

pragmatic

Innovators in wired & wireless systems

Speaker Installation Guide:

In-Wall / In-Ceiling

MODELS

IWST52, IWST62, IC6, IC6-DVC, ICT62A and ICT82A

All In-Wall and In-Ceiling application are for the following model numbers:

In-Ceiling- IC6, IC6DVC, ICT62A, ICT82A

In-Wall- IWST52 and IWST62

EASY DO-IT YOURSELF STEPS

1. Check Parts and Obtain Tools
2. Choose Speaker Placement
 - A) Locate speaker for stereo sound
 - B) Locate speaker for surround sound
3. Check for Obstructions
4. Cut Speaker Opening
5. Plan Cable Runs
6. Route Cable
7. Make Wire Connection
8. Install Speakers
9. Add the Finishing Touches

STEP 1 – CHECK PARTS AND OBTAIN TOOLS

Parts List

- (2) In-Wall or In-Ceiling speakers
- 2 or 4 Conductor Speaker Cable

Precaution

- Turn off all system power before connecting speakers.
- Always wear protective eyewear when using tools.
- Wear gloves when working with fiberglass insulation.

Necessary Tools

- Drill
- Drill Bit ¼' ~ ½'
- Stiff Wire (coat hanger or fish tape)
- 1' Flat Bit (use if drilling through studs)
- Rubber Gloves
- Level
- Phillips Screwdriver
- Wire Strippers
- Keyhole or Drywall Saw
- Pencil

STEP2 – CHOOSE SPEAKER PLACEMENT

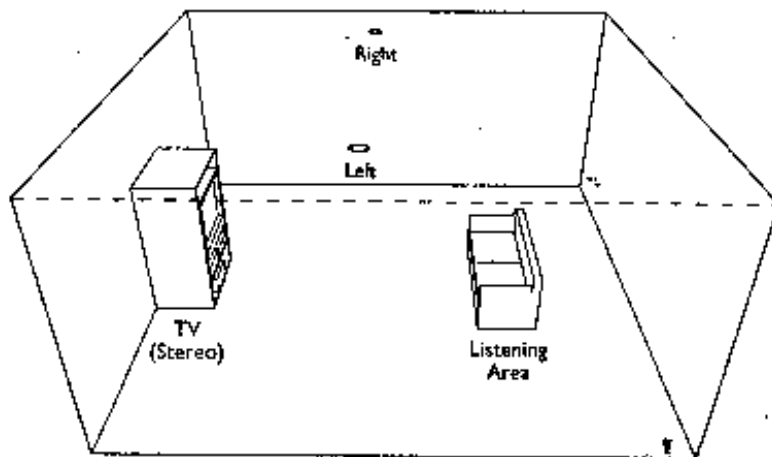
All applications apply for In-Ceiling and In-Wall speaker installation. The In-Wall and In-Ceiling Pragmatic Audio speaker may be used in new or existing ceiling or wall installations to reproduce stereo music or home theater sound.

In this section, we'll discuss a number of tips and techniques to help you plan the installation and achieve the best sound performance from your new speakers.

Placing Speakers for Stereo Sound

In-Ceiling and In-Wall speakers have a uniform (hemispherical) dispersion and do not require special orientation for good sound.

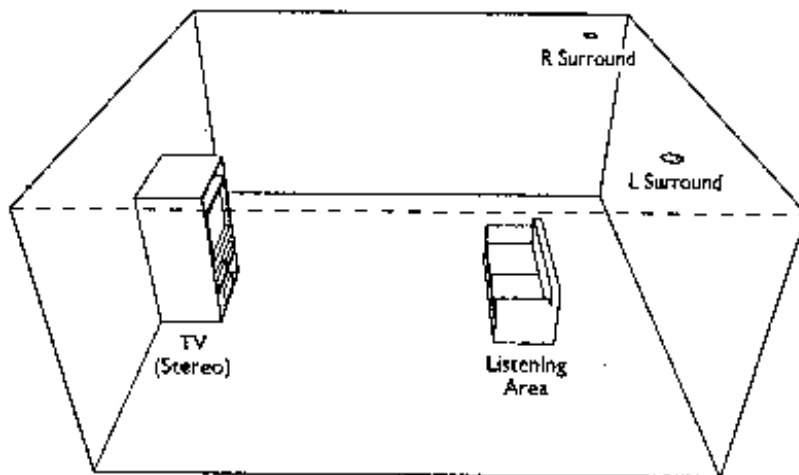
For stereo music listening or reproduction of home theater front sound, place the speakers in the ceiling or wall, to the left and right of the stereo system (or television), but closer to the main listening area.



Placing Speakers for Surround Sound

For surround sound use, place speakers in the ceiling or wall to the left and right and directly behind the main listening area.

NOTE: Additional In-Wall or In-Ceiling speakers may be required in a room larger than 1,500 cubic feet (12' x 16' x 8').



Designing For Even Sound Distribution

When designing a background music system, an important goal is uniform sound coverage throughout the home. The dining room is a special area. The goal there should be to distribute the sound evenly in a way that will not interfere with conversation. We recommend placing the In-Ceiling speakers around the room's perimeter so that no one is sitting directly under a speaker.

Room Treatment

It is important to consider the effects the room itself will have on the sound of your speakers. Examples, carpet, heavy drapes and plush couches will absorb the sound (especial at high frequencies) rooms with hardwood floors and lots of glass windows will have an opposite effect.

In addition to the usual desirable specifications - like low distortion, good power handling ability, and high efficiency the In-Wall and In-Ceiling speakers have two additional characteristics to be considered room friendly.

- Smooth, uniform response on axis (directly in front)
- Constant directivity, which is defined as consistent, relatively flat response off axis. These attributes are important because of the way sound reflects off hard surfaces before it reaches the ear. In addition to the sidewall reflection, there will be a reflection from the floor as well as the ceiling.

Sound waves reflect off of many surfaces before reaching the listener that may "muddy" the sound coming from the main speaker.

Unwanted reflection can be eliminated in of two ways: absorbed with acoustic panels, fabric wallpaper, drapes or furniture, or diffused with irregular surfaced (e.g. bookshelves, furniture, etc.)

STEP 3 CHECK FOR OBSTRUCTIONS

If an obstruction is found behind the drywall in the proposed location, you will need to choose a different location for the speaker.

Before installing In-Wall or In-Ceiling speakers in pre-existing drywall, check for joint or any other obstructions, such as metal pipes, which are hidden from your view.

Stud Locator

The easiest, most efficient way to detect obstructions behind drywall is to use a stud finder. At each proposed speaker location, use the stud locator to find an open space. Try to center each speaker between the studs. Slide the stud locator horizontally across the ceiling or walls to locate the studs. Scan vertically to pinpoint fire blocks.

STEP 4 – CUT SPEAKER OPENINGS

Prepare Location

1. At each speaker location, use the cardboard insert (from the packaging) to trace a cutout hole on the ceiling or wall.

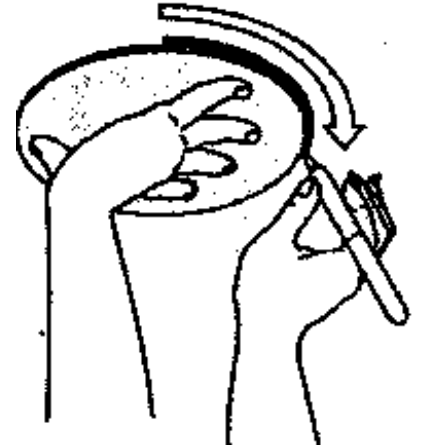
Check for Obstructions

1. At each site, drill a small hole in the drywall at the center of the outline. If you feel any obstructions while drilling stop immediately.
2. Bend a piece of stiff wire (e.g. coat hanger) about 6 inches from the end at a 90 – degree angel. Insert the bent end into the hole and rotate the wire to check for any obstructions. If you hit anything, patch the hole with drywall compound and choose a different installation location.

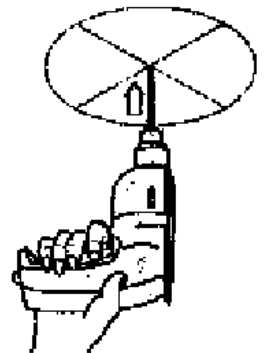
Cut the Opening

1. Using a fine – tooth keyhole saw or drywall saw, carefully cut out each Opening.
2. When finished cutting, remove all drywall scraps.

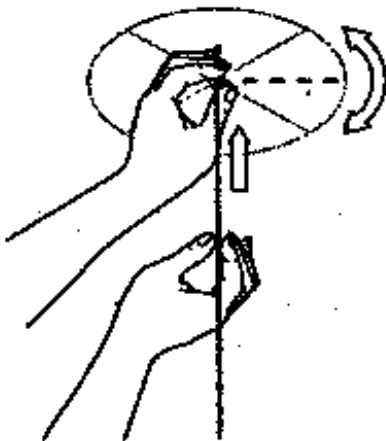
**Example 1
Tracing Template**



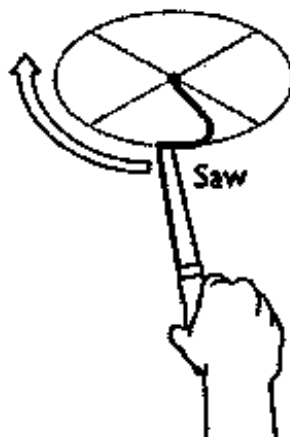
**Example 2
Drill Hole**



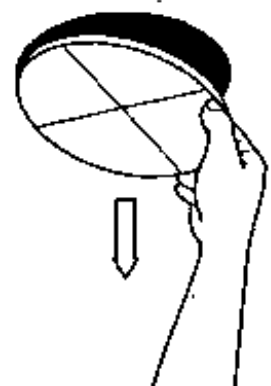
**Example 3
Insert Wire**



**Example 4
Cut Outline**



**Example 5
Remove Scraps**



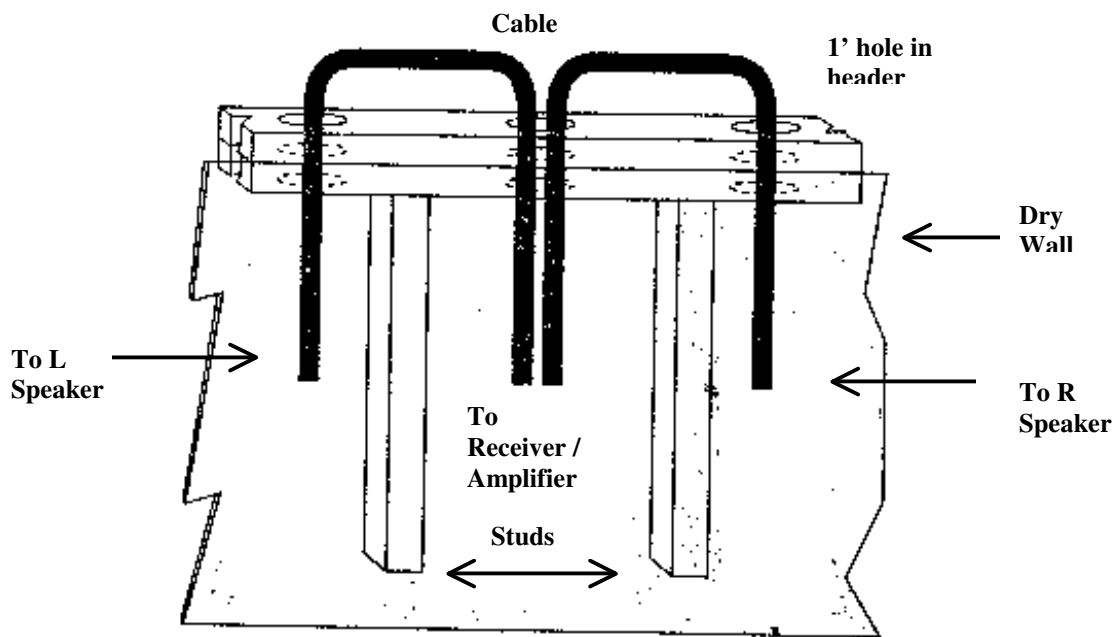
STEP 5 – PLAN CABLE RUNS

There are three distinct ways to run cables between components in the system.
Study the accompanying diagrams, to help you decide which application works best.

Attic / Basement Run

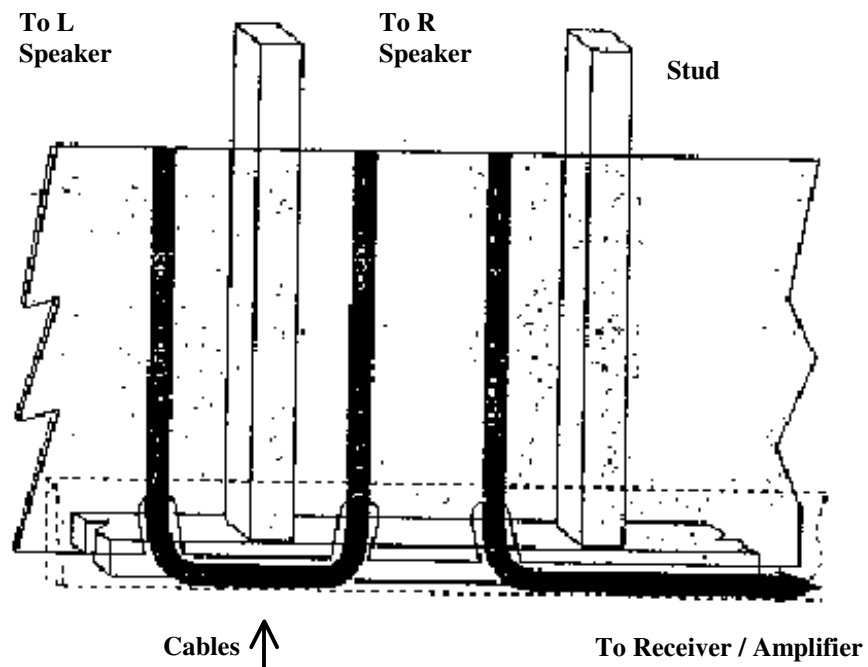
To run speaker cable from attic or basement, drill through the stud that caps the wall.

Then run from attic or basement and pull it up / down through the wall using fish tape.



Baseboard Run

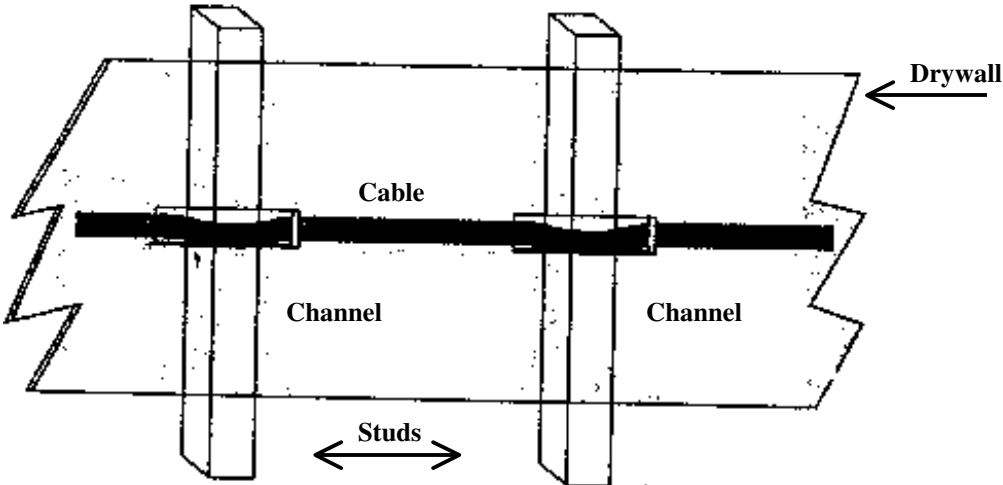
With this method, run the speaker cable along the baseboard or behind the baseboards, then through the wall at the floor below the speaker. As, shown below.



NOTE: Tuck cable under drywall behind baseboard; then through the wall above footer, but below the baseboard level.

Channel Drywall Run

Route out a shallow groove directly in the wallboard and lay the speaker cable in the channel. Then thread the cable behind the drywall between the studs. After installation is complete, patch the channel with a drywall compound.



STEP 6 – ROUTE CABLE

Run Cable to Speaker

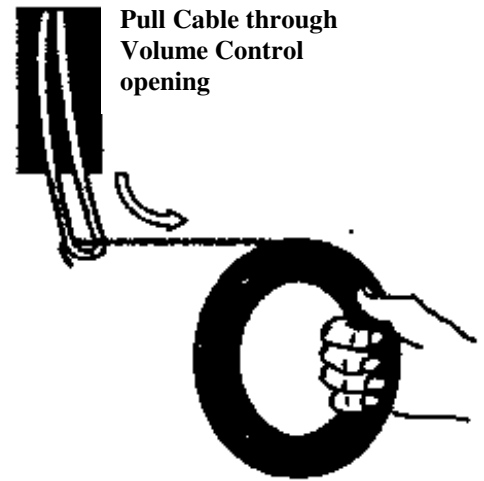
1. Decide which type of cable run that best suit your installation need. **(Important: Do not cut the cable at any location in the run. Step 7 will instruct you how to cut the cable and make the connection)**
2. Use the fish tape to start the cable run from the speaker output on your receiver (or amplifier) to your first speaker.
3. If using a 4 conductor wire, you should leave about two feet of cable hanging from the wall. A second cable run is needed to route wire from first speaker to your second speaker.
4. If you prefer to use 2 conductor wires, route cable from your receiver (or amplifier) to your first speaker, then repeat this process to run cable to your second speaker.

NOTE: For best results, never use a small gauge wire – it will constrict the sound and deteriorate bass response. We recommend the use of good quality hookup wire in the following gauges: 18 gauge wire for runs less than 50 feet, 16 gauge wire for runs 50 to 100 feet, 14 gauge wire for runs over 100 feet.

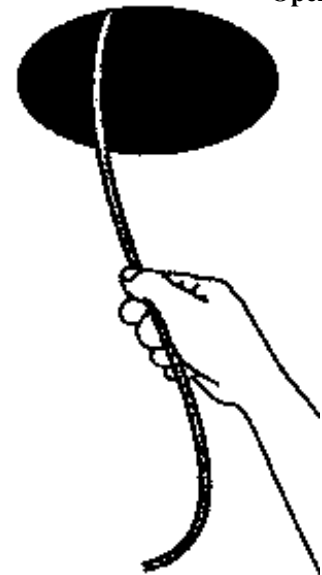
Add Insulation to, Speaker Opening

If the wall cavity is not already insulated, plan to add insulation – grade fiberglass to improve the sound. Pack each speaker wall opening with 15- inch wide R-11 insulation. The fiberglass will absorb unwanted sound waves coming from the back of the speaker and control vibrations with in the wall.

NOTE: We strongly recommend wearing gloves, long sleeved shirt and safety glasses while working with fiberglass.

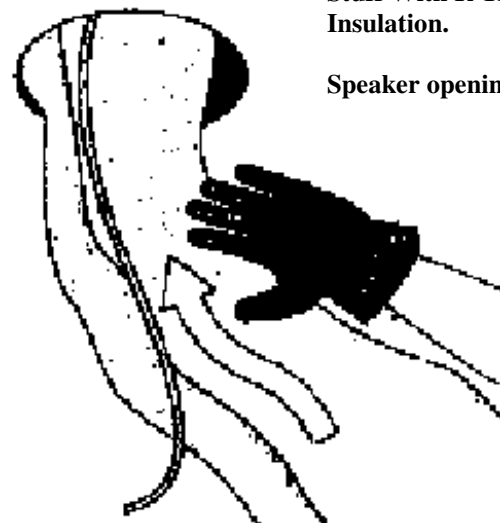


Speaker Opening



Stuff With R-11 Insulation.

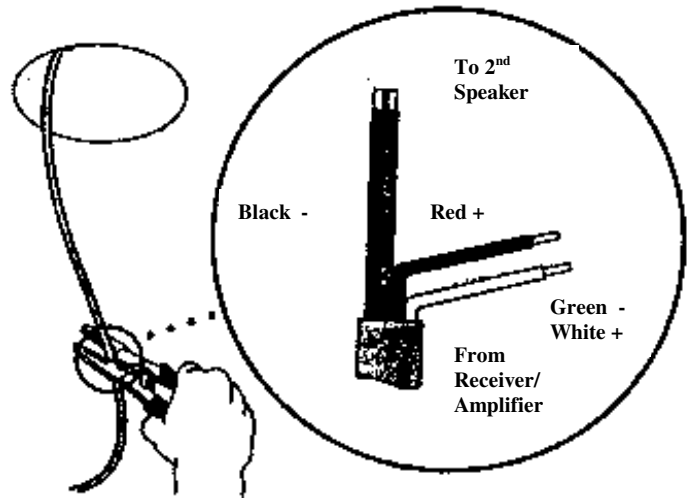
Speaker opening



STEP 7 – MAKE WIRE CONNECTION

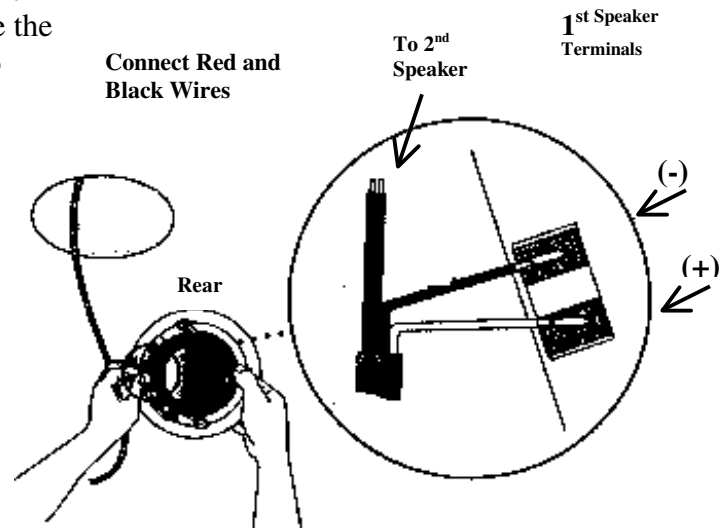
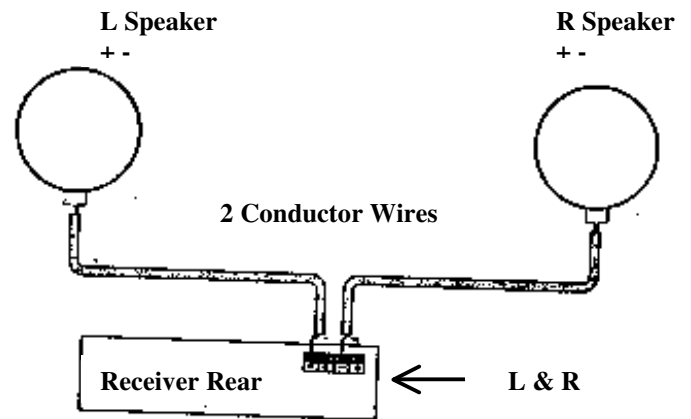
1. After cable is run through your audio system, cut the wire at its different connections. It is important that after cutting the wire, you mark each cable to identify runs to the speaker and receiver (amplifier). Improper connection may damage your receiver (amplifier).
2. Strip speaker wire with a pair of wire strippers. Carefully strip off 2 of the outer jacket. This will reveal the conductor contained inside – two conductors for 2 conductor wire; four conductors for 4 conductor wires.
3. Conductors are protected by plastic, color-coded insulation jackets that must also be stripped. Carefully strip ¼' to ½' of insulation off the conductors that you need. This will expose the copper wire contained within. You are now ready to connect the wire to your speaker or receiver / amplifier.

Cut and Strip Wires



2 Conductor Cable Connections

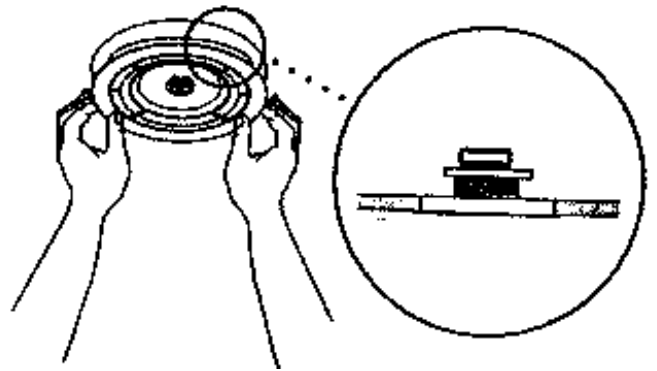
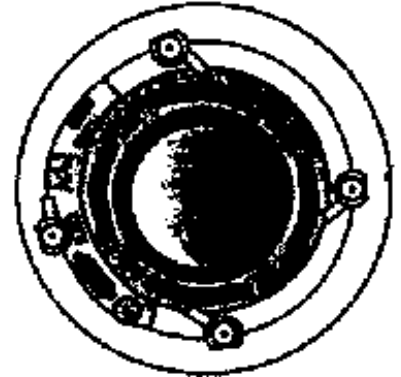
1. Two separate wire runs will need to be conducted. Run one wire from the receiver / amplifier to the left speaker. The second wire must then be routed from the receiver / amplifier to the right speaker.
2. Strip and cut the wire as explained above, you are now ready to make wire connection.
3. When connecting wires, observe the proper polarity with your receiver / amplifier (+) to (+) (-) to (-) make sure the left channel of the receiver / amplifier is connected to the speaker, and the right channel is connected to the right speaker.
4. Remember to also connect the (-) and (+) conductors cables to the corresponding (-) and (+) speaker jacks. Gently pull on the wire to verify a secure connection.



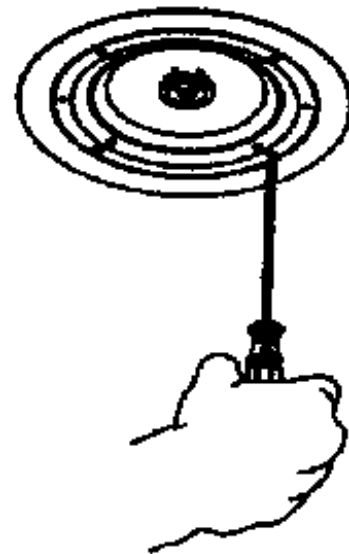
Black (-) Red (+) Green (-) White (+)

STEP 8 – INSTALL SPEAKERS

1. The remarkably easy and fast Kwik Klamp installation procedure allows you to simply rotate and clamp your speaker in place. Remove the grill by pushing one of Kwik Klamps toward the front of the speaker. They should lie in the full clockwise position so that all clamps lay within the cutout board.
2. Install speaker bringing the outer edge flush with the wall. Use a screwdriver to tighten the four screw heads located around the front edge of the speaker. This will automatically rotate you Kwik Klamps over the drywall surface and securely grip your speaker flange to the wall.
3. When you notice resistance in the tightening of all four screws the speaker has been successfully sandwiched between the drywall and the speaker flange. The Kwik Klamps provide a tight fit and prevent unwanted vibration.
4. The screws should not be tightened so far that the flange bows out. If this occurs, back off the tension on the screws a little. Finally, if painting is not required, insert the grill in the speaker baffle.



NOTE: The Kwik Klamps will grip a maximum drywall thickness of 1 ¼" (32mm).



STEP 9 – ADD FINISHING TOUCHES

Adjust the Pivoting Tweeter (IWST52 and IWST62)

The IWST52 and IWST62 have a unique tweeter plate, which directs sound toward or away from the listening area to achieve a desired effect. Press on the outside plate to aim the tweeter so it fires at a desired listening area.

NOTE: Do not press the tweeter itself. Doing so may damage it and cause a distortion or poor performance.

Here are some additional suggestions.

- Orient the tweeter toward the listening area if the speakers are widely separated and the music fails to blend into a central image when the system is operated in stereo.
- Orient the tweeter toward the listening area when additional brightness is desired.
- Orient the tweeter away from the listening area if the music or video sound stage seems too narrow or restricted.
- Orient the tweeter away from listening area if it sounds too bright.
- For home theater surround applications, orient the tweeter away from the listening area so that the sound reflects off an adjacent wall or ceiling. This will help create the desired diffuse sound field.

Paint the Speaker (optional)

1. Remove paint plug from inside packaging.
2. Carefully place a plug onto each installed speaker without a grill; band the four tabs over and insert them into the grill channel.
3. The speaker can be painted along with the wall after mounting. Paint the grill separately being careful not to plug the grill holes with paint.

NOTE: For best results, thin the paint before spraying grills (5 parts thinning agent 1 part paint)

4. Once the grill and speaker flange are dry, punch out the holes and remove paint plugs.

Install the Grill

Install the grills into the speaker frames.

Speaker Specifications

IC6-DVC

- Impedance: 8 Ohms.
- 6.5' Dual Voice Coil w/ Twin Tweeters
- 60-Watts max power 30 Watts continues Power
- 6.5' Poly carbonate rubber surround woofer, twin hard dome tweeters.
- Kwik Klamps for fast and easy installation
- Indoor
- Paintable
- Aluminum grill material
- Color Paintable white

IC6

- Impedance: 8 Ohm
- 2-Way, 6.5'
- 50W max / 25W continues power
- 0.5 hard dome tweeter, Ferro fluid cooled
- Kwik Klamps for easy installation
- Works in cover outdoors
- Paintable
- Aluminum grill material
- Colors: Paintable white

ICT62A and ICT82A

- Impedance: 8 Ohms
- 2-Way, 6.5' and 8' models
- 150 Watts maximum power 100 minimum power
- 6.5' or 8' aluminum woofer and 1' swivel ceramic tweeter
- Kwik Klamps for fast and easy installation
- Tweeter protection fuse, +/- 3db switch
- Works in covered outdoors
- Aluminum grill material
- Color/ Paintable white

IWST52 and IWST62

- Impedance: 8 Ohms
- 5.25' and 6.5' 2-way model
- 60W max - 35W continues power (IWST52)
- 80W – 40W power (IWST62)
- Kwik Klamps for easy mounting
- 5.25' or 6.5' poly carbonate rubber surround woofer, 1' tweeter
- 15 degree tweeter rotation (no center)
- Indoor
- Aluminum grill material
- Color/ Paintable white

