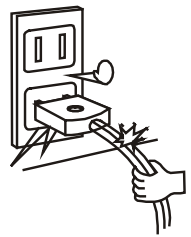
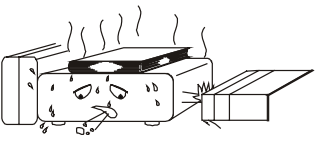
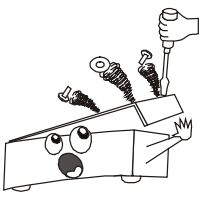
14. **LIGHTNING**---For added protection for this product during a thunderstorm, or when it is left unattended and unused for long period of time, unplug it from the wall outlet and disconnect the antenna or cable system. This will prevent damage to the product due to lightning and power line surges.

15. **HEAT DISPERSION**---Leave at least 10 cm of space between the top, back and sides of the unit and the wall or other components for proper ventilation.



16. The apparatus shall not be exposed to dripping or splashing and that no objects filled with liquids, such as vases, shall be placed on the apparatus.

17. NOTES ON USE

 <ul style="list-style-type: none"> ● Avoid high temperatures Allow for sufficient heat dispersion when installed on a rack. 	 <ul style="list-style-type: none"> ● Keep the set free from moisture, water, and dust. 	 <ul style="list-style-type: none"> ● Do not let foreign objects in the set.
<ul style="list-style-type: none"> ● Handle the power cord carefully. Hold the plug when unplugging the cord. 	 <ul style="list-style-type: none"> ● Unplug the power cord when not using the set for long periods of time 	 <ul style="list-style-type: none"> ● Do not let insecticides, benzene, and thinner come in contact with the set.
 <ul style="list-style-type: none"> ● Handle the power cord carefully. Hold the plug when unplugging the cord. 	 <p>*(For sets with ventilation holes)</p> <ul style="list-style-type: none"> ● Do not obstruct the ventilation holes 	 <ul style="list-style-type: none"> ● Never disassemble or modify the set in any way.

BEFORE USE

READ THIS BEFORE OPERATION

1. Choose the installation location of your unit carefully. Avoid placing it in direct sunlight or close to a source of heat. Also avoid locations subject to vibration and excessive dust, cold or moisture.
2. The ventilation holes should not be covered. Make sure there is enough space above and beside the amplifier/receiver (about 4 inches). Do not place a CD player or other equipment on top of the amplifier/receiver.
3. Do not open the cabinet as this might result in damage to the circuitry or electrical shock. If a foreign object gets into the set, contact your dealer or authorized service center.
4. When removing the power plug from the wall outlet, always pull directly on the plug, never on the cord.
5. Do not attempt to clean the unit with chemical solvents as this might damage the finish. Use a clean, dry cloth.
6. Keep this manual in a safe place for future reference.

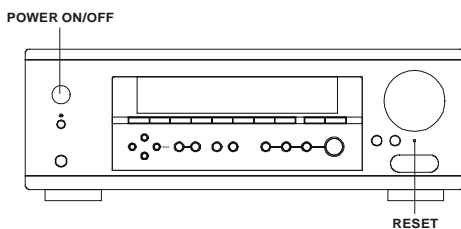
Back-up Memory Function

This is the function that preserves the preset memory and most-recent memory function. In the event of a power failure, or if the power cord of this unit is disconnected from the electric outlet, the back-up memory will preserve the preset memory and most-recent memory functions for as long as approximately 1 week.

If the power supply is interrupted for 7 days or longer, the memory settings will be erased.

When to use RESET switch

1. When this system is subjected to an electrical shock.
 2. When the power is interrupted.
- In this case, try the following:
Switch on the **POWER**, use a paper clip to press the **RESET** button for more than 3 seconds duration.



Note: If the **RESET** button is pressed for more than 3 seconds, all the current set up memory will be erased.

BEFORE CONNECTION

Caution

Turn off the power of all the equipment before making connections.

Read instructions of each component you intend to connect to this unit.

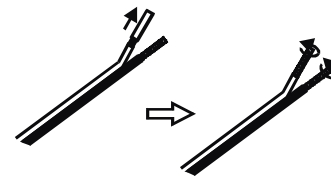
- Be sure to insert each power plug securely. To prevent hum and noise, do not bundle the interconnection leads with power cord or speaker leads.

Speaker Connections

Caution:

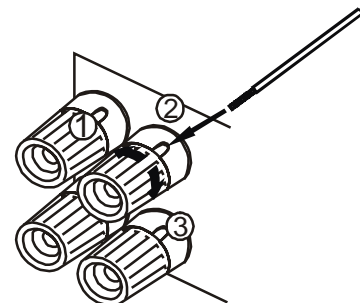
To avoid damaging the speakers with a sudden high-level signal, be sure to switch the power off before connecting the speakers.

- Check the impedance of your speakers. Connect speaker with an impedance of 8 ohms or more. The amplifier's red speaker terminals are the + (positive) terminals and the black terminals are the - (negative) terminals.
- The + side of the speaker cable is marked to make it distinguishable from the - side of the cable. Connect this marked side to the red + terminals and the unmarked side is the black terminal.
- Prepare the speaker cords for connection by stripping off approximately 10 mm or less (no more as this could cause a short-circuit) of the outer insulation. Twist the wires tightly together so that they are not straggly.



How to connect

Red: positive (+)
Black: negative (-)



1. Unscrew the knob
2. Insert the speaker cable.
3. Tighten the knob and secure the cable.

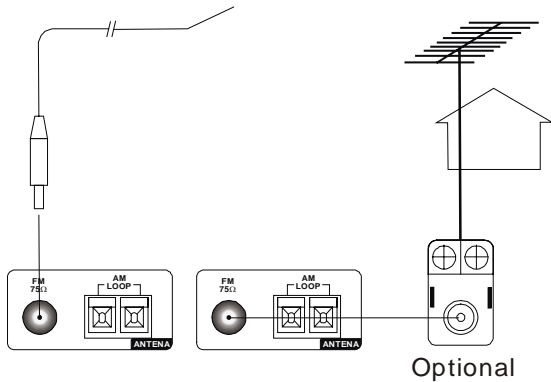
CONNECTION

FM INDOOR ANTENNA

If you live reasonably close to a transmitter and want to use the provided lead-type FM antenna, you will have to connect it direct to the “FM 75Ω” socket.

Fit the metal sleeve of the lead-type antenna over the core (center) pin of the (FM 75Ω) socket, extend the lead and attach it to a window frame or wall with thumbtacks, or move around the room, where reception is best.

Lead-type FM Antenna (75Ω provided)



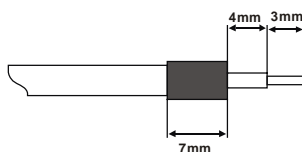
OUTDOOR FM ANTENNA (75Ω)

FM OUTDOOR ANTENNA

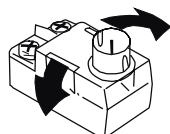
In an area where FM signals are weak, it will be necessary to use a 75Ω unbalanced-type outdoor FM antenna using the optional matching transformer, as shown. Generally, a 3-element antenna will be sufficient: if you live in an area where the FM signals are particularly weak, it may be necessary to use one with 5 or more elements. Connect the coaxial cable of the antenna to the matching transformer as shown. After completing connection, plug the transformer into the “FM 75Ω” socket.

How to connect a coaxial cable to the matching transformer

Strip the cable and dress it as shown.

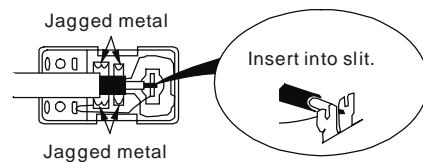


Press both side tabs outward to remove the cover.



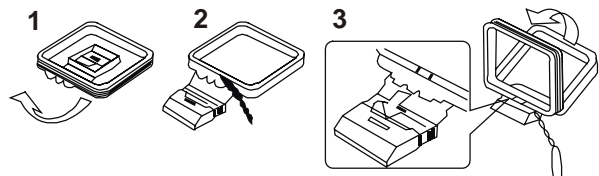
Wrap the core conductor around the central metal fixture as shown.

Crimp the jagged metal fixtures so they hold the braided portion using pliers, etc. Put the cover back in place.



AM INDOOR LOOP ANTENNA

To stand the antenna on a surface, fix the claw to the slot.

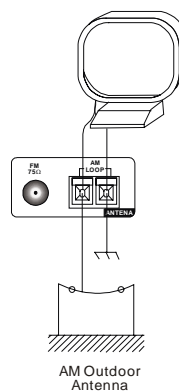


High performance AM loop antenna provided with the receiver is sufficient for good reception in most areas.

Connect the loop antenna's wires to the AM antenna terminals as shown.

Place the antenna on a shelf, for example, and move around to obtain the best reception, place as far away as possible from the entire system, speaker leads and the power cords, to prevent unwanted noise.

AM Loop Antenna (provided)



AM Outdoor Antenna

If the AM loop antenna provided does not receive sufficient reception, it may be necessary to use an outdoor AM antenna.

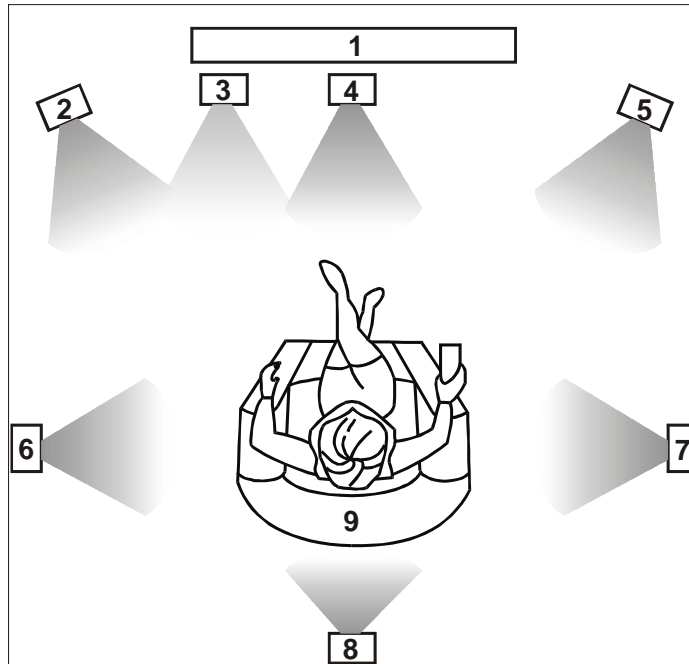
Use an insulated cable of a length of 15 ft (5m) long, strip one end, and connect this to the terminal as shown.

The antenna wire should be strung outdoors or indoors near a window.

For better reception, connect the GND terminal to a reliable ground.

Note: When connecting an outdoor AM antenna, do not disconnect the AM loop antenna.

Standard speaker setup for surround sound



- | | | |
|----------------------------------|---------------------------------|---------------------------------|
| 1. TV or Screen | 2. Front Left Speaker | 3. Subwoofer |
| 4. Center Speaker | 5. Front Right Speaker | 6. Surround Left Speaker |
| 7. Surround Right Speaker | 8. Surround Back Speaker | 9. Listening Position |

Standard speaker setup for surround sound

- **Front right and left speakers**
These are the main speakers providing the front stereo effect of the sound image.
- **Center speaker**
Produces a rich sound image by serving as a sound source for the front right and left speakers and enhancing the sonic movement.
- **Surround right and left speakers**
Adds three-dimensional sonic movement and produces environmental sound associated with the background and effect sound for each scene.
- **Surround back speaker**
Required for enjoying Dolby Digital EX or DTS-ES audio.
Improves the quality of sound effects and the realistic acoustics.
- **Subwoofer**
Produces powerful and heavy bass.

Speaker placement

Ideal speaker placement varies depending on the size of your room and the wall coverings. Here, only typical examples of speaker placement and recommendations are shown.

Important points regarding speaker placement

Front right and left speakers and center speaker

- Place these three speakers all at the same height.
- Place each speaker so that it is aimed at the location of the listener's ears when at the listening position.
- Place front and right speakers at the same distance from the listening position.

Surround left and right speakers

Place these speakers so that their height is 3 feet (1 meter) higher than that of the listener's ears.

Surround back speaker

Place this speaker so that its height is 3 feet (1 meter) higher than that of the listener's ears.

Subwoofer

A subwoofer is recommended for the highest bass effect.

CONNECTION

Connecting loudspeakers

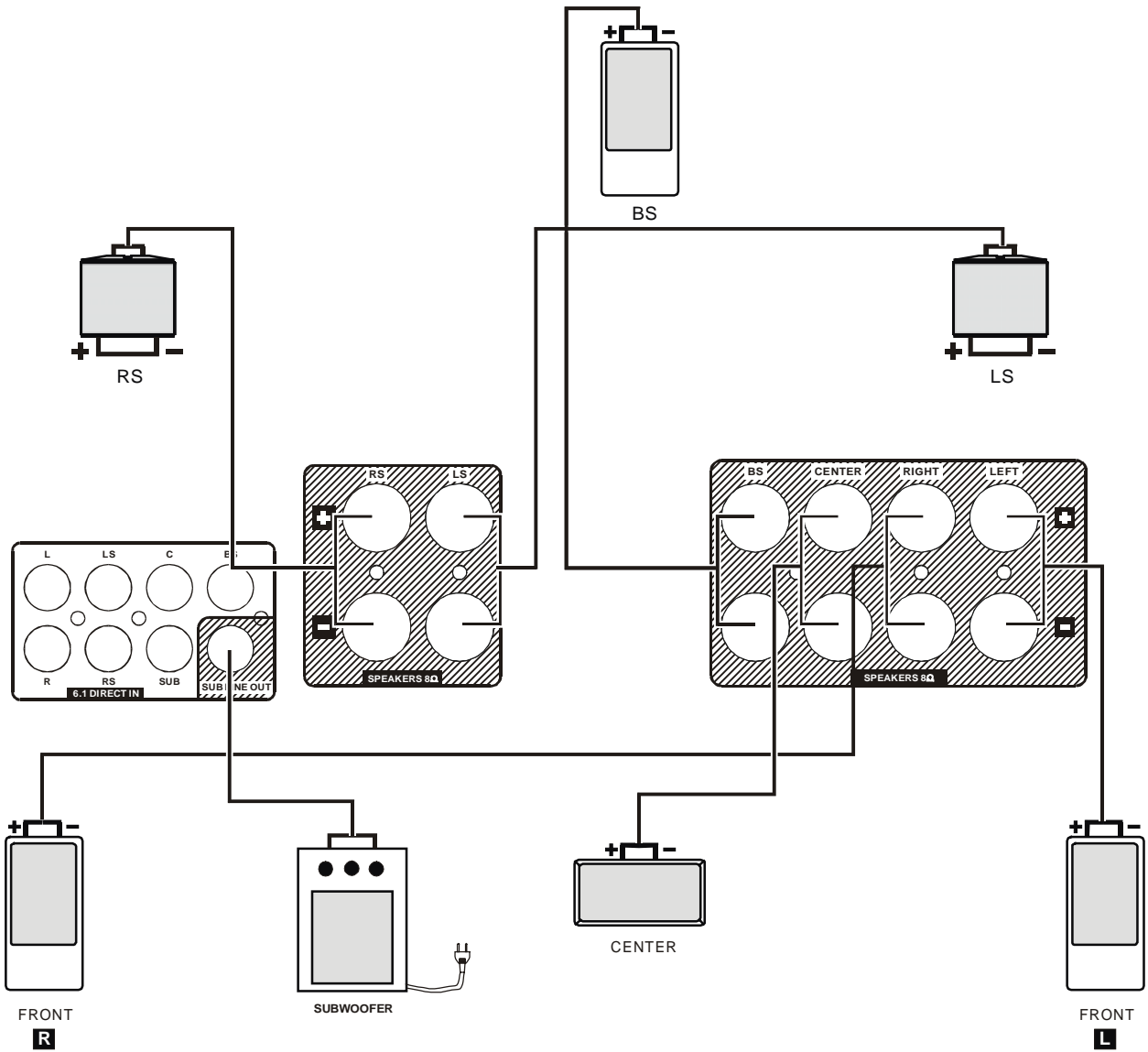
To avoid damaging the speakers with a sudden high-level signal, be sure to switch the power off before connecting the speakers.

Check the impedance of your speakers. Connect speaker with an impedance of 8 ohms or more.

The amplifier's red speaker terminals are the + (positive) terminals and the black terminals are the - (negative) terminals.

The diagram below shows how loudspeakers are made.

Please note that all connections are made via loudspeaker cable except the subwoofer which is connected via a standard phono cable.



CONNECTION

Connecting video components

When connecting video components such as DVD players, cable boxes, satellite receivers and television, you can use different types of cables depending on how the video component is equipped.

Video connections:

If the video component is equipped with S-VIDEO jacks, it is recommended to connect to your Receiver or directly to the television monitor using an S-VIDEO cable. S-VIDEO cables provided better picture clarity and resolution. If the video component is not equipped with an S-VIDEO jack, use a conventional RCA or RCA composite cable to connect to your Receiver or directly to the television.

The illustration here shows how to connect video components to your Receiver.

Note:

When connecting more than one video component to your Receiver (i.e. VCR and DVD player) it is easier to use either all S-VIDEO cables or all RCA to RCA composite cables. This allows both video signals (DVD and VCR) to be sent through your receiver to the TV monitor using just one video input on the TV (S-Video or RCA). Regardless of the video component being played DVD or VCR, the picture will always appear on the same video input of the monitor.

If you use both S-Video and RCA composite cables to connect different video components to your Receiver, you must also use both S-Video and RCA composite cables to connect the TV monitor to your Receiver.

For example, if you connect a DVD player to your Receiver using S-Video cable and a VCR using an RCA to RCA composite cable, you must also connect the TV to your Receiver using both types of cables. This requires an S-Video cable from the S-Video monitor out jack on your Receiver to an S-Video input on the TV (i.e. Video 1). In addition, you must use an RCA composite cable from the composite video monitor out jack on your Receiver to an RCA composite video input on the TV but not the same input used for the S-Video cable (i.e. Video 2). Using this type of dual cable video connection, you will need to switch the TV video input source from TV to Video 1 to Video 2 depending on the video source being played-TV, DVD or VCR.

Audio connections:

Some video components are equipped with special digital audio outputs (i.e. DVD players). If your video component is equipped with a digital audio output, it is recommended that you connect to the your Receiver using a digital cable. Digital audio cables are required to use the DTS and Dolby Digital surround sound modes. If you do not use digital connections, your Receiver will only operate in Dolby PRO LOGICII, PASSTHRU, MOVIE, MUSIC, ROOM, THEATER and HALL surround modes.

There are two types of digital cables-coaxial (75 ohm) and optical. This Receiver is equipped with both types of digital inputs. These inputs are labeled COAXIAL IN and OPTICAL IN on the rear of the unit. Connect the video component outputs to any one of the two digital inputs on your Receiver.

If the video component is not equipped with a digital output, use a dual RCA to RCA composite audio cable to connect to your Receiver.

Note:

When an optical cable is used, remove the protection caps from the component and your Receiver before attempting to insert the optical cable. If not using an optical cable or if the cable is removed, always re-install the protection caps to prevent dirt and dust from entering the inputs. If using a coaxial digital cable, leave the protection caps in both the video component and your Receiver.

REMOTE CONTROL UNIT

By using the provided remote control unit, the receiver can be controlled from your listening position.

To use the remote control unit, point it at the REMOTE SENSOR window of the receiver.

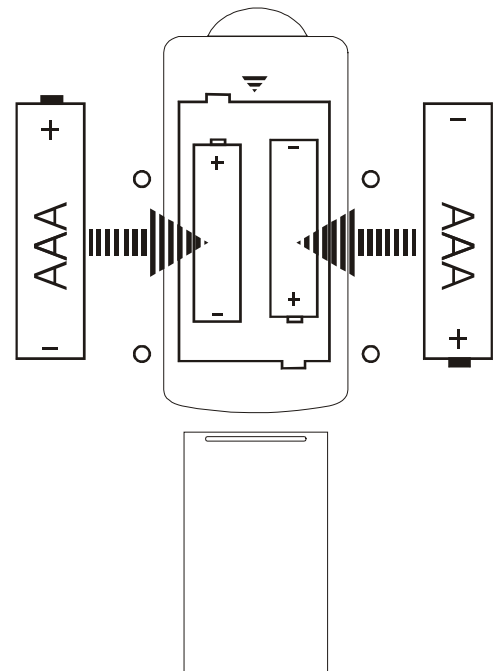
Notes:

- Even if the remote control unit is operated within the effective range, remote control operation may not work if there are any obstacles between the unit and the remote control.
- If the remote control unit is operated near other products that generate infrared rays, or if other remote control devices using infrared are used near the unit, it may operate incorrectly.
- To simplify explanation, this manual refers to names of buttons and controls on the front panel, making no mention of the use of remote control unit.
- The power is turned on/off (standby) by pressing the POWER button on the remote control unit in standby mode.

Precautions concerning batteries

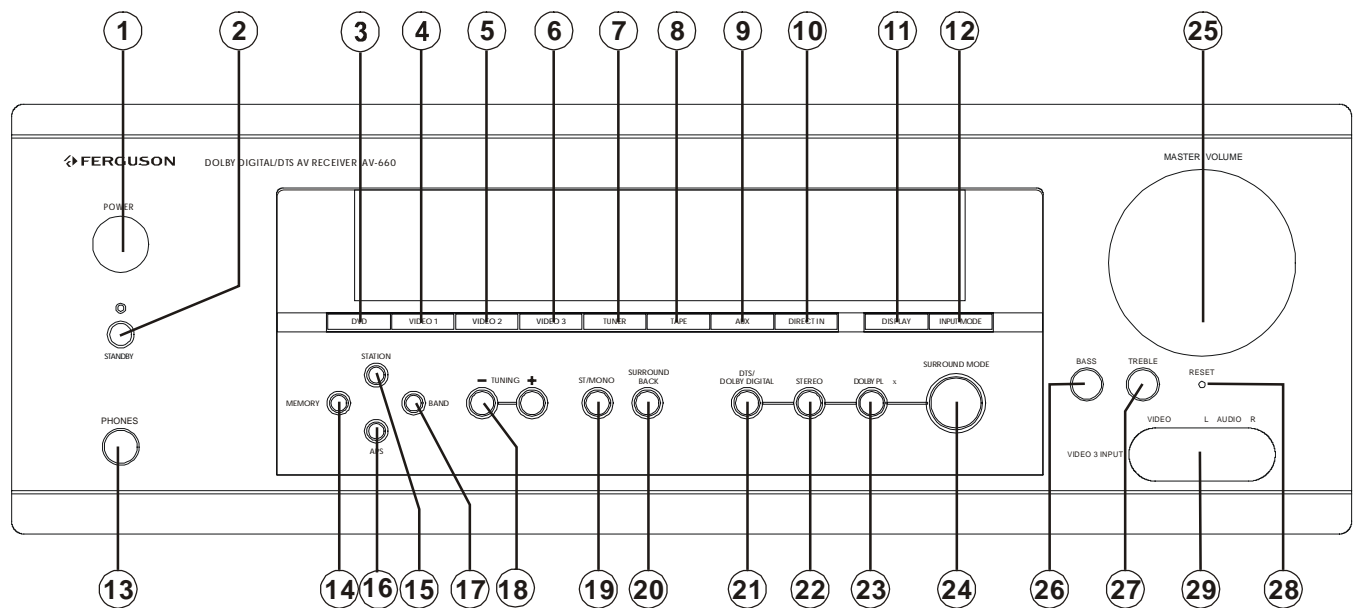
- Be sure to insert the batteries with correct positive+ and negative – polarities.
- Use batteries of the same type. Never use different types of batteries together.
- Do not heat or disassemble batteries and never dispose of old batteries by throwing them in a fire.

BATTERY INSTALLATION



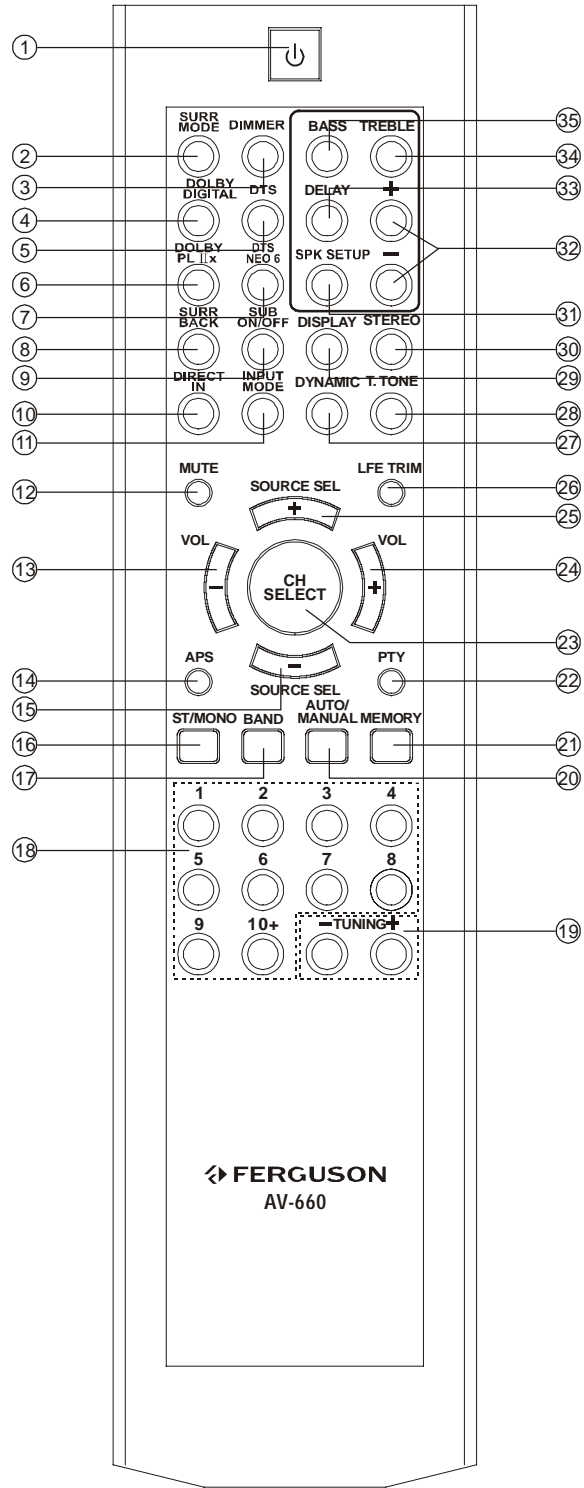
1. Remove the battery compartment cover.
2. Insert two “AAA” dry batteries.
Make sure that the batteries are inserted with their positive “+” and negative “-” poles positioned correctly.
3. Close the cover until it clicks.
If the distance required between the remote control unit and main unit decreases, the batteries are exhausted. In this case, replace the batteries with new ones.

FRONT PANEL INFORMATION



NO. & NAME	DESCRIPTION	NO. & NAME	DESCRIPTION
1. POWER	Press this button to turn the unit into standby mode or turn off the unit.	16. APS	Allocates and memorizes radio stations automatically.
2. STANDBY	The power amplifier is in standby mode, indicated by the stand by indicator. Note: When this unit is in standby mode, the Standby Lens is in Red while in On mode, it is in Green.	17. BAND	To alternate between FM and AM.
3. DVD	Press this button to select DVD input.	18. TUNING +/-	Tuner frequency up & down.
4. VIDEO 1	Press this button to select Video 1 input.	19. ST / MONO	To alternate between Stereo and Mono mode when listen to FM broadcast.
5. VIDEO 2	Press this button to select Video 2 input.	20. SURROUND BACK	Push this button to turn on or off the surround back output. And when surround back output is off, the DTS NEO:6 is activated.
6. VIDEO 3	Press this button to select Video 3 input.	21. DTS/ DOLBY DIGITAL	When play 5.1 CH source, and while you are enjoying Stereo, press this button to playback source in DTS/DOLBY DIGITAL.
7. TUNER	Press this button to select TUNER.	22. STEREO	With the unit in the STEREO mode, only front left and front right speakers and Woofer are working.
8. TAPE	Press this button to select tape deck.	23. DOLBY PL II	When receiving Analog/digital PCM signal or 2CH Pro Logic, turn on this button then the playing is under analog 5.1CH state.
9. AUX	Press this button to select AUX input.	24. SURROUND MODE	Selects surround modes: Theater, Hall, Passthru, Movie, Music, and Room.
10. DIRECT IN	Press this button to select the 6.1 analogue input.	25. MASTER VOLUME	Rotate this knob clockwise or counterclockwise, the master volume will be increased or decreased.
11. DISPLAY	Press this button to display the state of input source. And when listening to the FM broadcasting with RDS, press this button to show PS, PTY, RT and RT.	26. BASS	Press this button for Bass adjustment, then turn Master Volume to adjust the level. (Note: In Prologic II, Surround and Digital 5.1 mode, no function.)
12. INPUT MODE	To select input modes: ANA, OPT and COAX when using digital in.	27. TREBLE	Press this button for Treble adjustment, then turn Master Volume to adjust the level. (Note: In Prologic II, Surround and Digital 5.1 mode, no function.)
13. PHONES	Jack for the stereo headphones.	28. RESET	When this unit is ON, use a paper clip to press this button for more than 3 seconds to reset the whole system (including memories).
14. MEMORY	To preset the broadcast stations.	29. VIDEO 3 INPUT	Input for VCR, Video Camera Recorder, etc. It contains one video input and Analog Left and Right inputs.
15. STATION	To select a preset channel during the tuner mode.		

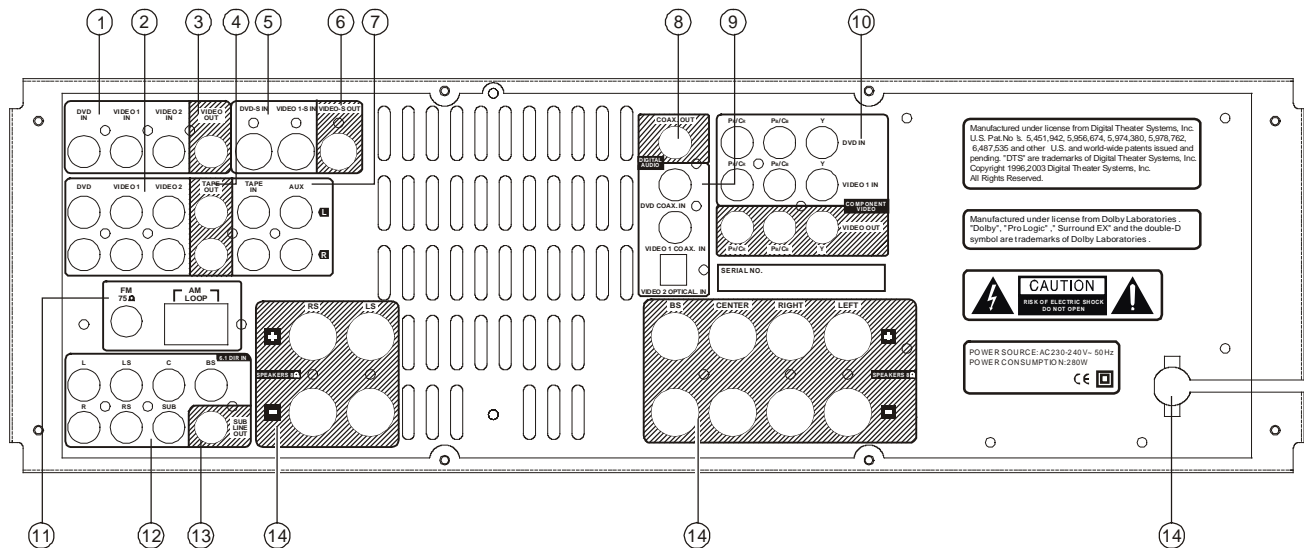
REMOTE CONTROL INFORMATION



REMOTE CONTROL FUNCTION

NO. & NAME	DESCRIPTION	NO. & NAME	DESCRIPTION
1. POWER ON/STANDBY	Press this button to turn this unit on or Into standby mode.	18. NUMERIC BUTTONS	These buttons are used to select a preset channel during the tuner mode.
2. SURR MODE	Press this button to choose one of the following surround modes: THEATER, HALL, PASSTHRU, MOVIE, MUSIC and ROOM.	19. TUNING +/-	Tuner frequency up and down.
3. DIMMER	Press this button to set the brightness of the front display.	20. AUTO /MANUAL	This button is used to select AUTO or MANUAL tuning in AM and FM mode. Press once to set to AUTO again for MANUAL.
4. DOLBY DIGITAL	When play 5.1 CH source, and while you are enjoying Stereo, press this button to playback source in DOLBY DIGITAL.	21. MEMORY	Press it to store the broadcast station as a preset.
5. DTS	When play 5.1 CH source, and while you are enjoying Stereo, press this button to playback source in DTS.	22. PTY	In FM state, press this button, the current program type appears on the display, using TUNING +/- to select the program type you desire.
6. PRO LOGIC IIx	When receiving Analog/digital /PCM signal or 2CH Pro Logic, turn on this button then the playing is under analog 5.1CH state.	23. CH SELECT	Select channels by pushing this button, then use VOL. +/- buttons to balance speakers.
7. DTS NEO: 6	When the input signal is PCM, pressing this button, you will get DTS NEO 6 MUSIC or DTS NEO 6 CINEMA.	26. LFE TRIM	Under the Pro Logic 5.1CH or DTS 5.1CH mode, press this button and adjust the volume to set the Low Frequency output level
8. SURR BACK	Push this button to turn on or off the surround back output. And when surround back output is off, the DTS NEO:6 is activated.	27. DYNAMIC	Press this button repeatedly to reach your desired compression dynamic range.
9. SUB ON/OFF	Press this button to turn on/off the output of subwoofer.	28. TEST TONE	To balance speakers in Dolby Digital or Dolby Pro Logic mode.
10. DIRECT IN	Press this button to select the 6.1 analogue input.	29. DISPLAY	Press this button to display the state of input source. And when listening to the FM broadcasting with RDS, press this button to show PS, PTY, RT and RT.
11. INPUT MODE	To select input modes: ANA, OPT, and COAX when using digital in.	30. STEREO	With this unit in STEREO mode, only Front Left & Front Right speakers and Woofer have output.
12. MUTE	Press this button to mute the sound, push again to cancel the mute function.	31. SPK SETUP	Under PRO LOGIC II or Digital state, it can change the desired Speaker Setting shown on the display.
13/24. VOL. +/-	Press these buttons to decrease or increase the volume.	32. + / -	These buttons are used for SPK SETUP and DELAY TIME, Treble and Bass adjustment.
14. APS	Allocates and memorizes radio stations automatically.	33. DELAY	Press this button to set the delay time for the Dolby digital/Dolby Pro Logic modes.
15/25. SOURCE SEL	Press this button to select source upward or downward.	34. TREBLE	Press this button for Treble adjustment, then press +/- key to adjust the level. (Note: In Pro Logic II, Surround and Digital 5.1 mode, no function.)
16. ST/MONO	Press this button to alternate between Stereo and Mono mode when listen to FM broadcast.	35. BASS	Press this button for Bass adjustment, then press +/- key to adjust the level. (Note: In Pro Logic II, Surround and Digital 5.1 mode, no function.)
17. BAND	Press this button to alternate between FM and AM.		

REAR PANEL INFORMATION



1. VIDEO IN

- DVD IN: connect to the line output terminals of a DVD player.
- VIDEO 1 / VIDEO 2 IN: connect to the output terminals of a VCR to the VIDEO 1 and VIDEO 2 IN.
- AUDIO IN: connect to the output of external players.

2. AUDIO IN

- DVD: connect to the output of a DVD player
- VIDEO 1 / VIDEO 2: connect to the output of VCD players.

3. VIDEO OUT: connect TV set to the VIDEO OUT.

4. TAPE OUT: connect to the line input terminals on the TAPE DECK.

5. S-VIDEO INPUTS

- DVD-S IN: connect to the line output terminal of a DVD player.
- VIDEO-S IN: connect to the output terminal of a VCR to the VIDEO-S IN.

6. VIDEO-S OUT: connect TV set to the S-VIDEO OUT.

7. ANALOGUE AUDIO IN

- TAPE IN: connect to the line output terminals on the TAPE DECK.
- AUX: connect to the line output of an external player.
- PHONO: connect to the line output of a turntable.

DIGITAL AUDIO TERMINALS

8. COAXIAL OUT: digital audio output to the digital coaxial input of another amplifier, external recording device or decoder.

9. DIGITAL IN terminals

- DVD COAXIAL IN: digital audio input to the digital output of a DVD player.
- VIDEO 1 IN: digital audio input to the digital output of a VCD player.
- VIDEO 2 IN: digital audio input to the digital output of a VCD player.

10. COMPONENT VIDEO terminals

11. FM / AM ANTENNA: connect to the 7 channels output terminals of another player.

12. 6.1 DIRECT IN: connect to the 7 channels output terminals of another amplifier.

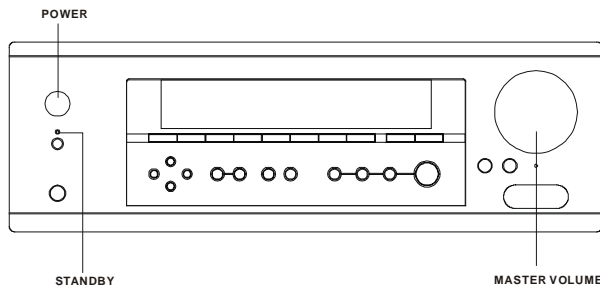
13. SUB LINE OUT: connect to a active subwoofer. (refer to speaker connection diagram)

14. SPEAKERS 8Ω: connect to the external speakers.(refer to speaker connection diagram)

15. POWER CORD: connect to the A/C socket.

BASIC OPERATION

BASIC OPERATION 1



1. Press the POWER button to ON.
2. Press STANDBY button to switch on the unit.
3. Select the desired source by pushing the corresponding button.

DVD (ANA, COAX)
VIDEO 1 (ANA, COAX.)
VIDEO 2 (ANA, OPT.)
VIDEO 3 (ANA)
TUNER (FREQUENCY)
TAPE
AUX

Note: INPUT MODE is used to select one of the 3 Modes.

ANA → OPT → COAX
↑

When DVD, VIDEO 1, VIDEO 2 is selected, press the INPUT MODE button and select “ANALOG”, “OPTICAL” or “COAXIAL” in accordance with your connection.

If **DD D** appears on the display:

A digital input source (OPT or COAX) has been selected, and the source is connected successfully.

If “UNLOCK” appeared for 5 seconds on the display:

The source is not connected properly or the source is not switched on.

In that case, connect and switch the source on, or select ANALOG by pressing the INPUT MODE button.

4. Play the source, and gradually turn up the volume to the required level with the MASTER VOLUME control.

BASIC OPERATION 2

A. POWER & STANDBY/ON button

Press this button to turn the power on/off.

The STANDBY indicator lights up in power standby mode and goes out when this unit is turned on.

B. STEREO

With the unit in the STEREO mode, only Front Left and Front Right Speaker and Woofer have output.

C. PRO LOGIC IIx

Dolby® Pro Logic® IIx technology (PLIIx) is an extension of Dolby Pro Logic II (PLII) matrix-decoding technology. Dolby Pro Logic IIx technology offers decoders more flexibility in deriving additional outputs to take better advantage of all the amplifiers and speakers found in higher-end surround systems, and to do so from a wider range of program material and sources.

There are two standard modes: Movie, Music.

How to get PL II x:

After power on this unit

1. Press the **DOLBY PL IIx** button on the front panel or on the remote, you will get **SURROUND BACK 1 SPEAKER DOLBY PL II x 6 MOVIE** (factory default mode), press one of these buttons again, you will get **SURROUND BACK 1 SPEAKER DOLBY PL II x 6 MUSIC**;
2. Press the **SURROUND BACK** button on the front panel or on the remote, you will get **SURROUND BACK OFF DOLBY PL II MUSIC** (if the previous mode is movie mode, you will get **SURROUND BACK OFF DOLBY PL II MOVIE**), by this time, if you press **DOLBY PL IIx** button, you will get **SURROUND BACK OFF DOLBY PL II MOVIE**;
3. Press the **SURROUND BACK** button on the front panel or on the remote, you will get **SURROUND BACK 1 SPEAKER DOLBY PL II x 6 MOVIE MODE**, by this time, if you press **DOLBY PL IIx** button, you will get **SURROUND BACK 1 SPEAKER DOLBY PL II x MUSIC MODE**.

Note: During the press, the corresponding wording appears on the display.

D. SURROUND MODE

This mode is possible to achieve a realistic sound field with a “three dimensional” feel, giving the sense of distance, movement and relative position, and creating a surprisingly real and powerful sense of presence when playing movie software in AV rooms.

There are six surround modes: PASSTHRU, MOVIE, MUSIC, ROOM, THEATER and HALL,

E. DIRECT IN

Press this button when you want to enjoy the 6 discrete channels of high quality digital audio from DTS/AC3 program source.

F. RESET

When this unit is ON, use a paper clip to press this button for more than 3 seconds to reset the whole system (including memories).

G. PHONES jack

For private listening, insert optional (not included) headphones (1/4-inch plug) into the PHONES jack, and then the center and surround speaker will be cut automatically. (**Note:** When the headphone is used, the output will down mix to STEREO automatically.)

H. AV 3 IN

The input ports are for VCR, Video Camera Recorder, etc. It contains one optical, one S-video, one video input port and Analog Left and Right input ports.

I. Dolby Digital EX

When using surround back speakers, the Dolby Digital source is played back using the matrix 6.1-channel decoder.

J. DTS-ES Discrete 6.1

With the additional of the surround back channel, this new format has all 6.1 channels recorded independently for a completely discrete digital format. Since all channels are recorded independently, high-fidelity surround playback with the increased sound space is achieved.

BASIC OPERATION

K. DTS-ES Matrix 6.1

This format has the surround back channel matrix encoded and inserted into the left and right surround channels so that at playback the output for the left, right, and back surround channels are decoded using a high-precision matrix decoder.

L. DTS Neo: 6

This mode is for 6.1-channel playback of sources such as PCM or analog sources that have only two channels. The outputs of all six channels are a wide frequency range with a great separation between the different channels.

This mode can be set to the Cinema mode designed for playing movies and the Music mode designed for listening to music.

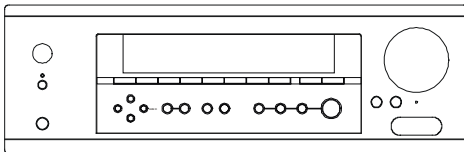
The Cinema mode is good for movies. The reproduced surround sound provides the same realistic feel of movement as 6.1-channel sources. This mode can be used with VHS and television programs with stereo sound.

The music mode uses the surround channels to provide a natural sound space that cannot be provided with normal stereo output. This mode can be used with music CDs and other stereo sources.

How to get DTS NEO:6

When the input signal is PCM, pressing DTS/DOLBY DIGITAL button on the front panel or DTS NEO: 6 button on the remote, you will get DTS NEO 6 MUSIC or DTS NEO 6 CINEMA.

Radio Operations



Automatic Tuning

1. Press the **POWER** button, then press the **STANDBY** button to ON.
2. Push the **TUNER** button on front panel.
3. Select the FM or AM by pressing the **BAND** button on front panel or remote control.
4. Press the “**AUTO/MANUAL**” button on the remote control to activate automatic selection. (Default mode is Manual selection)
Note: Auto appears on the display.
5. Press **TUNING +** and **TUNING -** to select the station you want to listen to. When a station is tuned in, the tuning process will stop automatically. (Automatic selection)
6. Press **TUNING +** or **TUNING -** again to select another channel.

Manual Tuning

It is for selecting stations, which cannot be tuned automatically (manual selection)

To tune a channel manually:

Skip step 4 in the above procedures. Each time the **TUNING +** or **TUNING -** button is pressed momentarily (0.5 second or less), the frequency changes by a fixed

step. FM: 50 kHz steps; AM: 9 kHz steps

Two FM modes available:

Press **ST/MONO** button on front panel or remote control to alternate between Stereo mode and Mono mode.

Stereo

FM stereo broadcasts are received in stereo and the “∞” indicator lights on the display.

Mono

To compensate for weak FM stereo reception, select this mode. Reception will now be forced monaural, reducing unwanted noise.

If **DISPLAY** button is pressed, the details of incoming source will be displayed.

Preset Tuning

This facility is used to store FM, AM broadcasting from channel 1 to20 respectively.

Automatic Memory Presetting

1. Push the **TUNER** button on front panel.
2. Select AM or FM by pressing the **BAND** button.
3. Press the “**APS**” button on front panel or remote control.

Up to 20 of the best-received stations in your area will be automatically stored.

How to select preset stations

Press the **STATION** button on the front panel or directly press the numeric buttons on the remote to select a preset channel during the tuner mode.

Manual Memory Presetting

1. Push **TUNER** button on front panel.
2. Select AM or FM by pressing the **BAND** button.
3. Press the **TUNING +** or **TUNING -** buttons to select a frequency channel you want to preset.
4. Press the **MEMORY** button briefly.
5. While the “**MEM**” indicator is lit, press **TUNING+** or **TUNING -** button to select a preset station. The station number will be displayed on the screen.
6. Press the **MEMORY** button.
To store more stations, repeat steps 3 to 6.

RADIO DATA SYSTEM

RADIO DATA SYSTEM (RDS)

RDS is a method for the transmission of additional information from local Radio Stations. It can only operated in FM mode. For example, name of the station broadcasting, name of the program or the type of program will be shown on the multi-function display.

It functions only when the local broadcasting stations have the RDS transmission and the signal is strong enough.

Press the “**DISPLAY**” on the front panel or the “**RDS**” button on the remote, there are functions for PS, PTY, CT and RT.

a) PS (Program Service Name)

Press “**DISPLAY**” on the front panel until “**PS**” appears. The current station name will be shown.

Note: “**NO PS**” will be shown if the signal from local radio station is not strong enough or no such service.

b) PTY (Program Type)

Press “**DISPLAY**” on the front panel until “**PTY**” appears. The current name type of the program will be shown.

Note: “**NO PTY**” will be shown if the signal from local radio station is not strong enough or no such service.

c) CT (Clock - Time)

Press “**DISPLAY**” on the front panel. Then “**WAITING CT**” will appear.

The current time from Radio Station will be shown, e.g. 15:30

Note: The **Clock - Time** will be only transmitted from local radio station once a minute, so you need to wait for less than 1 minute to show the result.

Note: “**NO CT**” will be shown if the signal from local radio station is not strong enough or no such service.

d) RT (Radiotext)

Press “**DISPLAY**” on the front panel until “**RT**” appears. Some Text messages will be shown.

Note: “**NO RT**” will be shown if the signal from local radio station is not strong enough or no such service.

PTY SEARCH (Program Type Search)

1. Press the “**PTY SELECT**” on remote control, “**PTY SELECT**” will flash on the display.
2. Press **TUNING** + /- to choose the program type, for example, NEWS, SPORT, ...etc.
3. Press “**PTY SEARCH**” again once you choose the program type.
4. When the type of program tuned in, it will stop searching, otherwise, “**NO FOUND**” will appear.

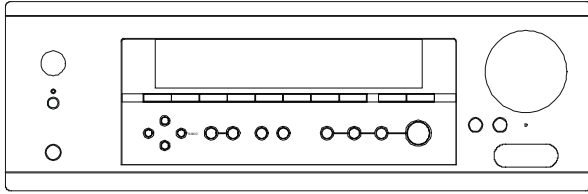
APS (Auto Program Search)

1. Select your FM or AM band.
2. Press the “**APS**” on front panel, it will search the available stations. The searched stations will be memorized in the respective band memory up to maximum 20 memories.

Note: Weak station may also be storied in memorizes, so manual memory presetting may be needed in order to have better receiving.

VIDEO OPERATIONS

Playing Video sources



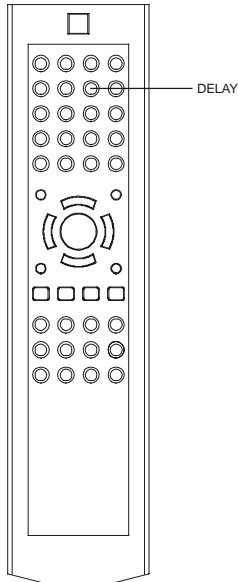
1. Select the **DVD, VIDEO 1, VIDEO 2** or **VIDEO 3** modes by pushing the corresponding button on front panel.
2. Play the component corresponding to the **INPUT** selected.
3. The picture from the video source can be seen on the TV and the sound from the video source will be heard from the speakers.

DELAY TIME & DYNAMIC RANGE CONTROL

DELAY TIME

The delay time can be individually set for the Dolby Digital/Dolby Pro Logic II modes using the DELAY (CENTER/REAR) buttons.

When you adjust the delay time in the Dolby Digital mode, an additional 15 ms is automatically added to the surround channels in the Dolby Pro Logic mode. The current setting is shown on the display.



1. Press **DELAY** on the remote control as shown.

The corresponding speaker appears on the display.

i.e. C → S → BS



2. Press “+/-” button to set the time delay.

Delay Time Setting Adjustable Range

DOLBY DIGITAL MODES:

0-15 ms in 5 ms step (S-Delay)

0-5 ms in 1 ms step (C-Delay)

15-20 ms in 5 ms step (BS-Delay)

DOLBY PRO LOGIC II MODE:

10-25 ms in 5 ms step (S-Delay)

In the surround modes, the sound from the speakers should be delayed slightly, relative to that from the front speakers.

The optimum delay time will depend on acoustic properties, whether the walls and furnishings reflect or absorb sound, etc.

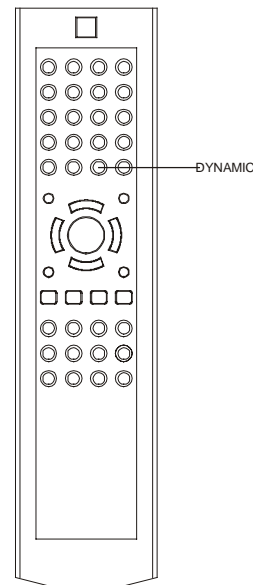
It is recommended that you try different delay times to obtain the best effect. The delay is digitally synthesized.

For the highest sound quality with minimum noise and distortion, the delay time can be set independently for each surround mode using the DELAY TIME buttons, with the current setting shown in the display.

DYNAMIC RANGE CONTROL

This button controls the compression range of sound track. If the compression is large (DRC = 4/4), the sound effect is retarded to a certain range. As a result, sound effect is not as excited as normal range (DRC = 0/4). It is useful when you want to movies at the late night.

- Press **DYNAMIC** on remote control repeatedly until the desired compression range reached.



DRC=0/4 **No Compression**

DRC=1/4

DRC=2/4

DRC=3/4

DRC=4/4 **Greatest Compression**

Note:

The Dynamic Range Control state will resume to normal if you do not press it after 5 seconds.

Dynamic Range Compression is not possible with DTS sources.

TEST TONE, LFE TRIMMER AND CHANNEL SELECT.

TEST TONE

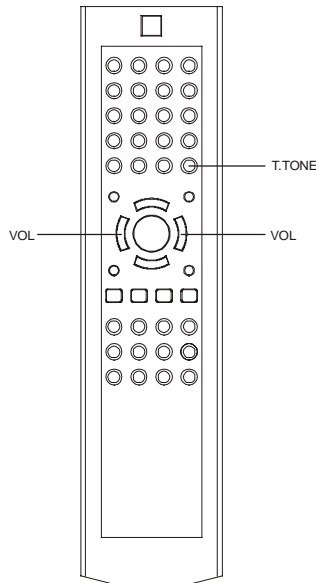
Speaker Level balance Adjustment

The test tone function is useful to adjust the relative volume between speakers in DOLBY DIGITAL or DOLBY PRO LOGIC II mode.

Once the balance is set, you don't have to change the balance as long as the speakers aren't moved.

1. Adjust the **VOL. +/-** to the normal listening level. (Half of max. Volume is recommended)
2. Press the **T.TONE** button (on the remote control) in DTS, Dolby Digital or Dolby PRO LOGIC II mode.

The test tone is emitted from each speaker each time you press "**T.TONE**".



→ L(FRONT LEFT) → R (FRONT RIGHT) → LS (SUR. LEFT) →
 ↑ ← BS ← SUB ← C (CENTER) ← RS (SUR.R) ↓

3. Select a speaker by pressing the "**T. TONE**" button and adjust the level by pressing the **VOL. +/-** button. The level of each speaker can be adjusted in 1 dB step from -10 dB to +10 dB.
4. When the setting is finished, press the TEST TONE button to stop the test tone.

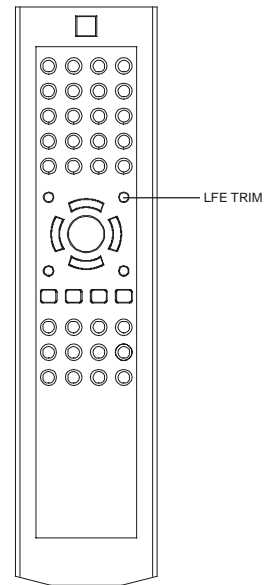
Note: You must keep press **T. TONE** until one complete cycle is finished.

LOW FREQUENCY EFFECT (LFE MIX)

LFE (LOW FREQUENCY EFFECT) MIX LEVEL (LFE MIX)

Under COAX./OPT mode, when playing , input AC3 or DTS 5.1CH signal, LFE will appear on the VFD, then press LFE key on the remote, and again press VOL +/- key to adjust the level between 0dB to -10dB.

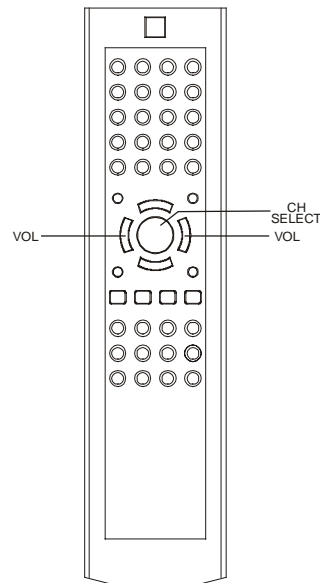
Note: The **LFE** adjust state resume to normal, if **MASTER VOLUME** is not press after 5 seconds.



CHANNEL SELECT

Balancing volume between speakers in 6.1 channel mode when using the 6.1 analogue inputs.

As the Dolby Digital signal is decoded in the external source, sometimes, you may have to balance volume between speakers due to the location of speakers. In this case:



1. Press "**CH SELECT**" on the remote, the following loop will appear on the display:

→ L(FRONT LEFT) → R (FRONT RIGHT) → LS (SUR. LEFT) →
 ↑ ← BS ← SUB ← C (CENTER) ← RS (SUR. R) ↓

2. Adjust the **VOL.+/-** to balance all speakers. The level of each speaker can be adjusted in 1 dB steps from -10 dB to +10 dB.

Note: If the **Master Volume** is not adjusted for 5 seconds in Channel Trimmer state, it returns to normal state.

TROUBLESHOOTING

To determine any problem with your receiver, always check the most obvious possible causes first. If any problem still remains after your having checked the items below, consult your nearest dealer.

Problem	Probable Cause	Suggestion
Amplifier		
When listening to the music in stereo. Left/right speakers reversed.	Speakers are connected wrong.	After checking, if needed, reconnect.
Low hum or buzz sound	Power cords or lighting placed near this product.	Place this product as far as possible from lighting or power leads
Sound is only heard from one channel	One of the input cords is disconnected. The BALANCE control is set to one side.	Connect the input leads and adjust the BALANCE control.
Sound cuts off when listening to the music or no sound even though power is ON.	Speaker impedance is less than prescribed for this unit.	After turning off the power and then turning it on again, reduce the volume or change to the correct 8 ohm speakers.
Low bass response.	Speaker polarity (+/-) is reversed.	Check all speakers for correct polarity.
Tuner		
An unusual hissing noise is heard when listening to the broadcast in stereo, but not heard when listening monaurally.	A slight noise may be heard because the method used for modulation of FM stereo broadcasts is different than that used for monaural broadcasts.	Try reducing the treble sound by turning the treble controls.
Noise is excessive in both stereo and monaural broadcasts.	Poor location and/or direction of the antenna. Transmitted station is too far away.	Set the FM mode to monaural by pressing the STEREO/MONO button. (Note that the broadcast will then be heard as monaural sound)
Sound is distorted and/or the volume level becomes low.	Broadcast signals are poor or poor antenna placement	If an indoor antenna is being used, change to an outdoor antenna
Excessive distortion in speaker output	Poor reception area	Try using an antenna with more elements.
Surround Effects: (Important) The center and rear speaker only operate with the unit is set to a Surround Sound mode and the source material being played is recorded or broadcast in Dolby Digital, DTS or Dolby Pro Logic surround sound. Stereo broadcasts or recordings will produce some rear channel effects when played in a surround mode. However, mono sources will not produce and sound from the rear speakers.		
No sound from the rear speakers	SURROUND ON/OFF button is set to OFF.	Set the button to the desired surround mode position
	Source being played is not recorded or broadcast in surround sound or stereo.	Use surround or stereo source
	Cable not connected securely	Check all rear speaker wires for good connection
No sound from the center speaker	SURROUND mode button is not set to DOLBY DIGITAL, DTS or DOLBY PRO LOGIC II.	Set the button to DOLBY DIGITAL, DTS or DOLBY PRO LOGIC II.
Remote Control Unit		
Remote control not working	The batteries are exhausted.	Replace with new batteries.
	The remote control unit is too far from the receiver or out of the effective range.	Operate the Remote Control unit within the effective range

SPECIFICATIONS

AUDIO SECTION

Audio Power Output	FRONT (L/R)	100W RMS x 2 (8 ohm, 1% THD)
	CENTER	100W RMS (8 ohm, 1% THD)
	SURR. (L/R)	100W RMS x 2 (8 ohm, 1% THD)
	SURR. BACK	100W RMS (8 ohm, 1% THD)
Output Impedance	FRONT (L/R)	8 ohm
	CENTER	8 ohm
	SURR. (L/R)	8 ohm
	SURR. BACK	8 ohm
Total Harmonic Distortion		Less than 0.05%

LINE INPUT

Input Sensitivity/Impedance	150mV/47k Ω
Frequency Response	20Hz~25KHz +0.5/-1dB
Tone Control Range	BASS \pm 6dB
	TREBLE \pm 6dB
Signal-Noise Ratio	75dB

WOOFER OUTPUT

Rated Output/Impedance	150mV/10k Ω
Frequency Response	10Hz~300Hz +3dB

FM TUNER SECTION

Frequency Range	87.5~108MHz
Sensitivity	14dB (5uV)
Antenna Terminal	75 ohm (unbalanced)

TUNER SECTION

Frequency Range	522~1629kHz, 9kHz step
Sensitivity	68 dB/M
Signal-to-Noise Range	30 dB
Antenna	Loop Antenna

VIDEO SECTION

Standard Video Jacks	
Input and Output	1 Vpp/75 Ω
Level/Impedance	

S-VIDEO SECTION

Standard S-Video Jacks	
Output Level/Impedance	CA 0.3 Vpp/75 Ω YA 1 Vpp/75 Ω

GENERAL

Power Requirement	AC230-240V~50Hz
Max Power Consumption	280Watts

DIMENSIONS

350 (W) x 430 (D) x 150 (H) mm

WEIGHT

11kg

***Design and specifications are subject to change without notice.**